15. Appendices

Appendix A **Shoreline Movement Assessment Report**

Appendix B **Metocean Climate Analysis Report**

Appendix C **Cyclonic Modelling Report**

Appendix D **Wave Modelling Report**

Appendix E **Hydrodynamic Modelling Report**

Appendix F **Sediment Transport & Sedimentation Modelling Report**

Appendix A Shoreline Movement Assessment Report

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R1535 Rev 2

April 2022

Department of Transport

Tantabiddi Creek
Shoreline Movement Assessment Report

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Acknowledgment of Country

M P Rogers & Associates and the Department of Transport would like to acknowledge the traditional custodians of the land to which this investigation relates, the Jinigudira people. We pay our respects to Elders both past, present and emerging for they hold the memories, the traditions, the culture and the hope of their people.

1. Introduction

The Tantabiddi Boat Ramp precinct is of regional significance and is a key asset as a gateway to the Ningaloo Reef tourism and recreational experiences. To address capacity limitations and maintenance issues, DoT in collaboration with the Shire of Exmouth developed the State Government led Tantabiddi Task Force in 2019. The Taskforce has established an Agency Working Group to identify the planning, investigations, and approvals necessary to develop a facility to address the issues at Tantabiddi.

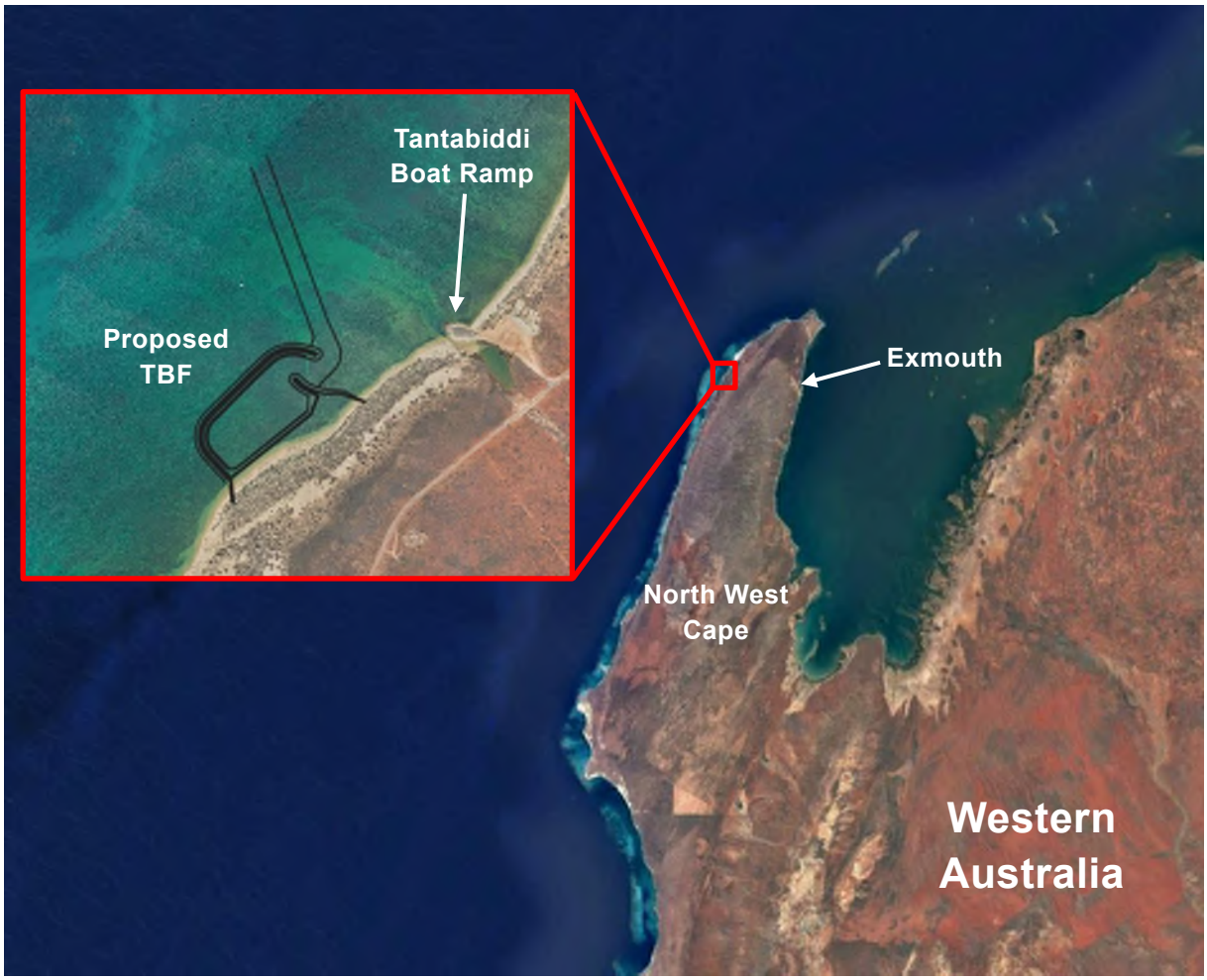

Figure 1.1 Location Plan

As part of the investigations, M P Rogers & Associates Pty Ltd (MRA) was engaged to conduct a coastal processes study. This study includes a number of tasks, discussed below. The outcomes of the Tantabiddi Creek Coastal Processes study are contained within a number of reports prepared by MRA. This is a standalone technical report prepared for the Shoreline Movement Assessment (Task 2).

1.1 Tantabiddi Creek Coastal Processes Scope

The scope of this study includes a number of tasks and activities which are detailed below.

- Task 1: Desktop Review, Data Gathering, and Site Visit.
- **Task 2: Shoreline Movement Assessment.**

- Task 3: Metocean Climate Analysis which includes.
    - Nearshore Ambient Condition Analysis.
    - Offshore Ambient and Extreme Conditions Analysis.
    - Ambient and Extreme Wind Conditions Analysis.
- Task 4: Cyclonic Modelling.
- Task 5: Wave Modelling.
- Task 6: Hydrodynamic Modelling – Impacts and Flushing.
- Task 7: Sediment Transport and Sedimentation Modelling.
- Task 8: Wave Penetration and Long Period Wave Assessment.
- Task 9: Wave Penetration Modelling. Contingent on outcome of Task 8.
- Task 10: Long Period Wave Modelling. Contingent on outcome of Task 8.

Tasks 1, 8, 9 and 10 are wholly contained within sections of the overall Coastal Processes Study report. The outcomes of Tasks 2, 3, 4, 5, 6 and 7 are provided as standalone technical reports. This report consists of the standalone technical report for Task 2. Refer to Table 1.1 for further information on the location of the standalone technical reports.

Table 1.1 Standalone Technical Report Locations

Task	Task Title	Report Number	Location
2	Shoreline Movement Assessment	R1535	R1518 Appendix A
3	Metocean Climate Analysis	R1524	R1518 Appendix B
4	Cyclonic Modelling	R1533	R1518 Appendix C
5	Wave Modelling	R1629	R1518 Appendix D
6	Hydrodynamic Modelling	R1585	R1518 Appendix E
7	Sediment Transport & Sediment Modelling	R1598	R1518 Appendix F

Notes: 1. Revision numbers for current versions of reports are noted in the current version of the main report (R1518).

The specific scope for Task 2 is introduced below.

1.2 Task 2: Shoreline Movement Assessment

The scope of the Shoreline Movement Assessment is detailed in the following points.

- Obtain and review historical photos of the shoreline from 1969 to 2020.

- Use the historical photos of the shoreline to analyse the shoreline movement over a period of 51 years.
- Review the shoreline movements against significant cyclone events and determine possible impacts of the cyclones.
- Prepare an indicative sediment budget of the study area.
- Estimate future shoreline change based on the outcomes of the shoreline movement and indicative sediment budget.
- Develop a list of considerations and recommendations for the proposed TBF.
- Prepare a standalone report detailing the methods and results of the assessment.

This assessment and report were completed as part of the overall Coastal Processes Study for the proposed TBF. As such additional information providing further context can be found in the Tantabiddi Creek Coastal Processes Report (MRA 2021).

2. Background

2.1 Site Setting

The Tantabiddi Boat Ramp Precinct is located on the western side of the North West Cape and provides access to the Ningaloo Marine Park (Figure 1.1). The boat ramp is located at the entrance of Tantabiddi Creek and the TBF is proposed to be located a few hundred meters to the south west of the existing ramp. The coastline is characterised by fringing coralgal reefs interspersed with mobile sands and backed by narrow sandy beaches (Figure 2.1).

Figure 2.1 Tantabiddi Beach South

A chainage map showing the areas included in the Shoreline Movement Assessment is included in Appendix A, a simplified map is provided in Figure 2.2 for reference. The chainages begin at a point roughly 4.5 km north east of the existing boat ramp and increase in value as they progress south west before finishing roughly 4.7 km to the south west of the existing ramp. As such the Shoreline Movement Assessment considers an area of coastline approximately 9.2 km long. This allows for the analysis of the potential effects of the proposed TBF on the Tantabiddi coast between Jurabi point to the north and a section of rocky coast to the south. These points were selected as the extents of the study area for the following reasons.

- Given the persistent accretion of the salient at Jurabi Point it is unlikely that there is significant longshore sediment transport past this point (USACE 2002).
- The rocky coastline to the south is unlikely to be significantly affected by changes to the longshore sediment transport.

As such the 9.2 km long study area likely covers the extent of the shoreline that may be effected by the construction of the proposed TBF.

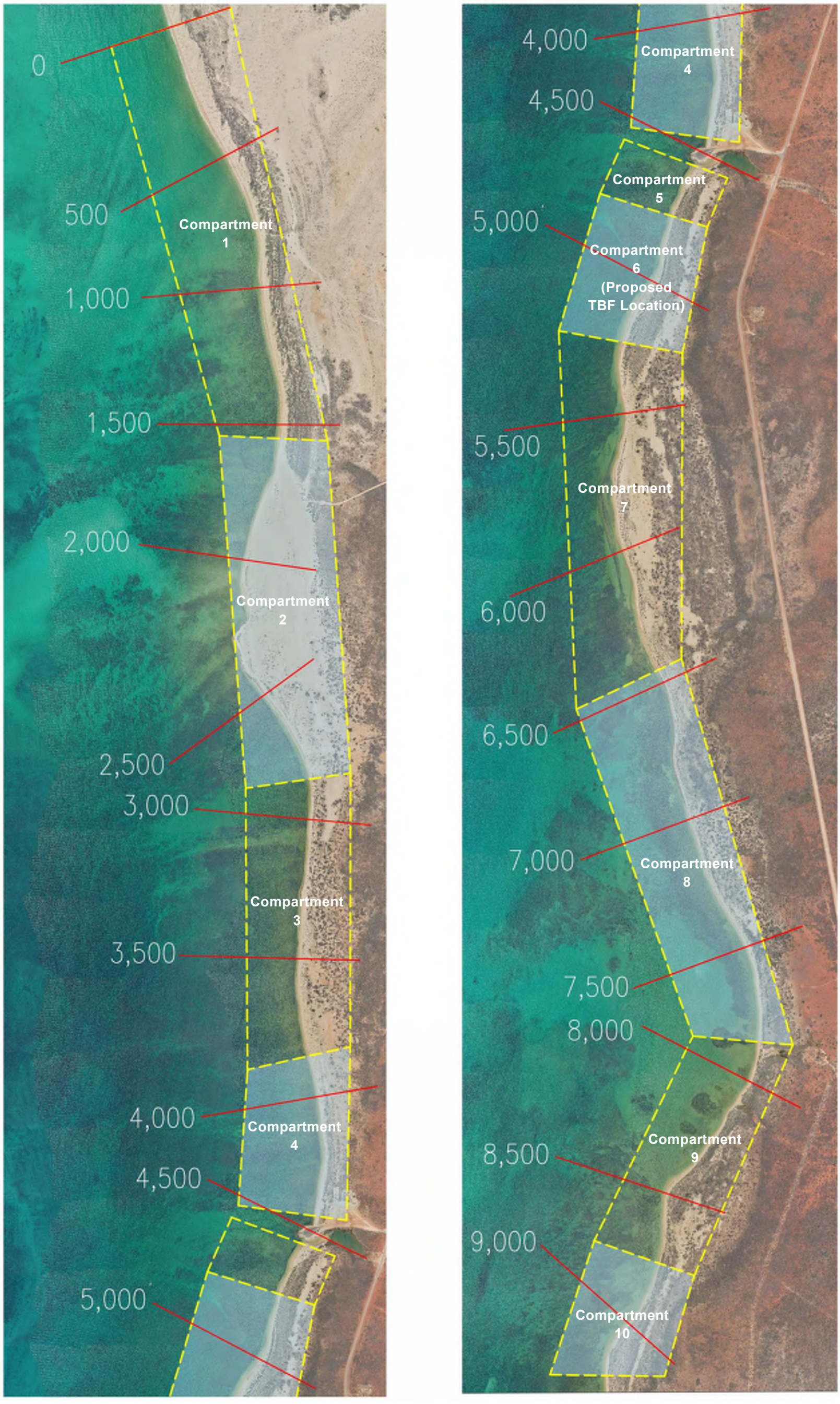

Figure 2.2 Chainage & Compartment Map

2.2 Geomorphological Context

The geomorphological context of the North West Cape was investigated by Damara in their report *The Coast of the Shires of Shark Bay to Exmouth, Gascoyne, Western Australia: Geology, Geomorphology and Vulnerability* (2012). This investigation assessed the vulnerability of the coast by assessing the susceptibility of the geological structure to environmental change and the current condition of the landform.

The Tantabiddi area falls within the Winderabandi Point to North West Cape secondary compartment (refer Figure 2.3) which Damara defined as having a low vulnerability to environmental change. This is due to the presence of the Ningaloo reef which shelters and protects this section of coast. In addition, the beaches along the western side of the North West Cape are usually underlain with limestone which provides a stable foundation, further protecting the coast.

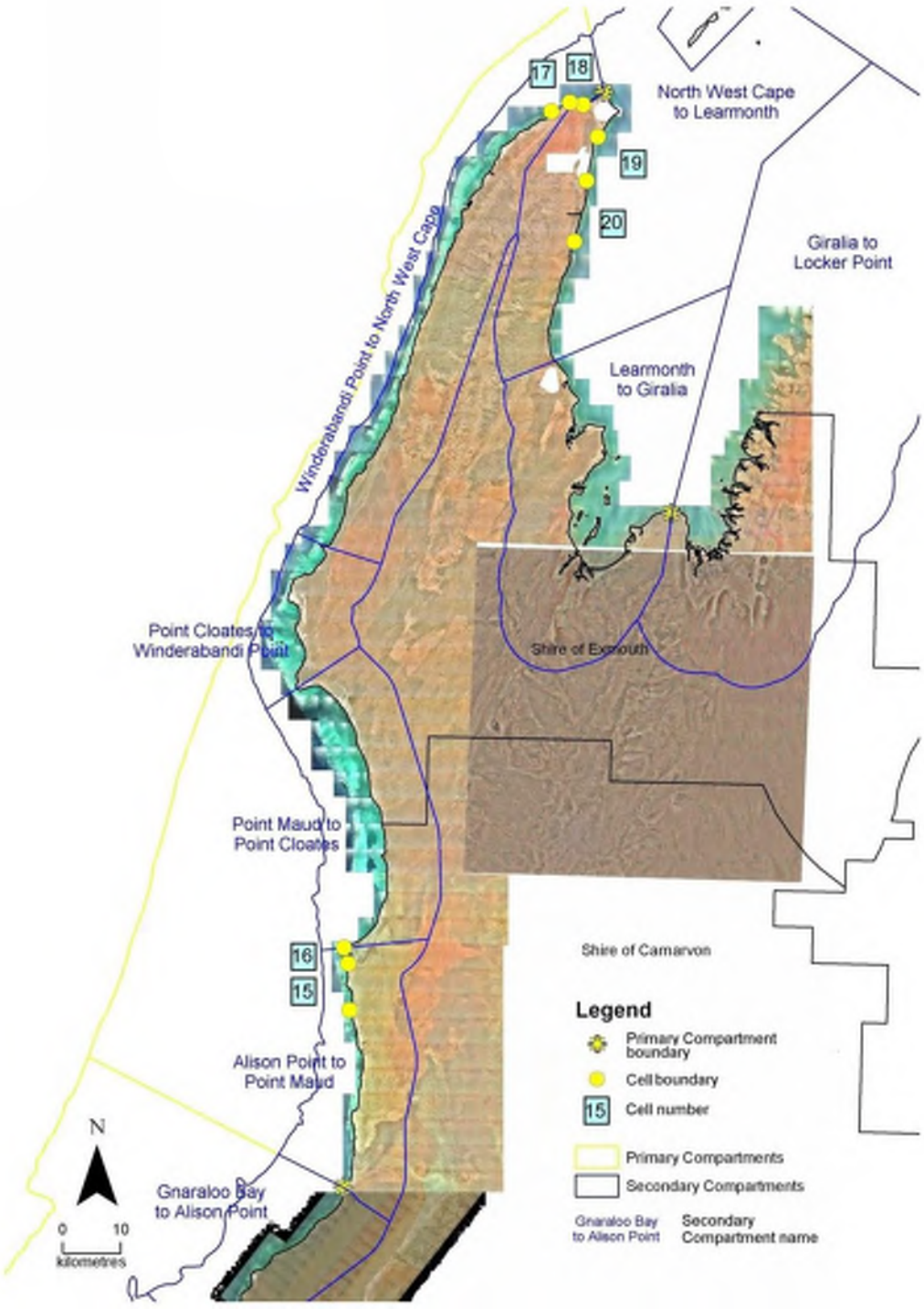

Figure 2.3 Coastal Compartments of the North West Cape (Elliot et al 2011)

2.3 Sand Bypassing

Historically the Tantabiddi Boat Ramp has required ongoing maintenance excavation or dredging of sediment that accumulates to the south and offshore of the boat ramp, with this excavation occurring roughly four times per year. Typically, the excavated material has been removed from the beach or ocean and placed onshore either on the beach to the north of the boat ramp or behind the dunes. These works are generally carried out by the Shire of Exmouth using a long reach excavator.

In 2014 a severe flood event occurred which resulted in Tantabiddi Creek bursting through the sand bar and depositing a large amount of sand and rubble in the vicinity of the Tantabiddi Boat Ramp and channel. The material was deposited outside the reach of a long reach excavator. This necessitated the dredging of the nearshore area with a floating dredge. The dredged material was placed on the beach to the north of the boat ramp to renourish the beach.

As such there is a consistent and significant accretion of sediment at the existing boat ramp which is generally removed by excavator, however on occasion the dredging of the area further offshore is required. This provides important context for the Shoreline Movement Assessment.

3. Historical Shoreline Movement

DoT provided MRA with vegetation lines of the Tantabiddi area over a period of 51 years from 1969 to 2020. Lines were extracted from orthorectified aerial photos of the area using the recommendations of DoT (2009). Lines for 1969, 1985, 1986, 1989, 2004, 2007, 2010, 2011, 2014, 2018 and 2020 were extracted. Review of the historical vegetation lines has revealed that there are inconsistencies in the 1969 imagery tiling. As such the use of the 1969 vegetation line as a baseline, results in an uncertainty range of ±5 m for any vegetation line analysis. This means that some changes to the shoreline between mapped vegetation lines are actually just artefacts from inaccurate georectification.

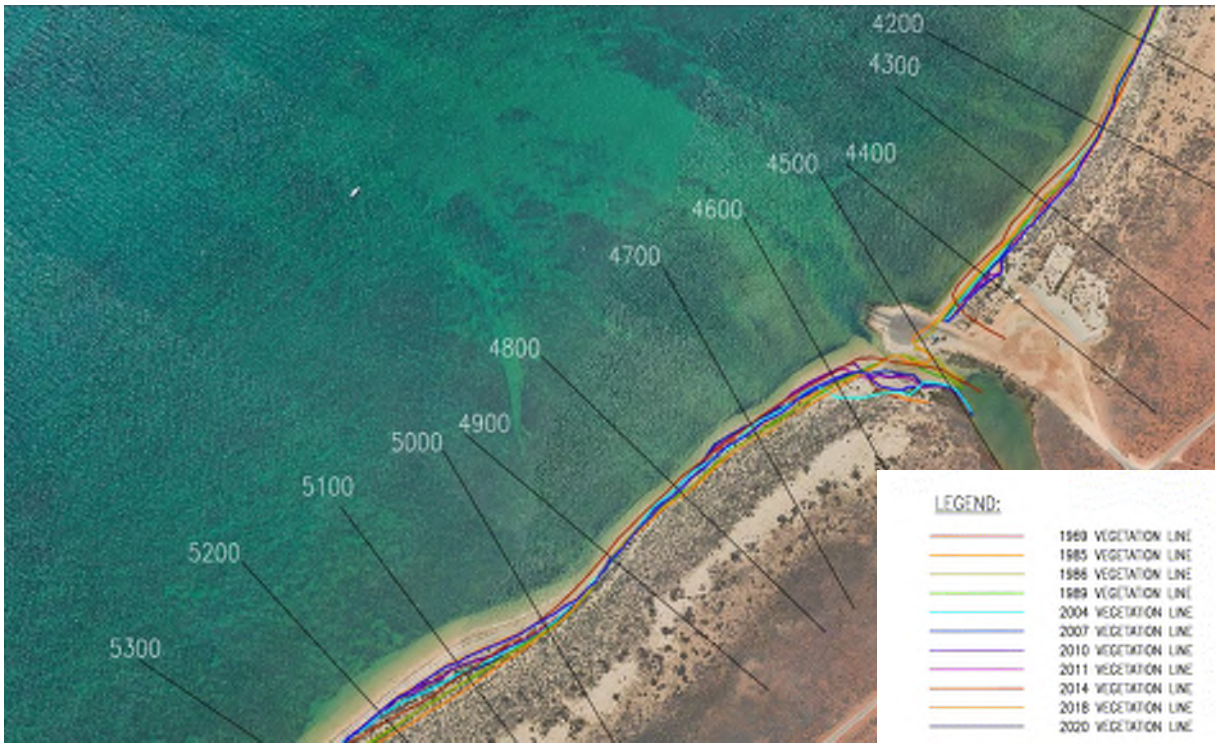

Figure 3.1 Shoreline Movement Plan Excerpt

The extracted lines provided by DoT were used to create a Shoreline Movement Plan an excerpt of which is shown in Figure 3.1. The complete Shoreline Movement Plan is included in Appendix B. From the Shoreline Movement Plan the changes in the shoreline position relative to 1969 were determined and are displayed in Figure 3.2.

The rates of shoreline movement from 1969 to 2020, 1989 to 2020 and 2004 to 2020 were determined and are displayed in Figure 3.4. The TBF is proposed to be located between chainages 4,800 and 5,200.

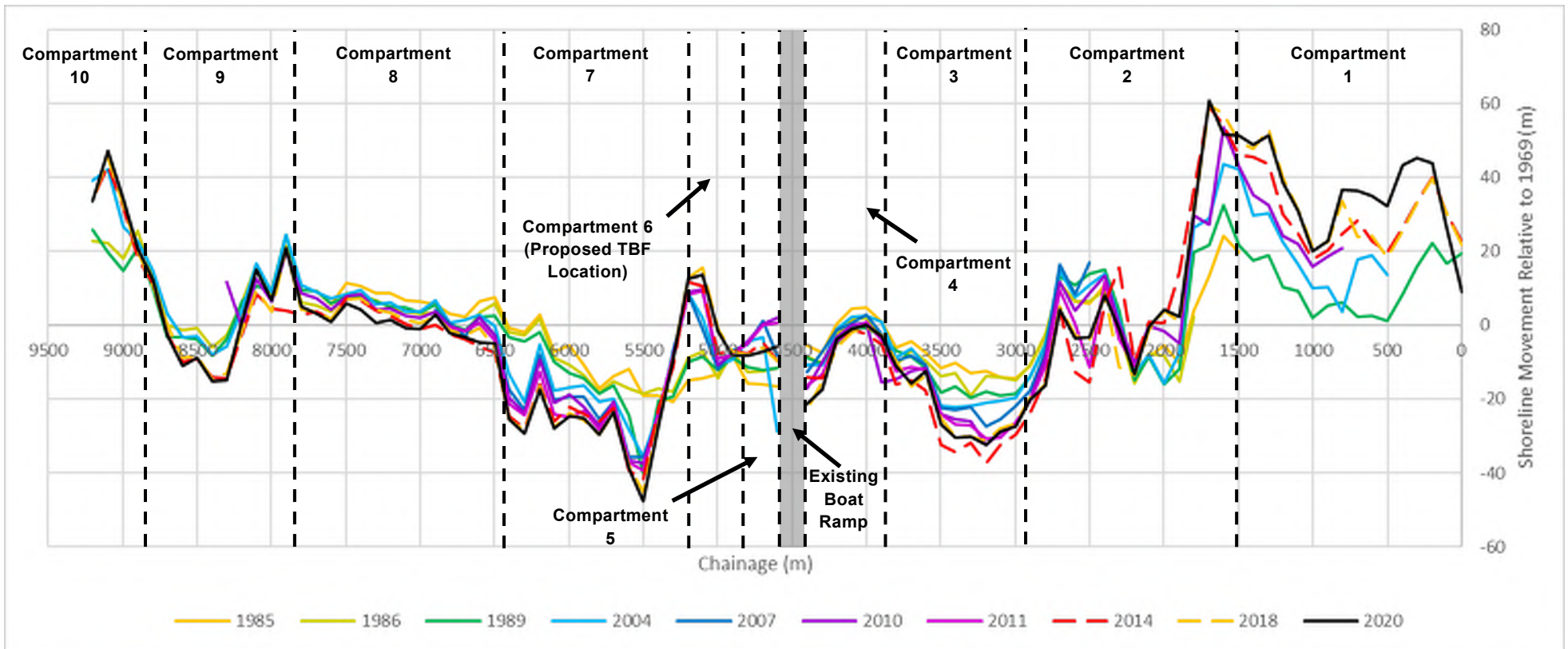

Figure 3.2 Shoreline Position Relative to 1969 (north to the right)

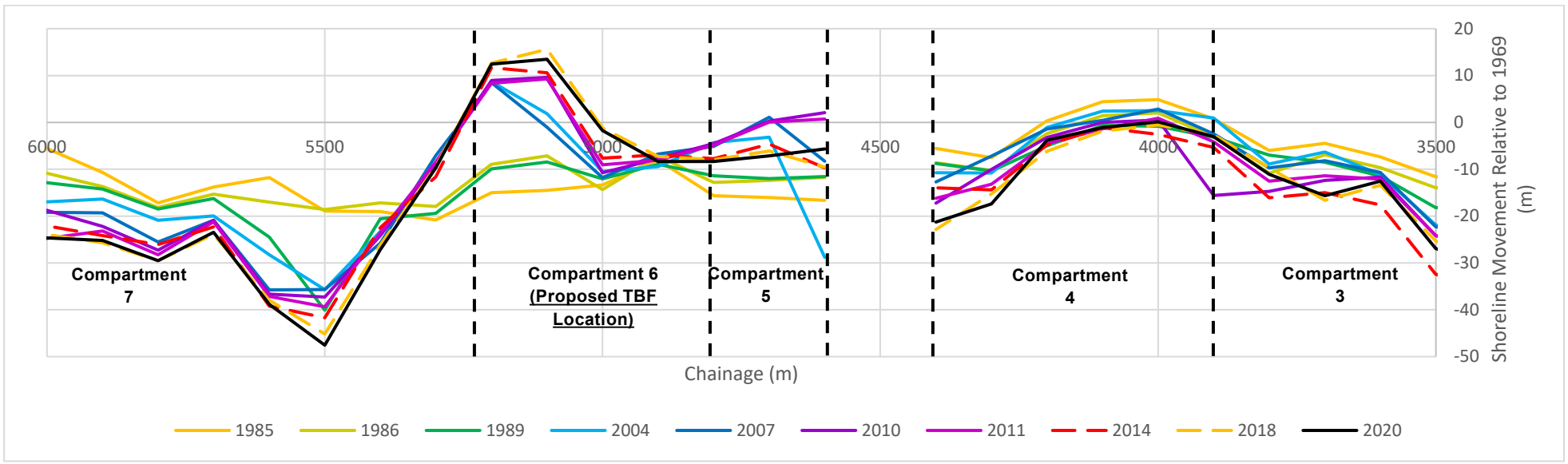

Figure 3.3 Shoreline Position Relative to 1969 Zoomed (north to the right)

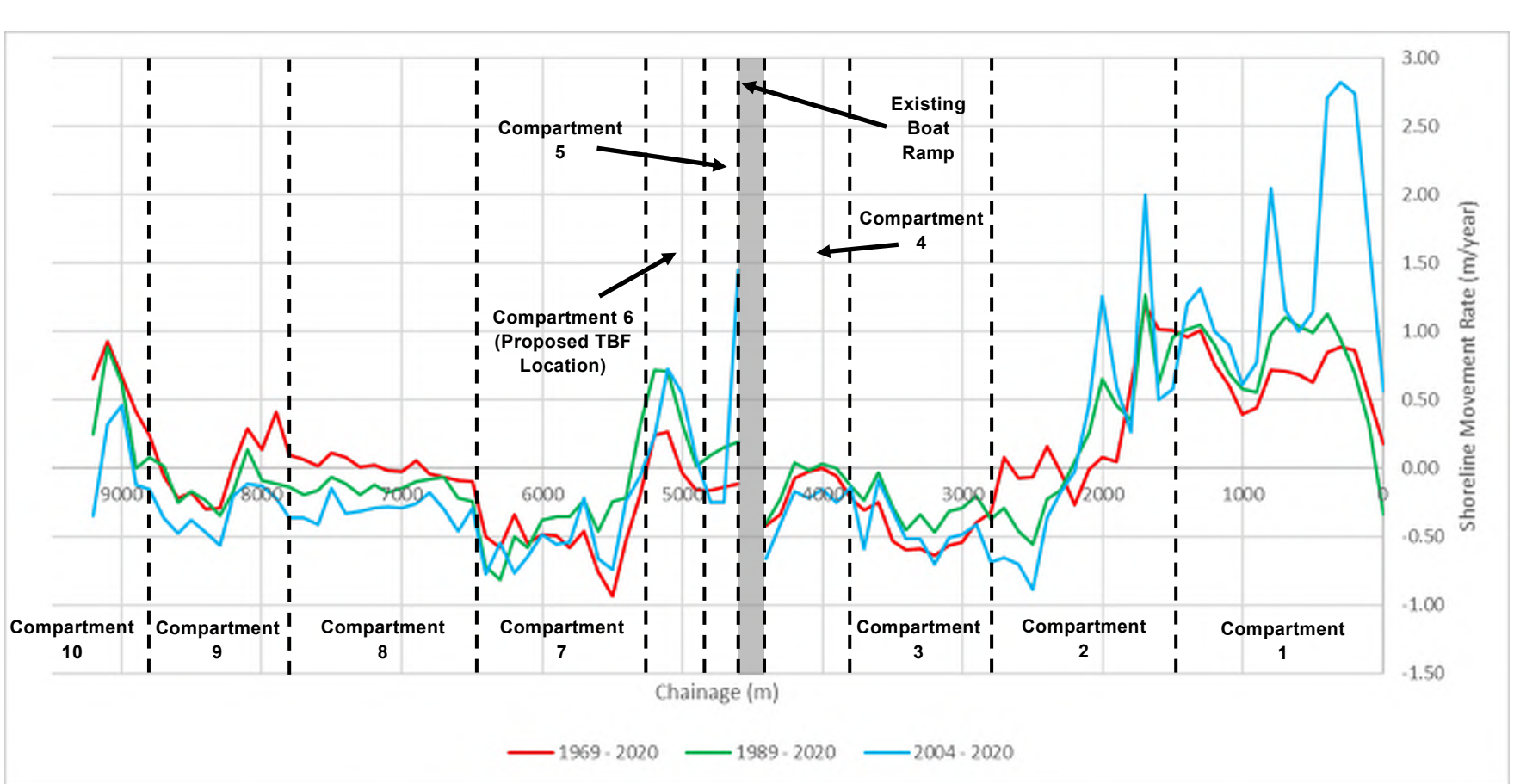

Figure 3.4 Shoreline Movement Rates Relative to 1969, 1989 and 2004 (north to the right)

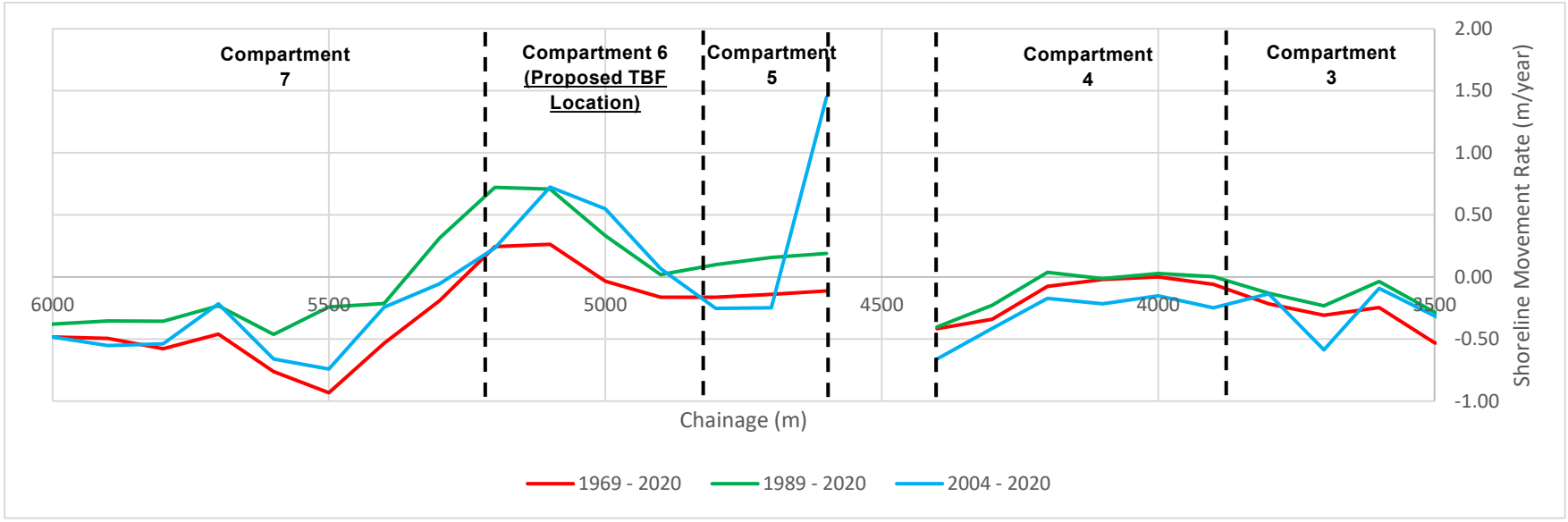

Figure 3.5 Shoreline Movement Rates Zoomed (north to the right)

As can be seen in Figures 3.2 and 3.3 the area around the proposed TBF (chainages 4,800 to 5,200) has undergone periods of both minor accretion and erosion since 1969. The area directly to the south west of the proposed TBF (chainages 5,200 to 5,400) appears to have gradually accreted since 1969, whereas the area to the north west between the facility and Tantabiddi Creek has had periods of both accretion and erosion.

Chainage 4,500 passes through the mouth of Tantabiddi Creek and the existing Tantabiddi Boat Ramp. There is a high degree of variability in the position of the vegetation line at this point due to the presence of the Tantabiddi Creek mouth and the effects of severe flood events which open the creek mouth and remove the sand bar. As such the variation of the vegetation line at this point does not accurately represent the accretion or erosion of the shoreline and has been excluded from the assessment.

The study area has been broken into separate compartments based on the physical features of the coastline and the spatial variability in the accretion and erosion rates. The shoreline movement trends of the individual compartments over the 51 year period are listed below.

- Compartment 1: Significant and consistent accretion.
- Compartment 2: Decreasing rates of accretion with pockets of erosion in the southern half of the compartment.
- Compartment 3: Consistent erosion.
- Compartment 4: Variable accretion and erosion at the northern end and consistent erosion adjacent to the Tantabiddi Boat Ramp (which is taken as the northern southern edge of the compartment).
- Compartment 5: Variable Accretion and erosion rates. High variability due to proximity to Tantabiddi Creek Mouth.
- Compartment 6 (Proposed TBF Location): Erosion at the northern end and accretion at the southern end. Inflection point located at approximately chainage 5,000.
- Compartment 7: Consistent erosion.
- Compartment 8: Variable accretion and erosion.
- Compartment 9: Variable accretion and erosion at the northern end, consistent erosion at the southern end.
- Compartment 10: Consistent significant accretion.

The existing Tantabiddi Boat Ramp and channel act as a barrier to the longshore transport of sediment resulting in the erosion trend present in Compartment 4. It is likely that the proposed TBF will also act as a barrier to the longshore transport once built which will affect the shoreline movement of the local area.

3.1 Effect of Cyclones

The effect that Tropical Cyclones have on the shoreline at Tantabiddi was investigated by comparing the occurrence and severity of cyclone events to the shoreline movement records at several points along the coast of the Tantabiddi area. The Bureau of Meteorology (BoM) cyclone

database was used to determine any cyclones which have passed within 200 km of the Tantabiddi location since 1969, these cyclones were included in the analysis. In addition, a number of additional cyclones which are known to have generated large waves in the Tantabiddi area were incorporated into the analysis. These cyclones included the following.

- Tropical cyclone Bobby (1984).
- Tropical Cyclone Vincent (1990).
- Tropical Cyclone Iggy (2012).
- Tropical Cyclone Narelle (2013).
- Tropical Cyclone Marcus (2018).

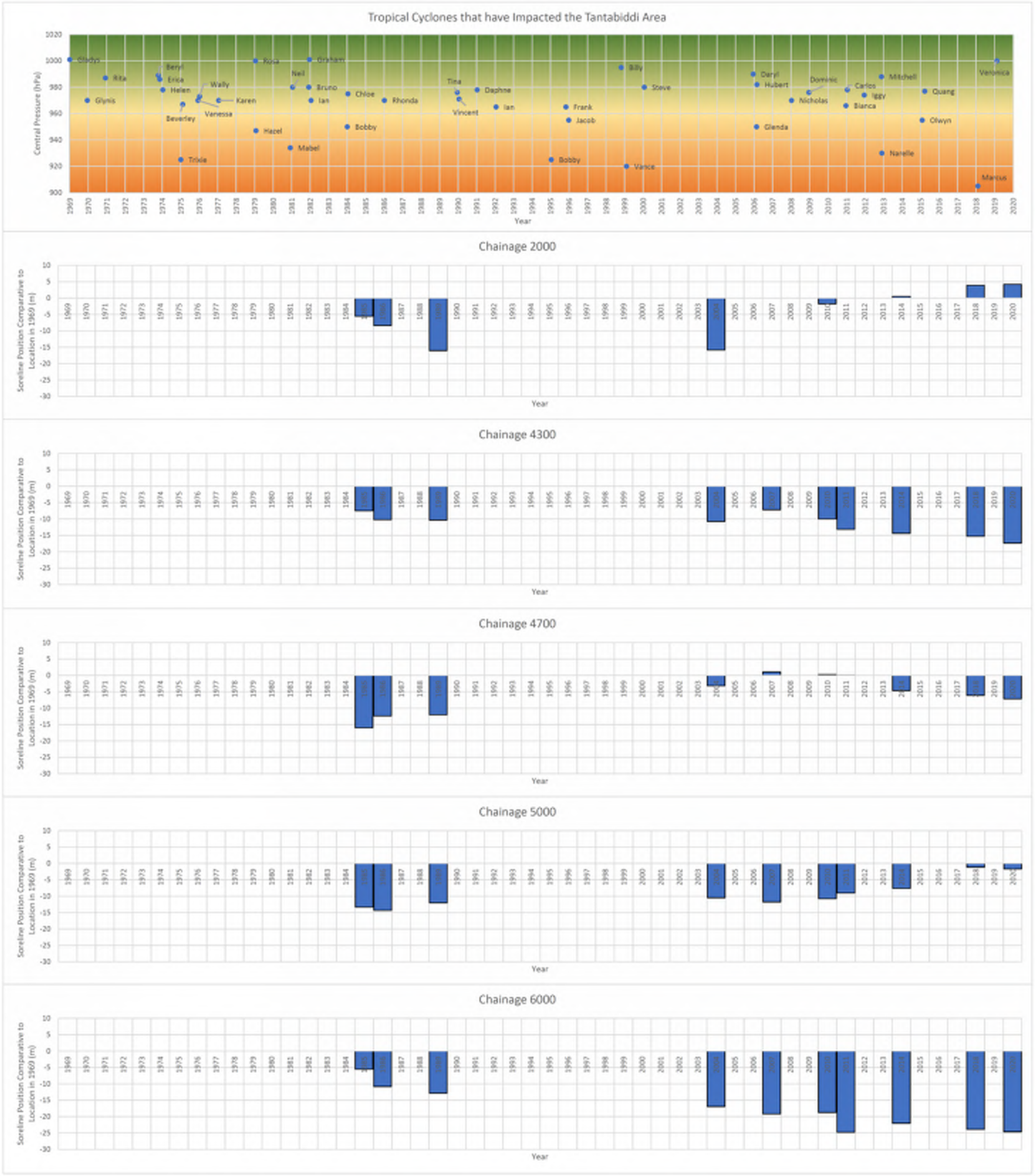

Figure 3.6 Comparison of Tropical Cyclones and Shoreline Movement

Figure 3.6 presents time history plots of the shoreline movement at five key locations along with a scatterplot of the cyclone events discussed previously. The five locations chosen were selected as they coincide with the following points of interest.

- The salient located between the existing Tantabiddi Boat Ramp and Jurabi Point (Chainage 2,000).
- The beach immediately to the north of the existing Tantabiddi Boat Ramp (Chainage 4,300).
- The beach immediately to the south of the Tantabiddi Creek Inlet (Chainage 4,700).
- The location of the proposed TBF (Chainage 5,000).
- The beach approximately 1 km south of the proposed TBF location (Chainage 6,000).

From the analysis of the shoreline movements and the tropical cyclones that have passed within 200 km of Tantabiddi or were known to create large waves at the study area (refer Figure 3.4) there does not appear to be a relationship between the two. Whilst some of the assessed areas display slight increases in erosion rates following cyclone events, other areas display decreased erosion rates following the same events. Cuttler et al (2018) investigated the effect of cyclones on Jurabi Point (located just north of the study area) and found that the offshore coral reefs provided high levels of protection against cyclone waves resulting in generally modest changes to the beach morphology. As such the findings of Cuttler et al agree with the results of MRA's assessment.

It should be noted that there are long periods of time between most of the shoreline movement records. As such it is possible that significant shoreline movement may have occurred after cyclone events within these periods.

4. Indicative Sediment Budgets

The shoreline movement rates discussed in Section 3 provide an indication of the trends of accretion and erosion that have occurred across the study area and how these trends have changed over time. To further investigate the changes in the shoreline and the movement of sediment in recent years a sediment budget was created using the shoreline movement rates from the 2004 to 2020 time period and available survey of the area.

To generate an indicative sediment budget the extent of shoreline movement needs to be determined along the coastline. This extent of shoreline movement can then be used to estimate the volumes of erosion and accretion within each area. For this study, these volumes were estimated by multiplying the observed shoreline movement by the active profile height estimated for each area. The active profile height is defined as the vertical height over which beach profile evolution occurs. The active height is generally accepted as extending from the crest of the foredune to some depth offshore, known as the closure depth, where the extent of profile elevation change decreases to zero.

The timescale of the beach profile change is an important consideration when determining the active height, as longer period changes over decadal timescales will generally have a greater active profile height compared to the profile change over a single winter. For this assessment the consideration of the active profile height was completed over the 2004 to 2020 period, thus ensuring a more accurate estimation of actual sediment transport along the coastline. In particular, it is noted that, over the timescales considered, the active height of an accreting beach is often less than that of an eroding beach. This is due to the fact that when a beach is eroded the erosion can cause slumping of the dunes at an elevation much higher than can be built up when a beach accretes. This is illustrated indicatively in the figure below.

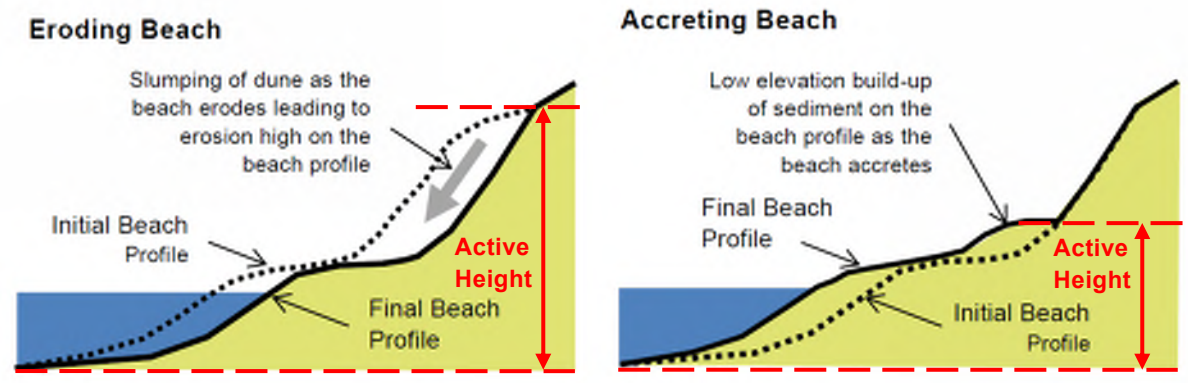

Figure 4.1 Difference in Active Height on Eroding & Accreting Beaches when Reviewed over Short to Medium Timeframes

The active heights of the profiles were determined across the study area to allow the total volumes of shoreline change to be estimated. It should be noted that the majority of the study area did not have accurate survey information available due to the remote nature of the site. Current survey for the area adjacent to the Tantabiddi Boat Ramp was provided by DoT, combined with visual inspection of the site and used as the basis for estimates of the active height of sediment movement across the study area. Active heights determined in the surveyed area (chainages 4,200 to 5,400) have been determined with a confidence interval of approximately ±10%, active heights in all other areas have a confidence interval of approximately ±50%. The

estimated closure depth of -0.5 mAHD has been used as this is believed to be representative of the depth at which the rock begins.

The estimated active profile heights are presented in Table 4.1, together with the average annual shoreline movement rate for the 2004 to 2020 period and the calculated net annual accretion or erosion volumes. The accretion and erosion volumes have also been grouped by compartment to show the total volume of erosion or accretion in each area. These grouped volumes are required to determine the sediment budget for the coastline.

Table 4.1 Estimated Erosion & Accretion Volumes

Chainage (m)	Compartment	Average Shoreline Movement Rate (m/year)	Offshore Closure Depth (mAHD)	Onshore Active Height (mAHD)	Net Annual Accretion/Erosion Volume (m^3)	Grouped Net Annual Accretion / Erosion Volumes (m^3)
0	1	0.57	-0.5	2.5	170	6,663
100		1.65	-0.5	2.5	495	
200		2.74	-0.5	2.5	822	
300		2.82	-0.5	2.5	847	
400		2.70	-0.5	2.5	811	
500		1.15	-0.5	2.5	344	
600		1.00	-0.5	2.5	299	
700		1.16	-0.5	2.5	347	
800		2.05	-0.5	2.5	614	
900		0.78	-0.5	2.5	233	
1,000		0.61	-0.5	2.5	184	
1,100		0.90	-0.5	2.5	271	
1,200		1.00	-0.5	2.5	299	
1,300		1.31	-0.5	2.5	393	
1,400		1.20	-0.5	2.5	359	
1,500		0.58	-0.5	2.5	174	
1,600	2	0.50	-0.5	2.5	149	953
1,700		2.00	-0.5	3.5	799	
1,800		0.27	-0.5	5	146	
1,900		0.60	-0.5	5.5	359	
2,000		1.25	-0.5	5.5	752	
2,100		0.46	-0.5	5	255	
2,200		-0.02	-0.5	5	-13	
2,300		-0.18	-0.5	3.8	-76	
2,400		-0.37	-0.5	3.8	-157	
2,500		-0.89	-0.5	3.8	-382	
2,600		-0.70	-0.5	3.8	-303	
2,700		-0.66	-0.5	3.8	-282	
2,800		-0.68	-0.5	3.8	-294	
2,900	3	-0.41	-0.5	3.8	-177	-1,834
3,000		-0.49	-0.5	3.8	-209	
3,100		-0.51	-0.5	3.8	-218	
3,200		-0.70	-0.5	3.8	-302	
3,300		-0.52	-0.5	3.8	-222	
3,400		-0.52	-0.5	3.8	-222	
3,500		-0.31	-0.5	3.8	-134	
3,600		-0.09	-0.5	3.8	-39	
3,700		-0.59	-0.5	3.8	-252	
3,800		-0.14	-0.5	3.8	-59	
3,900	4	-0.25	-0.55	3.8	-108	-696
4,000		-0.15	-0.55	3.8	-66	
4,100		-0.22	-0.55	3.8	-94	
4,200		-0.17	-0.61	3.85	-76	
4,300		-0.41	-0.3	2.85	-130	
4,400		-0.66	-0.3	3.05	-221	
4,500	Existing Tantabiddi Boat Ramp					

Chainage (m)	Compartment	Average Shoreline Movement Rate (m/year)	Offshore Closure Depth (mAHD)	Onshore Active Height (mAHD)	Net Annual Accretion/Erosion Volume (m^3)	Grouped Net Annual Accretion / Erosion Volumes (m^3)
4,600	5	1.45	-0.25	2.56	407	329
4,700		-0.25	-0.25	2.86	-77	
4,800	6 (Proposed TBF Location)	-0.25	-0.38	2.32	-68	361
4,900		0.07	-0.38	3.18	24	
5,000		0.55	-0.45	2.32	152	
5,100		0.73	-0.5	2.15	192	
5,200		0.23	-0.5	2.12	61	
5,300	7	-0.06	-0.5	2.82	-18	-2,917
5,400		-0.24	-0.5	4.19	-114	
5,500		-0.74	-0.5	4.2	-349	
5,600		-0.66	-0.5	4.2	-311	
5,700		-0.22	-0.5	4.2	-102	
5,800		-0.54	-0.5	4.2	-253	
5,900		-0.55	-0.5	4.2	-260	
6,000		-0.48	-0.5	4.2	-227	
6,100		-0.64	-0.5	4.2	-303	
6,200		-0.76	-0.5	4.2	-359	
6,300		-0.55	-0.5	4.2	-259	
6,400		-0.77	-0.5	4.2	-363	
6,500	8	-0.29	-0.5	3.1	-106	-1,421
6,600		-0.46	-0.5	3.1	-166	
6,700		-0.30	-0.5	3.1	-106	
6,800		-0.18	-0.5	3.1	-64	
6,900		-0.26	-0.5	3.1	-92	
7,000		-0.29	-0.5	3.1	-104	
7,100		-0.28	-0.5	3.1	-101	
7,200		-0.29	-0.5	3.1	-105	
7,300		-0.31	-0.5	2.5	-94	
7,400		-0.33	-0.5	2.5	-98	
7,500		-0.15	-0.5	2.5	-44	
7,600		-0.41	-0.5	2.5	-122	
7,700		-0.36	-0.5	2.5	-109	
7,800		-0.37	-0.5	2.5	-110	
7,900	9	-0.22	-0.5	2.5	-66	-1,010
8,000		-0.13	-0.5	2.5	-39	
8,100		-0.12	-0.5	2.5	-35	
8,200		-0.20	-0.5	2.5	-61	
8,300		-0.56	-0.5	3.1	-203	
8,400		-0.47	-0.5	3.1	-167	
8,500		-0.38	-0.5	3.1	-135	
8,600		-0.48	-0.5	3.1	-172	
8,700		-0.36	-0.5	3.1	-131	
8,800	10	-0.15	-0.5	2.5	-46	47
8,900		-0.12	-0.5	2.5	-36	
9,000		0.46	-0.5	2.5	138	
9,100		0.32	-0.5	2.5	96	
9,200		-0.35	-0.5	2.5	-104	

Note1: Red numbers represent erosion and blue numbers represent accretion.

Table 4.2 Average Accretion & Erosion Volumes

Compartment	Grouped Net Annual Accretion / Erosion Volumes (m^3)	Grouped Net 5 Year Accretion / Erosion Volumes (m^3)	Grouped Net 10 Year Accretion / Erosion Volumes (m^3)
1	6,663	33,315	66,630
2	953	4,765	9,530
3	-1,834	-9,170	-18,340
4	-696	-3,480	-6,960
5	329	1,645	3,290
6	361	1,805	3,610
7	-2,917	-14,585	-29,170
8	-1,421	-7,105	-14,210
9	-1,010	-5,050	-10,100
10	47	235	470

Note1: Red numbers represent erosion and blue numbers represent accretion.

4.1 Initial Sediment Budget

The indicative sediment budget considers the average annual net movement of sediment through the site for the period from 2004 to 2020. Given the predominantly southerly and south westerly winds during summer and the consistent accretion to the south of the Tantabiddi Boat Ramp the net longshore transport of sediment is to the north east. In addition to the sediment transport rates determined from the shoreline movements there are additional sediment inputs into the system. These included the following.

- The sediment flux entering the study area from the south (X).
- The offshore feed of sediment across the study area (North Feed Y2 and South Feed Y1).
- The sediment contribution provided by Tantabiddi Creek (Z).

Accurate determination of these values was not possible; hence they have been left as unknown values in the initial sediment budget. The initial sediment budget has been included in Figure 4.2.

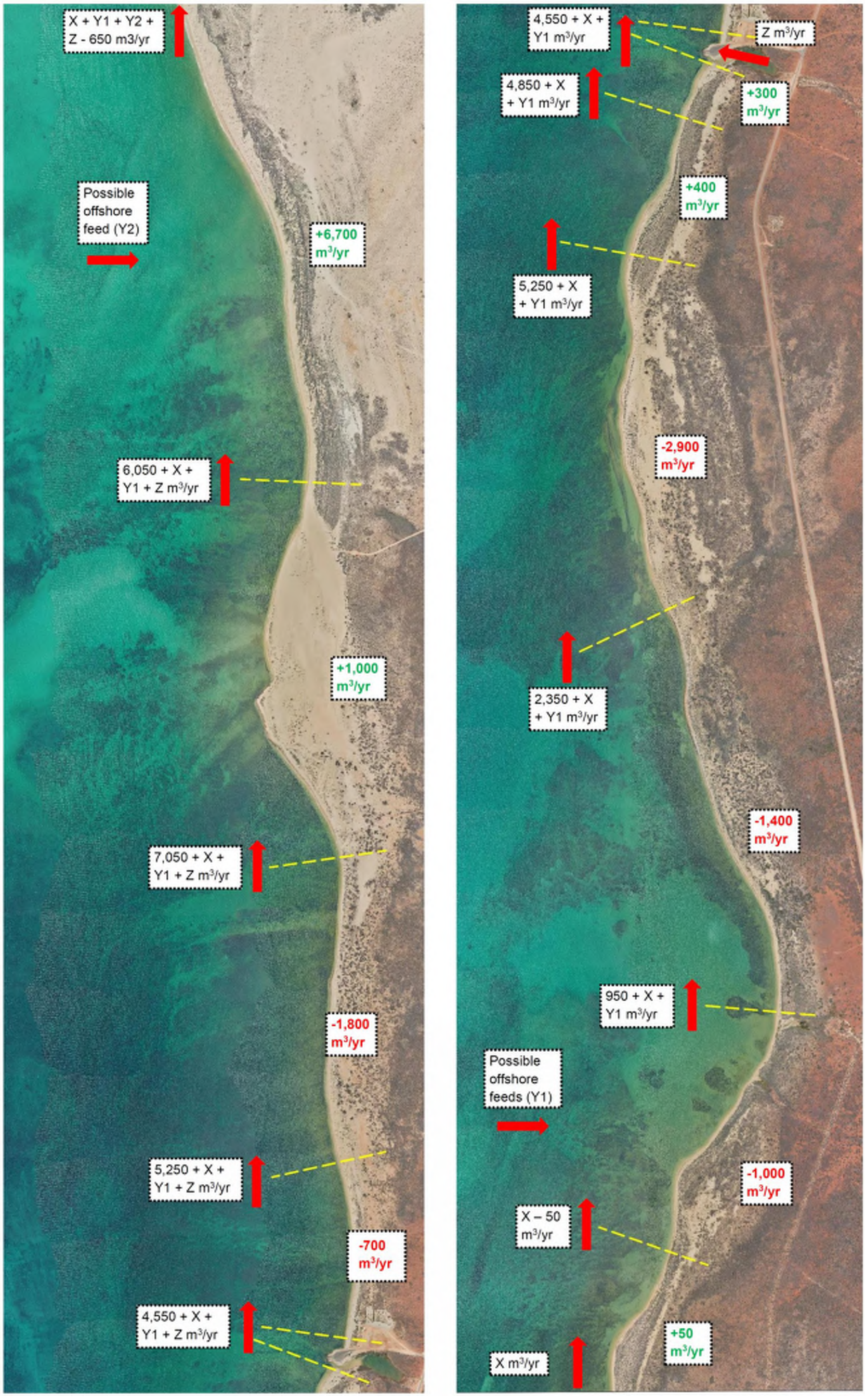

Figure 4.2 Sediment Budget for 2004 to 2020

4.2 Sediment Budget with Estimated Unknowns

To determine an approximate sediment flux past the proposed TBF, values for the sediment flux entering the study area, offshore feeds and the contribution of Tantabiddi Creek were determined.

A long term average net quantity of approximately 200 m^3/year was included as the contribution from Tantabiddi Creek (Z) during extreme flood events based on the findings of Advisian (2020). The estimated sediment transport volumes for severe flood events are displayed in Table 4.3. The individual sediment contributions were multiplied by the likelihood of that event occurring in any one year and the results summed, resulting in an estimated 200m^3/year contribution from Tantabiddi Creek.

Table 4.3 Sediment Contributions from Severe Flood Events (Advisian 2020)

Scenario (ARI)	Estimated Total Sediment Volumes (m^3)
1	70
2	78
5	145
10	345
20	610
50	750
100	1,655

It has been assumed that there is an input of sediment from offshore which occurs across the study area due to the sediment contributions of the fringing coralgal reefs (Cuttler et al 2019). This sediment is then transported to the shoreline through two processes, bedload transport and the transport of suspended sediment. To simplify the inclusion of the offshore sediment feed, the offshore feed has been calculated for the northern and southern halves of the study area (north and south of Tantabiddi Creek, respectively) and input at the northern and southern ends of the study area.

Cuttler et al (2019) provides an approximation for the bedload transport at the salient located in the northern half of the study area of ~9 kg m^{-1} day^{-1}. The total bedload transport rate was then calculated using the following equation. The values used for each of the variables are presented in Table 4.4.

$$Total\ Transport\ Rate\ (Q) = \frac{Transport\ Rate * Length\ of\ Coast}{Density\ of\ Sand}$$

Table 4.4 Bedload Transport Variables

Variable	Value
Northern Length of Coast	4,500 m
Northern Transport Rate	~9 kg m^{-1} day^{-1}
Southern Length of Coast	4,700 m
Southern Transport Rate	~ 5.4 kg m^{-1} day^{-1}
Density of Sand	2,000 kg/m^3

From review of aerial photos of the site it was determined that a significant portion of the lagoon area to the south of the existing boat ramp appears to be rock or reef covered with a thin layer of sand. As such it is expected that the transport rate in this area would be lower than in the northern area, to reflect this the transport rate for the southern area was reduced by 40% to 5.4 kg m^{-1} day^{-1}.

Total bedload transports of approximately 7,400 m^3/year for the northern half of the study area and approximately 4,600 m^3/year for the southern half were estimated.

An estimate of the transport of suspended sediment was determined using the findings of Pomeroy et al (2018). Pomeroy et al provide ranges of suspended sediment concentrations (SSC (mg/L)) and current velocities (U (m/s)) at a number of locations at Jurabi Point. These values were then used to determine estimates of the suspended sediment transport rates for the northern and southern halves of the study area by utilising the following equation. The values used for each of the variables are presented in Table 4.5.

$$Q = \frac{SSC * Volume\ of\ Water}{Density\ of\ Sand} * \frac{365 * U}{Distance\ to\ Shore}$$

Table 4.5 Suspended Sediment Transport Variables

Variable	Value
Northern SSC	0.004 g/L
Approximate Northern Area	6 x 10^6 m^2
Approximate Northern Volume of Water	3 x 10^9 L
Approximate Northern Distance to Shore	2,500 m
Southern SSC	0.0024 g/L
Approximate Southern Area	15.5 x 10^6 m^2
Approximate Southern Volume of Water	7.75 x 10^9 L
Approximate Southern Distance to Shore	3,500 m
Density of Sand	2,000 kg/m^3
Average Current Velocity Towards Shore	0.01 m/s

The approximate areas and distances to shore from the outer reef in Table 4.5 were determined based on review of the aerial photos. Based on the results of Pomeroy et al (2018) it has been assumed that the suspended sediment transport only occurs in the bottom 0.5 m of the water column. This value was then used to calculate the water volumes. Finally, the average current velocity was determined from review of the findings of Pomeroy et al. As a significant portion of the lagoon to the south of the existing boat ramp is rock / reef the SSC for this area was reduced by 40% to 0.0024 g/L.

Estimated sediment transport rates of approximately 750 m^3/year for the northern half of the study area and 840 m^3/year for the southern half of the study area were determined.

As such the estimated offshore feed for the northern half of the study area (Y2) was taken as approximately 8,200m^3/year and the estimated southern feed (Y1) was taken as approximately 5,400 m^3/year. It should be noted that due to the assumptions made in the calculation of these values they are only accurate to ± 100%.

A sediment transport flux (X) of 2,000 m^3/year has been estimated to enter the study area from the south. This value was determined through analysis of the sediment build up and bypassing at the existing Tantabiddi Boat Ramp.

Through discussion with the Shire of Exmouth it was determined that four campaigns of sediment bypassing are currently completed around the existing TBF each year. These are completed using an 18 ton Hitachi excavator and each campaign is completed across 3 low tide periods. The exact details of the works, in terms of bypassed volumes are not tracked by the Shire. As a result, the total volume of material transported has been calculated using different techniques in order to estimate the total bypassed volumes.

Firstly, an estimate was made using the working time of the excavator. It is assumed that over the 3 tidal cycles the excavator could be working efficiently for approximately 4 hours per tidal cycle (noting that the excavator may be working longer than this). Assuming a bucket size of approximately 1 m^3 (Hitachi 2015) and a conservative cycle time of approximately 15 seconds (Bennink 2011) allows the approximate total of the excavated sediment per campaign to be determined using the following equation.

$$Q = 1\ (m^3) * 4\left(\frac{cycles}{minute}\right) * 60\ (mins) * 12(hours) = 2880\ m^3\ per\ campaign$$

Secondly, the volume of excavated material can be estimated through review of orthorectified aerial imagery captured by drone on 25 March 2021. The extent of the excavated area is visible in the image (refer Figure 4.3), however it is known that the excavation occurred at some stage before 15 March 2021, so some degree of infill may have occurred by the time the aerial image was taken. Based on the imagery, the total area of excavation was in the order of 1,500 m^2. The excavated areas appear to be noticeably deeper than the surrounding areas, so it is assumed that the average excavation depth would be between 1 to 2 m. Based on this depth, the estimated excavation volume would be between 1,500 to 3,000 m^3. It should also be noted that the area shown in Figure 4.3 is smaller than the size of the area that the Shire suggested is used for the extraction (the Shire estimate was over an area of approximately 2,500 m^3).

Figure 4.3 Extent of Excavation Shown in March 2021 Aerial Imagery

Thirdly, the volume of placed material was estimated. When MRA engineers visited the site on 15 March 2021 sand bypassing had recently been completed (refer Figure 4.4). MRA engineers noted that some of the placed material had already been redistributed along the beach due to the observed erosion scarp along the seaward edge of the placed material. Based on observations, it was estimated that the bypassed volume of sediment could be around 2,000 to 3,000 m^3.

Figure 4.4 Bypassed Material Placed to the North of the Existing Boat Ramp (March 2021)

Each of the above methods used to calculate the bypassing volumes are relatively inexact, however all suggest a similar volume of material .Given the number of assumptions involved in this assessment and likely variations in the supply of sediment from campaign to campaign the approximate range of 2,000 to 3,000 m^3 per campaign has been assumed.

Thus approximately 8,000 m^3 to 12,000 m^3 of sediment is excavated from the southern side of the boat ramp each year with approximately 500 m^3 stockpiled to the north of the car park and the remainder bypassed to the north (refer Figure 4.5). In addition to the mechanical bypassing there will also be natural bypassing of sediment around the existing boat ramp and channel and thus a sediment flux in the order of 10,000 m^3 to 20,000 m^3 is expected to move past the boat ramp each year. Assuming a sediment flux of approximately 12,000 m^3/year and an excavation volume of 10,000 m^3/year (2,500 m^3 per campaign), a sediment flux in the order of 2,000 m^3/year was estimated to enter the study area from the south.

Figure 4.5 Sediment Bypassing Location

An updated sediment budget including the estimated rates of the sediment inputs has been included in Figure 4.6.

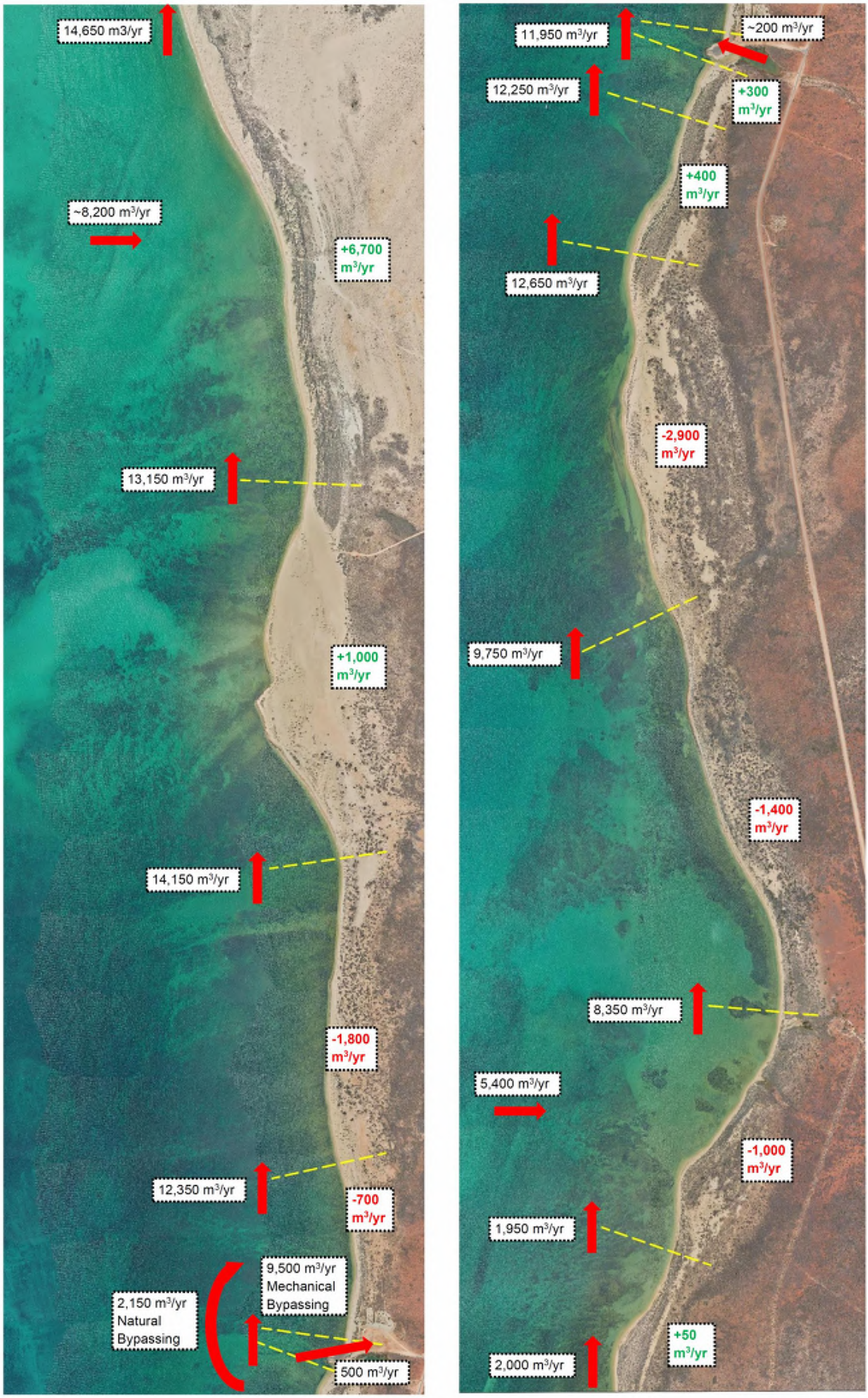

Figure 4.6 Sediment budget Excerpt with Estimates of Additional Sediment Inputs Included

From the updated sediment budget, the proposed TBF location has an accretion trend of approximately 400 m^3/year. There is also a net longshore transport of approximately 12,000 m^3/year past the proposed TBF site. However, given the accuracy of the inputs and the assumptions involved in estimating the sediment inputs, these values are only accurate to approximately ± 100%.

5. Future Shoreline Change

5.1 Important Coastal Landforms

The majority of the study area is comprised of narrow sandy beaches fronted by fringing coralgal reefs and backed by vegetated dunes. However, there are sections of the coast which differ from this, including the following.

- Sections of rocky foreshore between chainages 2,200 to 2,400, 3,200 to 3,400 and 6,700 to 6,900.
- A predominantly unvegetated salient located between chainages 1,700 and 2,800.
- The mouth of Tantabiddi Creek located at approximately chainage 4,500.
- Tantabiddi Boat Ramp which is also located at approximately chainage 4,500.
- The proposed TBF located between chainages 4,800 and 5,200.

These sections can interrupt and influence the sediment transport across the coast with the rocky foreshores providing a buffer against cross shore transport and the Tantabiddi Boat Ramp and the proposed TBF presenting obstacles to the longshore transport. The effects of the rocky sections of shoreline have not been accounted for in this assessment as the assessment focuses primarily on longshore transport.

Large flood events occasionally flush the sandbar at the mouth of Tantabiddi Creek seawards. These events can deposit large amounts of sediment in the nearshore area and effect both the cross shore and longshore transport, for months to years after the event.

5.2 Predicted future Change

Using the Shoreline Movement Rates determined in Section 3 and the Sediment Budgets determined in Section 4 an estimate of the possible future shoreline changes were determined and are displayed in Figure 5.1. This is an estimate based on a future where the TBF is not constructed. The predicted future rates of shoreline change are also listed in Table 5.1. The shoreline change over a 50 year period due to the long term shoreline movement has also been determined. Though it should be noted that these changes are estimated only on the basis of a continuation of observed changes and neglect the possible additional impact of sea level rise on the shoreline position.

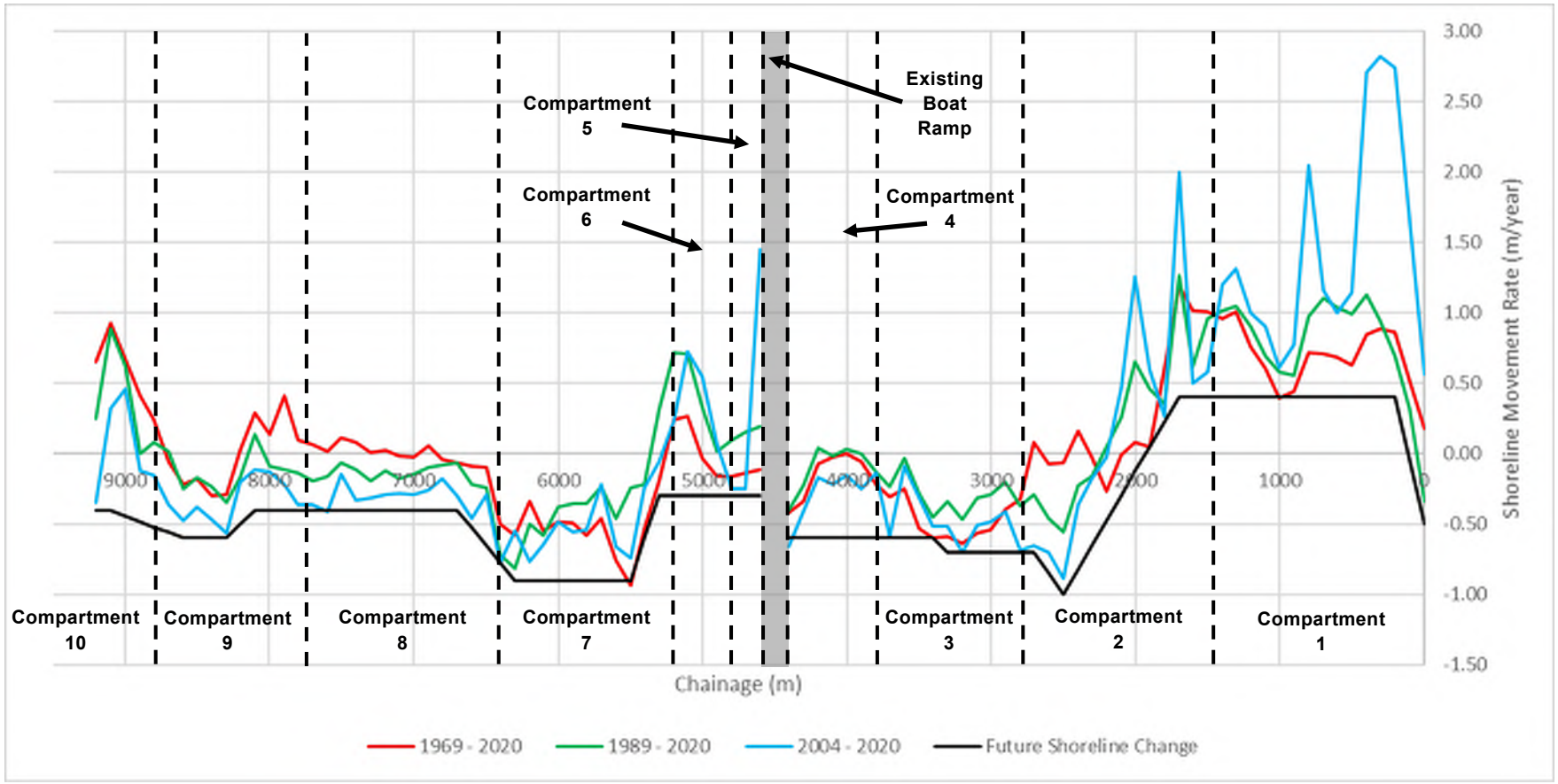

Figure 5.1 Predicted Future Shoreline Movement Rates

Table 5.1 Predicted Future Shoreline Movement Rates

Chainage (m)	Predicted Shoreline Movement Rate (m/yr)	Predicted Shoreline Movement over 50 Years (m)
0 – 200	-0.5 to 0.4	-25 to 20
200 – 1700	0.4	20
1700 – 2500	0.4 to -1	20 to -50
2500 – 2700	-1 to -0.7	-50 to -35
2700 – 3300	-0.7	-35
3300 – 3400	-0.7 to -0.6	-35 to -30
3400 – 4400	-0.6	-30
4600 – 5300 (Proposed TBF Area)	-0.3	-15
5300 – 5500	-0.3 to -0.9	-15 to -45
5500 – 6300	-0.9	-45
6300 – 6700	-0.9 to -0.4	-45 to -20
6700 – 8100	-0.4	-20
8100 – 8300	-0.4 to -0.6	-20 to -30
8300 – 8600	-0.6	-30
8600 – 9100	-0.6 to -0.4	-30 to -20
9100 – 9200	-0.4	-20

These rates were determined assuming that the historical trends in shoreline movement will continue. This assumption will likely prove to be false if the TBF is constructed however the estimated future changes can provide an indication of likely future issues. As can be seen in Figure 5.1 an erosion trend has been estimated for the TBF location and the section of beach between the proposed TBF and Tantabiddi Creek. More severe erosion has been estimated for the coastline to the south west of the proposed TBF area and to the north east of Tantabiddi Creek.

5.2.1 Impact of TBF

The construction of the proposed TBF will likely interrupt the established longshore transport of sediment at this site. In particular the proposed TBF will likely interrupt the net longshore transport to the north east, possibly causing increased erosion and accretion. The construction of the TBF may result in an increased long term accretion trend directly to the south west of the

facility and an increased long term erosion trend to the north east of the facility in the area located between the proposed TBF and Tantabiddi Creek (chainages 4,600 to 4,800). This erosion may also result in a decrease in the size of the sand bar which closes the Tantabiddi Creek mouth possibly resulting in more frequent openings of the inlet. These impacts will likely vary seasonally as a result of seasonal and other short term variations in the metocean conditions that drive sediment transport. It should be noted that as this area is a mouth of an inlet, it can be highly dynamic and as such may exhibit behaviour different to what the long term shoreline movement trends suggest.

Areas further afield from the proposed TBF will likely continue to follow the existing trends of erosion and/or accretion. Although it should be noted that areas to the north east may encounter a greater degree of erosion due to the proposed TBF interrupting the established longshore transport of sediment.

6. Considerations/Recommendations

There are a number of considerations for the proposed TBF related to possible future movement of the shoreline, these include the following.

- The facility will likely interrupt the longshore transport of sediment.
- This may result in a long term accretion trend on the south west side of the facility.
- This may also result in a long term erosion trend on the north east side of the facility.
- Possible effects of the proposed TBF on Tantabiddi Creek.
- Possible increased rates of erosion to the north east of Tantabiddi Creek as a result of the construction of the proposed TBF.

The following recommendations are proposed for the proposed TBF.

- A modelling campaign to estimate the sediment movement along the coastline under ambient and extreme conditions to determine the likely effect of the proposed TBF on the coastline.
- A sediment budget be used for calibration of the sediment transport model.
- Further investigation into the possible impact of the proposed TBF on Tantabiddi Creek.
- Investigate the feasibility of bypassing sediment in the order of 13,000 m^3/year from the south west side of the proposed TBF to the north east side.

It should be noted that the use of the 1969 vegetation line as a baseline, results in an uncertainty range of ±5 m for any vegetation line analysis. This means that some changes to the shoreline between mapped vegetation lines are actually just artefacts from inaccurate georectification. As such there is a small degree of uncertainty associated with this assessment.

7. Summary

MRA was engaged to conduct a Shoreline Movement Assessment on the area surrounding the mouth of Tantabiddi Creek. Vegetation lines ranging from 1969 to 2020 were provided by DoT and used to create a Shoreline Movement Plan (included in Appendix A) and determine rates of shoreline movement. A sediment budget for the period from 2004 to 2020 was also estimated using the shoreline movement rates and available survey of the study area. Using the shoreline movement rates and sediment budgets the future shoreline movement was predicted and considerations and recommendations for the proposed TBF were discussed. The recommendations included the following.

- A modelling campaign to estimate the sediment movement along the coastline under ambient and extreme conditions.
- A sediment budget for use in calibration of the sediment transport model.
- Further investigation into the possible impact of the proposed TBF on Tantabiddi Creek.
- Investigating the feasibility of bypassing approximately 13,000 m^3/year of sediment around the proposed TBF (accurate to approximately ± 100%).
- Potential structural solutions to safeguard against future erosion at the proposed TBF may need to be considered pending further investigation.

It should be noted that the use of the 1969 vegetation line as a baseline, results in an uncertainty range of ±5 m for any vegetation line analysis. This means that some changes to the shoreline between mapped vegetation lines are actually just artefacts from inaccurate georectification. As such there is a small degree of uncertainty associated with this assessment.

8. References

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9. Appendices

Appendix A **Chainage Map**

Appendix B **Shoreline Movement Plan**

Appendix A Chainage Map

AT CORRECT SCALE THIS IS 100 mm

AT CORRECT SCALE THIS IS 100 mm

0 100 200 300 400 500m

SCALE 1:10,000 AT ORIGINAL SIZE

NOTES:

1. AERIAL PHOTOGRAPH PROVIDED BY DEPARTMENT OF TRANSPORT TAKEN IN MARCH 2020.

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Western Australia admin@coastsandports.com.au

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CHAINAGE PLAN 1

DEPARTMENT OF TRANSPORT – TANTABIDDI

SCALE AT A3 1:10,000

APRIL 2021

SK1870–02A

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AT CORRECT SCALE THIS IS 100 mm

AT CORRECT SCALE THIS IS 100 mm

0 100 200 300 400 500m

SCALE 1:10,000 AT ORIGINAL SIZE

NOTES:

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CHAINAGE PLAN 2

DEPARTMENT OF TRANSPORT – TANTABIDDI

SCALE AT A3 1:10,000

APRIL 2021

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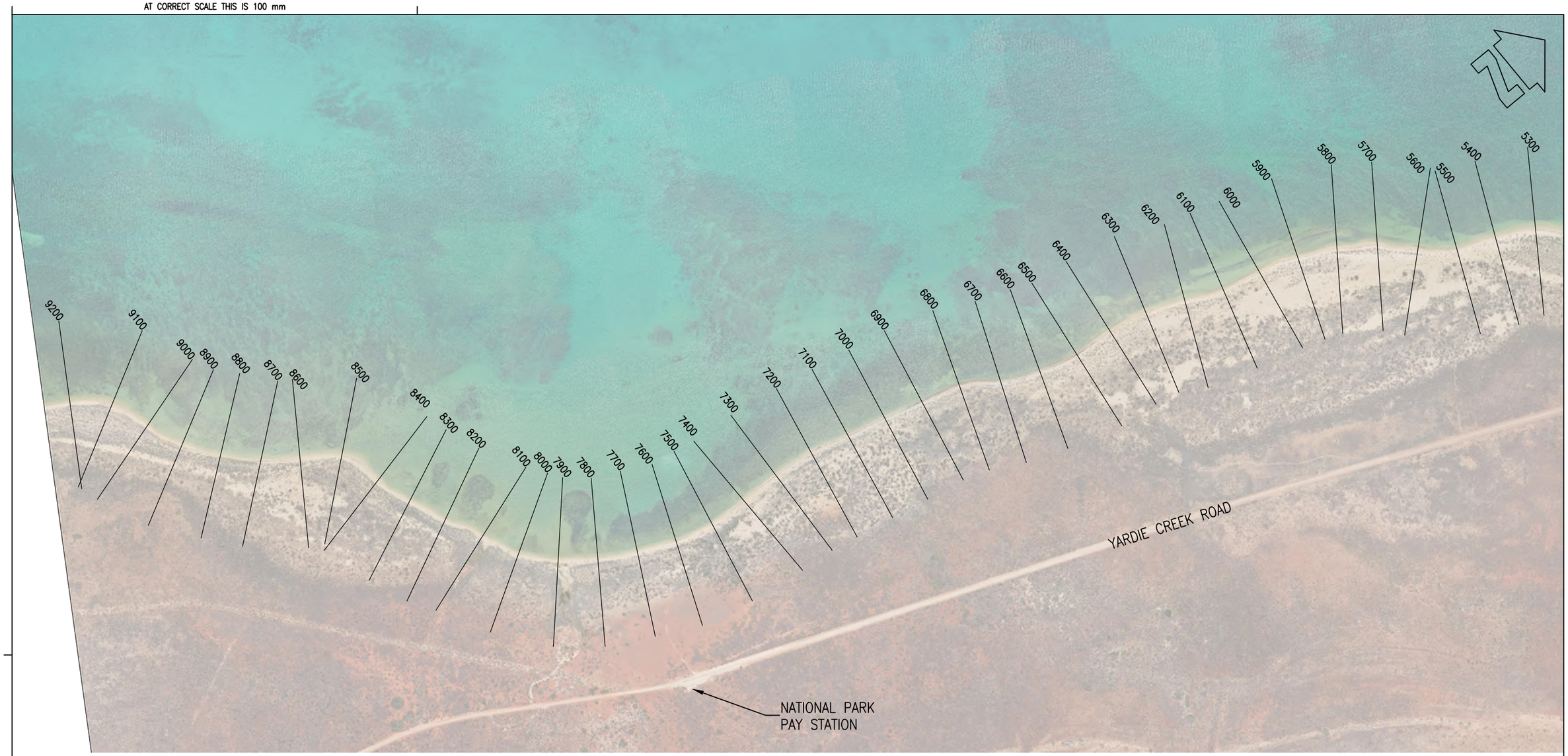

AT CORRECT SCALE THIS IS 100 mm

0 100 200 300 400 500m

SCALE 1:10,000 AT ORIGINAL SIZE

NOTES:

1. AERIAL PHOTOGRAPH PROVIDED BY DEPARTMENT OF TRANSPORT TAKEN IN MARCH 2020.

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CHAINAGE PLAN 3

DEPARTMENT OF TRANSPORT – TANTABIDDI

SCALE AT A3 1:10,000

APRIL 2021

SK1870–02A

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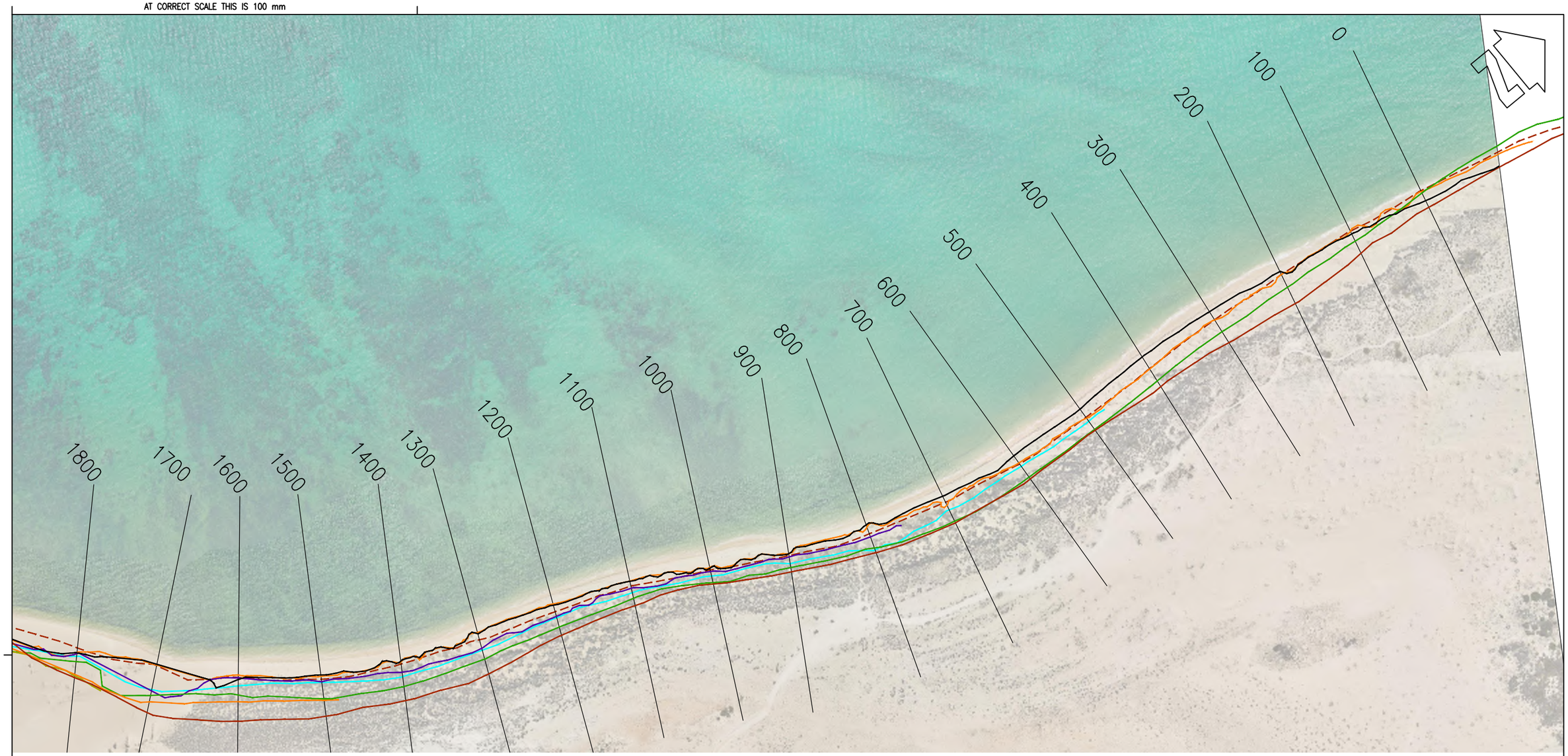
Appendix B Shoreline Movement Plan

AT CORRECT SCALE THIS IS 100 mm



AT CORRECT SCALE THIS IS 100 mm

LEGEND:

- 1969 VEGETATION LINE
- 1985 VEGETATION LINE
- 1986 VEGETATION LINE
- 1989 VEGETATION LINE
- 2004 VEGETATION LINE
- 2007 VEGETATION LINE
- 2010 VEGETATION LINE
- 2011 VEGETATION LINE
- 2014 VEGETATION LINE
- 2018 VEGETATION LINE
- 2020 VEGETATION LINE

NOTES:

1. AERIAL PHOTOGRAPH PROVIDED BY DEPARTMENT TRANSPORT TAKEN IN MARCH 2020.
2. VEGETATION LINES PROVIDED BY DEPARTMENT OF TRANSPORT.

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SHORELINE MOVEMENT PLAN (CHAINAGES 0 - 1800)

DEPARTMENT OF TRANSPORT – TANTABIDDI

SCALE AT A3 1:5,000

MARCH 2021

SK1870–01A

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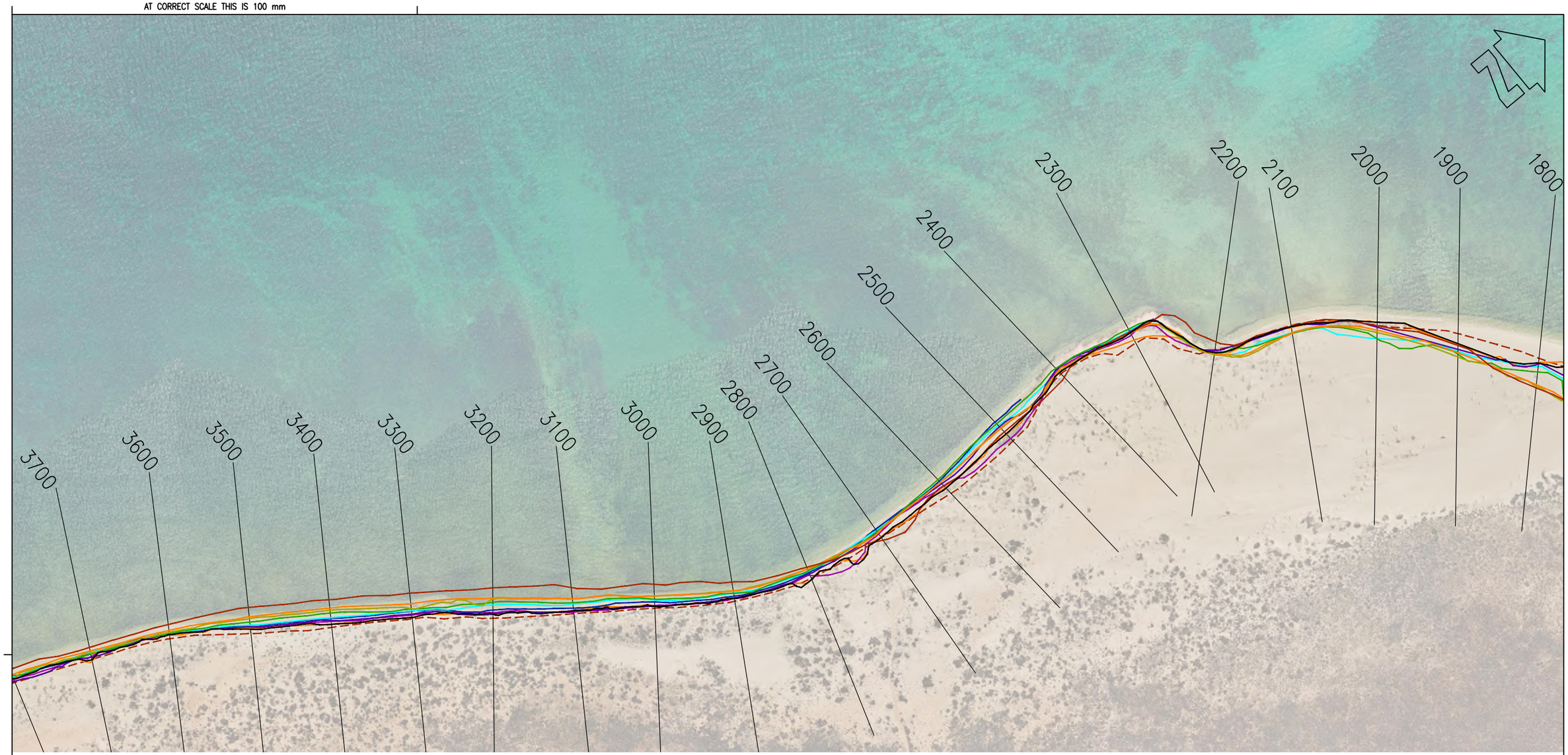

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NOTES:

1. AERIAL PHOTOGRAPH PROVIDED BY DEPARTMENT TRANSPORT TAKEN IN MARCH 2020.
2. VEGETATION LINES PROVIDED BY DEPARTMENT OF TRANSPORT.

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DRAWN R BORJA
CHECKED C DOAK

SHORELINE MOVEMENT PLAN (CHAINAGES 1800 - 3700)

DEPARTMENT OF TRANSPORT – TANTABIDDI

SCALE AT A3 1:5,000

MARCH 2021

SK1870–01A

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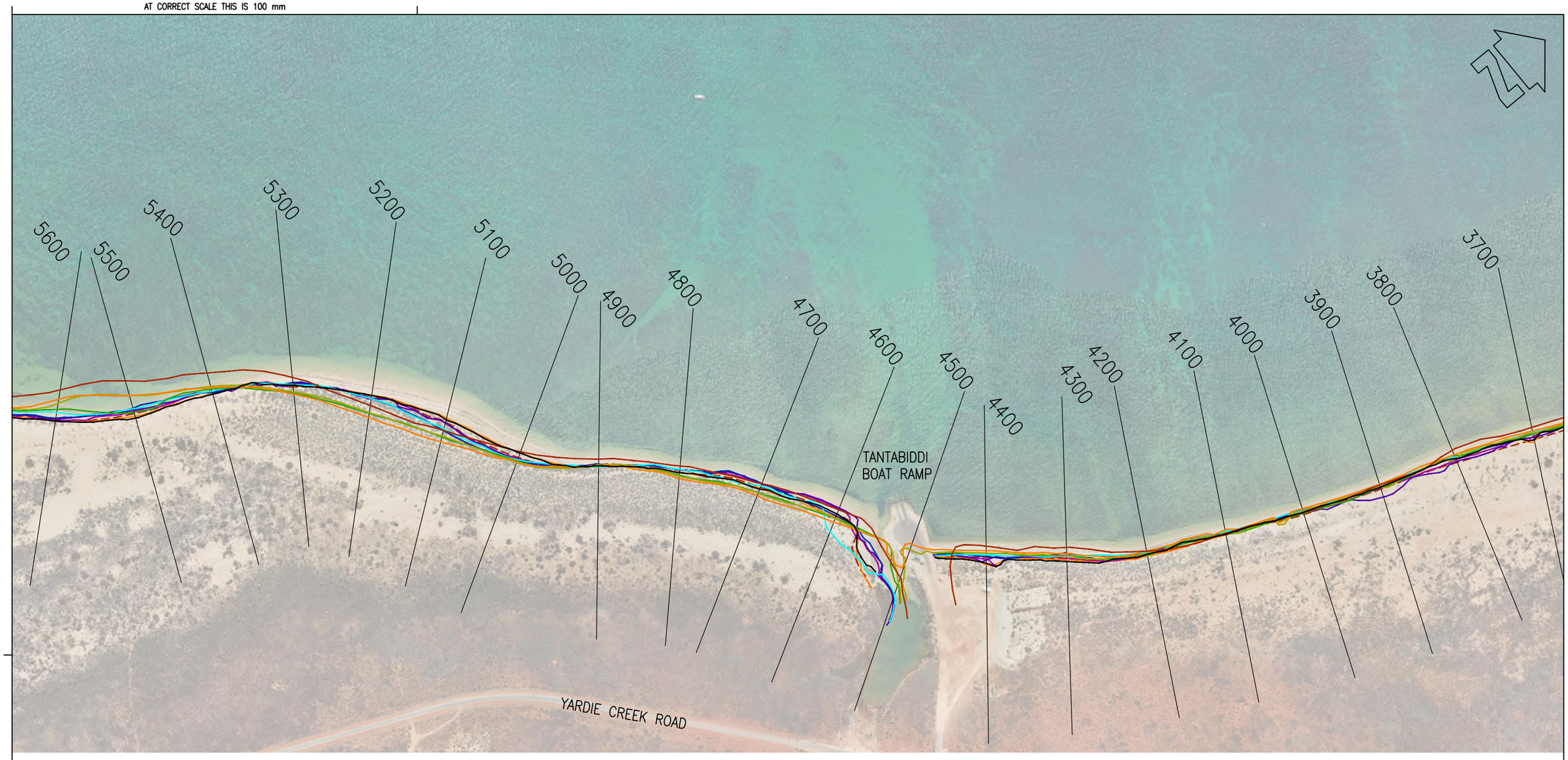
AT CORRECT SCALE THIS IS 100 mm



AT CORRECT SCALE THIS IS 100 mm

LEGEND:

- 1969 VEGETATION LINE
- 1985 VEGETATION LINE
- 1986 VEGETATION LINE
- 1989 VEGETATION LINE
- 2004 VEGETATION LINE
- 2007 VEGETATION LINE
- 2010 VEGETATION LINE
- 2011 VEGETATION LINE
- 2014 VEGETATION LINE
- 2018 VEGETATION LINE
- 2020 VEGETATION LINE

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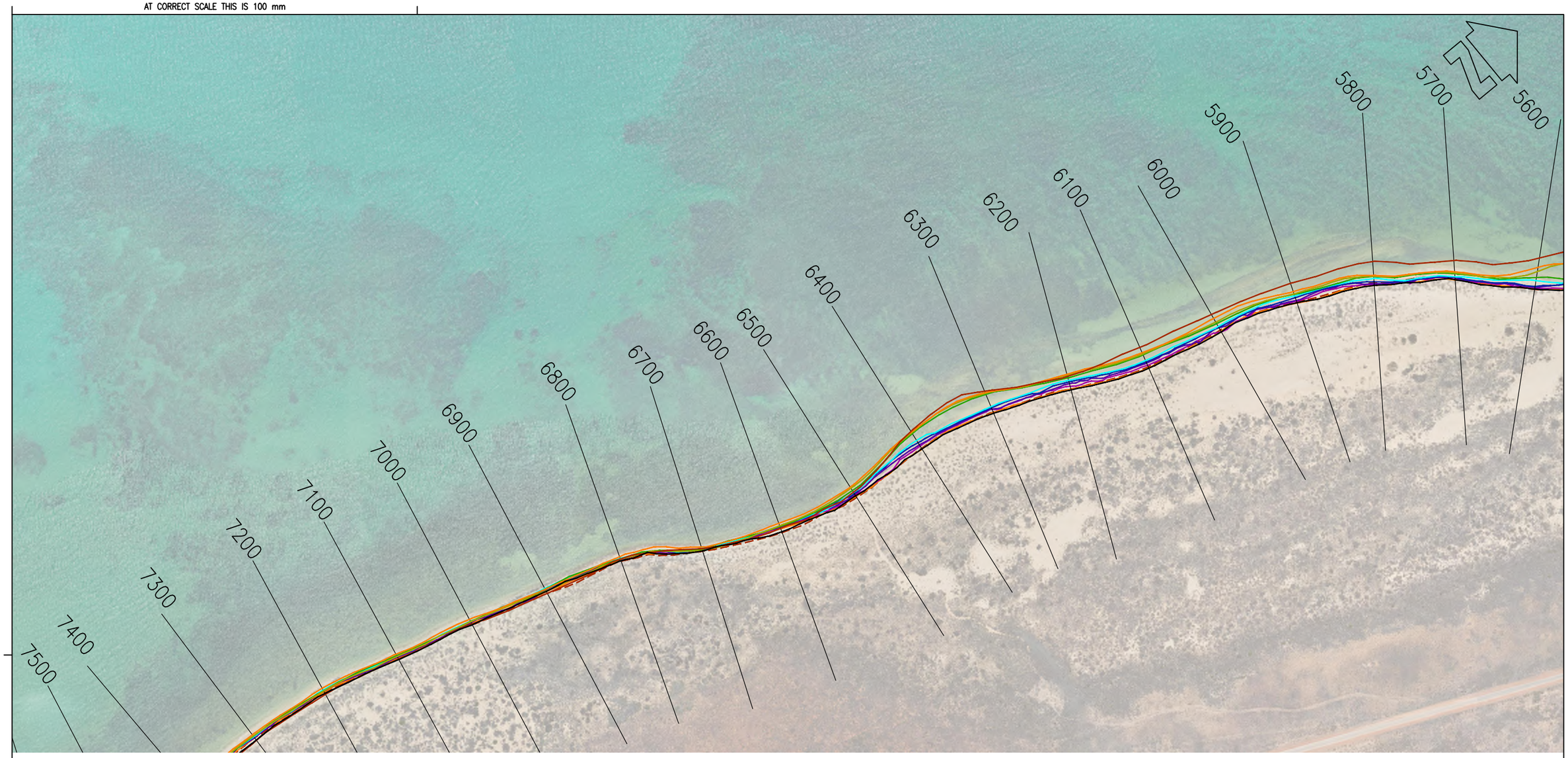

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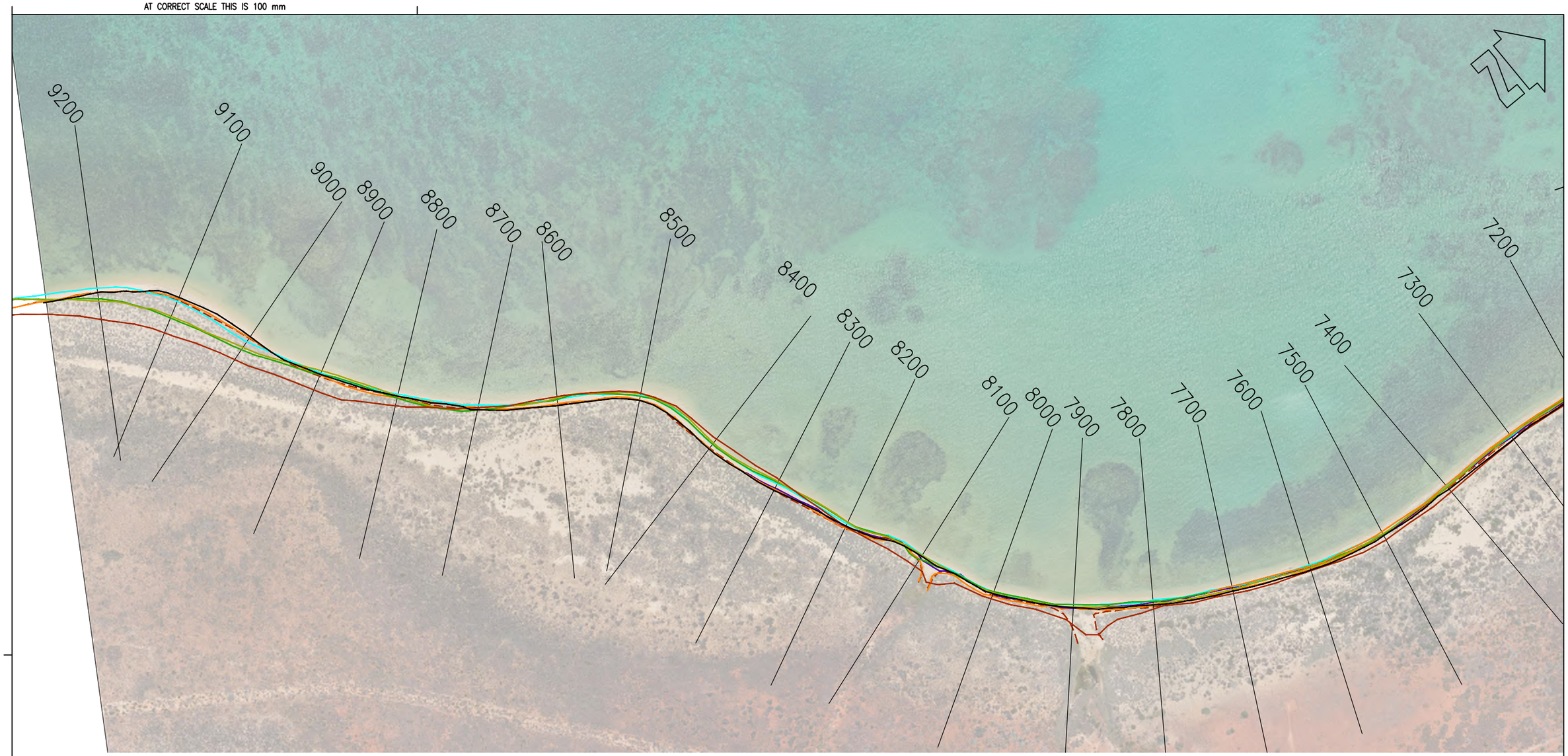

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Appendix B Metocean Climate Analysis Report

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R1524 Rev 1

April 2022

Department of Transport

Tantabiddi Creek
Metocean Climate Analysis

marinas
boat harbours
canals
breakwaters
jetties
seawalls
dredging
reclamation
climate change
waves
currents
tides
flood levels
water quality
siltation
erosion
rivers
beaches
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K1870, Report R1524 Rev 1
Record of Document Revisions

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1	Updated with minor change	C Doak	M Peterson	C Doak	27.04.2022

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1. Introduction

The Tantabiddi Boat Ramp precinct is of regional significance and is a key asset as a gateway to the Ningaloo Reef tourism and recreational experiences. The Shire of Exmouth (Shire) and the Department of Biodiversity, Conservation and Attractions (DBCA) jointly manage the Tantabiddi land and marine environment under the governance of the Jurabi and Bundegi Coastal Parks and Muiron Island Management Plan 1999. Both agencies manage civil maintenance, environmental maintenance, and preservation programs, though the Shire generally maintains the boat ramp infrastructure. The location of the boat ramp in the context of the North West Cape is shown in Figure 1.1 below.

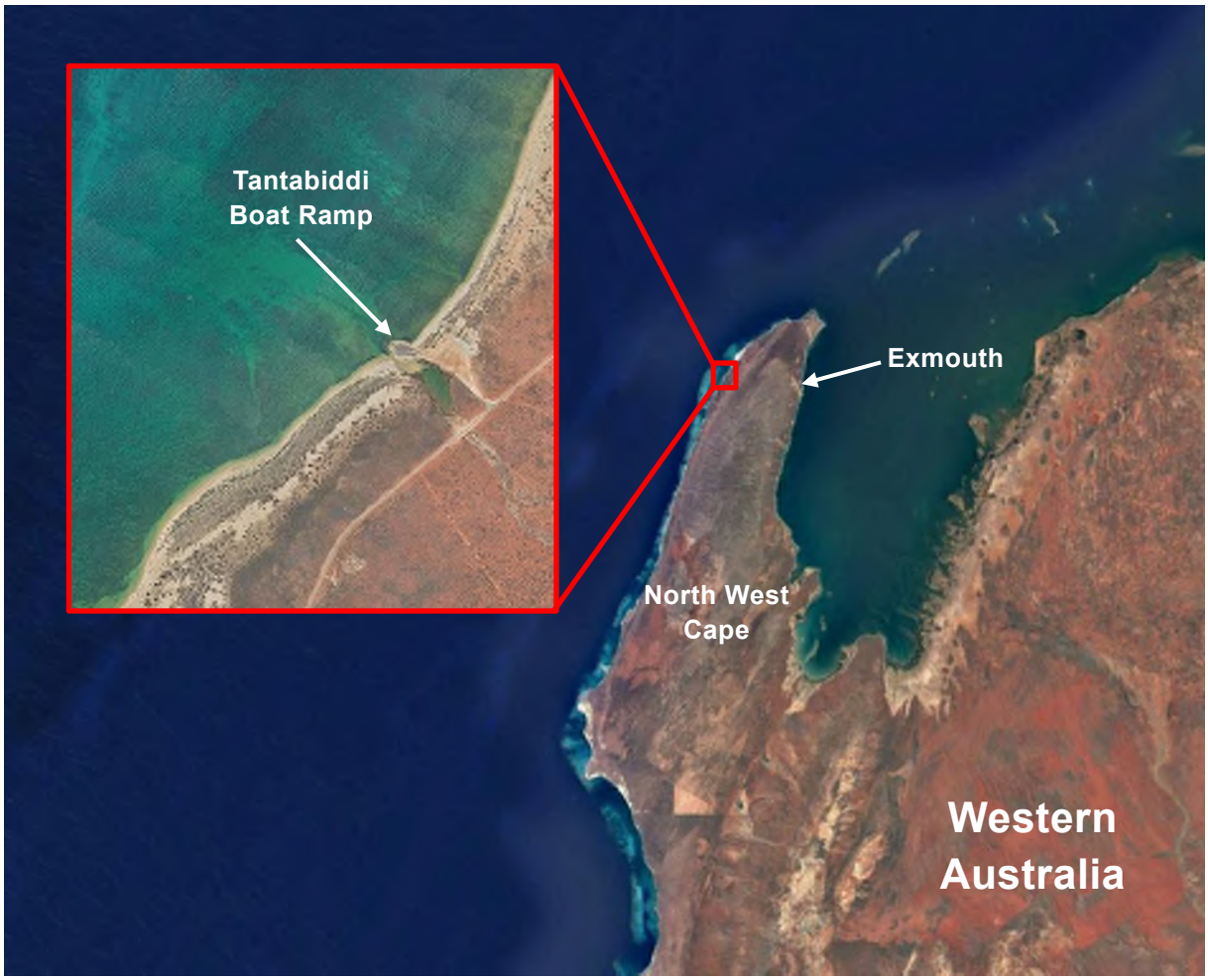


Figure 1.1 Location Plan

To address capacity limitations and maintenance issues associated with the existing Tantabiddi ramp, the Department of Transport (DoT) in collaboration with the Shire, DBCA, Department of Primary Industries and Regional Development (DPIRD), and Tourism WA have resolved to identify the planning, investigations and approvals necessary to develop a new facility at Tantabiddi.

This involved the development of a preliminary concept for the Tantabiddi Boating Facility (TBF), shown in Figure 1.2. In September 2020, an expanded TBF Concept B was developed by DoT and selected for progression. The Concept B layout is shown in Figure 1.3 and a comparison with Concept A is shown in Figure 1.4.

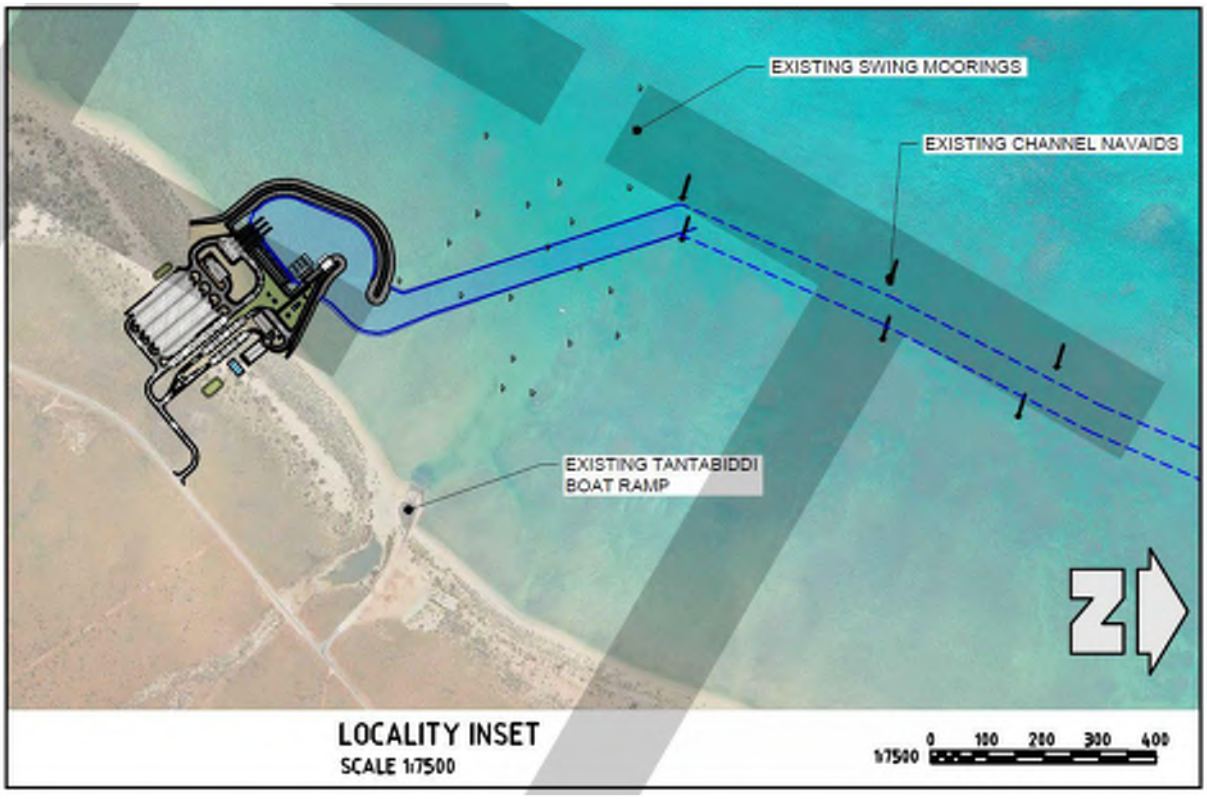


Figure 1.2 Formerly Proposed Concept A

Figure 1.3 Proposed Concept B

Figure 1.4 Comparison of Concepts A & B

In order to investigate the coastal processes at the Tantabiddi site and the impact of the proposed concept, coastal engineers M P Rogers & Associate Pty Ltd (MRA) were engaged by DoT to undertake the Tantabiddi Creek Coastal Processes Study. This study includes a number of tasks, discussed below. The outcomes of the Tantabiddi Creek Coastal Processes study are contained within a number of reports prepared by MRA. This is a standalone technical report prepared for the Metocean Climate Analysis (Task 3).

1.1 Tantabiddi Creek Coastal Processes Scope

The scope of this study includes a number of tasks and activities which are detailed below.

- Task 1: Desktop Review, Data Gathering, and Site Visit.
- Task 2: Shoreline Movement Assessment.
- **Task 3: Metocean Climate Analysis which includes.**
  - **Nearshore Ambient Condition Analysis.**
  - **Offshore Ambient and Extreme Conditions Analysis.**
  - **Ambient and Extreme Wind Conditions Analysis.**
- Task 4: Cyclonic Modelling.
- Task 5: Wave Modelling.
- Task 6: Hydrodynamic Modelling – Impacts and Flushing.
- Task 7: Sediment Transport and Sedimentation Modelling.

- Task 8: Wave Penetration and Long Period Wave Assessment.
- Task 9: Wave Penetration Modelling. Contingent on outcome of Task 8.
- Task 10: Long Period Wave Modelling. Contingent on outcome of Task 8.

Tasks 1, 8, 9 and 10 are wholly contained within sections of the overall Coastal Processes Study report. The outcomes of Tasks 2, 3, 4, 5, 6 and 7 are provided as standalone technical reports. This report consists of the standalone technical report for Task 3.

Refer to Table 1.1 for further information on the location of the standalone technical reports.

Table 1.1 Standalone Technical Report Locations

Task	Task Title	Report Number	Location
2	Shoreline Movement Assessment	R1535	R1518 Appendix A
3	Metocean Climate Analysis	R1524	R1518 Appendix B
4	Cyclonic Modelling	R1533	R1518 Appendix C
5	Wave Modelling	R1629	R1518 Appendix D
6	Hydrodynamic Modelling	R1585	R1518 Appendix E
7	Sediment Transport & Sediment Modelling	R1598	R1518 Appendix F

Notes: 1. Revision numbers for current versions of reports are noted in the current version of the main report (R1518).

The specific scope for Task 3 is introduced below.

1.2 Task 3: Metocean Climate Analysis

The scope of the Metocean Climate Analysis is to establish the nearshore and offshore wave climate and wind conditions affecting the TBF through analysis of the relevant data described in Section 2. This includes three components of works:

- (1) a Nearshore Ambient Condition Assessment,
- (2) an Offshore Ambient and Extreme Conditions Analysis; and
- (3) an Ambient and Extreme Wind Conditions Analysis. The datasets utilised and analyses outputs are summarised in Table 1.2. Further details of the utilised datasets are provided in Section 2.

Table 1.2 Metocean Climate Analysis Outputs

Assessment	Datasets	Outputs
Offshore Ambient & Extreme Conditions	■ Tantabiddi Directional Wave Rider Buoy (TDWB) ■ Calibrated BoM WWIII Hindcast Wave (CWWIII)	■ JFTs broken into overall, annual and seasonal Tables. ■ Roses broken into overall, annual and seasonal Tables. ■ Time series plots of key events and periods. ■ Exceedance curves. ■ Extreme Value Analysis (EVA) omni-directional. ■ EVA directional.
Ambient & Extreme Wind Conditions	■ Wind Anemometer ■ Yardie Homestead Wind Anemometer ■ BoM WWIII Hindcast Wind	■ Joint Frequency tables broken into overall, annual and seasonal Tables. ■ Roses broken into overall, annual and seasonal Tables. ■ Time series plots of key events and periods. ■ Exceedance curves. ■ EVA directional. ■ EVA omni-directional.
Nearshore Ambient Conditions	■ Nearshore AWAC (waves) ■ Nearshore AWAC (currents) ■ Nearshore Aquadopp (waves) ■ Nearshore Aquadopp (currents) ■ Tantabiddi Tide Gauge ■ RBR	■ Joint Frequency tables (JFTs) broken into overall, annual and seasonal Tables. ■ Roses broken into overall, annual and seasonal Tables. ■ Time series plots of key events and periods. ■ Exceedance curves.

2. Data Summary

Metocean refers to the combined meteorological-oceanographic conditions such as wind, wave and water levels found at a particular location. Metocean conditions vary spatially and temporally depending on factors such as weather patterns, bathymetry and directional exposure. A background assessment of regional and local metocean data was undertaken to inform the investigations and design of the TBF.

2.1 Utilised Data

On the Western Australian coastline, the Department of Transport (DoT) and Bureau of Meteorology (BoM) has historically collected the majority of publicly available Metocean data. Metocean data collected in the area includes waves, water levels and winds. A summary of the relevant Metocean data utilised for the assessment is provided in Table 2.1. This includes data extracted from the BoM WWIII Hindcast Model, discussed further in Section 2.2. The locations of all the data collection instruments, excluding the WWIII extraction points are shown in Figure 2.1.

Table 2.1 Data Summary

Type	Description	Date Range	Location (Lat Long)	Location (GDA 2020)	Water Depth or Elevation (m)
Nearshore Wave & Current Data	AWAC	20/03/2019-10/11/2020	21.9076°S 113.9724°E	807112.086 E 7574426.253 S	~3 m
	Aquadopp	21/03/2019-06/11/2020	21.9104°S 113.9767°E	807550.638 E 7574107.412 S	~ 3 m
Nearshore Pressure Sensor Data	TAN01	20/3/2019 to 3/8/2021	21.9076 S 113.9724 E	807112.09 E 7574426.25 S	~3 m
	TAN02	26/7/2019 to 3/8/2021	21.9104 S 113.9767 E	807550.64 E 7574107.41 S	~3 m
	TAN03	15/8/2020 to 5/8/2021	21.9122 S 113.9776 E	807639.8151 E 7573906.178 S	~ 1.5 m
Nearshore Water Level Data	Tantabiddi Tide Gauge	02/12/1989-07/06/1993	21.9123°S 113.9783°E	807715.540 E 7573896.620 S	~1 m
Offshore Wave Data	Tantabiddi Wave Buoy	26/07/2019-31/12/2020	21.8932°S 113.9292°E	802676.210 E 7576107.526 S	47 m
	Calibrated WWIII Hindcast Data	01/01/1979-01/03/2021	21.9332°S 113.9332 E	803005.050 E 7571668.020 S	50 m
Wind	Yardie Wind Anemometer[1]	25/07/2019-28/02/2021	21.8883°S 114.0158°E	811641.233 E 7576477.048 S	20 m
	Learmonth Wind Anemometer	09/12/1993-08/12/2020	22.2406°S 114.0967°E	819213.640 E 7537274.366 S	15 m
	WWIII Hindcast Data	01/01/1979-01/03/2021	21.7300°S 113.8700°E	796892.060 E 7594303.200 S	10 m

Notes: 1. Data missing from 09/08/2018 – 01/11/2019.

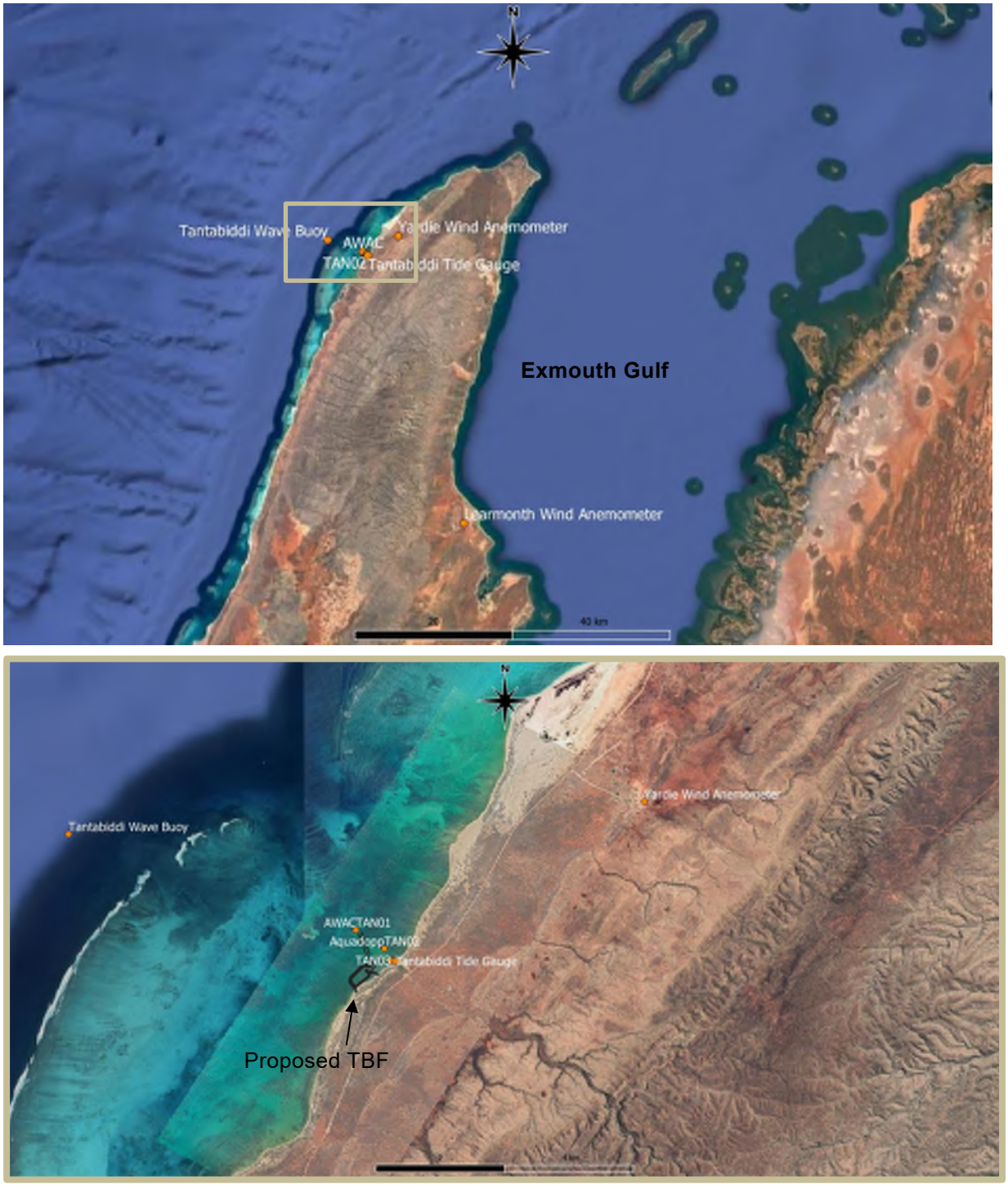


Figure 2.1 Data Locations

A complete list of all of the metocean data provided for the Coastal Processes Study is provided in (MRA 2021).

2.1.1 Conventions

The directional conventions for the various types of data sets are listed below.

- Wave directions – are “coming from”.

- Current directions – are “going to”.
- Wind directions are “coming from”.

2.2 WWIII Hindcast Model

Given the relatively limited duration of available wave recordings close to the site, alternate sources of wave information have been investigated. WWIII Hindcast data was used to extend the available period of wave and wind records and therefore helped to ensure that the longest possible period of information was considered within the ambient and extreme condition assessment.

BoM and CSIRO developed a wave hindcast model that covers the Australian coastline. The hindcast was originally completed for the period from 1979 to 2010. It was later extended to 2013 and BoM now keeps the model updated to present day.

The hindcast model is run on a 0.4° x 0.4° global grid with a series of nested grids of 10 arcminutes (~18km) down to 4 arcminutes (~7km) around the Australian and Western Pacific Island coasts (Smith, Grant A., et al). The grid extent and nesting are shown in the following figure.

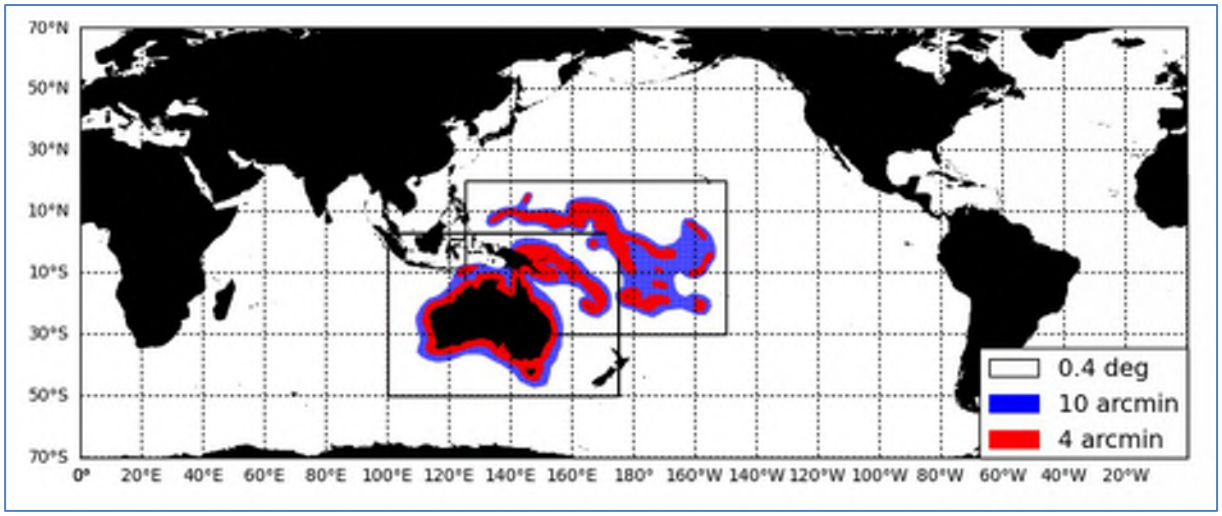


Figure 2.2 BoM Wavewatch III Hindcast Model Grids

All grids are forced with Climate Forecast System Reanalysis (CFSR) surface winds at 0.3° spatial and hourly temporal resolution. Further information on this model is provided in Durrant et al (2013) and BoM (n.d.). The wave hindcast dataset provides two types of output.

- Gridded output at each 4 arcminute grid point that includes summary parameters for primary, secondary and tertiary swell along with locally generated seas.
- Output stations at approximately 0.5o x 0.5o resolution throughout the model that provided additional parameters such as 2D wave spectra, wind speeds and wind directions.

The closest station output is located approximately 17 km northeast from the TDWB whilst the closest gridded output points are located approximated approximately 5 km south of the TDWB. The locations of these points are shown in Figure 2.3 below.

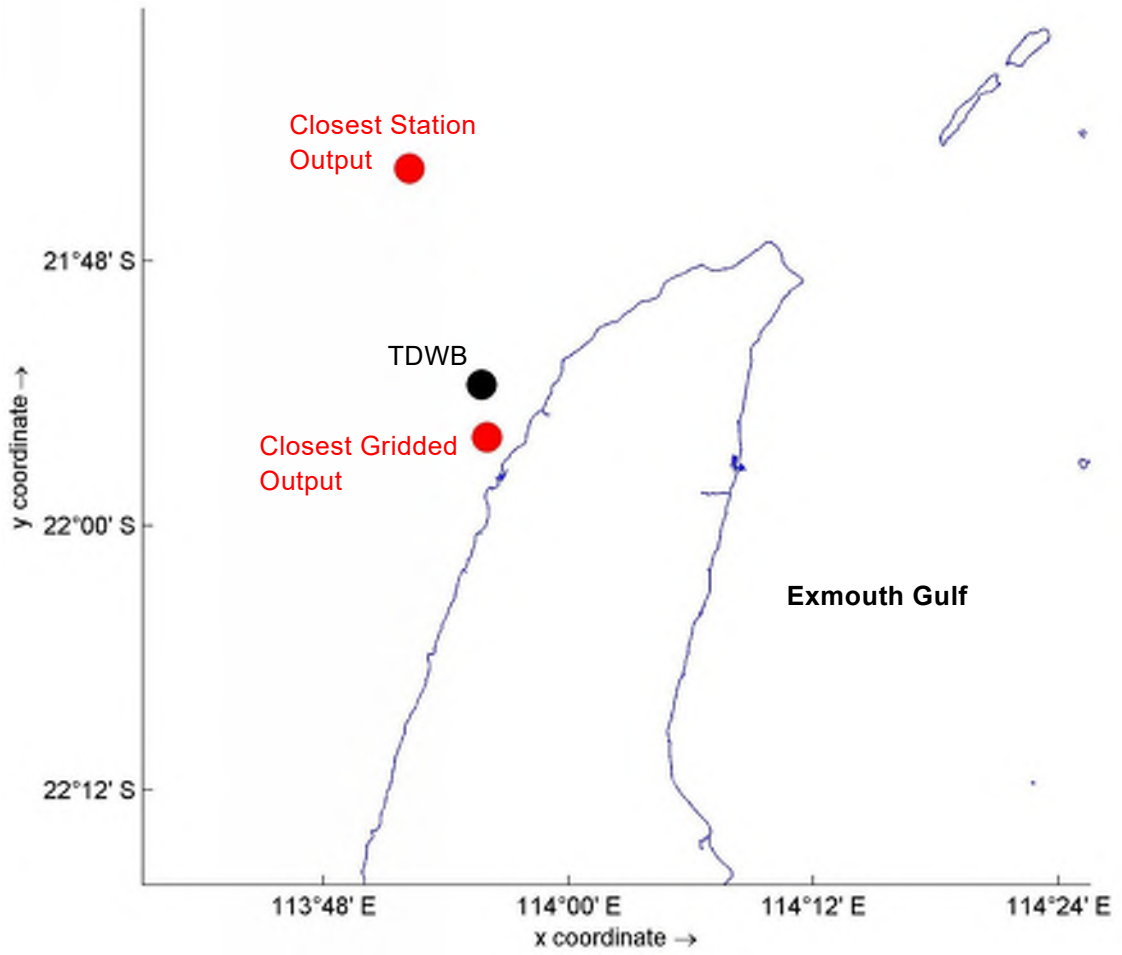


Figure 2.3 BoM WWIII Hindcast Output Points

2.2.1 Wave Data Extraction & Calibration

The data was extracted from the closest gridded output point in the WWIII model approximately 5 km south of the TDWB, at a model depth of 50 m. The location of the TDWB and the closest gridded output point are shown in Figure 2.3.

The model depth of the extraction point is 50 m, which is of comparable depth to the TDWB (47 m), and it is the closest extraction point to the TDWB, making it ideal for use in the study.

A 2-stage factoring consistent with MRA (2018) was utilized to incorporate the WWIII wave data into the assessment. These stages are summarized below.

- Stage 1 includes factoring of the whole time-series for the purposes of boundary conditions and production of JFTs, roses and exceedance curves. For this, linear regression is utilised to establish a single wave height factor for the entire time-series. The use of a single factor simplifies modification of the entire spectrum.

- Stage 2 includesre-factoring of the extreme events for the purposes of extreme event identification and value analysis.

Stage 1 Factoring

For the Stage 1 validation and calibration of the data, a number of statistical checks for model performance and correlation were undertaken. The root mean squared error (RMSE), scatter index, Willmott correlation factor (also known as model skill) and bias were used to analyse the model performance. The formulae for these metrics are provided in Table 2.2 and results in Table 2.3.

Table 2.2 Model Agreement Statistic Formulae

Statistical Test	Formula
RMSE	$\sqrt{\frac{1}{N_i}\sum_{i=1}^{N}(S_i - O_i)^2}$
Scatter Index (0-1)	$\sqrt{\frac{\sum_{i=1}^{N}[(S_i - \bar{S}) - (O_i - \bar{O})]^2}{\sum_{i=1}^{N} {O_i}^2}}$
Willmott Correlation Factor (0-1)	$1 - \frac{\sum_{i=1}^{N}(S_i - O_i)^2}{\sum_{i=1}^{N}[\lvert S_i - \bar{O}\rvert + \lvert O_i - \bar{O}\rvert]^2}$
Bias (mean signed difference)	$\frac{\sum_{i=1}^{N}(S_i - O_i)}{\mathrm{N}}$

Notes: 1. S = Modelled data, O = Observed data, N = number of datapoints, i = variable i

RMSE

The RMSE indicates the absolute fit of the model to the data. As the square root of a variance, RMSE can be interpreted as the standard deviation of the unexplained variance, and has the useful property of being in the same units as the response variable. Lower values of RMSE indicate better fit. RMSE is a good measure of how accurately the model predicts the response, and is an important criterion for fit if the main purpose of the model is prediction.

Scatter Index

The scatter index is the RMSE normalised with the overall mean of the measured and modelled data. This provides a relative measure of the mean error with the actual values of the measured data taken into account (Williams and Esteves 2017). Scatter index scores range from 0 – 1, with 0 representing a perfect score.

Willmott Correlation Factor

The Willmott correlation factor provides an index of agreement between observed and simulated data, normalised to the mean of the measured data. Willmott correlation scores range from 0 to 1, with 1 representing a perfect score. Generally, a score over 0.5 is considered reasonable and a score greater than 0.8 is considered very good (Willmott et al. 1985). It is known that the Wilmott correlation factor overweights larger errors as it is calculated by squaring errors without a subsequent square root (like in the equation for scatter index) (Wilmott 2011). This can lead to underestimates of performance in models with a few points with large error. In contrast, the Scatter Index square roots the squared error to calculate the performance which reduces the weighting associated with individual points with large error.

Bias (mean signed difference)

The bias, or mean signed difference, provides an average of the difference between the model and mean values.

Statistical Comparison of the extracted data against the data record (TDWB) generally showed the following.

- In line with validations undertaken by MRA for other locations (MRA 2020), the model reasonably matched observations of significant wave height (Hs), peak period (Tp) and peak direction (Dir), as evidenced by model performance calculations shown in Table 2.3.
- The model typically underpredicted observed Hs at the TDWB by around 16%, calculated by linear correlation. Therefore, MRA factored the modelled Hs up by 16% to achieve a linear correlation of 1. This approach improves the performance of the model for Hs as shown in model performance calculations in Table 2.3
- The factored Hs achieves a model skill of 0.89, which is considered acceptable, and a very small bias (0.01).
- The Wilmott Correlation of Tp and Dir respectively are both considered to be acceptable (0.71 and 0.65).

Given that, ultimately, any improvement to the data will also need to be applied to raw spectral information to allow generation of model boundary inputs, MRA has not modified the Tp or Dir extracted from the model. Rather, the impact of the performance indicators below, particularly bias, on the model outcomes will be considered.

Table 2.3 Model Agreement Statistics for WWIII Wave Data

Statistical Test	Model Performance			
	Hs (m)	Hs Factored (m)	Tp (s)	Dir (o)
Linear Regression Slope	0.84	1.00	1.06	0.97
RMSE	0.16	0.17	0.20	0.09
Scatter Index (0-1)	0.36	0.28	2.82	22.70
Willmott Correlation Factor (0-1)	0.82	0.89	0.71	0.65
Bias (mean signed difference)	-0.25	0.01	1.13	-6.57

Density cross plots of the data are presented in the figures below. Two methods have been used to plot Tp. The density plots show significant scatter in the data; however, the greatest density of data is close to the regression line of 1.00.

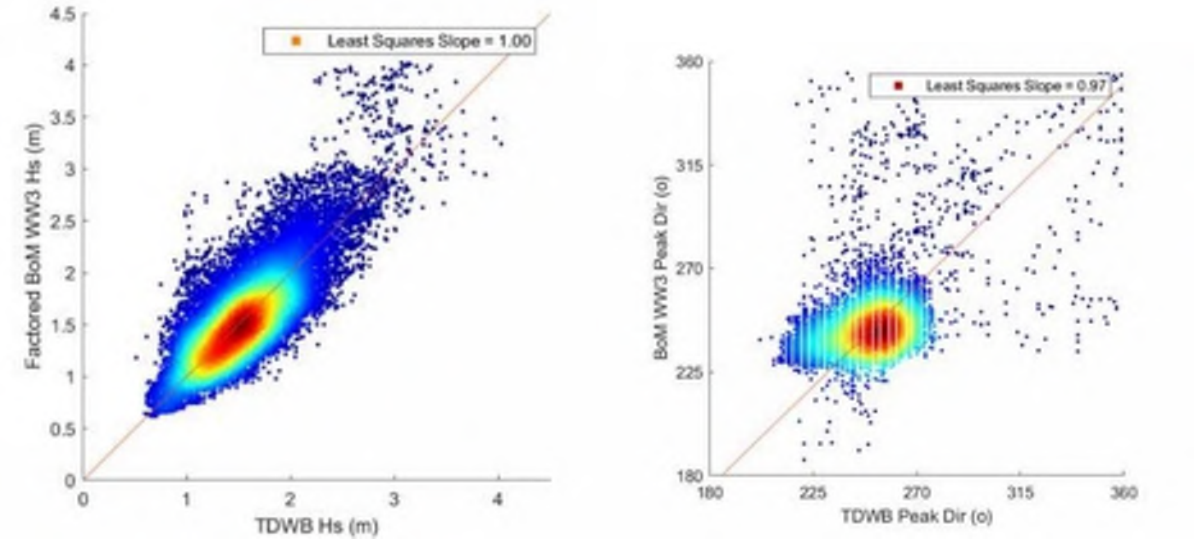


Figure 2.4 Model Performance Cross Plots for Factored Total Hs & Peak Direction

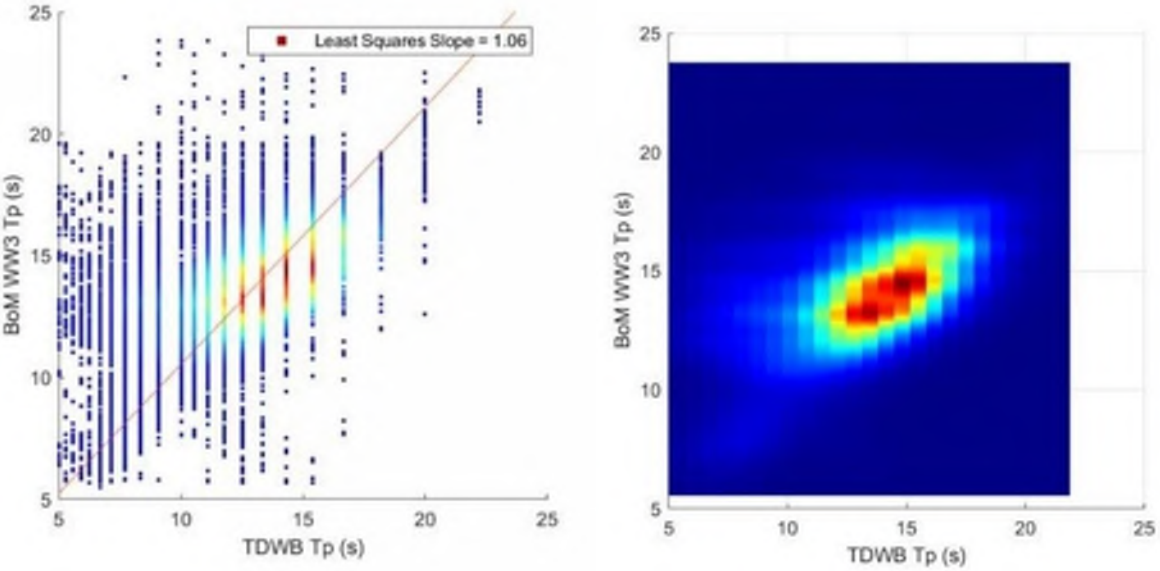


Figure 2.5 Model Performance Cross Plots for Total Peak Period

Stage 2 Factoring

The Stage 2 factoring of the data for the purposes of the instantaneous wave height analysis arises from a combination of the sampling interval of the data and the variable fit of the data. The Stage 1 calibration of the WWIII hindcast data was completed to ensure that the WWIII data matched the entire time series of recordings as best as possible. This is illustrated in Figure 2.6 for a single event.

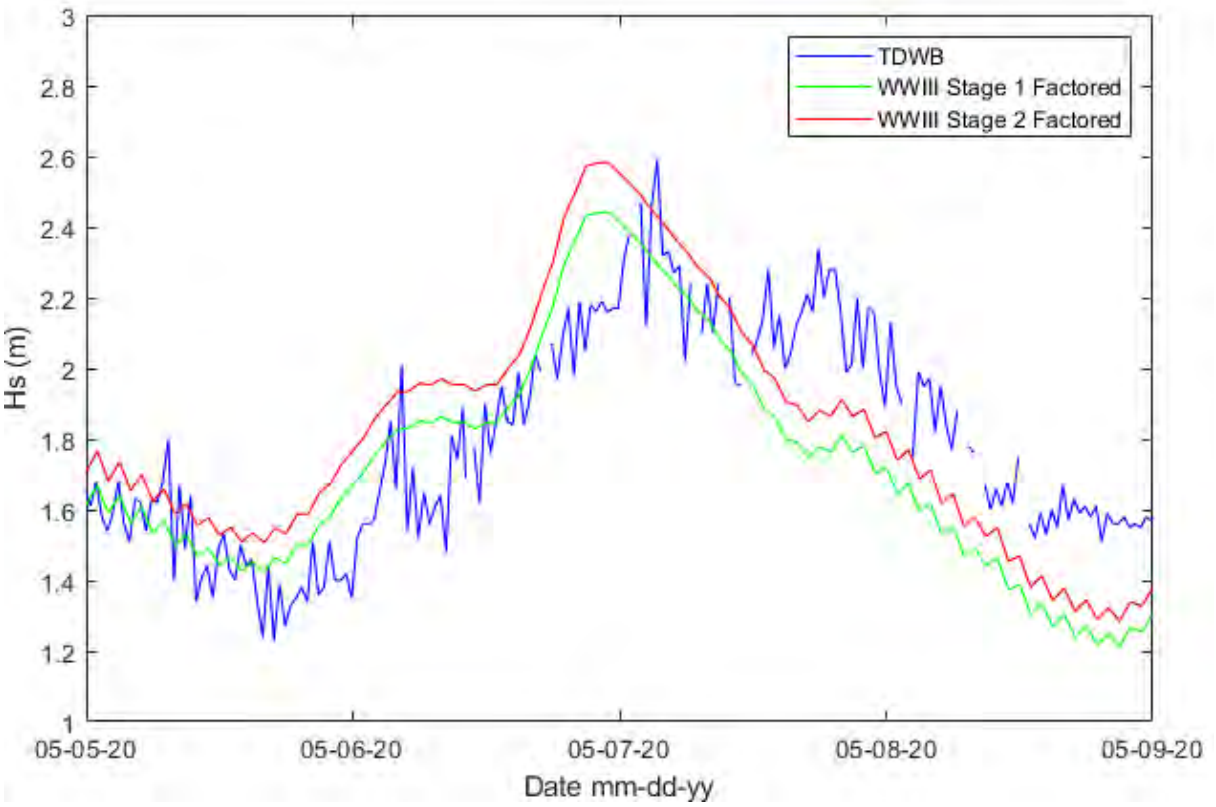


Figure 2.6 WWIII Hindcast Factoring for Instantaneous Event Identification

As shown, the original calibration ensured the WWIII data fit the middle of recorded measurements and therefore provided a good estimate of the overall wave power. However, due to the smoothness of the WWIII data, peak wave heights are not accurately represented. Hence, for the purposes of identification of peak values from the WWIII data period, the calibrated WWIII data was factored up to better fit the peaks of measurement data and therefore help to ensure that the severity of instantaneous events was not underestimated from this dataset.

The Stage 2 factors for the WWIII hindcast data were determined by directly comparing the top instantaneous significant wave height events in the periods of overlap between the WWIII data and the TDWB data. An additional 5% increase from the stage 1 factors was applied for the extreme wave height analysis.

Limitations of Data

The use of the WWIII hindcast data provides the benefit that the analysis can be extended to cover a period back to 1979. This extension helps to provide a more meaningful and statistically robust analysis compared to the use of wave measurement information only, which would limit the assessment duration to less than 2 years. However, whilst the use of WWIII hindcast data is beneficial, there are some limitations to its use.

Primarily, the WWIII hindcast data is still the product of a modelling system and whilst that system provides a good level of congruency with the measurements, the fit is not perfect. The wave height corrections that have been made to the data for this study provide an overall improvement in fit across the duration of the record, however anomalous events can be underestimated.

Furthermore, the “sea” component that is provided in the WWIII data is not consistent with the sea component typically defined by DoT in their wave measuring devices. The WWIII data is a true measure of the locally generated wave conditions and is therefore not limited to a period of 8 seconds (it includes periods above 8 seconds where the local generation of waves causes this to occur). As a result, comparison of the sea components from WWIII and the TDWB will not be like-for-like comparisons. Nevertheless, analysis of the sea components from WWIII provides relevant wave information.

It is also well established that the WWIII hindcast is limited with regards to its ability to represent diurnal wind patterns such as sea breezes. These types of events are largely influenced by the local land-ocean temperature differential rather than large scale meteorological events.

2.2.2 Wind Data Extraction

As discussed in Section 2.2, wind data is only available from WWIII output stations at approximately 0.5o x 0.5° resolution throughout the model. The data was extracted from the closest station output point in the WWIII model which is located approximately 17 km north west of the Tantabiddi Wave Buoy. The location of the closest station output point to the site is shown in Figure 2.3.

The nearest wind stations (Yardie and Learmonth) are located on land at varying elevations, whilst the WWIII wind extraction point is located in the Indian Ocean. Each of these datasets represents wind speeds at different locations, elevations, sampling intervals and averaging periods. No calibration of the data is proposed for the extracted wind data.

The use of the various datasets and the conditions they represent will be dependent on the relevant applications. This will be discussed further in the relevant hydrodynamic and wave modelling reports. The Metocean Assessment includes analysis and presentation of the data.

3. Site Setting & Metocean Background

3.1 Local Bathymetry & Sheltering

The Tantabiddi Creek site is located on the western coast of the North West Cape within the Ningaloo Coast World Heritage Site. Short (2006) describes this section of coastline as composed of sand beaches paralleled by fringing reefs which extend up to 500 m offshore. Broken sections of coral reef are located further offshore as shown in Figure 3.1. The coral and fringing reef provides significant protection to this area of coast as shown below.

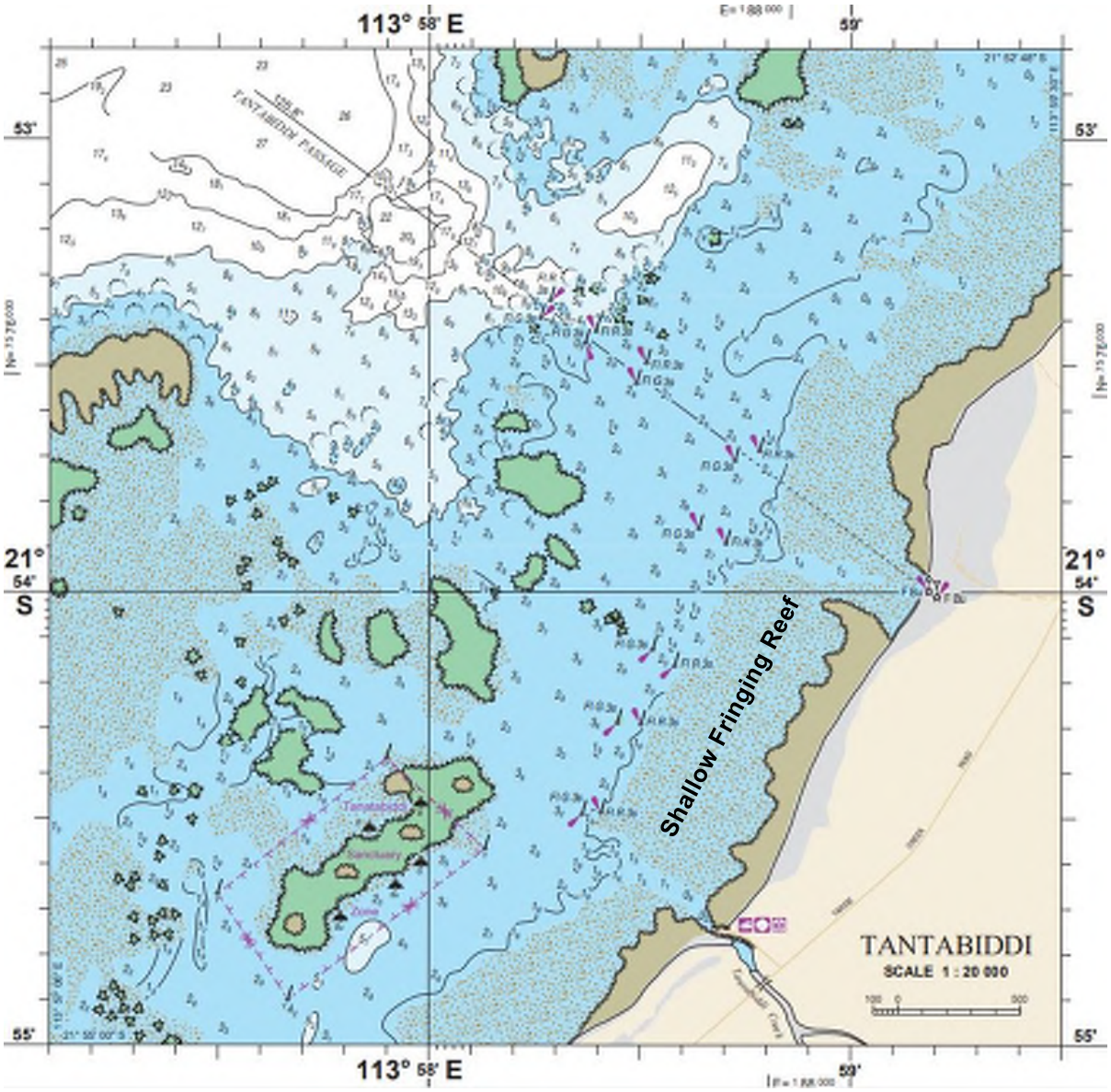


Figure 3.1 Nautical Chart RAN 900 (DoT)

Tantabiddi Creek provides a natural channel through the shallow fringing reef resulting in significant usage of the site for boat launching over the recent decades. There is also a band of offshore reef which runs along the Cape approximately 3 km offshore from the coastline as shown in Figure 3.2. There is an approximately 2 km wide passage through this reef to the NW of the proposed TBF. The refraction of waves over the reef and the diffraction of waves through this

passage are key processes for the transformation of waves offshore to those that could be experienced at the TBF.

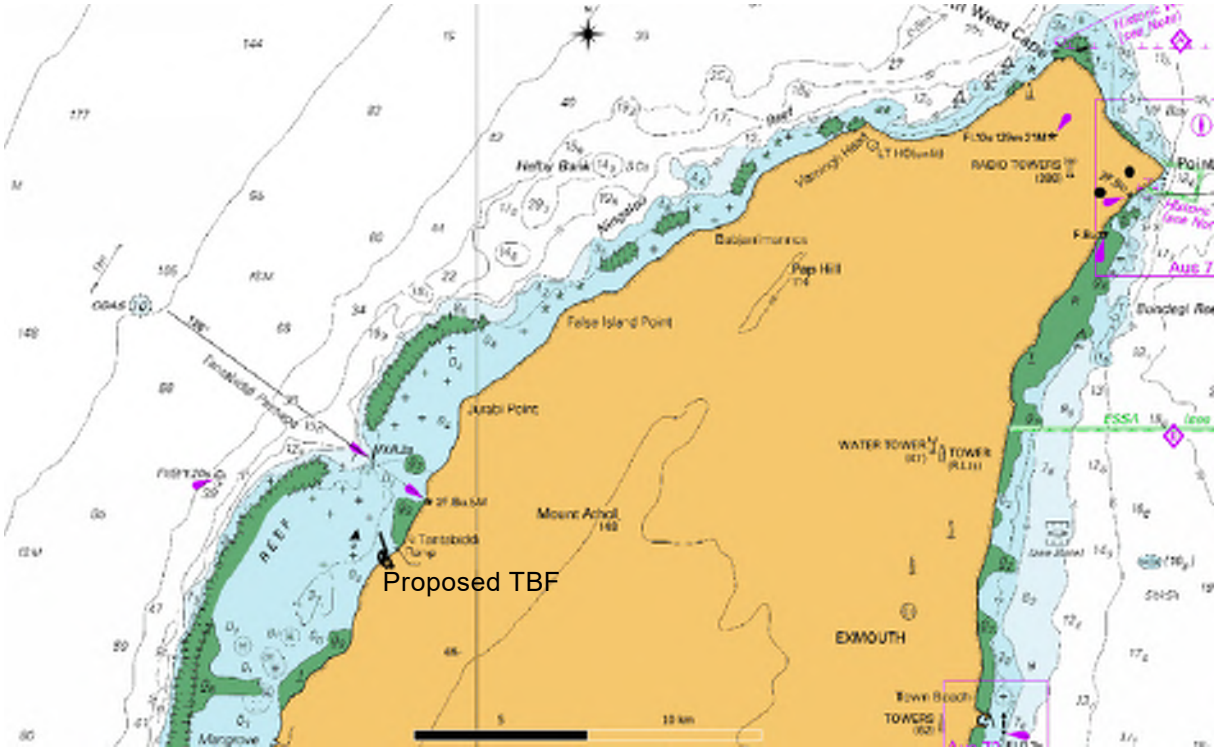


Figure 3.2 Nautical Chart RAN 900 (DoT)

3.2 Regional Wind Climate

The regional wind climate is intrinsically linked to regional and local wave conditions relevant to the coastal processes study. Hence, an understanding of the North West Cape wind climate is required to explain the types of wave and current conditions that can be expected seasonally and during different meteorological events.

During the summer months, the local meteorological conditions are determined by the interaction of the diurnal sea/land-breeze cycle with the larger regional scale weather patterns. The most important of these is the Subtropical High-Pressure Belt – a series of discrete high-pressure cells (anticyclones) which encircle the Earth at mid-latitudes (20 to 40 degrees), continuously moving from west to east. A notional line joining the centres of these cells is known as the High-Pressure Ridge. Each high-pressure cell generates anti-cyclonic winds that rotate anti-clockwise in the Southern Hemisphere. During summer months, the High-Pressure Ridge lies between 35 and 40°S. During this period, the wind regime is characterised by generally strong southerlies.

During the winter months the Subtropical High Pressure Belt lies between 20 and 25°S and hence strongly influences the weather of the coastal waters in the vicinity of Tantabiddi. During the winter months the winds are more variable with a weak south-easterly tendency. (Forbes & Morrow 1989, Smith et al. 1991, Pattiaratchi & Woo 2009). Changes in the Subtropical Ridge are shown in Figure 3.3.

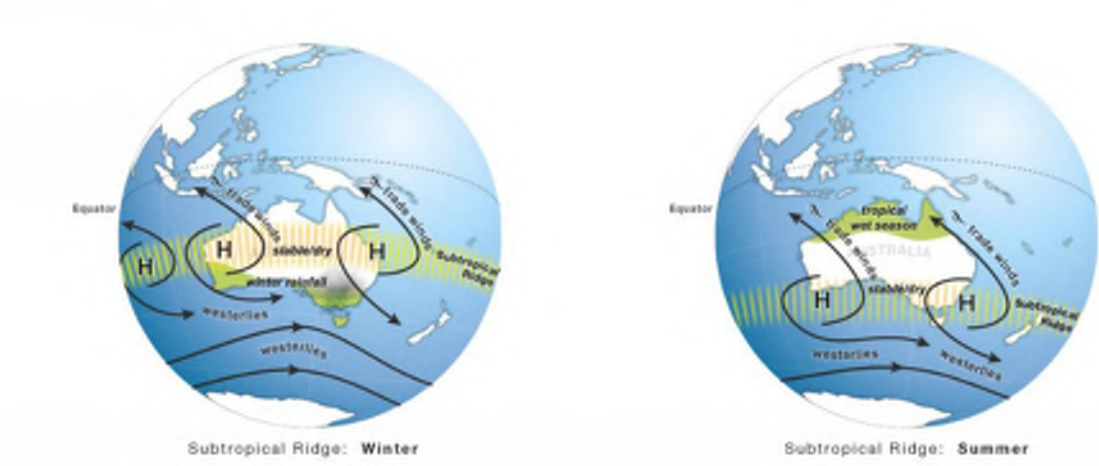


Figure 3.3 Season Changes in Subtropical Ridge (BoM 2017)

3.3 Water Levels

DoT measures water levels at a number of locations around Western Australia. Historically, there are a number of locations within the vicinity of the proposed TBF where water levels have been recorded. These locations are shown in Figure 3.4.

Figure 3.4 Locations of Water Level Data

A submergence curve has been generated by DoT for Tantabiddi. Table 3.1 summarises the key tidal elevations from the Tantabiddi tidal gauge. The submergence curve is shown in Figure 3.5.

Table 3.1 Tantabiddi Tidal Planes (DoT 2006)

Tide	Elevation (m)	
	Chart Datum	AHD
Highest Astronomical Tide (HAT)	2.04	1.03
Mean High Water Spring (MHWS)	1.60	0.59
Mean High Water Neap (MHWN)	1.31	0.30
Mean Sea Level (MSL)	1.07	0.06
Australian Height Datum (AHD)	1.01	0.00
Mean Low Water Neap (MLWN)	0.87	-0.14
Mean Low Water Spring (MLWS)	0.54	-0.47
Lowest Astronomical Tide (LAT)	0.10	-0.91

Notes: 1.Taken from Tantabiddi submergence curve (DoT 1615-21-01).

Out of the tidal gauge locations shown in Figure 3.4, only the Exmouth tide gauge is currently active and is the longest data set available in the region. The tide experienced at the Exmouth site and the Tantabiddi site are comparable under some conditions. However, due to their opposing aspects, the magnitude of water level set-down or set-up can vary significantly. Hence, during periods where wind speeds contribute to significant surge (positive or negative) the water levels at these two locations can be very different.

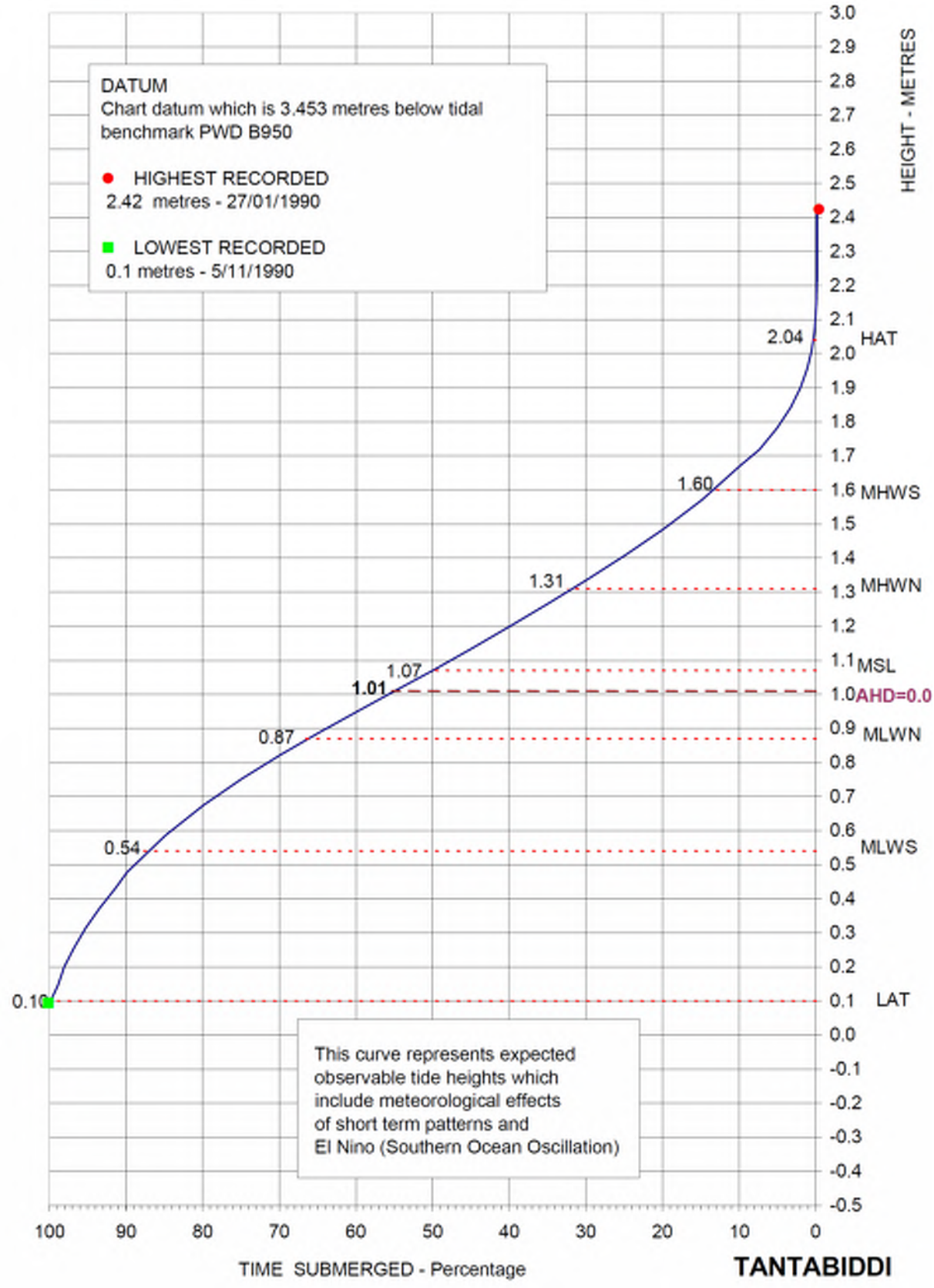


Figure 3.5 Tantabiddi Submergence Curve (DoT 2006)

3.4 Cyclones

Tropical cyclones are intense tropical depressions, causing wind speeds of gale force or greater. Originating in the lower latitudes, most commonly from 10°-15° S these systems are highly mobile and are capable of travelling extensive distances. Tropical cyclones generate energetic wave conditions and can significantly impact water levels as the cyclone approaches the coast (Seashore 2018).

Tropical cyclones frequently occur in the Gascoyne region. The region off the north-west Australian coast is prolific for genesis of tropical cyclones. The northwest Australian coastline between Broome and Exmouth is the most cyclone-prone region of the entire Australian coastline, having the highest frequency of coastal crossings as shown below. On average about five tropical cyclones occur during each tropical cyclone season over the warm ocean waters off the northwest coast between 105 and 125°E. On average about two cyclones cross the coast, one of which is severe. The Australian cyclone season officially runs from November to April (BoM 2021a). Cyclones that have passed within 100 km of the Tantabiddi site between 1969 and 2021 are shown in Figure 3.6. A total of 22 cyclones have passed within 100km (radius) of the Tantabiddi site since 1969.

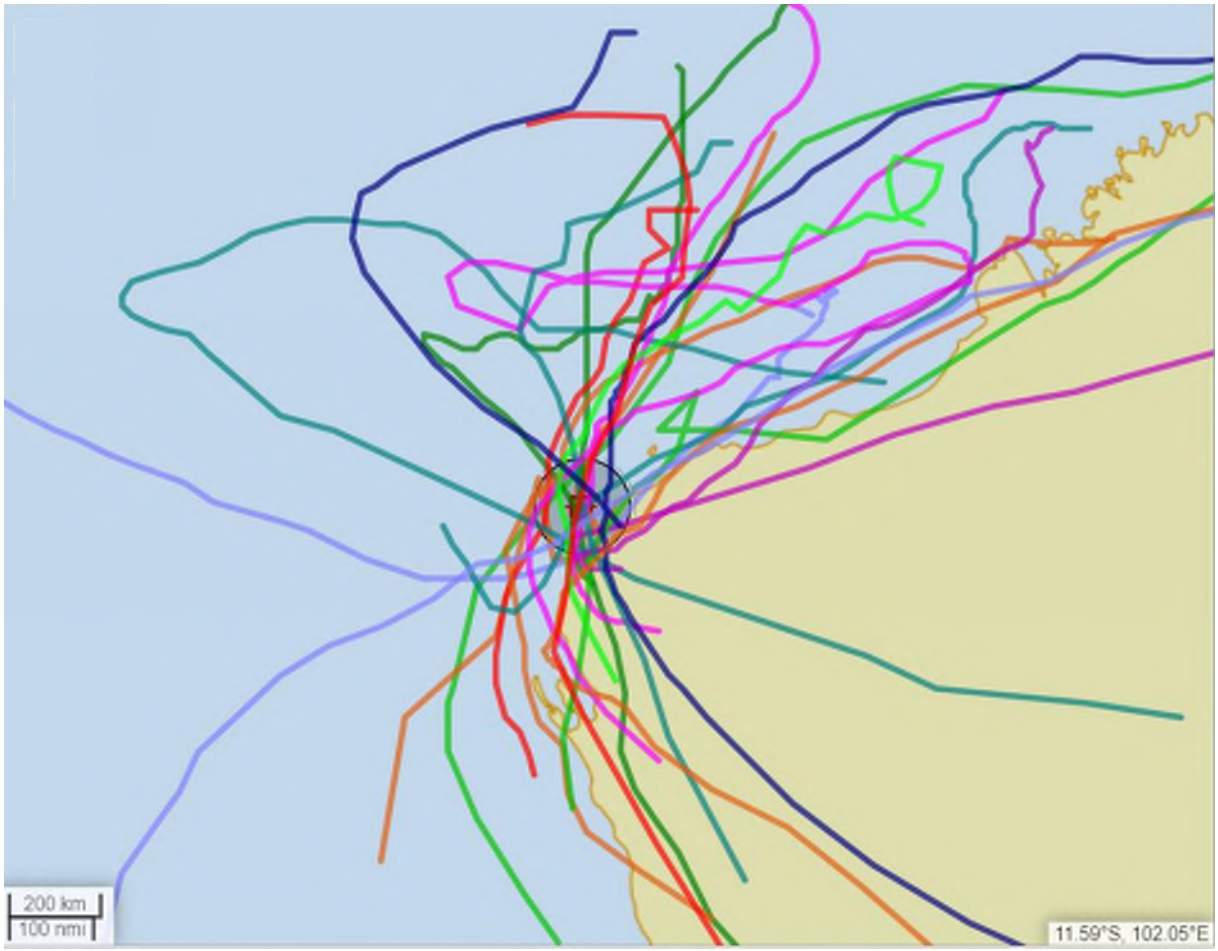


Figure 3.6 Cyclone Tracks (BoM 2021b)

To allow consideration of extreme water levels and waves driven by cyclone events, MRA will undertake Monte Carlo Cyclone modelling. This will comprise a cyclone track generation model that simulates all facets of cyclone generation, propagation and decay over the entire Australian

region. Coupled with the cyclone track model, the integrated Delft3D hydrodynamic and wave model will be used to determine the effects of the most severe events on metocean conditions at Tantabiddi.

The Monte-Carlo and Cyclone modelling is being undertaken separately to the Metocean analysis completed herein. As such all extreme waves established from this study exclude cyclonic conditions.

4. Offshore Ambient & Extreme Conditions Analysis

An assessment of offshore ambient and extreme wave conditions has been conducted by MRA utilising the Tantabiddi Directional Waverider Buoy (TDWB) and the Calibrated WWIII Hindcast (CWWIII) data. This has involved the following components.

- Offshore Ambient Conditions Analysis – TDWB and CWWIII data; and
- Offshore Extreme Conditions Analysis – CWWIII data.

4.1 Offshore Ambient Condition Analysis

Offshore ambient wave conditions at the TBF have been assessed and summarised utilising the following analysis methods.

Table 4.1 Offshore Ambient Analyses Complete

Dataset	Data	Temporal Categories	Analyses Complete
TDWB	■ Total Hs ■ Swell Hs ■ Sea Hs ■ Total Tp ■ Swell Tp ■ Sea Tp	■ Overall ■ Seasonal ■ Annual	■ JFTs. ■ Wave Roses. ■ Exceedance curves. ■ Time series plots of key events.
CWWIII	■ Total Hs ■ Swell Hs ■ Sea Hs ■ Total Tp ■ Swell Tp ■ Sea Tp	■ Overall ■ Seasonal ■ Annual	■ JFTs. ■ Wave Roses. ■ Exceedance curves. ■ Time series plots of key events.

4.1.1 Joint Frequency Tables

JFTs for waves broken into overall, annual and seasonal tables have been prepared and are provided in the following sections. Due to the significant number of plots prepared as part of these works, only the overall tables are provided within the report body. Overall, annual and seasonal tables are included as appendices.

The overall assessment provides the statistics over the entire available dataset. The annual tables provide the statistics for each year of data. The seasonal assessment provides the statistics for all available data throughout the entire data period within the relevant season.

Tantabiddi Wave Buoy

The overall JFT's for Hs and Tp against Dp and Hs against Tp for the Tantabiddi Wave Buoy Data are provided in Tables 4.2 to 4.4. These are duplicated in Appendix A, along with the annual and seasonal tables. The parameters are broken into total, swell and sea wave parameters. The directional bins are broken into 16, ±11.25° bins from the principal directions presented in the tables.

Table 4.2 TDWB Overall Hs vs Dp JFTs

Total

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.5	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.92	5.16	2.20	0.04	0.00	0.00	8.33	8.33
1	1.5	0.14	0.05	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.10	6.36	22.31	9.98	0.12	0.02	0.05	39.16	47.49
1.5	2	0.09	0.07	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.03	8.45	21.15	8.53	0.19	0.05	0.06	38.66	86.15
2	2.5	0.10	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.55	6.21	2.88	0.01	0.02	0.08	10.93	97.08
2.5	3	0.10	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.88	1.15	0.04	0.05	0.05	2.39	99.47
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.19	0.27	0.01	0.00	0.00	0.48	99.95
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.01	0.00	0.00	0.00	0.05	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.44	0.23	0.01	0.00	0.01	0.00	0.00	0.01	0.00	0.13	17.38	55.94	25.04	0.41	0.14	0.25		
Cumulative Total		0.44	0.66	0.68	0.68	0.70	0.70	0.70	0.71	0.71	0.85	18.23	74.16	99.20	99.61	99.75	100.00		

Swell

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.66	1.69	0.67	0.04	0.00	0.00	3.06	3.06
0.5	1	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.32	28.78	10.06	0.07	0.06	0.13	45.68	48.74
1	1.5	0.16	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	2.33	23.35	10.49	0.11	0.01	0.03	36.50	85.23
1.5	2	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.18	6.86	3.77	0.02	0.02	0.07	10.95	96.19
2	2.5	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	1.27	1.66	0.01	0.03	0.00	3.00	99.19
2.5	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.31	0.38	0.01	0.00	0.00	0.70	99.89
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.04	0.00	0.00	0.00	0.09	99.98
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.02	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.43	0.00	0.01	0.00	0.01	0.00	0.00	0.01	0.00	0.01	9.50	62.34	27.06	0.26	0.13	0.24		
Cumulative Total		0.43	0.43	0.44	0.44	0.45	0.45	0.45	0.47	0.47	0.48	9.98	72.32	99.38	99.63	99.76	100.00		

Sea

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.22	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.97	1.75	0.80	0.33	0.13	0.17	4.44	4.44
0.5	1	1.12	1.21	0.09	0.00	0.00	0.00	0.00	0.00	0.01	0.46	27.58	9.59	1.28	0.65	0.55	0.45	43.00	47.43
1	1.5	0.31	0.58	0.07	0.00	0.00	0.00	0.00	0.00	0.02	0.57	34.53	4.04	0.40	0.38	0.23	0.19	41.34	88.77
1.5	2	0.08	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.03	9.42	0.47	0.12	0.01	0.06	0.05	10.36	99.13
2	2.5	0.12	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.38	0.05	0.08	0.01	0.01	0.03	0.77	99.90
2.5	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.02	0.01	0.03	0.10	100.00
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		1.86	2.03	0.16	0.01	0.00	0.01	0.00	0.00	0.05	1.06	72.89	15.90	2.71	1.40	1.00	0.92		
Cumulative Total		1.86	3.88	4.04	4.05	4.05	4.06	4.06	4.06	4.12	5.18	78.07	93.97	96.68	98.08	99.08	100.00		

Notes: 1. “0.00” values not shown in green are very small percentages rounded to “0.00”.

Table 4.3 TDWB Overall Tp vs Dp JFTs

Total

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02
4	6	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	1.50	0.07	0.00	0.00	0.00	0.00	1.67	1.69
6	8	0.10	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	7.09	0.34	0.15	0.12	0.03	0.06	8.13	9.82
8	10	0.27	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.27	1.59	0.19	0.22	0.05	0.09	9.71	19.52
10	12	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.39	10.71	0.77	0.05	0.05	0.08	13.12	32.64
12	14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	22.30	4.54	0.00	0.00	0.01	26.96	59.60
14	16	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.01	0.00	0.00	0.01	17.52	11.81	0.02	0.00	0.01	29.41	89.01
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.98	4.58	0.00	0.00	0.00	7.57	96.58
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.41	2.91	0.00	0.00	0.00	3.33	99.90
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.10	100.00
Total		0.43	0.22	0.01	0.00	0.01	0.00	0.00	0.01	0.00	0.13	17.37	55.94	25.04	0.41	0.14	0.25		
Cumulative Total		0.43	0.66	0.67	0.67	0.68	0.68	0.69	0.70	0.70	0.83	18.21	74.14	99.18	99.59	99.73	99.98		

Swell

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	10	0.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.80	2.50	0.31	0.17	0.06	0.13	11.33	11.33
10	12	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.62	13.17	0.98	0.05	0.07	0.09	16.03	27.36
12	14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	24.72	5.27	0.01	0.00	0.01	30.08	57.44
14	16	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.01	0.00	0.00	0.00	18.36	12.62	0.02	0.00	0.01	31.05	88.49
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.12	4.70	0.00	0.00	0.00	7.82	96.32
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.47	3.09	0.01	0.00	0.00	3.58	99.89
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.00	0.00	0.00	0.11	100.00
Total		0.43	0.00	0.01	0.00	0.01	0.00	0.00	0.01	0.00	0.01	9.50	62.34	27.06	0.26	0.13	0.24		
Cumulative Total		0.43	0.43	0.44	0.44	0.45	0.45	0.45	0.47	0.47	0.48	9.98	72.32	99.38	99.63	99.76	100.00		

Sea

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.03	0.03
2	4	0.12	0.03	0.03	0.00	0.00	0.00	0.00	0.00	0.01	0.04	0.95	0.17	0.03	0.02	0.00	0.04	1.45	1.48
4	6	0.33	0.84	0.11	0.00	0.00	0.00	0.00	0.00	0.02	0.60	14.33	1.51	0.14	0.05	0.10	0.10	18.13	19.61
6	8	1.15	1.12	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.37	30.42	3.74	1.07	0.74	0.61	0.60	39.83	59.44
8	10	0.26	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	27.18	10.48	1.47	0.59	0.29	0.18	40.56	100.00
10	12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
12	14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		1.74	2.00	0.13	0.00	0.00	0.00	0.00	0.00	0.03	1.02	71.93	15.73	2.68	1.38	1.00	0.88		
Cumulative Total		1.74	3.73	3.86	3.87	3.87	3.87	3.87	3.87	3.90	4.92	76.85	92.58	95.26	96.65	97.64	98.52		

Notes: 1. “0.00” values not shown in green are very small percentages rounded to “0.00”.

Table 4.4 TDWB Overall Hs vs Tp JFTs

Total

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20	Total	Cumulative
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00			
0	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.5	1	0.00	0.00	0.06	0.17	0.80	2.01	2.86	1.73	0.51	0.18	0.00	8.33	8.33
1	1.5	0.00	0.00	0.89	3.02	3.34	6.05	12.11	10.43	2.07	1.20	0.05	39.16	47.49
1.5	2	0.00	0.01	0.70	4.08	4.22	3.93	10.03	11.82	2.75	1.09	0.04	38.66	86.15
2	2.5	0.00	0.00	0.02	0.67	1.10	0.86	1.77	4.45	1.48	0.59	0.00	10.93	97.08
2.5	3	0.00	0.00	0.00	0.17	0.24	0.18	0.13	0.76	0.66	0.23	0.00	2.39	99.47
3	3.5	0.00	0.00	0.00	0.01	0.02	0.09	0.06	0.17	0.10	0.03	0.00	0.48	99.95
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.00	0.05	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.00	0.02	1.67	8.13	9.71	13.12	26.96	29.41	7.57	3.33	0.10		
Cumulative Total		0.00	0.02	1.69	9.82	19.52	32.64	59.60	89.01	96.58	99.90	100.00		

Swell

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20	Total	Cumulative
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00			
0	0.5	0.00	0.00	0.00	0.00	0.92	0.74	0.89	0.46	0.03	0.03	0.00	3.06	3.06
0.5	1	0.00	0.00	0.00	0.00	7.42	10.45	15.10	9.51	1.95	1.18	0.06	45.68	48.74
1	1.5	0.00	0.00	0.00	0.00	2.69	4.21	11.95	13.38	2.89	1.34	0.04	36.50	85.23
1.5	2	0.00	0.00	0.00	0.00	0.26	0.43	1.88	5.97	1.88	0.53	0.00	10.95	96.19
2	2.5	0.00	0.00	0.00	0.00	0.05	0.12	0.18	1.40	0.89	0.36	0.00	3.00	99.19
2.5	3	0.00	0.00	0.00	0.00	0.00	0.09	0.06	0.25	0.17	0.13	0.00	0.70	99.89
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.06	0.01	0.00	0.00	0.09	99.98
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.02	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.00	0.00	0.00	0.00	11.33	16.03	30.08	31.05	7.82	3.58	0.11		
Cumulative Total		0.00	0.00	0.00	0.00	11.33	27.36	57.44	88.49	96.32	99.89	100.00		

Sea

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20	Total	Cumulative
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00			
0	0.5	0.00	0.15	0.31	1.20	2.78	0.00	0.00	0.00	0.00	0.00	0.00	4.44	4.44
0.5	1	0.01	1.13	8.51	14.40	18.94	0.00	0.00	0.00	0.00	0.00	0.00	43.00	47.43
1	1.5	0.00	0.14	8.43	17.93	14.83	0.00	0.00	0.00	0.00	0.00	0.00	41.34	88.77
1.5	2	0.01	0.03	0.88	5.80	3.64	0.00	0.00	0.00	0.00	0.00	0.00	10.36	99.13
2	2.5	0.00	0.00	0.00	0.41	0.36	0.00	0.00	0.00	0.00	0.00	0.00	0.77	99.90
2.5	3	0.00	0.00	0.00	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	100.00
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.03	1.45	18.13	39.83	40.56	0.00	0.00	0.00	0.00	0.00	0.00		
Cumulative Total		0.03	1.48	19.61	59.44	100.00	100.00	100.00	100.00	100.00	100.00	100.00		

Notes: 1. “0.00” values not shown in green are very small percentages rounded to “0.00”.

Calibrated WWIII Hindcast Wave Data

The overall JFT's for Hs and Tp against Dp and Hs against Tp for the CWWIII data are provided in Tables 4.5 to 4.7. These are duplicated in Appendix B, along with the annual and seasonal tables. The parameters are broken into Total, Swell and Sea wave parameters. The directional bins are broken into 16, $\pm 11.25^{o}$ bins from the directions presented in the tables.

As discussed in Section 2.2, the "sea" component that is provided in the CWWIII data is not consistent with the sea component typically defined by DoT in their wave measuring devices. The WWIII data is a measure of the wave conditions generated a certain distance from the site and is therefore not limited to a period of 8 seconds (it includes periods above 8 seconds where the local generation of waves causes this to occur). As a result, comparison of the sea components from WWIII and the TDWB will not be like-for-like comparisons. Nevertheless, analysis of the sea components from WWIII provides relevant wave information.

Table 4.5 CWWIII Overall Hs vs Dp JFTs

Total

Direction (n)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.05	0.00	0.00	0.00	0.00	0.06	0.06
0.5	1	0.08	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.01	0.04	2.32	13.32	1.41	0.40	0.20	0.10	17.93	17.99
1	1.5	0.26	0.10	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01	8.28	35.24	2.62	0.86	0.52	0.36	48.28	66.27
1.5	2	0.19	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.78	18.16	1.14	0.46	0.29	0.20	25.30	91.57
2	2.5	0.08	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.75	4.96	0.29	0.11	0.12	0.10	6.43	98.00
2.5	3	0.04	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	1.15	0.10	0.04	0.06	0.04	1.49	99.49
3	3.5	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.22	0.04	0.02	0.02	0.02	0.33	99.82
3.5	4	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.02	0.02	0.02	0.08	99.90
4	4.5	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.02	0.05	99.96
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.02	99.98
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	99.99
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	99.99
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	99.99
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.68	0.23	0.02	0.01	0.00	0.00	0.00	0.00	0.01	0.05	16.21	73.09	5.61	1.92	1.25	0.90		
Cumulative Total		0.68	0.92	0.94	0.95	0.95	0.95	0.95	0.96	0.96	1.01	17.22	90.32	95.93	97.85	99.10	100.00		

Swell

Direction (n)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.04	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23	2.89	0.15	0.26	0.84	0.11	4.57	4.57
0.5	1	0.03	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.29	29.52	0.31	0.20	0.38	0.07	34.92	39.49
1	1.5	0.09	0.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.71	33.89	0.37	0.11	0.41	0.16	39.93	79.42
1.5	2	0.08	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.33	12.98	0.14	0.05	0.19	0.13	14.93	94.36
2	2.5	0.05	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	3.88	0.06	0.02	0.05	0.07	4.22	98.57
2.5	3	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.02	0.01	0.02	0.04	1.12	99.69
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.20	0.01	0.01	0.01	0.00	0.23	99.93
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.01	0.01	0.04	99.96
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	99.98
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	99.99
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	99.99
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.32	0.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.64	84.38	1.06	0.66	1.90	0.63		
Cumulative Total		0.32	0.73	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	11.38	95.75	96.81	97.47	99.37	100.00		

Sea

Direction (n)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.90	1.91	1.10	0.83	1.79	2.25	3.68	5.84	3.51	0.74	1.33	2.57	1.07	0.41	0.38	0.46	30.37	30.37
0.5	1	0.64	2.60	0.91	0.29	0.30	0.30	0.44	0.83	0.41	0.33	13.81	8.96	1.29	0.27	0.20	0.24	31.81	62.18
1	1.5	0.80	1.34	0.11	0.01	0.01	0.00	0.00	0.00	0.00	0.02	16.44	6.37	0.31	0.11	0.07	0.11	25.01	87.19
1.5	2	0.12	0.32	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.81	2.70	0.08	0.04	0.04	0.04	10.18	97.37
2	2.5	0.08	0.07	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.06	0.60	0.05	0.03	0.04	0.03	1.96	99.33
2.5	3	0.01	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.12	0.04	0.02	0.03	0.02	0.38	99.71
3	3.5	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.01	0.02	0.02	0.11	99.82
3.5	4	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.02	0.02	0.08	99.89
4	4.5	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.02	0.06	99.95
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.02	99.97
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	99.98
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	99.99
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	99.99
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	99.99
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	100.00
Total		2.09	6.08	2.14	1.12	2.10	2.55	4.12	6.27	3.92	1.10	41.58	21.33	2.88	0.94	0.80	0.99		
Cumulative Total		2.09	8.17	10.31	11.43	13.54	16.09	20.20	26.48	30.39	31.49	73.07	94.40	97.28	98.21	99.01	100.00		

Notes: 1. “0.00” values not shown in green are very small percentages rounded to “0.00”.

Table 4.6 CWWIII Overall Tp vs Dp JFTs

Total

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.01	0.01
4	6	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.16	0.02	0.01	0.02	0.02	0.34	0.35
6	8	0.11	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.20	0.38	0.12	0.14	0.12	0.10	2.24	2.59
8	10	0.13	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.94	1.14	0.36	0.35	0.29	0.15	4.42	7.01
10	12	0.07	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01	2.85	7.68	0.57	0.22	0.17	0.11	11.69	18.70
12	14	0.13	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	5.17	21.24	1.36	0.38	0.23	0.22	28.79	47.49
14	16	0.17	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	3.93	29.49	2.03	0.52	0.27	0.22	36.69	84.17
16	18	0.04	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.83	10.28	0.86	0.23	0.11	0.05	12.43	96.60
18	20	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.17	2.25	0.25	0.07	0.03	0.02	2.82	99.42
>20		0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.47	0.05	0.01	0.01	0.01	0.58	100.00
Total		0.68	0.23	0.02	0.01	0.00	0.00	0.00	0.00	0.01	0.05	16.21	73.09	5.61	1.92	1.25	0.90		
Cumulative Total		0.68	0.92	0.94	0.95	0.95	0.95	0.95	0.96	0.96	1.01	17.22	90.32	95.93	97.85	99.10	100.00		

Swell

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	6	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.04	0.01	0.01	0.01	0.02	0.13	0.13
6	8	0.10	0.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.01	0.23	0.04	0.06	0.35	0.16	2.15	2.28
8	10	0.12	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.78	0.58	0.05	0.37	1.14	0.28	5.49	7.77
10	12	0.05	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.39	8.56	0.13	0.15	0.34	0.12	14.77	22.54
12	14	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.20	27.35	0.17	0.06	0.05	0.04	28.91	51.45
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23	34.77	0.18	0.01	0.01	0.01	35.21	86.66
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	10.61	0.23	0.00	0.00	0.00	10.85	97.51
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.91	0.16	0.00	0.00	0.00	2.07	99.58
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.33	0.09	0.00	0.00	0.00	0.42	100.00
Total		0.32	0.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.64	84.38	1.06	0.66	1.90	0.63		
Cumulative Total		0.32	0.73	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	11.38	95.75	96.81	97.47	99.37	100.00		

Sea

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.09	0.05	0.06	0.13	0.16	0.15	0.24	0.40	0.32	0.10	0.10	0.10	0.08	0.06	0.07	0.08	2.20	2.20
2	4	0.84	1.14	0.65	0.83	1.91	2.38	3.88	5.87	3.56	0.60	3.40	4.30	1.44	0.44	0.35	0.46	32.06	34.26
4	6	0.73	2.46	0.84	0.06	0.01	0.00	0.00	0.00	0.02	0.31	10.22	6.47	1.02	0.25	0.20	0.23	22.83	57.09
6	8	0.30	2.11	0.48	0.07	0.02	0.01	0.00	0.00	0.01	0.08	15.68	2.28	0.24	0.14	0.09	0.10	21.61	78.70
8	10	0.10	0.30	0.11	0.02	0.00	0.00	0.00	0.00	0.00	0.00	8.10	1.62	0.05	0.03	0.07	0.07	10.49	89.19
10	12	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.31	3.58	0.02	0.01	0.02	0.04	7.01	96.20
12	14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.65	2.10	0.01	0.00	0.00	0.01	2.77	98.98
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.81	0.00	0.00	0.00	0.00	0.94	99.92
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.06	0.00	0.00	0.00	0.00	0.07	99.99
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.01	100.00
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		2.09	6.08	2.14	1.12	2.10	2.55	4.12	6.27	3.92	1.10	41.58	21.33	2.88	0.94	0.80	0.99		
Cumulative Total		2.09	8.17	10.31	11.43	13.54	16.09	20.20	26.48	30.39	31.49	73.07	94.40	97.28	98.21	99.01	100.00		

Notes: 1. “0.00” values not shown in green are very small percentages rounded to “0.00”.

Table 4.7 CWWIII Overall Hs vs Tp JFTs

Total

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20	Total	Cumulative
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00			
0	0.5	0.00	0.00	0.00	0.00	0.00	0.03	0.01	0.01	0.00	0.00	0.00	0.06	0.06
0.5	1	0.00	0.00	0.03	0.13	0.37	3.39	7.24	4.77	1.46	0.42	0.11	17.93	17.98
1	1.5	0.00	0.00	0.20	0.90	1.70	5.73	15.52	17.91	4.83	1.20	0.30	48.28	66.27
1.5	2	0.00	0.00	0.10	0.89	1.64	2.01	5.30	10.80	3.69	0.74	0.13	25.30	91.57
2	2.5	0.00	0.00	0.01	0.25	0.49	0.35	0.61	2.68	1.72	0.30	0.03	6.43	98.00
2.5	3	0.00	0.00	0.00	0.05	0.12	0.10	0.06	0.40	0.63	0.12	0.01	1.49	99.49
3	3.5	0.00	0.00	0.00	0.01	0.04	0.02	0.02	0.09	0.10	0.04	0.00	0.33	99.82
3.5	4	0.00	0.00	0.00	0.01	0.03	0.02	0.01	0.01	0.00	0.00	0.00	0.08	99.90
4	4.5	0.00	0.00	0.00	0.00	0.02	0.03	0.01	0.00	0.00	0.00	0.00	0.05	99.96
4.5	5	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.02	99.98
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	99.98
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	99.99
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	99.99
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.00	0.01	0.34	2.24	4.42	11.69	28.79	36.69	12.43	2.82	0.58		
Cumulative Total		0.00	0.01	0.35	2.59	7.01	18.70	47.49	84.17	96.60	99.42	100.00		

Swell

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20	Total	Cumulative
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00			
0	0.5	0.00	0.00	0.02	0.31	0.79	0.71	0.78	0.72	0.78	0.31	0.15	4.57	4.57
0.5	1	0.00	0.00	0.07	0.62	1.03	7.60	14.35	8.92	1.88	0.38	0.08	34.92	39.49
1	1.5	0.00	0.00	0.04	1.07	2.44	4.82	11.26	16.10	3.47	0.62	0.10	39.93	79.42
1.5	2	0.00	0.00	0.00	0.13	1.05	1.33	2.14	7.19	2.65	0.39	0.06	14.93	94.36
2	2.5	0.00	0.00	0.00	0.02	0.14	0.22	0.31	1.86	1.42	0.23	0.02	4.22	98.57
2.5	3	0.00	0.00	0.00	0.00	0.03	0.06	0.04	0.31	0.56	0.11	0.01	1.12	99.69
3	3.5	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.09	0.08	0.03	0.00	0.23	99.93
3.5	4	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.04	99.96
4	4.5	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.02	99.98
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.01	99.99
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	99.99
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.00	0.00	0.13	2.15	5.49	14.77	28.91	35.21	10.85	2.07	0.42		
Cumulative Total		0.00	0.00	0.13	2.28	7.77	22.54	51.45	86.66	97.51	99.58	100.00		

Notes: 1. “0.00” values not shown in green are very small percentages rounded to “0.00”.

Table 4.7(Cont) CWWIII Overall Hs vs Tp JFTs

		Sea											
Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20	
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	2.20	24.21	2.98	0.82	0.15	0.01	0.00	0.00	0.00	0.00	0.00	30.37	30.37
0.5	1	0.00	7.82	14.81	6.74	1.41	0.89	0.13	0.00	0.00	0.00	0.00	31.81	62.18
1	1.5	0.00	0.03	4.74	10.46	4.57	3.80	1.22	0.19	0.00	0.00	0.00	25.01	87.19
1.5	2	0.00	0.00	0.30	3.05	3.32	1.82	1.18	0.48	0.03	0.00	0.00	10.18	97.37
2	2.5	0.00	0.00	0.01	0.43	0.73	0.33	0.21	0.21	0.03	0.00	0.00	1.96	99.33
2.5	3	0.00	0.00	0.00	0.07	0.17	0.06	0.02	0.05	0.01	0.00	0.00	0.38	99.71
3	3.5	0.00	0.00	0.00	0.03	0.05	0.01	0.01	0.00	0.00	0.00	0.00	0.11	99.82
3.5	4	0.00	0.00	0.00	0.00	0.05	0.02	0.00	0.00	0.00	0.00	0.00	0.08	99.89
4	4.5	0.00	0.00	0.00	0.00	0.02	0.03	0.00	0.00	0.00	0.00	0.00	0.06	99.95
4.5	5	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.02	99.97
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	99.98
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	99.99
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	99.99
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	99.99
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	100.00
Total		2.20	32.06	22.83	21.61	10.49	7.01	2.77	0.94	0.07	0.01	0.00		
Cumulative Total		2.20	34.26	57.09	78.70	89.19	96.20	98.98	99.92	99.99	100.00	100.00		

Notes: 1. “0.00” values not shown in green are very small percentages rounded to “0.00”.

4.1.2 Roses

Roses for waves broken into overall, annual and seasonal plots have been prepared and are provided in the following sections. Due to the significant number of plots prepared as part of these works, only the overall roses are provided within the report body. Overall, annual and seasonal plots are included as appendices.

The overall assessment provides the statistics over the entire available dataset. The annual tables provide the statistics for each year of data. The seasonal assessment provides the statistics for all available data throughout the entire data period within the relevant season.

Tantabiddi Wave Buoy

The overall roses for Hs and Tp against Dp for the TDWB data are provided in Figures 4.1 and 4.2. These are duplicated in Appendix C, along with the annual and seasonal roses. The parameters are broken into Total, Swell and Sea wave parameters. The directional bins are broken into 16, ±11.25° bins consistent with those utilised for the JFTs.

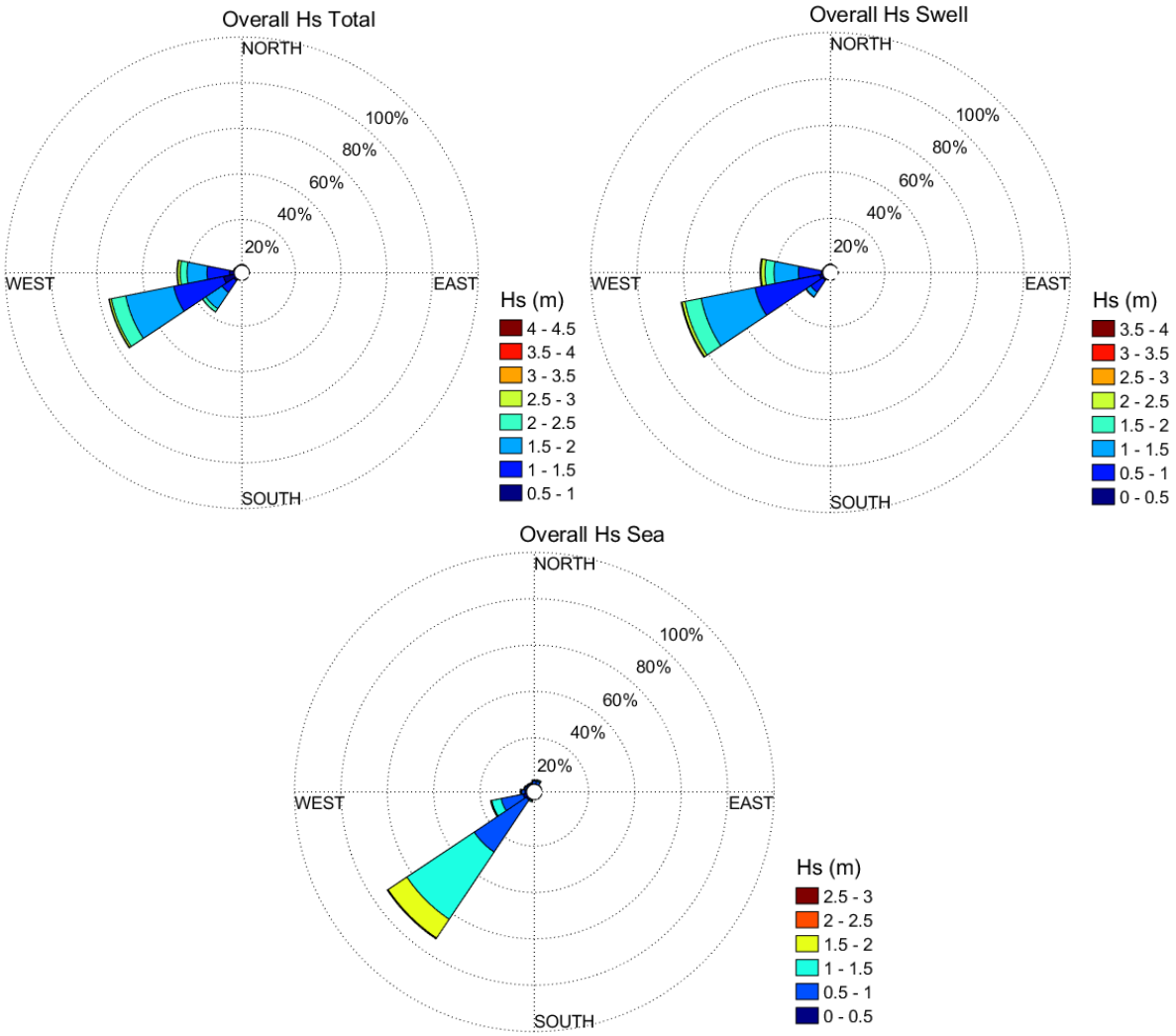


Figure 4.1 TDWB Overall Hs Roses

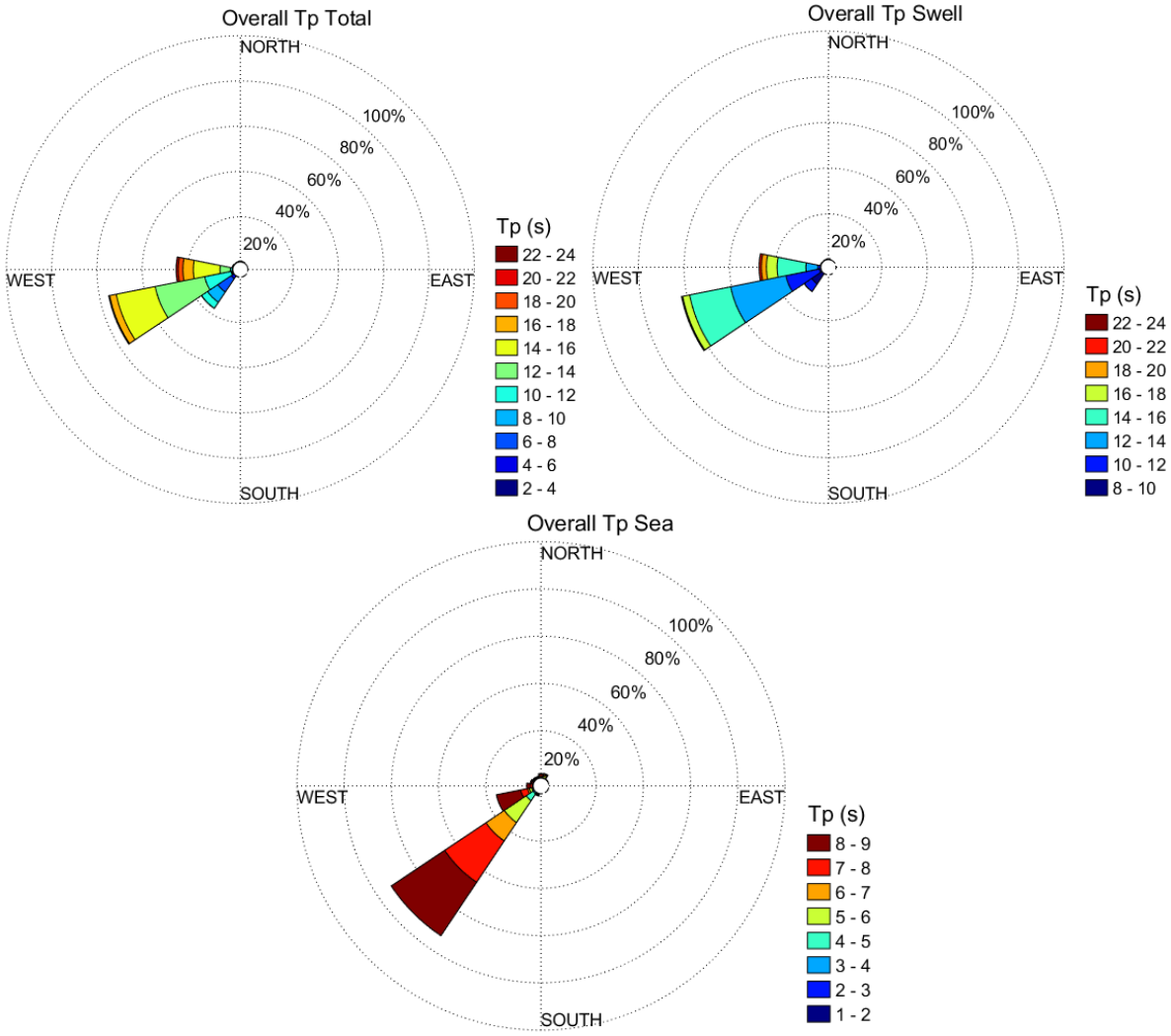


Figure 4.2 TDWB Overall Tp Roses

Calibrated WWIII Hindcast

The overall roses for Hs and Tp against Dp for Calibrated WWIII Hindcast Data are provided in Figures 4.3 and 4.4. These are duplicated in Appendix U, along with the annual and seasonal roses. The parameters are broken into Total, Swell and Sea wave parameters. The directional bins are broken into 16, ±11.25° bins consistent with those utilised for the JFTs.

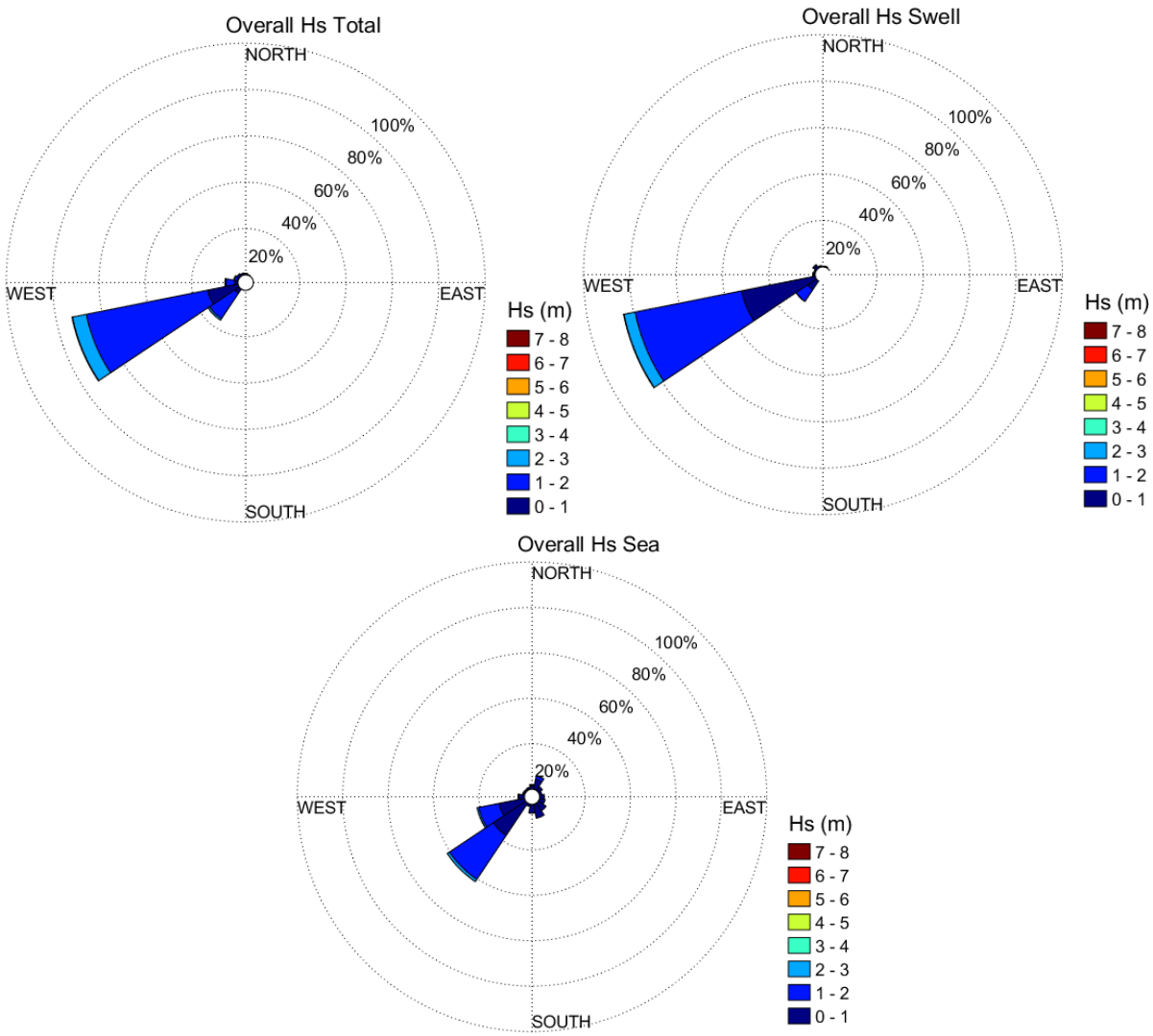


Figure 4.3 CWWIII Overall Hs Roses

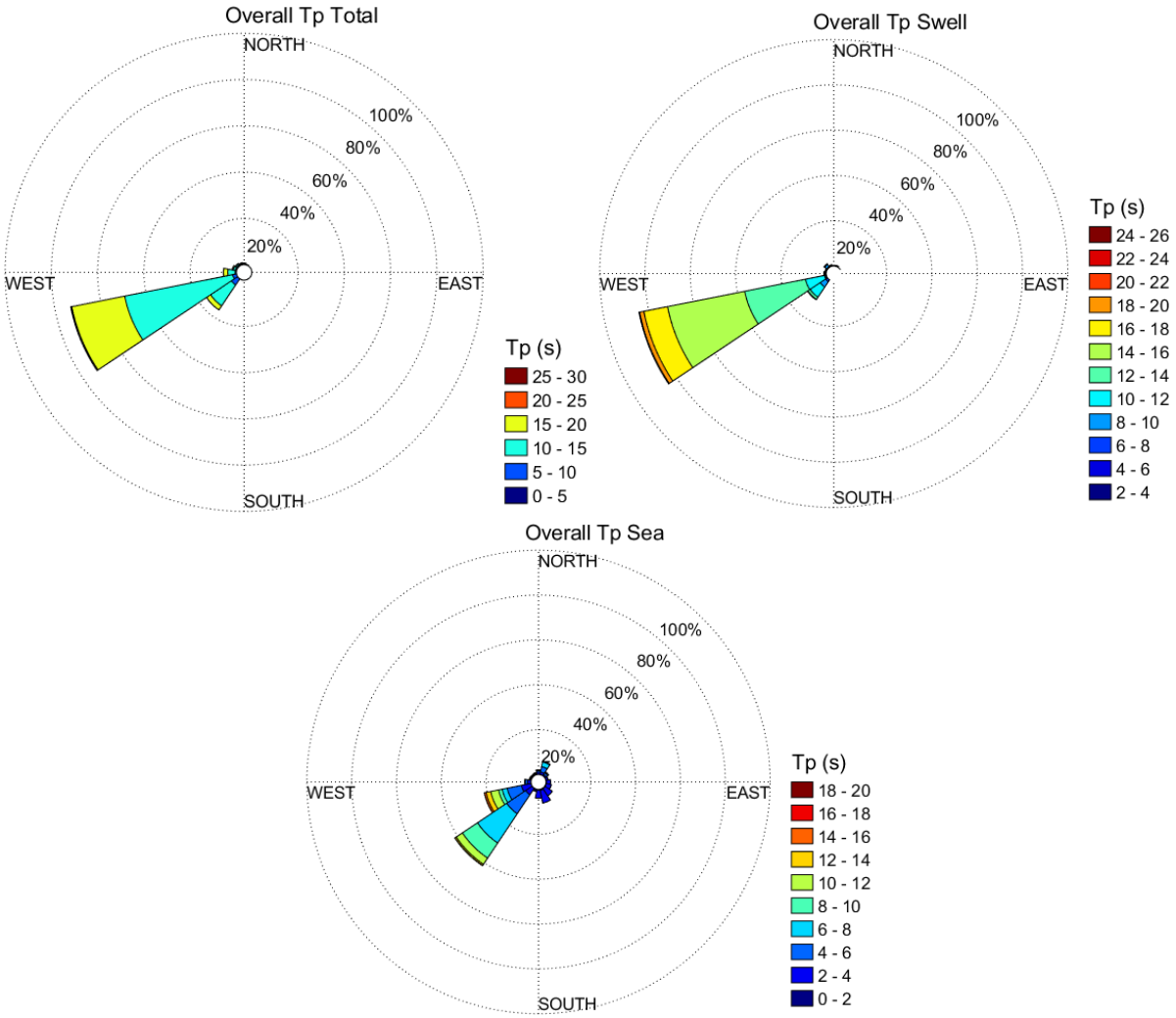


Figure 4.4 CWWIII Overall Tp Roses

4.1.3 Exceedance Curves

Exceedance curves for waves broken into overall, annual and seasonal plots have been prepared and are provided in the following sections. The overall assessment provides the statistics over the entire available dataset. The annual exceedance curves provide the statistics for the available dataset for each year of data. The seasonal assessment provides the statistics for all available data throughout the entire data period within the relevant season.

Due to the significant number of plots prepared as part of these works, only the overall exceedance curves are provided within the report body. Overall, annual and seasonal plots are included as appendices.

Tantabiddi Wave Buoy

The overall exceedance curves for Hs and Tp for the TDWB are provided in Figure 4.5. These are duplicated in Appendix E, along with the annual and seasonal exceedance curves. The parameters are broken into total, swell and sea wave parameters.

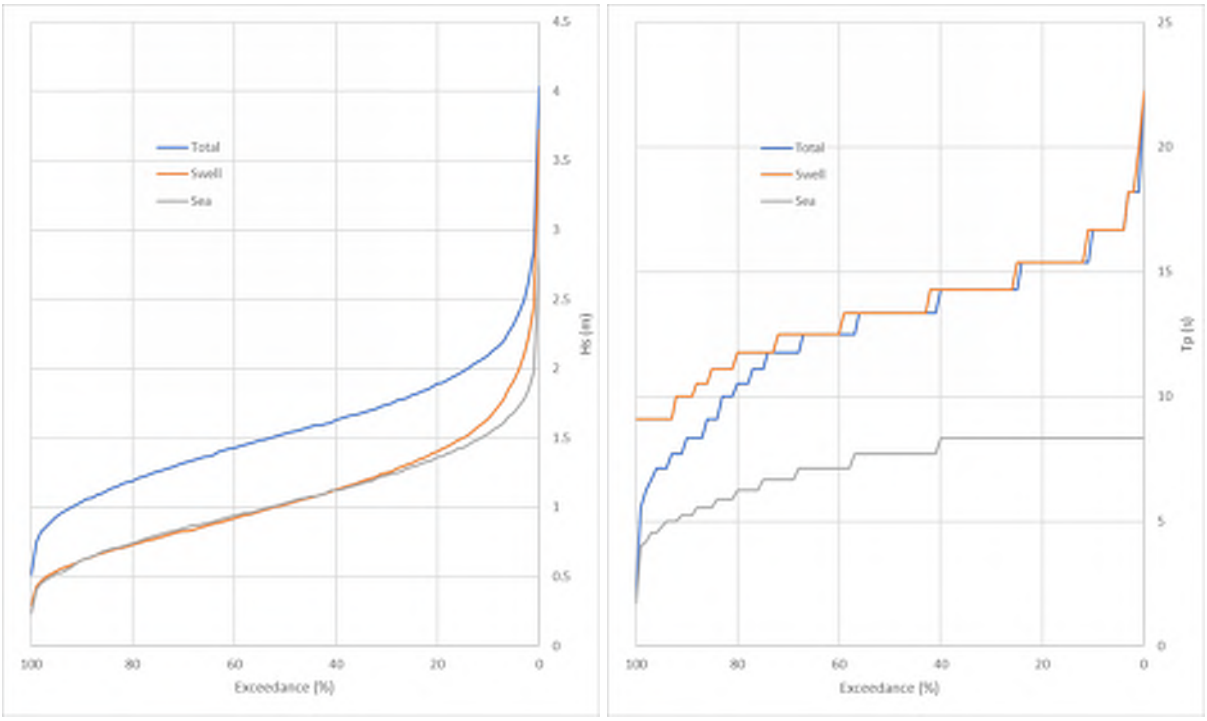


Figure 4.5 TDWB Overall Hs & Tp Exceedance Curves

Calibrated WWIII Hindcast Data

The overall exceedance curves for Hs and Tp for the CWWIII data are provided in Figure 4.6. These are duplicated in Appendix F, along with the annual and seasonal exceedance curves. The parameters are broken into total, swell and sea wave parameters.

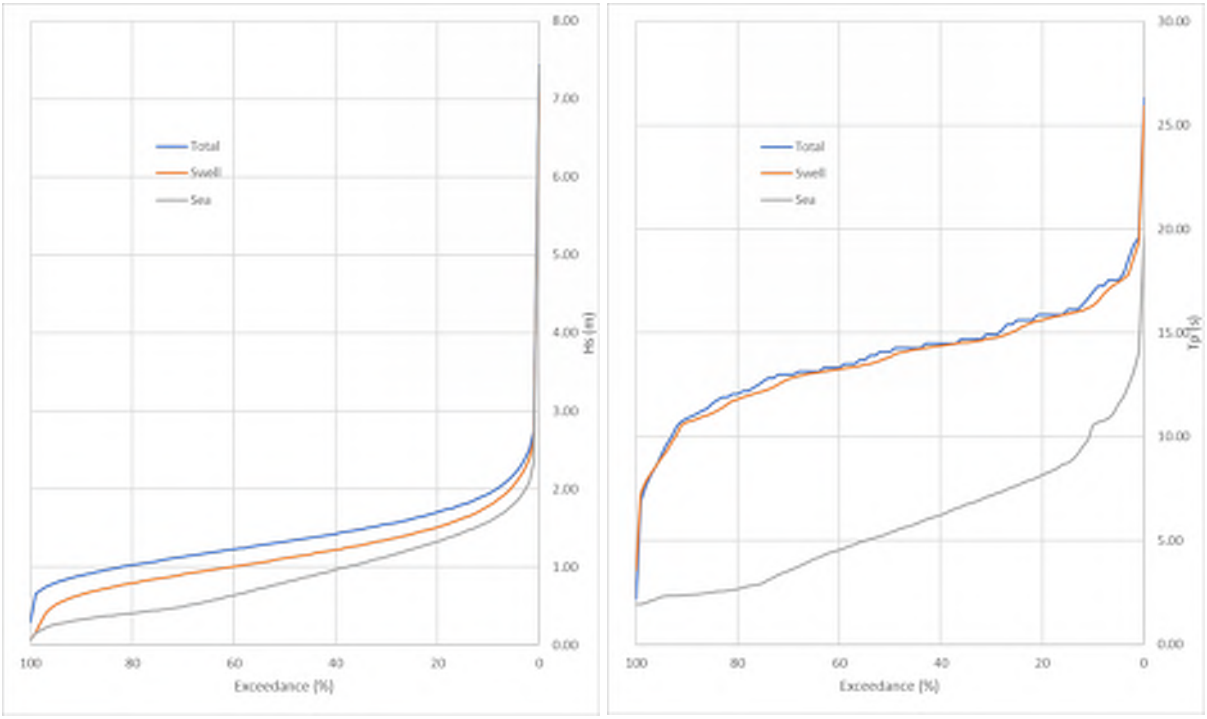


Figure 4.6 CWWIII Overall Hs & Tp Exceedance Curves

As outlined previously, the seas component associated with the CWWIII data is a representation of the waves generated within a certain distance from the site and is not based on an apportionment of energy with a period of less than 8 s. Direct comparison between the sea derived from the CWWIII data with the sea component is therefore not valid.

4.1.4 Key Events

Time history plots of key events for waves have been prepared. Due to the significant number of plots prepared as part of these works, the details of the selected events are provided in the report body, whilst the time history plots are provided in the relevant appendix.

The top ten peak Hs events from each dataset were selected as the key wave events for plotting. These events provide an indication of the typical sequence experienced during a large wave event. The 4 days leading up to and following the peak were selected. The plots show the Hs, Tp and Dp of the total, swell and sea wave components for each of the events.

Tantabiddi Wave Buoy

The dates and details of the selected events from the TDWB are shown in Table 4.8 below. The time series plots are presented in Appendix G.

Table 4.8 Tantabiddi Wave Buoy Key Wave Events

Date	Peak Hs (m)	Tp (s)	Dp (°)
26/05/2020 5:24	4.0	14.3	252
11/09/2020 18:24	3.8	16.7	262
11/08/2020 4:54	3.5	15.4	264
30/06/2020 21:24	3.5	16.7	260
8/09/2020 17:54	3.2	16.7	253
3/01/2020 18:24	3.1	10.5	238
15/01/2020 6:24	3.1	11.1	291
29/10/2020 1:24	3.1	16.7	262
24/10/2019 4:54	3.0	16.7	263
1/11/2019 20:58	3.0	8.3	233

Calibrated WWIII Wave Data

The dates and details of the selected events from the CWWIII data are shown in Table 4.9 below. The time series plots are presented in Appendix H.

Table 4.9 Calibrated WWIII Key Wave Events

Date	Peak Hs (m)	Tp (s)	Dp (°)
23/02/2011 17:00	7.4	10.4	326
13/01/2013 9:00	7.3	13.2	334
1/05/2015 11:00	6.9	13.2	333
28/01/2011 1:00	6.4	11.6	359
22/03/1999 14:00	5.5	9.7	267
28/01/2012 14:00	5.2	13.2	331
28/01/1990 6:00	5.1	9.0	286
8/03/2000 6:00	5.1	8.8	290
21/02/1984 9:00	4.9	10.6	354
18/02/2011 19:00	4.8	11.5	338

4.1.5 Summary

The various assessment outputs demonstrate the wave climate beyond the offshore reef. 30% of wave heights outside the reef were greater than 1.7 m (CWWIII) or 1.6 (TDWB) as compared to 0.3 m in the nearshore data.

Through review of the JFT's and Wave Roses, the seasonal directional variability of sea, swell and total waves over the data collection period can be interrogated. Throughout the year, seas arrive at the site from the prevailing SW through WSW (~89% from TDWB) whilst swells arrive at the site from WSW through W (~89% from TDWB).

Over the summer and spring, the seas tend to be more focussed from the SW, with around 90% of waves arriving from this directional band. This is likely due to the dominance of the sea breeze in the generation of seas over these months. Over the winter and autumn months, the incident direction of the seas is spread more across the WSW with some conditions experienced from the N through NE as well. This is likely due to the subsidence of the sea breeze conditions, but also the presence of other weather systems such as winter storm fronts which will dominate the local metocean conditions. During the passing of winter storm fronts, a broad range of wind directions and as a result; wave directions can be experienced.

A comparison of the exceedance curves prepared for the TDWB and the CWWIII datasets indicates that the measurement period for the TDWB was a reasonable representation, if somewhat slightly more benign, than typical metocean conditions modelled over the CWWIII data period. However, as discussed below, some significantly larger wave heights were captured during the CWWIII model period than were captured during the TDWB data collection period.

4.2 Offshore Extreme Conditions Analysis

MRA has identified extreme events from the CWWIII data and undertaken EVA, both directional and omnidirectional. This allows establishment of peak offshore wave conditions associated with various ARIs. These will inform the establishment of design conditions at the TBF for various design considerations.

EVA needs to be completed on random and independent events. As a result, it is important that an adequate separation is achieved between measurements that are included within an analysis so that one large event does not dominate the assessment. To ensure that the events are adequately discretised, a 36-hour separation either side of the peak event has been imposed. This is shown diagrammatically in Figure 4.7.

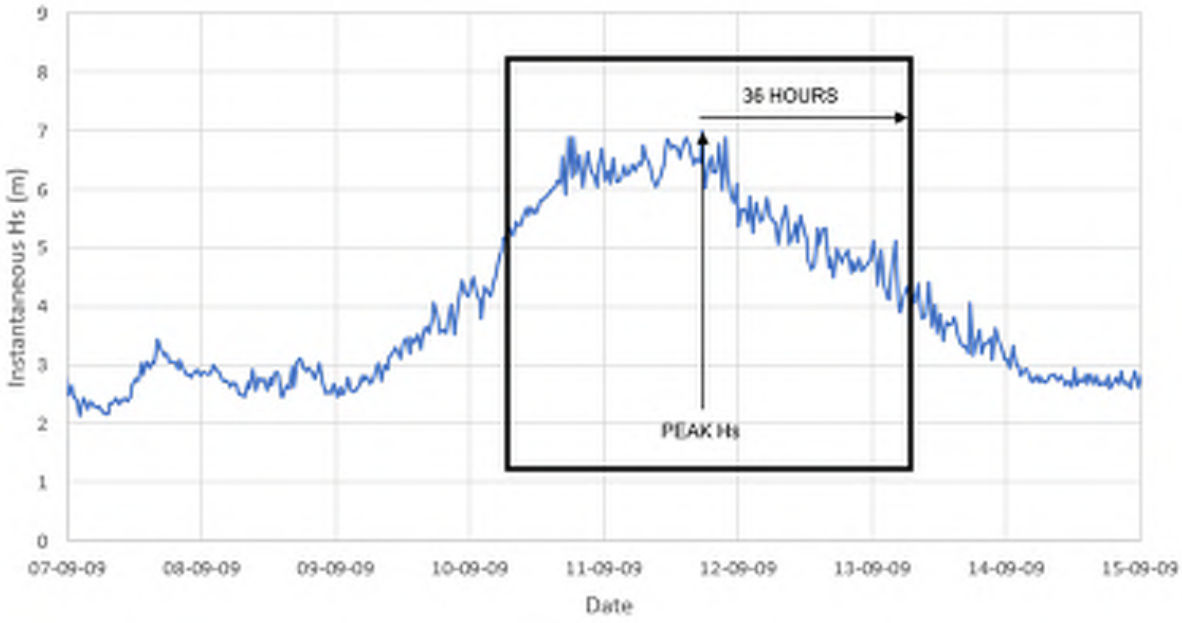


Figure 4.7 Event Separation

Limitations of the approach of extreme distribution fitting are acknowledged. The length of the data set affects confidence in the estimation of long recurrence interval events. Consequently, estimates of events with ARI longer than 2-3 times the data length should be treated with care. The lengths of the available datasets are provided in Table 4.10.

Table 4.10 Summary of Data Used for Extreme Analysis

Dataset	Data Period	Date Length
Tantabiddi Wave Buoy	26/07/2019-31/12/2020	<2 years
Calibrated WWIII Hindcast Data	01/01/1979- 01/03/2021	42 years

The TDWB data is considered too short to establish wave heights associated with ARIs greater than the 1 year event. Hence, as required by the project scope, wave heights associated with various ARIs (1 year, 10 year, 50 year, 100 year, 200 year and 500 year) have been estimated, but only using the CWWIII Hindcast datasets. Whilst 200 and 500 year events are greater than 2 to 3 times the duration of the CWWIII dataset (42 years), a 42 year period is relatively long in terms of

metocean measurements and data. Wave datasets for a period longer than this are quite rare across the globe and are usually only obtained through hindcast or Monte-Carlo modelling. As a result, the EVA results derived from this assessment will be reasonable, though care will need to be taken when using the estimated wave heights associated with longer ARIs.

The EVA was completed firstly as an omni-directional assessment. The data was then filtered into four directional bins, northeast (0-90°), northwest (270-360°), southwest (180-270°) and southeast (90-180°). 90-degree bins were selected for 2 key reasons.

- The greater number of directional bins the smaller the size of the bins resulting in the identification of less severe events. This can lead to unconservative EVA results.
- At the site there are a few prevailing extreme wave directions. Splitting the dataset into smaller bins typically means that those that are not within the prevailing extreme wave directions are dominated by events on the edges of the bin. This does not yield helpful results.

The top 100 events (with 36-hour separation either side) were selected from the overall dataset and each of the four directionally filtered datasets. These top events are presented in Appendix I. Wave events associated with cyclones were removed from the dataset, these are highlighted in the Appendix. It is well established that the WWIII hindcast model has limited ability to reflect waves associated with Cyclones. As such, cyclone associated waves are removed from the dataset and a separate assessment of these extreme wave heights will be prepared via Monte Carlo modelling undertaken as part of Task 4. Hence, the EVA is representative of non-cyclonic wave heights only.

Due to the short fetch length from the shoreline, there is an insufficient number of events from within the southeast quadrant to undertaken an EVA. Hence, this dataset was neglected from the EVA.

EVA was undertaken on each of the other datasets to allow the wave conditions associated with various ARIs to be established. The results of the EVAs undertaken on each of the datasets are presented in Figures 4.8 to 4.11.

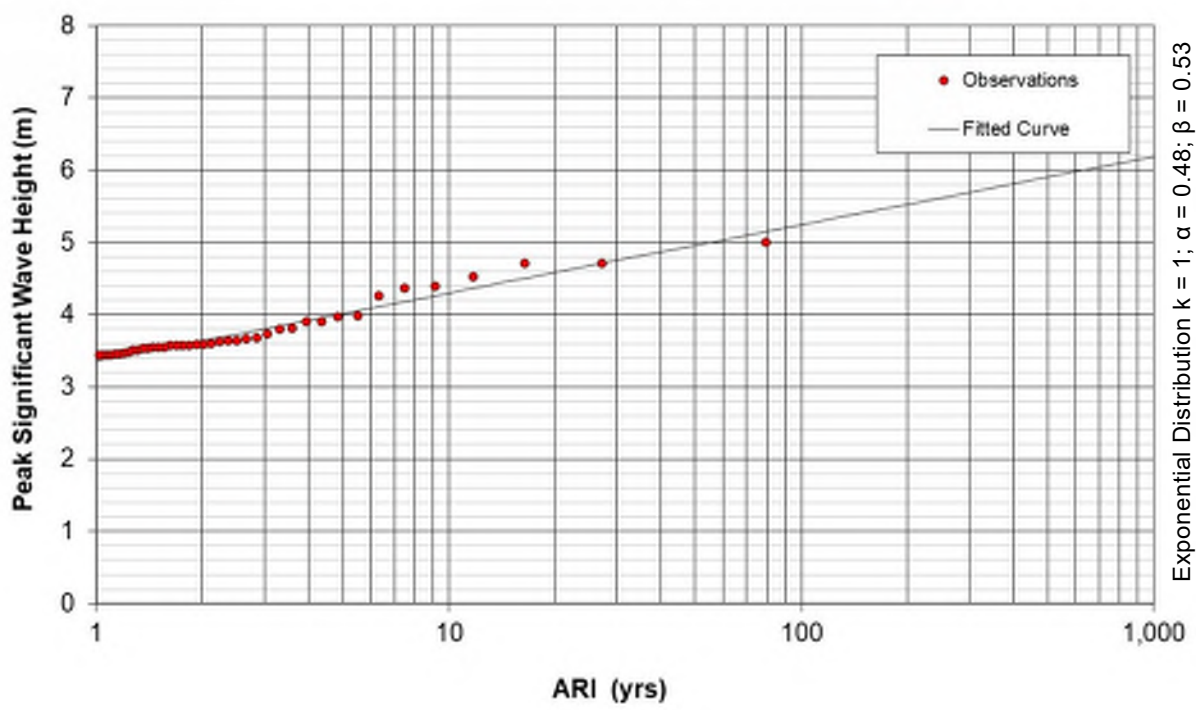


Figure 4.8 Omnidirectional EVA for CWWIII Data

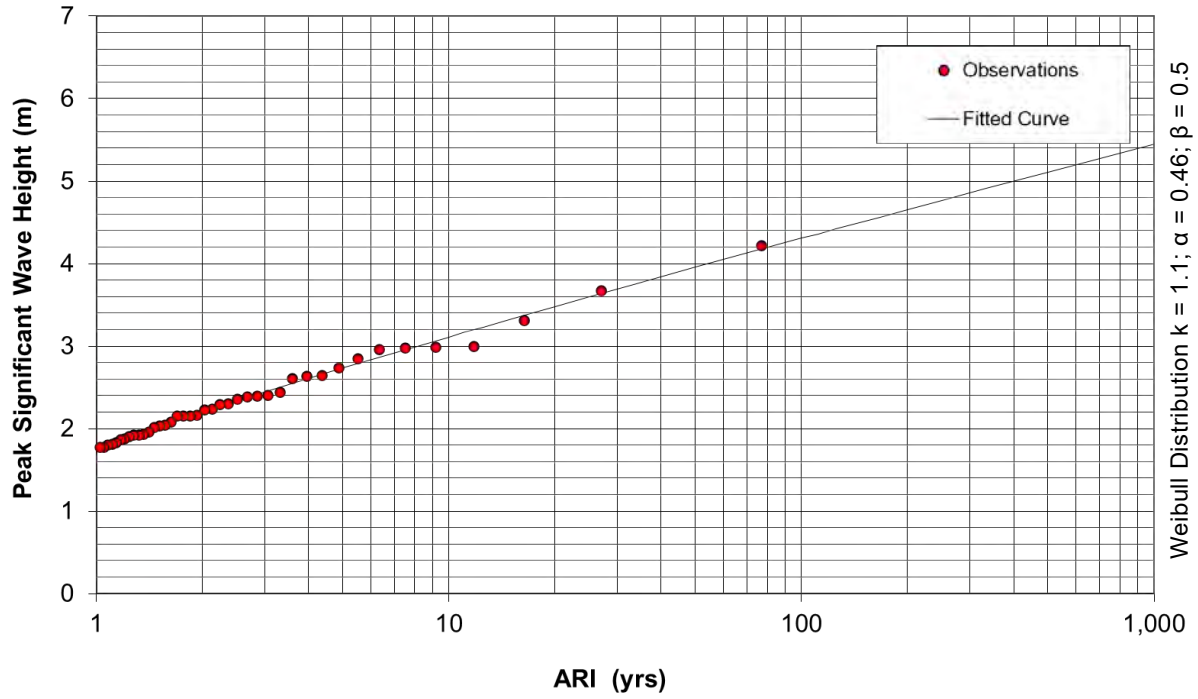


Figure 4.9 NE Directional EVA for CWWIII Data

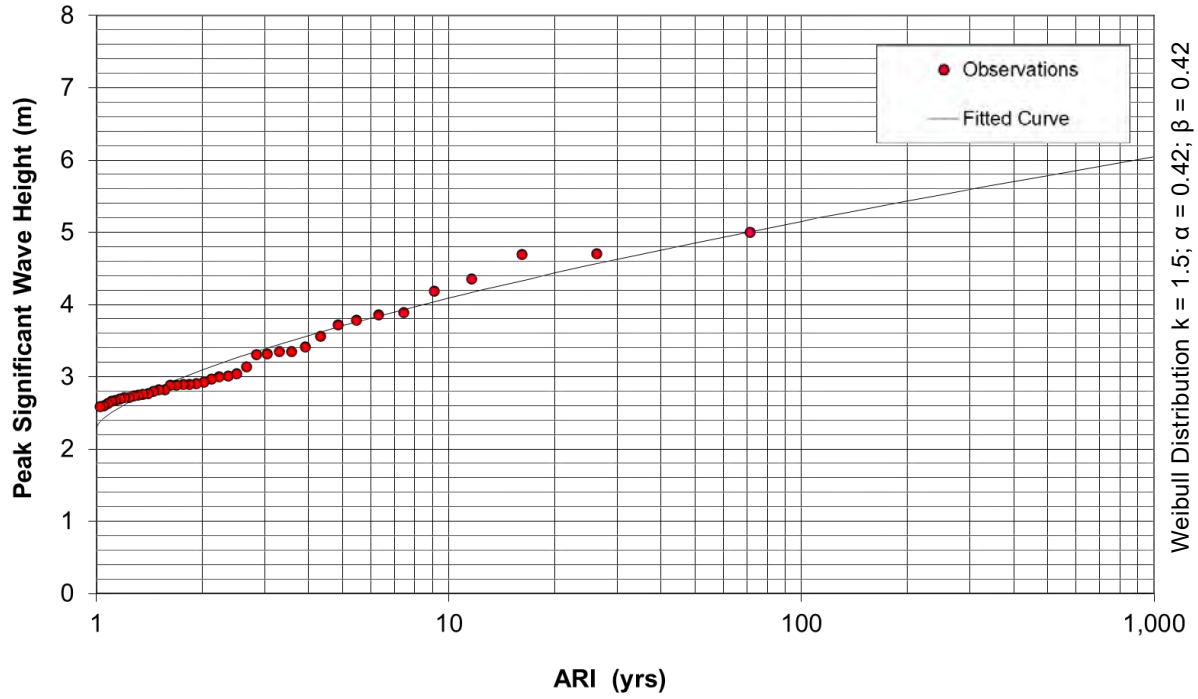


Figure 4.10 NW Directional EVA for CWWIII Data

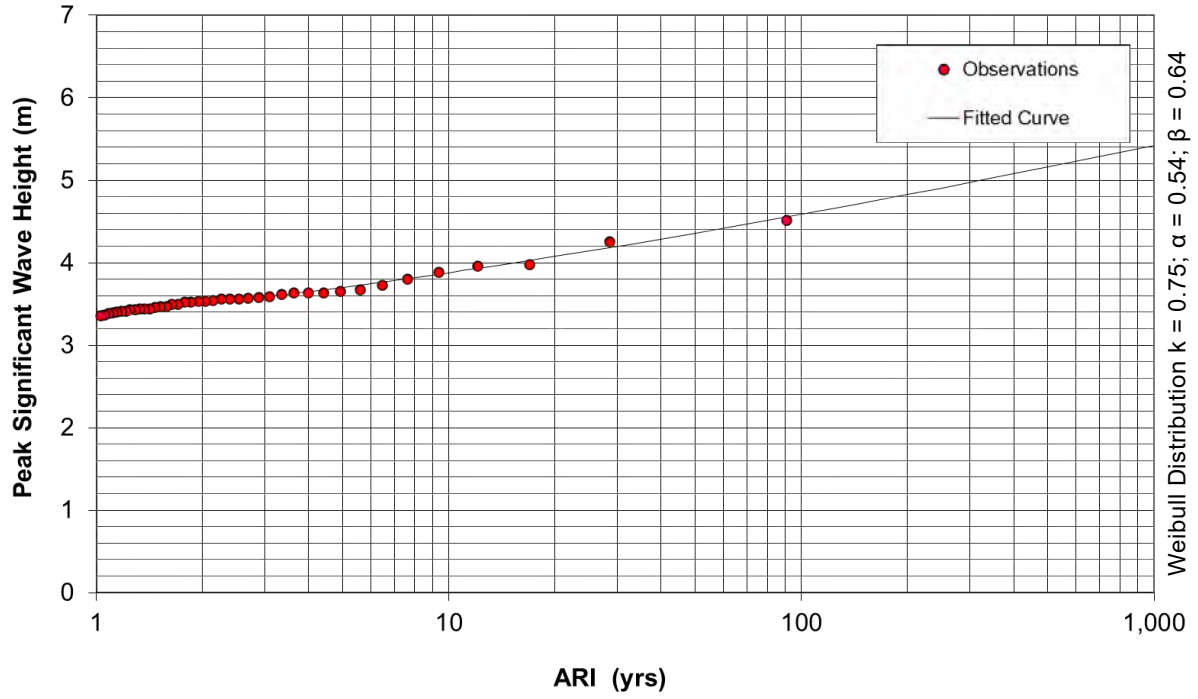


Figure 4.11 SW Directional EVA for CWWIII Data

The following table presents the peak significant wave heights for the various ARIs and directional quadrants established via the EVAs presented above.

Table 4.11 Extreme Significant Wave Heights from Calibrated WWIII Data

Average Recurrence Interval (years)	Omni-directional	Hs (m)		
		NE	NW	SW
		0-90°	270-360°	180-270°
1	3.4	1.8 m	2.3	3.4
10	4.3	3.1	4.1	3.9
50	5.0	4.0	5.1	4.4
100	5.3	4.3	4.9	4.6
200[2]	5.5	4.7	5.4	4.8
500[2]	5.9	5.1	5.8	5.2

Notes: 1. Data period 1979-2021, data length 42 years.
2. Estimates of events with ARI longer than 2-3 times the data length should be treated with care.

4.2.1 Summary

The CWWIII data provides information regarding a number of significantly larger wave heights than the TDWB data. The largest wave height recorded at the TDWB during the collection period was 4 m captured during cyclone Mangga. Whilst the largest wave height modelled in the CWWIII data period was 7.4 m, captured during cyclone Carlos.

From a review of the top events identified for the EVA it is clear that extreme wave heights arriving from the NE and NW quadrants are dominated by cyclone systems. Whilst extreme wave heights from the SW are dominated by winter storm fronts. Cyclone events were removed from the list of events for the purposes of the EVA. Cyclone associated waves are removed from the dataset as a separate assessment of these extreme wave heights will be prepared via Monte Carlo modelling undertaken as part of Task 4. Hence, the EVA is representative of non-cyclonic wave heights only.

Interestingly, the 1 year ARI event from the SW is greater than that from within the NW and NE quadrants. This is likely to be a result of SW events being more prevalent over time. However, for events greater than the 10 year ARI, waves from the NW become dominant. Given, the reef passage is located to the north of the proposed TBF, these events may be critical for extreme wave heights at the TBF.

4.3 Design Considerations

The offshore datasets contain the various metocean information collected offshore from the TBF, in a depth of close to 50 m. Comparison of the two datasets allowed establishment of a 42 year dataset considered appropriately reflective of experienced conditions. This allows the longer term met-ocean context of the region to be established.

These datasets are recorded at (or are representative of) a location outside the nearshore reef. Hence, they are not afforded the protection that the TBF will be. Rather, they provide an indication of the types of conditions experienced offshore from the TBF, that can be translated to the TBF via calibrated modelling. They also provide context for the nearshore assessment discussed in Section 6.

Predictably, larger wave heights are experienced outside the reef compared to inshore of the reef. Offshore swell waves typically arrive from the WSW through W. As explored in Section 6, when they reach the inshore AWAC they are largely focussed to the WNW through NNW. This is likely an artefact of the refraction of swell waves as they approach the shoreline, combined with the reef passage located to the NNW.

Given these findings, along with the finding that extreme wave events, both cyclonic and non-cyclonic within the data record appear to be dominated by the northwesterly conditions, it appears that the most likely cause of severe conditions at the TBF will be associated with north-westerly conditions. This shows that modelling of cyclonic and non-cyclonic events at the site must ensure that the sensitivity of conditions inshore of the reef adequately considers extreme waves arriving offshore from the northwest. This is important for design considerations such as wave penetration, navigability and structural design.

Furthermore, this demonstrates the importance in ensuring the various reef features are adequately resolved in the wave and hydrodynamic models when simulating extreme and ambient conditions at the TBF.

5. Ambient & Extreme Wind Conditions Analysis

MRA has undertaken an assessment of the local ambient and extreme wind conditions relevant to the proposed TBF development utilising the Learmonth Wind Anemometer, Yardie Wind Anemometer and WWIII Hindcast datasets. This was undertaken in two stages, as presented in the following sections.

5.1 Ambient Wind Conditions Analyses

Ambient and extreme wind conditions at a range of locations have been assessed and summarised utilising the following analysis methods.

Table 5.1 Offshore Ambient Analyses Complete

Dataset	Temporal Categories	Analyses Complete
Learmonth Wind Anemometer	■ Overall ■ Seasonal ■ Annual	■ JFTs. ■ Wind Roses. ■ Exceedance curves. ■ Time series plots of key events.
Yardie Wind Anemometer	■ Overall ■ Seasonal ■ Annual	■ JFTs. ■ Wind Roses. ■ Exceedance curves. ■ Time series plots of key events.
WWIII Hindcast Wind Data	■ Overall ■ Seasonal ■ Annual	■ JFTs. ■ Wind Roses. ■ Exceedance curves. ■ Time series plots of key events.

5.1.1 Joint Frequency Tables

JFTs for wind speeds broken into overall, annual and seasonal tables have been prepared and are provided in the following sections. The overall assessment provides the statistics over the entire available dataset. The annual tables provide the statistics for each year of data. The seasonal assessment provides the statistics for all available data throughout the entire data period within the relevant season.

Due to the significant number of plots prepared as part of these works, only the overall tables are provided within the report body. Overall, annual and seasonal tables are included as appendices.

The overall JFT's for wind speed against wind direction for the three datasets are provided in Tables 5.1 to 5.3. These are duplicated in Appendices J, K and L, along with the annual and seasonal tables. The directional bins are broken into 16, ±11.25° bins from the principal directions presented in the tables.

Table 5.2 Learmonth Wind Speed vs Direction JFTs

		Total																	
Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	1.67	0.17	0.19	0.19	0.24	0.17	0.21	0.26	0.64	0.65	0.79	0.61	0.51	0.26	0.23	0.21	6.98	6.98
2	4	1.56	1.16	1.15	1.49	1.71	0.73	0.91	1.03	3.33	5.52	5.89	2.62	1.15	0.41	0.36	0.49	29.50	36.48
4	6	1.54	1.76	1.16	1.16	1.66	0.75	1.19	1.39	3.41	8.16	5.14	1.88	1.18	0.30	0.14	0.11	30.93	67.42
6	8	0.79	0.89	0.48	0.24	0.36	0.33	0.76	1.32	2.26	6.74	3.72	1.72	1.32	0.19	0.05	0.04	21.22	88.63
8	10	0.24	0.37	0.25	0.11	0.10	0.09	0.23	0.51	0.77	3.03	2.27	0.82	0.49	0.04	0.02	0.01	9.34	97.97
10	12	0.05	0.08	0.10	0.04	0.02	0.02	0.03	0.08	0.10	0.56	0.47	0.09	0.04	0.01	0.01	0.01	1.73	99.70
12	14	0.02	0.02	0.03	0.01	0.01	0.01	0.01	0.01	0.01	0.04	0.04	0.00	0.00	0.00	0.00	0.00	0.20	99.90
14	16	0.01	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.05	99.95
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	99.97
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	99.98
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	100.00
Total		5.88	4.44	3.37	3.24	4.12	2.11	3.35	4.61	10.52	24.71	18.32	7.73	4.70	1.21	0.81	0.88		
Cumulative Total		5.88	10.33	13.70	16.94	21.06	23.17	26.52	31.12	41.64	66.35	84.67	92.40	97.10	98.31	99.12	100.00		

Notes: 1. “0.00” values not shown in green are very small percentages rounded to “0.00”.

Table 5.3 Yardie Wind Speed vs Direction JFTs

		Total																	
Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.39	0.31	0.37	0.54	0.64	0.49	0.72	0.83	1.12	1.23	1.26	0.73	0.52	0.38	0.33	0.26	10.12	10.12
2	4	0.66	0.37	0.40	0.45	0.80	0.98	1.50	1.43	2.29	4.63	6.84	2.30	1.29	1.05	0.73	0.50	26.22	36.35
4	6	0.64	0.44	0.47	0.47	0.85	1.08	2.23	1.26	1.30	3.58	8.01	3.66	1.37	0.49	0.30	0.24	26.38	62.73
6	8	0.30	0.30	0.34	0.35	0.56	0.80	2.55	1.09	0.56	2.04	6.48	3.79	0.58	0.07	0.02	0.04	19.87	82.59
8	10	0.08	0.15	0.15	0.10	0.27	0.44	2.10	0.63	0.18	0.78	4.43	2.24	0.13	0.00	0.00	0.01	11.71	94.30
10	12	0.02	0.06	0.08	0.05	0.10	0.15	1.05	0.24	0.03	0.24	1.86	0.61	0.01	0.00	0.00	0.00	4.49	98.79
12	14	0.01	0.02	0.04	0.00	0.03	0.06	0.24	0.06	0.01	0.04	0.41	0.08	0.00	0.00	0.00	0.00	1.00	99.79
14	16	0.00	0.01	0.00	0.00	0.00	0.00	0.08	0.02	0.00	0.01	0.05	0.00	0.00	0.00	0.00	0.00	0.18	99.97
16	18	0.00	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	100.00
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		2.11	1.66	1.85	1.96	3.25	4.00	10.47	5.57	5.49	12.55	29.35	13.40	3.90	2.00	1.38	1.05		
Cumulative Total		2.11	3.77	5.62	7.58	10.83	14.83	25.30	30.88	36.37	48.91	78.26	91.67	95.57	97.56	98.95	100.00		

Notes: 1. “0.00” values not shown in green are very small percentages rounded to “0.00”.

Table 5.4 WWIII Hindcast Wind Speed vs Direction JFTs

		Total																
Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.22	0.22	0.22	0.21	0.22	0.23	0.26	0.28	0.30	0.30	0.30	0.26	0.26	0.27	0.25	0.23	4.05	4.05
2	4	0.65	0.70	0.63	0.58	0.60	0.71	0.87	1.16	1.38	1.45	1.37	1.18	0.92	0.74	0.62	0.60	14.14	18.19
4	6	0.51	0.74	0.79	0.73	0.81	1.08	1.57	2.21	3.11	3.55	3.13	2.12	1.14	0.60	0.41	0.43	22.92	41.11
6	8	0.20	0.40	0.62	0.68	0.86	1.03	1.79	2.85	4.54	5.20	4.45	2.08	0.53	0.16	0.11	0.14	25.65	66.76
8	10	0.06	0.15	0.30	0.43	0.60	0.66	1.43	2.51	4.24	5.16	4.10	0.75	0.09	0.04	0.03	0.05	20.60	87.36
10	12	0.03	0.05	0.14	0.20	0.28	0.28	0.64	1.07	1.95	3.35	1.96	0.11	0.02	0.02	0.01	0.02	10.12	97.47
12	14	0.02	0.02	0.04	0.06	0.06	0.05	0.11	0.17	0.32	0.94	0.34	0.01	0.01	0.01	0.01	0.01	2.18	99.65
14	16	0.01	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.02	0.10	0.02	0.01	0.00	0.00	0.01	0.01	0.26	99.92
16	18	0.00	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.06	99.97
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	99.99
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	100.00
Total		1.71	2.31	2.76	2.93	3.44	4.05	6.68	10.26	15.85	20.06	15.66	6.52	2.97	1.84	1.46	1.49		
Cumulative Total		1.71	4.02	6.77	9.71	13.15	17.20	23.88	34.14	49.99	70.05	85.71	92.23	95.21	97.05	98.51	100.00		

Notes: 1. “0.00” values not shown in green are very small percentages rounded to “0.00”.

5.1.2 Roses

are provided in the following sections. The overall assessment provides the statistics over the entire available dataset. The annual tables provide the statistics for each year of data. The seasonal assessment provides the statistics for all available data throughout the entire data period within the relevant season.

Due to the significant number of plots prepared as part of these works, only the overall roses are provided within the report body. Overall, annual and seasonal plots are included as appendices.

The overall roses for wind speed against wind direction for the three datasets are provided in Figures 5.1 to 5.3. These are duplicated in Appendices M, N and O, along with the annual and seasonal tables. The directional bins are broken into 16, ±11.25° bins consistent with those utilised for the JFTs.

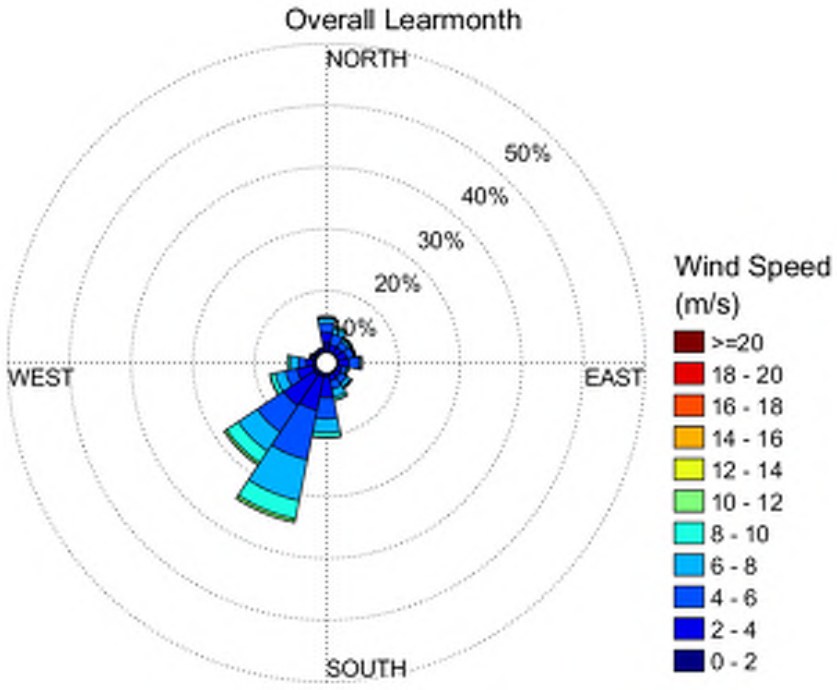
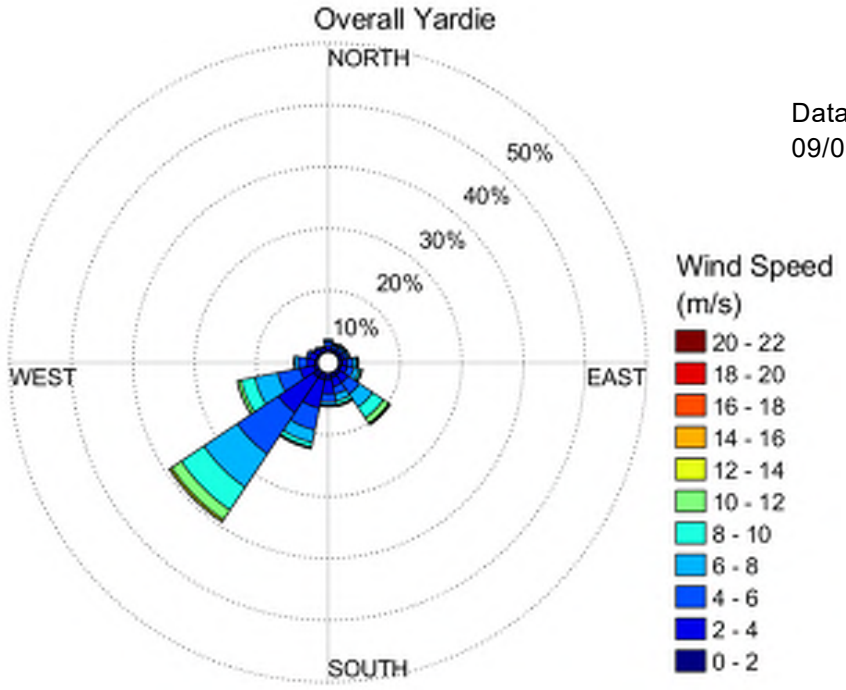


Figure 5.1 Learmonth Wind Rose



Data gap from
09/08/2018 – 01/11/2019

Figure 5.2 Yardie Wind Rose

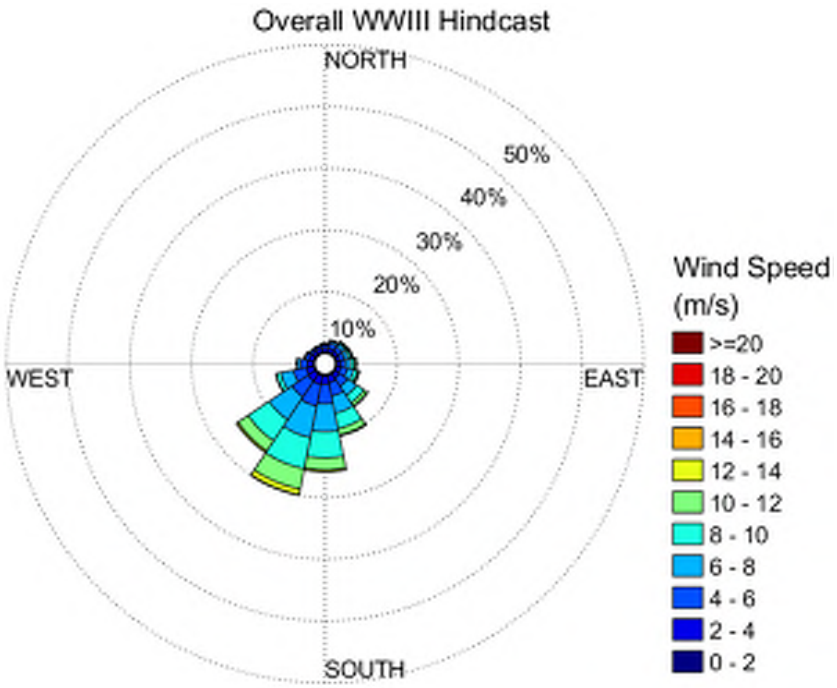


Figure 5.3 WWIII Hindcast Wind Rose

5.1.3 Exceedance Curves

Exceedance curves for wind speeds broken into overall, annual and seasonal plots have been prepared and are provided in the following sections. The overall assessment provides the statistics over the entire available dataset. The annual tables provide the statistics for each year of data. The seasonal assessment provides the statistics for all available data throughout the entire data period within the relevant season.

The exceedances for wind speed against direction for the three datasets are provided in Figures 5.4 to 5.9.

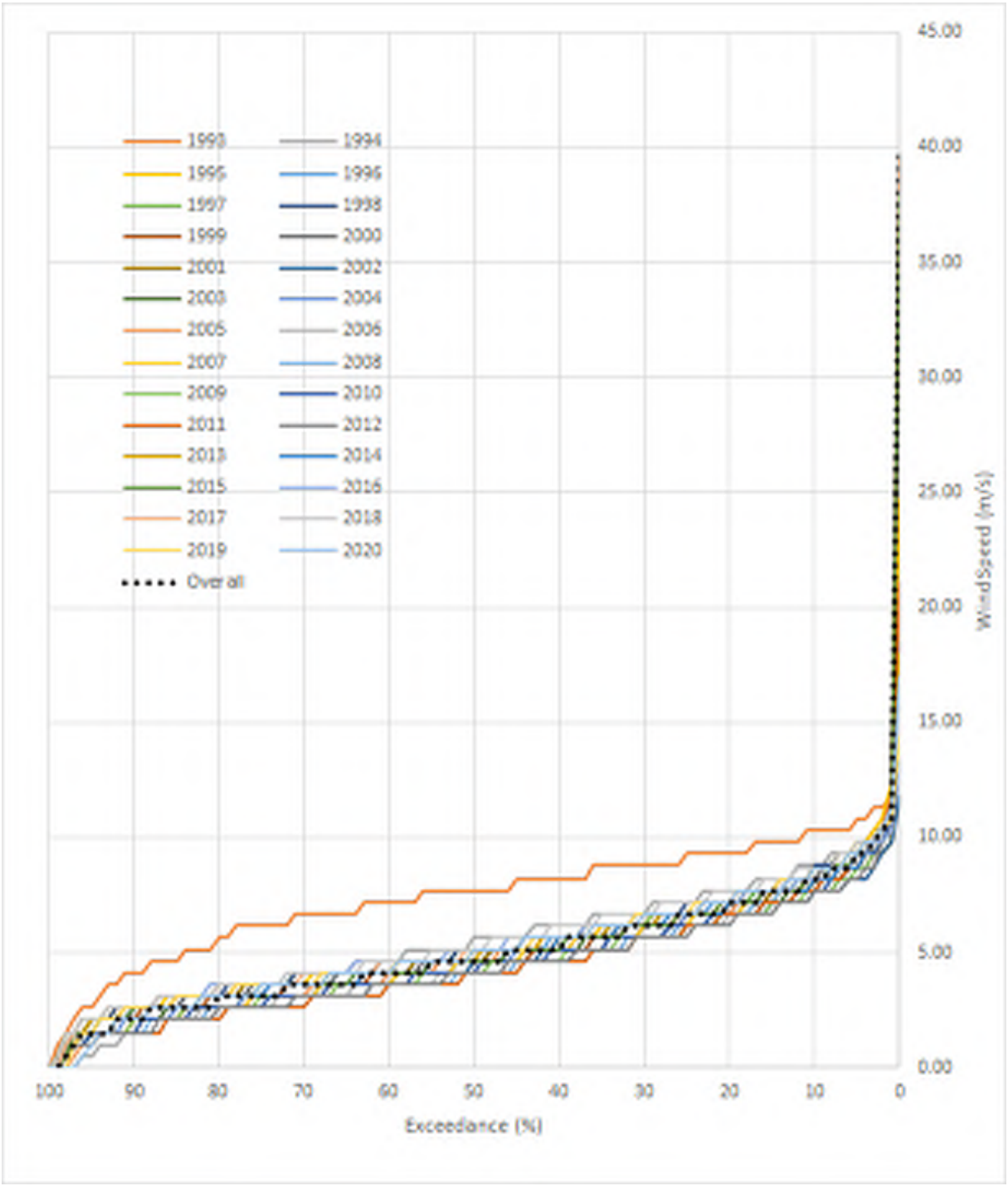


Figure 5.4 Learmonth Wind Speed Overall & Annual Exceedance Curves

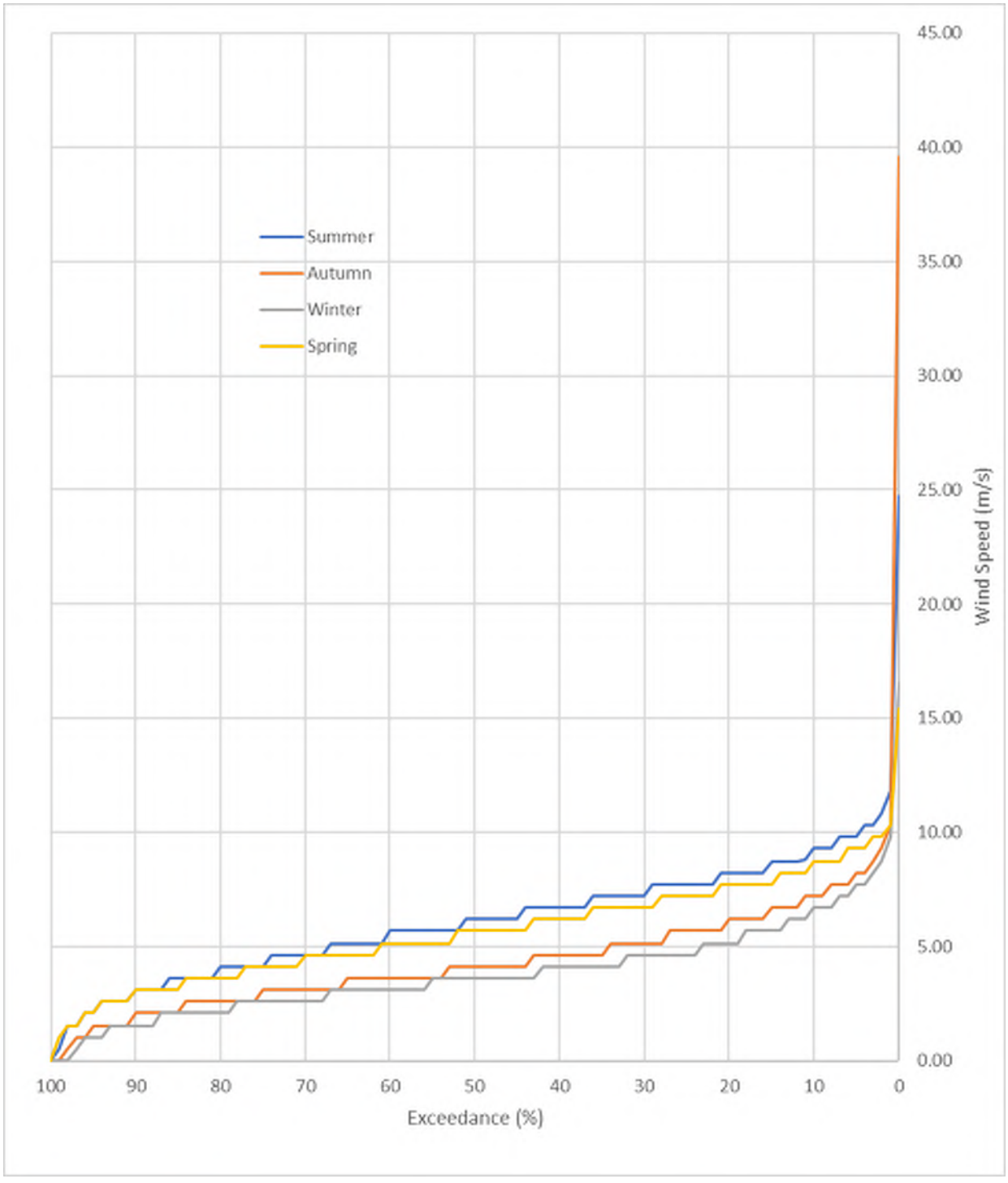


Figure 5.5 Learmonth Wind Speed Seasonal Exceedance Curves

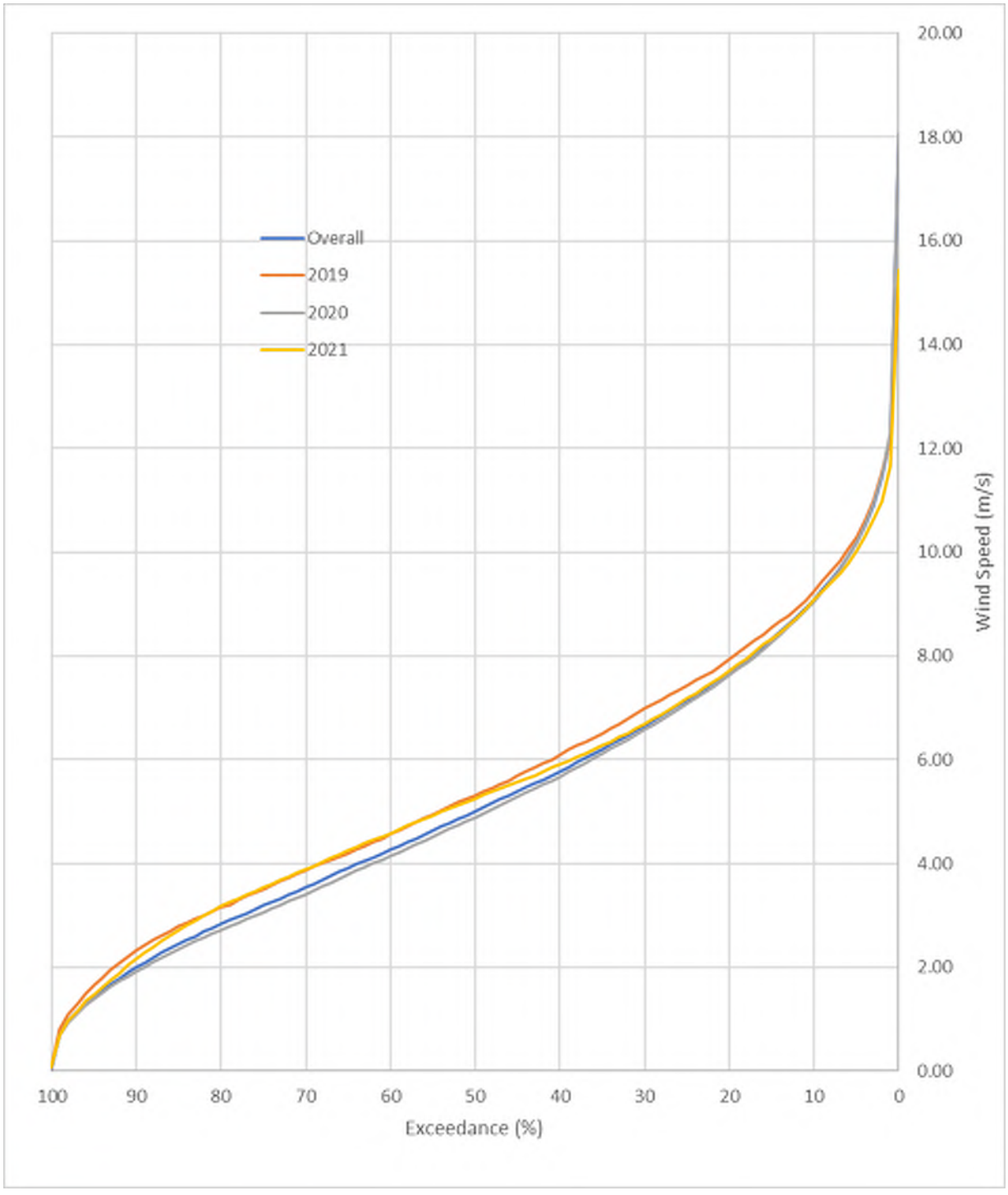


Figure 5.6 Yardie Wind Speed Overall & Annual Exceedance Curves

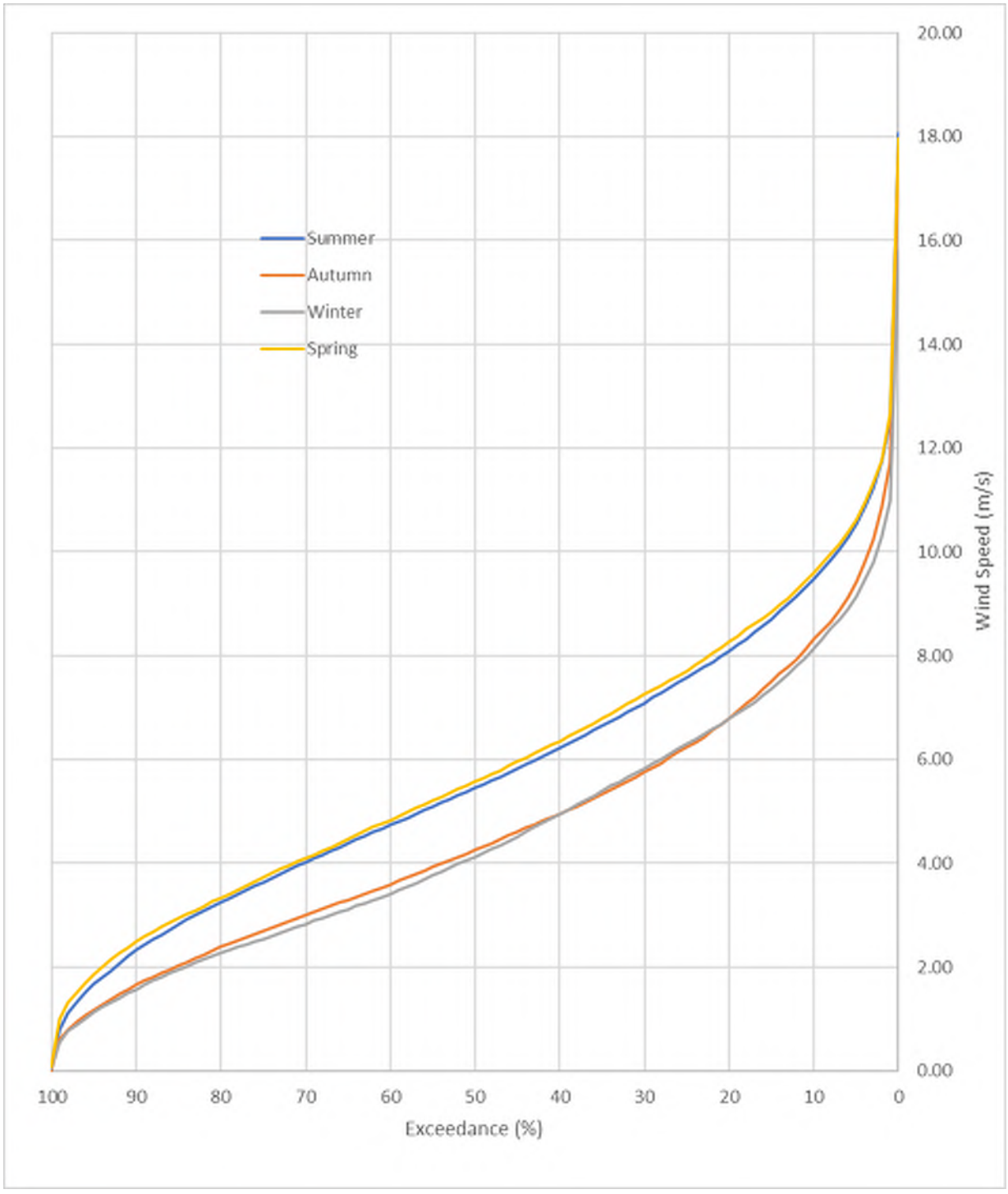


Figure 5.7 Yardie Wind Speed Seasonal Exceedance Curves

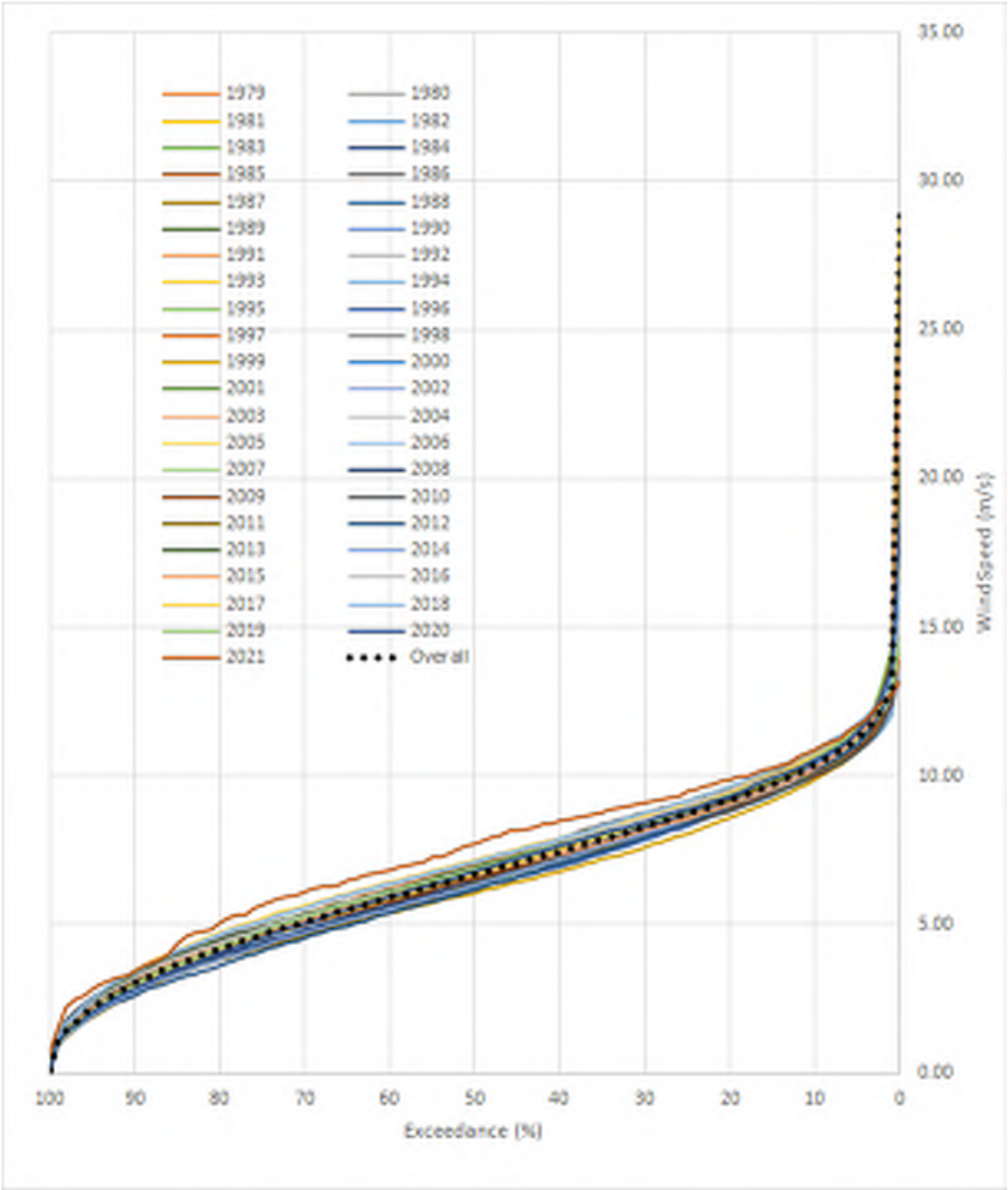


Figure 5.8 WWIII Hindcast Wind Speed Exceedance Curve

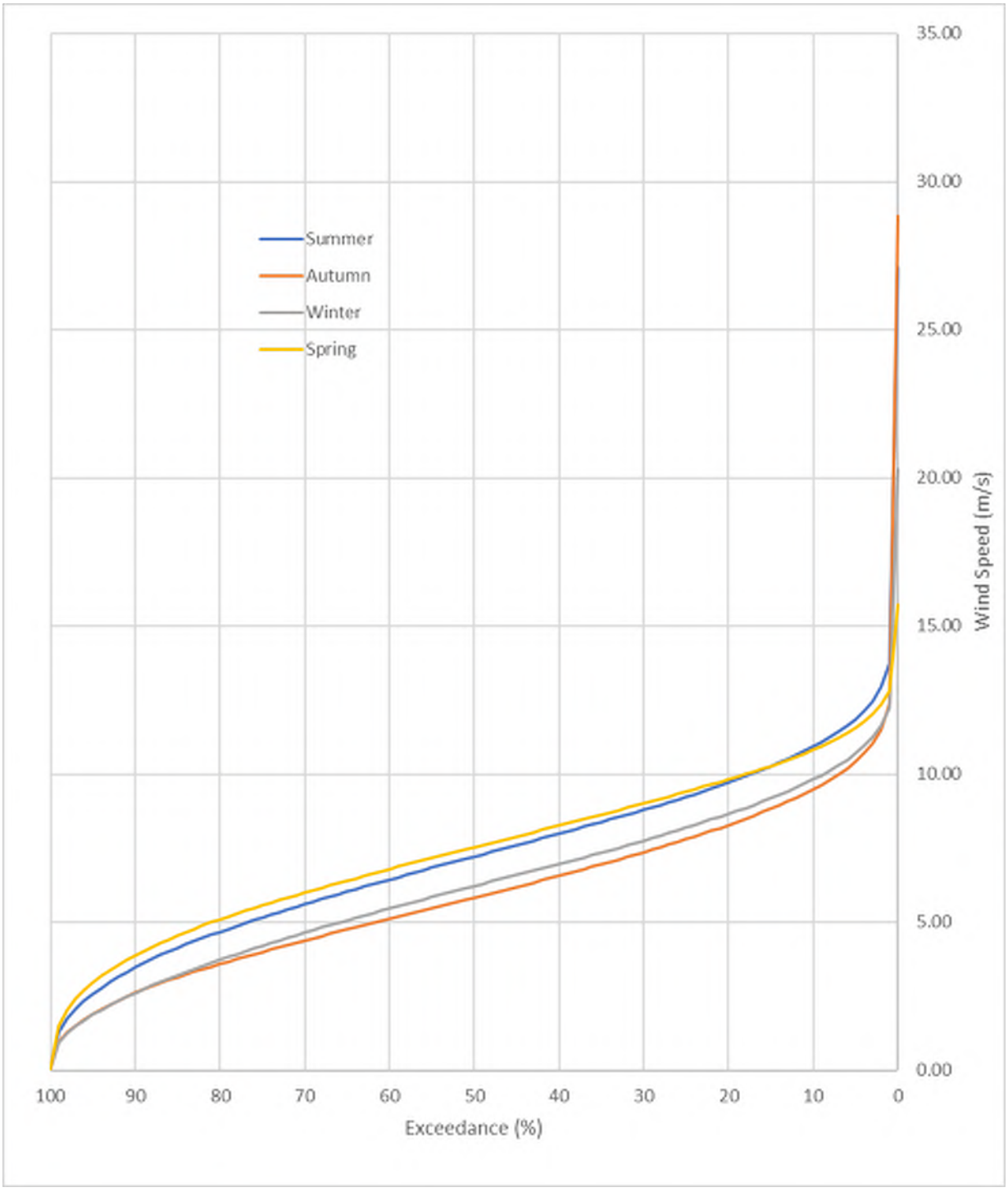


Figure 5.9 WWIII Hindcast Wind Speed Exceedance Curve

5.1.4 Key Events

Time history plots of key events for wind conditions have been prepared. Due to the significant number of plots prepared as part of these works, the details of the selected events are provided in the report body, whilst the time history plots are provided in the relevant appendix.

The top ten peak wind speed events from each dataset were selected as the key events for plotting. These events provide an indication of the typical sequence experienced during a severe

wind event. The 4 days leading up to and following the peak were selected. The plots show the speed and direction for each of the events.

Learmonth Wind Anemometer

The dates and details of the selected events from the Learmonth Wind Anemometer are shown in Table 5.5 below. The time series plots are presented in Appendix P.

Table 5.5 Learmonth Wind Anemometer Key Events

Date	Peak Wind Speed (m/s)	Wind Direction (°)
22/03/1999 10:22	39.6	160
13/03/2015 2:19	38.1	20
24/04/1994 5:00	34.5	230
1/05/2015 12:00	25.7	130
11/12/1995 17:30	24.7	90
18/01/2011 21:55	21.1	80
19/02/2008 18:30	20.6	30
23/02/2011 15:00	20.6	350
27/01/2011 23:36	20.1	30
1/03/2001 10:29	19.0	60

Yardie Wind Anemometer

The dates and details of the selected events from the Yardie Wind Anemometer are shown in Table 5.6 below. The time series plots are presented in Appendix Q.

Table 5.6 Yardie Wind Anemometer Key Events

Date	Peak Wind Speed (m/s)	Wind Direction (°)
4/01/2020 7:10	18.1	134
4/10/2020 8:40	18.0	122
24/05/2020 17:10	17.8	26
1/12/2020 7:30	17.8	142
20/03/2020 9:10	17.5	127
31/01/2020 13:40	16.4	235
8/01/2020 18:50	16.2	220
8/12/2020 0:40	16.0	84
29/11/2020 16:40	15.9	222
9/08/2020 16:10	15.8	321

WWIII Hindcast Wind Data

The dates and details of the selected events from the WWIII Hindcast Wind Data are shown in Table 5.7 below. The time series plots are presented in Appendix R.

Table 5.7 WWIII Hindcast Wind Data Key Events

Date	Peak Wind Speed (m/s)	Wind Direction (°)
22/03/1999 6:00	28.8	150
23/02/2011 15:00	27.1	327
27/01/2011 22:00	26.7	30
1/05/2015 8:00	24.5	80
28/01/1990 3:00	22.0	266
21/05/1988 5:00	21.4	333
13/01/2013 8:00	20.8	28
24/06/2013 2:00	20.3	56
30/03/2006 20:00	20.1	167
11/12/1995 3:00	20.0	119

5.1.5 Discussion

The various assessment outputs demonstrate the range of wind speeds and directions experienced at the various locations during typical conditions. As shown in the exceedance curves, the 30% exceedances for wind speed were 6.2 m/s, 6.5 m/s and 8.3 m/s for Learmonth, Yardie and WWIII Hindcast datasets respectively. Generally, the datasets provide quite similar exceedance curves for ambient conditions, although the 0% exceedances are very different.

The differences are largely explained by the variance in elevation and duration of the datasets. Furthermore, the WWIII dataset is representative of an offshore location whilst the Yardie and Learmonth datasets are located approximately 2 km from the western and eastern coastlines of the Cape, respectively. Hence, some variance from location to location would be expected.

Through review of the JFT's and wind roses, the seasonal directional variability of wind conditions over the data collection period at each location can be clearly observed. In the summer, wind conditions generally prevail from the southwest quadrant at all three locations. This trend is consistent through spring. This is likely due to the prevailing sea breezes experienced almost daily over these months. Over the winter months, this trend is reversed, with prevailing wind conditions arriving from the NW through N. This is likely due to the subsidence of the sea breezes experienced over this period. These trends are also reflected in the exceedance curves. Greater ambient wind speeds are experienced during summer and spring compared to winter and autumn. This is again a result of the persistent sea breezes experienced during spring and summer.

5.2 Extreme Wind Condition Analyses

MRA has identified extreme events from the Learmonth and WWIII Hindcast datasets and undertaken EVA, both omnidirectional and directional. This allows establishment of peak wind

conditions associated with various ARIs. These may be used to inform development of design conditions at the TBF for various design considerations.

EVA needs to be completed on random and independent events. As a result, it is important that an adequate separation is achieved between measurements that are included within an analysis so that one large event does not dominate the assessment. To ensure that the events are adequately discretised, a 36 hour separation either side of the peak event has been imposed. This is shown diagrammatically in Figure 5.10.

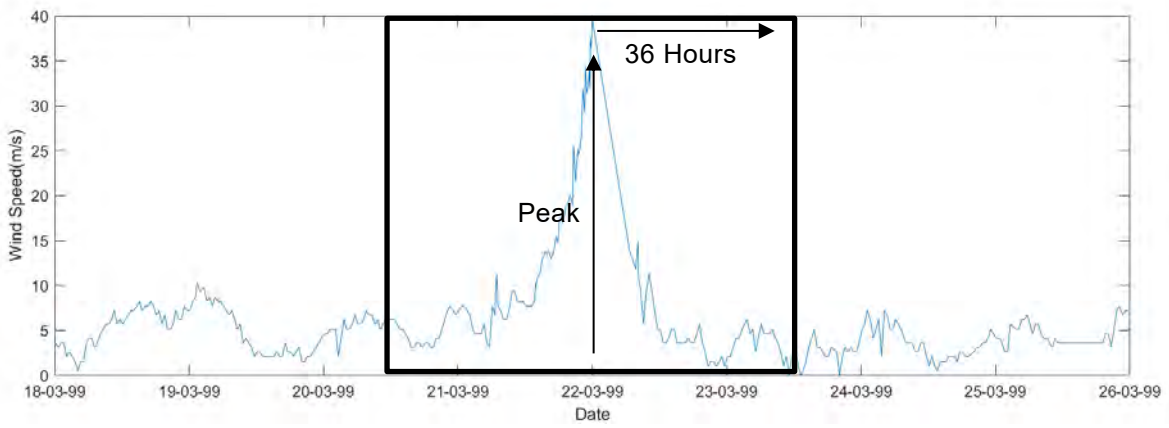


Figure 5.10 Event Separation

Limitations of the approach of extreme distribution fitting are acknowledged. The length of the data set affects confidence in the estimation of long recurrence interval events. Consequently, estimates of events with ARI longer than 2-3 times the data length should be treated with care. The lengths of the available datasets are provided in Table 5.8.

Table 5.8 Summary of Data Used for Extreme Analysis

Dataset	Data Period	Date Length
Yardie Wind Anemometer	25/07/2019-28/02/2021	1.5 years
Learmonth Wind Anemometer	09/12/1993-08/12/2020	28 years
WWIII Hindcast Data	01/01/1979- 01/03/2021	42 years

The Yardie dataset is considered too short to establish wind speeds associated with ARIs greater than the 1 year event. Hence, wind conditions associated with 1 year, 10 year, 50 year, 100 year, 200 year and 500 year ARIs only for the Learmonth and WWIII Hindcast datasets have been established via EVA.

In contrast to the Offshore Wave Extreme Condition Analysis, winds associated with cyclones have not been removed from the dataset. Given the significant length of the Learmonth and WWIII Hindcast datasets a number of cyclone events have been captured over the observation period. Hence, valuable results can be obtained by inclusion of these events in the EVA datasets. The Learmonth dataset provides recordings of wind speeds over cyclone events. The WWIII Hindcast dataset provides estimates of wind speeds by the numerical weather prediction system.

Guidance on extreme wind speeds during cyclone events are also be provided in Task 4. Results of the current assessment are a valuable comparison.

5.2.1 Learmonth Wind Anemometer

The analysis was completed firstly as an omni-directional assessment. The data was then filtered into four directional bins, northeast (0-90°), northwest (270-360°), southwest (180-270°) and southeast (90-180°). 90-degree bins were selected for 2 key reasons.

- The greater number of directional bins the smaller the size of the bins resulting in the identification of less severe events within. This can lead to unconservative EVA results.
- At the site there are a few prevailing extreme wave directions. Splitting the dataset into smaller bins typically means that those that are not within the prevailing extreme wave directions are dominated by events on the edges of the bin. This does not yield useful results.

The top 100 events (with 36-hour separation either side) were selected from the overall dataset and each of the four directionally filtered datasets. EVA was undertaken on each of these datasets to allow the wind conditions associated with the ARIs presented in Table 5.5 to be established. The results of the EVA undertaken on each of the datasets are presented in Figures 5.11 to 5.15.

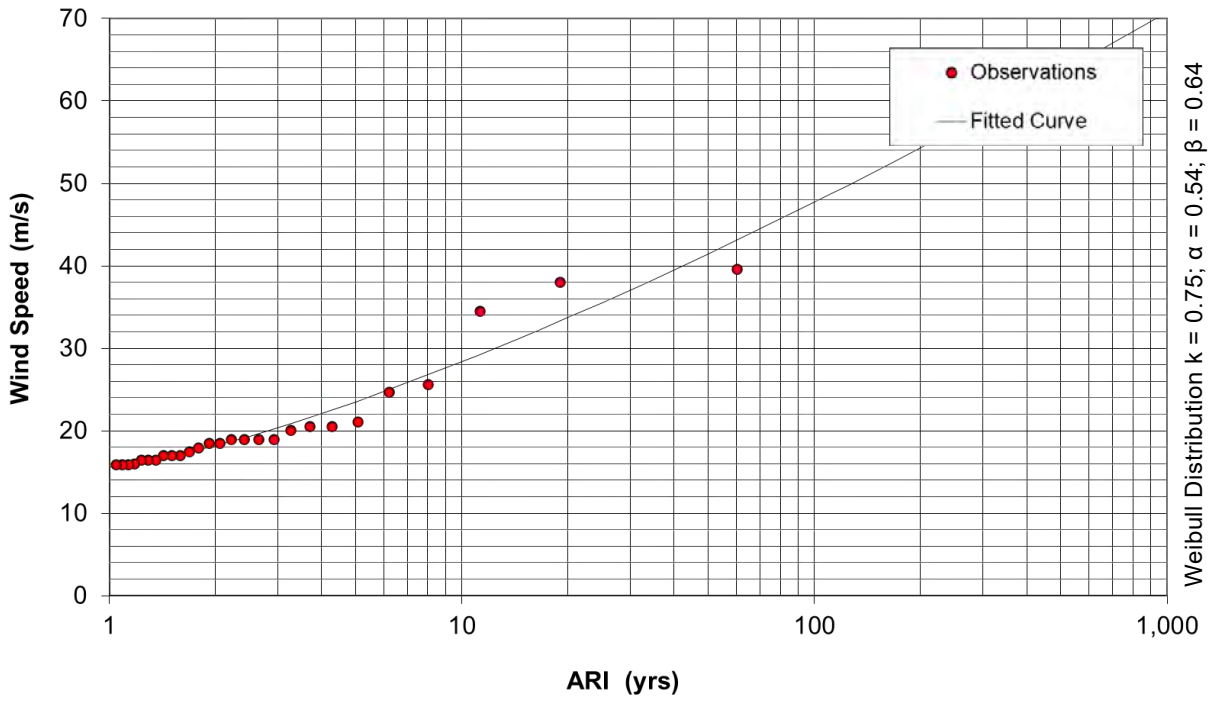


Figure 5.11 Omnidirectional EVA for Learmonth Wind Speeds

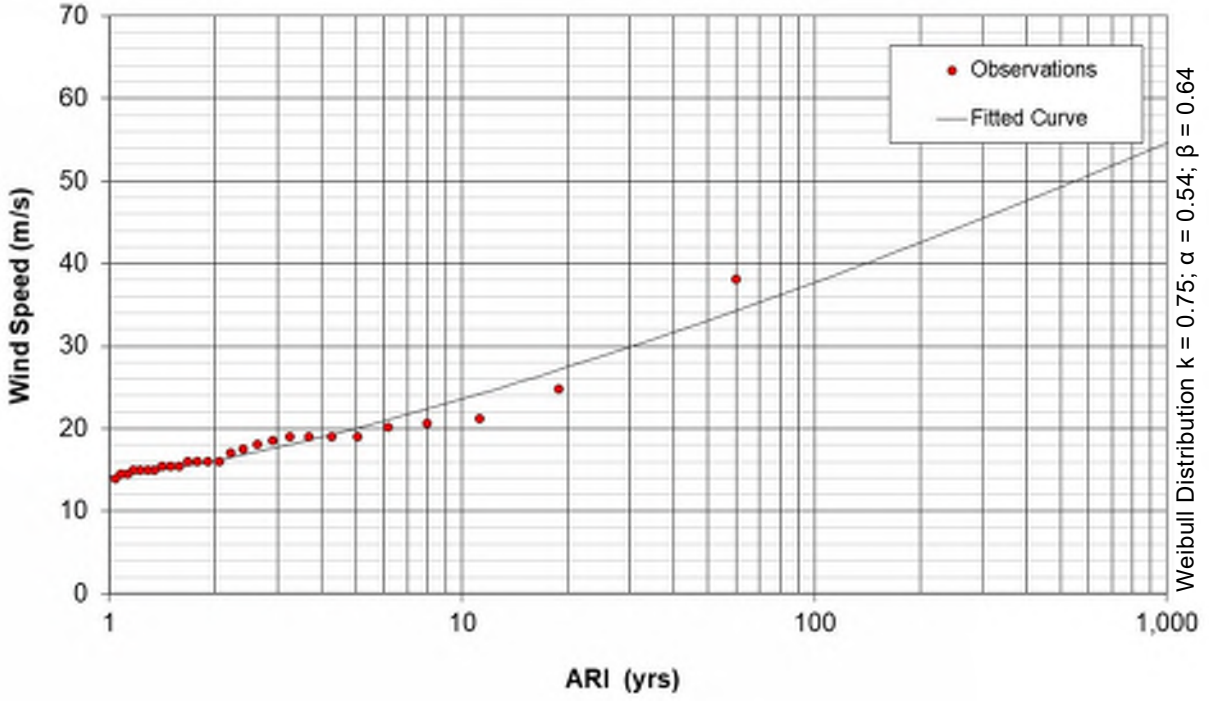


Figure 5.12 NE Directional EVA for Learmonth Wind Speeds

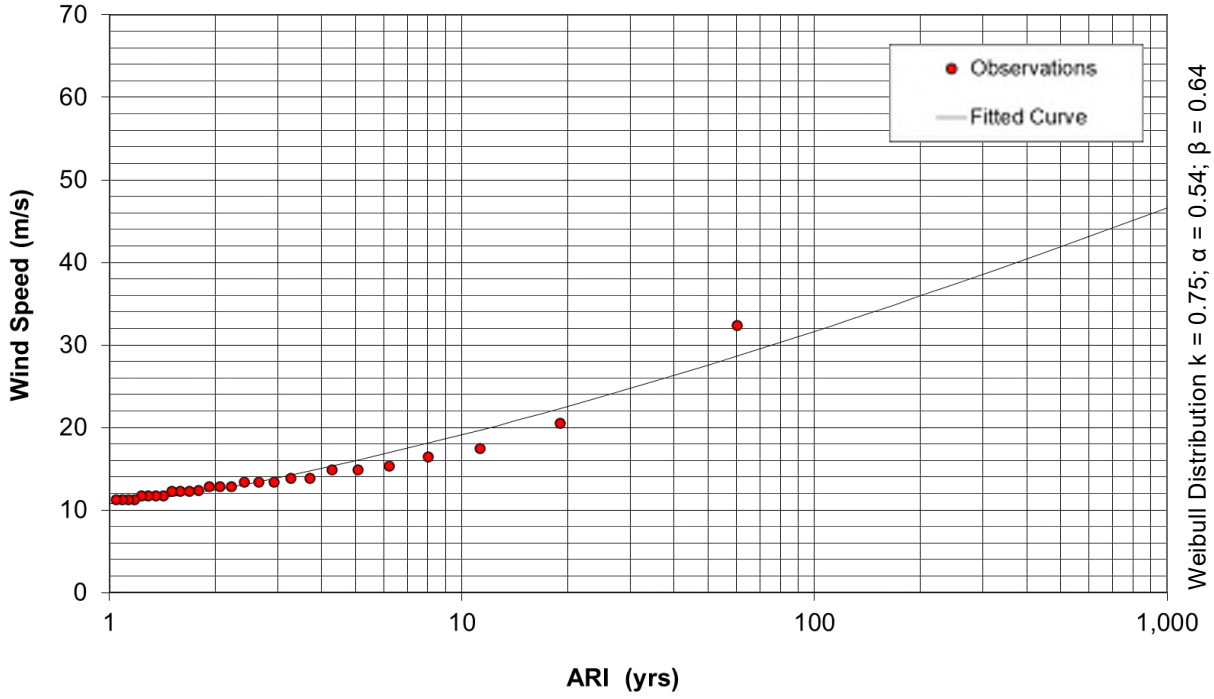


Figure 5.13 NW Directional EVA for Learmonth Wind Speeds

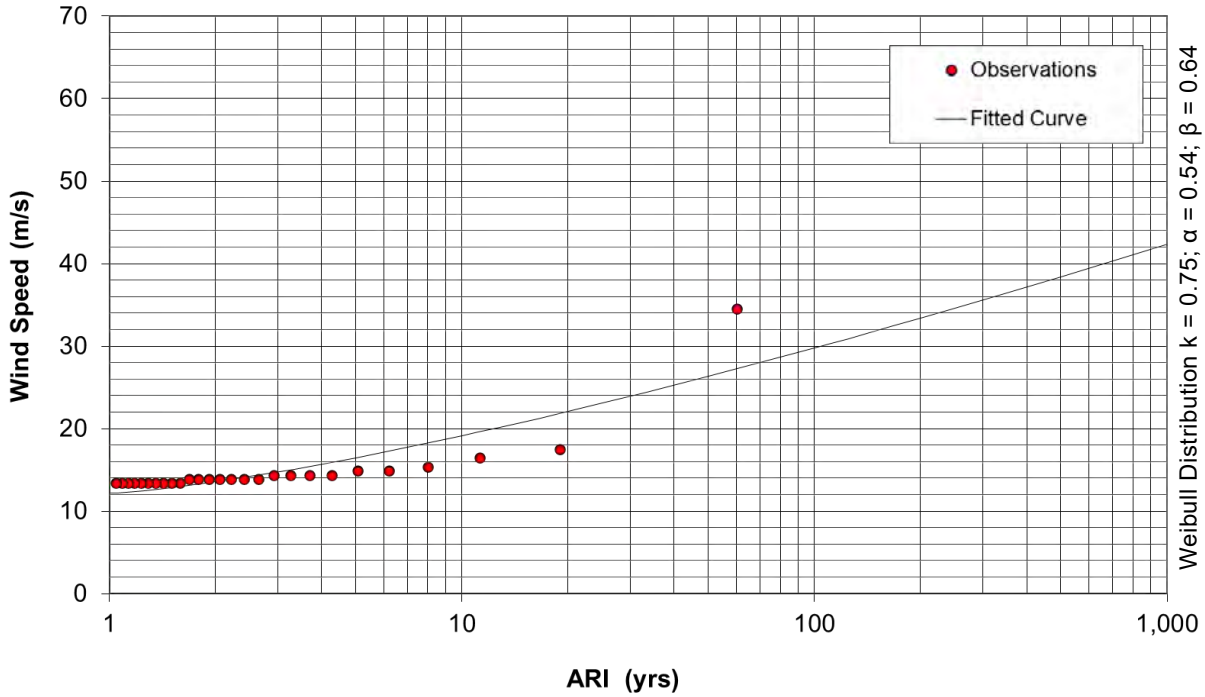


Figure 5.14 SW Directional EVA for Learmonth Wind Speeds

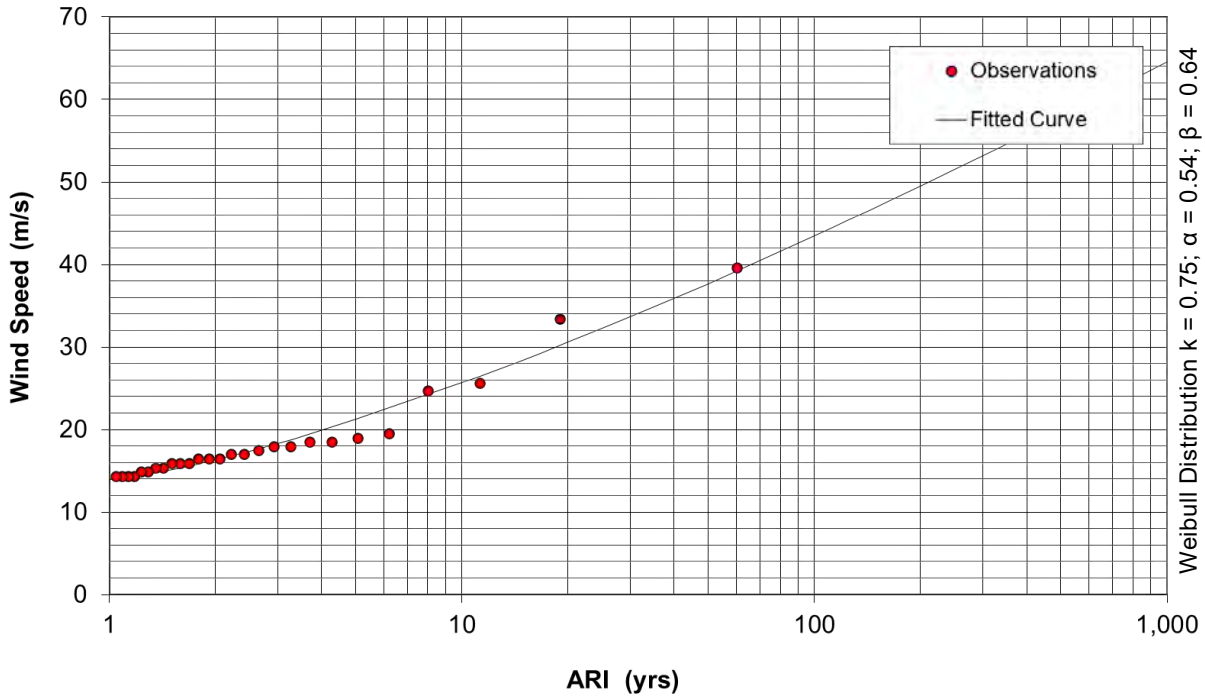


Figure 5.15 SE Directional EVA for Learmonth Wind Speeds

The following table presents the peak wind speeds for the various ARIs and directional quadrants established via the EVAs presented above.

Table 5.9 Extreme Wind Speeds at Learmonth Wind Anemometer

Average Recurrence Interval (years)	Omni-directional	Wind Speed (m/s)			
		NE	NW	SW	SE
		0-90°	270-360°	180-270°	90-180°
1	15.6	14.2	10.8	12.2	14.0
10	28.4	23.6	19.1	19.1	25.7
50	41.5	33.1	27.6	26.3	37.7
100[2]	47.7	37.7	31.7	29.8	43.5
200[2]	54.3	42.5	36.0	33.4	49.5
500[2]	63.5	49.2	41.9	38.4	57.9

Notes: 1. Data period 1993-2020, data length 28 years.
2. Estimates of events with ARI longer than 2-3 times the data length should be treated with care.

5.2.2 WWIII Hindcast Data

The WWIII Hindcast dataset provides approximately 14 additional years of data compared to the Learmonth Anemometer dataset. This provides increased confidence in the conditions established for greater ARIs. However, this data has other limitations such the natural smoothing associated with models and reduced sampling interval.

The analysis of the WWIII Hindcast data was completed firstly as an omni-directional assessment. The data was then filtered into four directional bins, northeast (0-90°), northwest (270-360°), southwest (180-270°) and southeast (90-180°). The top 100 events (with 36-hour separation either side) were selected from the overall dataset and each of the four directionally filtered datasets. EVA was undertaken on each of these datasets to allow the wind conditions associated with the ARIs presented in Table 5.10 to be established. The results of the EVA undertaken on each of the datasets are presented in Figures 5.16 to 5.20.

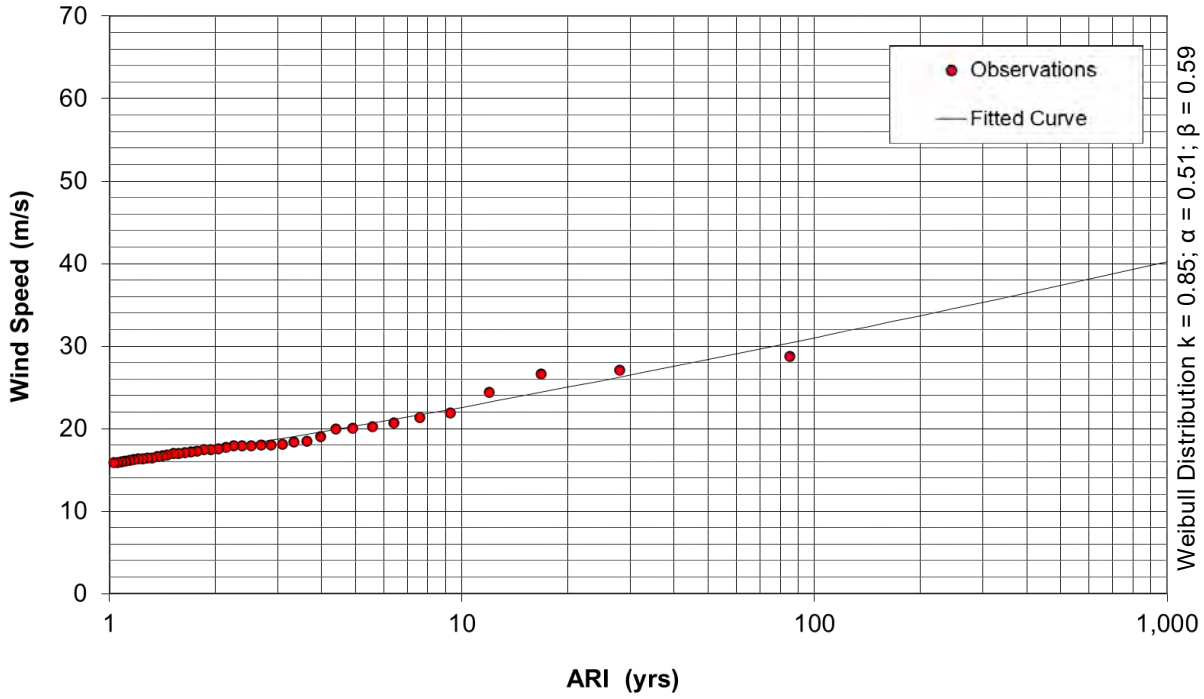


Figure 5.16 Omnidirectional EVA for WWIII Hindcast Wind Speeds

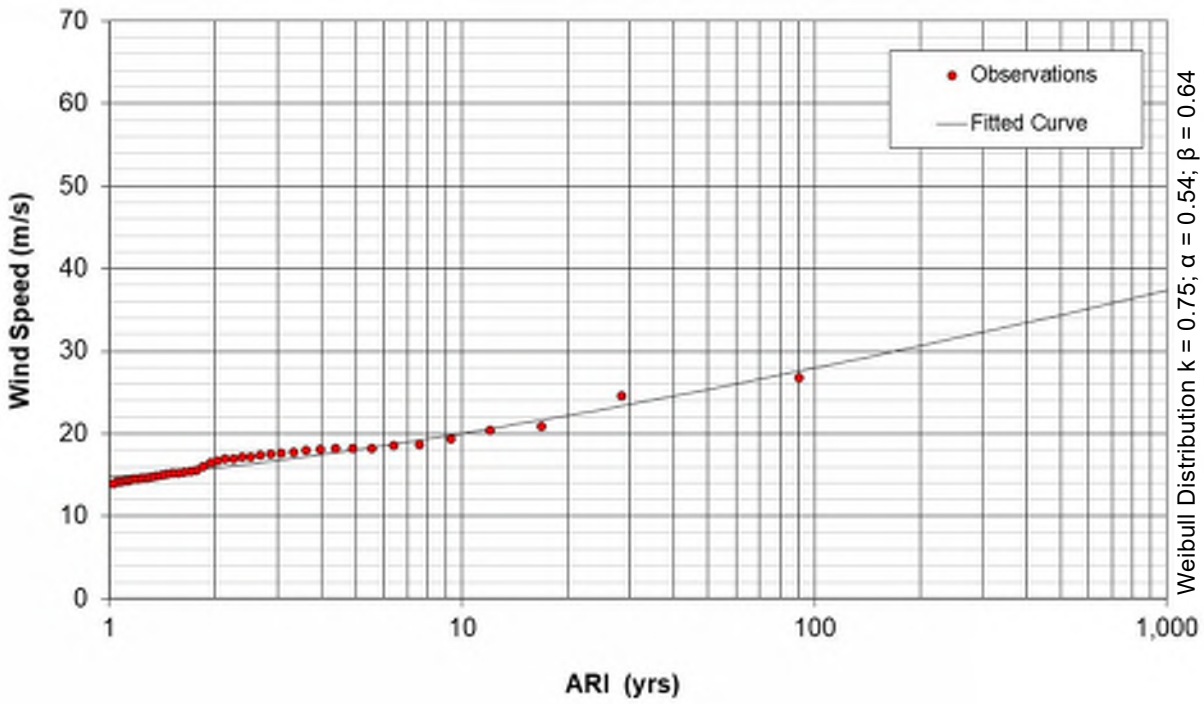


Figure 5.17 NE Directional EVA for WWIII Hindcast Wind Speeds

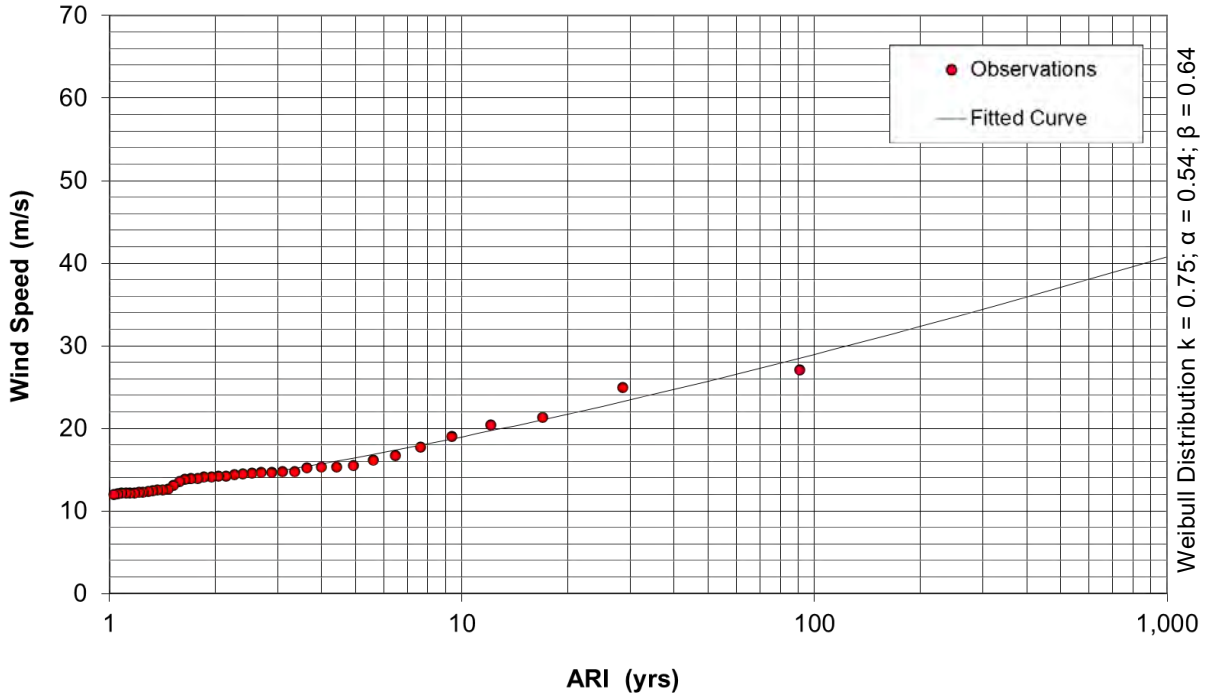


Figure 5.18 NW Directional EVA for WWIII Hindcast Wind Speeds

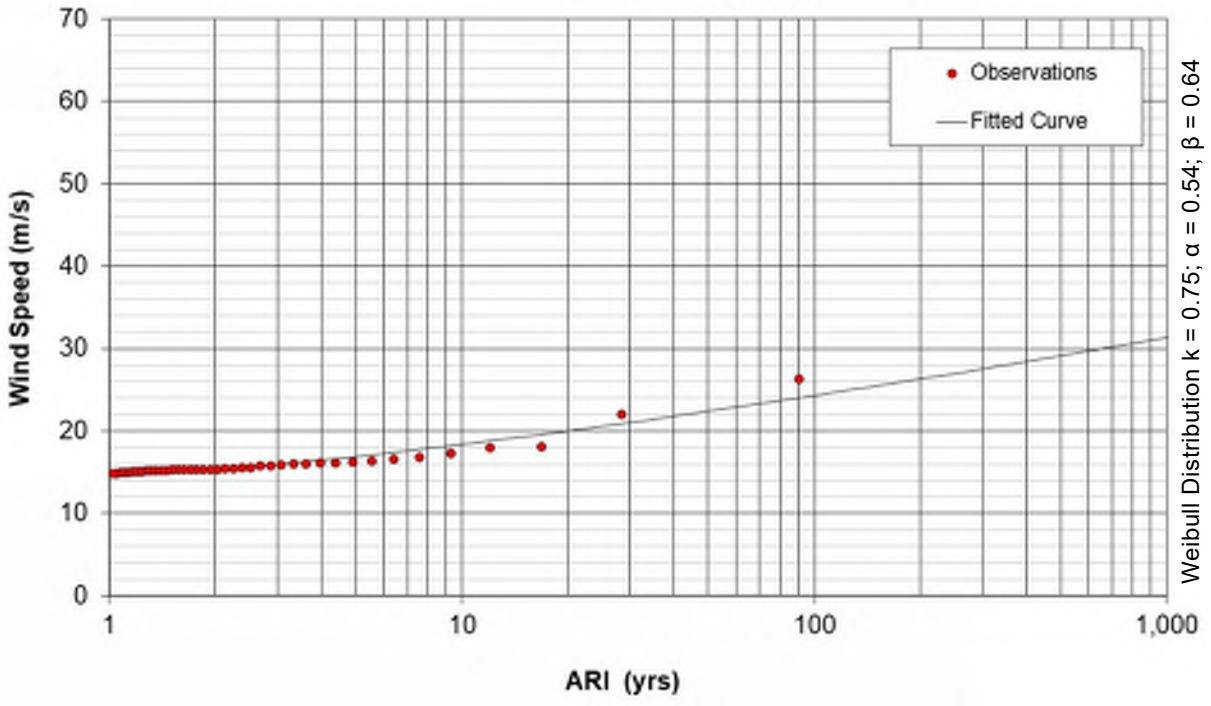


Figure 5.19 SW Directional EVA for WWIII Hindcast Wind Speeds

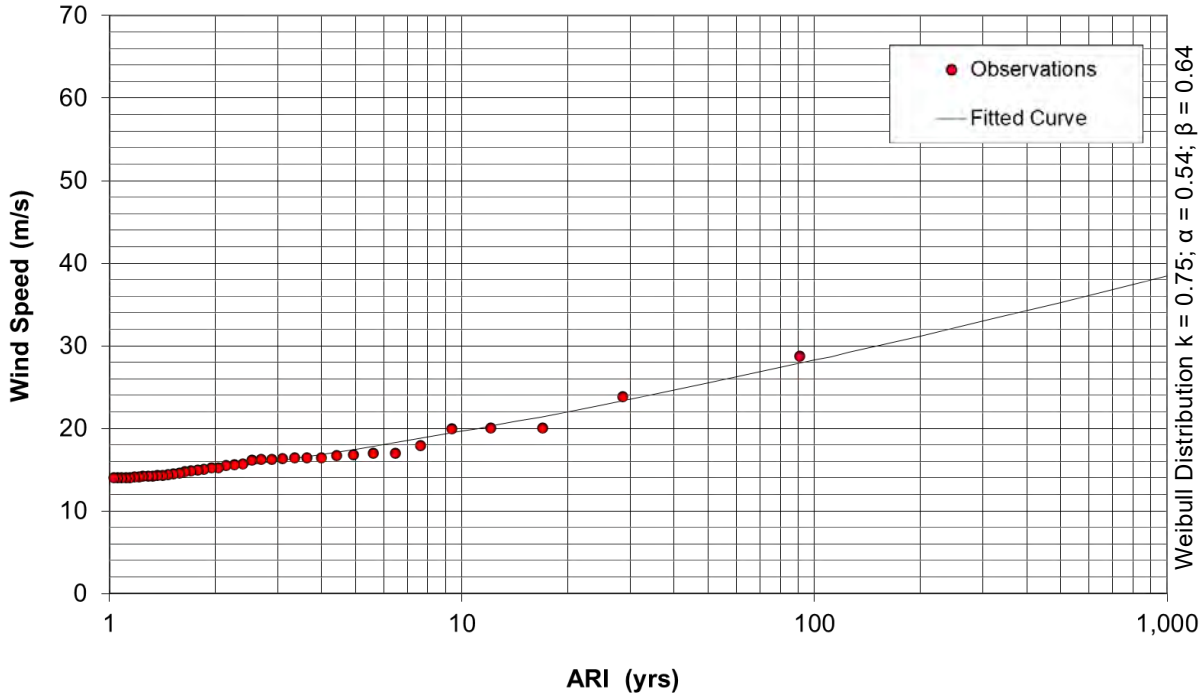


Figure 5.20 SE Directional EVA for WWIII Hindcast Wind Speeds

The following table presents the peak wind speeds for the various ARIs and directional quadrants established via the EVAs presented above.

Table 5.10 Extreme Wind Speeds from WWIII Hindcast Data

Average Recurrence Interval (years)	Omni-directional	Wind Speed (m/s)			
		NE	NW	SW	SE
		0-90°	270-360°	180-270°	90-180°
1	15.9	14.8	12.4	14.5	14.0
10	22.6	20.0	19.0	16.9	19.7
50	28.4	25.4	25.7	22.4	25.5
100	31.0	27.9	28.9	24.3	28.3
200[2]	33.7	30.6	32.4	26.3	31.2
500[2]	37.4	34.4	37.1	29.1	35.3

Notes: 1. Data period 1979-2021, data length 42 years.
2. Estimates of events with ARI longer than 2-3 times the data length should be treated with care.

5.2.3 Discussion

A number of severe wind events are captured in each of the datasets. These are associated with both cyclonic and non-cyclonic events. Hence, the extreme value analysis provides an assessment of extreme wind conditions associated with both cyclonic and non-cyclonic conditions. In contrast to the Offshore Wave Extreme Condition Analysis, winds associated with cyclones have not been removed from the dataset. Given the significant length of the Learmonth and WWIII Hindcast datasets a number of cyclone events have been captured over the observation period. Hence, valuable results can be obtained by inclusion of these events in the EVA datasets. The Learmonth dataset provides recordings of wind speeds during cyclone events. The WWIII Hindcast dataset provides estimates of wind speeds by the numerical weather prediction system.

The extreme wave conditions calculated from each of the datasets yields very different results. This is attributable largely to the difference in sampling interval of the two datasets and natural smoothing associated with a hindcast model. The WWIII data is sampled hourly, whilst the Learmonth Anemometer data is sampled half hourly. Due to the more regular sampling the Learmonth Anemometer is better able to capture the scatter of wind conditions experienced over an extreme event. Furthermore, as observed by MRA in previous uses of the model (MRA 2018) the WWIII hindcast model is naturally smoother than observed data. This is intuitive given models only simulate conditions over a given timestep rather than the constantly varying nature experienced in real life. As such, this smoothing means that the WWIII data is representative of a longer averaging period than the Learmonth wind data.

Extreme wind speeds at the Learmonth Anemometer are more severe for the NE and SE quadrants. This may be attributable to the fact that winds arriving from the NW and SW are slowed by the land friction as they move across the Cape. Contrastingly, extreme wind speeds from the WWIII Hindcast dataset are most severe from the NW and SE.

5.3 Design Considerations

The relevance of wind conditions in design of the TBF is largely related to the waves they may generate during both ambient and extreme conditions. The seasonal variance in sediment transport is largely attributable to the sea breeze wind system which dominates waves generated over spring and summer but is less prevalent across the autumn and winter months.

Furthermore, due to the significant protection from swell waves the proposed TBF is afforded by the offshore reef, the largest waves which may be experienced from some directions, may be that which can be locally generated by extreme winds inshore of the reef. Locally generated waves will be important for structural design, navigability, wave penetration and harbour tranquillity. Hence, it is important to understand the extreme wind conditions from which these may arise. Such extreme wind conditions will need to be modelled to establish design conditions for the assessment of each of these design considerations.

Consideration will need to be given in the wave and hydrodynamic modelling in any scaling required to accurately represent wind fields across the domain. Given the various wind data are recorded at different elevations and are representative of various averaging periods, scaling may be required to appropriately input these into the model. This will need to consider the input timestep and wind elevation of the model, along with calibration.

6. Nearshore Ambient Condition Analysis

MRA has derived the nearshore ambient wave, current, and water level conditions primarily by analysis of nearshore AWAC and tide gauge data. MRA has assessed the nearshore ambient climate including waves, currents and water levels through analyses including JFTs, roses, exceedance curves and time series plots of key events. A summary of the datasets analysed in the assessment and the outputs is provided in Table 6.1.

Table 6.1 Table of Analysis

Dataset	Analysis Type	Data	Temporal Categories	Analyses Complete
AWAC Data	Waves	■ Total Hs ■ Swell Hs ■ Sea Hs ■ Total Tp ■ Swell Tp ■ Sea Tp ■ Total Dp ■ Swell Dp ■ Sea Dp	■ Overall ■ Seasonal ■ Annua	■ JFTs ■ Roses. ■ Exceedance curves. ■ Time series plots of key events
	Currents	■ Magnitude ■ Depth Averaged Magnitude ■ Bottom Magnitude ■ Surface Direction ■ Depth Averaged Direction ■ Bottom Direction	■ Overall ■ Seasonal ■ Annual	■ JFTs ■ Roses. ■ Exceedance curves. ■ Time series plots of key events
Aquadopp Data	Waves	■ Total Hs ■ Total Tp ■ Total Dp	■ Nil	■ Nil
	Currents	■ Magnitudes at approximately 0.2-0.3 m intervals. ■ Directions at approximately 0.2 – 0.3 m intervals.	■ Overall ■ Seasonal ■ Annual	■ JFTs ■ Roses. ■ Exceedance curves. ■ Time series plots of key events.

Table 6.1 Table of Analysis (cont.)

Dataset	Analysis Type	Data	Temporal Categories	Analyses Complete
Tantabiddi Tide Gauge	Water Levels	■ Water Level	■ Overall ■ Seasonal ■ Annual	■ Exceedance curves. ■ Time series plots of key events.
RBR Datasets	Pressure	■ Water Level		■ Pressure analysis to extract non-directional wave magnitudes.

6.1 RBR Data Extraction & Review

Wave data from the AWAC and Aquadopp were provided in the format of summary parameters appropriate for utilisation in the assessment. The RBR datasets were collected at various locations, frequencies and depths.

Data utilised in the assessment was collected and provided by DoT. A summary of the RBR data available for the assessment is provided in Table 6.2. The location of each RBR deployment is shown in Figure 6.1.

Table 6.2 RBR Datasets

Dataset	Description	Duration	Data Frequency (Hz)	Location (º) (Lat Long)	Location (m) (GDA 2020)	Water Depth (m)
TAN01	AWAC	20/3/2019 to 3/8/2021	1	21.9076 S 113.9724 E	807112.09 E 7574426.25 S	~3 m
TAN02	Aquadopp	26/7/2019 to 3/8/2021	1	21.9104 S 113.9767 E	807550.64 E 7574107.41 S	~ 3 m
TAN03	Boat Ramp	15/8/2020 to 5/8/2021	1/60	21.9122 S 113.9776 E	807639.8151 E 7573906.178 S	~1.5

Data was provided in raw pressure format at the frequencies shown in Table 6.2. The RBR from TAN03 was set-up to measure tidal averaging rather than assessment of long period waves and

as such was collected at a frequency of 1/60 Hz. Data from this RBR was not utilised in the assessment. The data from RBRs TAN01 and TAN02 was extracted and analysed.

Figure 6.1 RBR Locations

The primary use of the RBR datasets were analysed to identify the presence (or lack therefore) and bands of long wave energy at each location. The data analysis method for the purposes of the long wave assessment is contained with the overall Coastal Processes report which includes the outcomes of *Task 8: Wave Penetration and Long Period Wave Assessment*.

In addition to this, the data was analysed as part of the Metocean Climate assessment to allow comparison of wave heights from the RBR against wave heights from the AWAC and Aquadopp datasets. This was undertaken to compare/validate each of the datasets.

Generally, extraction This included the following.

- Correction of the data to account for the pressure loss in the water column.
- Calculation of time varying welch spectral densities over a selected number of samples (NFFT) for sea and swell wave energy bands.
- Integration of the welch spectral densities over the sea and swell bands to estimate the zero moment wave heights representative of each bands.

Dynamic pressure generated by waves will attenuate from the water surface to the seabed. Therefore, data collected by a pressure sensor will have lower magnitudes compared to the actual pressure values. Pressure data collected by a pressure sensor must be corrected to account for pressure loss in the water column.

The NFFT is the number of samples utilised for the Fast Fourier Transform to calculate the power spectral density. The generated power spectral density will be as follows.

- Reported for a frequency range of 0 <= f <= sampling frequency/2; with
- NFFT/2+1 data points.

Given the sampling frequency of TAN01 and TAN02 RBRs, the maximum frequency that can be resolved by the analysis is 0.5 Hz (2s). The NFFT must be selected to sufficiently resolve the waves of interest in the spectrum. Selection of a larger NFFT will smooth data in shorter period bands such that in may not be an appropriate selection of reality, whilst selection of a smaller NFFT may insufficiently resolve longer period waves. The waves of interest in this assessment are sea and swell period waves. The sensitivity of the results of the assessment to the NFFT were tested.

The plots in Figure 6.2 show a comparison of sea, swell and total wave heights obtained from MRA analysis of the RBR (TAN01) against the AWAC data. The RBR (TAN01) and AWAC data are at the same location in approximately 7m of water depth.

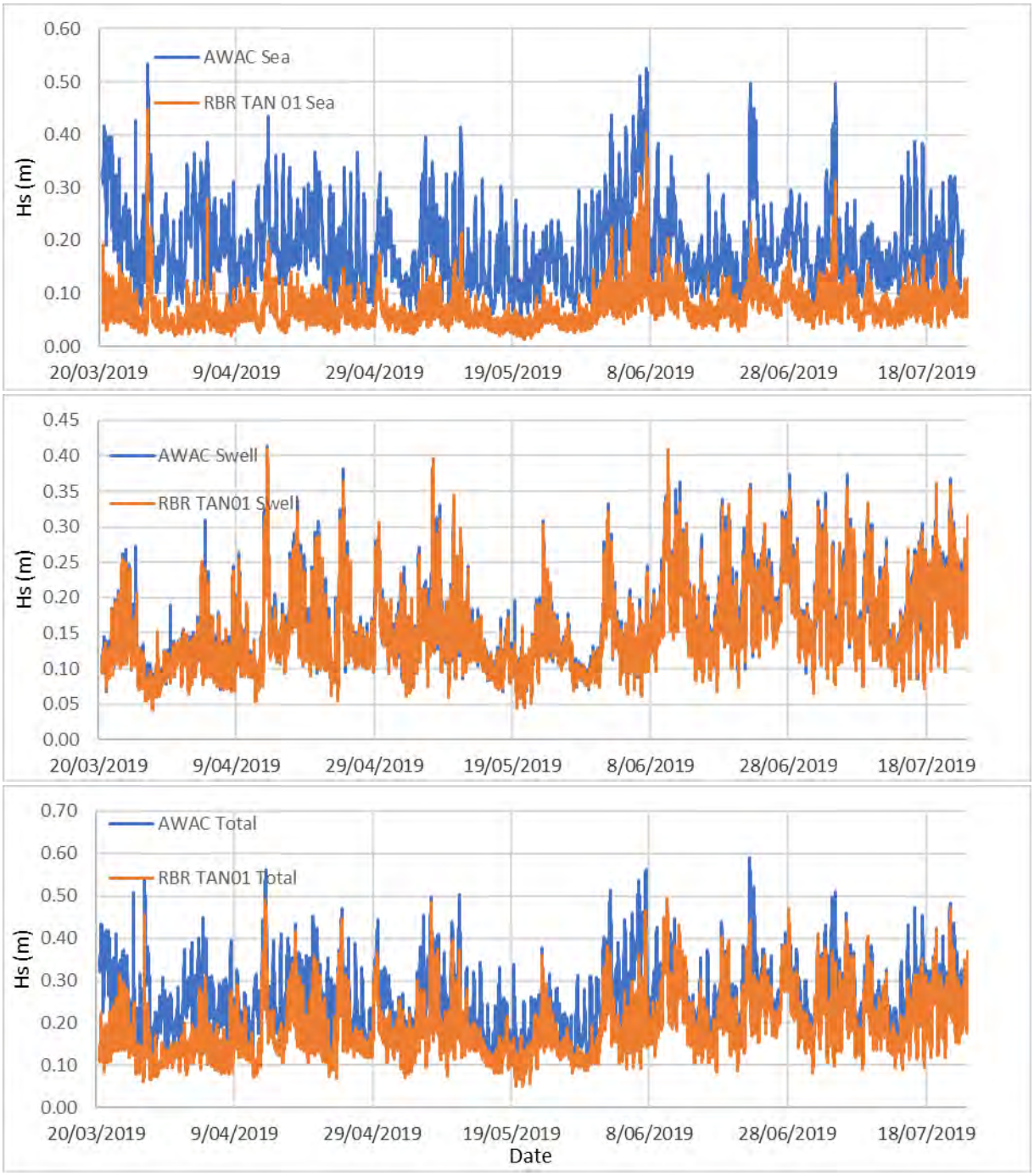


Figure 6.2 Wave Height Comparison TAN01 and AWAC

Key outcomes of this comparison are as follows.

- Predictably, sea wave heights obtained by the RBR are less than those obtained by the AWAC. Given the 1 Hz sampling frequency of the RBR, the shortest period that can be registered by the RBR is 2s. Pressure attenuation also impacts the RBR's capacity to accurately capture waves greater than 2s. Hence, the underestimate of sea wave heights by the RBR is considered justifiable and appropriate.

- There is good agreement between swell wave heights (7.5s to 40s) obtained by the RBR and the AWAC. This is because the impacts of pressure attenuation on waves greater than

7.5s at the depth of the RBR are minimal. This result provides confidence in the use of both datasets given they are independent instruments with different methods of measuring wave height.

- Total wave heights obtained by the RBR are less than those obtained by the AWAC. This is due to the factors described above related to the inability of the RBR to accurately capture shorter period waves. Hence, the underestimate of total wave heights by the RBR is considered justifiable and appropriate.

The plot in Figure 6.3 shows a comparison of total wave heights obtained from MRA analysis of the RBR (TAN02) against Aquadopp data. A swell and sea breakdown for the Aquadopp was not available for the assessment. The RBR (TAN02) and Aquadopp data are at the same location in approximately 3m of water depth.

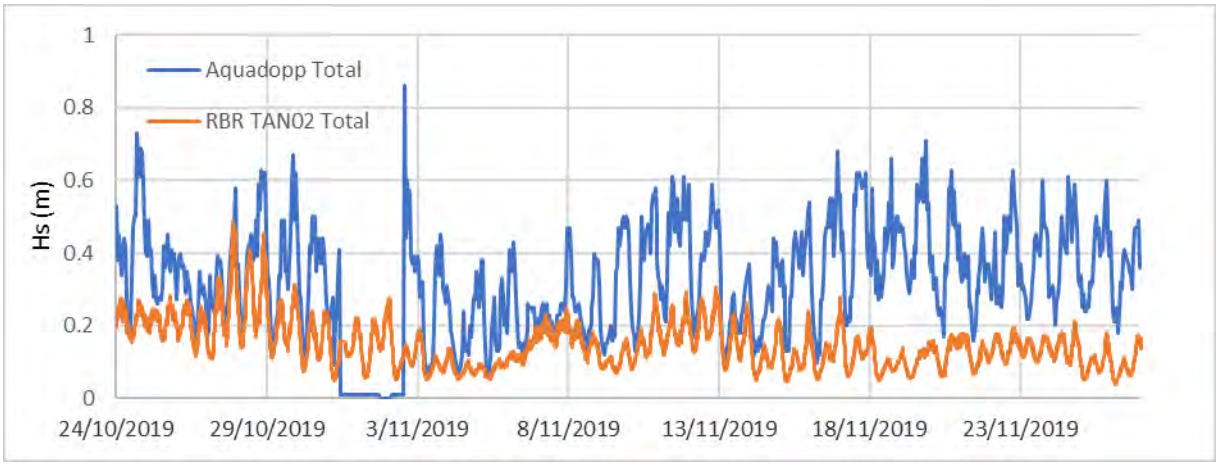


Figure 6.3 Total Wave Height Comparison TAN02 and ADCP

The key outcomes of this comparison are as follows.

- The difference in total wave height between the RBR and the Aquadopp is quite significant. It is greater than would be considered the likely contribution of the RBR sea underestimation.

- Based on this, there is limited confidence in the accuracy of data provided relating to the Aquadopp. As such, analyses of the Aquadopp wave data for the assessment have been disregarded. Current data has been included but should be treated with caution.

6.2 Waves

6.2.1 Joint Frequency Tables

JFTs for waves broken into overall, annual and seasonal tables have been prepared and are provided in the following sections. Due to the significant number of plots prepared as part of these works, only the overall tables are provided within the report body. Overall, annual and seasonal tables are included as appendices.

The overall assessment provides the statistics over the entire available dataset. The annual tables provide the statistics for each year of data. The seasonal assessment provides the statistics for all available data throughout the entire data period within the relevant season.

AWAC Data

The overall JFT's for significant wave height (Hs), peak period (Tp) against peak direction (Dp) and Hs against Tp for the AWAC Data are provided in Tables 6.3 to 6.5. These are duplicated in Appendix S, along with the annual and seasonal tables. The parameters are broken into total, swell and sea wave parameters. The directional bins are broken into 16, ±11.25° bins from the principal directions presented in the tables.

Table 6.3 AWAC Overall Hs vs Dp JFTs

Total

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.1	0.04	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.09	0.09	0.08	0.33	0.33
0.1	0.2	2.23	0.29	0.09	0.06	0.02	0.03	0.01	0.05	0.05	0.07	0.10	0.12	0.35	2.02	7.96	9.46	22.91	23.24
0.2	0.3	2.48	0.46	0.22	0.12	0.13	0.15	0.19	0.27	0.45	0.93	1.28	0.97	0.78	3.39	17.36	17.03	46.21	69.45
0.3	0.4	0.71	0.36	0.11	0.04	0.03	0.04	0.07	0.11	0.25	0.97	1.99	1.47	0.56	1.88	9.85	6.95	25.39	94.84
0.4	0.5	0.18	0.18	0.01	0.00	0.00	0.01	0.00	0.01	0.01	0.16	0.44	0.27	0.05	0.48	2.03	0.88	4.70	99.55
0.5	0.6	0.08	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.01	0.00	0.03	0.13	0.09	0.42	99.96
0.6	0.7	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.04	100.00
0.7	0.8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.8	0.9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.9	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		5.74	1.35	0.44	0.22	0.18	0.23	0.27	0.44	0.77	2.13	3.85	2.84	1.75	7.88	37.42	34.49		
Cumulative Total		5.74	7.09	7.53	7.75	7.93	8.16	8.43	8.87	9.63	11.76	15.61	18.45	20.21	28.08	65.51	100.00		

Swell

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.1	1.98	0.49	0.13	0.06	0.02	0.02	0.00	0.01	0.01	0.01	0.06	0.16	0.48	2.21	5.86	6.40	17.89	17.89
0.1	0.2	4.43	0.35	0.06	0.00	0.02	0.00	0.01	0.01	0.00	0.01	0.02	0.09	0.54	5.30	24.31	26.21	61.37	79.27
0.2	0.3	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	1.78	10.20	5.87	18.06	97.32
0.3	0.4	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.28	1.70	0.68	2.66	99.99
0.4	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01	100.00
0.5	0.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.6	0.7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.7	0.8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.8	0.9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.9	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		6.58	0.85	0.19	0.07	0.04	0.03	0.01	0.02	0.01	0.02	0.08	0.25	1.08	9.56	42.08	39.16		
Cumulative Total		6.58	7.42	7.61	7.68	7.72	7.74	7.75	7.77	7.78	7.79	7.88	8.12	9.20	18.76	60.84	100.00		

Sea

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.1	0.66	0.34	0.26	0.17	0.12	0.10	0.08	0.08	0.11	0.08	0.19	0.23	0.43	0.66	0.76	0.72	5.00	5.00
0.1	0.2	5.02	2.45	1.49	1.27	1.12	1.02	1.08	1.25	1.62	1.81	2.14	2.49	3.10	5.21	8.25	8.56	47.89	52.89
0.2	0.3	1.99	1.43	0.86	0.55	0.64	0.74	0.90	1.12	1.86	3.25	4.77	4.43	3.13	2.81	4.07	3.56	36.13	89.02
0.3	0.4	0.66	0.63	0.18	0.06	0.03	0.06	0.09	0.13	0.32	1.11	2.59	2.11	0.74	0.22	0.28	0.42	9.64	98.66
0.4	0.5	0.25	0.19	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.25	0.22	0.04	0.01	0.01	0.09	1.19	99.85
0.5	0.6	0.06	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.02	0.14	99.99
0.6	0.7	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	100.00
0.7	0.8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.8	0.9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.9	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		8.64	5.09	2.83	2.05	1.92	1.93	2.15	2.59	3.92	6.36	9.95	9.48	7.44	8.91	13.37	13.37		
Cumulative Total		8.64	13.73	16.56	18.61	20.53	22.46	24.62	27.21	31.13	37.48	47.43	56.91	64.35	73.26	86.63	100.00		

Notes: 1. “0.00” values not shown in green are very small percentages rounded to “0.00”.

Table 6.4 AWAC Overall Tp vs Dp JFTs

Total

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.12	0.12	0.13	0.13	0.13	0.18	0.22	0.31	0.28	0.37	0.42	0.33	0.18	0.11	0.12	0.13	3.29	3.29
2	4	0.66	0.74	0.22	0.06	0.04	0.04	0.06	0.12	0.48	1.76	3.38	2.39	0.90	0.26	0.18	0.36	11.65	14.94
4	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.02	14.96
6	8	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.04	15.00
8	10	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.09	0.10	0.24	15.24
10	12	0.52	0.09	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.02	0.29	1.93	2.66	5.54	20.78
12	14	2.09	0.18	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.15	1.40	9.35	12.58	25.83	46.61
14	16	1.98	0.18	0.03	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.02	0.06	0.33	3.18	15.54	13.98	35.32	81.93
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	81.93
18	20	0.28	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.14	2.18	9.01	4.20	15.88	97.81
>20		0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.04	0.42	1.19	0.46	2.19	100.00
Total		5.74	1.35	0.44	0.22	0.18	0.23	0.27	0.44	0.77	2.13	3.85	2.84	1.75	7.88	37.42	34.49		
Cumulative Total		5.74	7.09	7.53	7.75	7.93	8.16	8.43	8.87	9.63	11.76	15.61	18.45	20.21	28.08	65.51	100.00		

Swell

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	8	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.10	0.10
8	10	0.07	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.07	0.22	0.23	0.65	0.75
10	12	0.81	0.15	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.08	0.53	2.61	3.41	7.70	8.45
12	14	2.77	0.30	0.06	0.02	0.00	0.01	0.00	0.00	0.00	0.00	0.02	0.05	0.23	2.05	11.38	15.12	32.03	40.48
14	16	2.45	0.29	0.06	0.03	0.02	0.01	0.01	0.00	0.00	0.01	0.04	0.13	0.52	4.01	17.16	15.44	40.19	80.66
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	80.66
18	20	0.37	0.05	0.02	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.01	0.04	0.18	2.40	9.40	4.41	16.89	97.55
>20		0.07	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.06	0.50	1.27	0.53	2.45	100.00
Total		6.58	0.85	0.19	0.07	0.04	0.03	0.01	0.02	0.01	0.02	0.08	0.25	1.08	9.56	42.08	39.16		
Cumulative Total		6.58	7.42	7.61	7.68	7.72	7.74	7.75	7.77	7.78	7.79	7.88	8.12	9.20	18.76	60.84	100.00		

Sea

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	1.58	1.47	1.29	1.32	1.52	1.64	1.82	2.09	2.35	2.81	3.27	3.25	2.81	2.18	1.78	1.67	32.86	32.86
2	4	2.05	1.91	0.78	0.38	0.19	0.18	0.24	0.43	1.38	3.42	6.27	5.53	2.73	1.21	0.97	1.41	29.08	61.94
4	6	0.10	0.06	0.04	0.01	0.01	0.01	0.01	0.00	0.01	0.01	0.02	0.01	0.03	0.09	0.14	0.14	0.68	62.62
6	8	4.91	1.65	0.73	0.34	0.20	0.10	0.09	0.07	0.17	0.11	0.39	0.68	1.87	5.42	10.47	10.15	37.38	100.00
8	10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
10	12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
12	14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		8.64	5.09	2.83	2.05	1.92	1.93	2.15	2.59	3.92	6.36	9.95	9.48	7.44	8.91	13.37	13.37		
Cumulative Total		8.64	13.73	16.56	18.61	20.53	22.46	24.62	27.21	31.13	37.48	47.43	56.91	64.35	73.26	86.63	100.00		

Notes: 1. “0.00” values not shown in green are very small percentages rounded to “0.00”.

Table 6.5 AWAC Overall Hs vs Tp JFTs

Total

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20	Total	Cumulative
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00			
0	0.1	0.00	0.00	0.00	0.00	0.00	0.06	0.11	0.15	0.00	0.00	0.00	0.33	0.33
0.1	0.2	0.53	0.02	0.00	0.01	0.11	1.76	9.78	8.36	0.00	1.95	0.38	22.91	23.24
0.2	0.3	2.34	3.96	0.00	0.00	0.06	2.96	12.83	15.83	0.00	6.93	1.31	46.21	69.45
0.3	0.4	0.39	6.11	0.02	0.03	0.06	0.74	2.99	8.78	0.00	5.81	0.46	25.39	94.84
0.4	0.5	0.02	1.34	0.00	0.00	0.02	0.02	0.12	2.00	0.00	1.16	0.03	4.70	99.55
0.5	0.6	0.00	0.19	0.00	0.00	0.00	0.00	0.00	0.20	0.00	0.03	0.00	0.42	99.96
0.6	0.7	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	100.00
0.7	0.8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.8	0.9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.9	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		3.29	11.65	0.02	0.04	0.24	5.54	25.83	35.32	0.00	15.88	2.19		
Cumulative Total		3.29	14.94	14.96	15.00	15.24	20.78	46.61	81.93	81.93	97.81	100.00		

Swell

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20	Total	Cumulative
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00			
0	0.1	0.00	0.00	0.00	0.06	0.32	1.87	7.55	7.15	0.00	0.76	0.18	17.89	17.89
0.1	0.2	0.00	0.00	0.00	0.04	0.28	5.57	23.93	21.97	0.00	8.05	1.53	61.37	79.27
0.2	0.3	0.00	0.00	0.00	0.01	0.05	0.24	0.53	9.25	0.00	7.23	0.74	18.06	97.32
0.3	0.4	0.00	0.00	0.00	0.00	0.00	0.01	0.01	1.80	0.00	0.85	0.00	2.66	99.99
0.4	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.01	100.00
0.5	0.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.6	0.7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.7	0.8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.8	0.9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.9	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.00	0.00	0.00	0.10	0.65	7.70	32.03	40.19	0.00	16.89	2.45		
Cumulative Total		0.00	0.00	0.00	0.10	0.75	8.45	40.48	80.66	80.66	97.55	100.00		

Notes: 1. “0.00” values not shown in green are very small percentages rounded to “0.00”.

Table 6.5(Cont) AWAC Overall Hs vs Tp JFTs

		Sea												
Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20	Total	Cumulative
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00			
0	0.1	0.85	0.26	0.18	3.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.00	5.00
0.1	0.2	19.14	3.18	0.47	25.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.89	52.89
0.2	0.3	12.36	15.63	0.02	8.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	36.13	89.02
0.3	0.4	0.51	8.69	0.02	0.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.64	98.66
0.4	0.5	0.01	1.17	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.19	99.85
0.5	0.6	0.00	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	99.99
0.6	0.7	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	100.00
0.7	0.8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.8	0.9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.9	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		32.86	29.08	0.68	37.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Cumulative Total		32.86	61.94	62.62	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00		

Notes: 1. “0.00” values not shown in green are very small percentages rounded to “0.00”.

Aquadopp Data

JFT's were prepared but are not presented due to the data reliability concerns discussed previously.

6.2.2 Roses

Roses for waves broken into overall, annual and seasonal tables have been prepared and are provided in the following sections. Due to the significant number of plots prepared as part of these works, only the overall roses are provided within the report body. Overall, annual and seasonal roses are included as appendices.

The overall assessment provides the statistics over the entire available dataset. The annual tables provide the statistics for each year of data. The seasonal assessment provides the statistics for all available data throughout the entire data period within the relevant season.

AWAC Data

The overall roses for Hs and Tp against Dp for the AWAC data are provided in Figures 6.4 and 6.5. These are duplicated in Appendix T, along with the annual and seasonal roses. The parameters are broken into total, swell and sea wave parameters. The directional bins are broken into 16, $\pm 11.25^{o}$ bins consistent with those utilised for the JFTs.

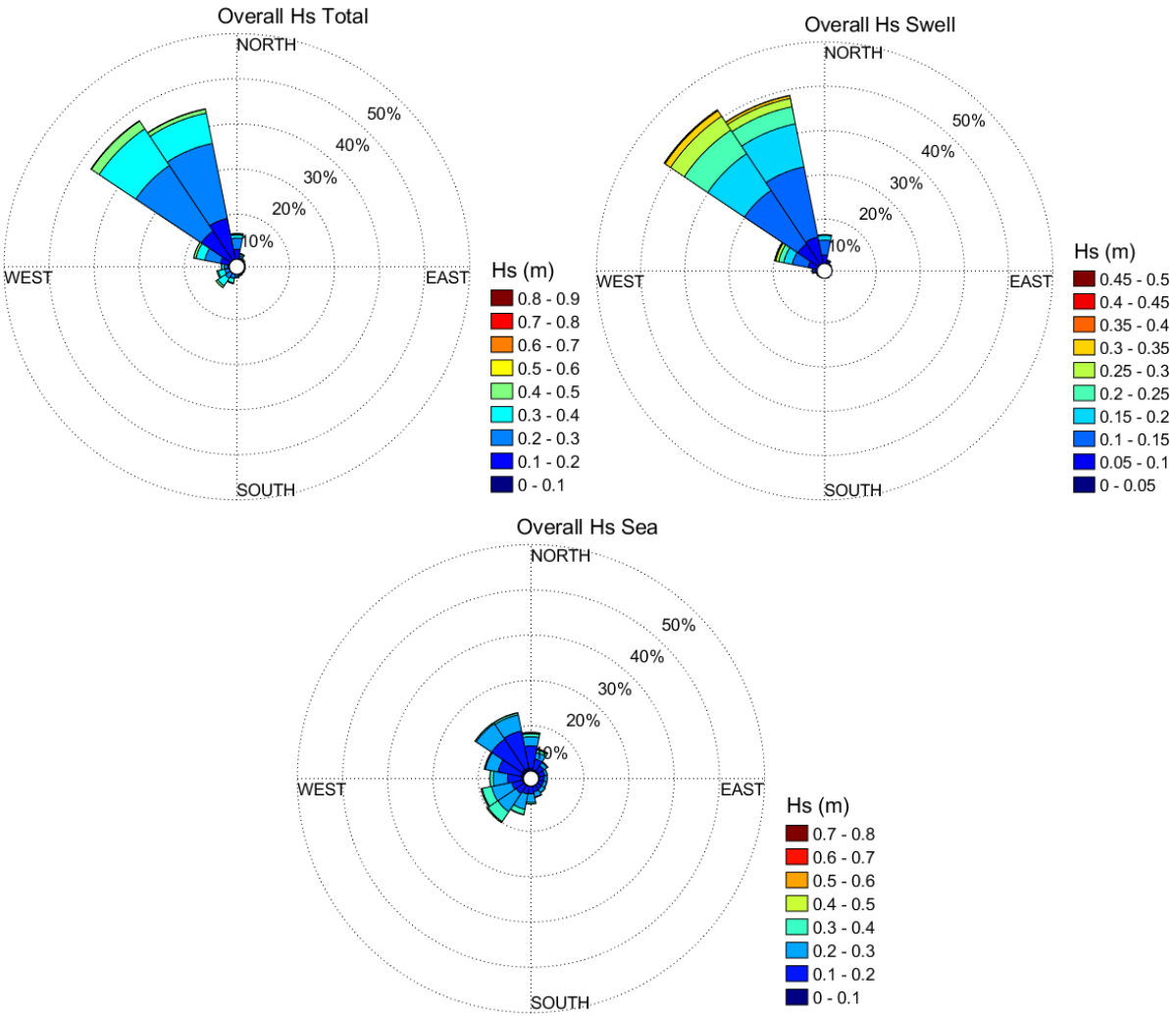


Figure 6.4 AWAC Overall Hs Roses

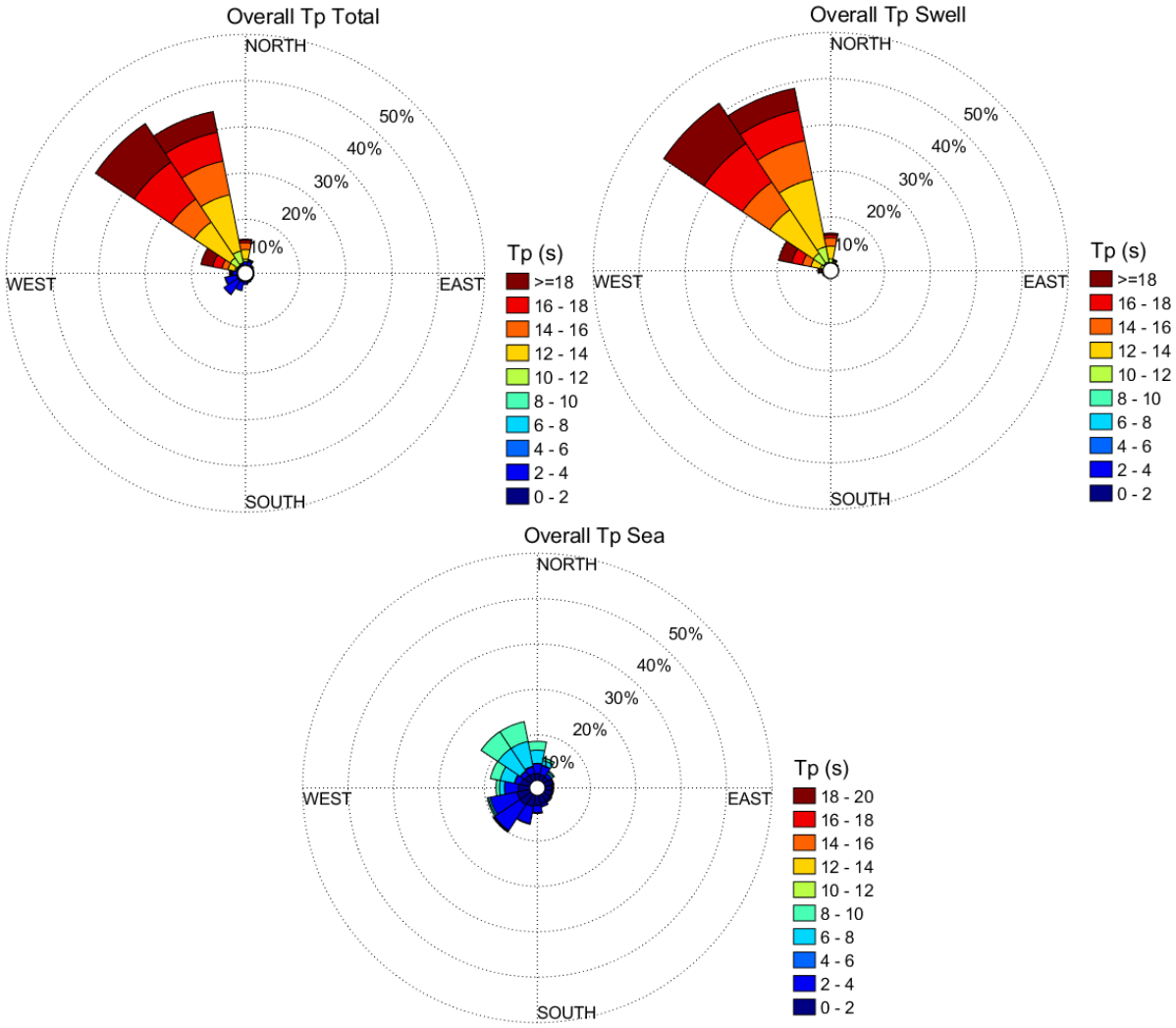


Figure 6.5 AWAC Overall Tp Roses

Aquadopp Data

Wave Roses were prepared but are not presented due to the data reliability concerns discussed previously.

6.2.3 Exceedance Curves

Exceedance curves for waves broken into overall, annual and seasonal plots have been prepared and are provided in the following sections. Due to the significant number of plots prepared as part of these works, only the overall exceedance curves are provided within the report body. Overall, annual and seasonal curves are included as appendices.

The overall assessment provides the statistics over the entire available dataset. The annual exceedance curves provide the statistics for each year of data. The seasonal assessment provides the statistics for all available data throughout the entire data period within the relevant season.

AWAC Data

The overall exceedance curves for Hs and Tp for the AWAC data are provided in Figure 6.6. These are duplicated in Appendix U, along with the annual and seasonal exceedance curves. The parameters are broken into total, swell and sea wave parameters.

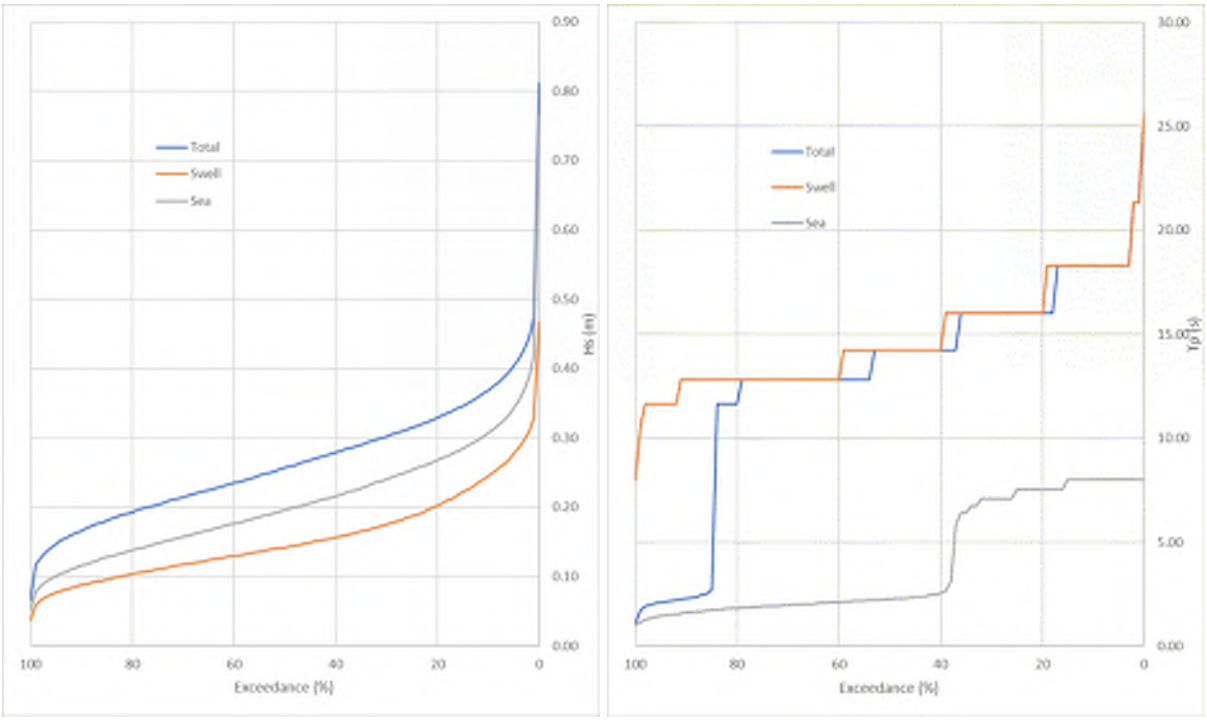


Figure 6.6 AWAC Overall Hs & Tp Exceedance Curves

Aquadopp Data

Wave Exceedance Curves were prepared but are not presented due to reasons discussed previously.

6.2.4 Key Events

Time history plots of key events for waves have been prepared. Due to the significant number of plots prepared as part of these works, a list of the selected events are provided in the report body, whilst the time history plots are provided in the relevant appendix.

AWAC Data

The top ten peak Hs events were selected as the key wave events for plotting. These events provide an indication of the typical sequence experienced during a large wave event. The 4 days leading up to and following the peak were isolated for plotting.

The dates and details of the selected events from the AWAC data are shown in Table 6.6. The time series plots are presented in Appendix V. The plots show the Hs, Tp and Dp of the total, swell and sea wave components for each of the events.

Table 6.6 AWAC Data Key Wave Events

Date	Peak Hs (m)	Tp (s)	Dp (°)
24/05/2020 11:00	0.81	3.0	355.8
9/08/2020 13:30	0.70	2.7	8.6
8/01/2020 18:00	0.60	2.7	240.8
22/06/2019 11:30	0.59	16.0	326.5
30/07/2020 7:00	0.59	N/A	21.7
7/06/2019 14:00	0.56	16.0	325.3
13/04/2019 14:30	0.56	14.2	322.8
21/10/2020 0:00	0.56	16.0	317.9
22/08/2019 13:00	0.54	18.3	322.7
27/03/2019 1:00	0.54	2.6	0.3

Several key wave events with peak directions within the north east quadrant are identified in the table. When reviewing the time series of these events it can be observed that typically these events are comprised of swell arriving from the north-west and sea waves arriving from the north-west through north east. The peak direction is often dominated by the sea waves and the scatter in the direction of seas results in a north easterly total direction. This is not necessarily representative of the direction of greatest energy arriving over the duration of the event.

Aquadopp Data

Key Wave Events were prepared but are not presented due to the reliability concerns discussed previously.

6.2.5 Discussion

The various assessment outputs demonstrate the level of protection provided by the offshore reef. Predictably, larger wave heights are experienced outside the reef compared to inshore of the reef. For comparison, 30% of wave heights outside the reef were greater than 1.7 m (CWWIII) or 1.6 (TDWB) as compared to 0.3 m in the nearshore data.

The afforded protection results in a fairly benign wave climate during typical conditions. As shown in the exceedance curves, around 70% of total wave heights recorded over the data period were less than 0.3 m at the AWAC. This is fairly consistent across each of the seasons. The largest wave height recorded at the AWAC over the collection period was 0.81 m, in May 2020. This was generated during extra tropical cyclone Mangga. On the 24th–26th of May, extra tropical cyclone Mangga, combined with an upper-level trough and strong cold front, followed by a deep low through the State's southwest, to produce widespread severe weather over western parts of WA (BoM 2021). This resulted from an intense wind event from the southwest.

An approximately 5 to 10 year ARI (non-cyclonic) north-westerly wave event was recorded in both the TDWB and CWWIII datasets in August 2020. This resulted in an approximately 0.7 m magnitude wave at the nearshore dataset - the second largest recorded. Given the largest wave height recorded in both the TDWB and nearshore AWAC datasets also corresponded to a large north westerly wave (associated with cyclone Mangga), this suggests that waves from the northwest are likely to be of importance for extreme wave heights at the site.

Through review of the JFT's and Wave Roses at the AWAC, the seasonal directional variability of sea, swell and total waves over the data collection period can be clearly observed. In the summer, sea waves generally prevail from the south west, with over 50% of sea waves arriving from the S through WSW. This trend is consistent through spring, with just under 50% of sea waves arriving from the S through WSW. This is likely due to the prevailing sea breezes experienced almost daily over these months.

Over the winter months, this trend is reversed, with 53% of sea waves arriving from the NW through N. This is likely due to the subsidence of the sea breezes experienced over this period. Over autumn the arrival of sea waves is spread more evenly, although 33% of sea waves arrive from the NW through N.

Sea waves, by definition, are locally generated and low period. They are less impacted by the local sheltering and protection provided by nearshore and offshore reef. These short period waves do not "feel the bottom" as strongly as the longer period swell waves. Furthermore, they can be generated over shorter fetches, such as the expanse of water inside the reef.

Predictably, swell waves at the site have far less directional variability at the AWAC location. Throughout the year, swell waves prevail from the WNW through NNW, with close to 90% of swell waves arriving from this directional band in each of the four seasons. As swell waves approach the shoreline, they are generally refracted to a direction close to perpendicular to the shoreline. The nearshore AWAC is protected by a consistent band of reef approximately 2 km offshore from the AWAC. There is an approximately 2 km wide passage through the reef on an approximately 340^0 bearing from the AWAC. The consistent direction of the swell waves, is an artefact of these two factors. The refraction of swell waves as they approach the shoreline, combined with the protection provided by the nearshore reef and the diffraction of waves through the passage located to the NNW.

The seasonal variability of total wave heights is an artefact of the sea and swell variability. Over summer and spring, the directionality of the arriving total wave heights is spread across a range of directions. The sea breezes contributing the south-westerly sea components, and background swell contributing to north-westerly waves. Over the autumn and winter months, this is focussed more to the north west as the sea breezes subside.

6.3 Currents

6.3.1 Joint Frequency Tables

JFTs for currents broken into overall, annual and seasonal tables have been prepared and are provided in the following sections. Due to the significant number of plots prepared as part of these works, only the overall tables are provided within the report body. Overall, annual and seasonal tables are included as appendices.

The overall assessment provides the statistics over the entire available dataset. The annual tables provide the statistics for each year of data. The seasonal assessment provides the statistics for all available data throughout the entire data period within the relevant season.

AWAC Data

The overall JFT's for surface, depth averaged and bottom currents against direction are provided in Table 6.7. These are duplicated in Appendix W, along with the annual and seasonal tables. The directional bins are broken into 16, $\pm 11.25^{o}$ bins from the principal directions presented in the tables. The AWAC is located in approximately 3 m of water depth.

Table 6.7 AWAC Overall Current Velocity vs Direction JFT

Surface

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.1	0.38	0.51	0.50	0.38	0.30	0.20	0.19	0.20	0.17	0.19	0.13	0.12	0.16	0.22	0.22	0.24	4.12	4.12
0.1	0.2	1.15	2.24	2.00	0.89	0.50	0.29	0.23	0.33	0.29	0.26	0.23	0.21	0.32	0.45	0.55	0.74	10.69	14.80
0.2	0.3	1.96	4.70	3.57	0.99	0.34	0.13	0.09	0.15	0.19	0.28	0.22	0.23	0.32	0.53	0.82	1.12	15.64	30.44
0.3	0.4	2.57	6.63	4.86	0.64	0.15	0.06	0.01	0.05	0.12	0.26	0.17	0.20	0.22	0.26	0.57	1.46	18.24	48.68
0.4	0.5	2.65	8.35	5.42	0.26	0.01	0.00	0.00	0.01	0.04	0.13	0.12	0.12	0.05	0.03	0.11	1.17	18.46	67.14
0.5	0.6	2.27	9.13	4.11	0.08	0.00	0.00	0.00	0.00	0.00	0.05	0.05	0.02	0.00	0.00	0.00	0.37	16.10	83.24
0.6	0.7	1.06	6.98	2.22	0.03	0.00	0.00	0.00	0.00	0.00	0.02	0.01	0.00	0.00	0.00	0.00	0.05	10.37	93.60
0.7	0.8	0.38	3.49	0.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.68	98.28
0.8	0.9	0.09	1.03	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.33	99.61
0.9	1	0.02	0.29	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.34	99.95
1	1.1	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	100.00
1.1	1.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		12.54	43.41	23.72	3.26	1.30	0.68	0.52	0.74	0.81	1.19	0.95	0.90	1.09	1.49	2.26	5.15		
Cumulative Total		12.54	55.95	79.67	82.93	84.23	84.91	85.43	86.17	86.99	88.18	89.12	90.03	91.11	92.60	94.85	100.00		

Depth Averaged

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.1	1.13	2.23	2.26	1.26	0.61	0.44	0.39	0.53	0.59	0.62	0.58	0.43	0.33	0.35	0.33	0.56	12.66	12.66
0.1	0.2	1.93	10.82	7.12	0.42	0.02	0.01	0.01	0.09	0.28	0.50	0.37	0.08	0.03	0.01	0.01	0.17	21.87	34.53
0.2	0.3	0.97	20.17	6.55	0.00	0.00	0.00	0.00	0.00	0.01	0.18	0.12	0.00	0.00	0.00	0.00	0.00	28.01	62.54
0.3	0.4	0.47	17.85	3.16	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	21.49	84.03
0.4	0.5	0.28	9.28	1.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.67	94.71
0.5	0.6	0.20	3.46	0.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.05	98.75
0.6	0.7	0.06	0.94	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.09	99.84
0.7	0.8	0.01	0.13	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.15	99.99
0.8	0.9	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	100.00
0.9	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
1	1.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
1.1	1.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		5.04	64.89	20.69	1.68	0.62	0.44	0.41	0.62	0.88	1.32	1.08	0.52	0.36	0.36	0.35	0.74		
Cumulative Total		5.04	69.94	90.63	92.31	92.93	93.38	93.78	94.40	95.29	96.60	97.68	98.20	98.56	98.91	99.26	100.00		

Bottom

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.1	1.97	3.23	2.97	1.95	1.10	0.74	0.65	0.69	0.90	0.76	0.55	0.41	0.39	0.39	0.47	0.97	18.15	18.15
0.1	0.2	3.37	13.00	8.84	1.61	0.24	0.05	0.07	0.18	0.46	0.57	0.21	0.06	0.03	0.02	0.04	0.37	29.10	47.25
0.2	0.3	1.71	17.59	7.80	0.21	0.00	0.00	0.00	0.00	0.05	0.07	0.02	0.00	0.00	0.00	0.00	0.02	27.48	74.73
0.3	0.4	0.76	12.19	3.56	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	16.53	91.26
0.4	0.5	0.36	5.12	1.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.60	97.86
0.5	0.6	0.11	1.41	0.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.82	99.68
0.6	0.7	0.02	0.23	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.29	99.98
0.7	0.8	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	100.00
0.8	0.9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.9	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
1	1.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
1.1	1.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		8.30	52.78	24.63	3.79	1.34	0.79	0.73	0.87	1.42	1.41	0.78	0.47	0.42	0.40	0.51	1.36		
Cumulative Total		8.30	61.09	85.72	89.51	90.85	91.64	92.37	93.24	94.66	96.07	96.85	97.31	97.73	98.13	98.64	100.00		

Notes: 1. “0.00” values not shown in green are very small percentages rounded to “0.00”.

Aquadopp Data

The overall JFT's for currents against direction for the Aquadopp data are provided in Table 6.8. These are only shown for 0.5, 1.7 m and 3.0 m elevations from the seabed within the report. These are duplicated in Appendix X, along with the annual and seasonal tables for each cell (0.5 m to 4.2 m) throughout the current profile. The directional bins are broken into 16, $\pm 11.25^{o}$ bins from the principal directions presented in the tables. The Aquadopp is located in approximately 3 m of water depth.

Table 6.8 Aquadopp Overall Current Velocity vs Direction JFT

0.5 m

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.05	4.21	4.53	4.45	4.33	4.00	2.66	1.88	1.69	1.67	1.31	1.10	1.32	1.72	1.88	2.16	3.02	41.90	41.90
0.05	0.1	5.09	7.29	8.60	6.92	4.38	2.08	1.17	0.67	0.50	0.44	0.42	0.40	0.61	0.83	1.54	2.76	43.71	85.60
0.1	0.15	1.30	2.53	3.38	2.46	1.18	0.38	0.14	0.05	0.03	0.03	0.04	0.03	0.04	0.09	0.22	0.57	12.48	98.08
0.15	0.2	0.20	0.30	0.41	0.33	0.18	0.06	0.02	0.01	0.00	0.01	0.00	0.00	0.01	0.01	0.03	0.10	1.67	99.75
0.2	0.25	0.03	0.02	0.03	0.02	0.02	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.17	99.93
0.25	0.3	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.04	99.96
0.3	0.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	99.98
0.35	0.4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	99.98
0.4	0.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	99.99
0.45	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	99.99
0.5	0.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.55	0.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>0.6		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		10.84	14.68	16.88	14.05	9.76	5.19	3.23	2.44	2.20	1.79	1.55	1.76	2.39	2.79	3.95	6.49		
Cumulative Total		10.84	25.52	42.40	56.46	66.22	71.41	74.63	77.07	79.28	81.07	82.62	84.38	86.77	89.55	93.51	100.00		

1.7 m

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.05	1.82	2.31	2.97	2.99	2.66	1.46	1.02	0.91	0.99	0.74	0.64	0.61	0.65	0.57	0.60	0.92	21.87	21.87
0.05	0.1	1.89	5.87	10.79	9.66	4.43	1.26	0.50	0.38	0.47	0.52	0.48	0.28	0.17	0.12	0.19	0.48	37.48	59.35
0.1	0.15	0.65	4.20	11.24	8.93	2.19	0.26	0.05	0.02	0.04	0.07	0.10	0.04	0.02	0.01	0.01	0.07	27.88	87.23
0.15	0.2	0.19	1.27	4.35	3.38	0.58	0.05	0.00	0.00	0.00	0.01	0.02	0.01	0.01	0.00	0.00	0.01	9.88	97.11
0.2	0.25	0.03	0.28	1.02	0.88	0.16	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.01	2.40	99.52
0.25	0.3	0.02	0.05	0.14	0.16	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.42	99.93
0.3	0.35	0.00	0.01	0.02	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	99.99
0.35	0.4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	100.00
0.4	0.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.45	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.5	0.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.55	0.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>0.6		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		4.60	13.98	30.52	26.02	10.06	3.04	1.56	1.32	1.49	1.35	1.25	0.94	0.85	0.70	0.81	1.50		
Cumulative Total		4.60	18.59	49.10	75.12	85.19	88.22	89.79	91.10	92.60	93.95	95.19	96.13	96.98	97.68	98.50	100.00		

3.0 m

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.05	0.40	0.43	0.44	0.44	0.29	0.24	0.18	0.20	0.17	0.21	0.18	0.16	0.24	0.30	0.28	0.35	4.52	4.52
0.05	0.1	0.99	1.32	1.81	1.52	0.87	0.28	0.27	0.19	0.36	0.41	0.37	0.42	0.53	0.43	0.54	0.54	10.85	15.37
0.1	0.15	1.02	2.09	3.22	2.34	0.93	0.32	0.21	0.19	0.37	0.50	0.59	0.55	0.60	0.48	0.61	0.53	14.55	29.92
0.15	0.2	0.95	2.13	4.08	2.27	0.54	0.17	0.16	0.24	0.48	0.49	0.47	0.49	0.36	0.51	0.61	0.75	14.71	44.63
0.2	0.25	1.04	2.44	4.89	1.81	0.36	0.08	0.09	0.11	0.29	0.42	0.29	0.47	0.35	0.36	0.65	0.98	14.64	59.26
0.25	0.3	0.93	2.20	5.39	1.37	0.18	0.04	0.03	0.06	0.18	0.31	0.33	0.40	0.26	0.26	0.55	0.79	13.28	72.55
0.3	0.35	0.62	2.11	6.24	1.14	0.08	0.03	0.00	0.01	0.09	0.16	0.20	0.37	0.24	0.36	0.35	0.56	12.35	84.90
0.35	0.4	0.34	1.43	5.35	0.90	0.05	0.01	0.01	0.00	0.02	0.10	0.17	0.18	0.10	0.06	0.08	0.20	8.79	93.68
0.4	0.45	0.07	0.67	2.90	0.36	0.01	0.00	0.00	0.00	0.01	0.05	0.03	0.07	0.02	0.00	0.02	0.05	4.24	97.93
0.45	0.5	0.04	0.24	1.10	0.21	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.01	0.00	0.00	0.00	0.01	1.64	99.57
0.5	0.55	0.01	0.07	0.26	0.04	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.39	99.95
0.55	0.6	0.01	0.00	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.05	100.00
>0.6		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		6.40	15.15	35.51	12.42	3.31	1.17	0.95	1.00	1.95	2.66	2.63	3.13	2.69	2.56	3.67	4.79		
Cumulative Total		6.40	21.55	57.06	69.48	72.79	73.95	74.90	75.90	77.85	80.52	83.15	86.28	88.97	91.53	95.21	100.00		

Notes: 1. “0.00” values not shown in green are very small percentages rounded to “0.00”.

6.3.2 Roses

Roses for currents broken into overall, annual and seasonal tables have been prepared and are provided in the following sections. Due to the significant number of plots prepared as part of these works, only the overall roses are provided within the report body. Overall, annual and seasonal roses are included as appendices.

The overall assessment provides the statistics over the entire available dataset. The annual tables provide the statistics for each year of data. The seasonal assessment provides the statistics for all available data throughout the entire data period within the relevant season.

AWAC Data

The overall current roses for surface, depth averaged and bottom currents against direction for the AWAC data are provided in Figure 6.7. These are duplicated in Appendix Y, along with the annual and seasonal roses. The AWAC is located in approximately 3 m of water depth.

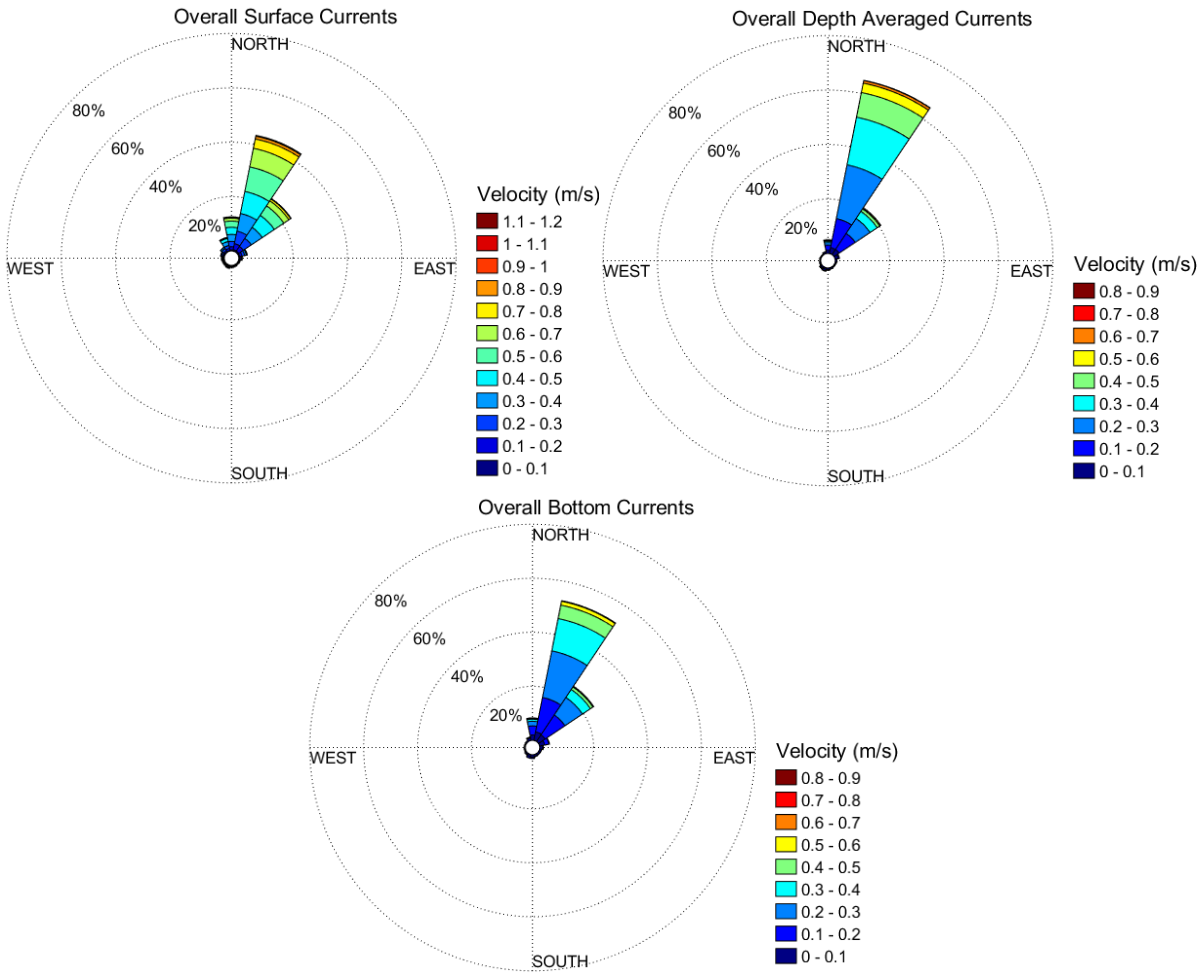


Figure 6.7 AWAC Overall Current Roses

Aquadopp Data

The overall current roses for magnitude against direction for the Aquadopp data are provided in Figure 6.8. These are only shown for 0.5, 1.7 m and 3.0 m elevations from the seabed within the report. These are duplicated in Appendix Z, along with the annual and seasonal roses for each cell (0.5 m to 4.2 m) throughout the current profile. The Aquadopp is located in approximately 3 m of water depth.

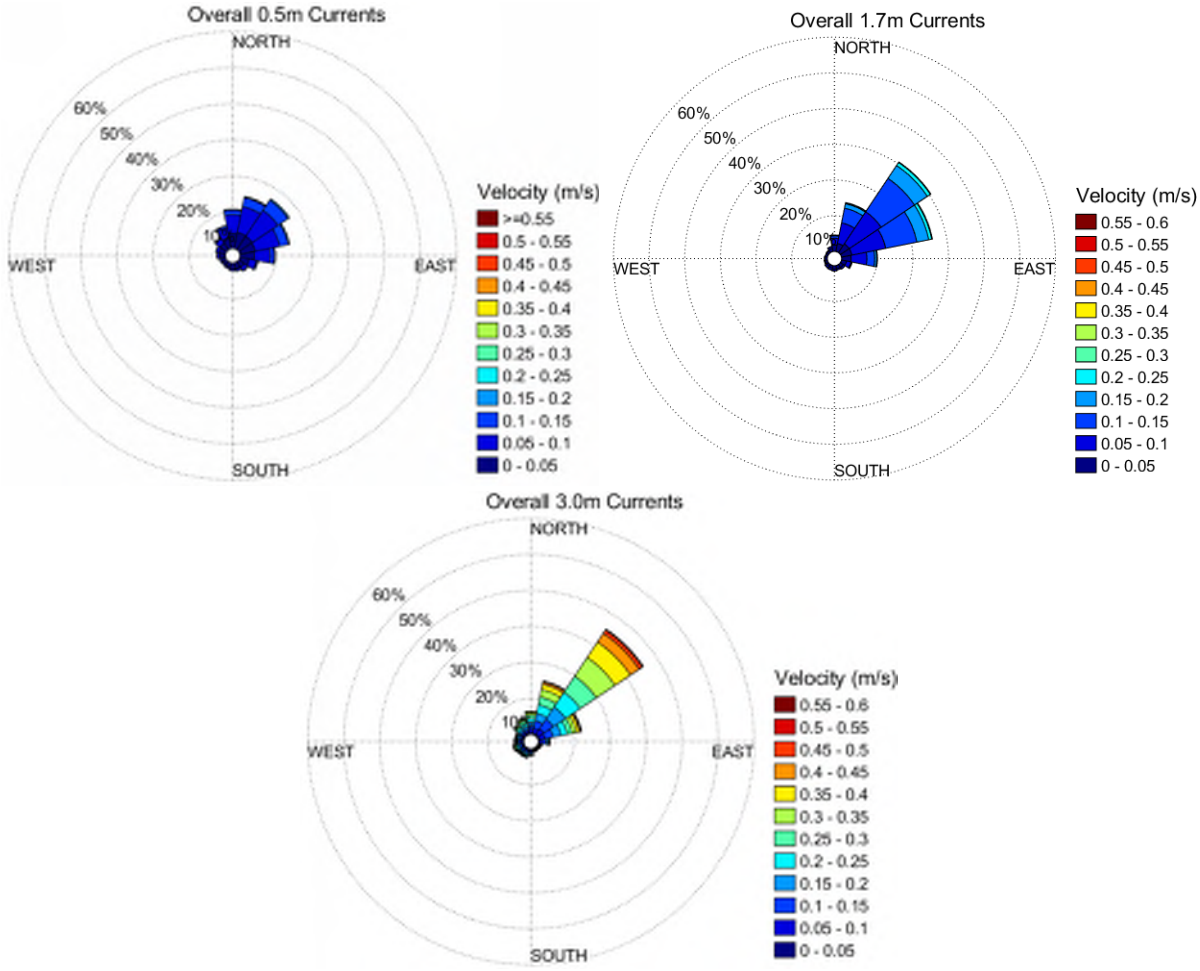


Figure 6.8 Aquadopp Overall Current Roses

6.3.3 Exceedance Curves

Exceedance curves for currents broken into overall, annual and seasonal plots have been prepared and are provided in the following sections. Due to the significant number of plots prepared as part of these works, only the overall exceedance curves are provided within the report body. Overall, annual and seasonal curves are included as appendices.

The overall assessment provides the statistics over the entire available dataset. The annual exceedance curves provide the statistics for each year of data. The seasonal assessment provides the statistics for all available data throughout the entire data period within the relevant season.

AWAC Data

The overall current velocity exceedance curves for surface, depth averaged and bottom currents for the AWAC data are provided in Figure 6.9. These are duplicated in Appendix AI, along with the annual and seasonal exceedance curves. The AWAC is located in approximately 3 m of water depth.

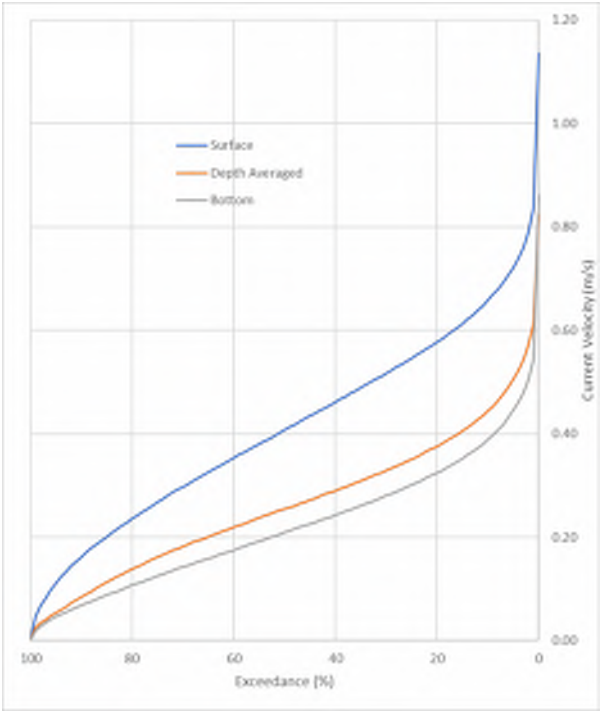


Figure 6.9 AWAC Overall Current Velocity Exceedance Curves

Aquadopp Data

The overall current velocity exceedance curves for currents throughout the profile for the Aquadopp data are provided in Figure 6.10. These are duplicated in Appendix BI, along with the annual and seasonal exceedance curves.

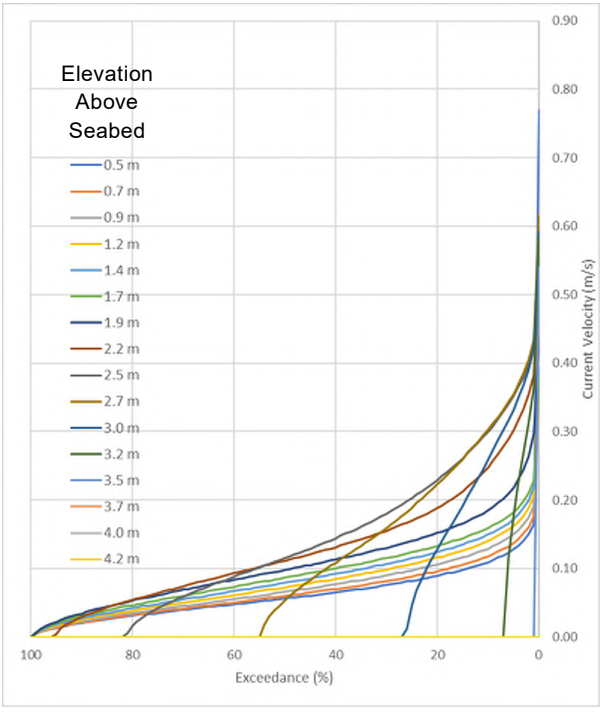


Figure 6.10 Aquadopp Overall Current Velocity Exceedance Curves

6.3.4 Key Events

Time history plots of key events for currents have been prepared. Due to the significant number of plots prepared as part of these works, a list of the selected events are provided in the report body, whilst the time history plots are provided in the relevant appendix.

AWAC Data

The top ten peak Depth Averaged Current events were selected as the key current events for plotting. These events provide an indication of the typical sequence experienced during a large current event. The 4 days leading up to and following the peak were selected.

The dates and details of the selected events from the AWAC data are shown in Table 6.9 below. The time series plots are presented in Appendix CI. The plots show magnitude and direction of the surface, depth averaged and bottom currents for each of the events.

Table 6.9 AWAC Key Current Events

	Top AWAC Events						Aquadopp Recordings at Corresponding times for Comparison					
Date	Depth Averaged Current (m/s)	Direction of Depth Averaged Current (º)	Surface Current (m/s)	Direction of Surface Current (º)	Bottom Current (m/s)	Direction of Bottom Current (º)	Current at 1.7 m Above Seabed (m/s)	Current Direction at 1.7 m Above Seabed (º)	Current at 0.5 m Above Seabed (m/s)	Current Direction at 0.5 m Above Seabed (º)	Current at 3.0 m Above Seabed (m/s)	Current Direction at 3.0 m Above Seabed (º)
25/05/2020 16:30	0.82	27.2	1.11	23.1	0.68	28.0	0.23	48.6	0.16	30.7		
29/10/2020 1:00	0.81	24.7	0.91	24.6	0.75	24.8	0.21	18.6	0.12	357.6	0.37	21.1
10/08/2020 17:30	0.81	30.7	1.08	34.4	0.64	32.0	0.24	54.3	0.11	30.1		
8/09/2020 17:30	0.78	24.5	0.92	31.5	0.67	19.8	0.17	72.5	0.12	80.5		
30/06/2020 22:00	0.77	28.5	0.95	27.1	0.67	30.2	0.16	83.4	0.13	91.3		
28/10/2019 1:30	0.76	9.8	0.97	9.8	0.66	8.9	0.20	60.2	0.09	19.2		
18/07/2020 10:50	0.76	28.2	1.01	22.6	0.56	29.3	0.25	44.4	0.15	55.3	0.39	13.1
21/07/2019 15:00	0.75	32.2	0.79	22.0	0.71	36.7	0.19	35.3	0.09	32.0	0.20	5.5
11/09/2020 17:50	0.74	27.3	1.07	28.2	0.67	28.8	0.25	45.5	0.12	37.7	0.52	49.2
3/09/2019 15:50	0.73	24.2	1.06	25.0	0.61	20.1	0.12	56.2	0.14	28.8		

Aquadopp Data

The top ten peak current events at an elevation of 1.7 m above the seabed were selected as the key current events for plotting. These events provide an indication of the typical sequence experienced during a large current event. The 4 days leading up to and following the peak were selected.

The dates and details of the selected events from the Aquadopp data are shown in Table 6.10 below. The time series plots are presented in Appendix DI. The plots show magnitude and direction of the surface, depth averaged and bottom currents for each of the events.

Table 6.10 Aquadopp Key Current Events

	Top Aquadopp Events						AWAC Recordings at Corresponding times for Comparison						
Date	Current at 1.7 m Above Seabed (m/s)	Current Direction at 1.7 m Above Seabed (°)	Current at 0.5 m Above Seabed (m/s)	Current Direction at 0.5 m Above Seabed (°)	Current at 3.0 m Above Seabed (m/s)	Current Direction at 3.0 m Above Seabed (°)	Depth Averaged Current (m/s)	Direction of Depth Averaged Current (°)	Surface Current (m/s)	Direction of Surface Current (°)	Bottom Current (m/s)	Direction of Bottom Current (°)	Depth Averaged Current (m/s)
28/10/2020 21:20	0.38	63.50	0.21	64.78	0.38	57.15	0.72	23.0	0.96	30.4	0.61	27.9	0.72
26/07/2019 14:50	0.35	22.43	0.07	296.20	N/A	N/A	0.27	39.9	0.27	65.2	0.26	43.5	0.27
15/09/2020 21:40	0.35	84.14	0.26	99.86	0.50	60.38	0.59	33.6	0.82	34.9	0.52	35.7	0.59
28/06/2019 2:20	0.34	93.00	0.20	89.15	0.29	44.44	0.60	28.5	0.75	14.9	0.54	30.1	0.60
8/09/2020 14:50	0.34	97.65	0.24	109.72	0.37	95.15	0.59	34.0	0.66	38.0	0.50	35.9	0.59
4/09/2019 1:40	0.34	49.93	0.16	45.51	0.26	44.23	0.58	18.6	0.81	15.8	0.50	16.4	0.58
4/10/2019 7:40	0.34	24.89	0.08	351.76	N/A	N/A	0.36	10.1	0.55	6.7	0.26	11.2	0.36
26/05/2020 2:00	0.33	79.09	0.11	82.75	0.32	64.40	0.71	28.2	0.88	28.3	0.71	22.1	0.71
21/07/2019 14:40	0.33	38.58	0.22	14.29	0.31	27.89	0.63	29.4	0.72	19.9	0.55	39.1	0.63
28/10/2019 0:40	0.33	15.18	0.23	359.75	0.58	22.91	0.66	10.5	0.92	7.9	0.54	12.5	0.66

6.3.5 Discussion

The various assessment outputs demonstrate the fairly benign range of currents experienced over the data collection period. As shown in the exceedance curves, around 70% of depth averaged currents recorded at the AWAC over the data period were less than 0.3 m/s. This is fairly consistent across each of the seasons. The largest depth averaged current recorded at the AWAC over the collection period was 0.82 m/s, in May 2020. This was generated during extra tropical cyclone Mangga.

The exceedance curves show how the currents vary over the depth profile. Predictably, at the AWAC the surface currents recorded are greater than the depth averaged and bottom currents recorded. There appears to be a greater discrepancy between the magnitude of the surface and depth averaged currents during the summer and spring months. This may be due to the fact that surface currents are more greatly impacted by local wind conditions than depth averaged or bottom currents. During summer and spring, sea breezes occur almost daily and are likely to lead to increased surface currents from the south west.

The current roses and JFTs also demonstrate the difference in directionality throughout the current profile. The surface currents are less focussed than the depth-averaged and bottom currents. As discussed previously, this is likely due to the fact these currents are impacted by local wind conditions.

Across the year, the directionality of the currents at the AWAC prevailed from the NNE, with ~43%, 65% and 53% of (surface, depth averaged and bottom respectively) currents arriving from the NNE. Seasonally, there is limited variation in these percentages with the majority of currents arriving from the NNE through NE.

6.4 Water Levels

6.4.1 Exceedance Curves

Exceedance curves for water levels broken into overall, annual and seasonal plots have been prepared and are provided in the following sections.

The overall assessment provides the statistics over the entire available dataset. The annual exceedance curves provide the statistics for each year of data. The seasonal assessment provides the statistics for all available data throughout the entire data period within the relevant season.

The water level exceedance curves for the Tantabiddi Tide Gauge are provided in Figures 6.11 and 6.12.

A submergence curve has also been generated by DoT for Tantabiddi. This submergence curve was shown previously in Figure 3.5.

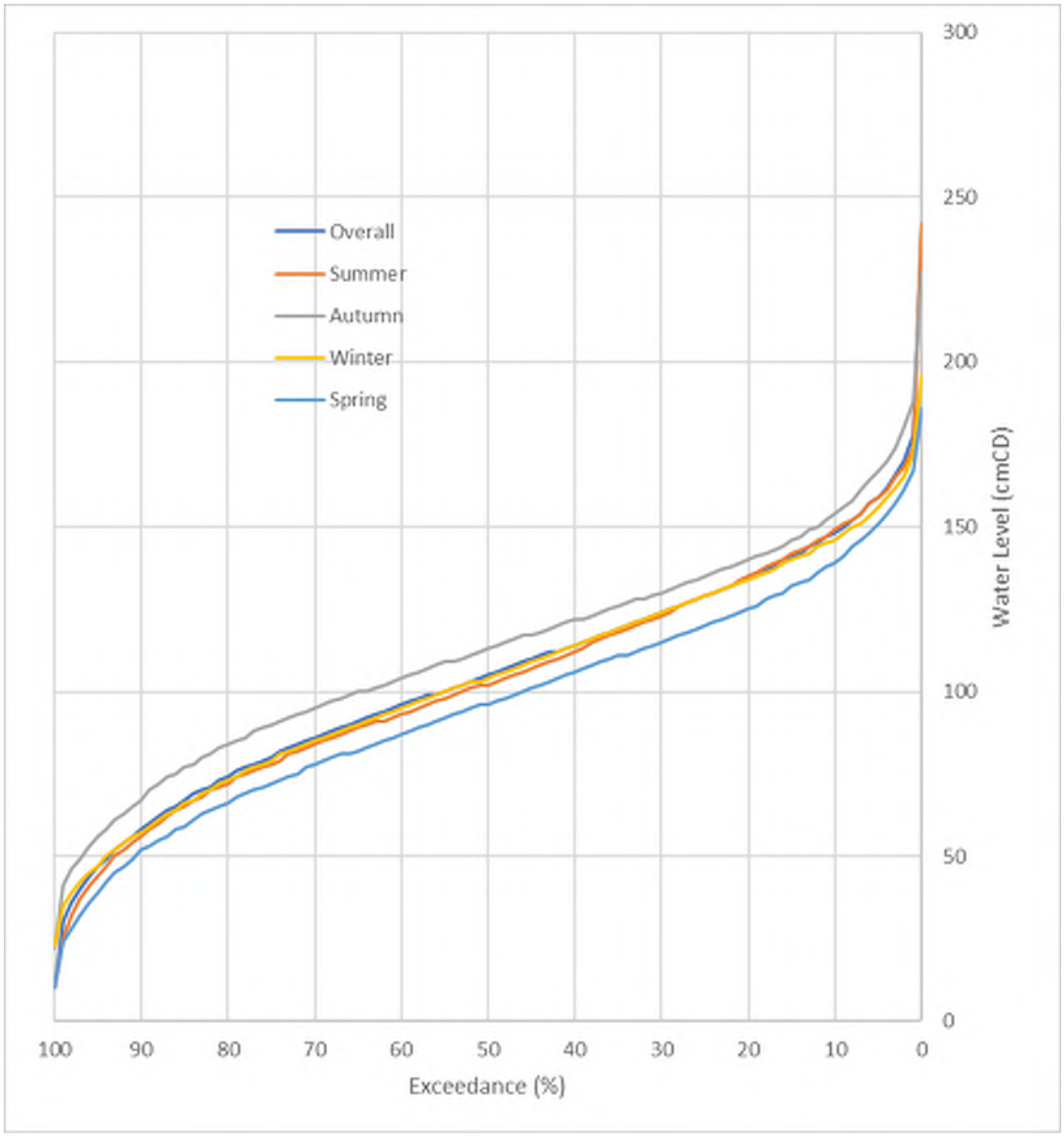


Figure 6.11 Overall & Seasonal Water Level Exceedance Curves

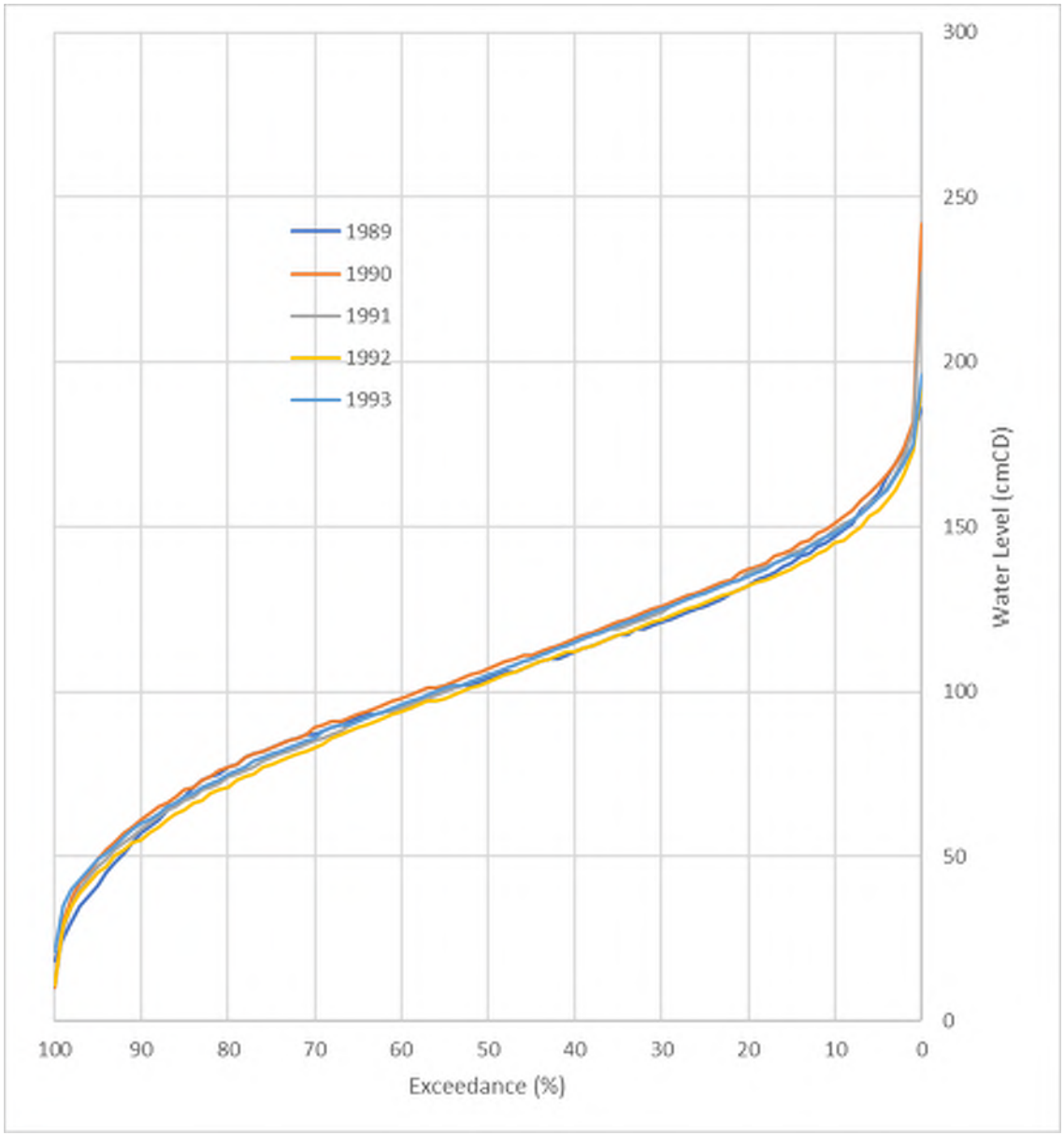


Figure 6.12 Annual Water Level Exceedance Curves

6.4.2 Key Events

Time history plots of key events for water levels have been prepared. Due to the significant number of plots prepared as part of these works, a list of the selected events are provided in the report body, whilst the time history plots are provided in the relevant appendix.

The top ten peak water level events were selected as the key events for plotting. These events provide an indication of the typical sequence experienced during a high water level. The 36 hours leading up to and following the peak were selected. The plots show the water level sequence over the 72 hour period. The dates of the selected events are shown in Table 6.11 below. The time series plots are presented in Appendix EI.

Table 6.11 Key Water Level Events

Date	Peak WL (cmCD)	Peak WL (cmAHD)
27/01/1990 22:30	242	141
18/04/1991 11:45	227	126
3/03/1990 13:45	224	123
16/04/1991 11:00	211	110
26/05/1990 10:15	209	108
15/05/1991 10:15	208	107
20/04/1991 13:30	207	106
1/03/1990 12:30	204	103
28/04/1990 11:30	203	102
17/05/1991 11:45	203	102

6.4.3 Discussion

The various assessment outputs demonstrate the range of water levels experienced over the data collection period. The largest water level recorded over the collection period was 242 cmCD, in January 1990. This was generated during cyclone Tina. Cyclones have the capacity to generate extreme water levels at the site through a combination of pressure and wind. An inverse relationship between sea-level and atmospheric pressure exists meaning that as a cyclone approaches the coast water levels will increase. During cyclones large drag forces due to wind stresses are generated at the sea surface leading to water level set-up.

The exceedance curves show how water level varied seasonally across the data collection period. Typically, the highest water levels were experienced over autumn, whilst the lowest water levels were experienced over spring. This seasonal water level difference is related to the flow of the Leeuwin Current.

6.5 Design Considerations

The nearshore datasets contain the various metocean information collected closest to the location of the TBF. Hence, assessment of these datasets provides the most relevant information for the conditions that will actually be experienced at the TBF. However, given the relatively short duration of data collected; less than 2 years for waves and currents and approximately 3.5 years for water levels, care needs to be taken when considering how representative the assessed data is of the range of conditions that may be experienced during atypical and typical periods. A summary of observations from the assessment of nearshore data over the various data collection period is provided below.

Wave heights at the AWAC during the collection period were fairly benign, with the largest wave height recorded (during cyclone Mangga) of 0.81 m. However, given the sheltering of nearshore reef, wave heights at the site are likely to be highly sensitive to offshore directionality and water

levels. Hence, if wind conditions result in wave generation from directions less sheltered by the nearshore reef, or these coincide with a higher tide, the sheltering provided by the offshore reef may be reduced. The sensitivity of wave heights at the TBF to these factors will need to be considered when establishing design wave heights for structural design.

It is clear that there is directional variance in waves arriving at the site. Hence, given that waves are a key driver of sediment transport at the site, similar seasonality in sediment transport fluxes would be expected. During summer, a larger trend towards northerly sediment transport would be expected due to sea breeze conditions. Whilst in winter, this trend may subside or be reversed. These processes interact with intermittent sediment discharges from the creek to drive sediment change in the area. These outcomes are important in understanding the seasonal and overall response of the shoreline to the proposed TBF. This has been investigated further by a shoreline movement assessment undertaken as part of Task 2 and calibrated sediment modelling undertaken as part of Task 7.

The proposed TBF entrance is largely protected from incident waves from the northwest through southwest. However, the diffraction of waves, particularly swell waves, needs to be considered. This assessment has established that swell waves arrive at the site largely from the WNW through NNW. Some swell waves were recorded from the N and NNE. These were limited to wave heights less than 0.4 m. Due to this, MRA considers the risk associated with penetration into the TBF and entrance to be quite small. However, a more detailed assessment of wave diffraction and penetration from the N, NE and any other relevant conditions has been undertaken as part of Task 8.

As discussed previously, metocean conditions can vary significantly from year to year and during extreme events. Over the short duration of nearshore data collected for this assessment it is unlikely that this range of conditions is captured. Therefore, the understanding of conditions at the site for the purposes of the TBF Coastal Processes Study has been extended with the assessments contained in Sections 4 and 5, combined with cyclone, wave and hydrodynamic modelling which comprises Task 4, 5 and 6 within the context of the project. The nearshore assessment contained herein and discussed above is useful for establishing the metocean context at the TBF and calibration of the wave and hydrodynamic model.

7. Summary & Conclusions

DoT in collaboration with the Shire of Exmouth has established an Agency Working Group to identify the planning, investigations and approvals necessary to develop the Tantabiddi Boating Facility. As part of the investigations, coastal engineers M P Rogers & Associates Pty Ltd have been engaged to conduct a coastal processes study including the Metocean Climate Analysis provided herein.

The objective of the Metocean Climate Analysis is to establish the nearshore and offshore wave climate and wind conditions affecting the Tantabiddi Boating Analysis through analysis of relevant data including that collected specifically for the purposes of this project as well as current and historical datasets and outputs of the Bureau of Meteorology's WWIII hindcast modelling. This included (1) a Nearshore Ambient Condition Assessment, (2) an Offshore Ambient and Extreme Conditions Analysis; and (3) an Ambient and Extreme Wind Conditions Analysis.

MRA has derived the nearshore ambient wave, current, and water level conditions primarily by analysis of nearshore AWAC and tide gauge data. The offshore ambient and extreme wave conditions analysis was undertaken by the MRA utilising offshore wave buoy data and WWIII hindcast dataset. The ambient and extreme wind conditions analyses have been conducted by the MRA using the Learmonth Anemometer, Yardie Anemometer and WWIII hindcast datasets. Furthermore, key observations and considerations for investigations for the TBF have also been summarised herein.

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9. Appendices

Appendix A	Tantabiddi Wave Buoy Joint Frequency Tables
Appendix B	Calibrated WWIII Hindcast Wave Joint Frequency Tables
Appendix C	Tantabiddi Wave Buoy Roses
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Appendix EI	Tantabiddi Tide Gauge Key Events

Appendix A Tantabiddi Wave Buoy Joint Frequency Tables

OVERALL JFTS

Hs (m)

Total

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.5	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.92	5.16	2.20	0.04	0.00	0.00	8.33	8.33
1	1.5	0.14	0.05	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.10	6.36	22.31	9.98	0.12	0.02	0.05	39.16	47.49
1.5	2	0.09	0.07	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.03	8.45	21.15	8.53	0.19	0.05	0.06	38.66	86.15
2	2.5	0.10	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.55	6.21	2.88	0.01	0.02	0.08	10.93	97.08
2.5	3	0.10	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.88	1.15	0.04	0.05	0.05	2.39	99.47
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.19	0.27	0.01	0.00	0.00	0.48	99.95
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.01	0.00	0.00	0.00	0.05	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.44	0.23	0.01	0.00	0.01	0.00	0.00	0.01	0.00	0.13	17.38	55.94	25.04	0.41	0.14	0.25		
Cumulative Total		0.44	0.66	0.68	0.68	0.70	0.70	0.70	0.71	0.71	0.85	18.23	74.16	99.20	99.61	99.75	100.00		

Swell

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.66	1.69	0.67	0.04	0.00	0.00	3.06	3.06
0.5	1	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.32	28.78	10.06	0.07	0.06	0.13	45.68	48.74
1	1.5	0.16	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	2.33	23.35	10.49	0.11	0.01	0.03	36.50	85.23
1.5	2	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.18	6.86	3.77	0.02	0.02	0.07	10.95	96.19
2	2.5	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	1.27	1.66	0.01	0.03	0.00	3.00	99.19
2.5	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.31	0.38	0.01	0.00	0.00	0.70	99.89
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.04	0.00	0.00	0.00	0.09	99.98
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.02	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.43	0.00	0.01	0.00	0.01	0.00	0.00	0.01	0.00	0.01	9.50	62.34	27.06	0.26	0.13	0.24		
Cumulative Total		0.43	0.43	0.44	0.44	0.45	0.45	0.45	0.47	0.47	0.48	9.98	72.32	99.38	99.63	99.76	100.00		

Sea

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.22	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.97	1.75	0.80	0.33	0.13	0.17	4.44	4.44
0.5	1	1.12	1.21	0.09	0.00	0.00	0.00	0.00	0.00	0.01	0.46	27.58	9.59	1.28	0.65	0.55	0.45	43.00	47.43
1	1.5	0.31	0.58	0.07	0.00	0.00	0.00	0.00	0.00	0.02	0.57	34.53	4.04	0.40	0.38	0.23	0.19	41.34	88.77
1.5	2	0.08	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.03	9.42	0.47	0.12	0.01	0.06	0.05	10.36	99.13
2	2.5	0.12	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.38	0.05	0.08	0.01	0.01	0.03	0.77	99.90
2.5	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.02	0.01	0.03	0.10	100.00
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		1.86	2.03	0.16	0.01	0.00	0.01	0.00	0.00	0.05	1.06	72.89	15.90	2.71	1.40	1.00	0.92		
Cumulative Total		1.86	3.88	4.04	4.05	4.05	4.06	4.06	4.06	4.12	5.18	78.07	93.97	96.68	98.08	99.08	100.00		

OVERALL JFTS

Tp (s)

Total

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02
4	6	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	1.50	0.07	0.00	0.00	0.00	0.00	1.67	1.69
6	8	0.10	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	7.09	0.34	0.15	0.12	0.03	0.06	8.13	9.82
8	10	0.27	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.27	1.59	0.19	0.22	0.05	0.09	9.71	19.52
10	12	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.39	10.71	0.77	0.05	0.05	0.08	13.12	32.64
12	14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	22.30	4.54	0.00	0.00	0.01	26.96	59.60
14	16	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.01	0.00	0.00	0.01	17.52	11.81	0.02	0.00	0.01	29.41	89.01
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.98	4.58	0.00	0.00	0.00	7.57	96.58
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.41	2.91	0.00	0.00	0.00	3.33	99.90
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.10	100.00
Total		0.43	0.22	0.01	0.00	0.01	0.00	0.00	0.01	0.00	0.13	17.37	55.94	25.04	0.41	0.14	0.25		
Cumulative Total		0.43	0.66	0.67	0.67	0.68	0.68	0.69	0.70	0.70	0.83	18.21	74.14	99.18	99.59	99.73	99.98		

Swell

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	10	0.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.80	2.50	0.31	0.17	0.06	0.13	11.33	11.33
10	12	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.62	13.17	0.98	0.05	0.07	0.09	16.03	27.36
12	14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	24.72	5.27	0.01	0.00	0.01	30.08	57.44
14	16	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.01	0.00	0.00	0.00	18.36	12.62	0.02	0.00	0.01	31.05	88.49
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.12	4.70	0.00	0.00	0.00	7.82	96.32
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.47	3.09	0.01	0.00	0.00	3.58	99.89
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.00	0.00	0.00	0.11	100.00
Total		0.43	0.00	0.01	0.00	0.01	0.00	0.00	0.01	0.00	0.01	9.50	62.34	27.06	0.26	0.13	0.24		
Cumulative Total		0.43	0.43	0.44	0.44	0.45	0.45	0.45	0.47	0.47	0.48	9.98	72.32	99.38	99.63	99.76	100.00		

Sea

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.03	0.03
2	4	0.12	0.03	0.03	0.00	0.00	0.00	0.00	0.00	0.01	0.04	0.95	0.17	0.03	0.02	0.00	0.04	1.45	1.48
4	6	0.33	0.84	0.11	0.00	0.00	0.00	0.00	0.00	0.02	0.60	14.33	1.51	0.14	0.05	0.10	0.10	18.13	19.61
6	8	1.15	1.12	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.37	30.42	3.74	1.07	0.74	0.61	0.60	39.83	59.44
8	10	0.26	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	27.18	10.48	1.47	0.59	0.29	0.18	40.56	100.00
10	12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
12	14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		1.74	2.00	0.13	0.00	0.00	0.00	0.00	0.00	0.03	1.02	71.93	15.73	2.68	1.38	1.00	0.88		
Cumulative Total		1.74	3.73	3.86	3.87	3.87	3.87	3.87	3.87	3.90	4.92	76.85	92.58	95.26	96.65	97.64	98.52		

OVERALL JFTS

Hs vs Tp

Total

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.5	1	0.00	0.00	0.06	0.17	0.80	2.01	2.86	1.73	0.51	0.18	0.00	8.33	8.33
1	1.5	0.00	0.00	0.89	3.02	3.34	6.05	12.11	10.43	2.07	1.20	0.05	39.16	47.49
1.5	2	0.00	0.01	0.70	4.08	4.22	3.93	10.03	11.82	2.75	1.09	0.04	38.66	86.15
2	2.5	0.00	0.00	0.02	0.67	1.10	0.86	1.77	4.45	1.48	0.59	0.00	10.93	97.08
2.5	3	0.00	0.00	0.00	0.17	0.24	0.18	0.13	0.76	0.66	0.23	0.00	2.39	99.47
3	3.5	0.00	0.00	0.00	0.01	0.02	0.09	0.06	0.17	0.10	0.03	0.00	0.48	99.95
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.00	0.05	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.00	0.02	1.67	8.13	9.71	13.12	26.96	29.41	7.57	3.33	0.10		
Cumulative Total		0.00	0.02	1.69	9.82	19.52	32.64	59.60	89.01	96.58	99.90	100.00		

Swell

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	0.00	0.00	0.00	0.00	0.92	0.74	0.89	0.46	0.03	0.03	0.00	3.06	3.06
0.5	1	0.00	0.00	0.00	0.00	7.42	10.45	15.10	9.51	1.95	1.18	0.06	45.68	48.74
1	1.5	0.00	0.00	0.00	0.00	2.69	4.21	11.95	13.38	2.89	1.34	0.04	36.50	85.23
1.5	2	0.00	0.00	0.00	0.00	0.26	0.43	1.88	5.97	1.88	0.53	0.00	10.95	96.19
2	2.5	0.00	0.00	0.00	0.00	0.05	0.12	0.18	1.40	0.89	0.36	0.00	3.00	99.19
2.5	3	0.00	0.00	0.00	0.00	0.00	0.09	0.06	0.25	0.17	0.13	0.00	0.70	99.89
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.06	0.01	0.00	0.00	0.09	99.98
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.02	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.00	0.00	0.00	0.00	11.33	16.03	30.08	31.05	7.82	3.58	0.11		
Cumulative Total		0.00	0.00	0.00	0.00	11.33	27.36	57.44	88.49	96.32	99.89	100.00		

Sea

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	0.00	0.15	0.31	1.20	2.78	0.00	0.00	0.00	0.00	0.00	0.00	4.44	4.44
0.5	1	0.01	1.13	8.51	14.40	18.94	0.00	0.00	0.00	0.00	0.00	0.00	43.00	47.43
1	1.5	0.00	0.14	8.43	17.93	14.83	0.00	0.00	0.00	0.00	0.00	0.00	41.34	88.77
1.5	2	0.01	0.03	0.88	5.80	3.64	0.00	0.00	0.00	0.00	0.00	0.00	10.36	99.13
2	2.5	0.00	0.00	0.00	0.41	0.36	0.00	0.00	0.00	0.00	0.00	0.00	0.77	99.90
2.5	3	0.00	0.00	0.00	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	100.00
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.03	1.45	18.13	39.83	40.56	0.00	0.00	0.00	0.00	0.00	0.00		
Cumulative Total		0.03	1.48	19.61	59.44	100.00	100.00	100.00	100.00	100.00	100.00	100.00		

ANNUAL JFTS

2019 - Hs (m)

Total

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.5	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.24	2.87	1.85	0.05	0.00	0.00	6.02	6.02
1	1.5	0.00	0.02	0.02	0.00	0.02	0.00	0.00	0.00	0.00	0.11	4.99	22.10	13.50	0.00	0.02	0.04	40.81	46.83
1.5	2	0.02	0.02	0.00	0.02	0.00	0.00	0.02	0.00	0.00	0.04	9.15	19.15	7.81	0.00	0.00	0.00	36.22	83.04
2	2.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.12	8.54	3.77	0.00	0.00	0.02	14.45	97.49
2.5	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.18	1.01	1.30	0.00	0.00	0.00	2.49	99.98
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.02	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.02	0.04	0.02	0.02	0.02	0.00	0.02	0.00	0.00	0.15	17.69	53.67	28.24	0.05	0.02	0.05		
Cumulative Total		0.02	0.05	0.07	0.09	0.11	0.11	0.13	0.13	0.13	0.27	17.96	71.63	99.87	99.93	99.95	100.00		

Swell

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.90	0.46	0.05	0.00	0.00	1.52	1.52
0.5	1	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	5.51	26.34	13.32	0.00	0.00	0.02	45.20	46.72
1	1.5	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.02	2.14	25.70	10.54	0.00	0.00	0.00	38.41	85.13
1.5	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.46	6.68	4.87	0.00	0.00	0.02	12.02	97.15
2	2.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.17	1.65	0.00	0.00	0.00	2.82	99.96
2.5	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.00	0.00	0.00	0.04	100.00
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.00	0.00	0.02	0.00	0.02	0.00	0.00	0.00	0.00	0.02	8.21	60.80	30.84	0.05	0.00	0.04		
Cumulative Total		0.00	0.00	0.02	0.02	0.04	0.04	0.04	0.04	0.04	0.05	8.27	69.07	99.91	99.96	99.96	100.00		

Sea

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.53	0.09	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	1.13	1.79	0.44	0.13	0.04	0.31	4.48	4.48
0.5	1	0.20	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.38	32.63	6.86	0.16	0.04	0.05	0.04	40.41	44.89
1	1.5	0.05	0.05	0.00	0.02	0.00	0.00	0.02	0.00	0.02	0.84	36.78	1.37	0.02	0.00	0.05	0.02	39.25	84.14
1.5	2	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.05	0.04	14.72	0.44	0.00	0.00	0.02	0.00	15.29	99.43
2	2.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.51	0.04	0.00	0.00	0.00	0.00	0.55	99.98
2.5	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.02	100.00
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.79	0.18	0.00	0.04	0.00	0.02	0.02	0.00	0.07	1.26	85.81	10.50	0.62	0.16	0.16	0.37		
Cumulative Total		0.79	0.97	0.97	1.01	1.01	1.02	1.04	1.04	1.12	2.38	88.18	98.68	99.30	99.47	99.63	100.00		

2020 - Hs (m)

Total

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.5	1	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.81	5.92	2.32	0.04	0.00	0.00	9.10	9.10
1	1.5	0.18	0.07	0.01	0.00	0.01	0.00	0.00	0.01	0.00	0.10	6.82	22.39	8.81	0.16	0.02	0.06	38.61	47.71
1.5	2	0.12	0.09	0.01	0.00	0.01	0.00	0.00	0.01	0.00	0.02	8.21	21.82	8.77	0.25	0.07	0.09	39.47	87.18
2	2.5	0.13	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.36	5.43	2.59	0.02	0.02	0.10	9.76	96.94
2.5	3	0.13	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.83	1.11	0.05	0.06	0.07	2.35	99.30
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.26	0.35	0.02	0.01	0.00	0.64	99.93
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.02	0.00	0.00	0.00	0.06	99.99
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.01	100.00
Total		0.57	0.29	0.01	0.00	0.01	0.00	0.00	0.02	0.00	0.13	17.27	56.70	23.96	0.53	0.18	0.32		
Cumulative Total		0.57	0.87	0.88	0.88	0.89	0.89	0.89	0.91	0.91	1.04	18.31	75.01	98.97	99.50	99.68	100.00		

Swell

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.84	1.96	0.74	0.03	0.00	0.01	3.58	3.58
0.5	1	0.31	0.00	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.01	6.60	29.60	8.97	0.09	0.09	0.17	45.84	49.41
1	1.5	0.21	0.01	0.00	0.00	0.01	0.00	0.00	0.01	0.00	0.00	2.39	22.56	10.47	0.15	0.02	0.04	35.86	85.27
1.5	2	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.09	6.92	3.40	0.03	0.02	0.09	10.60	95.87
2	2.5	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	1.31	1.66	0.01	0.04	0.01	3.06	98.93
2.5	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.40	0.51	0.01	0.00	0.00	0.92	99.85
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.05	0.00	0.00	0.00	0.12	99.98
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.02	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.57	0.01	0.01	0.00	0.01	0.00	0.00	0.02	0.00	0.01	9.93	62.85	25.80	0.32	0.17	0.31		
Cumulative Total		0.57	0.57	0.58	0.58	0.59	0.59	0.59	0.61	0.61	0.62	10.55	73.40	99.20	99.52	99.69	100.00		

Sea

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.11	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.92	1.74	0.92	0.40	0.16	0.12	4.42	4.42
0.5	1	1.43	1.60	0.12	0.00	0.00	0.01	0.00	0.00	0.02	0.49	25.89	10.51	1.65	0.85	0.72	0.59	43.86	48.28
1	1.5	0.40	0.75	0.10	0.00	0.00	0.00	0.00	0.00	0.02	0.48	33.78	4.93	0.53	0.50	0.29	0.24	42.03	90.31
1.5	2	0.11	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	7.65	0.48	0.16	0.02	0.08	0.07	8.71	99.03
2	2.5	0.16	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.34	0.06	0.10	0.01	0.01	0.04	0.85	99.88
2.5	3	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.03	0.01	0.04	0.12	100.00
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		2.21	2.64	0.21	0.00	0.00	0.01	0.00	0.00	0.04	1.00	68.58	17.71	3.41	1.82	1.28	1.10		
Cumulative Total		2.21	4.86	5.07	5.07	5.07	5.08	5.08	5.08	5.12	6.11	74.69	92.40	95.81	97.62	98.90	100.00		

ANNUAL JFTS

2019 - Tp (s)

Total

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	4	0.02	0.02	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.05
4	6	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.04	1.19	0.00	0.00	0.00	0.00	0.00	1.24	1.30
6	8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	7.33	0.04	0.02	0.00	0.02	0.00	7.50	8.80
8	10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.76	1.15	0.00	0.00	0.00	0.02	8.93	17.72
10	12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.17	11.94	0.55	0.00	0.00	0.00	13.66	31.39
12	14	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.16	22.50	6.69	0.00	0.00	0.04	29.43	60.82
14	16	0.00	0.00	0.02	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.05	15.13	13.28	0.05	0.00	0.00	28.55	89.37
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.82	4.37	0.00	0.00	0.00	7.19	96.56
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.09	3.18	0.00	0.00	0.00	3.29	99.85
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.15	0.00	0.00	0.00	0.15	100.00
Total		0.02	0.04	0.02	0.02	0.02	0.00	0.02	0.00	0.00	0.15	17.69	53.67	28.24	0.05	0.02	0.05		
Cumulative Total		0.02	0.05	0.07	0.09	0.11	0.11	0.13	0.13	0.13	0.27	17.96	71.63	99.87	99.93	99.95	100.00		

Swell

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.84	1.98	0.04	0.00	0.00	0.00	8.85	8.85
10	12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.30	14.61	0.82	0.00	0.00	0.00	16.74	25.59
12	14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.04	24.49	7.66	0.00	0.00	0.04	32.25	57.84
14	16	0.00	0.00	0.02	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	16.26	13.87	0.05	0.00	0.00	30.22	88.06
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.22	4.65	0.00	0.00	0.00	7.87	95.92
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.24	3.64	0.00	0.00	0.00	3.91	99.84
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.16	0.00	0.00	0.00	0.16	100.00
Total		0.00	0.00	0.02	0.00	0.02	0.00	0.00	0.00	0.00	0.02	8.21	60.80	30.84	0.05	0.00	0.04		
Cumulative Total		0.00	0.00	0.02	0.02	0.04	0.04	0.04	0.04	0.04	0.05	8.27	69.07	99.91	99.96	99.96	100.00		

Sea

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.05	0.05
2	4	0.27	0.02	0.00	0.02	0.00	0.02	0.00	0.00	0.00	0.04	1.21	0.26	0.02	0.02	0.00	0.15	2.01	2.07
4	6	0.16	0.09	0.00	0.02	0.00	0.00	0.02	0.00	0.02	0.51	20.56	1.45	0.09	0.02	0.05	0.04	23.03	25.10
6	8	0.35	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.60	33.11	1.81	0.27	0.11	0.07	0.16	36.58	61.68
8	10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11	30.91	6.99	0.24	0.02	0.04	0.02	38.32	100.00
10	12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
12	14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.79	0.18	0.00	0.04	0.00	0.02	0.02	0.00	0.07	1.26	85.81	10.50	0.62	0.16	0.16	0.37		
Cumulative Total		0.79	0.97	0.97	1.01	1.01	1.02	1.04	1.04	1.12	2.38	88.18	98.68	99.30	99.47	99.63	100.00		

2020 - Tp (s)

Total

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.01	0.01
4	6	0.01	0.06	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.04	1.60	0.10	0.00	0.00	0.00	0.00	1.81	1.82
6	8	0.13	0.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	7.01	0.44	0.19	0.16	0.04	0.09	8.34	10.16
8	10	0.36	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.11	1.74	0.25	0.30	0.07	0.11	9.97	20.12
10	12	0.07	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.46	10.30	0.84	0.06	0.07	0.11	12.93	33.06
12	14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	22.23	3.82	0.00	0.00	0.00	26.13	59.19
14	16	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.02	0.00	0.01	0.00	18.33	11.31	0.01	0.00	0.01	29.70	88.89
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	3.03	4.65	0.00	0.00	0.00	7.69	96.58
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.52	2.81	0.01	0.00	0.00	3.34	99.92
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.00	0.00	0.00	0.08	100.00
Total		0.57	0.29	0.01	0.00	0.01	0.00	0.00	0.02	0.00	0.13	17.27	56.70	23.96	0.53	0.18	0.32		
Cumulative Total		0.57	0.87	0.88	0.88	0.89	0.89	0.89	0.91	0.91	1.04	18.31	75.01	98.97	99.50	99.68	100.00		

Swell

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	10	0.48	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.11	2.67	0.40	0.23	0.08	0.18	12.16	12.16
10	12	0.08	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.73	12.68	1.03	0.06	0.09	0.12	15.79	27.96
12	14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	24.80	4.46	0.01	0.00	0.00	29.36	57.31
14	16	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.02	0.00	0.01	0.00	19.07	12.20	0.01	0.00	0.01	31.33	88.64
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.09	4.72	0.00	0.00	0.00	7.81	96.45
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.55	2.90	0.01	0.00	0.00	3.47	99.91
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.00	0.00	0.00	0.09	100.00
Total		0.57	0.01	0.01	0.00	0.01	0.00	0.00	0.02	0.00	0.01	9.93	62.85	25.80	0.32	0.17	0.31		
Cumulative Total		0.57	0.57	0.58	0.58	0.59	0.59	0.59	0.61	0.61	0.62	10.55	73.40	99.20	99.52	99.69	100.00		

Sea

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.00	0.00	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.02	0.02
2	4	0.07	0.03	0.04	0.00	0.00	0.00	0.00	0.00	0.02	0.04	0.87	0.15	0.03	0.02	0.00	0.01	1.27	1.28
4	6	0.38	1.09	0.15	0.00	0.00	0.00	0.00	0.00	0.02	0.63	12.25	1.53	0.16	0.06	0.11	0.12	16.50	17.78
6	8	1.42	1.47	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.29	29.52	4.39	1.33	0.95	0.79	0.74	40.91	58.70
8	10	0.35	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.04	25.94	11.64	1.88	0.78	0.38	0.24	41.30	100.00
10	12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
12	14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>20		0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		2.21	2.64	0.21	0.00	0.00	0.01	0.00	0.00	0.04	1.00	68.58	17.71	3.41	1.82	1.28	1.10		
Cumulative Total		2.21	4.86	5.07	5.07	5.07	5.08	5.08	5.08	5.12	6.11	74.69	92.40	95.81	97.62	98.90	100.00		

ANNUAL JFTS

2019 - Hs vs Tp

Total

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.5	1	0.00	0.00	0.02	0.18	0.71	1.54	1.70	1.21	0.51	0.15	0.00	6.02	6.02
1	1.5	0.00	0.02	0.51	2.05	2.47	6.07	14.61	12.20	1.66	1.19	0.02	40.81	46.83
1.5	2	0.00	0.04	0.71	4.68	3.88	5.01	10.32	8.05	2.25	1.15	0.13	36.22	83.04
2	2.5	0.00	0.00	0.00	0.57	1.72	0.97	2.67	5.94	1.88	0.70	0.00	14.45	97.49
2.5	3	0.00	0.00	0.00	0.02	0.15	0.07	0.13	1.15	0.86	0.11	0.00	2.49	99.98
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.02	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.00	0.05	1.24	7.50	8.93	13.66	29.43	28.55	7.19	3.29	0.15		
Cumulative Total		0.00	0.05	1.30	8.80	17.72	31.39	60.82	89.37	96.56	99.85	100.00		

Swell

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	0.00	0.00	0.00	0.00	0.20	0.64	0.48	0.16	0.02	0.02	0.00	1.52	1.52
0.5	1	0.00	0.00	0.00	0.00	5.49	10.61	15.95	9.97	2.09	1.08	0.02	45.20	46.72
1	1.5	0.00	0.00	0.00	0.00	2.69	5.07	13.99	12.69	2.27	1.57	0.13	38.41	85.13
1.5	2	0.00	0.00	0.00	0.00	0.48	0.42	1.77	5.96	2.60	0.77	0.02	12.02	97.15
2	2.5	0.00	0.00	0.00	0.00	0.00	0.00	0.05	1.43	0.88	0.46	0.00	2.82	99.96
2.5	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.00	0.04	100.00
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.00	0.00	0.00	0.00	8.85	16.74	32.25	30.22	7.87	3.91	0.16		
Cumulative Total		0.00	0.00	0.00	0.00	8.85	25.59	57.84	88.06	95.92	99.84	100.00		

Sea

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	0.00	0.33	0.55	1.57	2.03	0.00	0.00	0.00	0.00	0.00	0.00	4.48	4.48
0.5	1	0.02	1.39	12.37	10.50	16.13	0.00	0.00	0.00	0.00	0.00	0.00	40.41	44.89
1	1.5	0.00	0.22	9.04	15.91	14.08	0.00	0.00	0.00	0.00	0.00	0.00	39.25	84.14
1.5	2	0.04	0.07	1.08	8.36	5.74	0.00	0.00	0.00	0.00	0.00	0.00	15.29	99.43
2	2.5	0.00	0.00	0.00	0.24	0.31	0.00	0.00	0.00	0.00	0.00	0.00	0.55	99.98
2.5	3	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.02	100.00
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.05	2.01	23.03	36.58	38.32	0.00	0.00	0.00	0.00	0.00	0.00		
Cumulative Total		0.05	2.07	25.10	61.68	100.00	100.00	100.00	100.00	100.00	100.00	100.00		

2020 - Hs vs Tp

Total

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.5	1	0.00	0.01	0.08	0.17	0.83	2.16	3.24	1.91	0.51	0.20	0.01	9.10	9.10
1	1.5	0.00	0.00	1.02	3.34	3.63	6.05	11.27	9.84	2.20	1.20	0.07	38.61	47.71
1.5	2	0.00	0.00	0.69	3.88	4.33	3.56	9.94	13.09	2.91	1.07	0.01	39.47	87.18
2	2.5	0.00	0.00	0.02	0.71	0.89	0.82	1.47	3.95	1.35	0.56	0.00	9.76	96.94
2.5	3	0.00	0.00	0.00	0.23	0.28	0.21	0.13	0.63	0.60	0.28	0.00	2.35	99.30
3	3.5	0.00	0.00	0.00	0.02	0.02	0.12	0.09	0.23	0.12	0.04	0.00	0.64	99.93
3.5	4	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.05	0.01	0.00	0.00	0.06	99.99
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.01	100.00
Total		0.00	0.01	1.81	8.34	9.97	12.93	26.13	29.70	7.69	3.34	0.08		
Cumulative Total		0.00	0.01	1.82	10.16	20.12	33.06	59.19	88.89	96.58	99.92	100.00		

Swell

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	0.00	0.00	0.00	0.00	1.16	0.77	1.03	0.56	0.03	0.03	0.00	3.58	3.58
0.5	1	0.00	0.00	0.00	0.00	8.07	10.40	14.82	9.36	1.90	1.22	0.07	45.84	49.41
1	1.5	0.00	0.00	0.00	0.00	2.68	3.92	11.27	13.61	3.10	1.27	0.01	35.86	85.27
1.5	2	0.00	0.00	0.00	0.00	0.19	0.43	1.92	5.97	1.64	0.45	0.00	10.60	95.87
2	2.5	0.00	0.00	0.00	0.00	0.06	0.16	0.22	1.39	0.90	0.33	0.00	3.06	98.93
2.5	3	0.00	0.00	0.00	0.00	0.00	0.12	0.09	0.33	0.22	0.17	0.00	0.92	99.85
3	3.5	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.09	0.02	0.00	0.00	0.12	99.98
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.02	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.00	0.00	0.00	0.00	12.16	15.79	29.36	31.33	7.81	3.47	0.09		
Cumulative Total		0.00	0.00	0.00	0.00	12.16	27.96	57.31	88.64	96.45	99.91	100.00		

Sea

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	0.00	0.09	0.23	1.08	3.03	0.00	0.00	0.00	0.00	0.00	0.00	4.42	4.42
0.5	1	0.01	1.05	7.22	15.70	19.88	0.00	0.00	0.00	0.00	0.00	0.00	43.86	48.28
1	1.5	0.01	0.12	8.23	18.60	15.08	0.00	0.00	0.00	0.00	0.00	0.00	42.03	90.31
1.5	2	0.00	0.02	0.81	4.94	2.94	0.00	0.00	0.00	0.00	0.00	0.00	8.71	99.03
2	2.5	0.00	0.00	0.00	0.47	0.38	0.00	0.00	0.00	0.00	0.00	0.00	0.85	99.88
2.5	3	0.00	0.00	0.00	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	100.00
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.02	1.27	16.50	40.91	41.30	0.00	0.00	0.00	0.00	0.00	0.00		
Cumulative Total		0.02	1.28	17.78	58.70	100.00	100.00	100.00	100.00	100.00	100.00	100.00		

SEASONAL JFTS

Summer - Hs (m)

Total

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.5	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.07	4.31	1.05	0.00	0.00	0.00	7.43	7.43
1	1.5	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.97	21.59	6.50	0.40	0.05	0.04	39.59	47.02
1.5	2	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.02	17.21	19.38	3.63	0.72	0.18	0.19	41.59	88.61
2	2.5	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.73	5.59	0.44	0.05	0.07	0.25	10.23	98.84
2.5	3	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.33	0.54	0.05	0.04	0.12	0.02	1.12	99.96
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.02	0.00	0.00	0.04	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.40	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.02	34.31	51.44	11.67	1.23	0.42	0.49		
Cumulative Total		0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.42	0.42	0.44	34.75	86.19	97.86	99.09	99.51	100.00		

Swell

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.47	1.86	0.56	0.02	0.00	0.00	3.91	3.91
0.5	1	0.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	14.55	33.39	8.66	0.14	0.19	0.11	57.24	61.15
1	1.5	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.02	4.80	24.10	4.49	0.40	0.04	0.04	34.03	95.18
1.5	2	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.58	2.96	0.42	0.05	0.07	0.26	4.43	99.61
2	2.5	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.11	0.02	0.04	0.12	0.02	0.37	99.98
2.5	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.02	100.00
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.47	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.02	21.43	62.41	14.14	0.67	0.42	0.42		
Cumulative Total		0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.49	0.49	0.51	21.94	84.35	98.49	99.16	99.58	100.00		

Sea

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.46	0.11	0.04	0.04	0.00	0.74	0.74
0.5	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	26.15	6.43	0.46	0.28	0.14	0.00	33.60	34.33
1	1.5	0.12	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.02	0.07	38.26	3.89	0.93	1.30	0.60	0.23	45.43	79.76
1.5	2	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	18.65	0.23	0.04	0.02	0.21	0.11	19.33	99.09
2	2.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.91	0.00	0.00	0.00	0.00	0.00	0.91	100.00
2.5	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.18	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.05	0.21	84.07	11.01	1.52	1.63	0.98	0.33		
Cumulative Total		0.18	0.18	0.19	0.19	0.19	0.19	0.19	0.19	0.25	0.46	84.53	95.53	97.06	98.69	99.67	100.00		

Autumn - Hs (m)

Total

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.5	1	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.19	12.68	2.96	0.10	0.00	0.00	16.95	16.95
1	1.5	0.68	0.27	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.29	7.45	32.89	4.63	0.05	0.00	0.19	46.47	63.42
1.5	2	0.12	0.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	2.76	22.27	2.98	0.00	0.00	0.02	28.60	92.02
2	2.5	0.32	0.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	4.32	0.49	0.00	0.00	0.00	5.65	97.67
2.5	3	0.44	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.34	0.36	0.05	0.00	0.02	1.33	99.01
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.56	0.19	0.02	0.00	0.00	0.78	99.78
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.17	0.02	0.00	0.00	0.00	0.19	99.98
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.02	100.00
Total		1.58	1.16	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.36	11.52	73.25	11.64	0.22	0.00	0.24		
Cumulative Total		1.58	2.74	2.76	2.76	2.76	2.76	2.76	2.76	2.76	3.13	14.65	87.90	99.54	99.76	99.76	100.00		

Swell

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.26	4.24	1.31	0.10	0.00	0.02	6.94	6.94
0.5	1	0.92	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.51	39.12	4.37	0.12	0.07	0.51	49.65	56.59
1	1.5	0.63	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.16	23.60	4.68	0.02	0.02	0.05	30.20	86.78
1.5	2	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.77	1.70	0.05	0.00	0.00	11.54	98.33
2	2.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.65	0.10	0.00	0.00	0.00	0.75	99.08
2.5	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.32	0.15	0.02	0.00	0.00	0.49	99.56
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.29	0.05	0.00	0.00	0.00	0.34	99.90
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.10	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		1.58	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.94	78.10	12.35	0.32	0.10	0.58		
Cumulative Total		1.58	1.60	1.63	1.63	1.63	1.63	1.63	1.63	1.63	1.63	8.56	86.66	99.01	99.32	99.42	100.00		

Sea

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.26	1.65	1.96	0.97	0.10	0.00	6.94	6.94
0.5	1	1.50	1.48	0.24	0.00	0.00	0.02	0.00	0.00	0.00	0.82	37.69	10.07	3.44	1.82	1.50	0.92	59.52	66.46
1	1.5	0.87	0.53	0.07	0.00	0.00	0.00	0.00	0.00	0.02	0.75	23.89	1.75	0.44	0.10	0.12	0.41	28.96	95.42
1.5	2	0.19	0.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	1.67	0.27	0.46	0.00	0.00	0.00	3.03	98.45
2	2.5	0.56	0.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.24	0.00	0.00	0.02	1.38	99.83
2.5	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.05	0.00	0.00	0.17	100.00
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		3.13	2.89	0.32	0.00	0.00	0.02	0.00	0.00	0.02	1.63	65.51	13.80	6.67	2.93	1.72	1.36		
Cumulative Total		3.13	6.02	6.33	6.33	6.33	6.35	6.35	6.35	6.38	8.00	73.51	87.32	93.98	96.92	98.64	100.00		

SEASONAL JFTS

Winter - Hs (m)

Total

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.5	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.39	5.00	0.00	0.00	0.00	8.39	8.39
1	1.5	0.00	0.00	0.03	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.38	15.25	19.91	0.03	0.00	0.00	35.62	44.01
1.5	2	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.03	0.00	0.00	1.73	13.26	23.97	0.00	0.00	0.00	39.01	83.02
2	2.5	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.49	6.94	0.00	0.00	0.05	11.55	94.57
2.5	3	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.97	2.91	0.10	0.08	0.25	4.39	98.95
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.18	0.82	0.03	0.03	0.00	1.05	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.15	0.00	0.05	0.00	0.03	0.00	0.00	0.03	0.00	0.00	2.12	37.53	59.54	0.15	0.10	0.31		
Cumulative Total		0.15	0.15	0.20	0.20	0.23	0.23	0.23	0.25	0.25	0.25	2.37	39.90	99.44	99.59	99.69	100.00		

Swell

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.03	0.03
0.5	1	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.36	12.26	14.97	0.03	0.00	0.00	27.64	27.66
1	1.5	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.18	16.47	29.04	0.00	0.00	0.00	45.72	73.38
1.5	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	7.42	9.92	0.00	0.00	0.00	17.36	90.74
2	2.5	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.07	5.28	0.00	0.00	0.00	7.37	98.11
2.5	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.38	1.38	0.00	0.00	0.00	1.76	99.87
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.00	0.00	0.00	0.13	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.03	0.00	0.03	0.00	0.03	0.00	0.00	0.03	0.00	0.00	0.54	38.60	60.73	0.03	0.00	0.00		
Cumulative Total		0.03	0.03	0.05	0.05	0.08	0.08	0.08	0.10	0.10	0.10	0.64	39.24	99.97	100.00	100.00	100.00		

Sea

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.64	0.20	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	1.38	5.74	2.09	0.71	0.54	0.71	12.03	12.03
0.5	1	4.46	5.00	0.23	0.00	0.00	0.00	0.00	0.00	0.03	0.46	20.93	19.05	2.42	1.15	1.17	1.45	56.35	68.38
1	1.5	0.54	2.58	0.28	0.00	0.00	0.00	0.00	0.00	0.00	0.41	15.96	7.62	0.33	0.10	0.15	0.23	28.20	96.58
1.5	2	0.18	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.61	1.27	0.13	0.05	0.00	0.13	2.47	99.06
2	2.5	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.18	0.05	0.05	0.15	0.61	99.67
2.5	3	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.08	0.05	0.15	0.33	100.00
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		5.92	7.88	0.51	0.03	0.00	0.00	0.00	0.00	0.03	0.87	38.88	33.78	5.18	2.14	1.96	2.83		
Cumulative Total		5.92	13.79	14.30	14.33	14.33	14.33	14.33	14.33	14.35	15.22	54.11	87.89	93.06	95.21	97.17	100.00		

Spring - Hs (m)

Total

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.5	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.42	2.76	1.26	0.06	0.00	0.00	4.52	4.52
1	1.5	0.00	0.01	0.00	0.00	0.01	0.00	0.00	0.01	0.00	0.12	5.45	20.86	10.35	0.00	0.01	0.02	36.85	41.38
1.5	2	0.01	0.01	0.00	0.01	0.01	0.00	0.01	0.00	0.00	0.02	8.41	25.68	7.34	0.00	0.01	0.02	41.55	82.92
2	2.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.50	8.45	3.87	0.00	0.00	0.01	13.83	96.75
2.5	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	1.34	1.49	0.00	0.00	0.00	2.85	99.60
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.24	0.00	0.00	0.00	0.37	99.98
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.02	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.01	0.02	0.00	0.01	0.02	0.00	0.01	0.01	0.00	0.16	15.81	59.22	24.56	0.06	0.02	0.06		
Cumulative Total		0.01	0.04	0.04	0.05	0.07	0.07	0.09	0.10	0.10	0.26	16.07	75.29	99.85	99.91	99.94	100.00		

Swell

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	1.09	0.73	0.04	0.00	0.00	1.96	1.96
0.5	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01	4.34	28.28	11.57	0.01	0.00	0.01	44.24	46.20
1	1.5	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	2.22	26.03	8.67	0.00	0.00	0.02	36.98	83.17
1.5	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	7.86	4.20	0.00	0.00	0.01	12.14	95.32
2	2.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.03	1.86	0.00	0.00	0.00	3.89	99.21
2.5	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.48	0.30	0.00	0.00	0.00	0.78	99.99
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.01	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.01	0.00	0.01	6.73	65.77	27.35	0.05	0.00	0.05		
Cumulative Total		0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.04	0.04	0.05	6.78	72.55	99.90	99.95	99.95	100.00		

Sea

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.27	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.73	0.78	0.07	0.04	0.01	0.11	2.08	2.08
0.5	1	0.10	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.51	26.65	6.99	0.20	0.06	0.06	0.04	34.71	36.79
1	1.5	0.05	0.04	0.01	0.01	0.00	0.00	0.01	0.00	0.02	0.92	46.36	3.58	0.05	0.00	0.07	0.02	51.15	87.94
1.5	2	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.02	0.05	11.14	0.35	0.00	0.00	0.02	0.00	11.60	99.54
2	2.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.40	0.05	0.00	0.00	0.00	0.00	0.45	99.99
2.5	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.01	100.00
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.42	0.17	0.01	0.01	0.00	0.01	0.01	0.00	0.07	1.47	85.29	11.75	0.32	0.10	0.17	0.17		
Cumulative Total		0.42	0.59	0.61	0.62	0.62	0.63	0.64	0.64	0.72	2.19	87.48	99.23	99.55	99.65	99.83	100.00		

SEASONAL JFTS

Summer - Tp (s)

Total

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.02	0.02
4	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.21	0.26	0.00	0.00	0.00	0.00	2.47	2.49
6	8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	14.16	0.81	0.32	0.30	0.04	0.02	15.63	18.12
8	10	0.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	14.76	3.66	0.51	0.77	0.18	0.16	20.22	38.35
10	12	0.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.08	14.23	0.58	0.16	0.21	0.32	18.79	57.13
12	14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.07	19.03	2.70	0.00	0.00	0.00	21.82	78.95
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	11.01	4.05	0.00	0.00	0.00	15.07	94.02
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	2.12	1.61	0.00	0.00	0.00	3.75	97.77
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.32	1.70	0.00	0.00	0.00	2.02	99.79
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.21	0.00	0.00	0.00	0.21	100.00
Total		0.40	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.02	34.31	51.44	11.67	1.23	0.42	0.49		
Cumulative Total		0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.42	0.42	0.44	34.75	86.19	97.86	99.09	99.51	100.00		

Swell

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	10	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	17.77	5.73	0.86	0.49	0.16	0.11	25.36	25.36
10	12	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.65	18.73	0.72	0.16	0.26	0.32	24.06	49.42
12	14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02	22.85	3.36	0.00	0.00	0.00	26.25	75.67
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	12.58	5.50	0.00	0.00	0.00	18.10	93.78
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.19	1.74	0.00	0.00	0.00	3.93	97.70
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.32	1.75	0.02	0.00	0.00	2.09	99.79
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.21	0.00	0.00	0.00	0.21	100.00
Total		0.47	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.02	21.43	62.41	14.14	0.67	0.42	0.42		
Cumulative Total		0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.49	0.49	0.51	21.94	84.35	98.49	99.16	99.58	100.00		

Sea

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.02	0.02
2	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.05	0.49	0.05	0.07	0.00	0.00	0.00	0.70	0.72
4	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	13.30	1.66	0.04	0.00	0.00	0.00	15.07	15.79
6	8	0.02	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.02	0.05	38.10	2.61	0.67	0.75	0.28	0.02	42.53	58.32
8	10	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	32.16	6.68	0.75	0.88	0.70	0.32	41.68	100.00
10	12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
12	14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.18	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.05	0.21	84.07	11.01	1.52	1.63	0.98	0.33		
Cumulative Total		0.18	0.18	0.19	0.19	0.19	0.19	0.19	0.19	0.25	0.46	84.53	95.53	97.06	98.69	99.67	100.00		

Autumn - Tp (s)

Total

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	6	0.00	0.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.15	1.21	0.00	0.00	0.00	0.00	0.00	1.58	1.58
6	8	0.41	0.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.22	4.20	0.07	0.22	0.07	0.00	0.02	6.04	7.62
8	10	1.16	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.92	1.43	0.19	0.12	0.00	0.22	8.17	15.79
10	12	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.09	11.79	1.07	0.02	0.00	0.00	13.99	29.78
12	14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	31.63	2.21	0.00	0.00	0.00	33.93	63.72
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	25.10	4.83	0.00	0.00	0.00	29.93	93.65
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.13	2.33	0.00	0.00	0.00	5.46	99.10
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.80	0.00	0.00	0.00	0.90	100.00
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		1.58	1.16	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.36	11.52	73.25	11.64	0.22	0.00	0.24		
Cumulative Total		1.58	2.74	2.76	2.76	2.76	2.76	2.76	2.76	2.76	3.13	14.65	87.90	99.54	99.76	99.76	100.00		

Swell

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	10	1.58	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.63	1.96	0.29	0.24	0.10	0.56	10.38	10.38
10	12	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.19	12.90	1.16	0.02	0.00	0.02	15.33	25.71
12	14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	34.25	2.57	0.05	0.00	0.00	36.99	62.70
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	25.59	5.09	0.00	0.00	0.00	30.68	93.38
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.20	2.40	0.00	0.00	0.00	5.60	98.98
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.19	0.82	0.00	0.00	0.00	1.02	100.00
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		1.58	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.94	78.10	12.35	0.32	0.10	0.58		
Cumulative Total		1.58	1.60	1.63	1.63	1.63	1.63	1.63	1.63	1.63	1.63	8.56	86.66	99.01	99.32	99.42	100.00		

Sea

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.00	0.00	0.02	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.05
2	4	0.00	0.02	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.05	1.14	0.34	0.00	0.00	0.00	0.02	1.67	1.72
4	6	0.24	1.07	0.17	0.00	0.00	0.00	0.00	0.00	0.02	1.14	11.28	0.39	0.22	0.12	0.10	0.00	14.75	16.47
6	8	1.84	1.65	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.39	24.35	3.76	2.23	1.48	1.36	0.90	37.98	54.45
8	10	1.04	0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	28.74	9.31	4.22	1.33	0.27	0.44	45.55	100.00
10	12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
12	14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		3.13	2.89	0.32	0.00	0.00	0.02	0.00	0.00	0.02	1.63	65.51	13.80	6.67	2.93	1.72	1.36		
Cumulative Total		3.13	6.02	6.33	6.33	6.33	6.35	6.35	6.35	6.38	8.00	73.51	87.32	93.98	96.92	98.64	100.00		

SEASONAL JFTS

Winter - Tp (s)

Total

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	6	0.03	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.05
6	8	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.40	0.03	0.10	0.13	0.10	0.31	2.17	2.22
8	10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.66	0.43	0.08	0.00	0.00	0.00	1.17	3.39
10	12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	4.90	0.76	0.00	0.00	0.00	5.69	9.08
12	14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	13.87	8.49	0.00	0.00	0.00	22.39	31.46
14	16	0.03	0.00	0.03	0.00	0.03	0.00	0.00	0.03	0.00	0.00	0.00	15.86	31.57	0.00	0.00	0.00	47.53	78.99
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.17	11.96	0.00	0.00	0.00	14.13	93.12
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.28	6.55	0.03	0.00	0.00	6.86	99.97
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.03	100.00
Total		0.15	0.00	0.05	0.00	0.03	0.00	0.00	0.03	0.00	0.00	2.12	37.53	59.54	0.15	0.10	0.31		
Cumulative Total		0.15	0.15	0.20	0.20	0.23	0.23	0.23	0.25	0.25	0.25	2.37	39.90	99.44	99.59	99.69	100.00		

Swell

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.46	0.54	0.08	0.00	0.00	0.00	1.07	1.07
10	12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	4.97	0.76	0.00	0.00	0.00	5.79	6.86
12	14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	14.58	9.03	0.00	0.00	0.00	23.64	30.49
14	16	0.03	0.00	0.03	0.00	0.03	0.00	0.00	0.03	0.00	0.00	0.00	16.06	32.25	0.00	0.00	0.00	48.42	78.91
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.17	12.03	0.00	0.00	0.00	14.20	93.12
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.28	6.55	0.03	0.00	0.00	6.86	99.97
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.03	100.00
Total		0.03	0.00	0.03	0.00	0.03	0.00	0.00	0.03	0.00	0.00	0.54	38.60	60.73	0.03	0.00	0.00		
Cumulative Total		0.03	0.03	0.05	0.05	0.08	0.08	0.08	0.10	0.10	0.10	0.64	39.24	99.97	100.00	100.00	100.00		

Sea

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	4	0.56	0.10	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.79	0.03	0.00	0.05	0.00	0.20	1.84	1.84
4	6	1.38	3.37	0.43	0.03	0.00	0.00	0.00	0.00	0.00	0.51	5.76	1.30	0.46	0.13	0.38	0.51	14.25	16.09
6	8	3.85	4.36	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.31	18.05	7.32	2.22	1.35	1.35	2.04	40.87	56.96
8	10	0.13	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	14.28	25.14	2.50	0.61	0.23	0.08	43.04	100.00
10	12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
12	14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		5.92	7.88	0.51	0.03	0.00	0.00	0.00	0.00	0.03	0.87	38.88	33.78	5.18	2.14	1.96	2.83		
Cumulative Total		5.92	13.79	14.30	14.33	14.33	14.33	14.33	14.33	14.35	15.22	54.11	87.89	93.06	95.21	97.17	100.00		

Spring - Tp (s)

Total

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	4	0.01	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.04
4	6	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.04	1.87	0.01	0.00	0.00	0.00	0.00	1.93	1.97
6	8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11	6.34	0.30	0.01	0.01	0.01	0.00	6.79	8.76
8	10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.38	0.78	0.01	0.00	0.01	0.01	7.20	15.96
10	12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	10.51	0.76	0.00	0.00	0.00	12.27	28.23
12	14	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.16	23.94	5.12	0.00	0.00	0.02	29.26	57.48
14	16	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.01	0.00	0.01	0.04	19.07	11.25	0.05	0.00	0.02	30.48	87.97
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.90	4.25	0.00	0.00	0.00	8.15	96.12
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.71	3.06	0.00	0.00	0.00	3.78	99.90
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.10	100.00
Total		0.01	0.02	0.00	0.01	0.02	0.00	0.01	0.01	0.00	0.16	15.81	59.22	24.56	0.06	0.02	0.06		
Cumulative Total		0.01	0.04	0.04	0.05	0.07	0.07	0.09	0.10	0.10	0.26	16.07	75.29	99.85	99.91	99.94	100.00		

Swell

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.42	1.44	0.04	0.00	0.00	0.00	6.89	6.89
10	12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.18	13.35	1.16	0.00	0.00	0.00	15.69	22.58
12	14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11	26.10	6.16	0.00	0.00	0.02	32.39	54.97
14	16	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.01	0.00	0.01	0.00	19.88	11.95	0.05	0.00	0.02	31.95	86.91
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.20	4.41	0.00	0.00	0.00	8.61	95.53
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.82	3.51	0.00	0.00	0.00	4.35	99.88
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.00	0.00	0.00	0.12	100.00
Total		0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.01	0.00	0.01	6.73	65.77	27.35	0.05	0.00	0.05		
Cumulative Total		0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.04	0.04	0.05	6.78	72.55	99.90	99.95	99.95	100.00		

Sea

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.04	0.04
2	4	0.05	0.01	0.00	0.01	0.00	0.01	0.00	0.00	0.01	0.02	1.26	0.25	0.02	0.02	0.00	0.00	1.69	1.72
4	6	0.09	0.10	0.01	0.00	0.00	0.00	0.01	0.00	0.04	0.74	20.78	2.07	0.02	0.01	0.02	0.01	23.92	25.64
6	8	0.29	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.61	34.09	2.80	0.20	0.06	0.10	0.15	38.35	63.99
8	10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	29.14	6.63	0.07	0.00	0.05	0.01	36.01	100.00
10	12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
12	14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.42	0.17	0.01	0.01	0.00	0.01	0.01	0.00	0.07	1.47	85.29	11.75	0.32	0.10	0.17	0.17		
Cumulative Total		0.42	0.59	0.61	0.62	0.62	0.63	0.64	0.64	0.72	2.19	87.48	99.23	99.55	99.65	99.83	100.00		

SEASONAL JFTS

Summer - Hs vs Tp

Total

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.5	1	0.00	0.02	0.12	0.07	1.98	2.66	0.93	1.14	0.49	0.00	0.02	7.43	7.43
1	1.5	0.00	0.00	1.35	5.59	5.91	6.96	10.80	6.40	1.33	1.07	0.19	39.59	47.02
1.5	2	0.00	0.00	0.96	8.43	9.59	6.19	7.82	6.15	1.54	0.91	0.00	41.59	88.61
2	2.5	0.00	0.00	0.04	1.51	2.51	2.51	2.14	1.24	0.26	0.04	0.00	10.23	98.84
2.5	3	0.00	0.00	0.00	0.04	0.25	0.44	0.14	0.14	0.12	0.00	0.00	1.12	99.96
3	3.5	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.04	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.00	0.02	2.47	15.63	20.22	18.79	21.82	15.07	3.75	2.02	0.21		
Cumulative Total		0.00	0.02	2.49	18.12	38.35	57.13	78.95	94.02	97.77	99.79	100.00		

Swell

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	0.00	0.00	0.00	0.00	1.98	0.89	0.21	0.79	0.02	0.02	0.00	3.91	3.91
0.5	1	0.00	0.00	0.00	0.00	16.86	15.02	14.35	8.52	1.72	0.58	0.19	57.24	61.15
1	1.5	0.00	0.00	0.00	0.00	5.77	7.06	10.69	7.29	1.79	1.42	0.02	34.03	95.18
1.5	2	0.00	0.00	0.00	0.00	0.70	0.81	0.95	1.51	0.40	0.07	0.00	4.43	99.61
2	2.5	0.00	0.00	0.00	0.00	0.05	0.26	0.05	0.00	0.00	0.00	0.00	0.37	99.98
2.5	3	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.02	100.00
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.00	0.00	0.00	0.00	25.36	24.06	26.25	18.10	3.93	2.09	0.21		
Cumulative Total		0.00	0.00	0.00	0.00	25.36	49.42	75.67	93.78	97.70	99.79	100.00		

Sea

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	0.00	0.00	0.00	0.18	0.56	0.00	0.00	0.00	0.00	0.00	0.00	0.74	0.74
0.5	1	0.02	0.56	7.27	9.59	16.16	0.00	0.00	0.00	0.00	0.00	0.00	33.60	34.33
1	1.5	0.00	0.11	6.62	21.38	17.32	0.00	0.00	0.00	0.00	0.00	0.00	45.43	79.76
1.5	2	0.00	0.04	1.17	10.81	7.31	0.00	0.00	0.00	0.00	0.00	0.00	19.33	99.09
2	2.5	0.00	0.00	0.00	0.58	0.33	0.00	0.00	0.00	0.00	0.00	0.00	0.91	100.00
2.5	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.02	0.70	15.07	42.53	41.68	0.00	0.00	0.00	0.00	0.00	0.00		
Cumulative Total		0.02	0.72	15.79	58.32	100.00	100.00	100.00	100.00	100.00	100.00	100.00		

Autumn - Hs vs Tp

Total

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.5	1	0.00	0.00	0.10	0.46	0.82	3.35	8.05	3.30	0.51	0.36	0.00	16.95	16.95
1	1.5	0.00	0.00	1.07	3.25	4.90	7.96	13.95	12.44	2.60	0.32	0.00	46.47	63.42
1.5	2	0.00	0.00	0.39	1.55	1.24	2.26	10.60	10.67	1.72	0.17	0.00	28.60	92.02
2	2.5	0.00	0.00	0.02	0.44	0.34	0.10	1.19	2.96	0.56	0.05	0.00	5.65	97.67
2.5	3	0.00	0.00	0.00	0.32	0.80	0.07	0.02	0.10	0.02	0.00	0.00	1.33	99.01
3	3.5	0.00	0.00	0.00	0.02	0.07	0.24	0.12	0.27	0.05	0.00	0.00	0.78	99.78
3.5	4	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.17	0.00	0.00	0.00	0.19	99.98
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.02	100.00
Total		0.00	0.00	1.58	6.04	8.17	13.99	33.93	29.93	5.46	0.90	0.00		
Cumulative Total		0.00	0.00	1.58	7.62	15.79	29.78	63.72	93.65	99.10	100.00	100.00		

Swell

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	0.00	0.00	0.00	0.00	1.75	1.24	3.20	0.63	0.07	0.05	0.00	6.94	6.94
0.5	1	0.00	0.00	0.00	0.00	6.82	9.77	18.48	11.88	2.06	0.63	0.00	49.65	56.59
1	1.5	0.00	0.00	0.00	0.00	1.48	3.81	12.15	10.72	1.84	0.19	0.00	30.20	86.78
1.5	2	0.00	0.00	0.00	0.00	0.19	0.17	2.93	6.65	1.48	0.12	0.00	11.54	98.33
2	2.5	0.00	0.00	0.00	0.00	0.15	0.05	0.10	0.34	0.10	0.02	0.00	0.75	99.08
2.5	3	0.00	0.00	0.00	0.00	0.00	0.27	0.10	0.10	0.02	0.00	0.00	0.49	99.56
3	3.5	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.27	0.02	0.00	0.00	0.34	99.90
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.10	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.00	0.00	0.00	0.00	10.38	15.33	36.99	30.68	5.60	1.02	0.00		
Cumulative Total		0.00	0.00	0.00	0.00	10.38	25.71	62.70	93.38	98.98	100.00	100.00		

Sea

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	0.00	0.29	0.39	1.29	4.97	0.00	0.00	0.00	0.00	0.00	0.00	6.94	6.94
0.5	1	0.02	1.33	9.29	23.07	25.81	0.00	0.00	0.00	0.00	0.00	0.00	59.52	66.46
1	1.5	0.02	0.05	4.66	11.50	12.73	0.00	0.00	0.00	0.00	0.00	0.00	28.96	95.42
1.5	2	0.00	0.00	0.41	1.43	1.19	0.00	0.00	0.00	0.00	0.00	0.00	3.03	98.45
2	2.5	0.00	0.00	0.00	0.53	0.85	0.00	0.00	0.00	0.00	0.00	0.00	1.38	99.83
2.5	3	0.00	0.00	0.00	0.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.17	100.00
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.05	1.67	14.75	37.98	45.55	0.00	0.00	0.00	0.00	0.00	0.00		
Cumulative Total		0.05	1.72	16.47	54.45	100.00	100.00	100.00	100.00	100.00	100.00	100.00		

SEASONAL JFTS

Winter - Hs vs Tp

Total

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.5	1	0.00	0.00	0.00	0.00	0.03	1.43	2.80	2.68	1.07	0.38	0.00	8.39	8.39
1	1.5	0.00	0.00	0.00	0.25	0.13	3.09	10.10	16.24	4.03	1.78	0.00	35.62	44.01
1.5	2	0.00	0.00	0.03	1.20	0.87	0.71	7.29	20.58	5.58	2.73	0.03	39.01	83.02
2	2.5	0.00	0.00	0.03	0.08	0.00	0.05	1.61	6.12	2.68	0.99	0.00	11.55	94.57
2.5	3	0.00	0.00	0.00	0.59	0.13	0.23	0.36	1.50	0.69	0.89	0.00	4.39	98.95
3	3.5	0.00	0.00	0.00	0.05	0.03	0.18	0.23	0.41	0.08	0.08	0.00	1.05	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.00	0.00	0.05	2.17	1.17	5.69	22.39	47.53	14.13	6.86	0.03		
Cumulative Total		0.00	0.00	0.05	2.22	3.39	9.08	31.46	78.99	93.12	99.97	100.00		

Swell

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.03	0.03
0.5	1	0.00	0.00	0.00	0.00	0.43	3.77	9.36	10.25	2.65	1.17	0.00	27.64	27.66
1	1.5	0.00	0.00	0.00	0.00	0.46	1.48	10.63	23.66	6.17	3.29	0.03	45.72	73.38
1.5	2	0.00	0.00	0.00	0.00	0.15	0.13	2.70	10.28	3.21	0.89	0.00	17.36	90.74
2	2.5	0.00	0.00	0.00	0.00	0.03	0.23	0.66	3.44	2.01	0.99	0.00	7.37	98.11
2.5	3	0.00	0.00	0.00	0.00	0.00	0.18	0.23	0.71	0.13	0.51	0.00	1.76	99.87
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.08	0.03	0.00	0.00	0.13	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.00	0.00	0.00	0.00	1.07	5.79	23.64	48.42	14.20	6.86	0.03		
Cumulative Total		0.00	0.00	0.00	0.00	1.07	6.86	30.49	78.91	93.12	99.97	100.00		

Sea

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	0.00	0.41	0.87	3.37	7.39	0.00	0.00	0.00	0.00	0.00	0.00	12.03	12.03
0.5	1	0.00	1.40	7.93	21.62	25.40	0.00	0.00	0.00	0.00	0.00	0.00	56.35	68.38
1	1.5	0.00	0.00	5.20	13.64	9.36	0.00	0.00	0.00	0.00	0.00	0.00	28.20	96.58
1.5	2	0.00	0.03	0.25	1.53	0.66	0.00	0.00	0.00	0.00	0.00	0.00	2.47	99.06
2	2.5	0.00	0.00	0.00	0.38	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.61	99.67
2.5	3	0.00	0.00	0.00	0.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.33	100.00
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.00	1.84	14.25	40.87	43.04	0.00	0.00	0.00	0.00	0.00	0.00		
Cumulative Total		0.00	1.84	16.09	56.96	100.00	100.00	100.00	100.00	100.00	100.00	100.00		

Spring - Hs vs Tp

Total

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.5	1	0.00	0.00	0.04	0.17	0.32	1.14	1.59	0.89	0.25	0.12	0.00	4.52	4.52
1	1.5	0.00	0.01	0.90	2.43	2.28	5.89	13.07	9.44	1.36	1.45	0.01	36.85	41.38
1.5	2	0.00	0.02	0.99	3.69	3.57	4.75	12.64	12.17	2.74	0.89	0.09	41.55	82.92
2	2.5	0.00	0.00	0.00	0.50	1.02	0.47	1.88	6.67	2.23	1.07	0.00	13.83	96.75
2.5	3	0.00	0.00	0.00	0.00	0.01	0.02	0.07	1.18	1.36	0.20	0.00	2.85	99.60
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.20	0.05	0.00	0.37	99.98
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.02	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.00	0.04	1.93	6.79	7.20	12.27	29.26	30.48	8.15	3.78	0.10		
Cumulative Total		0.00	0.04	1.97	8.76	15.96	28.23	57.48	87.97	96.12	99.90	100.00		

Swell

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	0.00	0.00	0.00	0.00	0.19	0.73	0.61	0.37	0.02	0.04	0.00	1.96	1.96
0.5	1	0.00	0.00	0.00	0.00	4.46	10.81	16.70	8.64	1.71	1.90	0.02	44.24	46.20
1	1.5	0.00	0.00	0.00	0.00	2.21	3.72	13.38	14.04	2.61	0.93	0.09	36.98	83.17
1.5	2	0.00	0.00	0.00	0.00	0.04	0.43	1.61	6.68	2.48	0.89	0.01	12.14	95.32
2	2.5	0.00	0.00	0.00	0.00	0.00	0.00	0.07	1.95	1.39	0.48	0.00	3.89	99.21
2.5	3	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.27	0.38	0.11	0.00	0.78	99.99
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.01	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.00	0.00	0.00	0.00	6.89	15.69	32.39	31.95	8.61	4.35	0.12		
Cumulative Total		0.00	0.00	0.00	0.00	6.89	22.58	54.97	86.91	95.53	99.88	100.00		

Sea

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	0.00	0.05	0.22	0.83	0.98	0.00	0.00	0.00	0.00	0.00	0.00	2.08	2.08
0.5	1	0.01	1.30	9.27	9.86	14.26	0.00	0.00	0.00	0.00	0.00	0.00	34.71	36.79
1	1.5	0.00	0.29	13.21	20.86	16.80	0.00	0.00	0.00	0.00	0.00	0.00	51.15	87.94
1.5	2	0.02	0.05	1.21	6.56	3.75	0.00	0.00	0.00	0.00	0.00	0.00	11.60	99.54
2	2.5	0.00	0.00	0.00	0.25	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.45	99.99
2.5	3	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01	100.00
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.04	1.69	23.92	38.35	36.01	0.00	0.00	0.00	0.00	0.00	0.00		
Cumulative Total		0.04	1.72	25.64	63.99	100.00	100.00	100.00	100.00	100.00	100.00	100.00		

Appendix B Calibrated WWIII Hindcast Wave Joint Frequency Tables

OVERALL JFTS

Hs (m)

Total

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.05	0.00	0.00	0.00	0.00	0.06	0.06
0.5	1	0.08	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.01	0.04	2.32	13.32	1.41	0.40	0.20	0.10	17.93	17.99
1	1.5	0.26	0.10	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01	8.28	35.24	2.62	0.86	0.52	0.36	48.28	66.27
1.5	2	0.19	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.78	18.16	1.14	0.46	0.29	0.20	25.30	91.57
2	2.5	0.08	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.75	4.96	0.29	0.11	0.12	0.10	6.43	98.00
2.5	3	0.04	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	1.13	0.10	0.04	0.06	0.04	1.49	99.49
3	3.5	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.22	0.04	0.02	0.02	0.02	0.33	99.82
3.5	4	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.02	0.02	0.02	0.08	99.90
4	4.5	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.02	0.05	99.96
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.02	99.98
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	99.99
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	99.99
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	99.99
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.68	0.23	0.02	0.01	0.00	0.00	0.00	0.00	0.01	0.05	16.21	73.09	5.61	1.92	1.25	0.90		
Cumulative Total		0.68	0.92	0.94	0.95	0.95	0.95	0.95	0.96	0.96	1.01	17.22	90.32	95.93	97.85	99.10	100.00		

Swell

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.04	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23	2.89	0.15	0.26	0.84	0.11	4.57	4.57
0.5	1	0.03	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.29	29.52	0.31	0.20	0.38	0.07	34.92	39.49
1	1.5	0.09	0.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.71	33.89	0.37	0.11	0.41	0.16	39.93	79.42
1.5	2	0.08	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.33	12.98	0.14	0.05	0.19	0.13	14.93	94.36
2	2.5	0.05	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	3.88	0.06	0.02	0.05	0.07	4.22	98.57
2.5	3	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.02	0.01	0.02	0.04	1.12	99.69
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.20	0.01	0.01	0.01	0.00	0.23	99.93
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.01	0.01	0.04	99.96
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	99.98
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	99.99
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	99.99
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.32	0.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.64	84.38	1.06	0.66	1.90	0.63		
Cumulative Total		0.32	0.73	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	11.38	95.75	96.81	97.47	99.37	100.00		

Sea

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.90	1.91	1.10	0.83	1.79	2.25	3.68	5.44	3.51	0.74	3.33	2.57	1.07	0.41	0.38	0.46	30.37	30.37
0.5	1	0.64	2.60	0.91	0.29	0.30	0.30	0.44	0.83	0.41	0.33	13.81	8.96	1.29	0.27	0.20	0.24	31.81	62.18
1	1.5	0.30	1.14	0.11	0.01	0.01	0.00	0.00	0.00	0.00	0.02	16.44	6.37	0.31	0.13	0.07	0.11	25.01	87.19
1.5	2	0.12	0.32	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.81	2.70	0.08	0.04	0.04	0.04	10.18	97.37
2	2.5	0.08	0.07	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.06	0.60	0.05	0.03	0.04	0.03	1.96	99.33
2.5	3	0.01	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.12	0.04	0.02	0.03	0.02	0.38	99.71
3	3.5	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.01	0.02	0.02	0.11	99.82
3.5	4	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.02	0.02	0.08	99.89
4	4.5	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.02	0.06	99.95
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.02	99.97
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	99.98
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	99.99
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	99.99
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	99.99
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	100.00
Total		2.09	6.08	2.14	1.12	2.10	2.55	4.12	6.27	3.92	1.10	41.58	21.33	2.88	0.94	0.80	0.99		
Cumulative Total		2.09	8.17	10.31	11.43	13.54	16.09	20.20	26.48	30.39	31.49	73.07	94.40	97.28	98.21	99.01	100.00		

OVERALL JFTS

Tp (s)

Total

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.01	0.01
4	6	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.16	0.02	0.01	0.02	0.02	0.34	0.35
6	8	0.11	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.20	0.38	0.12	0.14	0.12	0.10	2.24	2.59
8	10	0.13	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.94	1.14	0.36	0.35	0.29	0.15	4.42	7.01
10	12	0.07	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01	2.85	7.68	0.57	0.22	0.17	0.11	11.69	18.70
12	14	0.13	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	5.17	21.24	1.36	0.38	0.23	0.22	28.79	47.49
14	16	0.17	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	3.93	29.49	2.03	0.52	0.27	0.22	36.69	84.17
16	18	0.04	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.83	10.28	0.86	0.23	0.11	0.05	12.43	96.60
18	20	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.17	2.25	0.25	0.07	0.03	0.02	2.82	99.42
>20		0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.47	0.05	0.01	0.01	0.01	0.58	100.00
Total		0.68	0.23	0.02	0.01	0.00	0.00	0.00	0.00	0.01	0.05	16.21	73.09	5.61	1.92	1.25	0.90		
Cumulative Total		0.68	0.92	0.94	0.95	0.95	0.95	0.95	0.96	0.96	1.01	17.22	90.32	95.93	97.85	99.10	100.00		

Swell

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	6	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.04	0.01	0.01	0.01	0.02	0.13	0.13
6	8	0.10	0.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.01	0.23	0.04	0.06	0.35	0.16	2.15	2.28
8	10	0.12	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.78	0.58	0.05	0.37	1.14	0.28	5.49	7.77
10	12	0.05	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.39	8.56	0.13	0.15	0.34	0.12	14.77	22.54
12	14	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.20	27.35	0.17	0.06	0.05	0.04	28.91	51.45
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23	34.77	0.18	0.01	0.01	0.01	35.21	86.66
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	10.61	0.23	0.00	0.00	0.00	10.85	97.51
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.91	0.16	0.00	0.00	0.00	2.07	99.58
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.33	0.09	0.00	0.00	0.00	0.42	100.00
Total		0.32	0.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.64	84.38	1.06	0.66	1.90	0.63		
Cumulative Total		0.32	0.73	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	11.38	95.75	96.81	97.47	99.37	100.00		

Sea

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.09	0.05	0.06	0.13	0.16	0.15	0.24	0.40	0.32	0.10	0.10	0.10	0.08	0.06	0.07	0.08	2.20	2.20
2	4	0.84	1.14	0.65	0.83	1.91	2.38	3.88	5.87	3.56	0.60	3.40	4.30	1.44	0.44	0.35	0.46	32.06	34.26
4	6	0.73	2.46	0.84	0.06	0.01	0.00	0.00	0.00	0.02	0.31	10.22	6.47	1.02	0.25	0.20	0.23	22.83	57.09
6	8	0.30	2.11	0.48	0.07	0.02	0.01	0.00	0.00	0.01	0.08	15.68	2.28	0.24	0.14	0.09	0.10	21.61	78.70
8	10	0.10	0.30	0.11	0.02	0.00	0.00	0.00	0.00	0.00	0.00	8.10	1.62	0.05	0.03	0.07	0.07	10.49	89.19
10	12	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.31	3.58	0.02	0.01	0.02	0.04	7.01	96.20
12	14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.65	2.10	0.01	0.00	0.00	0.01	2.77	98.98
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.81	0.00	0.00	0.00	0.00	0.94	99.92
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.06	0.00	0.00	0.00	0.00	0.07	99.99
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.01	100.00
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		2.09	6.08	2.14	1.12	2.10	2.55	4.12	6.27	3.92	1.10	41.58	21.33	2.88	0.94	0.80	0.99		
Cumulative Total		2.09	8.17	10.31	11.43	13.54	16.09	20.20	26.48	30.39	31.49	73.07	94.40	97.28	98.21	99.01	100.00		

OVERALL JFTS

Hs vs Tp

Total

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	0.00	0.00	0.00	0.00	0.00	0.03	0.01	0.01	0.00	0.00	0.00	0.06	0.06
0.5	1	0.00	0.00	0.03	0.13	0.37	3.39	7.24	4.77	1.46	0.42	0.11	17.93	17.98
1	1.5	0.00	0.00	0.20	0.90	1.70	5.73	15.52	17.91	4.83	1.20	0.30	48.28	66.27
1.5	2	0.00	0.00	0.10	0.89	1.64	2.01	5.30	10.80	3.69	0.74	0.13	25.30	91.57
2	2.5	0.00	0.00	0.01	0.25	0.49	0.35	0.61	2.68	1.72	0.30	0.03	6.43	98.00
2.5	3	0.00	0.00	0.00	0.05	0.12	0.10	0.06	0.40	0.63	0.12	0.01	1.49	99.49
3	3.5	0.00	0.00	0.00	0.01	0.04	0.02	0.02	0.09	0.10	0.04	0.00	0.33	99.82
3.5	4	0.00	0.00	0.00	0.01	0.03	0.02	0.01	0.01	0.00	0.00	0.00	0.08	99.90
4	4.5	0.00	0.00	0.00	0.00	0.02	0.03	0.01	0.00	0.00	0.00	0.00	0.05	99.96
4.5	5	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.02	99.98
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	99.98
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	99.99
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	99.99
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.00	0.01	0.34	2.24	4.42	11.69	28.79	36.69	12.43	2.82	0.58		
Cumulative Total		0.00	0.01	0.35	2.59	7.01	18.70	47.49	84.17	96.60	99.42	100.00		

Swell

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	0.00	0.00	0.02	0.31	0.79	0.71	0.78	0.72	0.78	0.31	0.15	4.57	4.57
0.5	1	0.00	0.00	0.07	0.62	1.03	7.60	14.35	8.92	1.88	0.38	0.08	34.92	39.49
1	1.5	0.00	0.00	0.04	1.07	2.44	4.82	11.26	16.10	3.47	0.62	0.10	39.93	79.42
1.5	2	0.00	0.00	0.00	0.13	1.05	1.33	2.14	7.19	2.65	0.39	0.06	14.93	94.36
2	2.5	0.00	0.00	0.00	0.02	0.14	0.22	0.31	1.86	1.42	0.23	0.02	4.22	98.57
2.5	3	0.00	0.00	0.00	0.00	0.03	0.06	0.04	0.31	0.56	0.11	0.01	1.12	99.69
3	3.5	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.09	0.08	0.03	0.00	0.23	99.93
3.5	4	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.04	99.96
4	4.5	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.02	99.98
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.01	99.99
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	99.99
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.00	0.00	0.13	2.15	5.49	14.77	28.91	35.21	10.85	2.07	0.42		
Cumulative Total		0.00	0.00	0.13	2.28	7.77	22.54	51.45	86.66	97.51	99.58	100.00		

Sea

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	2.20	24.21	2.98	0.82	0.15	0.01	0.00	0.00	0.00	0.00	0.00	30.37	30.37
0.5	1	0.00	7.82	14.81	6.74	1.41	0.89	0.13	0.00	0.00	0.00	0.00	31.81	62.18
1	1.5	0.00	0.03	4.74	10.46	4.57	3.80	1.22	0.19	0.00	0.00	0.00	25.01	87.19
1.5	2	0.00	0.00	0.30	3.05	3.32	1.82	1.18	0.48	0.03	0.00	0.00	10.18	97.37
2	2.5	0.00	0.00	0.01	0.43	0.73	0.33	0.21	0.21	0.03	0.00	0.00	1.96	99.33
2.5	3	0.00	0.00	0.00	0.07	0.17	0.06	0.02	0.05	0.01	0.00	0.00	0.38	99.71
3	3.5	0.00	0.00	0.00	0.03	0.05	0.01	0.01	0.00	0.00	0.00	0.00	0.11	99.82
3.5	4	0.00	0.00	0.00	0.00	0.05	0.02	0.00	0.00	0.00	0.00	0.00	0.08	99.89
4	4.5	0.00	0.00	0.00	0.00	0.02	0.03	0.00	0.00	0.00	0.00	0.00	0.06	99.95
4.5	5	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.02	99.97
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	99.98
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	99.99
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	99.99
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	99.99
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	100.00
Total		2.20	32.06	22.83	21.61	10.49	7.01	2.77	0.94	0.07	0.01	0.00		
Cumulative Total		2.20	34.26	57.09	78.70	89.19	96.20	98.98	99.92	99.99	100.00	100.00		

SEASONAL JFTS

Summer - Hs (m)

Total

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.02	0.02
0.5	1	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.23	15.28	1.22	0.27	0.08	0.01	18.10	18.12
1	1.5	0.07	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.73	37.42	2.83	1.07	0.58	0.24	50.97	69.09
1.5	2	0.12	0.04	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	8.41	13.86	1.08	0.55	0.44	0.22	24.73	93.82
2	2.5	0.13	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.82	1.77	0.27	0.18	0.28	0.19	4.65	98.47
2.5	3	0.06	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.19	0.04	0.07	0.17	0.11	0.89	99.36
3	3.5	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.02	0.04	0.05	0.04	0.19	99.56
3.5	4	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.06	0.05	0.16	99.72
4	4.5	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.04	0.08	0.14	99.86
4.5	5	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.04	0.06	99.92
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.03	99.95
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	99.96
6	6.5	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	99.97
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	99.98
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	100.00
Total		0.47	0.10	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.01	20.45	68.54	5.48	2.20	1.70	1.02		
Cumulative Total		0.47	0.56	0.58	0.59	0.59	0.60	0.60	0.60	0.60	0.61	21.06	89.60	95.08	97.28	98.98	100.00		

Swell

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.14	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.51	6.77	0.32	0.78	2.22	0.39	11.26	11.26
0.5	1	0.01	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.66	37.17	0.53	0.61	1.11	0.18	46.32	57.58
1	1.5	0.13	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.60	23.16	0.51	0.25	1.04	0.46	33.23	90.81
1.5	2	0.14	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.64	3.66	0.22	0.08	0.44	0.35	7.56	98.38
2	2.5	0.11	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.29	0.09	0.03	0.13	0.26	1.06	99.44
2.5	3	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.03	0.00	0.05	0.15	0.33	99.77
3	3.5	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.05	99.82
3.5	4	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.04	0.07	99.88
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.04	0.06	99.94
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.03	99.97
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02	99.99
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	99.99
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	99.99
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.62	0.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	17.55	71.08	1.70	1.76	5.04	1.94		
Cumulative Total		0.62	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	18.47	89.55	91.25	93.02	98.06	100.00		

Sea

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.66	0.61	0.38	0.23	0.47	0.47	0.53	0.90	1.19	0.23	1.10	2.08	1.41	0.42	0.37	0.62	11.67	11.67
0.5	1	0.24	0.35	0.12	0.03	0.07	0.05	0.04	0.07	0.08	0.03	11.45	14.95	2.30	0.27	0.19	0.21	30.47	42.14
1	1.5	0.14	0.19	0.03	0.01	0.02	0.01	0.00	0.00	0.00	0.00	21.44	12.24	0.46	0.11	0.04	0.03	34.72	76.86
1.5	2	0.16	0.15	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.68	4.76	0.15	0.07	0.03	0.04	18.05	94.91
2	2.5	0.14	0.04	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.64	0.84	0.04	0.05	0.03	0.03	3.82	98.73
2.5	3	0.02	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.38	0.17	0.01	0.02	0.03	0.04	0.72	99.45
3	3.5	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.01	0.02	0.04	0.16	99.61
3.5	4	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.05	0.05	0.16	99.77
4	4.5	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.07	0.10	99.87
4.5	5	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.03	0.05	99.92
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01	99.94
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	99.95
6	6.5	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	99.97
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	99.98
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.02	100.00
Total		1.48	1.39	0.56	0.27	0.57	0.53	0.58	0.96	1.27	0.26	49.70	35.05	4.42	0.96	0.80	1.21		
Cumulative Total		1.48	2.86	3.42	3.69	4.26	4.79	5.37	6.33	7.60	7.86	57.56	92.61	97.03	98.00	98.79	100.00		

Autumn - Hs (m)

Total

		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin	Hsmax	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.15	0.00	0.00	0.00	0.00	0.18	0.18
0.5	1	0.21	0.08	0.01	0.00	0.00	0.00	0.01	0.01	0.01	0.06	5.58	22.20	2.61	0.80	0.44	0.23	32.26	32.44
1	1.5	0.43	0.23	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.01	11.54	31.55	3.01	1.10	0.79	0.58	49.25	81.69
1.5	2	0.28	0.13	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.79	9.55	0.87	0.55	0.35	0.28	14.81	96.49
2	2.5	0.11	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	1.77	0.13	0.07	0.09	0.13	2.51	99.00
2.5	3	0.04	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.38	0.06	0.03	0.04	0.04	0.61	99.61
3	3.5	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.02	0.03	0.03	0.02	0.20	99.81
3.5	4	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.03	0.02	0.01	0.11	99.91
4	4.5	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.05	99.97
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.02	99.98
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.01	99.99
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	99.99
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		1.13	0.52	0.04	0.00	0.00	0.00	0.01	0.01	0.01	0.08	20.07	65.69	6.73	2.63	1.76	1.32		
Cumulative Total		1.13	1.65	1.69	1.69	1.69	1.69	1.70	1.71	1.72	1.80	21.87	87.56	94.29	96.92	98.68	100.00		

Swell

		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin	Hsmax	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.02	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.30	1.90	0.03	0.03	0.14	0.03	2.48	2.48
0.5	1	0.08	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.15	38.21	0.30	0.18	0.33	0.11	46.61	49.09
1	1.5	0.21	0.37	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.96	31.17	0.36	0.20	0.54	0.20	39.00	88.09
1.5	2	0.17	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.79	7.83	0.12	0.10	0.29	0.16	9.58	97.67
2	2.5	0.09	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	1.45	0.04	0.04	0.05	0.03	1.75	99.42
2.5	3	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.32	0.01	0.03	0.02	0.02	0.41	99.83
3	3.5	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.01	0.01	0.01	0.11	99.94
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.02	0.02	0.00	0.05	99.98
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	99.99
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	99.99
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	99.99
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	99.99
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.60	0.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	14.23	80.96	0.87	0.60	1.39	0.57		
Cumulative Total		0.60	1.38	1.38	1.38	1.38	1.38	1.38	1.38	1.38	1.38	15.61	96.56	97.44	98.04	99.43	100.00		

Sea

		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin	Hsmax	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	1.58	3.23	1.79	1.35	2.73	2.85	4.32	7.22	5.85	1.20	6.47	3.74	1.14	0.62	0.67	0.58	45.34	45.34
0.5	1	0.75	3.35	1.16	0.40	0.32	0.28	0.34	0.58	0.40	0.42	18.22	5.29	0.79	0.18	0.23	0.21	32.94	78.28
1	1.5	0.37	1.24	0.18	0.01	0.01	0.00	0.00	0.00	0.00	0.05	11.98	2.10	0.18	0.12	0.08	0.22	16.55	94.83
1.5	2	0.13	0.40	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.02	2.39	0.60	0.04	0.06	0.06	0.05	3.80	98.63
2	2.5	0.09	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.16	0.04	0.04	0.11	0.03	0.69	99.33
2.5	3	0.01	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.07	0.08	0.02	0.06	0.02	0.30	99.63
3	3.5	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.02	0.04	0.03	0.14	99.77
3.5	4	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.03	0.10	99.87
4	4.5	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.01	0.00	0.01	0.08	99.95
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.04	99.99
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.01	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		3.00	8.35	3.19	1.77	3.07	3.13	4.66	7.81	6.26	1.69	39.20	11.97	2.33	1.12	1.27	1.18		
Cumulative Total		3.00	11.34	14.53	16.30	19.37	22.50	27.16	34.97	41.23	42.92	82.12	94.10	96.43	97.55	98.82	100.00		

SEASONAL JFTS

Winter - Hs (m)

Total

Hsmin	Hsmax	0 N	22.5 NNE	45 NE	67.5 ENE	90 E	112.5 ESE	135 SE	157.5 SSE	180 S	202.5 SSW	225 SW	247.5 WSW	270 W	292.5 WNW	315 NW	337.5 NNW	Total	Cumulative
0	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.5	1	0.07	0.02	0.01	0.01	0.00	0.00	0.00	0.00	0.01	0.08	1.30	6.34	1.25	0.43	0.25	0.15	9.92	9.92
1	1.5	0.54	0.16	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.01	4.73	34.83	4.02	1.16	0.64	0.57	46.68	56.60
1.5	2	0.35	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.92	24.08	2.43	0.70	0.38	0.29	29.23	85.83
2	2.5	0.07	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	9.25	0.74	0.19	0.09	0.09	10.50	96.33
2.5	3	0.06	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.52	0.24	0.05	0.04	0.03	2.94	99.27
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.52	0.10	0.02	0.01	0.00	0.65	99.92
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.01	0.02	0.00	0.01	0.05	99.97
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.00	0.03	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		1.09	0.30	0.02	0.02	0.00	0.00	0.00	0.00	0.01	0.09	6.98	77.57	8.77	2.58	1.42	1.13		
Cumulative Total		1.09	1.39	1.42	1.44	1.44	1.44	1.44	1.45	1.46	1.55	8.53	86.10	94.87	97.45	98.87	100.00		

Swell

Hsmin	Hsmax	0 N	22.5 NNE	45 NE	67.5 ENE	90 E	112.5 ESE	135 SE	157.5 SSE	180 S	202.5 SSW	225 SW	247.5 WSW	270 W	292.5 WNW	315 NW	337.5 NNW	Total	Cumulative
0	0.5	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.17	0.01	0.03	0.07	0.00	0.31	0.31
0.5	1	0.01	0.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.09	14.60	0.19	0.01	0.00	0.00	16.07	16.37
1	1.5	0.02	0.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.16	44.43	0.50	0.00	0.01	0.00	46.39	62.77
1.5	2	0.01	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.26	24.36	0.18	0.01	0.02	0.00	24.88	87.65
2	2.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	9.12	0.08	0.00	0.01	0.01	9.24	96.88
2.5	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.49	0.05	0.00	0.01	0.00	2.55	99.43
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.50	0.03	0.01	0.00	0.00	0.54	99.97
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.02	99.99
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.01	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.04	0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.53	95.69	1.04	0.07	0.12	0.02		
Cumulative Total		0.04	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	3.06	98.76	99.79	99.86	99.98	100.00		

Sea

Hsmin	Hsmax	0 N	22.5 NNE	45 NE	67.5 ENE	90 E	112.5 ESE	135 SE	157.5 SSE	180 S	202.5 SSW	225 SW	247.5 WSW	270 W	292.5 WNW	315 NW	337.5 NNW	Total	Cumulative
0	0.5	0.79	3.80	2.42	1.96	4.73	6.32	10.67	13.19	4.86	1.52	4.09	0.99	0.32	0.24	0.23	0.25	56.37	56.37
0.5	1	1.52	7.93	2.77	0.79	0.91	0.96	1.39	2.48	0.71	0.89	7.59	1.17	0.37	0.35	0.34	0.58	30.74	87.10
1	1.5	0.86	3.91	0.29	0.01	0.00	0.00	0.00	0.00	0.00	0.02	2.48	0.85	0.28	0.24	0.18	0.26	9.38	96.49
1.5	2	0.19	0.93	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.20	0.52	0.13	0.04	0.08	0.09	2.20	98.69
2	2.5	0.07	0.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.30	0.11	0.05	0.04	0.06	0.86	99.55
2.5	3	0.02	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.12	0.03	0.01	0.02	0.02	0.26	99.81
3	3.5	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.03	0.01	0.00	0.00	0.11	99.92
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.02	0.00	0.00	0.04	99.96
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.02	0.00	0.00	0.04	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		3.46	16.83	5.50	2.76	5.64	7.27	12.06	15.68	5.57	2.42	14.38	4.03	1.28	0.98	0.89	1.26		
Cumulative Total		3.46	20.29	25.79	28.55	34.18	41.45	53.51	69.19	74.76	77.18	91.56	95.59	96.87	97.85	98.74	100.00		

Spring - Hs (m)

Total

Hsmin	Hsmax	0 N	22.5 NNE	45 NE	67.5 ENE	90 E	112.5 ESE	135 SE	157.5 SSE	180 S	202.5 SSW	225 SW	247.5 WSW	270 W	292.5 WNW	315 NW	337.5 NNW	Total	Cumulative
0	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.04	0.04
0.5	1	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.14	9.44	0.55	0.10	0.04	0.03	11.36	11.40
1	1.5	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	8.14	37.18	0.61	0.12	0.08	0.06	46.22	57.61
1.5	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.05	25.23	0.18	0.03	0.01	0.01	32.51	90.12
2	2.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	7.06	0.03	0.00	0.00	0.00	8.09	98.21
2.5	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	1.42	0.05	0.00	0.00	0.00	1.51	99.72
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.01	0.00	0.00	0.00	0.26	99.98
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.02	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.04	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01	17.37	80.63	1.43	0.26	0.13	0.10		
Cumulative Total		0.04	0.05	0.06	0.06	0.07	0.07	0.07	0.07	0.07	0.08	17.45	98.08	99.51	99.77	99.90	100.00		

Swell

Hsmin	Hsmax	0 N	22.5 NNE	45 NE	67.5 ENE	90 E	112.5 ESE	135 SE	157.5 SSE	180 S	202.5 SSW	225 SW	247.5 WSW	270 W	292.5 WNW	315 NW	337.5 NNW	Total	Cumulative
0	0.5	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	2.88	0.26	0.21	1.01	0.01	4.51	4.51
0.5	1	0.01	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.29	28.43	0.20	0.01	0.08	0.00	31.08	35.58
1	1.5	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.25	36.42	0.11	0.00	0.05	0.00	40.84	76.42
1.5	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.68	15.75	0.03	0.01	0.01	0.00	17.48	93.90
2	2.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.15	4.53	0.01	0.00	0.00	0.00	4.69	98.59
2.5	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.15	0.02	0.00	0.00	0.00	1.17	99.76
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23	0.00	0.00	0.00	0.00	0.23	99.99
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.01	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.02	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.48	89.40	0.63	0.23	1.15	0.01		
Cumulative Total		0.02	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	8.58	97.97	98.60	98.84	99.99	100.00		

Sea

Hsmin	Hsmax	0 N	22.5 NNE	45 NE	67.5 ENE	90 E	112.5 ESE	135 SE	157.5 SSE	180 S	202.5 SSW	225 SW	247.5 WSW	270 W	292.5 WNW	315 NW	337.5 NNW	Total	Cumulative
0	0.5	0.69	0.87	0.34	0.22	0.33	0.72	1.46	3.25	3.11	0.35	2.63	3.27	1.18	0.36	0.26	0.35	19.39	19.39
0.5	1	0.33	0.55	0.21	0.11	0.08	0.09	0.25	0.65	0.54	0.18	17.24	11.17	1.30	0.28	0.06	0.05	33.10	52.49
1	1.5	0.01	0.05	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.02	24.80	7.56	0.26	0.06	0.02	0.00	32.79	85.29
1.5	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.93	3.77	0.01	0.01	0.01	0.00	12.72	98.01
2	2.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.86	0.90	0.02	0.00	0.00	0.00	1.79	99.80
2.5	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.10	0.04	0.01	0.00	0.00	0.17	99.97
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.02	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		1.03	1.47	0.56	0.33	0.41	0.81	1.71	3.90	3.65	0.55	54.49	26.78	2.82	0.73	0.35	0.40		
Cumulative Total		1.03	2.50	3.06	3.39	3.81	4.62	6.33	10.24	13.88	14.43	68.91	95.69	98.51	99.25	99.60	100.00		

SEASONAL JFTS

Summer - Tp (s)

Total

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.01	0.00	0.00	0.00	0.03	0.03
4	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.21	0.50	0.05	0.00	0.01	0.03	0.81	0.84
6	8	0.07	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.77	1.09	0.23	0.31	0.28	0.21	4.99	5.83
8	10	0.23	0.04	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	4.92	3.21	0.93	0.86	0.70	0.29	11.20	17.03
10	12	0.11	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.82	17.16	1.20	0.47	0.49	0.27	24.55	41.58
12	14	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.72	23.76	1.41	0.23	0.16	0.16	30.47	72.06
14	16	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.46	16.99	1.16	0.23	0.03	0.06	20.99	93.04
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.44	4.74	0.39	0.08	0.03	0.00	5.68	98.72
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.90	0.08	0.01	0.00	0.00	1.08	99.81
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.16	0.01	0.00	0.00	0.00	0.19	100.00
Total		0.47	0.10	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.01	20.45	68.54	5.48	2.20	1.70	1.02		
Cumulative Total		0.47	0.56	0.58	0.59	0.59	0.60	0.60	0.60	0.60	0.61	21.06	89.60	95.08	97.28	98.97	100.00		

Swell

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	6	0.01	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.12	0.03	0.01	0.01	0.04	0.26	0.27
6	8	0.19	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.73	0.57	0.08	0.14	1.08	0.45	4.34	4.61
8	10	0.21	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.25	1.23	0.10	1.04	2.97	0.88	11.78	16.39
10	12	0.12	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.40	15.73	0.38	0.47	0.88	0.44	27.49	43.88
12	14	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.01	27.93	0.39	0.10	0.09	0.12	29.72	73.60
14	16	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11	18.98	0.34	0.01	0.01	0.02	19.47	93.08
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	5.14	0.23	0.01	0.00	0.00	5.39	98.46
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.10	0.11	0.00	0.00	0.00	1.21	99.68
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.28	0.05	0.00	0.00	0.00	0.32	100.00
Total		0.62	0.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	17.55	71.08	1.70	1.76	5.04	1.94		
Cumulative Total		0.62	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	18.47	89.55	91.25	93.02	98.06	100.00		

Sea

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.09	0.05	0.04	0.08	0.08	0.07	0.09	0.16	0.12	0.07	0.04	0.04	0.07	0.06	0.07	0.12	1.24	1.24
2	4	0.58	0.54	0.27	0.18	0.49	0.46	0.49	0.80	1.14	0.18	0.99	4.51	2.12	0.44	0.31	0.55	14.05	15.29
4	6	0.27	0.36	0.17	0.01	0.00	0.00	0.00	0.00	0.00	0.01	8.39	11.15	1.74	0.21	0.15	0.12	22.58	37.87
6	8	0.30	0.28	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	18.89	4.37	0.38	0.24	0.10	0.12	24.74	62.61
8	10	0.18	0.15	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	14.74	3.40	0.05	0.01	0.11	0.17	18.83	81.45
10	12	0.06	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.48	7.40	0.03	0.01	0.04	0.11	13.16	94.61
12	14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.98	3.26	0.02	0.00	0.00	0.02	4.28	98.89
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.17	0.85	0.00	0.00	0.00	0.00	1.03	99.92
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.06	0.00	0.00	0.00	0.00	0.08	100.00
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		1.48	1.39	0.56	0.27	0.57	0.53	0.58	0.96	1.27	0.26	49.70	35.05	4.42	0.96	0.80	1.21		
Cumulative Total		1.48	2.86	3.42	3.69	4.26	4.79	5.37	6.33	7.60	7.86	57.56	92.61	97.03	98.00	98.79	100.00		

Autumn - Tp (s)

Total

		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min	Tp Max	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	6	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.07	0.03	0.03	0.07	0.04	0.33	0.33
6	8	0.22	0.10	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.76	0.23	0.19	0.23	0.16	0.16	2.05	2.39
8	10	0.24	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.15	0.74	0.44	0.48	0.47	0.30	3.96	6.34
10	12	0.10	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	2.96	4.83	0.70	0.30	0.14	0.11	9.17	15.51
12	14	0.24	0.08	0.01	0.00	0.00	0.00	0.01	0.01	0.01	0.03	7.43	20.79	1.91	0.62	0.36	0.32	31.81	47.32
14	16	0.23	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	5.98	27.33	2.36	0.64	0.40	0.32	37.38	84.70
16	18	0.07	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.40	9.08	0.84	0.26	0.12	0.06	11.91	96.61
18	20	0.01	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.30	2.20	0.23	0.08	0.03	0.01	2.87	99.48
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.44	0.03	0.00	0.00	0.00	0.52	100.00
Total		1.13	0.52	0.04	0.00	0.00	0.00	0.01	0.01	0.01	0.08	20.07	65.69	6.73	2.63	1.76	1.32		
Cumulative Total		1.13	1.65	1.69	1.69	1.69	1.69	1.70	1.71	1.72	1.80	21.87	87.56	94.29	96.92	98.68	100.00		

Swell

		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min	Tp Max	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	6	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.02	0.01	0.01	0.03	0.02	0.18	0.18
6	8	0.18	0.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.26	0.22	0.05	0.09	0.24	0.18	2.62	2.80
8	10	0.27	0.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.91	0.47	0.09	0.27	0.87	0.25	5.41	8.21
10	12	0.07	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.02	6.62	0.09	0.12	0.15	0.05	14.19	22.40
12	14	0.06	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.51	29.17	0.23	0.10	0.06	0.06	32.19	54.58
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.49	33.88	0.16	0.01	0.03	0.01	34.58	89.16
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	8.87	0.12	0.00	0.00	0.00	9.01	98.17
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.48	0.07	0.00	0.00	0.00	1.55	99.72
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23	0.05	0.00	0.00	0.00	0.28	100.00
Total		0.60	0.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	14.23	80.96	0.87	0.60	1.39	0.57		
Cumulative Total		0.60	1.38	1.38	1.38	1.38	1.38	1.38	1.38	1.38	1.38	15.61	96.56	97.44	98.04	99.43	100.00		

Sea

		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min	Tp Max	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.17	0.10	0.13	0.28	0.36	0.29	0.46	0.75	0.74	0.20	0.26	0.24	0.17	0.12	0.16	0.14	4.55	4.55
2	4	1.38	1.90	1.13	1.37	2.68	2.83	4.20	7.04	5.47	0.91	5.72	4.33	1.10	0.51	0.49	0.46	41.52	46.07
4	6	0.85	3.41	1.15	0.10	0.01	0.00	0.00	0.01	0.05	0.47	11.98	3.45	0.75	0.23	0.30	0.34	23.11	69.18
6	8	0.38	2.51	0.69	0.02	0.01	0.01	0.00	0.00	0.00	0.11	13.55	1.20	0.25	0.16	0.17	0.16	19.24	88.42
8	10	0.17	0.42	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.54	0.88	0.07	0.11	0.14	0.08	6.52	94.94
10	12	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.54	0.95	0.00	0.00	0.00	0.00	3.54	98.48
12	14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.52	0.64	0.00	0.00	0.00	0.00	1.15	99.63
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.26	0.00	0.00	0.00	0.00	0.33	99.96
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.00	0.00	0.00	0.00	0.03	99.99
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	100.00
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		3.00	8.35	3.19	1.77	3.07	3.13	4.66	7.81	6.26	1.69	39.20	11.97	2.33	1.12	1.27	1.18		
Cumulative Total		3.00	11.34	14.53	16.30	19.37	22.50	27.16	34.97	41.23	42.92	82.12	94.10	96.43	97.55	98.82	100.00		

SEASONAL JFTS

Winter - Tp (s)

Total

Tp min	Tp Max	0 N	22.5 NNE	45 NE	67.5 ENE	90 E	112.5 ESE	135 SE	157.5 SSE	180 S	202.5 SSW	225 SW	247.5 WSW	270 W	292.5 WNW	315 NW	337.5 NNW	Total	Cumulative
0	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	6	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.07	0.07
6	8	0.16	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.04	0.03	0.03	0.05	0.04	0.45	0.52
8	10	0.04	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.06	0.03	0.02	0.00	0.01	0.24	0.76
10	12	0.06	0.02	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.01	0.37	1.62	0.13	0.06	0.03	0.02	2.34	3.10
12	14	0.24	0.04	0.00	0.01	0.00	0.00	0.00	0.00	0.01	0.06	2.71	15.27	1.62	0.55	0.36	0.37	21.25	24.35
14	16	0.39	0.07	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.02	3.01	39.53	4.16	1.12	0.58	0.47	49.37	73.72
16	18	0.09	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.67	16.51	1.99	0.57	0.28	0.15	20.27	93.99
18	20	0.07	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	3.74	0.64	0.17	0.09	0.05	4.91	98.91
>20		0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.79	0.16	0.04	0.02	0.02	1.09	100.00
Total		1.09	0.30	0.02	0.02	0.00	0.00	0.00	0.00	0.01	0.09	6.98	77.57	8.77	2.58	1.42	1.13		
Cumulative Total		1.09	1.39	1.42	1.44	1.44	1.44	1.44	1.45	1.46	1.55	8.53	86.10	94.87	97.45	98.87	100.00		

Swell

Tp min	Tp Max	0 N	22.5 NNE	45 NE	67.5 ENE	90 E	112.5 ESE	135 SE	157.5 SSE	180 S	202.5 SSW	225 SW	247.5 WSW	270 W	292.5 WNW	315 NW	337.5 NNW	Total	Cumulative
0	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	6	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.03	0.03
6	8	0.03	0.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.06	0.03	0.00	0.03	0.01	0.56	0.59
8	10	0.00	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.27	0.19	0.03	0.02	0.05	0.00	0.76	1.34
10	12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.32	3.30	0.02	0.00	0.02	0.00	4.66	6.01
12	14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.64	22.17	0.03	0.02	0.02	0.00	22.87	28.88
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.18	48.85	0.14	0.02	0.00	0.00	49.20	78.07
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	17.64	0.33	0.00	0.00	0.00	17.97	96.04
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.11	0.28	0.00	0.00	0.00	3.39	99.44
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.38	0.18	0.00	0.00	0.00	0.56	100.00
Total		0.04	0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.53	95.69	1.04	0.07	0.12	0.02		
Cumulative Total		0.04	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	3.06	98.76	99.79	99.86	99.98	100.00		

Sea

Tp min	Tp Max	0 N	22.5 NNE	45 NE	67.5 ENE	90 E	112.5 ESE	135 SE	157.5 SSE	180 S	202.5 SSW	225 SW	247.5 WSW	270 W	292.5 WNW	315 NW	337.5 NNW	Total	Cumulative
0	2	0.03	0.02	0.04	0.19	0.24	0.27	0.41	0.56	0.37	0.12	0.12	0.05	0.03	0.01	0.01	0.01	2.50	2.50
2	4	0.75	1.70	1.15	1.96	5.26	6.98	11.64	15.11	5.12	1.29	4.47	1.25	0.42	0.37	0.37	0.50	58.33	60.83
4	6	2.02	7.16	2.42	0.17	0.02	0.00	0.00	0.01	0.05	0.80	5.38	0.85	0.48	0.41	0.40	0.61	20.78	81.61
6	8	0.60	7.13	1.48	0.33	0.10	0.03	0.01	0.00	0.02	0.21	3.19	0.64	0.23	0.13	0.09	0.12	14.30	95.91
8	10	0.04	0.81	0.41	0.10	0.02	0.00	0.00	0.00	0.01	0.01	0.64	0.30	0.04	0.02	0.01	0.01	2.42	98.33
10	12	0.02	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.52	0.46	0.06	0.04	0.01	0.00	1.11	99.44
12	14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.24	0.00	0.00	0.00	0.00	0.28	99.72
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.21	0.01	0.01	0.00	0.00	0.25	99.97
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.02	99.99
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.01	100.00
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		3.46	16.83	5.50	2.76	5.64	7.27	12.06	15.68	5.57	2.42	14.38	4.03	1.28	0.98	0.89	1.26		
Cumulative Total		3.46	20.29	25.79	28.55	34.18	41.45	53.51	69.19	74.76	77.18	91.56	95.59	96.87	97.85	98.74	100.00		

Spring - Tp (s)

Total

Tp min	Tp Max	0 N	22.5 NNE	45 NE	67.5 ENE	90 E	112.5 ESE	135 SE	157.5 SSE	180 S	202.5 SSW	225 SW	247.5 WSW	270 W	292.5 WNW	315 NW	337.5 NNW	Total	Cumulative
0	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.06	0.00	0.00	0.00	0.00	0.17	0.17
6	8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.28	0.15	0.02	0.01	0.00	0.00	1.46	1.62
8	10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.65	0.56	0.04	0.02	0.00	0.00	2.27	3.90
10	12	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	3.25	7.14	0.23	0.05	0.02	0.02	10.73	14.63
12	14	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.84	25.18	0.48	0.10	0.04	0.02	31.67	46.29
14	16	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	4.26	34.10	0.41	0.08	0.05	0.04	38.97	85.27
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.81	10.79	0.21	0.01	0.01	0.01	11.84	97.11
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.16	2.17	0.04	0.00	0.00	0.00	2.38	99.49
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.47	0.01	0.00	0.00	0.00	0.51	100.00
Total		0.04	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01	17.37	80.63	1.43	0.26	0.13	0.10		
Cumulative Total		0.04	0.05	0.06	0.06	0.07	0.07	0.07	0.07	0.07	0.08	17.45	98.08	99.51	99.77	99.90	100.00		

Swell

Tp min	Tp Max	0 N	22.5 NNE	45 NE	67.5 ENE	90 E	112.5 ESE	135 SE	157.5 SSE	180 S	202.5 SSW	225 SW	247.5 WSW	270 W	292.5 WNW	315 NW	337.5 NNW	Total	Cumulative
0	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.03	0.03
6	8	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.97	0.07	0.00	0.01	0.05	0.00	1.16	1.19
8	10	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.82	0.44	0.01	0.16	0.75	0.01	4.22	5.41
10	12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.94	8.90	0.03	0.03	0.32	0.01	13.23	18.65
12	14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.62	30.28	0.04	0.03	0.02	0.00	30.99	49.63
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	36.79	0.06	0.00	0.00	0.00	36.97	86.60
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	10.56	0.23	0.00	0.00	0.00	10.80	97.40
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.91	0.17	0.00	0.00	0.00	2.09	99.48
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.42	0.09	0.00	0.00	0.00	0.52	100.00
Total		0.02	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.48	89.40	0.63	0.23	1.15	0.01		
Cumulative Total		0.02	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	8.58	97.97	98.60	98.84	99.99	100.00		

Sea

Tp min	Tp Max	0 N	22.5 NNE	45 NE	67.5 ENE	90 E	112.5 ESE	135 SE	157.5 SSE	180 S	202.5 SSW	225 SW	247.5 WSW	270 W	292.5 WNW	315 NW	337.5 NNW	Total	Cumulative
0	2	0.06	0.05	0.03	0.04	0.03	0.04	0.09	0.26	0.17	0.03	0.03	0.07	0.07	0.04	0.03	0.05	1.10	1.10
2	4	0.76	0.78	0.29	0.27	0.38	0.76	1.63	3.65	3.47	0.32	3.30	6.26	1.72	0.45	0.26	0.33	24.62	25.73
4	6	0.18	0.53	0.19	0.00	0.00	0.00	0.00	0.00	0.00	0.15	14.22	7.97	0.89	0.19	0.04	0.00	24.35	50.08
6	8	0.03	0.10	0.05	0.01	0.00	0.01	0.00	0.00	0.00	0.05	22.98	2.12	0.07	0.04	0.01	0.02	25.47	75.55
8	10	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	9.28	1.26	0.05	0.01	0.01	0.00	10.64	86.19
10	12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.63	3.89	0.01	0.00	0.00	0.00	7.54	93.73
12	14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.86	3.40	0.02	0.00	0.00	0.00	4.28	98.01
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.18	1.66	0.00	0.00	0.00	0.00	1.84	99.85
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.13	0.00	0.00	0.00	0.00	0.14	99.99
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.01	100.00
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		1.03	1.47	0.56	0.33	0.41	0.81	1.71	3.90	3.65	0.55	54.49	26.78	2.82	0.73	0.35	0.40		
Cumulative Total		1.03	2.50	3.06	3.39	3.81	4.62	6.33	10.24	13.88	14.43	68.91	95.69	98.51	99.25	99.60	100.00		

SEASONAL JFTS

Summer - Hs vs Tp

Total

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02
0.5	1	0.00	0.02	0.07	0.22	0.87	5.80	6.44	3.41	1.03	0.18	0.07	18.10	18.12
1	1.5	0.00	0.01	0.48	2.05	4.25	12.15	16.94	11.21	3.14	0.64	0.10	50.97	69.09
1.5	2	0.00	0.00	0.25	2.05	4.22	5.04	6.20	5.39	1.29	0.25	0.03	24.74	93.82
2	2.5	0.00	0.00	0.00	0.58	1.33	0.97	0.69	0.86	0.20	0.02	0.00	4.65	98.47
2.5	3	0.00	0.00	0.00	0.06	0.32	0.33	0.08	0.09	0.01	0.00	0.00	0.89	99.36
3	3.5	0.00	0.00	0.00	0.02	0.09	0.05	0.03	0.00	0.00	0.00	0.00	0.19	99.56
3.5	4	0.00	0.00	0.00	0.01	0.06	0.07	0.01	0.00	0.00	0.00	0.00	0.16	99.72
4	4.5	0.00	0.00	0.00	0.00	0.03	0.08	0.02	0.00	0.00	0.00	0.00	0.14	99.86
4.5	5	0.00	0.00	0.00	0.00	0.01	0.03	0.02	0.00	0.00	0.00	0.00	0.06	99.92
5	5.5	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.03	99.95
5.5	6	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.01	99.96
6	6.5	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.01	99.97
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.01	99.98
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.02	100.00
Total		0.00	0.03	0.81	4.99	11.20	24.55	30.47	20.99	5.68	1.08	0.19		
Cumulative Total		0.00	0.03	0.84	5.83	17.03	41.58	72.06	93.04	98.72	99.81	100.00		

Swell

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	0.00	0.00	0.05	1.09	2.17	1.64	1.65	1.76	1.92	0.71	0.28	11.26	11.26
0.5	1	0.00	0.00	0.15	1.14	2.38	13.89	18.02	8.60	1.82	0.30	0.03	46.32	57.58
1	1.5	0.00	0.00	0.06	1.91	4.70	8.55	8.81	7.65	1.36	0.18	0.01	33.23	90.81
1.5	2	0.00	0.00	0.00	0.17	2.14	2.62	1.01	1.33	0.27	0.02	0.00	7.56	98.38
2	2.5	0.00	0.00	0.00	0.03	0.32	0.46	0.11	0.11	0.02	0.00	0.00	1.06	99.44
2.5	3	0.00	0.00	0.00	0.00	0.07	0.21	0.05	0.00	0.00	0.00	0.00	0.33	99.77
3	3.5	0.00	0.00	0.00	0.00	0.01	0.02	0.02	0.00	0.00	0.00	0.00	0.05	99.82
3.5	4	0.00	0.00	0.00	0.00	0.00	0.05	0.01	0.00	0.00	0.00	0.00	0.07	99.88
4	4.5	0.00	0.00	0.00	0.00	0.00	0.05	0.02	0.00	0.00	0.00	0.00	0.06	99.94
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.03	99.97
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.02	99.99
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	99.99
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	99.99
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.01	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.00	0.00	0.26	4.34	11.78	27.49	29.72	19.47	5.39	1.21	0.32		
Cumulative Total		0.00	0.00	0.27	4.61	16.39	43.88	73.60	93.08	98.46	99.68	100.00		

Sea

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	1.24	8.60	1.55	0.23	0.05	0.00	0.00	0.00	0.00	0.00	0.00	11.67	11.67
0.5	1	0.00	5.40	14.40	6.96	1.97	1.51	0.22	0.01	0.00	0.00	0.00	30.47	42.14
1	1.5	0.00	0.06	6.15	11.95	7.96	6.52	1.81	0.27	0.00	0.00	0.00	34.72	76.86
1.5	2	0.00	0.00	0.47	4.71	6.56	3.89	1.88	0.50	0.03	0.00	0.00	18.05	94.91
2	2.5	0.00	0.00	0.00	0.78	1.65	0.85	0.31	0.19	0.04	0.00	0.00	3.82	98.73
2.5	3	0.00	0.00	0.00	0.06	0.38	0.17	0.04	0.06	0.00	0.00	0.00	0.72	99.45
3	3.5	0.00	0.00	0.00	0.04	0.10	0.02	0.00	0.00	0.00	0.00	0.00	0.16	99.61
3.5	4	0.00	0.00	0.00	0.00	0.12	0.04	0.00	0.00	0.00	0.00	0.00	0.16	99.77
4	4.5	0.00	0.00	0.00	0.00	0.03	0.07	0.00	0.00	0.00	0.00	0.00	0.10	99.87
4.5	5	0.00	0.00	0.00	0.00	0.01	0.04	0.00	0.00	0.00	0.00	0.00	0.05	99.92
5	5.5	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.01	99.94
5.5	6	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.01	99.95
6	6.5	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.02	99.97
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.01	99.98
7	7.5	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.02	100.00
Total		1.24	14.05	22.58	24.74	18.83	13.16	4.28	1.03	0.08	0.00	0.00		
Cumulative Total		1.24	15.29	37.87	62.61	81.45	94.61	98.89	99.92	100.00	100.00	100.00		

Autumn - Hs vs Tp

Total

		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin	Hsmax	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	0.00	0.00	0.00	0.00	0.00	0.10	0.04	0.03	0.00	0.00	0.00	0.18	0.18
0.5	1	0.00	0.00	0.05	0.24	0.49	4.45	13.58	9.43	2.88	0.94	0.18	32.26	32.44
1	1.5	0.00	0.00	0.20	0.93	1.73	3.72	15.15	20.15	5.74	1.35	0.27	49.25	81.69
1.5	2	0.00	0.00	0.06	0.59	1.16	0.73	2.63	6.56	2.57	0.47	0.04	14.81	96.49
2	2.5	0.00	0.00	0.01	0.18	0.31	0.11	0.31	0.97	0.54	0.07	0.01	2.51	99.00
2.5	3	0.00	0.00	0.00	0.07	0.11	0.03	0.04	0.17	0.15	0.04	0.01	0.61	99.61
3	3.5	0.00	0.00	0.00	0.02	0.06	0.01	0.02	0.05	0.03	0.01	0.00	0.20	99.81
3.5	4	0.00	0.00	0.00	0.01	0.05	0.02	0.01	0.02	0.00	0.00	0.00	0.11	99.91
4	4.5	0.00	0.00	0.00	0.00	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.05	99.97
4.5	5	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.02	99.98
5	5.5	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01	99.99
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	99.99
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.00	0.00	0.33	2.05	3.96	9.17	31.81	37.38	11.91	2.87	0.52		
Cumulative Total		0.00	0.00	0.33	2.39	6.34	15.51	47.32	84.70	96.61	99.48	100.00		

Swell

		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin	Hsmax	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	0.00	0.00	0.01	0.09	0.14	0.55	0.78	0.39	0.30	0.15	0.07	2.48	2.48
0.5	1	0.00	0.00	0.08	0.94	1.19	8.44	19.15	13.44	2.76	0.54	0.08	46.61	49.09
1	1.5	0.00	0.00	0.08	1.33	2.93	4.30	10.66	15.54	3.53	0.54	0.09	39.00	88.09
1.5	2	0.00	0.00	0.00	0.21	0.95	0.74	1.28	4.27	1.86	0.24	0.03	9.58	97.67
2	2.5	0.00	0.00	0.00	0.04	0.15	0.12	0.24	0.73	0.41	0.05	0.00	1.75	99.42
2.5	3	0.00	0.00	0.00	0.00	0.04	0.02	0.04	0.16	0.12	0.03	0.01	0.41	99.83
3	3.5	0.00	0.00	0.00	0.00	0.01	0.00	0.02	0.05	0.02	0.01	0.00	0.11	99.94
3.5	4	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.02	0.00	0.00	0.00	0.05	99.98
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	99.99
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	99.99
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	99.99
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	99.99
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.00	0.00	0.18	2.62	5.41	14.19	32.19	34.58	9.01	1.55	0.28		
Cumulative Total		0.00	0.00	0.18	2.80	8.21	22.40	54.58	89.16	98.17	99.72	100.00		

Sea

		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin	Hsmax	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	4.55	34.31	5.12	1.16	0.17	0.02	0.00	0.00	0.00	0.00	0.00	45.34	45.34
0.5	1	0.00	7.16	15.16	7.82	1.58	1.04	0.17	0.01	0.00	0.00	0.00	32.94	78.28
1	1.5	0.00	0.04	2.66	8.32	2.64	2.06	0.66	0.15	0.01	0.00	0.00	16.55	94.83
1.5	2	0.00	0.00	0.14	1.44	1.42	0.36	0.30	0.12	0.01	0.00	0.00	3.80	98.63
2	2.5	0.00	0.00	0.02	0.29	0.30	0.02	0.03	0.04	0.00	0.00	0.00	0.69	99.33
2.5	3	0.00	0.00	0.00	0.13	0.14	0.00	0.00	0.01	0.00	0.00	0.00	0.30	99.63
3	3.5	0.00	0.00	0.00	0.06	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.14	99.77
3.5	4	0.00	0.00	0.00	0.01	0.07	0.01	0.00	0.00	0.00	0.00	0.00	0.10	99.87
4	4.5	0.00	0.00	0.00	0.00	0.06	0.01	0.00	0.00	0.00	0.00	0.00	0.08	99.95
4.5	5	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.04	99.99
5	5.5	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		4.55	41.52	23.11	19.24	6.52	3.54	1.15	0.33	0.03	0.01	0.00		
Cumulative Total		4.55	46.07	69.18	88.42	94.94	98.48	99.63	99.96	99.99	100.00	100.00		

SEASONAL JFTS

Winter - Hs vs Tp

Total

Hsmin	Hsmax	0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20	Total	Cumulative
		2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00			
0	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.5	1	0.00	0.00	0.00	0.01	0.00	0.65	4.28	3.34	1.14	0.36	0.13	9.92	9.92
1	1.5	0.00	0.00	0.02	0.10	0.06	1.15	12.41	23.75	6.60	2.01	0.58	46.68	56.60
1.5	2	0.00	0.00	0.03	0.16	0.07	0.36	3.92	16.23	6.77	1.40	0.28	29.23	85.83
2	2.5	0.00	0.00	0.01	0.11	0.04	0.13	0.57	4.90	3.94	0.72	0.08	10.50	96.33
2.5	3	0.00	0.00	0.00	0.06	0.03	0.02	0.05	0.88	1.57	0.31	0.02	2.94	99.27
3	3.5	0.00	0.00	0.00	0.00	0.02	0.01	0.03	0.23	0.26	0.10	0.00	0.65	99.92
3.5	4	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.02	0.00	0.01	0.00	0.05	99.97
4	4.5	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.03	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.00	0.00	0.07	0.45	0.24	2.34	21.25	49.37	20.27	4.91	1.09		
Cumulative Total		0.00	0.00	0.07	0.52	0.76	3.10	24.35	73.72	93.99	98.91	100.00		

Swell

Hsmin	Hsmax	0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20	Total	Cumulative
		2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00			
0	0.5	0.00	0.00	0.00	0.01	0.04	0.03	0.08	0.06	0.04	0.02	0.03	0.31	0.31
0.5	1	0.00	0.00	0.02	0.16	0.13	1.68	6.69	5.61	1.36	0.33	0.11	16.07	16.37
1	1.5	0.00	0.00	0.00	0.28	0.36	2.13	12.30	24.18	5.70	1.22	0.21	46.39	62.77
1.5	2	0.00	0.00	0.01	0.08	0.17	0.67	3.23	14.05	5.67	0.85	0.15	24.88	87.65
2	2.5	0.00	0.00	0.00	0.02	0.03	0.13	0.52	4.33	3.57	0.60	0.05	9.24	96.88
2.5	3	0.00	0.00	0.00	0.01	0.01	0.02	0.04	0.74	1.43	0.29	0.01	2.55	99.43
3	3.5	0.00	0.00	0.00	0.00	0.01	0.01	0.02	0.21	0.20	0.08	0.00	0.54	99.97
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.02	99.99
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.01	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.00	0.00	0.03	0.56	0.76	4.66	22.87	49.20	17.97	3.39	0.56		
Cumulative Total		0.00	0.00	0.03	0.59	1.34	6.01	28.88	78.07	96.04	99.44	100.00		

Sea

Hsmin	Hsmax	0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20	Total	Cumulative
		2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00			
0	0.5	2.50	47.21	4.10	2.13	0.41	0.03	0.00	0.00	0.00	0.00	0.00	56.37	56.37
0.5	1	0.00	11.12	13.22	5.37	0.81	0.20	0.02	0.00	0.00	0.00	0.00	30.74	87.10
1	1.5	0.00	0.01	3.06	4.99	0.69	0.49	0.10	0.04	0.00	0.00	0.00	9.38	96.49
1.5	2	0.00	0.00	0.37	1.28	0.22	0.14	0.10	0.09	0.01	0.00	0.00	2.20	98.69
2	2.5	0.00	0.00	0.03	0.42	0.20	0.13	0.01	0.06	0.01	0.00	0.00	0.86	99.55
2.5	3	0.00	0.00	0.00	0.10	0.05	0.06	0.02	0.03	0.00	0.01	0.00	0.26	99.81
3	3.5	0.00	0.00	0.00	0.02	0.03	0.02	0.03	0.01	0.00	0.00	0.00	0.11	99.92
3.5	4	0.00	0.00	0.00	0.00	0.01	0.02	0.00	0.01	0.00	0.00	0.00	0.04	99.96
4	4.5	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.02	0.00	0.00	0.00	0.04	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		2.50	58.33	20.78	14.30	2.42	1.11	0.28	0.25	0.02	0.01	0.00		
Cumulative Total		2.50	60.83	81.61	95.91	98.33	99.44	99.72	99.97	99.99	100.00	100.00		

Spring - Hs vs Tp

Total

Hsmin	Hsmax	0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20	Total	Cumulative
		2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00			
0	0.5	0.00	0.00	0.00	0.00	0.00	0.03	0.01	0.00	0.00	0.00	0.00	0.04	0.04
0.5	1	0.00	0.00	0.01	0.04	0.12	2.66	4.63	2.88	0.79	0.20	0.04	11.36	11.40
1	1.5	0.00	0.00	0.11	0.50	0.76	5.92	17.59	16.48	3.82	0.78	0.24	46.22	57.61
1.5	2	0.00	0.00	0.05	0.77	1.11	1.92	8.49	15.06	4.11	0.83	0.19	32.51	90.12
2	2.5	0.00	0.00	0.00	0.13	0.26	0.19	0.89	4.00	2.20	0.40	0.03	8.09	98.21
2.5	3	0.00	0.00	0.00	0.02	0.03	0.01	0.06	0.47	0.78	0.13	0.01	1.51	99.72
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.09	0.12	0.04	0.00	0.26	99.98
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.02	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.00	0.00	0.17	1.46	2.27	10.73	31.67	38.97	11.84	2.38	0.51		
Cumulative Total		0.00	0.00	0.17	1.62	3.90	14.63	46.29	85.27	97.11	99.49	100.00		

Swell

Hsmin	Hsmax	0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20	Total	Cumulative
		2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00			
0	0.5	0.00	0.00	0.00	0.07	0.87	0.64	0.66	0.70	0.93	0.39	0.24	4.51	4.51
0.5	1	0.00	0.00	0.02	0.26	0.45	6.62	13.68	8.03	1.58	0.34	0.09	31.08	35.58
1	1.5	0.00	0.00	0.01	0.78	1.84	4.46	13.24	16.68	3.21	0.52	0.11	40.84	76.42
1.5	2	0.00	0.00	0.00	0.05	0.98	1.33	3.01	8.94	2.68	0.44	0.05	17.48	93.90
2	2.5	0.00	0.00	0.00	0.00	0.08	0.18	0.36	2.19	1.61	0.25	0.02	4.69	98.59
2.5	3	0.00	0.00	0.00	0.00	0.00	0.01	0.03	0.35	0.67	0.10	0.01	1.17	99.76
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.10	0.04	0.00	0.23	99.99
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.01	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.00	0.00	0.03	1.16	4.22	13.23	30.99	36.97	10.80	2.09	0.52		
Cumulative Total		0.00	0.00	0.03	1.19	5.41	18.65	49.63	86.60	97.40	99.48	100.00		

Sea

Hsmin	Hsmax	0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20	Total	Cumulative
		2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00			
0	0.5	1.10	16.08	1.95	0.21	0.05	0.00	0.00	0.00	0.00	0.00	0.00	19.39	19.39
0.5	1	0.00	8.53	16.09	6.64	1.11	0.62	0.09	0.00	0.00	0.00	0.00	33.10	52.49
1	1.5	0.00	0.01	6.12	14.56	5.31	4.70	1.85	0.25	0.00	0.00	0.00	32.79	85.29
1.5	2	0.00	0.00	0.18	3.85	3.64	2.02	1.92	1.05	0.06	0.00	0.00	12.72	98.01
2	2.5	0.00	0.00	0.00	0.20	0.49	0.18	0.40	0.46	0.05	0.01	0.00	1.79	99.80
2.5	3	0.00	0.00	0.00	0.02	0.04	0.01	0.01	0.07	0.02	0.00	0.00	0.17	99.97
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.02	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		1.10	24.62	24.35	25.47	10.64	7.54	4.28	1.84	0.14	0.01	0.00		
Cumulative Total		1.10	25.73	50.08	75.55	86.19	93.73	98.01	99.85	99.99	100.00	100.00		

ANNUAL JFTS

1979

1979 - Hs(m)

Total

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.19	0.00	0.00	0.00	0.00	0.22	0.22
0.5	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	3.47	12.42	1.11	0.25	0.17	0.02	17.46	17.68
1	1.5	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.65	38.00	1.86	0.91	0.21	0.27	52.00	69.68
1.5	2	0.07	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.51	18.73	0.32	0.14	0.06	0.07	24.90	94.57
2	2.5	0.02	0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.71	3.95	0.00	0.00	0.05	0.00	4.88	99.45
2.5	3	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.27	0.00	0.00	0.06	0.00	0.35	99.81
3	3.5	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.05	99.85
3.5	4	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.05	99.90
4	4.5	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.09	99.99
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	99.99
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	99.99
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	99.99
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	99.99
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	99.99
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	99.99
Total		0.30	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	20.36	73.57	3.29	1.30	0.54	0.46		
Cumulative Total		0.30	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.47	20.83	94.40	97.69	98.99	99.53	99.99		

Swell

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.83	0.13	0.23	0.19	0.01	4.44	4.44
0.5	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.87	30.59	0.70	0.15	0.00	0.00	34.32	38.75
1	1.5	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.18	39.34	0.37	0.60	0.06	0.04	44.60	83.36
1.5	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.54	12.19	0.01	0.00	0.05	0.04	13.83	97.19
2	2.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11	2.42	0.00	0.00	0.05	0.00	2.57	99.76
2.5	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.21	0.00	0.00	0.02	0.00	0.24	100.00
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.70	88.59	1.21	0.98	0.37	0.08		
Cumulative Total		0.00	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	8.77	97.35	98.56	99.55	99.92	100.00		

Sea

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.11	0.96	1.01	0.75	1.31	1.39	4.24	6.78	4.64	1.33	4.17	1.84	0.66	0.58	0.41	0.75	30.92	30.92
0.5	1	0.45	1.84	0.53	0.04	0.09	0.26	0.34	0.58	0.58	0.58	20.16	6.55	0.58	0.41	0.21	0.24	33.43	64.35
1	1.5	0.00	0.60	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	16.50	5.35	0.32	0.09	0.00	0.00	22.96	87.31
1.5	2	0.00	0.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.47	2.65	0.00	0.00	0.00	0.00	10.38	97.69
2	2.5	0.00	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.09	0.68	0.00	0.00	0.00	0.00	1.88	99.57
2.5	3	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.04	0.09	99.66
3	3.5	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.11	99.76
3.5	4	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.09	99.85
4	4.5	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.15	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.75	3.77	1.65	0.79	1.39	1.65	4.58	7.36	5.22	1.90	49.39	17.08	1.56	1.07	0.64	1.20		
Cumulative Total		0.75	4.52	6.16	6.95	8.35	9.99	14.57	21.93	27.16	29.06	78.45	95.53	97.09	98.16	98.80	100.00		

1980

1980 - Hs(m)

Total

		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin	Hsmax	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.5	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.57	9.05	0.59	0.28	0.00	0.00	11.50	11.50
1	1.5	0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.49	34.95	2.73	1.20	0.82	0.28	47.62	59.12
1.5	2	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.61	20.53	1.18	0.73	0.48	0.65	28.27	87.39
2	2.5	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.13	7.57	0.39	0.05	0.13	0.09	9.51	96.89
2.5	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.16	1.56	0.50	0.00	0.09	0.00	2.31	99.20
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.47	0.22	0.07	0.00	0.00	0.76	99.97
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.03	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	14.97	74.12	5.61	2.36	1.51	1.02		
Cumulative Total		0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	15.37	89.49	95.10	97.46	98.98	100.00		

Swell

		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin	Hsmax	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.31	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	1.51	0.09	0.12	0.35	0.09	2.55	2.55
0.5	1	0.01	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.20	23.59	0.17	0.00	0.53	0.00	27.56	30.11
1	1.5	0.51	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.99	34.67	0.08	0.06	0.74	0.23	41.32	71.43
1.5	2	0.56	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.18	16.44	0.03	0.00	0.57	0.41	19.22	90.66
2	2.5	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.16	6.58	0.14	0.00	0.13	0.06	7.13	97.78
2.5	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.64	0.06	0.00	0.05	0.05	1.79	99.57
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.43	0.00	0.00	0.00	0.00	0.43	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		1.45	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.61	84.85	0.58	0.17	2.37	0.84		
Cumulative Total		1.45	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	11.19	96.04	96.62	96.80	99.16	100.00		

Sea

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	1.27	1.59	1.07	0.76	1.27	3.05	5.67	8.96	3.86	0.34	2.15	1.93	1.44	0.27	0.22	0.15	33.99	33.99
0.5	1	0.66	1.17	0.37	0.07	0.00	0.00	0.29	0.71	0.56	0.39	13.99	9.08	0.68	0.17	0.07	0.56	28.79	62.78
1	1.5	0.63	0.54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	15.21	5.62	1.17	0.17	0.15	0.22	23.71	86.50
1.5	2	0.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.47	2.17	0.42	0.02	0.07	0.15	9.47	95.97
2	2.5	0.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.22	0.83	0.29	0.07	0.05	0.02	2.71	98.68
2.5	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.27	0.15	0.49	0.10	0.02	0.00	1.03	99.71
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.15	0.10	0.00	0.00	0.29	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		2.95	3.30	1.44	0.83	1.27	3.05	5.96	9.67	4.42	0.73	39.34	19.80	4.64	0.90	0.59	1.10		
Cumulative Total		2.95	6.25	7.69	8.52	9.79	12.84	18.80	28.47	32.89	33.63	72.97	92.77	97.41	98.32	98.90	100.00		

ANNUAL JFTS

1981

1981 - Hs(m)

Total

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.02	0.00	0.00	0.00	0.08	0.08
0.5	1	0.21	0.07	0.02	0.00	0.01	0.00	0.01	0.00	0.00	0.13	2.25	14.91	1.66	0.70	0.62	0.34	20.91	20.99
1	1.5	0.48	0.00	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	7.96	32.88	2.36	0.73	0.81	0.42	45.67	66.67
1.5	2	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.53	19.84	0.30	0.51	0.17	0.21	23.81	90.48
2	2.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.19	6.99	0.24	0.09	0.13	0.08	7.72	98.20
2.5	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.47	0.13	0.01	0.07	0.00	1.68	99.87
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.00	0.00	0.03	0.00	0.13	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.94	0.07	0.05	0.01	0.01	0.00	0.01	0.00	0.00	0.13	12.93	76.23	4.70	2.04	1.83	1.05		
Cumulative Total		0.94	1.00	1.05	1.06	1.07	1.07	1.08	1.08	1.08	1.21	14.14	90.38	95.08	97.12	98.95	100.00		

Swell

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.12	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.15	2.60	0.00	0.14	0.84	0.54	4.44	4.44
0.5	1	0.06	0.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.76	33.19	0.08	0.00	0.03	0.09	37.74	42.18
1	1.5	0.42	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.91	29.90	0.20	0.00	0.27	0.57	35.28	77.46
1.5	2	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.95	14.52	0.20	0.00	0.34	0.03	16.13	93.60
2	2.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	4.97	0.07	0.01	0.03	0.00	5.13	98.73
2.5	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.14	0.01	0.00	0.02	0.00	1.18	99.91
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.00	0.00	0.00	0.00	0.09	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.69	0.61	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.81	86.41	0.55	0.15	1.54	1.24		
Cumulative Total		0.69	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	10.11	96.52	97.08	97.23	98.76	100.00		

Sea

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.44	1.87	0.96	0.63	1.12	1.52	4.49	6.60	4.89	0.89	3.86	2.60	1.17	0.63	0.58	0.51	32.77	32.77
0.5	1	0.68	2.71	0.47	0.14	0.30	0.16	0.21	0.61	0.07	0.21	15.23	7.58	2.71	0.84	0.75	0.14	32.82	65.59
1	1.5	0.35	0.77	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	14.67	6.48	0.00	0.09	0.05	0.07	22.48	88.07
1.5	2	0.30	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.66	3.35	0.05	0.14	0.05	0.09	9.78	97.85
2	2.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.44	0.68	0.07	0.07	0.16	0.00	1.43	99.27
2.5	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.23	0.21	0.02	0.09	0.00	0.65	99.93
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.07	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		1.78	5.50	1.43	0.77	1.43	1.68	4.70	7.20	4.96	1.10	39.95	20.91	4.21	1.80	1.75	0.82		
Cumulative Total		1.78	7.27	8.70	9.47	10.90	12.58	17.29	24.49	29.45	30.55	70.50	91.42	95.63	97.43	99.18	100.00		

1982

1982 - Hs(m)

Total

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.5	1	0.07	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	3.08	16.03	0.45	0.37	0.45	0.10	20.72	20.72
1	1.5	0.32	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.37	37.97	0.89	0.48	0.10	0.38	49.60	70.32
1.5	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.46	18.60	0.45	0.02	0.00	0.00	22.52	92.84
2	2.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.62	4.16	0.54	0.15	0.00	0.00	5.46	98.30
2.5	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.79	0.16	0.09	0.00	0.00	1.08	99.38
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.32	0.10	0.06	0.00	0.00	0.48	99.86
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.00	0.08	0.00	0.00	0.14	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.39	0.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	16.58	77.91	2.58	1.24	0.55	0.48		
Cumulative Total		0.39	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.66	17.24	95.15	97.73	98.97	99.52	100.00		

Swell

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.02	0.02	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.18	2.08	0.08	0.00	0.15	0.07	2.64	2.64
0.5	1	0.22	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.14	32.43	0.09	0.00	0.03	0.01	36.96	39.61
1	1.5	0.33	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.54	36.56	0.02	0.00	0.14	0.01	40.77	80.38
1.5	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.13	13.53	0.00	0.00	0.14	0.13	14.93	95.30
2	2.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	3.38	0.03	0.00	0.02	0.13	3.62	98.93
2.5	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.75	0.00	0.00	0.00	0.01	0.76	99.69
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.27	0.00	0.00	0.00	0.00	0.27	99.95
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.05	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.58	0.22	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.06	89.03	0.23	0.00	0.48	0.36		
Cumulative Total		0.58	0.80	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	9.89	98.93	99.16	99.16	99.64	100.00		

Sea

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	1.39	2.43	1.06	0.80	2.31	2.29	3.66	7.55	4.93	0.57	4.34	2.95	1.11	0.24	0.71	0.66	37.00	37.00
0.5	1	0.33	1.60	0.73	0.21	0.12	0.24	0.26	0.31	0.24	0.64	19.44	6.56	0.45	0.50	0.12	0.38	32.11	69.11
1	1.5	0.00	0.28	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	16.73	3.87	0.35	0.12	0.07	0.02	21.54	90.66
1.5	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.72	2.31	0.19	0.09	0.02	0.00	7.34	97.99
2	2.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.85	0.35	0.12	0.09	0.02	0.00	1.44	99.43
2.5	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.17	0.07	0.12	0.00	0.00	0.35	99.79
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.00	0.12	0.00	0.00	0.21	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		1.72	4.32	1.89	1.01	2.43	2.52	3.92	7.86	5.17	1.20	46.08	16.30	2.29	1.27	0.94	1.06		
Cumulative Total		1.72	6.04	7.93	8.94	11.37	13.90	17.82	25.67	30.84	32.04	78.13	94.43	96.72	97.99	98.94	100.00		

ANNUAL JFTS

1983

1983 - Hs(m)

Total

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.5	1	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.22	11.92	1.04	0.27	0.22	0.09	14.82	14.82
1	1.5	0.40	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.75	44.01	1.64	0.59	0.29	0.45	53.14	67.96
1.5	2	0.38	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.77	19.41	0.45	0.35	0.25	0.07	23.71	91.67
2	2.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	6.29	0.00	0.01	0.00	0.00	6.32	97.99
2.5	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.53	0.00	0.00	0.00	0.00	1.53	99.52
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.48	0.00	0.00	0.00	0.00	0.48	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.83	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.77	83.63	3.13	1.23	0.75	0.61		
Cumulative Total		0.83	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	10.65	94.28	97.41	98.64	99.39	100.00		

Swell

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.09	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.21	2.22	0.05	0.12	0.20	0.02	3.15	3.15
0.5	1	0.28	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.36	30.43	0.37	0.00	0.19	0.00	32.71	35.86
1	1.5	0.08	0.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.60	40.34	0.07	0.02	0.14	0.02	43.46	79.31
1.5	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.80	13.22	0.00	0.09	0.02	0.00	14.13	93.44
2	2.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	4.63	0.00	0.01	0.00	0.00	4.68	98.13
2.5	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.42	0.00	0.00	0.00	0.00	1.42	99.55
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.45	0.00	0.00	0.00	0.00	0.45	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.45	0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.02	92.72	0.49	0.24	0.54	0.05		
Cumulative Total		0.45	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	5.97	98.68	99.17	99.41	99.95	100.00		

Sea

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	1.09	3.23	0.85	0.61	1.75	1.98	2.62	4.67	2.10	0.66	4.60	3.42	1.04	0.38	0.28	0.68	29.96	29.96
0.5	1	1.06	2.59	0.66	0.12	0.26	0.17	0.26	0.19	0.21	0.35	15.00	13.23	1.09	0.05	0.24	0.42	35.90	65.86
1	1.5	0.31	1.34	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	17.17	4.88	0.17	0.21	0.09	0.02	24.30	90.16
1.5	2	0.02	0.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.30	2.29	0.00	0.00	0.09	0.00	8.92	99.08
2	2.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.45	0.42	0.00	0.00	0.00	0.00	0.87	99.95
2.5	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.05	100.00
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		2.48	7.38	1.60	0.73	2.01	2.15	2.88	4.86	2.31	1.01	43.52	24.30	2.29	0.64	0.71	1.13		
Cumulative Total		2.48	9.86	11.46	12.20	14.20	16.35	19.23	24.09	26.40	27.41	70.94	95.23	97.52	98.16	98.87	100.00		

1984

1984 - Hs(m)

Total

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.5	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	1.64	14.06	1.07	0.32	0.10	0.03	17.35	17.35
1	1.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	6.01	39.42	2.86	0.27	0.08	0.22	48.88	66.23
1.5	2	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.31	20.96	1.28	0.65	0.16	0.02	27.41	93.65
2	2.5	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.64	3.63	0.55	0.07	0.08	0.00	5.01	98.66
2.5	3	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.56	0.06	0.03	0.07	0.00	0.85	99.51
3	3.5	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.15	0.00	0.00	0.01	0.03	0.20	99.72
3.5	4	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.09	99.81
4	4.5	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.08	99.89
4.5	5	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.11	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.15	12.64	78.78	5.81	1.34	0.50	0.48		
Cumulative Total		0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.46	13.09	91.87	97.68	99.02	99.52	100.00		

Swell

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.20	0.24	0.28	1.37	0.03	4.13	4.13
0.5	1	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.95	30.98	0.16	0.48	0.00	0.00	34.60	38.73
1	1.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.72	37.45	0.57	0.09	0.00	0.00	41.83	80.56
1.5	2	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.52	13.98	0.18	0.03	0.00	0.00	15.75	96.32
2	2.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	2.89	0.03	0.02	0.08	0.00	3.12	99.43
2.5	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.40	0.00	0.00	0.03	0.00	0.44	99.87
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.00	0.00	0.00	0.00	0.13	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.29	88.03	1.19	0.91	1.49	0.03		
Cumulative Total		0.00	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	8.34	96.38	97.56	98.48	99.97	100.00		

Sea

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	1.90	1.37	1.39	0.80	1.48	2.69	4.70	5.90	3.18	0.75	3.62	2.41	1.02	0.33	0.51	1.13	33.17	33.17
0.5	1	0.68	2.58	0.82	0.13	0.11	0.20	0.42	0.57	0.38	0.51	9.85	9.50	1.55	0.60	0.42	0.09	28.40	61.57
1	1.5	0.24	0.91	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.09	15.97	7.44	0.68	0.38	0.13	0.00	25.86	87.43
1.5	2	0.00	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.07	3.33	0.11	0.13	0.00	0.00	9.74	97.17
2	2.5	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.88	0.57	0.00	0.13	0.02	0.00	1.66	98.83
2.5	3	0.00	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.04	0.02	0.04	0.02	0.04	0.46	99.29
3	3.5	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.00	0.11	0.20	99.49
3.5	4	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.15	99.65
4	4.5	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.15	99.80
4.5	5	0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.20	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		3.09	5.17	2.23	0.93	1.59	2.89	5.12	6.47	3.56	1.35	36.51	23.34	3.38	1.61	1.10	1.66		
Cumulative Total		3.09	8.26	10.49	11.42	13.01	15.90	21.02	27.50	31.05	32.40	68.90	92.25	95.63	97.24	98.34	100.00		

ANNUAL JFTS

1985

1985 - Hs(m)

Total

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.5	1	0.09	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	2.80	13.04	1.07	0.18	0.11	0.00	17.35	17.35
1	1.5	0.34	0.16	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.14	36.69	2.23	0.79	0.16	0.23	49.87	67.23
1.5	2	0.46	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.88	17.15	0.59	0.21	0.64	0.17	27.17	94.39
2	2.5	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.71	2.79	0.00	0.00	0.16	0.09	3.90	98.30
2.5	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	1.50	0.00	0.00	0.00	0.00	1.59	99.89
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.00	0.00	0.00	0.00	0.11	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		1.05	0.25	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.05	20.62	71.27	3.89	1.18	1.07	0.49		
Cumulative Total		1.05	1.30	1.44	1.44	1.44	1.44	1.44	1.44	1.44	1.48	22.10	93.37	97.26	98.44	99.51	100.00		

Swell

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	3.44	0.06	0.16	0.53	0.00	4.30	4.30
0.5	1	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.44	33.51	0.04	0.32	0.00	0.05	37.42	41.72
1	1.5	0.00	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.99	35.15	0.26	0.20	0.26	0.00	40.97	82.69
1.5	2	0.14	0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.59	10.99	0.01	0.00	0.51	0.32	13.72	96.41
2	2.5	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	1.81	0.00	0.00	0.00	0.11	2.06	98.47
2.5	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.41	0.00	0.00	0.00	0.00	1.41	99.88
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.00	0.00	0.00	0.00	0.12	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.20	0.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.15	86.44	0.36	0.68	1.30	0.47		
Cumulative Total		0.20	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	10.76	97.19	97.56	98.23	99.53	100.00		

Sea

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	1.27	2.01	1.31	0.72	2.16	2.07	3.80	5.48	4.23	0.65	3.21	1.31	1.07	0.63	0.50	0.68	31.10	31.10
0.5	1	0.79	2.27	0.72	0.24	0.20	0.17	0.04	0.41	0.55	0.26	13.29	7.40	1.00	0.26	0.13	0.31	28.04	59.14
1	1.5	0.48	0.55	0.20	0.04	0.00	0.00	0.00	0.00	0.00	0.04	19.90	5.94	0.00	0.00	0.00	0.00	27.15	86.29
1.5	2	0.04	0.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.82	2.73	0.00	0.00	0.00	0.02	12.07	98.36
2	2.5	0.04	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.85	0.48	0.00	0.00	0.00	0.00	1.42	99.78
2.5	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.09	0.00	0.00	0.00	0.00	0.22	100.00
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		2.62	5.33	2.23	1.00	2.36	2.25	3.84	5.89	4.78	0.96	46.20	17.94	2.07	0.89	0.63	1.00		
Cumulative Total		2.62	7.94	10.17	11.17	13.53	15.78	19.62	25.51	30.29	31.25	77.46	95.40	97.47	98.36	99.00	100.00		

1986

1986 - Hs(m)

Total

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.5	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.67	11.46	0.43	0.10	0.03	0.01	14.71	14.71
1	1.5	0.33	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.02	37.81	3.56	1.02	0.38	0.25	55.42	70.14
1.5	2	0.18	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.03	15.91	1.64	0.26	0.26	0.19	25.55	95.68
2	2.5	0.10	0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.55	2.34	0.24	0.03	0.00	0.00	3.41	99.10
2.5	3	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.56	0.10	0.00	0.00	0.00	0.68	99.78
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.21	0.01	0.00	0.00	0.00	0.22	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.62	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	22.28	68.29	5.99	1.42	0.67	0.46		
Cumulative Total		0.62	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	23.17	91.46	97.45	98.87	99.54	100.00		

Swell

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	2.33	0.15	0.42	0.64	0.02	3.56	3.56
0.5	1	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.61	34.38	0.51	0.16	0.01	0.13	38.81	42.38
1	1.5	0.00	0.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.09	35.84	0.65	0.03	0.53	0.06	43.49	85.86
1.5	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.47	10.60	0.21	0.01	0.01	0.00	12.30	98.16
2	2.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.33	0.12	0.00	0.00	0.00	1.45	99.61
2.5	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.31	0.00	0.00	0.00	0.00	0.31	99.92
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.00	0.00	0.00	0.00	0.08	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.01	0.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.18	84.87	1.63	0.62	1.19	0.21		
Cumulative Total		0.01	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	11.48	96.34	97.98	98.60	99.79	100.00		

Sea

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.71	1.57	0.82	1.03	1.87	2.58	4.44	5.87	4.46	0.73	1.38	1.63	0.54	0.21	0.15	0.23	28.23	28.23
0.5	1	0.25	1.30	0.86	0.29	0.44	0.34	0.38	0.63	0.48	0.23	14.36	8.20	1.32	0.15	0.36	0.04	29.62	57.85
1	1.5	0.25	0.67	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	22.89	5.66	0.06	0.27	0.02	0.25	30.16	88.01
1.5	2	0.48	0.13	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.39	1.99	0.08	0.08	0.08	0.08	9.39	97.40
2	2.5	0.08	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.67	0.69	0.13	0.00	0.00	0.00	1.80	99.20
2.5	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.31	0.19	0.00	0.00	0.00	0.54	99.75
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23	0.02	0.00	0.00	0.00	0.25	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		1.78	3.90	1.82	1.32	2.31	2.91	4.82	6.50	4.95	0.96	45.73	18.72	2.35	0.71	0.61	0.61		
Cumulative Total		1.78	5.68	7.50	8.82	11.13	14.04	18.86	25.36	30.31	31.27	77.01	95.72	98.07	98.78	99.39	100.00		

ANNUAL JFTS

1987

1987 - Hs(m)

Total

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.5	1	0.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.91	13.69	1.04	0.16	0.21	0.18	16.38	16.38
1	1.5	0.31	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.75	42.01	3.66	0.96	0.74	0.37	54.84	71.22
1.5	2	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.58	17.99	0.94	0.11	0.11	0.11	24.01	95.23
2	2.5	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.58	3.68	0.05	0.00	0.03	0.02	4.38	99.61
2.5	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.35	0.00	0.00	0.00	0.00	0.39	100.00
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.68	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.85	77.72	5.68	1.23	1.10	0.68		
Cumulative Total		0.68	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	13.58	91.30	96.99	98.22	99.32	100.00		

Swell

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.05	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.13	0.09	0.50	0.44	0.05	3.27	3.27
0.5	1	0.09	0.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.30	34.05	0.73	0.05	0.06	0.01	37.50	40.78
1	1.5	0.00	0.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.64	40.32	0.76	0.02	0.00	0.00	45.16	85.94
1.5	2	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.99	10.03	0.13	0.05	0.00	0.00	11.23	97.17
2	2.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	2.41	0.00	0.01	0.00	0.01	2.49	99.66
2.5	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.34	0.00	0.00	0.00	0.00	0.34	100.00
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.14	0.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.00	89.28	1.71	0.63	0.50	0.07		
Cumulative Total		0.14	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	7.81	97.09	98.80	99.43	99.93	100.00		

Sea

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	1.55	2.33	0.95	0.62	1.68	1.80	3.03	6.03	2.95	0.95	3.06	1.49	0.81	0.62	0.81	0.76	29.43	29.43
0.5	1	1.04	4.03	0.47	0.06	0.00	0.04	0.19	0.45	0.25	0.53	13.54	10.76	1.32	0.08	0.06	0.17	32.99	62.42
1	1.5	0.00	0.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	15.55	8.53	0.79	0.02	0.11	0.15	25.78	88.20
1.5	2	0.00	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.32	3.48	0.15	0.00	0.00	0.00	10.06	98.26
2	2.5	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.83	0.72	0.00	0.00	0.00	0.02	1.63	99.89
2.5	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.04	0.00	0.00	0.00	0.00	0.11	100.00
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		2.65	7.11	1.42	0.68	1.68	1.85	3.23	6.47	3.20	1.49	39.36	25.02	3.06	0.72	0.98	1.10		
Cumulative Total		2.65	9.76	11.18	11.86	13.54	15.38	18.61	25.08	28.28	29.77	69.13	94.14	97.20	97.92	98.90	100.00		

1988

1988 - Hs(m)

Total

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.05	0.05
0.5	1	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	1.01	13.93	1.80	0.24	0.03	0.02	17.13	17.18
1	1.5	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.69	32.24	3.44	0.31	0.24	0.14	43.11	60.29
1.5	2	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.16	21.31	1.06	0.24	0.14	0.08	28.09	88.38
2	2.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.42	8.30	1.05	0.00	0.00	0.00	9.77	98.14
2.5	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.50	0.10	0.00	0.02	0.01	1.64	99.78
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.03	0.03	0.00	0.00	0.16	99.94
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.00	0.00	0.06	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	13.29	77.42	7.48	0.88	0.43	0.25		
Cumulative Total		0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.25	13.54	90.96	98.44	99.32	99.75	100.00		

Swell

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.39	2.47	0.21	0.05	0.34	0.12	3.71	3.71
0.5	1	0.01	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.54	26.69	0.27	0.01	0.39	0.02	30.99	34.70
1	1.5	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.02	32.46	0.20	0.20	0.21	0.00	37.11	71.81
1.5	2	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.50	17.44	0.10	0.00	0.01	0.00	19.11	90.92
2	2.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	7.43	0.10	0.00	0.00	0.00	7.57	98.49
2.5	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.31	0.03	0.02	0.00	0.00	1.37	99.86
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01	0.03	0.00	0.00	0.14	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.15	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.48	87.90	0.93	0.31	0.95	0.14		
Cumulative Total		0.15	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	9.77	97.67	98.60	98.91	99.86	100.00		

Sea

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.88	1.96	1.22	0.64	1.40	2.06	4.11	6.51	3.89	0.39	3.82	3.77	1.54	0.47	0.73	0.49	33.90	33.90
0.5	1	0.73	3.55	0.37	0.00	0.07	0.02	0.29	0.54	0.47	0.27	10.07	10.70	1.93	0.15	0.32	0.24	29.73	63.63
1	1.5	0.34	1.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	15.94	5.83	0.10	0.29	0.20	0.00	24.12	87.75
1.5	2	0.07	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.40	2.03	0.17	0.00	0.00	0.00	10.75	98.51
2	2.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.66	0.49	0.00	0.00	0.00	0.02	1.18	99.68
2.5	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.05	0.02	0.17	99.85
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.10	99.95
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.05	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		2.03	7.00	1.59	0.64	1.47	2.08	4.41	7.05	4.36	0.66	38.89	22.92	3.75	1.05	1.30	0.78		
Cumulative Total		2.03	9.04	10.63	11.27	12.74	14.82	19.23	26.28	30.64	31.30	70.19	93.12	96.87	97.92	99.22	100.00		

ANNUAL JFTS

1989

1989 - Hs(m)

Total

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.5	1	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.19	2.37	14.24	1.11	0.84	0.08	0.15	19.00	19.00
1	1.5	0.17	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.84	35.82	1.89	0.73	0.38	0.27	46.14	65.14
1.5	2	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.57	18.55	1.69	0.46	0.30	0.24	25.92	91.06
2	2.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.70	6.03	0.13	0.27	0.00	0.00	7.12	98.18
2.5	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.59	0.00	0.00	0.00	0.00	1.59	99.77
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23	0.00	0.00	0.00	0.00	0.23	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.30	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.19	14.47	76.45	4.82	2.31	0.75	0.66		
Cumulative Total		0.30	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.54	15.01	91.46	96.28	98.58	99.34	100.00		

Swell

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	2.70	0.05	0.40	0.43	0.00	3.70	3.70
0.5	1	0.02	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.52	32.50	0.25	0.39	0.59	0.00	37.41	41.11
1	1.5	0.02	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.64	32.61	0.22	0.35	0.23	0.16	37.33	78.44
1.5	2	0.00	0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.32	12.84	0.07	0.31	0.00	0.32	15.02	93.45
2	2.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	4.71	0.03	0.15	0.00	0.00	4.94	98.39
2.5	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.43	0.00	0.00	0.00	0.00	1.43	99.83
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.17	0.00	0.00	0.00	0.00	0.17	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.05	0.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.62	86.97	0.62	1.61	1.25	0.49		
Cumulative Total		0.05	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	9.07	96.04	96.66	98.27	99.51	100.00		

Sea

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	1.24	2.02	1.22	0.89	2.48	3.33	4.70	6.16	2.76	1.00	2.39	2.31	1.28	0.28	0.46	0.70	33.22	33.22
0.5	1	0.70	3.20	0.83	0.30	0.30	0.37	0.26	0.57	0.41	0.50	13.66	7.88	1.00	0.07	0.52	0.28	30.85	64.08
1	1.5	0.00	1.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	17.10	6.18	0.30	0.37	0.26	0.04	25.35	89.43
1.5	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.70	2.26	0.30	0.00	0.07	0.04	9.38	98.80
2	2.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.70	0.20	0.11	0.00	0.00	0.00	1.00	99.80
2.5	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.11	0.00	0.00	0.00	0.00	0.13	99.93
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.07	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		1.94	6.31	2.05	1.20	2.79	3.70	4.96	6.72	3.18	1.50	40.58	18.99	3.00	0.72	1.31	1.07		
Cumulative Total		1.94	8.25	10.29	11.49	14.27	17.97	22.93	29.66	32.83	34.33	74.91	93.91	96.91	97.63	98.93	100.00		

1990

1990 - Hs(m)

Total

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.01	0.01
0.5	1	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.84	9.93	1.42	0.80	0.42	0.15	14.59	14.60
1	1.5	0.38	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.45	36.32	2.37	0.50	0.39	0.35	48.81	63.41
1.5	2	0.09	0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.90	19.95	1.38	0.72	0.17	0.11	26.48	89.90
2	2.5	0.24	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.26	6.05	0.41	0.22	0.30	0.22	7.76	97.66
2.5	3	0.03	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.14	0.08	0.07	0.17	0.19	1.74	99.39
3	3.5	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.08	0.03	0.02	0.21	99.60
3.5	4	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.05	0.11	99.71
4	4.5	0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.06	0.24	99.95
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.03	99.99
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.01	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		1.00	0.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	14.45	73.45	5.66	2.49	1.48	1.15		
Cumulative Total		1.00	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	15.76	89.21	94.87	97.36	98.85	100.00		

Swell

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.38	2.51	0.17	0.27	0.70	0.05	4.08	4.08
0.5	1	0.03	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.00	27.79	0.51	0.30	0.00	0.01	31.80	35.88
1	1.5	0.06	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.68	34.85	0.63	0.21	0.03	0.15	41.71	77.59
1.5	2	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.98	13.70	0.08	0.06	0.28	0.02	15.26	92.85
2	2.5	0.28	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.18	4.56	0.01	0.00	0.24	0.30	5.69	98.55
2.5	3	0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.08	0.00	0.00	0.02	0.16	1.42	99.97
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.03	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.66	0.37	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.22	84.54	1.41	0.83	1.28	0.69		
Cumulative Total		0.66	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	11.25	95.79	97.20	98.03	99.31	100.00		

Sea

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.88	1.58	0.91	0.74	1.71	2.04	3.79	5.83	4.13	0.67	3.54	3.12	0.65	0.29	0.40	0.40	30.69	30.69
0.5	1	0.53	3.96	1.01	0.27	0.29	0.23	0.34	0.51	0.51	0.23	16.36	6.99	0.53	0.19	0.06	0.23	32.25	62.93
1	1.5	0.08	1.16	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	19.00	5.29	0.06	0.25	0.04	0.25	26.16	89.09
1.5	2	0.04	0.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.67	1.90	0.02	0.02	0.00	0.00	8.07	97.16
2	2.5	0.06	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.82	0.57	0.08	0.00	0.11	0.00	1.75	98.90
2.5	3	0.00	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.02	0.00	0.06	0.04	0.23	99.14
3	3.5	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.04	0.00	0.00	0.11	0.21	99.35
3.5	4	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.11	0.25	99.60
4	4.5	0.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.00	0.00	0.02	0.40	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		2.02	7.33	1.94	1.01	2.00	2.27	4.13	6.34	4.63	0.91	45.41	17.88	1.54	0.76	0.67	1.16		
Cumulative Total		2.02	9.35	11.29	12.30	14.30	16.58	20.70	27.04	31.68	32.58	77.99	95.87	97.41	98.17	98.84	100.00		

ANNUAL JFTS

1991

1991 - Hs(m)

Total

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.5	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.41	10.74	0.79	0.13	0.08	0.00	12.15	12.15
1	1.5	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.91	39.90	2.05	0.25	0.54	0.22	49.89	62.03
1.5	2	0.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.01	21.79	0.29	0.30	0.45	0.31	28.45	90.48
2	2.5	0.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.92	5.19	0.00	0.03	0.26	0.86	7.57	98.05
2.5	3	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	1.46	0.19	0.00	0.05	0.03	1.95	100.00
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	13.34	79.09	3.32	0.71	1.37	1.42		
Cumulative Total		0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	14.10	93.18	96.51	97.21	98.58	100.00		

Swell

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	1.93	0.15	0.57	0.47	0.06	3.31	3.31
0.5	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.19	29.32	0.44	0.05	0.08	0.08	31.16	34.47
1	1.5	0.03	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.47	39.04	0.28	0.02	0.27	0.28	43.49	77.95
1.5	2	0.10	0.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.11	13.96	0.01	0.05	0.00	0.35	15.77	93.72
2	2.5	0.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.19	3.76	0.01	0.00	0.00	0.51	4.81	98.53
2.5	3	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.35	0.00	0.00	0.00	0.03	1.47	100.00
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.66	0.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.98	89.36	0.90	0.69	0.82	1.32		
Cumulative Total		0.66	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	6.92	96.28	97.18	97.87	98.68	100.00		

Sea

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	1.06	1.67	0.59	0.38	0.52	0.99	2.72	5.57	3.59	0.61	2.47	2.51	0.94	0.33	0.49	0.52	24.94	24.94
0.5	1	0.31	1.78	0.02	0.05	0.07	0.02	0.09	0.54	0.40	0.21	15.43	9.14	1.06	0.23	0.14	0.23	29.73	54.67
1	1.5	0.40	0.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	20.83	8.38	0.05	0.00	0.14	0.16	30.79	85.46
1.5	2	0.35	0.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.67	3.22	0.00	0.02	0.02	0.05	10.64	96.10
2	2.5	0.82	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.69	0.73	0.35	0.07	0.00	0.00	3.69	99.79
2.5	3	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.05	0.00	0.00	0.00	0.00	0.21	100.00
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		2.98	4.60	0.61	0.42	0.59	1.01	2.82	6.11	3.99	0.82	47.21	24.03	2.40	0.66	0.80	0.96		
Cumulative Total		2.98	7.59	8.20	8.62	9.21	10.22	13.03	19.14	23.13	23.95	71.16	95.19	97.58	98.24	99.04	100.00		

1992

1992 - Hs(m)

Total

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.5	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	16.56	0.54	0.05	0.00	0.00	18.15	18.15
1	1.5	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.70	33.86	3.09	0.15	0.02	0.02	46.85	64.99
1.5	2	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.78	21.61	1.80	0.14	0.08	0.00	27.53	92.52
2	2.5	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.44	5.76	0.08	0.00	0.06	0.09	6.51	99.03
2.5	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.60	0.20	0.00	0.00	0.00	0.81	99.84
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.05	0.00	0.00	0.00	0.16	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	14.92	78.51	5.75	0.33	0.16	0.11		
Cumulative Total		0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	15.14	93.65	99.40	99.73	99.89	100.00		

Swell

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	3.01	0.16	0.28	0.92	0.00	4.42	4.42
0.5	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.35	33.49	0.36	0.00	0.44	0.00	36.64	41.06
1	1.5	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.89	30.95	0.92	0.39	0.05	0.00	36.22	77.28
1.5	2	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.75	15.65	0.33	0.17	0.00	0.00	16.92	94.20
2	2.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	4.86	0.02	0.00	0.00	0.00	4.92	99.12
2.5	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.70	0.09	0.00	0.00	0.00	0.79	99.91
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.01	0.00	0.00	0.00	0.09	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.09	88.74	1.90	0.84	1.40	0.00		
Cumulative Total		0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	7.12	95.87	97.76	98.60	100.00	100.00		

Sea

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.31	1.42	0.77	0.59	1.07	1.76	3.24	6.55	3.41	0.56	3.35	3.55	1.21	0.44	0.40	0.50	29.13	29.13
0.5	1	0.77	1.99	0.29	0.10	0.19	0.40	0.79	0.98	0.42	0.21	17.61	11.82	1.99	0.50	0.10	0.13	38.29	67.42
1	1.5	0.06	0.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	17.21	6.02	0.42	0.38	0.00	0.00	24.26	91.68
1.5	2	0.00	0.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.56	1.30	0.21	0.02	0.00	0.15	7.44	99.12
2	2.5	0.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.36	0.25	0.06	0.00	0.00	0.02	0.88	100.00
2.5	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		1.34	3.79	1.07	0.69	1.25	2.15	4.04	7.53	3.83	0.77	44.08	22.94	3.89	1.34	0.50	0.79		
Cumulative Total		1.34	5.12	6.19	6.88	8.13	10.29	14.32	21.85	25.68	26.45	70.54	93.48	97.37	98.70	99.21	100.00		

ANNUAL JFTS

1993

1993 - Hs(m)

Total

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.5	1	0.01	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.03	0.05	1.95	11.04	0.39	0.10	0.22	0.10	13.92	13.92
1	1.5	0.40	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.70	38.64	2.18	0.64	0.40	0.55	53.58	67.50
1.5	2	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.49	16.58	1.62	0.66	0.26	0.00	24.63	92.13
2	2.5	0.10	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.56	4.10	0.29	0.22	0.49	0.03	5.81	97.95
2.5	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.79	0.07	0.03	0.43	0.00	1.32	99.27
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.14	0.18	0.00	0.45	99.71
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.03	0.00	0.08	99.79
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.08	0.03	0.00	0.14	99.93
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.05	0.00	0.00	0.07	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.54	0.10	0.01	0.00	0.01	0.00	0.00	0.00	0.03	0.05	18.70	71.14	4.76	1.92	2.05	0.68		
Cumulative Total		0.54	0.64	0.65	0.65	0.66	0.66	0.66	0.66	0.70	0.74	19.44	90.58	95.34	97.26	99.32	100.00		

Swell

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	2.16	0.06	0.56	0.70	0.37	3.98	3.98
0.5	1	0.00	0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.63	30.77	0.18	0.25	0.15	0.19	35.31	39.29
1	1.5	0.00	0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.58	37.11	0.27	0.00	0.09	0.08	42.28	81.57
1.5	2	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.33	11.64	0.14	0.02	0.23	0.08	13.49	95.06
2	2.5	0.02	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	3.00	0.00	0.00	0.09	0.54	3.70	98.76
2.5	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.56	0.00	0.00	0.06	0.47	1.12	99.88
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.00	0.12	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.02	0.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.64	85.24	0.64	0.83	1.45	1.73		
Cumulative Total		0.02	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	10.10	95.34	95.99	96.82	98.27	100.00		

Sea

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.60	1.76	0.68	0.48	2.48	2.42	3.68	4.96	3.72	0.89	2.96	1.45	1.05	0.33	0.17	0.21	27.84	27.84
0.5	1	0.37	3.04	1.32	0.56	0.72	0.39	0.72	1.10	0.52	0.27	14.17	7.22	1.20	0.00	0.00	0.06	31.66	59.50
1	1.5	0.10	0.93	0.21	0.02	0.00	0.00	0.00	0.00	0.00	0.00	19.50	6.99	0.23	0.04	0.02	0.10	28.15	87.65
1.5	2	0.00	0.06	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.76	2.34	0.00	0.06	0.06	0.00	9.37	97.02
2	2.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.97	0.89	0.00	0.00	0.00	0.00	1.86	98.88
2.5	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.25	0.06	0.00	0.02	0.00	0.37	99.26
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.21	0.00	0.04	0.00	0.25	99.50
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.00	0.29	0.00	0.37	99.88
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.00	0.04	99.92
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.04	0.00	0.00	0.08	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		1.08	5.79	2.30	1.05	3.21	2.81	4.41	6.06	4.24	1.16	44.41	19.13	2.92	0.48	0.60	0.37		
Cumulative Total		1.08	6.87	9.16	10.22	13.42	16.24	20.64	26.70	30.94	32.10	76.50	95.64	98.55	99.03	99.63	100.00		

1994

1994 - Hs(m)

Total

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.5	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.13	3.56	15.45	2.84	0.56	0.26	0.01	22.87	22.87
1	1.5	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.75	36.93	1.70	0.53	0.14	0.47	51.76	74.62
1.5	2	0.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.21	15.40	0.75	0.16	0.03	0.21	21.06	95.68
2	2.5	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	2.81	0.03	0.00	0.00	0.00	3.34	99.03
2.5	3	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.81	0.00	0.00	0.00	0.00	0.94	99.97
3	3.5	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.13	19.77	71.39	5.33	1.24	0.43	0.68		
Cumulative Total		0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	1.02	1.14	20.91	92.31	97.64	98.88	99.32	100.00		

Swell

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.03	0.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	2.96	0.10	0.45	0.92	0.09	4.87	4.87
0.5	1	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.59	29.58	0.14	1.04	0.75	0.09	38.20	43.08
1	1.5	0.26	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.52	31.15	0.21	0.00	0.03	0.08	39.36	82.44
1.5	2	0.36	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.09	12.46	0.07	0.00	0.00	0.00	14.00	96.44
2	2.5	0.21	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	2.41	0.00	0.00	0.00	0.00	2.68	99.12
2.5	3	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.81	0.00	0.00	0.00	0.00	0.85	99.97
3	3.5	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.94	0.37	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	15.33	79.37	0.52	1.50	1.70	0.27		
Cumulative Total		0.94	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	16.64	96.01	96.53	98.03	99.73	100.00		

Sea

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	1.25	4.26	1.86	1.53	1.86	2.66	5.29	5.69	5.12	0.80	3.54	2.68	1.18	0.38	0.33	0.10	38.53	38.53
0.5	1	0.95	2.26	0.58	0.48	0.20	0.25	0.15	0.90	0.35	0.33	14.57	8.13	0.83	0.10	0.10	0.15	30.32	68.85
1	1.5	0.25	0.40	0.10	0.03	0.00	0.00	0.00	0.00	0.00	0.00	16.73	5.37	0.38	0.05	0.00	0.05	23.35	92.20
1.5	2	0.00	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.32	1.45	0.38	0.00	0.00	0.00	7.22	99.42
2	2.5	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.40	0.10	0.00	0.00	0.00	0.00	0.53	99.95
2.5	3	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	100.00
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		2.53	7.00	2.53	2.03	2.06	2.91	5.44	6.60	5.47	1.13	40.56	17.73	2.76	0.53	0.43	0.30		
Cumulative Total		2.53	9.53	12.06	14.10	16.15	19.06	24.50	31.10	36.57	37.70	78.25	95.99	98.75	99.27	99.70	100.00		

ANNUAL JFTS

1995

1995 - Hs(m)

Total

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.09	0.00	0.00	0.00	0.00	0.10	0.10
0.5	1	0.15	0.07	0.10	0.02	0.01	0.00	0.00	0.02	0.03	0.08	3.80	18.61	3.28	0.97	0.42	0.14	27.71	27.81
1	1.5	0.63	0.89	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.05	30.94	2.27	1.16	0.30	0.32	42.58	70.39
1.5	2	0.11	0.43	0.01	0.10	0.05	0.00	0.01	0.00	0.00	0.00	2.64	16.08	1.38	0.58	0.40	0.13	21.93	92.32
2	2.5	0.00	0.07	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.46	4.33	0.11	0.22	0.14	0.23	5.59	97.91
2.5	3	0.24	0.13	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.62	0.15	0.05	0.09	0.10	1.46	99.37
3	3.5	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.38	0.05	0.00	0.00	0.05	0.50	99.87
3.5	4	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.10	99.98
4	4.5	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		1.23	1.59	0.19	0.13	0.06	0.00	0.01	0.02	0.03	0.08	13.04	71.04	7.24	2.98	1.35	1.02		
Cumulative Total		1.23	2.82	3.01	3.14	3.20	3.20	3.21	3.23	3.26	3.34	16.38	87.42	94.66	97.64	98.98	100.00		

Swell

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.28	3.75	0.33	0.28	1.01	0.00	5.68	5.68
0.5	1	0.00	0.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.91	35.25	0.10	0.03	0.65	0.16	42.40	48.08
1	1.5	0.00	0.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.56	28.63	0.27	0.00	0.91	0.01	34.32	82.41
1.5	2	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.55	11.85	0.31	0.00	0.13	0.00	12.89	95.29
2	2.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.64	0.05	0.00	0.06	0.00	3.74	99.04
2.5	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.43	0.13	0.00	0.02	0.00	0.58	99.62
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.38	0.00	0.00	0.00	0.00	0.38	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.02	1.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.30	83.94	1.19	0.31	2.78	0.17		
Cumulative Total		0.02	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	11.61	95.55	96.73	97.05	99.83	100.00		

Sea

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	1.45	1.78	1.34	0.93	2.80	4.58	3.73	4.40	3.28	0.93	2.99	2.89	1.19	0.48	0.69	0.63	34.10	34.10
0.5	1	0.46	1.17	1.30	0.56	0.80	0.35	0.33	0.82	0.30	0.30	12.34	12.56	0.63	0.69	0.15	0.15	32.93	67.03
1	1.5	0.91	2.62	0.50	0.00	0.17	0.09	0.00	0.00	0.00	0.02	10.91	6.55	0.13	0.37	0.00	0.00	22.28	89.31
1.5	2	0.04	0.54	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.34	1.80	0.00	0.07	0.13	0.04	6.98	96.29
2	2.5	0.00	0.72	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.80	0.54	0.00	0.00	0.09	0.09	2.32	98.61
2.5	3	0.00	0.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.15	0.30	0.00	0.00	0.15	0.04	0.93	99.54
3	3.5	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.00	0.00	0.00	0.07	0.22	99.76
3.5	4	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.24	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		3.06	7.11	3.25	1.50	3.77	5.01	4.06	5.23	3.58	1.26	31.54	24.73	1.95	1.61	1.21	1.13		
Cumulative Total		3.06	10.17	13.43	14.92	18.70	23.71	27.77	32.99	36.57	37.83	69.37	94.10	96.05	97.66	98.87	100.00		

1996

1996 - Hs(m)

Total

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.02	0.02
0.5	1	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	4.83	20.21	2.27	0.73	0.14	0.16	28.39	28.42
1	1.5	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01	10.20	32.48	1.34	0.40	0.38	0.46	45.38	73.79
1.5	2	0.08	0.01	0.02	0.01	0.00	0.01	0.00	0.00	0.00	0.00	4.06	12.98	0.82	0.14	0.14	0.07	18.34	92.13
2	2.5	0.08	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.38	4.37	0.22	0.00	0.00	0.02	5.08	97.21
2.5	3	0.09	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	1.29	0.26	0.02	0.03	0.07	1.82	99.03
3	3.5	0.07	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.24	0.30	0.10	0.00	0.00	0.73	99.76
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.00	0.00	0.11	99.87
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.00	0.00	0.13	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.43	0.08	0.02	0.01	0.00	0.01	0.00	0.01	0.00	0.07	19.49	71.58	5.20	1.63	0.68	0.77		
Cumulative Total		0.43	0.51	0.54	0.55	0.55	0.56	0.56	0.57	0.57	0.64	20.13	91.71	96.91	98.54	99.23	100.00		

Swell

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.09	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.45	3.87	0.07	0.24	1.16	0.22	6.18	6.18
0.5	1	0.00	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.30	33.04	0.12	0.14	0.68	0.17	42.58	48.75
1	1.5	0.03	0.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.51	27.78	0.16	0.06	0.00	0.10	33.86	82.61
1.5	2	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.93	10.40	0.02	0.00	0.00	0.00	11.41	94.02
2	2.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	3.91	0.01	0.00	0.00	0.00	3.93	97.95
2.5	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.32	0.06	0.05	0.00	0.00	1.43	99.37
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.43	0.08	0.09	0.00	0.00	0.60	99.98
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.02	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.13	0.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	15.20	80.75	0.52	0.60	1.84	0.50		
Cumulative Total		0.13	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59	15.79	96.53	97.06	97.66	99.50	100.00		

Sea

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	1.00	2.02	1.36	0.97	1.90	2.41	3.86	6.49	4.86	1.02	4.47	3.91	1.29	0.51	0.61	0.92	37.59	37.59
0.5	1	0.56	2.48	0.41	0.05	0.05	0.27	0.68	0.34	0.17	0.36	14.31	6.71	1.36	0.22	0.02	0.53	28.52	66.11
1	1.5	0.56	0.07	0.00	0.02	0.07	0.05	0.00	0.00	0.00	0.12	16.16	5.49	0.32	0.00	0.07	0.15	23.08	89.19
1.5	2	0.24	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.34	1.82	0.00	0.00	0.24	0.02	8.72	97.91
2	2.5	0.17	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.61	0.10	0.02	0.05	0.02	0.07	1.09	99.00
2.5	3	0.27	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.05	0.41	99.42
3	3.5	0.10	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.17	99.59
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.19	0.00	0.00	0.19	99.78
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.19	0.02	0.00	0.22	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		2.89	4.76	1.80	1.04	2.02	2.72	4.54	6.83	5.03	1.51	41.89	18.03	3.01	1.17	1.02	1.75		
Cumulative Total		2.89	7.65	9.45	10.50	12.51	15.23	19.78	26.60	31.63	33.14	75.02	93.05	96.06	97.23	98.25	100.00		

ANNUAL JFTS

1997

1997 - Hs(m)

Total

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.35	0.00	0.00	0.00	0.00	0.46	0.46
0.5	1	0.08	0.18	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.78	15.57	1.34	0.48	0.08	0.02	21.55	22.01
1	1.5	0.22	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.87	33.44	3.24	1.47	1.80	0.59	52.77	74.78
1.5	2	0.30	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.69	12.09	1.31	1.23	0.47	0.39	18.57	93.36
2	2.5	0.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.32	3.31	0.42	0.40	0.30	0.05	5.00	98.36
2.5	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.94	0.11	0.17	0.01	0.00	1.23	99.59
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.30	0.00	0.11	0.00	0.00	0.41	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.80	0.41	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	18.77	65.99	6.43	3.87	2.66	1.05		
Cumulative Total		0.80	1.21	1.23	1.23	1.23	1.23	1.23	1.23	1.23	1.23	20.00	85.99	92.42	96.29	98.95	100.00		

Swell

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.32	3.03	0.16	0.09	0.12	0.23	3.98	3.98
0.5	1	0.00	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.58	29.79	0.07	0.59	0.71	0.01	39.86	43.83
1	1.5	0.00	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.81	32.86	0.22	0.21	1.32	0.67	41.17	85.00
1.5	2	0.01	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.05	8.54	0.03	0.21	0.54	0.12	10.56	95.56
2	2.5	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	2.85	0.00	0.19	0.05	0.00	3.14	98.70
2.5	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.85	0.01	0.14	0.00	0.00	1.00	99.70
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.30	0.00	0.00	0.00	0.00	0.30	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.02	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	15.81	78.21	0.50	1.43	2.74	1.03		
Cumulative Total		0.02	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	16.10	94.31	94.81	96.23	98.97	100.00		

Sea

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.68	1.30	1.15	0.93	2.01	1.92	4.24	5.32	4.99	1.10	4.92	3.35	0.84	0.64	0.31	0.29	33.99	33.99
0.5	1	1.30	3.49	1.90	0.40	0.33	0.66	0.71	0.53	0.11	0.13	14.76	7.59	1.39	0.02	0.13	0.11	33.57	67.56
1	1.5	0.42	2.65	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	14.61	6.14	0.31	0.20	0.42	0.29	25.09	92.65
1.5	2	0.18	0.57	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.49	1.57	0.00	0.04	0.04	0.04	5.94	98.59
2	2.5	0.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.44	0.31	0.07	0.00	0.02	0.02	1.08	99.67
2.5	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.09	0.09	0.02	0.00	0.29	99.96
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.04	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		2.80	8.01	3.11	1.32	2.34	2.58	4.94	5.85	5.10	1.24	38.23	19.05	2.69	1.04	0.95	0.75		
Cumulative Total		2.80	10.81	13.93	15.25	17.59	20.17	25.12	30.96	36.06	37.30	75.52	94.57	97.26	98.30	99.25	100.00		

1998

1998 - Hs(m)

Total

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.19	0.00	0.00	0.00	0.00	0.26	0.26
0.5	1	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	3.68	18.15	1.15	0.41	0.07	0.07	23.58	23.85
1	1.5	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.64	35.48	1.66	1.07	0.86	0.61	47.41	71.26
1.5	2	0.18	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.21	13.55	0.94	0.72	0.08	0.25	20.94	92.19
2	2.5	0.09	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.02	4.41	0.63	0.13	0.00	0.00	6.32	98.52
2.5	3	0.06	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.88	0.03	0.05	0.03	0.00	1.10	99.61
3	3.5	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.30	0.00	0.00	0.02	0.01	0.37	99.98
3.5	4	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.47	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	17.60	72.96	4.41	2.37	1.06	0.95		
Cumulative Total		0.47	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.65	18.25	91.21	95.62	97.99	99.05	100.00		

Swell

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.35	4.22	0.03	0.02	2.54	0.01	7.21	7.21
0.5	1	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.12	32.67	0.24	0.16	0.16	0.00	38.39	45.59
1	1.5	0.05	0.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.90	31.98	0.29	0.07	0.31	0.24	38.02	83.61
1.5	2	0.15	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.67	9.00	0.06	0.00	0.00	0.02	10.91	94.52
2	2.5	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	4.14	0.10	0.00	0.00	0.00	4.41	98.92
2.5	3	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.71	0.00	0.00	0.01	0.00	0.74	99.66
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.30	0.00	0.00	0.02	0.00	0.32	99.99
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.31	0.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.13	83.02	0.73	0.25	3.07	0.28		
Cumulative Total		0.31	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52	12.65	95.67	96.40	96.66	99.72	100.00		

Sea

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	1.52	1.54	0.94	1.01	2.07	2.74	4.55	6.34	4.00	0.85	4.71	2.32	1.17	0.32	0.37	0.85	35.30	35.30
0.5	1	0.55	2.62	1.08	0.21	0.28	0.23	0.32	0.74	0.44	0.62	12.07	7.33	0.55	0.18	0.21	0.25	27.67	62.97
1	1.5	0.83	1.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	13.19	7.58	0.18	0.00	0.14	0.18	23.24	86.21
1.5	2	0.00	0.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.95	2.85	0.00	0.02	0.05	0.00	11.15	97.36
2	2.5	0.02	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.49	0.53	0.05	0.05	0.00	0.00	2.32	99.68
2.5	3	0.02	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.00	0.00	0.00	0.00	0.23	99.91
3	3.5	0.05	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.09	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		2.99	5.84	2.02	1.22	2.34	2.96	4.87	7.08	4.44	1.47	39.42	20.75	1.95	0.57	0.76	1.31		
Cumulative Total		2.99	8.83	10.85	12.07	14.41	17.38	22.25	29.33	33.76	35.23	74.65	95.40	97.36	97.93	98.69	100.00		

ANNUAL JFTS

1999

1999 - Hs(m)

Total

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01	0.00	0.00	0.00	0.08	0.08
0.5	1	0.25	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.02	14.11	2.47	1.48	0.92	0.26	21.59	21.67
1	1.5	0.37	0.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.11	36.93	2.81	1.62	2.15	0.46	50.86	72.52
1.5	2	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.44	15.83	1.03	0.53	0.91	0.15	21.94	94.46
2	2.5	0.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.50	2.99	0.17	0.02	0.40	0.15	4.41	98.87
2.5	3	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.53	0.00	0.02	0.18	0.06	0.86	99.73
3	3.5	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.07	99.79
3.5	4	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.00	0.00	0.06	99.85
4	4.5	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.00	0.00	0.01	0.07	99.92
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.02	99.94
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.00	0.00	0.00	0.06	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.90	0.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.10	70.48	6.60	3.74	4.57	1.08		
Cumulative Total		0.90	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	13.53	84.01	90.61	94.35	98.92	100.00		

Swell

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23	2.91	0.00	0.16	1.80	0.16	5.26	5.26
0.5	1	0.03	0.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.93	28.23	0.16	0.00	1.83	0.03	36.51	41.77
1	1.5	0.32	0.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.52	32.38	0.12	0.08	1.16	0.54	39.44	81.21
1.5	2	0.07	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.75	12.89	0.08	0.03	0.54	0.41	14.80	96.02
2	2.5	0.10	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	2.63	0.01	0.01	0.22	0.13	3.16	99.18
2.5	3	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.53	0.00	0.00	0.19	0.00	0.79	99.97
3	3.5	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.64	0.65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.48	79.57	0.37	0.29	5.73	1.27		
Cumulative Total		0.64	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	12.76	92.33	92.70	92.99	98.73	100.00		

Sea

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.93	2.01	1.75	1.39	2.93	3.17	4.45	4.89	2.83	0.69	2.88	3.29	1.00	0.26	0.39	0.21	33.07	33.07
0.5	1	1.24	6.38	0.90	0.41	0.18	0.28	0.26	0.51	0.26	0.23	11.55	10.27	2.39	0.23	0.15	0.46	35.72	68.79
1	1.5	0.41	0.93	0.18	0.00	0.00	0.03	0.00	0.00	0.00	0.00	12.61	5.51	0.21	0.00	0.05	0.49	20.41	89.19
1.5	2	0.10	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	6.20	1.75	0.03	0.13	0.05	0.21	8.49	97.68
2	2.5	0.21	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.95	0.15	0.00	0.00	0.08	0.21	1.65	99.33
2.5	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.08	0.00	0.00	0.00	0.10	0.08	0.33	99.67
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	99.67
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.05	0.00	0.00	0.08	99.74
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.05	0.00	0.00	0.00	0.08	99.82
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.05	0.00	0.00	0.00	0.08	99.90
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.10	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		2.88	9.32	2.83	1.80	3.11	3.47	4.73	5.48	3.11	0.95	34.30	21.02	3.83	0.67	0.82	1.65		
Cumulative Total		2.88	12.20	15.03	16.83	19.94	23.42	28.15	33.63	36.75	37.70	72.00	93.03	96.86	97.53	98.35	100.00		

2000

2000 - Hs(m)

Total

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.5	1	0.76	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	2.94	14.77	3.27	0.94	0.55	0.43	23.83	23.83
1	1.5	0.75	0.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.92	29.00	4.62	2.65	1.47	0.88	45.62	69.44
1.5	2	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.30	17.55	1.28	0.33	0.65	0.33	23.55	93.00
2	2.5	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.58	4.17	0.40	0.08	0.06	0.47	5.84	98.84
2.5	3	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.31	0.13	0.00	0.00	0.01	0.59	99.43
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.14	0.00	0.00	0.00	0.15	99.58
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.11	0.00	0.00	0.17	99.75
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.00	0.00	0.09	99.84
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.00	0.00	0.14	99.98
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.02	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		1.79	0.47	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	12.82	65.80	9.88	4.37	2.72	2.12		
Cumulative Total		1.79	2.25	2.25	2.25	2.25	2.25	2.25	2.25	2.27	2.29	15.11	80.91	90.79	95.16	97.88	100.00		

Swell

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.07	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	1.61	0.14	0.19	1.23	0.08	3.48	3.48
0.5	1	0.00	0.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.07	30.31	0.16	0.33	1.18	0.00	38.76	42.25
1	1.5	0.00	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.78	31.19	0.12	0.00	2.82	0.64	38.82	81.07
1.5	2	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.35	12.86	0.00	0.05	0.14	0.36	14.77	95.83
2	2.5	0.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.15	3.34	0.00	0.00	0.00	0.10	3.90	99.73
2.5	3	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.22	0.00	0.00	0.00	0.00	0.27	100.00
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.43	1.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.39	79.54	0.42	0.56	5.37	1.18		
Cumulative Total		0.43	1.53	1.53	1.53	1.53	1.53	1.53	1.53	1.53	1.53	12.92	92.47	92.88	93.44	98.82	100.00		

Sea

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.84	1.41	1.38	1.17	2.98	2.86	4.44	5.63	3.91	1.12	3.56	2.98	2.46	0.31	0.26	0.26	35.58	35.58
0.5	1	0.53	5.27	1.67	0.55	0.17	0.26	0.41	0.93	0.60	0.12	9.38	9.00	2.34	0.19	0.02	0.17	31.60	67.18
1	1.5	0.00	3.44	0.14	0.00	0.00	0.00	0.00	0.00	0.02	0.10	8.78	6.40	0.43	0.12	0.00	0.00	19.43	86.61
1.5	2	0.10	0.43	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.05	5.16	4.37	0.00	0.05	0.00	0.00	10.17	96.78
2	2.5	0.07	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.76	0.50	0.05	0.12	0.00	0.00	1.53	98.31
2.5	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.17	0.19	0.14	0.05	0.00	0.00	0.55	98.85
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.24	0.05	0.17	0.00	0.48	99.33
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.05	0.02	0.00	0.19	99.52
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.00	0.00	0.14	99.67
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.29	0.00	0.00	0.29	99.95
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.05	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		1.53	10.57	3.22	1.72	3.15	3.13	4.84	6.56	4.53	1.38	27.80	23.46	5.78	1.41	0.48	0.43		
Cumulative Total		1.53	12.10	15.32	17.04	20.19	23.32	28.16	34.73	39.26	40.64	68.45	91.91	97.68	99.09	99.57	100.00		

ANNUAL JFTS

2001

2001 - Hs(m)

Total

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.10	0.00	0.00	0.00	0.00	0.14	0.14
0.5	1	0.21	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	4.69	18.50	2.56	0.79	0.41	0.17	27.43	27.57
1	1.5	0.08	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.02	31.91	3.22	0.91	0.79	0.34	47.32	74.89
1.5	2	0.21	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.65	15.09	1.37	0.37	0.75	0.16	21.72	96.61
2	2.5	0.01	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.51	2.53	0.00	0.00	0.00	0.00	3.08	99.69
2.5	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.15	0.00	0.00	0.00	0.00	0.15	99.84
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.16	0.00	0.00	0.00	0.00	0.16	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.50	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	18.92	68.45	7.15	2.07	1.95	0.67		
Cumulative Total		0.50	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.80	19.71	88.16	95.31	97.37	99.33	100.00		

Swell

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.57	5.29	0.12	0.58	1.33	0.07	8.01	8.01
0.5	1	0.06	0.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.65	32.92	0.13	0.00	1.01	0.23	43.25	51.26
1	1.5	0.18	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.37	26.22	0.04	0.00	0.25	0.48	33.54	84.80
1.5	2	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.01	11.25	0.00	0.00	0.00	0.51	12.97	97.77
2	2.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	1.86	0.00	0.00	0.00	0.00	1.93	99.70
2.5	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.00	0.00	0.00	0.00	0.14	99.84
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.16	0.00	0.00	0.00	0.00	0.16	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.43	0.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	16.66	77.85	0.28	0.58	2.58	1.30		
Cumulative Total		0.43	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	17.40	95.26	95.54	96.12	98.70	100.00		

Sea

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	1.54	2.74	1.66	1.01	1.68	3.18	4.88	5.09	2.92	0.53	2.74	1.87	1.43	0.55	0.58	1.38	33.79	33.79
0.5	1	1.36	3.41	0.85	0.32	0.07	0.21	0.12	0.28	0.18	0.35	11.03	7.92	1.38	0.64	0.32	0.23	28.67	62.46
1	1.5	0.55	1.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	15.45	10.23	0.46	0.00	0.00	0.00	28.10	90.56
1.5	2	0.07	0.37	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.14	2.72	0.00	0.00	0.00	0.00	8.29	98.85
2	2.5	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.74	0.35	0.00	0.00	0.00	0.00	1.15	100.00
2.5	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		3.52	7.99	2.51	1.34	1.75	3.39	5.00	5.37	3.11	0.88	35.10	23.08	3.27	1.20	0.90	1.61		
Cumulative Total		3.52	11.52	14.03	15.36	17.11	20.50	25.50	30.86	33.97	34.85	69.94	93.02	96.29	97.49	98.39	100.00		

2002

2002 - Hs(m)

Total

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.53	0.00	0.00	0.00	0.00	0.53	0.53
0.5	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.66	16.05	2.37	0.31	0.09	0.05	21.53	22.05
1	1.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	7.79	36.56	3.65	0.24	0.03	0.02	48.31	70.37
1.5	2	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.79	17.53	1.03	0.94	0.38	0.13	23.89	94.26
2	2.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.17	4.26	0.10	0.17	0.09	0.14	4.93	99.19
2.5	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.59	0.03	0.09	0.03	0.01	0.76	99.95
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.00	0.05	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	14.41	75.53	7.19	1.77	0.65	0.34		
Cumulative Total		0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.11	14.52	90.05	97.24	99.01	99.66	100.00		

Swell

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.83	4.37	0.25	0.76	0.55	0.04	6.79	6.79
0.5	1	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.66	28.64	0.30	0.56	0.46	0.00	35.64	42.44
1	1.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.18	33.06	0.84	0.25	0.13	0.00	39.46	81.90
1.5	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.90	12.27	0.05	0.00	0.26	0.02	13.49	95.39
2	2.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	3.89	0.06	0.00	0.05	0.00	4.01	99.40
2.5	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.57	0.00	0.00	0.02	0.00	0.60	100.00
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.01	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.59	82.80	1.49	1.56	1.46	0.06		
Cumulative Total		0.01	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	12.63	95.42	96.92	98.48	99.94	100.00		

Sea

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.34	2.38	1.21	0.68	0.95	1.31	3.47	4.75	4.12	0.99	3.32	2.76	1.26	0.99	0.24	0.48	29.25	29.25
0.5	1	0.36	1.60	0.34	0.34	0.27	0.24	0.36	0.87	0.34	0.24	14.25	12.26	1.24	0.00	0.02	0.22	32.96	62.22
1	1.5	0.68	1.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	17.96	6.33	0.24	0.10	0.07	0.22	27.27	89.48
1.5	2	0.17	0.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.87	2.86	0.02	0.10	0.05	0.10	9.89	99.37
2	2.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.17	0.32	0.00	0.00	0.02	0.00	0.51	99.88
2.5	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.07	99.95
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.05	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		1.55	6.37	1.55	1.02	1.21	1.55	3.83	5.62	4.46	1.24	41.57	24.53	2.76	1.19	0.53	1.02		
Cumulative Total		1.55	7.93	9.48	10.49	11.71	13.26	17.09	22.71	27.17	28.41	69.97	94.50	97.26	98.45	98.98	100.00		

ANNUAL JFTS

2003

2003 - Hs(m)

Total

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.03	0.03
0.5	1	0.26	0.14	0.09	0.07	0.01	0.00	0.00	0.01	0.05	0.02	3.70	18.15	1.05	0.47	0.01	0.16	24.19	24.22
1	1.5	0.39	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.02	35.96	2.39	0.64	1.04	0.30	49.77	74.00
1.5	2	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.65	13.58	0.82	0.23	0.23	0.22	19.81	93.80
2	2.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.39	4.13	0.15	0.17	0.01	0.00	4.85	98.65
2.5	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.66	0.17	0.00	0.00	0.00	0.83	99.49
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.22	0.00	0.00	0.00	0.30	99.78
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.00	0.00	0.00	0.00	0.09	99.87
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.00	0.00	0.00	0.00	0.13	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.73	0.18	0.09	0.07	0.01	0.00	0.00	0.01	0.05	0.02	17.75	72.82	4.79	1.51	1.29	0.67		
Cumulative Total		0.73	0.91	1.00	1.07	1.08	1.08	1.08	1.10	1.14	1.16	18.92	91.74	96.53	98.04	99.33	100.00		

Swell

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.82	4.97	0.34	0.34	1.33	0.00	7.88	7.88
0.5	1	0.00	0.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.30	32.41	0.72	0.04	0.14	0.26	41.29	49.17
1	1.5	0.09	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.11	28.01	1.02	0.00	0.69	0.41	35.43	84.60
1.5	2	0.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.71	9.68	0.26	0.00	0.00	0.00	11.01	95.61
2	2.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	3.18	0.09	0.00	0.00	0.00	3.33	98.94
2.5	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.54	0.16	0.00	0.00	0.00	0.70	99.64
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.19	0.00	0.00	0.00	0.25	99.88
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.00	0.00	0.00	0.00	0.06	99.94
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.00	0.00	0.00	0.00	0.06	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.54	0.54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	14.00	78.95	2.78	0.37	2.16	0.67		
Cumulative Total		0.54	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	15.07	94.02	96.80	97.17	99.33	100.00		

Sea

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	1.53	2.08	0.60	0.49	1.95	2.54	3.23	5.59	4.51	0.66	3.63	2.37	0.91	0.31	0.51	0.38	31.26	31.26
0.5	1	0.18	1.22	0.35	0.07	0.15	0.24	0.27	0.55	0.35	0.24	13.93	12.29	1.70	0.31	0.24	0.15	32.25	63.51
1	1.5	0.31	0.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	14.66	9.02	0.84	0.11	0.00	0.07	25.82	89.32
1.5	2	0.02	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.73	2.63	0.11	0.02	0.00	0.00	8.58	97.90
2	2.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.75	0.82	0.00	0.00	0.00	0.00	1.57	99.47
2.5	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.27	0.00	0.00	0.00	0.00	0.27	99.73
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.02	0.00	0.00	0.00	0.07	99.80
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.07	99.87
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.00	0.00	0.00	0.00	0.13	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		2.03	4.18	0.95	0.55	2.10	2.79	3.49	6.15	4.86	0.91	38.68	27.63	3.58	0.75	0.75	0.60		
Cumulative Total		2.03	6.21	7.16	7.71	9.81	12.60	16.09	22.24	27.10	28.01	66.69	94.32	97.90	98.65	99.40	100.00		

2004

2004 - Hs(m)

Total

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.5	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	3.12	16.69	1.43	0.18	0.09	0.01	21.54	21.54
1	1.5	0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.92	36.10	1.92	1.06	0.55	0.31	53.01	74.54
1.5	2	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.85	14.46	0.81	0.17	0.08	0.31	21.78	96.32
2	2.5	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	2.70	0.00	0.00	0.00	0.00	2.97	99.29
2.5	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.65	0.00	0.00	0.00	0.00	0.67	99.97
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.03	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	22.17	70.63	4.17	1.41	0.72	0.63		
Cumulative Total		0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.28	22.45	93.08	97.24	98.66	99.37	100.00		

Swell

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.05	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.21	5.91	0.29	0.07	0.49	0.02	7.08	7.08
0.5	1	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.22	35.56	1.22	0.15	0.00	0.00	41.18	48.26
1	1.5	0.00	0.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.02	34.39	0.70	0.00	0.00	0.00	40.30	88.56
1.5	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.01	8.08	0.00	0.00	0.00	0.00	9.09	97.64
2	2.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	1.70	0.00	0.00	0.00	0.00	1.71	99.36
2.5	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.61	0.00	0.00	0.00	0.00	0.61	99.96
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.04	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.06	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.47	86.28	2.22	0.22	0.49	0.02		
Cumulative Total		0.06	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	10.76	97.05	99.26	99.48	99.98	100.00		

Sea

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	1.06	1.74	1.39	1.02	1.97	2.19	4.01	5.48	3.46	1.13	3.48	2.91	0.94	0.66	0.31	0.49	32.24	32.24
0.5	1	1.21	2.23	0.29	0.12	0.27	0.59	0.66	0.78	0.43	0.29	13.77	7.51	0.37	0.08	0.08	0.39	29.08	61.32
1	1.5	0.31	0.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	19.08	6.32	0.33	0.00	0.00	0.35	26.85	88.17
1.5	2	0.18	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.57	2.68	0.00	0.00	0.00	0.00	10.62	98.79
2	2.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.90	0.27	0.00	0.00	0.00	0.00	1.17	99.96
2.5	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.04	100.00
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		2.76	4.61	1.68	1.13	2.25	2.78	4.67	6.26	3.89	1.43	44.80	19.73	1.64	0.74	0.39	1.23		
Cumulative Total		2.76	7.37	9.05	10.19	12.44	15.21	19.89	26.14	30.04	31.46	76.26	95.99	97.63	98.38	98.77	100.00		

ANNUAL JFTS

2005

2005 - Hs(m)

Total

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.15	0.00	0.00	0.00	0.00	0.19	0.19
0.5	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.82	11.75	0.79	0.05	0.00	0.00	16.40	16.60
1	1.5	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.94	33.01	2.64	0.97	0.49	0.18	47.40	64.00
1.5	2	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.22	20.66	0.71	0.34	0.22	0.45	27.60	91.60
2	2.5	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.71	4.98	0.35	0.30	0.00	0.34	6.79	98.39
2.5	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	1.37	0.01	0.03	0.00	0.00	1.50	99.89
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.00	0.00	0.00	0.00	0.11	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	19.82	72.03	4.50	1.69	0.71	0.97		
Cumulative Total		0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	20.10	92.13	96.63	98.32	99.03	100.00		

Swell

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.01	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.96	4.65	0.27	0.08	1.19	0.27	7.70	7.70
0.5	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.02	27.61	0.36	0.25	0.04	0.00	34.28	41.98
1	1.5	0.09	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.65	31.64	0.50	0.05	0.15	0.06	37.22	79.20
1.5	2	0.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.43	13.10	0.08	0.02	0.08	0.00	14.98	94.18
2	2.5	0.15	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	4.13	0.00	0.00	0.02	0.00	4.45	98.63
2.5	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.26	0.00	0.00	0.00	0.00	1.26	99.88
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.00	0.00	0.00	0.00	0.12	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.52	0.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	13.14	82.51	1.22	0.40	1.48	0.33		
Cumulative Total		0.52	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	14.06	96.57	97.79	98.19	99.67	100.00		

Sea

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.41	1.54	0.78	0.82	1.15	1.83	3.16	6.02	3.72	0.74	1.93	1.87	0.96	0.12	0.27	0.08	25.40	25.40
0.5	1	1.25	2.81	0.51	0.02	0.00	0.00	0.18	0.45	0.18	0.12	13.73	10.68	0.55	0.18	0.35	0.27	31.31	56.70
1	1.5	0.27	1.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	17.33	10.18	0.18	0.04	0.00	0.06	29.38	86.08
1.5	2	0.27	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.45	3.86	0.14	0.08	0.04	0.21	12.30	98.38
2	2.5	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.88	0.29	0.08	0.00	0.00	0.00	1.40	99.77
2.5	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.16	0.06	0.00	0.00	0.00	0.00	0.23	100.00
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		2.34	5.91	1.29	0.84	1.15	1.83	3.35	6.47	3.90	0.86	41.49	26.93	1.93	0.43	0.66	0.62		
Cumulative Total		2.34	8.25	9.55	10.39	11.54	13.36	16.71	23.18	27.08	27.94	69.43	96.37	98.30	98.73	99.38	100.00		

2006

2006 - Hs(m)

Total

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.05	0.05
0.5	1	0.34	0.15	0.00	0.00	0.00	0.00	0.07	0.11	0.02	0.06	3.28	20.79	2.11	0.35	0.01	0.10	27.40	27.44
1	1.5	0.17	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.33	33.40	3.18	0.96	0.34	0.19	48.77	76.21
1.5	2	0.13	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	3.31	13.92	0.25	0.47	0.17	0.08	18.48	94.69
2	2.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.51	4.10	0.00	0.00	0.07	0.09	4.78	99.47
2.5	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.18	0.27	0.00	0.00	0.00	0.06	0.51	99.99
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.01	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.64	0.45	0.00	0.00	0.00	0.00	0.07	0.11	0.02	0.11	17.63	72.52	5.55	1.78	0.59	0.53		
Cumulative Total		0.64	1.08	1.08	1.08	1.08	1.08	1.15	1.27	1.29	1.40	19.03	91.55	97.10	98.88	99.47	100.00		

Swell

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.06	0.08	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.38	2.17	0.13	0.00	0.72	0.02	3.56	3.56
0.5	1	0.00	0.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.71	39.68	0.06	0.00	0.09	0.00	45.80	49.36
1	1.5	0.00	0.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.25	30.62	0.05	0.00	0.00	0.00	36.15	85.51
1.5	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.75	9.95	0.02	0.00	0.01	0.09	10.83	96.34
2	2.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	3.38	0.00	0.00	0.00	0.00	3.44	99.78
2.5	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.22	0.00	0.00	0.00	0.00	0.22	100.00
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.06	0.56	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.15	86.02	0.26	0.00	0.82	0.12		
Cumulative Total		0.06	0.62	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	12.78	98.80	99.06	99.06	99.88	100.00		

Sea

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	1.07	2.50	1.41	0.99	3.74	2.86	3.59	4.95	2.91	0.97	3.37	2.52	0.99	0.36	0.15	0.24	32.64	32.64
0.5	1	0.29	2.96	1.53	0.39	0.19	0.49	0.61	0.51	0.24	0.66	16.06	8.91	1.38	0.15	0.00	0.17	34.53	67.17
1	1.5	0.36	1.02	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.05	17.25	4.34	0.02	0.00	0.00	0.07	23.25	90.41
1.5	2	0.00	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.15	4.59	2.14	0.00	0.00	0.00	0.19	7.18	97.60
2	2.5	0.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.75	0.95	0.00	0.00	0.00	0.05	1.94	99.54
2.5	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.39	0.05	0.00	0.00	0.00	0.00	0.44	99.98
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.02	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		1.92	6.60	3.06	1.38	3.93	3.35	4.20	5.46	3.15	1.82	42.44	18.90	2.40	0.51	0.15	0.73		
Cumulative Total		1.92	8.52	11.57	12.96	16.89	20.24	24.44	29.90	33.05	34.87	77.31	96.21	98.62	99.13	99.27	100.00		

ANNUAL JFTS

2007

2007 - Hs(m)

Total

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.5	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	1.15	10.81	2.09	0.27	0.03	0.00	14.37	14.37
1	1.5	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	7.01	37.80	2.15	0.84	0.40	0.62	48.89	63.26
1.5	2	0.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.57	20.65	0.98	0.39	0.24	0.37	28.65	91.92
2	2.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.53	5.10	0.30	0.06	0.05	0.00	6.03	97.95
2.5	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	1.83	0.06	0.00	0.00	0.00	1.91	99.85
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.15	0.00	0.00	0.00	0.00	0.15	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	14.28	76.34	5.57	1.56	0.72	0.98		
Cumulative Total		0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.55	14.83	91.16	96.74	98.30	99.02	100.00		

Swell

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.00	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.28	3.30	0.09	0.22	0.54	0.02	4.56	4.56
0.5	1	0.01	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.96	30.49	0.48	0.14	0.34	0.05	34.53	39.09
1	1.5	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.05	32.25	0.29	0.00	0.01	0.00	37.64	76.73
1.5	2	0.03	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.47	15.21	0.07	0.00	0.00	0.16	16.99	93.72
2	2.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	4.30	0.00	0.00	0.00	0.03	4.37	98.09
2.5	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.70	0.06	0.00	0.00	0.00	1.76	99.85
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.15	0.00	0.00	0.00	0.00	0.15	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.09	0.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.79	87.39	0.99	0.36	0.89	0.27		
Cumulative Total		0.09	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	10.10	97.49	98.49	98.85	99.73	100.00		

Sea

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.92	1.65	0.90	0.71	1.84	2.37	2.94	4.46	3.35	0.51	1.84	2.39	0.71	0.21	0.25	0.28	25.32	25.32
0.5	1	1.31	3.33	0.69	0.07	0.09	0.32	0.60	0.46	0.37	0.34	12.57	10.82	0.76	0.44	0.07	0.39	32.63	57.95
1	1.5	0.37	2.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	17.74	8.25	0.60	0.00	0.00	0.07	29.46	87.41
1.5	2	0.00	0.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.00	3.10	0.00	0.00	0.00	0.02	11.33	98.74
2	2.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.69	0.41	0.05	0.09	0.00	0.00	1.24	99.98
2.5	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.02	100.00
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		2.60	7.63	1.59	0.78	1.93	2.69	3.54	4.92	3.72	0.85	40.85	24.98	2.11	0.74	0.32	0.76		
Cumulative Total		2.60	10.23	11.81	12.59	14.52	17.21	20.75	25.67	29.39	30.24	71.09	96.07	98.18	98.92	99.24	100.00		

2008

2008 - Hs(m)

Total

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.5	1	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.13	17.25	1.68	1.34	0.52	0.19	24.15	24.15
1	1.5	0.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.28	30.35	5.03	2.28	0.60	0.84	48.85	73.00
1.5	2	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.89	13.68	1.25	0.44	0.81	0.44	22.79	95.79
2	2.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.73	2.08	0.08	0.00	0.22	0.07	3.18	98.96
2.5	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.07	0.07	0.18	0.14	0.50	99.46
3	3.5	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.05	0.08	0.20	0.40	99.86
3.5	4	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.02	0.03	0.01	0.11	99.98
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.02	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	19.02	63.41	8.20	4.20	2.47	1.90		
Cumulative Total		0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	19.82	83.23	91.43	95.63	98.10	100.00		

Swell

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.00	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	3.87	0.01	0.01	0.36	0.03	4.53	4.53
0.5	1	0.06	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.53	34.04	0.14	0.28	0.60	0.08	39.76	44.29
1	1.5	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.89	33.43	0.30	0.51	2.07	0.37	41.64	85.92
1.5	2	0.09	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.55	9.80	0.03	0.00	0.47	0.23	12.27	98.20
2	2.5	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	1.36	0.00	0.00	0.13	0.00	1.57	99.77
2.5	3	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.00	0.00	0.12	0.00	0.22	99.99
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.15	0.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.07	82.60	0.49	0.80	3.75	0.73		
Cumulative Total		0.15	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	11.63	94.23	94.72	95.52	99.27	100.00		

Sea

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.69	1.63	0.69	0.66	2.87	2.80	4.36	6.85	4.70	0.94	3.55	2.41	1.28	0.64	0.66	0.73	35.47	35.47
0.5	1	0.60	2.27	1.15	0.39	0.94	0.66	0.34	0.71	0.60	0.53	10.84	6.69	0.32	0.09	0.05	0.18	26.36	61.83
1	1.5	0.94	0.57	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	15.47	5.43	0.00	0.00	0.28	0.60	23.45	85.28
1.5	2	0.30	0.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.14	2.64	0.02	0.09	0.14	0.09	11.90	97.18
2	2.5	0.11	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.03	0.25	0.00	0.09	0.25	0.07	1.88	99.06
2.5	3	0.05	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.28	0.00	0.55	99.61
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.09	0.09	0.25	99.86
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.02	0.09	99.95
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.05	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		2.68	5.11	1.99	1.05	3.81	3.46	4.70	7.57	5.30	1.47	39.04	17.42	1.63	1.12	1.86	1.79		
Cumulative Total		2.68	7.79	9.79	10.84	14.65	18.11	22.81	30.38	35.67	37.14	76.18	93.60	95.23	96.35	98.21	100.00		

ANNUAL JFTS

2009

2009 - Hs(m)

Total

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.5	1	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	2.24	14.18	1.58	0.90	0.59	0.47	20.07	20.07
1	1.5	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.58	41.26	1.00	0.55	0.54	0.55	54.58	74.65
1.5	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.47	16.55	0.18	0.00	0.08	0.11	20.40	95.05
2	2.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.34	3.77	0.02	0.00	0.00	0.00	4.13	99.18
2.5	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.82	0.00	0.00	0.00	0.00	0.82	100.00
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	16.63	76.58	2.79	1.45	1.21	1.13		
Cumulative Total		0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.22	16.85	93.42	96.21	97.66	98.87	100.00		

Swell

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.06	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.26	2.97	0.17	0.41	0.62	0.20	4.74	4.74
0.5	1	0.01	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.59	33.22	0.05	0.00	0.13	0.58	37.74	42.48
1	1.5	0.21	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.18	35.32	0.02	0.00	0.15	0.58	42.57	85.05
1.5	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.89	9.88	0.01	0.00	0.00	0.07	10.85	95.89
2	2.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	3.36	0.00	0.00	0.00	0.00	3.38	99.28
2.5	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.72	0.00	0.00	0.00	0.00	0.72	100.00
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.28	0.30	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.94	85.47	0.26	0.41	0.90	1.43		
Cumulative Total		0.28	0.58	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59	11.53	97.00	97.26	97.67	98.57	100.00		

Sea

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	1.23	2.05	1.05	1.12	2.26	2.95	3.05	6.23	3.56	0.95	3.70	3.09	1.16	0.51	0.28	0.51	33.69	33.69
0.5	1	0.19	1.44	0.93	0.35	0.14	0.09	0.40	0.67	0.72	0.12	14.62	10.46	1.14	0.37	0.05	0.12	31.81	65.50
1	1.5	0.12	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	15.90	8.70	0.07	0.00	0.00	0.02	24.85	90.35
1.5	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.35	3.63	0.00	0.00	0.00	0.00	8.97	99.33
2	2.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.40	0.21	0.00	0.00	0.00	0.00	0.60	99.93
2.5	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.07	100.00
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		1.53	3.53	1.98	1.46	2.39	3.05	3.44	6.91	4.28	1.07	39.97	26.16	2.37	0.88	0.33	0.65		
Cumulative Total		1.53	5.07	7.04	8.51	10.90	13.95	17.39	24.30	28.57	29.64	69.61	95.77	98.14	99.02	99.35	100.00		

2010

2010 - Hs(m)

Total

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.5	1	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	1.80	14.84	2.84	0.35	0.11	0.23	20.21	20.21
1	1.5	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.12	43.82	4.45	1.26	0.82	0.41	57.95	78.15
1.5	2	0.26	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.64	12.77	1.04	0.78	0.11	0.03	17.65	95.80
2	2.5	0.11	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.16	2.01	0.22	0.27	0.06	0.00	2.84	98.64
2.5	3	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.63	0.00	0.02	0.06	0.08	0.81	99.45
3	3.5	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.00	0.00	0.00	0.06	0.15	99.60
3.5	4	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.11	99.71
4	4.5	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.26	0.29	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.53	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	11.72	74.16	8.55	2.68	1.16	1.16		
Cumulative Total		0.53	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.56	12.28	86.44	94.99	97.67	98.84	100.00		

Swell

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.33	3.88	0.09	0.41	0.71	0.03	5.52	5.52
0.5	1	0.00	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.86	34.34	0.12	1.11	0.67	0.06	40.22	45.74
1	1.5	0.10	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.14	36.78	0.22	0.01	0.50	0.24	43.04	88.78
1.5	2	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.19	8.35	0.06	0.00	0.02	0.01	9.64	98.42
2	2.5	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.88	0.00	0.00	0.05	0.00	1.01	99.44
2.5	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.48	0.00	0.00	0.01	0.00	0.50	99.93
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.07	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.17	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.57	84.78	0.48	1.53	1.96	0.35		
Cumulative Total		0.17	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	10.91	95.68	96.17	97.70	99.65	100.00		

Sea

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	1.03	1.57	1.32	1.18	2.05	2.23	4.06	4.74	3.17	0.68	3.72	3.48	1.55	0.43	0.25	0.37	31.84	31.84
0.5	1	0.85	2.77	1.49	0.43	0.10	0.21	0.35	0.91	0.31	0.41	12.23	12.97	1.82	0.52	0.17	0.02	35.57	67.41
1	1.5	0.60	1.08	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.97	7.78	0.52	0.23	0.04	0.21	23.48	90.90
1.5	2	0.08	0.37	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.79	1.68	0.12	0.21	0.04	0.00	6.29	97.19
2	2.5	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.46	0.70	0.08	0.14	0.10	0.02	1.59	98.78
2.5	3	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.10	0.00	0.00	0.00	0.19	0.37	99.15
3	3.5	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.14	99.30
3.5	4	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.21	0.27	99.57
4	4.5	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.39	0.43	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		2.81	5.79	2.88	1.61	2.15	2.44	4.41	5.65	3.48	1.10	33.21	26.71	4.10	1.53	0.60	1.53		
Cumulative Total		2.81	8.61	11.48	13.10	15.25	17.69	22.10	27.75	31.22	32.32	65.53	92.24	96.34	97.87	98.47	100.00		

ANNUAL JFTS

2011

2011 - Hs(m)

Total

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.24	0.00	0.00	0.00	0.00	0.24	0.24
0.5	1	0.15	0.13	0.03	0.02	0.00	0.00	0.00	0.00	0.01	0.46	1.91	14.44	1.86	0.37	0.82	0.34	20.54	20.78
1	1.5	0.57	0.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.97	28.54	4.65	2.04	1.36	0.84	44.42	65.19
1.5	2	0.70	0.73	0.05	0.00	0.00	0.00	0.00	0.01	0.01	0.01	2.68	16.21	2.72	0.55	0.70	0.65	25.01	90.21
2	2.5	0.10	0.21	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.38	4.30	0.43	0.39	0.24	0.15	6.21	96.42
2.5	3	0.02	0.01	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.82	0.06	0.40	0.42	0.13	1.88	98.30
3	3.5	0.08	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.00	0.11	0.10	0.05	0.41	98.71
3.5	4	0.16	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.24	0.03	0.48	99.19
4	4.5	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.19	0.16	0.37	99.55
4.5	5	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.16	0.18	99.74
5	5.5	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.03	0.07	99.81
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.02	99.83
6	6.5	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.10	99.93
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.01	0.03	99.97
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.03	100.00
Total		1.85	1.56	0.11	0.03	0.00	0.00	0.00	0.01	0.02	0.47	10.94	64.61	9.71	3.88	4.20	2.59		
Cumulative Total		1.85	3.41	3.53	3.56	3.56	3.56	3.56	3.57	3.60	4.06	15.00	79.61	89.33	93.21	97.41	100.00		

Swell

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.95	4.18	0.17	0.29	0.99	0.06	6.65	6.65
0.5	1	0.13	0.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.16	28.35	0.83	0.00	0.96	0.45	35.10	41.75
1	1.5	0.23	0.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.41	28.63	0.15	0.50	1.68	0.58	35.53	77.28
1.5	2	0.25	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.61	13.19	0.53	0.38	0.18	0.49	15.87	93.15
2	2.5	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	3.85	0.37	0.12	0.00	0.45	4.89	98.04
2.5	3	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.57	0.25	0.00	0.06	0.45	1.34	99.38
3	3.5	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01	0.13	0.00	0.03	0.25	99.63
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.14	0.02	0.18	99.82
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.15	0.03	0.18	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.68	0.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.19	78.83	2.32	1.43	4.16	2.57		
Cumulative Total		0.68	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	10.69	89.52	91.84	93.27	97.43	100.00		

Sea

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.99	3.04	1.53	1.08	2.95	2.56	3.98	4.45	2.77	0.88	3.76	1.71	1.53	0.81	0.49	0.45	32.98	32.98
0.5	1	1.17	4.18	2.23	0.70	0.88	0.81	1.10	1.01	0.49	0.20	9.38	7.99	1.06	0.56	0.18	0.40	32.35	65.33
1	1.5	0.52	1.91	0.47	0.04	0.11	0.04	0.00	0.00	0.00	0.02	12.08	7.00	0.02	0.04	0.04	0.13	22.45	87.78
1.5	2	0.61	1.01	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	4.23	2.54	0.02	0.02	0.20	0.04	8.73	96.51
2	2.5	0.07	0.25	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.29	0.34	0.02	0.00	0.07	0.09	1.15	97.66
2.5	3	0.07	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.00	0.00	0.07	0.11	0.36	98.02
3	3.5	0.16	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.00	0.31	98.34
3.5	4	0.29	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.04	0.47	98.81
4	4.5	0.04	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.22	0.36	99.17
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.31	0.34	99.51
5	5.5	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.04	0.11	99.62
5.5	6	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.07	99.69
6	6.5	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.04	0.18	99.87
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.02	0.07	99.93
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.07	100.00
Total		4.03	10.48	4.32	1.84	3.94	3.42	5.08	5.47	3.26	1.10	29.74	19.66	2.65	1.44	1.60	1.96		
Cumulative Total		4.03	14.51	18.83	20.67	24.61	28.03	33.12	38.58	41.84	42.95	72.69	92.35	95.01	96.45	98.04	100.00		

2012

2012 - Hs(m)

Total

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.5	1	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	2.36	17.50	2.86	0.36	0.16	0.15	23.42	23.42
1	1.5	0.74	0.30	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.45	34.62	3.30	1.31	0.49	0.58	47.80	71.22
1.5	2	0.55	0.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.78	15.51	1.28	1.33	0.85	0.42	22.97	94.19
2	2.5	0.08	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.24	2.07	0.14	0.00	0.34	0.24	3.24	97.44
2.5	3	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.51	0.03	0.08	0.11	0.23	0.98	98.42
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.14	0.15	0.31	98.72
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.24	0.49	99.21
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.38	0.50	99.72
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23	0.23	99.94
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.06	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		1.39	0.69	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.02	11.83	70.21	7.60	3.11	2.47	2.66		
Cumulative Total		1.39	2.08	2.09	2.09	2.09	2.09	2.09	2.09	2.09	2.12	13.95	84.15	91.76	94.87	97.34	100.00		

Swell

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.17	1.68	0.27	0.13	0.44	0.00	2.70	2.70
0.5	1	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.80	34.00	0.12	0.07	0.28	0.00	37.29	39.99
1	1.5	0.02	0.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.63	38.64	0.06	0.10	0.50	0.02	42.31	82.30
1.5	2	0.10	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.68	11.31	0.00	0.07	0.75	0.59	13.58	95.88
2	2.5	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	1.53	0.00	0.00	0.13	0.34	2.10	97.97
2.5	3	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.50	0.01	0.00	0.06	0.09	0.74	98.71
3	3.5	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.10	0.16	98.88
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.36	0.39	99.27
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.39	0.44	99.71
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23	0.23	99.94
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.06	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.31	0.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.33	87.66	0.45	0.37	2.25	2.19		
Cumulative Total		0.31	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	7.08	94.74	95.20	95.57	97.81	100.00		

Sea

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	1.49	3.48	1.30	1.18	2.60	2.23	3.04	5.78	3.21	0.71	4.63	5.17	0.96	0.59	0.24	0.42	37.02	37.02
0.5	1	0.44	4.53	1.98	0.61	0.59	0.24	0.42	1.69	0.81	0.69	13.57	6.27	0.54	0.15	0.02	0.00	32.56	69.57
1	1.5	0.12	2.28	0.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00	13.79	5.07	0.15	0.15	0.00	0.00	22.00	91.57
1.5	2	0.17	0.78	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.77	2.30	0.00	0.00	0.00	0.00	6.30	97.87
2	2.5	0.07	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.49	0.56	0.00	0.00	0.00	0.07	1.22	99.09
2.5	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.20	0.12	0.34	99.44
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.15	0.22	99.66
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.17	0.24	99.90
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.07	0.10	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
		2.30	11.10	3.99	1.79	3.18	2.47	3.45	7.47	4.02	1.40	35.25	19.40	1.64	0.88	0.64	1.00		

ANNUAL JFTS

2013

2013 - Hs(m)

Total

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.5	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.07	14.03	0.66	0.11	0.01	0.01	16.89	16.89
1	1.5	0.14	0.32	0.13	0.07	0.00	0.00	0.00	0.00	0.00	0.03	7.24	28.25	2.52	1.00	0.13	0.11	39.94	56.84
1.5	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.48	19.86	1.84	1.43	0.05	0.00	26.66	83.49
2	2.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.79	9.04	0.34	0.43	0.05	0.02	10.67	94.17
2.5	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.98	0.33	0.09	0.03	0.08	3.52	97.68
3	3.5	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.18	0.05	0.03	0.05	0.01	1.35	99.03
3.5	4	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.00	0.00	0.08	0.06	0.35	99.38
4	4.5	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.02	0.09	99.47
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.03	0.06	99.53
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.10	0.14	99.67
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.05	0.07	99.74
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.05	99.78
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.08	99.86
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.14	100.00
Total		0.27	0.32	0.13	0.07	0.00	0.00	0.00	0.00	0.00	0.03	13.57	75.47	5.74	3.11	0.53	0.76		
Cumulative Total		0.27	0.59	0.72	0.79	0.79	0.79	0.79	0.79	0.79	0.82	14.39	89.86	95.61	98.71	99.24	100.00		

Swell

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.00	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	1.78	0.43	0.05	0.66	0.13	3.29	3.29
0.5	1	0.02	0.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.34	25.66	0.19	0.37	0.52	0.00	31.31	34.59
1	1.5	0.03	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.69	28.97	0.74	0.09	0.30	0.00	34.09	68.68
1.5	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.63	16.56	0.12	0.00	1.46	0.00	19.76	88.44
2	2.5	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	6.47	0.07	0.01	0.29	0.00	7.08	95.52
2.5	3	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.70	0.01	0.00	0.01	0.00	2.78	98.30
3	3.5	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.12	0.00	0.00	0.00	0.00	1.16	99.46
3.5	4	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.00	0.00	0.00	0.01	0.21	99.66
4	4.5	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.06	99.72
4.5	5	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.03	99.76
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.10	99.86
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02	99.88
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02	99.91
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.06	99.97
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.03	100.00
Total		0.44	0.58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.92	83.35	1.55	0.52	3.24	0.40		
Cumulative Total		0.44	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	10.93	94.28	95.83	96.36	99.60	100.00		

Sea

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	1.25	1.20	0.94	0.67	1.80	2.83	3.97	5.26	3.36	0.98	3.52	3.39	1.20	0.47	0.36	0.33	31.52	31.52
0.5	1	0.47	1.92	1.23	0.65	1.11	1.18	1.02	2.18	0.98	0.27	12.54	9.49	2.94	0.16	0.53	0.02	36.69	68.21
1	1.5	0.00	0.58	0.31	0.02	0.00	0.00	0.00	0.00	0.00	0.00	12.76	4.23	0.09	0.11	0.00	0.00	18.11	86.32
1.5	2	0.00	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.64	3.05	0.00	0.02	0.00	0.02	9.78	96.10
2	2.5	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.76	1.58	0.11	0.00	0.02	0.04	2.54	98.64
2.5	3	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.33	0.18	0.00	0.02	0.04	0.60	99.24
3	3.5	0.02	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	99.31
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.09	0.00	0.13	99.44
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.07	99.51
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.04	99.55
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.07	99.62
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.07	0.09	99.71
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.04	99.75
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.09	99.84
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.16	0.16	100.00
Total		1.74	3.79	2.52	1.34	2.92	4.01	4.99	7.44	4.34	1.25	36.22	22.12	4.52	0.76	1.23	0.82		
Cumulative Total		1.74	5.52	8.04	9.38	12.30	16.31	21.30	28.74	33.08	34.33	70.55	92.67	97.19	97.95	99.18	100.00		

2014

2014 - Hs(m)

Total

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.5	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.31	6.28	0.58	0.02	0.02	0.03	8.25	8.25
1	1.5	0.18	0.14	0.03	0.06	0.03	0.01	0.02	0.02	0.03	0.03	4.19	29.63	3.62	0.63	0.11	0.07	38.82	47.08
1.5	2	0.06	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.69	25.53	2.23	0.49	0.08	0.11	35.24	82.32
2	2.5	0.07	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.80	9.62	1.05	0.47	0.39	0.05	13.46	95.78
2.5	3	0.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.50	2.29	0.18	0.05	0.09	0.06	3.47	99.25
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.73	0.02	0.00	0.00	0.00	0.75	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.61	0.21	0.03	0.06	0.03	0.01	0.02	0.02	0.03	0.03	14.50	74.09	7.68	1.66	0.70	0.32		
Cumulative Total		0.61	0.81	0.84	0.90	0.94	0.95	0.97	0.99	1.03	1.06	15.56	89.65	97.33	98.98	99.68	100.00		

Swell

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	1.84	0.16	0.60	0.65	0.13	3.47	3.47
0.5	1	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.09	15.85	0.18	0.01	0.39	0.07	20.59	24.06
1	1.5	0.00	0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.42	35.34	0.26	0.09	0.27	0.00	40.54	64.60
1.5	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.09	21.05	0.20	0.20	0.14	0.00	23.67	88.27
2	2.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.27	8.21	0.04	0.18	0.07	0.00	8.75	97.02
2.5	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	2.19	0.06	0.00	0.00	0.00	2.26	99.29
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.71	0.00	0.00	0.00	0.00	0.71	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.07	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.89	85.20	0.89	1.07	1.52	0.20		
Cumulative Total		0.07	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	11.12	96.32	97.21	98.28	99.80	100.00		

Sea

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.47	1.50	0.77	0.36	1.04	1.26	1.67	3.01	1.45	0.27	3.97	2.87	0.98	0.55	0.27	0.60	21.04	21.04
0.5	1	0.11	3.45	1.07	0.33	0.68	0.57	0.66	0.82	0.19	0.22	12.61	6.84	1.42	0.74	0.36	0.14	30.21	51.24
1	1.5	0.00	1.45	0.05	0.08	0.00	0.00	0.00	0.00	0.00	0.11	17.35	3.97	1.23	0.47	0.03	0.11	24.84	76.09
1.5	2	0.11	1.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.03	4.32	0.47	0.27	0.25	0.00	17.65	93.73
2	2.5	0.00	0.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.23	1.01	0.03	0.00	0.47	0.05	5.53	99.26
2.5	3	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.68	0.03	0.00	0.00	0.00	0.00	0.74	100.00
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.68	8.37	1.89	0.77	1.72	1.83	2.33	3.83	1.64	0.60	48.86	19.04	4.13	2.02	1.37	0.90		
Cumulative Total		0.68	9.06	10.94	11.71	13.43	15.27	17.59	21.42	23.06	23.67	72.53	91.57	95.70	97.73	99.10	100.00		

ANNUAL JFTS

2015

2015 - Hs(m)

Total

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.5	1	0.32	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.34	7.34	1.37	0.33	0.19	0.05	11.97	11.97
1	1.5	1.14	0.49	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.07	39.60	3.32	0.59	0.62	0.66	53.50	65.48
1.5	2	0.84	0.38	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.59	16.79	1.50	0.25	0.30	0.29	24.97	90.45
2	2.5	0.03	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.43	5.78	0.80	0.07	0.06	0.02	8.34	98.79
2.5	3	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.70	0.02	0.01	0.01	0.01	0.91	99.70
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.06	0.00	0.05	0.11	99.82
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02	99.84
4	4.5	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.03	99.87
4.5	5	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	99.90
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02	99.92
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02	99.94
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02	99.97
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.03	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		2.40	1.06	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	15.55	70.21	7.02	1.31	1.18	1.23		
Cumulative Total		2.40	3.46	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	19.05	89.26	96.28	97.59	98.77	100.00		

Swell

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	1.50	0.12	0.50	0.20	0.12	2.46	2.46
0.5	1	0.00	0.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.29	25.23	0.23	0.01	0.01	0.00	29.95	32.41
1	1.5	0.00	1.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.31	41.44	0.91	0.02	0.03	0.00	48.77	81.19
1.5	2	0.00	0.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.17	10.72	1.15	0.00	0.00	0.01	13.45	94.64
2	2.5	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.15	3.84	0.52	0.00	0.00	0.02	4.55	99.19
2.5	3	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.53	0.00	0.00	0.00	0.02	0.58	99.77
3	3.5	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.06	99.83
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02	99.85
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02	99.87
4.5	5	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	99.90
5	5.5	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	99.92
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02	99.94
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02	99.97
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.03	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.07	1.65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.95	83.26	2.93	0.53	0.24	0.36		
Cumulative Total		0.07	1.72	1.72	1.72	1.72	1.72	1.72	1.72	1.72	1.72	12.67	95.93	98.86	99.40	99.64	100.00		

Sea

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.27	1.86	1.50	1.25	2.06	2.47	3.24	3.70	2.59	0.43	3.13	1.45	1.20	0.27	0.20	0.14	25.76	25.76
0.5	1	0.34	1.93	1.38	0.48	0.48	0.27	0.45	1.29	0.52	0.59	14.01	8.89	4.47	0.32	0.61	0.61	36.64	62.40
1	1.5	0.29	2.79	0.27	0.00	0.00	0.00	0.00	0.02	0.00	0.00	12.61	6.69	0.43	0.00	0.34	0.02	23.47	85.87
1.5	2	0.00	1.11	0.18	0.00	0.05	0.00	0.00	0.00	0.00	0.00	6.03	3.17	0.00	0.00	0.02	0.00	10.57	96.44
2	2.5	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.22	0.75	0.07	0.00	0.02	0.00	3.08	99.52
2.5	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.18	0.09	0.07	0.09	0.02	0.00	0.45	99.98
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.02	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.91	7.71	3.33	1.72	2.59	2.74	3.70	5.01	3.11	1.02	38.19	21.04	6.24	0.70	1.22	0.77		
Cumulative Total		0.91	8.62	11.95	13.67	16.26	19.00	22.70	27.71	30.82	31.84	70.02	91.07	97.30	98.00	99.23	100.00		

2016

2016 - Hs(m)

Total

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.5	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.45	7.25	0.46	0.08	0.01	0.01	9.26	9.26
1	1.5	0.32	0.00	0.01	0.00	0.00	0.01	0.01	0.00	0.00	0.02	8.78	36.48	1.84	0.35	0.07	0.15	48.04	57.30
1.5	2	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.88	21.29	0.41	0.19	0.14	0.10	29.02	86.32
2	2.5	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.05	7.40	0.23	0.10	0.03	0.06	9.88	96.20
2.5	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.20	2.49	0.26	0.06	0.00	0.00	3.02	99.21
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.66	0.13	0.00	0.00	0.00	0.79	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.34	0.00	0.01	0.00	0.00	0.01	0.01	0.00	0.00	0.02	19.35	75.57	3.32	0.79	0.25	0.32		
Cumulative Total		0.34	0.34	0.35	0.35	0.35	0.36	0.38	0.38	0.38	0.40	19.75	95.32	98.65	99.43	99.68	100.00		

Swell

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.03	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	2.54	0.07	0.12	1.63	0.02	4.54	4.54
0.5	1	0.03	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.46	19.83	0.43	0.17	0.14	0.00	25.10	29.64
1	1.5	0.00	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.39	38.17	0.27	0.00	0.00	0.00	43.94	73.58
1.5	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.36	15.95	0.03	0.00	0.03	0.00	18.38	91.96
2	2.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.16	5.30	0.00	0.00	0.02	0.00	5.49	97.45
2.5	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	2.02	0.00	0.00	0.00	0.00	2.03	99.48
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.52	0.00	0.00	0.00	0.00	0.52	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.07	0.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.45	84.34	0.80	0.29	1.83	0.02		
Cumulative Total		0.07	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	12.73	97.07	97.86	98.15	99.98	100.00		

Sea

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.13	1.61	0.59	0.52	1.09	2.07	3.42	4.60	2.48	0.15	3.03	3.38	0.76	0.24	0.02	0.04	24.13	24.13
0.5	1	0.48	1.31	1.05	0.24	0.11	0.04	0.74	2.40	0.70	0.22	15.64	9.10	0.87	0.37	0.04	0.07	33.37	57.50
1	1.5	0.04	1.81	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	16.95	6.58	0.41	0.00	0.00	0.00	25.83	83.34
1.5	2	0.02	0.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.61	2.00	0.00	0.02	0.00	0.09	11.96	95.30
2	2.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.46	1.13	0.00	0.09	0.04	0.00	3.72	99.02
2.5	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.44	0.54	0.00	0.00	0.00	0.00	0.98	100.00
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.68	4.94	1.63	0.76	1.20	2.11	4.16	6.99	3.18	0.41	48.12	22.74	2.05	0.72	0.11	0.20		
Cumulative Total		0.68	5.62	7.25	8.02	9.21	11.33	15.49	22.48	25.66	26.07	74.19	96.93	98.98	99.70	99.80	100.00		

ANNUAL JFTS

2017

2017 - Hs(m)

Total

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.5	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.12	6.31	0.23	0.00	0.00	0.00	7.66	7.66
1	1.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.80	32.89	1.26	0.48	0.21	0.00	43.63	51.29
1.5	2	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.10	23.79	1.13	0.43	0.38	0.09	32.99	84.28
2	2.5	0.10	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.59	9.12	0.21	0.11	0.41	0.25	11.83	96.11
2.5	3	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.56	2.66	0.00	0.03	0.08	0.00	3.40	99.51
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.43	0.00	0.00	0.00	0.00	0.49	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.17	0.09	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	19.22	75.21	2.82	1.06	1.07	0.34		
Cumulative Total		0.17	0.26	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	19.50	94.70	97.52	98.58	99.66	100.00		

Swell

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.03	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	1.27	0.08	0.01	2.51	0.76	4.74	4.74
0.5	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.94	17.94	0.09	0.00	0.50	0.09	21.57	26.30
1	1.5	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.68	37.72	0.30	0.00	0.22	0.12	45.20	71.51
1.5	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.54	16.41	0.13	0.00	0.28	0.26	19.61	91.12
2	2.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.15	5.87	0.09	0.00	0.02	0.21	6.34	97.46
2.5	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.16	0.00	0.00	0.00	0.00	2.16	99.63
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.37	0.00	0.00	0.00	0.00	0.37	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.20	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.35	81.74	0.70	0.01	3.54	1.43		
Cumulative Total		0.20	0.22	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	12.58	94.32	95.02	95.03	98.57	100.00		

Sea

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.19	1.99	1.33	0.29	0.24	0.63	2.18	4.37	2.52	0.68	2.96	1.24	0.53	0.24	0.17	0.19	19.78	19.78
0.5	1	0.12	0.66	0.49	0.19	0.15	0.07	0.63	1.65	0.49	0.36	14.75	7.62	1.65	0.10	0.02	0.53	29.48	49.26
1	1.5	0.10	0.90	0.07	0.05	0.00	0.00	0.00	0.00	0.00	0.17	19.58	4.78	0.29	0.05	0.00	0.00	25.99	75.25
1.5	2	0.27	0.97	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.39	5.27	0.05	0.00	0.00	0.02	16.99	92.23
2	2.5	0.24	0.12	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.81	2.57	0.05	0.00	0.00	0.15	6.02	98.25
2.5	3	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.12	0.44	0.00	0.00	0.00	0.00	1.58	99.83
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.15	0.02	0.00	0.00	0.00	0.00	0.17	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.92	4.63	2.01	0.53	0.39	0.70	2.81	6.02	3.01	1.21	51.76	21.94	2.57	0.39	0.19	0.90		
Cumulative Total		0.92	5.56	7.57	8.10	8.49	9.20	12.01	18.03	21.04	22.25	74.01	95.95	98.52	98.91	99.10	100.00		

2018

2018 - Hs(m)

Total

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.5	1	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.90	4.45	0.42	0.15	0.11	0.05	6.10	6.10
1	1.5	0.49	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.33	31.28	2.35	1.11	0.46	0.38	43.53	49.62
1.5	2	0.18	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.15	22.53	2.20	0.24	0.21	0.09	35.68	85.31
2	2.5	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.66	7.00	0.45	0.07	0.01	0.25	10.54	95.84
2.5	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.17	1.86	0.01	0.19	0.13	0.17	2.53	98.38
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.10	0.00	0.06	0.14	0.00	1.29	99.67
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.00	0.07	0.14	0.00	0.33	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.79	0.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	21.21	68.34	5.43	1.88	1.19	0.94		
Cumulative Total		0.79	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	22.21	90.56	95.99	97.88	99.06	100.00		

Swell

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	1.83	0.65	0.31	1.77	0.00	4.65	4.65
0.5	1	0.02	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.45	20.59	0.70	0.84	0.26	0.00	25.96	30.61
1	1.5	0.00	0.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.44	33.11	0.23	0.34	0.01	0.14	40.02	70.62
1.5	2	0.07	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.86	15.98	0.48	0.31	0.00	0.29	20.05	90.67
2	2.5	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	5.29	0.14	0.08	0.00	0.00	5.71	96.39
2.5	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.72	0.00	0.13	0.00	0.20	2.05	98.44
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.02	0.00	0.06	0.13	0.01	1.22	99.66
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.00	0.05	0.16	0.00	0.34	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.27	0.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.87	79.67	2.21	2.11	2.33	0.65		
Cumulative Total		0.27	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	13.03	92.70	94.91	97.02	99.35	100.00		

Sea

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.26	1.18	1.34	0.92	0.44	1.01	2.19	3.77	2.06	0.15	3.49	1.78	0.77	0.04	0.09	0.09	19.59	19.59
0.5	1	0.42	3.05	1.82	0.39	0.22	0.29	0.59	1.60	0.22	0.24	11.82	6.43	1.36	0.11	0.55	0.66	29.77	49.35
1	1.5	0.00	0.79	0.31	0.00	0.00	0.00	0.00	0.00	0.00	0.07	18.53	6.51	0.24	0.11	0.13	0.02	26.72	76.07
1.5	2	0.15	0.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	14.61	3.93	0.13	0.00	0.00	0.00	19.15	95.22
2	2.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.01	0.70	0.00	0.07	0.22	0.11	4.10	99.32
2.5	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.39	0.20	0.00	0.00	0.00	0.00	0.59	99.91
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.00	0.00	0.00	0.00	0.09	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.83	5.35	3.47	1.32	0.66	1.29	2.79	5.37	2.28	0.46	51.85	19.63	2.50	0.33	0.99	0.88		
Cumulative Total		0.83	6.19	9.65	10.97	11.63	12.92	15.71	21.08	23.36	23.82	75.67	95.31	97.81	98.14	99.12	100.00		

ANNUAL JFTS

2019

2019 - Hs(m)

Total

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.5	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	6.32	0.73	0.03	0.01	0.01	8.12	8.12
1	1.5	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.66	31.04	1.38	0.49	0.22	0.32	41.13	49.25
1.5	2	0.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.04	23.88	2.24	0.73	0.37	0.48	36.11	85.35
2	2.5	0.26	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.39	7.79	0.71	0.05	0.24	0.08	11.56	96.92
2.5	3	0.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	2.16	0.18	0.00	0.00	0.21	2.80	99.71
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.29	0.00	0.00	0.00	0.00	0.29	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.86	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	19.14	71.47	5.24	1.30	0.83	1.10		
Cumulative Total		0.86	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	20.06	91.53	96.77	98.07	98.90	100.00		

Swell

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.09	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	1.94	0.12	0.00	0.17	0.14	2.51	2.51
0.5	1	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.25	18.76	0.45	0.00	0.13	0.00	22.63	25.15
1	1.5	0.44	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.26	34.25	1.27	0.02	0.43	0.00	41.71	66.86
1.5	2	0.28	0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.98	18.12	0.42	0.01	0.57	0.01	22.54	89.40
2	2.5	0.01	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.24	7.49	0.21	0.00	0.08	0.16	8.23	97.63
2.5	3	0.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.75	0.00	0.00	0.00	0.14	2.09	99.72
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.28	0.00	0.00	0.00	0.00	0.28	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		1.06	0.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.75	82.59	2.47	0.03	1.38	0.45		
Cumulative Total		1.06	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	13.07	95.66	98.13	98.16	99.55	100.00		

Sea

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.40	1.31	0.79	1.14	0.93	1.88	2.14	3.47	2.02	0.64	2.95	2.21	0.55	0.02	0.07	0.33	20.87	20.87
0.5	1	0.40	1.93	1.19	0.62	0.76	0.40	0.83	1.36	0.33	0.17	17.06	8.50	0.31	0.00	0.07	0.19	34.13	55.00
1	1.5	0.26	1.24	0.57	0.00	0.00	0.00	0.00	0.00	0.00	0.00	22.23	3.19	0.00	0.05	0.07	0.19	27.80	82.79
1.5	2	0.10	0.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.73	2.52	0.05	0.00	0.00	0.07	14.16	96.95
2	2.5	0.17	0.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.14	0.29	0.00	0.00	0.00	0.00	2.78	99.74
2.5	3	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.12	0.00	0.00	0.00	0.00	0.26	100.00
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		1.33	5.38	2.55	1.76	1.69	2.28	2.97	4.83	2.36	0.81	55.24	16.83	0.90	0.07	0.21	0.79		
Cumulative Total		1.33	6.71	9.26	11.02	12.71	14.99	17.97	22.80	25.15	25.96	81.20	98.02	98.93	99.00	99.21	100.00		

2020

2020 - Hs(m)

Total

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.5	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.81	7.19	0.36	0.02	0.19	0.08	8.66	8.66
1	1.5	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.10	7.26	31.31	1.72	0.18	0.16	0.19	40.98	49.65
1.5	2	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.56	25.85	1.09	0.31	0.03	0.19	35.12	84.77
2	2.5	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.71	7.57	0.31	0.00	0.13	0.11	9.89	94.66
2.5	3	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.39	3.05	0.17	0.00	0.15	0.17	4.09	98.75
3	3.5	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.51	0.09	0.00	0.02	0.00	0.71	99.45
3.5	4	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.25	0.08	0.03	0.05	0.52	99.98
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.02	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.10	17.74	75.52	4.02	0.59	0.72	0.80		
Cumulative Total		0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.51	0.61	18.35	93.88	97.89	98.49	99.20	100.00		

Swell

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	2.25	0.19	0.08	1.55	0.03	4.16	4.16
0.5	1	0.06	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.21	21.92	0.27	0.02	0.12	0.08	24.82	28.98
1	1.5	0.01	0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.60	31.99	0.62	0.10	0.16	0.03	37.68	66.66
1.5	2	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.09	20.32	0.12	0.00	0.19	0.00	22.75	89.41
2	2.5	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.19	6.02	0.00	0.00	0.13	0.00	6.40	95.81
2.5	3	0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	2.91	0.08	0.00	0.06	0.15	3.38	99.18
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.45	0.05	0.00	0.01	0.00	0.51	99.70
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.01	0.13	0.01	0.00	0.28	99.98
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.02	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.33	0.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.12	86.02	1.33	0.34	2.23	0.30		
Cumulative Total		0.33	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	9.79	95.81	97.13	97.47	99.70	100.00		

Sea

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.29	1.81	0.70	0.53	0.94	1.16	2.85	4.54	3.02	0.48	2.10	1.71	0.68	0.36	0.75	0.27	22.19	22.19
0.5	1	0.07	2.08	0.60	0.17	0.31	0.17	0.39	1.26	0.43	0.29	12.87	9.95	1.26	0.27	0.14	0.05	30.30	52.49
1	1.5	0.19	0.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	20.84	5.94	0.07	0.02	0.00	0.00	27.50	79.99
1.5	2	0.22	0.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.94	3.62	0.00	0.00	0.00	0.05	15.04	95.03
2	2.5	0.00	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.49	0.65	0.00	0.00	0.00	0.10	3.38	98.41
2.5	3	0.00	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.56	0.07	0.00	0.00	0.00	0.10	0.87	99.28
3	3.5	0.00	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.19	0.02	0.02	0.05	0.41	99.69
3.5	4	0.12	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.05	0.31	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.89	4.97	1.30	0.70	1.26	1.33	3.24	5.79	3.45	0.77	49.81	21.95	2.29	0.68	0.92	0.65		
Cumulative Total		0.89	5.87	7.17	7.87	9.13	10.45	13.69	19.48	22.94	23.71	73.52	95.46	97.75	98.43	99.35	100.00		

ANNUAL JFTS

2021

2021 - Hs(m)

Total

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.5	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	10.32	2.11	0.00	0.00	0.00	12.57	12.57
1	1.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.37	38.69	2.81	0.35	0.00	0.00	45.22	57.79
1.5	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.92	20.15	3.86	0.00	0.00	0.00	32.94	90.73
2	2.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.32	3.16	2.81	0.00	0.00	0.00	8.29	99.02
2.5	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.00	0.84	0.00	0.00	0.00	0.98	100.00
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	14.89	72.33	12.43	0.35	0.00	0.00		
Cumulative Total		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	14.89	87.22	99.65	100.00	100.00	100.00		

Swell

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.35	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.76	0.00	2.11	0.70	0.84	5.83	5.83
0.5	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.69	31.48	0.00	0.00	3.58	0.28	41.04	46.87
1	1.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.58	38.09	0.00	0.00	0.07	0.00	41.74	88.62
1.5	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.88	7.80	0.00	0.00	0.00	0.00	10.68	99.30
2	2.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.63	0.07	0.00	0.00	0.00	0.00	0.70	100.00
2.5	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.35	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.79	79.20	0.00	2.11	4.36	1.12		
Cumulative Total		0.35	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	13.21	92.41	92.41	94.52	98.88	100.00		

Sea

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.5	0.58	1.97	0.46	0.35	0.00	0.00	0.00	0.58	0.00	0.23	0.70	2.67	0.70	0.35	0.12	0.58	9.28	9.28
0.5	1	0.23	0.00	0.12	0.35	0.00	0.00	0.00	0.00	0.00	0.00	17.63	8.70	2.32	0.58	0.00	0.12	30.05	39.33
1	1.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	25.87	5.34	1.04	2.09	0.00	0.00	34.34	73.67
1.5	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	14.27	3.02	1.62	0.81	0.00	0.00	19.72	93.39
2	2.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.09	1.74	1.28	1.28	0.00	0.00	6.38	99.77
2.5	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23	0.00	0.00	0.00	0.23	100.00
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.81	1.97	0.58	0.70	0.00	0.00	0.00	0.58	0.00	0.23	60.56	21.46	7.19	5.10	0.12	0.70		
Cumulative Total		0.81	2.78	3.36	4.06	4.06	4.06	4.06	4.64	4.64	4.87	65.43	86.89	94.08	99.19	99.30	100.00		

ANNUAL JFTS

1979 - Tp(s)

Total

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.00	0.00	0.00	0.00	0.11	0.11
4	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.15	0.43	0.05	0.05	0.00	0.00	0.67	0.79
6	8	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.33	0.46	0.10	0.11	0.11	0.00	2.16	2.95
8	10	0.13	0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.57	0.63	0.19	0.29	0.03	0.09	4.08	7.03
10	12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	2.26	5.48	0.24	0.13	0.03	0.01	8.17	15.20
12	14	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.35	20.35	1.06	0.37	0.23	0.22	27.67	42.87
14	16	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.43	31.83	0.97	0.13	0.10	0.11	39.61	82.48
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.59	11.93	0.53	0.21	0.02	0.02	14.29	96.78
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.59	2.01	0.15	0.03	0.00	0.00	2.79	99.57
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.33	0.00	0.00	0.00	0.00	0.40	99.97
Total		0.30	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	20.34	73.57	3.29	1.30	0.54	0.46		
Cumulative Total		0.30	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.47	20.81	94.38	97.67	98.97	99.51	99.97		

Swell

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	6	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.06	0.00	0.01	0.04	0.00	0.18	0.18
6	8	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.82	0.17	0.02	0.27	0.21	0.07	1.63	1.80
8	10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.30	0.72	0.01	0.64	0.07	0.00	3.75	5.55
10	12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.20	8.01	0.19	0.00	0.05	0.01	12.46	18.01
12	14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	27.09	0.27	0.00	0.00	0.00	28.36	46.37
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.27	38.41	0.17	0.00	0.00	0.00	38.85	85.22
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	12.05	0.31	0.06	0.00	0.00	12.46	97.67
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	1.66	0.18	0.00	0.00	0.00	1.85	99.53
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.42	0.06	0.00	0.00	0.00	0.47	100.00
Total		0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.70	88.59	1.21	0.98	0.37	0.08		
Cumulative Total		0.00	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	8.77	97.35	98.56	99.55	99.92	100.00		

Sea

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.04	0.00	0.04	0.15	0.13	0.17	0.26	0.79	0.32	0.06	0.15	0.00	0.02	0.02	0.09	0.13	2.38	2.38
2	4	0.21	0.51	0.58	0.53	1.18	1.43	4.32	6.55	4.84	1.16	3.89	3.06	0.94	0.64	0.36	0.86	31.07	33.45
4	6	0.28	1.65	0.56	0.04	0.02	0.00	0.00	0.00	0.04	0.53	14.59	4.54	0.41	0.41	0.13	0.00	23.20	56.64
6	8	0.02	1.37	0.36	0.04	0.06	0.00	0.00	0.00	0.02	0.15	16.76	2.48	0.17	0.00	0.06	0.00	21.51	78.15
8	10	0.19	0.24	0.11	0.02	0.00	0.04	0.00	0.02	0.00	0.00	9.80	1.60	0.00	0.00	0.00	0.21	12.24	90.39
10	12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.49	2.27	0.02	0.00	0.00	0.00	5.78	96.17
12	14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.49	1.75	0.00	0.00	0.00	0.00	2.25	98.42
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.19	1.22	0.00	0.00	0.00	0.00	1.41	99.83
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.11	0.00	0.00	0.00	0.00	0.13	99.96
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.04	100.00
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.75	3.77	1.65	0.79	1.39	1.65	4.58	7.36	5.22	1.90	49.39	17.08	1.56	1.07	0.64	1.20		
Cumulative Total		0.75	4.52	6.16	6.95	8.35	9.99	14.57	21.93	27.16	29.06	78.45	95.53	97.09	98.16	98.80	100.00		

1980 - Tp(s)

Total

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.33	0.07	0.01	0.08	0.02	0.51	0.51
6	8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.64	0.58	0.33	0.02	0.10	0.16	1.83	2.35
8	10	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.42	0.92	0.67	1.09	0.46	0.46	6.10	8.45
10	12	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.33	5.28	0.34	0.22	0.35	0.13	8.90	17.35
12	14	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.50	18.68	0.81	0.02	0.07	0.10	24.24	41.59
14	16	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.79	30.20	2.28	0.56	0.08	0.14	37.06	78.64
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.02	13.00	0.85	0.34	0.34	0.02	15.59	94.23
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11	4.17	0.22	0.08	0.03	0.00	4.61	98.84
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.15	0.96	0.05	0.01	0.00	0.00	1.16	100.00
Total		0.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	14.97	74.12	5.61	2.36	1.51	1.02		
Cumulative Total		0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	15.37	89.49	95.10	97.46	98.98	100.00		

Swell

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.01	0.05	0.10	0.10
6	8	0.56	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.01	0.41	0.02	0.00	0.07	0.17	2.26	2.37
8	10	0.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.12	0.58	0.06	0.17	2.09	0.49	7.05	9.41
10	12	0.13	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.52	7.73	0.10	0.00	0.20	0.13	12.91	22.32
12	14	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.78	22.91	0.08	0.00	0.00	0.00	23.91	46.23
14	16	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.19	35.68	0.07	0.00	0.00	0.00	36.03	82.26
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	13.58	0.13	0.00	0.00	0.00	13.71	95.97
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.13	0.05	0.00	0.00	0.00	3.18	99.15
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.78	0.07	0.00	0.00	0.00	0.85	100.00
Total		1.45	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.61	84.85	0.58	0.17	2.37	0.84		
Cumulative Total		1.45	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	11.19	96.04	96.62	96.80	99.16	100.00		

Sea

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.12	0.00	0.05	0.02	0.15	0.32	0.49	0.56	0.22	0.05	0.10	0.05	0.02	0.00	0.00	0.02	2.17	2.17
2	4	1.17	0.81	0.66	0.68	1.10	2.74	5.47	9.11	4.20	0.37	3.03	3.66	1.83	0.34	0.27	0.27	35.70	37.88
4	6	1.10	1.34	0.59	0.07	0.00	0.00	0.00	0.00	0.00	0.27	8.13	6.67	1.07	0.29	0.22	0.78	20.54	58.41
6	8	0.20	0.93	0.15	0.02	0.02	0.00	0.00	0.00	0.00	0.05	15.70	2.08	0.73	0.27	0.10	0.02	20.27	78.68
8	10	0.34	0.22	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	8.42	1.54	0.37	0.00	0.00	0.00	10.92	89.60
10	12	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.88	3.15	0.15	0.00	0.00	0.00	6.20	95.80
12	14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.88	1.68	0.42	0.00	0.00	0.00	2.98	98.78
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.20	0.85	0.05	0.00	0.00	0.00	1.10	99.88
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.00	0.00	0.00	0.00	0.12	100.00
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		2.95	3.30	1.44	0.83	1.27	3.05	5.96	9.67	4.42	0.73	39.34	19.80	4.64	0.90	0.59	1.10		
Cumulative Total		2.95	6.25	7.69	8.52	9.79	12.84	18.80	28.47	32.89	33.63	72.97	92.77	97.41	98.32	98.90	100.00		

ANNUAL JFTS

1981 - Tp(s)

Total

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	6	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.05	0.03	0.05	0.00	0.00	0.22	0.22
6	8	0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.22	0.42	0.46	0.29	0.30	0.08	2.91	3.13
8	10	0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.99	0.75	0.01	0.30	0.57	0.08	2.85	5.98
10	12	0.26	0.06	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.01	1.80	7.37	0.25	0.06	0.07	0.11	10.02	16.00
12	14	0.25	0.00	0.01	0.01	0.00	0.00	0.01	0.00	0.00	0.11	4.00	22.74	1.45	0.41	0.31	0.39	29.69	45.70
14	16	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.30	29.91	1.74	0.58	0.33	0.24	37.17	82.87
16	18	0.03	0.01	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.40	11.58	0.62	0.27	0.15	0.15	13.23	96.10
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.15	2.95	0.15	0.09	0.10	0.00	3.44	99.53
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.47	0.00	0.00	0.00	0.00	0.47	100.00
Total		0.94	0.07	0.05	0.01	0.01	0.00	0.01	0.00	0.00	0.13	12.93	76.23	4.70	2.04	1.83	1.05		
Cumulative Total		0.94	1.00	1.05	1.06	1.07	1.07	1.08	1.08	1.08	1.21	14.14	90.38	95.08	97.12	98.95	100.00		

Swell

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	6	0.01	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.07	0.00	0.01	0.00	0.14	0.14
6	8	0.14	0.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.55	0.45	0.14	0.01	0.39	0.42	3.61	3.74
8	10	0.24	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.05	0.58	0.00	0.07	0.94	0.82	4.76	8.51
10	12	0.17	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.11	8.34	0.00	0.05	0.14	0.00	12.83	21.33
12	14	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.94	27.76	0.00	0.02	0.06	0.00	28.90	50.24
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.16	35.43	0.00	0.00	0.00	0.00	35.59	85.83
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.59	0.10	0.00	0.00	0.00	11.70	97.53
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.21	0.00	0.00	0.00	2.21	99.73
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23	0.03	0.00	0.00	0.00	0.27	100.00
Total		0.69	0.61	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.81	86.41	0.55	0.15	1.54	1.24		
Cumulative Total		0.69	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	10.11	96.52	97.08	97.23	98.76	100.00		

Sea

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.07	0.07	0.00	0.14	0.16	0.16	0.26	0.26	0.61	0.12	0.14	0.12	0.07	0.09	0.16	0.05	2.48	2.48
2	4	0.44	1.12	0.68	0.61	1.26	1.52	4.44	6.95	4.35	0.80	3.74	4.00	1.68	0.77	0.68	0.54	33.59	36.07
4	6	0.89	2.78	0.42	0.02	0.00	0.00	0.00	0.00	0.00	0.16	10.41	5.08	2.11	0.89	0.54	0.14	23.44	59.51
6	8	0.37	1.47	0.33	0.00	0.00	0.00	0.00	0.00	0.00	0.02	15.53	2.36	0.30	0.05	0.14	0.09	20.68	80.19
8	10	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.50	1.52	0.05	0.00	0.23	0.00	8.35	88.54
10	12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.04	3.65	0.00	0.00	0.00	0.00	6.69	95.23
12	14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.47	2.62	0.00	0.00	0.00	0.00	3.09	98.32
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	1.40	0.00	0.00	0.00	0.00	1.43	99.74
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.16	0.00	0.00	0.00	0.00	0.26	100.00
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		1.78	5.50	1.43	0.77	1.43	1.68	4.70	7.20	4.96	1.10	39.95	20.91	4.21	1.80	1.75	0.82		
Cumulative Total		1.78	7.27	8.70	9.47	10.90	12.58	17.29	24.49	29.45	30.55	70.50	91.42	95.63	97.43	99.18	100.00		

1982 - Tp(s)

Total

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.00	0.00	0.00	0.00	0.00	0.11	0.11
6	8	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.49	0.02	0.02	0.06	0.00	0.17	0.83	0.95
8	10	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.55	0.30	0.05	0.03	0.00	0.03	2.01	2.96
10	12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	1.85	5.89	0.41	0.25	0.00	0.00	8.44	11.39
12	14	0.07	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	4.69	19.93	0.63	0.10	0.26	0.05	25.79	37.18
14	16	0.10	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.61	32.72	0.91	0.51	0.21	0.15	41.26	78.44
16	18	0.06	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.10	14.60	0.34	0.07	0.02	0.05	16.35	94.78
18	20	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.16	3.85	0.16	0.22	0.01	0.00	4.44	99.22
>20		0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.61	0.06	0.00	0.05	0.03	0.78	100.00
Total		0.39	0.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	16.58	77.91	2.58	1.24	0.55	0.48		
Cumulative Total		0.39	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.66	17.24	95.15	97.73	98.97	99.52	100.00		

Swell

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	6	0.00	0.01	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.06	0.06
6	8	0.48	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.72	0.12	0.00	0.00	0.06	0.03	1.49	1.55
8	10	0.09	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.12	0.40	0.00	0.00	0.07	0.15	2.96	4.50
10	12	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.48	6.43	0.01	0.00	0.33	0.17	11.44	15.94
12	14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.28	24.91	0.08	0.00	0.02	0.00	26.30	42.24
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.45	39.70	0.05	0.00	0.00	0.00	40.19	82.43
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	14.13	0.01	0.00	0.00	0.00	14.15	96.58
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.90	0.07	0.00	0.00	0.00	2.97	99.55
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.44	0.01	0.00	0.00	0.00	0.45	100.00
Total		0.58	0.22	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.06	89.03	0.23	0.00	0.48	0.36		
Cumulative Total		0.58	0.80	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	9.89	98.93	99.16	99.16	99.64	100.00		

Sea

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.05	0.12	0.05	0.09	0.28	0.24	0.17	0.66	0.28	0.12	0.12	0.17	0.09	0.02	0.05	0.17	2.67	2.67
2	4	1.37	1.30	0.64	0.66	1.98	2.27	3.75	7.20	4.84	0.40	4.25	4.74	1.13	0.38	0.78	0.85	36.53	39.19
4	6	0.24	1.23	0.68	0.12	0.00	0.00	0.00	0.00	0.05	0.59	15.55	3.87	0.54	0.42	0.09	0.02	23.41	62.60
6	8	0.05	1.68	0.40	0.02	0.07	0.02	0.00	0.00	0.00	0.09	14.79	0.76	0.31	0.42	0.00	0.02	18.64	81.24
8	10	0.02	0.00	0.12	0.12	0.09	0.00	0.00	0.00	0.00	0.00	7.90	1.01	0.02	0.00	0.00	0.00	9.30	90.54
10	12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.11	3.14	0.19	0.02	0.02	0.00	6.49	97.03
12	14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.24	1.93	0.00	0.00	0.00	0.00	2.17	99.20
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.61	0.00	0.00	0.00	0.00	0.73	99.93
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.07	100.00
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		1.72	4.32	1.89	1.01	2.43	2.52	3.92	7.86	5.17	1.20	46.08	16.30	2.29	1.27	0.94	1.06		
Cumulative Total		1.72	6.04	7.93	8.94	11.37	13.90	17.82	25.67	30.84	32.04	78.13	94.43	96.72	97.99	98.94	100.00		

ANNUAL JFTS

1983 - Tp(s)

Total

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.19	0.00	0.00	0.00	0.00	0.22	0.22
6	8	0.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.79	0.27	0.02	0.02	0.01	0.02	1.34	1.55
8	10	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.54	0.79	0.07	0.21	0.02	0.01	1.77	3.32
10	12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.69	7.42	0.15	0.08	0.02	0.00	9.36	12.68
12	14	0.42	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.09	17.73	0.46	0.17	0.24	0.24	22.40	35.08
14	16	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.90	39.53	1.44	0.59	0.32	0.24	45.05	80.13
16	18	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.54	13.01	0.83	0.15	0.13	0.09	14.81	94.93
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.21	3.88	0.11	0.01	0.01	0.00	4.22	99.16
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.80	0.05	0.00	0.00	0.00	0.84	100.00
Total		0.83	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.77	83.63	3.13	1.23	0.75	0.61		
Cumulative Total		0.83	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	10.65	94.28	97.41	98.64	99.39	100.00		

Swell

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	6	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.03	0.03
6	8	0.13	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.69	0.15	0.00	0.00	0.07	0.05	1.34	1.38
8	10	0.31	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.32	0.43	0.00	0.24	0.27	0.00	2.76	4.14
10	12	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.62	8.41	0.25	0.00	0.21	0.00	11.53	15.67
12	14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.24	22.95	0.10	0.00	0.00	0.00	23.30	38.97
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	44.15	0.00	0.00	0.00	0.00	44.28	83.24
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	12.88	0.08	0.00	0.00	0.00	12.97	96.22
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.28	0.02	0.00	0.00	0.00	3.31	99.53
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.45	0.02	0.00	0.00	0.00	0.47	100.00
Total		0.45	0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.02	92.72	0.49	0.24	0.54	0.05		
Cumulative Total		0.45	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	5.97	98.68	99.17	99.41	99.95	100.00		

Sea

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.05	0.07	0.17	0.07	0.09	0.05	0.26	0.50	0.19	0.07	0.00	0.17	0.02	0.02	0.05	0.09	1.86	1.86
2	4	1.53	1.89	0.33	0.54	1.86	2.10	2.62	4.36	2.05	0.57	4.53	6.68	1.51	0.28	0.26	0.97	32.08	33.95
4	6	0.61	2.69	0.64	0.02	0.02	0.00	0.00	0.00	0.05	0.35	11.56	8.23	0.71	0.24	0.21	0.05	25.38	59.33
6	8	0.19	2.43	0.45	0.09	0.02	0.00	0.00	0.00	0.02	0.02	17.60	2.31	0.05	0.09	0.07	0.00	23.35	82.68
8	10	0.09	0.31	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.58	1.51	0.00	0.00	0.09	0.02	8.63	91.32
10	12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.67	2.85	0.00	0.00	0.02	0.00	5.54	96.86
12	14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.52	1.65	0.00	0.00	0.00	0.00	2.17	99.03
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.78	0.00	0.00	0.00	0.00	0.85	99.88
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.00	0.00	0.00	0.00	0.12	100.00
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		2.48	7.38	1.60	0.73	2.01	2.15	2.88	4.86	2.31	1.01	43.52	24.30	2.29	0.64	0.71	1.13		
Cumulative Total		2.48	9.86	11.46	12.20	14.20	16.35	19.23	24.09	26.40	27.41	70.94	95.23	97.52	98.16	98.87	100.00		

1984 - Tp(s)

Total

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.03	0.03	0.06	0.00	0.00	0.19	0.19
6	8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.98	0.25	0.09	0.17	0.07	0.00	1.56	1.75
8	10	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.48	1.02	0.28	0.00	0.09	0.13	3.21	4.96
10	12	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.14	7.41	0.41	0.01	0.06	0.11	10.25	15.21
12	14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.38	23.13	1.67	0.48	0.16	0.24	29.06	44.27
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	3.69	30.84	2.04	0.41	0.09	0.00	37.12	81.40
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.83	12.08	0.84	0.14	0.03	0.00	13.96	95.36
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.07	3.18	0.22	0.05	0.00	0.00	3.56	98.92
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.83	0.22	0.03	0.00	0.00	1.08	100.00
Total		0.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.15	12.64	78.78	5.81	1.34	0.50	0.48		
Cumulative Total		0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.46	13.09	91.87	97.68	99.02	99.52	100.00		

Swell

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.06	0.00	0.00	0.00	0.12	0.12
6	8	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.63	0.23	0.18	0.08	0.43	0.03	1.60	1.72
8	10	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.54	0.61	0.01	0.66	0.88	0.00	4.74	6.46
10	12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.87	8.85	0.01	0.17	0.18	0.00	13.09	19.55
12	14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.14	28.22	0.03	0.00	0.00	0.00	29.40	48.95
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	35.26	0.12	0.00	0.00	0.00	35.48	84.43
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.85	0.40	0.00	0.00	0.00	12.26	96.69
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.24	0.22	0.00	0.00	0.00	2.46	99.15
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.70	0.15	0.00	0.00	0.00	0.85	100.00
Total		0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.29	88.03	1.19	0.91	1.49	0.03		
Cumulative Total		0.00	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	8.34	96.38	97.56	98.48	99.97	100.00		

Sea

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.09	0.00	0.04	0.11	0.11	0.11	0.20	0.49	0.20	0.13	0.09	0.02	0.15	0.04	0.02	0.15	1.97	1.97
2	4	1.66	1.17	0.49	0.64	1.46	2.78	4.92	5.98	3.33	0.44	3.51	4.17	1.72	0.68	0.49	1.04	34.50	36.46
4	6	0.91	2.10	0.82	0.09	0.00	0.00	0.00	0.00	0.02	0.66	7.31	6.38	1.13	0.44	0.42	0.02	20.30	56.76
6	8	0.15	1.30	0.46	0.09	0.00	0.00	0.00	0.00	0.00	0.11	13.34	3.47	0.27	0.31	0.15	0.00	19.66	76.41
8	10	0.09	0.60	0.42	0.00	0.02	0.00	0.00	0.00	0.00	0.00	8.61	1.94	0.11	0.13	0.02	0.29	12.23	88.65
10	12	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.18	3.95	0.00	0.00	0.00	0.15	7.49	96.14
12	14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.40	2.03	0.00	0.00	0.00	0.00	2.43	98.56
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	1.33	0.00	0.00	0.00	0.00	1.37	99.93
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.04	0.00	0.00	0.00	0.00	0.07	100.00
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		3.09	5.17	2.23	0.93	1.59	2.89	5.12	6.47	3.56	1.35	36.51	23.34	3.38	1.61	1.10	1.66		
Cumulative Total		3.09	8.26	10.49	11.42	13.01	15.90	21.02	27.50	31.05	32.40	68.90	92.25	95.63	97.24	98.34	100.00		

ANNUAL JFTS

1985 - Tp(s)

Total

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	6	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.08	0.00	0.00	0.00	0.03	0.34	0.34
6	8	0.37	0.15	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.58	0.33	0.00	0.02	0.01	0.00	2.50	2.84
8	10	0.31	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.34	1.21	0.19	0.15	0.68	0.26	6.19	9.03
10	12	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.03	5.05	0.51	0.01	0.06	0.01	8.72	17.75
12	14	0.02	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.05	6.21	20.61	0.89	0.50	0.09	0.00	28.41	46.16
14	16	0.09	0.07	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.71	31.89	1.75	0.35	0.09	0.14	39.14	85.31
16	18	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.51	9.98	0.49	0.06	0.07	0.02	12.19	97.50
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	1.74	0.06	0.06	0.02	0.00	2.01	99.51
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.39	0.00	0.02	0.05	0.02	0.49	100.00
Total		1.05	0.25	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.05	20.62	71.27	3.89	1.18	1.07	0.49		
Cumulative Total		1.05	1.30	1.44	1.44	1.44	1.44	1.44	1.44	1.44	1.48	22.10	93.37	97.26	98.44	99.51	100.00		

Swell

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.01	0.00	0.00	0.00	0.00	0.04	0.04
6	8	0.00	0.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.29	0.21	0.05	0.00	0.04	0.04	1.93	1.96
8	10	0.20	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.44	0.80	0.08	0.39	1.13	0.43	7.57	9.53
10	12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.79	7.52	0.07	0.27	0.13	0.00	11.78	21.30
12	14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.47	28.36	0.01	0.02	0.00	0.00	28.86	50.16
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	37.08	0.08	0.00	0.00	0.00	37.30	87.46
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.16	0.04	0.00	0.00	0.00	10.20	97.66
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.91	0.01	0.00	0.00	0.00	1.92	99.58
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.40	0.02	0.00	0.00	0.00	0.42	100.00
Total		0.20	0.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.15	86.44	0.36	0.68	1.30	0.47		
Cumulative Total		0.20	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	10.76	97.19	97.56	98.23	99.53	100.00		

Sea

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.13	0.11	0.07	0.09	0.24	0.22	0.24	0.55	0.26	0.17	0.09	0.04	0.02	0.02	0.04	0.11	2.40	2.40
2	4	0.85	0.61	0.72	0.87	2.10	2.03	3.60	5.35	4.50	0.57	2.92	3.03	1.44	0.81	0.55	0.79	30.73	33.13
4	6	1.29	2.55	1.00	0.00	0.02	0.00	0.00	0.00	0.00	0.11	10.26	4.69	0.48	0.07	0.02	0.04	20.54	53.67
6	8	0.35	1.77	0.39	0.04	0.00	0.00	0.00	0.00	0.02	0.07	17.37	2.47	0.07	0.00	0.02	0.04	22.61	76.28
8	10	0.00	0.28	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.04	11.13	1.66	0.07	0.00	0.00	0.02	13.25	89.52
10	12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.58	2.47	0.00	0.00	0.00	0.00	6.05	95.57
12	14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.70	2.34	0.00	0.00	0.00	0.00	3.03	98.60
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.15	1.22	0.00	0.00	0.00	0.00	1.37	99.98
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.02	100.00
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		2.62	5.33	2.23	1.00	2.36	2.25	3.84	5.89	4.78	0.96	46.20	17.94	2.07	0.89	0.63	1.00		
Cumulative Total		2.62	7.94	10.17	11.17	13.53	15.78	19.62	25.51	30.29	31.25	77.46	95.40	97.47	98.36	99.00	100.00		

1986 - Tp(s)

Total

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.02	0.00	0.01	0.08	0.15	0.32	0.32
6	8	0.34	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.27	0.07	0.11	0.02	0.00	0.11	2.11	2.43
8	10	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.80	1.03	0.58	0.10	0.00	0.00	3.55	5.98
10	12	0.01	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.64	5.02	0.80	0.11	0.05	0.02	8.68	14.66
12	14	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.16	20.91	1.31	0.31	0.10	0.11	30.07	44.73
14	16	0.10	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.67	29.46	1.69	0.61	0.22	0.03	39.82	84.54
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.42	8.77	1.19	0.09	0.17	0.01	11.64	96.19
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	2.33	0.31	0.16	0.06	0.01	3.12	99.30
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.67	0.00	0.00	0.00	0.00	0.70	100.00
Total		0.62	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	22.28	68.29	5.99	1.42	0.67	0.46		
Cumulative Total		0.62	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	23.17	91.46	97.45	98.87	99.54	100.00		

Swell

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	6	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.02	0.02
6	8	0.00	0.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.20	0.17	0.01	0.03	0.19	0.00	1.82	1.84
8	10	0.00	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.37	1.09	0.32	0.05	0.66	0.17	5.74	7.58
10	12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.08	7.31	0.03	0.14	0.27	0.03	12.86	20.44
12	14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.32	28.27	0.12	0.29	0.08	0.00	30.08	50.52
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.21	36.88	0.16	0.10	0.00	0.00	37.36	87.88
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.12	0.39	0.00	0.00	0.00	9.51	97.39
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.71	0.37	0.00	0.00	0.00	2.08	99.47
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.31	0.22	0.00	0.00	0.00	0.53	100.00
Total		0.01	0.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.18	84.87	1.63	0.62	1.19	0.21		
Cumulative Total		0.01	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	11.48	96.34	97.98	98.60	99.79	100.00		

Sea

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.08	0.08	0.04	0.04	0.19	0.19	0.29	0.42	0.25	0.08	0.04	0.00	0.06	0.02	0.02	0.08	1.91	1.91
2	4	0.61	0.82	0.59	1.13	2.08	2.68	4.53	6.08	4.65	0.63	1.49	3.35	1.15	0.23	0.34	0.19	30.54	32.45
4	6	0.63	1.66	0.84	0.06	0.00	0.00	0.00	0.00	0.02	0.19	10.04	5.47	0.69	0.27	0.23	0.27	20.37	52.82
6	8	0.38	1.22	0.23	0.06	0.02	0.04	0.00	0.00	0.00	0.06	21.59	2.20	0.21	0.19	0.00	0.06	26.26	79.08
8	10	0.00	0.13	0.13	0.02	0.02	0.00	0.00	0.00	0.02	0.00	9.49	2.08	0.02	0.00	0.02	0.00	11.93	91.01
10	12	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.26	3.31	0.21	0.00	0.00	0.00	5.87	96.88
12	14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.54	1.74	0.00	0.00	0.00	0.00	2.28	99.16
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.27	0.54	0.00	0.00	0.00	0.00	0.82	99.98
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	99.98
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.02	100.00
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		1.78	3.90	1.82	1.32	2.31	2.91	4.82	6.50	4.95	0.96	45.73	18.72	2.35	0.71	0.61	0.61		
Cumulative Total		1.78	5.68	7.50	8.82	11.13	14.04	18.86	25.36	30.31	31.27	77.01	95.72	98.07	98.78	99.39	100.00		

ANNUAL JFTS

1987 - Tp(s)

Total

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.31	0.16	0.00	0.00	0.00	0.49	0.49
6	8	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.57	0.31	0.07	0.00	0.02	0.09	1.31	1.80
8	10	0.17	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.30	1.22	0.21	0.00	0.00	0.00	2.95	4.75
10	12	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.63	6.08	0.24	0.00	0.00	0.02	7.99	12.74
12	14	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.53	18.78	1.27	0.25	0.38	0.10	25.45	38.18
14	16	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.36	33.89	2.16	0.49	0.35	0.41	40.75	78.94
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.19	13.33	1.39	0.34	0.26	0.01	16.53	95.47
18	20	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	3.34	0.19	0.08	0.05	0.05	3.98	99.45
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.45	0.00	0.07	0.03	0.00	0.55	100.00
Total		0.68	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.85	77.72	5.68	1.23	1.10	0.68		
Cumulative Total		0.68	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	13.58	91.30	96.99	98.22	99.32	100.00		

Swell

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.05	0.08	0.00	0.00	0.16	0.16
6	8	0.10	0.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.65	0.16	0.09	0.08	0.14	0.01	1.66	1.83
8	10	0.03	0.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.11	0.64	0.02	0.45	0.23	0.06	3.81	5.63
10	12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.40	7.43	0.03	0.01	0.13	0.00	11.00	16.63
12	14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.64	24.83	0.36	0.00	0.00	0.00	25.83	42.46
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.17	39.04	0.38	0.00	0.00	0.00	39.60	82.06
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	14.20	0.38	0.00	0.00	0.00	14.60	96.66
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	2.57	0.29	0.00	0.00	0.00	2.88	99.53
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.37	0.09	0.00	0.00	0.00	0.47	100.00
Total		0.14	0.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.00	89.28	1.71	0.63	0.50	0.07		
Cumulative Total		0.14	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	7.81	97.09	98.80	99.43	99.93	100.00		

Sea

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.13	0.08	0.00	0.08	0.06	0.11	0.25	0.13	0.11	0.17	0.06	0.06	0.08	0.04	0.15	0.15	1.68	1.68
2	4	1.63	1.55	0.83	0.42	1.57	1.74	2.97	6.32	3.08	0.79	3.16	3.97	1.27	0.62	0.62	0.57	31.11	32.78
4	6	0.83	3.67	0.38	0.04	0.02	0.00	0.00	0.00	0.02	0.34	9.53	8.91	1.53	0.02	0.17	0.34	25.80	58.58
6	8	0.06	1.70	0.21	0.11	0.02	0.00	0.00	0.02	0.00	0.19	15.21	2.86	0.15	0.02	0.04	0.04	20.65	79.23
8	10	0.00	0.11	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	7.77	2.33	0.00	0.02	0.00	0.00	10.25	89.48
10	12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.03	4.05	0.00	0.00	0.00	0.00	7.09	96.56
12	14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.40	1.76	0.02	0.00	0.00	0.00	2.19	98.75
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.19	0.89	0.00	0.00	0.00	0.00	1.08	99.83
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.15	0.00	0.00	0.00	0.00	0.15	99.98
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.02	100.00
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		2.65	7.11	1.42	0.68	1.68	1.85	3.23	6.47	3.20	1.49	39.36	25.02	3.06	0.72	0.98	1.10		
Cumulative Total		2.65	9.76	11.18	11.86	13.54	15.38	18.61	25.08	28.28	29.77	69.13	94.14	97.20	97.92	98.90	100.00		

1988 - Tp(s)

Total

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.00	0.00	0.00	0.01	0.08	0.08
6	8	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.80	0.14	0.00	0.03	0.02	0.00	1.05	1.13
8	10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.74	0.41	0.17	0.06	0.00	0.00	3.38	4.51
10	12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.56	7.51	0.77	0.03	0.06	0.02	11.96	16.47
12	14	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	3.43	21.78	2.02	0.32	0.07	0.06	27.78	44.25
14	16	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.00	30.94	2.35	0.17	0.27	0.15	35.94	80.19
16	18	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.60	12.33	1.71	0.13	0.01	0.01	14.81	95.00
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11	3.51	0.41	0.14	0.00	0.00	4.17	99.17
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.77	0.06	0.00	0.00	0.00	0.83	100.00
Total		0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	13.29	77.42	7.48	0.88	0.43	0.25		
Cumulative Total		0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.25	13.54	90.96	98.44	99.32	99.75	100.00		

Swell

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.06	0.06
6	8	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.63	0.08	0.00	0.02	0.00	0.08	0.86	0.92
8	10	0.09	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.72	0.37	0.12	0.15	0.14	0.00	3.62	4.53
10	12	0.03	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.55	7.71	0.01	0.14	0.42	0.00	13.96	18.49
12	14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.56	28.07	0.01	0.00	0.35	0.00	28.99	47.48
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	35.34	0.08	0.00	0.05	0.00	35.49	82.97
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	13.36	0.19	0.00	0.00	0.00	13.54	96.51
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.61	0.35	0.00	0.00	0.00	2.96	99.47
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.36	0.17	0.00	0.00	0.00	0.53	100.00
Total		0.15	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.48	87.90	0.93	0.31	0.95	0.14		
Cumulative Total		0.15	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	9.77	97.67	98.60	98.91	99.86	100.00		

Sea

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.05	0.05	0.07	0.12	0.15	0.07	0.49	0.42	0.24	0.02	0.07	0.15	0.15	0.00	0.15	0.12	2.33	2.33
2	4	1.25	1.42	0.73	0.39	1.20	1.98	3.89	6.64	4.02	0.34	3.94	5.00	2.20	0.51	0.83	0.47	34.83	37.15
4	6	0.54	2.99	0.54	0.02	0.00	0.00	0.00	0.00	0.10	0.24	7.47	8.43	1.32	0.39	0.24	0.15	22.43	59.59
6	8	0.17	2.35	0.20	0.10	0.12	0.02	0.02	0.00	0.00	0.05	13.96	2.11	0.07	0.05	0.07	0.02	19.32	78.91
8	10	0.00	0.20	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.16	1.08	0.00	0.10	0.00	0.00	11.58	90.50
10	12	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.57	3.36	0.00	0.00	0.00	0.02	5.98	96.47
12	14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.61	2.13	0.00	0.00	0.00	0.00	2.74	99.22
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.66	0.00	0.00	0.00	0.00	0.76	99.98
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.02	100.00
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		2.03	7.00	1.59	0.64	1.47	2.08	4.41	7.05	4.36	0.66	38.89	22.92	3.75	1.05	1.30	0.78		
Cumulative Total		2.03	9.04	10.63	11.27	12.74	14.82	19.23	26.28	30.64	31.30	70.19	93.12	96.87	97.92	99.22	100.00		

ANNUAL JFTS

1989 - Tp(s)

Total

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.01	0.01
4	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.19	0.00	0.00	0.00	0.00	0.24	0.25
6	8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.18	0.74	0.10	0.08	0.07	0.00	2.17	2.42
8	10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.69	1.42	0.18	0.27	0.30	0.07	3.93	6.35
10	12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.03	6.30	0.31	0.21	0.01	0.02	8.88	15.23
12	14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	4.41	17.34	0.57	0.50	0.02	0.09	23.07	38.30
14	16	0.06	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	4.04	31.72	2.34	0.86	0.23	0.32	39.67	77.97
16	18	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.73	15.24	1.02	0.23	0.07	0.08	17.47	95.43
18	20	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.27	2.92	0.26	0.11	0.05	0.05	3.74	99.18
>20		0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.56	0.03	0.05	0.01	0.03	0.82	100.00
Total		0.30	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.19	14.47	76.45	4.82	2.31	0.75	0.66		
Cumulative Total		0.30	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.54	15.01	91.46	96.28	98.58	99.34	100.00		

Swell

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.00	0.00	0.02	0.00	0.07	0.07
6	8	0.01	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.79	0.46	0.09	0.10	0.14	0.14	1.80	1.87
8	10	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.63	0.45	0.00	0.40	0.59	0.35	4.47	6.34
10	12	0.03	0.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.98	6.54	0.10	0.90	0.42	0.00	12.27	18.61
12	14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.77	21.77	0.17	0.18	0.08	0.00	22.98	41.59
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.39	38.82	0.03	0.01	0.00	0.00	39.26	80.85
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	16.03	0.02	0.00	0.00	0.00	16.08	96.93
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.40	0.13	0.00	0.00	0.00	2.53	99.46
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.47	0.07	0.00	0.00	0.00	0.54	100.00
Total		0.05	0.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.62	86.97	0.62	1.61	1.25	0.49		
Cumulative Total		0.05	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	9.07	96.04	96.66	98.27	99.51	100.00		

Sea

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.13	0.11	0.04	0.09	0.20	0.33	0.28	0.39	0.24	0.11	0.09	0.11	0.02	0.11	0.15	0.20	2.59	2.59
2	4	1.28	1.13	0.59	0.83	2.59	3.37	4.68	6.33	2.87	0.81	2.98	4.00	1.35	0.11	0.41	0.48	33.81	36.40
4	6	0.50	3.52	0.89	0.09	0.00	0.00	0.00	0.00	0.07	0.50	9.53	6.18	0.98	0.37	0.61	0.35	23.59	59.99
6	8	0.02	1.54	0.41	0.20	0.00	0.00	0.00	0.00	0.00	0.09	16.41	2.55	0.61	0.11	0.07	0.00	22.00	81.98
8	10	0.00	0.00	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.75	1.24	0.04	0.02	0.02	0.04	10.23	92.21
10	12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.20	2.37	0.00	0.00	0.04	0.00	4.61	96.82
12	14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.48	1.83	0.00	0.00	0.00	0.00	2.31	99.13
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.65	0.00	0.00	0.00	0.00	0.76	99.89
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.04	99.93
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.02	0.00	0.00	0.00	0.00	0.07	100.00
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		1.94	6.31	2.05	1.20	2.79	3.70	4.96	6.72	3.18	1.50	40.58	18.99	3.00	0.72	1.31	1.07		
Cumulative Total		1.94	8.25	10.29	11.49	14.27	17.97	22.93	29.66	32.83	34.33	74.91	93.91	96.91	97.63	98.93	100.00		

1990 - Tp(s)

Total

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.05	0.00	0.00	0.00	0.00	0.13	0.13
6	8	0.13	0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.42	0.31	0.16	0.17	0.00	0.00	2.33	2.45
8	10	0.33	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.99	0.72	0.21	0.65	0.47	0.21	3.69	6.14
10	12	0.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.59	5.19	0.22	0.15	0.15	0.41	8.93	15.07
12	14	0.08	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.27	19.36	1.63	0.40	0.09	0.16	27.01	42.08
14	16	0.13	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.31	31.51	1.93	0.46	0.43	0.25	38.05	80.13
16	18	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.58	13.37	1.14	0.49	0.21	0.07	15.88	96.00
18	20	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.18	2.57	0.34	0.17	0.11	0.01	3.47	99.47
>20		0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.38	0.03	0.00	0.02	0.05	0.53	100.00
Total		1.00	0.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	14.45	73.45	5.66	2.49	1.48	1.15		
Cumulative Total		1.00	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	15.76	89.21	94.87	97.36	98.85	100.00		

Swell

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	6	0.01	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.12	0.12
6	8	0.05	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.31	0.15	0.15	0.25	0.09	0.03	2.18	2.29
8	10	0.14	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.86	0.22	0.08	0.31	0.90	0.38	5.03	7.32
10	12	0.33	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.88	5.96	0.07	0.25	0.22	0.23	11.95	19.27
12	14	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	25.23	0.10	0.01	0.07	0.05	26.59	45.86
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.16	36.73	0.30	0.00	0.00	0.00	37.19	83.06
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	13.75	0.35	0.00	0.00	0.00	14.11	97.16
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.06	0.33	0.00	0.00	0.00	2.40	99.56
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.41	0.02	0.00	0.00	0.00	0.44	100.00
Total		0.66	0.37	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.22	84.54	1.41	0.83	1.28	0.69		
Cumulative Total		0.66	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	11.25	95.79	97.20	98.03	99.31	100.00		

Sea

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.13	0.00	0.06	0.15	0.06	0.17	0.11	0.40	0.25	0.13	0.17	0.13	0.08	0.02	0.15	0.19	2.19	2.19
2	4	0.93	1.45	0.70	0.72	1.90	2.11	4.02	5.94	4.36	0.44	2.67	4.47	0.80	0.34	0.32	0.27	31.42	33.61
4	6	0.42	3.48	0.97	0.04	0.02	0.00	0.00	0.00	0.00	0.23	12.81	4.89	0.21	0.36	0.04	0.42	23.88	57.50
6	8	0.04	2.04	0.19	0.11	0.02	0.00	0.00	0.00	0.02	0.11	19.04	1.94	0.27	0.04	0.00	0.00	23.82	81.32
8	10	0.23	0.34	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.80	0.72	0.15	0.00	0.17	0.27	8.70	90.02
10	12	0.27	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.29	2.76	0.02	0.00	0.00	0.00	6.36	96.38
12	14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.55	2.19	0.00	0.00	0.00	0.00	2.74	99.12
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.70	0.00	0.00	0.00	0.00	0.78	99.89
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.00	0.00	0.00	0.00	0.11	100.00
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		2.02	7.33	1.94	1.01	2.00	2.27	4.13	6.34	4.63	0.91	45.41	17.88	1.54	0.76	0.67	1.16		
Cumulative Total		2.02	9.35	11.29	12.30	14.30	16.58	20.70	27.04	31.68	32.58	77.99	95.87	97.41	98.17	98.84	100.00		

ANNUAL JFTS

1991 - Tp(s)

Total

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.01	0.01
4	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.30	0.00	0.00	0.00	0.00	0.37	0.38
6	8	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.10	0.53	0.00	0.07	0.26	0.37	2.35	2.73
8	10	0.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.26	0.68	0.00	0.00	0.32	0.22	2.90	5.63
10	12	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.54	5.74	0.40	0.01	0.19	0.49	8.63	14.26
12	14	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.78	19.66	1.29	0.30	0.09	0.06	25.19	39.45
14	16	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.60	34.26	0.95	0.23	0.47	0.27	40.80	80.25
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.79	14.27	0.55	0.08	0.03	0.01	15.73	95.98
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.21	3.14	0.06	0.02	0.00	0.00	3.42	99.41
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.50	0.08	0.00	0.00	0.00	0.59	100.00
Total		0.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	13.34	79.09	3.32	0.71	1.37	1.42		
Cumulative Total		0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	14.10	93.18	96.51	97.21	98.58	100.00		

Swell

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.01	0.01
6	8	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.97	0.48	0.00	0.12	0.16	0.45	2.28	2.30
8	10	0.22	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.78	0.40	0.02	0.47	0.15	0.43	3.67	5.97
10	12	0.34	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.42	6.96	0.36	0.09	0.40	0.43	11.08	17.05
12	14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.49	26.57	0.01	0.00	0.10	0.00	27.17	44.22
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.30	39.50	0.01	0.01	0.00	0.00	39.83	84.05
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	13.00	0.27	0.00	0.00	0.00	13.28	97.33
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.25	0.17	0.00	0.00	0.00	2.42	99.76
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.20	0.05	0.00	0.00	0.00	0.24	100.00
Total		0.66	0.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.98	89.36	0.90	0.69	0.82	1.32		
Cumulative Total		0.66	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	6.92	96.28	97.18	97.87	98.68	100.00		

Sea

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.02	0.02	0.00	0.07	0.05	0.02	0.09	0.33	0.38	0.05	0.02	0.00	0.02	0.07	0.00	0.09	1.24	1.24
2	4	0.94	0.96	0.28	0.23	0.54	0.99	2.72	5.78	3.59	0.52	2.82	4.11	1.48	0.45	0.35	0.59	26.35	27.60
4	6	0.47	1.86	0.21	0.07	0.00	0.00	0.00	0.00	0.02	0.23	11.37	6.76	0.54	0.12	0.26	0.14	22.05	49.65
6	8	1.08	1.36	0.12	0.05	0.00	0.00	0.00	0.00	0.00	0.02	19.82	3.99	0.35	0.02	0.19	0.14	27.15	76.80
8	10	0.47	0.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.74	1.93	0.00	0.00	0.00	0.00	11.46	88.26
10	12	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.83	3.69	0.00	0.00	0.00	0.00	7.59	95.84
12	14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.42	2.40	0.00	0.00	0.00	0.00	2.82	98.66
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.19	0.82	0.00	0.00	0.00	0.00	1.01	99.67
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.33	0.00	0.00	0.00	0.00	0.33	100.00
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		2.98	4.60	0.61	0.42	0.59	1.01	2.82	6.11	3.99	0.82	47.21	24.03	2.40	0.66	0.80	0.96		
Cumulative Total		2.98	7.59	8.20	8.62	9.21	10.22	13.03	19.14	23.13	23.95	71.16	95.19	97.58	98.24	99.04	100.00		

1992 - Tp(s)

Total

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.18	0.00	0.00	0.00	0.00	0.27	0.27
6	8	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.43	0.13	0.00	0.00	0.07	0.09	1.86	2.13
8	10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.04	0.66	0.05	0.02	0.00	0.00	1.76	3.89
10	12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.19	7.87	0.40	0.02	0.00	0.00	10.47	14.37
12	14	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.84	20.07	1.25	0.03	0.00	0.00	26.21	40.57
14	16	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.13	33.62	2.21	0.24	0.07	0.00	40.33	80.91
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.90	11.40	1.13	0.01	0.02	0.02	13.48	94.39
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.31	3.44	0.64	0.00	0.00	0.00	4.38	98.77
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.15	0.08	0.00	0.00	0.00	1.23	100.00
Total		0.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	14.92	78.51	5.75	0.33	0.16	0.11		
Cumulative Total		0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	15.14	93.65	99.40	99.73	99.89	100.00		

Swell

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.00	0.00	0.00	0.00	0.03	0.03
6	8	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.88	0.36	0.00	0.01	0.22	0.00	1.50	1.54
8	10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.06	0.78	0.02	0.23	0.67	0.00	3.76	5.29
10	12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.34	9.00	0.25	0.22	0.49	0.00	13.31	18.61
12	14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.71	25.05	0.36	0.30	0.02	0.00	26.44	45.04
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	38.57	0.28	0.08	0.00	0.00	38.99	84.04
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	11.36	0.45	0.00	0.00	0.00	11.82	95.85
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.01	0.29	0.00	0.00	0.00	3.30	99.15
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.60	0.25	0.00	0.00	0.00	0.85	100.00
Total		0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.09	88.74	1.90	0.84	1.40	0.00		
Cumulative Total		0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	7.12	95.87	97.76	98.60	100.00	100.00		

Sea

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.02	0.02	0.02	0.04	0.00	0.08	0.15	0.25	0.23	0.00	0.08	0.08	0.10	0.10	0.00	0.10	1.30	1.30
2	4	0.31	0.82	0.36	0.46	1.17	2.07	3.89	7.28	3.58	0.33	2.97	5.37	1.86	0.77	0.48	0.36	32.08	33.38
4	6	0.82	2.15	0.31	0.04	0.02	0.00	0.00	0.00	0.02	0.44	13.91	9.14	1.65	0.17	0.02	0.15	28.84	62.21
6	8	0.19	0.67	0.29	0.15	0.06	0.00	0.00	0.00	0.00	0.00	17.50	2.22	0.15	0.29	0.00	0.19	21.71	83.92
8	10	0.00	0.13	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.34	1.25	0.10	0.00	0.00	0.00	7.90	91.82
10	12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.76	2.78	0.02	0.00	0.00	0.00	5.56	97.39
12	14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.38	1.30	0.00	0.00	0.00	0.00	1.67	99.06
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.15	0.77	0.00	0.00	0.00	0.00	0.92	99.98
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.02	100.00
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		1.34	3.79	1.07	0.69	1.25	2.15	4.04	7.53	3.83	0.77	44.08	22.94	3.89	1.34	0.50	0.79		
Cumulative Total		1.34	5.12	6.19	6.88	8.13	10.29	14.32	21.85	25.68	26.45	70.54	93.48	97.37	98.70	99.21	100.00		

ANNUAL JFTS

1993 - Tp(s)

Total

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.03	0.03	0.00	0.00	0.00	0.14	0.14
6	8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.78	0.34	0.13	0.22	0.24	0.00	1.70	1.84
8	10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.11	1.18	0.16	0.13	0.13	0.03	3.73	5.57
10	12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.43	6.70	0.25	0.13	0.51	0.00	10.02	15.59
12	14	0.13	0.02	0.01	0.00	0.01	0.00	0.00	0.00	0.03	0.05	6.67	19.03	0.50	0.18	0.42	0.24	27.29	42.89
14	16	0.41	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.86	30.82	2.82	0.88	0.38	0.35	41.60	84.49
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.43	10.49	0.66	0.34	0.31	0.06	12.29	96.78
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.33	1.97	0.19	0.05	0.07	0.00	2.61	99.39
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.57	0.01	0.00	0.00	0.00	0.61	100.00
Total		0.54	0.10	0.01	0.00	0.01	0.00	0.00	0.00	0.03	0.05	18.70	71.14	4.76	1.92	2.05	0.68		
Cumulative Total		0.54	0.64	0.65	0.65	0.66	0.66	0.66	0.66	0.70	0.74	19.44	90.58	95.34	97.26	99.32	100.00		

Swell

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	6	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.01	0.00	0.08	0.08
6	8	0.00	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.94	0.22	0.00	0.07	0.44	0.26	2.16	2.25
8	10	0.00	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.87	0.29	0.00	0.49	0.66	0.44	4.91	7.16
10	12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.29	6.19	0.00	0.26	0.22	0.77	11.74	18.90
12	14	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.24	24.60	0.00	0.01	0.12	0.26	26.25	45.14
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.29	39.94	0.27	0.00	0.00	0.00	40.50	85.64
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	11.75	0.19	0.00	0.00	0.00	11.95	97.59
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.14	0.00	0.00	0.00	2.14	99.73
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.22	0.05	0.00	0.00	0.00	0.27	100.00
Total		0.02	0.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.64	85.24	0.64	0.83	1.45	1.73		
Cumulative Total		0.02	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	10.10	95.34	95.99	96.82	98.27	100.00		

Sea

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.00	0.04	0.04	0.04	0.08	0.12	0.25	0.33	0.25	0.06	0.10	0.12	0.06	0.02	0.06	0.06	1.65	1.65
2	4	0.56	1.01	0.43	0.81	3.08	2.69	4.16	5.73	3.99	0.81	3.29	2.67	1.65	0.31	0.10	0.21	31.50	33.15
4	6	0.43	2.11	0.95	0.02	0.00	0.00	0.00	0.00	0.00	0.23	9.00	5.98	0.74	0.06	0.08	0.10	19.71	52.86
6	8	0.08	2.34	0.68	0.10	0.04	0.00	0.00	0.00	0.00	0.06	19.05	1.90	0.17	0.04	0.00	0.00	24.47	77.33
8	10	0.00	0.29	0.14	0.08	0.00	0.00	0.00	0.00	0.00	0.00	8.52	1.18	0.29	0.04	0.35	0.00	10.90	88.23
10	12	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.78	3.58	0.00	0.00	0.00	0.00	7.40	95.64
12	14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.62	2.52	0.00	0.00	0.00	0.00	3.14	98.78
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	1.18	0.00	0.00	0.00	0.00	1.22	100.00
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		1.08	5.79	2.30	1.05	3.21	2.81	4.41	6.06	4.24	1.16	44.41	19.13	2.92	0.48	0.60	0.37		
Cumulative Total		1.08	6.87	9.16	10.22	13.42	16.24	20.64	26.70	30.94	32.10	76.50	95.64	98.55	99.03	99.63	100.00		

1994 - Tp(s)

Total

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.06	0.17	0.00	0.03	0.00	0.35	0.35
6	8	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.43	0.25	0.15	0.00	0.06	0.26	2.31	2.66
8	10	0.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.39	1.19	1.10	0.30	0.00	0.07	6.45	9.11
10	12	0.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02	5.29	8.84	0.51	0.13	0.02	0.08	15.22	24.33
12	14	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.07	6.14	22.36	0.96	0.63	0.17	0.19	30.61	54.93
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.03	2.97	26.64	1.15	0.03	0.06	0.02	30.94	85.87
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.46	9.45	1.00	0.09	0.07	0.05	11.12	96.99
18	20	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.29	0.19	0.07	0.02	0.01	2.60	99.59
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.31	0.09	0.00	0.00	0.00	0.41	100.00
Total		0.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.13	19.77	71.39	5.33	1.24	0.43	0.68		
Cumulative Total		0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	1.02	1.14	20.91	92.31	97.64	98.88	99.32	100.00		

Swell

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	6	0.03	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.01	0.10	0.10
6	8	0.28	0.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.30	0.09	0.00	0.00	0.39	0.22	3.46	3.56
8	10	0.37	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.43	0.28	0.00	1.09	1.13	0.03	7.42	10.98
10	12	0.23	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.35	9.77	0.00	0.03	0.19	0.00	17.64	28.62
12	14	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.08	28.21	0.00	0.35	0.00	0.00	29.66	58.28
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.15	29.34	0.05	0.02	0.00	0.00	29.56	87.85
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	9.85	0.42	0.00	0.00	0.00	10.28	98.12
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.69	0.06	0.00	0.00	0.00	1.75	99.87
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.00	0.00	0.00	0.00	0.13	100.00
Total		0.94	0.37	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	15.33	79.37	0.52	1.50	1.70	0.27		
Cumulative Total		0.94	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	16.64	96.01	96.53	98.03	99.73	100.00		

Sea

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.08	0.00	0.05	0.28	0.23	0.28	0.45	0.75	0.30	0.05	0.15	0.15	0.15	0.05	0.05	0.08	3.09	3.09
2	4	1.40	2.21	1.13	1.66	1.83	2.53	4.99	5.84	5.14	0.85	3.59	5.34	1.56	0.30	0.13	0.08	38.58	41.66
4	6	0.78	3.09	0.90	0.05	0.00	0.00	0.00	0.00	0.03	0.20	9.71	4.41	0.73	0.15	0.25	0.05	20.34	62.00
6	8	0.15	1.28	0.38	0.05	0.00	0.10	0.00	0.00	0.00	0.03	15.02	0.85	0.33	0.03	0.00	0.10	18.31	80.31
8	10	0.10	0.43	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.75	0.78	0.00	0.00	0.00	0.00	9.13	89.44
10	12	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.79	3.74	0.00	0.00	0.00	0.00	7.55	96.99
12	14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.48	2.01	0.00	0.00	0.00	0.00	2.48	99.47
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.45	0.00	0.00	0.00	0.00	0.53	100.00
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		2.53	7.00	2.53	2.03	2.06	2.91	5.44	6.60	5.47	1.13	40.56	17.73	2.76	0.53	0.43	0.30		
Cumulative Total		2.53	9.53	12.06	14.10	16.15	19.06	24.50	31.10	36.57	37.70	78.25	95.99	98.75	99.27	99.70	100.00		

ANNUAL JFTS

1995 - Tp(s)

Total

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.01	0.01
4	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.17	0.13	0.00	0.01	0.07	0.05	0.42	0.43
6	8	0.05	0.18	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.87	0.70	0.06	0.11	0.15	0.09	2.21	2.65
8	10	0.24	0.31	0.06	0.08	0.00	0.00	0.00	0.00	0.00	0.00	1.42	1.59	1.11	0.87	0.00	0.03	5.70	8.34
10	12	0.03	0.05	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.00	1.97	11.27	0.99	0.63	0.32	0.07	15.35	23.70
12	14	0.33	0.05	0.07	0.00	0.01	0.00	0.00	0.01	0.00	0.02	4.71	21.67	1.68	0.63	0.40	0.32	29.90	53.60
14	16	0.58	0.49	0.02	0.02	0.05	0.00	0.00	0.01	0.03	0.06	3.49	26.44	1.99	0.50	0.39	0.42	34.50	88.09
16	18	0.00	0.40	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.39	7.83	1.04	0.14	0.00	0.00	9.84	97.93
18	20	0.00	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	1.24	0.38	0.06	0.00	0.00	1.80	99.74
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.17	0.00	0.03	0.02	0.03	0.26	100.00
Total		1.23	1.59	0.19	0.13	0.06	0.00	0.01	0.02	0.03	0.08	13.04	71.04	7.24	2.98	1.35	1.02		
Cumulative Total		1.23	2.82	3.01	3.14	3.20	3.20	3.21	3.23	3.26	3.34	16.38	87.42	94.66	97.64	98.98	100.00		

Swell

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	6	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.08	0.00	0.00	0.00	0.01	0.20	0.20
6	8	0.01	0.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.84	0.49	0.00	0.00	0.20	0.00	2.07	2.27
8	10	0.00	0.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.39	1.43	0.07	0.28	1.67	0.16	6.67	8.94
10	12	0.00	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.90	12.90	0.07	0.01	0.55	0.00	19.51	28.45
12	14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.94	28.42	0.37	0.00	0.30	0.00	30.04	58.48
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	31.11	0.27	0.02	0.06	0.00	31.59	90.08
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.13	0.27	0.00	0.00	0.00	8.40	98.48
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.21	0.12	0.00	0.00	0.00	1.32	99.80
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.17	0.02	0.00	0.00	0.00	0.20	100.00
Total		0.02	1.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.30	83.94	1.19	0.31	2.78	0.17		
Cumulative Total		0.02	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	11.61	95.55	96.73	97.05	99.83	100.00		

Sea

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.15	0.07	0.09	0.24	0.30	0.41	0.24	0.59	0.37	0.09	0.26	0.15	0.17	0.13	0.15	0.02	3.43	3.43
2	4	1.15	1.28	0.85	1.08	3.45	4.60	3.82	4.64	3.19	0.78	2.86	4.66	1.45	0.41	0.48	0.69	35.40	38.83
4	6	1.28	1.28	1.24	0.07	0.02	0.00	0.00	0.00	0.02	0.26	8.48	8.35	0.26	0.95	0.20	0.07	22.47	61.30
6	8	0.28	3.06	0.76	0.09	0.00	0.00	0.00	0.00	0.00	0.13	11.19	2.89	0.04	0.04	0.30	0.26	19.05	80.35
8	10	0.20	1.43	0.33	0.02	0.00	0.00	0.00	0.00	0.00	0.00	6.38	1.39	0.02	0.07	0.09	0.09	10.00	90.35
10	12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.74	4.84	0.00	0.00	0.00	0.00	6.57	96.92
12	14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.63	1.82	0.00	0.00	0.00	0.00	2.45	99.37
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.63	0.00	0.00	0.00	0.00	0.63	100.00
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		3.06	7.11	3.25	1.50	3.77	5.01	4.06	5.23	3.58	1.26	31.54	24.73	1.95	1.61	1.21	1.13		
Cumulative Total		3.06	10.17	13.43	14.92	18.70	23.71	27.77	32.99	36.57	37.83	69.37	94.10	96.05	97.66	98.87	100.00		

1996 - Tp(s)

Total

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.01	0.01
4	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.35	0.00	0.01	0.05	0.16	0.68	0.69
6	8	0.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.74	0.65	0.18	0.22	0.09	0.10	3.20	3.89
8	10	0.08	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.12	1.09	0.34	0.36	0.06	0.00	5.10	8.99
10	12	0.00	0.03	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.03	4.17	15.08	0.43	0.27	0.07	0.03	20.15	29.14
12	14	0.13	0.00	0.00	0.01	0.00	0.01	0.00	0.01	0.00	0.03	5.79	22.73	1.55	0.33	0.16	0.14	30.90	60.04
14	16	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.95	22.70	1.96	0.28	0.22	0.33	29.45	89.49
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.52	7.58	0.56	0.11	0.05	0.01	8.83	98.33
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	1.26	0.15	0.03	0.00	0.00	1.53	99.85
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.03	0.00	0.00	0.00	0.15	100.00
Total		0.43	0.08	0.02	0.01	0.00	0.01	0.00	0.01	0.00	0.07	19.49	71.58	5.20	1.63	0.68	0.77		
Cumulative Total		0.43	0.51	0.54	0.55	0.55	0.56	0.56	0.57	0.57	0.64	20.13	91.71	96.91	98.54	99.23	100.00		

Swell

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	6	0.02	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.01	0.03	0.00	0.10	0.24	0.24
6	8	0.10	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.56	0.24	0.16	0.15	0.23	0.29	2.89	3.13
8	10	0.00	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.60	0.58	0.03	0.36	1.31	0.10	6.12	9.25
10	12	0.00	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.23	15.73	0.05	0.02	0.29	0.00	24.48	33.73
12	14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.61	30.08	0.01	0.03	0.01	0.00	31.75	65.48
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.15	26.36	0.15	0.00	0.00	0.00	26.66	92.14
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.93	0.08	0.00	0.00	0.00	7.01	99.15
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.75	0.01	0.00	0.00	0.00	0.77	99.92
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01	0.00	0.00	0.00	0.08	100.00
Total		0.13	0.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	15.20	80.75	0.52	0.60	1.84	0.50		
Cumulative Total		0.13	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59	15.79	96.53	97.06	97.66	99.50	100.00		

Sea

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.29	0.07	0.12	0.22	0.44	0.34	0.27	0.68	0.51	0.17	0.19	0.19	0.07	0.07	0.19	0.17	4.01	4.01
2	4	0.75	1.21	0.83	0.68	1.58	2.38	4.28	6.10	4.52	0.68	4.88	5.22	1.43	0.61	0.39	0.75	36.30	40.31
4	6	0.78	2.24	0.46	0.10	0.00	0.00	0.00	0.05	0.00	0.56	9.33	4.13	1.26	0.02	0.29	0.61	19.83	60.13
6	8	0.90	1.09	0.36	0.05	0.00	0.00	0.00	0.00	0.00	0.10	16.50	1.82	0.15	0.02	0.10	0.22	21.31	81.44
8	10	0.17	0.15	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.58	1.24	0.02	0.10	0.00	0.00	9.28	90.72
10	12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.79	4.08	0.05	0.34	0.05	0.00	7.31	98.03
12	14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.56	1.21	0.00	0.00	0.00	0.00	1.77	99.81
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.12	0.02	0.00	0.00	0.00	0.19	100.00
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		2.89	4.76	1.80	1.04	2.02	2.72	4.54	6.83	5.03	1.51	41.89	18.03	3.01	1.17	1.02	1.75		
Cumulative Total		2.89	7.65	9.45	10.50	12.51	15.23	19.78	26.60	31.63	33.14	75.02	93.05	96.06	97.23	98.25	100.00		

ANNUAL JFTS

1997 - Tp(s)

Total

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	6	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.17	0.08	0.02	0.00	0.03	0.01	0.34	0.34
6	8	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.23	0.35	0.08	0.16	0.34	0.23	2.48	2.82
8	10	0.29	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.71	1.74	0.43	1.02	0.73	0.19	6.20	9.02
10	12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.90	9.08	1.27	0.62	0.35	0.06	16.27	25.29
12	14	0.03	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.84	17.85	1.16	0.76	0.34	0.14	26.30	51.59
14	16	0.34	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.94	26.26	1.97	0.71	0.58	0.32	34.22	85.81
16	18	0.03	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.94	8.70	1.29	0.48	0.24	0.10	11.80	97.61
18	20	0.00	0.03	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	1.38	0.17	0.13	0.03	0.00	1.80	99.42
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.56	0.02	0.00	0.00	0.00	0.58	100.00
Total		0.80	0.41	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	18.77	65.99	6.43	3.87	2.66	1.05		
Cumulative Total		0.80	1.21	1.23	1.23	1.23	1.23	1.23	1.23	1.23	1.23	20.00	85.99	92.42	96.29	98.95	100.00		

Swell

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	6	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.07	0.00	0.00	0.00	0.09	0.09
6	8	0.00	0.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.52	0.23	0.00	0.00	0.44	0.57	2.93	3.03
8	10	0.02	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.62	0.50	0.03	0.71	1.52	0.39	6.87	9.90
10	12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.77	10.62	0.00	0.39	0.75	0.07	20.61	30.51
12	14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.76	23.84	0.00	0.32	0.02	0.00	25.95	56.46
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	31.97	0.00	0.00	0.00	0.00	32.10	88.56
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.20	0.19	0.00	0.00	0.00	9.39	97.95
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.55	0.12	0.00	0.00	0.00	1.67	99.62
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.29	0.09	0.00	0.00	0.00	0.38	100.00
Total		0.02	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	15.81	78.21	0.50	1.43	2.74	1.03		
Cumulative Total		0.02	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	16.10	94.31	94.81	96.23	98.97	100.00		

Sea

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.13	0.02	0.07	0.11	0.11	0.04	0.35	0.33	0.66	0.11	0.15	0.18	0.07	0.04	0.07	0.04	2.49	2.49
2	4	1.02	0.99	0.62	0.86	2.18	2.54	4.59	5.52	4.44	0.93	4.46	4.63	1.02	0.60	0.29	0.26	34.94	37.43
4	6	0.71	2.80	1.17	0.02	0.00	0.00	0.00	0.00	0.00	0.13	11.32	6.05	1.32	0.18	0.53	0.33	24.56	62.00
6	8	0.66	3.40	1.06	0.11	0.00	0.00	0.00	0.00	0.00	0.07	12.43	1.70	0.09	0.13	0.07	0.11	19.82	81.81
8	10	0.29	0.79	0.20	0.22	0.04	0.00	0.00	0.00	0.00	0.00	6.97	1.26	0.15	0.00	0.00	0.00	9.93	91.75
10	12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.45	3.11	0.02	0.09	0.00	0.00	5.67	97.42
12	14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.42	1.50	0.02	0.00	0.00	0.00	1.94	99.36
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.55	0.00	0.00	0.00	0.00	0.57	99.93
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.07	100.00
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		2.80	8.01	3.11	1.32	2.34	2.58	4.94	5.85	5.10	1.24	38.23	19.05	2.69	1.04	0.95	0.75		
Cumulative Total		2.80	10.81	13.93	15.25	17.59	20.17	25.12	30.96	36.06	37.30	75.52	94.57	97.26	98.30	99.25	100.00		

1998 - Tp(s)

Total

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.15	0.08	0.03	0.00	0.00	0.32	0.32
6	8	0.02	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.13	0.47	0.15	0.46	0.31	0.15	2.73	3.05
8	10	0.15	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.36	1.46	0.10	0.17	0.01	0.02	5.34	8.39
10	12	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.04	8.88	0.18	0.16	0.09	0.14	13.58	21.97
12	14	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	5.29	22.64	1.14	0.31	0.21	0.46	30.16	52.13
14	16	0.06	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.63	27.98	1.89	0.92	0.31	0.14	33.94	86.07
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.74	9.28	0.57	0.24	0.08	0.00	10.91	96.99
18	20	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.24	1.67	0.24	0.05	0.05	0.03	2.29	99.28
>20		0.02	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.43	0.05	0.03	0.01	0.01	0.72	100.00
Total		0.47	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	17.60	72.96	4.41	2.37	1.06	0.95		
Cumulative Total		0.47	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.65	18.25	91.21	95.62	97.99	99.05	100.00		

Swell

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	6	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.05	0.00	0.00	0.07	0.07
6	8	0.20	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.23	0.24	0.00	0.19	0.73	0.27	2.94	3.01
8	10	0.10	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.37	0.64	0.00	0.00	2.01	0.01	6.20	9.21
10	12	0.01	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.18	10.12	0.00	0.02	0.32	0.00	16.69	25.90
12	14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.10	28.53	0.00	0.00	0.00	0.00	29.63	55.53
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.27	32.51	0.08	0.00	0.00	0.00	32.86	88.39
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.28	0.22	0.00	0.00	0.00	9.50	97.88
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.41	0.16	0.00	0.00	0.00	1.57	99.46
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.28	0.27	0.00	0.00	0.00	0.54	100.00
Total		0.31	0.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.13	83.02	0.73	0.25	3.07	0.28		
Cumulative Total		0.31	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52	12.65	95.67	96.40	96.66	99.72	100.00		

Sea

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.11	0.16	0.16	0.09	0.16	0.25	0.30	0.57	0.60	0.09	0.05	0.14	0.23	0.14	0.11	0.28	3.45	3.45
2	4	1.17	1.10	0.55	0.92	2.14	2.71	4.55	6.50	3.82	0.71	4.48	3.38	1.24	0.25	0.37	0.64	34.54	37.99
4	6	1.47	2.39	0.97	0.07	0.05	0.00	0.02	0.00	0.02	0.64	8.02	5.52	0.39	0.09	0.21	0.37	20.23	58.22
6	8	0.14	1.88	0.32	0.14	0.00	0.00	0.00	0.00	0.00	0.02	13.79	2.21	0.09	0.07	0.07	0.00	18.73	76.95
8	10	0.05	0.23	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.31	2.48	0.00	0.02	0.00	0.02	12.14	89.08
10	12	0.05	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.13	3.79	0.00	0.00	0.00	0.00	7.03	96.12
12	14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.53	2.46	0.00	0.00	0.00	0.00	2.99	99.10
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.74	0.00	0.00	0.00	0.00	0.85	99.95
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.05	100.00
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		2.99	5.84	2.02	1.22	2.34	2.96	4.87	7.08	4.44	1.47	39.42	20.75	1.95	0.57	0.76	1.31		
Cumulative Total		2.99	8.83	10.85	12.07	14.41	17.38	22.25	29.33	33.76	35.23	74.65	95.40	97.36	97.93	98.69	100.00		

ANNUAL JFTS

1999 - Tp(s)

Total

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	6	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.07	0.01	0.03	0.35	0.01	0.50	0.50
6	8	0.10	0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.83	0.30	0.07	0.10	0.38	0.27	2.20	2.71
8	10	0.15	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.20	1.52	0.29	1.05	2.17	0.15	7.57	10.27
10	12	0.21	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.49	8.94	1.19	0.66	0.35	0.23	15.13	25.40
12	14	0.30	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.79	21.16	1.68	1.39	0.64	0.22	29.34	54.74
14	16	0.13	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.20	29.42	2.31	0.18	0.42	0.10	33.86	88.60
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.48	7.27	0.89	0.24	0.15	0.06	9.09	97.68
18	20	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	1.56	0.17	0.05	0.10	0.05	2.00	99.68
>20		0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.24	0.00	0.03	0.00	0.00	0.32	100.00
Total		0.90	0.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.10	70.48	6.60	3.74	4.57	1.08		
Cumulative Total		0.90	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	13.53	84.01	90.61	94.35	98.92	100.00		

Swell

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	6	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.08	0.00	0.22	0.14	0.47	0.47
6	8	0.12	0.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.87	0.06	0.07	0.12	0.54	0.36	2.51	2.99
8	10	0.24	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.14	0.82	0.02	0.09	4.23	0.78	8.53	11.51
10	12	0.07	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.29	10.38	0.00	0.08	0.67	0.00	18.52	30.04
12	14	0.19	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.94	28.19	0.00	0.00	0.07	0.00	29.42	59.46
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.24	31.55	0.00	0.00	0.00	0.00	31.80	91.25
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.31	0.12	0.00	0.00	0.00	7.42	98.68
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.07	0.08	0.00	0.00	0.00	1.15	99.83
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.17	0.00	0.00	0.00	0.00	0.17	100.00
Total		0.64	0.65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.48	79.57	0.37	0.29	5.73	1.27		
Cumulative Total		0.64	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	12.76	92.33	92.70	92.99	98.73	100.00		

Sea

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.08	0.03	0.18	0.23	0.41	0.26	0.28	0.62	0.31	0.23	0.15	0.08	0.15	0.08	0.08	0.05	3.22	3.22
2	4	0.93	1.42	0.85	1.42	2.65	3.22	4.45	4.79	2.75	0.46	2.91	4.76	1.85	0.26	0.31	0.13	33.14	36.36
4	6	1.36	5.04	1.08	0.10	0.00	0.00	0.00	0.08	0.05	0.18	8.65	6.69	1.57	0.15	0.10	0.80	25.86	62.22
6	8	0.15	2.70	0.67	0.05	0.05	0.00	0.00	0.00	0.00	0.08	10.47	2.60	0.03	0.00	0.31	0.57	17.68	79.90
8	10	0.36	0.13	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.85	1.49	0.21	0.18	0.03	0.10	10.40	90.30
10	12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.71	3.27	0.03	0.00	0.00	0.00	7.00	97.30
12	14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.54	1.83	0.00	0.00	0.00	0.00	2.37	99.67
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.28	0.00	0.00	0.00	0.00	0.31	99.97
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	99.97
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.03	100.00
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		2.88	9.32	2.83	1.80	3.11	3.47	4.73	5.48	3.11	0.95	34.30	21.02	3.83	0.67	0.82	1.65		
Cumulative Total		2.88	12.20	15.03	16.83	19.94	23.42	28.15	33.63	36.75	37.70	72.00	93.03	96.86	97.53	98.35	100.00		

2000 - Tp(s)

Total

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	6	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.15	0.00	0.00	0.00	0.00	0.25	0.25
6	8	0.27	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.68	0.61	0.75	0.27	0.35	0.09	3.22	3.47
8	10	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.01	1.86	1.64	1.50	0.96	0.72	7.78	11.25
10	12	0.28	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	2.62	9.29	1.79	0.64	0.16	0.17	14.99	26.24
12	14	0.36	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	4.63	21.37	1.81	0.35	0.49	0.63	29.79	56.03
14	16	0.30	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.87	25.02	2.69	1.00	0.44	0.17	32.55	88.58
16	18	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.75	6.42	0.93	0.58	0.25	0.33	9.49	98.08
18	20	0.19	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.20	0.90	0.24	0.02	0.07	0.01	1.71	99.78
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.18	0.03	0.00	0.00	0.00	0.22	100.00
Total		1.79	0.47	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	12.82	65.80	9.88	4.37	2.72	2.12		
Cumulative Total		1.79	2.25	2.25	2.25	2.25	2.25	2.25	2.25	2.27	2.29	15.11	80.91	90.79	95.16	97.88	100.00		

Swell

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	6	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.03	0.08	0.00	0.00	0.00	0.17	0.17
6	8	0.00	0.84	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.71	0.17	0.00	0.02	1.47	0.30	3.52	3.69
8	10	0.43	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.07	0.85	0.00	0.45	3.56	0.87	8.46	12.15
10	12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.97	10.70	0.00	0.08	0.34	0.01	18.10	30.25
12	14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.43	28.50	0.01	0.00	0.00	0.00	29.94	60.19
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.19	30.60	0.15	0.00	0.00	0.00	30.94	91.13
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	7.63	0.14	0.00	0.00	0.00	7.78	98.91
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.92	0.02	0.00	0.00	0.00	0.94	99.85
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.01	0.00	0.00	0.00	0.15	100.00
Total		0.43	1.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.39	79.54	0.42	0.56	5.37	1.18		
Cumulative Total		0.43	1.53	1.53	1.53	1.53	1.53	1.53	1.53	1.53	1.53	12.92	92.47	92.88	93.44	98.82	100.00		

Sea

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.07	0.07	0.07	0.24	0.31	0.36	0.50	0.57	0.41	0.21	0.12	0.10	0.07	0.02	0.05	0.00	3.17	3.17
2	4	0.98	1.03	1.00	1.26	2.84	2.77	4.34	5.99	4.13	0.88	2.98	4.68	2.74	0.38	0.24	0.31	36.56	39.74
4	6	0.31	3.41	1.46	0.19	0.00	0.00	0.00	0.00	0.00	0.24	6.97	7.11	2.39	0.00	0.00	0.07	22.15	61.89
6	8	0.07	5.47	0.55	0.02	0.00	0.00	0.00	0.00	0.00	0.05	8.83	1.36	0.50	0.45	0.12	0.05	17.47	79.36
8	10	0.10	0.60	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.28	2.74	0.07	0.55	0.07	0.00	10.55	89.90
10	12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.89	4.63	0.00	0.00	0.00	0.00	6.52	96.42
12	14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.67	2.20	0.00	0.00	0.00	0.00	2.86	99.28
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.64	0.00	0.00	0.00	0.00	0.72	100.00
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		1.53	10.57	3.22	1.72	3.15	3.13	4.84	6.56	4.53	1.38	27.80	23.46	5.78	1.41	0.48	0.43		
Cumulative Total		1.53	12.10	15.32	17.04	20.19	23.32	28.16	34.73	39.26	40.64	68.45	91.91	97.68	99.09	99.57	100.00		

ANNUAL JFTS

2001 - Tp(s)

Total

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.07	0.00	0.00	0.00	0.10	0.10
4	6	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.17	0.76	0.05	0.00	0.00	0.08	1.07	1.18
6	8	0.15	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.24	0.95	0.09	0.08	0.00	0.11	3.68	4.85
8	10	0.00	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.61	2.13	0.23	0.29	0.23	0.00	5.57	10.42
10	12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.36	12.40	0.62	0.48	0.62	0.08	18.55	28.97
12	14	0.10	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	5.90	18.65	1.83	0.33	0.57	0.27	27.77	56.75
14	16	0.24	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.04	23.98	2.61	0.61	0.45	0.13	31.10	87.84
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.59	7.65	1.02	0.19	0.06	0.00	9.51	97.35
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.62	0.48	0.09	0.03	0.00	2.23	99.58
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.26	0.16	0.00	0.00	0.00	0.42	100.00
Total		0.50	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	18.92	68.45	7.15	2.07	1.95	0.67		
Cumulative Total		0.50	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.80	19.71	88.16	95.31	97.37	99.33	100.00		

Swell

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.02	0.02
4	6	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.05	0.00	0.00	0.00	0.01	0.23	0.26
6	8	0.08	0.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.25	0.22	0.15	0.11	0.64	0.11	2.85	3.11
8	10	0.19	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.43	0.62	0.00	0.28	1.31	0.64	7.48	10.59
10	12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.96	11.55	0.00	0.20	0.54	0.39	21.63	32.22
12	14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.68	26.25	0.00	0.00	0.07	0.15	28.15	60.37
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.33	28.83	0.01	0.00	0.00	0.00	29.17	89.54
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.23	0.09	0.00	0.00	0.00	8.32	97.86
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.90	0.01	0.00	0.00	0.00	1.92	99.78
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.21	0.01	0.00	0.00	0.00	0.22	100.00
Total		0.43	0.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	16.66	77.85	0.28	0.58	2.58	1.30		
Cumulative Total		0.43	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	17.40	95.26	95.54	96.12	98.70	100.00		

Sea

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.35	0.09	0.12	0.21	0.28	0.23	0.30	0.37	0.25	0.09	0.18	0.16	0.07	0.09	0.09	0.16	3.04	3.04
2	4	0.90	1.54	0.76	0.94	1.36	3.13	4.70	5.00	2.83	0.46	2.63	3.32	1.47	0.62	0.64	1.27	31.58	34.62
4	6	1.93	3.09	0.85	0.07	0.00	0.00	0.00	0.00	0.02	0.23	6.73	7.14	1.43	0.46	0.16	0.14	22.25	56.86
6	8	0.35	3.04	0.58	0.09	0.12	0.02	0.00	0.00	0.00	0.07	13.96	3.96	0.30	0.02	0.00	0.05	22.55	79.41
8	10	0.00	0.23	0.21	0.02	0.00	0.00	0.00	0.00	0.00	0.02	7.16	2.03	0.00	0.00	0.00	0.00	9.67	89.08
10	12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.85	3.94	0.00	0.00	0.00	0.00	7.78	96.87
12	14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.53	2.00	0.00	0.00	0.00	0.00	2.53	99.40
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.51	0.00	0.00	0.00	0.00	0.58	99.98
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.02	100.00
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		3.52	7.99	2.51	1.34	1.75	3.39	5.00	5.37	3.11	0.88	35.10	23.08	3.27	1.20	0.90	1.61		
Cumulative Total		3.52	11.52	14.03	15.36	17.11	20.50	25.50	30.86	33.97	34.85	69.94	93.02	96.29	97.49	98.39	100.00		

2002 - Tp(s)

Total

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.03	0.00	0.00	0.00	0.00	0.05	0.05
4	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.22	0.38	0.05	0.01	0.00	0.00	0.65	0.70
6	8	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.58	0.24	0.00	0.15	0.00	0.00	2.00	2.69
8	10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.47	1.50	1.06	0.06	0.07	0.00	5.15	7.84
10	12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.15	11.76	1.05	0.02	0.00	0.00	15.98	23.82
12	14	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.61	24.36	2.26	0.47	0.24	0.07	32.04	55.87
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	1.75	28.90	1.44	0.47	0.21	0.19	32.97	88.84
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.51	7.00	0.81	0.29	0.07	0.02	8.70	97.53
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	1.14	0.33	0.31	0.07	0.03	1.97	99.51
>20		0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.22	0.19	0.00	0.00	0.02	0.49	100.00
Total		0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	14.41	75.53	7.19	1.77	0.65	0.34		
Cumulative Total		0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.11	14.52	90.05	97.24	99.01	99.66	100.00		

Swell

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01
4	6	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.15	0.46	0.00	0.05	0.00	0.00	0.68	0.69
6	8	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.30	0.33	0.00	0.01	0.37	0.04	2.05	2.74
8	10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.10	0.69	0.05	1.04	0.91	0.00	5.79	8.53
10	12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.86	11.17	0.26	0.37	0.18	0.01	18.85	27.38
12	14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.12	29.87	0.70	0.09	0.00	0.00	31.78	59.16
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	31.24	0.04	0.00	0.00	0.00	31.34	90.50
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.43	0.18	0.00	0.00	0.00	7.61	98.11
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.40	0.11	0.00	0.00	0.00	1.51	99.61
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.21	0.18	0.00	0.00	0.00	0.39	100.00
Total		0.01	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.59	82.80	1.49	1.56	1.46	0.06		
Cumulative Total		0.01	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	12.63	95.42	96.92	98.48	99.94	100.00		

Sea

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.02	0.02	0.07	0.10	0.10	0.05	0.22	0.34	0.46	0.12	0.15	0.12	0.10	0.10	0.07	0.15	2.18	2.18
2	4	0.39	1.26	0.63	0.82	1.09	1.48	3.61	5.28	3.97	0.82	3.78	4.97	1.79	0.78	0.15	0.41	31.24	33.42
4	6	0.29	1.99	0.48	0.02	0.00	0.00	0.00	0.00	0.02	0.29	9.33	8.00	0.68	0.19	0.05	0.12	21.47	54.90
6	8	0.85	3.10	0.34	0.07	0.02	0.02	0.00	0.00	0.00	0.00	17.47	1.75	0.10	0.02	0.05	0.29	24.09	78.99
8	10	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.07	1.87	0.02	0.10	0.22	0.05	10.35	89.34
10	12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.45	4.27	0.05	0.00	0.00	0.00	6.76	96.10
12	14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.29	2.79	0.00	0.00	0.00	0.00	3.08	99.18
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.75	0.02	0.00	0.00	0.00	0.80	99.98
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.02	100.00
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		1.55	6.37	1.55	1.02	1.21	1.55	3.83	5.62	4.46	1.24	41.57	24.53	2.76	1.19	0.53	1.02		
Cumulative Total		1.55	7.93	9.48	10.49	11.71	13.26	17.09	22.71	27.17	28.41	69.97	94.50	97.26	98.45	98.98	100.00		

ANNUAL JFTS

2003 - Tp(s)

Total

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.02	0.02
4	6	0.06	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.43	0.08	0.00	0.03	0.08	0.81	0.83
6	8	0.32	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.12	0.75	0.02	0.13	0.02	0.07	3.53	4.36
8	10	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.61	3.17	0.49	0.40	0.81	0.24	6.76	11.12
10	12	0.08	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.93	14.04	1.03	0.42	0.14	0.06	18.72	29.84
12	14	0.11	0.03	0.03	0.07	0.01	0.00	0.00	0.01	0.05	0.02	7.13	22.81	1.29	0.17	0.01	0.07	31.83	61.67
14	16	0.00	0.01	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.33	23.42	1.34	0.15	0.00	0.01	28.32	89.99
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.49	6.75	0.48	0.14	0.16	0.08	8.09	98.08
18	20	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.11	0.07	0.10	0.11	0.07	1.55	99.63
>20		0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.33	0.00	0.00	0.00	0.00	0.37	100.00
Total		0.73	0.18	0.09	0.07	0.01	0.00	0.00	0.01	0.05	0.02	17.75	72.82	4.79	1.51	1.29	0.67		
Cumulative Total		0.73	0.91	1.00	1.07	1.08	1.08	1.08	1.10	1.14	1.16	18.92	91.74	96.53	98.04	99.33	100.00		

Swell

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	6	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.05	0.02	0.00	0.00	0.09	0.21	0.21
6	8	0.12	0.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.06	0.33	0.00	0.01	0.27	0.00	2.08	2.29
8	10	0.42	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.29	1.03	0.16	0.35	1.54	0.57	7.60	9.89
10	12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.10	14.74	0.71	0.01	0.35	0.00	22.92	32.80
12	14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.35	27.78	0.42	0.00	0.00	0.00	30.55	63.36
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.15	26.00	0.47	0.00	0.00	0.00	26.62	89.97
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	7.32	0.72	0.00	0.00	0.00	8.06	98.03
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.44	0.21	0.00	0.00	0.00	1.65	99.67
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.27	0.06	0.00	0.00	0.00	0.33	100.00
Total		0.54	0.54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	14.00	78.95	2.78	0.37	2.16	0.67		
Cumulative Total		0.54	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	15.07	94.02	96.80	97.17	99.33	100.00		

Sea

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.22	0.09	0.04	0.11	0.13	0.20	0.29	0.71	0.62	0.04	0.11	0.15	0.09	0.04	0.15	0.00	3.01	3.01
2	4	1.35	0.99	0.35	0.40	1.90	2.54	3.21	5.42	4.20	0.57	3.51	4.44	1.44	0.55	0.40	0.33	31.61	34.62
4	6	0.31	1.50	0.38	0.02	0.00	0.00	0.00	0.02	0.00	0.24	9.86	8.55	1.86	0.07	0.18	0.22	23.21	57.82
6	8	0.13	1.48	0.07	0.02	0.07	0.04	0.00	0.00	0.04	0.04	15.45	2.79	0.18	0.04	0.02	0.00	20.38	78.21
8	10	0.02	0.11	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.12	3.01	0.00	0.04	0.00	0.02	9.44	87.64
10	12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.98	5.84	0.00	0.00	0.00	0.02	8.84	96.49
12	14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.46	2.08	0.00	0.00	0.00	0.00	2.54	99.03
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.18	0.77	0.02	0.00	0.00	0.00	0.97	100.00
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		2.03	4.18	0.95	0.55	2.10	2.79	3.49	6.15	4.86	0.91	38.68	27.63	3.58	0.75	0.75	0.60		
Cumulative Total		2.03	6.21	7.16	7.71	9.81	12.60	16.09	22.24	27.10	28.01	66.69	94.32	97.90	98.65	99.40	100.00		

2004 - Tp(s)

Total

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.49	0.15	0.00	0.00	0.00	0.00	0.64	0.64
6	8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.93	0.61	0.01	0.09	0.01	0.00	3.65	4.29
8	10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.15	1.84	0.34	0.08	0.02	0.07	4.51	8.80
10	12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.79	9.73	0.24	0.07	0.02	0.00	14.86	23.66
12	14	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	7.01	25.20	1.20	0.42	0.31	0.26	34.52	58.17
14	16	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.00	26.30	1.96	0.54	0.27	0.24	33.42	91.60
16	18	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.74	5.83	0.42	0.22	0.08	0.06	7.39	98.99
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.87	0.00	0.00	0.00	0.00	0.92	99.91
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.00	0.00	0.00	0.00	0.09	100.00
Total		0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	22.17	70.63	4.17	1.41	0.72	0.63		
Cumulative Total		0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.28	22.45	93.08	97.24	98.66	99.37	100.00		

Swell

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.00	0.00	0.00	0.00	0.06	0.06
6	8	0.06	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.11	0.21	0.00	0.01	0.25	0.00	1.76	1.82
8	10	0.00	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.90	1.37	0.16	0.06	0.19	0.02	4.82	6.64
10	12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.77	12.90	0.87	0.00	0.06	0.00	18.60	25.23
12	14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.52	32.22	0.61	0.00	0.00	0.00	34.35	59.58
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.16	32.37	0.29	0.15	0.00	0.00	32.98	92.57
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.54	0.26	0.00	0.00	0.00	6.80	99.37
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.53	0.02	0.00	0.00	0.00	0.55	99.92
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.00	0.00	0.00	0.00	0.08	100.00
Total		0.06	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.47	86.28	2.22	0.22	0.49	0.02		
Cumulative Total		0.06	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	10.76	97.05	99.26	99.48	99.98	100.00		

Sea

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.06	0.10	0.06	0.16	0.12	0.20	0.12	0.51	0.37	0.16	0.14	0.12	0.22	0.23	0.12	0.10	2.76	2.76
2	4	0.82	1.02	0.59	0.76	2.11	2.58	4.54	5.75	3.46	0.86	3.58	4.38	0.76	0.43	0.14	0.29	32.07	34.83
4	6	1.80	1.76	0.57	0.12	0.00	0.00	0.00	0.00	0.04	0.35	10.36	5.75	0.57	0.06	0.02	0.65	22.04	56.86
6	8	0.08	1.54	0.47	0.10	0.02	0.00	0.02	0.00	0.02	0.06	18.87	1.68	0.00	0.02	0.08	0.14	23.09	79.96
8	10	0.00	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.72	2.52	0.10	0.00	0.04	0.06	11.63	91.59
10	12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.56	3.23	0.00	0.00	0.00	0.00	5.79	97.38
12	14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.47	1.84	0.00	0.00	0.00	0.00	2.31	99.69
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.22	0.00	0.00	0.00	0.00	0.31	100.00
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		2.76	4.61	1.68	1.13	2.25	2.78	4.67	6.26	3.89	1.43	44.80	19.73	1.64	0.74	0.39	1.23		
Cumulative Total		2.76	7.37	9.05	10.19	12.44	15.21	19.89	26.14	30.04	31.46	76.26	95.99	97.63	98.38	98.77	100.00		

ANNUAL JFTS

2005 - Tp(s)

Total

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.15	0.45	0.01	0.03	0.00	0.00	0.64	0.64
6	8	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.68	0.76	0.32	0.13	0.27	0.49	3.69	4.33
8	10	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.43	1.44	0.00	0.00	0.00	0.29	4.24	8.56
10	12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.17	9.67	0.29	0.01	0.00	0.00	15.14	23.70
12	14	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.08	23.63	1.54	0.47	0.06	0.00	31.79	55.49
14	16	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.50	25.16	1.60	0.34	0.37	0.19	31.32	86.82
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.54	8.39	0.68	0.71	0.01	0.00	10.33	97.15
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	1.94	0.06	0.00	0.00	0.00	2.13	99.28
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.59	0.00	0.00	0.00	0.00	0.72	100.00
Total		0.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	19.82	72.03	4.50	1.69	0.71	0.97		
Cumulative Total		0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	20.10	92.13	96.63	98.32	99.03	100.00		

Swell

		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min	Tp Max	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.07	0.00	0.00	0.04	0.16	0.38	0.38
6	8	0.34	0.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.19	0.56	0.21	0.12	0.43	0.16	3.35	3.72
8	10	0.18	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.84	0.81	0.01	0.02	0.85	0.00	4.79	8.51
10	12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.35	10.79	0.00	0.21	0.16	0.00	18.51	27.03
12	14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.34	30.04	0.06	0.05	0.00	0.00	31.49	58.51
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.29	29.01	0.14	0.00	0.00	0.00	29.44	87.95
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	9.45	0.25	0.00	0.00	0.00	9.71	97.66
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	1.53	0.32	0.00	0.00	0.00	1.85	99.52
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.23	0.00	0.00	0.00	0.48	100.00
Total		0.52	0.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	13.14	82.51	1.22	0.40	1.48	0.33		
Cumulative Total		0.52	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	14.06	96.57	97.79	98.19	99.67	100.00		

Sea

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.04	0.00	0.06	0.06	0.12	0.08	0.16	0.45	0.45	0.14	0.00	0.18	0.00	0.02	0.02	0.00	1.81	1.81
2	4	0.47	1.01	0.37	0.72	1.03	1.75	3.18	6.02	3.45	0.45	1.85	3.80	1.23	0.21	0.35	0.29	26.15	27.96
4	6	0.86	2.16	0.64	0.04	0.00	0.00	0.00	0.00	0.00	0.27	9.75	8.48	0.35	0.18	0.25	0.12	23.10	51.06
6	8	0.78	2.67	0.21	0.02	0.00	0.00	0.00	0.00	0.00	0.00	16.59	3.80	0.33	0.00	0.04	0.21	24.64	75.69
8	10	0.18	0.08	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.30	2.53	0.00	0.00	0.00	0.00	12.11	87.81
10	12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.63	5.15	0.02	0.02	0.00	0.00	8.83	96.63
12	14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.35	1.70	0.00	0.00	0.00	0.00	2.05	98.69
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	1.11	0.00	0.00	0.00	0.00	1.13	99.82
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.16	0.00	0.00	0.00	0.00	0.16	99.98
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.02	100.00
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		2.34	5.91	1.29	0.84	1.15	1.83	3.35	6.47	3.90	0.86	41.49	26.93	1.93	0.43	0.66	0.62		
Cumulative Total		2.34	8.25	9.55	10.39	11.54	13.36	16.71	23.18	27.08	27.94	69.43	96.37	98.30	98.73	99.38	100.00		

2006 - Tp(s)

Total

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	6	0.06	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.08	0.10	0.00	0.00	0.00	0.00	0.30	0.30
6	8	0.16	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	1.18	0.10	0.00	0.00	0.10	0.15	1.84	2.13
8	10	0.02	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.99	1.00	0.29	0.09	0.06	0.01	3.49	5.63
10	12	0.06	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	3.26	10.19	0.79	0.08	0.01	0.14	14.69	20.32
12	14	0.22	0.09	0.00	0.00	0.00	0.00	0.07	0.11	0.02	0.06	5.46	21.42	1.68	0.50	0.25	0.19	30.07	50.39
14	16	0.13	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.14	29.47	1.93	0.81	0.13	0.03	36.66	87.04
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.11	7.71	0.59	0.26	0.05	0.00	9.71	96.76
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.37	2.00	0.24	0.03	0.00	0.00	2.64	99.39
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.53	0.03	0.00	0.00	0.00	0.61	100.00
Total		0.64	0.45	0.00	0.00	0.00	0.00	0.07	0.11	0.02	0.11	17.63	72.52	5.55	1.78	0.59	0.53		
Cumulative Total		0.64	1.08	1.08	1.08	1.08	1.08	1.15	1.27	1.29	1.40	19.03	91.55	97.10	98.88	99.47	100.00		

Swell

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	6	0.00	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.13	0.13
6	8	0.06	0.16	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.11	0.23	0.04	0.00	0.18	0.01	1.81	1.93
8	10	0.00	0.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.83	0.66	0.00	0.00	0.63	0.11	4.48	6.41
10	12	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.61	11.94	0.00	0.00	0.01	0.00	18.62	25.03
12	14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.35	28.46	0.00	0.00	0.00	0.00	29.80	54.84
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	33.99	0.02	0.00	0.00	0.00	34.26	89.10
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.31	0.01	0.00	0.00	0.00	8.32	97.42
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.06	0.07	0.00	0.00	0.00	2.13	99.55
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.33	0.12	0.00	0.00	0.00	0.45	100.00
Total		0.06	0.56	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.15	86.02	0.26	0.00	0.82	0.12		
Cumulative Total		0.06	0.62	0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63	12.78	98.80	99.06	99.06	99.88	100.00		

Sea

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.05	0.12	0.07	0.12	0.29	0.22	0.32	0.83	0.41	0.07	0.19	0.07	0.10	0.07	0.05	0.05	3.03	3.03
2	4	0.80	1.16	0.73	0.92	3.62	3.13	3.88	4.61	2.69	0.97	2.69	4.71	1.26	0.29	0.07	0.19	31.74	34.77
4	6	0.41	2.69	1.50	0.02	0.00	0.00	0.00	0.00	0.02	0.61	11.57	5.24	0.36	0.05	0.00	0.12	22.62	57.39
6	8	0.66	2.62	0.63	0.22	0.00	0.00	0.00	0.02	0.02	0.17	18.68	1.29	0.68	0.10	0.02	0.36	25.48	82.87
8	10	0.00	0.00	0.12	0.10	0.02	0.00	0.00	0.00	0.00	0.00	5.58	1.46	0.00	0.00	0.00	0.00	7.28	90.15
10	12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.06	3.88	0.00	0.00	0.00	0.00	6.94	97.09
12	14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.56	1.75	0.00	0.00	0.00	0.00	2.31	99.39
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.51	0.00	0.00	0.00	0.00	0.61	100.00
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		1.92	6.60	3.06	1.38	3.93	3.35	4.20	5.46	3.15	1.82	42.44	18.90	2.40	0.51	0.15	0.73		
Cumulative Total		1.92	8.52	11.57	12.96	16.89	20.24	24.44	29.90	33.05	34.87	77.31	96.21	98.62	99.13	99.27	100.00		

ANNUAL JFTS

2007 - Tp(s)

Total

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.08	0.13	0.00	0.00	0.00	0.29	0.29
6	8	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.23	0.43	0.09	0.00	0.00	0.06	1.83	2.11
8	10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.09	1.77	0.16	0.07	0.06	0.00	4.14	6.26
10	12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.26	5.96	1.13	0.30	0.09	0.00	9.74	15.99
12	14	0.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	5.61	24.60	1.64	0.39	0.18	0.46	33.13	49.12
14	16	0.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.42	30.22	1.64	0.61	0.25	0.27	35.67	84.79
16	18	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.58	10.38	0.73	0.21	0.14	0.18	12.24	97.03
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	2.35	0.05	0.00	0.00	0.01	2.42	99.45
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.55	0.00	0.00	0.00	0.00	0.55	100.00
Total		0.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	14.28	76.34	5.57	1.56	0.72	0.98		
Cumulative Total		0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.55	14.83	91.16	96.74	98.30	99.02	100.00		

Swell

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.03	0.02	0.02	0.00	0.00	0.19	0.19
6	8	0.08	0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.58	0.16	0.00	0.00	0.20	0.07	2.25	2.44
8	10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.24	0.35	0.00	0.34	0.65	0.09	4.67	7.11
10	12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.08	7.37	0.00	0.00	0.03	0.10	11.58	18.69
12	14	0.01	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.70	33.33	0.56	0.00	0.00	0.00	34.67	53.36
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	33.74	0.10	0.00	0.00	0.00	33.89	87.25
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	10.21	0.09	0.00	0.00	0.00	10.34	97.59
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.97	0.08	0.00	0.00	0.00	2.05	99.64
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23	0.13	0.00	0.00	0.00	0.36	100.00
Total		0.09	0.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.79	87.39	0.99	0.36	0.89	0.27		
Cumulative Total		0.09	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	10.10	97.49	98.49	98.85	99.73	100.00		

Sea

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.05	0.02	0.02	0.02	0.09	0.14	0.32	0.53	0.25	0.02	0.07	0.07	0.05	0.09	0.02	0.02	1.79	1.79
2	4	0.90	0.85	0.37	0.67	1.82	2.55	3.22	4.39	3.47	0.48	2.21	3.88	1.17	0.16	0.30	0.48	26.91	28.70
4	6	1.45	2.78	0.74	0.02	0.00	0.00	0.00	0.00	0.00	0.25	8.07	7.54	0.85	0.32	0.00	0.25	22.27	50.97
6	8	0.18	3.98	0.41	0.07	0.02	0.00	0.00	0.00	0.00	0.09	18.43	3.47	0.02	0.05	0.00	0.00	26.72	77.69
8	10	0.02	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.50	2.60	0.00	0.07	0.00	0.00	11.24	88.92
10	12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.87	4.14	0.00	0.00	0.00	0.00	7.01	95.93
12	14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.64	2.37	0.00	0.00	0.00	0.00	3.01	98.94
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.87	0.02	0.05	0.00	0.00	1.01	99.95
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.05	100.00
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		2.60	7.63	1.59	0.78	1.93	2.69	3.54	4.92	3.72	0.85	40.85	24.98	2.11	0.74	0.32	0.76		
Cumulative Total		2.60	10.23	11.81	12.59	14.52	17.21	20.75	25.67	29.39	30.24	71.09	96.07	98.18	98.92	99.24	100.00		

2008 - Tp(s)

Total

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	6	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.03	0.00	0.05	0.07	0.09	0.40	0.40
6	8	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.48	0.26	0.17	0.47	0.42	0.28	3.18	3.57
8	10	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.53	1.32	0.40	1.06	0.31	0.61	6.36	9.94
10	12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.99	7.72	0.65	0.26	0.35	0.01	11.99	21.93
12	14	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.45	18.59	1.70	0.71	0.52	0.23	28.27	50.19
14	16	0.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.92	24.76	3.34	1.16	0.59	0.61	34.74	84.94
16	18	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.25	9.13	1.15	0.32	0.15	0.06	12.08	97.02
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23	1.46	0.67	0.06	0.02	0.00	2.44	99.45
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.14	0.13	0.13	0.03	0.00	0.55	100.00
Total		0.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	19.02	63.41	8.20	4.20	2.47	1.90		
Cumulative Total		0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	19.82	83.23	91.43	95.63	98.10	100.00		

Swell

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	6	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.00	0.10	0.10
6	8	0.08	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.37	0.06	0.02	0.00	0.71	0.43	2.76	2.86
8	10	0.05	0.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.11	0.58	0.00	0.35	2.48	0.30	7.07	9.93
10	12	0.00	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.37	8.88	0.02	0.45	0.48	0.00	15.32	25.26
12	14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.02	27.93	0.00	0.00	0.00	0.00	28.96	54.21
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.20	33.34	0.01	0.00	0.00	0.00	33.55	87.76
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.30	0.06	0.00	0.00	0.00	10.35	98.12
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.48	0.23	0.00	0.00	0.00	1.71	99.83
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.14	0.00	0.00	0.00	0.17	100.00
Total		0.15	0.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.07	82.60	0.49	0.80	3.75	0.73		
Cumulative Total		0.15	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	11.63	94.23	94.72	95.52	99.27	100.00		

Sea

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.09	0.09	0.05	0.11	0.23	0.11	0.32	0.50	0.25	0.11	0.07	0.07	0.18	0.07	0.16	0.16	2.59	2.59
2	4	0.57	0.96	0.39	0.78	3.58	3.35	4.38	7.04	4.91	0.76	3.16	4.06	1.17	0.53	0.50	0.60	36.73	39.32
4	6	0.71	1.72	0.76	0.09	0.00	0.00	0.00	0.02	0.14	0.48	7.68	4.24	0.23	0.14	0.34	0.41	16.96	56.28
6	8	1.10	1.97	0.71	0.07	0.00	0.00	0.00	0.00	0.00	0.11	14.33	2.20	0.02	0.39	0.30	0.50	21.71	77.99
8	10	0.21	0.34	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.40	1.58	0.00	0.00	0.53	0.11	12.27	90.26
10	12	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.76	3.78	0.02	0.00	0.02	0.00	7.61	97.87
12	14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.55	1.15	0.00	0.00	0.00	0.00	1.70	99.56
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.32	0.00	0.00	0.00	0.00	0.41	99.98
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.02	100.00
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		2.68	5.11	1.99	1.05	3.81	3.46	4.70	7.57	5.30	1.47	39.04	17.42	1.63	1.12	1.86	1.79		
Cumulative Total		2.68	7.79	9.79	10.84	14.65	18.11	22.81	30.38	35.67	37.14	76.18	93.60	95.23	96.35	98.21	100.00		

ANNUAL JFTS

2009 - Tp(s)

Total

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.29	0.00	0.03	0.02	0.00	0.43	0.43
6	8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.27	0.74	0.08	0.47	0.19	0.06	2.81	3.24
8	10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.58	0.73	0.00	0.11	0.47	0.33	3.22	6.46
10	12	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	3.30	10.35	0.26	0.08	0.03	0.19	14.25	20.71
12	14	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.59	25.76	0.97	0.40	0.25	0.27	33.36	54.06
14	16	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	3.69	28.97	1.04	0.24	0.10	0.25	34.37	88.44
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.98	7.98	0.38	0.11	0.14	0.02	9.62	98.06
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11	1.36	0.06	0.00	0.00	0.00	1.53	99.59
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.39	0.00	0.00	0.00	0.00	0.41	100.00
Total		0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	16.63	76.58	2.79	1.45	1.21	1.13		
Cumulative Total		0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.22	16.85	93.42	96.21	97.66	98.87	100.00		

Swell

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	6	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.00	0.00	0.00	0.02	0.09	0.09
6	8	0.13	0.24	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.03	0.12	0.01	0.00	0.42	0.77	2.73	2.82
8	10	0.15	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.76	0.45	0.02	0.41	0.48	0.64	4.96	7.78
10	12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.99	11.27	0.00	0.00	0.00	0.00	17.26	25.04
12	14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.03	31.33	0.00	0.00	0.00	0.00	32.35	57.39
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	33.07	0.00	0.00	0.00	0.00	33.17	90.56
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.77	0.12	0.00	0.00	0.00	7.88	98.45
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.04	0.08	0.00	0.00	0.00	1.12	99.57
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.41	0.02	0.00	0.00	0.00	0.43	100.00
Total		0.28	0.30	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.94	85.47	0.26	0.41	0.90	1.43		
Cumulative Total		0.28	0.58	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59	11.53	97.00	97.26	97.67	98.57	100.00		

Sea

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.19	0.07	0.09	0.23	0.44	0.14	0.33	0.49	0.60	0.14	0.16	0.09	0.19	0.02	0.09	0.05	3.32	3.32
2	4	1.07	0.98	0.70	1.05	1.95	2.91	3.12	6.42	3.63	0.81	3.70	5.58	1.44	0.56	0.21	0.58	34.69	38.01
4	6	0.16	1.91	0.91	0.09	0.00	0.00	0.00	0.00	0.02	0.12	9.67	7.37	0.67	0.28	0.02	0.00	21.23	59.24
6	8	0.07	0.56	0.28	0.02	0.00	0.00	0.00	0.00	0.00	0.00	15.28	3.16	0.07	0.02	0.00	0.00	19.46	78.70
8	10	0.05	0.02	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00	6.39	2.42	0.00	0.00	0.00	0.02	8.97	87.68
10	12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.19	4.35	0.00	0.00	0.00	0.00	8.53	96.21
12	14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.53	2.26	0.00	0.00	0.00	0.00	2.81	99.02
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.91	0.00	0.00	0.00	0.00	0.93	99.95
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.00	0.00	0.00	0.00	0.05	100.00
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		1.53	3.53	1.98	1.46	2.39	3.05	3.44	6.91	4.28	1.07	39.97	26.16	2.37	0.88	0.33	0.65		
Cumulative Total		1.53	5.07	7.04	8.51	10.90	13.95	17.39	24.30	28.57	29.64	69.61	95.77	98.14	99.02	99.35	100.00		

2010 - Tp(s)

Total

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	6	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.11	0.00	0.00	0.00	0.00	0.25	0.25
6	8	0.22	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.11	0.54	0.14	0.48	0.11	0.00	2.60	2.85
8	10	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.15	2.29	0.65	0.07	0.21	0.39	4.85	7.71
10	12	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	2.40	7.57	0.97	0.19	0.05	0.19	11.39	19.10
12	14	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.77	19.84	2.34	0.34	0.22	0.26	25.83	44.93
14	16	0.07	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.45	29.87	3.07	0.98	0.45	0.26	38.16	83.09
16	18	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.49	11.11	0.94	0.56	0.07	0.02	13.20	96.29
18	20	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.21	2.49	0.42	0.06	0.07	0.03	3.33	99.62
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.33	0.02	0.00	0.00	0.00	0.38	100.00
Total		0.53	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	11.72	74.16	8.55	2.68	1.16	1.16		
Cumulative Total		0.53	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.56	12.28	86.44	94.99	97.67	98.84	100.00		

Swell

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	6	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.06	0.00	0.00	0.00	0.00	0.10	0.10
6	8	0.06	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.93	0.43	0.24	0.02	0.12	0.05	2.00	2.11
8	10	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.46	0.47	0.00	1.28	1.24	0.30	5.84	7.95
10	12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.85	8.80	0.00	0.23	0.58	0.00	15.45	23.40
12	14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.07	25.36	0.00	0.00	0.02	0.00	26.45	49.85
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.24	36.54	0.00	0.00	0.00	0.00	36.78	86.63
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.63	0.08	0.00	0.00	0.00	10.71	97.34
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.08	0.16	0.00	0.00	0.00	2.25	99.59
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.41	0.00	0.00	0.00	0.00	0.41	100.00
Total		0.17	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.57	84.78	0.48	1.53	1.96	0.35		
Cumulative Total		0.17	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	10.91	95.68	96.17	97.70	99.65	100.00		

Sea

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.06	0.06	0.02	0.14	0.19	0.17	0.31	0.23	0.25	0.04	0.06	0.06	0.06	0.02	0.08	0.06	1.82	1.82
2	4	0.97	1.03	0.77	1.34	1.97	2.23	4.08	5.42	3.21	0.56	2.94	4.97	1.88	0.74	0.25	0.31	32.67	34.49
4	6	1.20	3.48	1.57	0.04	0.00	0.00	0.00	0.00	0.02	0.31	9.52	9.58	1.51	0.17	0.12	0.23	27.75	62.24
6	8	0.31	1.14	0.41	0.04	0.00	0.04	0.02	0.00	0.00	0.17	11.11	3.81	0.58	0.58	0.04	0.00	18.25	80.49
8	10	0.23	0.08	0.08	0.04	0.00	0.00	0.00	0.00	0.00	0.02	4.99	2.17	0.02	0.02	0.10	0.54	8.30	88.79
10	12	0.04	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.03	3.97	0.04	0.00	0.00	0.39	8.50	97.29
12	14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.52	1.47	0.00	0.00	0.00	0.00	1.99	99.28
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.62	0.00	0.00	0.00	0.00	0.66	99.94
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.00	0.00	0.00	0.00	0.06	100.00
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		2.81	5.79	2.88	1.61	2.15	2.44	4.41	5.65	3.48	1.10	33.21	26.71	4.10	1.53	0.60	1.53		
Cumulative Total		2.81	8.61	11.48	13.10	15.25	17.69	22.10	27.75	31.22	32.32	65.53	92.24	96.34	97.87	98.47	100.00		

ANNUAL JFTS

2011 - Tp(s)

Total

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	6	0.02	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.22	0.17	0.00	0.00	0.01	0.02	0.51	0.51
6	8	0.25	0.42	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.66	0.45	0.02	0.22	0.45	0.51	3.03	3.54
8	10	0.86	0.74	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	1.12	0.96	0.87	1.35	1.42	0.74	8.08	11.62
10	12	0.14	0.06	0.02	0.01	0.00	0.00	0.00	0.01	0.01	0.01	1.43	7.45	1.29	1.06	1.24	0.43	13.17	24.79
12	14	0.13	0.08	0.02	0.01	0.00	0.00	0.00	0.00	0.01	0.24	2.25	19.45	2.49	0.35	0.57	0.32	25.92	50.72
14	16	0.32	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.22	4.34	24.08	2.84	0.68	0.39	0.45	33.37	84.09
16	18	0.14	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.81	9.38	1.53	0.22	0.11	0.11	12.44	96.53
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	2.25	0.45	0.00	0.01	0.00	2.77	99.30
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.42	0.23	0.00	0.00	0.00	0.70	100.00
Total		1.85	1.56	0.11	0.03	0.00	0.00	0.00	0.01	0.02	0.47	10.94	64.61	9.71	3.88	4.20	2.59		
Cumulative Total		1.85	3.41	3.53	3.56	3.56	3.56	3.56	3.57	3.60	4.06	15.00	79.61	89.33	93.21	97.41	100.00		

Swell

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	6	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.01	0.00	0.00	0.00	0.16	0.16
6	8	0.31	0.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.42	0.80	0.00	0.12	1.16	0.34	3.46	3.62
8	10	0.35	0.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.73	0.80	0.39	0.60	2.23	1.24	7.81	11.43
10	12	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.74	6.92	0.94	0.47	0.76	0.99	15.87	27.30
12	14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.16	24.94	0.32	0.24	0.01	0.00	26.68	53.98
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	31.76	0.13	0.00	0.00	0.00	32.02	85.99
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	11.20	0.28	0.00	0.00	0.00	11.49	97.48
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.03	0.14	0.00	0.00	0.00	2.17	99.65
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23	0.12	0.00	0.00	0.00	0.35	100.00
Total		0.68	0.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.19	78.83	2.32	1.43	4.16	2.57		
Cumulative Total		0.68	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	10.69	89.52	91.84	93.27	97.43	100.00		

Sea

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.13	0.02	0.18	0.16	0.20	0.13	0.45	0.36	0.43	0.38	0.27	0.13	0.11	0.09	0.13	0.18	3.37	3.37
2	4	0.88	2.45	1.30	1.42	3.69	3.28	4.63	5.11	2.79	0.47	4.03	3.40	1.80	0.94	0.38	0.36	36.94	40.31
4	6	1.06	4.14	1.66	0.13	0.04	0.00	0.00	0.00	0.00	0.18	8.23	4.84	0.54	0.29	0.16	0.45	21.73	62.05
6	8	0.88	2.59	1.06	0.04	0.00	0.00	0.00	0.00	0.00	0.07	9.13	2.32	0.13	0.09	0.25	0.02	16.58	78.63
8	10	0.61	1.26	0.11	0.07	0.00	0.00	0.00	0.00	0.04	0.00	4.52	1.66	0.07	0.02	0.47	0.34	9.18	87.81
10	12	0.47	0.02	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	3.04	4.14	0.00	0.00	0.20	0.61	8.50	96.31
12	14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.40	2.38	0.00	0.00	0.00	0.00	2.79	99.10
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.70	0.00	0.00	0.00	0.00	0.81	99.91
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.00	0.00	0.00	0.00	0.09	100.00
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		4.03	10.48	4.32	1.84	3.94	3.42	5.08	5.47	3.26	1.10	29.74	19.66	2.65	1.44	1.60	1.96		
Cumulative Total		4.03	14.51	18.83	20.67	24.61	28.03	33.12	38.58	41.84	42.95	72.69	92.35	95.01	96.45	98.04	100.00		

2012 - Tp(s)

Total

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	6	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.07	0.00	0.00	0.00	0.00	0.13	0.13
6	8	0.09	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.43	0.02	0.02	0.26	0.08	0.03	0.99	1.12
8	10	0.15	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.85	0.60	0.31	0.61	0.36	0.22	3.35	4.46
10	12	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.92	4.85	0.19	0.22	0.84	0.49	8.62	13.08
12	14	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.04	21.91	2.47	0.73	0.58	1.00	30.84	43.92
14	16	0.52	0.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	3.42	30.48	3.24	1.15	0.44	0.55	40.04	83.96
16	18	0.36	0.19	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.12	10.31	0.97	0.08	0.13	0.20	13.38	97.34
18	20	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.68	0.36	0.06	0.03	0.17	2.36	99.69
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.27	0.03	0.00	0.00	0.00	0.31	100.00
Total		1.39	0.69	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.02	11.83	70.21	7.60	3.11	2.47	2.66		
Cumulative Total		1.39	2.08	2.09	2.09	2.09	2.09	2.09	2.09	2.09	2.12	13.95	84.15	91.76	94.87	97.34	100.00		

Swell

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.01	0.01
6	8	0.07	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.52	0.00	0.00	0.17	0.25	0.06	1.27	1.29
8	10	0.16	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.08	0.69	0.00	0.02	1.44	0.05	4.69	5.97
10	12	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.67	6.36	0.07	0.15	0.51	1.00	10.79	16.76
12	14	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.82	29.81	0.02	0.02	0.05	0.96	31.73	48.50
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.21	37.90	0.14	0.00	0.00	0.13	38.38	86.87
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	10.99	0.16	0.00	0.00	0.00	11.16	98.03
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.66	0.03	0.00	0.00	0.00	1.69	99.72
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.02	0.00	0.00	0.00	0.28	100.00
Total		0.31	0.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.33	87.66	0.45	0.37	2.25	2.19		
Cumulative Total		0.31	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	7.08	94.74	95.20	95.57	97.81	100.00		

Sea

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.15	0.15	0.12	0.29	0.32	0.07	0.27	0.42	0.39	0.22	0.22	0.29	0.12	0.20	0.02	0.10	3.36	3.36
2	4	1.05	1.91	0.98	1.40	2.87	2.40	3.18	7.06	3.63	0.61	5.34	6.76	1.08	0.34	0.20	0.32	39.12	42.48
4	6	0.93	4.04	1.35	0.05	0.00	0.00	0.00	0.00	0.00	0.49	11.49	3.77	0.39	0.10	0.00	0.00	22.61	65.09
6	8	0.17	4.56	1.18	0.05	0.00	0.00	0.00	0.00	0.00	0.07	10.61	1.00	0.05	0.24	0.10	0.12	18.15	83.24
8	10	0.00	0.44	0.37	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.67	0.76	0.00	0.00	0.22	0.32	5.78	89.02
10	12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.18	2.72	0.00	0.00	0.10	0.15	6.15	95.17
12	14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.66	2.87	0.00	0.00	0.00	0.00	3.53	98.70
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	1.18	0.00	0.00	0.00	0.00	1.22	99.93
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.05	0.00	0.00	0.00	0.00	0.07	100.00
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		2.30	11.10	3.99	1.79	3.18	2.47	3.45	7.47	4.02	1.40	35.25	19.40	1.64	0.88	0.64	1.00		
Cumulative Total		2.30	13.40	17.39	19.18	22.37	24.84	28.29	35.77	39.78	41.18	76.43	95.84	97.48	98.36	99.00	100.00		

ANNUAL JFTS

2013 - Tp(s)

Total

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.06	0.06
6	8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.79	0.14	0.10	0.35	0.00	0.00	1.38	1.44
8	10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.71	0.99	0.10	0.34	0.13	0.00	2.27	3.71
10	12	0.00	0.13	0.13	0.07	0.00	0.00	0.00	0.00	0.00	0.02	2.32	7.85	0.81	0.84	0.17	0.03	12.37	16.08
12	14	0.10	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	5.66	24.17	1.36	0.58	0.06	0.34	32.32	48.40
14	16	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.42	29.43	2.52	0.70	0.15	0.30	36.56	84.97
16	18	0.08	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.62	10.79	0.73	0.29	0.02	0.05	12.61	97.58
18	20	0.05	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.84	0.11	0.00	0.00	0.05	2.08	99.66
>20		0.00	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.26	0.00	0.00	0.00	0.00	0.34	100.00
Total		0.27	0.32	0.13	0.07	0.00	0.00	0.00	0.00	0.00	0.03	13.57	75.47	5.74	3.11	0.53	0.76		
Cumulative Total		0.27	0.59	0.72	0.79	0.79	0.79	0.79	0.79	0.79	0.82	14.39	89.86	95.61	98.71	99.24	100.00		

Swell

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.05	0.05
6	8	0.00	0.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.66	0.20	0.00	0.00	0.61	0.12	1.86	1.91
8	10	0.02	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.08	0.56	0.06	0.07	1.20	0.03	4.15	6.06
10	12	0.00	0.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.85	7.86	0.05	0.17	1.31	0.00	15.41	21.47
12	14	0.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.11	29.45	0.43	0.24	0.12	0.08	31.76	53.23
14	16	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.21	33.08	0.19	0.03	0.00	0.17	33.76	87.00
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.39	0.32	0.00	0.00	0.00	10.71	97.71
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.69	0.37	0.00	0.00	0.00	2.06	99.77
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.14	0.00	0.00	0.00	0.23	100.00
Total		0.44	0.58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.92	83.35	1.55	0.52	3.24	0.40		
Cumulative Total		0.44	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	10.93	94.28	95.83	96.36	99.60	100.00		

Sea

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.16	0.02	0.02	0.11	0.09	0.13	0.20	0.22	0.47	0.09	0.11	0.09	0.20	0.04	0.11	0.04	2.12	2.12
2	4	1.07	0.76	0.85	1.11	2.81	3.88	4.79	7.22	3.88	0.76	3.48	5.81	1.67	0.40	0.40	0.27	39.14	41.26
4	6	0.29	1.60	0.85	0.04	0.00	0.00	0.00	0.00	0.00	0.36	10.87	5.37	2.12	0.16	0.36	0.02	22.03	63.29
6	8	0.16	1.27	0.67	0.07	0.02	0.00	0.00	0.00	0.00	0.04	12.47	2.25	0.53	0.16	0.02	0.02	17.69	80.98
8	10	0.07	0.13	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.92	1.69	0.00	0.00	0.13	0.11	7.20	88.17
10	12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.43	2.94	0.00	0.00	0.20	0.09	6.66	94.83
12	14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.80	2.67	0.00	0.00	0.00	0.22	3.70	98.53
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11	1.09	0.00	0.00	0.00	0.04	1.25	99.78
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.20	0.00	0.00	0.00	0.00	0.22	100.00
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		1.74	3.79	2.52	1.34	2.92	4.01	4.99	7.44	4.34	1.25	36.22	22.12	4.52	0.76	1.23	0.82		
Cumulative Total		1.74	5.52	8.04	9.38	12.30	16.31	21.30	28.74	33.08	34.33	70.55	92.67	97.19	97.95	99.18	100.00		

2014 - Tp(s)

Total

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	6	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.08	0.05	0.00	0.19	0.19
6	8	0.07	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.11	0.02	0.10	0.22	0.16	0.02	1.72	1.92
8	10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.88	0.33	0.27	0.00	0.00	0.00	2.49	4.41
10	12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.40	4.43	0.74	0.10	0.00	0.00	7.67	12.08
12	14	0.11	0.09	0.01	0.05	0.03	0.00	0.01	0.00	0.01	0.01	4.17	22.40	1.64	0.23	0.03	0.10	28.90	40.98
14	16	0.41	0.05	0.02	0.01	0.00	0.01	0.01	0.02	0.02	0.02	3.77	33.07	3.25	0.66	0.23	0.14	41.70	82.68
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.94	10.86	1.08	0.33	0.17	0.01	13.39	96.07
18	20	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.19	2.58	0.37	0.03	0.06	0.05	3.29	99.36
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.40	0.22	0.00	0.00	0.00	0.64	100.00
Total		0.61	0.21	0.03	0.06	0.03	0.01	0.02	0.02	0.03	0.03	14.50	74.09	7.68	1.66	0.70	0.32		
Cumulative Total		0.61	0.81	0.84	0.90	0.94	0.95	0.97	0.99	1.03	1.06	15.56	89.65	97.33	98.98	99.68	100.00		

Swell

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.04	0.04
6	8	0.07	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.60	0.01	0.02	0.16	0.64	0.16	1.77	1.81
8	10	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.56	0.22	0.08	0.63	0.29	0.01	3.85	5.66
10	12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.09	3.91	0.12	0.18	0.34	0.02	10.66	16.32
12	14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.23	27.12	0.01	0.09	0.14	0.00	28.59	44.90
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.41	39.48	0.11	0.01	0.07	0.00	40.07	84.98
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	11.96	0.22	0.00	0.00	0.00	12.20	97.18
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.01	0.12	0.00	0.00	0.00	2.12	99.30
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.49	0.21	0.00	0.00	0.00	0.70	100.00
Total		0.07	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.89	85.20	0.89	1.07	1.52	0.20		
Cumulative Total		0.07	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	11.12	96.32	97.21	98.28	99.80	100.00		

Sea

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.00	0.03	0.00	0.08	0.14	0.03	0.05	0.05	0.11	0.00	0.03	0.05	0.05	0.05	0.00	0.05	0.74	0.74
2	4	0.47	0.82	0.38	0.55	1.48	1.78	2.27	3.78	1.53	0.27	3.94	4.92	1.50	0.33	0.33	0.49	24.84	25.58
4	6	0.11	3.01	0.57	0.00	0.00	0.00	0.00	0.00	0.00	0.19	10.73	5.34	1.61	0.96	0.55	0.22	23.28	48.86
6	8	0.11	3.26	0.85	0.14	0.11	0.03	0.00	0.00	0.00	0.14	15.05	1.12	0.90	0.68	0.49	0.14	23.01	71.87
8	10	0.00	1.26	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.11	0.68	0.00	0.00	0.00	0.00	13.13	85.01
10	12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.54	2.33	0.03	0.00	0.00	0.00	8.89	93.90
12	14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.12	3.50	0.00	0.00	0.00	0.00	4.62	98.52
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.27	1.01	0.03	0.00	0.00	0.00	1.31	99.84
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.08	0.00	0.00	0.00	0.00	0.16	100.00
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.68	8.37	1.89	0.77	1.72	1.83	2.33	3.83	1.64	0.60	48.86	19.04	4.13	2.02	1.37	0.90		
Cumulative Total		0.68	9.06	10.94	11.71	13.43	15.27	17.59	21.42	23.06	23.67	72.53	91.57	95.70	97.73	99.10	100.00		

ANNUAL JFTS

2015 - Tp(s)

Total

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.11	0.00	0.00	0.03	0.00	0.17	0.17
6	8	0.34	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.46	0.29	0.03	0.07	0.00	0.00	1.43	1.60
8	10	0.31	0.25	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.75	0.57	0.74	0.02	0.05	0.07	3.80	5.40
10	12	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.31	4.49	0.37	0.01	0.00	0.13	7.36	12.76
12	14	0.42	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.86	21.54	1.00	0.19	0.21	0.31	28.81	41.58
14	16	0.99	0.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.70	29.82	2.95	0.49	0.57	0.65	40.43	82.01
16	18	0.24	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.26	10.17	1.76	0.38	0.17	0.07	14.06	96.07
18	20	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.19	2.76	0.16	0.15	0.15	0.01	3.46	99.53
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.46	0.01	0.00	0.00	0.00	0.47	100.00
		2.40	1.06	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	15.55	70.21	7.02	1.31	1.18	1.23		

Swell

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	6	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02
6	8	0.00	0.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.41	0.08	0.00	0.05	0.02	0.12	1.42	1.44
8	10	0.05	0.88	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.28	0.48	0.26	0.20	0.15	0.06	4.35	5.79
10	12	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.37	5.71	0.49	0.29	0.07	0.10	12.05	17.84
12	14	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.26	27.65	0.55	0.00	0.00	0.08	30.54	48.38
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.64	36.31	0.87	0.00	0.00	0.00	37.82	86.20
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.44	0.55	0.00	0.00	0.00	10.99	97.19
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.27	0.14	0.00	0.00	0.00	2.41	99.59
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.33	0.08	0.00	0.00	0.00	0.41	100.00
Total		0.07	1.65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.95	83.26	2.93	0.53	0.24	0.36		
Cumulative Total		0.07	1.72	1.72	1.72	1.72	1.72	1.72	1.72	1.72	1.72	12.67	95.93	98.86	99.40	99.64	100.00		

Sea

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.02	0.00	0.05	0.27	0.05	0.09	0.07	0.00	0.41	0.05	0.00	0.00	0.02	0.02	0.00	0.00	1.04	1.04
2	4	0.29	1.11	0.84	1.25	2.52	2.65	3.63	5.01	2.68	0.41	4.42	2.93	2.56	0.32	0.34	0.50	31.45	32.49
4	6	0.57	2.29	0.91	0.09	0.02	0.00	0.00	0.00	0.02	0.45	10.63	8.00	3.45	0.20	0.79	0.23	27.66	60.16
6	8	0.00	3.56	1.27	0.11	0.00	0.00	0.00	0.00	0.00	0.11	10.75	2.02	0.11	0.16	0.09	0.05	18.23	78.39
8	10	0.02	0.75	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.05	2.02	0.09	0.00	0.00	0.00	12.20	90.59
10	12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.54	2.81	0.00	0.00	0.00	0.00	5.35	95.94
12	14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.66	2.09	0.00	0.00	0.00	0.00	2.74	98.68
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	1.16	0.00	0.00	0.00	0.00	1.29	99.98
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.02	100.00
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.91	7.71	3.33	1.72	2.59	2.74	3.70	5.01	3.11	1.02	38.19	21.04	6.24	0.70	1.22	0.77		
Cumulative Total		0.91	8.62	11.95	13.67	16.26	19.00	22.70	27.71	30.82	31.84	70.02	91.07	97.30	98.00	99.23	100.00		

2016 - Tp(s)

Total

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.11	0.00	0.00	0.00	0.00	0.15	0.15
6	8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.92	0.05	0.00	0.10	0.00	0.00	1.07	1.22
8	10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.36	0.44	0.10	0.00	0.00	0.00	2.90	4.12
10	12	0.00	0.00	0.01	0.00	0.00	0.01	0.01	0.00	0.00	0.02	2.36	5.83	0.10	0.03	0.01	0.00	8.39	12.51
12	14	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.53	19.83	0.79	0.23	0.09	0.01	27.64	40.15
14	16	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.65	34.35	1.75	0.35	0.11	0.23	42.52	82.67
16	18	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.16	12.86	0.39	0.05	0.02	0.02	14.53	97.20
18	20	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.34	1.59	0.19	0.02	0.01	0.06	2.30	99.50
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.50	0.00	0.00	0.00	0.00	0.50	100.00
Total		0.34	0.00	0.01	0.00	0.00	0.01	0.01	0.00	0.00	0.02	19.35	75.57	3.32	0.79	0.25	0.32		
Cumulative Total		0.34	0.34	0.35	0.35	0.35	0.36	0.38	0.38	0.38	0.40	19.75	95.32	98.65	99.43	99.68	100.00		

Swell

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.01	0.00	0.00	0.00	0.00	0.09	0.09
6	8	0.03	0.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.77	0.02	0.00	0.00	0.28	0.02	1.34	1.43
8	10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.20	0.07	0.00	0.25	1.34	0.00	4.86	6.30
10	12	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.79	5.26	0.00	0.03	0.17	0.00	11.29	17.58
12	14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.11	24.93	0.18	0.00	0.03	0.00	27.26	44.84
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.45	39.47	0.30	0.00	0.00	0.00	40.22	85.06
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	12.04	0.24	0.00	0.00	0.00	12.33	97.39
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.01	0.06	0.00	0.00	0.00	2.07	99.46
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.53	0.01	0.00	0.00	0.00	0.54	100.00
Total		0.07	0.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.45	84.34	0.80	0.29	1.83	0.02		
Cumulative Total		0.07	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	12.73	97.07	97.86	98.15	99.98	100.00		

Sea

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.07	0.00	0.00	0.07	0.02	0.04	0.02	0.11	0.20	0.02	0.00	0.02	0.02	0.04	0.00	0.00	0.63	0.63
2	4	0.15	0.87	0.41	0.61	1.18	2.07	4.14	6.88	2.96	0.15	3.40	5.51	0.96	0.52	0.07	0.09	29.97	30.60
4	6	0.30	1.92	0.94	0.09	0.00	0.00	0.00	0.00	0.02	0.20	12.09	7.86	1.05	0.04	0.00	0.11	24.61	55.22
6	8	0.13	2.16	0.22	0.00	0.00	0.00	0.00	0.00	0.00	0.04	16.75	1.44	0.00	0.11	0.04	0.00	20.89	76.11
8	10	0.02	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.26	0.57	0.02	0.00	0.00	0.00	9.93	86.04
10	12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.01	3.49	0.00	0.00	0.00	0.00	8.49	94.53
12	14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.35	2.16	0.00	0.00	0.00	0.00	3.51	98.04
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.24	1.59	0.00	0.00	0.00	0.00	1.83	99.87
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.04	0.00	0.00	0.00	0.00	0.07	99.93
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.07	100.00
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.68	4.94	1.63	0.76	1.20	2.11	4.16	6.99	3.18	0.41	48.12	22.74	2.05	0.72	0.11	0.20		
Cumulative Total		0.68	5.62	7.25	8.02	9.21	11.33	15.49	22.48	25.66	26.07	74.19	96.93	98.98	99.70	99.80	100.00		

ANNUAL JFTS

2017 - Tp(s)

Total

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.03	0.03
6	8	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.75	0.14	0.18	0.08	0.03	0.15	1.37	1.40
8	10	0.00	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.99	1.00	0.16	0.42	0.67	0.07	4.39	5.80
10	12	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.32	5.51	0.55	0.02	0.00	0.00	8.41	14.21
12	14	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.90	22.61	0.49	0.03	0.03	0.02	29.12	43.33
14	16	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.66	31.60	0.99	0.21	0.08	0.05	39.69	83.03
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.15	10.74	0.26	0.19	0.15	0.02	12.52	95.55
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.37	2.75	0.13	0.10	0.08	0.00	3.42	98.97
>20		0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.81	0.06	0.00	0.02	0.03	1.03	100.00
Total		0.17	0.09	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	19.22	75.21	2.82	1.06	1.07	0.34		
Cumulative Total		0.17	0.26	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	19.50	94.70	97.52	98.58	99.66	100.00		

Swell

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	6	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.00	0.00	0.00	0.00	0.00	0.09	0.09
6	8	0.06	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.32	0.05	0.00	0.00	0.66	0.12	2.22	2.32
8	10	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.94	0.08	0.00	0.01	2.21	1.28	6.66	8.97
10	12	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.67	4.60	0.07	0.00	0.62	0.03	11.00	19.97
12	14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.73	26.09	0.07	0.00	0.05	0.00	27.94	47.92
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.59	37.20	0.01	0.00	0.00	0.00	37.80	85.72
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	10.89	0.03	0.00	0.00	0.00	10.94	96.66
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.42	0.21	0.00	0.00	0.00	2.63	99.29
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.41	0.30	0.00	0.00	0.00	0.71	100.00
Total		0.20	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.35	81.74	0.70	0.01	3.54	1.43		
Cumulative Total		0.20	0.22	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	12.58	94.32	95.02	95.03	98.57	100.00		

Sea

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.05	0.02	0.00	0.10	0.00	0.00	0.05	0.10	0.07	0.05	0.02	0.05	0.00	0.00	0.00	0.02	0.53	0.53
2	4	0.10	1.16	0.49	0.29	0.39	0.70	2.77	5.92	2.94	0.61	3.96	3.49	0.90	0.22	0.17	0.19	24.29	24.82
4	6	0.17	1.26	0.66	0.10	0.00	0.00	0.00	0.00	0.00	0.19	11.38	5.29	1.53	0.10	0.02	0.44	21.14	45.96
6	8	0.51	1.92	0.46	0.05	0.00	0.00	0.00	0.00	0.00	0.34	18.47	1.48	0.05	0.07	0.00	0.05	23.39	69.35
8	10	0.10	0.27	0.41	0.00	0.00	0.00	0.00	0.00	0.00	0.02	11.14	0.90	0.00	0.00	0.00	0.19	13.03	82.38
10	12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.29	4.20	0.05	0.00	0.00	0.00	9.54	91.92
12	14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.16	4.39	0.05	0.00	0.00	0.00	5.61	97.52
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.34	2.01	0.00	0.00	0.00	0.00	2.35	99.88
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.00	0.00	0.00	0.00	0.12	100.00
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.92	4.63	2.01	0.53	0.39	0.70	2.81	6.02	3.01	1.21	51.76	21.94	2.57	0.39	0.19	0.90		
Cumulative Total		0.92	5.56	7.57	8.10	8.49	9.20	12.01	18.03	21.04	22.25	74.01	95.95	98.52	98.91	99.10	100.00		

2018 - Tp(s)

Total

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.10	0.00	0.00	0.00	0.03	0.16	0.16
6	8	0.08	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.62	0.13	0.08	0.07	0.10	0.00	2.16	2.32
8	10	0.06	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.20	0.99	0.61	0.08	0.00	0.00	4.98	7.29
10	12	0.10	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.77	6.44	0.40	0.34	0.35	0.13	11.54	18.84
12	14	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.32	22.60	1.08	0.37	0.38	0.59	32.61	51.45
14	16	0.26	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.38	27.17	2.21	0.78	0.19	0.18	35.25	86.70
16	18	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.75	8.07	0.82	0.17	0.16	0.00	10.00	96.70
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.15	2.44	0.21	0.07	0.00	0.00	2.87	99.57
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.40	0.02	0.01	0.00	0.00	0.43	100.00
Total		0.79	0.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	21.21	68.34	5.43	1.88	1.19	0.94		
Cumulative Total		0.79	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	22.21	90.56	95.99	97.88	99.06	100.00		

Swell

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	6	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.04	0.04
6	8	0.05	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.55	0.31	0.04	0.04	0.14	0.00	1.35	1.38
8	10	0.00	0.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.81	0.33	0.19	1.40	1.47	0.12	7.93	9.31
10	12	0.04	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.55	5.36	0.08	0.47	0.42	0.32	12.27	21.59
12	14	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.71	28.58	0.45	0.19	0.16	0.21	31.46	53.05
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	33.51	0.80	0.01	0.14	0.00	34.70	87.75
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.03	0.36	0.00	0.00	0.00	9.40	97.15
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.06	0.28	0.01	0.00	0.00	2.36	99.51
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.48	0.01	0.00	0.00	0.00	0.49	100.00
Total		0.27	0.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.87	79.67	2.21	2.11	2.33	0.65		
Cumulative Total		0.27	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	13.03	92.70	94.91	97.02	99.35	100.00		

Sea

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.00	0.04	0.00	0.26	0.07	0.00	0.00	0.02	0.15	0.00	0.00	0.07	0.02	0.00	0.00	0.02	0.66	0.66
2	4	0.33	0.66	1.01	0.94	0.57	1.29	2.79	5.35	2.13	0.09	3.90	3.36	1.32	0.15	0.26	0.35	24.50	25.16
4	6	0.39	2.81	1.56	0.02	0.00	0.00	0.00	0.00	0.00	0.18	9.63	5.37	0.99	0.09	0.48	0.39	21.91	47.07
6	8	0.11	1.71	0.64	0.07	0.02	0.00	0.00	0.00	0.00	0.20	18.29	2.19	0.18	0.09	0.22	0.04	23.76	70.83
8	10	0.00	0.13	0.26	0.02	0.00	0.00	0.00	0.00	0.00	0.00	13.07	1.03	0.00	0.00	0.02	0.07	14.61	85.44
10	12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.50	4.12	0.00	0.00	0.00	0.00	8.62	94.06
12	14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.02	2.79	0.00	0.00	0.00	0.00	4.80	98.86
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.44	0.61	0.00	0.00	0.00	0.00	1.05	99.91
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.00	0.00	0.00	0.00	0.09	100.00
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.83	5.35	3.47	1.32	0.66	1.29	2.79	5.37	2.28	0.46	51.85	19.63	2.50	0.33	0.99	0.88		
Cumulative Total		0.83	6.19	9.65	10.97	11.63	12.92	15.71	21.08	23.36	23.82	75.67	95.31	97.81	98.14	99.12	100.00		

ANNUAL JFTS

2019 - Tp(s)

Total

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	6	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.02	0.00	0.01	0.05	0.06	0.21	0.21
6	8	0.27	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.38	0.26	0.00	0.06	0.09	0.03	2.16	2.36
8	10	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.93	0.47	0.06	0.59	0.39	0.31	3.80	6.16
10	12	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.01	5.02	0.09	0.19	0.06	0.34	8.95	15.11
12	14	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.44	20.40	1.07	0.10	0.10	0.10	28.38	43.49
14	16	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.24	29.60	2.11	0.22	0.03	0.14	36.45	79.94
16	18	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.44	12.28	1.27	0.11	0.11	0.11	15.34	95.29
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.48	2.80	0.54	0.01	0.00	0.00	3.82	99.11
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.17	0.62	0.10	0.00	0.00	0.00	0.89	100.00
Total		0.86	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	19.14	71.47	5.24	1.30	0.83	1.10		
Cumulative Total		0.86	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	20.06	91.53	96.77	98.07	98.90	100.00		

Swell

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	8	0.20	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.01	0.06	0.00	0.00	0.19	0.03	1.50	1.50
8	10	0.36	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.29	0.27	0.00	0.00	1.07	0.21	5.27	6.77
10	12	0.35	0.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.85	5.50	0.06	0.00	0.09	0.21	11.24	18.01
12	14	0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.35	25.83	0.41	0.03	0.03	0.00	28.81	46.83
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.22	34.88	0.93	0.00	0.00	0.00	36.03	82.86
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	13.22	0.49	0.00	0.00	0.00	13.73	96.59
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.29	0.36	0.00	0.00	0.00	2.65	99.24
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.54	0.22	0.00	0.00	0.00	0.76	100.00
Total		1.06	0.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.75	82.59	2.47	0.03	1.38	0.45		
Cumulative Total		1.06	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	13.07	95.66	98.13	98.16	99.55	100.00		

Sea

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.00	0.02	0.00	0.33	0.07	0.07	0.00	0.05	0.12	0.05	0.02	0.02	0.00	0.00	0.00	0.00	0.76	0.76
2	4	0.50	1.19	0.48	1.12	1.62	2.21	2.97	4.78	2.21	0.52	3.43	3.59	0.71	0.02	0.05	0.36	25.77	26.53
4	6	0.40	1.71	1.12	0.14	0.00	0.00	0.00	0.00	0.00	0.17	13.73	5.81	0.14	0.05	0.14	0.33	23.75	50.29
6	8	0.40	2.07	0.74	0.02	0.00	0.00	0.00	0.00	0.02	0.07	21.23	1.38	0.02	0.00	0.02	0.10	26.08	76.37
8	10	0.00	0.29	0.21	0.14	0.00	0.00	0.00	0.00	0.00	0.00	11.88	0.76	0.00	0.00	0.00	0.00	13.28	89.65
10	12	0.02	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.09	2.90	0.00	0.00	0.00	0.00	6.12	95.76
12	14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.52	1.76	0.00	0.00	0.00	0.00	3.28	99.05
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.26	0.57	0.00	0.00	0.00	0.00	0.83	99.88
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.02	0.02	0.00	0.00	0.00	0.12	100.00
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		1.33	5.38	2.55	1.76	1.69	2.28	2.97	4.83	2.36	0.81	55.24	16.83	0.90	0.07	0.21	0.79		
Cumulative Total		1.33	6.71	9.26	11.02	12.71	14.99	17.97	22.80	25.15	25.96	81.20	98.02	98.93	99.00	99.21	100.00		

2020 - Tp(s)

Total

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.13	0.00	0.00	0.00	0.03	0.19	0.19
6	8	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.84	0.73	0.14	0.01	0.05	0.07	2.87	3.06
8	10	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.53	0.63	0.11	0.30	0.16	0.14	4.10	7.16
10	12	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	3.23	5.53	0.18	0.01	0.16	0.08	9.29	16.45
12	14	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.24	20.99	1.32	0.08	0.09	0.17	28.97	45.42
14	16	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.07	2.95	31.88	1.17	0.10	0.20	0.24	36.71	82.14
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.57	12.96	0.52	0.09	0.06	0.07	14.26	96.40
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.28	2.20	0.49	0.00	0.00	0.00	2.97	99.37
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.49	0.08	0.00	0.00	0.00	0.63	100.00
Total		0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.10	17.74	75.52	4.02	0.59	0.72	0.80		
Cumulative Total		0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.51	0.61	18.35	93.88	97.89	98.49	99.20	100.00		

Swell

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.01	0.01
6	8	0.06	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.28	0.12	0.00	0.13	0.44	0.12	2.23	2.24
8	10	0.03	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.13	0.35	0.01	0.17	0.99	0.12	4.05	6.29
10	12	0.12	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.37	6.29	0.07	0.03	0.59	0.07	11.56	17.85
12	14	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.13	28.68	0.31	0.00	0.02	0.00	30.22	48.07
14	16	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.21	35.59	0.16	0.00	0.16	0.00	36.15	84.22
16	18	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.71	0.27	0.00	0.01	0.00	13.01	97.24
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.88	0.34	0.00	0.00	0.00	2.21	99.45
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.38	0.16	0.00	0.00	0.00	0.55	100.00
Total		0.33	0.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.12	86.02	1.33	0.34	2.23	0.30		
Cumulative Total		0.33	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	9.79	95.81	97.13	97.47	99.70	100.00		

Sea

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.00	0.05	0.00	0.00	0.07	0.02	0.05	0.00	0.19	0.02	0.05	0.07	0.05	0.07	0.02	0.00	0.68	0.68
2	4	0.27	0.68	0.48	0.58	1.13	1.26	3.19	5.79	3.16	0.48	2.51	2.90	1.45	0.34	0.63	0.22	25.06	25.74
4	6	0.39	2.37	0.48	0.00	0.00	0.00	0.00	0.00	0.02	0.24	11.90	8.64	0.48	0.24	0.12	0.14	25.04	50.77
6	8	0.12	1.47	0.34	0.12	0.05	0.05	0.00	0.00	0.05	0.02	20.52	3.02	0.02	0.02	0.12	0.29	26.22	76.99
8	10	0.12	0.41	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	9.20	1.30	0.14	0.00	0.02	0.00	11.23	88.22
10	12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.15	3.21	0.14	0.00	0.00	0.00	7.51	95.73
12	14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.28	1.96	0.00	0.00	0.00	0.00	3.24	98.96
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.72	0.00	0.00	0.00	0.00	0.87	99.83
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.12	0.00	0.00	0.00	0.00	0.17	100.00
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.89	4.97	1.30	0.70	1.26	1.33	3.24	5.79	3.45	0.77	49.81	21.95	2.29	0.68	0.92	0.65		
Cumulative Total		0.89	5.87	7.17	7.87	9.13	10.45	13.69	19.48	22.94	23.71	73.52	95.46	97.75	98.43	99.35	100.00		

ANNUAL JFTS

2021 - Tp(s)

Total

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.21	0.00	0.07	0.00	0.00	0.00	0.28	0.28
6	8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.23	1.19	2.04	0.00	0.00	0.00	6.46	6.74
8	10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.42	2.95	1.62	0.35	0.00	0.00	9.34	16.08
10	12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.12	8.57	0.42	0.00	0.00	0.00	10.11	26.19
12	14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.09	28.72	1.69	0.00	0.00	0.00	33.50	59.69
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.39	18.96	6.25	0.00	0.00	0.00	27.60	87.29
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.22	0.35	0.00	0.00	0.00	8.57	95.86
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.21	2.81	0.00	0.00	0.00	0.00	3.02	98.88
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.21	0.91	0.00	0.00	0.00	0.00	1.12	100.00
Total		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	14.89	72.33	12.43	0.35	0.00	0.00		
Cumulative Total		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	14.89	87.22	99.65	100.00	100.00	100.00		

Swell

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	6	0.07	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.14
6	8	0.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.56	0.21	0.00	0.00	0.21	0.84	2.11	2.25
8	10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.74	0.07	0.00	1.83	4.15	0.28	9.07	11.31
10	12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.89	7.80	0.00	0.28	0.00	0.00	14.97	26.28
12	14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.53	33.38	0.00	0.00	0.00	0.00	35.91	62.19
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	28.18	0.00	0.00	0.00	0.00	28.25	90.44
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.03	0.00	0.00	0.00	0.00	7.03	97.47
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.18	0.00	0.00	0.00	0.00	2.18	99.65
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.35	0.00	0.00	0.00	0.00	0.35	100.00
Total		0.35	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.79	79.20	0.00	2.11	4.36	1.12		
Cumulative Total		0.35	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	13.21	92.41	92.41	94.52	98.88	100.00		

Sea

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.00	0.00	0.00	0.12	0.00	0.00	0.00	0.23	0.00	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.46	0.46
2	4	0.81	1.51	0.35	0.58	0.00	0.00	0.00	0.35	0.00	0.12	1.28	2.78	0.46	0.12	0.00	0.46	8.82	9.28
4	6	0.00	0.46	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	17.87	11.25	3.25	1.74	0.12	0.12	35.03	44.32
6	8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	23.20	1.39	3.48	3.25	0.00	0.12	31.44	75.75
8	10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.14	0.58	0.00	0.00	0.00	0.00	11.72	87.47
10	12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.87	3.02	0.00	0.00	0.00	0.00	7.89	95.36
12	14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.74	2.20	0.00	0.00	0.00	0.00	3.94	99.30
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.46	0.23	0.00	0.00	0.00	0.00	0.70	100.00
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.81	1.97	0.58	0.70	0.00	0.00	0.00	0.58	0.00	0.23	60.56	21.46	7.19	5.10	0.12	0.70		
Cumulative Total		0.81	2.78	3.36	4.06	4.06	4.06	4.06	4.64	4.64	4.87	65.43	86.89	94.08	99.19	99.30	100.00		

ANNUAL JFTS

1979 Hs vs Tp

Total

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	0.00	0.05	0.08	0.00	0.00	0.02	0.05	0.00	0.00	0.00	0.00	0.19	0.19
0.5	1	0.00	0.07	0.22	0.16	0.37	2.75	7.36	4.46	1.65	0.43	0.00	17.46	17.66
1	1.5	0.00	0.00	0.37	0.94	1.05	3.59	15.98	21.79	6.98	1.11	0.21	52.01	69.66
1.5	2	0.00	0.00	0.01	0.79	1.71	1.73	4.11	10.87	4.40	1.09	0.19	24.90	94.56
2	2.5	0.00	0.00	0.00	0.23	0.73	0.08	0.18	2.40	1.13	0.13	0.00	4.88	99.44
2.5	3	0.00	0.00	0.00	0.05	0.03	0.00	0.00	0.10	0.14	0.03	0.00	0.35	99.79
3	3.5	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.05	99.84
3.5	4	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.05	99.89
4	4.5	0.00	0.00	0.00	0.00	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.09	99.98
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	99.98
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	99.98
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	99.98
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	99.98
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	99.98
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	99.98
Total		0.00	0.11	0.67	2.16	4.08	8.17	27.68	39.62	14.30	2.79	0.40		
Cumulative Total		0.00	0.11	0.79	2.95	7.03	15.20	42.88	82.49	96.79	99.58	99.98		

Swell

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	0.00	0.00	0.01	0.12	0.23	1.03	0.83	0.63	1.04	0.36	0.19	4.44	4.44
0.5	1	0.00	0.00	0.12	0.24	0.72	5.68	15.24	9.74	2.15	0.36	0.07	34.32	38.75
1	1.5	0.00	0.00	0.05	1.08	2.08	4.40	10.90	20.04	5.34	0.56	0.17	44.60	83.36
1.5	2	0.00	0.00	0.00	0.12	0.72	1.14	1.34	6.94	3.02	0.50	0.05	13.83	97.19
2	2.5	0.00	0.00	0.00	0.05	0.00	0.20	0.05	1.40	0.79	0.08	0.00	2.57	99.76
2.5	3	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.11	0.11	0.00	0.00	0.24	100.00
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.00	0.00	0.18	1.63	3.75	12.46	28.36	38.85	12.46	1.85	0.47		
Cumulative Total		0.00	0.00	0.18	1.80	5.55	18.01	46.37	85.22	97.67	99.53	100.00		

Sea

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	2.38	24.48	2.76	1.11	0.19	0.00	0.00	0.00	0.00	0.00	0.00	30.92	30.92
0.5	1	0.00	6.59	16.43	8.02	1.50	0.71	0.15	0.02	0.00	0.00	0.00	33.43	64.35
1	1.5	0.00	0.00	3.96	9.09	5.39	3.25	1.03	0.19	0.04	0.00	0.00	22.96	87.31
1.5	2	0.00	0.00	0.04	2.93	3.72	1.78	1.05	0.77	0.06	0.02	0.00	10.38	97.69
2	2.5	0.00	0.00	0.00	0.32	1.03	0.04	0.02	0.43	0.02	0.02	0.00	1.88	99.57
2.5	3	0.00	0.00	0.00	0.02	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.09	99.66
3	3.5	0.00	0.00	0.00	0.00	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.11	99.76
3.5	4	0.00	0.00	0.00	0.00	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.09	99.85
4	4.5	0.00	0.00	0.00	0.00	0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.15	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		2.38	31.07	23.20	21.51	12.24	5.78	2.25	1.41	0.13	0.04	0.00		
Cumulative Total		2.38	33.45	56.64	78.15	90.39	96.17	98.42	99.83	99.96	100.00	100.00		

1980 Hs vs Tp

Total

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.5	1	0.00	0.00	0.00	0.00	0.68	1.84	4.60	2.55	1.07	0.41	0.34	11.50	11.50
1	1.5	0.00	0.00	0.38	0.99	2.28	5.42	14.50	17.11	5.00	1.41	0.54	47.62	59.12
1.5	2	0.00	0.00	0.11	0.50	2.36	0.89	4.42	13.66	4.59	1.50	0.24	28.27	87.39
2	2.5	0.00	0.00	0.02	0.23	0.49	0.57	0.49	3.46	3.44	0.76	0.05	9.51	96.89
2.5	3	0.00	0.00	0.00	0.11	0.27	0.18	0.15	0.18	1.18	0.23	0.00	2.31	99.20
3	3.5	0.00	0.00	0.00	0.00	0.02	0.00	0.08	0.06	0.31	0.30	0.00	0.76	99.97
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.03	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.00	0.00	0.51	1.83	6.10	8.90	24.24	37.06	15.59	4.61	1.16		
Cumulative Total		0.00	0.00	0.51	2.35	8.45	17.35	41.59	78.64	94.23	98.84	100.00		

Swell

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	0.00	0.00	0.01	0.35	0.44	0.28	0.35	0.33	0.51	0.15	0.14	2.55	2.55
0.5	1	0.00	0.00	0.05	0.55	1.20	6.49	11.02	6.00	1.50	0.38	0.38	27.56	30.11
1	1.5	0.00	0.00	0.05	1.11	3.41	4.33	10.70	16.98	3.71	0.80	0.22	41.32	71.43
1.5	2	0.00	0.00	0.00	0.24	1.88	1.00	1.54	10.38	3.40	0.70	0.08	19.22	90.66
2	2.5	0.00	0.00	0.00	0.01	0.12	0.70	0.21	2.29	3.16	0.63	0.02	7.13	97.78
2.5	3	0.00	0.00	0.00	0.00	0.00	0.12	0.09	0.06	1.28	0.24	0.00	1.79	99.57
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.15	0.28	0.00	0.43	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.00	0.00	0.10	2.26	7.05	12.91	23.91	36.03	13.71	3.18	0.85		
Cumulative Total		0.00	0.00	0.10	2.37	9.41	22.32	46.23	82.26	95.97	99.15	100.00		

Sea

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	2.17	29.28	1.56	0.68	0.29	0.00	0.00	0.00	0.00	0.00	0.00	33.99	33.99
0.5	1	0.00	6.42	12.89	6.74	1.32	1.27	0.15	0.00	0.00	0.00	0.00	28.79	62.78
1	1.5	0.00	0.00	5.57	9.60	4.00	3.30	1.20	0.05	0.00	0.00	0.00	23.71	86.50
1.5	2	0.00	0.00	0.46	2.34	3.88	1.10	1.15	0.49	0.05	0.00	0.00	9.47	95.97
2	2.5	0.00	0.00	0.05	0.56	0.90	0.42	0.27	0.44	0.07	0.00	0.00	2.71	98.68
2.5	3	0.00	0.00	0.00	0.24	0.49	0.10	0.07	0.12	0.00	0.00	0.00	1.03	99.71
3	3.5	0.00	0.00	0.00	0.10	0.02	0.02	0.15	0.00	0.00	0.00	0.00	0.29	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		2.17	35.70	20.54	20.27	10.92	6.20	2.98	1.10	0.12	0.00	0.00		
Cumulative Total		2.17	37.88	58.41	78.68	89.60	95.80	98.78	99.88	100.00	100.00	100.00		

ANNUAL JFTS

1981 Hs vs Tp

Total

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.00	0.00	0.00	0.00	0.08	0.08
0.5	1	0.00	0.00	0.00	0.32	0.10	2.98	9.84	5.82	1.54	0.25	0.06	20.91	20.99
1	1.5	0.00	0.00	0.07	1.20	1.08	5.10	15.39	16.18	4.50	1.91	0.25	45.67	66.67
1.5	2	0.00	0.00	0.10	0.86	1.35	1.72	4.05	11.45	3.60	0.66	0.02	23.81	90.48
2	2.5	0.00	0.00	0.05	0.34	0.15	0.15	0.33	3.55	2.75	0.30	0.10	7.72	98.20
2.5	3	0.00	0.00	0.00	0.16	0.17	0.07	0.00	0.17	0.79	0.29	0.03	1.68	99.87
3	3.5	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.06	0.03	0.00	0.13	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.00	0.00	0.22	2.91	2.85	10.02	29.69	37.17	13.23	3.44	0.47		
Cumulative Total		0.00	0.00	0.22	3.13	5.98	16.00	45.70	82.87	96.10	99.53	100.00		

Swell

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	0.00	0.00	0.01	0.39	1.04	0.42	0.82	0.68	0.80	0.16	0.12	4.44	4.44
0.5	1	0.00	0.00	0.05	1.42	0.54	6.86	16.31	10.66	1.61	0.29	0.01	37.74	42.18
1	1.5	0.00	0.00	0.08	1.50	2.08	4.47	9.26	12.90	4.07	0.92	0.00	35.28	77.46
1.5	2	0.00	0.00	0.00	0.20	1.04	0.89	2.32	8.96	2.28	0.43	0.02	16.13	93.60
2	2.5	0.00	0.00	0.00	0.09	0.03	0.16	0.20	2.22	2.22	0.14	0.07	5.13	98.73
2.5	3	0.00	0.00	0.00	0.00	0.02	0.02	0.00	0.18	0.67	0.23	0.05	1.18	99.91
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.03	0.00	0.09	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.00	0.00	0.14	3.61	4.76	12.83	28.90	35.59	11.70	2.21	0.27		
Cumulative Total		0.00	0.00	0.14	3.74	8.51	21.33	50.24	85.83	97.53	99.73	100.00		

Sea

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	2.48	26.55	2.90	0.82	0.02	0.00	0.00	0.00	0.00	0.00	0.00	32.77	32.77
0.5	1	0.00	7.02	15.39	8.00	1.19	1.01	0.21	0.00	0.00	0.00	0.00	32.82	65.59
1	1.5	0.00	0.02	4.80	8.89	3.91	3.04	1.59	0.23	0.00	0.00	0.00	22.48	88.07
1.5	2	0.00	0.00	0.30	2.48	2.60	2.36	1.17	0.84	0.02	0.00	0.00	9.78	97.85
2	2.5	0.00	0.00	0.05	0.19	0.35	0.21	0.12	0.33	0.19	0.00	0.00	1.43	99.27
2.5	3	0.00	0.00	0.00	0.23	0.28	0.07	0.00	0.02	0.05	0.00	0.00	0.65	99.93
3	3.5	0.00	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		2.48	33.59	23.44	20.68	8.35	6.69	3.09	1.43	0.26	0.00	0.00		
Cumulative Total		2.48	36.07	59.51	80.19	88.54	95.23	98.32	99.74	100.00	100.00	100.00		

1982 Hs vs Tp

Total

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.5	1	0.00	0.00	0.00	0.01	0.10	2.01	7.04	8.22	2.53	0.75	0.05	20.72	20.72
1	1.5	0.00	0.00	0.11	0.38	0.65	4.37	14.83	22.01	5.25	1.64	0.35	49.60	70.32
1.5	2	0.00	0.00	0.00	0.30	0.80	1.05	3.48	9.36	5.76	1.47	0.30	22.52	92.84
2	2.5	0.00	0.00	0.00	0.08	0.41	0.66	0.40	1.39	2.02	0.41	0.08	5.46	98.30
2.5	3	0.00	0.00	0.00	0.01	0.05	0.21	0.00	0.15	0.53	0.15	0.00	1.08	99.38
3	3.5	0.00	0.00	0.00	0.00	0.00	0.11	0.02	0.11	0.22	0.01	0.00	0.48	99.86
3.5	4	0.00	0.00	0.00	0.06	0.00	0.02	0.01	0.01	0.03	0.00	0.00	0.14	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.00	0.00	0.11	0.83	2.01	8.44	25.79	41.26	16.35	4.44	0.78		
Cumulative Total		0.00	0.00	0.11	0.95	2.96	11.39	37.18	78.44	94.78	99.22	100.00		

Swell

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	0.00	0.00	0.03	0.10	0.21	0.16	0.13	0.36	1.13	0.40	0.12	2.64	2.64
0.5	1	0.00	0.00	0.01	0.36	0.30	5.69	13.12	14.41	2.65	0.35	0.07	36.96	39.61
1	1.5	0.00	0.00	0.00	1.02	1.69	3.96	11.25	18.16	3.66	0.94	0.10	40.77	80.38
1.5	2	0.00	0.00	0.01	0.01	0.73	1.12	1.47	6.08	4.51	0.91	0.08	14.93	95.30
2	2.5	0.00	0.00	0.00	0.00	0.03	0.46	0.32	0.92	1.58	0.22	0.08	3.62	98.93
2.5	3	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.15	0.42	0.15	0.00	0.76	99.69
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.16	0.00	0.00	0.27	99.95
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.03	0.00	0.00	0.05	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.00	0.00	0.06	1.49	2.96	11.44	26.30	40.19	14.15	2.97	0.45		
Cumulative Total		0.00	0.00	0.06	1.55	4.50	15.94	42.24	82.43	96.58	99.55	100.00		

Sea

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	2.67	29.87	3.54	0.85	0.07	0.00	0.00	0.00	0.00	0.00	0.00	37.00	37.00
0.5	1	0.00	6.65	15.79	6.80	1.72	1.04	0.12	0.00	0.00	0.00	0.00	32.11	69.11
1	1.5	0.00	0.00	3.99	8.90	4.13	3.49	0.87	0.17	0.00	0.00	0.00	21.54	90.66
1.5	2	0.00	0.00	0.07	1.58	2.62	1.60	1.06	0.38	0.02	0.00	0.00	7.34	97.99
2	2.5	0.00	0.00	0.02	0.28	0.66	0.24	0.05	0.19	0.00	0.00	0.00	1.44	99.43
2.5	3	0.00	0.00	0.00	0.12	0.09	0.09	0.05	0.00	0.00	0.00	0.00	0.35	99.79
3	3.5	0.00	0.00	0.00	0.12	0.00	0.02	0.02	0.00	0.05	0.00	0.00	0.21	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		2.67	36.53	23.41	18.64	9.30	6.49	2.17	0.73	0.07	0.00	0.00		
Cumulative Total		2.67	39.19	62.60	81.24	90.54	97.03	99.20	99.93	100.00	100.00	100.00		

ANNUAL JFTS

1983 Hs vs Tp

Total

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.5	1	0.00	0.00	0.00	0.08	0.07	2.64	4.86	5.14	1.19	0.55	0.30	14.82	14.82
1	1.5	0.00	0.00	0.17	0.66	0.46	4.86	12.69	26.02	6.04	1.82	0.42	53.14	67.96
1.5	2	0.00	0.00	0.05	0.59	1.12	1.69	4.21	10.99	3.90	1.08	0.07	23.71	91.67
2	2.5	0.00	0.00	0.00	0.00	0.13	0.17	0.58	2.75	2.03	0.61	0.06	6.32	97.99
2.5	3	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.15	1.21	0.13	0.00	1.53	99.52
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.43	0.05	0.00	0.48	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.00	0.00	0.22	1.34	1.77	9.36	22.40	45.05	14.81	4.22	0.84		
Cumulative Total		0.00	0.00	0.22	1.55	3.32	12.68	35.08	80.13	94.93	99.16	100.00		

Swell

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	0.00	0.00	0.02	0.25	0.27	0.60	0.67	0.46	0.56	0.23	0.08	3.15	3.15
0.5	1	0.00	0.00	0.00	0.15	0.49	5.87	11.31	11.68	2.29	0.75	0.17	32.71	35.86
1	1.5	0.00	0.00	0.01	0.94	1.12	3.82	9.18	22.68	4.66	0.89	0.16	43.46	79.31
1.5	2	0.00	0.00	0.00	0.00	0.84	1.18	1.75	7.18	2.32	0.82	0.03	14.13	93.44
2	2.5	0.00	0.00	0.00	0.00	0.05	0.06	0.31	2.19	1.58	0.47	0.02	4.68	98.13
2.5	3	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.09	1.14	0.10	0.00	1.42	99.55
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.42	0.03	0.00	0.45	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.00	0.00	0.03	1.34	2.76	11.53	23.30	44.28	12.97	3.31	0.47		
Cumulative Total		0.00	0.00	0.03	1.38	4.14	15.67	38.97	83.24	96.22	99.53	100.00		

Sea

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	1.86	23.07	3.80	1.13	0.07	0.02	0.00	0.00	0.00	0.00	0.00	29.96	29.96
0.5	1	0.00	9.01	16.56	7.12	2.19	0.94	0.07	0.00	0.00	0.00	0.00	35.90	65.86
1	1.5	0.00	0.00	4.91	11.75	3.68	3.02	0.73	0.21	0.00	0.00	0.00	24.30	90.16
1.5	2	0.00	0.00	0.12	3.30	2.43	1.39	1.18	0.45	0.05	0.00	0.00	8.92	99.08
2	2.5	0.00	0.00	0.00	0.05	0.26	0.17	0.19	0.14	0.07	0.00	0.00	0.87	99.95
2.5	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.05	100.00
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		1.86	32.08	25.38	23.35	8.63	5.54	2.17	0.85	0.12	0.00	0.00		
Cumulative Total		1.86	33.95	59.33	82.68	91.32	96.86	99.03	99.88	100.00	100.00	100.00		

1984 Hs vs Tp

Total

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.5	1	0.00	0.00	0.00	0.00	0.11	2.03	8.42	4.39	1.32	0.73	0.34	17.35	17.35
1	1.5	0.00	0.00	0.14	0.36	1.50	5.69	14.22	19.15	5.68	1.57	0.57	48.88	66.23
1.5	2	0.00	0.00	0.05	0.93	0.74	2.13	5.94	11.41	5.17	0.89	0.16	27.41	93.65
2	2.5	0.00	0.00	0.00	0.19	0.48	0.18	0.43	1.75	1.58	0.38	0.01	5.01	98.66
2.5	3	0.00	0.00	0.01	0.07	0.20	0.05	0.05	0.27	0.20	0.00	0.00	0.85	99.51
3	3.5	0.00	0.00	0.00	0.00	0.06	0.00	0.00	0.15	0.00	0.00	0.00	0.20	99.72
3.5	4	0.00	0.00	0.00	0.00	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.09	99.81
4	4.5	0.00	0.00	0.00	0.00	0.02	0.06	0.00	0.00	0.00	0.00	0.00	0.08	99.89
4.5	5	0.00	0.00	0.00	0.00	0.00	0.11	0.00	0.00	0.00	0.00	0.00	0.11	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.00	0.00	0.19	1.56	3.21	10.25	29.06	37.12	13.96	3.56	1.08		
Cumulative Total		0.00	0.00	0.19	1.75	4.96	15.21	44.27	81.40	95.36	98.92	100.00		

Swell

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	0.00	0.00	0.00	0.43	1.07	0.33	0.30	0.60	0.97	0.18	0.24	4.13	4.13
0.5	1	0.00	0.00	0.05	0.23	0.80	6.37	15.84	8.48	2.01	0.68	0.15	34.60	38.73
1	1.5	0.00	0.00	0.07	0.57	1.97	5.00	10.60	18.13	4.44	0.66	0.39	41.83	80.56
1.5	2	0.00	0.00	0.00	0.25	0.80	1.22	2.33	7.02	3.32	0.74	0.07	15.75	96.32
2	2.5	0.00	0.00	0.00	0.13	0.07	0.16	0.31	0.89	1.36	0.20	0.00	3.12	99.43
2.5	3	0.00	0.00	0.00	0.00	0.03	0.00	0.02	0.23	0.15	0.00	0.00	0.44	99.87
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.00	0.00	0.00	0.13	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.00	0.00	0.12	1.60	4.74	13.09	29.40	35.48	12.26	2.46	0.85		
Cumulative Total		0.00	0.00	0.12	1.72	6.46	19.55	48.95	84.43	96.69	99.15	100.00		

Sea

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	1.97	26.46	3.09	1.21	0.42	0.02	0.00	0.00	0.00	0.00	0.00	33.17	33.17
0.5	1	0.00	8.04	13.32	5.41	1.08	0.55	0.00	0.00	0.00	0.00	0.00	28.40	61.57
1	1.5	0.00	0.00	3.69	9.98	6.43	4.35	1.17	0.22	0.02	0.00	0.00	25.86	87.43
1.5	2	0.00	0.00	0.15	2.74	2.74	2.01	1.17	0.93	0.00	0.00	0.00	9.74	97.17
2	2.5	0.00	0.00	0.04	0.24	0.93	0.13	0.09	0.18	0.04	0.00	0.00	1.66	98.83
2.5	3	0.00	0.00	0.00	0.07	0.31	0.09	0.00	0.00	0.00	0.00	0.00	0.46	99.29
3	3.5	0.00	0.00	0.00	0.00	0.15	0.00	0.00	0.04	0.00	0.00	0.00	0.20	99.49
3.5	4	0.00	0.00	0.00	0.00	0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.15	99.65
4	4.5	0.00	0.00	0.00	0.00	0.02	0.13	0.00	0.00	0.00	0.00	0.00	0.15	99.80
4.5	5	0.00	0.00	0.00	0.00	0.00	0.20	0.00	0.00	0.00	0.00	0.00	0.20	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		1.97	34.50	20.30	19.66	12.23	7.49	2.43	1.37	0.07	0.00	0.00		
Cumulative Total		1.97	36.46	56.76	76.41	88.65	96.14	98.56	99.93	100.00	100.00	100.00		

ANNUAL JFTS

1985 Hs vs Tp

Total

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.5	1	0.00	0.00	0.00	0.19	0.11	3.29	6.05	4.79	2.64	0.26	0.01	17.35	17.35
1	1.5	0.00	0.00	0.18	0.88	2.57	3.38	16.67	21.43	3.48	1.05	0.24	49.87	67.23
1.5	2	0.00	0.00	0.16	1.36	2.79	1.83	5.47	10.89	4.22	0.38	0.08	27.17	94.39
2	2.5	0.00	0.00	0.00	0.07	0.64	0.22	0.23	1.80	0.88	0.05	0.02	3.90	98.30
2.5	3	0.00	0.00	0.00	0.00	0.08	0.01	0.00	0.23	0.92	0.21	0.14	1.59	99.89
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.07	0.00	0.11	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.00	0.00	0.34	2.50	6.19	8.72	28.41	39.14	12.19	2.01	0.49		
Cumulative Total		0.00	0.00	0.34	2.84	9.03	17.75	46.16	85.31	97.50	99.51	100.00		

Swell

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	0.00	0.00	0.00	0.08	0.54	0.43	1.01	0.67	0.89	0.50	0.19	4.30	4.30
0.5	1	0.00	0.00	0.04	0.75	0.74	6.56	14.55	12.58	1.98	0.18	0.06	37.42	41.72
1	1.5	0.00	0.00	0.00	0.97	4.07	3.86	11.75	17.18	2.49	0.62	0.04	40.97	82.69
1.5	2	0.00	0.00	0.00	0.13	1.99	0.84	1.51	5.82	3.02	0.32	0.09	13.72	96.41
2	2.5	0.00	0.00	0.00	0.00	0.21	0.06	0.05	0.95	0.77	0.02	0.00	2.06	98.47
2.5	3	0.00	0.00	0.00	0.00	0.02	0.02	0.00	0.11	1.01	0.21	0.05	1.41	99.88
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.07	0.00	0.12	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.00	0.00	0.04	1.93	7.57	11.78	28.86	37.30	10.20	1.92	0.42		
Cumulative Total		0.00	0.00	0.04	1.96	9.53	21.30	50.16	87.46	97.66	99.58	100.00		

Sea

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	2.40	24.47	2.73	1.44	0.04	0.02	0.00	0.00	0.00	0.00	0.00	31.10	31.10
0.5	1	0.00	6.20	12.70	6.37	2.10	0.55	0.11	0.02	0.00	0.00	0.00	28.04	59.14
1	1.5	0.00	0.07	4.87	10.91	6.26	3.21	1.40	0.44	0.00	0.00	0.00	27.15	86.29
1.5	2	0.00	0.00	0.24	3.75	4.23	1.86	1.33	0.63	0.02	0.00	0.00	12.07	98.36
2	2.5	0.00	0.00	0.00	0.13	0.50	0.39	0.20	0.20	0.00	0.00	0.00	1.42	99.78
2.5	3	0.00	0.00	0.00	0.00	0.11	0.02	0.00	0.09	0.00	0.00	0.00	0.22	100.00
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		2.40	30.73	20.54	22.61	13.25	6.05	3.03	1.37	0.02	0.00	0.00		
Cumulative Total		2.40	33.13	53.67	76.28	89.52	95.57	98.60	99.98	100.00	100.00	100.00		

1986 Hs vs Tp

Total

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.5	1	0.00	0.00	0.00	0.00	0.02	1.54	7.07	4.02	1.40	0.56	0.10	14.71	14.71
1	1.5	0.00	0.00	0.19	0.66	1.20	5.10	17.35	22.77	6.22	1.60	0.32	55.42	70.14
1.5	2	0.00	0.00	0.13	1.04	1.83	1.32	4.91	12.13	3.28	0.64	0.27	25.55	95.68
2	2.5	0.00	0.00	0.00	0.34	0.43	0.53	0.43	0.89	0.58	0.21	0.00	3.41	99.10
2.5	3	0.00	0.00	0.00	0.06	0.07	0.16	0.15	0.00	0.15	0.10	0.00	0.68	99.78
3	3.5	0.00	0.00	0.00	0.01	0.00	0.02	0.16	0.00	0.01	0.01	0.00	0.22	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.00	0.00	0.32	2.11	3.55	8.68	30.07	39.82	11.64	3.12	0.70		
Cumulative Total		0.00	0.00	0.32	2.43	5.98	14.66	44.73	84.54	96.19	99.30	100.00		

Swell

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	0.00	0.00	0.00	0.17	0.38	0.62	0.71	0.68	0.69	0.21	0.09	3.56	3.56
0.5	1	0.00	0.00	0.01	0.51	0.75	5.54	17.70	11.60	2.20	0.38	0.12	38.81	42.38
1	1.5	0.00	0.00	0.00	1.12	3.23	5.58	10.20	18.19	4.04	0.90	0.23	43.49	85.86
1.5	2	0.00	0.00	0.01	0.00	1.24	0.97	1.09	6.56	2.01	0.32	0.09	12.30	98.16
2	2.5	0.00	0.00	0.00	0.01	0.14	0.15	0.22	0.32	0.40	0.20	0.00	1.45	99.61
2.5	3	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.15	0.06	0.00	0.31	99.92
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.00	0.01	0.01	0.00	0.08	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.00	0.00	0.02	1.82	5.74	12.86	30.08	37.36	9.51	2.08	0.53		
Cumulative Total		0.00	0.00	0.02	1.84	7.58	20.44	50.52	87.88	97.39	99.47	100.00		

Sea

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	1.89	24.12	1.53	0.42	0.23	0.04	0.00	0.00	0.00	0.00	0.00	28.23	28.23
0.5	1	0.02	6.41	12.43	7.57	2.10	0.92	0.17	0.00	0.00	0.00	0.00	29.62	57.85
1	1.5	0.00	0.00	5.97	14.09	5.66	3.16	1.15	0.13	0.00	0.00	0.00	30.16	88.01
1.5	2	0.00	0.00	0.44	3.65	3.33	0.88	0.57	0.52	0.00	0.00	0.00	9.39	97.40
2	2.5	0.00	0.00	0.00	0.44	0.50	0.54	0.13	0.17	0.00	0.02	0.00	1.80	99.20
2.5	3	0.00	0.00	0.00	0.08	0.10	0.27	0.08	0.00	0.00	0.00	0.00	0.54	99.75
3	3.5	0.00	0.00	0.00	0.02	0.00	0.04	0.19	0.00	0.00	0.00	0.00	0.25	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		1.91	30.54	20.37	26.26	11.93	5.87	2.28	0.82	0.00	0.02	0.00		
Cumulative Total		1.91	32.45	52.82	79.08	91.01	96.88	99.16	99.98	99.98	100.00	100.00		

ANNUAL JFTS

1987 Hs vs Tp

Total

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.5	1	0.00	0.00	0.00	0.15	0.30	1.70	5.87	5.65	1.55	1.06	0.10	16.38	16.38
1	1.5	0.00	0.00	0.26	0.22	0.90	4.50	16.04	22.98	8.21	1.54	0.19	54.84	71.22
1.5	2	0.00	0.00	0.22	0.74	1.35	1.51	3.45	10.81	4.69	1.07	0.17	24.01	95.23
2	2.5	0.00	0.00	0.01	0.21	0.38	0.25	0.09	1.31	1.91	0.17	0.06	4.38	99.61
2.5	3	0.00	0.00	0.00	0.00	0.02	0.03	0.00	0.00	0.17	0.14	0.02	0.39	100.00
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.00	0.00	0.49	1.31	2.95	7.99	25.45	40.75	16.53	3.98	0.55		
Cumulative Total		0.00	0.00	0.49	1.80	4.75	12.74	38.18	78.94	95.47	99.45	100.00		

Swell

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	0.00	0.00	0.00	0.20	0.71	0.28	0.47	0.40	0.64	0.37	0.21	3.27	3.27
0.5	1	0.00	0.00	0.01	0.43	0.40	5.98	14.96	12.39	2.29	0.93	0.12	37.50	40.78
1	1.5	0.00	0.00	0.09	0.90	1.83	3.99	9.54	21.05	6.87	0.85	0.05	45.16	85.94
1.5	2	0.00	0.00	0.05	0.13	0.85	0.68	0.78	5.21	3.04	0.45	0.05	11.23	97.17
2	2.5	0.00	0.00	0.01	0.01	0.02	0.07	0.08	0.56	1.57	0.13	0.03	2.49	99.66
2.5	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.19	0.14	0.01	0.34	100.00
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.00	0.00	0.16	1.66	3.81	11.00	25.83	39.60	14.60	2.88	0.47		
Cumulative Total		0.00	0.00	0.16	1.83	5.63	16.63	42.46	82.06	96.66	99.53	100.00		

Sea

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	1.68	24.19	2.44	1.06	0.02	0.02	0.02	0.00	0.00	0.00	0.00	29.43	29.43
0.5	1	0.00	6.92	17.36	6.62	1.23	0.72	0.15	0.00	0.00	0.00	0.00	32.99	62.42
1	1.5	0.00	0.00	5.47	9.85	5.13	3.71	1.36	0.23	0.00	0.02	0.00	25.78	88.20
1.5	2	0.00	0.00	0.53	2.74	3.23	2.08	0.66	0.70	0.13	0.00	0.00	10.06	98.26
2	2.5	0.00	0.00	0.00	0.38	0.59	0.49	0.00	0.15	0.02	0.00	0.00	1.63	99.89
2.5	3	0.00	0.00	0.00	0.00	0.04	0.06	0.00	0.00	0.00	0.00	0.00	0.11	100.00
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		1.68	31.11	25.80	20.65	10.25	7.09	2.19	1.08	0.15	0.02	0.00		
Cumulative Total		1.68	32.78	58.58	79.23	89.48	96.56	98.75	99.83	99.98	100.00	100.00		

1988 Hs vs Tp

Total

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	0.00	0.00	0.00	0.00	0.00	0.01	0.03	0.00	0.00	0.00	0.00	0.05	0.05
0.5	1	0.00	0.00	0.00	0.00	0.15	3.44	6.65	4.28	1.78	0.58	0.26	17.13	17.18
1	1.5	0.00	0.00	0.05	0.41	0.76	5.77	13.98	15.19	4.71	1.91	0.33	43.11	60.29
1.5	2	0.00	0.00	0.02	0.49	1.95	2.54	5.86	11.44	4.77	0.84	0.17	28.09	88.38
2	2.5	0.00	0.00	0.00	0.09	0.38	0.20	1.15	4.66	2.70	0.56	0.03	9.77	98.14
2.5	3	0.00	0.00	0.01	0.02	0.06	0.00	0.10	0.38	0.85	0.19	0.02	1.64	99.78
3	3.5	0.00	0.00	0.00	0.02	0.05	0.00	0.00	0.00	0.00	0.08	0.01	0.16	99.94
3.5	4	0.00	0.00	0.00	0.01	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.06	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.00	0.00	0.08	1.05	3.38	11.96	27.78	35.94	14.81	4.17	0.83		
Cumulative Total		0.00	0.00	0.08	1.13	4.51	16.47	44.25	80.19	95.00	99.17	100.00		

Swell

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	0.00	0.00	0.06	0.09	0.23	0.86	0.73	0.53	0.73	0.28	0.20	3.71	3.71
0.5	1	0.00	0.00	0.00	0.14	0.46	6.66	13.47	7.36	2.21	0.60	0.08	30.99	34.70
1	1.5	0.00	0.00	0.00	0.58	1.70	4.88	10.35	15.06	3.64	0.81	0.08	37.11	71.81
1.5	2	0.00	0.00	0.00	0.05	0.96	1.31	3.62	8.94	3.70	0.43	0.10	19.11	90.92
2	2.5	0.00	0.00	0.00	0.00	0.15	0.26	0.81	3.28	2.47	0.56	0.05	7.57	98.49
2.5	3	0.00	0.00	0.00	0.00	0.06	0.00	0.00	0.31	0.79	0.20	0.01	1.37	99.86
3	3.5	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.08	0.01	0.14	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.00	0.00	0.06	0.86	3.62	13.96	28.99	35.49	13.54	2.96	0.53		
Cumulative Total		0.00	0.00	0.06	0.92	4.53	18.49	47.48	82.97	96.51	99.47	100.00		

Sea

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	2.33	27.41	3.26	0.78	0.07	0.05	0.00	0.00	0.00	0.00	0.00	33.90	33.90
0.5	1	0.00	7.42	14.28	5.73	1.40	0.73	0.17	0.00	0.00	0.00	0.00	29.73	63.63
1	1.5	0.00	0.00	4.58	9.60	4.75	3.85	1.25	0.10	0.00	0.00	0.00	24.12	87.75
1.5	2	0.00	0.00	0.29	2.91	4.73	1.32	0.98	0.51	0.00	0.00	0.00	10.75	98.51
2	2.5	0.00	0.00	0.02	0.17	0.54	0.02	0.29	0.10	0.02	0.00	0.00	1.18	99.68
2.5	3	0.00	0.00	0.00	0.07	0.00	0.00	0.05	0.05	0.00	0.00	0.00	0.17	99.85
3	3.5	0.00	0.00	0.00	0.05	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.10	99.95
3.5	4	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.05	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		2.33	34.83	22.43	19.32	11.58	5.98	2.74	0.76	0.02	0.00	0.00		
Cumulative Total		2.33	37.15	59.59	78.91	90.50	96.47	99.22	99.98	100.00	100.00	100.00		

ANNUAL JFTS

1989 Hs vs Tp

Total

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.5	1	0.00	0.00	0.00	0.09	0.01	2.68	6.97	6.93	1.82	0.45	0.05	19.00	19.00
1	1.5	0.00	0.01	0.18	1.21	1.75	4.21	10.83	19.32	6.50	1.47	0.66	46.14	65.14
1.5	2	0.00	0.00	0.06	0.67	1.93	1.79	4.98	10.92	4.65	0.83	0.09	25.92	91.06
2	2.5	0.00	0.00	0.00	0.19	0.17	0.19	0.29	2.26	3.25	0.74	0.02	7.12	98.18
2.5	3	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.18	1.18	0.22	0.00	1.59	99.77
3	3.5	0.00	0.00	0.00	0.00	0.06	0.00	0.00	0.06	0.08	0.03	0.00	0.23	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.00	0.01	0.24	2.17	3.93	8.88	23.07	39.67	17.47	3.74	0.82		
Cumulative Total		0.00	0.01	0.25	2.42	6.35	15.23	38.30	77.97	95.43	99.18	100.00		

Swell

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	0.00	0.00	0.01	0.07	0.37	1.04	0.70	0.57	0.61	0.22	0.10	3.70	3.70
0.5	1	0.00	0.00	0.05	0.62	0.64	6.69	12.76	13.24	2.86	0.44	0.12	37.41	41.11
1	1.5	0.00	0.00	0.01	0.97	2.22	3.36	8.27	16.55	5.00	0.72	0.23	37.33	78.44
1.5	2	0.00	0.00	0.00	0.10	1.20	1.02	1.09	7.29	3.80	0.45	0.07	15.02	93.45
2	2.5	0.00	0.00	0.00	0.03	0.05	0.16	0.16	1.40	2.66	0.46	0.02	4.94	98.39
2.5	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.16	1.06	0.21	0.00	1.43	99.83
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.08	0.03	0.00	0.17	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.00	0.00	0.07	1.80	4.47	12.27	22.98	39.26	16.08	2.53	0.54		
Cumulative Total		0.00	0.00	0.07	1.87	6.34	18.61	41.59	80.85	96.93	99.46	100.00		

Sea

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	2.59	26.70	3.11	0.74	0.07	0.02	0.00	0.00	0.00	0.00	0.00	33.22	33.22
0.5	1	0.00	7.09	15.21	6.77	1.13	0.57	0.09	0.00	0.00	0.00	0.00	30.85	64.08
1	1.5	0.00	0.02	5.03	11.55	4.83	2.87	0.94	0.11	0.00	0.00	0.00	25.35	89.43
1.5	2	0.00	0.00	0.24	2.63	3.57	1.15	1.20	0.59	0.00	0.00	0.00	9.38	98.80
2	2.5	0.00	0.00	0.00	0.30	0.50	0.00	0.09	0.07	0.02	0.02	0.00	1.00	99.80
2.5	3	0.00	0.00	0.00	0.00	0.07	0.00	0.00	0.00	0.02	0.04	0.00	0.13	99.93
3	3.5	0.00	0.00	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.07	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		2.59	33.81	23.59	22.00	10.23	4.61	2.31	0.76	0.04	0.07	0.00		
Cumulative Total		2.59	36.40	59.99	81.98	92.21	96.82	99.13	99.89	99.93	100.00	100.00		

1990 Hs vs Tp

Total

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.01	0.01
0.5	1	0.00	0.00	0.00	0.00	0.08	1.30	6.43	4.01	2.23	0.47	0.08	14.59	14.60
1	1.5	0.00	0.00	0.10	0.79	1.06	5.47	14.14	19.86	5.25	1.84	0.30	48.81	63.41
1.5	2	0.00	0.00	0.02	1.31	1.11	1.48	5.87	10.47	5.25	0.82	0.15	26.48	89.90
2	2.5	0.00	0.00	0.00	0.23	0.89	0.27	0.41	3.34	2.37	0.24	0.00	7.76	97.66
2.5	3	0.00	0.00	0.00	0.00	0.24	0.17	0.11	0.34	0.76	0.10	0.00	1.74	99.39
3	3.5	0.00	0.00	0.00	0.00	0.10	0.06	0.01	0.02	0.01	0.00	0.00	0.21	99.60
3.5	4	0.00	0.00	0.00	0.00	0.05	0.07	0.00	0.00	0.00	0.00	0.00	0.11	99.71
4	4.5	0.00	0.00	0.00	0.00	0.14	0.09	0.01	0.00	0.00	0.00	0.00	0.24	99.95
4.5	5	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.03	99.99
5	5.5	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.00	0.00	0.13	2.33	3.69	8.93	27.01	38.05	15.88	3.47	0.53		
Cumulative Total		0.00	0.00	0.13	2.45	6.14	15.07	42.08	80.13	96.00	99.47	100.00		

Swell

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	0.00	0.00	0.00	0.03	0.76	0.46	1.08	0.89	0.51	0.18	0.16	4.08	4.08
0.5	1	0.00	0.00	0.10	0.50	0.28	4.66	14.08	9.22	2.47	0.44	0.06	31.80	35.88
1	1.5	0.00	0.00	0.01	1.42	2.41	4.88	9.02	18.17	4.71	0.96	0.14	41.71	77.59
1.5	2	0.00	0.00	0.00	0.16	0.95	1.34	2.05	6.35	3.84	0.50	0.08	15.26	92.85
2	2.5	0.00	0.00	0.00	0.07	0.60	0.45	0.20	2.35	1.81	0.22	0.00	5.69	98.55
2.5	3	0.00	0.00	0.00	0.00	0.03	0.17	0.15	0.20	0.76	0.10	0.00	1.42	99.97
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.01	0.00	0.00	0.03	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.00	0.00	0.12	2.18	5.03	11.95	26.59	37.19	14.11	2.40	0.44		
Cumulative Total		0.00	0.00	0.12	2.29	7.32	19.27	45.86	83.06	97.16	99.56	100.00		

Sea

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	2.19	24.18	3.60	0.36	0.34	0.02	0.00	0.00	0.00	0.00	0.00	30.69	30.69
0.5	1	0.00	7.25	16.64	6.66	0.70	0.82	0.19	0.00	0.00	0.00	0.00	32.25	62.93
1	1.5	0.00	0.00	3.50	12.93	4.06	4.51	1.05	0.11	0.00	0.00	0.00	26.16	89.09
1.5	2	0.00	0.00	0.15	3.50	1.98	0.65	1.37	0.34	0.08	0.00	0.00	8.07	97.16
2	2.5	0.00	0.00	0.00	0.27	0.88	0.11	0.13	0.34	0.02	0.00	0.00	1.75	98.90
2.5	3	0.00	0.00	0.00	0.02	0.21	0.00	0.00	0.00	0.00	0.00	0.00	0.23	99.14
3	3.5	0.00	0.00	0.00	0.06	0.13	0.02	0.00	0.00	0.00	0.00	0.00	0.21	99.35
3.5	4	0.00	0.00	0.00	0.00	0.15	0.11	0.00	0.00	0.00	0.00	0.00	0.25	99.60
4	4.5	0.00	0.00	0.00	0.02	0.25	0.13	0.00	0.00	0.00	0.00	0.00	0.40	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		2.19	31.42	23.88	23.82	8.70	6.36	2.74	0.78	0.11	0.00	0.00		
Cumulative Total		2.19	33.61	57.50	81.32	90.02	96.38	99.12	99.89	100.00	100.00	100.00		

ANNUAL JFTS

1991 Hs vs Tp

Total

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.5	1	0.00	0.00	0.00	0.09	0.09	1.36	4.54	4.14	1.58	0.22	0.13	12.15	12.15
1	1.5	0.00	0.01	0.26	0.79	0.62	3.97	14.75	20.97	6.37	1.72	0.42	49.89	62.03
1.5	2	0.00	0.00	0.10	1.08	1.35	1.99	5.70	13.22	4.08	0.89	0.05	28.45	90.48
2	2.5	0.00	0.00	0.00	0.33	0.76	1.20	0.21	2.10	2.44	0.53	0.00	7.57	98.05
2.5	3	0.00	0.00	0.00	0.06	0.08	0.11	0.00	0.37	1.27	0.07	0.00	1.95	100.00
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.00	0.01	0.37	2.35	2.90	8.63	25.19	40.80	15.73	3.42	0.59		
Cumulative Total		0.00	0.01	0.38	2.73	5.63	14.26	39.45	80.25	95.98	99.41	100.00		

Swell

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	0.00	0.00	0.00	0.37	0.62	0.33	0.47	0.52	0.50	0.31	0.19	3.31	3.31
0.5	1	0.00	0.00	0.00	0.58	0.12	4.21	13.19	10.21	2.56	0.27	0.02	31.16	34.47
1	1.5	0.00	0.00	0.01	1.18	1.46	4.09	11.36	19.80	4.51	1.05	0.03	43.49	77.95
1.5	2	0.00	0.00	0.00	0.15	1.06	1.58	2.09	7.88	2.67	0.34	0.00	15.77	93.72
2	2.5	0.00	0.00	0.00	0.00	0.35	0.83	0.07	1.26	1.91	0.40	0.00	4.81	98.53
2.5	3	0.00	0.00	0.00	0.00	0.07	0.05	0.00	0.16	1.13	0.06	0.00	1.47	100.00
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.00	0.00	0.01	2.28	3.67	11.08	27.17	39.83	13.28	2.42	0.24		
Cumulative Total		0.00	0.00	0.01	2.30	5.97	17.05	44.22	84.05	97.33	99.76	100.00		

Sea

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	1.24	20.24	2.56	0.75	0.12	0.02	0.00	0.00	0.00	0.00	0.00	24.94	24.94
0.5	1	0.00	6.08	14.04	7.49	1.53	0.54	0.05	0.00	0.00	0.00	0.00	29.73	54.67
1	1.5	0.00	0.02	5.10	13.97	5.97	4.04	1.46	0.21	0.02	0.00	0.00	30.79	85.46
1.5	2	0.00	0.00	0.31	3.97	2.58	1.81	1.20	0.49	0.28	0.00	0.00	10.64	96.10
2	2.5	0.00	0.00	0.05	0.92	1.22	1.13	0.12	0.23	0.02	0.00	0.00	3.69	99.79
2.5	3	0.00	0.00	0.00	0.05	0.05	0.05	0.00	0.07	0.00	0.00	0.00	0.21	100.00
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		1.24	26.35	22.05	27.15	11.46	7.59	2.82	1.01	0.33	0.00	0.00		
Cumulative Total		1.24	27.60	49.65	76.80	88.26	95.84	98.66	99.67	100.00	100.00	100.00		

1992 Hs vs Tp

Total

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.5	1	0.00	0.00	0.00	0.00	0.15	3.89	6.64	6.08	1.05	0.27	0.07	18.15	18.15
1	1.5	0.00	0.00	0.23	0.65	0.74	5.19	14.01	19.18	4.95	1.41	0.48	46.85	64.99
1.5	2	0.00	0.00	0.05	0.89	0.65	1.28	5.09	11.66	5.46	1.83	0.63	27.53	92.52
2	2.5	0.00	0.00	0.00	0.32	0.23	0.11	0.47	3.40	1.58	0.40	0.00	6.51	99.03
2.5	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.41	0.33	0.06	0.81	99.84
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.14	0.00	0.16	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.00	0.00	0.27	1.86	1.76	10.47	26.21	40.33	13.48	4.38	1.23		
Cumulative Total		0.00	0.00	0.27	2.13	3.89	14.37	40.57	80.91	94.39	98.77	100.00		

Swell

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	0.00	0.00	0.00	0.23	0.74	0.94	1.05	0.54	0.68	0.16	0.09	4.42	4.42
0.5	1	0.00	0.00	0.03	0.38	0.45	7.83	14.16	11.46	1.71	0.42	0.18	36.64	41.06
1	1.5	0.00	0.00	0.00	0.87	1.67	3.57	8.40	17.15	3.41	0.92	0.24	36.22	77.28
1.5	2	0.00	0.00	0.00	0.02	0.83	0.92	2.46	7.04	4.35	1.02	0.28	16.92	94.20
2	2.5	0.00	0.00	0.00	0.00	0.08	0.05	0.38	2.79	1.25	0.31	0.06	4.92	99.12
2.5	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.41	0.37	0.00	0.79	99.91
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.00	0.09	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.00	0.00	0.03	1.50	3.76	13.31	26.44	38.99	11.82	3.30	0.85		
Cumulative Total		0.00	0.00	0.03	1.54	5.29	18.61	45.04	84.04	95.85	99.15	100.00		

Sea

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	1.30	22.86	3.83	0.94	0.21	0.00	0.00	0.00	0.00	0.00	0.00	29.13	29.13
0.5	1	0.00	9.22	19.16	7.70	1.40	0.71	0.10	0.00	0.00	0.00	0.00	38.29	67.42
1	1.5	0.00	0.00	5.69	9.45	3.95	3.93	0.96	0.27	0.00	0.00	0.00	24.26	91.68
1.5	2	0.00	0.00	0.17	3.24	2.09	0.88	0.52	0.52	0.02	0.00	0.00	7.44	99.12
2	2.5	0.00	0.00	0.00	0.38	0.25	0.04	0.08	0.13	0.00	0.00	0.00	0.88	100.00
2.5	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		1.30	32.08	28.84	21.71	7.90	5.56	1.67	0.92	0.02	0.00	0.00		
Cumulative Total		1.30	33.38	62.21	83.92	91.82	97.39	99.06	99.98	100.00	100.00	100.00		

ANNUAL JFTS

1993 Hs vs Tp

Total

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.5	1	0.00	0.00	0.00	0.00	0.18	2.20	5.81	4.32	0.84	0.35	0.21	13.92	13.92
1	1.5	0.00	0.00	0.05	0.26	1.12	5.32	16.27	22.36	6.12	1.76	0.33	53.58	67.50
1.5	2	0.00	0.00	0.09	0.95	1.39	1.42	4.62	12.36	3.48	0.27	0.05	24.63	92.13
2	2.5	0.00	0.00	0.00	0.35	0.43	0.62	0.27	2.56	1.39	0.16	0.02	5.81	97.95
2.5	3	0.00	0.00	0.00	0.09	0.22	0.37	0.13	0.00	0.46	0.07	0.00	1.32	99.27
3	3.5	0.00	0.00	0.00	0.05	0.10	0.10	0.19	0.00	0.00	0.00	0.00	0.45	99.71
3.5	4	0.00	0.00	0.00	0.00	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.08	99.79
4	4.5	0.00	0.00	0.00	0.00	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.14	99.93
4.5	5	0.00	0.00	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.07	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.00	0.00	0.14	1.70	3.73	10.02	27.29	41.60	12.29	2.61	0.61		
Cumulative Total		0.00	0.00	0.14	1.84	5.57	15.59	42.89	84.49	96.78	99.39	100.00		

Swell

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	0.00	0.00	0.04	0.25	1.06	0.41	0.40	0.55	0.82	0.39	0.07	3.98	3.98
0.5	1	0.00	0.00	0.00	0.33	0.76	6.14	14.70	10.79	1.88	0.64	0.07	35.31	39.29
1	1.5	0.00	0.00	0.05	1.12	2.20	3.18	9.40	20.20	5.29	0.78	0.06	42.28	81.57
1.5	2	0.00	0.00	0.00	0.30	0.78	1.15	1.19	7.48	2.41	0.13	0.05	13.49	95.06
2	2.5	0.00	0.00	0.00	0.14	0.07	0.46	0.32	1.49	1.08	0.13	0.02	3.70	98.76
2.5	3	0.00	0.00	0.00	0.02	0.02	0.40	0.14	0.00	0.47	0.07	0.00	1.12	99.88
3	3.5	0.00	0.00	0.00	0.00	0.01	0.00	0.11	0.00	0.00	0.00	0.00	0.12	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.00	0.00	0.08	2.16	4.91	11.74	26.25	40.50	11.95	2.14	0.27		
Cumulative Total		0.00	0.00	0.08	2.25	7.16	18.90	45.14	85.64	97.59	99.73	100.00		

Sea

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	1.65	23.47	2.01	0.58	0.12	0.00	0.00	0.00	0.00	0.00	0.00	27.84	27.84
0.5	1	0.00	8.00	12.76	8.60	0.91	1.24	0.14	0.00	0.00	0.00	0.00	31.66	59.50
1	1.5	0.00	0.02	4.76	11.89	5.13	4.01	1.94	0.39	0.00	0.00	0.00	28.15	87.65
1.5	2	0.00	0.00	0.19	2.83	3.12	1.47	0.99	0.77	0.00	0.00	0.00	9.37	97.02
2	2.5	0.00	0.00	0.00	0.33	0.72	0.68	0.06	0.06	0.00	0.00	0.00	1.86	98.88
2.5	3	0.00	0.00	0.00	0.14	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.37	99.26
3	3.5	0.00	0.00	0.00	0.08	0.17	0.00	0.00	0.00	0.00	0.00	0.00	0.25	99.50
3.5	4	0.00	0.00	0.00	0.00	0.37	0.00	0.00	0.00	0.00	0.00	0.00	0.37	99.88
4	4.5	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.04	99.92
4.5	5	0.00	0.00	0.00	0.00	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.08	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		1.65	31.50	19.71	24.47	10.90	7.40	3.14	1.22	0.00	0.00	0.00		
Cumulative Total		1.65	33.15	52.86	77.33	88.23	95.64	98.78	100.00	100.00	100.00	100.00		

1994 Hs vs Tp

Total

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.5	1	0.00	0.00	0.03	0.10	1.87	5.13	9.39	4.30	1.51	0.42	0.10	22.87	22.87
1	1.5	0.00	0.00	0.15	1.46	2.40	7.90	18.22	15.70	4.63	1.06	0.24	51.76	74.62
1.5	2	0.00	0.00	0.17	0.72	1.84	1.92	2.95	9.62	2.96	0.82	0.07	21.06	95.68
2	2.5	0.00	0.00	0.00	0.02	0.26	0.19	0.05	1.10	1.58	0.15	0.00	3.34	99.03
2.5	3	0.00	0.00	0.00	0.00	0.05	0.08	0.00	0.22	0.45	0.15	0.00	0.94	99.97
3	3.5	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.03	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.00	0.00	0.35	2.31	6.45	15.22	30.61	30.94	11.12	2.60	0.41		
Cumulative Total		0.00	0.00	0.35	2.66	9.11	24.33	54.93	85.87	96.99	99.59	100.00		

Swell

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	0.00	0.00	0.05	0.58	0.46	0.73	1.24	1.03	0.56	0.21	0.01	4.87	4.87
0.5	1	0.00	0.00	0.05	1.01	2.91	9.63	16.02	6.82	1.50	0.20	0.08	38.20	43.08
1	1.5	0.00	0.00	0.01	1.82	3.05	6.12	11.49	12.44	3.82	0.59	0.01	39.36	82.44
1.5	2	0.00	0.00	0.00	0.05	0.78	0.99	0.87	8.22	2.57	0.50	0.02	14.00	96.44
2	2.5	0.00	0.00	0.00	0.00	0.16	0.16	0.03	0.79	1.39	0.14	0.00	2.68	99.12
2.5	3	0.00	0.00	0.00	0.00	0.02	0.01	0.00	0.26	0.44	0.12	0.00	0.85	99.97
3	3.5	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.03	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.00	0.00	0.10	3.46	7.42	17.64	29.66	29.56	10.28	1.75	0.13		
Cumulative Total		0.00	0.00	0.10	3.56	10.98	28.62	58.28	87.85	98.12	99.87	100.00		

Sea

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	3.09	29.85	3.66	1.58	0.33	0.03	0.00	0.00	0.00	0.00	0.00	38.53	38.53
0.5	1	0.00	8.68	12.94	5.72	1.61	1.23	0.13	0.03	0.00	0.00	0.00	30.32	68.85
1	1.5	0.00	0.05	3.54	9.48	3.59	4.89	1.58	0.23	0.00	0.00	0.00	23.35	92.20
1.5	2	0.00	0.00	0.20	1.50	3.19	1.33	0.73	0.28	0.00	0.00	0.00	7.22	99.42
2	2.5	0.00	0.00	0.00	0.03	0.40	0.05	0.05	0.00	0.00	0.00	0.00	0.53	99.95
2.5	3	0.00	0.00	0.00	0.00	0.03	0.03	0.00	0.00	0.00	0.00	0.00	0.05	100.00
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		3.09	38.58	20.34	18.31	9.13	7.55	2.48	0.53	0.00	0.00	0.00		
Cumulative Total		3.09	41.66	62.00	80.31	89.44	96.99	99.47	100.00	100.00	100.00	100.00		

ANNUAL JFTS

1995 Hs vs Tp

Total

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	0.00	0.00	0.00	0.00	0.00	0.01	0.03	0.05	0.01	0.00	0.00	0.10	0.10
0.5	1	0.00	0.00	0.11	0.49	0.97	6.44	11.47	6.44	1.45	0.32	0.01	27.71	27.81
1	1.5	0.00	0.01	0.24	0.50	2.31	6.76	13.23	14.32	4.06	0.99	0.16	42.58	70.39
1.5	2	0.00	0.00	0.03	0.62	1.52	1.99	4.17	10.01	3.05	0.46	0.09	21.93	92.32
2	2.5	0.00	0.00	0.03	0.33	0.45	0.13	0.90	2.66	1.06	0.03	0.00	5.59	97.91
2.5	3	0.00	0.00	0.00	0.16	0.32	0.03	0.09	0.76	0.09	0.00	0.00	1.46	99.37
3	3.5	0.00	0.00	0.00	0.09	0.03	0.00	0.00	0.26	0.11	0.00	0.00	0.50	99.87
3.5	4	0.00	0.00	0.00	0.02	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.10	99.98
4	4.5	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.02	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.00	0.01	0.42	2.21	5.70	15.35	29.90	34.50	9.84	1.80	0.26		
Cumulative Total		0.00	0.01	0.43	2.65	8.34	23.70	53.60	88.09	97.93	99.74	100.00		

Swell

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	0.00	0.00	0.01	0.14	0.85	1.25	1.35	0.57	1.02	0.37	0.12	5.68	5.68
0.5	1	0.00	0.00	0.16	1.06	1.87	11.84	16.63	9.03	1.59	0.22	0.00	42.40	48.08
1	1.5	0.00	0.00	0.02	0.74	3.29	5.32	9.85	12.47	2.21	0.37	0.05	34.32	82.41
1.5	2	0.00	0.00	0.00	0.05	0.63	0.91	1.84	6.60	2.50	0.34	0.03	12.89	95.29
2	2.5	0.00	0.00	0.00	0.06	0.03	0.17	0.35	2.18	0.92	0.02	0.00	3.74	99.04
2.5	3	0.00	0.00	0.00	0.02	0.00	0.01	0.02	0.48	0.05	0.00	0.00	0.58	99.62
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.27	0.12	0.00	0.00	0.38	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.00	0.00	0.20	2.07	6.67	19.51	30.04	31.59	8.40	1.32	0.20		
Cumulative Total		0.00	0.00	0.20	2.27	8.94	28.45	58.48	90.08	98.48	99.80	100.00		

Sea

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	3.43	26.98	3.02	0.41	0.26	0.00	0.00	0.00	0.00	0.00	0.00	34.10	34.10
0.5	1	0.00	8.16	14.88	6.38	1.43	1.65	0.43	0.00	0.00	0.00	0.00	32.93	67.03
1	1.5	0.00	0.26	4.25	8.89	3.93	3.60	1.11	0.24	0.00	0.00	0.00	22.28	89.31
1.5	2	0.00	0.00	0.33	2.19	2.54	1.13	0.54	0.26	0.00	0.00	0.00	6.98	96.29
2	2.5	0.00	0.00	0.00	0.78	1.08	0.11	0.24	0.11	0.00	0.00	0.00	2.32	98.61
2.5	3	0.00	0.00	0.00	0.22	0.48	0.09	0.13	0.02	0.00	0.00	0.00	0.93	99.54
3	3.5	0.00	0.00	0.00	0.15	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.22	99.76
3.5	4	0.00	0.00	0.00	0.02	0.22	0.00	0.00	0.00	0.00	0.00	0.00	0.24	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		3.43	35.40	22.47	19.05	10.00	6.57	2.45	0.63	0.00	0.00	0.00		
Cumulative Total		3.43	38.83	61.30	80.35	90.35	96.92	99.37	100.00	100.00	100.00	100.00		

1996 Hs vs Tp

Total

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.02	0.02
0.5	1	0.00	0.01	0.07	0.58	0.60	8.78	9.97	5.46	2.08	0.74	0.09	28.39	28.42
1	1.5	0.00	0.00	0.47	1.40	2.24	9.12	15.51	12.61	3.61	0.36	0.06	45.38	73.79
1.5	2	0.00	0.00	0.15	0.85	1.73	2.00	4.61	7.15	1.50	0.34	0.00	18.34	92.13
2	2.5	0.00	0.00	0.00	0.19	0.20	0.01	0.77	2.81	1.01	0.07	0.00	5.08	97.21
2.5	3	0.00	0.00	0.00	0.17	0.08	0.02	0.03	0.97	0.54	0.01	0.00	1.82	99.03
3	3.5	0.00	0.00	0.00	0.00	0.17	0.02	0.00	0.44	0.09	0.00	0.00	0.73	99.76
3.5	4	0.00	0.00	0.00	0.00	0.05	0.07	0.00	0.00	0.00	0.00	0.00	0.11	99.87
4	4.5	0.00	0.00	0.00	0.00	0.02	0.10	0.00	0.00	0.00	0.00	0.00	0.13	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.00	0.01	0.68	3.20	5.10	20.15	30.90	29.45	8.83	1.53	0.15		
Cumulative Total		0.00	0.01	0.69	3.89	8.99	29.14	60.04	89.49	98.33	99.85	100.00		

Swell

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	0.00	0.00	0.03	0.38	1.09	1.44	1.38	0.95	0.65	0.19	0.07	6.18	6.18
0.5	1	0.00	0.00	0.07	1.52	1.46	14.36	16.16	7.21	1.54	0.26	0.00	42.58	48.75
1	1.5	0.00	0.00	0.14	0.97	2.63	7.37	10.98	9.40	2.25	0.10	0.01	33.86	82.61
1.5	2	0.00	0.00	0.00	0.01	0.73	1.28	2.72	5.45	1.07	0.15	0.00	11.41	94.02
2	2.5	0.00	0.00	0.00	0.00	0.01	0.01	0.49	2.38	0.99	0.06	0.00	3.93	97.95
2.5	3	0.00	0.00	0.00	0.00	0.07	0.02	0.02	0.85	0.45	0.01	0.00	1.43	99.37
3	3.5	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.43	0.07	0.00	0.00	0.60	99.98
3.5	4	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.02	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.00	0.00	0.24	2.89	6.12	24.48	31.75	26.66	7.01	0.77	0.08		
Cumulative Total		0.00	0.00	0.24	3.13	9.25	33.73	65.48	92.14	99.15	99.92	100.00		

Sea

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	4.01	28.94	3.47	1.12	0.05	0.00	0.00	0.00	0.00	0.00	0.00	37.59	37.59
0.5	1	0.00	7.14	11.52	7.68	1.36	0.70	0.12	0.00	0.00	0.00	0.00	28.52	66.11
1	1.5	0.00	0.22	4.37	9.65	3.33	4.49	0.87	0.15	0.00	0.00	0.00	23.08	89.19
1.5	2	0.00	0.00	0.46	2.16	3.64	1.72	0.73	0.00	0.00	0.00	0.00	8.72	97.91
2	2.5	0.00	0.00	0.00	0.44	0.58	0.00	0.05	0.02	0.00	0.00	0.00	1.09	99.00
2.5	3	0.00	0.00	0.00	0.27	0.12	0.00	0.00	0.02	0.00	0.00	0.00	0.41	99.42
3	3.5	0.00	0.00	0.00	0.00	0.15	0.02	0.00	0.00	0.00	0.00	0.00	0.17	99.59
3.5	4	0.00	0.00	0.00	0.00	0.05	0.15	0.00	0.00	0.00	0.00	0.00	0.19	99.78
4	4.5	0.00	0.00	0.00	0.00	0.00	0.22	0.00	0.00	0.00	0.00	0.00	0.22	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		4.01	36.30	19.83	21.31	9.28	7.31	1.77	0.19	0.00	0.00	0.00		
Cumulative Total		4.01	40.31	60.13	81.44	90.72	98.03	99.81	100.00	100.00	100.00	100.00		

ANNUAL JFTS

1997 Hs vs Tp

Total

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	0.00	0.00	0.00	0.00	0.00	0.39	0.07	0.00	0.00	0.00	0.00	0.46	0.46
0.5	1	0.00	0.00	0.00	0.03	0.76	5.22	7.91	5.70	1.52	0.26	0.15	21.55	22.01
1	1.5	0.00	0.00	0.16	1.59	3.22	7.83	14.42	18.78	5.37	1.03	0.39	52.77	74.78
1.5	2	0.00	0.00	0.16	0.68	1.68	2.28	3.31	7.09	3.07	0.25	0.05	18.57	93.36
2	2.5	0.00	0.00	0.02	0.01	0.45	0.45	0.48	2.13	1.24	0.22	0.00	5.00	98.36
2.5	3	0.00	0.00	0.00	0.13	0.09	0.06	0.08	0.41	0.43	0.03	0.00	1.23	99.59
3	3.5	0.00	0.00	0.00	0.03	0.00	0.05	0.03	0.11	0.17	0.01	0.00	0.41	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.00	0.00	0.34	2.48	6.20	16.27	26.30	34.22	11.80	1.80	0.58		
Cumulative Total		0.00	0.00	0.34	2.82	9.02	25.29	51.59	85.81	97.61	99.42	100.00		

Swell

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	0.00	0.00	0.00	0.30	0.20	1.19	0.61	0.31	0.68	0.60	0.07	3.98	3.98
0.5	1	0.00	0.00	0.00	0.95	2.07	11.86	14.71	8.57	1.48	0.16	0.06	39.86	43.83
1	1.5	0.00	0.00	0.09	1.54	3.45	5.63	9.06	16.78	3.79	0.60	0.21	41.17	85.00
1.5	2	0.00	0.00	0.00	0.14	1.01	1.63	1.25	4.40	1.94	0.14	0.05	10.56	95.56
2	2.5	0.00	0.00	0.00	0.00	0.13	0.17	0.24	1.50	0.97	0.13	0.00	3.14	98.70
2.5	3	0.00	0.00	0.00	0.00	0.01	0.09	0.07	0.43	0.37	0.02	0.00	1.00	99.70
3	3.5	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.12	0.15	0.01	0.00	0.30	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.00	0.00	0.09	2.93	6.87	20.61	25.95	32.10	9.39	1.67	0.38		
Cumulative Total		0.00	0.00	0.09	3.03	9.90	30.51	56.46	88.56	97.95	99.62	100.00		

Sea

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	2.49	26.77	3.86	0.55	0.29	0.02	0.00	0.00	0.00	0.00	0.00	33.99	33.99
0.5	1	0.00	8.14	15.58	7.44	1.61	0.62	0.18	0.00	0.00	0.00	0.00	33.57	67.56
1	1.5	0.00	0.02	4.75	10.00	5.01	3.93	1.17	0.22	0.00	0.00	0.00	25.09	92.65
1.5	2	0.00	0.00	0.33	1.59	2.34	0.95	0.46	0.26	0.00	0.00	0.00	5.94	98.59
2	2.5	0.00	0.00	0.04	0.09	0.57	0.15	0.13	0.09	0.00	0.00	0.00	1.08	99.67
2.5	3	0.00	0.00	0.00	0.11	0.11	0.00	0.00	0.00	0.07	0.00	0.00	0.29	99.96
3	3.5	0.00	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		2.49	34.94	24.56	19.82	9.93	5.67	1.94	0.57	0.07	0.00	0.00		
Cumulative Total		2.49	37.43	62.00	81.81	91.75	97.42	99.36	99.93	100.00	100.00	100.00		

1998 Hs vs Tp

Total

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	0.00	0.00	0.00	0.00	0.00	0.15	0.05	0.07	0.00	0.00	0.00	0.26	0.26
0.5	1	0.00	0.00	0.05	0.29	0.30	4.17	7.97	7.41	2.40	0.62	0.40	23.58	23.85
1	1.5	0.00	0.00	0.16	1.30	1.78	6.51	17.11	15.86	3.49	0.95	0.25	47.41	71.26
1.5	2	0.00	0.00	0.11	0.87	2.24	2.28	4.55	7.69	2.76	0.35	0.07	20.94	92.19
2	2.5	0.00	0.00	0.00	0.24	0.89	0.33	0.43	2.51	1.62	0.30	0.00	6.32	98.52
2.5	3	0.00	0.00	0.00	0.02	0.06	0.15	0.00	0.34	0.45	0.08	0.00	1.10	99.61
3	3.5	0.00	0.00	0.00	0.01	0.06	0.00	0.05	0.06	0.19	0.00	0.00	0.37	99.98
3.5	4	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.02	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.00	0.00	0.32	2.73	5.34	13.58	30.16	33.94	10.91	2.29	0.72		
Cumulative Total		0.00	0.00	0.32	3.05	8.39	21.97	52.13	86.07	96.99	99.28	100.00		

Swell

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	0.00	0.00	0.01	0.45	1.90	0.86	1.10	1.23	1.10	0.36	0.21	7.21	7.21
0.5	1	0.00	0.00	0.05	0.69	1.04	8.50	14.93	10.62	1.95	0.44	0.16	38.39	45.59
1	1.5	0.00	0.00	0.01	1.57	2.05	5.66	11.54	13.68	3.00	0.36	0.15	38.02	83.61
1.5	2	0.00	0.00	0.00	0.17	1.10	1.35	1.80	4.83	1.49	0.13	0.02	10.91	94.52
2	2.5	0.00	0.00	0.00	0.00	0.10	0.23	0.17	2.19	1.48	0.23	0.00	4.41	98.92
2.5	3	0.00	0.00	0.00	0.01	0.01	0.09	0.00	0.25	0.31	0.06	0.00	0.74	99.66
3	3.5	0.00	0.00	0.00	0.02	0.00	0.00	0.08	0.06	0.16	0.00	0.00	0.32	99.99
3.5	4	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.00	0.00	0.07	2.94	6.20	16.69	29.63	32.86	9.50	1.57	0.54		
Cumulative Total		0.00	0.00	0.07	3.01	9.21	25.90	55.53	88.39	97.88	99.46	100.00		

Sea

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	3.45	27.69	3.63	0.48	0.05	0.00	0.00	0.00	0.00	0.00	0.00	35.30	35.30
0.5	1	0.00	6.85	12.34	6.09	1.63	0.60	0.14	0.02	0.00	0.00	0.00	27.67	62.97
1	1.5	0.00	0.00	3.98	9.03	4.48	3.95	1.59	0.21	0.00	0.00	0.00	23.24	86.21
1.5	2	0.00	0.00	0.28	2.69	4.55	2.21	1.06	0.37	0.00	0.00	0.00	11.15	97.36
2	2.5	0.00	0.00	0.00	0.41	1.26	0.18	0.21	0.21	0.05	0.00	0.00	2.32	99.68
2.5	3	0.00	0.00	0.00	0.02	0.07	0.09	0.00	0.05	0.00	0.00	0.00	0.23	99.91
3	3.5	0.00	0.00	0.00	0.00	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.09	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		3.45	34.54	20.23	18.73	12.14	7.03	2.99	0.85	0.05	0.00	0.00		
Cumulative Total		3.45	37.99	58.22	76.95	89.08	96.12	99.10	99.95	100.00	100.00	100.00		

ANNUAL JFTS

1999 Hs vs Tp

Total

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.00	0.00	0.01	0.00	0.08	0.08
0.5	1	0.00	0.00	0.10	0.07	0.64	5.92	8.80	4.47	1.30	0.24	0.03	21.59	21.67
1	1.5	0.00	0.00	0.35	1.20	3.37	6.26	16.11	18.03	4.06	1.21	0.27	50.86	72.52
1.5	2	0.00	0.00	0.05	0.71	2.45	2.48	4.13	8.81	2.87	0.43	0.01	21.94	94.46
2	2.5	0.00	0.00	0.00	0.14	0.82	0.29	0.18	2.45	0.43	0.09	0.00	4.41	98.87
2.5	3	0.00	0.00	0.00	0.08	0.11	0.10	0.03	0.09	0.42	0.01	0.00	0.86	99.73
3	3.5	0.00	0.00	0.00	0.01	0.03	0.00	0.02	0.00	0.00	0.00	0.00	0.07	99.79
3.5	4	0.00	0.00	0.00	0.00	0.02	0.00	0.03	0.00	0.00	0.00	0.00	0.06	99.85
4	4.5	0.00	0.00	0.00	0.00	0.03	0.01	0.02	0.00	0.00	0.00	0.00	0.07	99.92
4.5	5	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.02	99.94
5	5.5	0.00	0.00	0.00	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.06	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.00	0.00	0.50	2.20	7.57	15.13	29.34	33.86	9.09	2.00	0.32		
Cumulative Total		0.00	0.00	0.50	2.71	10.27	25.40	54.74	88.60	97.68	99.68	100.00		

Swell

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	0.00	0.00	0.00	0.39	1.59	0.81	0.73	0.92	0.50	0.19	0.14	5.26	5.26
0.5	1	0.00	0.00	0.22	0.52	1.91	11.07	14.44	6.34	1.62	0.36	0.02	36.51	41.77
1	1.5	0.00	0.00	0.25	1.36	3.45	5.00	11.60	14.77	2.53	0.47	0.01	39.44	81.21
1.5	2	0.00	0.00	0.00	0.21	1.11	1.48	2.43	7.52	1.99	0.06	0.00	14.80	96.02
2	2.5	0.00	0.00	0.00	0.03	0.37	0.06	0.12	2.17	0.36	0.06	0.00	3.16	99.18
2.5	3	0.00	0.00	0.00	0.00	0.09	0.09	0.07	0.09	0.43	0.01	0.00	0.79	99.97
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.03	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.00	0.00	0.47	2.51	8.53	18.52	29.42	31.80	7.42	1.15	0.17		
Cumulative Total		0.00	0.00	0.47	2.99	11.51	30.04	59.46	91.25	98.68	99.83	100.00		

Sea

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	3.22	25.73	3.29	0.75	0.05	0.03	0.00	0.00	0.00	0.00	0.00	33.07	33.07
0.5	1	0.00	7.36	18.45	6.97	1.67	1.08	0.18	0.00	0.00	0.00	0.00	35.72	68.79
1	1.5	0.00	0.03	3.86	7.23	4.55	3.42	1.18	0.13	0.00	0.00	0.00	20.41	89.19
1.5	2	0.00	0.03	0.15	2.24	3.01	1.96	1.00	0.08	0.00	0.03	0.00	8.49	97.68
2	2.5	0.00	0.00	0.05	0.28	0.72	0.49	0.00	0.10	0.00	0.00	0.00	1.65	99.33
2.5	3	0.00	0.00	0.05	0.21	0.05	0.03	0.00	0.00	0.00	0.00	0.00	0.33	99.67
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	99.67
3.5	4	0.00	0.00	0.00	0.00	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.08	99.74
4	4.5	0.00	0.00	0.00	0.00	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.08	99.82
4.5	5	0.00	0.00	0.00	0.00	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.08	99.90
5	5.5	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.10	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		3.22	33.14	25.86	17.68	10.40	7.00	2.37	0.31	0.00	0.03	0.00		
Cumulative Total		3.22	36.36	62.22	79.90	90.30	97.30	99.67	99.97	99.97	100.00	100.00		

2000 Hs vs Tp

Total

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.5	1	0.00	0.00	0.03	0.07	1.01	6.14	9.64	5.25	1.41	0.27	0.00	23.83	23.83
1	1.5	0.00	0.00	0.06	1.82	3.23	6.40	14.45	14.31	4.01	1.13	0.22	45.62	69.44
1.5	2	0.00	0.00	0.16	0.58	2.36	2.11	5.28	10.12	2.72	0.23	0.00	23.55	93.00
2	2.5	0.00	0.00	0.00	0.41	0.65	0.28	0.41	2.86	1.18	0.05	0.00	5.84	98.84
2.5	3	0.00	0.00	0.00	0.18	0.13	0.06	0.01	0.01	0.17	0.03	0.00	0.59	99.43
3	3.5	0.00	0.00	0.00	0.13	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.15	99.58
3.5	4	0.00	0.00	0.00	0.02	0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.17	99.75
4	4.5	0.00	0.00	0.00	0.01	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.09	99.84
4.5	5	0.00	0.00	0.00	0.00	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.14	99.98
5	5.5	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.02	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.00	0.00	0.25	3.22	7.78	14.99	29.79	32.55	9.49	1.71	0.22		
Cumulative Total		0.00	0.00	0.25	3.47	11.25	26.24	56.03	88.58	98.08	99.78	100.00		

Swell

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	0.00	0.00	0.00	0.37	1.24	0.17	0.38	0.65	0.41	0.15	0.10	3.48	3.48
0.5	1	0.00	0.00	0.08	1.44	1.56	10.75	15.80	7.51	1.38	0.24	0.00	38.76	42.25
1	1.5	0.00	0.00	0.09	1.59	3.74	5.39	11.48	13.21	2.90	0.37	0.05	38.82	81.07
1.5	2	0.00	0.00	0.00	0.12	1.34	1.54	2.17	7.45	1.99	0.16	0.00	14.77	95.83
2	2.5	0.00	0.00	0.00	0.00	0.55	0.24	0.10	2.07	0.94	0.00	0.00	3.90	99.73
2.5	3	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.05	0.16	0.01	0.00	0.27	100.00
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.00	0.00	0.17	3.52	8.46	18.10	29.94	30.94	7.78	0.94	0.15		
Cumulative Total		0.00	0.00	0.17	3.69	12.15	30.25	60.19	91.13	98.91	99.85	100.00		

Sea

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	3.17	28.11	3.60	0.62	0.07	0.00	0.00	0.00	0.00	0.00	0.00	35.58	35.58
0.5	1	0.00	8.40	15.44	5.47	1.43	0.72	0.14	0.00	0.00	0.00	0.00	31.60	67.18
1	1.5	0.00	0.05	2.72	7.66	4.53	3.27	0.98	0.21	0.00	0.00	0.00	19.43	86.61
1.5	2	0.00	0.00	0.38	2.20	3.46	2.29	1.55	0.29	0.00	0.00	0.00	10.17	96.78
2	2.5	0.00	0.00	0.00	0.74	0.26	0.14	0.17	0.21	0.00	0.00	0.00	1.53	98.31
2.5	3	0.00	0.00	0.00	0.31	0.12	0.10	0.02	0.00	0.00	0.00	0.00	0.55	98.85
3	3.5	0.00	0.00	0.00	0.43	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.48	99.33
3.5	4	0.00	0.00	0.00	0.05	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.19	99.52
4	4.5	0.00	0.00	0.00	0.00	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.14	99.67
4.5	5	0.00	0.00	0.00	0.00	0.29	0.00	0.00	0.00	0.00	0.00	0.00	0.29	99.95
5	5.5	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.05	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		3.17	36.56	22.15	17.47	10.55	6.52	2.86	0.72	0.00	0.00	0.00		
Cumulative Total		3.17	39.74	61.89	79.36	89.90	96.42	99.28	100.00	100.00	100.00	100.00		

ANNUAL JFTS

2001 Hs vs Tp

Total

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	0.00	0.00	0.00	0.00	0.00	0.10	0.03	0.00	0.00	0.00	0.00	0.14	0.14
0.5	1	0.00	0.07	0.10	0.30	0.57	7.01	11.67	5.54	1.66	0.46	0.07	27.43	27.57
1	1.5	0.00	0.03	0.74	1.96	3.06	9.30	12.99	15.48	2.64	0.75	0.35	47.32	74.89
1.5	2	0.00	0.00	0.23	1.22	1.59	1.93	2.79	9.12	4.01	0.84	0.00	21.72	96.61
2	2.5	0.00	0.00	0.00	0.19	0.35	0.21	0.30	0.91	1.03	0.09	0.00	3.08	99.69
2.5	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.07	0.03	0.00	0.15	99.84
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.05	0.00	0.16	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.00	0.10	1.07	3.68	5.57	18.55	27.77	31.10	9.51	2.23	0.42		
Cumulative Total		0.00	0.10	1.18	4.85	10.42	28.97	56.75	87.84	97.35	99.58	100.00		

Swell

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	0.00	0.02	0.00	0.62	1.05	2.07	2.07	0.88	0.92	0.34	0.04	8.01	8.01
0.5	1	0.00	0.00	0.12	1.22	2.54	12.15	17.06	8.23	1.66	0.23	0.05	43.25	51.26
1	1.5	0.00	0.00	0.12	0.93	3.10	6.24	7.92	12.97	1.43	0.69	0.14	33.54	84.80
1.5	2	0.00	0.00	0.00	0.08	0.77	1.08	0.93	6.43	3.20	0.48	0.00	12.97	97.77
2	2.5	0.00	0.00	0.00	0.00	0.02	0.09	0.16	0.63	0.92	0.09	0.00	1.93	99.70
2.5	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.07	0.04	0.00	0.14	99.84
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.05	0.00	0.16	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.00	0.02	0.23	2.85	7.48	21.63	28.15	29.17	8.32	1.92	0.22		
Cumulative Total		0.00	0.02	0.26	3.11	10.59	32.22	60.37	89.54	97.86	99.78	100.00		

Sea

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	3.04	25.93	3.55	1.22	0.05	0.00	0.00	0.00	0.00	0.00	0.00	33.79	33.79
0.5	1	0.00	5.64	13.36	6.59	1.68	1.22	0.18	0.00	0.00	0.00	0.00	28.67	62.46
1	1.5	0.00	0.00	4.93	11.95	4.84	4.84	1.40	0.14	0.00	0.00	0.00	28.10	90.56
1.5	2	0.00	0.00	0.41	2.51	2.58	1.52	0.88	0.37	0.02	0.00	0.00	8.29	98.85
2	2.5	0.00	0.00	0.00	0.28	0.53	0.21	0.07	0.07	0.00	0.00	0.00	1.15	100.00
2.5	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		3.04	31.58	22.25	22.55	9.67	7.78	2.53	0.58	0.02	0.00	0.00		
Cumulative Total		3.04	34.62	56.86	79.41	89.08	96.87	99.40	99.98	100.00	100.00	100.00		

2002 Hs vs Tp

Total

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	0.00	0.00	0.00	0.00	0.00	0.15	0.15	0.23	0.00	0.00	0.00	0.53	0.53
0.5	1	0.00	0.02	0.10	0.11	1.10	6.56	7.50	4.38	1.18	0.46	0.11	21.53	22.05
1	1.5	0.00	0.02	0.47	0.79	2.55	8.18	17.95	14.43	2.95	0.66	0.32	48.31	70.37
1.5	2	0.00	0.00	0.08	0.97	1.35	1.08	5.68	11.16	2.79	0.72	0.06	23.89	94.26
2	2.5	0.00	0.00	0.00	0.13	0.08	0.00	0.76	2.58	1.24	0.14	0.00	4.93	99.19
2.5	3	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.18	0.55	0.00	0.00	0.76	99.95
3	3.5	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.05	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.00	0.05	0.65	2.00	5.15	15.98	32.04	32.97	8.70	1.97	0.49		
Cumulative Total		0.00	0.05	0.70	2.69	7.84	23.82	55.87	88.84	97.53	99.51	100.00		

Swell

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	0.00	0.01	0.00	0.25	1.07	1.48	1.48	1.26	0.85	0.25	0.14	6.79	6.79
0.5	1	0.00	0.00	0.55	0.67	1.62	10.71	13.70	6.63	1.37	0.34	0.06	35.64	42.44
1	1.5	0.00	0.00	0.13	0.90	2.49	5.81	14.13	13.54	1.73	0.55	0.19	39.46	81.90
1.5	2	0.00	0.00	0.00	0.20	0.57	0.81	1.88	7.56	2.17	0.30	0.00	13.49	95.39
2	2.5	0.00	0.00	0.00	0.05	0.01	0.04	0.58	2.16	1.11	0.07	0.00	4.01	99.40
2.5	3	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.19	0.39	0.00	0.00	0.60	100.00
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.00	0.01	0.68	2.05	5.79	18.85	31.78	31.34	7.61	1.51	0.39		
Cumulative Total		0.00	0.01	0.69	2.74	8.53	27.38	59.16	90.50	98.11	99.61	100.00		

Sea

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	2.18	22.66	3.15	1.11	0.15	0.00	0.00	0.00	0.00	0.00	0.00	29.25	29.25
0.5	1	0.00	8.48	13.89	7.17	1.96	1.33	0.12	0.00	0.00	0.00	0.00	32.96	62.22
1	1.5	0.00	0.10	4.34	11.85	5.53	4.19	1.14	0.12	0.00	0.00	0.00	27.27	89.48
1.5	2	0.00	0.00	0.10	3.88	2.47	1.24	1.58	0.61	0.02	0.00	0.00	9.89	99.37
2	2.5	0.00	0.00	0.00	0.07	0.12	0.00	0.24	0.07	0.00	0.00	0.00	0.51	99.88
2.5	3	0.00	0.00	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.07	99.95
3	3.5	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.05	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		2.18	31.24	21.47	24.09	10.35	6.76	3.08	0.80	0.02	0.00	0.00		
Cumulative Total		2.18	33.42	54.90	78.99	89.34	96.10	99.18	99.98	100.00	100.00	100.00		

ANNUAL JFTS

2003 Hs vs Tp

Total

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.03	0.03
0.5	1	0.00	0.02	0.13	0.15	1.11	6.83	9.41	4.94	1.10	0.34	0.17	24.19	24.22
1	1.5	0.00	0.00	0.48	1.43	3.80	8.92	17.50	13.49	3.45	0.58	0.13	49.77	74.00
1.5	2	0.00	0.00	0.21	1.56	1.50	2.24	4.42	7.10	2.20	0.51	0.07	19.81	93.80
2	2.5	0.00	0.00	0.00	0.37	0.29	0.65	0.39	1.84	1.21	0.11	0.00	4.85	98.65
2.5	3	0.00	0.00	0.00	0.02	0.07	0.05	0.09	0.47	0.14	0.00	0.00	0.83	99.49
3	3.5	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.27	0.00	0.00	0.00	0.30	99.78
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.08	0.00	0.00	0.00	0.09	99.87
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.00	0.00	0.00	0.13	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.00	0.02	0.81	3.53	6.76	18.72	31.83	28.32	8.09	1.55	0.37		
Cumulative Total		0.00	0.02	0.83	4.36	11.12	29.84	61.67	89.99	98.08	99.63	100.00		

Swell

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	0.00	0.00	0.00	0.36	1.62	1.17	0.77	1.41	1.95	0.47	0.13	7.88	7.88
0.5	1	0.00	0.00	0.12	0.78	1.95	13.24	16.79	6.93	1.10	0.29	0.09	41.29	49.17
1	1.5	0.00	0.00	0.09	0.88	3.23	6.95	10.41	11.09	2.28	0.44	0.06	35.43	84.60
1.5	2	0.00	0.00	0.00	0.06	0.78	1.12	2.16	4.90	1.61	0.33	0.05	11.01	95.61
2	2.5	0.00	0.00	0.00	0.00	0.01	0.44	0.35	1.41	0.99	0.12	0.00	3.33	98.94
2.5	3	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.50	0.13	0.00	0.00	0.70	99.64
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.25	99.88
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.00	0.00	0.00	0.06	99.94
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.00	0.00	0.00	0.06	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.00	0.00	0.21	2.08	7.60	22.92	30.55	26.62	8.06	1.65	0.33		
Cumulative Total		0.00	0.00	0.21	2.29	9.89	32.80	63.36	89.97	98.03	99.67	100.00		

Sea

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	3.01	24.96	2.56	0.60	0.09	0.04	0.00	0.00	0.00	0.00	0.00	31.26	31.26
0.5	1	0.00	6.65	15.25	6.50	1.72	1.97	0.15	0.00	0.00	0.00	0.00	32.25	63.51
1	1.5	0.00	0.00	5.06	9.70	4.77	4.42	1.64	0.22	0.00	0.00	0.00	25.82	89.32
1.5	2	0.00	0.00	0.33	3.05	2.25	1.88	0.66	0.40	0.00	0.00	0.00	8.58	97.90
2	2.5	0.00	0.00	0.00	0.51	0.49	0.40	0.02	0.15	0.00	0.00	0.00	1.57	99.47
2.5	3	0.00	0.00	0.00	0.02	0.11	0.11	0.02	0.00	0.00	0.00	0.00	0.27	99.73
3	3.5	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.00	0.00	0.00	0.07	99.80
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.04	0.00	0.00	0.00	0.07	99.87
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.00	0.00	0.00	0.13	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		3.01	31.61	23.21	20.38	9.44	8.84	2.54	0.97	0.00	0.00	0.00		
Cumulative Total		3.01	34.62	57.82	78.21	87.64	96.49	99.03	100.00	100.00	100.00	100.00		

2004 Hs vs Tp

Total

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.5	1	0.00	0.00	0.00	0.16	0.63	3.46	8.71	5.97	2.15	0.44	0.02	21.54	21.54
1	1.5	0.00	0.00	0.42	1.90	1.56	8.88	20.18	16.60	2.96	0.43	0.07	53.01	74.54
1.5	2	0.00	0.00	0.22	1.34	1.95	2.37	5.32	8.99	1.56	0.03	0.00	21.78	96.32
2	2.5	0.00	0.00	0.00	0.20	0.34	0.15	0.31	1.51	0.44	0.01	0.00	2.97	99.29
2.5	3	0.00	0.00	0.00	0.05	0.03	0.00	0.00	0.35	0.24	0.00	0.00	0.67	99.97
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.03	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.00	0.00	0.64	3.65	4.51	14.86	34.52	33.42	7.39	0.92	0.09		
Cumulative Total		0.00	0.00	0.64	4.29	8.80	23.66	58.17	91.60	98.99	99.91	100.00		

Swell

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	0.00	0.00	0.00	0.34	0.27	0.82	2.19	1.59	1.41	0.38	0.08	7.08	7.08
0.5	1	0.00	0.00	0.04	0.43	1.13	10.39	17.66	9.47	1.95	0.12	0.00	41.18	48.26
1	1.5	0.00	0.00	0.02	0.91	2.76	6.43	12.99	15.03	2.10	0.06	0.00	40.30	88.56
1.5	2	0.00	0.00	0.00	0.07	0.67	0.94	1.40	5.32	0.69	0.00	0.00	9.09	97.64
2	2.5	0.00	0.00	0.00	0.00	0.00	0.02	0.12	1.18	0.39	0.00	0.00	1.71	99.36
2.5	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.38	0.23	0.00	0.00	0.61	99.96
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.04	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.00	0.00	0.06	1.76	4.82	18.60	34.35	32.98	6.80	0.55	0.08		
Cumulative Total		0.00	0.00	0.06	1.82	6.64	25.23	59.58	92.57	99.37	99.92	100.00		

Sea

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	2.76	25.05	2.89	1.06	0.49	0.00	0.00	0.00	0.00	0.00	0.00	32.24	32.24
0.5	1	0.00	7.02	13.30	6.73	1.53	0.45	0.06	0.00	0.00	0.00	0.00	29.08	61.32
1	1.5	0.00	0.00	5.30	11.46	4.81	3.75	1.47	0.06	0.00	0.00	0.00	26.85	88.17
1.5	2	0.00	0.00	0.55	3.40	4.07	1.58	0.78	0.23	0.00	0.00	0.00	10.62	98.79
2	2.5	0.00	0.00	0.00	0.45	0.70	0.00	0.00	0.02	0.00	0.00	0.00	1.17	99.96
2.5	3	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.04	100.00
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		2.76	32.07	22.04	23.09	11.63	5.79	2.31	0.31	0.00	0.00	0.00		
Cumulative Total		2.76	34.83	56.86	79.96	91.59	97.38	99.69	100.00	100.00	100.00	100.00		

ANNUAL JFTS

2005 Hs vs Tp

Total

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	0.00	0.00	0.00	0.00	0.00	0.15	0.02	0.00	0.02	0.00	0.00	0.19	0.19
0.5	1	0.00	0.00	0.18	0.23	0.24	4.14	6.86	3.21	0.88	0.51	0.15	16.40	16.60
1	1.5	0.00	0.00	0.35	1.46	1.53	8.30	18.01	13.30	3.44	0.63	0.38	47.40	64.00
1.5	2	0.00	0.00	0.10	1.64	1.78	2.23	6.10	11.68	3.39	0.54	0.15	27.60	91.60
2	2.5	0.00	0.00	0.00	0.35	0.67	0.24	0.80	2.72	1.62	0.34	0.05	6.79	98.39
2.5	3	0.00	0.00	0.00	0.00	0.01	0.08	0.00	0.42	0.89	0.09	0.00	1.50	99.89
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.02	0.00	0.11	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.00	0.00	0.64	3.69	4.24	15.14	31.79	31.32	10.33	2.13	0.72		
Cumulative Total		0.00	0.00	0.64	4.33	8.56	23.70	55.49	86.82	97.15	99.28	100.00		

Swell

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	0.00	0.00	0.19	0.67	0.80	1.81	1.44	1.30	1.09	0.27	0.13	7.70	7.70
0.5	1	0.00	0.00	0.16	0.79	0.66	9.92	13.82	6.88	1.29	0.56	0.20	34.28	41.98
1	1.5	0.00	0.00	0.02	1.47	2.03	5.10	12.76	12.16	3.12	0.48	0.07	37.22	79.20
1.5	2	0.00	0.00	0.00	0.40	1.06	1.51	2.78	6.82	2.04	0.31	0.06	14.98	94.18
2	2.5	0.00	0.00	0.00	0.02	0.25	0.18	0.68	1.93	1.26	0.12	0.02	4.45	98.63
2.5	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.35	0.81	0.09	0.00	1.26	99.88
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.02	0.00	0.12	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.00	0.00	0.38	3.35	4.79	18.51	31.49	29.44	9.71	1.85	0.48		
Cumulative Total		0.00	0.00	0.38	3.72	8.51	27.03	58.51	87.95	97.66	99.52	100.00		

Sea

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	1.81	20.49	2.67	0.35	0.02	0.06	0.00	0.00	0.00	0.00	0.00	25.40	25.40
0.5	1	0.00	5.67	15.36	8.46	0.99	0.76	0.08	0.00	0.00	0.00	0.00	31.31	56.70
1	1.5	0.00	0.00	4.82	12.07	6.24	5.05	0.94	0.25	0.00	0.00	0.00	29.38	86.08
1.5	2	0.00	0.00	0.25	3.41	4.21	2.63	1.01	0.72	0.08	0.00	0.00	12.30	98.38
2	2.5	0.00	0.00	0.00	0.35	0.64	0.18	0.02	0.14	0.04	0.02	0.00	1.40	99.77
2.5	3	0.00	0.00	0.00	0.00	0.02	0.14	0.00	0.02	0.04	0.00	0.00	0.23	100.00
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		1.81	26.15	23.10	24.64	12.11	8.83	2.05	1.13	0.16	0.02	0.00		
Cumulative Total		1.81	27.96	51.06	75.69	87.81	96.63	98.69	99.82	99.98	100.00	100.00		

2006 Hs vs Tp

Total

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.05	0.05
0.5	1	0.00	0.00	0.08	0.09	0.31	6.22	11.04	7.66	1.44	0.49	0.07	27.40	27.44
1	1.5	0.00	0.00	0.14	0.53	1.66	6.16	15.26	19.43	4.36	0.96	0.27	48.77	76.21
1.5	2	0.00	0.00	0.07	0.94	1.26	1.63	3.49	7.72	2.41	0.75	0.22	18.48	94.69
2	2.5	0.00	0.00	0.01	0.23	0.13	0.61	0.27	1.77	1.38	0.34	0.05	4.78	99.47
2.5	3	0.00	0.00	0.00	0.06	0.14	0.07	0.00	0.03	0.13	0.09	0.00	0.51	99.99
3	3.5	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.00	0.00	0.30	1.84	3.49	14.69	30.07	36.66	9.71	2.64	0.61		
Cumulative Total		0.00	0.00	0.30	2.13	5.63	20.32	50.39	87.04	96.76	99.39	100.00		

Swell

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	0.00	0.00	0.08	0.23	0.56	0.42	0.79	0.74	0.25	0.32	0.18	3.56	3.56
0.5	1	0.00	0.00	0.05	0.74	1.09	12.37	17.47	11.46	2.13	0.43	0.06	45.80	49.36
1	1.5	0.00	0.00	0.00	0.80	2.37	4.68	9.99	15.18	2.44	0.59	0.11	36.15	85.51
1.5	2	0.00	0.00	0.00	0.04	0.43	0.98	1.42	5.44	2.09	0.35	0.08	10.83	96.34
2	2.5	0.00	0.00	0.00	0.00	0.02	0.16	0.14	1.41	1.29	0.39	0.02	3.44	99.78
2.5	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.13	0.06	0.00	0.22	100.00
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.00	0.00	0.13	1.81	4.48	18.62	29.80	34.26	8.32	2.13	0.45		
Cumulative Total		0.00	0.00	0.13	1.93	6.41	25.03	54.84	89.10	97.42	99.55	100.00		

Sea

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	3.03	24.51	3.96	1.02	0.12	0.00	0.00	0.00	0.00	0.00	0.00	32.64	32.64
0.5	1	0.00	7.21	14.22	10.48	1.41	1.09	0.12	0.00	0.00	0.00	0.00	34.53	67.17
1	1.5	0.00	0.02	4.22	11.48	3.30	3.18	0.95	0.10	0.00	0.00	0.00	23.25	90.41
1.5	2	0.00	0.00	0.22	2.16	1.89	1.53	1.14	0.24	0.00	0.00	0.00	7.18	97.60
2	2.5	0.00	0.00	0.00	0.34	0.24	0.99	0.10	0.27	0.00	0.00	0.00	1.94	99.54
2.5	3	0.00	0.00	0.00	0.00	0.29	0.15	0.00	0.00	0.00	0.00	0.00	0.44	99.98
3	3.5	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.02	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		3.03	31.74	22.62	25.48	7.28	6.94	2.31	0.61	0.00	0.00	0.00		
Cumulative Total		3.03	34.77	57.39	82.87	90.15	97.09	99.39	100.00	100.00	100.00	100.00		

ANNUAL JFTS

2007 Hs vs Tp

Total

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.5	1	0.00	0.00	0.03	0.06	0.61	2.57	6.58	3.40	0.87	0.26	0.00	14.37	14.37
1	1.5	0.00	0.00	0.08	0.51	1.54	4.38	18.00	18.69	4.84	0.70	0.15	48.89	63.26
1.5	2	0.00	0.00	0.17	0.98	1.77	2.35	8.14	10.61	3.56	0.80	0.27	28.65	91.92
2	2.5	0.00	0.00	0.00	0.24	0.22	0.43	0.41	2.51	1.85	0.31	0.06	6.03	97.95
2.5	3	0.00	0.00	0.00	0.03	0.01	0.00	0.00	0.37	1.12	0.31	0.07	1.91	99.85
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.05	0.00	0.15	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.00	0.00	0.29	1.83	4.14	9.74	33.13	35.67	12.24	2.42	0.55		
Cumulative Total		0.00	0.00	0.29	2.11	6.26	15.99	49.12	84.79	97.03	99.45	100.00		

Swell

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	0.00	0.00	0.00	0.31	0.54	0.49	0.72	0.70	1.04	0.66	0.09	4.56	4.56
0.5	1	0.00	0.00	0.16	0.64	0.82	5.63	17.15	8.55	1.40	0.17	0.00	34.53	39.09
1	1.5	0.00	0.00	0.02	1.21	2.33	3.68	12.81	14.88	2.49	0.16	0.05	37.64	76.73
1.5	2	0.00	0.00	0.00	0.08	0.99	1.56	3.69	7.31	2.83	0.41	0.12	16.99	93.72
2	2.5	0.00	0.00	0.00	0.00	0.00	0.22	0.29	1.92	1.54	0.37	0.02	4.37	98.09
2.5	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.42	1.04	0.22	0.08	1.76	99.85
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.05	0.00	0.15	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.00	0.00	0.19	2.25	4.67	11.58	34.67	33.89	10.34	2.05	0.36		
Cumulative Total		0.00	0.00	0.19	2.44	7.11	18.69	53.36	87.25	97.59	99.64	100.00		

Sea

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	1.79	20.11	2.23	1.08	0.11	0.00	0.00	0.00	0.00	0.00	0.00	25.32	25.32
0.5	1	0.00	6.80	15.14	7.61	2.02	0.92	0.14	0.00	0.00	0.00	0.00	32.63	57.95
1	1.5	0.00	0.00	4.62	14.02	5.33	3.88	1.19	0.41	0.00	0.00	0.00	29.46	87.41
1.5	2	0.00	0.00	0.28	3.65	3.47	1.88	1.52	0.51	0.02	0.00	0.00	11.33	98.74
2	2.5	0.00	0.00	0.00	0.34	0.30	0.32	0.16	0.09	0.02	0.00	0.00	1.24	99.98
2.5	3	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	100.00
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		1.79	26.91	22.27	26.72	11.24	7.01	3.01	1.01	0.05	0.00	0.00		
Cumulative Total		1.79	28.70	50.97	77.69	88.92	95.93	98.94	99.95	100.00	100.00	100.00		

2008 Hs vs Tp

Total

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.5	1	0.00	0.00	0.00	0.31	0.18	4.41	10.70	5.28	2.40	0.75	0.11	24.15	24.15
1	1.5	0.00	0.00	0.28	0.97	2.60	3.97	13.91	19.79	5.49	1.48	0.36	48.85	73.00
1.5	2	0.00	0.00	0.11	1.42	2.52	3.23	3.35	8.48	3.45	0.16	0.07	22.79	95.79
2	2.5	0.00	0.00	0.00	0.27	0.47	0.25	0.31	1.16	0.67	0.05	0.00	3.18	98.96
2.5	3	0.00	0.00	0.00	0.05	0.25	0.11	0.00	0.03	0.06	0.00	0.00	0.50	99.46
3	3.5	0.00	0.00	0.00	0.10	0.27	0.01	0.00	0.00	0.01	0.00	0.00	0.40	99.86
3.5	4	0.00	0.00	0.00	0.06	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.11	99.98
4	4.5	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.02	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.00	0.00	0.40	3.18	6.36	11.99	28.27	34.74	12.08	2.44	0.55		
Cumulative Total		0.00	0.00	0.40	3.57	9.94	21.93	50.19	84.94	97.02	99.45	100.00		

Swell

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	0.00	0.00	0.00	0.19	0.23	0.60	1.37	1.21	0.73	0.17	0.01	4.53	4.53
0.5	1	0.00	0.00	0.02	1.09	1.22	7.72	17.60	8.85	2.72	0.38	0.14	39.76	44.29
1	1.5	0.00	0.00	0.07	1.02	4.27	4.56	8.47	17.94	4.23	1.05	0.02	41.64	85.92
1.5	2	0.00	0.00	0.01	0.38	1.07	2.22	1.38	5.03	2.08	0.09	0.00	12.27	98.20
2	2.5	0.00	0.00	0.00	0.07	0.14	0.16	0.13	0.52	0.54	0.01	0.00	1.57	99.77
2.5	3	0.00	0.00	0.00	0.00	0.13	0.05	0.00	0.00	0.05	0.00	0.00	0.22	99.99
3	3.5	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.00	0.00	0.10	2.76	7.07	15.32	28.96	33.55	10.35	1.71	0.17		
Cumulative Total		0.00	0.00	0.10	2.86	9.93	25.26	54.21	87.76	98.12	99.83	100.00		

Sea

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	2.59	29.76	2.36	0.60	0.16	0.00	0.00	0.00	0.00	0.00	0.00	35.47	35.47
0.5	1	0.00	6.97	10.64	6.65	0.87	1.15	0.07	0.02	0.00	0.00	0.00	26.36	61.83
1	1.5	0.00	0.00	3.71	9.93	5.18	3.62	0.87	0.14	0.00	0.00	0.00	23.45	85.28
1.5	2	0.00	0.00	0.25	3.74	4.42	2.66	0.57	0.23	0.02	0.00	0.00	11.90	97.18
2	2.5	0.00	0.00	0.00	0.53	0.96	0.18	0.18	0.02	0.00	0.00	0.00	1.88	99.06
2.5	3	0.00	0.00	0.00	0.21	0.34	0.00	0.00	0.00	0.00	0.00	0.00	0.55	99.61
3	3.5	0.00	0.00	0.00	0.07	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.25	99.86
3.5	4	0.00	0.00	0.00	0.00	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.09	99.95
4	4.5	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.05	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		2.59	36.73	16.96	21.71	12.27	7.61	1.70	0.41	0.02	0.00	0.00		
Cumulative Total		2.59	39.32	56.28	77.99	90.26	97.87	99.56	99.98	100.00	100.00	100.00		

ANNUAL JFTS

2009 Hs vs Tp

Total

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.5	1	0.00	0.00	0.02	0.61	0.14	3.48	9.78	4.22	1.54	0.22	0.06	20.07	20.07
1	1.5	0.00	0.00	0.37	1.27	2.04	8.37	17.92	18.88	4.84	0.67	0.22	54.58	74.65
1.5	2	0.00	0.00	0.05	0.83	0.98	2.27	5.11	8.77	1.82	0.43	0.14	20.40	95.05
2	2.5	0.00	0.00	0.00	0.10	0.06	0.13	0.50	2.23	0.96	0.16	0.00	4.13	99.18
2.5	3	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.27	0.47	0.05	0.00	0.82	100.00
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.00	0.00	0.43	2.81	3.22	14.25	33.36	34.37	9.62	1.53	0.41		
Cumulative Total		0.00	0.00	0.43	3.24	6.46	20.71	54.06	88.44	98.06	99.59	100.00		

Swell

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	0.00	0.00	0.00	0.50	1.00	0.33	0.70	0.85	0.87	0.34	0.14	4.74	4.74
0.5	1	0.00	0.00	0.08	1.04	0.73	8.01	17.23	8.78	1.61	0.16	0.09	37.74	42.48
1	1.5	0.00	0.00	0.01	1.18	2.64	7.30	11.57	16.68	2.80	0.27	0.13	42.57	85.05
1.5	2	0.00	0.00	0.00	0.01	0.54	1.53	2.54	4.75	1.22	0.19	0.07	10.85	95.89
2	2.5	0.00	0.00	0.00	0.00	0.05	0.09	0.27	1.88	0.97	0.13	0.00	3.38	99.28
2.5	3	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.23	0.41	0.03	0.00	0.72	100.00
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.00	0.00	0.09	2.73	4.96	17.26	32.35	33.17	7.88	1.12	0.43		
Cumulative Total		0.00	0.00	0.09	2.82	7.78	25.04	57.39	90.56	98.45	99.57	100.00		

Sea

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	3.32	26.46	3.30	0.56	0.05	0.00	0.00	0.00	0.00	0.00	0.00	33.69	33.69
0.5	1	0.00	8.23	14.09	6.98	1.07	1.28	0.14	0.02	0.00	0.00	0.00	31.81	65.50
1	1.5	0.00	0.00	3.70	9.25	5.49	4.72	1.40	0.30	0.00	0.00	0.00	24.85	90.35
1.5	2	0.00	0.00	0.14	2.56	2.28	2.39	1.16	0.42	0.02	0.00	0.00	8.97	99.33
2	2.5	0.00	0.00	0.00	0.12	0.09	0.14	0.12	0.12	0.02	0.00	0.00	0.60	99.93
2.5	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.00	0.00	0.07	100.00
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		3.32	34.69	21.23	19.46	8.97	8.53	2.81	0.93	0.05	0.00	0.00		
Cumulative Total		3.32	38.01	59.24	78.70	87.68	96.21	99.02	99.95	100.00	100.00	100.00		

2010 Hs vs Tp

Total

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.5	1	0.00	0.00	0.00	0.15	0.32	3.21	7.90	6.36	1.51	0.64	0.13	20.21	20.21
1	1.5	0.00	0.00	0.22	1.31	2.37	5.73	15.33	23.42	7.58	1.77	0.21	57.95	78.15
1.5	2	0.00	0.00	0.03	0.74	1.26	1.95	2.34	6.92	3.46	0.90	0.05	17.65	95.80
2	2.5	0.00	0.00	0.00	0.37	0.41	0.25	0.21	1.02	0.57	0.02	0.00	2.84	98.64
2.5	3	0.00	0.00	0.00	0.03	0.23	0.05	0.06	0.40	0.05	0.00	0.00	0.81	99.45
3	3.5	0.00	0.00	0.00	0.00	0.07	0.00	0.00	0.05	0.03	0.00	0.00	0.15	99.60
3.5	4	0.00	0.00	0.00	0.00	0.09	0.02	0.00	0.00	0.00	0.00	0.00	0.11	99.71
4	4.5	0.00	0.00	0.00	0.00	0.10	0.18	0.00	0.00	0.00	0.00	0.00	0.29	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.00	0.00	0.25	2.60	4.85	11.39	25.83	38.16	13.20	3.33	0.38		
Cumulative Total		0.00	0.00	0.25	2.85	7.71	19.10	44.93	83.09	96.29	99.62	100.00		

Swell

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	0.00	0.00	0.03	0.15	1.24	0.97	0.56	0.81	0.86	0.59	0.30	5.52	5.52
0.5	1	0.00	0.00	0.07	0.78	1.92	8.03	15.37	11.14	2.22	0.61	0.08	40.22	45.74
1	1.5	0.00	0.00	0.00	0.98	1.95	5.22	9.57	19.78	4.80	0.71	0.03	43.04	88.78
1.5	2	0.00	0.00	0.00	0.06	0.59	1.15	0.84	4.16	2.51	0.33	0.00	9.64	98.42
2	2.5	0.00	0.00	0.00	0.03	0.13	0.08	0.07	0.47	0.23	0.00	0.00	1.01	99.44
2.5	3	0.00	0.00	0.00	0.00	0.01	0.01	0.03	0.39	0.05	0.00	0.00	0.50	99.93
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.00	0.00	0.07	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.00	0.00	0.10	2.00	5.84	15.45	26.45	36.78	10.71	2.25	0.41		
Cumulative Total		0.00	0.00	0.10	2.11	7.95	23.40	49.85	86.63	97.34	99.59	100.00		

Sea

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	1.82	25.37	3.56	0.83	0.23	0.04	0.00	0.00	0.00	0.00	0.00	31.84	31.84
0.5	1	0.00	7.28	18.62	6.97	1.47	1.12	0.08	0.00	0.02	0.00	0.00	35.57	67.41
1	1.5	0.00	0.02	5.36	8.61	3.48	4.35	1.32	0.33	0.02	0.00	0.00	23.48	90.90
1.5	2	0.00	0.00	0.21	1.49	1.84	2.13	0.41	0.21	0.00	0.00	0.00	6.29	97.19
2	2.5	0.00	0.00	0.00	0.35	0.58	0.41	0.14	0.08	0.02	0.00	0.00	1.59	98.78
2.5	3	0.00	0.00	0.00	0.00	0.29	0.02	0.02	0.04	0.00	0.00	0.00	0.37	99.15
3	3.5	0.00	0.00	0.00	0.00	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.14	99.30
3.5	4	0.00	0.00	0.00	0.00	0.19	0.08	0.00	0.00	0.00	0.00	0.00	0.27	99.57
4	4.5	0.00	0.00	0.00	0.00	0.08	0.35	0.00	0.00	0.00	0.00	0.00	0.43	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		1.82	32.67	27.75	18.25	8.30	8.50	1.99	0.66	0.06	0.00	0.00		
Cumulative Total		1.82	34.49	62.24	80.49	88.79	97.29	99.28	99.94	100.00	100.00	100.00		

ANNUAL JFTS

2011 Hs vs Tp

Total

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	0.00	0.00	0.00	0.00	0.00	0.18	0.06	0.00	0.00	0.00	0.00	0.24	0.24
0.5	1	0.00	0.00	0.13	0.21	0.63	3.26	8.16	5.65	1.85	0.51	0.14	20.54	20.78
1	1.5	0.00	0.00	0.24	1.50	3.20	5.43	13.04	15.31	4.27	1.08	0.35	44.42	65.19
1.5	2	0.00	0.00	0.15	1.12	2.40	2.19	4.16	10.55	3.77	0.57	0.11	25.01	90.21
2	2.5	0.00	0.00	0.00	0.19	0.83	0.50	0.40	1.85	1.92	0.42	0.09	6.21	96.42
2.5	3	0.00	0.00	0.00	0.01	0.43	0.55	0.11	0.01	0.58	0.18	0.00	1.88	98.30
3	3.5	0.00	0.00	0.00	0.00	0.25	0.10	0.00	0.00	0.06	0.00	0.00	0.41	98.71
3.5	4	0.00	0.00	0.00	0.00	0.19	0.29	0.00	0.00	0.00	0.00	0.00	0.48	99.19
4	4.5	0.00	0.00	0.00	0.00	0.06	0.31	0.00	0.00	0.00	0.00	0.00	0.37	99.55
4.5	5	0.00	0.00	0.00	0.00	0.05	0.14	0.00	0.00	0.00	0.00	0.00	0.18	99.74
5	5.5	0.00	0.00	0.00	0.00	0.03	0.03	0.00	0.00	0.00	0.00	0.00	0.07	99.81
5.5	6	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.02	99.83
6	6.5	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.00	0.10	99.93
6.5	7	0.00	0.00	0.00	0.00	0.01	0.02	0.00	0.00	0.00	0.00	0.00	0.03	99.97
7	7.5	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.03	100.00
Total		0.00	0.00	0.51	3.03	8.08	13.17	25.92	33.37	12.44	2.77	0.70		
Cumulative Total		0.00	0.00	0.51	3.54	11.62	24.79	50.72	84.09	96.53	99.30	100.00		

Swell

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	0.00	0.00	0.00	0.58	0.50	1.61	1.92	1.04	0.84	0.09	0.07	6.65	6.65
0.5	1	0.00	0.00	0.10	1.09	2.02	6.41	12.21	9.62	3.13	0.49	0.03	35.10	41.75
1	1.5	0.00	0.00	0.06	1.71	3.01	4.26	10.12	12.98	2.58	0.69	0.12	35.53	77.28
1.5	2	0.00	0.00	0.00	0.07	1.56	1.93	2.16	6.80	2.76	0.52	0.07	15.87	93.15
2	2.5	0.00	0.00	0.00	0.00	0.45	0.58	0.27	1.55	1.65	0.34	0.06	4.89	98.04
2.5	3	0.00	0.00	0.00	0.01	0.22	0.57	0.00	0.03	0.46	0.05	0.00	1.34	99.38
3	3.5	0.00	0.00	0.00	0.00	0.06	0.14	0.00	0.00	0.06	0.00	0.00	0.25	99.63
3.5	4	0.00	0.00	0.00	0.00	0.00	0.18	0.00	0.00	0.00	0.00	0.00	0.18	99.82
4	4.5	0.00	0.00	0.00	0.00	0.00	0.18	0.00	0.00	0.00	0.00	0.00	0.18	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.00	0.00	0.16	3.46	7.81	15.87	26.68	32.02	11.49	2.17	0.35		
Cumulative Total		0.00	0.00	0.16	3.62	11.43	27.30	53.98	85.99	97.48	99.65	100.00		

Sea

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	3.37	25.35	3.53	0.49	0.22	0.00	0.00	0.00	0.00	0.00	0.00	32.98	32.98
0.5	1	0.00	11.36	13.21	4.50	1.37	1.69	0.22	0.00	0.00	0.00	0.00	32.35	65.33
1	1.5	0.00	0.22	4.66	8.05	3.91	3.91	1.39	0.27	0.02	0.00	0.00	22.45	87.78
1.5	2	0.00	0.00	0.34	3.35	2.16	1.44	1.10	0.31	0.02	0.00	0.00	8.73	96.51
2	2.5	0.00	0.00	0.00	0.18	0.45	0.20	0.07	0.22	0.02	0.00	0.00	1.15	97.66
2.5	3	0.00	0.00	0.00	0.00	0.34	0.00	0.00	0.00	0.02	0.00	0.00	0.36	98.02
3	3.5	0.00	0.00	0.00	0.00	0.20	0.11	0.00	0.00	0.00	0.00	0.00	0.31	98.34
3.5	4	0.00	0.00	0.00	0.00	0.25	0.22	0.00	0.00	0.00	0.00	0.00	0.47	98.81
4	4.5	0.00	0.00	0.00	0.00	0.13	0.22	0.00	0.00	0.00	0.00	0.00	0.36	99.17
4.5	5	0.00	0.00	0.00	0.00	0.07	0.27	0.00	0.00	0.00	0.00	0.00	0.34	99.51
5	5.5	0.00	0.00	0.00	0.00	0.04	0.07	0.00	0.00	0.00	0.00	0.00	0.11	99.62
5.5	6	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.07	99.69
6	6.5	0.00	0.00	0.00	0.00	0.00	0.18	0.00	0.00	0.00	0.00	0.00	0.18	99.87
6.5	7	0.00	0.00	0.00	0.00	0.02	0.04	0.00	0.00	0.00	0.00	0.00	0.07	99.93
7	7.5	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.07	100.00
Total		3.37	36.94	21.73	16.58	9.18	8.50	2.79	0.81	0.09	0.00	0.00		
Cumulative Total		3.37	40.31	62.05	78.63	87.81	96.31	99.10	99.91	100.00	100.00	100.00		

2012 Hs vs Tp

Total

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.5	1	0.00	0.00	0.00	0.02	0.40	1.64	10.67	7.83	2.30	0.43	0.13	23.42	23.42
1	1.5	0.00	0.00	0.08	0.31	1.08	4.16	14.33	20.61	5.92	1.16	0.16	47.80	71.22
1.5	2	0.00	0.00	0.05	0.54	1.17	1.73	4.69	9.90	4.17	0.71	0.02	22.97	94.19
2	2.5	0.00	0.00	0.00	0.13	0.36	0.30	0.43	1.43	0.54	0.06	0.00	3.24	97.44
2.5	3	0.00	0.00	0.00	0.00	0.16	0.02	0.13	0.26	0.41	0.00	0.00	0.98	98.42
3	3.5	0.00	0.00	0.00	0.00	0.11	0.10	0.05	0.00	0.05	0.00	0.00	0.31	98.72
3.5	4	0.00	0.00	0.00	0.00	0.06	0.39	0.05	0.00	0.00	0.00	0.00	0.49	99.21
4	4.5	0.00	0.00	0.00	0.00	0.00	0.28	0.22	0.00	0.00	0.00	0.00	0.50	99.72
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.23	0.00	0.00	0.00	0.00	0.23	99.94
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.00	0.00	0.00	0.00	0.06	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.00	0.00	0.13	0.99	3.35	8.62	30.84	40.04	13.38	2.36	0.31		
Cumulative Total		0.00	0.00	0.13	1.12	4.46	13.08	43.92	83.96	97.34	99.69	100.00		

Swell

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	0.00	0.00	0.00	0.10	0.32	0.47	0.21	0.38	0.66	0.37	0.17	2.70	2.70
0.5	1	0.00	0.00	0.01	0.21	0.88	5.27	16.54	11.11	2.93	0.29	0.05	37.29	39.99
1	1.5	0.00	0.00	0.00	0.60	2.20	3.13	12.02	19.31	4.36	0.64	0.06	42.31	82.30
1.5	2	0.00	0.00	0.00	0.27	0.96	1.11	2.12	6.27	2.50	0.35	0.00	13.58	95.88
2	2.5	0.00	0.00	0.00	0.06	0.20	0.09	0.20	1.05	0.45	0.05	0.00	2.10	97.97
2.5	3	0.00	0.00	0.00	0.02	0.12	0.00	0.10	0.24	0.25	0.00	0.00	0.74	98.71
3	3.5	0.00	0.00	0.00	0.01	0.01	0.09	0.05	0.00	0.00	0.00	0.00	0.16	98.88
3.5	4	0.00	0.00	0.00	0.00	0.00	0.35	0.05	0.00	0.00	0.00	0.00	0.39	99.27
4	4.5	0.00	0.00	0.00	0.00	0.00	0.28	0.16	0.00	0.00	0.00	0.00	0.44	99.71
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.23	0.00	0.00	0.00	0.00	0.23	99.94
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.00	0.00	0.00	0.00	0.06	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.00	0.00	0.01	1.27	4.69	10.79	31.73	38.38	11.16	1.69	0.28		
Cumulative Total		0.00	0.00	0.01	1.29	5.97	16.76	48.50	86.87	98.03	99.72	100.00		

Sea

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	3.36	28.42	3.85	1.30	0.10	0.00	0.00	0.00	0.00	0.00	0.00	37.02	37.02
0.5	1	0.00	10.71	13.91	6.59	0.88	0.42	0.05	0.00	0.00	0.00	0.00	32.56	69.57
1	1.5	0.00	0.00	4.58	8.77	2.72	3.70	2.06	0.15	0.02	0.00	0.00	22.00	91.57
1.5	2	0.00	0.00	0.27	1.15	1.47	1.42	1.15	0.83	0.00	0.00	0.00	6.30	97.87
2	2.5	0.00	0.00	0.00	0.24	0.07	0.37	0.27	0.24	0.02	0.00	0.00	1.22	99.09
2.5	3	0.00	0.00	0.00	0.10	0.22	0.00	0.00	0.00	0.02	0.00	0.00	0.34	99.44
3	3.5	0.00	0.00	0.00	0.00	0.22	0.00	0.00	0.00	0.00	0.00	0.00	0.22	99.66
3.5	4	0.00	0.00	0.00	0.00	0.10	0.15	0.00	0.00	0.00	0.00	0.00	0.24	99.90
4	4.5	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.00	0.10	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		3.36	39.12	22.61	18.15	5.78	6.15	3.53	1.22	0.07	0.00	0.00		
Cumulative Total		3.36	42.48	65.09	83.24	89.02	95.17	98.70	99.93	100.00	100.00	100.00		

ANNUAL JFTS

2013 Hs vs Tp

Total

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.5	1	0.00	0.00	0.00	0.13	0.13	3.25	6.23	5.55	1.34	0.25	0.02	16.89	16.89
1	1.5	0.00	0.00	0.06	0.61	0.99	5.05	15.71	12.80	3.70	0.73	0.31	39.94	56.84
1.5	2	0.00	0.00	0.00	0.47	0.76	3.29	8.22	10.68	2.65	0.57	0.01	26.66	83.49
2	2.5	0.00	0.00	0.00	0.17	0.24	0.65	1.61	5.16	2.52	0.32	0.00	10.67	94.17
2.5	3	0.00	0.00	0.00	0.01	0.06	0.00	0.23	1.53	1.59	0.10	0.00	3.52	97.68
3	3.5	0.00	0.00	0.00	0.00	0.03	0.00	0.02	0.50	0.73	0.06	0.00	1.35	99.03
3.5	4	0.00	0.00	0.00	0.00	0.06	0.00	0.07	0.09	0.09	0.05	0.00	0.35	99.38
4	4.5	0.00	0.00	0.00	0.00	0.00	0.03	0.02	0.03	0.00	0.00	0.00	0.09	99.47
4.5	5	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.03	0.00	0.00	0.00	0.06	99.53
5	5.5	0.00	0.00	0.00	0.00	0.00	0.03	0.07	0.03	0.00	0.00	0.00	0.14	99.67
5.5	6	0.00	0.00	0.00	0.00	0.00	0.05	0.01	0.01	0.00	0.00	0.00	0.07	99.74
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.00	0.00	0.00	0.05	99.78
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.06	0.00	0.00	0.00	0.08	99.86
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.06	0.00	0.00	0.00	0.14	100.00
Total		0.00	0.00	0.06	1.38	2.27	12.37	32.32	36.56	12.61	2.08	0.34		
Cumulative Total		0.00	0.00	0.06	1.44	3.71	16.08	48.40	84.97	97.58	99.66	100.00		

Swell

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	0.00	0.00	0.00	0.34	0.57	0.50	0.44	0.28	0.60	0.43	0.14	3.29	3.29
0.5	1	0.00	0.00	0.05	0.75	0.78	7.36	12.31	8.35	1.41	0.30	0.00	31.31	34.59
1	1.5	0.00	0.00	0.00	0.62	1.47	4.39	14.06	10.64	2.26	0.56	0.09	34.09	68.68
1.5	2	0.00	0.00	0.00	0.12	1.16	2.77	3.99	8.92	2.43	0.38	0.00	19.76	88.44
2	2.5	0.00	0.00	0.00	0.03	0.10	0.40	0.67	3.54	2.12	0.21	0.00	7.08	95.52
2.5	3	0.00	0.00	0.00	0.00	0.03	0.00	0.10	1.30	1.27	0.07	0.00	2.78	98.30
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.49	0.57	0.09	0.00	1.16	99.46
3.5	4	0.00	0.00	0.00	0.00	0.02	0.00	0.07	0.03	0.06	0.02	0.00	0.21	99.66
4	4.5	0.00	0.00	0.00	0.00	0.02	0.00	0.02	0.01	0.00	0.00	0.00	0.06	99.72
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.03	99.76
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.03	0.00	0.00	0.00	0.10	99.86
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.02	99.88
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.02	99.91
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.00	0.00	0.00	0.06	99.97
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.03	100.00
Total		0.00	0.00	0.05	1.86	4.15	15.41	31.76	33.76	10.71	2.06	0.23		
Cumulative Total		0.00	0.00	0.05	1.91	6.06	21.47	53.23	87.00	97.71	99.77	100.00		

Sea

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	2.12	26.09	2.52	0.71	0.09	0.00	0.00	0.00	0.00	0.00	0.00	31.52	31.52
0.5	1	0.00	13.05	14.57	6.46	1.29	1.11	0.18	0.02	0.00	0.00	0.00	36.69	68.21
1	1.5	0.00	0.00	4.72	7.62	2.29	2.54	0.87	0.07	0.00	0.00	0.00	18.11	86.32
1.5	2	0.00	0.00	0.22	2.32	2.76	2.32	1.69	0.42	0.04	0.00	0.00	9.78	96.10
2	2.5	0.00	0.00	0.00	0.38	0.53	0.40	0.71	0.40	0.11	0.00	0.00	2.54	98.64
2.5	3	0.00	0.00	0.00	0.20	0.07	0.00	0.02	0.29	0.02	0.00	0.00	0.60	99.24
3	3.5	0.00	0.00	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.07	99.31
3.5	4	0.00	0.00	0.00	0.00	0.09	0.00	0.00	0.00	0.04	0.00	0.00	0.13	99.44
4	4.5	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.07	99.51
4.5	5	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.04	99.55
5	5.5	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.07	99.62
5.5	6	0.00	0.00	0.00	0.00	0.00	0.09	0.00	0.00	0.00	0.00	0.00	0.09	99.71
6	6.5	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.00	0.00	0.00	0.00	0.04	99.75
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.00	0.00	0.00	0.00	0.09	99.84
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.04	0.00	0.00	0.00	0.16	100.00
Total		2.12	39.14	22.03	17.69	7.20	6.66	3.70	1.25	0.22	0.00	0.00		
Cumulative Total		2.12	41.26	63.29	80.98	88.17	94.83	98.53	99.78	100.00	100.00	100.00		

2014 Hs vs Tp

Total

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.5	1	0.00	0.00	0.00	0.00	0.09	2.04	3.11	2.64	0.23	0.07	0.08	8.25	8.25
1	1.5	0.00	0.00	0.01	0.22	0.56	2.80	14.93	15.76	3.52	0.92	0.10	38.82	47.08
1.5	2	0.00	0.00	0.18	0.82	1.05	2.26	9.13	16.00	4.11	1.43	0.25	35.24	82.32
2	2.5	0.00	0.00	0.00	0.65	0.55	0.53	1.68	5.64	3.81	0.48	0.13	13.46	95.78
2.5	3	0.00	0.00	0.00	0.03	0.24	0.05	0.06	1.40	1.38	0.23	0.08	3.47	99.25
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.34	0.16	0.00	0.75	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.00	0.00	0.19	1.72	2.49	7.67	28.90	41.70	13.39	3.29	0.64		
Cumulative Total		0.00	0.00	0.19	1.92	4.41	12.08	40.98	82.68	96.07	99.36	100.00		

Swell

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	0.00	0.00	0.00	0.57	0.79	0.12	0.26	0.39	0.69	0.32	0.34	3.47	3.47
0.5	1	0.00	0.00	0.04	0.35	0.62	4.62	7.98	6.03	0.76	0.18	0.01	20.59	24.06
1	1.5	0.00	0.00	0.00	0.56	1.37	4.10	15.48	15.93	2.66	0.35	0.09	40.54	64.60
1.5	2	0.00	0.00	0.00	0.28	0.90	1.62	4.05	12.57	3.61	0.53	0.12	23.67	88.27
2	2.5	0.00	0.00	0.00	0.01	0.18	0.19	0.81	4.11	3.00	0.37	0.09	8.75	97.02
2.5	3	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.78	1.17	0.25	0.05	2.26	99.29
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.26	0.32	0.14	0.00	0.71	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.00	0.00	0.04	1.77	3.85	10.66	28.59	40.07	12.20	2.12	0.70		
Cumulative Total		0.00	0.00	0.04	1.81	5.66	16.32	44.90	84.98	97.18	99.30	100.00		

Sea

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	0.74	16.33	2.98	0.77	0.22	0.00	0.00	0.00	0.00	0.00	0.00	21.04	21.04
0.5	1	0.00	8.45	14.69	5.14	1.23	0.55	0.11	0.03	0.00	0.00	0.00	30.21	51.24
1	1.5	0.00	0.05	4.82	9.79	4.71	4.19	1.04	0.25	0.00	0.00	0.00	24.84	76.09
1.5	2	0.00	0.00	0.79	5.42	4.54	3.28	2.82	0.77	0.03	0.00	0.00	17.65	93.73
2	2.5	0.00	0.00	0.00	1.83	1.89	0.79	0.63	0.25	0.14	0.00	0.00	5.53	99.26
2.5	3	0.00	0.00	0.00	0.05	0.55	0.08	0.03	0.03	0.00	0.00	0.00	0.74	100.00
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.74	24.84	23.28	23.01	13.13	8.89	4.62	1.31	0.16	0.00	0.00		
Cumulative Total		0.74	25.58	48.86	71.87	85.01	93.90	98.52	99.84	100.00	100.00	100.00		

ANNUAL JFTS

2015 Hs vs Tp

Total

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.5	1	0.00	0.00	0.00	0.10	0.00	1.00	4.82	3.44	1.78	0.76	0.07	11.97	11.97
1	1.5	0.00	0.00	0.01	0.50	1.37	3.88	17.13	22.19	7.11	1.18	0.13	53.50	65.48
1.5	2	0.00	0.00	0.14	0.55	1.46	1.89	5.88	11.16	3.03	0.64	0.22	24.97	90.45
2	2.5	0.00	0.00	0.02	0.18	0.79	0.49	0.86	3.45	2.03	0.47	0.06	8.34	98.79
2.5	3	0.00	0.00	0.00	0.02	0.16	0.00	0.01	0.19	0.11	0.41	0.00	0.91	99.70
3	3.5	0.00	0.00	0.00	0.07	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.11	99.82
3.5	4	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.02	99.84
4	4.5	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.03	99.87
4.5	5	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.02	99.90
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.02	99.92
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.02	99.94
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.02	99.97
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.03	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.00	0.00	0.17	1.43	3.80	7.36	28.81	40.43	14.06	3.46	0.47		
Cumulative Total		0.00	0.00	0.17	1.60	5.40	12.76	41.58	82.01	96.07	99.53	100.00		

Swell

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	0.00	0.00	0.01	0.19	0.28	0.38	0.10	0.38	0.49	0.42	0.21	2.46	2.46
0.5	1	0.00	0.00	0.00	0.19	0.38	4.80	12.34	8.69	3.01	0.50	0.05	29.95	32.41
1	1.5	0.00	0.00	0.01	0.95	2.48	5.15	15.23	20.11	4.34	0.45	0.05	48.77	81.19
1.5	2	0.00	0.00	0.00	0.09	1.06	1.45	2.45	6.48	1.55	0.33	0.05	13.45	94.64
2	2.5	0.00	0.00	0.00	0.00	0.08	0.14	0.33	2.15	1.50	0.30	0.05	4.55	99.19
2.5	3	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.01	0.10	0.41	0.01	0.58	99.77
3	3.5	0.00	0.00	0.00	0.00	0.02	0.03	0.00	0.00	0.00	0.00	0.00	0.06	99.83
3.5	4	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.02	99.85
4	4.5	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.02	99.87
4.5	5	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.02	99.90
5	5.5	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.02	99.92
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.02	99.94
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.02	99.97
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.03	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.00	0.00	0.02	1.42	4.35	12.05	30.54	37.82	10.99	2.41	0.41		
Cumulative Total		0.00	0.00	0.02	1.44	5.79	17.84	48.38	86.20	97.19	99.59	100.00		

Sea

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	1.04	21.02	2.97	0.50	0.23	0.00	0.00	0.00	0.00	0.00	0.00	25.76	25.76
0.5	1	0.00	10.36	18.75	5.10	1.81	0.50	0.11	0.00	0.00	0.00	0.00	36.64	62.40
1	1.5	0.00	0.05	5.62	9.66	4.38	2.47	1.16	0.14	0.00	0.00	0.00	23.47	85.87
1.5	2	0.00	0.02	0.29	2.49	4.29	1.61	1.11	0.73	0.02	0.00	0.00	10.57	96.44
2	2.5	0.00	0.00	0.02	0.32	1.29	0.77	0.34	0.34	0.00	0.00	0.00	3.08	99.52
2.5	3	0.00	0.00	0.00	0.14	0.20	0.00	0.02	0.09	0.00	0.00	0.00	0.45	99.98
3	3.5	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		1.04	31.45	27.66	18.23	12.20	5.35	2.74	1.29	0.02	0.00	0.00		
Cumulative Total		1.04	32.49	60.16	78.39	90.59	95.94	98.68	99.98	100.00	100.00	100.00		

2016 Hs vs Tp

Total

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.5	1	0.00	0.00	0.00	0.02	0.06	1.47	3.89	2.63	1.02	0.16	0.00	9.26	9.26
1	1.5	0.00	0.00	0.06	0.25	1.08	4.76	15.10	19.68	5.69	1.26	0.16	48.04	57.30
1.5	2	0.00	0.00	0.09	0.44	1.23	1.89	7.18	13.90	3.81	0.28	0.18	29.02	86.32
2	2.5	0.00	0.00	0.00	0.28	0.46	0.25	1.29	4.86	2.37	0.25	0.13	9.88	96.20
2.5	3	0.00	0.00	0.00	0.07	0.08	0.02	0.18	1.31	1.12	0.20	0.03	3.02	99.21
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.51	0.14	0.00	0.79	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.00	0.00	0.15	1.07	2.90	8.39	27.64	42.52	14.53	2.30	0.50		
Cumulative Total		0.00	0.00	0.15	1.22	4.12	12.51	40.15	82.67	97.20	99.50	100.00		

Swell

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	0.00	0.00	0.00	0.30	1.32	0.32	0.44	0.69	0.69	0.46	0.31	4.54	4.54
0.5	1	0.00	0.00	0.08	0.35	0.40	4.89	10.42	7.08	1.57	0.29	0.02	25.10	29.64
1	1.5	0.00	0.00	0.01	0.55	1.85	4.20	13.39	19.15	4.00	0.73	0.06	43.94	73.58
1.5	2	0.00	0.00	0.00	0.10	1.24	1.55	2.60	9.58	3.03	0.16	0.13	18.38	91.96
2	2.5	0.00	0.00	0.00	0.03	0.06	0.22	0.31	2.95	1.64	0.28	0.00	5.49	97.45
2.5	3	0.00	0.00	0.00	0.00	0.00	0.06	0.10	0.64	1.09	0.13	0.02	2.03	99.48
3	3.5	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.14	0.31	0.02	0.00	0.52	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.00	0.00	0.09	1.34	4.86	11.29	27.26	40.22	12.33	2.07	0.54		
Cumulative Total		0.00	0.00	0.09	1.43	6.30	17.58	44.84	85.06	97.39	99.46	100.00		

Sea

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	0.63	20.28	2.81	0.37	0.04	0.00	0.00	0.00	0.00	0.00	0.00	24.13	24.13
0.5	1	0.00	9.69	15.86	6.06	0.83	0.81	0.13	0.00	0.00	0.00	0.00	33.37	57.50
1	1.5	0.00	0.00	5.75	10.41	3.20	4.94	1.15	0.37	0.00	0.00	0.00	25.83	83.34
1.5	2	0.00	0.00	0.20	3.49	4.47	1.90	1.46	0.44	0.02	0.00	0.00	11.96	95.30
2	2.5	0.00	0.00	0.00	0.57	1.24	0.65	0.65	0.57	0.04	0.00	0.00	3.72	99.02
2.5	3	0.00	0.00	0.00	0.00	0.15	0.20	0.11	0.46	0.00	0.07	0.00	0.98	100.00
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.63	29.97	24.61	20.89	9.93	8.49	3.51	1.83	0.07	0.07	0.00		
Cumulative Total		0.63	30.60	55.22	76.11	86.04	94.53	98.04	99.87	99.93	100.00	100.00		

ANNUAL JFTS

2017 Hs vs Tp

Total

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.5	1	0.00	0.00	0.00	0.05	0.14	1.06	3.37	2.23	0.66	0.14	0.02	7.66	7.66
1	1.5	0.00	0.00	0.00	0.29	1.22	4.60	15.54	15.96	4.39	1.08	0.55	43.63	51.29
1.5	2	0.00	0.00	0.03	0.63	1.89	1.53	8.28	15.65	3.66	1.07	0.24	32.99	84.28
2	2.5	0.00	0.00	0.00	0.41	0.87	0.73	1.84	3.76	3.07	0.94	0.22	11.83	96.11
2.5	3	0.00	0.00	0.00	0.00	0.26	0.42	0.10	1.75	0.67	0.19	0.00	3.40	99.51
3	3.5	0.00	0.00	0.00	0.00	0.01	0.07	0.00	0.35	0.06	0.00	0.00	0.49	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.00	0.00	0.03	1.37	4.39	8.41	29.12	39.69	12.52	3.42	1.03		
Cumulative Total		0.00	0.00	0.03	1.40	5.80	14.21	43.33	83.03	95.55	98.97	100.00		

Swell

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	0.00	0.00	0.01	0.58	2.14	0.58	0.12	0.34	0.58	0.27	0.12	4.74	4.74
0.5	1	0.00	0.00	0.07	0.22	0.76	4.07	9.39	5.46	1.13	0.28	0.19	21.57	26.30
1	1.5	0.00	0.00	0.01	1.27	1.79	4.62	14.53	18.40	3.54	0.79	0.26	45.20	71.51
1.5	2	0.00	0.00	0.00	0.15	1.66	1.52	3.04	10.08	2.80	0.31	0.03	19.61	91.12
2	2.5	0.00	0.00	0.00	0.00	0.30	0.20	0.77	1.84	2.33	0.79	0.12	6.34	97.46
2.5	3	0.00	0.00	0.00	0.00	0.00	0.00	0.10	1.36	0.51	0.19	0.00	2.16	99.63
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.33	0.05	0.00	0.00	0.37	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.00	0.00	0.09	2.22	6.66	11.00	27.94	37.80	10.94	2.63	0.71		
Cumulative Total		0.00	0.00	0.09	2.32	8.97	19.97	47.92	85.72	96.66	99.29	100.00		

Sea

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	0.53	16.19	2.04	0.83	0.19	0.00	0.00	0.00	0.00	0.00	0.00	19.78	19.78
0.5	1	0.00	8.08	13.64	5.61	1.48	0.68	0.00	0.00	0.00	0.00	0.00	29.48	49.26
1	1.5	0.00	0.02	5.07	11.31	4.54	3.71	1.21	0.12	0.00	0.00	0.00	25.99	75.25
1.5	2	0.00	0.00	0.39	4.83	4.76	2.89	2.98	1.12	0.02	0.00	0.00	16.99	92.23
2	2.5	0.00	0.00	0.00	0.83	1.53	1.36	1.41	0.83	0.07	0.00	0.00	6.02	98.25
2.5	3	0.00	0.00	0.00	0.00	0.49	0.78	0.00	0.29	0.02	0.00	0.00	1.58	99.83
3	3.5	0.00	0.00	0.00	0.00	0.05	0.12	0.00	0.00	0.00	0.00	0.00	0.17	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.53	24.29	21.14	23.39	13.03	9.54	5.61	2.35	0.12	0.00	0.00		
Cumulative Total		0.53	24.82	45.96	69.35	82.38	91.92	97.52	99.88	100.00	100.00	100.00		

2018 Hs vs Tp

Total

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.5	1	0.00	0.00	0.00	0.00	0.07	1.28	3.16	1.14	0.23	0.22	0.00	6.10	6.10
1	1.5	0.00	0.00	0.06	0.29	1.03	6.22	17.25	13.92	3.70	0.83	0.24	43.53	49.62
1.5	2	0.00	0.00	0.07	1.11	2.58	3.58	9.82	14.22	3.63	0.55	0.13	35.68	85.31
2	2.5	0.00	0.00	0.03	0.57	1.12	0.32	1.74	4.35	1.77	0.63	0.01	10.54	95.84
2.5	3	0.00	0.00	0.00	0.19	0.16	0.11	0.38	0.92	0.53	0.19	0.05	2.53	98.38
3	3.5	0.00	0.00	0.00	0.00	0.02	0.02	0.18	0.58	0.15	0.32	0.01	1.29	99.67
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.11	0.00	0.13	0.00	0.33	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.00	0.00	0.16	2.16	4.98	11.54	32.61	35.25	10.00	2.87	0.43		
Cumulative Total		0.00	0.00	0.16	2.32	7.29	18.84	51.45	86.70	96.70	99.57	100.00		

Swell

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	0.00	0.00	0.00	0.21	1.67	0.33	0.11	0.70	0.93	0.42	0.28	4.65	4.65
0.5	1	0.00	0.00	0.02	0.09	1.14	5.01	12.76	5.42	1.34	0.18	0.00	25.96	30.61
1	1.5	0.00	0.00	0.01	0.92	2.79	4.80	14.02	14.55	2.48	0.29	0.16	40.02	70.62
1.5	2	0.00	0.00	0.00	0.11	2.18	1.83	3.18	9.60	2.70	0.43	0.02	20.05	90.67
2	2.5	0.00	0.00	0.00	0.02	0.15	0.19	0.84	2.90	1.22	0.39	0.00	5.71	96.39
2.5	3	0.00	0.00	0.00	0.00	0.00	0.11	0.27	0.89	0.57	0.19	0.02	2.05	98.44
3	3.5	0.00	0.00	0.00	0.00	0.00	0.01	0.19	0.53	0.16	0.33	0.00	1.22	99.66
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.12	0.00	0.13	0.00	0.34	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.00	0.00	0.04	1.35	7.93	12.27	31.46	34.70	9.40	2.36	0.49		
Cumulative Total		0.00	0.00	0.04	1.38	9.31	21.59	53.05	87.75	97.15	99.51	100.00		

Sea

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	0.66	15.88	2.30	0.61	0.13	0.00	0.00	0.00	0.00	0.00	0.00	19.59	19.59
0.5	1	0.00	8.60	14.67	4.69	1.16	0.61	0.02	0.00	0.00	0.00	0.00	29.77	49.35
1	1.5	0.00	0.02	4.47	11.67	5.33	4.08	1.05	0.09	0.00	0.00	0.00	26.72	76.07
1.5	2	0.00	0.00	0.39	5.40	6.25	3.53	3.03	0.55	0.00	0.00	0.00	19.15	95.22
2	2.5	0.00	0.00	0.07	1.34	1.43	0.31	0.55	0.33	0.09	0.00	0.00	4.10	99.32
2.5	3	0.00	0.00	0.00	0.04	0.31	0.07	0.15	0.02	0.00	0.00	0.00	0.59	99.91
3	3.5	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.07	0.00	0.00	0.00	0.09	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.66	24.50	21.91	23.76	14.61	8.62	4.80	1.05	0.09	0.00	0.00		
Cumulative Total		0.66	25.16	47.07	70.83	85.44	94.06	98.86	99.91	100.00	100.00	100.00		

ANNUAL JFTS

2019 Hs vs Tp

Total

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.5	1	0.00	0.00	0.00	0.00	0.00	0.99	3.95	1.89	1.00	0.18	0.09	8.12	8.12
1	1.5	0.00	0.00	0.14	0.62	1.24	4.63	14.02	14.76	3.85	1.39	0.48	41.13	49.25
1.5	2	0.00	0.00	0.07	1.13	1.75	2.77	9.09	13.72	5.76	1.50	0.32	36.11	85.35
2	2.5	0.00	0.00	0.00	0.38	0.75	0.18	1.32	5.40	2.97	0.56	0.00	11.56	96.92
2.5	3	0.00	0.00	0.00	0.03	0.06	0.37	0.00	0.66	1.53	0.15	0.00	2.80	99.71
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.23	0.05	0.00	0.29	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.00	0.00	0.21	2.16	3.80	8.95	28.38	36.45	15.34	3.82	0.89		
Cumulative Total		0.00	0.00	0.21	2.36	6.16	15.11	43.49	79.94	95.29	99.11	100.00		

Swell

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	0.00	0.00	0.00	0.16	0.17	0.15	0.34	0.52	0.70	0.15	0.31	2.51	2.51
0.5	1	0.00	0.00	0.00	0.03	0.14	4.86	10.75	4.38	1.80	0.50	0.16	22.63	25.15
1	1.5	0.00	0.00	0.00	1.15	2.25	3.71	13.94	17.33	2.72	0.54	0.07	41.71	66.86
1.5	2	0.00	0.00	0.00	0.15	2.30	1.94	3.56	9.29	4.25	0.84	0.21	22.54	89.40
2	2.5	0.00	0.00	0.00	0.00	0.40	0.20	0.22	4.03	2.93	0.45	0.00	8.23	97.63
2.5	3	0.00	0.00	0.00	0.00	0.01	0.37	0.00	0.47	1.09	0.15	0.00	2.09	99.72
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.23	0.02	0.00	0.28	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.00	0.00	0.00	1.50	5.27	11.24	28.81	36.03	13.73	2.65	0.76		
Cumulative Total		0.00	0.00	0.00	1.50	6.77	18.01	46.83	82.86	96.59	99.24	100.00		

Sea

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	0.76	16.63	2.90	0.50	0.05	0.02	0.00	0.00	0.00	0.00	0.00	20.87	20.87
0.5	1	0.00	9.14	15.85	6.38	1.88	0.62	0.24	0.02	0.00	0.00	0.00	34.13	55.00
1	1.5	0.00	0.00	4.76	12.85	5.69	3.31	1.12	0.07	0.00	0.00	0.00	27.80	82.79
1.5	2	0.00	0.00	0.24	5.71	4.40	2.00	1.45	0.31	0.05	0.00	0.00	14.16	96.95
2	2.5	0.00	0.00	0.00	0.64	1.14	0.14	0.48	0.33	0.05	0.00	0.00	2.78	99.74
2.5	3	0.00	0.00	0.00	0.00	0.12	0.02	0.00	0.10	0.02	0.00	0.00	0.26	100.00
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.76	25.77	23.75	26.08	13.28	6.12	3.28	0.83	0.12	0.00	0.00		
Cumulative Total		0.76	26.53	50.29	76.37	89.65	95.76	99.05	99.88	100.00	100.00	100.00		

2020 Hs vs Tp

Total

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.5	1	0.00	0.00	0.00	0.01	0.02	1.33	3.43	2.96	0.56	0.23	0.13	8.66	8.66
1	1.5	0.00	0.00	0.03	1.21	0.65	4.49	16.13	12.96	3.88	1.37	0.27	40.98	49.65
1.5	2	0.00	0.00	0.13	1.29	1.78	2.50	8.27	14.99	5.23	0.72	0.23	35.12	84.77
2	2.5	0.00	0.00	0.03	0.22	0.90	0.49	1.06	4.36	2.39	0.44	0.00	9.89	94.66
2.5	3	0.00	0.00	0.00	0.07	0.39	0.31	0.06	0.98	2.07	0.22	0.00	4.09	98.75
3	3.5	0.00	0.00	0.00	0.02	0.10	0.03	0.03	0.38	0.14	0.00	0.00	0.71	99.45
3.5	4	0.00	0.00	0.00	0.06	0.26	0.13	0.00	0.08	0.00	0.00	0.00	0.52	99.98
4	4.5	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.02	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.00	0.00	0.19	2.87	4.10	9.29	28.97	36.71	14.26	2.97	0.63		
Cumulative Total		0.00	0.00	0.19	3.06	7.16	16.45	45.42	82.14	96.40	99.37	100.00		

Swell

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	0.00	0.00	0.00	0.48	0.73	0.54	0.54	0.62	0.64	0.30	0.31	4.16	4.16
0.5	1	0.00	0.00	0.01	0.31	0.34	4.70	11.57	6.11	1.19	0.56	0.03	24.82	28.98
1	1.5	0.00	0.00	0.00	1.37	1.62	4.28	13.45	13.31	3.06	0.58	0.01	37.68	66.66
1.5	2	0.00	0.00	0.00	0.06	0.98	1.48	3.96	11.72	4.04	0.33	0.19	22.75	89.41
2	2.5	0.00	0.00	0.00	0.00	0.15	0.27	0.64	3.06	2.05	0.22	0.00	6.40	95.81
2.5	3	0.00	0.00	0.00	0.00	0.12	0.24	0.03	0.83	1.93	0.22	0.00	3.38	99.18
3	3.5	0.00	0.00	0.00	0.00	0.01	0.01	0.03	0.36	0.09	0.00	0.00	0.51	99.70
3.5	4	0.00	0.00	0.00	0.00	0.10	0.05	0.00	0.13	0.00	0.00	0.00	0.28	99.98
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.02	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.00	0.00	0.01	2.23	4.05	11.56	30.22	36.15	13.01	2.21	0.55		
Cumulative Total		0.00	0.00	0.01	2.24	6.29	17.85	48.07	84.22	97.24	99.45	100.00		

Sea

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	0.68	17.58	2.20	1.67	0.07	0.00	0.00	0.00	0.00	0.00	0.00	22.19	22.19
0.5	1	0.00	7.48	14.85	6.83	0.77	0.31	0.05	0.00	0.00	0.00	0.00	30.30	52.49
1	1.5	0.00	0.00	7.24	12.87	2.73	3.38	1.21	0.05	0.02	0.00	0.00	27.50	79.99
1.5	2	0.00	0.00	0.70	4.08	4.76	3.21	1.74	0.48	0.07	0.00	0.00	15.04	95.03
2	2.5	0.00	0.00	0.05	0.51	1.91	0.36	0.19	0.31	0.05	0.00	0.00	3.38	98.41
2.5	3	0.00	0.00	0.00	0.14	0.53	0.10	0.05	0.02	0.02	0.00	0.00	0.87	99.28
3	3.5	0.00	0.00	0.00	0.07	0.27	0.07	0.00	0.00	0.00	0.00	0.00	0.41	99.69
3.5	4	0.00	0.00	0.00	0.05	0.19	0.07	0.00	0.00	0.00	0.00	0.00	0.31	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.68	25.06	25.04	26.22	11.23	7.51	3.24	0.87	0.17	0.00	0.00		
Cumulative Total		0.68	25.74	50.77	76.99	88.22	95.73	98.96	99.83	100.00	100.00	100.00		

ANNUAL JFTS

2021 Hs vs Tp

Total

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.5	1	0.00	0.00	0.00	0.00	1.19	1.62	6.25	2.74	0.56	0.00	0.21	12.57	12.57
1	1.5	0.00	0.00	0.07	1.26	2.11	4.14	20.15	10.53	3.65	2.39	0.91	45.22	57.79
1.5	2	0.00	0.00	0.14	2.04	5.06	2.88	5.48	12.36	4.35	0.63	0.00	32.94	90.73
2	2.5	0.00	0.00	0.07	2.32	0.98	1.47	1.62	1.83	0.00	0.00	0.00	8.29	99.02
2.5	3	0.00	0.00	0.00	0.84	0.00	0.00	0.00	0.14	0.00	0.00	0.00	0.98	100.00
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.00	0.00	0.28	6.46	9.34	10.11	33.50	27.60	8.57	3.02	1.12		
Cumulative Total		0.00	0.00	0.28	6.74	16.08	26.19	59.69	87.29	95.86	98.88	100.00		

Swell

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	0.00	0.00	0.14	0.98	2.67	0.28	0.00	0.28	1.41	0.00	0.07	5.83	5.83
0.5	1	0.00	0.00	0.00	0.35	4.01	6.18	22.91	6.61	0.49	0.35	0.14	41.04	46.87
1	1.5	0.00	0.00	0.00	0.56	0.70	6.18	11.60	16.58	4.22	1.76	0.14	41.74	88.62
1.5	2	0.00	0.00	0.00	0.21	1.34	2.11	1.34	4.71	0.91	0.07	0.00	10.68	99.30
2	2.5	0.00	0.00	0.00	0.00	0.35	0.21	0.07	0.07	0.00	0.00	0.00	0.70	100.00
2.5	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.00	0.00	0.14	2.11	9.07	14.97	35.91	28.25	7.03	2.18	0.35		
Cumulative Total		0.00	0.00	0.14	2.25	11.31	26.28	62.19	90.44	97.47	99.65	100.00		

Sea

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.5	0.46	6.50	1.62	0.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.28	9.28
0.5	1	0.00	2.32	20.19	5.92	0.23	1.16	0.23	0.00	0.00	0.00	0.00	30.05	39.33
1	1.5	0.00	0.00	12.06	14.04	4.06	3.25	0.93	0.00	0.00	0.00	0.00	34.34	73.67
1.5	2	0.00	0.00	0.93	7.31	6.50	2.09	2.44	0.46	0.00	0.00	0.00	19.72	93.39
2	2.5	0.00	0.00	0.23	3.25	0.93	1.39	0.35	0.23	0.00	0.00	0.00	6.38	99.77
2.5	3	0.00	0.00	0.00	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23	100.00
3	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
3.5	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
4.5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5	5.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
5.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6	6.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
6.5	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
7	7.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.46	8.82	35.03	31.44	11.72	7.89	3.94	0.70	0.00	0.00	0.00		
Cumulative Total		0.46	9.28	44.32	75.75	87.47	95.36	99.30	100.00	100.00	100.00	100.00		

Appendix C Tantabiddi Wave Buoy Roses

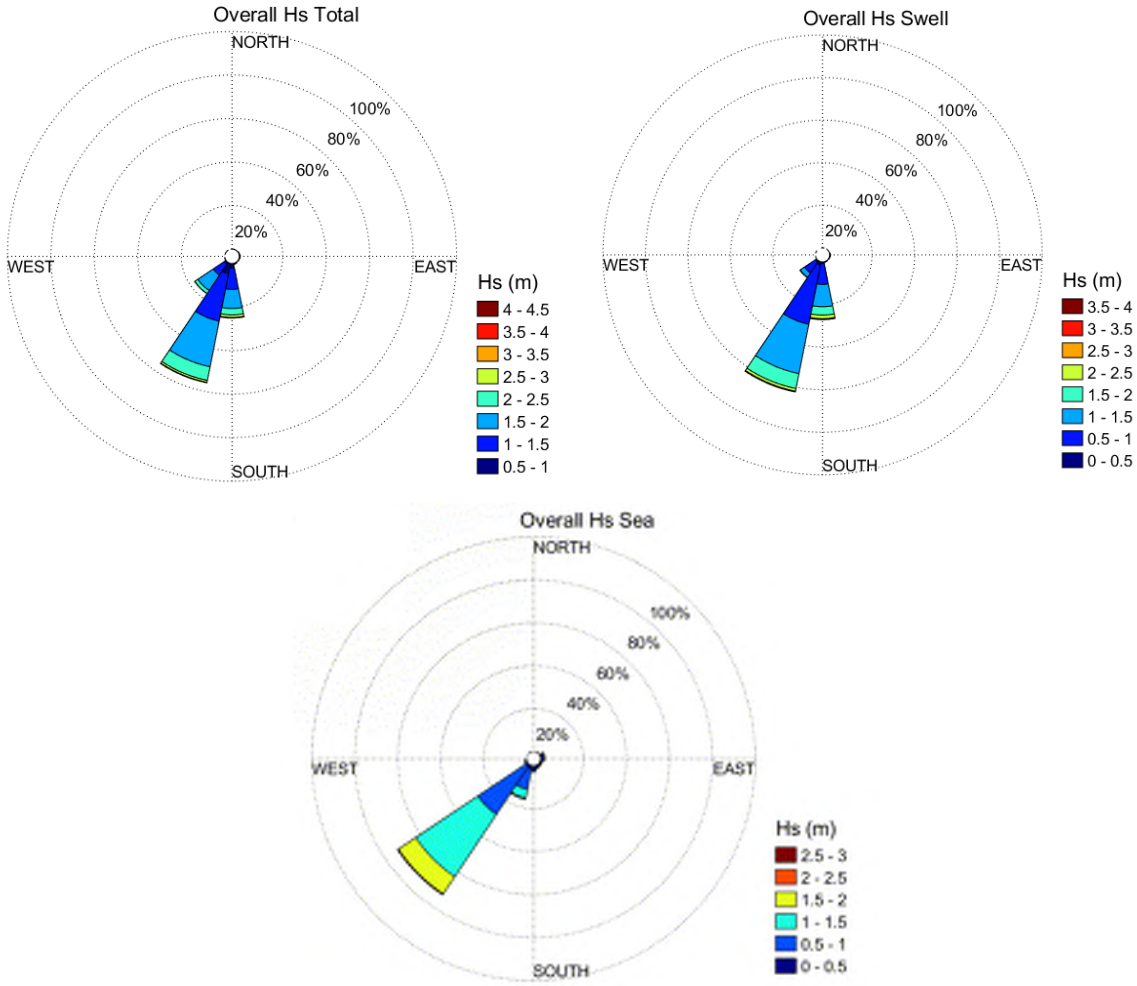

Figure C.1 Overall Hs Roses for Tantabiddi Wave Buoy

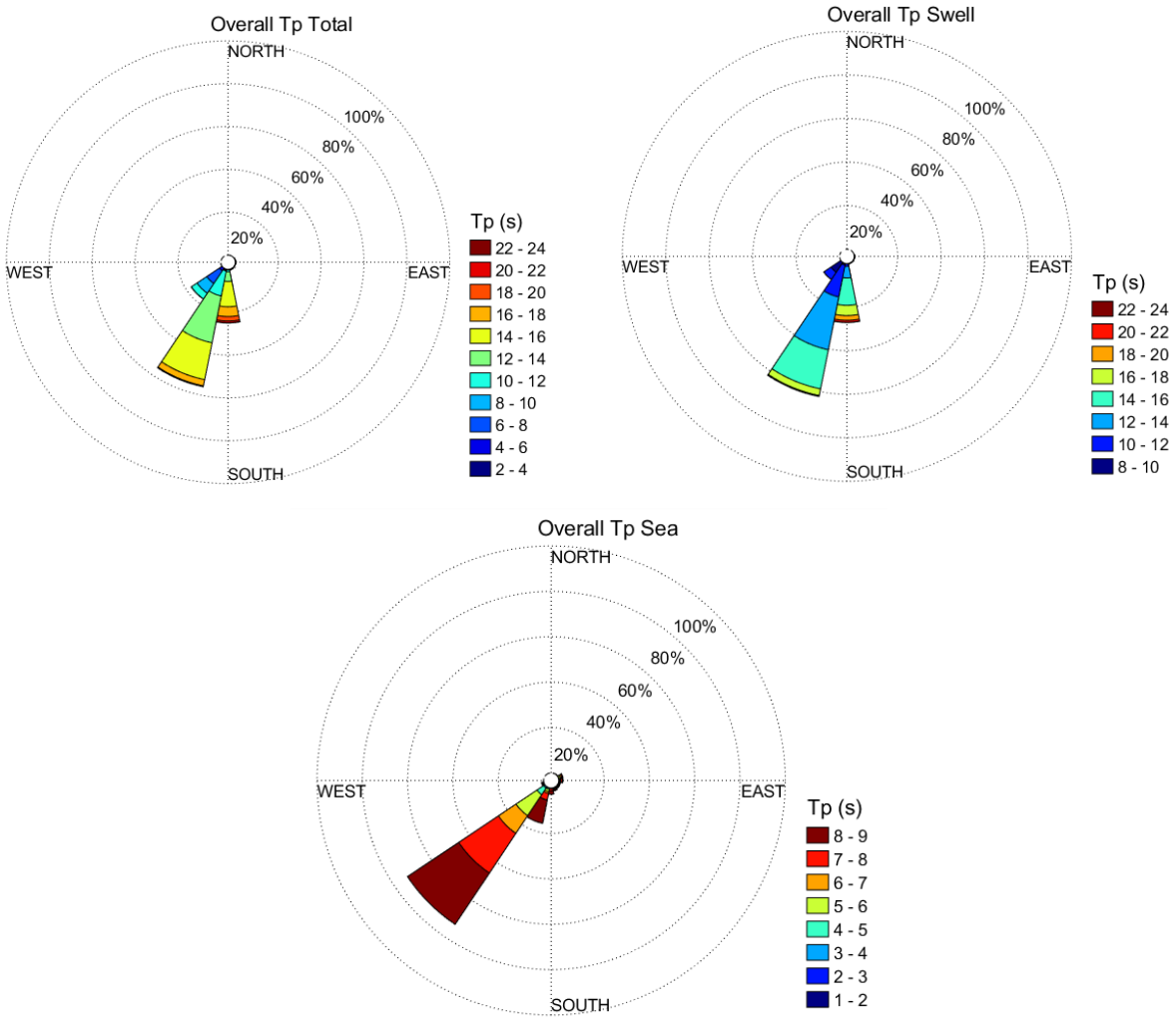

Figure C.2 Overall Tp Roses for Tantabiddi Wave Buoy

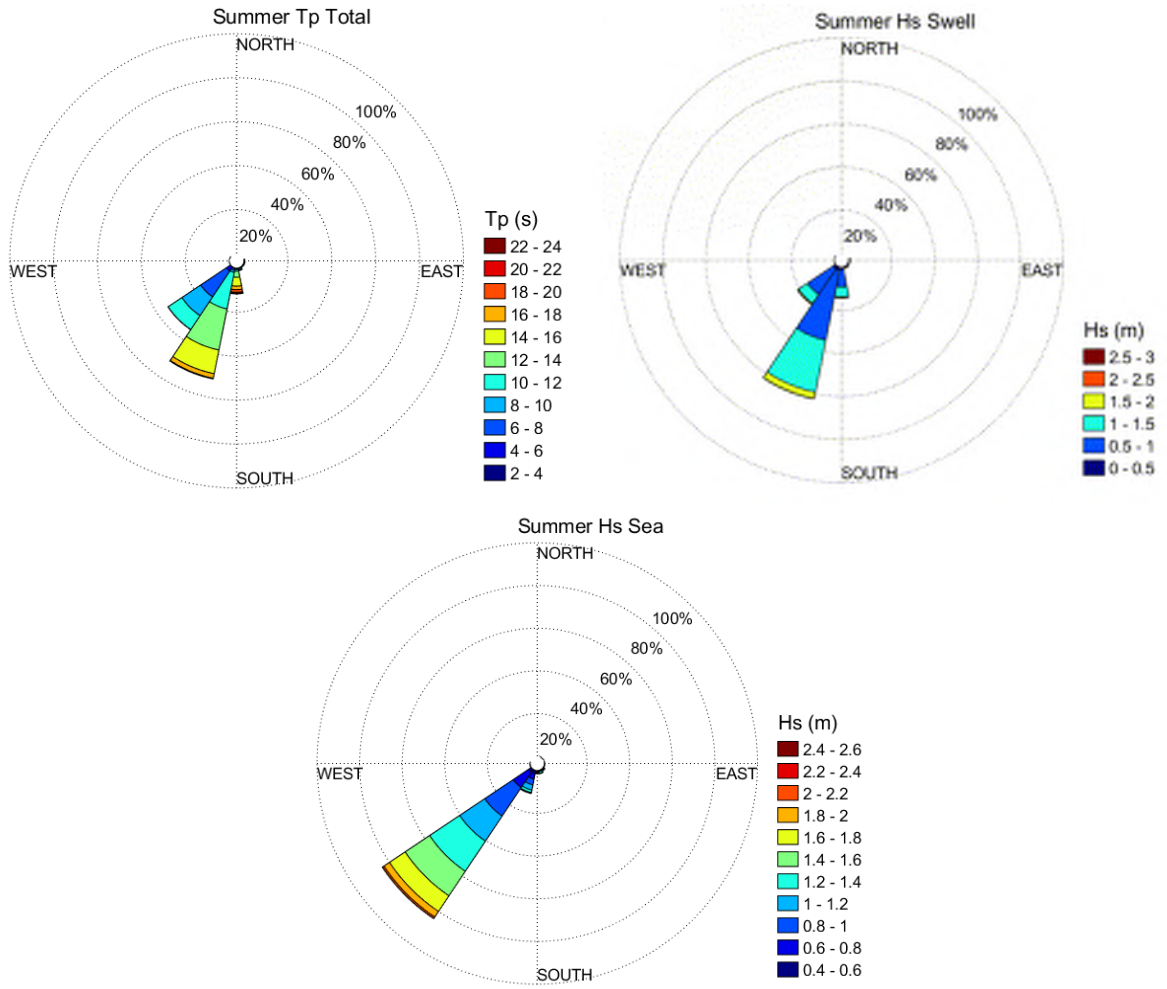

Figure C.3 Summer Hs Roses for Tantabiddi Wave Buoy

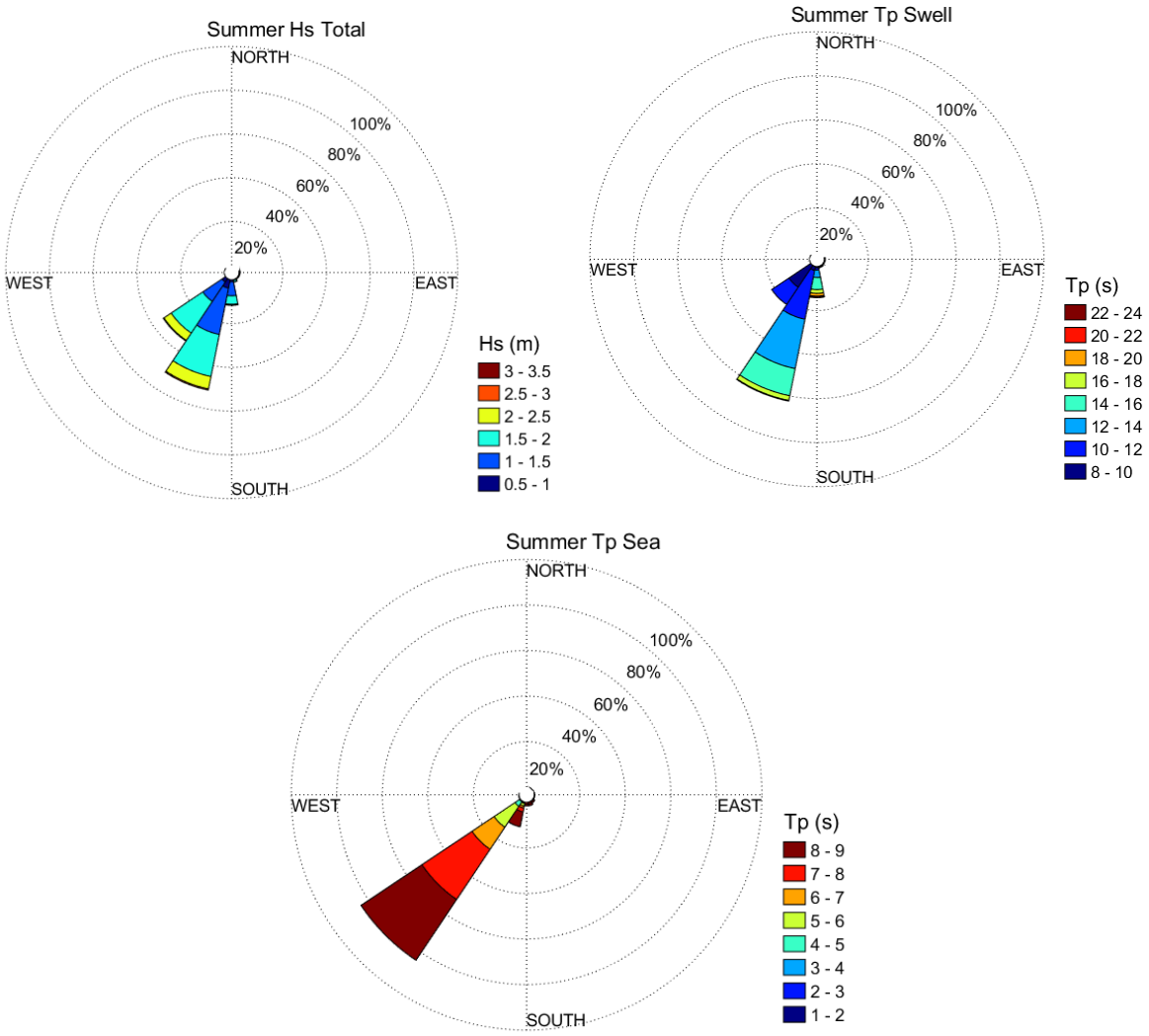

Figure C.4 Summer Tp Roses for Tantabiddi Wave Buoy

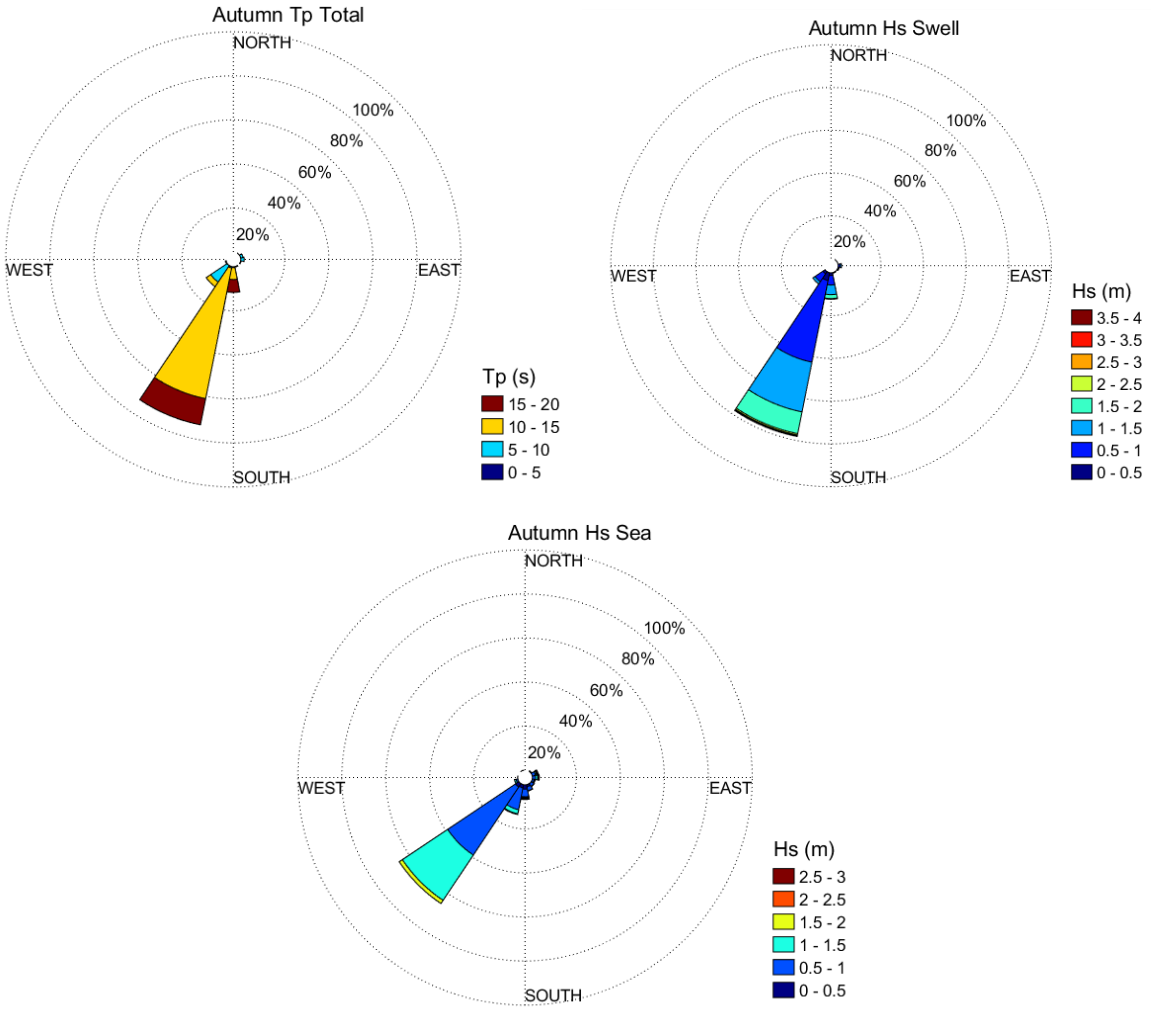

Figure C.5 Autumn Hs Roses for Tantabiddi Wave Buoy

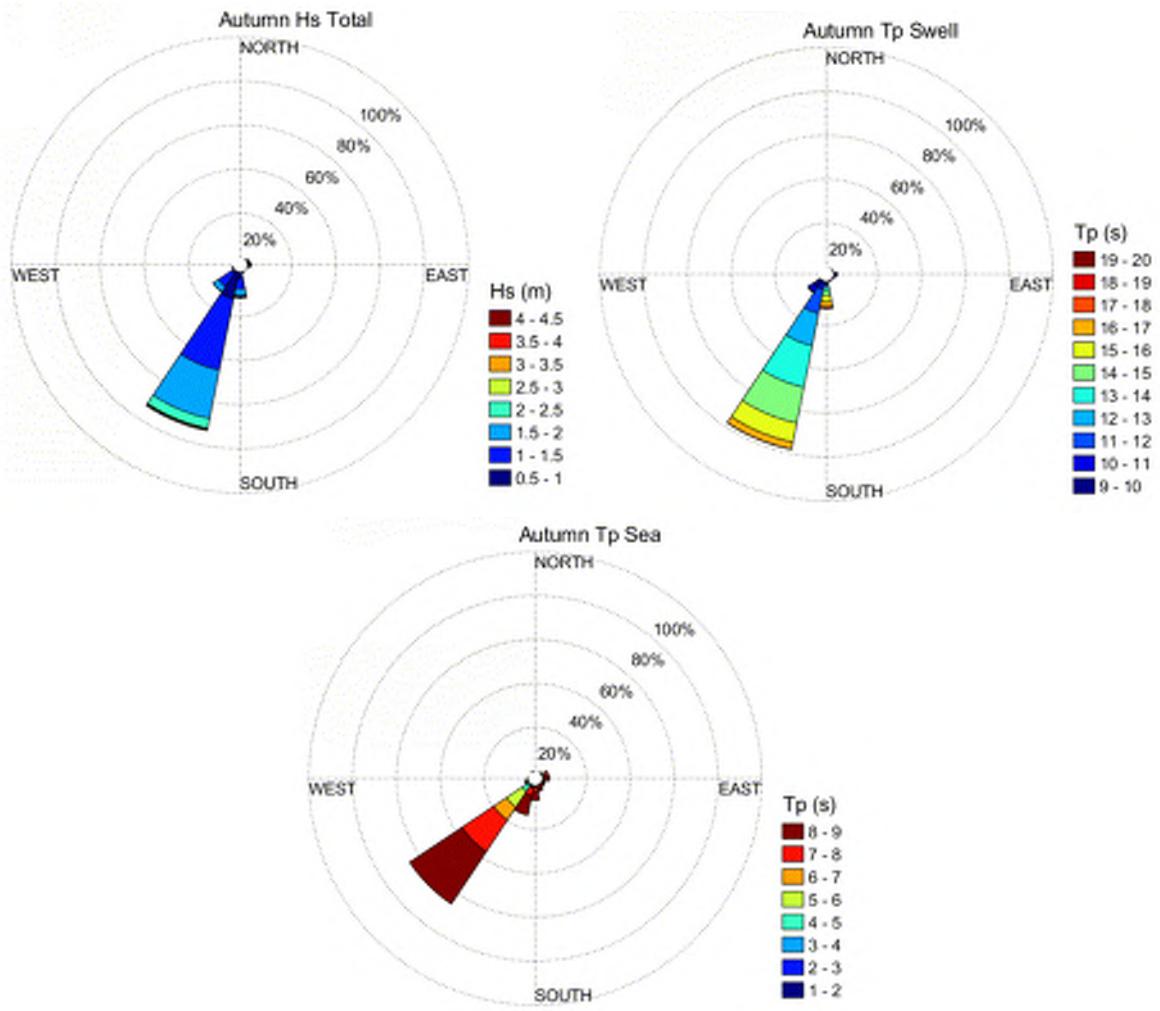

Figure C.6 Autumn Tp Roses for Tantabiddi Wave Buoy

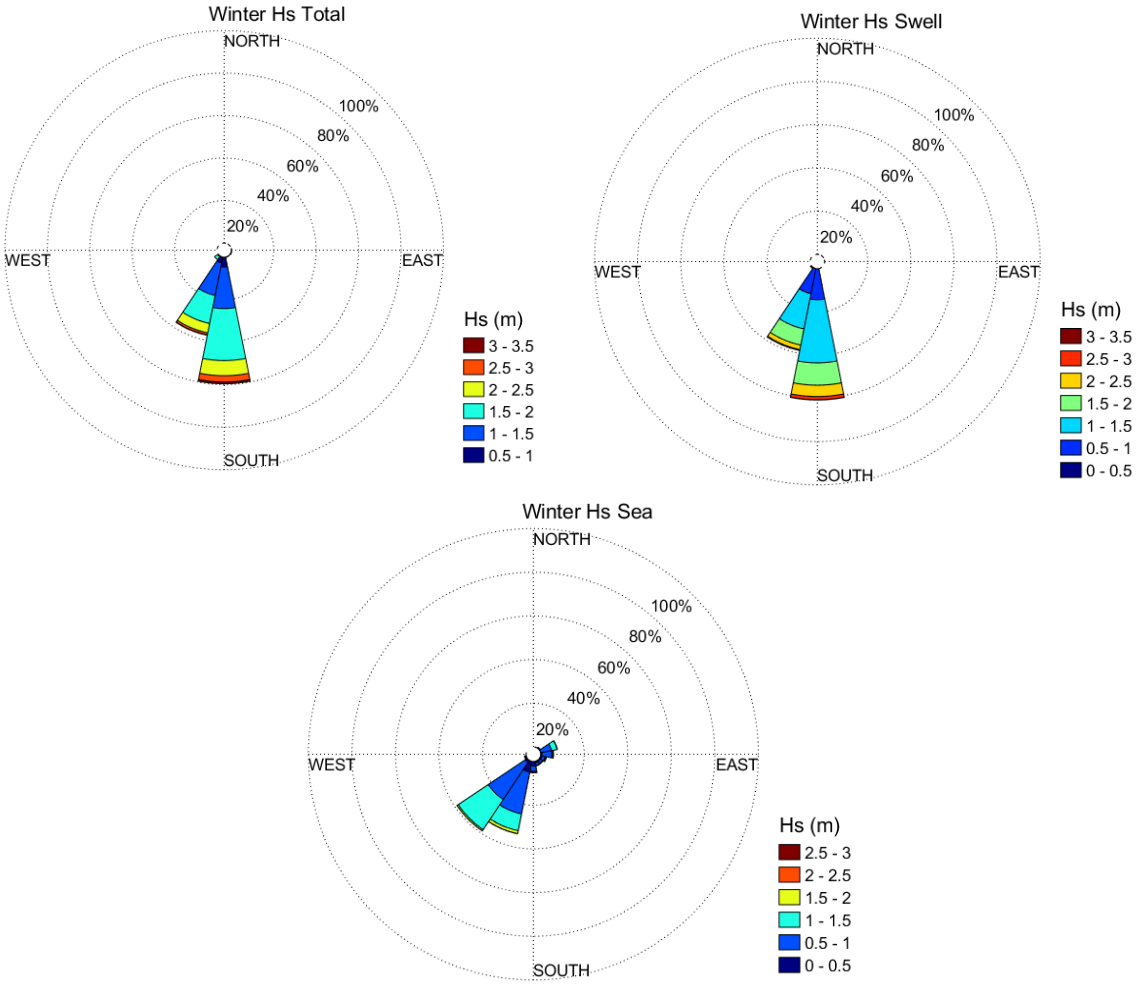

Figure C.7 Winter Hs Roses for Tantabiddi Wave Buoy

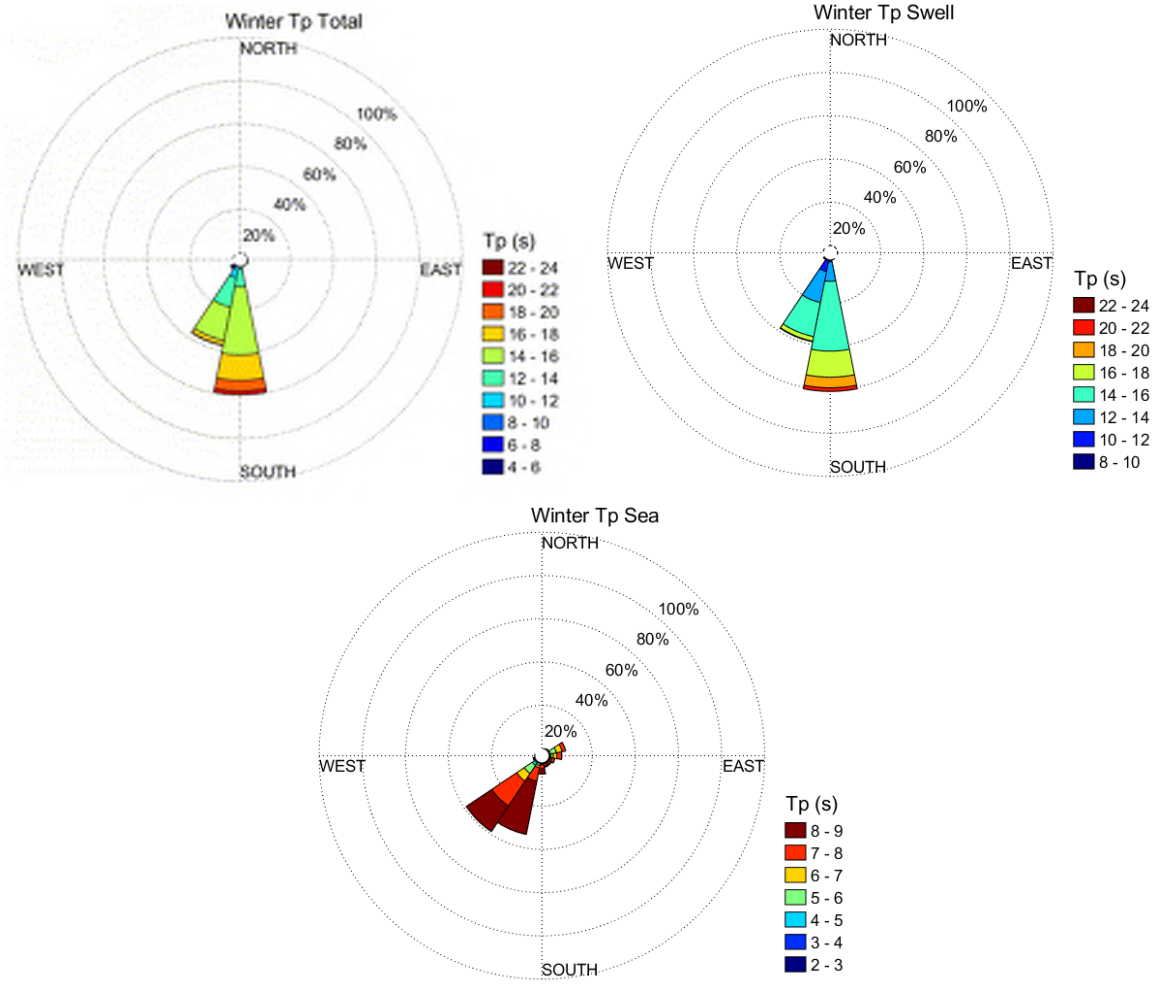

Figure C.8 Winter Tp Roses for Tantabiddi Wave Buoy

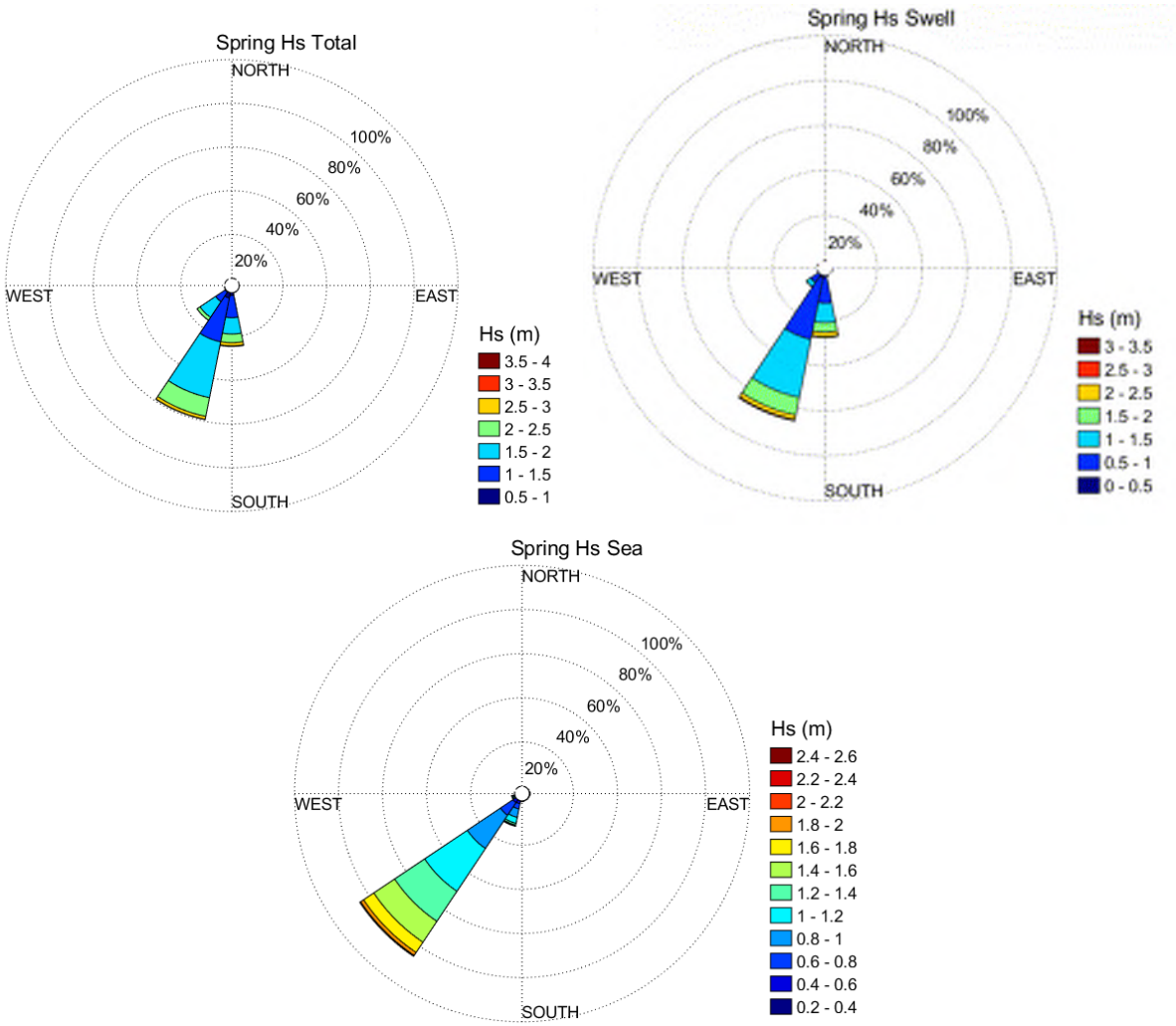

Figure C.9 Spring Hs Roses for Tantabiddi Wave Buoy

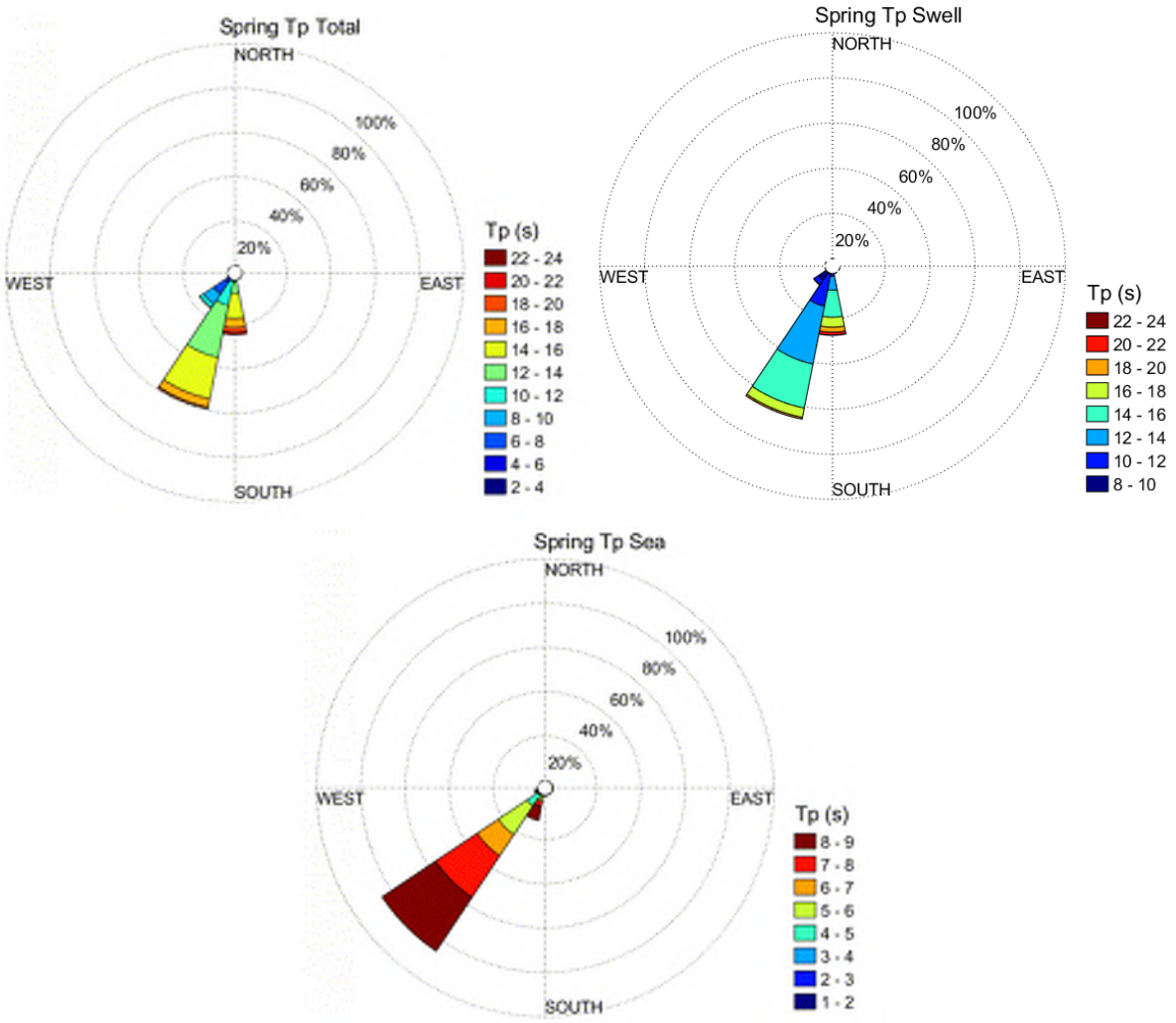

Figure C.10 Spring Tp Roses for Tantabiddi Wave Buoy

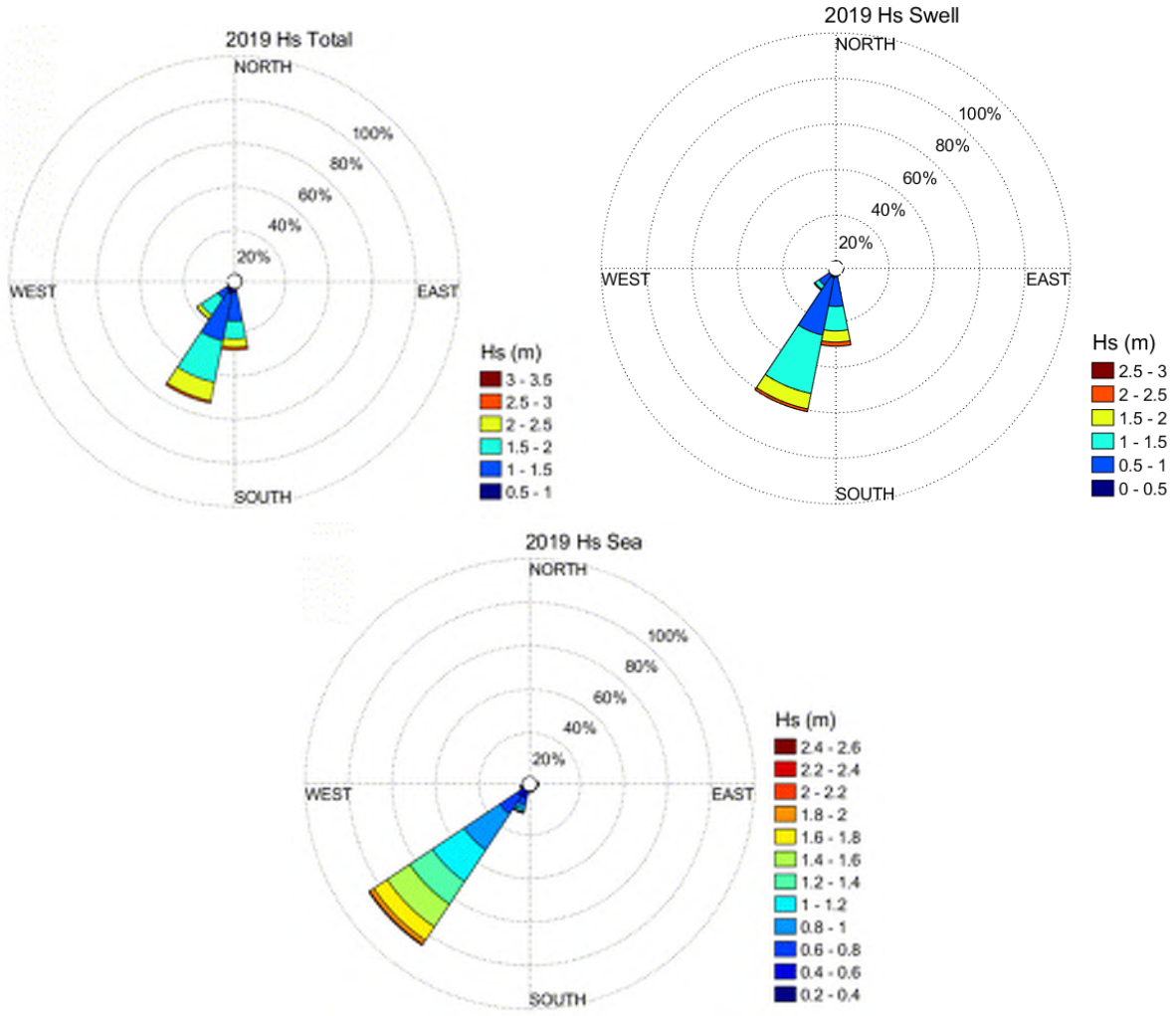

Figure C.11 2019 Hs Roses for Tantabiddi Wave Buoy

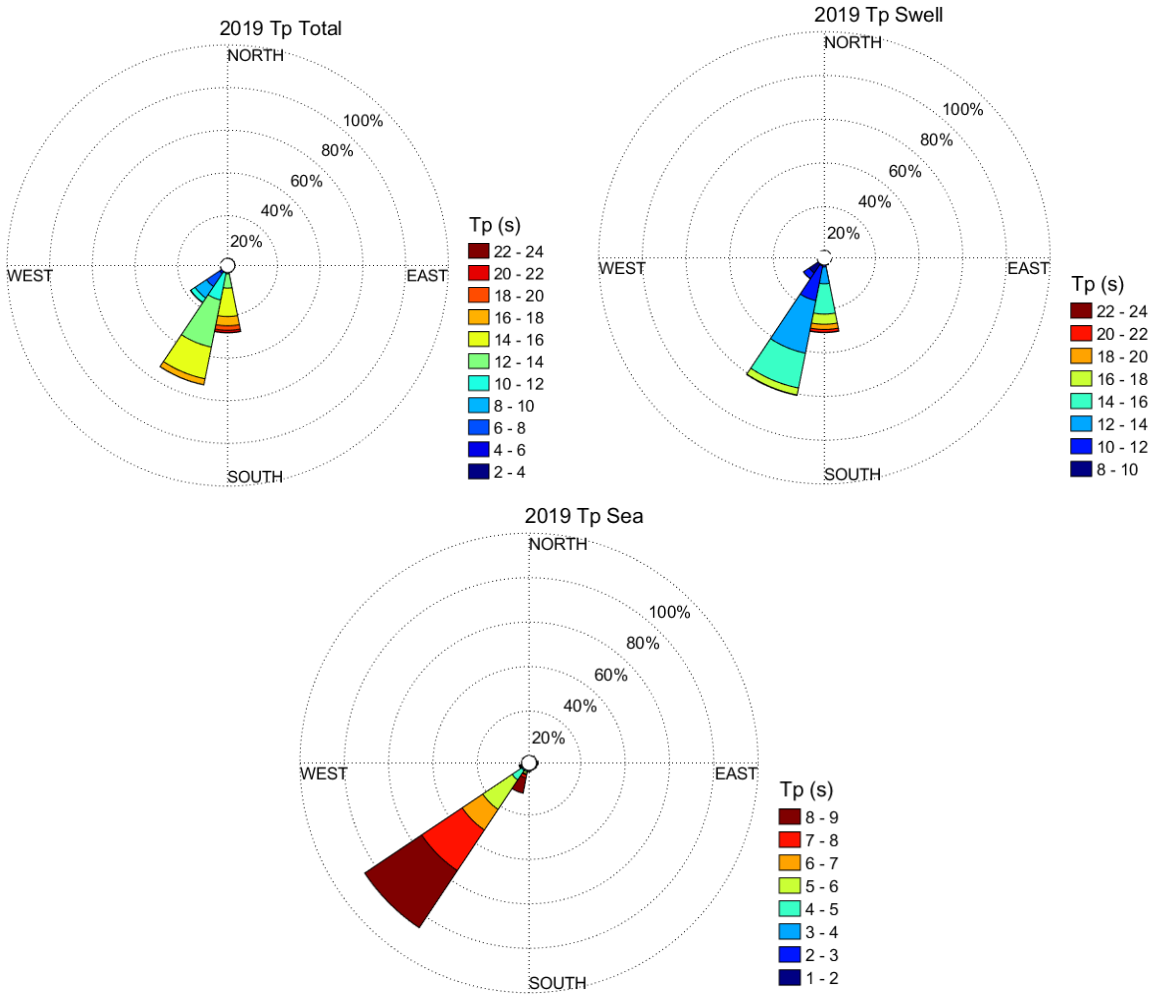

Figure C.12 2019 Tp Roses for Tantabiddi Wave Buoy

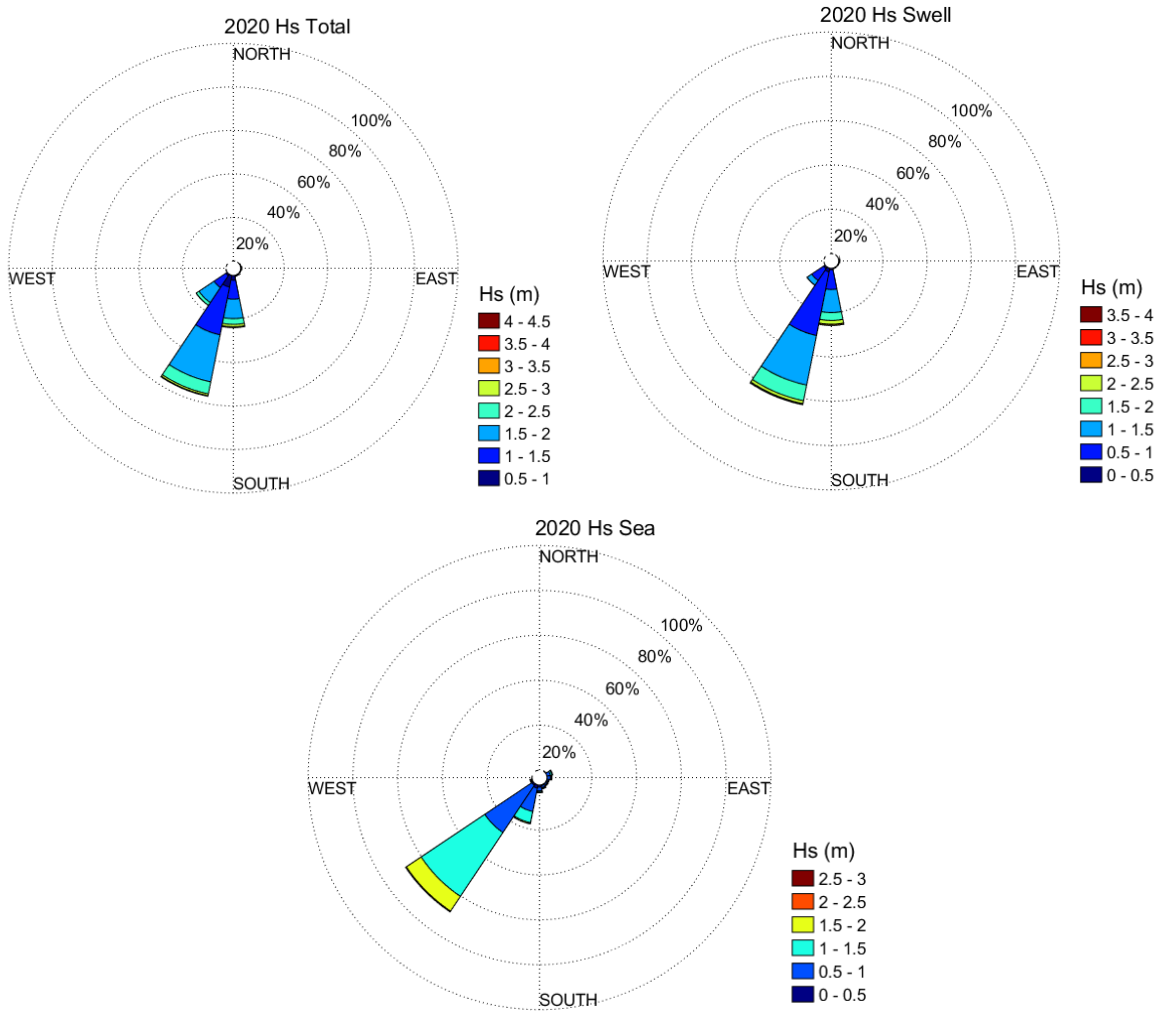

Figure C.13 2020 Hs Roses for Tantabiddi Wave Buoy

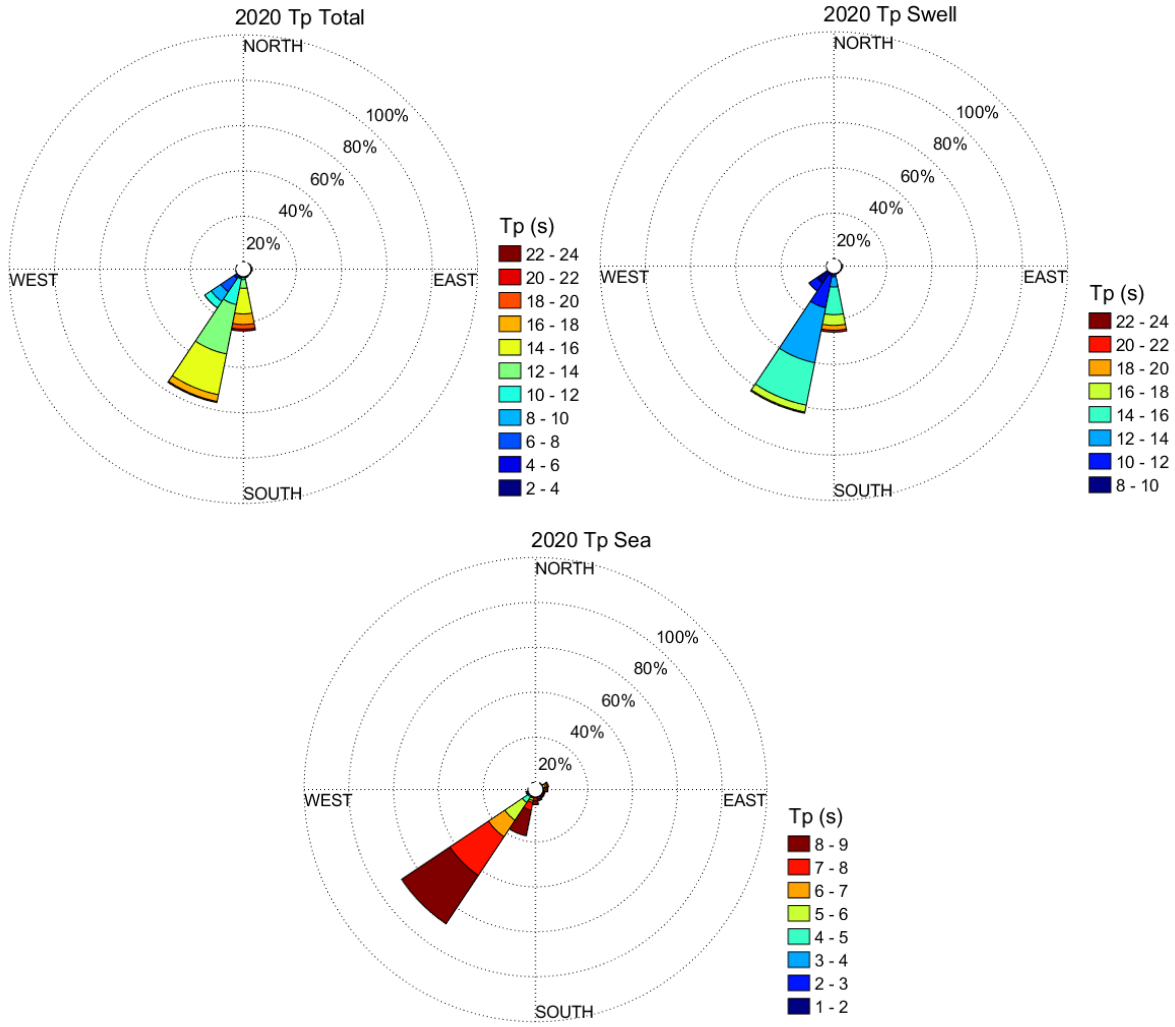

Figure C.14 2020 Tp Roses for Tantabiddi Wave Buoy

Appendix D Calibrated WWIII Hindcast Wave Roses

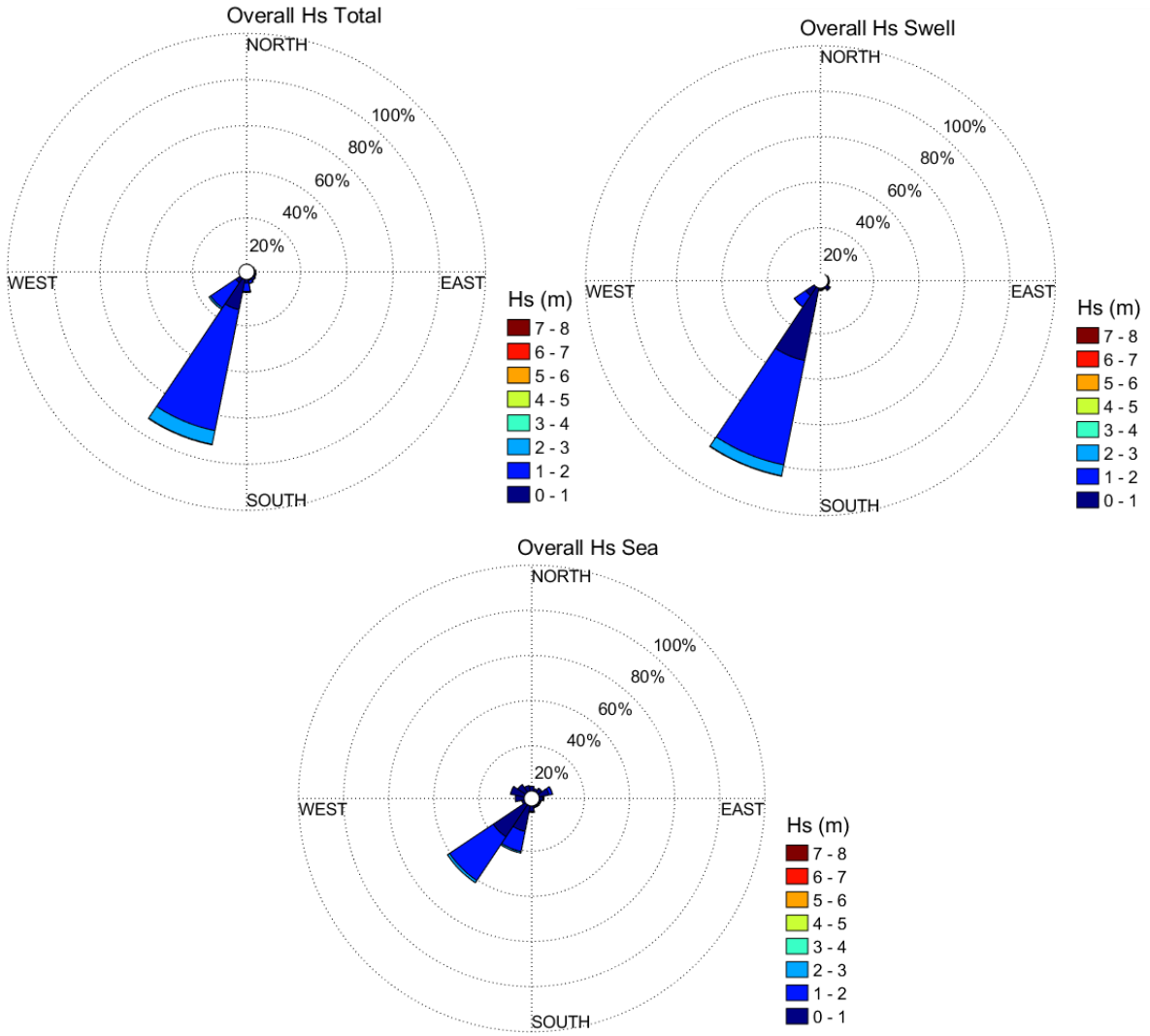

Figure D.1 Overall Hs Roses for Calibrated WWIII Hindcast Wave

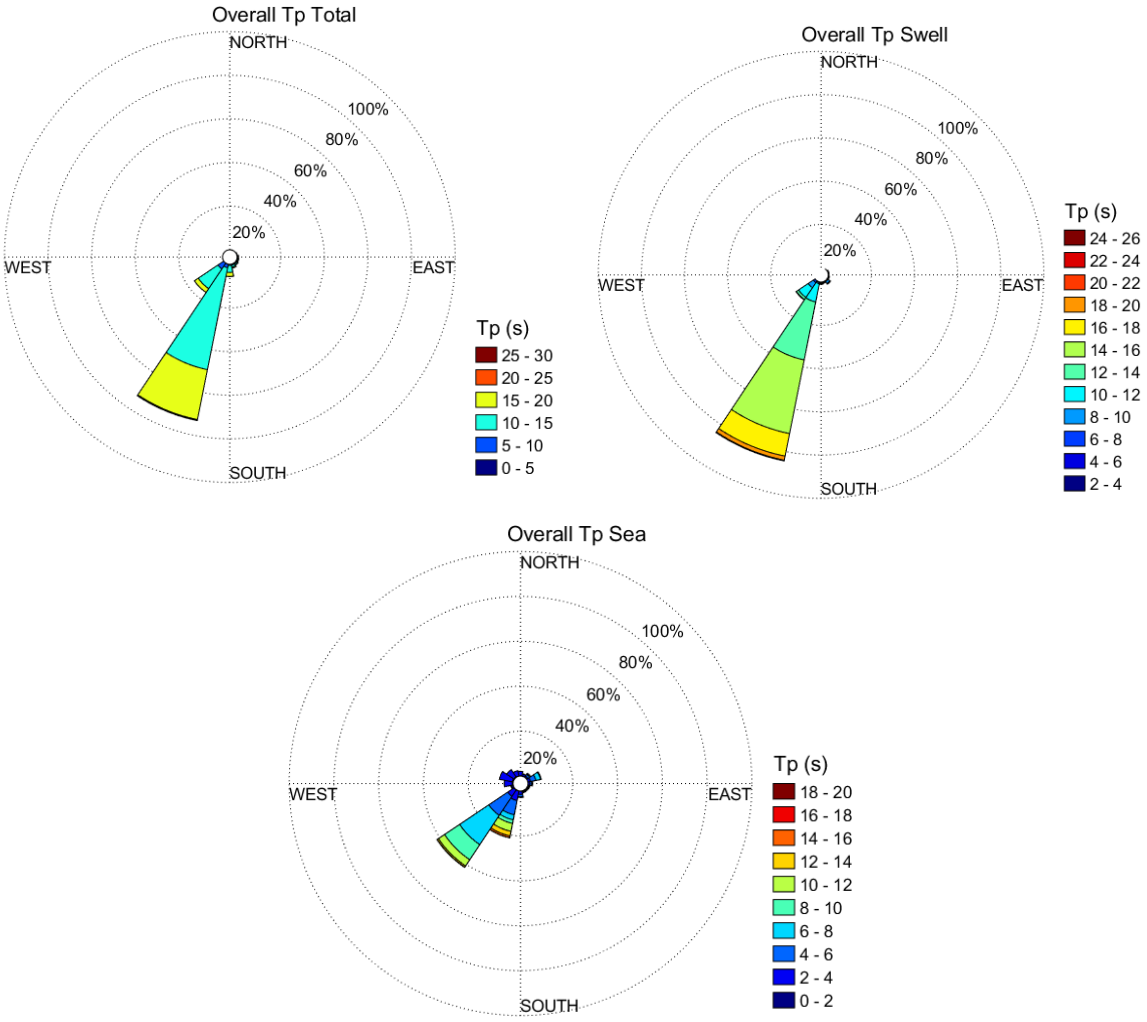

Figure D.2 Overall Tp Roses for Calibrated WWIII Hindcast Wave

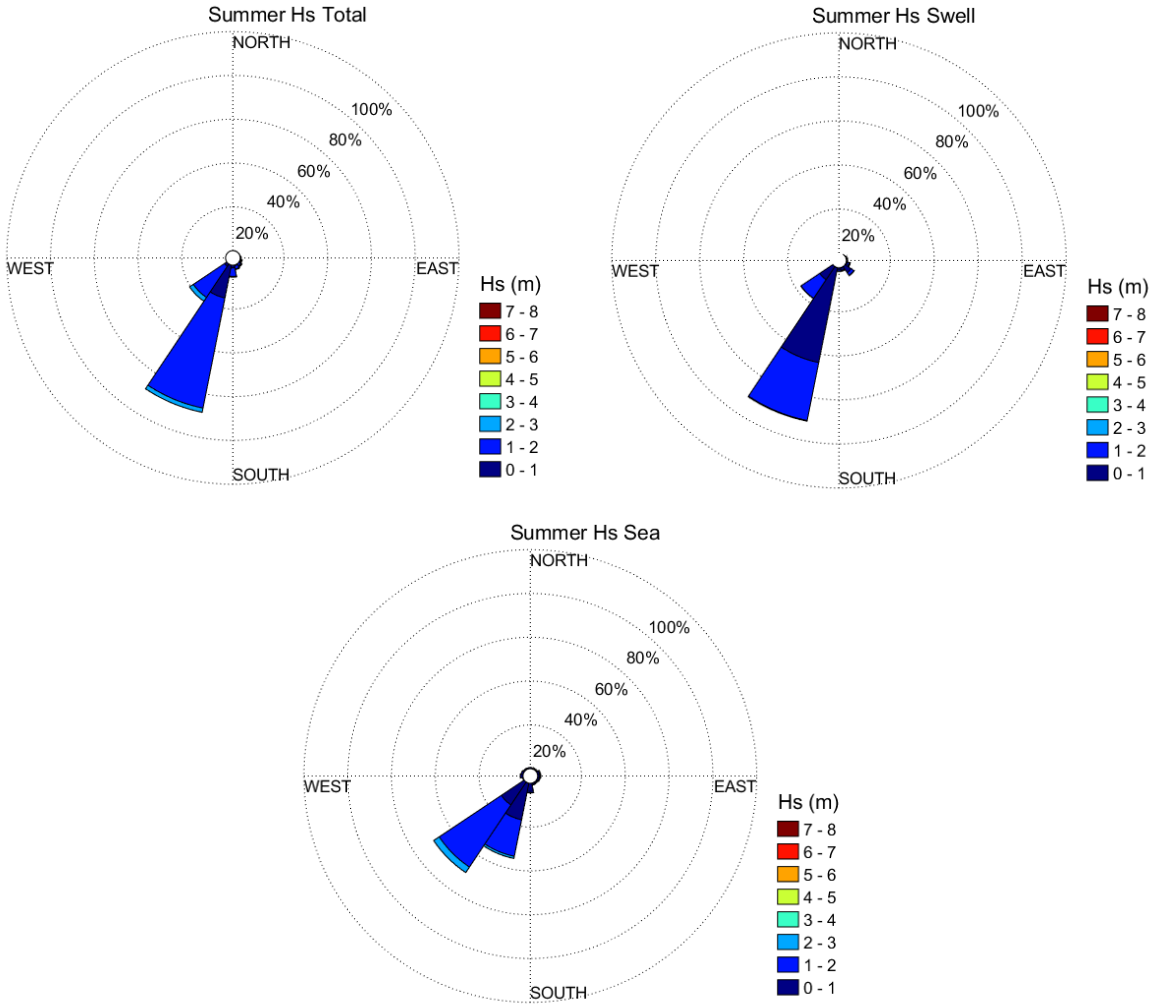

Figure D.3 Summer Hs Roses for Calibrated WWIII Hindcast Wave

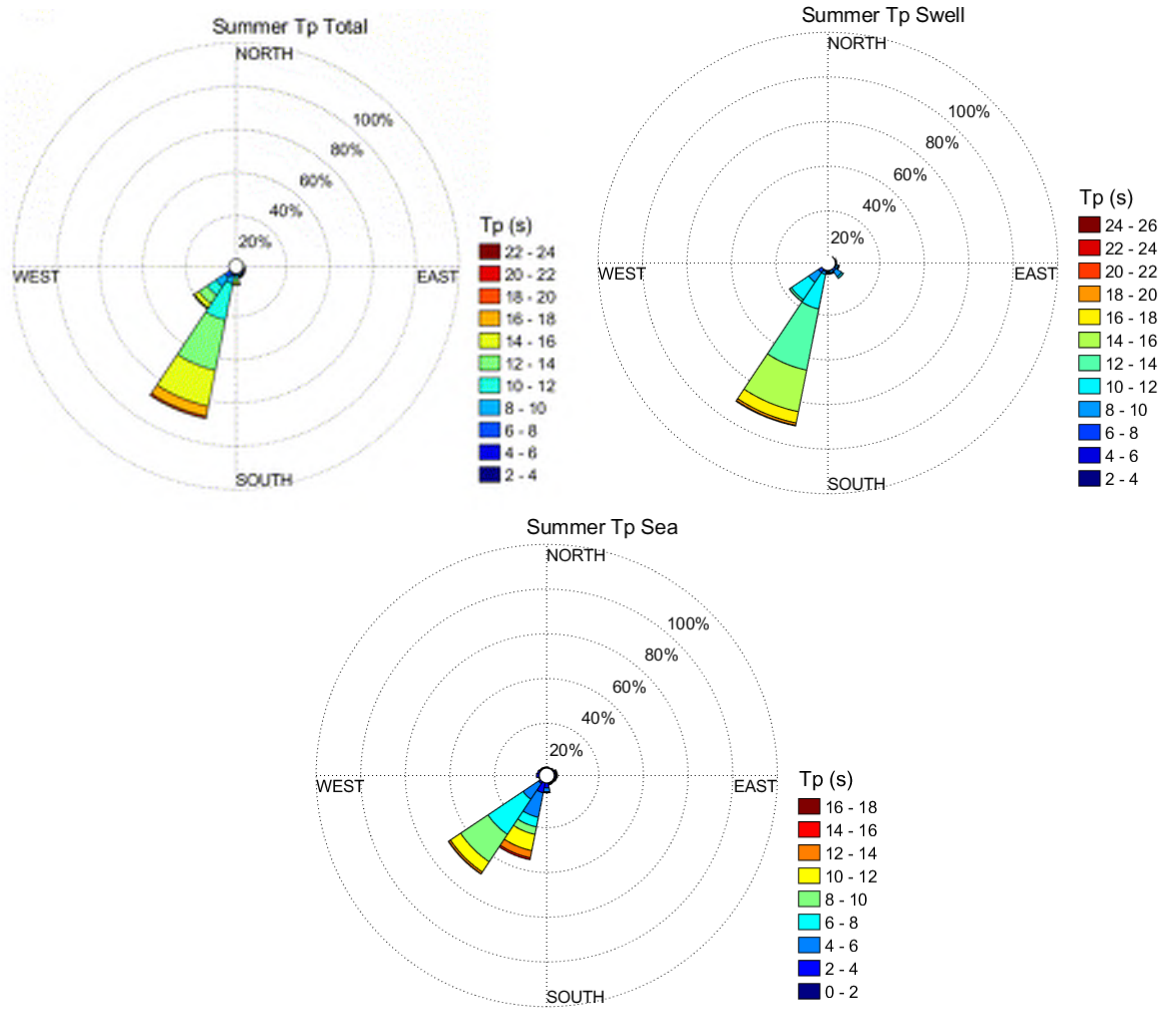

Figure D.4 Summer Tp Roses for Calibrated WWIII Hindcast Wave

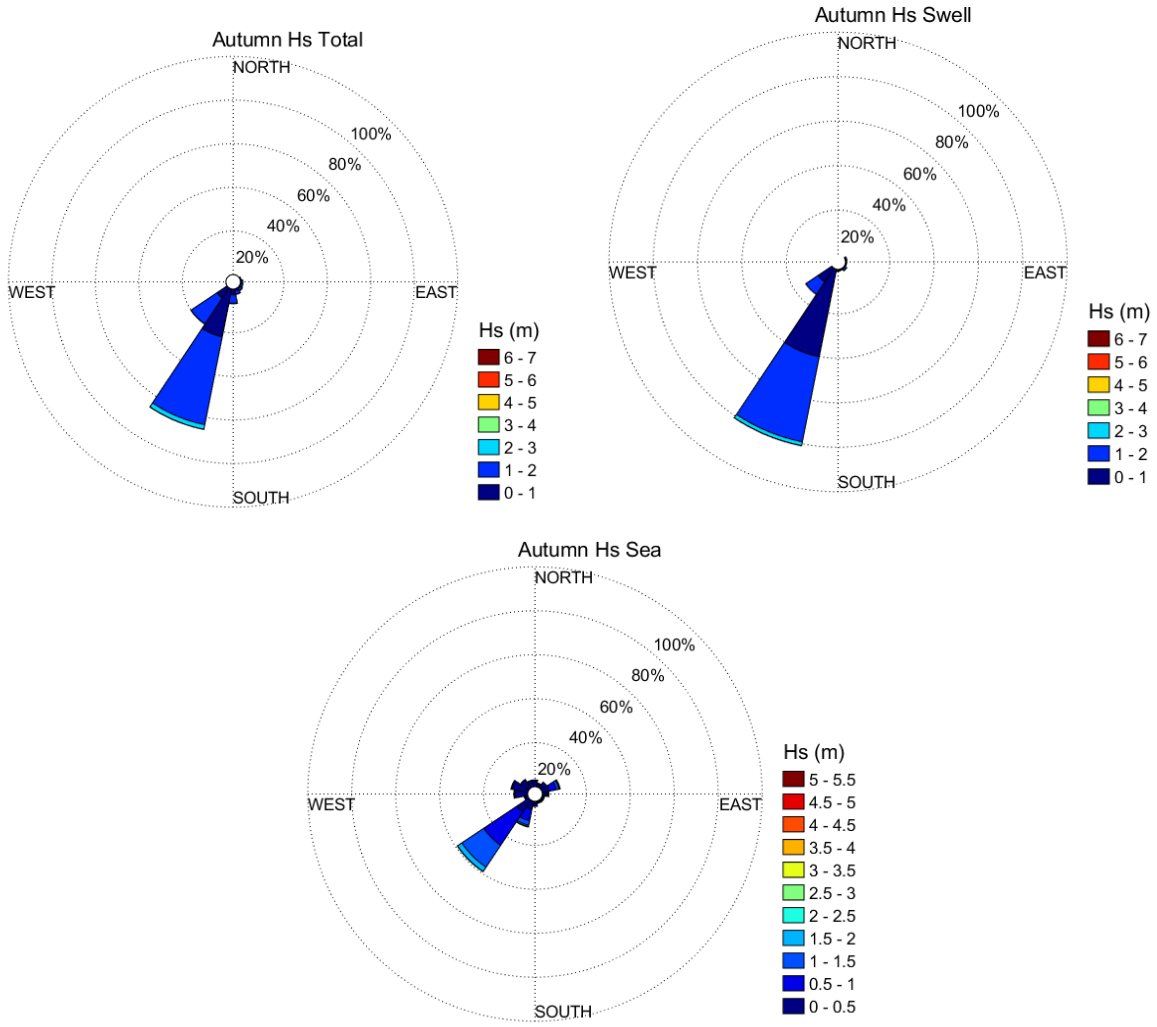

Figure D.5 Autumn Hs Roses for Calibrated WWIII Hindcast Wave

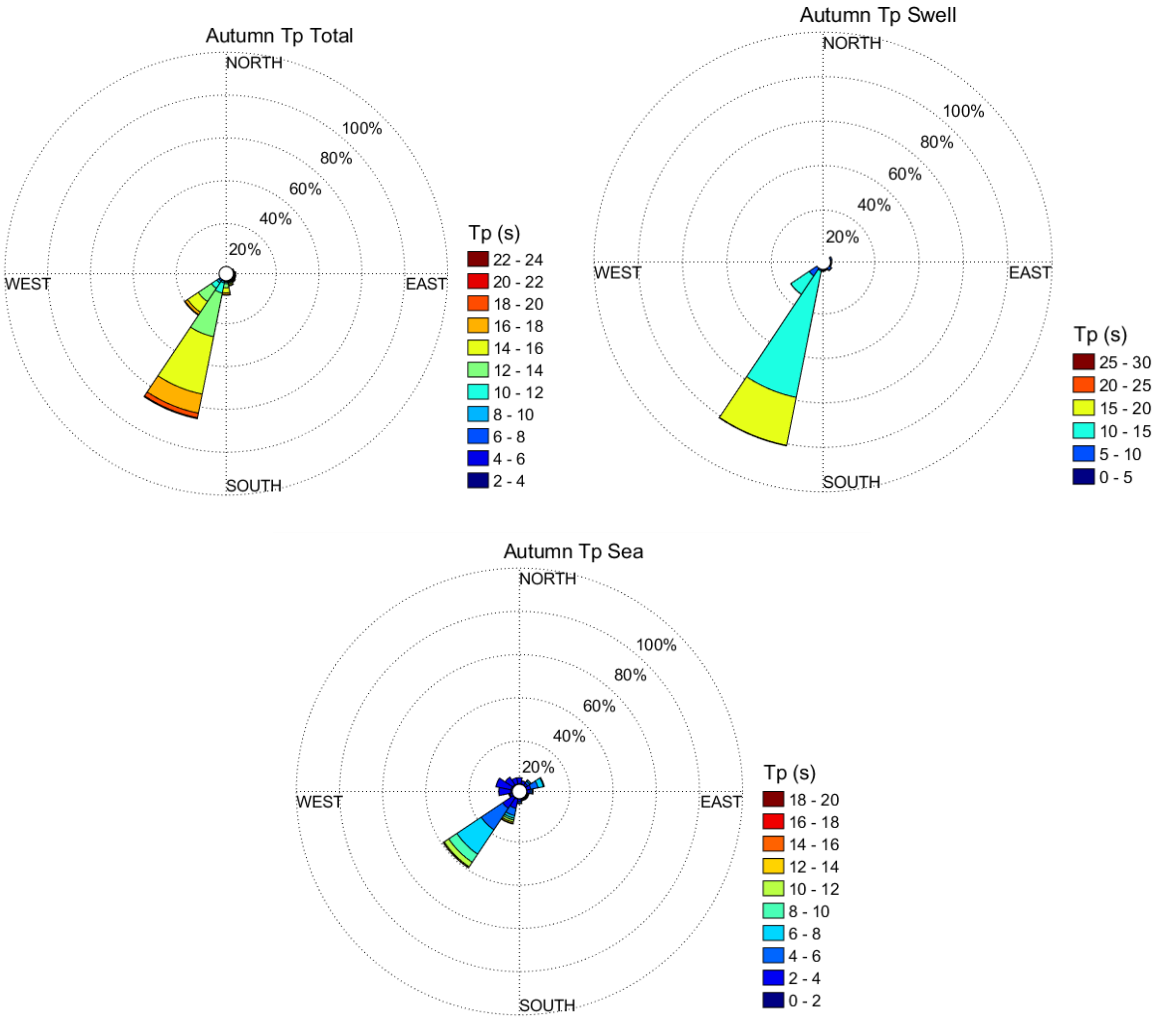

Figure D.6 Autumn Tp Roses for Calibrated WWIII Hindcast Wave

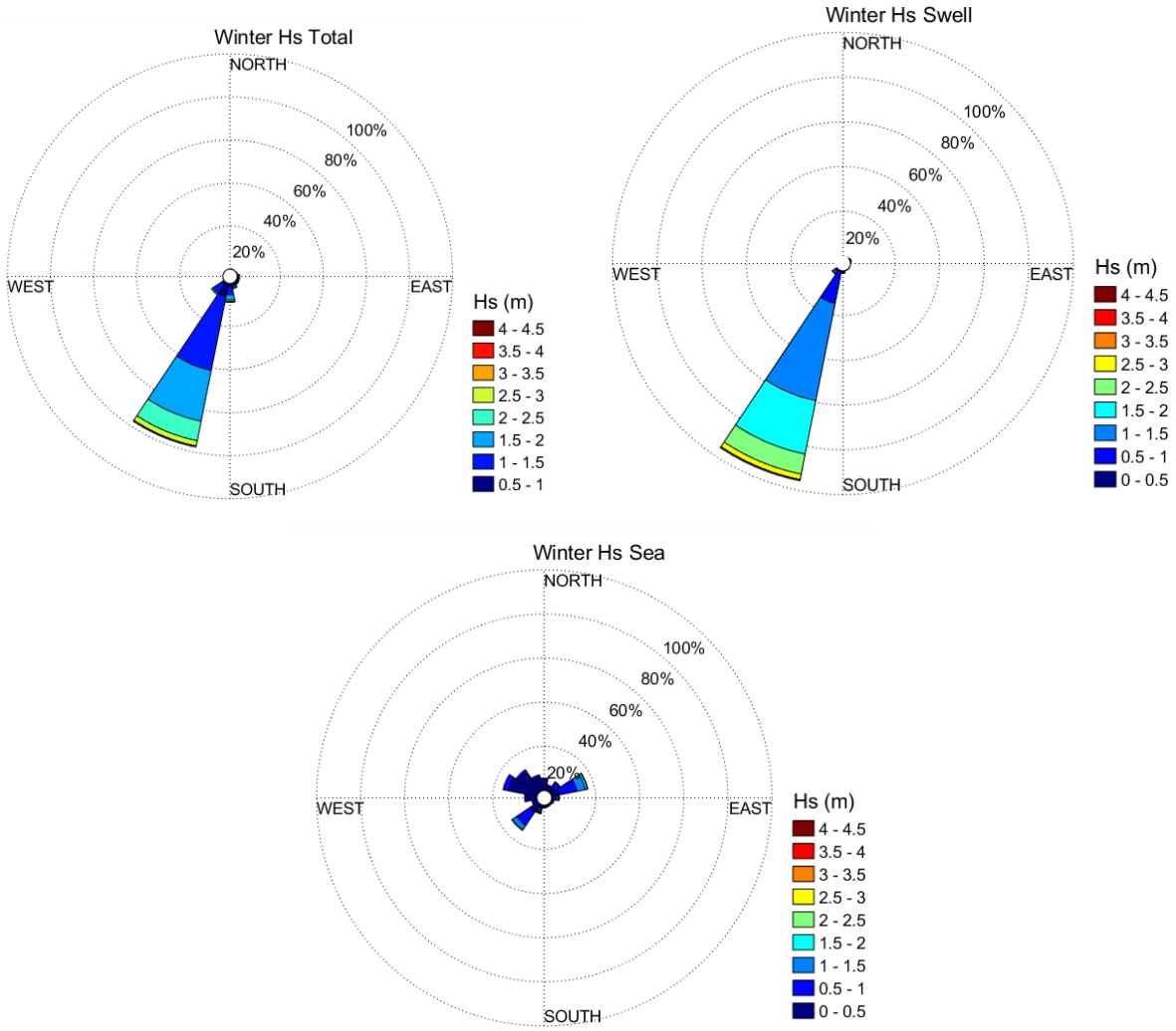

Figure D.7 Winter Hs Roses for Calibrated WWIII Hindcast Wave

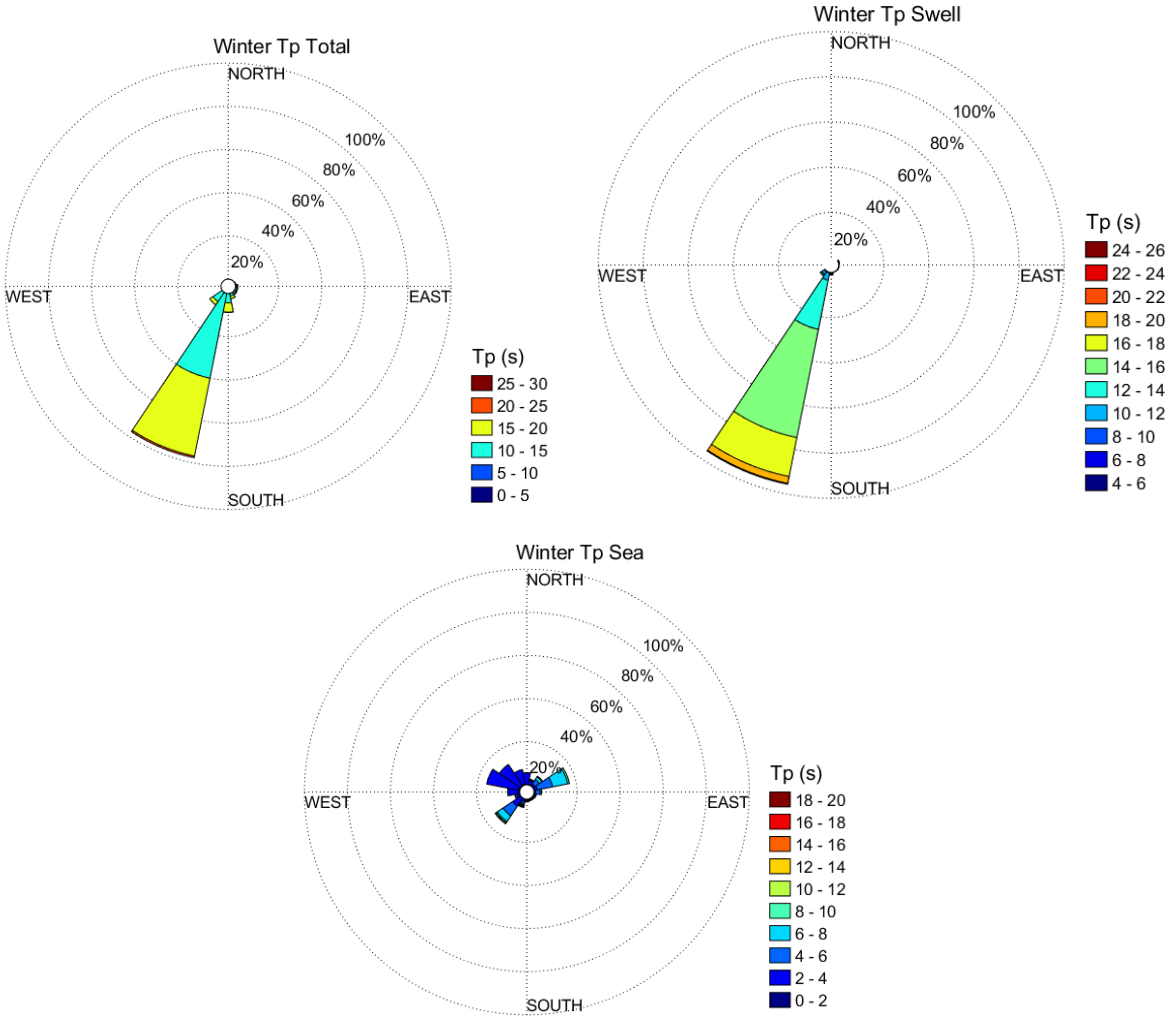

Figure D.8 Winter Tp Roses for Calibrated WWIII Hindcast Wave

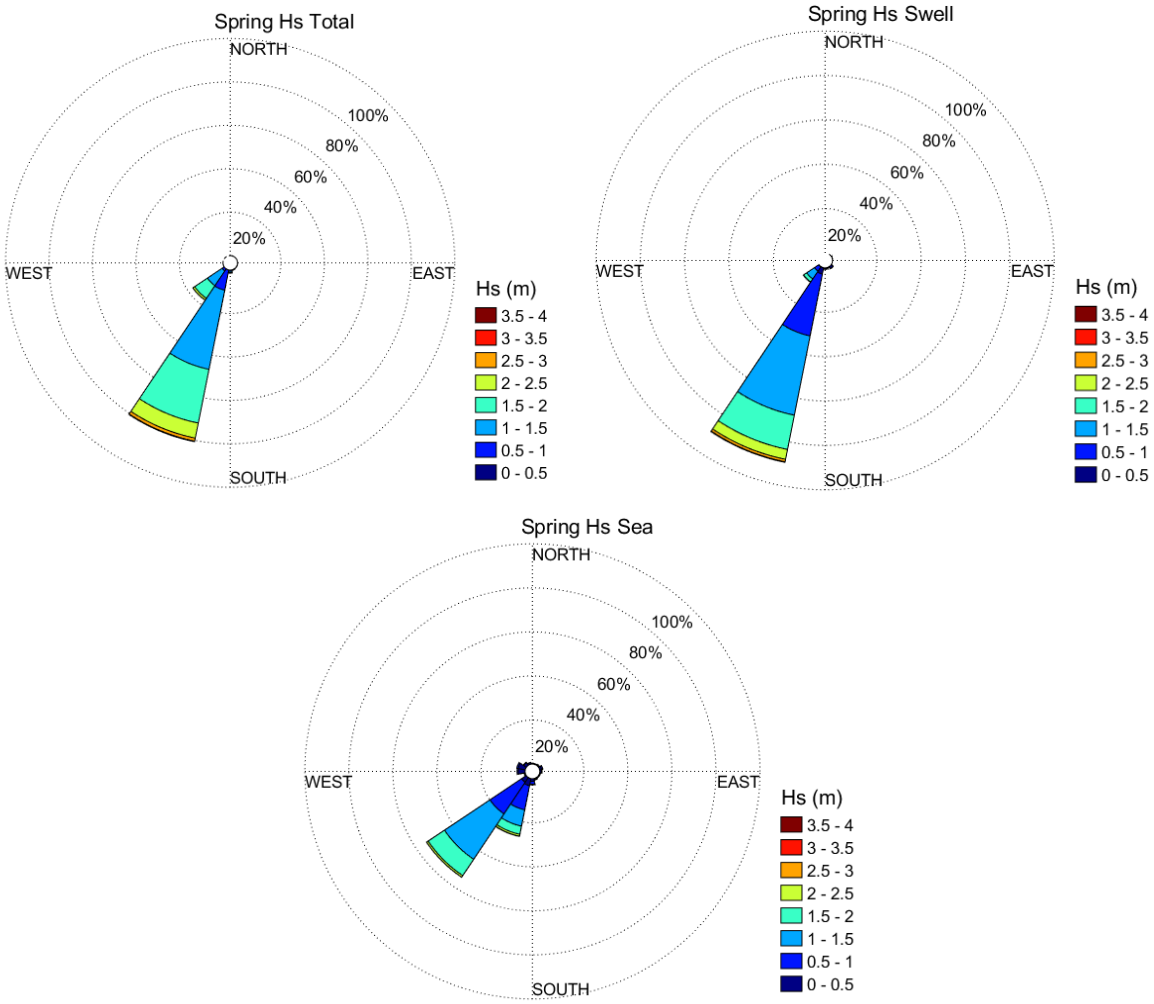

Figure D.9 Spring Hs Roses for Calibrated WWIII Hindcast Wave

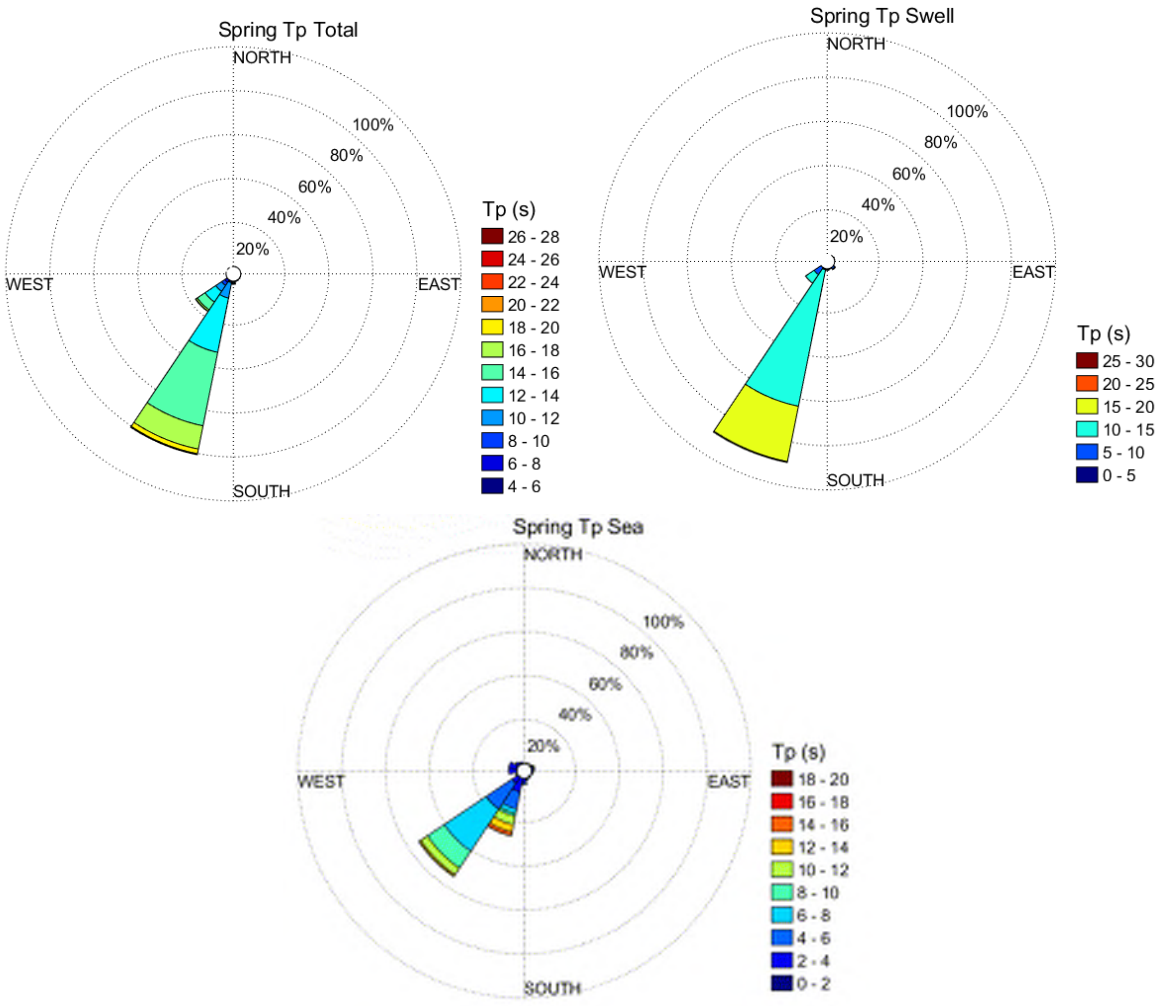

Figure D.10 Spring Tp Roses for Calibrated WWIII Hindcast Wave

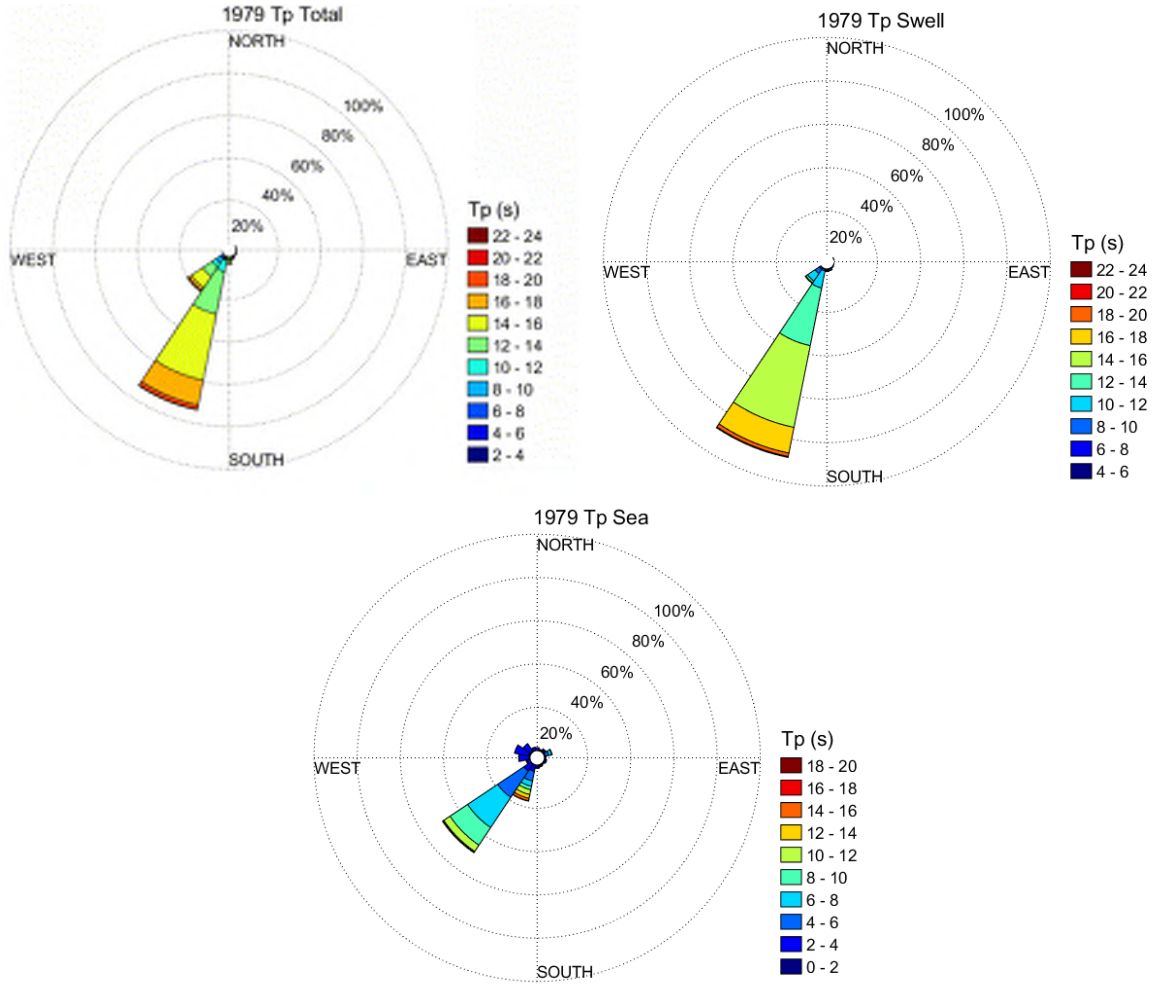

Figure D.11 1979 Hs Roses for Calibrated WWIII Hindcast Wave

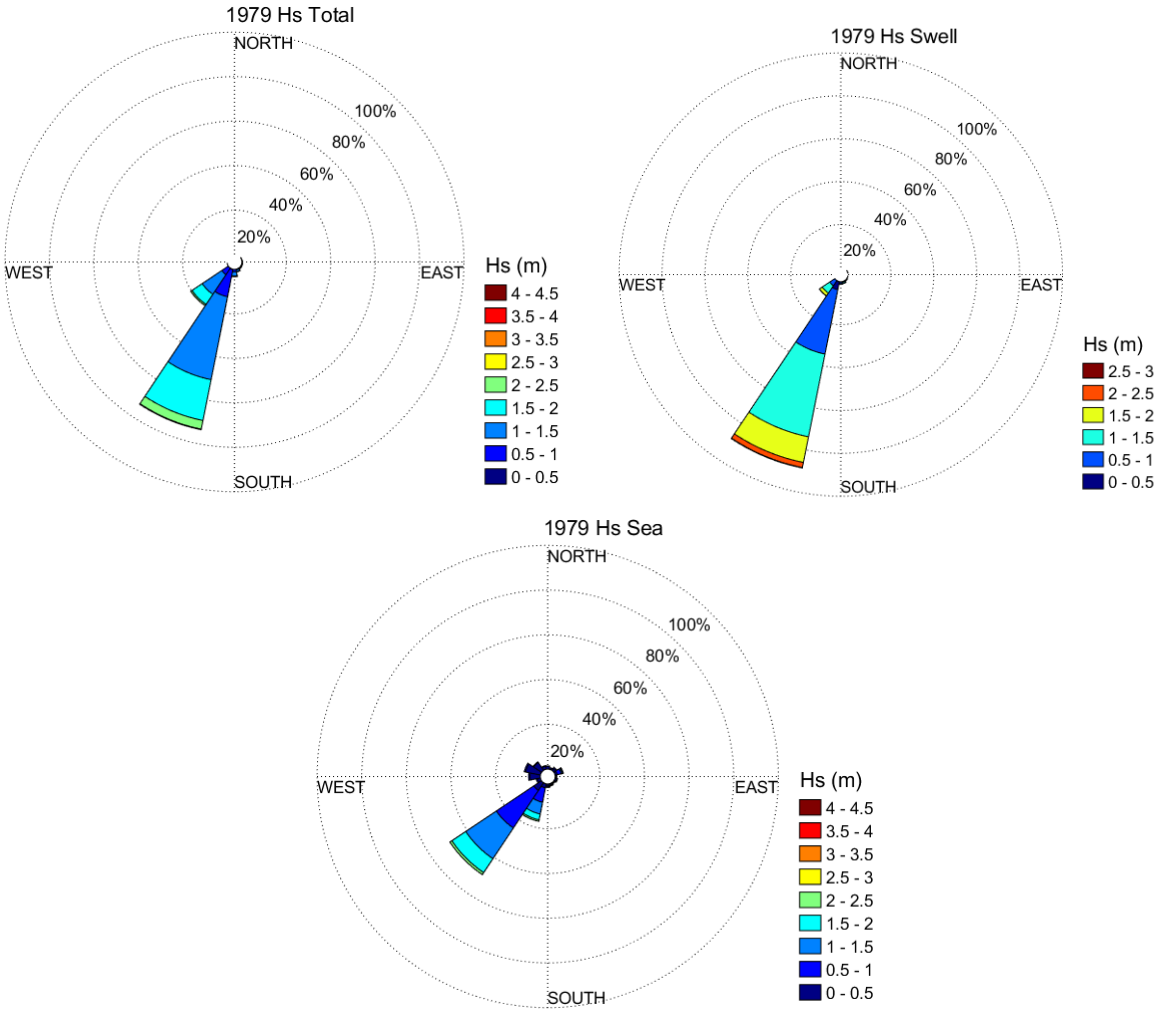

Figure D.12 1979 Tp Roses for Calibrated WWIII Hindcast Wave

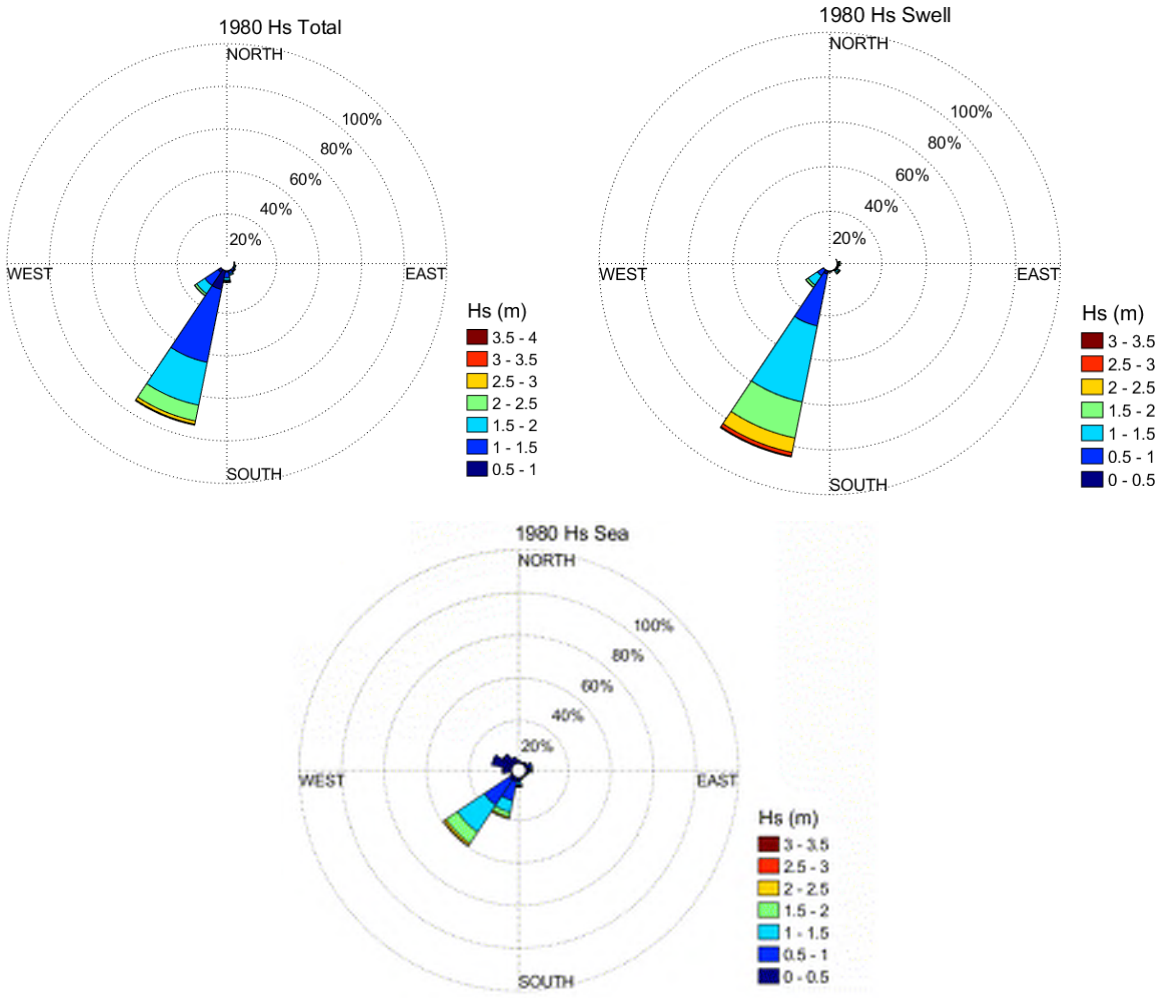

Figure D.13 1980 Hs Roses for Calibrated WWIII Hindcast Wave

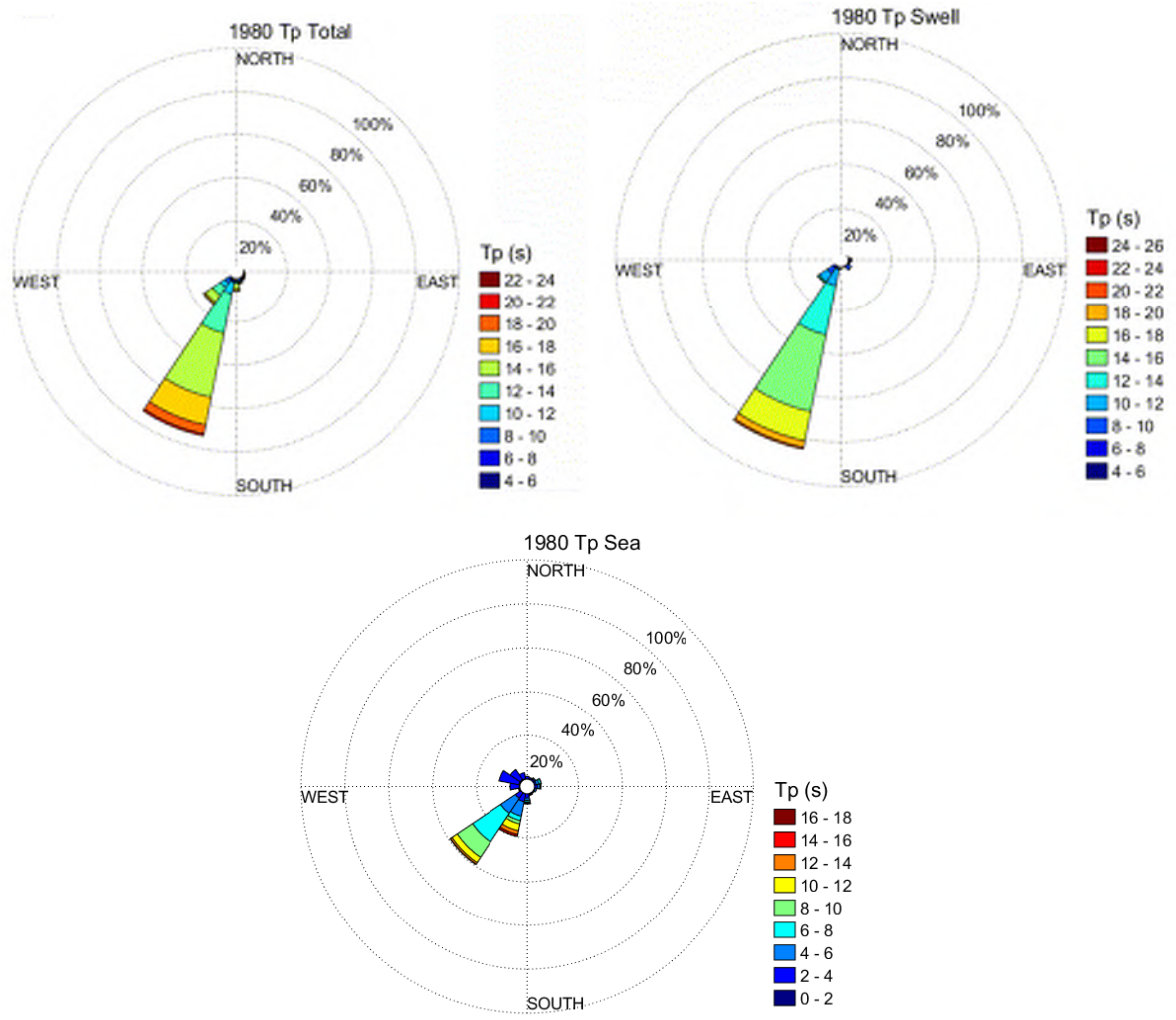

Figure D.14 1980 Tp Roses for Calibrated WWIII Hindcast Wave

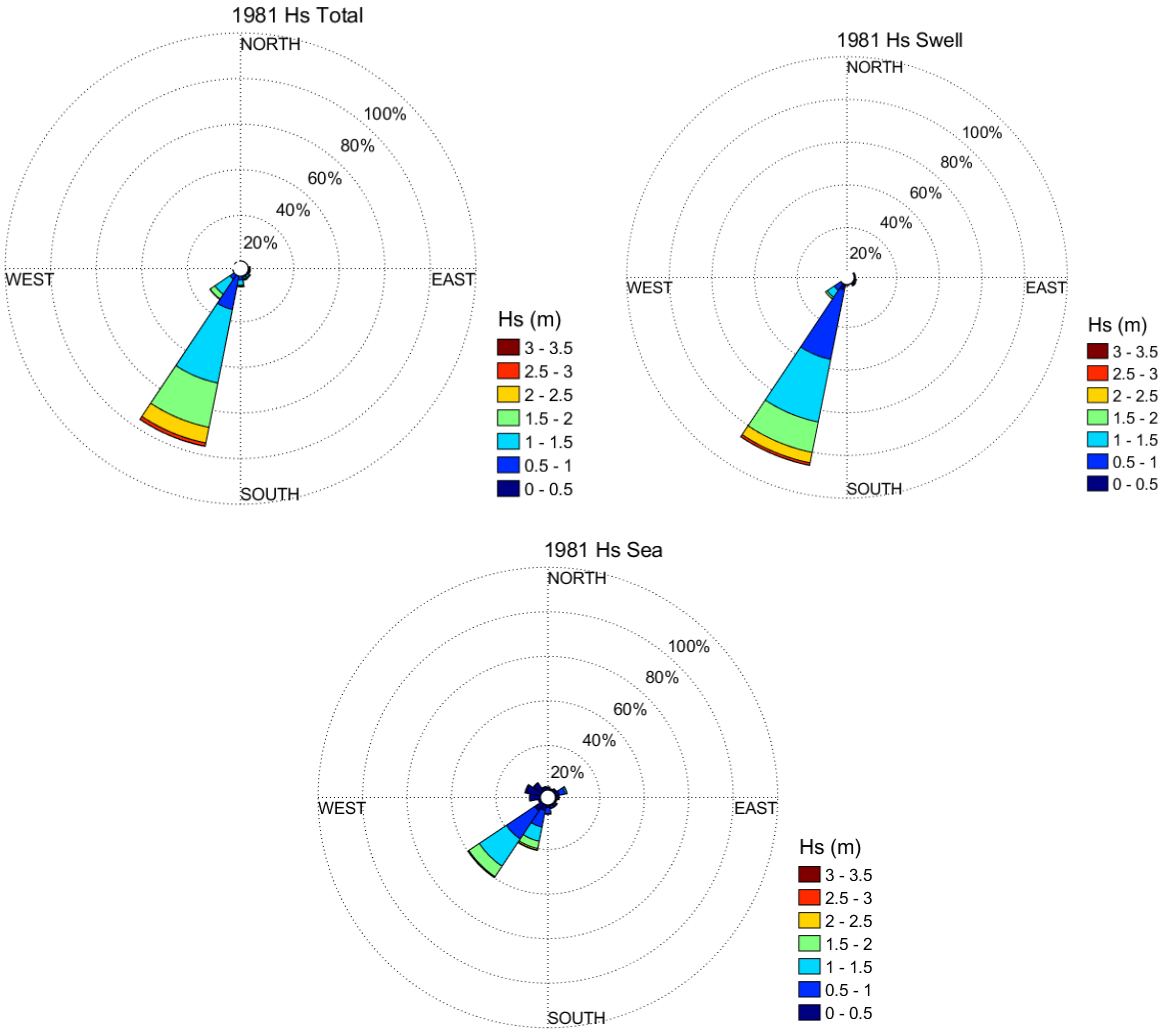

Figure D.15 1981 Hs Roses for Calibrated WWIII Hindcast Wave

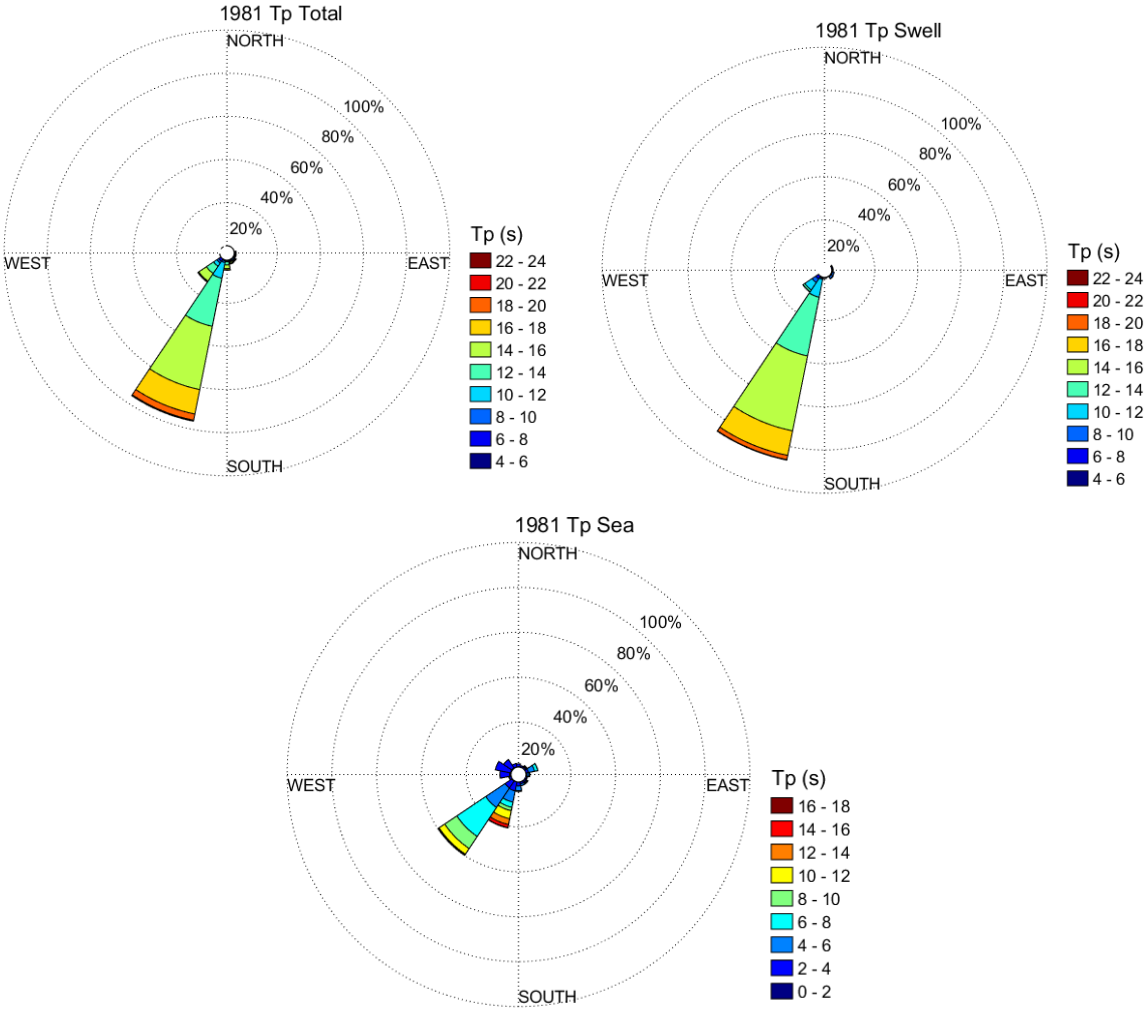

Figure D.16 1981 Tp Roses for Calibrated WWIII Hindcast Wave

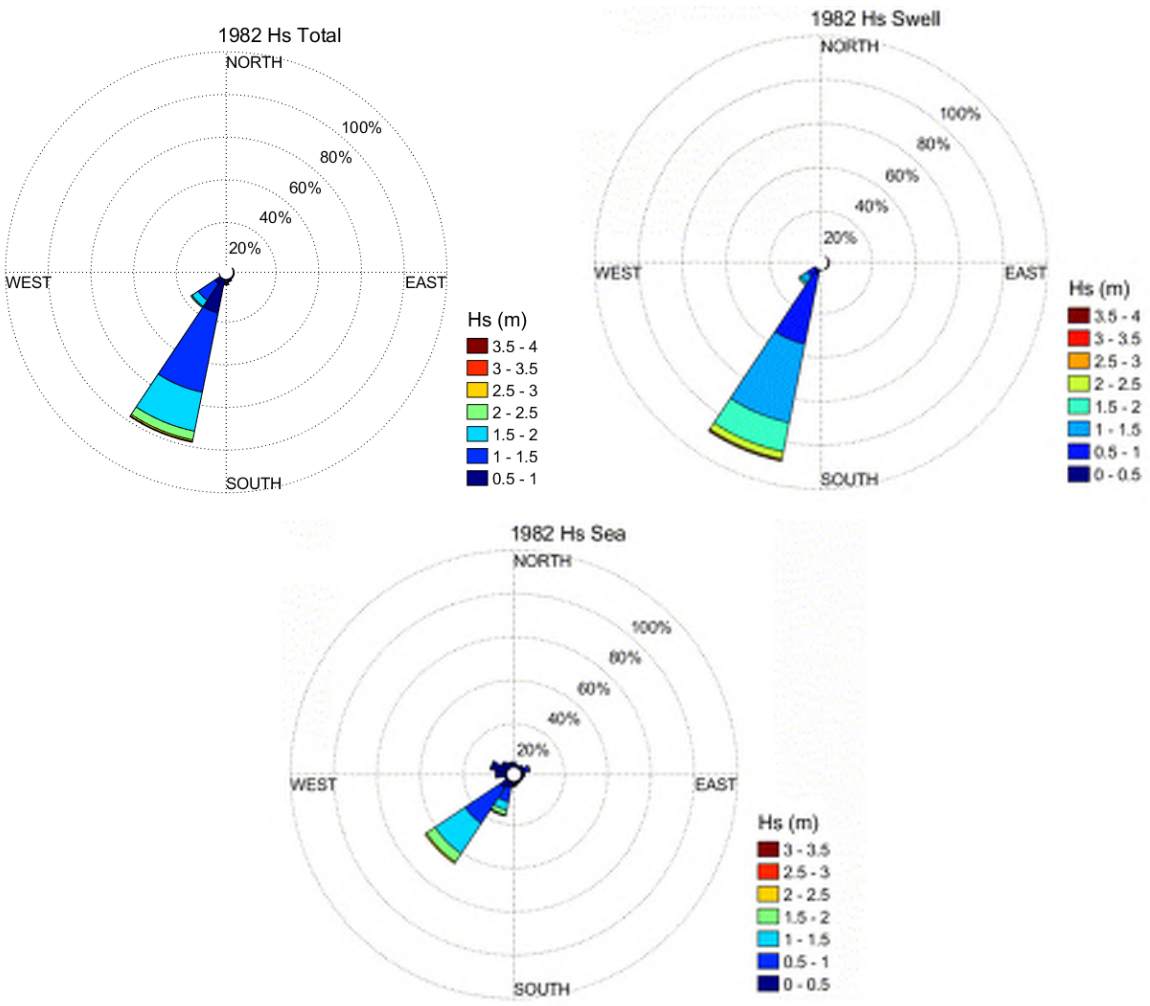

Figure D.17 1982 Hs Roses for Calibrated WWIII Hindcast Wave

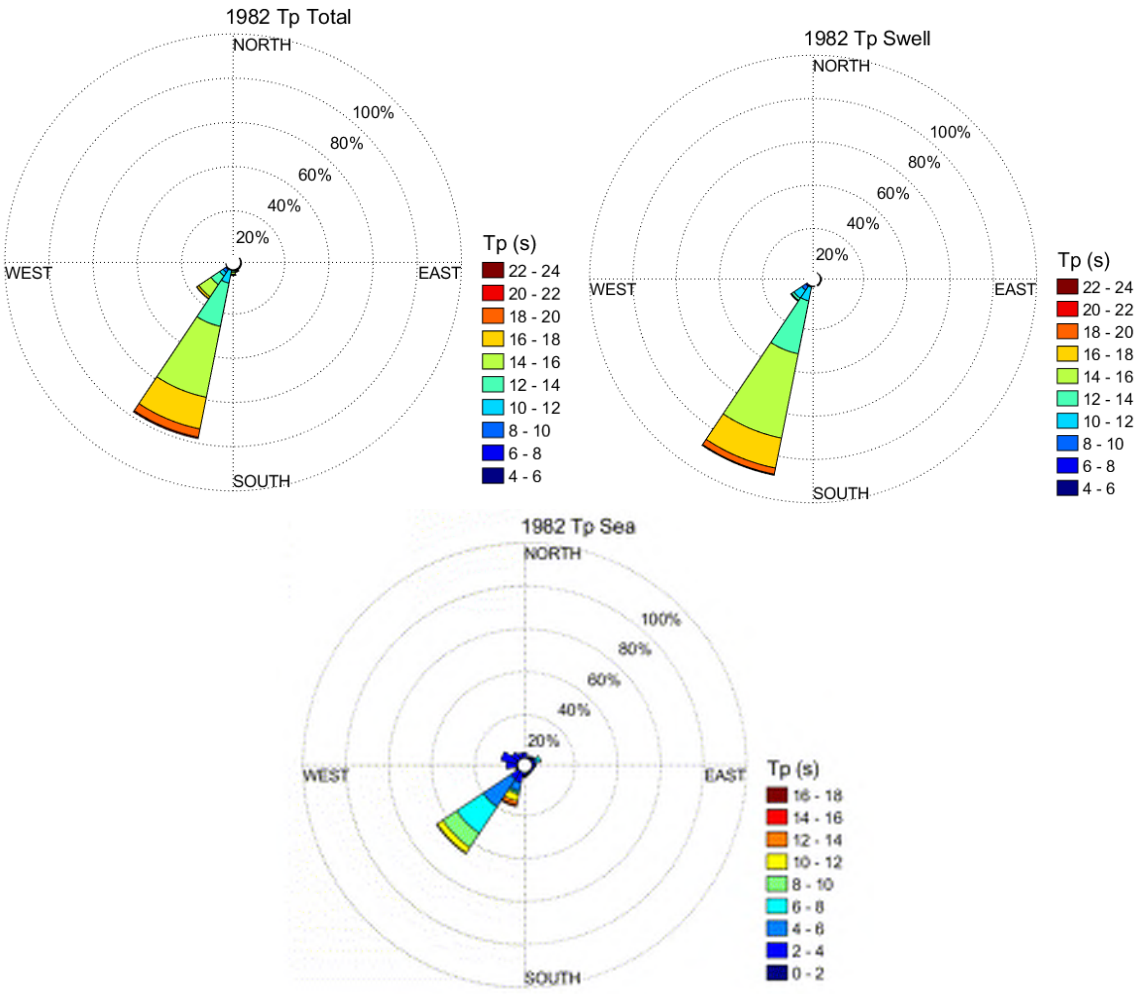

Figure D.18 1982 Tp Roses for Calibrated WWIII Hindcast Wave

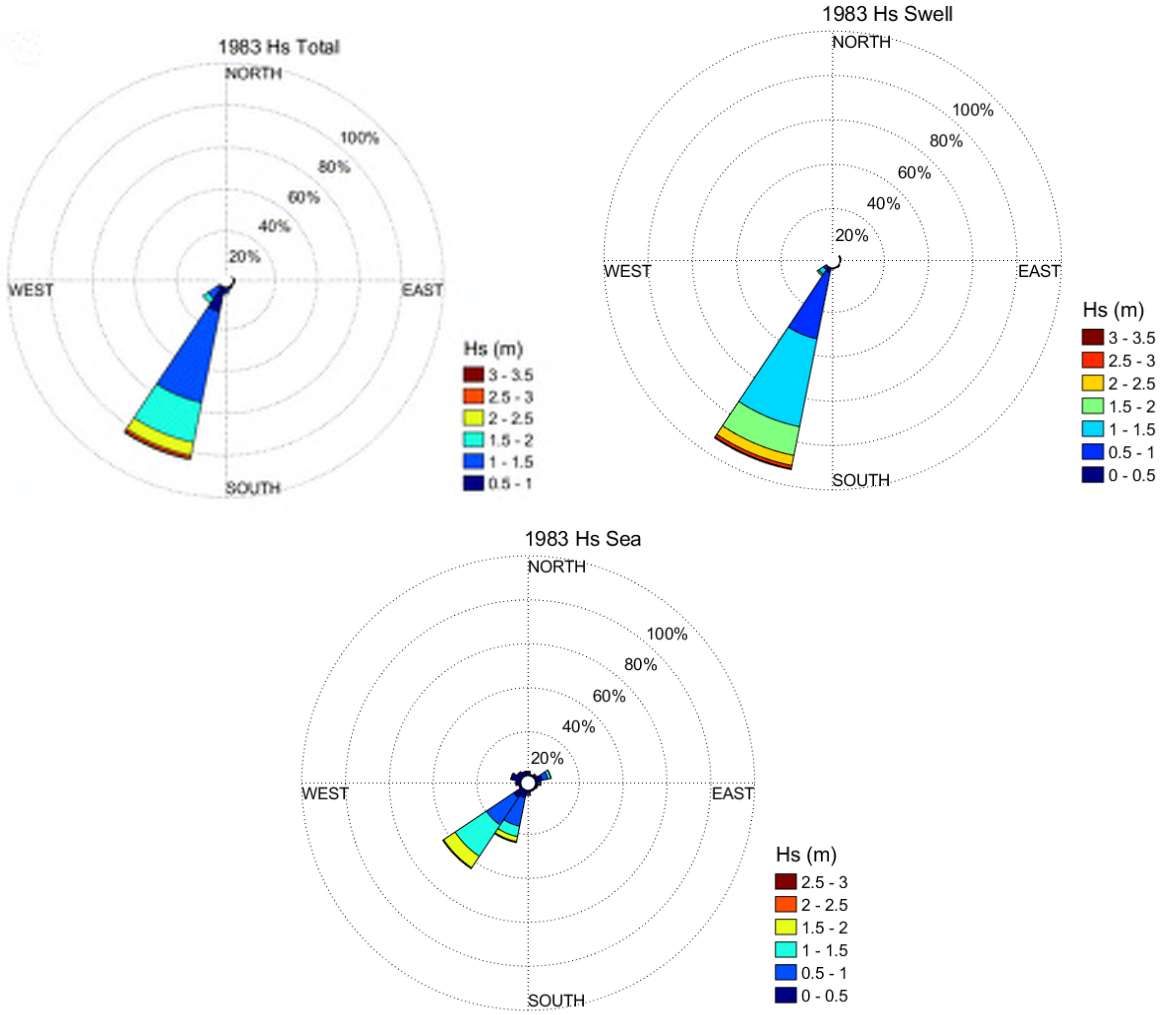

Figure D.19 1983 Hs Roses for Calibrated WWIII Hindcast Wave

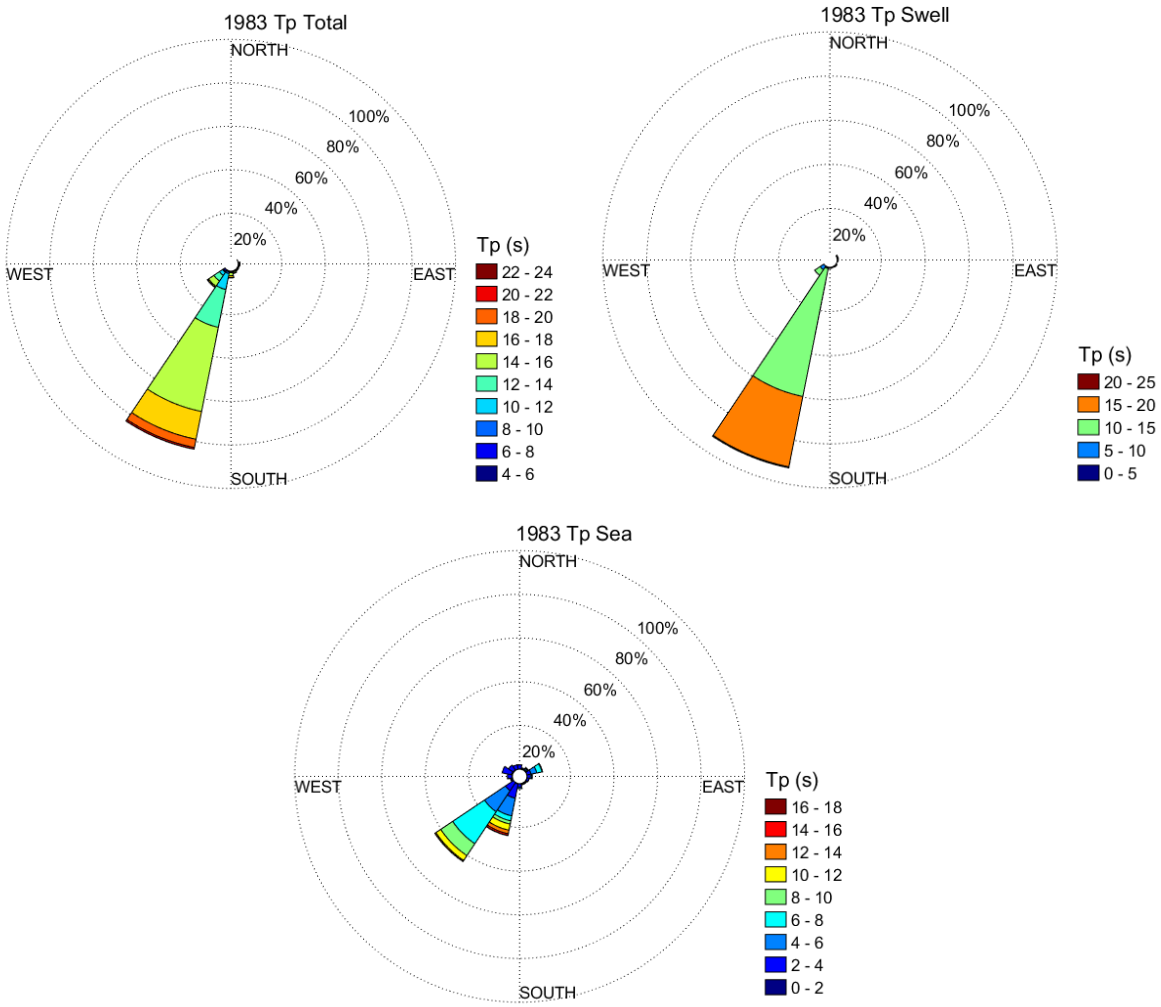

Figure D.20 1983 Tp Roses for Calibrated WWIII Hindcast Wave

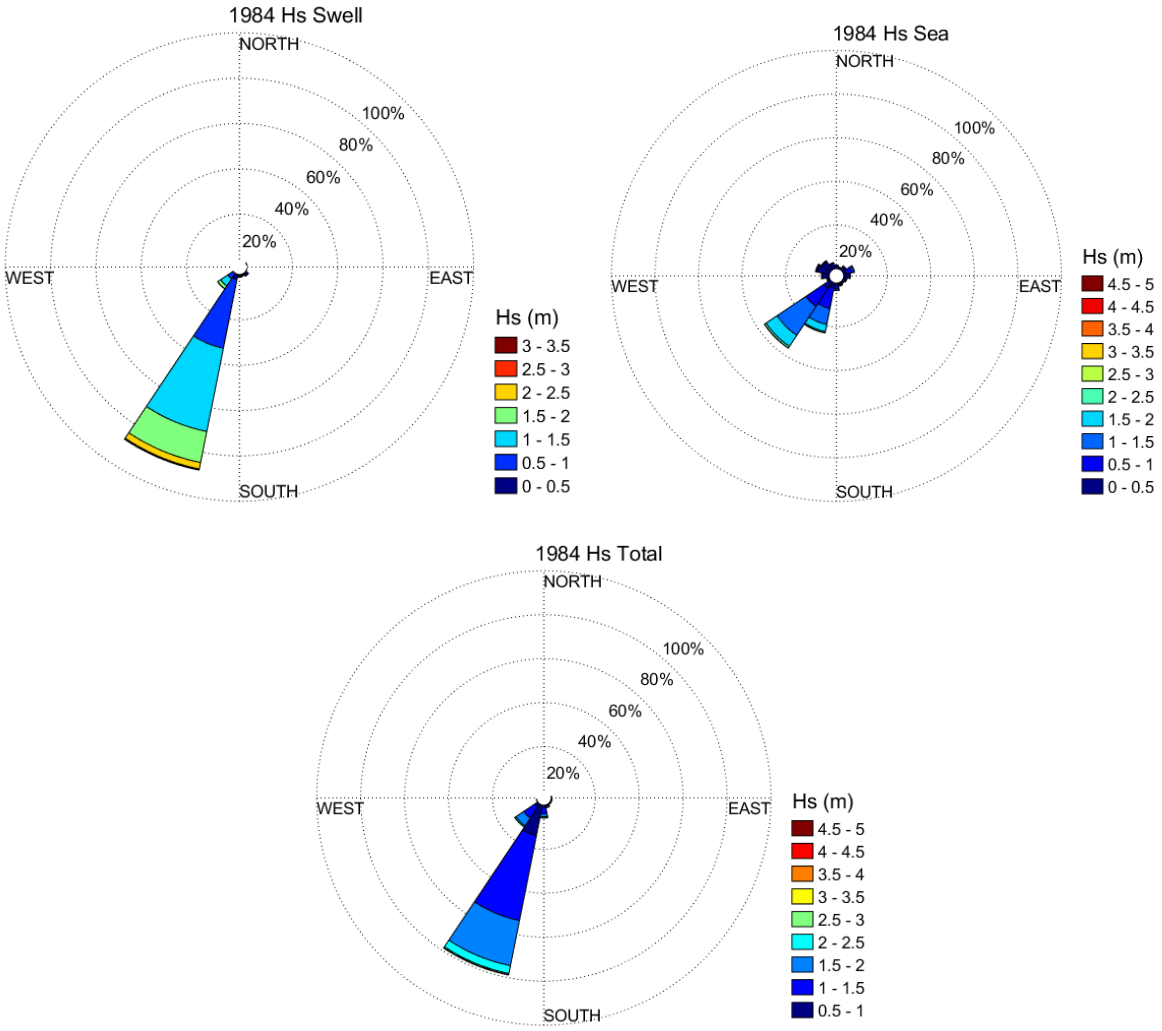

Figure D.21 1984 Hs Roses for Calibrated WWIII Hindcast Wave

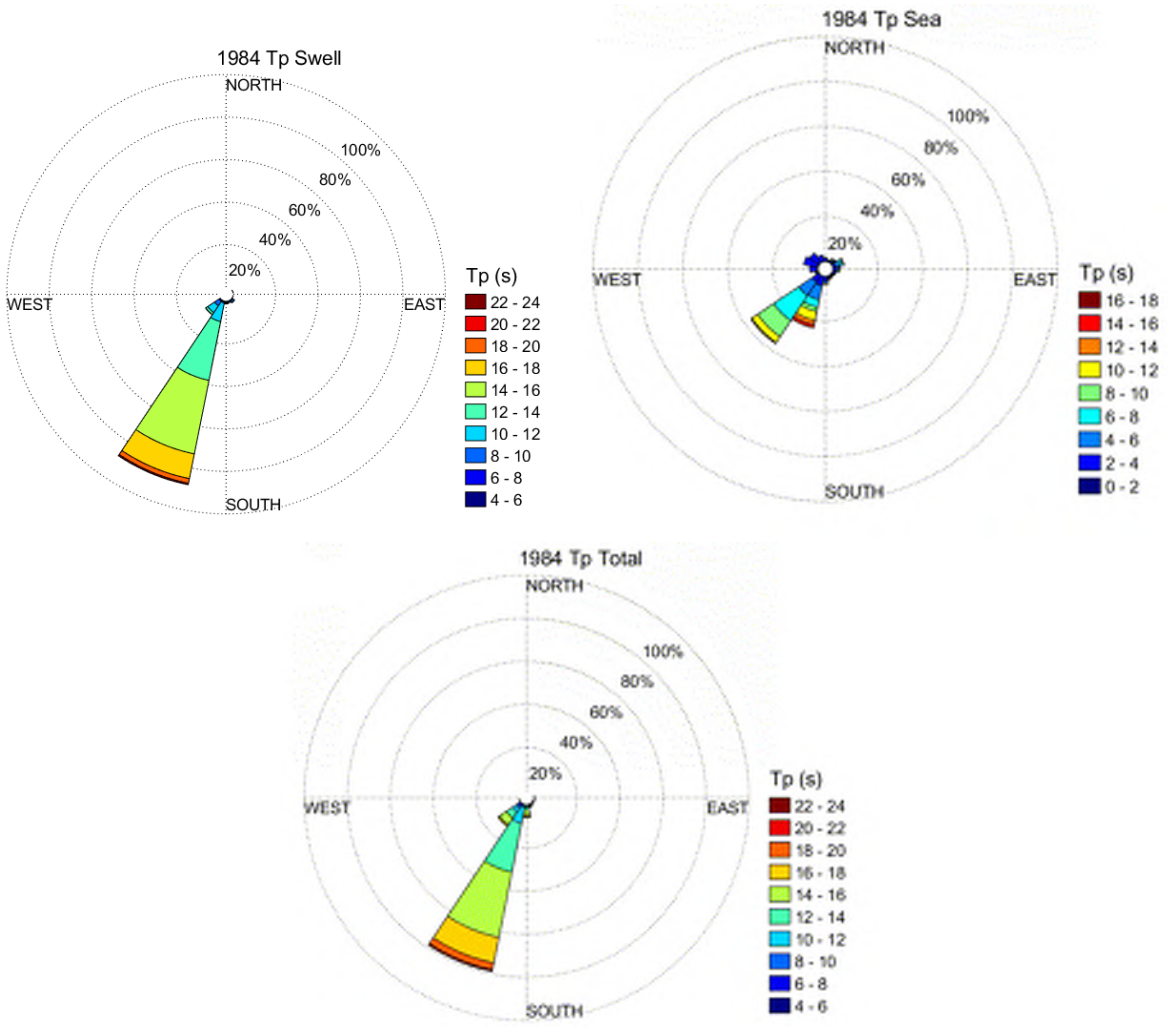

Figure D.22 1984 Tp Roses for Calibrated WWIII Hindcast Wave

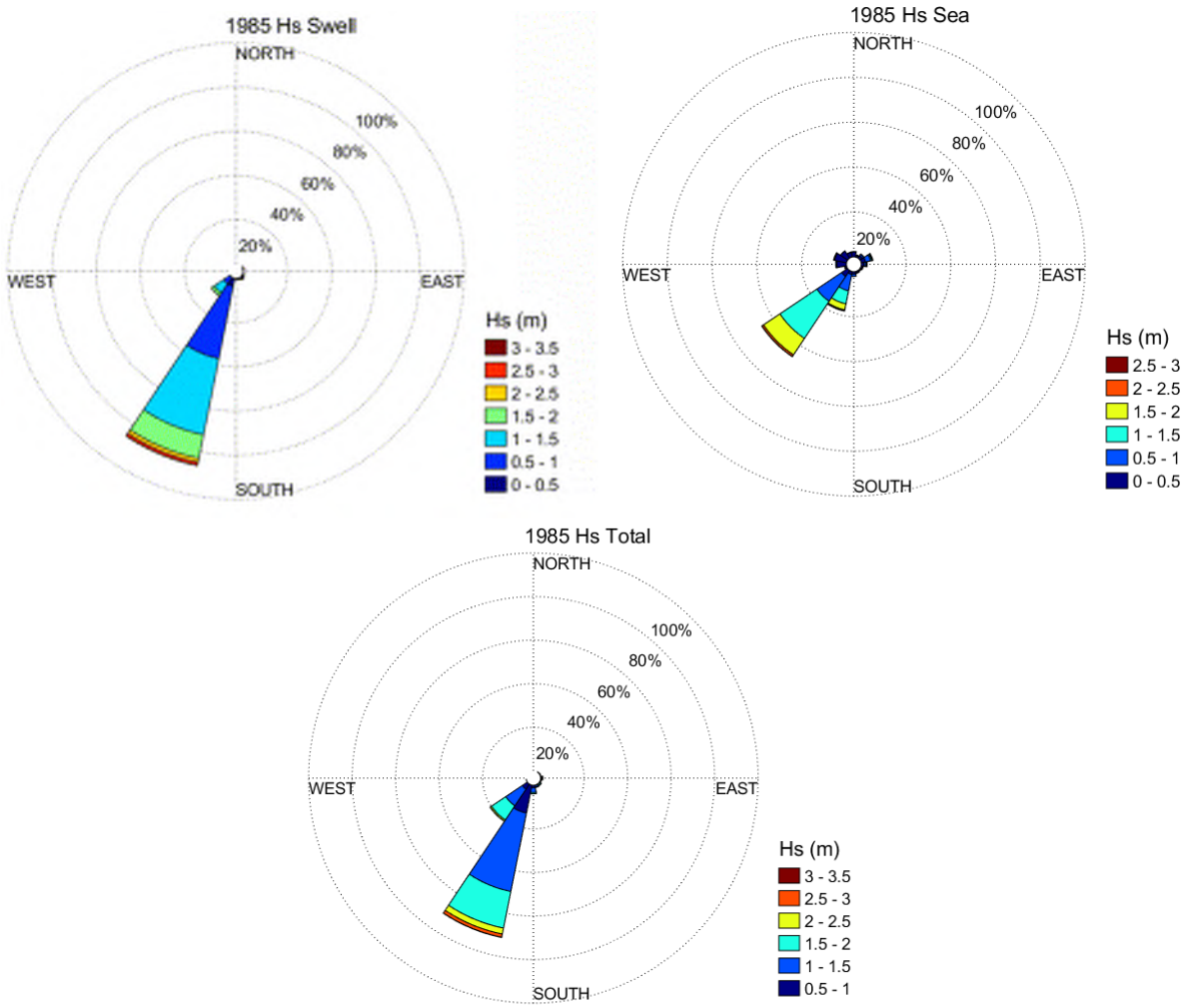

Figure D.23 1985 Hs Roses for Calibrated WWIII Hindcast Wave

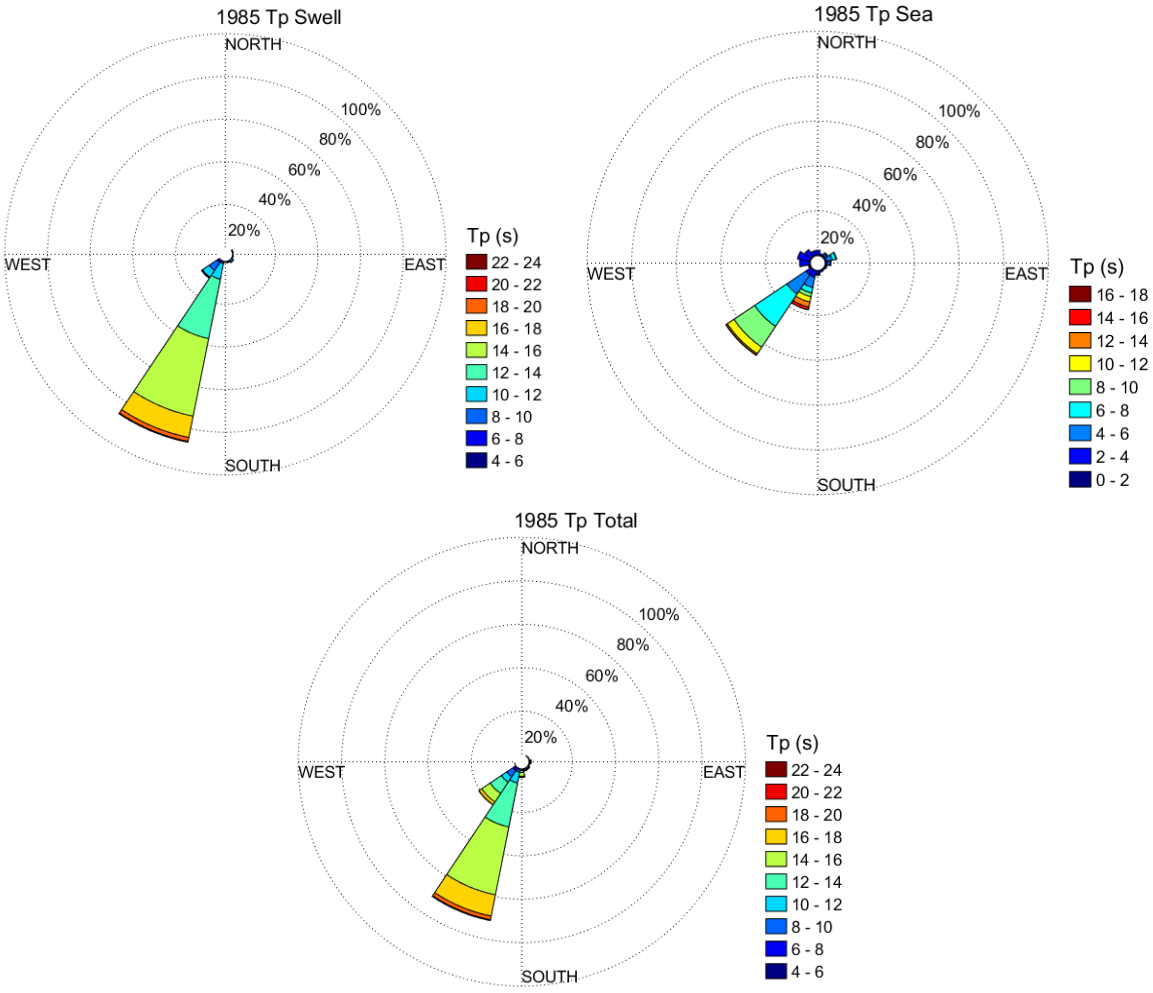

Figure D.24 1985 Tp Roses for Calibrated WWIII Hindcast Wave

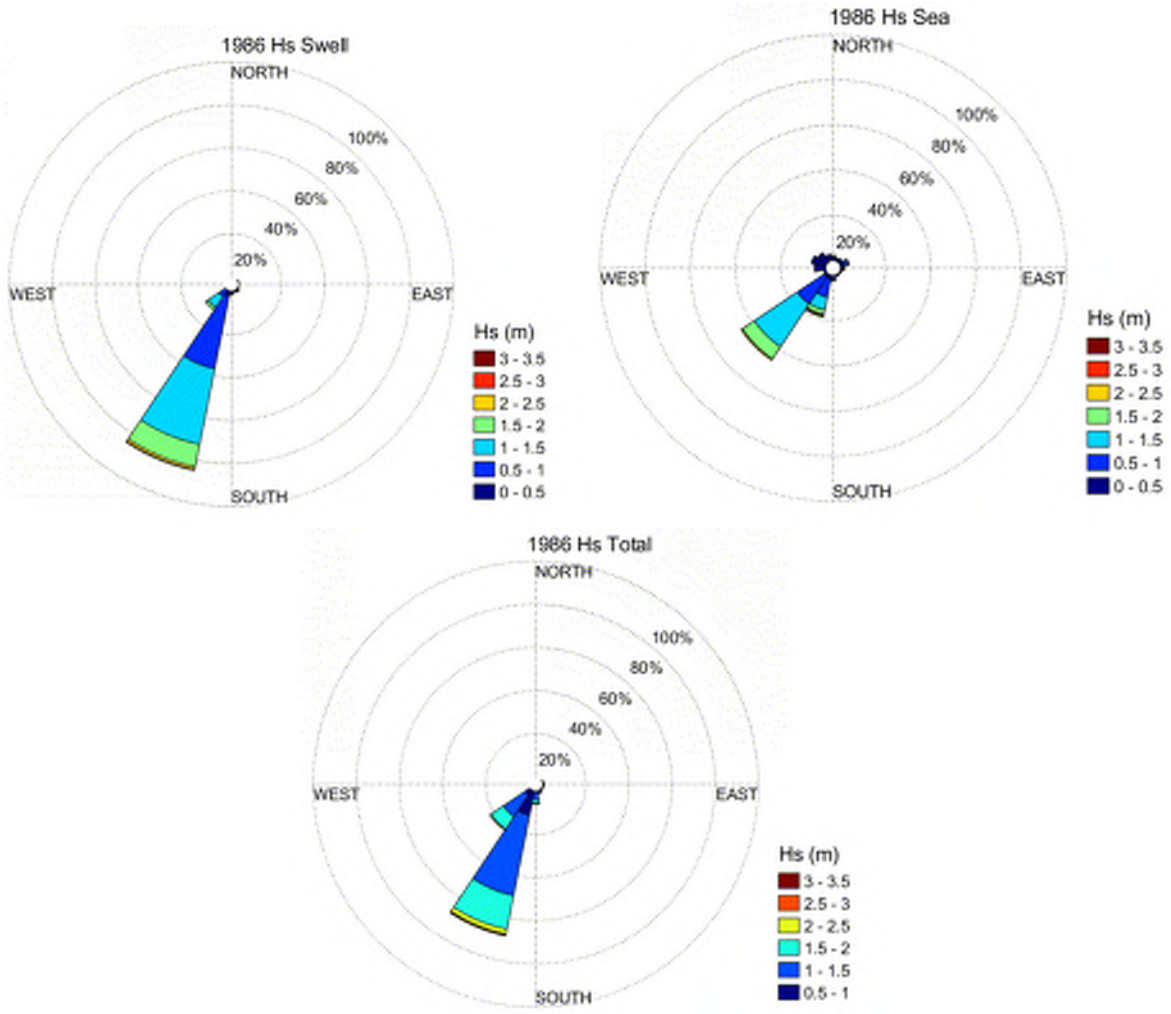

Figure D.25 1986 Hs Roses for Calibrated WWIII Hindcast Wave

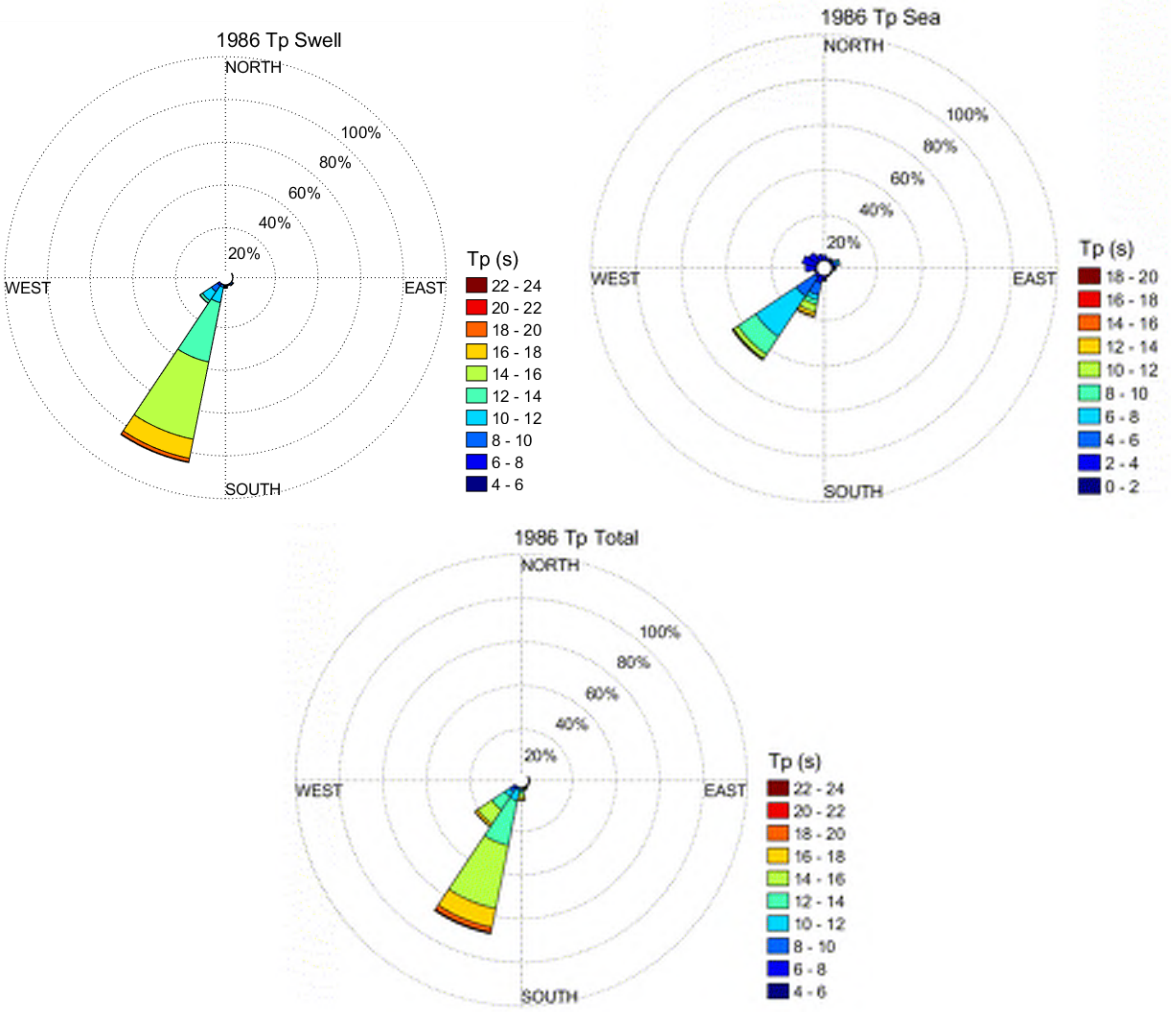

Figure D.26 1986 Tp Roses for Calibrated WWIII Hindcast Wave

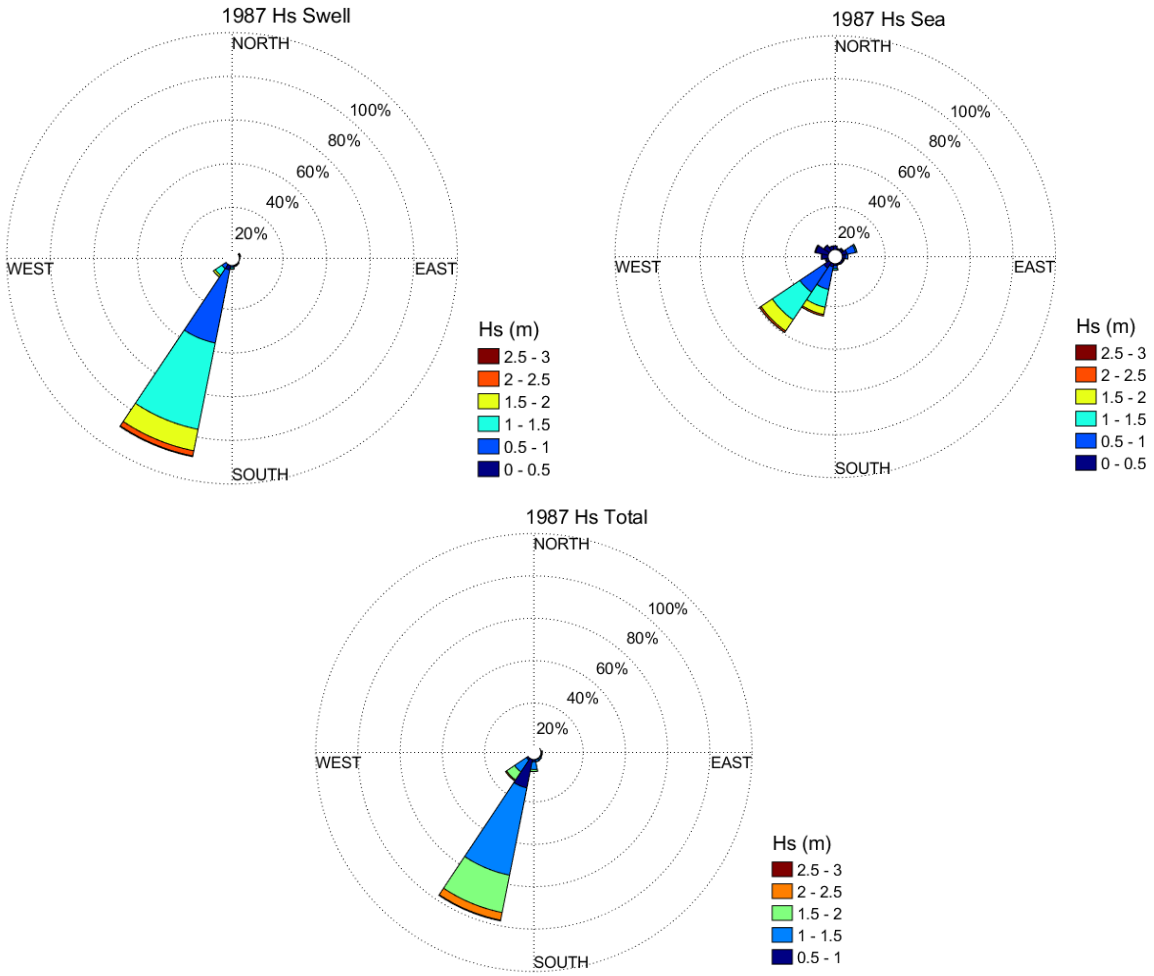

Figure D.27 1987 Hs Roses for Calibrated WWIII Hindcast Wave

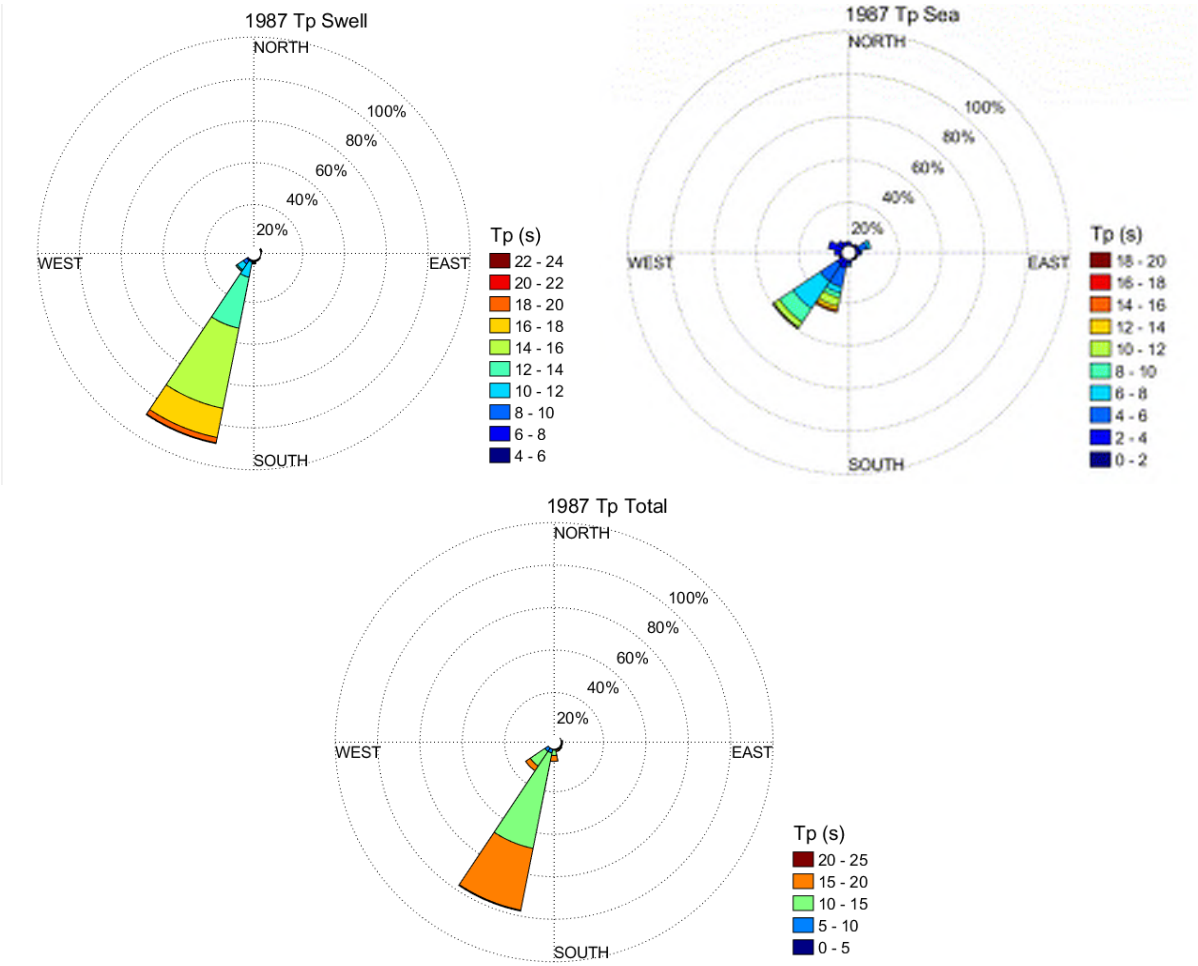

Figure D.28 1987 Tp Roses for Calibrated WWIII Hindcast Wave

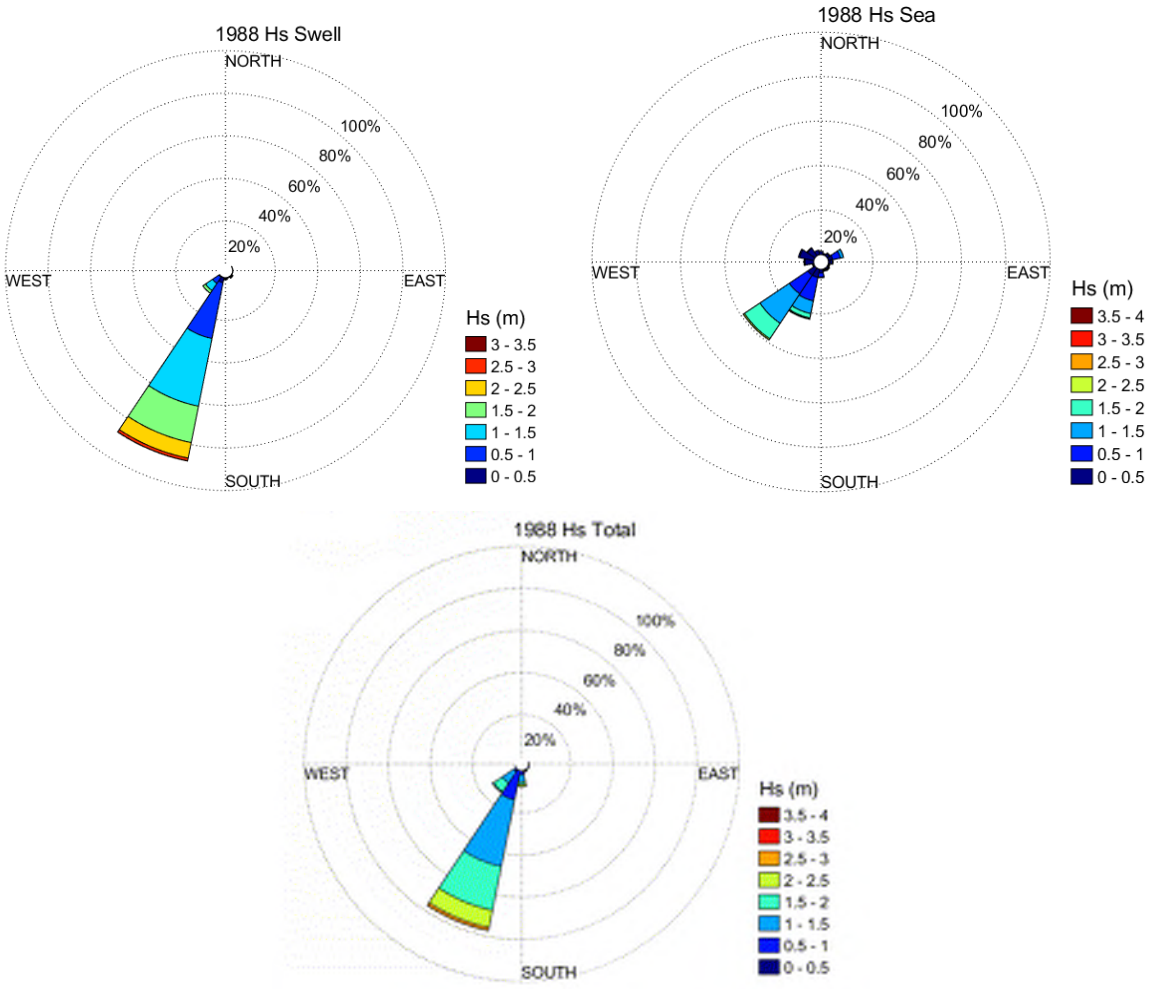

Figure D.29 1988 Hs Roses for Calibrated WWIII Hindcast Wave

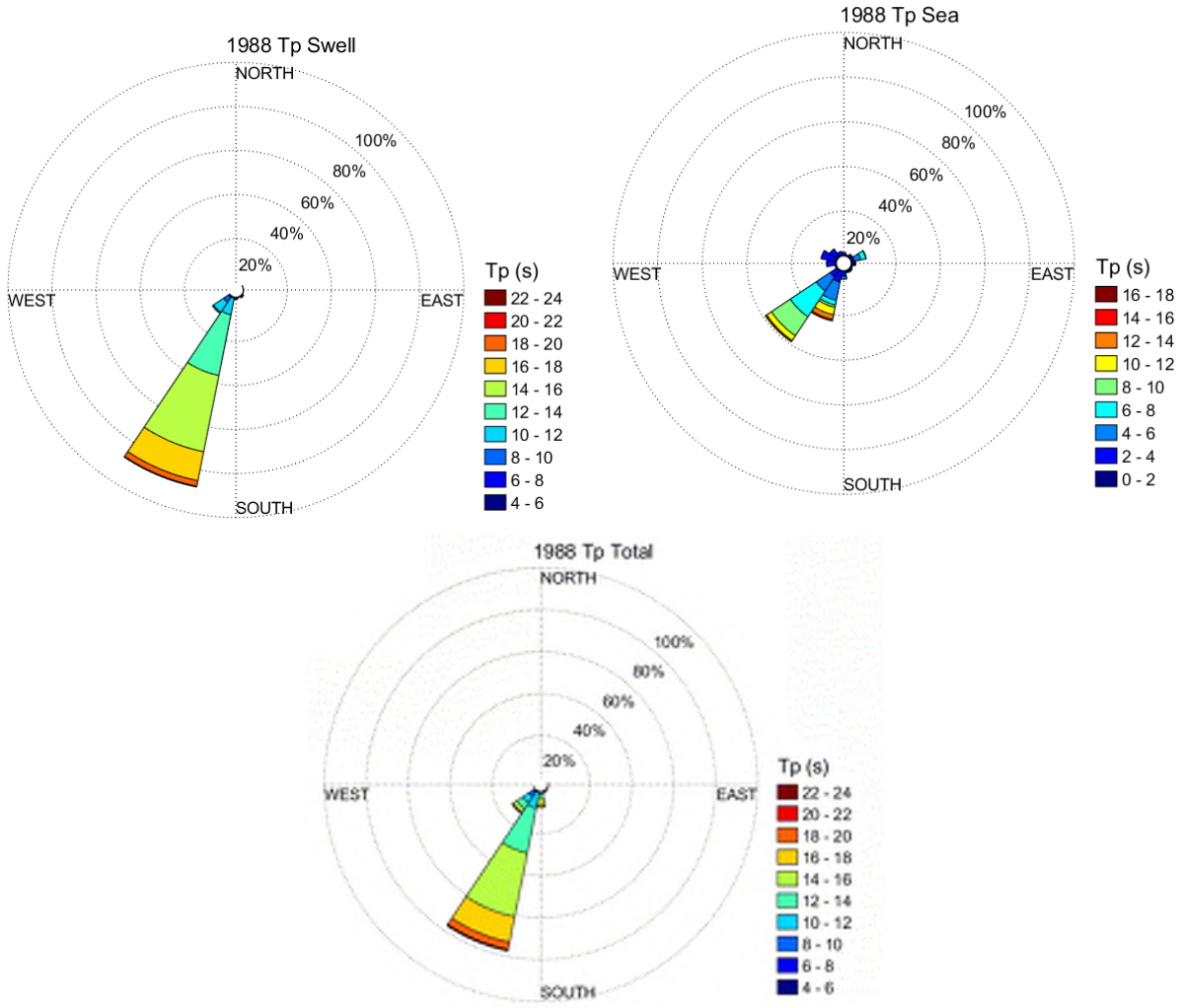

Figure D.30 1988 Tp Roses for Calibrated WWIII Hindcast Wave

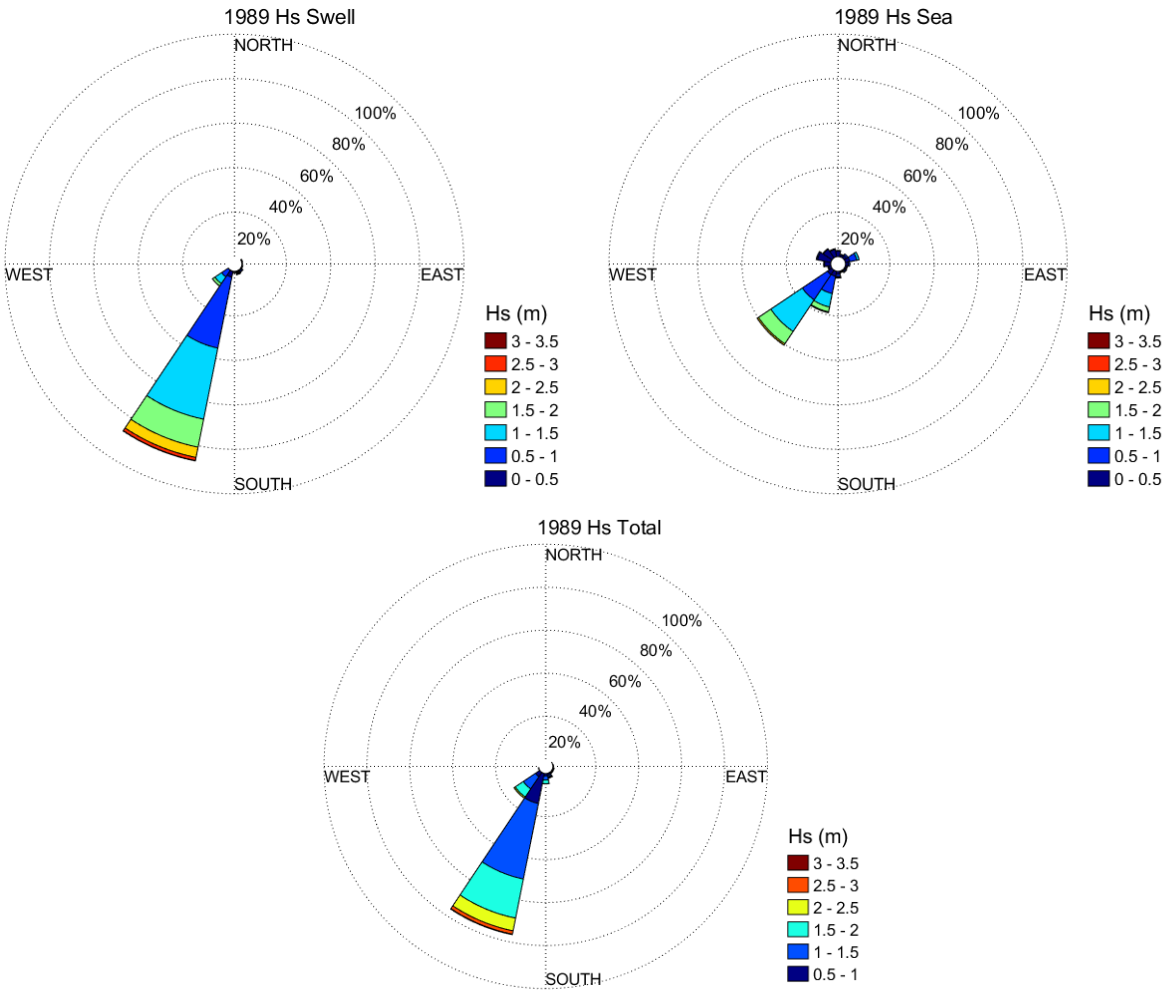

Figure D.31 1989 Hs Roses for Calibrated WWIII Hindcast Wave

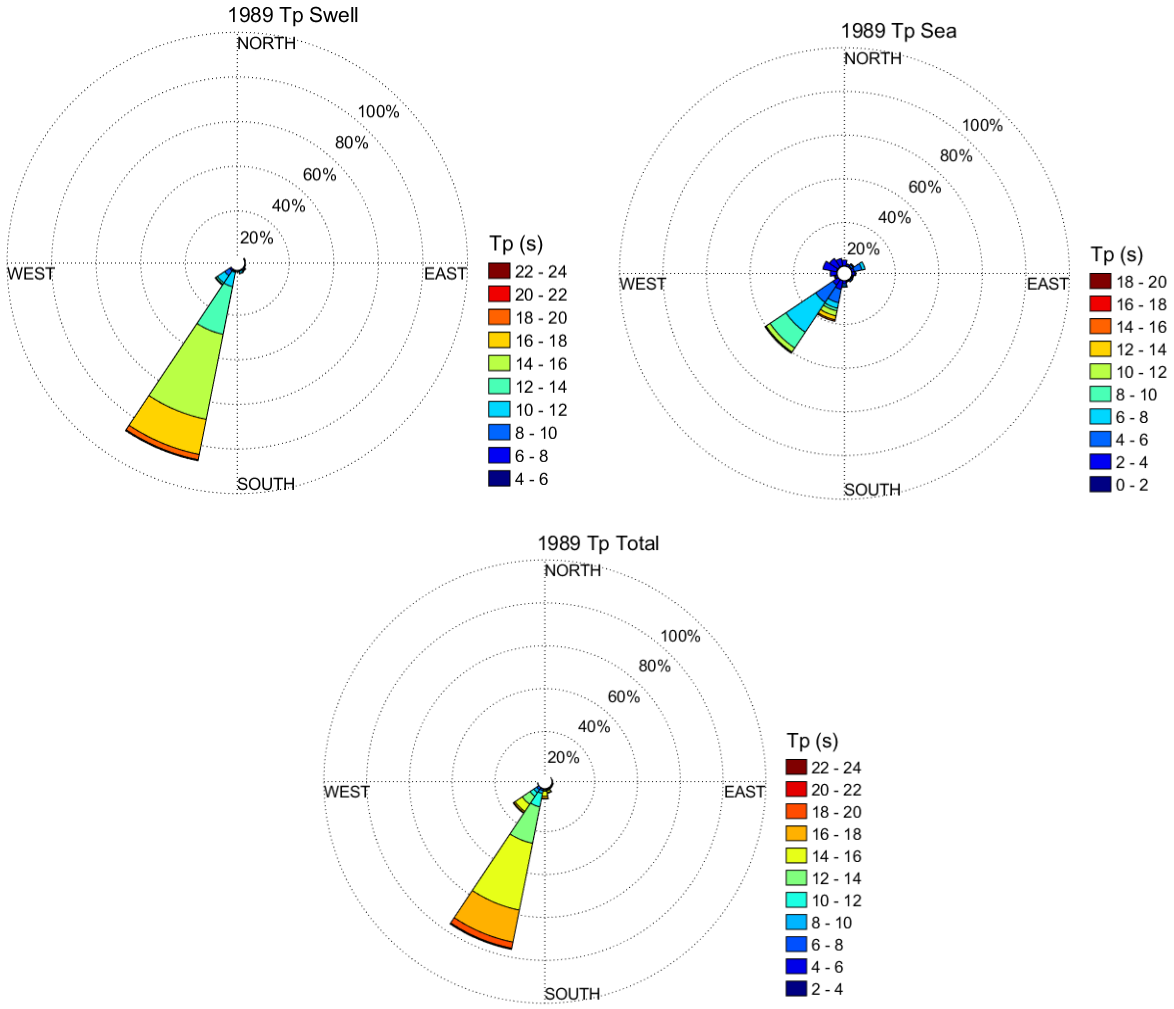

Figure D.32 1989 Tp Roses for Calibrated WWIII Hindcast Wave

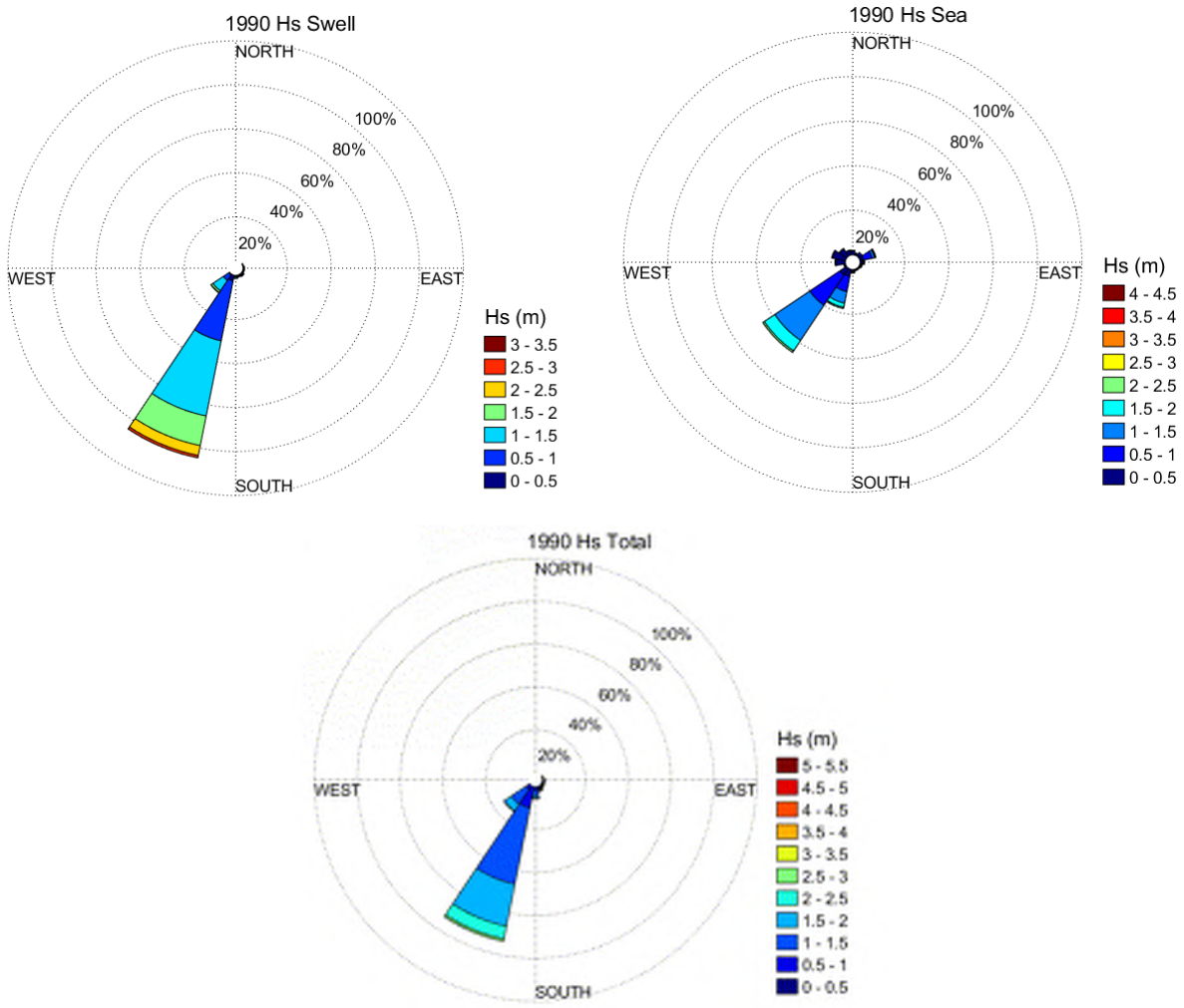

Figure D.33 1990 Hs Roses for Calibrated WWIII Hindcast Wave

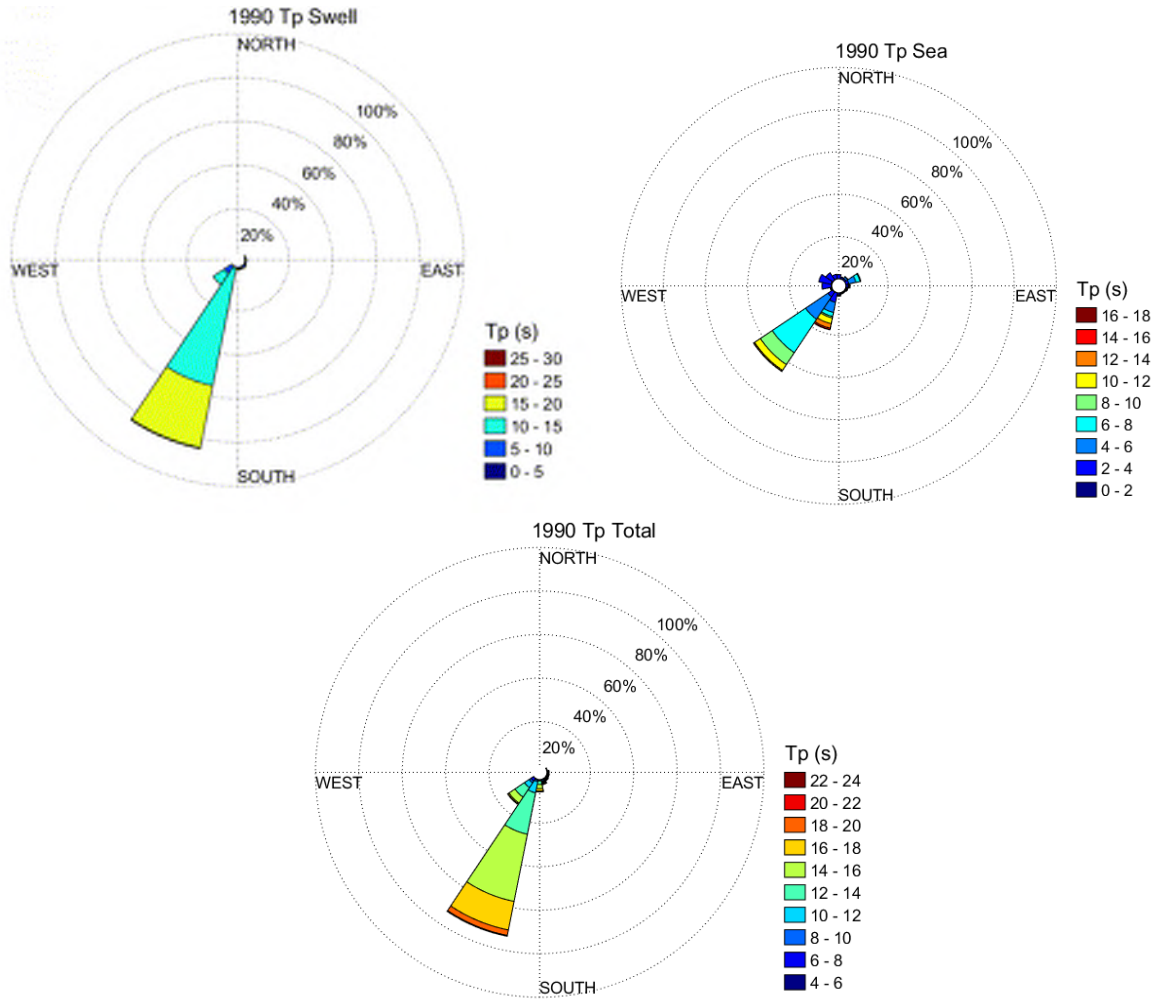

Figure D.34 1990 Tp Roses for Calibrated WWIII Hindcast Wave

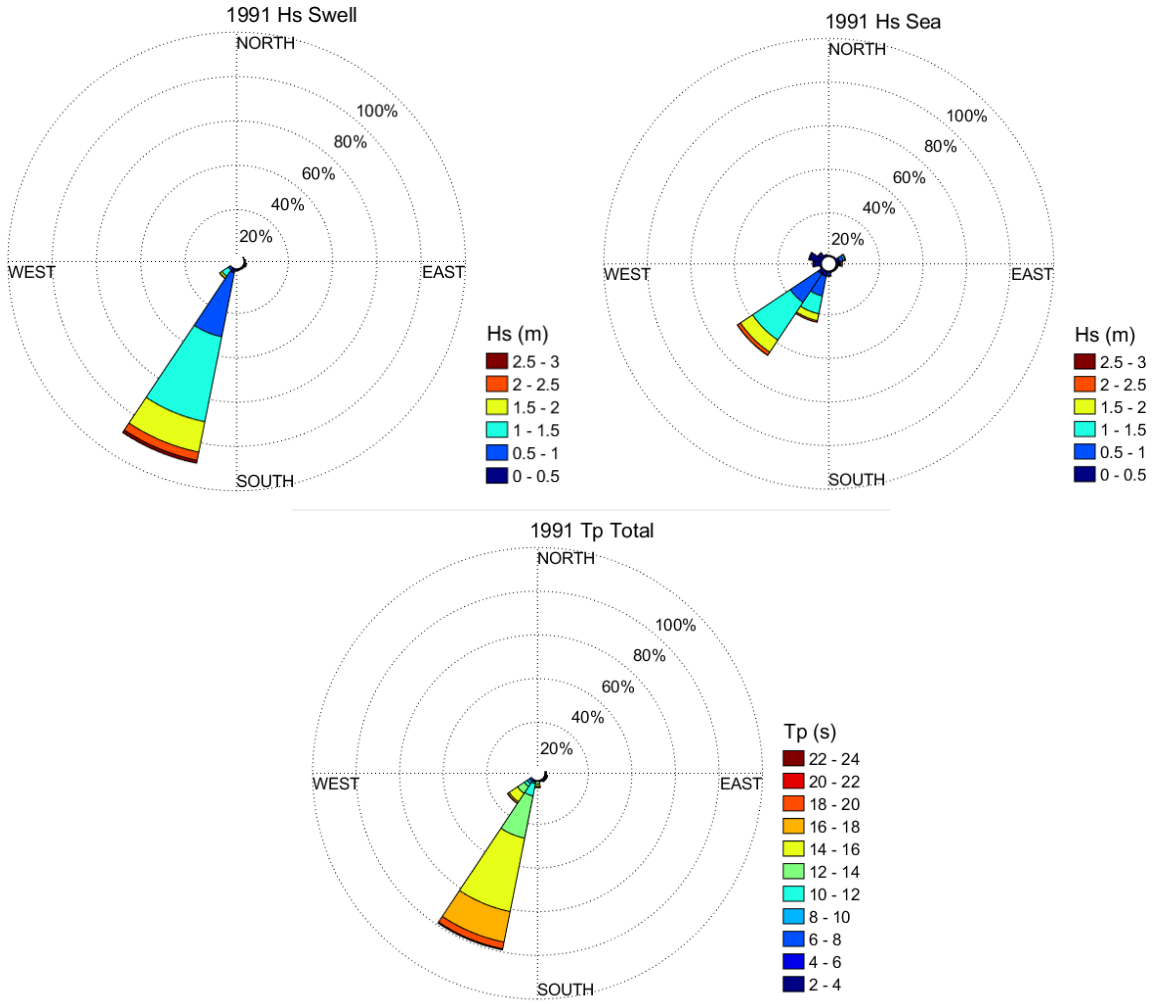

Figure D.35 1991 Hs Roses for Calibrated WWIII Hindcast Wave

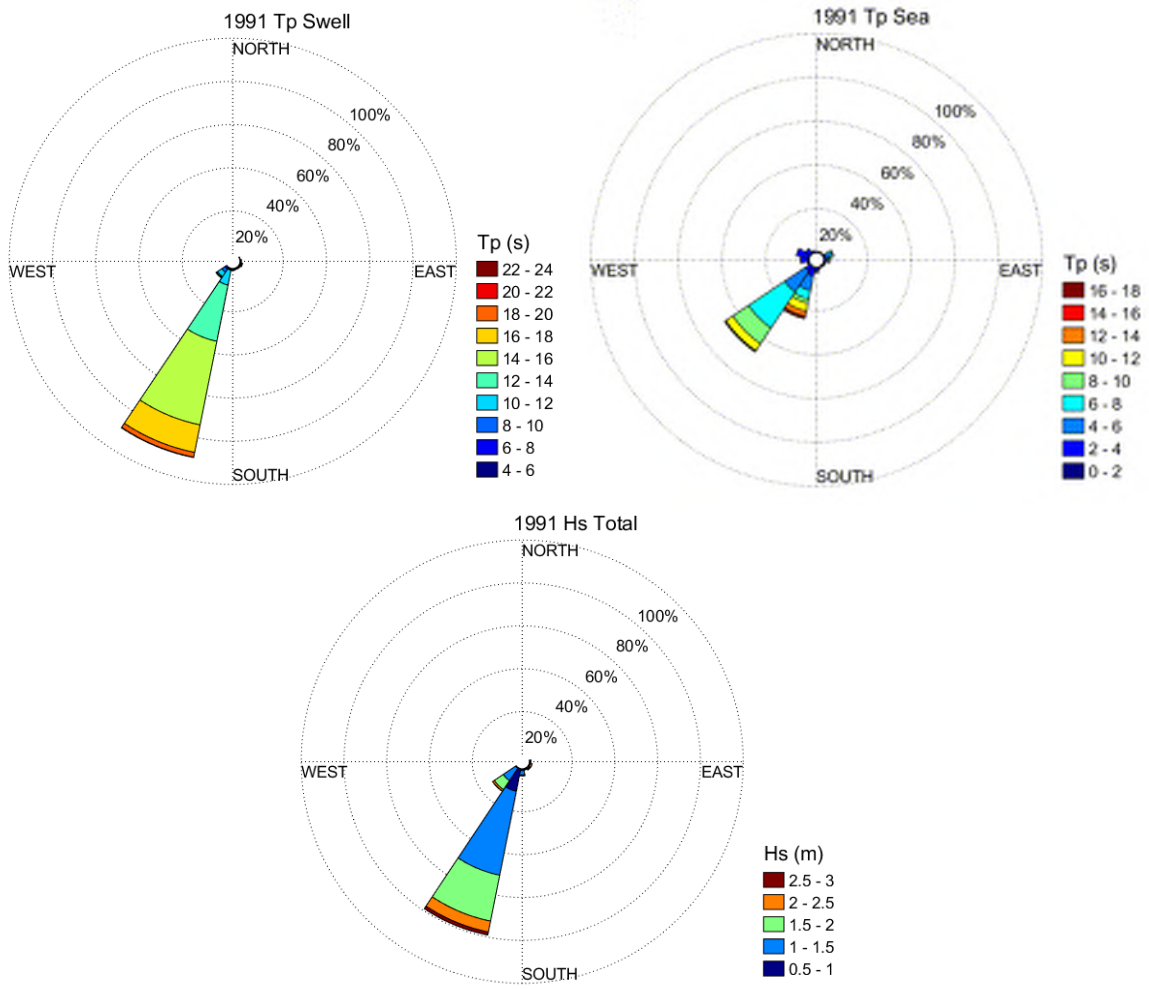

Figure D.36 1991 Tp Roses for Calibrated WWIII Hindcast Wave

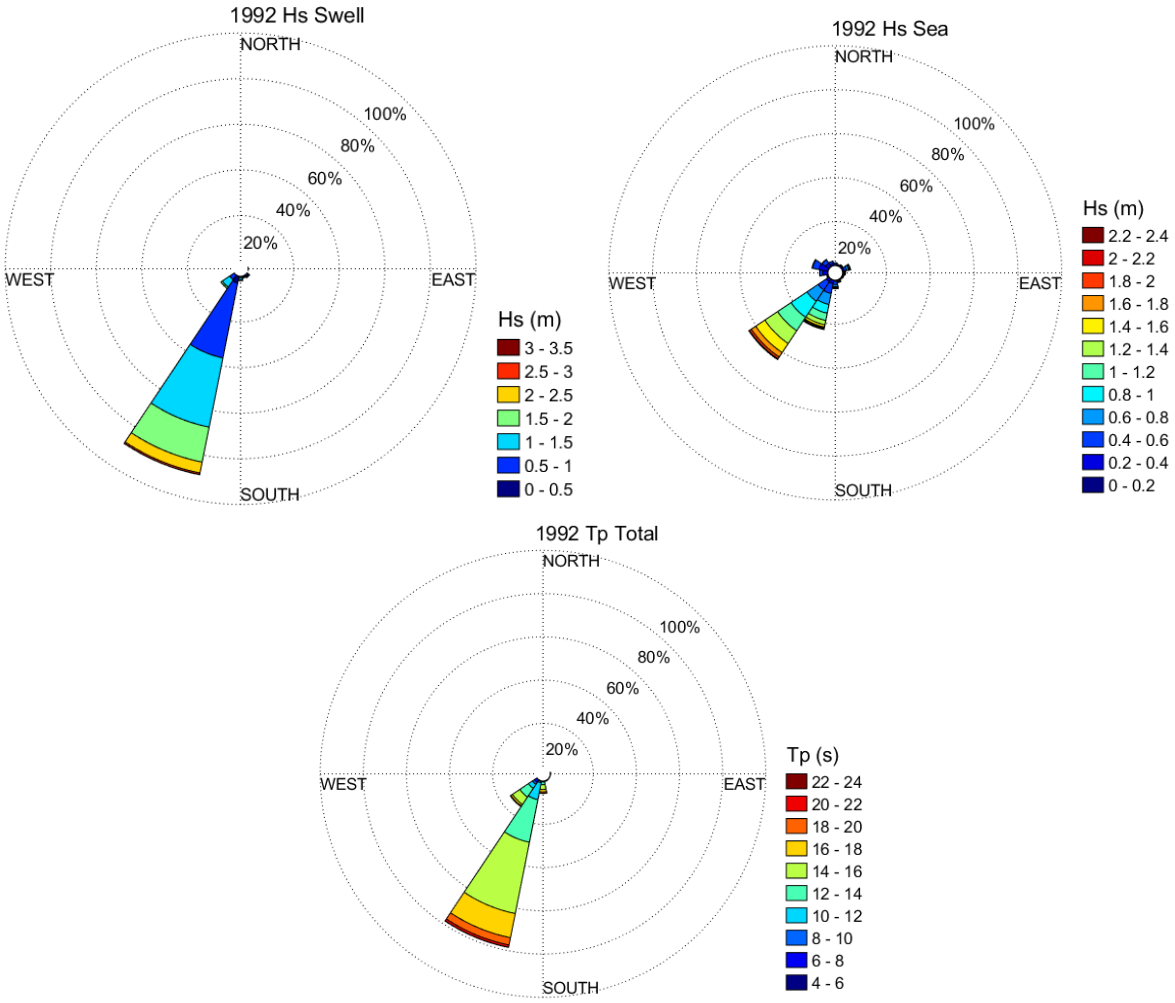

Figure D.37 1992 Hs Roses for Calibrated WWIII Hindcast Wave

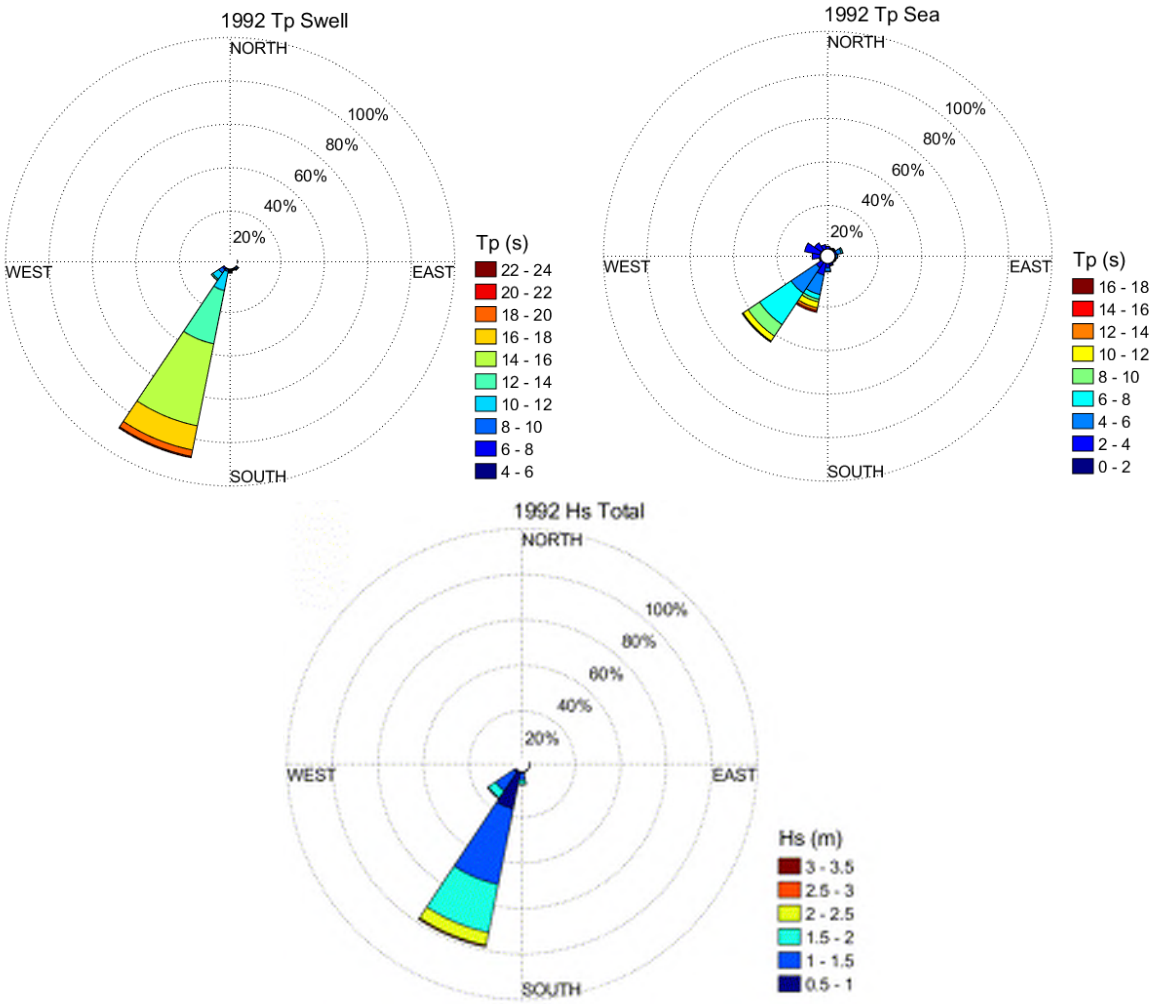

Figure D.38 1992 Tp Roses for Calibrated WWIII Hindcast Wave

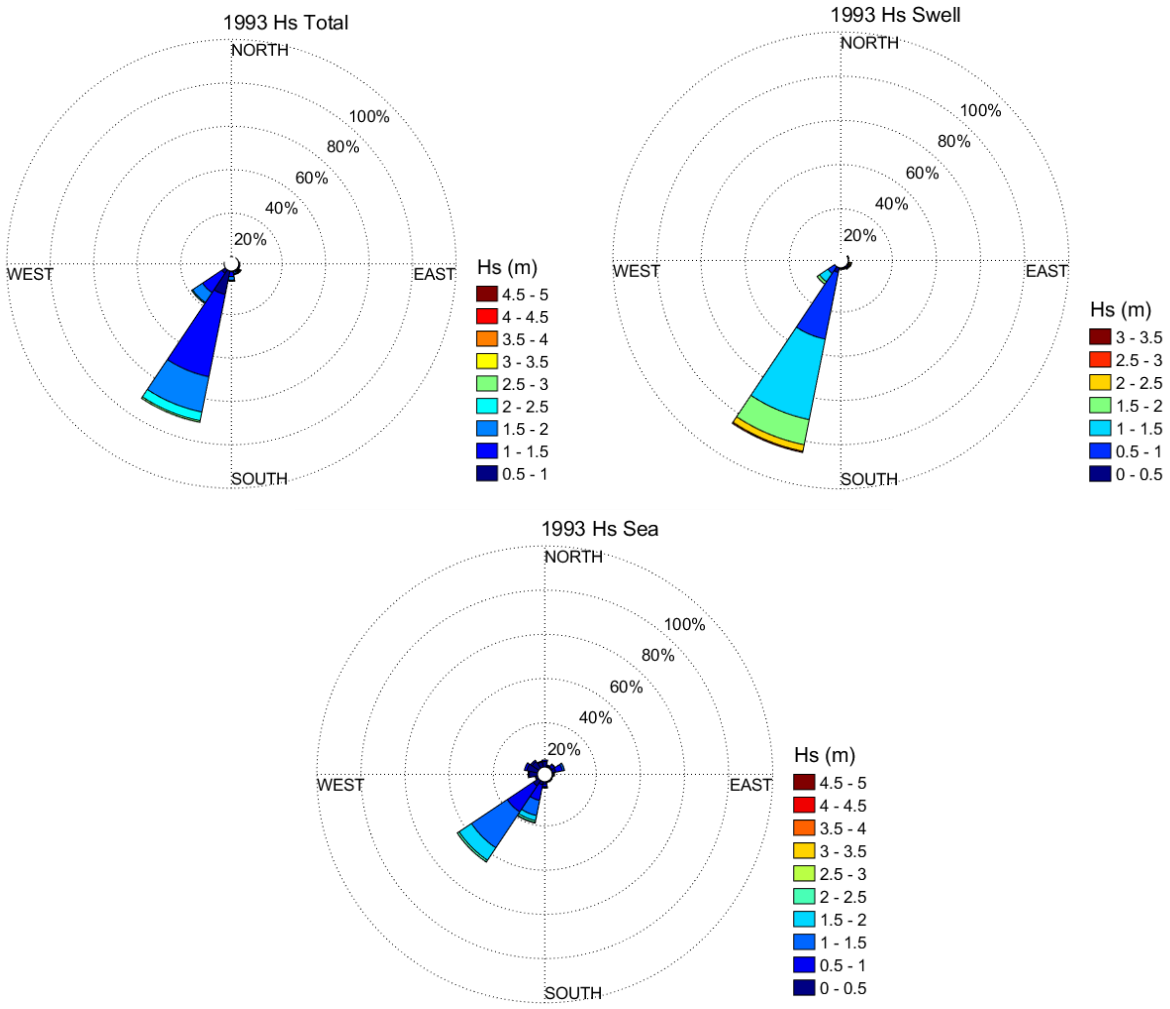

Figure D.39 1993 Hs Roses for Calibrated WWIII Hindcast Wave

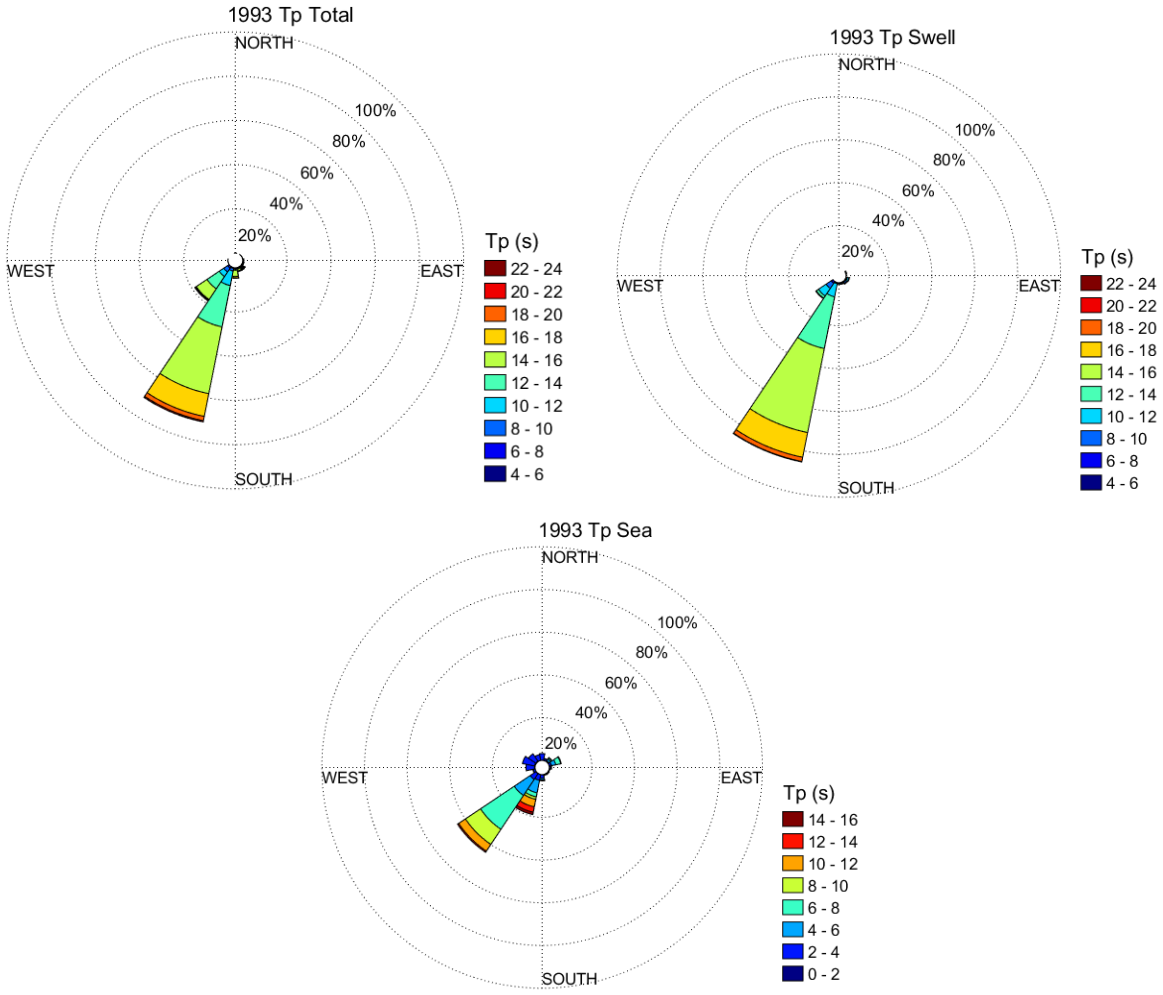

Figure D.40 1993 Tp Roses for Calibrated WWIII Hindcast Wave

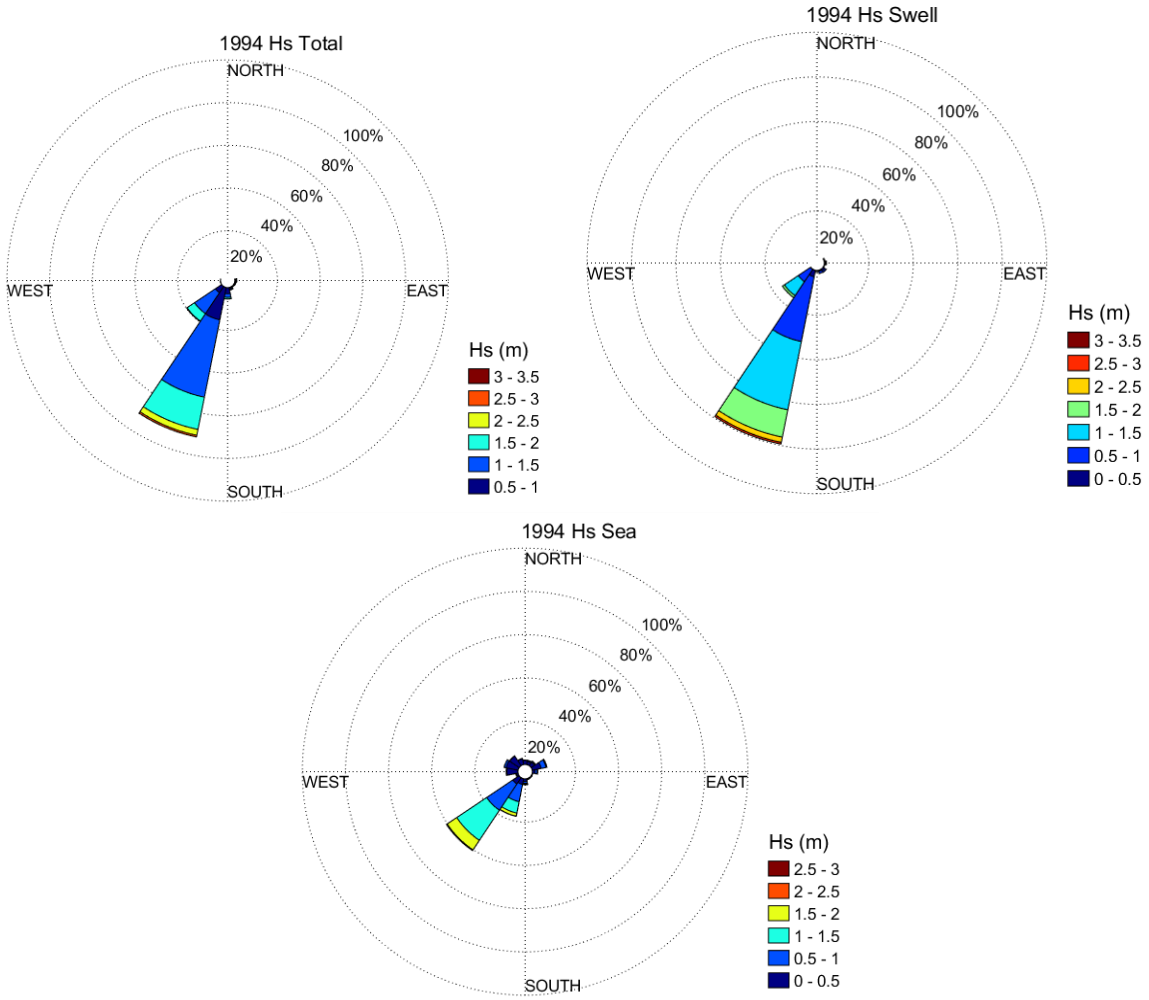

Figure D.41 1994 Hs Roses for Calibrated WWIII Hindcast Wave

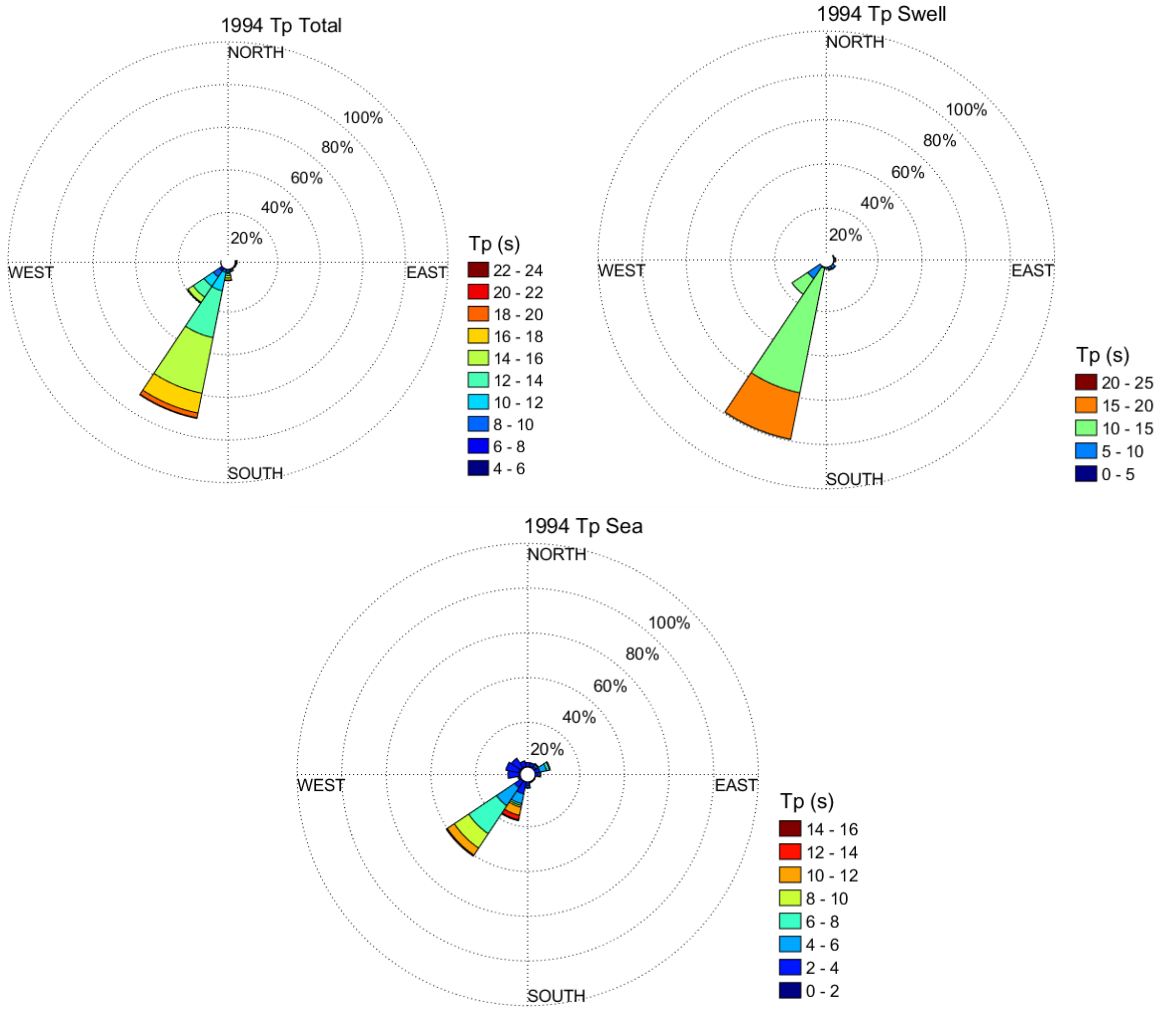

Figure D.42 1994 Tp Roses for Calibrated WWIII Hindcast Wave

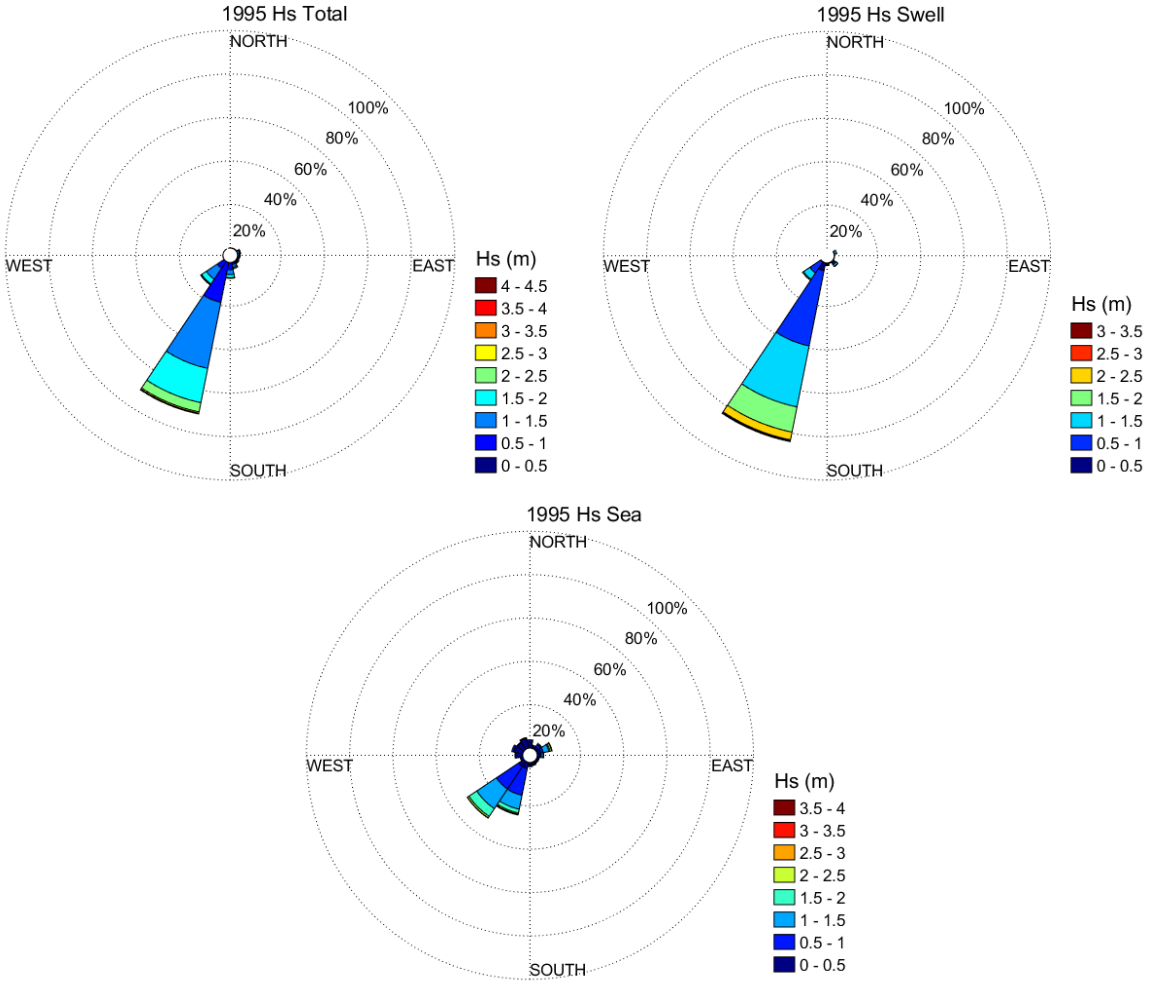

Figure D.43 1995 Hs Roses for Calibrated WWIII Hindcast Wave

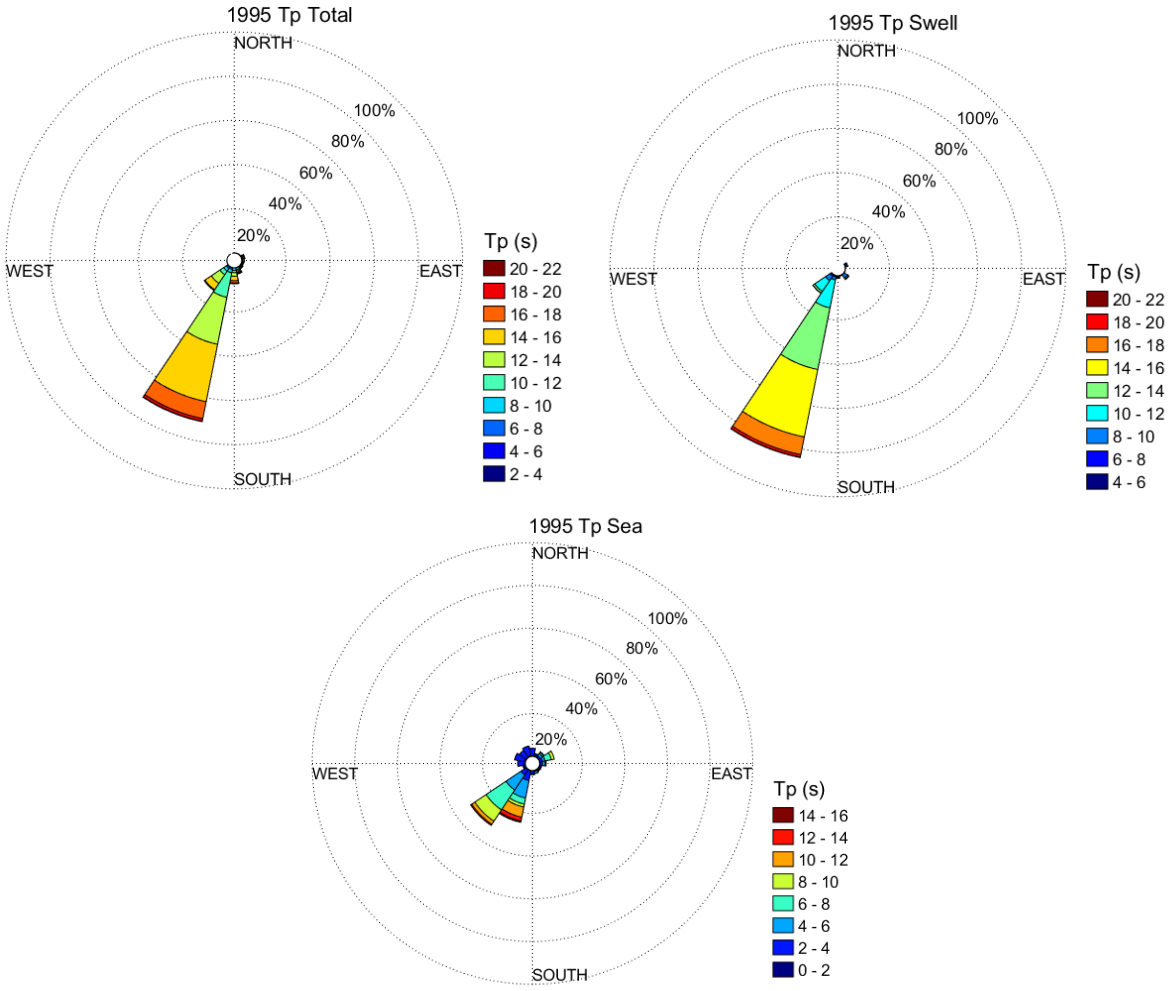

Figure D.44 1995 Tp Roses for Calibrated WWIII Hindcast Wave

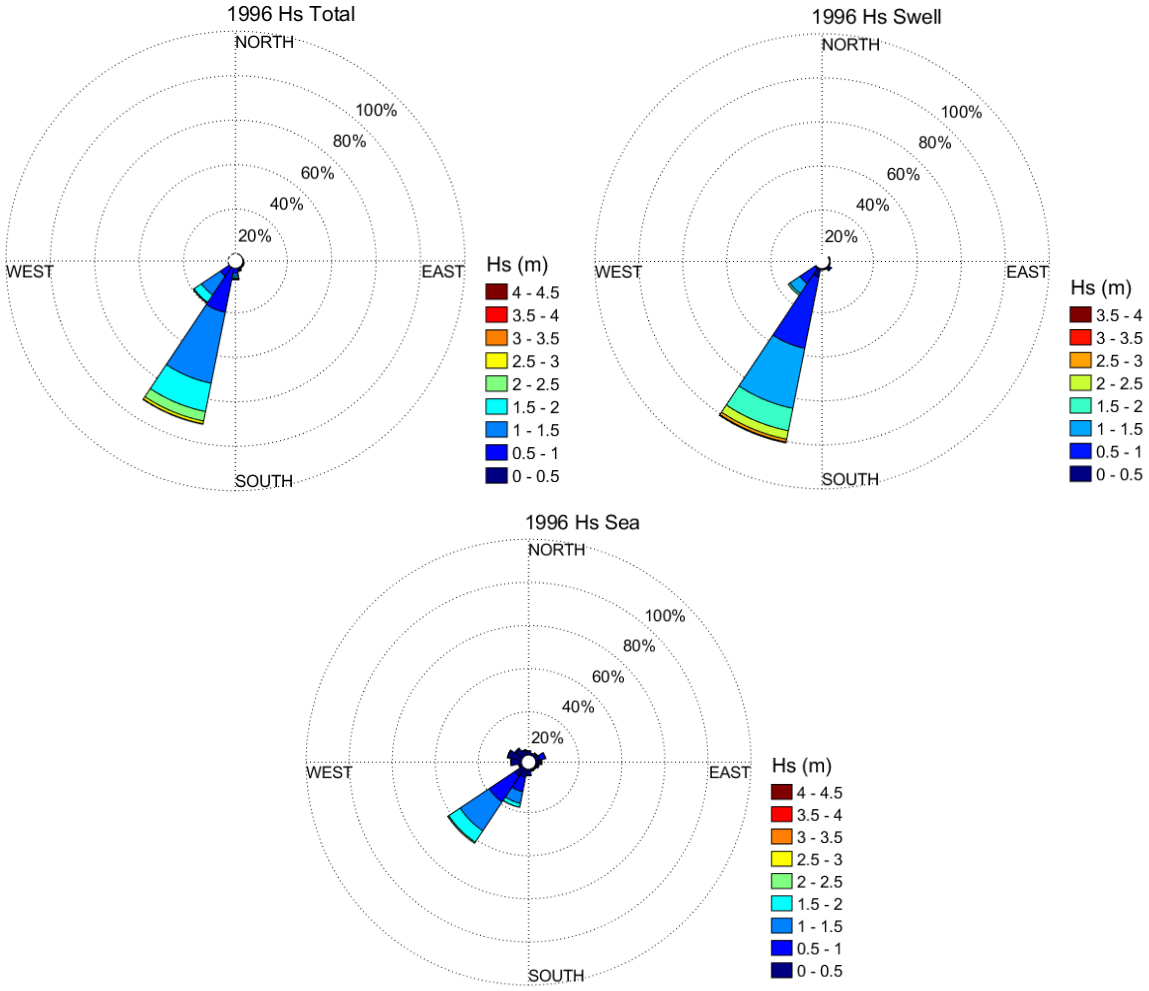

Figure D.45 1996 Hs Roses for Calibrated WWIII Hindcast Wave

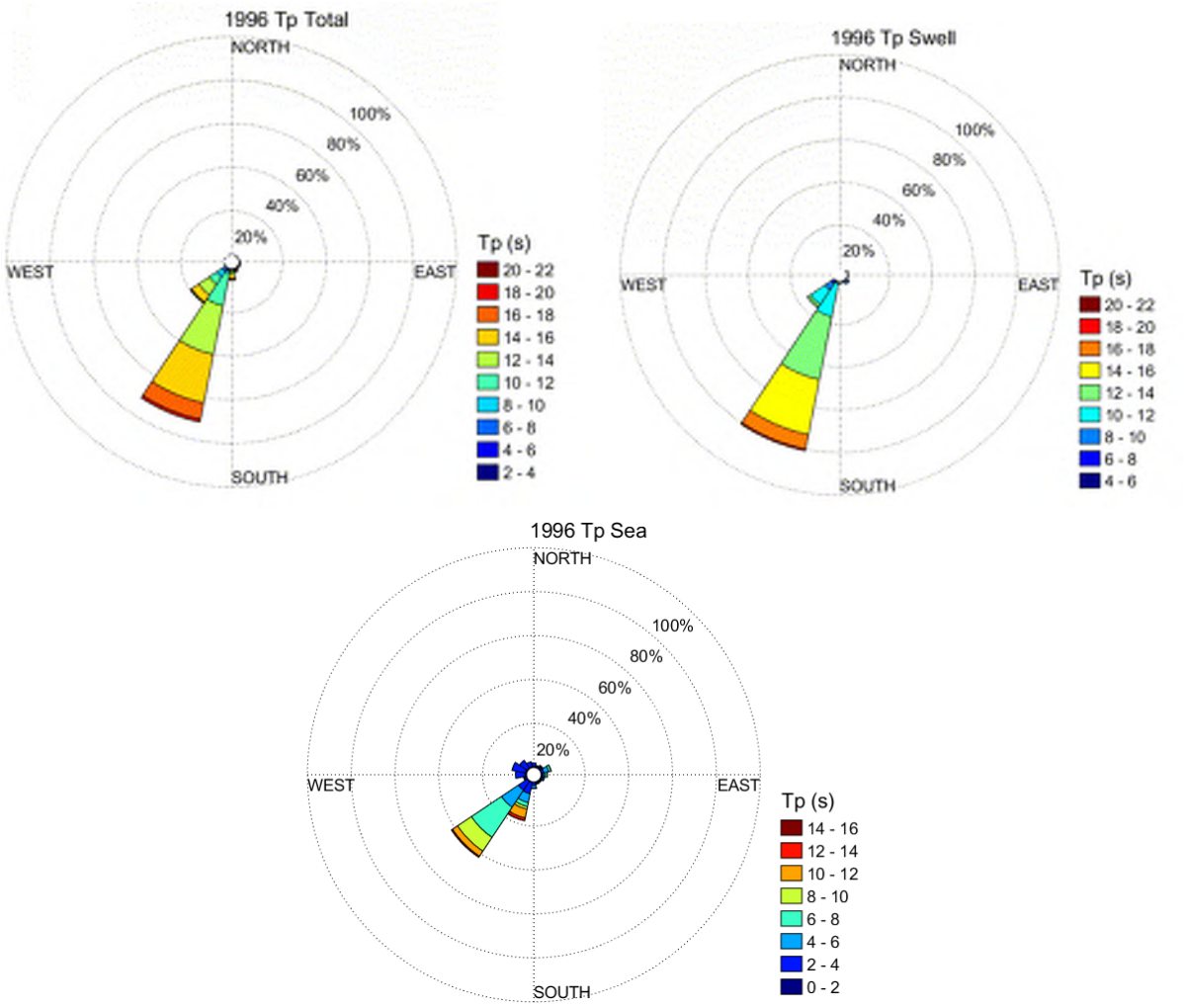

Figure D.46 1996 Tp Roses for Calibrated WWIII Hindcast Wave

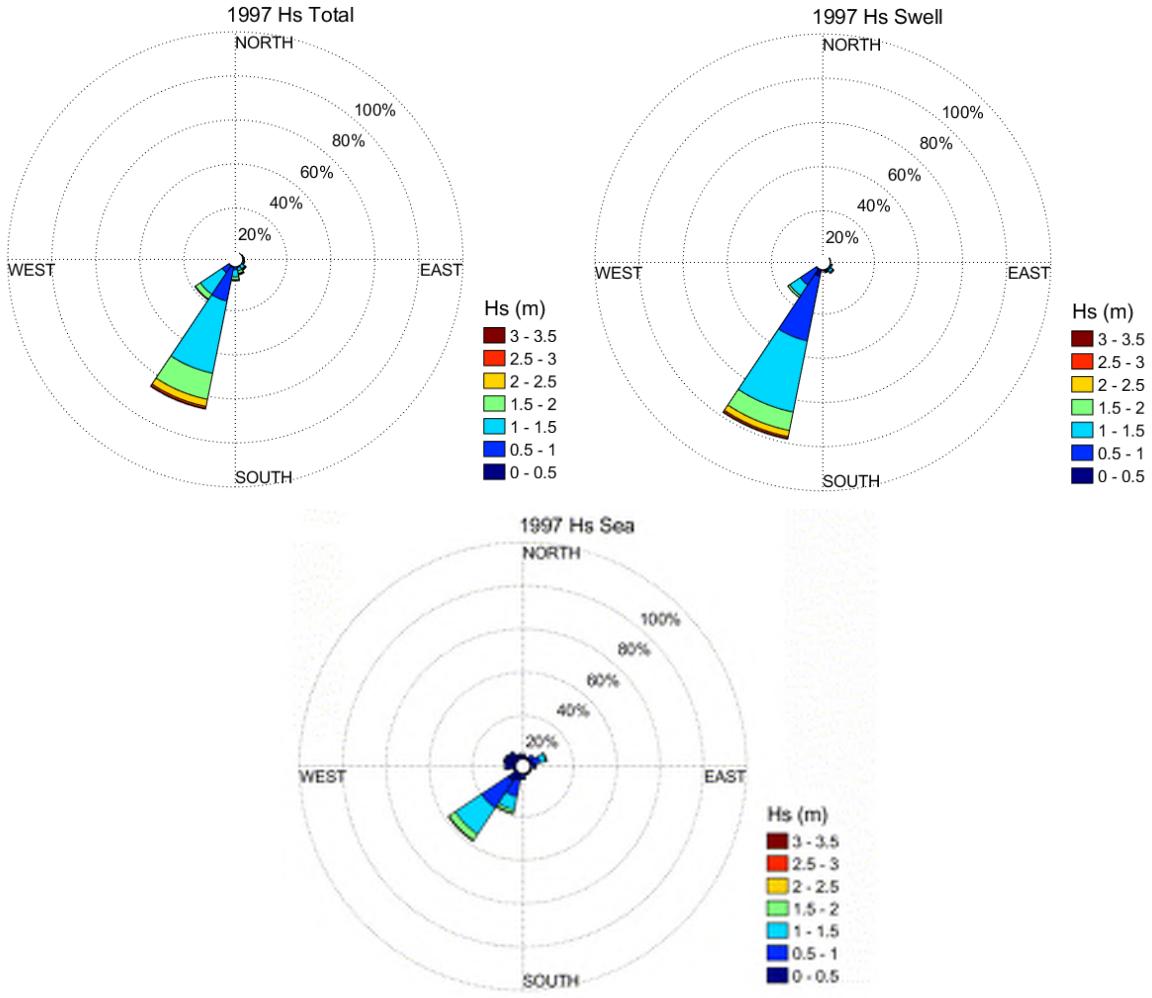

Figure D.47 1997 Hs Roses for Calibrated WWIII Hindcast Wave

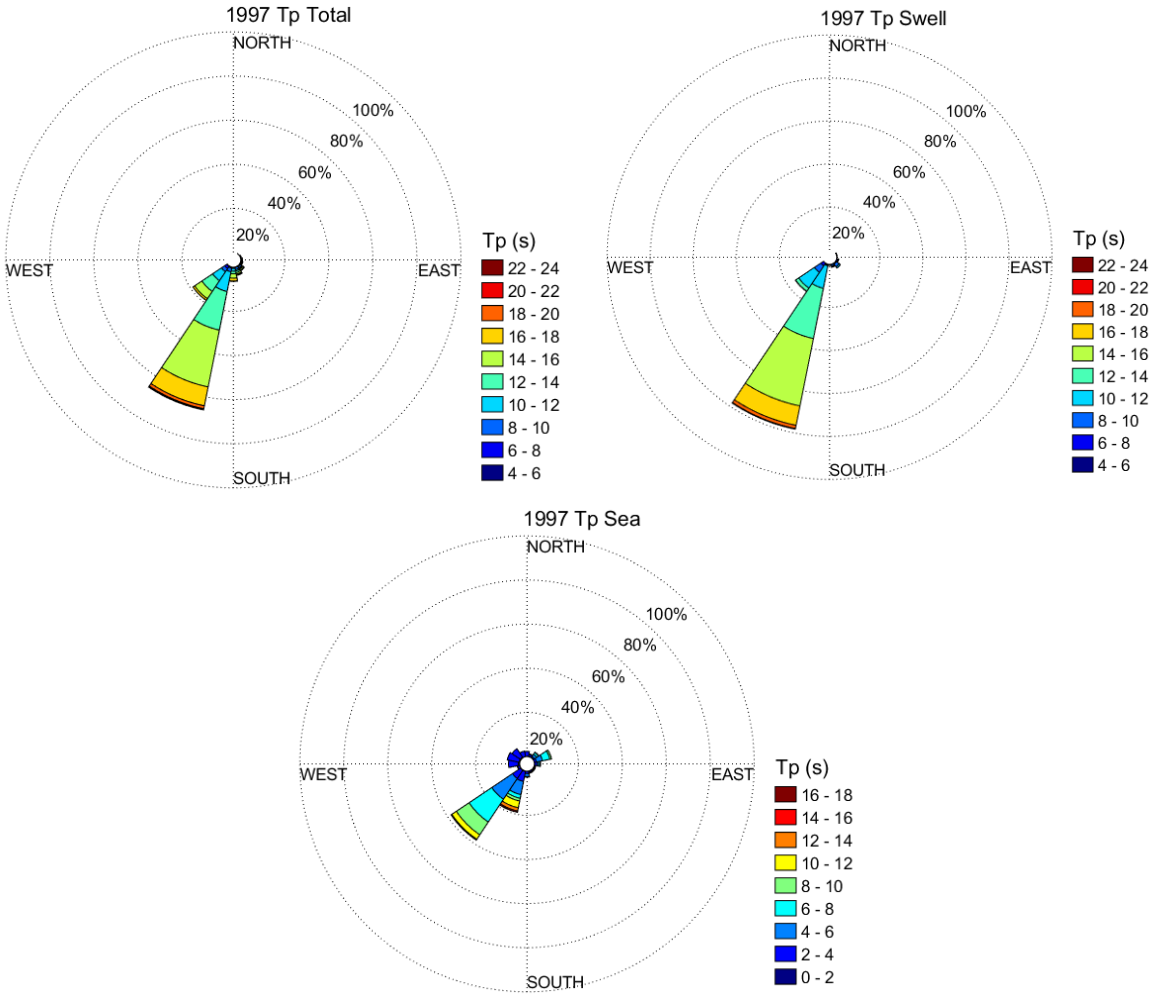

Figure D.48 1997 Tp Roses for Calibrated WWIII Hindcast Wave

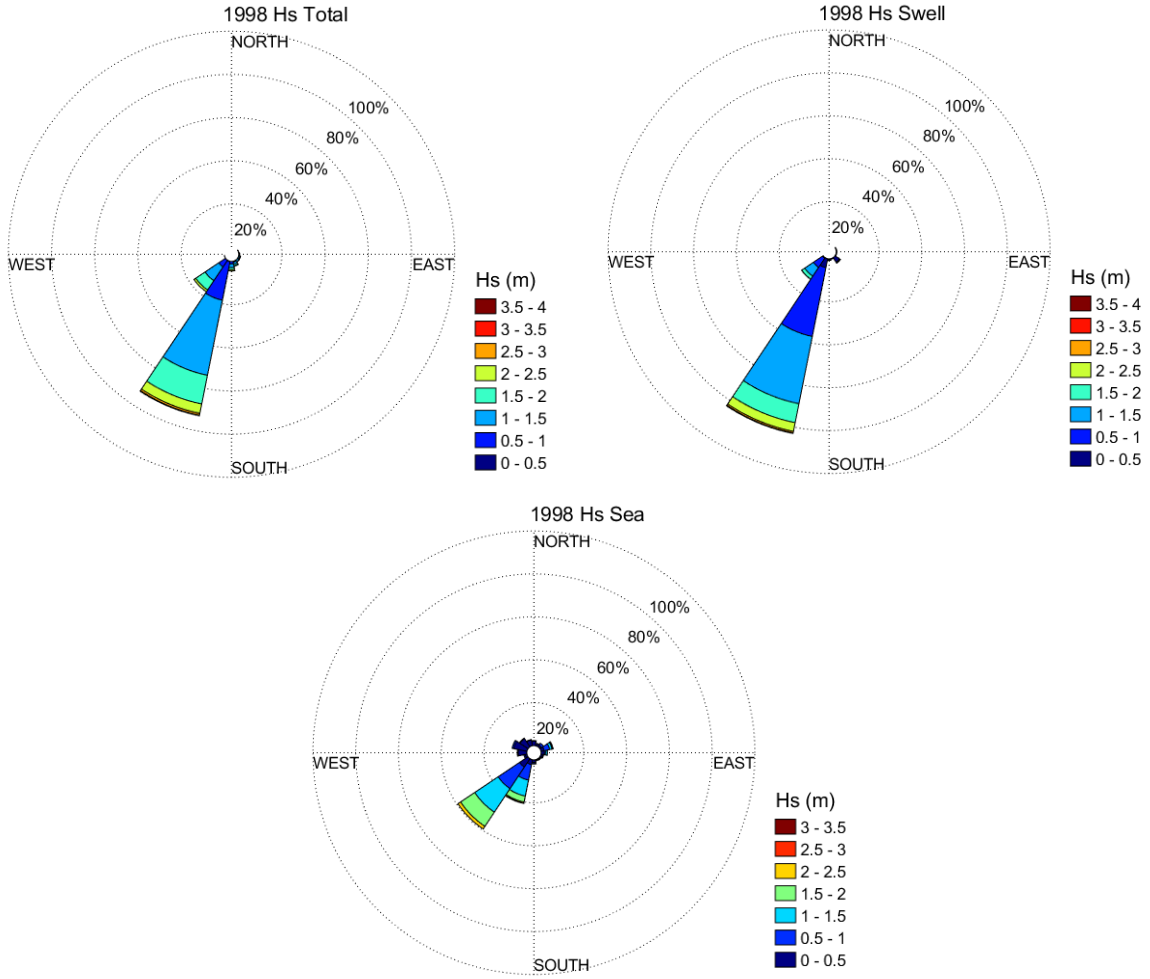

Figure D.49 1998 Hs Roses for Calibrated WWIII Hindcast Wave

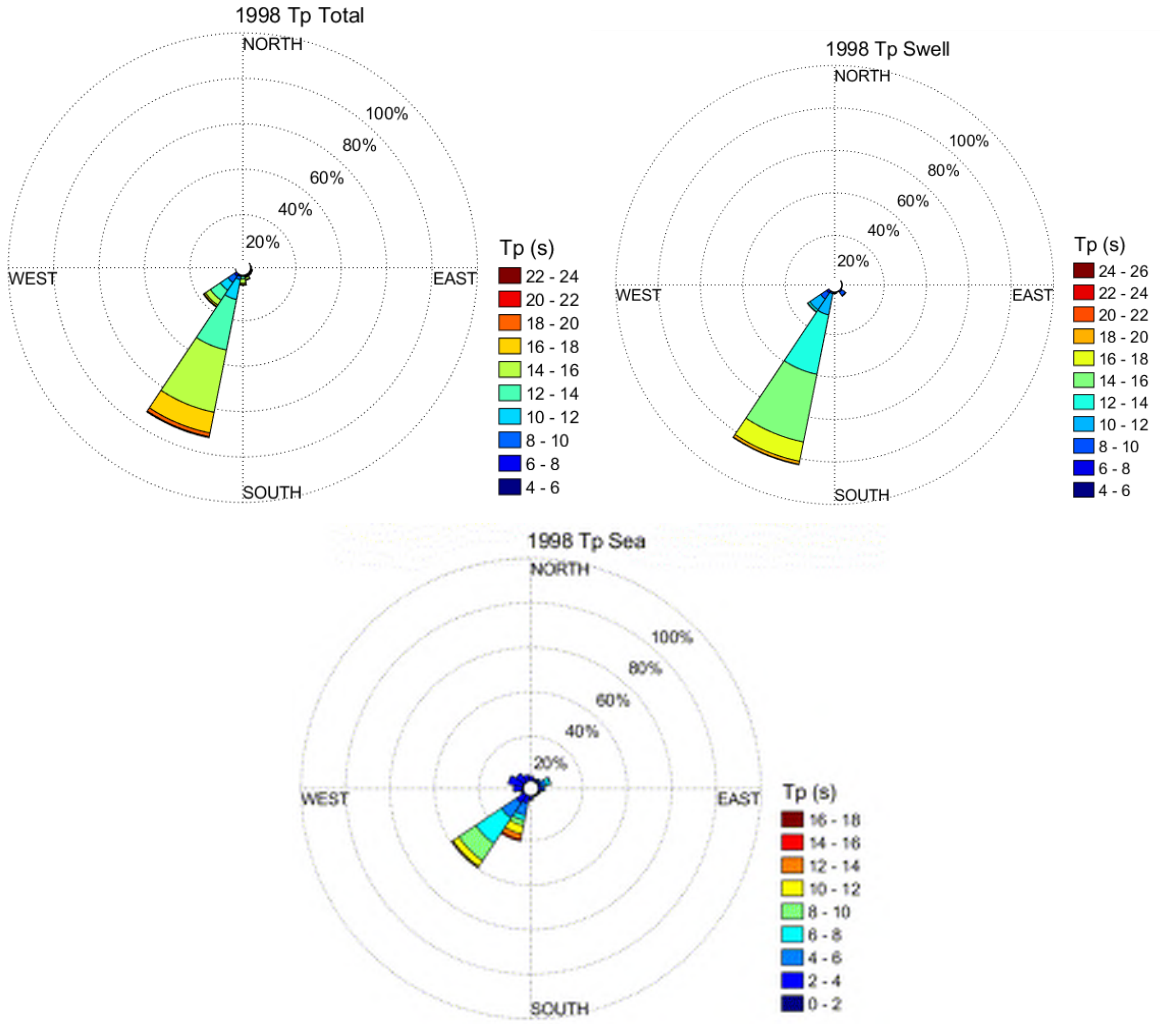

Figure D.50 1998 Tp Roses for Calibrated WWIII Hindcast Wave

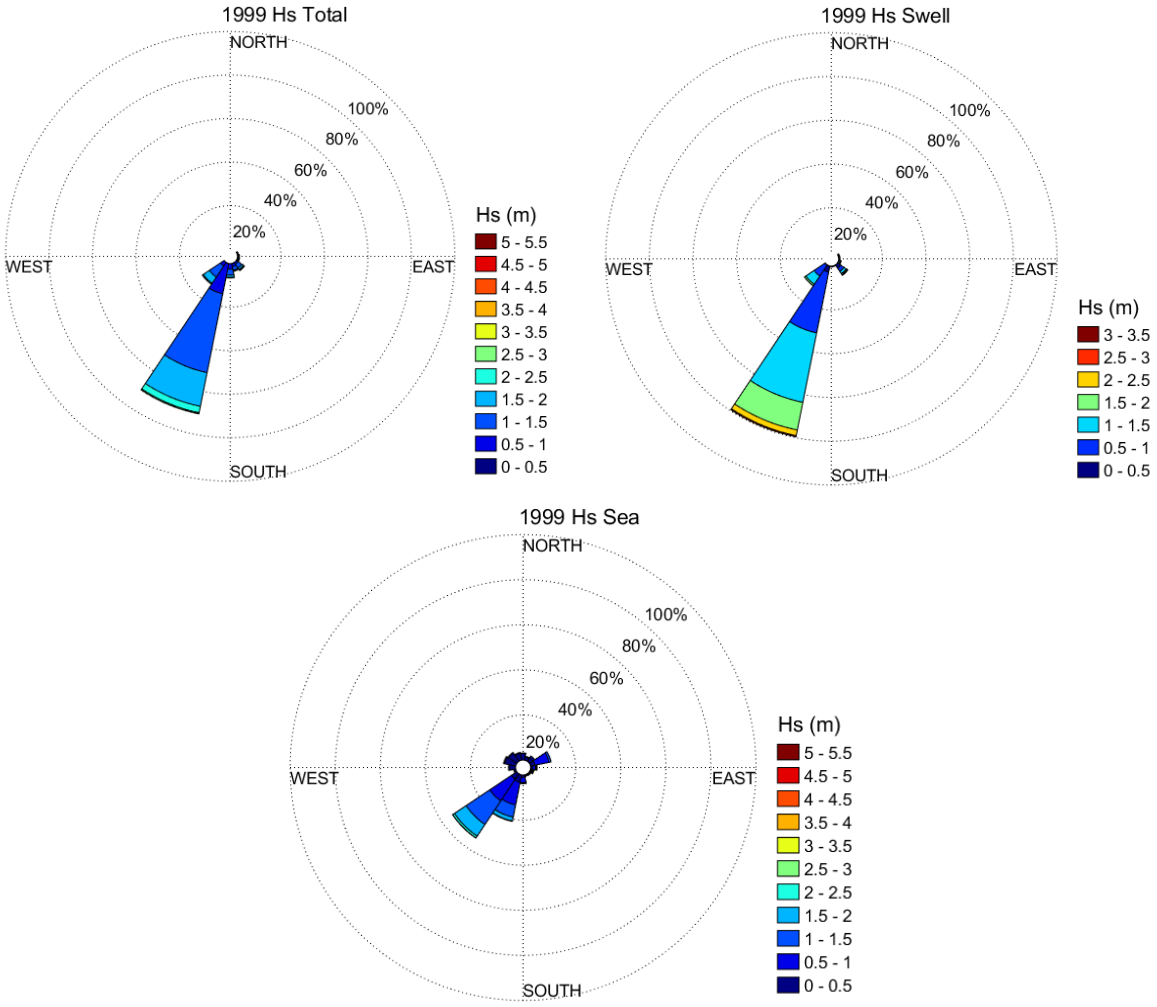

Figure D.51 1999 Hs Roses for Calibrated WWIII Hindcast Wave

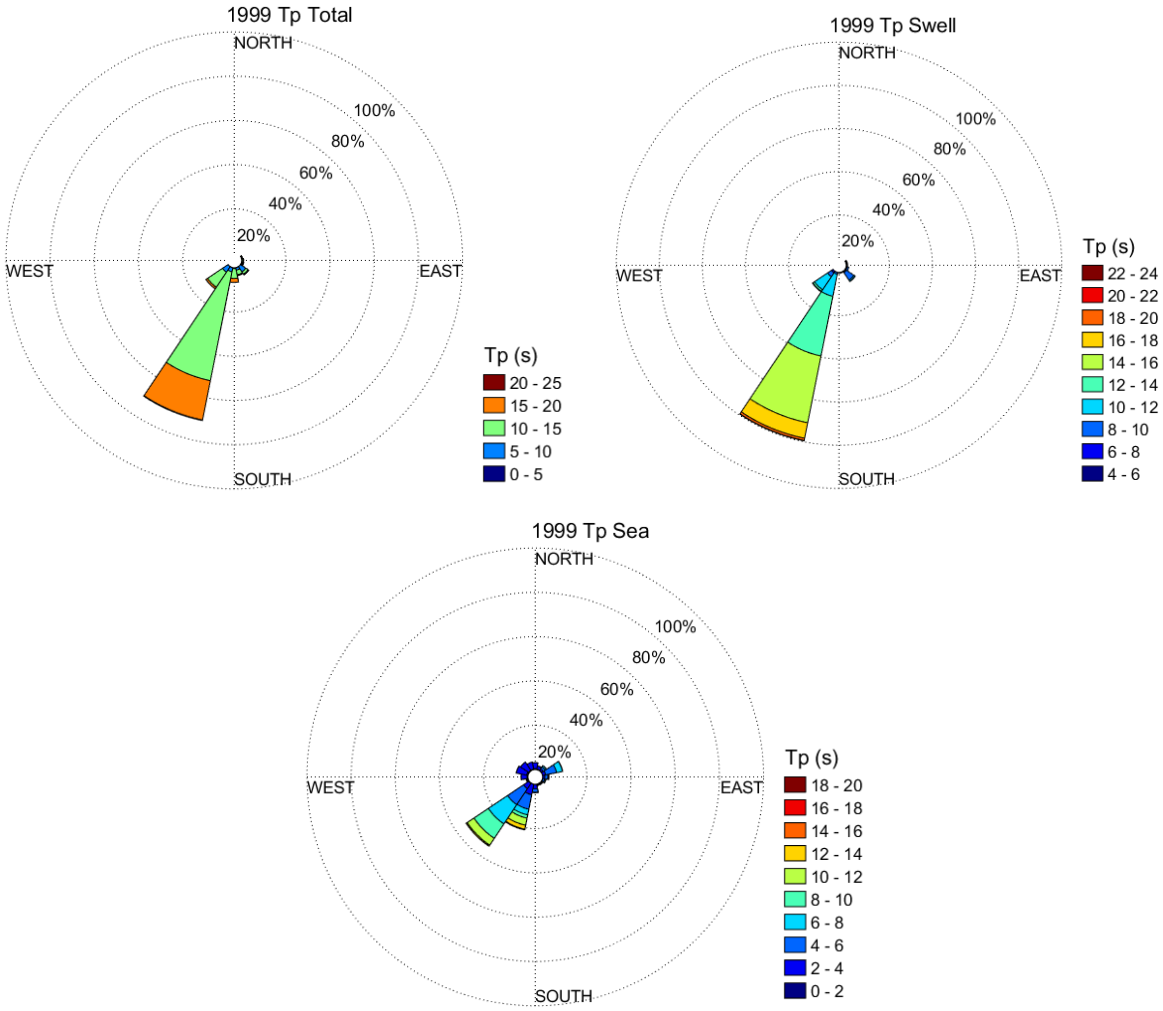

Figure D.52 1999 Tp Roses for Calibrated WWIII Hindcast Wave

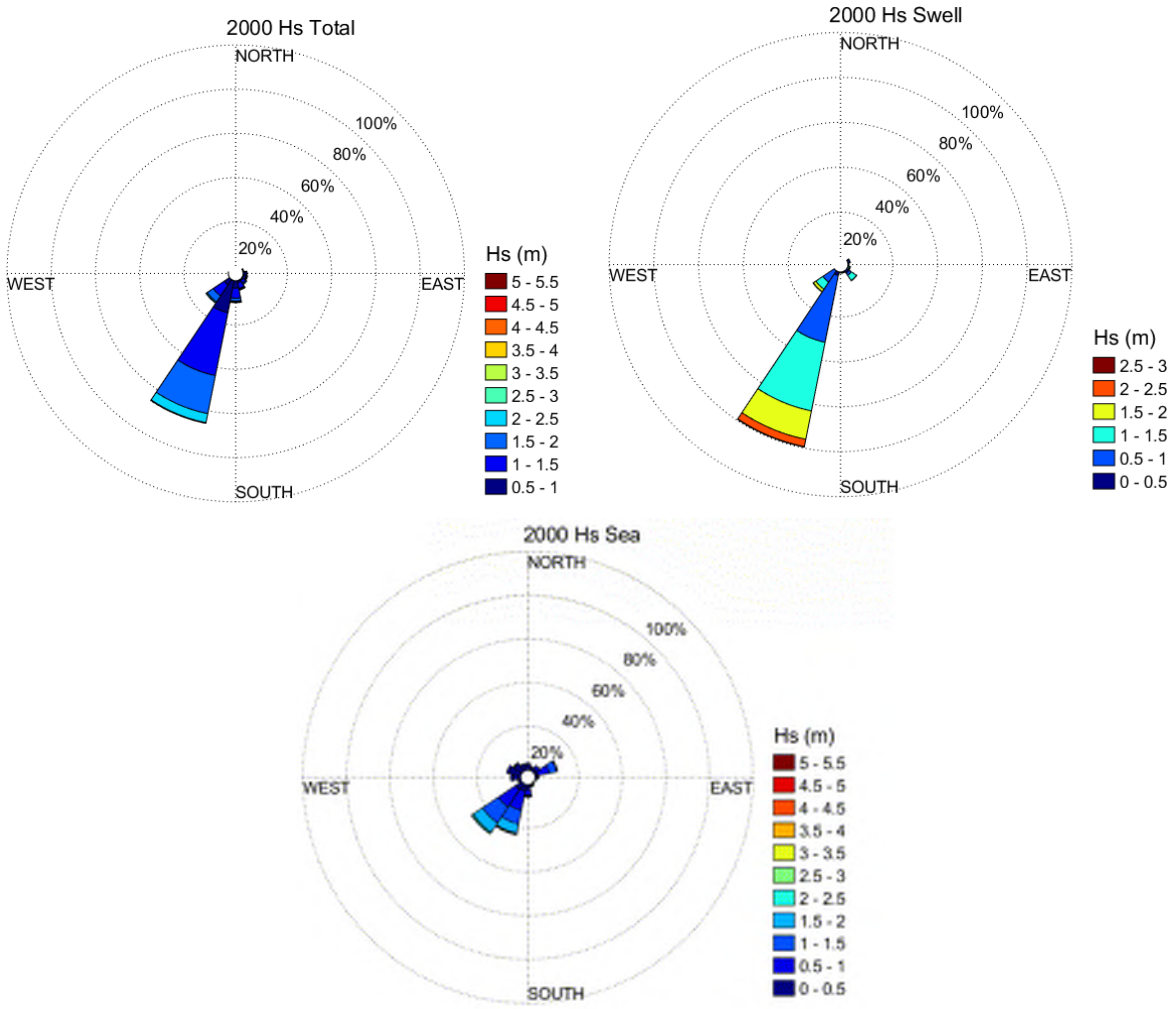

Figure D.53 2000 Hs Roses for Calibrated WWIII Hindcast Wave

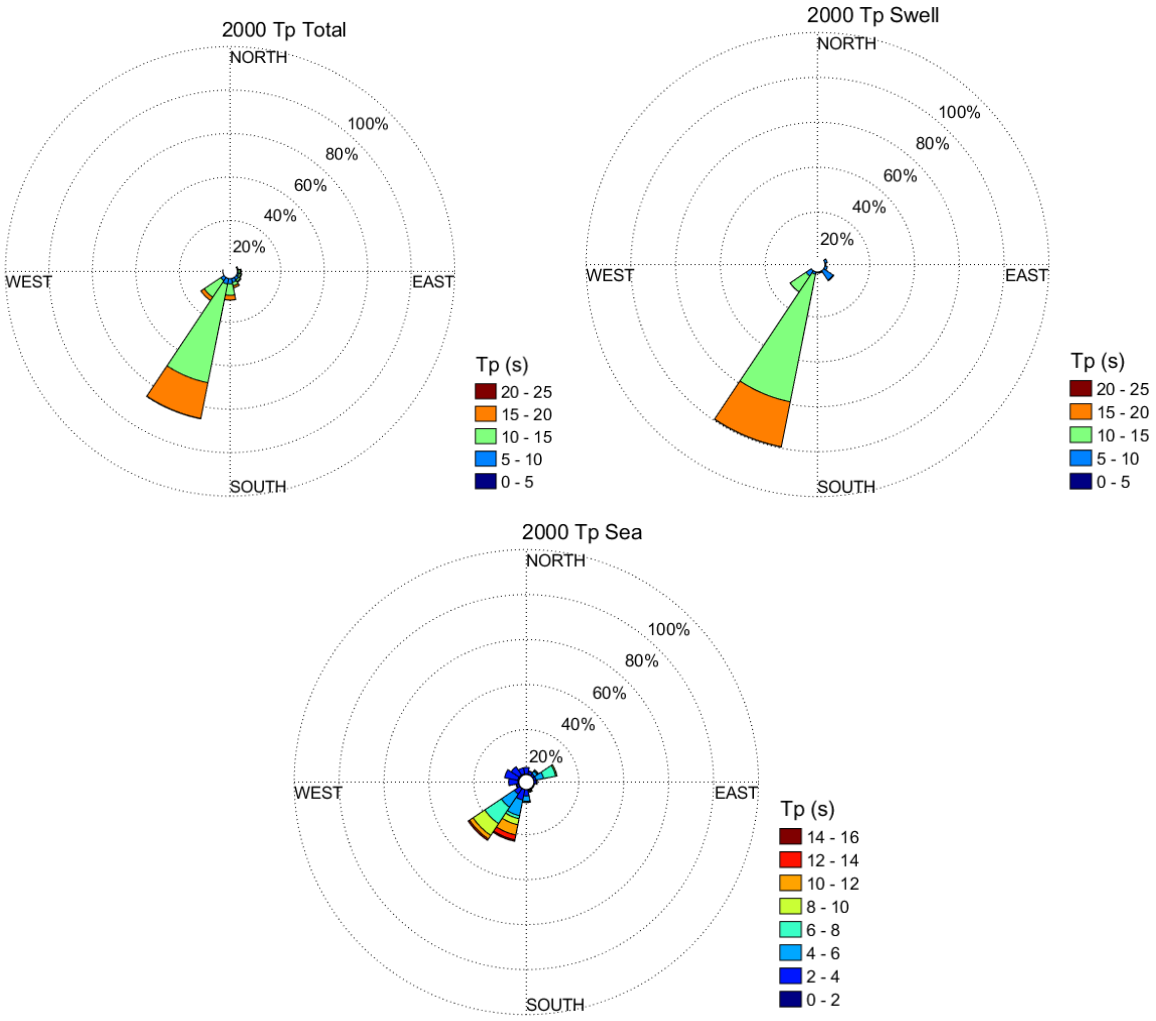

Figure D.54 2000 Tp Roses for Calibrated WWIII Hindcast Wave

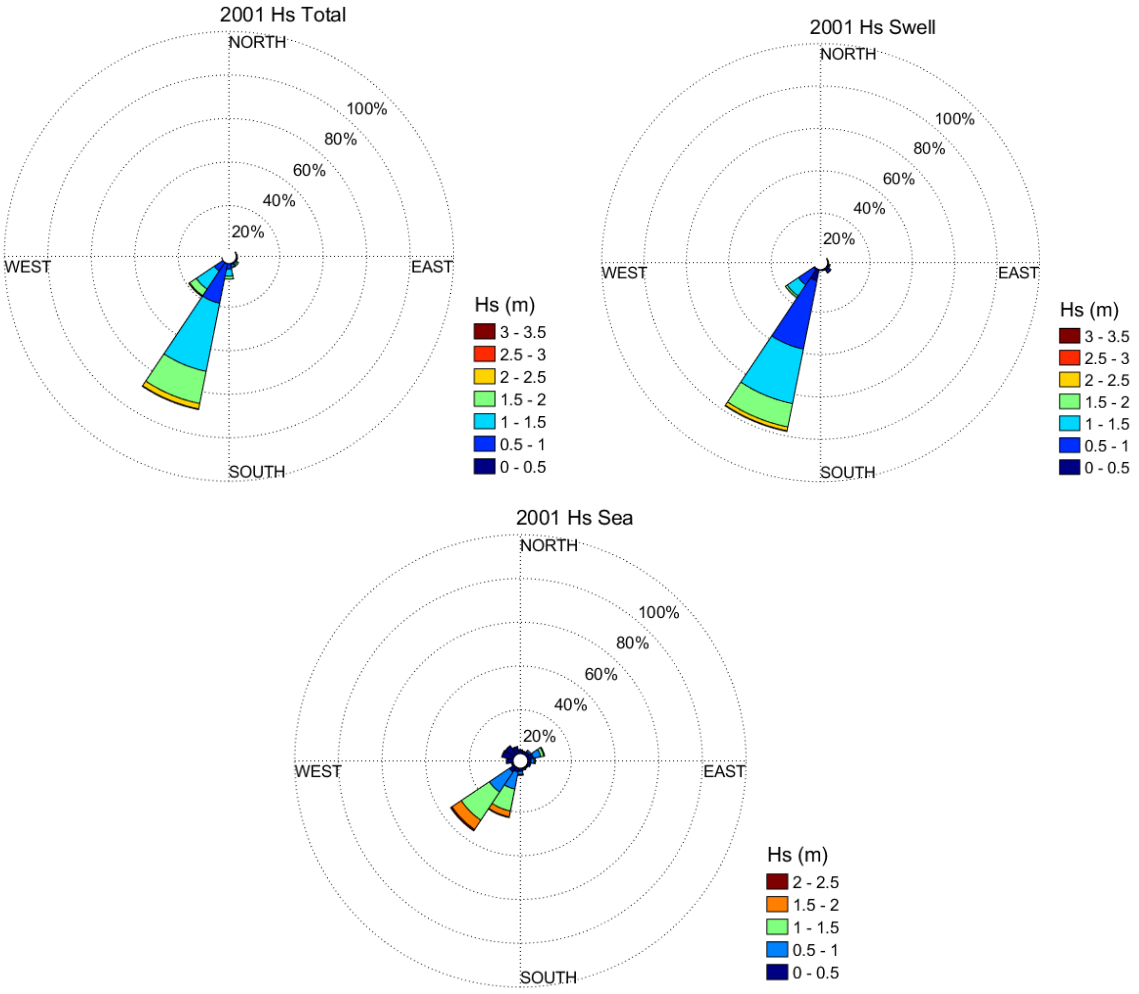

Figure D.55 2001 Hs Roses for Calibrated WWIII Hindcast Wave

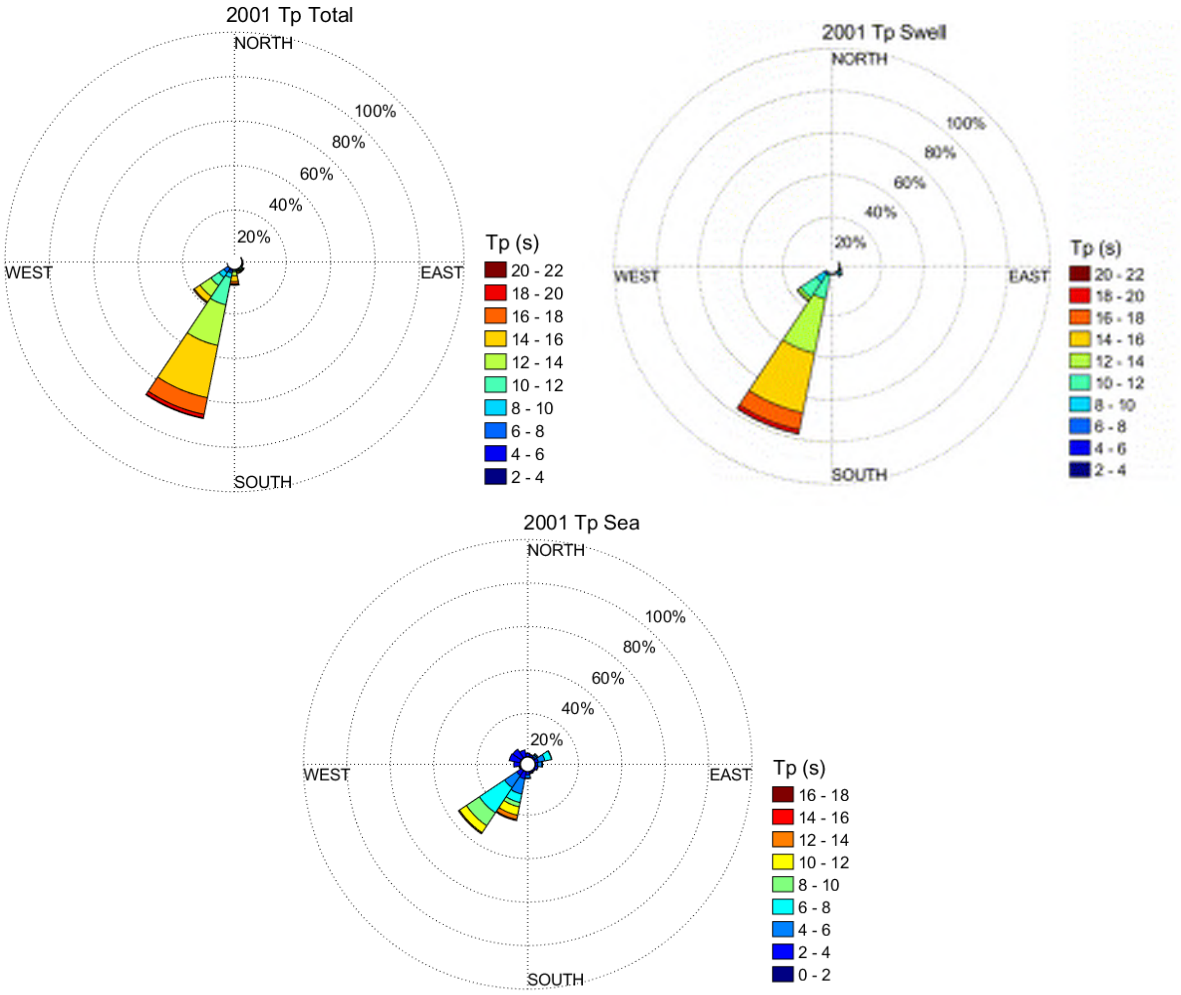

Figure D.56 2001 Tp Roses for Calibrated WWIII Hindcast Wave

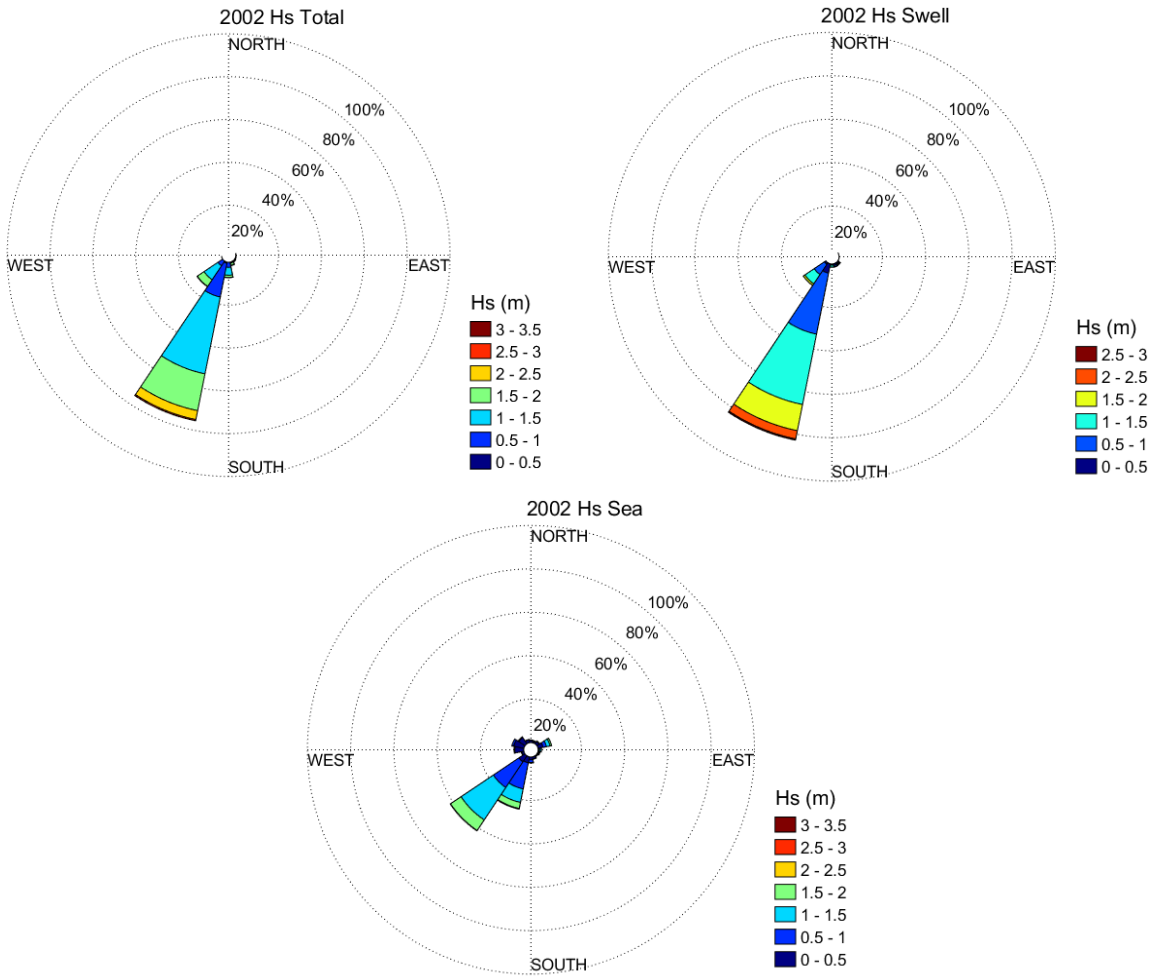

Figure D.57 2002 Hs Roses for Calibrated WWIII Hindcast Wave

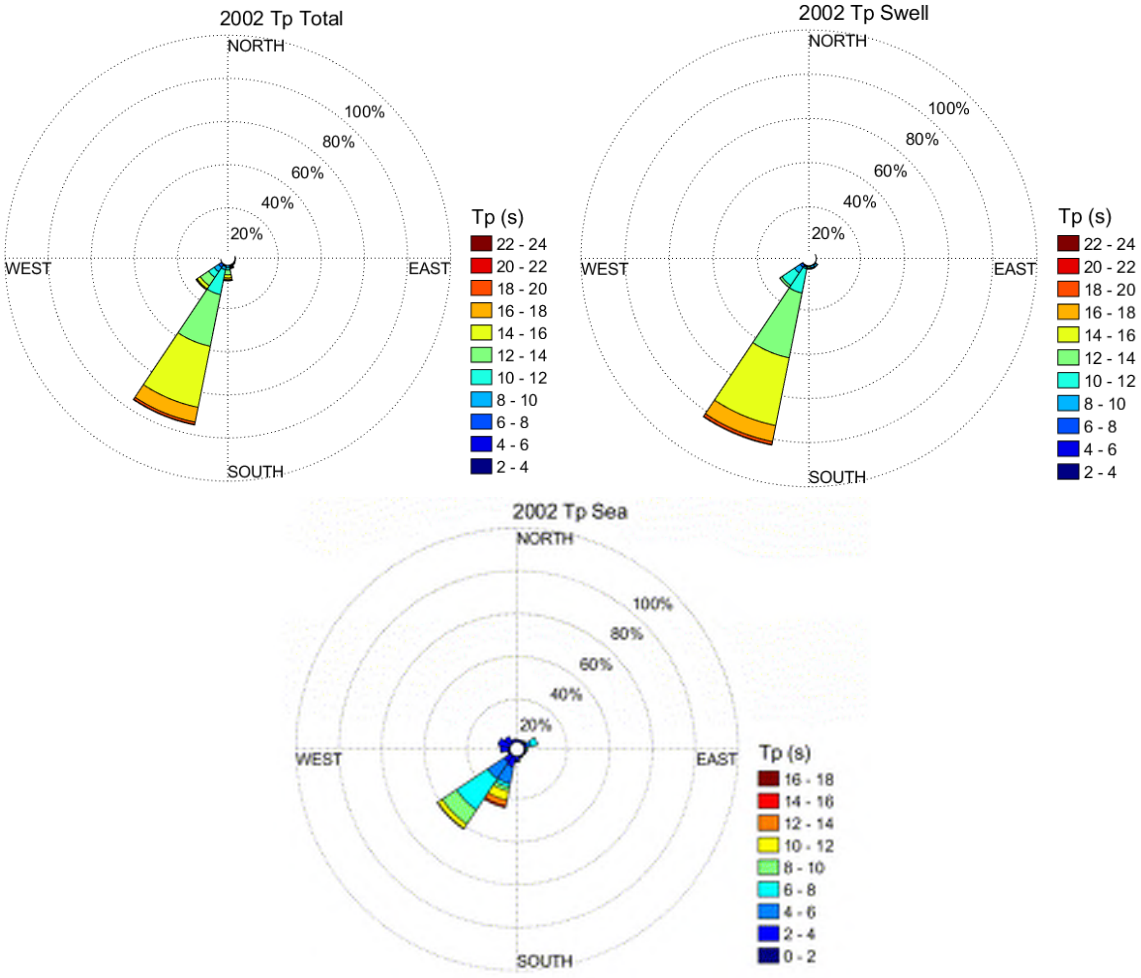

Figure D.58 2002 Tp Roses for Calibrated WWIII Hindcast Wave

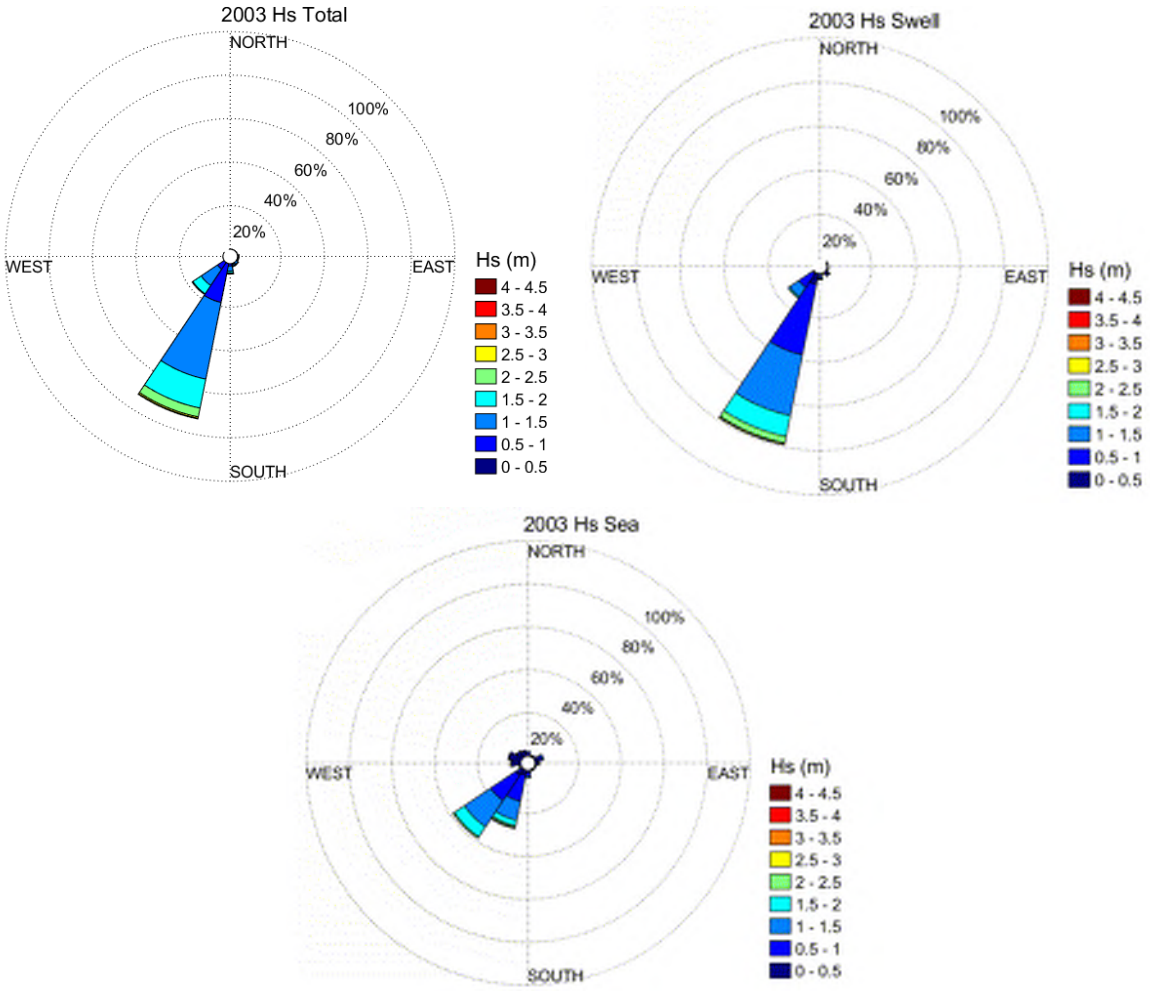

Figure D.59 2003 Hs Roses for Calibrated WWIII Hindcast Wave

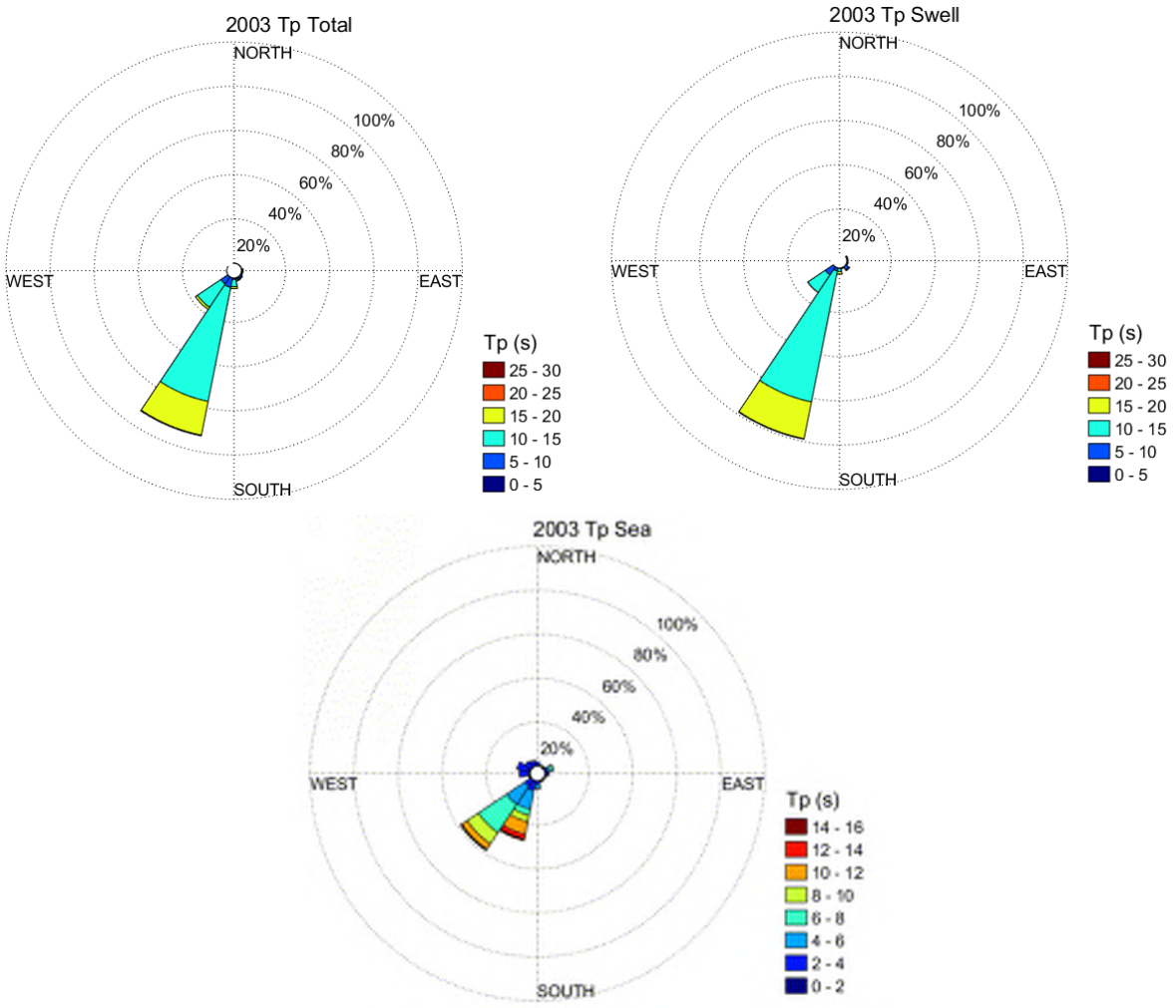

Figure D.60 2003 Tp Roses for Calibrated WWIII Hindcast Wave

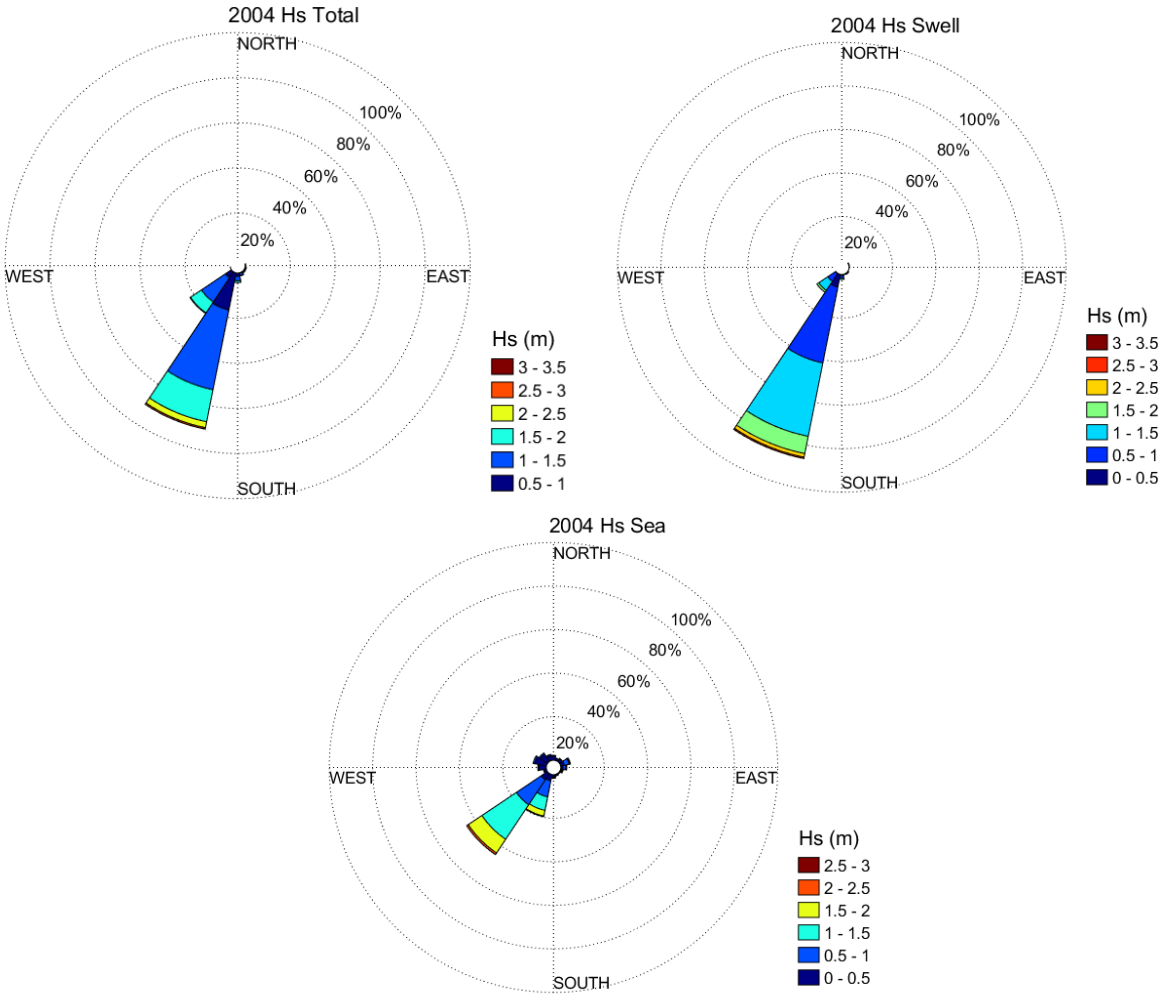

Figure D.61 2004 Hs Roses for Calibrated WWIII Hindcast Wave

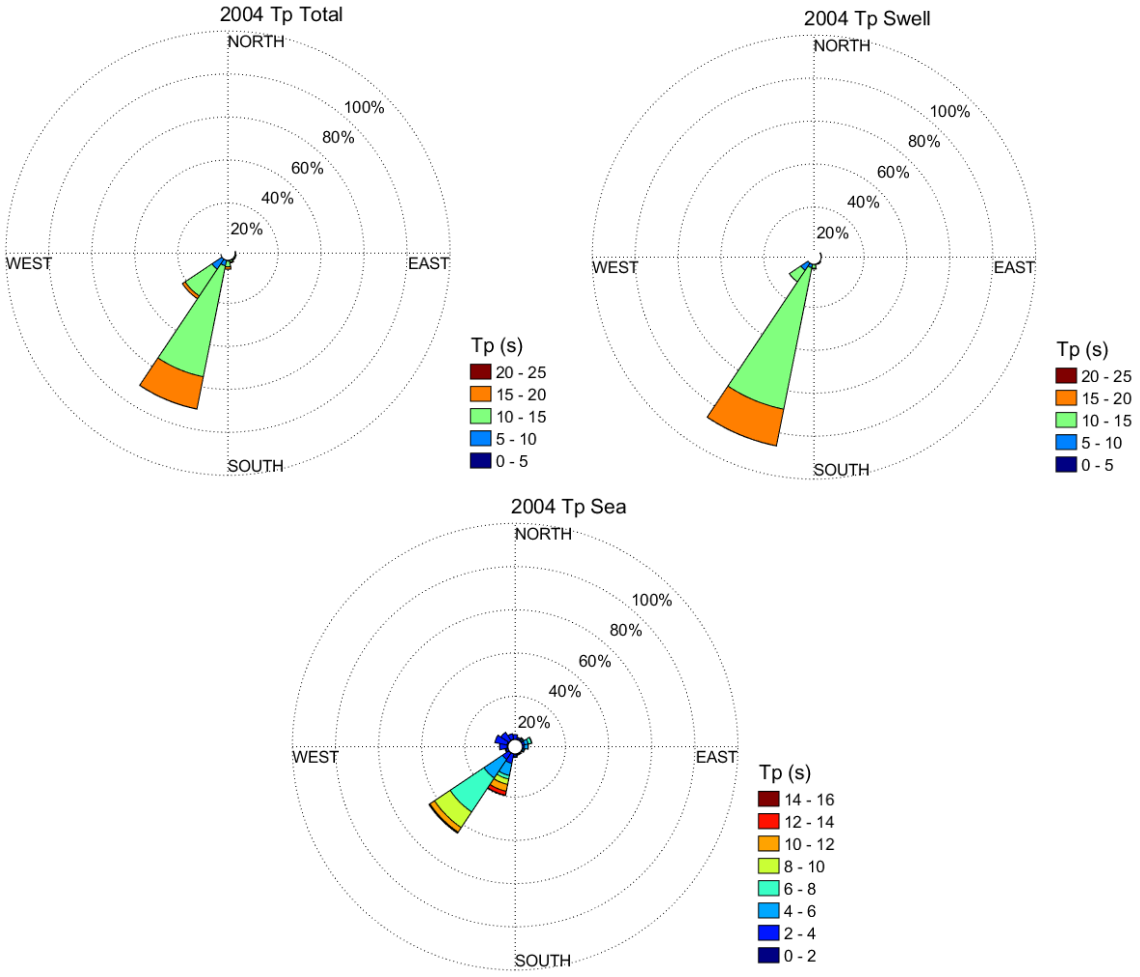

Figure D.62 2004 Tp Roses for Calibrated WWIII Hindcast Wave

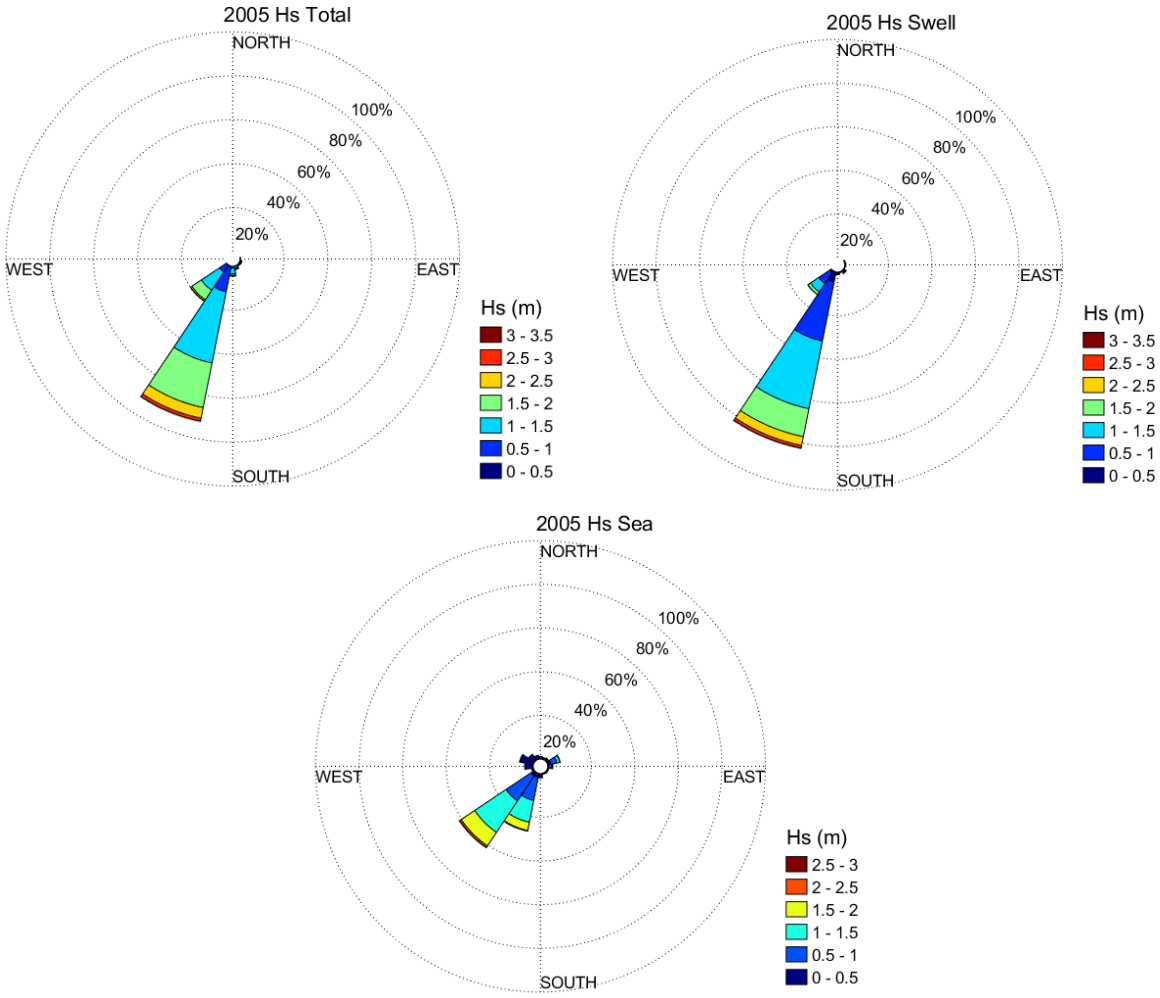

Figure D.63 2005 Hs Roses for Calibrated WWIII Hindcast Wave

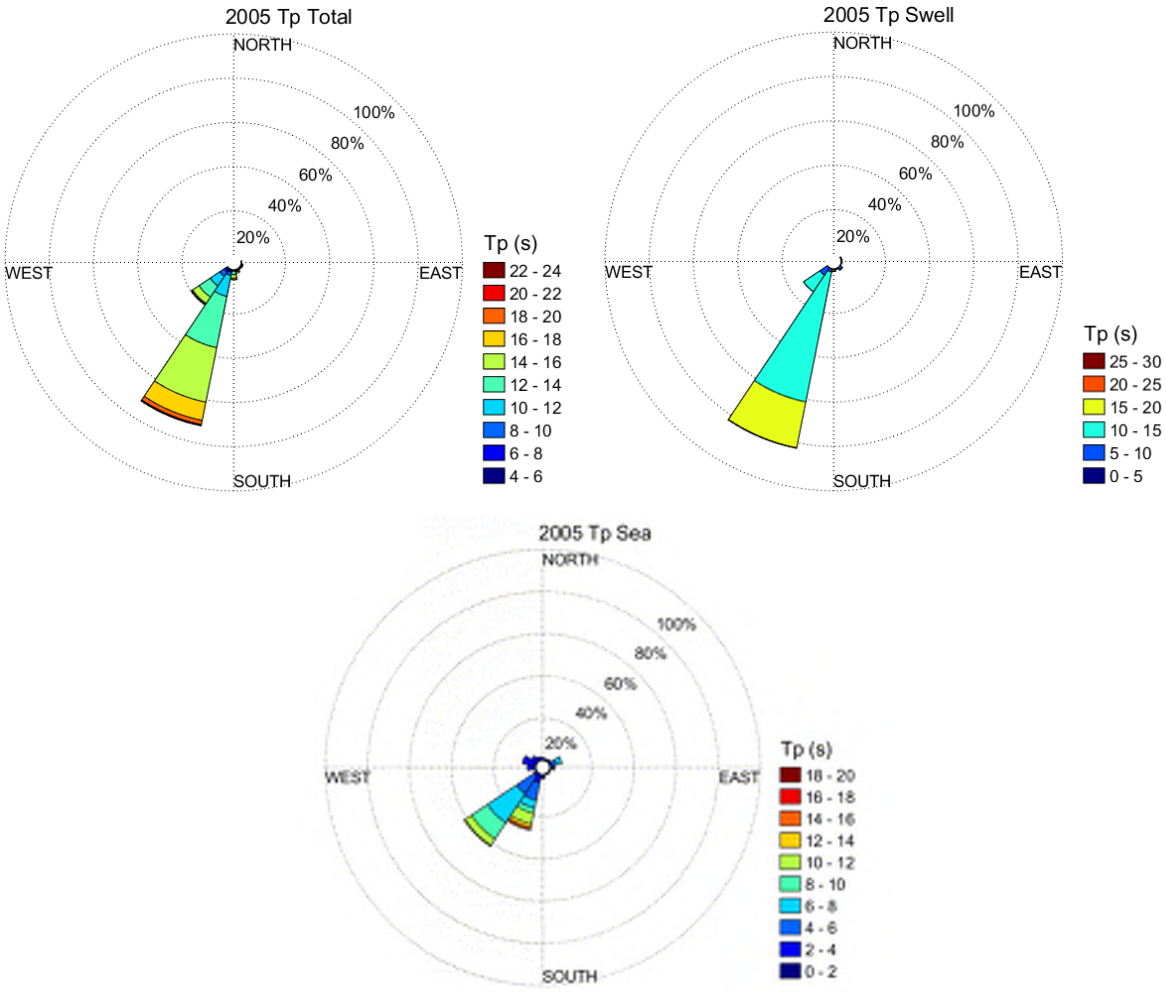

Figure D.64 2005 Tp Roses for Calibrated WWIII Hindcast Wave

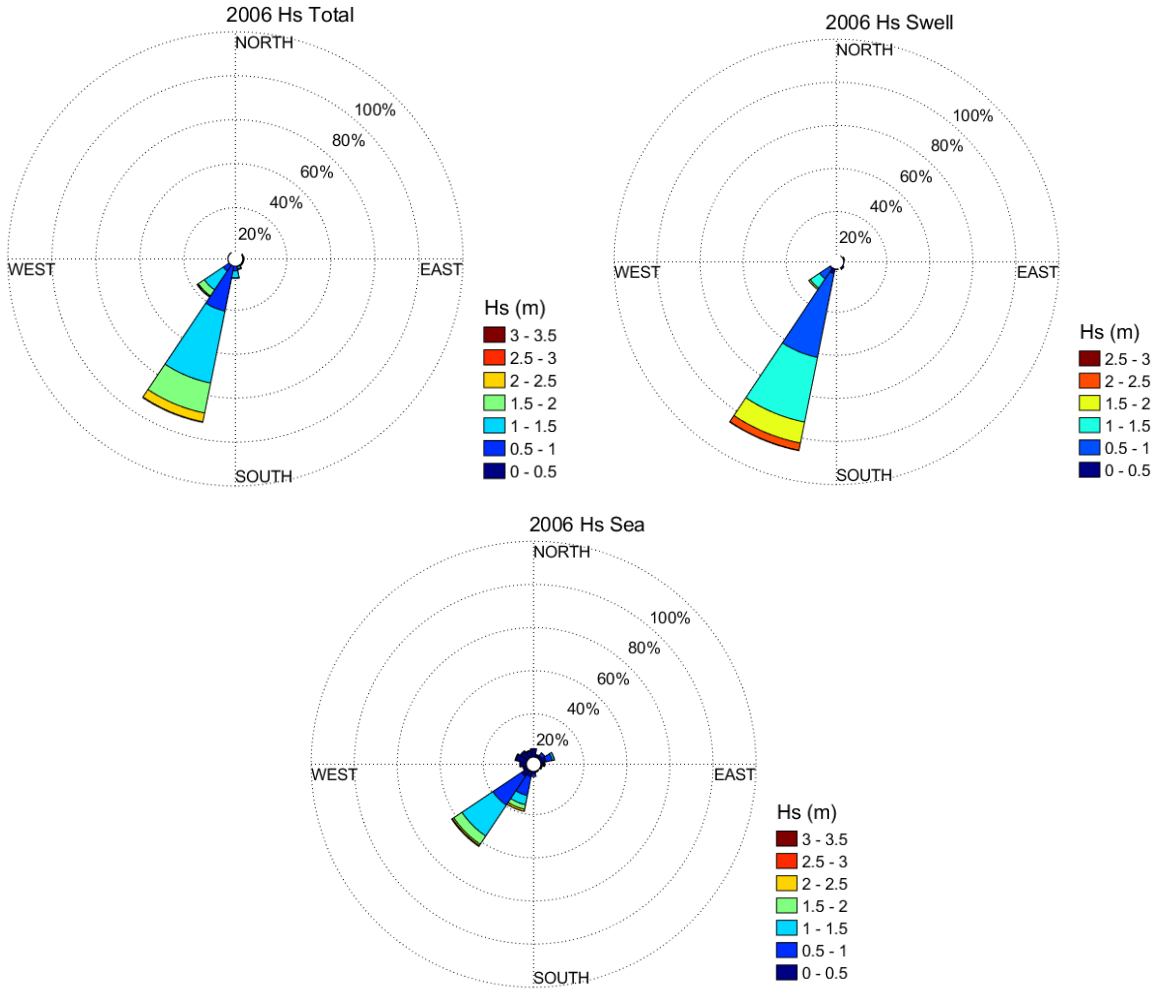

Figure D.65 2006 Hs Roses for Calibrated WWIII Hindcast Wave

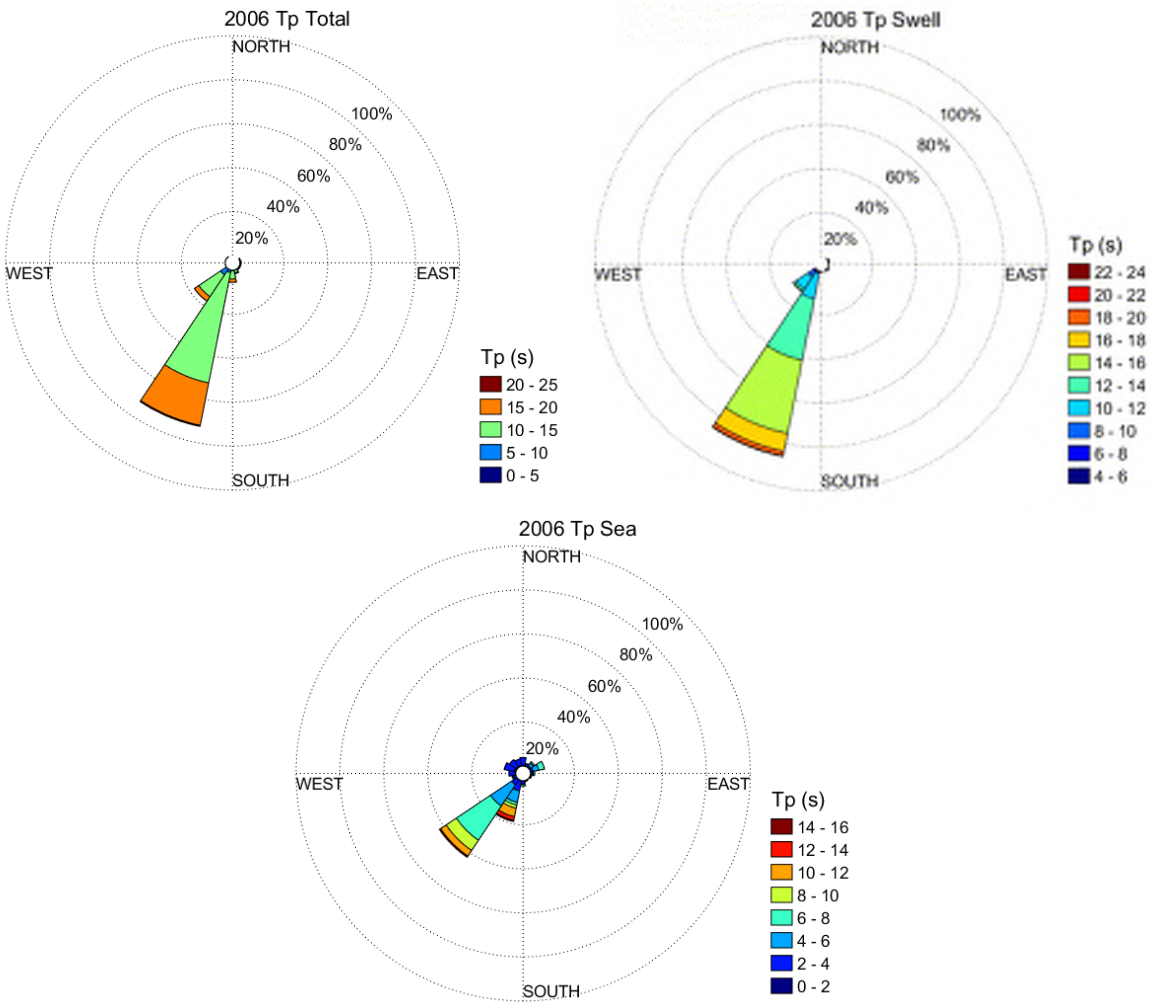

Figure D.66 2006 Tp Roses for Calibrated WWIII Hindcast Wave

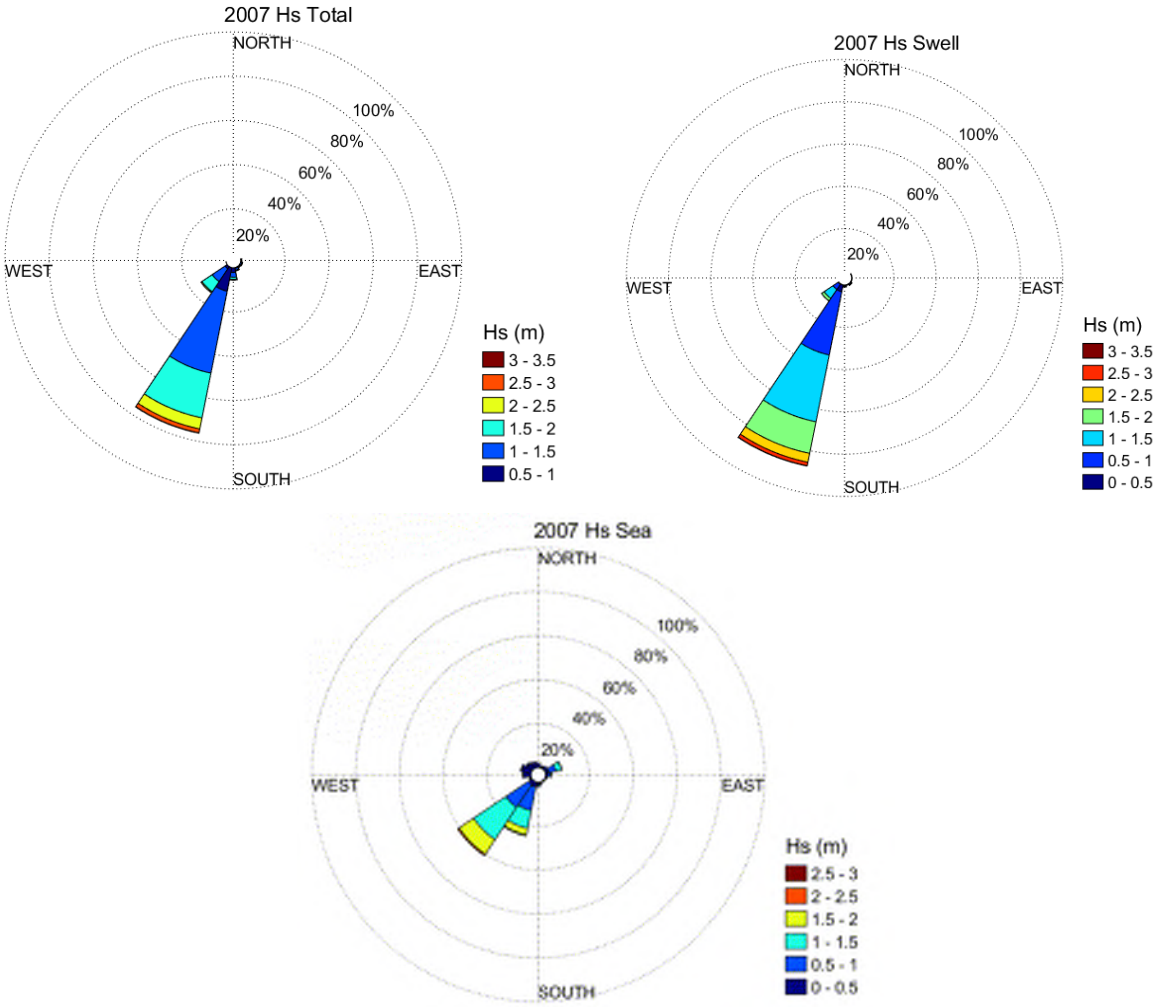

Figure D.67 2007 Hs Roses for Calibrated WWIII Hindcast Wave

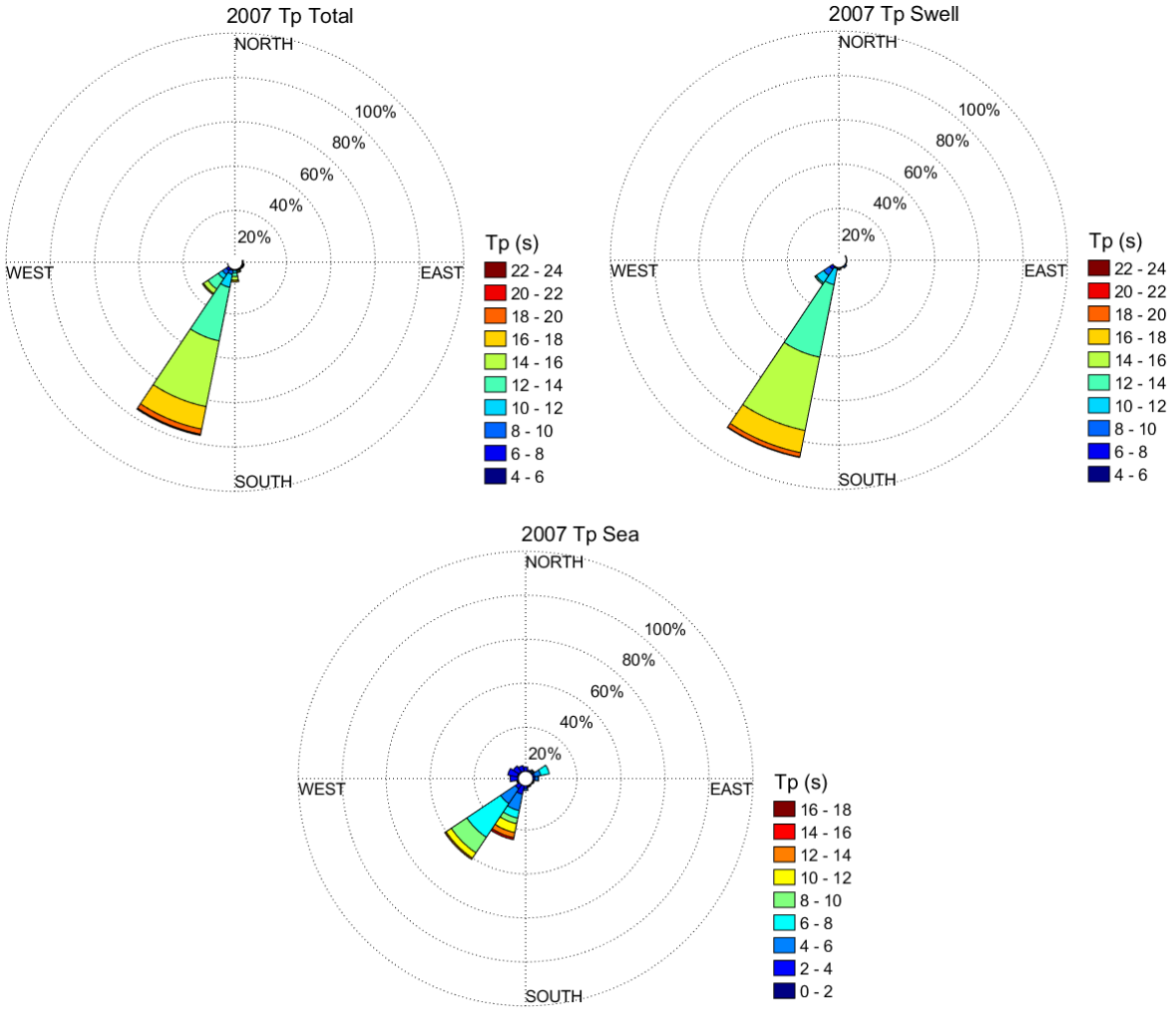

Figure D.68 2007 Tp Roses for Calibrated WWIII Hindcast Wave

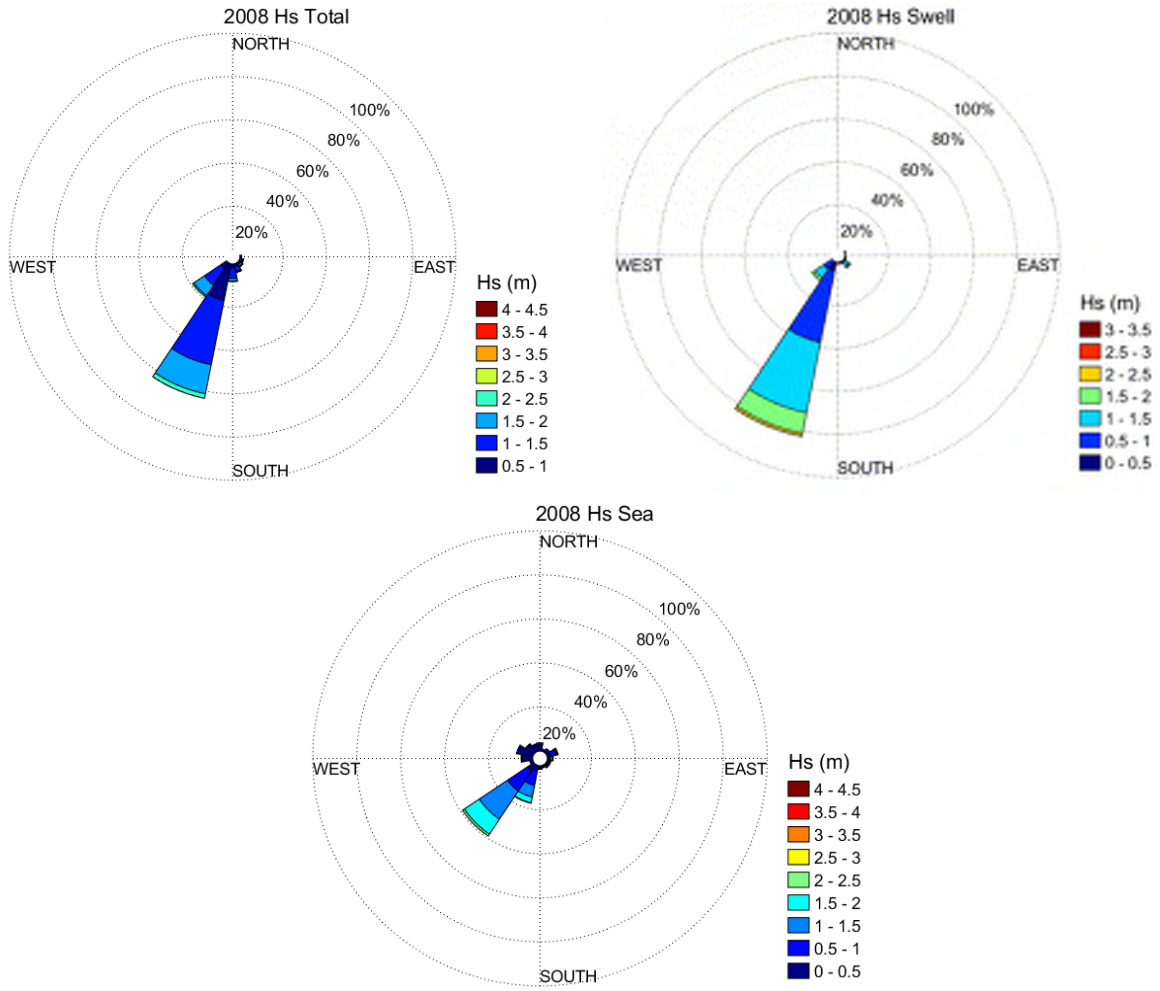

Figure D.69 2008 Hs Roses for Calibrated WWIII Hindcast Wave

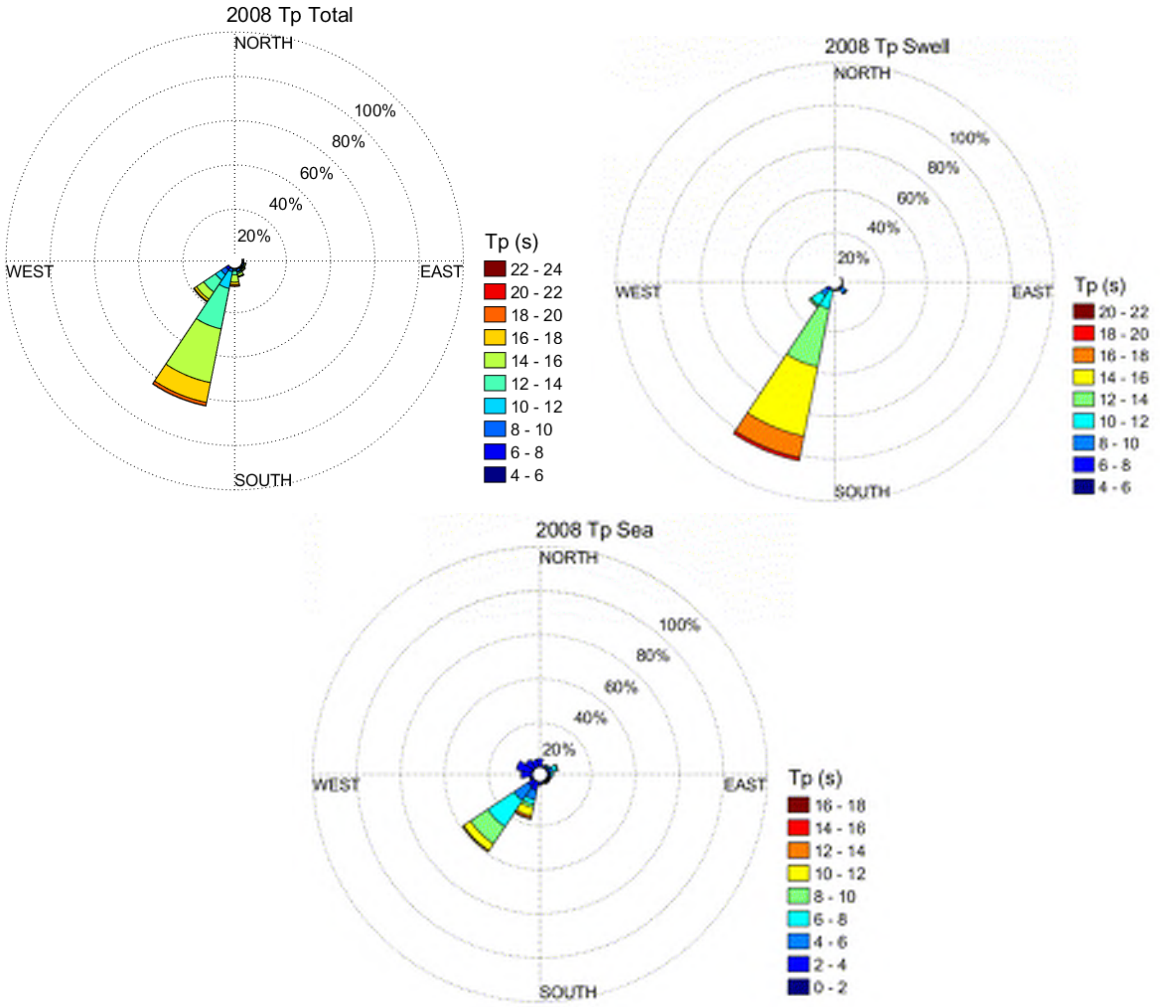

Figure D.70 2008 Tp Roses for Calibrated WWIII Hindcast Wave

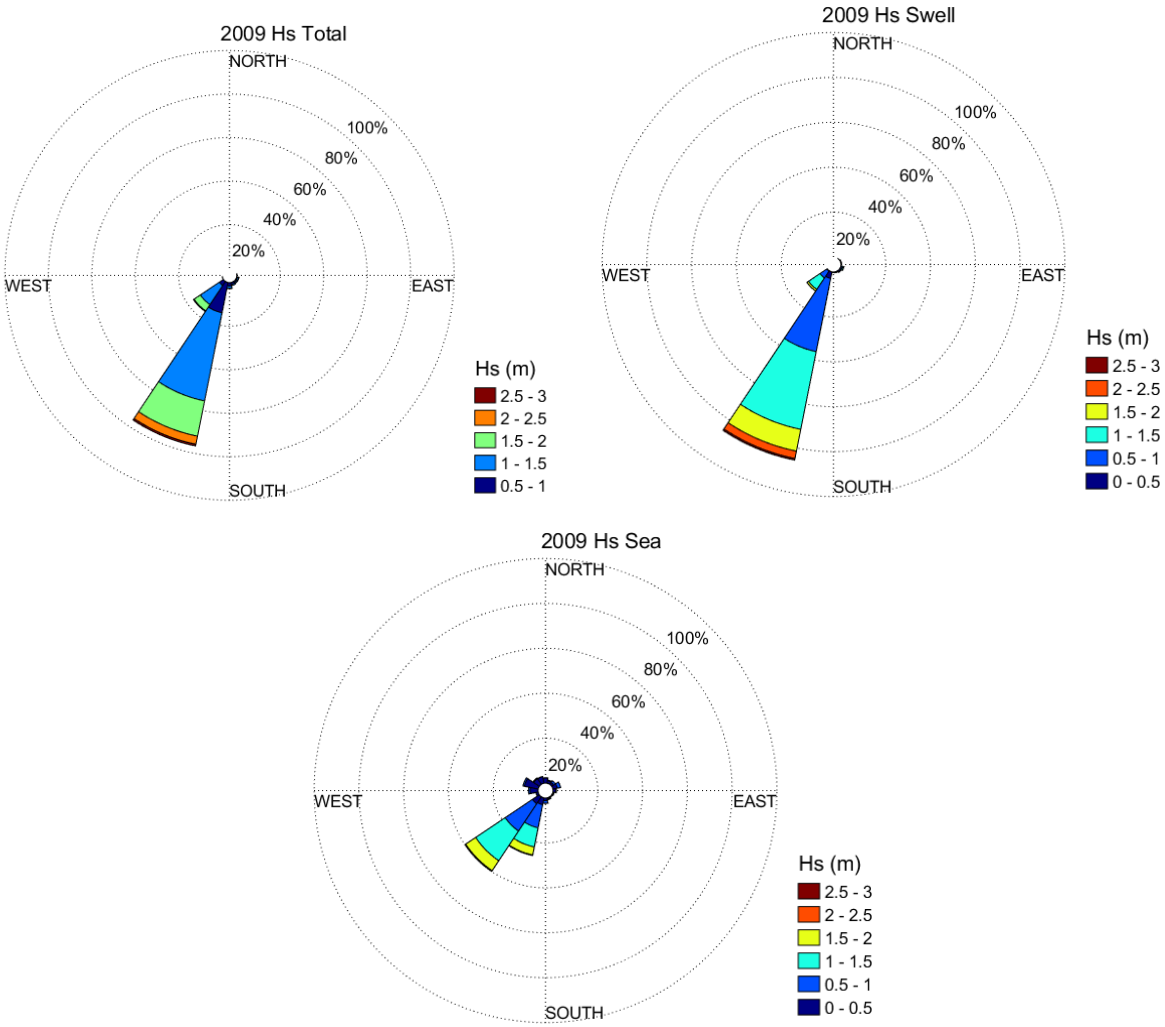

Figure D.71 2009 Hs Roses for Calibrated WWIII Hindcast Wave

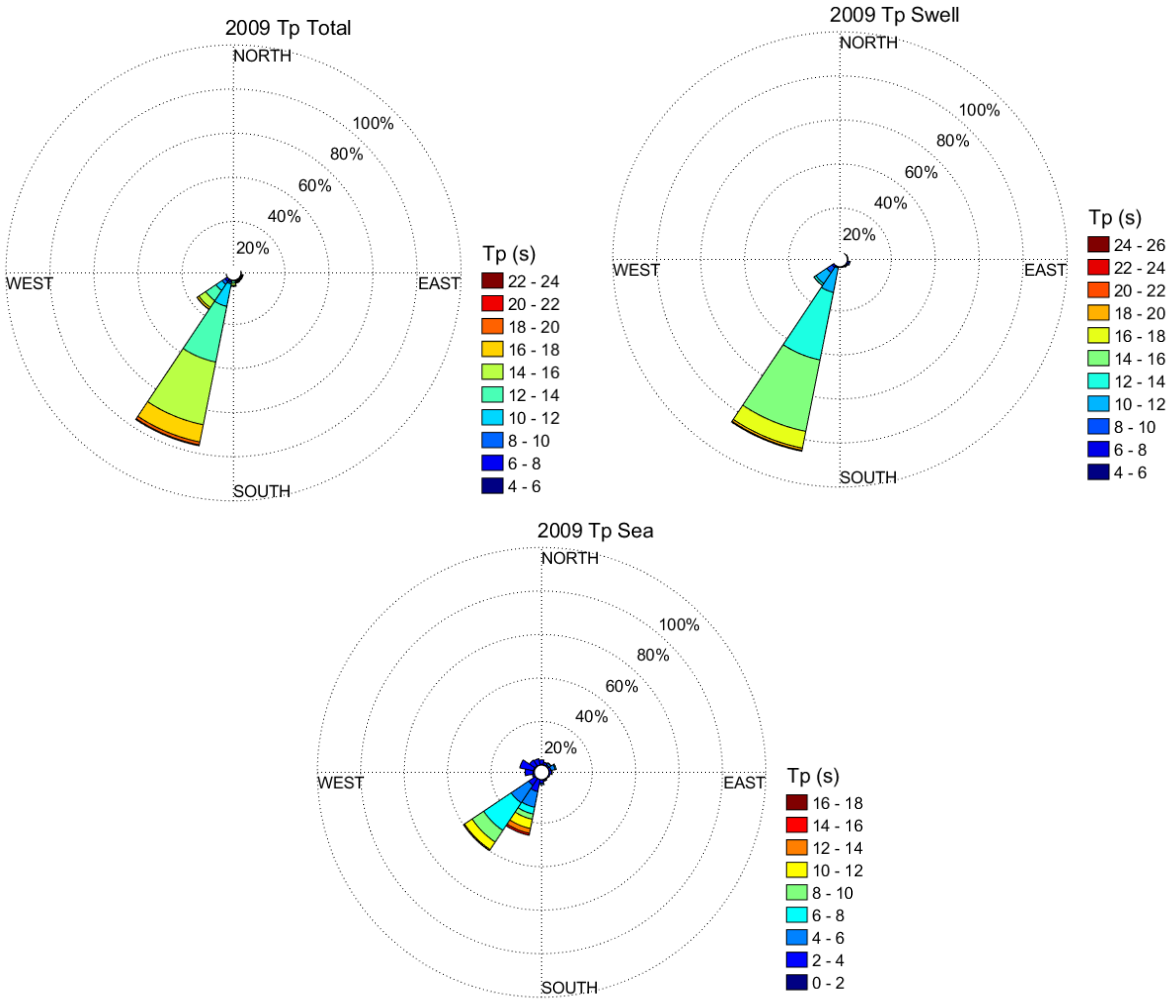

Figure D.72 2009 Tp Roses for Calibrated WWIII Hindcast Wave

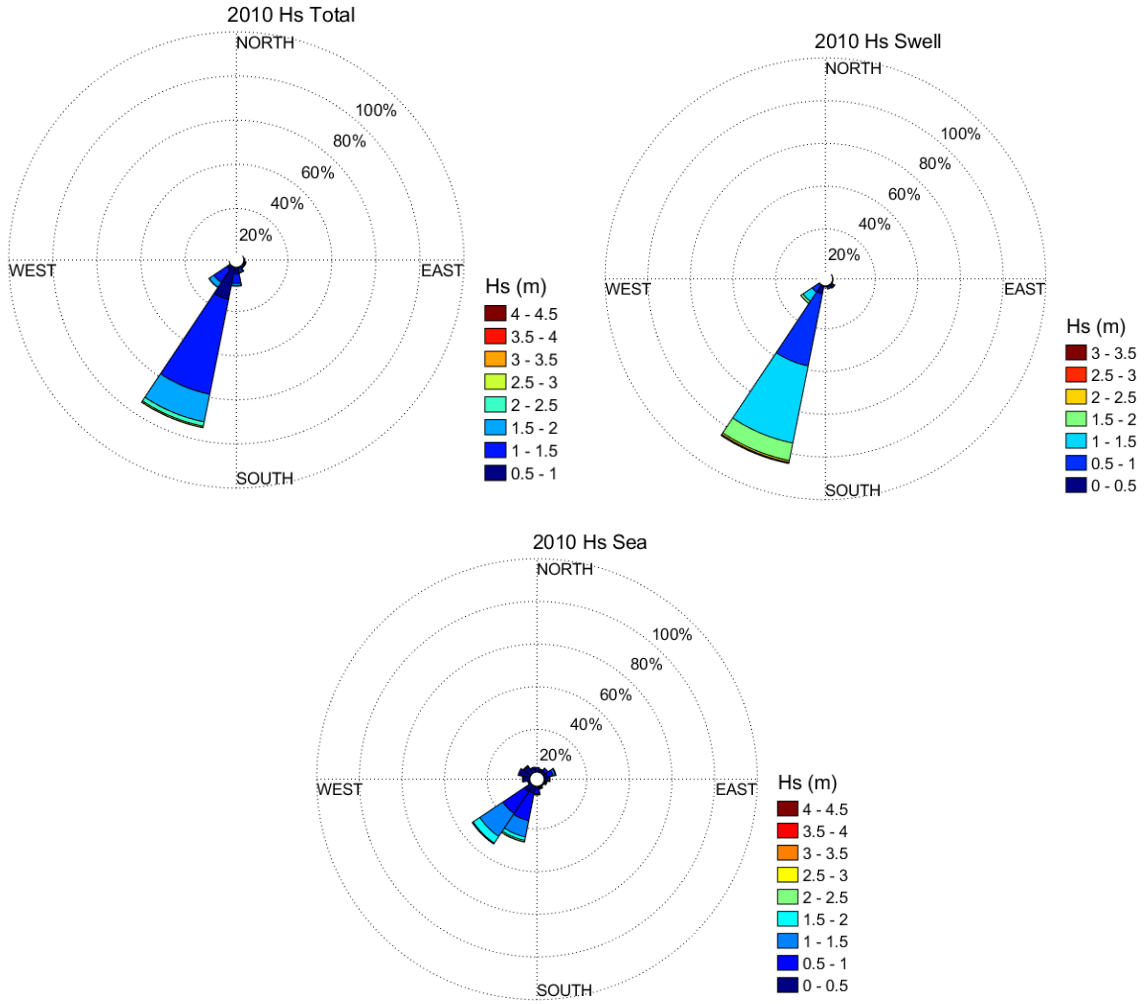

Figure D.73 2010 Hs Roses for Calibrated WWIII Hindcast Wave

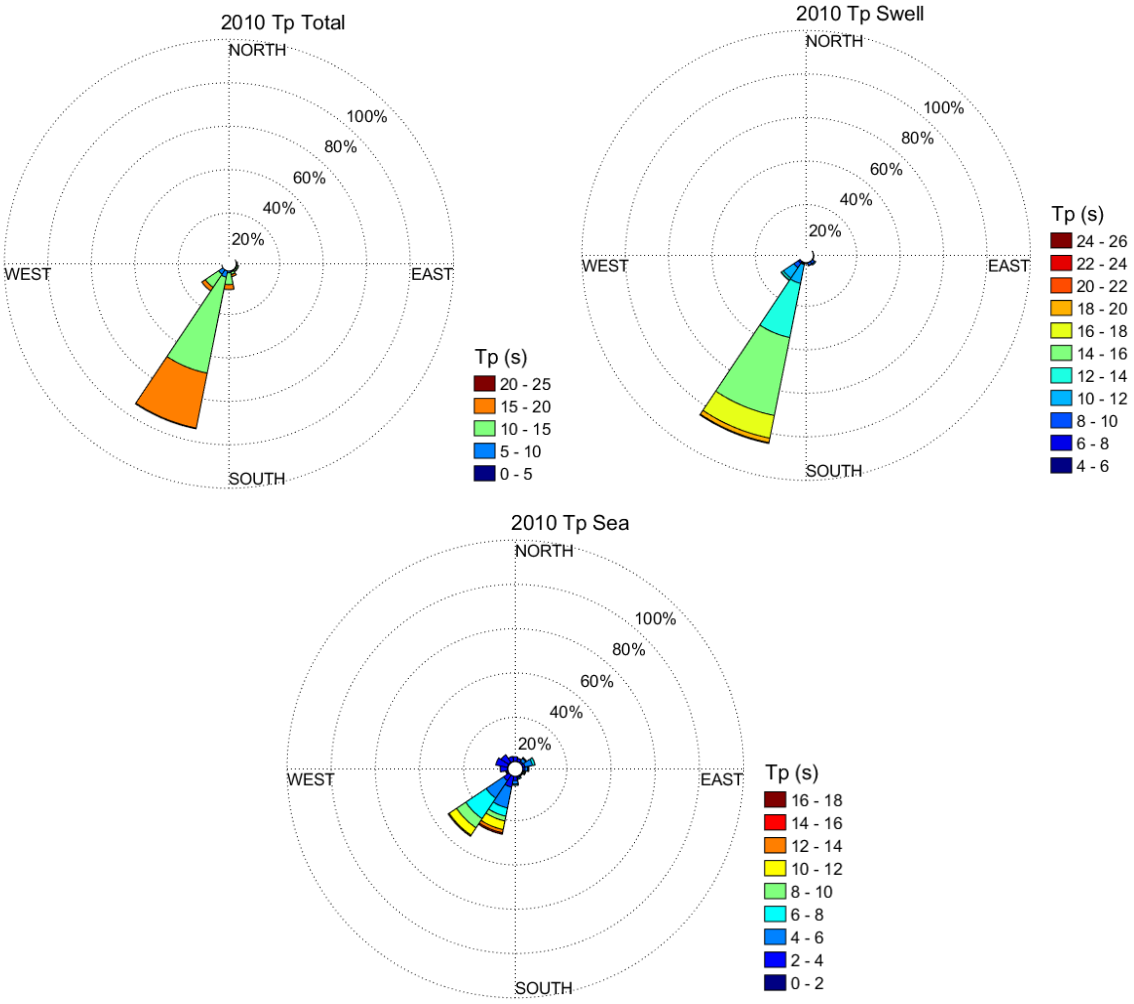

Figure D.74 2010 Tp Roses for Calibrated WWIII Hindcast Wave

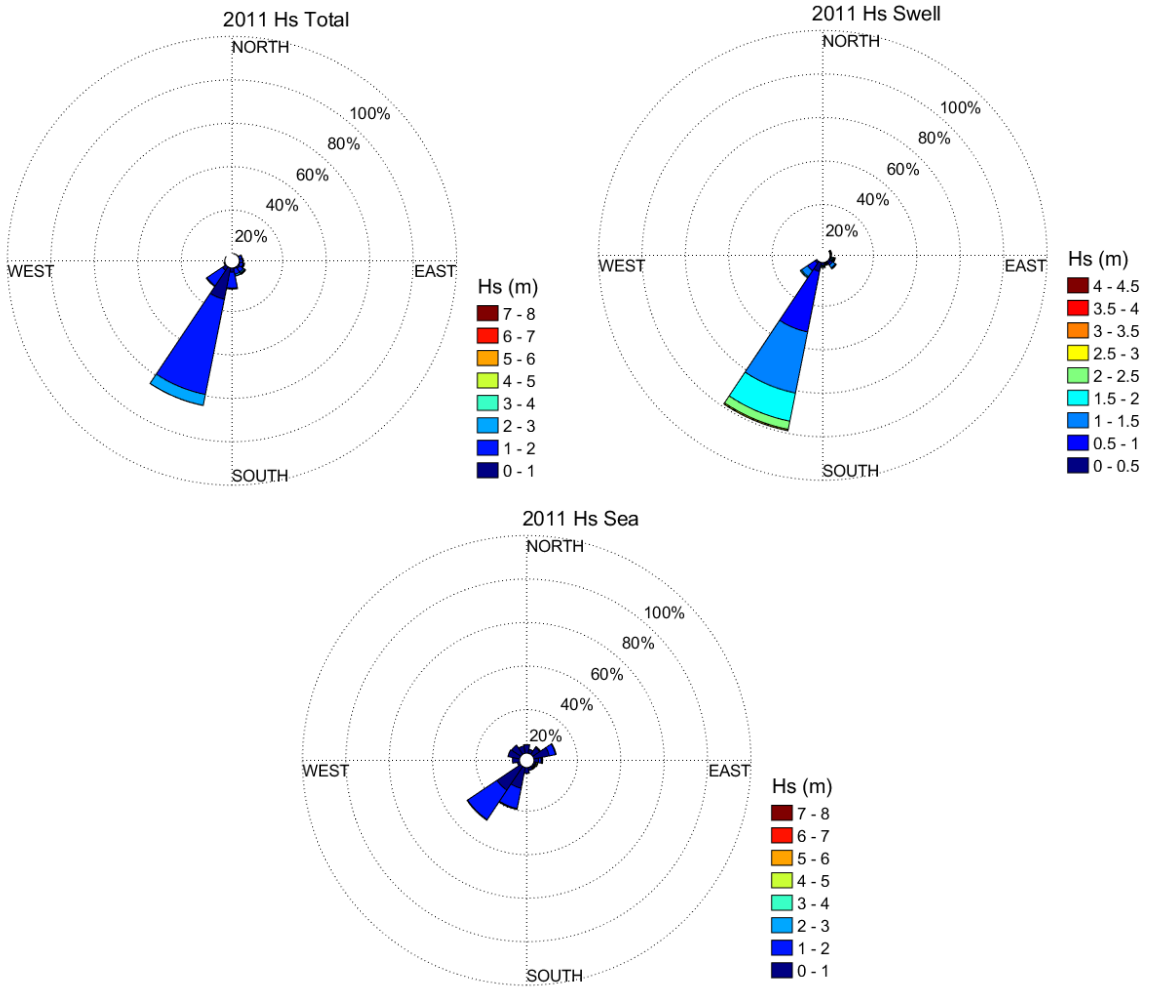

Figure D.75 2011 Hs Roses for Calibrated WWIII Hindcast Wave

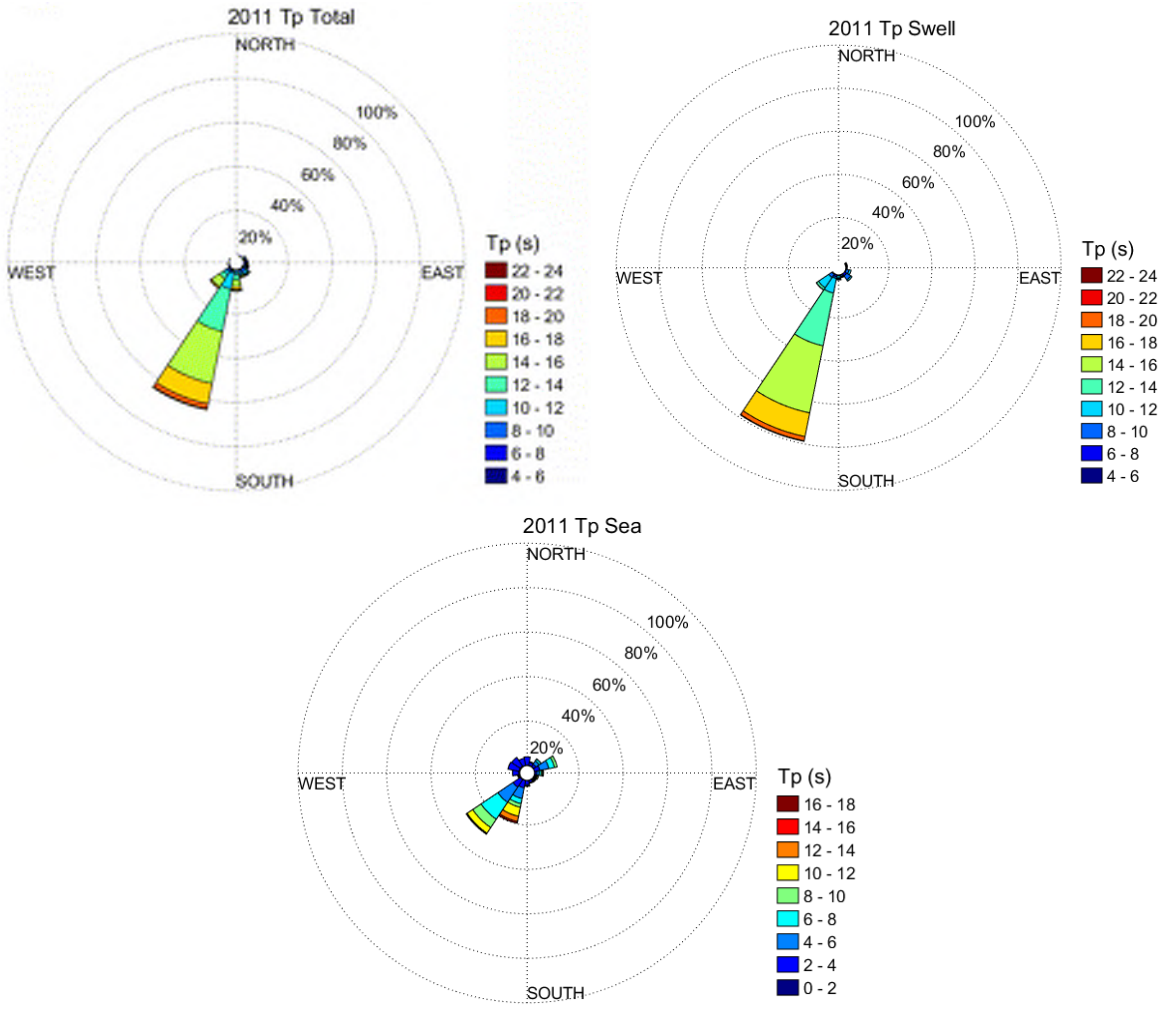

Figure D.76 2011 Tp Roses for Calibrated WWIII Hindcast Wave

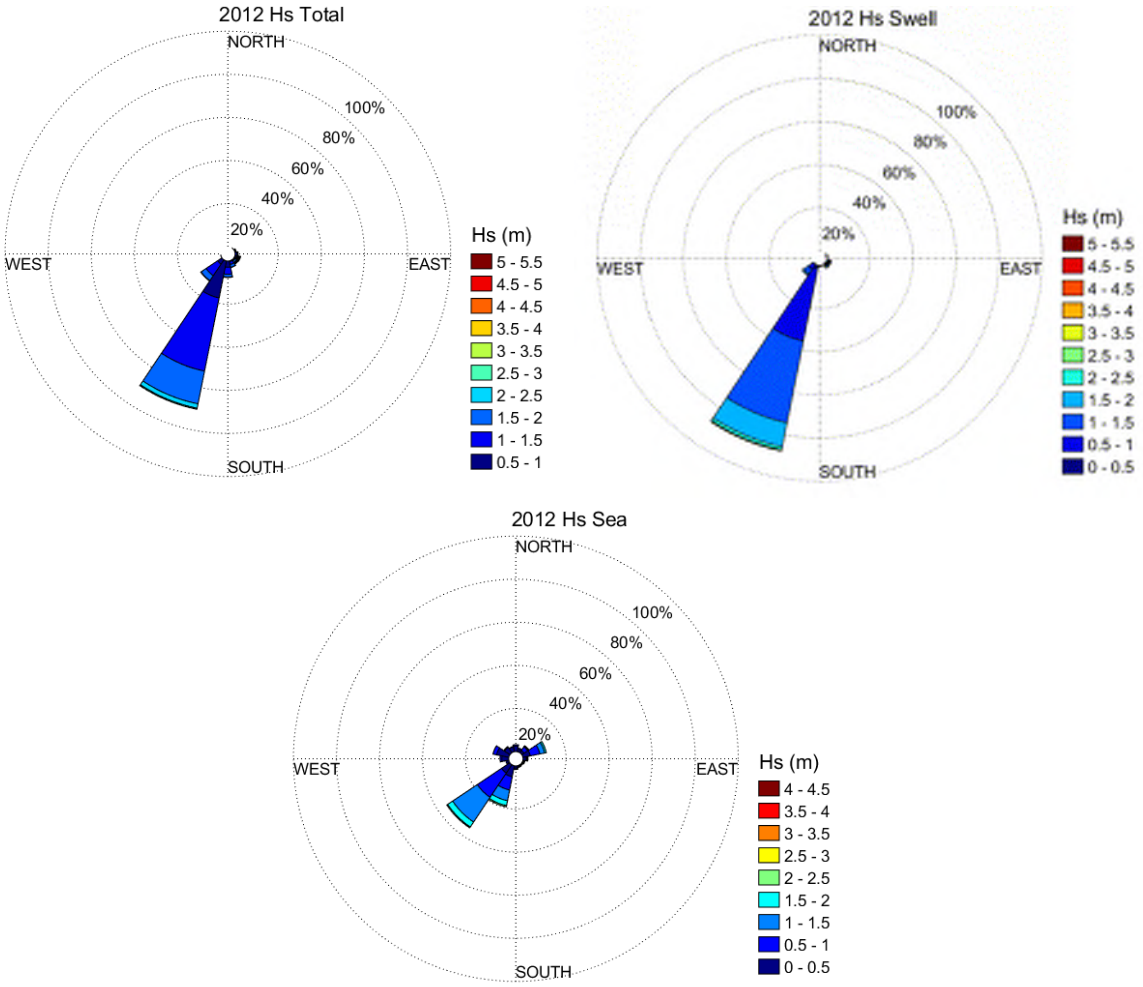

Figure D.77 2012 Hs Roses for Calibrated WWIII Hindcast Wave

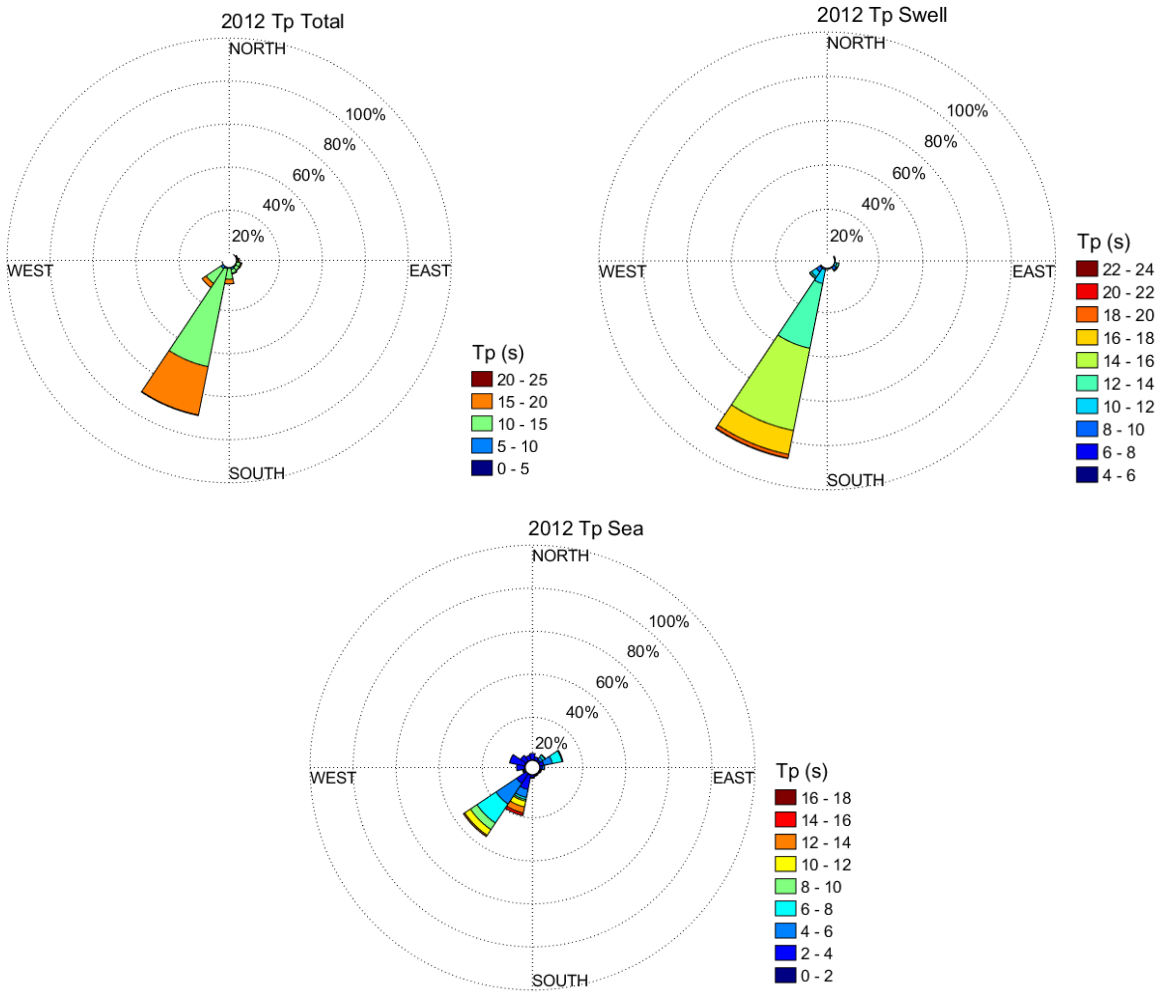

Figure D.78 2012 Tp Roses for Calibrated WWIII Hindcast Wave

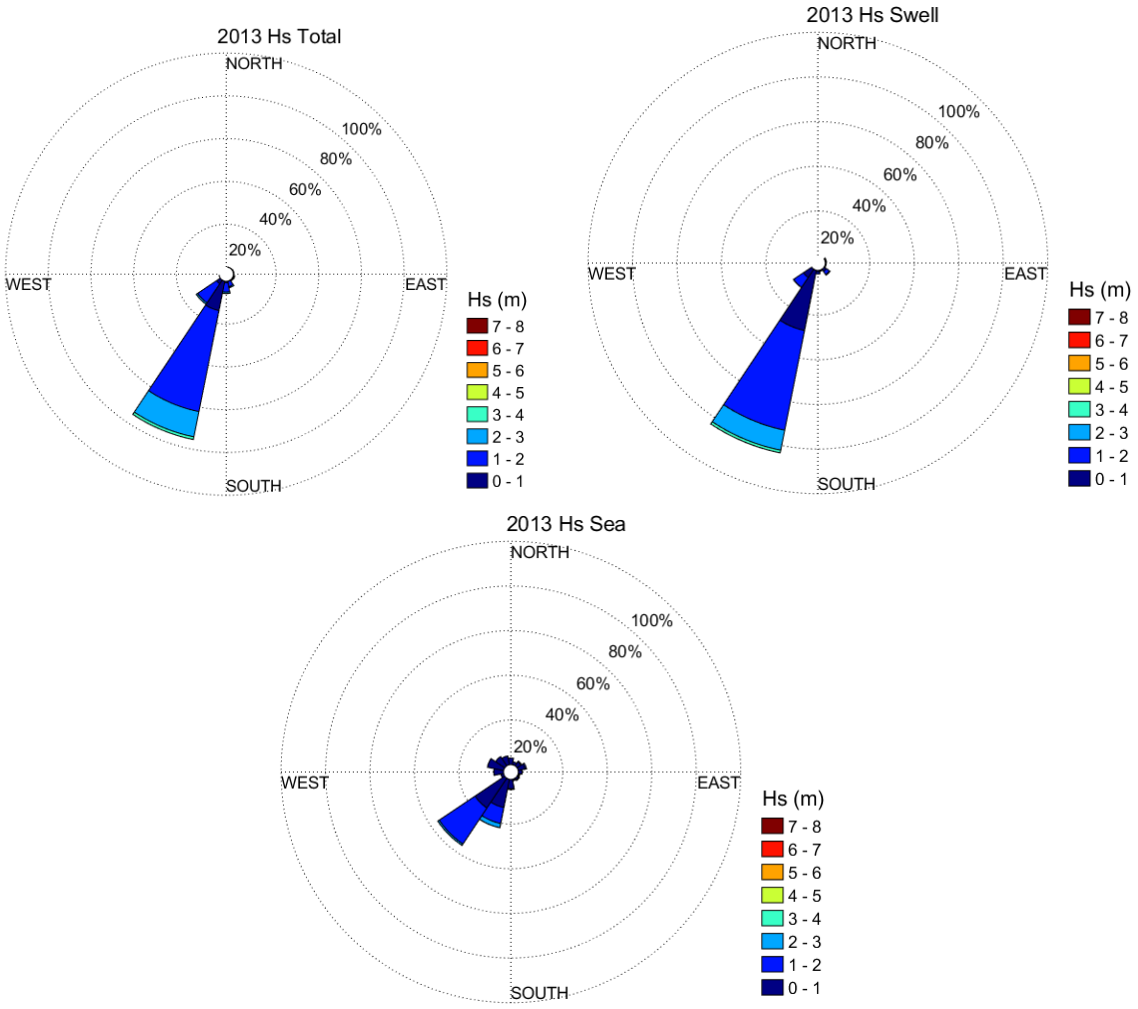

Figure D.79 2013 Hs Roses for Calibrated WWIII Hindcast Wave

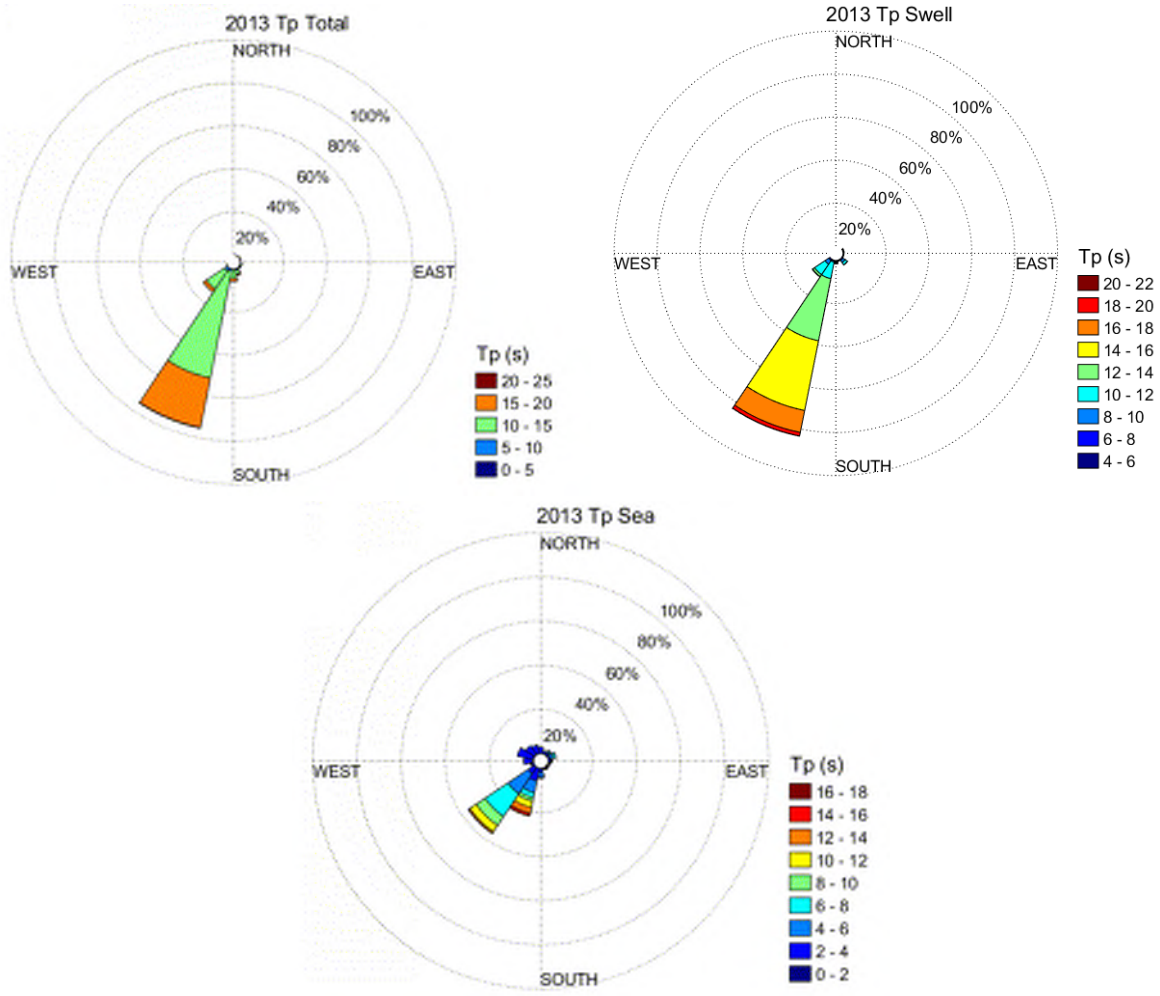

Figure D.80 2013 Tp Roses for Calibrated WWIII Hindcast Wave

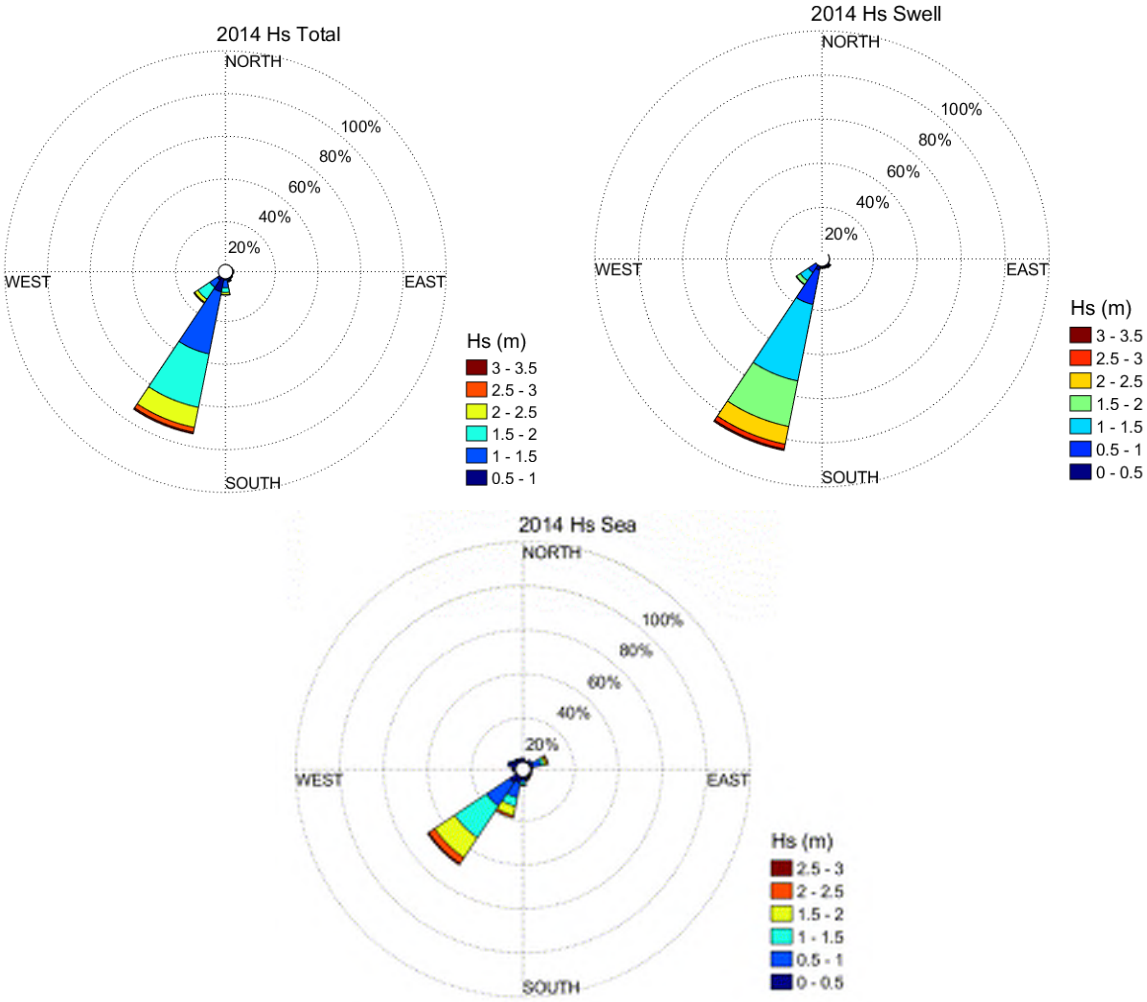

Figure D.81 2014 Hs Roses for Calibrated WWIII Hindcast Wave

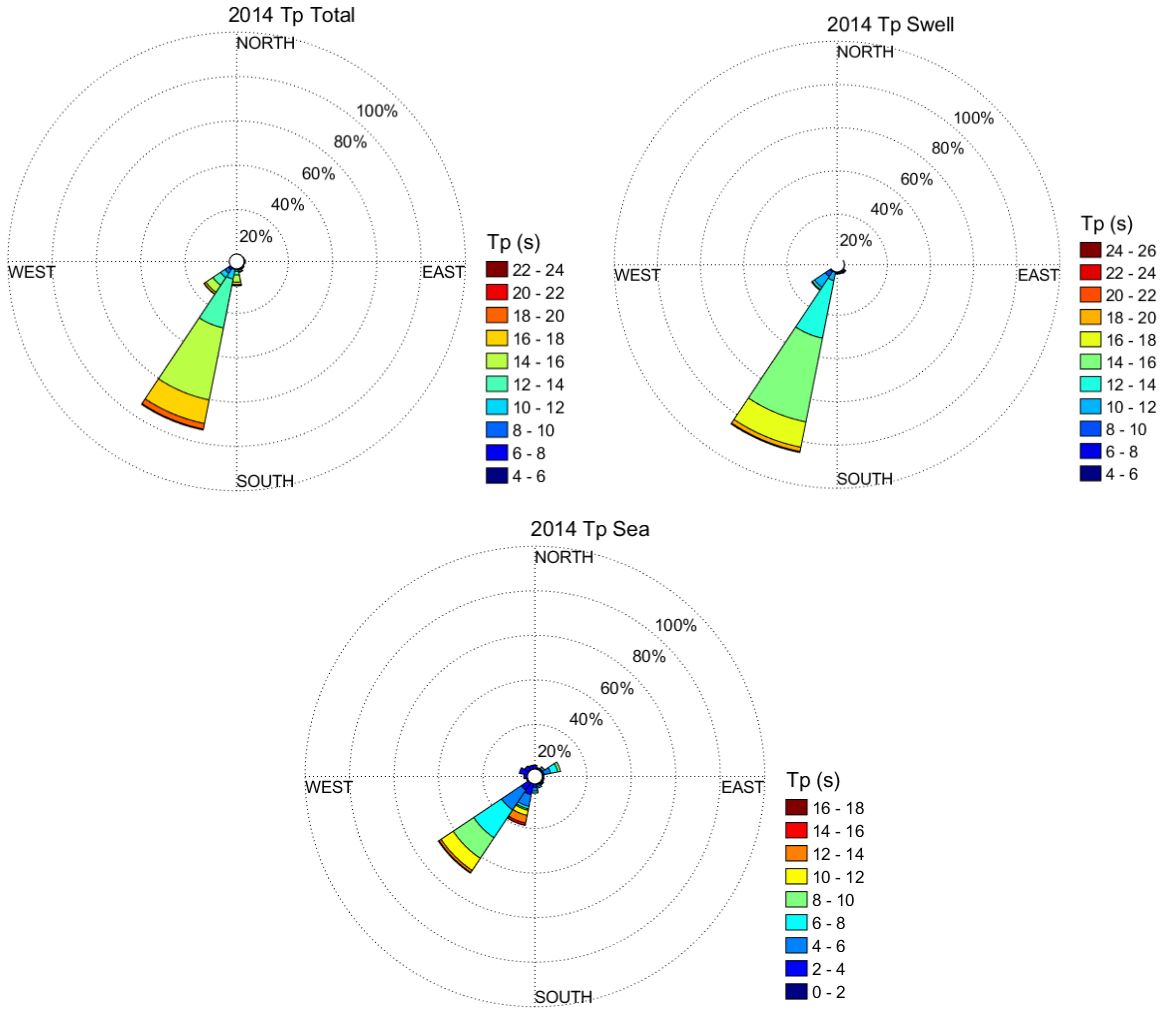

Figure D.82 2014 Tp Roses for Calibrated WWIII Hindcast Wave

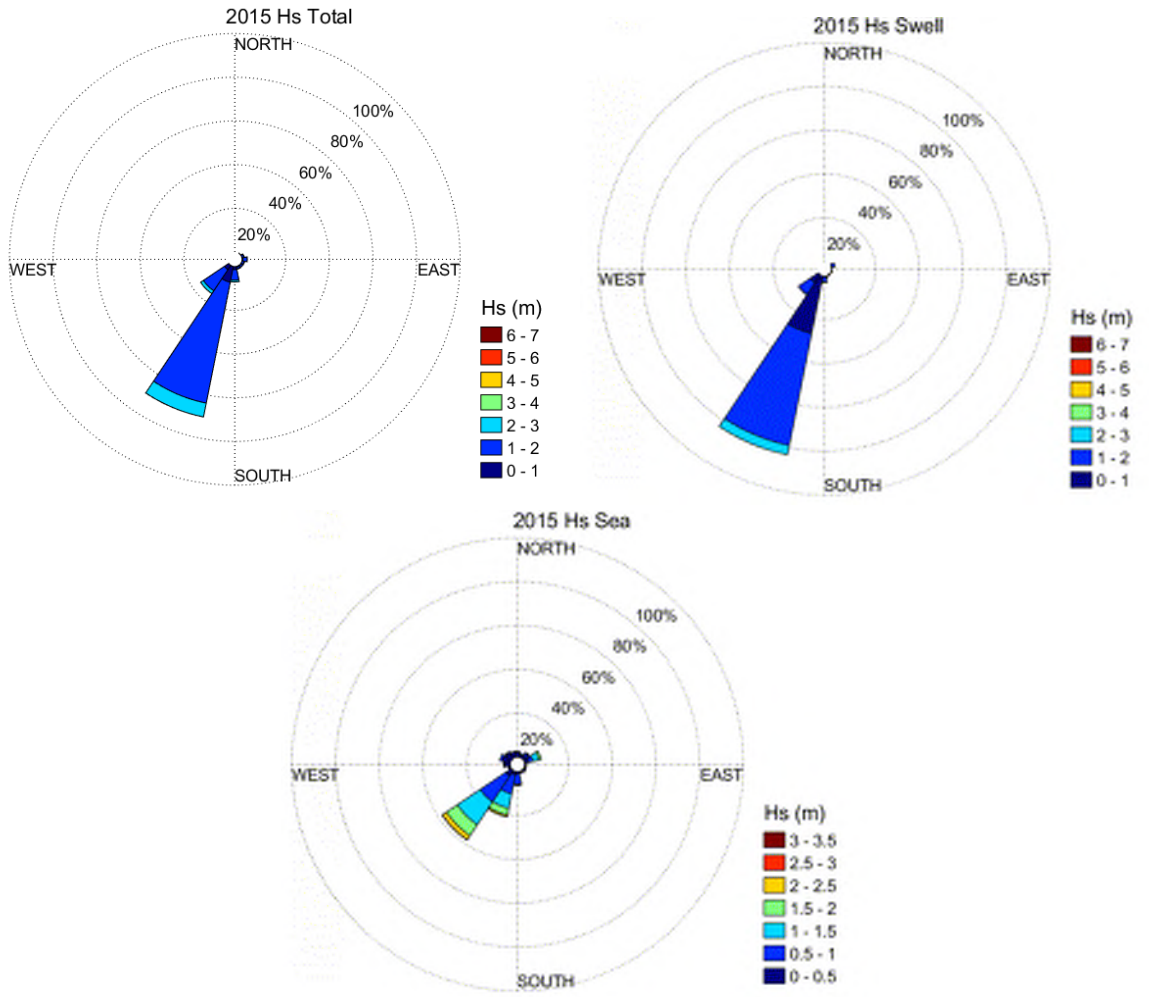

Figure D.83 2015 Hs Roses for Calibrated WWIII Hindcast Wave

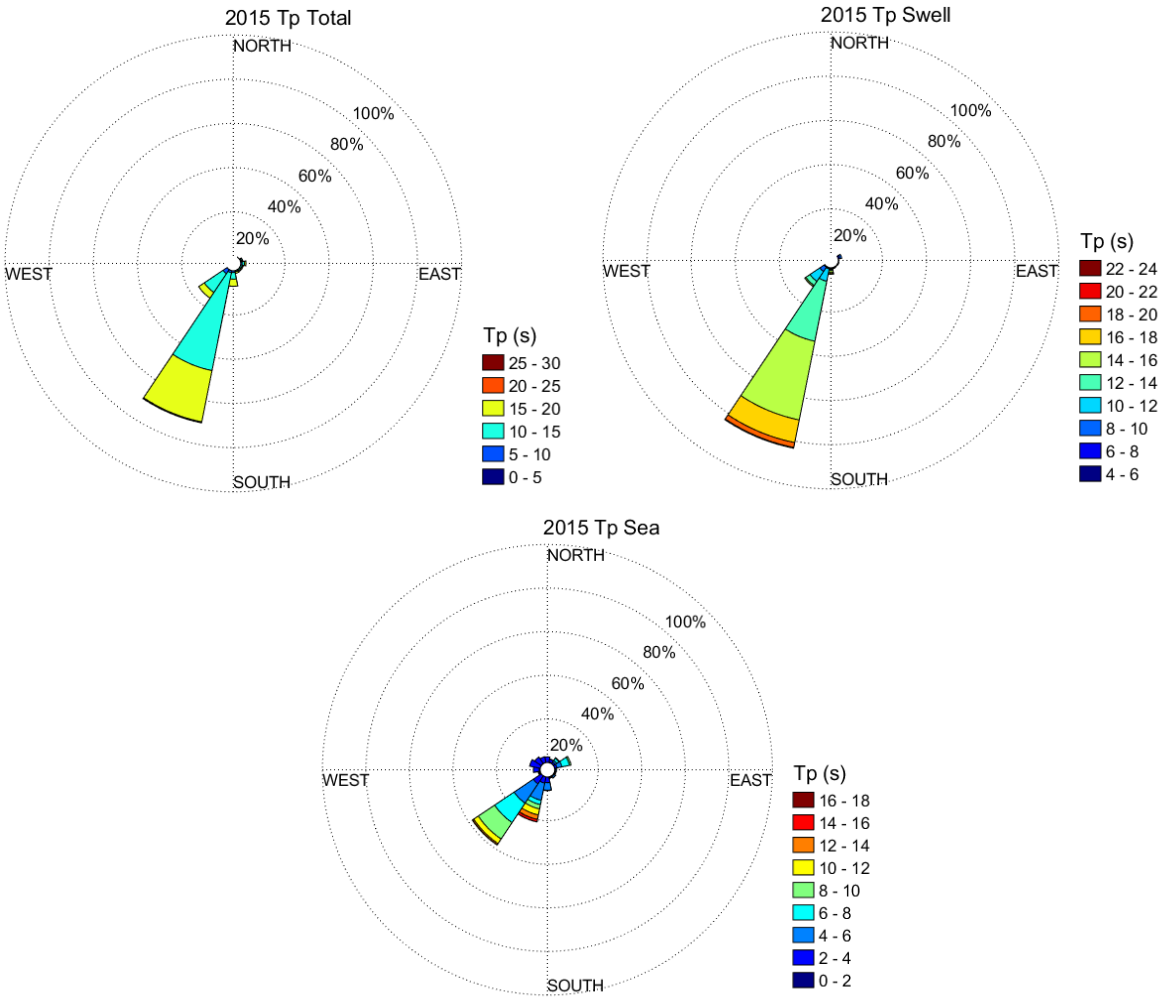

Figure D.84 2015 Tp Roses for Calibrated WWIII Hindcast Wave

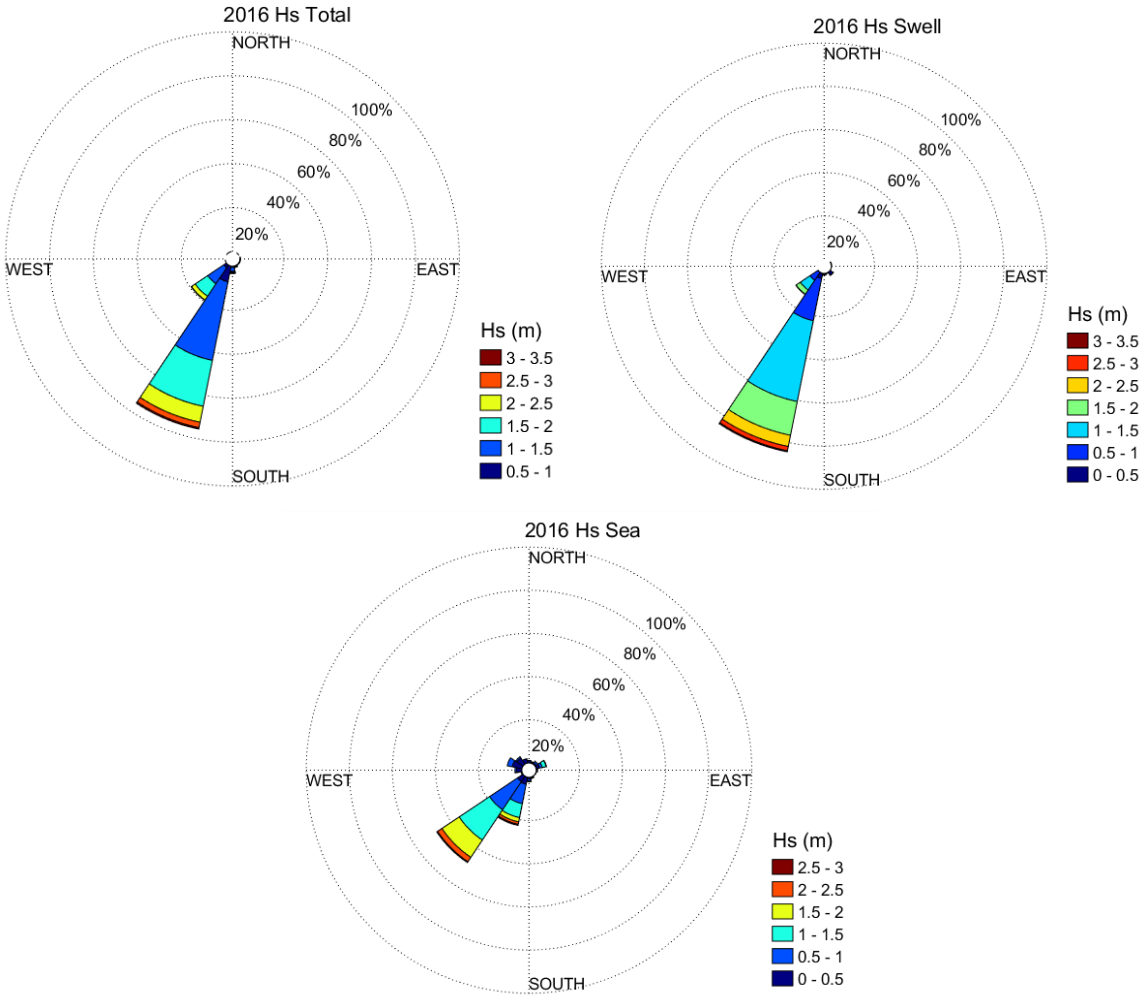

Figure D.85 2016 Hs Roses for Calibrated WWIII Hindcast Wave

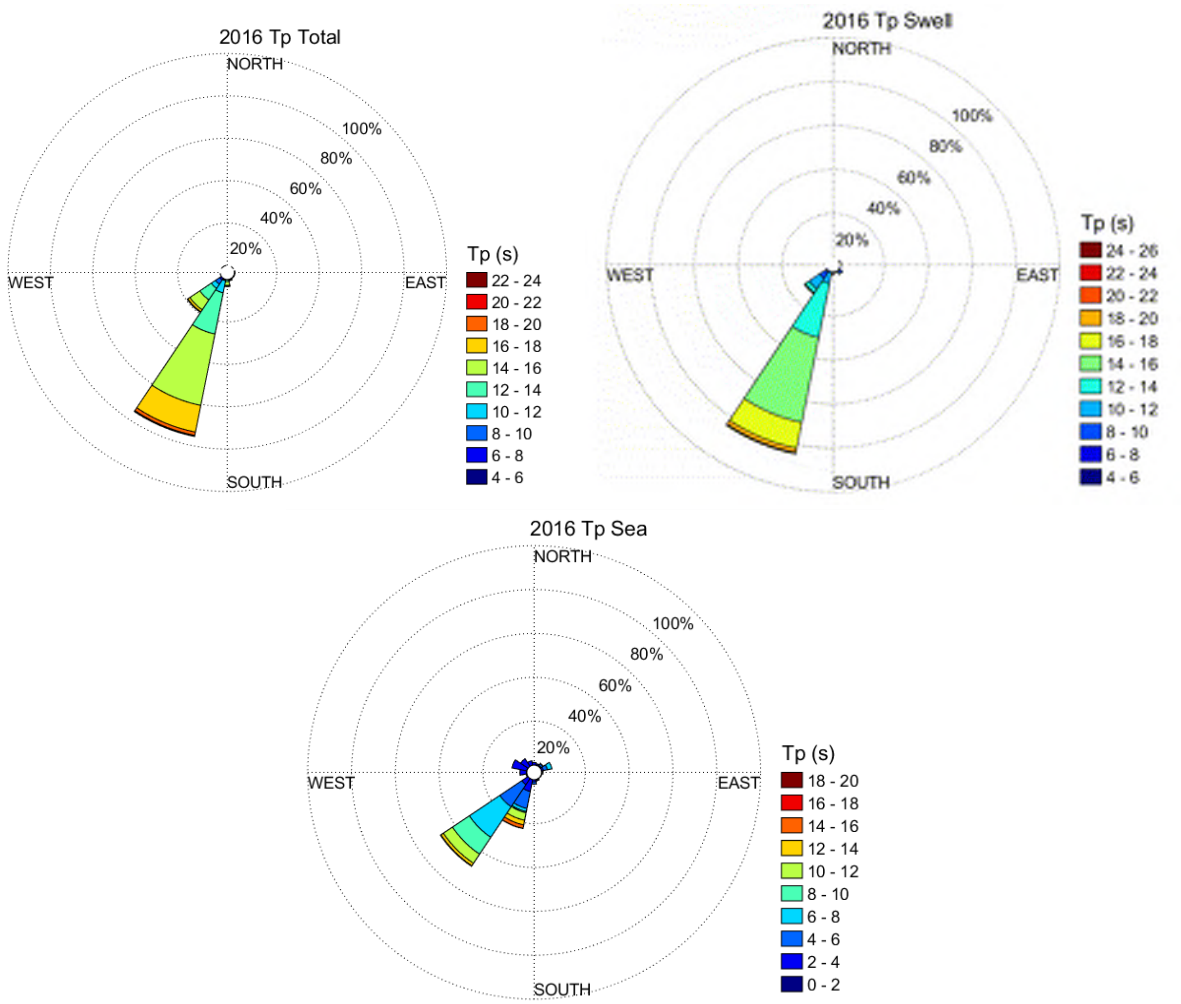

Figure D.86 2016 Tp Roses for Calibrated WWIII Hindcast Wave

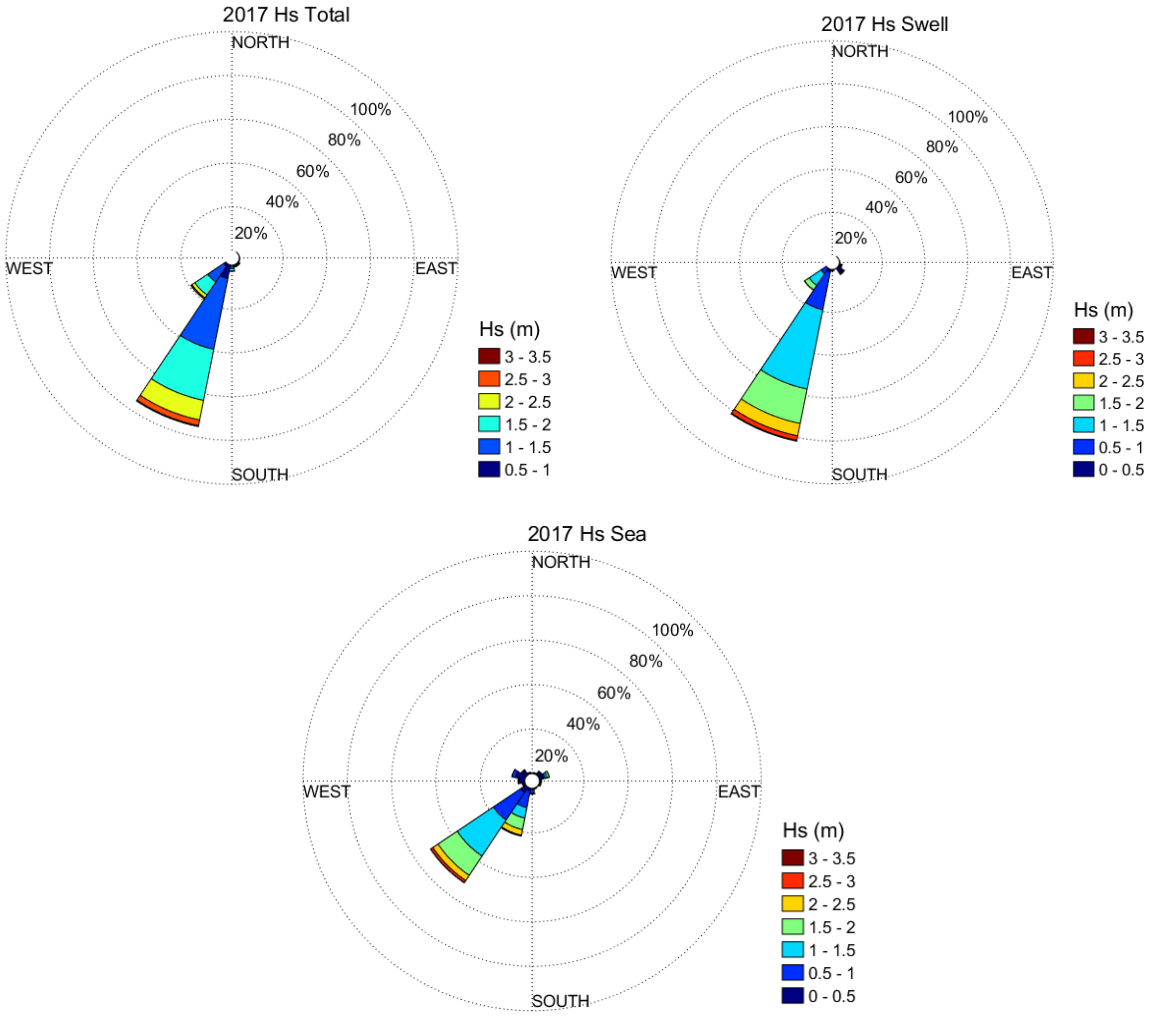

Figure D.87 2017 Hs Roses for Calibrated WWIII Hindcast Wave

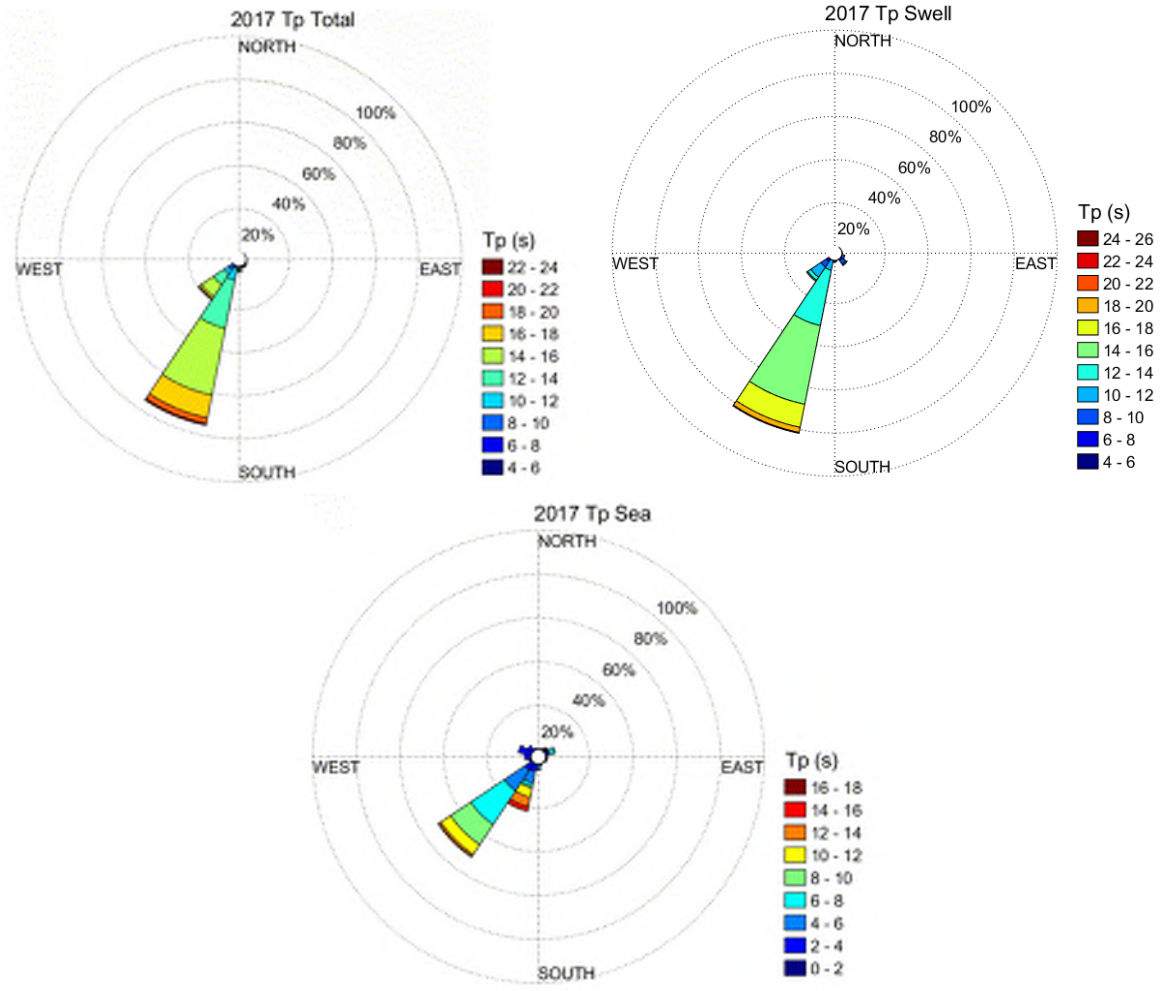

Figure D.88 2017 Tp Roses for Calibrated WWIII Hindcast Wave

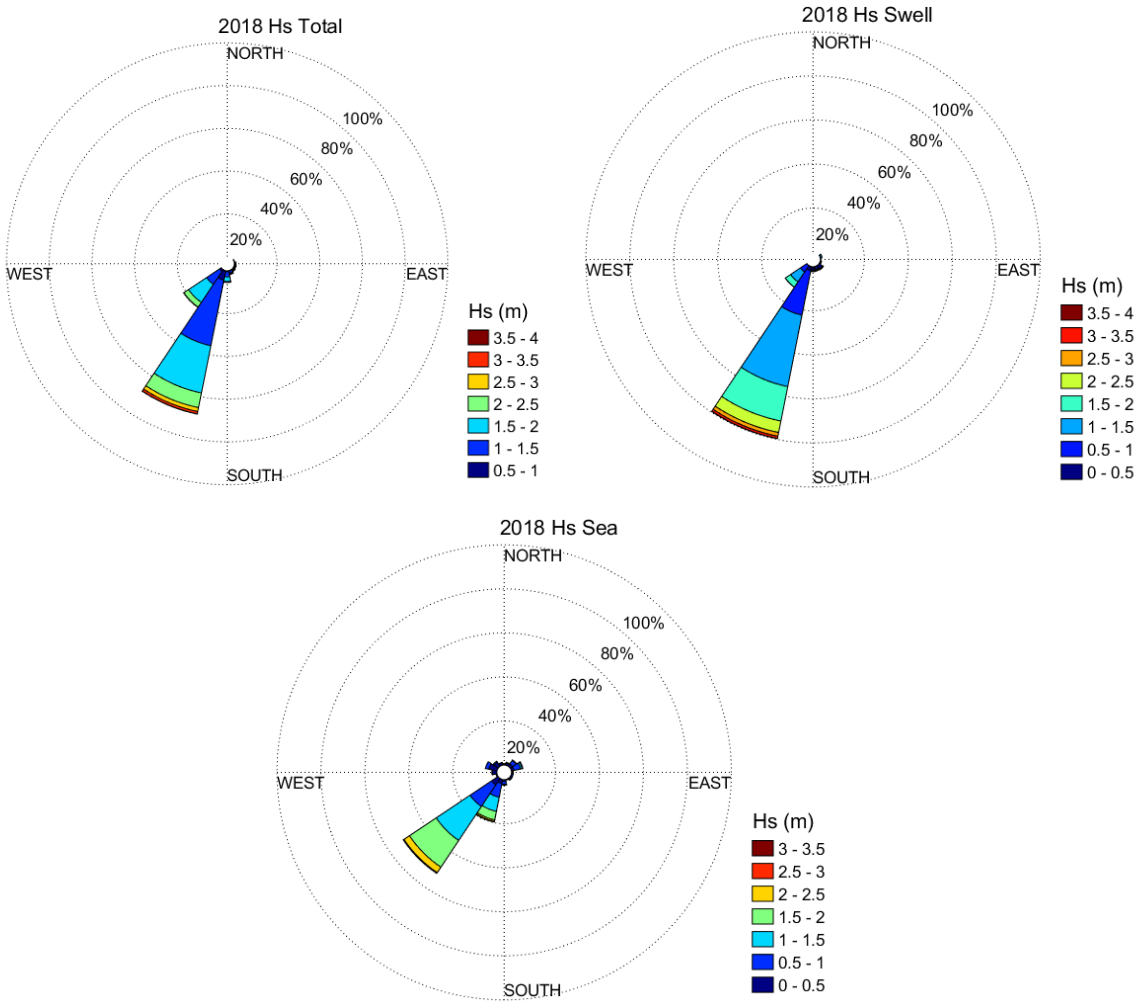

Figure D.89 2018 Hs Roses for Calibrated WWIII Hindcast Wave

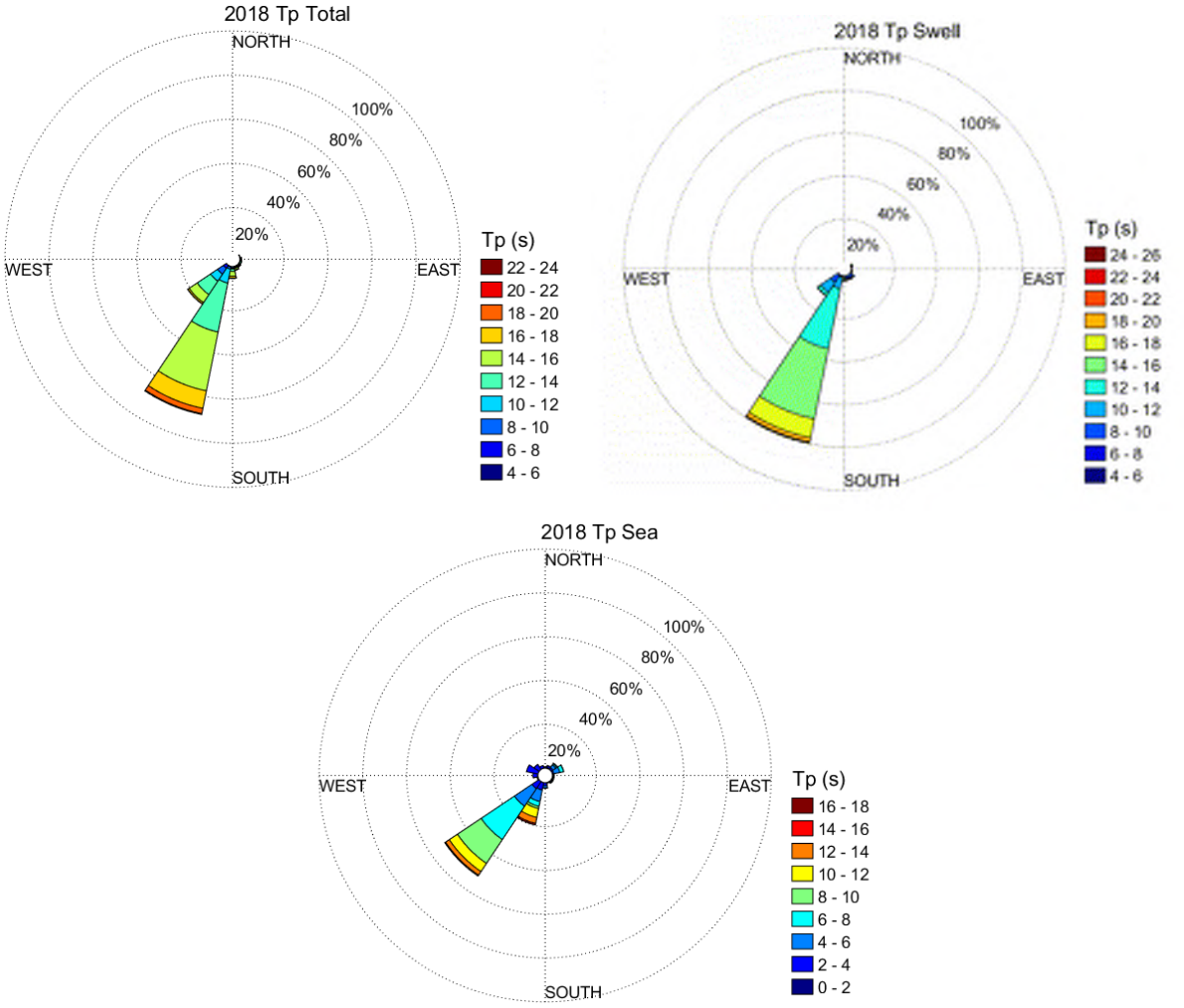

Figure D.90 2018 Tp Roses for Calibrated WWIII Hindcast Wave

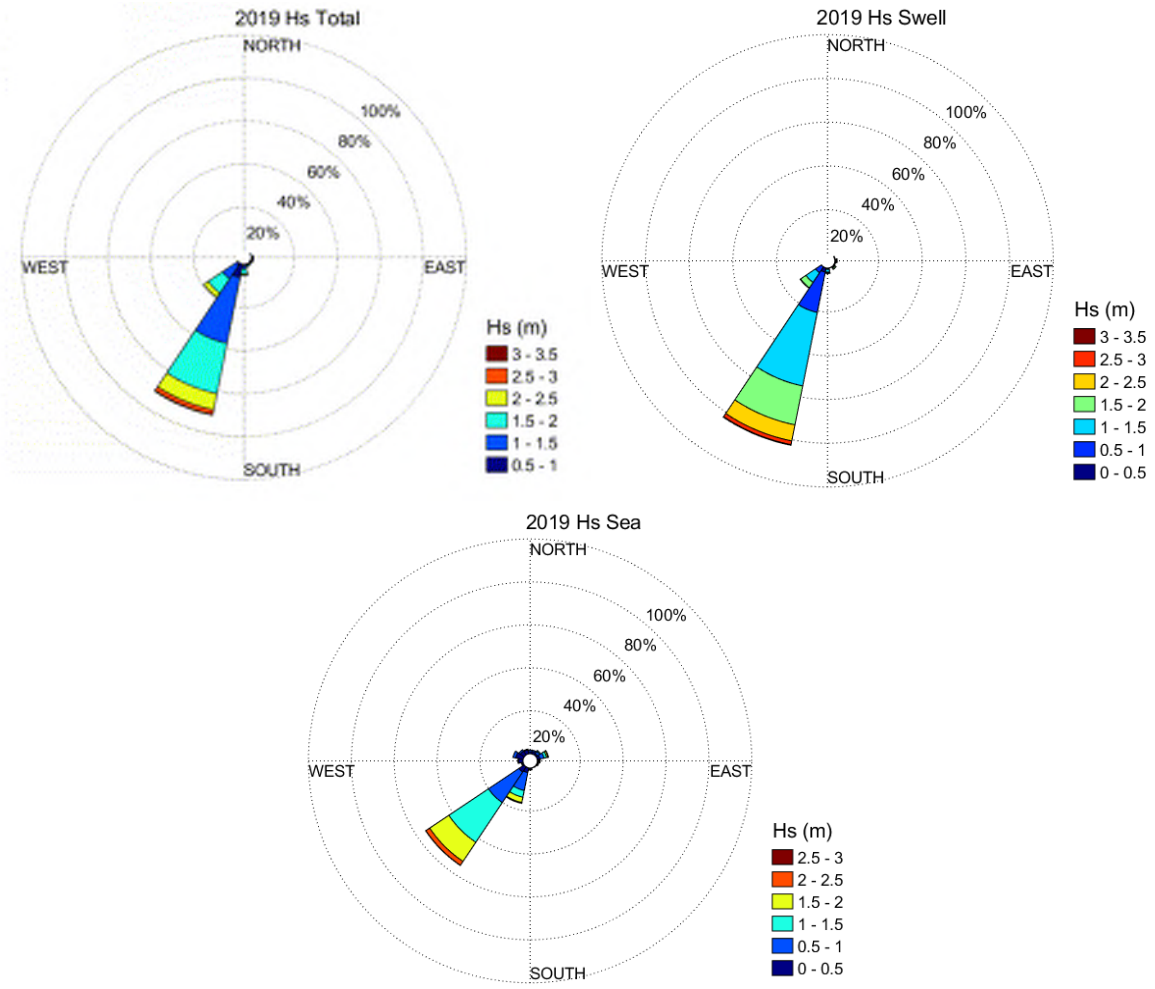

Figure D.91 2019 Hs Roses for Calibrated WWIII Hindcast Wave

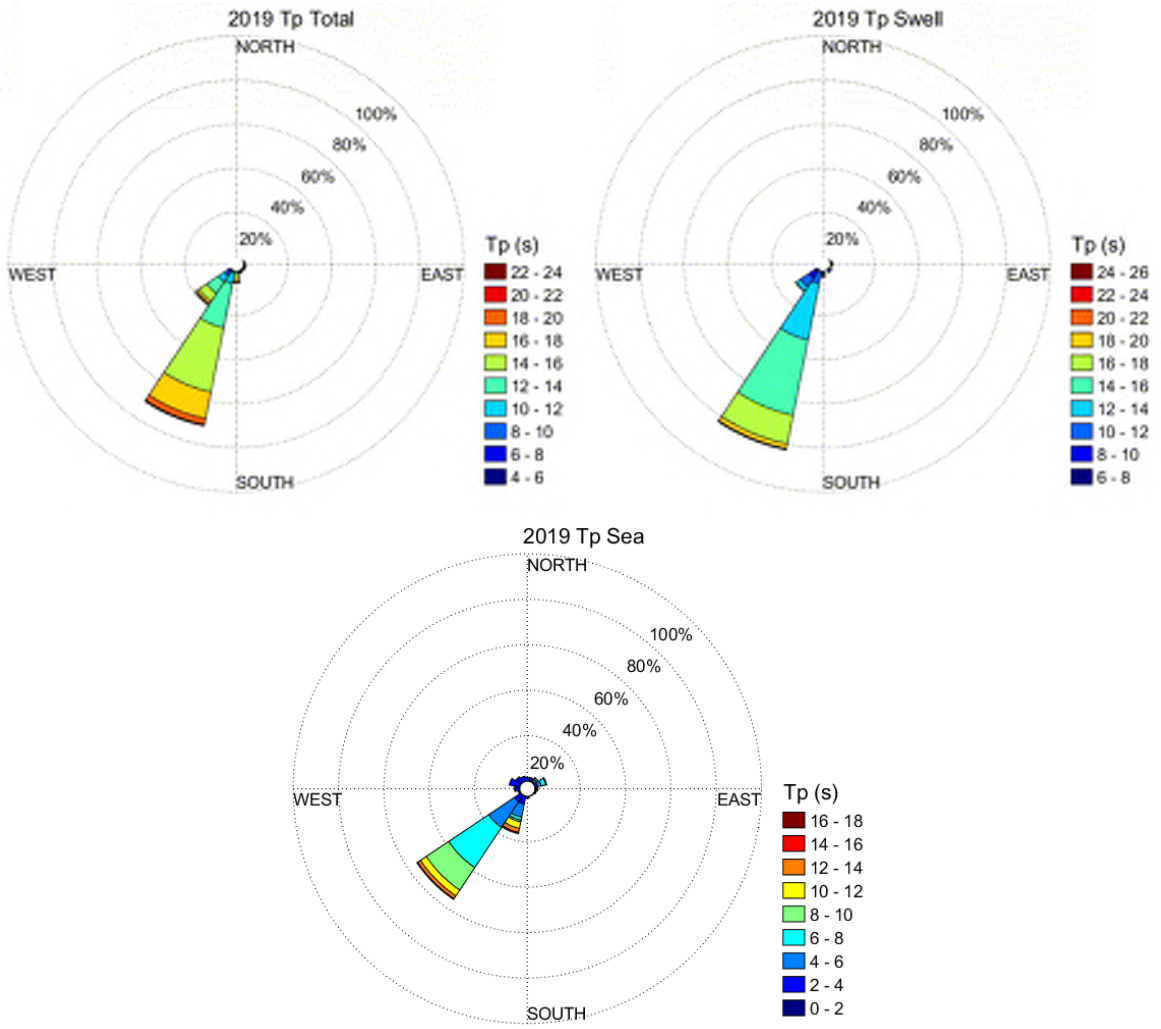

Figure D.92 2019 Tp Roses for Calibrated WWIII Hindcast Wave

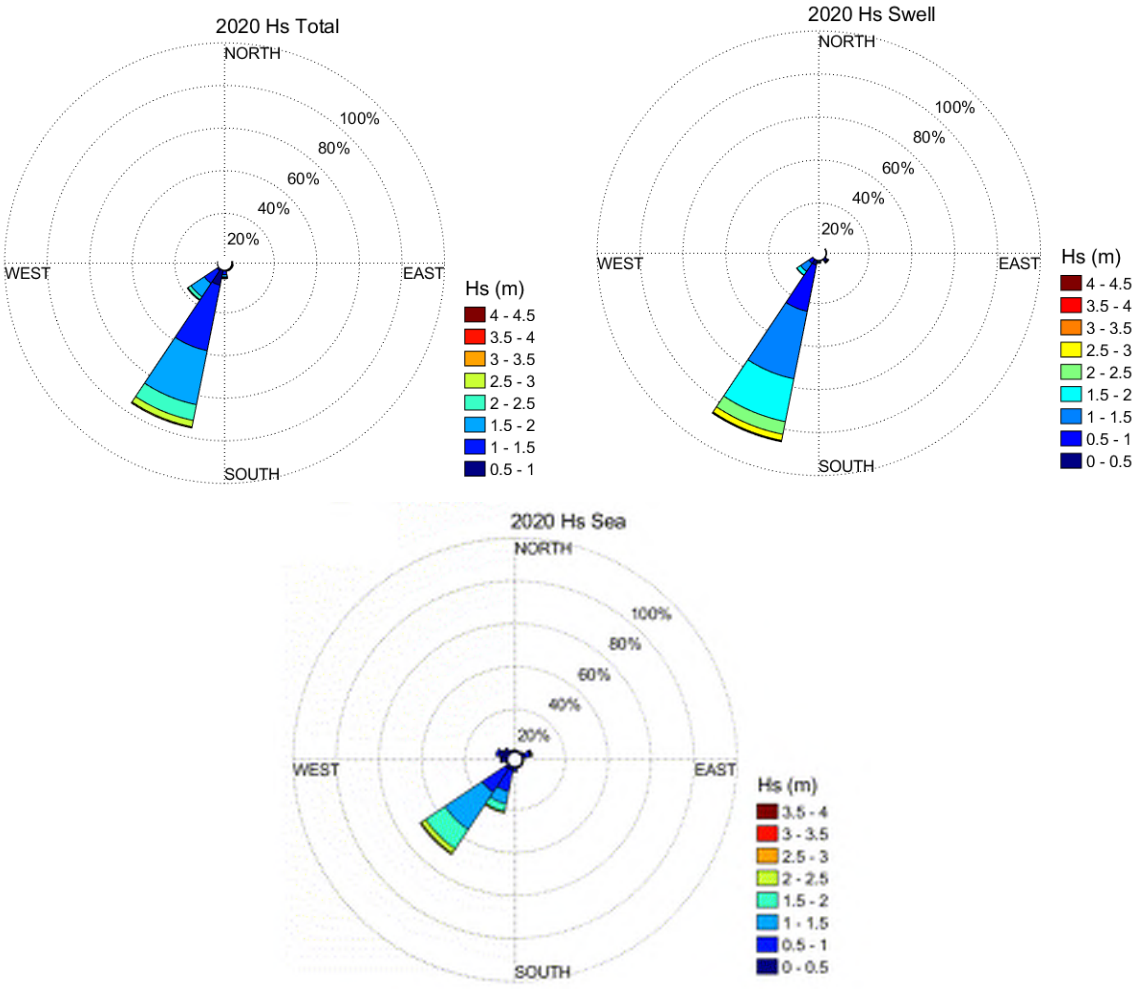

Figure D.93 2020 Hs Roses for Calibrated WWIII Hindcast Wave

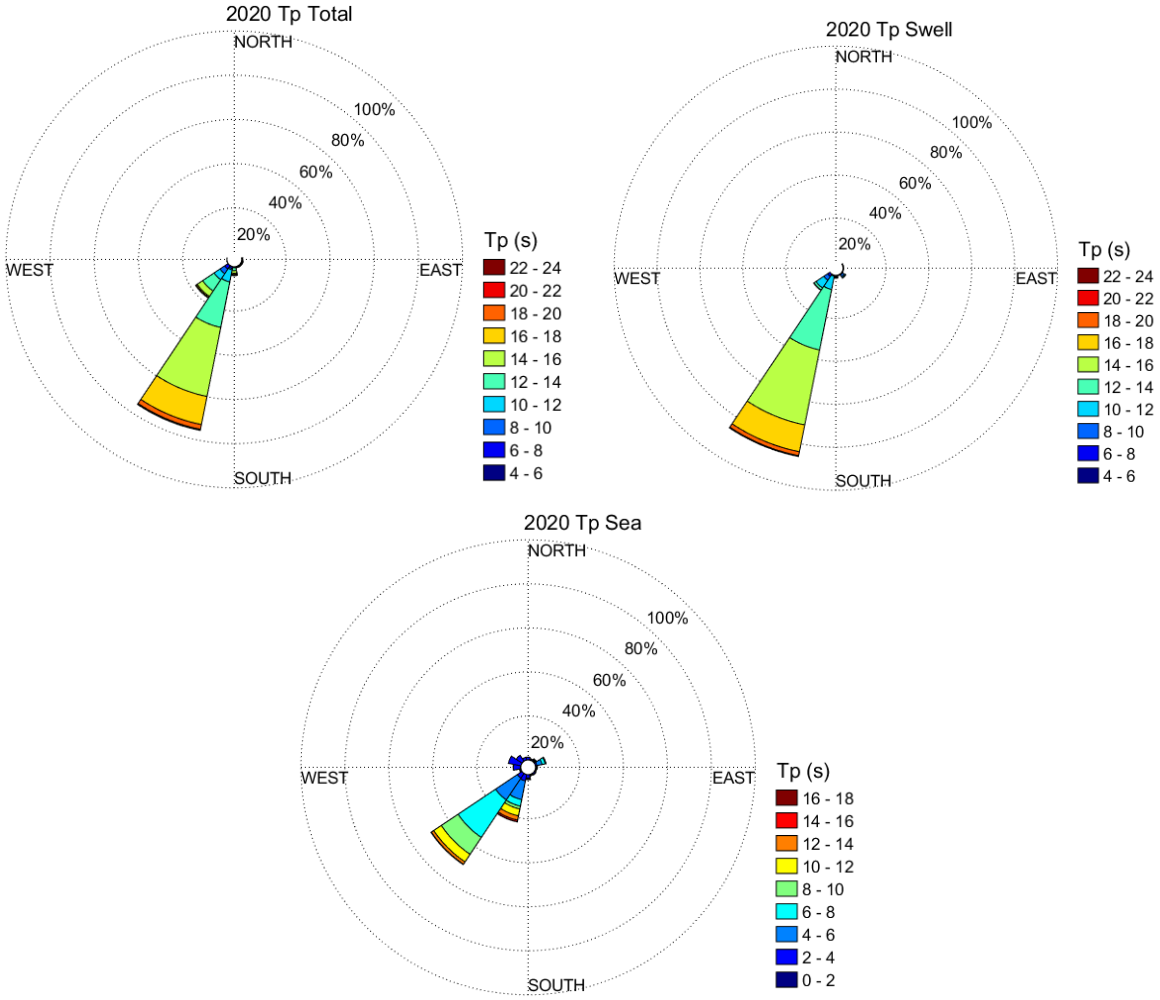

Figure D.94 2020 Tp Roses for Calibrated WWIII Hindcast Wave

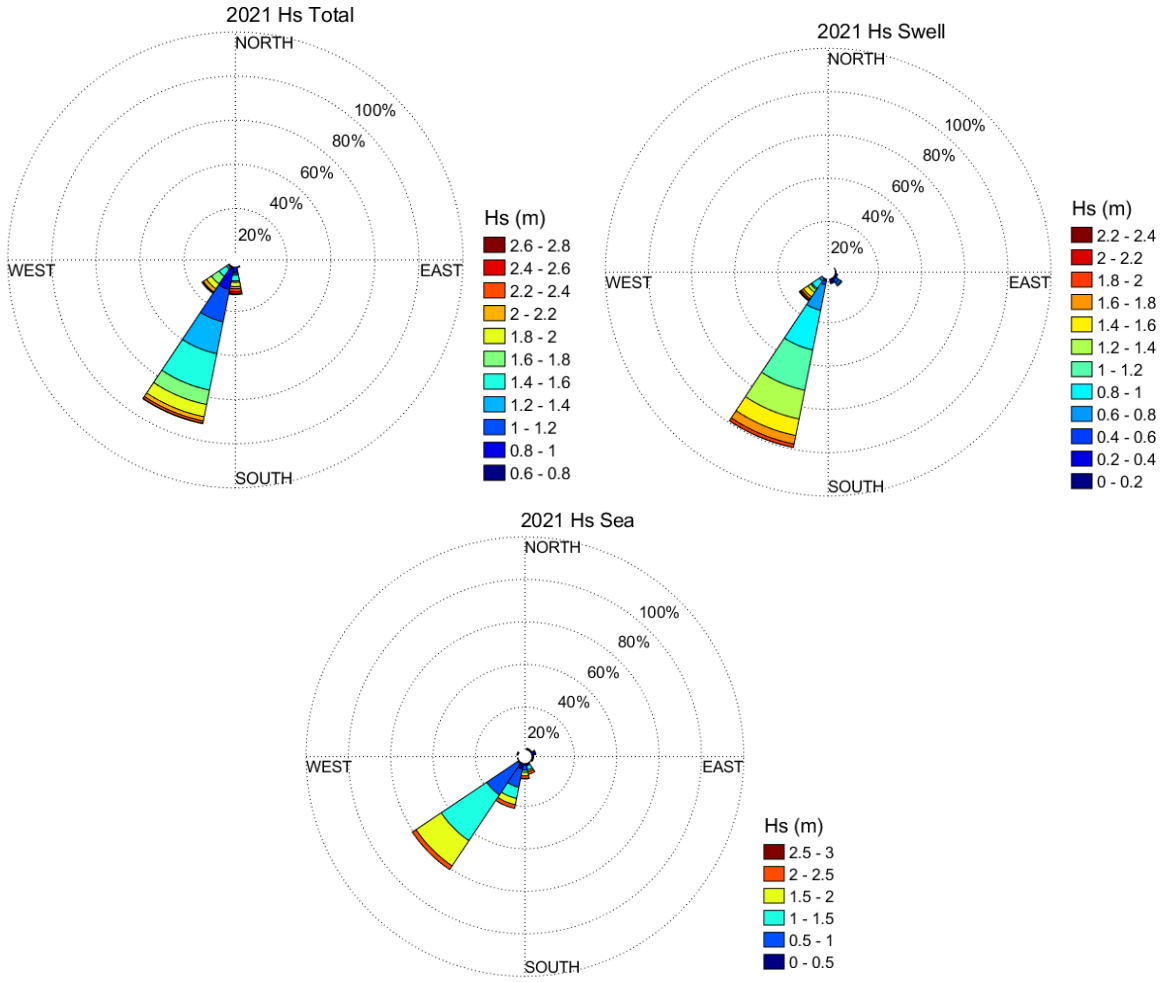

Figure D.95 2021 Hs Roses for Calibrated WWIII Hindcast Wave

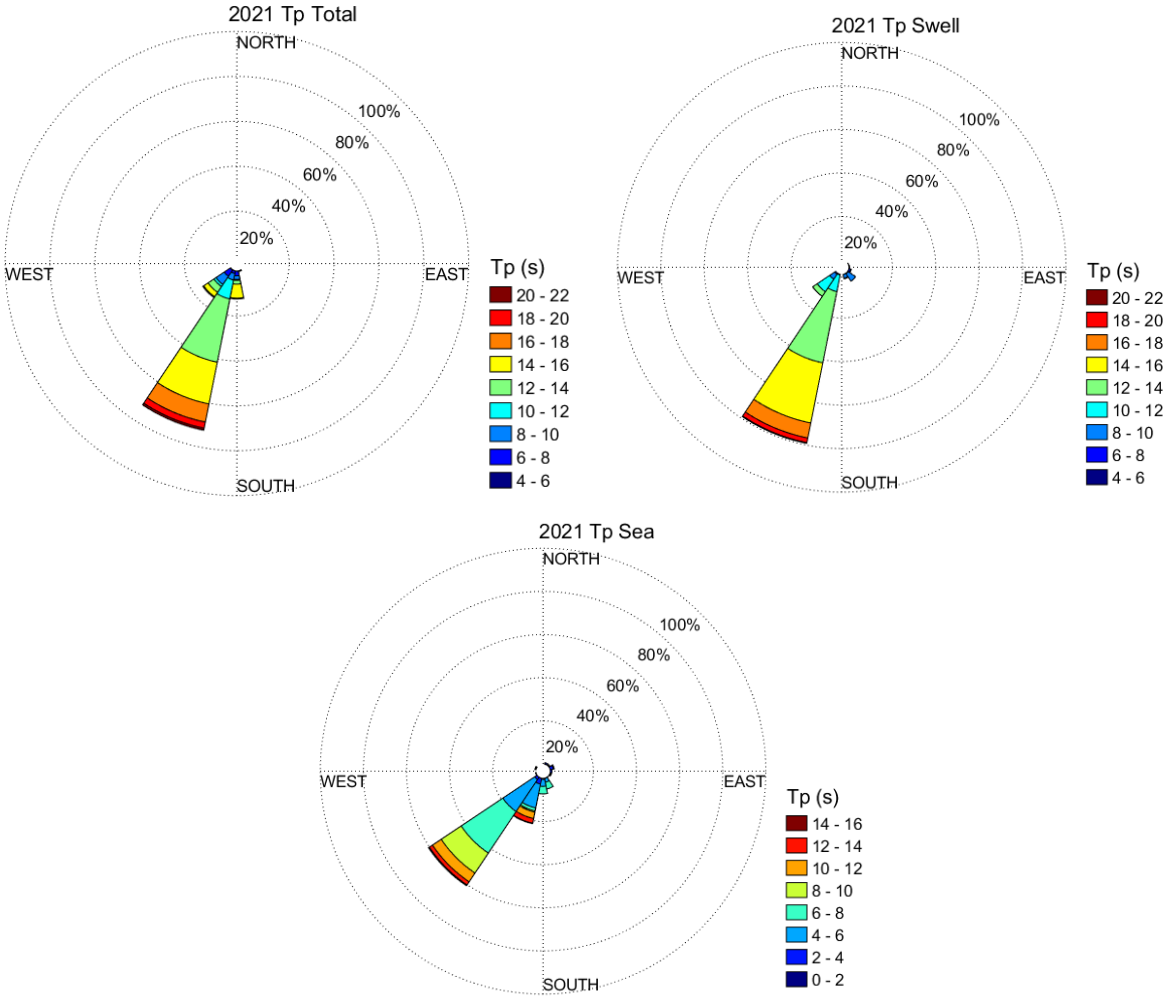

Figure D.96 2021 Tp Roses for Calibrated WWIII Hindcast Wave

Appendix E Tantabiddi Wave Buoy Exceedance Curves

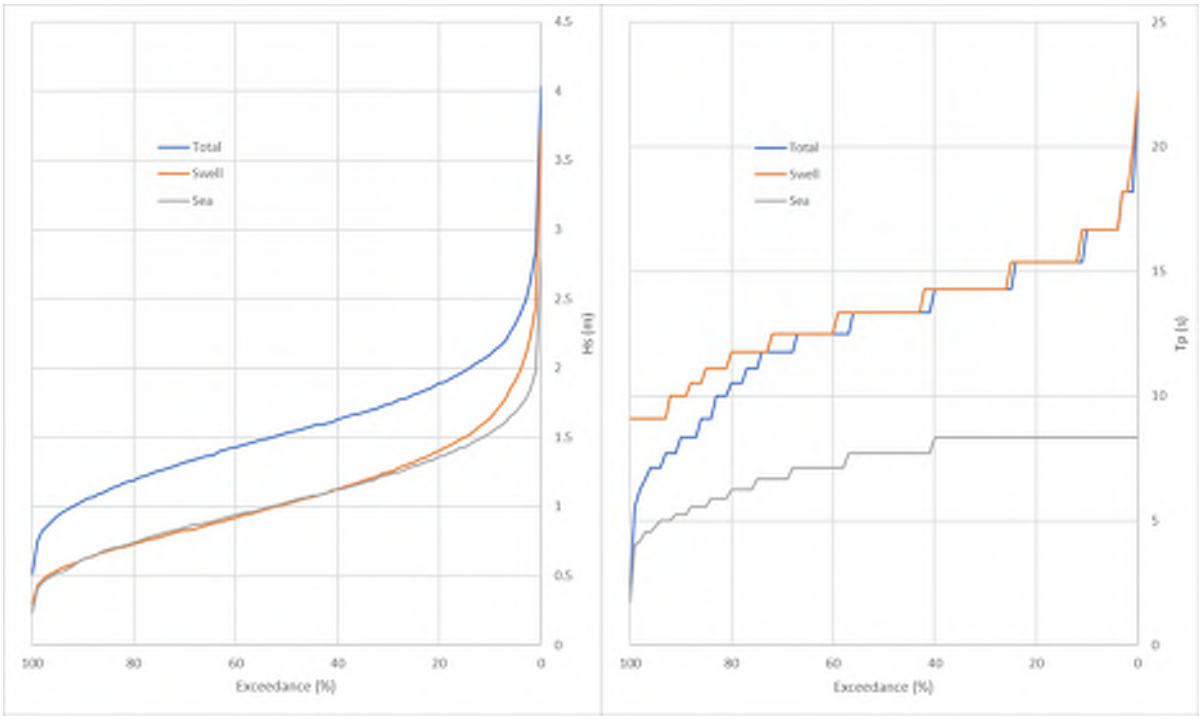

Figure E.1 Overall Tantabiddi Wave Buoy Hs and Tp Exceedance Curves

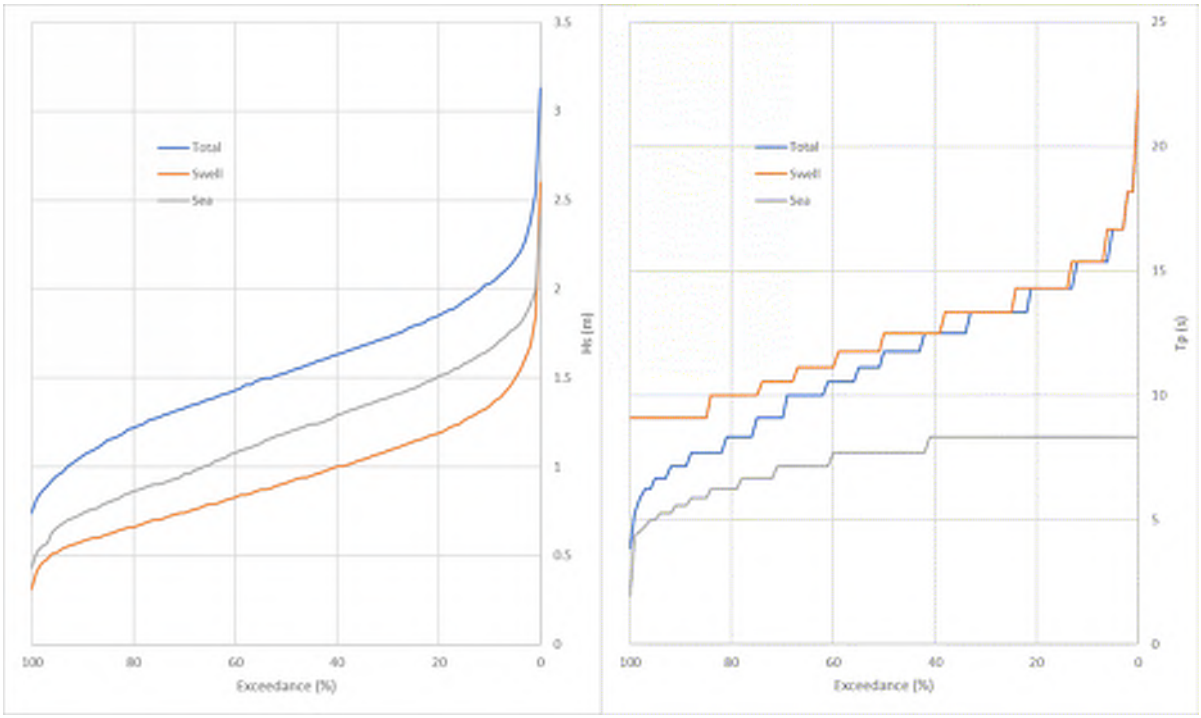

Figure E.2 Summer Tantabiddi Wave Buoy Hs and Tp Exceedance Curves

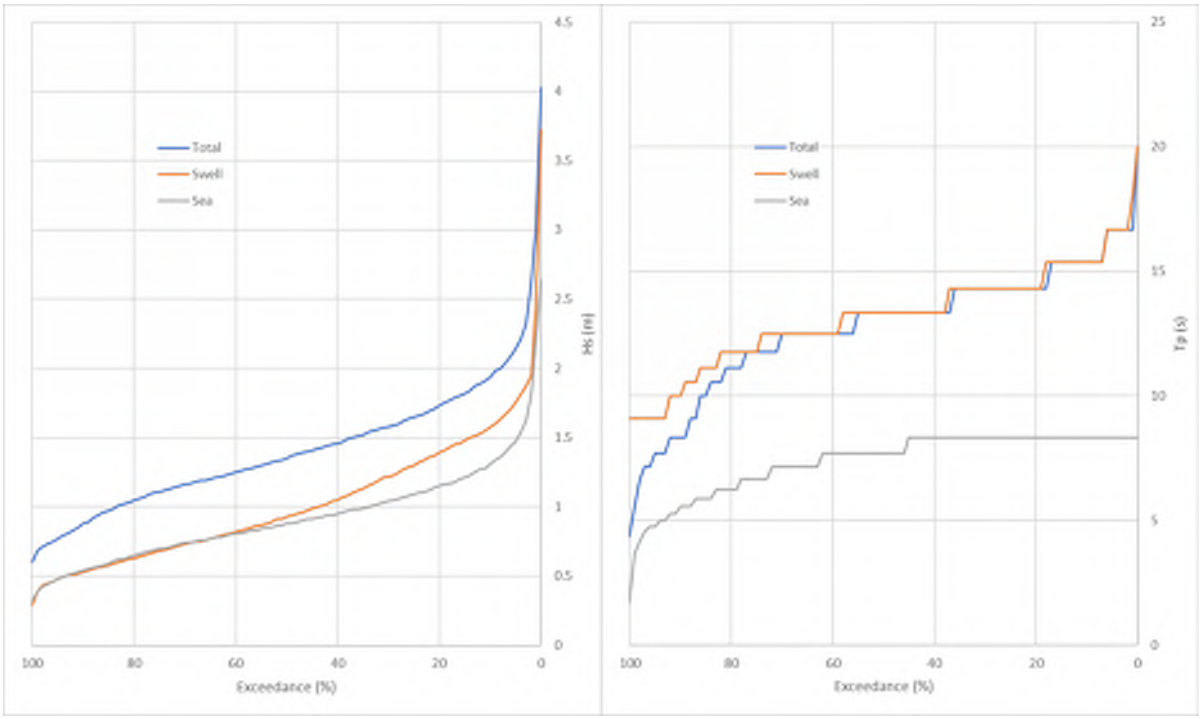

Figure E.3 Autumn Tantabiddi Wave Buoy Hs and Tp Exceedance Curves

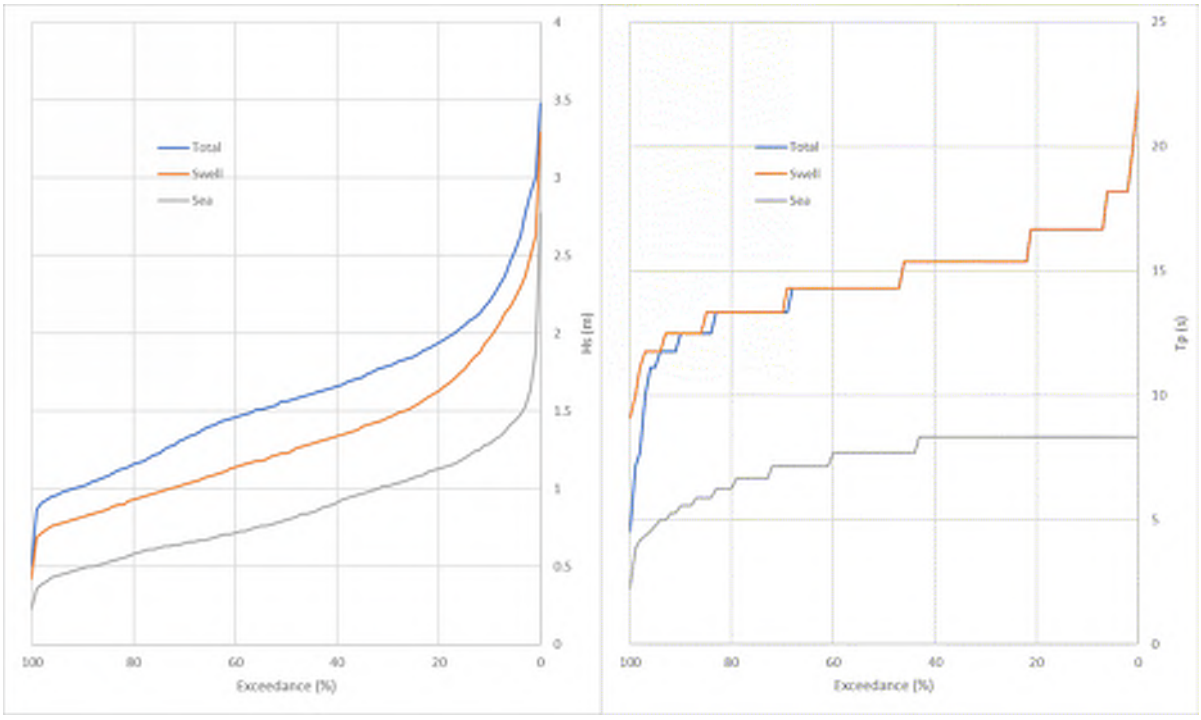

Figure E.4 Winter Tantabiddi Wave Buoy Hs and Tp Exceedance Curves

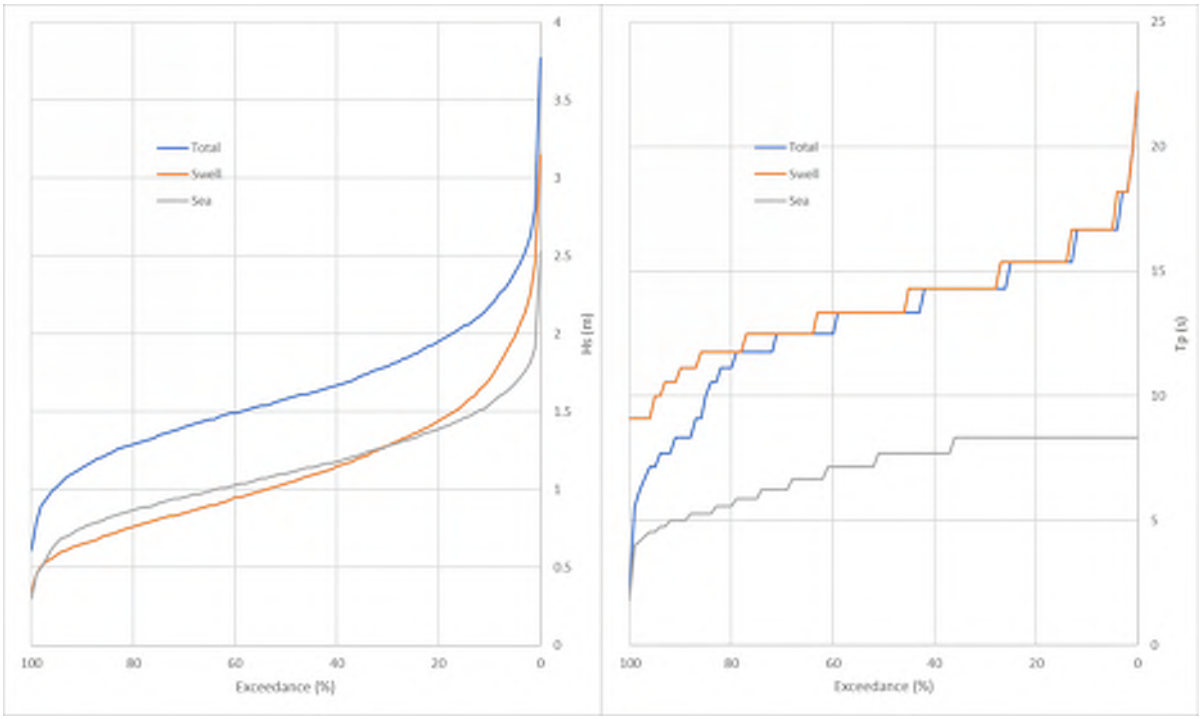

Figure E.5 Spring Tantabiddi Wave Buoy Hs and Tp Exceedance Curves

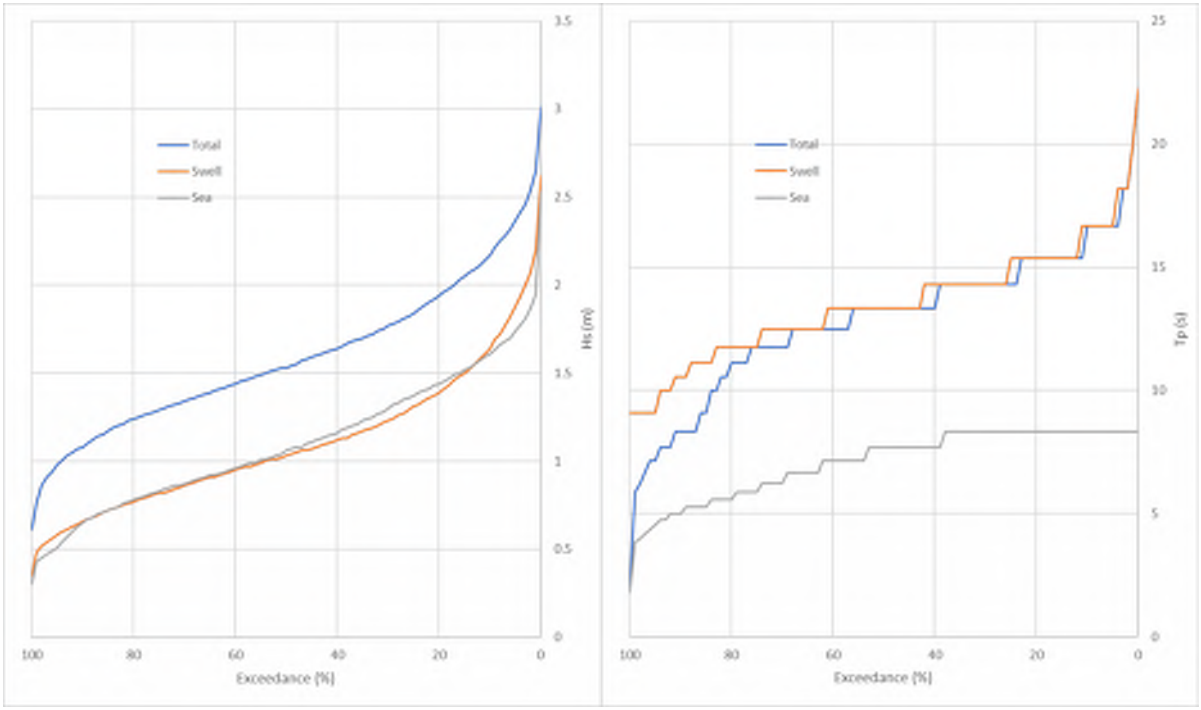

Figure E.6 2019 Tantabiddi Wave Buoy Hs and Tp Exceedance Curves

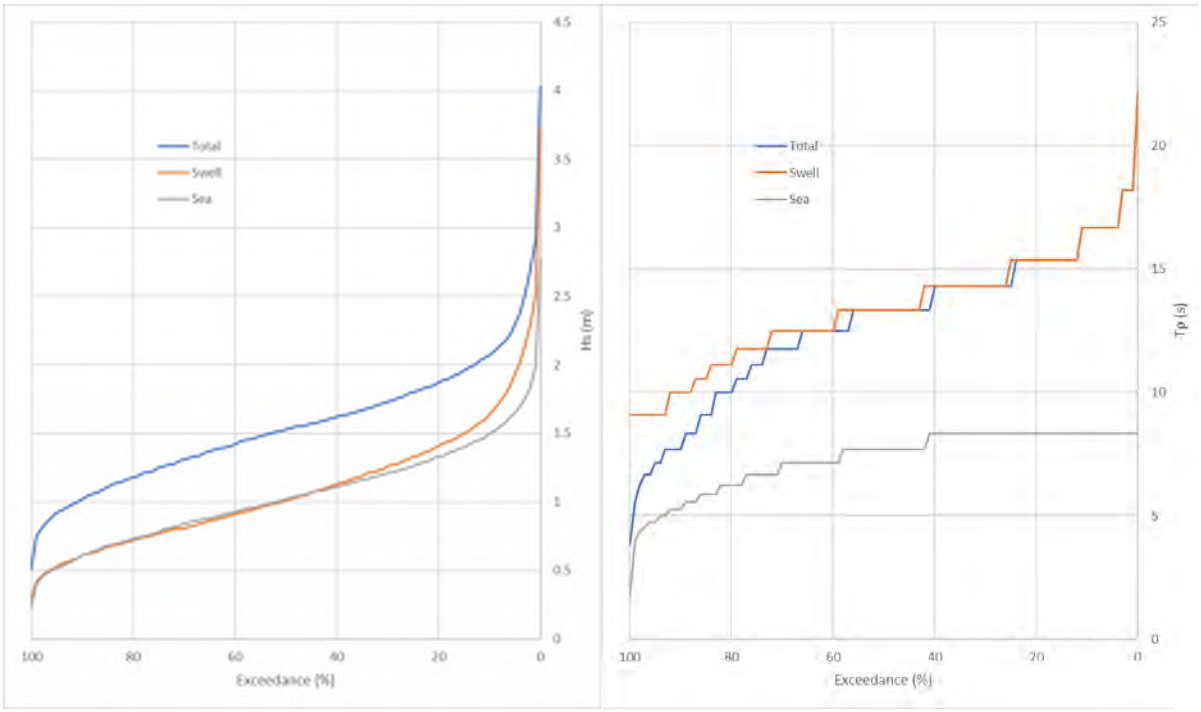

Figure E.7 2020 Tantabiddi Wave Buoy Hs and Tp Exceedance Curves

Appendix F Calibrated WWIII Hindcast Wave Exceedance Curves

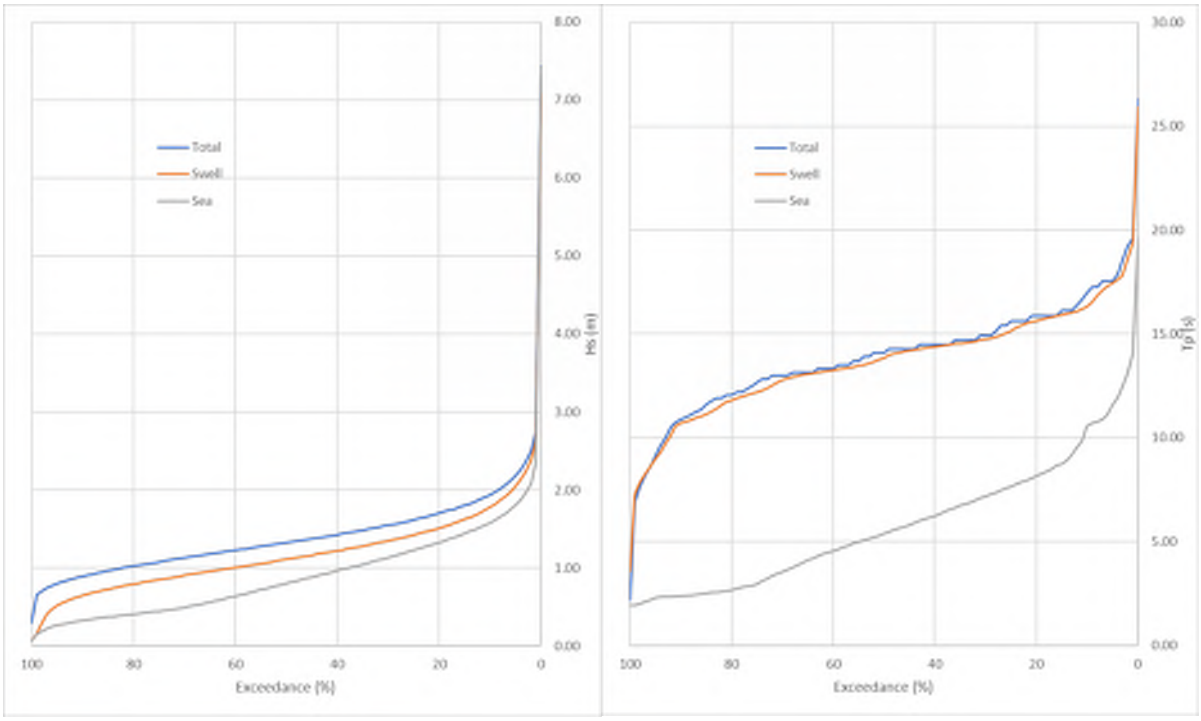

Figure F.1 Overall Calibrated WWIII Hindcast Hs and Tp Exceedance Curves

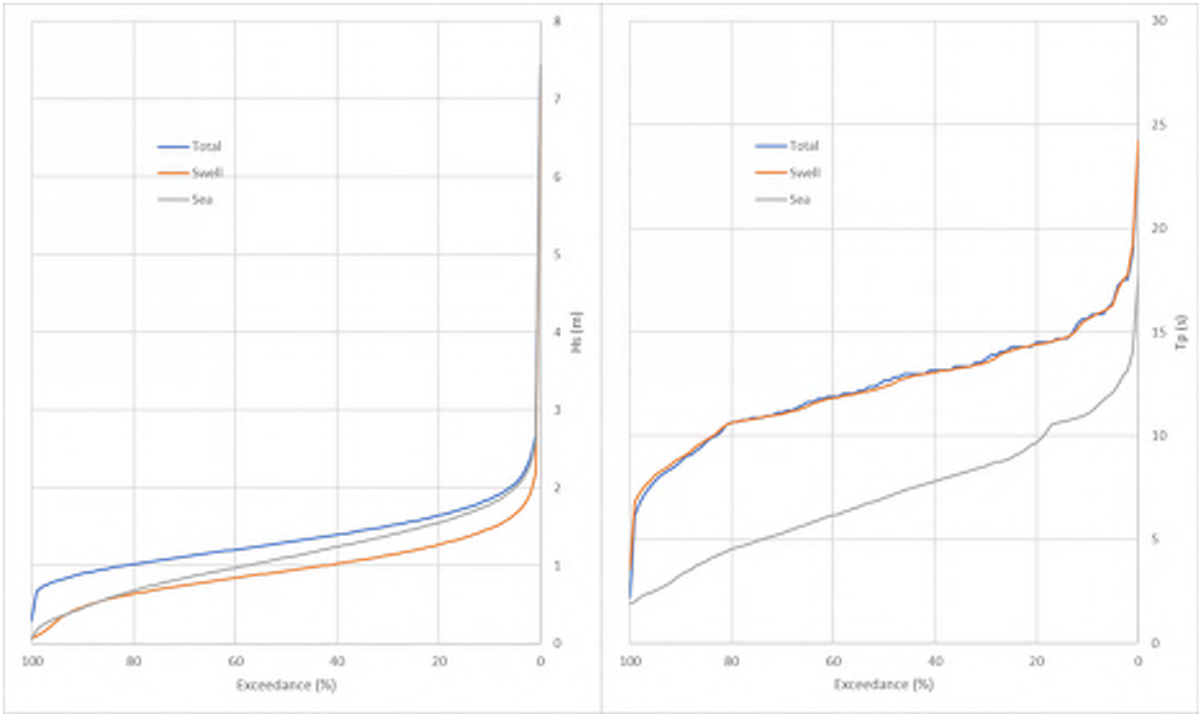

Figure F.2 Summer Calibrated WWIII Hindcast Hs and Tp Exceedance Curves

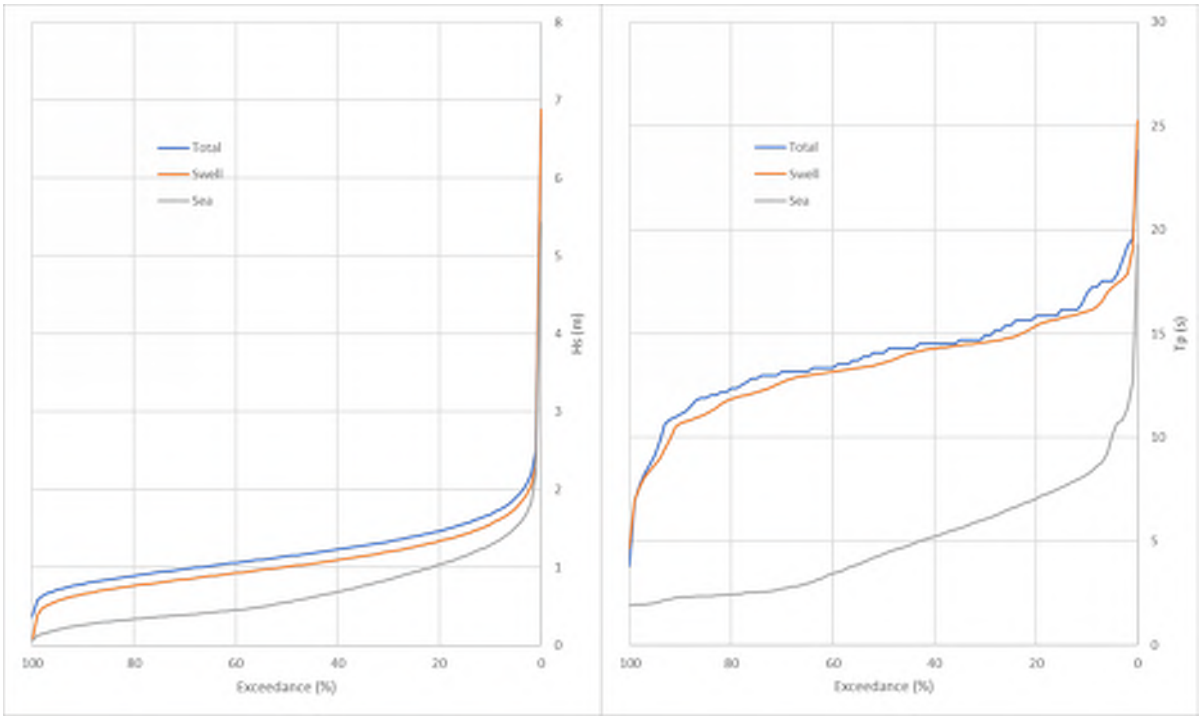

Figure F.3 Autumn Calibrated WWIII Hindcast Hs and Tp Exceedance Curves

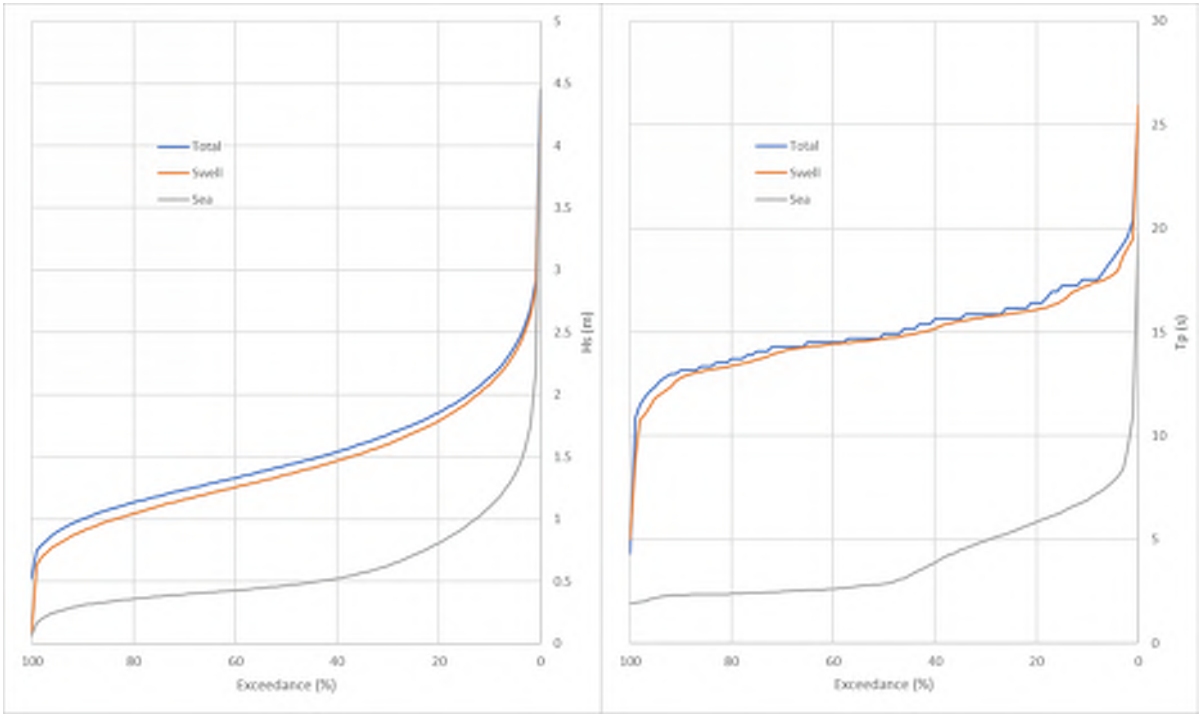

Figure F.4 Winter Calibrated WWIII Hindcast Hs and Tp Exceedance Curves

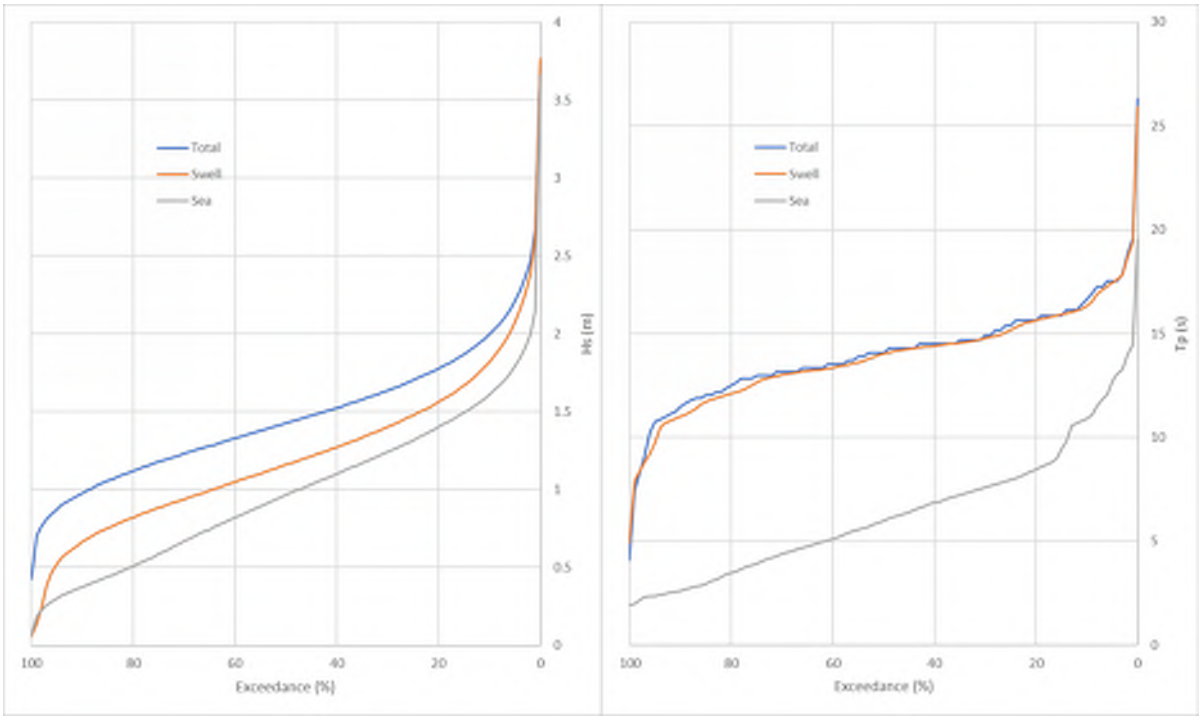

Figure F.5 Spring Calibrated WWIII Hindcast Hs and Tp Exceedance Curves

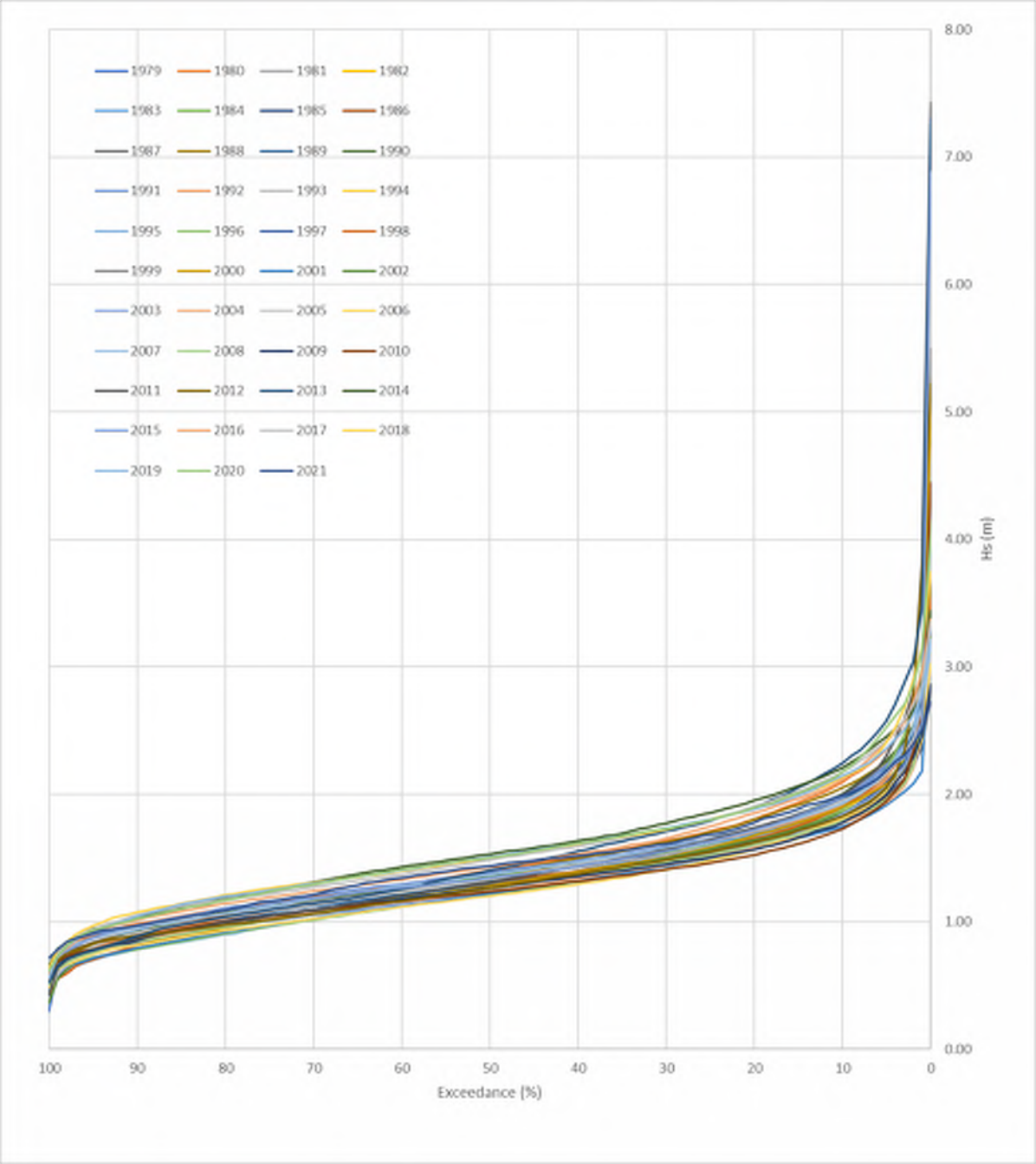

Figure F.6 Annual Calibrated WWIII Hindcast Total Hs Exceedance Curves

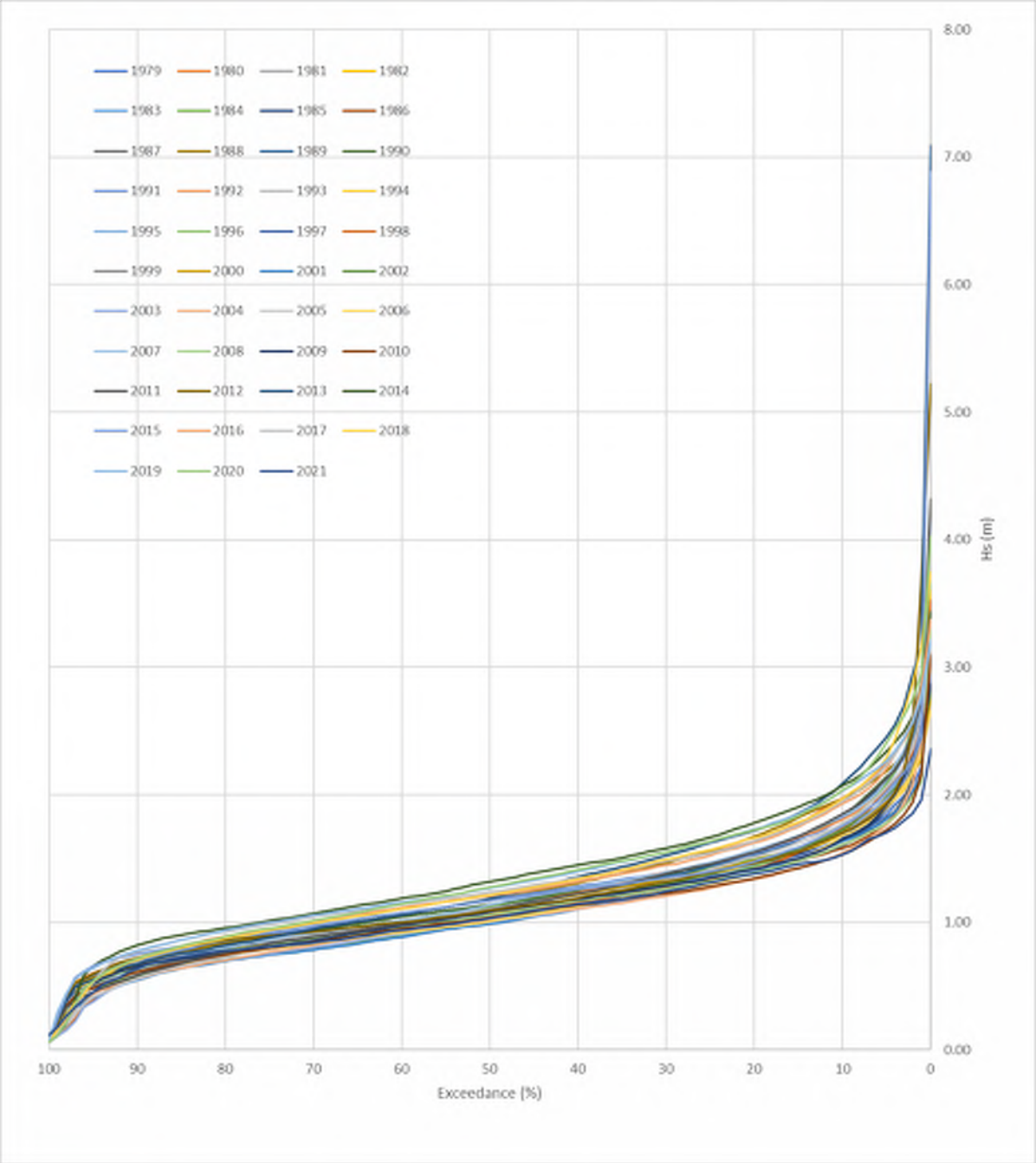

Figure F.7 Annual Calibrated WWIII Hindcast Swell Hs Exceedance Curves

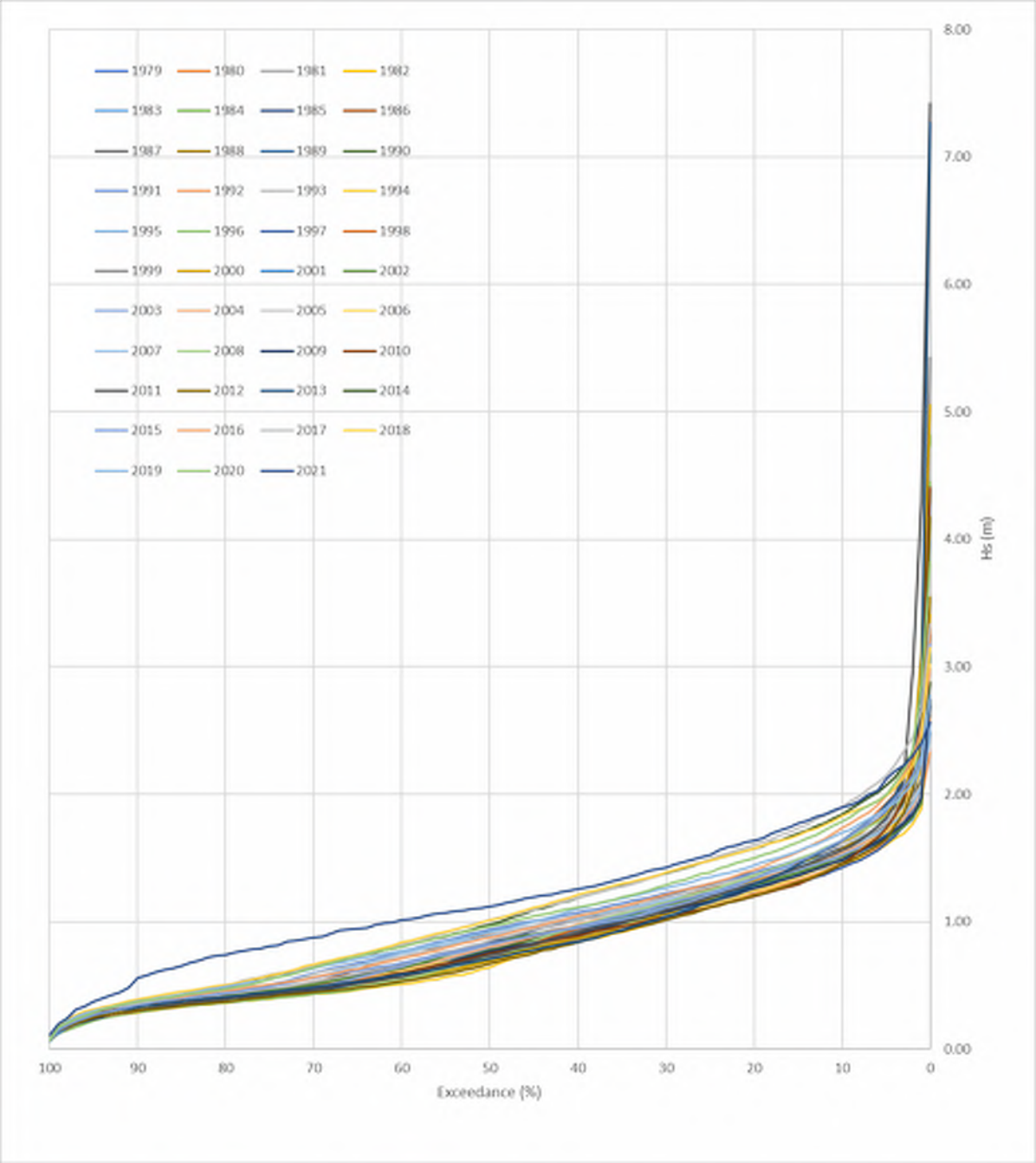

Figure F.8 Annual Calibrated WWIII Hindcast Sea Hs Exceedance Curves

Appendix G Tantabiddi Wave Buoy Key Event Plots

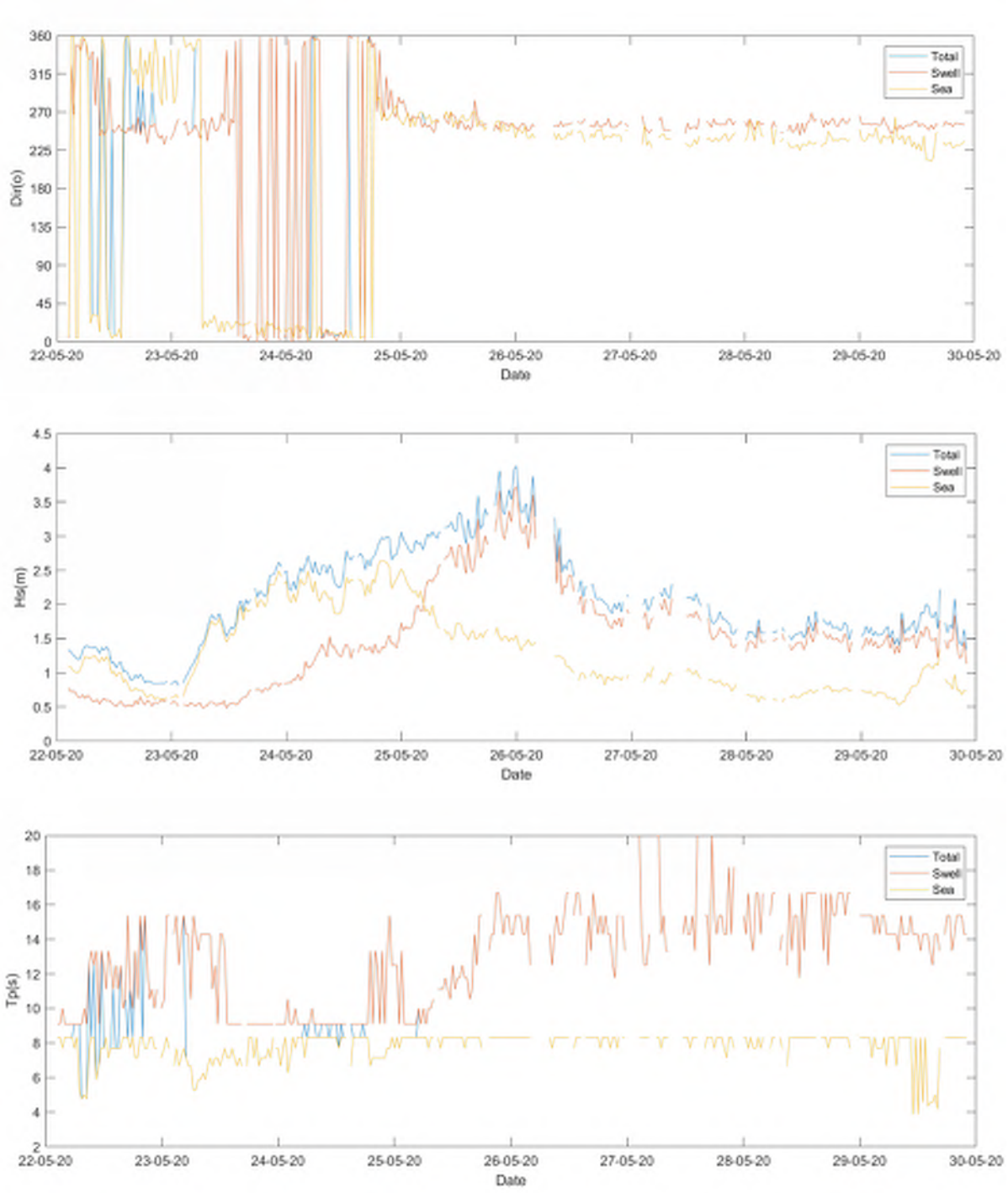

Figure G.1 Event 1 – Tantabiddi Wave Buoy Wave Direction, Hs & Tp

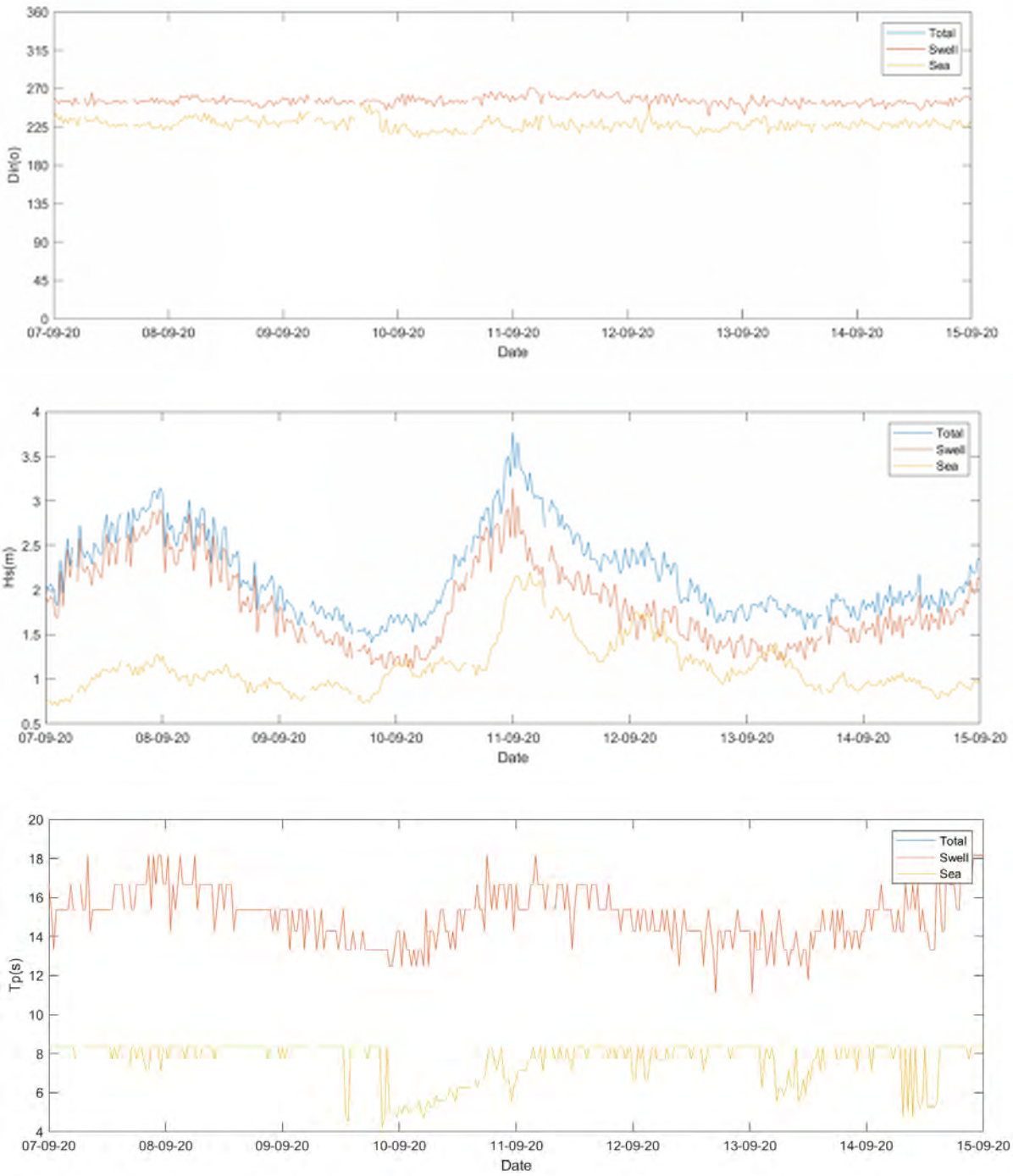

Figure G.2 Event 2 – Tantabiddi Wave Buoy Wave Direction, Hs & Tp

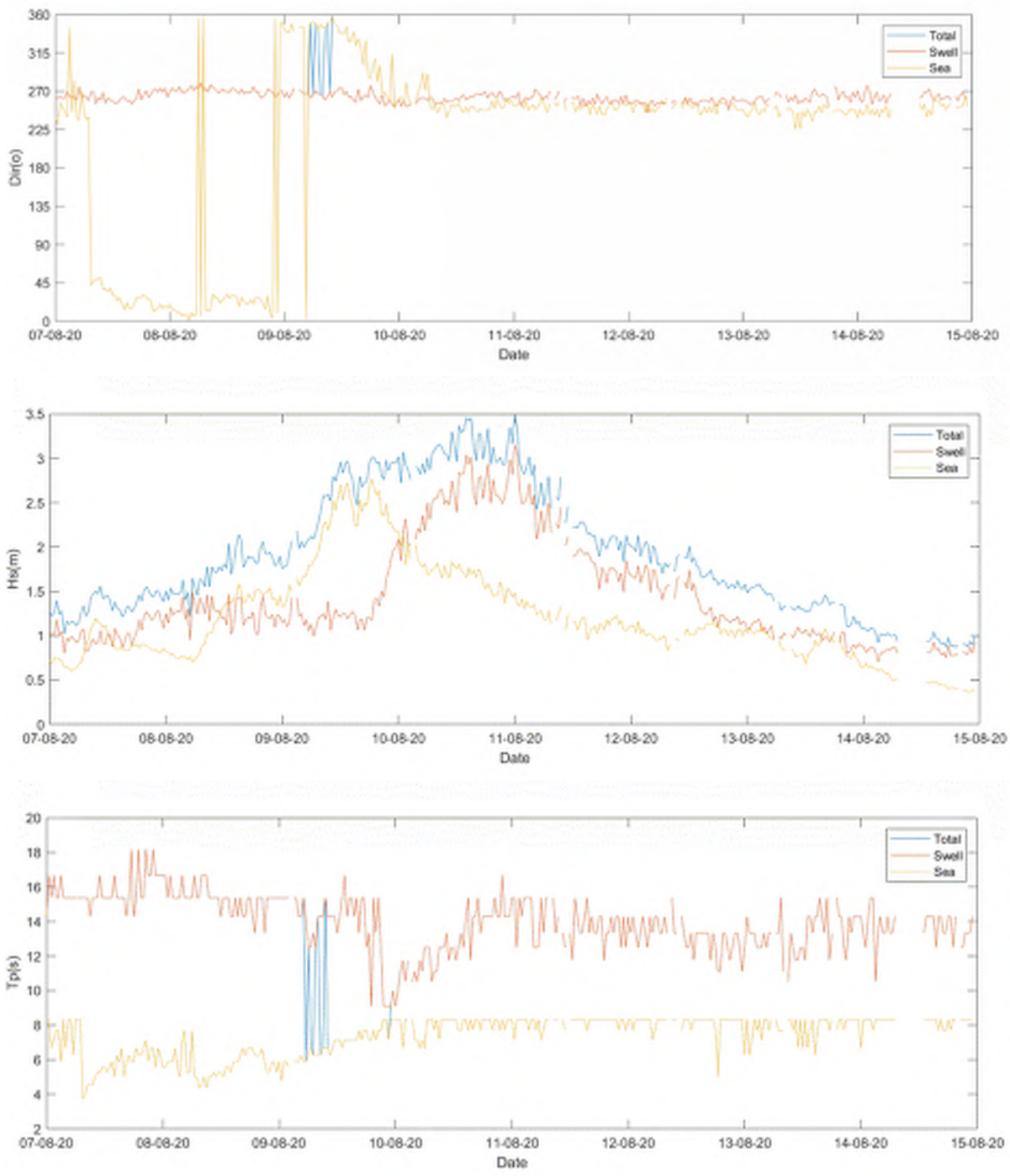

Figure G.3 Event 3 – Tantabiddi Wave Buoy Wave Direction, Hs & Tp

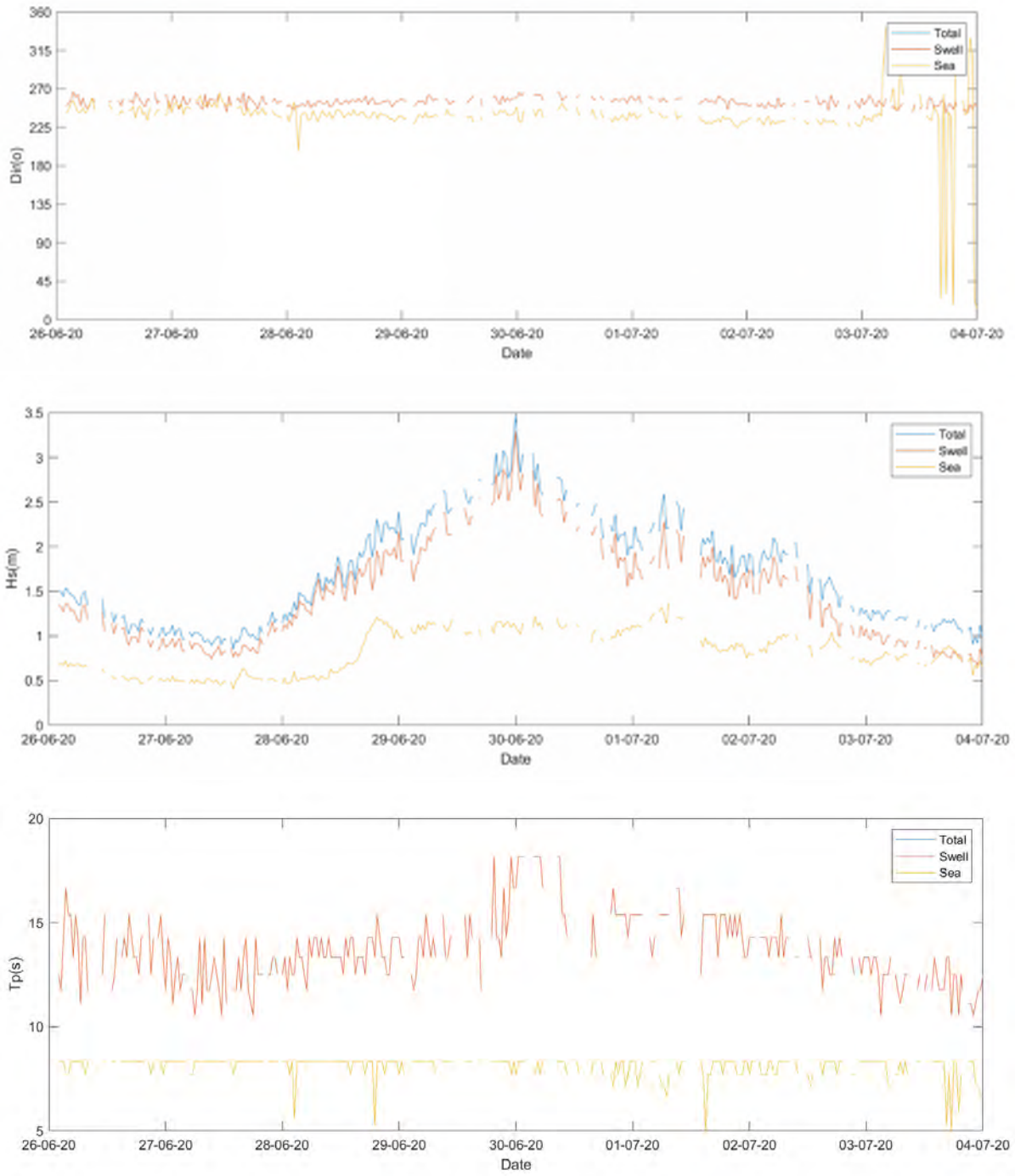

Figure G.4 Event 4 – Tantabiddi Wave Buoy Wave Direction, Hs & Tp

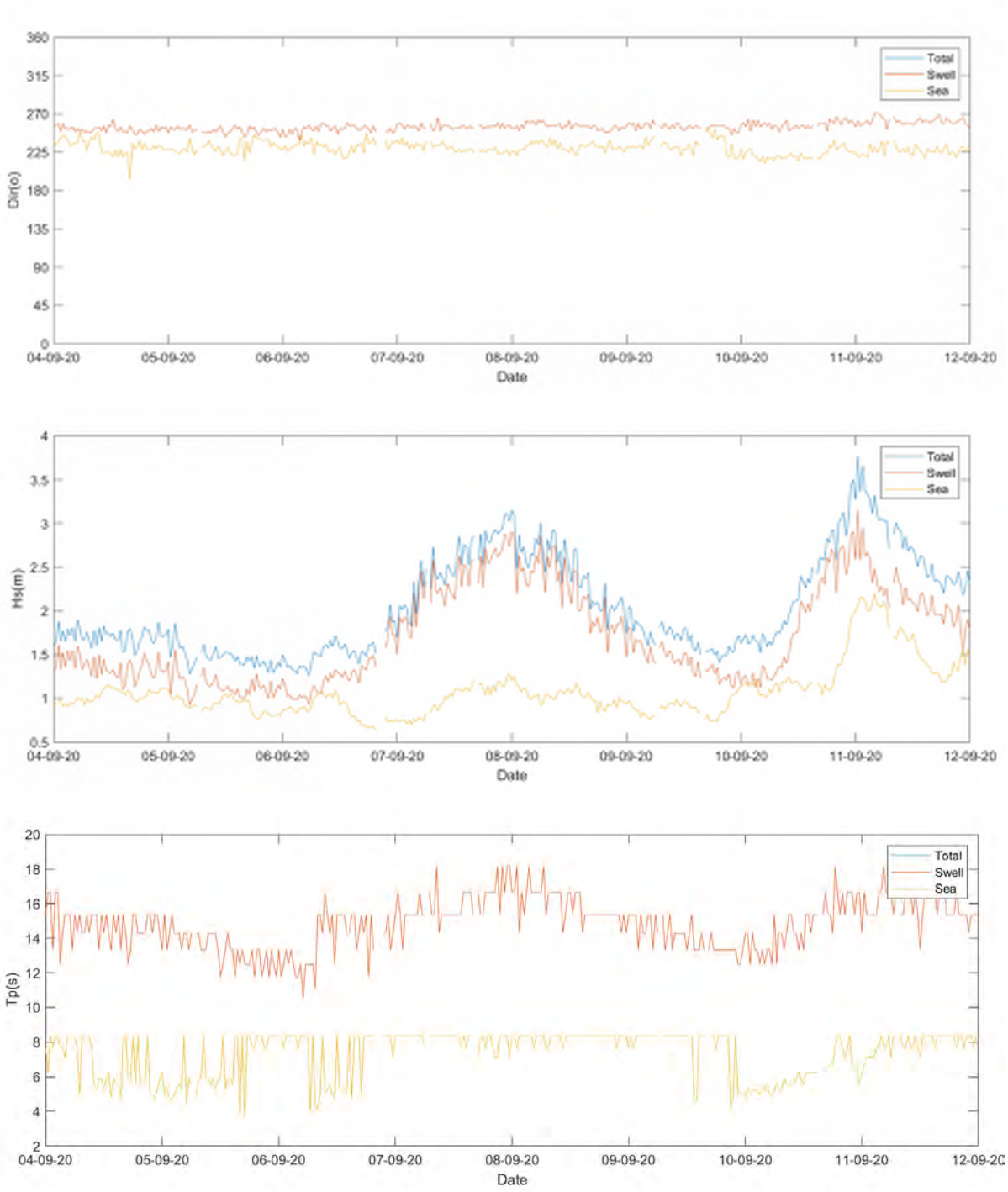

Figure G.5 Event 5 – Tantabiddi Wave Buoy Wave Direction, Hs & Tp

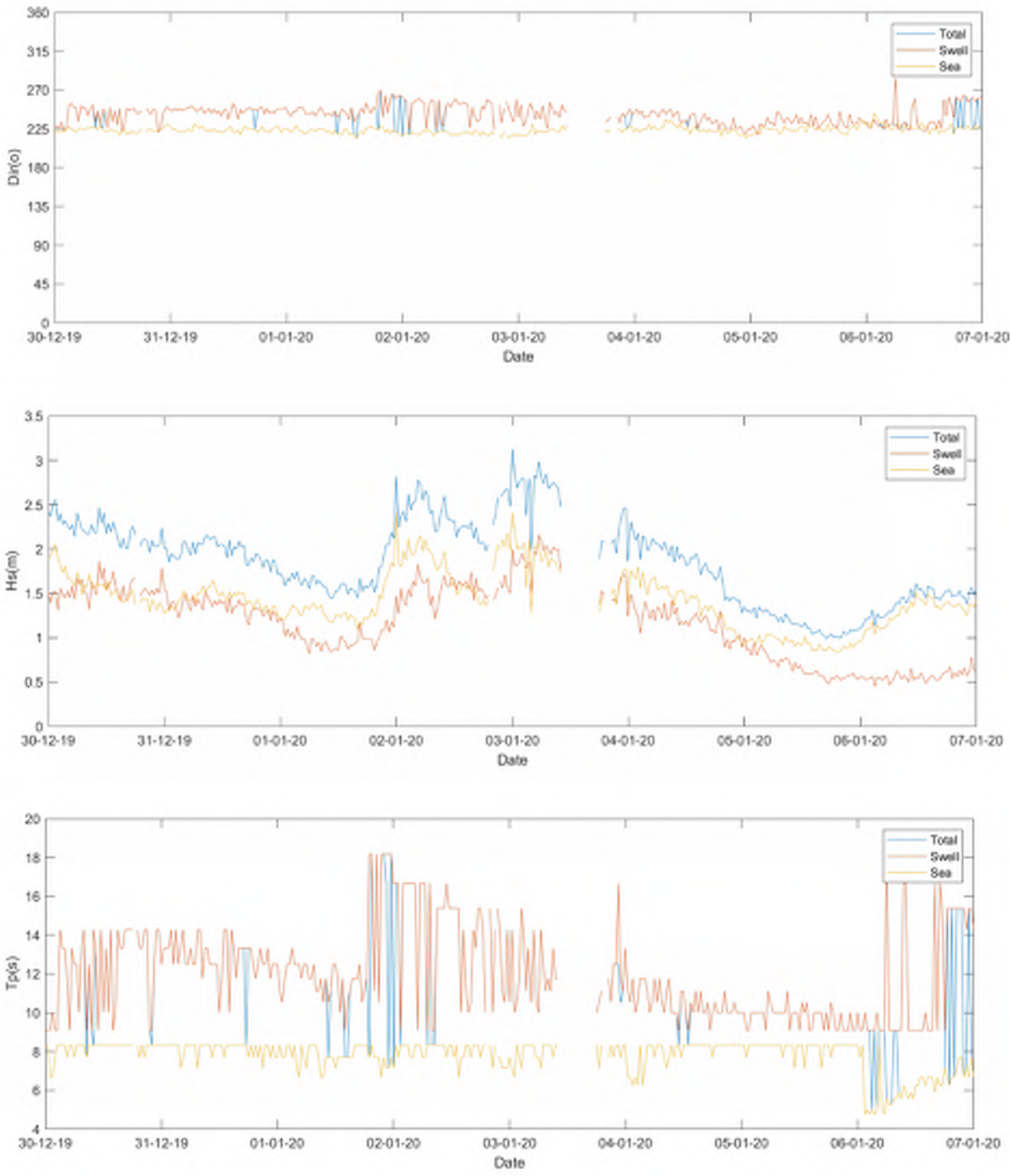

Figure G.6 Event 6 – Tantabiddi Wave Buoy Wave Direction, Hs & Tp

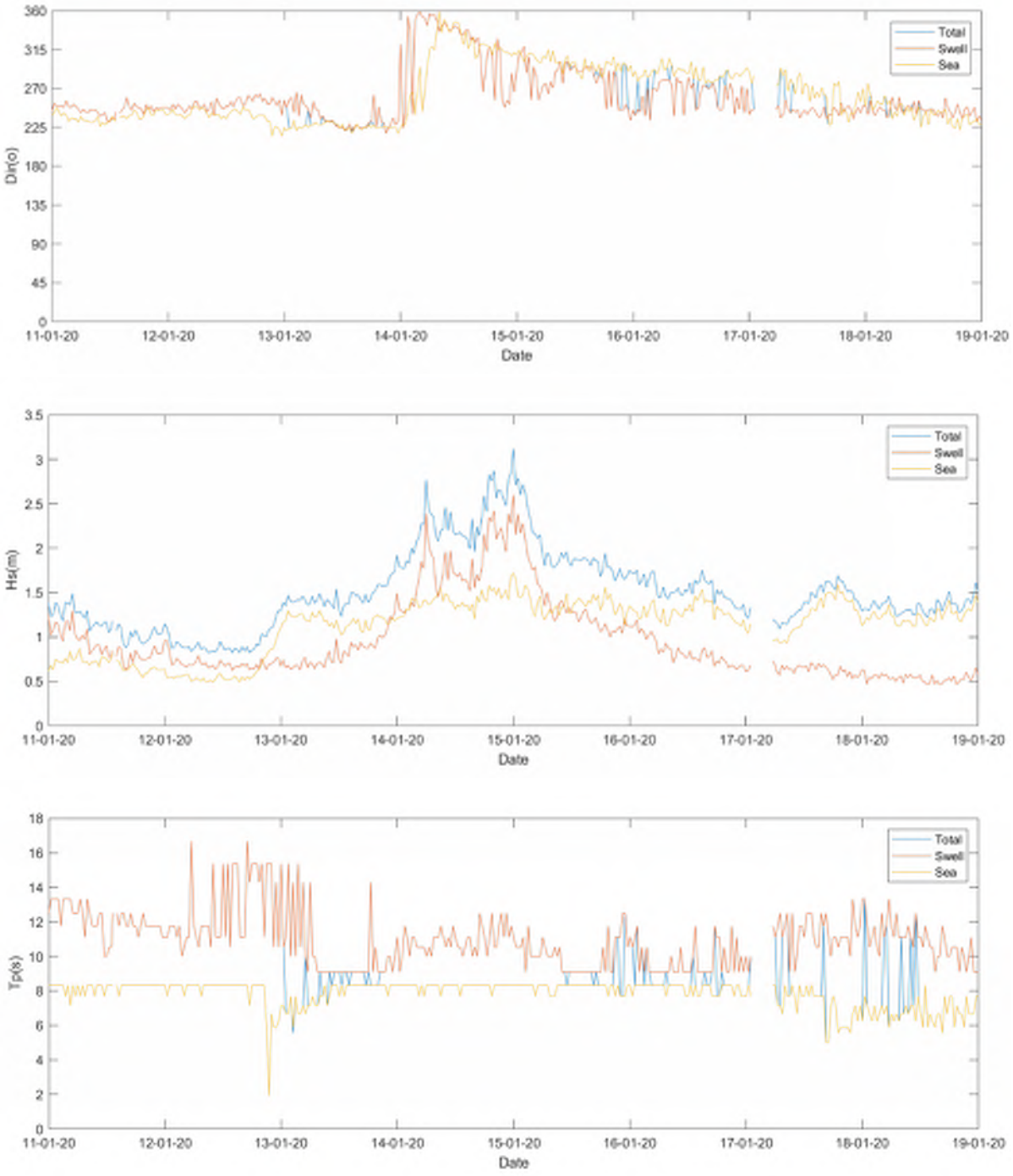

Figure G.7 Event 7 – Tantabiddi Wave Buoy Wave Direction, Hs & Tp

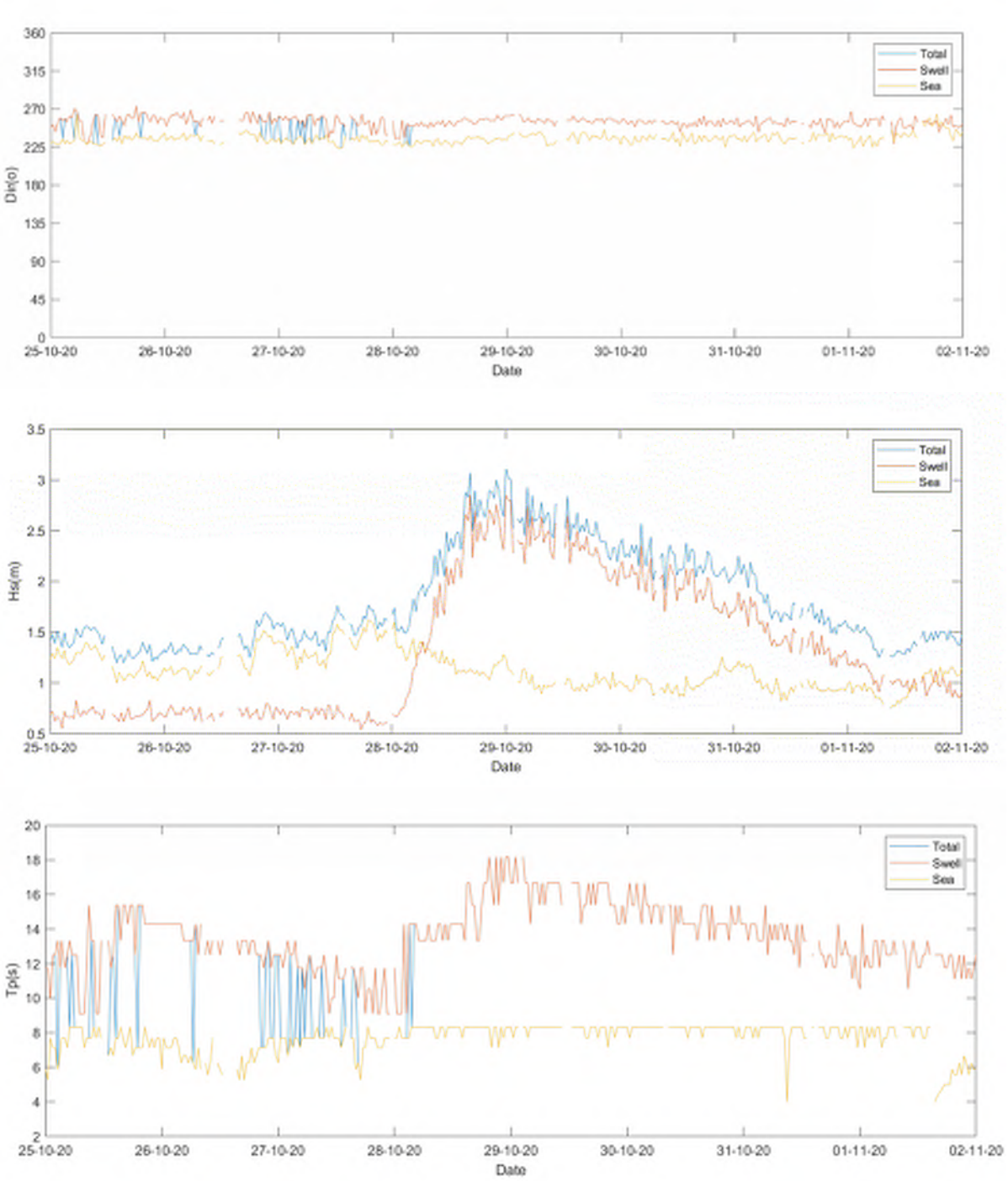

Figure G.8 Event 8 – Tantabiddi Wave Buoy Wave Direction, Hs & Tp

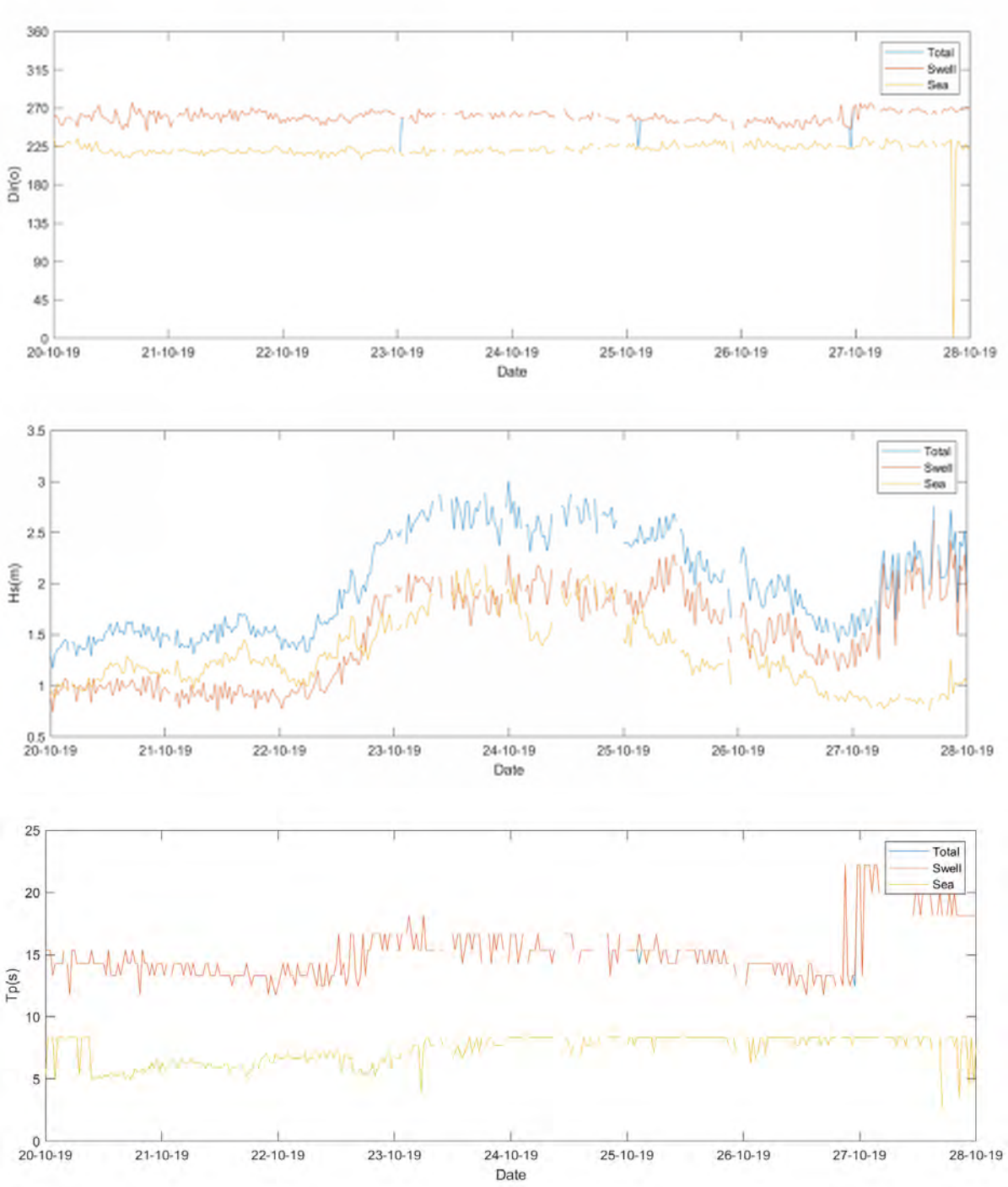

Figure G.9 Event 9 – Tantabiddi Wave Buoy Wave Direction, Hs & Tp

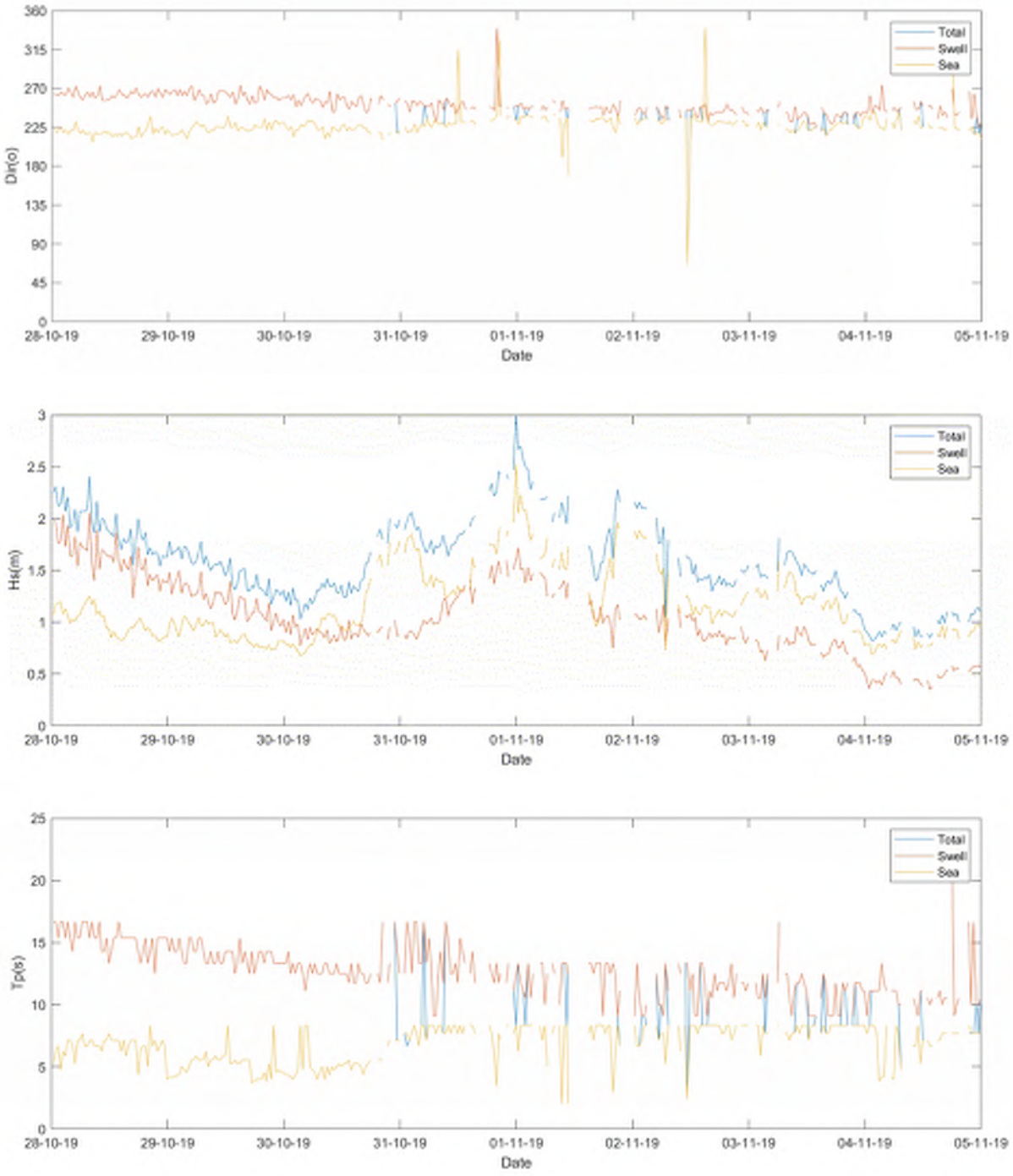

Figure G.10 Event 10 – Tantabiddi Wave Buoy Wave Direction, Hs & Tp

Appendix H Calibrated WWIII Hindcast Wave Key Event Plots

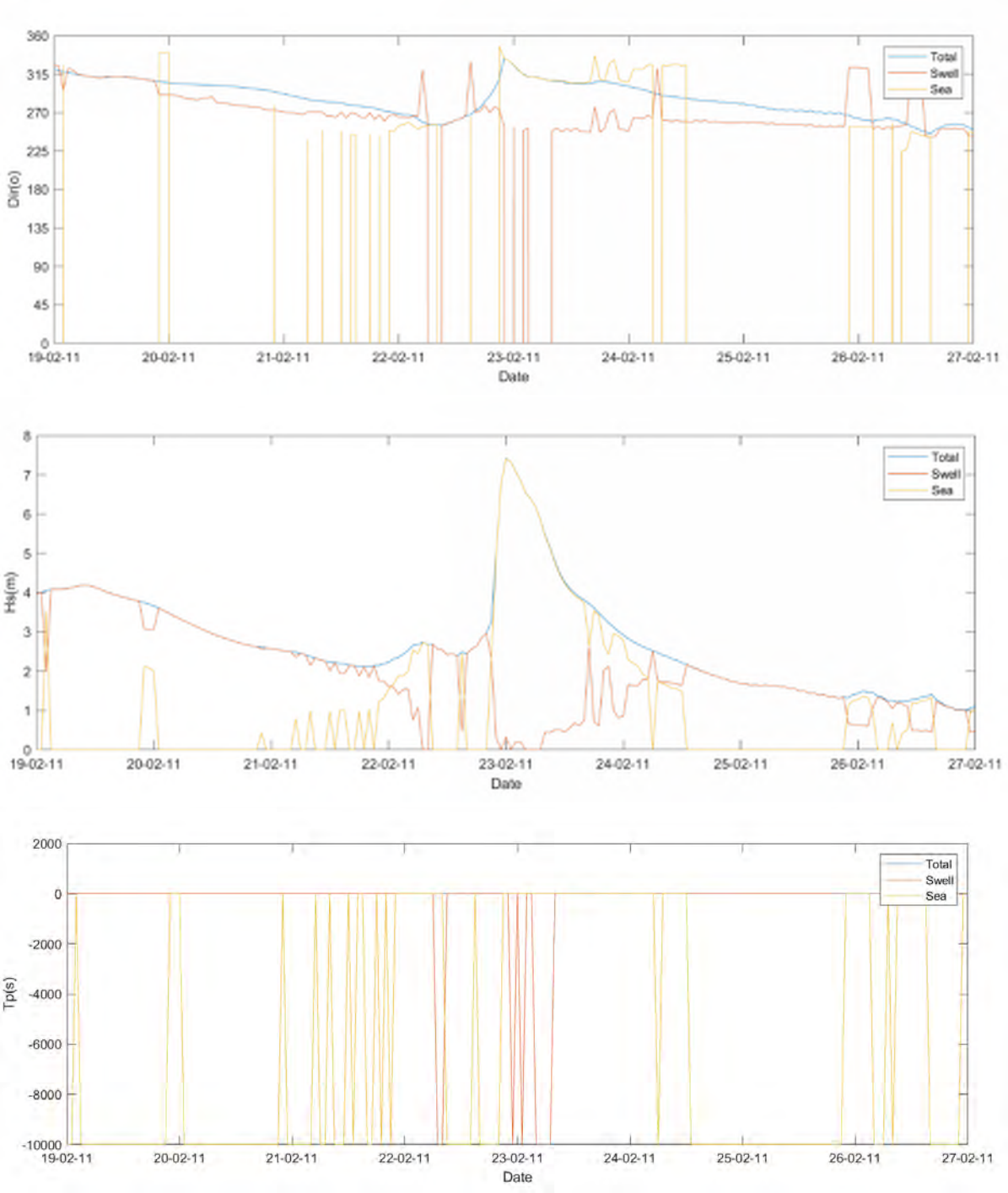

Figure H.1 Event 1 – Calibrated WW3 Hindcast Wave Direction, Hs & Tp

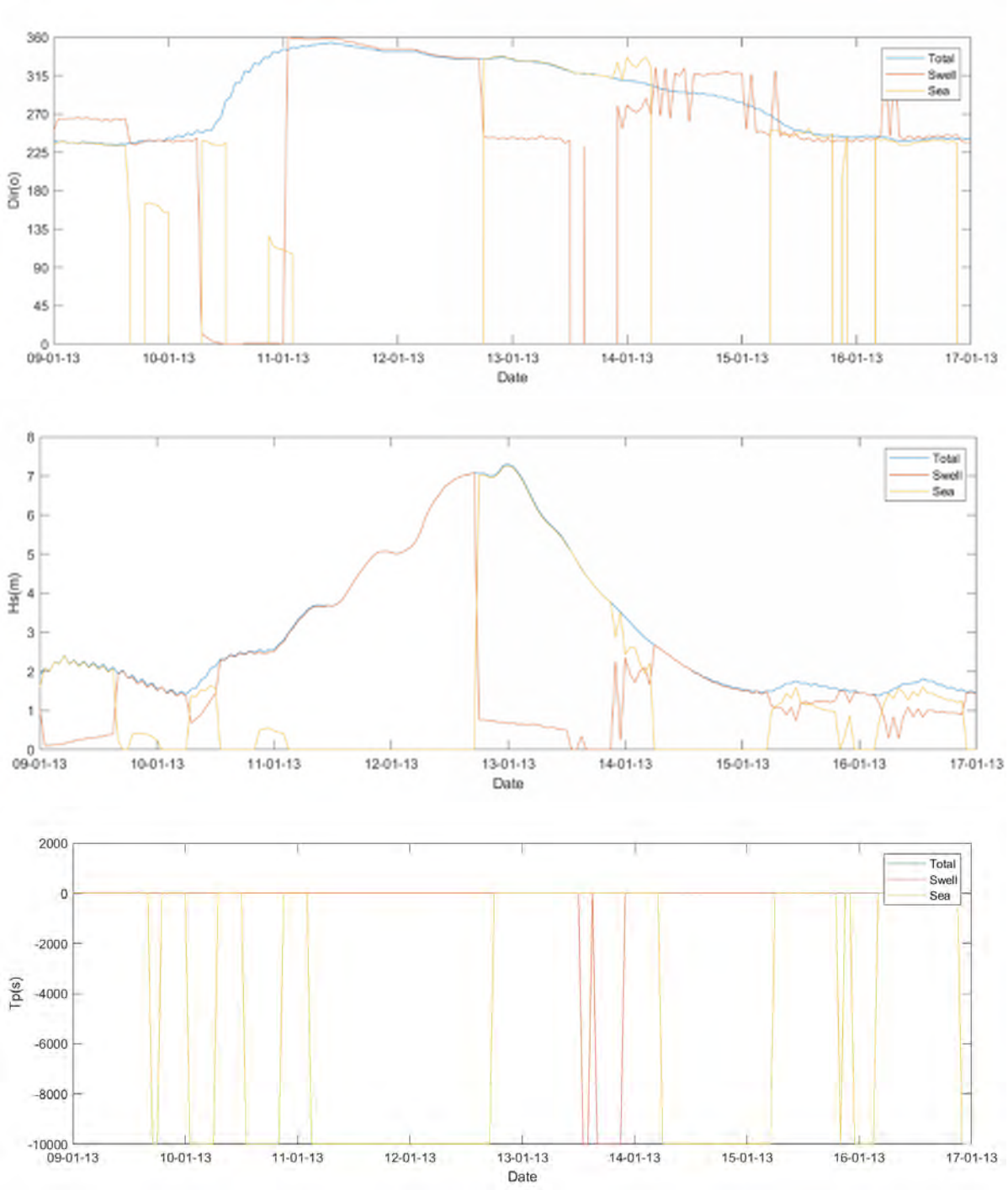

Figure H.2 Event 2 – Calibrated WW3 Hindcast Wave Direction, Hs & Tp

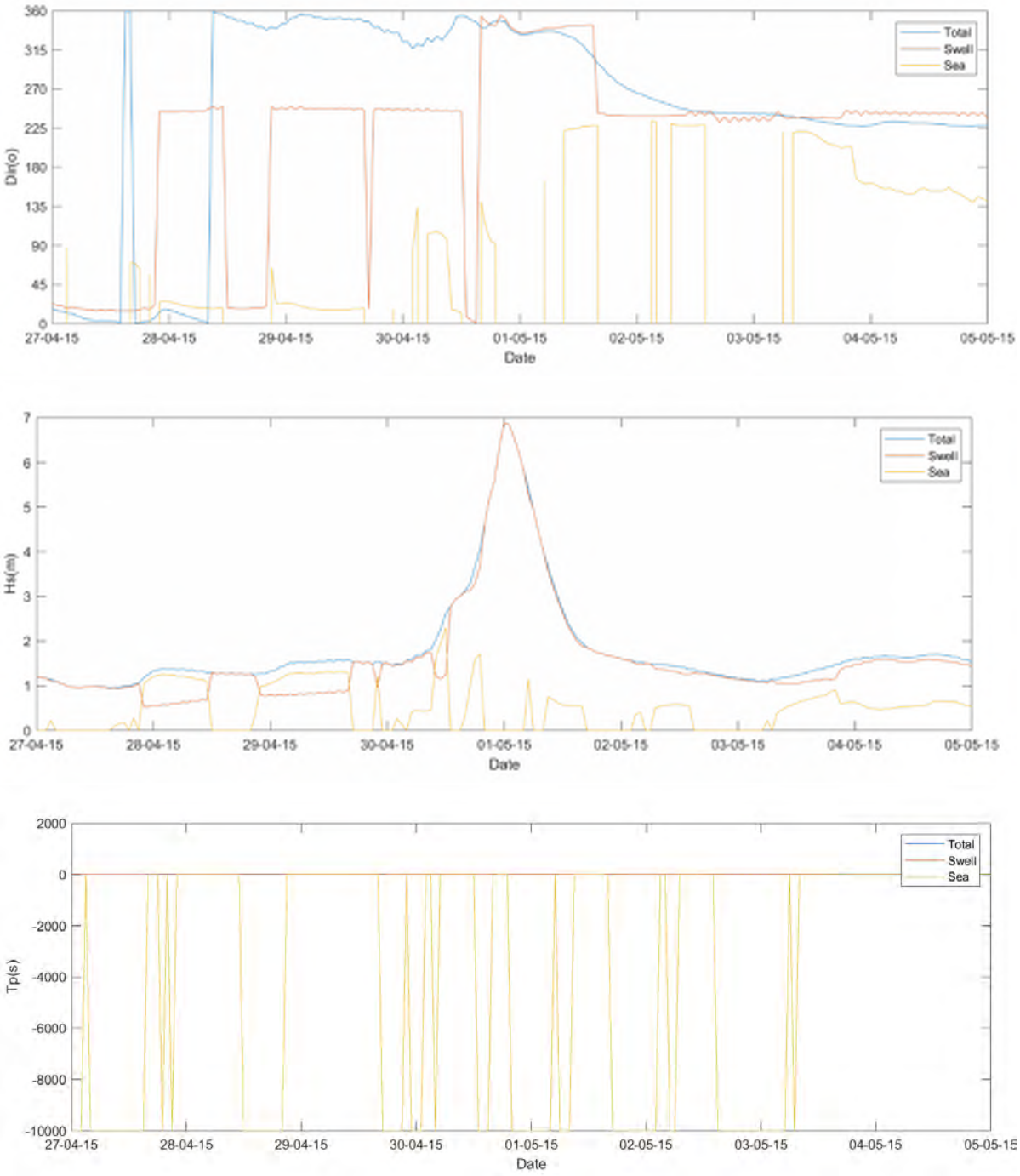

Figure H.3 Event 3 – Calibrated WW3 Hindcast Wave Direction, Hs & Tp

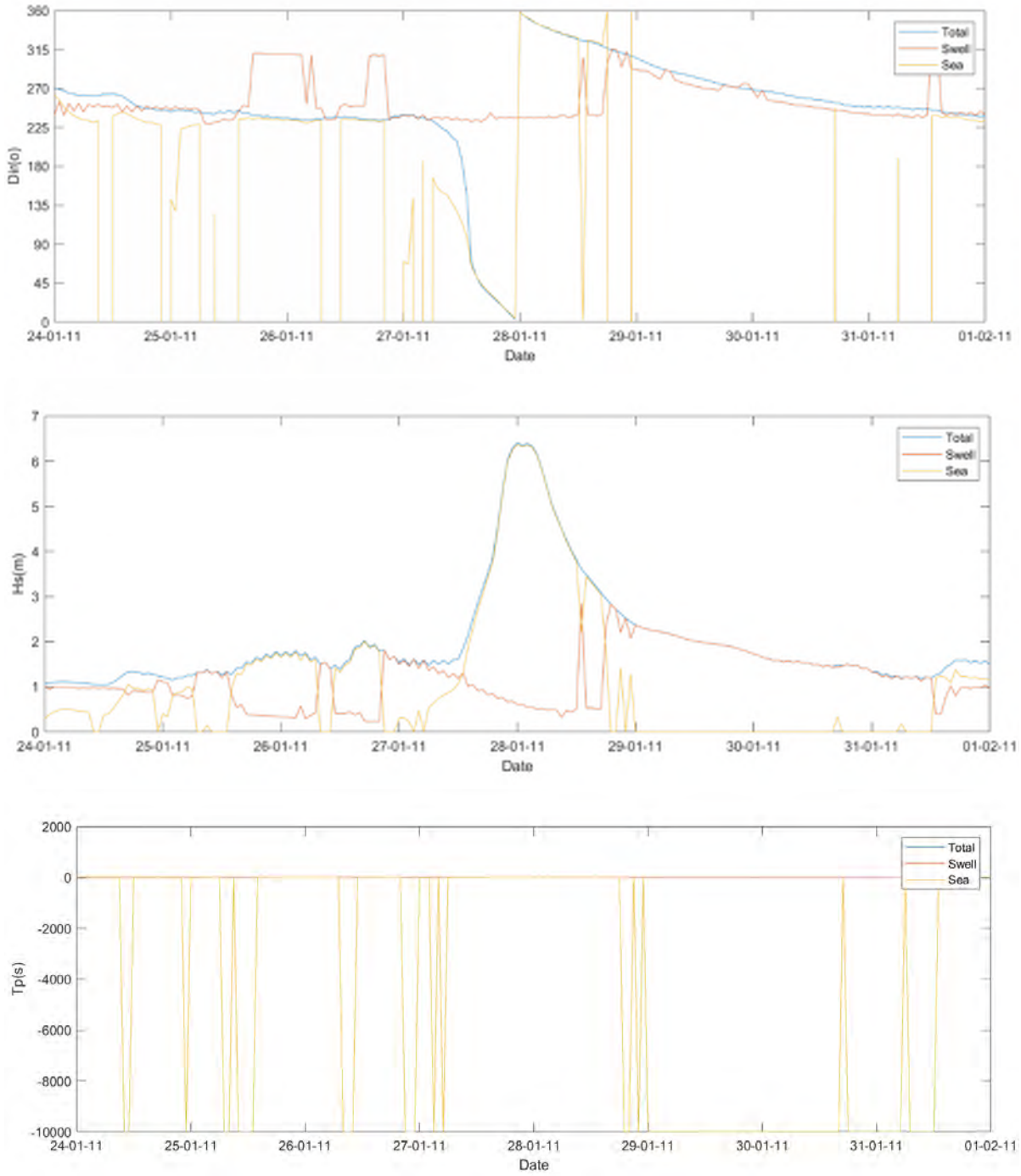

Figure H.4 Event 4 – Calibrated WW3 Hindcast Wave Direction, Hs & Tp

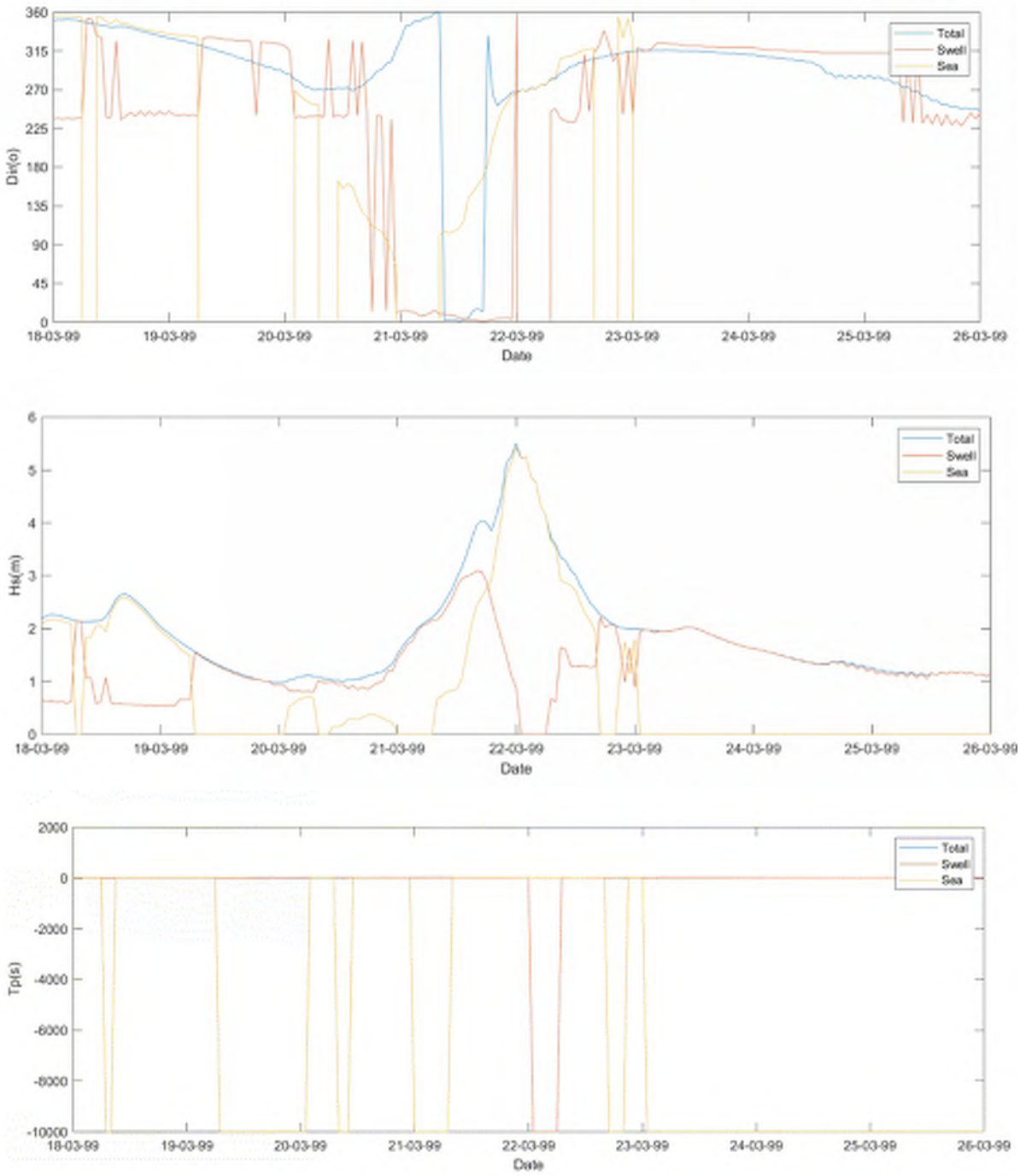

Figure H.5 Event 5 – Calibrated WW3 Hindcast Wave Direction, Hs & Tp

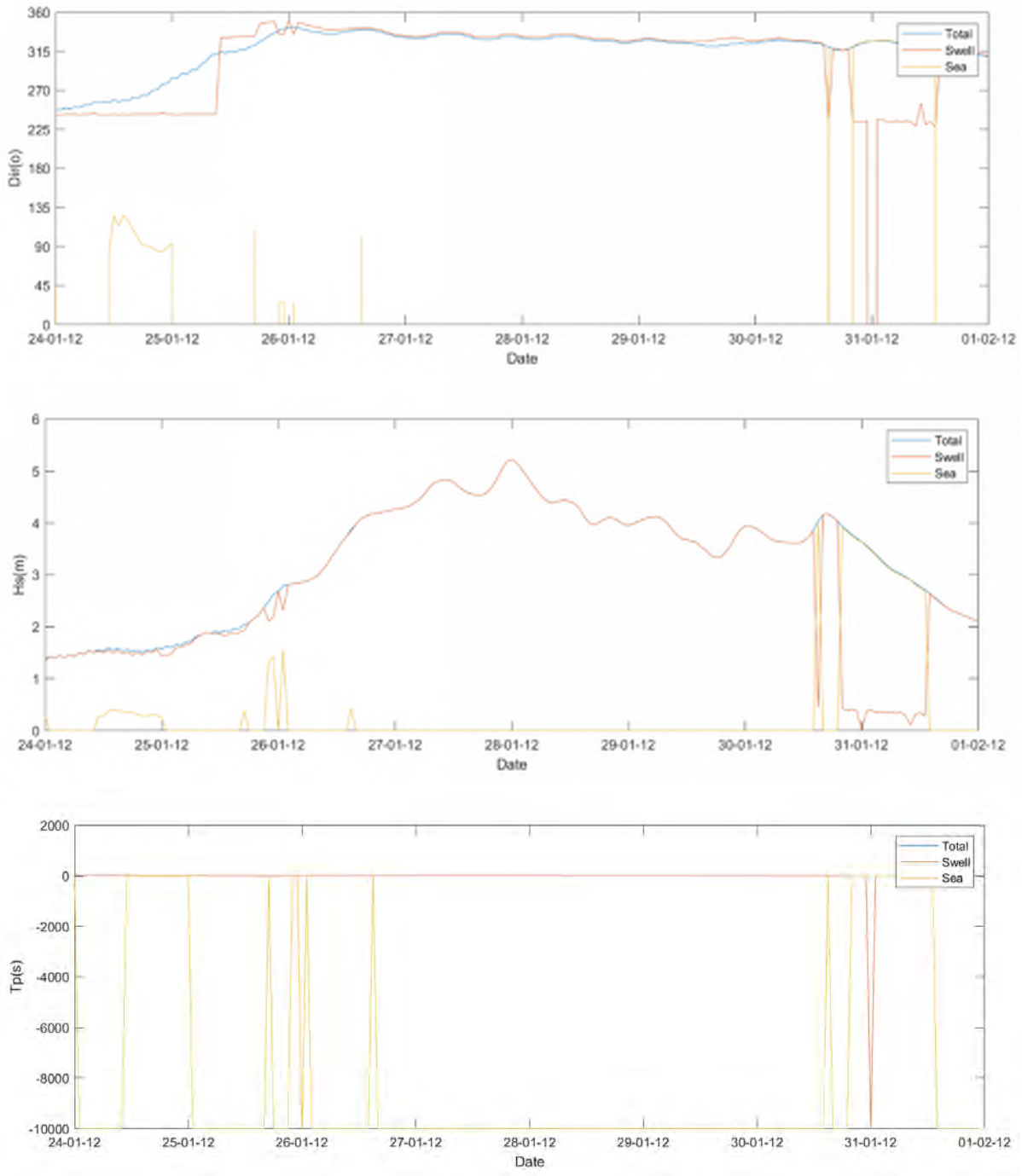

Figure H.6 Event 6 – Calibrated WW3 Hindcast Wave Direction, Hs & Tp

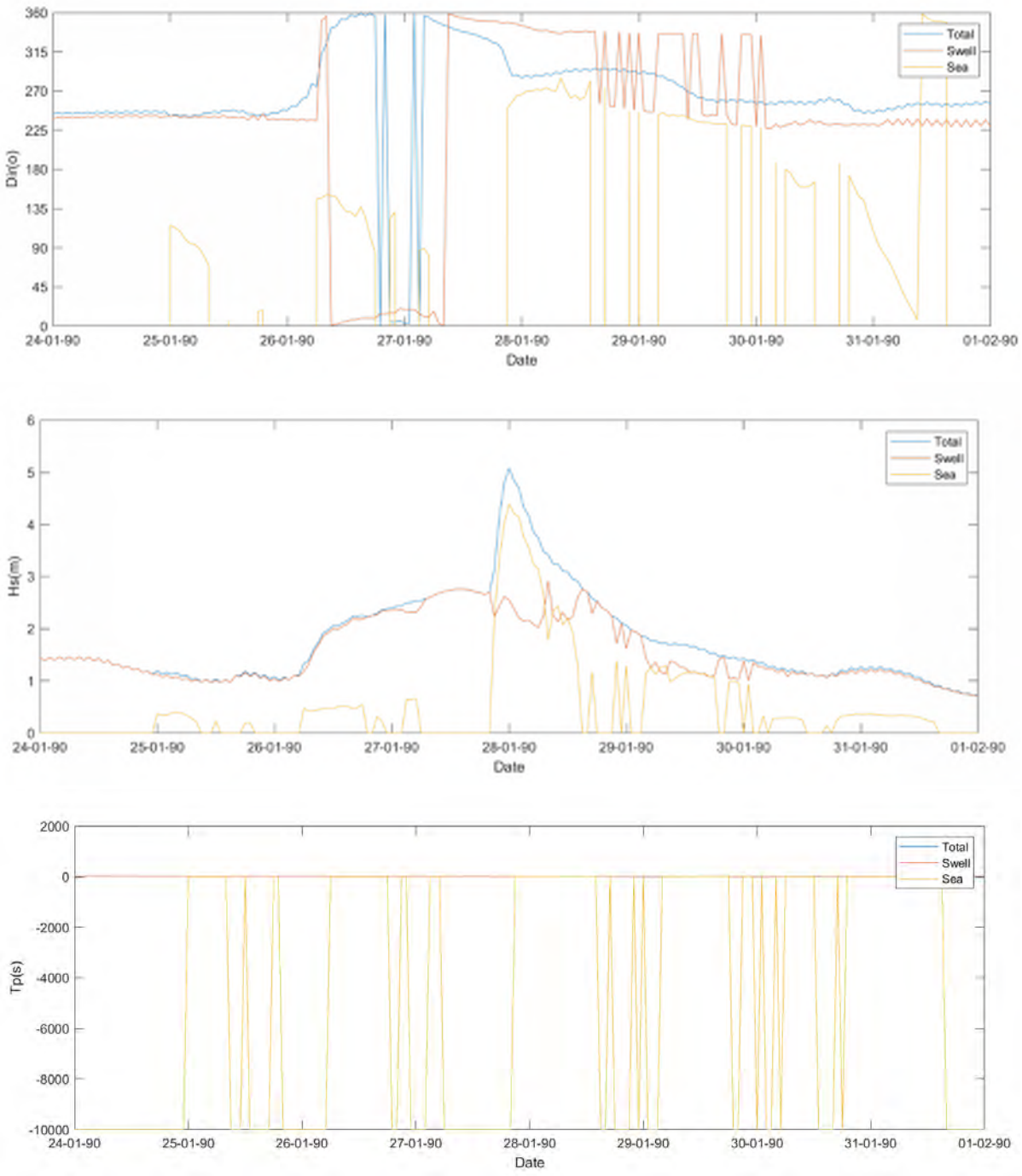

Figure H.7 Event 7 – Calibrated WW3 Hindcast Wave Direction, Hs & Tp

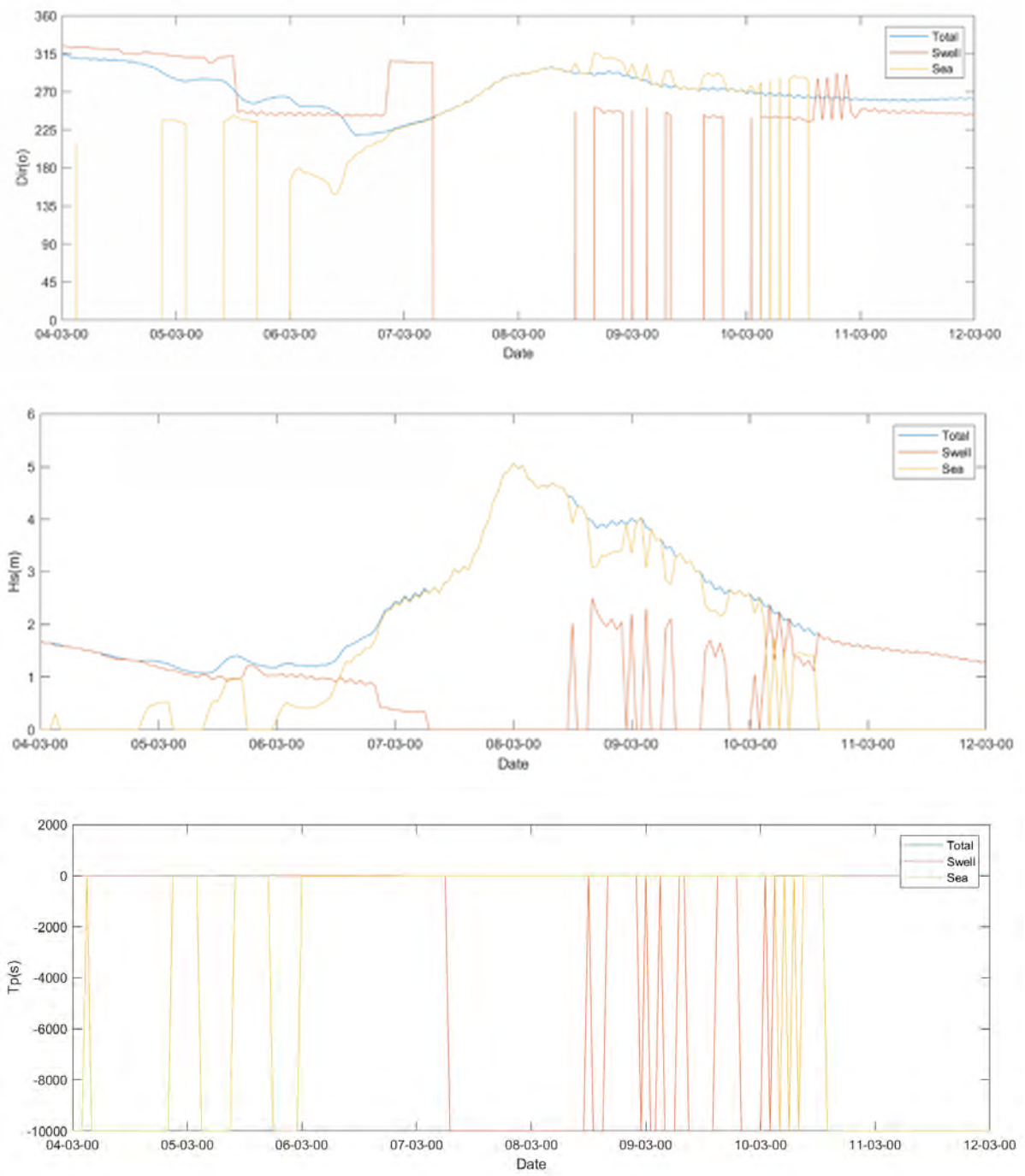

Figure H.8 Event 8 – Calibrated WW3 Hindcast Wave Direction, Hs & Tp

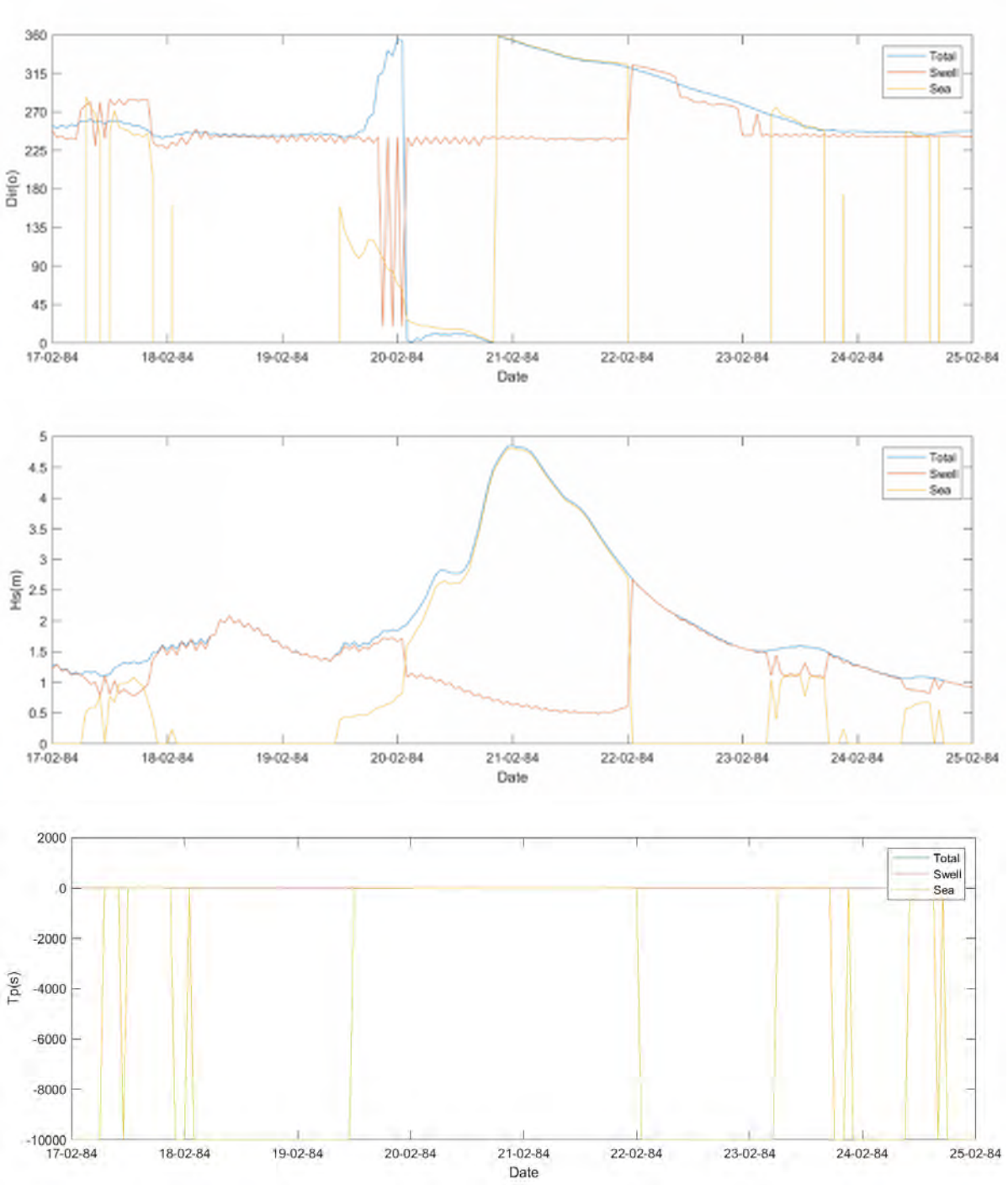

Figure H.9 Event 9 – Calibrated WW3 Hindcast Wave Direction, Hs & Tp

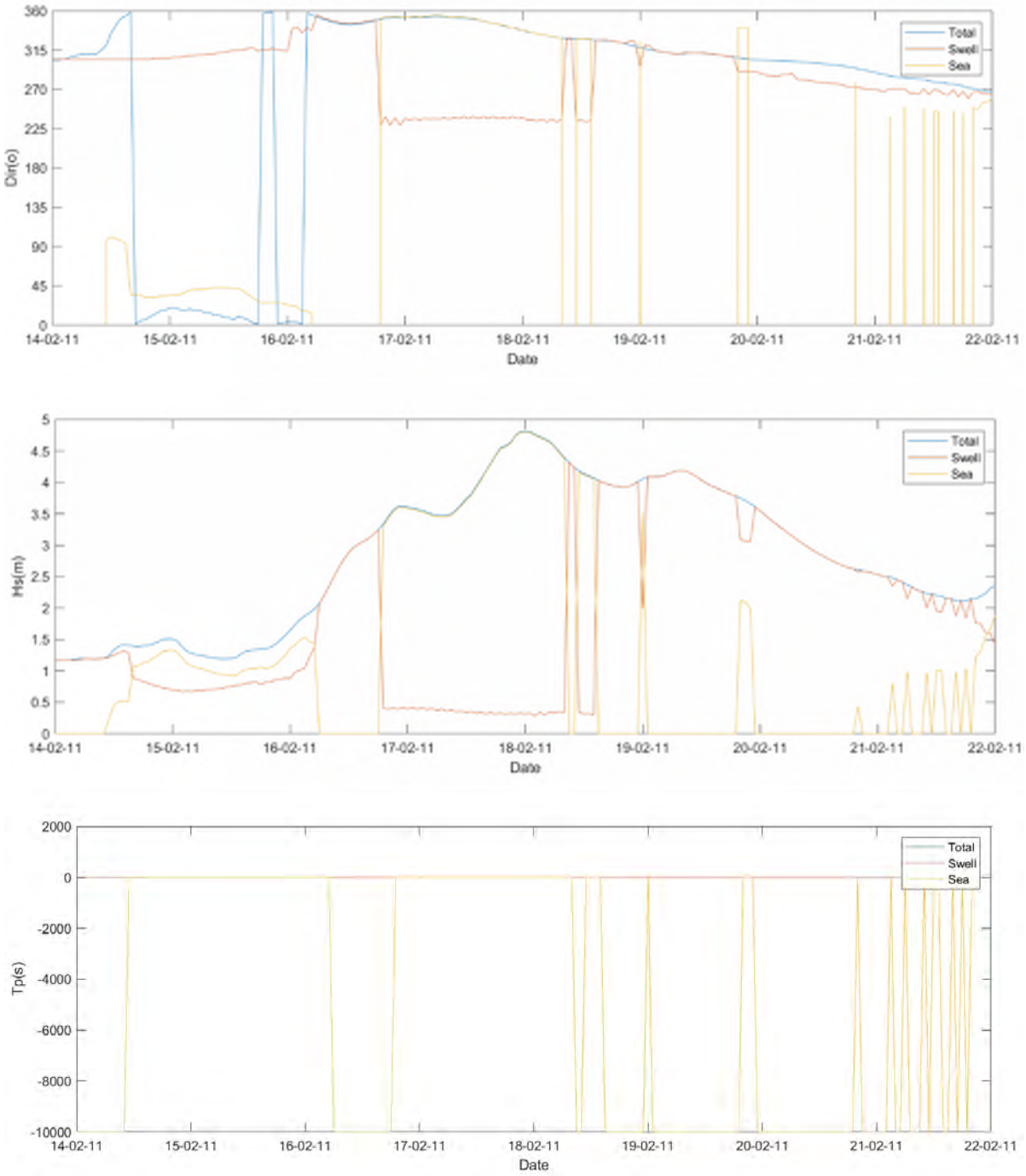

Figure H.10 Event 10 – Calibrated WW3 Hindcast Wave Direction, Hs & Tp

Appendix I Calibrated WWIII Hindcast Wave Top Events

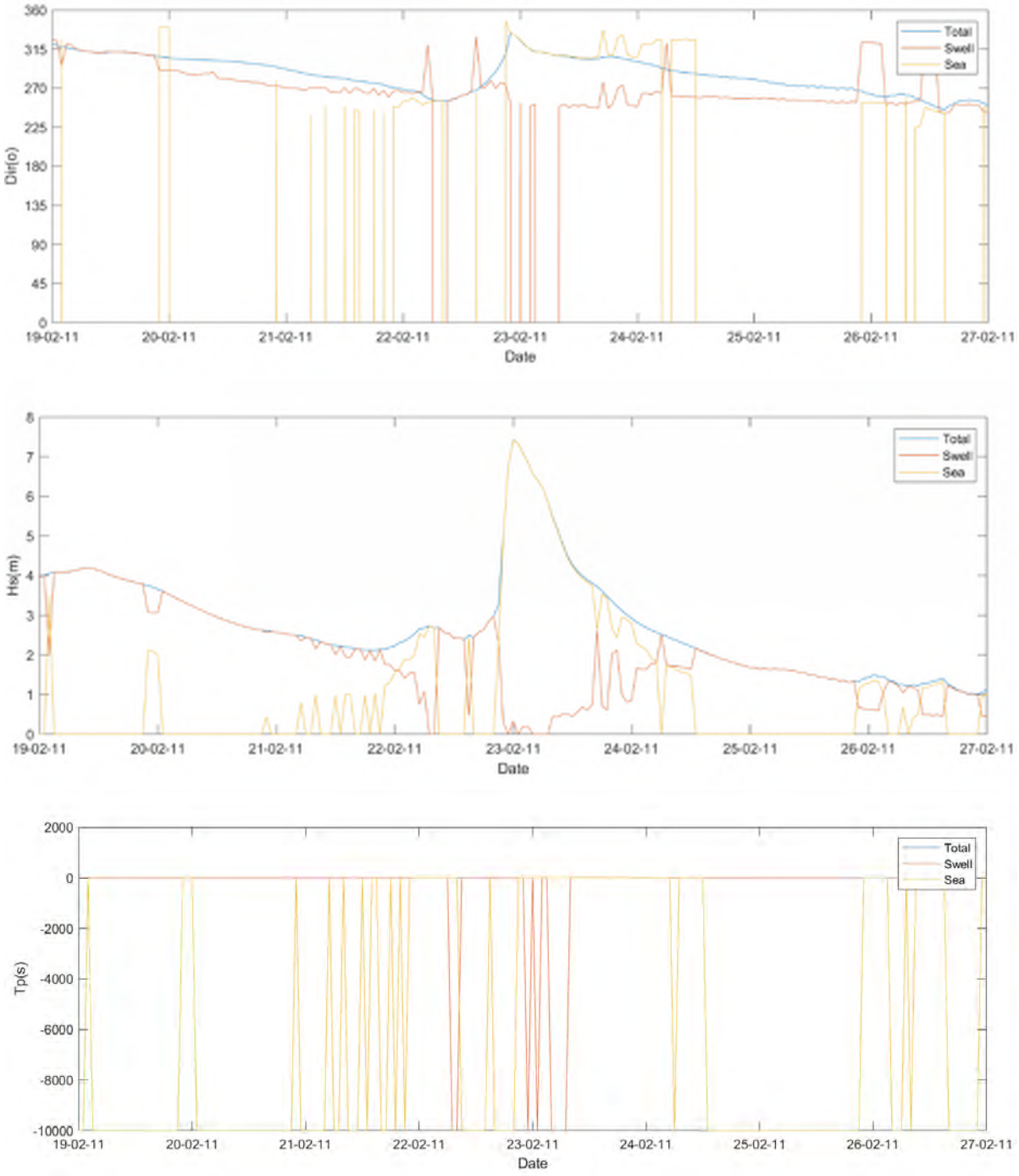

Figure I.1 Event 1 – Offshore Calibrated WW3 Direction, Hs & Tp

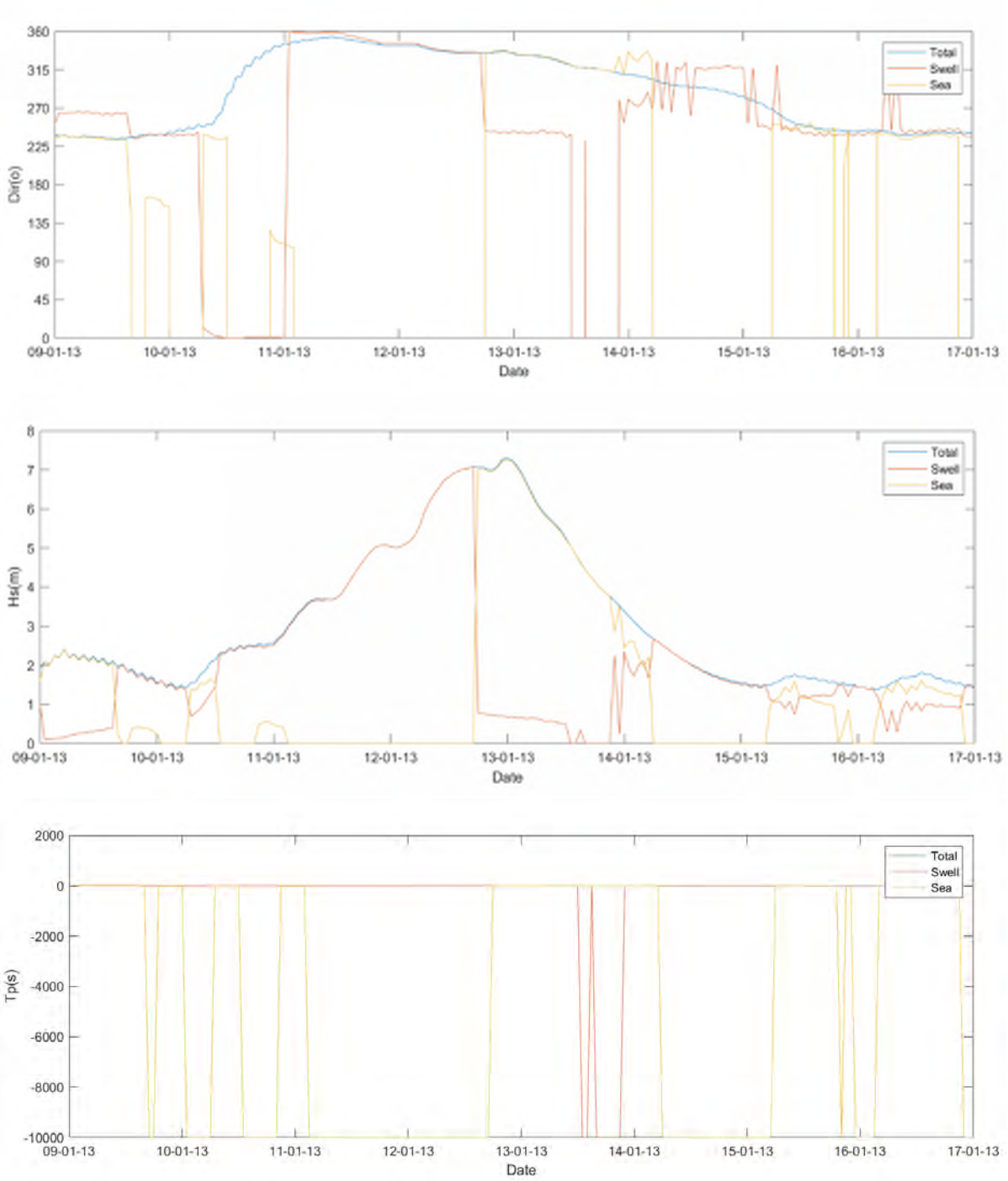

Figure I.2 Event 2 – Offshore Calibrated WW3 Direction, Hs & Tp

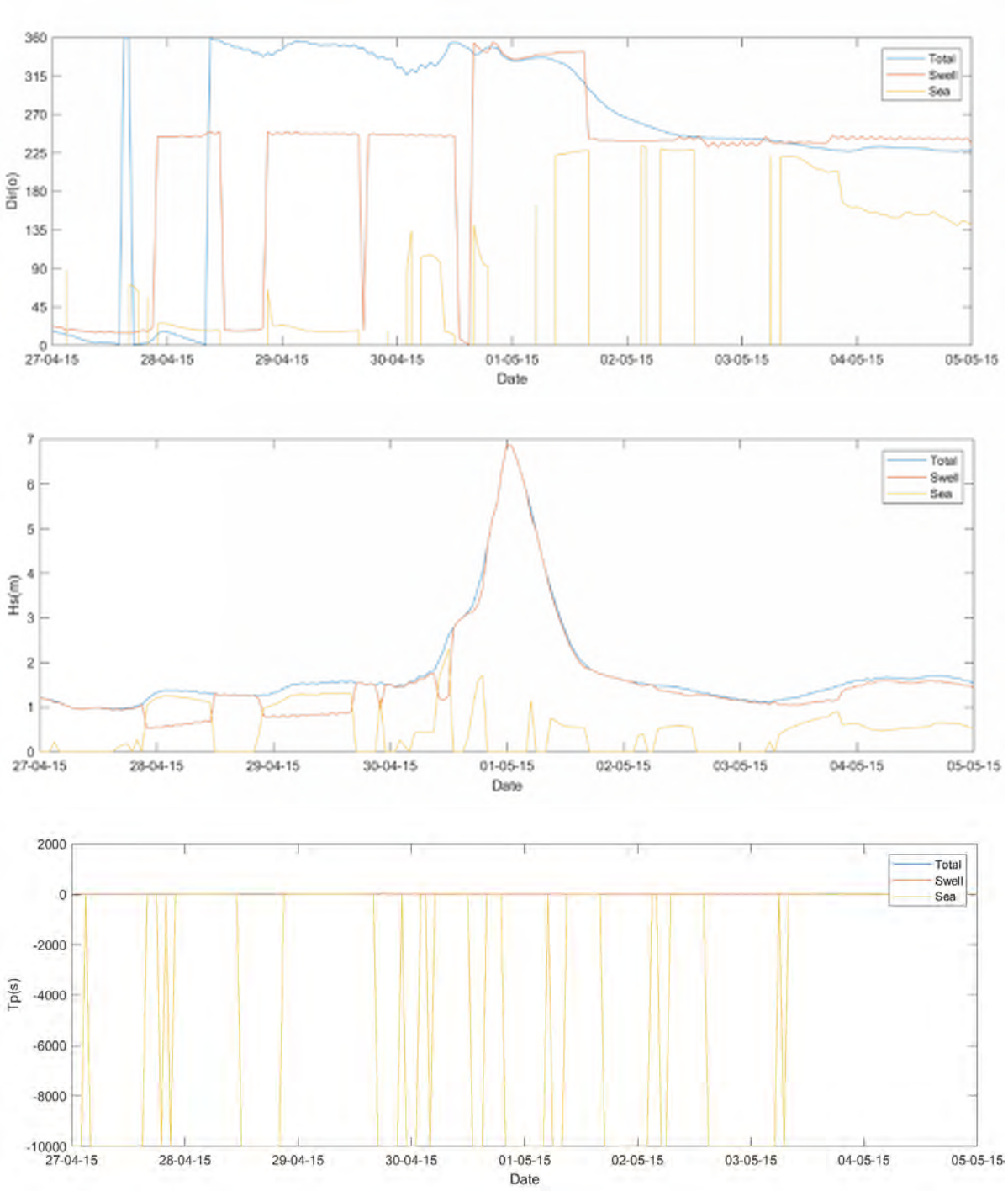

Figure I.3 Event 3 – Offshore Calibrated WW3 Direction, Hs & Tp

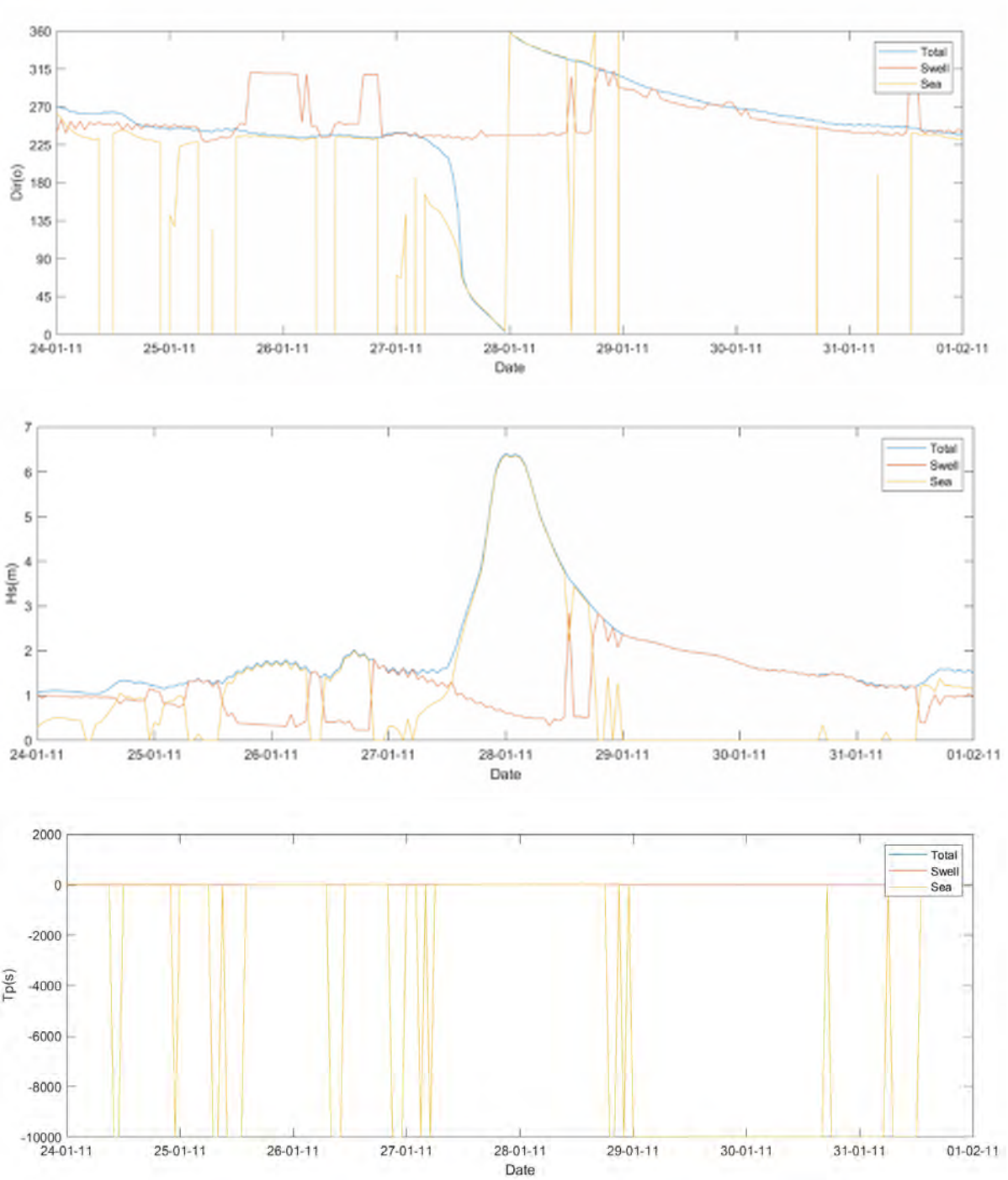

Figure I.4 Event 4 – Offshore Calibrated WW3 Direction, Hs & Tp

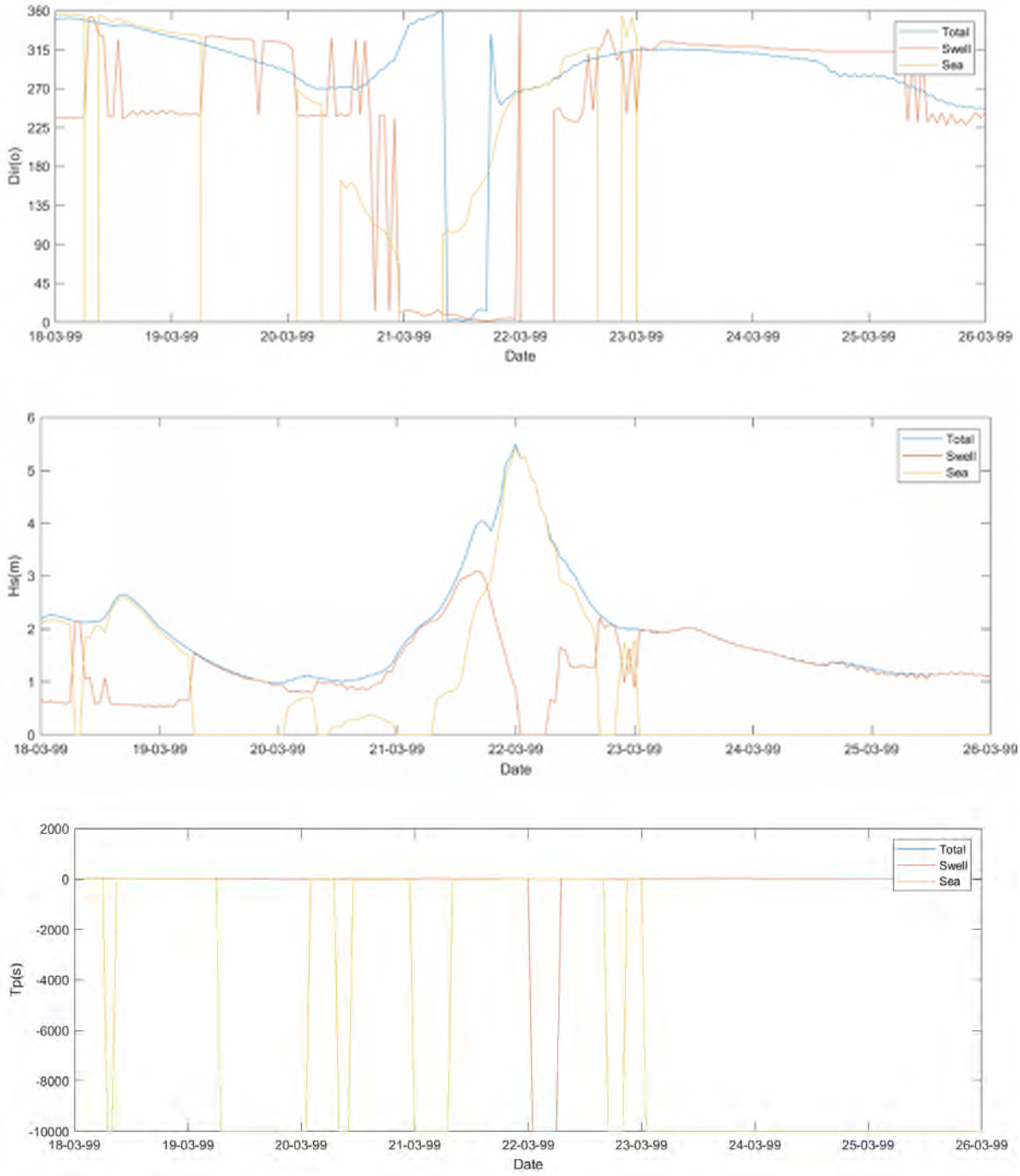

Figure I.5 Event 5 – Offshore Calibrated WW3 Direction, Hs & Tp

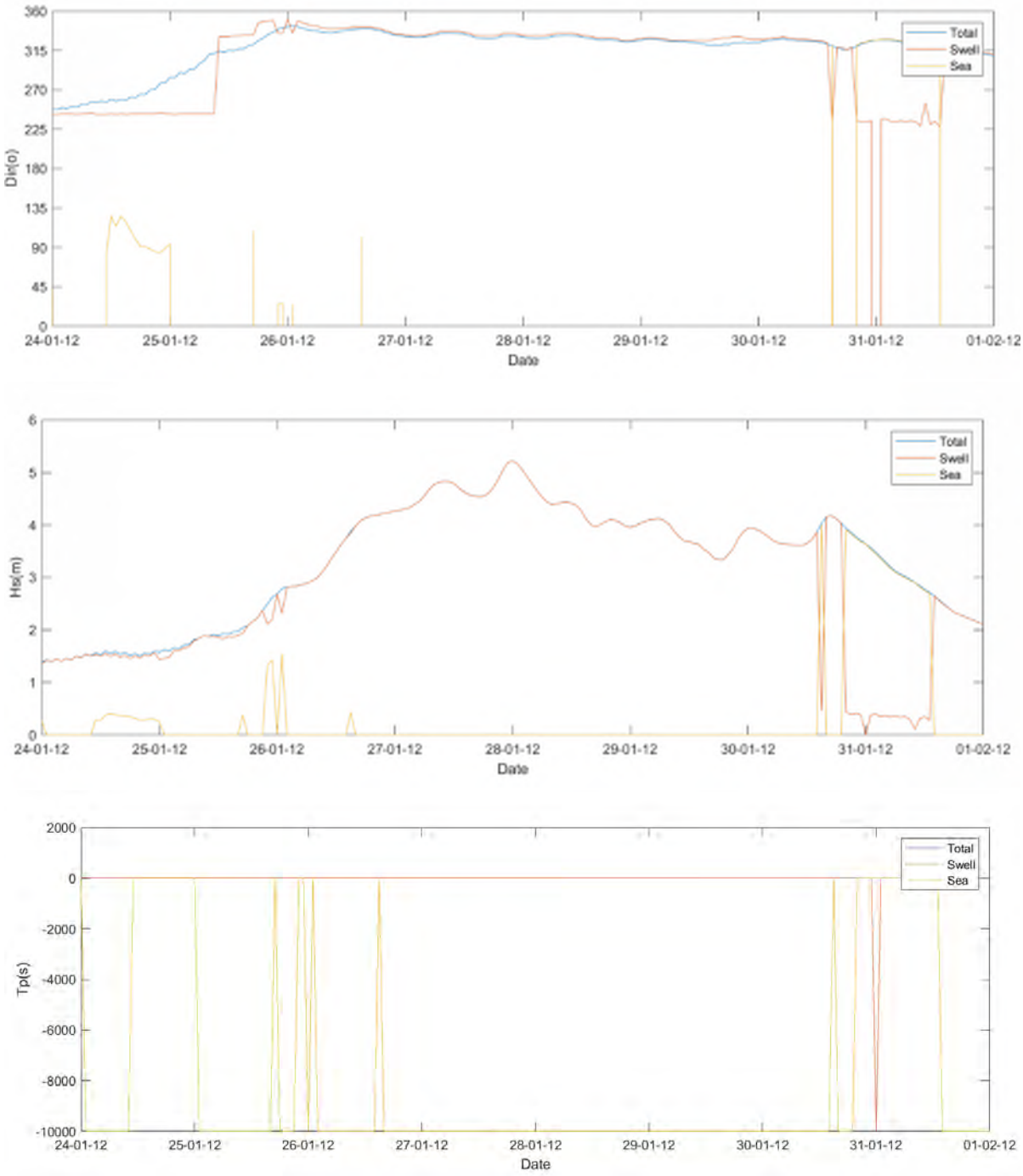

Figure I.6 Event 6 – Offshore Calibrated WW3 Direction, Hs & Tp

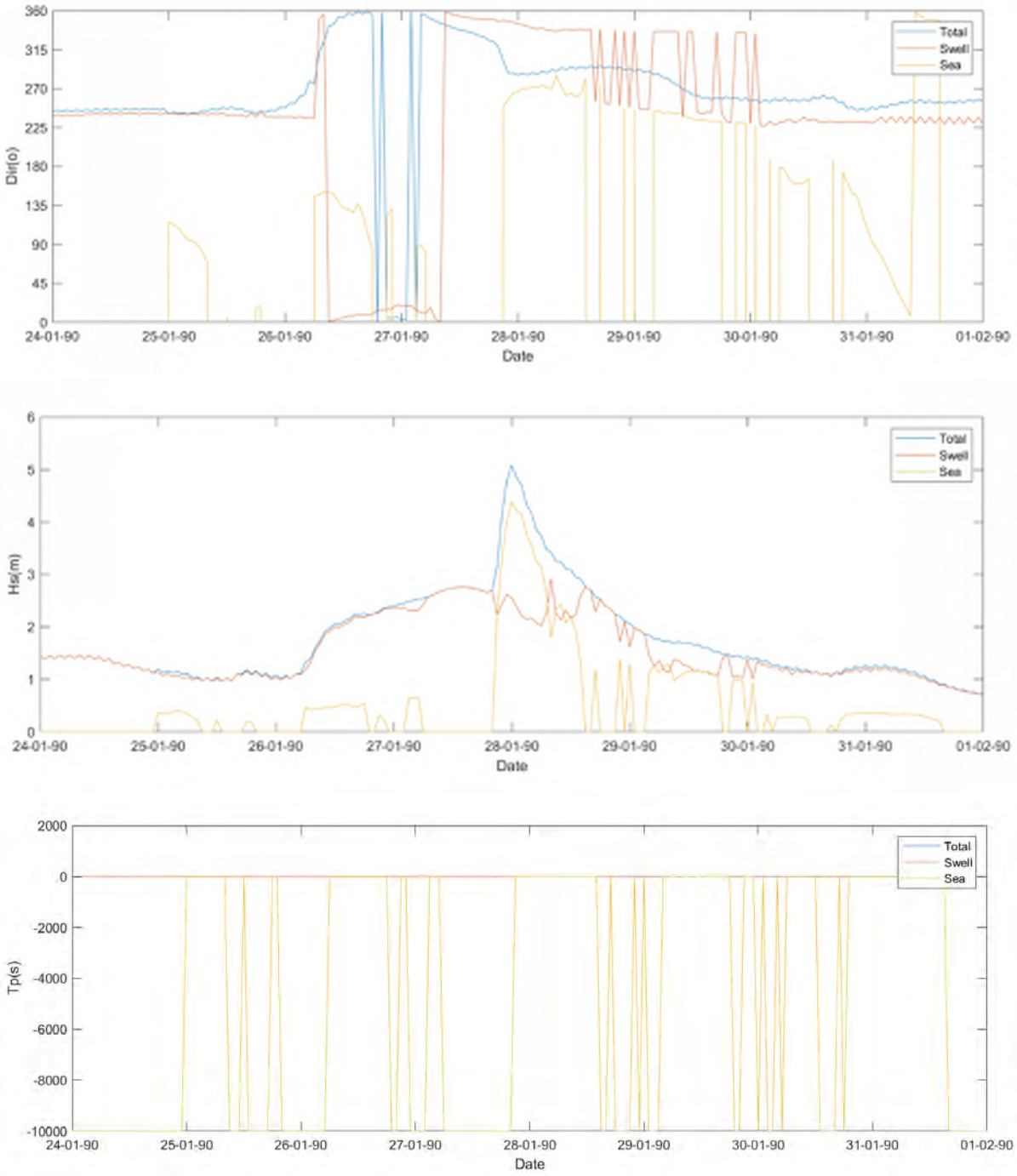

Figure I.7 Event 7 – Offshore Calibrated WW3 Direction, Hs & Tp

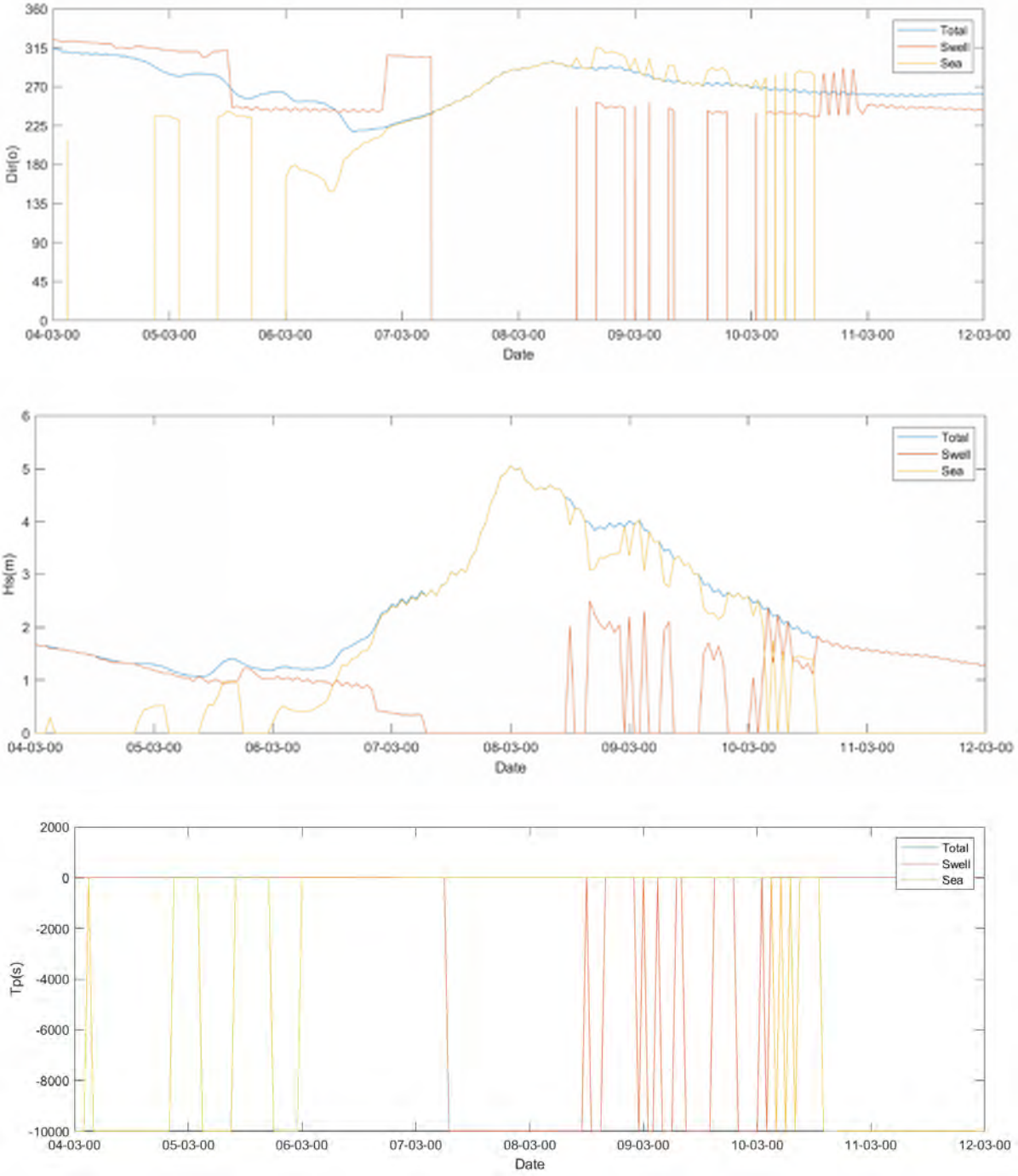

Figure I.8 Event 8 – Offshore Calibrated WW3 Direction, Hs & Tp

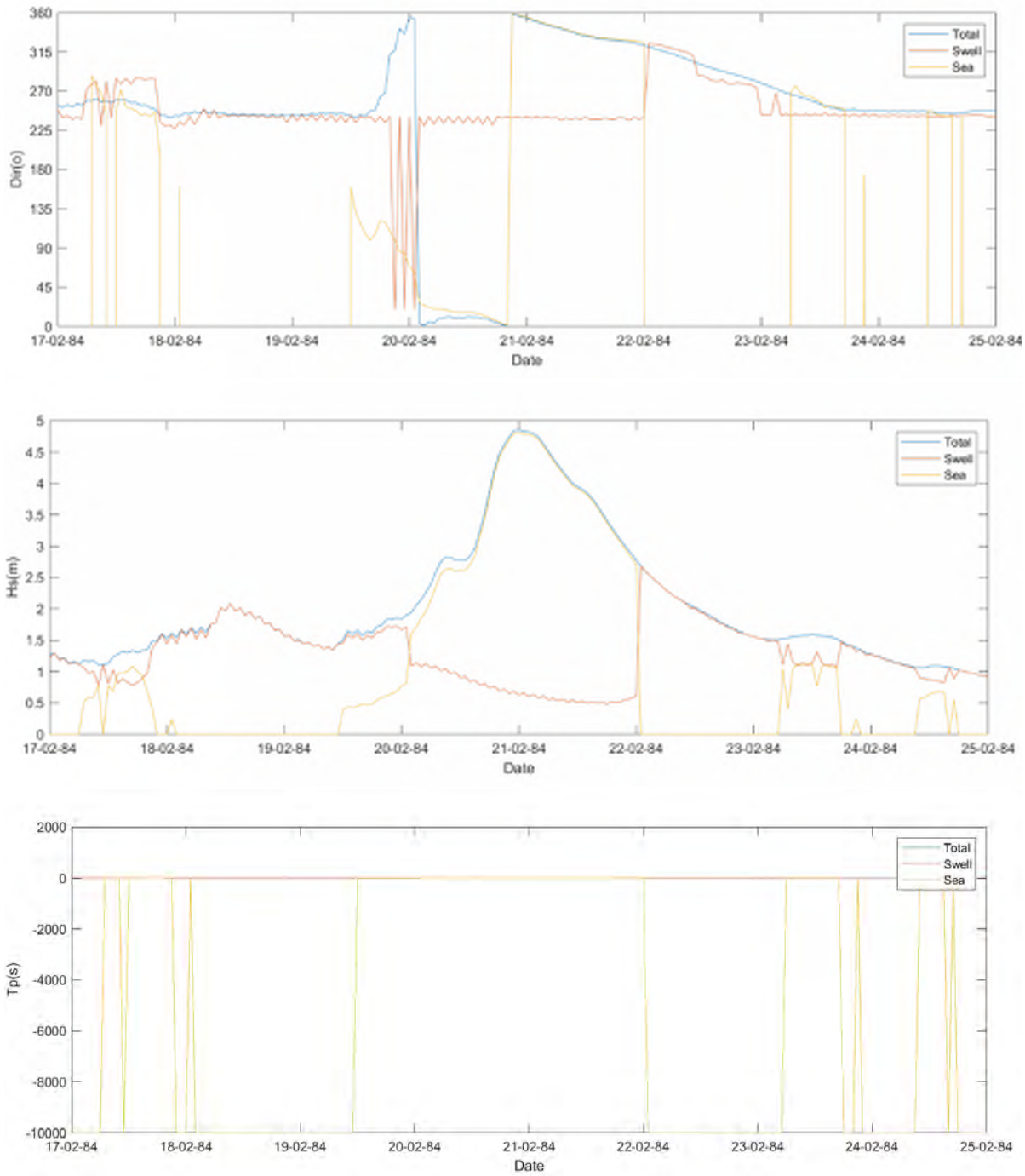

Figure I.9 Event 9 – Offshore Calibrated WW3 Direction, Hs & Tp

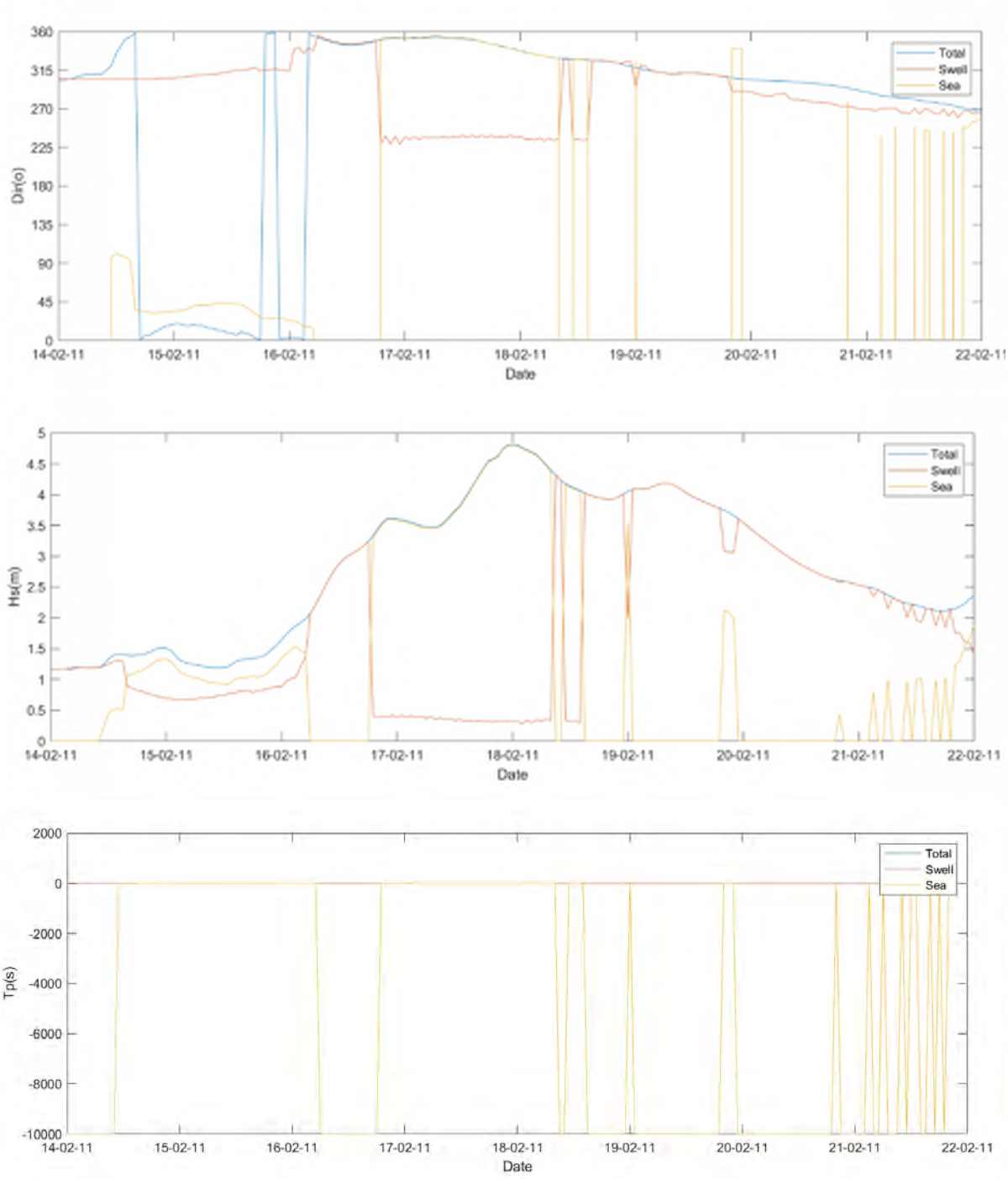

Figure I.10 Event 10 – Offshore Calibrated WW3 Direction, Hs & Tp

Appendix J Learmonth Wind Anemometer Joint Frequency Tables

OVERALL JFTS

Wind Speed (m/s)

		Total																
Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5	
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	1.67	0.17	0.19	0.19	0.24	0.17	0.21	0.26	0.64	0.65	0.79	0.61	0.51	0.26	0.23	0.21	6.98	6.98
2	4	1.56	1.16	1.15	1.49	1.71	0.73	0.91	1.03	3.33	5.52	5.89	2.62	1.15	0.41	0.36	0.49	29.50	36.48
4	6	1.54	1.76	1.16	1.16	1.66	0.75	1.19	1.39	3.41	8.16	5.14	1.88	1.18	0.30	0.14	0.11	30.93	67.42
6	8	0.79	0.89	0.48	0.24	0.36	0.33	0.76	1.32	2.26	6.74	3.72	1.72	1.32	0.19	0.05	0.04	21.22	88.63
8	10	0.24	0.37	0.25	0.11	0.10	0.09	0.23	0.51	0.77	3.03	2.27	0.82	0.49	0.04	0.02	0.01	9.34	97.97
10	12	0.05	0.08	0.10	0.04	0.02	0.02	0.03	0.08	0.10	0.56	0.47	0.09	0.04	0.01	0.01	0.01	1.73	99.70
12	14	0.02	0.02	0.03	0.01	0.01	0.01	0.01	0.01	0.01	0.04	0.04	0.00	0.00	0.00	0.00	0.00	0.20	99.90
14	16	0.01	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.05	99.95
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	99.97
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	99.98
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	100.00
Total		5.88	4.44	3.37	3.24	4.12	2.11	3.35	4.61	10.52	24.71	18.32	7.73	4.70	1.21	0.81	0.88		
Cumulative Total		5.88	10.33	13.70	16.94	21.06	23.17	26.52	31.12	41.64	66.35	84.67	92.40	97.10	98.31	99.12	100.00		

OVERALL JFTS

1993

1993 Wind Speed (m/s)

		Total																	
Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.41	0.14	0.00	0.14	0.14	0.28	0.00	0.00	0.28	0.14	0.28	0.14	0.14	0.00	0.14	0.28	2.48	2.48
2	4	0.14	0.14	0.55	0.69	0.83	0.28	0.00	0.69	0.69	0.69	0.28	0.41	0.55	0.14	0.00	0.00	6.05	8.53
4	6	0.00	0.55	0.28	0.28	1.24	0.28	0.14	0.69	1.51	1.93	3.58	1.51	1.10	0.00	0.14	0.14	13.34	21.87
6	8	0.83	0.55	0.41	0.00	0.14	0.00	0.00	1.10	3.16	8.94	10.59	4.54	1.93	0.00	0.00	0.14	32.32	54.20
8	10	0.69	0.14	0.00	0.00	0.00	0.00	0.14	1.38	2.06	8.94	12.65	5.91	2.34	0.14	0.00	0.00	34.39	88.58
10	12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.69	1.10	2.48	5.09	1.38	0.41	0.00	0.00	0.00	11.14	99.72
12	14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.28	0.00	0.00	0.00	0.00	0.00	0.28	100.00
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		2.06	1.51	1.24	1.10	2.34	0.83	0.28	4.54	8.80	23.11	32.74	13.89	6.46	0.28	0.28	0.55		
Cumulative Total		2.06	3.58	4.81	5.91	8.25	9.08	9.35	13.89	22.70	45.80	78.54	92.43	98.90	99.17	99.45	100.00		

1994

1994 Wind Speed (m/s)

		Total																	
Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	4.30	0.40	0.33	0.40	0.55	0.30	0.34	0.24	0.83	0.97	0.98	0.50	0.25	0.16	0.10	0.22	10.88	10.88
2	4	1.55	0.92	0.69	1.08	1.15	0.51	0.51	0.57	1.95	2.99	3.08	1.54	0.70	0.16	0.16	0.23	17.78	28.66
4	6	1.98	1.46	0.98	1.27	1.69	0.60	0.91	1.15	2.58	6.17	5.22	1.72	1.22	0.50	0.05	0.11	27.63	56.29
6	8	1.20	1.12	0.29	0.18	0.25	0.08	0.63	1.57	3.24	8.81	5.18	2.13	1.62	0.30	0.07	0.02	26.69	82.99
8	10	0.34	0.49	0.09	0.01	0.01	0.00	0.13	0.52	1.24	4.63	4.26	0.86	1.15	0.06	0.00	0.00	13.80	96.78
10	12	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.08	0.31	1.08	0.99	0.23	0.09	0.00	0.00	0.00	2.82	99.60
12	14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.06	0.14	0.01	0.00	0.00	0.00	0.00	0.00	0.23	99.83
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.11	99.95
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.04	99.99
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	99.99
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.01	100.00
Total		9.39	4.40	2.40	2.93	3.66	1.49	2.52	4.16	10.30	24.86	19.74	6.98	5.03	1.18	0.39	0.58		
Cumulative Total		9.39	13.79	16.19	19.12	22.78	24.27	26.79	30.95	41.24	66.10	85.84	92.81	97.85	99.03	99.42	100.00		

1995

1995 Wind Speed (m/s)

		Total																	
Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	1.33	0.11	0.07	0.08	0.10	0.11	0.09	0.09	0.24	0.17	0.31	0.29	0.29	0.20	0.10	0.08	3.63	3.63
2	4	1.34	0.96	1.02	1.14	2.00	0.85	0.72	0.59	1.96	3.04	5.67	4.58	1.87	0.62	0.52	0.49	27.36	30.99
4	6	1.21	1.91	1.72	1.21	2.27	0.99	1.14	1.30	2.17	5.09	8.09	3.54	2.01	0.42	0.17	0.04	33.27	64.26
6	8	0.53	1.08	0.72	0.46	0.78	0.70	0.67	0.96	1.77	3.15	5.21	2.40	2.37	0.41	0.09	0.07	21.37	85.63
8	10	0.14	0.52	0.37	0.19	0.39	0.45	0.39	0.37	0.96	1.36	3.23	1.16	1.28	0.07	0.01	0.02	10.93	96.56
10	12	0.07	0.10	0.24	0.09	0.08	0.16	0.11	0.08	0.09	0.20	0.73	0.12	0.14	0.01	0.00	0.02	2.24	98.80
12	14	0.03	0.00	0.17	0.05	0.01	0.09	0.05	0.01	0.03	0.05	0.16	0.03	0.02	0.00	0.00	0.01	0.72	99.51
14	16	0.02	0.00	0.01	0.00	0.00	0.04	0.02	0.00	0.00	0.10	0.05	0.00	0.00	0.00	0.00	0.00	0.24	99.75
16	18	0.02	0.00	0.00	0.00	0.00	0.07	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.11	99.86
18	20	0.00	0.00	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	99.88
>20		0.00	0.01	0.03	0.02	0.04	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	100.00
Total		4.71	4.69	4.35	3.23	5.67	3.49	3.18	3.40	7.22	13.18	23.44	12.11	7.98	1.73	0.89	0.73		
Cumulative Total		4.71	9.40	13.75	16.99	22.66	26.15	29.33	32.73	39.94	53.12	76.56	88.67	96.65	98.38	99.27	100.00		

1996

1996 Wind Speed (m/s)

		Total																	
Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	1.44	0.14	0.08	0.06	0.10	0.06	0.09	0.17	0.23	0.33	0.37	0.38	0.51	0.21	0.16	0.24	4.58	4.58
2	4	1.47	1.09	0.92	0.91	1.76	0.81	0.72	0.86	2.20	2.99	6.18	4.75	1.89	0.79	0.68	0.59	28.60	33.18
4	6	0.87	1.88	1.72	1.00	1.83	0.75	0.97	1.26	2.41	5.37	8.14	3.12	1.76	0.69	0.31	0.20	32.27	65.44
6	8	0.47	0.99	0.71	0.25	0.13	0.16	0.44	1.10	2.20	4.72	5.45	1.89	2.26	0.50	0.17	0.08	21.52	86.97
8	10	0.27	0.44	0.36	0.02	0.02	0.04	0.13	0.30	1.15	1.96	4.14	0.97	0.78	0.11	0.06	0.05	10.81	97.78
10	12	0.09	0.10	0.13	0.00	0.01	0.01	0.04	0.03	0.13	0.27	0.84	0.05	0.05	0.02	0.02	0.06	1.87	99.65
12	14	0.00	0.00	0.05	0.01	0.01	0.01	0.01	0.00	0.01	0.01	0.06	0.00	0.00	0.01	0.00	0.01	0.18	99.83
14	16	0.00	0.01	0.05	0.02	0.03	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.16	99.99
16	18	0.00	0.00	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	100.00
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		4.61	4.65	4.02	2.27	3.90	1.85	2.43	3.73	8.33	15.66	25.19	11.15	7.24	2.34	1.40	1.23		
Cumulative Total		4.61	9.26	13.28	15.55	19.45	21.30	23.73	27.46	35.79	51.45	76.64	87.79	95.03	97.37	98.77	100.00		

1997

1997 Wind Speed (m/s)

		Total																	
Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.95	0.08	0.05	0.07	0.12	0.09	0.11	0.12	0.26	0.25	0.33	0.33	0.36	0.13	0.08	0.11	3.44	3.44
2	4	1.37	0.77	0.82	1.24	1.47	0.68	0.80	0.86	2.71	4.30	5.45	2.61	1.19	0.53	0.33	0.32	25.44	28.88
4	6	1.56	2.06	1.23	1.70	2.18	0.90	1.18	1.30	3.53	7.80	6.02	2.56	1.49	0.30	0.19	0.08	34.08	62.96
6	8	1.03	1.43	0.96	0.38	0.51	0.58	1.04	1.68	2.38	6.91	4.13	2.04	1.47	0.28	0.07	0.05	24.93	87.90
8	10	0.35	0.73	0.41	0.09	0.25	0.19	0.39	0.46	0.69	3.28	2.03	0.92	0.52	0.05	0.01	0.01	10.37	98.27
10	12	0.07	0.14	0.08	0.02	0.03	0.01	0.01	0.05	0.06	0.64	0.34	0.10	0.12	0.00	0.00	0.00	1.67	99.94
12	14	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.04	0.01	0.01	0.01	0.00	0.00	0.00	0.06	100.00
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		5.34	5.19	3.54	3.52	4.56	2.45	3.52	4.47	9.63	23.21	18.31	8.56	5.15	1.29	0.69	0.56		
Cumulative Total		5.34	10.54	14.08	17.59	22.15	24.61	28.13	32.59	42.23	65.43	83.75	92.31	97.46	98.74	99.44	100.00		

OVERALL JFTS

1998

1998 Wind Speed (m/s)

		Total																	
Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	1.42	0.04	0.09	0.06	0.10	0.10	0.11	0.12	0.25	0.23	0.22	0.29	0.30	0.12	0.09	0.09	3.63	3.63
2	4	1.47	1.06	0.76	1.27	1.29	0.55	0.72	0.93	2.84	4.50	4.99	2.16	1.23	0.42	0.49	0.50	25.18	28.81
4	6	2.07	2.27	1.10	1.61	2.13	0.96	1.16	1.71	4.17	9.06	4.35	1.38	0.97	0.26	0.10	0.14	33.45	62.26
6	8	1.15	1.12	0.65	0.38	0.38	0.38	1.19	2.20	2.72	7.10	2.53	1.81	1.26	0.14	0.08	0.03	23.09	85.35
8	10	0.39	0.49	0.20	0.11	0.09	0.11	0.43	0.94	1.30	4.23	2.01	0.81	0.49	0.03	0.04	0.01	11.68	97.03
10	12	0.05	0.07	0.11	0.03	0.01	0.01	0.08	0.19	0.16	1.16	0.52	0.10	0.04	0.01	0.00	0.01	2.54	99.57
12	14	0.01	0.00	0.11	0.00	0.01	0.00	0.03	0.05	0.02	0.10	0.03	0.00	0.00	0.00	0.00	0.00	0.35	99.92
14	16	0.00	0.01	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	99.99
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.01	100.00
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		6.55	5.05	3.08	3.46	3.99	2.11	3.72	6.14	11.46	26.38	14.64	6.55	4.29	0.97	0.80	0.79		
Cumulative Total		6.55	11.60	14.68	18.14	22.14	24.25	27.97	34.11	45.57	71.95	86.59	93.14	97.43	98.41	99.21	100.00		

1999

1999 Wind Speed (m/s)

		Total																	
Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	1.89	0.09	0.18	0.12	0.16	0.15	0.18	0.23	0.39	0.41	0.38	0.33	0.38	0.21	0.20	0.14	5.42	5.42
2	4	2.05	1.22	1.18	2.00	2.07	0.79	0.98	1.31	4.70	5.63	4.96	1.99	1.48	0.62	0.54	0.78	32.29	37.72
4	6	2.27	2.01	1.18	1.67	1.94	1.00	1.20	1.11	4.99	7.49	3.69	1.51	1.25	0.22	0.18	0.18	31.88	69.60
6	8	0.90	0.85	0.40	0.28	0.54	0.58	0.77	1.29	2.08	5.81	2.46	1.56	1.43	0.16	0.02	0.03	19.18	88.78
8	10	0.34	0.26	0.21	0.06	0.14	0.09	0.29	0.59	0.84	3.13	1.64	0.84	0.66	0.05	0.00	0.02	9.19	97.97
10	12	0.02	0.07	0.13	0.01	0.03	0.01	0.03	0.08	0.13	0.76	0.36	0.05	0.03	0.01	0.00	0.00	1.70	99.67
12	14	0.00	0.00	0.02	0.00	0.00	0.02	0.03	0.00	0.00	0.04	0.04	0.01	0.00	0.01	0.00	0.00	0.16	99.83
14	16	0.01	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.03	99.86
16	18	0.00	0.00	0.00	0.00	0.00	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	99.88
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	99.90
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	100.00
Total		7.47	4.50	3.30	4.13	4.88	2.65	3.59	4.65	13.13	23.26	13.54	6.30	5.23	1.28	0.93	1.16		
Cumulative Total		7.47	11.97	15.27	19.40	24.28	26.93	30.52	35.17	48.30	71.57	85.11	91.40	96.63	97.91	98.84	100.00		

2000

2000 Wind Speed (m/s)

		Total																	
Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	1.90	0.11	0.08	0.13	0.13	0.08	0.12	0.13	0.38	0.29	0.29	0.30	0.39	0.14	0.18	0.16	4.81	4.81
2	4	1.74	1.08	0.93	1.36	1.83	0.71	0.82	1.05	3.17	4.74	5.81	2.40	1.36	0.52	0.54	0.63	28.68	33.49
4	6	1.52	2.08	1.24	1.27	1.91	0.66	0.98	1.30	3.41	8.33	5.65	1.83	1.17	0.32	0.20	0.10	31.97	65.46
6	8	0.75	1.31	0.76	0.55	0.52	0.43	0.71	1.69	2.25	5.64	2.75	1.40	1.81	0.25	0.04	0.01	20.88	86.34
8	10	0.24	0.52	0.55	0.14	0.18	0.09	0.18	0.74	0.83	3.19	1.85	0.90	0.93	0.16	0.15	0.01	10.67	97.01
10	12	0.03	0.10	0.24	0.02	0.02	0.02	0.06	0.18	0.28	0.73	0.43	0.14	0.11	0.08	0.24	0.01	2.71	99.72
12	14	0.00	0.01	0.01	0.00	0.01	0.01	0.02	0.02	0.01	0.02	0.01	0.01	0.00	0.04	0.07	0.02	0.25	99.97
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.01	0.03	99.99
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	99.99
18	20	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	100.00
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		6.19	5.22	3.80	3.48	4.60	1.99	2.91	5.10	10.34	22.94	16.81	6.98	5.77	1.50	1.43	0.94		
Cumulative Total		6.19	11.41	15.21	18.69	23.29	25.28	28.19	33.29	43.63	66.57	83.38	90.36	96.13	97.63	99.06	100.00		

2001

2001 Wind Speed (m/s)

		Total																	
Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	1.76	0.06	0.12	0.09	0.11	0.06	0.08	0.14	0.30	0.25	0.36	0.32	0.35	0.16	0.14	0.16	4.45	4.45
2	4	1.76	1.13	1.16	1.30	1.71	0.65	0.58	0.84	2.82	4.42	5.65	2.57	1.51	0.47	0.49	0.61	27.67	32.12
4	6	1.84	2.32	1.50	1.48	1.91	0.75	1.29	1.27	3.24	8.90	6.46	1.78	1.25	0.26	0.18	0.16	34.61	66.73
6	8	1.08	1.24	0.76	0.21	0.49	0.36	0.83	1.18	2.16	6.50	3.94	1.83	1.39	0.27	0.06	0.02	22.32	89.05
8	10	0.13	0.37	0.17	0.03	0.10	0.06	0.32	0.76	0.67	2.87	2.83	1.17	0.49	0.02	0.00	0.03	10.04	99.09
10	12	0.00	0.01	0.05	0.01	0.00	0.01	0.02	0.03	0.06	0.28	0.34	0.05	0.02	0.00	0.00	0.00	0.87	99.96
12	14	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.03	99.99
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	99.99
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	99.99
18	20	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	100.00
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		6.58	5.12	3.75	3.12	4.32	1.90	3.13	4.24	9.25	23.23	19.60	7.73	5.01	1.18	0.88	0.97		
Cumulative Total		6.58	11.70	15.44	18.56	22.88	24.78	27.92	32.15	41.40	64.63	84.23	91.96	96.97	98.15	99.03	100.00		

2002

2002 Wind Speed (m/s)

		Total																	
Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	1.49	0.18	0.20	0.23	0.35	0.25	0.34	0.39	0.74	0.94	1.14	0.96	0.79	0.26	0.26	0.28	8.80	8.80
2	4	1.48	1.29	1.25	1.42	1.78	0.82	0.96	1.07	3.31	6.08	6.76	2.68	1.57	0.43	0.29	0.51	31.71	40.51
4	6	0.95	1.85	1.04	0.81	1.55	0.56	1.07	1.85	3.02	10.06	5.07	1.74	1.46	0.34	0.07	0.10	31.55	72.06
6	8	0.36	0.84	0.51	0.32	0.13	0.20	0.66	1.24	1.56	7.29	4.71	1.84	1.46	0.20	0.01	0.00	21.30	93.36
8	10	0.07	0.13	0.16	0.04	0.03	0.02	0.14	0.29	0.43	2.09	1.78	0.63	0.32	0.00	0.00	0.00	6.13	99.48
10	12	0.02	0.00	0.04	0.01	0.00	0.00	0.02	0.01	0.00	0.13	0.24	0.03	0.02	0.00	0.00	0.00	0.52	100.00
12	14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		4.38	4.29	3.20	2.82	3.83	1.84	3.20	4.84	9.06	26.59	19.70	7.87	5.63	1.24	0.62	0.89		
Cumulative Total		4.38	8.67	11.87	14.69	18.52	20.36	23.56	28.41	37.47	64.06	83.76	91.63	97.25	98.49	99.11	100.00		

OVERALL JFTS

2003

2003 Wind Speed (m/s)

		Total																	
Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	1.46	0.11	0.16	0.15	0.23	0.14	0.27	0.30	0.88	0.99	1.05	0.77	0.65	0.30	0.26	0.21	7.91	7.91
2	4	1.18	1.07	1.05	1.50	2.08	0.83	1.09	1.06	3.85	7.91	6.87	1.60	0.83	0.33	0.34	0.52	32.12	40.04
4	6	1.29	1.50	0.60	0.64	1.80	0.83	1.38	1.57	3.46	8.79	3.98	1.70	1.27	0.28	0.24	0.12	29.46	69.49
6	8	0.67	0.62	0.43	0.07	0.07	0.22	0.74	1.21	2.11	7.11	4.04	2.00	1.16	0.21	0.07	0.01	20.75	90.25
8	10	0.22	0.21	0.19	0.01	0.00	0.02	0.23	0.34	0.55	3.36	2.11	0.88	0.32	0.05	0.02	0.02	8.52	98.76
10	12	0.01	0.01	0.01	0.00	0.00	0.01	0.02	0.03	0.03	0.70	0.31	0.06	0.02	0.00	0.00	0.01	1.20	99.97
12	14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.03	0.00	0.00	0.00	0.00	0.00	0.03	100.00
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		4.83	3.51	2.45	2.36	4.19	2.05	3.73	4.51	10.88	28.86	18.39	7.01	4.24	1.17	0.93	0.88		
Cumulative Total		4.83	8.34	10.79	13.15	17.34	19.39	23.12	27.63	38.50	67.36	85.76	92.77	97.01	98.18	99.12	100.00		

2004

2004 Wind Speed (m/s)

		Total																	
Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	1.68	0.19	0.31	0.22	0.31	0.29	0.28	0.35	0.91	0.93	1.24	0.61	0.52	0.24	0.21	0.23	8.54	8.54
2	4	1.44	1.29	1.29	1.77	2.10	0.79	1.04	1.19	4.28	7.77	5.43	1.30	0.40	0.27	0.17	0.42	30.97	39.51
4	6	1.70	1.49	0.79	0.70	1.18	0.72	1.26	1.64	4.13	9.68	3.10	1.13	0.61	0.19	0.09	0.06	28.48	67.99
6	8	0.58	0.90	0.27	0.05	0.27	0.41	0.94	1.13	2.89	10.06	2.68	1.27	0.45	0.05	0.02	0.03	21.99	89.98
8	10	0.12	0.22	0.15	0.01	0.03	0.16	0.29	0.26	0.63	4.70	1.52	0.36	0.07	0.00	0.00	0.01	8.53	98.51
10	12	0.00	0.04	0.03	0.00	0.00	0.01	0.01	0.01	0.02	0.84	0.41	0.01	0.00	0.00	0.00	0.00	1.38	99.89
12	14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.07	0.00	0.00	0.00	0.00	0.00	0.10	99.99
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.01	100.00
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		5.52	4.12	2.85	2.75	3.89	2.39	3.82	4.58	12.86	34.02	14.46	4.69	2.06	0.76	0.49	0.74		
Cumulative Total		5.52	9.65	12.50	15.25	19.13	21.53	25.34	29.92	42.78	76.80	91.26	95.94	98.01	98.77	99.26	100.00		

2005

2005 Wind Speed (m/s)

		Total																	
Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	2.98	0.32	0.31	0.27	0.40	0.24	0.31	0.31	0.90	0.89	1.03	0.59	0.54	0.25	0.21	0.23	9.80	9.80
2	4	1.39	1.18	1.36	1.28	1.51	0.74	1.14	0.98	3.80	6.49	6.30	1.58	0.67	0.27	0.20	0.40	29.28	39.08
4	6	1.00	1.44	1.11	0.83	1.00	0.50	0.99	1.68	3.90	9.70	3.54	1.30	0.88	0.14	0.08	0.07	28.16	67.23
6	8	0.50	0.71	0.37	0.21	0.06	0.19	0.80	1.34	2.59	9.74	3.88	1.95	0.74	0.07	0.02	0.01	23.18	90.41
8	10	0.09	0.14	0.26	0.06	0.03	0.02	0.16	0.38	0.67	4.09	1.66	0.69	0.18	0.00	0.00	0.00	8.44	98.85
10	12	0.00	0.01	0.04	0.00	0.00	0.00	0.00	0.04	0.06	0.63	0.25	0.03	0.00	0.00	0.00	0.00	1.07	99.91
12	14	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01	0.00	0.00	0.00	0.00	0.00	0.09	100.00
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		5.96	3.80	3.46	2.64	3.00	1.68	3.40	4.73	11.93	31.62	16.66	6.14	3.00	0.74	0.51	0.71		
Cumulative Total		5.96	9.76	13.22	15.86	18.86	20.55	23.95	28.68	40.61	72.23	88.89	95.03	98.03	98.77	99.29	100.00		

2006

2006 Wind Speed (m/s)

		Total																	
Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	1.62	0.29	0.24	0.35	0.45	0.23	0.25	0.39	0.97	0.99	1.40	1.27	0.70	0.41	0.39	0.33	10.28	10.28
2	4	1.95	1.65	1.54	1.80	2.49	1.16	1.18	1.03	3.77	6.98	7.73	2.38	0.85	0.33	0.21	0.49	35.52	45.80
4	6	1.50	1.66	1.18	0.94	1.55	0.99	1.35	1.28	3.40	8.63	3.35	1.60	0.96	0.14	0.02	0.05	28.59	74.38
6	8	0.36	0.60	0.44	0.24	0.18	0.25	0.71	1.13	2.32	6.97	2.38	1.28	1.10	0.04	0.00	0.01	18.02	92.41
8	10	0.07	0.11	0.15	0.11	0.03	0.10	0.18	0.34	0.42	3.30	1.03	0.33	0.11	0.00	0.00	0.00	6.29	98.70
10	12	0.03	0.07	0.04	0.03	0.01	0.02	0.09	0.10	0.02	0.50	0.21	0.02	0.01	0.00	0.00	0.00	1.15	99.85
12	14	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.01	0.03	0.02	0.00	0.00	0.00	0.00	0.00	0.08	99.93
14	16	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	99.98
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	100.00
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		5.53	4.38	3.58	3.48	4.72	2.76	3.76	4.36	10.91	27.42	16.11	6.88	3.72	0.91	0.61	0.86		
Cumulative Total		5.53	9.91	13.49	16.97	21.69	24.45	28.21	32.58	43.49	70.91	87.01	93.90	97.61	98.53	99.14	100.00		

2007

2007 Wind Speed (m/s)

		Total																	
Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	1.15	0.24	0.32	0.40	0.30	0.29	0.33	0.40	0.88	1.05	1.45	1.03	0.71	0.21	0.24	0.25	9.24	9.24
2	4	1.63	1.44	1.24	1.60	1.85	0.77	1.07	0.97	3.47	6.83	6.90	2.15	0.74	0.24	0.24	0.39	31.50	40.74
4	6	1.72	1.93	0.82	0.68	1.31	0.57	1.29	1.51	3.26	9.17	3.74	1.59	1.04	0.16	0.03	0.06	28.88	69.62
6	8	0.69	0.69	0.42	0.15	0.15	0.15	0.60	1.22	2.26	7.45	3.52	1.85	1.05	0.09	0.01	0.05	20.34	89.96
8	10	0.17	0.26	0.30	0.06	0.03	0.01	0.14	0.58	0.55	3.64	1.96	0.83	0.27	0.03	0.00	0.00	8.82	98.78
10	12	0.03	0.01	0.04	0.01	0.00	0.00	0.01	0.03	0.08	0.58	0.25	0.07	0.02	0.01	0.00	0.01	1.15	99.93
12	14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01	0.00	0.00	0.00	0.00	0.00	0.07	100.00
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		5.39	4.57	3.14	2.90	3.64	1.78	3.43	4.70	10.51	28.77	17.82	7.51	3.83	0.74	0.52	0.75		
Cumulative Total		5.39	9.95	13.09	15.99	19.63	21.42	24.85	29.55	40.06	68.83	86.65	94.17	98.00	98.74	99.25	100.00		

OVERALL JFTS

2008

2008 Wind Speed (m/s)

		Total																	
Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	1.03	0.35	0.31	0.40	0.51	0.36	0.43	0.45	1.22	1.12	1.42	1.26	0.85	0.53	0.48	0.52	11.23	11.23
2	4	1.79	1.45	1.39	1.74	2.03	0.89	1.31	1.40	4.41	7.71	7.32	2.61	1.05	0.40	0.36	0.55	36.40	47.63
4	6	1.30	1.35	0.98	0.85	0.98	0.57	1.24	1.60	3.39	7.55	2.84	1.18	1.00	0.30	0.24	0.09	25.45	73.07
6	8	0.53	0.81	0.35	0.16	0.32	0.26	0.65	1.22	2.11	6.06	2.37	1.19	0.80	0.11	0.08	0.03	17.05	90.12
8	10	0.07	0.28	0.16	0.25	0.07	0.07	0.18	0.38	0.67	3.31	1.27	0.64	0.17	0.03	0.04	0.02	7.61	97.73
10	12	0.00	0.04	0.16	0.18	0.01	0.07	0.03	0.04	0.04	0.80	0.21	0.01	0.00	0.00	0.04	0.06	1.67	99.40
12	14	0.04	0.02	0.09	0.02	0.07	0.06	0.01	0.00	0.00	0.08	0.00	0.00	0.00	0.00	0.00	0.03	0.42	99.82
14	16	0.01	0.00	0.04	0.03	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	99.91
16	18	0.00	0.00	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	99.95
18	20	0.00	0.02	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	99.99
>20		0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	100.00
Total		4.75	4.32	3.51	3.63	4.00	2.29	3.85	5.09	11.83	26.62	15.43	6.88	3.86	1.37	1.25	1.31		
Cumulative Total		4.75	9.07	12.59	16.22	20.22	22.51	26.36	31.45	43.28	69.91	85.33	92.21	96.07	97.44	98.69	100.00		

2009

2009 Wind Speed (m/s)

		Total																	
Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.98	0.27	0.21	0.25	0.33	0.19	0.24	0.43	1.08	1.12	1.32	1.08	0.91	0.36	0.43	0.35	9.53	9.53
2	4	1.65	1.37	1.65	1.92	2.10	0.74	1.07	1.19	3.87	7.40	7.38	1.95	0.90	0.32	0.29	0.49	34.29	43.82
4	6	1.28	1.51	1.04	1.03	1.74	0.80	1.13	1.55	3.41	9.25	4.30	1.60	1.13	0.32	0.10	0.07	30.26	74.08
6	8	0.83	0.56	0.16	0.12	0.24	0.46	0.65	1.22	2.03	7.20	2.63	1.48	0.62	0.09	0.04	0.04	18.36	92.44
8	10	0.17	0.15	0.05	0.04	0.08	0.08	0.11	0.44	0.45	3.39	1.06	0.39	0.07	0.00	0.00	0.01	6.50	98.94
10	12	0.01	0.01	0.02	0.02	0.08	0.01	0.00	0.04	0.02	0.53	0.25	0.02	0.00	0.00	0.00	0.00	1.00	99.94
12	14	0.00	0.01	0.01	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	99.97
14	16	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	99.98
16	18	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	99.99
18	20	0.00	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	100.00
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		4.92	3.88	3.15	3.37	4.61	2.28	3.21	4.88	10.86	28.88	16.94	6.51	3.63	1.09	0.86	0.95		
Cumulative Total		4.92	8.79	11.94	15.31	19.92	22.20	25.41	30.28	41.14	70.01	86.96	93.47	97.10	98.19	99.05	100.00		

2010

2010 Wind Speed (m/s)

		Total																	
Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	1.24	0.32	0.39	0.36	0.37	0.26	0.33	0.47	1.16	1.41	1.20	0.78	0.77	0.32	0.37	0.28	10.02	10.02
2	4	1.80	1.37	1.20	1.58	1.40	0.87	1.17	1.54	4.59	8.32	5.64	1.18	0.72	0.33	0.25	0.52	32.48	42.50
4	6	1.76	1.46	0.65	0.84	1.08	0.91	1.25	1.57	4.55	9.72	3.42	1.83	0.86	0.21	0.06	0.09	30.23	72.74
6	8	0.91	0.56	0.22	0.07	0.15	0.42	0.57	0.79	2.33	7.02	2.79	1.73	0.71	0.09	0.01	0.03	18.40	91.14
8	10	0.50	0.31	0.17	0.17	0.07	0.06	0.19	0.22	0.69	3.00	1.08	0.44	0.16	0.01	0.01	0.02	7.10	98.24
10	12	0.31	0.23	0.07	0.03	0.01	0.00	0.01	0.00	0.04	0.63	0.14	0.02	0.01	0.00	0.00	0.00	1.51	99.75
12	14	0.01	0.09	0.00	0.01	0.02	0.00	0.00	0.01	0.00	0.04	0.03	0.00	0.00	0.00	0.00	0.00	0.21	99.96
14	16	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.02	99.98
16	18	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	99.99
18	20	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	100.00
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		6.53	4.34	2.69	3.06	3.11	2.53	3.51	4.60	13.36	30.14	14.30	5.99	3.23	0.96	0.70	0.94		
Cumulative Total		6.53	10.87	13.56	16.63	19.74	22.26	25.77	30.37	43.74	73.88	88.18	94.17	97.40	98.36	99.06	100.00		

2011

2011 Wind Speed (m/s)

		Total																	
Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	1.87	0.25	0.34	0.25	0.34	0.31	0.35	0.56	1.49	1.59	1.82	1.30	1.01	0.55	0.54	0.51	13.07	13.07
2	4	2.05	1.58	1.59	1.97	2.09	0.87	1.27	1.49	4.89	8.16	6.02	1.71	0.63	0.26	0.52	0.81	35.92	48.99
4	6	1.94	1.61	1.17	1.37	1.79	1.06	1.32	1.01	3.39	6.42	2.00	1.15	0.72	0.16	0.17	0.11	25.40	74.38
6	8	1.32	1.08	0.73	0.45	0.64	0.53	0.63	0.81	1.94	4.85	1.71	1.29	0.48	0.07	0.02	0.03	16.59	90.97
8	10	0.76	0.85	0.58	0.36	0.35	0.16	0.16	0.17	0.44	1.83	0.79	0.32	0.10	0.01	0.00	0.01	6.88	97.85
10	12	0.25	0.29	0.24	0.07	0.06	0.02	0.01	0.02	0.02	0.21	0.07	0.01	0.00	0.00	0.00	0.01	1.27	99.12
12	14	0.16	0.01	0.04	0.02	0.07	0.00	0.00	0.04	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.36	99.48
14	16	0.09	0.01	0.03	0.02	0.02	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.21	99.69
16	18	0.06	0.04	0.03	0.07	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.21	99.90
18	20	0.02	0.01	0.02	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	99.96
>20		0.02	0.02	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	100.00
Total		8.54	5.76	4.77	4.58	5.40	2.95	3.73	4.12	12.18	23.06	12.41	5.78	2.94	1.05	1.25	1.47		
Cumulative Total		8.54	14.30	19.07	23.66	29.05	32.01	35.74	39.86	52.04	75.10	87.51	93.29	96.23	97.28	98.53	100.00		

2012

2012 Wind Speed (m/s)

		Total																	
Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	1.35	0.24	0.30	0.30	0.35	0.32	0.39	0.60	1.57	1.48	2.17	1.08	0.88	0.55	0.43	0.36	12.36	12.36
2	4	1.75	1.43	1.72	2.20	1.83	0.75	1.02	1.26	5.28	8.55	4.82	1.29	0.69	0.31	0.31	0.54	33.76	46.13
4	6	2.46	1.95	1.16	1.21	1.61	0.92	1.23	1.57	4.04	8.23	2.21	1.41	0.86	0.15	0.12	0.18	29.30	75.43
6	8	1.28	1.06	0.70	0.27	0.51	0.37	0.73	0.89	2.03	6.00	2.27	1.21	0.50	0.05	0.02	0.03	17.91	93.33
8	10	0.42	0.50	0.55	0.30	0.16	0.08	0.13	0.18	0.45	1.47	0.69	0.23	0.06	0.01	0.01	0.01	5.26	98.59
10	12	0.18	0.15	0.28	0.28	0.08	0.02	0.01	0.06	0.01	0.12	0.03	0.00	0.00	0.00	0.00	0.00	1.22	99.81
12	14	0.02	0.01	0.06	0.04	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.15	99.96
14	16	0.01	0.00	0.00	0.01	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	100.00
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		7.47	5.34	4.77	4.61	4.58	2.46	3.51	4.56	13.38	25.87	12.19	5.21	2.99	1.07	0.88	1.12		
Cumulative Total		7.47	12.81	17.57	22.18	26.76	29.22	32.73	37.28	50.66	76.54	88.73	93.94	96.93	98.00	98.88	100.00		

OVERALL JFTS

2013

2013 Wind Speed (m/s)

		Total																	
Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.99	0.09	0.12	0.11	0.12	0.12	0.18	0.21	0.54	0.33	0.35	0.38	0.29	0.27	0.18	0.15	4.43	4.43
2	4	1.29	0.95	1.00	1.31	1.48	0.58	0.77	1.15	4.05	4.86	5.21	2.47	1.27	0.33	0.34	0.36	27.40	31.84
4	6	1.42	1.72	1.22	1.60	1.84	0.93	1.47	1.41	4.32	8.62	5.24	1.99	1.27	0.23	0.18	0.17	33.65	65.48
6	8	0.72	0.78	0.29	0.32	0.79	0.67	1.26	1.74	2.56	6.58	3.23	2.02	1.52	0.14	0.05	0.13	22.83	88.31
8	10	0.19	0.26	0.24	0.14	0.22	0.22	0.33	0.88	0.84	3.09	1.82	0.81	0.36	0.02	0.01	0.01	9.44	97.75
10	12	0.04	0.08	0.06	0.03	0.08	0.03	0.08	0.09	0.13	0.58	0.51	0.11	0.01	0.00	0.00	0.00	1.82	99.57
12	14	0.14	0.12	0.02	0.00	0.00	0.00	0.01	0.01	0.01	0.02	0.00	0.00	0.01	0.00	0.00	0.00	0.32	99.89
14	16	0.07	0.02	0.00	0.00	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	99.99
16	18	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	100.00
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		4.87	4.01	2.95	3.52	4.55	2.55	4.10	5.48	12.46	24.07	16.36	7.77	4.73	0.99	0.76	0.83		
Cumulative Total		4.87	8.88	11.83	15.35	19.90	22.45	26.55	32.03	44.49	68.56	84.92	92.69	97.43	98.42	99.17	100.00		

2014

2014 Wind Speed (m/s)

		Total																	
Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	1.57	0.14	0.13	0.09	0.18	0.14	0.17	0.12	0.35	0.28	0.38	0.48	0.46	0.26	0.17	0.14	5.04	5.04
2	4	1.74	0.96	1.10	1.62	1.56	0.70	0.74	0.80	2.76	4.62	6.92	4.40	1.79	0.58	0.43	0.54	31.26	36.30
4	6	1.55	1.97	1.35	1.46	1.49	0.66	1.14	1.03	2.52	7.46	5.62	2.30	1.33	0.40	0.21	0.19	30.68	66.98
6	8	0.88	0.77	0.54	0.20	0.36	0.23	0.66	0.83	1.81	7.68	4.22	1.80	1.79	0.18	0.14	0.07	22.17	89.15
8	10	0.12	0.29	0.33	0.09	0.04	0.05	0.17	0.39	0.83	2.94	1.92	0.80	0.60	0.08	0.02	0.01	8.67	97.82
10	12	0.01	0.07	0.09	0.04	0.04	0.02	0.02	0.08	0.16	0.67	0.43	0.25	0.13	0.00	0.00	0.00	2.02	99.84
12	14	0.00	0.02	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.07	0.02	0.02	0.01	0.00	0.00	0.00	0.16	100.00
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		5.87	4.22	3.54	3.50	3.67	1.80	2.92	3.25	8.44	23.71	19.51	10.04	6.11	1.50	0.97	0.95		
Cumulative Total		5.87	10.09	13.63	17.13	20.80	22.60	25.52	28.77	37.21	60.92	80.43	90.47	96.58	98.08	99.05	100.00		

2015

2015 Wind Speed (m/s)

		Total																	
Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	1.97	0.12	0.15	0.15	0.19	0.14	0.13	0.21	0.31	0.30	0.39	0.30	0.28	0.22	0.16	0.12	5.13	5.13
2	4	1.96	1.12	1.11	1.61	1.69	0.95	1.02	1.11	2.91	4.79	6.03	3.57	1.50	0.50	0.40	0.51	30.77	35.90
4	6	1.86	1.45	1.14	1.09	1.57	0.81	1.43	1.38	2.77	7.81	6.33	2.24	1.49	0.35	0.10	0.16	31.98	67.88
6	8	0.91	0.81	0.42	0.26	0.69	0.33	0.79	1.25	1.77	5.59	3.38	1.80	1.83	0.21	0.06	0.06	20.15	88.03
8	10	0.23	0.35	0.14	0.10	0.12	0.09	0.16	0.55	0.71	2.24	2.25	1.40	1.00	0.03	0.02	0.02	9.42	97.44
10	12	0.02	0.09	0.06	0.02	0.04	0.01	0.06	0.04	0.04	0.68	0.44	0.21	0.13	0.01	0.02	0.08	1.95	99.39
12	14	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.01	0.01	0.02	0.00	0.00	0.01	0.01	0.04	0.12	99.51
14	16	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.04	99.55
16	18	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.07	99.62
18	20	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	99.64
>20		0.04	0.08	0.01	0.02	0.07	0.06	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.36	100.00
Total		6.99	4.01	3.02	3.25	4.37	2.44	3.63	4.58	8.53	21.42	18.84	9.52	6.23	1.32	0.76	1.07		
Cumulative Total		6.99	11.00	14.02	17.28	21.65	24.08	27.72	32.30	40.83	62.25	81.10	90.62	96.85	98.17	98.93	100.00		

2016

2016 Wind Speed (m/s)

		Total																	
Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	1.46	0.11	0.11	0.08	0.08	0.08	0.08	0.15	0.25	0.23	0.31	0.24	0.25	0.16	0.11	0.06	3.76	3.76
2	4	1.28	0.98	1.05	1.03	0.95	0.59	0.77	0.99	2.88	4.10	4.52	2.38	1.01	0.30	0.35	0.39	23.56	27.32
4	6	1.29	1.86	1.54	1.19	1.66	0.62	1.23	1.64	3.72	9.62	7.21	2.01	1.12	0.36	0.12	0.09	35.28	62.60
6	8	0.84	0.99	0.46	0.15	0.33	0.28	0.95	1.91	2.83	7.39	4.88	1.77	1.59	0.22	0.04	0.03	24.66	87.26
8	10	0.16	0.32	0.20	0.01	0.00	0.04	0.36	1.02	1.03	3.08	3.18	1.11	0.58	0.02	0.01	0.00	11.10	98.36
10	12	0.01	0.01	0.05	0.01	0.00	0.00	0.02	0.16	0.17	0.49	0.56	0.14	0.01	0.00	0.00	0.00	1.62	99.98
12	14	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.02	100.00
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		5.03	4.26	3.42	2.46	3.03	1.61	3.42	5.86	10.89	24.91	20.66	7.66	4.55	1.05	0.63	0.57		
Cumulative Total		5.03	9.29	12.70	15.16	18.19	19.80	23.22	29.08	39.97	64.88	85.54	93.20	97.75	98.81	99.43	100.00		

2017

2017 Wind Speed (m/s)

		Total																	
Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	1.45	0.06	0.10	0.11	0.10	0.08	0.11	0.10	0.21	0.22	0.28	0.28	0.24	0.15	0.11	0.12	3.71	3.71
2	4	1.10	0.76	0.86	1.43	1.57	0.50	0.73	0.88	2.16	3.63	5.67	3.42	1.39	0.53	0.43	0.49	25.55	29.26
4	6	1.28	1.81	1.27	1.49	2.29	0.67	1.12	1.30	2.90	8.42	7.63	2.30	1.45	0.47	0.18	0.12	34.71	63.97
6	8	0.83	0.87	0.42	0.21	0.34	0.20	0.80	1.52	1.94	5.83	4.81	2.02	1.77	0.32	0.06	0.02	21.96	85.92
8	10	0.13	0.49	0.24	0.31	0.06	0.01	0.29	0.63	0.79	2.63	3.70	1.11	0.67	0.02	0.00	0.01	11.08	97.01
10	12	0.00	0.06	0.14	0.07	0.04	0.02	0.02	0.19	0.12	0.43	1.03	0.22	0.11	0.00	0.00	0.00	2.45	99.46
12	14	0.00	0.01	0.12	0.02	0.06	0.00	0.00	0.02	0.01	0.09	0.18	0.00	0.00	0.00	0.00	0.00	0.49	99.95
14	16	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.01	0.01	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.05	100.00
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		4.80	4.05	3.14	3.64	4.48	1.48	3.07	4.66	8.13	21.25	23.30	9.35	5.62	1.49	0.78	0.76		
Cumulative Total		4.80	8.85	11.99	15.63	20.10	21.59	24.66	29.32	37.44	58.70	82.00	91.35	96.97	98.47	99.24	100.00		

OVERALL JFTS

2018

2018 Wind Speed (m/s)

		Total																	
Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	1.11	0.06	0.12	0.09	0.05	0.07	0.08	0.16	0.24	0.14	0.28	0.28	0.21	0.14	0.14	0.06	3.26	3.26
2	4	1.23	0.96	0.84	1.14	1.25	0.39	0.68	0.86	2.05	3.45	5.36	3.74	1.36	0.48	0.31	0.38	24.46	27.71
4	6	1.41	1.58	1.21	1.27	1.62	0.55	1.17	1.11	2.87	7.10	7.30	2.15	1.04	0.30	0.12	0.08	30.89	58.61
6	8	0.66	0.90	0.37	0.22	0.45	0.16	0.81	1.57	2.63	7.12	5.93	1.66	1.76	0.31	0.07	0.09	24.69	83.30
8	10	0.29	0.36	0.24	0.09	0.12	0.09	0.22	0.82	1.09	3.00	5.04	1.35	0.86	0.13	0.01	0.03	13.73	97.03
10	12	0.02	0.11	0.07	0.03	0.02	0.01	0.04	0.19	0.15	0.58	1.31	0.16	0.02	0.00	0.00	0.01	2.71	99.74
12	14	0.00	0.02	0.00	0.01	0.00	0.02	0.01	0.01	0.01	0.07	0.11	0.00	0.00	0.00	0.00	0.00	0.24	99.98
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.02	100.00
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		4.73	3.98	2.84	2.84	3.50	1.28	3.02	4.72	9.05	21.45	25.35	9.34	5.24	1.37	0.65	0.65		
Cumulative Total		4.73	8.71	11.55	14.39	17.89	19.17	22.19	26.90	35.95	57.39	82.75	92.09	97.33	98.70	99.35	100.00		

2019

2019 Wind Speed (m/s)

		Total																	
Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	2.29	0.17	0.14	0.14	0.19	0.07	0.12	0.09	0.28	0.26	0.38	0.31	0.24	0.17	0.11	0.09	5.06	5.06
2	4	1.33	1.05	0.91	1.36	1.44	0.49	0.82	0.99	2.34	3.51	5.51	4.16	1.43	0.42	0.31	0.35	26.43	31.49
4	6	1.32	1.60	1.07	0.99	1.52	0.48	1.17	1.15	2.99	6.83	8.24	2.54	1.34	0.40	0.09	0.13	31.86	63.35
6	8	0.85	0.80	0.29	0.25	0.29	0.17	0.67	1.34	2.47	6.78	5.03	1.80	1.48	0.20	0.07	0.06	22.53	85.88
8	10	0.30	0.55	0.17	0.13	0.09	0.06	0.27	0.67	1.03	3.39	3.49	0.84	0.60	0.02	0.02	0.00	11.63	97.51
10	12	0.05	0.09	0.13	0.02	0.01	0.01	0.03	0.13	0.16	0.70	0.83	0.04	0.03	0.01	0.00	0.00	2.24	99.75
12	14	0.00	0.03	0.02	0.00	0.02	0.01	0.01	0.01	0.00	0.07	0.08	0.00	0.00	0.00	0.00	0.00	0.23	99.99
14	16	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01	100.00
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		6.13	4.29	2.75	2.89	3.56	1.30	3.09	4.37	9.27	21.54	23.56	9.70	5.12	1.21	0.59	0.63		
Cumulative Total		6.13	10.42	13.17	16.06	19.62	20.91	24.00	28.38	37.65	59.19	82.75	92.45	97.57	98.78	99.37	100.00		

2020

2020 Wind Speed (m/s)

		Total																	
Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	3.76	0.21	0.25	0.23	0.26	0.23	0.15	0.14	0.37	0.34	0.50	0.57	0.41	0.18	0.15	0.10	7.84	7.84
2	4	1.45	0.96	1.13	1.33	1.44	0.54	0.65	0.57	2.17	3.75	5.71	3.38	0.97	0.38	0.25	0.43	25.10	32.94
4	6	1.36	1.75	1.27	1.20	1.54	0.47	1.02	1.30	3.05	8.18	6.55	1.62	1.07	0.39	0.10	0.04	30.92	63.86
6	8	0.64	0.62	0.31	0.15	0.25	0.14	0.64	1.63	2.41	7.28	4.80	1.50	1.61	0.23	0.08	0.03	22.34	86.20
8	10	0.20	0.41	0.15	0.04	0.03	0.04	0.13	0.47	0.98	2.99	3.52	1.10	0.76	0.08	0.01	0.01	10.92	97.12
10	12	0.11	0.17	0.08	0.04	0.01	0.01	0.08	0.16	0.35	0.47	0.72	0.16	0.09	0.00	0.01	0.01	2.45	99.57
12	14	0.01	0.08	0.07	0.00	0.00	0.00	0.02	0.02	0.06	0.01	0.12	0.01	0.00	0.00	0.00	0.00	0.40	99.97
14	16	0.00	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	99.99
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	100.00
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		7.54	4.21	3.26	2.98	3.53	1.43	2.71	4.27	9.39	23.02	21.91	8.35	4.91	1.26	0.60	0.63		
Cumulative Total		7.54	11.75	15.01	17.99	21.52	22.95	25.66	29.93	39.32	62.34	84.26	92.60	97.52	98.78	99.37	100.00		

OVERALL JFTS

Summer - Wind Speed (m/s)

		Total																
Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5	
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.77	0.08	0.08	0.08	0.11	0.08	0.11	0.15	0.35	0.32	0.26	0.22	0.24	0.14	0.13	0.11	3.24	3.24
2	4	0.72	0.73	0.69	0.90	0.95	0.40	0.50	0.60	1.97	2.85	2.41	1.45	1.14	0.45	0.33	0.35	16.44	19.68
4	6	1.12	1.65	1.13	1.12	1.43	0.48	0.74	0.89	2.78	6.93	5.14	2.49	1.82	0.46	0.18	0.15	28.51	48.19
6	8	0.92	1.09	0.45	0.21	0.33	0.27	0.43	0.89	2.79	10.18	6.49	3.23	2.58	0.30	0.06	0.05	30.27	78.46
8	10	0.42	0.60	0.25	0.16	0.11	0.08	0.12	0.31	1.12	5.71	4.85	1.94	1.19	0.05	0.01	0.01	16.95	95.41
10	12	0.13	0.17	0.08	0.07	0.04	0.04	0.03	0.06	0.17	1.38	1.30	0.22	0.12	0.00	0.01	0.01	3.83	99.23
12	14	0.06	0.04	0.02	0.01	0.04	0.02	0.01	0.01	0.02	0.14	0.13	0.01	0.01	0.00	0.00	0.01	0.52	99.75
14	16	0.03	0.01	0.02	0.01	0.02	0.01	0.01	0.01	0.01	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.14	99.89
16	18	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	99.96
18	20	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	99.97
>20		0.00	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	100.00
Total		4.19	4.38	2.75	2.59	3.06	1.38	1.94	2.91	9.21	27.53	20.58	9.58	7.09	1.40	0.72	0.69		
Cumulative Total		4.19	8.58	11.32	13.91	16.97	18.35	20.30	23.20	32.42	59.95	80.53	90.10	97.19	98.59	99.31	100.00		

Autumn - Wind Speed (m/s)

		Total																
Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5	
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	2.29	0.19	0.24	0.26	0.35	0.22	0.27	0.35	0.81	0.84	1.08	0.73	0.57	0.30	0.26	0.27	9.02	9.02
2	4	2.12	1.48	1.50	2.06	2.37	0.97	1.19	1.34	3.93	7.07	7.47	3.06	1.21	0.44	0.42	0.59	37.21	46.24
4	6	2.06	2.09	1.44	1.46	2.30	1.01	1.43	1.49	3.00	8.36	5.12	1.76	1.09	0.29	0.14	0.12	33.14	79.38
6	8	0.93	0.86	0.56	0.33	0.55	0.38	0.68	1.06	1.57	4.30	2.17	0.96	0.77	0.13	0.05	0.03	15.32	94.69
8	10	0.14	0.33	0.26	0.12	0.15	0.11	0.17	0.38	0.33	1.12	0.76	0.21	0.13	0.02	0.03	0.01	4.28	98.97
10	12	0.01	0.08	0.11	0.05	0.03	0.02	0.05	0.06	0.05	0.10	0.08	0.03	0.01	0.01	0.04	0.01	0.76	99.73
12	14	0.00	0.02	0.03	0.00	0.00	0.01	0.02	0.01	0.00	0.00	0.01	0.00	0.00	0.01	0.01	0.01	0.14	99.87
14	16	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	99.90
16	18	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	99.92
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	99.93
>20		0.01	0.01	0.00	0.00	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.07	100.00
Total		7.55	5.07	4.14	4.29	5.77	2.76	3.84	4.71	9.69	21.80	16.66	6.75	3.78	1.20	0.96	1.06		
Cumulative Total		7.55	12.62	16.75	21.04	26.80	29.56	33.40	38.11	47.80	69.60	86.26	93.01	96.79	97.99	98.94	100.00		

Winter - Wind Speed (m/s)

		Total																
Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5	
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	3.04	0.35	0.37	0.35	0.40	0.32	0.35	0.42	1.01	1.09	1.47	1.19	0.94	0.44	0.40	0.37	12.52	12.52
2	4	2.81	1.85	1.74	2.17	2.65	1.16	1.40	1.50	4.78	7.71	9.77	4.38	1.44	0.49	0.47	0.80	45.11	57.63
4	6	2.09	1.93	1.15	0.91	1.55	1.04	1.70	1.88	3.85	6.12	4.17	1.19	0.47	0.16	0.10	0.08	28.40	86.03
6	8	0.65	0.94	0.73	0.35	0.35	0.53	1.24	1.62	1.12	1.34	0.62	0.25	0.21	0.06	0.03	0.04	10.08	96.11
8	10	0.14	0.34	0.47	0.16	0.14	0.13	0.42	0.56	0.24	0.24	0.20	0.09	0.03	0.01	0.01	0.02	3.19	99.30
10	12	0.03	0.06	0.20	0.05	0.02	0.01	0.02	0.08	0.03	0.04	0.01	0.02	0.00	0.01	0.00	0.01	0.60	99.90
12	14	0.00	0.00	0.07	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	99.99
14	16	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	100.00
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		8.76	5.47	4.73	3.99	5.10	3.20	5.13	6.07	11.04	16.53	16.24	7.13	3.09	1.16	1.02	1.33		
Cumulative Total		8.76	14.23	18.97	22.96	28.06	31.26	36.39	42.46	53.50	70.03	86.27	93.40	96.49	97.65	98.67	100.00		

Spring - Wind Speed (m/s)

		Total																
Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5	
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.58	0.07	0.08	0.06	0.08	0.07	0.11	0.13	0.38	0.33	0.36	0.28	0.28	0.15	0.10	0.08	3.16	3.16
2	4	0.60	0.57	0.65	0.81	0.86	0.37	0.54	0.69	2.65	4.44	3.92	1.60	0.82	0.28	0.23	0.25	19.28	22.44
4	6	0.88	1.36	0.90	1.14	1.36	0.47	0.91	1.31	4.00	11.22	6.13	2.07	1.34	0.30	0.14	0.09	33.64	56.07
6	8	0.67	0.65	0.18	0.08	0.22	0.15	0.70	1.70	3.56	11.15	5.59	2.43	1.74	0.27	0.07	0.03	29.18	85.26
8	10	0.27	0.20	0.04	0.01	0.02	0.04	0.20	0.78	1.38	5.04	3.27	1.01	0.62	0.08	0.01	0.00	12.95	98.21
10	12	0.04	0.01	0.00	0.00	0.00	0.00	0.03	0.12	0.16	0.74	0.49	0.08	0.04	0.00	0.00	0.00	1.73	99.94
12	14	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.02	0.00	0.00	0.00	0.00	0.00	0.06	100.00
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		3.04	2.85	1.86	2.10	2.54	1.11	2.49	4.74	12.15	32.93	19.78	7.48	4.84	1.08	0.55	0.45		
Cumulative Total		3.04	5.89	7.76	9.86	12.40	13.50	15.99	20.73	32.89	65.82	85.60	93.08	97.92	99.00	99.55	100.00		

Appendix K Yardie Wind Anemometer Joint Frequency Tables

OVERALL JFTS

Wind Speed (m/s)

		Total																	
Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.39	0.31	0.37	0.54	0.64	0.49	0.72	0.83	1.12	1.23	1.26	0.73	0.52	0.38	0.33	0.26	10.12	10.12
2	4	0.66	0.37	0.40	0.45	0.80	0.98	1.50	1.43	2.29	4.63	6.84	2.30	1.29	1.05	0.73	0.50	26.22	36.35
4	6	0.64	0.44	0.47	0.47	0.85	1.08	2.23	1.26	1.30	3.58	8.01	3.66	1.37	0.49	0.30	0.24	26.38	62.73
6	8	0.30	0.30	0.34	0.35	0.56	0.80	2.55	1.09	0.56	2.04	6.48	3.79	0.58	0.07	0.02	0.04	19.87	82.59
8	10	0.08	0.15	0.15	0.10	0.27	0.44	2.10	0.63	0.18	0.78	4.43	2.24	0.13	0.00	0.00	0.01	11.71	94.30
10	12	0.02	0.06	0.08	0.05	0.10	0.15	1.05	0.24	0.03	0.24	1.86	0.61	0.01	0.00	0.00	0.00	4.49	98.79
12	14	0.01	0.02	0.04	0.00	0.03	0.06	0.24	0.06	0.01	0.04	0.41	0.08	0.00	0.00	0.00	0.00	1.00	99.79
14	16	0.00	0.01	0.00	0.00	0.00	0.00	0.08	0.02	0.00	0.01	0.05	0.00	0.00	0.00	0.00	0.00	0.18	99.97
16	18	0.00	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	100.00
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		2.11	1.66	1.85	1.96	3.25	4.00	10.47	5.57	5.49	12.55	29.35	13.40	3.90	2.00	1.38	1.05		
Cumulative Total		2.11	3.77	5.62	7.58	10.83	14.83	25.30	30.88	36.37	48.91	78.26	91.67	95.57	97.56	98.95	100.00		

ANNUAL JFTS

2019 - Wind Speed (m/s)

		Total																	
Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.28	0.25	0.17	0.26	0.39	0.33	0.51	0.50	0.96	1.13	1.02	0.65	0.46	0.20	0.33	0.13	7.57	7.57
2	4	0.30	0.44	0.28	0.22	0.28	0.52	0.74	0.75	2.11	4.96	8.61	2.88	1.02	0.73	0.40	0.26	24.47	32.03
4	6	0.33	0.31	0.26	0.40	0.74	0.92	0.95	0.51	1.21	4.13	10.94	4.64	1.34	0.22	0.09	0.05	27.05	59.08
6	8	0.23	0.25	0.34	0.49	0.68	1.07	1.36	0.65	0.56	2.35	8.09	4.86	0.57	0.00	0.00	0.00	21.50	80.58
8	10	0.06	0.18	0.12	0.14	0.53	0.82	1.30	0.59	0.33	0.89	5.23	2.92	0.06	0.00	0.00	0.00	13.15	93.73
10	12	0.00	0.07	0.03	0.11	0.24	0.35	1.27	0.29	0.00	0.16	1.99	0.58	0.01	0.00	0.00	0.00	5.11	98.84
12	14	0.00	0.00	0.00	0.01	0.09	0.20	0.24	0.09	0.02	0.06	0.28	0.08	0.00	0.00	0.00	0.00	1.06	99.90
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.03	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.10	100.00
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		1.21	1.50	1.20	1.62	2.94	4.20	6.42	3.41	5.19	13.69	36.17	16.60	3.45	1.15	0.82	0.44		
Cumulative Total		1.21	2.70	3.90	5.52	8.46	12.66	19.09	22.49	27.69	41.37	77.54	94.14	97.59	98.74	99.56	100.00		

2020 - Wind Speed (m/s)

		Total																	
Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.43	0.32	0.43	0.63	0.75	0.58	0.82	0.96	1.20	1.28	1.31	0.71	0.50	0.41	0.31	0.27	10.91	10.91
2	4	0.73	0.38	0.45	0.55	0.96	1.17	1.81	1.72	2.49	4.73	6.47	2.16	1.20	1.07	0.72	0.51	27.14	38.05
4	6	0.63	0.48	0.54	0.52	0.95	1.23	2.76	1.55	1.27	3.35	7.20	3.10	1.11	0.47	0.30	0.24	25.69	63.73
6	8	0.26	0.32	0.38	0.34	0.59	0.82	3.12	1.28	0.56	1.91	5.97	3.27	0.40	0.05	0.02	0.03	19.33	83.07
8	10	0.08	0.15	0.17	0.10	0.22	0.40	2.53	0.72	0.16	0.72	3.99	1.91	0.10	0.00	0.01	0.02	11.28	94.35
10	12	0.03	0.07	0.09	0.04	0.06	0.13	1.11	0.25	0.04	0.24	1.70	0.57	0.01	0.00	0.00	0.00	4.35	98.70
12	14	0.01	0.03	0.05	0.00	0.01	0.04	0.26	0.06	0.01	0.05	0.44	0.08	0.00	0.00	0.00	0.00	1.05	99.74
14	16	0.00	0.01	0.01	0.00	0.00	0.01	0.09	0.02	0.00	0.01	0.08	0.00	0.00	0.00	0.00	0.00	0.21	99.96
16	18	0.00	0.01	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.04	100.00
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		2.17	1.77	2.13	2.18	3.55	4.38	12.52	6.55	5.72	12.29	27.15	11.80	3.34	2.01	1.37	1.07		
Cumulative Total		2.17	3.94	6.07	8.25	11.81	16.19	28.71	35.26	40.98	53.26	80.42	92.22	95.55	97.56	98.93	100.00		

2021- Wind Speed (m/s)

		Total																	
Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.34	0.31	0.28	0.41	0.27	0.15	0.35	0.51	0.88	1.04	1.32	0.92	0.68	0.44	0.47	0.37	8.74	8.74
2	4	0.72	0.26	0.25	0.15	0.53	0.46	0.61	0.58	1.25	3.50	6.68	2.38	2.19	1.41	1.26	0.74	22.97	31.70
4	6	1.14	0.31	0.26	0.26	0.38	0.34	0.71	0.55	1.60	4.31	9.06	5.82	3.05	0.93	0.52	0.54	29.77	61.48
6	8	0.62	0.24	0.15	0.16	0.22	0.28	0.64	0.52	0.62	2.40	7.44	5.51	1.70	0.29	0.01	0.12	20.94	82.42
8	10	0.11	0.07	0.09	0.02	0.21	0.13	0.48	0.19	0.13	1.05	6.12	3.39	0.37	0.02	0.00	0.00	12.39	94.81
10	12	0.00	0.01	0.01	0.05	0.11	0.02	0.35	0.09	0.00	0.29	2.67	0.90	0.02	0.00	0.00	0.00	4.53	99.34
12	14	0.00	0.00	0.01	0.01	0.04	0.01	0.08	0.02	0.00	0.00	0.39	0.06	0.00	0.00	0.00	0.00	0.62	99.96
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	100.00
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		2.93	1.19	1.06	1.07	1.75	1.40	3.26	2.46	4.49	12.59	33.68	18.97	8.01	3.10	2.26	1.77		
Cumulative Total		2.93	4.12	5.18	6.25	8.01	9.41	12.67	15.13	19.62	32.21	65.89	84.87	92.87	95.97	98.23	100.00		

SEASONAL JFTS

Summer - Wind Speed (m/s)

		Total																	
Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.29	0.21	0.17	0.25	0.17	0.13	0.31	0.37	0.78	0.98	1.43	0.83	0.55	0.38	0.34	0.22	7.42	7.42
2	4	0.46	0.21	0.26	0.19	0.38	0.27	0.43	0.50	1.09	3.66	7.99	2.90	1.49	1.10	0.84	0.57	22.35	29.77
4	6	0.61	0.24	0.23	0.15	0.29	0.23	0.47	0.44	0.97	4.17	11.07	5.24	2.01	0.62	0.39	0.36	27.50	57.26
6	8	0.32	0.16	0.13	0.12	0.18	0.15	0.53	0.45	0.46	2.69	9.63	5.81	1.07	0.12	0.01	0.05	21.88	79.14
8	10	0.08	0.08	0.07	0.03	0.16	0.10	0.41	0.22	0.16	1.16	7.29	3.65	0.23	0.01	0.00	0.00	13.65	92.79
10	12	0.01	0.03	0.02	0.04	0.10	0.03	0.36	0.13	0.03	0.36	3.44	1.06	0.02	0.00	0.00	0.00	5.63	98.43
12	14	0.00	0.00	0.01	0.00	0.02	0.01	0.12	0.04	0.00	0.09	0.86	0.16	0.00	0.00	0.00	0.00	1.32	99.75
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.02	0.00	0.01	0.11	0.00	0.00	0.00	0.00	0.00	0.22	99.97
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.03	100.00
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		1.77	0.93	0.89	0.78	1.32	0.91	2.72	2.19	3.50	13.13	41.84	19.64	5.38	2.23	1.59	1.20		
Cumulative Total		1.77	2.69	3.59	4.37	5.69	6.60	9.32	11.50	15.00	28.13	69.96	89.60	94.98	97.21	98.80	100.00		

Autumn - Wind Speed (m/s)

		Total																	
Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.49	0.45	0.57	0.73	0.88	0.84	1.00	1.12	1.59	2.02	1.71	0.91	0.80	0.66	0.46	0.40	14.61	14.61
2	4	0.88	0.48	0.40	0.38	0.79	1.68	2.17	2.09	2.78	5.00	7.44	2.31	1.85	1.78	0.98	0.65	31.64	46.25
4	6	0.88	0.60	0.47	0.54	1.18	1.48	3.69	2.18	0.88	2.14	6.49	3.08	1.38	0.69	0.45	0.29	26.42	72.67
6	8	0.37	0.38	0.56	0.45	0.63	0.93	4.17	1.38	0.35	0.62	3.38	2.20	0.21	0.09	0.05	0.01	15.78	88.44
8	10	0.03	0.14	0.32	0.14	0.30	0.63	3.54	0.78	0.05	0.20	1.23	0.63	0.02	0.00	0.01	0.01	8.01	96.45
10	12	0.03	0.17	0.29	0.06	0.07	0.21	1.38	0.23	0.00	0.02	0.23	0.02	0.00	0.01	0.00	0.00	2.72	99.17
12	14	0.02	0.12	0.19	0.01	0.00	0.07	0.23	0.03	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.68	99.85
14	16	0.01	0.03	0.02	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11	99.95
16	18	0.00	0.03	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	100.00
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		2.70	2.39	2.83	2.30	3.84	5.83	16.23	7.82	5.64	9.99	20.49	9.15	4.26	3.23	1.94	1.36		
Cumulative Total		2.70	5.10	7.93	10.23	14.07	19.90	36.13	43.95	49.59	59.58	80.06	89.21	93.47	96.70	98.64	100.00		

Winter - Wind Speed (m/s)

		Total																	
Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.80	0.62	0.87	1.41	1.85	1.28	1.64	1.65	1.57	1.12	0.86	0.58	0.47	0.40	0.37	0.39	15.88	15.88
2	4	1.40	0.94	1.04	1.40	2.33	2.52	3.78	3.27	4.29	4.26	3.29	0.92	0.83	0.76	0.75	0.59	32.35	48.23
4	6	0.88	0.99	1.28	1.46	2.37	3.10	5.42	2.01	1.27	1.49	1.72	0.85	0.26	0.22	0.22	0.20	23.72	71.95
6	8	0.35	0.63	0.72	0.93	1.60	2.41	5.89	1.85	0.35	0.62	1.22	0.60	0.05	0.01	0.03	0.09	17.35	89.30
8	10	0.19	0.30	0.22	0.22	0.50	0.94	4.00	0.78	0.12	0.09	0.41	0.26	0.05	0.01	0.01	0.05	8.15	97.45
10	12	0.08	0.07	0.06	0.05	0.11	0.24	1.24	0.18	0.02	0.00	0.06	0.05	0.00	0.00	0.00	0.01	2.17	99.62
12	14	0.02	0.01	0.00	0.00	0.05	0.14	0.12	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.36	99.98
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.02	100.00
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		3.72	3.56	4.19	5.47	8.80	10.63	22.10	9.76	7.62	7.58	7.55	3.25	1.64	1.40	1.38	1.34		
Cumulative Total		3.72	7.27	11.47	16.94	25.74	36.36	58.47	68.23	75.85	83.43	90.98	94.23	95.88	97.28	98.66	100.00		

Spring - Wind Speed (m/s)

		Total																	
Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.13	0.09	0.09	0.11	0.12	0.10	0.32	0.60	0.90	1.09	1.04	0.57	0.31	0.16	0.20	0.09	5.92	5.92
2	4	0.17	0.05	0.07	0.09	0.14	0.19	0.64	0.75	1.97	6.04	7.73	2.59	0.98	0.71	0.37	0.20	22.69	28.61
4	6	0.30	0.13	0.12	0.06	0.14	0.30	1.01	1.15	2.10	5.54	10.00	4.18	1.38	0.37	0.12	0.09	26.99	55.60
6	8	0.19	0.16	0.18	0.10	0.19	0.29	1.47	1.17	1.04	3.33	8.63	4.71	0.59	0.03	0.00	0.01	22.07	77.67
8	10	0.03	0.12	0.09	0.05	0.22	0.36	1.87	1.00	0.36	1.26	6.05	3.06	0.13	0.00	0.00	0.00	14.59	92.26
10	12	0.00	0.02	0.01	0.06	0.10	0.21	1.61	0.44	0.05	0.42	2.29	0.86	0.03	0.00	0.00	0.00	6.10	98.36
12	14	0.00	0.00	0.00	0.01	0.03	0.08	0.52	0.13	0.02	0.04	0.39	0.09	0.00	0.00	0.00	0.00	1.31	99.67
14	16	0.00	0.00	0.00	0.00	0.00	0.02	0.16	0.04	0.00	0.02	0.06	0.00	0.00	0.00	0.00	0.00	0.30	99.96
16	18	0.00	0.00	0.00	0.00	0.00	0.01	0.03	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	100.00
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.82	0.58	0.55	0.47	0.93	1.55	7.63	5.27	6.45	17.73	36.19	16.07	3.42	1.27	0.69	0.39		
Cumulative Total		0.82	1.40	1.95	2.42	3.35	4.90	12.53	17.80	24.25	41.98	78.17	94.24	97.66	98.93	99.61	100.00		

Appendix L WWIII Hindcast Wind Data Joint Frequency Tables

OVERALL JFTS

Wind Speed (m/s)

		Total																	
Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.22	0.22	0.22	0.21	0.22	0.23	0.26	0.28	0.30	0.30	0.30	0.26	0.26	0.27	0.25	0.23	4.05	4.05
2	4	0.65	0.70	0.63	0.58	0.60	0.71	0.87	1.16	1.38	1.45	1.37	1.18	0.92	0.74	0.62	0.60	14.14	18.19
4	6	0.51	0.74	0.79	0.73	0.81	1.08	1.57	2.21	3.11	3.55	3.13	2.12	1.14	0.60	0.41	0.43	22.92	41.11
6	8	0.20	0.40	0.62	0.68	0.86	1.03	1.79	2.85	4.54	5.20	4.45	2.08	0.53	0.16	0.11	0.14	25.65	66.76
8	10	0.06	0.15	0.30	0.43	0.60	0.66	1.43	2.51	4.24	5.16	4.10	0.75	0.09	0.04	0.03	0.05	20.60	87.36
10	12	0.03	0.05	0.14	0.20	0.28	0.28	0.64	1.07	1.95	3.35	1.96	0.11	0.02	0.02	0.01	0.02	10.12	97.47
12	14	0.02	0.02	0.04	0.06	0.06	0.05	0.11	0.17	0.32	0.94	0.34	0.01	0.01	0.01	0.01	0.01	2.18	99.65
14	16	0.01	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.02	0.10	0.02	0.01	0.00	0.00	0.01	0.01	0.26	99.92
16	18	0.00	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.06	99.97
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	99.99
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	100.00
Total		1.71	2.31	2.76	2.93	3.44	4.05	6.68	10.26	15.85	20.06	15.66	6.52	2.97	1.84	1.46	1.49		
Cumulative Total		1.71	4.02	6.77	9.71	13.15	17.20	23.88	34.14	49.99	70.05	85.71	92.23	95.21	97.05	98.51	100.00		

ANNUAL JFTS

1979

1979 - Wind Speed (m/s)

		Total																	
Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.17	0.22	0.19	0.24	0.21	0.25	0.24	0.34	0.25	0.22	0.25	0.17	0.14	0.21	0.25	0.23	3.58	3.58
2	4	0.48	0.65	0.49	0.41	0.35	0.61	0.95	1.42	1.57	1.70	1.28	1.12	0.63	0.69	0.35	0.49	13.19	16.76
4	6	0.21	0.26	0.64	0.43	0.63	0.77	1.58	2.06	2.91	4.14	2.78	1.81	0.83	0.48	0.57	0.42	20.51	37.27
6	8	0.05	0.23	0.46	0.27	0.61	0.82	1.81	3.36	6.26	5.94	3.96	1.34	0.40	0.18	0.13	0.15	25.96	63.23
8	10	0.02	0.07	0.26	0.30	0.46	0.47	1.61	3.20	6.36	5.67	3.47	0.30	0.08	0.02	0.01	0.00	22.30	85.53
10	12	0.00	0.00	0.05	0.14	0.10	0.22	0.49	1.60	2.77	3.80	2.26	0.01	0.00	0.00	0.06	0.00	11.49	97.03
12	14	0.00	0.03	0.01	0.13	0.00	0.02	0.05	0.15	0.45	0.98	0.63	0.01	0.00	0.00	0.02	0.01	2.49	99.52
14	16	0.03	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.06	0.22	0.02	0.00	0.00	0.00	0.00	0.03	0.41	99.93
16	18	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	100.00
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		1.03	1.46	2.10	1.97	2.35	3.15	6.72	12.12	20.62	22.67	14.66	4.75	2.08	1.58	1.39	1.34		
Cumulative Total		1.03	2.49	4.59	6.56	8.91	12.07	18.78	30.91	51.53	74.20	88.86	93.61	95.69	97.27	98.66	100.00		

1980

1980 - Wind Speed (m/s)

		Total																	
Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.20	0.15	0.23	0.20	0.23	0.26	0.31	0.27	0.39	0.35	0.24	0.20	0.40	0.33	0.38	0.19	4.34	4.34
2	4	0.63	0.56	0.55	0.61	0.48	0.71	1.05	1.81	1.61	1.74	1.53	1.15	1.02	0.65	0.39	0.51	14.98	19.32
4	6	0.71	0.69	0.67	0.54	0.63	0.94	2.08	2.52	2.93	3.53	2.99	2.19	1.35	0.43	0.25	0.28	22.73	42.05
6	8	0.24	0.34	0.35	0.35	0.51	1.00	2.25	3.62	5.32	4.34	3.71	1.99	0.26	0.25	0.06	0.10	24.70	66.76
8	10	0.11	0.24	0.20	0.27	0.22	0.56	1.95	3.23	4.63	4.70	3.20	1.00	0.26	0.10	0.05	0.17	20.90	87.66
10	12	0.10	0.07	0.07	0.00	0.03	0.06	0.64	1.21	2.70	2.70	1.39	0.27	0.14	0.07	0.03	0.06	9.53	97.19
12	14	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.16	0.71	1.07	0.13	0.02	0.06	0.00	0.01	0.02	2.25	99.44
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.17	0.22	0.07	0.00	0.00	0.00	0.00	0.00	0.51	99.95
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.05	100.00
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		1.99	2.05	2.07	1.98	2.09	3.53	8.36	12.88	18.44	18.69	13.25	6.83	3.49	1.83	1.16	1.34		
Cumulative Total		1.99	4.04	6.11	8.09	10.19	13.72	22.07	34.95	53.39	72.09	85.34	92.17	95.66	97.50	98.66	100.00		

1981

1981 - Wind Speed (m/s)

		Total																	
Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.21	0.15	0.15	0.31	0.18	0.18	0.23	0.18	0.24	0.50	0.22	0.21	0.27	0.22	0.21	0.25	3.70	3.70
2	4	0.49	0.34	0.37	0.39	0.48	0.56	0.73	1.16	1.39	1.29	1.44	1.12	0.73	0.95	0.94	0.74	13.12	16.82
4	6	0.26	0.39	0.58	0.50	0.47	0.94	1.30	2.50	3.85	4.16	3.62	2.05	1.03	0.91	0.76	0.46	23.78	40.59
6	8	0.21	0.40	0.55	0.62	0.39	0.90	2.03	3.80	4.67	5.82	4.27	2.03	0.74	0.17	0.18	0.17	26.95	67.55
8	10	0.15	0.16	0.30	0.23	0.30	0.27	1.26	3.31	5.17	5.29	4.18	0.70	0.05	0.05	0.07	0.05	21.51	89.05
10	12	0.06	0.11	0.06	0.10	0.03	0.22	0.42	0.61	2.32	3.16	1.66	0.15	0.05	0.08	0.06	0.05	9.12	98.17
12	14	0.00	0.00	0.02	0.00	0.05	0.01	0.07	0.15	0.14	0.82	0.32	0.02	0.01	0.08	0.00	0.01	1.70	99.87
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.05	0.00	0.00	0.01	0.00	0.02	0.13	100.00
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		1.37	1.55	2.02	2.15	1.89	3.08	6.04	11.71	17.77	21.08	15.74	6.28	2.88	2.47	2.21	1.75		
Cumulative Total		1.37	2.92	4.94	7.09	8.98	12.07	18.11	29.82	47.59	68.68	84.42	90.70	93.57	96.04	98.25	100.00		

1982

1982 - Wind Speed (m/s)

		Total																	
Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.25	0.23	0.24	0.25	0.39	0.22	0.24	0.24	0.19	0.34	0.46	0.32	0.33	0.23	0.26	0.24	4.43	4.43
2	4	0.50	0.57	0.59	0.58	0.78	0.82	0.88	1.46	1.44	1.47	1.46	1.30	0.87	0.66	0.70	0.66	14.75	19.18
4	6	0.45	0.87	0.86	0.56	0.89	1.24	1.77	2.90	3.37	3.47	2.77	1.78	1.13	0.55	0.61	0.50	23.71	42.89
6	8	0.27	0.10	0.43	0.47	0.68	1.08	2.13	3.57	5.55	5.14	3.47	1.83	0.31	0.16	0.24	0.17	25.62	68.50
8	10	0.01	0.01	0.01	0.30	0.59	0.68	1.93	3.08	5.64	4.84	3.34	0.55	0.10	0.08	0.05	0.06	21.28	89.78
10	12	0.00	0.00	0.00	0.07	0.17	0.09	0.40	0.99	1.85	3.07	1.38	0.18	0.07	0.03	0.00	0.00	8.31	98.09
12	14	0.00	0.00	0.00	0.02	0.00	0.05	0.06	0.06	0.21	1.03	0.09	0.06	0.03	0.11	0.00	0.00	1.71	99.81
14	16	0.00	0.00	0.00	0.00	0.02	0.02	0.00	0.00	0.02	0.10	0.01	0.01	0.00	0.00	0.00	0.00	0.19	100.00
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		1.48	1.78	2.13	2.25	3.53	4.21	7.41	12.31	18.26	19.46	12.99	6.03	2.84	1.83	1.85	1.63		
Cumulative Total		1.48	3.26	5.40	7.65	11.18	15.39	22.80	35.10	53.37	72.83	85.82	91.85	94.69	96.52	98.37	100.00		

1983

1983 - Wind Speed (m/s)

		Total																	
Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.18	0.17	0.19	0.15	0.18	0.24	0.24	0.37	0.34	0.43	0.37	0.32	0.17	0.26	0.26	0.24	4.12	4.12
2	4	0.82	0.96	0.83	0.78	0.62	0.63	0.73	1.53	1.68	1.67	1.30	1.10	1.07	0.61	0.72	1.02	16.05	20.17
4	6	0.80	1.21	0.84	0.66	1.04	0.74	1.64	2.24	3.38	4.45	3.28	2.17	0.89	0.39	0.22	0.55	24.50	44.67
6	8	0.27	0.54	0.79	0.53	0.75	0.62	1.69	2.43	4.32	5.43	5.02	2.61	0.38	0.07	0.08	0.13	25.65	70.32
8	10	0.05	0.17	0.41	0.26	0.56	0.75	1.72	2.13	3.68	4.75	3.81	0.84	0.03	0.05	0.06	0.08	19.36	89.68
10	12	0.00	0.03	0.22	0.15	0.14	0.22	0.37	0.64	1.78	3.44	1.97	0.01	0.01	0.00	0.00	0.00	8.97	98.65
12	14	0.00	0.00	0.00	0.03	0.00	0.01	0.01	0.08	0.22	0.80	0.17	0.00	0.00	0.00	0.00	0.00	1.32	99.98
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	100.00
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		2.12	3.08	3.29	2.56	3.29	3.21	6.40	9.42	15.41	20.97	15.92	7.05	2.56	1.37	1.34	2.01		
Cumulative Total		2.12	5.21	8.49	11.05	14.34	17.55	23.95	33.37	48.78	69.75	85.67	92.73	95.29	96.66	97.99	100.00		

ANNUAL JFTS

1984

1984 - Wind Speed (m/s)

		Total																	
Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.20	0.14	0.22	0.13	0.08	0.16	0.27	0.20	0.24	0.25	0.38	0.17	0.18	0.22	0.13	0.17	3.13	3.13
2	4	0.48	0.64	0.61	0.64	0.60	0.68	0.76	1.05	1.47	1.47	1.21	1.21	1.00	0.76	0.75	0.49	13.82	16.95
4	6	0.67	0.64	0.99	0.64	0.72	1.07	1.70	2.06	2.86	3.23	3.09	2.21	1.09	0.77	0.48	0.77	22.98	39.94
6	8	0.23	0.54	0.63	0.65	0.90	1.57	2.15	2.96	3.80	4.66	4.34	2.58	0.73	0.39	0.23	0.39	26.73	66.67
8	10	0.08	0.24	0.23	0.34	0.51	0.65	2.15	2.23	3.95	4.90	4.61	0.74	0.15	0.14	0.03	0.02	20.97	87.64
10	12	0.07	0.01	0.00	0.09	0.07	0.15	0.73	0.91	2.57	3.21	1.55	0.16	0.02	0.02	0.01	0.01	9.59	97.22
12	14	0.08	0.01	0.00	0.03	0.05	0.05	0.08	0.09	0.58	0.97	0.34	0.00	0.01	0.02	0.01	0.01	2.33	99.56
14	16	0.00	0.06	0.06	0.06	0.00	0.00	0.00	0.00	0.03	0.09	0.01	0.00	0.00	0.01	0.01	0.00	0.33	99.89
16	18	0.00	0.09	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11	100.00
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		1.81	2.36	2.76	2.57	2.93	4.33	7.84	9.51	15.51	18.77	15.52	7.07	3.19	2.33	1.65	1.87		
Cumulative Total		1.81	4.17	6.92	9.49	12.42	16.75	24.59	34.10	49.60	68.37	83.89	90.96	94.15	96.48	98.13	100.00		

1985

1985 - Wind Speed (m/s)

		Total																	
Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.16	0.16	0.13	0.10	0.16	0.14	0.17	0.22	0.26	0.25	0.33	0.31	0.35	0.23	0.32	0.27	3.56	3.56
2	4	0.61	0.80	0.79	0.59	0.45	0.59	0.57	0.82	1.36	1.36	1.38	1.06	0.90	0.58	0.71	0.59	13.16	16.72
4	6	0.55	0.97	0.91	0.96	0.71	0.98	1.64	2.00	2.99	3.30	3.31	1.66	1.20	0.78	0.29	0.40	22.64	39.36
6	8	0.08	0.38	0.67	0.71	1.03	1.12	1.84	2.73	4.98	5.06	4.06	1.79	0.48	0.18	0.09	0.11	25.31	64.67
8	10	0.02	0.34	0.08	0.24	0.68	0.56	1.30	2.71	4.69	5.24	3.63	0.62	0.02	0.03	0.01	0.01	20.19	84.86
10	12	0.00	0.09	0.22	0.16	0.14	0.07	0.32	0.74	2.89	4.92	2.95	0.13	0.00	0.00	0.00	0.02	12.64	97.50
12	14	0.00	0.01	0.06	0.06	0.11	0.08	0.11	0.19	0.33	1.05	0.25	0.00	0.00	0.00	0.00	0.00	2.26	99.76
14	16	0.00	0.00	0.00	0.00	0.03	0.06	0.00	0.00	0.00	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.23	99.99
16	18	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	100.00
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		1.42	2.75	2.85	2.82	3.31	3.61	5.96	9.41	17.50	21.31	15.91	5.56	2.96	1.80	1.42	1.42		
Cumulative Total		1.42	4.17	7.02	9.84	13.15	16.76	22.72	32.12	49.62	70.94	86.85	92.41	95.37	97.17	98.58	100.00		

1986

1986 - Wind Speed (m/s)

		Total																	
Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.22	0.16	0.23	0.21	0.15	0.18	0.24	0.27	0.24	0.17	0.26	0.19	0.18	0.27	0.16	0.23	3.37	3.37
2	4	0.46	0.47	0.38	0.57	0.43	0.65	0.80	1.07	1.59	1.27	1.35	0.91	0.59	0.51	0.32	0.35	11.72	15.09
4	6	0.40	0.67	0.47	0.48	0.67	0.71	1.38	2.36	3.08	3.41	2.68	1.89	0.78	0.31	0.21	0.40	19.91	35.00
6	8	0.21	0.29	0.31	0.54	0.78	1.12	1.60	2.98	5.05	5.57	4.77	2.00	0.54	0.10	0.18	0.09	26.11	61.11
8	10	0.17	0.14	0.17	0.30	0.62	0.79	1.53	3.08	5.16	5.74	4.47	0.96	0.09	0.09	0.07	0.07	23.45	84.55
10	12	0.01	0.14	0.09	0.10	0.29	0.40	0.94	1.38	2.66	4.38	2.26	0.22	0.05	0.01	0.00	0.01	12.93	97.49
12	14	0.00	0.05	0.05	0.03	0.02	0.03	0.03	0.15	0.34	1.12	0.31	0.07	0.05	0.00	0.00	0.00	2.25	99.74
14	16	0.00	0.00	0.03	0.05	0.00	0.00	0.00	0.00	0.01	0.05	0.05	0.00	0.00	0.00	0.00	0.00	0.18	99.92
16	18	0.00	0.00	0.01	0.03	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	100.00
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		1.46	1.91	1.74	2.31	2.99	3.88	6.52	11.30	18.13	21.71	16.15	6.24	2.27	1.30	0.94	1.15		
Cumulative Total		1.46	3.37	5.10	7.41	10.40	14.28	20.80	32.10	50.23	71.94	88.09	94.34	96.61	97.91	98.85	100.00		

1987

1987 - Wind Speed (m/s)

		Total																	
Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.27	0.23	0.30	0.26	0.22	0.32	0.35	0.27	0.24	0.33	0.26	0.18	0.21	0.26	0.22	0.22	4.14	4.14
2	4	0.80	1.04	1.03	0.53	0.55	0.81	0.89	1.24	1.29	1.20	1.14	1.12	0.87	0.68	0.70	0.67	14.55	18.70
4	6	0.67	1.23	0.84	0.87	0.97	1.29	1.59	1.94	2.25	2.90	2.11	1.71	1.08	0.41	0.33	0.47	20.67	39.37
6	8	0.30	0.71	0.81	0.82	0.94	1.21	1.96	2.84	4.69	4.61	3.86	2.12	0.73	0.02	0.03	0.22	25.88	65.25
8	10	0.01	0.23	0.33	0.27	0.33	0.61	1.86	2.74	4.20	5.84	4.91	1.42	0.09	0.02	0.06	0.01	22.93	88.18
10	12	0.00	0.01	0.17	0.06	0.06	0.09	0.29	1.00	1.94	3.40	2.16	0.39	0.02	0.00	0.00	0.00	9.59	97.77
12	14	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.03	0.32	1.05	0.57	0.03	0.01	0.01	0.00	0.00	2.04	99.82
14	16	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.11	0.02	0.00	0.00	0.00	0.01	0.01	0.18	100.00
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		2.07	3.46	3.48	2.81	3.06	4.33	6.94	10.08	14.94	19.45	15.03	6.97	3.01	1.42	1.35	1.60		
Cumulative Total		2.07	5.53	9.01	11.82	14.87	19.20	26.14	36.22	51.16	70.62	85.65	92.63	95.64	97.05	98.40	100.00		

1988

1988 - Wind Speed (m/s)

		Total																	
Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.30	0.19	0.31	0.20	0.16	0.24	0.33	0.27	0.31	0.25	0.35	0.26	0.32	0.28	0.25	0.23	4.26	4.26
2	4	0.56	0.55	0.58	0.51	0.73	0.65	1.06	1.20	1.39	1.71	1.64	1.20	1.02	0.83	0.69	0.74	15.05	19.31
4	6	0.50	0.93	0.72	0.55	0.63	1.24	1.66	2.42	2.61	3.20	3.52	2.46	1.38	0.74	0.40	0.46	23.41	42.71
6	8	0.17	0.59	0.74	0.74	0.61	0.94	1.75	2.64	4.62	5.70	3.77	2.53	0.46	0.14	0.25	0.14	25.80	68.51
8	10	0.01	0.25	0.50	0.42	0.18	0.56	1.32	3.14	4.16	4.67	3.46	0.79	0.06	0.03	0.06	0.02	19.63	88.14
10	12	0.01	0.06	0.11	0.02	0.03	0.07	0.60	1.34	2.73	2.65	1.64	0.09	0.01	0.03	0.00	0.00	9.41	97.55
12	14	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.19	0.64	1.25	0.22	0.00	0.00	0.03	0.02	0.00	2.38	99.93
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.00	0.00	0.00	0.01	0.00	0.05	99.98
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	99.98
18	20	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	99.99
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	100.00
Total		1.56	2.57	2.96	2.45	2.35	3.70	6.75	11.21	16.45	19.44	14.62	7.32	3.24	2.09	1.68	1.59		
Cumulative Total		1.56	4.13	7.09	9.54	11.89	15.59	22.34	33.55	50.00	69.44	84.06	91.38	94.63	96.72	98.41	100.00		

ANNUAL JFTS

1989

1989 - Wind Speed (m/s)

		Total																	
Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.21	0.22	0.30	0.26	0.23	0.23	0.21	0.25	0.32	0.30	0.34	0.24	0.21	0.19	0.16	0.25	3.90	3.90
2	4	0.80	0.67	0.84	0.73	0.72	0.58	0.68	1.23	1.08	1.11	1.16	1.34	0.96	0.73	0.63	0.59	13.87	17.77
4	6	0.83	0.72	0.81	0.81	0.99	1.44	1.36	2.19	2.19	2.71	2.88	1.52	0.76	0.48	0.33	0.62	20.64	38.41
6	8	0.11	0.63	0.66	0.64	1.02	1.22	2.43	2.97	4.32	4.62	3.92	1.62	0.34	0.14	0.15	0.30	25.08	63.49
8	10	0.05	0.11	0.24	0.42	0.61	1.16	1.80	2.73	4.74	5.39	4.35	0.89	0.09	0.08	0.10	0.03	22.80	86.29
10	12	0.00	0.02	0.06	0.24	0.15	0.30	0.46	1.23	2.67	3.36	2.28	0.11	0.00	0.00	0.01	0.00	10.89	97.18
12	14	0.00	0.00	0.00	0.01	0.03	0.00	0.09	0.21	0.68	1.35	0.35	0.00	0.00	0.00	0.00	0.00	2.73	99.91
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.05	0.00	0.00	0.00	0.00	0.00	0.06	99.97
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.00	0.00	0.00	0.00	0.00	0.03	100.00
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		2.00	2.37	2.91	3.12	3.74	4.93	7.03	10.81	16.00	18.85	15.35	5.72	2.36	1.62	1.38	1.79		
Cumulative Total		2.00	4.37	7.28	10.40	14.14	19.08	26.11	36.92	52.92	71.77	87.12	92.84	95.21	96.83	98.21	100.00		

1990

1990 - Wind Speed (m/s)

		Total																	
Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.13	0.15	0.13	0.15	0.18	0.23	0.11	0.24	0.27	0.26	0.21	0.19	0.14	0.30	0.16	0.32	3.16	3.16
2	4	0.40	0.56	0.35	0.46	0.35	0.59	0.79	1.07	1.23	1.14	0.91	0.90	0.64	0.50	0.56	0.64	11.11	14.27
4	6	0.37	0.89	0.68	0.38	0.42	0.63	0.76	2.18	3.36	3.76	3.23	1.50	0.98	0.53	0.43	0.43	20.53	34.79
6	8	0.24	0.63	0.78	0.74	0.57	0.63	1.52	3.34	5.87	6.38	4.62	1.50	0.37	0.03	0.09	0.10	27.41	62.20
8	10	0.09	0.16	0.45	0.65	0.56	0.79	1.18	3.24	5.55	6.20	4.16	0.38	0.11	0.01	0.06	0.09	23.66	85.87
10	12	0.08	0.10	0.13	0.11	0.38	0.32	0.68	1.54	2.39	3.80	1.79	0.02	0.02	0.00	0.00	0.00	11.37	97.24
12	14	0.00	0.03	0.05	0.08	0.07	0.03	0.13	0.03	0.31	0.98	0.39	0.00	0.03	0.00	0.00	0.00	2.13	99.37
14	16	0.00	0.09	0.01	0.10	0.00	0.00	0.00	0.00	0.00	0.13	0.03	0.00	0.02	0.00	0.00	0.00	0.39	99.76
16	18	0.00	0.05	0.07	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.21	99.97
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.01	99.98
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.02	100.00
Total		1.30	2.66	2.64	2.75	2.53	3.22	5.17	11.66	18.97	22.65	15.34	4.49	2.36	1.37	1.30	1.59		
Cumulative Total		1.30	3.96	6.60	9.35	11.88	15.10	20.27	31.93	50.90	73.55	88.89	93.38	95.74	97.11	98.41	100.00		

1991

1991 - Wind Speed (m/s)

		Total																	
Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.26	0.26	0.19	0.11	0.18	0.21	0.32	0.31	0.26	0.09	0.35	0.27	0.34	0.26	0.22	0.22	3.87	3.87
2	4	0.79	0.81	0.87	0.86	0.79	0.46	0.72	1.10	1.20	1.54	1.22	0.91	1.21	0.78	0.73	0.64	14.61	18.48
4	6	0.55	0.70	0.53	0.63	0.64	0.91	1.38	2.33	2.99	3.74	3.23	1.76	1.03	0.51	0.58	0.42	21.93	40.41
6	8	0.33	0.27	0.64	0.56	0.27	0.56	1.46	2.48	4.99	5.75	4.28	2.03	0.47	0.26	0.01	0.15	24.52	64.93
8	10	0.05	0.18	0.30	0.32	0.10	0.18	1.02	2.40	4.74	6.59	4.73	0.59	0.02	0.00	0.00	0.01	21.22	86.15
10	12	0.00	0.07	0.53	0.10	0.01	0.01	0.23	0.95	2.31	3.77	2.68	0.11	0.03	0.00	0.01	0.00	10.81	96.96
12	14	0.02	0.02	0.01	0.02	0.10	0.03	0.07	0.10	0.59	1.34	0.43	0.00	0.00	0.03	0.02	0.00	2.81	99.77
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.03	0.17	0.00	0.00	0.00	0.00	0.00	0.00	0.23	100.00
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		2.00	2.32	3.06	2.60	2.10	2.36	5.21	9.67	17.11	22.99	16.93	5.68	3.11	1.85	1.58	1.44		
Cumulative Total		2.00	4.32	7.37	9.98	12.08	14.44	19.65	29.32	46.43	69.42	86.35	92.03	95.14	96.99	98.56	100.00		

1992

1992 - Wind Speed (m/s)

		Total																	
Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.22	0.27	0.19	0.17	0.07	0.13	0.18	0.31	0.24	0.33	0.32	0.24	0.32	0.30	0.17	0.25	3.70	3.70
2	4	0.42	0.42	0.39	0.41	0.48	0.47	0.76	1.14	1.65	1.50	1.23	1.14	0.94	0.65	0.57	0.47	12.64	16.34
4	6	0.31	0.48	0.41	0.59	0.52	0.82	1.55	2.17	3.68	3.75	2.90	2.27	1.51	0.74	0.54	0.36	22.60	38.93
6	8	0.26	0.39	0.61	0.43	0.58	0.97	1.62	3.14	4.86	5.95	4.17	2.50	0.77	0.26	0.19	0.10	26.82	65.76
8	10	0.07	0.08	0.02	0.23	0.24	0.44	1.35	3.51	4.27	5.66	5.24	0.50	0.18	0.02	0.07	0.00	21.88	87.64
10	12	0.06	0.03	0.15	0.02	0.08	0.51	0.87	1.25	1.67	3.32	1.94	0.00	0.00	0.01	0.00	0.00	9.92	97.55
12	14	0.00	0.02	0.02	0.00	0.02	0.02	0.28	0.27	0.38	1.08	0.25	0.00	0.00	0.00	0.00	0.00	2.36	99.91
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.06	0.02	0.00	0.00	0.00	0.00	0.00	0.09	100.00
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		1.33	1.70	1.80	1.86	1.99	3.36	6.61	11.79	16.76	21.65	16.06	6.65	3.73	1.98	1.54	1.18		
Cumulative Total		1.33	3.03	4.83	6.68	8.67	12.03	18.65	30.44	47.20	68.85	84.92	91.56	95.30	97.28	98.82	100.00		

1993

1993 - Wind Speed (m/s)

		Total																	
Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.16	0.24	0.15	0.18	0.15	0.15	0.29	0.25	0.25	0.18	0.19	0.22	0.23	0.16	0.22	0.16	3.17	3.17
2	4	0.58	0.66	0.47	0.40	0.46	0.63	0.75	1.02	1.08	1.08	1.07	0.70	0.56	0.47	0.24	0.46	10.63	13.80
4	6	0.48	0.80	0.92	0.72	0.83	1.04	1.46	2.29	2.64	3.64	2.67	1.61	1.04	0.54	0.31	0.25	21.24	35.05
6	8	0.11	0.38	0.66	0.86	1.06	0.99	1.38	2.91	4.73	5.89	4.39	2.03	0.67	0.19	0.05	0.07	26.38	61.43
8	10	0.07	0.08	0.26	0.45	1.10	0.94	1.30	2.42	4.84	5.92	4.17	0.62	0.08	0.01	0.02	0.10	22.37	83.80
10	12	0.02	0.00	0.03	0.06	0.64	0.62	1.08	1.16	2.67	4.00	2.33	0.14	0.01	0.00	0.00	0.00	12.76	96.56
12	14	0.01	0.00	0.00	0.01	0.06	0.15	0.19	0.27	0.45	1.29	0.34	0.08	0.06	0.00	0.01	0.05	2.97	99.53
14	16	0.01	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.05	0.06	0.03	0.09	0.00	0.02	0.06	0.34	99.87
16	18	0.00	0.00	0.00	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.03	0.01	0.00	0.13	100.00
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		1.45	2.16	2.50	2.67	4.36	4.52	6.46	10.33	16.66	22.05	15.23	5.42	2.76	1.40	0.88	1.14		
Cumulative Total		1.45	3.61	6.11	8.78	13.14	17.66	24.12	34.45	51.11	73.16	88.39	93.81	96.58	97.98	98.86	100.00		

ANNUAL JFTS

1994

1994 - Wind Speed (m/s)

		Total																	
Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.31	0.23	0.29	0.19	0.17	0.21	0.26	0.32	0.45	0.42	0.31	0.24	0.26	0.37	0.22	0.19	4.43	4.43
2	4	0.86	1.29	0.90	0.47	0.62	0.66	1.03	1.45	1.97	1.59	1.69	1.47	0.71	0.74	0.68	0.65	16.78	21.21
4	6	0.91	1.48	1.21	0.95	1.04	1.44	1.87	2.64	3.81	3.64	2.61	1.99	1.11	0.47	0.26	0.29	25.72	46.93
6	8	0.09	0.42	0.62	0.70	0.96	1.29	2.16	3.18	5.15	3.72	4.17	1.61	0.43	0.06	0.01	0.09	24.66	71.59
8	10	0.10	0.10	0.23	0.30	0.47	0.48	1.50	2.39	4.75	4.30	3.32	0.67	0.13	0.00	0.00	0.00	18.73	90.32
10	12	0.01	0.00	0.06	0.05	0.19	0.32	0.68	0.95	2.17	3.00	1.13	0.08	0.01	0.00	0.00	0.00	8.65	98.97
12	14	0.00	0.01	0.03	0.03	0.06	0.05	0.01	0.03	0.14	0.43	0.09	0.00	0.00	0.00	0.00	0.00	0.89	99.86
14	16	0.00	0.00	0.00	0.03	0.05	0.01	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.14	100.00
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		2.28	3.54	3.33	2.72	3.55	4.45	7.51	10.96	18.44	17.16	13.32	6.06	2.65	1.63	1.18	1.22		
Cumulative Total		2.28	5.82	9.16	11.87	15.42	19.87	27.39	38.34	56.78	73.94	87.26	93.32	95.97	97.60	98.78	100.00		

1995

1995 - Wind Speed (m/s)

		Total																	
Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.29	0.32	0.23	0.13	0.26	0.23	0.38	0.21	0.24	0.24	0.39	0.24	0.30	0.29	0.27	0.24	4.24	4.24
2	4	0.89	0.64	0.46	0.55	0.67	0.72	0.90	1.06	1.30	1.67	1.44	1.06	0.55	0.64	0.50	0.49	13.54	17.77
4	6	0.63	0.79	0.86	0.75	0.81	1.27	1.46	2.03	3.06	4.02	3.68	2.24	1.18	0.64	0.40	0.41	24.21	41.99
6	8	0.19	0.27	0.49	0.49	0.81	1.00	1.68	2.73	4.13	6.40	5.06	2.45	0.70	0.11	0.13	0.18	26.84	68.82
8	10	0.05	0.26	0.45	0.48	0.64	1.23	1.74	1.76	3.29	4.87	3.07	0.61	0.15	0.14	0.08	0.01	18.81	87.64
10	12	0.03	0.00	0.24	0.37	1.18	0.66	0.74	0.76	1.26	2.10	1.24	0.06	0.05	0.01	0.00	0.11	8.81	96.45
12	14	0.00	0.02	0.29	0.14	0.37	0.03	0.14	0.19	0.29	0.53	0.32	0.00	0.02	0.01	0.02	0.07	2.43	98.88
14	16	0.03	0.03	0.14	0.07	0.00	0.01	0.01	0.00	0.07	0.16	0.06	0.08	0.00	0.00	0.00	0.03	0.70	99.58
16	18	0.05	0.01	0.01	0.02	0.00	0.00	0.05	0.00	0.02	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.24	99.82
18	20	0.00	0.00	0.00	0.00	0.05	0.13	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.18	100.00
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		2.16	2.35	3.15	2.99	4.78	5.29	7.09	8.74	13.65	20.08	15.25	6.74	2.93	1.84	1.40	1.55		
Cumulative Total		2.16	4.51	7.66	10.65	15.43	20.72	27.81	36.55	50.21	70.29	85.54	92.27	95.21	97.04	98.45	100.00		

1996

1996 - Wind Speed (m/s)

		Total																	
Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.32	0.26	0.16	0.16	0.23	0.24	0.22	0.25	0.32	0.25	0.31	0.28	0.34	0.31	0.32	0.28	4.25	4.25
2	4	0.87	0.94	0.76	0.74	0.50	0.82	1.06	1.28	1.72	1.97	1.67	1.40	1.09	0.98	0.93	0.96	17.69	21.94
4	6	0.85	0.77	0.96	0.92	0.89	1.24	1.56	2.20	3.97	4.29	2.94	2.09	1.16	0.68	0.67	0.50	25.71	47.64
6	8	0.20	0.48	0.52	0.44	0.72	1.41	1.58	3.24	3.89	4.94	3.34	1.87	0.75	0.23	0.09	0.19	23.91	71.55
8	10	0.10	0.15	0.15	0.19	0.22	0.55	1.09	2.52	4.38	4.46	3.18	0.48	0.06	0.02	0.06	0.14	17.74	89.29
10	12	0.01	0.11	0.03	0.00	0.00	0.19	0.39	0.76	2.00	3.13	1.73	0.07	0.02	0.01	0.00	0.11	8.58	97.87
12	14	0.11	0.02	0.02	0.00	0.00	0.03	0.09	0.14	0.22	0.66	0.30	0.00	0.00	0.02	0.08	0.06	1.75	99.62
14	16	0.03	0.01	0.00	0.01	0.02	0.00	0.05	0.01	0.01	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.20	99.83
16	18	0.00	0.05	0.01	0.01	0.00	0.05	0.02	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.17	100.00
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		2.50	2.80	2.62	2.48	2.57	4.53	6.06	10.39	16.55	19.76	13.46	6.19	3.43	2.25	2.15	2.24		
Cumulative Total		2.50	5.31	7.92	10.41	12.98	17.51	23.57	33.96	50.51	70.28	83.73	89.92	93.35	95.61	97.76	100.00		

1997

1997 - Wind Speed (m/s)

		Total																	
Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.11	0.19	0.24	0.26	0.34	0.26	0.21	0.25	0.38	0.30	0.25	0.38	0.25	0.27	0.16	0.15	4.01	4.01
2	4	0.74	0.59	0.58	0.49	0.72	0.49	0.87	1.24	1.42	1.63	1.47	1.28	0.79	0.56	0.53	0.58	13.98	17.99
4	6	0.51	0.33	0.84	0.73	0.75	0.86	1.21	2.37	3.61	3.62	3.32	2.36	1.22	0.72	0.33	0.40	23.20	41.19
6	8	0.40	0.46	0.87	0.70	0.82	0.92	1.70	3.37	5.01	4.53	4.34	2.31	0.50	0.22	0.06	0.13	26.32	67.51
8	10	0.01	0.27	0.67	0.72	1.08	0.57	1.54	2.29	5.01	4.76	3.80	0.58	0.11	0.09	0.06	0.08	21.67	89.18
10	12	0.00	0.06	0.23	0.58	0.63	0.31	0.54	0.83	1.43	2.83	1.38	0.22	0.01	0.03	0.01	0.08	9.17	98.34
12	14	0.01	0.01	0.03	0.06	0.07	0.18	0.33	0.02	0.10	0.50	0.24	0.00	0.00	0.01	0.03	0.00	1.61	99.95
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.05	100.00
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		1.79	1.92	3.47	3.54	4.42	3.60	6.42	10.39	16.95	18.18	14.81	7.12	2.89	1.92	1.18	1.42		
Cumulative Total		1.79	3.71	7.18	10.72	15.14	18.73	25.15	35.54	52.49	70.67	85.48	92.60	95.49	97.41	98.58	100.00		

1998

1998 - Wind Speed (m/s)

		Total																	
Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.16	0.18	0.26	0.23	0.26	0.23	0.24	0.32	0.25	0.32	0.32	0.25	0.29	0.24	0.29	0.16	4.00	4.00
2	4	0.63	0.57	0.51	0.74	0.88	0.78	1.06	1.23	1.43	1.62	1.38	1.26	1.24	0.74	0.51	0.51	15.10	19.10
4	6	0.66	0.54	0.50	0.84	0.73	0.88	1.80	2.16	3.31	3.36	2.75	2.00	1.32	0.57	0.51	0.72	22.66	41.76
6	8	0.37	0.32	0.79	0.72	0.87	1.22	1.99	2.97	4.29	5.13	4.32	2.00	0.39	0.06	0.06	0.09	25.56	67.32
8	10	0.09	0.22	0.40	0.47	0.84	0.50	1.38	2.68	4.69	5.01	3.55	0.86	0.05	0.00	0.02	0.02	20.79	88.11
10	12	0.01	0.02	0.15	0.25	0.11	0.26	0.73	0.94	1.74	3.23	1.53	0.11	0.01	0.02	0.00	0.06	9.18	97.28
12	14	0.00	0.00	0.00	0.05	0.00	0.07	0.11	0.27	0.31	1.05	0.43	0.00	0.01	0.00	0.01	0.00	2.32	99.60
14	16	0.00	0.00	0.03	0.05	0.00	0.00	0.00	0.06	0.05	0.11	0.01	0.00	0.00	0.00	0.00	0.01	0.32	99.92
16	18	0.01	0.01	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	99.99
18	20	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	100.00
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		1.93	1.87	2.68	3.36	3.70	3.94	7.32	10.63	16.06	19.83	14.29	6.47	3.31	1.63	1.40	1.58		
Cumulative Total		1.93	3.80	6.48	9.84	13.54	17.48	24.79	35.42	51.48	71.31	85.61	92.08	95.39	97.02	98.42	100.00		

ANNUAL JFTS

1999

1999 - Wind Speed (m/s)

		Total																	
Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.34	0.31	0.41	0.22	0.35	0.26	0.39	0.27	0.17	0.31	0.29	0.29	0.34	0.33	0.24	0.26	4.78	4.78
2	4	0.82	1.00	1.02	0.68	0.86	1.03	0.91	1.19	1.54	1.62	1.14	1.20	0.99	0.87	0.81	0.71	16.39	21.18
4	6	0.48	1.32	1.75	1.21	1.48	1.46	2.23	2.39	3.63	3.78	3.30	2.31	0.98	0.66	0.41	0.38	27.76	48.94
6	8	0.34	0.76	1.07	1.24	1.35	1.27	1.87	2.32	3.73	4.06	4.12	2.05	0.57	0.25	0.22	0.29	25.53	74.46
8	10	0.08	0.24	0.18	0.61	0.75	0.88	1.38	1.62	3.24	3.48	2.92	0.65	0.05	0.03	0.02	0.06	16.20	90.66
10	12	0.06	0.01	0.05	0.17	0.31	0.17	0.55	0.76	1.29	2.72	1.26	0.09	0.00	0.03	0.00	0.01	7.48	98.14
12	14	0.01	0.00	0.00	0.01	0.02	0.00	0.00	0.16	0.16	0.87	0.24	0.01	0.01	0.03	0.00	0.00	1.53	99.67
14	16	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.07	0.00	0.00	0.01	0.00	0.00	0.00	0.10	99.77
16	18	0.00	0.00	0.00	0.00	0.00	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.07	99.84
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.01	99.85
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.02	0.01	0.00	0.01	0.01	0.06	0.00	0.00	0.00	0.15	100.00
Total		2.13	3.65	4.47	4.14	5.13	5.13	7.37	8.73	13.78	16.91	13.28	6.61	3.05	2.21	1.70	1.70		
Cumulative Total		2.13	5.79	10.26	14.41	19.53	24.66	32.03	40.76	54.54	71.45	84.73	91.34	94.38	96.60	98.30	100.00		

2000

2000 - Wind Speed (m/s)

		Total																	
Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.32	0.24	0.32	0.15	0.27	0.26	0.28	0.23	0.33	0.44	0.36	0.31	0.25	0.33	0.28	0.26	4.64	4.64
2	4	0.75	0.87	0.69	0.57	0.68	0.85	0.75	1.18	1.46	1.46	1.47	1.18	1.02	0.97	0.76	0.61	15.29	19.93
4	6	0.63	0.74	1.00	0.96	0.91	1.49	1.33	2.53	3.29	3.55	2.99	2.08	1.21	0.73	0.25	0.33	24.02	43.95
6	8	0.20	0.51	1.15	1.21	1.17	1.23	1.55	3.23	3.69	4.17	4.04	2.38	0.84	0.14	0.02	0.07	25.60	69.56
8	10	0.01	0.09	0.64	1.35	1.01	0.88	1.48	2.70	3.52	2.99	2.40	1.29	0.22	0.01	0.01	0.00	18.60	88.16
10	12	0.00	0.00	0.16	0.58	0.61	0.38	0.50	0.84	1.97	2.20	1.59	0.09	0.11	0.08	0.01	0.00	9.13	97.29
12	14	0.00	0.00	0.00	0.13	0.03	0.01	0.17	0.34	0.14	0.73	0.36	0.00	0.00	0.06	0.09	0.00	2.06	99.35
14	16	0.00	0.00	0.00	0.02	0.02	0.00	0.00	0.00	0.02	0.05	0.03	0.06	0.05	0.00	0.11	0.00	0.36	99.72
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.05	0.03	0.01	0.02	0.05	0.00	0.00	0.23	99.94
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.00	0.00	0.06	100.00
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		1.91	2.45	3.96	4.96	4.72	5.10	6.07	11.05	14.48	15.63	13.30	7.40	3.72	2.41	1.55	1.28		
Cumulative Total		1.91	4.36	8.32	13.29	18.01	23.11	29.18	40.23	54.71	70.34	83.64	91.04	94.76	97.18	98.72	100.00		

2001

2001 - Wind Speed (m/s)

		Total																	
Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.29	0.40	0.31	0.37	0.17	0.24	0.33	0.40	0.40	0.27	0.37	0.24	0.29	0.32	0.27	0.34	5.00	5.00
2	4	0.79	0.98	0.74	0.83	0.67	1.07	1.15	1.20	1.32	1.64	1.62	1.20	0.94	0.66	0.65	0.81	16.29	21.29
4	6	0.86	0.97	0.96	1.16	1.22	1.45	2.05	1.74	2.51	2.71	3.16	2.11	1.20	0.66	0.61	0.81	24.18	45.47
6	8	0.15	0.48	0.92	1.19	1.35	1.19	1.85	2.17	3.55	4.66	3.89	1.75	0.56	0.31	0.14	0.14	24.28	69.75
8	10	0.03	0.11	0.33	0.58	0.73	0.53	1.75	2.21	3.71	4.89	3.80	1.14	0.10	0.02	0.00	0.00	19.94	89.69
10	12	0.00	0.03	0.15	0.17	0.27	0.24	0.67	0.90	1.45	2.88	2.08	0.07	0.00	0.00	0.00	0.00	8.92	98.61
12	14	0.00	0.00	0.01	0.07	0.01	0.02	0.00	0.02	0.17	0.66	0.33	0.00	0.00	0.00	0.00	0.00	1.30	99.91
14	16	0.00	0.01	0.01	0.02	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.08	99.99
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	99.99
18	20	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	100.00
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		2.11	2.99	3.45	4.39	4.43	4.74	7.81	8.64	13.12	17.74	15.25	6.51	3.08	1.97	1.67	2.10		
Cumulative Total		2.11	5.10	8.55	12.95	17.37	22.11	29.92	38.56	51.68	69.42	84.67	91.18	94.26	96.23	97.90	100.00		

2002

2002 - Wind Speed (m/s)

		Total																	
Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.29	0.22	0.17	0.18	0.24	0.25	0.22	0.38	0.39	0.42	0.34	0.33	0.32	0.33	0.33	0.19	4.60	4.60
2	4	0.53	0.66	0.66	0.50	0.51	0.63	1.06	1.16	1.46	1.62	1.61	1.44	1.08	0.72	0.72	0.68	15.06	19.66
4	6	0.42	0.32	0.83	0.68	0.75	0.92	1.70	1.96	3.29	3.98	3.68	2.41	1.62	0.86	0.39	0.27	24.10	43.76
6	8	0.27	0.41	0.42	0.62	0.58	0.78	1.34	2.71	5.14	4.66	4.77	2.37	0.64	0.08	0.05	0.06	24.89	68.64
8	10	0.08	0.27	0.45	0.30	0.37	0.48	0.90	1.99	4.62	5.31	4.08	0.80	0.14	0.02	0.01	0.02	19.83	88.47
10	12	0.00	0.00	0.32	0.10	0.14	0.26	0.78	1.23	2.12	2.99	1.84	0.13	0.01	0.02	0.07	0.01	10.02	98.49
12	14	0.00	0.00	0.14	0.00	0.01	0.01	0.11	0.17	0.16	0.71	0.18	0.00	0.00	0.00	0.01	0.00	1.51	100.00
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		1.59	1.88	2.99	2.39	2.60	3.33	6.11	9.60	17.18	19.69	16.50	7.48	3.81	2.03	1.58	1.24		
Cumulative Total		1.59	3.47	6.46	8.85	11.45	14.78	20.89	30.49	47.67	67.36	83.86	91.34	95.15	97.18	98.76	100.00		

2003

2003 - Wind Speed (m/s)

		Total																	
Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.19	0.19	0.16	0.17	0.23	0.18	0.21	0.23	0.21	0.21	0.29	0.35	0.23	0.31	0.14	0.32	3.61	3.61
2	4	0.61	0.55	0.42	0.41	0.42	0.66	0.74	1.05	1.44	1.30	1.69	1.19	0.90	0.66	0.63	0.64	13.31	16.92
4	6	0.49	0.58	0.54	0.54	0.63	1.04	1.80	2.24	3.56	3.85	3.18	2.57	1.13	0.62	0.35	0.47	23.58	40.50
6	8	0.10	0.19	0.30	0.42	0.55	0.89	1.89	2.91	4.65	5.61	4.42	2.42	1.02	0.40	0.24	0.13	26.13	66.63
8	10	0.00	0.08	0.22	0.32	0.53	0.40	1.00	2.96	4.45	5.66	4.92	0.94	0.14	0.13	0.02	0.00	21.76	88.39
10	12	0.00	0.00	0.08	0.08	0.05	0.21	0.45	0.82	1.89	3.28	2.07	0.18	0.07	0.03	0.00	0.00	9.20	97.59
12	14	0.00	0.00	0.00	0.01	0.02	0.05	0.15	0.05	0.24	0.97	0.68	0.07	0.00	0.00	0.00	0.00	2.24	99.83
14	16	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.02	0.05	0.05	0.05	0.00	0.00	0.00	0.00	0.17	100.00
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		1.39	1.60	1.71	1.96	2.42	3.42	6.24	10.25	16.46	20.91	17.29	7.76	3.48	2.15	1.38	1.55		
Cumulative Total		1.39	2.99	4.70	6.67	9.09	12.51	18.76	29.01	45.47	66.38	83.68	91.44	94.92	97.07	98.45	100.00		

ANNUAL JFTS

2004

2004 - Wind Speed (m/s)

		Total																	
Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.15	0.20	0.06	0.15	0.11	0.19	0.25	0.26	0.25	0.41	0.13	0.15	0.24	0.15	0.22	0.23	3.14	3.14
2	4	0.61	0.67	0.57	0.34	0.27	0.44	0.68	1.08	1.35	1.38	1.17	0.77	0.66	0.75	0.60	0.55	11.92	15.06
4	6	0.58	0.93	0.93	0.72	0.83	0.89	1.24	2.28	2.48	3.02	3.27	1.39	0.85	0.56	0.30	0.30	20.56	35.62
6	8	0.35	0.55	0.72	0.56	0.75	1.16	1.79	3.11	5.11	6.20	4.69	1.62	0.20	0.06	0.02	0.15	27.04	62.66
8	10	0.06	0.24	0.15	0.32	0.57	0.68	1.50	2.45	5.20	6.48	4.29	0.55	0.03	0.01	0.00	0.07	22.60	85.26
10	12	0.00	0.09	0.03	0.06	0.09	0.50	0.88	0.85	2.25	4.93	2.89	0.07	0.00	0.00	0.00	0.00	12.65	97.91
12	14	0.00	0.00	0.05	0.00	0.00	0.13	0.13	0.07	0.10	0.76	0.55	0.01	0.00	0.00	0.00	0.00	1.79	99.69
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.20	0.10	0.00	0.00	0.00	0.00	0.00	0.31	100.00
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		1.75	2.69	2.50	2.14	2.63	4.00	6.47	10.10	16.76	23.38	17.09	4.55	1.99	1.53	1.14	1.29		
Cumulative Total		1.75	4.44	6.94	9.08	11.71	15.71	22.18	32.27	49.03	72.42	89.50	94.06	96.05	97.58	98.71	100.00		

2005

2005 - Wind Speed (m/s)

		Total																	
Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.10	0.16	0.16	0.11	0.27	0.14	0.15	0.16	0.30	0.30	0.25	0.22	0.32	0.17	0.21	0.14	3.15	3.15
2	4	0.43	0.55	0.51	0.39	0.41	0.73	0.79	0.95	1.05	1.23	1.14	1.11	0.68	0.39	0.26	0.33	10.96	14.11
4	6	0.38	0.80	0.71	0.51	0.39	0.96	1.45	1.77	2.68	3.13	3.25	1.95	0.86	0.43	0.33	0.56	20.16	34.27
6	8	0.11	0.66	0.82	0.89	0.84	1.16	1.59	2.49	4.18	5.70	5.42	2.50	0.41	0.08	0.07	0.16	27.09	61.36
8	10	0.10	0.17	0.42	0.64	0.56	0.50	1.38	2.68	5.50	6.35	5.57	1.23	0.02	0.02	0.03	0.05	25.24	86.60
10	12	0.06	0.03	0.11	0.29	0.07	0.07	0.68	1.16	2.04	4.35	2.53	0.11	0.03	0.01	0.01	0.00	11.58	98.17
12	14	0.00	0.00	0.01	0.05	0.00	0.00	0.00	0.01	0.34	0.82	0.39	0.00	0.00	0.02	0.00	0.00	1.64	99.82
14	16	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.02	0.00	0.00	0.00	0.00	0.00	0.18	100.00
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		1.19	2.39	2.76	2.88	2.55	3.56	6.04	9.22	16.10	22.01	18.58	7.12	2.33	1.13	0.91	1.23		
Cumulative Total		1.19	3.57	6.34	9.21	11.76	15.32	21.36	30.58	46.68	68.69	87.27	94.39	96.72	97.85	98.77	100.00		

2006

2006 - Wind Speed (m/s)

		Total																	
Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.25	0.30	0.32	0.38	0.27	0.41	0.29	0.42	0.45	0.30	0.26	0.24	0.26	0.37	0.31	0.29	5.10	5.10
2	4	0.71	0.83	0.68	0.92	0.84	0.87	1.15	1.13	1.22	1.40	1.39	1.52	1.04	1.03	0.68	0.55	15.98	21.08
4	6	0.53	0.78	0.74	0.86	1.07	1.46	1.61	2.16	3.45	4.00	2.95	2.33	1.16	0.42	0.23	0.19	23.93	45.01
6	8	0.22	0.32	0.61	0.76	1.51	1.30	2.04	2.44	4.63	5.48	3.82	1.85	0.27	0.05	0.06	0.08	25.45	70.46
8	10	0.05	0.05	0.19	0.45	0.75	0.92	1.02	2.04	4.26	4.45	3.39	0.46	0.01	0.00	0.00	0.01	18.05	88.50
10	12	0.02	0.03	0.03	0.25	0.29	0.30	0.54	0.57	1.85	3.61	1.67	0.07	0.00	0.00	0.00	0.00	9.22	97.73
12	14	0.00	0.05	0.01	0.13	0.02	0.09	0.17	0.06	0.26	0.72	0.24	0.00	0.00	0.00	0.00	0.00	1.75	99.47
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.03	0.19	0.03	0.00	0.00	0.00	0.00	0.00	0.38	99.85
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.03	0.05	0.01	0.00	0.00	0.00	0.00	0.00	0.11	99.97
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	99.99
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	100.00
Total		1.77	2.35	2.59	3.74	4.76	5.35	6.83	8.96	16.21	20.19	13.77	6.46	2.75	1.86	1.28	1.12		
Cumulative Total		1.77	4.12	6.71	10.46	15.22	20.57	27.40	36.36	52.57	72.76	86.53	92.99	95.74	97.60	98.88	100.00		

2007

2007 - Wind Speed (m/s)

		Total																	
Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.21	0.21	0.24	0.16	0.24	0.11	0.17	0.25	0.30	0.25	0.15	0.22	0.17	0.11	0.19	0.23	3.21	3.21
2	4	0.34	0.65	0.54	0.55	0.56	0.79	1.03	1.02	1.20	1.14	1.19	0.91	0.86	0.49	0.43	0.37	12.05	15.26
4	6	0.64	1.07	1.02	0.66	0.91	0.92	1.39	2.35	3.40	3.72	3.31	1.75	1.18	0.49	0.42	0.39	23.63	38.89
6	8	0.21	0.49	1.02	0.80	0.91	0.86	1.56	2.72	4.58	5.51	5.40	2.24	0.42	0.11	0.10	0.10	27.03	65.92
8	10	0.08	0.09	0.64	0.54	0.50	0.62	1.12	2.43	4.55	4.90	4.75	0.75	0.06	0.05	0.00	0.00	21.07	87.00
10	12	0.01	0.01	0.30	0.23	0.02	0.21	0.62	1.54	2.11	3.66	2.12	0.05	0.01	0.00	0.00	0.01	10.90	97.90
12	14	0.01	0.00	0.00	0.05	0.00	0.03	0.01	0.06	0.34	1.03	0.46	0.00	0.01	0.01	0.00	0.01	2.02	99.92
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.03	0.02	0.00	0.00	0.00	0.01	0.00	0.08	100.00
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		1.50	2.52	3.74	2.98	3.15	3.54	5.90	10.37	16.50	20.25	17.40	5.91	2.71	1.27	1.16	1.11		
Cumulative Total		1.50	4.02	7.76	10.74	13.89	17.43	23.33	33.70	50.19	70.45	87.84	93.76	96.46	97.73	98.89	100.00		

2008

2008 - Wind Speed (m/s)

		Total																	
Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.19	0.18	0.24	0.25	0.40	0.32	0.27	0.35	0.28	0.36	0.27	0.30	0.25	0.28	0.30	0.16	4.42	4.42
2	4	1.06	0.58	0.68	0.72	0.73	0.94	0.89	1.17	1.56	1.59	1.46	1.22	1.05	1.00	0.69	0.91	16.26	20.67
4	6	0.48	0.61	0.84	0.65	1.07	1.28	1.37	2.40	3.09	3.97	3.11	2.09	1.01	0.67	0.55	0.64	23.83	44.50
6	8	0.33	0.51	0.43	0.74	1.07	1.09	1.95	3.18	4.37	4.11	2.95	1.37	0.31	0.11	0.24	0.06	22.81	67.32
8	10	0.07	0.28	0.23	0.33	0.84	0.67	1.61	2.80	4.20	4.18	2.94	0.58	0.03	0.06	0.14	0.27	19.23	86.54
10	12	0.01	0.13	0.01	0.10	0.51	0.52	0.60	1.09	2.06	3.49	1.62	0.08	0.00	0.00	0.08	0.05	10.36	96.90
12	14	0.00	0.09	0.11	0.03	0.08	0.07	0.10	0.25	0.48	1.08	0.24	0.00	0.00	0.03	0.06	0.03	2.66	99.57
14	16	0.00	0.00	0.01	0.03	0.05	0.07	0.02	0.00	0.03	0.13	0.00	0.00	0.00	0.05	0.02	0.00	0.41	99.98
16	18	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	100.00
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		2.14	2.39	2.56	2.87	4.75	4.97	6.81	11.25	16.07	18.92	12.58	5.64	2.65	2.21	2.07	2.12		
Cumulative Total		2.14	4.53	7.09	9.96	14.71	19.68	26.49	37.74	53.81	72.73	85.31	90.95	93.60	95.81	97.88	100.00		

ANNUAL JFTS

2009

2009 - Wind Speed (m/s)

		Total																	
Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.18	0.24	0.16	0.16	0.14	0.19	0.25	0.31	0.31	0.37	0.26	0.21	0.22	0.23	0.29	0.21	3.71	3.71
2	4	0.70	0.56	0.48	0.74	0.62	0.58	0.70	1.32	1.46	1.30	1.43	1.36	1.18	0.97	0.68	0.66	14.74	18.45
4	6	0.45	0.47	0.57	0.58	0.73	1.08	1.39	2.32	3.90	4.46	3.45	2.31	1.03	0.98	0.45	0.46	24.62	43.07
6	8	0.13	0.14	0.26	0.70	0.76	0.95	1.45	2.58	4.99	6.12	5.19	1.97	0.65	0.11	0.08	0.08	26.16	69.24
8	10	0.00	0.07	0.02	0.27	0.57	0.90	1.42	2.63	3.72	6.24	4.27	0.73	0.02	0.00	0.00	0.02	20.89	90.13
10	12	0.00	0.00	0.00	0.11	0.22	0.24	0.40	0.78	1.78	2.74	1.69	0.10	0.00	0.00	0.00	0.00	8.06	98.18
12	14	0.00	0.00	0.00	0.00	0.00	0.00	0.19	0.15	0.26	0.83	0.30	0.00	0.00	0.00	0.00	0.00	1.74	99.92
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.08	100.00
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		1.45	1.47	1.50	2.57	3.04	3.95	5.80	10.08	16.46	22.11	16.59	6.68	3.09	2.29	1.50	1.43		
Cumulative Total		1.45	2.92	4.42	6.99	10.02	13.97	19.77	29.85	46.31	68.42	85.01	91.69	94.78	97.08	98.57	100.00		

2010

2010 - Wind Speed (m/s)

		Total																	
Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.10	0.16	0.10	0.13	0.11	0.22	0.19	0.24	0.24	0.30	0.19	0.22	0.13	0.16	0.10	0.15	2.74	2.74
2	4	0.45	0.50	0.50	0.53	0.39	0.48	0.73	1.10	1.07	1.52	1.42	0.99	0.80	0.67	0.46	0.42	12.02	14.76
4	6	0.49	0.70	0.66	0.71	0.86	0.87	1.80	2.34	2.92	3.76	3.72	2.97	1.50	0.55	0.40	0.42	24.66	39.42
6	8	0.31	0.59	0.57	0.88	1.02	0.79	2.03	2.98	4.13	6.86	5.62	2.68	0.87	0.35	0.08	0.05	29.81	69.22
8	10	0.10	0.37	0.33	0.45	0.98	0.82	1.19	1.80	2.91	4.97	5.30	0.84	0.30	0.07	0.09	0.16	20.67	89.90
10	12	0.02	0.05	0.24	0.23	0.30	0.34	0.89	1.00	1.15	2.82	1.58	0.01	0.02	0.01	0.00	0.03	8.70	98.60
12	14	0.11	0.15	0.09	0.01	0.05	0.00	0.06	0.10	0.05	0.47	0.18	0.00	0.00	0.00	0.00	0.00	1.27	99.86
14	16	0.05	0.06	0.02	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	100.00
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		1.63	2.57	2.52	2.92	3.70	3.52	6.91	9.57	12.48	20.68	18.00	7.72	3.61	1.82	1.13	1.23		
Cumulative Total		1.63	4.20	6.72	9.65	13.34	16.86	23.77	33.33	45.81	66.50	84.50	92.21	95.82	97.64	98.77	100.00		

2011

2011 - Wind Speed (m/s)

		Total																	
Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.33	0.37	0.29	0.42	0.29	0.41	0.33	0.30	0.30	0.41	0.42	0.34	0.35	0.59	0.24	0.37	5.75	5.75
2	4	1.04	0.74	0.89	0.88	0.74	0.88	1.20	1.04	1.14	1.37	1.29	1.45	0.82	0.83	1.12	1.11	16.54	22.29
4	6	0.83	1.05	0.88	1.18	0.94	1.28	1.92	2.26	2.66	2.61	2.71	2.15	1.05	0.74	0.72	0.89	23.86	46.15
6	8	0.38	0.67	0.99	0.92	1.07	1.21	1.91	2.13	3.40	3.78	4.03	1.79	0.46	0.14	0.13	0.23	23.24	69.39
8	10	0.19	0.33	0.72	0.67	0.98	0.83	1.19	1.67	2.63	3.95	3.66	0.43	0.03	0.02	0.00	0.06	17.37	86.77
10	12	0.29	0.16	0.27	0.64	0.83	0.56	0.96	0.71	1.12	2.82	1.43	0.05	0.00	0.00	0.00	0.05	9.87	96.64
12	14	0.07	0.06	0.29	0.30	0.27	0.17	0.07	0.09	0.15	0.62	0.25	0.00	0.00	0.00	0.00	0.03	2.36	99.01
14	16	0.07	0.07	0.06	0.11	0.07	0.02	0.02	0.01	0.03	0.05	0.00	0.00	0.00	0.00	0.00	0.02	0.54	99.54
16	18	0.01	0.00	0.01	0.01	0.02	0.01	0.02	0.00	0.01	0.02	0.00	0.00	0.00	0.00	0.01	0.01	0.15	99.69
18	20	0.01	0.00	0.00	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.06	99.75
>20		0.02	0.06	0.02	0.02	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01	0.25	100.00
Total		3.24	3.50	4.42	5.17	5.26	5.40	7.61	8.21	11.44	15.63	13.79	6.21	2.72	2.33	2.29	2.77		
Cumulative Total		3.24	6.75	11.16	16.34	21.60	27.00	34.61	42.82	54.26	69.89	83.68	89.89	92.60	94.93	97.23	100.00		

2012

2012 - Wind Speed (m/s)

		Total																	
Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.38	0.30	0.31	0.31	0.30	0.38	0.39	0.41	0.39	0.30	0.23	0.32	0.36	0.38	0.35	0.31	5.38	5.38
2	4	0.96	1.08	0.98	0.75	0.97	1.00	1.17	1.51	1.39	1.57	1.47	1.29	1.30	1.35	0.81	0.79	18.39	23.77
4	6	0.47	0.91	1.26	1.18	1.09	1.17	1.54	2.31	3.03	3.14	3.07	2.27	0.99	0.65	0.35	0.49	23.93	47.70
6	8	0.11	0.32	0.66	0.98	1.13	0.96	1.48	2.50	3.68	4.60	4.71	1.43	0.33	0.05	0.01	0.13	23.08	70.78
8	10	0.17	0.15	0.52	0.80	0.80	0.76	0.98	1.87	2.98	4.47	3.67	0.33	0.01	0.08	0.01	0.03	17.63	88.41
10	12	0.09	0.33	0.40	0.73	0.56	0.25	0.65	1.17	1.10	2.47	1.42	0.00	0.00	0.00	0.01	0.02	9.21	97.62
12	14	0.07	0.05	0.06	0.49	0.25	0.09	0.01	0.03	0.19	0.47	0.08	0.00	0.00	0.00	0.00	0.05	1.83	99.45
14	16	0.00	0.03	0.03	0.14	0.10	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.34	99.80
16	18	0.00	0.00	0.00	0.07	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.20	100.00
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		2.24	3.16	4.22	5.44	5.33	4.61	6.22	9.81	12.76	17.05	14.65	5.64	2.99	2.50	1.55	1.81		
Cumulative Total		2.24	5.41	9.63	15.07	20.40	25.01	31.23	41.04	53.80	70.86	85.51	91.14	94.14	96.64	98.19	100.00		

2013

2013 - Wind Speed (m/s)

		Total																	
Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.13	0.10	0.14	0.22	0.19	0.19	0.25	0.32	0.32	0.24	0.25	0.29	0.26	0.17	0.25	0.09	3.41	3.41
2	4	0.38	0.51	0.49	0.47	0.41	0.47	0.83	0.74	1.04	1.44	1.40	1.08	0.83	0.79	0.62	0.51	12.02	15.43
4	6	0.53	0.57	0.66	0.81	1.03	1.13	1.36	1.77	2.75	3.15	3.38	2.76	1.32	0.56	0.53	0.30	22.60	38.04
6	8	0.06	0.15	0.34	0.62	1.14	1.00	1.68	2.95	4.50	5.56	4.83	2.64	0.74	0.16	0.16	0.05	26.56	64.60
8	10	0.00	0.02	0.00	0.39	0.66	1.07	1.60	2.93	3.40	5.14	4.13	0.57	0.03	0.02	0.05	0.08	20.10	84.70
10	12	0.02	0.00	0.00	0.23	0.57	0.63	1.14	1.76	1.70	3.26	2.23	0.14	0.01	0.02	0.01	0.03	11.76	96.46
12	14	0.06	0.00	0.01	0.16	0.16	0.32	0.41	0.45	0.22	0.82	0.33	0.00	0.00	0.05	0.01	0.00	2.99	99.45
14	16	0.06	0.01	0.08	0.02	0.01	0.00	0.02	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.01	0.25	99.70
16	18	0.02	0.02	0.06	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11	99.82
18	20	0.00	0.05	0.07	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	99.94
>20		0.00	0.03	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	100.00
Total		1.24	1.47	1.87	2.93	4.18	4.82	7.29	10.91	13.93	19.65	16.55	7.48	3.21	1.77	1.62	1.07		
Cumulative Total		1.24	2.72	4.59	7.52	11.70	16.52	23.81	34.73	48.65	68.30	84.85	92.33	95.54	97.31	98.93	100.00		

ANNUAL JFTS

2014

2014 - Wind Speed (m/s)

		Total																	
Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.23	0.30	0.32	0.32	0.27	0.33	0.29	0.31	0.38	0.48	0.58	0.35	0.42	0.23	0.38	0.32	5.50	5.50
2	4	0.45	0.64	0.57	0.59	0.59	0.99	0.96	1.32	1.55	1.67	1.74	1.75	1.23	0.97	0.79	0.49	16.30	21.80
4	6	0.32	0.48	0.65	0.70	0.80	1.31	1.71	1.75	2.93	3.39	4.19	3.12	1.40	0.72	0.54	0.34	24.35	46.15
6	8	0.02	0.10	0.56	0.75	0.70	1.05	1.60	2.01	3.84	4.90	4.69	2.07	0.49	0.19	0.11	0.14	23.22	69.37
8	10	0.02	0.02	0.15	0.61	0.45	0.51	1.52	1.68	3.22	4.94	4.06	0.97	0.07	0.09	0.07	0.03	18.41	87.79
10	12	0.01	0.02	0.10	0.43	0.31	0.32	0.59	0.57	1.38	2.80	1.76	0.35	0.01	0.01	0.11	0.02	8.81	96.60
12	14	0.01	0.05	0.08	0.22	0.10	0.17	0.07	0.18	0.34	1.02	0.43	0.01	0.01	0.00	0.01	0.00	2.71	99.30
14	16	0.00	0.00	0.03	0.17	0.01	0.03	0.09	0.00	0.00	0.30	0.01	0.00	0.00	0.00	0.00	0.00	0.65	99.95
16	18	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	100.00
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		1.06	1.61	2.47	3.84	3.23	4.73	6.83	7.82	13.64	19.49	17.47	8.62	3.64	2.21	2.01	1.35		
Cumulative Total		1.06	2.67	5.14	8.97	12.20	16.93	23.76	31.58	45.22	64.70	82.17	90.79	94.43	96.64	98.65	100.00		

2015

2015 - Wind Speed (m/s)

		Total																	
Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.21	0.30	0.37	0.25	0.27	0.22	0.30	0.32	0.24	0.27	0.32	0.35	0.25	0.30	0.22	0.23	4.41	4.41
2	4	0.68	0.66	0.56	0.64	1.06	1.16	0.94	1.03	1.48	0.99	0.98	1.31	0.89	0.82	0.48	0.37	14.06	18.47
4	6	0.27	0.51	0.78	0.79	1.11	1.59	1.44	2.03	2.92	2.64	2.31	2.49	1.71	0.70	0.31	0.49	22.08	40.55
6	8	0.27	0.47	0.47	0.79	1.51	1.75	2.52	2.44	3.61	4.68	4.22	2.95	1.08	0.22	0.15	0.29	27.41	67.96
8	10	0.02	0.14	0.43	0.78	1.35	0.92	1.68	2.05	2.48	4.67	4.44	1.11	0.17	0.05	0.01	0.01	20.31	88.26
10	12	0.02	0.00	0.21	0.24	0.66	0.31	0.51	1.22	1.18	2.65	1.71	0.16	0.00	0.05	0.03	0.00	8.95	97.21
12	14	0.00	0.00	0.02	0.08	0.33	0.01	0.26	0.25	0.26	0.94	0.26	0.00	0.00	0.01	0.01	0.00	2.44	99.66
14	16	0.00	0.00	0.00	0.07	0.06	0.02	0.00	0.00	0.00	0.09	0.00	0.00	0.00	0.00	0.02	0.00	0.26	99.92
16	18	0.00	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	99.94
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	99.94
>20		0.00	0.00	0.00	0.00	0.05	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	100.00
Total		1.48	2.08	2.84	3.63	6.40	5.99	7.65	9.35	12.17	16.93	14.25	8.37	4.11	2.13	1.23	1.38		
Cumulative Total		1.48	3.56	6.40	10.03	16.44	22.43	30.08	39.43	51.60	68.53	82.77	91.14	95.25	97.39	98.62	100.00		

2016

2016 - Wind Speed (m/s)

		Total																	
Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.23	0.22	0.17	0.11	0.19	0.18	0.18	0.32	0.22	0.19	0.27	0.14	0.17	0.33	0.32	0.19	3.44	3.44
2	4	0.64	0.55	0.43	0.38	0.56	0.36	0.75	0.60	1.18	1.40	1.35	1.31	1.17	0.75	0.66	0.50	12.60	16.04
4	6	0.31	0.48	0.44	0.60	0.50	1.02	1.79	2.12	3.19	4.06	3.40	2.24	1.10	0.59	0.30	0.22	22.37	38.41
6	8	0.13	0.18	0.28	0.73	0.72	0.93	2.13	2.76	4.29	5.34	5.87	1.97	0.34	0.22	0.02	0.02	25.93	64.34
8	10	0.03	0.03	0.33	0.42	0.40	0.52	1.10	2.94	3.55	5.76	4.92	0.30	0.05	0.00	0.00	0.00	20.36	84.70
10	12	0.01	0.00	0.10	0.31	0.28	0.20	0.97	2.30	1.76	3.81	2.16	0.02	0.00	0.05	0.02	0.05	12.06	96.76
12	14	0.00	0.00	0.00	0.00	0.00	0.00	0.17	0.57	0.34	1.38	0.52	0.00	0.00	0.00	0.00	0.01	2.99	99.75
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.01	0.00	0.16	0.06	0.00	0.00	0.00	0.00	0.00	0.25	100.00
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		1.34	1.46	1.76	2.55	2.65	3.23	7.12	11.61	14.54	22.11	18.57	5.98	2.83	1.94	1.32	0.99		
Cumulative Total		1.34	2.80	4.57	7.12	9.77	13.00	20.12	31.73	46.27	68.37	86.94	92.92	95.75	97.69	99.01	100.00		

2017

2017 - Wind Speed (m/s)

		Total																	
Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.22	0.21	0.24	0.33	0.22	0.32	0.29	0.30	0.39	0.30	0.33	0.25	0.27	0.26	0.30	0.32	4.53	4.53
2	4	0.65	0.47	0.47	0.42	0.42	0.79	0.81	1.13	1.08	1.60	1.69	1.43	1.20	0.80	0.68	0.68	14.33	18.86
4	6	0.24	0.45	0.58	0.51	0.70	0.92	1.37	2.48	3.44	3.56	3.50	2.13	1.34	0.76	0.47	0.32	22.77	41.63
6	8	0.10	0.21	0.29	0.33	0.92	0.70	1.32	2.85	4.43	5.07	4.66	2.28	0.43	0.14	0.07	0.15	23.95	65.58
8	10	0.05	0.06	0.19	0.10	0.21	0.33	0.96	2.35	3.90	5.49	4.42	1.24	0.13	0.07	0.03	0.01	19.54	85.13
10	12	0.01	0.05	0.32	0.23	0.13	0.16	0.78	1.16	1.97	3.71	2.88	0.08	0.00	0.00	0.00	0.00	11.47	96.60
12	14	0.00	0.00	0.07	0.11	0.00	0.02	0.19	0.45	0.54	0.87	0.42	0.00	0.00	0.00	0.00	0.00	2.67	99.27
14	16	0.00	0.00	0.00	0.02	0.00	0.00	0.03	0.02	0.06	0.40	0.07	0.00	0.00	0.00	0.00	0.00	0.61	99.87
16	18	0.00	0.00	0.00	0.06	0.05	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.13	100.00
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		1.27	1.43	2.16	2.12	2.64	3.24	5.75	10.74	15.81	21.02	17.97	7.42	3.37	2.03	1.55	1.48		
Cumulative Total		1.27	2.69	4.85	6.97	9.61	12.85	18.61	29.35	45.16	66.18	84.14	91.56	94.93	96.96	98.52	100.00		

2018

2018 - Wind Speed (m/s)

		Total																	
Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.11	0.11	0.10	0.09	0.17	0.13	0.14	0.24	0.27	0.19	0.23	0.32	0.17	0.22	0.19	0.22	2.91	2.91
2	4	0.46	0.54	0.64	0.38	0.49	0.49	0.58	0.75	1.10	1.32	1.20	1.02	0.83	0.72	0.47	0.42	11.40	14.32
4	6	0.21	0.78	0.65	0.65	0.58	0.72	1.68	1.85	2.37	3.39	3.21	2.28	1.12	0.56	0.34	0.27	20.66	34.98
6	8	0.22	0.33	0.74	0.54	0.91	0.97	1.54	2.79	4.12	5.64	5.29	2.27	0.48	0.18	0.13	0.35	26.50	61.47
8	10	0.00	0.06	0.19	0.43	0.92	0.57	1.62	2.40	3.31	6.15	5.08	0.89	0.06	0.01	0.05	0.02	21.77	83.24
10	12	0.08	0.11	0.07	0.15	0.41	0.15	0.71	1.62	1.87	4.14	3.38	0.07	0.00	0.00	0.01	0.09	12.87	96.11
12	14	0.00	0.00	0.02	0.05	0.09	0.06	0.22	0.24	0.32	1.71	0.73	0.00	0.00	0.00	0.00	0.03	3.47	99.58
14	16	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.05	0.06	0.26	0.03	0.00	0.00	0.00	0.00	0.00	0.41	99.99
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	100.00
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		1.07	1.93	2.42	2.28	3.58	3.09	6.48	9.94	13.42	22.82	19.14	6.85	2.66	1.69	1.19	1.42		
Cumulative Total		1.07	3.00	5.42	7.71	11.29	14.38	20.87	30.81	44.24	67.05	86.20	93.05	95.71	97.40	98.58	100.00		

ANNUAL JFTS

2019

2019 - Wind Speed (m/s)

		Total																	
Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.35	0.27	0.23	0.27	0.35	0.21	0.35	0.24	0.42	0.29	0.37	0.34	0.27	0.19	0.32	0.25	4.74	4.74
2	4	0.67	0.81	0.70	0.54	0.53	0.76	0.72	1.21	1.55	1.39	1.18	0.87	0.78	0.49	0.58	0.47	13.24	17.98
4	6	0.22	0.55	0.64	0.70	0.50	1.02	1.78	2.08	3.25	3.56	2.98	2.03	0.76	0.35	0.31	0.27	21.00	38.98
6	8	0.18	0.35	0.59	0.39	0.65	0.68	1.97	2.59	5.25	4.97	5.81	2.00	0.15	0.02	0.11	0.09	25.82	64.81
8	10	0.06	0.06	0.33	0.51	0.43	0.80	2.08	1.84	4.30	5.21	4.95	0.54	0.08	0.01	0.00	0.07	21.27	86.07
10	12	0.02	0.13	0.18	0.24	0.49	0.38	1.05	0.64	1.55	3.92	1.95	0.05	0.00	0.00	0.00	0.00	10.59	96.67
12	14	0.00	0.06	0.11	0.06	0.05	0.07	0.15	0.38	0.55	1.40	0.38	0.00	0.00	0.00	0.00	0.00	3.20	99.86
14	16	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.14	100.00
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		1.51	2.24	2.79	2.71	3.00	3.92	8.11	8.98	16.89	20.83	17.61	5.82	2.04	1.07	1.32	1.15		
Cumulative Total		1.51	3.74	6.53	9.24	12.24	16.15	24.26	33.24	50.14	70.97	88.58	94.41	96.45	97.52	98.85	100.00		

2020

2020 - Wind Speed (m/s)

		Total																	
Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.33	0.31	0.34	0.28	0.24	0.18	0.22	0.31	0.32	0.33	0.31	0.38	0.33	0.36	0.34	0.27	4.85	4.85
2	4	0.69	1.21	0.88	0.72	0.63	0.96	0.96	1.08	1.25	1.38	1.39	1.29	0.96	0.47	0.44	0.35	14.64	19.49
4	6	0.22	0.71	0.68	0.81	0.79	0.90	1.46	2.08	3.16	3.44	2.96	2.06	1.12	0.43	0.30	0.19	21.30	40.79
6	8	0.08	0.24	0.42	0.68	0.83	0.75	1.39	2.74	4.25	4.70	4.62	2.08	0.44	0.19	0.08	0.06	23.57	64.36
8	10	0.03	0.06	0.15	0.27	0.43	0.43	1.23	2.93	4.38	5.76	4.93	0.81	0.02	0.00	0.00	0.00	21.44	85.79
10	12	0.11	0.05	0.05	0.09	0.06	0.14	0.51	1.34	1.61	3.96	2.72	0.19	0.01	0.01	0.00	0.02	10.87	96.66
12	14	0.07	0.00	0.11	0.00	0.01	0.13	0.06	0.26	0.40	1.05	0.48	0.00	0.00	0.00	0.01	0.02	2.60	99.26
14	16	0.02	0.01	0.08	0.00	0.00	0.00	0.13	0.06	0.05	0.16	0.13	0.00	0.00	0.00	0.00	0.03	0.66	99.92
16	18	0.01	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.07	99.99
18	20	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	100.00
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		1.57	2.63	2.71	2.86	2.98	3.48	5.94	10.80	15.41	20.79	17.53	6.81	2.88	1.47	1.17	0.96		
Cumulative Total		1.57	4.20	6.91	9.77	12.75	16.23	22.18	32.98	48.39	69.18	86.71	93.52	96.40	97.87	99.04	100.00		

2021

2021 - Wind Speed (m/s)

		Total																	
Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.00	0.13	0.00	0.13	0.00	0.13	0.00	0.27	0.13	0.00	0.00	0.40	0.00	0.00	0.13	0.27	1.59	1.59
2	4	0.53	0.80	0.27	0.40	0.66	0.93	0.93	0.93	1.06	0.40	1.20	1.33	1.59	0.53	0.13	0.66	12.35	13.94
4	6	0.40	0.53	0.27	0.00	0.13	0.13	0.40	1.59	1.73	3.45	1.99	2.12	1.46	0.40	0.00	0.27	14.87	28.82
6	8	0.00	0.00	0.00	0.27	0.27	0.00	0.00	0.53	3.72	10.62	5.58	2.92	0.27	0.00	0.13	0.13	24.44	53.25
8	10	0.27	0.00	0.00	0.13	0.40	0.00	0.00	0.00	5.31	10.62	9.43	1.99	0.00	0.00	0.00	0.13	28.29	81.54
10	12	0.00	0.00	0.00	0.13	0.13	0.00	0.00	0.00	1.73	6.24	6.91	0.00	0.00	0.00	0.00	0.00	15.14	96.68
12	14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.12	1.20	0.00	0.00	0.00	0.00	0.00	3.32	100.00
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		1.20	1.46	0.53	1.06	1.59	1.20	1.33	3.32	13.68	33.47	26.29	8.76	3.32	0.93	0.40	1.46		
Cumulative Total		1.20	2.66	3.19	4.25	5.84	7.04	8.37	11.69	25.37	58.83	85.13	93.89	97.21	98.14	98.54	100.00		

SEASONAL JFTS

Summer - Wind Speed (m/s)

		Total																	
Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.12	0.11	0.11	0.11	0.13	0.13	0.16	0.22	0.21	0.20	0.29	0.23	0.22	0.21	0.19	0.16	2.81	2.81
2	4	0.38	0.34	0.26	0.24	0.24	0.30	0.41	0.63	1.06	1.43	1.48	1.33	1.06	0.81	0.60	0.50	11.06	13.87
4	6	0.44	0.31	0.24	0.24	0.22	0.24	0.36	0.90	2.49	4.18	4.10	3.12	1.93	0.95	0.55	0.52	20.78	34.65
6	8	0.17	0.21	0.22	0.13	0.17	0.24	0.23	0.71	4.09	6.99	6.93	4.05	1.01	0.25	0.11	0.12	25.62	60.27
8	10	0.06	0.09	0.16	0.09	0.10	0.12	0.12	0.42	4.16	7.53	7.55	1.75	0.16	0.04	0.02	0.03	22.40	82.67
10	12	0.06	0.07	0.12	0.13	0.04	0.03	0.04	0.14	2.01	5.64	4.32	0.25	0.02	0.00	0.01	0.02	12.92	95.58
12	14	0.04	0.03	0.04	0.06	0.03	0.02	0.02	0.03	0.39	1.97	0.94	0.02	0.02	0.01	0.00	0.02	3.63	99.21
14	16	0.02	0.03	0.02	0.02	0.01	0.01	0.01	0.00	0.04	0.32	0.09	0.01	0.01	0.00	0.00	0.01	0.62	99.83
16	18	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.11	99.94
18	20	0.00	0.00	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	99.97
>20		0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.03	100.00
Total		1.29	1.23	1.20	1.04	0.95	1.11	1.36	3.04	14.45	28.30	25.70	10.76	4.42	2.28	1.49	1.38		
Cumulative Total		1.29	2.52	3.72	4.76	5.71	6.82	8.17	11.21	25.66	53.96	79.67	90.42	94.85	97.13	98.62	100.00		

Autumn - Wind Speed (m/s)

		Total																	
Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.34	0.31	0.31	0.31	0.29	0.33	0.37	0.43	0.43	0.42	0.39	0.32	0.35	0.34	0.37	0.34	5.65	5.65
2	4	1.00	0.96	0.82	0.77	0.86	1.01	1.33	1.63	1.92	1.88	1.75	1.48	1.18	1.01	0.91	0.93	19.43	25.08
4	6	0.73	1.01	1.03	0.93	1.04	1.52	2.20	3.06	4.04	4.02	3.31	1.95	0.99	0.57	0.51	0.56	27.43	52.52
6	8	0.23	0.49	0.67	0.89	1.07	1.30	1.96	3.63	4.86	4.57	3.28	1.12	0.25	0.10	0.13	0.16	24.69	77.21
8	10	0.07	0.14	0.29	0.50	0.78	0.73	1.31	2.60	3.89	3.63	1.70	0.19	0.02	0.05	0.05	0.06	15.99	93.20
10	12	0.02	0.04	0.11	0.17	0.36	0.21	0.39	0.69	1.26	1.60	0.48	0.03	0.02	0.04	0.03	0.01	5.48	98.67
12	14	0.01	0.03	0.04	0.06	0.12	0.07	0.08	0.11	0.13	0.25	0.05	0.01	0.01	0.03	0.02	0.01	1.00	99.68
14	16	0.01	0.01	0.02	0.04	0.03	0.02	0.00	0.00	0.01	0.02	0.01	0.01	0.01	0.00	0.02	0.01	0.19	99.87
16	18	0.01	0.01	0.01	0.01	0.02	0.01	0.00	0.00	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.09	99.96
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.01	99.98
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.02	100.00
Total		2.41	2.99	3.29	3.67	4.57	5.19	7.65	12.16	16.56	16.38	10.97	5.09	2.84	2.13	2.03	2.07		
Cumulative Total		2.41	5.40	8.69	12.36	16.93	22.12	29.77	41.93	58.49	74.87	85.83	90.93	93.76	95.90	97.93	100.00		

Winter - Wind Speed (m/s)

		Total																	
Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.35	0.39	0.39	0.37	0.38	0.35	0.37	0.34	0.36	0.41	0.35	0.32	0.35	0.36	0.32	0.34	5.75	5.75
2	4	0.89	1.26	1.25	1.12	1.09	1.27	1.35	1.65	1.44	1.34	1.16	0.93	0.67	0.55	0.52	0.58	17.08	22.83
4	6	0.51	1.35	1.66	1.56	1.76	2.24	3.12	3.17	2.73	2.39	1.67	0.75	0.35	0.32	0.27	0.30	24.16	46.99
6	8	0.26	0.71	1.44	1.57	2.06	2.34	4.35	4.70	3.39	2.71	1.28	0.39	0.22	0.12	0.13	0.20	25.87	72.87
8	10	0.11	0.30	0.68	1.09	1.40	1.59	3.75	4.52	2.41	1.66	0.49	0.17	0.08	0.07	0.06	0.08	18.47	91.34
10	12	0.05	0.09	0.31	0.47	0.62	0.77	1.82	1.92	0.63	0.40	0.10	0.06	0.03	0.02	0.01	0.05	7.35	98.68
12	14	0.02	0.01	0.09	0.12	0.07	0.10	0.27	0.27	0.08	0.04	0.03	0.01	0.01	0.01	0.02	0.02	1.16	99.85
14	16	0.00	0.00	0.02	0.04	0.00	0.01	0.02	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.13	99.98
16	18	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	100.00
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		2.21	4.13	5.83	6.36	7.40	8.66	15.04	16.58	11.04	8.95	5.09	2.64	1.71	1.45	1.34	1.58		
Cumulative Total		2.21	6.34	12.17	18.53	25.93	34.59	49.63	66.21	77.25	86.20	91.29	93.93	95.63	97.08	98.42	100.00		

Spring - Wind Speed (m/s)

		Total																	
Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.08	0.07	0.09	0.07	0.08	0.10	0.11	0.15	0.18	0.17	0.17	0.18	0.14	0.16	0.11	0.10	1.96	1.96
2	4	0.31	0.22	0.18	0.18	0.18	0.26	0.38	0.71	1.07	1.16	1.08	0.99	0.77	0.57	0.46	0.38	8.91	10.86
4	6	0.35	0.29	0.21	0.18	0.19	0.29	0.59	1.67	3.18	3.63	3.44	2.68	1.29	0.58	0.32	0.34	19.23	30.10
6	8	0.16	0.20	0.13	0.13	0.14	0.23	0.58	2.33	5.82	6.56	6.36	2.80	0.63	0.18	0.07	0.09	26.41	56.51
8	10	0.01	0.08	0.05	0.05	0.10	0.19	0.52	2.50	6.52	7.87	6.71	0.89	0.09	0.02	0.01	0.01	25.61	82.12
10	12	0.00	0.00	0.01	0.02	0.08	0.08	0.30	1.51	3.90	5.82	2.96	0.10	0.01	0.00	0.00	0.00	14.80	96.93
12	14	0.00	0.00	0.00	0.00	0.02	0.03	0.07	0.27	0.69	1.51	0.34	0.00	0.00	0.00	0.00	0.00	2.95	99.88
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.03	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.12	100.00
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.90	0.86	0.66	0.62	0.79	1.18	2.58	9.16	21.39	26.78	21.07	7.65	2.94	1.51	0.97	0.92		
Cumulative Total		0.90	1.77	2.43	3.05	3.85	5.02	7.61	16.76	38.15	64.93	86.00	93.66	96.60	98.11	99.08	100.00		

Appendix M Learmonth Wind Anemometer Roses

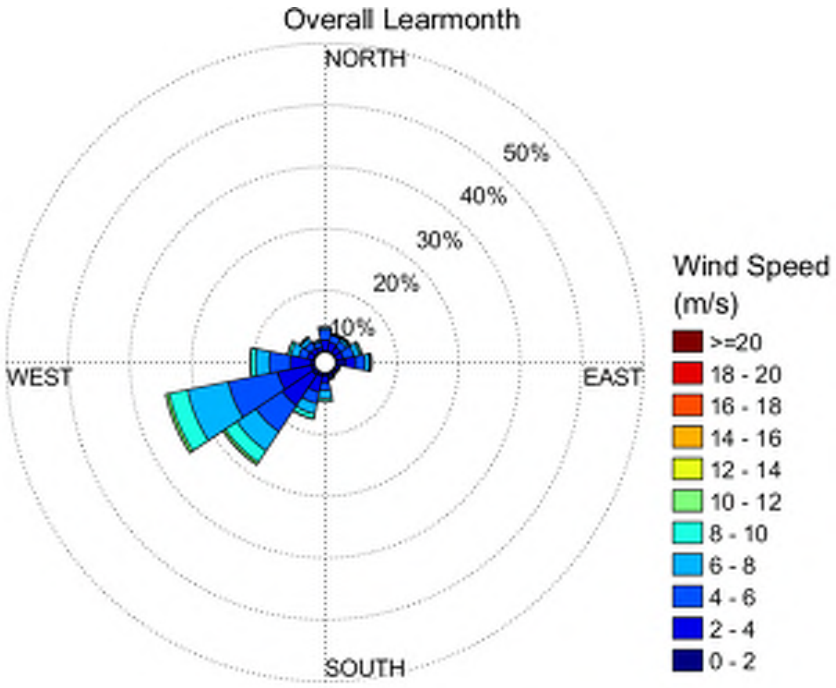

Figure M.1 Overall Learmonth Wind Anemometer Roses

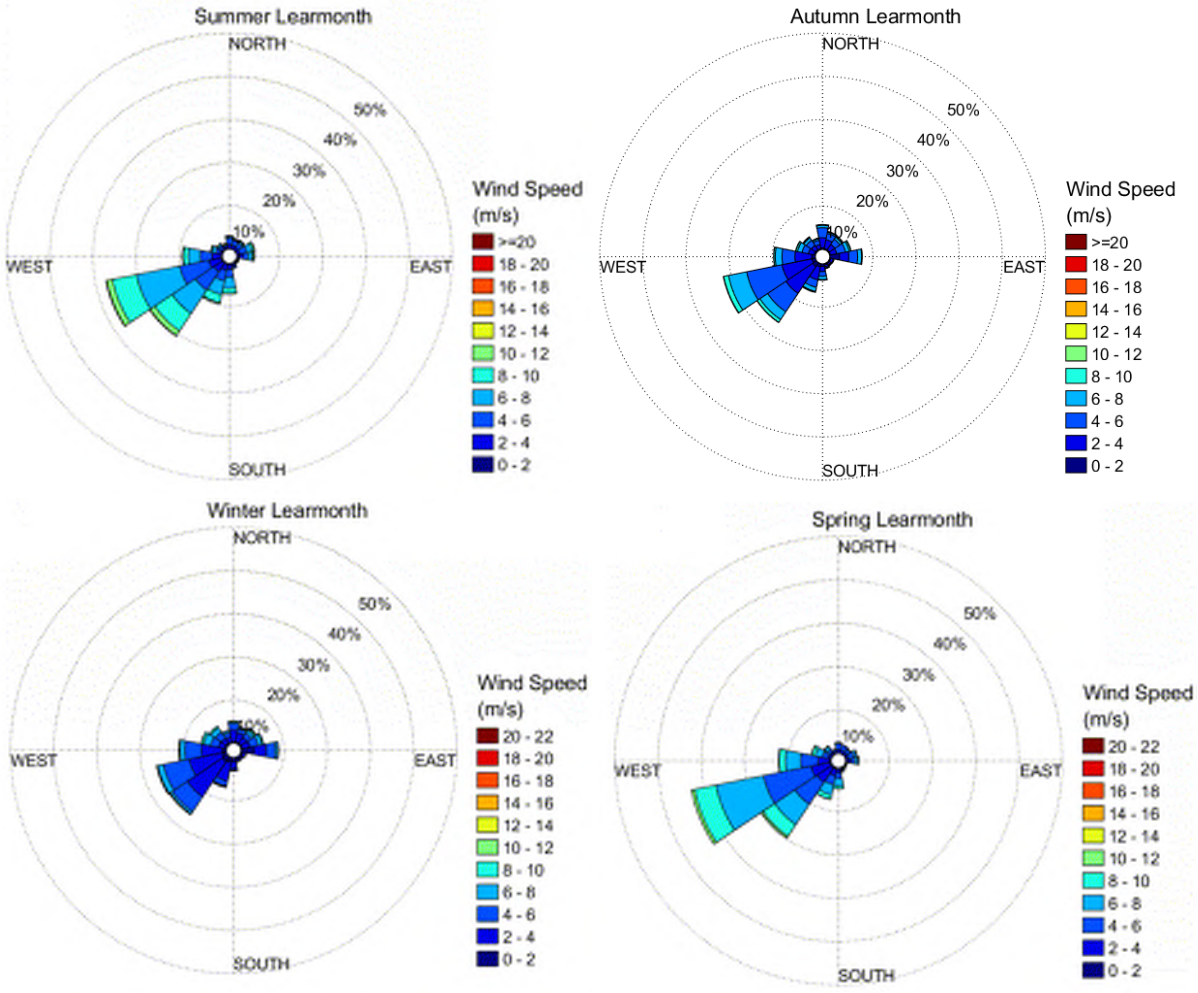

Figure M.2 Seasonal Learmonth Wind Anemometer Roses

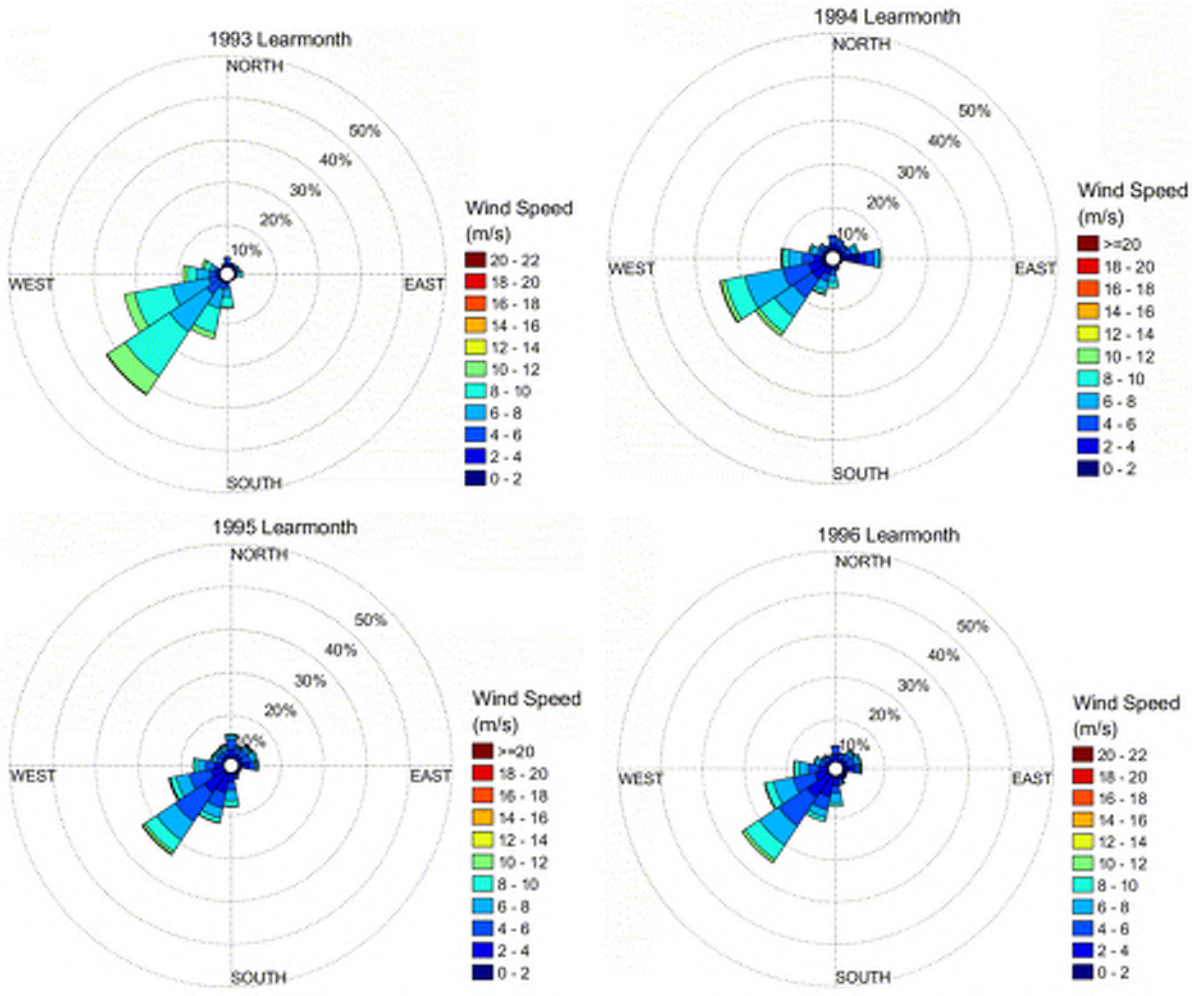

Figure M.3 1993-1996 Learmonth Wind Anemometer Roses

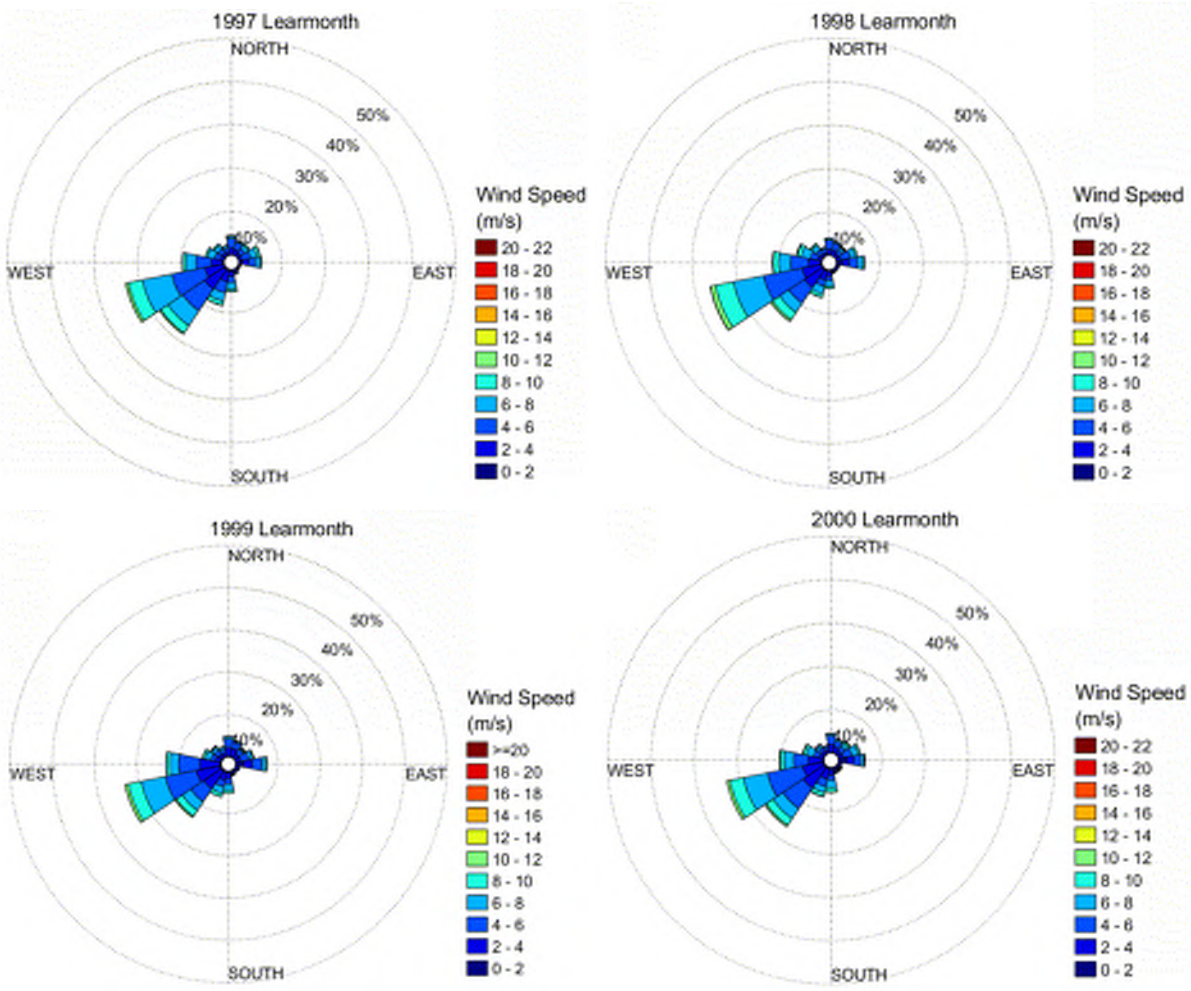

Figure M.4 1997-2000 Learmonth Wind Anemometer Roses

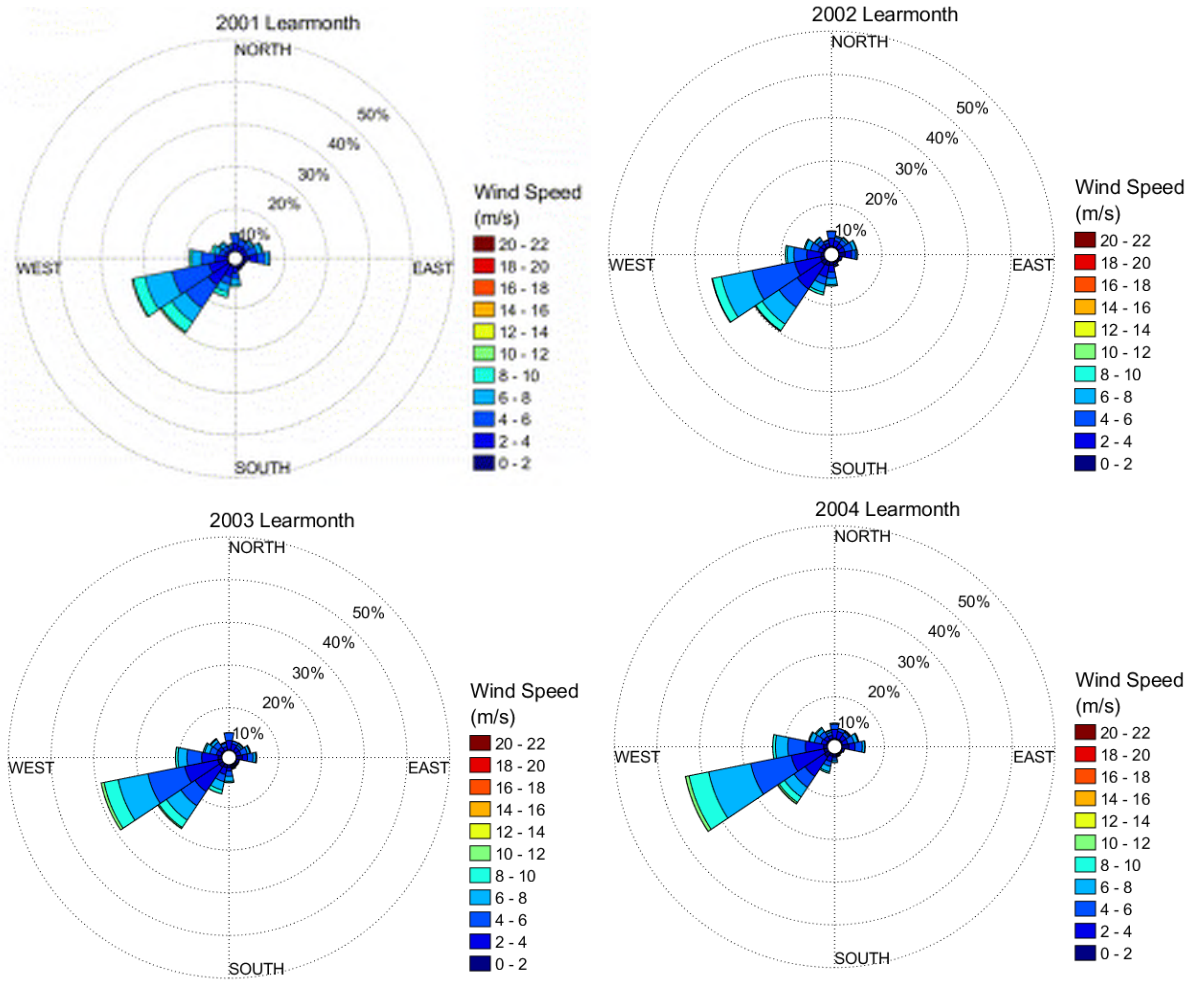

Figure M.5 2001-2004 Learmonth Wind Anemometer Roses

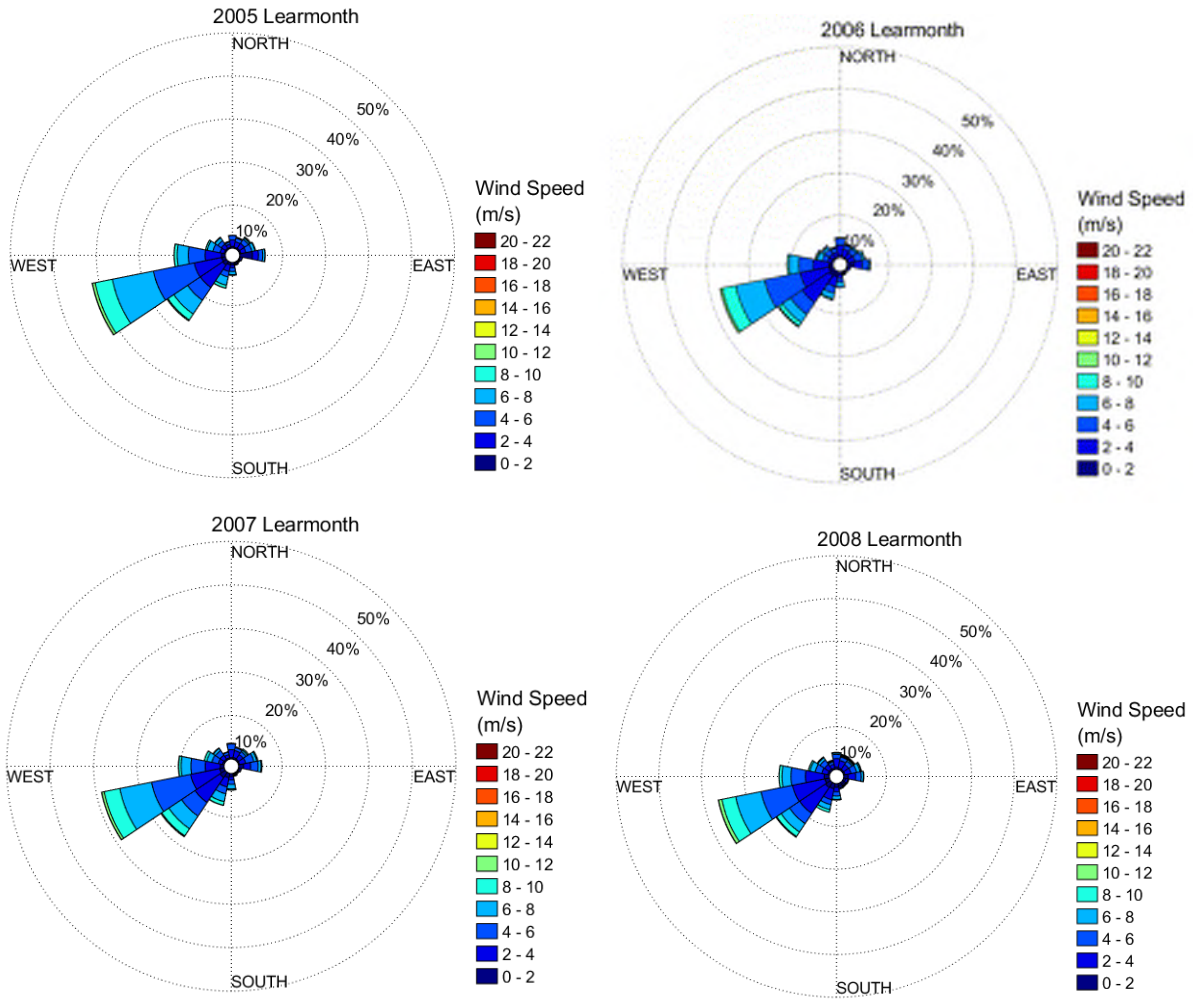

Figure M.6 2005-2008 Learmonth Wind Anemometer Roses

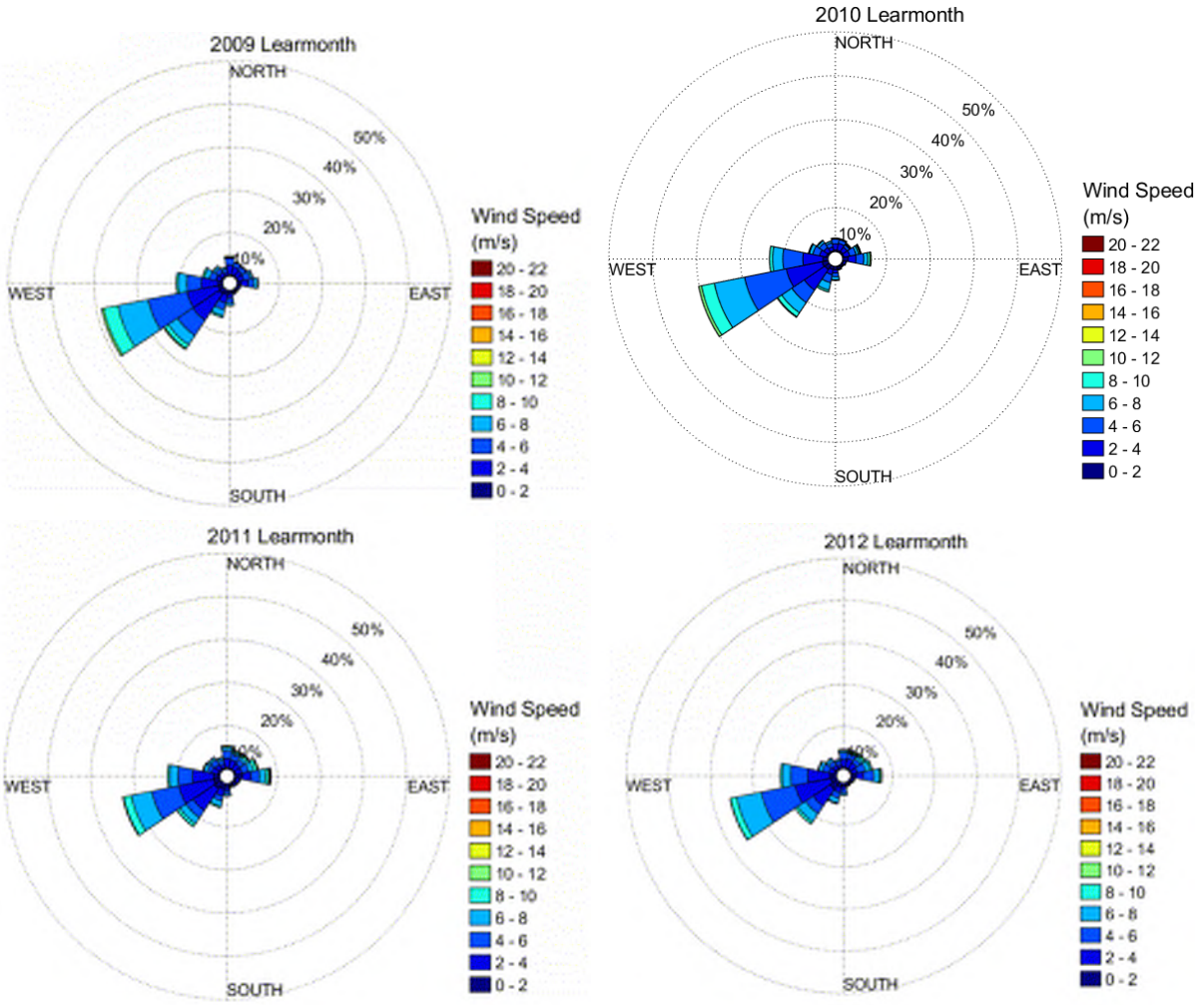

Figure M.7 2009-2012 Learmonth Wind Anemometer Roses

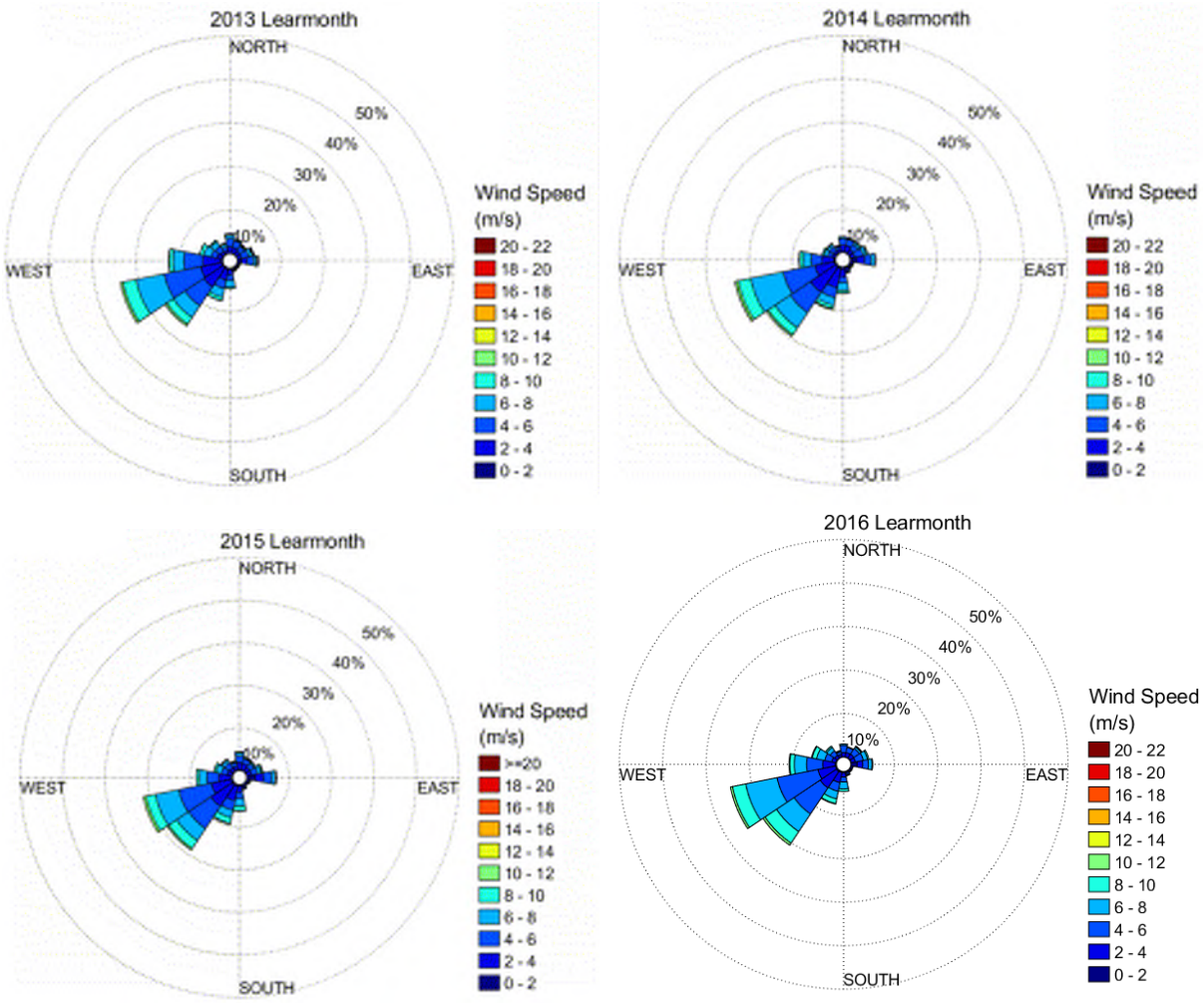

Figure M.8 2013-2016 Learmonth Wind Anemometer Roses

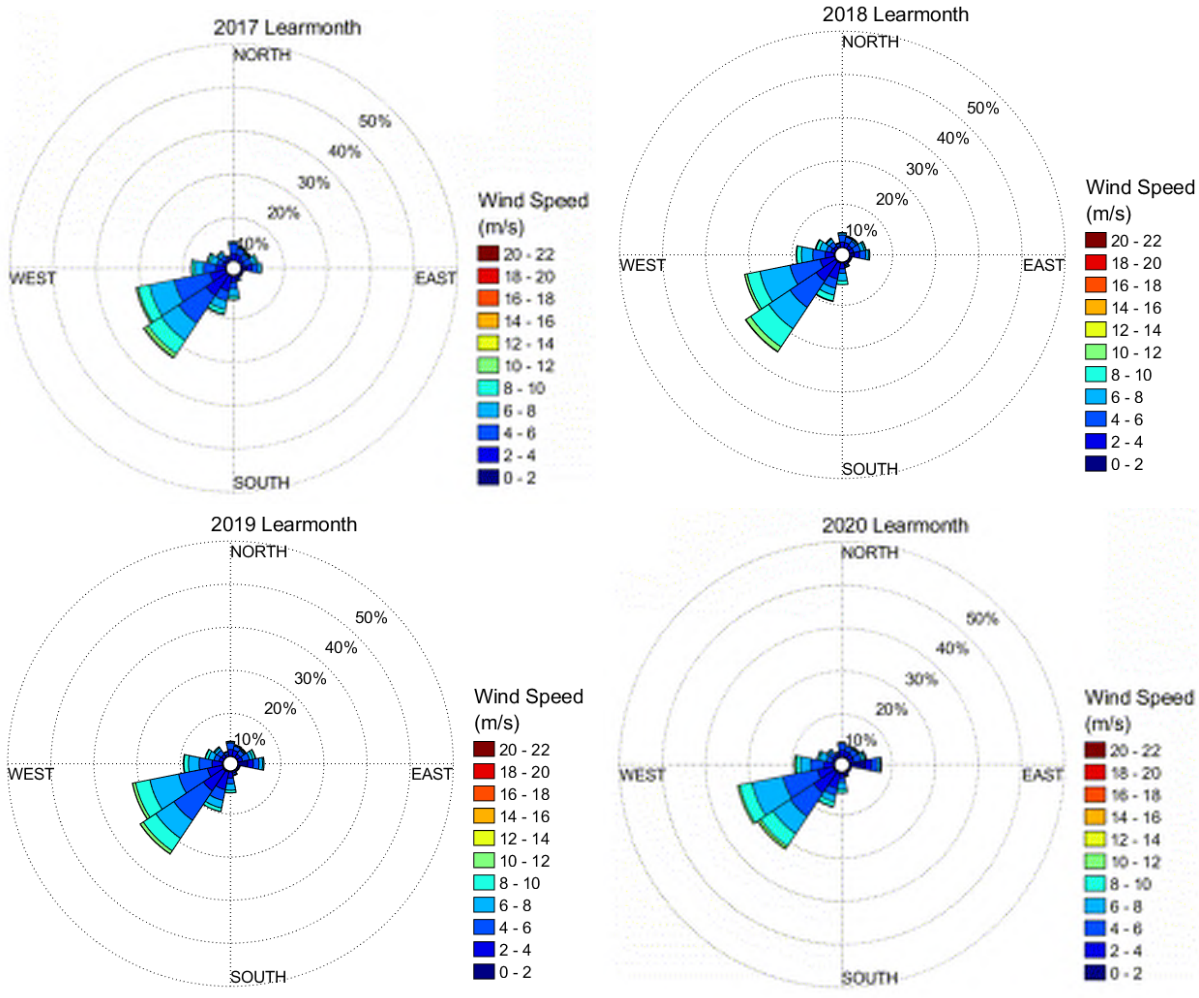

Figure M.9 2017-2020 Learmonth Wind Anemometer Roses

Appendix N Yardie Wind Anemometer Roses

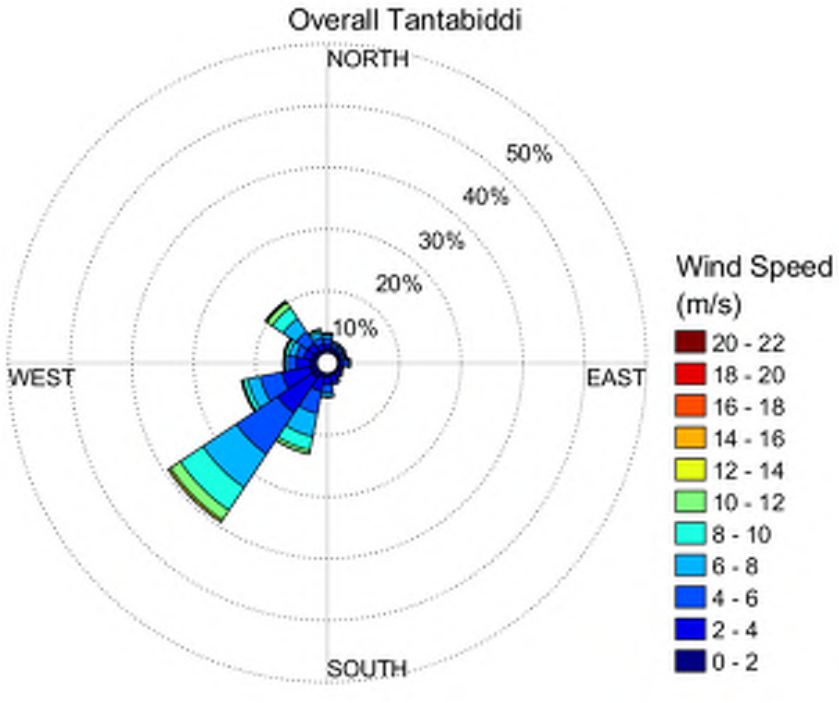

Figure N.1 Overall Yardie Wind Anemometer Roses

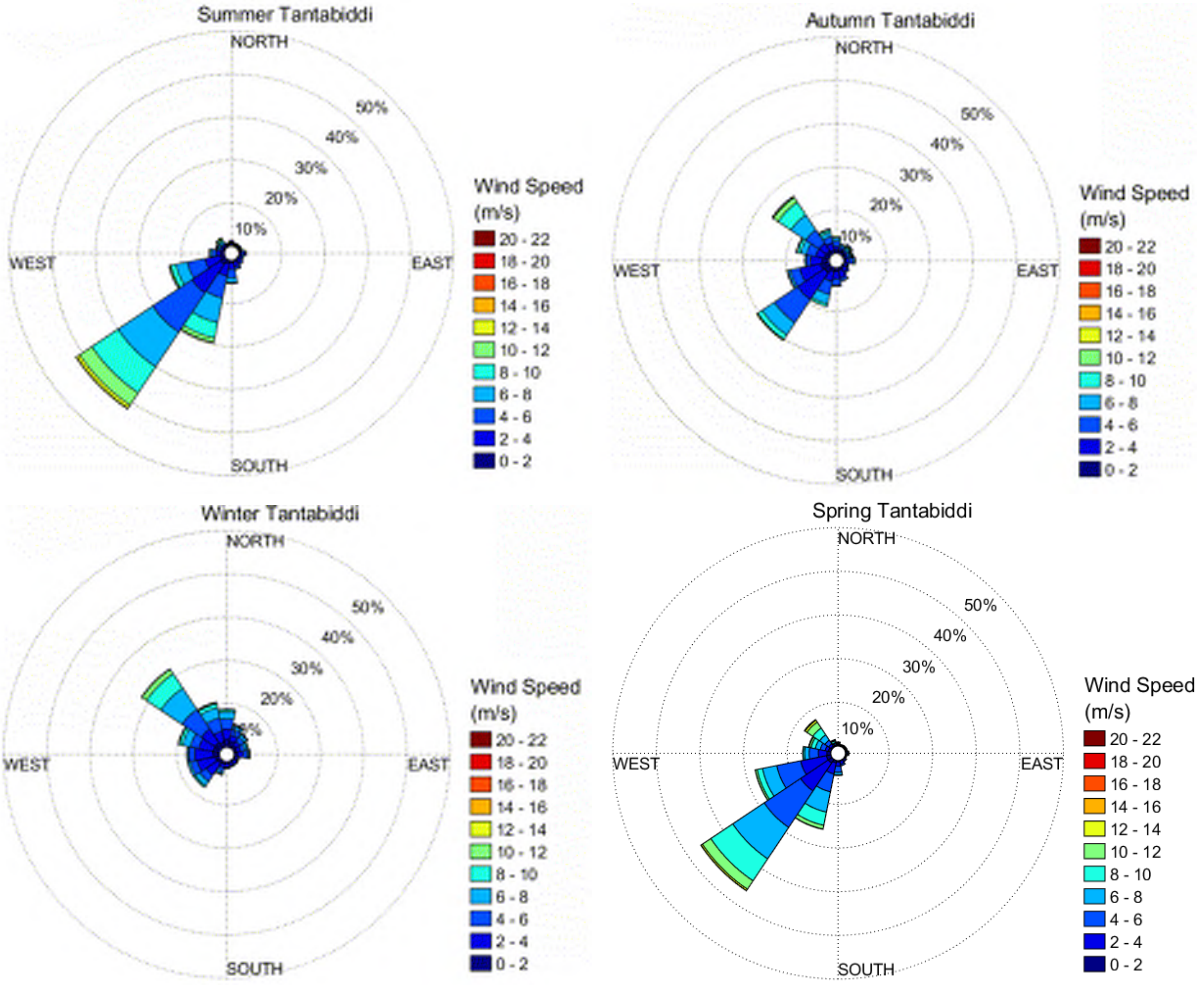

Figure N.2 Seasonal Yardie Wind Anemometer Roses

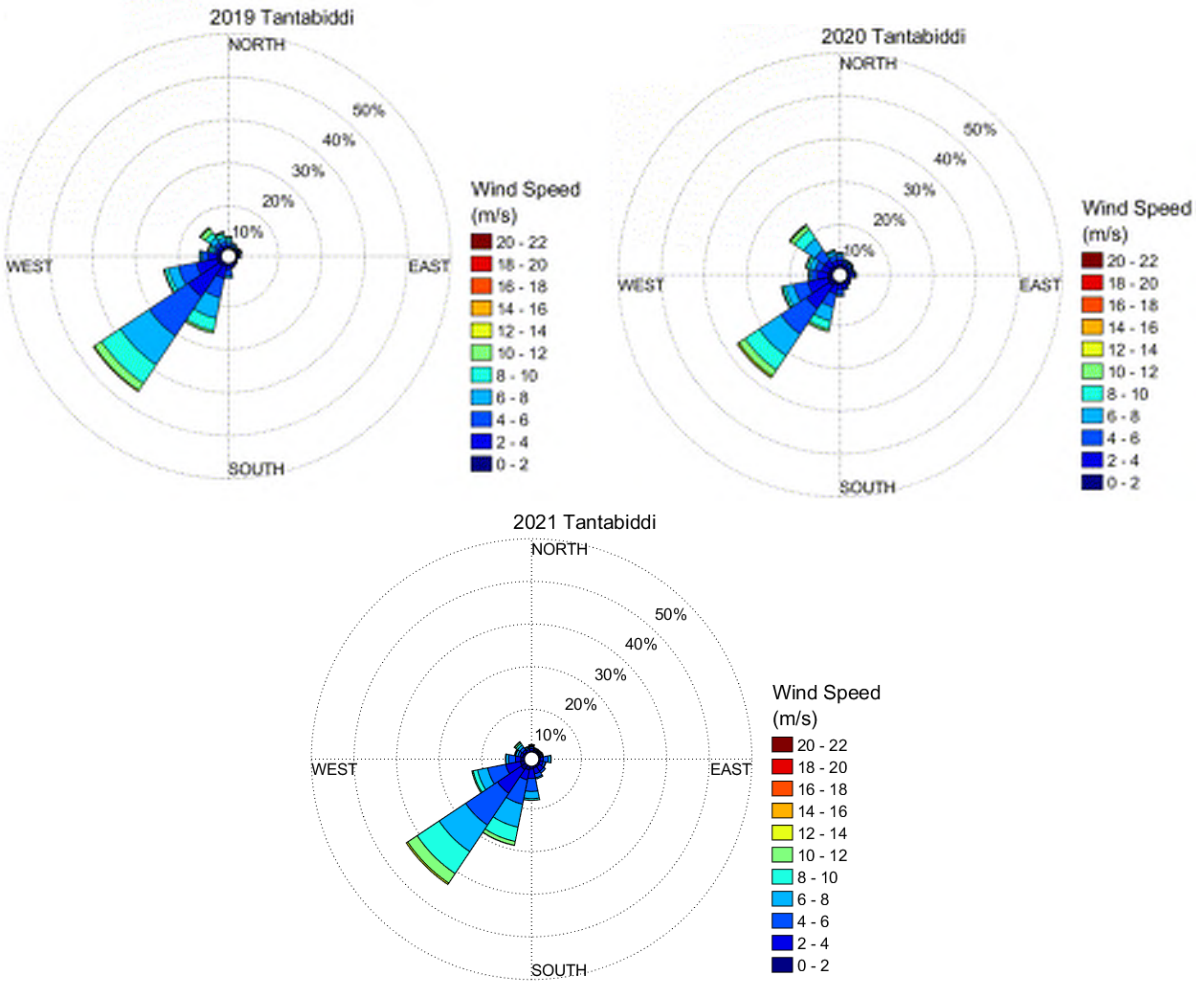

Figure N.3 2019-2021 Yardie Wind Anemometer Roses

Appendix O WWIII Hindcast Wind Data Roses

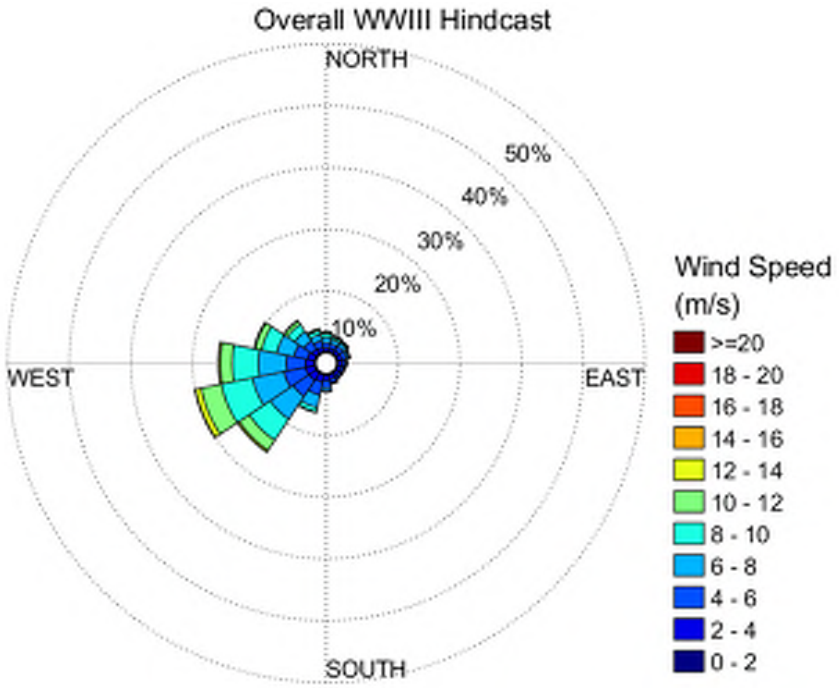

Figure O.1 Overall WW3 Hindcast Wind Roses

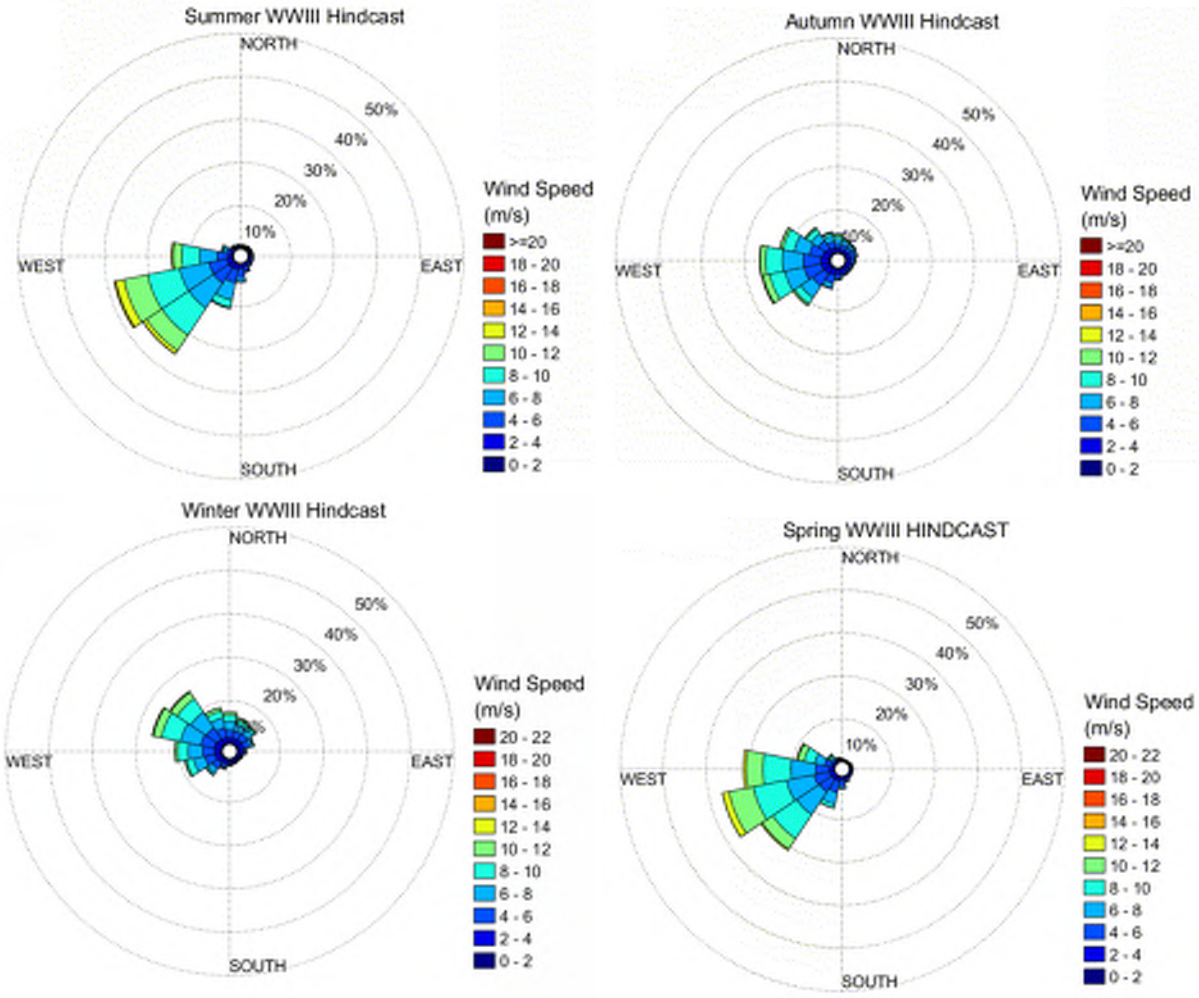

Figure O.2 Seasonal WW3 Hindcast Wind Roses

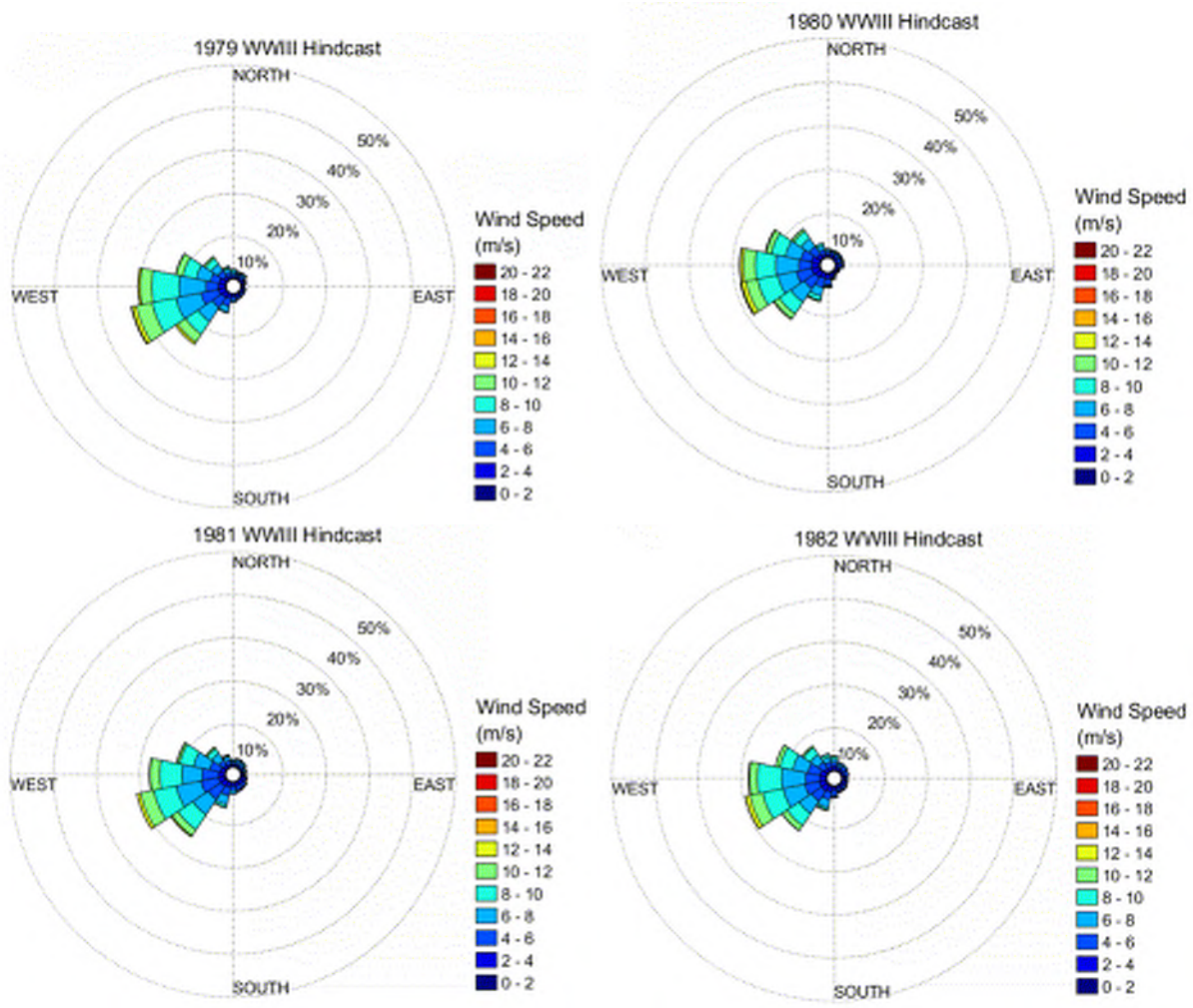

Figure O.3 1979-1982 WW3 Hindcast Wind Roses

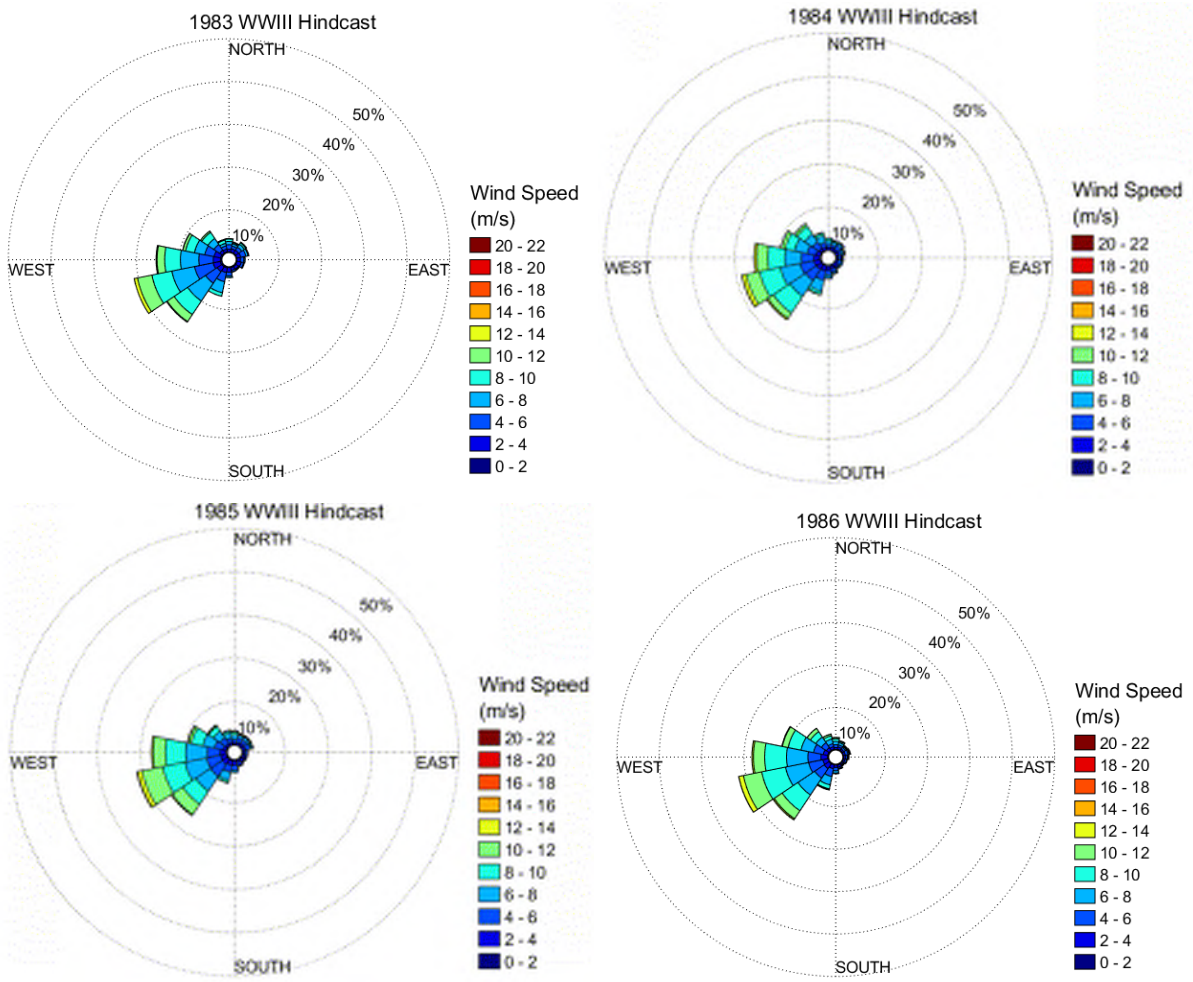

Figure O.4 1983-1986 WW3 Hindcast Wind Roses

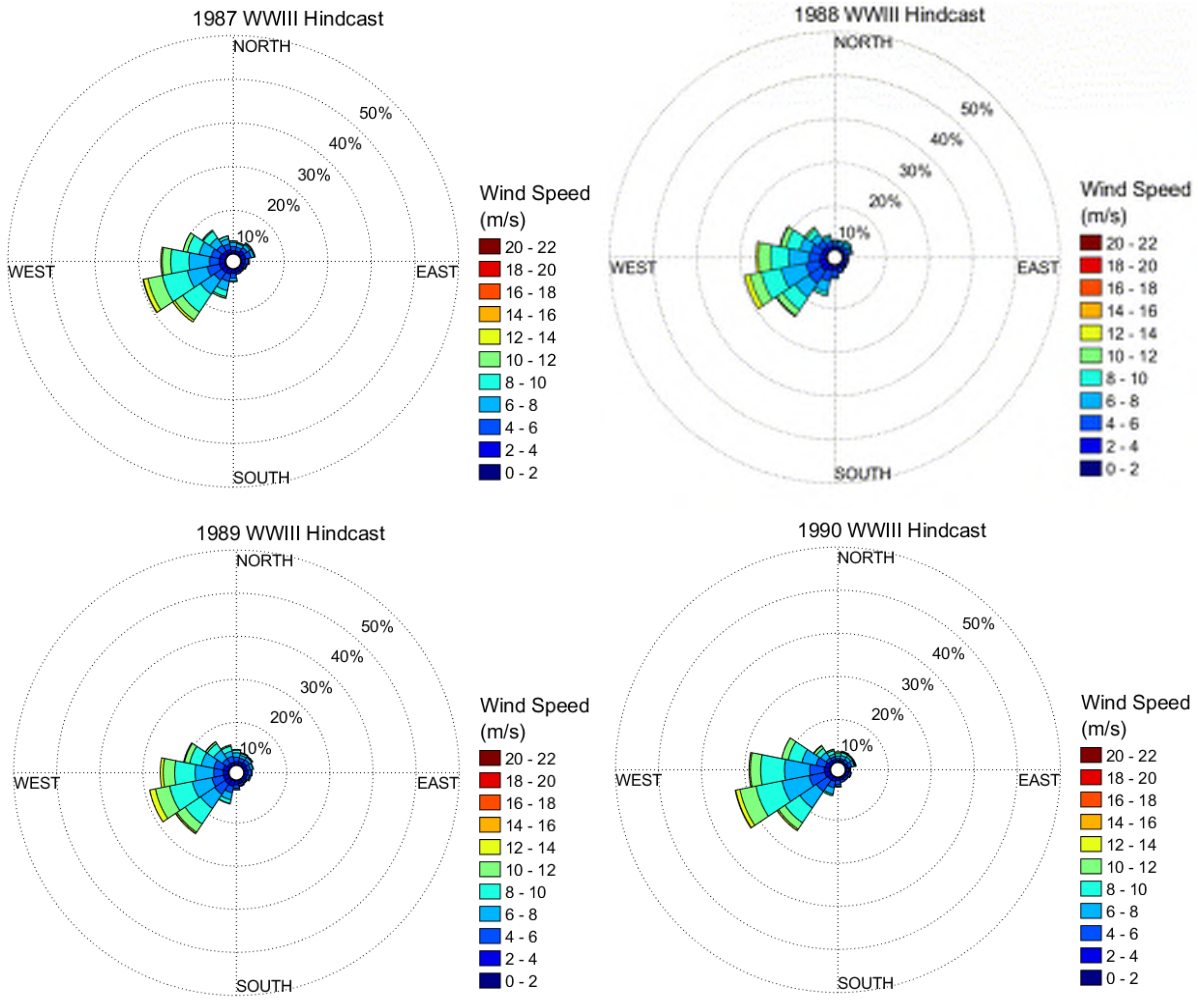

Figure O.5 1987-1990 WW3 Hindcast Wind Roses

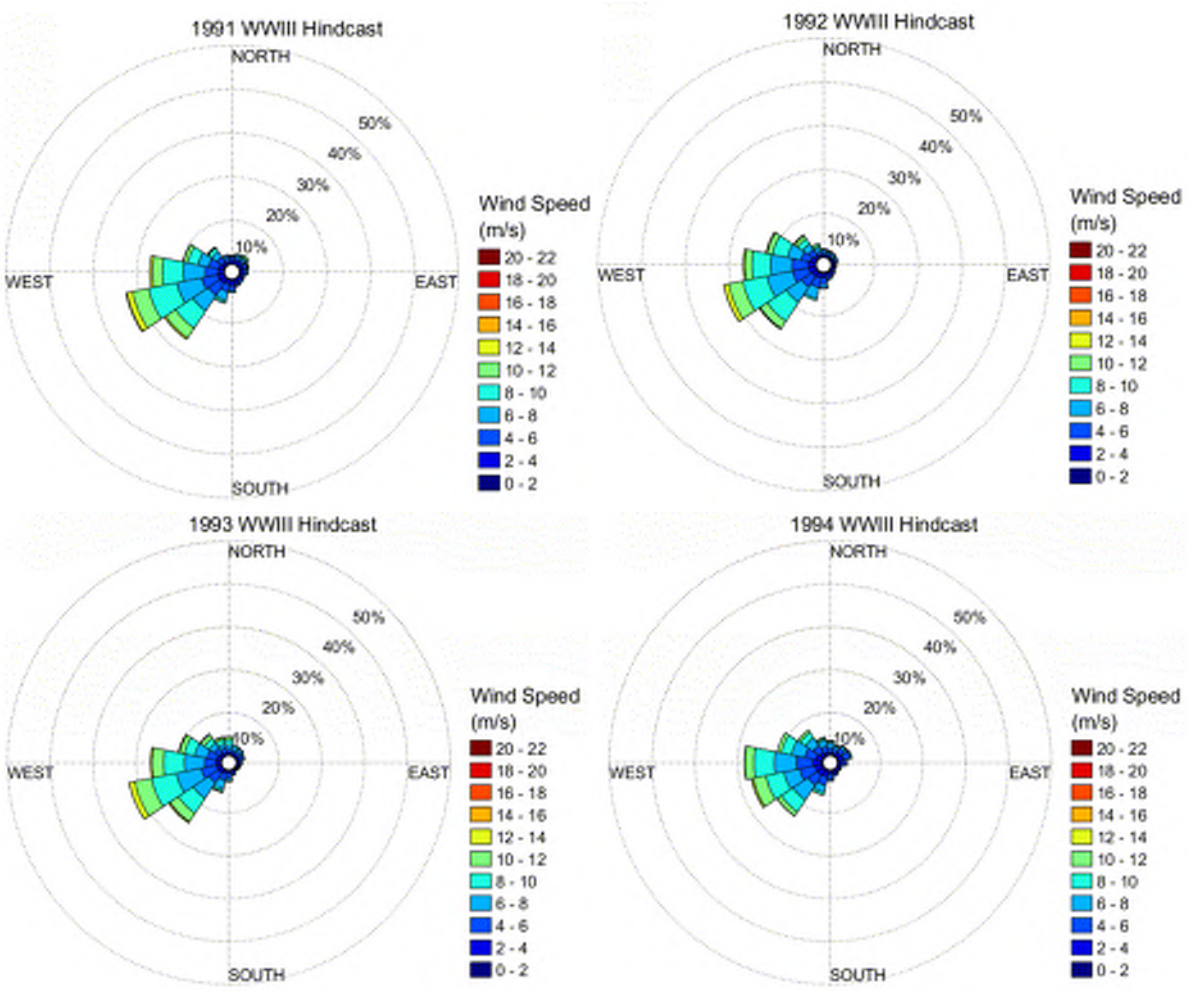

Figure O.6 1991-1994 WW3 Hindcast Wind Roses

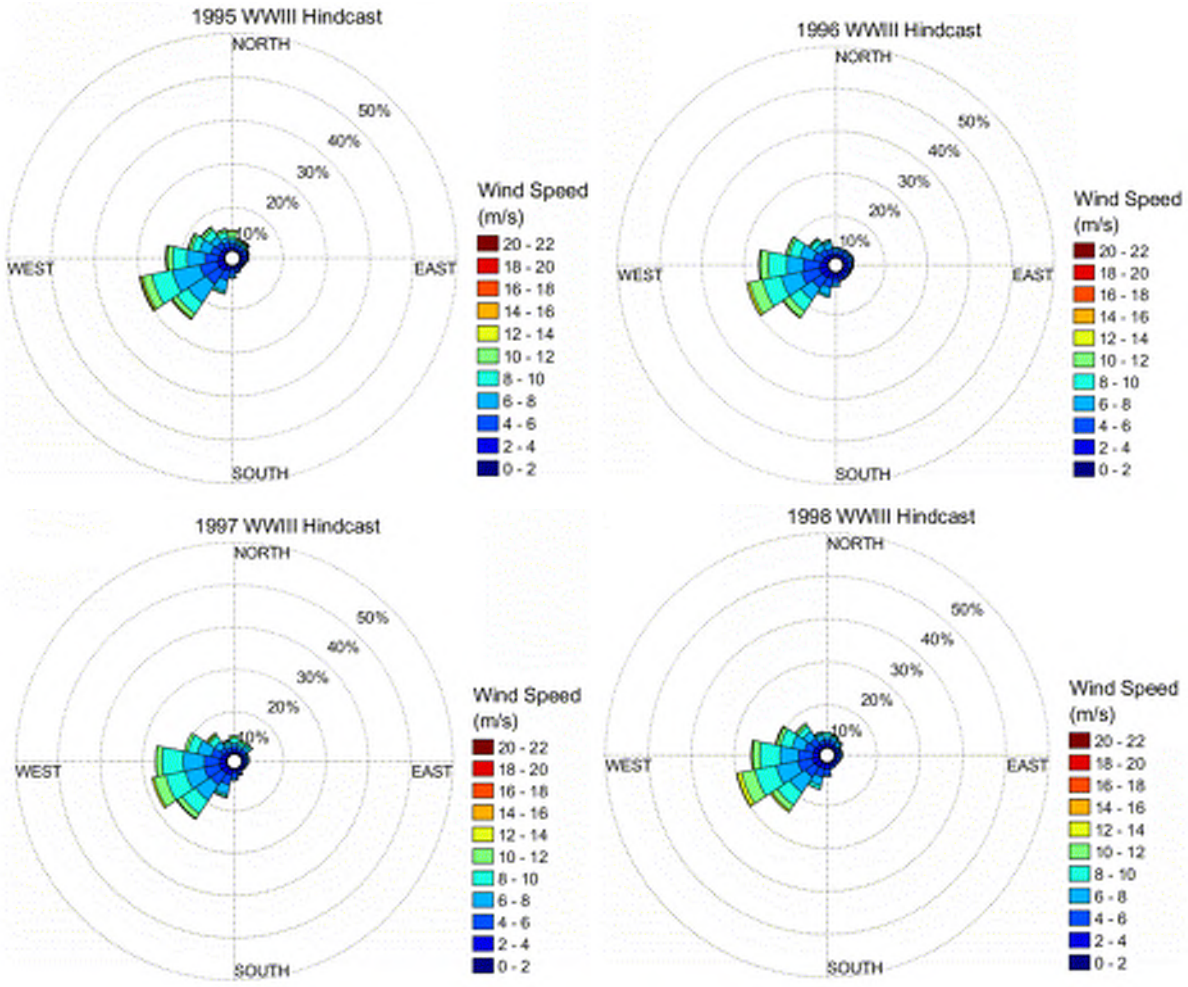

Figure O.7 1995-1998 WW3 Hindcast Wind Roses

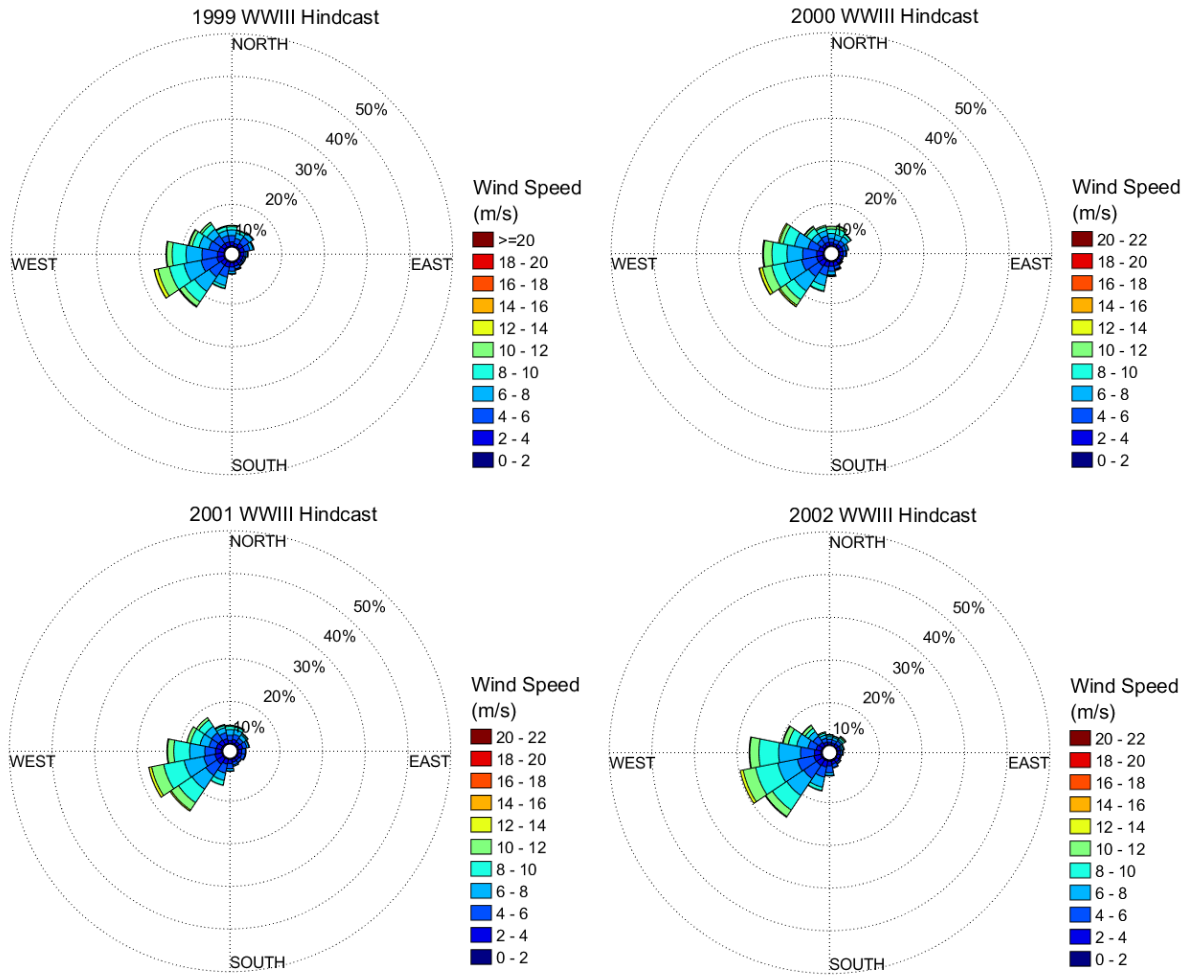

Figure O.8 1999-2002 WW3 Hindcast Wind Roses

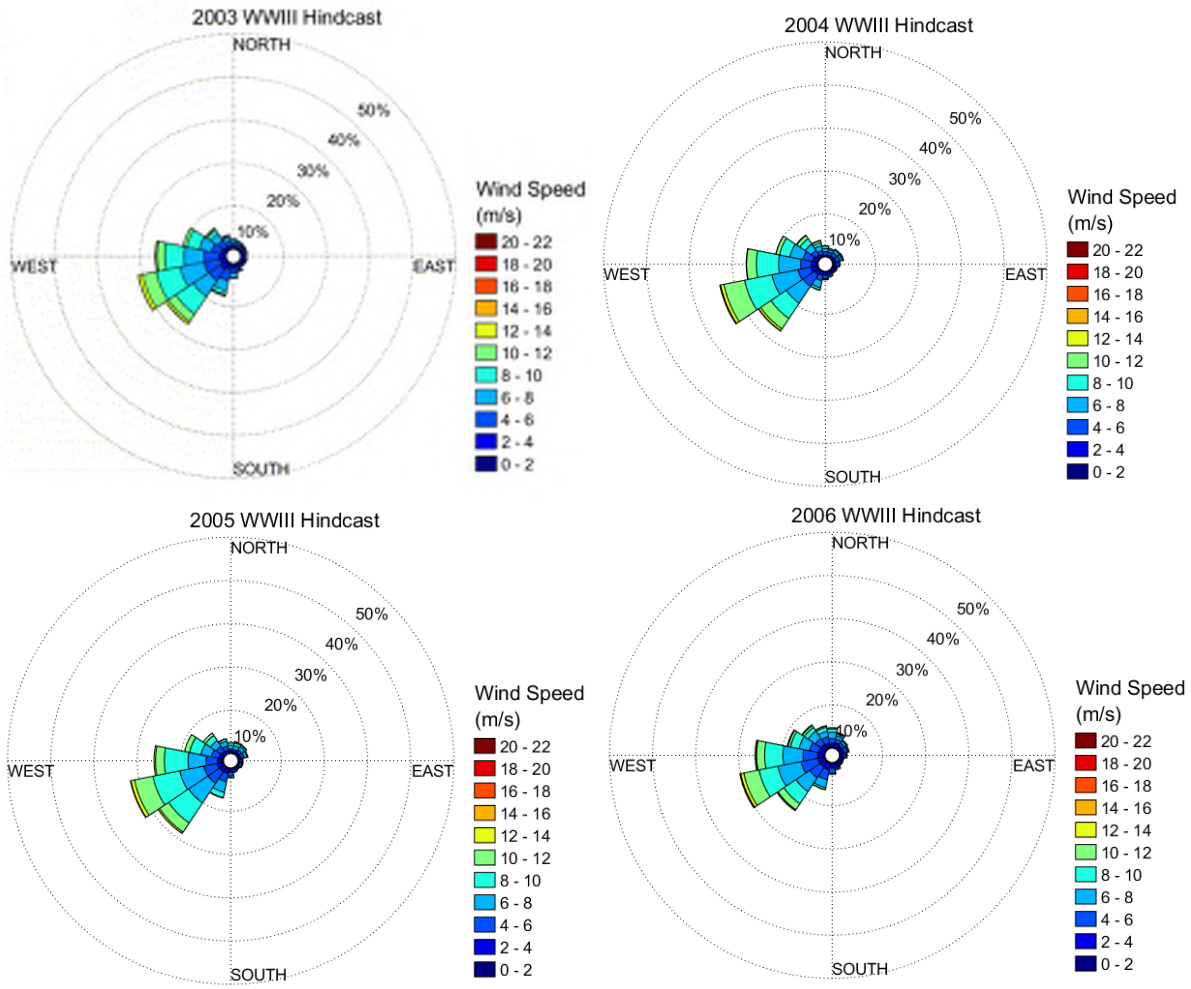

Figure O.9 2003-2006 WW3 Hindcast Wind Roses

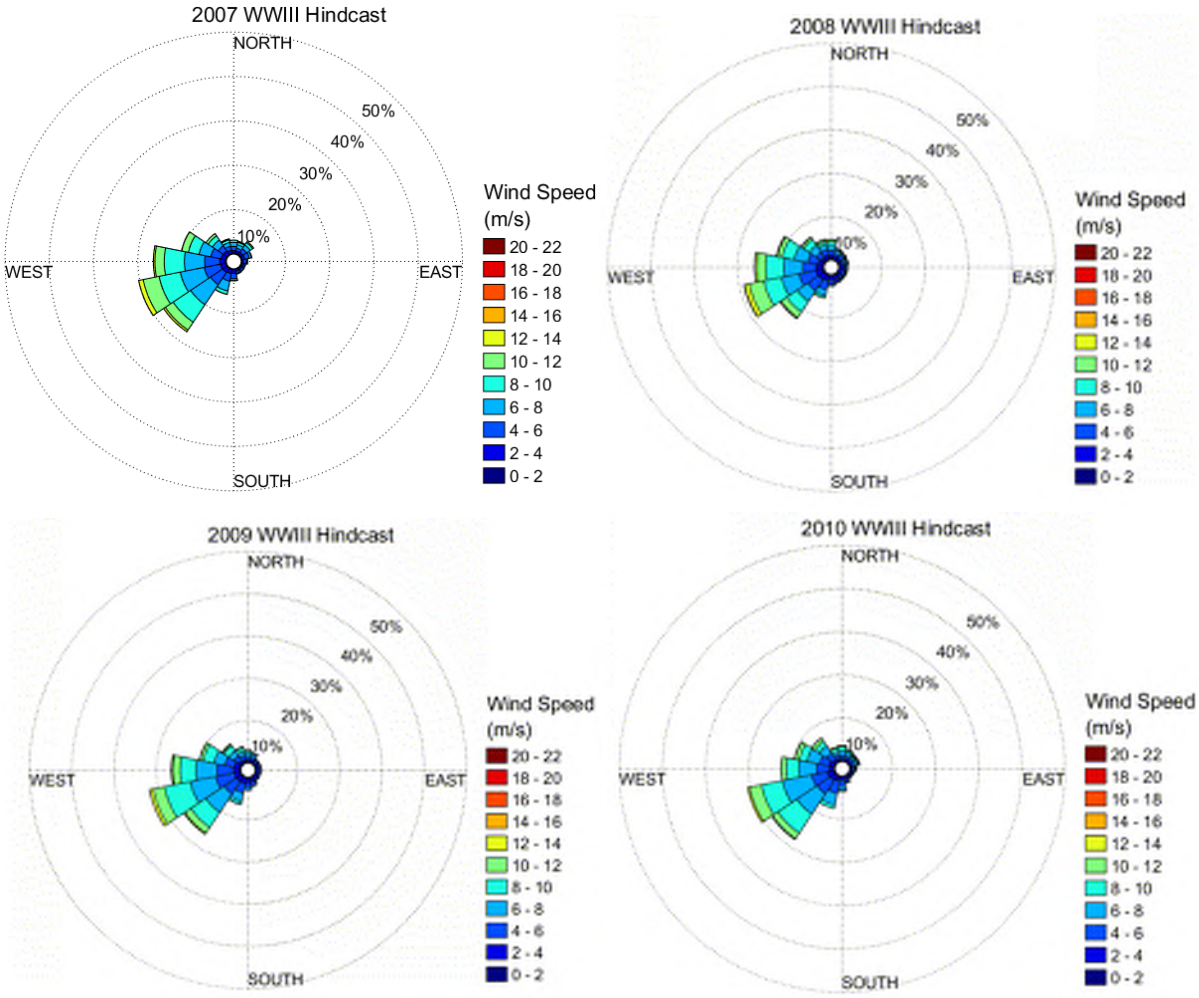

Figure O.10 2007-2010 WW3 Hindcast Wind Roses

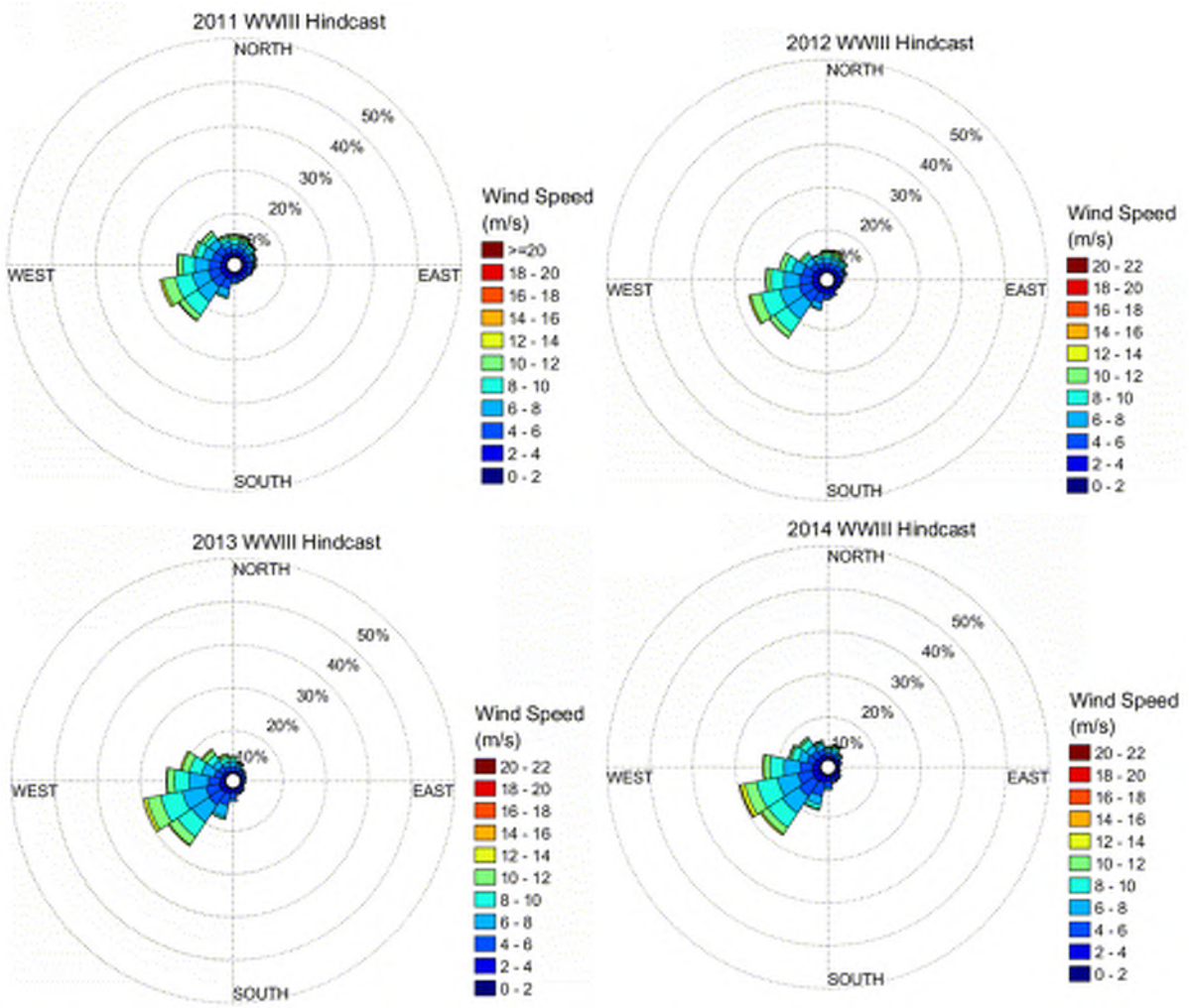

Figure O.11 2011-2014 WW3 Hindcast Wind Roses

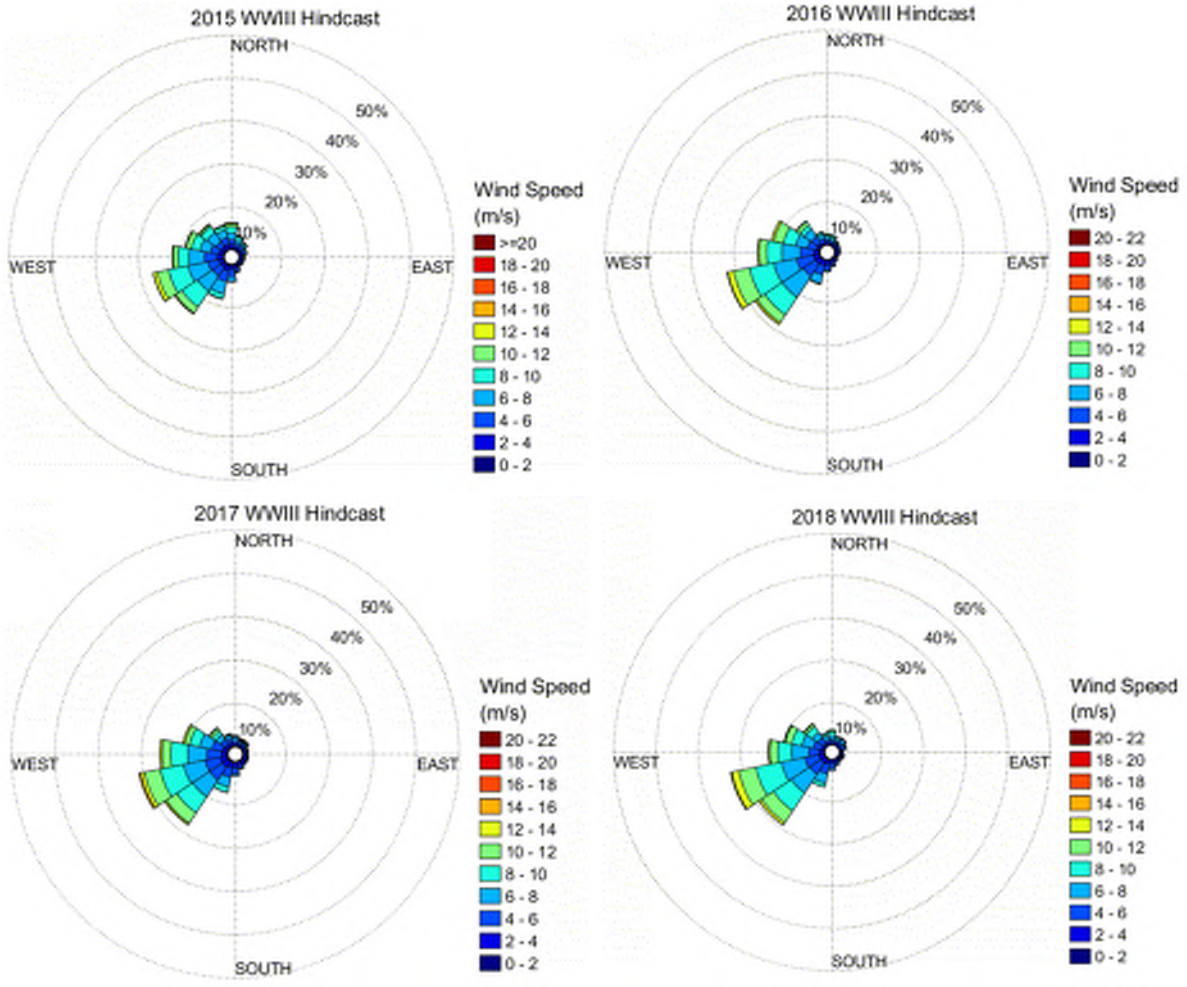

Figure O.12 2015-2018 WW3 Hindcast Wind Roses

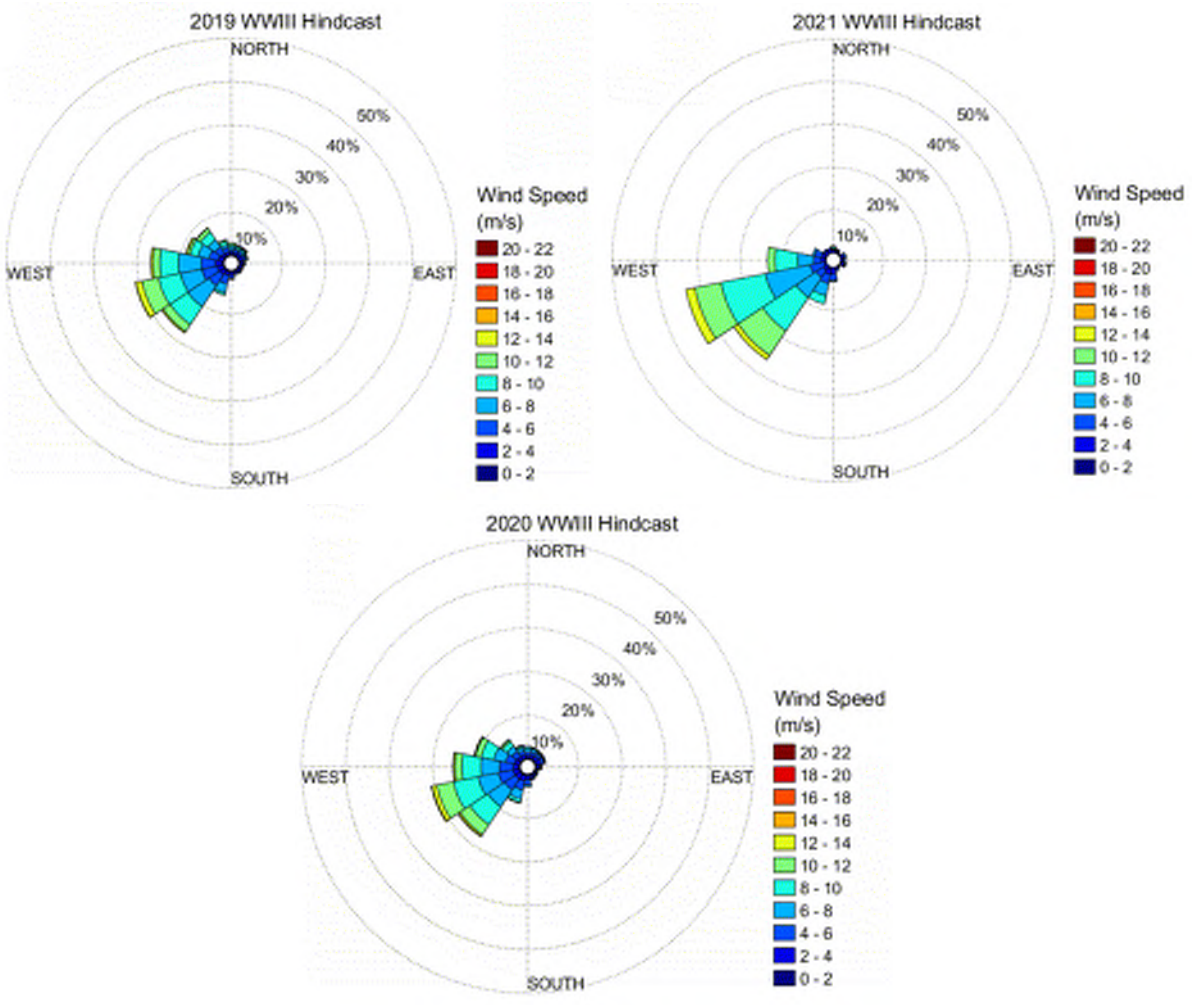

Figure O.13 2019-2021 WW3 Hindcast Wind Roses

Appendix P Learmonth Wind Anemometer Key Event Plots

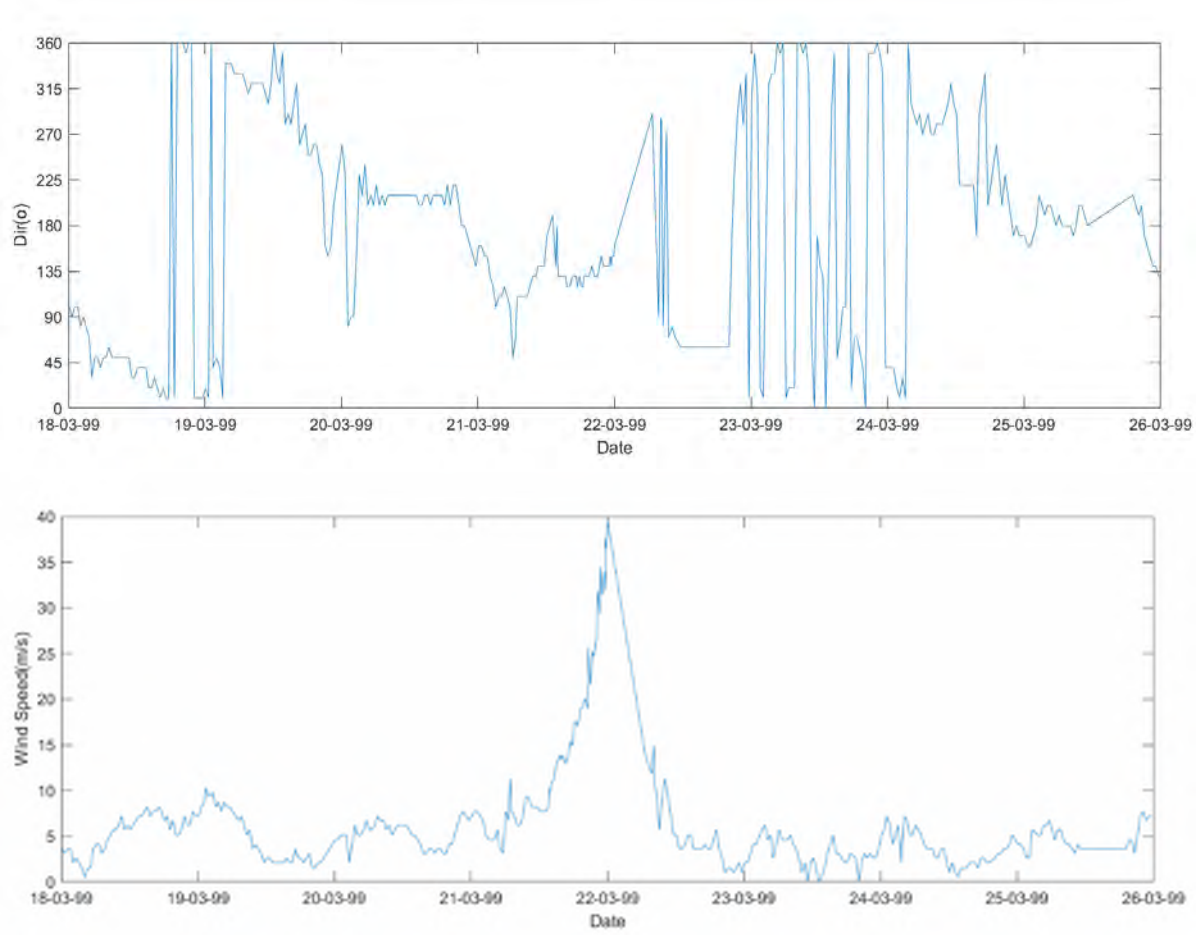

Figure P.1 Event 1 – Learmonth Wind Anemometer Direction & Wind Speed

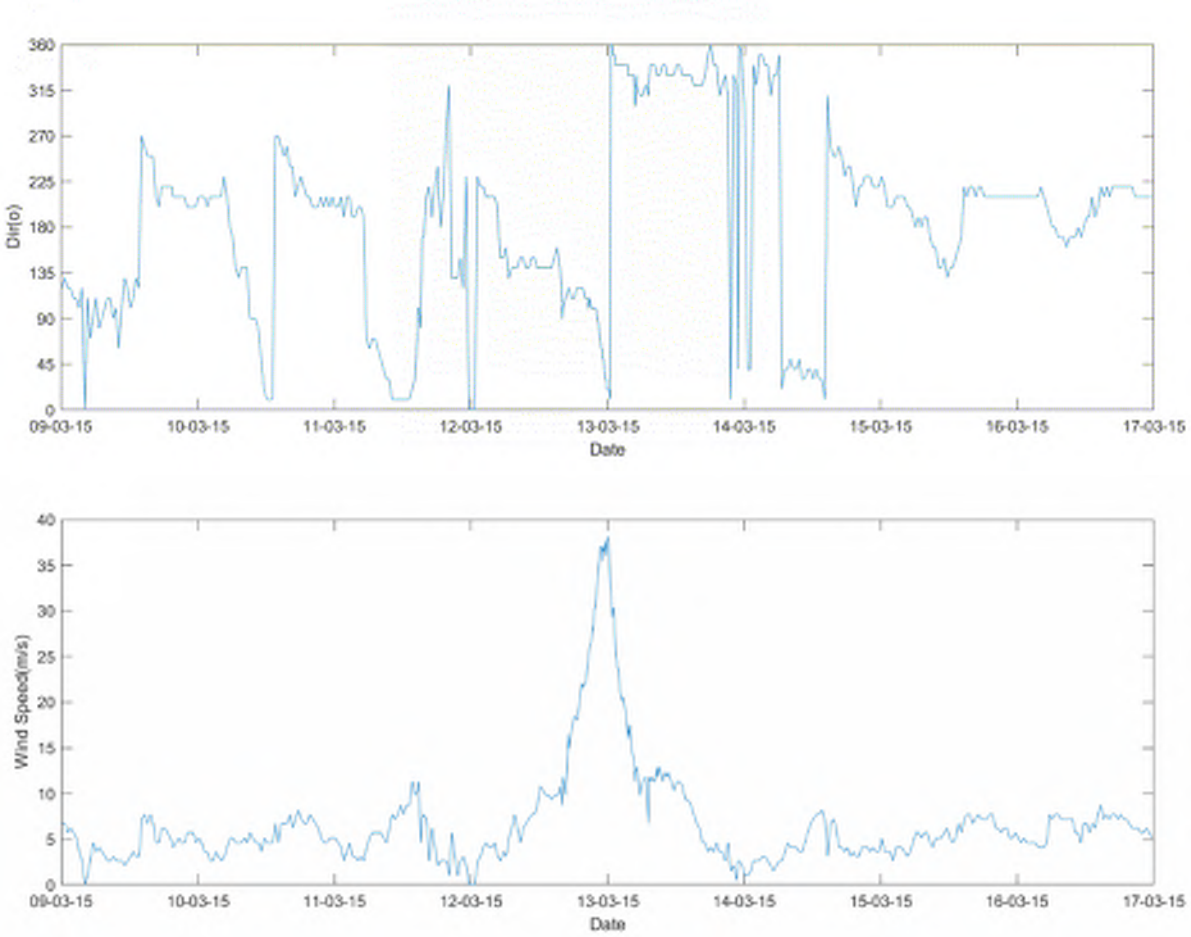

Figure P.2 Event 2 – Learmonth Wind Anemometer Direction & Wind Speed

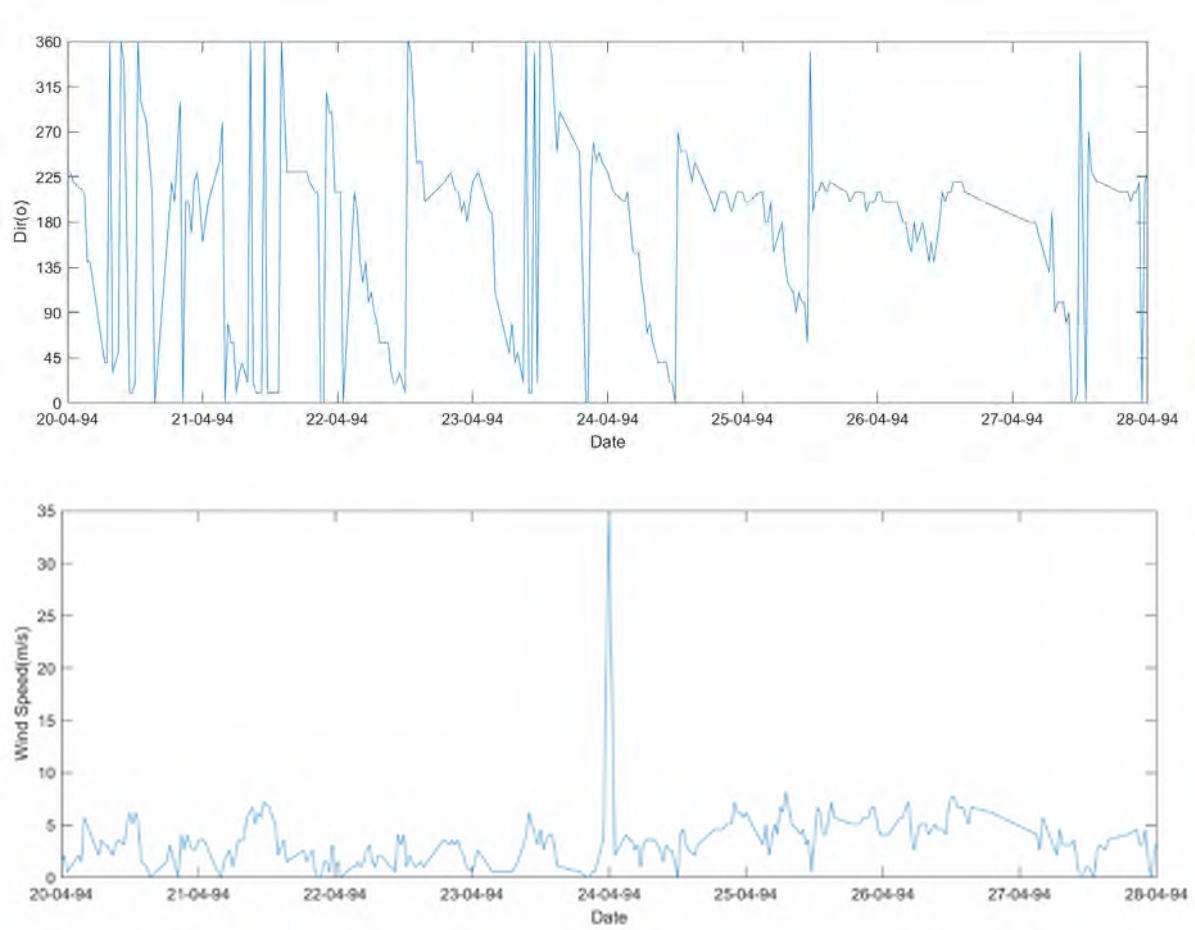

Figure P.3 Event 3 – Learmonth Wind Anemometer Direction & Wind Speed

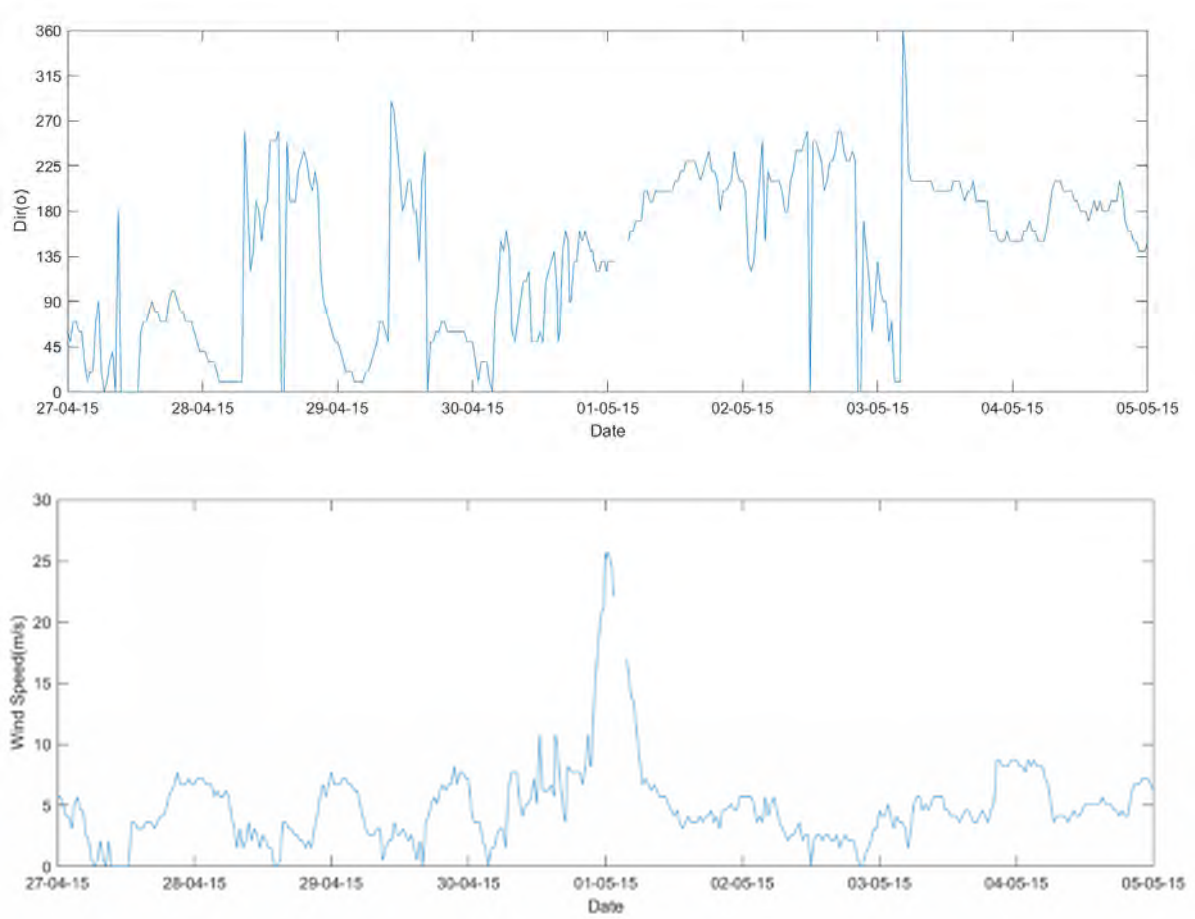

Figure P.4 Event 4 – Learmonth Wind Anemometer Direction & Wind Speed

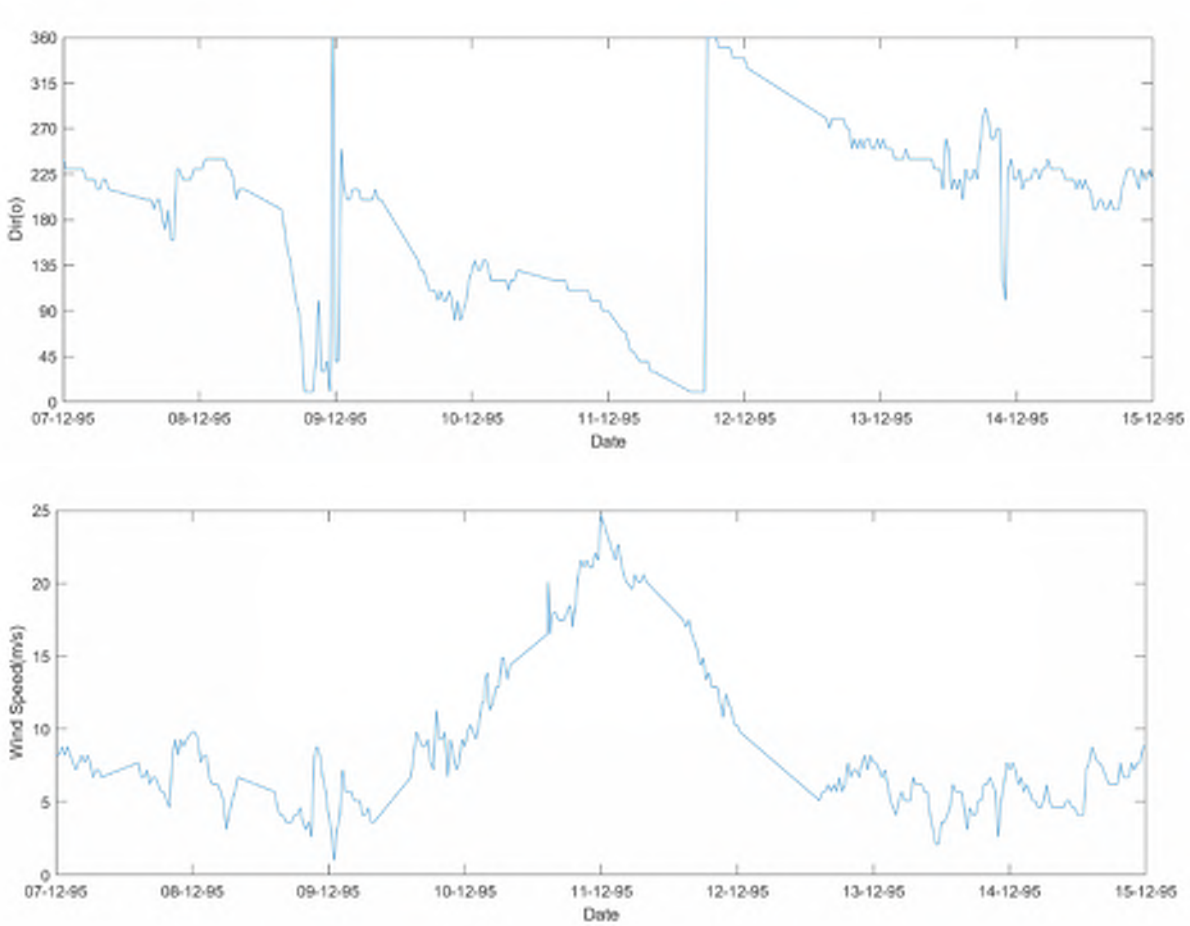

Figure P.5 Event 5 – Learmonth Wind Anemometer Direction & Wind Speed

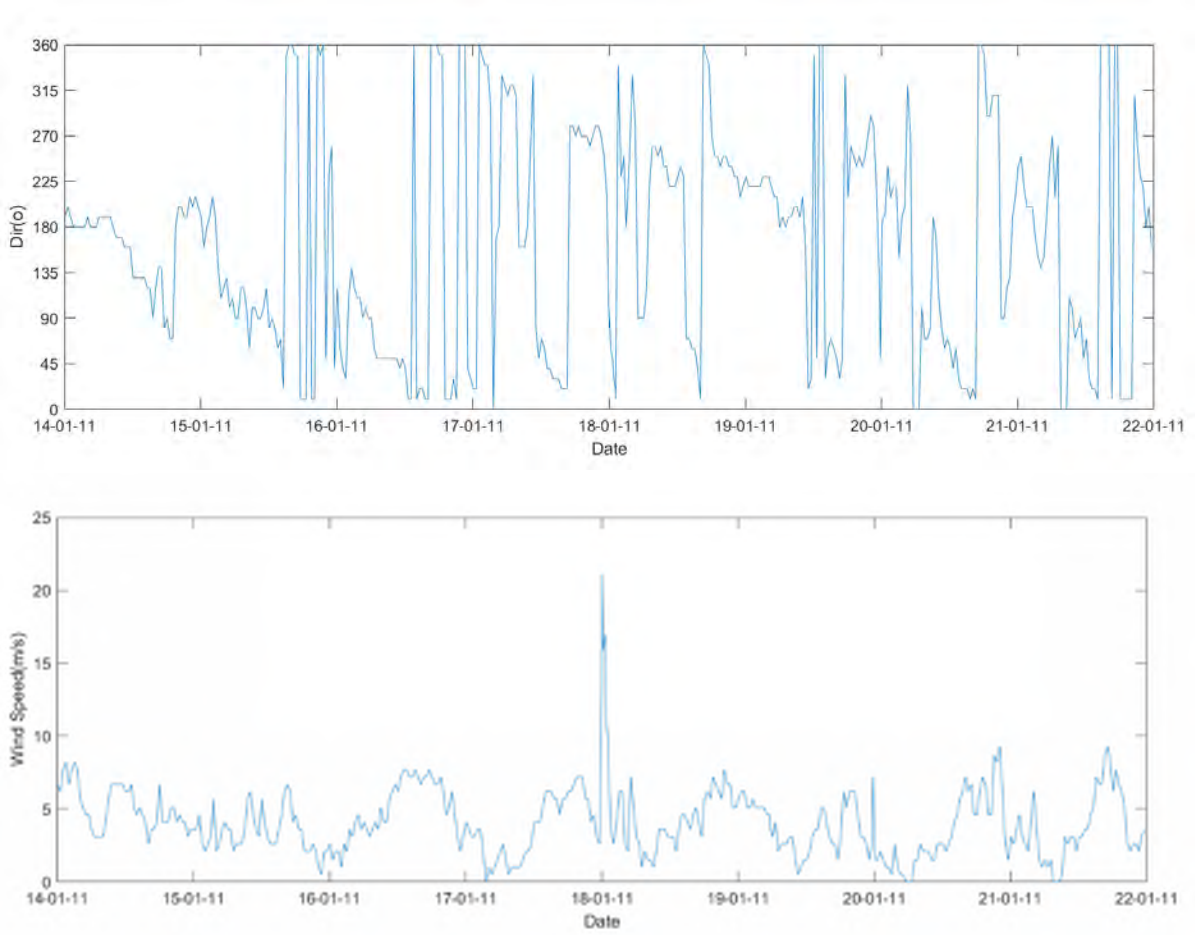

Figure P.6 Event 6 – Learmonth Wind Anemometer Direction & Wind Speed

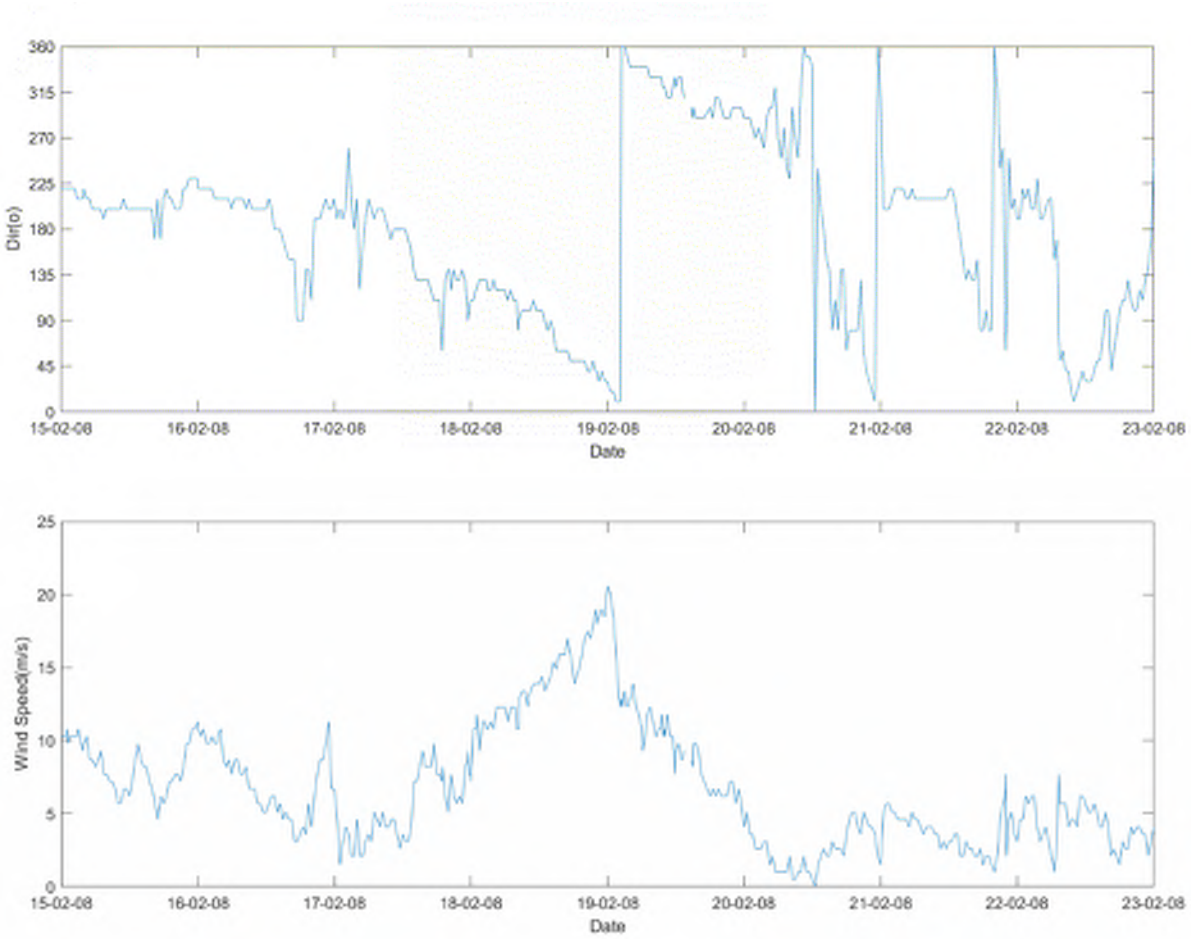

Figure P.7 Event 7 – Learmonth Wind Anemometer Direction & Wind Speed

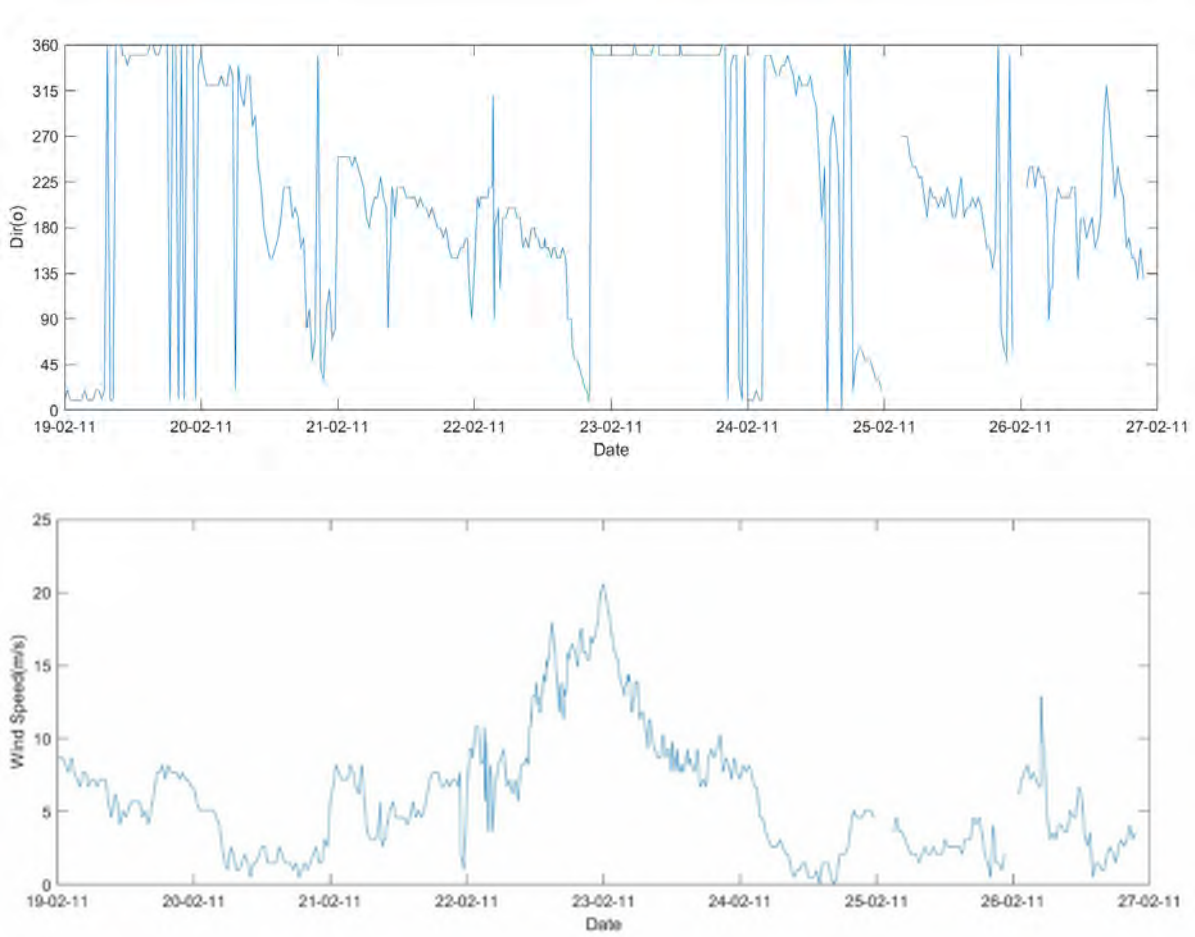

Figure P.8 Event 8 – Learmonth Wind Anemometer Direction & Wind Speed

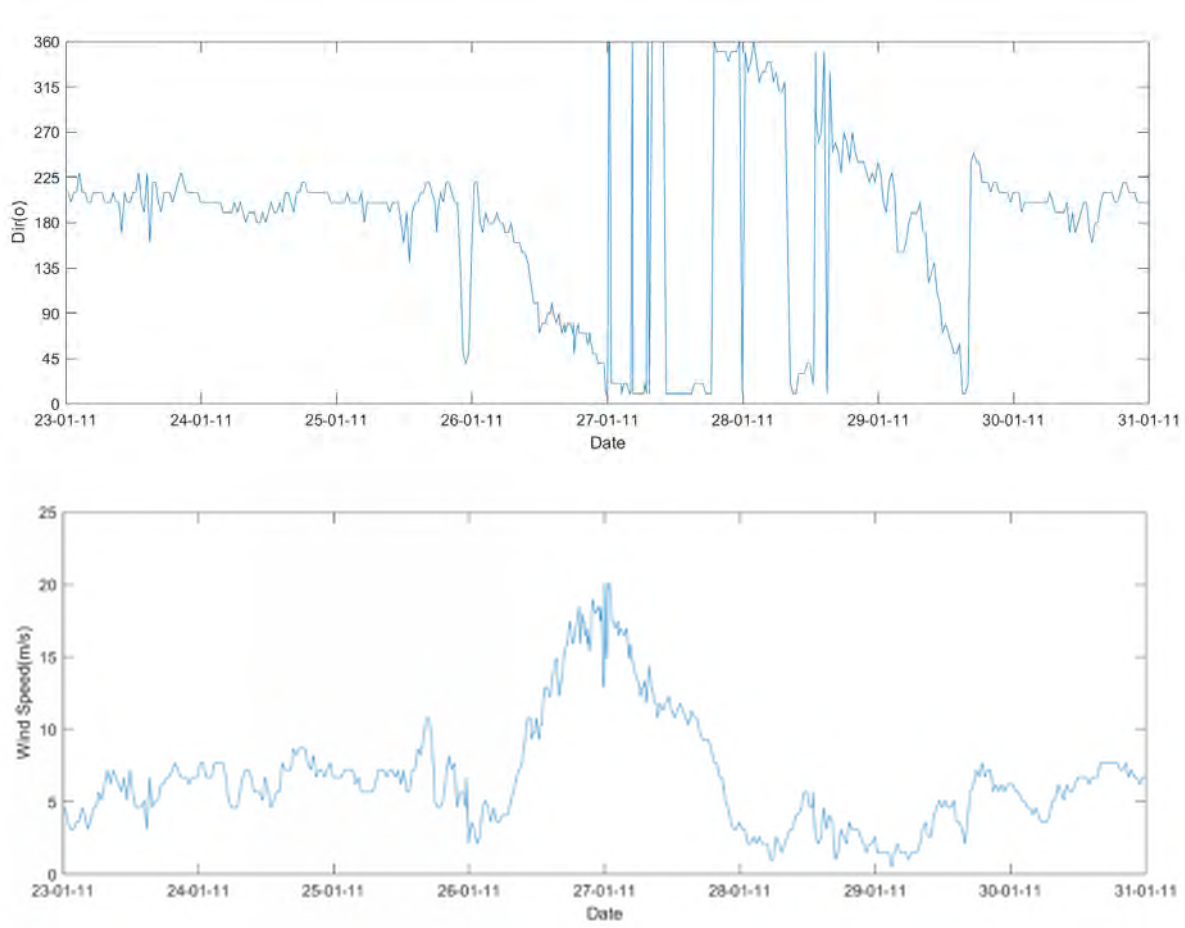

Figure P.9 Event 9 – Learmonth Wind Anemometer Direction & Wind Speed

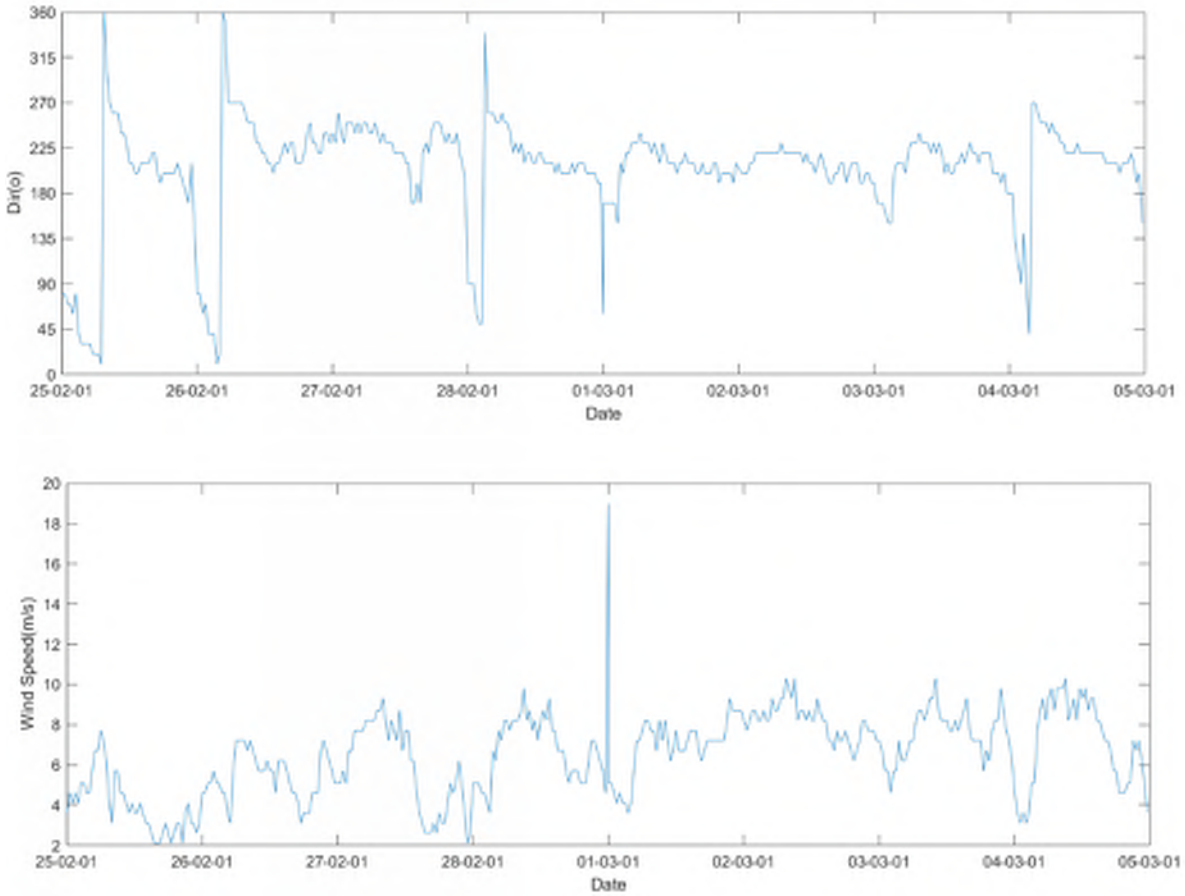

Figure P.10 Event 10 – Learmonth Wind Anemometer Direction & Wind Speed

Appendix Q Yardie Wind Anemometer Key Event Plots

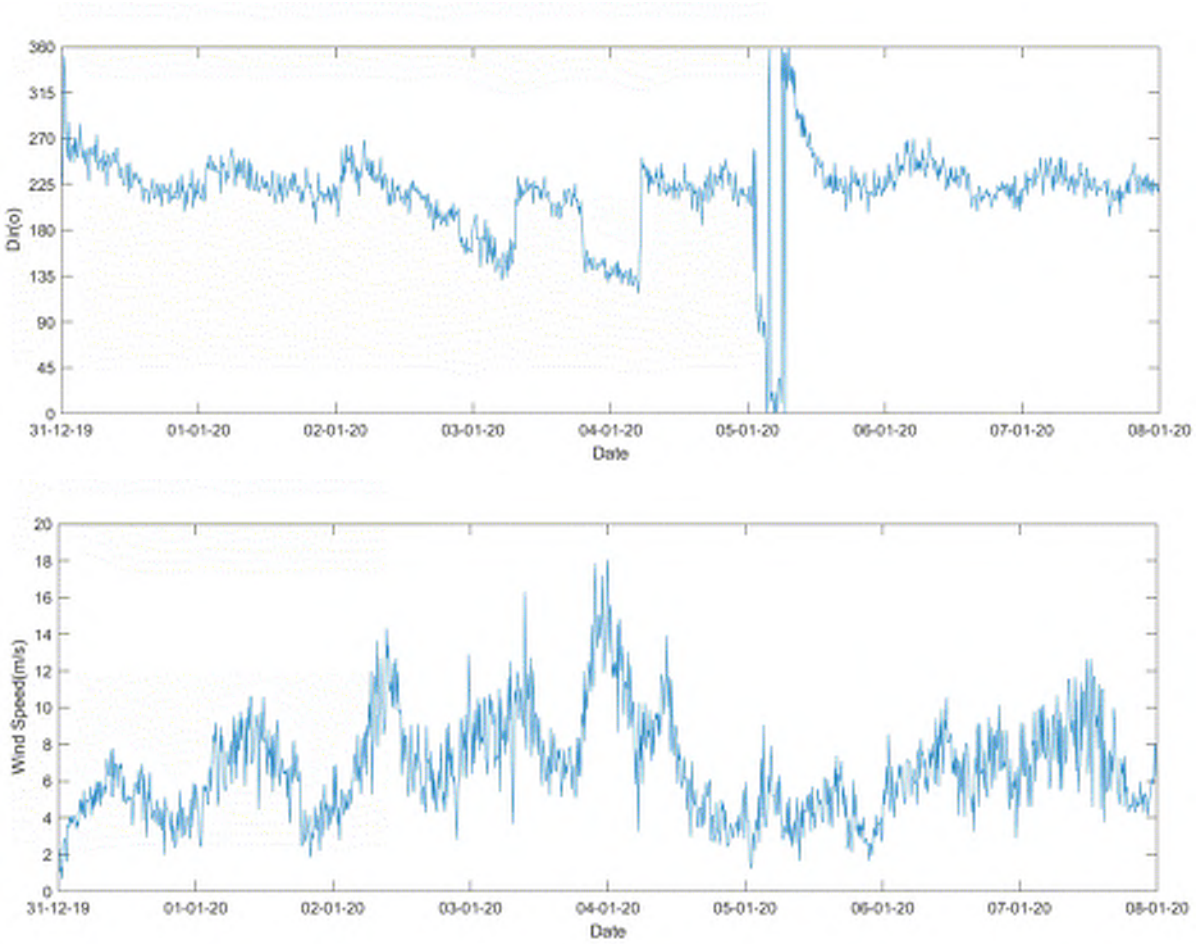

Figure Q.1 Event 1 – Yardie Wind Anemometer Direction & Wind Speed

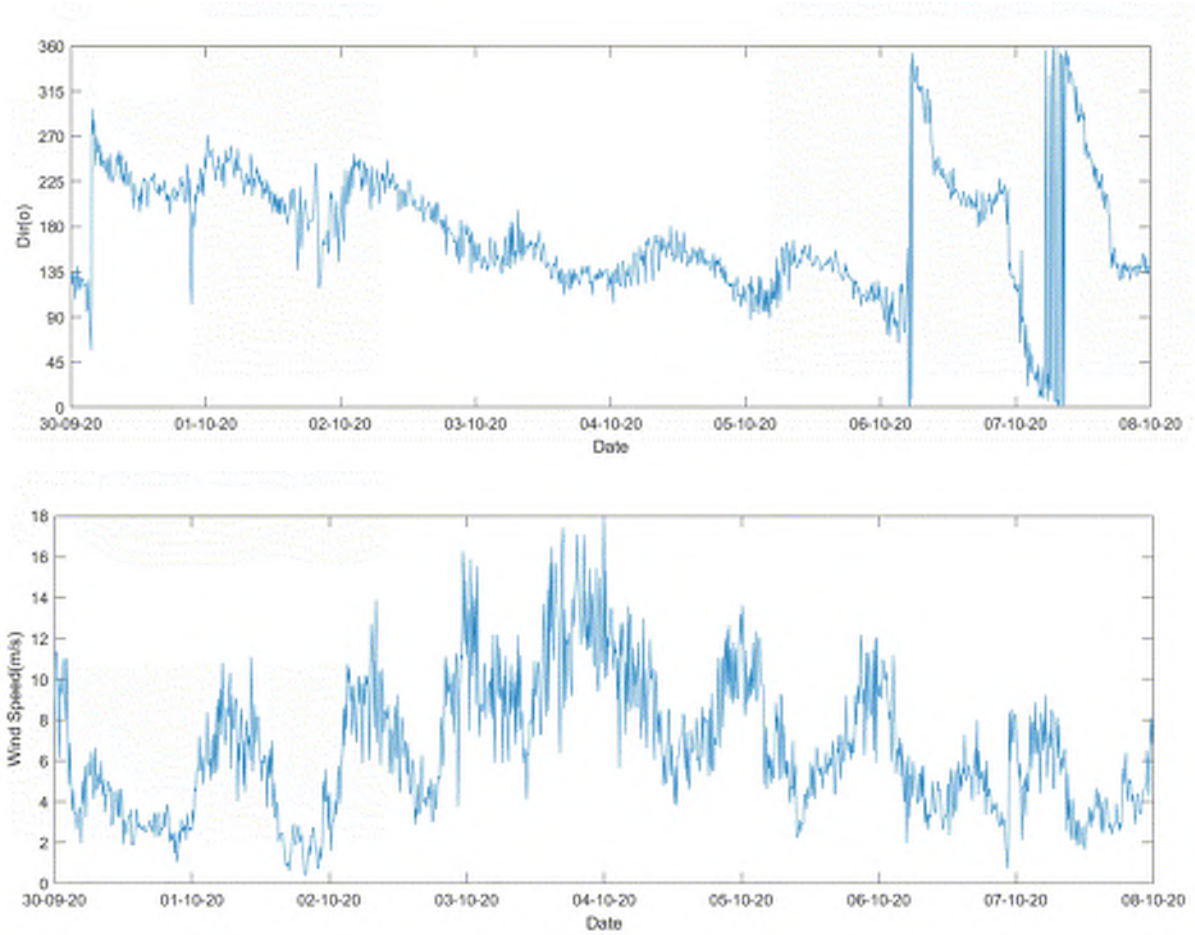

Figure Q.2 Event 2 – Yardie Wind Anemometer Direction & Wind Speed

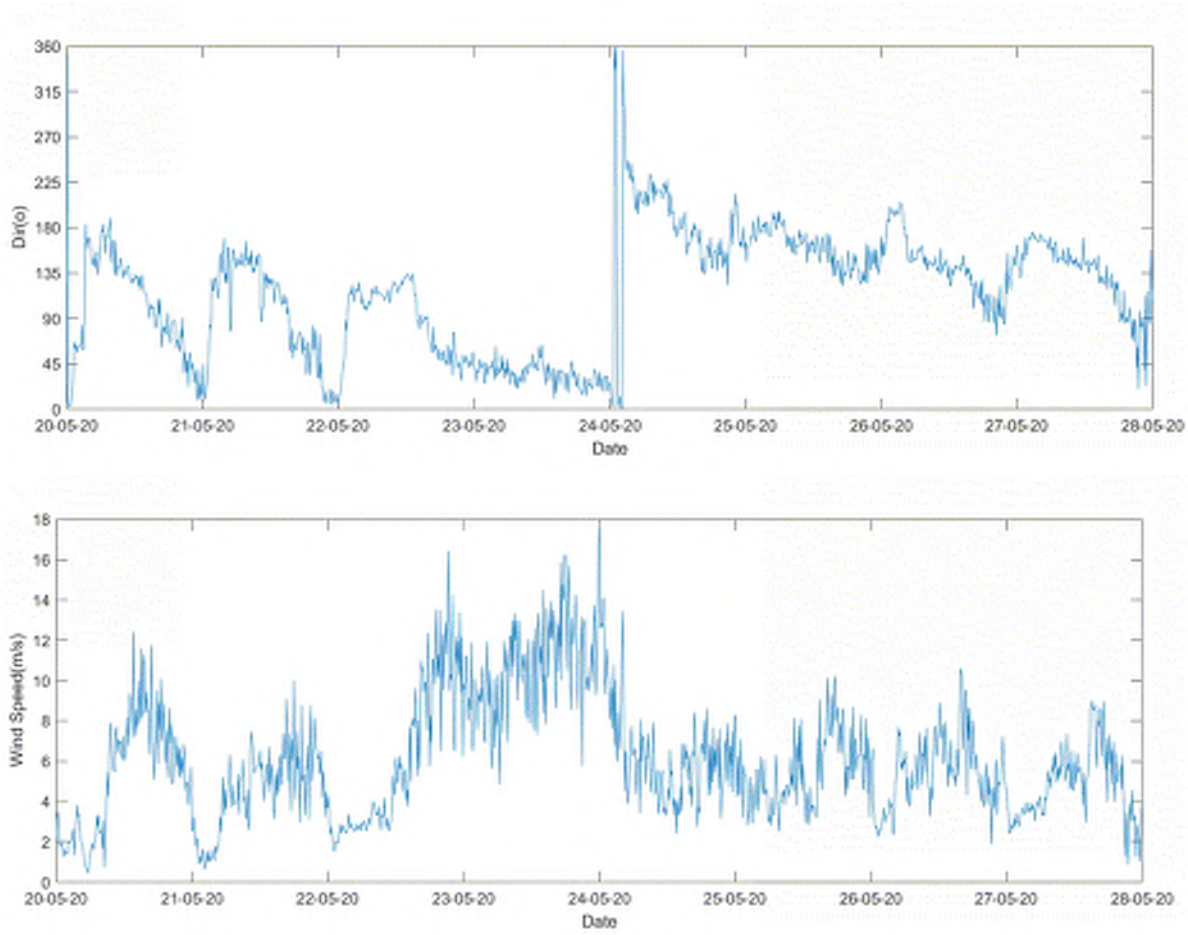

Figure Q.3 Event 3 – Yardie Wind Anemometer Direction & Wind Speed

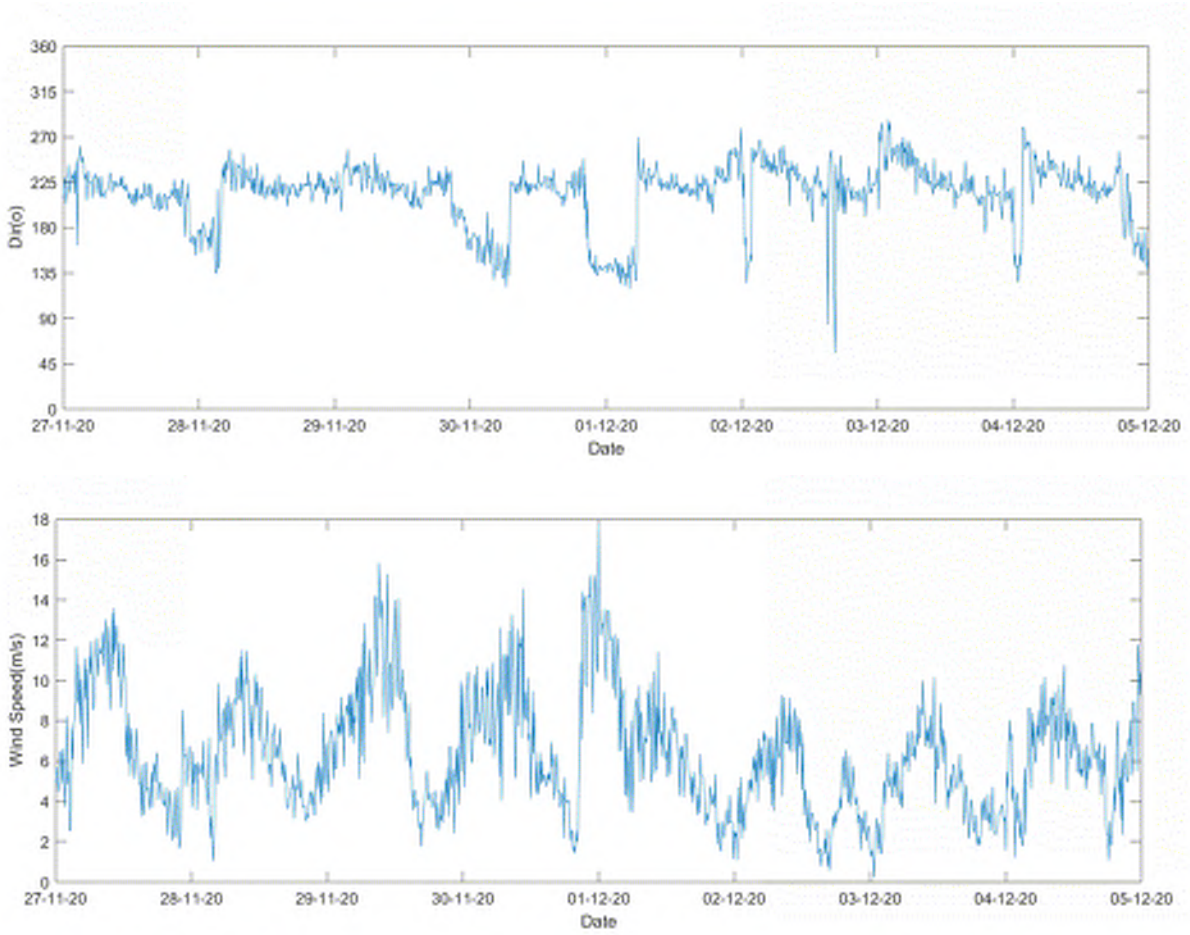

Figure Q.4 Event 4 – Yardie Wind Anemometer Direction & Wind Speed

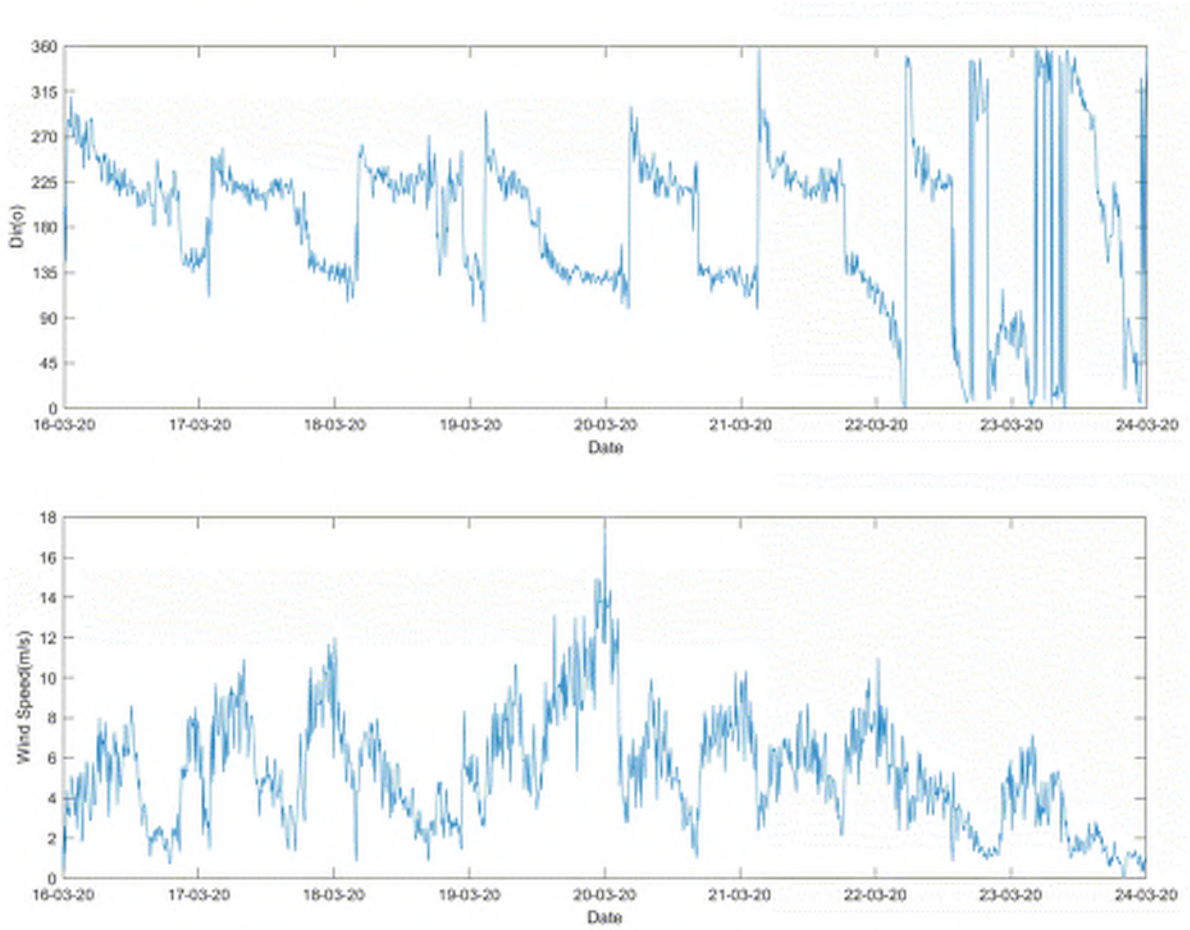

Figure Q.5 Event 5 – Yardie Wind Anemometer Direction & Wind Speed

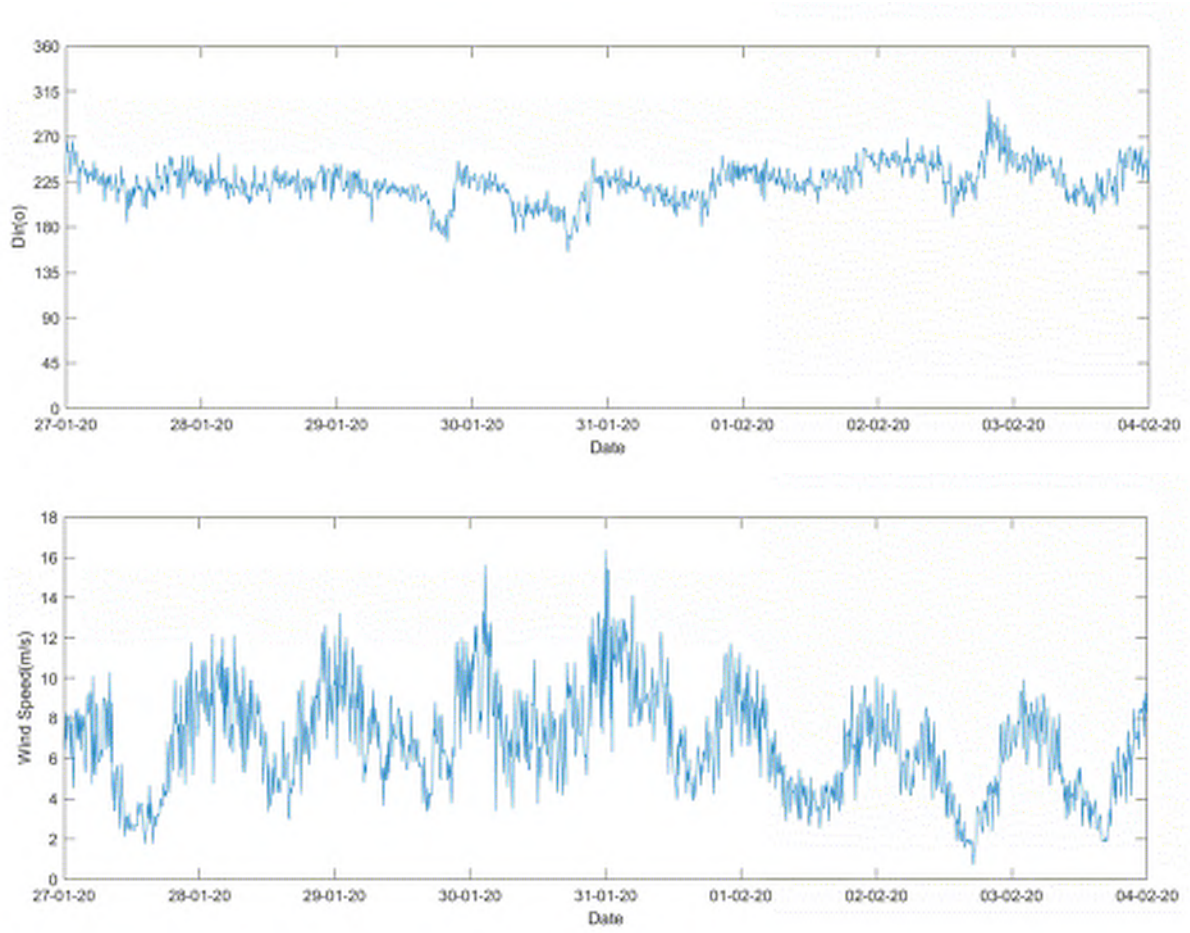

Figure Q.6 Event 6 – Yardie Wind Anemometer Direction & Wind Speed

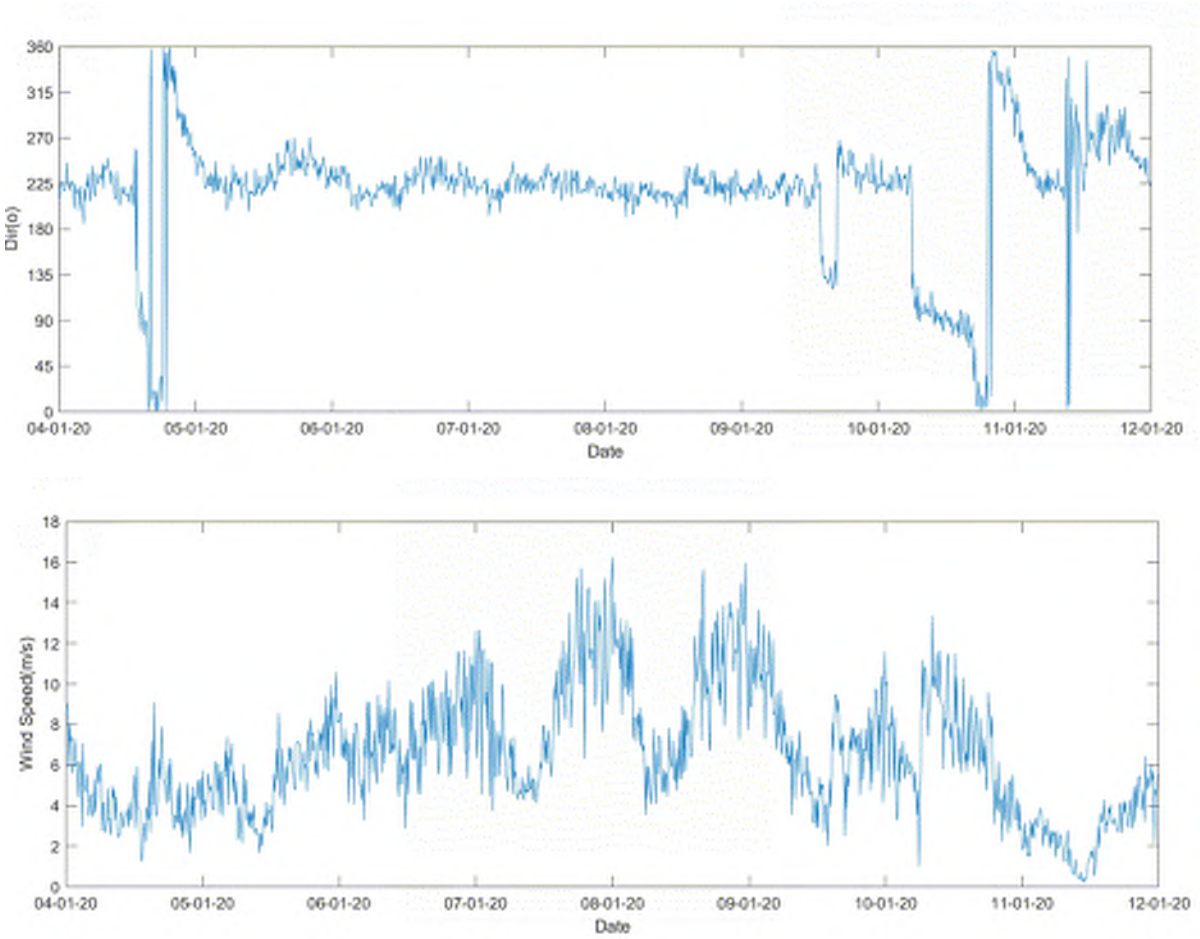

Figure Q.7 Event 7 – Yardie Wind Anemometer Direction & Wind Speed

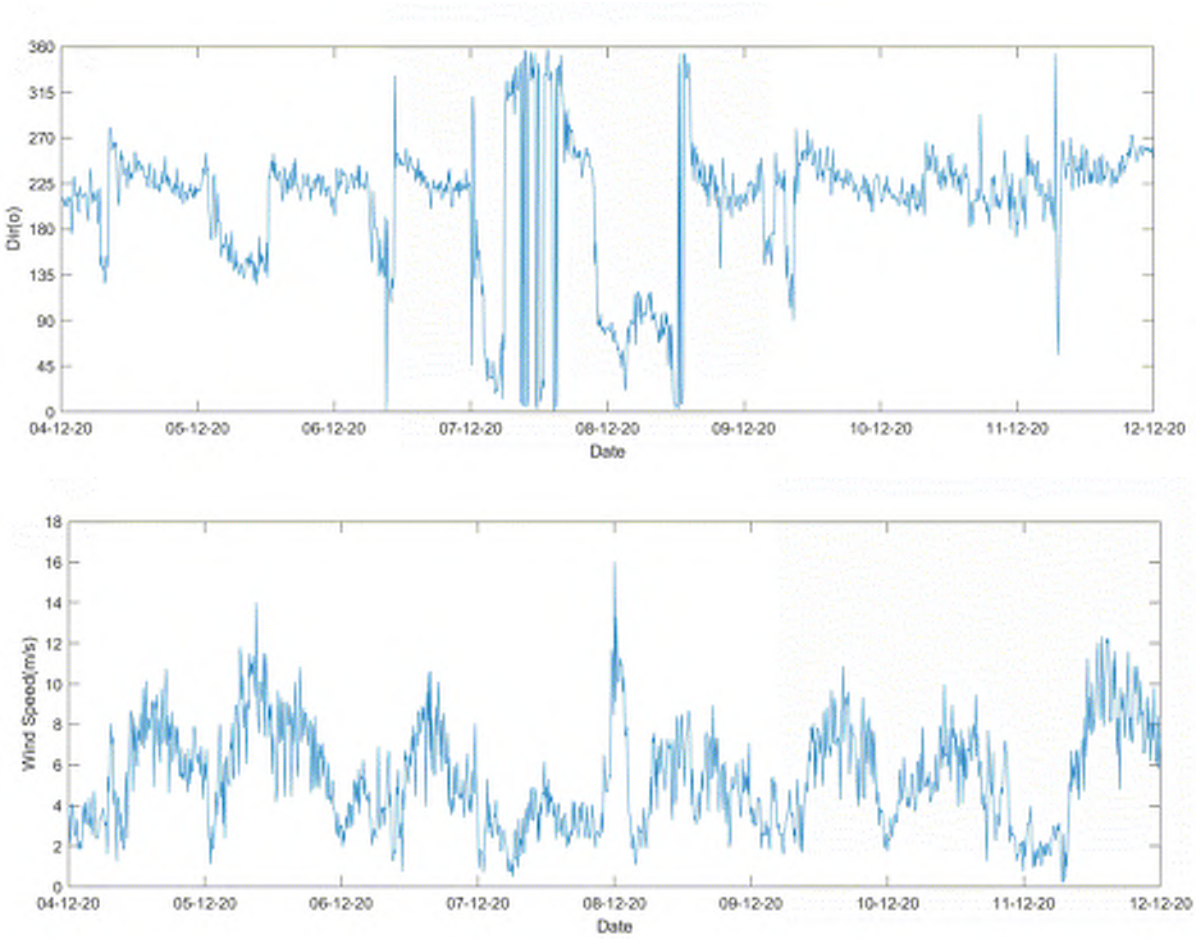

Figure Q.8 Event 8 – Yardie Wind Anemometer Direction & Wind Speed

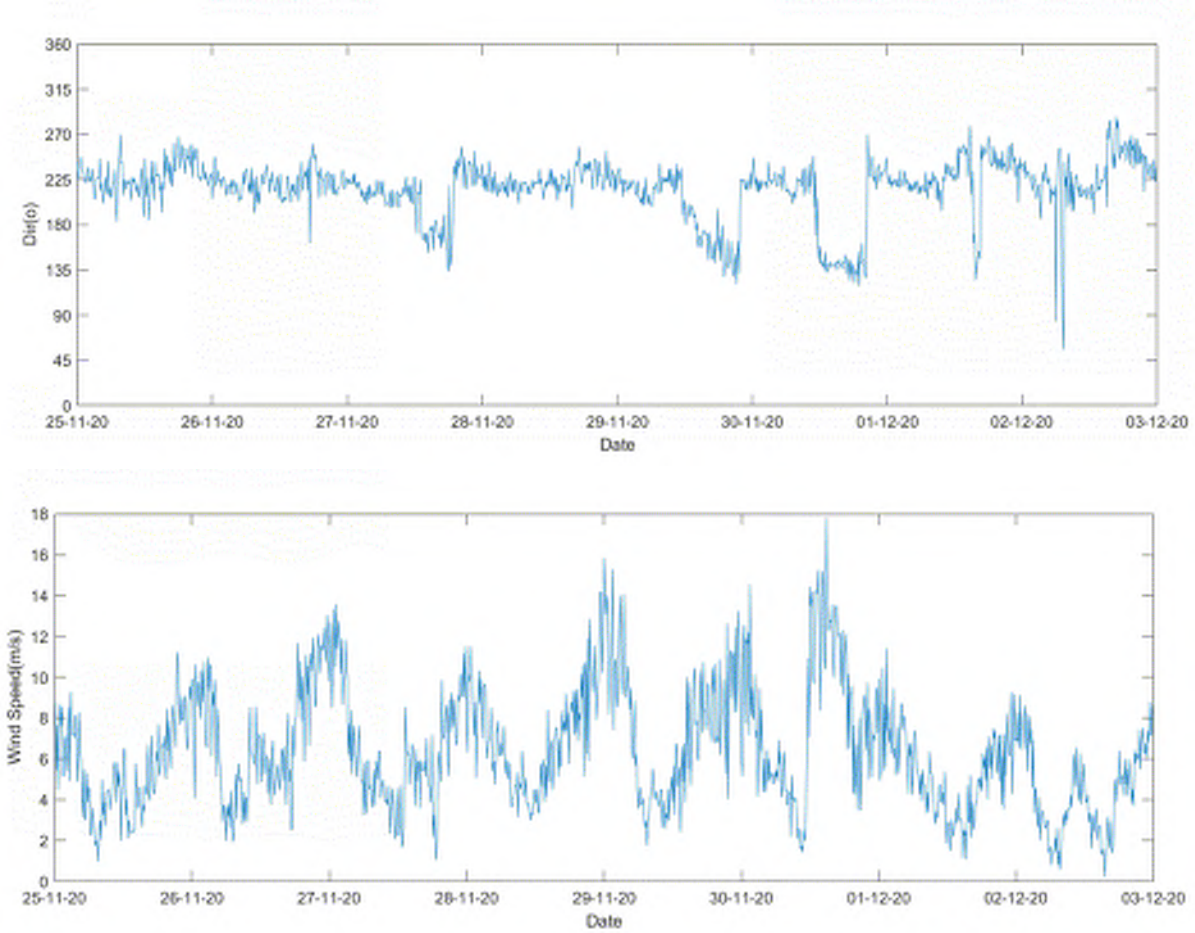

Figure Q.9 Event 9 – Yardie Wind Anemometer Direction & Wind Speed

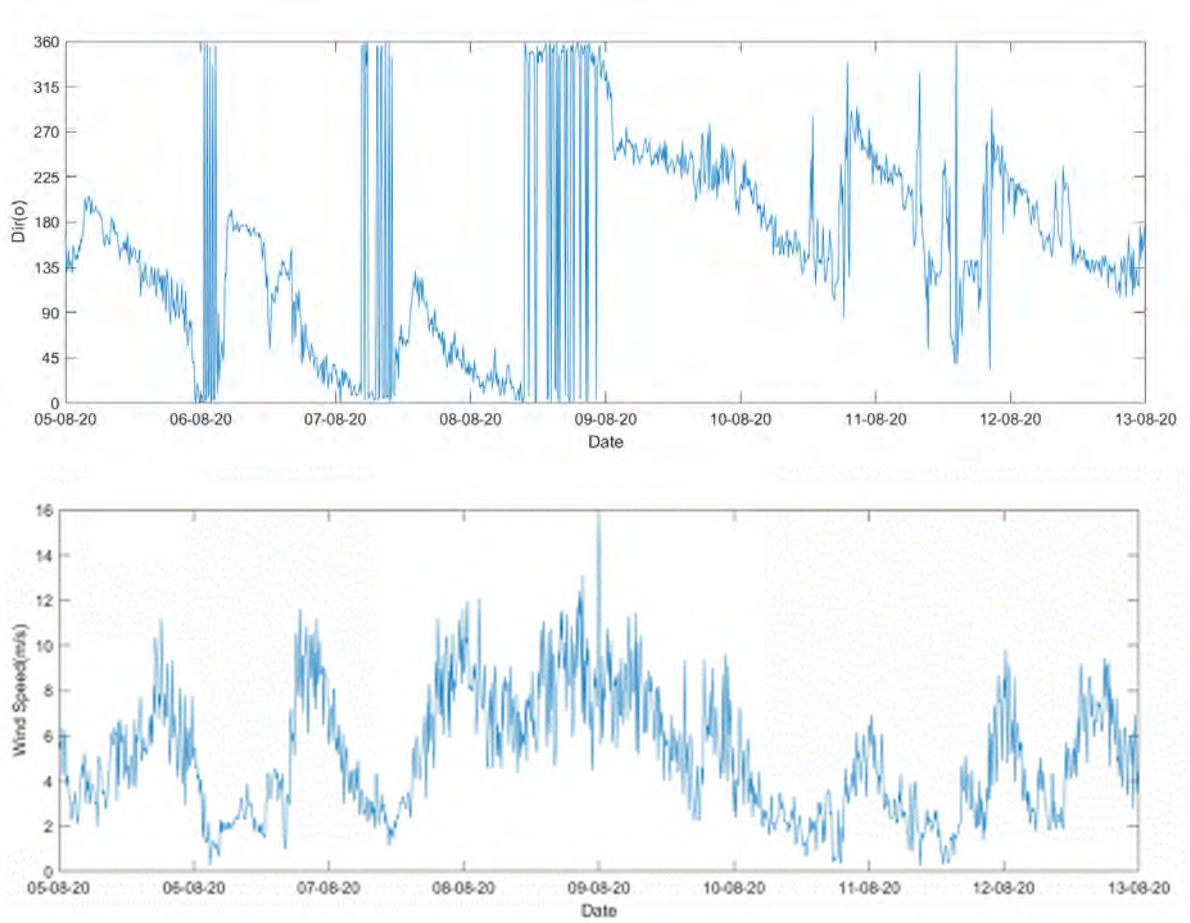

Figure Q.10 Event 10 – Yardie Wind Anemometer Direction & Wind Speed

Appendix R WWIII Hindcast Wind Data Key Event Plots

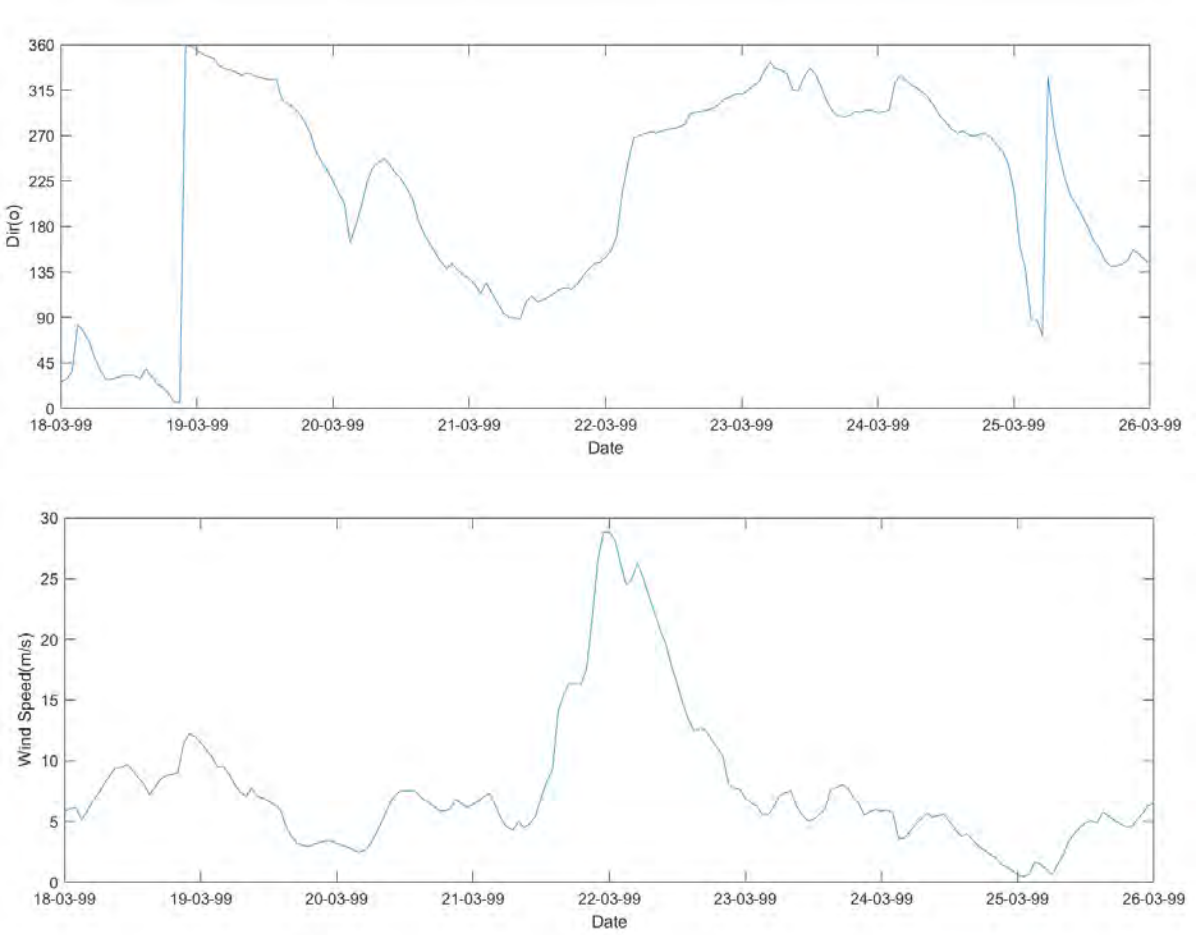

Figure R.1 Event 1 – WW3 Hindcast Wind Direction & Wind Speed

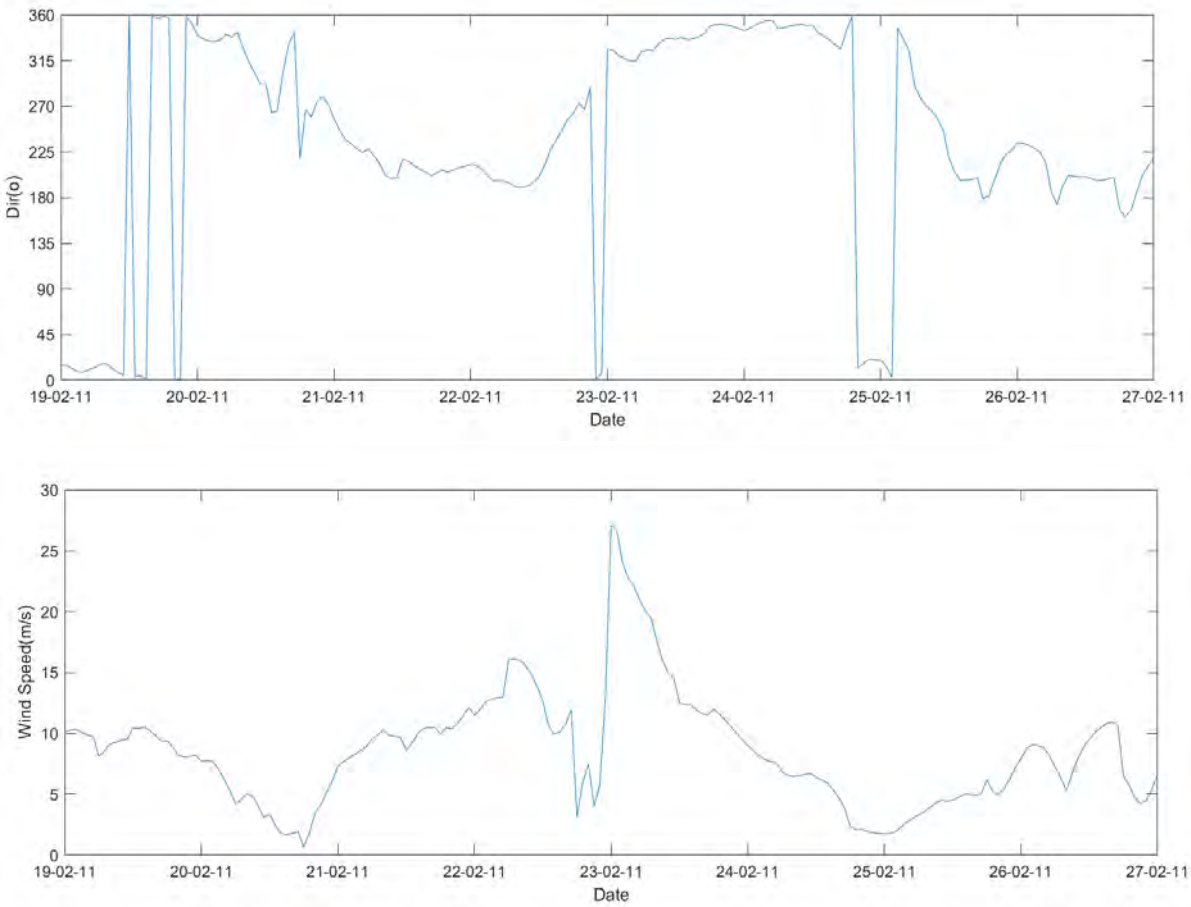

Figure R.2 Event 2 – WW3 Hindcast Wind Direction & Wind Speed

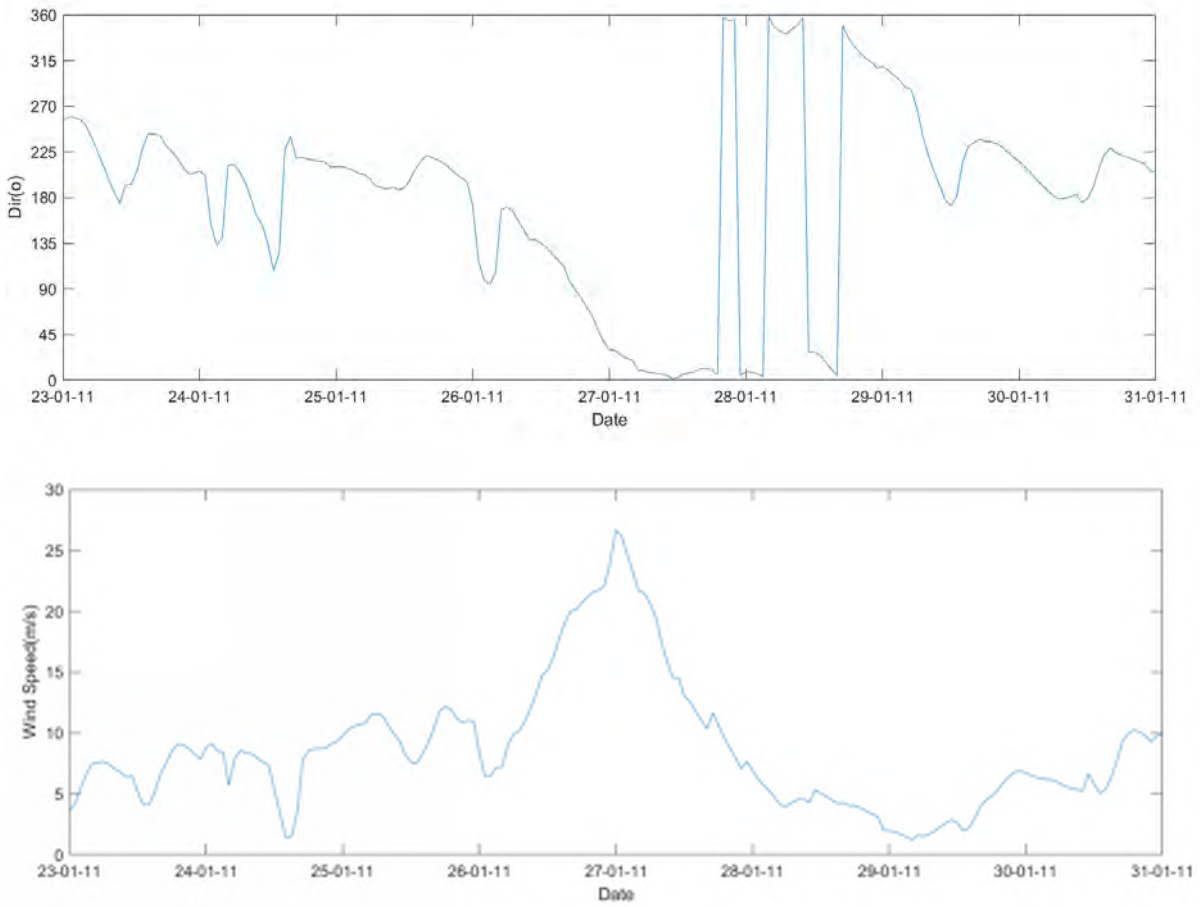

Figure R.3 Event 3 – WW3 Hindcast Wind Direction & Wind Speed

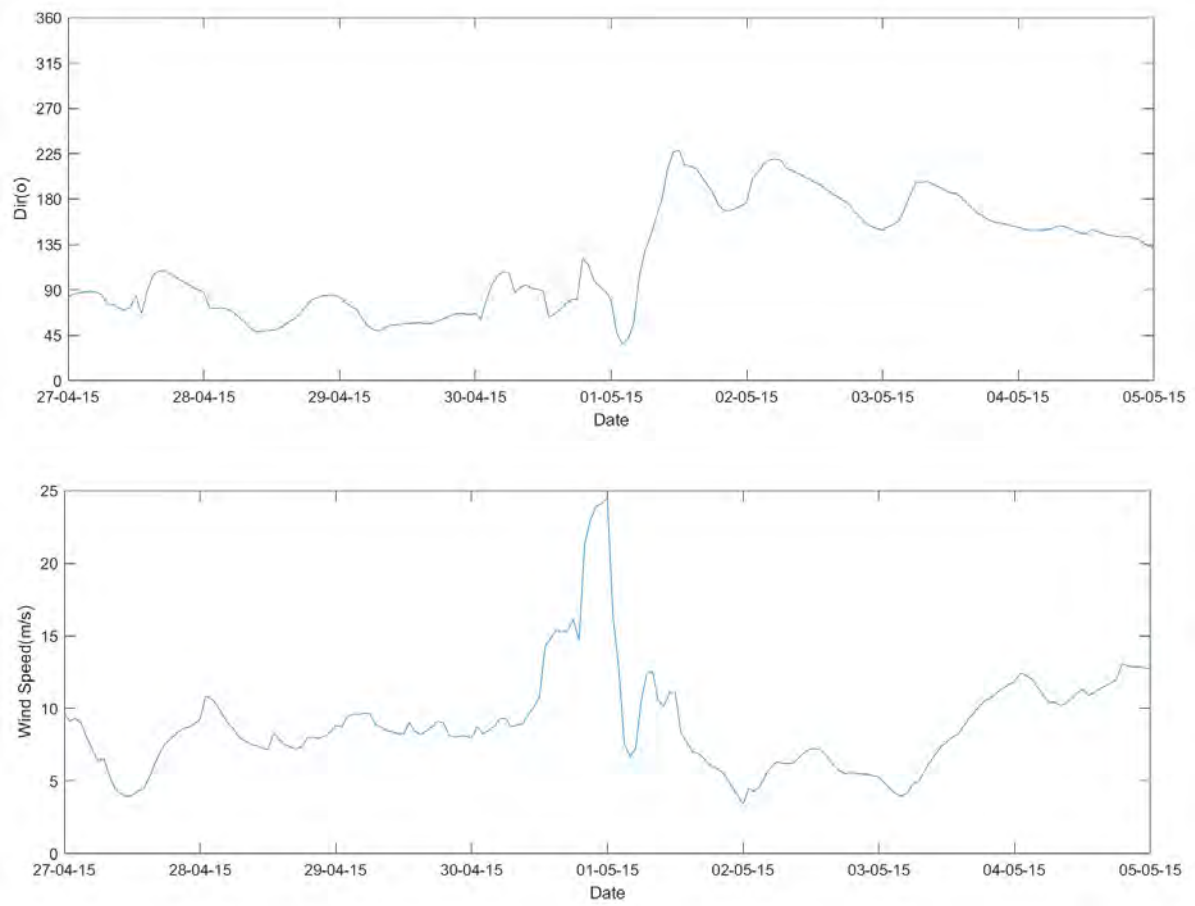

Figure R.4 Event 4 – WW3 Hindcast Wind Direction & Wind Speed

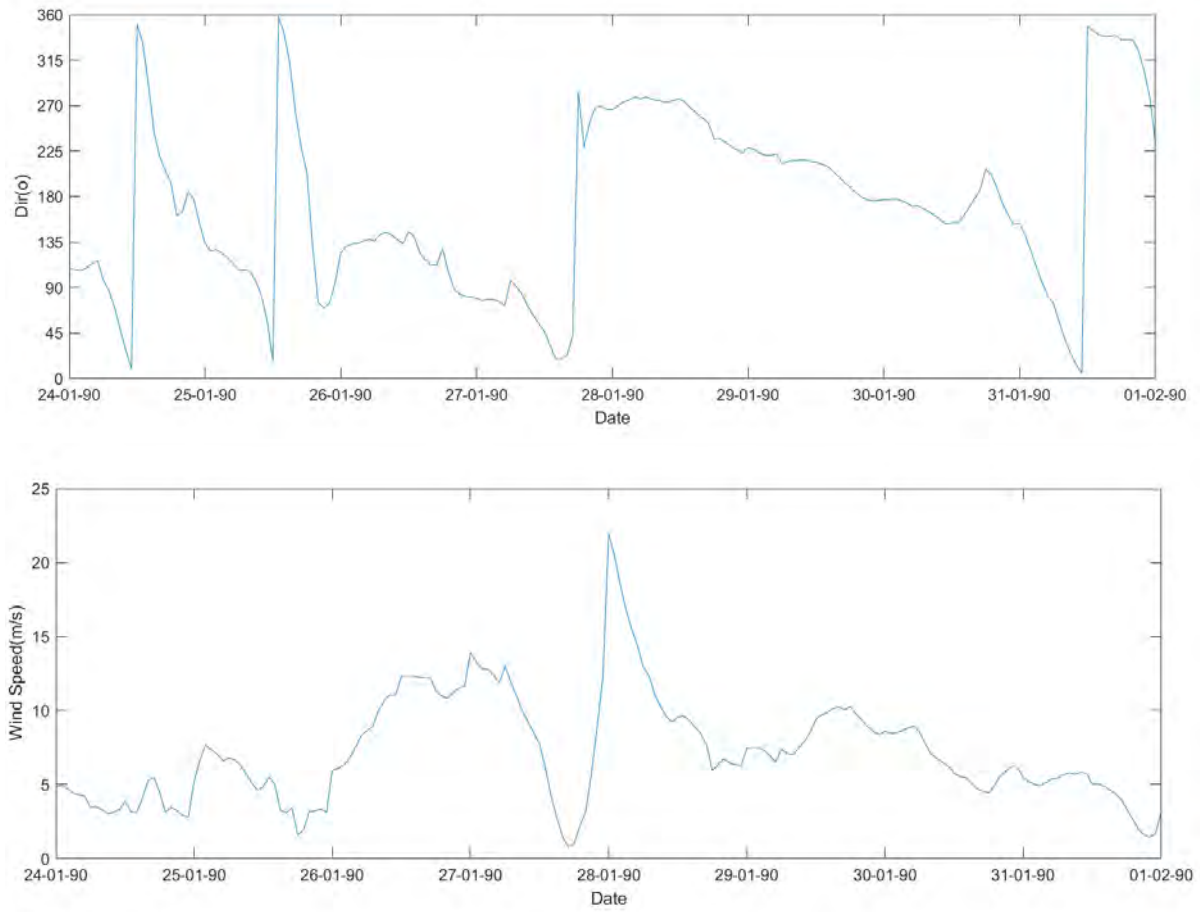

Figure R.5 Event 5 – WW3 Hindcast Wind Direction & Wind Speed

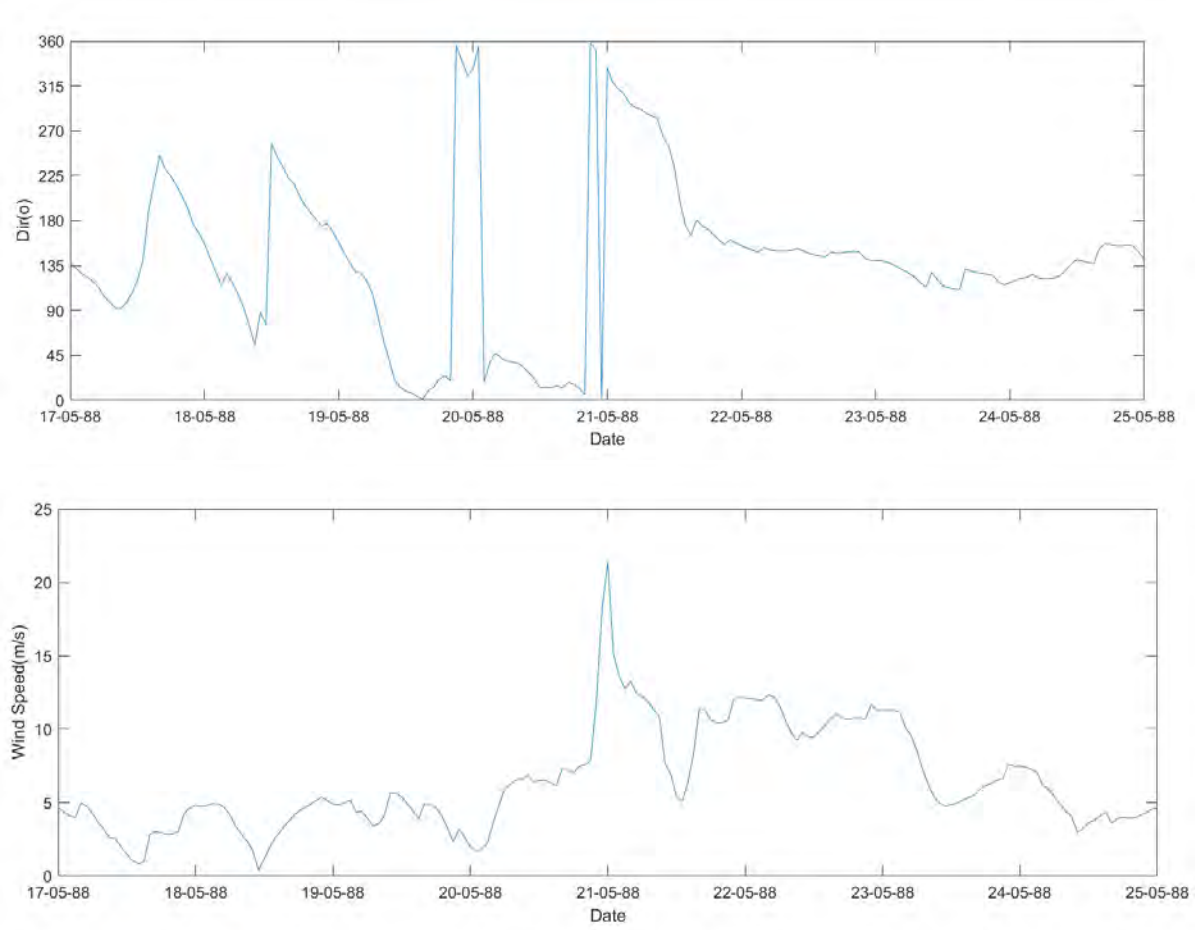

Figure R.6 Event 6 – WW3 Hindcast Wind Direction & Wind Speed

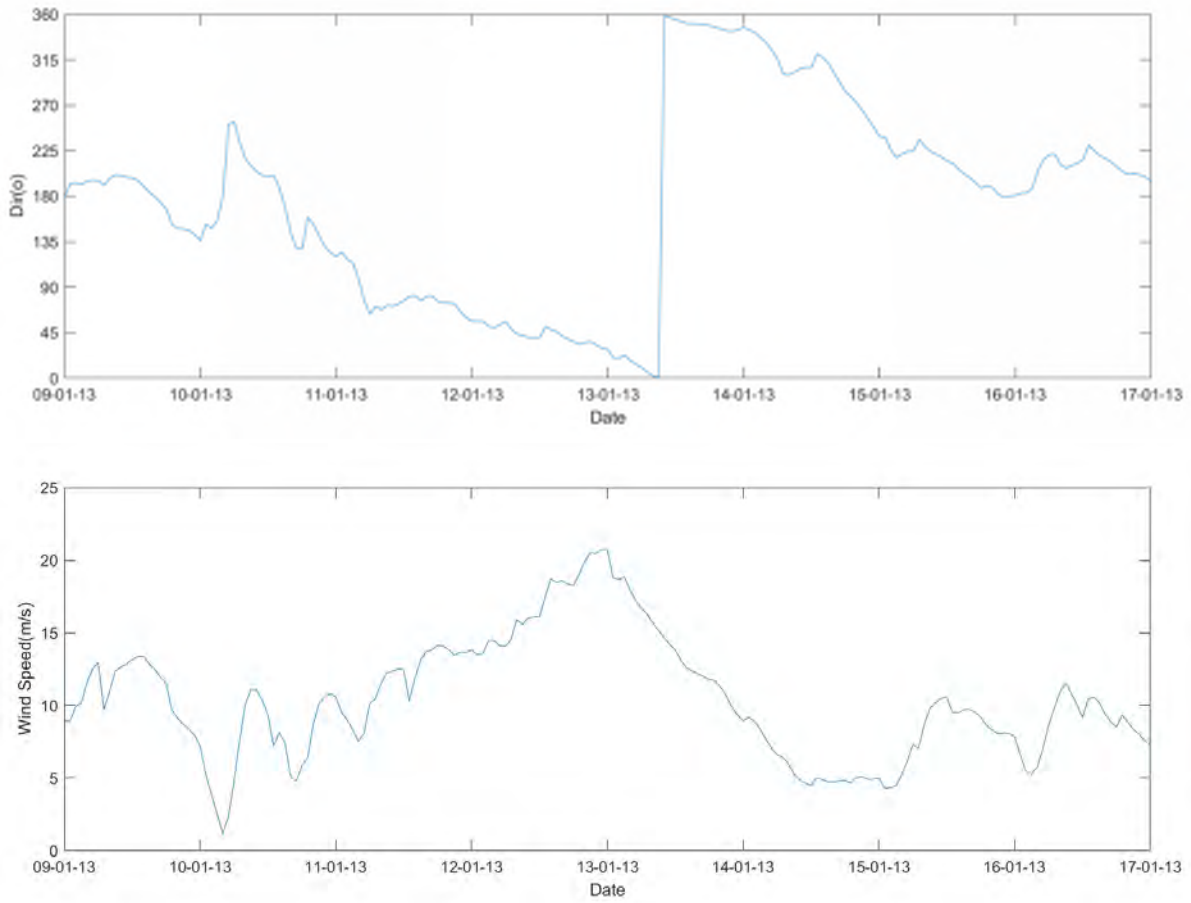

Figure R.7 Event 7 – WW3 Hindcast Wind Direction & Wind Speed

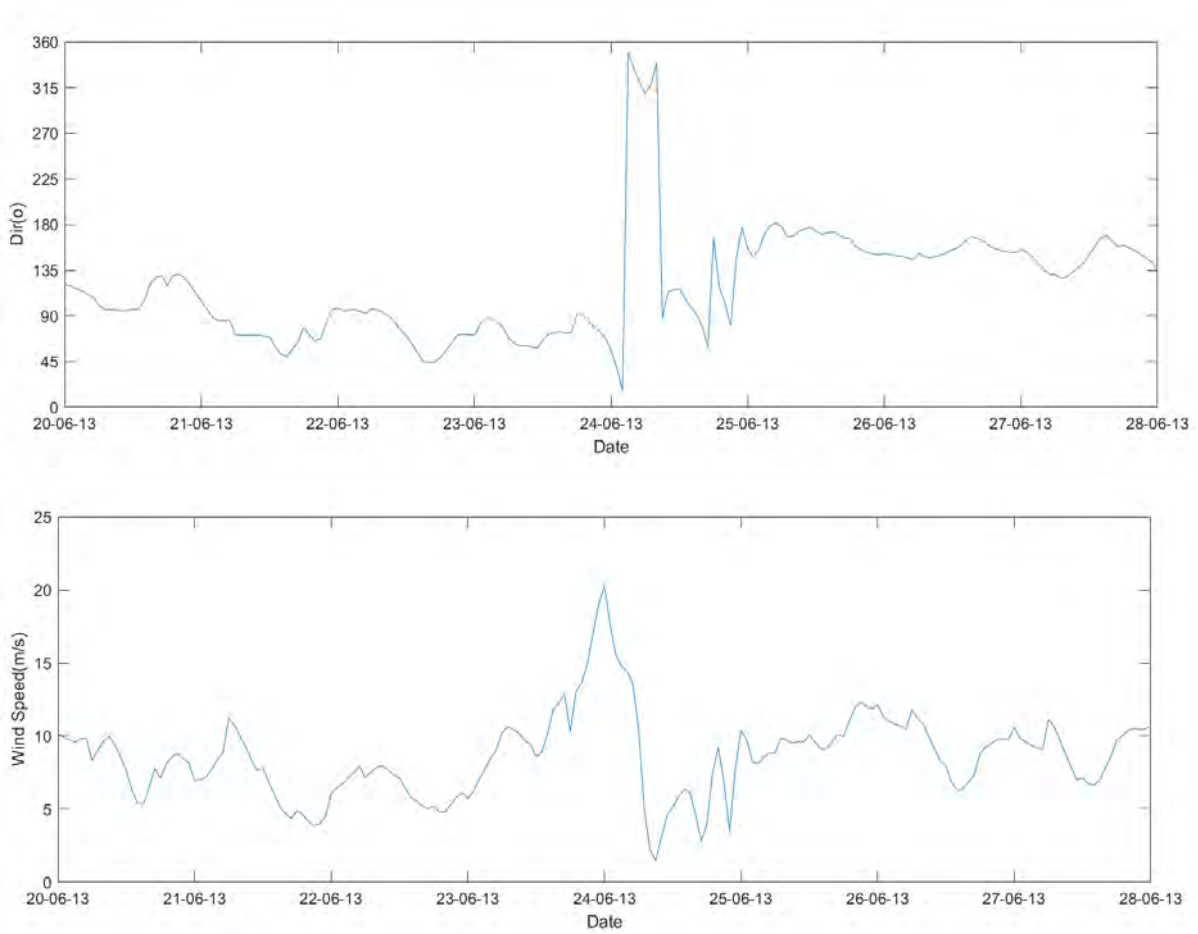

Figure R.8 Event 8 – WW3 Hindcast Wind Direction & Wind Speed

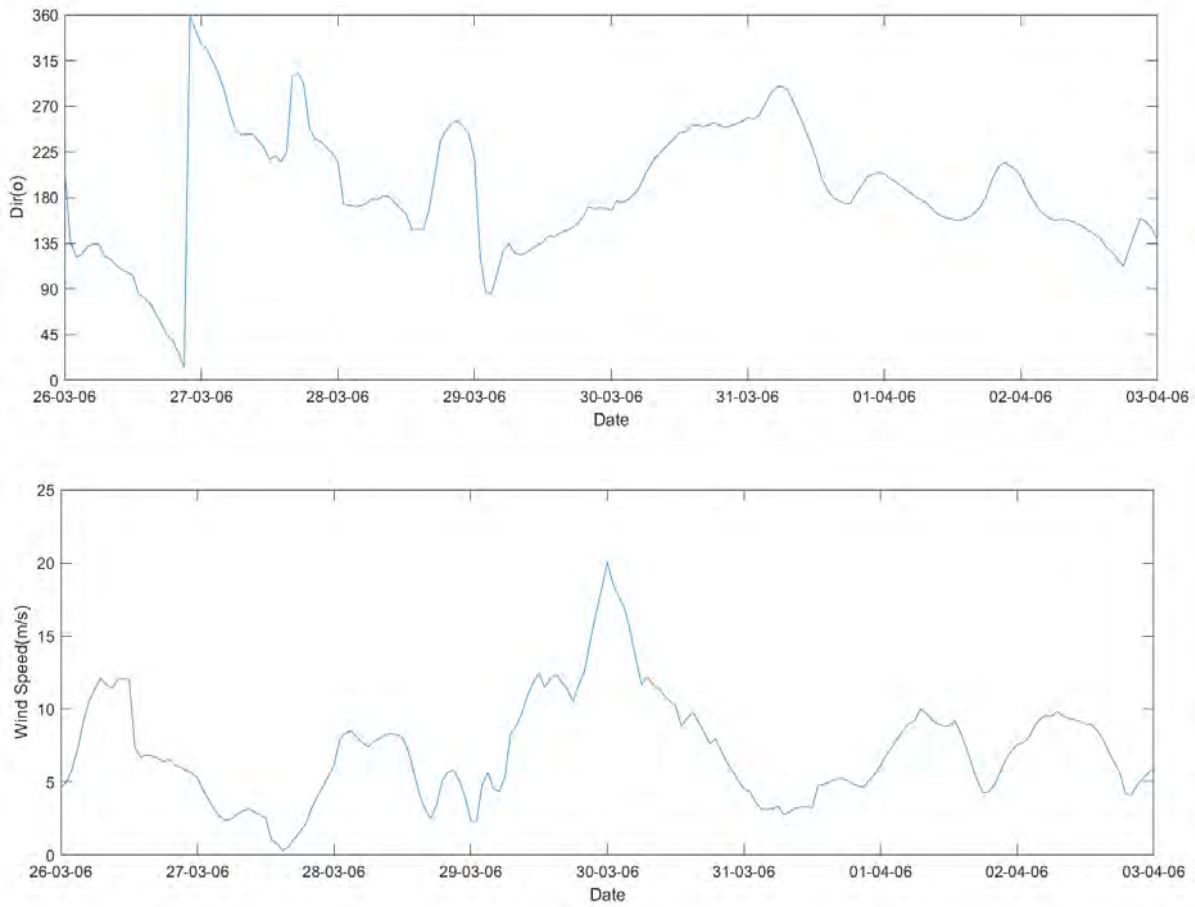

Figure R.9 Event 9 – WW3 Hindcast Wind Direction & Wind Speed

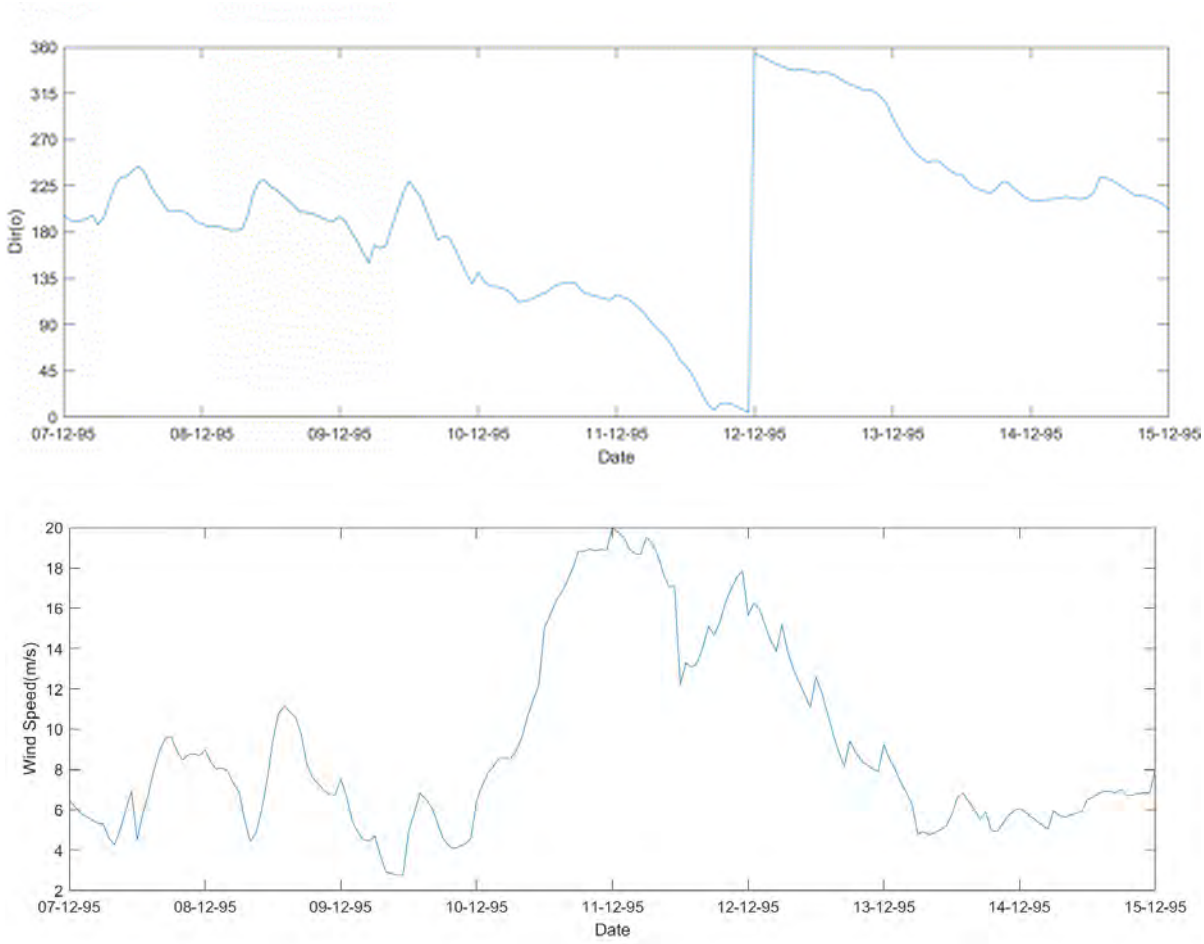

Figure R.10 Event 10 – WW3 Hindcast Wind Direction & Wind Speed

Appendix S AWAC Wave Joint Frequency Tables

OVERALL JFTS

Hs (m)

Total

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.1	0.04	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.09	0.09	0.08	0.33	0.33
0.1	0.2	2.23	0.29	0.09	0.06	0.02	0.03	0.01	0.05	0.05	0.07	0.10	0.12	0.35	2.02	7.96	9.46	22.91	23.24
0.2	0.3	2.48	0.46	0.22	0.12	0.13	0.15	0.19	0.27	0.45	0.93	1.28	0.97	0.78	3.39	17.36	17.03	46.21	69.45
0.3	0.4	0.71	0.36	0.11	0.04	0.03	0.04	0.07	0.11	0.25	0.97	1.99	1.47	0.56	1.88	9.85	6.95	25.39	94.84
0.4	0.5	0.18	0.18	0.01	0.00	0.00	0.01	0.00	0.01	0.01	0.16	0.44	0.27	0.05	0.48	2.03	0.88	4.70	99.55
0.5	0.6	0.08	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.01	0.00	0.03	0.13	0.09	0.42	99.96
0.6	0.7	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.04	100.00
0.7	0.8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.8	0.9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.9	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		5.74	1.35	0.44	0.22	0.18	0.23	0.27	0.44	0.77	2.13	3.85	2.84	1.75	7.88	37.42	34.49		
Cumulative Total		5.74	7.09	7.53	7.75	7.93	8.16	8.43	8.87	9.63	11.76	15.61	18.45	20.21	28.08	65.51	100.00		

Swell

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.1	1.98	0.49	0.13	0.06	0.02	0.02	0.00	0.01	0.01	0.01	0.06	0.16	0.48	2.21	5.86	6.40	17.89	17.89
0.1	0.2	4.43	0.35	0.06	0.00	0.02	0.00	0.01	0.01	0.00	0.01	0.02	0.09	0.54	5.30	24.31	26.21	61.37	79.27
0.2	0.3	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	1.78	10.20	5.87	18.06	97.32
0.3	0.4	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.28	1.70	0.68	2.66	99.99
0.4	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01	100.00
0.5	0.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.6	0.7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.7	0.8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.8	0.9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.9	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		6.58	0.85	0.19	0.07	0.04	0.03	0.01	0.02	0.01	0.02	0.08	0.25	1.08	9.56	42.08	39.16		
Cumulative Total		6.58	7.42	7.61	7.68	7.72	7.74	7.75	7.77	7.78	7.79	7.88	8.12	9.20	18.76	60.84	100.00		

Sea

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.1	0.66	0.34	0.26	0.17	0.12	0.10	0.08	0.08	0.11	0.08	0.19	0.23	0.43	0.66	0.76	0.72	5.00	5.00
0.1	0.2	5.02	2.45	1.49	1.27	1.12	1.02	1.08	1.25	1.62	1.81	2.14	2.49	3.10	5.21	8.25	8.56	47.89	52.89
0.2	0.3	1.99	1.43	0.86	0.55	0.64	0.74	0.90	1.12	1.86	3.25	4.77	4.43	3.13	2.81	4.07	3.56	36.13	89.02
0.3	0.4	0.66	0.63	0.18	0.06	0.03	0.06	0.09	0.13	0.32	1.11	2.59	2.11	0.74	0.22	0.28	0.42	9.64	98.66
0.4	0.5	0.25	0.19	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.25	0.22	0.04	0.01	0.01	0.09	1.19	99.85
0.5	0.6	0.06	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.02	0.14	99.99
0.6	0.7	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	100.00
0.7	0.8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.8	0.9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.9	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		8.64	5.09	2.83	2.05	1.92	1.93	2.15	2.59	3.92	6.36	9.95	9.48	7.44	8.91	13.37	13.37		
Cumulative Total		8.64	13.73	16.56	18.61	20.53	22.46	24.62	27.21	31.13	37.48	47.43	56.91	64.35	73.26	86.63	100.00		

OVERALL JFTS

Tp (s)

Total

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.12	0.12	0.13	0.13	0.13	0.18	0.22	0.31	0.28	0.37	0.42	0.33	0.18	0.11	0.12	0.13	3.29	3.29
2	4	0.66	0.74	0.22	0.06	0.04	0.04	0.06	0.12	0.48	1.76	3.38	2.39	0.90	0.26	0.18	0.36	11.65	14.94
4	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.02	14.96
6	8	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.04	15.00
8	10	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.09	0.10	0.24	15.24
10	12	0.52	0.09	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.02	0.29	1.93	2.66	5.54	20.78
12	14	2.09	0.18	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.15	1.40	9.35	12.58	25.83	46.61
14	16	1.98	0.18	0.03	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.02	0.06	0.33	3.18	15.54	13.98	35.32	81.93
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	81.93
18	20	0.28	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.14	2.18	9.01	4.20	15.88	97.81
>20		0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.04	0.42	1.19	0.46	2.19	100.00
Total		5.74	1.35	0.44	0.22	0.18	0.23	0.27	0.44	0.77	2.13	3.85	2.84	1.75	7.88	37.42	34.49		
Cumulative Total		5.74	7.09	7.53	7.75	7.93	8.16	8.43	8.87	9.63	11.76	15.61	18.45	20.21	28.08	65.51	100.00		

Swell

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	8	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.10	0.10
8	10	0.07	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.07	0.22	0.23	0.65	0.75
10	12	0.81	0.15	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.08	0.53	2.61	3.41	7.70	8.45
12	14	2.77	0.30	0.06	0.02	0.00	0.01	0.00	0.00	0.00	0.00	0.02	0.05	0.23	2.05	11.38	15.12	32.03	40.48
14	16	2.45	0.29	0.06	0.03	0.02	0.01	0.01	0.00	0.00	0.01	0.04	0.13	0.52	4.01	17.16	15.44	40.19	80.66
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	80.66
18	20	0.37	0.05	0.02	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.01	0.04	0.18	2.40	9.40	4.41	16.89	97.55
>20		0.07	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.06	0.50	1.27	0.53	2.45	100.00
Total		6.58	0.85	0.19	0.07	0.04	0.03	0.01	0.02	0.01	0.02	0.08	0.25	1.08	9.56	42.08	39.16		
Cumulative Total		6.58	7.42	7.61	7.68	7.72	7.74	7.75	7.77	7.78	7.79	7.88	8.12	9.20	18.76	60.84	100.00		

Sea

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	1.58	1.47	1.29	1.32	1.52	1.64	1.82	2.09	2.35	2.81	3.27	3.25	2.81	2.18	1.78	1.67	32.86	32.86
2	4	2.05	1.91	0.78	0.38	0.19	0.18	0.24	0.43	1.38	3.42	6.27	5.53	2.73	1.21	0.97	1.41	29.08	61.94
4	6	0.10	0.06	0.04	0.01	0.01	0.01	0.01	0.00	0.01	0.01	0.02	0.01	0.03	0.09	0.14	0.14	0.68	62.62
6	8	4.91	1.65	0.73	0.34	0.20	0.10	0.09	0.07	0.17	0.11	0.39	0.68	1.87	5.42	10.47	10.15	37.38	100.00
8	10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
10	12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
12	14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		8.64	5.09	2.83	2.05	1.92	1.93	2.15	2.59	3.92	6.36	9.95	9.48	7.44	8.91	13.37	13.37		
Cumulative Total		8.64	13.73	16.56	18.61	20.53	22.46	24.62	27.21	31.13	37.48	47.43	56.91	64.35	73.26	86.63	100.00		

OVERALL JFTS

Hs vs Tp

Total

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.1	0.00	0.00	0.00	0.00	0.00	0.06	0.11	0.15	0.00	0.00	0.00	0.33	0.33
0.1	0.2	0.53	0.02	0.00	0.01	0.11	1.76	9.78	8.36	0.00	1.95	0.38	22.91	23.24
0.2	0.3	2.34	3.96	0.00	0.00	0.06	2.96	12.83	15.83	0.00	6.93	1.31	46.21	69.45
0.3	0.4	0.39	6.11	0.02	0.03	0.06	0.74	2.99	8.78	0.00	5.81	0.46	25.39	94.84
0.4	0.5	0.02	1.34	0.00	0.00	0.02	0.02	0.12	2.00	0.00	1.16	0.03	4.70	99.55
0.5	0.6	0.00	0.19	0.00	0.00	0.00	0.00	0.00	0.20	0.00	0.03	0.00	0.42	99.96
0.6	0.7	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	100.00
0.7	0.8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.8	0.9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.9	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		3.29	11.65	0.02	0.04	0.24	5.54	25.83	35.32	0.00	15.88	2.19		
Cumulative Total		3.29	14.94	14.96	15.00	15.24	20.78	46.61	81.93	81.93	97.81	100.00		

Swell

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.1	0.00	0.00	0.00	0.06	0.32	1.87	7.55	7.15	0.00	0.76	0.18	17.89	17.89
0.1	0.2	0.00	0.00	0.00	0.04	0.28	5.57	23.93	21.97	0.00	8.05	1.53	61.37	79.27
0.2	0.3	0.00	0.00	0.00	0.01	0.05	0.24	0.53	9.25	0.00	7.23	0.74	18.06	97.32
0.3	0.4	0.00	0.00	0.00	0.00	0.00	0.01	0.01	1.80	0.00	0.85	0.00	2.66	99.99
0.4	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.01	100.00
0.5	0.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.6	0.7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.7	0.8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.8	0.9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.9	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.00	0.00	0.00	0.10	0.65	7.70	32.03	40.19	0.00	16.89	2.45		
Cumulative Total		0.00	0.00	0.00	0.10	0.75	8.45	40.48	80.66	80.66	97.55	100.00		

Sea

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.1	0.85	0.26	0.18	3.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.00	5.00
0.1	0.2	19.14	3.18	0.47	25.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.89	52.89
0.2	0.3	12.36	15.63	0.02	8.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	36.13	89.02
0.3	0.4	0.51	8.69	0.02	0.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.64	98.66
0.4	0.5	0.01	1.17	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.19	99.85
0.5	0.6	0.00	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	99.99
0.6	0.7	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	100.00
0.7	0.8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.8	0.9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.9	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		32.86	29.08	0.68	37.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Cumulative Total		32.86	61.94	62.62	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00		

ANNUAL JFTS

2019 - Hs (m)

Total

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.1	0.03	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.01	0.02	0.07	0.05	0.05	0.27	0.27
0.1	0.2	2.36	0.34	0.10	0.05	0.03	0.01	0.01	0.03	0.02	0.05	0.12	0.11	0.40	2.57	8.36	9.39	23.94	24.21
0.2	0.3	2.39	0.50	0.21	0.09	0.09	0.20	0.27	0.25	0.25	0.55	0.76	0.75	0.75	4.61	18.54	15.95	46.17	70.37
0.3	0.4	0.84	0.62	0.17	0.03	0.03	0.06	0.08	0.15	0.29	0.95	1.46	0.98	0.42	2.94	9.27	6.12	24.40	94.78
0.4	0.5	0.17	0.25	0.01	0.00	0.00	0.00	0.00	0.01	0.03	0.25	0.44	0.08	0.03	0.84	1.87	0.81	4.78	99.56
0.5	0.6	0.05	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.05	0.19	0.09	0.44	100.00
0.6	0.7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.7	0.8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.8	0.9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.9	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		5.84	1.79	0.49	0.18	0.14	0.26	0.36	0.44	0.59	1.80	2.81	1.92	1.61	11.08	38.28	32.41		
Cumulative Total		5.84	7.63	8.12	8.30	8.44	8.71	9.06	9.50	10.09	11.89	14.69	16.62	18.23	29.31	67.59	100.00		

Swell

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.1	1.47	0.35	0.12	0.05	0.03	0.01	0.00	0.01	0.01	0.00	0.08	0.09	0.51	2.12	5.01	4.79	14.63	14.63
0.1	0.2	4.49	0.35	0.05	0.01	0.01	0.00	0.01	0.01	0.00	0.01	0.03	0.08	0.78	7.41	26.84	25.11	65.19	79.83
0.2	0.3	0.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	2.91	9.29	5.10	17.60	97.43
0.3	0.4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.45	1.48	0.63	2.56	99.99
0.4	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01	100.00
0.5	0.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.6	0.7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.7	0.8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.8	0.9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.9	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		6.15	0.70	0.17	0.06	0.03	0.01	0.01	0.02	0.01	0.01	0.10	0.18	1.41	12.89	42.64	35.63		
Cumulative Total		6.15	6.84	7.01	7.07	7.11	7.11	7.12	7.14	7.15	7.16	7.26	7.44	8.84	21.73	64.37	100.00		

Sea

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.1	0.61	0.40	0.33	0.12	0.10	0.14	0.07	0.05	0.14	0.08	0.24	0.24	0.51	0.73	0.82	0.75	5.32	5.32
0.1	0.2	5.32	2.83	1.39	1.32	1.20	1.08	1.07	1.34	1.57	1.81	2.20	2.58	3.11	5.43	8.50	8.86	49.59	54.91
0.2	0.3	2.01	1.74	0.96	0.52	0.61	0.83	1.16	1.16	1.72	2.98	4.17	3.99	2.93	2.97	3.45	3.04	34.22	89.13
0.3	0.4	0.91	1.04	0.30	0.05	0.03	0.09	0.16	0.18	0.42	1.34	2.42	1.59	0.44	0.22	0.19	0.33	9.71	98.84
0.4	0.5	0.27	0.30	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.13	0.22	0.05	0.00	0.01	0.00	0.07	1.08	99.92
0.5	0.6	0.04	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.08	100.00
0.6	0.7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.7	0.8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.8	0.9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.9	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		9.16	6.34	3.00	2.02	1.93	2.14	2.46	2.73	3.85	6.33	9.24	8.44	6.99	9.36	12.96	13.06		
Cumulative Total		9.16	15.50	18.50	20.52	22.45	24.59	27.05	29.78	33.63	39.95	49.19	57.64	64.63	73.99	86.94	100.00		

2020 - Hs (m)

Total

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.1	0.05	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.12	0.10	0.38	0.38
0.1	0.2	2.12	0.25	0.07	0.07	0.01	0.04	0.01	0.06	0.08	0.09	0.09	0.12	0.31	1.54	7.62	9.53	22.02	22.40
0.2	0.3	2.55	0.42	0.23	0.15	0.15	0.12	0.12	0.29	0.62	1.25	1.73	1.17	0.81	2.33	16.34	17.96	46.26	68.65
0.3	0.4	0.59	0.14	0.07	0.04	0.04	0.02	0.07	0.07	0.22	0.98	2.45	1.88	0.69	0.96	10.35	7.67	26.25	94.90
0.4	0.5	0.20	0.12	0.01	0.00	0.01	0.01	0.00	0.01	0.00	0.08	0.44	0.44	0.06	0.16	2.16	0.94	4.64	99.54
0.5	0.6	0.10	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.04	0.01	0.01	0.01	0.09	0.08	0.40	99.93
0.6	0.7	0.04	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.07	100.00
0.7	0.8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.8	0.9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.9	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		5.66	0.97	0.40	0.25	0.21	0.20	0.20	0.43	0.92	2.42	4.75	3.63	1.88	5.11	36.68	36.30		
Cumulative Total		5.66	6.63	7.03	7.28	7.49	7.69	7.88	8.32	9.24	11.66	16.41	20.04	21.92	27.02	63.70	100.00		

Swell

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.1	2.42	0.61	0.14	0.07	0.02	0.04	0.01	0.01	0.01	0.01	0.04	0.21	0.45	2.28	6.60	7.79	20.71	20.71
0.1	0.2	4.38	0.36	0.07	0.00	0.02	0.01	0.01	0.01	0.00	0.01	0.02	0.10	0.34	3.48	22.13	27.15	58.07	78.78
0.2	0.3	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.80	10.98	6.54	18.45	97.23
0.3	0.4	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	1.89	0.72	2.75	99.99
0.4	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	100.00
0.5	0.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.6	0.7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.7	0.8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.8	0.9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.9	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		6.95	0.97	0.21	0.07	0.04	0.04	0.01	0.01	0.01	0.02	0.07	0.31	0.79	6.68	41.60	42.20		
Cumulative Total		6.95	7.92	8.13	8.20	8.24	8.29	8.30	8.32	8.32	8.35	8.41	8.72	9.51	16.19	57.80	100.00		

Sea

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.1	0.70	0.29	0.20	0.22	0.13	0.07	0.09	0.11	0.10	0.08	0.15	0.23	0.37	0.60	0.71	0.69	4.73	4.73
0.1	0.2	4.76	2.12	1.58	1.22	1.06	0.97	1.09	1.17	1.67	1.81	2.10	2.41	3.09	5.02	8.03	8.29	46.41	51.14
0.2	0.3	1.97	1.17	0.78	0.57	0.67	0.67	0.68	1.09	1.98	3.50	5.29	4.81	3.30	2.68	4.60	4.01	37.78	88.92
0.3	0.4	0.45	0.28	0.09	0.07	0.04	0.03	0.03	0.10	0.23	0.92	2.73	2.55	1.00	0.21	0.35	0.51	9.58	98.50
0.4	0.5	0.23	0.10	0.03	0.00	0.01	0.01	0.00	0.01	0.00	0.07	0.27	0.36	0.07	0.01	0.02	0.11	1.29	99.79
0.5	0.6	0.07	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.01	0.01	0.00	0.01	0.02	0.19	99.98
0.6	0.7	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	100.00
0.7	0.8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.8	0.9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.9	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		8.20	4.00	2.68	2.08	1.91	1.75	1.89	2.47	3.98	6.38	10.57	10.38	7.83	8.52	13.72	13.64		
Cumulative Total		8.20	12.20	14.88	16.96	18.87	20.63	22.52	24.99	28.96	35.35	45.91	56.29	64.12	72.64	86.36	100.00		

ANNUAL JFTS

2019 - Tp (s)

Total

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.11	0.14	0.13	0.09	0.12	0.23	0.31	0.36	0.22	0.27	0.28	0.24	0.14	0.09	0.09	0.11	2.93	2.93
2	4	0.76	1.11	0.25	0.03	0.01	0.03	0.05	0.08	0.36	1.53	2.44	1.57	0.52	0.17	0.12	0.40	9.43	12.35
4	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.05	12.40
6	8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.40
8	10	0.00	0.02	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.04	0.14	12.54
10	12	0.49	0.11	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.01	0.02	0.36	1.71	2.32	5.05	17.59
12	14	1.98	0.15	0.03	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.01	0.22	1.81	10.45	11.62	26.31	43.90
14	16	2.10	0.22	0.06	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.05	0.07	0.43	4.65	15.67	13.57	36.87	80.78
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	80.78
18	20	0.31	0.03	0.01	0.00	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.03	0.23	3.25	8.56	3.73	16.16	96.94
>20		0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.72	1.62	0.58	3.06	100.00
Total		5.84	1.79	0.49	0.18	0.14	0.26	0.36	0.44	0.59	1.80	2.81	1.92	1.61	11.08	38.28	32.41		
Cumulative Total		5.84	7.63	8.12	8.30	8.44	8.71	9.06	9.50	10.09	11.89	14.69	16.62	18.23	29.31	67.59	100.00		

Swell

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.02	0.02
8	10	0.02	0.02	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.06	0.13	0.08	0.31	0.33
10	12	0.68	0.13	0.03	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.02	0.01	0.09	0.52	2.33	2.81	6.61	6.94
12	14	2.46	0.21	0.05	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.02	0.03	0.29	2.43	12.29	13.46	31.26	38.21
14	16	2.48	0.31	0.08	0.04	0.01	0.00	0.01	0.01	0.01	0.00	0.07	0.11	0.66	5.58	17.31	14.77	41.45	79.66
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	79.66
18	20	0.41	0.03	0.01	0.00	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.03	0.29	3.52	8.84	3.88	17.03	96.68
>20		0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.78	1.73	0.63	3.32	100.00
Total		6.15	0.70	0.17	0.06	0.03	0.01	0.01	0.02	0.01	0.01	0.10	0.18	1.41	12.89	42.64	35.63		
Cumulative Total		6.15	6.84	7.01	7.07	7.11	7.11	7.12	7.14	7.15	7.16	7.26	7.44	8.84	21.73	64.37	100.00		

Sea

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	1.65	1.61	1.20	1.24	1.51	1.82	2.09	2.19	2.33	2.71	3.25	3.19	2.58	2.03	1.71	1.64	32.75	32.75
2	4	2.51	2.76	0.97	0.42	0.18	0.20	0.25	0.46	1.34	3.48	5.51	4.44	2.16	0.98	0.79	1.52	27.97	60.73
4	6	0.13	0.08	0.06	0.01	0.01	0.01	0.02	0.00	0.02	0.02	0.03	0.01	0.03	0.11	0.25	0.20	0.97	61.69
6	8	4.87	1.89	0.78	0.35	0.24	0.11	0.09	0.08	0.16	0.11	0.46	0.81	2.22	6.24	10.20	9.70	38.31	100.00
8	10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
10	12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
12	14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		9.16	6.34	3.00	2.02	1.93	2.14	2.46	2.73	3.85	6.33	9.24	8.44	6.99	9.36	12.96	13.06		
Cumulative Total		9.16	15.50	18.50	20.52	22.45	24.59	27.05	29.78	33.63	39.95	49.19	57.64	64.63	73.99	86.94	100.00		

2020 - Tp (s)

Total

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.13	0.10	0.14	0.15	0.15	0.13	0.14	0.27	0.34	0.46	0.54	0.41	0.23	0.12	0.14	0.14	3.60	3.60
2	4	0.58	0.42	0.19	0.08	0.06	0.06	0.06	0.16	0.59	1.96	4.20	3.10	1.22	0.34	0.23	0.33	13.57	17.17
4	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	17.17
6	8	0.03	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.01	0.08	17.25
8	10	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.14	0.15	0.33	17.58
10	12	0.54	0.07	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.24	2.12	2.95	5.96	23.53
12	14	2.19	0.20	0.04	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.01	0.04	0.08	1.05	8.40	13.41	25.41	48.94
14	16	1.87	0.15	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.23	1.90	15.42	14.34	33.98	82.92
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	82.92
18	20	0.26	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.07	1.26	9.40	4.61	15.64	98.56
>20		0.04	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.03	0.17	0.81	0.37	1.44	100.00
Total		5.66	0.97	0.40	0.25	0.21	0.20	0.20	0.43	0.92	2.42	4.75	3.63	1.88	5.11	36.68	36.30		
Cumulative Total		5.66	6.63	7.03	7.28	7.49	7.69	7.88	8.32	9.24	11.66	16.41	20.04	21.92	27.02	63.70	100.00		

Swell

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	8	0.05	0.01	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.04	0.05	0.18	0.18
8	10	0.12	0.05	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.08	0.30	0.36	0.95	1.12
10	12	0.93	0.17	0.07	0.01	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.04	0.07	0.53	2.86	3.93	8.63	9.75
12	14	3.04	0.37	0.07	0.03	0.00	0.01	0.01	0.01	0.01	0.00	0.01	0.07	0.18	1.72	10.59	16.55	32.69	42.44
14	16	2.42	0.29	0.04	0.02	0.04	0.02	0.01	0.00	0.00	0.01	0.01	0.14	0.40	2.65	17.04	16.01	39.09	81.53
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	81.53
18	20	0.34	0.07	0.02	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.01	0.04	0.08	1.44	9.89	4.86	16.76	98.29
>20		0.04	0.02	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.04	0.26	0.88	0.45	1.71	100.00
Total		6.95	0.97	0.21	0.07	0.04	0.04	0.01	0.01	0.01	0.02	0.07	0.31	0.79	6.68	41.60	42.20		
Cumulative Total		6.95	7.92	8.13	8.20	8.24	8.29	8.30	8.32	8.32	8.35	8.41	8.72	9.51	16.19	57.80	100.00		

Sea

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	1.52	1.34	1.37	1.39	1.52	1.49	1.58	2.00	2.37	2.90	3.30	3.31	3.01	2.32	1.84	1.69	32.96	32.96
2	4	1.65	1.18	0.62	0.34	0.21	0.16	0.23	0.40	1.42	3.36	6.92	6.48	3.22	1.41	1.13	1.31	30.03	62.99
4	6	0.07	0.04	0.01	0.01	0.01	0.01	0.00	0.00	0.01	0.01	0.02	0.01	0.04	0.07	0.04	0.09	0.44	63.43
6	8	4.95	1.44	0.68	0.34	0.18	0.10	0.08	0.07	0.18	0.12	0.33	0.58	1.57	4.72	10.71	10.54	36.57	100.00
8	10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
10	12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
12	14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		8.20	4.00	2.68	2.08	1.91	1.75	1.89	2.47	3.98	6.38	10.57	10.38	7.83	8.52	13.72	13.64		
Cumulative Total		8.20	12.20	14.88	16.96	18.87	20.63	22.52	24.99	28.96	35.35	45.91	56.29	64.12	72.64	86.36	100.00		

ANNUAL JFTS

2019 Hs vs Tp

Total

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.1	0.00	0.00	0.00	0.00	0.00	0.04	0.08	0.14	0.00	0.00	0.00	0.27	0.27
0.1	0.2	0.36	0.02	0.00	0.00	0.11	1.68	9.44	9.83	0.00	1.94	0.57	23.94	24.21
0.2	0.3	2.09	2.68	0.00	0.00	0.03	2.47	13.33	16.34	0.00	7.35	1.88	46.17	70.37
0.3	0.4	0.46	5.33	0.05	0.00	0.00	0.86	3.35	8.28	0.00	5.53	0.55	24.40	94.78
0.4	0.5	0.02	1.28	0.00	0.00	0.00	0.01	0.11	2.00	0.00	1.31	0.06	4.78	99.56
0.5	0.6	0.00	0.12	0.00	0.00	0.00	0.00	0.00	0.29	0.00	0.03	0.00	0.44	100.00
0.6	0.7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.7	0.8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.8	0.9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.9	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		2.93	9.43	0.05	0.00	0.14	5.05	26.31	36.87	0.00	16.16	3.06		
Cumulative Total		2.93	12.35	12.40	12.40	12.54	17.59	43.90	80.78	80.78	96.94	100.00		

Swell

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.1	0.00	0.00	0.00	0.01	0.23	1.29	5.25	6.83	0.00	0.81	0.22	14.63	14.63
0.1	0.2	0.00	0.00	0.00	0.01	0.08	5.10	25.33	24.50	0.00	7.94	2.24	65.19	79.83
0.2	0.3	0.00	0.00	0.00	0.00	0.00	0.22	0.67	8.40	0.00	7.45	0.86	17.60	97.43
0.3	0.4	0.00	0.00	0.00	0.00	0.00	0.01	0.01	1.71	0.00	0.83	0.00	2.56	99.99
0.4	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.01	100.00
0.5	0.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.6	0.7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.7	0.8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.8	0.9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.9	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.00	0.00	0.00	0.02	0.31	6.61	31.26	41.45	0.00	17.03	3.32		
Cumulative Total		0.00	0.00	0.00	0.02	0.33	6.94	38.21	79.66	79.66	96.68	100.00		

Sea

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.1	0.74	0.20	0.24	4.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.32	5.32
0.1	0.2	19.04	3.64	0.65	26.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.59	54.91
0.2	0.3	12.24	14.30	0.03	7.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	34.22	89.13
0.3	0.4	0.75	8.68	0.04	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.71	98.84
0.4	0.5	0.00	1.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.08	99.92
0.5	0.6	0.00	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	100.00
0.6	0.7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.7	0.8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.8	0.9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.9	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		32.75	27.97	0.97	38.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Cumulative Total		32.75	60.73	61.69	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00		

2020 Hs vs Tp

Total

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.1	0.00	0.00	0.00	0.00	0.00	0.08	0.14	0.16	0.00	0.00	0.00	0.38	0.38
0.1	0.2	0.69	0.02	0.00	0.01	0.10	1.84	10.08	7.09	0.00	1.96	0.22	22.02	22.40
0.2	0.3	2.56	5.07	0.00	0.01	0.08	3.38	12.39	15.39	0.00	6.57	0.82	46.26	68.65
0.3	0.4	0.33	6.78	0.00	0.05	0.12	0.64	2.67	9.21	0.00	6.05	0.39	26.25	94.90
0.4	0.5	0.02	1.38	0.00	0.01	0.03	0.02	0.12	2.00	0.00	1.04	0.01	4.64	99.54
0.5	0.6	0.00	0.25	0.00	0.00	0.00	0.00	0.00	0.12	0.00	0.02	0.00	0.40	99.93
0.6	0.7	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.07	100.00
0.7	0.8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.8	0.9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.9	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		3.60	13.57	0.00	0.08	0.33	5.96	25.41	33.98	0.00	15.64	1.44		
Cumulative Total		3.60	17.17	17.17	17.25	17.58	23.53	48.94	82.92	82.92	98.56	100.00		

Swell

		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin	Hsmax	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.1	0.00	0.00	0.00	0.10	0.40	2.38	9.55	7.42	0.00	0.72	0.15	20.71	20.71
0.1	0.2	0.00	0.00	0.00	0.06	0.45	5.98	22.72	19.79	0.00	8.16	0.92	58.07	78.78
0.2	0.3	0.00	0.00	0.00	0.02	0.10	0.26	0.41	9.98	0.00	7.03	0.64	18.45	97.23
0.3	0.4	0.00	0.00	0.00	0.00	0.00	0.01	0.01	1.88	0.00	0.86	0.00	2.75	99.99
0.4	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.01	100.00
0.5	0.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.6	0.7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.7	0.8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.8	0.9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.9	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.00	0.00	0.00	0.18	0.95	8.63	32.69	39.09	0.00	16.76	1.71		
Cumulative Total		0.00	0.00	0.00	0.18	1.12	9.75	42.44	81.53	81.53	98.29	100.00		

Sea

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.1	0.94	0.31	0.12	3.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.73	4.73
0.1	0.2	19.23	2.78	0.31	24.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.41	51.14
0.2	0.3	12.46	16.78	0.01	8.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	37.78	88.92
0.3	0.4	0.32	8.70	0.00	0.56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.58	98.50
0.4	0.5	0.01	1.25	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.29	99.79
0.5	0.6	0.00	0.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.19	99.98
0.6	0.7	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	100.00
0.7	0.8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.8	0.9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.9	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		32.96	30.03	0.44	36.57	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Cumulative Total		32.96	62.99	63.43	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00		

SEASONAL JFTS

Summer - Hs (m)

Total

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.1	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.04	0.00	0.24	0.32	0.24	1.04	1.04
0.1	0.2	1.80	0.40	0.12	0.20	0.04	0.04	0.04	0.20	0.12	0.20	0.16	0.16	0.64	1.84	6.28	7.92	20.17	21.21
0.2	0.3	1.64	0.28	0.20	0.16	0.16	0.12	0.24	0.32	1.44	2.12	4.04	3.32	2.04	2.00	11.76	14.01	43.86	65.07
0.3	0.4	0.40	0.12	0.00	0.04	0.00	0.04	0.12	0.12	0.40	2.52	6.32	5.16	1.36	0.64	4.92	6.16	28.33	93.40
0.4	0.5	0.00	0.00	0.00	0.00	0.04	0.08	0.00	0.04	0.00	0.48	2.36	1.60	0.28	0.20	0.64	0.44	6.16	99.56
0.5	0.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.20	0.08	0.04	0.00	0.04	0.00	0.44	100.00
0.6	0.7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.7	0.8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.8	0.9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.9	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		4.00	0.80	0.32	0.40	0.24	0.28	0.40	0.68	1.96	5.40	13.13	10.36	4.36	4.92	23.97	28.77		
Cumulative Total		4.00	4.80	5.12	5.52	5.76	6.04	6.44	7.12	9.08	14.49	27.61	37.98	42.34	47.26	71.23	100.00		

Swell

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.1	4.16	1.28	0.40	0.12	0.12	0.04	0.00	0.08	0.00	0.04	0.16	0.44	1.40	5.00	12.08	14.13	39.46	39.46
0.1	0.2	3.84	0.44	0.08	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.04	0.12	0.88	3.72	21.93	26.85	57.94	97.40
0.2	0.3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.16	1.52	0.76	2.44	99.84
0.3	0.4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.12	0.00	0.16	100.00
0.4	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.5	0.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.6	0.7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.7	0.8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.8	0.9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.9	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		8.00	1.72	0.48	0.12	0.16	0.04	0.00	0.08	0.00	0.04	0.20	0.56	2.28	8.92	35.65	41.74		
Cumulative Total		8.00	9.72	10.20	10.32	10.48	10.52	10.52	10.60	10.60	10.64	10.84	11.40	13.69	22.61	58.26	100.00		

Sea

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.1	0.56	0.12	0.20	0.32	0.20	0.08	0.08	0.08	0.04	0.00	0.16	0.20	0.32	0.44	0.44	0.48	3.72	3.72
0.1	0.2	1.76	1.28	0.64	1.44	0.88	1.32	1.48	1.44	2.20	2.16	2.60	2.72	2.32	2.68	2.76	3.20	30.89	34.61
0.2	0.3	0.60	0.64	0.36	0.40	0.28	0.48	0.80	1.20	3.20	6.08	9.12	8.44	5.44	2.40	1.52	1.04	42.02	76.63
0.3	0.4	0.16	0.08	0.00	0.04	0.00	0.08	0.04	0.16	0.52	2.64	7.68	6.12	1.44	0.32	0.08	0.28	19.65	96.28
0.4	0.5	0.00	0.00	0.00	0.00	0.04	0.04	0.00	0.04	0.00	0.32	1.52	1.20	0.24	0.04	0.00	0.00	3.44	99.72
0.5	0.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.12	0.08	0.04	0.00	0.00	0.00	0.28	100.00
0.6	0.7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.7	0.8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.8	0.9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.9	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		3.08	2.12	1.20	2.20	1.40	2.00	2.40	2.92	5.96	11.24	21.21	18.77	9.80	5.88	4.80	5.00		
Cumulative Total		3.08	5.20	6.40	8.60	10.00	12.00	14.41	17.33	23.29	34.53	55.74	74.51	84.31	90.20	95.00	100.00		

Autumn - Hs (m)

Total

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.1	0.08	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.10	0.10	0.10	0.42	0.42
0.1	0.2	3.29	0.50	0.17	0.04	0.00	0.06	0.03	0.04	0.09	0.10	0.17	0.17	0.60	3.23	12.08	14.15	34.72	35.14
0.2	0.3	2.48	0.48	0.18	0.13	0.18	0.27	0.28	0.36	0.73	1.56	1.79	0.91	0.64	2.69	16.99	16.07	45.73	80.87
0.3	0.4	0.42	0.28	0.08	0.00	0.04	0.05	0.14	0.09	0.35	0.95	1.36	0.63	0.10	0.72	6.48	4.50	16.20	97.07
0.4	0.5	0.32	0.10	0.01	0.00	0.00	0.00	0.00	0.01	0.03	0.08	0.14	0.03	0.00	0.09	1.21	0.67	2.69	99.76
0.5	0.6	0.09	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.04	0.05	0.24	100.00
0.6	0.7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.7	0.8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.8	0.9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.9	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		6.68	1.43	0.45	0.17	0.22	0.39	0.45	0.50	1.20	2.69	3.46	1.74	1.36	6.84	36.90	35.54		
Cumulative Total		6.68	8.11	8.56	8.73	8.95	9.33	9.78	10.28	11.48	14.16	17.62	19.36	20.72	27.56	64.46	100.00		

Swell

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.1	2.89	0.64	0.15	0.08	0.03	0.05	0.01	0.00	0.03	0.00	0.09	0.26	0.66	3.19	9.05	9.38	26.50	26.50
0.1	0.2	4.45	0.37	0.08	0.01	0.01	0.01	0.00	0.01	0.00	0.00	0.06	0.10	0.60	4.88	23.83	25.60	60.04	86.54
0.2	0.3	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.49	7.11	4.13	11.85	98.39
0.3	0.4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	1.03	0.49	1.59	99.99
0.4	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01	100.00
0.5	0.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.6	0.7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.7	0.8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.8	0.9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.9	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		7.47	1.02	0.23	0.09	0.04	0.06	0.01	0.01	0.03	0.00	0.15	0.36	1.26	8.64	41.03	39.60		
Cumulative Total		7.47	8.48	8.71	8.80	8.84	8.91	8.92	8.93	8.96	8.96	9.11	9.47	10.73	19.37	60.40	100.00		

Sea

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.1	1.05	0.62	0.44	0.28	0.23	0.19	0.19	0.06	0.19	0.19	0.35	0.41	0.72	0.87	1.20	1.18	8.19	8.19
0.1	0.2	5.42	3.05	1.86	1.65	1.68	1.38	1.36	1.83	2.25	2.51	3.02	2.99	3.83	5.33	8.29	8.50	54.95	63.14
0.2	0.3	1.61	1.39	0.69	0.46	0.73	0.91	1.12	1.29	2.31	3.71	4.54	2.90	1.84	1.47	2.61	2.61	30.19	93.33
0.3	0.4	0.42	0.45	0.15	0.03	0.03	0.08	0.21	0.18	0.30	0.98	1.40	0.62	0.10	0.06	0.39	0.51	5.90	99.23
0.4	0.5	0.33	0.12	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.05	0.03	0.00	0.01	0.00	0.06	0.67	99.90
0.5	0.6	0.06	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	100.00
0.6	0.7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.7	0.8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.8	0.9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.9	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		8.91	5.66	3.16	2.42	2.67	2.56	2.88	3.35	5.05	7.44	9.36	6.95	6.49	7.75	12.48	12.87		
Cumulative Total		8.91	14.56	17.72	20.14	22.81	25.37	28.25	31.61	36.66	44.10	53.46	60.41	66.90	74.65	87.13	100.00		

SEASONAL JFTS

Winter - Hs (m)

Total

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.01	0.02	0.07	0.07
0.1	0.2	2.50	0.22	0.02	0.05	0.01	0.00	0.00	0.03	0.01	0.01	0.02	0.07	0.16	1.14	6.53	9.55	20.32	20.39
0.2	0.3	3.26	0.45	0.32	0.08	0.08	0.02	0.13	0.13	0.08	0.16	0.29	0.17	0.29	2.67	18.78	20.75	47.64	68.04
0.3	0.4	1.03	0.74	0.21	0.08	0.02	0.02	0.00	0.06	0.02	0.11	0.29	0.24	0.07	1.24	12.46	8.99	25.58	93.62
0.4	0.5	0.24	0.43	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.06	0.01	0.02	0.34	3.06	1.37	5.60	99.22
0.5	0.6	0.15	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.02	0.23	0.18	0.67	99.90
0.6	0.7	0.06	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.10	100.00
0.7	0.8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.8	0.9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.9	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		7.23	1.93	0.57	0.21	0.11	0.05	0.13	0.22	0.11	0.33	0.66	0.49	0.54	5.45	41.07	40.90		
Cumulative Total		7.23	9.16	9.73	9.94	10.05	10.10	10.22	10.44	10.56	10.89	11.55	12.04	12.58	18.03	59.10	100.00		

Swell

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.1	1.15	0.25	0.06	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.11	0.59	1.72	2.72	6.68	6.68
0.1	0.2	5.42	0.39	0.02	0.00	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.07	0.29	3.66	22.42	28.04	60.33	67.01
0.2	0.3	0.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	1.46	15.99	10.75	28.54	95.55
0.3	0.4	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.17	2.89	1.34	4.43	99.98
0.4	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.02	100.00
0.5	0.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.6	0.7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.7	0.8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.8	0.9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.9	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		6.90	0.65	0.08	0.05	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.09	0.43	5.89	43.03	42.85		
Cumulative Total		6.90	7.55	7.63	7.68	7.69	7.69	7.69	7.69	7.69	7.70	7.70	7.79	8.23	14.12	57.15	100.00		

Sea

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.1	0.58	0.29	0.21	0.13	0.06	0.06	0.00	0.11	0.08	0.03	0.14	0.18	0.33	0.67	0.67	0.67	4.21	4.21
0.1	0.2	7.33	3.10	1.91	1.26	0.83	0.79	0.95	0.91	1.14	1.18	1.42	1.86	2.89	6.58	11.96	13.24	57.33	61.54
0.2	0.3	3.09	2.05	1.40	0.72	0.76	0.60	0.72	0.63	0.81	1.05	1.85	1.67	1.45	2.68	5.97	5.75	31.21	92.75
0.3	0.4	1.43	1.40	0.38	0.10	0.03	0.05	0.03	0.03	0.05	0.13	0.43	0.40	0.14	0.18	0.32	0.60	5.71	98.46
0.4	0.5	0.42	0.46	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.05	0.00	0.01	0.00	0.03	0.21	1.27	99.73
0.5	0.6	0.11	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.05	0.24	99.97
0.6	0.7	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.03	100.00
0.7	0.8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.8	0.9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.9	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		12.99	7.37	3.96	2.20	1.69	1.49	1.70	1.69	2.08	2.41	3.88	4.11	4.82	10.12	18.97	20.53		
Cumulative Total		12.99	20.36	24.32	26.52	28.21	29.70	31.40	33.09	35.17	37.58	41.46	45.57	50.38	60.50	79.47	100.00		

Spring - Hs (m)

Total

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.1	0.02	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.02	0.08	0.08	0.06	0.30	0.30
0.1	0.2	0.75	0.09	0.06	0.05	0.05	0.02	0.00	0.02	0.03	0.06	0.11	0.11	0.19	1.81	5.58	4.23	13.16	13.45
0.2	0.3	1.72	0.53	0.16	0.16	0.11	0.20	0.14	0.34	0.23	0.75	0.95	1.23	1.14	5.77	18.05	14.28	45.77	59.22
0.3	0.4	0.73	0.03	0.08	0.02	0.05	0.05	0.06	0.20	0.39	1.55	3.41	2.72	1.48	4.64	12.30	7.45	35.16	94.38
0.4	0.5	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.28	0.58	0.41	0.05	1.23	2.16	0.63	5.36	99.73
0.5	0.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.16	0.03	0.27	100.00
0.6	0.7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.7	0.8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.8	0.9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.9	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		3.23	0.69	0.30	0.22	0.20	0.27	0.20	0.56	0.67	2.64	5.06	4.47	2.88	13.61	38.31	26.69		
Cumulative Total		3.23	3.92	4.22	4.44	4.64	4.91	5.11	5.67	6.34	8.98	14.05	18.52	21.39	35.00	73.31	100.00		

Swell

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.1	1.14	0.31	0.09	0.05	0.02	0.02	0.00	0.00	0.00	0.02	0.06	0.11	0.39	2.13	5.23	4.80	14.36	14.36
0.1	0.2	3.30	0.25	0.08	0.00	0.02	0.00	0.03	0.02	0.00	0.02	0.00	0.09	0.69	8.67	28.42	24.19	65.77	80.13
0.2	0.3	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.19	4.41	9.41	3.30	17.34	97.47
0.3	0.4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.75	1.52	0.27	2.53	100.00
0.4	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.5	0.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.6	0.7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.7	0.8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.8	0.9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.9	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		4.48	0.56	0.17	0.05	0.03	0.02	0.03	0.02	0.00	0.03	0.06	0.20	1.27	15.95	44.58	32.55		
Cumulative Total		4.48	5.05	5.22	5.27	5.30	5.31	5.34	5.36	5.36	5.39	5.45	5.66	6.92	22.88	67.45	100.00		

Sea

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Hsmin (m)	Hsmax (m)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.1	0.31	0.17	0.14	0.05	0.03	0.06	0.05	0.06	0.09	0.03	0.09	0.09	0.27	0.47	0.48	0.31	2.72	2.72
0.1	0.2	2.64	1.30	0.81	0.77	0.94	0.80	0.77	0.92	1.30	1.69	1.89	2.64	2.81	4.17	5.25	4.31	33.00	35.72
0.2	0.3	1.48	0.94	0.53	0.47	0.52	0.83	0.94	1.58	2.22	4.61	7.36	8.50	6.09	4.80	4.23	2.69	47.78	83.50
0.3	0.4	0.11	0.02	0.03	0.05	0.05	0.05	0.05	0.20	0.66	2.03	4.98	4.69	2.06	0.41	0.16	0.13	15.66	99.16
0.4	0.5	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.17	0.27	0.36	0.03	0.00	0.00	0.00	0.84	100.00
0.5	0.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.6	0.7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.7	0.8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.8	0.9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.9	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		4.55	2.42	1.52	1.34	1.53	1.73	1.80	2.77	4.27	8.53	14.59	16.28	11.27	9.84	10.13	7.44		
Cumulative Total		4.55	6.97	8.48	9.83	11.36	13.09	14.89	17.66	21.92	30.45	45.05	61.33	72.59	82.44	92.56	100.00		

SEASONAL JFTS

Summer - Tp (s)

Total

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.24	0.08	0.08	0.20	0.16	0.16	0.24	0.36	0.76	1.00	1.20	1.04	0.64	0.20	0.16	0.32	6.84	6.84
2	4	0.08	0.12	0.08	0.16	0.04	0.12	0.16	0.28	1.20	4.40	11.88	9.24	3.04	0.80	0.12	0.12	31.85	38.70
4	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	38.70
6	8	0.12	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.08	0.28	38.98
8	10	0.04	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.48	0.56	1.20	40.18
10	12	0.60	0.12	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.04	0.32	1.88	3.60	6.72	46.90
12	14	1.84	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.28	0.92	10.08	14.81	28.21	75.11
14	16	1.04	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.36	2.00	9.20	8.20	21.01	96.12
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	96.12
18	20	0.04	0.04	0.04	0.00	0.04	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.56	1.80	1.04	3.60	99.72
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.20	0.04	0.28	100.00
Total		4.00	0.80	0.32	0.40	0.24	0.28	0.40	0.68	1.96	5.40	13.13	10.36	4.36	4.92	23.97	28.77		
Cumulative Total		4.00	4.80	5.12	5.52	5.76	6.04	6.44	7.12	9.08	14.49	27.61	37.98	42.34	47.26	71.23	100.00		

Swell

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	8	0.12	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.16	0.16	0.52	0.52
8	10	0.24	0.12	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.08	0.32	1.20	1.16	3.20	3.72
10	12	1.68	0.40	0.24	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.12	0.20	1.24	3.88	6.08	13.97	17.69
12	14	3.64	0.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.08	0.60	2.36	14.77	22.09	44.22	61.90
14	16	2.16	0.48	0.12	0.04	0.12	0.04	0.00	0.00	0.00	0.04	0.04	0.32	1.36	3.60	12.97	10.72	32.01	93.92
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	93.92
18	20	0.16	0.08	0.08	0.00	0.04	0.00	0.00	0.08	0.00	0.00	0.00	0.04	0.04	1.24	2.44	1.44	5.64	99.56
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.24	0.08	0.44	100.00
Total		8.00	1.72	0.48	0.12	0.16	0.04	0.00	0.08	0.00	0.04	0.20	0.56	2.28	8.92	35.65	41.74		
Cumulative Total		8.00	9.72	10.20	10.32	10.48	10.52	10.52	10.60	10.60	10.64	10.84	11.40	13.69	22.61	58.26	100.00		

Sea

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	1.36	1.40	0.80	1.48	1.16	1.72	1.96	2.12	3.16	4.24	4.64	5.20	3.40	2.56	2.08	1.96	39.26	39.26
2	4	0.72	0.16	0.28	0.48	0.16	0.20	0.28	0.76	2.68	6.96	16.45	13.33	5.80	2.00	0.44	0.48	51.18	90.44
4	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	90.44
6	8	1.00	0.56	0.12	0.24	0.08	0.08	0.16	0.04	0.12	0.04	0.12	0.24	0.60	1.32	2.28	2.56	9.56	100.00
8	10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
10	12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
12	14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		3.08	2.12	1.20	2.20	1.40	2.00	2.40	2.92	5.96	11.24	21.21	18.77	9.80	5.88	4.80	5.00		
Cumulative Total		3.08	5.20	6.40	8.60	10.00	12.00	14.41	17.33	23.29	34.53	55.74	74.51	84.31	90.20	95.00	100.00		

Autumn - Tp (s)

Total

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.13	0.14	0.15	0.13	0.18	0.35	0.39	0.36	0.39	0.44	0.53	0.31	0.14	0.13	0.18	0.12	4.05	4.05
2	4	0.69	0.62	0.17	0.01	0.04	0.03	0.06	0.14	0.81	2.25	2.85	1.27	0.35	0.14	0.26	0.49	10.18	14.23
4	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.04	0.08	14.31
6	8	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.04	14.34
8	10	0.01	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.09	0.13	0.30	14.64
10	12	0.63	0.13	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.22	1.98	2.58	5.60	20.24
12	14	3.14	0.22	0.06	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.01	0.04	0.13	1.48	10.63	15.33	31.07	51.31
14	16	1.81	0.26	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.09	0.44	2.81	15.55	12.85	33.92	85.23
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	85.23
18	20	0.15	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.21	1.71	7.08	3.51	12.72	97.96
>20		0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.31	1.07	0.49	2.04	100.00
Total		6.68	1.43	0.45	0.17	0.22	0.39	0.45	0.50	1.20	2.69	3.46	1.74	1.36	6.84	36.90	35.54		
Cumulative Total		6.68	8.11	8.56	8.73	8.95	9.33	9.78	10.28	11.48	14.16	17.62	19.36	20.72	27.56	64.46	100.00		

Swell

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	8	0.05	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.05	0.15	0.15
8	10	0.12	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.09	0.22	0.33	0.85	1.00
10	12	0.87	0.19	0.05	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.10	0.39	2.51	3.32	7.48	8.48
12	14	3.95	0.40	0.13	0.05	0.01	0.03	0.01	0.00	0.01	0.00	0.03	0.10	0.26	2.12	12.78	17.69	37.56	46.04
14	16	2.15	0.30	0.05	0.04	0.00	0.03	0.00	0.01	0.01	0.00	0.10	0.17	0.57	3.80	16.99	14.09	38.30	84.34
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	84.34
18	20	0.23	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.04	0.26	1.88	7.43	3.60	13.50	97.84
>20		0.10	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.36	1.08	0.53	2.16	100.00
Total		7.47	1.02	0.23	0.09	0.04	0.06	0.01	0.01	0.03	0.00	0.15	0.36	1.26	8.64	41.03	39.60		
Cumulative Total		7.47	8.48	8.71	8.80	8.84	8.91	8.92	8.93	8.96	8.96	9.11	9.47	10.73	19.37	60.40	100.00		

Sea

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	2.13	1.84	1.53	1.67	2.12	2.26	2.48	2.85	2.97	3.43	3.96	3.14	3.07	2.44	2.13	2.11	40.14	40.14
2	4	2.16	1.94	0.68	0.33	0.23	0.15	0.24	0.44	1.83	3.84	4.91	3.07	1.58	1.07	1.31	1.68	25.48	65.62
4	6	0.24	0.13	0.03	0.00	0.01	0.03	0.03	0.00	0.03	0.03	0.05	0.01	0.08	0.18	0.23	0.30	1.36	66.98
6	8	4.37	1.75	0.93	0.41	0.31	0.12	0.13	0.06	0.23	0.14	0.44	0.73	1.76	4.06	8.80	8.78	33.02	100.00
8	10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
10	12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
12	14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		8.91	5.66	3.16	2.42	2.67	2.56	2.88	3.35	5.05	7.44	9.36	6.95	6.49	7.75	12.48	12.87		
Cumulative Total		8.91	14.56	17.72	20.14	22.81	25.37	28.25	31.61	36.66	44.10	53.46	60.41	66.90	74.65	87.13	100.00		

SEASONAL JFTS

Winter - Tp (s)

Total

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.10	0.06	0.10	0.07	0.06	0.03	0.10	0.21	0.08	0.11	0.13	0.11	0.07	0.02	0.03	0.10	1.39	1.39
2	4	1.14	1.44	0.41	0.10	0.05	0.01	0.02	0.01	0.03	0.22	0.54	0.30	0.13	0.11	0.13	0.46	5.09	6.48
4	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.48
6	8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.01	6.49
8	10	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.03	0.01	0.07	6.56
10	12	0.51	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.27	1.69	2.40	4.95	11.51
12	14	1.93	0.15	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.08	0.72	6.34	10.76	20.00	31.52
14	16	2.92	0.17	0.05	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.16	2.05	17.40	19.14	41.97	73.49
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	73.49
18	20	0.54	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.07	1.81	13.66	7.25	23.38	96.87
>20		0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.03	0.43	1.78	0.79	3.13	100.00
Total		7.23	1.93	0.57	0.21	0.11	0.05	0.13	0.22	0.11	0.33	0.66	0.49	0.54	5.45	41.07	40.90		
Cumulative Total		7.23	9.16	9.73	9.94	10.05	10.10	10.22	10.44	10.56	10.89	11.55	12.04	12.58	18.03	59.10	100.00		

Swell

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.01
8	10	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.01	0.05	0.02	0.13	0.14
10	12	0.55	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.30	1.80	2.54	5.32	5.45
12	14	2.18	0.16	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.09	0.80	6.80	11.58	21.64	27.09
14	16	3.40	0.30	0.06	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.22	2.37	18.37	20.31	45.12	72.21
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	72.21
18	20	0.65	0.07	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.07	1.91	14.08	7.50	24.32	96.53
>20		0.09	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.03	0.50	1.92	0.89	3.47	100.00
Total		6.90	0.65	0.08	0.05	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.09	0.43	5.89	43.03	42.85		
Cumulative Total		6.90	7.55	7.63	7.68	7.69	7.69	7.69	7.69	7.69	7.70	7.70	7.79	8.23	14.12	57.15	100.00		

Sea

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	1.40	1.44	1.56	1.19	1.20	1.21	1.44	1.39	1.59	1.60	1.88	1.89	1.62	1.32	1.21	1.48	23.43	23.43
2	4	3.37	3.43	1.42	0.52	0.26	0.16	0.19	0.17	0.33	0.67	1.49	1.35	0.67	0.76	0.97	2.02	17.80	41.23
4	6	0.07	0.05	0.06	0.02	0.01	0.00	0.00	0.00	0.01	0.01	0.01	0.00	0.01	0.08	0.15	0.11	0.59	41.82
6	8	8.15	2.45	0.92	0.47	0.22	0.13	0.07	0.13	0.15	0.13	0.49	0.87	2.51	7.95	16.64	16.91	58.18	100.00
8	10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
10	12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
12	14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		12.99	7.37	3.96	2.20	1.69	1.49	1.70	1.69	2.08	2.41	3.88	4.11	4.82	10.12	18.97	20.53		
Cumulative Total		12.99	20.36	24.32	26.52	28.21	29.70	31.40	33.09	35.17	37.58	41.46	45.57	50.38	60.50	79.47	100.00		

Spring - Tp (s)

Total

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.09	0.20	0.17	0.17	0.17	0.17	0.16	0.38	0.25	0.41	0.39	0.38	0.22	0.17	0.14	0.09	3.56	3.56
2	4	0.20	0.17	0.08	0.02	0.02	0.08	0.05	0.19	0.42	2.23	4.61	3.94	1.78	0.41	0.17	0.17	14.53	18.09
4	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	18.09
6	8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	18.09
8	10	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.03	18.13
10	12	0.36	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.02	0.41	2.22	2.73	5.80	23.92
12	14	1.16	0.14	0.03	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.03	0.20	2.42	11.63	10.86	26.50	50.42
14	16	1.25	0.11	0.02	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.02	0.06	0.41	5.61	15.44	10.56	33.50	83.92
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	83.92
18	20	0.17	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.22	3.89	7.80	2.11	14.25	98.17
>20		0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.03	0.70	0.91	0.16	1.83	100.00
Total		3.23	0.69	0.30	0.22	0.20	0.27	0.20	0.56	0.67	2.64	5.06	4.47	2.88	13.61	38.31	26.69		
Cumulative Total		3.23	3.92	4.22	4.44	4.64	4.91	5.11	5.67	6.34	8.98	14.05	18.52	21.39	35.00	73.31	100.00		

Swell

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	10	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.08	0.02	0.14	0.14
10	12	0.77	0.06	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.03	0.00	0.09	0.73	3.36	3.66	8.77	8.91
12	14	1.81	0.23	0.06	0.03	0.00	0.00	0.00	0.02	0.00	0.00	0.02	0.03	0.25	3.56	14.64	14.11	34.77	43.67
14	16	1.63	0.22	0.05	0.02	0.03	0.00	0.03	0.00	0.00	0.02	0.02	0.11	0.56	6.64	17.36	12.23	38.91	82.58
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	82.58
18	20	0.25	0.03	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.28	4.17	8.11	2.31	15.22	97.80
>20		0.03	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.08	0.81	1.03	0.22	2.20	100.00
Total		4.48	0.56	0.17	0.05	0.03	0.02	0.03	0.02	0.00	0.03	0.06	0.20	1.27	15.95	44.58	32.55		
Cumulative Total		4.48	5.05	5.22	5.27	5.30	5.31	5.34	5.36	5.36	5.39	5.45	5.66	6.92	22.88	67.45	100.00		

Sea

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Tp min (s)	Tp Max (s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	2	1.25	1.08	0.81	1.02	1.36	1.45	1.47	2.09	2.34	3.17	3.81	4.50	3.89	2.89	2.02	1.28	34.44	34.44
2	4	0.63	0.47	0.22	0.20	0.06	0.22	0.30	0.64	1.78	5.27	10.47	11.22	5.73	1.70	0.77	0.59	40.27	74.70
4	6	0.00	0.03	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.03	0.08	0.03	0.25	74.95
6	8	2.67	0.84	0.45	0.13	0.11	0.06	0.03	0.03	0.14	0.09	0.30	0.55	1.63	5.22	7.27	5.53	25.05	100.00
8	10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
10	12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
12	14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
14	16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
16	18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
18	20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>20		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		4.55	2.42	1.52	1.34	1.53	1.73	1.80	2.77	4.27	8.53	14.59	16.28	11.27	9.84	10.13	7.44		
Cumulative Total		4.55	6.97	8.48	9.83	11.36	13.09	14.89	17.66	21.92	30.45	45.05	61.33	72.59	82.44	92.56	100.00		

SEASONAL JFTS

Summer Hs vs Tp

Total

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.1	0.00	0.00	0.00	0.00	0.00	0.44	0.32	0.28	0.00	0.00	0.00	1.04	1.04
0.1	0.2	1.64	0.04	0.00	0.08	0.48	2.20	7.16	7.36	0.00	1.16	0.04	20.17	21.21
0.2	0.3	4.68	10.44	0.00	0.04	0.28	2.68	14.73	9.68	0.00	1.08	0.24	43.86	65.07
0.3	0.4	0.40	16.21	0.00	0.16	0.44	1.32	5.72	3.00	0.00	1.08	0.00	28.33	93.40
0.4	0.5	0.12	4.76	0.00	0.00	0.00	0.08	0.28	0.64	0.00	0.28	0.00	6.16	99.56
0.5	0.6	0.00	0.40	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.00	0.44	100.00
0.6	0.7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.7	0.8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.8	0.9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.9	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		6.84	31.85	0.00	0.28	1.20	6.72	28.21	21.01	0.00	3.60	0.28		
Cumulative Total		6.84	38.70	38.70	38.98	40.18	46.90	75.11	96.12	96.12	99.72	100.00		

Swell

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.1	0.00	0.00	0.00	0.24	1.88	6.24	15.13	14.17	0.00	1.60	0.20	39.46	39.46
0.1	0.2	0.00	0.00	0.00	0.20	1.12	7.60	28.89	16.33	0.00	3.56	0.24	57.94	97.40
0.2	0.3	0.00	0.00	0.00	0.08	0.20	0.12	0.16	1.40	0.00	0.48	0.00	2.44	99.84
0.3	0.4	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.12	0.00	0.00	0.00	0.16	100.00
0.4	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.5	0.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.6	0.7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.7	0.8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.8	0.9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.9	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.00	0.00	0.00	0.52	3.20	13.97	44.22	32.01	0.00	5.64	0.44		
Cumulative Total		0.00	0.00	0.00	0.52	3.72	17.69	61.90	93.92	93.92	99.56	100.00		

Sea

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.1	0.96	0.72	0.00	2.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.72	3.72
0.1	0.2	22.89	2.28	0.00	5.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	30.89	34.61
0.2	0.3	14.97	25.45	0.00	1.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.02	76.63
0.3	0.4	0.36	19.09	0.00	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	19.65	96.28
0.4	0.5	0.08	3.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.44	99.72
0.5	0.6	0.00	0.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.28	100.00
0.6	0.7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.7	0.8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.8	0.9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.9	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		39.26	51.18	0.00	9.56	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Cumulative Total		39.26	90.44	90.44	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00		

Autumn Hs vs Tp

Total

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.1	0.00	0.00	0.00	0.00	0.00	0.00	0.19	0.23	0.00	0.00	0.00	0.42	0.42
0.1	0.2	0.68	0.05	0.00	0.00	0.17	2.62	16.29	10.91	0.00	3.34	0.66	34.72	35.14
0.2	0.3	2.88	5.13	0.00	0.00	0.08	2.58	13.05	14.91	0.00	6.00	1.11	45.73	80.87
0.3	0.4	0.46	4.10	0.08	0.03	0.00	0.39	1.50	6.57	0.00	2.79	0.28	16.20	97.07
0.4	0.5	0.03	0.76	0.00	0.01	0.05	0.01	0.04	1.20	0.00	0.59	0.00	2.69	99.76
0.5	0.6	0.00	0.14	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.24	100.00
0.6	0.7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.7	0.8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.8	0.9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.9	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		4.05	10.18	0.08	0.04	0.30	5.60	31.07	33.92	0.00	12.72	2.04		
Cumulative Total		4.05	14.23	14.31	14.34	14.64	20.24	51.31	85.23	85.23	97.96	100.00		

Swell

		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin	Hsmax	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.1	0.00	0.00	0.00	0.10	0.32	2.53	12.89	9.31	0.00	1.11	0.24	26.50	26.50
0.1	0.2	0.00	0.00	0.00	0.04	0.48	4.70	24.05	20.73	0.00	8.55	1.49	60.04	86.54
0.2	0.3	0.00	0.00	0.00	0.01	0.05	0.23	0.62	7.04	0.00	3.47	0.42	11.85	98.39
0.3	0.4	0.00	0.00	0.00	0.00	0.00	0.01	0.00	1.21	0.00	0.37	0.00	1.59	99.99
0.4	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.01	100.00
0.5	0.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.6	0.7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.7	0.8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.8	0.9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.9	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.00	0.00	0.00	0.15	0.85	7.48	37.56	38.30	0.00	13.50	2.16		
Cumulative Total		0.00	0.00	0.00	0.15	1.00	8.48	46.04	84.34	84.34	97.84	100.00		

Sea

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.1	1.59	0.54	0.32	5.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.19	8.19
0.1	0.2	25.98	5.53	0.94	22.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	54.95	63.14
0.2	0.3	11.86	13.87	0.04	4.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	30.19	93.33
0.3	0.4	0.71	4.78	0.06	0.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.90	99.23
0.4	0.5	0.00	0.66	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.67	99.90
0.5	0.6	0.00	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	100.00
0.6	0.7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.7	0.8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.8	0.9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.9	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		40.14	25.48	1.36	33.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Cumulative Total		40.14	65.62	66.98	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00		

SEASONAL JFTS

Winter Hs vs Tp

Total

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.1	0.00	0.00	0.00	0.00	0.00	0.01	0.03	0.02	0.00	0.00	0.00	0.07	0.07
0.1	0.2	0.18	0.00	0.00	0.00	0.00	1.35	7.83	8.71	0.00	1.87	0.39	20.32	20.39
0.2	0.3	1.06	1.28	0.00	0.00	0.01	3.20	10.92	18.46	0.00	10.81	1.91	47.64	68.04
0.3	0.4	0.15	2.52	0.00	0.01	0.06	0.40	1.20	11.37	0.00	9.12	0.76	25.58	93.62
0.4	0.5	0.00	0.89	0.00	0.00	0.00	0.00	0.02	3.07	0.00	1.55	0.07	5.60	99.22
0.5	0.6	0.00	0.31	0.00	0.00	0.00	0.00	0.00	0.33	0.00	0.03	0.00	0.67	99.90
0.6	0.7	0.00	0.09	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.10	100.00
0.7	0.8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.8	0.9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.9	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		1.39	5.09	0.00	0.01	0.07	4.95	20.00	41.97	0.00	23.38	3.13		
Cumulative Total		1.39	6.48	6.48	6.49	6.56	11.51	31.52	73.49	73.49	96.87	100.00		

Swell

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.1	0.00	0.00	0.00	0.00	0.01	0.30	1.83	4.06	0.00	0.39	0.09	6.68	6.68
0.1	0.2	0.00	0.00	0.00	0.01	0.07	4.78	19.22	23.72	0.00	10.45	2.08	60.33	67.01
0.2	0.3	0.00	0.00	0.00	0.00	0.05	0.24	0.58	14.41	0.00	11.96	1.30	28.54	95.55
0.3	0.4	0.00	0.00	0.00	0.00	0.00	0.00	0.01	2.90	0.00	1.52	0.00	4.43	99.98
0.4	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.02	100.00
0.5	0.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.6	0.7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.7	0.8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.8	0.9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.9	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.00	0.00	0.00	0.01	0.13	5.32	21.64	45.12	0.00	24.32	3.47		
Cumulative Total		0.00	0.00	0.00	0.01	0.14	5.45	27.09	72.21	72.21	96.53	100.00		

Sea

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.1	0.41	0.02	0.10	3.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.21	4.21
0.1	0.2	13.82	2.39	0.47	40.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	57.33	61.54
0.2	0.3	8.89	9.03	0.02	13.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	31.21	92.75
0.3	0.4	0.31	4.86	0.00	0.54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.71	98.46
0.4	0.5	0.00	1.23	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.27	99.73
0.5	0.6	0.00	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.24	99.97
0.6	0.7	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	100.00
0.7	0.8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.8	0.9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.9	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		23.43	17.80	0.59	58.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Cumulative Total		23.43	41.23	41.82	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00		

Spring Hs vs Tp

Total

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.1	0.00	0.00	0.00	0.00	0.00	0.06	0.05	0.19	0.00	0.00	0.00	0.30	0.30
0.1	0.2	0.41	0.00	0.00	0.00	0.03	1.13	5.58	5.16	0.00	0.69	0.17	13.16	13.45
0.2	0.3	2.53	3.69	0.00	0.00	0.00	3.19	14.42	15.73	0.00	5.03	1.17	45.77	59.22
0.3	0.4	0.63	9.53	0.00	0.00	0.00	1.41	6.17	10.17	0.00	6.80	0.45	35.16	94.38
0.4	0.5	0.00	1.31	0.00	0.00	0.00	0.02	0.28	2.05	0.00	1.67	0.03	5.36	99.73
0.5	0.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.20	0.00	0.06	0.00	0.27	100.00
0.6	0.7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.7	0.8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.8	0.9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.9	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		3.56	14.53	0.00	0.00	0.03	5.80	26.50	33.50	0.00	14.25	1.83		
Cumulative Total		3.56	18.09	18.09	18.09	18.13	23.92	50.42	83.92	83.92	98.17	100.00		

Swell

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.1	0.00	0.00	0.00	0.00	0.13	1.53	5.95	6.02	0.00	0.52	0.22	14.36	14.36
0.1	0.2	0.00	0.00	0.00	0.00	0.02	6.91	28.31	23.28	0.00	5.92	1.33	65.77	80.13
0.2	0.3	0.00	0.00	0.00	0.00	0.00	0.31	0.50	7.92	0.00	7.95	0.66	17.34	97.47
0.3	0.4	0.00	0.00	0.00	0.00	0.00	0.02	0.00	1.69	0.00	0.83	0.00	2.53	100.00
0.4	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.5	0.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.6	0.7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.7	0.8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.8	0.9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.9	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.00	0.00	0.00	0.00	0.14	8.77	34.77	38.91	0.00	15.22	2.20		
Cumulative Total		0.00	0.00	0.00	0.00	0.14	8.91	43.67	82.58	82.58	97.80	100.00		

Sea

Tp Range (s)		0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	>20		
Hsmin (m)	Hsmax (m)	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00		Total	Cumulative
0	0.1	0.48	0.05	0.17	2.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.72	2.72
0.1	0.2	16.64	1.77	0.08	14.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	33.00	35.72
0.2	0.3	16.69	22.97	0.00	8.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.78	83.50
0.3	0.4	0.63	14.64	0.00	0.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	15.66	99.16
0.4	0.5	0.00	0.84	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.84	100.00
0.5	0.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.6	0.7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.7	0.8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.8	0.9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.9	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		34.44	40.27	0.25	25.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Cumulative Total		34.44	74.70	74.95	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00		

Appendix T AWAC Wave Roses

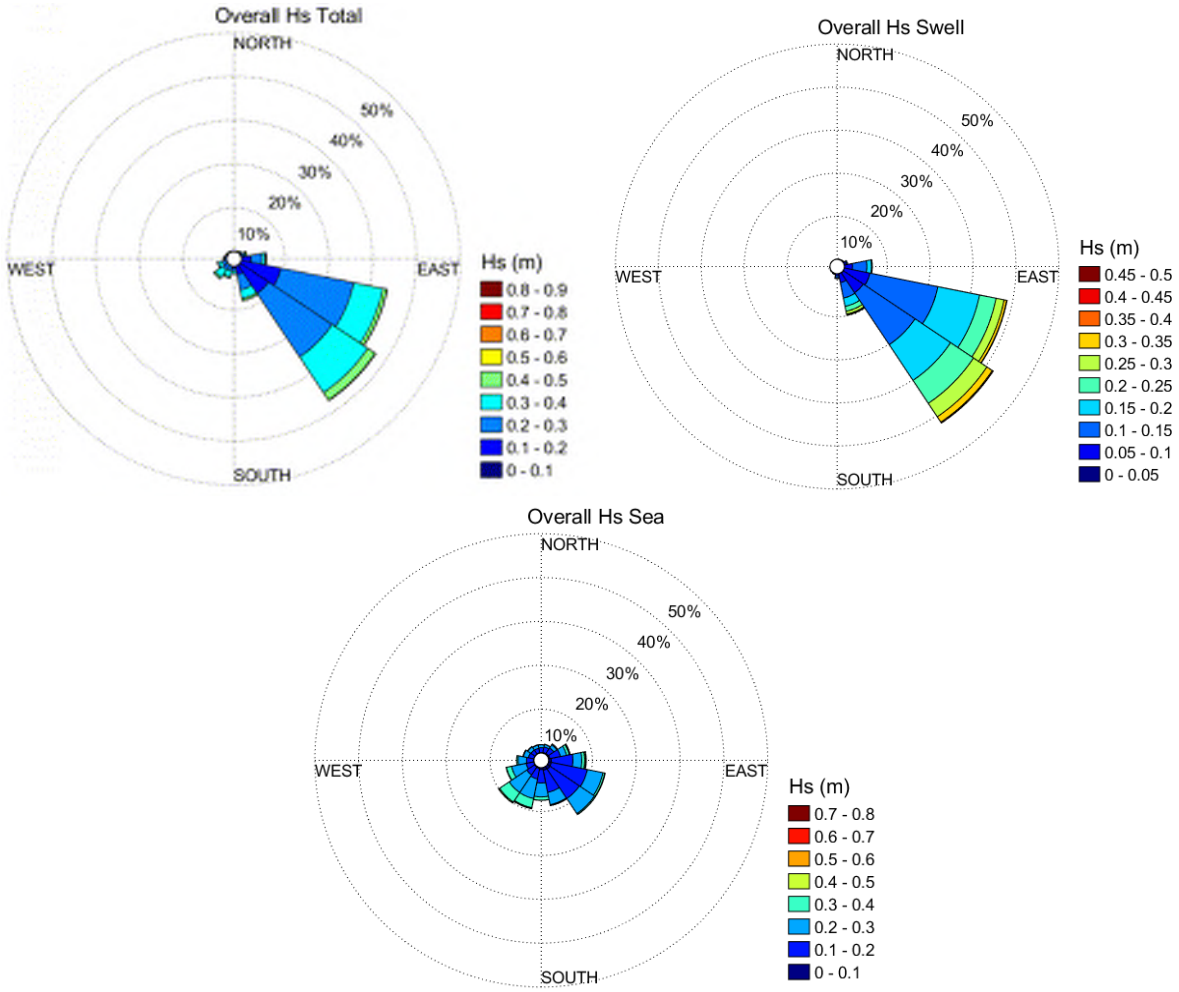

Figure T.1 Overall Hs Nearshore AWAC Wave Roses

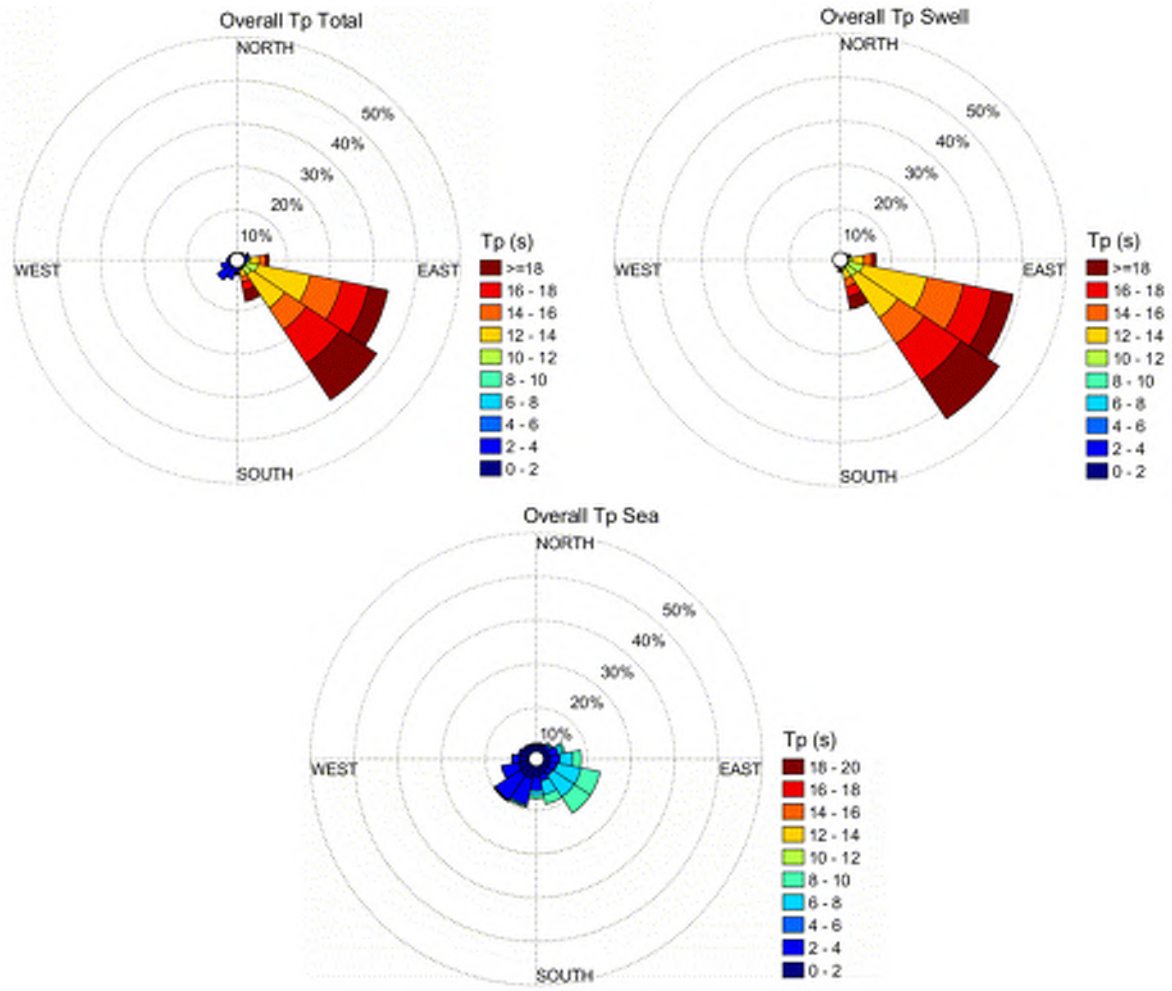

Figure T.2 Overall Tp Nearshore AWAC Wave Roses

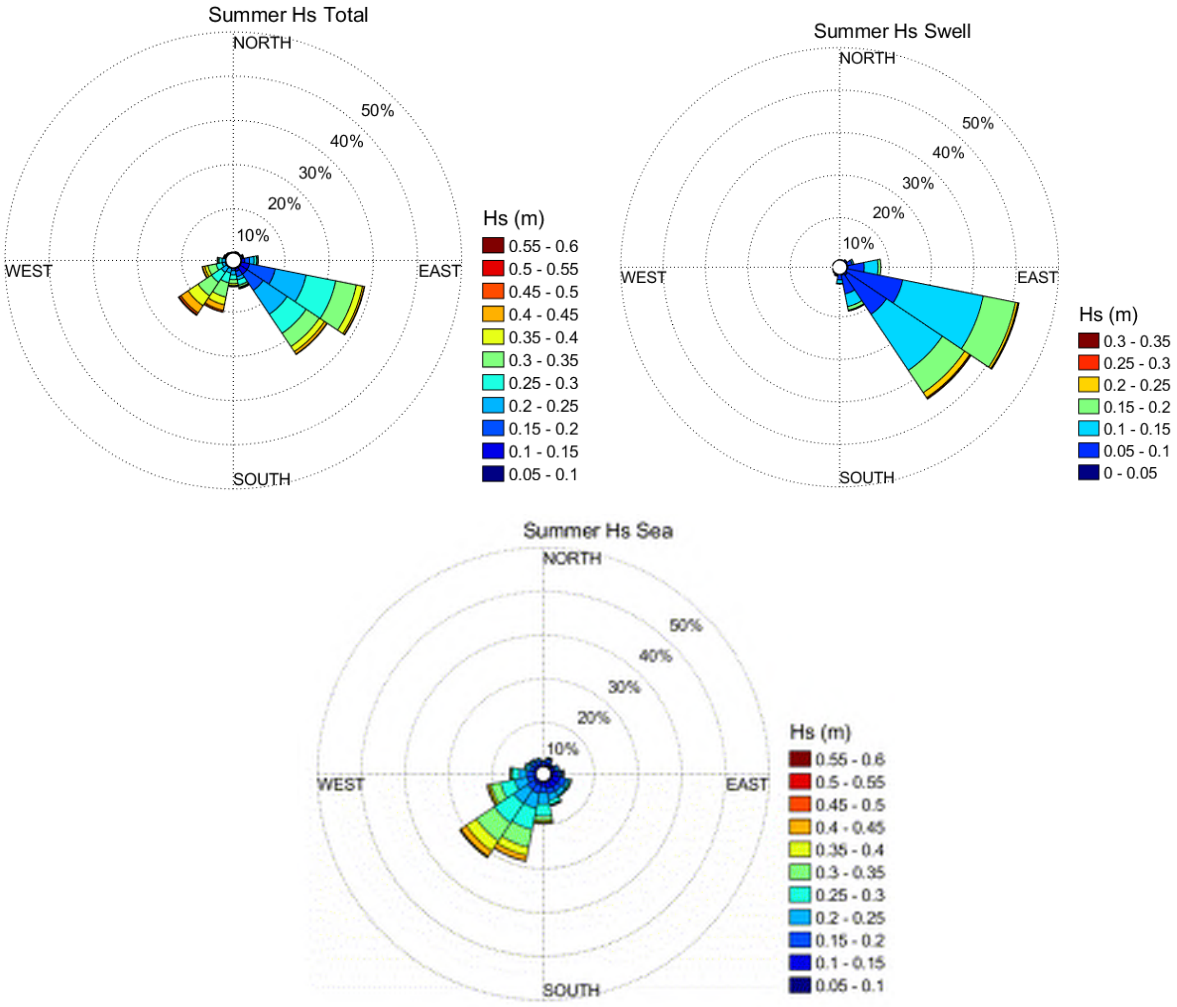

Figure T.3 Summer Hs Nearshore AWAC Wave Roses

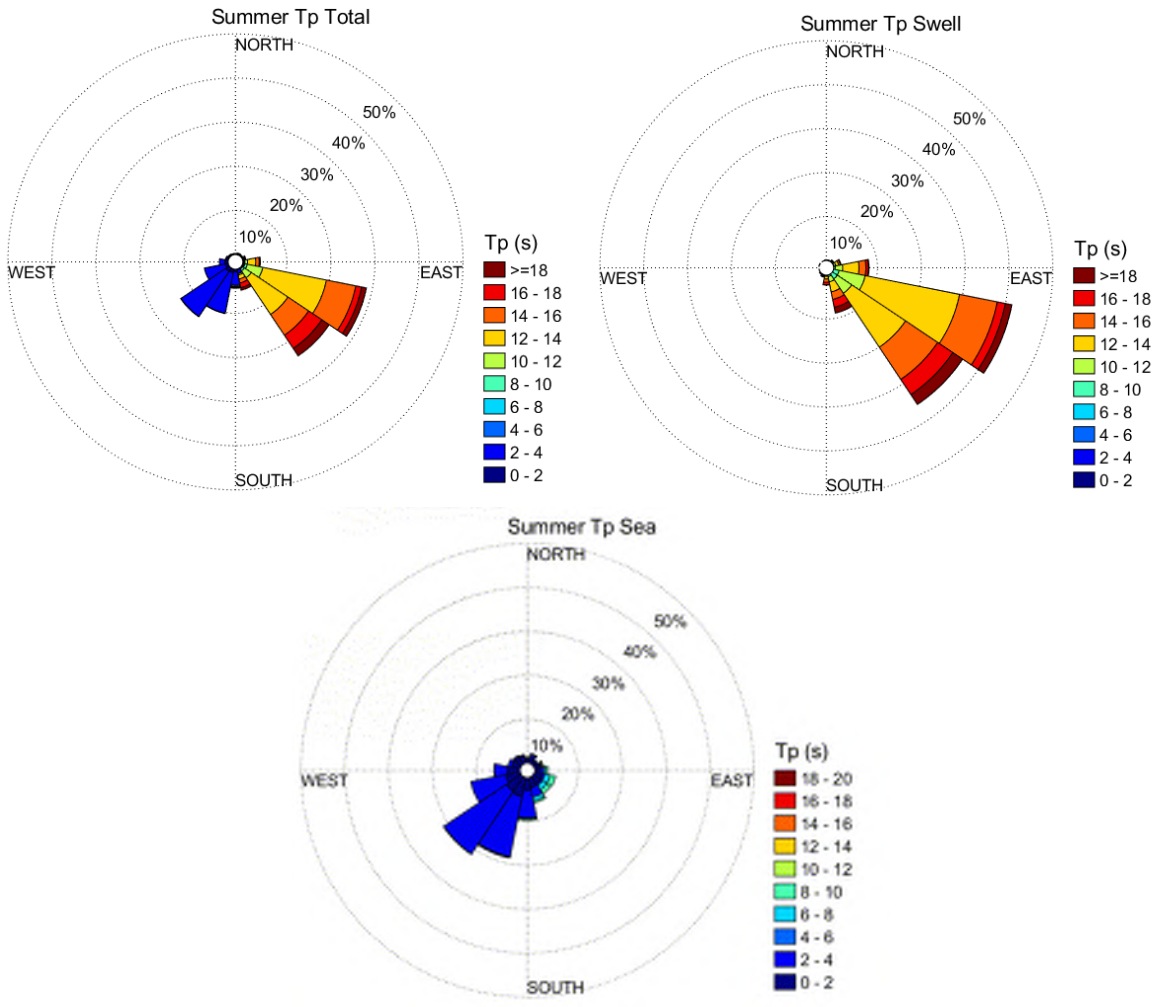

Figure T.4 Summer Tp Nearshore AWAC Wave Roses

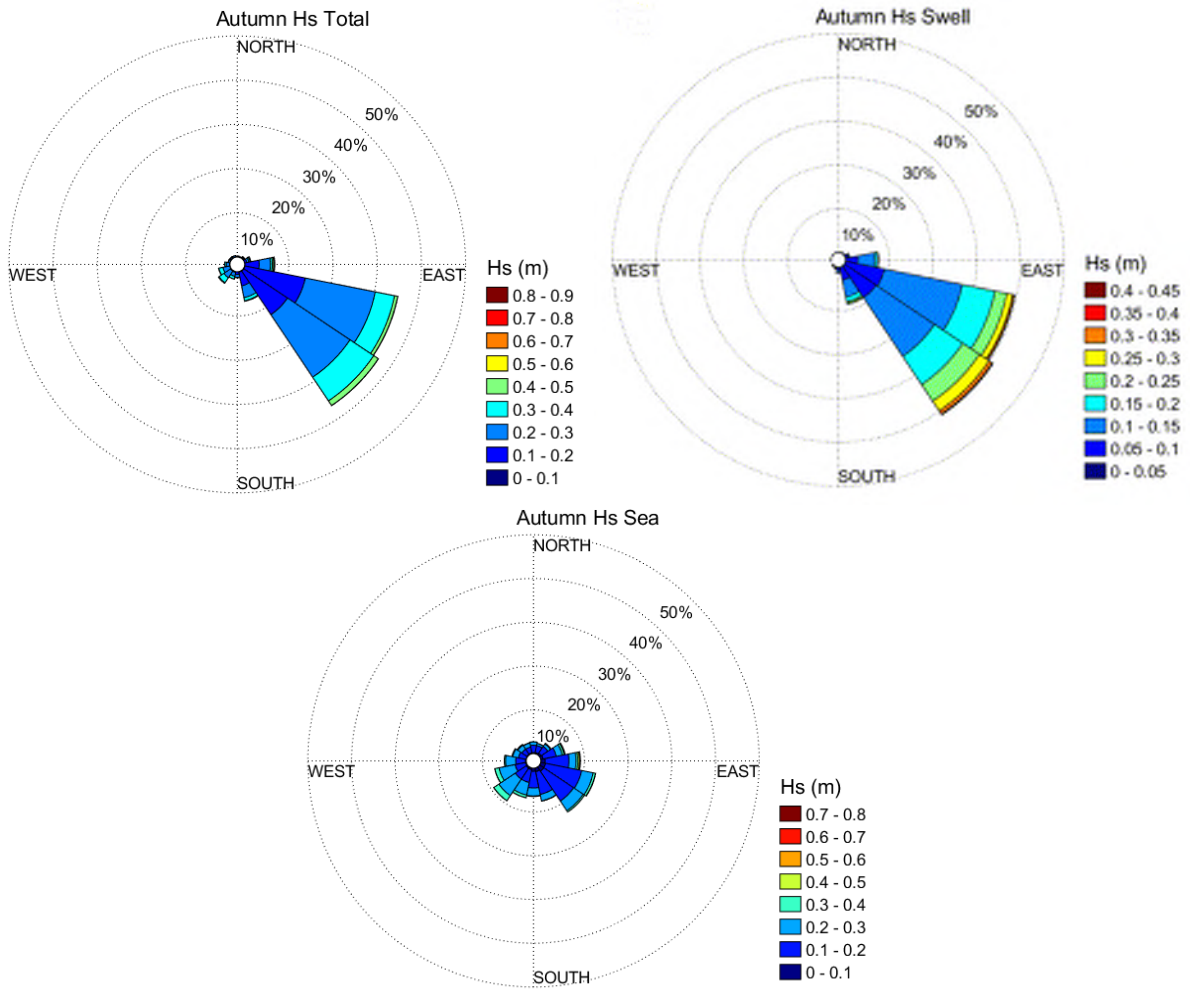

Figure T.5 Autumn Hs Nearshore AWAC Wave Roses

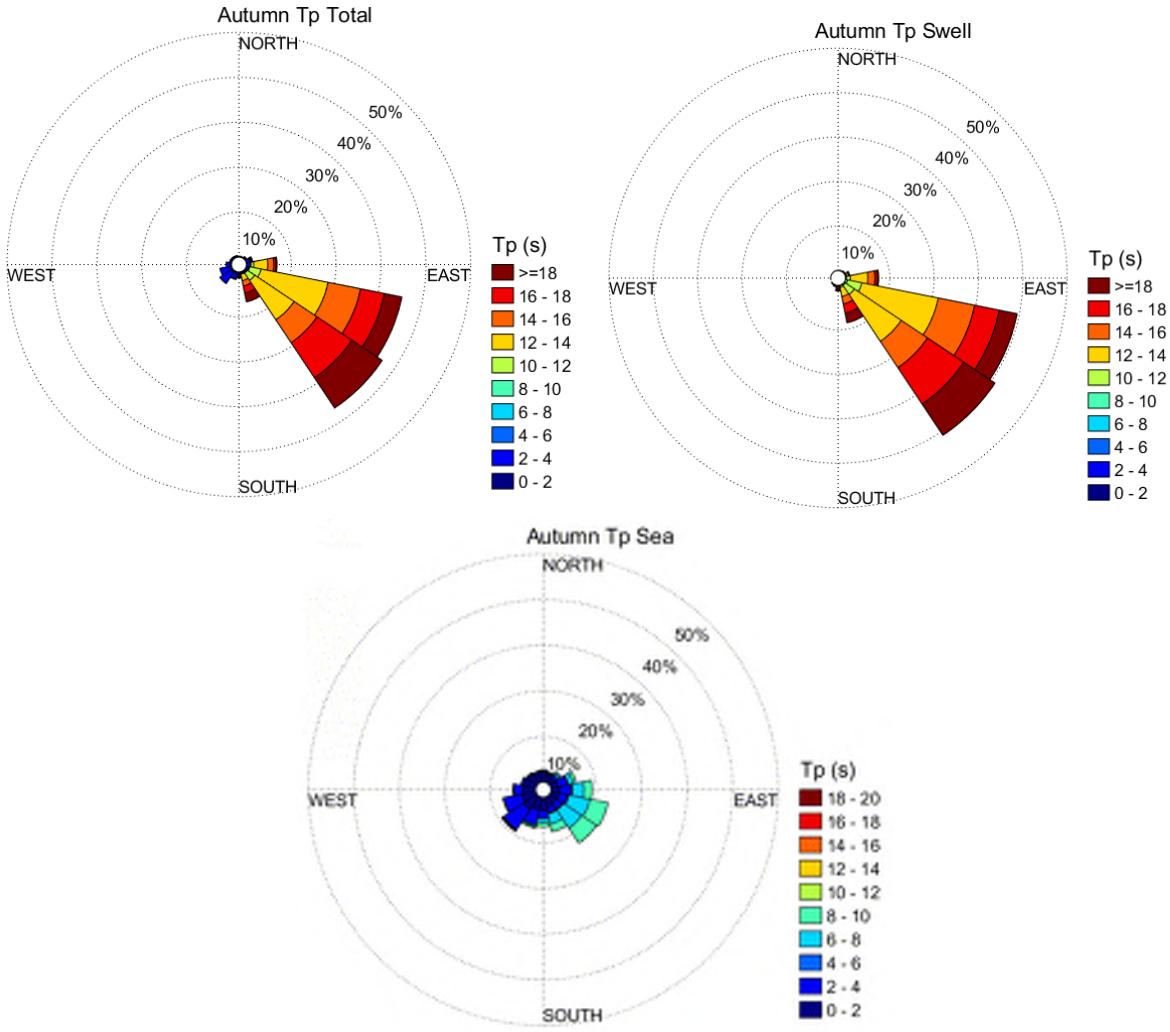

Figure T.6 Autumn Tp Nearshore AWAC Wave Roses

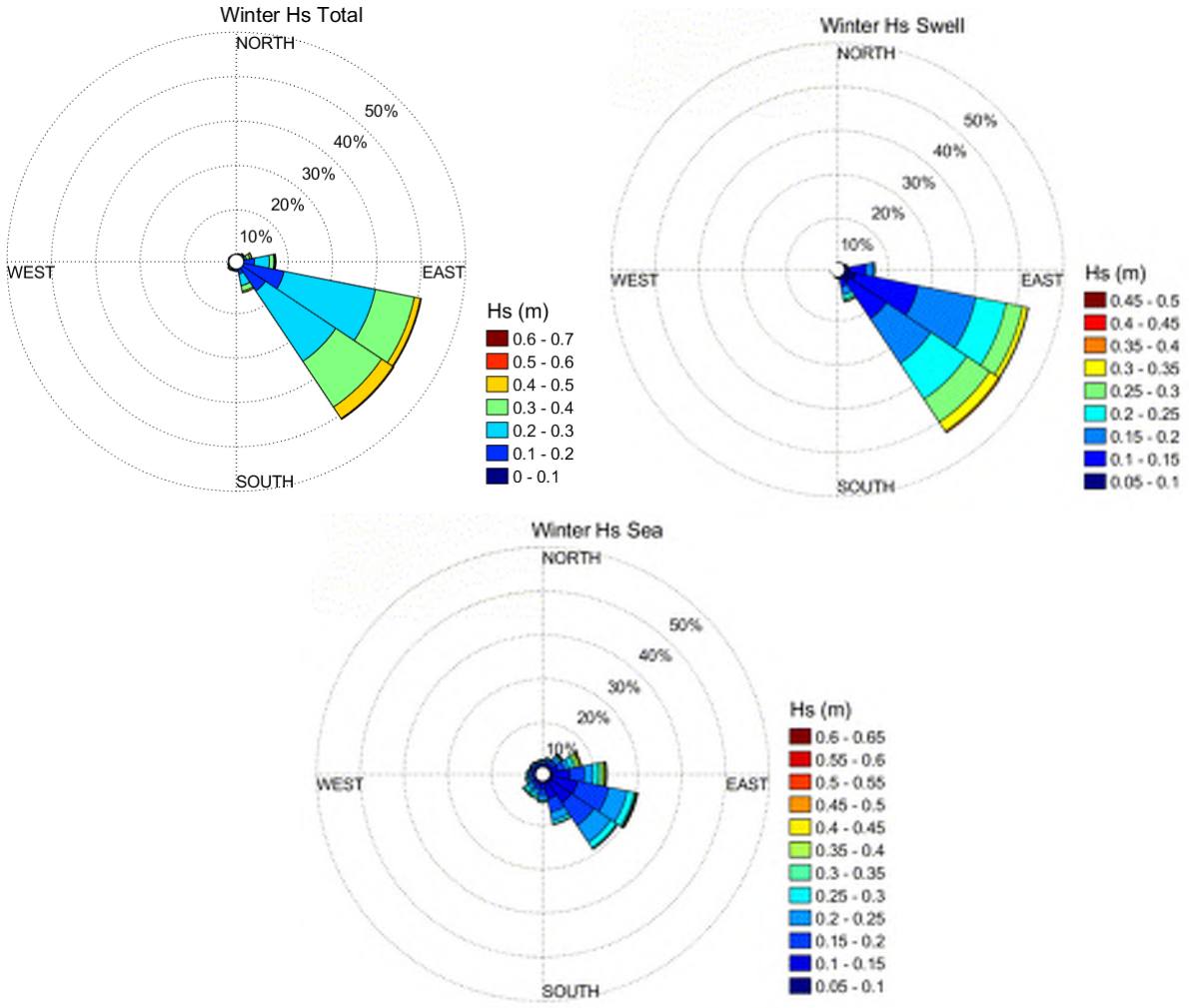

Figure T.7 Winter Hs Nearshore AWAC Wave Roses

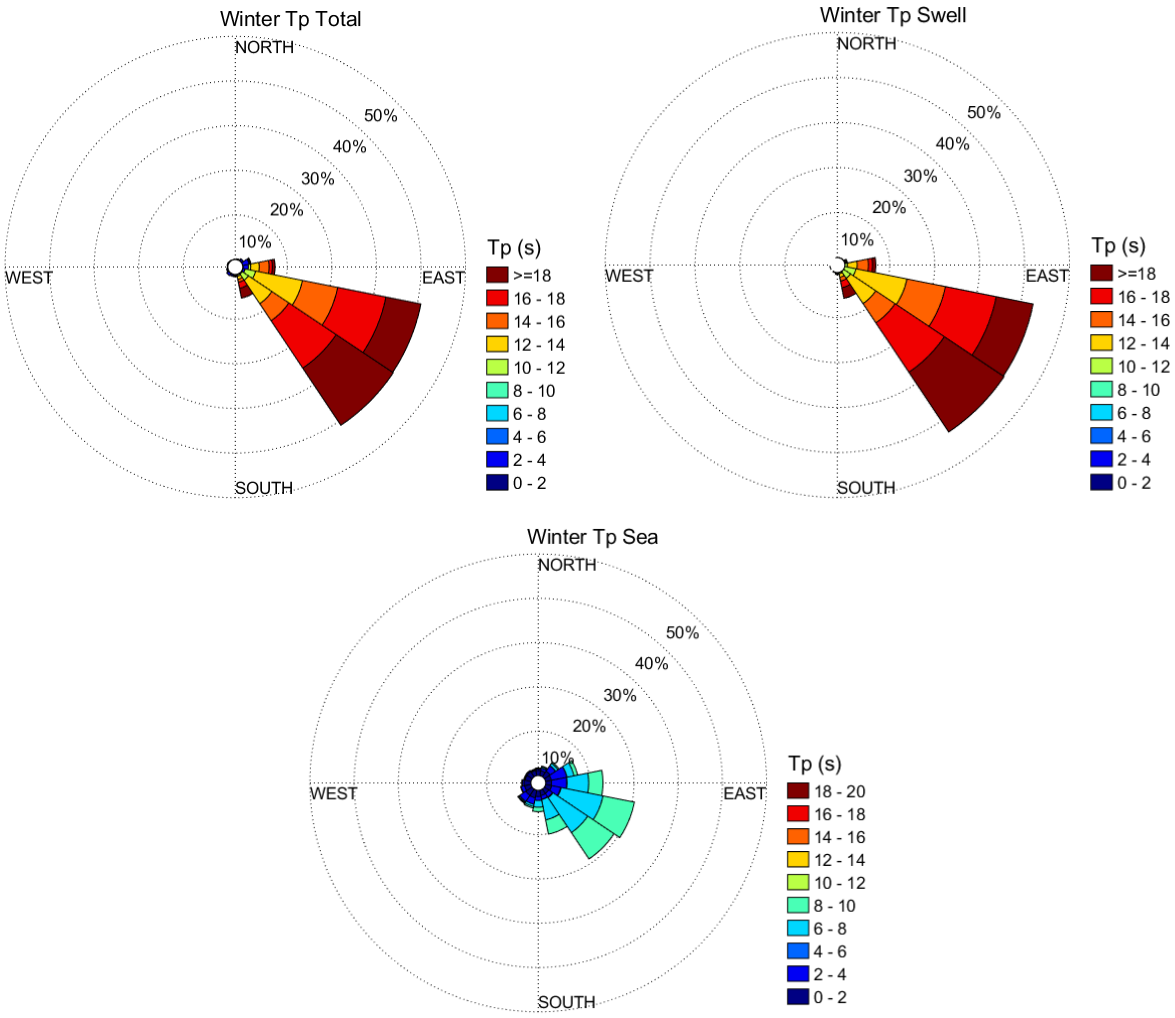

Figure T.8 Winter Tp Nearshore AWAC Wave Roses

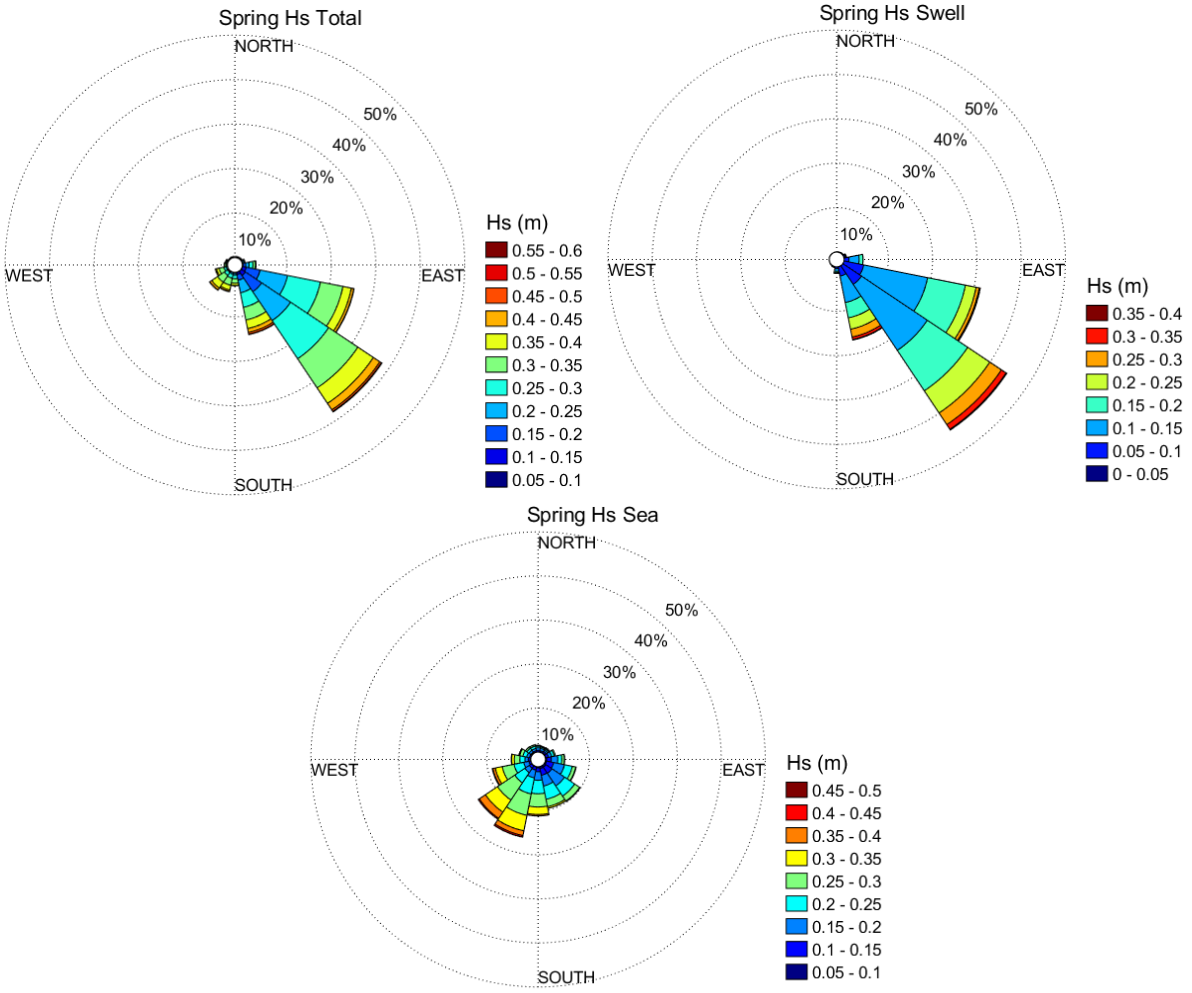

Figure T.9 Spring Hs Nearshore AWAC Wave Roses

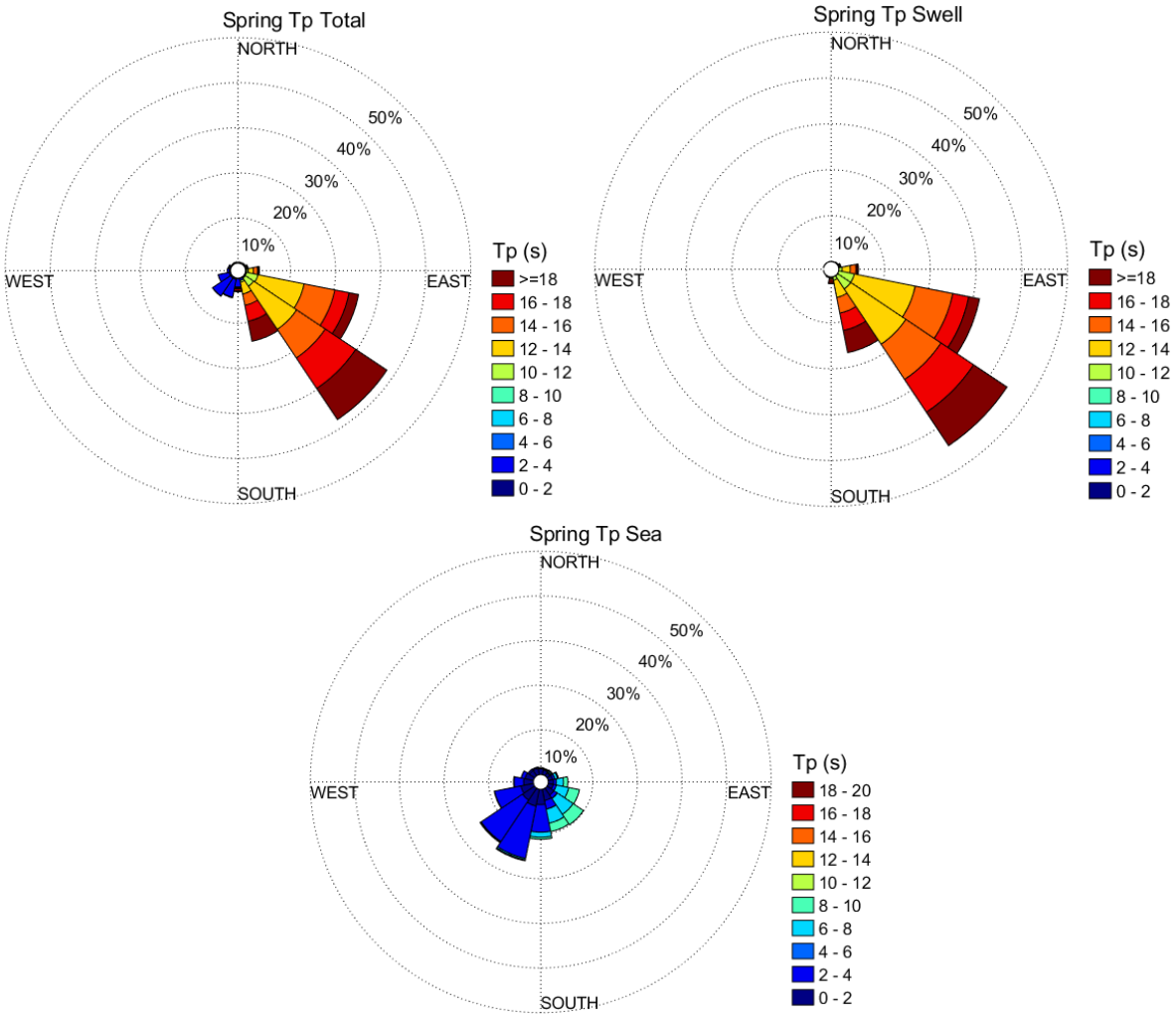

Figure T.10 Spring Tp Nearshore AWAC Wave Roses

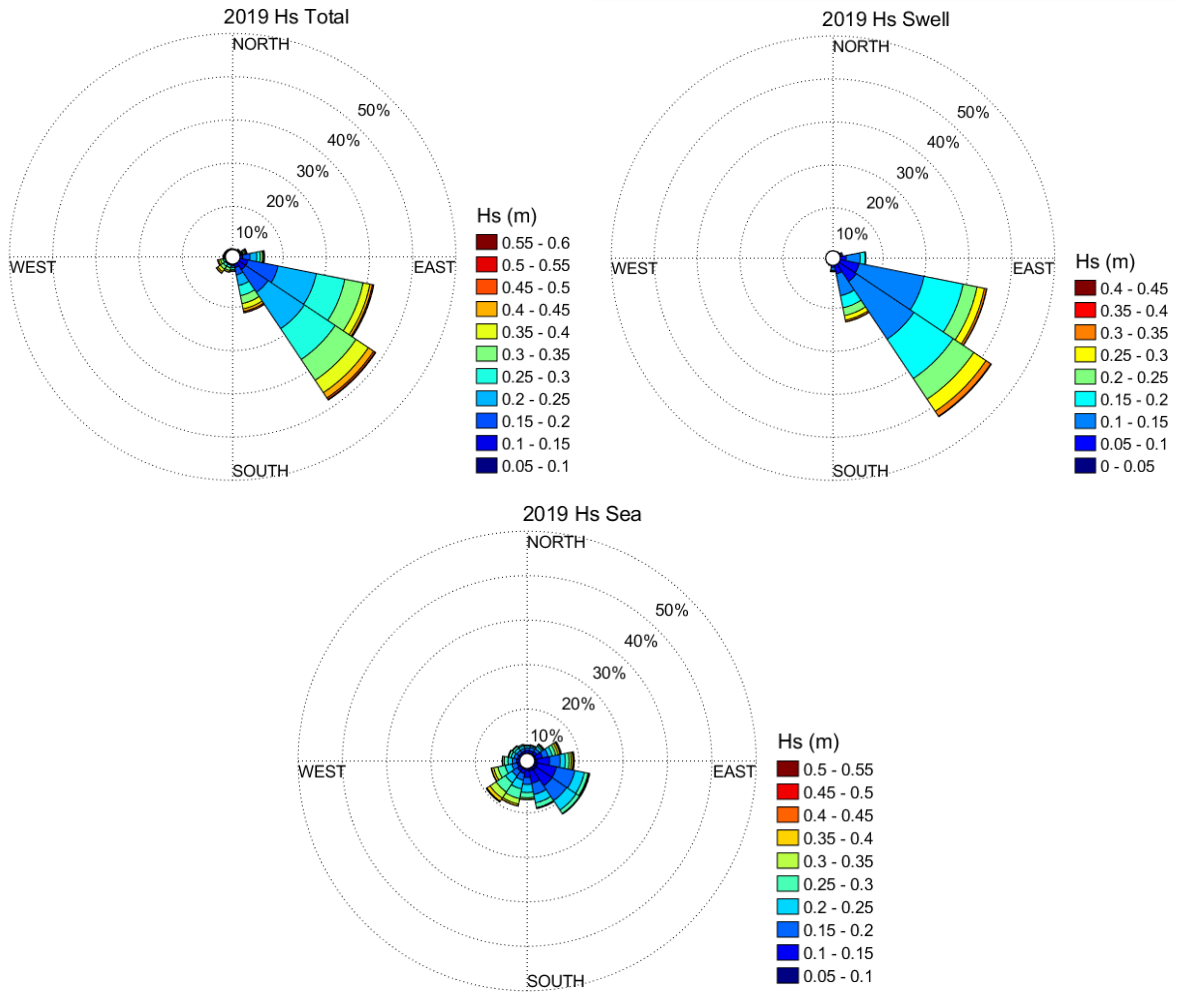

Figure T.11 2019 Hs Nearshore AWAC Wave Roses

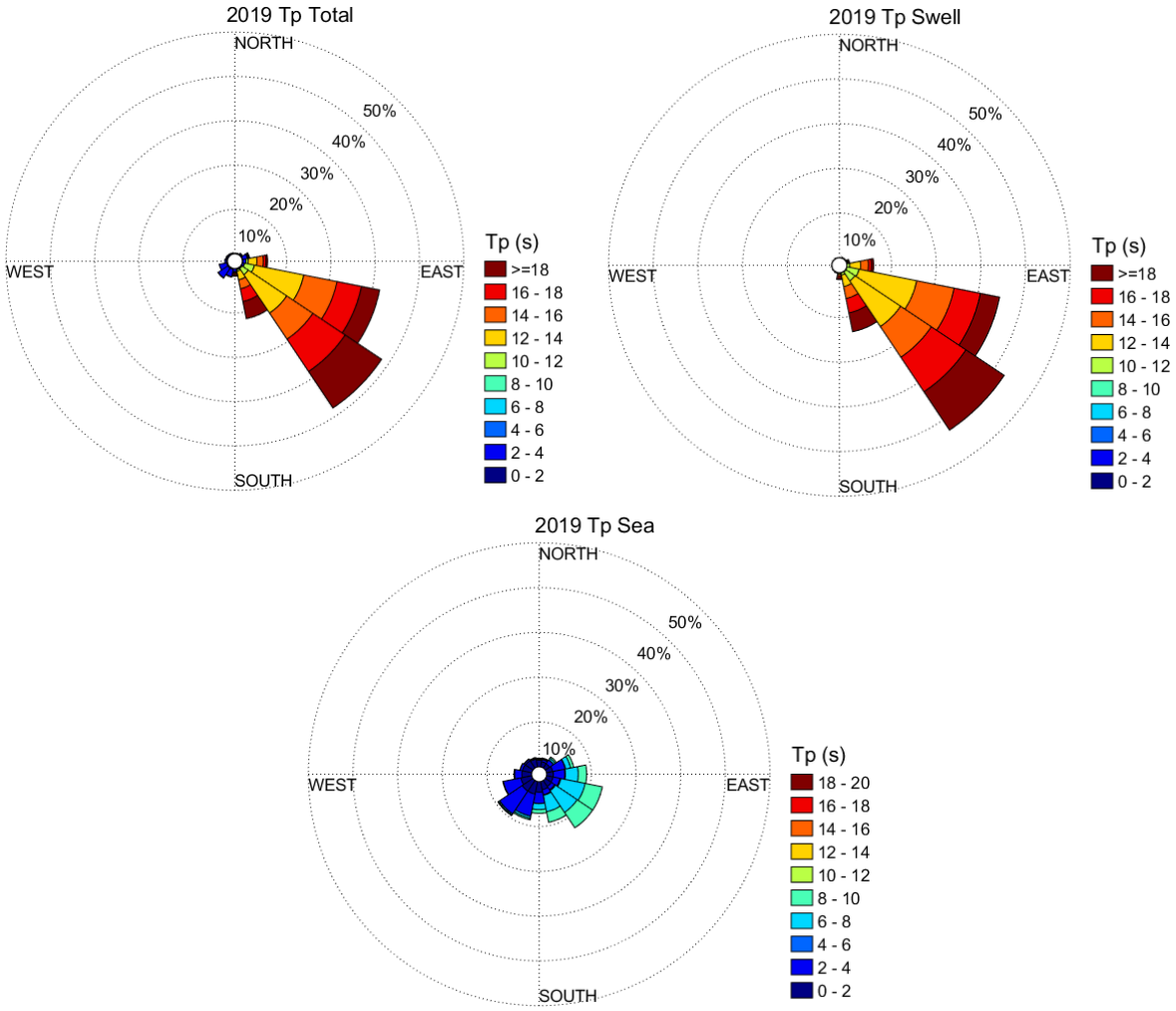

Figure T.12 2019 Tp Nearshore AWAC Wave Roses

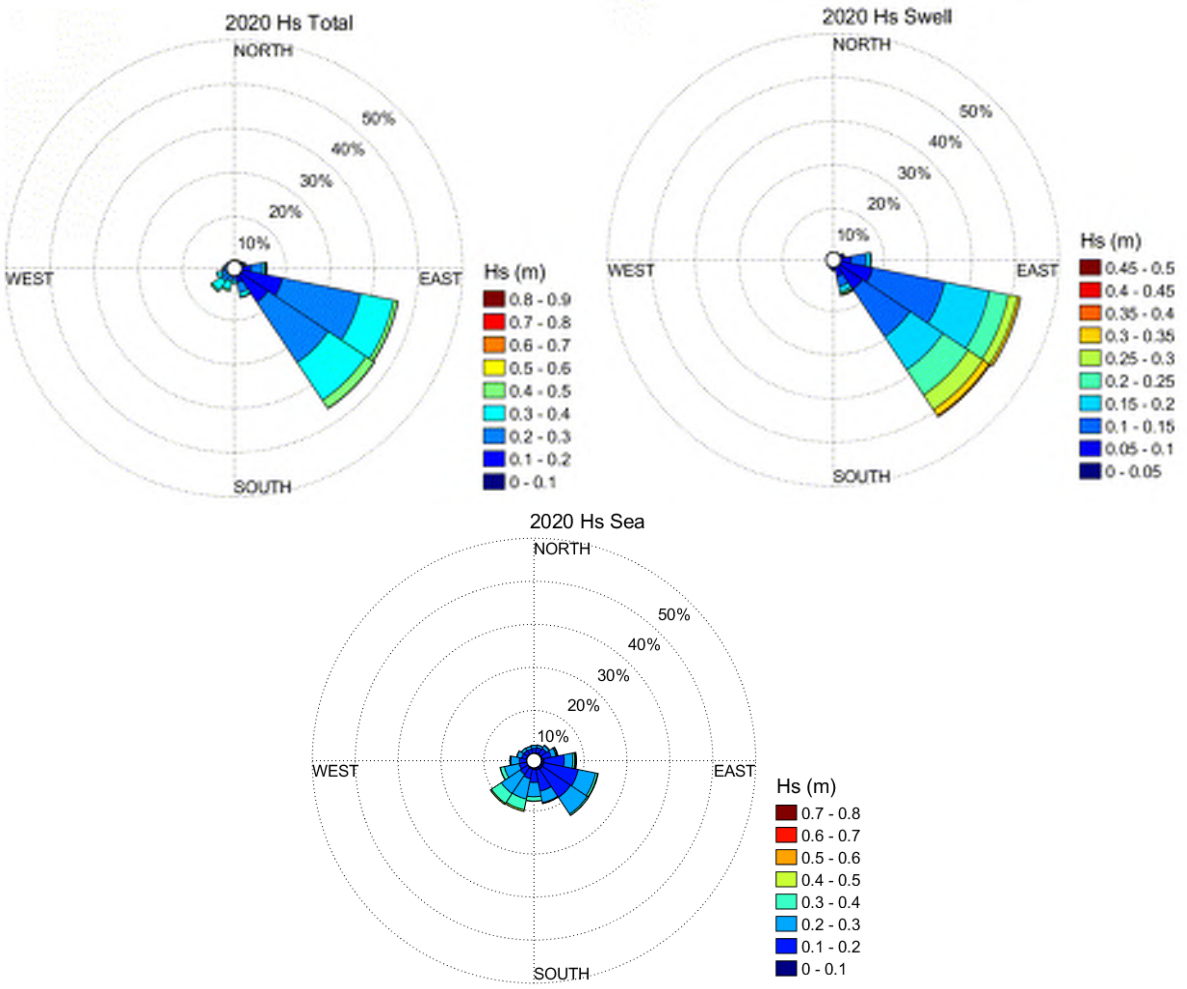

Figure T.13 2020 Hs Nearshore AWAC Wave Roses

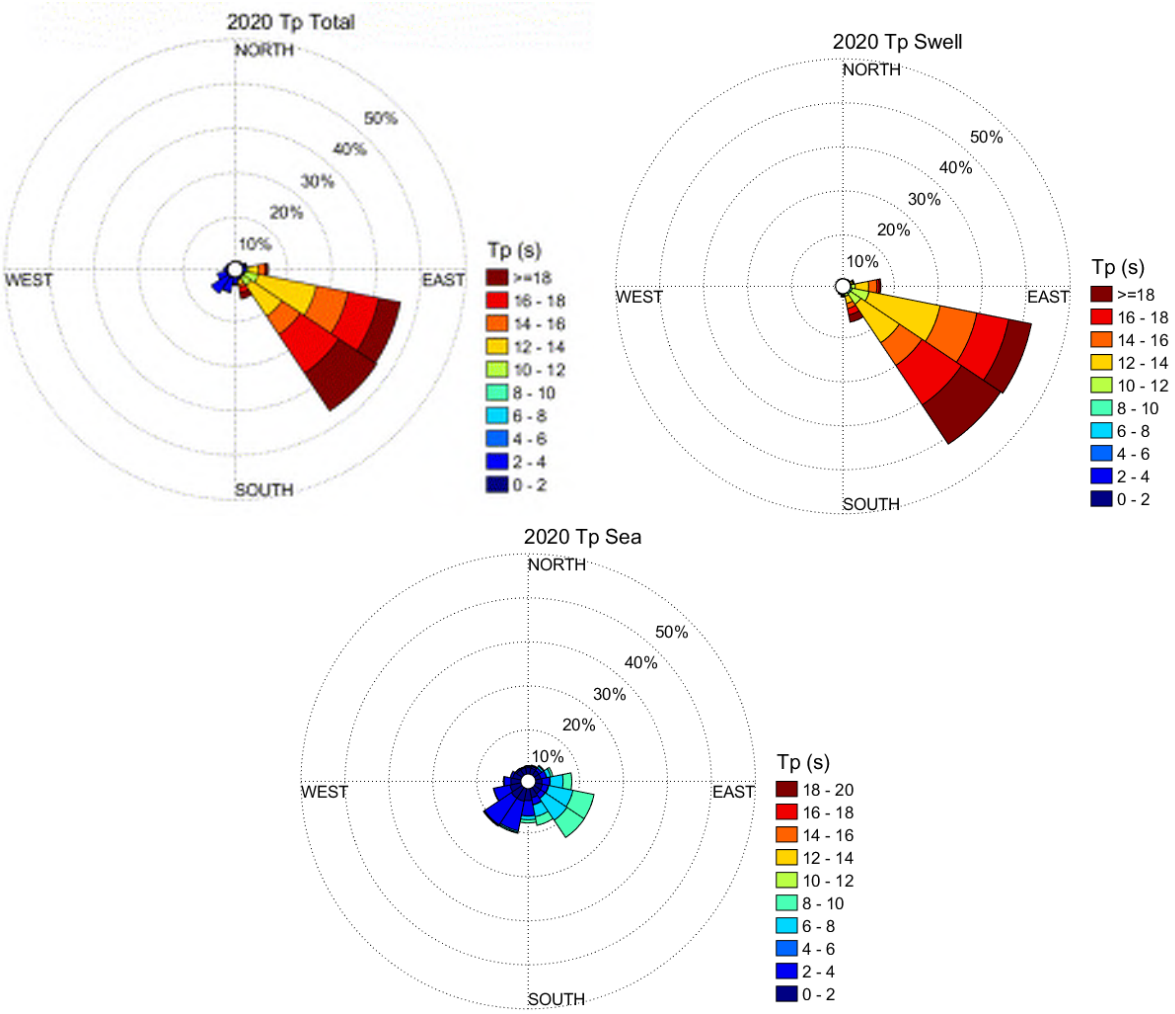

Figure T.14 2020 Tp Nearshore AWAC Wave Roses

Appendix U AWAC Wave Exceedance Curves

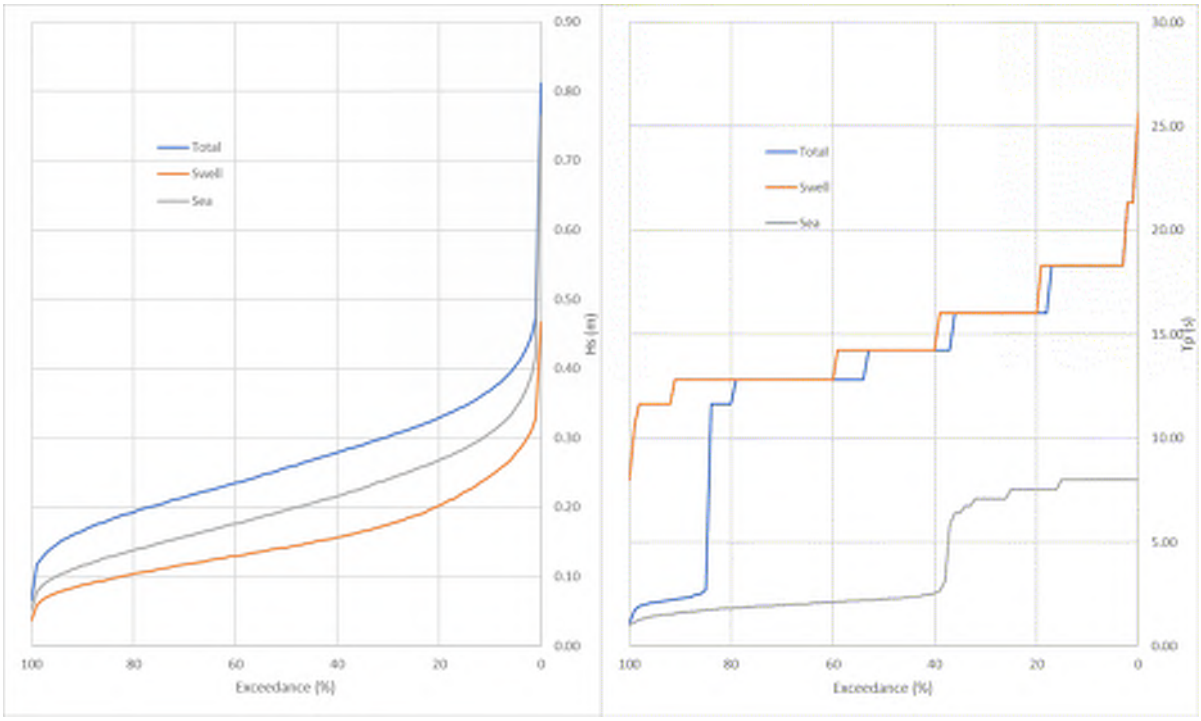

Figure U.1 Overall Nearshore Hs and Tp Exceedance Curves

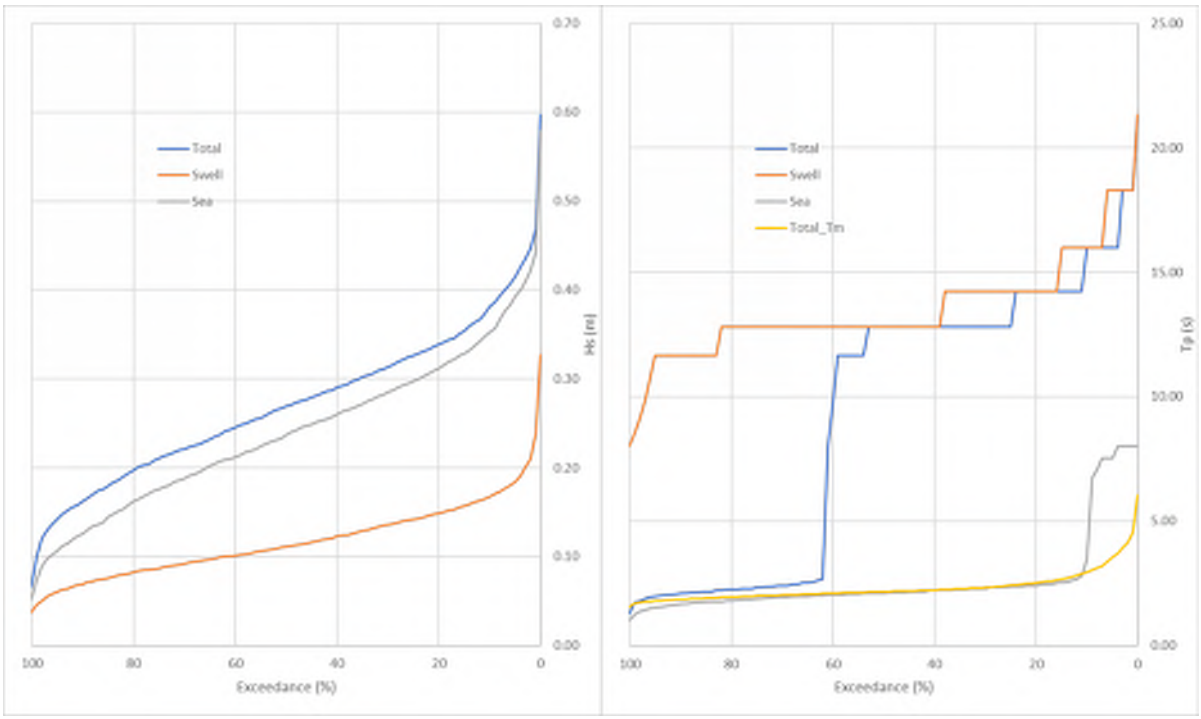

Figure U.2 Summer Nearshore Hs and Tp Exceedance Curves

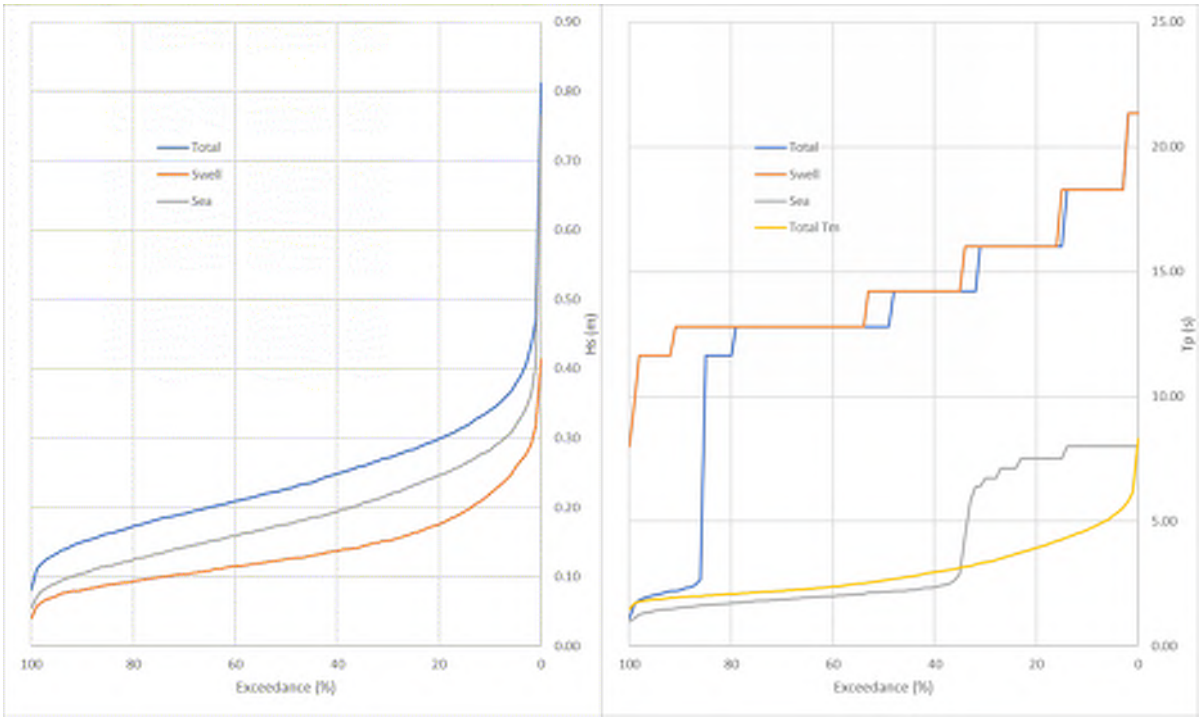

Figure U.3 Autumn Nearshore Hs and Tp Exceedance Curves

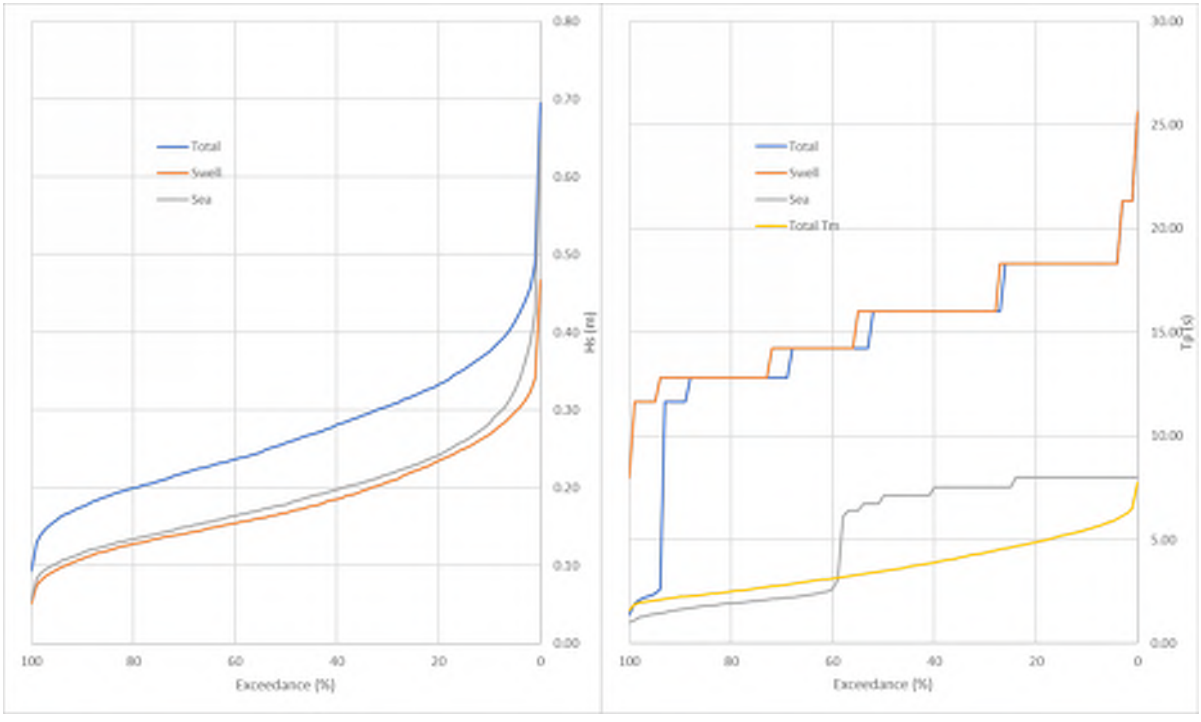

Figure U.4 Winter Nearshore Hs and Tp Exceedance Curves

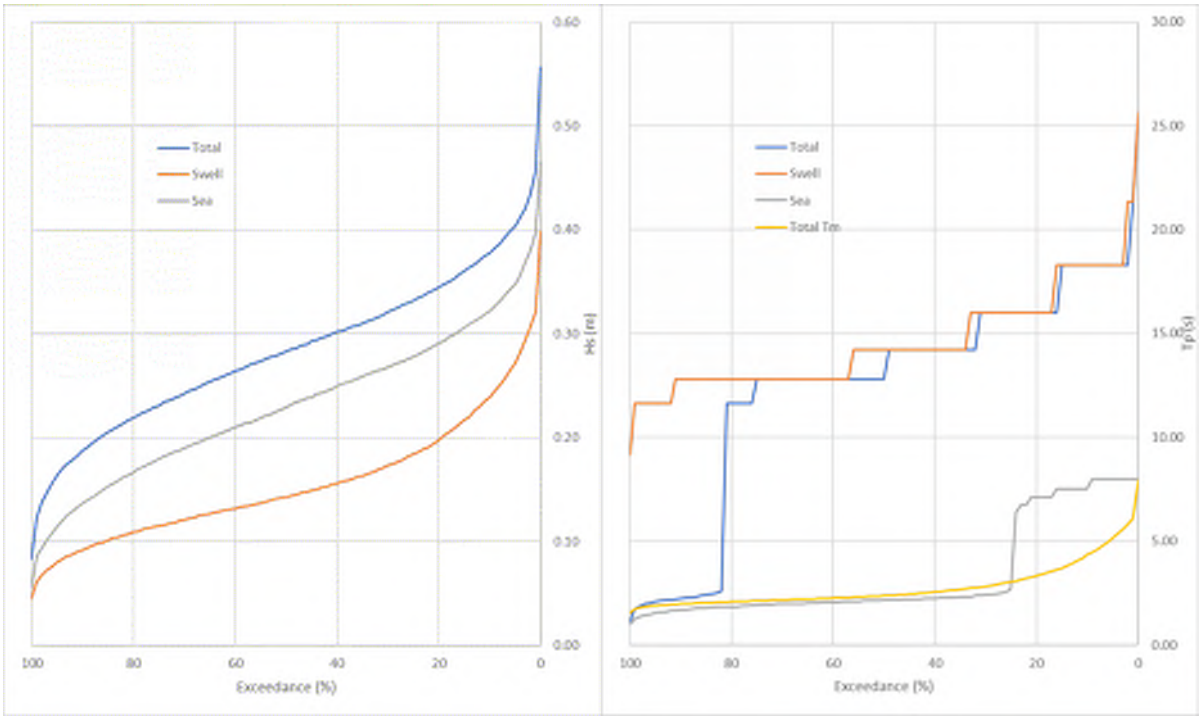

Figure U.5 Spring Nearshore Hs and Tp Exceedance Curves

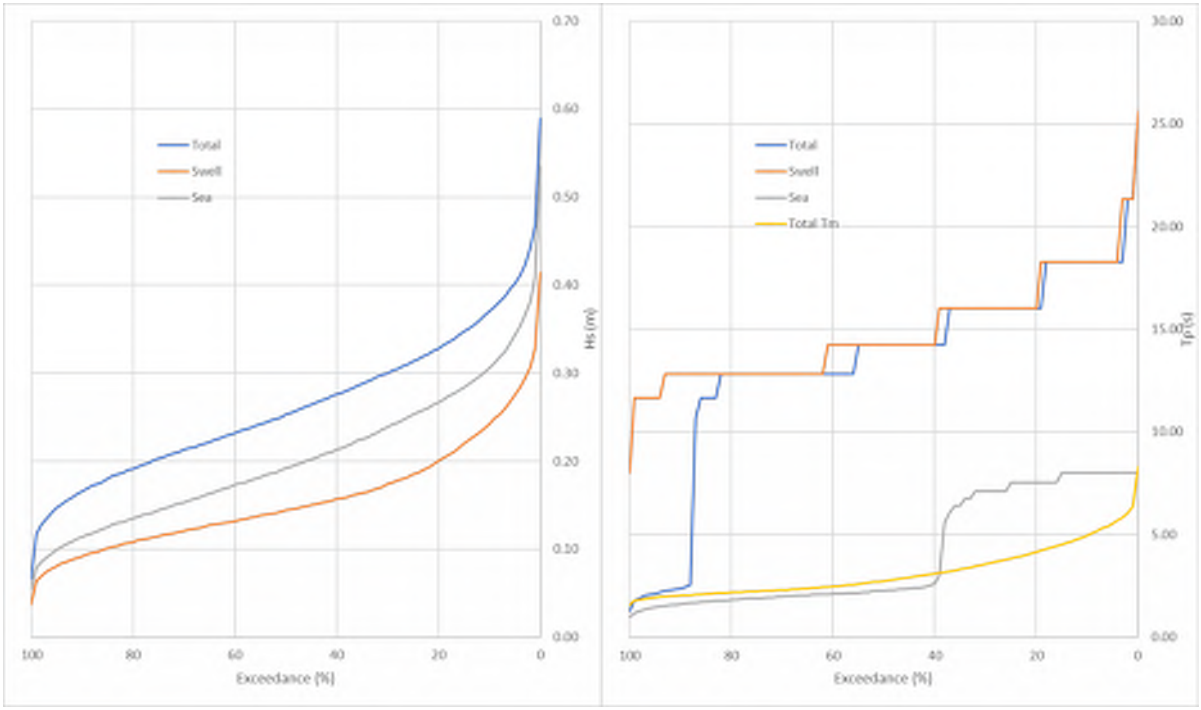

Figure U.6 2019 Nearshore Hs and Tp Exceedance Curves

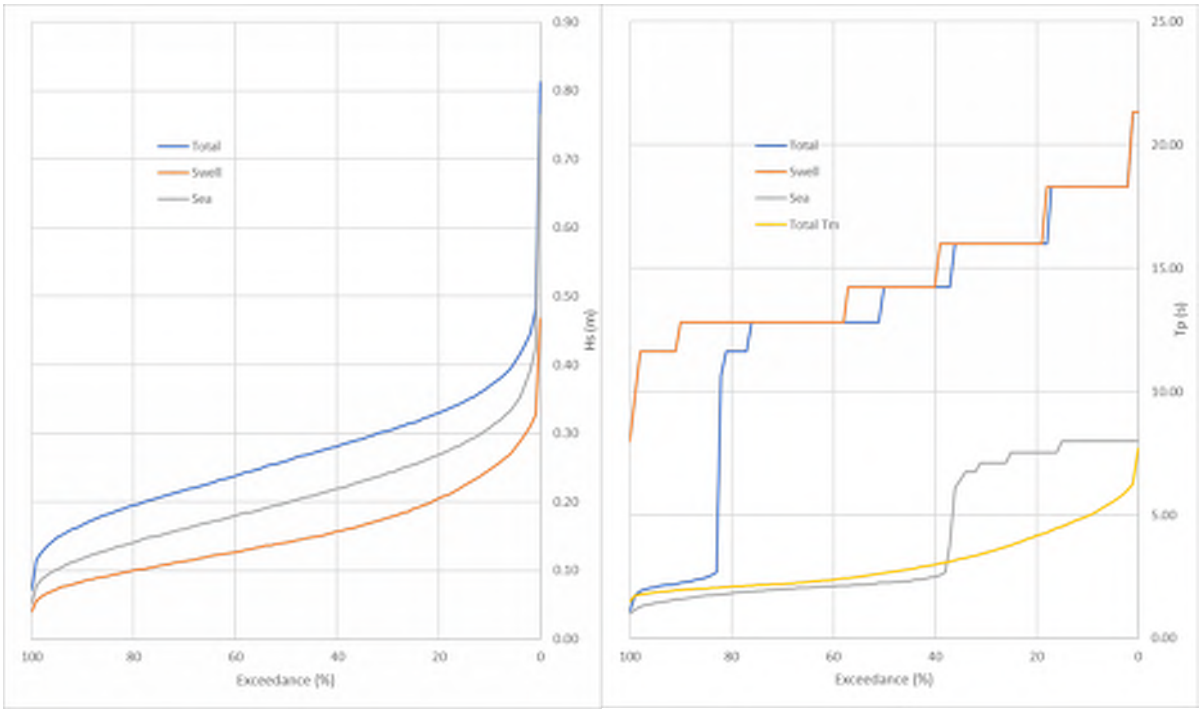

Figure U.7 2020 Nearshore Hs and Tp Exceedance Curves

Appendix V AWAC Wave Key Events

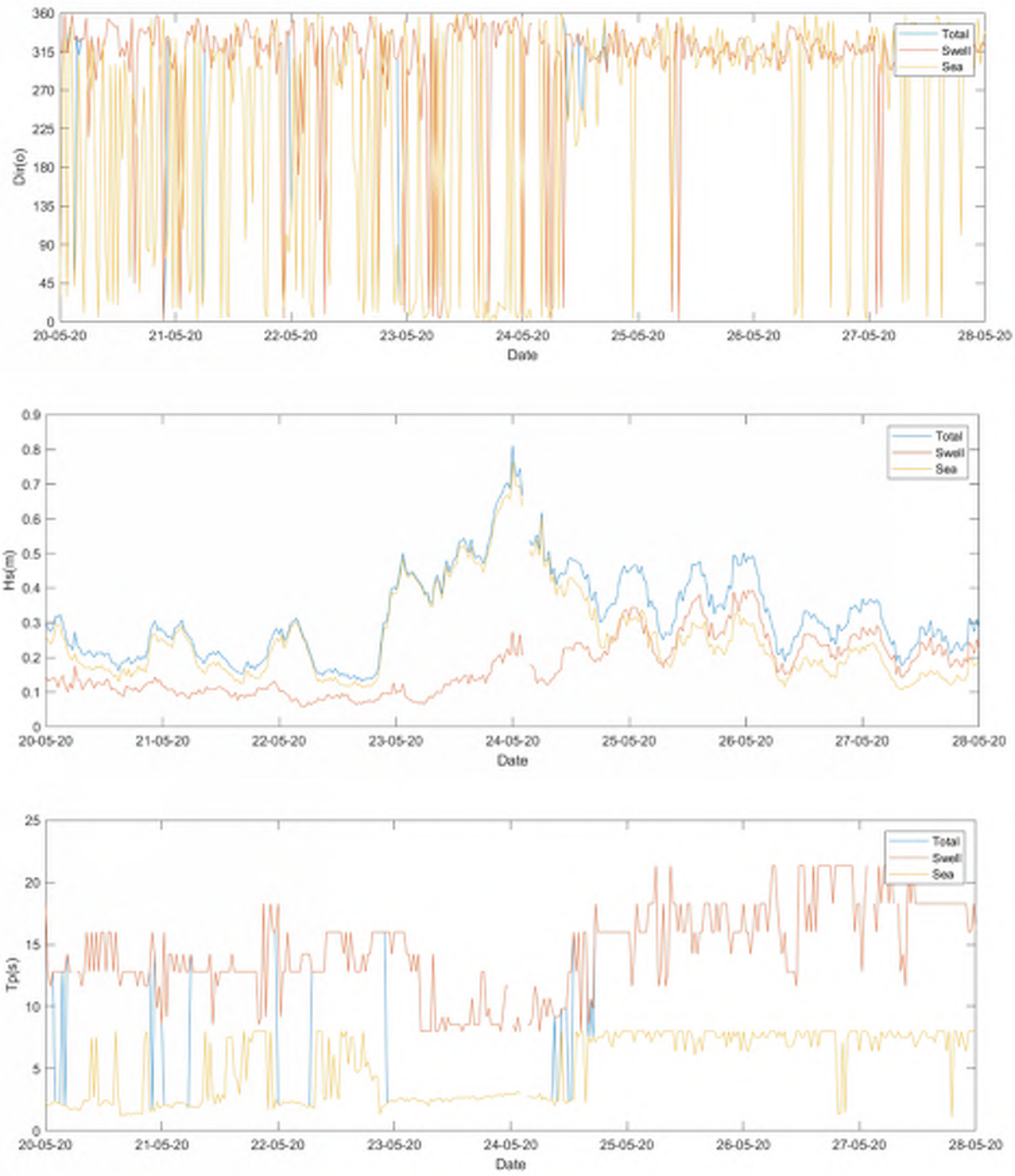

Figure V.1 Event 1 – Nearshore AWAC Wave Direction, Hs & Tp

Figure V.2 Event 2 – Nearshore AWAC Wave Direction, Hs & Tp

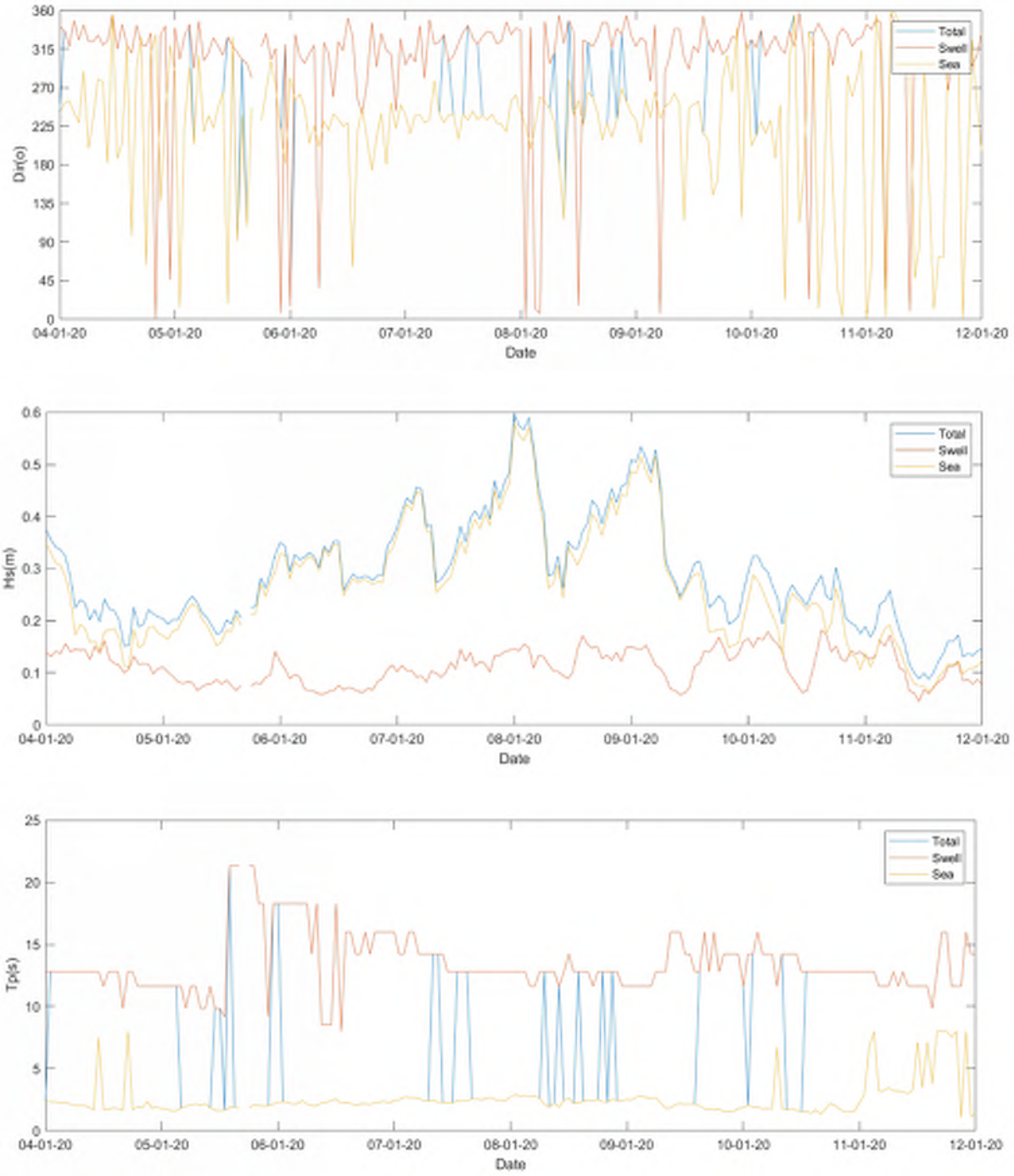

Figure V.3 Event 3 – Nearshore AWAC Wave Direction, Hs & Tp

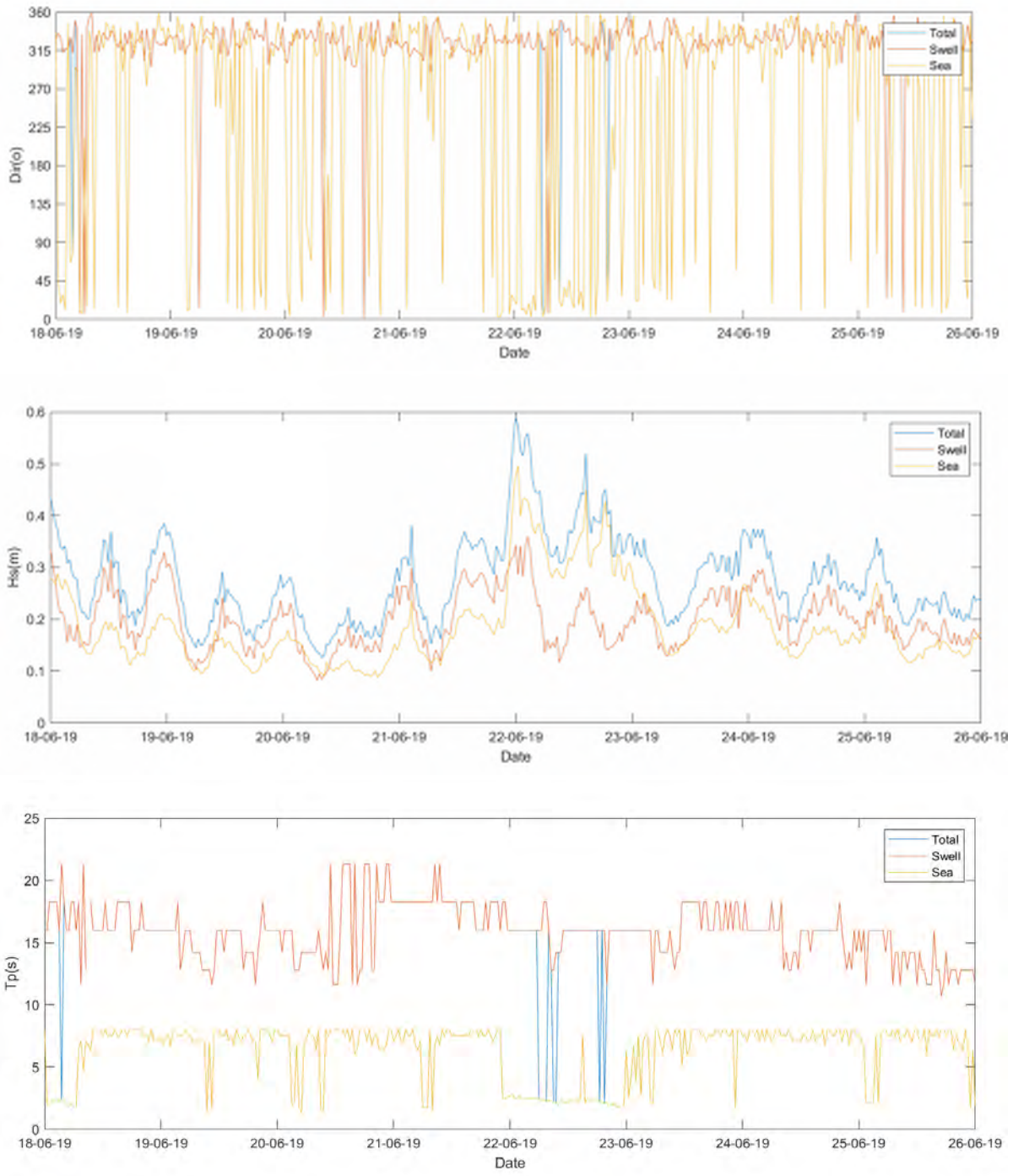

Figure V.4 Event 4 – Nearshore AWAC Wave Direction, Hs & Tp

Figure V.5 Event 5 – Nearshore AWAC Wave Direction, Hs & Tp

Figure V.6 Event 6 – Nearshore AWAC Wave Direction, Hs & Tp

Figure V.7 Event 7 – Nearshore AWAC Wave Direction, Hs & Tp

Figure V.8 Event 8 – Nearshore AWAC Wave Direction, Hs & Tp

Figure V.9 Event 9 – Nearshore AWAC Wave Direction, Hs & Tp

Figure V.10 Event 10 – Nearshore AWAC Wave Direction, Hs & Tp

Appendix W AWAC Currents Joint Frequency Tables

OVERALL JFTS

Current Velocity (m/s)

Surface

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.1	0.38	0.51	0.50	0.38	0.30	0.20	0.19	0.20	0.17	0.19	0.13	0.12	0.16	0.22	0.22	0.24	4.12	4.12
0.1	0.2	1.15	2.24	2.00	0.89	0.50	0.29	0.23	0.33	0.29	0.26	0.23	0.21	0.32	0.45	0.55	0.74	10.69	14.80
0.2	0.3	1.96	4.70	3.57	0.99	0.34	0.13	0.09	0.15	0.19	0.28	0.22	0.23	0.32	0.53	0.82	1.12	15.64	30.44
0.3	0.4	2.57	6.63	4.86	0.64	0.15	0.06	0.01	0.05	0.12	0.26	0.17	0.20	0.22	0.26	0.57	1.46	18.24	48.68
0.4	0.5	2.65	8.35	5.42	0.26	0.01	0.00	0.00	0.01	0.04	0.13	0.12	0.12	0.05	0.03	0.11	1.17	18.46	67.14
0.5	0.6	2.27	9.13	4.11	0.08	0.00	0.00	0.00	0.00	0.00	0.05	0.05	0.02	0.00	0.00	0.00	0.37	16.10	83.24
0.6	0.7	1.06	6.98	2.22	0.03	0.00	0.00	0.00	0.00	0.00	0.02	0.01	0.00	0.00	0.00	0.00	0.05	10.37	93.60
0.7	0.8	0.38	3.49	0.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.68	98.28
0.8	0.9	0.09	1.03	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.33	99.61
0.9	1	0.02	0.29	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.34	99.95
1	1.1	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	100.00
1.1	1.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		12.54	43.41	23.72	3.26	1.30	0.68	0.52	0.74	0.81	1.19	0.95	0.90	1.09	1.49	2.26	5.15		
Cumulative Total		12.54	55.95	79.67	82.93	84.23	84.91	85.43	86.17	86.99	88.18	89.12	90.03	91.11	92.60	94.85	100.00		

Depth Averaged

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.1	1.13	2.23	2.26	1.26	0.61	0.44	0.39	0.53	0.59	0.62	0.58	0.43	0.33	0.35	0.33	0.56	12.66	12.66
0.1	0.2	1.93	10.82	7.12	0.42	0.02	0.01	0.01	0.09	0.28	0.50	0.37	0.08	0.03	0.01	0.01	0.17	21.87	34.53
0.2	0.3	0.97	20.17	6.55	0.00	0.00	0.00	0.00	0.00	0.01	0.18	0.12	0.00	0.00	0.00	0.00	0.00	28.01	62.54
0.3	0.4	0.47	17.85	3.16	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	21.49	84.03
0.4	0.5	0.28	9.28	1.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.67	94.71
0.5	0.6	0.20	3.46	0.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.05	98.75
0.6	0.7	0.06	0.94	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.09	99.84
0.7	0.8	0.01	0.13	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.15	99.99
0.8	0.9	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	100.00
0.9	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
1	1.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
1.1	1.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		5.04	64.89	20.69	1.68	0.62	0.44	0.41	0.62	0.88	1.32	1.08	0.52	0.36	0.36	0.35	0.74		
Cumulative Total		5.04	69.94	90.63	92.31	92.93	93.38	93.78	94.40	95.29	96.60	97.68	98.20	98.56	98.91	99.26	100.00		

Bottom

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.1	1.97	3.23	2.97	1.95	1.10	0.74	0.65	0.69	0.90	0.76	0.55	0.41	0.39	0.39	0.47	0.97	18.15	18.15
0.1	0.2	3.37	13.00	8.84	1.61	0.24	0.05	0.07	0.18	0.46	0.57	0.21	0.06	0.03	0.02	0.04	0.37	29.10	47.25
0.2	0.3	1.71	17.59	7.80	0.21	0.00	0.00	0.00	0.00	0.05	0.07	0.02	0.00	0.00	0.00	0.00	0.02	27.48	74.73
0.3	0.4	0.76	12.19	3.56	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	16.53	91.26
0.4	0.5	0.36	5.12	1.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.60	97.86
0.5	0.6	0.11	1.41	0.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.82	99.68
0.6	0.7	0.02	0.23	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.29	99.98
0.7	0.8	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	100.00
0.8	0.9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.9	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
1	1.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
1.1	1.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		8.30	52.78	24.63	3.79	1.34	0.79	0.73	0.87	1.42	1.41	0.78	0.47	0.42	0.40	0.51	1.36		
Cumulative Total		8.30	61.09	85.72	89.51	90.85	91.64	92.37	93.24	94.66	96.07	96.85	97.31	97.73	98.13	98.64	100.00		

ANNUAL JFTS

2019 - Current Velocity (m/s)

Surface

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.1	0.39	0.47	0.41	0.32	0.29	0.17	0.21	0.15	0.13	0.12	0.13	0.07	0.14	0.20	0.19	0.26	3.62	3.62
0.1	0.2	1.54	2.42	1.58	0.68	0.48	0.34	0.29	0.33	0.28	0.19	0.16	0.23	0.31	0.46	0.56	0.75	10.61	14.23
0.2	0.3	2.54	5.20	2.20	0.60	0.32	0.16	0.13	0.23	0.17	0.18	0.20	0.27	0.38	0.57	0.80	1.22	15.17	29.40
0.3	0.4	3.34	7.06	2.81	0.39	0.12	0.03	0.01	0.09	0.14	0.25	0.17	0.26	0.29	0.24	0.60	1.58	17.38	46.78
0.4	0.5	3.40	8.76	3.57	0.14	0.01	0.00	0.00	0.01	0.07	0.10	0.14	0.11	0.05	0.05	0.11	1.50	18.02	64.80
0.5	0.6	2.98	10.14	3.07	0.03	0.00	0.00	0.00	0.00	0.00	0.05	0.03	0.02	0.00	0.00	0.01	0.53	16.87	81.67
0.6	0.7	1.53	7.89	1.72	0.01	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.07	11.26	92.92
0.7	0.8	0.62	4.02	0.54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.17	98.10
0.8	0.9	0.18	1.23	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.52	99.61
0.9	1	0.04	0.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.36	99.97
1	1.1	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	100.00
1.1	1.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		16.56	47.53	16.00	2.18	1.23	0.71	0.65	0.81	0.79	0.90	0.85	0.96	1.17	1.51	2.26	5.90		
Cumulative Total		16.56	64.09	80.08	82.27	83.49	84.20	84.85	85.66	86.45	87.35	88.20	89.16	90.33	91.83	94.10	100.00		

Depth Averaged

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.1	1.33	2.30	1.85	1.00	0.57	0.49	0.41	0.57	0.65	0.56	0.63	0.55	0.43	0.48	0.39	0.70	12.89	12.89
0.1	0.2	2.77	10.85	4.52	0.28	0.01	0.01	0.03	0.15	0.37	0.47	0.43	0.11	0.03	0.01	0.03	0.23	20.29	33.17
0.2	0.3	1.70	20.87	5.06	0.00	0.00	0.00	0.00	0.01	0.02	0.20	0.08	0.00	0.00	0.00	0.00	0.00	27.94	61.12
0.3	0.4	0.90	19.00	2.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	22.40	83.51
0.4	0.5	0.58	9.88	0.54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.00	94.52
0.5	0.6	0.41	3.78	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.36	98.88
0.6	0.7	0.13	0.89	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.03	99.91
0.7	0.8	0.02	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	100.00
0.8	0.9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.9	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
1	1.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
1.1	1.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		7.82	67.64	14.66	1.28	0.57	0.50	0.43	0.72	1.04	1.23	1.14	0.66	0.46	0.49	0.42	0.94		
Cumulative Total		7.82	75.46	90.12	91.40	91.97	92.47	92.90	93.62	94.67	95.90	97.03	97.69	98.15	98.64	99.06	100.00		

Bottom

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.1	1.94	2.93	2.59	1.59	0.92	0.64	0.62	0.66	0.98	0.88	0.58	0.47	0.43	0.41	0.48	0.94	17.03	17.03
0.1	0.2	3.90	12.79	7.98	1.37	0.23	0.05	0.10	0.22	0.57	0.62	0.22	0.06	0.03	0.02	0.05	0.44	28.65	45.69
0.2	0.3	2.44	18.67	7.06	0.15	0.00	0.00	0.00	0.01	0.07	0.08	0.02	0.00	0.00	0.00	0.00	0.03	28.53	74.22
0.3	0.4	1.32	12.80	2.88	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	17.02	91.24
0.4	0.5	0.73	5.31	0.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.78	98.02
0.5	0.6	0.22	1.32	0.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.74	99.76
0.6	0.7	0.05	0.18	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23	99.99
0.7	0.8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	100.00
0.8	0.9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.9	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
1	1.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
1.1	1.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		10.60	54.01	21.45	3.13	1.15	0.68	0.72	0.89	1.62	1.58	0.82	0.52	0.46	0.43	0.53	1.41		
Cumulative Total		10.60	64.60	86.05	89.18	90.33	91.01	91.73	92.63	94.25	95.83	96.65	97.17	97.64	98.06	98.59	100.00		

2020 - Current Velocity (m/s)

Surface

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.1	0.38	0.55	0.59	0.43	0.32	0.23	0.17	0.25	0.21	0.25	0.13	0.18	0.19	0.23	0.25	0.22	4.58	4.58
0.1	0.2	0.79	2.08	2.40	1.08	0.51	0.24	0.18	0.33	0.30	0.31	0.29	0.19	0.33	0.45	0.53	0.73	10.76	15.33
0.2	0.3	1.41	4.24	4.85	1.36	0.35	0.10	0.05	0.07	0.21	0.38	0.24	0.20	0.27	0.49	0.83	1.02	16.07	31.40
0.3	0.4	1.86	6.23	6.77	0.86	0.18	0.08	0.00	0.02	0.10	0.27	0.18	0.15	0.16	0.28	0.54	1.35	19.04	50.44
0.4	0.5	1.95	7.97	7.13	0.36	0.01	0.00	0.00	0.01	0.02	0.15	0.11	0.13	0.06	0.01	0.11	0.86	18.87	69.31
0.5	0.6	1.61	8.19	5.09	0.13	0.00	0.00	0.00	0.00	0.00	0.06	0.06	0.01	0.00	0.00	0.00	0.23	15.38	84.69
0.6	0.7	0.61	6.14	2.68	0.04	0.00	0.00	0.00	0.00	0.00	0.03	0.02	0.00	0.00	0.00	0.00	0.03	9.54	94.23
0.7	0.8	0.16	3.01	1.05	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.22	98.45
0.8	0.9	0.02	0.84	0.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.16	99.61
0.9	1	0.00	0.28	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.32	99.94
1	1.1	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	99.99
1.1	1.2	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	100.00
Total		8.80	39.59	30.89	4.27	1.37	0.66	0.39	0.68	0.84	1.45	1.04	0.85	1.01	1.47	2.25	4.44		
Cumulative Total		8.80	48.39	79.28	83.55	84.92	85.57	85.97	86.65	87.49	88.94	89.98	90.83	91.84	93.31	95.56	100.00		

Depth Averaged

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.1	0.94	2.17	2.65	1.50	0.65	0.39	0.38	0.50	0.54	0.69	0.55	0.32	0.25	0.23	0.28	0.44	12.46	12.46
0.1	0.2	1.15	10.79	9.55	0.55	0.02	0.00	0.00	0.04	0.19	0.54	0.32	0.06	0.02	0.00	0.00	0.11	23.34	35.80
0.2	0.3	0.30	19.53	7.92	0.00	0.00	0.00	0.00	0.00	0.00	0.17	0.15	0.00	0.00	0.00	0.00	0.00	28.07	63.86
0.3	0.4	0.07	16.78	3.78	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	20.66	84.52
0.4	0.5	0.00	8.72	1.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.37	94.89
0.5	0.6	0.00	3.17	0.58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.75	98.64
0.6	0.7	0.00	0.99	0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.14	99.78
0.7	0.8	0.00	0.18	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.21	99.99
0.8	0.9	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	100.00
0.9	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
1	1.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
1.1	1.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		2.47	62.33	26.31	2.05	0.67	0.39	0.38	0.53	0.73	1.40	1.02	0.39	0.27	0.23	0.28	0.56		
Cumulative Total		2.47	64.80	91.11	93.16	93.83	94.22	94.60	95.13	95.86	97.26	98.28	98.67	98.94	99.17	99.44	100.00		

Bottom

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.1	2.01	3.51	3.32	2.29	1.27	0.84	0.69	0.72	0.83	0.65	0.52	0.35	0.36	0.37	0.45	1.00	19.19	19.19
0.1	0.2	2.87	13.19	9.64	1.82	0.25	0.05	0.05	0.14	0.37	0.52	0.19	0.06	0.02	0.01	0.03	0.31	29.52	48.70
0.2	0.3	1.04	16.59	8.48	0.26	0.00	0.00	0.00	0.00	0.03	0.07	0.03	0.00	0.00	0.00	0.00	0.01	26.51	75.21
0.3	0.4	0.23	11.62	4.20	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	16.07	91.28
0.4	0.5	0.02	4.94	1.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.44	97.72
0.5	0.6	0.00	1.48	0.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.90	99.62
0.6	0.7	0.00	0.28	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.35	99.96
0.7	0.8	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	99.99
0.8	0.9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.9	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
1	1.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
1.1	1.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		6.17	51.65	27.59	4.40	1.53	0.89	0.73	0.86	1.22	1.24	0.74	0.41	0.38	0.38	0.49	1.31		
Cumulative Total		6.17	57.81	85.41	89.81	91.33	92.23	92.96	93.81	95.04	96.28	97.03	97.44	97.81	98.19	98.68	100.00		

SEASONAL JFTS

Summer - Current Velocity (m/s)

Surface

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.1	0.12	0.23	0.27	0.33	0.11	0.16	0.16	0.13	0.12	0.09	0.11	0.11	0.04	0.08	0.13	0.09	2.24	2.24
0.1	0.2	0.32	1.01	1.49	0.81	0.33	0.28	0.14	0.38	0.14	0.13	0.12	0.06	0.06	0.10	0.09	0.13	5.56	7.80
0.2	0.3	0.36	3.51	3.76	0.92	0.14	0.13	0.08	0.07	0.10	0.17	0.07	0.07	0.06	0.06	0.07	0.08	9.64	17.43
0.3	0.4	0.21	6.76	7.95	0.69	0.14	0.04	0.00	0.05	0.05	0.10	0.11	0.07	0.01	0.01	0.02	0.08	16.28	33.71
0.4	0.5	0.20	11.50	10.12	0.24	0.00	0.00	0.00	0.02	0.02	0.09	0.04	0.06	0.00	0.00	0.01	0.07	22.36	56.07
0.5	0.6	0.20	13.71	8.61	0.07	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.03	22.63	78.70
0.6	0.7	0.11	10.41	4.09	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	14.63	93.33
0.7	0.8	0.08	4.75	0.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.80	99.12
0.8	0.9	0.00	0.75	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.83	99.95
0.9	1	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	100.00
1	1.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
1.1	1.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		1.59	52.69	37.33	3.07	0.72	0.62	0.38	0.63	0.42	0.58	0.43	0.36	0.16	0.24	0.31	0.47		
Cumulative Total		1.59	54.27	91.60	94.67	95.39	96.01	96.39	97.03	97.45	98.03	98.46	98.82	98.98	99.22	99.53	100.00		

Depth Averaged

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.1	0.28	1.12	2.09	1.49	0.69	0.68	0.61	0.69	0.63	0.23	0.23	0.08	0.05	0.05	0.07	0.08	9.06	9.06
0.1	0.2	0.22	8.83	10.29	0.63	0.04	0.00	0.00	0.13	0.37	0.30	0.11	0.00	0.01	0.00	0.00	0.01	20.93	29.98
0.2	0.3	0.04	21.66	11.18	0.00	0.00	0.00	0.00	0.00	0.01	0.08	0.02	0.00	0.00	0.00	0.00	0.00	32.98	62.97
0.3	0.4	0.03	20.85	4.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	25.43	88.39
0.4	0.5	0.00	9.13	0.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.82	98.21
0.5	0.6	0.00	1.72	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.75	99.96
0.6	0.7	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	100.00
0.7	0.8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.8	0.9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.9	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
1	1.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
1.1	1.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.57	63.33	28.83	2.13	0.73	0.68	0.61	0.82	1.01	0.61	0.36	0.08	0.06	0.05	0.07	0.09		
Cumulative Total		0.57	63.90	92.73	94.86	95.59	96.27	96.87	97.69	98.70	99.31	99.66	99.74	99.80	99.85	99.91	100.00		

Bottom

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.1	1.42	2.96	3.13	2.38	1.59	0.87	0.71	0.82	0.95	0.63	0.36	0.27	0.20	0.19	0.29	0.63	17.38	17.38
0.1	0.2	2.72	14.22	11.51	2.17	0.38	0.07	0.07	0.27	0.45	0.44	0.10	0.00	0.01	0.00	0.00	0.20	32.61	49.99
0.2	0.3	1.25	19.90	9.86	0.20	0.00	0.00	0.00	0.00	0.03	0.00	0.01	0.00	0.00	0.00	0.00	0.00	31.24	81.23
0.3	0.4	0.26	11.99	2.88	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	15.14	96.37
0.4	0.5	0.01	2.85	0.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.30	99.66
0.5	0.6	0.00	0.31	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.33	99.99
0.6	0.7	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	100.00
0.7	0.8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.8	0.9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.9	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
1	1.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
1.1	1.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		5.66	52.24	27.84	4.75	1.96	0.93	0.78	1.09	1.43	1.07	0.46	0.27	0.21	0.19	0.29	0.83		
Cumulative Total		5.66	57.90	85.74	90.49	92.45	93.38	94.16	95.25	96.68	97.75	98.21	98.48	98.69	98.88	99.17	100.00		

Autumn - Current Velocity (m/s)

Surface

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.1	0.54	0.85	0.75	0.47	0.35	0.24	0.23	0.25	0.26	0.22	0.14	0.13	0.17	0.30	0.33	0.30	5.54	5.54
0.1	0.2	1.90	3.69	2.88	1.13	0.61	0.28	0.23	0.32	0.41	0.36	0.24	0.27	0.47	0.62	0.68	0.94	15.02	20.56
0.2	0.3	2.90	6.61	4.45	1.44	0.50	0.17	0.13	0.28	0.32	0.53	0.34	0.28	0.51	0.92	1.19	1.61	22.20	42.76
0.3	0.4	3.21	7.15	5.19	0.82	0.23	0.10	0.02	0.04	0.18	0.49	0.30	0.29	0.42	0.50	0.86	2.19	21.99	64.76
0.4	0.5	2.55	7.02	4.33	0.16	0.01	0.01	0.00	0.00	0.04	0.22	0.23	0.18	0.08	0.06	0.16	1.51	16.57	81.33
0.5	0.6	1.82	5.97	2.51	0.01	0.00	0.00	0.00	0.00	0.00	0.15	0.13	0.01	0.00	0.00	0.01	0.48	11.10	92.43
0.6	0.7	0.72	3.52	0.84	0.00	0.00	0.00	0.00	0.00	0.01	0.06	0.03	0.00	0.00	0.00	0.00	0.02	5.19	97.61
0.7	0.8	0.13	1.47	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.84	99.46
0.8	0.9	0.02	0.35	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.40	99.85
0.9	1	0.00	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11	99.97
1	1.1	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	99.99
1.1	1.2	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	100.00
Total		13.79	36.77	21.22	4.05	1.70	0.80	0.61	0.89	1.23	2.02	1.41	1.17	1.66	2.41	3.23	7.06		
Cumulative Total		13.79	50.56	71.78	75.83	77.52	78.33	78.94	79.82	81.05	83.07	84.48	85.65	87.31	89.72	92.94	100.00		

Depth Averaged

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.1	1.94	4.17	3.79	1.98	0.78	0.46	0.42	0.56	0.83	1.03	1.21	0.84	0.55	0.63	0.58	0.97	20.73	20.73
0.1	0.2	2.82	16.24	8.99	0.51	0.02	0.00	0.00	0.01	0.22	0.84	0.68	0.15	0.06	0.01	0.01	0.21	30.75	51.49
0.2	0.3	1.10	20.44	4.87	0.00	0.00	0.00	0.00	0.00	0.03	0.34	0.13	0.00	0.00	0.00	0.00	0.00	26.91	78.40
0.3	0.4	0.30	12.94	1.56	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	14.84	93.24
0.4	0.5	0.04	4.72	0.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.16	98.40
0.5	0.6	0.00	1.05	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.14	99.54
0.6	0.7	0.00	0.30	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.34	99.88
0.7	0.8	0.00	0.11	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11	99.99
0.8	0.9	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	100.00
0.9	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
1	1.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
1.1	1.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		6.21	59.99	19.74	2.50	0.80	0.46	0.42	0.56	1.07	2.22	2.03	0.99	0.61	0.64	0.59	1.18		
Cumulative Total		6.21	66.19	85.93	88.43	89.23	89.69	90.11	90.68	91.75	93.96	96.00	96.99	97.59	98.23	98.82	100.00		

Bottom

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.1	3.48	5.37	4.87	2.84	1.58	1.11	1.02	1.00	1.31	1.13	0.89	0.69	0.66	0.72	0.83	1.67	29.19	29.19
0.1	0.2	4.53	15.65	9.97	1.66	0.25	0.08	0.05	0.14	0.54	0.73	0.32	0.11	0.04	0.03	0.05	0.63	34.77	63.96
0.2	0.3	1.63	14.71	5.75	0.17	0.00	0.00	0.00	0.00	0.05	0.14	0.04	0.00	0.00	0.00	0.00	0.02	22.51	86.47
0.3	0.4	0.41	7.80	1.91	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.14	96.61
0.4	0.5	0.04	2.12	0.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.65	99.26
0.5	0.6	0.00	0.49	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.61	99.87
0.6	0.7	0.00	0.09	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11	99.99
0.7	0.8	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	99.99
0.8	0.9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	99.99
0.9	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	99.99
1	1.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	99.99
1.1	1.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	99.99
Total		10.09	46.24	23.13	4.69	1.84	1.19	1.07	1.14	1.91	2.00	1.24	0.80	0.70	0.75	0.88	2.32	99.99	
Cumulative Total		10.09	56.33	79.46	84.15	85.99	87.18	88.25	89.39	91.30	93.30	94.54	95.35	96.05	96.80	97.68	99.99		

SEASONAL JFTS

Winter - Current Velocity (m/s)

Surface

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.1	0.57	0.65	0.72	0.49	0.52	0.28	0.23	0.31	0.24	0.35	0.22	0.22	0.35	0.35	0.32	0.39	6.21	6.21
0.1	0.2	1.54	2.63	2.43	1.10	0.65	0.35	0.38	0.45	0.42	0.37	0.41	0.38	0.53	0.79	1.06	1.46	14.95	21.17
0.2	0.3	2.91	5.34	3.76	1.02	0.41	0.15	0.07	0.12	0.20	0.29	0.33	0.40	0.52	0.75	1.41	1.94	19.61	40.78
0.3	0.4	4.07	6.38	3.19	0.54	0.17	0.09	0.00	0.02	0.09	0.26	0.21	0.30	0.27	0.26	0.86	2.41	19.11	59.89
0.4	0.5	4.67	5.87	2.66	0.31	0.02	0.00	0.00	0.00	0.02	0.10	0.11	0.14	0.05	0.02	0.12	1.84	15.92	75.81
0.5	0.6	3.96	5.66	1.74	0.08	0.00	0.00	0.00	0.00	0.00	0.02	0.06	0.04	0.00	0.00	0.01	0.46	12.02	87.83
0.6	0.7	1.55	4.26	1.15	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.06	7.08	94.91
0.7	0.8	0.37	2.50	0.62	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.50	98.41
0.8	0.9	0.06	0.91	0.21	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.19	99.60
0.9	1	0.00	0.28	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.35	99.95
1	1.1	0.00	0.05	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	100.00
1.1	1.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		19.71	34.53	16.55	3.60	1.77	0.87	0.68	0.91	0.96	1.38	1.36	1.49	1.72	2.16	3.77	8.55		
Cumulative Total		19.71	54.23	70.78	74.38	76.15	77.02	77.70	78.61	79.57	80.96	82.31	83.80	85.52	87.68	91.45	100.00		

Depth Averaged

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.1	1.44	1.99	1.63	0.82	0.45	0.29	0.25	0.36	0.54	0.73	0.52	0.48	0.41	0.47	0.45	0.78	11.59	11.59
0.1	0.2	2.64	9.56	5.42	0.32	0.01	0.00	0.01	0.02	0.14	0.43	0.35	0.08	0.03	0.01	0.03	0.30	19.35	30.94
0.2	0.3	0.99	19.66	6.27	0.01	0.00	0.00	0.00	0.00	0.01	0.19	0.12	0.00	0.00	0.00	0.00	0.00	27.25	58.19
0.3	0.4	0.29	18.14	3.82	0.01	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.01	22.28	80.47
0.4	0.5	0.03	10.32	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.34	92.80
0.5	0.6	0.01	4.42	0.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.32	98.13
0.6	0.7	0.00	1.45	0.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.67	99.80
0.7	0.8	0.00	0.16	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.20	99.99
0.8	0.9	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	100.00
0.9	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
1	1.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
1.1	1.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		5.40	65.70	20.29	1.15	0.46	0.29	0.26	0.39	0.69	1.36	0.99	0.56	0.44	0.47	0.49	1.09		
Cumulative Total		5.40	71.09	91.38	92.53	92.99	93.28	93.54	93.92	94.61	95.97	96.96	97.51	97.95	98.42	98.91	100.00		

Bottom

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.1	1.47	2.36	1.96	1.33	0.80	0.54	0.49	0.39	0.69	0.68	0.51	0.36	0.38	0.33	0.40	0.77	13.46	13.46
0.1	0.2	2.67	10.61	8.05	1.49	0.15	0.02	0.06	0.06	0.29	0.53	0.19	0.06	0.03	0.02	0.07	0.33	24.63	38.09
0.2	0.3	1.06	17.50	9.60	0.33	0.00	0.00	0.00	0.00	0.02	0.07	0.02	0.00	0.00	0.00	0.00	0.01	28.62	66.71
0.3	0.4	0.35	14.05	6.02	0.05	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	20.47	87.19
0.4	0.5	0.05	7.05	2.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.43	96.61
0.5	0.6	0.02	2.16	0.74	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.93	99.54
0.6	0.7	0.00	0.33	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.43	99.97
0.7	0.8	0.00	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	99.99
0.8	0.9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01	100.00
0.9	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
1	1.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
1.1	1.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		5.62	54.07	28.81	3.19	0.95	0.57	0.56	0.45	1.00	1.29	0.72	0.41	0.41	0.35	0.47	1.11		
Cumulative Total		5.62	59.69	88.50	91.70	92.65	93.22	93.77	94.23	95.23	96.53	97.24	97.66	98.07	98.42	98.89	100.00		

Spring - Current Velocity (m/s)

Surface

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.1	0.19	0.20	0.17	0.18	0.15	0.09	0.12	0.08	0.03	0.04	0.04	0.02	0.03	0.08	0.06	0.11	1.56	1.56
0.1	0.2	0.52	1.18	0.97	0.47	0.33	0.24	0.13	0.19	0.12	0.10	0.09	0.06	0.10	0.15	0.13	0.15	4.90	6.47
0.2	0.3	0.99	2.86	2.35	0.56	0.21	0.06	0.08	0.09	0.11	0.10	0.09	0.09	0.08	0.19	0.27	0.38	8.51	14.98
0.3	0.4	1.81	6.31	4.37	0.51	0.04	0.00	0.01	0.12	0.14	0.14	0.05	0.09	0.12	0.19	0.30	0.58	14.77	29.75
0.4	0.5	2.09	10.38	6.50	0.30	0.01	0.00	0.01	0.01	0.09	0.10	0.07	0.07	0.07	0.02	0.11	0.79	20.62	50.37
0.5	0.6	2.20	13.18	5.42	0.16	0.01	0.00	0.00	0.00	0.01	0.03	0.00	0.01	0.00	0.00	0.00	0.39	21.41	71.78
0.6	0.7	1.47	11.27	3.57	0.04	0.00	0.00	0.00	0.00	0.00	0.03	0.01	0.01	0.00	0.00	0.00	0.09	16.48	88.26
0.7	0.8	0.85	5.83	1.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.13	96.39
0.8	0.9	0.27	2.04	0.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.77	99.15
0.9	1	0.08	0.65	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.75	99.90
1	1.1	0.01	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	100.00
1.1	1.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		10.47	53.98	25.27	2.22	0.75	0.39	0.33	0.48	0.49	0.54	0.35	0.35	0.40	0.62	0.87	2.48		
Cumulative Total		10.47	64.45	89.72	91.95	92.69	93.09	93.42	93.90	94.39	94.92	95.27	95.62	96.02	96.65	97.52	100.00		

Depth Averaged

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.1	0.51	1.30	1.56	0.87	0.56	0.41	0.38	0.58	0.38	0.35	0.26	0.22	0.22	0.14	0.13	0.23	8.11	8.11
0.1	0.2	1.36	8.09	5.06	0.28	0.00	0.02	0.04	0.22	0.44	0.39	0.27	0.08	0.01	0.01	0.00	0.10	16.36	24.48
0.2	0.3	1.45	19.49	5.46	0.00	0.00	0.00	0.00	0.01	0.01	0.09	0.15	0.00	0.00	0.00	0.00	0.00	26.66	51.14
0.3	0.4	1.14	20.49	3.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24.72	75.86
0.4	0.5	1.00	12.82	1.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	14.94	90.79
0.5	0.6	0.74	5.97	0.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.07	97.86
0.6	0.7	0.23	1.61	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.89	99.75
0.7	0.8	0.03	0.20	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.24	99.99
0.8	0.9	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	100.00
0.9	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
1	1.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
1.1	1.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		6.45	69.98	16.70	1.15	0.56	0.43	0.42	0.82	0.83	0.83	0.69	0.29	0.22	0.15	0.13	0.33		
Cumulative Total		6.45	76.43	93.14	94.29	94.85	95.28	95.70	96.52	97.36	98.19	98.87	99.17	99.39	99.54	99.67	100.00		

Bottom

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.1	1.39	2.25	2.09	1.46	0.62	0.51	0.43	0.63	0.70	0.56	0.38	0.27	0.26	0.24	0.29	0.72	12.80	12.80
0.1	0.2	3.41	12.20	6.81	1.31	0.24	0.04	0.10	0.29	0.58	0.54	0.19	0.04	0.01	0.01	0.03	0.26	26.08	38.88
0.2	0.3	2.84	19.07	6.45	0.12	0.01	0.00	0.00	0.01	0.10	0.06	0.02	0.00	0.00	0.00	0.00	0.04	28.72	67.60
0.3	0.4	1.89	14.64	2.92	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	19.46	87.06
0.4	0.5	1.26	7.50	0.85	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	9.61	96.67
0.5	0.6	0.40	2.20	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.78	99.45
0.6	0.7	0.08	0.42	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.51	99.96
0.7	0.8	0.01	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	100.00
0.8	0.9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.9	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
1	1.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
1.1	1.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		11.27	58.31	19.31	2.89	0.88	0.55	0.53	0.94	1.38	1.16	0.60	0.31	0.27	0.26	0.31	1.03		
Cumulative Total		11.27	69.58	88.89	91.79	92.66	93.21	93.74	94.69	96.06	97.22	97.82	98.13	98.40	98.66	98.97	100.00		

Appendix X Aquadopp Currents Joint Frequency Tables

OVERALL JFTS

Current Velocity (m/s)

0.5 m

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.05	4.21	4.53	4.45	4.33	4.00	2.66	1.88	1.69	1.67	1.31	1.10	1.32	1.72	1.86	2.16	3.02	41.90	41.90
0.05	0.1	5.09	7.29	8.60	6.92	4.38	2.08	1.17	0.67	0.50	0.44	0.42	0.40	0.61	0.83	1.54	2.76	43.71	85.60
0.1	0.15	1.30	2.53	3.38	2.46	1.18	0.38	0.14	0.05	0.03	0.03	0.04	0.03	0.04	0.09	0.22	0.57	12.48	98.08
0.15	0.2	0.20	0.30	0.41	0.33	0.18	0.06	0.02	0.01	0.00	0.01	0.00	0.00	0.01	0.01	0.03	0.10	1.67	99.75
0.2	0.25	0.03	0.02	0.03	0.02	0.02	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.17	99.93
0.25	0.3	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.04	99.96
0.3	0.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	99.98
0.35	0.4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	99.98
0.4	0.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	99.99
0.45	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	99.99
0.5	0.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.55	0.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>0.6		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		10.84	14.68	16.88	14.05	9.76	5.19	3.23	2.44	2.20	1.79	1.55	1.76	2.39	2.79	3.95	6.49		
Cumulative Total		10.84	25.52	42.40	56.46	66.22	71.41	74.63	77.07	79.28	81.07	82.62	84.38	86.77	89.55	93.51	100.00		

0.7 m

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.05	4.26	4.37	4.28	4.27	4.08	2.41	1.61	1.40	1.50	1.13	1.06	1.16	1.57	1.46	1.71	2.50	38.76	38.76
0.05	0.1	4.73	7.52	9.57	8.25	4.62	1.72	0.80	0.46	0.42	0.41	0.36	0.32	0.44	0.53	1.04	2.02	43.22	81.98
0.1	0.15	1.27	3.00	4.65	3.63	1.40	0.32	0.06	0.01	0.01	0.03	0.03	0.02	0.02	0.04	0.10	0.40	14.99	96.97
0.15	0.2	0.22	0.44	0.81	0.72	0.29	0.07	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.01	0.07	2.66	99.63
0.2	0.25	0.04	0.03	0.09	0.09	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.32	99.95
0.25	0.3	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.04	99.99
0.3	0.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	99.99
0.35	0.4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.4	0.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.45	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.5	0.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.55	0.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>0.6		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		10.52	15.37	19.40	16.96	10.44	4.53	2.48	1.88	1.93	1.58	1.46	1.51	2.04	2.03	2.87	5.02		
Cumulative Total		10.52	25.88	45.29	62.25	72.69	77.22	79.70	81.58	83.51	85.09	86.54	88.05	90.09	92.11	94.98	100.00		

0.9 m

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.05	3.59	3.93	4.09	3.99	3.55	2.11	1.43	1.27	1.29	1.07	0.89	0.95	1.30	1.09	1.34	2.06	33.97	33.97
0.05	0.1	3.99	7.34	10.39	8.73	4.79	1.53	0.67	0.41	0.40	0.43	0.40	0.32	0.30	0.41	0.72	1.50	42.33	76.30
0.1	0.15	1.16	3.54	6.45	5.10	1.62	0.31	0.05	0.01	0.03	0.03	0.03	0.02	0.02	0.03	0.07	0.31	18.78	95.08
0.15	0.2	0.20	0.70	1.50	1.30	0.34	0.05	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.01	0.01	0.05	4.17	99.25
0.2	0.25	0.03	0.10	0.22	0.22	0.06	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.66	99.91
0.25	0.3	0.01	0.01	0.02	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	99.99
0.3	0.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	100.00
0.35	0.4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.4	0.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.45	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.5	0.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.55	0.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>0.6		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		8.99	15.62	22.66	19.35	10.38	4.02	2.17	1.69	1.72	1.54	1.34	1.30	1.61	1.54	2.15	3.94		
Cumulative Total		8.99	24.61	47.27	66.62	77.00	81.02	83.19	84.87	86.59	88.12	89.46	90.76	92.37	93.91	96.06	100.00		

1.2 m

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.05	2.87	3.38	3.59	3.62	3.18	1.83	1.25	1.12	1.22	0.92	0.88	0.85	1.02	0.97	1.08	1.64	29.42	29.42
0.05	0.1	3.16	7.07	10.73	9.17	4.75	1.53	0.61	0.39	0.43	0.45	0.39	0.30	0.25	0.28	0.51	1.09	41.13	70.55
0.1	0.15	1.07	3.86	7.97	6.48	1.91	0.28	0.05	0.01	0.02	0.04	0.07	0.03	0.01	0.02	0.05	0.20	22.06	92.61
0.15	0.2	0.21	0.94	2.42	1.94	0.44	0.06	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.03	6.07	98.68
0.2	0.25	0.04	0.16	0.38	0.45	0.11	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	1.15	99.83
0.25	0.3	0.01	0.01	0.06	0.05	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	99.98
0.3	0.35	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	100.00
0.35	0.4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.4	0.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.45	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.5	0.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.55	0.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>0.6		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		7.35	15.42	25.15	21.70	10.41	3.71	1.91	1.51	1.67	1.42	1.36	1.19	1.29	1.27	1.64	2.98		
Cumulative Total		7.35	22.77	47.93	69.63	80.04	83.75	85.66	87.18	88.85	90.27	91.63	92.81	94.10	95.37	97.02	100.00		

1.4 m

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.05	2.27	2.91	3.26	3.40	2.95	1.79	1.14	1.04	1.04	0.84	0.70	0.67	0.80	0.74	0.83	1.25	25.63	25.63
0.05	0.1	2.52	6.46	11.08	9.63	4.54	1.37	0.54	0.39	0.46	0.50	0.43	0.26	0.21	0.19	0.27	0.71	39.56	65.19
0.1	0.15	0.81	4.14	9.59	7.83	1.96	0.27	0.04	0.01	0.02	0.04	0.07	0.05	0.01	0.01	0.02	0.10	24.95	90.15
0.15	0.2	0.19	1.09	3.31	2.63	0.53	0.06	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.02	7.84	97.99
0.2	0.25	0.04	0.21	0.64	0.67	0.13	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	1.71	99.70
0.25	0.3	0.01	0.03	0.10	0.09	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.26	99.97
0.3	0.35	0.01	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	100.00
0.35	0.4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.4	0.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.45	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.5	0.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.55	0.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>0.6		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		5.85	14.84	27.98	24.26	10.15	3.48	1.72	1.45	1.52	1.39	1.22	0.99	1.02	0.94	1.12	2.09		
Cumulative Total		5.85	20.69	48.66	72.93	83.07	86.56	88.27	89.72	91.24	92.63	93.85	94.84	95.85	96.79	97.91	100.00		

1.7 m

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.05	1.82	2.31	2.97	2.99	2.66	1.46	1.02	0.91	0.99	0.74	0.64	0.61	0.65	0.57	0.60	0.92	21.87	21.87
0.05	0.1	1.89	5.87	10.79	9.66	4.43	1.26	0.50	0.38	0.47	0.52	0.48	0.28	0.17	0.12	0.19	0.48	37.48	59.35
0.1	0.15	0.65	4.20	11.24	8.93	2.19	0.26	0.05	0.02	0.04	0.07	0.10	0.04	0.02	0.01	0.01	0.07	27.88	87.23
0.15	0.2	0.19	1.27	4.35	3.38	0.58	0.05	0.00	0.00	0.00	0.01	0.02	0.01	0.01	0.00	0.00	0.01	9.88	97.11
0.2	0.25	0.03	0.28	1.02	0.88	0.16	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.01	2.40	99.52
0.25	0.3	0.02	0.05	0.14	0.16	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.42	99.93
0.3	0.35	0.00	0.01	0.02	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	99.99
0.35	0.4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	100.00
0.4	0.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.45	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.5	0.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.55	0.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>0.6		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		4.60	13.98	30.52	26.02	10.06	3.04	1.56	1.32	1.49	1.35	1.25	0.94	0.85	0.70	0.81	1.50		
Cumulative Total		4.60	18.59	49.10	75.12	85.19	88.22	89.79	91.10	92.60	93.95	95.19	96.13	96.98	97.68	98.50	100.00		

OVERALL JFTS

1.9 m

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.05	1.41	1.92	2.27	2.53	2.08	1.23	0.81	0.69	0.79	0.63	0.57	0.48	0.50	0.43	0.43	0.73	17.51	17.51
0.05	0.1	1.59	5.07	9.71	8.53	3.80	1.06	0.48	0.35	0.43	0.46	0.52	0.32	0.20	0.14	0.18	0.42	33.25	50.77
0.1	0.15	0.62	4.18	11.59	8.91	2.03	0.23	0.08	0.08	0.13	0.17	0.18	0.12	0.06	0.04	0.04	0.15	28.60	79.36
0.15	0.2	0.25	1.72	6.03	4.06	0.69	0.05	0.02	0.03	0.06	0.09	0.06	0.03	0.02	0.02	0.04	0.08	13.23	92.60
0.2	0.25	0.14	0.74	2.22	1.21	0.18	0.01	0.00	0.01	0.02	0.04	0.03	0.01	0.01	0.02	0.02	0.05	4.71	97.30
0.25	0.3	0.06	0.37	0.88	0.24	0.03	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.06	1.72	99.02
0.3	0.35	0.03	0.18	0.38	0.05	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.03	0.70	99.72
0.35	0.4	0.01	0.06	0.14	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.25	99.96
0.4	0.45	0.00	0.01	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	100.00
0.45	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.5	0.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.55	0.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>0.6		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		4.10	14.26	33.25	25.54	8.83	2.58	1.40	1.16	1.43	1.39	1.37	0.98	0.80	0.66	0.75	1.51		
Cumulative Total		4.10	18.36	51.60	77.15	85.98	88.56	89.95	91.11	92.54	93.93	95.30	96.28	97.09	97.74	98.49	100.00		

2.1 m

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.05	1.06	1.43	1.75	1.86	1.50	0.88	0.67	0.53	0.58	0.55	0.49	0.46	0.45	0.43	0.44	0.58	13.66	13.66
0.05	0.1	1.47	4.13	7.48	6.54	2.83	0.88	0.43	0.36	0.39	0.45	0.49	0.32	0.24	0.23	0.30	0.45	27.00	40.66
0.1	0.15	0.74	3.95	10.14	7.66	1.70	0.24	0.11	0.12	0.13	0.21	0.22	0.08	0.09	0.07	0.17	0.32	25.94	66.60
0.15	0.2	0.42	2.25	6.81	3.96	0.64	0.07	0.05	0.08	0.10	0.11	0.10	0.07	0.03	0.06	0.13	0.21	15.09	81.69
0.2	0.25	0.27	1.28	3.88	1.47	0.19	0.02	0.04	0.05	0.08	0.10	0.06	0.06	0.05	0.06	0.13	0.18	7.92	89.62
0.25	0.3	0.17	0.84	2.74	0.60	0.06	0.00	0.01	0.02	0.05	0.06	0.04	0.05	0.05	0.03	0.09	0.13	4.95	94.56
0.3	0.35	0.10	0.51	1.98	0.25	0.02	0.00	0.00	0.00	0.01	0.01	0.05	0.04	0.02	0.01	0.06	0.07	3.15	97.71
0.35	0.4	0.04	0.26	1.12	0.12	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	1.61	99.32
0.4	0.45	0.01	0.07	0.46	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.57	99.90
0.45	0.5	0.00	0.01	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	99.98
0.5	0.55	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	100.00
0.55	0.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>0.6		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		4.29	14.74	36.44	22.50	6.94	2.09	1.31	1.17	1.35	1.49	1.45	1.09	0.94	0.90	1.33	1.96		
Cumulative Total		4.29	19.03	55.47	77.97	84.90	87.00	88.31	89.47	90.83	92.32	93.77	94.87	95.81	96.71	98.04	100.00		

2.5 m

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.05	0.91	1.03	1.24	1.21	0.99	0.63	0.44	0.42	0.46	0.40	0.44	0.39	0.39	0.38	0.41	0.54	10.27	10.27
0.05	0.1	1.40	3.12	5.32	4.50	1.96	0.62	0.31	0.30	0.42	0.49	0.49	0.42	0.32	0.29	0.41	0.70	21.08	31.35
0.1	0.15	0.96	3.47	7.82	5.50	1.33	0.26	0.12	0.14	0.21	0.28	0.27	0.19	0.19	0.19	0.34	0.46	21.74	53.09
0.15	0.2	0.67	2.43	6.31	3.41	0.61	0.10	0.09	0.10	0.15	0.15	0.15	0.13	0.11	0.12	0.25	0.46	15.23	68.32
0.2	0.25	0.53	2.05	4.96	1.70	0.23	0.07	0.04	0.05	0.11	0.12	0.10	0.14	0.08	0.11	0.29	0.47	11.06	79.38
0.25	0.3	0.39	1.49	4.23	0.96	0.08	0.01	0.01	0.02	0.07	0.07	0.06	0.09	0.05	0.07	0.25	0.41	8.27	87.64
0.3	0.35	0.25	1.01	3.50	0.61	0.03	0.00	0.00	0.00	0.02	0.05	0.04	0.04	0.02	0.03	0.18	0.23	6.01	93.65
0.35	0.4	0.08	0.61	2.64	0.42	0.01	0.00	0.00	0.00	0.01	0.02	0.02	0.03	0.01	0.01	0.04	0.09	3.97	97.63
0.4	0.45	0.01	0.23	1.30	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.01	0.01	0.02	1.75	99.38
0.45	0.5	0.00	0.04	0.42	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.51	99.89
0.5	0.55	0.00	0.01	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	99.99
0.55	0.6	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	100.00
>0.6		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		5.20	15.48	37.84	18.51	5.24	1.69	1.01	1.02	1.47	1.59	1.59	1.43	1.18	1.20	2.19	3.37		
Cumulative Total		5.20	20.68	58.51	77.02	82.26	83.95	84.96	85.98	87.45	89.04	90.63	92.06	93.24	94.44	96.63	100.00		

2.7 m

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.05	0.59	0.81	0.78	0.77	0.64	0.48	0.30	0.36	0.33	0.32	0.28	0.34	0.35	0.26	0.34	0.46	7.40	7.40
0.05	0.1	1.26	2.24	3.40	2.74	1.32	0.47	0.28	0.33	0.40	0.51	0.51	0.39	0.35	0.47	0.53	0.74	15.92	23.33
0.1	0.15	1.08	3.03	5.74	3.80	1.08	0.31	0.15	0.16	0.30	0.41	0.45	0.39	0.29	0.36	0.55	0.73	18.83	42.16
0.15	0.2	0.84	2.45	5.50	2.73	0.58	0.13	0.09	0.12	0.19	0.28	0.25	0.24	0.25	0.23	0.39	0.67	14.95	57.11
0.2	0.25	0.84	2.34	5.18	1.90	0.23	0.07	0.05	0.06	0.18	0.24	0.20	0.24	0.24	0.23	0.43	0.60	13.04	70.15
0.25	0.3	0.61	1.88	5.19	1.19	0.12	0.03	0.03	0.03	0.08	0.12	0.11	0.22	0.17	0.12	0.32	0.55	10.76	80.91
0.3	0.35	0.44	1.61	4.85	0.90	0.06	0.01	0.01	0.01	0.04	0.07	0.13	0.13	0.12	0.12	0.27	0.37	9.14	90.05
0.35	0.4	0.14	0.88	3.74	0.59	0.02	0.00	0.00	0.00	0.01	0.02	0.05	0.06	0.03	0.05	0.10	0.12	5.81	95.86
0.4	0.45	0.04	0.40	2.11	0.23	0.01	0.00	0.00	0.00	0.00	0.02	0.03	0.02	0.01	0.00	0.03	0.03	2.92	98.79
0.45	0.5	0.02	0.10	0.69	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.00	0.00	0.01	0.92	99.70
0.5	0.55	0.00	0.04	0.16	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.22	99.92
0.55	0.6	0.00	0.01	0.05	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	99.99
>0.6		0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	100.00
Total		5.85	15.78	37.41	14.96	4.04	1.50	0.90	1.08	1.52	1.98	2.01	2.03	1.82	1.84	2.97	4.29		
Cumulative Total		5.85	21.63	59.04	74.00	78.05	79.55	80.46	81.54	83.06	85.04	87.05	89.08	90.90	92.74	95.71	100.00		

3.0 m

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.05	0.40	0.43	0.44	0.44	0.29	0.24	0.18	0.20	0.17	0.21	0.18	0.16	0.24	0.30	0.28	0.35	4.52	4.52
0.05	0.1	0.99	1.32	1.81	1.52	0.87	0.28	0.27	0.19	0.36	0.41	0.37	0.42	0.53	0.43	0.54	0.54	10.85	15.37
0.1	0.15	1.02	2.09	3.22	2.34	0.93	0.32	0.21	0.19	0.37	0.50	0.59	0.55	0.60	0.48	0.61	0.53	14.55	29.92
0.15	0.2	0.95	2.13	4.08	2.27	0.54	0.17	0.16	0.24	0.48	0.49	0.47	0.49	0.36	0.51	0.61	0.75	14.71	44.63
0.2	0.25	1.04	2.44	4.89	1.81	0.36	0.08	0.09	0.11	0.29	0.42	0.29	0.47	0.35	0.36	0.65	0.98	14.64	59.26
0.25	0.3	0.93	2.20	5.39	1.37	0.18	0.04	0.03	0.06	0.18	0.31	0.33	0.40	0.26	0.26	0.55	0.79	13.28	72.55
0.3	0.35	0.62	2.11	6.24	1.14	0.08	0.03	0.00	0.01	0.09	0.16	0.20	0.37	0.24	0.16	0.35	0.56	12.35	84.90
0.35	0.4	0.34	1.43	5.15	0.90	0.05	0.01	0.01	0.00	0.02	0.10	0.17	0.18	0.10	0.06	0.08	0.20	8.79	93.68
0.4	0.45	0.07	0.67	2.90	0.36	0.01	0.00	0.00	0.00	0.01	0.05	0.03	0.07	0.02	0.00	0.02	0.05	4.24	97.93
0.45	0.5	0.04	0.24	1.10	0.21	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.01	0.00	0.00	0.00	0.03	1.64	99.57
0.5	0.55	0.01	0.07	0.26	0.04	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.39	99.95
0.55	0.6	0.01	0.00	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.05	100.00
>0.6		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		6.40	15.15	35.51	12.42	3.31	1.17	0.95	1.00	1.95	2.66	2.63	3.13	2.69	2.56	3.67	4.79		
Cumulative Total		6.40	21.55	57.06	69.48	72.79	73.95	74.90	75.90	77.85	80.52	83.15	86.28	88.97	91.53	95.21	100.00		

3.2 m

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.05	0.25	0.12	0.25	0.16	0.06	0.29	0.06	0.06	0.06	0.12	0.12	0.12	0.23	0.06	0.19	0.14	2.30	2.30
0.05	0.1	0.62	0.78	1.11	0.82	0.66	0.29	0.37	0.10	0.19	0.21	0.19	0.21	0.51	0.47	0.33	0.47	7.32	9.63
0.1	0.15	0.74	1.34	1.54	1.32	0.88	0.33	0.33	0.16	0.25	0.33	0.33	0.47	0.68	0.66	0.60	0.64	10.59	20.22
0.15	0.2	1.05	1.19	2.28	1.71	0.60	0.31	0.23	0.29	0.45	0.60	0.60	0.78	0.90	0.97	0.86	1.19	14.01	34.22
0.2	0.25	1.28	1.75	3.00	2.02	0.58	0.16	0.23	0.27	0.58	0.62	0.68	1.03	1.07	0.95	0.74	1.13	16.06	50.29
0.25	0.3	1.15	2.69	3.99	1.79	0.41	0.06	0.06	0.19	0.49	0.88	0.62	0.82	1.05	0.62	0.58	0.99	16.39	66.68
0.3	0.35	0.62	1.93	6.31	1.25	0.10	0.00	0.02	0.08	0.29	0.53	0.47	1.03	0.78	0.37	0.62	0.53	14.95	81.63
0.35	0.4	0.60	1.46	5.18	0.97	0.08	0.00	0.02	0.06	0.12	0.19	0.43	0.70	0.33	0.21	0.33	0.41	11.09	92.72
0.4	0.45	0.23	0.72	2.51	0.56	0.02	0.00	0.00	0.00	0.02	0.12	0.14	0.31	0.06	0.10	0.08	0.08	4.96	97.68
0.45	0.5	0.08	0.31	1.03	0.29	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.08	0.02	0.02	0.00	0.02	1.95	99.63
0.5	0.55	0.00	0.02	0.16	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.29	99.92
0.55	0.6	0.00	0.02	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	100.00
>0.6		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		6.60	12.34	27.44	10.96	3.39	1.44	1.32	1.21	2.45	3.60	3.68	5.55	5.64	4.42	4.32	5.64		
Cumulative Total		6.60	18.94	46.38	57.34	60.74	62.18	63.49	64.71	67.15	70.75	74.43	79.99	85.62	90.05	94.36	100.00		

OVERALL JFTS

3.5 m

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.05	0.00	0.20	0.40	0.20	0.00	0.00	0.00	0.20	0.40	0.00	0.00	0.00	0.20	0.20	0.00	0.00	1.81	1.81
0.05	0.1	1.00	0.60	0.80	0.40	1.00	0.40	0.00	0.00	0.00	0.00	0.00	0.00	0.40	0.00	0.20	0.80	5.62	7.43
0.1	0.15	1.81	1.41	1.41	1.41	1.20	2.01	0.20	0.20	0.40	0.20	0.40	0.00	0.60	1.00	1.20	1.41	14.86	22.29
0.15	0.2	1.20	0.80	2.81	2.61	1.00	0.80	0.40	0.20	0.00	0.20	0.40	0.40	0.40	1.61	1.00	1.61	15.46	37.75
0.2	0.25	1.20	0.00	1.20	1.20	0.60	0.40	0.60	0.40	0.00	0.20	0.40	0.20	0.80	1.00	1.00	1.81	11.04	48.80
0.25	0.3	1.61	1.61	1.20	1.41	0.40	0.20	0.40	0.20	0.80	1.41	0.00	0.00	1.81	0.60	1.00	2.81	15.46	64.26
0.3	0.35	0.40	1.61	3.41	1.81	0.00	0.20	0.00	0.00	0.60	1.00	0.60	0.80	1.81	0.40	1.20	1.81	15.66	79.92
0.35	0.4	0.00	2.01	1.20	0.20	0.00	0.00	0.00	0.00	0.00	0.60	2.01	2.81	0.80	0.20	0.20	0.60	10.64	90.56
0.4	0.45	0.20	0.40	0.80	0.20	0.00	0.00	0.00	0.00	0.00	0.40	2.41	1.20	0.60	0.00	0.00	0.00	6.22	96.79
0.45	0.5	0.00	0.20	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.20	1.41	0.20	0.00	0.00	0.00	2.21	99.00
0.5	0.55	0.00	0.00	0.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.20	0.40	0.00	0.00	0.00	0.00	1.00	100.00
0.55	0.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>0.6		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		7.43	8.84	13.86	9.44	4.22	4.02	1.61	1.20	2.21	4.02	6.63	7.23	7.63	5.02	5.82	10.84		
Cumulative Total		7.43	16.27	30.12	39.56	43.78	47.79	49.40	50.60	52.81	56.83	63.45	70.68	78.31	83.33	89.16	100.00		

3.7 m

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.05	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.05	0.1	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.1	0.15	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.15	0.2	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.2	0.25	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.25	0.3	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.3	0.35	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.35	0.4	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.4	0.45	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.45	0.5	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.5	0.55	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.55	0.6	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
>0.6		NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
Total		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Cumulative Total		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		

4.0 m

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.05	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.05	0.1	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.1	0.15	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.15	0.2	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.2	0.25	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.25	0.3	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.3	0.35	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.35	0.4	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.4	0.45	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.45	0.5	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.5	0.55	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.55	0.6	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
>0.6		NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
Total		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Cumulative Total		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		

4.2 m

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.05	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.05	0.1	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.1	0.15	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.15	0.2	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.2	0.25	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.25	0.3	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.3	0.35	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.35	0.4	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.4	0.45	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.45	0.5	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.5	0.55	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.55	0.6	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
>0.6		NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
Total		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Cumulative Total		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		

ANNUAL JFTS

2019 - Current Velocity (m/s)

0.5 m

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.05	4.14	4.18	4.26	4.23	4.09	2.86	2.05	1.87	1.81	1.47	1.24	1.48	1.83	2.06	2.16	3.04	42.76	42.76
0.05	0.1	4.92	6.80	8.25	6.75	4.53	2.21	1.31	0.89	0.60	0.52	0.56	0.51	0.75	0.92	1.55	2.68	43.73	86.50
0.1	0.15	1.18	2.27	2.93	2.25	1.23	0.44	0.17	0.08	0.04	0.04	0.04	0.04	0.06	0.12	0.25	0.55	11.68	98.17
0.15	0.2	0.23	0.23	0.34	0.28	0.19	0.09	0.02	0.01	0.01	0.01	0.00	0.00	0.01	0.00	0.04	0.13	1.58	99.75
0.2	0.25	0.04	0.02	0.02	0.01	0.01	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.18	99.93
0.25	0.3	0.01	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.03	99.96
0.3	0.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	99.98
0.35	0.4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	99.99
0.4	0.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	100.00
0.45	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.5	0.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.55	0.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>0.6		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		10.52	13.50	15.80	13.52	10.05	5.60	3.58	2.85	2.45	2.04	1.84	2.03	2.64	3.10	4.01	6.46		
Cumulative Total		10.52	24.02	39.82	53.34	63.39	68.99	72.57	75.43	77.88	79.92	81.76	83.79	86.44	89.53	93.54	100.00		

0.7 m

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.05	4.19	4.42	4.37	4.40	4.16	2.57	1.73	1.52	1.63	1.29	1.17	1.29	1.69	1.45	1.81	2.53	40.22	40.22
0.05	0.1	4.50	7.34	9.15	8.21	4.64	1.87	0.96	0.56	0.54	0.50	0.41	0.39	0.53	0.62	1.13	1.98	43.31	83.53
0.1	0.15	1.08	2.72	4.32	3.35	1.43	0.38	0.08	0.02	0.01	0.02	0.04	0.02	0.03	0.05	0.11	0.42	14.06	97.59
0.15	0.2	0.19	0.33	0.60	0.56	0.23	0.08	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.07	2.11	99.70
0.2	0.25	0.04	0.02	0.08	0.07	0.03	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.27	99.97
0.25	0.3	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.03	100.00
0.3	0.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.35	0.4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.4	0.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.45	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.5	0.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.55	0.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>0.6		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		10.01	14.84	18.51	16.57	10.49	4.91	2.78	2.11	2.17	1.81	1.62	1.70	2.25	2.13	3.06	5.04		
Cumulative Total		10.01	24.85	43.36	59.93	70.42	75.33	78.11	80.22	82.39	84.20	85.82	87.51	89.77	91.90	94.96	100.00		

0.9 m

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.05	3.66	4.00	4.13	4.00	3.76	2.20	1.53	1.34	1.49	1.14	0.97	1.06	1.39	1.19	1.34	2.06	35.26	35.26
0.05	0.1	4.03	7.47	10.13	8.46	5.01	1.65	0.80	0.45	0.47	0.55	0.47	0.34	0.35	0.48	0.78	1.50	42.92	78.18
0.1	0.15	1.10	3.16	6.11	4.63	1.68	0.37	0.06	0.01	0.03	0.01	0.03	0.03	0.02	0.05	0.08	0.31	17.69	95.87
0.15	0.2	0.20	0.57	1.27	1.06	0.33	0.07	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.03	3.56	99.44
0.2	0.25	0.03	0.07	0.15	0.17	0.05	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.51	99.94
0.25	0.3	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.05	99.99
0.3	0.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	100.00
0.35	0.4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.4	0.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.45	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.5	0.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.55	0.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>0.6		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		9.03	15.28	21.80	18.33	10.83	4.30	2.41	1.81	1.99	1.70	1.47	1.43	1.76	1.71	2.22	3.92		
Cumulative Total		9.03	24.32	46.11	64.45	75.28	79.58	81.98	83.79	85.78	87.48	88.95	90.38	92.14	93.85	96.08	100.00		

1.2 m

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.05	2.92	3.32	3.50	3.53	3.22	1.95	1.42	1.19	1.34	1.05	0.90	0.86	1.12	1.01	1.17	1.65	30.13	30.13
0.05	0.1	3.26	7.37	10.76	9.17	4.86	1.75	0.75	0.50	0.52	0.54	0.43	0.31	0.27	0.28	0.56	1.16	42.51	72.64
0.1	0.15	0.95	3.73	7.52	6.05	1.93	0.31	0.06	0.01	0.02	0.04	0.08	0.03	0.01	0.03	0.05	0.22	21.07	93.71
0.15	0.2	0.21	0.85	2.03	1.72	0.36	0.07	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.04	5.31	99.02
0.2	0.25	0.04	0.13	0.27	0.31	0.09	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.87	99.89
0.25	0.3	0.01	0.00	0.05	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	99.98
0.3	0.35	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	100.00
0.35	0.4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.4	0.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.45	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.5	0.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.55	0.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>0.6		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		7.40	15.41	24.13	20.81	10.47	4.10	2.24	1.71	1.88	1.64	1.42	1.20	1.40	1.32	1.79	3.08		
Cumulative Total		7.40	22.81	46.94	67.75	78.22	82.32	84.55	86.26	88.15	89.79	91.21	92.41	93.81	95.13	96.92	100.00		

1.4 m

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.05	2.33	2.99	3.30	3.40	2.92	1.88	1.21	1.15	1.11	0.96	0.80	0.72	0.81	0.73	0.90	1.24	26.45	26.45
0.05	0.1	2.71	6.61	11.18	9.76	4.62	1.44	0.64	0.46	0.53	0.56	0.44	0.27	0.23	0.22	0.28	0.74	40.71	67.15
0.1	0.15	0.85	4.03	9.20	7.35	1.99	0.29	0.04	0.02	0.02	0.04	0.07	0.05	0.01	0.01	0.02	0.12	24.13	91.28
0.15	0.2	0.21	1.04	3.04	2.28	0.50	0.07	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.03	7.18	98.46
0.2	0.25	0.05	0.19	0.43	0.53	0.12	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	1.34	99.80
0.25	0.3	0.01	0.02	0.08	0.05	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.18	99.99
0.3	0.35	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	100.00
0.35	0.4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.4	0.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.45	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.5	0.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.55	0.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>0.6		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		6.17	14.87	27.23	23.37	10.18	3.69	1.89	1.63	1.66	1.57	1.32	1.05	1.06	0.96	1.21	2.14		
Cumulative Total		6.17	21.04	48.27	71.64	81.82	85.51	87.40	89.03	90.69	92.26	93.58	94.63	95.68	96.65	97.86	100.00		

1.7 m

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.05	1.75	2.30	2.99	2.99	2.71	1.56	1.11	1.01	1.02	0.77	0.64	0.61	0.66	0.61	0.60	0.91	22.24	22.24
0.05	0.1	1.99	6.12	11.11	9.63	4.49	1.36	0.60	0.45	0.49	0.60	0.52	0.30	0.20	0.15	0.20	0.57	38.77	61.01
0.1	0.15	0.77	4.25	11.07	8.28	2.23	0.30	0.06	0.04	0.03	0.06	0.10	0.03	0.02	0.01	0.02	0.09	27.36	88.37
0.15	0.2	0.23	1.25	4.02	3.04	0.55	0.08	0.00	0.00	0.00	0.01	0.02	0.00	0.00	0.00	0.00	0.01	9.22	97.59
0.2	0.25	0.04	0.28	0.81	0.72	0.12	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	2.02	99.61
0.25	0.3	0.02	0.06	0.10	0.11	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.33	99.94
0.3	0.35	0.01	0.01	0.03	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	100.00
0.35	0.4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.4	0.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.45	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.5	0.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.55	0.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>0.6		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		4.81	14.25	30.12	24.79	10.12	3.32	1.78	1.49	1.54	1.44	1.28	0.95	0.88	0.77	0.83	1.62		
Cumulative Total		4.81	19.06	49.19	73.98	84.09	87.41	89.19	90.69	92.23	93.67	94.95	95.90	96.78	97.55	98.38	100.00		

ANNUAL JFTS

1.9 m

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.05	1.39	1.95	2.25	2.42	2.07	1.23	0.80	0.66	0.78	0.63	0.57	0.50	0.52	0.45	0.42	0.72	17.37	17.37
0.05	0.1	1.78	5.42	10.02	8.42	3.75	1.10	0.59	0.44	0.53	0.46	0.56	0.38	0.22	0.15	0.23	0.48	34.54	51.90
0.1	0.15	0.75	4.36	11.25	8.66	2.06	0.29	0.11	0.13	0.16	0.16	0.21	0.18	0.10	0.06	0.07	0.21	28.74	80.64
0.15	0.2	0.32	1.84	5.49	3.49	0.64	0.06	0.04	0.06	0.05	0.04	0.06	0.02	0.02	0.02	0.05	0.11	12.32	92.96
0.2	0.25	0.18	0.77	1.86	1.03	0.15	0.01	0.01	0.03	0.02	0.03	0.04	0.01	0.01	0.02	0.02	0.06	4.25	97.20
0.25	0.3	0.08	0.43	0.75	0.17	0.03	0.00	0.01	0.00	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.07	1.59	98.79
0.3	0.35	0.04	0.26	0.37	0.05	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.03	0.78	99.57
0.35	0.4	0.01	0.11	0.21	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.37	99.94
0.4	0.45	0.00	0.01	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	100.00
0.45	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.5	0.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.55	0.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>0.6		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		4.53	15.17	32.23	24.25	8.71	2.69	1.56	1.31	1.55	1.34	1.46	1.09	0.88	0.71	0.83	1.69		
Cumulative Total		4.53	19.70	51.93	76.18	84.89	87.58	89.14	90.45	92.00	93.34	94.80	95.89	96.77	97.48	98.31	100.00		

2.1 m

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.05	1.07	1.48	1.81	1.71	1.37	0.87	0.74	0.49	0.67	0.49	0.51	0.43	0.49	0.40	0.47	0.62	13.63	13.63
0.05	0.1	1.86	4.40	7.62	6.32	2.78	0.88	0.48	0.42	0.44	0.48	0.57	0.37	0.27	0.27	0.38	0.58	28.13	41.76
0.1	0.15	0.94	4.16	10.13	7.25	1.58	0.25	0.14	0.13	0.13	0.16	0.23	0.09	0.13	0.10	0.26	0.46	26.15	67.91
0.15	0.2	0.53	2.30	6.35	3.39	0.54	0.10	0.09	0.11	0.11	0.08	0.08	0.07	0.06	0.09	0.19	0.29	14.38	82.29
0.2	0.25	0.36	1.22	3.45	1.22	0.16	0.02	0.06	0.07	0.12	0.08	0.06	0.10	0.08	0.09	0.20	0.24	7.54	89.83
0.25	0.3	0.23	0.78	2.28	0.46	0.04	0.00	0.03	0.03	0.09	0.05	0.07	0.08	0.09	0.04	0.15	0.20	4.60	94.43
0.3	0.35	0.16	0.57	1.67	0.17	0.01	0.00	0.00	0.00	0.03	0.01	0.06	0.06	0.03	0.01	0.11	0.11	3.02	97.46
0.35	0.4	0.08	0.36	1.13	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.02	0.02	1.70	99.16
0.4	0.45	0.01	0.12	0.51	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.67	99.83
0.45	0.5	0.00	0.03	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	99.96
0.5	0.55	0.00	0.01	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	100.00
0.55	0.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>0.6		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		5.23	15.44	35.08	20.61	6.48	2.14	1.54	1.26	1.59	1.37	1.58	1.23	1.16	1.02	1.78	2.51		
Cumulative Total		5.23	20.66	55.74	76.35	82.83	84.96	86.50	87.76	89.35	90.72	92.30	93.53	94.69	95.71	97.49	100.00		

2.5 m

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.05	0.96	1.07	1.24	1.24	1.09	0.55	0.45	0.37	0.50	0.38	0.43	0.32	0.35	0.34	0.39	0.62	10.30	10.30
0.05	0.1	1.69	3.45	5.56	4.48	1.71	0.61	0.33	0.30	0.50	0.50	0.53	0.35	0.34	0.36	0.50	0.87	22.09	32.39
0.1	0.15	1.24	3.83	7.75	4.88	1.19	0.23	0.09	0.12	0.24	0.29	0.29	0.16	0.21	0.26	0.46	0.69	21.93	54.32
0.15	0.2	0.75	2.57	5.94	2.94	0.50	0.12	0.11	0.10	0.16	0.11	0.13	0.15	0.14	0.13	0.34	0.60	14.80	69.12
0.2	0.25	0.53	1.96	4.01	1.46	0.19	0.07	0.05	0.06	0.12	0.07	0.08	0.14	0.10	0.15	0.44	0.63	10.07	79.19
0.25	0.3	0.42	1.40	3.45	0.71	0.08	0.03	0.02	0.02	0.05	0.07	0.09	0.13	0.08	0.09	0.38	0.55	7.57	86.77
0.3	0.35	0.32	1.21	3.26	0.46	0.03	0.00	0.00	0.00	0.02	0.07	0.06	0.05	0.03	0.05	0.27	0.32	6.15	92.92
0.35	0.4	0.10	0.78	2.69	0.27	0.01	0.00	0.00	0.00	0.00	0.03	0.02	0.05	0.02	0.02	0.08	0.14	4.20	97.12
0.4	0.45	0.01	0.36	1.46	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.02	0.03	2.01	99.12
0.45	0.5	0.00	0.07	0.57	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.67	99.79
0.5	0.55	0.00	0.02	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.18	99.97
0.55	0.6	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	100.00
>0.6		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		6.03	16.74	36.10	16.54	4.80	1.61	1.06	0.97	1.59	1.53	1.64	1.38	1.30	1.40	2.88	4.45		
Cumulative Total		6.03	22.77	58.87	75.41	80.21	81.82	82.87	83.85	85.43	86.96	88.60	89.98	91.28	92.67	95.55	100.00		

2.7 m

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.05	0.64	0.95	0.71	0.75	0.68	0.48	0.33	0.36	0.40	0.33	0.25	0.39	0.33	0.33	0.34	0.56	7.81	7.81
0.05	0.1	1.62	2.52	3.21	2.42	1.28	0.43	0.34	0.34	0.46	0.61	0.56	0.34	0.39	0.49	0.63	0.86	16.50	24.31
0.1	0.15	1.40	3.58	5.48	3.04	0.85	0.22	0.08	0.13	0.30	0.39	0.42	0.31	0.32	0.48	0.80	1.07	18.87	43.18
0.15	0.2	0.98	2.49	4.97	1.99	0.40	0.08	0.04	0.09	0.13	0.28	0.22	0.22	0.22	0.31	0.52	0.90	13.86	57.04
0.2	0.25	0.94	2.32	4.62	1.62	0.17	0.04	0.05	0.04	0.14	0.22	0.18	0.25	0.24	0.28	0.56	0.78	12.46	69.49
0.25	0.3	0.65	1.87	4.53	0.99	0.08	0.02	0.02	0.02	0.08	0.11	0.11	0.20	0.16	0.20	0.48	0.72	10.26	79.75
0.3	0.35	0.49	1.77	4.43	0.87	0.05	0.01	0.01	0.02	0.03	0.09	0.13	0.17	0.15	0.17	0.42	0.54	9.35	89.10
0.35	0.4	0.16	1.07	3.69	0.48	0.01	0.00	0.00	0.00	0.01	0.04	0.05	0.08	0.05	0.08	0.15	0.18	6.07	95.18
0.4	0.45	0.04	0.52	2.24	0.15	0.01	0.00	0.00	0.00	0.00	0.02	0.04	0.03	0.02	0.01	0.05	0.06	3.19	98.37
0.45	0.5	0.01	0.16	0.89	0.06	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.00	0.01	0.02	1.18	99.55
0.5	0.55	0.00	0.08	0.24	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.33	99.87
0.55	0.6	0.00	0.03	0.07	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11	99.99
>0.6		0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	100.00
Total		6.93	17.37	35.10	12.38	3.54	1.30	0.88	0.99	1.54	2.10	1.98	2.00	1.89	2.36	3.95	5.70		
Cumulative Total		6.93	24.30	59.39	71.77	75.32	76.61	77.49	78.49	80.02	82.12	84.10	86.10	87.99	90.35	94.30	100.00		

3.0 m

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.05	0.47	0.54	0.46	0.54	0.40	0.40	0.26	0.24	0.20	0.31	0.19	0.27	0.33	0.44	0.31	0.37	5.74	5.74
0.05	0.1	1.13	1.63	1.90	1.33	0.61	0.20	0.29	0.30	0.53	0.66	0.53	0.41	0.60	0.49	0.61	0.60	11.81	17.55
0.1	0.15	1.07	1.96	3.07	1.83	0.87	0.31	0.16	0.24	0.43	0.69	0.71	0.63	0.63	0.57	0.67	0.59	14.43	31.98
0.15	0.2	0.89	2.10	3.27	1.54	0.24	0.09	0.10	0.13	0.41	0.50	0.49	0.59	0.40	0.66	0.76	0.73	12.88	44.87
0.2	0.25	0.97	2.33	4.07	1.50	0.29	0.06	0.07	0.06	0.21	0.39	0.30	0.51	0.23	0.56	1.01	1.06	13.61	58.48
0.25	0.3	0.83	2.44	3.96	1.04	0.29	0.00	0.03	0.04	0.16	0.21	0.29	0.43	0.31	0.49	0.96	1.16	12.63	71.10
0.3	0.35	0.63	2.54	4.90	0.67	0.13	0.03	0.00	0.00	0.06	0.17	0.20	0.43	0.34	0.26	0.69	0.79	11.83	82.93
0.35	0.4	0.41	2.23	4.61	0.61	0.06	0.00	0.01	0.00	0.01	0.11	0.19	0.21	0.13	0.11	0.16	0.31	9.18	92.12
0.4	0.45	0.09	1.27	2.99	0.21	0.01	0.00	0.00	0.00	0.01	0.10	0.03	0.10	0.03	0.00	0.04	0.11	5.00	97.11
0.45	0.5	0.03	0.43	1.41	0.17	0.00	0.00	0.00	0.00	0.00	0.06	0.00	0.03	0.00	0.00	0.00	0.07	2.20	99.31
0.5	0.55	0.00	0.16	0.43	0.01	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.63	99.94
0.55	0.6	0.01	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	100.00
>0.6		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		6.53	17.63	31.11	9.47	2.90	1.09	0.91	1.01	2.03	3.21	2.91	3.63	3.00	3.57	5.21	5.78		
Cumulative Total		6.53	24.15	55.26	64.73	67.63	68.72	69.63	70.65	72.68	75.89	78.80	82.43	85.43	89.00	94.22	100.00		

3.2 m

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.05	0.18	0.24	0.24	0.18	0.06	0.42	0.00	0.00	0.06	0.24	0.24	0.12	0.18	0.06	0.24	0.18	2.63	2.63
0.05	0.1	0.84	0.42	1.55	0.48	0.24	0.12	0.42	0.12	0.48	0.48	0.18	0.36	0.36	0.48	0.36	0.30	7.16	9.79
0.1	0.15	0.78	1.85	1.43	1.13	0.42	0.18	0.42	0.36	0.54	0.66	0.60	0.60	0.42	0.54	0.72	0.48	11.10	20.88
0.15	0.2	0.72	0.78	2.03	1.07	0.36	0.06	0.36	0.42	0.60	1.13	1.13	1.13	1.01	1.07	0.60	0.78	13.25	34.13
0.2	0.25	0.36	1.01	1.19	1.31	0.18	0.06	0.18	0.42	1.01	1.01	0.95	1.49	1.67	1.01	1.01	0.60	13.48	47.61
0.25	0.3	0.66	1.91	2.57	1.31	0.12	0.12	0.06	0.06	0.84	1.13	0.66	1.01	1.01	0.66	0.89	0.78	13.78	61.40
0.3	0.35	0.66	1.85	5.49	1.01	0.06	0.00	0.06	0.06	0.06	0.36	0.54	1.01	1.13	0.72	1.07	0.54	14.62	76.01
0.35	0.4	0.60	2.15	5.85	0.78	0.06	0.00	0.06	0.06	0.06	0.12	0.66	1.13	0.66	0.30	0.72	0.42	13.60	89.62
0.4	0.45	0.18	1.13	3.16	0.36	0.00	0.00	0.00	0.00	0.00	0.24	0.24	0.48	0.06	0.12	0.24	0.18	6.38	96.00
0.45	0.5	0.12	0.60	1.91	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.18	0.06	0.06	0.00	0.00	3.28	99.28
0.5	0.55	0.00	0.06	0.30	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.48	99.76
0.55	0.6	0.00	0.06	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.24	100.00
>0.6		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		5.07	12.05	25.89	7.94	1.49	0.95	1.55	1.49	3.64	5.37	5.31	7.52	6.56	5.01	5.85	4.30		
Cumulative Total		5.07	17.12	43.02	50.95	52.45	53.40	54.95	56.44	60.08	65.45	70.76	78.28	84.84	89.86	95.70	100.00		

ANNUAL JFTS

3.5 m

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.05	0.1	1.55	0.78	0.00	0.00	0.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.10	3.10
0.1	0.15	4.65	3.88	3.88	0.00	0.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.33	15.50	18.60
0.15	0.2	2.33	1.55	5.43	1.55	0.00	0.00	0.00	0.00	0.00	0.78	0.00	0.00	0.78	0.00	0.00	0.78	13.18	31.78
0.2	0.25	0.78	0.00	0.78	1.55	0.78	0.78	0.00	0.00	0.00	0.78	0.00	0.00	0.00	0.00	0.78	3.10	9.30	41.09
0.25	0.3	2.33	0.78	2.33	0.78	0.00	0.00	0.00	0.00	0.00	5.43	0.00	0.00	0.00	0.00	0.78	2.33	14.73	55.81
0.3	0.35	0.78	1.55	4.65	0.00	0.00	0.00	0.00	0.00	0.00	3.10	1.55	1.55	0.00	0.00	0.00	2.33	15.50	71.32
0.35	0.4	0.00	0.78	1.55	0.78	0.00	0.00	0.00	0.00	0.00	1.55	3.10	5.43	0.78	0.78	0.00	0.00	14.73	86.05
0.4	0.45	0.00	0.00	2.33	0.00	0.00	0.00	0.00	0.00	0.00	0.78	3.88	2.33	1.55	0.00	0.00	0.00	10.85	96.90
0.45	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.78	2.33	0.00	0.00	0.00	0.00	3.10	100.00
0.5	0.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.55	0.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>0.6		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		12.40	9.30	20.93	4.65	2.33	0.78	0.00	0.00	0.00	12.40	9.30	11.63	3.10	0.78	1.55	10.85		
Cumulative Total		12.40	21.71	42.64	47.29	49.61	50.39	50.39	50.39	50.39	62.79	72.09	83.72	86.82	87.60	89.15	100.00		

3.7 m

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.05	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.05	0.1	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.1	0.15	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.15	0.2	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.2	0.25	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.25	0.3	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.3	0.35	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.35	0.4	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.4	0.45	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.45	0.5	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.5	0.55	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.55	0.6	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
>0.6		NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
Total		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Cumulative Total		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		

4.0 m

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.05	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.05	0.1	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.1	0.15	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.15	0.2	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.2	0.25	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.25	0.3	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.3	0.35	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.35	0.4	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.4	0.45	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.45	0.5	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.5	0.55	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.55	0.6	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
>0.6		NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
Total		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Cumulative Total		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		

4.2 m

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.05	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.05	0.1	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.1	0.15	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.15	0.2	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.2	0.25	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.25	0.3	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.3	0.35	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.35	0.4	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.4	0.45	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.45	0.5	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.5	0.55	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.55	0.6	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
>0.6		NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
Total		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Cumulative Total		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		

ANNUAL JFTS

2020 - Current Velocity (m/s)

0.5 m

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.05	4.27	4.85	4.62	4.41	3.91	2.47	1.73	1.53	1.53	1.17	0.96	1.17	1.62	1.68	2.15	3.01	41.09	41.09
0.05	0.1	5.25	7.74	8.92	7.08	4.25	1.96	1.05	0.48	0.41	0.36	0.30	0.30	0.48	0.75	1.53	2.83	43.68	84.78
0.1	0.15	1.41	2.77	3.80	2.65	1.13	0.33	0.11	0.03	0.03	0.02	0.03	0.02	0.04	0.06	0.20	0.58	13.21	97.99
0.15	0.2	0.18	0.37	0.48	0.37	0.18	0.04	0.01	0.01	0.00	0.01	0.00	0.00	0.01	0.01	0.02	0.08	1.76	99.75
0.2	0.25	0.01	0.03	0.04	0.03	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.01	0.17	99.92
0.25	0.3	0.01	0.01	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.04	99.96
0.3	0.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	99.98
0.35	0.4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	99.98
0.4	0.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	99.98
0.45	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	99.98
0.5	0.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	99.99
0.55	0.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	99.99
>0.6		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	100.00
Total		11.13	15.76	17.87	14.55	9.49	4.81	2.90	2.07	1.98	1.57	1.29	1.50	2.15	2.51	3.90	6.53		
Cumulative Total		11.13	26.89	44.77	59.31	68.80	73.61	76.51	78.57	80.55	82.12	83.41	84.91	87.07	89.57	93.47	100.00		

0.7 m

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.05	4.31	4.31	4.21	4.14	4.00	2.27	1.49	1.28	1.37	0.99	0.96	1.04	1.46	1.46	1.62	2.49	37.42	37.42
0.05	0.1	4.94	7.68	9.95	8.29	4.61	1.59	0.66	0.38	0.31	0.33	0.31	0.27	0.36	0.44	0.95	2.05	43.13	80.56
0.1	0.15	1.44	3.26	4.96	3.89	1.38	0.26	0.04	0.01	0.01	0.04	0.02	0.02	0.01	0.02	0.10	0.38	15.84	96.40
0.15	0.2	0.24	0.55	1.00	0.87	0.34	0.06	0.01	0.00	0.00	0.01	0.02	0.00	0.01	0.00	0.01	0.06	3.17	99.57
0.2	0.25	0.03	0.04	0.09	0.12	0.05	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.37	99.93
0.25	0.3	0.01	0.01	0.01	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	99.98
0.3	0.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	99.99
0.35	0.4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	99.99
0.4	0.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	99.99
0.45	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	99.99
0.5	0.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.55	0.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>0.6		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		10.98	15.85	20.22	17.32	10.40	4.18	2.21	1.67	1.70	1.37	1.31	1.33	1.84	1.93	2.69	5.00		
Cumulative Total		10.98	26.83	47.05	64.37	74.77	78.95	81.16	82.83	84.53	85.90	87.20	88.53	90.38	92.31	95.00	100.00		

0.9 m

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.05	3.53	3.87	4.06	3.97	3.37	2.03	1.34	1.20	1.12	1.01	0.82	0.85	1.21	1.01	1.35	2.06	32.80	32.80
0.05	0.1	3.96	7.23	10.62	8.97	4.59	1.42	0.56	0.37	0.33	0.32	0.34	0.30	0.25	0.35	0.66	1.50	41.78	74.58
0.1	0.15	1.21	3.88	6.75	5.53	1.57	0.26	0.04	0.01	0.02	0.04	0.04	0.02	0.02	0.01	0.06	0.30	19.77	94.35
0.15	0.2	0.20	0.81	1.70	1.52	0.34	0.04	0.00	0.00	0.00	0.01	0.01	0.01	0.00	0.01	0.00	0.07	4.73	99.08
0.2	0.25	0.04	0.11	0.28	0.26	0.07	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.02	0.80	99.88
0.25	0.3	0.01	0.01	0.03	0.03	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11	99.99
0.3	0.35	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	100.00
0.35	0.4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.4	0.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.45	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.5	0.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.55	0.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>0.6		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		8.96	15.92	23.45	20.28	9.96	3.77	1.95	1.58	1.47	1.38	1.22	1.17	1.47	1.39	2.08	3.95		
Cumulative Total		8.96	24.88	48.33	68.61	78.57	82.34	84.29	85.86	87.33	88.72	89.93	91.11	92.58	93.97	96.05	100.00		

1.2 m

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.05	2.82	3.44	3.68	3.70	3.15	1.73	1.09	1.05	1.11	0.80	0.87	0.84	0.93	0.93	1.00	1.63	28.78	28.78
0.05	0.1	3.05	6.80	10.70	9.16	4.65	1.33	0.48	0.29	0.35	0.37	0.35	0.30	0.24	0.29	0.46	1.04	39.86	68.64
0.1	0.15	1.18	3.97	8.38	6.86	1.89	0.25	0.04	0.00	0.01	0.04	0.06	0.03	0.01	0.00	0.05	0.19	22.96	91.60
0.15	0.2	0.20	1.03	2.78	2.13	0.51	0.05	0.00	0.00	0.00	0.01	0.02	0.00	0.00	0.01	0.00	0.03	6.77	98.37
0.2	0.25	0.04	0.18	0.49	0.58	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	1.41	99.78
0.25	0.3	0.02	0.01	0.07	0.08	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.20	99.98
0.3	0.35	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	100.00
0.35	0.4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.4	0.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.45	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.5	0.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.55	0.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>0.6		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		7.31	15.43	26.09	22.52	10.35	3.36	1.61	1.34	1.48	1.22	1.30	1.17	1.19	1.22	1.51	2.89		
Cumulative Total		7.31	22.74	48.83	71.36	81.71	85.07	86.68	88.01	89.49	90.71	92.01	93.18	94.38	95.60	97.11	100.00		

1.4 m

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.05	2.22	2.83	3.22	3.40	2.98	1.70	1.07	0.95	0.98	0.73	0.62	0.63	0.79	0.74	0.76	1.25	24.88	24.88
0.05	0.1	2.34	6.33	10.99	9.52	4.46	1.30	0.45	0.33	0.40	0.44	0.42	0.26	0.18	0.16	0.26	0.68	38.51	63.39
0.1	0.15	0.77	4.25	9.94	8.26	1.93	0.25	0.03	0.00	0.02	0.04	0.08	0.04	0.00	0.01	0.01	0.09	25.71	89.11
0.15	0.2	0.16	1.14	3.55	2.96	0.55	0.05	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.02	8.45	97.56
0.2	0.25	0.03	0.22	0.83	0.80	0.14	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	2.05	99.61
0.25	0.3	0.01	0.04	0.13	0.13	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.34	99.95
0.3	0.35	0.01	0.00	0.01	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	100.00
0.35	0.4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.4	0.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.45	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.5	0.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.55	0.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>0.6		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		5.55	14.81	28.66	25.08	10.12	3.30	1.56	1.28	1.40	1.23	1.13	0.93	0.98	0.91	1.04	2.04		
Cumulative Total		5.55	20.36	49.02	74.10	84.22	87.51	89.07	90.35	91.75	92.97	94.10	95.03	96.01	96.92	97.96	100.00		

1.7 m

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.05	1.88	2.33	2.95	2.98	2.62	1.37	0.93	0.83	0.95	0.72	0.63	0.61	0.65	0.54	0.60	0.94	21.53	21.53
0.05	0.1	1.81	5.63	10.49	9.69	4.37	1.16	0.40	0.32	0.45	0.45	0.44	0.27	0.14	0.09	0.19	0.40	36.30	57.83
0.1	0.15	0.53	4.15	11.39	9.52	2.15	0.21	0.03	0.01	0.04	0.08	0.11	0.04	0.01	0.01	0.01	0.06	28.36	86.20
0.15	0.2	0.15	1.28	4.65	3.70	0.62	0.03	0.00	0.00	0.00	0.01	0.02	0.01	0.01	0.00	0.00	0.00	10.48	96.67
0.2	0.25	0.02	0.29	1.21	1.02	0.19	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.01	2.76	99.43
0.25	0.3	0.01	0.05	0.18	0.22	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.49	99.93
0.3	0.35	0.00	0.01	0.01	0.03	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	99.99
0.35	0.4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	100.00
0.4	0.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.45	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.5	0.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.55	0.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>0.6		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		4.41	13.74	30.88	27.15	10.01	2.78	1.36	1.16	1.45	1.26	1.21	0.94	0.82	0.64	0.80	1.40		
Cumulative Total		4.41	18.15	49.03	76.18	86.19	88.97	90.33	91.49	92.94	94.20	95.41	96.35	97.16	97.80	98.60	100.00		

ANNUAL JFTS

1.9 m

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.05	1.44	1.90	2.29	2.63	2.09	1.24	0.81	0.72	0.80	0.63	0.57	0.47	0.49	0.40	0.44	0.74	17.65	17.65
0.05	0.1	1.41	4.75	9.43	8.64	3.83	1.03	0.37	0.27	0.33	0.46	0.48	0.26	0.18	0.13	0.14	0.36	32.08	49.72
0.1	0.15	0.51	4.01	11.90	9.14	2.00	0.18	0.06	0.03	0.10	0.17	0.15	0.07	0.03	0.02	0.02	0.09	28.47	78.19
0.15	0.2	0.18	1.62	6.52	4.58	0.74	0.04	0.01	0.01	0.06	0.13	0.06	0.04	0.01	0.01	0.03	0.04	14.07	92.26
0.2	0.25	0.10	0.70	2.55	1.37	0.21	0.00	0.00	0.00	0.02	0.04	0.02	0.02	0.01	0.03	0.02	0.03	5.13	97.39
0.25	0.3	0.05	0.32	1.00	0.30	0.04	0.00	0.00	0.00	0.01	0.00	0.01	0.02	0.01	0.01	0.02	0.05	1.83	99.22
0.3	0.35	0.02	0.10	0.39	0.04	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.02	0.62	99.84
0.35	0.4	0.00	0.01	0.08	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.14	99.98
0.4	0.45	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	100.00
0.45	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.5	0.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.55	0.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>0.6		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		3.71	13.42	34.18	26.73	8.93	2.48	1.25	1.03	1.32	1.43	1.29	0.88	0.73	0.61	0.68	1.33		
Cumulative Total		3.71	17.13	51.31	78.04	86.97	89.45	90.70	91.72	93.04	94.47	95.76	96.65	97.37	97.99	98.67	100.00		

2.1 m

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.05	1.06	1.40	1.70	1.98	1.62	0.88	0.61	0.56	0.51	0.60	0.47	0.47	0.41	0.46	0.42	0.55	13.68	13.68
0.05	0.1	1.13	3.88	7.36	6.73	2.88	0.89	0.39	0.31	0.35	0.43	0.41	0.27	0.22	0.20	0.22	0.33	26.00	39.69
0.1	0.15	0.56	3.76	10.15	8.02	1.81	0.23	0.09	0.11	0.13	0.25	0.21	0.08	0.06	0.04	0.08	0.19	25.76	65.45
0.15	0.2	0.33	2.21	7.21	4.46	0.72	0.05	0.02	0.06	0.10	0.13	0.11	0.07	0.01	0.03	0.08	0.15	15.71	81.16
0.2	0.25	0.20	1.34	4.26	1.69	0.21	0.01	0.01	0.03	0.04	0.12	0.06	0.02	0.01	0.04	0.08	0.13	8.26	89.42
0.25	0.3	0.12	0.89	3.14	0.73	0.07	0.00	0.00	0.01	0.02	0.07	0.03	0.03	0.02	0.03	0.04	0.07	5.25	94.68
0.3	0.35	0.05	0.46	2.26	0.33	0.02	0.00	0.00	0.00	0.00	0.01	0.05	0.02	0.00	0.01	0.02	0.04	3.26	97.93
0.35	0.4	0.01	0.18	1.11	0.18	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.00	0.01	0.01	1.54	99.47
0.4	0.45	0.00	0.01	0.42	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.49	99.96
0.45	0.5	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	100.00
0.5	0.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.55	0.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>0.6		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		3.46	14.12	37.65	24.16	7.34	2.06	1.12	1.08	1.14	1.61	1.34	0.97	0.75	0.80	0.93	1.48		
Cumulative Total		3.46	17.58	55.23	79.39	86.73	88.79	89.91	90.99	92.12	93.73	95.07	96.04	96.79	97.59	98.52	100.00		

2.5 m

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.05	0.86	1.00	1.24	1.19	0.91	0.70	0.42	0.46	0.43	0.42	0.45	0.44	0.41	0.41	0.42	0.48	10.25	10.25
0.05	0.1	1.15	2.85	5.13	4.52	2.17	0.62	0.28	0.30	0.36	0.48	0.46	0.47	0.30	0.24	0.34	0.57	20.24	30.49
0.1	0.15	0.72	3.16	7.87	6.02	1.45	0.30	0.15	0.15	0.19	0.28	0.25	0.21	0.18	0.13	0.24	0.26	21.57	52.06
0.15	0.2	0.60	2.31	6.62	3.80	0.69	0.08	0.08	0.09	0.15	0.18	0.17	0.11	0.08	0.11	0.18	0.34	15.59	67.65
0.2	0.25	0.54	2.12	5.75	1.90	0.26	0.06	0.03	0.05	0.11	0.16	0.12	0.14	0.06	0.07	0.17	0.33	11.88	79.53
0.25	0.3	0.36	1.56	4.89	1.17	0.08	0.00	0.01	0.01	0.10	0.07	0.04	0.05	0.03	0.05	0.15	0.29	8.85	88.38
0.3	0.35	0.19	0.84	3.70	0.75	0.03	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.02	0.01	0.10	0.16	5.89	94.28
0.35	0.4	0.06	0.46	2.59	0.55	0.01	0.00	0.00	0.00	0.01	0.01	0.02	0.02	0.01	0.01	0.02	0.04	3.78	98.06
0.4	0.45	0.02	0.11	1.16	0.21	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.01	0.00	0.01	1.53	99.59
0.45	0.5	0.00	0.01	0.30	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.38	99.97
0.5	0.55	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	100.00
0.55	0.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>0.6		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		4.50	14.42	39.29	20.16	5.60	1.77	0.98	1.06	1.37	1.64	1.55	1.47	1.09	1.04	1.61	2.46		
Cumulative Total		4.50	18.92	58.21	78.38	83.98	85.74	86.72	87.78	89.15	90.79	92.34	93.81	94.89	95.93	97.54	100.00		

2.7 m

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.05	0.55	0.70	0.83	0.79	0.61	0.49	0.28	0.36	0.27	0.31	0.30	0.30	0.36	0.21	0.34	0.39	7.10	7.10
0.05	0.1	0.99	2.02	3.55	2.98	1.35	0.51	0.24	0.31	0.35	0.43	0.47	0.43	0.32	0.46	0.45	0.64	15.49	22.59
0.1	0.15	0.84	2.61	5.94	4.37	1.26	0.37	0.20	0.18	0.30	0.42	0.47	0.45	0.27	0.27	0.37	0.48	18.80	41.39
0.15	0.2	0.74	2.42	5.91	3.29	0.71	0.17	0.12	0.15	0.24	0.27	0.27	0.25	0.27	0.17	0.29	0.50	15.77	57.16
0.2	0.25	0.77	2.36	5.60	2.11	0.27	0.09	0.05	0.09	0.20	0.26	0.22	0.23	0.24	0.18	0.34	0.47	13.48	70.65
0.25	0.3	0.58	1.89	5.68	1.35	0.15	0.03	0.03	0.05	0.08	0.12	0.10	0.23	0.17	0.06	0.21	0.42	11.14	81.79
0.3	0.35	0.39	1.48	5.17	0.93	0.06	0.01	0.01	0.00	0.05	0.06	0.13	0.10	0.10	0.07	0.15	0.24	8.98	90.76
0.35	0.4	0.12	0.73	3.77	0.68	0.03	0.00	0.00	0.00	0.01	0.01	0.05	0.04	0.01	0.02	0.06	0.07	5.61	96.38
0.4	0.45	0.04	0.30	2.01	0.30	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.01	0.00	0.00	0.02	0.01	2.73	99.10
0.45	0.5	0.02	0.05	0.54	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.71	99.82
0.5	0.55	0.00	0.01	0.10	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	99.96
0.55	0.6	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	100.00
>0.6		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		5.04	14.58	39.15	16.91	4.43	1.66	0.93	1.15	1.52	1.90	2.03	2.06	1.76	1.44	2.23	3.23		
Cumulative Total		5.04	19.62	58.77	75.68	80.11	81.77	82.70	83.84	85.36	87.25	89.28	91.34	93.10	94.54	96.77	100.00		

3.0 m

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.05	0.35	0.37	0.45	0.39	0.23	0.15	0.13	0.17	0.15	0.14	0.18	0.10	0.19	0.21	0.25	0.33	3.78	3.78
0.05	0.1	0.91	1.14	1.75	1.65	1.02	0.33	0.26	0.12	0.25	0.25	0.27	0.42	0.48	0.39	0.49	0.51	10.26	14.04
0.1	0.15	0.99	2.17	3.32	2.65	0.96	0.32	0.25	0.16	0.34	0.39	0.52	0.50	0.58	0.43	0.58	0.49	14.63	28.67
0.15	0.2	0.99	2.14	4.58	2.72	0.73	0.22	0.20	0.32	0.52	0.48	0.46	0.44	0.33	0.42	0.52	0.77	15.82	44.49
0.2	0.25	1.09	2.51	5.40	2.00	0.41	0.10	0.10	0.15	0.33	0.45	0.28	0.44	0.42	0.25	0.42	0.94	15.26	59.75
0.25	0.3	0.99	2.06	6.27	1.58	0.11	0.06	0.03	0.07	0.19	0.37	0.36	0.39	0.22	0.12	0.31	0.57	13.69	73.43
0.3	0.35	0.61	1.85	7.05	1.44	0.05	0.03	0.00	0.01	0.11	0.15	0.20	0.33	0.18	0.10	0.14	0.43	12.67	86.10
0.35	0.4	0.30	0.95	5.48	1.07	0.04	0.01	0.01	0.00	0.02	0.09	0.16	0.17	0.08	0.03	0.03	0.13	8.54	94.64
0.4	0.45	0.05	0.31	2.85	0.45	0.00	0.00	0.00	0.00	0.00	0.02	0.04	0.04	0.02	0.00	0.00	0.01	3.78	98.42
0.45	0.5	0.04	0.12	0.90	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.30	99.72
0.5	0.55	0.01	0.02	0.15	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.24	99.96
0.55	0.6	0.00	0.00	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.04	100.00
>0.6		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		6.33	13.62	38.21	14.22	3.56	1.22	0.97	0.99	1.91	2.33	2.46	2.83	2.50	1.94	2.73	4.18		
Cumulative Total		6.33	19.95	58.16	72.38	75.95	77.16	78.13	79.12	81.03	83.36	85.82	88.64	91.14	93.09	95.82	100.00		

3.2 m

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.05	0.28	0.06	0.25	0.16	0.06	0.22	0.09	0.09	0.06	0.06	0.06	0.13	0.25	0.06	0.16	0.13	2.13	2.13
0.05	0.1	0.50	0.97	0.88	1.00	0.88	0.38	0.35	0.09	0.03	0.06	0.19	0.13	0.60	0.47	0.31	0.56	7.41	9.54
0.1	0.15	0.72	1.07	1.60	1.41	1.13	0.41	0.28	0.06	0.09	0.16	0.19	0.41	0.82	0.72	0.53	0.72	10.33	19.87
0.15	0.2	1.22	1.41	2.42	2.04	0.72	0.44	0.16	0.22	0.38	0.31	0.31	0.60	0.85	0.91	1.00	1.41	14.41	34.27
0.2	0.25	1.76	2.13	3.95	2.39	0.78	0.22	0.25	0.19	0.35	0.41	0.53	0.78	0.75	0.91	0.60	1.41	17.42	51.69
0.25	0.3	1.41	3.11	4.74	2.04	0.56	0.03	0.06	0.25	0.31	0.75	0.60	0.72	1.07	0.60	0.41	1.10	17.77	69.46
0.3	0.35	0.60	1.98	6.75	1.38	0.13	0.00	0.00	0.09	0.41	0.63	0.44	1.04	0.60	0.19	0.38	0.53	15.13	84.59
0.35	0.4	0.60	1.10	4.83	1.07	0.09	0.00	0.00	0.06	0.16	0.22	0.31	0.47	0.16	0.16	0.13	0.41	9.76	94.35
0.4	0.45	0.25	0.50	2.17	0.66	0.03	0.00	0.00	0.00	0.03	0.06	0.09	0.22	0.06	0.09	0.00	0.03	4.21	98.56
0.45	0.5	0.06	0.16	0.56	0.31	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.03	0.00	0.00	0.00	0.03	1.26	99.81
0.5	0.55	0.00	0.00	0.09	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.19	100.00
0.55	0.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>0.6		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		7.41	12.49	28.25	12.55	4.39	1.69	1.19	1.07	1.82	2.67	2.82	4.52	5.15	4.11	3.52	6.34		
Cumulative Total		7.41	19.90	48.15	60.70	65.10	66.79	67.98	69.05	70.87	73.54	76.37	80.89	86.03	90.14	93.66	100.00		

ANNUAL JFTS

3.5 m

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.05	0.00	0.27	0.54	0.27	0.00	0.00	0.00	0.27	0.54	0.00	0.00	0.00	0.27	0.27	0.00	0.00	2.44	2.44
0.05	0.1	0.81	0.54	1.08	0.54	1.08	0.54	0.00	0.00	0.00	0.00	0.00	0.00	0.54	0.00	0.27	1.08	6.50	8.94
0.1	0.15	0.81	0.54	0.54	1.90	1.36	2.71	0.27	0.27	0.54	0.27	0.54	0.00	0.81	1.36	1.63	1.08	14.63	23.58
0.15	0.2	0.81	0.54	1.90	2.98	1.36	1.08	0.54	0.27	0.00	0.00	0.54	0.54	0.27	2.17	1.36	1.90	16.26	39.84
0.2	0.25	1.36	0.00	1.36	1.08	0.54	0.27	0.81	0.54	0.00	0.00	0.54	0.27	1.08	1.36	1.08	1.36	11.65	51.49
0.25	0.3	1.36	1.90	0.81	1.63	0.54	0.27	0.54	0.27	1.08	0.00	0.00	0.00	2.44	0.81	1.08	2.98	15.72	67.21
0.3	0.35	0.27	1.63	2.98	2.44	0.00	0.27	0.00	0.00	0.81	0.27	0.27	0.54	2.44	0.54	1.63	1.63	15.72	82.93
0.35	0.4	0.00	2.44	1.08	0.00	0.00	0.00	0.00	0.00	0.00	0.27	1.63	1.90	0.81	0.00	0.27	0.81	9.21	92.14
0.4	0.45	0.27	0.54	0.27	0.27	0.00	0.00	0.00	0.00	0.00	0.27	1.90	0.81	0.27	0.00	0.00	0.00	4.61	96.75
0.45	0.5	0.00	0.27	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.08	0.27	0.00	0.00	0.00	1.90	98.64
0.5	0.55	0.00	0.00	0.54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.27	0.54	0.00	0.00	0.00	0.00	1.36	100.00
0.55	0.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>0.6		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		5.69	8.67	11.38	11.11	4.88	5.15	2.17	1.63	2.98	1.08	5.69	5.69	9.21	6.50	7.32	10.84		
Cumulative Total		5.69	14.36	25.75	36.86	41.73	46.88	49.05	50.68	53.66	54.74	60.43	66.12	75.34	81.84	89.16	100.00		

3.7 m

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.05	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.05	0.1	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.1	0.15	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.15	0.2	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.2	0.25	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.25	0.3	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.3	0.35	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.35	0.4	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.4	0.45	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.45	0.5	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.5	0.55	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.55	0.6	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
>0.6		NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
Total		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Cumulative Total		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		

4.0 m

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.05	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.05	0.1	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.1	0.15	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.15	0.2	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.2	0.25	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.25	0.3	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.3	0.35	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.35	0.4	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.4	0.45	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.45	0.5	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.5	0.55	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.55	0.6	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
>0.6		NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
Total		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Cumulative Total		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		

4.2 m

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.05	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.05	0.1	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.1	0.15	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.15	0.2	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.2	0.25	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.25	0.3	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.3	0.35	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.35	0.4	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.4	0.45	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.45	0.5	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.5	0.55	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.55	0.6	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
>0.6		NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
Total		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Cumulative Total		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		

SEASONAL JFTS

Summer - Current Velocity (m/s)

0.5 m

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.05	3.66	4.75	4.94	4.76	3.99	2.36	1.52	1.41	1.25	0.99	0.75	0.83	1.11	1.30	1.55	2.76	37.94	37.94
0.05	0.1	4.55	8.36	11.28	9.11	4.89	1.64	0.83	0.49	0.35	0.28	0.09	0.20	0.27	0.44	0.80	1.86	45.43	83.37
0.1	0.15	0.71	3.08	5.31	3.57	0.92	0.17	0.10	0.01	0.01	0.00	0.03	0.01	0.01	0.05	0.03	0.15	14.14	97.51
0.15	0.2	0.04	0.39	0.84	0.51	0.12	0.02	0.02	0.01	0.00	0.00	0.00	0.00	0.04	0.04	0.00	0.02	2.05	99.56
0.2	0.25	0.02	0.04	0.05	0.06	0.02	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.02	0.01	0.00	0.02	0.24	99.80
0.25	0.3	0.00	0.02	0.00	0.01	0.02	0.00	0.01	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.02	0.09	99.90
0.3	0.35	0.00	0.00	0.00	0.01	0.00	0.00	0.01	0.02	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.05	99.94
0.35	0.4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	99.94
0.4	0.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	99.94
0.45	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.01	0.02	99.96
0.5	0.55	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	99.97
0.55	0.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.01	99.98
>0.6		0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.02	100.00
Total		8.98	16.63	22.42	18.04	9.96	4.19	2.50	1.95	1.61	1.30	0.87	1.04	1.47	1.83	2.38	4.83		
Cumulative Total		8.98	25.61	48.03	66.07	76.04	80.22	82.72	84.67	86.28	87.58	88.45	89.48	90.95	92.78	95.17	100.00		

0.7 m

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.05	3.97	4.24	4.54	4.70	4.15	2.12	1.34	1.02	1.12	0.78	0.70	0.85	1.03	1.02	1.28	2.09	34.96	34.96
0.05	0.1	3.81	8.07	12.94	10.48	5.22	1.44	0.49	0.36	0.25	0.31	0.20	0.07	0.09	0.16	0.39	1.10	45.37	80.33
0.1	0.15	0.58	3.23	6.50	4.67	1.23	0.15	0.02	0.00	0.00	0.04	0.01	0.00	0.00	0.00	0.02	0.06	16.51	96.83
0.15	0.2	0.04	0.44	1.33	0.88	0.07	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.02	0.01	0.00	0.00	2.80	99.64
0.2	0.25	0.00	0.03	0.11	0.10	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.00	0.00	0.28	99.92
0.25	0.3	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.04	99.95
0.3	0.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.01	99.96
0.35	0.4	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.02	99.98
0.4	0.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	99.98
0.45	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	99.98
0.5	0.55	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	99.99
0.55	0.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	99.99
>0.6		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.01	100.00
Total		8.41	16.01	25.41	20.83	10.70	3.72	1.85	1.37	1.37	1.13	0.91	0.93	1.18	1.21	1.69	3.27		
Cumulative Total		8.41	24.42	49.84	70.67	81.37	85.09	86.94	88.32	89.69	90.82	91.73	92.65	93.83	95.04	96.73	100.00		

0.9 m

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.05	3.52	3.86	4.18	4.49	3.79	1.91	1.22	0.99	1.00	0.69	0.70	0.57	0.68	0.63	0.92	1.66	30.80	30.80
0.05	0.1	3.39	7.93	12.48	11.07	5.32	1.12	0.44	0.32	0.36	0.25	0.14	0.11	0.08	0.14	0.35	0.68	44.17	74.97
0.1	0.15	0.67	3.66	8.18	6.25	1.63	0.15	0.03	0.01	0.02	0.03	0.02	0.00	0.03	0.02	0.01	0.07	20.77	95.74
0.15	0.2	0.03	0.60	1.61	1.23	0.14	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.01	3.66	99.40
0.2	0.25	0.00	0.02	0.28	0.21	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.02	0.55	99.95
0.25	0.3	0.01	0.00	0.01	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	99.99
0.3	0.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	100.00
0.35	0.4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.4	0.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.45	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.5	0.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.55	0.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>0.6		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		7.63	16.07	26.73	23.26	10.88	3.19	1.68	1.32	1.37	0.97	0.86	0.68	0.81	0.82	1.27	2.45		
Cumulative Total		7.63	23.69	50.43	73.69	84.57	87.76	89.44	90.76	92.13	93.10	93.96	94.64	95.46	96.28	97.55	100.00		

1.2 m

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.05	2.60	3.61	3.88	3.68	3.21	1.55	0.79	0.88	0.94	0.62	0.54	0.53	0.81	0.70	0.70	1.39	26.44	26.44
0.05	0.1	2.82	7.83	13.27	11.42	4.93	1.19	0.35	0.19	0.25	0.23	0.24	0.12	0.11	0.17	0.21	0.54	43.87	70.31
0.1	0.15	0.62	3.82	9.40	7.76	1.74	0.14	0.05	0.01	0.01	0.04	0.05	0.02	0.01	0.01	0.02	0.07	23.76	94.07
0.15	0.2	0.06	0.65	2.45	1.86	0.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.01	5.24	99.31
0.2	0.25	0.00	0.05	0.26	0.26	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.65	99.95
0.25	0.3	0.00	0.00	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	99.99
0.3	0.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	100.00
0.35	0.4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.4	0.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.45	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.5	0.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.55	0.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>0.6		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		6.10	15.97	29.28	25.01	10.11	2.88	1.18	1.08	1.21	0.89	0.83	0.67	0.93	0.91	0.93	2.04		
Cumulative Total		6.10	22.06	51.34	76.35	86.46	89.34	90.52	91.60	92.80	93.69	94.52	95.19	96.13	97.04	97.96	100.00		

1.4 m

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.05	1.99	2.97	3.37	3.28	2.63	1.54	0.85	0.81	0.62	0.48	0.37	0.42	0.54	0.53	0.73	1.31	22.45	22.45
0.05	0.1	2.31	8.08	13.99	11.30	4.45	0.93	0.32	0.20	0.24	0.23	0.29	0.17	0.03	0.11	0.19	0.55	43.39	65.84
0.1	0.15	0.50	4.09	11.22	9.15	1.54	0.12	0.03	0.00	0.02	0.01	0.05	0.03	0.00	0.01	0.01	0.03	26.81	92.65
0.15	0.2	0.07	0.65	3.13	2.41	0.25	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	6.55	99.21
0.2	0.25	0.01	0.06	0.31	0.32	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.72	99.93
0.25	0.3	0.00	0.00	0.03	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.06	99.98
0.3	0.35	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	99.99
0.35	0.4	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	100.00
0.4	0.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.45	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.5	0.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.55	0.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>0.6		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		4.90	15.85	32.06	26.48	8.91	2.60	1.20	1.01	0.88	0.72	0.71	0.62	0.58	0.65	0.93	1.91		
Cumulative Total		4.90	20.75	52.81	79.29	88.20	90.80	92.00	93.01	93.89	94.61	95.32	95.93	96.51	97.17	98.09	100.00		

1.7 m

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.05	1.61	2.57	3.03	2.53	2.43	1.05	0.72	0.46	0.68	0.37	0.36	0.40	0.43	0.47	0.45	0.88	18.44	18.44
0.05	0.1	2.23	7.39	13.72	11.38	3.88	0.62	0.21	0.12	0.22	0.21	0.21	0.12	0.08	0.05	0.17	0.33	40.93	59.37
0.1	0.15	0.46	4.90	13.56	10.15	1.52	0.10	0.00	0.01	0.00	0.02	0.11	0.08	0.04	0.01	0.00	0.03	31.00	90.37
0.15	0.2	0.04	1.07	4.11	2.73	0.19	0.02	0.00	0.00	0.00	0.00	0.04	0.02	0.04	0.00	0.00	0.01	8.25	98.62
0.2	0.25	0.02	0.14	0.68	0.36	0.02	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	1.24	99.86
0.25	0.3	0.00	0.01	0.07	0.04	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	99.99
0.3	0.35	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	100.00
0.35	0.4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.4	0.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.45	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.5	0.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.55	0.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>0.6		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		4.35	16.08	35.18	27.19	8.06	1.80	0.93	0.59	0.91	0.60	0.73	0.63	0.59	0.52	0.62	1.24		
Cumulative Total		4.35	20.43	55.60	82.79	90.85	92.65	93.57	94.16	95.07	95.67	96.40	97.03	97.62	98.14	98.76	100.00		

SEASONAL JFTS

1.9 m

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.05	1.20	1.84	2.14	2.43	1.55	0.73	0.37	0.29	0.37	0.29	0.29	0.25	0.35	0.23	0.32	0.63	13.30	13.30
0.05	0.1	1.58	6.68	12.39	9.38	2.62	0.47	0.10	0.08	0.15	0.18	0.15	0.08	0.09	0.07	0.08	0.41	34.54	47.84
0.1	0.15	0.50	5.50	15.41	9.51	1.35	0.07	0.02	0.02	0.07	0.02	0.09	0.06	0.02	0.00	0.02	0.05	32.68	80.52
0.15	0.2	0.15	1.83	6.60	3.05	0.29	0.02	0.00	0.02	0.04	0.01	0.03	0.04	0.02	0.01	0.00	0.01	12.11	92.63
0.2	0.25	0.04	0.93	2.33	0.50	0.03	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.04	0.01	0.00	0.00	3.92	96.55
0.25	0.3	0.05	0.66	1.25	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.05	0.03	0.01	0.00	0.00	2.14	98.69
0.3	0.35	0.03	0.27	0.63	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.03	0.01	0.00	0.00	1.02	99.71
0.35	0.4	0.00	0.04	0.12	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.01	0.00	0.00	0.24	99.95
0.4	0.45	0.00	0.00	0.01	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.05	100.00
0.45	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.5	0.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.55	0.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>0.6		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		3.54	17.75	40.88	25.05	5.84	1.29	0.50	0.41	0.63	0.50	0.61	0.53	0.59	0.37	0.42	1.10		
Cumulative Total		3.54	21.29	62.17	87.22	93.06	94.35	94.85	95.26	95.89	96.39	96.99	97.53	98.12	98.48	98.90	100.00		

2.1 m

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.05	0.57	1.16	1.30	1.37	0.71	0.35	0.32	0.24	0.26	0.21	0.19	0.18	0.18	0.17	0.25	0.37	7.82	7.82
0.05	0.1	1.02	4.77	9.33	6.64	1.81	0.37	0.15	0.09	0.11	0.16	0.14	0.10	0.06	0.09	0.11	0.22	25.15	32.97
0.1	0.15	0.50	4.62	14.24	8.24	0.87	0.04	0.03	0.10	0.04	0.02	0.06	0.06	0.05	0.00	0.00	0.05	28.91	61.88
0.15	0.2	0.18	2.22	9.52	3.55	0.17	0.01	0.00	0.02	0.03	0.01	0.05	0.03	0.01	0.02	0.01	0.04	15.87	77.76
0.2	0.25	0.07	1.58	5.82	1.11	0.04	0.00	0.00	0.01	0.04	0.02	0.03	0.00	0.01	0.02	0.04	0.03	8.83	86.58
0.25	0.3	0.03	1.37	4.34	0.47	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.03	0.00	0.00	0.00	0.02	6.30	92.88
0.3	0.35	0.02	0.88	3.40	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.01	0.00	0.00	4.59	97.47
0.35	0.4	0.00	0.36	1.51	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.02	0.00	0.00	0.00	2.02	99.49
0.4	0.45	0.00	0.02	0.42	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.48	99.97
0.45	0.5	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	100.00
0.5	0.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.55	0.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>0.6		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		2.38	16.98	49.92	21.73	3.59	0.77	0.50	0.47	0.49	0.43	0.48	0.50	0.34	0.31	0.41	0.73		
Cumulative Total		2.38	19.36	69.28	91.00	94.60	95.36	95.86	96.33	96.82	97.24	97.72	98.22	98.56	98.87	99.27	100.00		

2.5 m

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.05	0.36	0.63	0.79	0.75	0.34	0.15	0.20	0.21	0.08	0.13	0.19	0.15	0.08	0.12	0.12	0.13	4.45	4.45
0.05	0.1	0.78	2.70	4.97	3.57	0.97	0.23	0.07	0.13	0.21	0.17	0.09	0.11	0.05	0.08	0.07	0.17	14.37	18.82
0.1	0.15	0.32	3.37	9.93	5.16	0.55	0.05	0.04	0.05	0.17	0.14	0.06	0.02	0.06	0.02	0.05	0.01	19.98	38.80
0.15	0.2	0.17	2.23	8.66	3.08	0.31	0.01	0.04	0.02	0.09	0.08	0.05	0.05	0.00	0.01	0.01	0.01	14.82	53.62
0.2	0.25	0.07	2.34	7.42	1.77	0.07	0.01	0.00	0.01	0.06	0.05	0.06	0.02	0.01	0.00	0.02	0.02	11.94	65.56
0.25	0.3	0.06	1.79	8.75	1.52	0.01	0.00	0.00	0.00	0.02	0.01	0.04	0.08	0.01	0.01	0.02	0.05	12.38	77.94
0.3	0.35	0.11	1.52	8.06	1.16	0.00	0.00	0.00	0.00	0.01	0.00	0.04	0.02	0.00	0.00	0.01	0.00	10.93	88.88
0.35	0.4	0.04	0.97	5.94	0.82	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.00	0.00	0.00	0.00	7.81	96.69
0.4	0.45	0.00	0.23	2.31	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.02	0.00	0.00	0.00	2.76	99.45
0.45	0.5	0.00	0.02	0.46	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.50	99.95
0.5	0.55	0.00	0.01	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	100.00
0.55	0.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>0.6		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		1.90	15.81	57.33	18.01	2.25	0.45	0.34	0.43	0.65	0.58	0.57	0.49	0.24	0.25	0.31	0.39		
Cumulative Total		1.90	17.70	75.04	93.05	95.30	95.75	96.10	96.53	97.18	97.76	98.33	98.81	99.05	99.30	99.61	100.00		

2.7 m

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.05	0.16	0.35	0.41	0.37	0.24	0.08	0.08	0.12	0.08	0.14	0.10	0.22	0.14	0.02	0.08	0.28	2.85	2.85
0.05	0.1	0.47	1.83	2.79	1.73	0.49	0.16	0.10	0.22	0.10	0.10	0.04	0.12	0.02	0.08	0.06	0.16	8.46	11.31
0.1	0.15	0.22	2.58	6.61	3.03	0.57	0.26	0.06	0.12	0.22	0.06	0.14	0.10	0.06	0.04	0.00	0.06	14.11	25.42
0.15	0.2	0.06	1.79	6.57	2.54	0.30	0.06	0.04	0.04	0.12	0.12	0.06	0.08	0.06	0.00	0.02	0.00	11.84	37.26
0.2	0.25	0.10	2.11	8.05	2.05	0.06	0.02	0.00	0.00	0.16	0.20	0.08	0.02	0.02	0.04	0.04	0.04	12.96	50.23
0.25	0.3	0.10	2.01	9.99	1.73	0.08	0.00	0.00	0.00	0.10	0.10	0.02	0.08	0.02	0.00	0.02	0.02	14.26	64.49
0.3	0.35	0.08	2.73	10.62	1.89	0.04	0.00	0.00	0.00	0.06	0.04	0.02	0.06	0.06	0.02	0.00	0.00	15.62	80.11
0.35	0.4	0.04	1.38	9.46	1.36	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.04	0.00	0.02	0.00	0.00	12.32	92.43
0.4	0.45	0.02	0.65	4.94	0.37	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.00	0.00	0.00	0.00	6.04	98.47
0.45	0.5	0.00	0.14	1.12	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	1.34	99.80
0.5	0.55	0.00	0.00	0.16	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.20	100.00
0.55	0.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>0.6		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		1.24	15.56	60.73	15.17	1.77	0.57	0.28	0.49	0.83	0.79	0.49	0.73	0.37	0.22	0.22	0.55		
Cumulative Total		1.24	16.80	77.53	92.70	94.47	95.04	95.32	95.81	96.64	97.42	97.91	98.64	99.02	99.23	99.45	100.00		

3.0 m

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.05	0.31	0.18	0.22	0.09	0.13	0.04	0.04	0.09	0.04	0.04	0.09	0.04	0.18	0.13	0.04	0.09	1.78	1.78
0.05	0.1	0.31	0.49	0.49	0.31	0.49	0.22	0.09	0.09	0.00	0.13	0.31	0.22	0.13	0.09	0.04	0.18	3.60	5.37
0.1	0.15	0.36	1.24	2.35	0.53	0.27	0.18	0.04	0.00	0.09	0.13	0.27	0.31	0.13	0.09	0.13	0.04	6.17	11.54
0.15	0.2	0.09	1.64	4.53	1.60	0.36	0.09	0.00	0.18	0.09	0.00	0.09	0.00	0.04	0.00	0.00	0.04	8.74	20.28
0.2	0.25	0.04	2.75	7.37	1.55	0.18	0.00	0.00	0.00	0.00	0.00	0.09	0.13	0.04	0.00	0.00	0.00	12.16	32.45
0.25	0.3	0.00	3.02	9.81	1.78	0.00	0.00	0.00	0.00	0.04	0.09	0.36	0.13	0.09	0.00	0.00	0.00	15.31	47.76
0.3	0.35	0.00	3.15	14.43	1.73	0.00	0.00	0.00	0.00	0.00	0.04	0.13	0.04	0.00	0.00	0.00	0.00	19.53	67.29
0.35	0.4	0.00	1.86	14.38	1.42	0.04	0.00	0.00	0.00	0.00	0.04	0.04	0.00	0.00	0.00	0.00	0.00	17.80	85.09
0.4	0.45	0.00	1.07	8.97	0.93	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	11.01	96.09
0.45	0.5	0.00	0.40	2.80	0.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.42	99.51
0.5	0.55	0.00	0.04	0.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.40	99.91
0.55	0.6	0.00	0.00	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	100.00
>0.6		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		1.11	15.85	65.78	10.16	1.46	0.53	0.18	0.36	0.27	0.53	1.38	0.89	0.62	0.31	0.22	0.36		
Cumulative Total		1.11	16.96	82.73	92.90	94.36	94.90	95.07	95.43	95.69	96.23	97.60	98.49	99.11	99.42	99.64	100.00		

3.2 m

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.05	0.00	0.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.22	0.00	0.00	0.44	0.00	0.44	0.00	1.55	1.55
0.05	0.1	0.66	0.22	0.66	0.00	0.22	0.00	0.00	0.00	0.22	0.00	0.22	0.66	0.44	0.44	0.22	0.00	3.97	5.52
0.1	0.15	0.22	0.00	0.88	0.22	0.00	0.00	0.22	0.00	0.00	0.66	0.22	1.10	0.44	0.00	0.22	0.22	4.42	9.93
0.15	0.2	0.22	1.10	1.32	1.10	0.00	0.00	0.22	0.22	0.00	0.22	0.22	1.77	0.44	0.22	0.00	0.00	7.06	17.00
0.2	0.25	0.22	1.32	3.53	0.66	0.66	0.00	0.00	0.22	0.00	0.00	0.88	0.88	0.00	0.22	0.00	0.22	8.83	25.83
0.25	0.3	0.00	5.74	6.40	0.66	0.00	0.00	0.00	0.00	0.00	0.00	0.22	0.00	0.00	0.00	0.22	0.00	13.25	39.07
0.3	0.35	0.00	3.31	15.23	1.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.22	0.00	0.00	0.00	0.00	20.31	59.38
0.35	0.4	0.00	4.19	18.32	2.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.22	0.00	24.94	84.33
0.4	0.45	0.00	1.32	10.15	0.44	0.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.14	96.47
0.45	0.5	0.00	0.22	2.43	0.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.31	99.78
0.5	0.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	99.78
0.55	0.6	0.00	0.00	0.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.22	100.00
>0.6		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		1.32	17.88	59.16	7.51	1.10	0.00	0.44	0.44	0.22	1.10	1.77	4.64	1.77	0.88	1.32	0.44		
Cumulative Total		1.32	19.21	78.37	85.87	86.98	86.98	87.42	87.86	88.08	89.18	90.95	95.58	97.35	98.23	99.56	100.00		

SEASONAL JFTS

3.5 m

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.05	0.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.1	0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	20.00	20.00
0.15	0.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	20.00	20.00	0.00	0.00	0.00	0.00	40.00	60.00
0.2	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	20.00	20.00	0.00	0.00	0.00	0.00	40.00	100.00
0.25	0.3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.3	0.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.35	0.4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.4	0.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.45	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.5	0.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.55	0.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>0.6		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	60.00	40.00	0.00	0.00	0.00	0.00		
Cumulative Total		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	60.00	100.00	100.00	100.00	100.00	100.00		

3.7 m

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.05	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.05	0.1	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.1	0.15	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.15	0.2	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.2	0.25	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.25	0.3	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.3	0.35	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.35	0.4	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.4	0.45	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.45	0.5	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.5	0.55	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.55	0.6	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
>0.6		NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
Total		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Cumulative Total		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		

4.0 m

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.05	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.05	0.1	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.1	0.15	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.15	0.2	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.2	0.25	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.25	0.3	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.3	0.35	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.35	0.4	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.4	0.45	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.45	0.5	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.5	0.55	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.55	0.6	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
>0.6		NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
Total		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Cumulative Total		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		

4.2 m

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.05	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.05	0.1	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.1	0.15	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.15	0.2	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.2	0.25	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.25	0.3	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.3	0.35	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.35	0.4	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.4	0.45	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.45	0.5	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.5	0.55	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.55	0.6	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
>0.6		NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
Total		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Cumulative Total		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		

SEASONAL JFTS

Autumn - Current Velocity (m/s)

0.5 m

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.05	5.10	5.31	5.00	4.76	4.77	3.61	2.64	2.44	2.72	2.10	1.60	2.12	2.69	2.95	3.04	3.79	54.65	54.65
0.05	0.1	4.39	5.30	5.58	4.90	3.92	2.25	1.55	0.83	0.81	0.65	0.73	0.75	0.92	1.20	1.99	2.94	38.71	93.36
0.1	0.15	0.62	1.04	1.16	0.92	0.57	0.36	0.19	0.08	0.04	0.04	0.06	0.05	0.05	0.16	0.23	0.43	6.00	99.36
0.15	0.2	0.08	0.09	0.12	0.07	0.06	0.03	0.01	0.02	0.01	0.01	0.00	0.00	0.00	0.00	0.03	0.07	0.58	99.93
0.2	0.25	0.01	0.01	0.00	0.00	0.01	0.00	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.01	0.01	0.05	99.98
0.25	0.3	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	99.99
0.3	0.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	99.99
0.35	0.4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	99.99
0.4	0.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	99.99
0.45	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	99.99
0.5	0.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	100.00
0.55	0.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>0.6		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		10.21	11.76	11.87	10.64	9.32	6.25	4.40	3.37	3.57	2.80	2.39	2.92	3.66	4.30	5.30	7.23		
Cumulative Total		10.21	21.97	33.83	44.48	53.80	60.05	64.45	67.82	71.39	74.19	76.58	79.51	83.17	87.47	92.77	100.00		

0.7 m

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.05	5.55	5.30	4.65	5.05	5.24	3.44	2.44	2.13	2.41	1.69	1.70	1.85	2.42	2.44	2.42	3.34	52.07	52.07
0.05	0.1	4.69	5.96	6.97	6.33	4.15	2.07	1.12	0.66	0.64	0.56	0.51	0.56	0.72	0.81	1.36	2.41	39.51	91.58
0.1	0.15	0.83	1.44	1.80	1.41	0.90	0.25	0.08	0.02	0.02	0.05	0.04	0.04	0.04	0.06	0.13	0.30	7.38	98.97
0.15	0.2	0.12	0.14	0.20	0.21	0.10	0.04	0.02	0.01	0.00	0.01	0.03	0.01	0.00	0.00	0.02	0.03	0.91	99.88
0.2	0.25	0.01	0.02	0.02	0.02	0.02	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.11	99.98
0.25	0.3	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	100.00
0.3	0.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.35	0.4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.4	0.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.45	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.5	0.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.55	0.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>0.6		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		11.19	12.86	13.65	13.02	10.42	5.81	3.66	2.82	3.06	2.30	2.27	2.46	3.17	3.30	3.92	6.09		
Cumulative Total		11.19	24.06	37.70	50.73	61.14	66.95	70.61	73.43	76.49	78.79	81.06	83.52	86.69	89.99	93.91	100.00		

0.9 m

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.05	4.79	5.08	5.11	4.82	4.68	2.97	2.26	1.89	2.02	1.74	1.30	1.46	2.06	1.72	2.07	3.06	47.01	47.01
0.05	0.1	4.44	6.65	8.06	7.00	4.68	1.94	0.99	0.56	0.51	0.55	0.61	0.55	0.49	0.71	1.08	2.16	40.97	87.98
0.1	0.15	0.81	1.96	2.96	2.47	1.00	0.32	0.09	0.01	0.03	0.07	0.07	0.05	0.03	0.05	0.10	0.34	10.33	98.31
0.15	0.2	0.09	0.24	0.47	0.45	0.11	0.02	0.01	0.00	0.00	0.01	0.03	0.01	0.00	0.00	0.01	0.05	1.49	99.80
0.2	0.25	0.01	0.03	0.07	0.04	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.17	99.97
0.25	0.3	0.00	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	99.99
0.3	0.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	99.99
0.35	0.4	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	100.00
0.4	0.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.45	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.5	0.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.55	0.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>0.6		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		10.14	13.96	16.67	14.78	10.50	5.24	3.34	2.45	2.56	2.37	2.00	2.07	2.58	2.48	3.26	5.61		
Cumulative Total		10.14	24.10	40.76	55.54	66.04	71.28	74.62	77.08	79.64	82.01	84.01	86.08	88.66	91.13	94.39	100.00		

1.2 m

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.05	4.33	4.74	4.69	4.85	4.47	2.72	1.88	1.65	1.93	1.45	1.38	1.40	1.59	1.54	1.77	2.45	42.81	42.81
0.05	0.1	3.70	6.72	9.16	8.11	4.91	1.78	0.91	0.60	0.62	0.63	0.55	0.57	0.44	0.42	0.73	1.56	41.39	84.20
0.1	0.15	0.92	2.32	4.01	3.48	1.28	0.26	0.06	0.01	0.01	0.05	0.11	0.06	0.02	0.03	0.07	0.28	12.96	97.16
0.15	0.2	0.11	0.42	0.85	0.64	0.23	0.03	0.01	0.00	0.00	0.02	0.05	0.01	0.01	0.00	0.00	0.03	2.39	99.55
0.2	0.25	0.01	0.07	0.11	0.14	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.01	0.40	99.94
0.25	0.3	0.01	0.01	0.03	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	99.99
0.3	0.35	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	100.00
0.35	0.4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.4	0.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.45	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.5	0.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.55	0.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>0.6		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		9.08	14.26	18.84	17.22	10.96	4.78	2.86	2.25	2.56	2.14	2.07	2.04	2.05	1.98	2.57	4.33		
Cumulative Total		9.08	23.34	42.18	59.40	70.35	75.13	77.99	80.24	82.81	84.95	87.02	89.06	91.12	93.10	95.67	100.00		

1.4 m

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.05	3.56	4.18	4.52	4.68	4.44	2.52	1.81	1.54	1.60	1.24	1.05	1.05	1.31	1.16	1.36	1.82	37.85	37.85
0.05	0.1	3.31	6.82	10.05	8.89	4.95	1.80	0.77	0.56	0.66	0.64	0.70	0.43	0.37	0.32	0.48	1.07	41.82	79.66
0.1	0.15	0.72	2.91	5.70	4.42	1.50	0.29	0.05	0.02	0.01	0.07	0.12	0.09	0.01	0.02	0.02	0.15	16.09	95.75
0.15	0.2	0.12	0.59	1.25	1.08	0.34	0.04	0.00	0.00	0.00	0.03	0.02	0.01	0.00	0.00	0.00	0.02	3.50	99.25
0.2	0.25	0.03	0.12	0.15	0.28	0.05	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.01	0.00	0.64	99.89
0.25	0.3	0.01	0.02	0.05	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.10	99.99
0.3	0.35	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	100.00
0.35	0.4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.4	0.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.45	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.5	0.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.55	0.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>0.6		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		7.75	14.64	21.72	19.38	11.29	4.66	2.63	2.11	2.27	1.98	1.90	1.58	1.68	1.50	1.86	3.05		
Cumulative Total		7.75	22.39	44.10	63.48	74.77	79.43	82.06	84.18	86.44	88.43	90.33	91.91	93.59	95.09	96.95	100.00		

1.7 m

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.05	3.00	3.51	4.49	4.54	4.05	2.30	1.47	1.34	1.45	1.11	0.97	1.02	1.14	0.92	0.93	1.46	33.68	33.68
0.05	0.1	2.41	6.60	10.70	9.41	5.07	1.65	0.71	0.45	0.58	0.66	0.76	0.52	0.27	0.16	0.27	0.72	40.93	74.62
0.1	0.15	0.65	3.16	7.34	5.91	1.86	0.23	0.07	0.03	0.02	0.09	0.14	0.05	0.01	0.01	0.01	0.09	19.65	94.27
0.15	0.2	0.14	0.62	1.93	1.49	0.40	0.02	0.00	0.00	0.00	0.01	0.03	0.01	0.00	0.00	0.00	0.00	4.64	98.91
0.2	0.25	0.01	0.11	0.32	0.34	0.08	0.01	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.02	0.90	99.81
0.25	0.3	0.02	0.01	0.06	0.07	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.17	99.97
0.3	0.35	0.00	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	100.00
0.35	0.4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.4	0.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.45	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.5	0.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.55	0.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>0.6		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		6.22	14.01	24.83	21.76	11.48	4.20	2.25	1.81	2.05	1.87	1.92	1.60	1.42	1.09	1.21	2.28		
Cumulative Total		6.22	20.23	45.06	66.82	78.30	82.50	84.75	86.56	88.61	90.48	92.39	94.00	95.41	96.50	97.72	100.00		

SEASONAL JFTS

1.9 m

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.05	2.28	3.17	3.70	3.84	3.21	2.13	1.36	1.18	1.34	1.13	0.94	0.91	0.78	0.71	0.72	1.17	28.57	28.57
0.05	0.1	2.08	5.89	10.41	9.96	4.86	1.49	0.62	0.39	0.51	0.65	0.85	0.48	0.29	0.18	0.21	0.48	39.35	67.92
0.1	0.15	0.56	3.26	8.52	6.66	1.78	0.20	0.01	0.04	0.04	0.13	0.15	0.11	0.03	0.02	0.01	0.08	21.58	89.50
0.15	0.2	0.16	0.97	3.08	2.27	0.52	0.04	0.00	0.01	0.00	0.03	0.05	0.04	0.00	0.01	0.01	0.02	7.19	96.68
0.2	0.25	0.08	0.30	1.04	0.57	0.07	0.01	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.01	0.05	2.13	98.81
0.25	0.3	0.04	0.13	0.43	0.12	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.04	0.78	99.59
0.3	0.35	0.02	0.04	0.16	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.28	99.87
0.35	0.4	0.01	0.00	0.09	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.11	99.98
0.4	0.45	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	100.00
0.45	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.5	0.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.55	0.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>0.6		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		5.21	13.76	27.44	23.45	10.46	3.88	1.98	1.61	1.88	1.95	1.99	1.53	1.10	0.91	0.96	1.88		
Cumulative Total		5.21	18.98	46.42	69.87	80.32	84.20	86.19	87.80	89.67	91.62	93.62	95.15	96.25	97.16	98.12	100.00		

2.1 m

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.05	1.87	2.44	2.94	3.01	2.64	1.53	1.10	0.87	0.96	0.87	0.84	0.82	0.76	0.71	0.73	0.99	23.08	23.08
0.05	0.1	2.03	5.10	8.50	7.98	3.84	1.37	0.59	0.50	0.57	0.68	0.68	0.51	0.38	0.31	0.44	0.68	34.15	57.23
0.1	0.15	0.71	3.34	8.03	6.77	1.79	0.29	0.06	0.09	0.08	0.25	0.28	0.11	0.03	0.09	0.20	0.27	22.38	79.61
0.15	0.2	0.27	1.55	4.08	2.83	0.52	0.06	0.01	0.01	0.03	0.08	0.12	0.04	0.02	0.04	0.10	0.12	9.89	89.50
0.2	0.25	0.12	0.81	2.47	0.68	0.14	0.02	0.01	0.00	0.01	0.08	0.03	0.01	0.01	0.03	0.09	0.13	4.62	94.12
0.25	0.3	0.11	0.46	1.63	0.30	0.03	0.00	0.00	0.00	0.00	0.03	0.03	0.01	0.00	0.02	0.10	0.13	2.83	96.95
0.3	0.35	0.06	0.26	1.17	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.01	0.00	0.00	0.08	0.08	1.84	98.80
0.35	0.4	0.04	0.11	0.61	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.01	0.00	0.01	0.02	0.03	0.88	99.67
0.4	0.45	0.01	0.02	0.25	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.01	0.00	0.31	99.98
0.45	0.5	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	99.99
0.5	0.55	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	100.00
0.55	0.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>0.6		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		5.23	14.09	29.71	21.76	8.95	3.27	1.77	1.46	1.64	1.97	2.05	1.51	1.20	1.20	1.76	2.44		
Cumulative Total		5.23	19.32	49.03	70.79	79.74	83.01	84.78	86.23	87.87	89.85	91.89	93.40	94.60	95.80	97.56	100.00		

2.5 m

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.05	1.54	1.66	2.02	1.98	1.72	1.06	0.66	0.59	0.73	0.71	0.77	0.62	0.66	0.54	0.71	0.87	16.86	16.86
0.05	0.1	1.87	4.16	6.60	6.08	2.93	0.90	0.47	0.40	0.65	0.81	0.86	0.64	0.54	0.45	0.66	1.10	29.13	45.99
0.1	0.15	0.90	3.20	7.47	5.98	1.58	0.42	0.13	0.11	0.20	0.35	0.41	0.29	0.19	0.25	0.51	0.46	22.44	68.43
0.15	0.2	0.43	1.86	4.87	2.92	0.65	0.11	0.05	0.08	0.07	0.11	0.18	0.13	0.10	0.16	0.26	0.34	12.33	80.76
0.2	0.25	0.35	1.40	3.39	1.12	0.24	0.07	0.01	0.03	0.11	0.14	0.13	0.15	0.06	0.15	0.38	0.29	8.03	88.79
0.25	0.3	0.35	0.74	2.50	0.60	0.05	0.01	0.00	0.02	0.09	0.10	0.05	0.03	0.04	0.13	0.33	0.38	5.42	94.21
0.3	0.35	0.19	0.34	1.68	0.24	0.01	0.00	0.00	0.00	0.00	0.07	0.06	0.02	0.01	0.05	0.29	0.30	3.27	97.48
0.35	0.4	0.04	0.17	0.96	0.13	0.01	0.00	0.00	0.00	0.01	0.05	0.02	0.02	0.00	0.03	0.09	0.11	1.62	99.10
0.4	0.45	0.00	0.09	0.44	0.05	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.00	0.00	0.01	0.01	0.04	0.65	99.75
0.45	0.5	0.00	0.02	0.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.21	99.96
0.5	0.55	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	99.99
0.55	0.6	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	100.00
>0.6		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		5.68	13.64	30.17	19.09	7.17	2.57	1.32	1.24	1.86	2.36	2.48	1.90	1.60	1.76	3.24	3.90		
Cumulative Total		5.68	19.33	49.49	68.59	75.76	78.33	79.65	80.89	82.75	85.11	87.60	89.50	91.10	92.86	96.10	100.00		

2.7 m

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.05	0.89	1.20	1.06	1.21	1.08	0.79	0.45	0.56	0.48	0.47	0.37	0.44	0.47	0.38	0.43	0.64	10.92	10.92
0.05	0.1	1.69	2.68	4.41	4.03	2.12	0.85	0.52	0.50	0.59	0.73	0.73	0.47	0.50	0.69	0.82	0.96	22.29	33.22
0.1	0.15	1.07	2.71	5.62	4.45	1.48	0.36	0.16	0.18	0.47	0.69	0.64	0.48	0.30	0.45	0.84	0.75	20.65	53.87
0.15	0.2	0.68	1.99	5.23	2.89	0.68	0.22	0.12	0.12	0.18	0.35	0.29	0.25	0.25	0.35	0.54	0.58	14.73	68.60
0.2	0.25	0.63	1.59	4.36	1.79	0.24	0.06	0.05	0.08	0.15	0.28	0.22	0.34	0.28	0.35	0.62	0.56	11.60	80.20
0.25	0.3	0.48	1.10	4.00	1.10	0.08	0.02	0.03	0.05	0.09	0.13	0.15	0.28	0.25	0.15	0.48	0.54	8.95	89.15
0.3	0.35	0.28	0.79	2.58	0.69	0.04	0.02	0.01	0.02	0.06	0.10	0.22	0.20	0.16	0.22	0.39	0.42	6.22	95.37
0.35	0.4	0.08	0.29	1.46	0.27	0.01	0.00	0.00	0.00	0.01	0.02	0.08	0.08	0.06	0.11	0.17	0.12	2.76	98.13
0.4	0.45	0.05	0.15	0.82	0.10	0.01	0.00	0.00	0.00	0.00	0.02	0.05	0.03	0.02	0.01	0.05	0.05	1.34	99.47
0.45	0.5	0.02	0.05	0.32	0.02	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.02	0.00	0.00	0.00	0.45	99.92
0.5	0.55	0.00	0.02	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	99.99
0.55	0.6	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	100.00
>0.6		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		5.87	12.58	29.92	16.56	5.72	2.34	1.32	1.53	2.04	2.80	2.76	2.58	2.29	2.73	4.34	4.62		
Cumulative Total		5.87	18.45	48.37	64.93	70.65	72.99	74.31	75.84	77.88	80.69	83.44	86.02	88.31	91.04	95.38	100.00		

3.0 m

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.05	0.43	0.63	0.43	0.64	0.48	0.43	0.33	0.33	0.26	0.36	0.21	0.24	0.36	0.31	0.44	0.50	6.37	6.37
0.05	0.1	1.07	1.57	2.34	2.28	1.35	0.38	0.38	0.33	0.68	0.61	0.34	0.47	0.64	0.51	0.64	0.66	14.26	20.63
0.1	0.15	0.90	2.05	3.80	3.31	1.51	0.47	0.30	0.23	0.56	0.78	0.70	0.44	0.57	0.58	0.80	0.63	17.63	38.26
0.15	0.2	0.68	1.37	4.06	2.74	0.78	0.27	0.26	0.34	0.70	0.74	0.64	0.31	0.30	0.71	0.70	0.64	15.25	53.51
0.2	0.25	0.87	1.75	4.30	2.09	0.44	0.10	0.14	0.14	0.41	0.68	0.31	0.28	0.28	0.57	0.73	0.88	14.01	67.51
0.25	0.3	0.83	1.14	4.60	1.34	0.11	0.04	0.06	0.10	0.30	0.51	0.36	0.50	0.21	0.43	0.58	0.61	11.73	79.24
0.3	0.35	0.46	1.00	5.12	0.97	0.04	0.01	0.00	0.01	0.19	0.23	0.20	0.50	0.24	0.26	0.41	0.51	10.15	89.38
0.35	0.4	0.21	0.78	3.80	0.60	0.04	0.00	0.01	0.00	0.01	0.17	0.20	0.26	0.16	0.14	0.07	0.20	6.67	96.05
0.4	0.45	0.04	0.43	1.52	0.16	0.01	0.00	0.00	0.00	0.01	0.10	0.07	0.10	0.03	0.00	0.01	0.04	2.54	98.59
0.45	0.5	0.00	0.17	0.80	0.06	0.00	0.00	0.00	0.00	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.01	1.10	99.69
0.5	0.55	0.00	0.04	0.17	0.01	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.03	0.00	0.00	0.00	0.00	0.27	99.96
0.55	0.6	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.04	100.00
>0.6		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		5.49	10.93	30.98	14.19	4.79	1.71	1.48	1.48	3.12	4.26	3.04	3.13	2.79	3.52	4.39	4.70		
Cumulative Total		5.49	16.41	47.39	61.58	66.37	68.08	69.56	71.05	74.17	78.43	81.46	84.60	87.39	90.91	95.30	100.00		

3.2 m

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.05	0.22	0.13	0.31	0.22	0.04	0.45	0.09	0.04	0.09	0.09	0.13	0.13	0.31	0.04	0.09	0.13	2.55	2.55
0.05	0.1	0.71	0.71	1.30	0.85	0.80	0.54	0.54	0.22	0.36	0.13	0.13	0.18	0.49	0.49	0.40	0.67	8.53	11.08
0.1	0.15	0.63	1.61	1.83	1.97	1.34	0.40	0.58	0.36	0.40	0.45	0.18	0.36	0.76	0.85	0.45	0.54	12.69	23.77
0.15	0.2	0.89	0.80	2.95	2.23	0.76	0.58	0.36	0.36	0.67	0.85	0.67	0.54	1.03	0.94	0.76	1.03	15.42	39.19
0.2	0.25	0.98	1.21	3.53	2.99	0.54	0.27	0.31	0.40	0.94	1.03	0.67	0.76	0.98	1.21	0.76	0.54	17.11	56.30
0.25	0.3	1.39	1.21	3.66	2.28	0.36	0.00	0.09	0.22	0.76	1.52	0.98	0.89	0.80	0.76	0.76	1.25	16.93	73.24
0.3	0.35	0.80	0.67	4.47	1.65	0.00	0.00	0.04	0.09	0.31	0.98	0.67	0.85	0.54	0.63	0.85	0.45	13.00	86.24
0.35	0.4	0.58	0.40	2.82	0.89	0.00	0.00	0.04	0.13	0.18	0.22	0.63	0.36	0.31	0.27	0.45	0.49	7.77	94.01
0.4	0.45	0.18	0.31	2.01	0.45	0.00	0.00	0.00	0.00	0.00	0.09	0.13	0.22	0.00	0.22	0.13	0.09	3.84	97.86
0.45	0.5	0.13	0.04	1.07	0.31	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.04	0.00	0.04	0.00	0.04	1.83	99.69
0.5	0.55	0.00	0.00	0.18	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.31	100.00
0.55	0.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>0.6		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		6.52	7.10	24.13	13.94	3.84	2.23	2.06	1.83	3.71	5.36	4.33	4.33	5.23	5.45	4.65	5.27		
Cumulative Total		6.52	13.63	37.76	51.70	55.54	57.77	59.83	61.66	65.37	70.73	75.07	79.40	84.63	90.08	94.73	100.00		

SEASONAL JFTS

3.5 m

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.05	0.00	0.00	0.30	0.00	0.00	0.00	0.00	0.00	0.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.61	0.61
0.05	0.1	1.22	0.30	0.30	0.00	1.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.30	0.00	0.00	0.00	3.35	3.96
0.1	0.15	1.83	1.83	1.83	0.91	1.22	2.74	0.30	0.30	0.61	0.00	0.30	0.00	0.91	0.61	0.61	1.22	15.24	19.21
0.15	0.2	1.22	0.91	3.66	3.66	0.91	1.22	0.61	0.30	0.00	0.30	0.00	0.00	0.61	0.91	0.61	0.91	15.85	35.06
0.2	0.25	0.61	0.00	1.52	1.52	0.91	0.61	0.91	0.61	0.00	0.00	0.30	0.00	1.22	0.91	0.91	1.83	11.89	46.95
0.25	0.3	1.22	1.52	1.52	2.13	0.61	0.30	0.61	0.30	1.22	0.61	0.00	0.00	2.13	0.61	0.61	2.74	16.16	63.11
0.3	0.35	0.61	1.22	3.66	2.74	0.00	0.30	0.00	0.00	0.91	0.61	0.30	0.91	2.74	0.61	1.52	2.44	18.60	81.71
0.35	0.4	0.00	2.13	0.91	0.30	0.00	0.00	0.00	0.00	0.00	0.61	1.83	2.44	0.30	0.30	0.00	0.91	9.76	91.46
0.4	0.45	0.30	0.61	1.22	0.30	0.00	0.00	0.00	0.00	0.00	0.30	2.13	0.91	0.30	0.00	0.00	0.00	6.10	97.56
0.45	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.22	0.30	0.00	0.00	0.00	1.52	99.09
0.5	0.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.30	0.61	0.00	0.00	0.00	0.00	0.91	100.00
0.55	0.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>0.6		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		7.01	8.54	14.94	11.59	4.88	5.18	2.44	1.52	3.05	2.44	5.18	6.10	8.84	3.96	4.27	10.06		
Cumulative Total		7.01	15.55	30.49	42.07	46.95	52.13	54.57	56.10	59.15	61.59	66.77	72.87	81.71	85.67	89.94	100.00		

3.7 m

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.05	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.05	0.1	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.1	0.15	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.15	0.2	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.2	0.25	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.25	0.3	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.3	0.35	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.35	0.4	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.4	0.45	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.45	0.5	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.5	0.55	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.55	0.6	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
>0.6		NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
Total		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Cumulative Total		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		

4.0 m

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.05	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.05	0.1	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.1	0.15	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.15	0.2	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.2	0.25	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.25	0.3	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.3	0.35	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.35	0.4	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.4	0.45	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.45	0.5	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.5	0.55	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.55	0.6	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
>0.6		NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
Total		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Cumulative Total		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		

4.2 m

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.05	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.05	0.1	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.1	0.15	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.15	0.2	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.2	0.25	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.25	0.3	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.3	0.35	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.35	0.4	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.4	0.45	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.45	0.5	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.5	0.55	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.55	0.6	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
>0.6		NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
Total		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Cumulative Total		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		

SEASONAL JFTS

Winter - Current Velocity (m/s)

0.5 m

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.05	4.30	4.16	3.92	4.05	3.68	2.44	1.87	1.56	1.51	1.30	1.03	1.29	1.82	1.83	2.36	2.91	40.03	40.03
0.05	0.1	5.80	6.86	7.34	6.10	4.33	2.42	1.34	0.80	0.52	0.43	0.48	0.41	0.74	1.11	2.10	3.62	44.41	84.45
0.1	0.15	1.85	2.47	2.66	2.13	1.60	0.55	0.18	0.07	0.05	0.05	0.06	0.05	0.09	0.11	0.42	0.98	13.32	97.77
0.15	0.2	0.37	0.29	0.26	0.30	0.26	0.12	0.02	0.02	0.01	0.01	0.00	0.00	0.01	0.01	0.07	0.19	1.95	99.72
0.2	0.25	0.06	0.03	0.02	0.02	0.03	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.23	99.95
0.25	0.3	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	99.99
0.3	0.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.35	0.4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.4	0.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.45	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.5	0.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.55	0.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>0.6		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		12.40	13.81	14.21	12.61	9.90	5.54	3.44	2.45	2.09	1.80	1.58	1.75	2.66	3.06	4.95	7.76		
Cumulative Total		12.40	26.22	40.43	53.04	62.94	68.49	71.92	74.37	76.46	78.25	79.83	81.58	84.24	87.30	92.24	100.00		

0.7 m

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.05	4.03	4.17	4.06	3.75	3.60	2.23	1.53	1.37	1.33	1.10	1.05	1.18	1.73	1.43	1.82	2.77	37.16	37.16
0.05	0.1	5.45	7.34	8.31	7.21	4.67	1.90	1.00	0.49	0.42	0.45	0.39	0.36	0.58	0.73	1.46	2.66	43.44	80.59
0.1	0.15	1.88	3.02	3.98	3.45	1.74	0.54	0.09	0.02	0.00	0.01	0.05	0.02	0.02	0.07	0.18	0.74	15.83	96.42
0.15	0.2	0.36	0.51	0.74	0.79	0.49	0.10	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.13	3.18	99.60
0.2	0.25	0.07	0.02	0.08	0.08	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.34	99.94
0.25	0.3	0.01	0.01	0.00	0.00	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	100.00
0.3	0.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.35	0.4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.4	0.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.45	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.5	0.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.55	0.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>0.6		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		11.80	15.10	17.18	15.28	10.58	4.77	2.63	1.88	1.76	1.57	1.50	1.55	2.33	2.24	3.49	6.34		
Cumulative Total		11.80	26.90	44.07	59.35	69.93	74.70	77.33	79.21	80.97	82.54	84.03	85.59	87.92	90.16	93.66	100.00		

0.9 m

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.05	3.41	3.50	3.59	3.36	3.23	1.87	1.24	1.26	1.14	1.00	0.96	1.06	1.43	1.21	1.40	2.19	31.85	31.85
0.05	0.1	4.33	7.00	9.67	7.69	4.91	1.85	0.75	0.49	0.40	0.46	0.43	0.35	0.35	0.48	0.96	1.82	41.95	73.81
0.1	0.15	1.80	3.83	5.95	5.05	2.09	0.48	0.05	0.02	0.03	0.00	0.03	0.04	0.02	0.05	0.12	0.53	20.09	93.90
0.15	0.2	0.33	0.92	1.67	1.45	0.54	0.10	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.08	5.12	99.02
0.2	0.25	0.06	0.13	0.21	0.29	0.12	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.85	99.87
0.25	0.3	0.02	0.02	0.03	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	99.99
0.3	0.35	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	100.00
0.35	0.4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.4	0.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.45	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.5	0.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.55	0.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>0.6		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		9.95	15.40	21.12	17.85	10.92	4.32	2.06	1.77	1.57	1.47	1.44	1.45	1.79	1.74	2.50	4.66		
Cumulative Total		9.95	25.36	46.47	64.33	75.25	79.57	81.62	83.39	84.96	86.42	87.86	89.31	91.10	92.84	95.34	100.00		

1.2 m

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.05	2.38	2.91	3.06	3.04	2.87	1.69	1.25	1.06	1.16	0.96	0.92	0.75	0.95	0.99	1.09	1.60	26.68	26.68
0.05	0.1	3.24	6.57	9.56	8.40	4.82	1.92	0.68	0.39	0.46	0.49	0.45	0.30	0.27	0.38	0.72	1.35	40.00	66.68
0.1	0.15	1.60	4.23	7.75	6.59	2.58	0.44	0.07	0.01	0.02	0.05	0.08	0.03	0.01	0.03	0.09	0.32	23.90	90.58
0.15	0.2	0.38	1.15	2.74	2.31	0.70	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	7.47	98.05
0.2	0.25	0.09	0.22	0.55	0.66	0.17	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	1.73	99.78
0.25	0.3	0.01	0.01	0.07	0.07	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.19	99.96
0.3	0.35	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	100.00
0.35	0.4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.4	0.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.45	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.5	0.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.55	0.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>0.6		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		7.71	15.11	23.73	21.08	11.16	4.20	2.00	1.46	1.64	1.51	1.45	1.08	1.23	1.40	1.90	3.34		
Cumulative Total		7.71	22.82	46.55	67.63	78.79	82.99	84.99	86.45	88.10	89.61	91.06	92.14	93.36	94.76	96.66	100.00		

1.4 m

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.05	1.88	2.31	2.63	2.83	2.49	1.75	1.09	1.03	1.03	0.85	0.74	0.64	0.80	0.70	0.68	1.12	22.58	22.58
0.05	0.1	2.41	5.52	9.33	9.13	4.89	1.63	0.67	0.53	0.53	0.62	0.37	0.27	0.27	0.20	0.29	0.73	37.39	59.97
0.1	0.15	1.12	4.28	9.38	8.56	2.71	0.45	0.06	0.01	0.04	0.05	0.08	0.05	0.01	0.01	0.04	0.17	27.02	86.99
0.15	0.2	0.32	1.38	3.87	3.35	0.83	0.11	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.05	9.93	96.92
0.2	0.25	0.07	0.27	1.04	1.00	0.27	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	2.66	99.58
0.25	0.3	0.02	0.04	0.14	0.12	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.37	99.95
0.3	0.35	0.00	0.00	0.01	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	100.00
0.35	0.4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.4	0.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.45	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.5	0.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.55	0.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>0.6		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		5.82	13.80	26.40	25.00	11.25	3.96	1.83	1.58	1.60	1.52	1.21	0.96	1.08	0.90	1.00	2.09		
Cumulative Total		5.82	19.62	46.02	71.03	82.28	86.24	88.07	89.64	91.24	92.76	93.97	94.93	96.01	96.91	97.91	100.00		

1.7 m

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.05	1.41	1.60	2.20	2.35	2.31	1.45	1.08	1.06	1.16	0.79	0.66	0.62	0.53	0.50	0.52	0.74	18.98	18.98
0.05	0.1	1.53	4.31	8.59	9.01	4.88	1.79	0.75	0.66	0.69	0.65	0.48	0.26	0.22	0.16	0.19	0.46	34.64	53.63
0.1	0.15	0.72	3.93	10.70	9.81	3.24	0.44	0.08	0.05	0.09	0.12	0.13	0.04	0.03	0.02	0.02	0.10	29.52	83.14
0.15	0.2	0.28	1.42	5.00	4.67	1.03	0.12	0.00	0.00	0.00	0.03	0.02	0.00	0.00	0.00	0.00	0.01	12.59	95.73
0.2	0.25	0.04	0.33	1.36	1.52	0.34	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.60	99.33
0.25	0.3	0.01	0.07	0.20	0.24	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.58	99.91
0.3	0.35	0.01	0.00	0.03	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	100.00
0.35	0.4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.4	0.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.45	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.5	0.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.55	0.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>0.6		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		4.00	11.67	28.09	27.63	11.87	3.81	1.92	1.77	1.94	1.58	1.29	0.92	0.79	0.67	0.73	1.31		
Cumulative Total		4.00	15.67	43.76	71.39	83.26	87.07	88.99	90.76	92.71	94.29	95.58	96.50	97.29	97.96	98.69	100.00		

SEASONAL JFTS

1.9 m

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.05	1.11	1.43	1.68	2.03	1.95	1.12	0.91	0.75	0.90	0.63	0.59	0.46	0.60	0.50	0.40	0.65	15.73	15.73
0.05	0.1	1.45	3.65	7.52	7.59	4.27	1.47	0.76	0.62	0.71	0.58	0.65	0.40	0.26	0.21	0.27	0.53	30.95	46.68
0.1	0.15	0.67	3.48	9.94	9.98	3.04	0.46	0.22	0.19	0.33	0.36	0.30	0.18	0.10	0.06	0.08	0.26	29.65	76.34
0.15	0.2	0.28	1.69	6.17	5.52	1.25	0.10	0.07	0.08	0.16	0.24	0.13	0.04	0.03	0.01	0.07	0.12	15.97	92.30
0.2	0.25	0.12	0.63	2.15	1.96	0.37	0.01	0.01	0.05	0.07	0.11	0.07	0.02	0.00	0.01	0.02	0.02	5.62	97.92
0.25	0.3	0.04	0.15	0.66	0.38	0.06	0.00	0.01	0.00	0.02	0.03	0.04	0.01	0.00	0.00	0.00	0.02	1.41	99.34
0.3	0.35	0.02	0.10	0.26	0.07	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.49	99.83
0.35	0.4	0.00	0.03	0.10	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.16	100.00
0.4	0.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.45	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.5	0.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.55	0.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>0.6		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		3.69	11.16	28.48	27.58	10.97	3.17	1.99	1.69	2.18	1.96	1.78	1.12	1.00	0.79	0.84	1.60		
Cumulative Total		3.69	14.85	43.33	70.91	81.88	85.05	87.04	88.73	90.92	92.87	94.65	95.77	96.77	97.56	98.40	100.00		

2.1 m

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.05	1.03	1.15	1.32	1.73	1.43	0.94	0.85	0.65	0.72	0.74	0.55	0.50	0.54	0.54	0.55	0.62	13.86	13.86
0.05	0.1	1.59	3.32	5.80	6.21	3.30	1.15	0.66	0.52	0.57	0.54	0.70	0.46	0.36	0.39	0.45	0.60	26.62	40.48
0.1	0.15	1.05	3.61	8.55	8.27	2.57	0.43	0.22	0.23	0.25	0.38	0.36	0.12	0.23	0.14	0.32	0.65	27.36	67.85
0.15	0.2	0.72	2.16	6.03	5.03	1.13	0.13	0.12	0.22	0.24	0.24	0.16	0.13	0.07	0.13	0.24	0.42	17.16	85.00
0.2	0.25	0.40	0.94	2.73	2.03	0.39	0.00	0.09	0.13	0.19	0.23	0.14	0.13	0.10	0.09	0.25	0.31	8.15	93.16
0.25	0.3	0.20	0.48	1.40	0.72	0.10	0.00	0.03	0.04	0.13	0.17	0.10	0.09	0.09	0.04	0.14	0.20	3.93	97.09
0.3	0.35	0.17	0.22	0.84	0.20	0.04	0.00	0.00	0.00	0.01	0.03	0.13	0.04	0.02	0.00	0.08	0.09	1.90	98.99
0.35	0.4	0.06	0.13	0.43	0.10	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.02	0.02	0.81	99.79
0.4	0.45	0.00	0.02	0.13	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.18	99.97
0.45	0.5	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	100.00
0.5	0.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.55	0.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>0.6		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		5.23	12.04	27.26	24.31	8.97	2.65	1.97	1.80	2.11	2.33	2.14	1.48	1.42	1.33	2.05	2.93		
Cumulative Total		5.23	17.26	44.52	68.83	77.80	80.46	82.42	84.22	86.33	88.66	90.80	92.29	93.70	95.03	97.07	100.00		

2.5 m

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.05	1.02	1.05	1.20	1.18	1.07	0.79	0.61	0.61	0.66	0.46	0.50	0.50	0.49	0.53	0.47	0.68	11.81	11.81
0.05	0.1	1.81	2.99	4.65	4.38	2.22	0.86	0.43	0.44	0.51	0.55	0.63	0.62	0.46	0.47	0.62	0.95	22.61	34.42
0.1	0.15	1.59	3.34	6.66	5.64	1.88	0.36	0.20	0.22	0.32	0.37	0.36	0.29	0.39	0.33	0.51	0.91	23.39	57.82
0.15	0.2	1.25	2.26	5.08	3.91	0.97	0.16	0.21	0.14	0.28	0.25	0.26	0.25	0.27	0.18	0.50	0.98	16.94	74.76
0.2	0.25	1.01	1.81	3.61	1.88	0.38	0.15	0.09	0.12	0.11	0.13	0.15	0.31	0.18	0.19	0.50	1.01	11.63	86.39
0.25	0.3	0.67	1.25	2.12	0.71	0.13	0.03	0.05	0.03	0.08	0.08	0.12	0.21	0.12	0.08	0.43	0.78	6.89	93.28
0.3	0.35	0.44	0.64	1.24	0.28	0.05	0.00	0.01	0.00	0.06	0.04	0.06	0.08	0.06	0.02	0.27	0.40	3.62	96.90
0.35	0.4	0.14	0.38	0.72	0.21	0.01	0.00	0.00	0.00	0.01	0.02	0.02	0.03	0.02	0.01	0.05	0.14	1.77	98.67
0.4	0.45	0.03	0.16	0.45	0.08	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.76	99.42
0.45	0.5	0.01	0.06	0.35	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.01	0.49	99.91
0.5	0.55	0.00	0.02	0.05	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	99.99
0.55	0.6	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	100.00
>0.6		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		7.97	13.96	26.13	18.34	6.71	2.36	1.59	1.56	2.05	1.90	2.10	2.29	1.99	1.82	3.35	5.88		
Cumulative Total		7.97	21.93	48.06	66.40	73.11	75.47	77.06	78.62	80.67	82.57	84.67	86.96	88.95	90.77	94.12	100.00		

2.7 m

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.05	0.73	0.88	0.94	0.87	0.71	0.61	0.44	0.48	0.48	0.44	0.45	0.50	0.50	0.40	0.54	0.54	9.51	9.51
0.05	0.1	1.57	2.43	3.02	2.51	1.41	0.48	0.26	0.42	0.54	0.77	0.77	0.69	0.54	0.68	0.75	1.15	17.98	27.49
0.1	0.15	1.93	3.44	5.49	4.36	1.45	0.45	0.28	0.24	0.31	0.50	0.66	0.69	0.59	0.64	0.86	1.39	23.28	50.76
0.15	0.2	1.57	2.63	4.42	3.08	0.87	0.15	0.13	0.23	0.32	0.32	0.38	0.45	0.51	0.34	0.61	1.41	17.41	68.17
0.2	0.25	1.42	2.09	3.08	1.78	0.36	0.15	0.12	0.09	0.26	0.21	0.31	0.40	0.45	0.32	0.59	1.12	12.76	80.93
0.25	0.3	1.11	1.51	2.31	0.72	0.21	0.06	0.06	0.05	0.05	0.09	0.16	0.37	0.24	0.21	0.45	0.90	8.50	89.43
0.3	0.35	0.79	0.96	1.71	0.36	0.09	0.02	0.03	0.01	0.03	0.09	0.15	0.15	0.20	0.12	0.33	0.59	5.62	95.05
0.35	0.4	0.26	0.53	1.21	0.22	0.03	0.00	0.00	0.00	0.03	0.03	0.06	0.08	0.03	0.03	0.12	0.19	2.81	97.86
0.4	0.45	0.05	0.28	0.87	0.10	0.01	0.00	0.00	0.00	0.00	0.01	0.03	0.02	0.02	0.00	0.05	0.04	1.48	99.34
0.45	0.5	0.01	0.05	0.32	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.01	0.03	0.53	99.87
0.5	0.55	0.00	0.03	0.06	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	99.97
0.55	0.6	0.00	0.00	0.01	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	100.00
>0.6		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		9.44	14.83	23.42	14.12	5.14	1.91	1.31	1.53	2.01	2.45	2.98	3.35	3.08	2.75	4.32	7.36		
Cumulative Total		9.44	24.27	47.69	61.81	66.95	68.87	70.18	71.71	73.71	76.16	79.14	82.49	85.57	88.32	92.64	100.00		

3.0 m

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.05	0.53	0.39	0.74	0.52	0.26	0.22	0.15	0.18	0.22	0.20	0.29	0.22	0.29	0.52	0.31	0.46	5.50	5.50
0.05	0.1	1.60	1.56	2.14	1.77	0.83	0.35	0.37	0.13	0.31	0.52	0.63	0.70	0.87	0.66	0.92	0.83	14.18	19.68
0.1	0.15	1.77	2.78	3.30	2.72	1.03	0.41	0.31	0.31	0.48	0.61	0.94	1.12	1.20	0.81	0.96	0.85	19.59	39.27
0.15	0.2	1.79	2.65	2.78	2.43	0.63	0.18	0.22	0.29	0.66	0.66	0.66	1.22	0.79	0.79	1.10	1.49	18.35	57.62
0.2	0.25	1.88	1.90	2.85	1.40	0.44	0.15	0.11	0.20	0.37	0.52	0.52	1.12	0.75	0.46	1.12	1.86	15.65	73.27
0.25	0.3	1.49	1.58	1.80	0.75	0.41	0.07	0.02	0.07	0.17	0.24	0.44	0.63	0.53	0.28	1.03	1.66	11.17	84.44
0.3	0.35	1.07	1.33	1.62	0.59	0.20	0.07	0.00	0.00	0.06	0.15	0.31	0.53	0.52	0.20	0.63	1.07	8.34	92.78
0.35	0.4	0.57	0.74	1.01	0.26	0.06	0.02	0.02	0.00	0.02	0.07	0.24	0.26	0.11	0.02	0.17	0.33	3.88	96.67
0.4	0.45	0.15	0.24	0.94	0.13	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.09	0.04	0.00	0.04	0.11	1.77	98.44
0.45	0.5	0.11	0.11	0.50	0.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.00	0.06	1.09	99.52
0.5	0.55	0.02	0.04	0.28	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.42	99.94
0.55	0.6	0.02	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	100.00
>0.6		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		10.99	13.31	17.95	10.97	3.85	1.47	1.20	1.20	2.28	2.98	4.05	5.93	5.10	3.74	6.28	8.71		
Cumulative Total		10.99	24.30	42.25	53.22	57.07	58.54	59.74	60.94	63.22	66.20	70.25	76.18	81.28	85.01	91.29	100.00		

3.2 m

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.05	0.43	0.07	0.07	0.21	0.14	0.29	0.07	0.07	0.07	0.07	0.21	0.21	0.14	0.14	0.29	0.29	2.79	2.79
0.05	0.1	0.79	1.22	0.93	1.15	0.79	0.07	0.29	0.00	0.00	0.43	0.29	0.21	0.86	0.72	0.43	0.57	8.74	11.53
0.1	0.15	1.22	1.65	1.79	1.29	0.86	0.50	0.14	0.00	0.21	0.21	0.79	0.72	1.00	0.93	1.07	1.15	13.54	25.07
0.15	0.2	1.93	1.72	1.79	1.79	0.86	0.14	0.14	0.21	0.43	0.64	0.93	1.29	1.36	1.79	1.79	2.01	18.84	43.91
0.2	0.25	2.44	1.50	1.15	1.15	0.93	0.14	0.29	0.14	0.36	0.36	0.93	2.08	2.15	1.29	1.29	2.44	18.62	62.54
0.25	0.3	1.50	1.50	1.36	1.36	0.72	0.21	0.07	0.29	0.50	0.57	0.50	1.43	2.36	0.86	0.72	1.22	15.19	77.72
0.3	0.35	0.72	1.00	1.07	0.43	0.36	0.00	0.00	0.14	0.50	0.07	0.57	2.15	1.86	0.29	0.79	1.07	11.03	88.75
0.35	0.4	0.86	0.07	1.22	0.14	0.29	0.00	0.00	0.00	0.14	0.21	0.50	1.86	0.64	0.29	0.36	0.64	7.23	95.99
0.4	0.45	0.43	0.00	0.36	0.21	0.00	0.00	0.00	0.00	0.07	0.29	0.29	0.72	0.21	0.00	0.07	0.14	2.79	98.78
0.45	0.5	0.07	0.14	0.21	0.21	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.21	0.07	0.00	0.00	0.00	1.07	99.86
0.5	0.55	0.00	0.00	0.00	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	100.00
0.55	0.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>0.6		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		10.39	8.88	9.96	8.09	4.94	1.36	1.00	0.86	2.29	2.87	5.16	10.89	10.67	6.30	6.81	9.53		
Cumulative Total		10.39	19.27	29.23	37.32	42.26	43.62	44.63	45.49	47.78	50.64	55.80	66.69	77.36	83.67	90.47	100.00		

SEASONAL JFTS

3.5 m

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.05	0.00	0.69	0.69	0.69	0.00	0.00	0.00	0.69	0.69	0.00	0.00	0.00	0.69	0.69	0.00	0.00	4.86	4.86
0.05	0.1	0.69	1.39	2.08	1.39	0.69	1.39	0.00	0.00	0.00	0.00	0.00	0.00	0.69	0.00	0.69	2.78	11.81	16.67
0.1	0.15	2.08	0.69	0.69	2.78	1.39	0.69	0.00	0.00	0.00	0.69	0.00	0.00	0.00	2.08	2.78	2.08	15.97	32.64
0.15	0.2	1.39	0.69	1.39	0.69	1.39	0.00	0.00	0.00	0.00	0.00	0.69	0.69	0.00	3.47	2.08	3.47	15.97	48.61
0.2	0.25	2.78	0.00	0.69	0.69	0.00	0.00	0.00	0.00	0.00	0.69	0.00	0.00	0.00	1.39	1.39	2.08	9.72	58.33
0.25	0.3	2.78	0.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.47	0.00	0.00	1.39	0.69	2.08	3.47	14.58	72.92
0.3	0.35	0.00	0.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.08	1.39	0.69	0.00	0.00	0.69	0.69	6.25	79.17
0.35	0.4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.69	2.78	4.17	2.08	0.00	0.69	0.00	10.42	89.58
0.4	0.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.69	3.47	2.08	1.39	0.00	0.00	0.00	7.64	97.22
0.45	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.69	2.08	0.00	0.00	0.00	0.00	2.78	100.00
0.5	0.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.55	0.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>0.6		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		9.72	4.86	5.56	6.25	3.47	2.08	0.00	0.69	0.69	8.33	9.03	9.72	6.25	8.33	10.42	14.58		
Cumulative Total		9.72	14.58	20.14	26.39	29.86	31.94	31.94	32.64	33.33	41.67	50.69	60.42	66.67	75.00	85.42	100.00		

3.7 m

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.05	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.05	0.1	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.1	0.15	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.15	0.2	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.2	0.25	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.25	0.3	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.3	0.35	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.35	0.4	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.4	0.45	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.45	0.5	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.5	0.55	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.55	0.6	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
>0.6		NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
Total		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Cumulative Total		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		

4.0 m

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.05	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.05	0.1	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.1	0.15	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.15	0.2	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.2	0.25	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.25	0.3	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.3	0.35	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.35	0.4	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.4	0.45	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.45	0.5	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.5	0.55	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.55	0.6	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
>0.6		NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
Total		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Cumulative Total		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		

4.2 m

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.05	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.05	0.1	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.1	0.15	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.15	0.2	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.2	0.25	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.25	0.3	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.3	0.35	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.35	0.4	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.4	0.45	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.45	0.5	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.5	0.55	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.55	0.6	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
>0.6		NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
Total		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Cumulative Total		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		

SEASONAL JFTS

Spring - Current Velocity (m/s)

0.5 m

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.05	3.47	4.01	4.19	3.94	3.54	2.07	1.31	1.21	0.98	0.68	0.84	0.78	0.94	1.06	1.34	2.50	32.86	32.86
0.05	0.1	5.32	9.26	11.68	8.73	4.64	1.76	0.77	0.48	0.25	0.31	0.21	0.16	0.31	0.36	0.84	2.10	47.17	80.03
0.1	0.15	1.72	3.86	5.44	3.82	1.47	0.34	0.06	0.04	0.02	0.02	0.00	0.01	0.01	0.01	0.10	0.47	17.37	97.40
0.15	0.2	0.23	0.49	0.65	0.51	0.26	0.05	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.10	2.31	99.71
0.2	0.25	0.01	0.02	0.06	0.02	0.02	0.02	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.01	0.03	0.20	99.91
0.25	0.3	0.01	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.03	99.94
0.3	0.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	99.96
0.35	0.4	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	99.98
0.4	0.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.02	99.99
0.45	0.5	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	100.00
0.5	0.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.55	0.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>0.6		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		10.77	17.63	22.04	17.02	9.94	4.24	2.17	1.74	1.24	1.01	1.05	0.94	1.26	1.43	2.29	5.23		
Cumulative Total		10.77	28.41	50.45	67.46	77.40	81.63	83.80	85.54	86.79	87.80	88.85	89.79	91.05	92.48	94.77	100.00		

0.7 m

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.05	3.32	3.66	4.00	3.78	3.35	1.71	0.98	0.88	0.94	0.79	0.61	0.60	0.82	0.71	1.09	1.56	28.77	28.77
0.05	0.1	4.48	9.04	11.81	10.19	4.73	1.31	0.44	0.29	0.29	0.26	0.25	0.18	0.19	0.21	0.57	1.39	45.64	74.41
0.1	0.15	1.43	4.50	7.36	5.58	1.64	0.23	0.02	0.01	0.02	0.02	0.01	0.00	0.00	0.00	0.04	0.32	21.17	95.58
0.15	0.2	0.26	0.68	1.23	1.08	0.39	0.11	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.07	3.83	99.40
0.2	0.25	0.04	0.06	0.15	0.18	0.07	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.54	99.95
0.25	0.3	0.01	0.00	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.01	0.04	99.99
0.3	0.35	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	99.99
0.35	0.4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01	100.00
0.4	0.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.45	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.5	0.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.55	0.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>0.6		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		9.54	17.94	24.56	20.81	10.17	3.37	1.44	1.19	1.24	1.08	0.86	0.78	1.01	0.92	1.71	3.37		
Cumulative Total		9.54	27.48	52.04	72.85	83.03	86.40	87.84	89.02	90.27	91.34	92.21	92.99	93.99	94.92	96.63	100.00		

0.9 m

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.05	2.58	3.26	3.54	3.54	2.61	1.60	0.91	0.78	0.88	0.68	0.49	0.51	0.70	0.57	0.76	1.09	24.52	24.52
0.05	0.1	3.48	8.13	12.46	10.39	4.46	0.97	0.39	0.22	0.29	0.38	0.29	0.16	0.15	0.17	0.28	0.90	43.12	67.64
0.1	0.15	1.07	4.80	9.70	7.26	1.73	0.20	0.02	0.00	0.02	0.00	0.01	0.00	0.01	0.00	0.03	0.16	25.02	92.66
0.15	0.2	0.28	0.98	2.32	2.05	0.46	0.06	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	6.20	98.86
0.2	0.25	0.04	0.18	0.35	0.33	0.08	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	1.02	99.88
0.25	0.3	0.02	0.01	0.03	0.04	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.11	99.99
0.3	0.35	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	100.00
0.35	0.4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.4	0.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.45	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.5	0.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.55	0.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>0.6		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		7.48	17.35	28.40	23.62	9.36	2.86	1.33	1.00	1.20	1.06	0.80	0.66	0.85	0.75	1.07	2.21		
Cumulative Total		7.48	24.83	53.23	76.84	86.20	89.07	90.40	91.40	92.59	93.65	94.45	95.11	95.97	96.71	97.79	100.00		

1.2 m

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.05	2.04	2.35	2.89	2.95	2.17	1.24	0.86	0.76	0.71	0.49	0.51	0.57	0.63	0.49	0.57	0.97	20.20	20.20
0.05	0.1	2.68	7.59	12.26	9.87	4.40	1.03	0.35	0.28	0.31	0.36	0.24	0.13	0.13	0.10	0.21	0.62	40.56	60.76
0.1	0.15	0.88	5.06	11.56	8.77	1.91	0.19	0.02	0.01	0.03	0.01	0.04	0.01	0.00	0.00	0.00	0.07	28.55	89.31
0.15	0.2	0.20	1.43	3.70	2.91	0.49	0.05	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.04	8.83	98.13
0.2	0.25	0.03	0.24	0.54	0.63	0.12	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	1.58	99.71
0.25	0.3	0.02	0.01	0.10	0.11	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.26	99.97
0.3	0.35	0.01	0.01	0.00	0.01	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	100.00
0.35	0.4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.4	0.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.45	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.5	0.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.55	0.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>0.6		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		5.85	16.69	31.06	25.24	9.13	2.52	1.23	1.05	1.05	0.86	0.79	0.71	0.76	0.58	0.78	1.71		
Cumulative Total		5.85	22.54	53.60	78.84	87.97	90.48	91.71	92.76	93.81	94.67	95.46	96.17	96.93	97.51	98.29	100.00		

1.4 m

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.05	1.53	2.21	2.58	2.78	2.11	1.19	0.63	0.67	0.71	0.62	0.48	0.46	0.41	0.46	0.51	0.75	18.10	18.10
0.05	0.1	1.94	6.24	12.49	10.03	3.75	0.86	0.28	0.17	0.29	0.36	0.29	0.13	0.08	0.08	0.09	0.39	37.48	55.59
0.1	0.15	0.72	5.31	12.97	9.81	1.81	0.11	0.01	0.00	0.01	0.03	0.03	0.01	0.01	0.00	0.00	0.03	30.85	86.43
0.15	0.2	0.17	1.53	4.92	3.58	0.54	0.04	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	10.77	97.21
0.2	0.25	0.05	0.31	0.90	0.91	0.12	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	2.32	99.53
0.25	0.3	0.01	0.05	0.17	0.16	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.43	99.96
0.3	0.35	0.01	0.00	0.00	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	100.00
0.35	0.4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.4	0.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.45	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.5	0.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.55	0.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>0.6		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		4.42	15.66	34.03	27.28	8.38	2.21	0.93	0.84	1.02	1.01	0.80	0.60	0.49	0.54	0.60	1.19		
Cumulative Total		4.42	20.08	54.11	81.39	89.77	91.98	92.91	93.75	94.77	95.78	96.58	97.18	97.68	98.22	98.81	100.00		

1.7 m

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.05	1.16	1.73	2.21	2.34	1.74	0.83	0.64	0.56	0.47	0.52	0.41	0.29	0.41	0.35	0.42	0.60	14.71	14.71
0.05	0.1	1.58	6.00	11.70	9.68	3.55	0.61	0.14	0.13	0.24	0.41	0.34	0.16	0.05	0.08	0.13	0.33	35.14	49.85
0.1	0.15	0.67	5.18	14.62	10.39	1.70	0.16	0.01	0.00	0.02	0.03	0.03	0.00	0.00	0.01	0.02	0.05	32.88	82.73
0.15	0.2	0.24	1.88	6.28	4.26	0.49	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.02	13.22	95.95
0.2	0.25	0.05	0.50	1.56	1.02	0.11	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.03	3.28	99.23
0.25	0.3	0.03	0.11	0.20	0.25	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.65	99.88
0.3	0.35	0.01	0.01	0.04	0.03	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.11	99.98
0.35	0.4	0.00	0.00	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	100.00
0.4	0.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.45	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.5	0.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.55	0.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>0.6		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		3.74	15.41	36.61	27.99	7.64	1.64	0.80	0.70	0.73	0.96	0.78	0.45	0.47	0.43	0.60	1.06		
Cumulative Total		3.74	19.15	55.76	83.75	91.39	93.03	93.83	94.52	95.25	96.21	97.00	97.45	97.91	98.35	98.94	100.00		

SEASONAL JFTS

1.9 m

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.05	0.97	1.22	1.51	1.77	1.34	0.70	0.36	0.32	0.33	0.29	0.32	0.19	0.18	0.15	0.23	0.40	10.31	10.31
0.05	0.1	1.22	4.93	9.95	7.61	2.81	0.47	0.22	0.14	0.19	0.29	0.23	0.18	0.09	0.07	0.10	0.23	28.73	39.03
0.1	0.15	0.71	5.18	14.53	9.70	1.52	0.09	0.03	0.03	0.03	0.08	0.11	0.10	0.08	0.06	0.05	0.15	32.45	71.48
0.15	0.2	0.35	2.50	8.65	4.85	0.46	0.01	0.01	0.01	0.00	0.01	0.02	0.01	0.02	0.04	0.07	0.13	17.12	88.60
0.2	0.25	0.27	1.22	3.49	1.43	0.17	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.01	0.06	0.05	0.10	6.82	95.42
0.25	0.3	0.12	0.72	1.40	0.29	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.02	0.05	0.16	2.81	98.23
0.3	0.35	0.06	0.36	0.60	0.05	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.06	1.19	99.42
0.35	0.4	0.01	0.18	0.26	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.49	99.91
0.4	0.45	0.00	0.03	0.06	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	100.00
0.45	0.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.5	0.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
0.55	0.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>0.6		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		3.72	16.33	40.47	25.71	6.35	1.28	0.61	0.50	0.54	0.66	0.68	0.51	0.38	0.40	0.61	1.24		
Cumulative Total		3.72	20.05	60.51	86.22	92.58	93.86	94.47	94.97	95.51	96.17	96.85	97.36	97.74	98.14	98.76	100.00		

2.1 m

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.05	0.50	0.81	1.20	1.00	0.79	0.39	0.18	0.18	0.19	0.18	0.19	0.15	0.15	0.15	0.11	0.21	6.40	6.40
0.05	0.1	0.98	3.63	7.26	5.28	1.76	0.34	0.17	0.18	0.16	0.27	0.22	0.06	0.05	0.06	0.07	0.14	20.61	27.01
0.1	0.15	0.54	4.63	11.94	7.61	1.08	0.08	0.10	0.05	0.09	0.07	0.07	0.03	0.03	0.01	0.05	0.14	26.51	53.53
0.15	0.2	0.38	3.14	9.16	4.18	0.45	0.06	0.04	0.05	0.07	0.05	0.03	0.07	0.01	0.02	0.10	0.17	17.97	71.49
0.2	0.25	0.41	2.03	5.65	1.91	0.10	0.04	0.02	0.03	0.05	0.03	0.03	0.06	0.05	0.09	0.11	0.17	10.78	82.27
0.25	0.3	0.27	1.36	4.58	0.88	0.07	0.01	0.01	0.02	0.05	0.01	0.02	0.07	0.09	0.06	0.08	0.11	7.68	89.96
0.3	0.35	0.13	0.91	3.39	0.46	0.02	0.00	0.00	0.00	0.04	0.00	0.01	0.06	0.03	0.02	0.05	0.09	5.21	95.16
0.35	0.4	0.04	0.53	2.25	0.25	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.03	0.02	0.00	0.00	3.13	98.29
0.4	0.45	0.01	0.20	1.11	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	1.39	99.68
0.45	0.5	0.00	0.05	0.20	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	99.93
0.5	0.55	0.00	0.02	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	99.99
0.55	0.6	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	100.00
>0.6		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		3.25	17.31	46.80	21.64	4.26	0.91	0.52	0.51	0.65	0.61	0.57	0.53	0.44	0.42	0.56	1.02		
Cumulative Total		3.25	20.56	67.36	89.00	93.27	94.18	94.70	95.21	95.86	96.47	97.03	97.56	98.00	98.42	98.98	100.00		

2.5 m

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.05	0.33	0.48	0.59	0.57	0.38	0.18	0.09	0.09	0.11	0.11	0.10	0.11	0.10	0.14	0.13	0.21	3.71	3.71
0.05	0.1	0.68	2.25	4.77	3.24	1.04	0.21	0.09	0.09	0.14	0.22	0.11	0.09	0.03	0.01	0.05	0.23	13.23	16.94
0.1	0.15	0.65	4.01	8.41	4.94	0.82	0.08	0.08	0.12	0.13	0.17	0.11	0.03	0.03	0.04	0.09	0.16	19.87	36.82
0.15	0.2	0.55	3.45	8.21	3.57	0.28	0.06	0.04	0.11	0.13	0.12	0.06	0.02	0.00	0.05	0.09	0.23	16.97	53.79
0.2	0.25	0.44	2.98	7.06	2.16	0.12	0.00	0.03	0.01	0.15	0.13	0.04	0.01	0.02	0.02	0.09	0.29	13.57	67.35
0.25	0.3	0.27	2.52	6.25	1.38	0.11	0.01	0.00	0.01	0.08	0.06	0.02	0.01	0.02	0.01	0.08	0.19	11.03	78.38
0.3	0.35	0.16	1.98	5.82	1.16	0.04	0.00	0.00	0.00	0.01	0.05	0.01	0.02	0.02	0.01	0.03	0.08	9.40	87.79
0.35	0.4	0.06	1.21	5.10	0.80	0.01	0.00	0.00	0.00	0.00	0.00	0.01	0.04	0.02	0.00	0.01	0.03	7.30	95.09
0.4	0.45	0.01	0.49	2.80	0.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.02	0.01	0.00	3.72	98.81
0.45	0.5	0.00	0.06	0.79	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.92	99.73
0.5	0.55	0.00	0.01	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23	99.96
0.55	0.6	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	100.00
>0.6		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		3.16	19.43	50.06	18.28	2.81	0.53	0.32	0.43	0.76	0.86	0.46	0.35	0.24	0.31	0.58	1.42		
Cumulative Total		3.16	22.59	72.65	90.93	93.74	94.27	94.59	95.02	95.78	96.64	97.10	97.45	97.69	98.00	98.58	100.00		

2.7 m

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.05	0.19	0.40	0.36	0.23	0.14	0.09	0.03	0.05	0.03	0.03	0.02	0.06	0.10	0.06	0.10	0.20	2.09	2.09
0.05	0.1	0.67	1.57	2.78	1.72	0.51	0.09	0.08	0.01	0.09	0.07	0.10	0.05	0.06	0.09	0.07	0.19	8.14	10.24
0.1	0.15	0.49	3.21	5.76	2.56	0.31	0.07	0.00	0.05	0.08	0.08	0.06	0.03	0.01	0.02	0.06	0.24	13.01	23.24
0.15	0.2	0.57	3.27	6.73	2.14	0.20	0.02	0.01	0.03	0.08	0.20	0.14	0.03	0.02	0.03	0.10	0.24	13.82	37.06
0.2	0.25	0.81	3.91	7.50	2.13	0.12	0.00	0.00	0.03	0.12	0.25	0.12	0.01	0.05	0.02	0.17	0.32	15.57	52.64
0.25	0.3	0.43	3.44	7.96	1.64	0.09	0.00	0.00	0.00	0.09	0.15	0.01	0.01	0.03	0.02	0.09	0.41	14.37	67.01
0.3	0.35	0.41	3.01	9.03	1.36	0.05	0.00	0.00	0.00	0.03	0.03	0.02	0.02	0.01	0.01	0.15	0.21	14.34	81.35
0.35	0.4	0.14	1.91	7.13	1.12	0.05	0.00	0.00	0.00	0.00	0.02	0.02	0.01	0.00	0.00	0.02	0.10	10.52	91.87
0.4	0.45	0.02	0.78	4.01	0.52	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.01	0.00	0.00	0.00	0.00	5.37	97.24
0.45	0.5	0.02	0.20	1.47	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.85	99.10
0.5	0.55	0.00	0.11	0.46	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.61	99.71
0.55	0.6	0.00	0.05	0.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.26	99.97
>0.6		0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	100.00
Total		3.74	21.86	53.44	13.59	1.46	0.27	0.12	0.17	0.53	0.86	0.50	0.24	0.28	0.26	0.76	1.91		
Cumulative Total		3.74	25.61	79.04	92.64	94.10	94.37	94.49	94.66	95.19	96.05	96.55	96.79	97.07	97.33	98.09	100.00		

3.0 m

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.05	0.19	0.30	0.21	0.19	0.08	0.05	0.03	0.03	0.00	0.03	0.03	0.00	0.00	0.05	0.05	0.05	1.29	1.29
0.05	0.1	0.38	1.02	1.13	0.48	0.24	0.03	0.03	0.08	0.03	0.03	0.08	0.03	0.05	0.13	0.08	0.13	3.95	5.23
0.1	0.15	0.56	1.66	2.55	1.05	0.08	0.00	0.00	0.05	0.05	0.03	0.08	0.05	0.05	0.05	0.05	0.16	6.49	11.73
0.15	0.2	0.75	3.09	5.74	1.58	0.08	0.00	0.00	0.03	0.03	0.05	0.08	0.08	0.03	0.03	0.08	0.32	11.97	23.70
0.2	0.25	0.75	4.35	7.49	2.01	0.21	0.00	0.00	0.00	0.11	0.05	0.03	0.05	0.05	0.05	0.19	0.48	15.83	39.53
0.25	0.3	0.86	4.62	9.45	2.09	0.08	0.00	0.00	0.00	0.05	0.16	0.11	0.05	0.03	0.08	0.13	0.35	18.06	57.60
0.3	0.35	0.64	4.72	10.12	1.93	0.03	0.00	0.00	0.00	0.00	0.11	0.08	0.08	0.00	0.00	0.03	0.27	18.01	75.60
0.35	0.4	0.46	3.41	8.13	2.07	0.05	0.00	0.00	0.00	0.03	0.03	0.08	0.05	0.03	0.00	0.00	0.13	14.47	90.07
0.4	0.45	0.03	1.53	4.70	0.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.98	97.05
0.45	0.5	0.03	0.46	1.50	0.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	2.39	99.44
0.5	0.55	0.00	0.19	0.32	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.54	99.97
0.55	0.6	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	100.00
>0.6		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		4.64	25.34	51.37	12.53	0.86	0.08	0.05	0.19	0.30	0.48	0.56	0.40	0.24	0.40	0.62	1.93		
Cumulative Total		4.64	29.98	81.35	93.88	94.74	94.82	94.87	95.06	95.36	95.84	96.40	96.81	97.05	97.45	98.07	100.00		

3.2 m

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.05	0.13	0.00	0.52	0.00	0.00	0.00	0.00	0.13	0.00	0.26	0.00	0.00	0.00	0.00	0.13	0.00	1.16	1.16
0.05	0.1	0.00	0.52	1.16	0.65	0.26	0.13	0.26	0.00	0.00	0.13	0.13	0.00	0.00	0.00	0.00	0.00	3.23	4.39
0.1	0.15	0.52	0.77	0.65	0.13	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.39	0.26	2.84	7.23
0.15	0.2	0.39	1.42	1.81	0.39	0.00	0.00	0.00	0.26	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.90	5.29	12.52
0.2	0.25	0.65	4.00	4.52	1.55	0.00	0.00	0.00	0.13	0.26	0.26	0.13	0.00	0.00	0.00	0.13	1.03	12.65	25.16
0.25	0.3	0.52	7.35	8.26	1.81	0.26	0.00	0.00	0.00	0.00	0.13	0.00	0.00	0.00	0.13	0.00	0.39	18.84	44.00
0.3	0.35	0.26	6.45	15.87	1.42	0.00	0.00	0.00	0.00	0.00	0.39	0.00	0.00	0.00	0.00	0.00	0.13	24.52	68.52
0.35	0.4	0.52	5.42	11.48	1.94	0.00	0.00	0.00	0.00	0.00	0.13	0.00	0.00	0.00	0.00	0.00	0.00	19.48	88.00
0.4	0.45	0.13	2.84	3.35	1.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.87	95.87
0.45	0.5	0.00	1.42	1.55	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.10	98.97
0.5	0.55	0.00	0.13	0.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.65	99.61
0.55	0.6	0.00	0.13	0.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.39	100.00
>0.6		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		3.10	30.45	49.94	9.55	0.65	0.13	0.26	0.52	0.39	1.29	0.26	0.00	0.00	0.13	0.65	2.71		
Cumulative Total		3.10	33.55	83.48	93.03	93.68	93.81	94.06	94.58	94.97	96.26	96.52	96.52	96.52	96.65	97.29	100.00		

SEASONAL JFTS

3.5 m

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.05	0.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.1	0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.15	0.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.2	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.25	0.3	0.00	9.52	4.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	14.29	14.29
0.3	0.35	0.00	14.29	23.81	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	38.10	52.38
0.35	0.4	0.00	14.29	14.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	28.57	80.95
0.4	0.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	80.95
0.45	0.5	0.00	4.76	4.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.52	90.48
0.5	0.55	0.00	0.00	9.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.52	100.00
0.55	0.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
>0.6		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Total		0.00	42.86	57.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Cumulative Total		0.00	42.86	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00		

3.7 m

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.05	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.05	0.1	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.1	0.15	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.15	0.2	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.2	0.25	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.25	0.3	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.3	0.35	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.35	0.4	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.4	0.45	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.45	0.5	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.5	0.55	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.55	0.6	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
>0.6		NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
Total		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Cumulative Total		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		

4.0 m

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.05	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.05	0.1	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.1	0.15	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.15	0.2	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.2	0.25	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.25	0.3	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.3	0.35	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.35	0.4	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.4	0.45	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.45	0.5	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.5	0.55	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.55	0.6	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
>0.6		NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
Total		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Cumulative Total		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		

4.2 m

Direction (o)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5		
Vmin (m/s)	Vmax (m/s)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total	Cumulative
0	0.05	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.05	0.1	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.1	0.15	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.15	0.2	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.2	0.25	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.25	0.3	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.3	0.35	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.35	0.4	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.4	0.45	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.45	0.5	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.5	0.55	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
0.55	0.6	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
>0.6		NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.00	0.00
Total		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Cumulative Total		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		

Appendix Y AWAC Current Roses

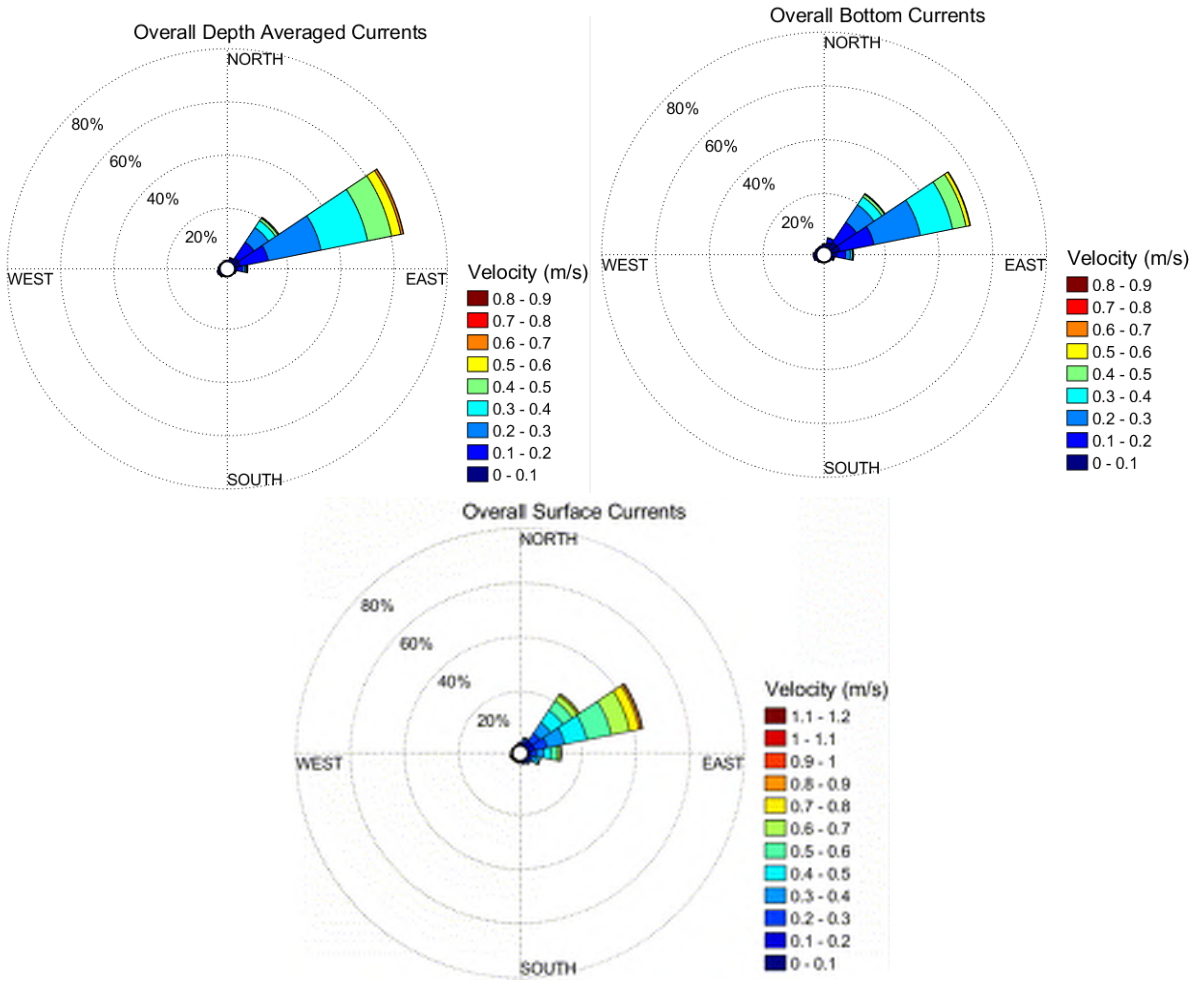

Figure Y.1 Overall Nearshore AWAC Current Roses

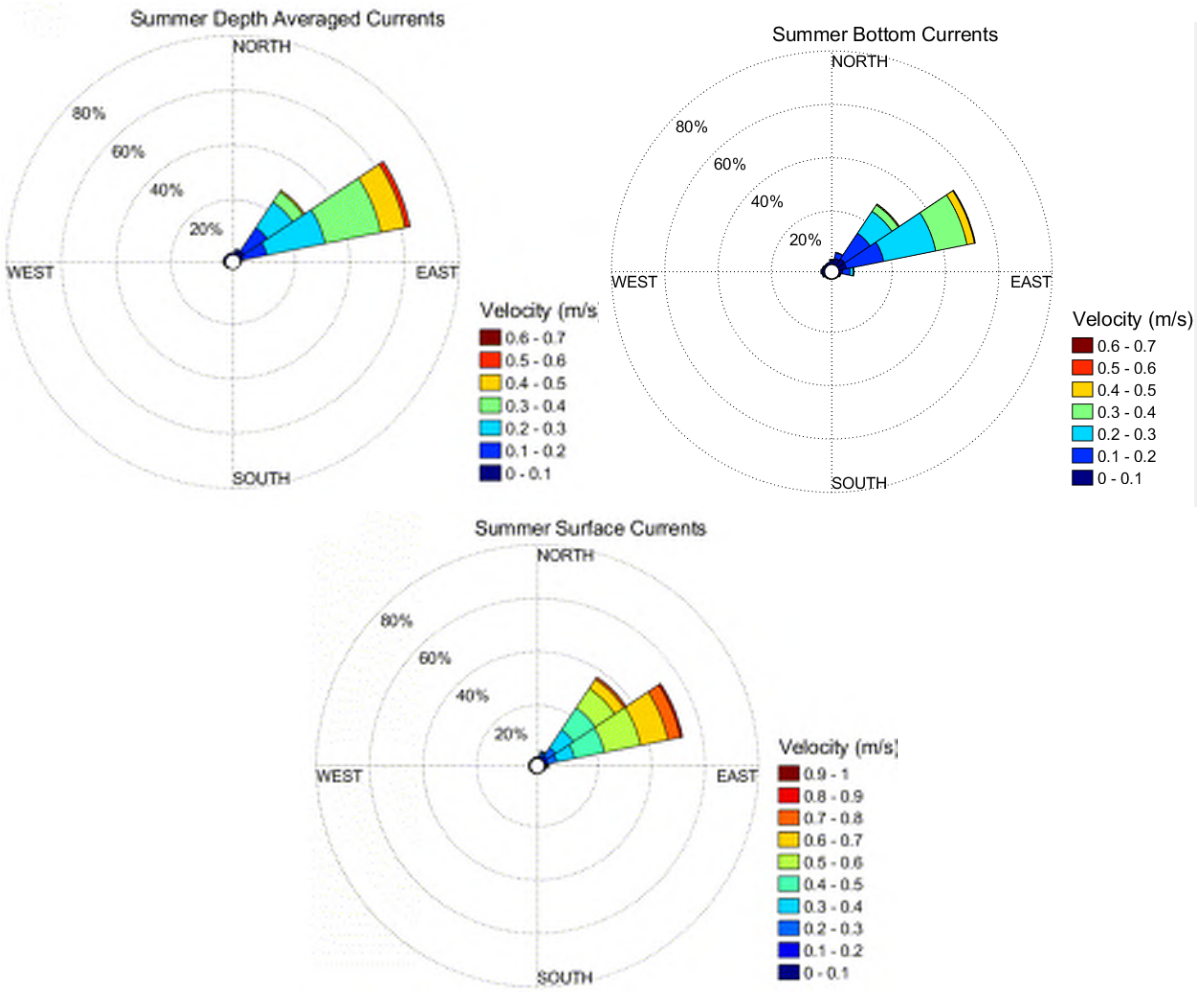

Figure Y.2 Summer Nearshore AWAC Current Roses

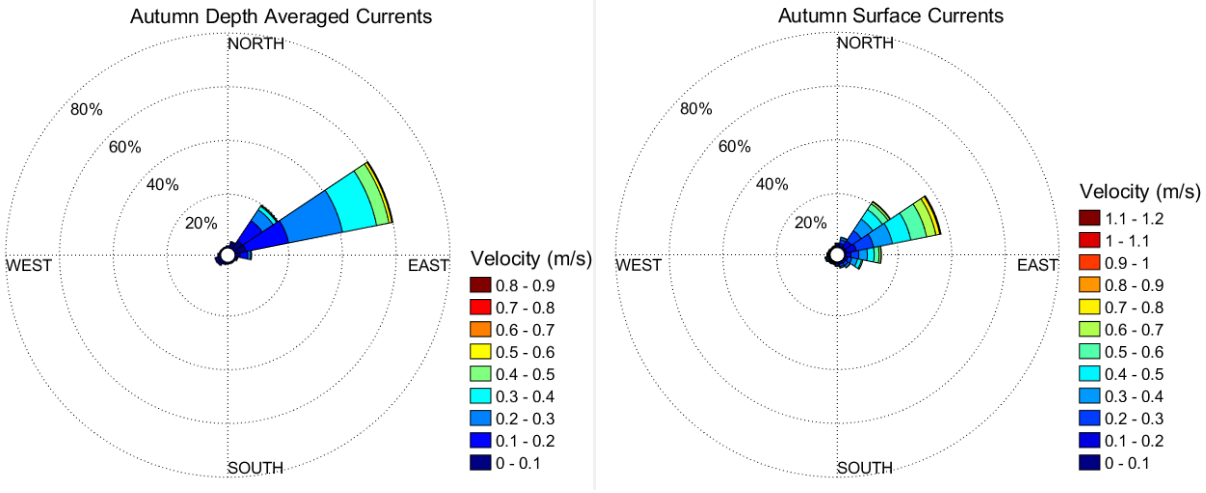

Figure Y.3 Autumn Nearshore AWAC Current Roses

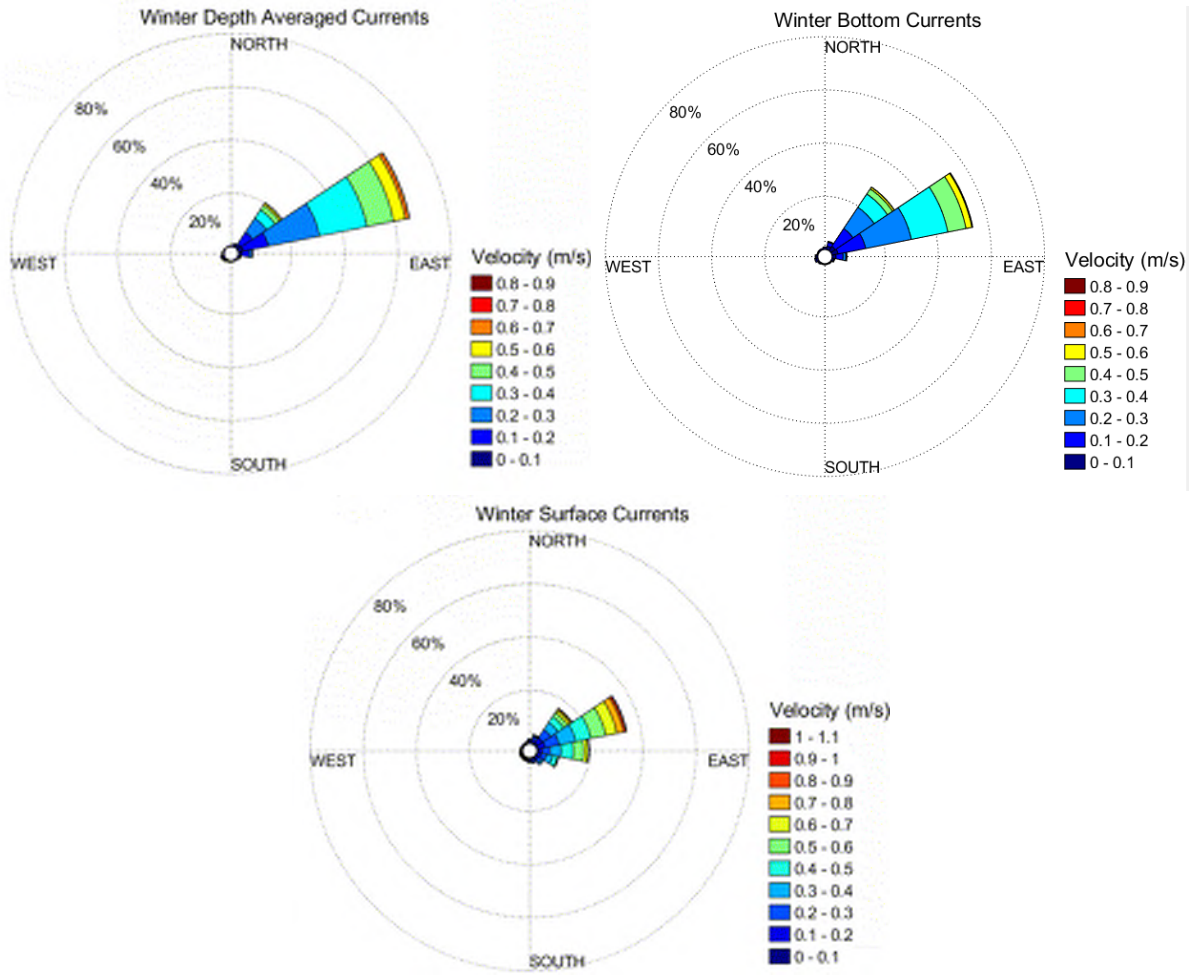

Figure Y.4 Winter Nearshore AWAC Current Roses

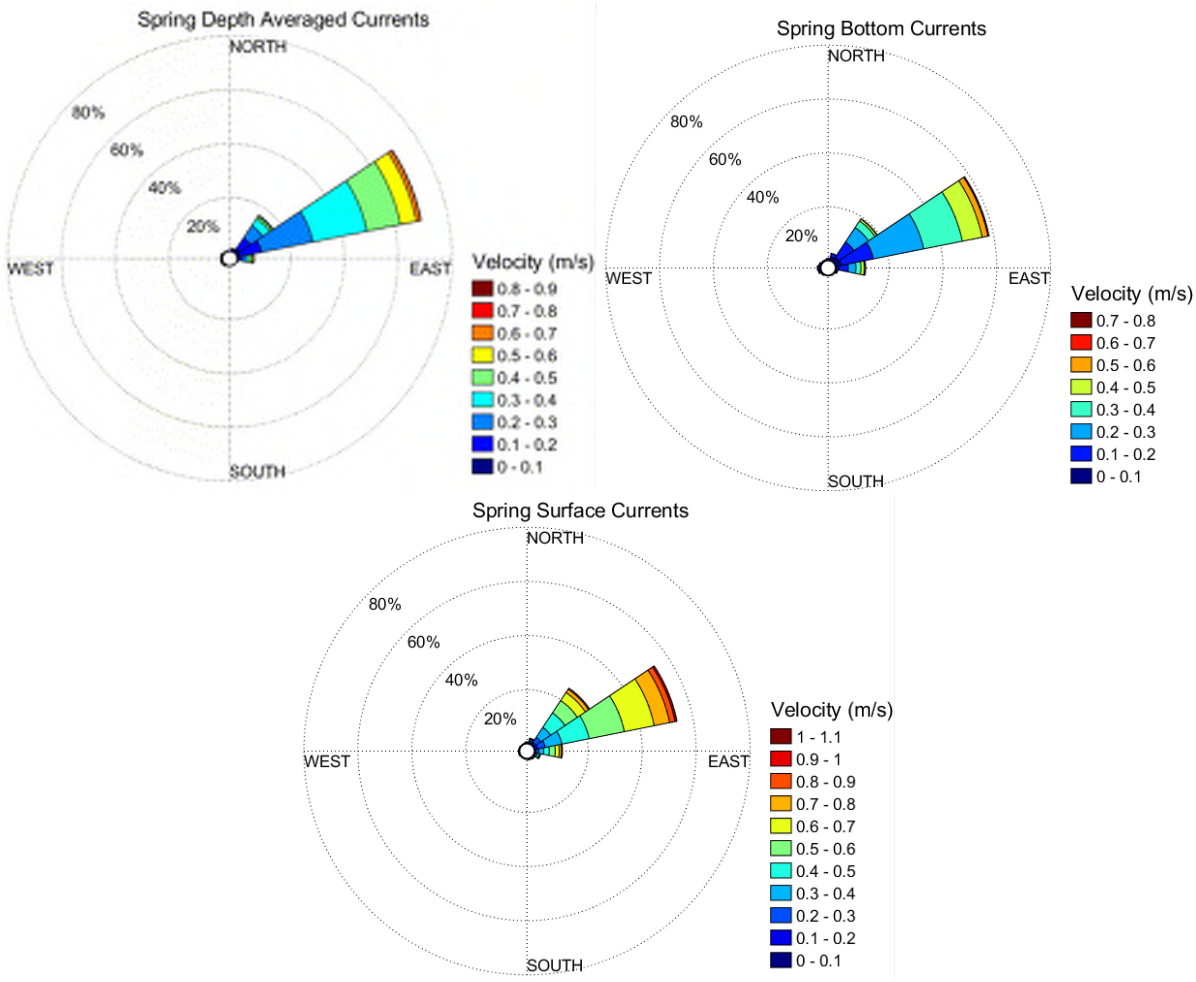

Figure Y.5 Spring Nearshore AWAC Current Roses

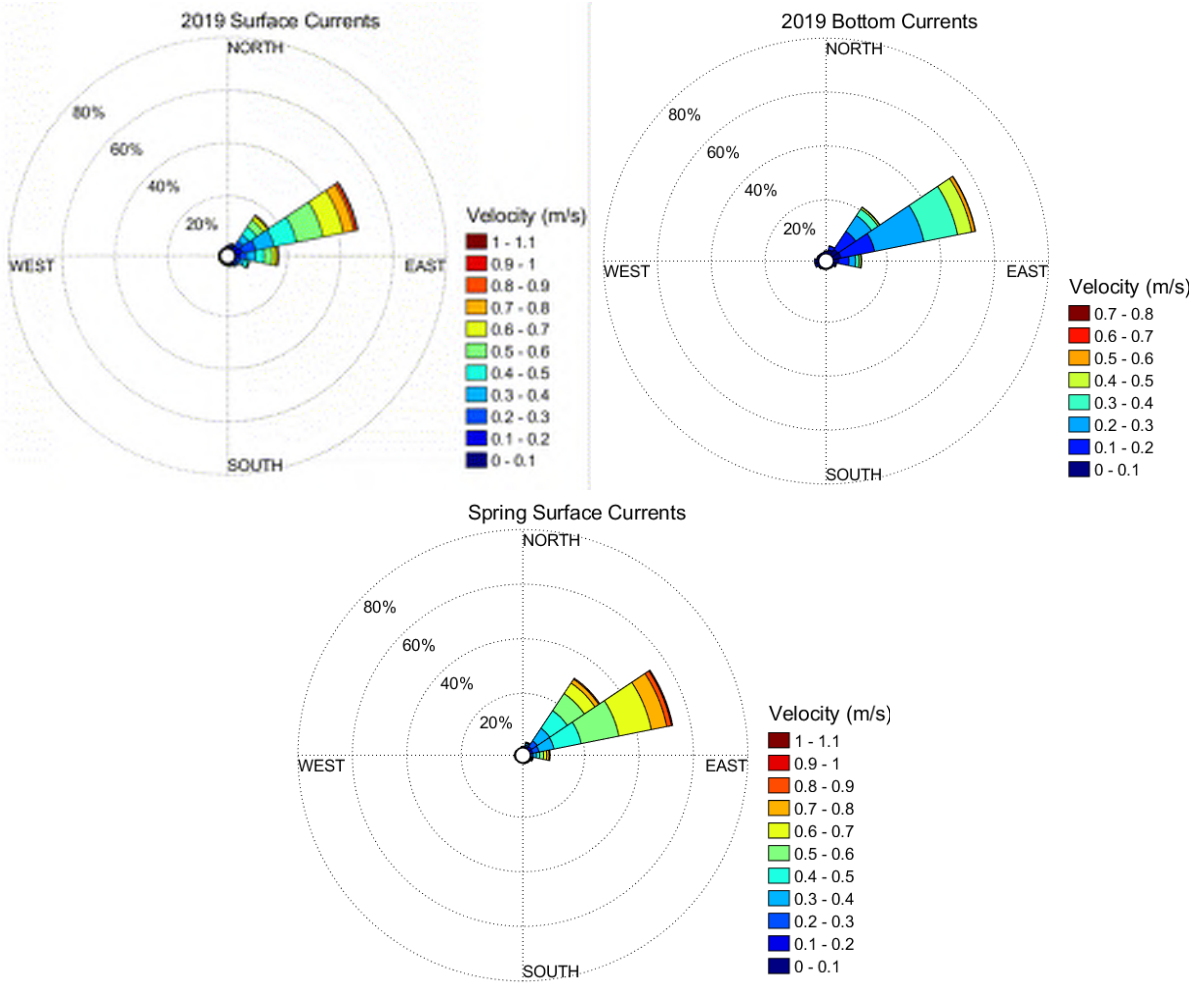

Figure Y.6 2019 Nearshore AWAC Current Roses

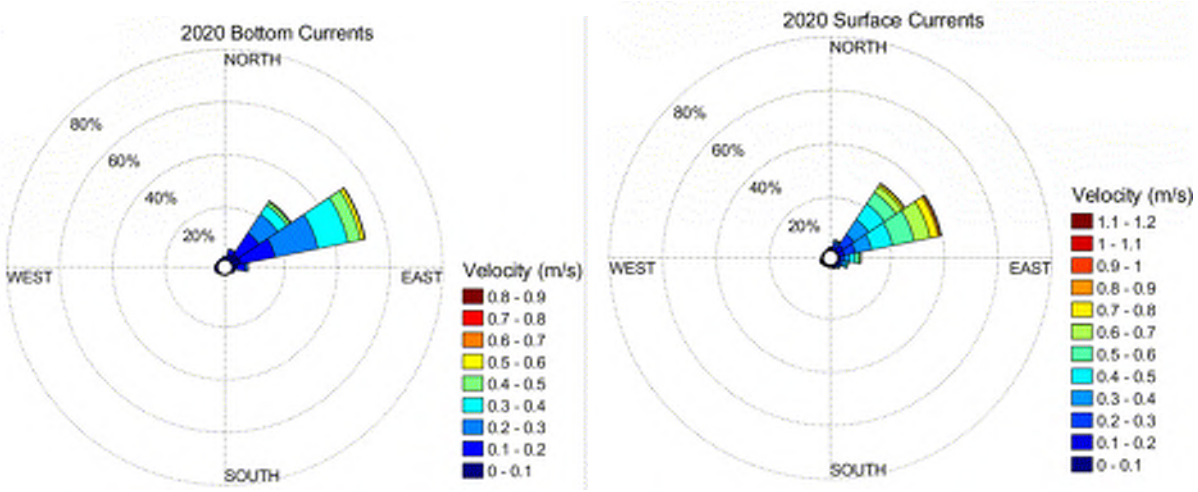

Figure Y.7 2020 Nearshore AWAC Current Roses

Appendix Z Aquadopp Current Roses

Appendix AI AWAC Currents Exceedance Curves

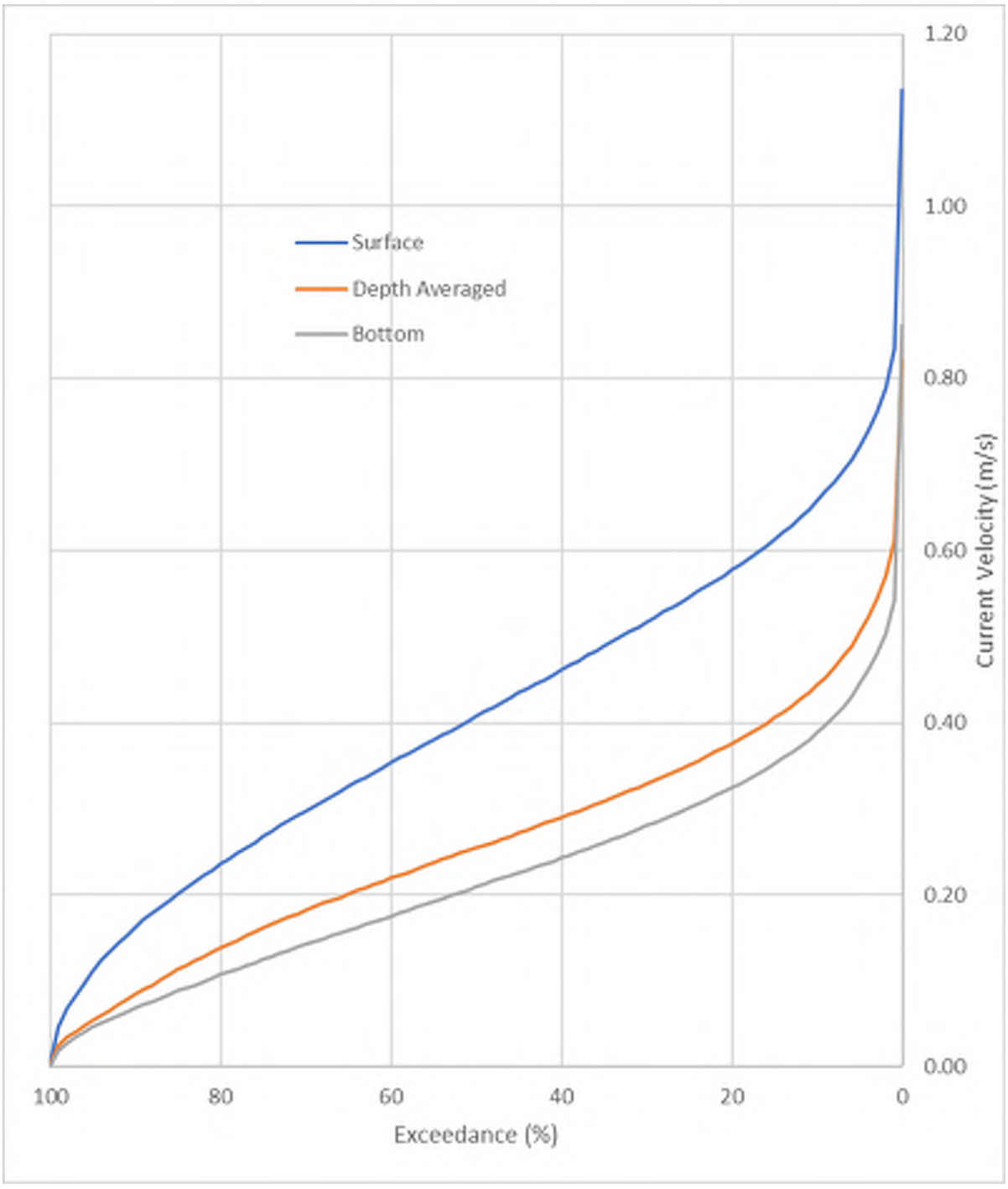

Figure AI.1 Overall Nearshore AWAC Current Exceedance Curves

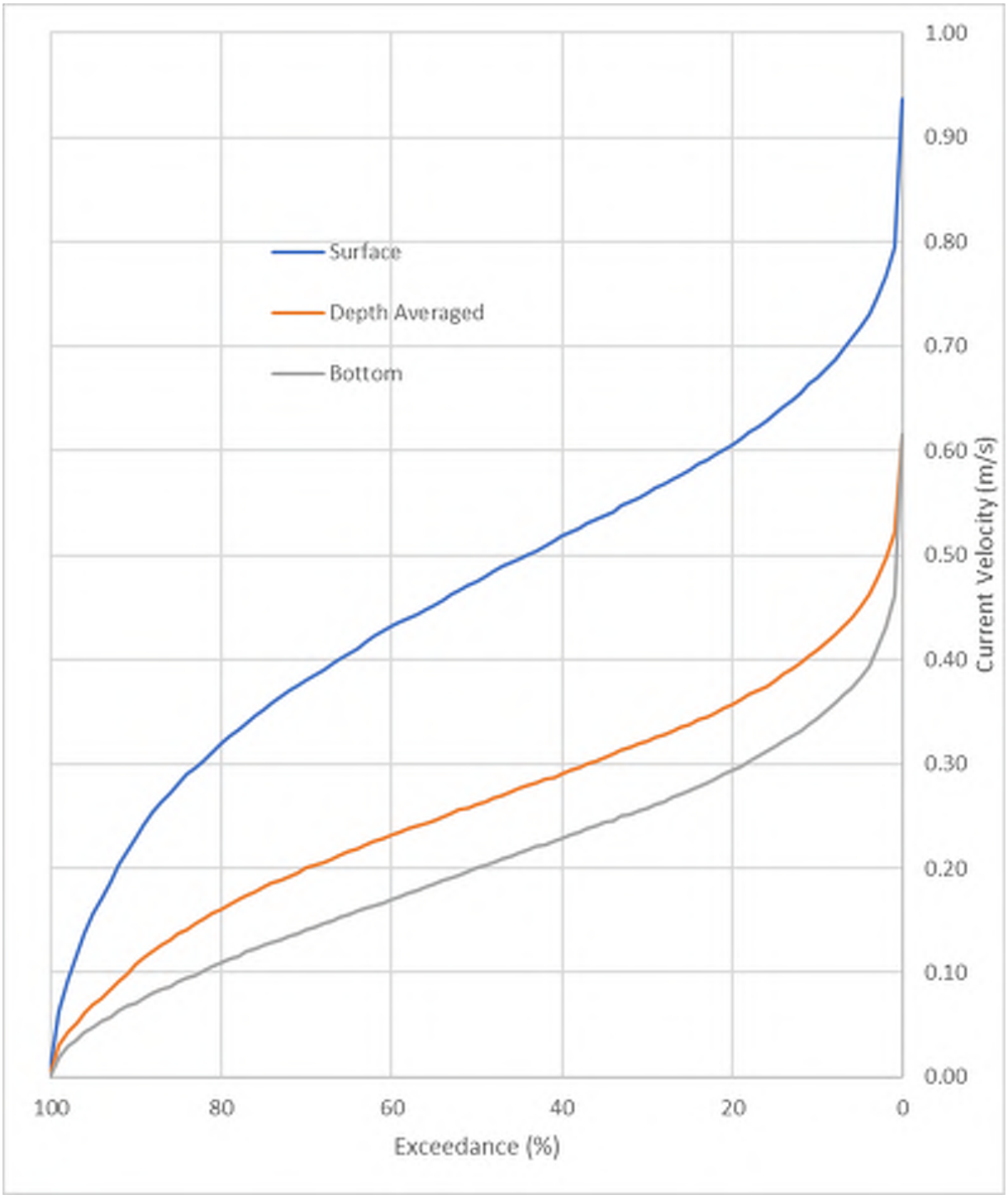

Figure AI.2 Summer Nearshore AWAC Current Exceedance Curves

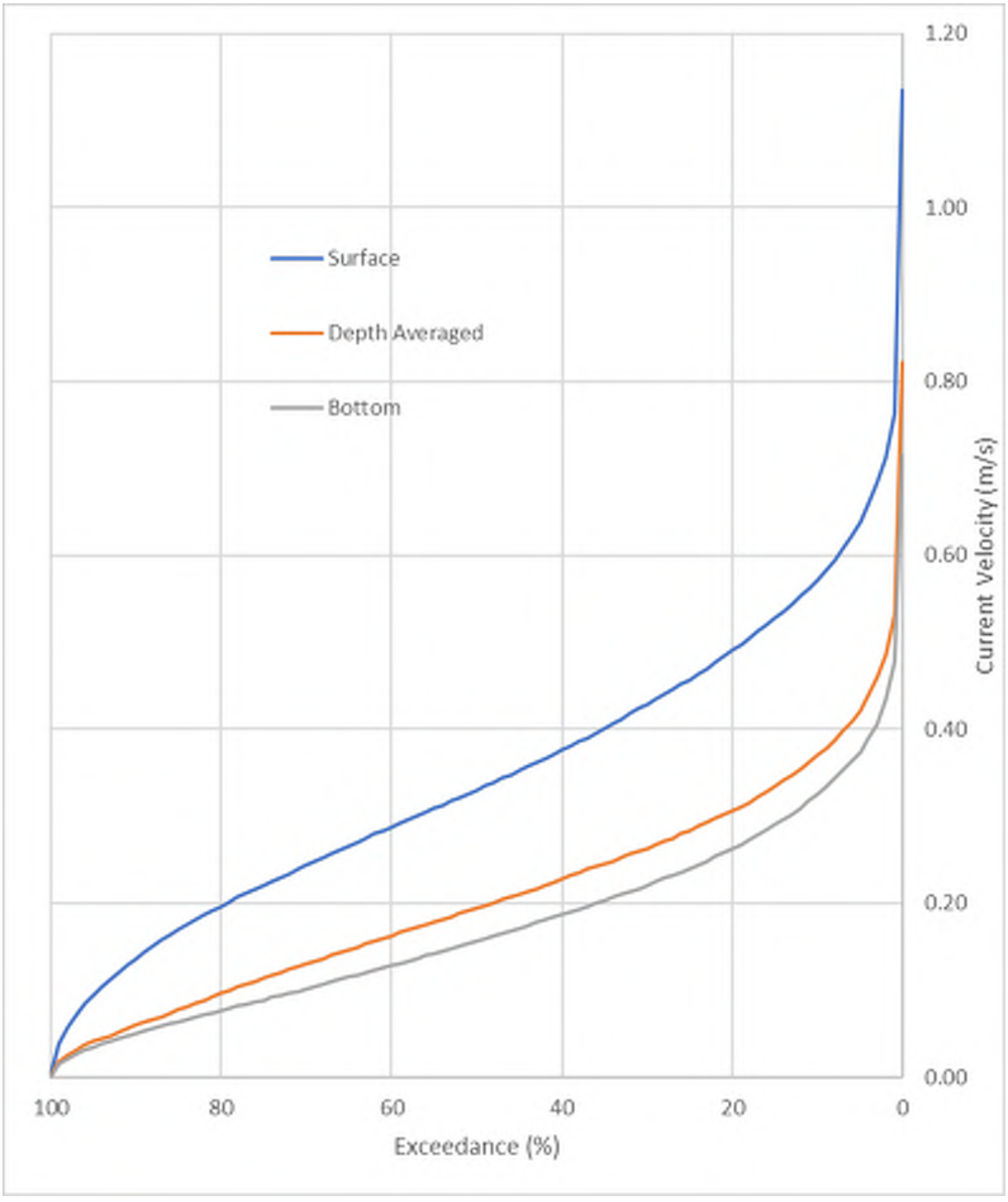

Figure AI.3 Autumn Nearshore AWAC Current Exceedance Curves

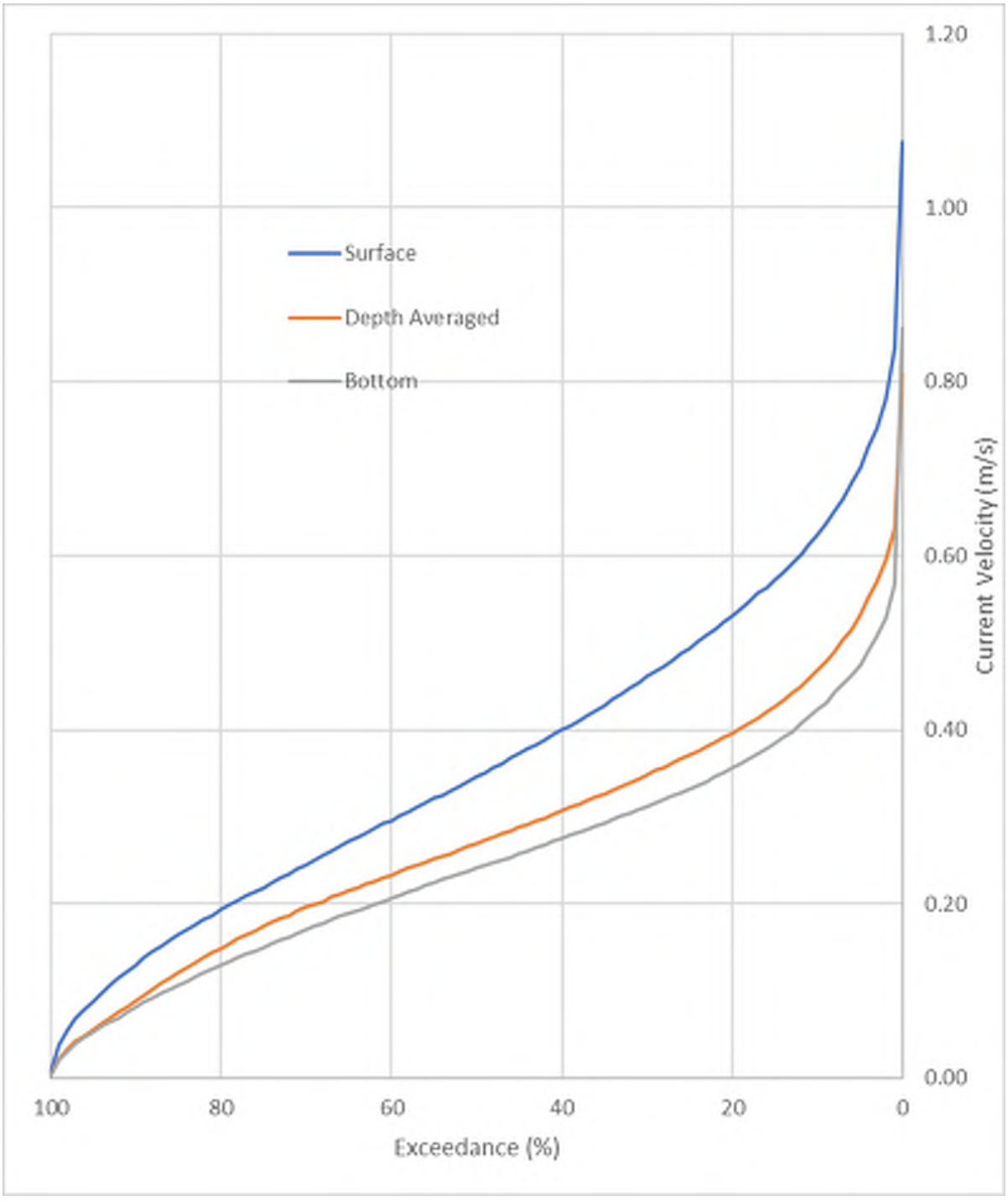

Figure AI.4 Winter Nearshore AWAC Current Exceedance Curves

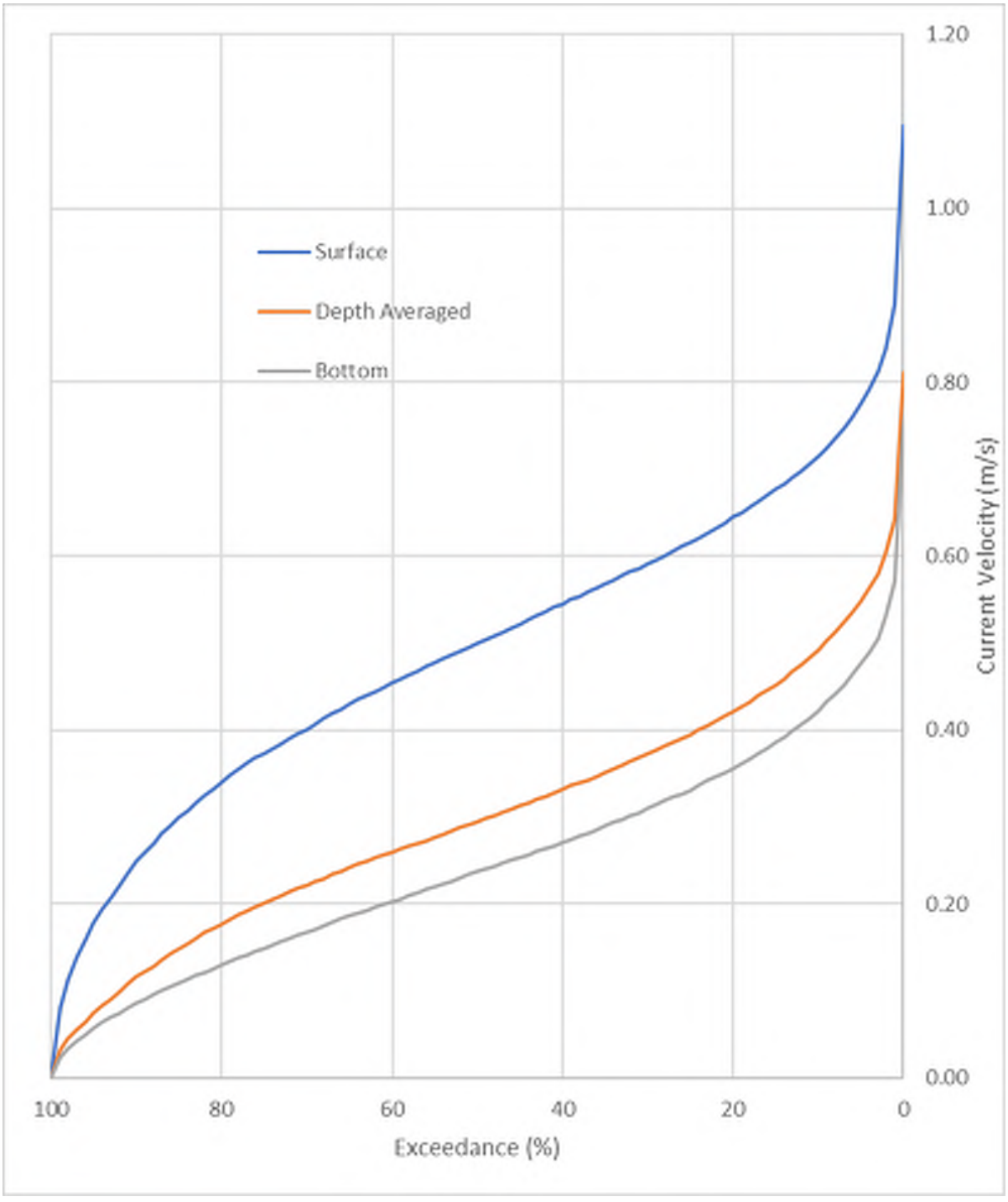

Figure AI.5 Spring Nearshore AWAC Current Exceedance Curves

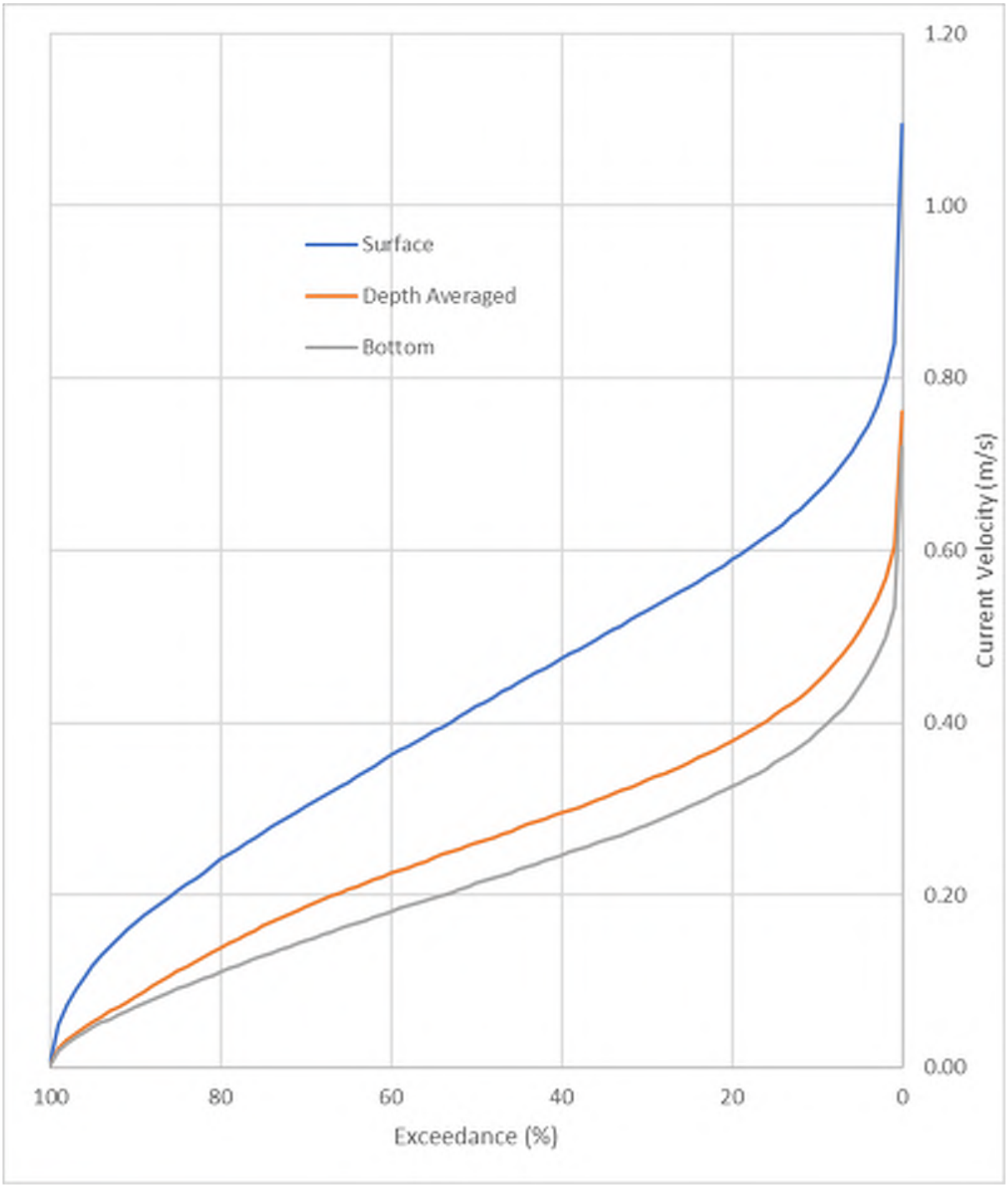

Figure AI.6 2019 Nearshore AWAC Current Exceedance Curves

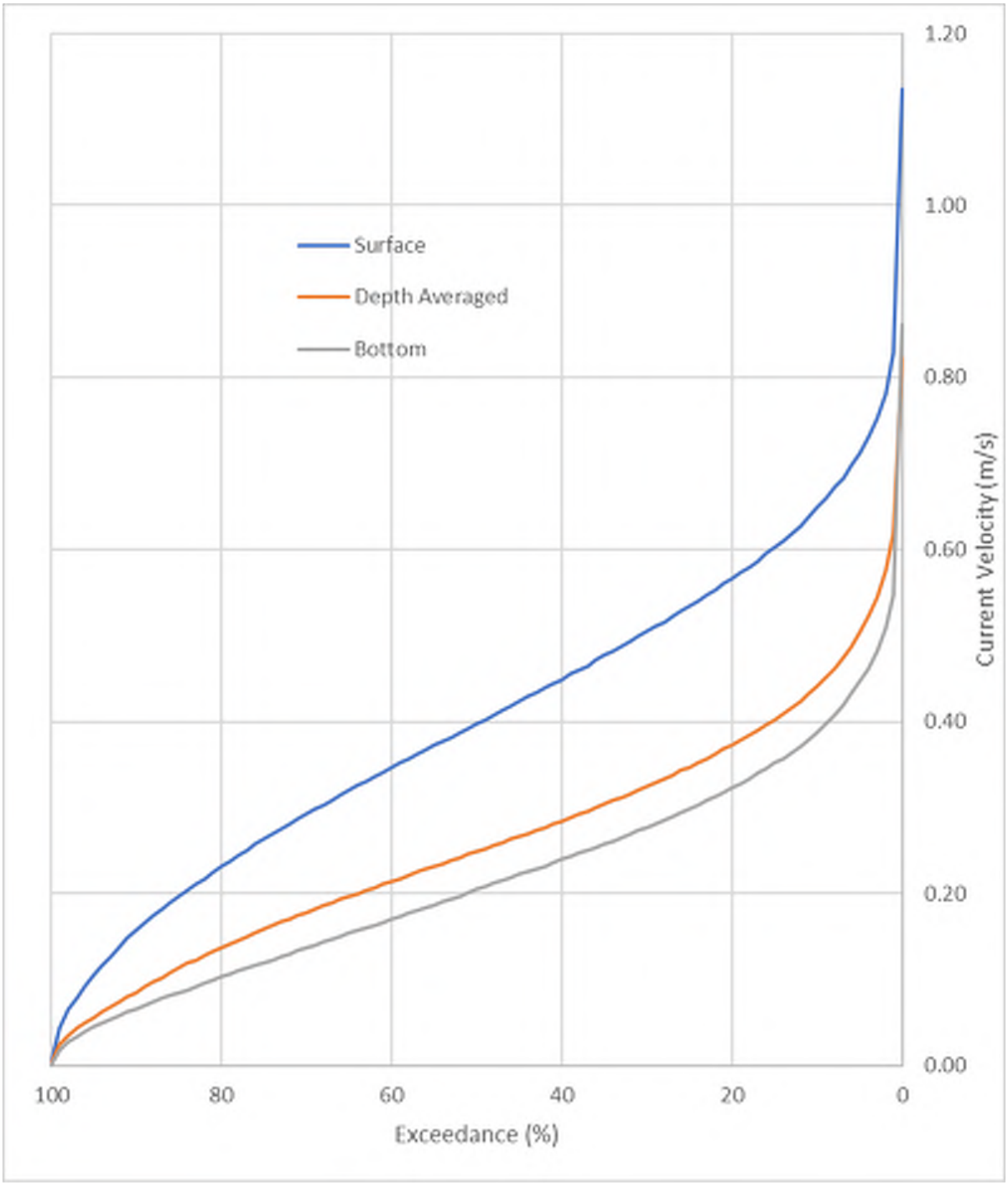

Figure AI.7 2020 Nearshore AWAC Current Exceedance Curves

Appendix BI Aquadopp Currents Exceedance Curves

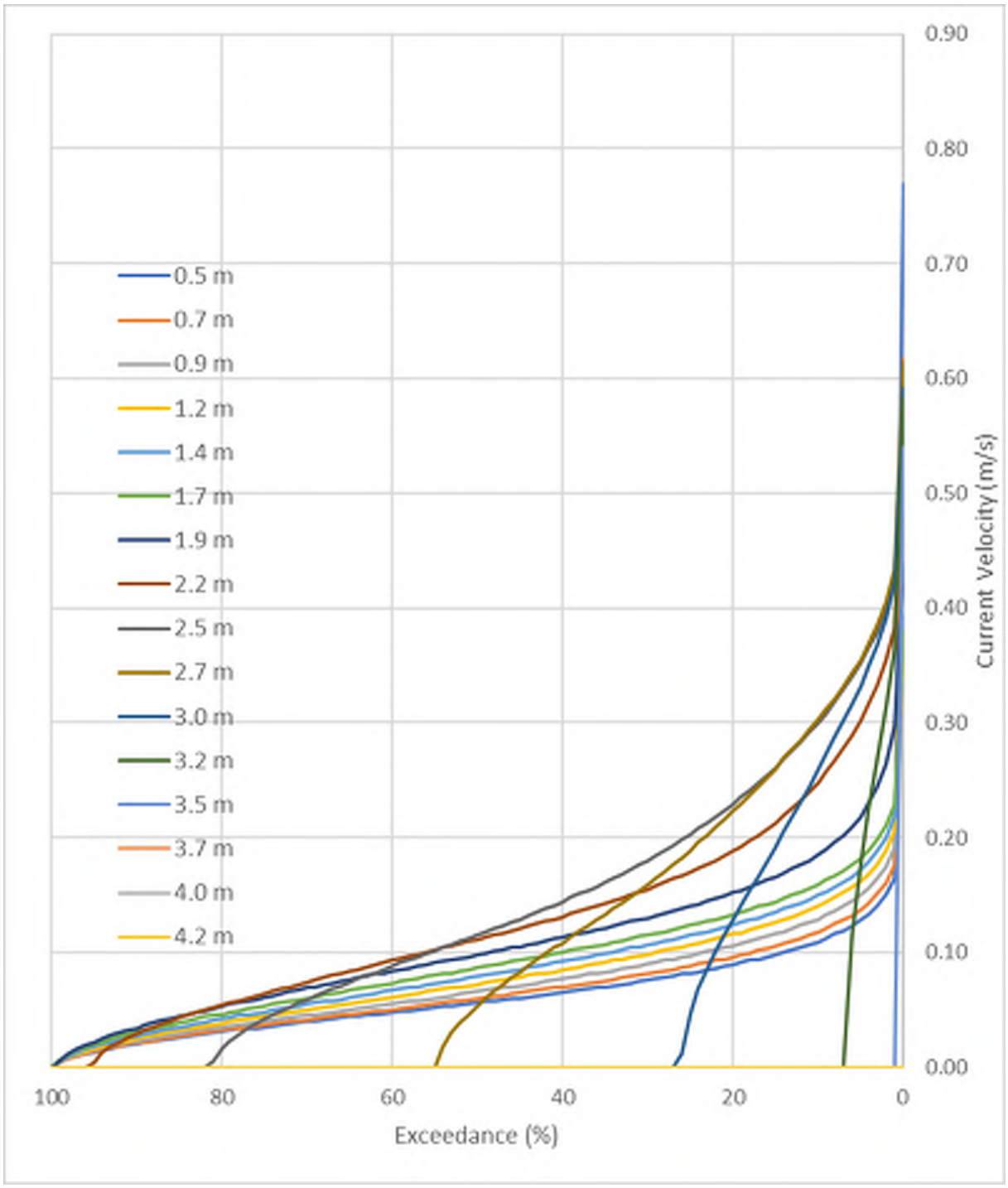

Figure BI.1 Overall Nearshore Aquadopp Current Exceedance Curves

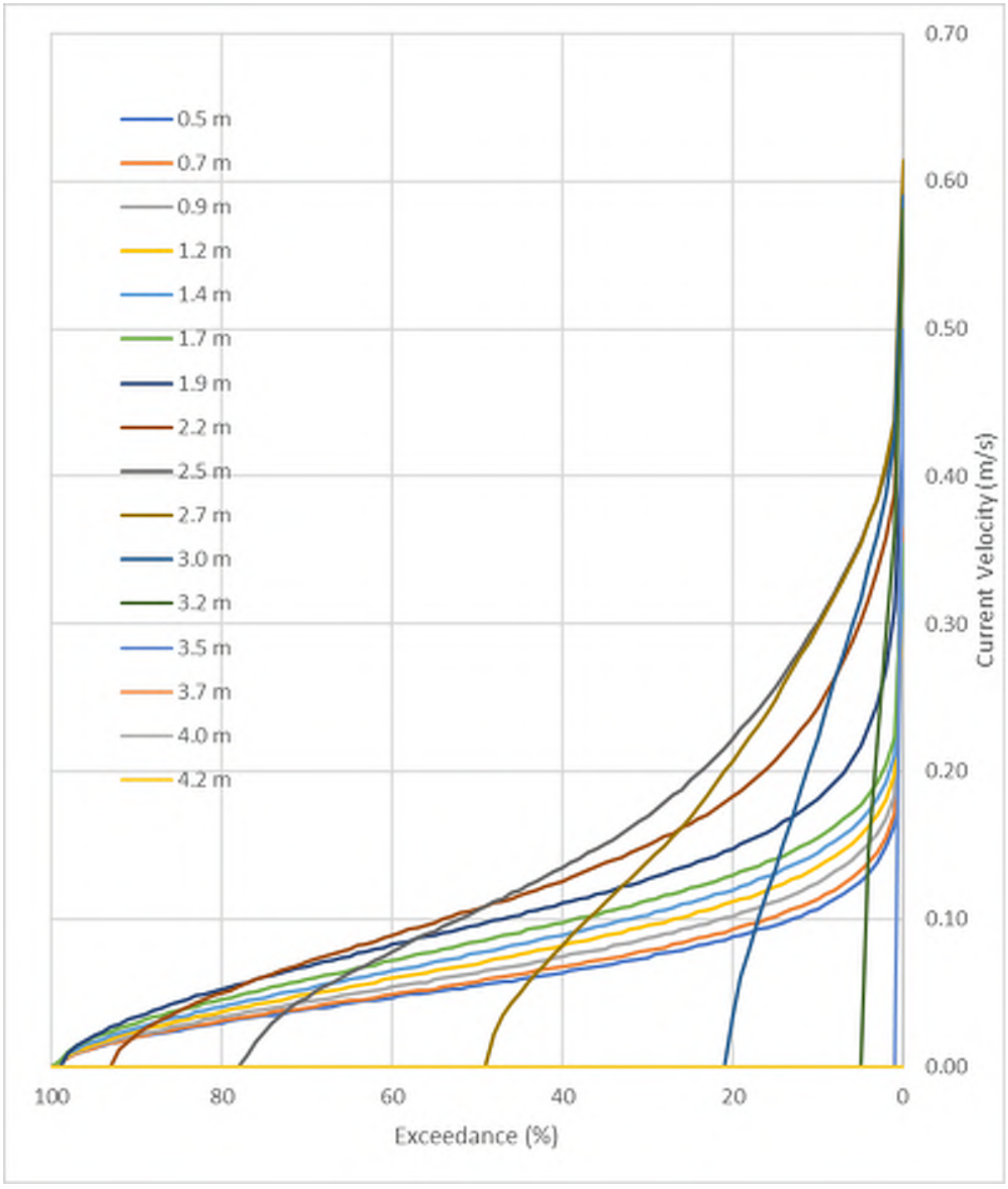

Figure BI.2 2019 Nearshore Aquadopp Current Exceedance Curves

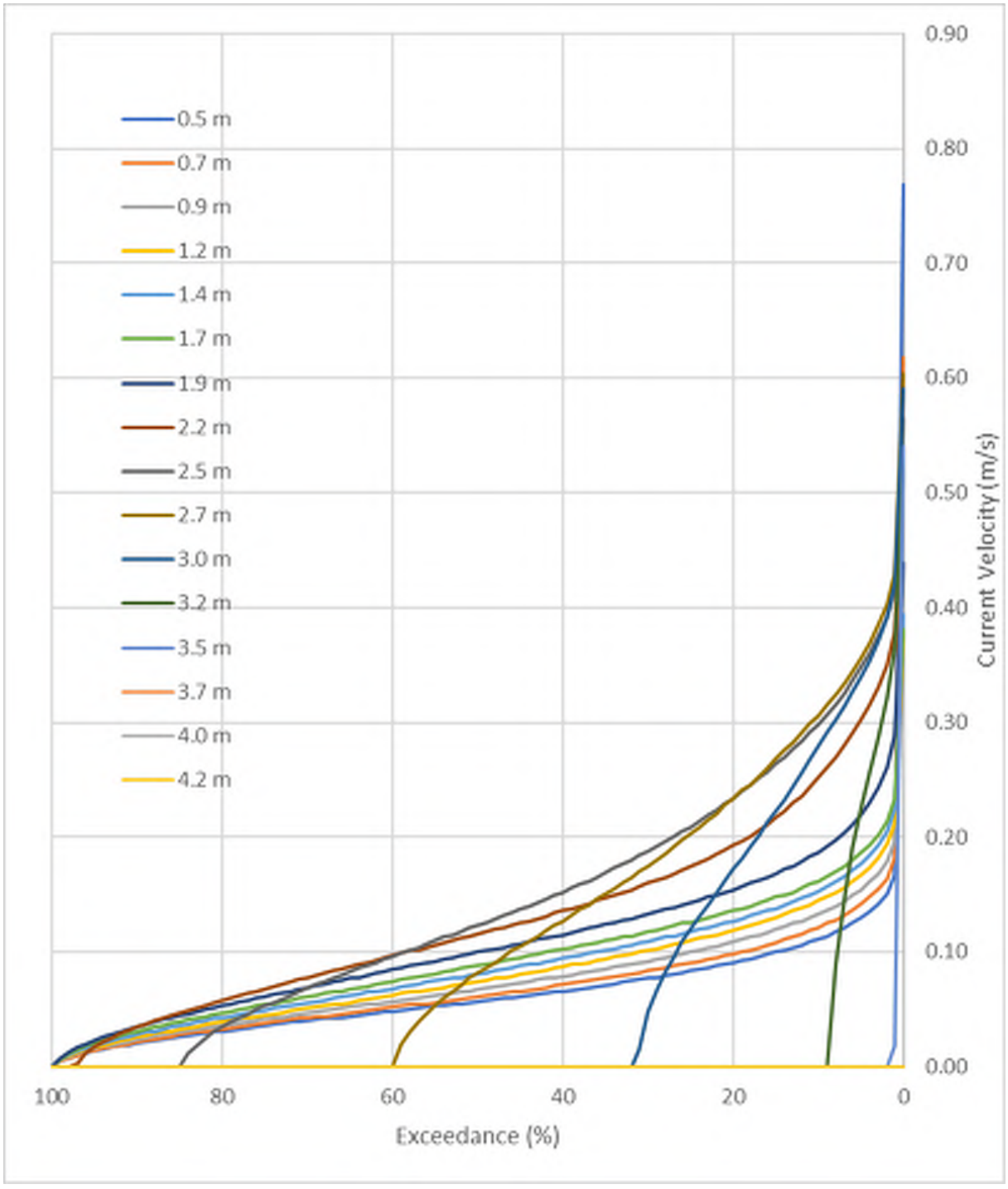

Figure BI.3 2020 Nearshore Aquadopp Current Exceedance Curves

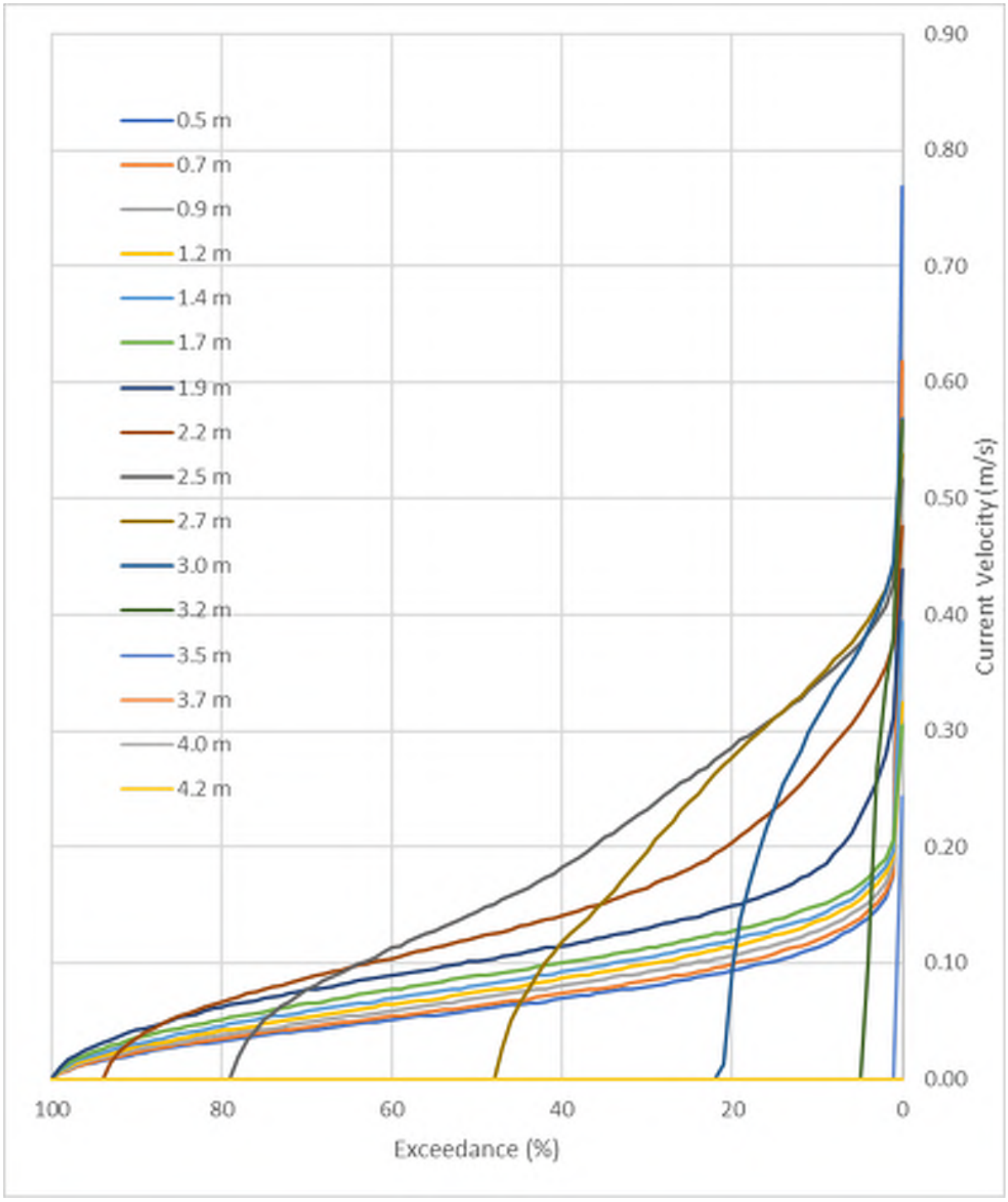

Figure BI.4 Summer Nearshore Aquadopp Current Exceedance Curves

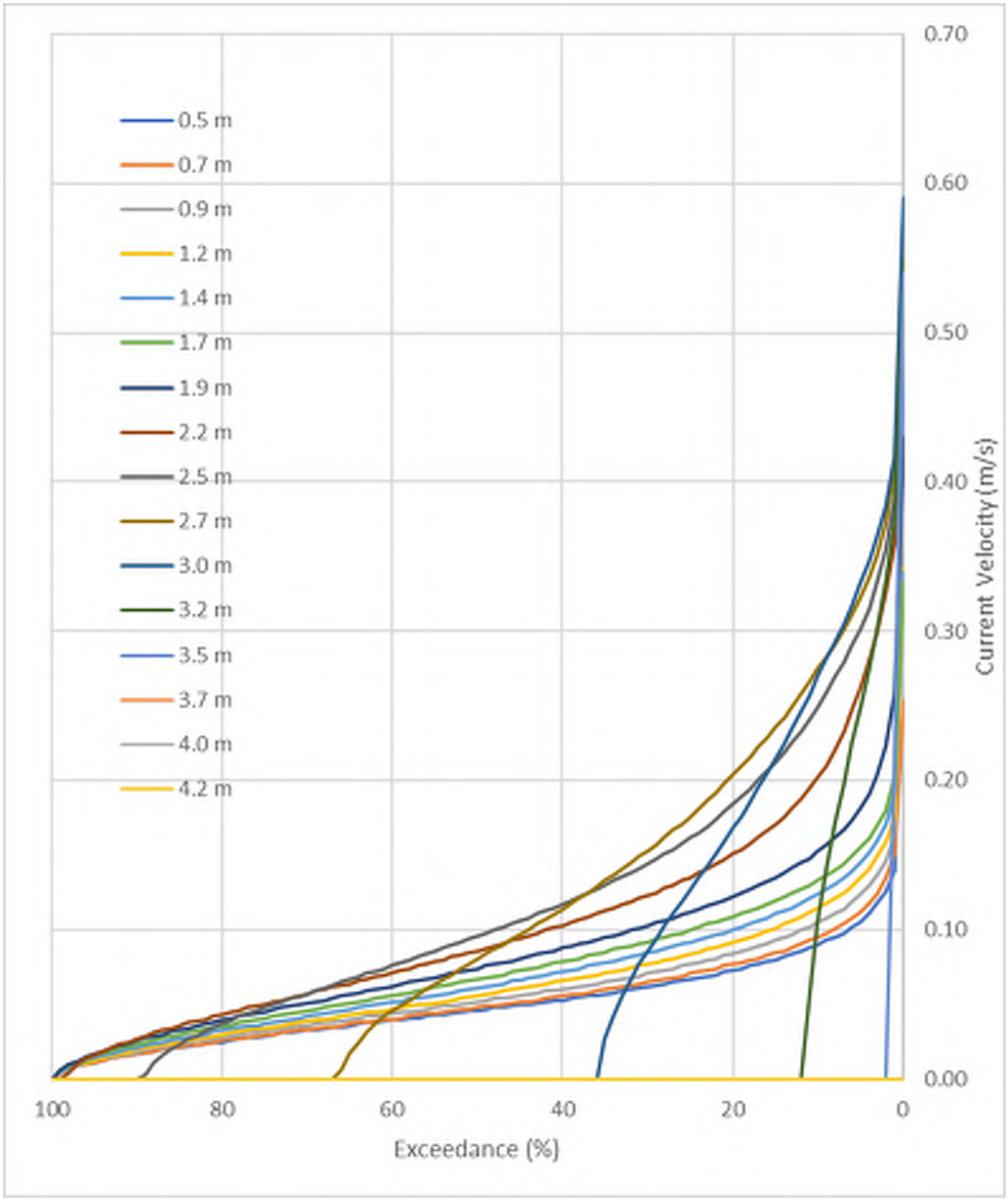

Figure BI.5 Autumn Nearshore Aquadopp Current Exceedance Curves

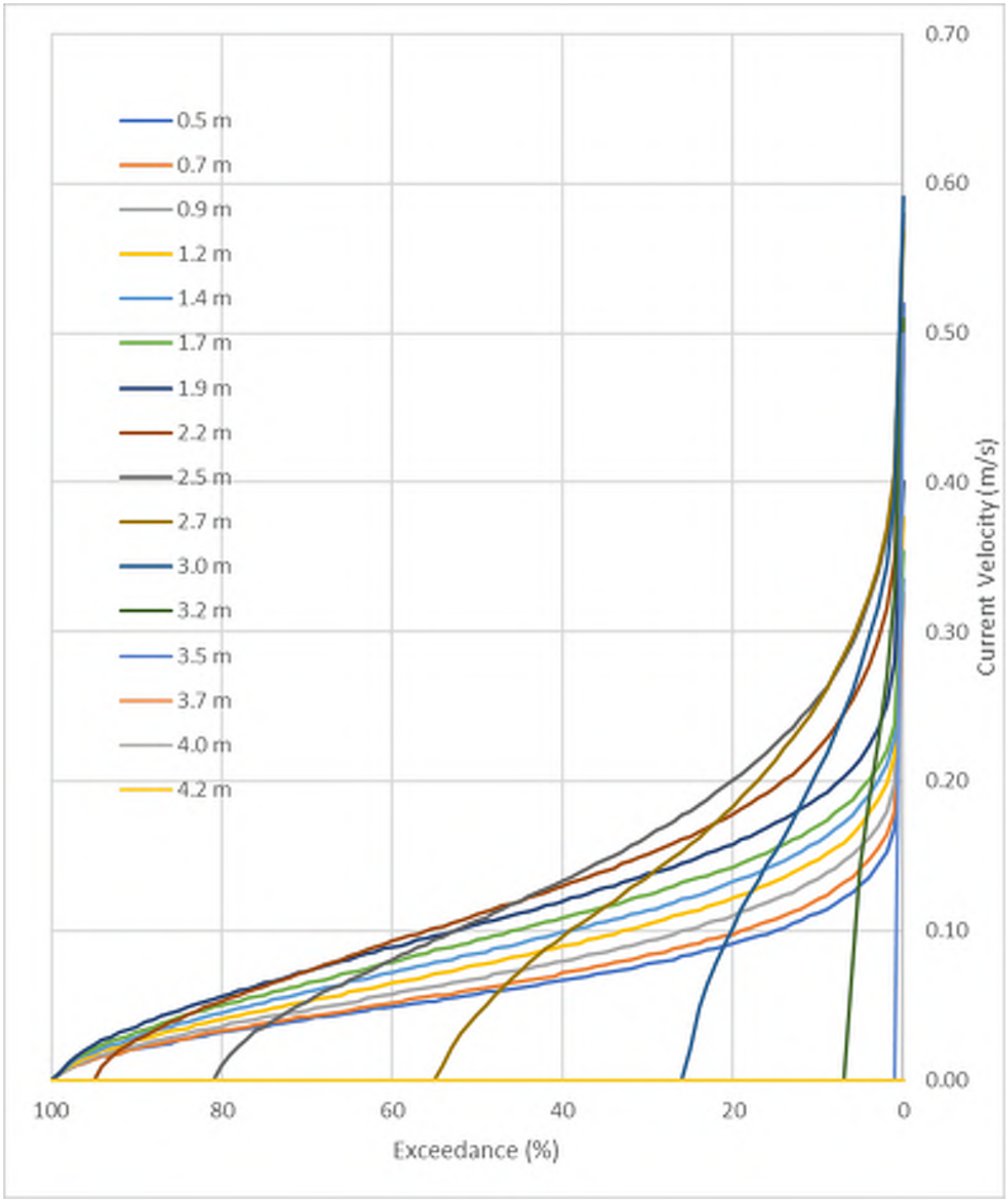

Figure BI.6 Winter Nearshore Aquadopp Current Exceedance Curves

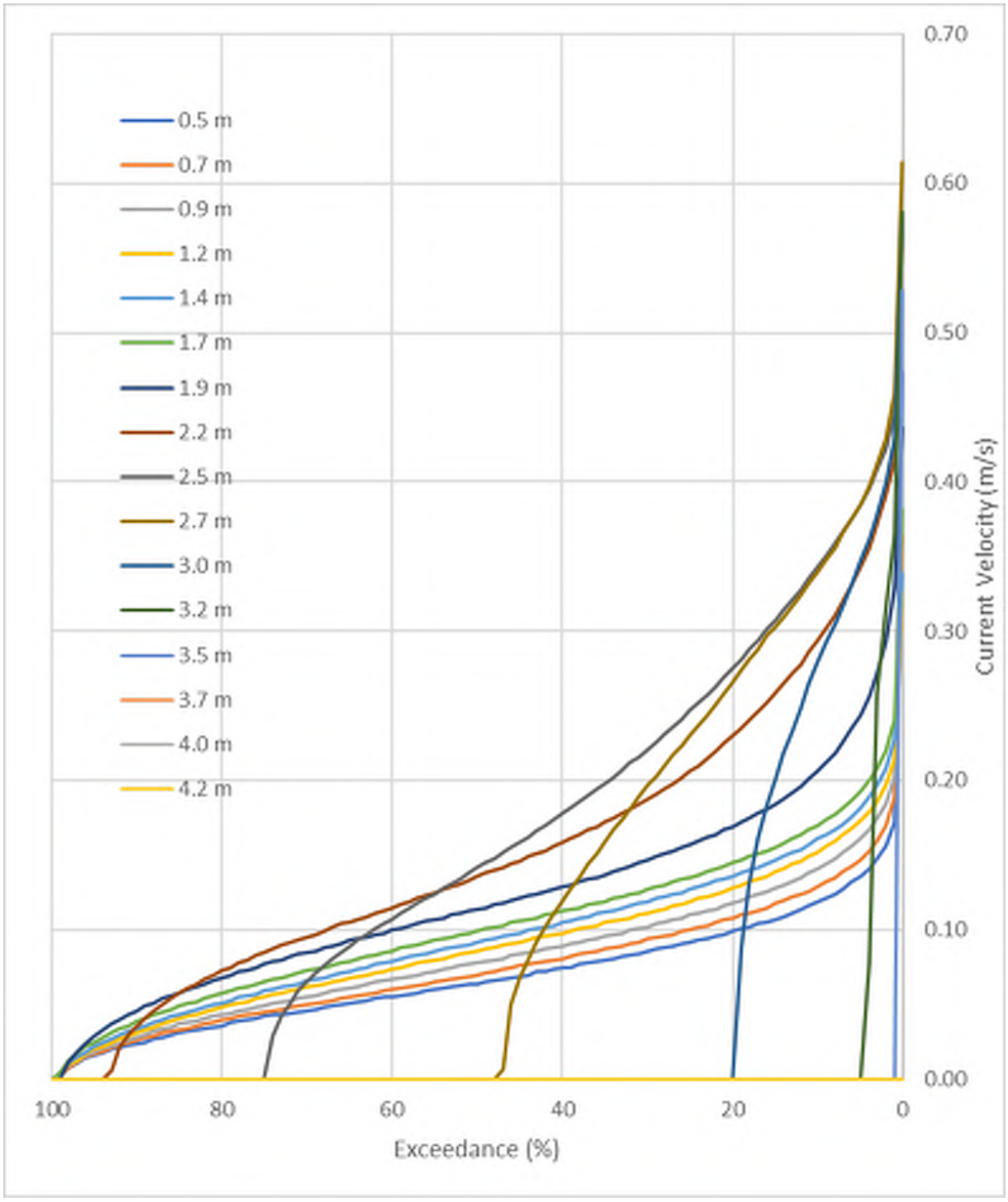

Figure BI.7 Winter Nearshore Aquadopp Current Exceedance Curves

Appendix CI AWAC Current Key Events

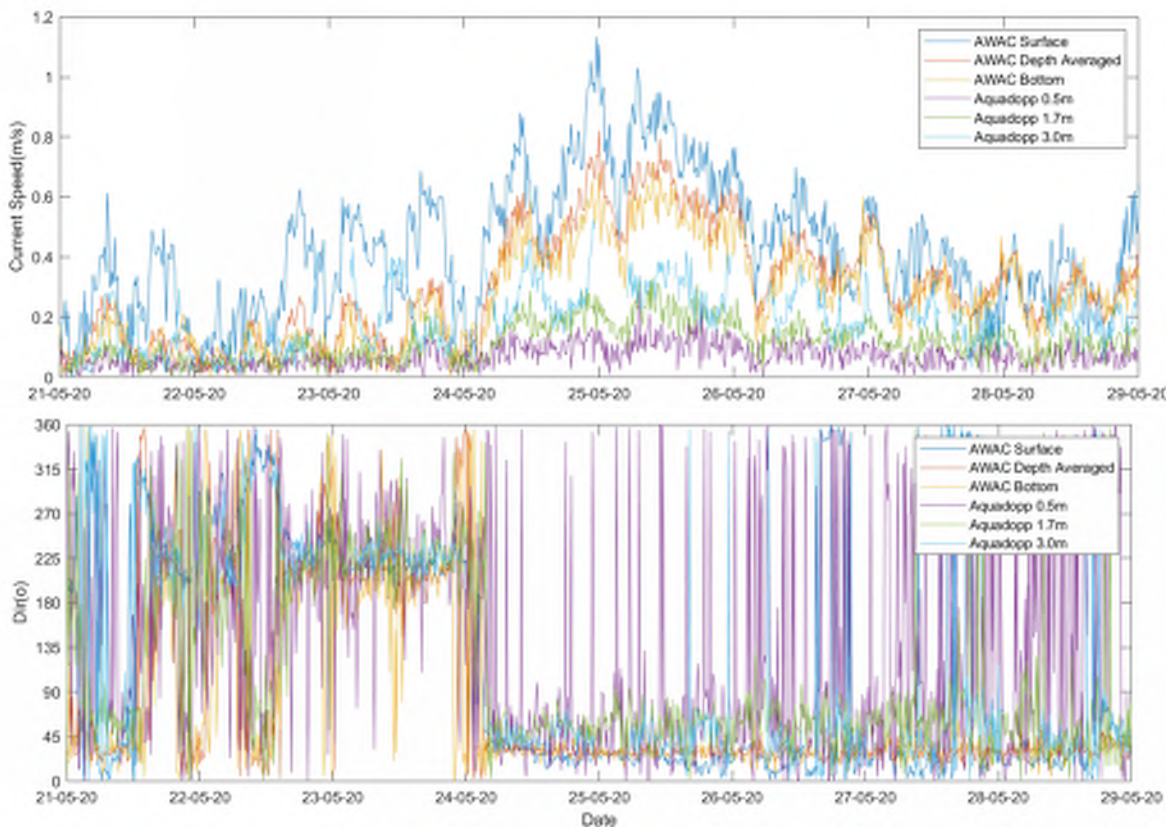

Figure CI.1 Event 1 – Nearshore AWAC Current Speed and Direction

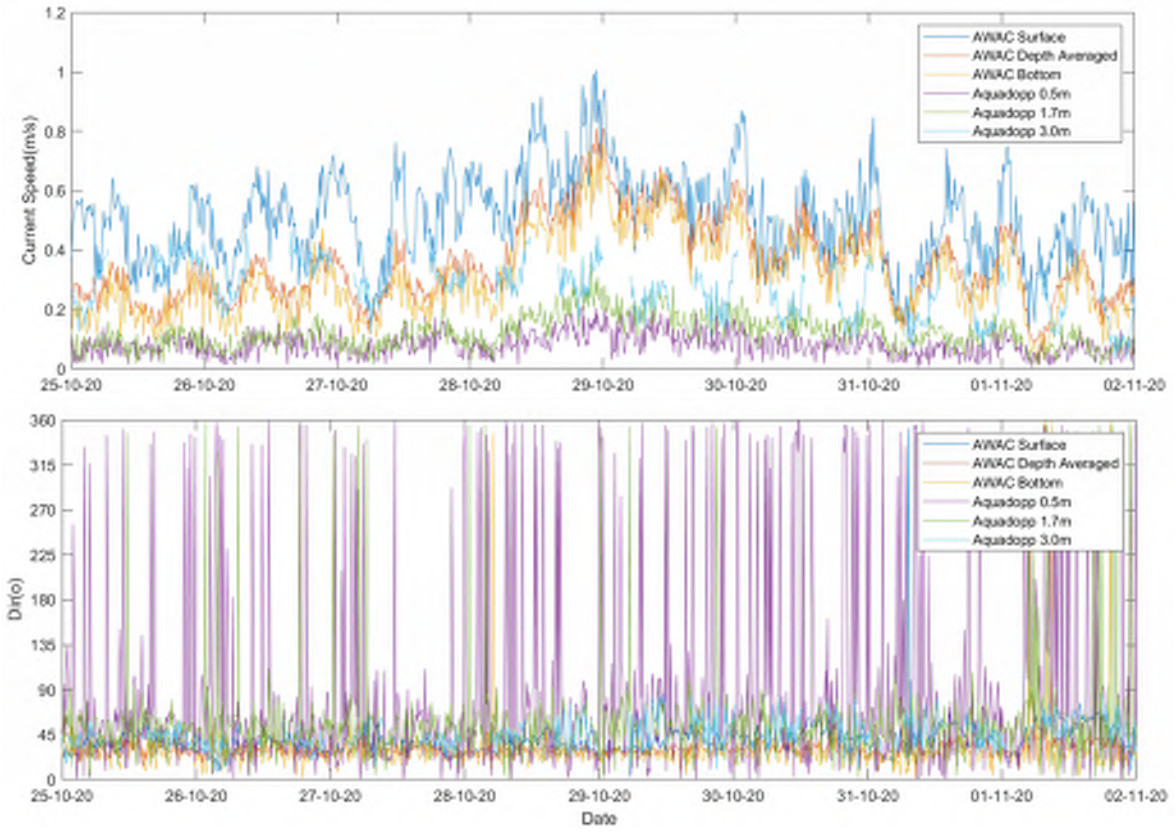

Figure CI.2 Event 2 – Nearshore AWAC Current Speed and Direction

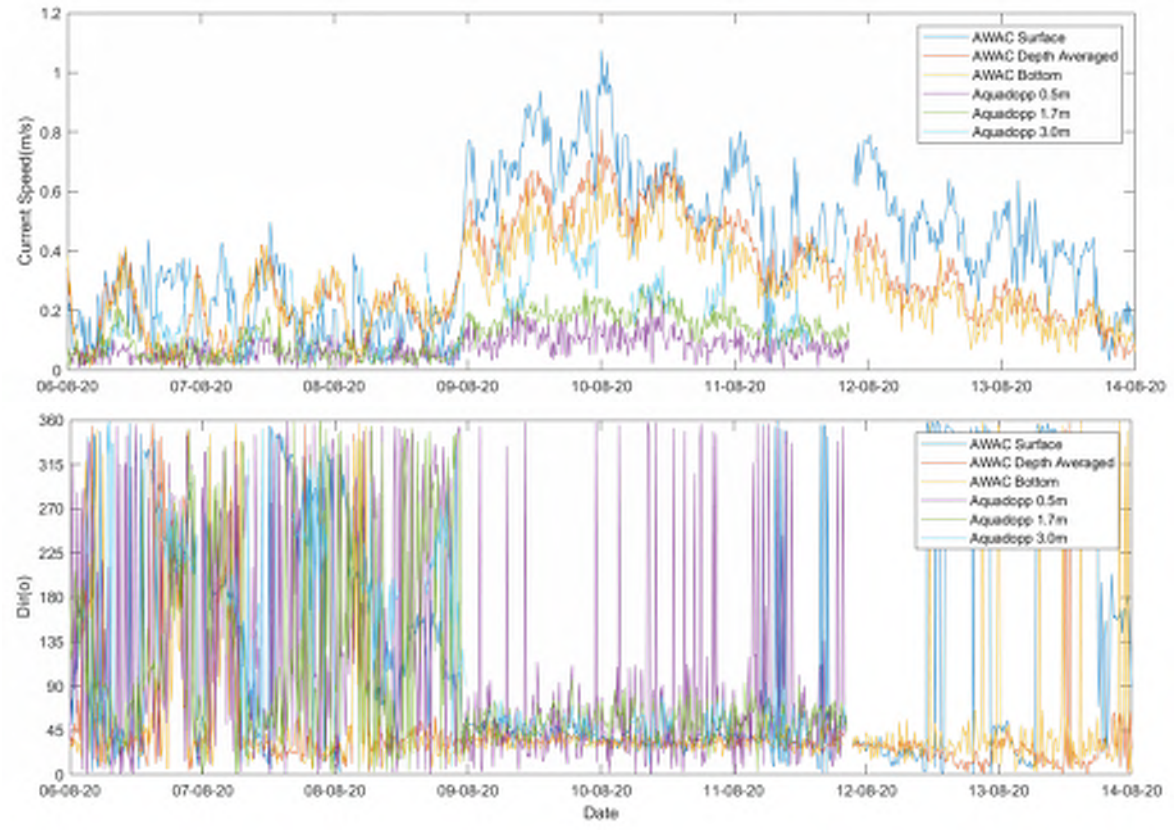

Figure CI.3 Event 3 – Nearshore AWAC Current Speed and Direction

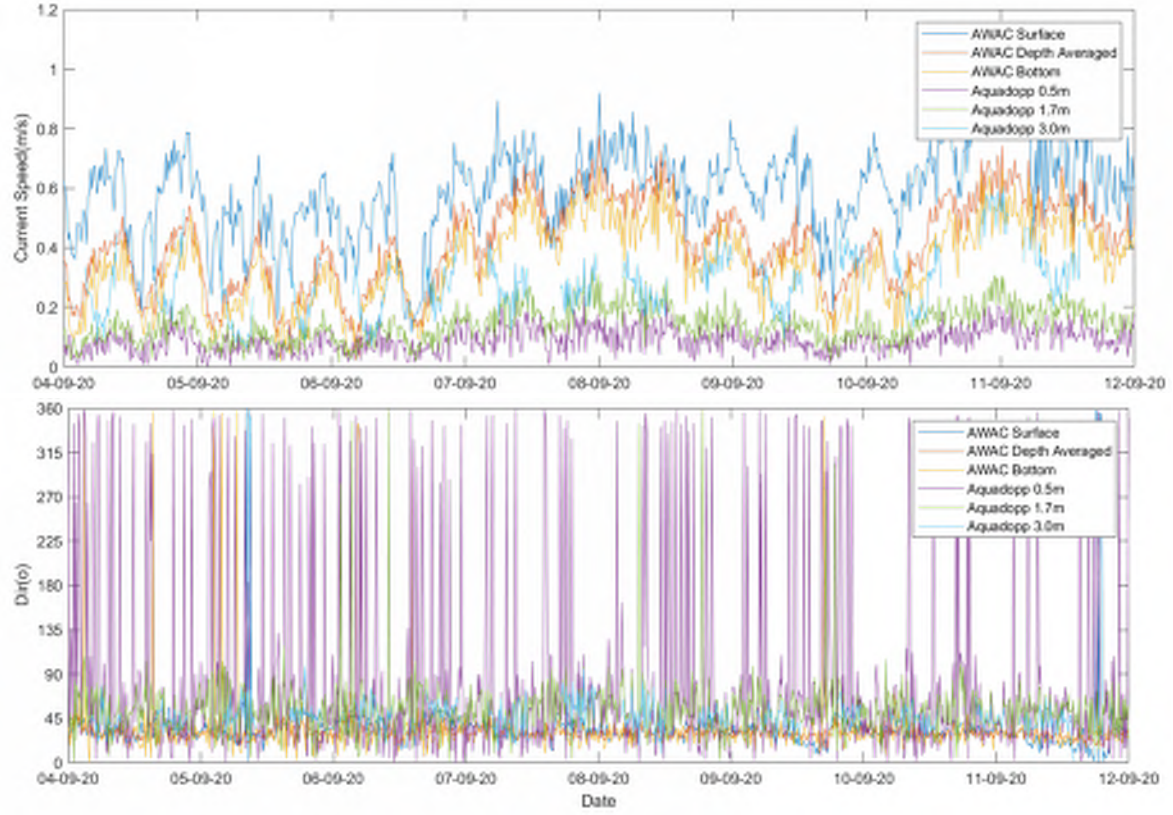

Figure CI.4 Event 4 – Nearshore AWAC Current Speed and Direction

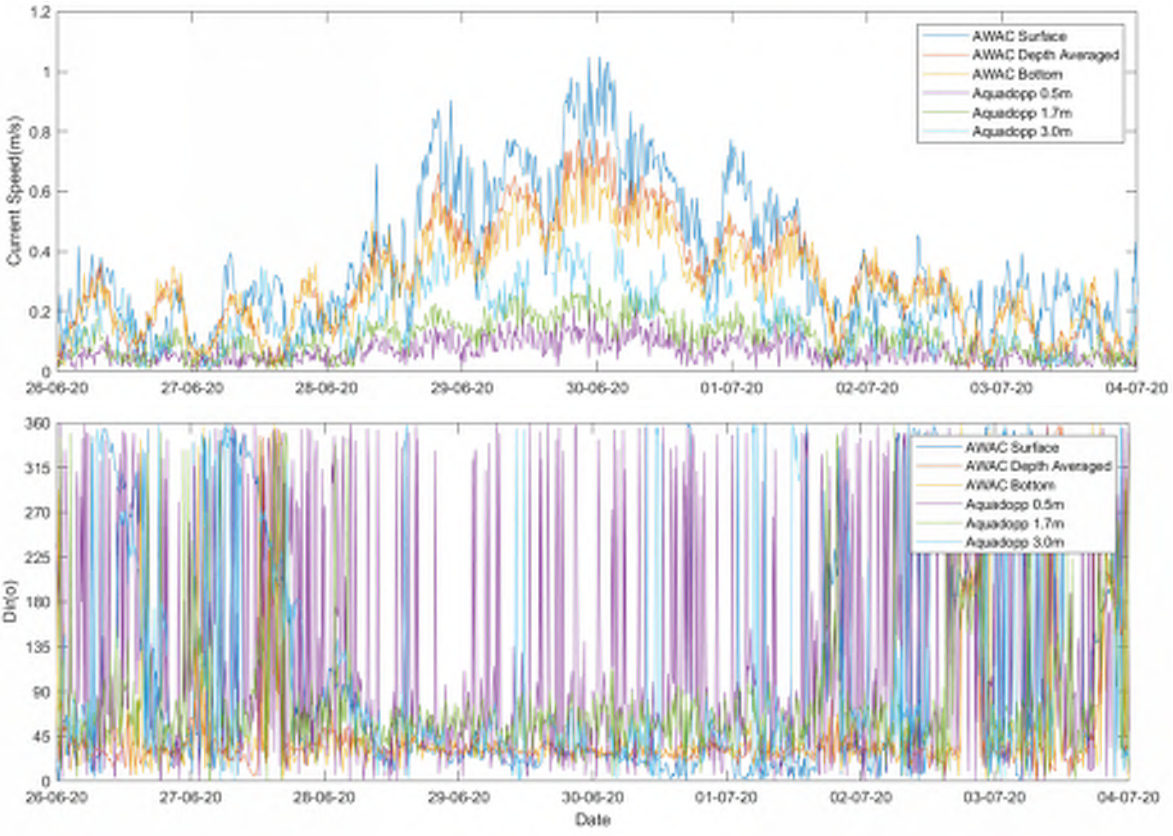

Figure CI.5 Event 5 – Nearshore AWAC Current Speed and Direction

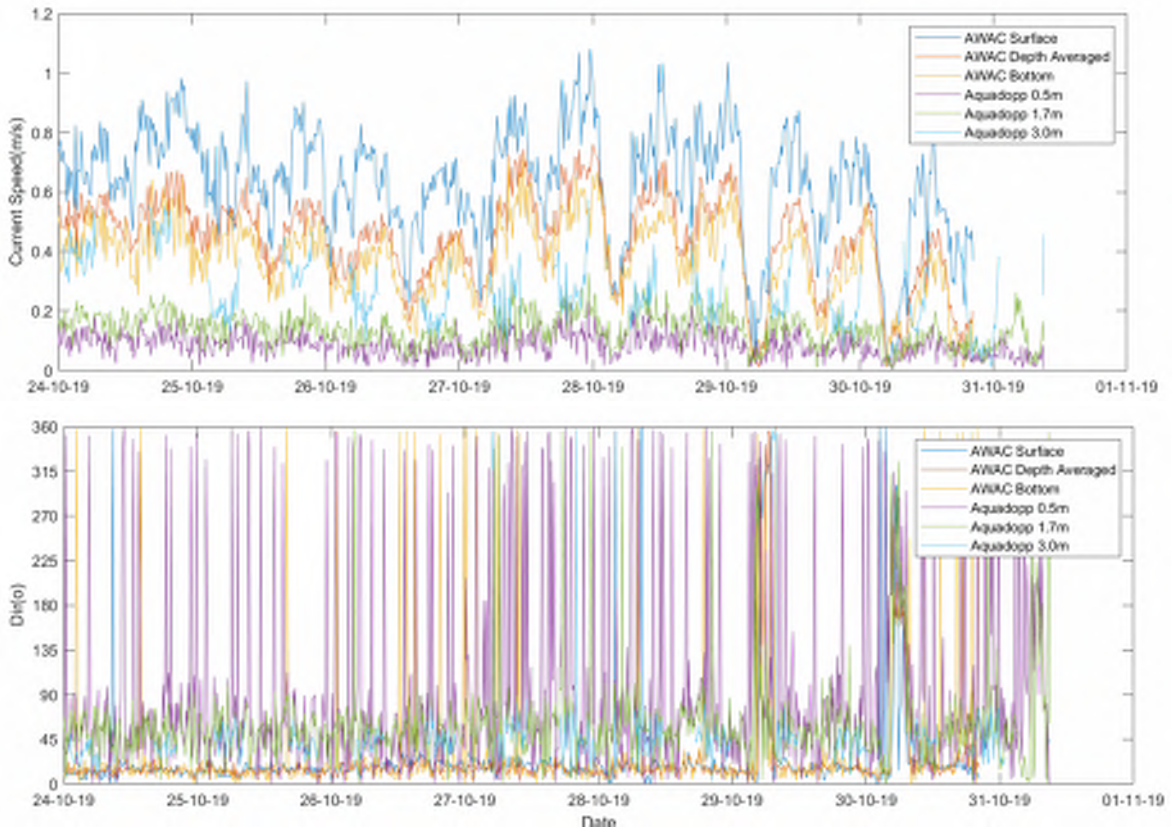

Figure CI.6 Event 6 – Nearshore AWAC Current Speed and Direction

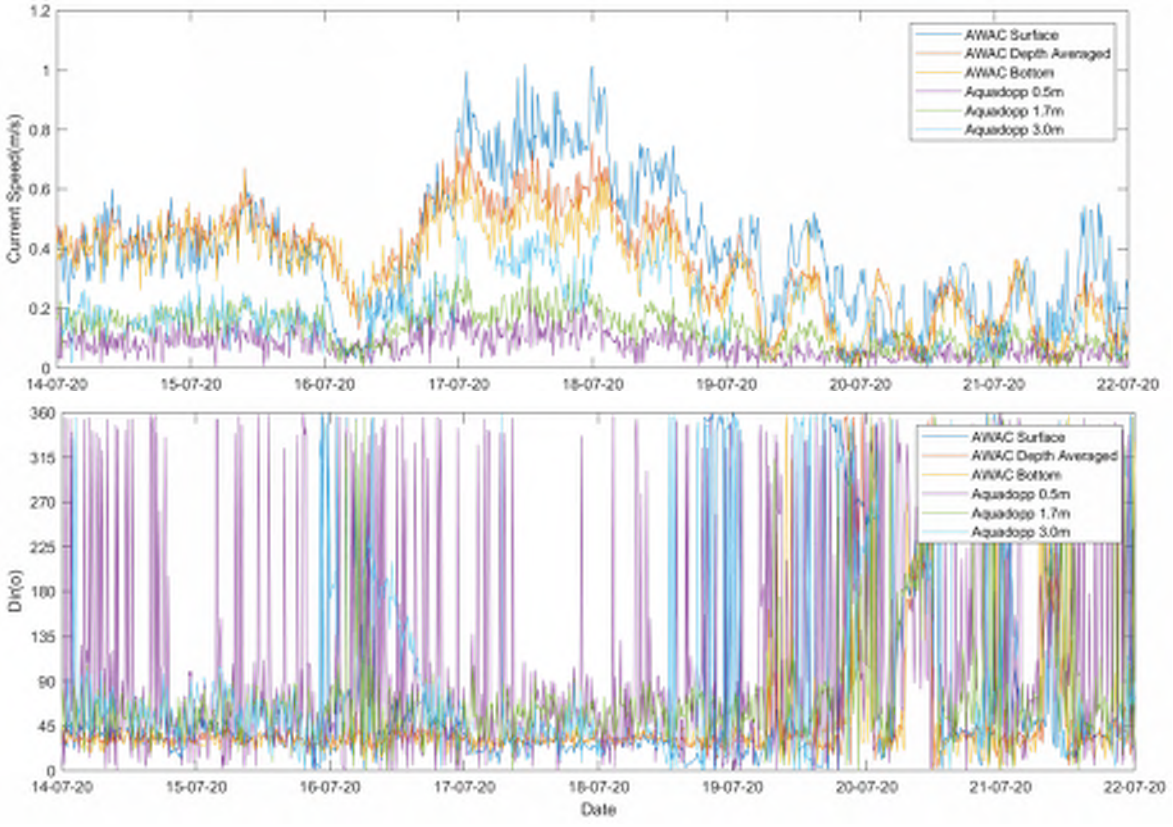

Figure CI.7 Event 7 – Nearshore AWAC Current Speed and Direction

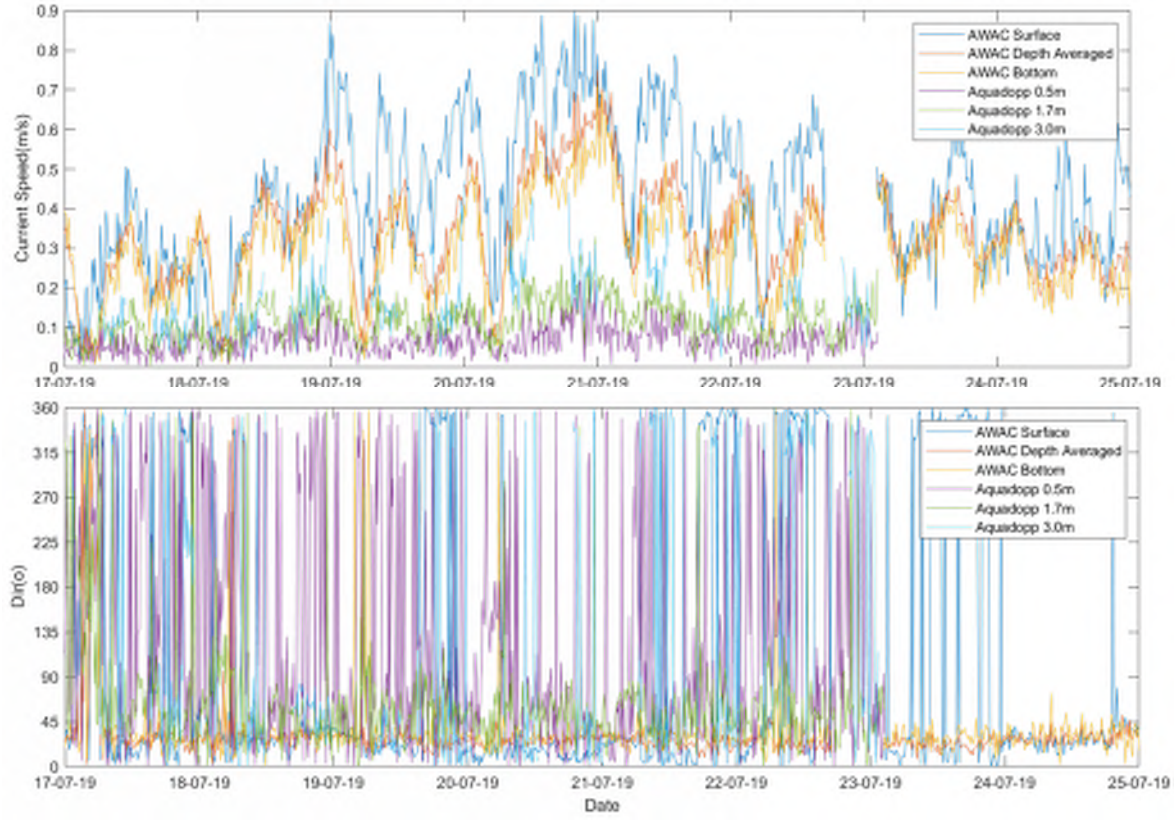

Figure CI.8 Event 8 – Nearshore AWAC Current Speed and Direction

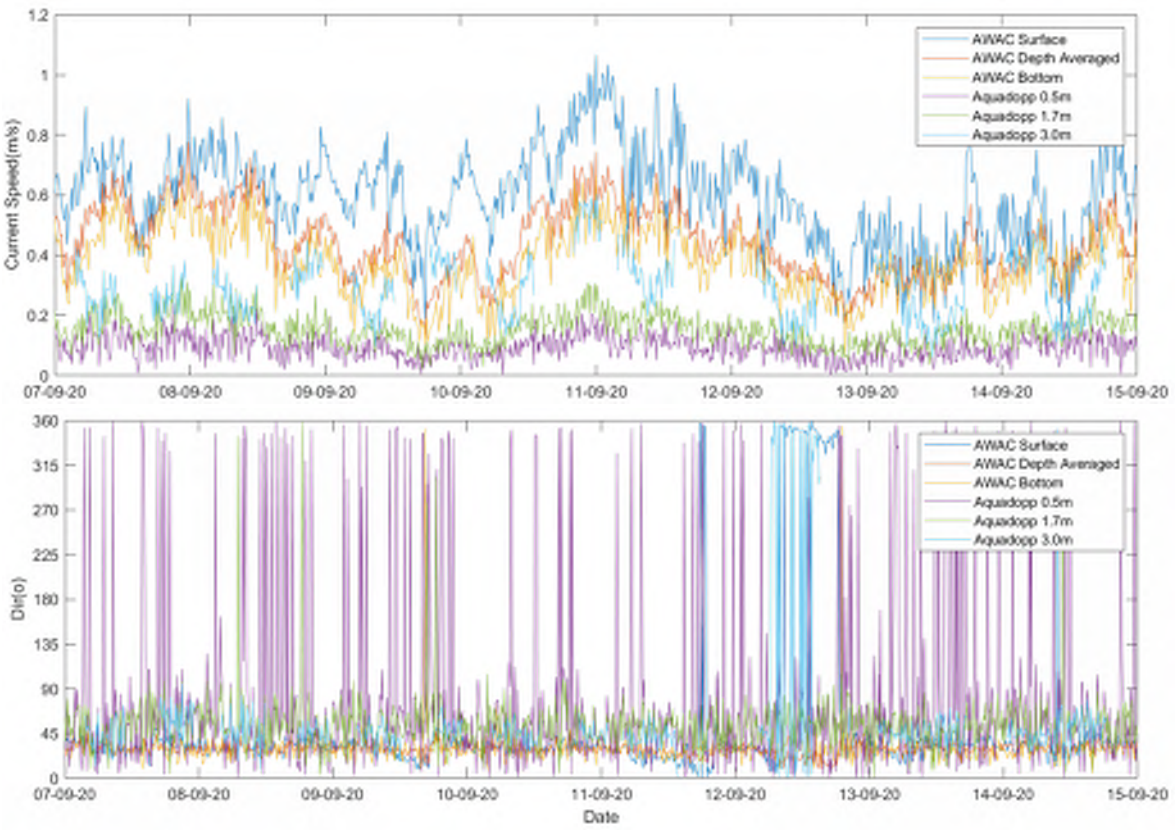

Figure CI.9 Event 9 – Nearshore AWAC Current Speed and Direction

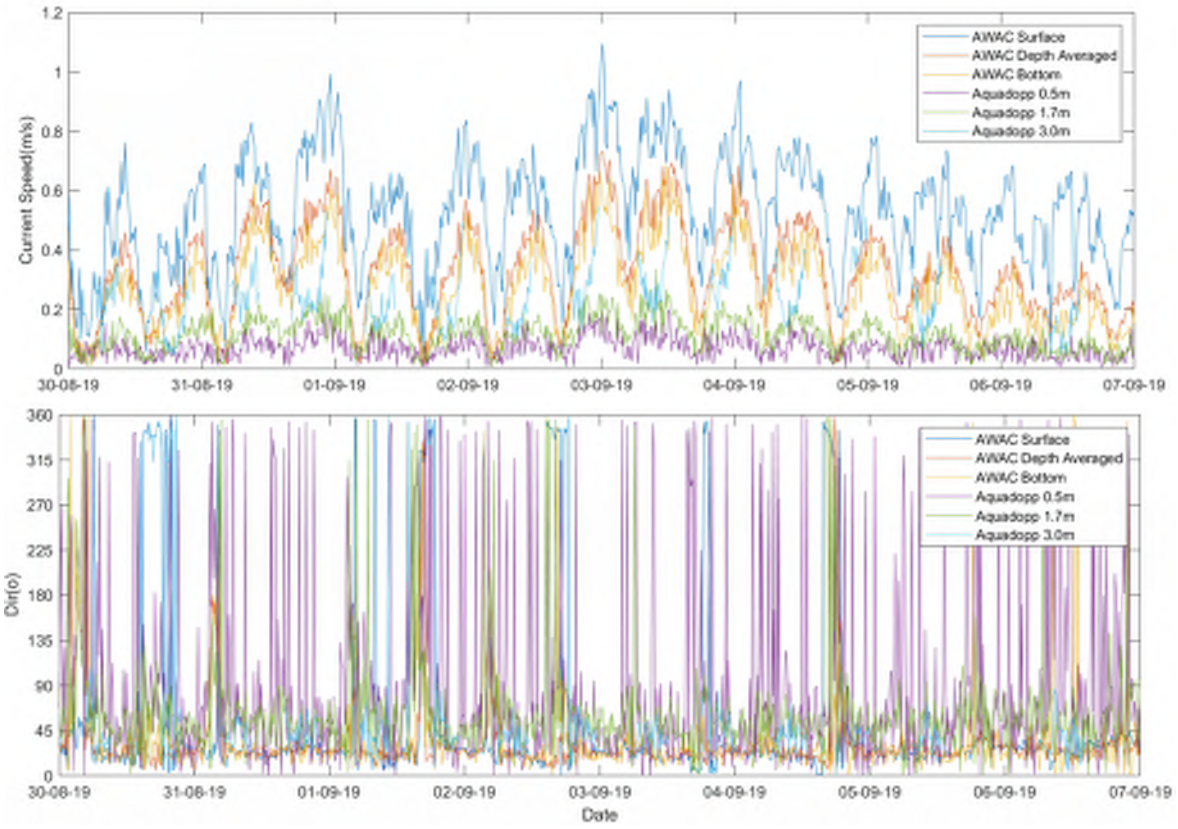

Figure CI.10 Event 10 – Nearshore AWAC Current Speed and Direction

Appendix DI Aquadopp Current Key Events

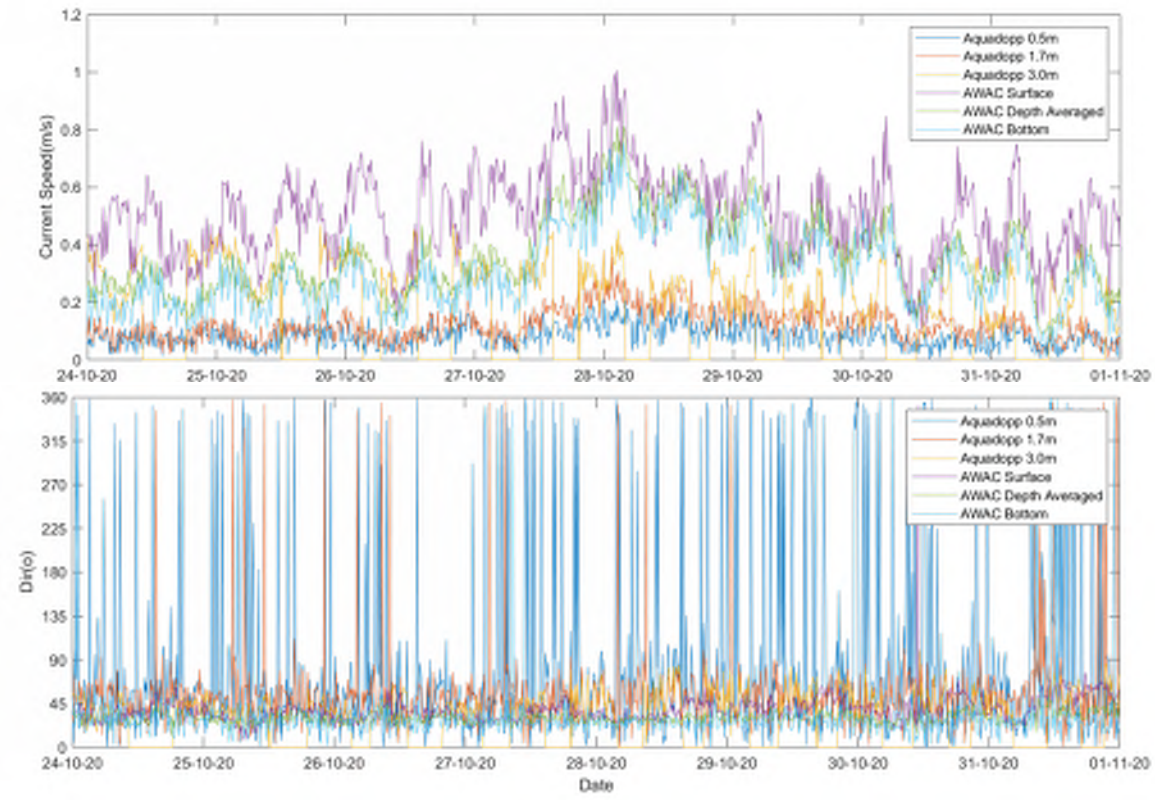

Figure DI.1 Event 1 – Nearshore Aquadopp Current Speed and Direction

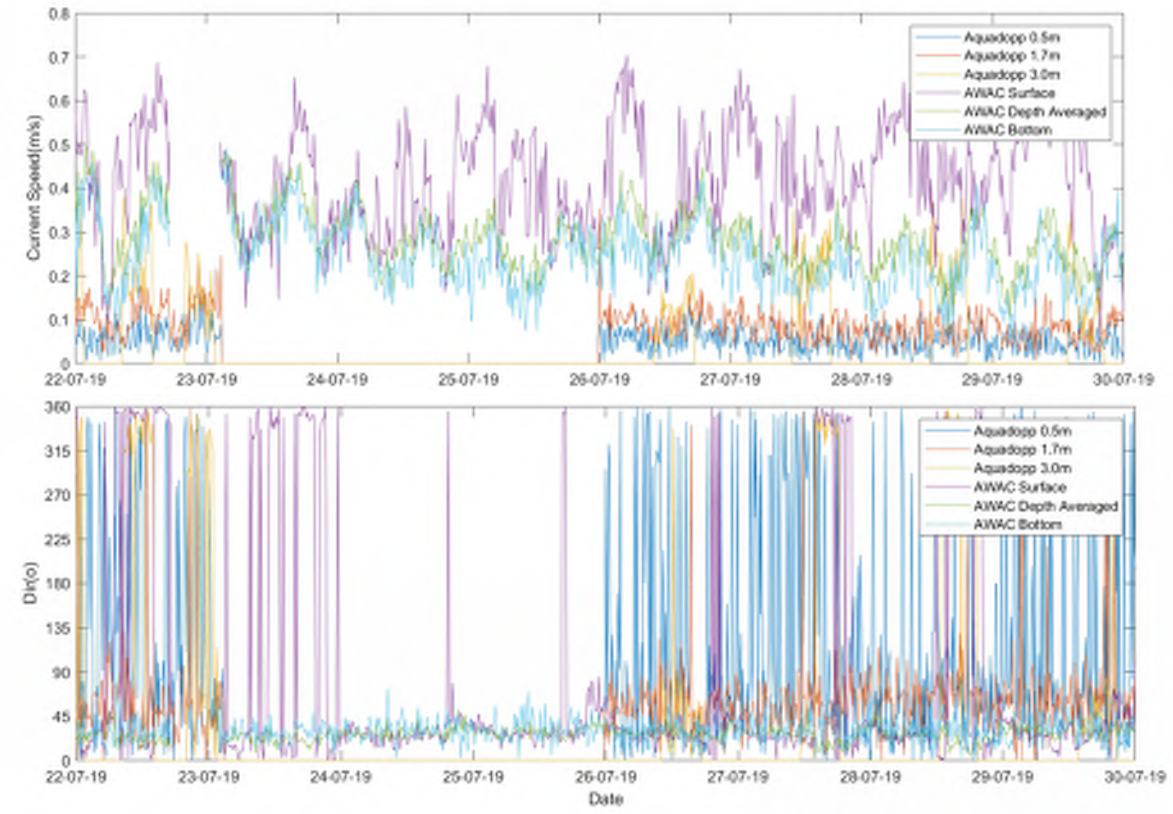

Figure DI.2 Event 2 – Nearshore Aquadopp Current Speed and Direction

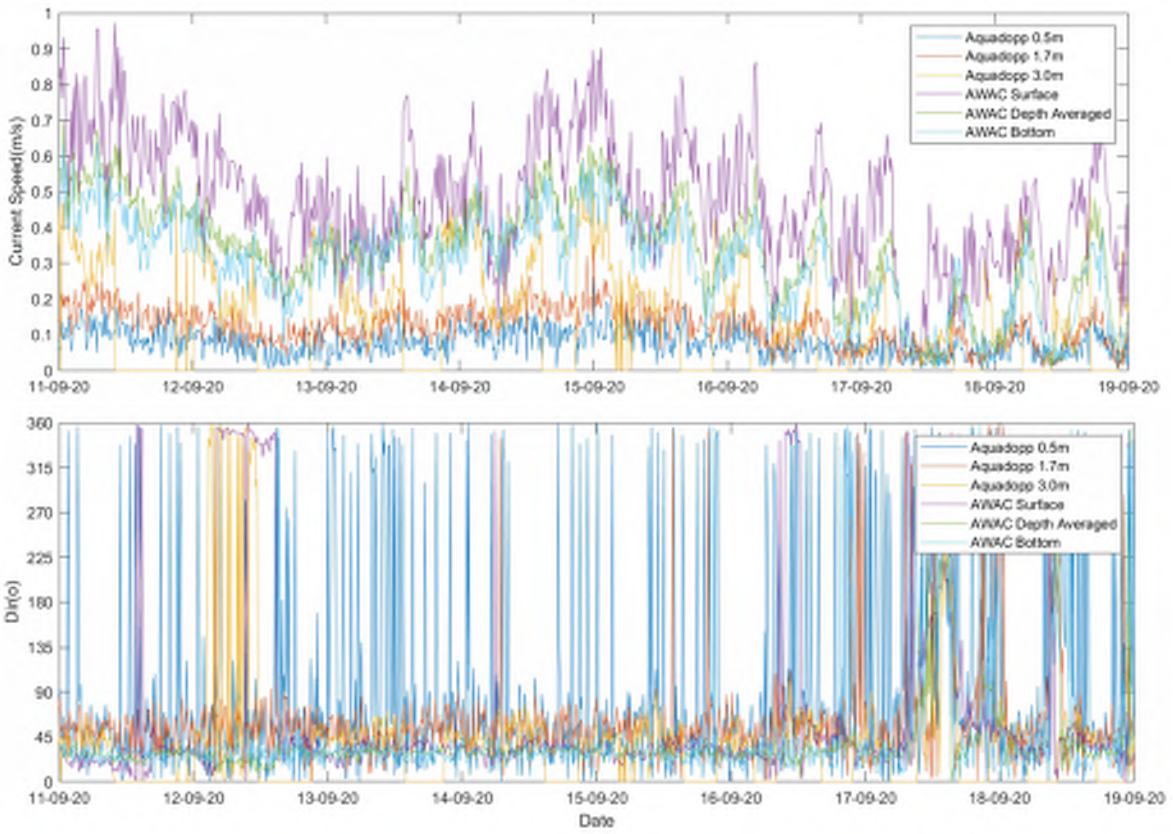

Figure DI.3 Event 3 – Nearshore Aquadopp Current Speed and Direction

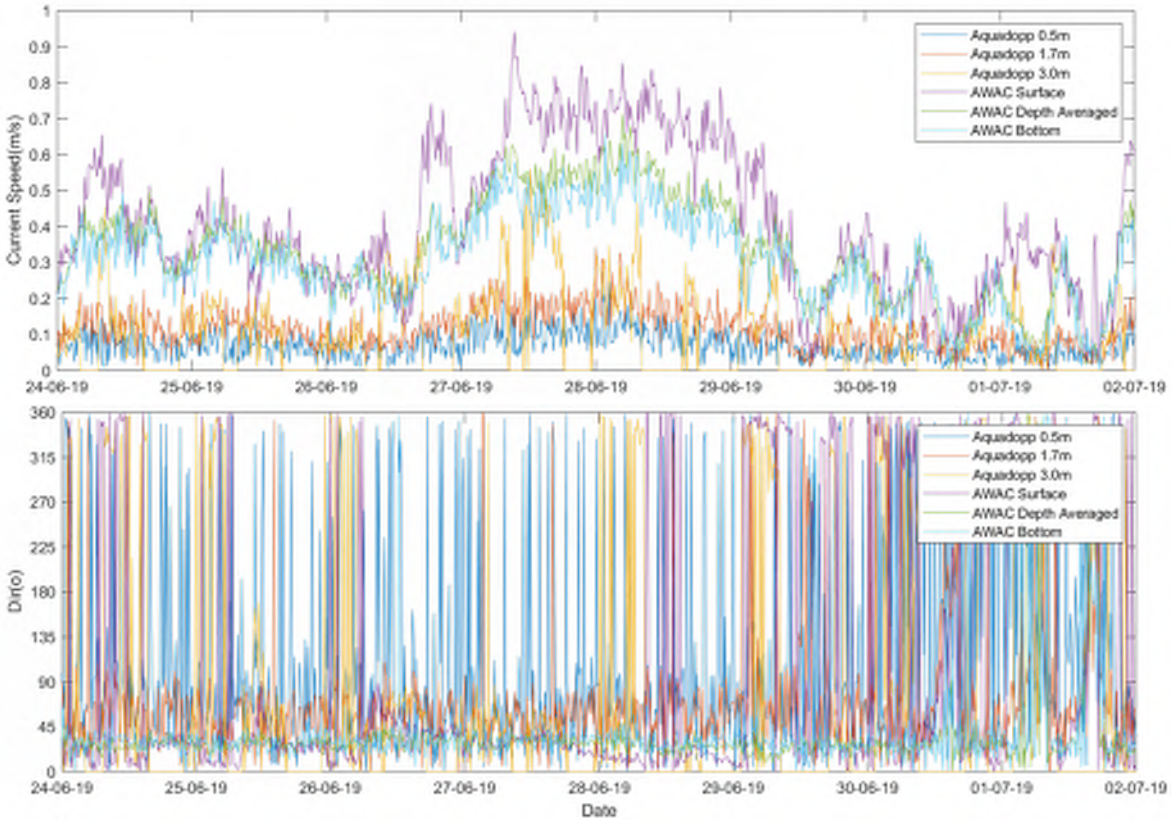

Figure DI.4 Event 4 – Nearshore Aquadopp Current Speed and Direction

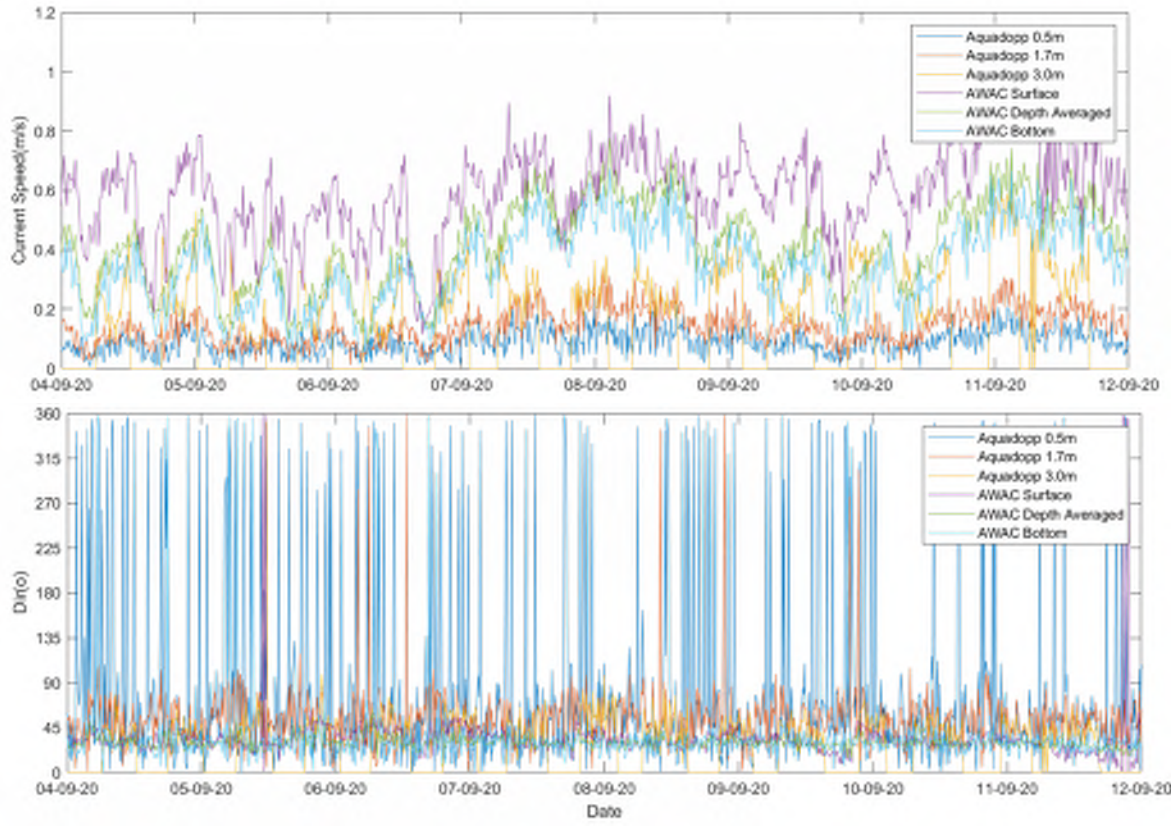

Figure DI.5 Event 5 – Nearshore Aquadopp Current Speed and Direction

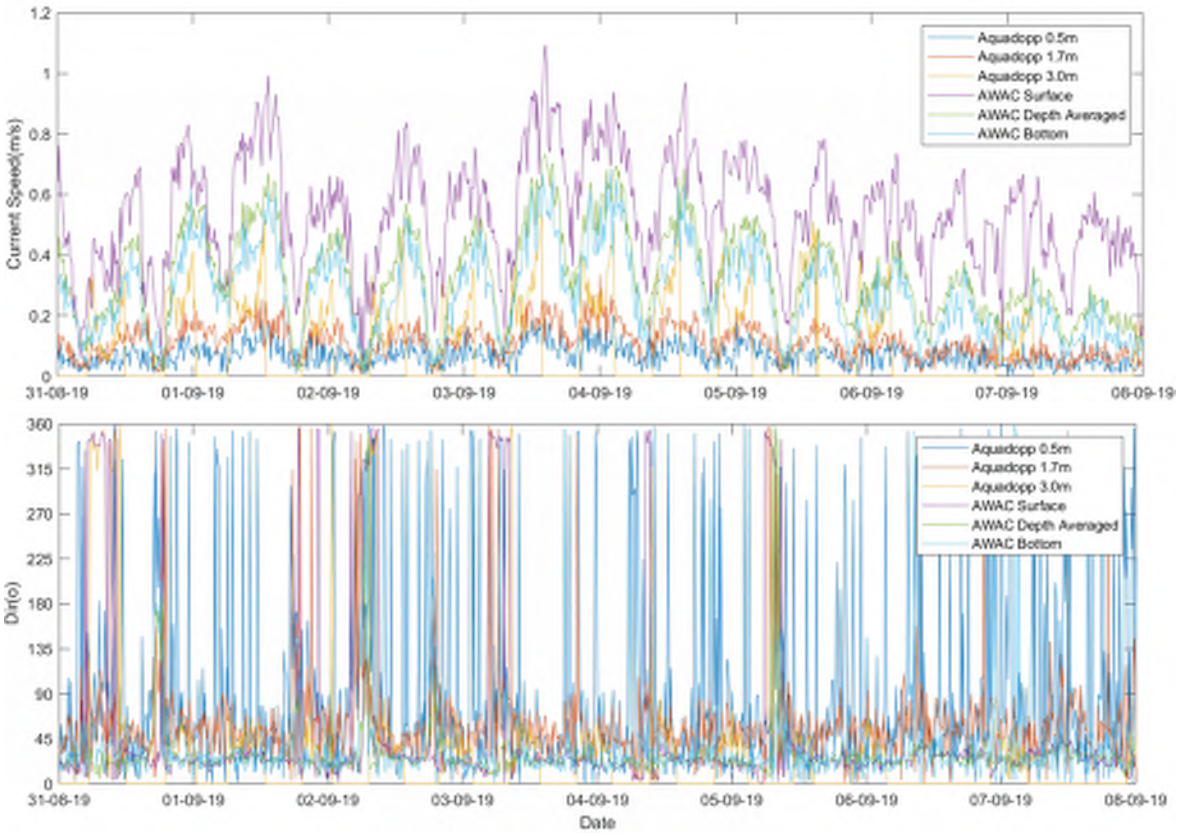

Figure DI.6 Event 6 – Nearshore Aquadopp Current Speed and Direction

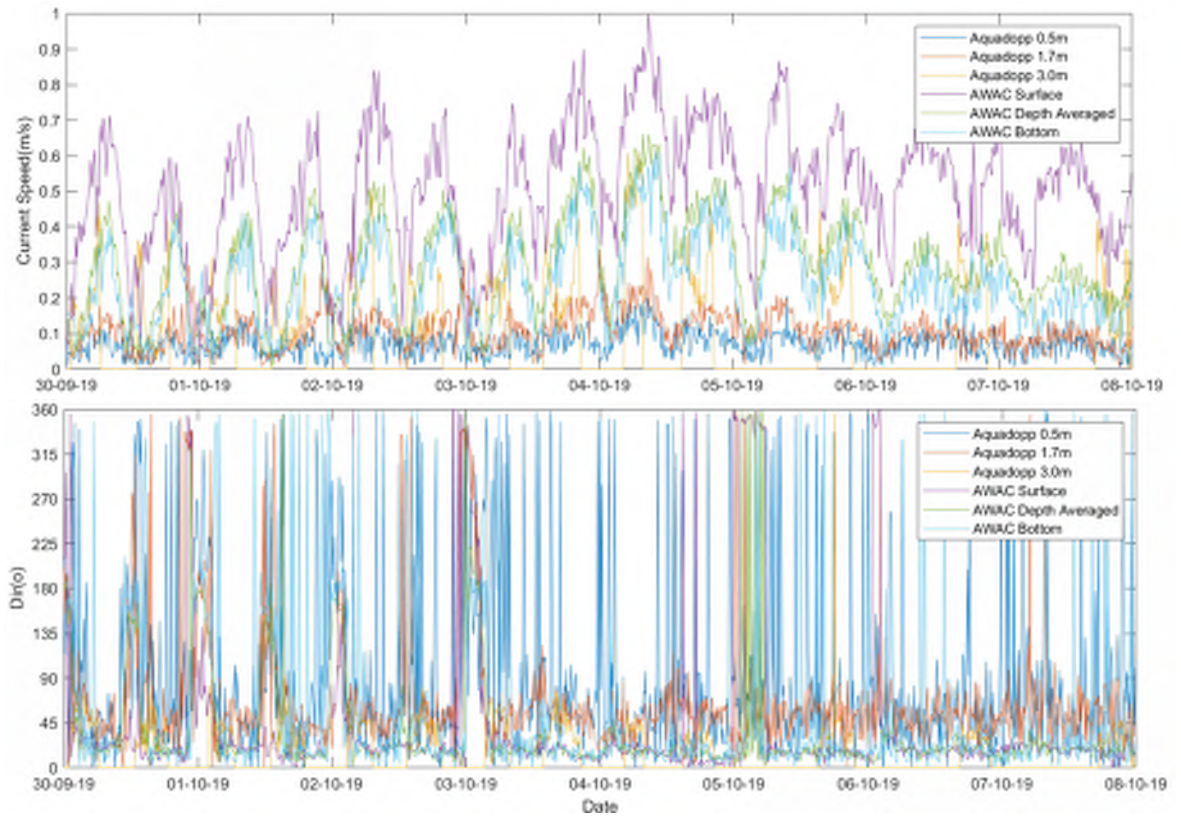

Figure DI.7 Event 7 – Nearshore Aquadopp Current Speed and Direction

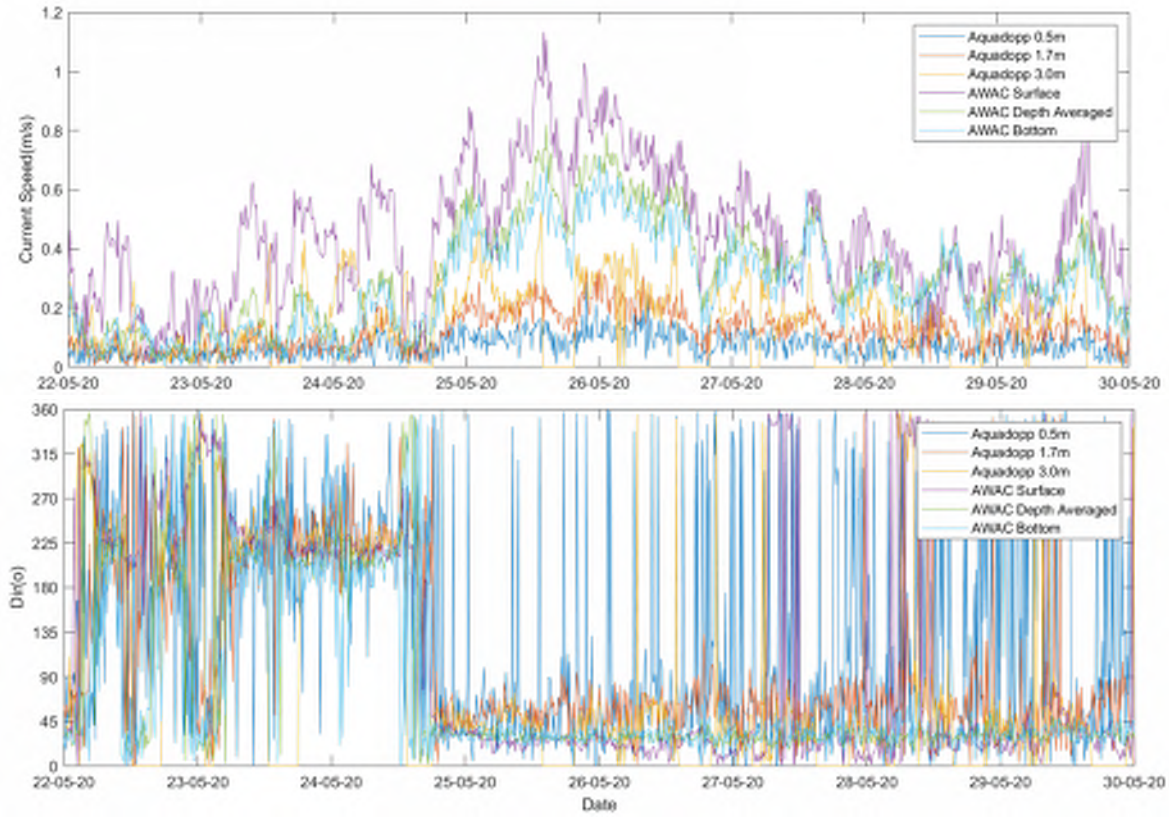

Figure DI.8 Event 8 – Nearshore Aquadopp Current Speed and Direction

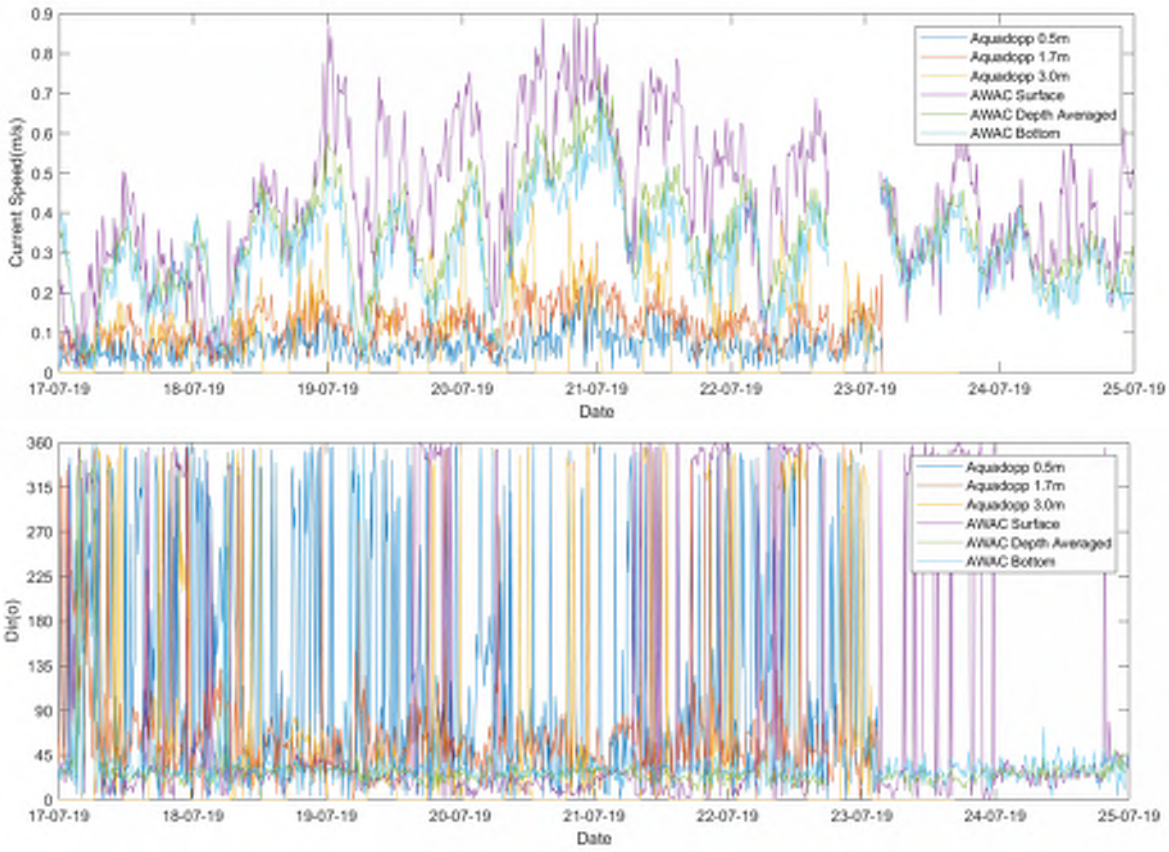

Figure DI.9 Event 9 – Nearshore Aquadopp Current Speed and Direction

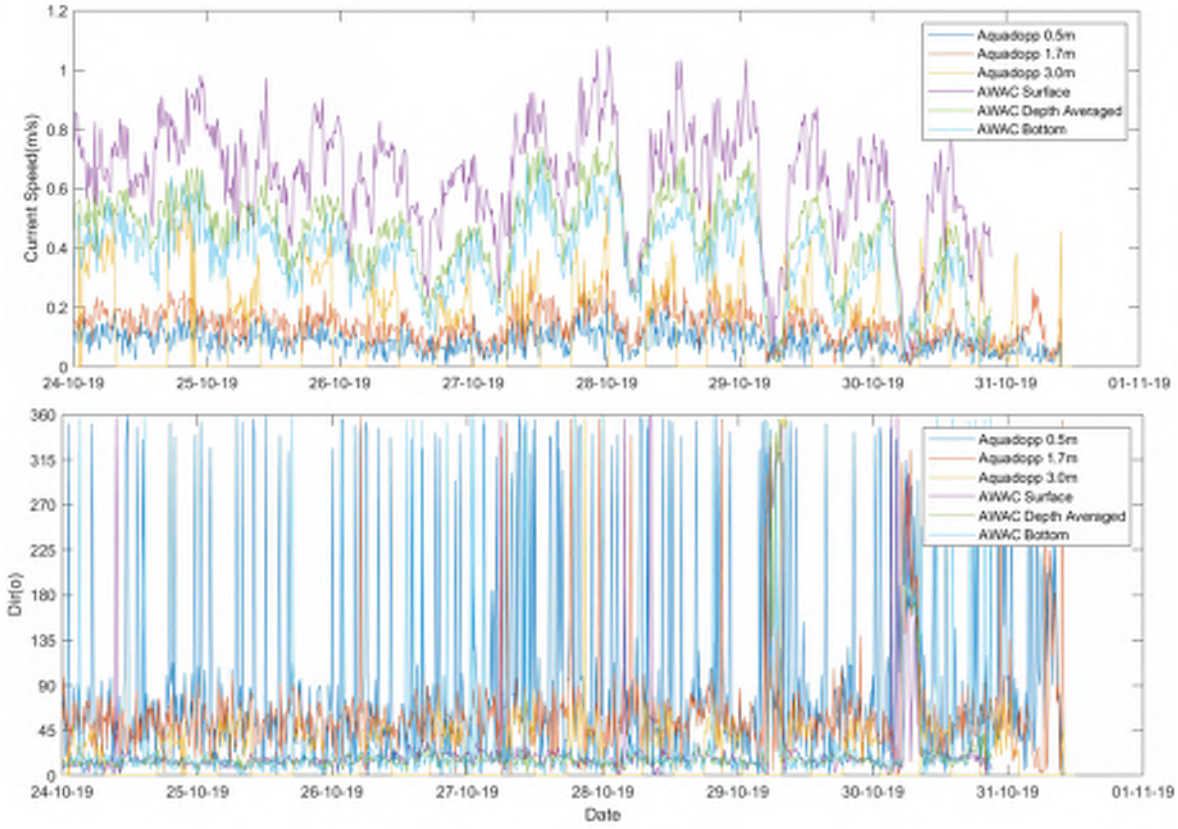

Figure DI.10 Event 10 – Nearshore Aquadopp Current Speed and Direction

Appendix EI Tantabiddi Tide Gauge Key Events

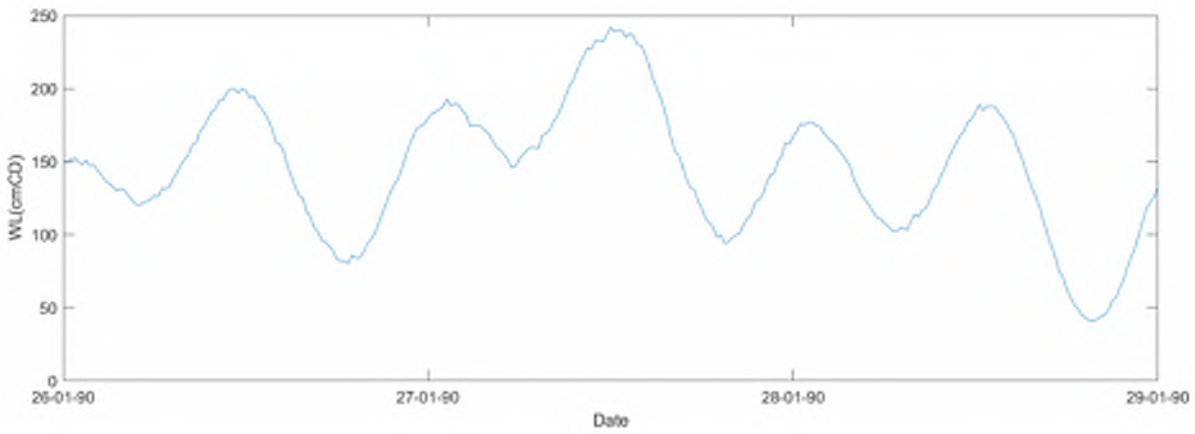

Figure EI.1 Event 1 – Tantabiddi Tide Gauge Water Level

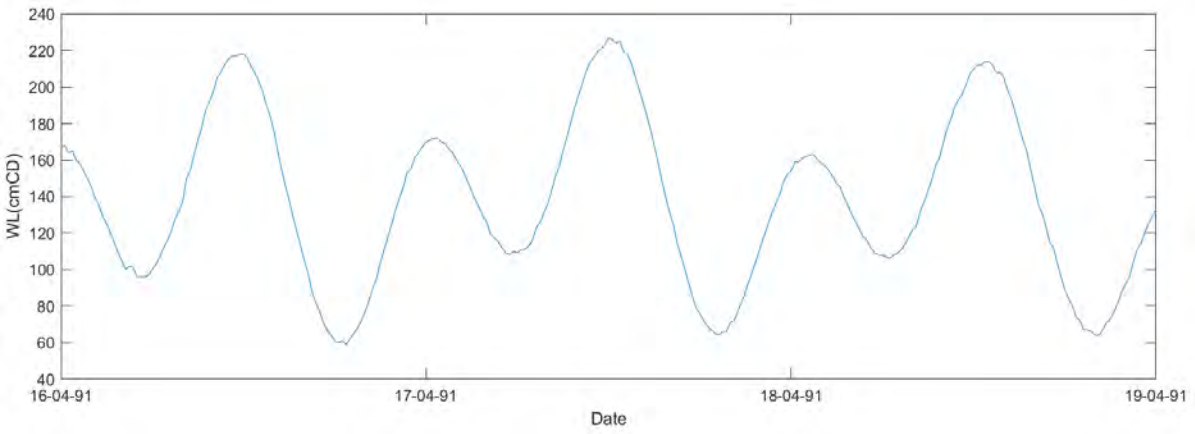

Figure EI.2 Event 2 – Tantabiddi Tide Gauge Water Level

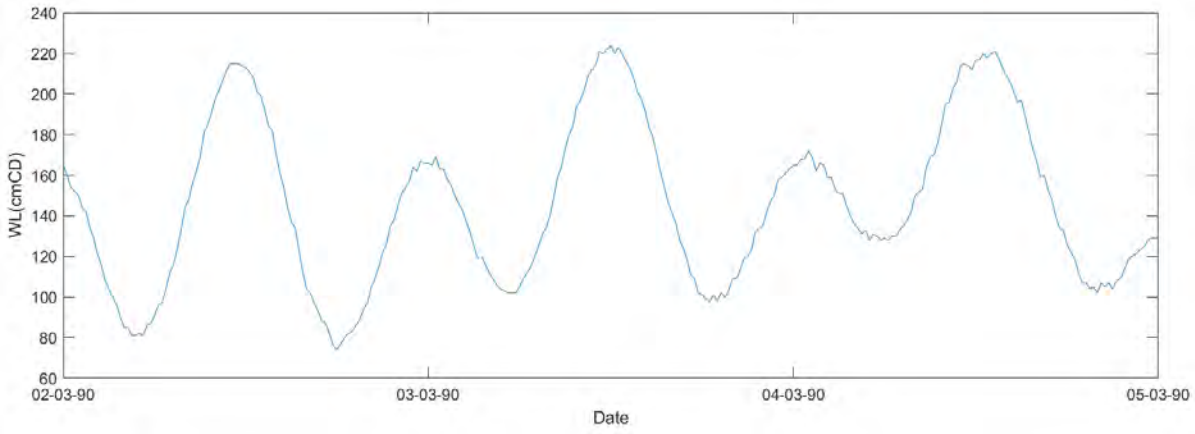

Figure EI.3 Event 3 – Tantabiddi Tide Gauge Water Level

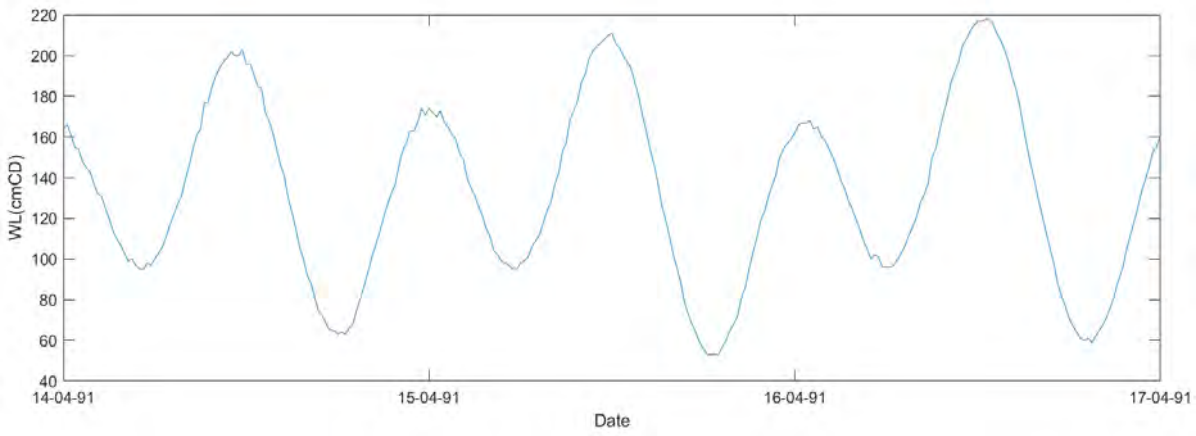

Figure EI.4 Event 4 – Tantabiddi Tide Gauge Water Level

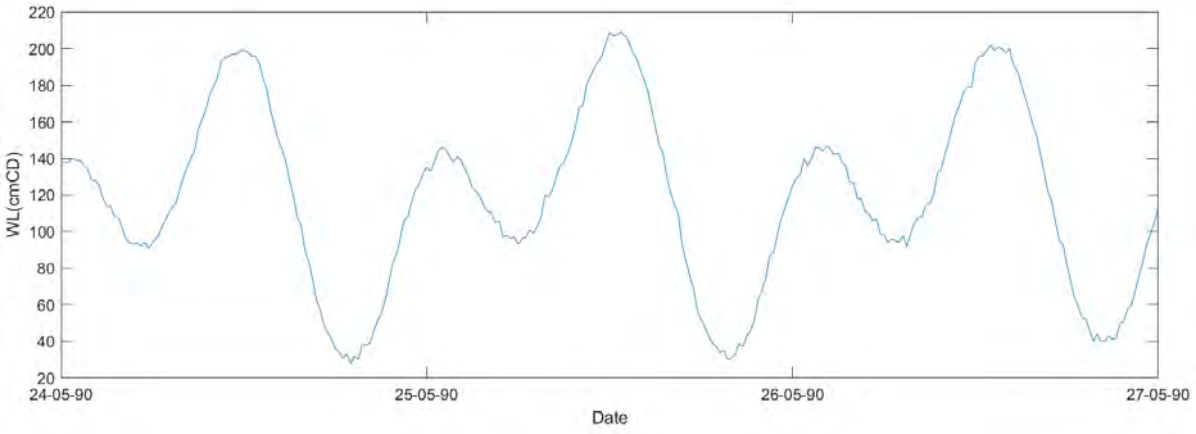

Figure EI.5 Event 5 – Tantabiddi Tide Gauge Water Level

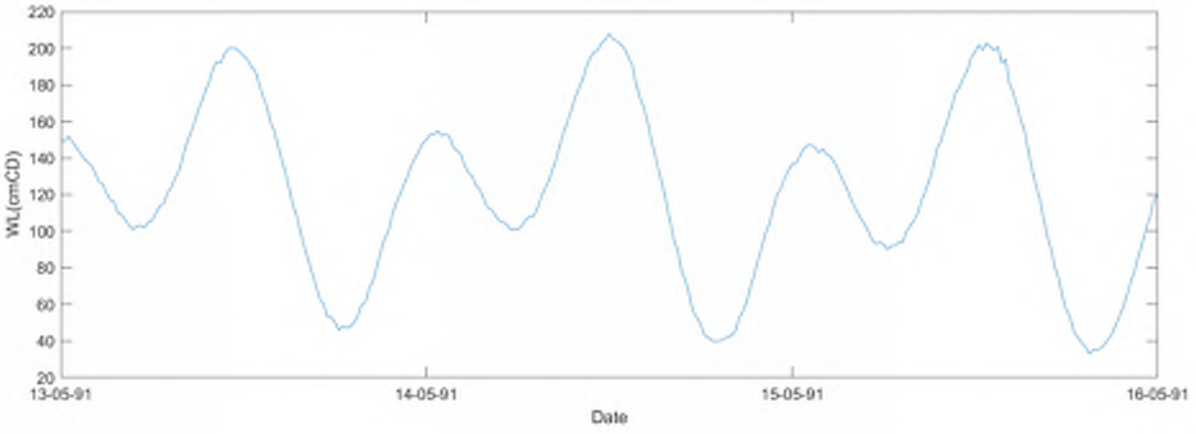

Figure EI.6 Event 6 – Tantabiddi Tide Gauge Water Level

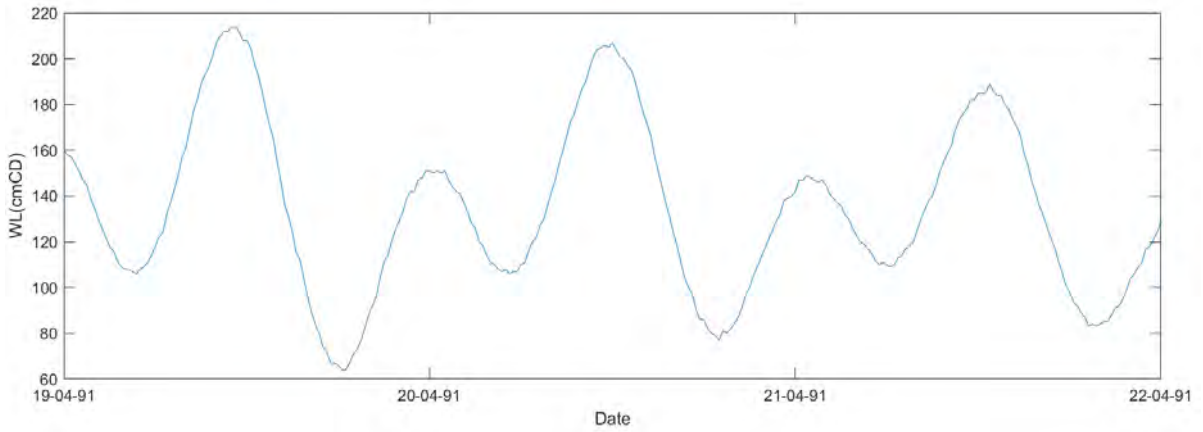

Figure EI.7 Event 7 – Tantabiddi Tide Gauge Water Level

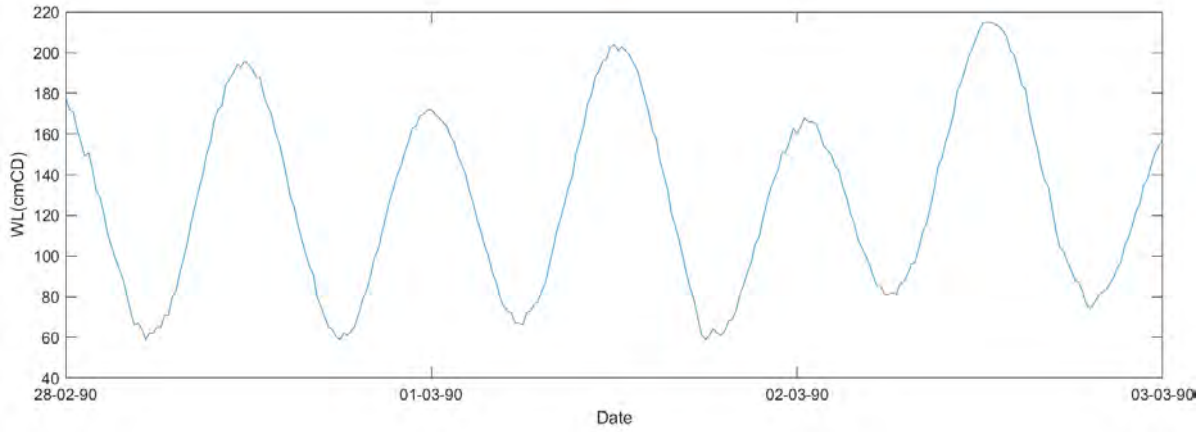

Figure EI.8 Event 8 – Tantabiddi Tide Gauge Water Level

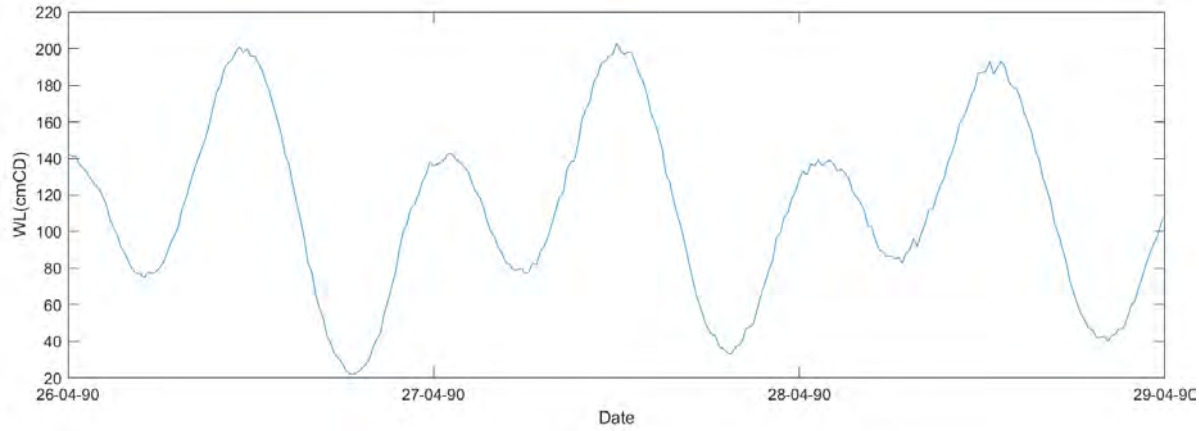

Figure EI.9 Event 9 – Tantabiddi Tide Gauge Water Level

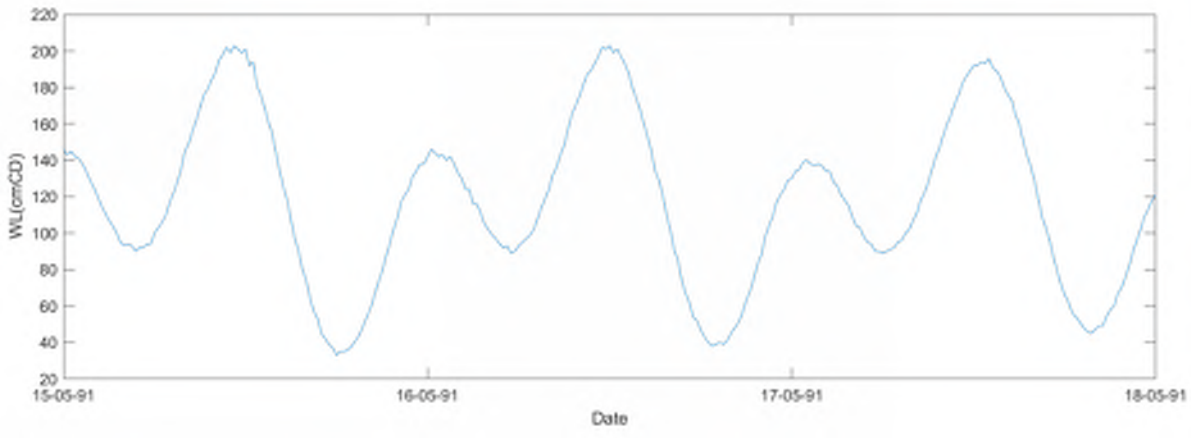

Figure EI.10 Event 10 – Tantabiddi Tide Gauge Water Level

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Appendix C Cyclonic Modelling Report

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R1533 Rev 1

April 2022

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Tantabiddi Creek
Cyclone Modelling Report

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Acknowledgment of Country

M P Rogers & Associates and the Department of Transport would like to acknowledge the traditional custodians of the land to which this investigation relates, the Jinigudira people. We pay our respects to Elders both past, present and emerging for they hold the memories, the traditions, the culture and the hope of their people.

1. Introduction

The Tantabiddi Boat Ramp precinct is of regional significance and is a key asset as a gateway to the Ningaloo Reef tourism and recreational experiences. The Shire of Exmouth (Shire) and the Department of Biodiversity, Conservation and Attractions (DBCA) jointly manage the Tantabiddi land and marine environment under the governance of the Jurabi and Bundegi Coastal Parks and Muiron Island Management Plan 1999. Both agencies manage civil maintenance, environmental maintenance, and preservation programs, though the Shire generally maintains the boat ramp infrastructure. The location of the boat ramp in the context of the North West Cape is shown in Figure 1.1 below.

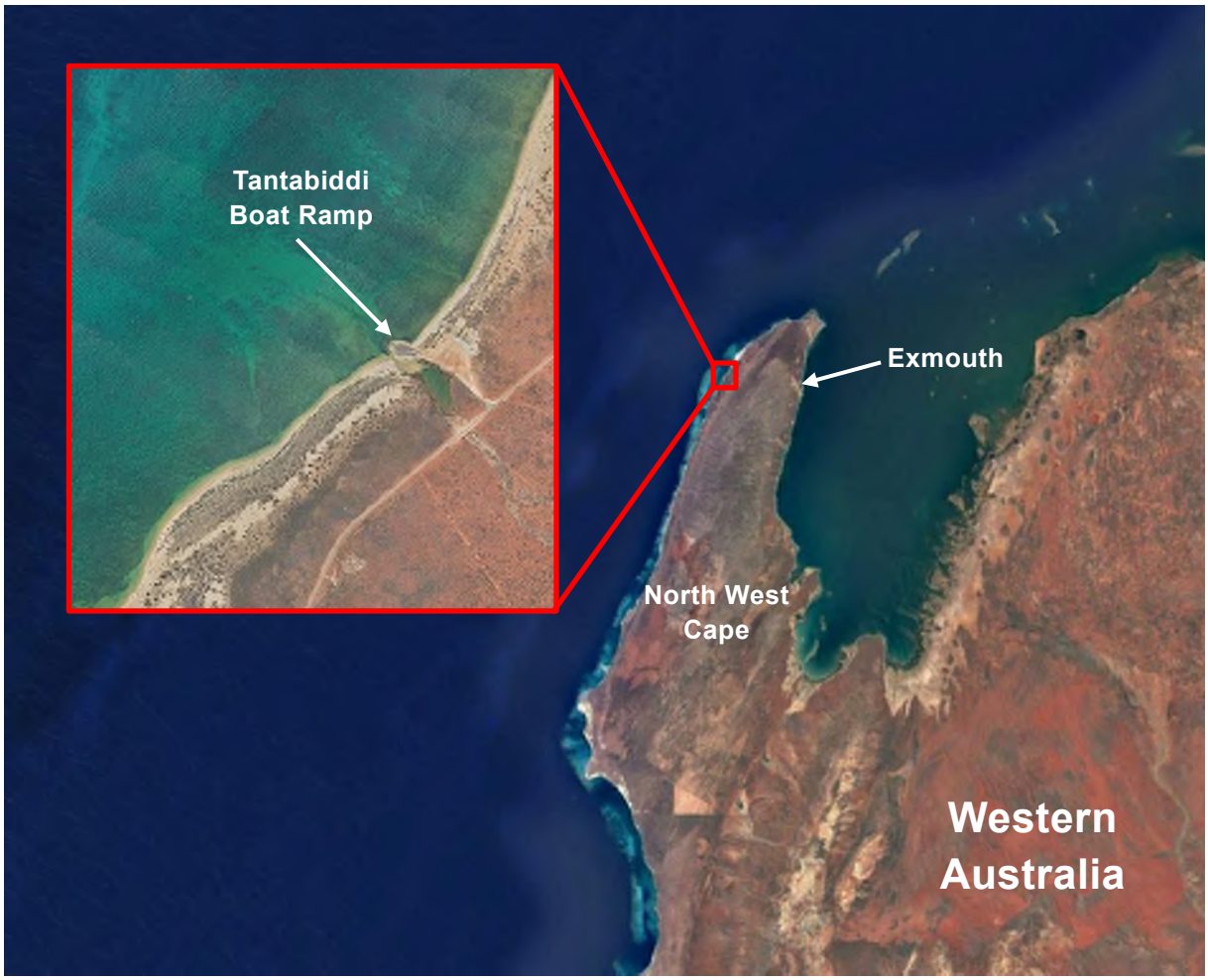

Figure 1.1 Location Plan

To address capacity limitations and maintenance issues associated with the existing Tantabiddi ramp, the Department of Transport (DoT) in collaboration with the Shire, DBCA, Department of Primary Industries and Regional Development (DPIRD), and Tourism WA have resolved to identify the planning, investigations and approvals necessary to develop a new facility at Tantabiddi. The proposed concept plan for the Tantabiddi Boating Facility (TBF) is shown in Figure 1.2.

Figure 1.2 Proposed Concept for the TBF

In order to investigate the coastal processes at the Tantabiddi site and the impact of the proposed concept, coastal engineers M P Rogers & Associate Pty Ltd (MRA) were engaged by DoT to undertake the Tantabiddi Creek Coastal Processes Study. This study includes a number of tasks, discussed below. The outcomes of the Tantabiddi Creek Coastal Processes study are contained within a number of reports prepared by MRA. This is a standalone technical report prepared for the Cyclone Modelling (Task 4).

1.1 Tantabiddi Creek Coastal Processes Scope

The scope of this study includes a number of tasks and activities which are detailed below.

- Task 1: Desktop Review, Data Gathering, and Site Visit.
- Task 2: Shoreline Movement Assessment.
- Task 3: Metocean Climate Analysis which includes.
    - Nearshore Ambient Condition Analysis.
    - Offshore Ambient and Extreme Conditions Analysis.
    - Ambient and Extreme Wind Conditions Analysis.
- **Task 4: Cyclonic Modelling.**
- Task 5: Wave Modelling.

- Task 6: Hydrodynamic Modelling – Impacts and Flushing.
- Task 7: Sediment Transport and Sedimentation Modelling.
- Task 8: Wave Penetration and Long Period Wave Assessment.
- Task 9: Wave Penetration Modelling. Contingent on outcome of Task 8.
- Task 10: Long Period Wave Modelling. Contingent on outcome of Task 8.

Tasks 1, 8, 9 and 10 are wholly contained within sections of the overall Coastal Processes Study report. The outcomes of Tasks 2, 3, 4, 5, 6 and 7 are provided as standalone technical reports. This report consists of the standalone technical report for Task 4. Refer to Table 1.1 for further information on the location of the standalone technical reports.

Table 1.1 Standalone Technical Report Locations

Task	Task Title	Report Number	Location
2	Shoreline Movement Assessment	R1535	R1518 Appendix A
3	Metocean Climate Analysis	R1524	R1518 Appendix B
4	Cyclonic Modelling	R1533	R1518 Appendix C
5	Wave Modelling	R1629	R1518 Appendix D
6	Hydrodynamic Modelling	R1585	R1518 Appendix E
7	Sediment Transport & Sediment Modelling	R1598	R1518 Appendix F

Notes: 1. Revision numbers for current versions of reports are noted in the current version of the main report (R1518).

The specific scope for Task 4 is introduced below.

1.2 Task 4: Cyclone Modelling Scope

The selected scope of the cyclone modelling assessment was heavily influenced by the fact that the length of the reliable cyclone data record is relatively short compared to the severity of the events that need to be simulated. This relative paucity in data means that predictions of statistically reliable extreme cyclonic events require a more detailed analysis and modelling approach. A brief overview of the scope of this assessment is provided below.

- Analyse the historical cyclone database.
- Generation of a 10,000 year synthetic cyclone database through the use of a Markov Chain Monte Carlo (MCMC) model.
- Ranking the simulated cyclones based on predicted surge at Tantabiddi.
- Setup and calibration of the Delft3D model for simulation of cyclonic water levels, wave heights and current speeds.

- Use the Delft 3D model to simulate the most severe cyclone events within the region.
- Conduct extreme value analysis (EVA) using the modelled cyclone events to determine appropriate design conditions for the TBF.

This report presents the methodology and results of this component of the overall coastal processes study.

2. Assessment Methodology

The approach adopted by MRA to determine the potential cyclonic conditions at the study area is contingent on the use of numerical modelling techniques. This approach is required due to the short availability of data within the study region as compared to the required recurrence interval for prediction. For example, the water level record at Tantabiddi is available for a period with a duration totalling around 5 years.

The limited availability of data means that EVA of the existing data records would not provide meaningful results when predicting the 500 year Average Recurrence Interval (ARI) event. Consequently, there is the need to use numerical modelling techniques (as outlined in Sections 3 and 4) to create a synthetic record which can then be used to determine extreme conditions for the study area. The overall modelling approach is summarised below.

- Use the Bureau of Meteorology (BoM) historical cyclone database in conjunction with MRA's MCMC model to simulate 10,000 years of cyclone tracks.
- Use the measured water level data at Tantabiddi and the BoM historical cyclone database and the predicted tide to determine an initial first order storm surge approximation.
- Rank the 10,000 years of synthetic cyclones using the first order storm surge approximation to determine the top 200 events.
- Setup, calibrate and validate the Delft3D cyclone model for the region.
- Use the Delft3D model to simulate the top events and record the peak water levels at the study site.
- Use the results of the first 200 events to complete a refined first order storm surge approximation and re-rank the simulated cyclone events.
- Visually inspect the track paths of the re-ranked cyclone top events that have not already been modelled. Select the top 75 events with the most appropriate track paths (approach direction, proximity to Tantabiddi, etc) to model.
- Use the already established Delft3D model to simulate the additional 75 events and record the peak water levels at the study site.
- Complete an EVA of all 275 modelled events.
- Using the results of the EVA, determine representative events for the 50, 100 and 500 year ARI scenarios.
- Model the representative events for the 50 year (2071) and 100 year (2121) design periods including allowances for sea level rise.
- Extract water levels, wave heights and current speeds from the modelled events.
- Provide recommendations on the design conditions for the 50, 100 and 500 year ARI events for the TBF.

3. Cyclone Track Synthesis

To develop a meaningful estimate of events with long average recurrence intervals requires a long duration of reliable data. Statistically, the length of the record should be around a third of the duration of the ARI that is being predicted. The longer the available record the greater the accuracy of the prediction. A long cyclone record is therefore required. Reliable cyclone records only extend back to the early 1960's when satellite imagery became available to track cyclones off the coastline. Therefore, the available cyclone track data only spans a period of around 60 years, which is insufficient to reliably predict the 500 year ARI event.

Synthetic data needs to be generated to populate the data record. The extreme conditions can then be determined using EVA on the outputs from the synthetic record.

A MCMC model was developed for this study based on the methodology described in Risi (2004) and Emanuel et al (2006). A schematic diagram of the MCMC model is provided in Figure 3.1. Further details of the key steps in the process are provided in the following sections.

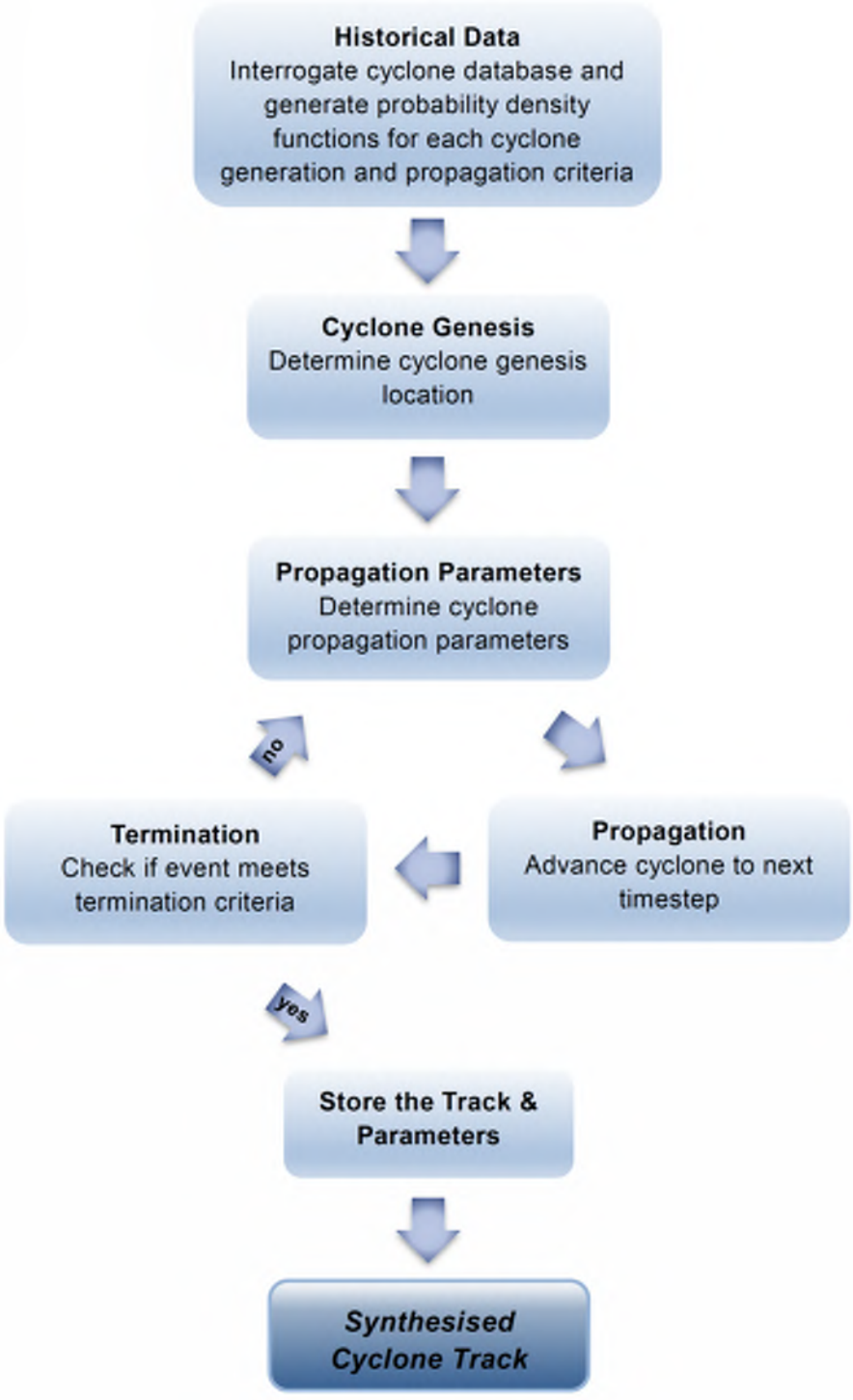

Figure 3.1 Monte Carlo Simulation Scheme

3.1 Historical Data Analysis

BoM maintains a cyclone database that contains information regarding tropical cyclones experienced between 1906 and 2021 for the Australian region (BoM, 2021). This database includes information such as cyclone location, central pressure, maximum wind speed and other relevant cyclone track parameters. However, as previously discussed, to ensure data accuracy, the raw cyclone database was filtered to include only data after 1960.

An analysis of the historical cyclone database was completed in order to ascertain spatial and temporal changes in the key parameters required for cyclone generation and propagation. These key parameters include the following.

- Location of origin (referred to as the cyclone genesis location).
- Forward speed of the cyclone.
- Cyclone direction / heading.
- Central pressure.

Statistical distributions for each of the key parameters were then developed on a 2° latitude by 2°longitude grid covering the whole of the Australian region. A separate distribution was developed for each grid cell in order to ensure that spatial variations in cyclone track and intensity characteristics were captured within the model.

3.2 Cyclone Genesis

3.2.1 Genesis Location

The genesis locations of the cyclones were generated by sampling from a 3D parametric probability distribution comprised of latitude, longitude and the probability density. This 3D parametric probability distribution was created by filtering the historical cyclone database to include only the first recorded parameters of each cyclone. The filtered database was then smoothed using a Gaussian smoothing kernel. The parametric probability distribution is presented in Figure 3.2. The distribution of the simulated cyclones genesis locations is presented in Figure 3.3.

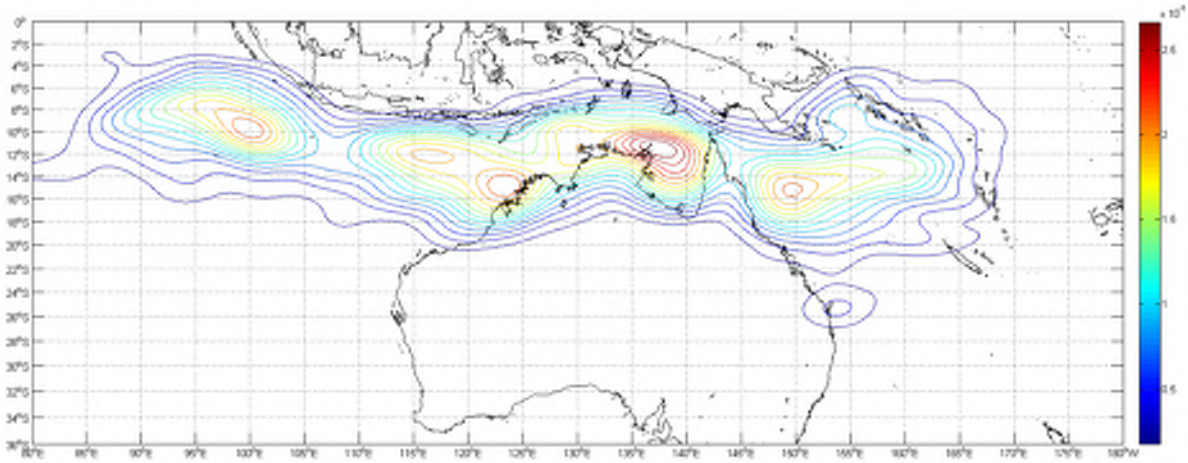

Figure 3.2 Parametric Probability Distribution of Cyclone Genesis Location

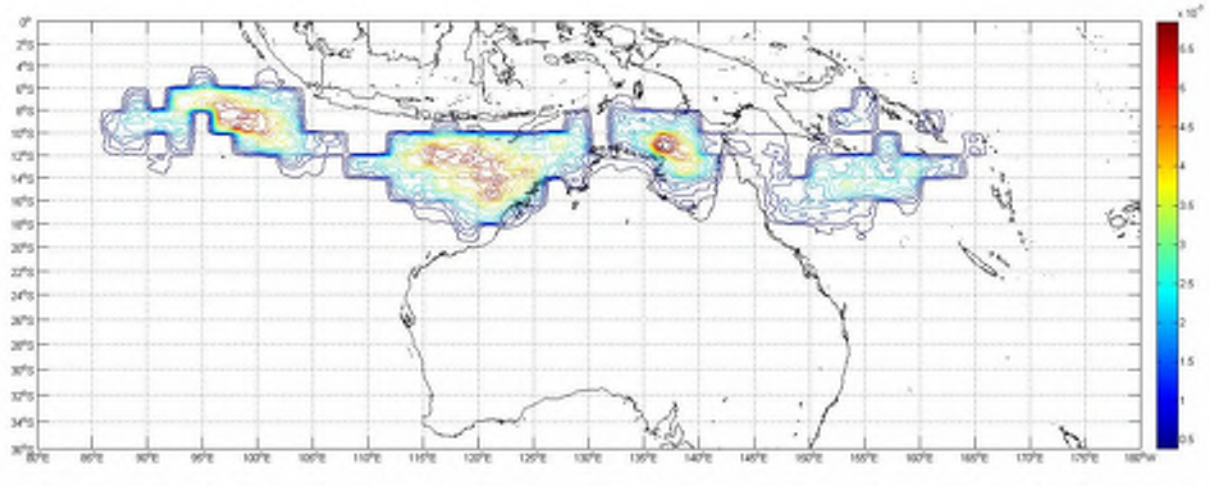

Figure 3.3 Distribution of Simulated Cyclone Genesis Locations

3.2.2 Genesis Time

In order to generate a genesis time of a cyclone, the historical cyclone database was filtered to include only the first recorded time of each cyclone. This database was subsequently discretised into histograms based on the number of cyclones per year and the monthly occurrences. An example of these histograms is presented in Figure 3.4.

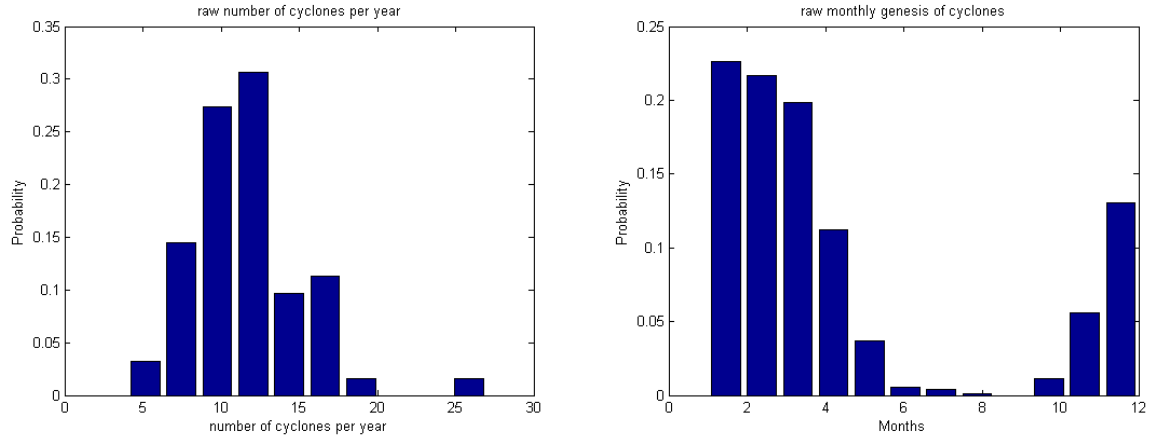

Figure 3.4 Histograms of Observed Number of Cyclones Each Year (left) & Monthly Cyclone Occurrence (right)

Determining a genesis time for a cyclone is an important step, as the genesis time helps to determine the coincident tidal conditions that occur during the passage of the cyclone. In this way the joint probability of cyclone passage and tidal variation is accurately accounted for in the future modelling stages.

To generate a cyclone, a year interval was specified. The number of cyclones to synthesise per year was then determined by sampling the probability distribution for number of cyclones per year. To test the model synthesis regime the model was tested to see how well it replicated the BoM cyclone database over the interval between 1960 to 2007. During this period a total of 653 cyclones records were available. By randomly sampling the probability distribution for the number of cyclones per year, the number of cyclones (ranged from 5 to 27 cyclones per year) for each year is randomly generated within the MCMC model. In this case, the total number of cyclones

generated using the probability distribution is approximately 650, which matches well with the historical total.

Once the number of cyclones for a year is generated, the probability distribution for monthly occurrences of the cyclone is subsequently sampled using the same algorithm. This process will generate a genesis month for each cyclone. A day and a time is then randomly generated to create a complete genesis time for a synthesised cyclone.

To sample from a parametric probability distribution (histograms), a one-dimensional hit and miss algorithm was adopted (refer Figure 3.5).

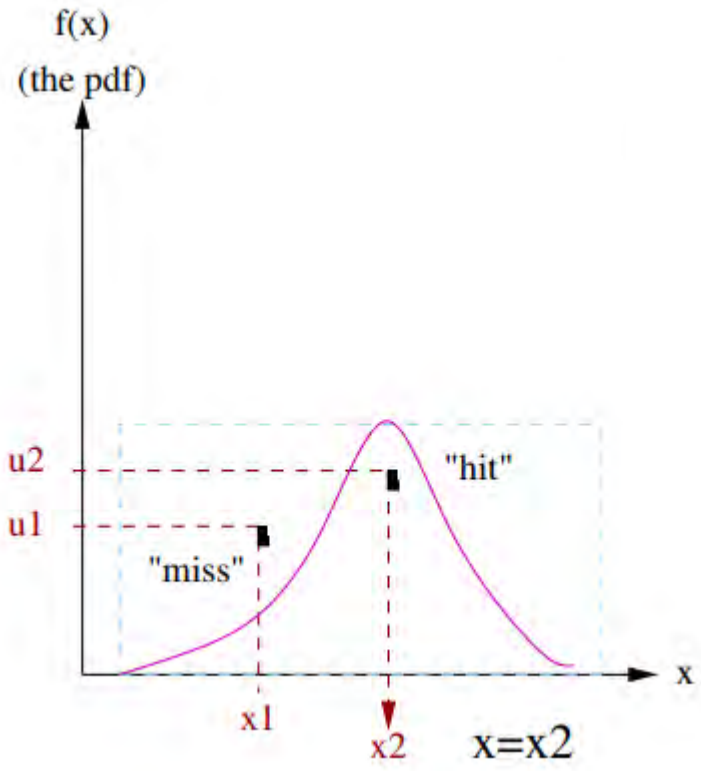

Figure 3.5 Example of a hit and miss algorithm (Risi 2004)

The one-dimensional hit and miss algorithm randomly samples the parametric probability distribution and if the sampling “hits” then that value is taken, if it “misses” then the value is discarded and a new value is randomly sampled.

3.2.3 Genesis Parameters

To initiate a cyclone, initiation parameters are required in addition to the genesis position and time. The genesis parameters adopted are as follow.

- Initial forward speed of the cyclone (km/h).
- Initial direction of the cyclone (Cartesian degrees between -180º to 180º)
- Initial central pressure of the cyclone (hPa).

The initiation parameters are obtained from its corresponding probability distribution. The probability distributions were generated by interrogating the BoM cyclone database.

3.3 Propagation

Once the genesis position, time and parameters have been determined, the cyclone propagation parameters are then required for the cyclone to progress to its next state.

The main issue with random sampling the propagation parameters is that the sampled valued must be dependent on the value in the previous state, this will prevent random selection of parameters that does not follow the characteristics of a cyclone. For example, the central pressure at the current location must be dependent on the central pressure at the previous location, otherwise anomalies such as an increase in central pressure may be observed during the intensification stage of the cyclone.

To resolve this issue the concept of predictor and predictands (Camille, 2004) was adopted. A predictor is a variable which is used to predict the predictand. In this case, multiple predictors are required for each predictand. Once the predictors are determined, multiple 3D probability surface are subsequently created. The propagation parameters are then sampled from the 3D probability density surface via a 3D hit and miss algorithm.

This is discussed in the following sections.

3.3.1 Choice of Predictor & Predictands

For propagation, the following parameters are required and are therefore chosen as predictands.

- Rate of change of speed (ds).
- Direction (dir).
- Rate of change of central pressure (dcp).

To define the new state of the cyclone, the following predictors are adopted.

Geographical Positions (Latitude, Longitude)

A cyclone will have relatively different characteristics depending on its location. For example, cyclones are more likely to intensify at latitudes above 27º S than below due to the sea temperature and are more likely to dissipate when over land.

Previous Rate of Change of Speed (ds_{-1})

The rate of change of forward speed of a cyclone may not be continuous. In other words, a cyclone could be accelerating at the previous location, but decelerate at the present location. Therefore, it is essential that the previous rate of change of speed be considered when determining the current rate of change of forward speed.

Rate of Change of Direction (ddir)

The rate of change of direction is used to predict the propagation direction of the cyclone. It is anticipated that there is a very low correlation between the current and previous direction, therefore, it is believed that the rate of change of direction is a more appropriate predictor for direction.

Previous Rate of Change of Central Pressure (dcp_{-1})

To predict the central pressure at a specified location and time, it is again appropriate to adopt the more continuous rate of change of central pressure as a predictor. This enables the cyclone to

intensify / dissipate based on a previous rate of change, this eliminates anomalies such as increase in pressure during an intensification of a cyclone.

3.3.2 Propagation Probability Surfaces

Once the predictors are determined, probability surfaces can be subsequently generated. The probability surfaces generated are as follow

- Rate of change of speed versus previous rate of change of speed.
- Rate of change of direction versus direction.
- Rate of change of central pressure versus previous rate of change of central pressure.

Examples of the probability surfaces generated are shown in the following figures.

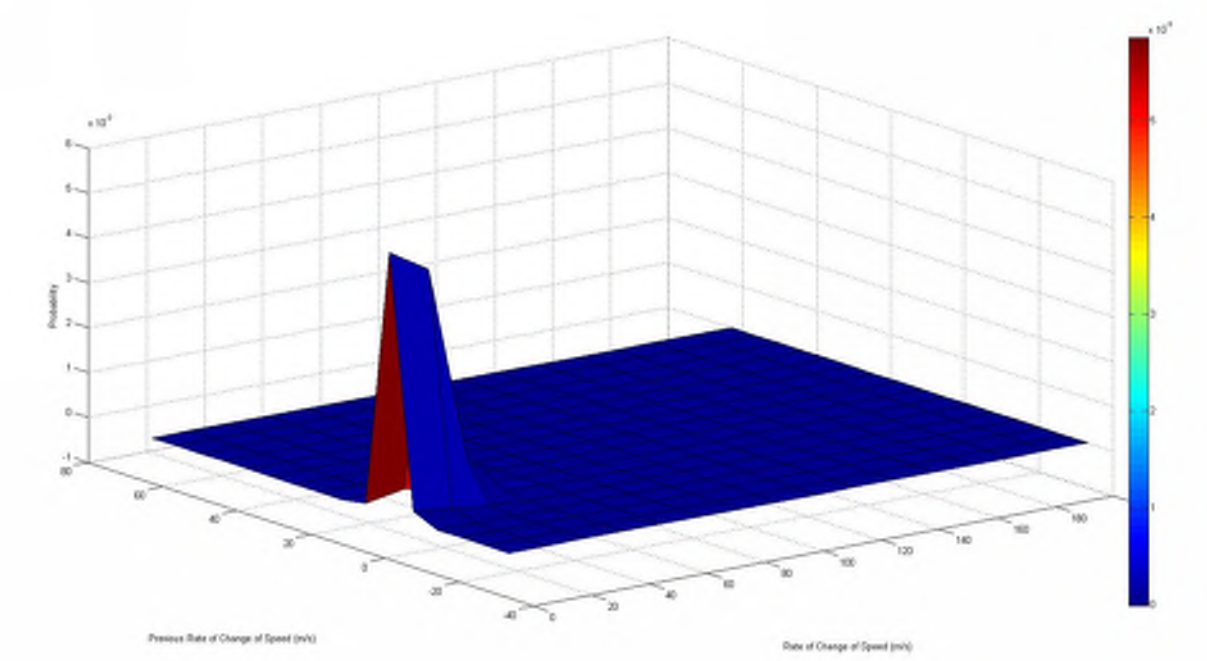

Figure 3.6 Probability Surface for Rate of Change of Speed vs Previous Rate of Change of Speed

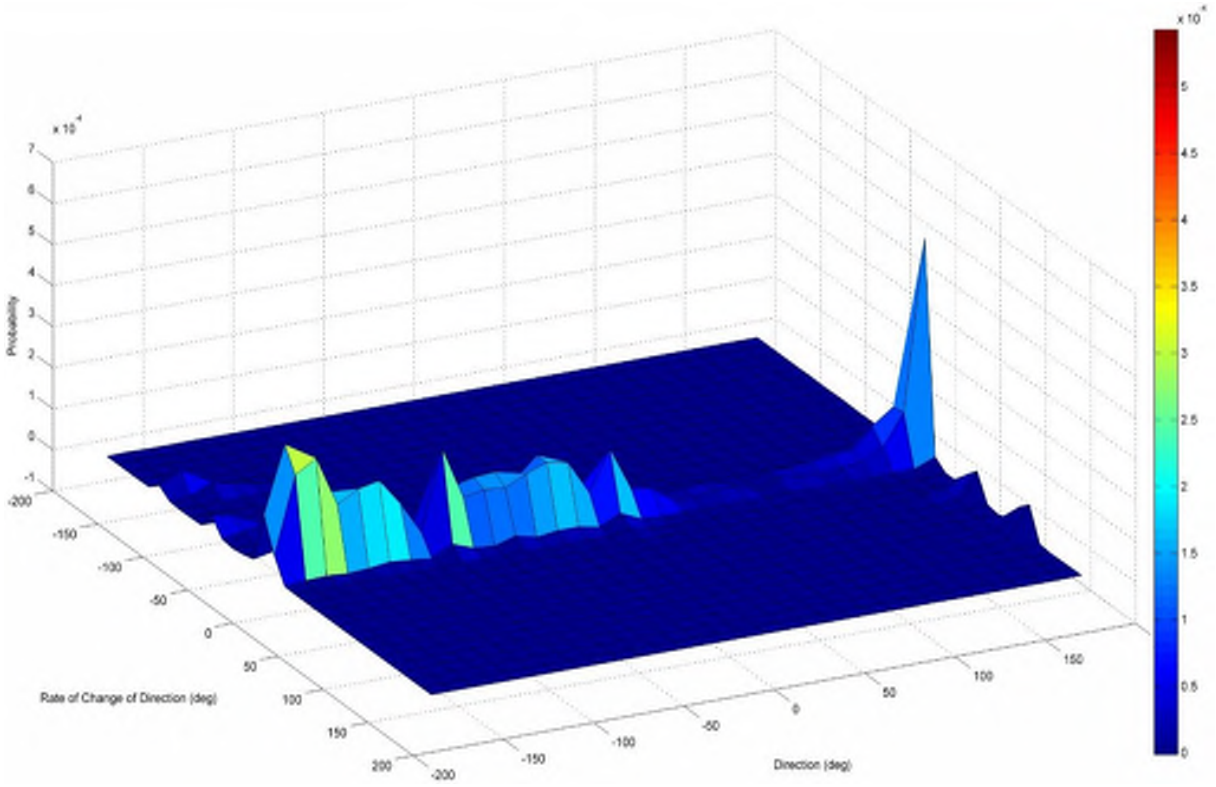

Figure 3.7 Probability Surface for Rate of Change of Direction vs Direction

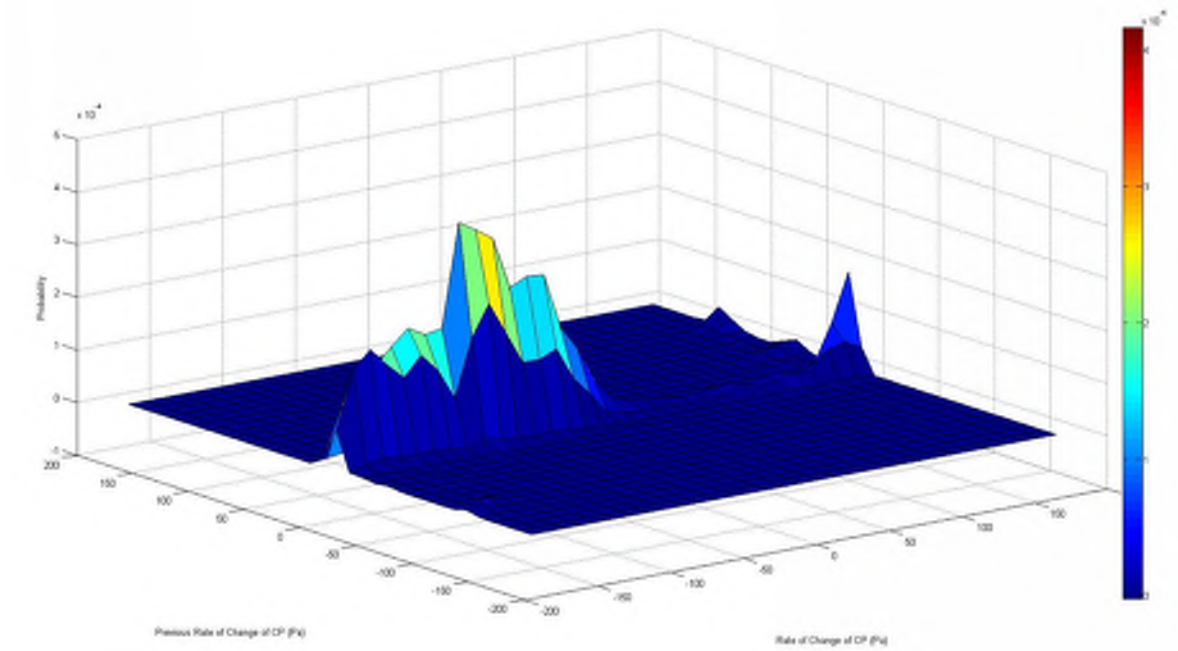

Figure 3.8 Probability Surface for Rate of Change of Central Pressure vs Previous Rate of Change of Central Pressure

3.4 Termination

Cyclone tracks are terminated when the central pressure rises above 1005 hPA if at least 16 timesteps have occurred for that event. When the cyclone track is terminated the track details are saved and the process restarts for a new cyclone track.

3.5 Model Validation

Before the results of the MCMC assessment can be used in the Delft3D modelling the validity of the MCMC results need to be analysed. The validity of the simulated cyclone tracks was assessed through comparison with the BoM dataset. Generally, the validity of the synthesized data set would be assessed through interrogation of the statistical significance of the two datasets. However, given the non-normal distribution of the cyclone parameters and the significant number of confounding variables it was not possible to numerically assess the statistical significance between the simulated and historical data sets.

Instead, the validity of the datasets was assessed through the comparison of the statistical distributions of the cyclone parameters. This was completed for both a reduced dataset comprising all the points that pass through the latitude of -22° and the complete data set.

The distribution of the simulated cyclone central pressures at the latitude of -22° (approximate location of Tantabiddi) was extracted and compared to the distribution extracted from the BoM cyclone database at this latitude. The comparison of the central pressure distributions is presented in the Figure 3.9. It should be noted that the simulated data is not intended to fully replicate the historical data but rather fill in gaps in the historical record and extrapolate the available data to allow prediction of cyclone events into the future.

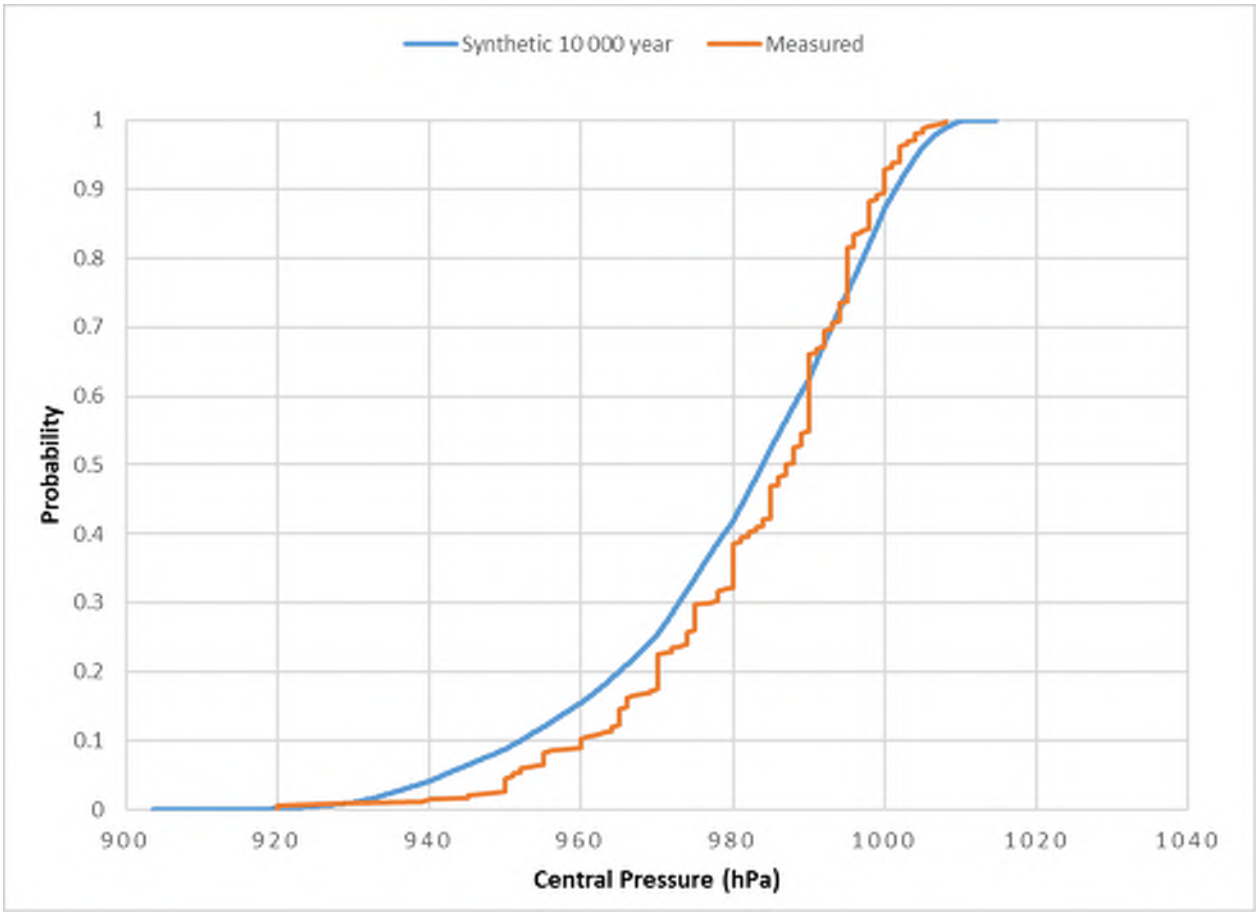

Figure 3.9 Central Pressure Distributions at -22° Latitude

As can be seen in Figure 3.9, the simulated cyclone database fills in the gaps in the BoM record. The simulated dataset also showed occurrence of lower central pressures than the historical data set and generally has a slightly higher probability of occurrence for the lower central pressures (this indicates the likely occurrence of more severe events). This is as expected and shows that the synthesised database is able to simulate the pattern of distribution of the historical events, but is also able to fill in the gaps and predict the more severe events that may occur over a 10,000 year timeframe.

In addition to the distribution of the central pressures at -22° latitude, distribution of the central pressures, change of central pressures, cyclone direction and the forward speeds of the entire simulated data set (10,000 years) were compared to the BoM database (61 years). This comparison is presented in the following Figures.

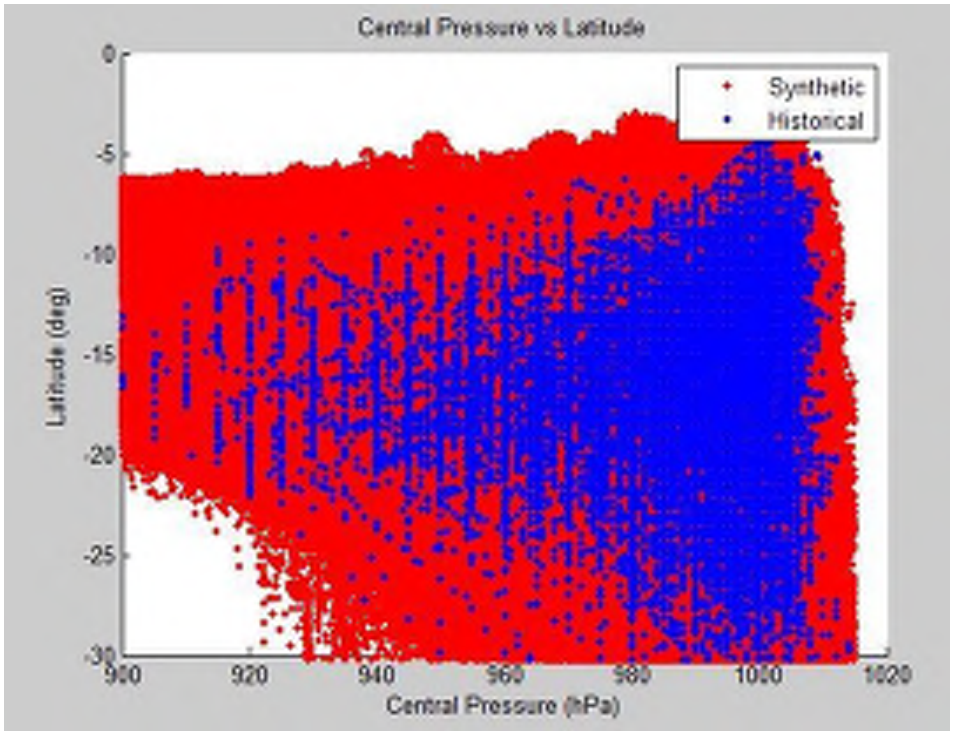

Figure 3.10 Central Pressure vs Latitude

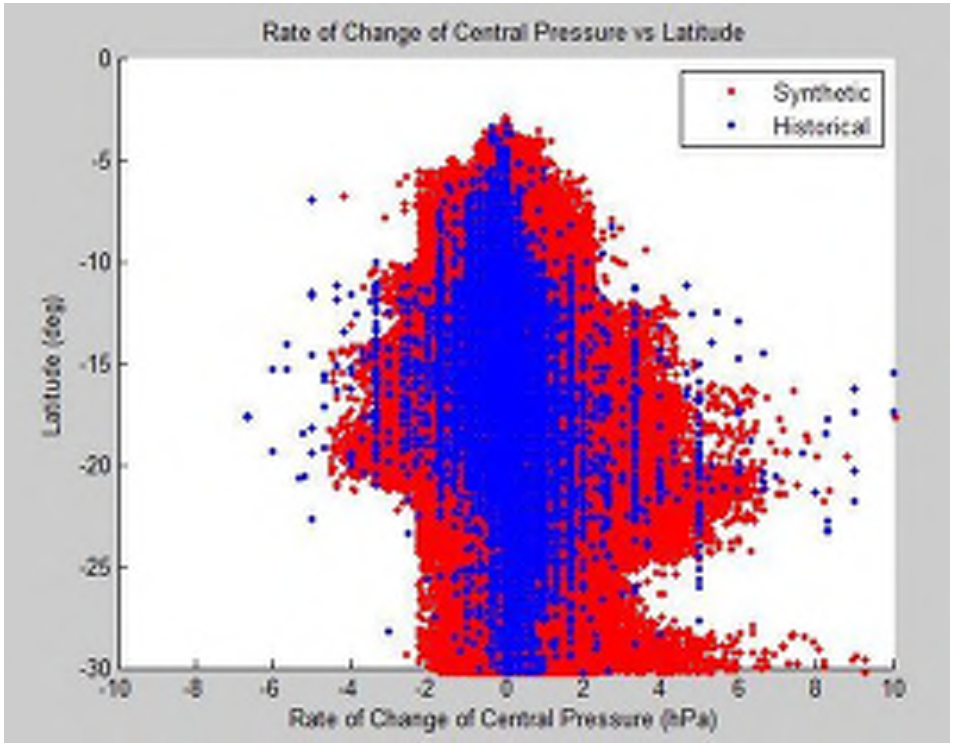

Figure 3.11 Rate of Change of Central Pressure vs Latitude

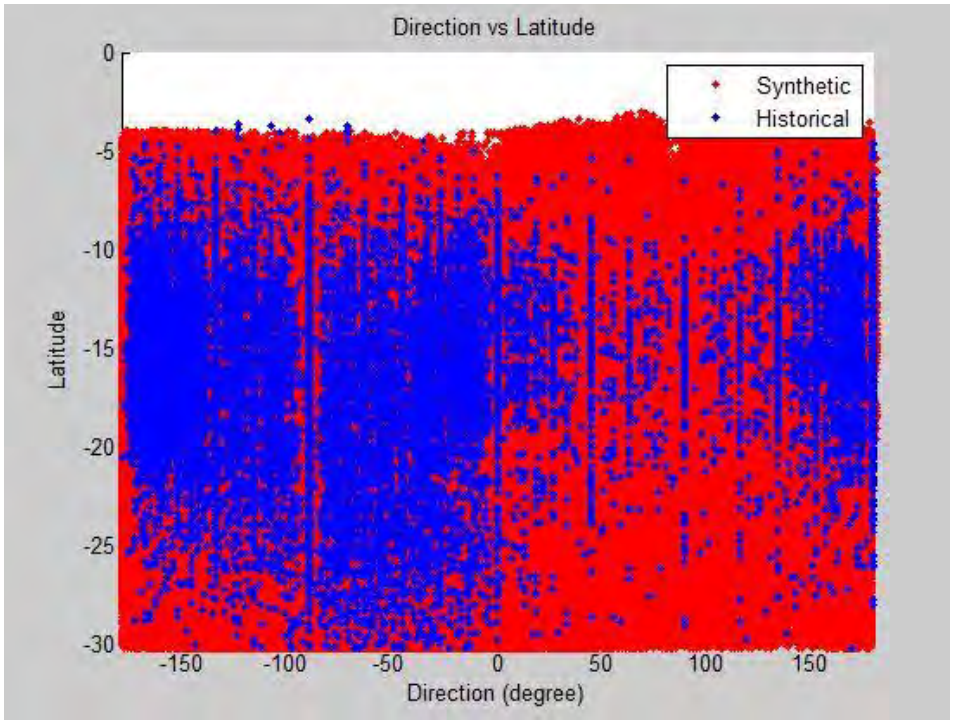

Figure 3.12 Cyclone Direction vs Latitude

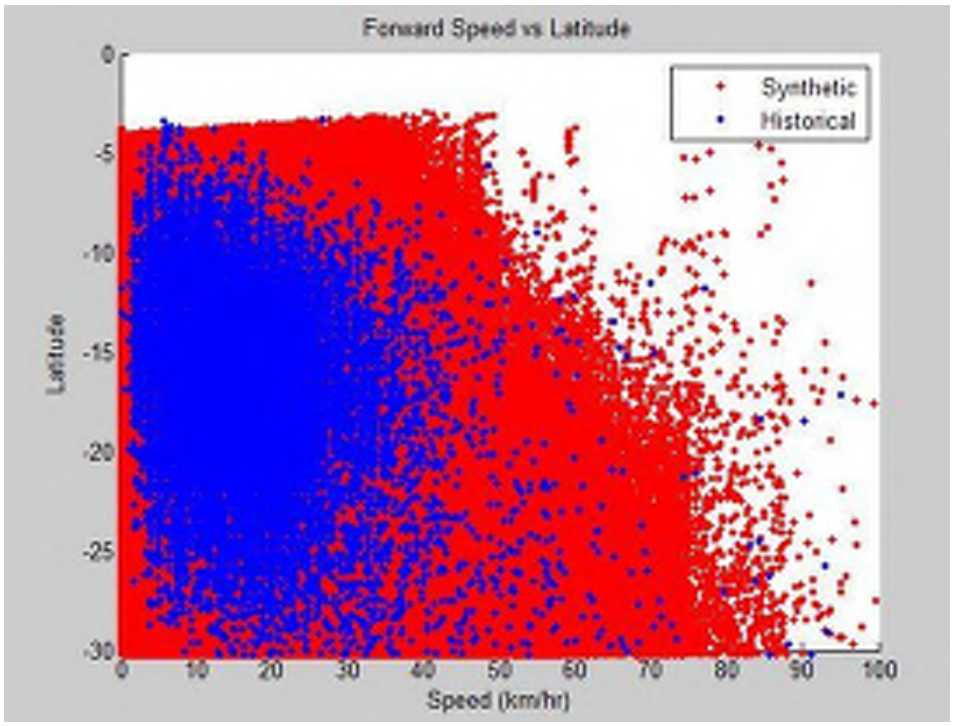

Figure 3.13 Cyclone Forward Speed vs Latitude

Figures 3.10 to 3.13 show that the simulated cyclone data set extends and fills in the gaps of the BoM cyclone database. From the above figures it can be seen that the simulated cyclones provide a reasonable extrapolation of the historical cyclone events.

Due to the very high number of data points for the simulated data set (in the order of 10 million points) it is difficult to determine the areas with a higher density of points. As such the density of

the simulated cyclone data points in an area is displayed in Figures 3.14 to 3.17 with blue representing areas of comparatively low density and yellow representing areas of comparatively high density. The density of the historical data points has also been provided for comparison.

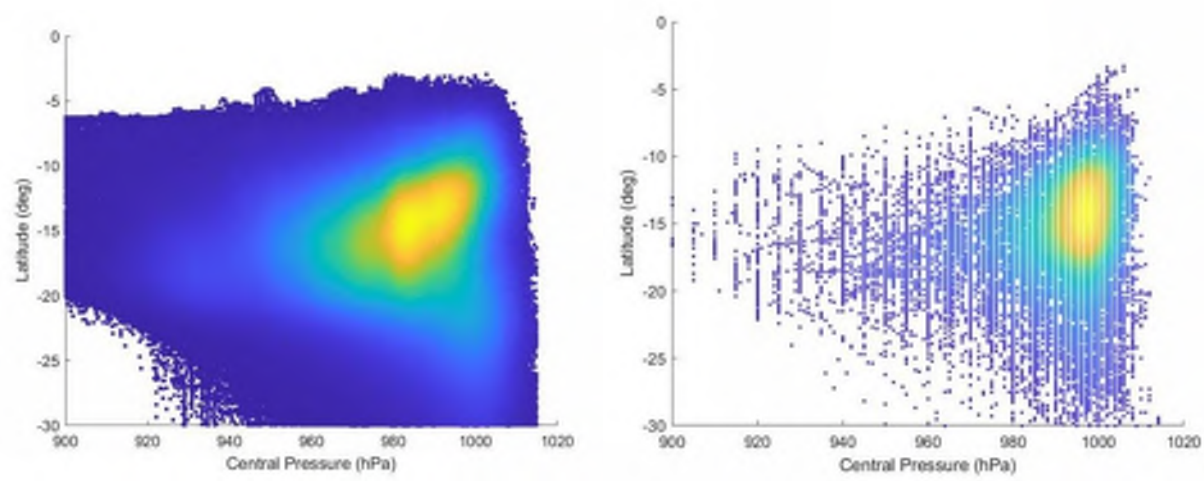

Figure 3.14 Density Plots of Cyclone Central Pressure, Simulated (left) vs Historical (right)

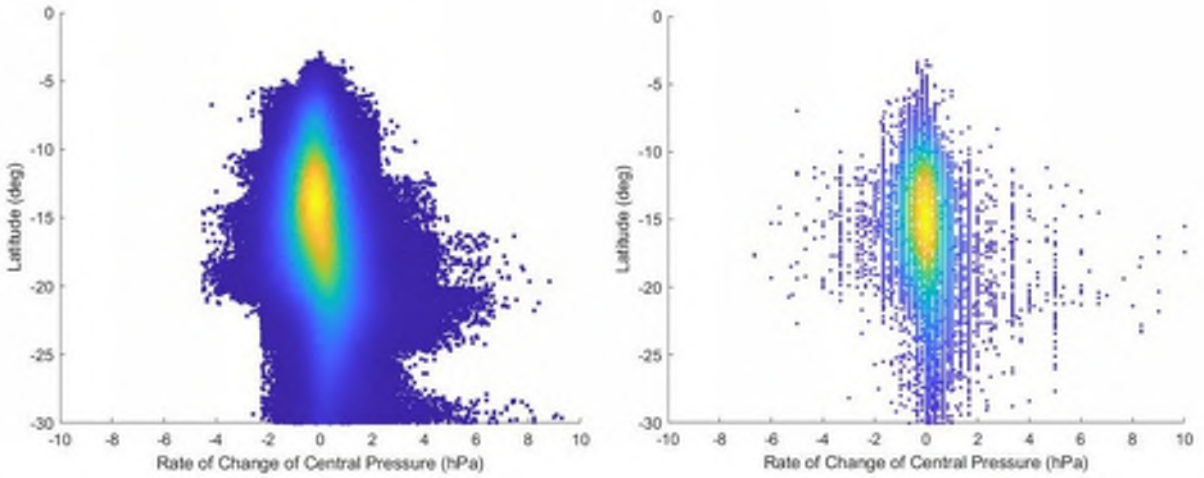

Figure 3.15 Density Plots of Rate of Change of Central Pressure, Simulated (left) vs Historical (right)

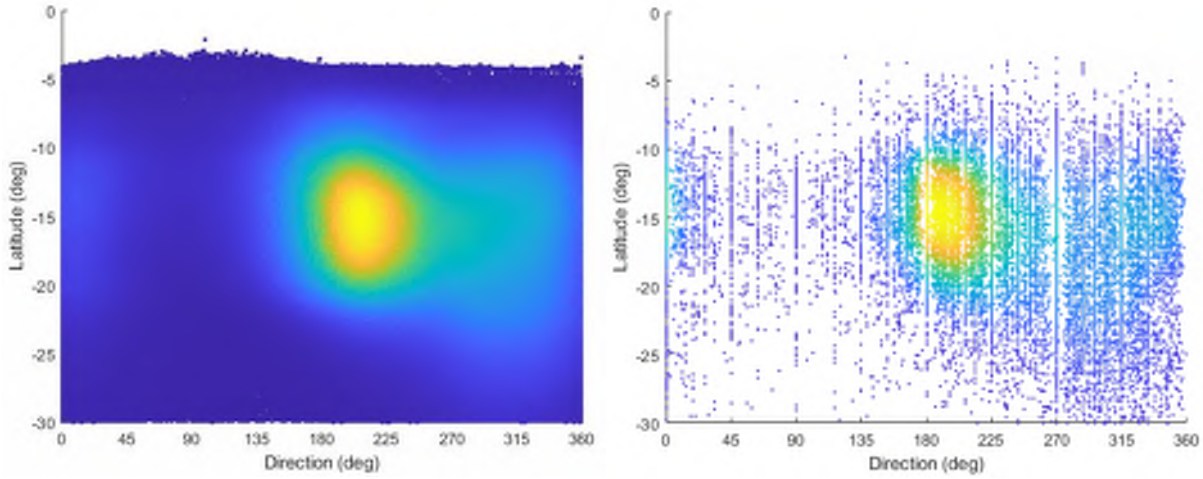

Figure 3.16 Density Plots of Direction, Simulated (left) vs Historical (right)

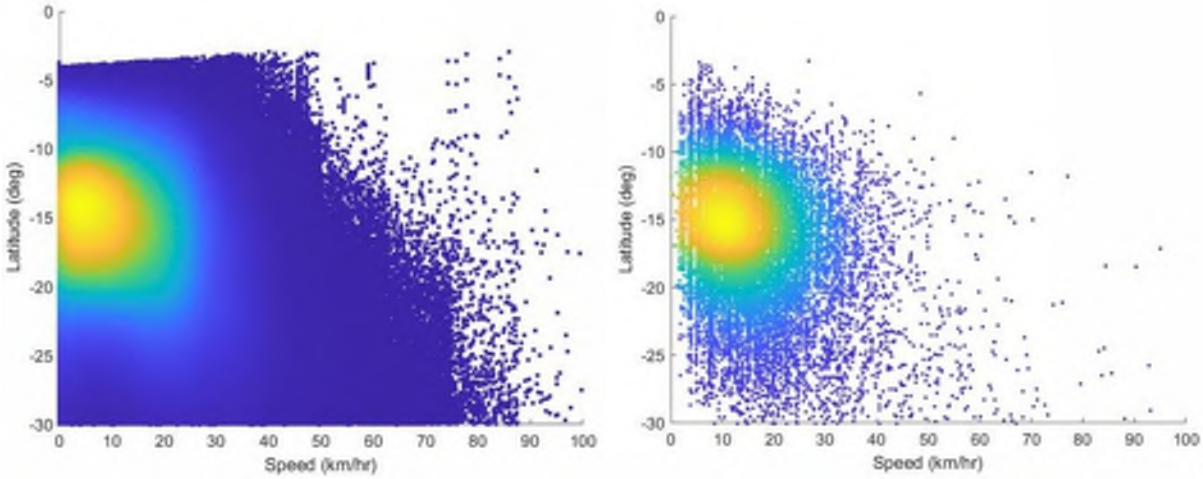

Figure 3.17 Density Plots of Cyclone Forward Speed, Simulated (left) vs Historical (right)

As can be seen from the above plots of the cyclone parameters the simulated cyclones are a good match for the historical cyclones.

Based on the review of the above information, the simulated cyclone data set has been deemed appropriate for use in further analysis to identify the extreme design events for use in the design of the proposed TBF.

3.6 MCMC Model Simulations & Ranking

A 10,000 year cyclone record was simulated using the validated MCMC cyclone track model. This resulted in approximately 116,000 cyclones occurring in the Australian region over the simulation. The majority of these cyclones will have little to no effect on the Tantabiddi site and as such the cyclone database needs to be interrogated and the relevant events identified.

When considering the selection of relevant events within the Tantabiddi region, it is important to note that the presence of the fringing reef system at Tantabiddi provides a high degree of sheltering against wave impact at the shoreline, as shown in the Task 3 report. This protection ultimately occurs as the reef system causes depth limitation and frictional wave energy losses as

the waves travel onshore. As a result, the primary variate for determining the relative severity of events at the TBF will be the total water levels (including both tide and storm surge) that occur at the site. The initial track ranking systems have been developed on this basis, using the total water level as a proxy for overall storm severity.

The approach that MRA have previously adopted to rank the cyclone tracks generated through the MCMC process is through the use of the following parametric surge ranking equation. This equation is based on a formula provided in Cardno (2011) that was subsequently adjusted by MRA during previous cyclone modelling (MRA 2017).

$$R = c_1(1 - \sin(B)).e^{c_2 D + c_3 Pd} + c_4$$

This equation can provide an initial indication of the residual surge (R) associated with the cyclone based on the:

- cyclones bearing from the point of interest (B);
- distance from the point of interest (D); and
- pressure drop at the site (Pd).

There are also four additional fitting parameters (c_1, c_2, c_3, c_4) which are used to adjust the equation to suit the site in question. These fitting parameters are typically determined using data from available cyclone and water level datasets. Due to the lack of available historical water level data at Tantabiddi, this approach is not viable. Instead, a more detailed assessment was required.

The first stage of this assessment involved filtering the cyclone tracks to only include cyclones that passed to the south west and within 200 km of the site. For substantial storm surge to occur at a location during a cyclone event a combination of onshore winds, large pressure drop and sizeable waves are required. As tropical cyclones rotate clockwise in the southern hemisphere it stands to reason that the cyclone will need to pass to the south west and reasonably close to Tantabiddi to maximise the onshore winds, waves and pressure drop. This will likely result in significant water level set up at the site. Applying this filter to the overall cyclone dataset reduced the number of cyclones from the initial 116,000 to roughly 6,900.

The filtered cyclone dataset was then ranked using a simplified version of the parametric ranking equation. This ranking was based on the distance (D) and pressure drop (Pd) whilst also considering the local tidal level (T) and the effect that this has upon the overall water level. The simplified form of the parametric ranking equation is presented below.

$$R = 2.5\left(e^{-0.01D + 0.0001Pd}\right) + T - 5$$

This equation allowed for the ranking of the filtered cyclone dataset and the selection of 200 cyclone events that were likely to cause elevated water levels at the site. The simplified form of the parametric ranking equation does not consider the bearing of the cyclone as accounted for by the initial filter. Based on MRA previous experience with cyclone modelling and track ranking the coefficients for the distance and pressure drop were selected (MRA 2016b, MRA 2017). The distance of the cyclone from Tantabiddi was assigned a greater influence on the overall water level. In addition, it has been assumed that the storm surge from the cyclone has a greater impact on the water level at the site when compared to the tide. This was decided based on MRA

experience and the comparatively small tidal range at Tantabiddi. The R values of the top 20 events are presented in Table 3.1.

Table 3.1 Top 20 Events (Initial Ranking)

Cyclone Track	R Value
1	1.781
2	1.780
3	1.664
4	1.634
5	1.387
6	1.335
7	1.305
8	1.304
9	1.300
10	1.254
11	1.246
12	1.238
13	1.236
14	1.182
15	1.171
16	1.085
17	1.052
18	1.013
19	1.013
20	0.984

The initial 200 cyclone events were modelled using Delft3D (discussed further in Section 4). The results of the modelling were then used to determine the effect that the bearing and direction of approach of the cyclone has upon the total water levels at the site.

The results of the modelling showed that due to the location of Tantabiddi on the northern portion of the North West Cape the direction of approach of the cyclones can have a large impact on the level of surge encountered at the site. Cyclones that approach Tantabiddi from the east and pass through the Exmouth Gulf cause significant water level set down at the site as the cyclone approaches. This set down can then offset any set up that occurs once the cyclone passes to the south west of the site.

Using this information, MRA's previously adopted standard parametric ranking equation was calibrated against the results from the Delft3D modelling of the initial 200 events. The calibrated parametric ranking equation was then used to re-rank the filtered cyclone database. Following this re-ranking a visual inspection of the cyclone tracks was conducted and the top 75 events that had not already been modelled were selected for additional modelling. This provided confidence that the top water level events (i.e. most severe events) have been modelled as part of the assessment. A map showing all 275 cyclone track paths is presented in Figure 3.18.

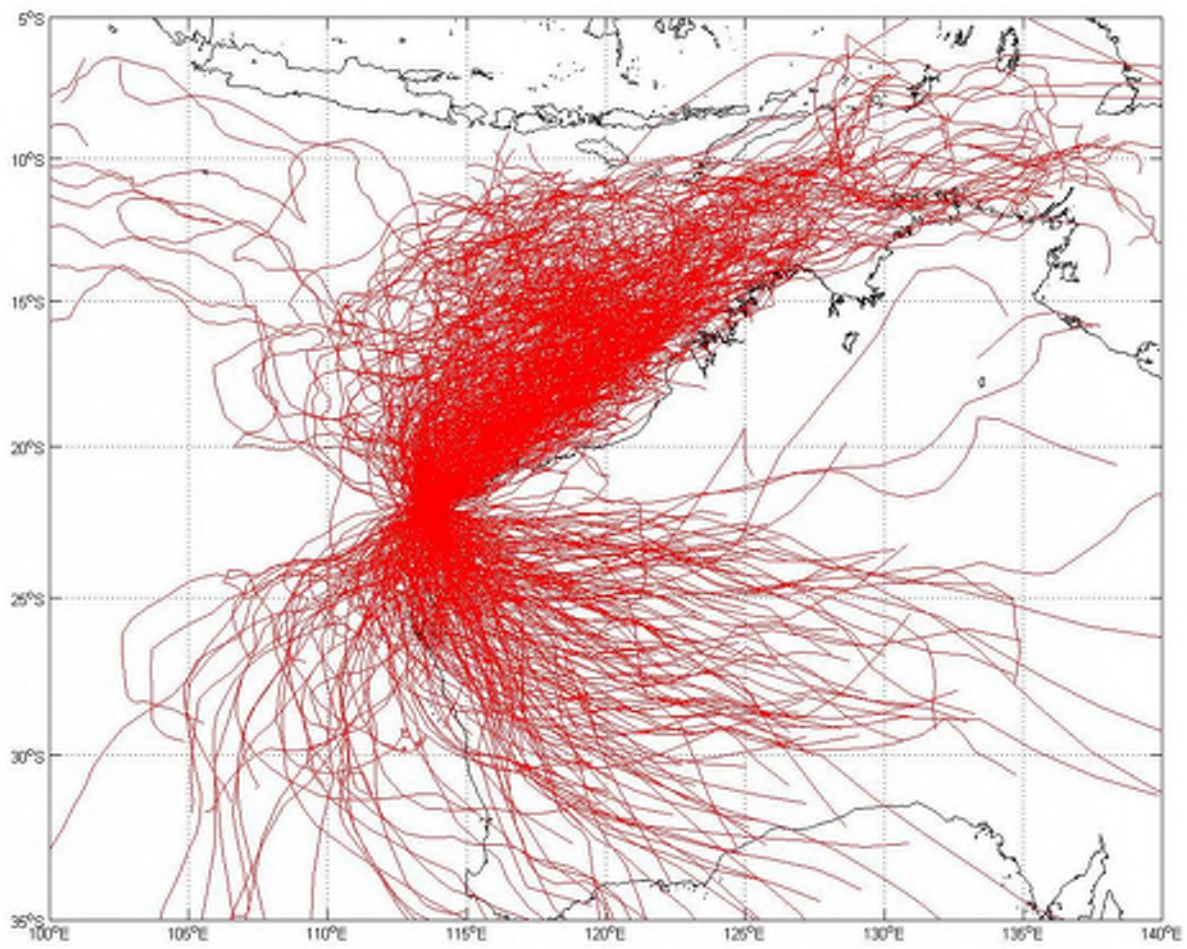

Figure 3.18 Modelled Cyclone Track Paths

4. Delft Model Setup & Calibration

4.1 Delft3D Coupled Model

The Delft3D suite of models provides an integrated model approach that can be used to simulate atmospheric pressure differentials, wind fields, wave climates and water levels associated with the passage of tropical cyclones (Deltares, 2011a). The Delft suite of models has been extensively used around the world and are recognised as high quality models. This integrated modelling approach has been adopted for this study in order to best represent the physical processes that generate extreme cyclonic conditions.

The physical processes that lead to the generation of cyclonic storm surge operate on a spatial scale equivalent to that of the cyclone itself. For this reason, to adequately model cyclonic storm surge requires large model domains. Due to computational limitations it is not efficient to model large areas at high resolutions, therefore a Delft3D domain decomposition model configuration has been used.

4.2 Grid Layout

Grid nesting allows sections of the overall grid to be modelled at significantly higher resolution to capture the key features and bathymetry surrounding the area of interest. This allows key features such as reefs, channels, shoals and banks to be well resolved, even if they are not located close to the area of interest but would still have significant impact on conditions at the site. The grid sizes and resolutions for different regions in the model domain are presented in Table 4.1.

Table 4.1 Grid Sizing

Grid	Length (cells)	Width (cells)	Cell Sizing (m)
A (Coarse)	261	195	10,000
B (Medium)	131	51	1,000
C (Fine)	190	73	111
D (Very Fine)	276	144	10

Figures 4.1 to 4.3 show the model domain and extents of the grids. Figures 4.4 to 4.7 present the domain and bathymetry for each of the grids prepared for the model calibration. Bathymetry and topography data were sourced from the most recent surveys along the coast as well as the 2006 LiDAR survey data captured by CSIRO (2011) and satellite bathymetry (Geoscience Australia and NOAA). Where survey data was not available, the bathymetry was approximated using the nautical charts WA900 and AUS 745. A summary of the survey information used in the preparation of the model grids is provided in Table 4.2.

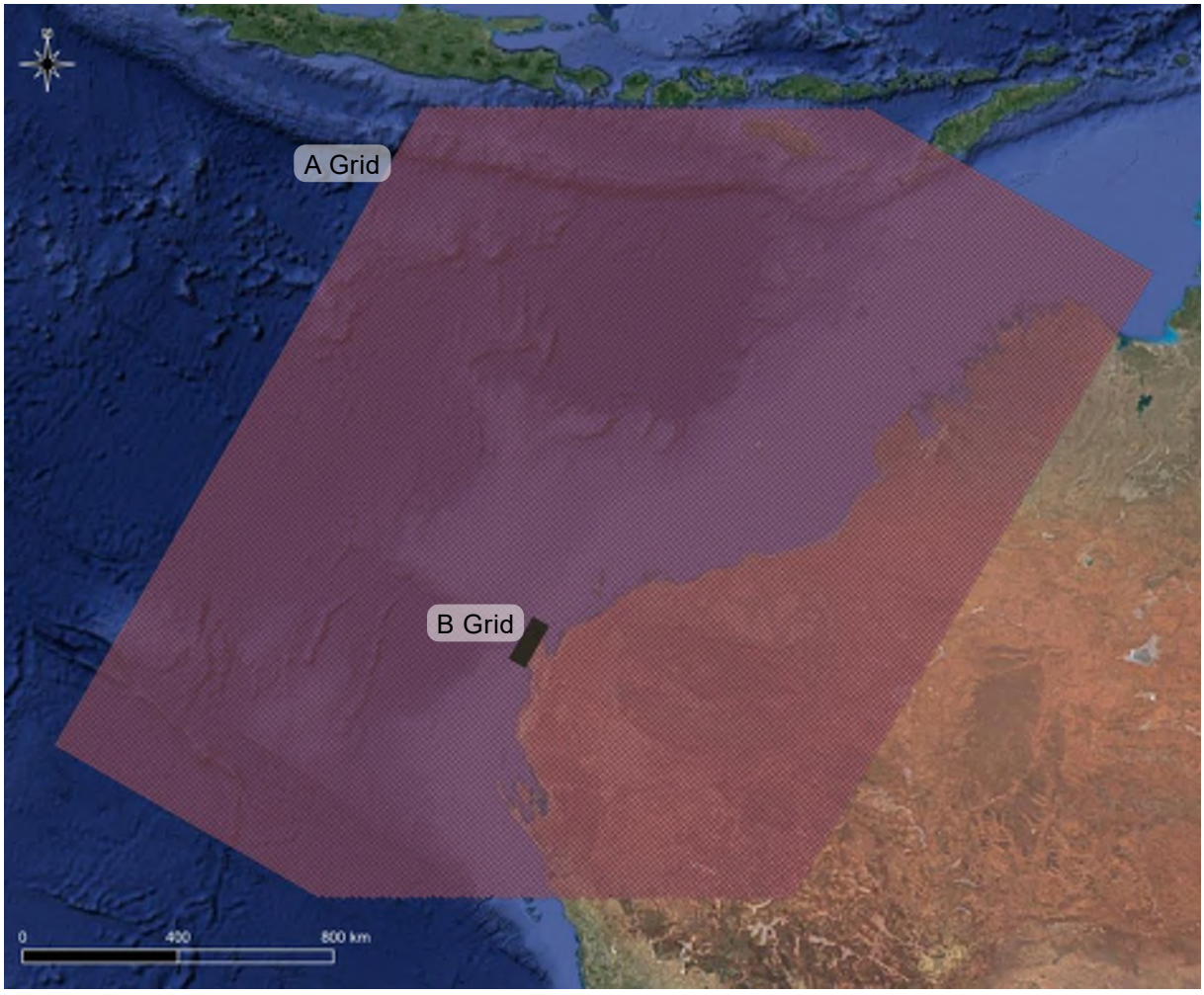

Figure 4.1 Locations of Grids of A & B

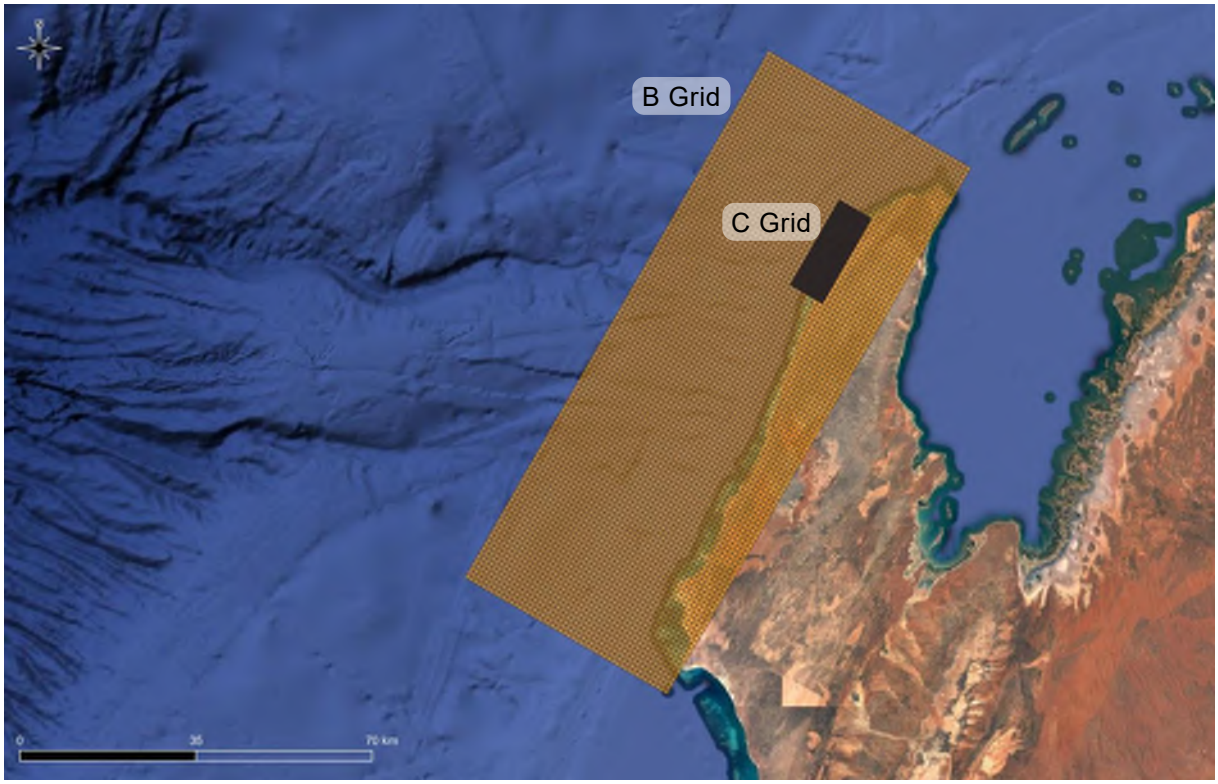

Figure 4.2 Locations of Grids B & C

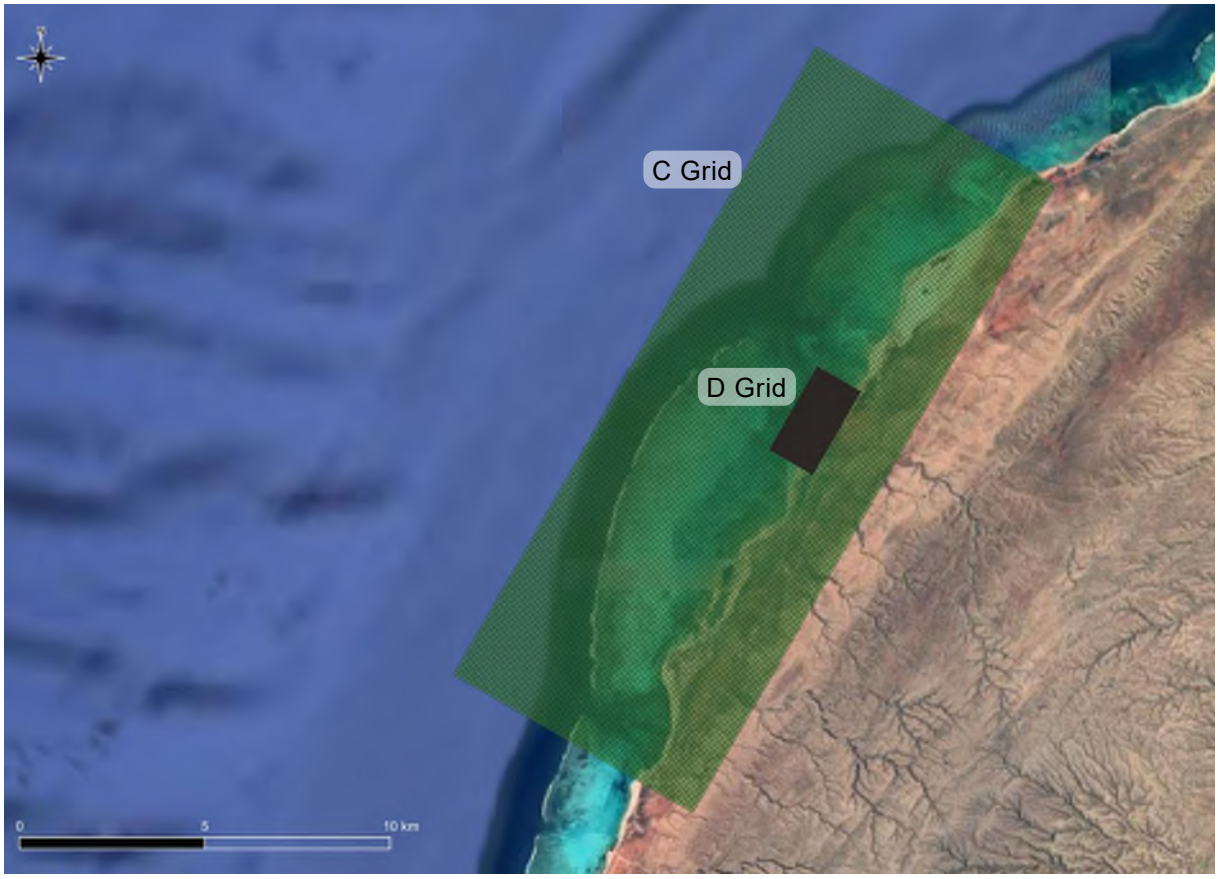

Figure 4.3 Locations of Grids C & D

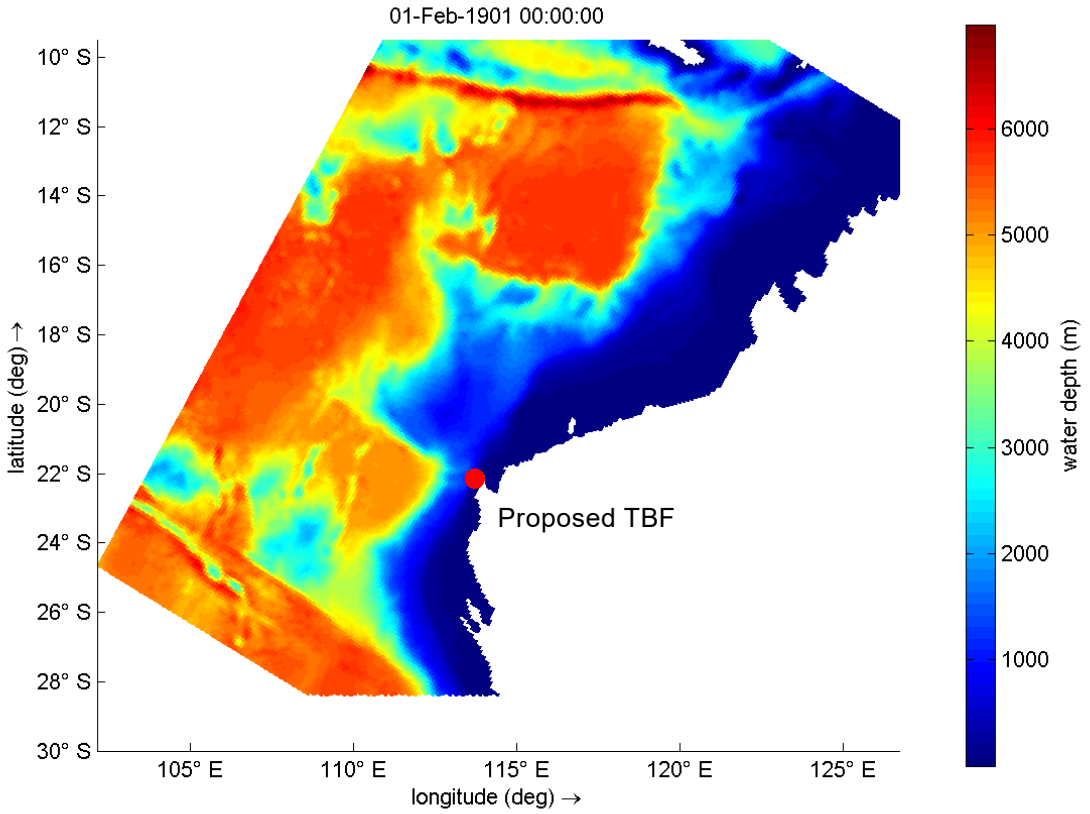

Figure 4.4 Grid A Bathymetry

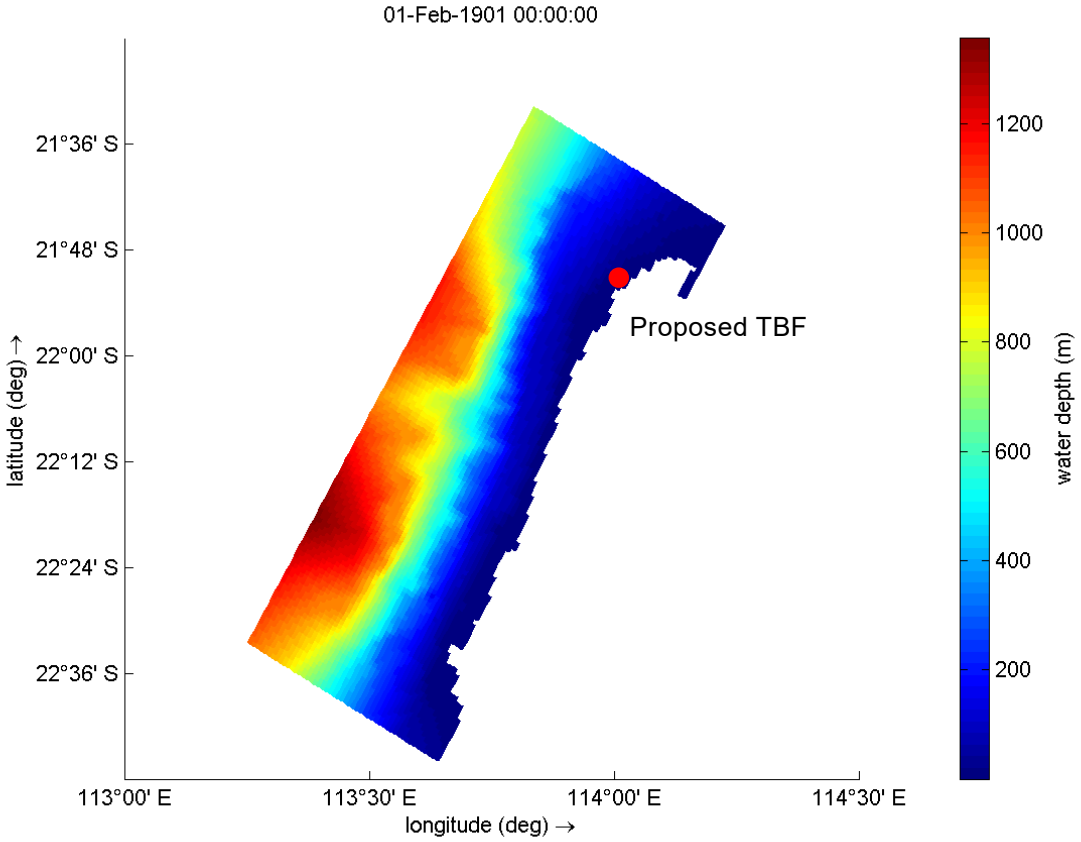

Figure 4.5 Grid B Bathymetry

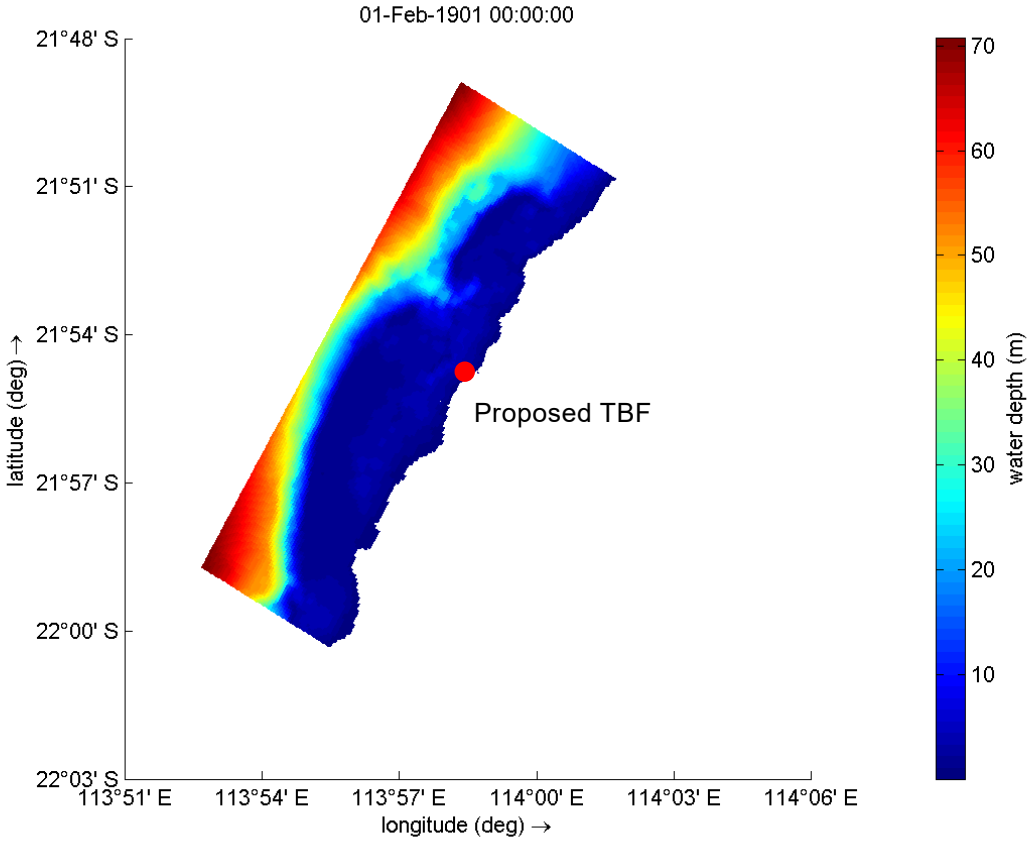

Figure 4.6 Grid C Bathymetry

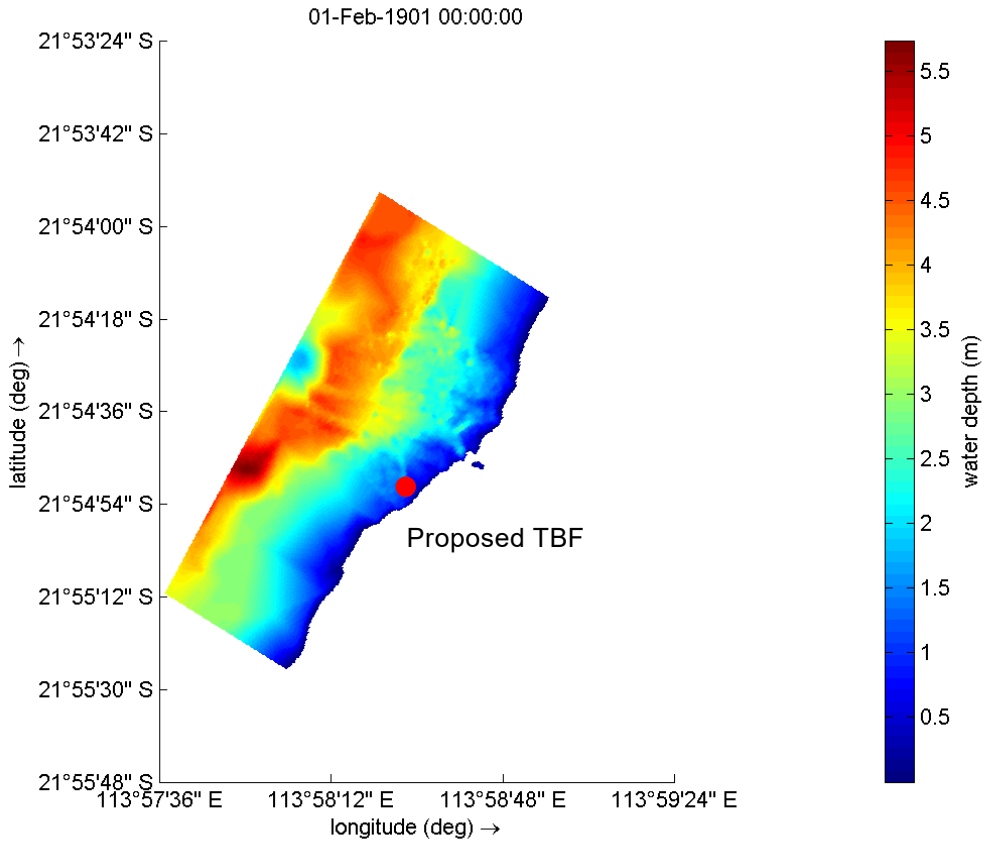

Figure 4.7 Grid D Bathymetry

Table 4.2 Survey Data used for Grid Generation

Description	Source	Date	Extent
RAN Chart 900	DoT	1971 – 1991	North West Cape area.
Multibeam Bathymetric Survey	DoT	2021	Tantabiddi Creek Nearshore Area and Channel.
Drone Survey	DoT	2021	Beach and Dune Areas
Hyperspectral Mapping of Bathymetry and Benthic Cover	CSIRO	2006	Coral Reef Depths
Bathymetry 50m Multibeam	Geoscience Australia	2018	Offshore areas beyond the coral reef.
25 Metre Intertidal	Geoscience Australia	2019	Water's edge along the coast
1 Second Digital Elevation Model	Geoscience Australia	2011	Land areas immediately surrounding the site.
AUS 745	Australian Hydrographic Service	2012	North West Cape
Australian Bathymetry and Topography	Geoscience Australia	2009	Western Australia and oceanic areas.
ETOPO1 1 Arc-Minute Global Relief Model	NOAA	2009	Indonesia and surrounding waters.

A key challenge of the model setup and calibration was the establishment of the bathymetry across the shallow reef within grids C and D. Traditional hydrographic survey methods are unable to provide details of depths over these areas due to the depths being inadequate for vessel navigation. As a result, depths across these areas relied on the 2011 LiDAR survey results captured by CSIRO (2011). The challenge with this data was that the results did not appear to be consistent with hydrographic survey results in all areas. For instance, there were areas within the lagoon that the LiDAR suggested were approximately 7 m deep, however hydrographic survey showed these areas to be only 3 – 4 m deep. As a result, the LiDAR data was only used to fill gaps in the hydrographic survey data, which typically only occurred over the nearshore reef. Whilst this approach was better than simply estimating the elevation of the reef, the accuracy of the LiDAR data is not certain and any discrepancies between the LiDAR data and the actual reef elevations will contribute to differences in the wave climate inshore from the reef.

4.3 Model Calibration

Following establishment of the grids, calibration and validation of the model was undertaken to ensure model predictions adequately reflected reality. Calibration of the general wave model was completed and reported in the Task 5 report, with calibration of the hydrodynamic model completed and reported in the Task 6 report.

To further validate the model's ability to accurately represent cyclonic conditions at the site, wave, wind and tidal forcings for two cyclone periods were simulated within the model domain to determine if the model predictions matched measurements.

Due to the lack of available overlapping historical wave and water level data at the site, the cyclonic hydrodynamic and wave calibrations had to be completed using separate events.

TC Nicholas developed as a low off the Kimberley Coast on 11 February 2008 and intensified as it travelled in a south westerly direction along the coastline. TC Nicholas eventually tracked down the west coast of the North West Cape as a category 2 system, finally crossing the coastline approximately 60 km south of Coral Bay. Details of the track for TC Nicholas are provided in Figure 4.8.

During TC Nicholas a Waverider buoy was located offshore from the North West Cape and the data from this device provides the opportunity to calibrate the wave component of the cyclone model.

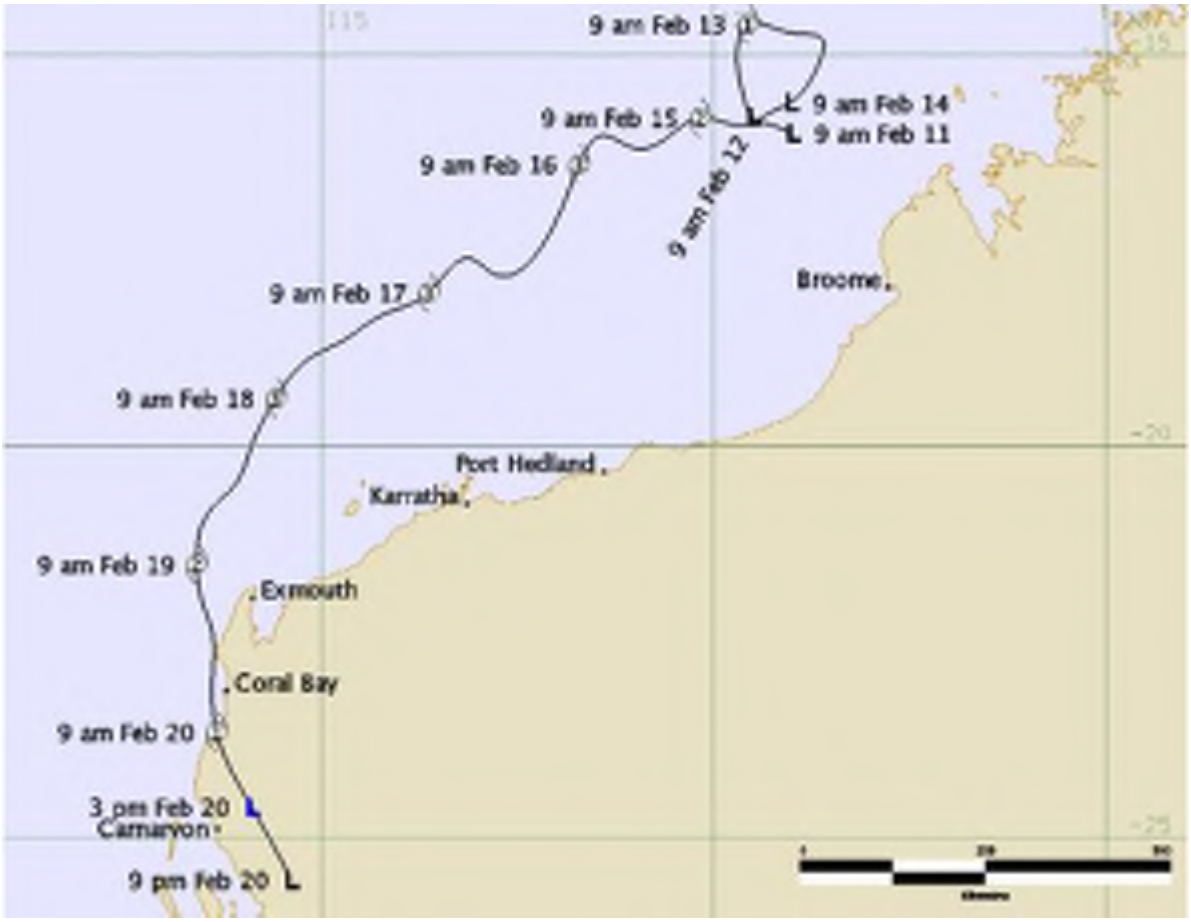

Figure 4.8 Track of Tropical Cyclone Nicholas

TC Tina formed off the north west shelf on 25 January 1990. Despite developing into a category 2 cyclone, as a system TC Tina remained relatively weak and did not exhibit a typical tropical cyclone structure as the gales were far from the surface level pressure minimum (BOM 2021). Nevertheless, TC Tina tracked directly towards Tantabiddi, as shown in Figure 4.9, and did so at a time when a tide gauge was present at Tantabiddi, meaning that data is available for the calibration of the water levels within the cyclone model.

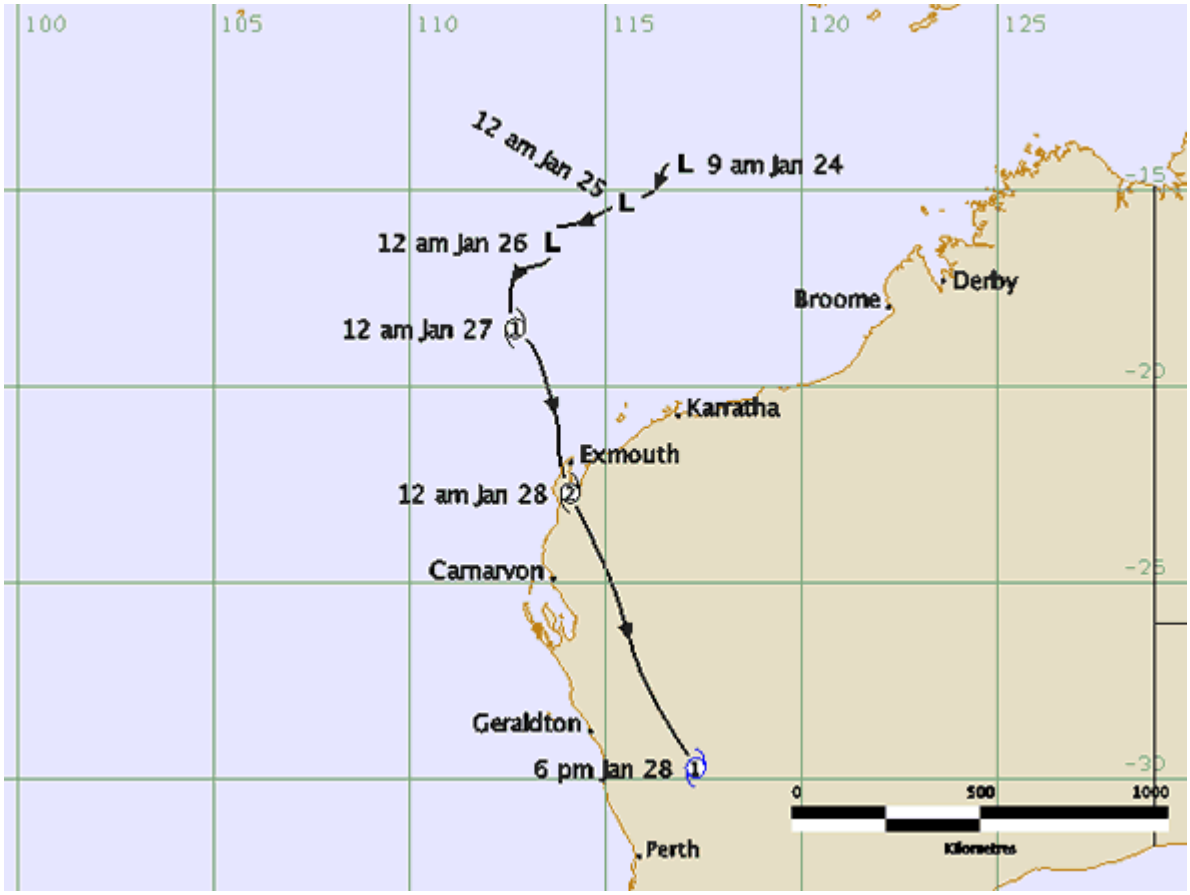

Figure 4.9 Track of Tropical Cyclone Tina

The cyclone model configuration utilised for this study has been developed by MRA across numerous projects and refined for the purposes and applications of the current assessment (MRA 2015, MRA 2016a, MRA 2016b, MRA 2017).

As a first step in this process, characteristics of the cyclones were extracted from the BoM cyclone database and were used to generate cyclone wind and pressure fields for input to the Delft3D model. This process was completed using the Delft3D Wind Enhanced Scheme (WES) module (Deltares, 2011b) in combination with a wind field calculated for each event based on the results of Holland (1980). Examples of the cyclone wind and pressure fields as used by Delft3d are presented in Figures 4.10 and 4.11.

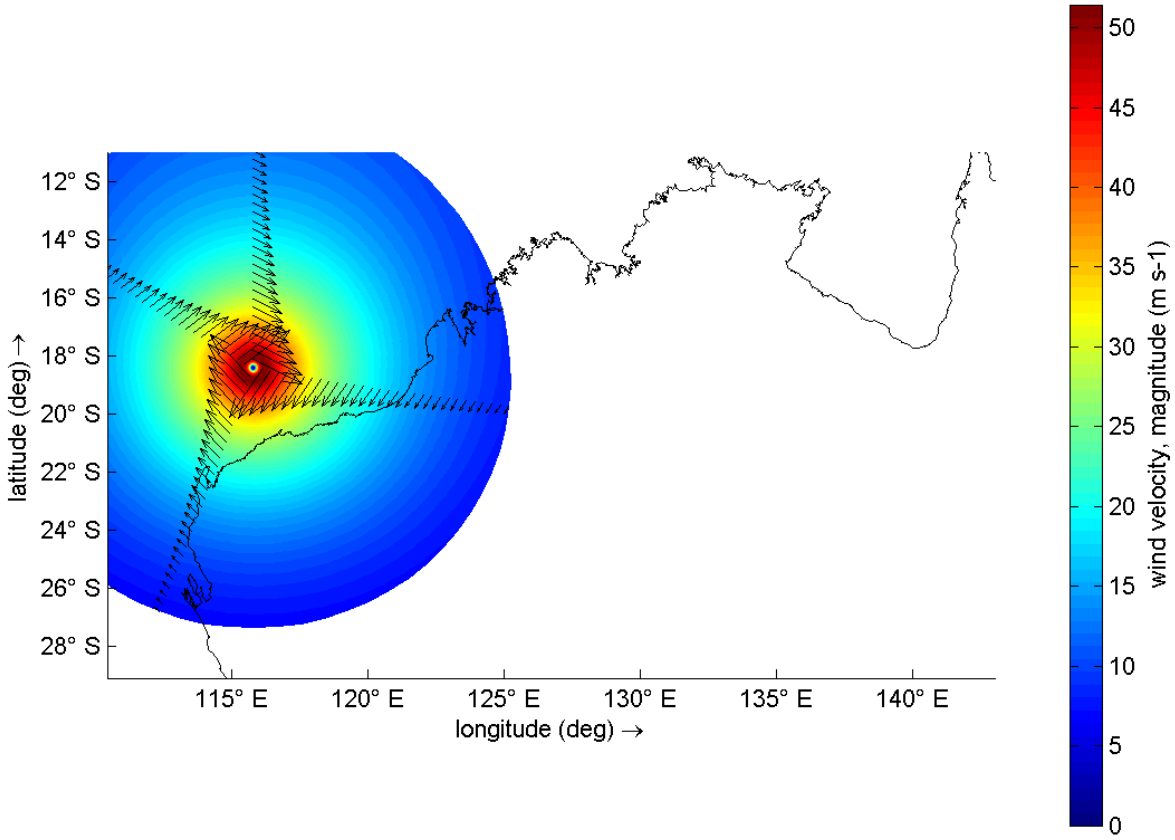

Figure 4.10 Example Cyclone Wind Field

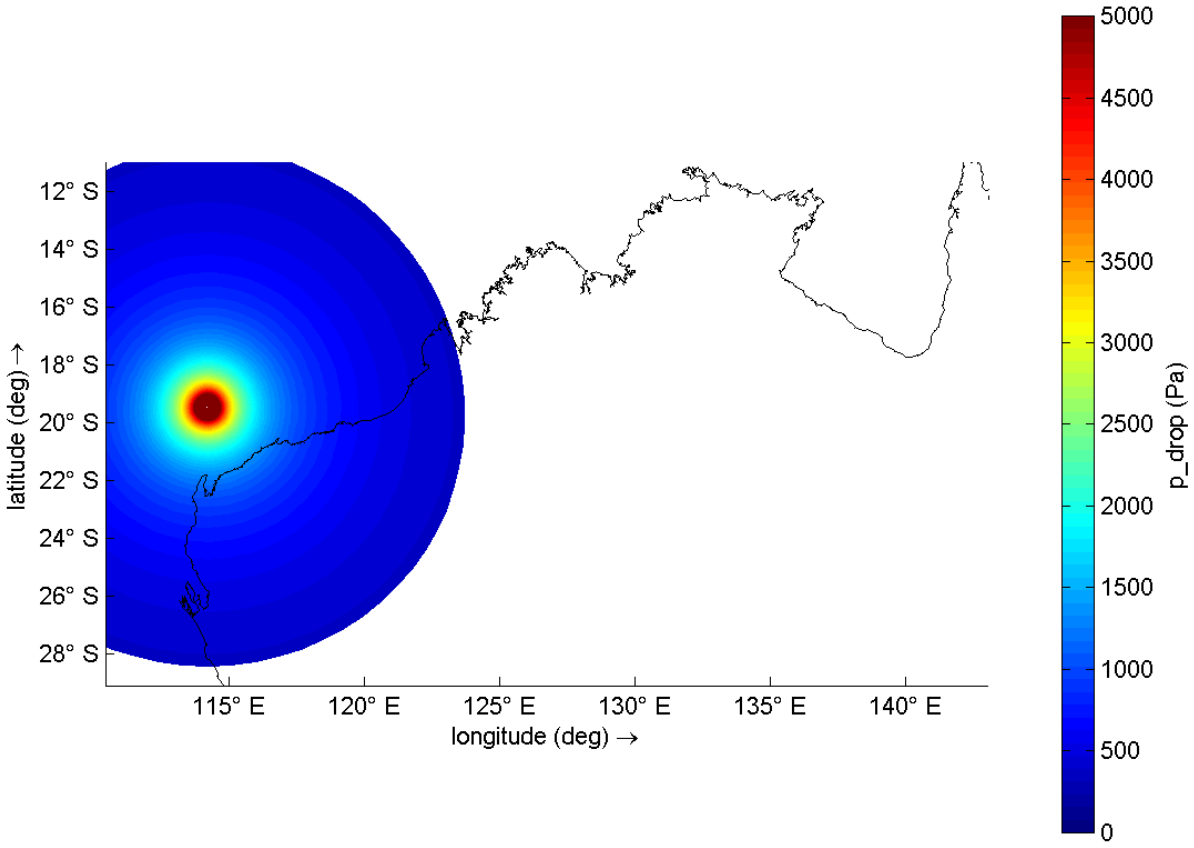

Figure 4.11 Example Cyclone Pressure Field

As can be seen in Figures 4.8 and 4.9 the simulated wind fields are represented as perfectly spherical and symmetric. In reality this is unlikely to occur due to interference from other high and low pressure systems in the area. A mathematical approximation of the cyclone cannot accurately represent all of the complexity inherent in a cyclone system and as such a degree of uncertainty is likely to have been introduced to the modelling. However, the calibration of the cyclone model was undertaken to ensure that the cyclone conditions (specifically the peaks of the events) are adequately reflected within the model.

Tidal inputs were included within the model, including the simulation of these tidal forcings over the entire model domain.

Each cyclone event was simulated using the Delft3D model, with the modelled data record extracted at the relevant location (the location of the Waverider buoy for TC Nicholas or the tide gauge for TC Tina). Plots of the measured and modelled waves and water levels for the respective events are provided in Figures 4.12 to 4.14.

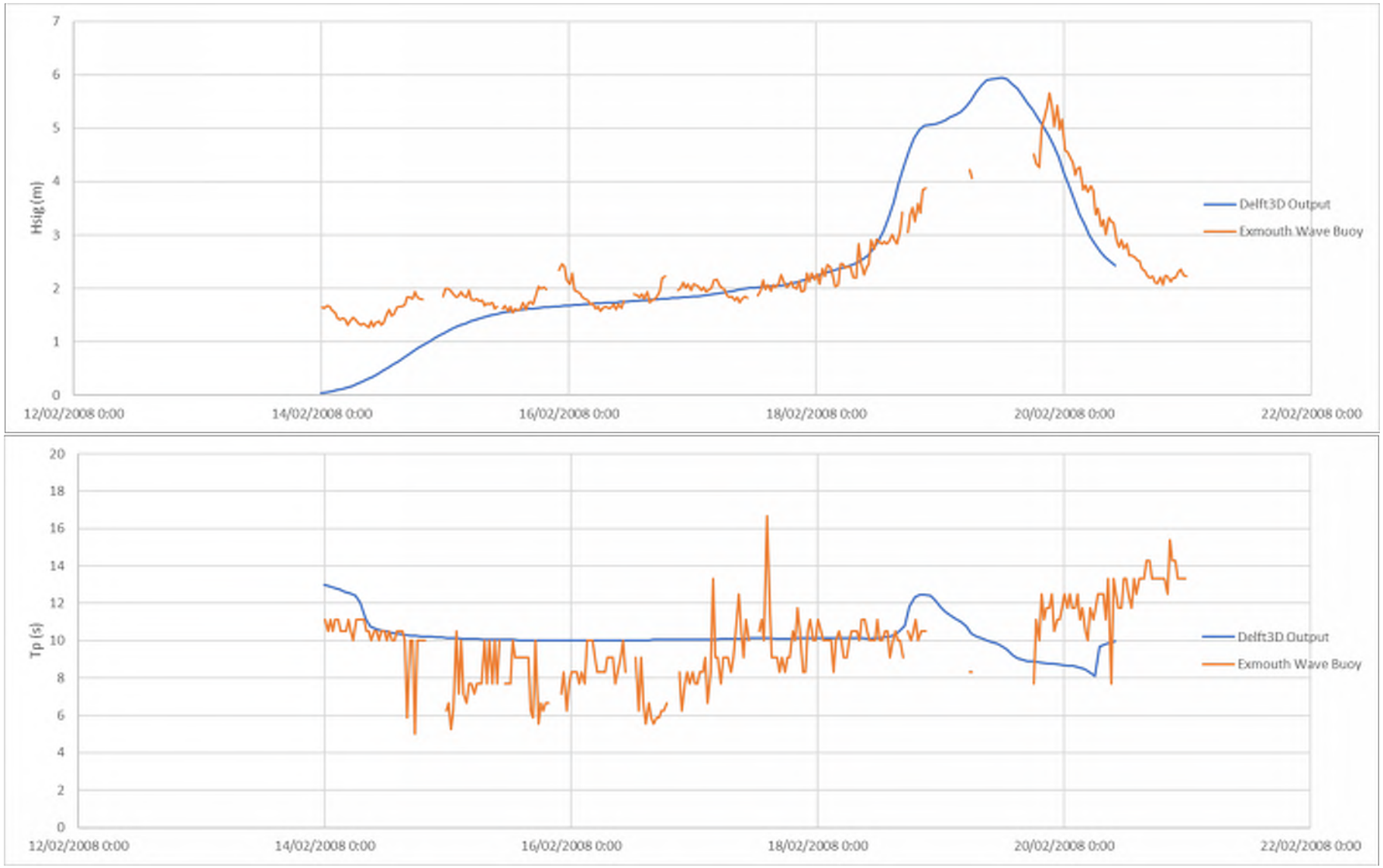

Figure 4.12 TC Nicholas Wave Height Comparison (top) & Period Comparison (bottom)

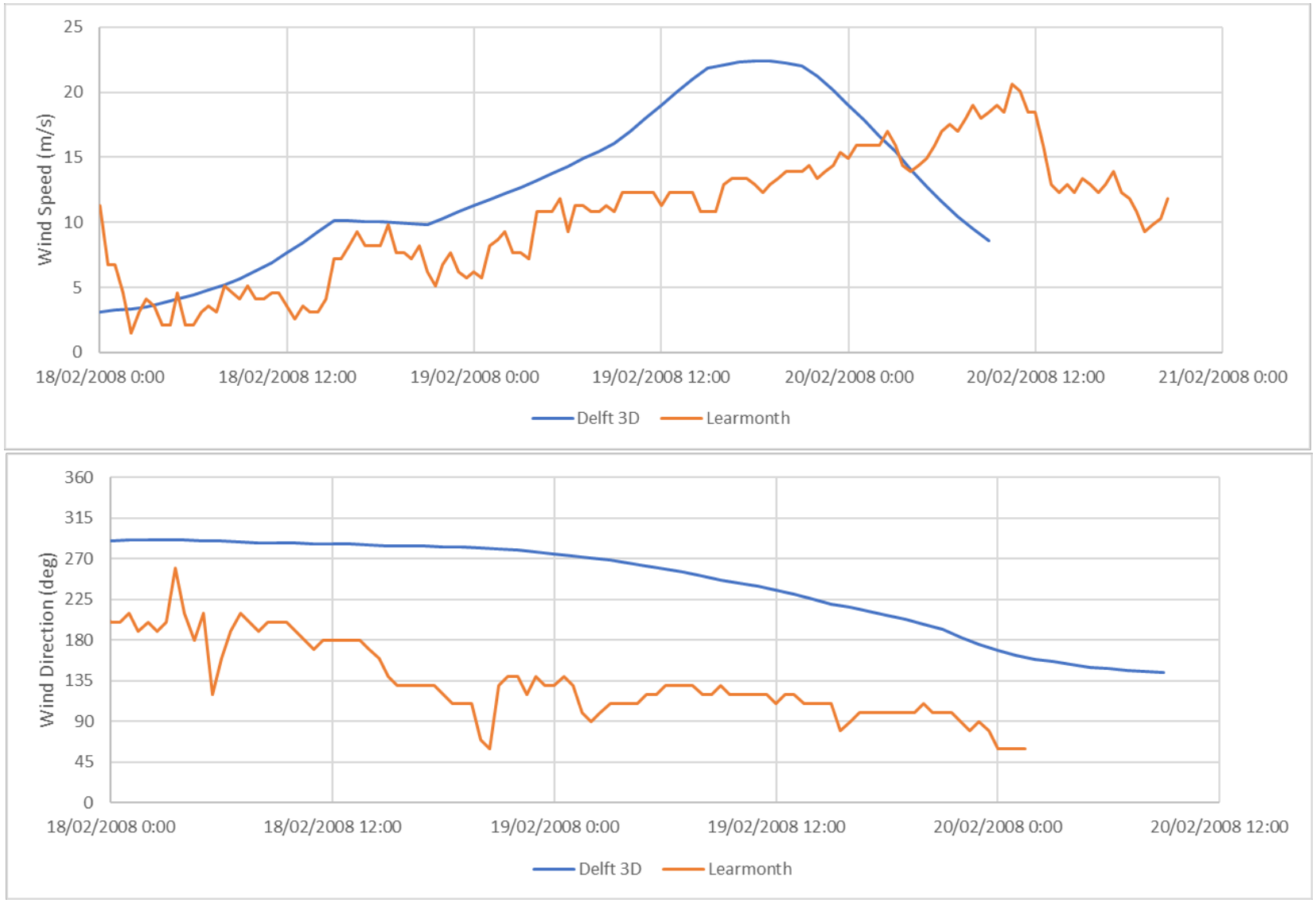

Figure 4.13 TC Nicholas Wind Speed (top) and Direction (bottom) Comparison

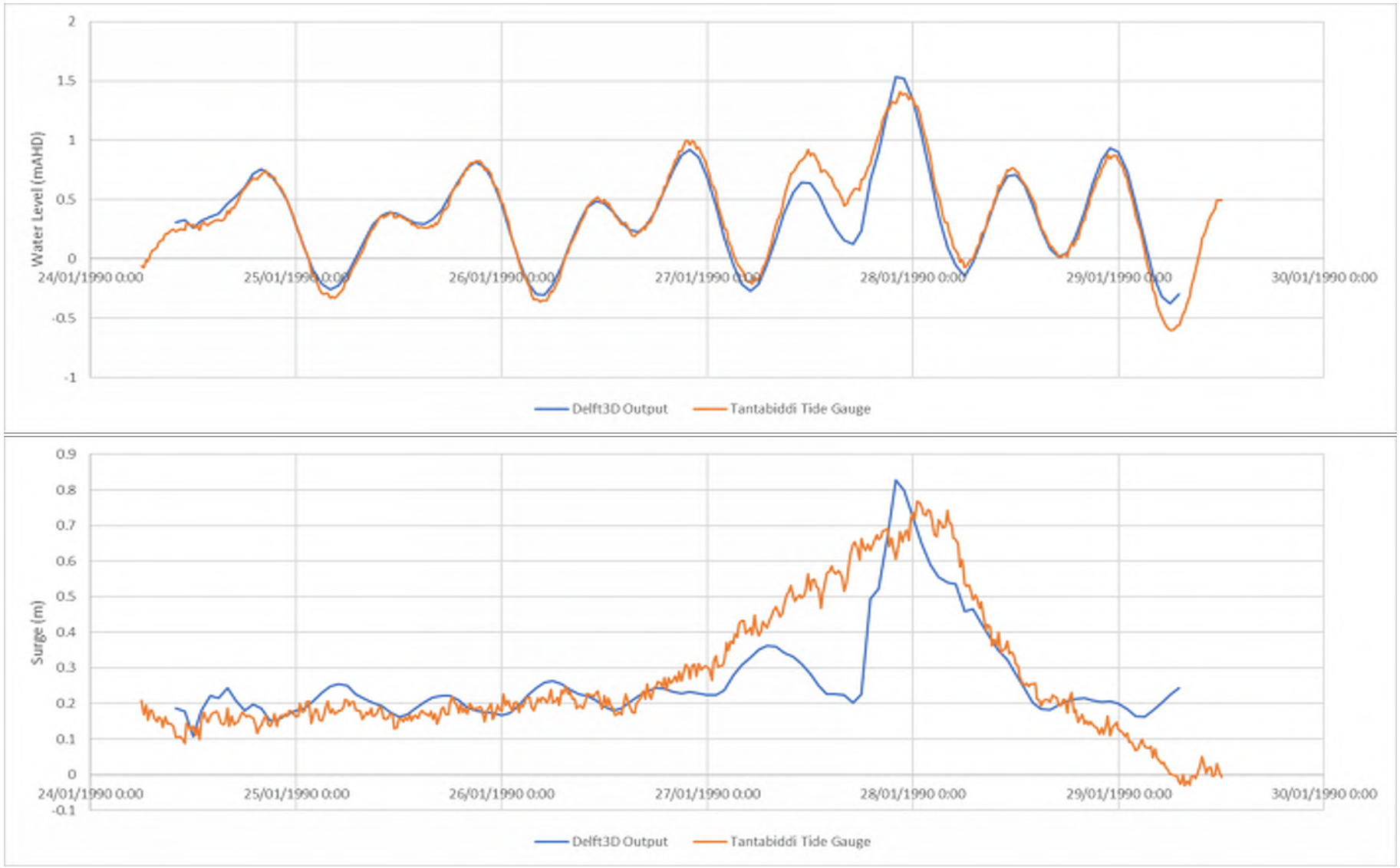

Figure 4.14 TC Tina Water Level Comparison (top) & Storm Surge Comparison (bottom)

As can be seen in Figures 4.12 and 4.14 there is reasonable agreement between the modelled and measured results. Due to the gap in wave data during the peak of TC Nicholas it is not possible to compare the peak wave heights, however, the general trends in the wave heights appear similar. The wind comparison for TC Nicholas illustrates that whilst the data provided by BoM allows for reasonable simulation of the general trends. A mathematical approximation of the cyclone cannot accurately represent all of the complexity inherent in a cyclone system. Thus the modelling is predominately concerned with matching conditions at the peaks of the events, as this is where the relative contribution of other atmospheric factors is at its lowest.

The water level comparison for TC Tina also shows good agreement at the peak of the event, however it is noted that the onset of storm surge is delayed in the model compared to the recorded data. This is expected to be due to the fact that the structure of TC Tina was noted by BoM as exhibiting a cyclone structure with strong winds further away from the surface level pressure minimum. Replication of such a wind field was not possible within the Holland wind field model with the information available from the cyclone database. Nevertheless, from analysis of the available data the modelled results appear to present a viable representation of the likely peak significant water levels.

4.4 Model Time Steps

The model time steps that were used for the cyclone production runs are presented in Table 4.3.

Table 4.3 Model Time Steps

Data	Value
Cyclone Data Input Frequency (hrs)	3
WAVE Timestep (min)	60
FLOW Timestep (min)	0.25
WAVE Output Frequency (min)	60
FLOW Map Output Frequency (min)	60
FLOW Hist Output Frequency (min)	120
FLOW Com Output Frequency (min)	120

5. Design Events

As described in Section 3, 275 of the most severe cyclonic events from within the synthetic cyclone record were selected for further modelling within the calibrated Delft3D model system. From these modelled events the design events and conditions were determined.

5.1 Water Levels

Peak water levels were extracted from the completed coupled Delft3D runs at the site. To determine which events were representative of the 50, 100 and 500 year ARI events, an EVA of the cyclone water levels at the site was conducted using the extracted information. The results of the EVA are presented in Figure 5.1.

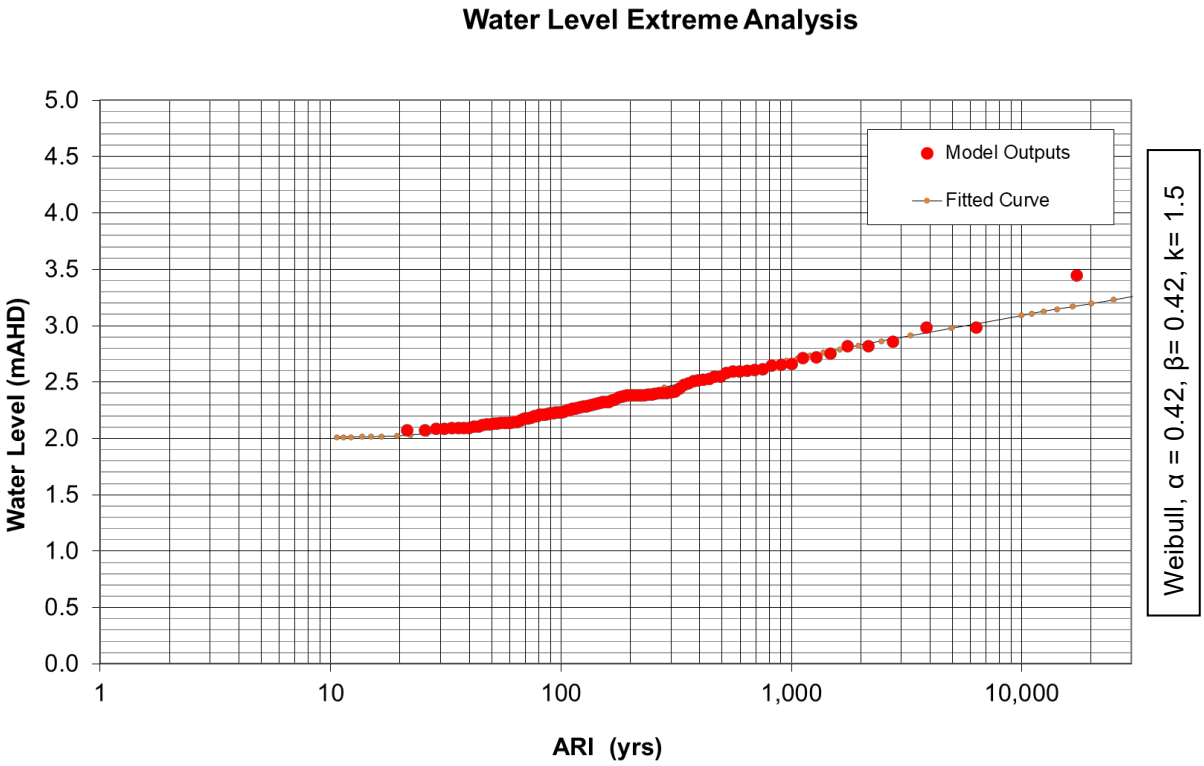

Figure 5.1 Water Level EVA

The EVA assessment presented in Figure 5.1 provided a way to determine the expected relative ARI's of the modelled cyclone events by using the water level as a proxy for the cyclone's severity. Whilst this provides an indication of the design cyclone events for desired ARI scenarios, it likely does not account for variability in the resulting design conditions for events with similar ARI's. As such three cyclone events were selected for each of the 50, 100 and 500 year ARI scenarios to allow for this variability. The tracks and central pressures of the nine design events are presented in Figures 5.2 to 5.4. Tables providing the parameter of the design cyclones are presented in Appendix A.

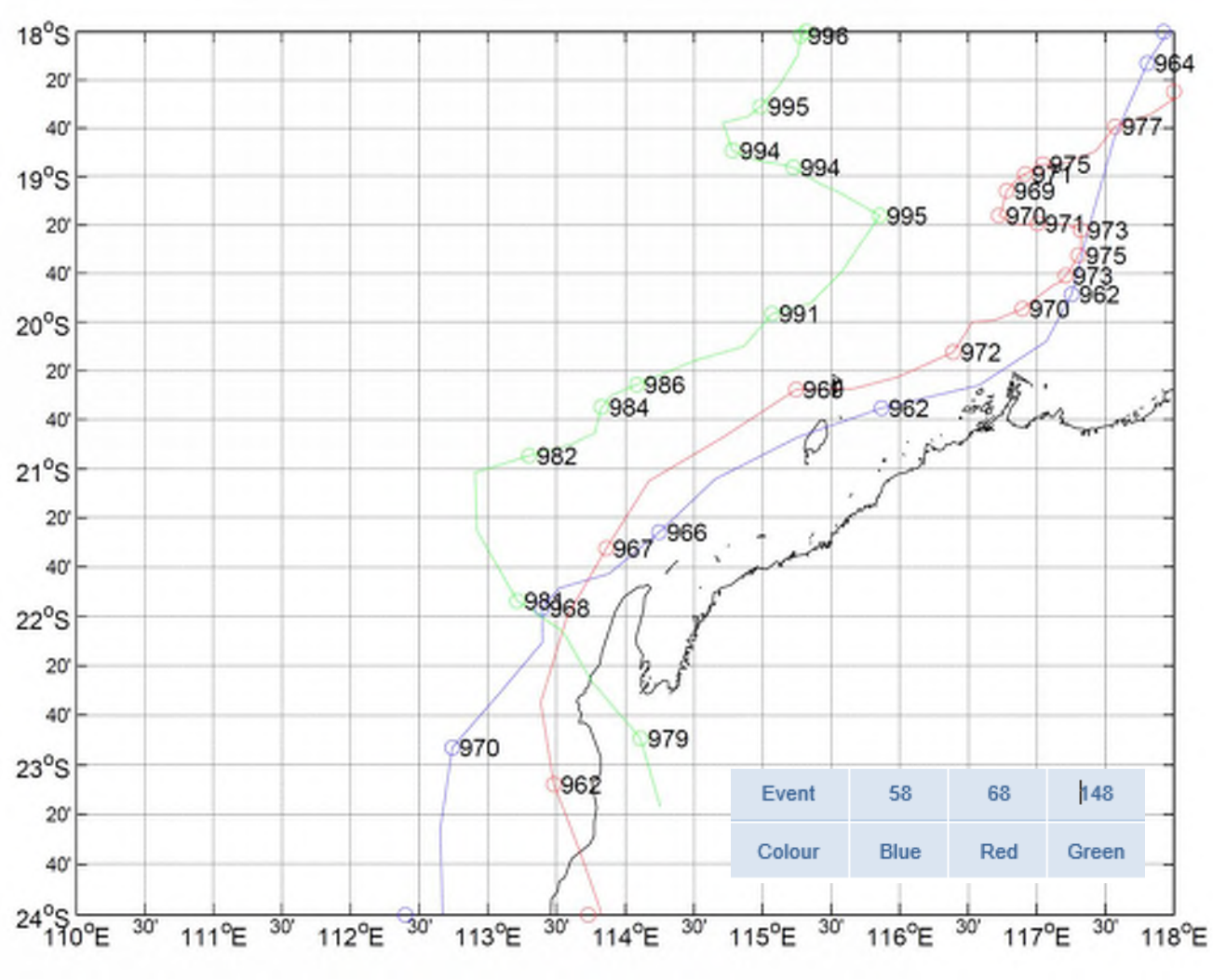

Figure 5.2 Cyclone Tracks & Central Pressures (hPa) for 50 year ARI

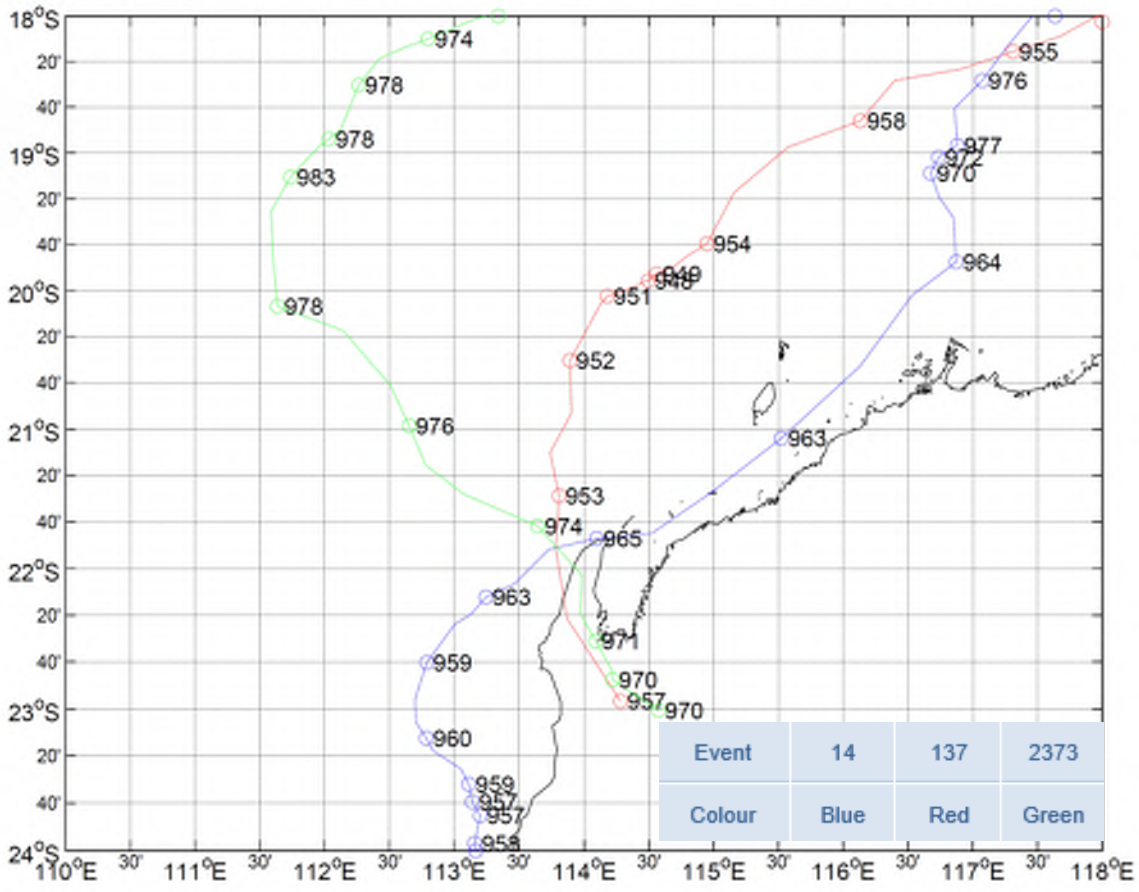

Figure 5.3 Cyclone Tracks & Central Pressures (hPa) for 100 year ARI

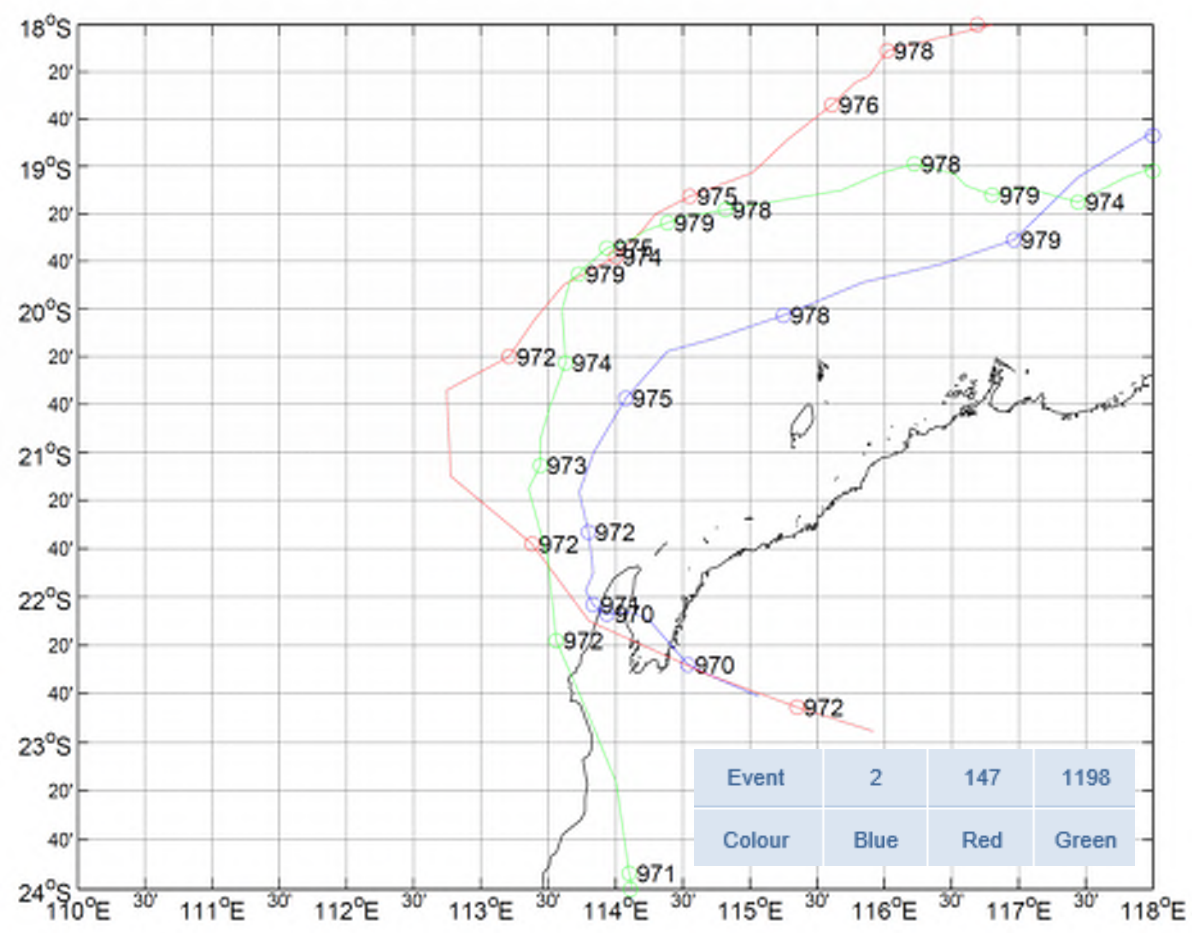

Figure 5.4 Cyclone Tracks & Central Pressures (hPa) for 500 year ARI

The probabilities of these events occurring over a number of common design lives are presented in Table 5.1.

Table 5.1 Probabilities of Occurrence

ARI	Design Life			
	25 Years	50 Years	75 Years	100 Years
50	40%	64%	78%	87%
100	22%	39%	53%	63%
500	5%	10%	14%	18%

5.1.1 Nearshore Water Levels

The EVA of the cyclonic water levels provides an estimation of the likely water levels associated with a number of ARI scenarios. However, the assessment has not included the effects that medium (e.g. seasonal fluctuations) to long term (e.g. ENSO variability) variations in local water levels could have upon water levels at the site (Pattiaratchi & Buchan 1991). As such the design

events were remodelled using increased water levels. An additional 0.3 m was added to the water levels to account for the possible influence of the seasonal and ENSO fluctuations.

The nine selected cyclone events were remodelled using the adjusted water level boundaries. The resulting maximum water levels were compared and the nearshore water levels for each scenario were selected as the largest of the three values for each ARI. An example of the nearshore water level distribution and the position of the extraction location is provided in Figure 5.5.

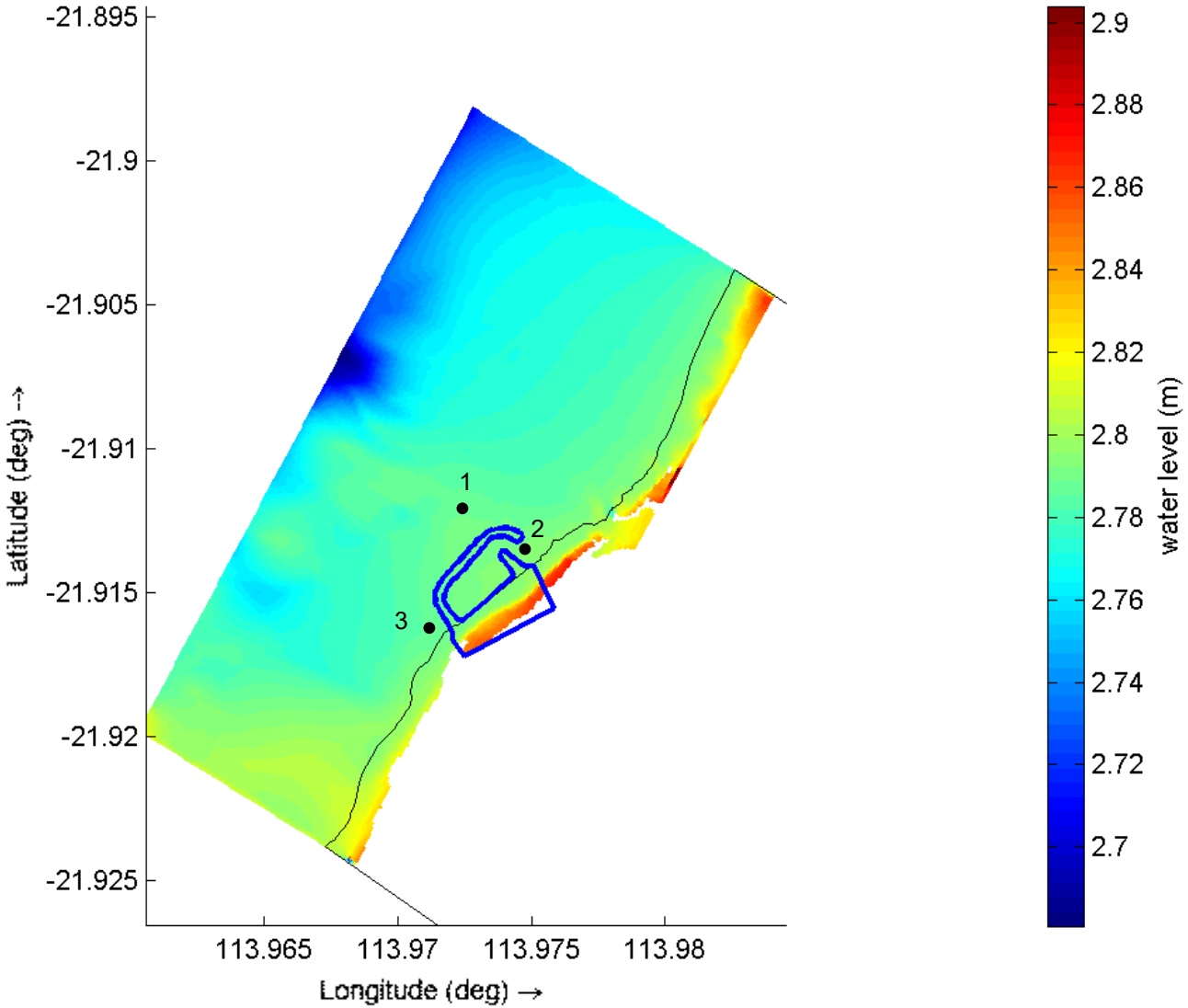

Figure 5.5 Nearshore Water Level Distribution Example with Extraction Locations

5.1.2 Shoreline Water Levels

Whilst Delft3D does a suitable job of modelling the cyclone conditions and the resulting water levels and wave heights it does not consider the effect of wave setup on the water level at the shoreline. To determine the contribution of wave setup to the water levels at the shoreline the SBEACH computer model was used.

The SBEACH computer model was developed by the Coastal Engineering Research Centre to simulate beach profile evolution in response to storm events. It is described in detail by Larson & Kraus (1989). Since this time, the model has been further developed, updated and verified based on field measurements (Wise et al 1996).

To assess the wave setup a profile was taken through the centre of the proposed location of the TBF and out to a water depth of approximately 4 m (refer Figure 5.6). The cyclonic conditions are then run in over the profile providing a wave setup value that is applicable for the nearby section of coast.

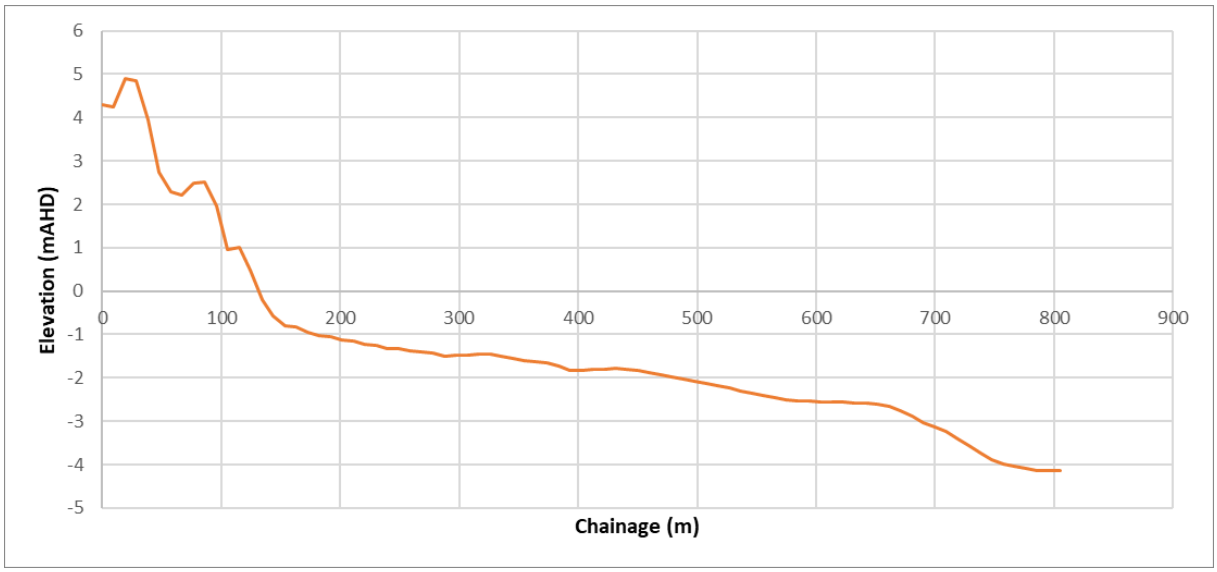

Figure 5.6 SBEACH Profile

The wave and wind conditions at the time of the maximum water level were extracted from Location 1 and used as the input conditions for the SBEACH analysis. The SBEACH model was then run using these input conditions and the resulting wave setup determined. An example of the output from SBEACH is presented in Figure 5.7.

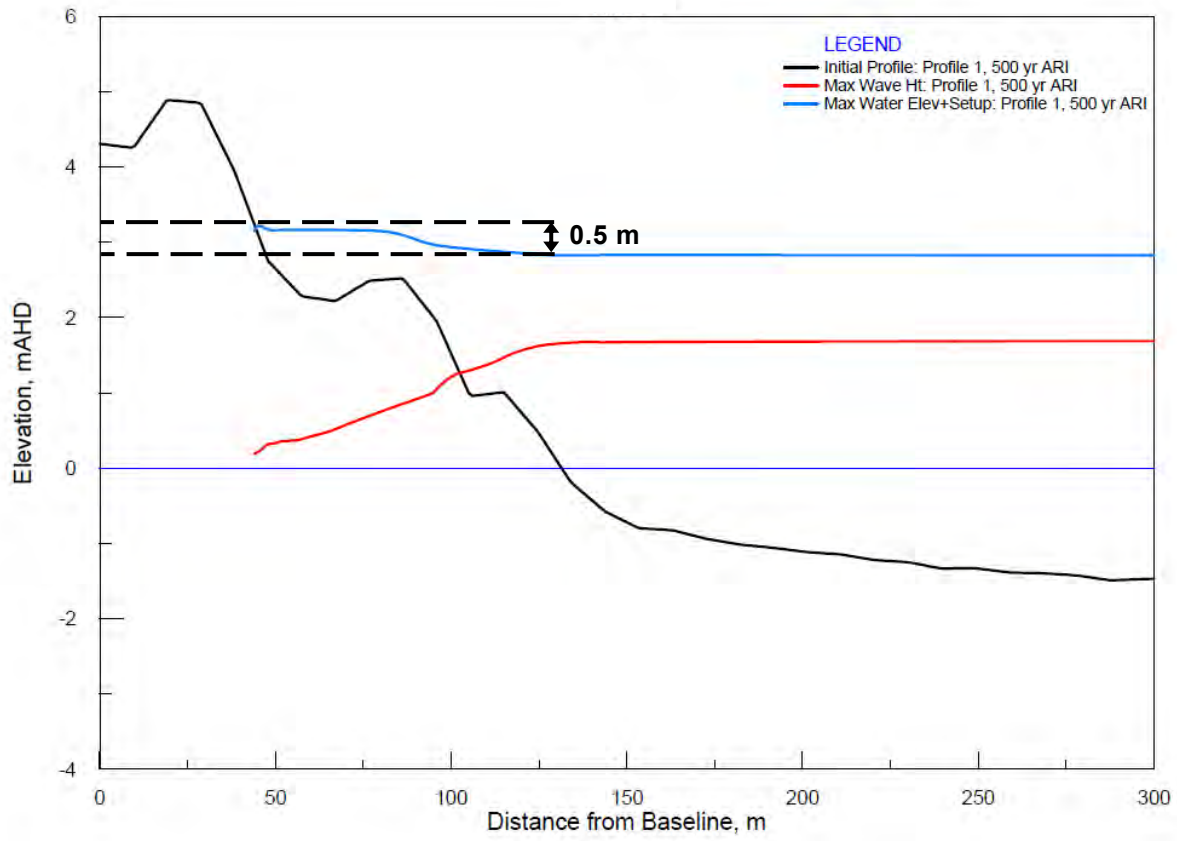

Figure 5.7 500 Year ARI SBEACH Results

The additional wave setup allowance determined from the SBEACH analysis for each of the ARI scenarios is presented in Table 5.2. All 9 design events were run and the mean of the wave setup at the shoreline was selected for each design period, though it was noted that the levels of setup predicted under each event were very similar, as shown in Table 5.2.

Table 5.2 Wave Setup Allowance

ARI	Wave Setup Allowance (m)
50	0.5
100	0.5
500	0.5

These wave setup allowances were then added to the design nearshore water levels to determine the design shoreline water levels.

5.1.3 Effects of Sea Level Rise

The design water levels discussed previously are applicable for the present day only. To determine the likely water levels associated with each of the ARI events in the future an allowance for sea level rise needs to be included.

DoT (2010) completed an assessment of the potential increase in sea level that could be experienced on the Western Australian coast in the coming 100 years. This assessment extrapolated work by Hunter (2009) to provide sea level rise values based on the IPCC (2007) A1FI climate change scenario projections to the year 2110. The derived sea level rise scenario was subsequently adopted by SPP2.6 for use in coastal planning along the Western Australian coast. This sea level rise scenario was adopted for this assessment and is presented in Figure 5.8.

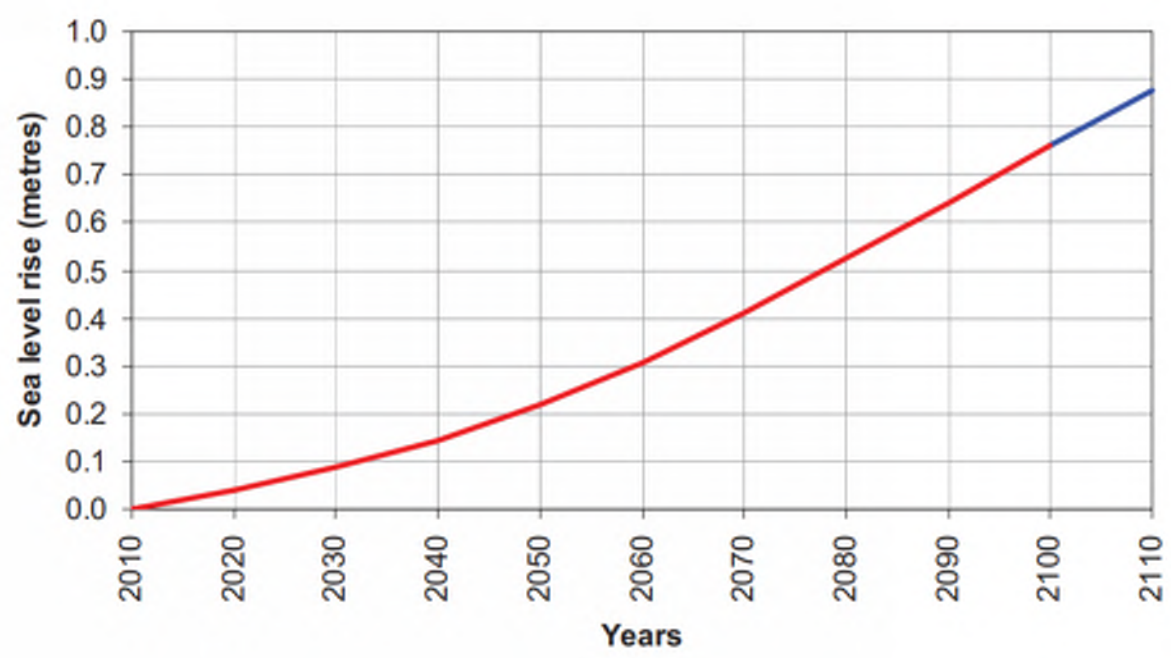

Figure 5.8 Recommended Sea Level Rise Allowances for Western Australia (DoT 2010)

Based on the work completed by DoT (2010), and with further extrapolation out to 2121, the following sea level rise allowances were determined. Three planning horizons were selected present day, 50 years to 2071 and 100 years to 2121. The allowances for these planning horizons are presented in Table 5.3.

Table 5.3 Sea Level Rise Allowances

Period (years)	Year	Sea Level Rise Allowance (m)
50	2071	0.38
100	2121	0.97

The sea level rise allowances presented in Table 5.3 were used to increase the water level boundaries for the nine design events which were subsequently remodelled. The design water levels for 2071 and 2121 were determined from these remodelled events.

5.1.4 Design Water Levels

These sea level rise allowances were added to the nearshore and shoreline water levels to determine the design water levels for the site over the various planning horizons. The resulting design water levels are presented in Tables 5.4 and 5.5.

Table 5.4 Design Nearshore Water Levels

ARI		Water level (mAHD)		
		Present Day	2071	2121
50	Location 1	2.3	2.4	3.0
	Location 2	2.3	2.4	3.0
	Location 3	2.3	2.4	3.0
100	Location 1	2.5	2.6	3.1
	Location 2	2.5	2.6	3.1
	Location 3	2.5	2.6	3.1
500	Location 1	2.8	3.0	3.6
	Location 2	2.8	3.0	3.6
	Location 3	2.8	3.0	3.6

Table 5.5 Design Shoreline Water Levels

ARI	Water Level (mAHD)		
	Present Day	2071	2121
50	2.8	2.9	3.5
100	3.0	3.1	3.6
500	3.3	3.5	4.1

The nearshore water levels presented in Table 5.5 are similar to the values determined in Cardno's assessment of design water levels at Onslow (Cardno 2016). Given the proximity of Onslow to Tantabiddi the similarities in design water levels are considered appropriate. Comparison with Exmouth is possible, however this has not been included as Exmouth's location within the Gulf of Exmouth results in significantly higher water levels than found on open coastline in the same area. As such Onslow was selected due to it being located on a reasonably open stretch of coast.

5.2 Design Wave Heights

The wave heights at the site are restricted by the fringing coral reefs that surround the Tantabiddi lagoon and as such are dependent on the water levels at the site. There are other parameters that can also influence the wave heights at the site including but not limited to approach direction, wind speed and wind direction.

Nine events were modelled, three for each of the three planning horizons to allow for variation in the maximum significant wave heights. The results of the remodelled events were analysed and the design significant wave heights were determined. An example of the distribution of the nearshore wave heights is presented in Figures 5.9 Wave heights were extracted at the locations shown in Figure 5.5.

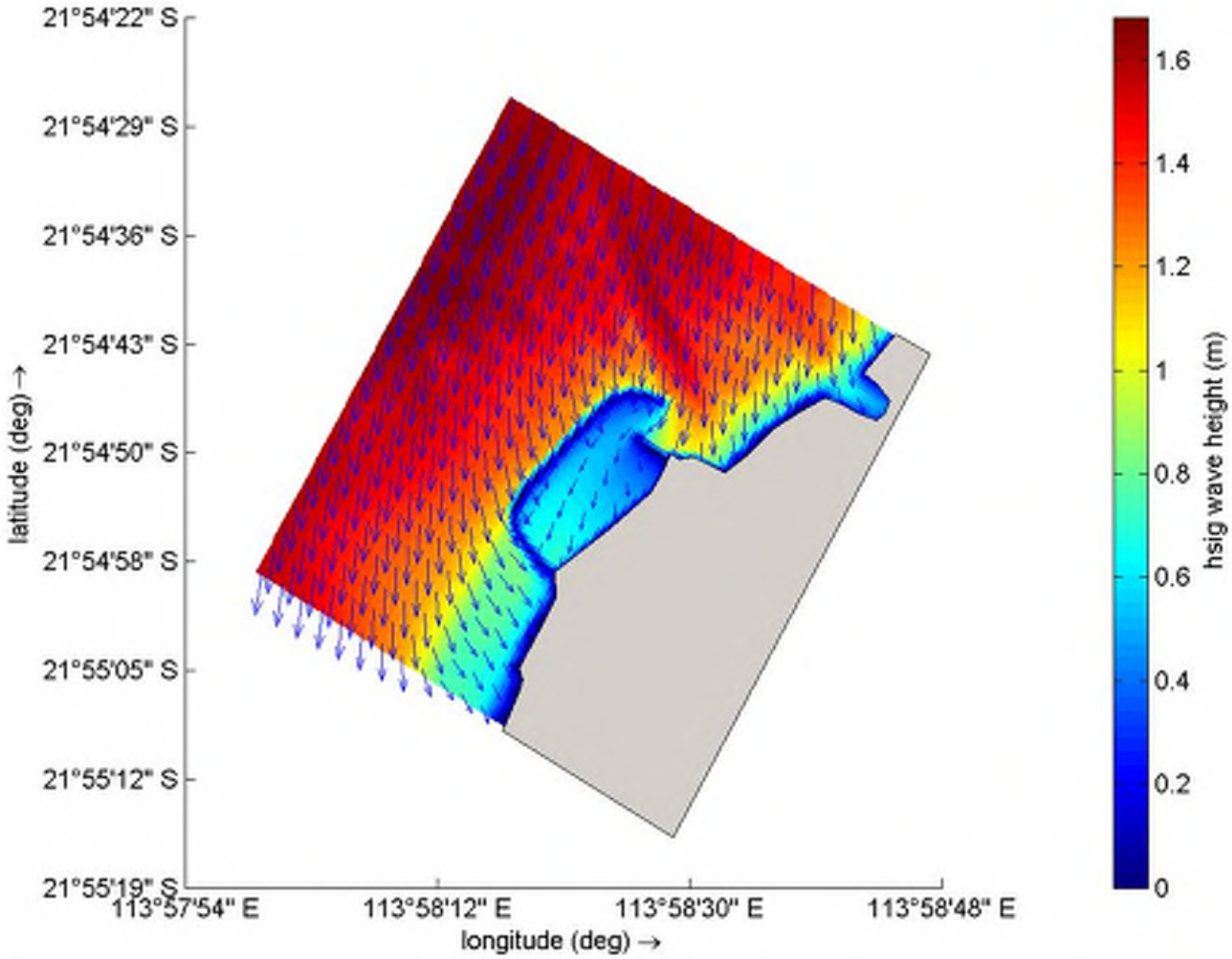

Figure 5.9 Nearshore Wave Height Distribution Example During the 50 Year ARI Event

The design significant wave heights and the corresponding periods are presented in Tables 5.6 and 5.7.

Table 5.6 Design Wave Heights

Design Event		Significant Wave Height (m)		
		Present Day	2071	2121
50 year	Location 1	1.4	1.5	1.7
	Location 2	1.2	0.8	1.1
	Location 3	1.2	1.1	1.3
100 year	Location 1	1.5	1.6	1.8
	Location 2	1.2	0.9	1.1
	Location 3	1.2	1.1	1.2
500 year	Location 1	1.6	1.65	1.85
	Location 2	1.3	1.1	1.2
	Location 3	1.2	1.3	1.4

Table 5.7 Corresponding Wave Periods For Design Wave Heights

Design Event		Peak Period (s)		
		Present Day	2071	2121
50 year	Location 1	3.6	3.6	3.4
	Location 2	3.5	3.1	3.1
	Location 3	3.5	3.2	3.5
100 year	Location 1	3.3	3.6	3.6
	Location 2	3.2	3.2	3.5
	Location 3	3.5	3.4	3.5
500 year	Location 1	3.4	3.6	3.6
	Location 2	3.5	3.1	3.5
	Location 3	3.6	3.6	3.7

The range of wave directions at each of the selected output locations that result in significant wave heights during the modelled cyclone events are presented in the following table.

Table 5.8 Wave Direction Ranges

Location	Wave Direction Range (deg)
1	270 – 20
2	10 – 30
3	250 – 340

5.3 Design Current Speeds

To assess the design current speeds around the breakwaters of the proposed TBF, the design events were re-run using a bathymetry which included the proposed TBF layout (refer Figure 5.10). This allowed for the determination of the current speeds around the proposed TBF's breakwaters during the selected events. The bathymetry of the proposed TBF used in this assessment was consistent with the bathymetry used in Tasks 5 and 6.

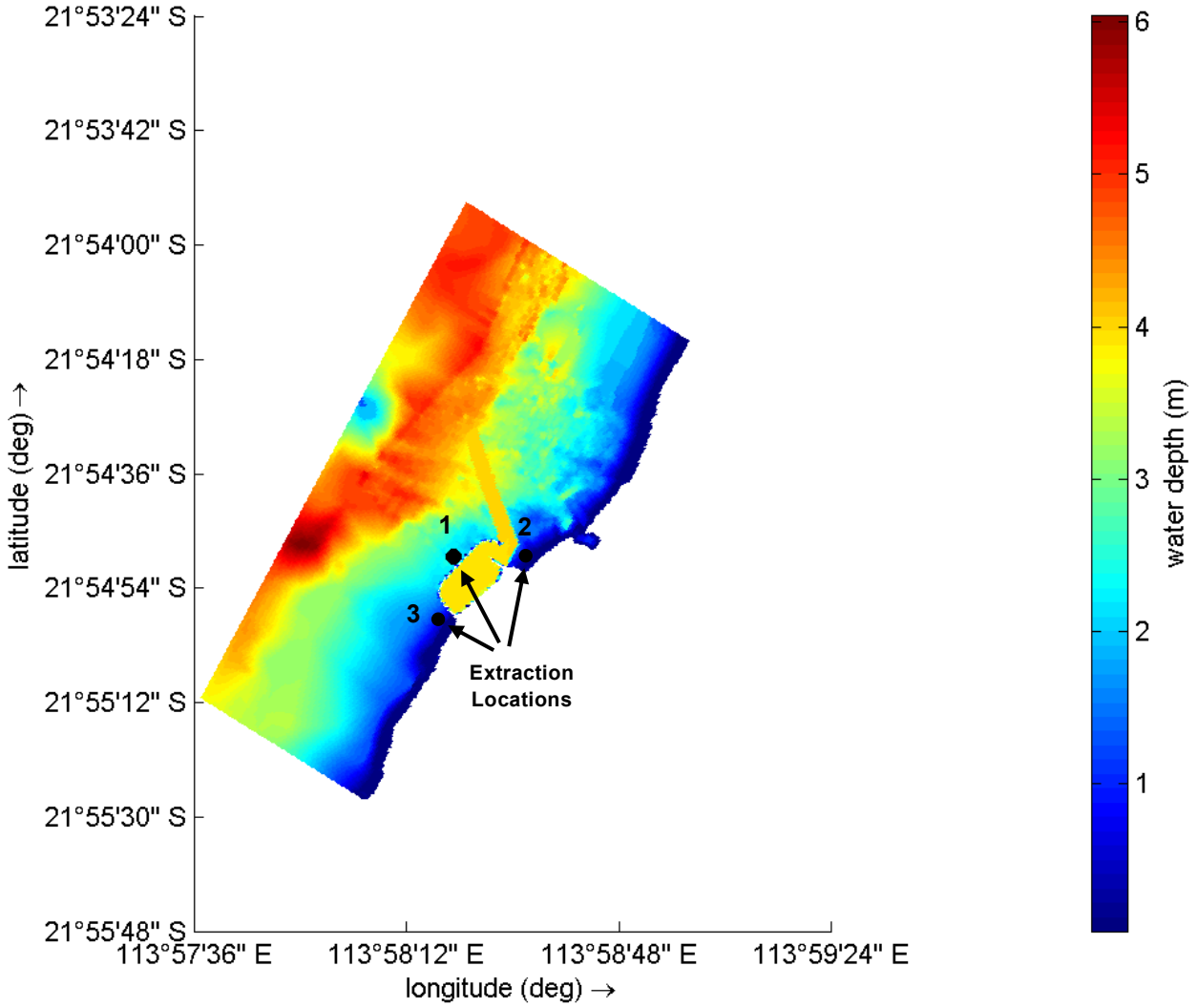

Figure 5.10 Proposed TBF Bathymetry & Current Extraction Locations

Current speeds were then extracted from the completed runs at three locations around the proposed TBF (refer Figure 5.9) for each of the design events. An example of the spatial distribution of the current speeds is presented in Figures 5.11 and 5.12.

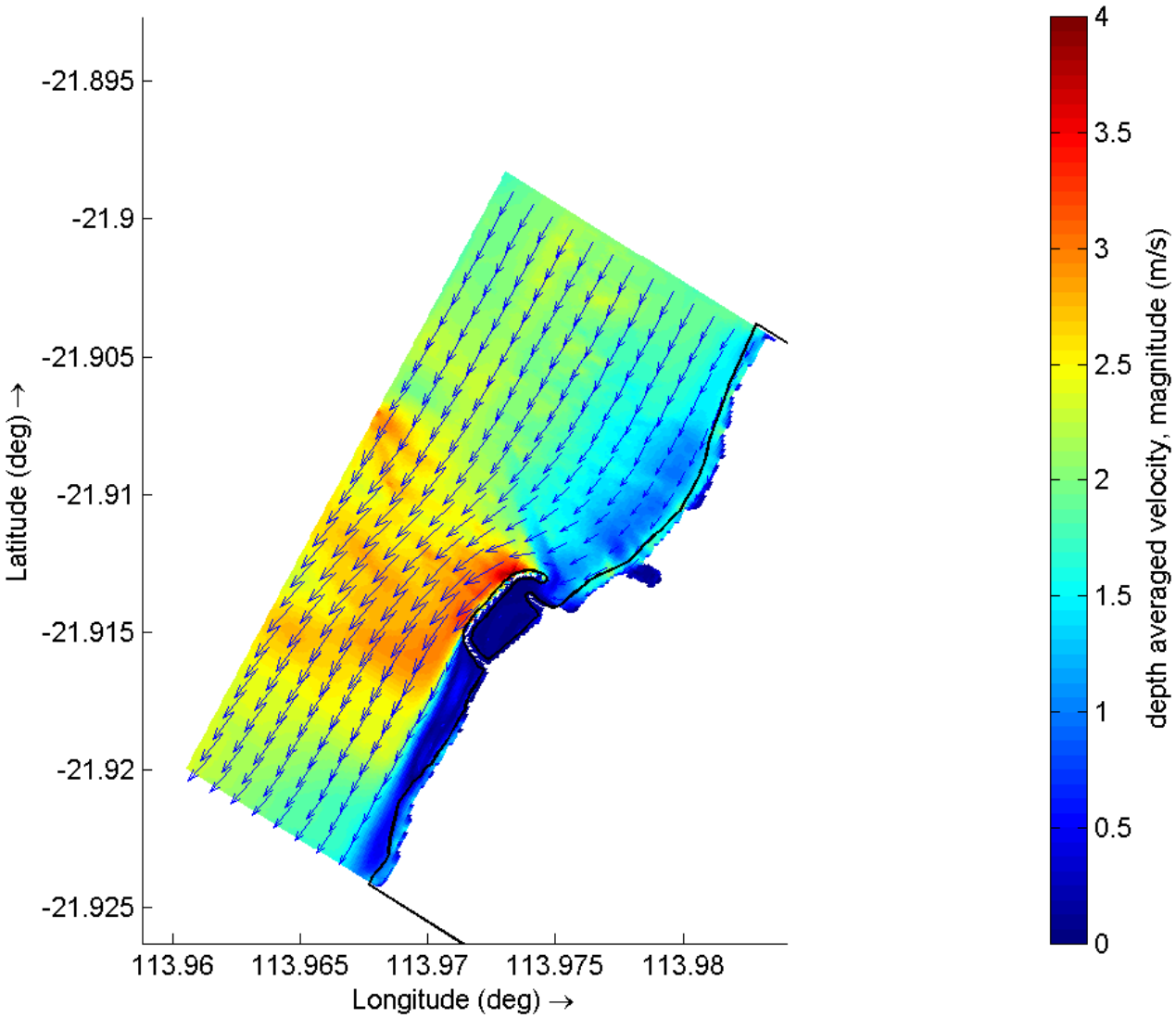

Figure 5.11 Nearshore Current Speeds Example During the 50 year ARI Event

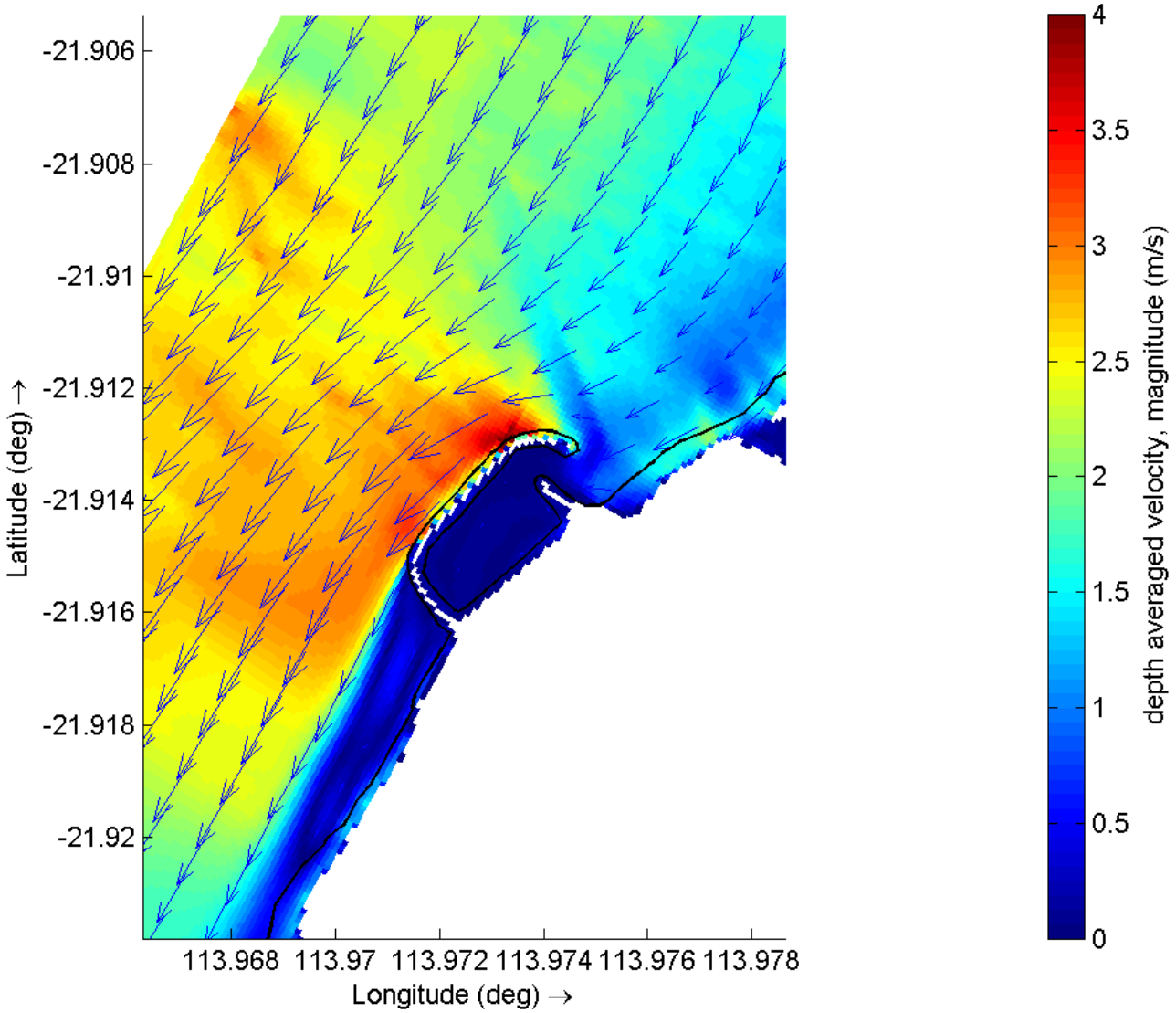

Figure 5.12 Example Currents Around Proposed TBF During the 50 year ARI Event

The resulting maximum current speeds at these locations for each of the ARI scenarios and planning horizons are presented in Tables 5.9.

Table 5.9 Design Current (Depth Averaged) Speeds

Design Event		Depth Averaged Speed (m/s)		
		Present Day	2071	2121
50 year	Location 1	3.4 – 3.6	3.4 – 3.6	3.4 – 3.8
	Location 2	0.9 – 1.4	1.0 – 1.2	1.3 – 1.5
	Location 3	1.0 – 1.1	0.9 – 1.0	0.8 – 1.1
100 year	Location 1	3.0 – 4.2	3.1 – 4.3	3.1 – 4.6
	Location 2	0.5 – 0.8	0.7 – 0.8	0.7 - 2.2
	Location 3	0.9 – 1.0	0.9 – 1.5	1.0 – 1.7
500 year	Location 1	3.4 – 4.0	3.6 – 4.1	3.7 – 4.5
	Location 2	0.7 – 1.5	0.7 – 1.5	0.5 – 1.6
	Location 3	1.0 – 1.2	1.1 – 1.2	1.0 – 1.1

As can be seen in Figure 5.8 the current speeds at the extraction location are significantly larger than those at the shoreline. This is likely due to the proposed TBF breakwaters interrupting the normal current flow along the coast, resulting in possibly slower currents at the shoreline and faster current speeds along the outer breakwater.

The current direction was not considered in this EVA and as such this analysis presents a non-directional assessment of the current speeds.

5.4 Design Wind Speeds

To determine the design wind conditions that are applicable for the proposed TBF an EVA of the modelled cyclone wind speeds was conducted. The maximum wind speeds at the site from each of the 275 modelled cyclone events were extracted and used as inputs for the wind speed EVA. The wind direction was not considered in this EVA and as such this analysis presents a omni-directional assessment of the wind speeds.

The results of the EVA of the cyclonic wind speeds are presented in Figure 5.13.

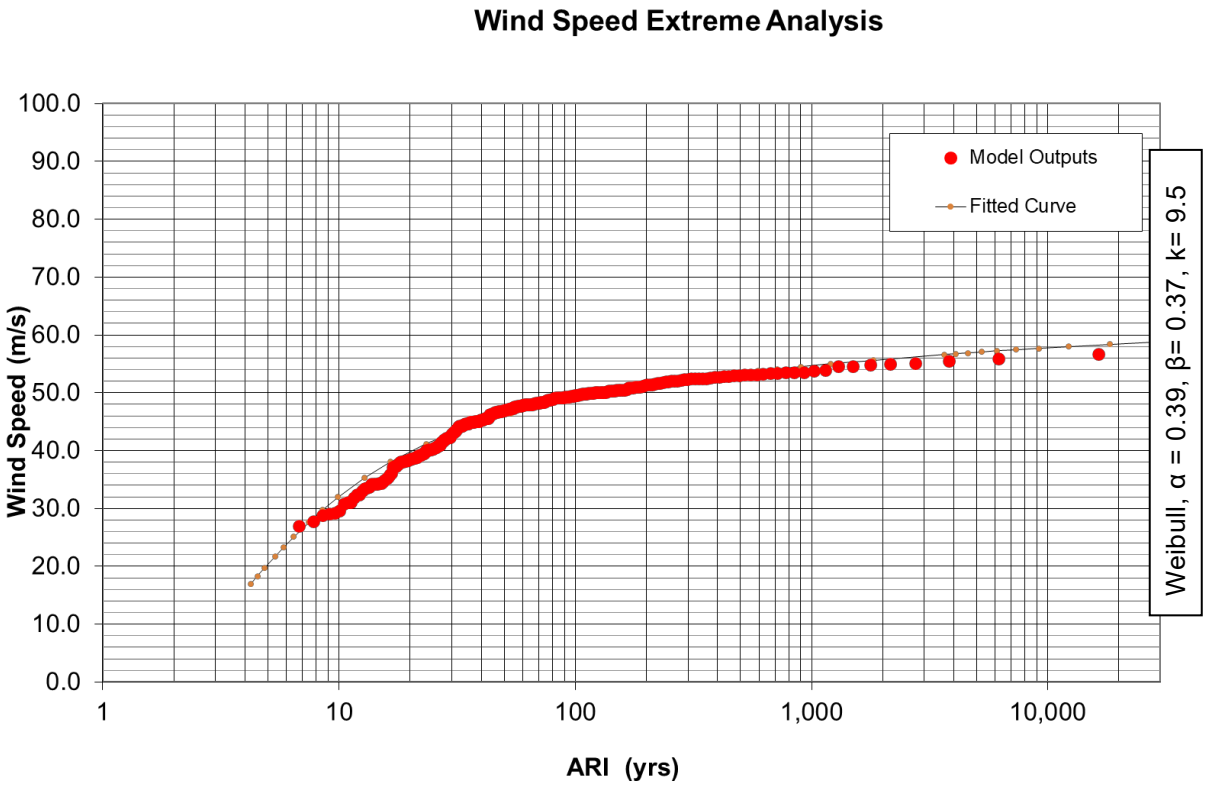

Figure 5.13 Wind Speed EVA

It should be noted that the wind speeds used in the EVA are ten minute averaged. Table 5.10 presents design wind speeds for a range of ARI scenarios taken from the EVA.

Table 5.10 Design Wind Speeds (Ten Minute Average)

ARI	Wind Speed (m/s)
50	47
100	49.5
500	53

Note: These wind speeds are ten minute averages.

6. Summary

MRA were engaged by DoT to undertake the Tantabiddi Creek Coastal Processes Study which included a number of tasks. This report focused on the analysis of cyclone events at the site. Based on the review of the modelled synthetic cyclone events and the corresponding conditions surrounding the TBF likely design conditions have been determined.

10,000 years of synthetic cyclone tracks were simulated through the use of a MCMC model and the resulting cyclones were filtered and ranked based on the likely severity of the cyclone at Tantabiddi. The top 275 cyclone events from the cyclone ranking were then modelled using Delft3D and design water levels, wave heights, current speeds and wind speeds were determined for the 50, 100 and 500 year ARI cyclone events. The selected design conditions for each of these ARI scenarios are presented in Tables 6.1 to 6.3.

Table 6.1 Design Conditions Summary Present Day

	50 Year ARI			100 Year ARI			500 YEAR ARI		
	Location 1	Location 2	Location 3	Location 1	Location 2	Location 3	Location 1	Location 2	Location 3
Nearshore Water Level (mAHD)	2.3	2.3	2.3	2.5	2.5	2.5	2.8	2.8	2.8
Shoreline Water Level (mAHD)	2.8			3.0			3.3		
Wave Heights (m)	1.4	1.2	1.2	1.5	1.2	1.2	1.6	1.3	1.2
Peak Period (s)	3.6	3.5	3.5	3.3	3.2	3.5	3.4	3.5	3.6
Current Speeds (m/s)	3.4 – 3.6	0.9 – 1.4	1.0 – 1.1	3.0 – 4.2	0.5 – 0.8	0.9 – 1.0	3.4 – 4.0	0.7 – 1.5	1.0 – 1.2
Wind Speeds (m/s)	47			49.5			53		

Table 6.2 Design Conditions Summary 2071

	50 Year ARI			100 Year ARI			500 YEAR ARI		
	Location 1	Location 2	Location 3	Location 1	Location 2	Location 3	Location 1	Location 2	Location 3
Nearshore Water Level (mAHD)	2.4	2.4	2.4	2.6	2.6	2.6	3.0	3.0	3.0
Shoreline Water Level (mAHD)	2.9			3.1			3.5		
Wave Heights (m)	1.5	0.8	1.1	1.6	0.9	1.1	1.65	1.1	1.3
Peak Period (s)	3.6	3.1	3.2	3.6	3.2	3.4	3.6	3.1	3.6
Current Speeds (m/s)	3.4 – 3.6	1.0 – 1.2	0.9 – 1.0	3.1 – 4.3	0.7 – 0.8	0.9 – 1.5	3.6 – 4.1	0.7 – 1.5	1.1 – 1.2
Wind Speeds (m/s)	47			49.5			53		

Table 6.3 Design Conditions Summary 2121

	50 Year ARI			100 Year ARI			500 YEAR ARI		
	Location 1	Location 2	Location 3	Location 1	Location 2	Location 3	Location 1	Location 2	Location 3
Nearshore Water Level (mAHD)	3.0	3.0	3.0	3.1	3.1	3.1	3.6	3.6	3.6
Shoreline Water Level (mAHD)	3.5			3.6			4.1		
Wave Heights (m)	1.7	1.1	1.3	1.8	1.1	1.2	1.85	1.2	1.4
Peak Period (s)	3.4	3.1	3.5	3.6	3.5	3.5	3.6	3.5	3.7
Current Speeds (m/s)	3.4 – 3.8	1.3 – 1.5	0.8 – 1.1	3.1 – 4.6	0.7 - 2.2	1.0 – 1.7	3.7 – 4.5	0.5 – 1.6	1.0 – 1.1
Wind Speeds (m/s)	47			49.5			53		

7. References

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8. Appendices

Appendix A **Wave Height Ranges**

Appendix B **Wave Height Distributions**

Appendix C **Design Cyclone Events Track Parameters**

Appendix A Wave Height Ranges

Table A1 Maximum Wave Height Ranges

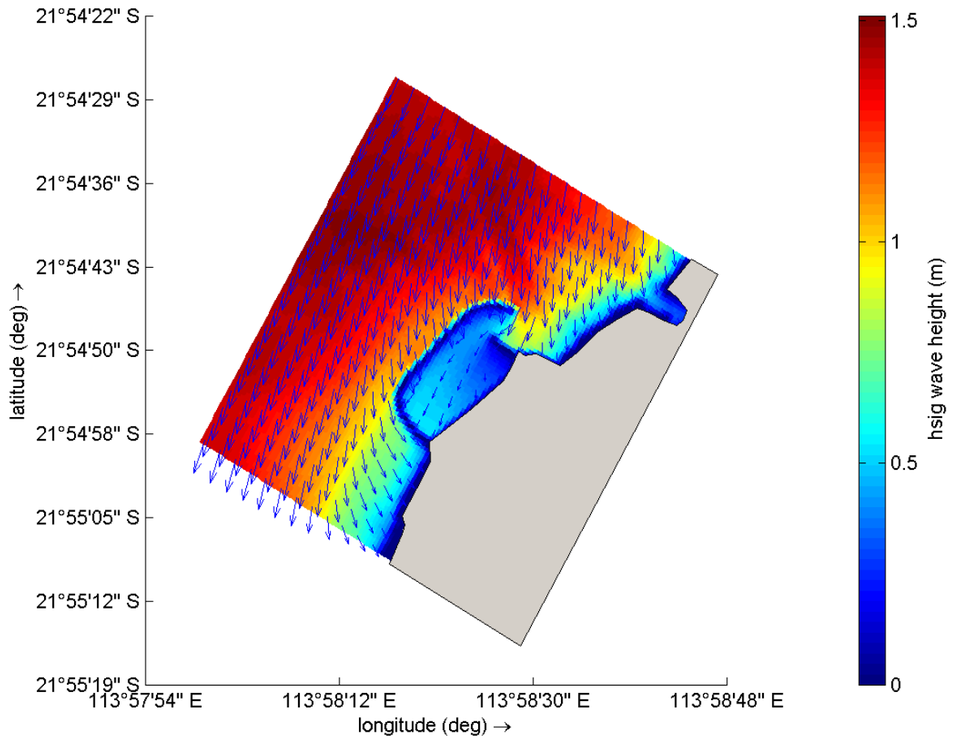
Period	ARI	Significant Wave Height (m)		
		Location 1	Location 2	Location 3
Present Day	50 Year	1.4 – 1.4	1.0 – 1.2	1.1 – 1.3
	100 Year	1.4 – 1.6	1.2 – 1.3	1.2 – 1.3
	500 Year	1.4 – 1.6	1.3 – 1.3	1.2 – 1.4
2071	50 Year	1.5 – 1.5	0.8 – 1.1	1.1 – 1.1
	100 Year	1.4 – 1.6	0.9 - 1.2	1.0 – 1.2
	500 Year	1.5 – 1.65	1.0 – 1.1	0.9 – 1.3
2121	50 Year	1.5 – 1.7	0.9 – 1.2	1.2 – 1.4
	100 Year	1.6 – 1.8	1.0 – 1.2	1.1 – 1.3
	500 Year	1.7 – 1.8	1.2 – 1.2	1.1 – 1.4

Appendix B Wave Height Distributions

The wave height spatial distributions are presented for the time that resulted in the maximum wave height at extraction location 1 for each run.

Present Day

2



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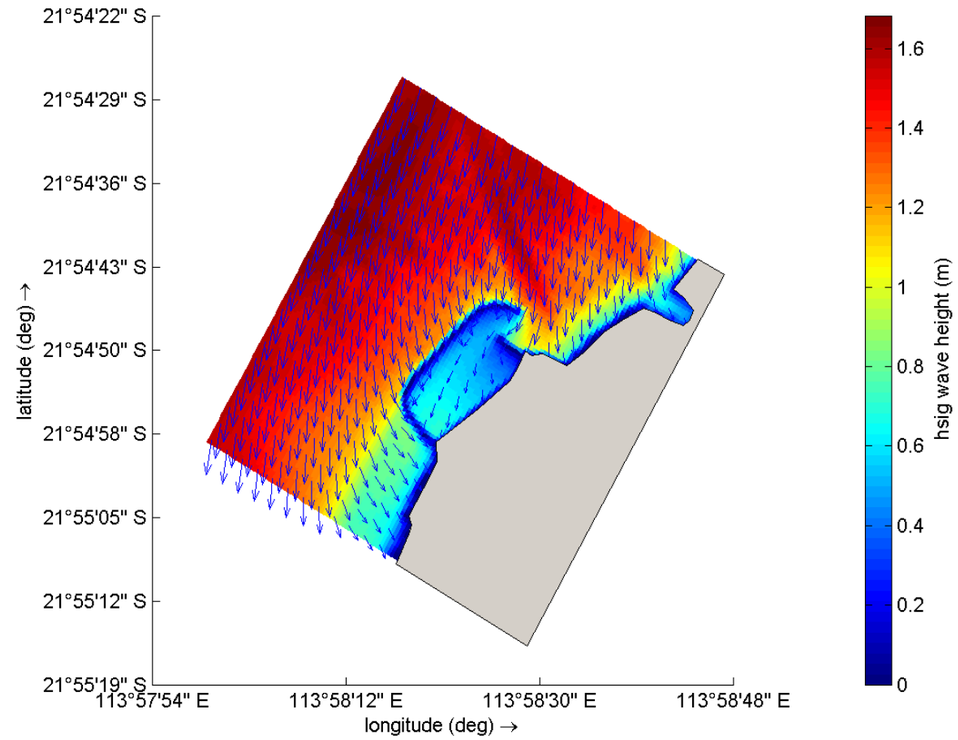

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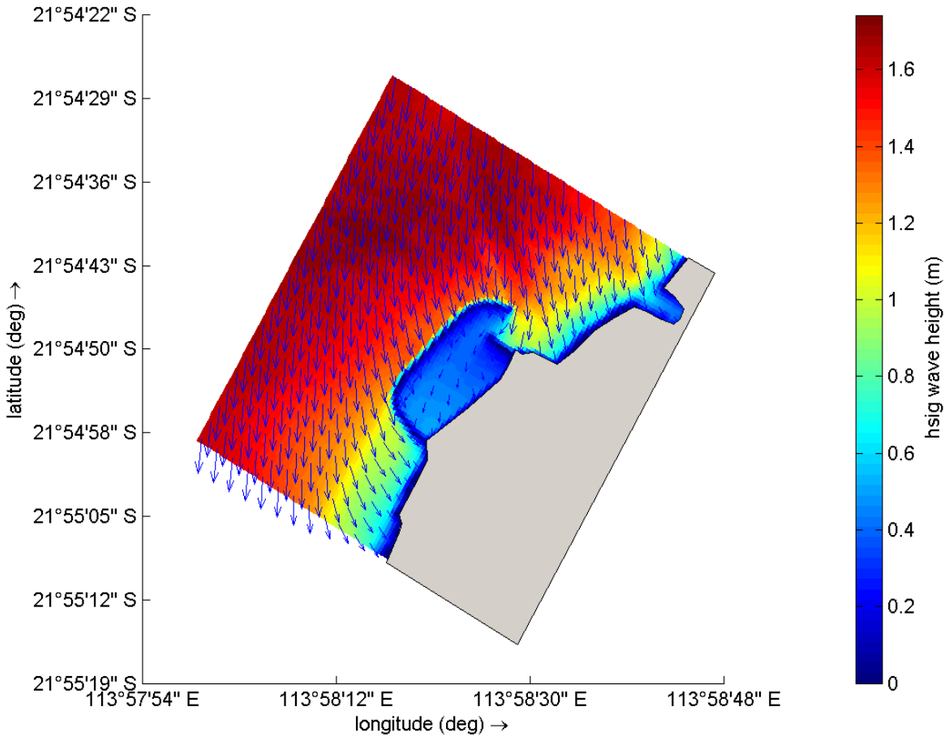
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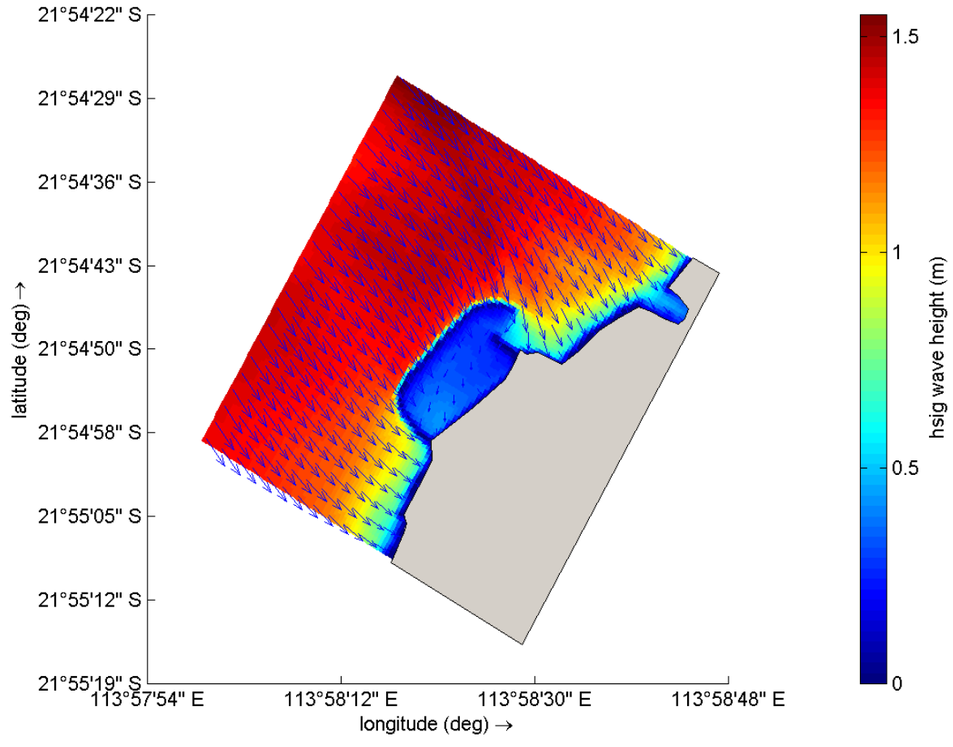
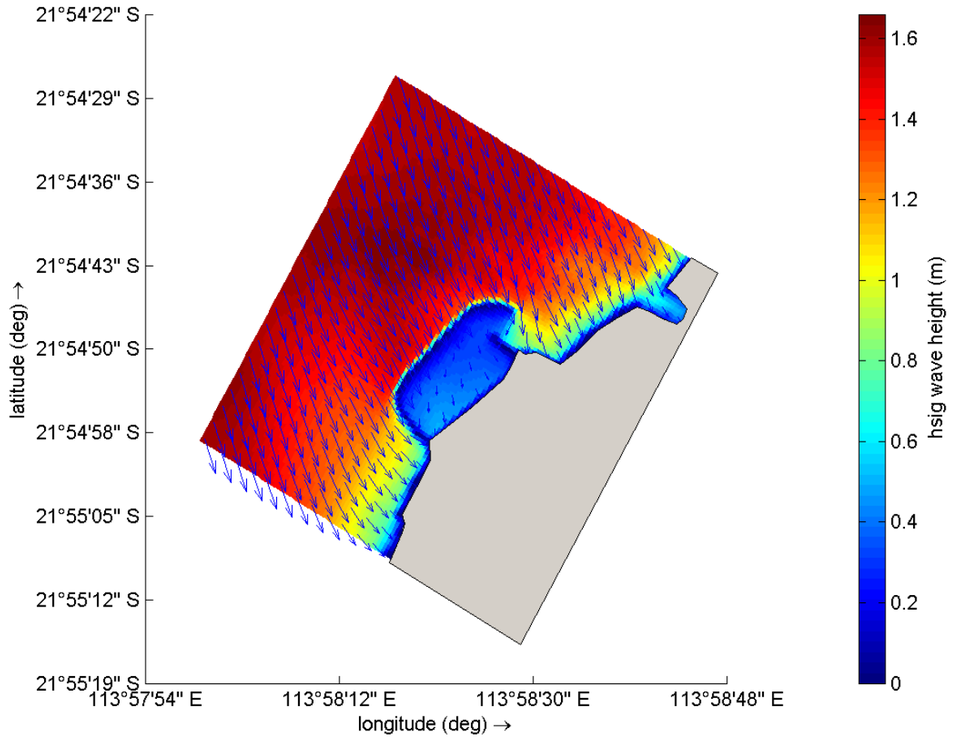
21°54'29" S
21°54'36" S
21°54'43" S
21°54'50" S
21°54'58" S
21°55'05" S
21°55'12" S
21°55'19" S
latitude (deg) →
113°57'54" E
113°58'12" E
113°58'30" E
113°58'48" E
longitude (deg) →
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
hsig wave height (m)

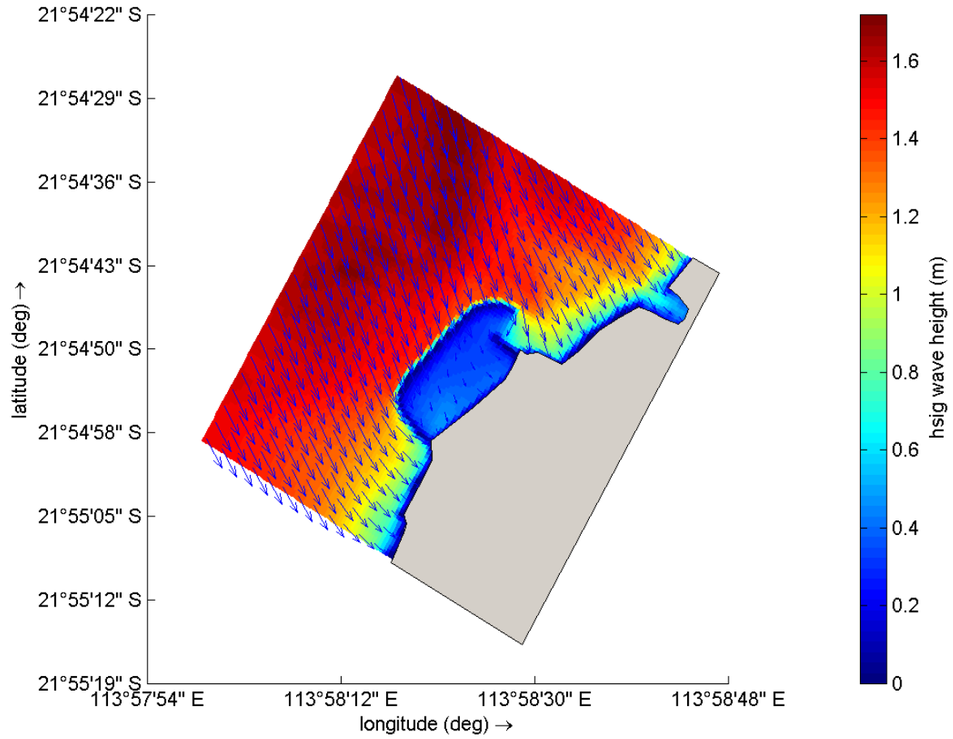
68


21°54'22" S
21°54'29" S
21°54'36" S
21°54'43" S
21°54'50" S
21°54'58" S
21°55'05" S
21°55'12" S
21°55'19" S
latitude (deg) →
113°57'54" E
113°58'12" E
113°58'30" E
113°58'48" E
longitude (deg) →
1.5
1
0.5
0
hsig wave height (m)

137


21°54'22" S
21°54'29" S
21°54'36" S
21°54'43" S
21°54'50" S
21°54'58" S
21°55'05" S
21°55'12" S
21°55'19" S
latitude (deg) →
113°57'54" E
113°58'12" E
113°58'30" E
113°58'48" E
longitude (deg) →
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
hsig wave height (m)

1198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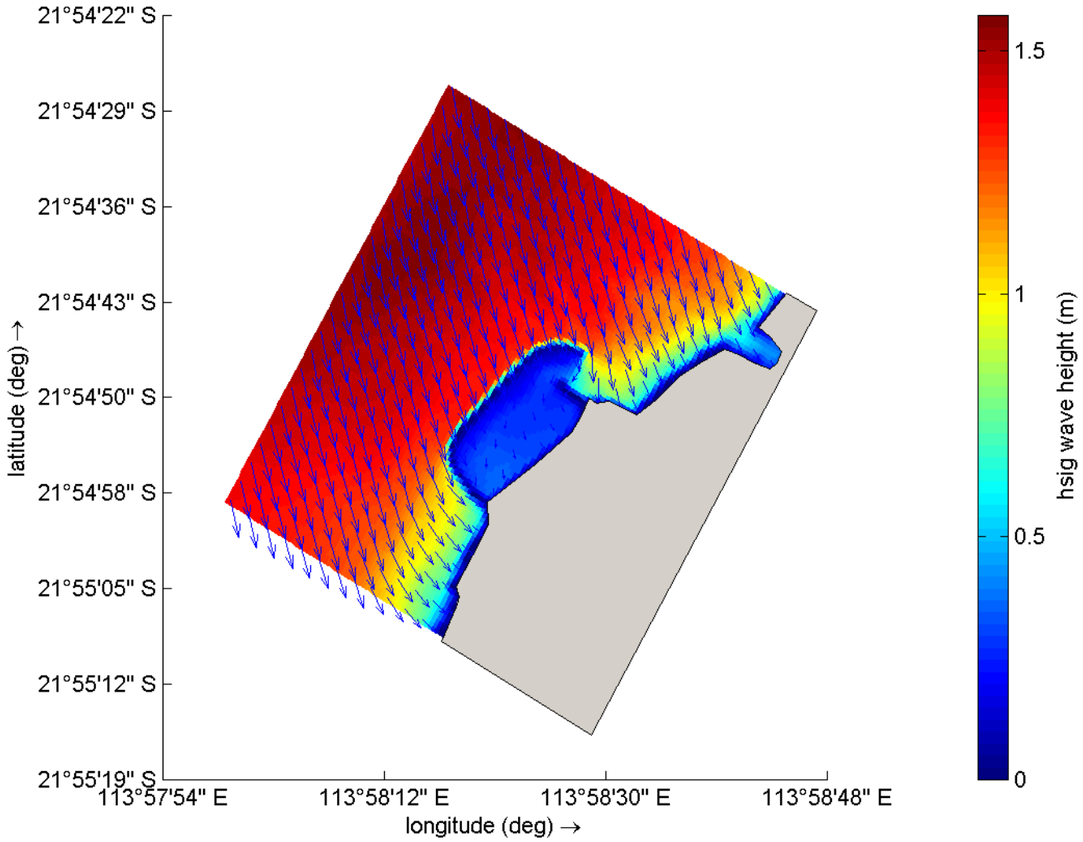
21°54'36" S
21°54'43" S
21°54'50" S
21°54'58" S
21°55'05" S
21°55'12" S
21°55'19" S
latitude (deg) →
113°57'54" E
113°58'12" E
113°58'30" E
113°58'48" E
longitude (deg) →
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
hsig wave height (m)

2373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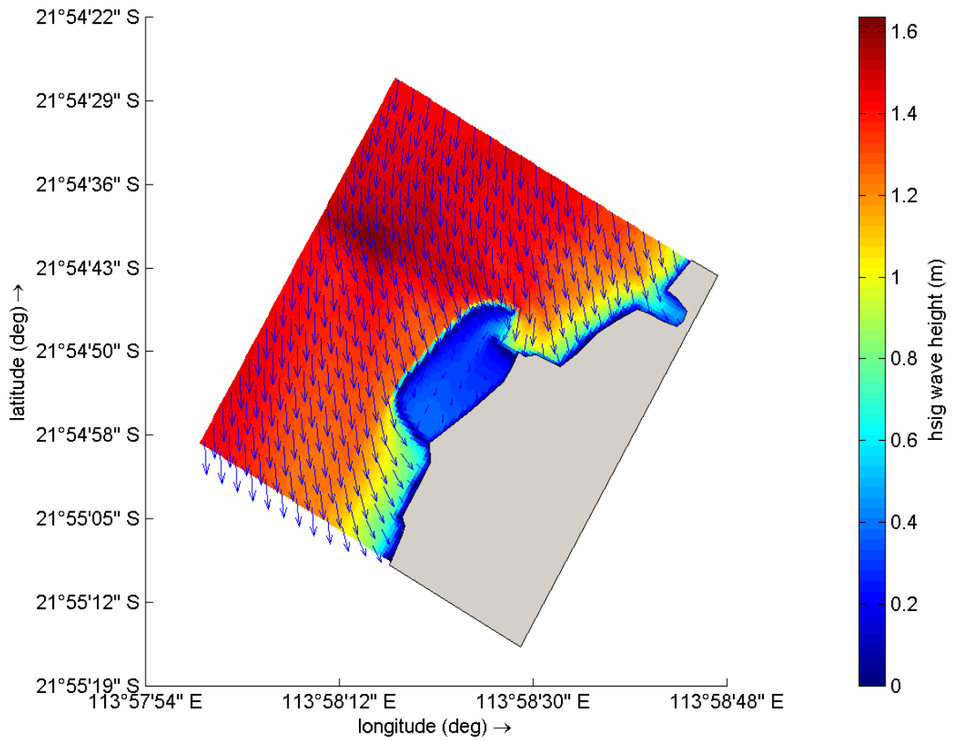
21°54'29" S
21°54'36" S
21°54'43" S
21°54'50" S
21°54'58" S
21°55'05" S
21°55'12" S
21°55'19" S
latitude (deg) →
113°57'54" E
113°58'12" E
113°58'30" E
113°58'48" E
longitude (deg) →
1.5
1
0.5
0
hsig wave height (m)

2071

2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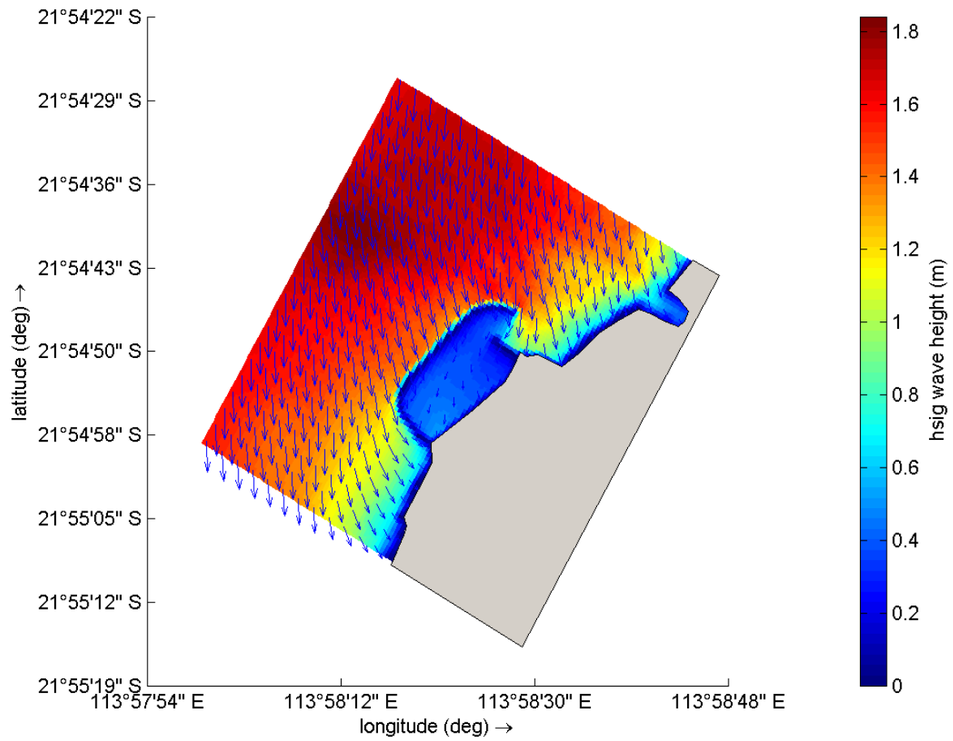
21°54'29" S
21°54'36" S
21°54'43" S
21°54'50" S
21°54'58" S
21°55'05" S
21°55'12" S
21°55'19" S
latitude (deg) →
113°57'54" E
113°58'12" E
113°58'30" E
113°58'48" E
longitude (deg) →
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
hsig wave height (m)

14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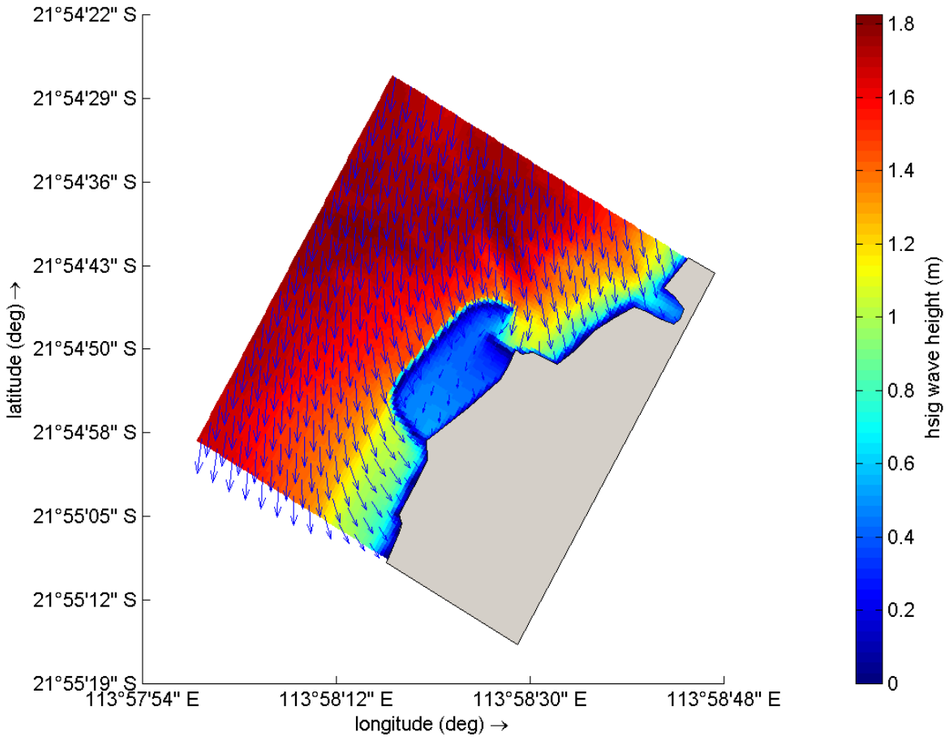
21°54'29" S
21°54'36" S
21°54'43" S
21°54'50" S
21°54'58" S
21°55'05" S
21°55'12" S
21°55'19" S
latitude (deg) →
113°57'54" E
113°58'12" E
113°58'30" E
113°58'48" E
longitude (deg) →
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
hsig wave height (m)

58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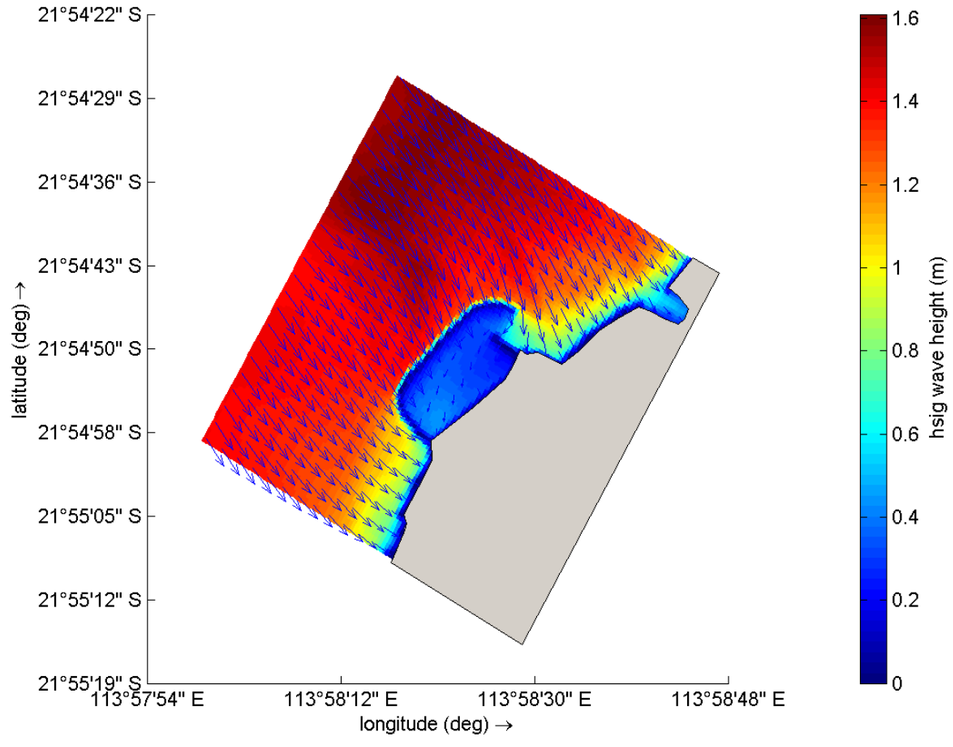
21°54'29" S
21°54'36" S
21°54'43" S
21°54'50" S
21°54'58" S
21°55'05" S
21°55'12" S
21°55'19" S
latitude (deg) →
113°57'54" E
113°58'12" E
113°58'30" E
113°58'48" E
longitude (deg) →
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
hsig wave height (m)

68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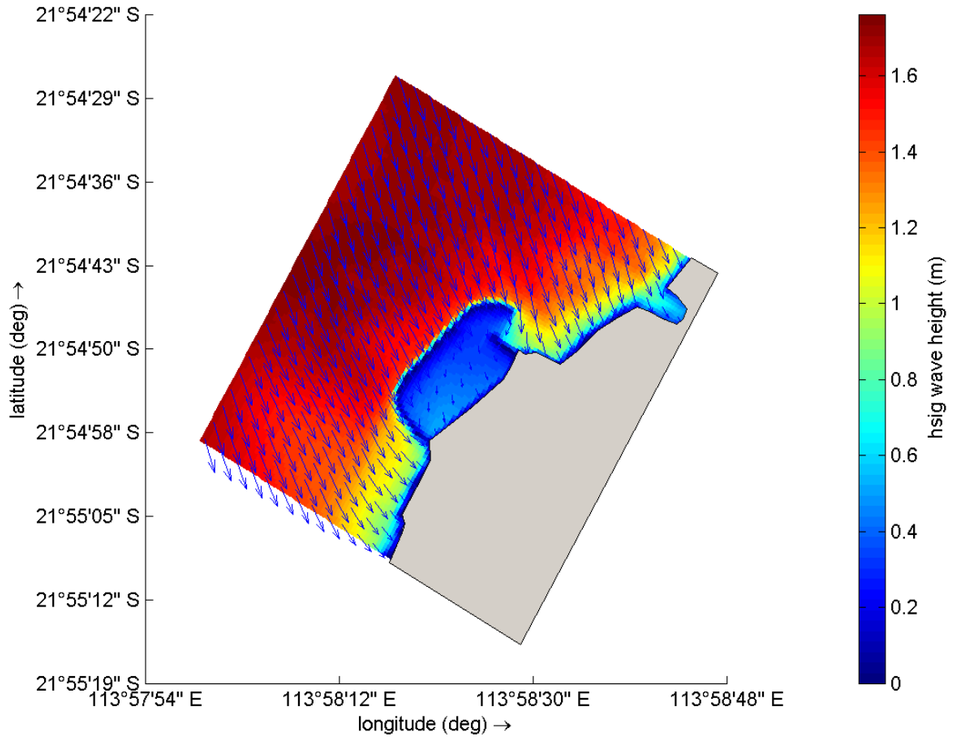
21°54'29" S
21°54'36" S
21°54'43" S
21°54'50" S
21°54'58" S
21°55'05" S
21°55'12" S
21°55'19" S
latitude (deg) →
113°57'54" E
113°58'12" E
113°58'30" E
113°58'48" E
longitude (deg) →
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
hsig wave height (m)

137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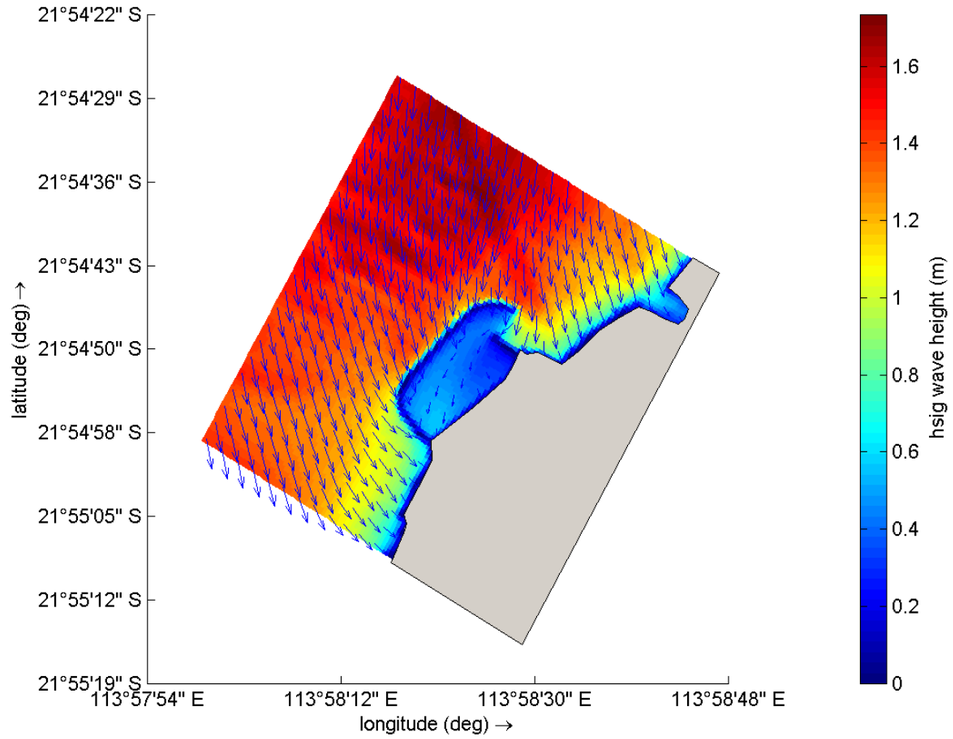
21°54'29" S
21°54'36" S
21°54'43" S
21°54'50" S
21°54'58" S
21°55'05" S
21°55'12" S
21°55'19" S
latitude (deg) →
113°57'54" E
113°58'12" E
113°58'30" E
113°58'48" E
longitude (deg) →
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
hsig wave height (m)

147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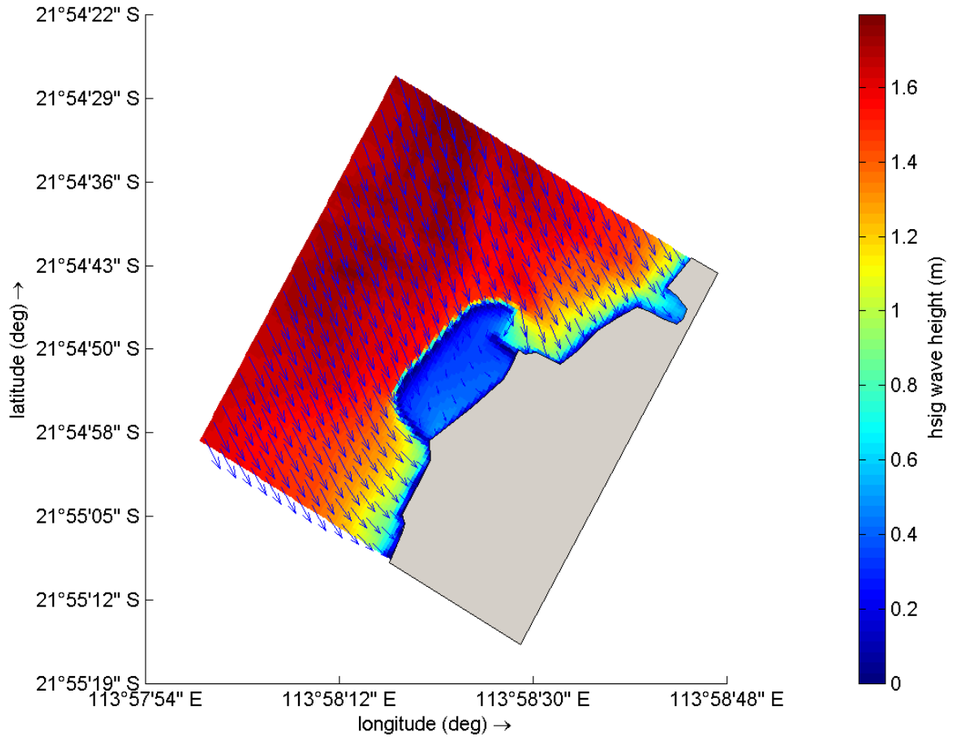
21°54'29" S
21°54'36" S
21°54'43" S
21°54'50" S
21°54'58" S
21°55'05" S
21°55'12" S
21°55'19" S
latitude (deg) →
113°57'54" E
113°58'12" E
113°58'30" E
113°58'48" E
longitude (deg) →
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
hsig wave height (m)

1198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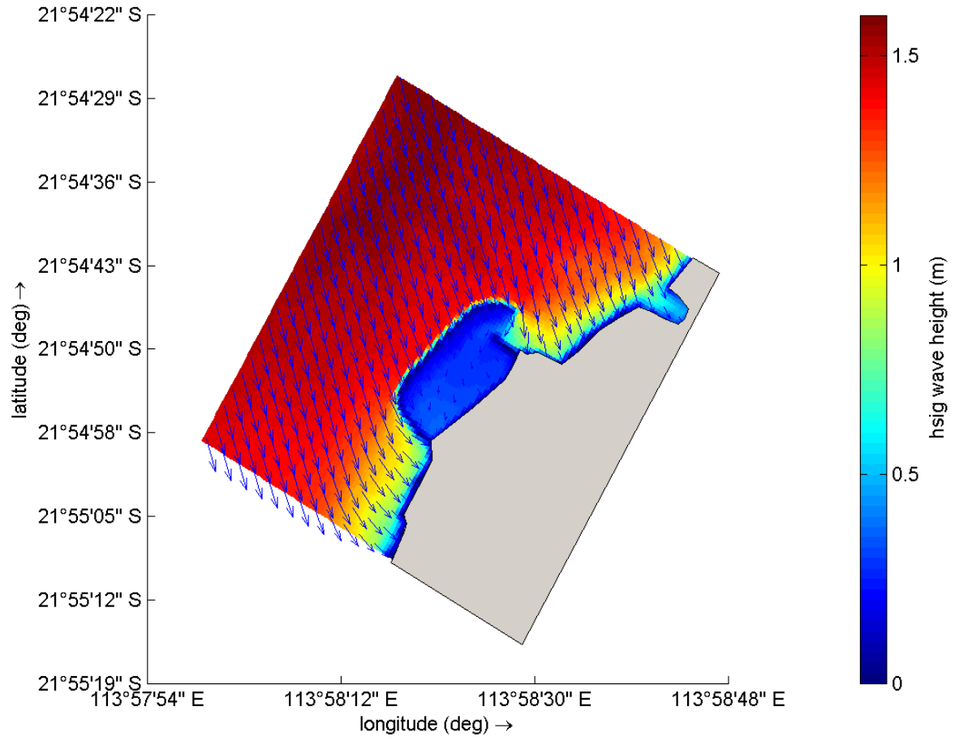
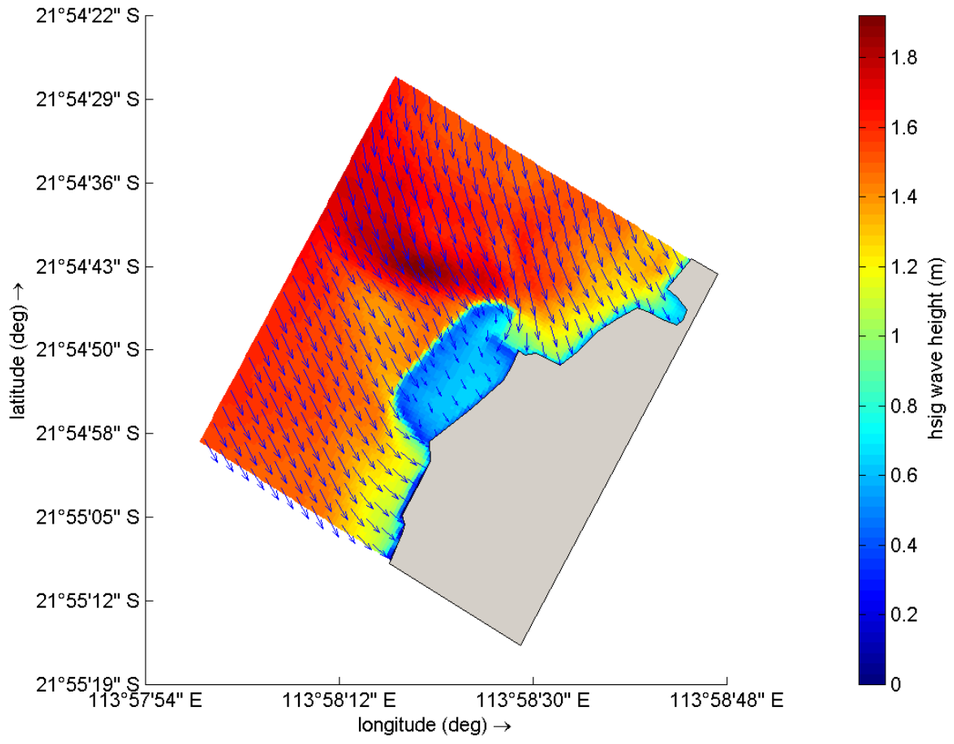
21°54'29" S
21°54'36" S
21°54'43" S
21°54'50" S
21°54'58" S
21°55'05" S
21°55'12" S
21°55'19" S
latitude (deg) →
113°57'54" E
113°58'12" E
113°58'30" E
113°58'48" E
longitude (deg) →
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
hsig wave height (m)

2373


21°54'22" S
21°54'29" S
21°54'36" S
21°54'43" S
21°54'50" S
21°54'58" S
21°55'05" S
21°55'12" S
21°55'19" S
latitude (deg) →
113°57'54" E
113°58'12" E
113°58'30" E
113°58'48" E
longitude (deg) →
1.5
1
0.5
0
hsig wave height (m)

2121

2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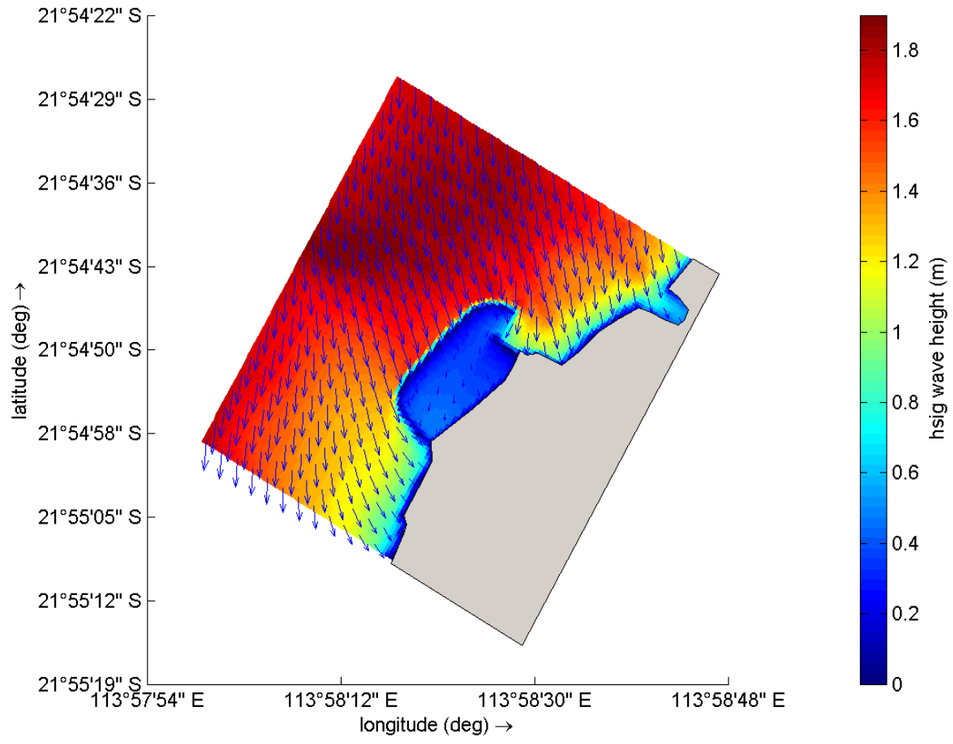
21°54'29" S
21°54'36" S
21°54'43" S
21°54'50" S
21°54'58" S
21°55'05" S
21°55'12" S
21°55'19" S
latitude (deg) →
113°57'54" E
113°58'12" E
113°58'30" E
113°58'48" E
longitude (deg) →
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
hsig wave height (m)

14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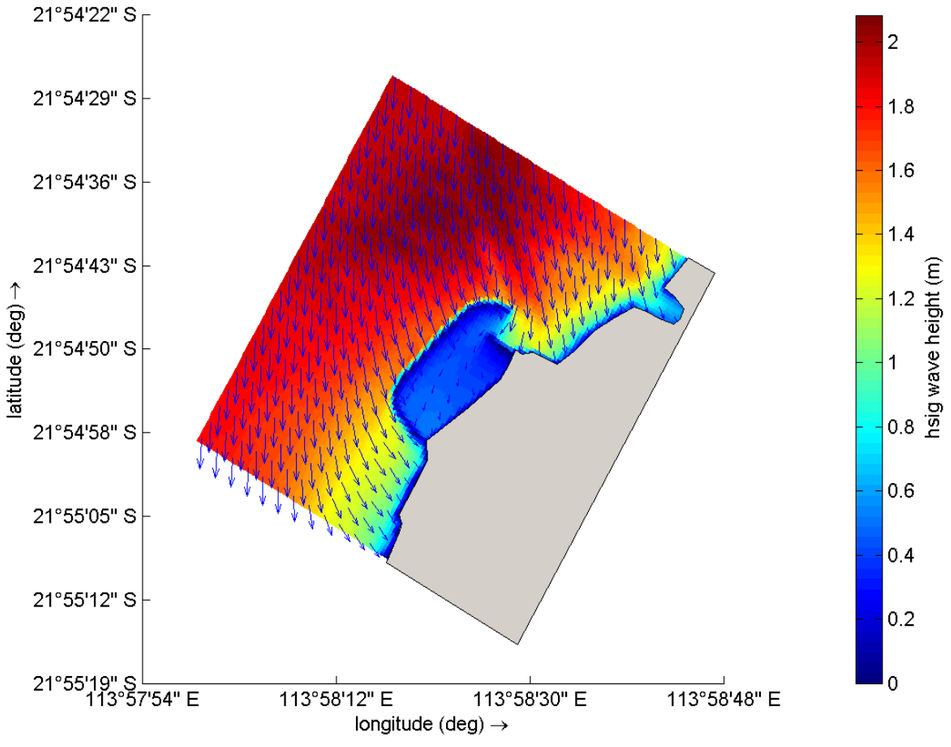
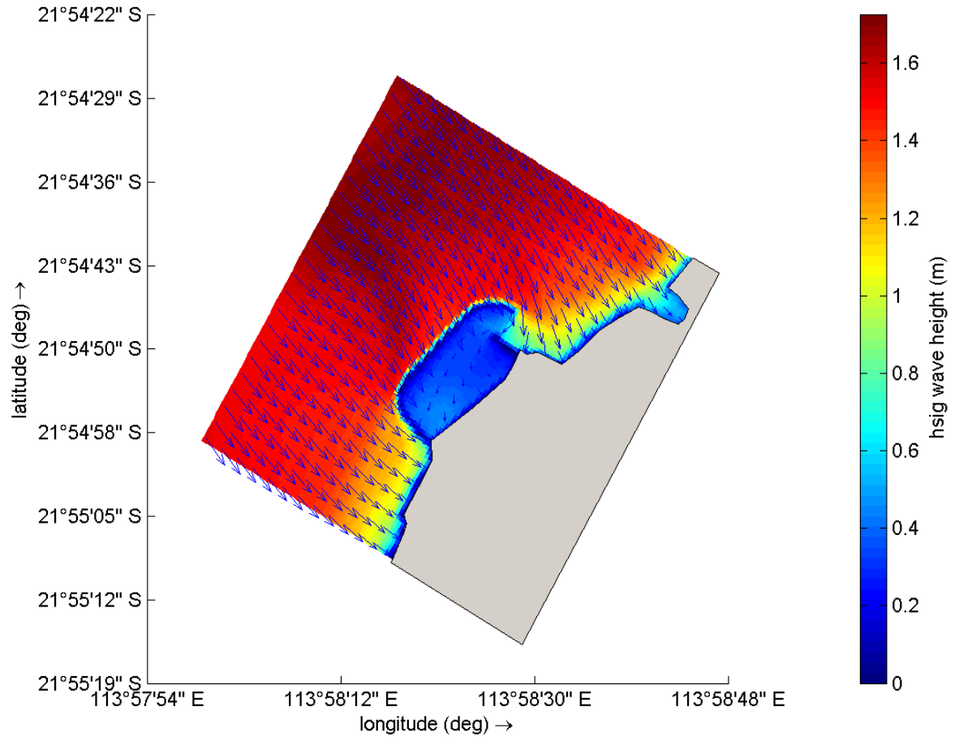
21°54'29" S
21°54'36" S
21°54'43" S
21°54'50" S
21°54'58" S
21°55'05" S
21°55'12" S
21°55'19" S
latitude (deg) →
113°57'54" E
113°58'12" E
113°58'30" E
113°58'48" E
longitude (deg) →
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
hsig wave height (m)

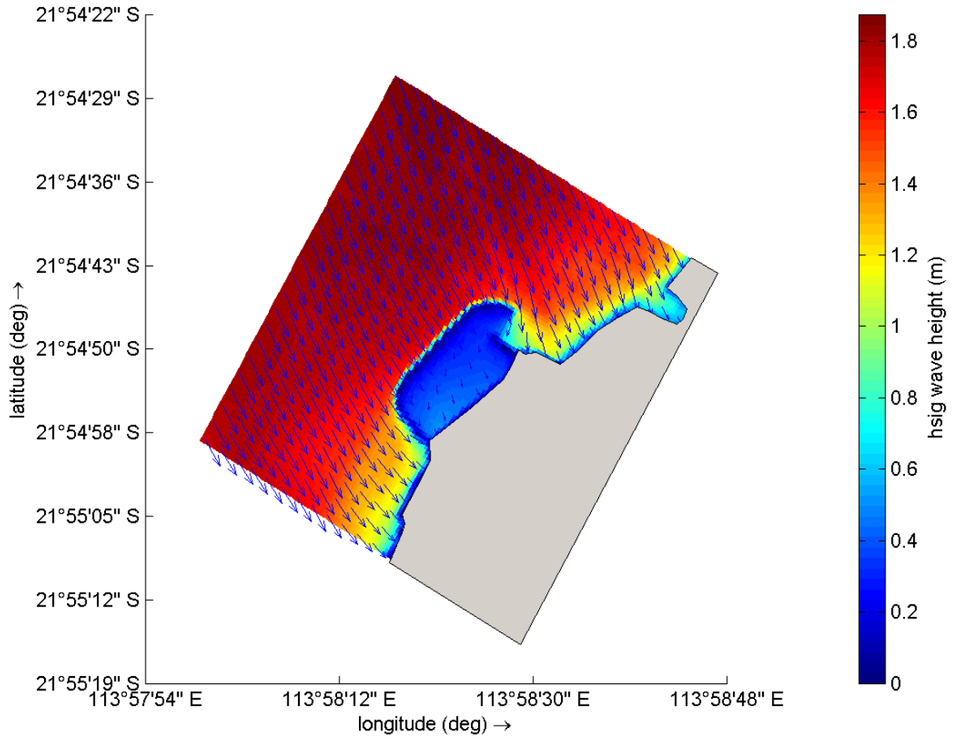
58


21°54'22" S
21°54'29" S
21°54'36" S
21°54'43" S
21°54'50" S
21°54'58" S
21°55'05" S
21°55'12" S
21°55'19" S
latitude (deg) →
113°57'54" E
113°58'12" E
113°58'30" E
113°58'48" E
longitude (deg) →
2
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
hsig wave height (m)

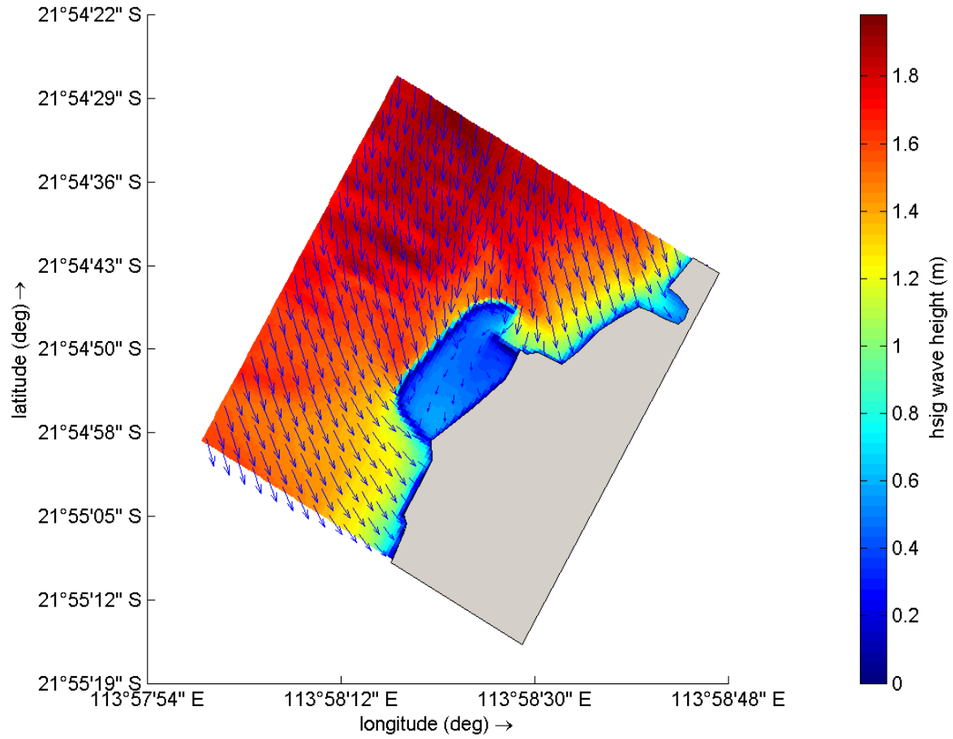
68


21°54'22" S
21°54'29" S
21°54'36" S
21°54'43" S
21°54'50" S
21°54'58" S
21°55'05" S
21°55'12" S
21°55'19" S
latitude (deg) →
113°57'54" E
113°58'12" E
113°58'30" E
113°58'48" E
longitude (deg) →
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
hsig wave height (m)

137


21°54'22" S
21°54'29" S
21°54'36" S
21°54'43" S
21°54'50" S
21°54'58" S
21°55'05" S
21°55'12" S
21°55'19" S
latitude (deg) →
113°57'54" E
113°58'12" E
113°58'30" E
113°58'48" E
longitude (deg) →
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
hsig wave height (m)

147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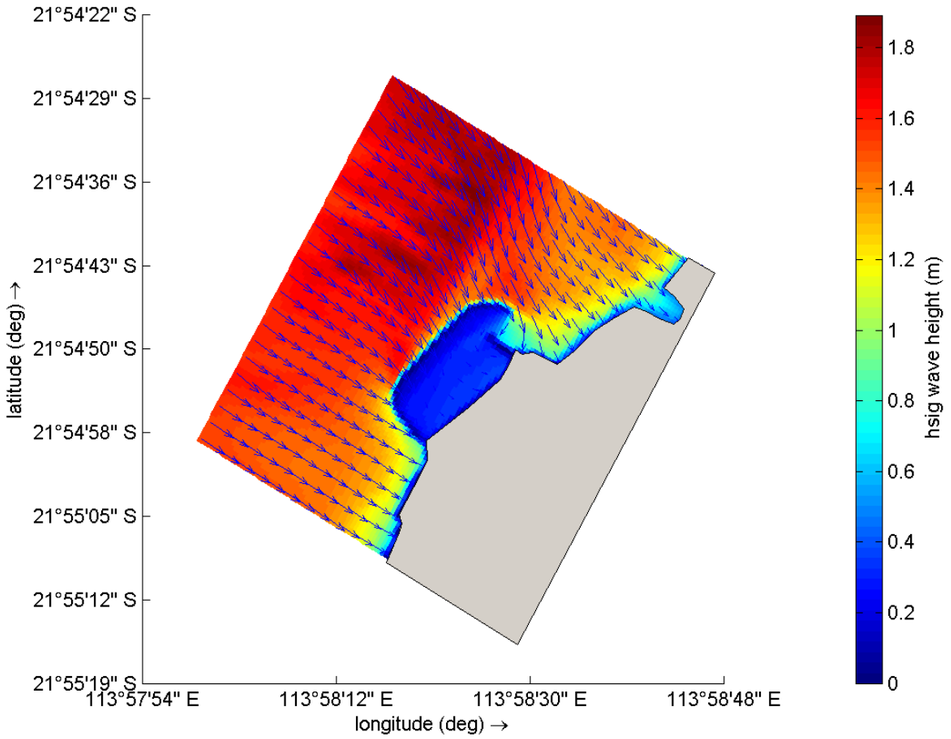
21°54'29" S
21°54'36" S
21°54'43" S
21°54'50" S
21°54'58" S
21°55'05" S
21°55'12" S
21°55'19" S
latitude (deg) →
113°57'54" E
113°58'12" E
113°58'30" E
113°58'48" E
longitude (deg) →
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
hsig wave height (m)

148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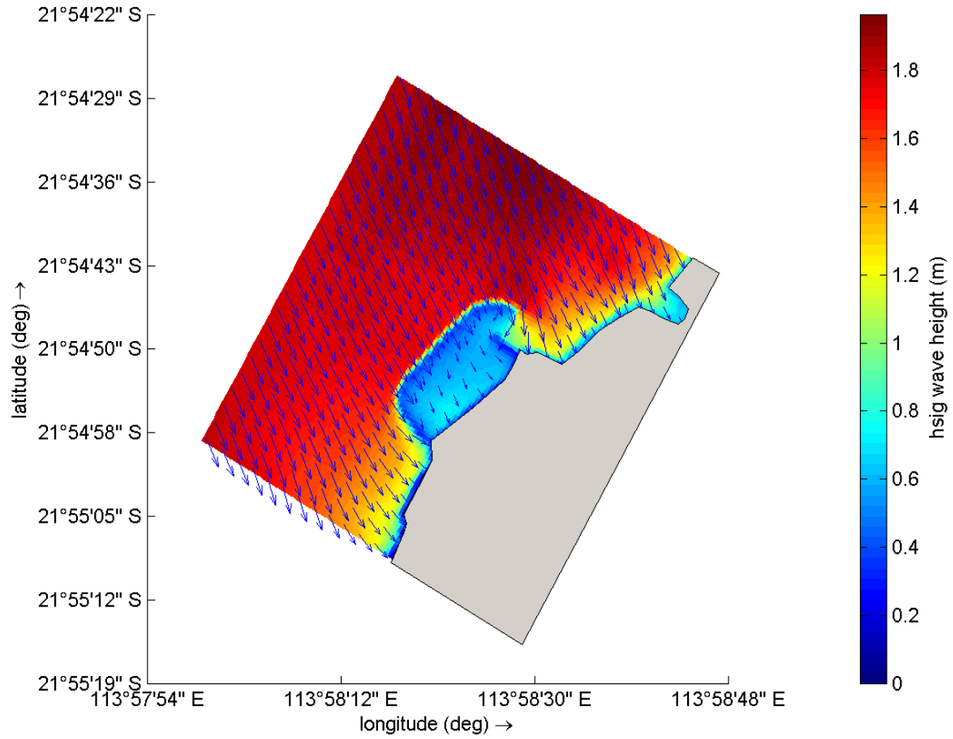
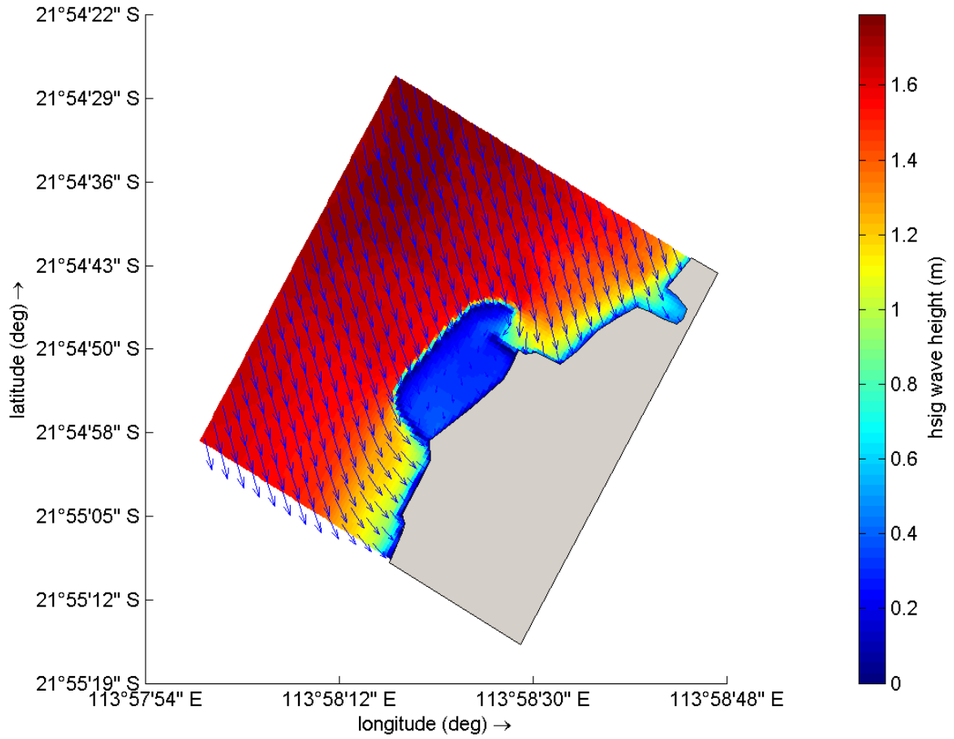
21°54'29" S
21°54'36" S
21°54'43" S
21°54'50" S
21°54'58" S
21°55'05" S
21°55'12" S
21°55'19" S
latitude (deg) →
113°57'54" E
113°58'12" E
113°58'30" E
113°58'48" E
longitude (deg) →
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
hsig wave height (m)

1198


21°54'22" S
21°54'29" S
21°54'36" S
21°54'43" S
21°54'50" S
21°54'58" S
21°55'05" S
21°55'12" S
21°55'19" S
latitude (deg) →
113°57'54" E
113°58'12" E
113°58'30" E
113°58'48" E
longitude (deg) →
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
hsig wave height (m)

2373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21°54'29" S
21°54'36" S
21°54'43" S
21°54'50" S
21°54'58" S
21°55'05" S
21°55'12" S
21°55'19" S
latitude (deg) →
113°57'54" E
113°58'12" E
113°58'30" E
113°58'48" E
longitude (deg) →
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
hsig wave height (m)

Appendix C Design Cyclone Events Track Parameters

Table C1 Cyclone Number 2 Parameters

Date	Time (hours)	Latitude	Longitude	V Max (knts)	R Max (NM)	Pressure Drop (Pa)
2/2/1732	4	-18.4096	119.4365	71.9197	17.066	1.09E+04
2/2/1732	7	-18.592	118.9852	69.2005	18.3716	1.04E+04
2/2/1732	10	-18.6456	118.7202	68.2497	18.867	1.02E+04
2/2/1732	13	-18.6366	118.6689	68.6887	18.6356	1.03E+04
2/2/1732	16	-18.6669	118.5918	68.8188	18.568	1.03E+04
2/2/1732	19	-18.6536	118.3232	68.3115	18.8342	1.02E+04
2/2/1732	22	-18.6881	118.2574	65.3293	20.5317	9.60E+03
3/2/1732	1	-18.6953	118.2199	64.4729	21.0648	9.43E+03
3/2/1732	4	-18.6971	118.1478	65.8734	20.2041	9.71E+03
3/2/1732	7	-18.7352	118.0696	65.8996	20.1885	9.71E+03
3/2/1732	10	-18.7669	117.9831	64.858	20.8224	9.51E+03
3/2/1732	13	-19.0723	117.4468	63.9635	21.3924	9.33E+03
3/2/1732	16	-19.5182	116.9671	65.9554	20.1554	9.73E+03
3/2/1732	19	-19.6889	116.4112	65.8862	20.1965	9.71E+03
3/2/1732	22	-19.814	115.8415	64.0419	21.3415	9.34E+03
4/2/1732	1	-20.0468	115.2507	66.1929	20.0156	9.77E+03
4/2/1732	4	-20.2043	114.7451	64.2713	21.1935	9.39E+03
4/2/1732	7	-20.2977	114.3898	66.7205	19.7105	9.88E+03
4/2/1732	10	-20.6266	114.0752	66.8123	19.6581	9.90E+03
4/2/1732	13	-20.998	113.8386	65.1932	20.615	9.57E+03

4/2/1732	16	-21.2735	113.7314	64.0824	21.3152	9.35E+03
4/2/1732	19	-21.5514	113.7987	62.6655	22.2647	9.07E+03
4/2/1732	22	-21.8346	113.8361	61.2986	23.2452	8.80E+03
5/2/1732	1	-21.9563	113.7785	59.6793	24.4969	8.48E+03
5/2/1732	4	-21.9563	113.7785	57.2898	26.5437	8.01E+03
5/2/1732	7	-21.9563	113.7785	56.391	27.382	7.83E+03
5/2/1732	10	-21.9563	113.7785	53.6397	30.2134	7.30E+03
5/2/1732	13	-21.9563	113.7785	53.6699	30.18	7.31E+03
5/2/1732	16	-21.9563	113.7785	52.831	31.1296	7.14E+03
5/2/1732	19	-21.9563	113.7785	50.6071	33.8724	6.72E+03
5/2/1732	22	-21.9563	113.7785	50.3189	34.2538	6.66E+03
6/2/1732	1	-22.0554	113.8366	50.7607	33.6718	6.75E+03
6/2/1732	4	-22.0859	113.8704	49.5435	35.3115	6.51E+03
6/2/1732	7	-22.1118	113.9034	47.76	37.9318	6.17E+03
6/2/1732	10	-22.1186	113.9374	45.2203	42.1717	5.70E+03
6/2/1732	13	-22.1186	113.9374	44.9814	42.6046	5.65E+03
6/2/1732	16	-22.1186	113.9374	42.356	47.8021	5.16E+03
6/2/1732	19	-22.1066	114.115	41.3909	49.934	4.99E+03
6/2/1732	22	-22.1498	114.2423	34.5811	60	3.77E+03
7/2/1732	1	-22.467	114.5408	33.6046	60	3.61E+03
7/2/1732	4	-22.5634	114.7642	30.6657	60	3.11E+03
7/2/1732	7	-22.6859	115.0674	28.2001	60	2.71E+03
7/2/1732	10	-23.1747	115.4829	25.4801	60	2.28E+03
7/2/1732	13	-23.3604	115.6391	23.9233	60	2.05E+03

7/2/1732	16	-23.502	115.8158	20.2852	60	1.54E+03
7/2/1732	19	-23.502	115.8158	15.4024	60	9.31E+02
7/2/1732	22	-23.502	115.8158	13.5755	60	7.36E+02
8/2/1732	1	-23.7107	115.8361	10.9443	60	4.89E+02

Table C2 Cyclone Number 14 Parameters

Date	Time (hours)	Latitude	Longitude	V Max (knts)	R Max (NM)	Pressure Drop (Pa)
6/12/4091	4:00	-16.6798	117.4157	41.4308	49.8433	4.99E+03
6/12/4091	7:00	-16.7914	117.2889	39.8052	53.7289	4.70E+03
6/12/4091	10:00	-16.8752	117.1536	38.1545	58.1045	4.40E+03
6/12/4091	13:00	-16.9739	117.0124	35.6623	60	3.96E+03
6/12/4091	16:00	-17.0634	116.9599	39.3733	54.8299	4.62E+03
6/12/4091	19:00	-17.1098	116.8968	40.2803	52.5519	4.78E+03
6/12/4091	22:00	-17.1187	116.8687	43.7726	44.8943	5.43E+03
7/12/4091	1:00	-17.1437	116.771	44.4877	43.5195	5.56E+03
7/12/4091	4:00	-17.185	116.7048	46.8269	39.4158	6.00E+03
7/12/4091	7:00	-17.217	116.6355	47.4256	38.4544	6.11E+03
7/12/4091	10:00	-17.225	116.6168	46.0604	40.6976	5.85E+03
8/12/4091	7:00	-17.223	116.6079	44.3972	43.6903	5.54E+03
8/12/4091	13:00	-17.1557	116.6052	46.4069	40.111	5.92E+03
8/12/4091	16:00	-17.086	116.7693	47.0847	38.9976	6.05E+03
8/12/4091	19:00	-17.1048	116.9319	48.1294	37.3665	6.24E+03

8/12/4091	22:00	-17.0937	117.0951	48.2122	37.2414	6.26E+03
9/12/4091	1:00	-17.1456	117.434	49.7016	35.092	6.54E+03
9/12/4091	4:00	-17.1522	117.5496	47.3935	38.505	6.10E+03
9/12/4091	7:00	-17.1437	117.6074	49.976	34.7157	6.59E+03
9/12/4091	10:00	-17.1086	117.788	51.5013	32.7282	6.89E+03
9/12/4091	22:00	-17.1086	117.788	51.7471	32.4237	6.93E+03
10/12/4091	1:00	-17.0183	117.7631	53.097	30.8237	7.19E+03
10/12/4091	13:00	-17.0183	117.7631	54.3621	29.4287	7.44E+03
10/12/4091	16:00	-17.0163	117.7973	54.8946	28.8697	7.54E+03
10/12/4091	19:00	-17.0622	117.9015	57.0018	26.8079	7.95E+03
10/12/4091	22:00	-17.128	117.9386	57.6233	26.2425	8.08E+03
11/12/4091	1:00	-17.1865	118.1983	58.0788	25.8396	8.17E+03
11/12/4091	4:00	-17.2836	118.4458	59.86	24.3521	8.52E+03
11/12/4091	7:00	-17.2792	118.6333	60.2477	24.0458	8.59E+03
11/12/4091	10:00	-17.2632	118.9272	62.5845	22.3209	9.05E+03
11/12/4091	13:00	-17.4057	118.4616	61.9711	22.7545	8.93E+03
11/12/4091	16:00	-17.4985	118.2037	63.2918	21.8369	9.20E+03
11/12/4091	19:00	-17.6583	118.0142	63.6205	21.6176	9.26E+03
11/12/4091	22:00	-17.9315	118.0016	63.1203	21.9527	9.16E+03
12/12/4091	1:00	-18.2175	117.806	62.303	22.5182	9.00E+03
12/12/4091	4:00	-18.7328	117.5674	60.4414	23.895	8.63E+03
12/12/4091	7:00	-19.3761	117.3725	63.4588	21.725	9.23E+03
12/12/4091	10:00	-19.8104	117.2557	65.7127	20.3	9.68E+03
12/12/4091	13:00	-20.1297	117.0703	66.0475	20.101	9.74E+03

12/12/4091	16:00	-20.4317	116.5794	63.8137	21.4903	9.30E+03
12/12/4091	19:00	-20.5895	115.8685	62.9303	22.0822	9.12E+03
12/12/4091	22:00	-20.7829	115.2587	60.8251	23.6007	8.71E+03
13/12/4091	1:00	-21.0711	114.6557	62.6283	22.2904	9.06E+03
13/12/4091	4:00	-21.4322	114.2491	61.3295	23.2223	8.81E+03
13/12/4091	7:00	-21.7123	113.8839	60.2781	24.0221	8.60E+03
13/12/4091	10:00	-21.81	113.5183	58.6789	25.3231	8.28E+03
13/12/4091	13:00	-21.9449	113.3935	57.7662	26.1151	8.10E+03
13/12/4091	16:00	-22.1765	113.3968	56.4405	27.3348	7.84E+03
13/12/4091	19:00	-22.5117	113.0916	56.5225	27.2568	7.86E+03
13/12/4091	22:00	-22.8821	112.7399	55.6174	28.1362	7.68E+03
14/12/4091	1:00	-23.4311	112.6512	52.0039	32.11	6.98E+03
14/12/4091	4:00	-24.0237	112.67	50.9221	33.4627	6.78E+03
14/12/4091	7:00	-24.2979	112.3043	50.0867	34.5656	6.62E+03
14/12/4091	10:00	-24.4881	111.9112	49.0218	36.0501	6.41E+03
14/12/4091	13:00	-24.8149	111.6784	48.1348	37.3585	6.24E+03
14/12/4091	16:00	-25.1575	111.4966	47.7288	37.9802	6.17E+03
14/12/4091	19:00	-25.3093	111.4668	46.9467	39.2206	6.02E+03
14/12/4091	22:00	-25.4823	111.5313	45.9194	40.9399	5.83E+03
15/12/4091	1:00	-25.632	111.6162	44.7213	43.0832	5.60E+03
15/12/4091	7:00	-25.6362	111.621	40.8985	51.0723	4.90E+03
15/12/4091	10:00	-25.6401	111.6262	39.7915	53.7633	4.70E+03
15/12/4091	16:00	-25.6401	111.6262	37.0788	60	4.21E+03
15/12/4091	19:00	-25.7115	111.7258	35.3682	60	3.91E+03

15/12/4091	22:00	-25.7632	111.8265	34.3162	60	3.73E+03
16/12/4091	1:00	-25.9486	111.8962	32.7506	60	3.46E+03
16/12/4091	4:00	-26.1429	111.9156	31.1874	60	3.20E+03
16/12/4091	7:00	-26.2947	111.7762	30.9596	60	3.16E+03
16/12/4091	10:00	-26.5402	111.6037	30.6973	60	3.11E+03
16/12/4091	13:00	-27.052	111.4254	30.3422	60	3.06E+03
16/12/4091	16:00	-27.5765	111.4186	30.0504	60	3.01E+03
16/12/4091	19:00	-28.0657	111.458	29.8981	60	2.98E+03
16/12/4091	22:00	-28.4529	111.5145	29.5521	60	2.93E+03
17/12/4091	1:00	-28.8169	111.4958	29.5121	60	2.92E+03
17/12/4091	4:00	-29.3045	111.5376	29.7594	60	2.96E+03
17/12/4091	7:00	-29.9023	111.7194	29.5142	60	2.92E+03

Table C3 Cyclone Number 58 Parameters

Date	Time (hours)	Latitude	Longitude	V Max (knts)	R Max (NM)	Pressure Drop (Pa)
10/1/7933	19:00	-17.2228	118.418	34.2612	60	3.72E+03
11/1/7933	10:00	-17.2228	118.418	41.6627	49.3207	5.04E+03
11/1/7933	13:00	-17.2587	118.3626	40.4438	52.155	4.81E+03
11/1/7933	16:00	-17.3015	118.29	41.4383	49.8264	5.00E+03
11/1/7933	22:00	-17.3015	118.29	43.4831	45.4681	5.37E+03
12/1/7933	1:00	-17.352	118.1822	43.729	44.9801	5.42E+03
12/1/7933	4:00	-17.4651	118.0759	44.7286	43.0696	5.60E+03

12/1/7933	10:00	-17.4651	118.0759	44.0996	44.2582	5.49E+03
12/1/7933	13:00	-17.5727	118.0779	43.5521	45.3304	5.39E+03
12/1/7933	16:00	-17.5727	118.0779	45.8764	41.0142	5.82E+03
12/1/7933	19:00	-17.6393	118.0551	47.2621	38.7136	6.08E+03
12/1/7933	22:00	-17.7654	117.9132	48.4247	36.9233	6.30E+03
13/1/7933	1:00	-17.9388	117.5146	47.7717	37.9138	6.18E+03
13/1/7933	4:00	-18.2433	117.2525	47.4374	38.4357	6.11E+03
13/1/7933	7:00	-18.4732	117.073	48.092	37.4233	6.24E+03
13/1/7933	10:00	-18.676	116.8621	47.9837	37.5881	6.22E+03
13/1/7933	13:00	-18.922	116.8833	51.3676	32.8956	6.86E+03
13/1/7933	16:00	-18.9458	116.8803	53.0408	30.8879	7.18E+03
14/1/7933	4:00	-18.9458	116.8803	57.761	26.1197	8.10E+03
14/1/7933	7:00	-18.9491	116.8694	58.1408	25.7855	8.18E+03
14/1/7933	13:00	-18.9491	116.8694	52.6383	31.3539	7.11E+03
14/1/7933	16:00	-19.0311	116.7378	55.3652	28.3889	7.63E+03
15/1/7933	1:00	-19.0311	116.7378	59.8696	24.3444	8.52E+03
15/1/7933	4:00	-19.1507	116.6757	59.7844	24.4125	8.50E+03
15/1/7933	13:00	-19.1507	116.6757	58.9337	25.1086	8.33E+03
15/1/7933	16:00	-19.3228	116.7434	60.8295	23.5973	8.71E+03
15/1/7933	19:00	-19.4699	116.8498	62.2576	22.5503	8.99E+03
15/1/7933	22:00	-19.7948	116.8747	64.6338	20.963	9.46E+03
16/1/7933	1:00	-20.0368	116.5317	63.6146	21.6215	9.26E+03
16/1/7933	4:00	-20.5511	116.1287	60.8859	23.5546	8.72E+03
16/1/7933	7:00	-21.068	115.5241	59.4904	24.6496	8.44E+03

16/1/7933	10:00	-21.4559	114.9829	57.2575	26.5731	8.00E+03
16/1/7933	13:00	-21.7494	114.5238	58.5415	25.44	8.26E+03
16/1/7933	16:00	-21.7865	114.1005	56.5061	27.2724	7.86E+03
16/1/7933	19:00	-21.861	113.7296	52.2428	31.8221	7.03E+03
16/1/7933	22:00	-22.111	113.4635	51.0389	33.3127	6.80E+03
17/1/7933	1:00	-22.2045	113.2419	49.1735	35.8331	6.44E+03
17/1/7933	4:00	-22.3261	113.1318	47.9649	37.6169	6.21E+03
17/1/7933	7:00	-22.3997	113.002	48.1915	37.2727	6.26E+03
17/1/7933	10:00	-22.6713	112.7878	45.8651	41.0337	5.82E+03
17/1/7933	13:00	-22.9309	112.698	44.0102	44.4309	5.47E+03
17/1/7933	16:00	-23.0919	112.703	43.0088	46.4306	5.28E+03
17/1/7933	19:00	-23.2077	112.7843	40.9912	50.8553	4.91E+03
17/1/7933	22:00	-23.2948	112.8366	37.6164	59.6333	4.31E+03
18/1/7933	1:00	-23.426	113.0522	36.5897	60	4.12E+03
18/1/7933	4:00	-23.5337	113.1131	35.2901	60	3.90E+03
18/1/7933	7:00	-23.6588	113.1404	34.9303	60	3.83E+03
18/1/7933	16:00	-23.6588	113.1404	32.9823	60	3.50E+03
18/1/7933	19:00	-23.7549	113.1996	31.4964	60	3.25E+03
19/1/7933	1:00	-23.7549	113.1996	30.7801	60	3.13E+03
19/1/7933	4:00	-23.9484	113.1573	28.6878	60	2.79E+03
19/1/7933	7:00	-23.9484	113.1573	27.7554	60	2.64E+03
19/1/7933	10:00	-23.9543	113.1573	27.6597	60	2.62E+03
19/1/7933	13:00	-24.0114	113.1658	28.0134	60	2.68E+03
19/1/7933	16:00	-24.0114	113.1658	26.3619	60	2.42E+03

19/1/7933	19:00	-24.0114	113.1658	27.1635	60	2.54E+03
19/1/7933	22:00	-24.0114	113.1658	25.2593	60	2.25E+03
20/1/7933	1:00	-24.0242	113.1693	24.6851	60	2.16E+03
20/1/7933	4:00	-24.0242	113.1693	22.0496	60	1.78E+03
20/1/7933	7:00	-24.1352	113.298	21.5973	60	1.72E+03
20/1/7933	10:00	-24.1352	113.298	21.5653	60	1.71E+03
20/1/7933	13:00	-24.1352	113.298	20.431	60	1.56E+03
20/1/7933	16:00	-24.1352	113.298	23.874	60	2.04E+03
20/1/7933	19:00	-24.1352	113.298	25.0276	60	2.21E+03
20/1/7933	22:00	-24.144	113.3355	24.2341	60	2.10E+03
21/1/7933	1:00	-24.144	113.3355	25.1049	60	2.23E+03
21/1/7933	4:00	-24.2006	113.6067	24.3513	60	2.11E+03
21/1/7933	7:00	-24.1973	113.8693	24.3088	60	2.11E+03
21/1/7933	10:00	-24.4096	114.2606	23.2919	60	1.96E+03
21/1/7933	13:00	-24.6941	114.4271	25.3632	60	2.27E+03
21/1/7933	16:00	-25.2557	114.6991	22.0333	60	1.78E+03
21/1/7933	19:00	-25.2753	114.7098	19.3257	60	1.41E+03
21/1/7933	22:00	-25.3904	114.7526	16.3203	60	1.04E+03
22/1/7933	1:00	-25.6768	115.0676	12.0096	60	5.84E+02
22/1/7933	4:00	-25.6768	115.0676	11.1325	60	5.05E+02

Table C4 Cyclone Number 68 Parameters

Date	Time (hours)	Latitude	Longitude	V Max (knts)	R Max (NM)	Pressure Drop (Pa)
9/5/5291	3:00	-17.8065	118.7572	68.127	18.9325	1.02E+04
9/5/5291	6:00	-17.8862	118.1685	68.3896	18.7928	1.02E+04
9/5/5291	9:00	-18.151	117.6716	67.945	19.0304	1.01E+04
9/5/5291	12:00	-18.2609	117.3098	65.5444	20.4012	9.64E+03
9/5/5291	15:00	-18.3914	116.9106	66.8506	19.6364	9.90E+03
9/5/5291	18:00	-18.4735	116.4008	69.8821	18.0294	1.05E+04
9/5/5291	21:00	-18.7659	116.1345	68.717	18.6209	1.03E+04
10/5/5291	0:00	-18.959	115.5772	68.4083	18.7829	1.02E+04
10/5/5291	3:00	-19.2878	115.1579	67.8172	19.0996	1.01E+04
10/5/5291	6:00	-19.6611	114.9479	67.7852	19.117	1.01E+04
10/5/5291	9:00	-19.7574	114.785	66.5807	19.7906	9.85E+03
10/5/5291	12:00	-19.8309	114.6924	66.8415	19.6415	9.90E+03
10/5/5291	15:00	-19.8798	114.5574	66.3798	19.9066	9.81E+03
10/5/5291	18:00	-19.8799	114.5563	68.0479	18.975	1.01E+04
10/5/5291	21:00	-19.9289	114.4973	67.3115	19.3774	1.00E+04
11/5/5291	0:00	-19.9292	114.497	65.614	20.3592	9.66E+03
11/5/5291	3:00	-19.9308	114.4816	66.1659	20.0314	9.77E+03
11/5/5291	6:00	-20.0103	114.2906	65.8492	20.2185	9.70E+03
11/5/5291	9:00	-20.0429	114.1819	65.046	20.7057	9.54E+03
11/5/5291	12:00	-20.0429	114.1819	61.7592	22.9074	8.89E+03
11/5/5291	15:00	-20.0896	114.1329	61.7339	22.9257	8.89E+03

11/5/5291	18:00	-20.5073	113.8917	60.0351	24.213	8.55E+03
11/5/5291	21:00	-20.8813	113.9051	59.6042	24.5575	8.47E+03
12/5/5291	0:00	-21.169	113.7401	59.3907	24.7309	8.42E+03
12/5/5291	3:00	-21.4797	113.8092	56.9865	26.8221	7.95E+03
12/5/5291	6:00	-21.8575	113.7844	56.0477	27.7129	7.77E+03
12/5/5291	9:00	-22.3599	113.8726	54.5939	29.1834	7.48E+03
12/5/5291	12:00	-22.9451	114.2849	53.4298	30.4472	7.26E+03
12/5/5291	15:00	-23.7752	114.8872	51.1159	33.2144	6.81E+03
12/5/5291	18:00	-23.9056	115.2222	48.0787	37.4435	6.23E+03
12/5/5291	21:00	-23.8664	115.8379	40.5792	51.8294	4.84E+03
13/5/5291	0:00	-23.7469	116.5347	37.7746	59.1786	4.33E+03
13/5/5291	3:00	-23.8303	117.1349	35.2608	60	3.89E+03
13/5/5291	6:00	-23.9556	117.7674	33.4789	60	3.58E+03
13/5/5291	9:00	-24.2802	118.3601	31.0271	60	3.17E+03
13/5/5291	12:00	-24.537	118.8898	29.5414	60	2.93E+03
13/5/5291	15:00	-24.8287	119.4766	26.1867	60	2.39E+03
13/5/5291	18:00	-25.1223	119.9743	23.8933	60	2.05E+03
13/5/5291	21:00	-25.3584	120.4867	23.2922	60	1.96E+03
14/5/5291	0:00	-25.5842	120.9315	21.8753	60	1.75E+03
14/5/5291	3:00	-25.7389	121.4231	21.2413	60	1.67E+03
14/5/5291	6:00	-26.0124	121.7524	19.3236	60	1.41E+03
14/5/5291	9:00	-26.3663	121.9664	16.8012	60	1.09E+03
14/5/5291	12:00	-26.8333	122.323	13.1108	60	6.89E+02
14/5/5291	15:00	-27.2143	122.6565	10.3001	60	4.35E+02

Table C5 Cyclone Number 137 Parameters

Date	Time (hours)	Latitude	Longitude	V Max (knts)	R Max (NM)	Pressure Drop (Pa)
15/5/6329	9:00	-18.0392	119.1369	53.484	30.3866	7.27E+03
15/5/6329	12:00	-18.0421	118.7121	54.2038	29.598	7.41E+03
15/5/6329	15:00	-18.1958	118.3936	53.3603	30.5253	7.25E+03
15/5/6329	18:00	-18.4091	118.0858	52.4703	31.5515	7.07E+03
15/5/6329	21:00	-18.5669	117.8398	55.1731	28.5837	7.60E+03
16/5/6329	0:00	-18.6571	117.5683	55.6723	28.0817	7.69E+03
16/5/6329	3:00	-18.8262	117.4297	57.5039	26.3497	8.05E+03
16/5/6329	6:00	-18.9085	117.2116	58.1474	25.7798	8.18E+03
16/5/6329	9:00	-18.9159	117.0435	57.3691	26.4716	8.03E+03
16/5/6329	12:00	-18.9213	117.0229	56.9728	26.8348	7.95E+03
16/5/6329	15:00	-18.9213	117.0229	58.5005	25.475	8.25E+03
16/5/6329	18:00	-18.984	116.9175	59.3376	24.7743	8.41E+03
16/5/6329	21:00	-19.0063	116.8669	61.7385	22.9223	8.89E+03
17/5/6329	0:00	-19.1008	116.7822	60.3528	23.9638	8.61E+03
17/5/6329	3:00	-19.1008	116.7822	58.9362	25.1065	8.33E+03
17/5/6329	6:00	-19.2383	116.7406	54.3929	29.396	7.45E+03
17/5/6329	9:00	-19.2699	116.7227	54.368	29.4224	7.44E+03
17/5/6329	12:00	-19.2699	116.7227	54.0225	29.7938	7.37E+03
17/5/6329	15:00	-19.331	116.8538	54.1534	29.6523	7.40E+03
17/5/6329	18:00	-19.3308	116.8605	55.4292	28.3245	7.65E+03

17/5/6329	21:00	-19.3236	117.0068	56.0621	27.6988	7.77E+03
18/5/6329	0:00	-19.3281	117.2022	57.0483	26.765	7.96E+03
18/5/6329	3:00	-19.3688	117.3192	59.0924	24.9765	8.36E+03
18/5/6329	6:00	-19.3688	117.3192	59.8334	24.3733	8.51E+03
18/5/6329	9:00	-19.5043	117.3247	59.7609	24.4313	8.50E+03
18/5/6329	12:00	-19.5421	117.3041	57.3888	26.4537	8.03E+03
18/5/6329	15:00	-19.5421	117.3041	59.6959	24.4835	8.48E+03
18/5/6329	18:00	-19.6261	117.2547	61.5022	23.0949	8.84E+03
18/5/6329	21:00	-19.6261	117.2547	61.6657	22.9753	8.87E+03
19/5/6329	0:00	-19.6841	117.2098	59.6416	24.5272	8.47E+03
19/5/6329	3:00	-19.7215	117.1761	58.9433	25.1007	8.34E+03
19/5/6329	6:00	-19.7467	117.1198	60.3449	23.9699	8.61E+03
19/5/6329	9:00	-19.9071	116.8933	61.3041	23.2411	8.80E+03
19/5/6329	12:00	-19.986	116.6944	62.5403	22.3517	9.05E+03
19/5/6329	15:00	-20.0001	116.5296	64.8866	20.8045	9.51E+03
19/5/6329	18:00	-20.2045	116.393	63.4415	21.7365	9.22E+03
19/5/6329	21:00	-20.3751	115.9937	64.3182	21.1634	9.40E+03
20/5/6329	0:00	-20.458	115.6574	63.7685	21.5199	9.29E+03
20/5/6329	3:00	-20.4608	115.2474	62.2672	22.5435	8.99E+03
20/5/6329	6:00	-20.7837	114.7168	61.5819	23.0365	8.86E+03
20/5/6329	9:00	-21.0827	114.1753	61.8015	22.8767	8.90E+03
20/5/6329	12:00	-21.539	113.8607	63.1044	21.9635	9.16E+03
20/5/6329	15:00	-21.9995	113.5758	61.7807	22.8917	8.90E+03
20/5/6329	18:00	-22.5813	113.3826	60.5295	23.827	8.65E+03

20/5/6329	21:00	-23.1307	113.4808	59.6186	24.5458	8.47E+03
21/5/6329	0:00	-23.5765	113.6686	58.0692	25.848	8.16E+03
21/5/6329	3:00	-23.9663	113.8191	55.3977	28.3562	7.64E+03
21/5/6329	6:00	-24.4849	113.873	54.1239	29.6841	7.39E+03
21/5/6329	9:00	-25.0163	114.0878	53.3488	30.5382	7.24E+03
21/5/6329	12:00	-25.5632	114.2939	52.7174	31.2616	7.12E+03
21/5/6329	15:00	-26.3288	114.8145	50.3345	34.2331	6.66E+03
21/5/6329	18:00	-26.9818	115.6163	48.7581	36.4321	6.36E+03
21/5/6329	21:00	-27.3966	116.5452	48.3144	37.088	6.28E+03
22/5/6329	0:00	-27.5273	117.25	47.1121	38.9535	6.05E+03
22/5/6329	3:00	-27.6974	118.0286	46.55	39.8721	5.95E+03
22/5/6329	6:00	-27.8864	118.7305	44.8515	42.8428	5.63E+03
22/5/6329	9:00	-28.1697	119.1168	43.4461	45.5421	5.37E+03
22/5/6329	12:00	-28.3409	119.5928	42.7398	46.9889	5.24E+03
22/5/6329	15:00	-28.4402	120.0008	42.0208	48.5281	5.10E+03
22/5/6329	18:00	-28.7135	120.6377	40.0151	53.2046	4.74E+03
22/5/6329	21:00	-28.7934	120.824	38.319	57.6476	4.43E+03
23/5/6329	0:00	-28.9056	121.3211	35.4858	60	3.93E+03
23/5/6329	3:00	-29.1072	121.7722	33.2406	60	3.54E+03
23/5/6329	6:00	-29.2428	122.3702	30.1906	60	3.03E+03
23/5/6329	9:00	-29.3025	123.1234	29.6619	60	2.94E+03
23/5/6329	12:00	-29.2591	123.8299	29.3623	60	2.90E+03
23/5/6329	15:00	-29.1926	124.4333	29.6058	60	2.94E+03
23/5/6329	18:00	-29.3418	124.9871	26.4409	60	2.43E+03

23/5/6329	21:00	-29.5069	125.7202	22.516	60	1.85E+03
24/5/6329	0:00	-29.6627	126.4388	18.9269	60	1.36E+03
24/5/6329	3:00	-29.6945	127.1672	14.683	60	8.52E+02
24/5/6329	6:00	-29.5475	128.1735	9.25627	60	3.54E+02
24/5/6329	9:00	-29.4047	129.0769	0	60	-1.42E+02

Table C6 Cyclone Number 147 Parameters

Date	Time (hours)	Latitude	Longitude	V Max (knts)	R Max (NM)	Pressure Drop (Pa)
31/1/9036	19:00	-17.4354	118.5982	46.1027	40.6254	5.86E+03
31/1/9036	22:00	-17.6286	118.11	44.5842	43.3385	5.58E+03
1/2/9036	1:00	-17.7861	117.6359	46.5136	39.9327	5.94E+03
1/2/9036	4:00	-17.8257	117.319	46.4809	39.9871	5.93E+03
1/2/9036	7:00	-17.9328	117.064	48.0477	37.4905	6.23E+03
1/2/9036	10:00	-18.0142	116.7485	47.4895	38.3536	6.12E+03
1/2/9036	13:00	-18.0454	116.4745	46.9677	39.1865	6.02E+03
1/2/9036	16:00	-18.0278	116.3685	47.5591	38.2445	6.14E+03
1/2/9036	19:00	-18.0548	116.2692	50.1604	34.4662	6.63E+03
1/2/9036	22:00	-18.0548	116.2692	49.906	34.8112	6.58E+03
2/2/9036	1:00	-18.0548	116.2692	51.6297	32.5686	6.91E+03
2/2/9036	4:00	-18.0577	116.26	52.0565	32.0463	6.99E+03
2/2/9036	7:00	-18.0831	116.1637	54.2901	29.5056	7.43E+03
2/2/9036	10:00	-18.187	116.0223	55.7952	27.9601	7.72E+03
2/2/9036	13:00	-18.3652	115.8873	59.0122	25.0431	8.35E+03
2/2/9036	16:00	-18.41	115.7884	58.8643	25.1668	8.32E+03
2/2/9036	19:00	-18.4515	115.7593	58.8437	25.1841	8.32E+03
2/2/9036	22:00	-18.4515	115.7593	60.1463	24.1253	8.57E+03
3/2/9036	1:00	-18.5675	115.6116	59.5887	24.5699	8.46E+03
3/2/9036	4:00	-18.8055	115.2915	60.7442	23.6623	8.69E+03
3/2/9036	7:00	-19.045	115.021	61.3425	23.2127	8.81E+03

3/2/9036	10:00	-19.2109	114.5549	61.4576	23.1277	8.83E+03
3/2/9036	13:00	-19.336	114.2982	60.9895	23.4763	8.74E+03
3/2/9036	16:00	-19.4566	114.1963	60.7369	23.6679	8.69E+03
3/2/9036	19:00	-19.6366	114.0002	60.4044	23.9237	8.62E+03
3/2/9036	22:00	-19.8318	113.6159	60.4011	23.9262	8.62E+03
4/2/9036	1:00	-20.0674	113.4045	59.6722	24.5025	8.48E+03
4/2/9036	4:00	-20.3321	113.2104	59.0705	24.9947	8.36E+03
4/2/9036	7:00	-20.5678	112.7444	57.287	26.5462	8.01E+03
4/2/9036	10:00	-21.1636	112.7745	56.401	27.3724	7.84E+03
4/2/9036	13:00	-21.6327	113.3801	58.003	25.906	8.15E+03
4/2/9036	16:00	-22.1677	113.8035	56.763	27.0302	7.91E+03
4/2/9036	19:00	-22.5311	114.6804	54.6837	29.0892	7.50E+03
4/2/9036	22:00	-22.7595	115.3503	52.2337	31.8331	7.03E+03
5/2/9036	1:00	-22.9243	115.9229	47.4565	38.4056	6.12E+03
5/2/9036	4:00	-23.3381	116.4434	47.5727	38.2233	6.14E+03
5/2/9036	7:00	-23.433	116.7829	44.3288	43.8199	5.53E+03
5/2/9036	10:00	-23.4894	117.1369	42.9774	46.4953	5.28E+03
5/2/9036	13:00	-23.6308	117.7034	39.5674	54.3312	4.66E+03
5/2/9036	16:00	-23.6616	118.3214	34.344	60	3.73E+03
5/2/9036	19:00	-23.6559	118.8588	33.1716	60	3.53E+03
5/2/9036	22:00	-23.6302	119.5764	29.376	60	2.90E+03
6/2/9036	1:00	-23.5632	120.4159	26.2193	60	2.40E+03
6/2/9036	4:00	-23.4063	121.2566	24.0491	60	2.07E+03
6/2/9036	7:00	-23.4397	122.2066	21.7944	60	1.74E+03

6/2/9036	10:00	-23.4538	123.178	19.6446	60	1.45E+03
6/2/9036	13:00	-23.3431	124.2101	15.7648	60	9.72E+02
6/2/9036	16:00	-23.0818	125.2114	12.1067	60	5.93E+02
6/2/9036	19:00	-23.0634	126.2778	11.6478	60	5.51E+02

Table C7 Cyclone Number 148 Parameters

Date	Time (hours)	Latitude	Longitude	V Max (knts)	R Max (NM)	Pressure Drop (Pa)
2/12/1312	1:00	-16.0822	116.2591	37.0487	60	4.21E+03
2/12/1312	4:00	-16.265	116.1415	37.5337	59.8729	4.29E+03
2/12/1312	7:00	-16.4338	116.0389	37.6239	59.6117	4.31E+03
2/12/1312	10:00	-16.5828	115.8902	39.9955	53.2532	4.73E+03
2/12/1312	13:00	-16.6973	115.7828	39.7915	53.7634	4.70E+03
2/12/1312	16:00	-16.8221	115.75	40.9018	51.0646	4.90E+03
2/12/1312	19:00	-16.9272	115.6514	39.5221	54.4473	4.65E+03
2/12/1312	22:00	-17.0276	115.4619	39.6724	54.0643	4.67E+03
3/12/1312	1:00	-17.1031	115.3049	40.163	52.8393	4.76E+03
3/12/1312	4:00	-17.2297	115.2099	41.4461	49.8086	5.00E+03
3/12/1312	7:00	-17.2297	115.2099	41.8365	48.9338	5.07E+03
3/12/1312	10:00	-17.2297	115.2099	43.3041	45.8281	5.34E+03
3/12/1312	13:00	-17.2297	115.2099	44.1522	44.157	5.50E+03
3/12/1312	16:00	-17.2495	115.1524	43.107	46.2289	5.30E+03
3/12/1312	19:00	-17.2898	114.9912	42.5245	47.4426	5.20E+03
3/12/1312	22:00	-17.2924	114.873	42.8686	46.7205	5.26E+03
4/12/1312	1:00	-17.3337	114.7143	41.9159	48.7583	5.08E+03
4/12/1312	4:00	-17.4609	114.5288	42.5729	47.3403	5.20E+03
4/12/1312	7:00	-17.7233	114.2311	41.2609	50.2311	4.96E+03
4/12/1312	10:00	-17.8601	113.7483	41.6822	49.277	5.04E+03
4/12/1312	13:00	-18.021	113.1606	42.9557	46.5401	5.27E+03

4/12/1312	16:00	-18.1674	112.7984	44.9511	42.6601	5.65E+03
4/12/1312	19:00	-18.2337	112.6052	44.7306	43.0659	5.60E+03
4/12/1312	22:00	-18.3139	112.4191	43.61	45.2153	5.40E+03
5/12/1312	1:00	-18.5037	112.2603	45.544	41.5949	5.76E+03
5/12/1312	4:00	-18.658	112.1967	43.4422	45.55	5.36E+03
5/12/1312	7:00	-18.8358	112.1214	45.7188	41.288	5.79E+03
5/12/1312	10:00	-18.9009	112.0303	46.2223	40.422	5.88E+03
5/12/1312	13:00	-18.9009	112.0303	47.0964	38.9788	6.05E+03
5/12/1312	16:00	-18.9551	111.9551	45.8823	41.004	5.82E+03
5/12/1312	19:00	-19.1793	111.735	46.1419	40.5584	5.87E+03
5/12/1312	22:00	-19.4229	111.5862	43.8172	44.8068	5.43E+03
6/12/1312	1:00	-19.6905	111.5937	45.5581	41.5701	5.76E+03
6/12/1312	4:00	-20.1151	111.6366	45.4178	41.8184	5.73E+03
6/12/1312	7:00	-20.2891	112.1386	46.6139	39.7662	5.96E+03
6/12/1312	10:00	-20.6871	112.5052	45.0654	42.4518	5.67E+03
6/12/1312	13:00	-20.9778	112.6512	47.8471	37.7975	6.19E+03
6/12/1312	16:00	-21.2572	112.7778	47.9867	37.5835	6.22E+03
6/12/1312	19:00	-21.4667	113.0709	47.0157	39.1088	6.03E+03
6/12/1312	22:00	-21.6957	113.6432	45.6514	41.4061	5.78E+03
7/12/1312	1:00	-22.0436	113.9866	46.5247	39.9142	5.94E+03
7/12/1312	4:00	-22.3169	113.9729	45.2295	42.1551	5.70E+03
7/12/1312	7:00	-22.5155	114.088	45.046	42.4869	5.66E+03
7/12/1312	10:00	-22.7274	114.2169	46.7241	39.5844	5.98E+03
7/12/1312	13:00	-22.7339	114.2187	44.3568	43.7666	5.53E+03

7/12/1312	16:00	-22.7927	114.2204	42.2586	48.0114	5.15E+03
7/12/1312	19:00	-22.7927	114.2204	41.3458	50.0369	4.98E+03
7/12/1312	22:00	-22.7927	114.2204	36.8581	60	4.17E+03
8/12/1312	1:00	-23.0095	114.5765	36.8298	60	4.17E+03
8/12/1312	4:00	-22.9275	115.1899	35.1756	60	3.88E+03
8/12/1312	7:00	-23.0694	115.7977	34.1295	60	3.70E+03
8/12/1312	10:00	-23.2561	116.2608	28.7773	60	2.80E+03
8/12/1312	13:00	-23.8156	116.9175	21.159	60	1.65E+03
8/12/1312	16:00	-24.189	118.0151	19.2123	60	1.39E+03
8/12/1312	19:00	-24.5124	119.2389	17.9446	60	1.23E+03
8/12/1312	22:00	-24.7827	120.6318	15.1682	60	9.05E+02
9/12/1312	1:00	-25.0301	122.1753	13.7436	60	7.53E+02
9/12/1312	4:00	-25.6135	123.5302	13.339	60	7.12E+02

Table C8 Cyclone Number 1198 Parameters

Date	Time (hours)	Latitude	Longitude	V Max (knts)	R Max (NM)	Pressure Drop (Pa)
23/1/6684	0:00	-19.7546	113.725	57.6181	26.2472	8.07E+03
23/1/6684	3:00	-19.7968	113.6646	56.723	27.0677	7.90E+03
23/1/6684	6:00	-19.802	113.6462	58.0157	25.8949	8.15E+03
23/1/6684	9:00	-19.802	113.6462	56.904	26.8987	7.94E+03
23/1/6684	12:00	-19.802	113.6462	55.9747	27.784	7.75E+03
23/1/6684	15:00	-20.0029	113.6021	56.3549	27.4165	7.83E+03
23/1/6684	18:00	-20.38	113.6289	56.7483	27.0439	7.90E+03
23/1/6684	21:00	-20.6727	113.5147	55.7002	28.054	7.70E+03
24/1/6684	0:00	-20.9072	113.4396	55.2068	28.5494	7.60E+03
24/1/6684	3:00	-21.0934	113.4403	53.2873	30.6076	7.23E+03
24/1/6684	6:00	-21.2512	113.3546	52.0296	32.0788	6.99E+03
24/1/6684	9:00	-21.7395	113.4987	50.6351	33.8358	6.72E+03
24/1/6684	12:00	-22.2998	113.5604	51.7679	32.3981	6.94E+03
24/1/6684	15:00	-22.7939	113.7905	50.4393	34.0937	6.68E+03
24/1/6684	18:00	-23.2741	114.0054	48.8168	36.3465	6.37E+03
24/1/6684	21:00	-23.8935	114.1041	46.429	40.0739	5.92E+03
25/1/6684	0:00	-24.6915	114.2624	43.4537	45.5269	5.37E+03
25/1/6684	3:00	-25.5343	114.0766	42.7322	47.0049	5.23E+03
25/1/6684	6:00	-26.1191	114.2843	42.6766	47.1216	5.22E+03
25/1/6684	9:00	-27.0272	114.73	39.6666	54.0789	4.67E+03
25/1/6684	12:00	-28.1192	115.4129	34.0052	60	3.67E+03

25/1/6684	15:00	-29.6146	115.9159	32.7979	60	3.47E+03
25/1/6684	18:00	-31.1786	116.3021	31.5919	60	3.26E+03
25/1/6684	21:00	-32.9317	117.0983	30.3488	60	3.06E+03
26/1/6684	0:00	-34.6415	118.124	29.1919	60	2.87E+03

Table C9 Cyclone Number 2373 Parameters

Date	Time (hours)	Latitude	Longitude	V Max (knts)	R Max (NM)	Pressure Drop (Pa)
17/1/9040	22:00	-20.5808	113.8275	49.9179	34.7949	6.58E+03
18/1/9040	1:00	-20.5808	113.8275	48.1212	37.3789	6.24E+03
18/1/9040	4:00	-20.5808	113.8275	48.6652	36.568	6.35E+03
18/1/9040	7:00	-20.5808	113.8275	47.1934	38.8231	6.07E+03
18/1/9040	10:00	-20.5808	113.8275	46.5866	39.8114	5.95E+03
18/1/9040	13:00	-20.5808	113.8275	45.6162	41.4678	5.77E+03
18/1/9040	16:00	-20.5808	113.8275	44.691	43.1396	5.60E+03
18/1/9040	19:00	-20.7578	113.7782	44.1995	44.0664	5.51E+03
18/1/9040	22:00	-20.8321	113.6097	43.5728	45.2893	5.39E+03
19/1/9040	1:00	-20.9133	113.3027	43.5685	45.2978	5.39E+03
19/1/9040	4:00	-21.0266	112.9045	42.8143	46.8333	5.25E+03
19/1/9040	7:00	-21.42	112.9177	39.7139	53.959	4.68E+03
19/1/9040	10:00	-21.8953	113.2134	39.0318	55.722	4.56E+03
19/1/9040	13:00	-22.1043	113.5462	37.4865	60	4.28E+03
19/1/9040	16:00	-22.4359	113.7517	35.9943	60	4.02E+03
19/1/9040	19:00	-22.8232	114.1128	32.7129	60	3.45E+03
19/1/9040	22:00	-23.2817	114.2561	31.3625	60	3.23E+03
20/1/9040	1:00	-23.5103	114.6806	29.7455	60	2.96E+03
20/1/9040	4:00	-23.5018	115.1549	26.6791	60	2.47E+03
20/1/9040	7:00	-23.6074	115.8747	23.9262	60	2.05E+03
20/1/9040	10:00	-24.0383	116.7058	22.1139	60	1.79E+03

20/1/9040	13:00	-24.3735	117.5989	19.9002	60	1.48E+03
20/1/9040	16:00	-24.4108	118.7016	19.5231	60	1.43E+03
20/1/9040	19:00	-24.6377	119.7688	15.1294	60	9.01E+02
20/1/9040	22:00	-24.7441	120.863	11.9324	60	5.77E+02

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Appendix D Wave Modelling Report

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R1629 Rev 2

October 2022

Department of Transport

Tantabiddi Boating Facility
Wave Modelling Report

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Acknowledgment of Country

M P Rogers & Associates and the Department of Transport would like to acknowledge the traditional custodians of the land to which this investigation relates, the Jinigudira people. We pay our respects to Elders both past, present and emerging for they hold the memories, the traditions, the culture and the hope of their people.

1. Introduction

1.1 Background

The Tantabiddi Boat Ramp precinct is of regional significance and is a key asset as a gateway to the Ningaloo Reef tourism and recreational experiences. The Shire of Exmouth (Shire) and the Department of Biodiversity, Conservation and Attractions (DBCA) jointly manage the Tantabiddi land and marine environment under the governance of the Jurabi and Bundegi Coastal Parks and Muiron Island Management Plan 1999. Both agencies manage civil maintenance, environmental maintenance, and preservation programs, though the Shire generally maintains the boat ramp infrastructure. The location of the boat ramp in the context of the North West Cape is shown in in Figure 1.1 below.

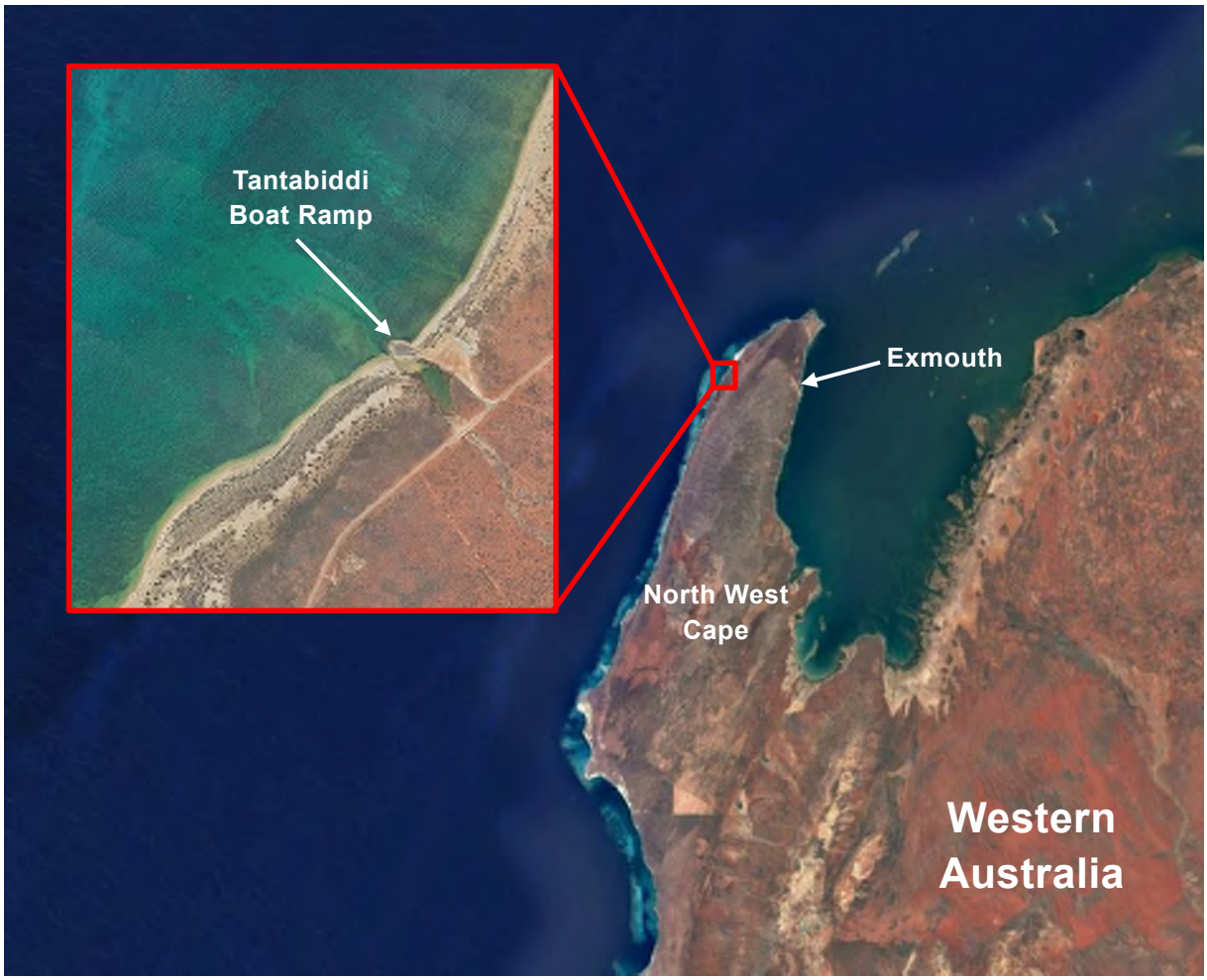

Figure 1.1 Location Plan

To address capacity limitations and maintenance issues associated with the existing Tantabiddi ramp, the Department of Transport (DoT) in collaboration with the Shire, DBCA, Department of Primary Industries and Regional Development (DPIRD), and Tourism WA have resolved to identify the planning, investigations and approvals necessary to develop a new facility at Tantabiddi.

This involved the development of a preliminary concept for the Tantabiddi Boating Facility (TBF), shown in Figure 1.2. In September 2020, an expanded TBF Concept B was developed by DoT and selected for progression. The Concept B layout is shown in Figure 1.3.

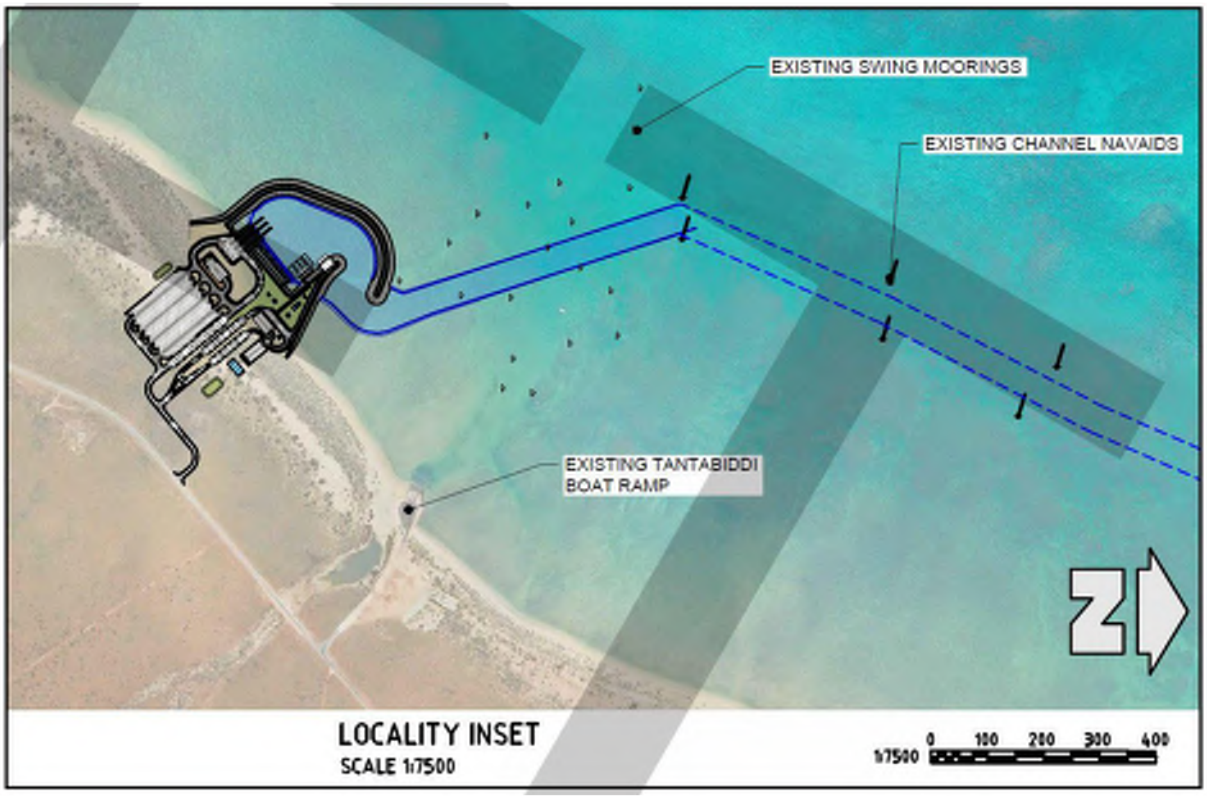

Figure 1.2 Formerly Proposed Concept A

Figure 1.3 Proposed Concept B

Work completed by MRA on Concept B (as presented in this and other reports) assessed the wave climate and other aspects associated with the proposed layout. This work identified the potential for nearly complete sedimentation of the entrance channel at the mouth of the Concept B layout under certain conditions. A refinement of the TBF design was subsequently completed by DoT resulting in Concept C. This new concept features a refined layout designed to decrease potential infilling of the entrance to the facility and adjacent channel. The layout of Concept C is presented in Figure 1.4.

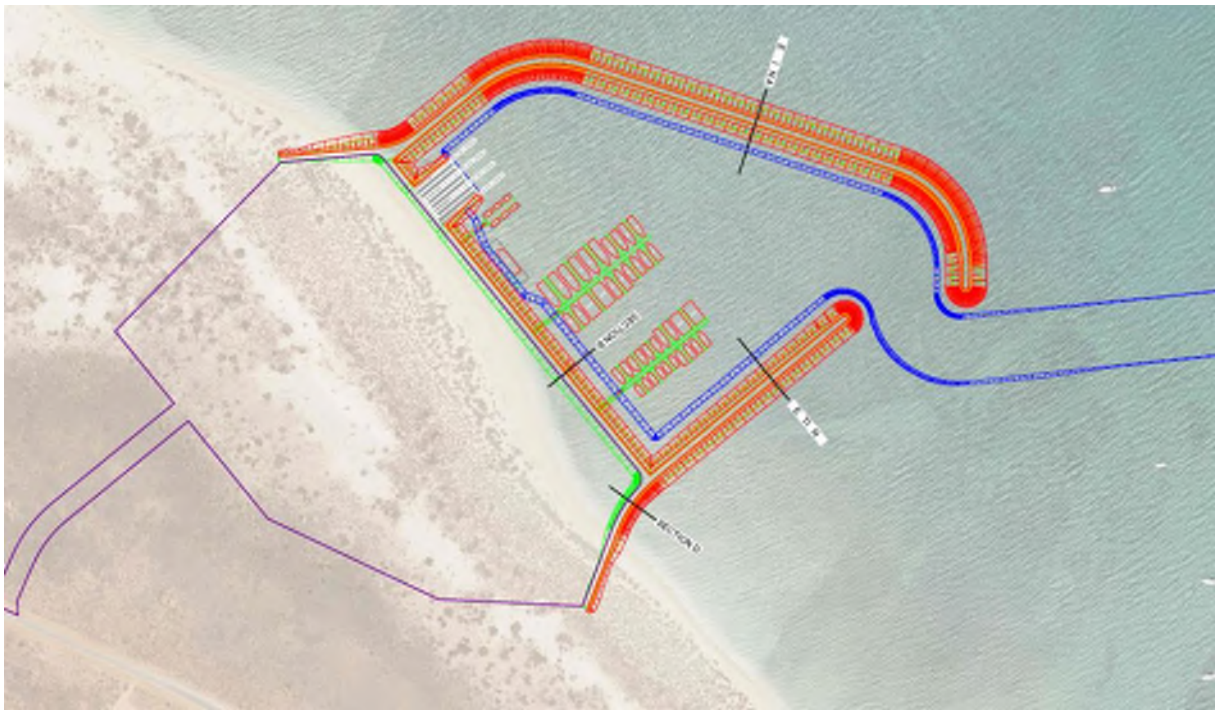

Figure 1.4 Concept C Layout

A comparison of the three concept layouts is presented in Figure 1.5.

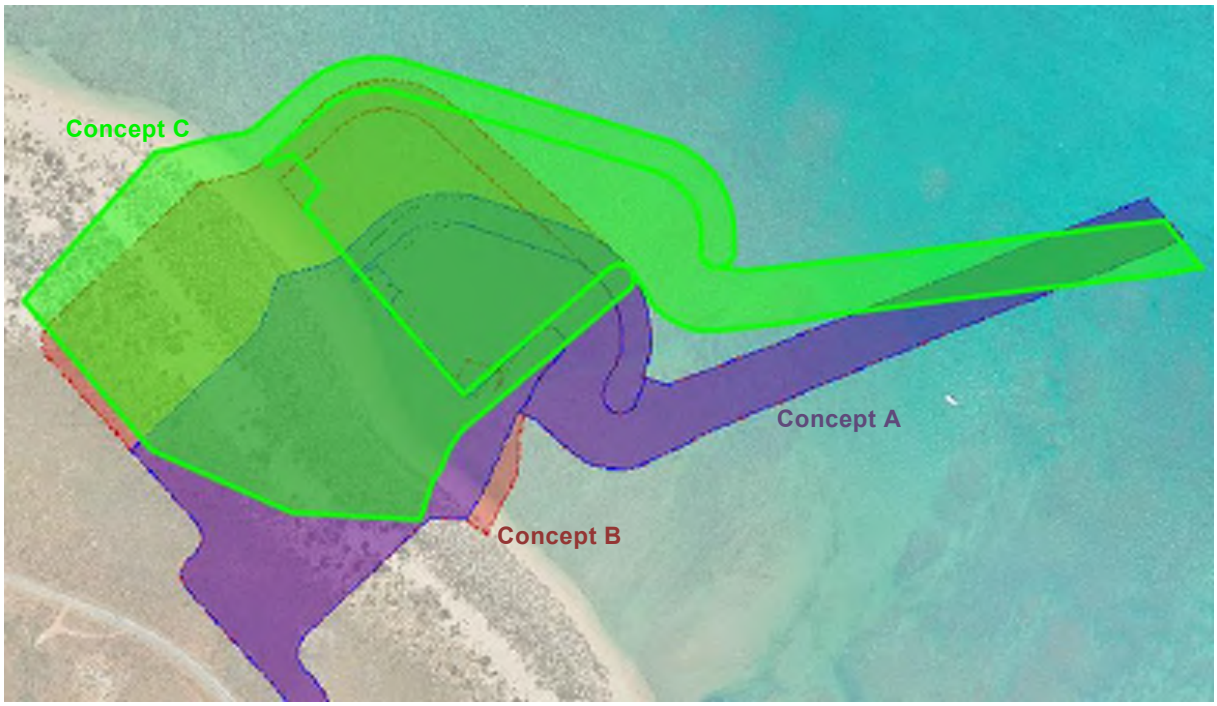

Figure 1.5 Comparison of Concepts A, B & C

In order to investigate the coastal processes at the Tantabiddi site and the impact of the proposed concept, coastal engineers M P Rogers & Associate Pty Ltd (MRA) were engaged by DoT to undertake the Tantabiddi Creek Coastal Processes Study. This study includes a number of tasks, discussed below. The outcomes of the Tantabiddi Creek Coastal Processes study are contained within a number of reports prepared by MRA. This is a standalone technical report prepared for the Wave Modelling (Task 5).

1.2 Tantabiddi Creek Coastal Processes Scope

The scope of this study includes a number of tasks and activities which are detailed below.

- Task 1: Desktop Review, Data Gathering, and Site Visit.
- Task 2: Shoreline Movement Assessment.
- Task 3: Metocean Climate Analysis which includes.
    - Nearshore Ambient Condition Analysis.
    - Offshore Ambient and Extreme Conditions Analysis.
    - Ambient and Extreme Wind Conditions Analysis.
- Task 4: Cyclonic Modelling.
- **Task 5: Wave Modelling.**
- Task 6: Hydrodynamic Modelling – Impacts and Flushing.
- Task 7: Sediment Transport and Sedimentation Modelling.

- Task 8: Wave Penetration and Long Period Wave Assessment.
- Task 9: Wave Penetration Modelling. Contingent on outcome of Task 8.
- Task 10: Long Period Wave Modelling. Contingent on outcome of Task 8.

Tasks 1, 8, 9 and 10 are wholly contained within sections of the overall **Coastal Processes Study Project Report (R1518).** The outcomes of Tasks 2, 3, 4, 5, 6 and 7 are provided as standalone technical reports. Tasks 1, 2, 3 and 5 were completed in totality for Concept A prior to the development and selection of Concept B for progression. Where appropriate, these reports (or sections) have been revised to include Concept B instead of Concept A. Refer to Table 1.1 for further information on the location of the standalone technical reports.

Table 1.1 Standalone Technical Report Locations

Task	Task Title	Report Number	Location
2	Shoreline Movement Assessment	R1535	R1518 Appendix A
3	Metocean Climate Analysis	R1524	R1518 Appendix B
4	Cyclonic Modelling	R1533	R1518 Appendix C
5	Wave Modelling	R1629	R1518 Appendix D
6	Hydrodynamic Modelling	R1585	R1518 Appendix E
7	Sediment Transport & Sediment Modelling	R1598	R1518 Appendix F

Notes: 1. Revision numbers for current versions of reports are noted in the current version of the main report (R1518).

This report consists of the standalone technical report for Task 5 Wave Modelling. The specific scope for Task 5 is introduced below.

1.2.1 Task 5: Wave Modelling Scope

The scope of work to be completed for this task, and as outlined within this report, is as follows.

- Setup the SWAN wave model for the area, including a nested grid framework to provide adequate resolution around the facility.
- Calibrate the SWAN model to available measurement data.
- Review and select appropriate periods for modelling of local wave conditions.
- Use the calibrated SWAN model to simulate the selected periods pre and post construction of the TBF.
- Review the impact of the TBF on the local wave climate.
- Provide recommendations on improvements to the TBF concept if the wave modelling results suggest that undesirable impacts are likely.

It is noted that this assessment and scope is focused on the more typical wave conditions that will be experienced at the site and does not include assessment of the impacts of severe wave conditions. Severe wave conditions at the site will be associated with the passage of tropical cyclone events, so further details regarding extreme conditions are provided in the Task 4 *Cyclone Modelling* report.

2. Modelling Methodology

To accurately simulate the local wave climate a detailed modelling approach is required. A summary of the modelling approach adopted by MRA to allow assessment of wave conditions, changes to nearshore wave climate, and review of the current TBF concept is described below.

- Setup the Delft3D SWAN model suite for a domain appropriate for modelling of wave and hydrodynamic conditions at the site over two calibration periods, a summer and a winter period, for which AWAC and Aquadopp data is available.
- Apply spectral wave data obtained from the WWIII model, wind data obtained from the Yardie Creek Wind Anemometer and astronomical tidal forcing as input conditions for the calibration of the model.
- Calibrate and validate the model via comparison of the measured and modelled wave and current data at appropriate measurement locations.
- Select 6 representative periods to allow review of the various impacts of the TBF. Each period consists of 3 months and reflects a typical or abnormal season (summer, autumn, winter, spring). These 6 periods will also be utilised to consider hydrodynamics and flushing.
- Utilise the calibrated and validated model to simulate the 6 representative periods. This will be undertaken with spectral wave data obtained from the WWIII model, wind data obtained from the WWIII model and astronomical tidal forcing as input conditions for the model.
- Incorporate the proposed TBF concept into the model bathymetry and re-simulate the 6 representative periods in line with that utilised previously.
- Review and compare the model results from each of the 6 simulation periods.

This report is limited to the calibration, validation and production of the wave model, the details of which are provided in the following sections. The wave model was coupled with the hydrodynamic model to ensure coastal processes were accurately represented. Calibration and validation of the hydrodynamic and wave models were undertaken concurrently. However, the results of the calibration, validation and result of the hydrodynamic model are discussed separately in the Task 6 *Hydrodynamic Modelling* Report.

3. Wave Model Set-up & Calibration

3.1 SWAN Wave Model

The Delft3D suite of models provides an integrated model approach that can be used to accurately simulate wind fields, wave climates and water levels across a domain. These models have been extensively used around the world and are recognised as high-quality models. An integrated modelling approach has been adopted for this study in order to best represent the physical processes that generate extreme wave heights. SWAN is a third-generation wave model which sits within the Delft3D suite. The model computes random, short-crested wind-generated waves in coastal regions and inland waters (Deltares 2011).

The physical processes that lead to wave generation operate on a significant spatial scale. Due to computational limitations it is not efficient to model large areas at high resolutions. Nested modelling techniques have been utilised within the Delft3D model for this study in order to provide high resolution where required, without unduly long model simulation times.

3.2 Grid Layout

Grid nesting allows sections of the overall grid to be modelled at significantly higher resolution to capture the key features and bathymetry surrounding the area of interest. This allows key features such as reefs, channels, shoals and banks to be well resolved, even if they are not located close to the area of interest but would still have significant impact on wave conditions at the site. The grid sizes and resolutions for different regions in the model domain are presented in Table 3.1.

Table 3.1 Grid Sizing

Grid	Length (cells)	Width (cells)	Cell Sizing (m)
C (Outer)	190	73	111
D (Inner)	276	144	10

Figures 3.1 and 3.2 show the model domain and extents of the grids. Figures 3.3 and 3.4 present the domain and bathymetry for each of the grids prepared for the model calibration. Bathymetry and topography data were sourced from the most recent surveys along the coast as well as the 2005 LiDAR survey data captured by CSIRO (2005). Where survey data was not available, the bathymetry was approximated using the nautical chart WA900. A summary of the survey information used in the preparation of the model grids is provided in Table 3.2.

Table 3.2 Survey Data used for Grid Generation

Description	Source	Date	Extent
RAN Chart 900	DoT	1971 – 1991	North West Cape area.
Multibeam Bathymetric Survey	DoT	2021	Tantabiddi Creek Nearshore Area and Channel.
Drone Survey	DoT	2021	Beach and Dune Areas
Hyperspectral Mapping of Bathymetry and Benthic Cover	CSIRO	2011	Coral Reef Depths
Bathymetry 50m Multibeam	Geoscience Australia	2018	Offshore areas beyond the coral reef.
25 Metre Intertidal	Geoscience Australia	2019	Water's edge along the coast
1 Second Digital Elevation Model	Geoscience Australia	2011	Land areas immediately surrounding the site.

A key challenge of the wave model setup and calibration was the establishment of the bathymetry across the shallow reef. Traditional hydrographic survey methods are unable to provide details of depths over these areas due to the depths being inadequate for vessel navigation. As a result, depths across these areas relied on the 2011 LiDAR survey results captured by CSIRO (2011). The challenge with this data was that the results did not appear to be consistent with hydrographic survey results in all areas. For instance, there were areas within the lagoon that the LiDAR suggested were approximately 7 m deep, however hydrographic survey showed these areas to be only 3 – 4 m deep. As a result, the LiDAR data was only used to fill gaps in the hydrographic survey data, which typically only occurred over the nearshore reef. Whilst this approach was better than simply estimating the elevation of the reef, the accuracy of the LiDAR data is not certain and any discrepancies between the LiDAR data and the actual reef elevations will contribute to differences in the wave climate inshore from the reef.

Figure 3.1 Wave Model Domains

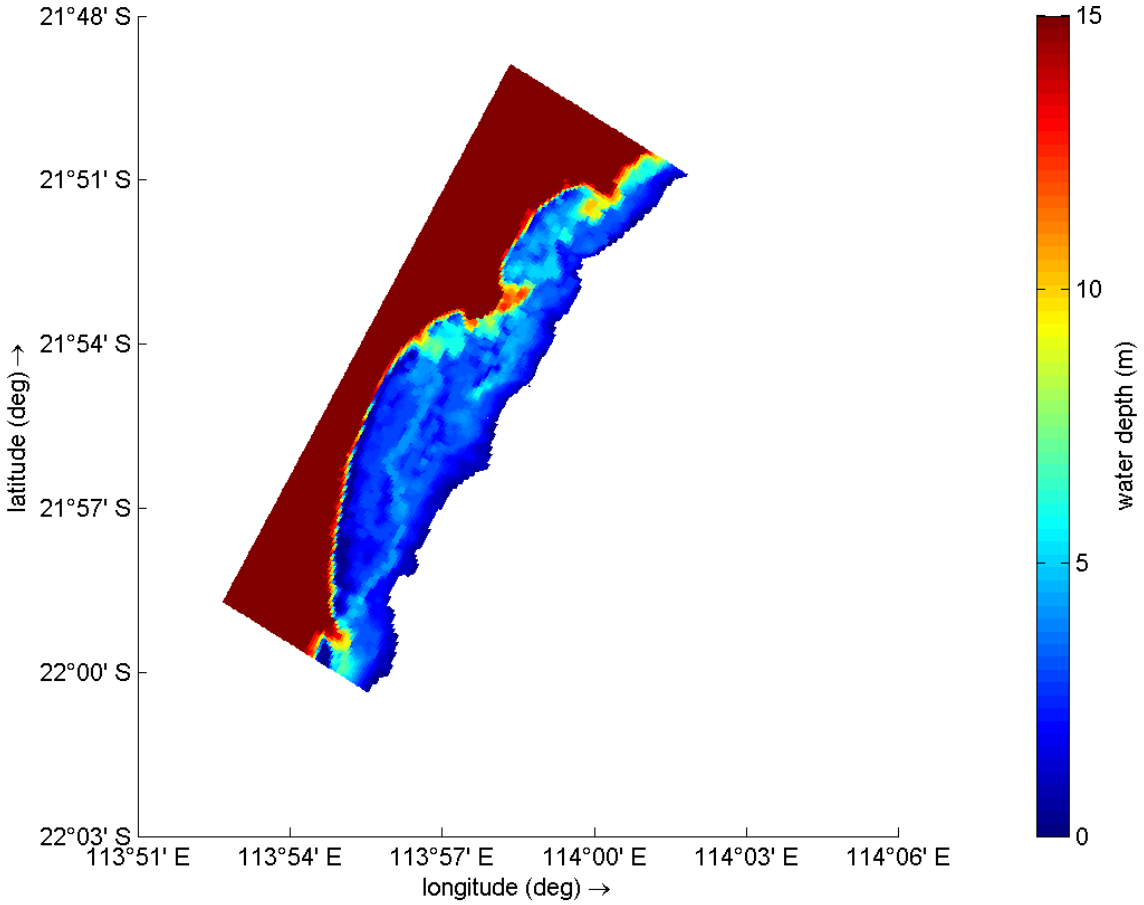

Figure 3.2 Grid C Bathymetry

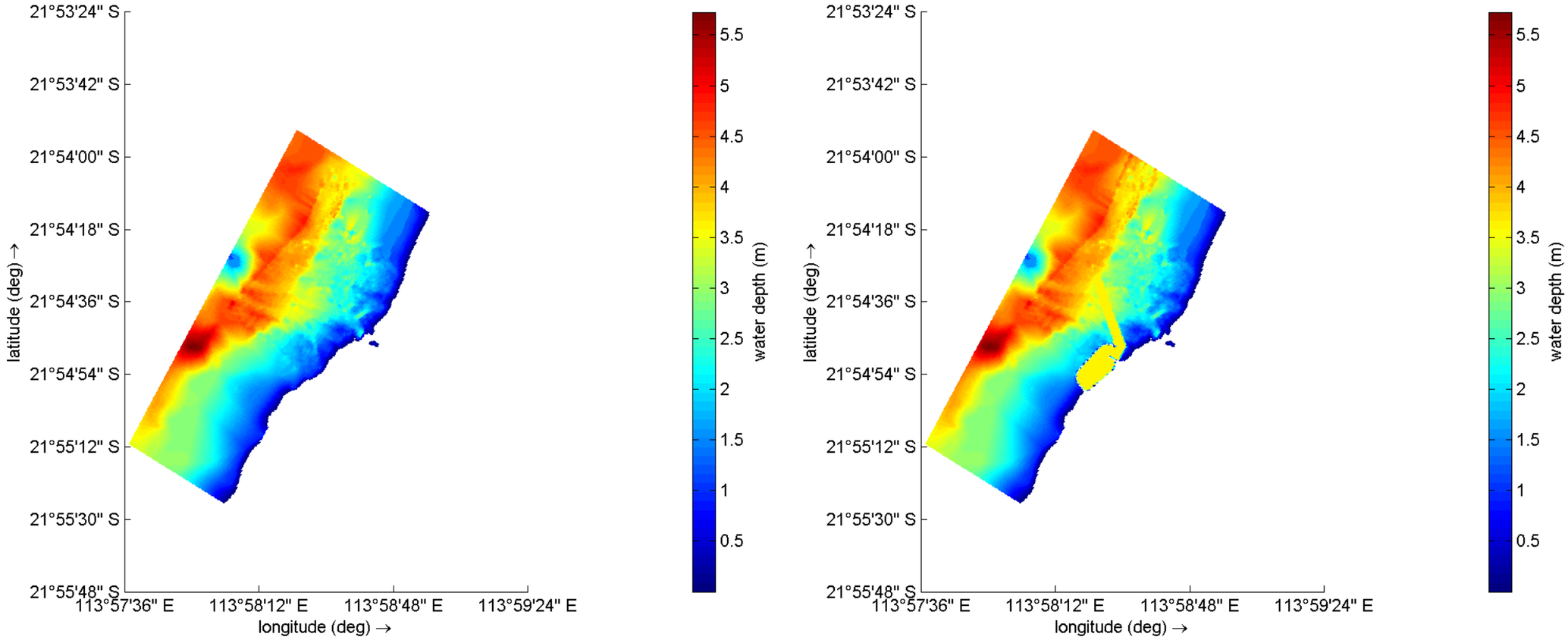

Figure 3.3 Grid D Bathymetry– Existing (Left), proposed TBF (Right)

3.3 Model Calibration

Following establishment of the grids, calibration and validation of the model was undertaken to ensure model predictions adequately reflected reality. MRA has validated the Delft 3D model at numerous locations throughout WA including several locations in the Perth metro area (MRA 2015, 2016a, 2019a, 2019b, 2020a & 2020b), Learmonth (MRA 2018) and Cossack and Wickham (MRA2016b) amongst others.

To further validate the model's ability to accurately represent conditions at the site, wave, wind and tidal forcings for two periods were simulated within the model domain to determine if the model predictions matched measurements.

3.3.1 Model Inputs

The model configuration utilised has been developed by MRA across the numerous projects referenced previously and refined for the purposes and applications of the current assessment. The model is configured to resolve waves in 5-degree direction bins ranging in period from 1 to 40 seconds.

The accuracy criterion (% of grid points for which convergence is required to be achieved) also requires selection based on the model application. Given that convergence is often achieved last for complex or shallow grid locations, a relatively high accuracy criterion (99.6%) was selected for the model. This ensures that the model appropriately resolves processes across the complex reefs which are important at this site, before moving on to the next calculation timestep. Use of non-stationary mode in the model ensures that wind generated waves and path dependant processes are accurately reflected.

Offshore wave spectral data was obtained from the Calibrated WWIII Dataset (refer Section 4.1 of the Task 3 :*Tantabiddi Creek Metocean Climate Analysis [MRA 2021b]*). With regards to wind forcing, the best available wind data for the relevant period was utilised. This included a combination of WWIII data and the Yardie Creek Anemometer. A comparison of the WWIII and Yardie Creek wind data is presented in Figure 3.4.

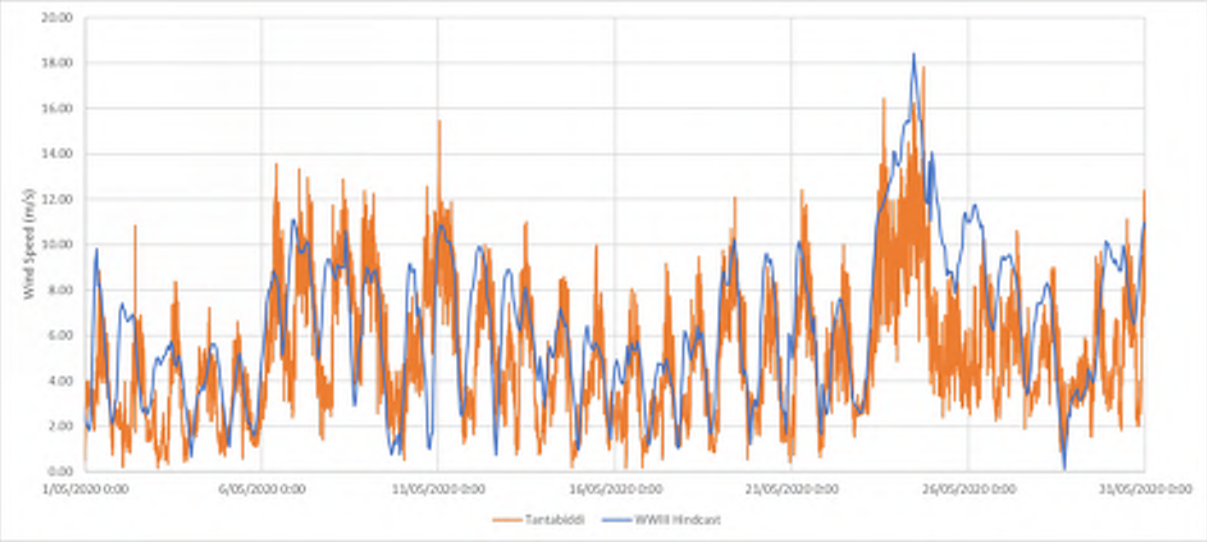

Figure 3.4 Comparison of WWIII Wind Data & Yardie Creek Anemometer

As can be seen in Figure 3.4 the WWIII wind data provides a reasonable approximation of the measured wind conditions at Yardie Creek.

Water level data at the site is limited and not available for the modelling of representative periods (production) and as such astronomical tidal constituents were utilised for force the water level boundaries for the model. This approach was also utilised for calibration to confirm the suitability of the modelling regime.

The details of the information utilised to generate model inputs are provided in Table 3.3 and their locations are illustrated in Figure 3.5. This figure also shows the location of model boundaries where the given conditions were input as boundary conditions. This includes the boundary of the hydrodynamic model which was used to simulate the tidal conditions. Further details on the hydrodynamic modelling are provided in the Task 6 *Hydrodynamic Modelling* report (MRA 2021c).

Table 3.3 Model Input Data

Inputs	Location (Lat, Long)	Depth/Elevation	Source
WWIII Wave Data	-21.9332, 113.9330	50 m	Bureau of Meteorology
WWIII Wind Data	-21.9332, 113.9330	50 m	Bureau of Meteorology
Yardie Creek Anemometer	-21.9122, 113.9783	10 m	Bureau of Meteorology
Astronomical Constituents	Various	NA	NA

The WWIII data has been calibrated prior to use in the wave modelling. Further information on the calibration of the WWIII data is provided in the Task 3 *Metocean Climate Analysis* report.

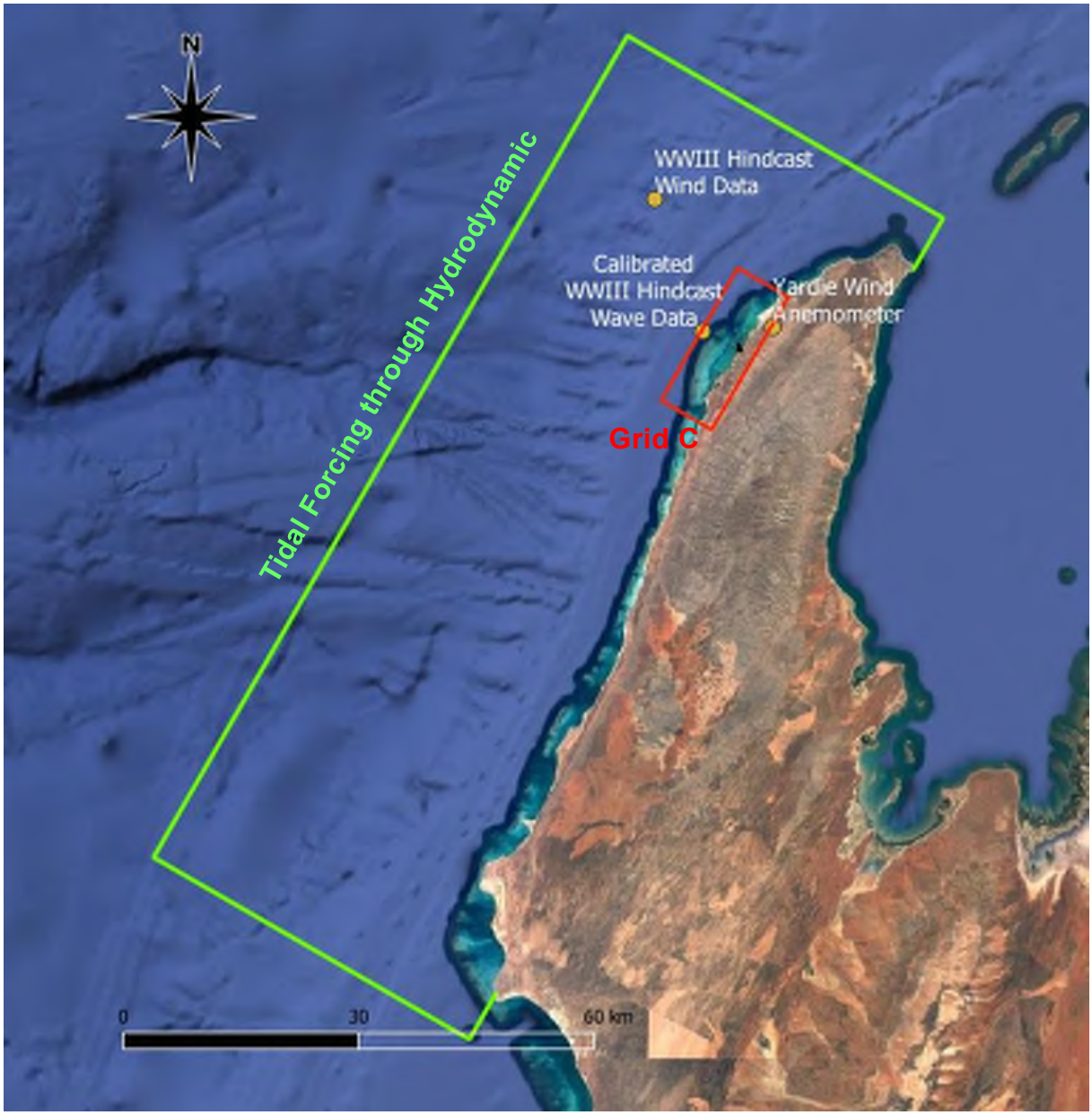

Figure 3.5 Locations of Data used as Input to Wave Modelling

Bottom friction has a large impact on the transformation of waves as they travel from deep water to the shoreline. The composition, relief and roughness of the bed affects the waves to varying extents. Bottom friction was accounted for using a variable bottom friction grid applied across the domain. The selection of values for bottom friction, discussed in Section 3.5, was a key outcome of the calibration process. For the purposes of the assessment, two bottom friction values were considered. One value for high-relief reef and one for sand and low relief reef, such as the nearshore rock flats (see Section 3.5 for selected values). The areas for each of these were determined through a review of nautical charts, aerial imagery and LIDAR reflectivity data collected as part of the 2005 LiDAR Data set collected by the Ningaloo Collaboration Cluster (CSIRO 2005). The areas prescribed as high relief reef are shown in Figure 3.6 along with the reflectivity from the 2005 LiDAR Data set.

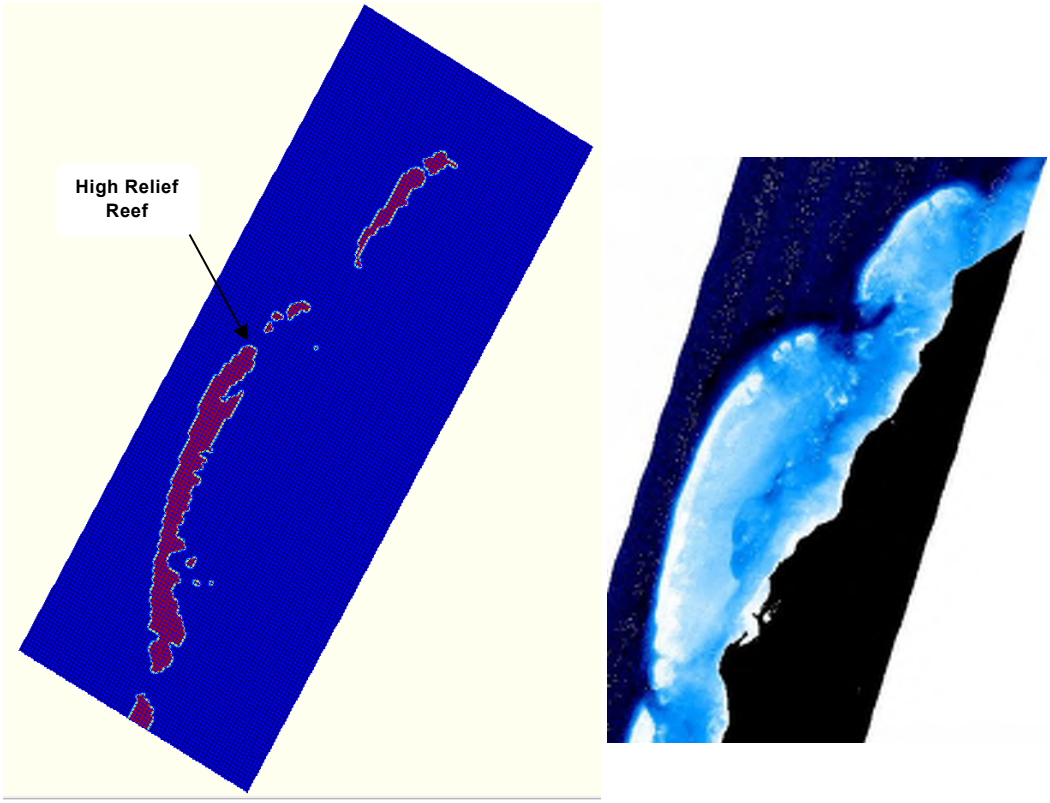

Figure 3.6 Grid C Bottom Friction (left) & 2005 LiDAR Reflectivity (right)

3.4 Calibration Period

The purpose of the modelling is to assess changes to the nearshore wave climate as a result of the construction of the TBF and to establish wave conditions that will be used to drive a sediment dynamics model. For sediment transport modelling, it is important to ensure wave conditions are accurately predicted across the entire year.

Two periods were selected for calibration from different times of the year when contrasting met-ocean conditions would be expected. A summer period and a winter period were each selected for calibration. These periods are selected to provided confidence that wave conditions were adequately reflected by the model at the proposed TBF.

Table 3.4 Calibration/Validation Periods

Month	Start Date	End Date
January	01/01/2020	01/02/2020
May	01/05/2020	01/06/2020

Wave data from these periods are available from the nearshore AWAC and Aquadopp datasets. Details and locations of these devices are shown in Table 3.5 and Figure 3.7.

Table 3.5 Calibration & Validation Datasets

Inputs	Location (Lat, Long)	Water Depth (m)	Source
Dataset 1 - AWAC	-21.9076, 113.9724	~4 m	DoT
Dataset 2 - Aquadopp	-21.9104, 113.9767	~2 m	DoT

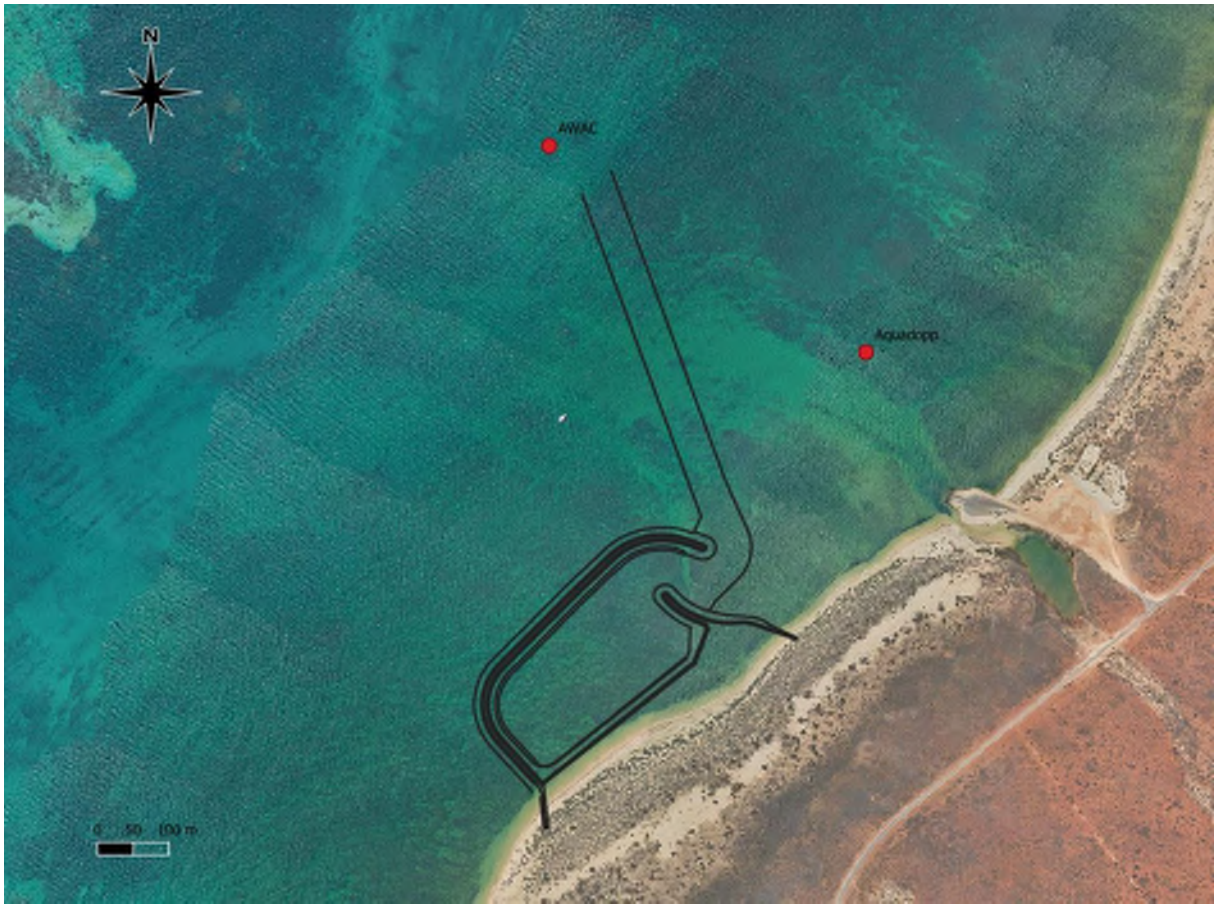

Figure 3.7 Locations of AWAC & Aquadopp

To interrogate the accuracy of the two datasets a comparison of wave heights obtained from MRA analysis of pressure sensors; RBR TAN01 and TAN02; at the same locations as the AWAC and Aquadopp devices respectively, was undertaken. Further details of this assessment are provided in the report for Task 3 (Metocean Climate Analysis) but key outcomes are summarised below.

- There was good agreement between wave heights obtained by RBR TAN01 and the AWAC. Differences in wave height were attributable to the impacts of pressure attenuation of shorter period waves and are considered justifiable and appropriate.

- A comparison of total wave heights recorded at RBR TAN02 and the Aquadopp is shown in Figure 3.8. The difference in total wave height between the RBR and the Aquadopp is quite significant and is greater than would be considered the likely contribution of pressure attenuation on shorter period waves, particularly at the location of the Aquadopp which was positioned in relatively shallow water.

- There is limited confidence in the accuracy of wave data provided relating to the Aquadopp. The Aquadopp data has therefore been disregarded for the purposes of wave model calibration. As such the AWAC is nominated as the only reliable data source for the purposes of calibration of the wave model.

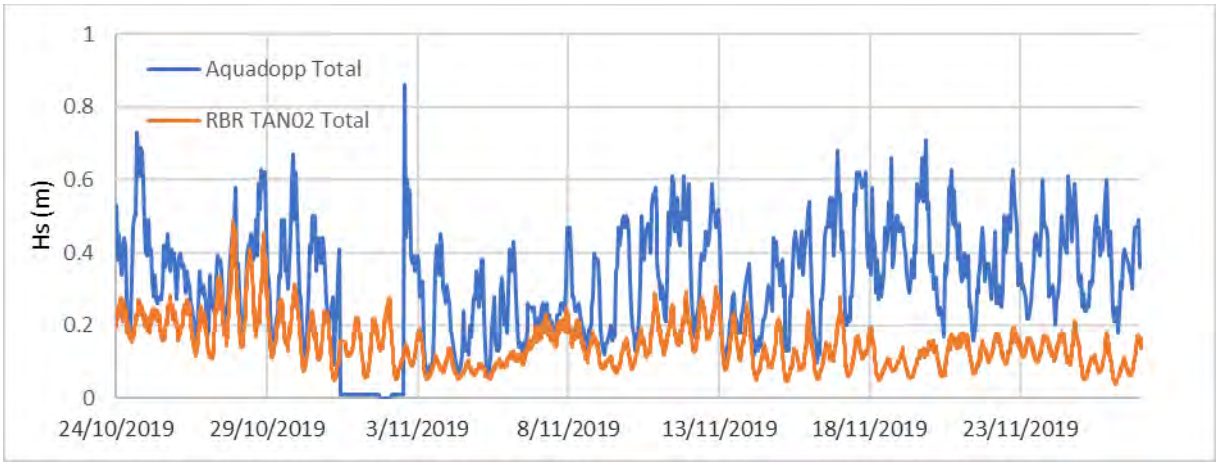

Figure 3.8 Total Wave Height Comparison TAN02 and Aquadopp

Time series data recordings of the model input conditions during the calibration periods are provided in Figures 3.9 and 3.10. Time series of recorded wave conditions at the AWAC across each of the calibration/validation periods are shown in Figures 3.11 and 3.12.

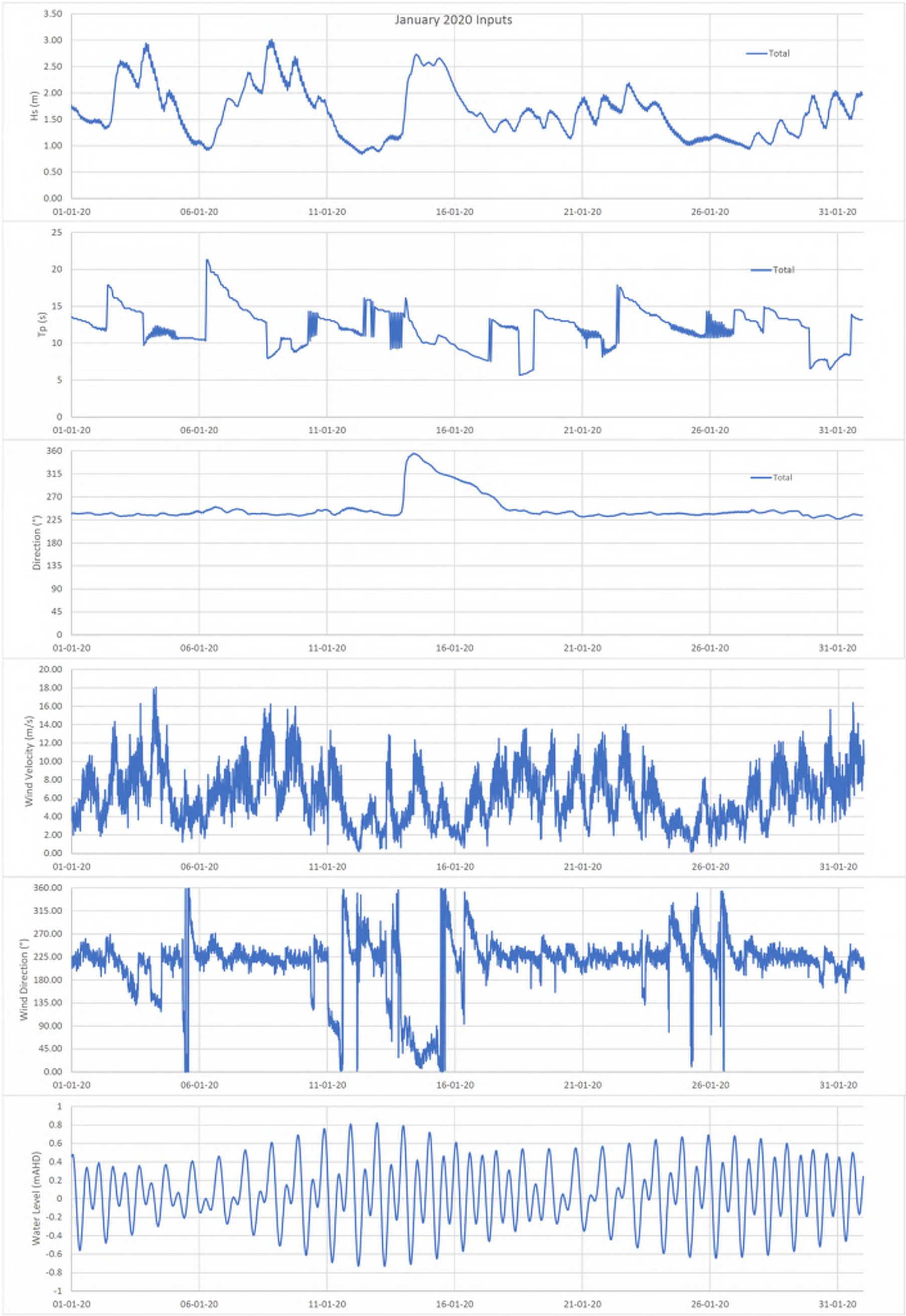

Figure 3.9 Model Input Conditions for January Calibration Period

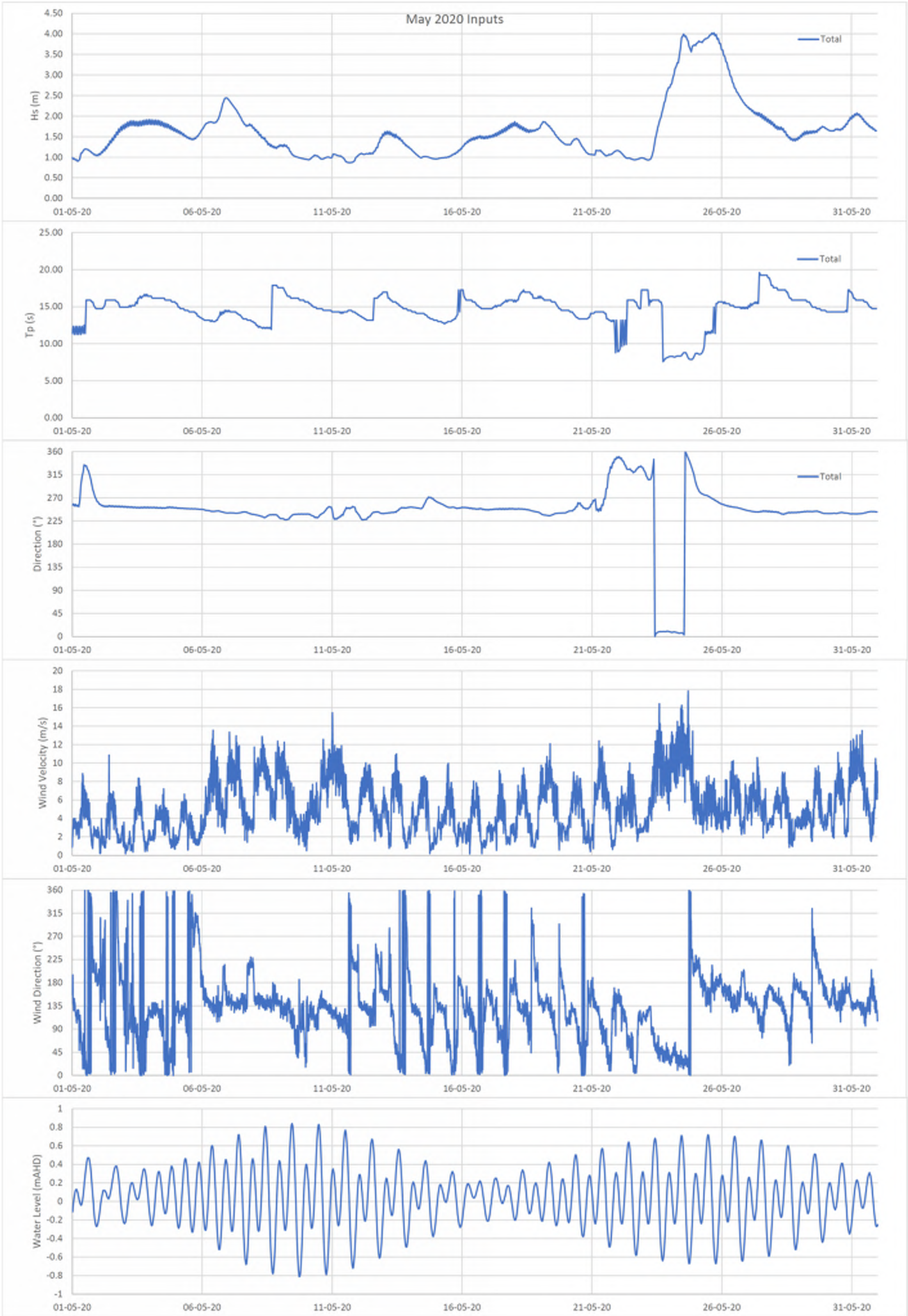

Figure 3.10 Model Input Conditions for May Calibration Period

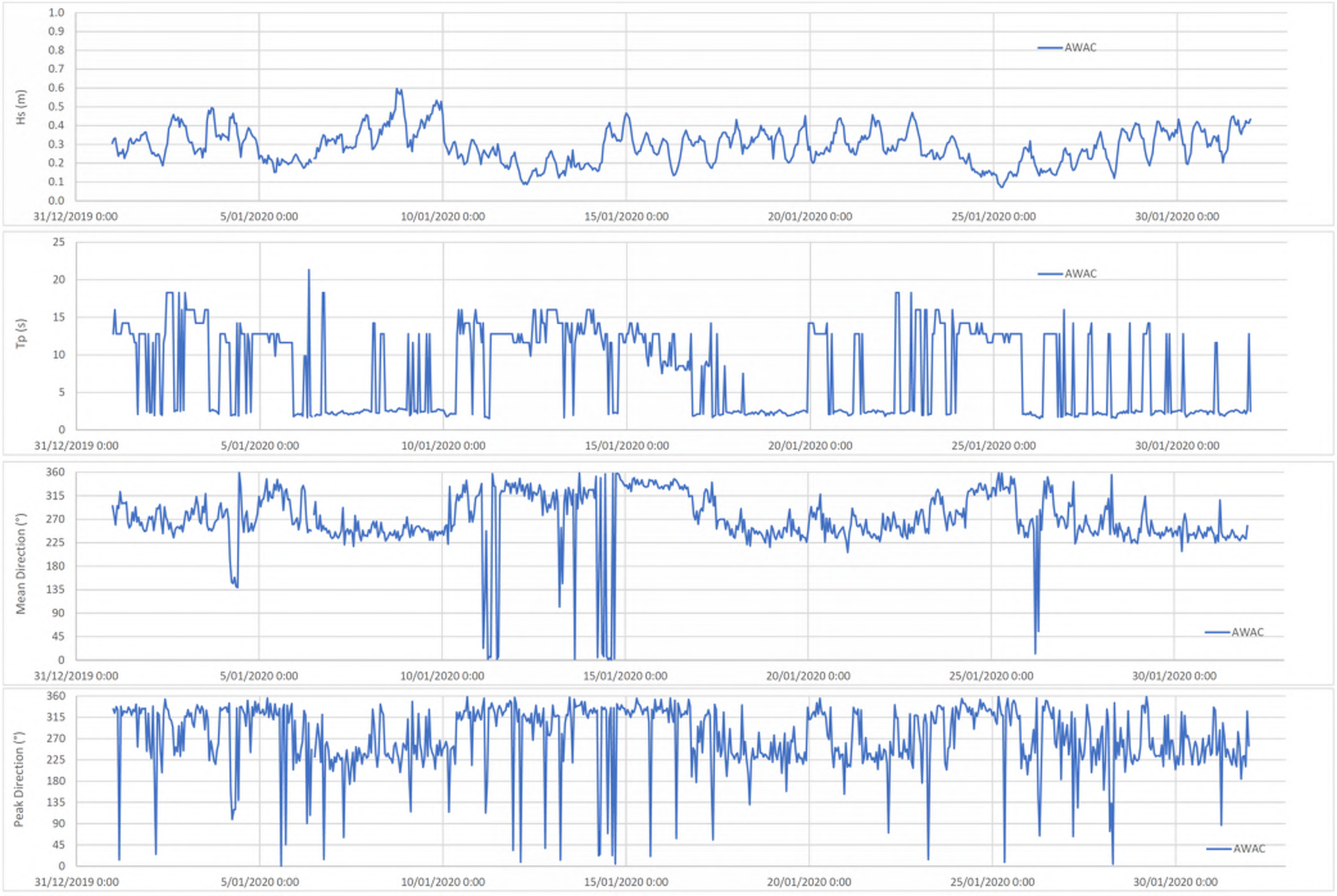

Figure 3.11 January 2020 AWAC Data

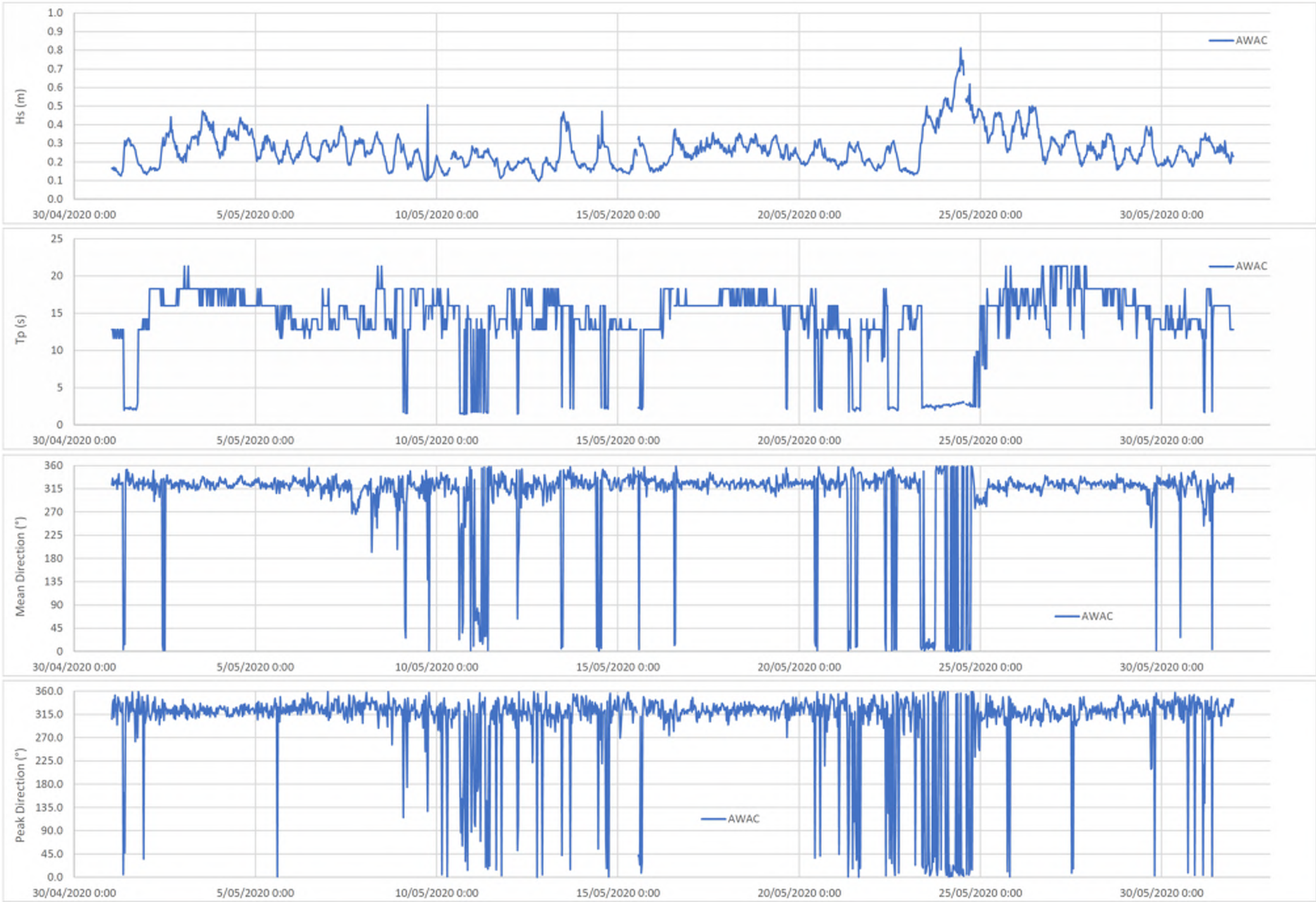

Figure 3.12 May 2020 AWAC Data

The January calibration period contained three main swell periods with two occurring from the west and one from a more northerly direction. The May calibration period was comprised of general swell throughout with a cyclone event towards the end of the month.

3.5 Calibration/Validation Results

The calibration process involved confirmation of the grid mesh and bathymetry to ensure key features are appropriate resolved and modification of bottom friction values to provide the best predictions of measured data at the calibration sites. The bottom friction values were derived from both literature review and review of model performance. The values for these parameters that provided the best model performance are summarised in Table 3.6. The bottom friction coefficients are within reasonable ranges recommended by (Deltares 2011). Vosse (2008) assessed that Collins Friction coefficients between 0.001 and 2.2 may be appropriate for different applications.

Table 3.6 Calibration Parameters

Parameter	Best Model Performance
Collins Bottom Friction	Sand/Flat Rock 0.15 High Relief Reef 0.8

3.5.1 Time History Plots

Time history plots showing the results of the wave modelling for the calibration period against recorded data from the AWAC location are presented in Figures 3.13 and 3.14. Visual interrogation of the plots shows that the measured trends are generally well represented by the model.

Figure 3.13 Comparison of Measured vs Modelled Data at the AWAC (January 2020)

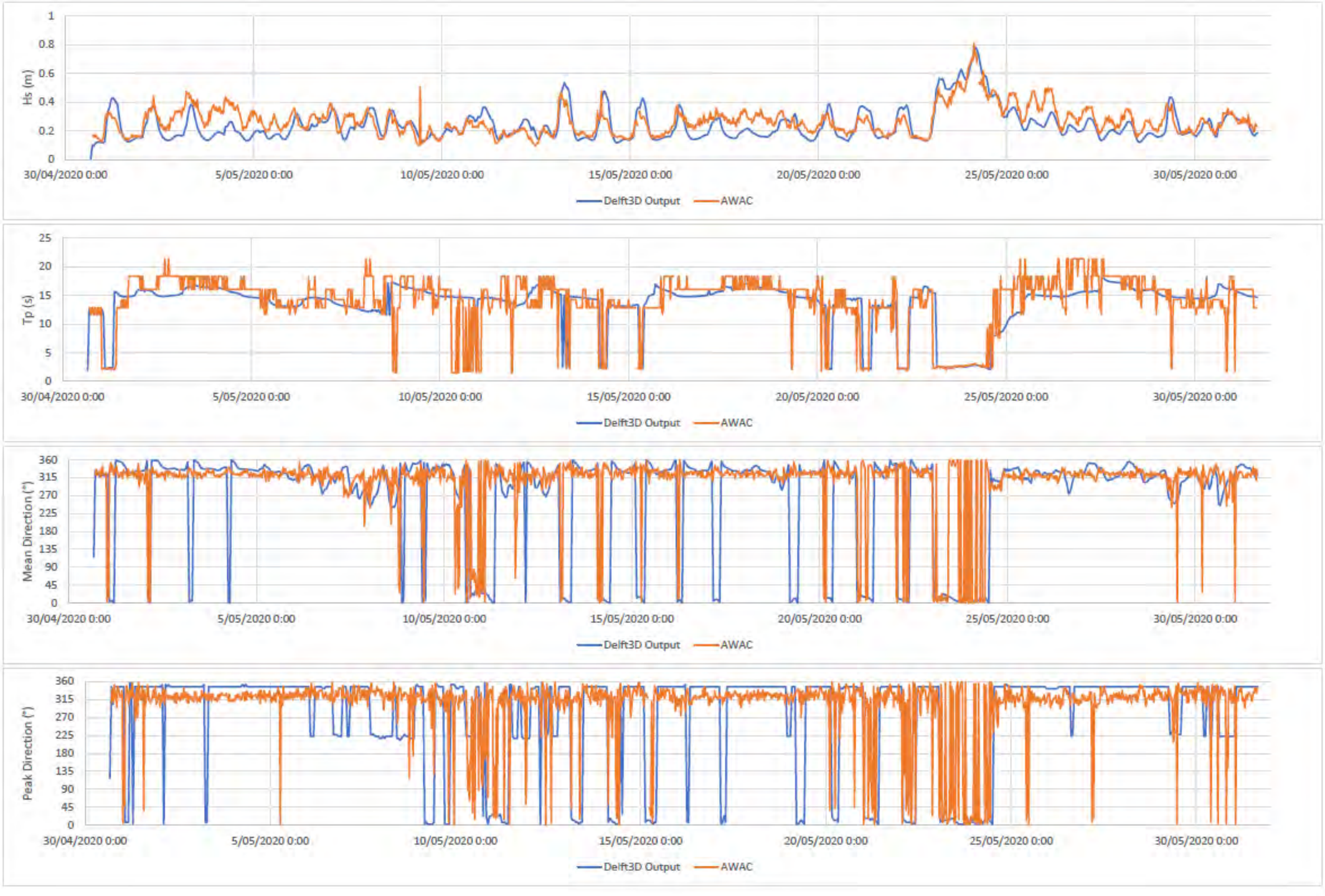

Figure 3.14 Comparison of Measured vs Modelled Data at the AWAC (May 2020)

As can been seen in Figures 3.12 and 3.13 the modelled wave conditions at the AWAC appear to be reasonably accurate representations of the recorded conditions. The main difference between the modelled and measured wave conditions is a reasonably consistent overestimation of the summer period wave height by around 0.1 m.

Significantly, a cyclone event was recorded around the 24th of May and the model results at the AWAC provided very good agreement with the recordings. This helps to provide confidence in the model as a predictive tool to simulate conditions during a storm/cyclone event. However, to truly assess the suitability of the wave model an analysis of the statistical performance is needed.

3.5.2 Statistical Performance

Various statistical tests including the root mean squared error (RMSE), scatter index, Willmott correlation factor (Willmott et al 1985) and bias were utilised to analyse the model performance. The results of these tests along with their formulae are provided in the following tables and are discussed in the following sections.

Table 3.7 Model Agreement Statistic Formulae

Statistical Test	Formula
RMSE	$\sqrt{\frac{1}{N_i}\sum_{i=1}^{N}(S_i - O_i)^2}$
Scatter Index (0-1)	$\sqrt{\frac{\sum_{i=1}^{N}[(S_i - \bar{S}) - (O_i - \bar{O})]^2}{\sum_{i=1}^{N} {O_i}^2}}$
Willmott Correlation Factor (0-1)	$1 - \frac{\sum_{i=1}^{N}(S_i - O_i)^2}{\sum_{i=1}^{N}[\lvert S_i - \bar{O}\rvert + \lvert O_i - \bar{O}\rvert]^2}$
Bias (mean signed difference)	$\frac{\sum_{i=1}^{N}(S_i - O_i)}{\mathrm{N}}$

Table 3.8 Model Agreement Statistics for January 2020 Calibration Period

Statistical Test	AWAC			
	Hs	Tp	Dm	Dp[1]
RMSE	0.08	6.27	32.68	62.54
Scatter Index (0-1)	0.20	0.6	0.12	0.20
Willmott Correlation Factor (0-1)	0.85	0.67	0.84	0.68
Bias (mean signed difference)	0.05	-0.50	-1.89	-36.72

Notes: 1. Comparison of peak direction is undertaken between the modelled direction of peak period (Tp_Direction) and the measured peak direction (Dp). These values represent different properties of the data which accounts for some of the differences in these values.

Table 3.9 Model Agreement Statistics for May 2020 Calibration Period

Statistical Test	AWAC			
	Hs	Tp	Dm	Dp[1]
RMSE	0.08	3.65	26.99	50.77
Scatter Index (0-1)	0.26	0.25	0.08	0.15
Willmott Correlation Factor (0-1)	0.84	0.80	0.67	0.42
Bias (mean signed difference)	-0.03	-0.36	7.19	16.59

Notes: 1. Comparison of peak direction is undertaken between the modelled direction of peak period (Tp_Direction) and the measured peak direction (Dp). These values represent different properties of the data which accounts for some of the differences in these values.

RMSE

The RMSE indicates the absolute fit of the model to the data. As the square root of a variance, RMSE can be interpreted as the standard deviation of the unexplained variance, and has the useful property of being in the same units as the response variable. Lower values of RMSE indicate better fit. RMSE is a good measure of how accurately the model predicts the response, and is an important criterion for fit if the main purpose of the model is prediction.

As shown, these measures for significant wave height are minimal. The RMSE results for peak period are largely attributable to the modelled and measured values alternating between the swell and sea components over quite short durations, however the time history plots show that good agreement has been maintained over both periods. The RMSE for wave direction shows lower values are achieved for mean direction than peak direction. It is likely that the physical differences between model derived peak direction (taken as the direction of the peak wave period) and measured peak direction (derived as the direction associated with the highest wave energy) contribute to this higher difference for the peak wave direction metric.

Scatter Index

The scatter index is the RMSE normalised with the overall mean of the measured and modelled data. This provides a relative measure of the mean error with the actual values of the measured data taken into account (Williams and Esteves 2017). Scatter index scores range from 0 – 1, with 0 representing a perfect score. The results of Scatter Index comparison indicate acceptable performance of the model. The increased Scatter Index of peak period is attributable to the model alternating between the swell and sea components.

Willmott Correlation Factor

The Willmott correlation factor provides an index of agreement between observed and simulated data, normalised to the mean of the measured data. Willmott correlation scores range from 0 to 1, with 1 representing a perfect score. Generally, a score over 0.5 is considered reasonable and a score greater than 0.8 is considered very good (Willmott et al. 1985). As shown in Table 3.8, the model performs well for Hs and Tp across the calibration periods. The model achieves acceptable performance for Dm and Dp across each of the calibration periods, though it is noted that the correlation factor at the AWAC during May is slightly lower than 0.5 for Dp. Nevertheless, the corresponding directional correlation factors across this period show good agreement and the time history plot illustrates a reasonable level of congruence between the directions. Once again, it is anticipated that the differences in the modelled and measured allocation of Dp may have contributed to this result.

It is known that the Wilmott correlation factor overweights larger errors as it is calculated by squaring errors without a subsequent square root (like in the equation for scatter index) (Wilmott 2011). This can lead to underestimates of performance in models with a few points with large error. In contract, the Scatter Index square roots the squared error to calculate the performance which reduces the weighting associated with individual points with large error. This difference is why peak direction at the AWAC performs well for scatter index but not so for Wilmott correlation factor over the May calibration period.

Bias (mean signed difference)

The bias, or mean signed difference, provides an average of the difference between the model and mean values. The results of the assessment show that on average difference between the modelled and measured wave conditions are generally quite small.

Summary

The results of the performance indicators above provide confidence in the use of the model for the purposes of this assessment. Generally, the model performs reasonably well for wave height.

The time history plots and performance indicators also show that wave period is also well predicted by the model even though these are impacted by the switching of peak period between sea and swell components.

There is significant scatter between predicted and modelled wave directions. This is to be expected given that the wave model is set-up to resolve waves overly hourly timesteps. Whilst wave direction is measured over short durations. Wave directions, particularly those dominated during sea conditions are sensitive to the wind fields which can vary significantly over small timeframes and distances. These processes are not intended to be reflected in the model. The primary outcome for wave direction is to drive sediment transport in the morphological model and as such the overall trend in wave direction is of most importance. The bias of mean wave direction is most appropriate for assessing the performance in this regard.

It is also noted that intuitively, accurate measurement of waves and particularly directions are difficult given the complex nature of the water profile. Different methods of measuring waves can give results that vary in the order of ±10% (and often greater). This should be considered when reviewing models and their ability to accurately reflect measurements.

3.5.3 Scatter Plots

Scatter plots for each of the calibration periods are provided in Figures 3.15 and 3.16. The scatter plots provide another means of reviewing the model performance by directly comparing the measured and modelled values. The scatter plots generally show good agreements between the measured and modelled data, though it is noted that peak period and peak direction are prone to variations as a result of fluctuations in values between sea and swell components.

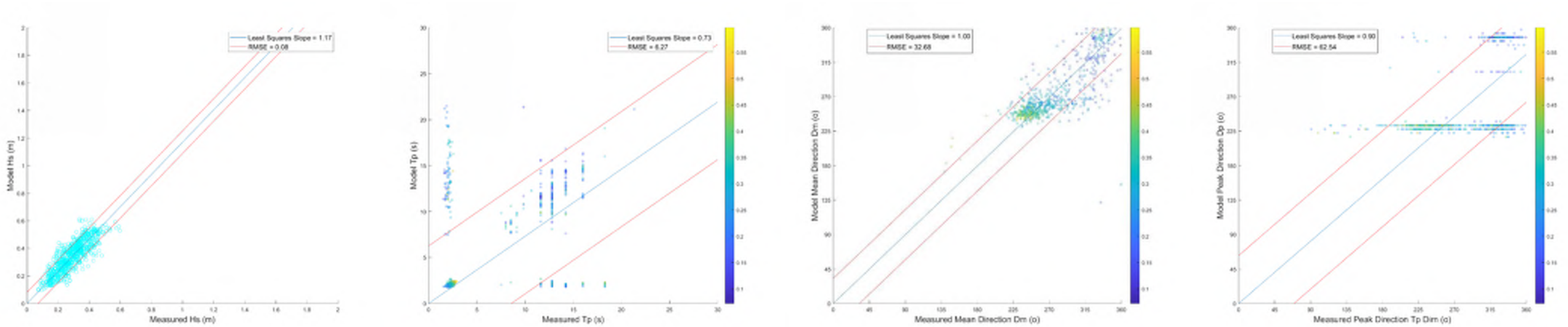

Figure 3.15 Measured vs Modelled Data Scatter Plots at the AWAC left (January 2020)

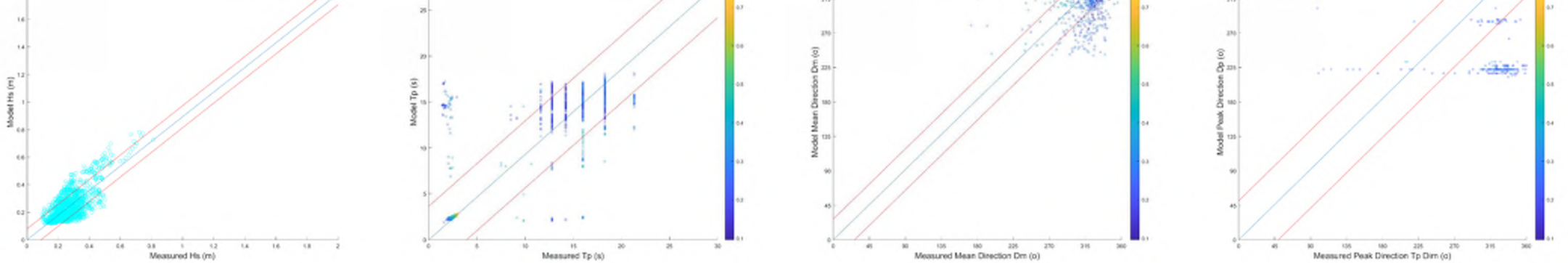

Figure 3.16 Measured vs Modelled Data Scatter Plots at the AWAC (May 2020)

4. Representative Periods

To determine the likely wave climate at the proposed TBF six representative periods of three months were modelled. These representative periods were extracted from the Wavewatch III hindcast model at the closest gridded output point. The selection and validity of this output point is further discussed in the Task 3 report – *Tantabiddi Creek Metocean Climate Analysis* (MRA 2021b). Of the six representative periods four were selected to represent the typical conditions at the site and the other two were selected to represent abnormal conditions.

4.1 Representative Periods

4.1.1 Typical Conditions

The four representative periods of typical conditions were selected to each cover one of the seasons, as this allowed for the creation of a "typical" year composed of the typical conditions for autumn, winter, spring and summer. These seasonal identifiers are somewhat notional, as the primary seasonal flux is between the summer "wet" and winter "dry" seasons. The typical conditions were determined through analysis of the wind and wave data. As such the year that had the best representation of the average wave, water level and wind conditions was selected as the representative period for that season. Figures 4.1 to 4.4 show details of the wave and wind conditions experienced for each season over the period of data availability (1979 to 2020). Mean and standard deviations are shown on these figures to assist in the review of the relevant periods.

The selected time periods for each of the representative periods of typical conditions are presented in Table 4.1.

Table 4.1 Typical Conditions Representative Periods

Season	Representative Period
Summer (Typical)	01/12/15 – 29/02/16
Autumn (Typical)	01/03/13 – 31/05/13
Winter (Typical)	01/06/11 – 31/08/11
Spring (Typical)	01/09/07 – 31/11/07

As shown in the figures (typical years are underlined in green), the selected periods generally exhibited conditions that were average with respect to wave height, period and direction as well as wind speed and direction. It is highly unlikely that any one period is going to be perfectly average across all of these components, so the selected periods were those that were considered to provide the representation of the most average values.

Figure 4.1 Temporal Variation in Wave and Wind Conditions over the Summer Period

Figure 4.2 Temporal Variation in Wave and Wind Conditions over the Autumn Period

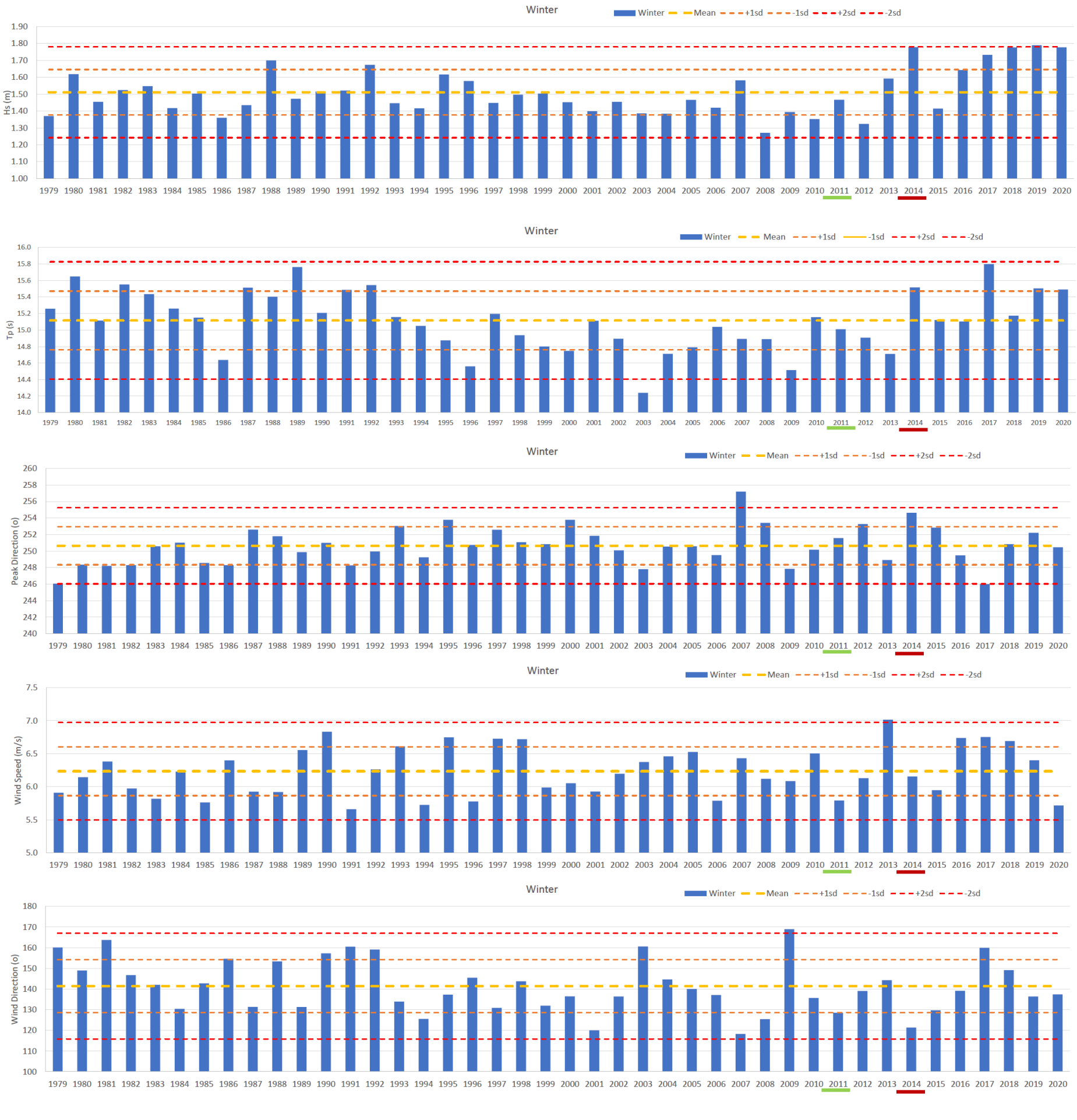

Figure 4.3 Temporal Variation in Wave and Wind Conditions over the Winter Period

Figure 4.4 Temporal Variation in Wave and Wind Conditions over the Spring Period

4.1.2 Abnormal Conditions

The events selected for the typical conditions generally provide a representation of the average conditions that can be expected at the site; however, the impact of abnormal conditions also needs to be considered. Importantly, abnormal conditions do not just need to represent severe weather conditions, as calm conditions can also have impacts when considering items such as sediment transport or flushing within the facility. The representative periods for the abnormal conditions were selected in a similar manner to the typical conditions through review of wave heights, periods and directions as well as wind speed and direction. Two periods of abnormal conditions were selected. Table 4.2 shows the periods that were chosen. These periods are also highlighted by the red underline in Figures 4.2 and 4.3.

Table 4.2 Abnormal Conditions Representative Periods

Season	Representative Period
Autumn (Abnormal)	01/03/98 – 01/05/98
Winter (Abnormal)	01/06/14 – 31/08/14

The abnormal autumn period was chosen on the basis that it represented the calmest conditions observed over the period of record. The wave heights and wind speeds were amongst the lowest observed across all periods, yet these occurred coincidentally within this one period making it abnormally calm.

The abnormal winter period was selected as it contains one of the highest recorded average wave heights during any period. These high wave heights also correspond with an average wave direction that was around two standard deviations more northerly than average. As a result, the incident waves during this period have the potential to cause different wave directions at the shoreline compared to more typical wave directions. This could be important with respect to sediment transport processes.

It should be noted that an abnormal summer period was not selected for further investigation, as abnormal events in summer are largely influenced by the passage of tropical cyclones. The influence of tropical cyclones has been considered as part of the Task 4 report.

5. Results & Discussion

5.1 Concept B

The calibrated wave model was used to simulate each of the selected periods. Each period was modelled twice – once based on the existing shoreline and once including the proposed TBF. The different model simulations were then used to directly compare the wave climate in the area surrounding the TBF. As a first pass review of the differences, time history plots of wave conditions were prepared for each of the locations shown in Figure 5.1. The rationale for the selection of these locations is provided in Table 5.1. Time history plots of wave conditions for each of these locations, and for each period, are presented in Appendix B.

Figure 5.1 Locations used to Review Differences in Wave Conditions

As expected, the time history plots show relatively small differences between the wave conditions at most locations. A summary of the findings from the review of the time history plots is provided in Table 5.1. As part of this review, it should be noted that the SWAN model does not simulate wave reflections off breakwaters or other structures. As a result, the wave conditions presented do not show the full wave climate that could be expected, though it is anticipated that wave reflections would be small due to the characteristics of the incident waves.

Table 5.1 Summary of Differences in Wave Conditions at Each of the Output Locations

Location	Importance of Selection of Location	Observations
1	Assessment of potential wave induced changes on the beach area to the south	Some small reductions in wave heights associated with northerly events, largely during winter and a small amount in autumn. Reductions in wave heights are less than 0.1 m. Slight changes to wave directions occur during these periods with a counter-clockwise change in wave direction.
2	Assessment of potential wave induced changes immediately offshore from the facility	Very minor reductions in wave heights are noted during some periods, largely associated with northerly conditions. Changes are generally well less than 0.05 m.
3	Assessment of any wave changes in the channel adjacent to the breakwaters (to review potential navigation issues)	Reasonably persistent reduction in wave height by between 0.05 and 0.1 m across most periods.[1]
4	Assessment of any wave changes within the approach channel	Very minor changes in wave heights. Most reductions in wave height occur during periods of higher wave periods.
5	Assessment of potential wave induced changes on the beach area in the lee of the entrance	Significant reductions in wave heights during periods with westerly wave conditions combined with a clockwise rotation in wave directions. Much smaller reductions in wave conditions during northerly wave conditions.
6	Assessment of potential wave induced changes on the beach area to the north as a result of the facility and channel	Relatively minor changes to wave conditions, though changes up to around 0.05 m are observed during westerly events.

Notes: 1. The SWAN model does not simulate wave reflection off the breakwaters. Consideration of wave reflections could be completed as part of Task 9.

Not surprisingly, the wave conditions closer to the facility show a greater extent of difference than the sites further afield – largely attributable to the extent of shadowing provided by the facility from different wave directions. To better illustrate the extent of differences across different wave conditions, spatial plots have been prepared for key events which impact the area, including sea breeze, swell and storm events. Spatial plots for these events are presented in Figures 5.2 to 5.4

respectively. These show the magnitude and direction of wave changes resulting from the introduction of the TBF into the wave model.

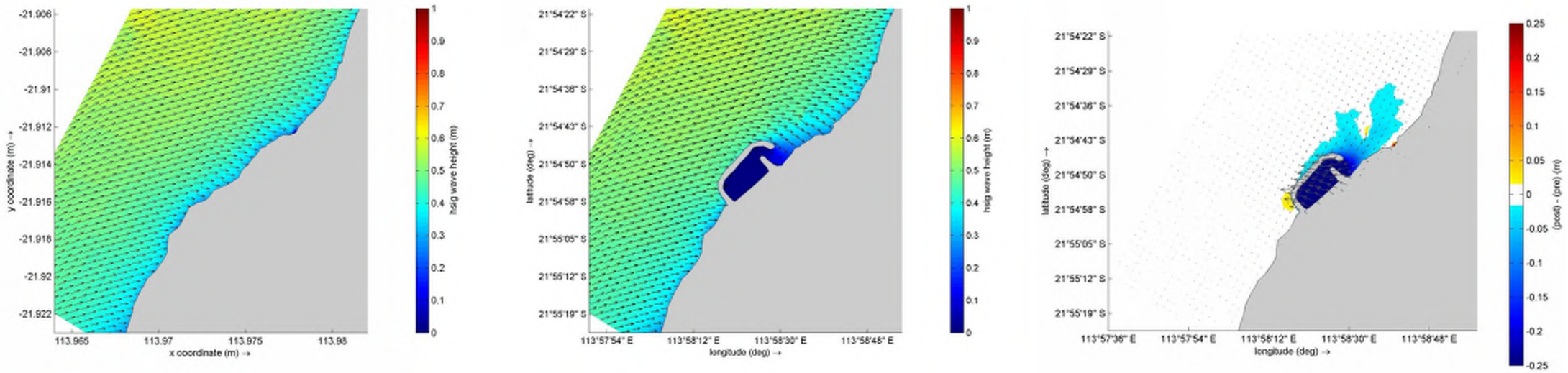

Figure 5.2 Spatial Plots for Typical Summer Sea Breeze Event (15/12/15 16:00)

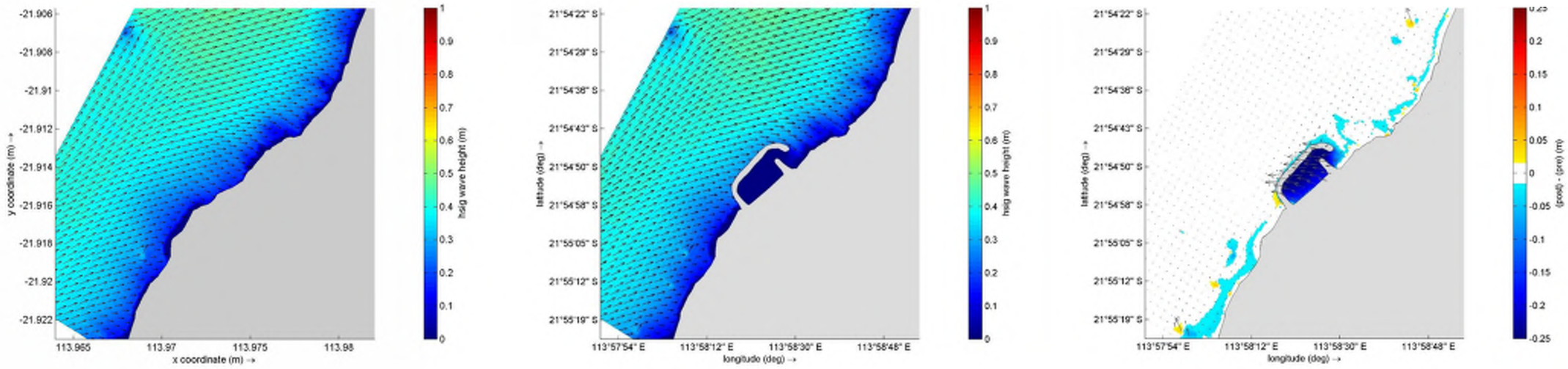

Figure 5.3 Spatial Plots for Typical Swell Event (13/05/08 09:00)

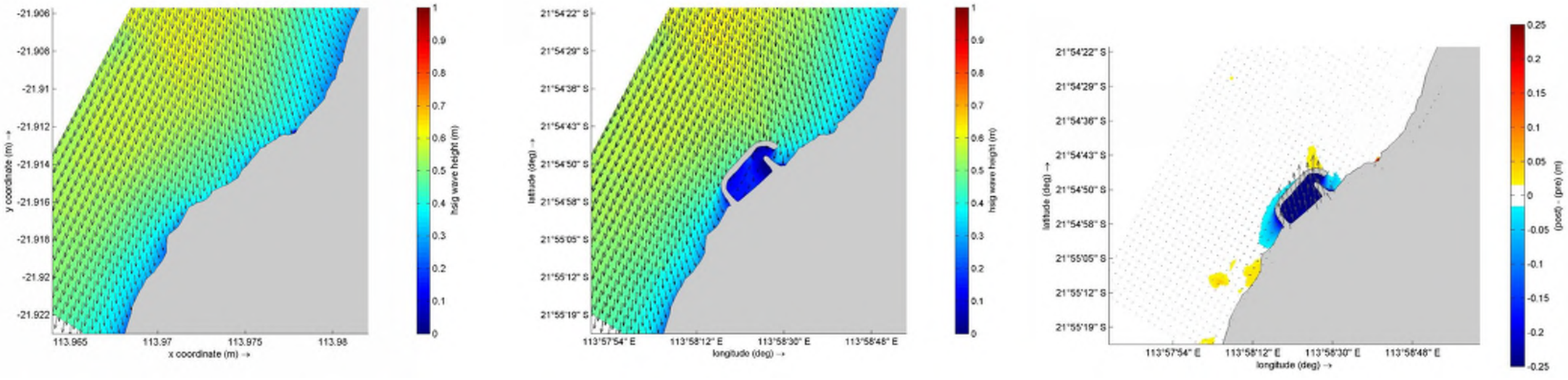

Figure 5.4 Spatial Plots for Typical Storm Event

Reviewing the results of the sea breeze event shows that the wave conditions are changed in the areas to the north of the TBF. The majority of this change is less than 0.05 m for wave heights typically in the order of 0.5 m. Therefore the amount of wave height reduction is comparatively small. The extent of the differences in wave heights along the coastline to the north is potentially impacted to a small degree by the channel and minor wave transformation effects over this area.

The larger effect, as shown by the time history plots, is in the lee of the main breakwater near the entrance to the facility. The spatial plots show the extent of the directional change that accompanies this change in wave height. This change in wave direction is one of the key factors when considering the potential impacts of the facility on the coastline, and visa versa, as the sheltering provided by the facility on the northern coastline will not only reduce the transport of sediment to the north along this shoreline (as shown in the Task 2 *Shoreline Movement Analysis* report (MRA 2021a), but will actually potentially promote a southerly transport of sediment into the area.

The spatial plot for the swell event shows the conditions that would be experienced at the site when a 3 m, 17.8 s swell from a direction of 264° is experienced offshore. The modelling results confirm the details shown in the Task 3 *Metocean Climate Analysis* report (MRA 2021b) which demonstrated that a significant attenuation of swell energy occurs over the reef, with wave heights at the site generally less than 0.4 m during such an event.

The largest changes in wave conditions during the swell event are shown in close proximity to the TBF, though it is noted that some changes in wave conditions are shown along the shoreline further afield from the facility. These far field changes along the shoreline are typically the result of small numerical differences within the model caused by the introduction of the concept, though in some cases these changes can be real as they are associated with longer wave periods which would exhibit a greater potential for change along the shoreline. In any case, the changes along the shoreline are small in magnitude and are not expected to be significant.

Similar to observations under the sea breeze event, immediately in the lee of the main breakwater near the entrance to the facility there is a reversal in wave direction as the waves diffract around the breakwater. This may have some influence on sediment transport in the region.

The storm event plots show the incidence of wave heights in the order of 0.6 m from the north. Opposite to the sea breeze event, waves from this direction show a reduction in wave height along the shoreline immediately south of the facility. A corresponding diffraction of wave energy around the breakwaters also occurs, though it is noted that the shadow effect of the facility is reduced on the southern side due to the relative differences in approach angle of the waves and the higher wave period associated with the storm conditions.

Changes to the wave heights on the northern side of the TBF are noted near to the entrance, however these changes are largely associated with slight decreases in wave heights caused by minor sheltering of the peripheral sections of the incident wave energy spectra. Nevertheless, these changes in wave heights have minimal effect on the incident wave directions, with directions maintaining their alignment towards the facility.

The modelling of the storm event also suggests that there could be minor increases in wave heights near the channel. These changes are likely to be associated with wave transformation and refraction processes as the waves run along the approximate direction of the channel. Whilst this is not particularly significant in this case, further consideration is required when reviewing the design events, with potential focussing of wave heights onto the breakwaters possible in some areas.

In addition to the plots for key events, average difference plots have been prepared over the entire duration of each of the representative periods and are presented in Figure 5.5 to 5.10.

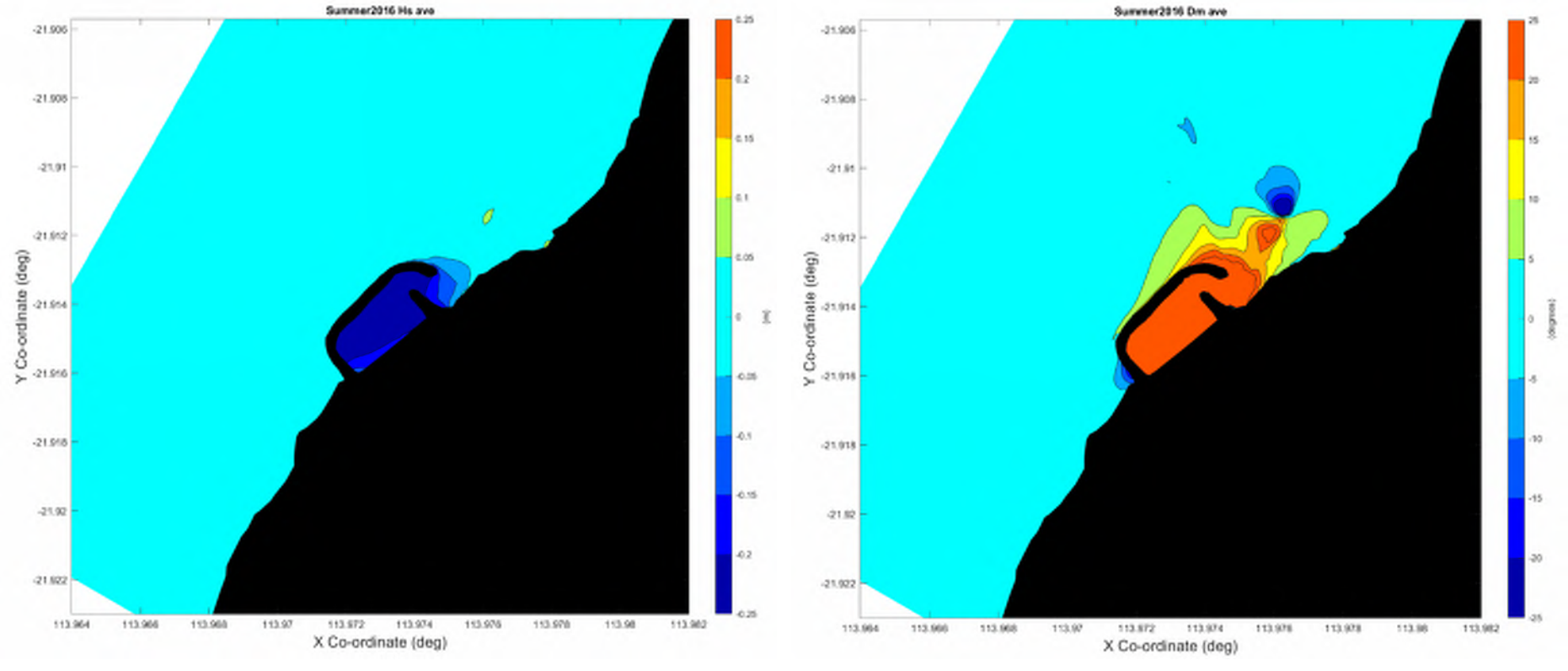

Figure 5.5 Spatial Difference Plots for Typical Summer (2015/16) – Post Development Minus Pre Development

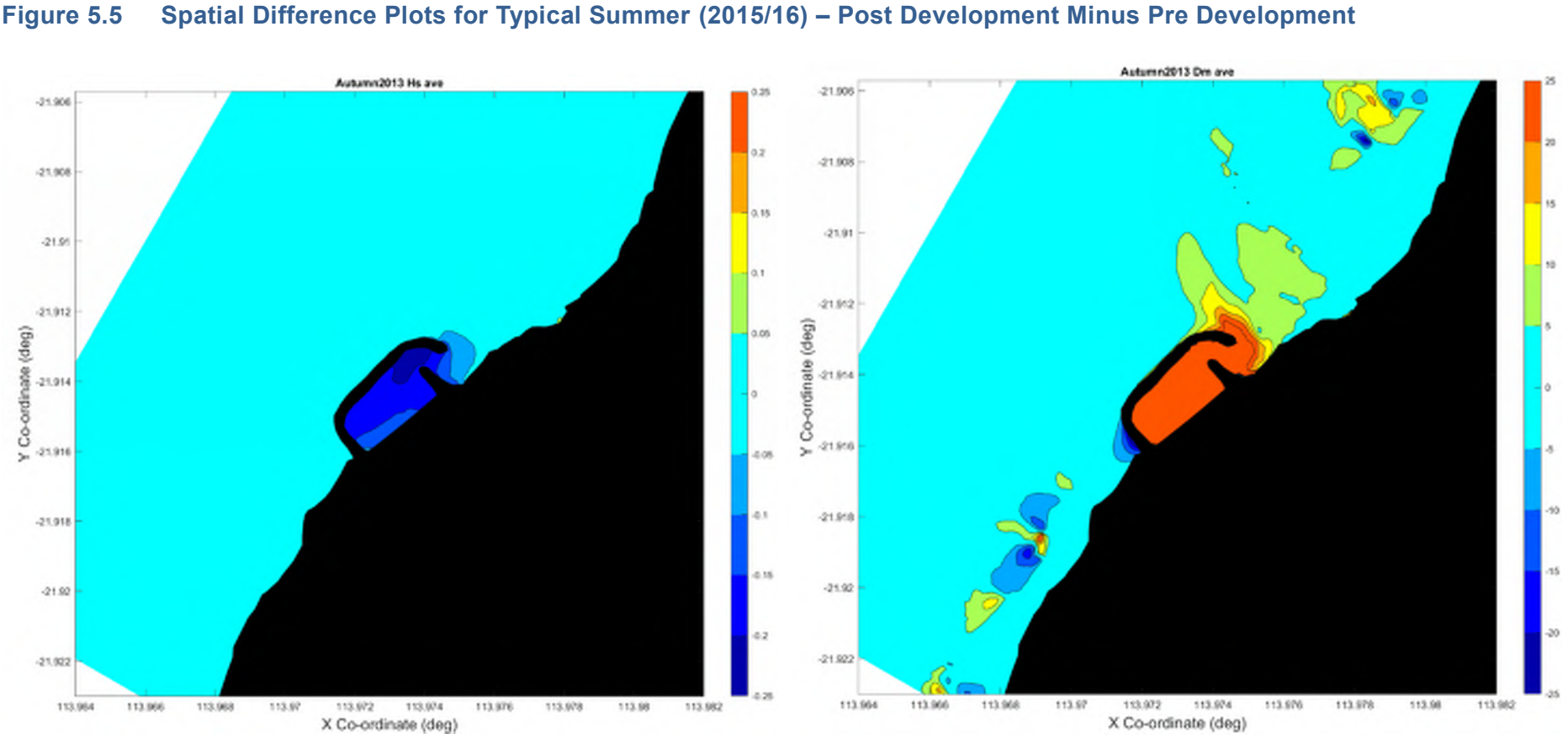

Figure 5.6 Spatial Difference Plots for Typical Autumn (2013) – Post Development Minus Pre Development

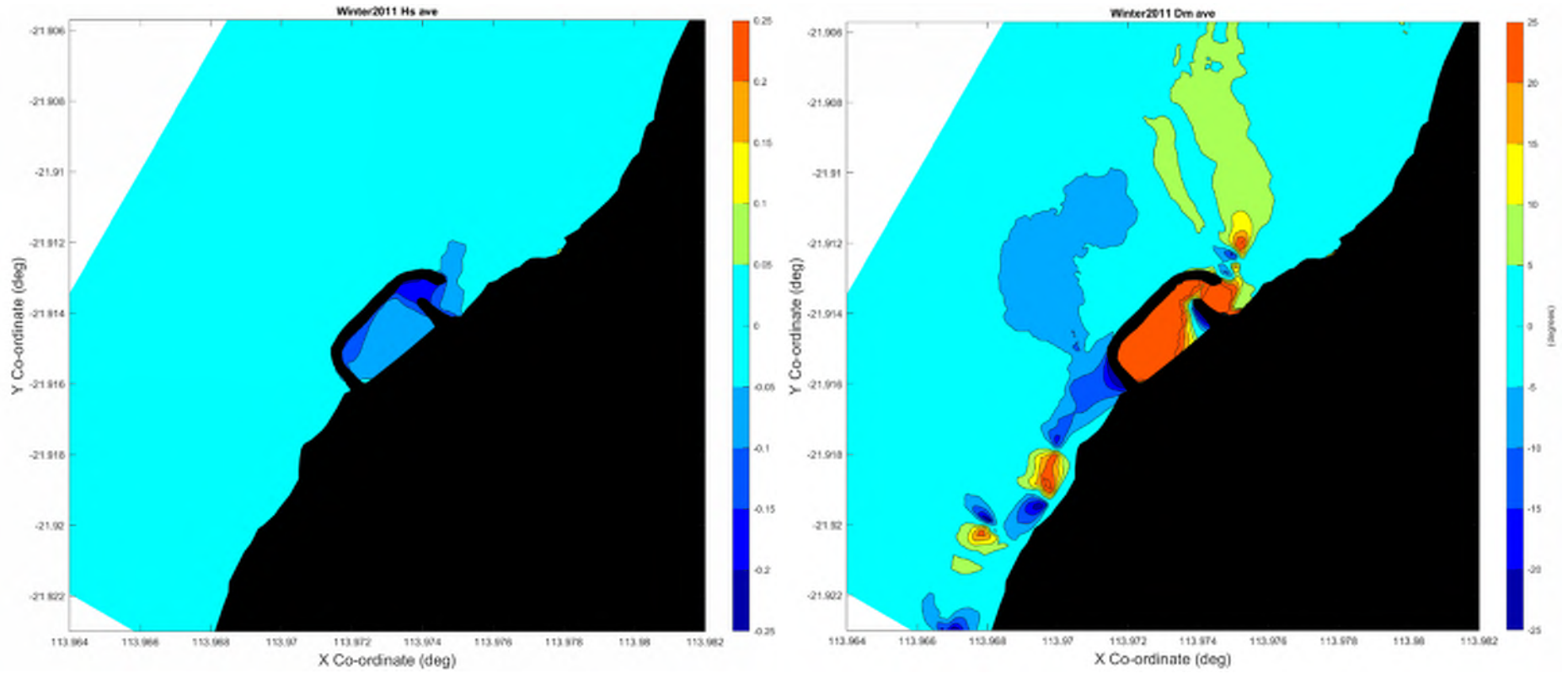

Figure 5.7 Spatial Difference Plots for Typical Winter (2011) – Post Development Minus Pre Development

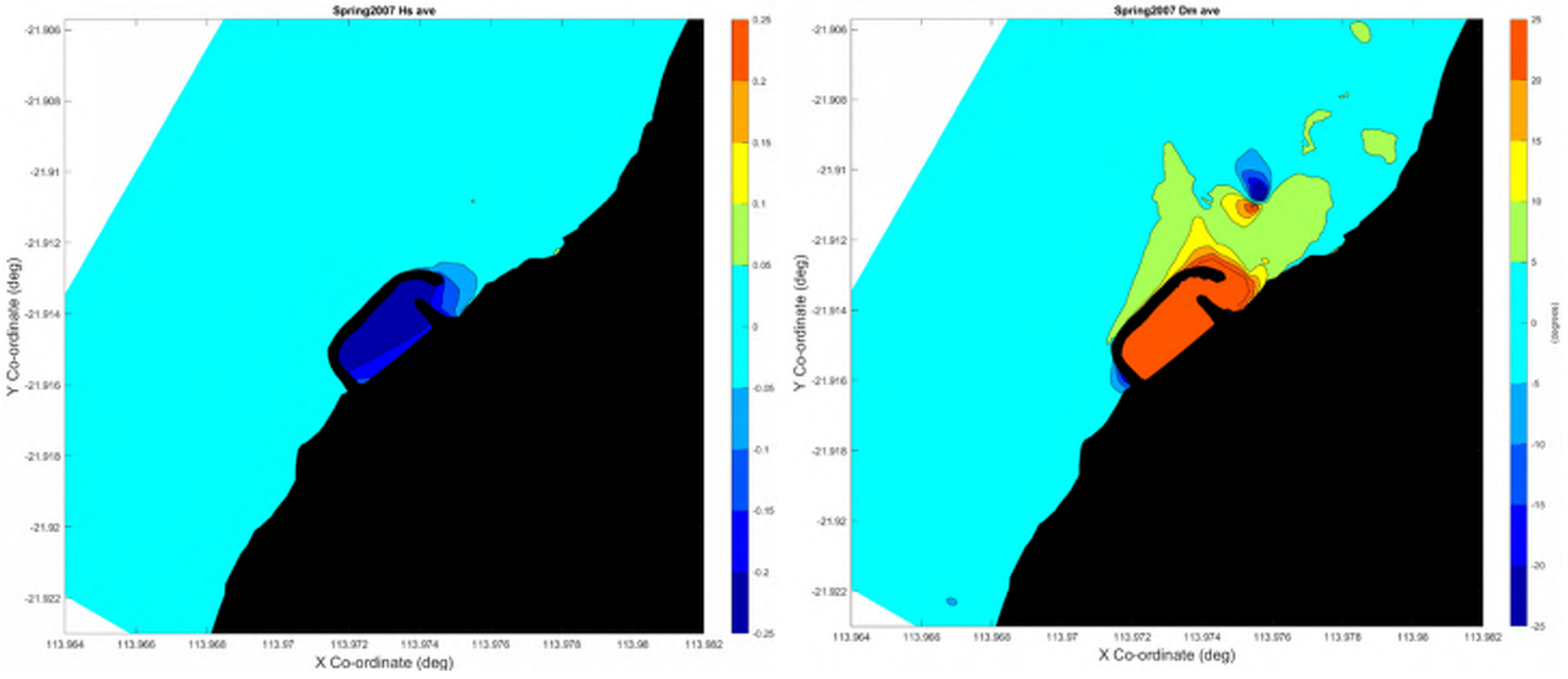

Figure 5.8 Spatial Difference Plots for Typical Spring (2007) – Post Development Minus Pre Development

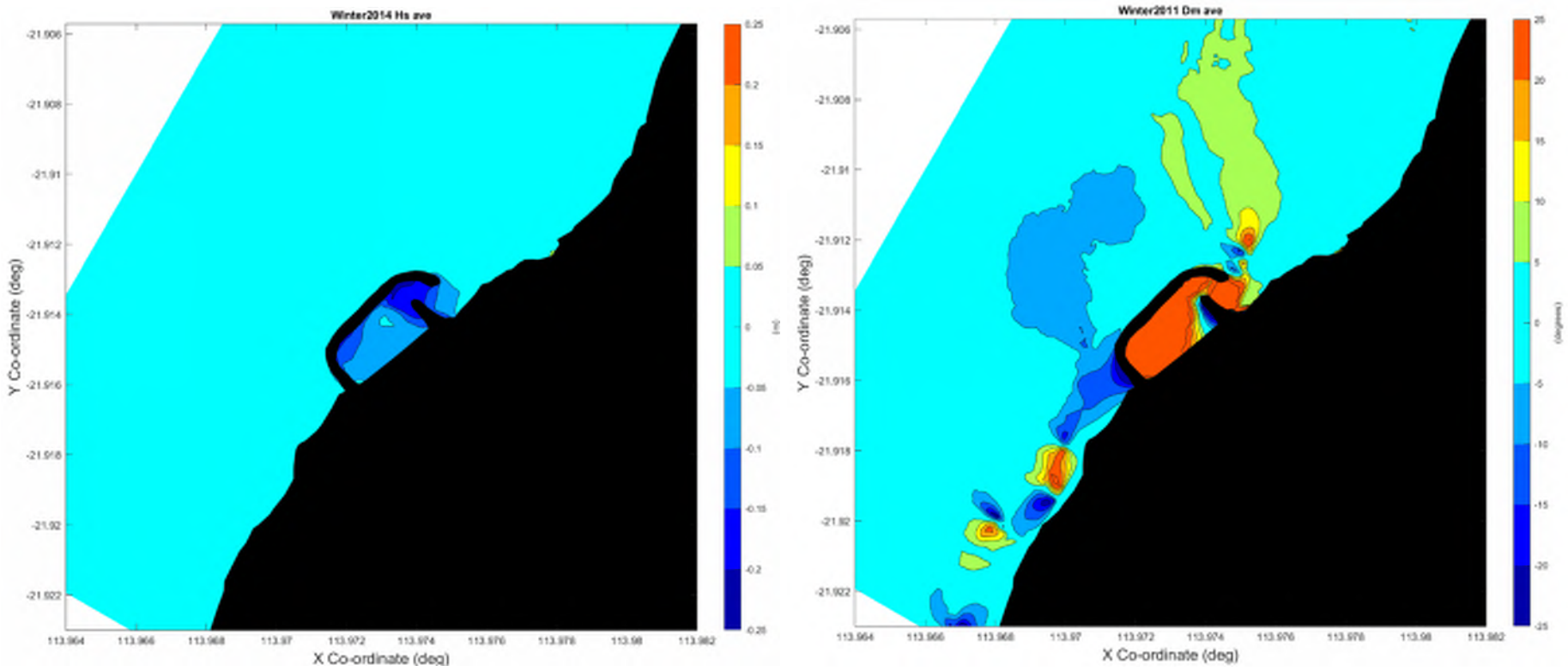

Figure 5.9 Spatial Difference Plots for Abnormal Winter (2014) – Post Development Minus Pre Development

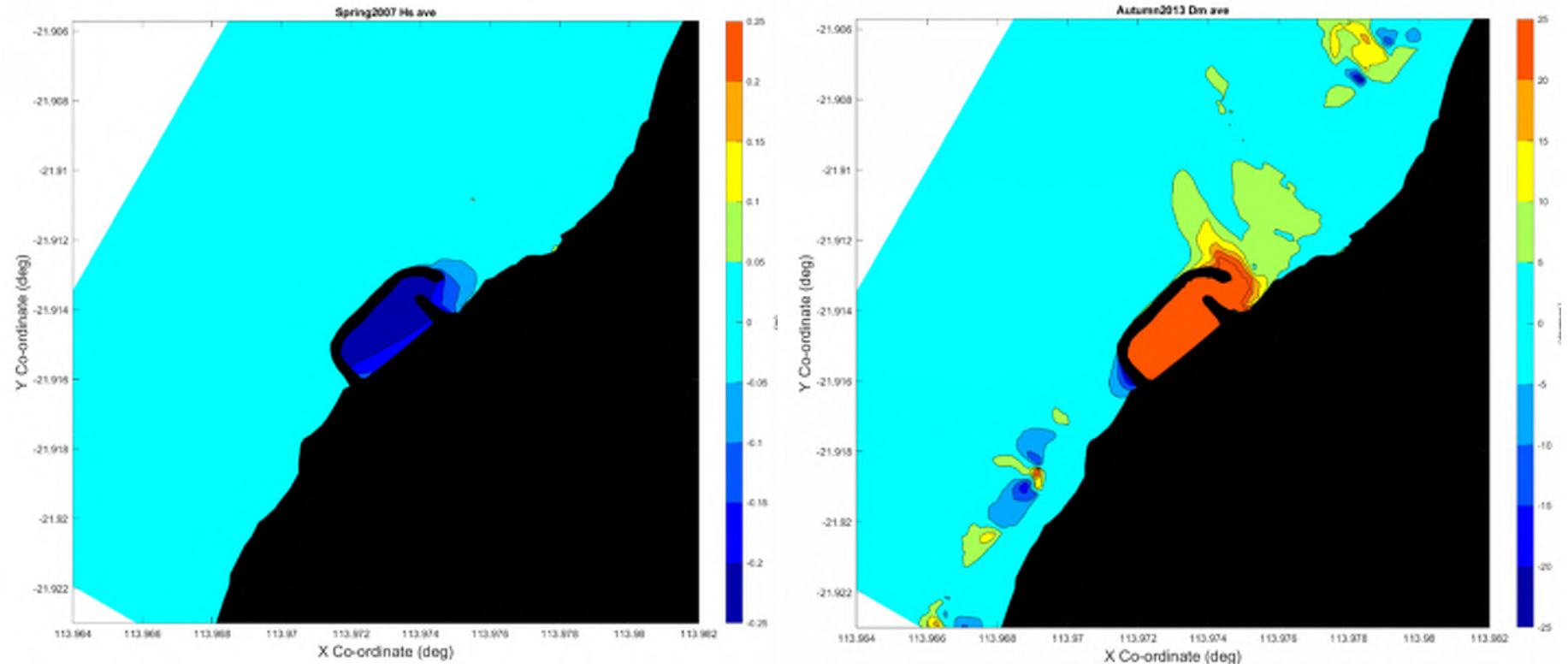

Figure 5.10 Spatial Difference Plots for Abnormal Spring (1998) – Post Development Minus Pre Development

The time average spatial plots along with the time history plots (presented in Appendix B) show the potential scale of the wave height differences in wave climate outside the breakwaters are quite small and also quite localised.

When reviewing the difference plots, it is important to note that any change to the grid or bathymetry of a model, no matter how small, will result in differences to the numerical calculations of the model simulation. Considering this, the key observations from the spatial plots are summarised below.

- The introduction of the TBF causes a large reduction in the significant wave height inside the breakwaters.

- Spatial plots of average difference show negligible or zero change in significant wave height at locations away from the TBF across all modelled periods. Furthermore, there does not appear to be any noticeable impact of the proposed dredged entrance channel on wave heights outside the TBF.

- Changes in mean wave direction are slightly more noticeable at locations further from the TBF. This is likely due to the fact that during ambient periods, small wind generated waves can be generated from all directions. Introduction of the TBF represents an obstruction across the wind fetch which can impact the average mean wave direction across the modelled period. However, these waves are small and this change does not represent a significant impact to wave climate. This is evidenced by the fact that during key events, there are negligible changes to mean wave direction at locations outside the TBF or in the immediate lee of the facility.

- The largest impacts to mean wave direction are within and to the immediate north of the facility. The spatial plots show the extent of a southerly directional rotation of waves approaching from the west through north west. This change in wave direction is one of the key factors when considering the potential impacts of the facility on the coastline, and visa versa, as the sheltering provided by the facility on the northern coastline will not only reduce the transport of sediment to the north along this shoreline but will actually potentially promote a southerly transport of sediment into the area.

Overall, the outcomes of the wave climate review are reasonably intuitive and expected. The main item that the wave climate review has highlighted is the potential for sand accumulation on the northern side of the TBF in the lee of the breakwaters. This accumulation is likely to result as conditions that would typically have transported sediment north along the coastline would now be greatly reduced in the wave shadow, or would potentially transport material to the south towards the inner breakwater due to diffraction effects. Northerly events that would transport sediment to the south would be largely unaffected on the northern beach. As a result, sediment is expected to be able to be transported into this area, but would not be naturally transported away. The corollary of this is that sand management in the area would potentially be required to prevent the sand accumulating to the extent that it causes issues for the operation of the facility. The potential for this to become an issue and/or details of the maintenance requirements will be determined as part of the sediment transport modelling completed as Task 6.

5.2 Concept C Update

The previously calibrated wave model was used to simulate the selected periods for a “typical year” including the new Concept C for the proposed TBF. This simulation was then used to directly compare the wave climate in the area surrounding the proposed TBF. As a first pass

review of the differences, time history plots of wave conditions were prepared for each of the locations shown in Figure 5.11. The rationale for the placement of these locations is provided in Table 5.2. Time history plots for each of these locations are presented in Appendix C.

Figure 5.11 Time History Output Locations

Table 5.2 Summary of Differences in Wave Conditions at Each of the Output Locations Concept C

Location	Importance of Selection of Location	Observations
1	Assessment of potential wave induced changes on the beach area to the south. Same location as for Concept B.	Small reduction in wave heights associated with northerly events, largely during winter. Reductions in wave heights are less than 0.1 m. Slight changes to wave direction occur during these periods with a counter clockwise change in wave direction.
2	Assessment of potential wave induced changes immediately offshore from the facility	Very minor reductions in wave heights generally well less than 0.05 m during some periods are noted.
3	Assessment of any wave changes in the channel adjacent to the breakwaters (to review potential navigation issues)	Some small reductions in wave height associated with westerly events. Reductions in wave heights are less than 0.1 m.
4	Assessment of any wave changes within the approach channel	Very minor changes in wave heights. Most reductions in wave height occur during periods of higher wave periods.
5	Assessment of potential wave induced changes on the beach area in the lee of the entrance. Same location as for Concept B.	Significant reductions in wave heights during periods with westerly wave conditions combined with a clockwise rotation in wave directions. Much smaller reductions in wave conditions during northerly wave conditions.
6	Assessment of potential wave induced changes on the beach area to the north as a result of the facility and channel. Same location as for Concept B.	Relatively minor changes to wave conditions, though changes up to around 0.05 m are observed during westerly events.

Notes: 1. The SWAN model does not simulate wave reflection off the breakwaters. Consideration of wave reflections could be completed as part of Task 9.

Similar to Concept B, the wave conditions closer to the facility show a greater extent of difference than the sites further afield – largely attributable to the extent of shadowing provided by the facility from different wave directions. To better illustrate the extent of differences across different wave conditions for Concept C, spatial plots have been prepared for the same key events as assessed in Section 5 for Concept B. The spatial plots for Concept B have been provided again to allow for easy comparison of the differences between the two designs. It is noted that due to time constraints the wave, hydrodynamic and morphological modelling were completed concurrently.

As such there may be small differences between the Concept C modelling and that completed previously due to the changes in the bathymetry from sediment movement. Whilst this can result in minor differences in the plots of wave height and direction the larger scale changes are what is of interest.

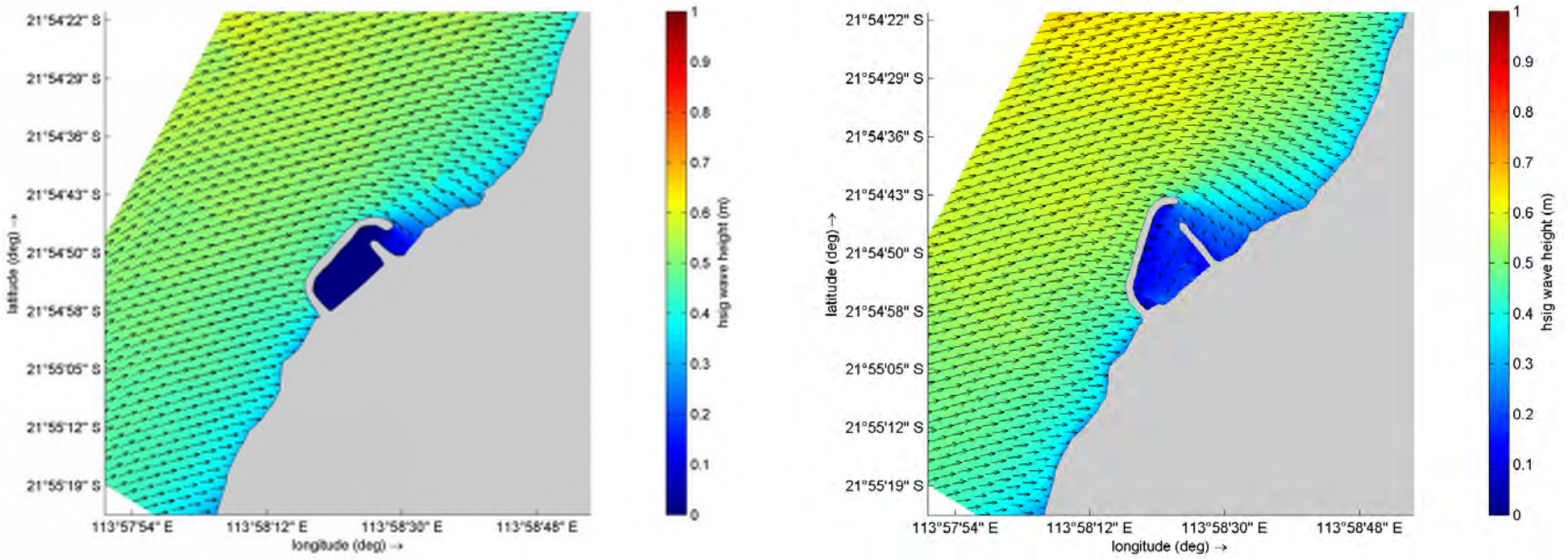

Figure 5.12 Spatial Plots for Typical Summer Sea Breeze Event for Concept B (left) & Concept C (right) (26/12/15 16:00)

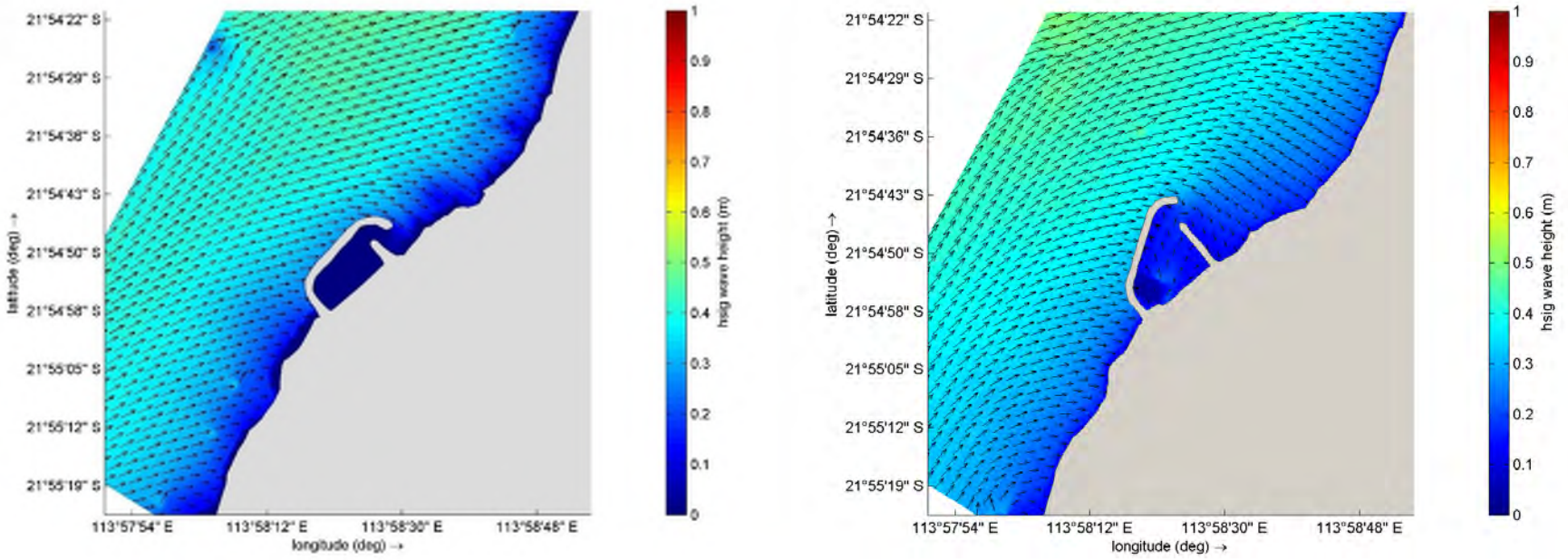

Figure 5.13 Spatial Plots for Typical Swell Event for Concept B (left) & Concept C (right) (08/05/13 09:00)

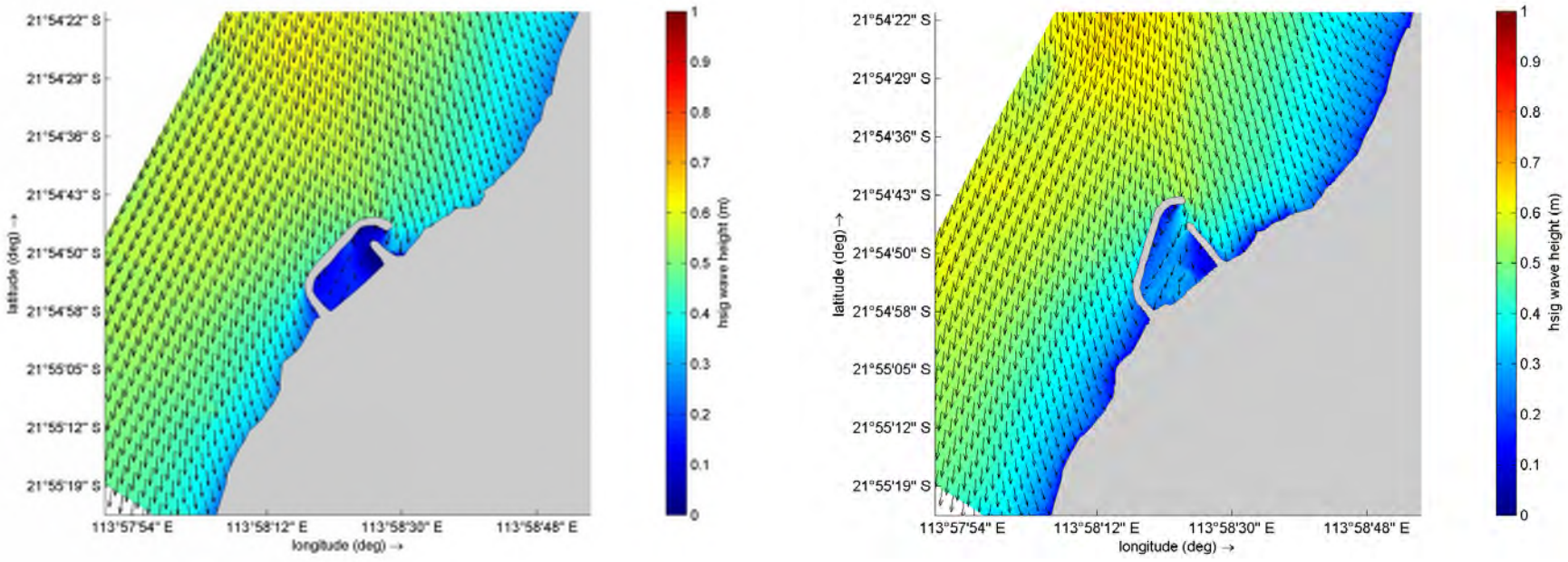

Figure 5.14 Spatial Plots for Typical Winter Storm Event for Concept B (left) & Concept C (right) (15/06/11 05:00)

Reviewing the results of the sea breeze event shows that, similar to Concept B, the wave conditions are changed in the areas to the north of the TBF. There is a greater area of wave sheltering to the north of Concept C due to the placement of the southern breakwater further offshore. Similarly, to Concept B there is significant change in the wave directions in the lee of the breakwaters. This will not only reduce the transport of sediment to the north (as shown in Task 2) but will actually potentially promote a southerly transport of sediment into the area adjacent to the northern breakwater.

The spatial plot for the swell event shows the conditions that would be experienced at the site when a 3 m, 17.8 s swell from a direction of 264° is experienced offshore. The modelling shows that the Concept C configuration of the proposed TBF has a similar impact on the local wave climate as Concept B. The main difference for the swell event is the increase in the sheltered area under Concept C. Similar to the sea breeze event, this occurs to the north of the facility and also results in a change in the wave directions in this area. This may have some influence on sediment transport in the region. As the effected region is greater for Concept C it is envisaged that this would result in an impact on the sediment transport over a greater area than would have been observed for Concept B.

The spatial plot for the storm event shows the two configurations for the proposed TBF providing sheltering to the south of the facility. A corresponding diffraction of the wave energy around the breakwaters also occurs. It is again noted that the sheltering effect of the proposed facility occurs over a greater area for Concept C. However, Concept C exhibits a smaller decrease in the wave heights near the entrance likely due to the more open nature of the entrance in Concept C.

In addition to the plots for key events, average difference plots have been prepared over the entire duration of each of the representative periods and are presented in Figure 5.15 to 5.18.

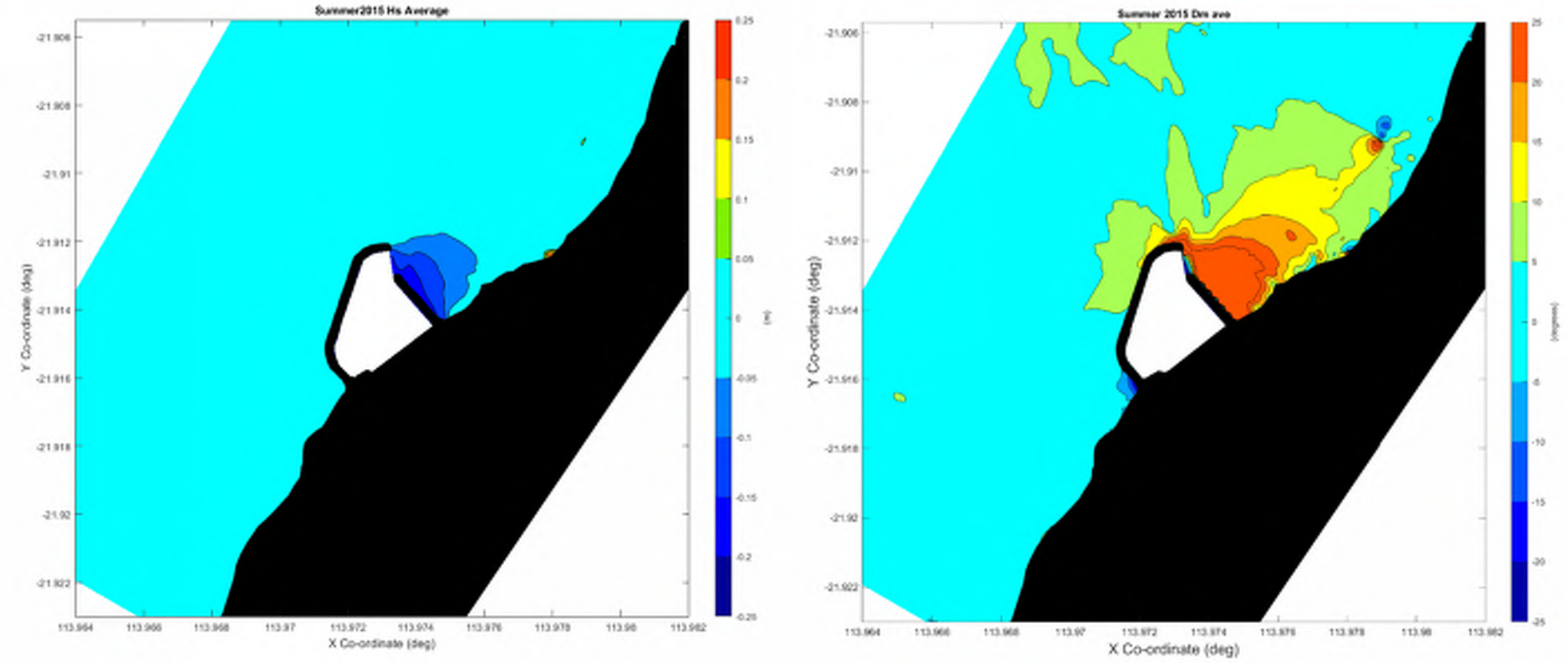

Figure 5.15 Spatial Difference Plots for Typical Summer (2015/16) – Post Development (Concept C) Minus Pre Development

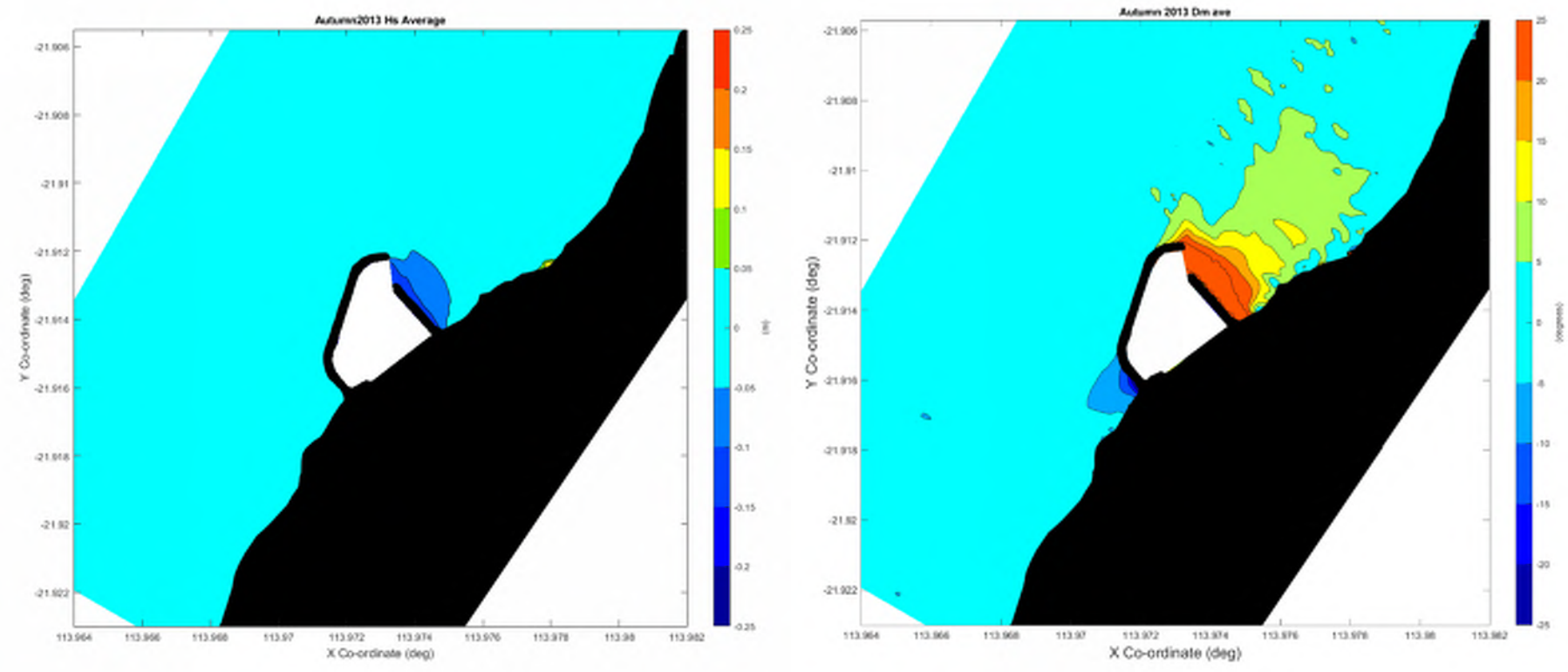

Figure 5.16 Spatial Difference Plots for Typical Autumn (2013) – Post Development (Concept C) Minus Pre Development

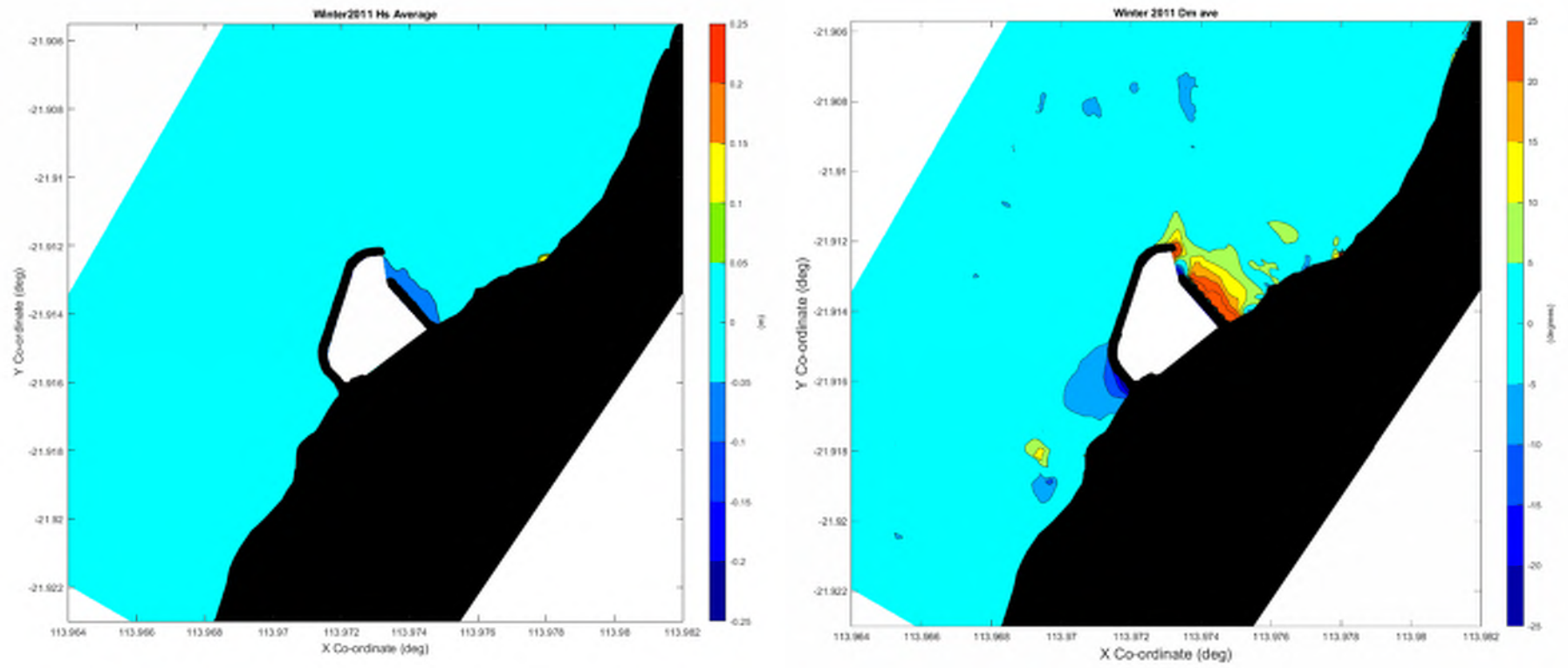

Figure 5.17 Spatial Difference Plots for Typical Winter (2011) – Post Development (Concept C) Minus Pre Development

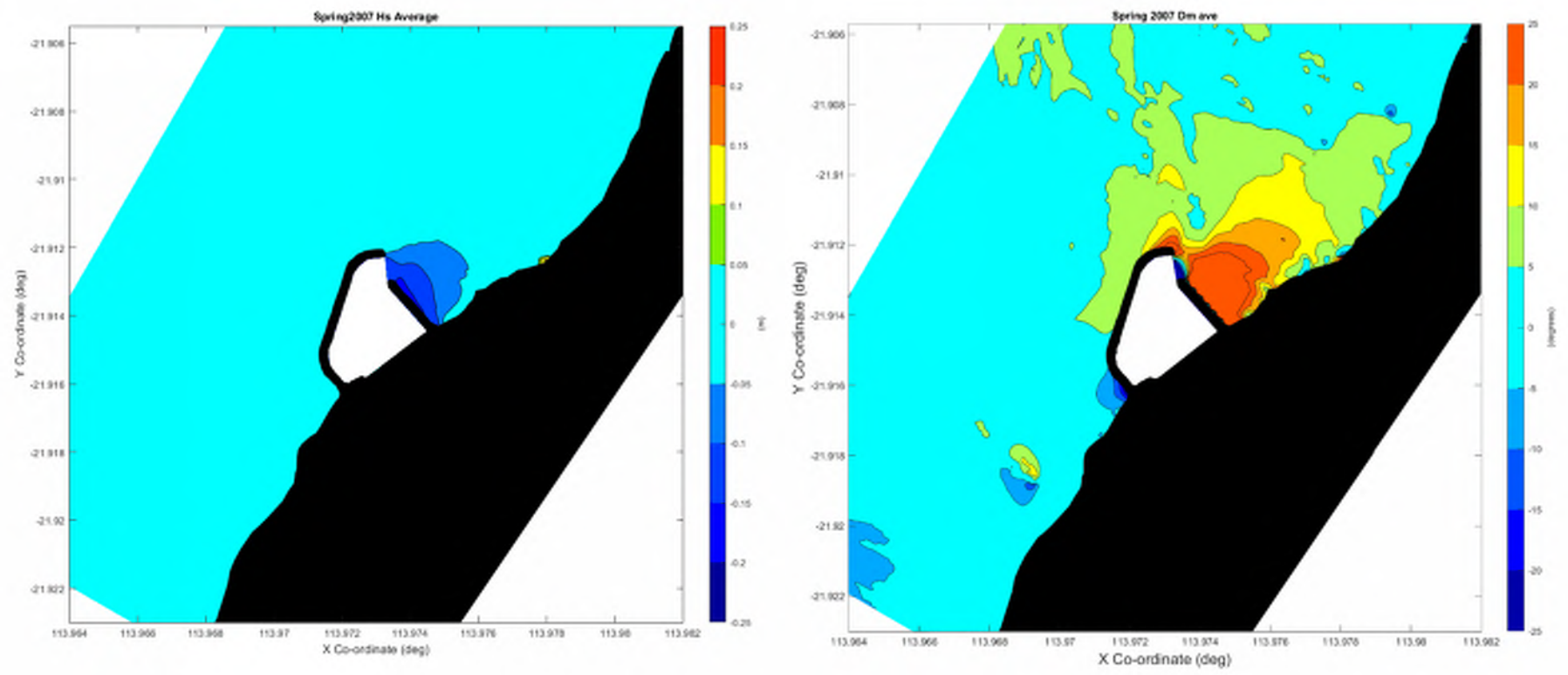

Figure 5.18 Spatial Difference Plots for Typical Spring (2007) – Post Development (Concept C) Minus Pre Development

The time average spatial plots along with the time history plots (presented in Appendix C) show the potential scale of the wave height differences in wave climate outside the breakwaters for Concept C are quite small and also quite localised.

When reviewing the difference plots. It is important to again note that any change to the grid of bathymetry of a model, no matter how small, will result in differences to the numerical calculations of the model simulation. Considering this, the key observations from the spatial plots for Concept C are summarised below.

- Spatial plots of the average difference show negligible change in significant wave height at locations away from the proposed TBF across all modelled periods. Furthermore, there does not appear to be any noticeable impact of the proposed dredged entrance channel on wave heights outside the proposed TBF.

- The changes in mean wave direction are slightly more noticeable at locations further away from the proposed TBF and dredged channel. As discussed previously this is likely due to the introduction of the facility representing an obstruction across the fetch which can impact the average mean direction across the modelled period.

- The largest impacts to the mean wave direction from Concept C are immediately to the north of the proposed TBF. The spatial plots show the extent of a southerly directional rotation of waves approaching from the west through north west. Again, this change in direction will likely result in reduced transport of sediment to the north along this shoreline and may result in may potentially promote a southerly transport of sediment into the area.

Overall, the outcomes of the wave climate review for the new Concept C facility layout are reasonably intuitive and expected. The main item that the updated wave climate review has highlighted is the increase to the area of sheltering to the north of the proposed TBF for Concept C. This would likely result in an increase in the potential accumulation of sediment in the area to the directly to the north of the facility.

6. Recommendations

Based on the review of the modelled wave climate surrounding the TBF, it is clear that the construction of the TBF as proposed would have a highly localised impact on the wave climate. The extent of wave shadowing is limited, though extends slightly further north than south of the facility. This means that the potential for sediment trapping in the shadows of the facility is likely to be as low as practicable, however the one item that will need further review will be the area around the entrance to the facility.

The wave climate near the entrance of the Concept B configuration of the facility has been demonstrated to be quite sheltered, which is a key consideration for safe vessel navigation, however the potential consequence of this is the accumulation of sand in this area over time that will require management to ensure that it does not begin to infill the entrance channel. Following the sediment modelling it was determine that the entrance of Concept B was prone to infilling. As a result the Concept C configuration was developed. Then entrance for Concept C is located further offshore and is slightly less sheltered than Concept B. However there did not appear to be any negative impacts on navigation at the entrance to Concept C.

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8. Appendices

Appendix A **Model Parameters Summary**

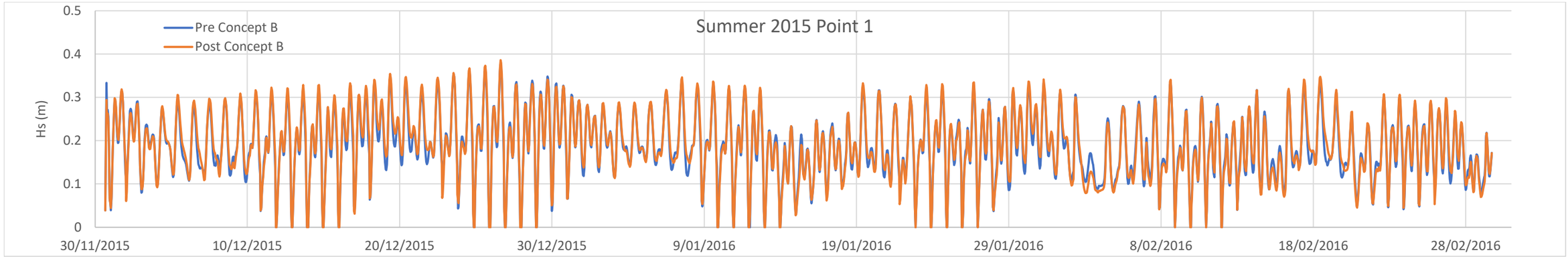
Appendix B **Modelled Time History Plots for Concept B**

Appendix C **Modelled Time History Plots for Concept C**

Appendix A Model Parameters Summary

Parameter	Variable
Time Step (min)	60
Coupling Interval (min)	60
Gravity (m/s^2)	9.81
Water Density (kg/m^3)	1025
Wave Boundary Input Interval (min)	60
Depth Induced Breaking Alpha	1
Depth Induced Breaking Gamma	0.76
Collins Bottom Friction (Sand)	0.15
Collins Bottom Friction (Reef)	0.8

Appendix B Modelled Time History Plots for Concept B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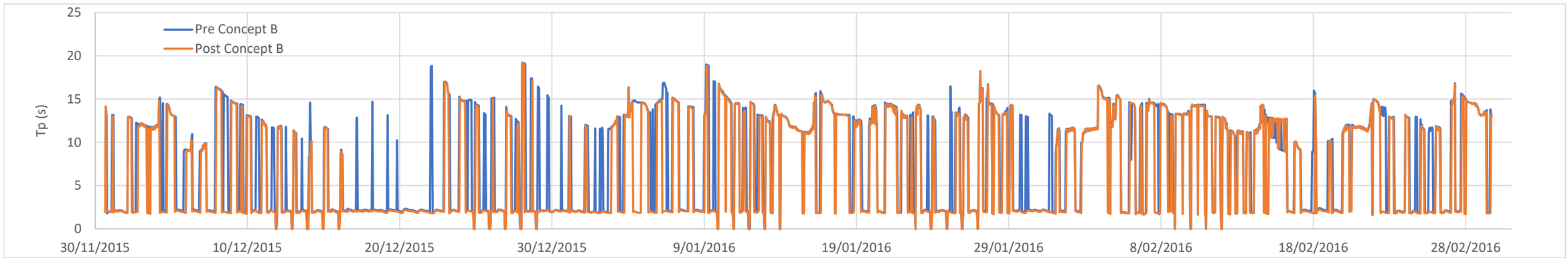
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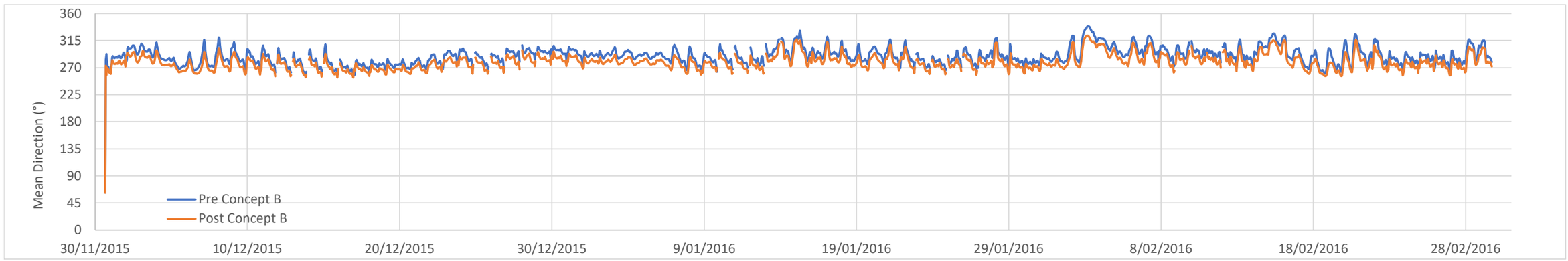
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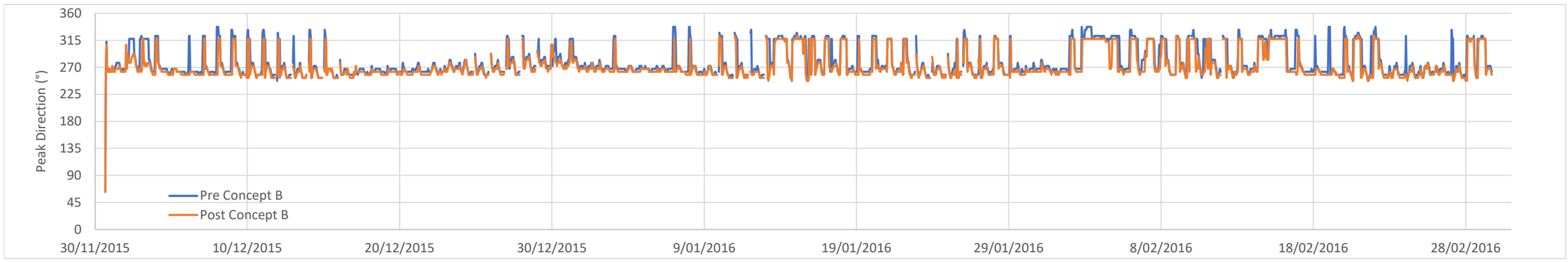
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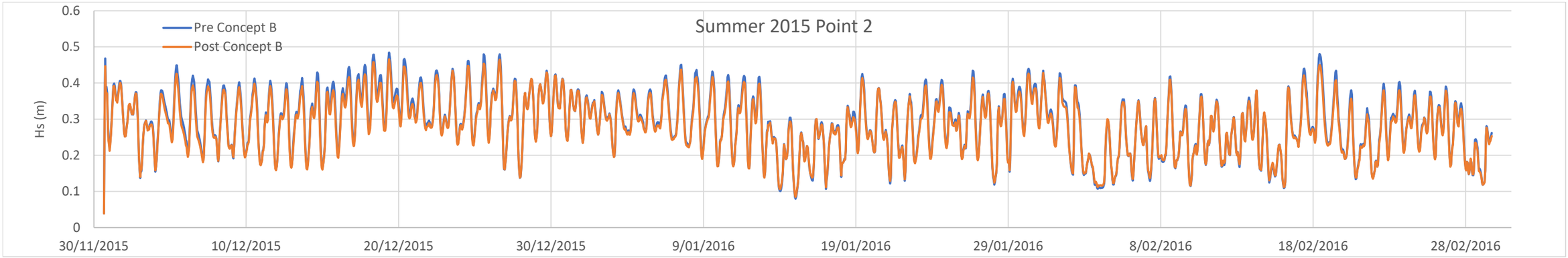
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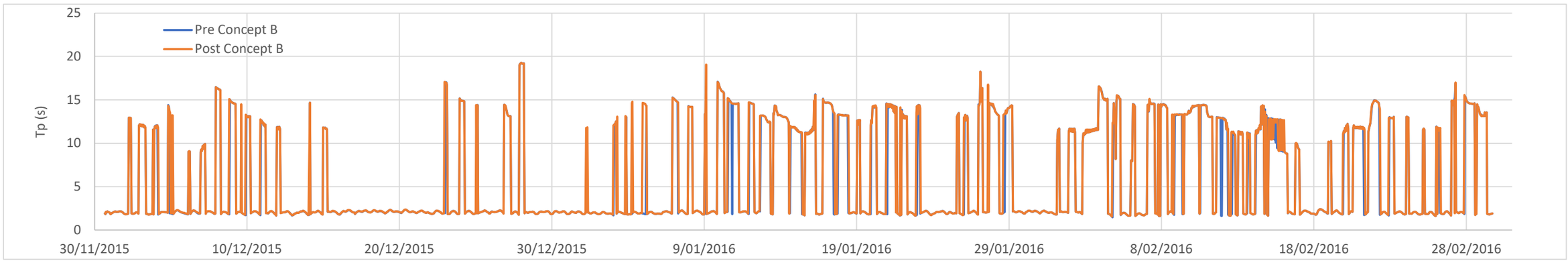
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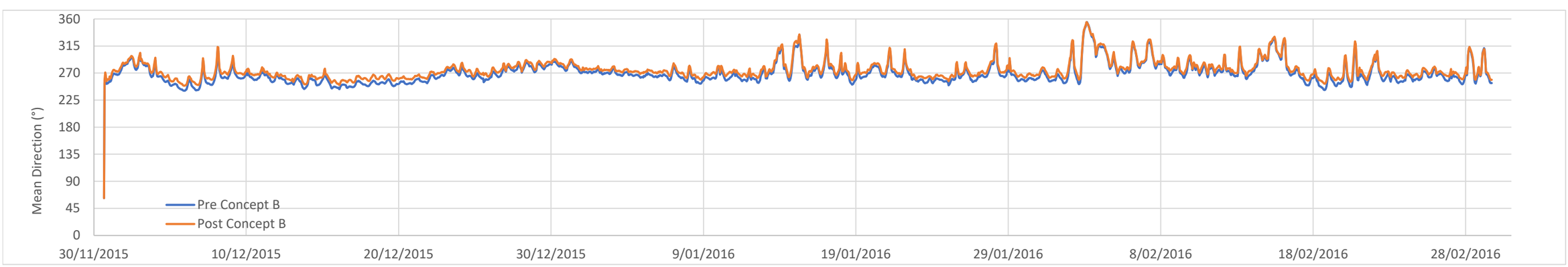
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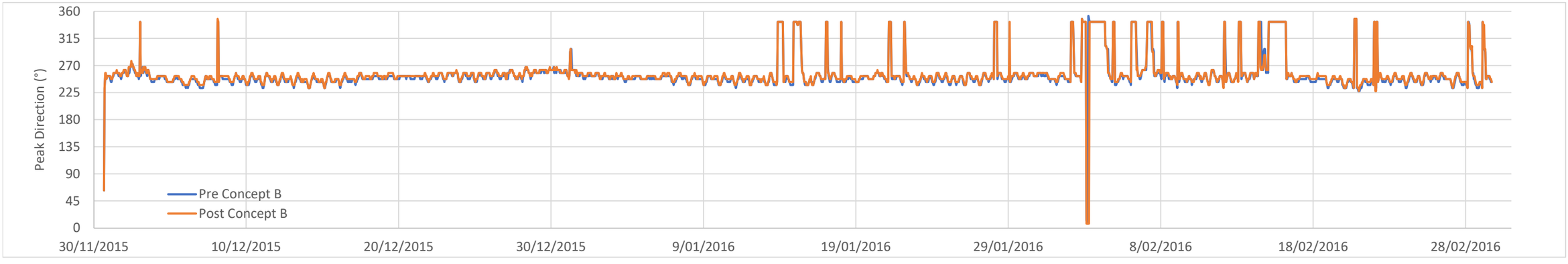
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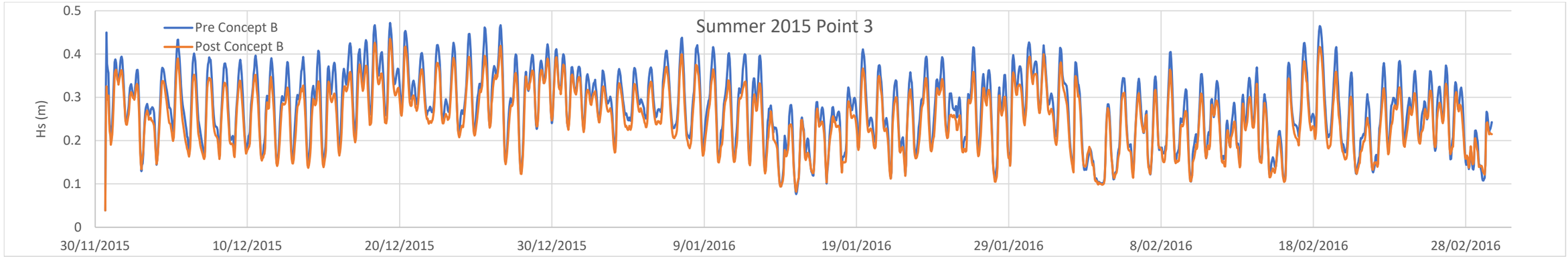
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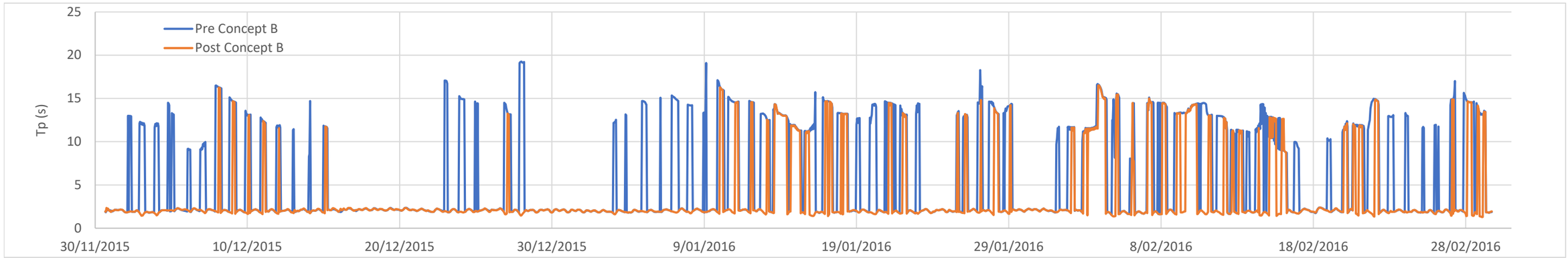
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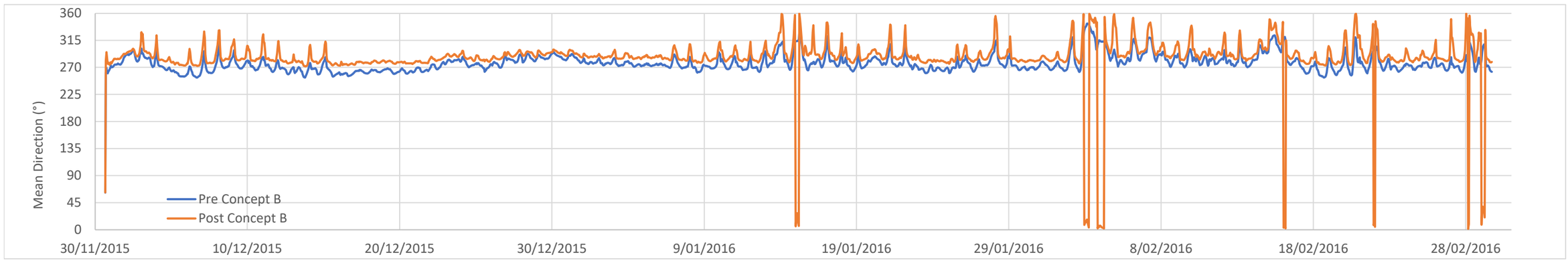
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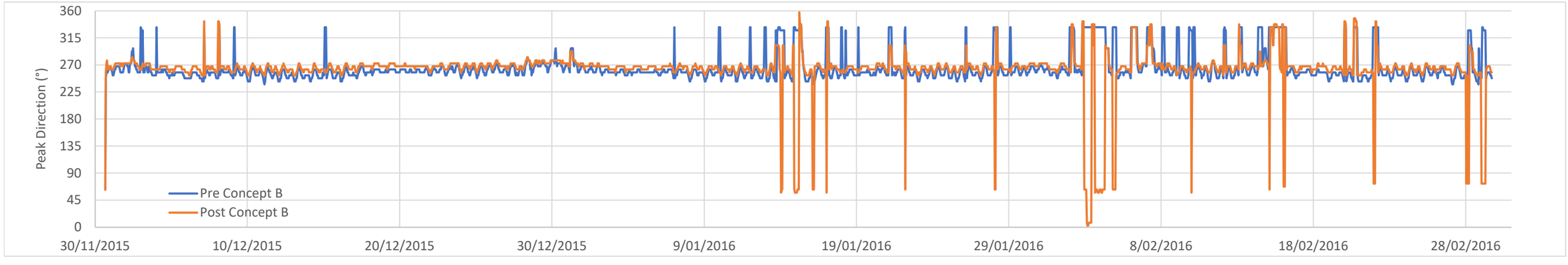
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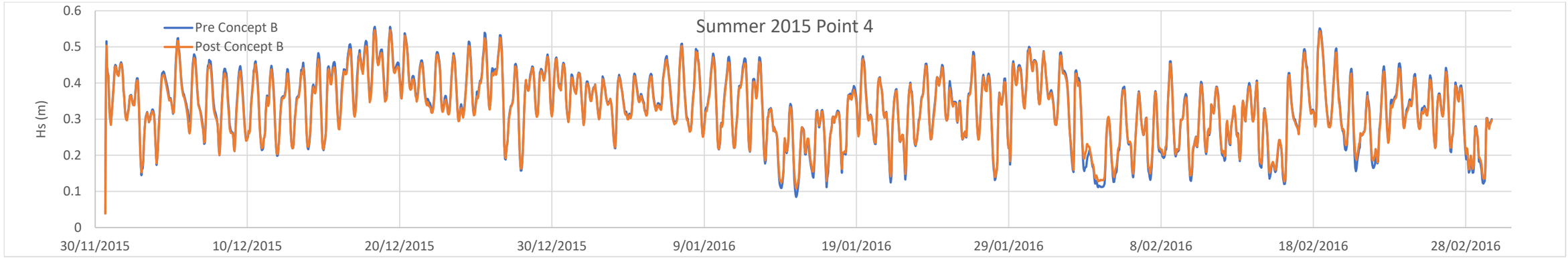
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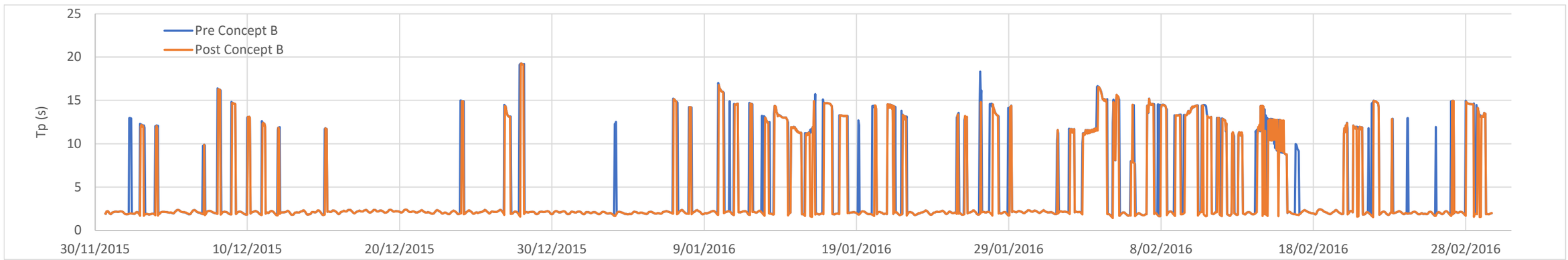
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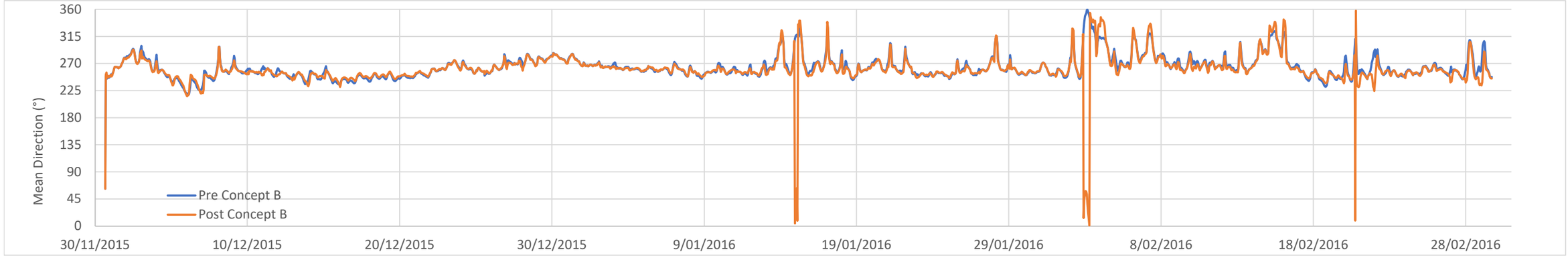
28/02/2016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Pre Concept B
Post Concept B
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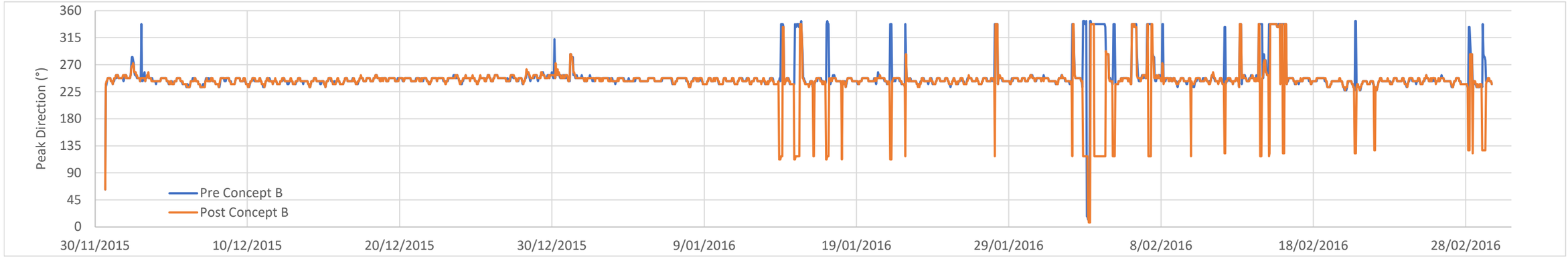
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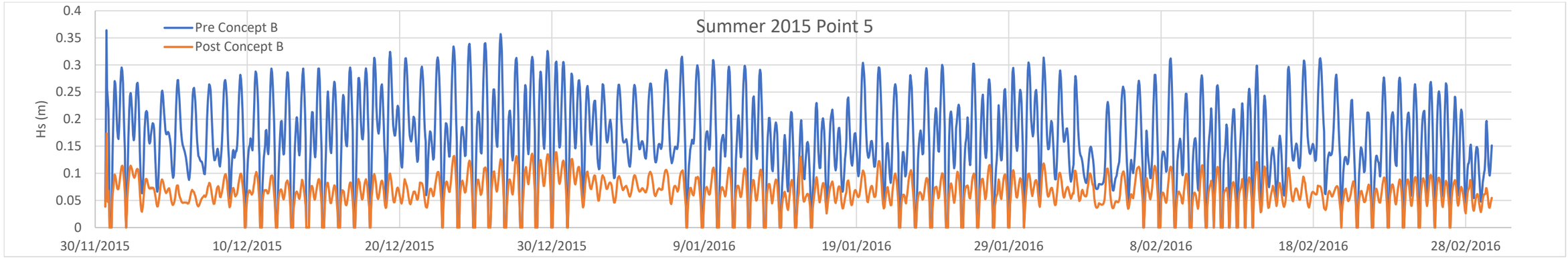
Summer 2015 Point 5
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Post Concept B
30/11/2015
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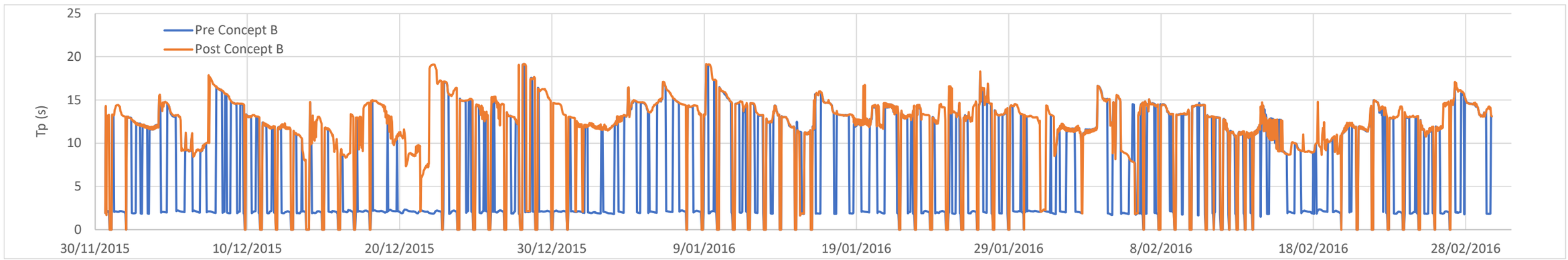
Tp (s)
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Post Concept B
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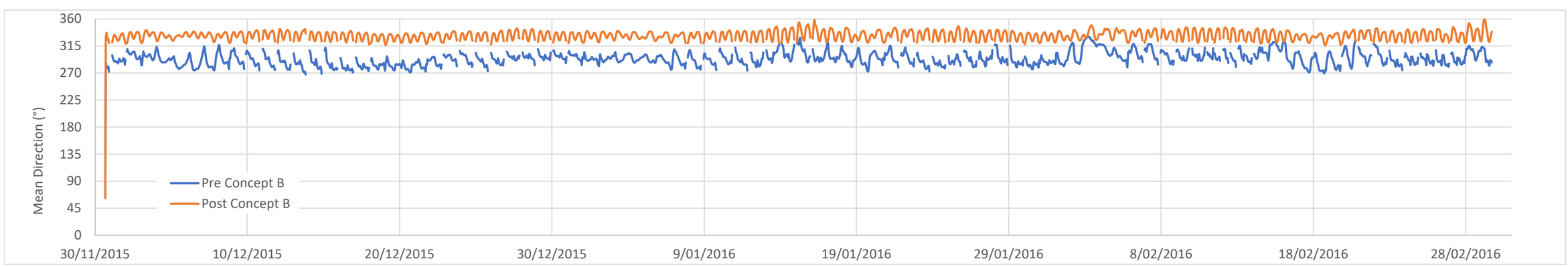
18/02/2016
28/02/2016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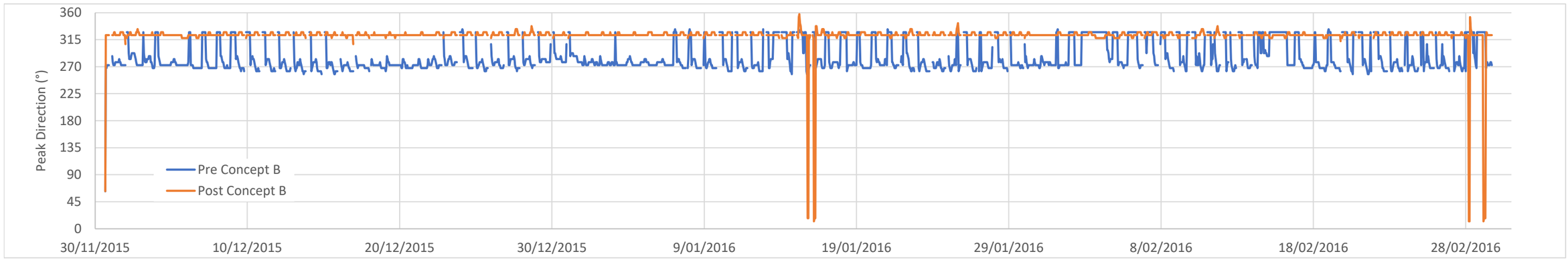
28/02/2016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Post Concept B
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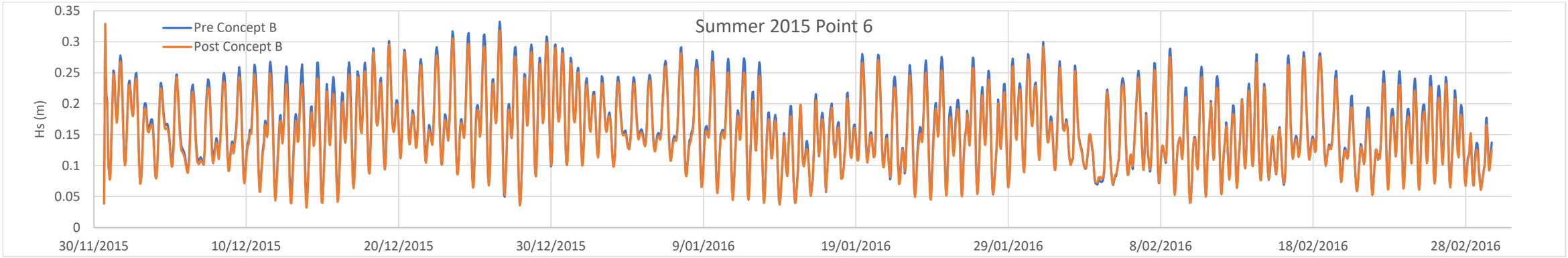
Summer 2015 Point 6
Pre Concept B
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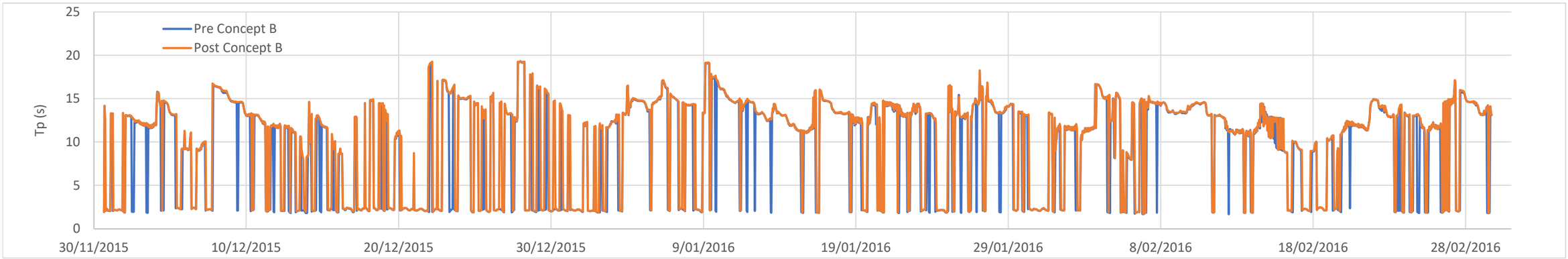
28/02/2016


Pre Concept B
Post Concept B
Tp (s)
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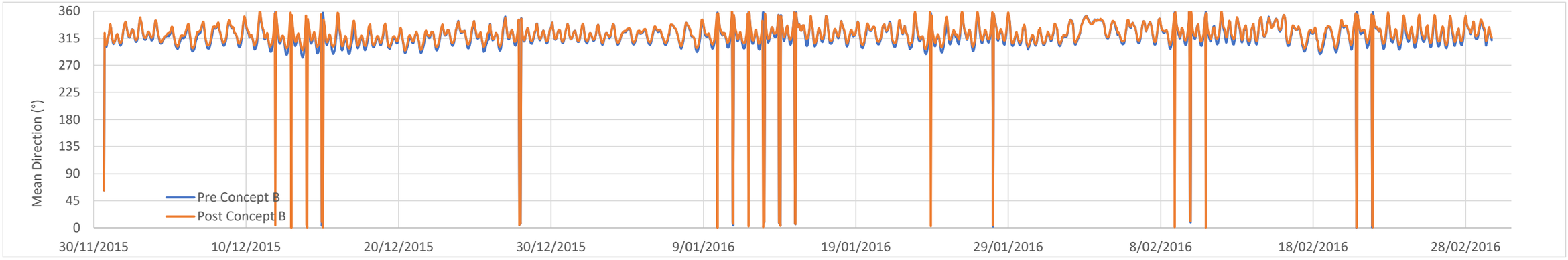
18/02/2016
28/02/2016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Post Concept B
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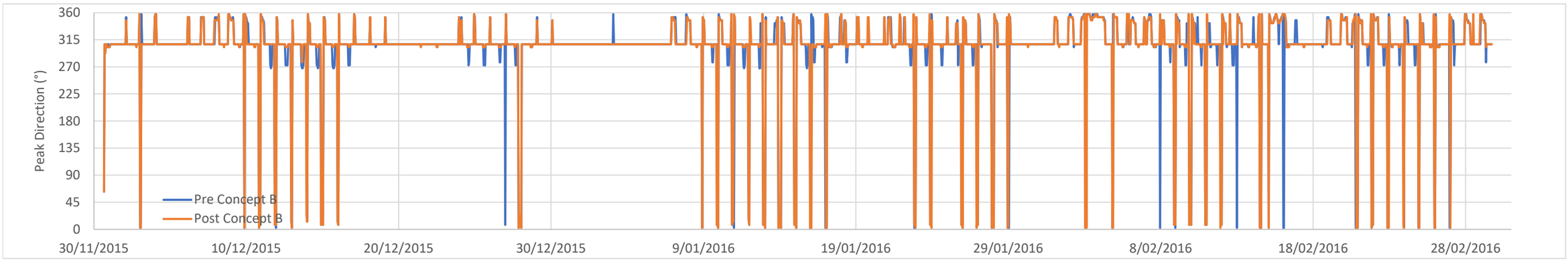
18/02/2016
28/02/2016


Peak Direction (°)
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Post Concept B
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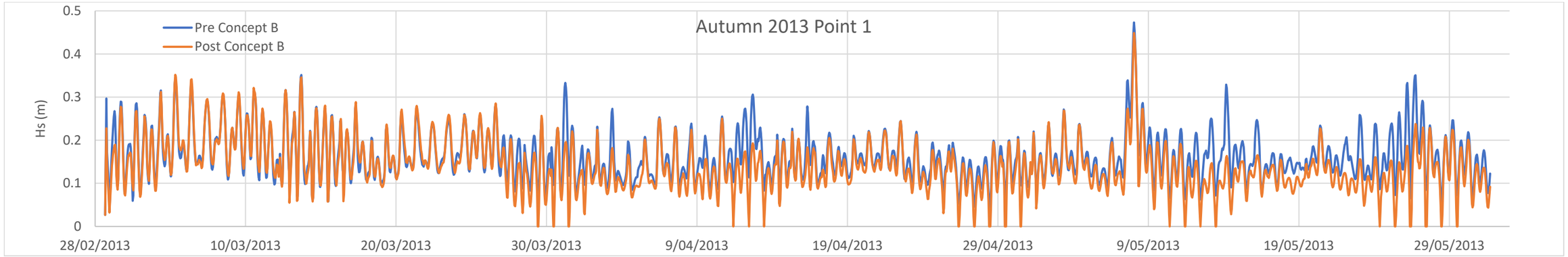
Autumn 2013 Point 1
Pre Concept B
Post Concept B
Hs (m)
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0.2
0.1
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28/02/2013
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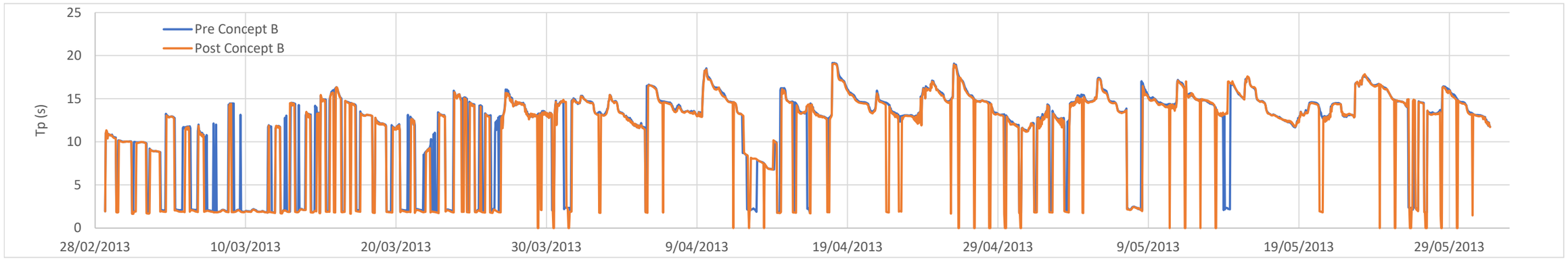
Pre Concept B
Post Concept B
Tp (s)
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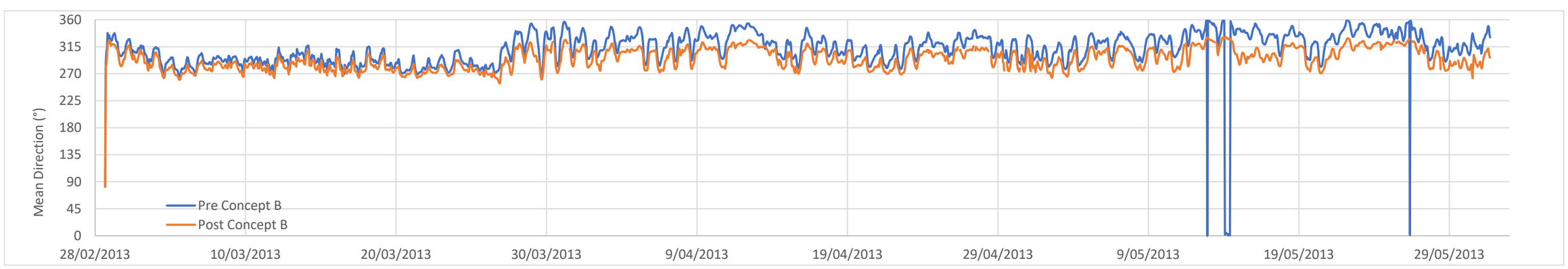
29/05/2013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Pre Concept B
Post Concept B
28/02/2013
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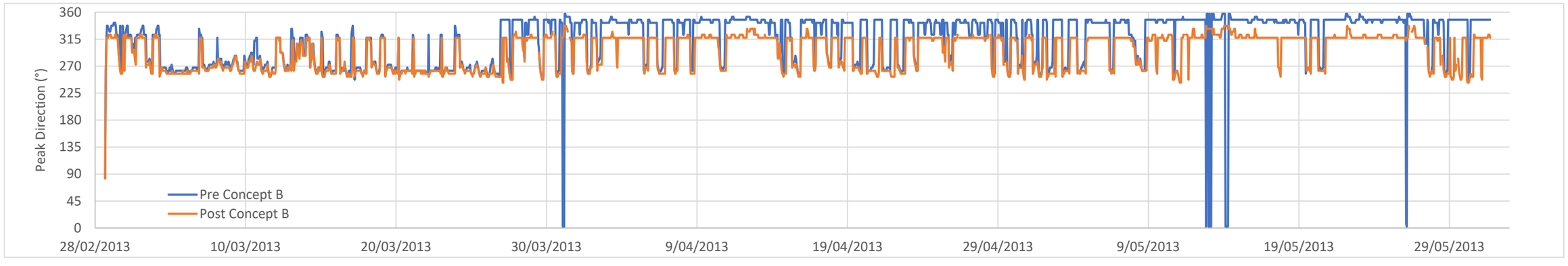
19/05/2013
29/05/2013


Peak Direction (°)
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Pre Concept B
Post Concept B
28/02/2013
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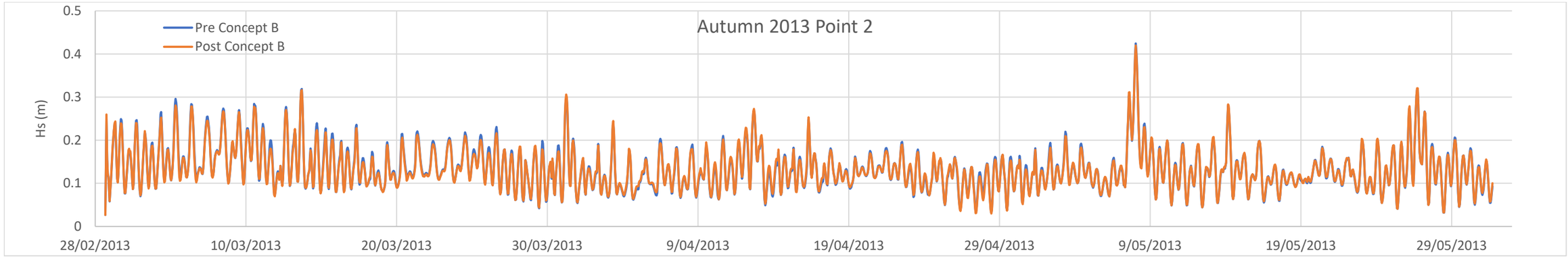
Autumn 2013 Point 2
Pre Concept B
Post Concept B
Hs (m)
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28/02/2013
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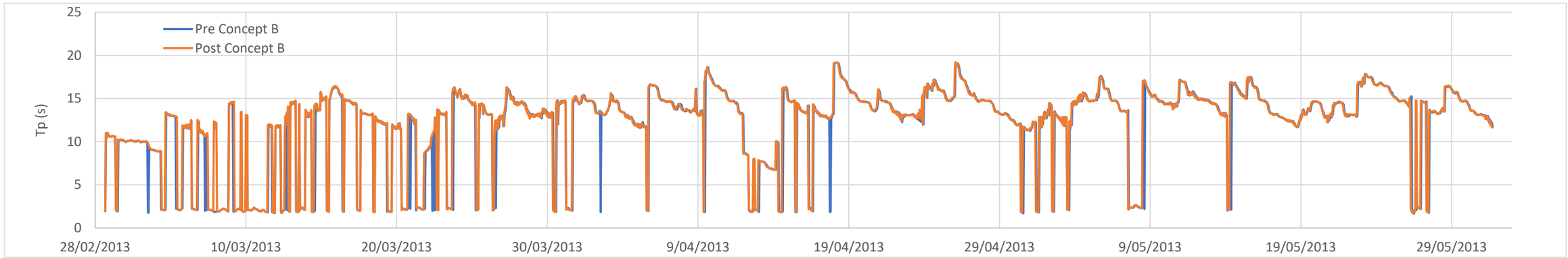
29/05/2013


Pre Concept B
Post Concept B
Tp (s)
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28/02/2013
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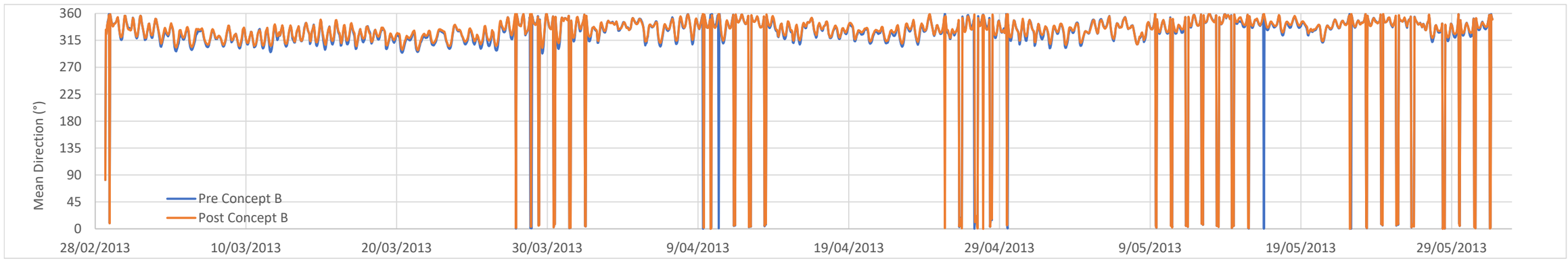
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Post Concept B
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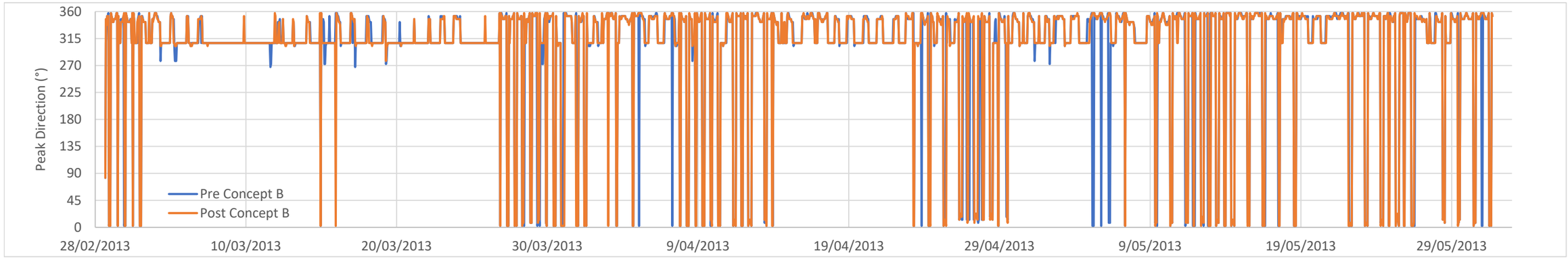
Peak Direction (°)
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Pre Concept B
Post Concept B
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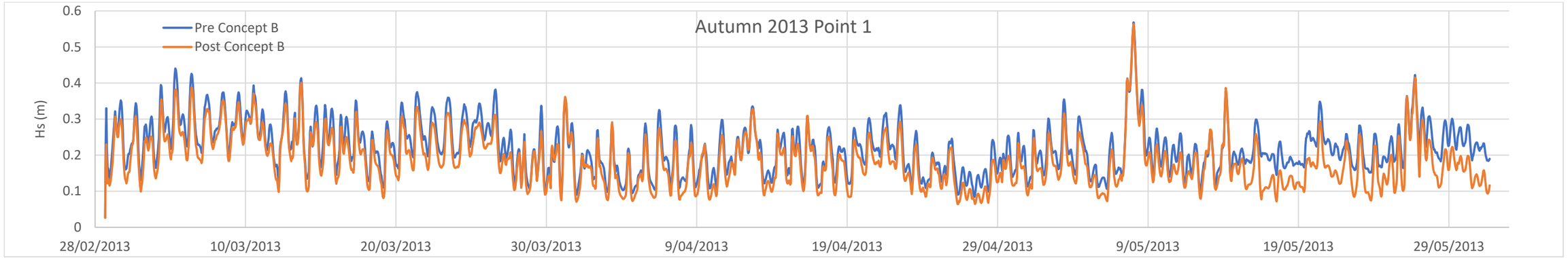
Autumn 2013 Point 1
Pre Concept B
Post Concept B
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0.4
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0.2
0.1
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28/02/2013
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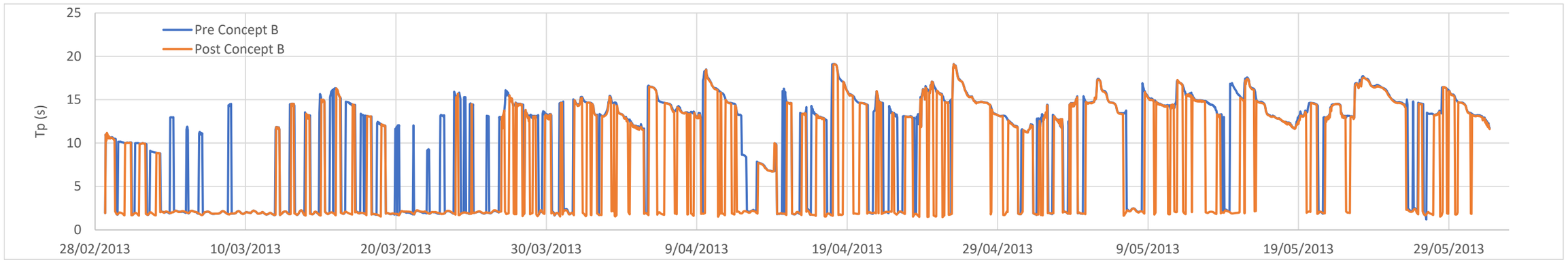
Pre Concept B
Post Concept B
Tp (s)
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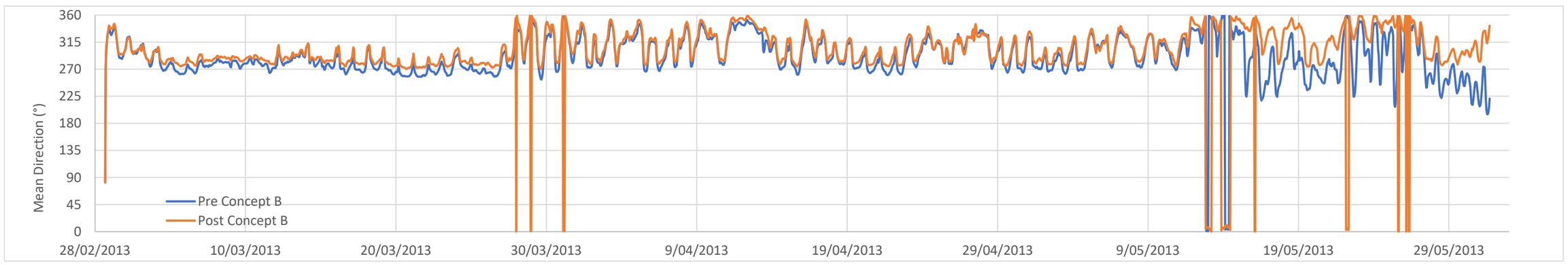
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Post Concept B
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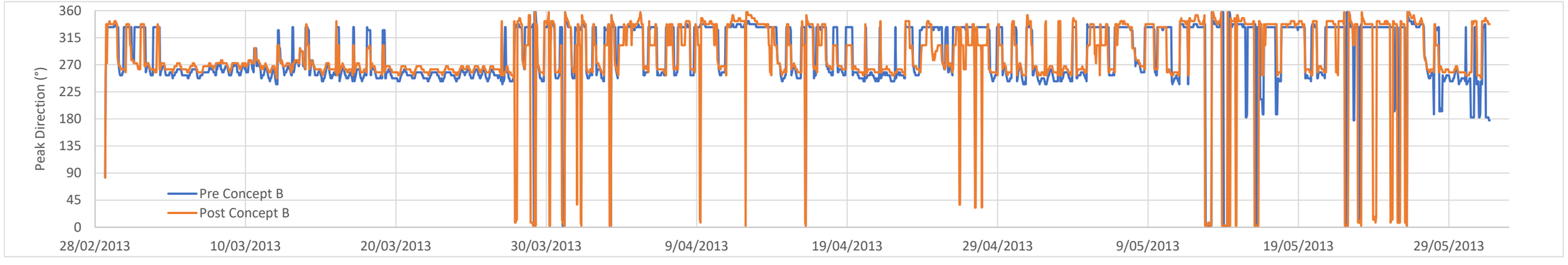
Peak Direction (°)
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Pre Concept B
Post Concept B
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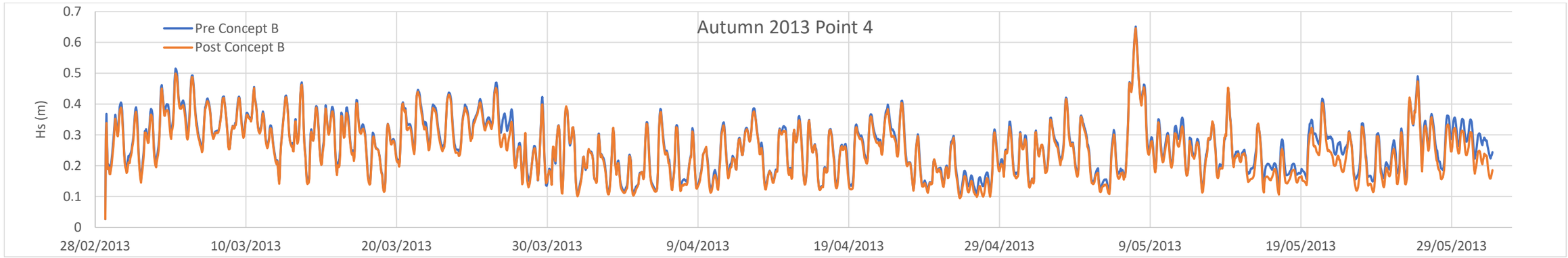
Autumn 2013 Point 4
Pre Concept B
Post Concept B
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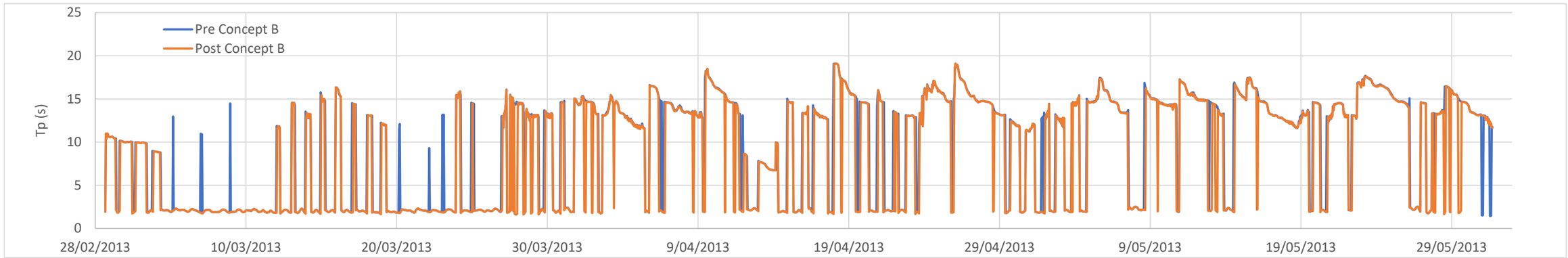
Pre Concept B
Post Concept B
Tp (s)
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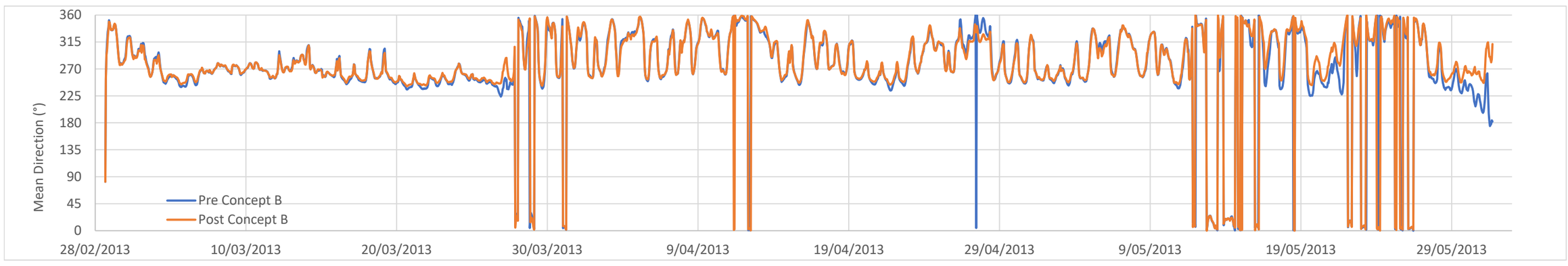
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Post Concept B
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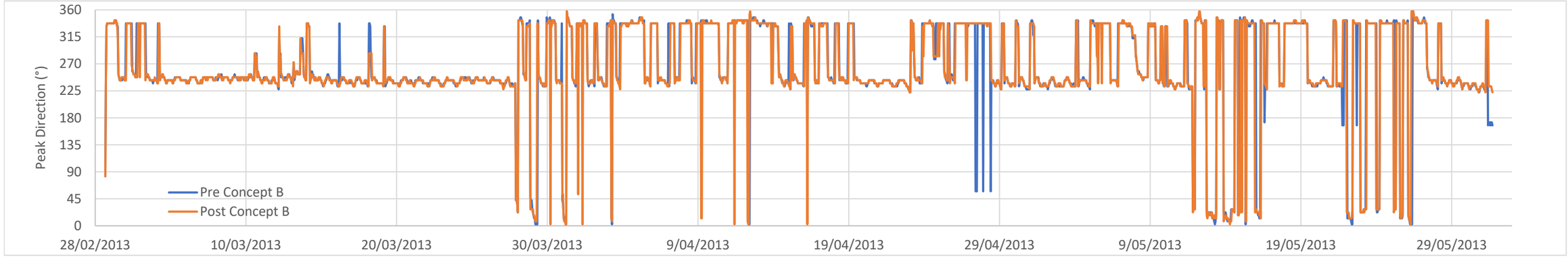
Peak Direction (°)
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Pre Concept B
Post Concept B
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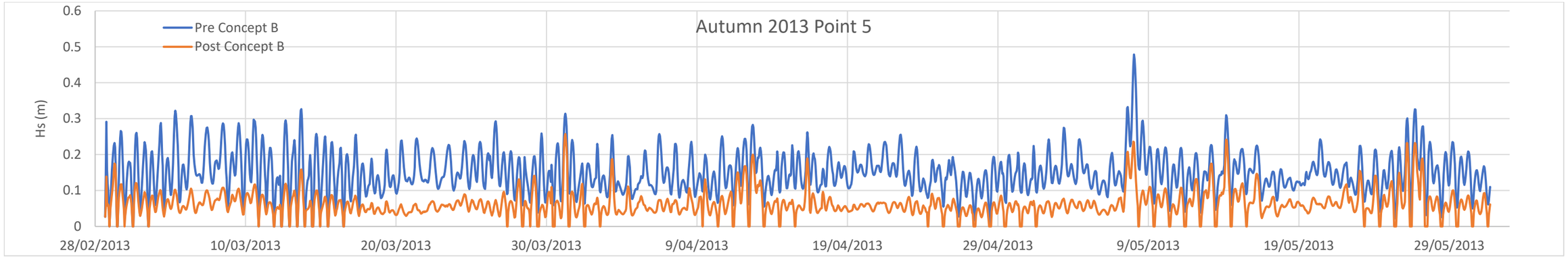
Autumn 2013 Point 5
Pre Concept B
Post Concept B
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0.4
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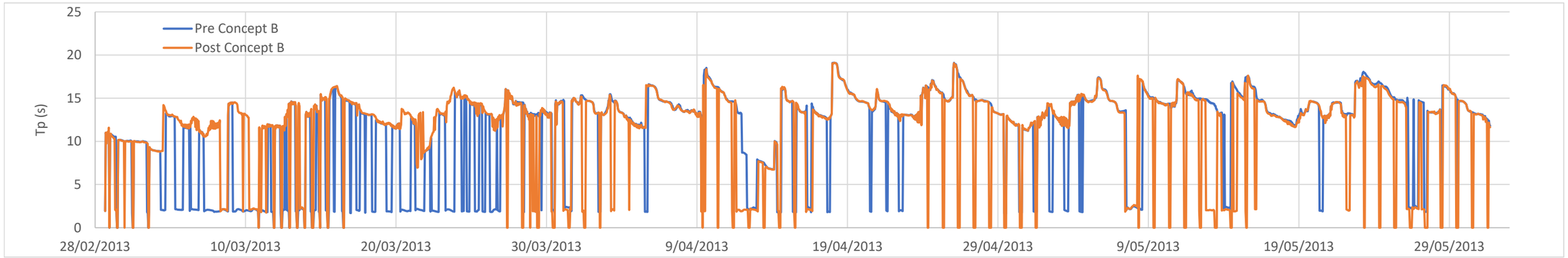
Pre Concept B
Post Concept B
Tp (s)
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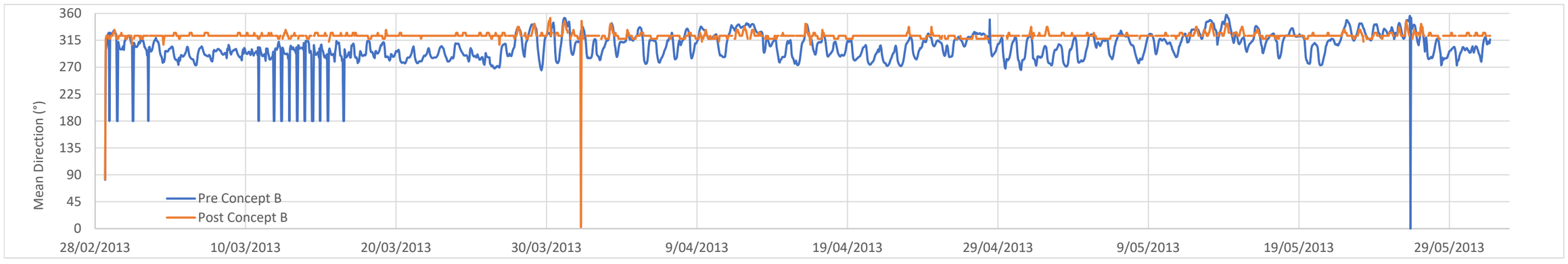
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Pre Concept B
Post Concept B
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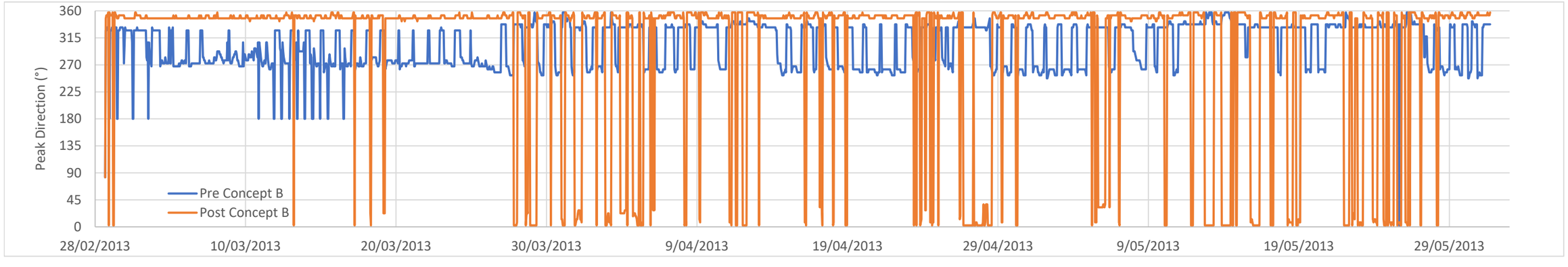
Peak Direction (°)
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Pre Concept B
Post Concept B
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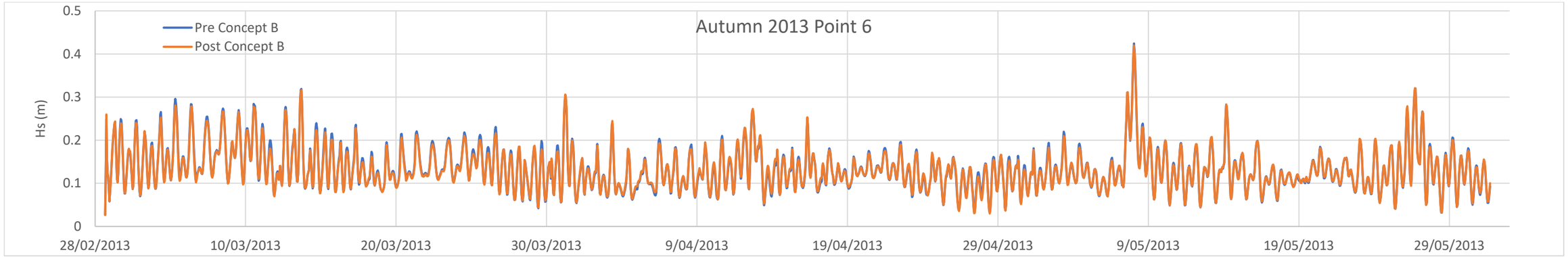
Autumn 2013 Point 6
Pre Concept B
Post Concept B
Hs (m)
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28/02/2013
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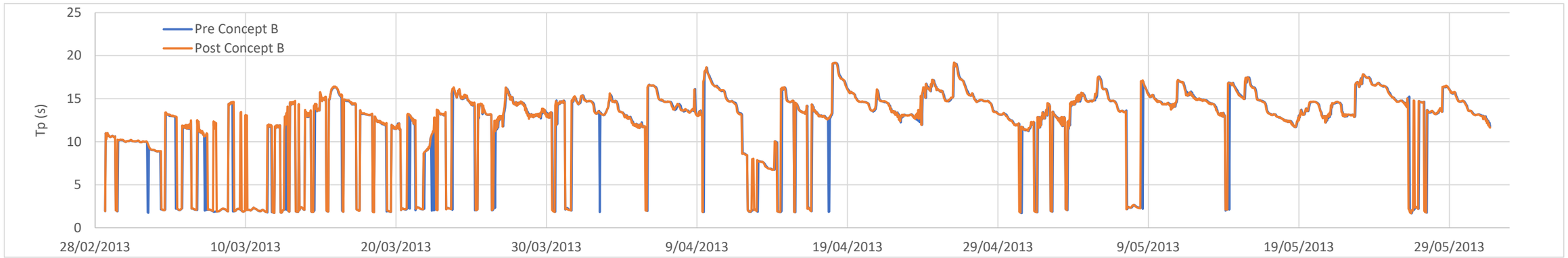
Pre Concept B
Post Concept B
Tp (s)
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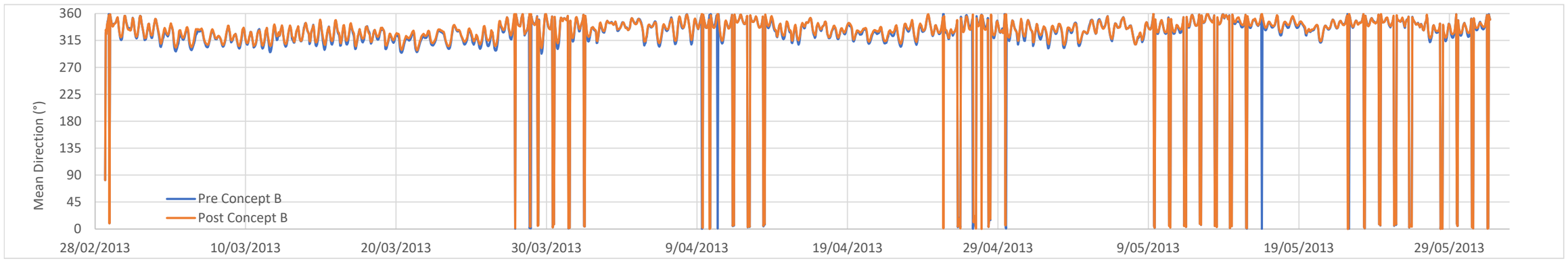
29/05/2013


Mean Direction (°)
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Pre Concept B
Post Concept B
28/02/2013
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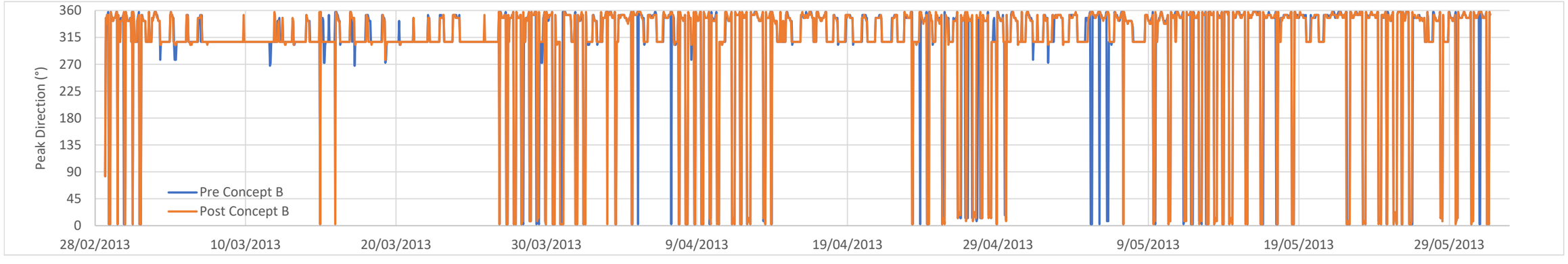
29/05/2013


Peak Direction (°)
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Pre Concept B
Post Concept B
28/02/2013
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9/05/2013
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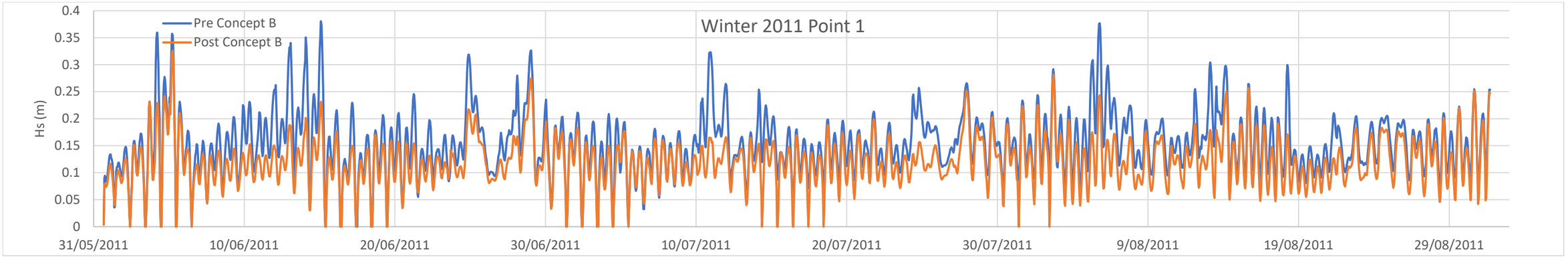
29/05/2013


Winter 2011 Point 1
Pre Concept B
Post Concept B
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31/05/2011
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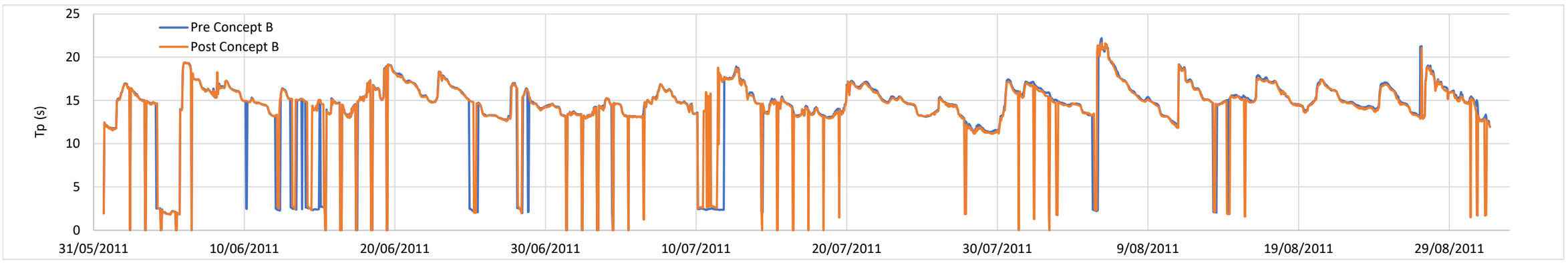
9/08/2011
19/08/2011
29/08/2011


Pre Concept B
Post Concept B
Tp (s)
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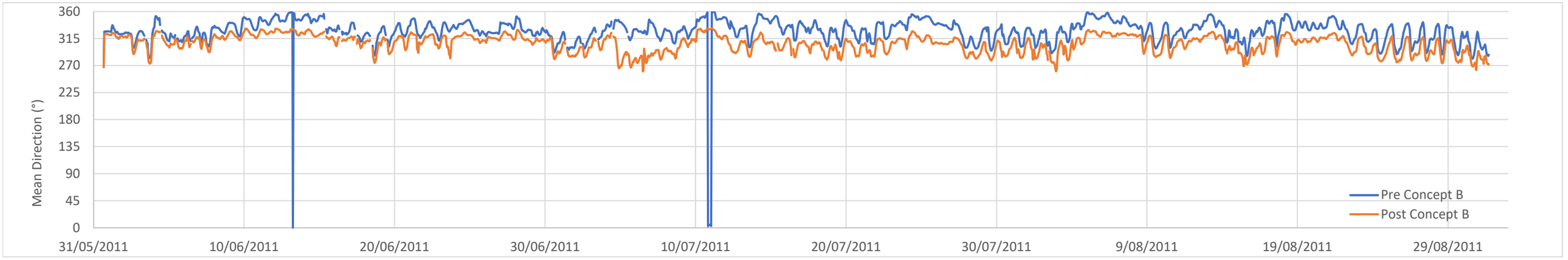
19/08/2011
29/08/2011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Pre Concept B
Post Concept B
31/05/2011
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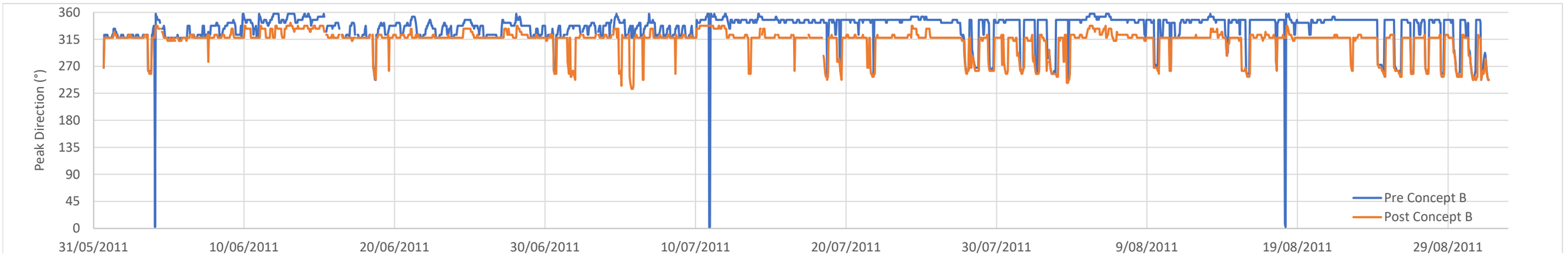
9/08/2011
19/08/2011
29/08/2011


Peak Direction (°)
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90
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Pre Concept B
Post Concept B
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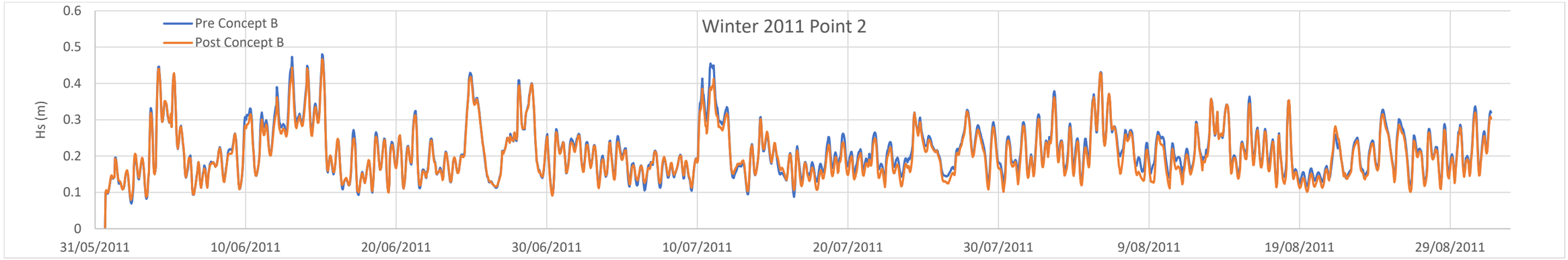
19/08/2011
29/08/2011


Winter 2011 Point 2
Pre Concept B
Post Concept B
Hs (m)
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0.1
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31/05/2011
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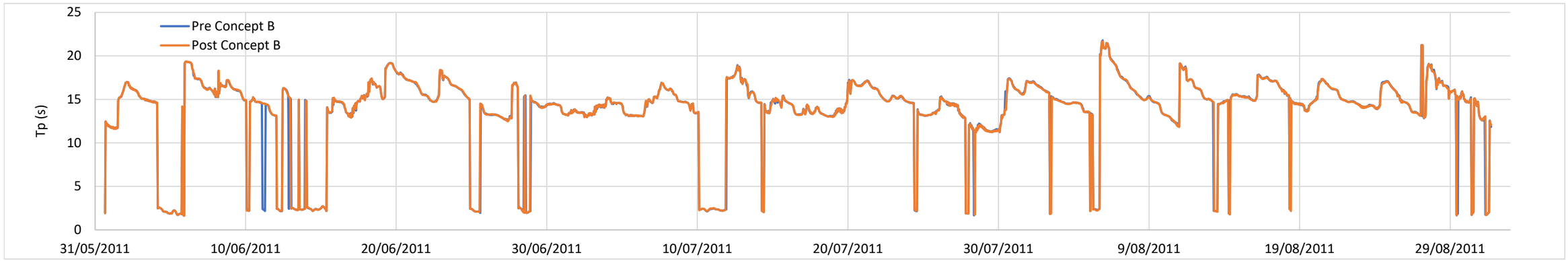
9/08/2011
19/08/2011
29/08/2011


Pre Concept B
Post Concept B
Tp (s)
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20
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10
5
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31/05/2011
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30/06/2011
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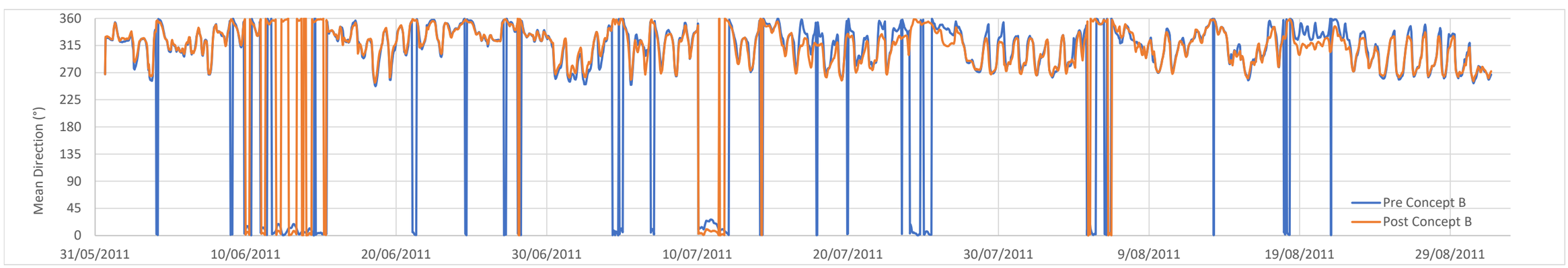
9/08/2011
19/08/2011
29/08/2011


Mean Direction (°)
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Pre Concept B
Post Concept B
31/05/2011
10/06/2011
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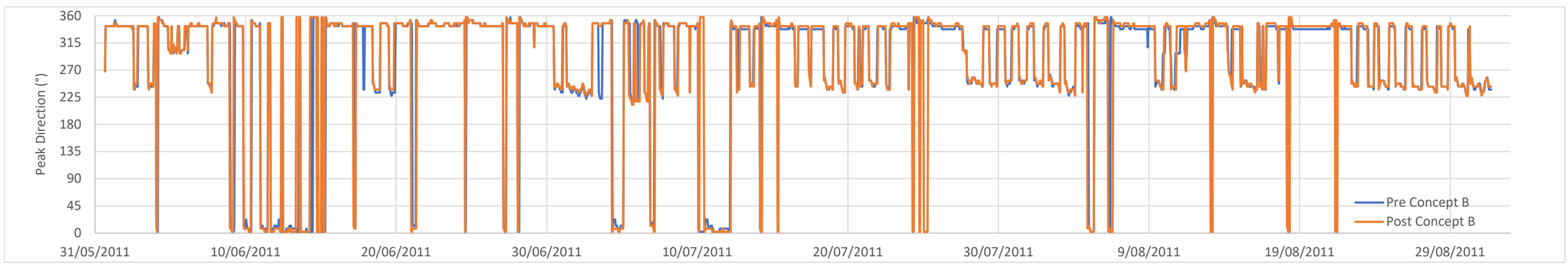
9/08/2011
19/08/2011
29/08/2011


Peak Direction (°)
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225
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Pre Concept B
Post Concept B
31/05/2011
10/06/2011
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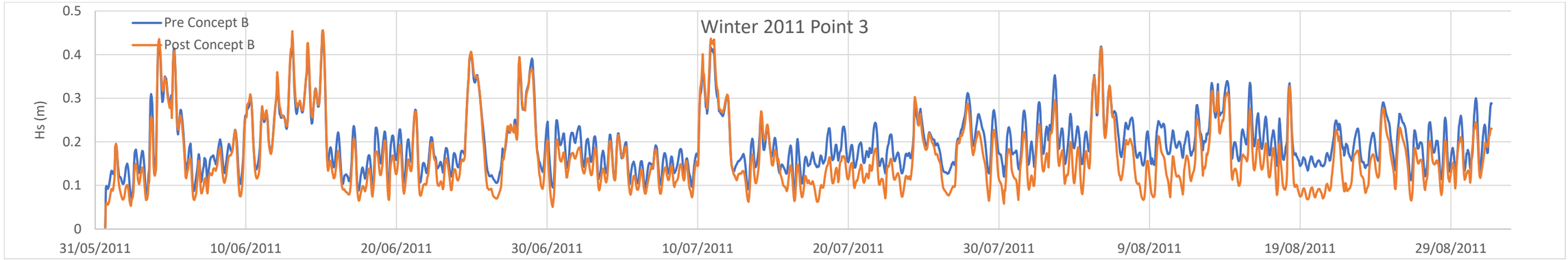
30/07/2011
9/08/2011
19/08/2011
29/08/2011


Winter 2011 Point 3
Pre Concept B
Post Concept B
Hs (m)
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0.1
0.2
0.3
0.4
0.5
31/05/2011
10/06/2011
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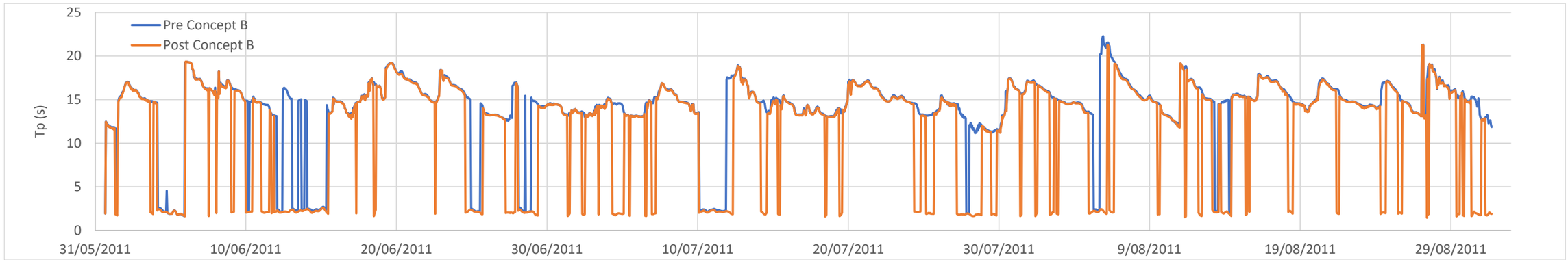
30/06/2011
10/07/2011
20/07/2011
30/07/2011
9/08/2011
19/08/2011
29/08/2011


Pre Concept B
Post Concept B
Tp (s)
0
5
10
15
20
25
31/05/2011
10/06/2011
20/06/2011
30/06/2011
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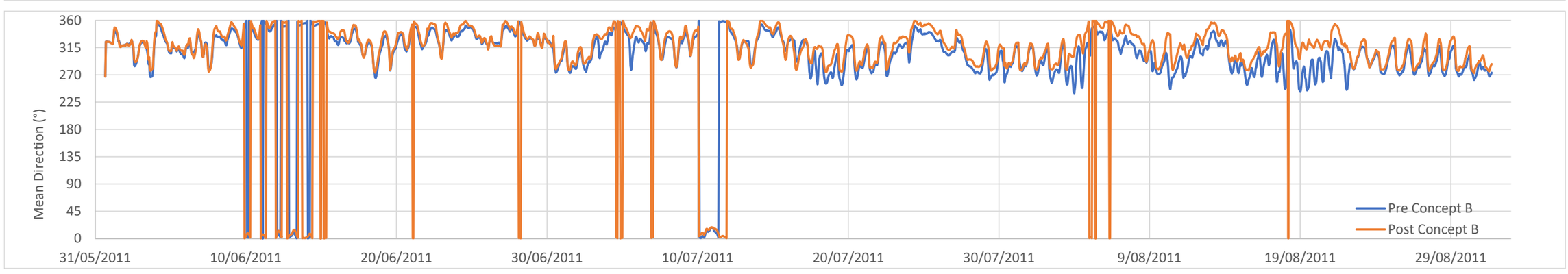
9/08/2011
19/08/2011
29/08/2011


Mean Direction (°)
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90
135
180
225
270
315
360
Pre Concept B
Post Concept B
31/05/2011
10/06/2011
20/06/2011
30/06/2011
10/07/2011
20/07/2011
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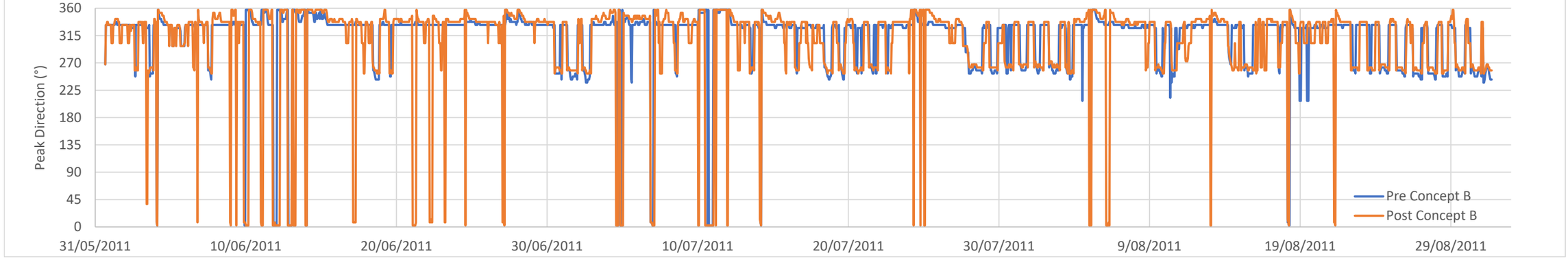
9/08/2011
19/08/2011
29/08/2011


Peak Direction (°)
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90
135
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270
315
360
Pre Concept B
Post Concept B
31/05/2011
10/06/2011
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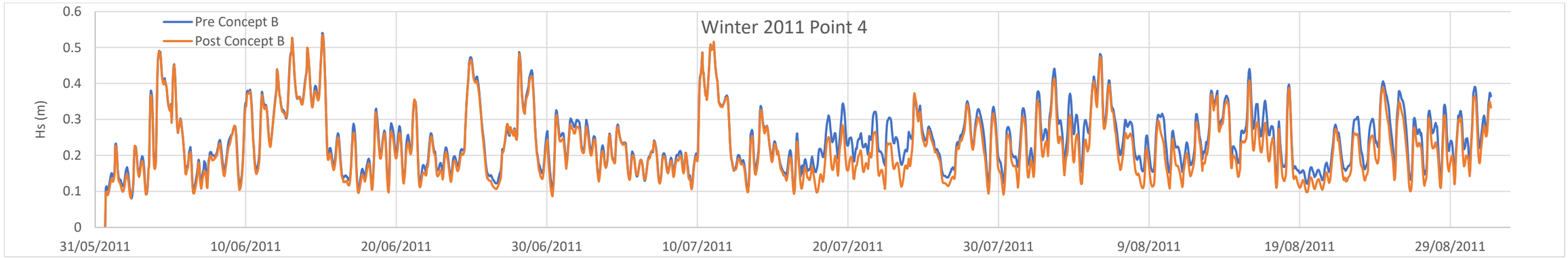
9/08/2011
19/08/2011
29/08/2011


Winter 2011 Point 4
Pre Concept B
Post Concept B
Hs (m)
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0.1
0.2
0.3
0.4
0.5
0.6
31/05/2011
10/06/2011
20/06/2011
30/06/2011
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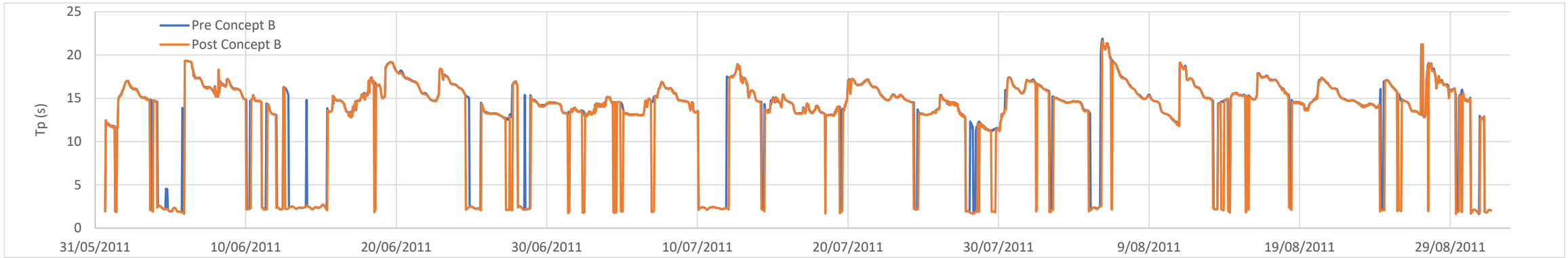
20/07/2011
30/07/2011
9/08/2011
19/08/2011
29/08/2011


Pre Concept B
Post Concept B
Tp (s)
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10
15
20
25
31/05/2011
10/06/2011
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30/06/2011
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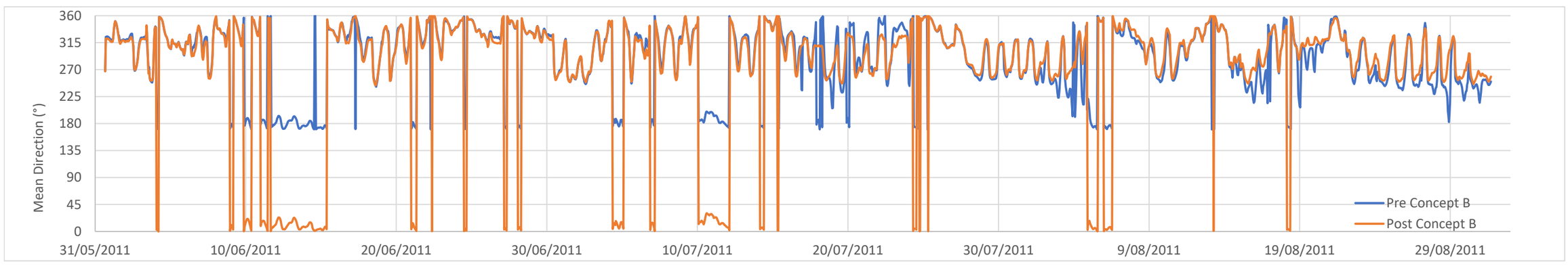
9/08/2011
19/08/2011
29/08/2011


Mean Direction (°)
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135
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315
360
Pre Concept B
Post Concept B
31/05/2011
10/06/2011
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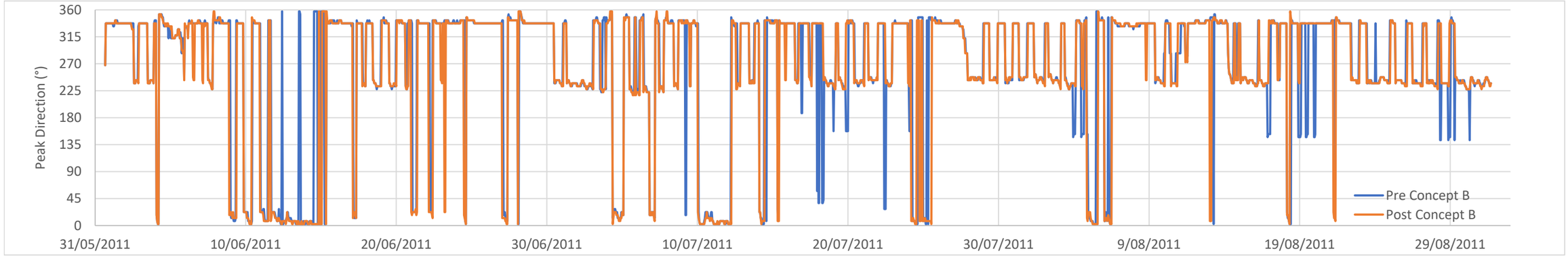
29/08/2011


Peak Direction (°)
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45
90
135
180
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270
315
360
Pre Concept B
Post Concept B
31/05/2011
10/06/2011
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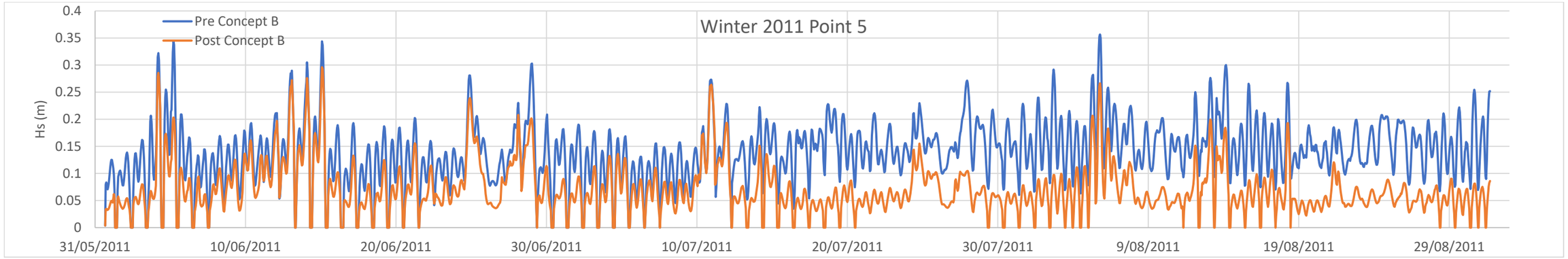
9/08/2011
19/08/2011
29/08/2011


Winter 2011 Point 5
Pre Concept B
Post Concept B
Hs (m)
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0.3
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0.15
0.1
0.05
0
31/05/2011
10/06/2011
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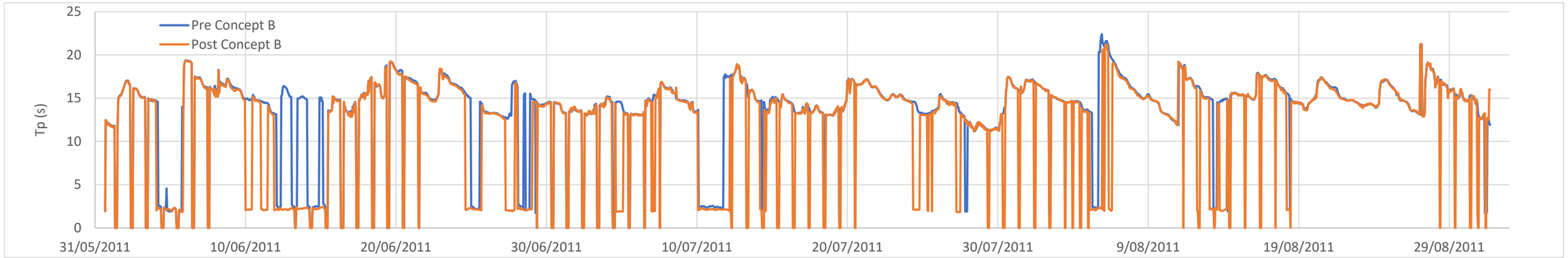
9/08/2011
19/08/2011
29/08/2011


Pre Concept B
Post Concept B
Tp (s)
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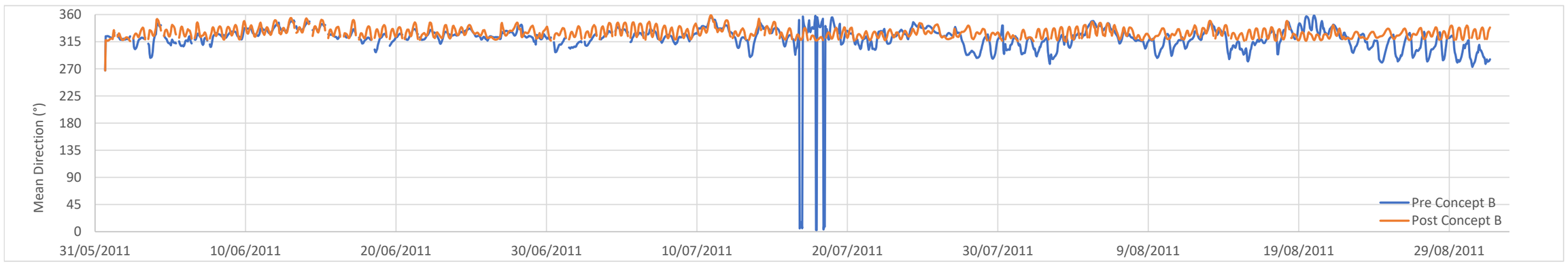
19/08/2011
29/08/2011


Mean Direction (°)
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Pre Concept B
Post Concept B
31/05/2011
10/06/2011
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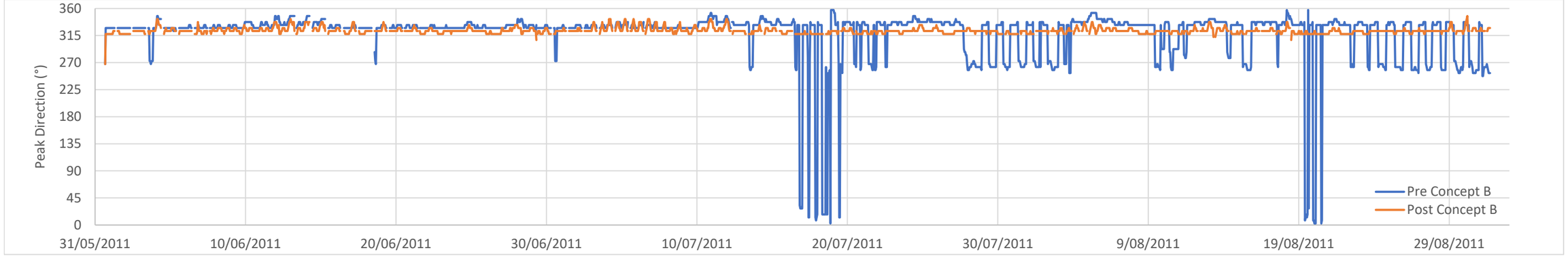
Peak Direction (°)
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Pre Concept B
Post Concept B
31/05/2011
10/06/2011
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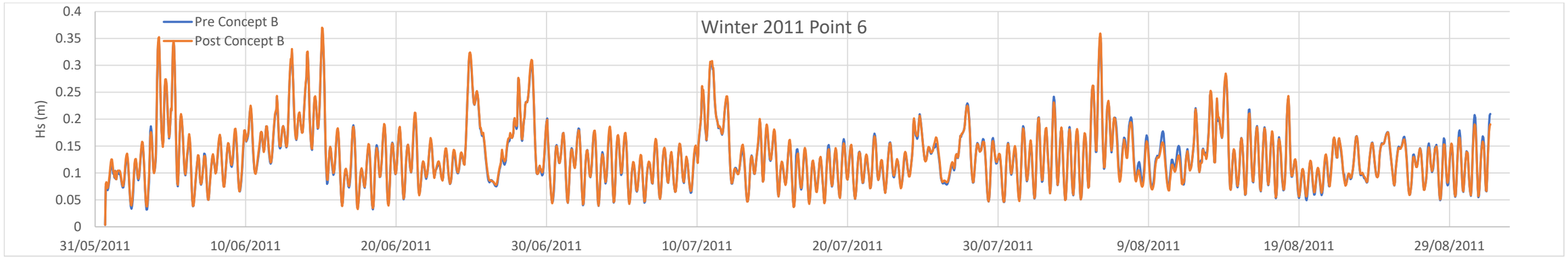
Winter 2011 Point 6
Pre Concept B
Post Concept B
Hs (m)
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0.3
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0.2
0.15
0.1
0.05
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31/05/2011
10/06/2011
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19/08/2011
29/08/2011

Pre Concept B
Post Concept B
Tp (s)
25
20
15
10
5
0
31/05/2011
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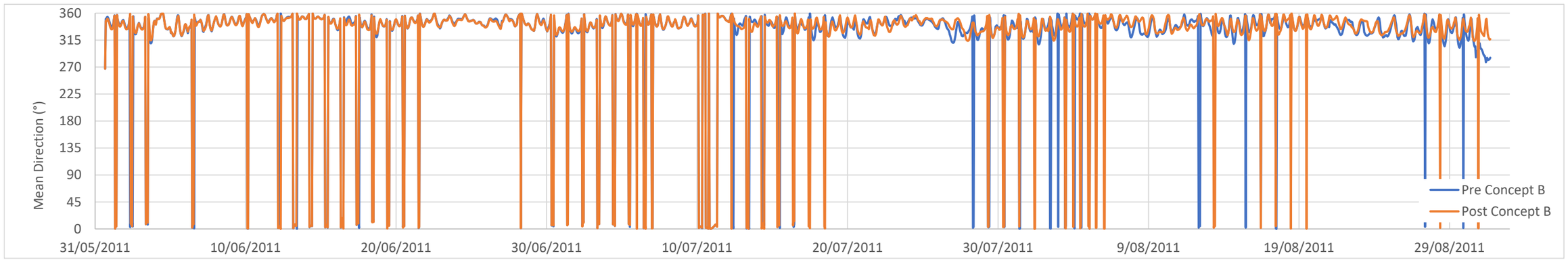
Mean Direction (°)
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31/05/2011
10/06/2011
20/06/2011
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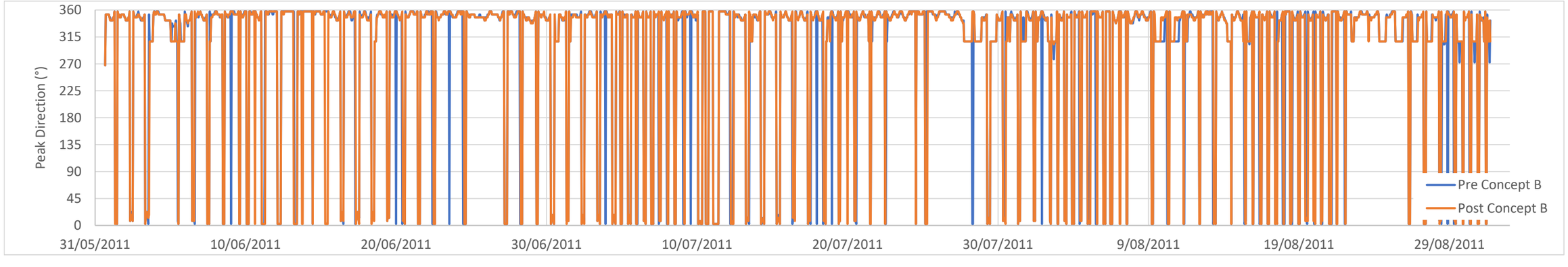
9/08/2011
19/08/2011
29/08/2011
Pre Concept B
Post Concept B


Peak Direction (°)
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31/05/2011
10/06/2011
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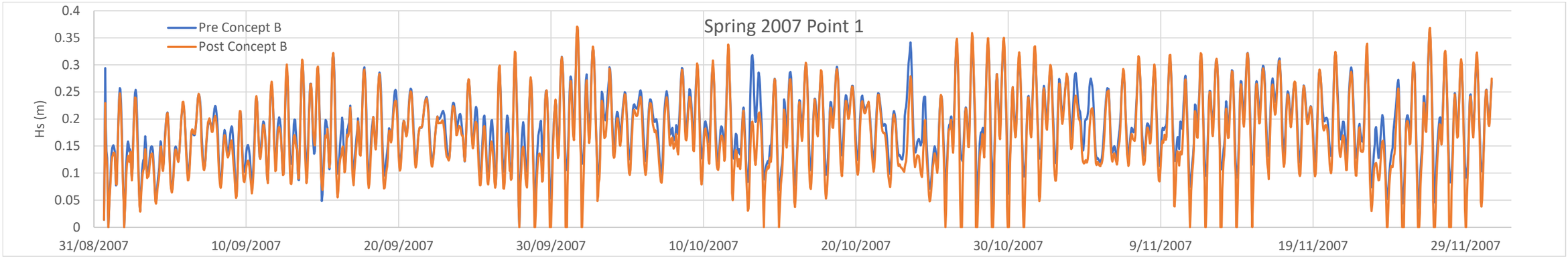
9/08/2011
19/08/2011
29/08/2011
Pre Concept B
Post Concept B


Spring 2007 Point 1
Pre Concept B
Post Concept B
Hs (m)
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0.35
0.3
0.25
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0.15
0.1
0.05
0
31/08/2007
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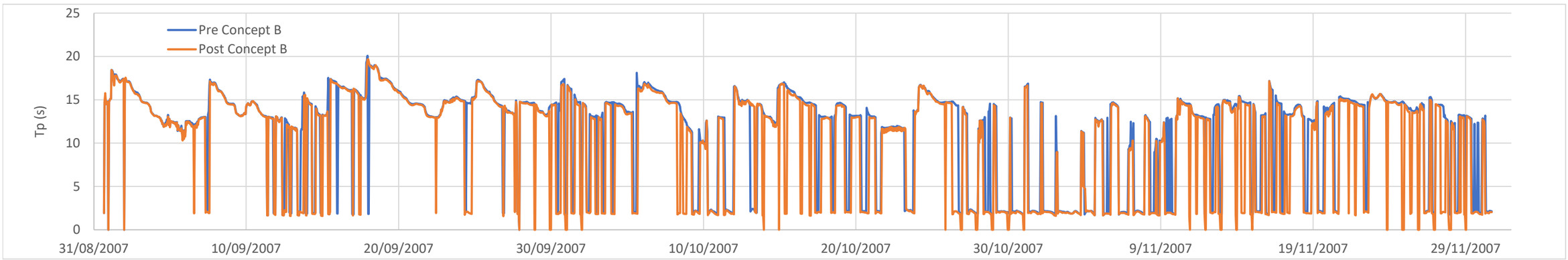
29/11/2007


Pre Concept B
Post Concept B
Tp (s)
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20
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10
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31/08/2007
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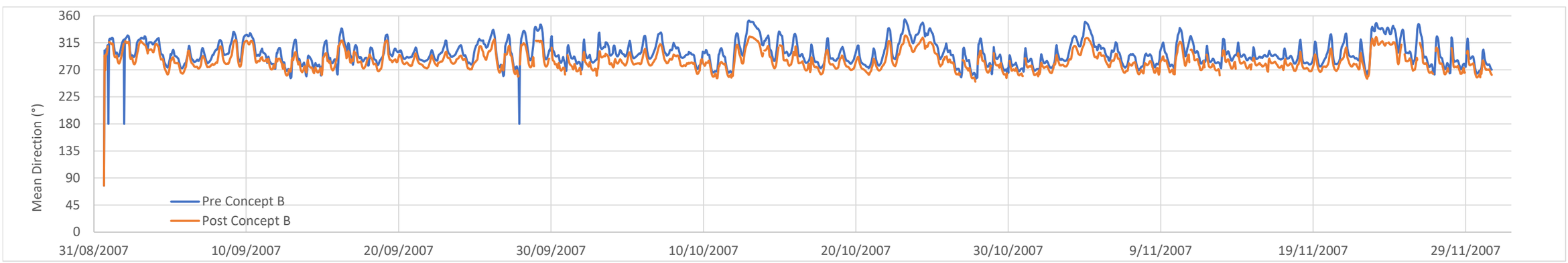
9/11/2007
19/11/2007
29/11/2007


Mean Direction (°)
360
315
270
225
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45
0
Pre Concept B
Post Concept B
31/08/2007
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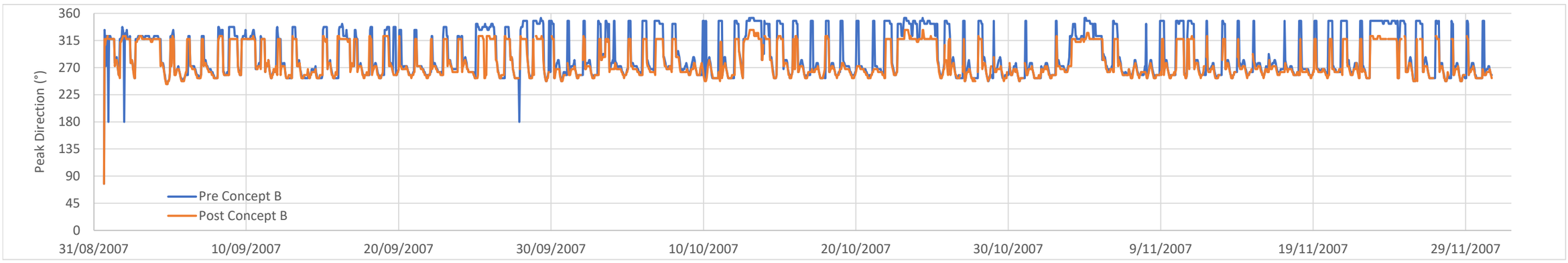
29/11/2007


Peak Direction (°)
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315
270
225
180
135
90
45
0
Pre Concept B
Post Concept B
31/08/2007
10/09/2007
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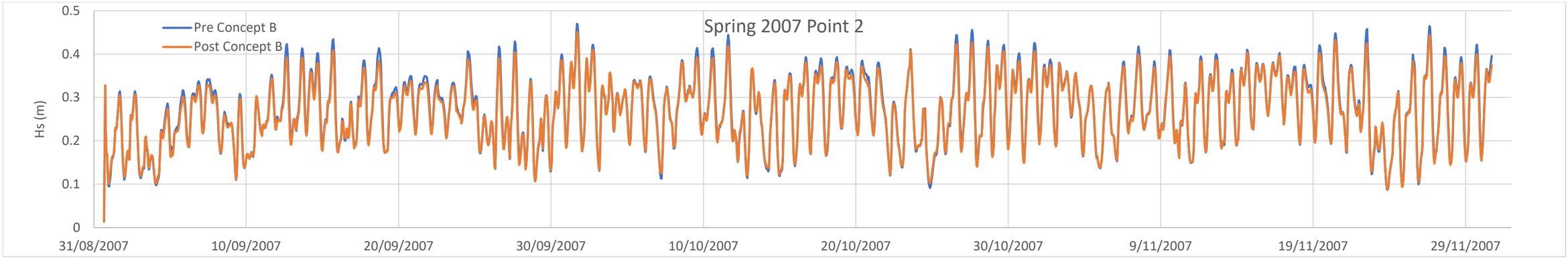
29/11/2007


Spring 2007 Point 2
Pre Concept B
Post Concept B
Hs (m)
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0.4
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0.2
0.1
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31/08/2007
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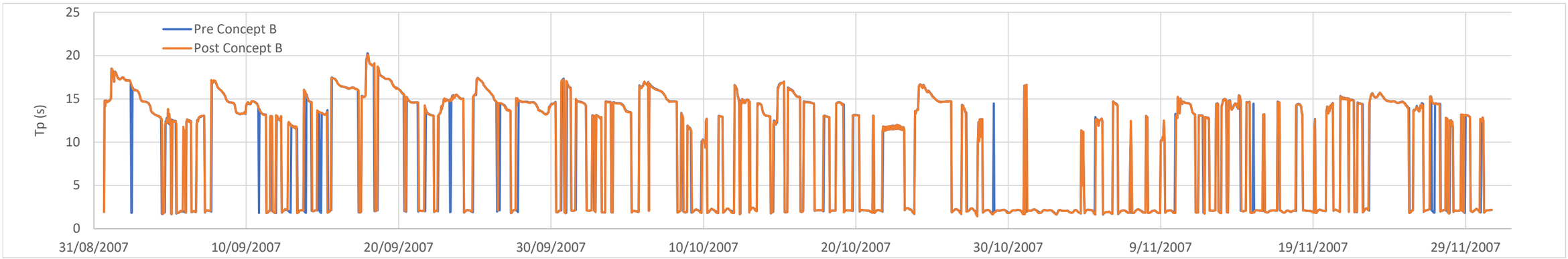
Pre Concept B
Post Concept B
Tp (s)
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31/08/2007
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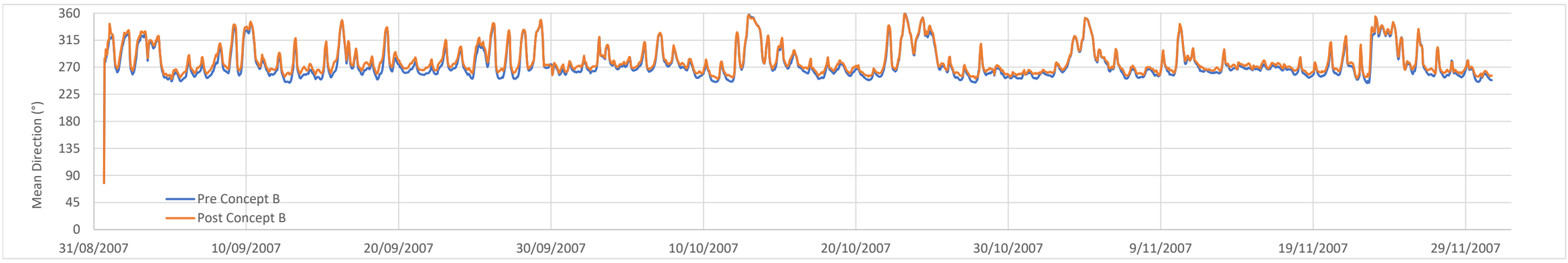
29/11/2007


Mean Direction (°)
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90
45
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Pre Concept B
Post Concept B
31/08/2007
10/09/2007
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30/09/2007
10/10/2007
20/10/2007
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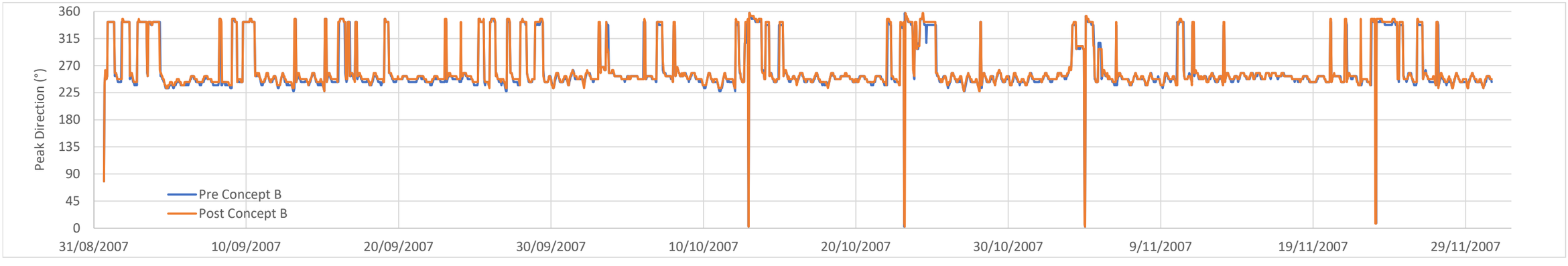
19/11/2007
29/11/2007


Peak Direction (°)
360
315
270
225
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90
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Pre Concept B
Post Concept B
31/08/2007
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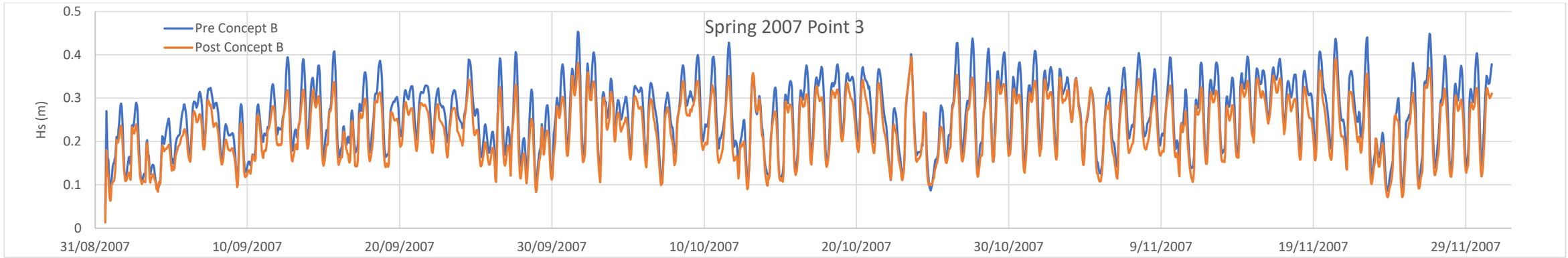
9/11/2007
19/11/2007
29/11/2007


Spring 2007 Point 3
Pre Concept B
Post Concept B
Hs (m)
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0.4
0.3
0.2
0.1
0
31/08/2007
10/09/2007
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10/10/2007
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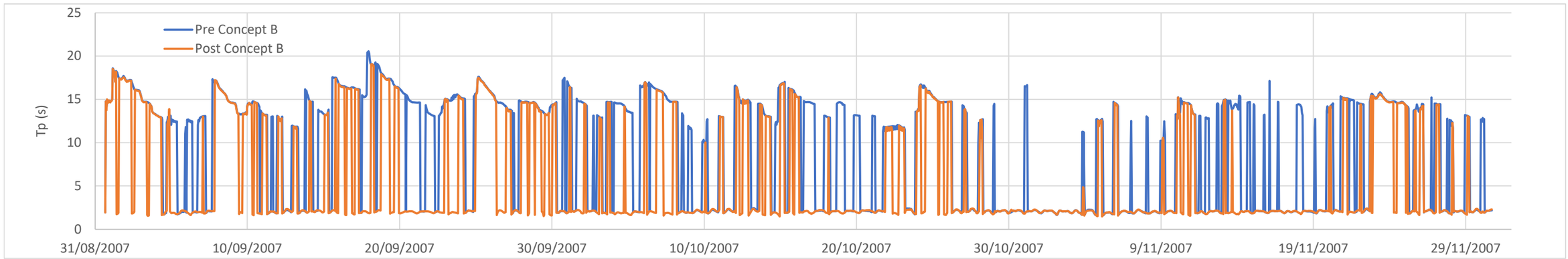
19/11/2007
29/11/2007


Pre Concept B
Post Concept B
Tp (s)
25
20
15
10
5
0
31/08/2007
10/09/2007
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30/09/2007
10/10/2007
20/10/2007
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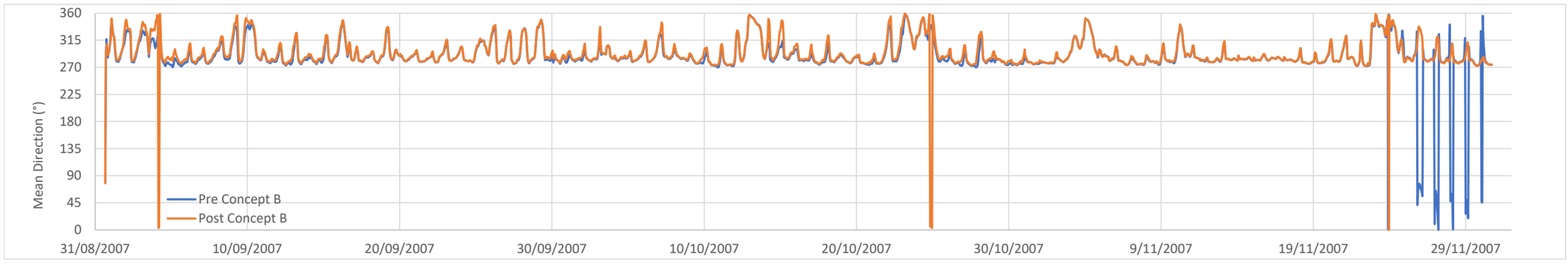
9/11/2007
19/11/2007
29/11/2007


Mean Direction (°)
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315
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225
180
135
90
45
0
Pre Concept B
Post Concept B
31/08/2007
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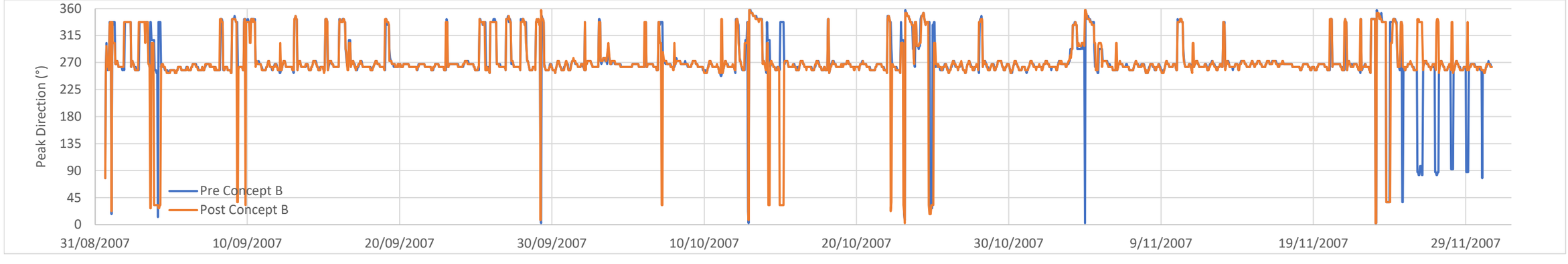
30/09/2007
10/10/2007
20/10/2007
30/10/2007
9/11/2007
19/11/2007
29/11/2007


Peak Direction (°)
360
315
270
225
180
135
90
45
0
Pre Concept B
Post Concept B
31/08/2007
10/09/2007
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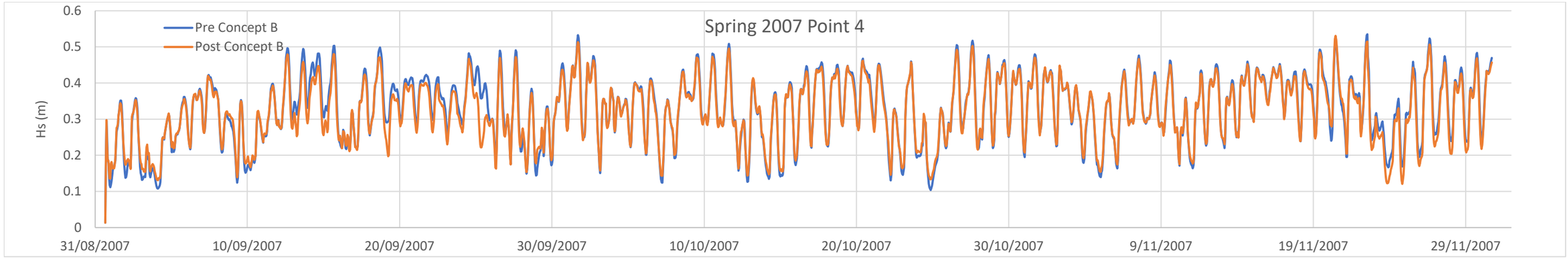
30/09/2007
10/10/2007
20/10/2007
30/10/2007
9/11/2007
19/11/2007
29/11/2007


Spring 2007 Point 4
Pre Concept B
Post Concept B
Hs (m)
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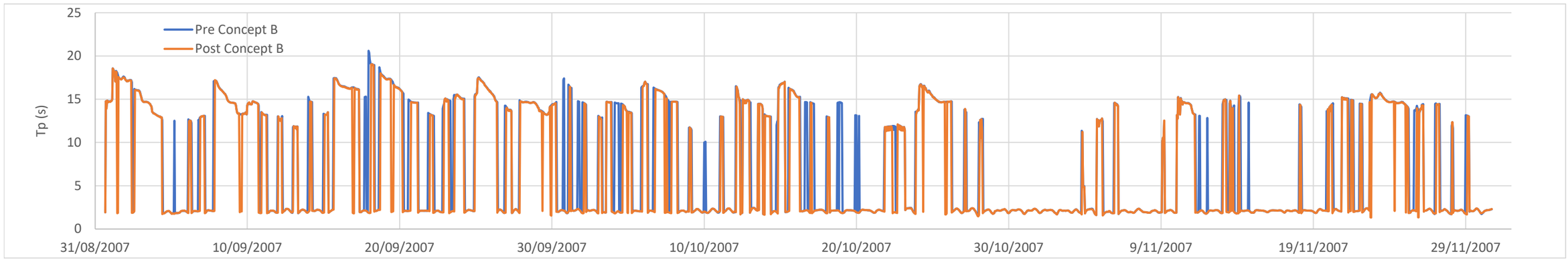
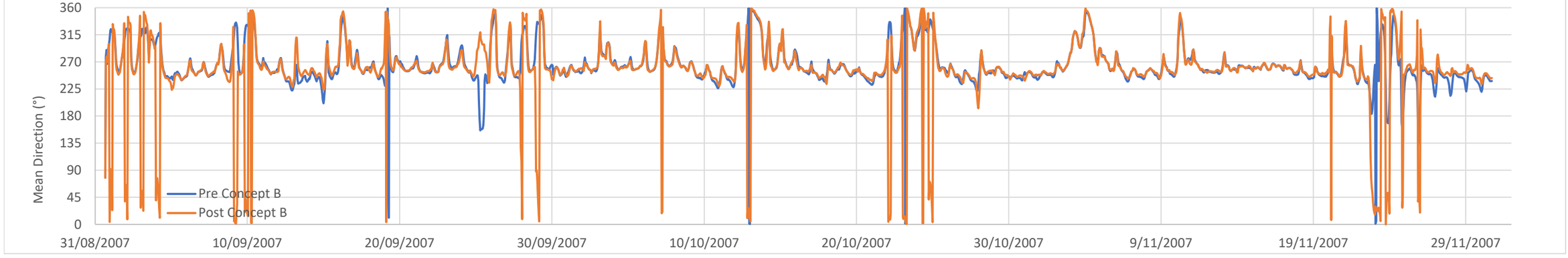
0.5
0.4
0.3
0.2
0.1
0
31/08/2007
10/09/2007
20/09/2007
30/09/2007
10/10/2007
20/10/2007
30/10/2007
9/11/2007
19/11/2007
29/11/2007


Pre Concept B
Post Concept B
Tp (s)
25
20
15
10
5
0
31/08/2007
10/09/2007
20/09/2007
30/09/2007
10/10/2007
20/10/2007
30/10/2007
9/11/2007
19/11/2007
29/11/2007


Mean Direction (°)
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225
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Pre Concept B
Post Concept B
31/08/2007
10/09/2007
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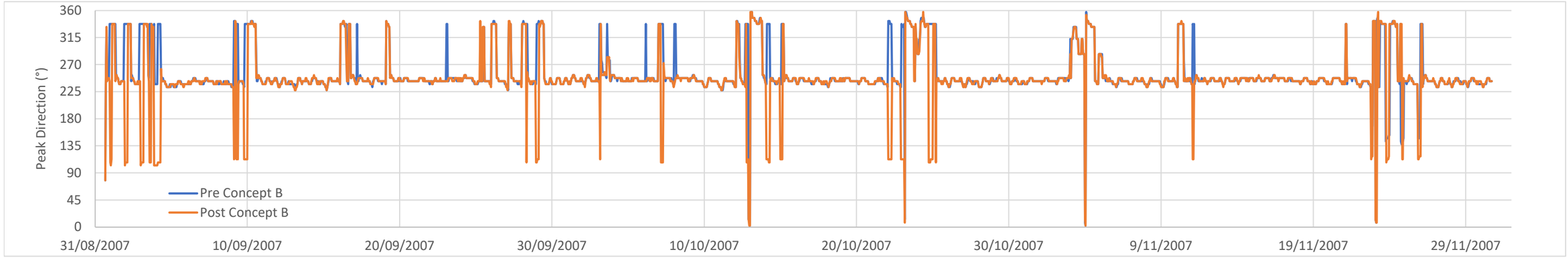
30/09/2007
10/10/2007
20/10/2007
30/10/2007
9/11/2007
19/11/2007
29/11/2007


Peak Direction (°)
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315
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225
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135
90
45
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Pre Concept B
Post Concept B
31/08/2007
10/09/2007
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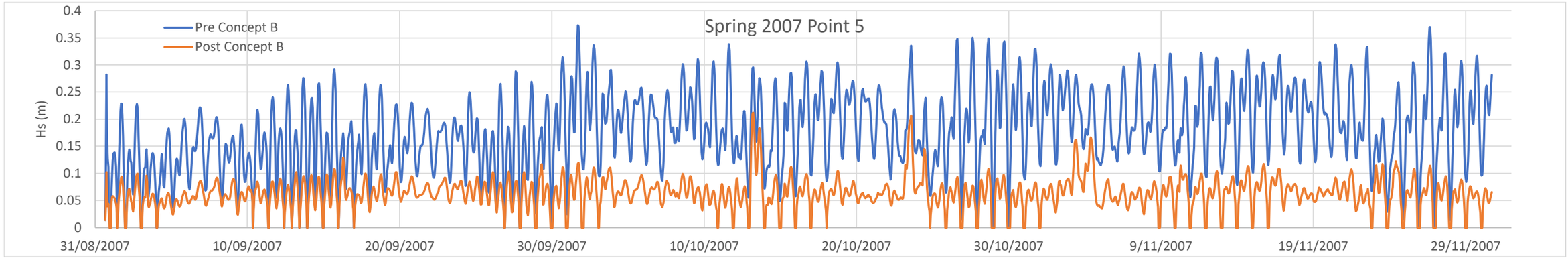
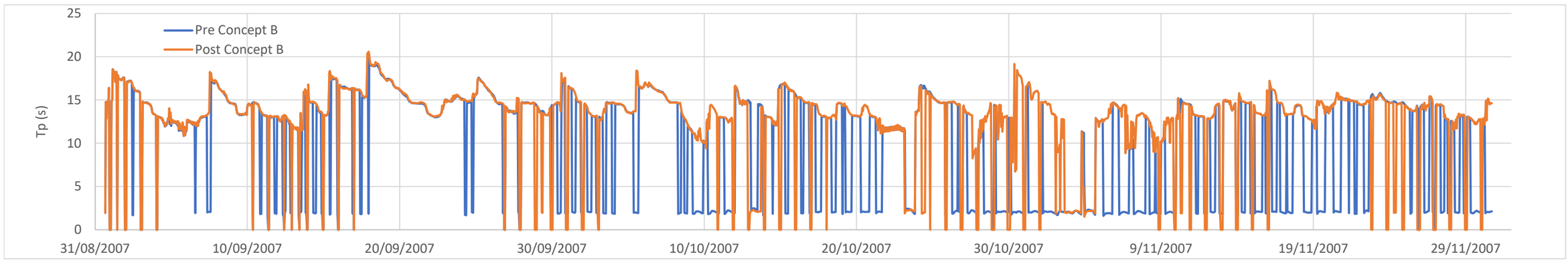
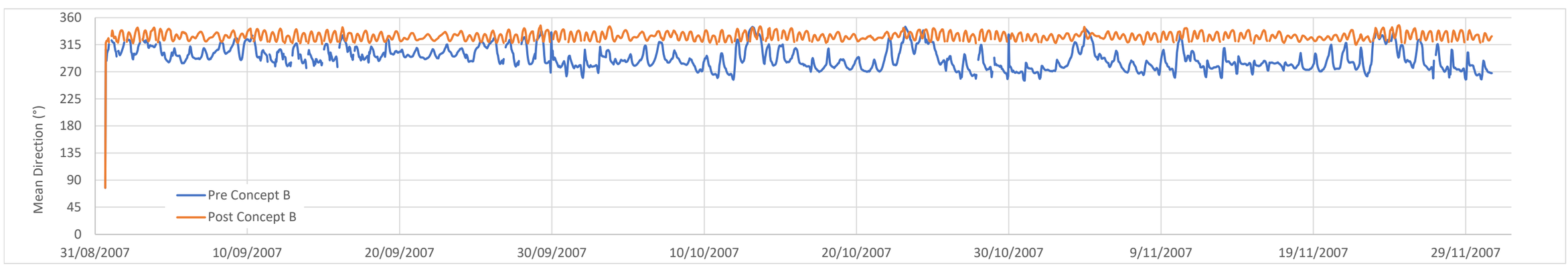
30/09/2007
10/10/2007
20/10/2007
30/10/2007
9/11/2007
19/11/2007
29/11/2007


Spring 2007 Point 5
Pre Concept B
Post Concept B
Hs (m)
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
31/08/2007
10/09/2007
20/09/2007
30/09/2007
10/10/2007
20/10/2007
30/10/2007
9/11/2007
19/11/2007
29/11/2007


Pre Concept B
Post Concept B
Tp (s)
25
20
15
10
5
0
31/08/2007
10/09/2007
20/09/2007
30/09/2007
10/10/2007
20/10/2007
30/10/2007
9/11/2007
19/11/2007
29/11/2007


Mean Direction (°)
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315
270
225
180
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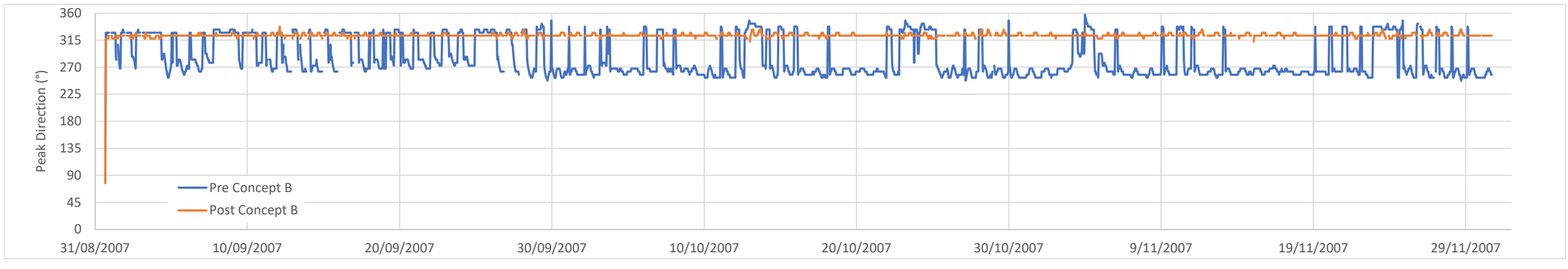
90
45
0
Pre Concept B
Post Concept B
31/08/2007
10/09/2007
20/09/2007
30/09/2007
10/10/2007
20/10/2007
30/10/2007
9/11/2007
19/11/2007
29/11/2007


Peak Direction (°)
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315
270
225
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135
90
45
0
Pre Concept B
Post Concept B
31/08/2007
10/09/2007
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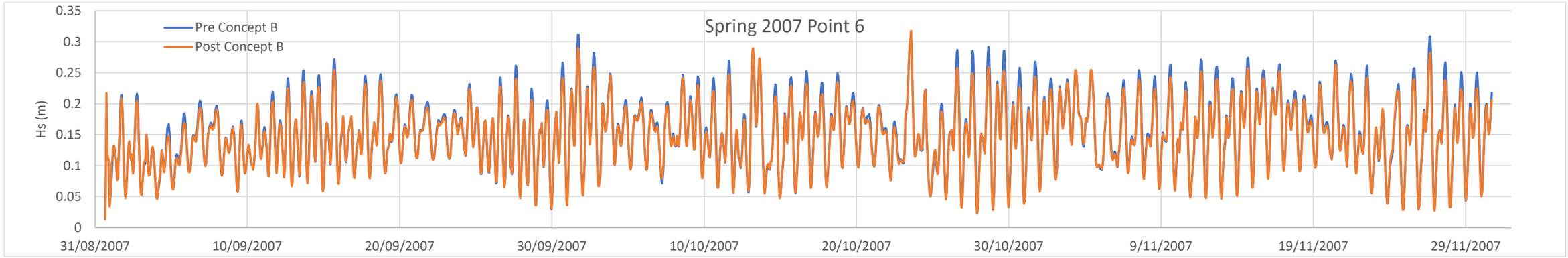
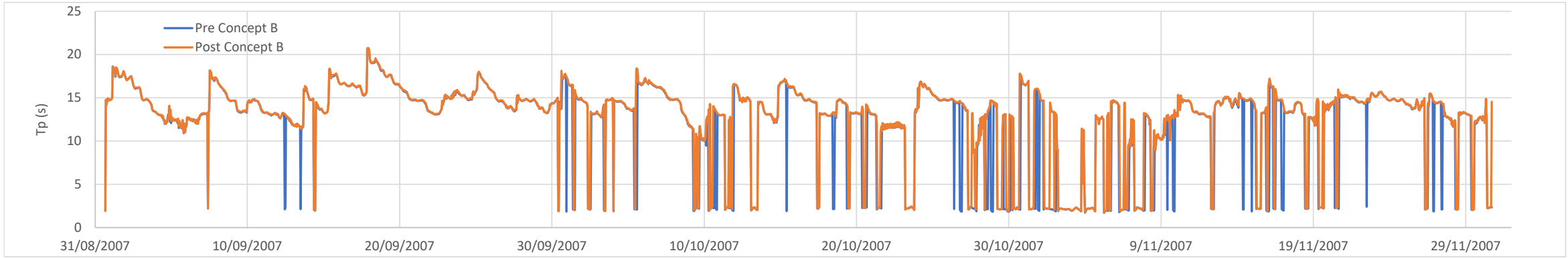
10/10/2007
20/10/2007
30/10/2007
9/11/2007
19/11/2007
29/11/2007


Spring 2007 Point 6
Pre Concept B
Post Concept B
Hs (m)
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
31/08/2007
10/09/2007
20/09/2007
30/09/2007
10/10/2007
20/10/2007
30/10/2007
9/11/2007
19/11/2007
29/11/2007


Pre Concept B
Post Concept B
Tp (s)
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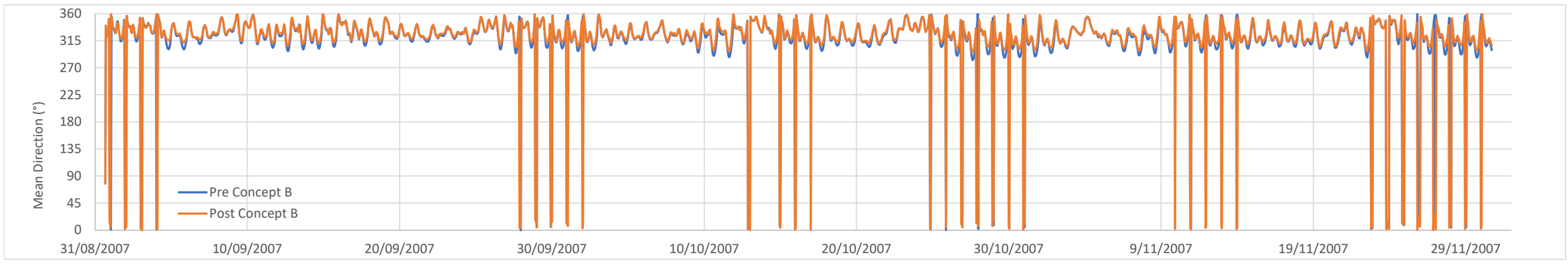
20
15
10
5
0
31/08/2007
10/09/2007
20/09/2007
30/09/2007
10/10/2007
20/10/2007
30/10/2007
9/11/2007
19/11/2007
29/11/2007


Mean Direction (°)
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315
270
225
180
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90
45
0
Pre Concept B
Post Concept B
31/08/2007
10/09/2007
20/09/2007
30/09/2007
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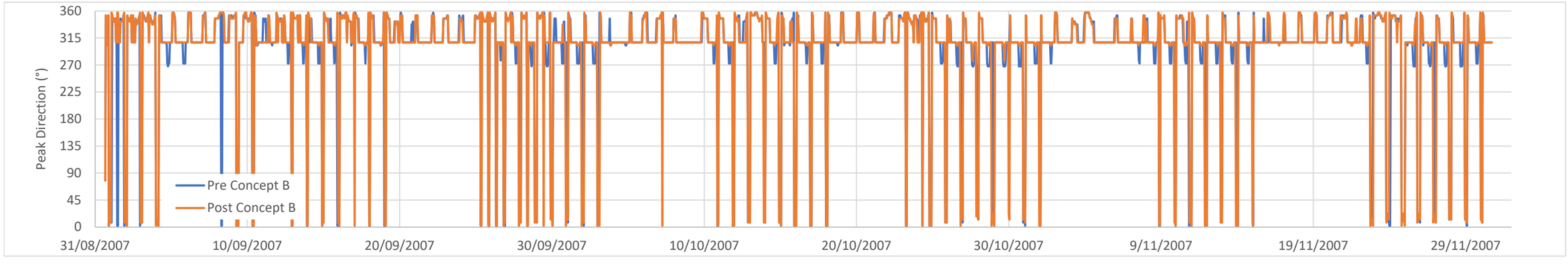
20/10/2007
30/10/2007
9/11/2007
19/11/2007
29/11/2007


Peak Direction (°)
360
315
270
225
180
135
90
45
0
Pre Concept B
Post Concept B
31/08/2007
10/09/2007
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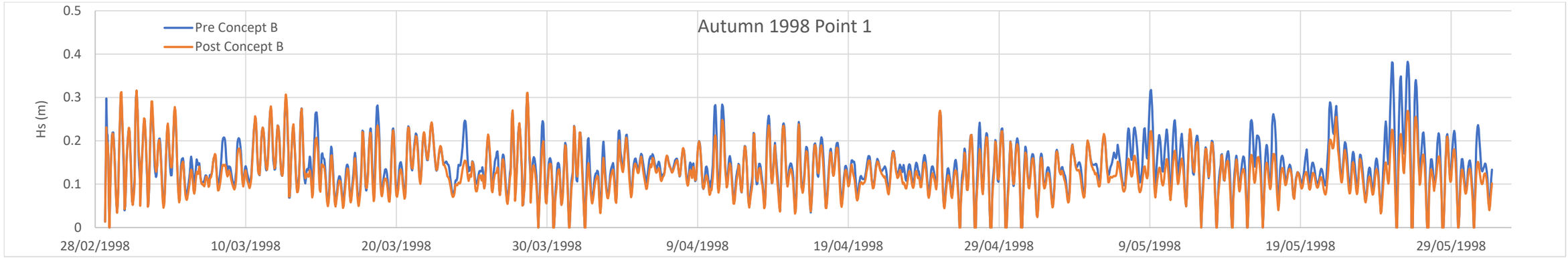
9/11/2007
19/11/2007
29/11/2007


Autumn 1998 Point 1
Pre Concept B
Post Concept B
Hs (m)
0.5
0.4
0.3
0.2
0.1
0
28/02/1998
10/03/1998
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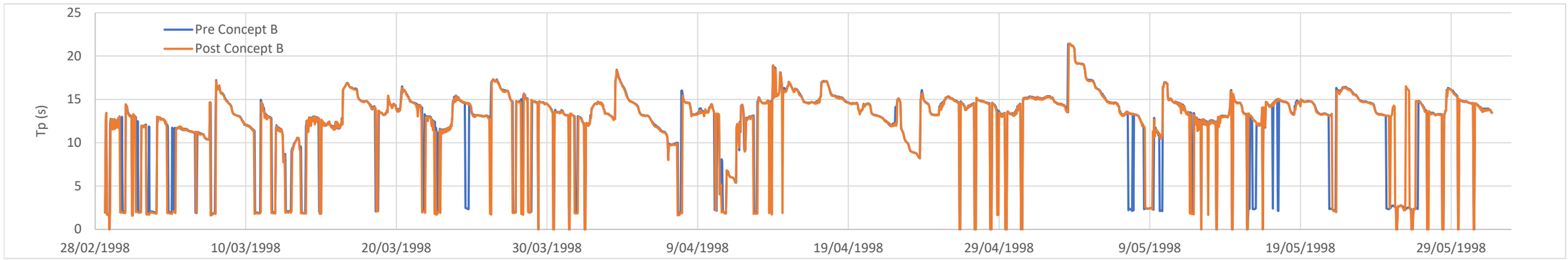
19/05/1998
29/05/1998


Pre Concept B
Post Concept B
Tp (s)
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20
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10
5
0
28/02/1998
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19/04/1998
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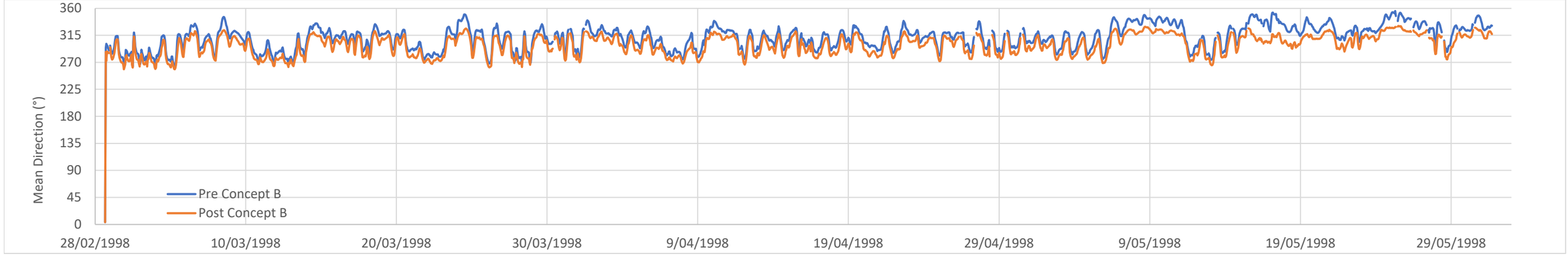
9/05/1998
19/05/1998
29/05/1998


Mean Direction (°)
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Pre Concept B
Post Concept B
28/02/1998
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30/03/1998
9/04/1998
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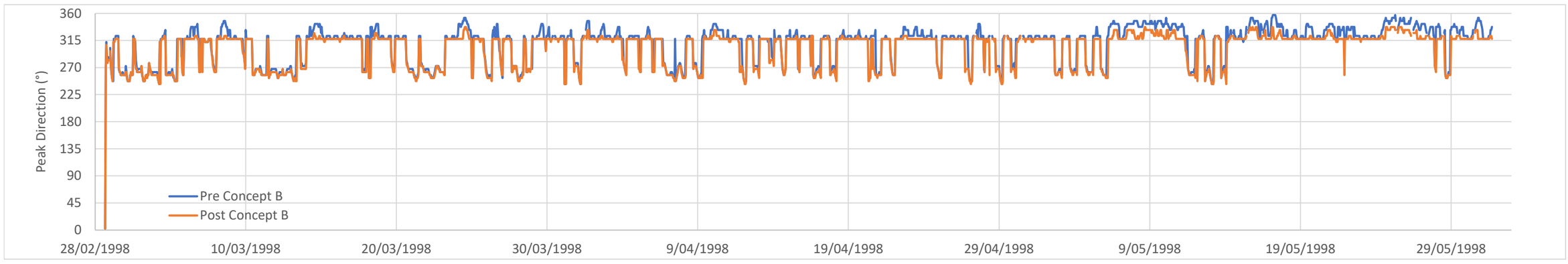
9/05/1998
19/05/1998
29/05/1998


Peak Direction (°)
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Pre Concept B
Post Concept B
28/02/1998
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19/05/1998
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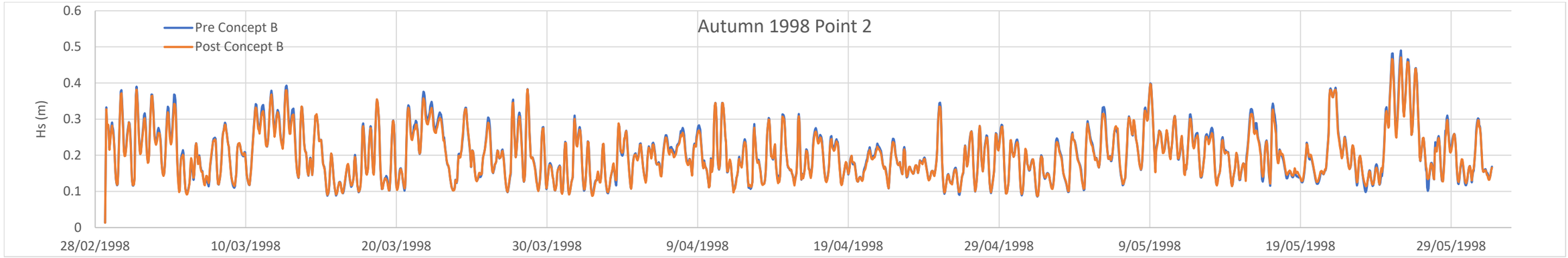
Autumn 1998 Point 2
Pre Concept B
Post Concept B
Hs (m)
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0.4
0.3
0.2
0.1
0
28/02/1998
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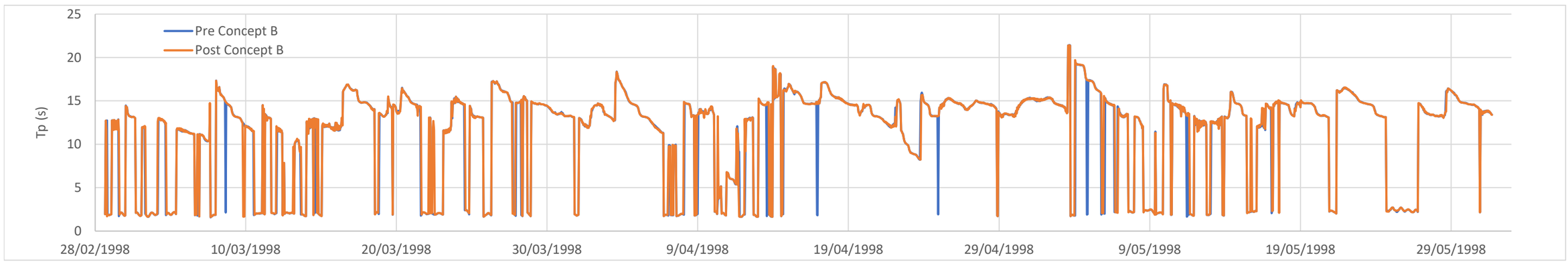
29/05/1998


Pre Concept B
Post Concept B
Tp (s)
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20
15
10
5
0
28/02/1998
10/03/1998
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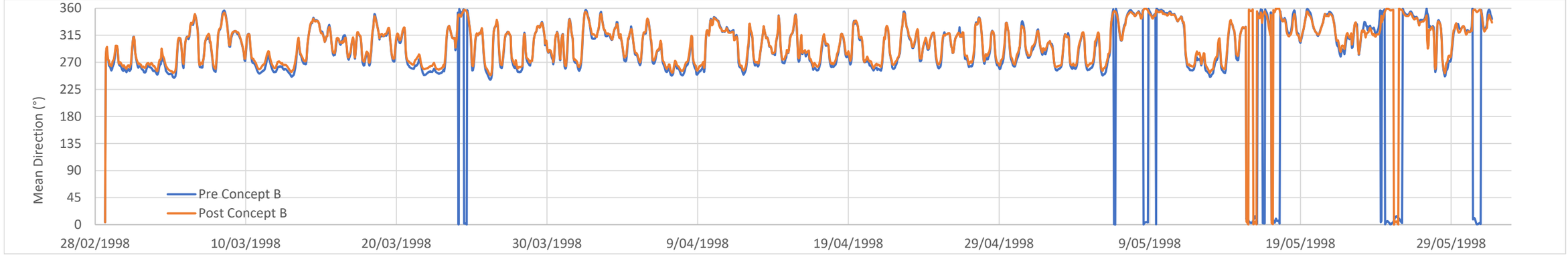
Mean Direction (°)
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0
Pre Concept B
Post Concept B
28/02/1998
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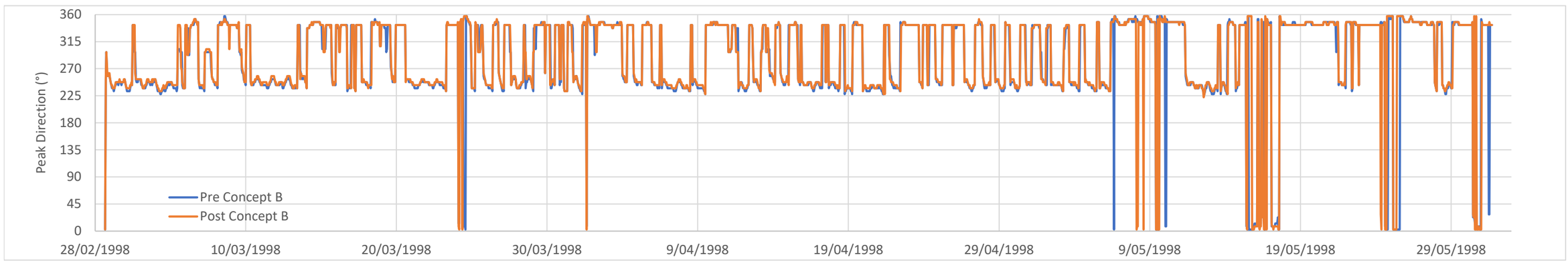
Peak Direction (°)
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315
270
225
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45
0
Pre Concept B
Post Concept B
28/02/1998
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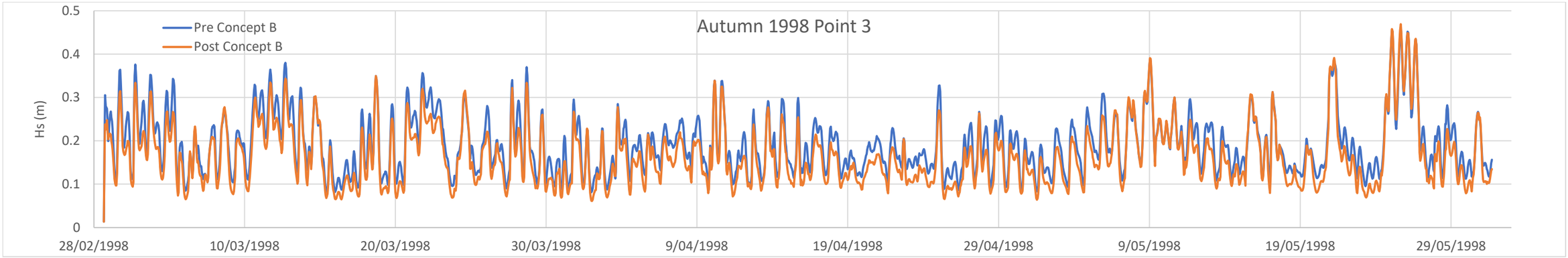
Autumn 1998 Point 3
Pre Concept B
Post Concept B
Hs (m)
0.5
0.4
0.3
0.2
0.1
0
28/02/1998
10/03/1998
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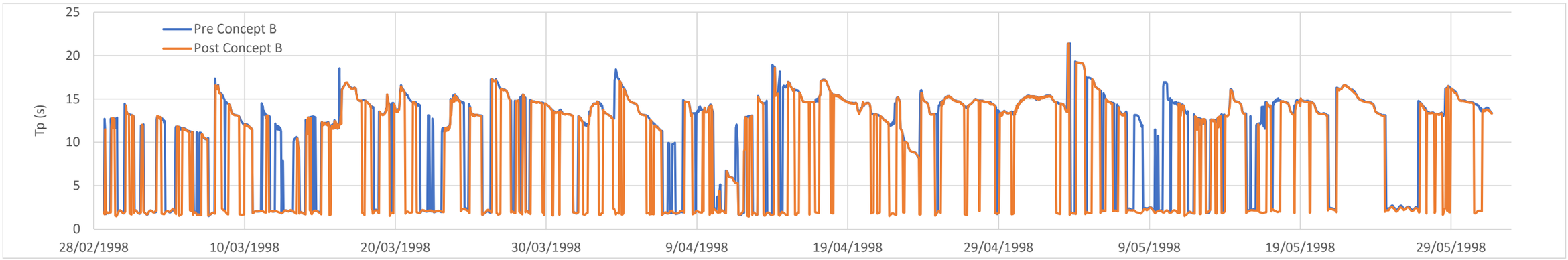
Pre Concept B
Post Concept B
Tp (s)
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20
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0
28/02/1998
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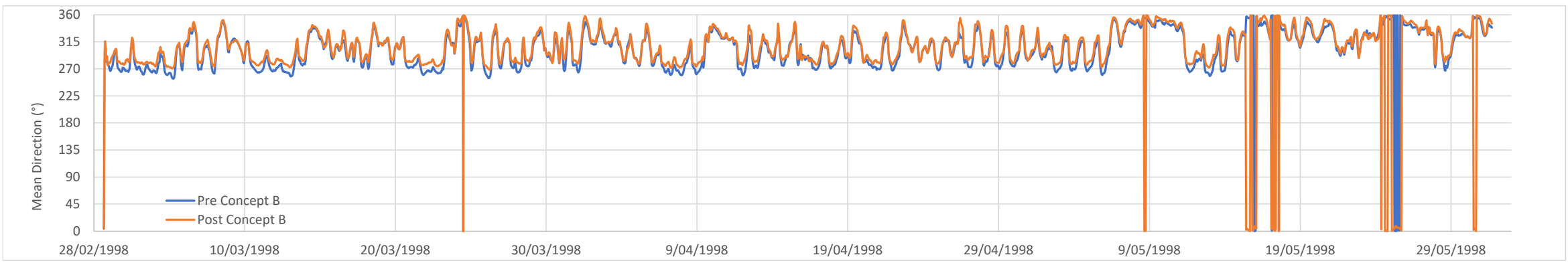
29/05/1998


Mean Direction (°)
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315
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225
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Pre Concept B
Post Concept B
28/02/1998
10/03/1998
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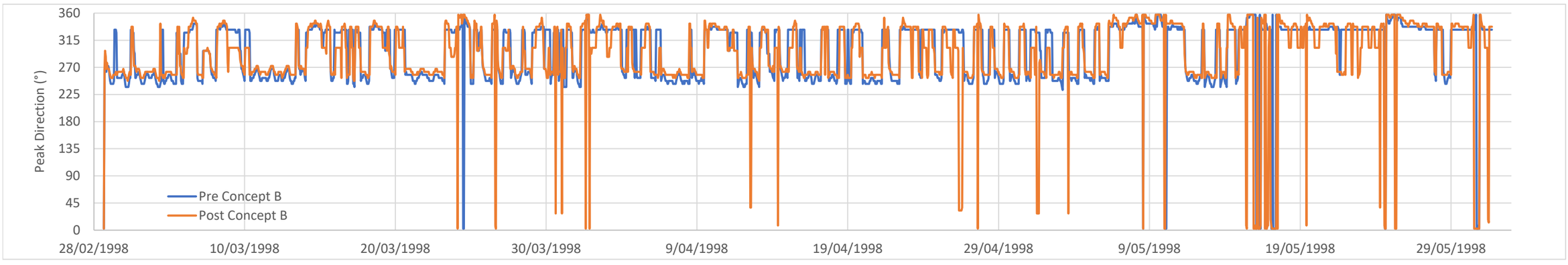
Peak Direction (°)
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315
270
225
180
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90
45
0
Pre Concept B
Post Concept B
28/02/1998
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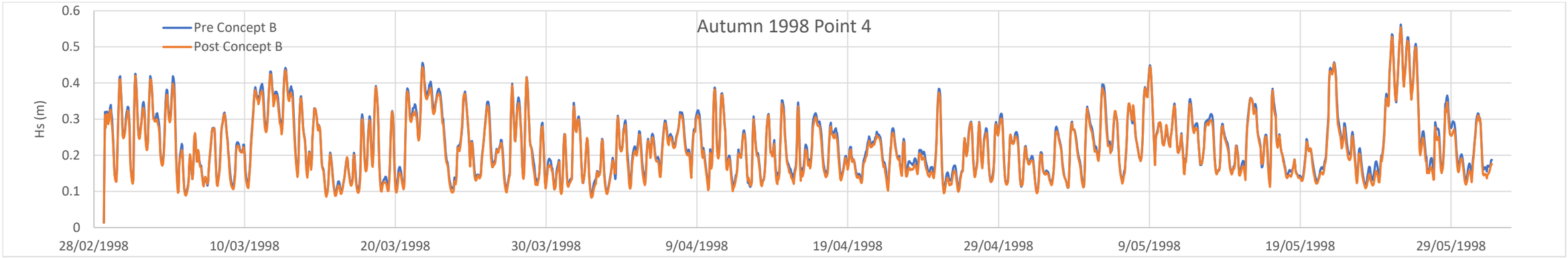
Autumn 1998 Point 4
Pre Concept B
Post Concept B
Hs (m)
0.6
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0.4
0.3
0.2
0.1
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28/02/1998
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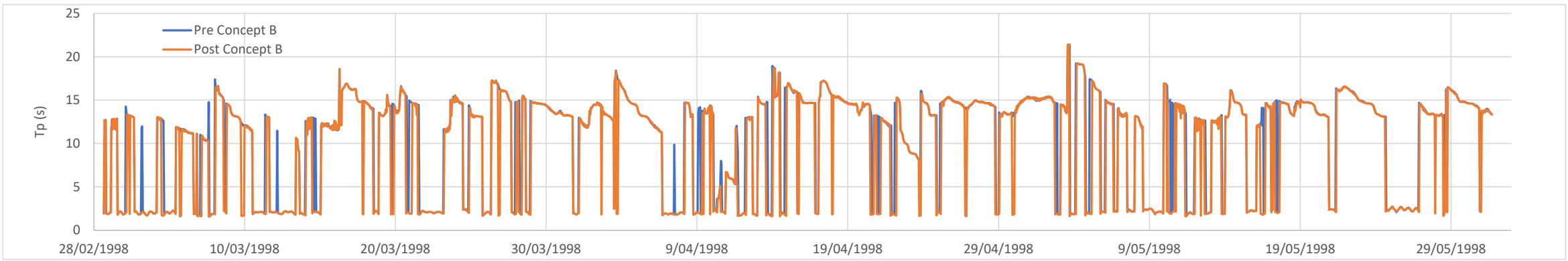
29/05/1998


Pre Concept B
Post Concept B
Tp (s)
25
20
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10
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0
28/02/1998
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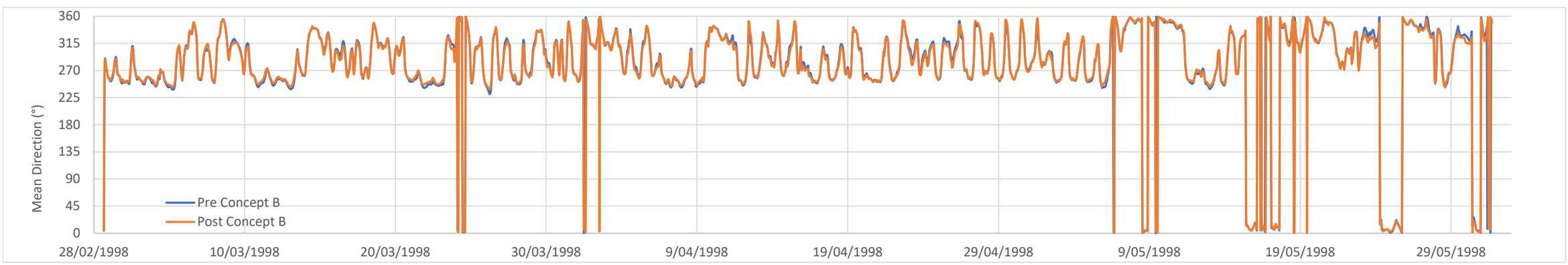
29/05/1998


Mean Direction (°)
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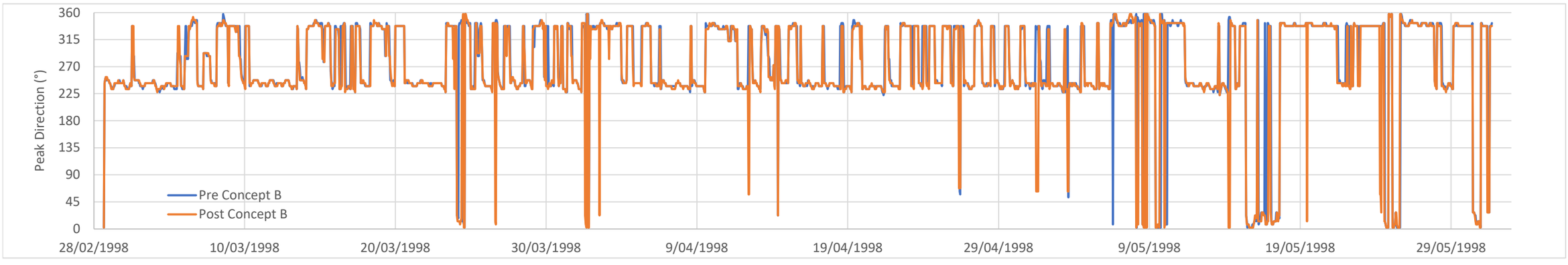
Pre Concept B
Post Concept B
28/02/1998
10/03/1998
20/03/1998
30/03/1998
9/04/1998
19/04/1998
29/04/1998
9/05/1998
19/05/1998
29/05/1998


Peak Direction (°)
360
315
270
225
180
135
90
45
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Pre Concept B
Post Concept B
28/02/1998
10/03/1998
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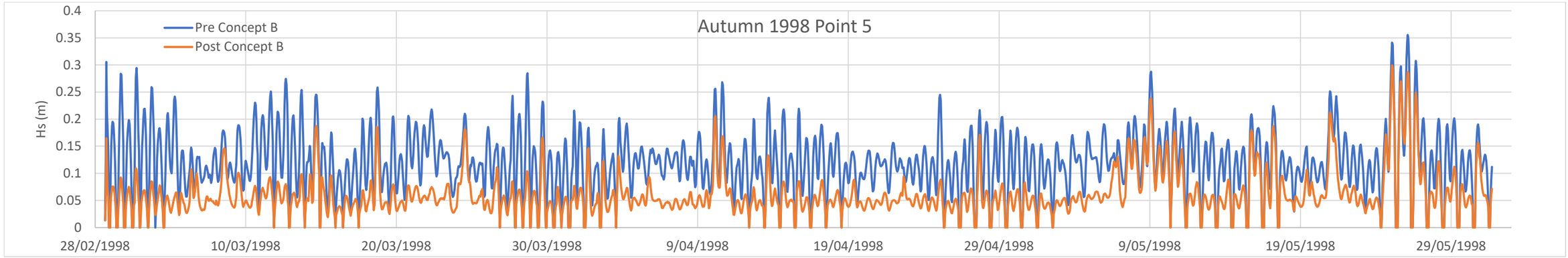
30/03/1998
9/04/1998
19/04/1998
29/04/1998
9/05/1998
19/05/1998
29/05/1998


Autumn 1998 Point 5
Pre Concept B
Post Concept B
Hs (m)
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
28/02/1998
10/03/1998
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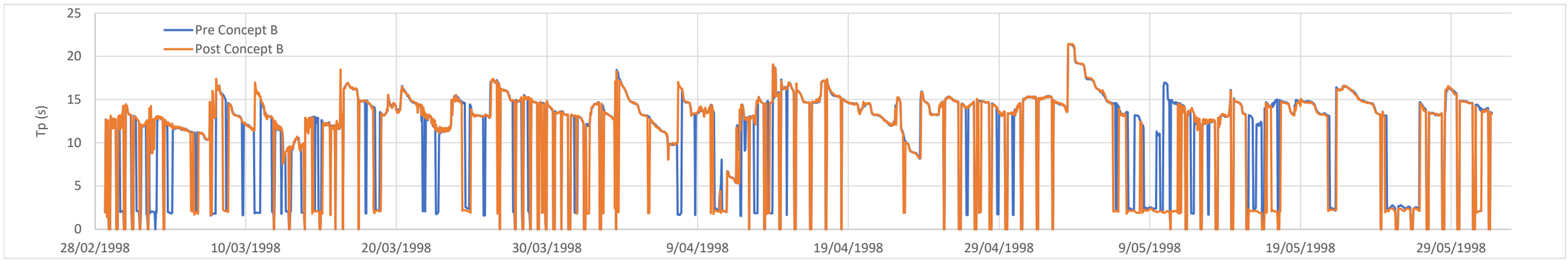
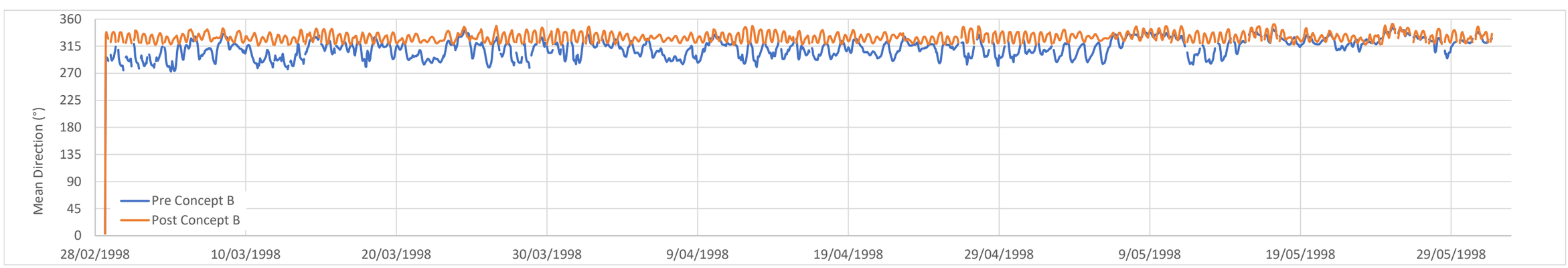
9/04/1998
19/04/1998
29/04/1998
9/05/1998
19/05/1998
29/05/1998


Pre Concept B
Post Concept B
Tp (s)
25
20
15
10
5
0
28/02/1998
10/03/1998
20/03/1998
30/03/1998
9/04/1998
19/04/1998
29/04/1998
9/05/1998
19/05/1998
29/05/1998


Mean Direction (°)
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315
270
225
180
135
90
45
0
Pre Concept B
Post Concept B
28/02/1998
10/03/1998
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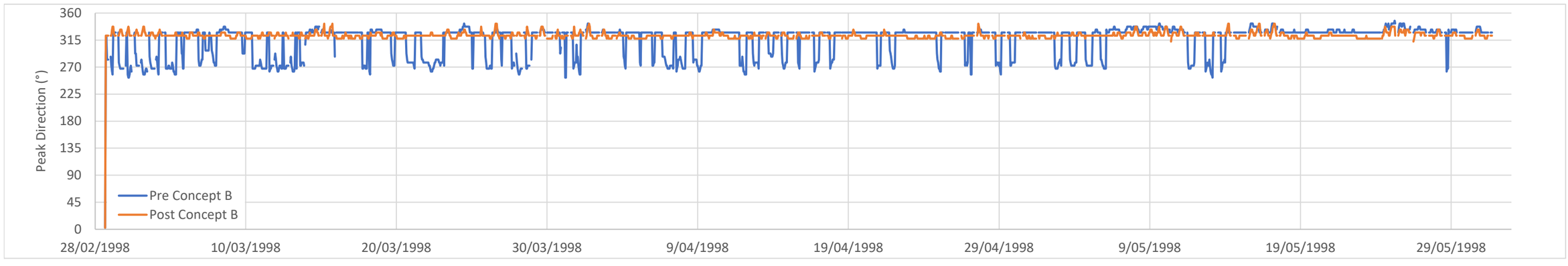
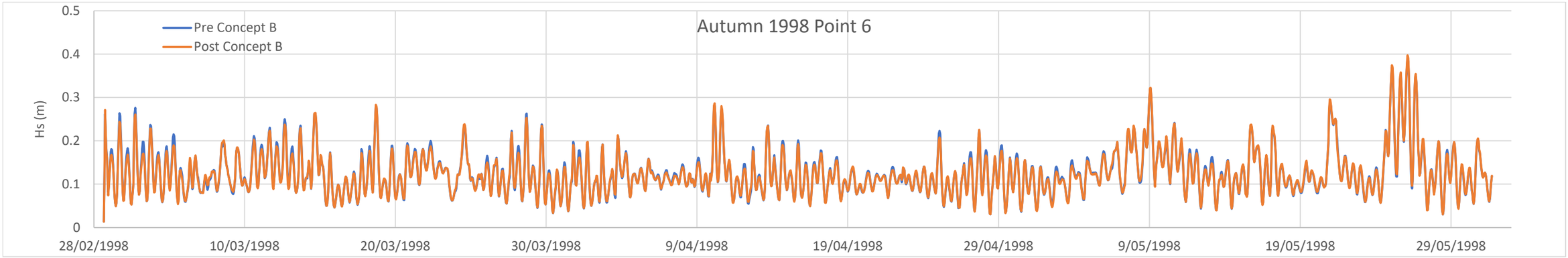
30/03/1998
9/04/1998
19/04/1998
29/04/1998
9/05/1998
19/05/1998
29/05/1998


Peak Direction (°)
360
315
270
225
180
135
90
45
0
Pre Concept B
Post Concept B
28/02/1998
10/03/1998
20/03/1998
30/03/1998
9/04/1998
19/04/1998
29/04/1998
9/05/1998
19/05/1998
29/05/1998


Autumn 1998 Point 6
Pre Concept B
Post Concept B
Hs (m)
0.5
0.4
0.3
0.2
0.1
0
28/02/1998
10/03/1998
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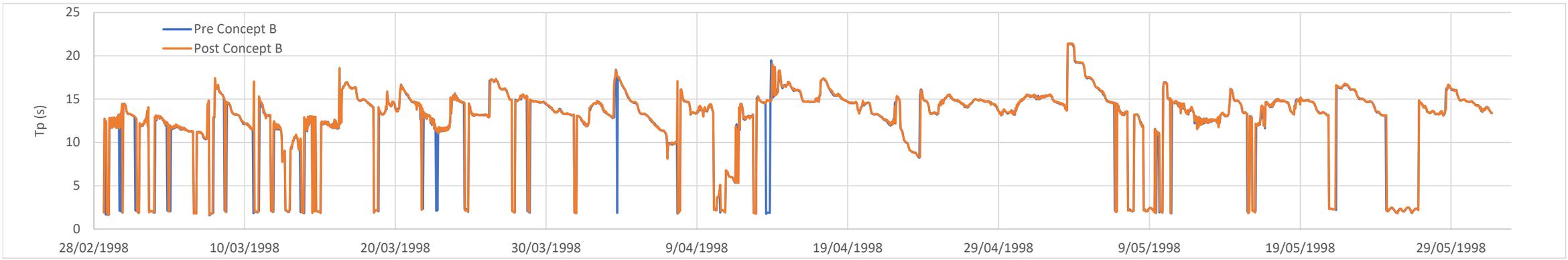
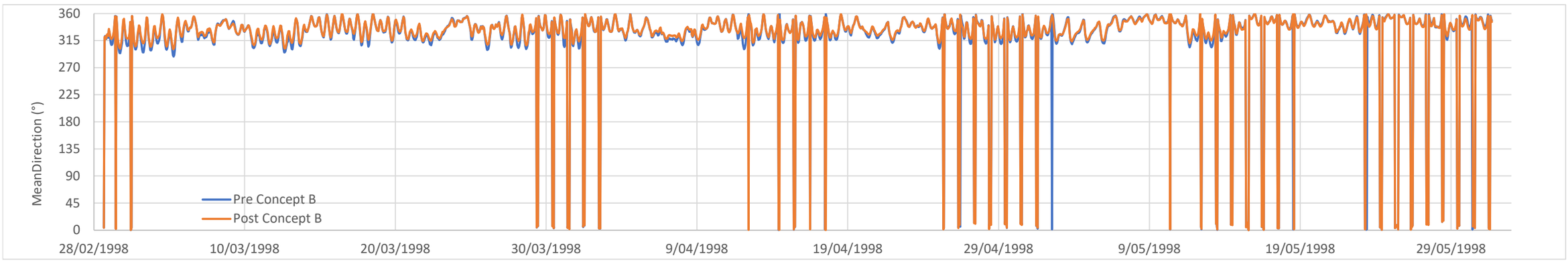
30/03/1998
9/04/1998
19/04/1998
29/04/1998
9/05/1998
19/05/1998
29/05/1998


Pre Concept B
Post Concept B
Tp (s)
25
20
15
10
5
0
28/02/1998
10/03/1998
20/03/1998
30/03/1998
9/04/1998
19/04/1998
29/04/1998
9/05/1998
19/05/1998
29/05/1998


MeanDirection (°)
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315
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225
180
135
90
45
0
Pre Concept B
Post Concept B
28/02/1998
10/03/1998
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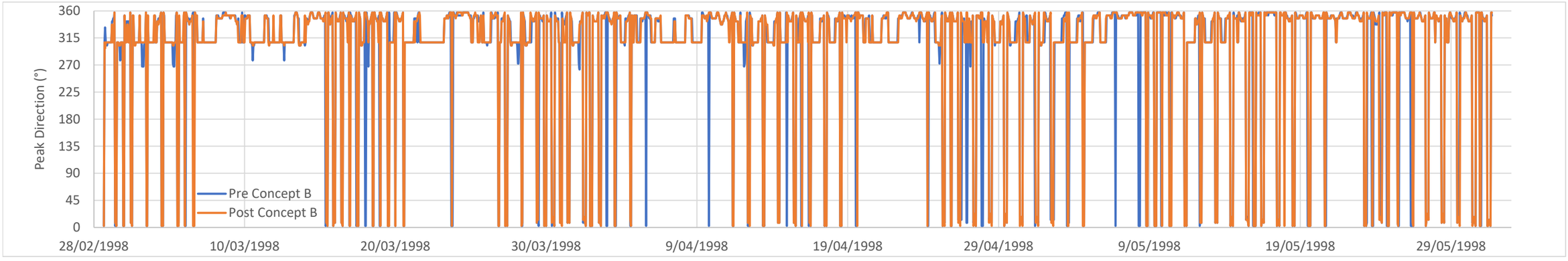
9/04/1998
19/04/1998
29/04/1998
9/05/1998
19/05/1998
29/05/1998


Peak Direction (°)
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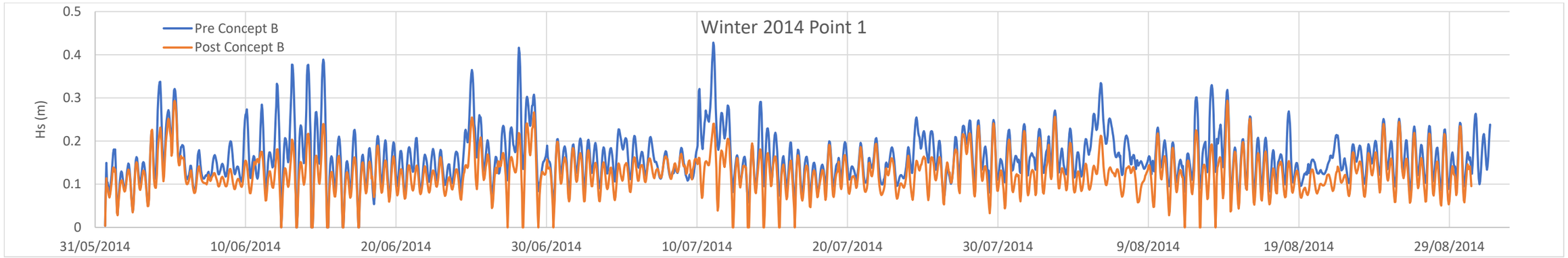
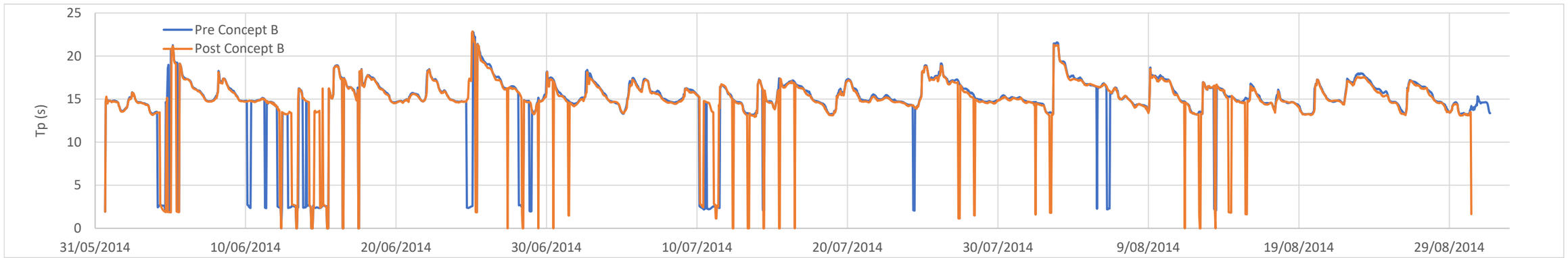
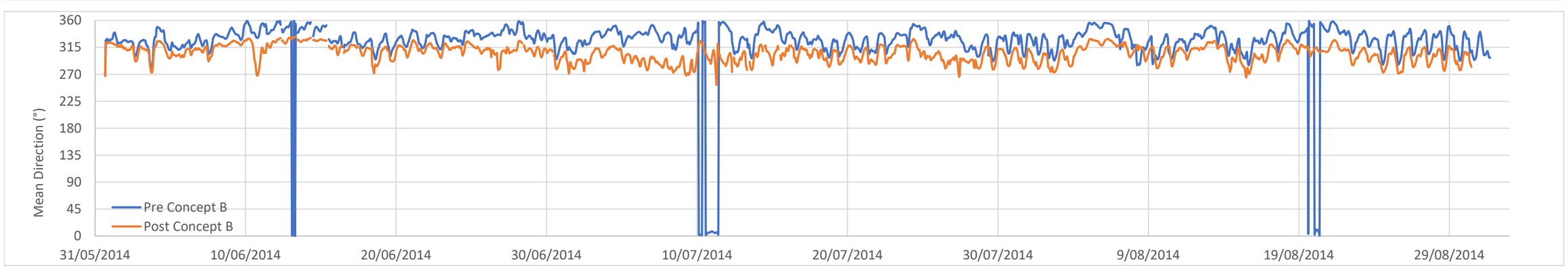
315
270
225
180
135
90
45
0
Pre Concept B
Post Concept B
28/02/1998
10/03/1998
20/03/1998
30/03/1998
9/04/1998
19/04/1998
29/04/1998
9/05/1998
19/05/1998
29/05/1998


Winter 2014 Point 1
Pre Concept B
Post Concept B
Hs (m)
0.5
0.4
0.3
0.2
0.1
0
31/05/2014
10/06/2014
20/06/2014
30/06/2014
10/07/2014
20/07/2014
30/07/2014
9/08/2014
19/08/2014
29/08/2014


Pre Concept B
Post Concept B
Tp (s)
25
20
15
10
5
0
31/05/2014
10/06/2014
20/06/2014
30/06/2014
10/07/2014
20/07/2014
30/07/2014
9/08/2014
19/08/2014
29/08/2014


Mean Direction (°)
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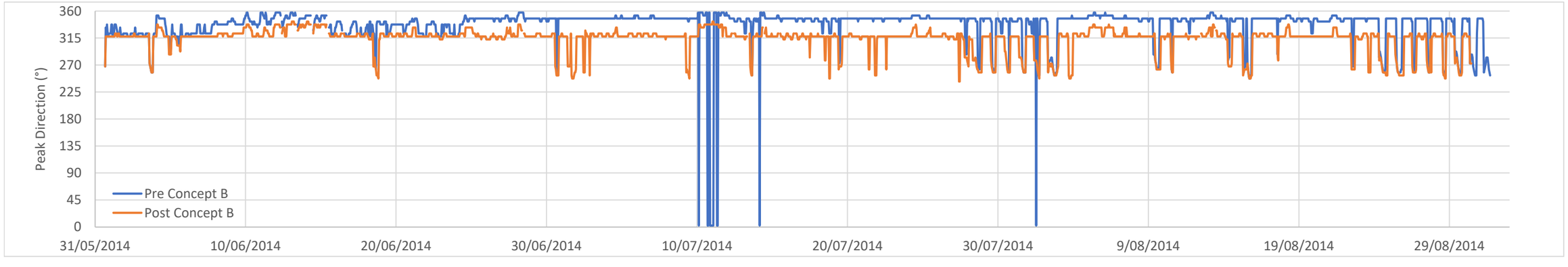
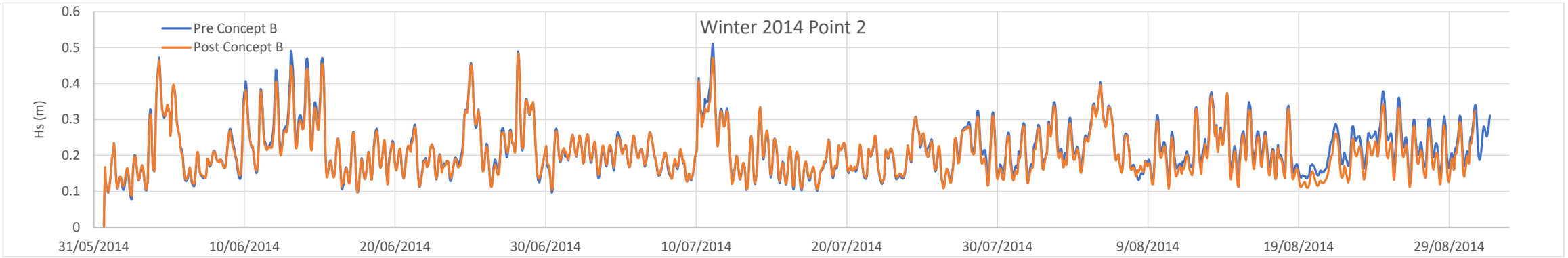
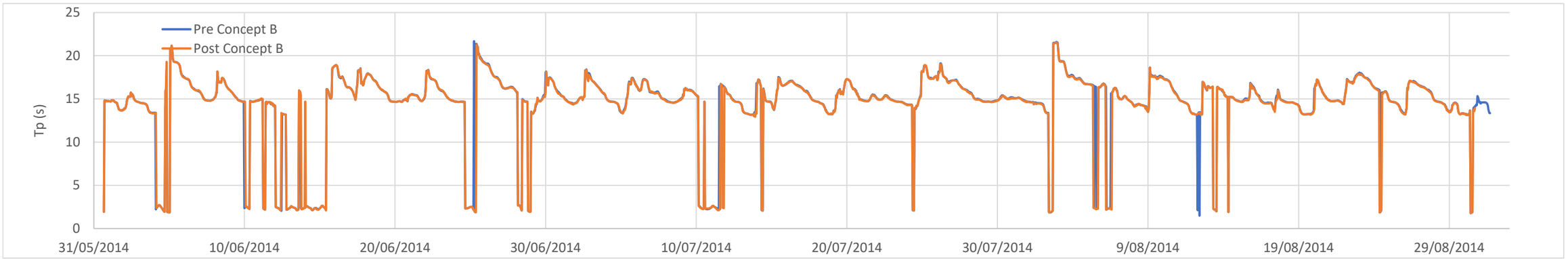
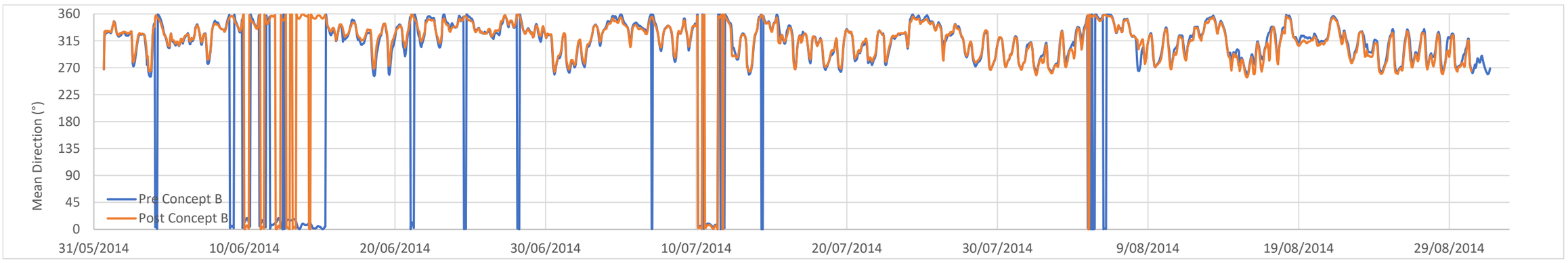
315
270
225
180
135
90
45
0
Pre Concept B
Post Concept B
31/05/2014
10/06/2014
20/06/2014
30/06/2014
10/07/2014
20/07/2014
30/07/2014
9/08/2014
19/08/2014
29/08/2014


Peak Direction (°)
360
315
270
225
180
135
90
45
0
Pre Concept B
Post Concept B
31/05/2014
10/06/2014
20/06/2014
30/06/2014
10/07/2014
20/07/2014
30/07/2014
9/08/2014
19/08/2014
29/08/2014


Winter 2014 Point 2
Pre Concept B
Post Concept B
Hs (m)
0
0.1
0.2
0.3
0.4
0.5
0.6
31/05/2014
10/06/2014
20/06/2014
30/06/2014
10/07/2014
20/07/2014
30/07/2014
9/08/2014
19/08/2014
29/08/2014


Pre Concept B
Post Concept B
Tp (s)
0
5
10
15
20
25
31/05/2014
10/06/2014
20/06/2014
30/06/2014
10/07/2014
20/07/2014
30/07/2014
9/08/2014
19/08/2014
29/08/2014


Pre Concept B
Post Concept B
Mean Direction (°)
0
45
90
135
180
225
270
315
360
31/05/2014
10/06/2014
20/06/2014
30/06/2014
10/07/2014
20/07/2014
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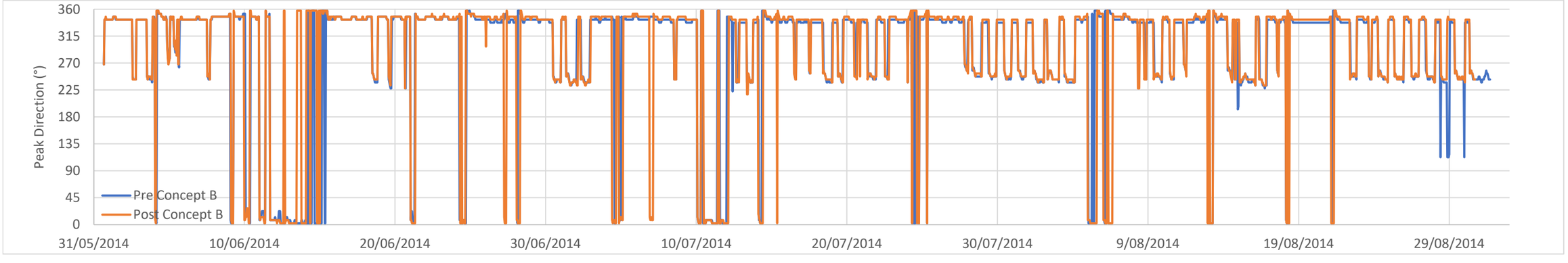
9/08/2014
19/08/2014
29/08/2014


Pre Concept B
Post Concept B
Peak Direction (°)
0
45
90
135
180
225
270
315
360
31/05/2014
10/06/2014
20/06/2014
30/06/2014
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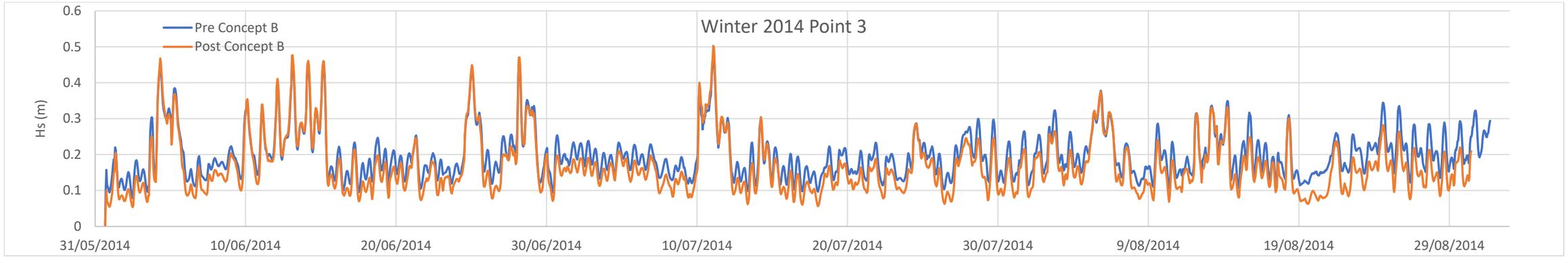
9/08/2014
19/08/2014
29/08/2014


Winter 2014 Point 3
Pre Concept B
Post Concept B
Hs (m)
0.6
0.5
0.4
0.3
0.2
0.1
0
31/05/2014
10/06/2014
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10/07/2014
20/07/2014
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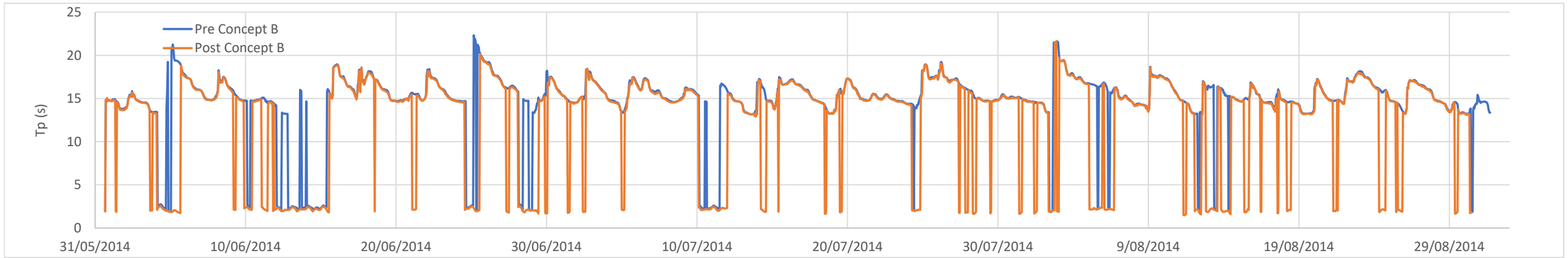
9/08/2014
19/08/2014
29/08/2014


Pre Concept B
Post Concept B
Tp (s)
25
20
15
10
5
0
31/05/2014
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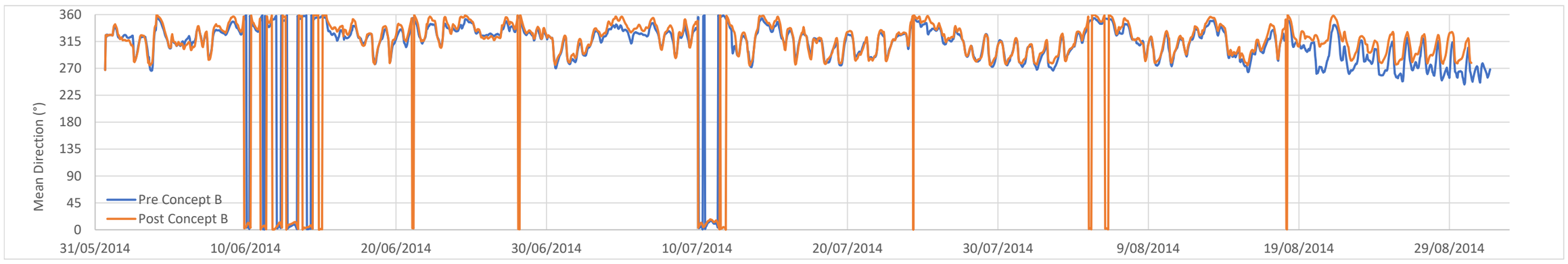
30/06/2014
10/07/2014
20/07/2014
30/07/2014
9/08/2014
19/08/2014
29/08/2014


Mean Direction (°)
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Pre Concept B
Post Concept B
31/05/2014
10/06/2014
20/06/2014
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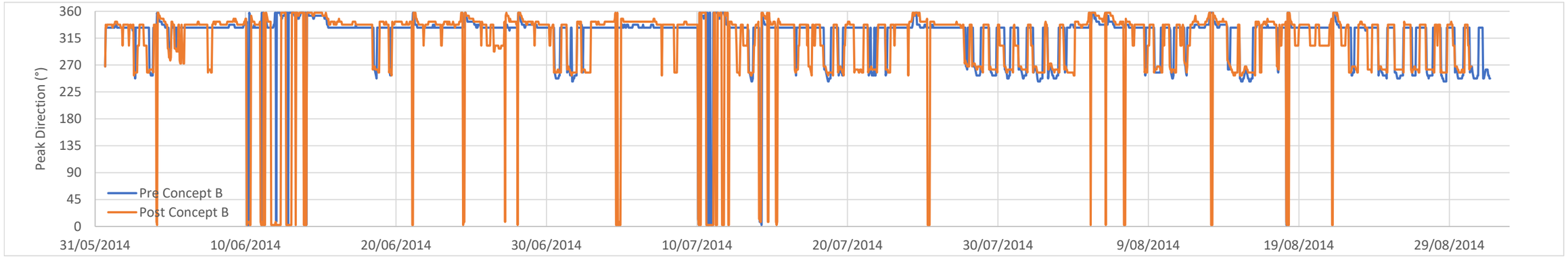
9/08/2014
19/08/2014
29/08/2014


Peak Direction (°)
360
315
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0
Pre Concept B
Post Concept B
31/05/2014
10/06/2014
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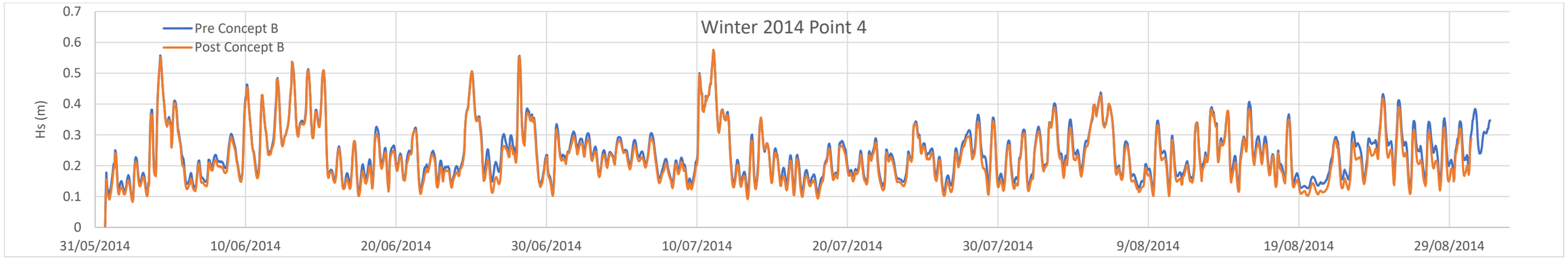
9/08/2014
19/08/2014
29/08/2014


Winter 2014 Point 4
Hs (m)
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Pre Concept B
Post Concept B
31/05/2014
10/06/2014
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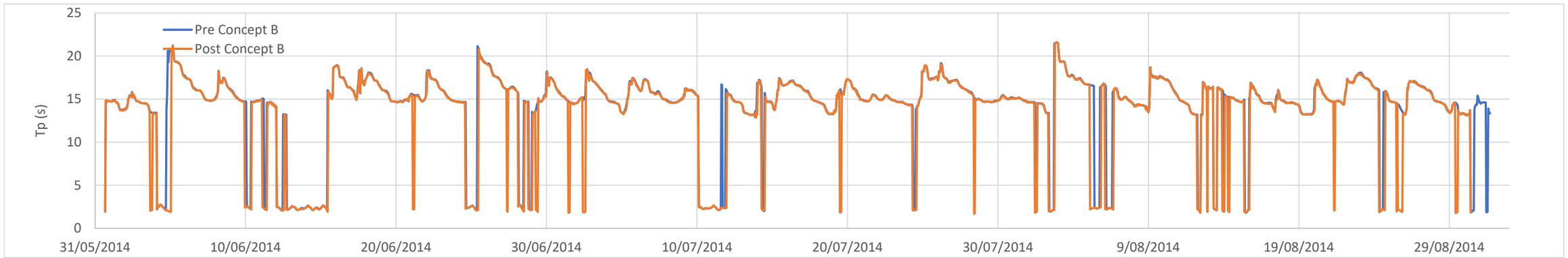
9/08/2014
19/08/2014
29/08/2014


Tp (s)
25
20
15
10
5
0
Pre Concept B
Post Concept B
31/05/2014
10/06/2014
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30/06/2014
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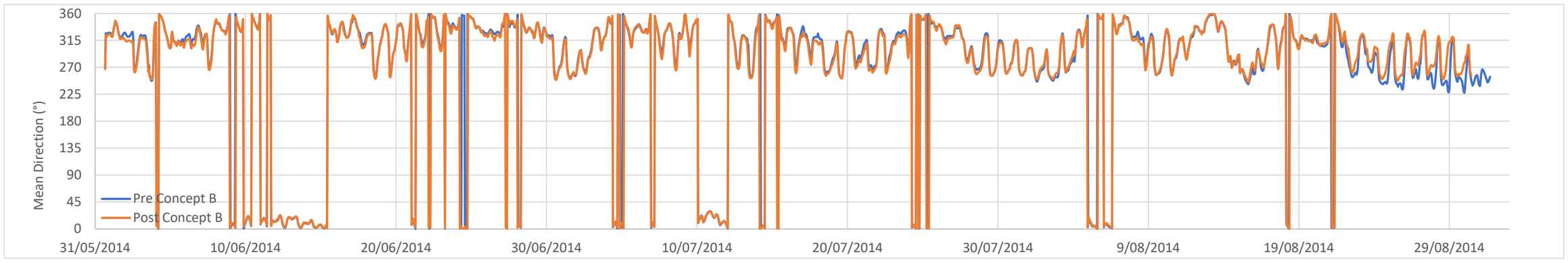
9/08/2014
19/08/2014
29/08/2014


Mean Direction (°)
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Pre Concept B
Post Concept B
31/05/2014
10/06/2014
20/06/2014
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10/07/2014
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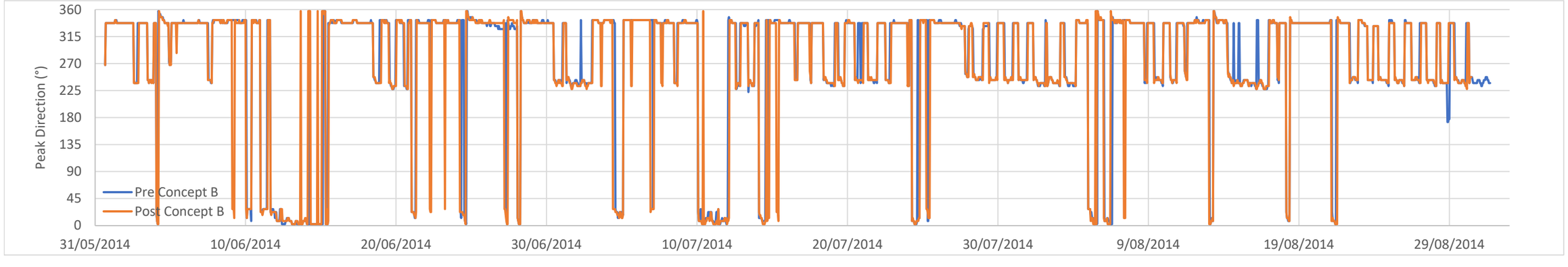
9/08/2014
19/08/2014
29/08/2014


Peak Direction (°)
360
315
270
225
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90
45
0
Pre Concept B
Post Concept B
31/05/2014
10/06/2014
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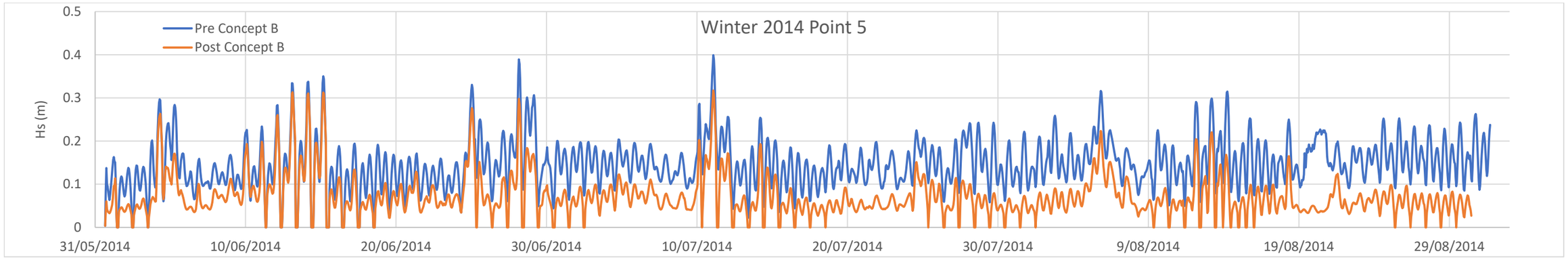
19/08/2014
29/08/2014


Winter 2014 Point 5
Pre Concept B
Post Concept B
Hs (m)
0.5
0.4
0.3
0.2
0.1
0
31/05/2014
10/06/2014
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30/06/2014
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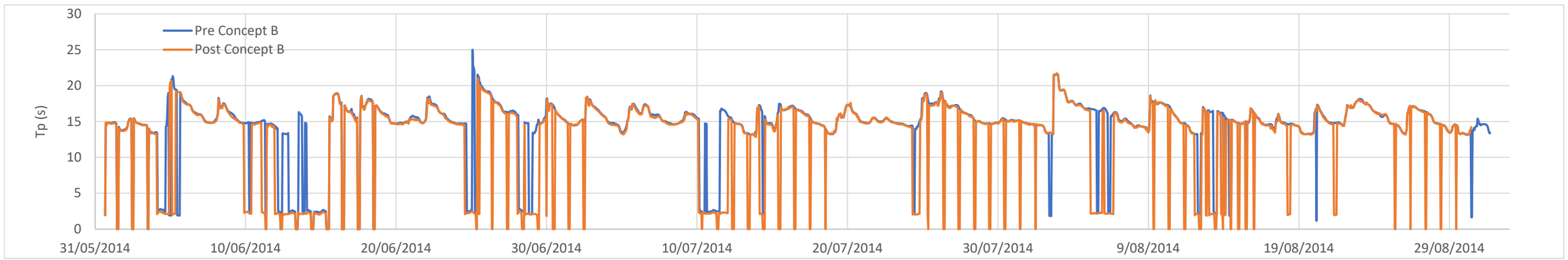
29/08/2014


Pre Concept B
Post Concept B
Tp (s)
30
25
20
15
10
5
0
31/05/2014
10/06/2014
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30/06/2014
10/07/2014
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9/08/2014
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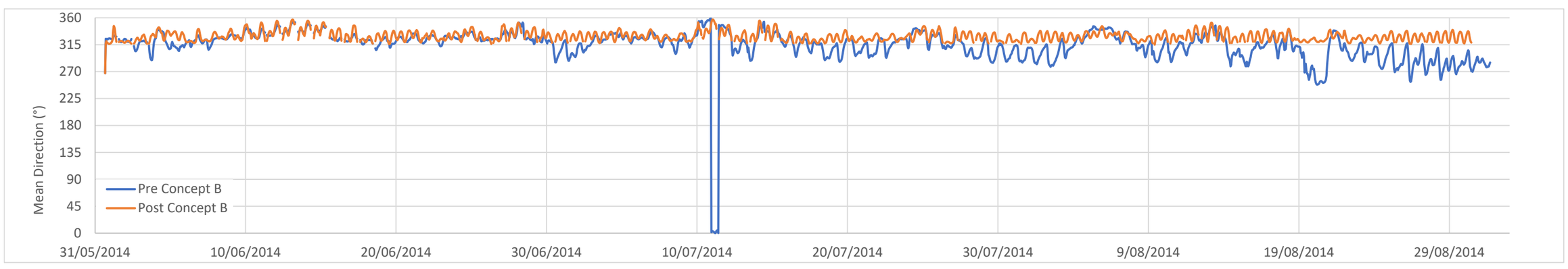
29/08/2014


Mean Direction (°)
360
315
270
225
180
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90
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0
Pre Concept B
Post Concept B
31/05/2014
10/06/2014
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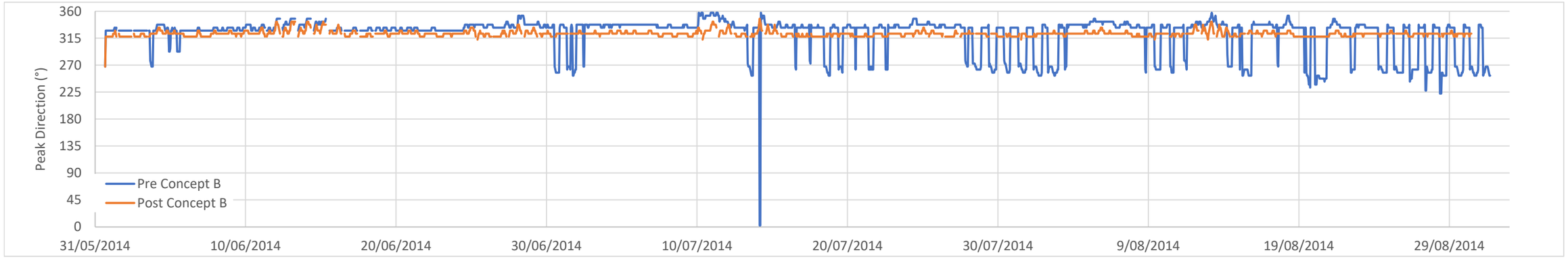
19/08/2014
29/08/2014


Peak Direction (°)
360
315
270
225
180
135
90
45
0
Pre Concept B
Post Concept B
31/05/2014
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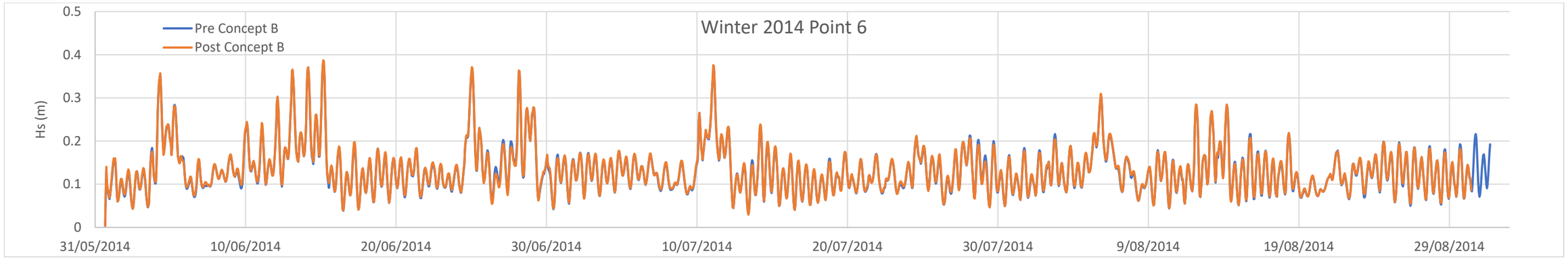
Winter 2014 Point 6
Pre Concept B
Post Concept B
Hs (m)
0.5
0.4
0.3
0.2
0.1
0
31/05/2014
10/06/2014
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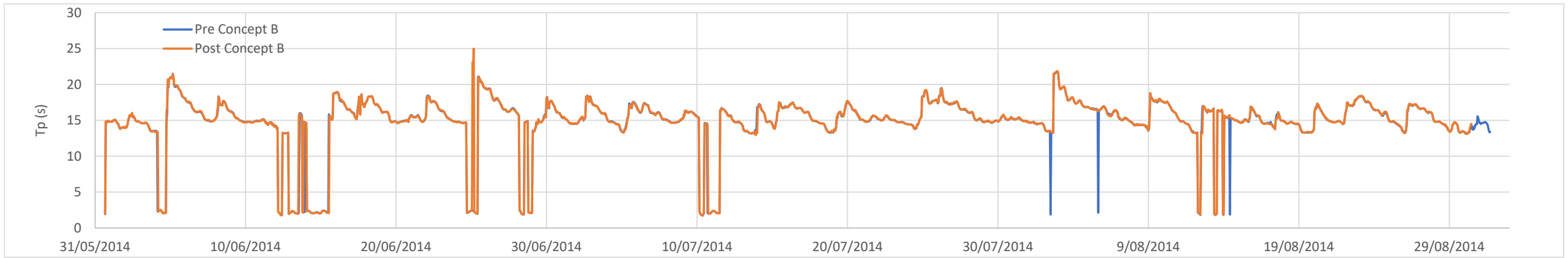
Pre Concept B
Post Concept B
Tp (s)
30
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15
10
5
0
31/05/2014
10/06/2014
20/06/2014
30/06/2014
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20/07/2014
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9/08/2014
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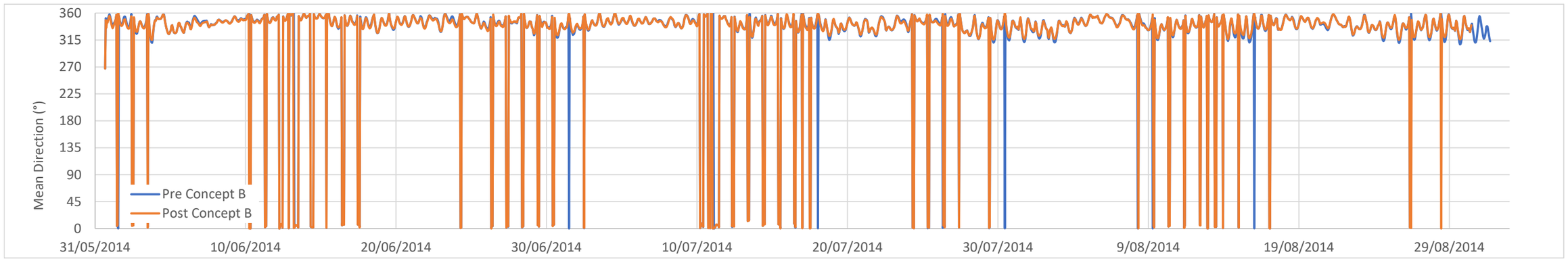
29/08/2014


Mean Direction (°)
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315
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90
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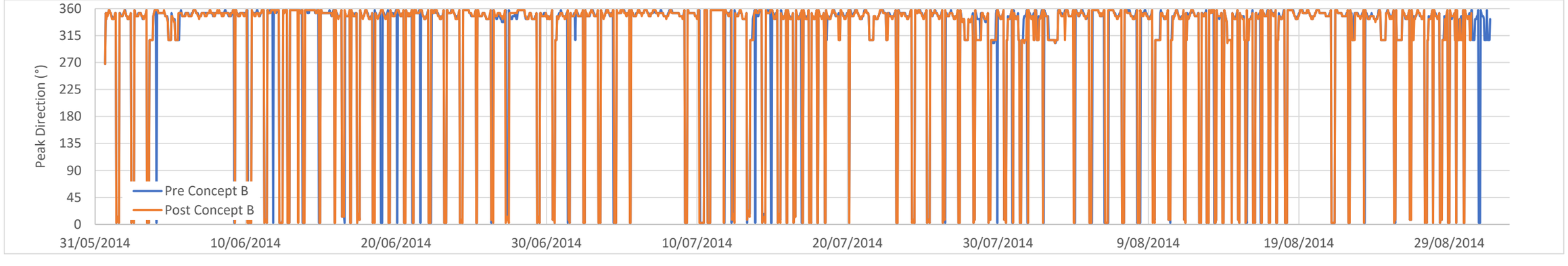
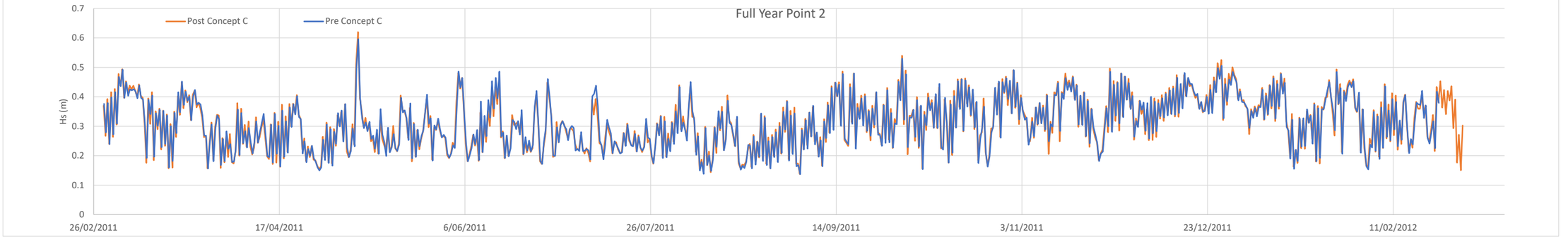
0
Pre Concept B
Post Concept B
31/05/2014
10/06/2014
20/06/2014
30/06/2014
10/07/2014
20/07/2014
30/07/2014
9/08/2014
19/08/2014
29/08/2014

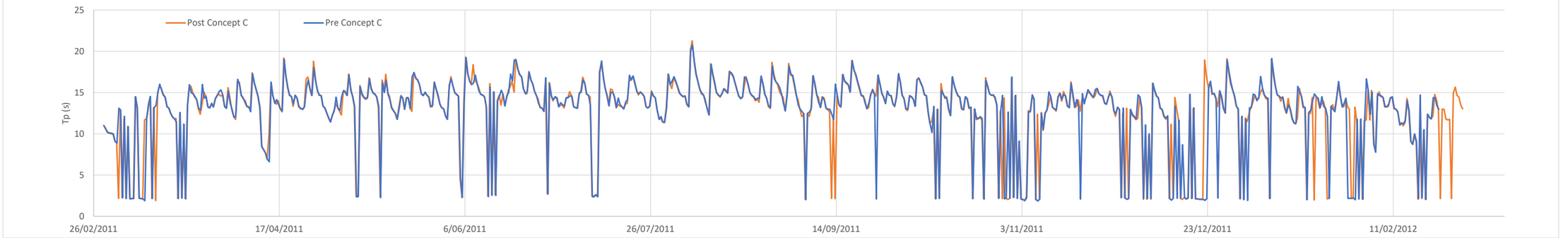

Peak Direction (°)
360
315
270
225
180
135
90
45
0
Pre Concept B
Post Concept B
31/05/2014
10/06/2014
20/06/2014
30/06/2014
10/07/2014
20/07/2014
30/07/2014
9/08/2014
19/08/2014
29/08/2014

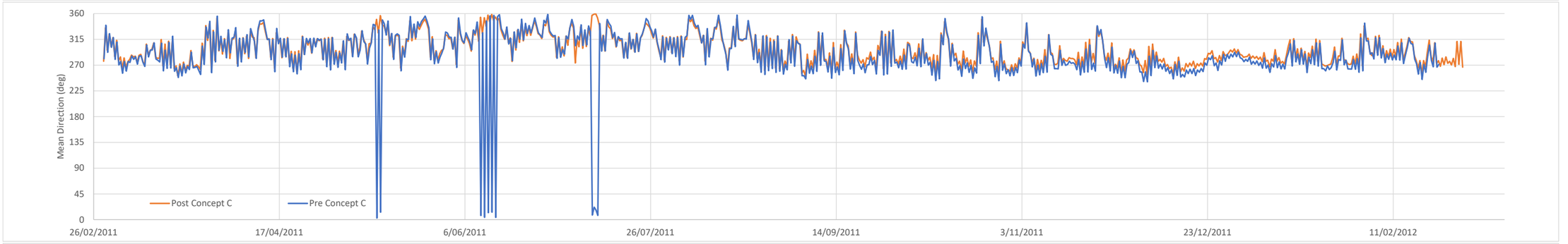
Appendix C Modelled Time History Plots for Concept C

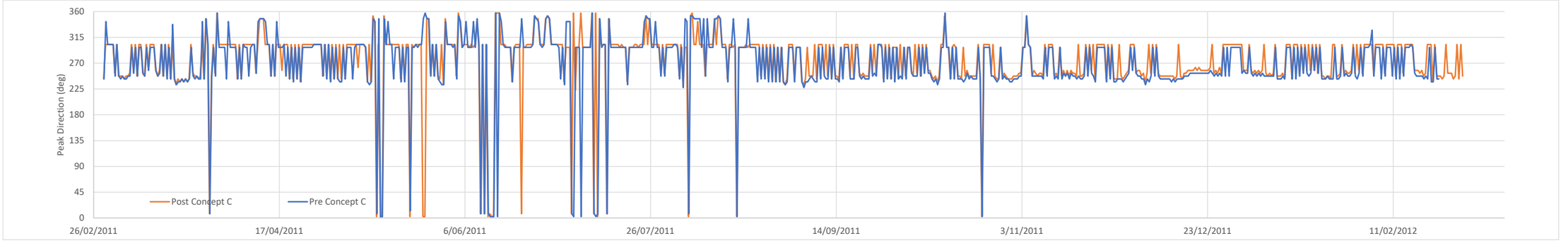
Full Year Point 1
Hs (m)
Post Concept C
Pre Concept C
0
0.05
0.1
0.15
0.2
0.25
0.3
0.35
0.4
0.45
0.5
26/02/2011
17/04/2011
6/06/2011
26/07/2011
14/09/2011
3/11/2011
23/12/2011
11/02/2012
Tp (s)
0
5
10
15
20
25
Mean Direction (deg)
0
45
90
135
180
225
270
315
360
Peak Direction (deg)

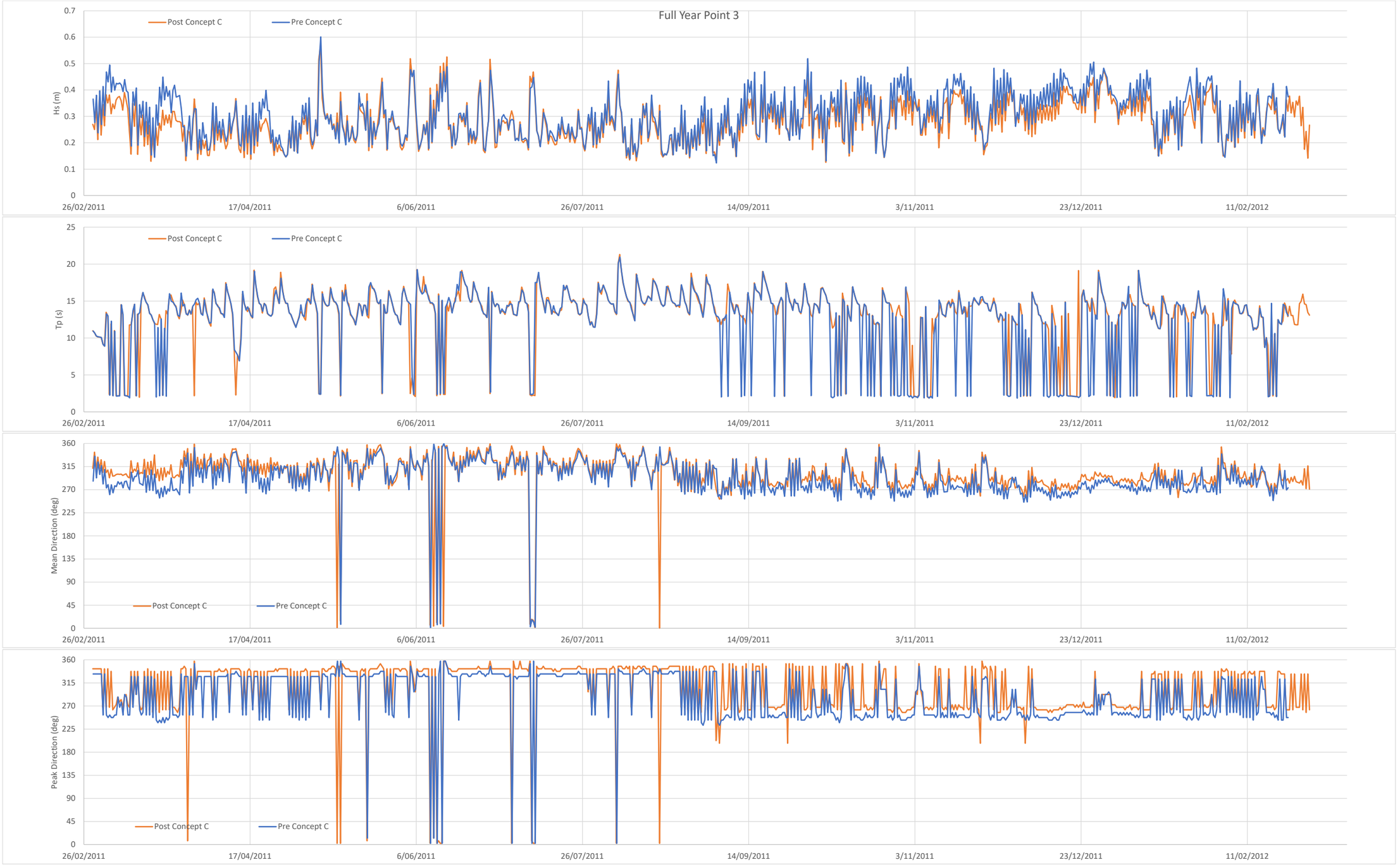
Full Year Point 2



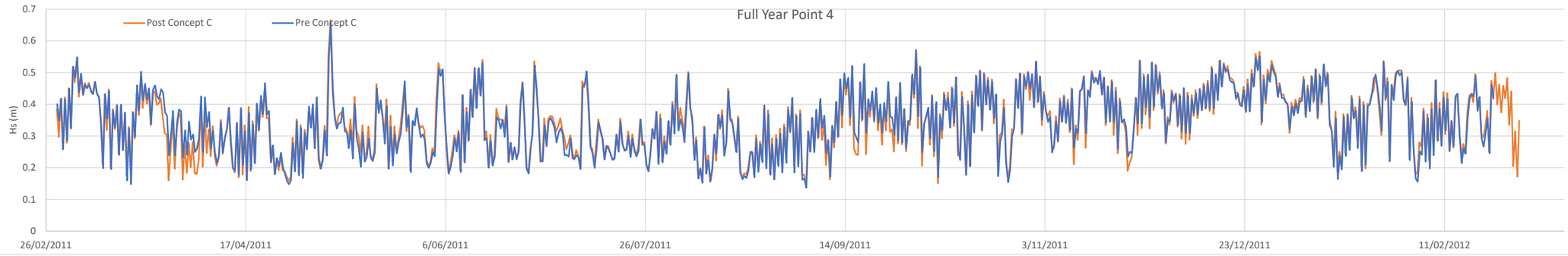


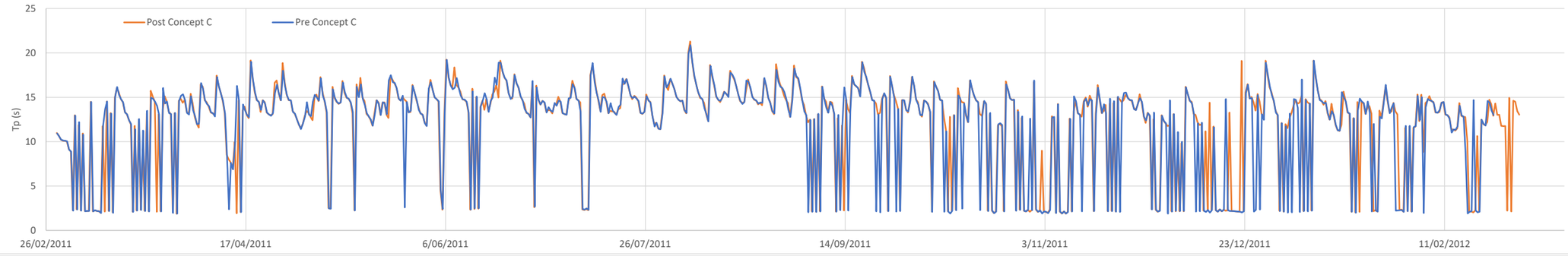


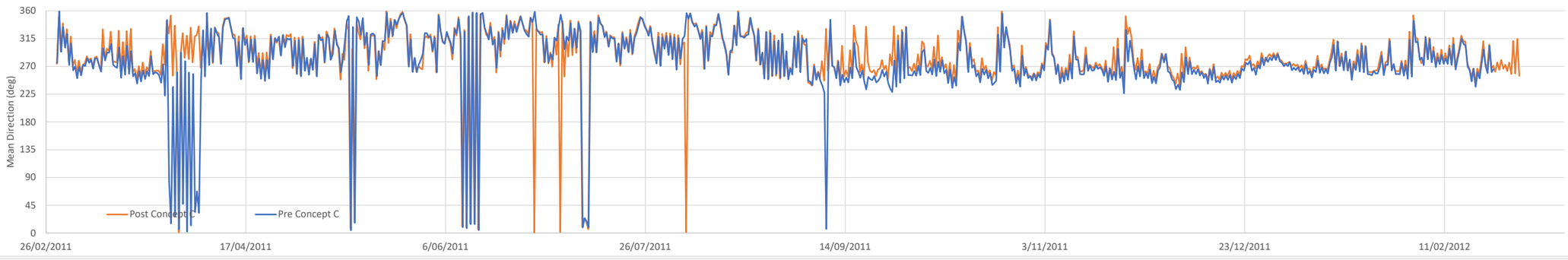


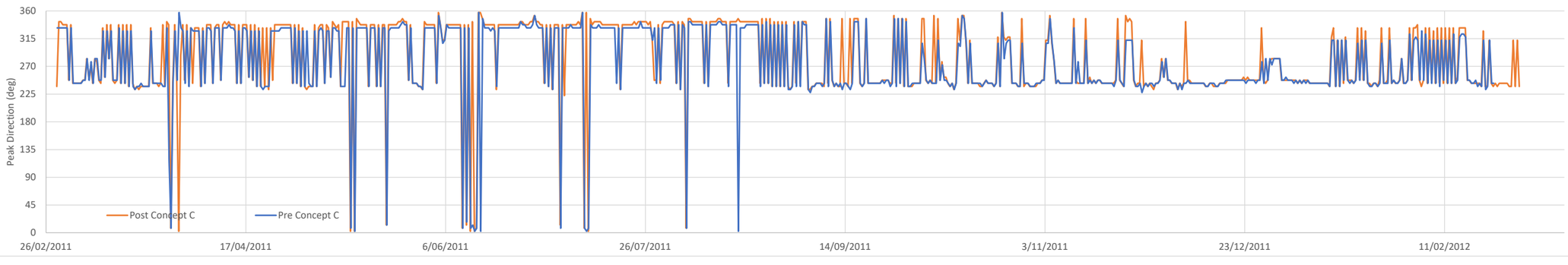

Full Year Point 3
Hs (m)
Post Concept C
Pre Concept C
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
26/02/2011
17/04/2011
6/06/2011
26/07/2011
14/09/2011
3/11/2011
23/12/2011
11/02/2012
Tp (s)
0
5
10
15
20
25
Mean Direction (deg)
0
45
90
135
180
225
270
315
360
Peak Direction (deg)

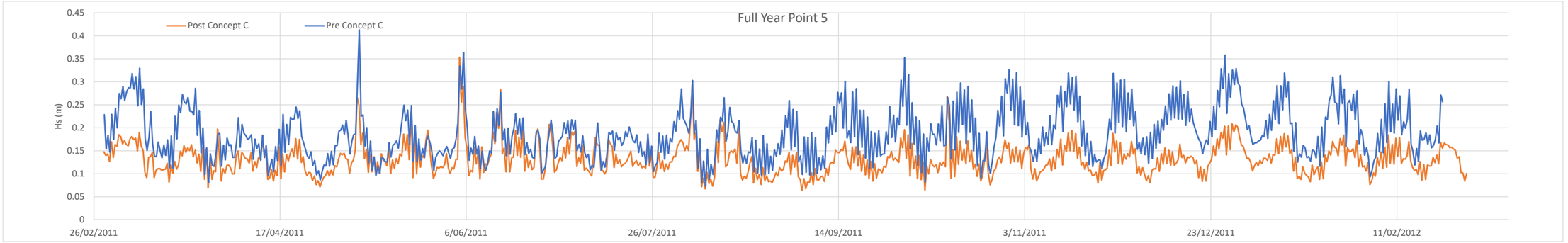
Full Year Point 4

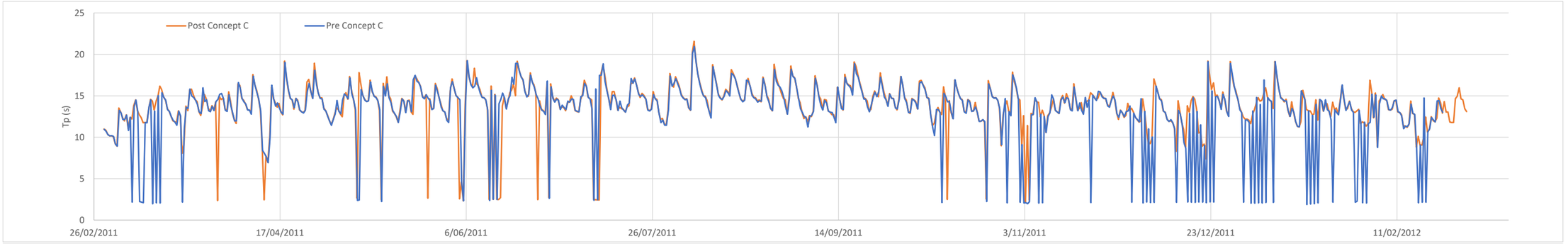


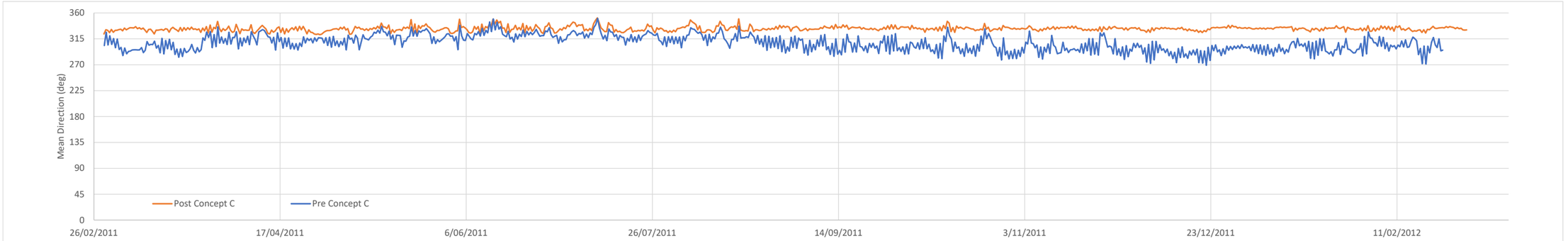


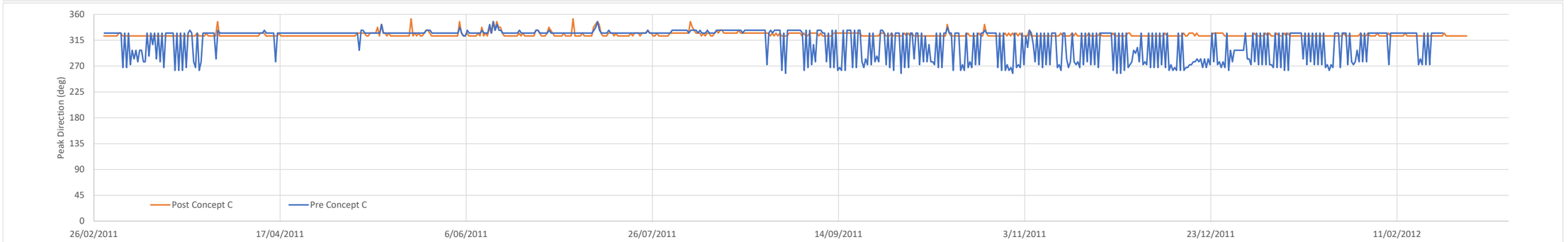




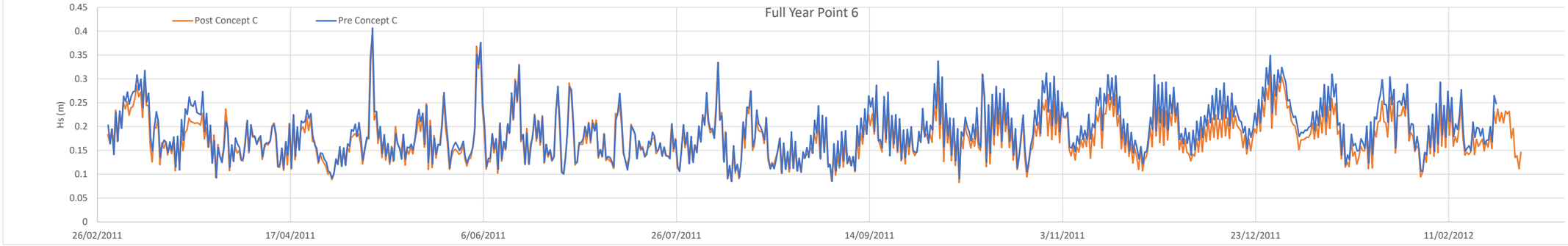

Full Year Point 5
Hs (m)
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
Post Concept C
Pre Concept C
26/02/2011
17/04/2011
6/06/2011
26/07/2011
14/09/2011
3/11/2011
23/12/2011
11/02/2012

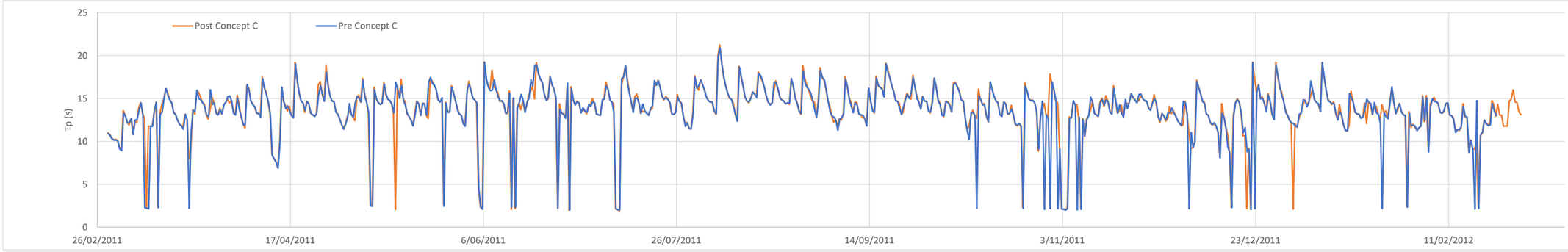

Tp (s)
25
20
15
10
5
0
Post Concept C
Pre Concept C
26/02/2011
17/04/2011
6/06/2011
26/07/2011
14/09/2011
3/11/2011
23/12/2011
11/02/2012

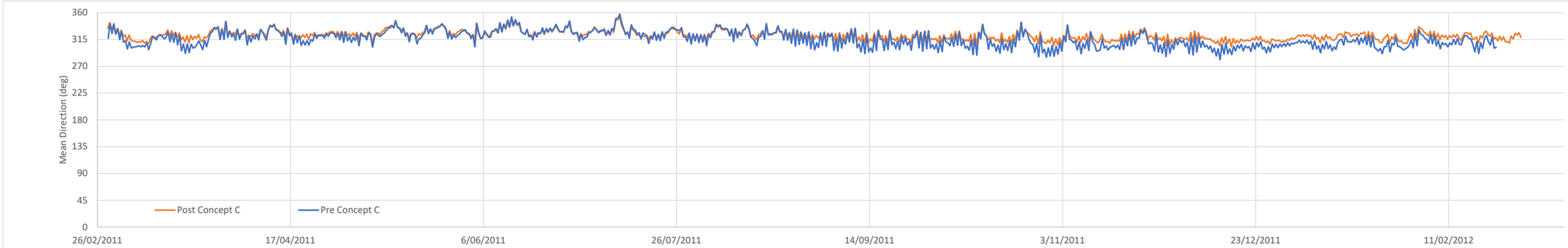

Mean Direction (deg)
360
315
270
225
180
135
90
45
0
Post Concept C
Pre Concept C
26/02/2011
17/04/2011
6/06/2011
26/07/2011
14/09/2011
3/11/2011
23/12/2011
11/02/2012

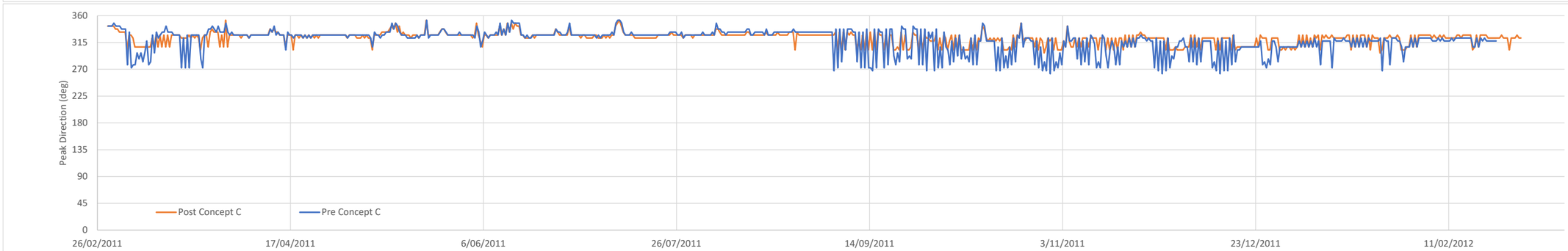

Peak Direction (deg)
360
315
270
225
180
135
90
45
0
Post Concept C
Pre Concept C
26/02/2011
17/04/2011
6/06/2011
26/07/2011
14/09/2011
3/11/2011
23/12/2011
11/02/2012

Full Year Point 6









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Appendix E Hydrodynamic Modelling Report

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R1585 Rev 2

October 2022

Department of Transport

Tantabiddi Boating Facility Hydrodynamic Modelling Report

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K1870, Report R1585 Rev 2
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1	Updated with further DoT Comments	M Peterson	C Doak	C Doak	22/04/2022
2	Updated to include Concept C	M Peterson	C Doak	C Doak	12/10/2022

Form 035 18/06/2013

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Acknowledgment of Country

M P Rogers & Associates and the Department of Transport would like to acknowledge the traditional custodians of the land to which this investigation relates, the Jinigudira people. We pay our respects to Elders both past, present and emerging for they hold the memories, the traditions, the culture and the hope of their people.

1. Introduction

1.1 Background

The Tantabiddi Boat Ramp precinct is of regional significance and is a key asset as a gateway to the Ningaloo Reef tourism and recreational experiences. The Shire of Exmouth (Shire) and the Department of Biodiversity, Conservation and Attractions (DBCA) jointly manage the Tantabiddi land and marine environment under the governance of the Jurabi and Bundegi Coastal Parks and Muiron Island Management Plan 1999. Both agencies manage civil maintenance, environmental maintenance, and preservation programs, though the Shire generally maintains the boat ramp infrastructure. The location of the boat ramp in the context of the North West Cape is shown in Figure 1.1 below.

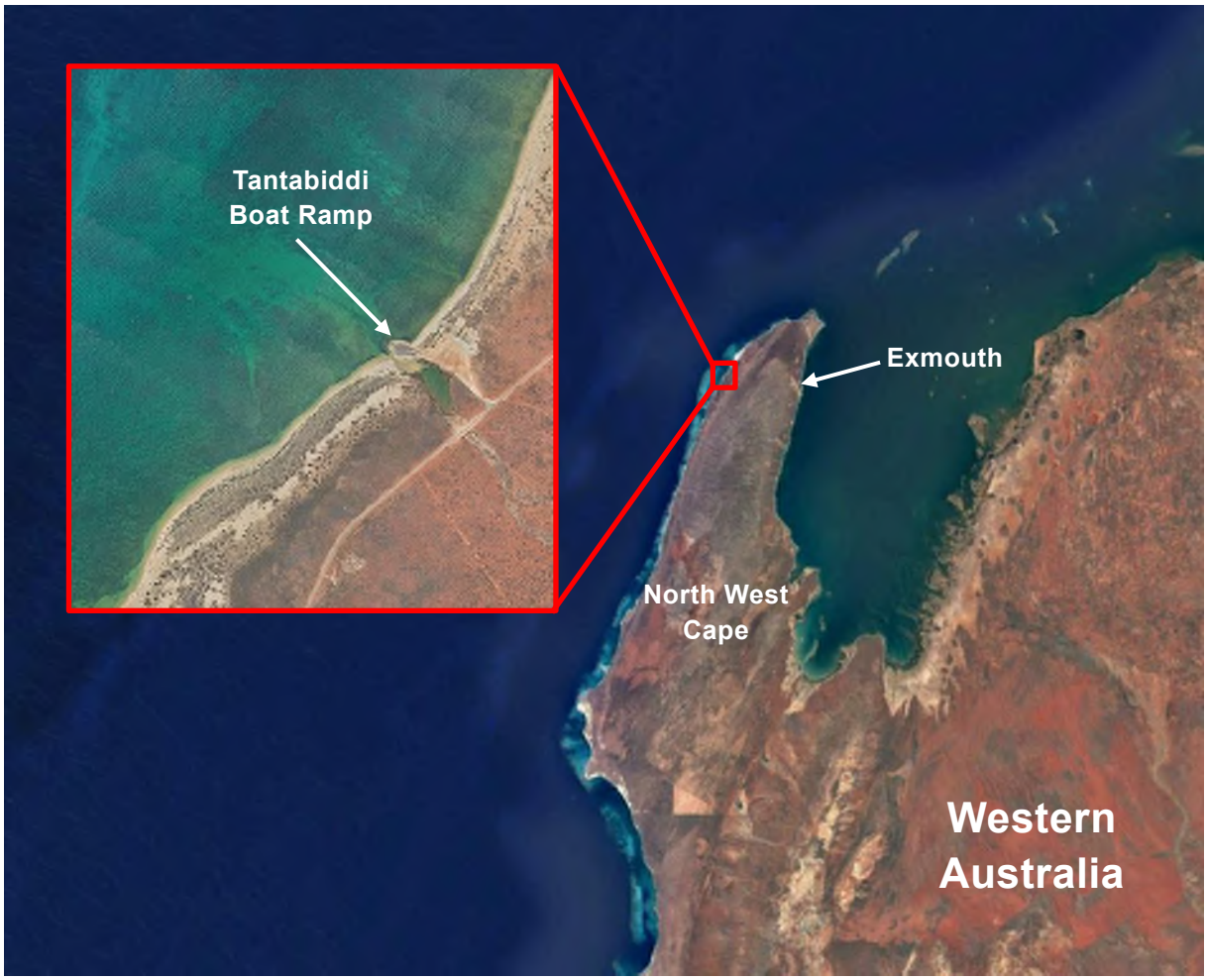


Figure 1.1 Location Plan

To address capacity limitations and maintenance issues associated with the existing Tantabiddi ramp, the Department of Transport (DoT) in collaboration with the Shire, DBCA, Department of Primary Industries and Regional Development (DPIRD), and Tourism WA have resolved to identify the planning, investigations and approvals necessary to develop a new facility at Tantabiddi.

This involved the development of a preliminary concept for the Tantabiddi Boating Facility (TBF), shown in Figure 1.2. In September 2020, an expanded TBF Concept B was developed by DoT and selected for progression. The Concept B layout is shown in Figure 1.3.

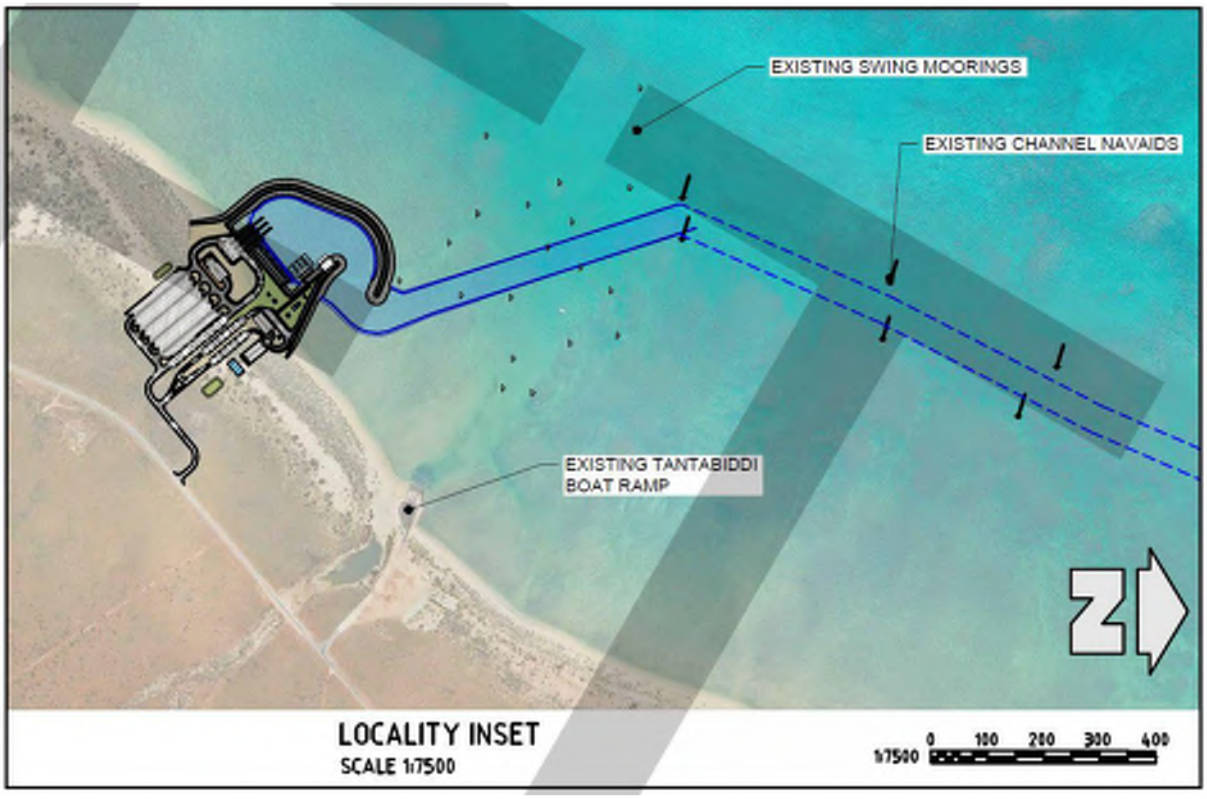


Figure 1.2 Formerly Proposed Concept A

Figure 1.3 Proposed Concept B

Work completed by MRA on Concept B (as presented in this and other reports) assessed the hydrodynamic climate and other aspects associated with the proposed layout. This work identified the potential for nearly complete sedimentation of the entrance channel at the mouth of the Concept B layout under certain conditions. A refinement of the TBF design was subsequently completed by DoT resulting in Concept C. This new concept features a refined layout designed to decrease potential infilling of the entrance to the facility and adjacent channel. The layout of Concept C is presented in Figure 1.4.

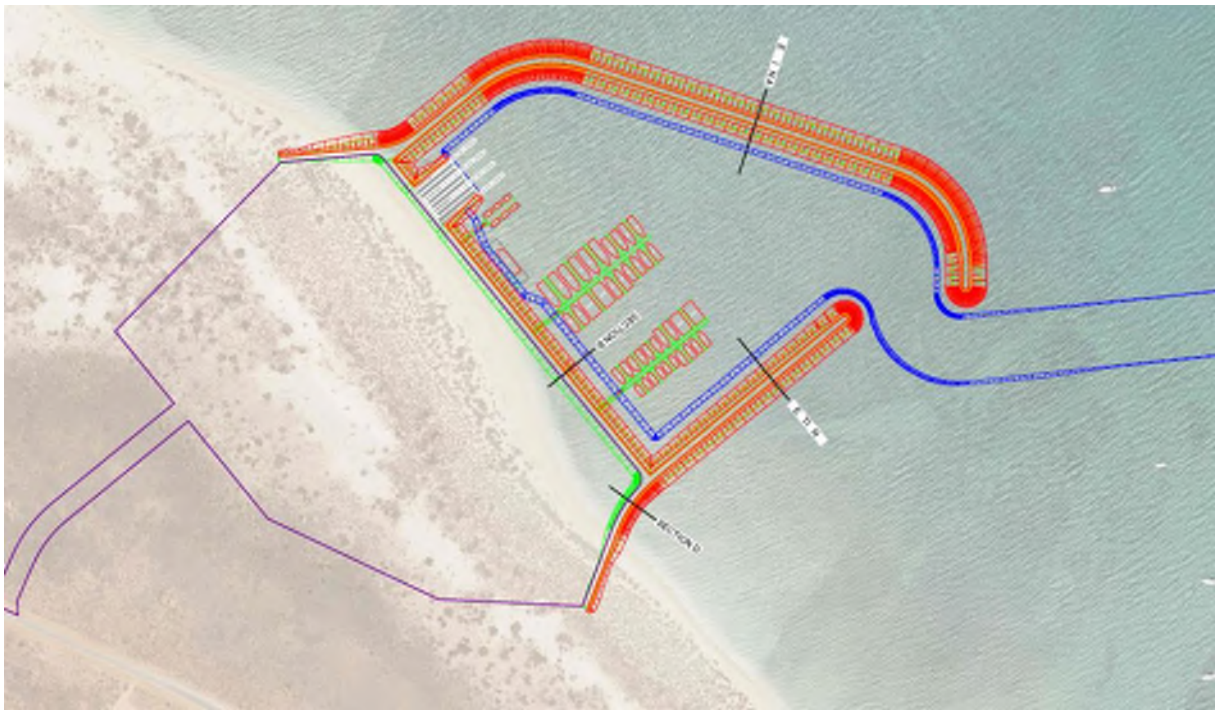


Figure 1.4 Concept C Layout

A comparison of the three concept layouts is presented in Figure 1.5.

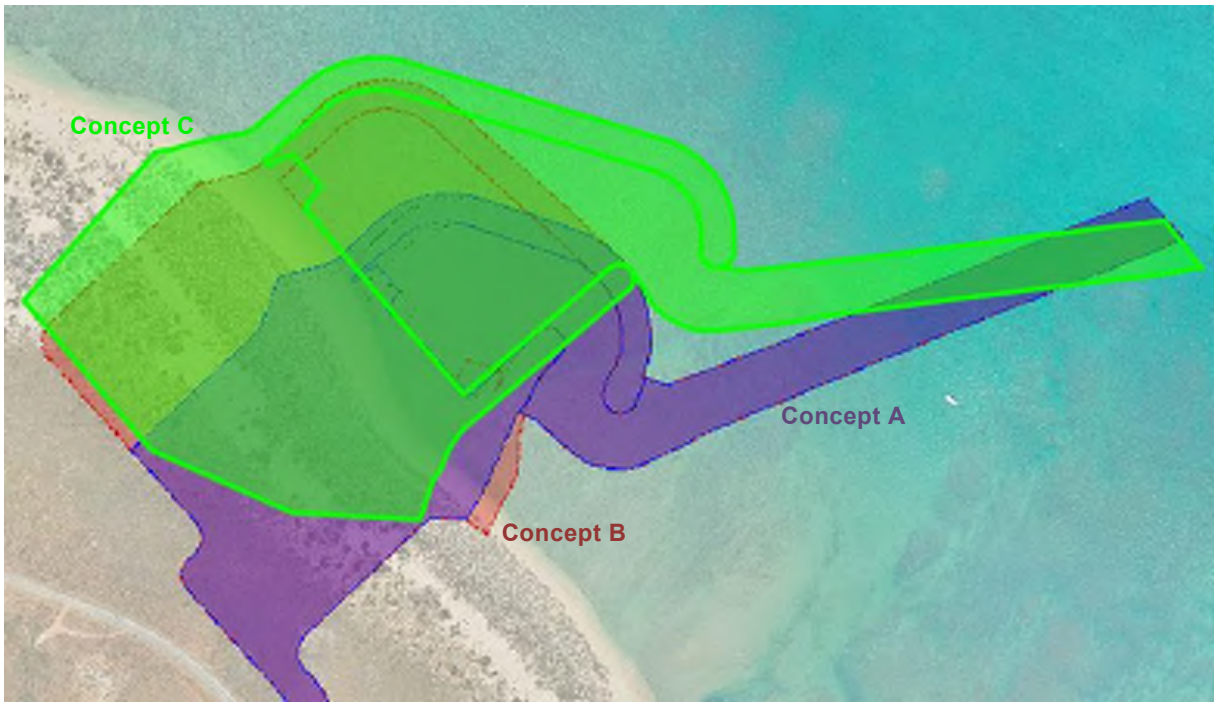


Figure 1.5 Comparison of Concepts A, B & C

In order to investigate the coastal processes at the Tantabiddi site and the impact of the proposed concept, coastal engineers M P Rogers & Associate Pty Ltd (MRA) were engaged by DoT to undertake the Tantabiddi Creek Coastal Processes Study. This study includes a number of tasks, discussed below. The outcomes of the Tantabiddi Creek Coastal Processes study are contained within a number of reports prepared by MRA. This is a standalone technical report prepared for the Hydrodynamic Modelling – Impacts & Flushing task (Task 6).

1.2 Tantabiddi Creek Coastal Processes Scope

The scope of this study includes a number of tasks and activities which are detailed below.

- Task 1: Desktop Review, Data Gathering, and Site Visit.
- Task 2: Shoreline Movement Assessment.
- Task 3: Metocean Climate Analysis which includes.
    - Nearshore Ambient Condition Analysis.
    - Offshore Ambient and Extreme Conditions Analysis.
    - Ambient and Extreme Wind Conditions Analysis.
- Task 4: Cyclonic Modelling.
- Task 5: Wave Modelling.
- **Task 6: Hydrodynamic Modelling – Impacts and Flushing.**
- Task 7: Sediment Transport and Sedimentation Modelling.

- Task 8: Wave Penetration and Long Period Wave Assessment.
- Task 9: Wave Penetration Modelling. Contingent on outcome of Task 8.
- Task 10: Long Period Wave Modelling. Contingent on outcome of Task 8.

Tasks 1, 8, 9 and 10 are wholly contained within sections of the overall **Coastal Processes Study Project Report (R1518)**. The outcomes of Tasks 2, 3, 4, 5, 6 and 7 are provided as standalone technical reports. This report consists of the standalone technical report for Task 6. Refer to Table 1.1 for further information on the location of the standalone technical reports.

Table 1.1 Standalone Technical Report Locations

Task	Task Title	Report Number	Location
2	Shoreline Movement Assessment	R1535	R1518 Appendix A
3	Metocean Climate Analysis	R1524	R1518 Appendix B
4	Cyclonic Modelling	R1533	R1518 Appendix C
5	Wave Modelling	R1629	R1518 Appendix D
6	Hydrodynamic Modelling	R1585	R1518 Appendix E
7	Sediment Transport & Sediment Modelling	R1598	R1518 Appendix F

Notes: 1. Revision numbers for current versions of reports are noted in the current version of the main report (R1518).

This report consists of the standalone technical report for Task 6 Hydrodynamic Modelling. The specific scope for Task 6 is introduced below.

1.2.1 Task 6: Hydrodynamic Modelling – Impacts & Flushing

The scope of work to be completed for this task, and as outlined within this report, is as follows.

- Setup the coupled Hydrodynamic and Wave model for the area, including domain decomposition and nested grid frameworks to provide adequate resolution around the facility.
- Calibrate the coupled hydrodynamics and wave model to available measurement data. Calibration of the hydrodynamic model is provided herein whilst calibration of the wave component of the coupled model is provided in the Task 5 report (MRA 2022a).
- Utilise the coupled, calibrated, hydrodynamic and wave model to simulate the representative periods selected in Task 5, pre and post construction of the TBF.
- Review the impact of the TBF on the local hydrodynamics for any undesirable impacts or considerations.
- Configure the coupled, calibrated, hydrodynamic and wave model appropriately for simulation of scenarios relevant to flushing of the TBF. This includes an assessment of

groundwater inputs along the coastline (note that MRA engaged Rockwater to complete the groundwater modelling).

- Simulate a selection of periods relevant to flushing from the representative periods to enable a review of flushing and e-folding times.
- Provide recommendations on improvements to the TBF concept if the hydrodynamics or flushing modelling results suggest that undesirable impacts are likely.

It is noted that this assessment and scope is focused on the more typical hydrodynamic conditions that will be experienced at the site and does not include assessment of the impacts of severe weather conditions. Severe conditions at the site will be associated with the passage of tropical cyclone events, as such further details regarding extreme conditions are provided in the Task 4 *Cyclone Modelling* report (MRA 2022b).

2. Modelling Methodology

To accurately simulate the local hydrodynamic climate as well as the flushing of the proposed facility, a detailed modelling approach is required. A summary of the modelling approach adopted by MRA to assess the hydrodynamics and flushing is described below. Importantly, for areas such as Tantabiddi with prominent nearshore reef systems, wave transformation processes over and around the reefs can have a significant impact on the local hydrodynamics. As a result, the hydrodynamic modelling was completed in concert with detailed wave modelling to ensure that the model framework adequately resolved the local processes and flows.

The modelling methodology adopted for this task is summarised below.

- Setup the Delft3D model suite with sufficient grid size and resolution to adequately resolve the hydrodynamics across the site. A domain decomposition approach was adopted, with increasing resolution around the site.
- Apply spectral wave data obtained from the WWIII model, wind data obtained from the Yardie Creek Wind Anemometer and astronomical tidal forcing as input conditions for the model.
- Calibrate and validate the model via comparison of the measured and modelled current data at the available AWAC and Aquadopp measurement locations.
- Select 6 representative periods to allow review of the various impacts of the TBF on local hydrodynamics. Each period consists of 3 months and reflects a typical or abnormal season (summer, autumn, winter, spring).
- Utilise the calibrated and validated model to simulate the 6 representative periods. This will be undertaken with spectral wave data obtained from the WWIII model, wind data obtained from the WWIII model and astronomical tidal forcing as input conditions for the model.
- Incorporate the proposed TBF concept into the model bathymetry and re-simulate the 6 representative periods in line with that utilised previously.
- Review and compare the model results from each of the 6 simulation periods.
- Configure the coupled, calibrated, hydrodynamics and wave model appropriately for simulation of scenarios relevant to flushing of the TBF.
- Utilising results of the groundwater flow assessment provided by Rockwater (2021) and a conservative tracer released within the basin, complete a flushing assessment for the TBF. A range of conditions from the representative periods were modelled.

This report is limited to the calibration, validation and production of the hydrodynamic model, the details of which are provided in the following sections. The hydrodynamic model was coupled with the wave model to ensure coastal processes were accurately represented. Calibration and validation of the hydrodynamic and wave models were undertaken concurrently. However, the results of the calibration, validation and result of the wave modelling are discussed separately in the Task *5 Wave Modelling* Report (MRA 2022a).

3. Model Set-up & Calibration

3.1 Delft3D-Flow Model

Delft3D is a fully integrated computer software suite that enables a multi-disciplinary approach for computations for coastal, river and estuarine areas. It can carry out simulations of flows, sediment transport, water quality, morphological developments and ecology (Deltares 2011).

The Delft3D-Flow module is a multi-dimensional (2D or 3D) hydrodynamic and transport simulation program which calculates non-steady flow and transport phenomena that result from tidal and meteorological forcing (Deltares 2011). The model has been verified to closely replicate an array of analytical, laboratory, schematic and real-word data and, as such, adheres to the guidelines of the International Association for Hydro-Environmental Engineering and Research (Gerritsen et al 2007).

3.2 Model Setup

For this project the Delft3D-Flow model was coupled with the Delft3D Wave Module to enable the wave and flow conditions to be calculated concurrently. This setup is particularly important for the Tantabiddi site given the key drivers for hydrodynamics at the site. For the purposes of modelling broad scale hydrodynamics, a 2D grid set-up was utilised.

The outputs of this modelling will be utilised to assess impacts to hydrodynamics introduced by the proposed TBF. To achieve this the interaction between (1) wave transformations over and through the nearshore reef; and (2) currents through the channel to the north of the site must be sufficiently represented. Calibration of the model set-up has been undertaken to ensure the 2D grid configuration and model set-up achieve this.

The physical processes that influence hydrodynamics can operate on a significant spatial scale. Due to computational limitations, it is not efficient to model large areas at high resolutions. Nested modelling techniques have been utilised within the Delft3D model for this study in order to provide high resolution where required, without unduly long model simulation times.

A number of additional processes need to be considered to appropriately simulate the flushing of the facility. Flushing simulations were completed for the TBF using a 3D grid, with five vertical layers used throughout the domain. Not only does this enable the model to better represents vertical differences in current velocities through the model, it also allows the model to appropriately resolve density differences within the water column that can result from groundwater inputs. Furthermore, current profiles through marina entrance channels can be complex and can exhibit different behaviours in bottom and surface currents. Given that the entrance is the key mode of water exchange, these processes are important for flushing.

3.2.1 Grid Layout

Domain decomposition allows sections of the overall grid to be modelled at significantly higher resolution to capture the key features and bathymetry surrounding the area of interest. This allows key features such as reefs, channels, shoals and banks to be well resolved, even if they are not located close to the area of interest but would still have significant impact on the conditions at the site. The grid sizes and resolutions for different regions in the model domain are presented in Table 3.1. The A Grid which is present in the Cyclone Modelling (R1533) due to the requirement to model cyclonic scale events is not necessary for the modelling undertaken in the Hydrodynamic assessment and as such was not included.

Table 3.1 Grid Sizing

Grid	Length (cells)	Width (cells)	Cell Sizing (m)
B	50	130	1000
C	72	189	111.11
D	143	275	10.10

Figure 3.1 shows the model domain and extents of the grids. Figures 3.2 and 3.3 present the domain and bathymetry for each of the grids prepared for the model calibration. Bathymetric and topographic data were sourced from the most recent surveys along the coast as well as the 2011 LiDAR survey data captured by CSIRO (2011). Where survey data was not available, the bathymetry was approximated using the nautical chart WA900. A summary of the survey information used in the preparation of the model grids is provided in Table 3.2.

Hydrodynamics were modelled across all three grids with relevant hydrodynamic forcings input at the boundary of Grid B to drive hydrodynamics through the entire model. The wave climate was only modelled across Grids C and D. This is considered appropriate given that: (1) measured wave conditions are available at the boundary of Grid C, and (2) the impact of the interaction between waves and hydrodynamics in Grid B is insignificant for the purposes of the assessment. Further details of the wave model set-up are provided in the Task 5 *Wave Modelling Report* (MRA 2022a).

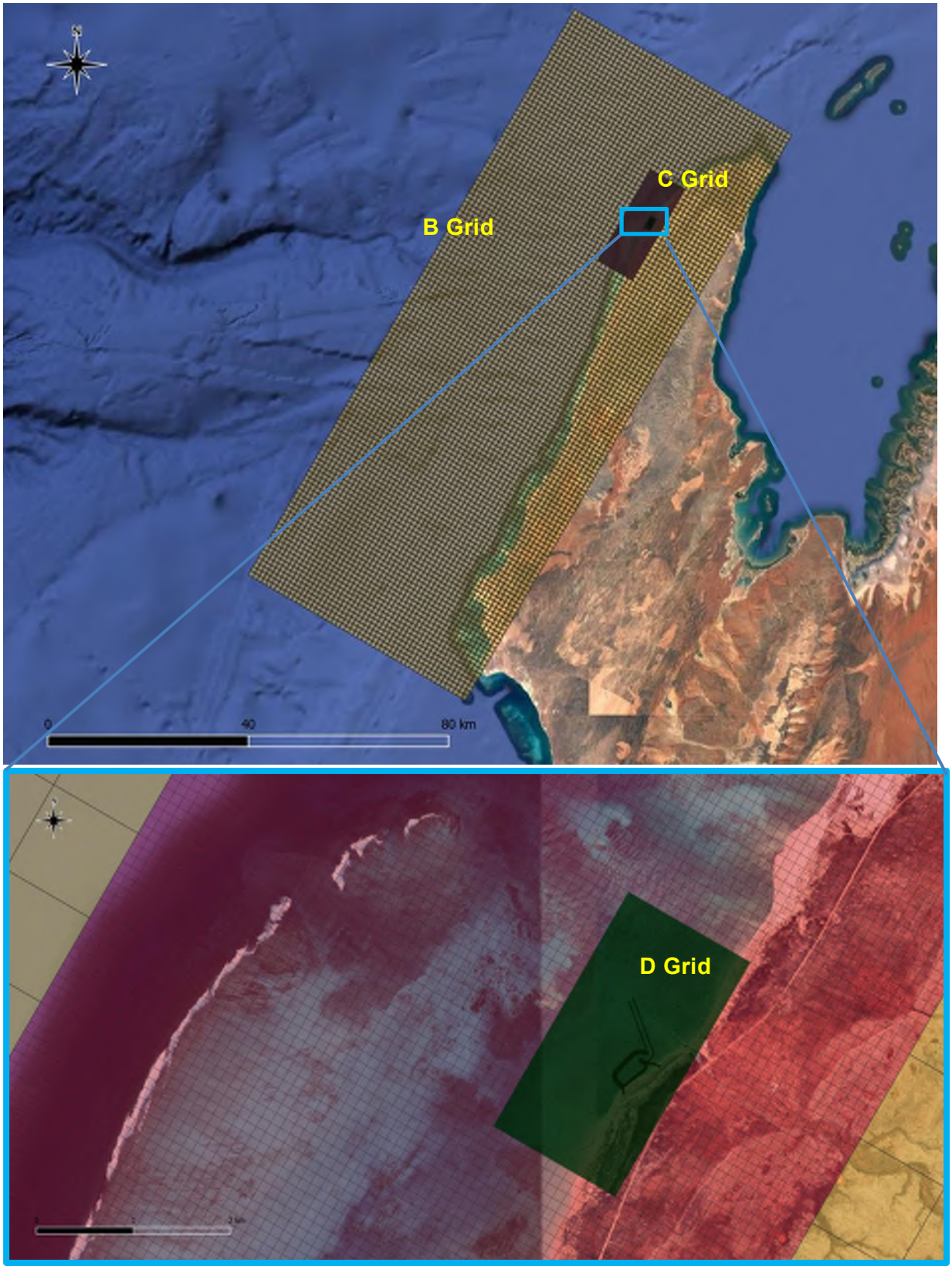


Figure 3.1 Wave Model Domains

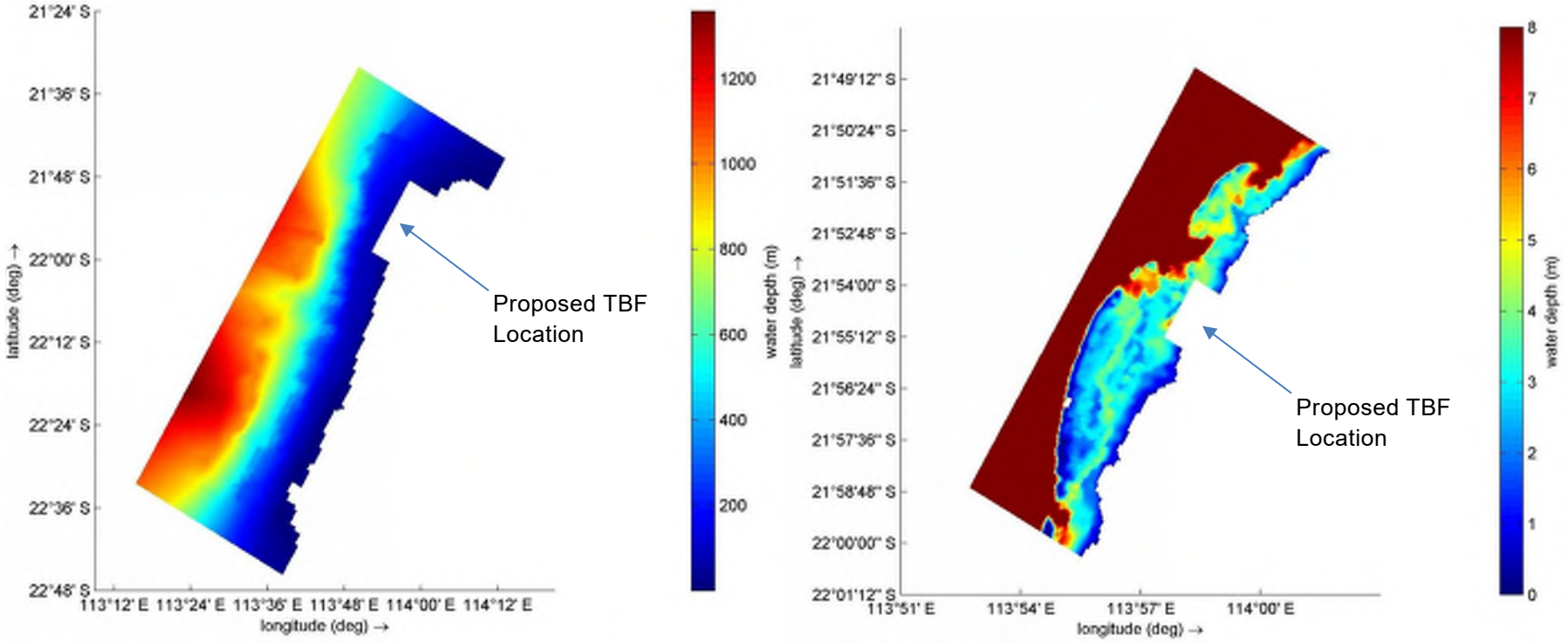


Figure 3.2 Grid B (left) & C (right) Bathymetry

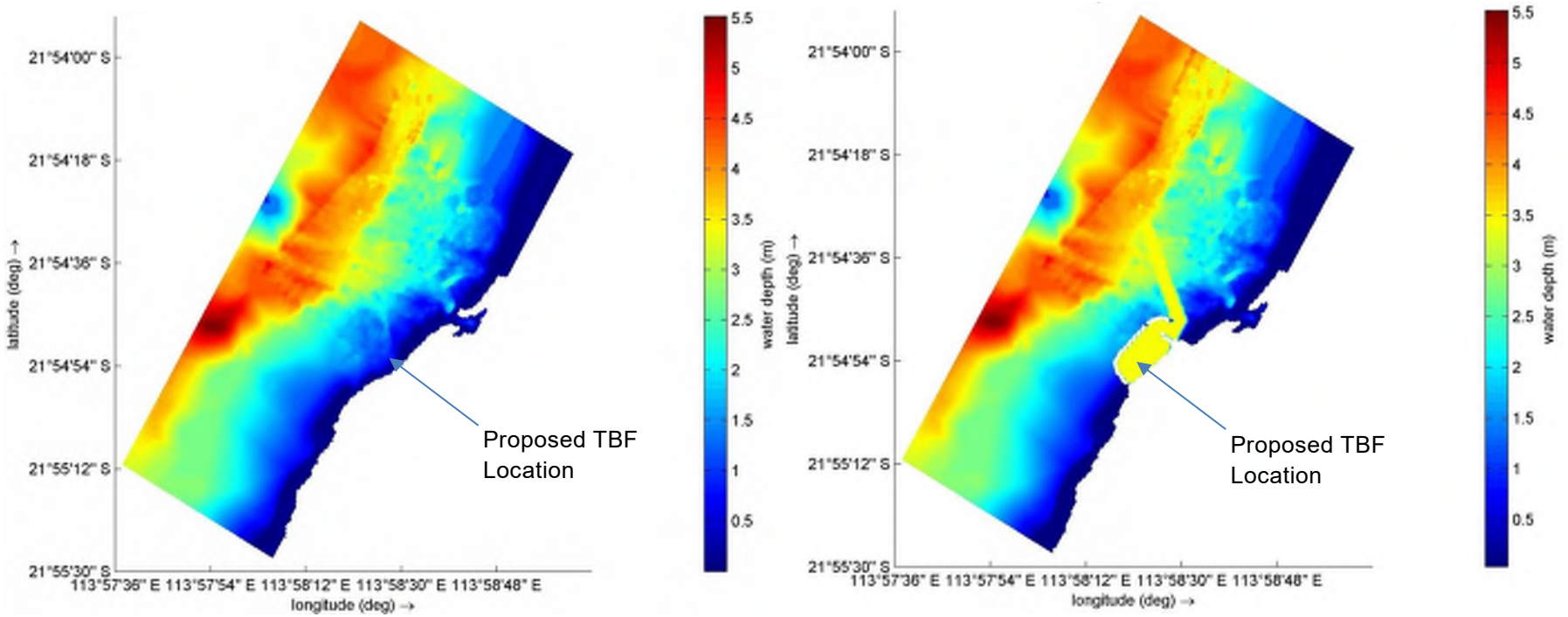


Figure 3.3 Grid D Bathymetry– Existing (Left), proposed TBF (Right)

Table 3.2 Survey Data used for Grid Generation

Description	Source	Date	Extent
RAN Chart 900 (WA 900)	DoT	1971 – 1991	North West Cape area.
Multibeam Bathymetric Survey	DoT	2021	Tantabiddi Creek Nearshore Area and Channel.
Drone Survey	DoT	2021	Beach and Dune Areas
Hyperspectral Mapping of Bathymetry and Benthic Cover	CSIRO	2011	Coral Reef Depths
Bathymetry 50m Multibeam	Geoscience Australia	2018	Offshore areas beyond the coral reef.
25 Metre Intertidal	Geoscience Australia	2019	Water's edge along the coast
1 Second Digital Elevation Model	Geoscience Australia	2011	Land areas immediately surrounding the site.

A key challenge of the model setup and calibration was the establishment of the bathymetry across the shallow reef (refer Figure 3.4). Traditional hydrographic survey methods are unable to provide details of depths over these areas due to the depths being inadequate for vessel navigation. As a result, depths across these areas relied on the 2011 LiDAR survey results captured by CSIRO (2011). The challenge with this data was that the results did not appear to be consistent with hydrographic survey results in all areas. For instance, there were areas within the lagoon that the LiDAR suggested were approximately 7 m deep, however hydrographic survey showed these areas to be only 3 – 4 m deep. As a result, the LiDAR data was only used to fill gaps in the hydrographic survey data, which typically only occurred over the nearshore reef. Whilst this approach was better than simply estimating the elevation of the reef, the accuracy of the LiDAR data is not certain and any discrepancies between the LiDAR data and the actual reef elevations will contribute to differences in the hydrodynamic climate inshore from the reef.

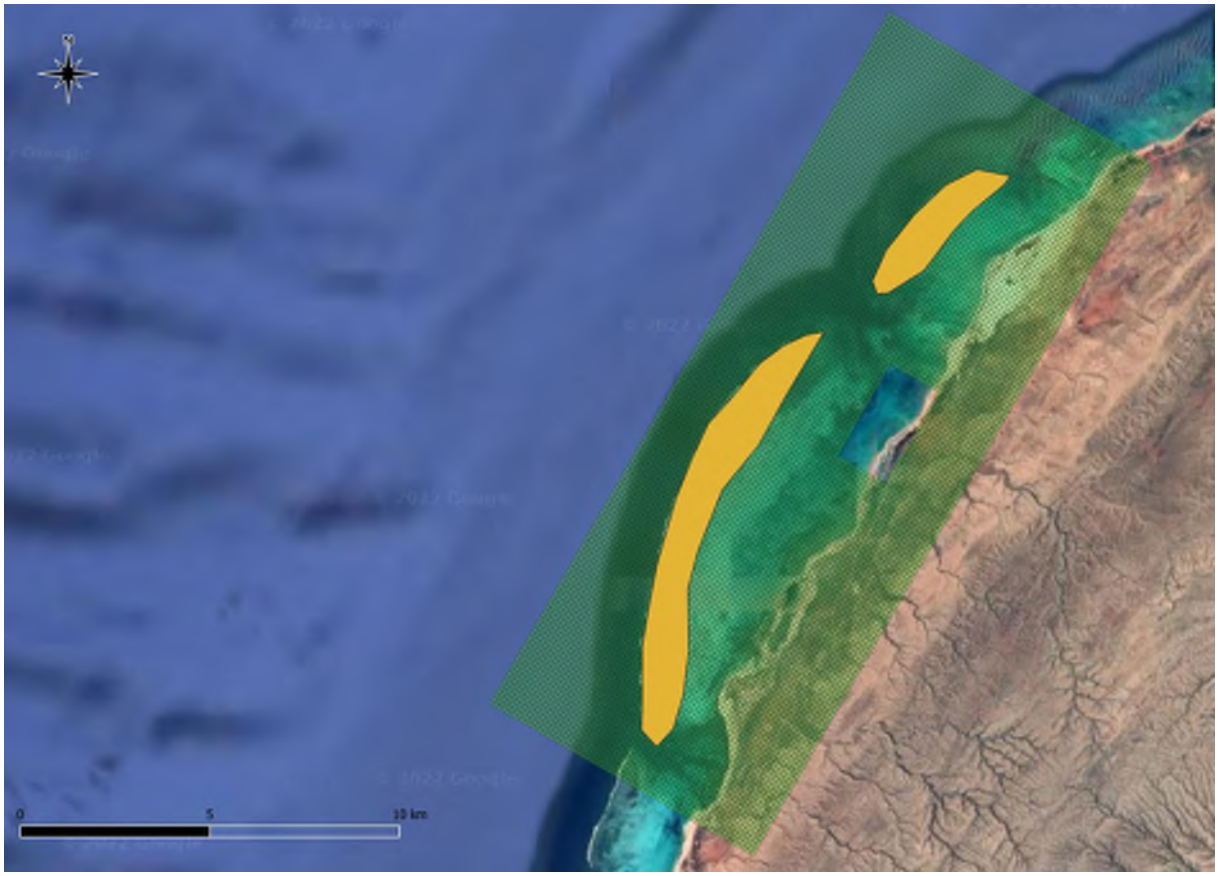


Figure 3.4 Shallow Reef Areas where LIDAR Data was Used

3.3 Model Inputs

Following establishment of the grids, calibration and validation of the model was undertaken to ensure model predictions adequately reflected reality. MRA has validated the coupled Delft3D model at numerous locations throughout WA including several locations in the Perth metro area (MRA 2015, 2016a, 2019a, 2019b, 2020a & 2020b), Learmonth (MRA 2018), Cossack and Wickham (MRA2016b), amongst others.

To further validate the model's ability to accurately represent conditions at the site, wave, wind and tidal forcings for two periods were simulated within the model domain to determine if the model predictions matched measurements.

3.3.1 Hydrodynamic Model Inputs

The model configuration utilised has been developed by MRA across the numerous projects and refined for the purposes and applications of the current assessment.

Model Forcings

Tidal forcings and wind conditions are the key forcings for the model, whilst the impact of waves on hydrodynamics is considered by coupling the model with the wave model which simulates conditions in only Grids C and D.

Water level data at the site is limited and not available for the modelling of representative periods (production) and as such astronomical tidal constituents were utilised to force the water level boundaries for the model. These astronomic tidal constituents were applied on the western and northern boundaries of the B Grid to drive water levels in the model. Neumann boundaries were

utilised along the eastern and southern boundaries. The Neumann Boundaries are used to impose the alongshore water level gradient. Setting the alongshore water level gradient to zero sets water levels inside and outside of the boundary grid as equal. This means that water is able to flow into and out of the grid through these boundaries to achieve the alongshore gradient. A spatially uniform wind field was applied across all model grids utilising the Yardie and WWIII Hindcast data discussed in the *Task 2 Metocean Climate Analysis*. Yardie wind data is used for calibration and WWIII hindcast wind data is used for production due to the short period of data availability from Yardie. A comparison of the WWIII and Yardie Creek wind data is presented in Figure 3.5.

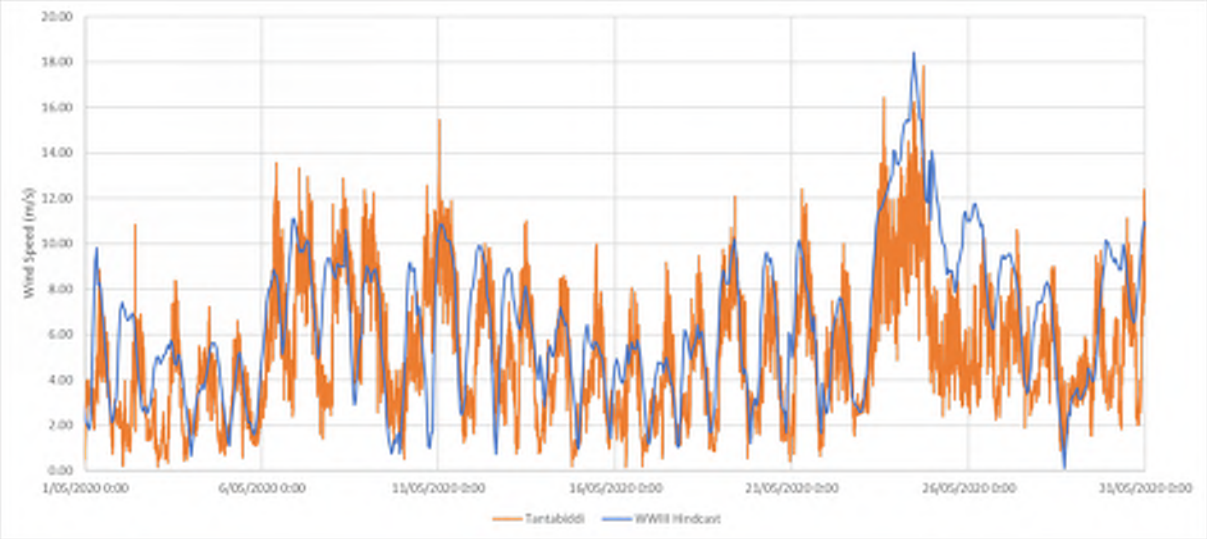


Figure 3.5 Comparison of WWIII Wind Data & Yardie Creek Anemometer

As can be seen in Figure 3.4 the WWIII wind data provides a reasonable approximation of the measured wind conditions at Yardie Creek.

A summary of the hydrodynamic model forcings is provided in Table 3.3 and their locations are illustrated in Figure 3.6. Further details on the wave modelling are provided in the Task 5 *Wave Modelling* report (MRA 2022a).

Table 3.3 Model Forcings Summary

Inputs	Location	Purpose
Astronomical Constituents Boundaries	Grid B Western Boundary: -21.528º, 113.836º -22.542º, 113.250º Grid B Northern Boundary: -21.528º, 113.836º -21.753º, 114.226º	These provide the key forcing of background water levels and their impact on the local hydrodynamics.
WWIII Wind Data	Uniform wind field across all Grids Yardie Anemometer: -21.912º, 113.978º WWIII Wind Data: -21.730º, 113.870º	This provides the key background meteorological forcing for local hydrodynamics.
Wave Climate	Coupled with wave model in the C and D Grid WWIII Wave Data: -21.933º, 113.933º	This ensures the impact of waves of the hydrodynamics are considered.
Neumann Boundaries	Grid B Southern Boundary: -22.542º, 113.250º -22.768º, 113.641º Grid B Eastern Boundary -21.753º, 114.226º -21.831º,114.181º	These allow water to move into and out of the model to respond to the other forcings appropriately.

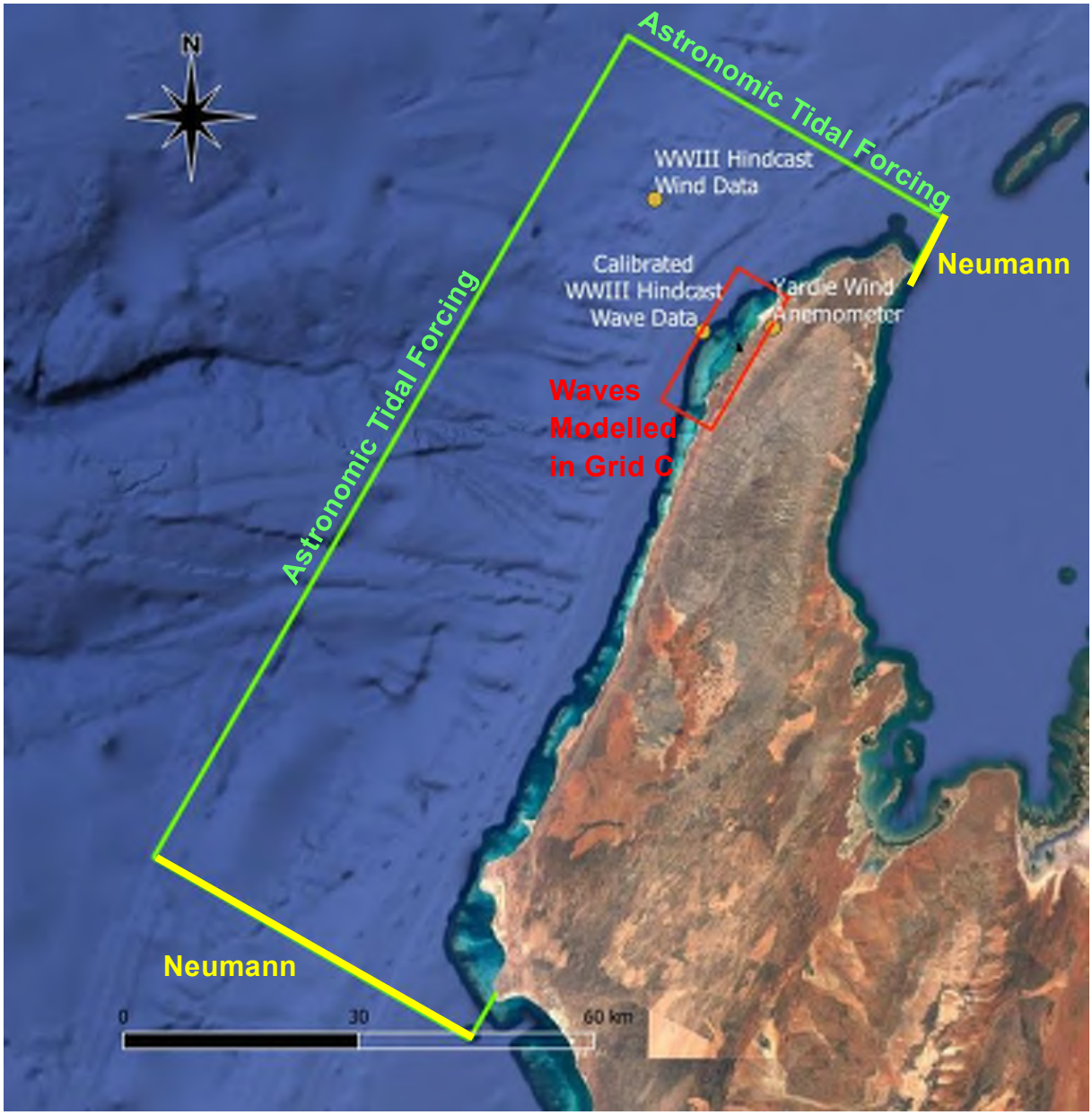


Figure 3.6 Locations of Data used as Input to Flow Modelling

Model Inputs, Factors & Parameters

Given that waves are a key driver of hydrodynamics at the site, the calibration process involved modification of fluid viscosity and diffusivity values within the flow module and bottom friction within the wave module to provide the best predictions of measured data at the calibration sites. The values of these calibration parameters were derived from a review literature and model performance. The values for these parameters that provided the best model performance are summarised in Table 3.4.

The bottom friction coefficients are within reasonable ranges recommended by Deltares (2021). Vosse (2008) assessed that Collins Friction coefficients between 0.001 and 2.2 may be appropriate for different applications. The viscosity and diffusivity values are within reasonable ranges recommended by Deltares (2021).

Table 3.4 Calibration Parameters

Parameter	Best Model Performance
Collins Bottom Friction	Sand / Low Relief Reef 0.15 High Relief Reef 0.8
Horizontal Eddy Viscosity	B Grid 100 C Grid 10 D Grid 1
Horizontal Eddy Diffusivity	B Grid 10 C Grid 10 D Grid 1

3.3.2 Flushing Forcings

In addition to the model forcings discussed in Section 3.3.1, a number of additional forcings were required only for the flushing assessment. These are discussed in the following sections.

Groundwater

Groundwater flows can be a key consideration for flushing of the proposed TBF. Hence, representation of these impacts in the model is required. Groundwater flows were not input into calibration and validation of the hydrodynamic model but were input for production runs pertaining to flushing and water quality.

Rockwater (2021) was engaged by MRA as a subconsultant to complete an estimate of groundwater flows (refer Appendix A for further details). Rockwater developed a numerical groundwater model of the northern end of Cape Range and used this to estimate groundwater flows to the ocean at the proposed TBF. The model covered an area of 20.8 km east-west and 37.7 km north-south. Model results provided average groundwater flows over 155 m coastline zones shown in Figure 3.7.

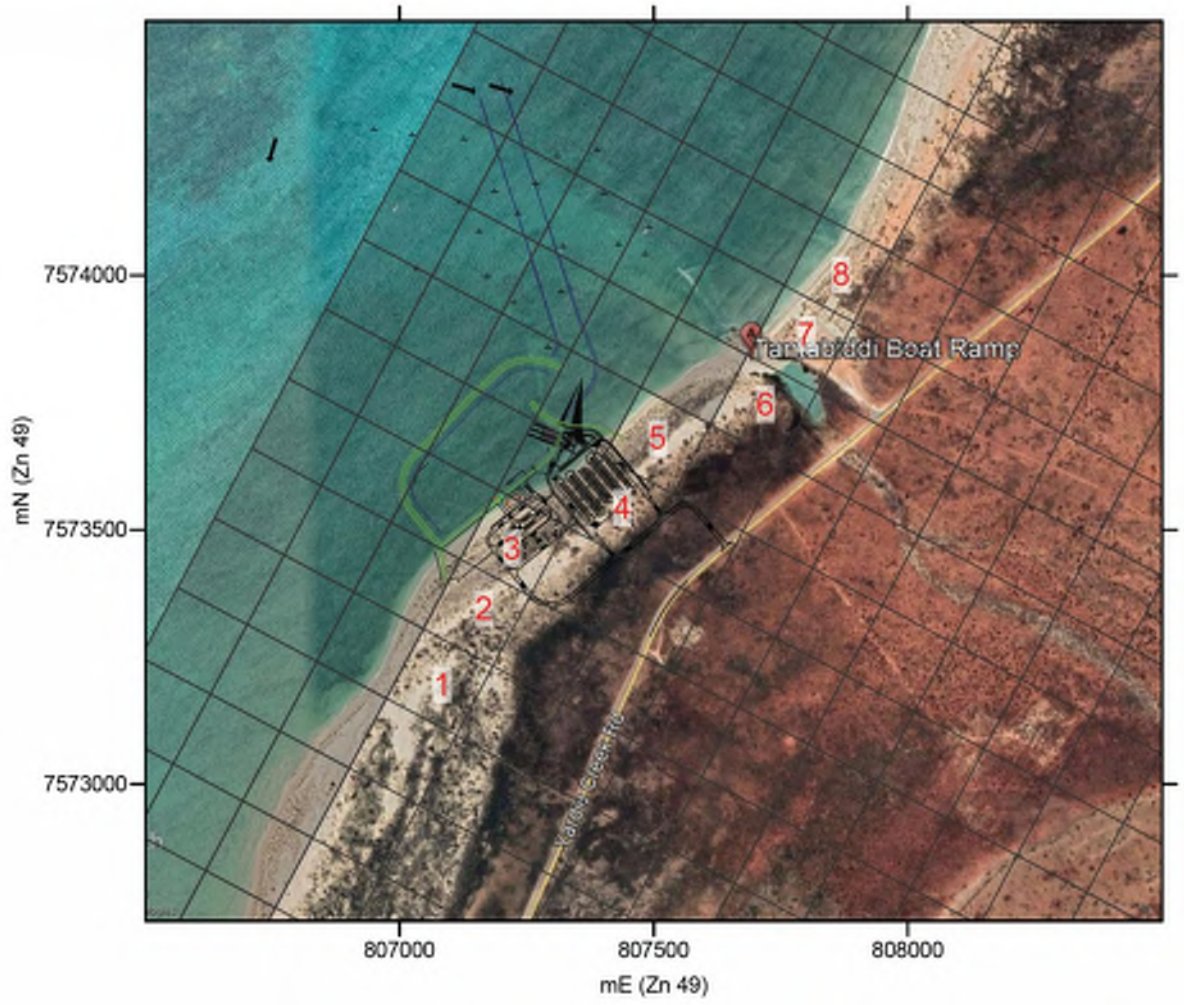


Figure 3.7 Groundwater Output Zones

The groundwater flows output by the Rockwater model range from 40 to 150 m^3/d (refer to Table 3.5) for each model grid shown in Figure 3.7. Given the lack of hydrogeological data at the site, there is some uncertainty associated with model results and hence actual flows could be up to two times higher or lower than those estimated. Conservatively, the groundwater flow rates used in the flushing modelling were based on the lower bound estimate (i.e. half the "best estimate" values). Additionally, the groundwater inflow rates were also averaged across the entire shoreline given the relative paucity of data and the fact that the variable nature of the modelled flows could not be guaranteed in reality. Using this approach an average groundwater inflow rate of 0.26 m^3/day/m of beach was adopted within the flushing modelling. This is equivalent to an inflow rate of approximately 40 m^3/day for each of the Rockwater model grid cells shown in Figure 3.7.

Given that groundwater flows assist with flushing of the facility, a zero-groundwater flow case was also considered to assess the most conservative case for water quality and flushing. This also helps to understand the relative contribution of the groundwater flows to the flushing rates and provides an indication of what could occur if groundwater inflow ceased for any reason.

Table 3.5 Estimated Groundwater Discharge Flows

Zone	Groundwater Discharge (m^3/d)		
	Best Estimated of Rates	Upper Bound Estimate (2 x transmissivity)	Lower Bound Estimate (0.5 x transmissivity)
1	58	104	32
2	51	92	29
3	37	66	20
4	108	194	60
5	49	84	27
6	147	266	80
7	89	162	49
8	85	154	46

Groundwater inputs were included within the flushing model across a 20 m zone seaward of the mean sea level contour. This approach was discussed with Rockwater and was believed to be representative of the groundwater inflow across the beach profile. Additionally, Rockwater advised that any *"permeable structures and reclamation shouldn't have any significant impact on the flows"* (pers. comm. Phil Wharton, Rockwater 2021)

Model inputs were made into the bottom layer of the 3D model and a "walking" approach was adopted for the groundwater discharges so that during periods of low water levels the groundwater inflows from typical points that were now dry were translated down slope to the nearest wet cell. This approach provides the best representation of the reality with respect to groundwater inflows at low tide, as flow out of the beach face can often be observed at low tide.

Tracer Concentrations

In order to maintain an acceptable water quality within the marina and provide a safe environment, the water within the marina needs to be turned over on a consistent basis. This "flushing" of the marina exchanges the water within the marina with new water from the surrounding area.

To determine the ability of the Concept B marina to flush, a conservative tracer was applied within the marina. Monitoring of the changes to the concentration of this tracer over times allows for an estimation of the flushing rate of the marina. As such an initial tracer concentration of 0.01 was used for the areas within the marina and a concentration of 0.00 for all other areas.

Salinity

To accurately represent the flushing and mixing within the marina the effects of density driven mixing need to be considered. As such a uniform initial ocean salinity of 35 ppt has been included in the model. This value was determined from analysis of the distribution of salinity levels along

the Western Australian coastline. Groundwater inflows included within the model were assumed to be fresh, with zero salinity.

Summary of Flushing Forcings

A summary of the additional model forcings utilised for the flushing assessment is provided in Table 3.6.

Table 3.6 Flushing Forcings Summary

Inputs	Location	Purpose
Groundwater discharge	Along the cells representing the shoreline.	These ensure the groundwater forcings are appropriately considered in flushing simulations.
Tracer Concentration	Throughout the entire volume within the TBF	To allow assessment of flushing of the proposed TBF.
Salinity	Throughout model domain, with freshwater inputs as groundwater discharge	Hydrodynamic modelling, and establishment of density driven flows as a result of fresh groundwater inputs during the flushing modelling.

3.4 Calibration Period

The purpose of the modelling is to assess changes to the nearshore hydrodynamics as a result of the construction of the TBF and to establish hydrodynamics conditions that will be used to drive the water quality and sediment dynamics models. For sediment transport modelling, it is important to ensure hydrodynamic conditions are accurately predicted across the entire year.

Two periods were selected for calibration from different times of the year when contrasting met-ocean conditions would be expected. A summer period (sea breeze domnated) and a winter period (storm and swell dominated) were each selected for calibration. These periods are selected to provided confidence that current velocities were adequately reflected by the model at the proposed TBF.

Table 3.7 Calibration/Validation Periods

Month	Start Date	End Date
January	01/01/2020	01/02/2020
May	01/05/2020	01/06/2020

Current data from these periods are available from the nearshore AWAC and Aquadopp datasets. Details and locations of these devices are shown in Table 3.8 and Figure 3.8.

Table 3.8 Calibration & Validation Datasets

Inputs	Location (Lat, Long)	Water Depth (m)	Source
Dataset 1 - AWAC	-21.9076, 113.9724	~4 m	DoT
Dataset 2 - Aquadopp	-21.9104, 113.9767	~2 m	DoT

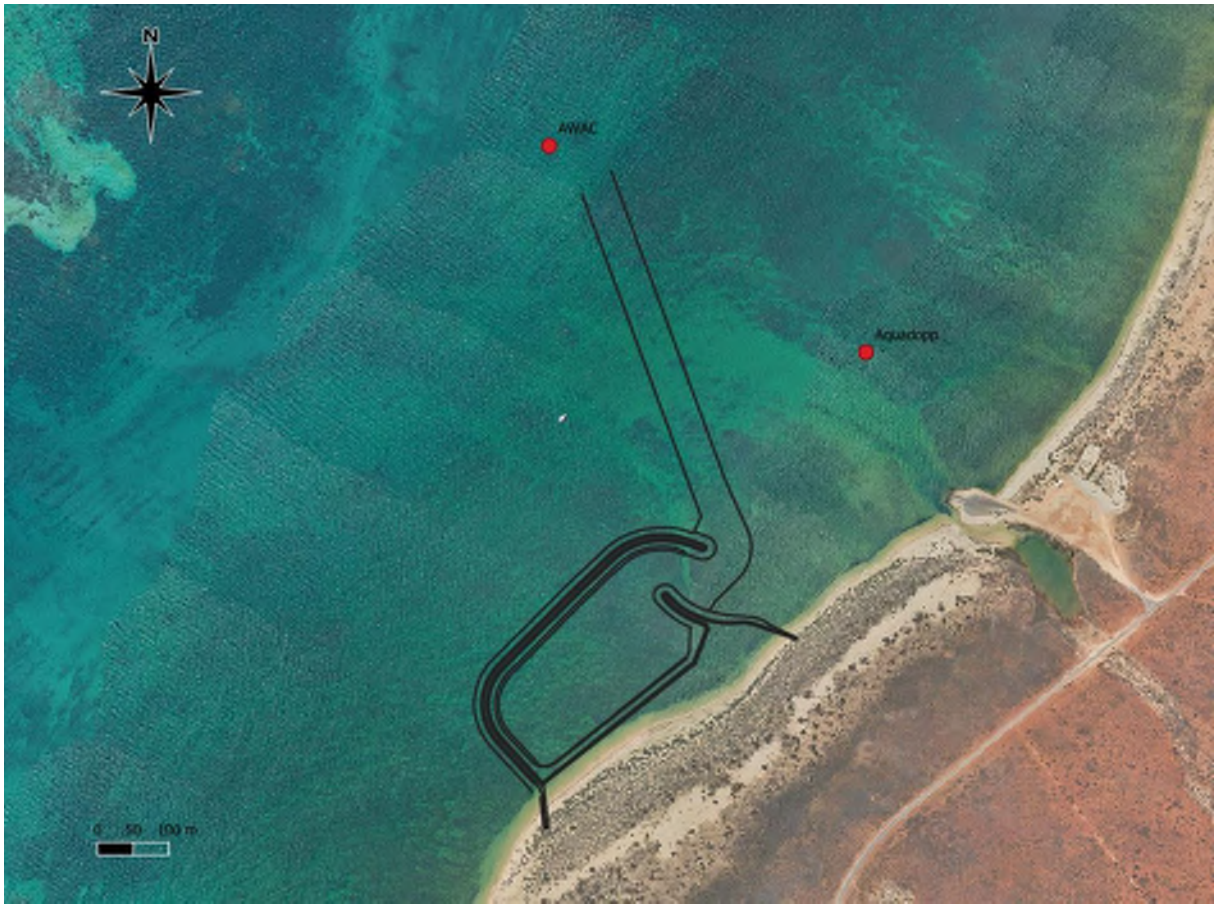


Figure 3.8 Locations of AWAC & Aquadopp

Time series for the model inputs across each of the calibration/validation periods are shown in Figures 3.9 and 3.10. Time series of recorded current data at the AWAC and Aquadopp across each of the calibration/validation periods are shown in Figures 3.11 and 3.12.

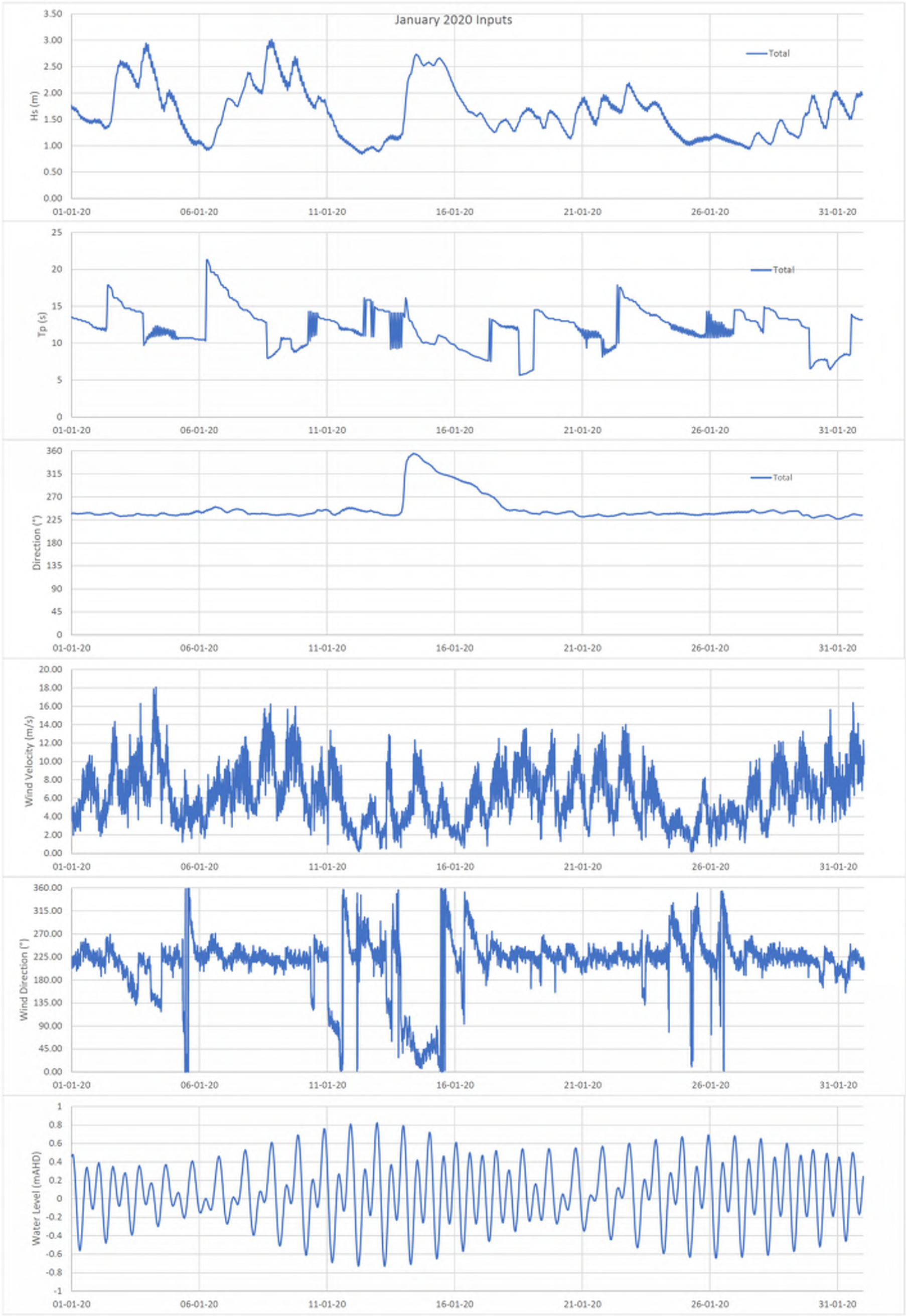


Figure 3.9 Model Input Conditions for January Calibration Period

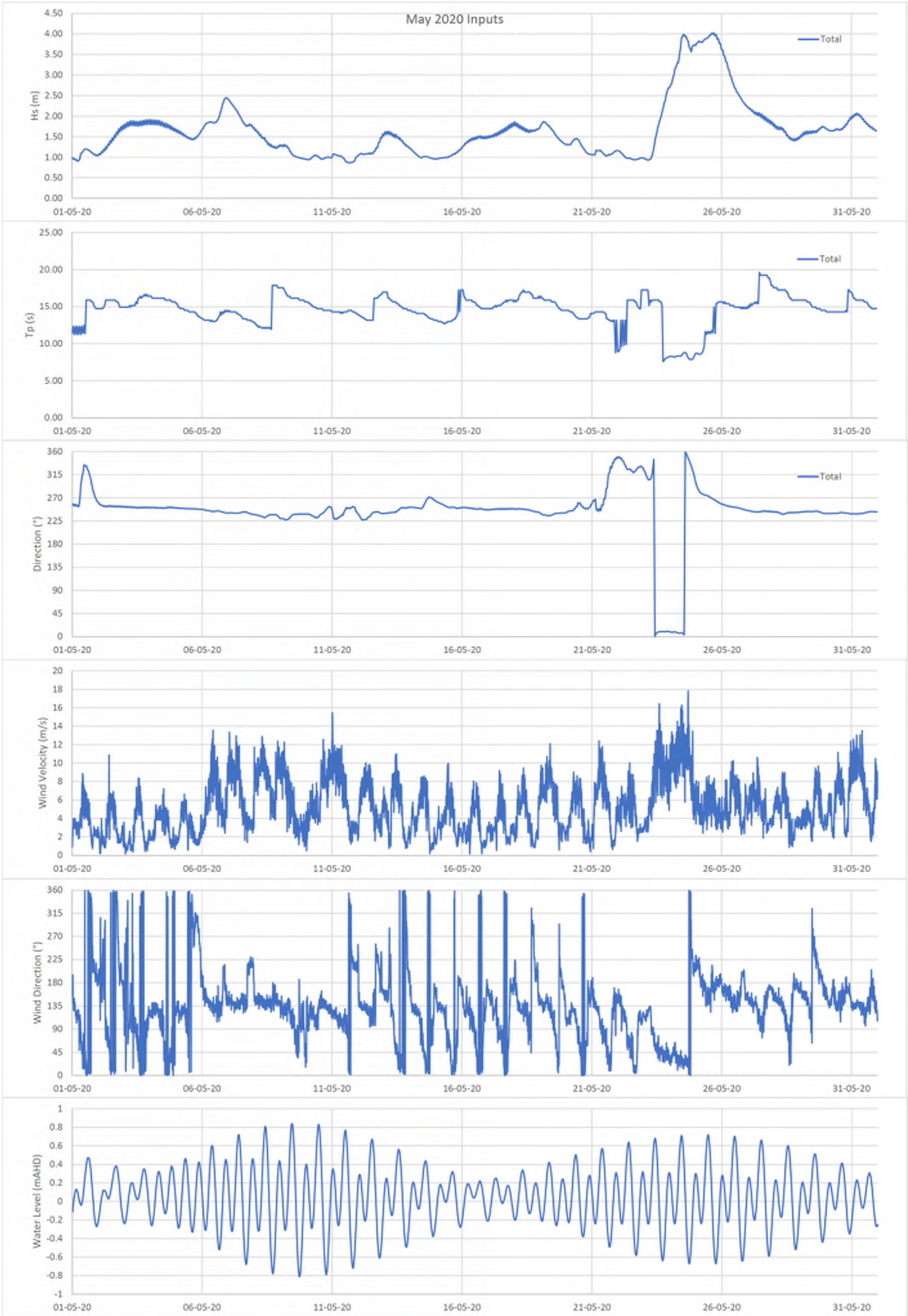


Figure 3.10 Model Input Conditions for May Calibration Period

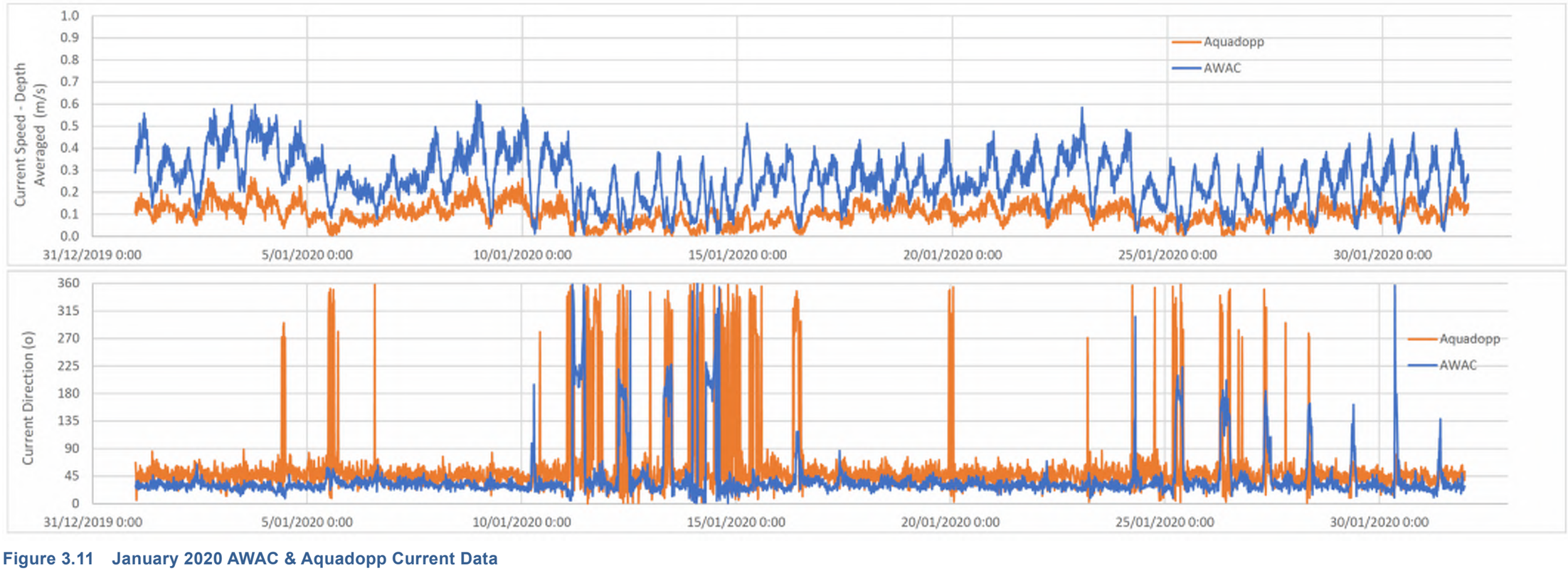


Figure 3.11 January 2020 AWAC & Aquadopp Current Data

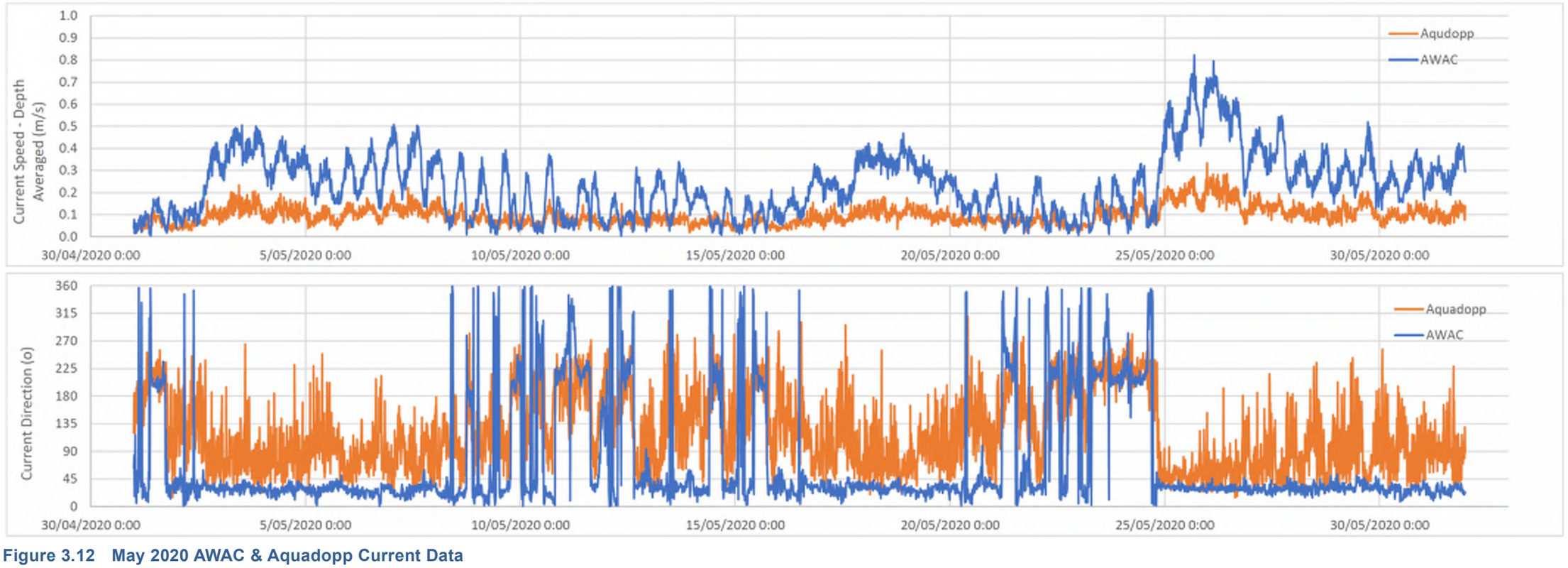


Figure 3.12 May 2020 AWAC & Aquadopp Current Data

The January calibration period contained three main swell periods with two occurring from the west and one from a more northerly direction. The May calibration period was comprised of general swell throughout with a cyclone event towards the end of the month.

3.5 Calibration/Validation Results

Calibration of the wave and hydrodynamic models was undertaken in concert to ensure both processes were accurately represented in the model. Given that waves are a key driver of hydrodynamics at the site, the calibration process involved modification of fluid viscosity and diffusivity values within the flow module and bottom friction within the wave module to provide the best predictions of measured data at the calibration sites. The values of these calibration parameters were derived from a review literature and model performance. The values for the parameters that provided the best model performance were presented in Table 3.4

The bottom friction coefficients are within reasonable ranges recommended by Deltares (2021). Vosse (2008) assessed that Collins Friction coefficients between 0.001 and 2.2 may be appropriate for different applications. The viscosity and diffusivity values are within reasonable ranges recommended by Deltares (2021).

3.5.1 Time History Plots

Time history plots showing the results of the hydrodynamic modelling for the calibration period against recorded data from the AWAC and Aquadopp locations are presented in Figures 3.13 through 3.16. Visual interrogation of the plots shows that the measured trends are generally well represented by the model. It is noted that whilst the modelled currents do not perfectly match the measured currents. The possible effects that this may have on the sediment transport modelling are likely minimal as calibration of the sediment transport model is undertaken against the estimated sediment budget to ensure that sediment transport is adequately reflected.

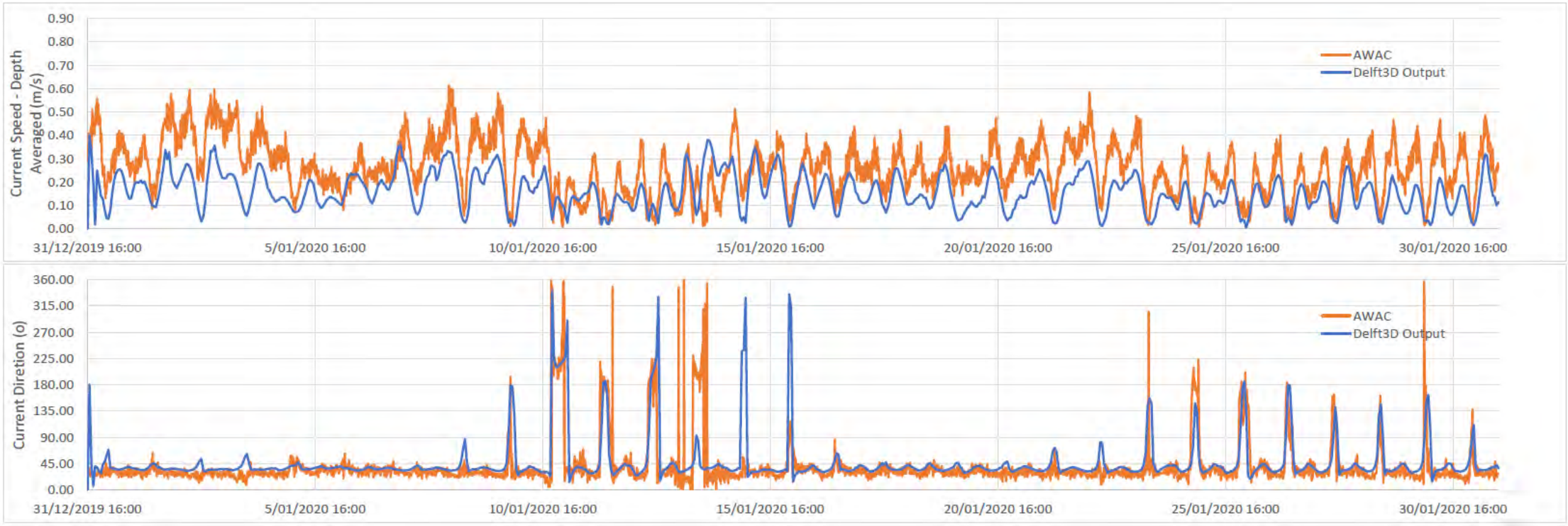


Figure 3.13 Comparison of Measured vs Modelled Data at the AWAC (January 2020)

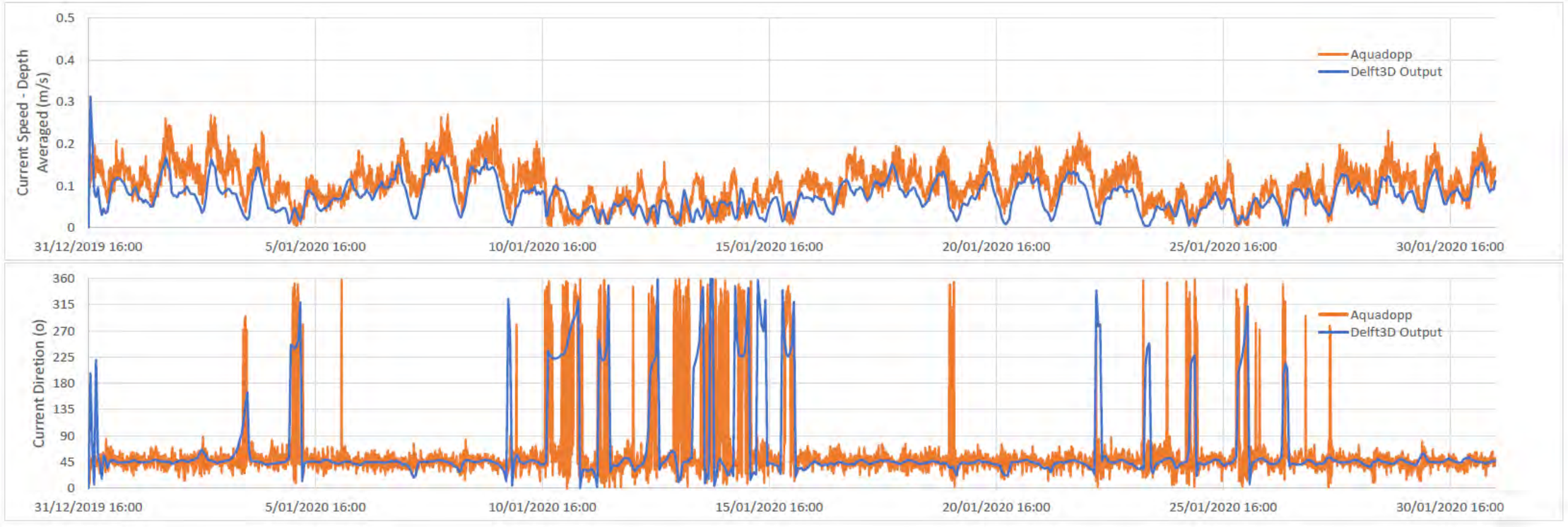


Figure 3.14 Comparison of Measured vs Modelled Data at the Aquadopp (January 2020)

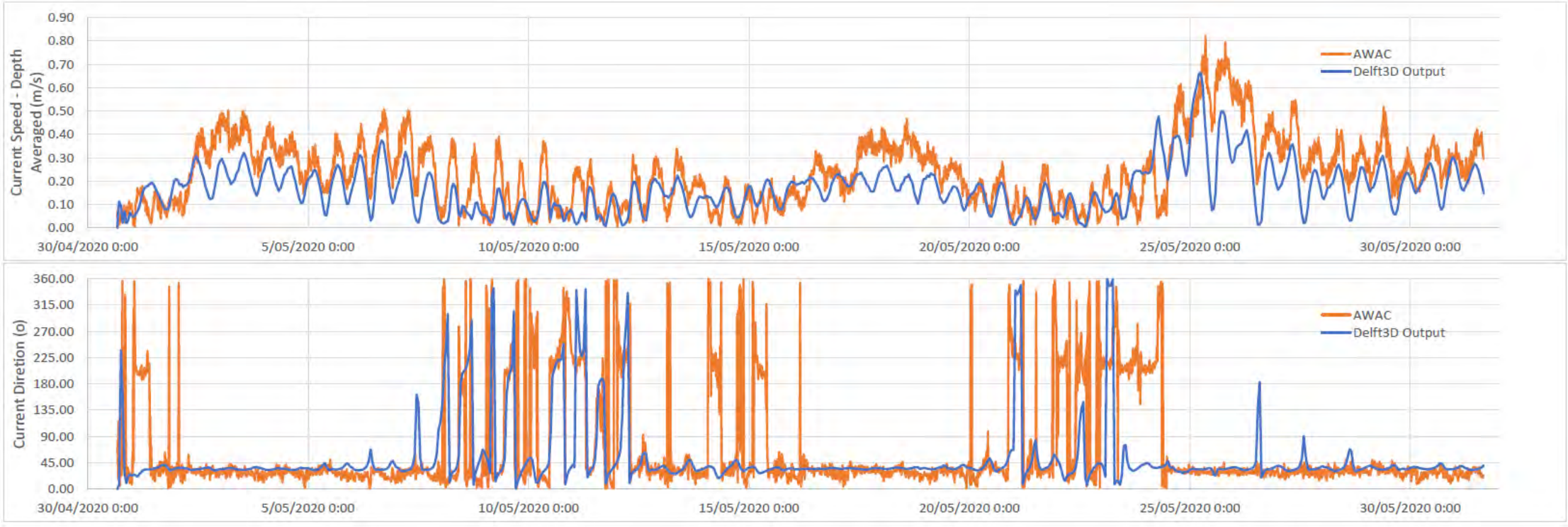


Figure 3.15 Comparison of Measured vs Modelled Data at the AWAC (May 2020)

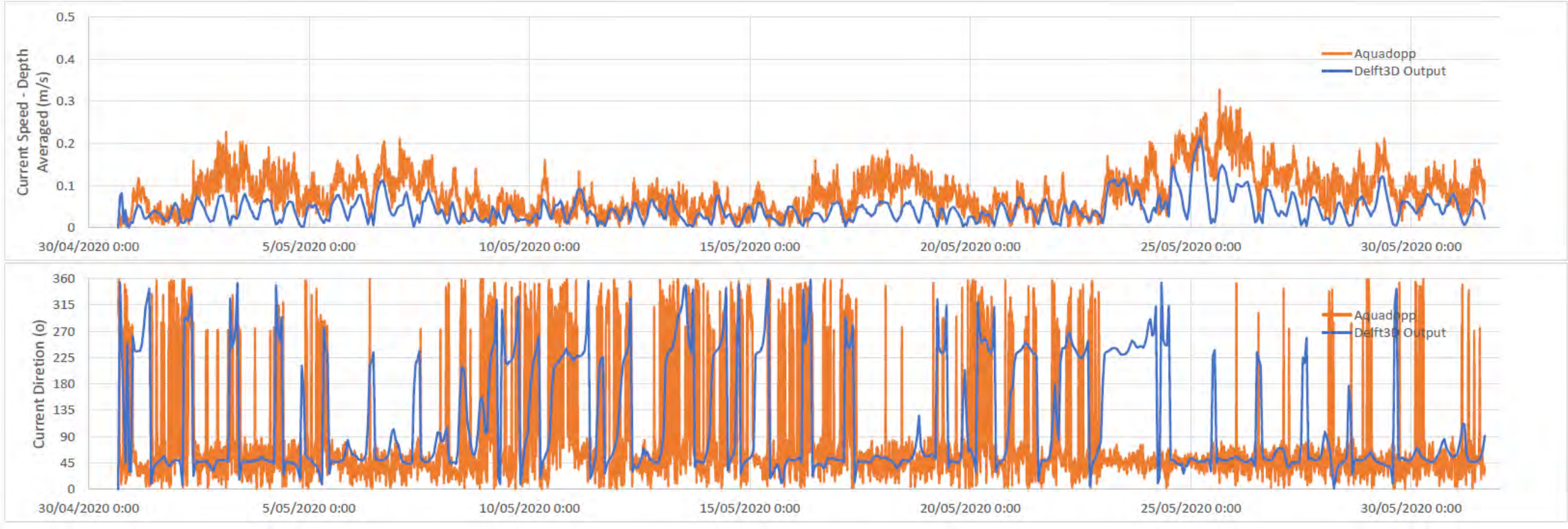


Figure 3.16 Comparison of Measured vs Modelled Data at the Aquadopp (May 2020)

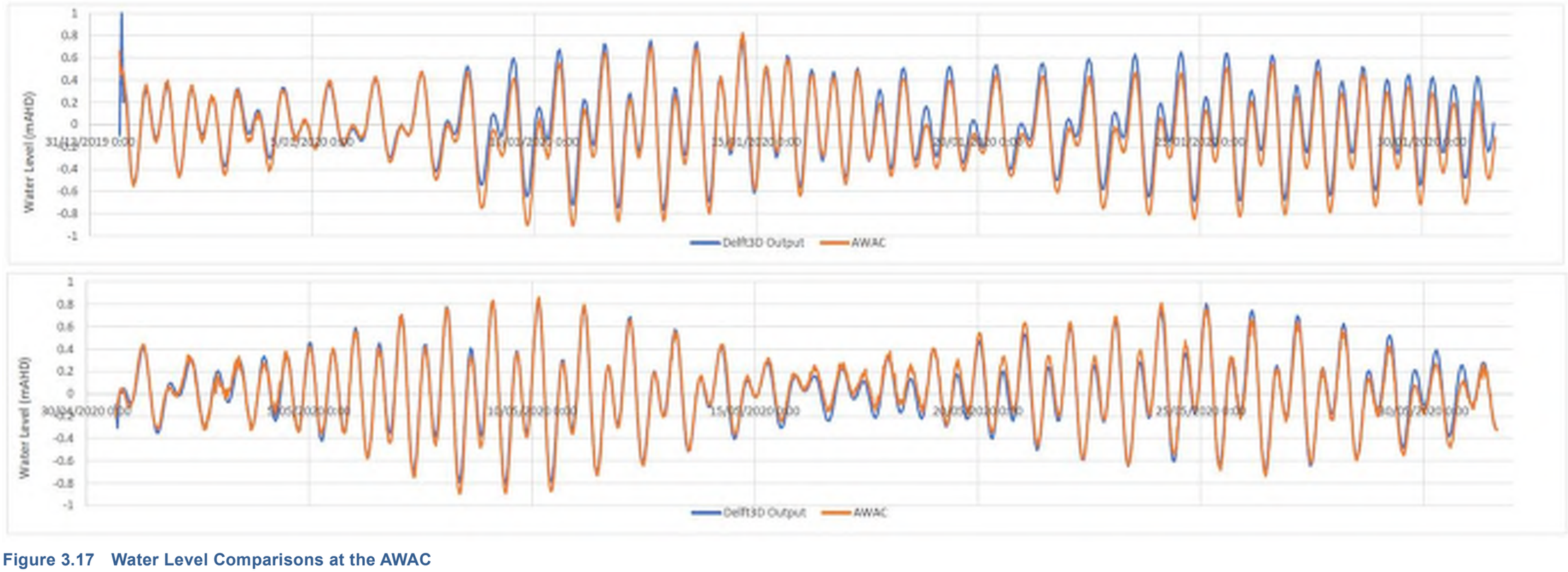


Figure 3.17 Water Level Comparisons at the AWAC

As can be seen in Figure 3.17, the measured period and amplitudes of water level variations are well represented in the modelled results. The minor differences between the two data sets are likely due to parameters that are not considered within the Delft3D model (eg effects of the Leeuwin current, atmospheric pressure differences, fluctuations in water temperature, etc).

3.5.2 Statistical Performance

Various statistical tests including the root mean squared error (RMSE), scatter index, Willmott correlation factor and bias were utilised to analyse the model performance with regards to current speeds and directions. The results of these tests along with their formulae are provided in the following tables and are discussed in the following sections.

Table 3.9 Model Agreement Statistic Formulae

Statistical Test	Formula
RMSE	$\sqrt{\frac{1}{N_i}\sum_{i=1}^{N}(S_i - O_i)^2}$
Scatter Index (0-1)	$\sqrt{\frac{\sum_{i=1}^{N}[(S_i - \bar{S}) - (O_i - \bar{O})]^2}{\sum_{i=1}^{N} {O_i}^2}}$
Willmott Correlation Factor (0-1)	$1 - \frac{\sum_{i=1}^{N}(S_i - O_i)^2}{\sum_{i=1}^{N}[\lvert S_i - \bar{O}\rvert + \lvert O_i - \bar{O}\rvert]^2}$
Bias (mean signed difference)	$\frac{\sum_{i=1}^{N}(S_i - O_i)}{\mathrm{N}}$

Notes: 1. N = number of samples, S = modelled value, O = observed value.

Table 3.10 Model Agreement Statistics for January 2019 Calibration Period

Statistical Test	AWAC		Aquadopp	
	Depth Averaged Current Speed	Current Direction	Depth Averaged Current Speed	Current Direction
RMSE	0.13	52.56	0.04	53.04
Scatter Index (0-1)	0.29	0.14	0.29	0.13
Willmott Correlation Factor (0-1)	0.65	0.75	0.74	0.47
Bias (mean signed difference)	-0.10	6.41	-0.03	-2.09

Table 3.11 Model Agreement Statistics for May 2019 Calibration Period

Statistical Test	AWAC		Aquadopp	
	Depth Averaged Current Speed	Current Direction	Depth Averaged Current Speed	Current Direction
RMSE	0.10	63.38	0.05	106.82
Scatter Index (0-1)	0.34	0.17	0.42	0.25
Willmott Correlation Factor (0-1)	0.74	0.68	0.56	0.40
Bias (mean signed difference)	-0.06	9.63	-0.04	10.19

RMSE

The RMSE indicates the absolute fit of the model to the data. As the square root of a variance, RMSE can be interpreted as the standard deviation of the unexplained variance, and has the useful property of being in the same units as the response variable. Lower values of RMSE

indicate better fit. RMSE is a good measure of how accurately the model predicts the response, and is an important criterion for fit if the main purpose of the model is prediction.

As shown, these measures for current speed are generally appropriate. The RMSE results for current direction are largely attributable to the significant scatter in the measured data compared to the modelled data. The time history plots show that good agreement has generally been maintained over both periods. This is to be expected given that wind is input into the model at hourly timesteps. Current directions are measured over short durations and are sensitive to the wind fields which can vary significantly over small timeframes and distances. These processes are not able to be reflected in the model.

The primary outcome for current direction is to drive sediment transport in the morphological model and as such the overall trend in current direction is of most importance.

Scatter Index

The scatter index is the RMSE normalised with the overall mean of the measured and modelled data. This provides a relative measure of the mean error with the actual values of the measured data taken into account (Williams and Esteves 2017). Scatter index scores range from 0 – 1, with 0 representing a perfect score. The results of Scatter Index comparison indicate acceptable performance of the model.

Willmott Correlation Factor

The Willmott correlation factor provides an index of agreement between observed and simulated data, normalised to the mean of the measured data. Willmott correlation scores range from 0 to 1, with 1 representing a perfect score. Generally, a score over 0.5 is considered reasonable and a score greater than 0.8 is considered very good (Willmott et al. 1985). As shown in Tables 3.9 and 3.10, the model performs well for Current Magnitude across the calibration periods. It is noted that the correlation factor at the Aquadopp is slightly lower than 0.5 for current direction. The time history plot illustrates a reasonable level of congruence between the directions. It is anticipated that the significant scatter in the measured data compared to the model data is the cause of this reduced score.

It is known that the Wilmott correlation factor overweights larger errors as it is calculated by squaring errors without a subsequent square root (like in the equation for scatter index) (Wilmott 2011). This can lead to underestimates of performance in models with a few points with large error. In contrast, the Scatter Index square roots the squared error to calculate the performance which reduces the weighting associated with individual points with large error. This difference is why current direction at the Aquadopp performs well for scatter index but not so for Wilmott correlation factor.

Bias (mean signed difference)

The bias, or mean signed difference, provides an average of the difference between the model and mean values. The results of the assessment show that on average the difference between the modelled and measured current conditions are generally quite small. The depth averaged currents are underestimated at both devices. This will require consideration when interpreting results or utilisation

Summary

The results of the performance indicators provide confidence in the use of the model for the purposes of this assessment. Generally, the model performs well for current speed. The time history plots and performance indicators also show that current direction is represented to an appropriate level for the purposes of the assessment. There is significantly greater scatter in the

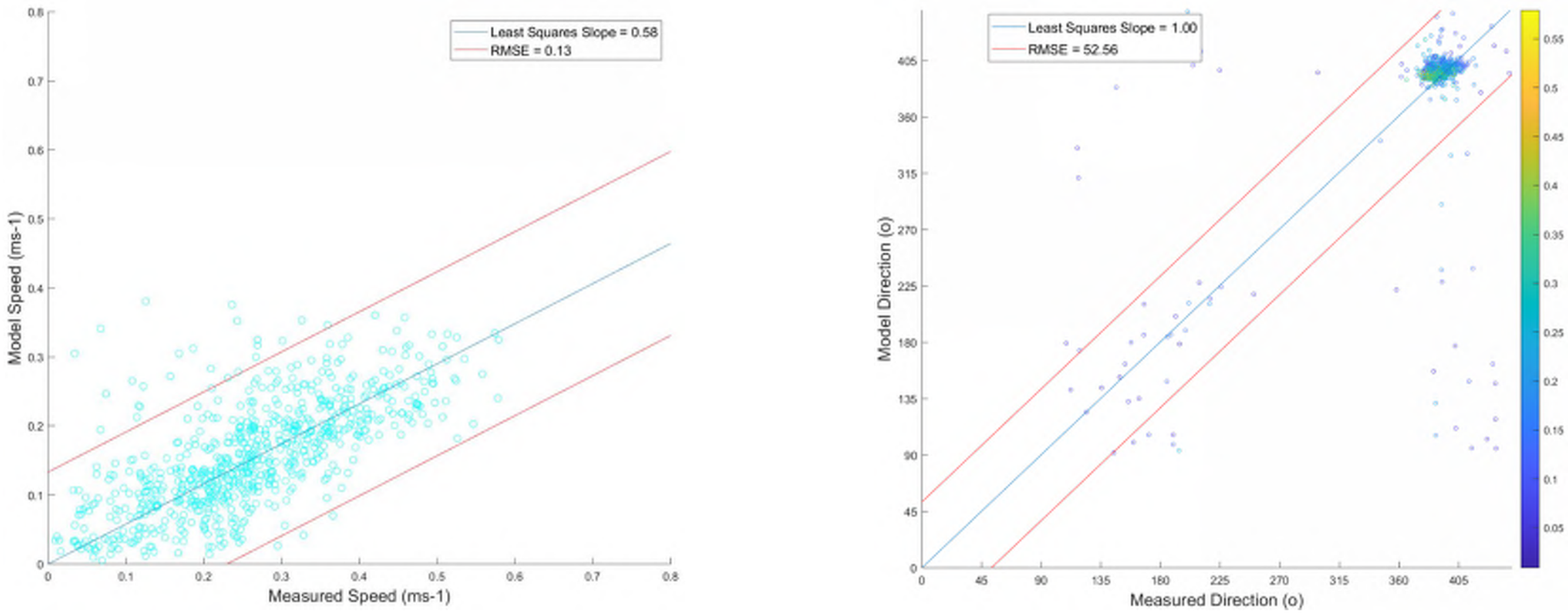
measured data compared to the modelled data, however the time history plots show that good agreement has been maintained over both periods. This is to be expected given that wind is input into the model at hourly timesteps. Whilst current directions are measured over short durations and are sensitive to the wind fields which can vary significantly over small timeframes and distances. These processes are not able to be reflected in the model. The primary outcome for current direction is to drive sediment transport in the morphological model and as such the overall trend in current direction is of most importance.

It is also noted that intuitively, accurate measurement of currents and particularly directions are difficult given the complex nature of the water profile. Different methods of measuring currents can give results that vary in the order of ±10% (and often greater). This should be considered when reviewing models and their ability to accurately reflect measurements.

3.5.3 Scatter Plots

Scatter plots for each of the calibration periods are provided in Figures 3.18 and 3.19. The scatter plots provide another means of reviewing the model performance by directly comparing the measured and modelled values. The scatter plots generally show good agreement between the measured and modelled data, albeit current speeds are generally underestimated within the model. Given the prevailing quadrant of the current direction data, to make the data plottable the in a scatter plot, data from the quadrant 0-90 degrees is shifted to 360-440 degrees. This allows visualisation of data that is very close in reality but different in number. For example, 359 degrees and 1 degree are only 2 degrees apart and on a cross plot this is misrepresented. Therefore, 1 degree is shifted to 361 degrees to allow fairer visualisation.

AWAC



Aquadopp

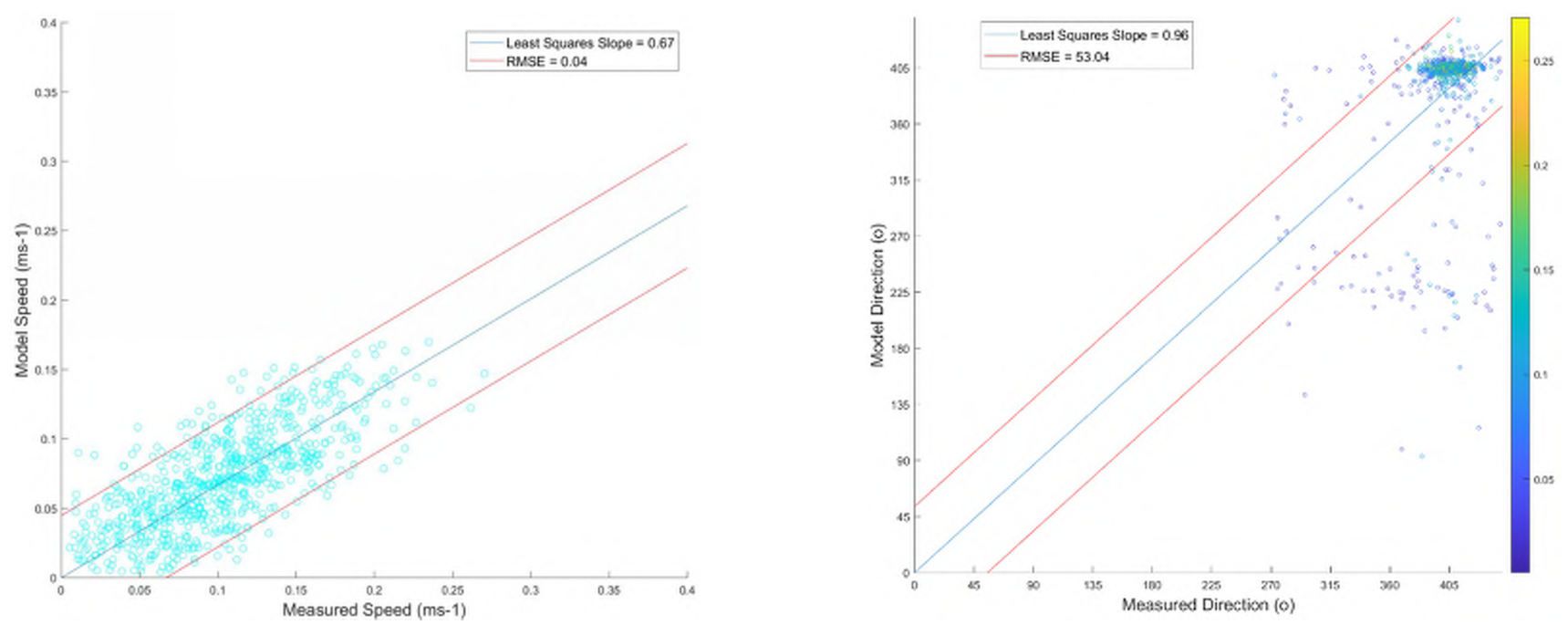
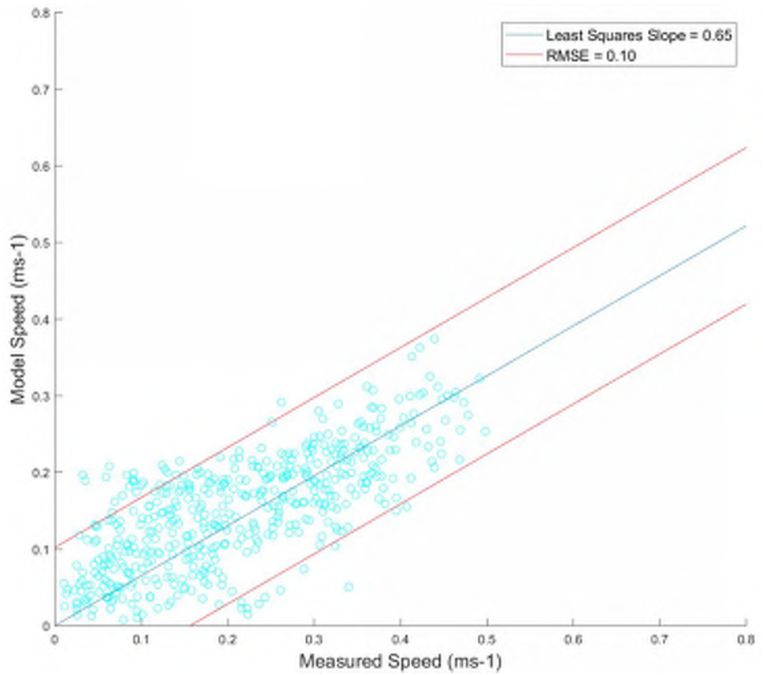
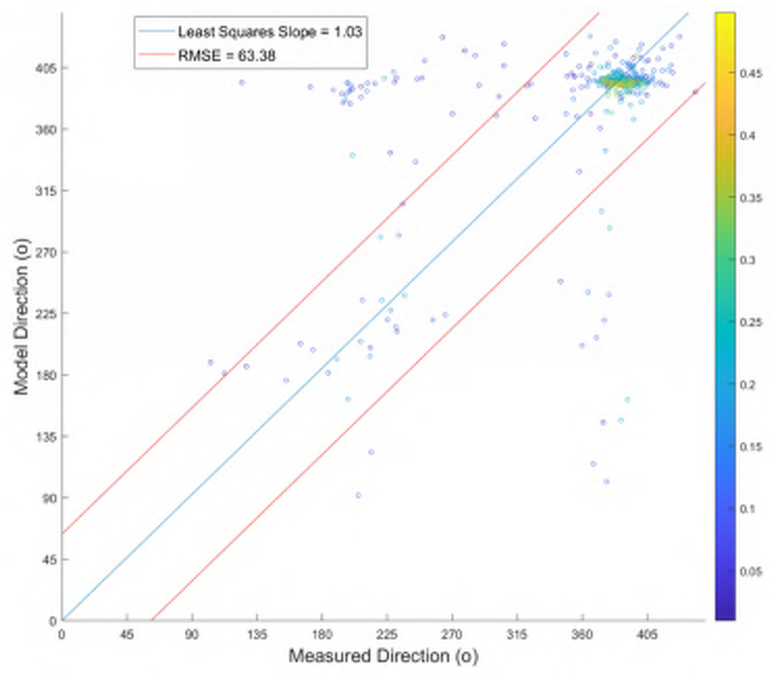


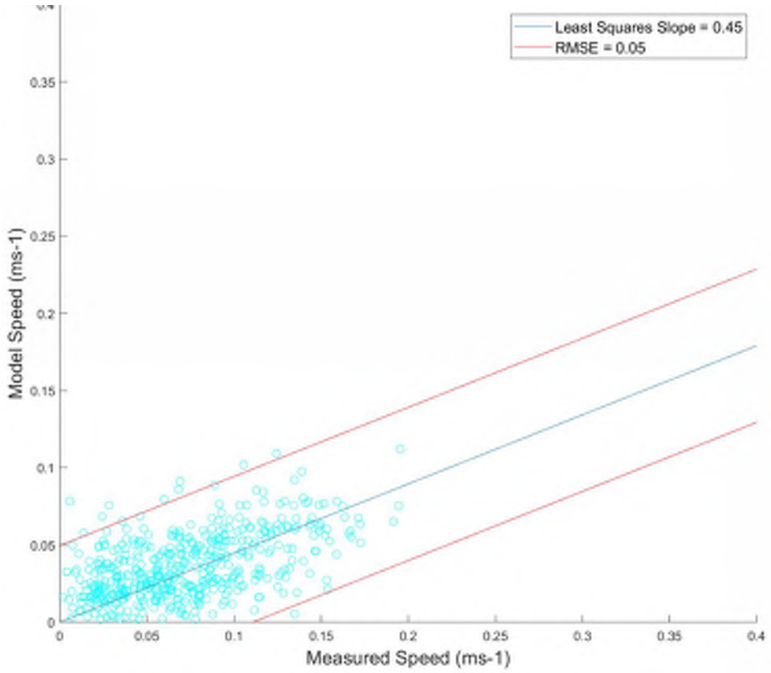
Figure 3.18 Measured vs Modelled Data Scatter Plots (January 2020)

AWAC





Aquadopp



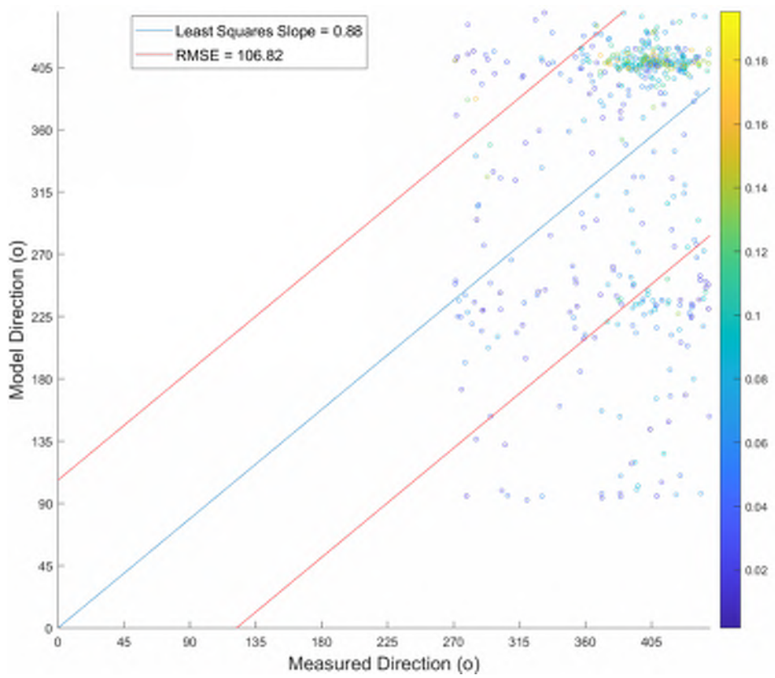


Figure 3.19 Measured vs Modelled Data Scatter Plots (May 2020)

4. Representative Periods

To determine the likely hydrodynamic climate at the proposed TBF six representative periods of three months were modelled. These representative periods were extracted from the Wavewatch III hindcast model at the closest gridded output point. The selection and validity of this output point is further discussed in the Task 3 report – *Tantabiddi Creek Metocean Climate Analysis* (MRA 2021). Of the six representative periods four were selected to represent the typical conditions at the site and the other two were selected to represent abnormal conditions.

4.1 Representative Periods

4.1.1 Typical Conditions

The four representative periods of typical conditions were selected to each cover one of the seasons, as this allowed for the creation of a "typical" year composed of the typical conditions for autumn, winter, spring and summer. These seasonal identifiers are somewhat notional, as the primary seasonal flux is between the summer "wet" and winter "dry" seasons. The typical conditions were determined through analysis of the wind and wave data. Measured water level data is not available

As such the year that had the best representation of the average wave, water level and wind conditions was selected as the representative period for that season. Figures 4.1 to 4.4 show details of the wave and wind conditions experienced for each season over the period of data availability (1979 to 2020). Mean and standard deviations are shown on these figures to assist in the review of the relevant periods.

The selected time periods for each of the representative periods of typical conditions are presented in Table 4.1.

Table 4.1 Typical Conditions Representative Periods

Season	Representative Period
Summer (Typical)	01/12/15 – 29/02/16
Autumn (Typical)	01/03/13 – 31/05/13
Winter (Typical)	01/06/11 – 31/08/11
Spring (Typical)	01/09/07 – 31/11/07

As shown in the figures (typical years are underlined in green), the selected periods generally exhibited conditions that were average with respect to wave height, period and direction as well as wind speed and direction. It is highly unlikely that any one period is going to be perfectly average across all of these components, so the selected periods were those that were considered to provide the representation of the most average values.

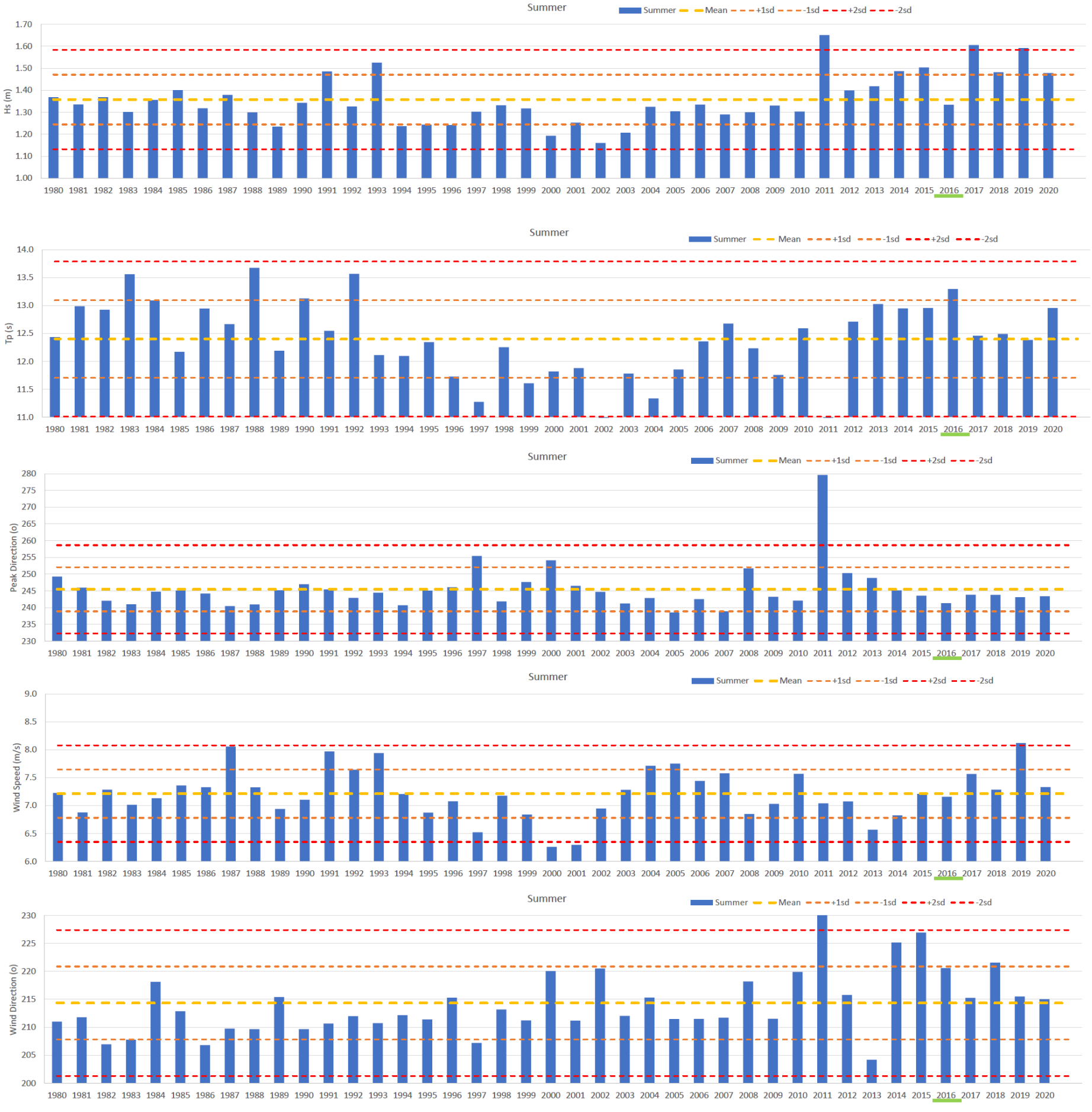


Figure 4.1 Temporal Variation in Wave and Wind Conditions over the Summer Period

Figure 4.2 Temporal Variation in Wave and Wind Conditions over the Autumn Period

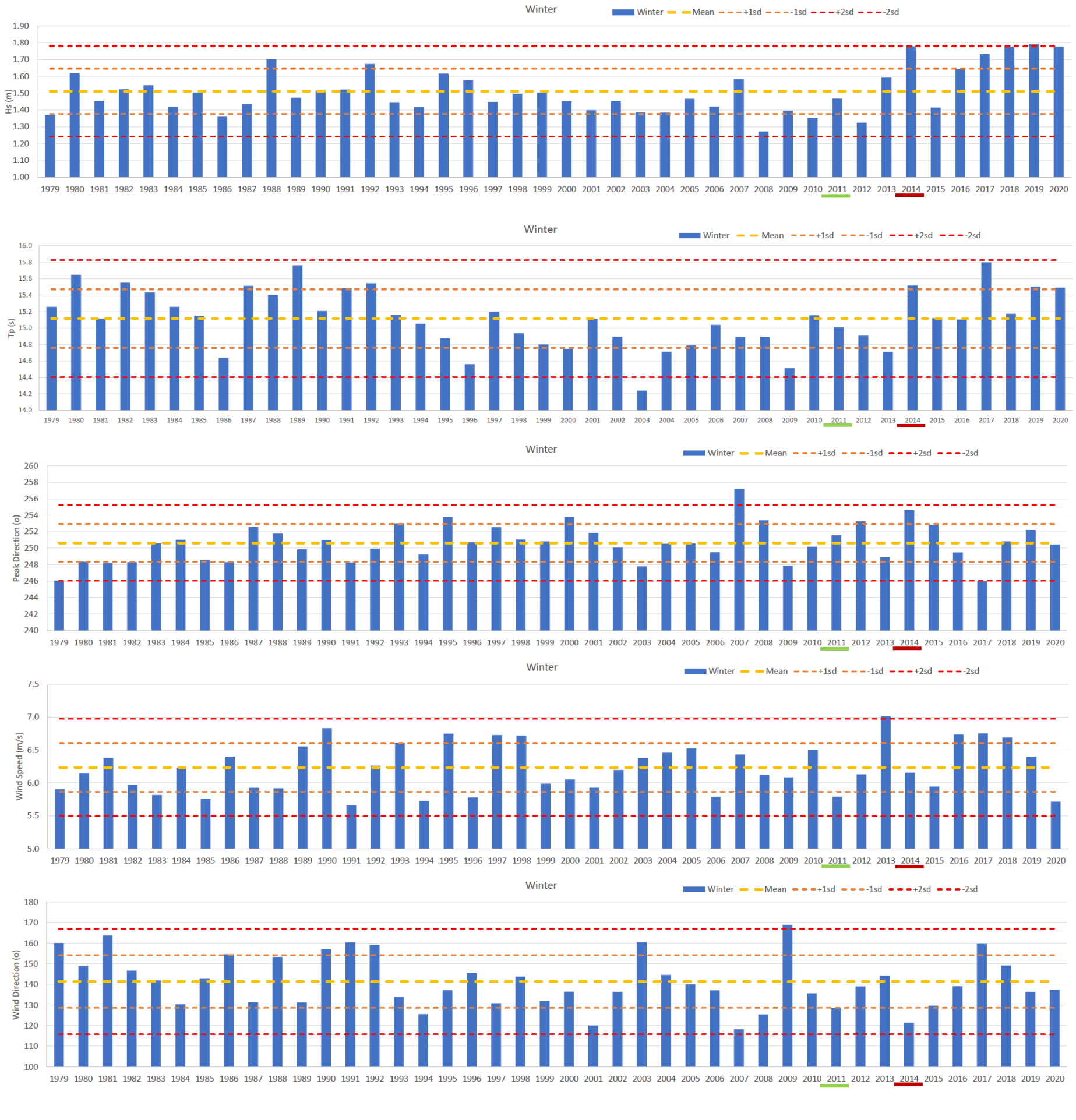


Figure 4.3 Temporal Variation in Wave and Wind Conditions over the Winter Period

Figure 4.4 Temporal Variation in Wave and Wind Conditions over the Spring Period

4.1.2 Abnormal Conditions

The events selected for the typical conditions generally provide a representation of the average conditions that can be expected at the site; however, the impact of abnormal conditions also needs to be considered. Importantly, abnormal conditions do not just need to represent severe weather conditions, as calm conditions can also have impacts when considering as sediment transport or flushing within the facility. One calm and one severe season were selected to represent abnormal conditions. The representative periods for the abnormal conditions were selected in a similar manner to the typical conditions through review of wave heights, periods and directions as well as wind speed and direction. Two periods of abnormal conditions were selected. Table 4.2 shows the periods that were chosen. These periods are also highlighted by the red underline in Figures 4.2 and 4.3.

Table 4.2 Abnormal Conditions Representative Periods

Season	Representative Period
Autumn (Abnormal, calm)	01/03/98 – 01/06/98
Winter (Abnormal, severe)	01/06/14 – 31/08/14

The abnormal autumn period was chosen on the basis that it represented the calmest conditions observed over the period of record. The wave heights and wind speeds were amongst the lowest observed across all periods, yet these occurred coincidentally within this one period making it abnormally calm.

The abnormal winter period was selected as it contains one of the highest recorded average wave heights during any period. These high wave heights also correspond with an average wave direction that was around two standard deviations more northerly than average. As a result, the incident waves during this period have the potential to cause different wave directions at the shoreline compared to more typical wave directions. This could be important with respect to sediment transport processes.

It should be noted that an abnormal summer period was not selected for further investigation, as abnormal events in summer are largely influenced by the passage of tropical cyclones. The influence of tropical cyclones has been considered as part of the Task 4 report.

5. Results Interpretation & Discussion

5.1 Concept B

5.1.1 Current Dynamics

The calibrated hydrodynamics model was used to simulate each of the selected periods. Each period was modelled twice – once based on the existing shoreline and once including the proposed TBF. The different model simulations were then used to directly compare the hydrodynamic climate in the area surrounding the TBF. As a first pass review of the differences, time history plots of current conditions were prepared for each of the locations shown in Figure 5.1. The rationale for the selection of these locations is provided in Table 5.1. Time history plots of current conditions for each of these locations, and for each period, are presented in Appendix B.

Figure 5.1 Locations used to Review Differences in Hydrodynamics

As expected, the time history plots show relatively small differences between the conditions at some locations and larger differences at other locations. A summary of the findings from the review of the time history plots is provided in Table 5.1.

Table 5.1 Summary of Differences in Hydrodynamic Conditions at Each Output Location

Location	Importance of Selection of Location	Observations
1	Assessment of potential current induced changes on the beach area to the south	Reductions in current magnitudes of typically around 50% are observed. The most significant reductions in current speeds are observed during winter, particularly during storms. Changes to current directions are observed. Where current directions were typically alongshore, they now trend cross shore, likely due to water being forced around the facility.
2	Assessment of potential current induced changes immediately offshore from the facility	Very minor changes in current magnitudes and directions are observed.
3	Assessment of any current changes in the channel adjacent to the breakwaters (to review potential navigation issues)	Significant reductions in current magnitudes are observed. Outside of winter storms, currents are reduced to almost zero. A clockwise rotation of current directions is observed across all periods.
4	Assessment of any current changes within the approach channel	Very minor changes in current magnitudes and directions are observed.
5	Assessment of potential current induced changes on the beach area in the lee of the entrance	Significant reductions in current magnitudes are observed. Outside of winter storms, currents are reduced to almost zero. During northerly conditions this reduction is less significant. A clockwise rotation of current directions is generally observed.
6	Assessment of potential current induced changes on the beach area to the north as a result of the facility and channel	Very minor changes in current magnitudes and directions are observed.

Not surprisingly, the current conditions closer to the facility show a greater extent of difference than the sites further afield – largely attributable to the extent of shadowing provided by the facility from different directions. To better illustrate the extent of differences across different metocean conditions, spatial plots have been prepared for key events which impact the area, including sea breeze, swell and storm events as well as spring and neap typical ebb and flood tides. Spatial plots for these events are presented in Figures 5.2 to 5.8 respectively. These show the vector of

current changes resulting from the introduction of the TBF into the hydrodynamics model. It should be noted that as the difference plots present the subtraction of one vector from another, the vector direction in the difference plot is representative of only the extent of change in the current vector between the pre and post development cases. The vector shown on this plot is not representative of the actual direction of current flow.

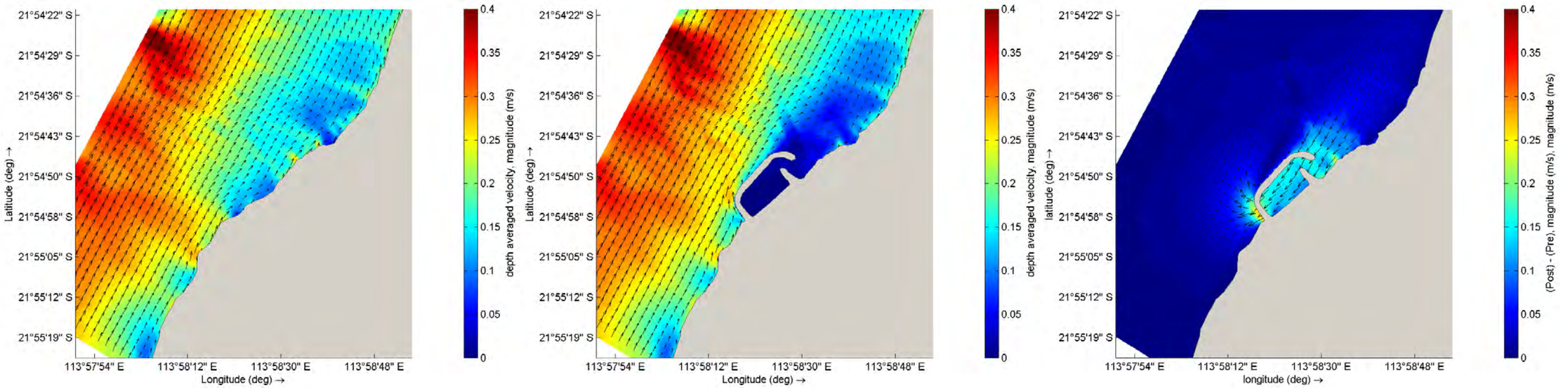


Figure 5.2 Spatial Plots for Summer Sea Breeze conditions (pre – left, post - centre, difference - right)

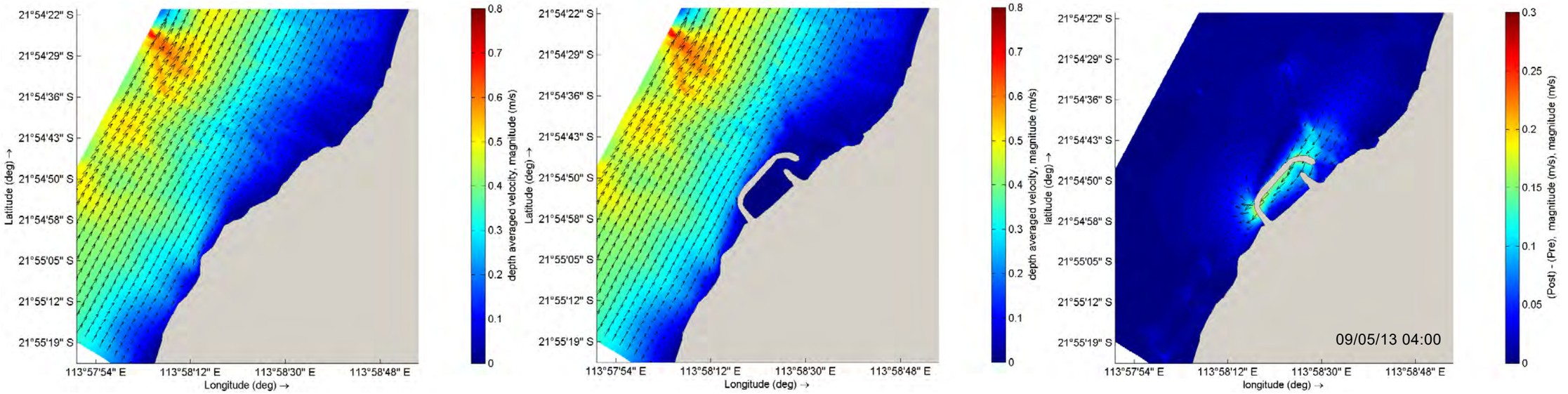


Figure 5.3 Spatial Plots for Calm Conditions with Moderate Background Swell (pre – left, post - centre, difference - right)

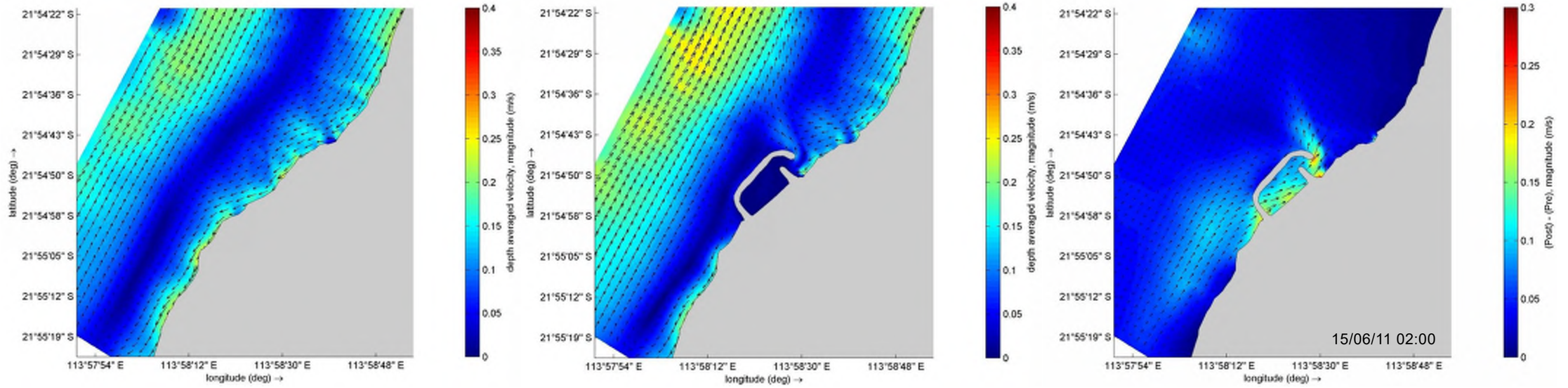


Figure 5.4 Spatial Plots for Typical Storm Conditions (pre – left, post - centre, difference - right)

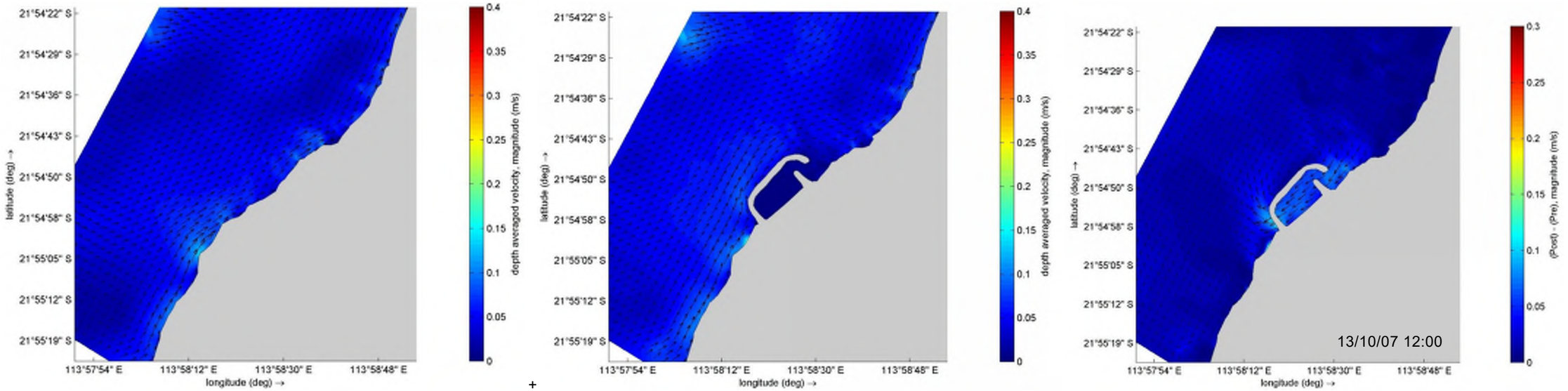


Figure 5.5 Spatial Plots for Spring Flood Tide (pre – left, post - centre, difference - right)

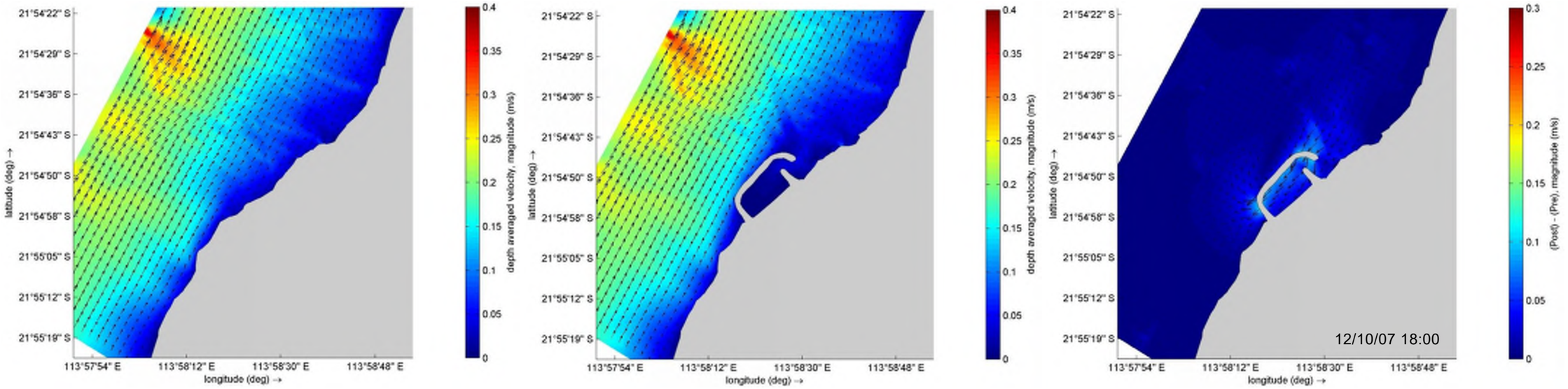


Figure 5.6 Spatial Plots for Spring Ebb Tide (pre – left, post - centre, difference - right)

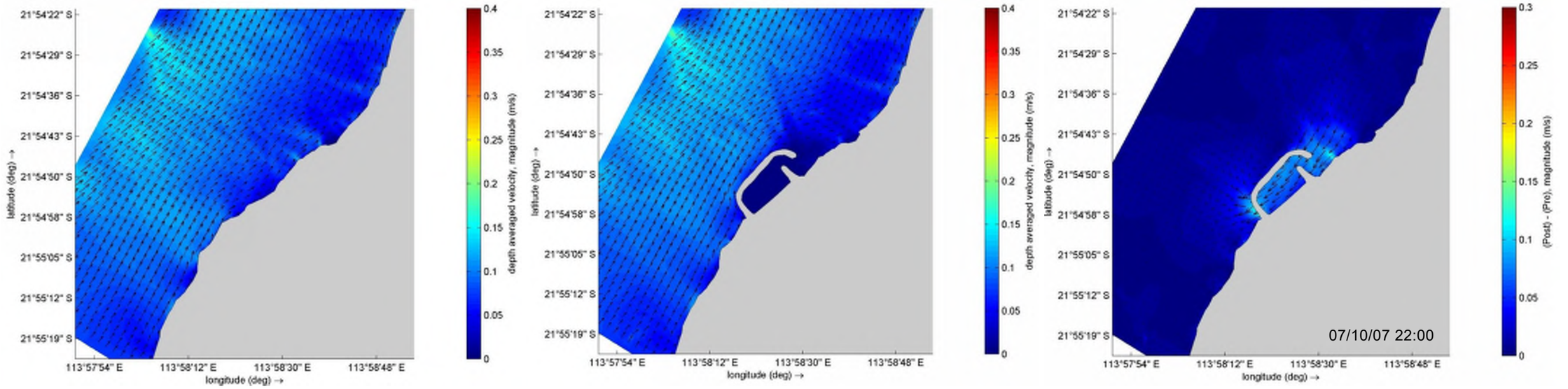


Figure 5.7 Spatial Plots for Neap Flood Tide (pre – left, post - centre, difference - right)

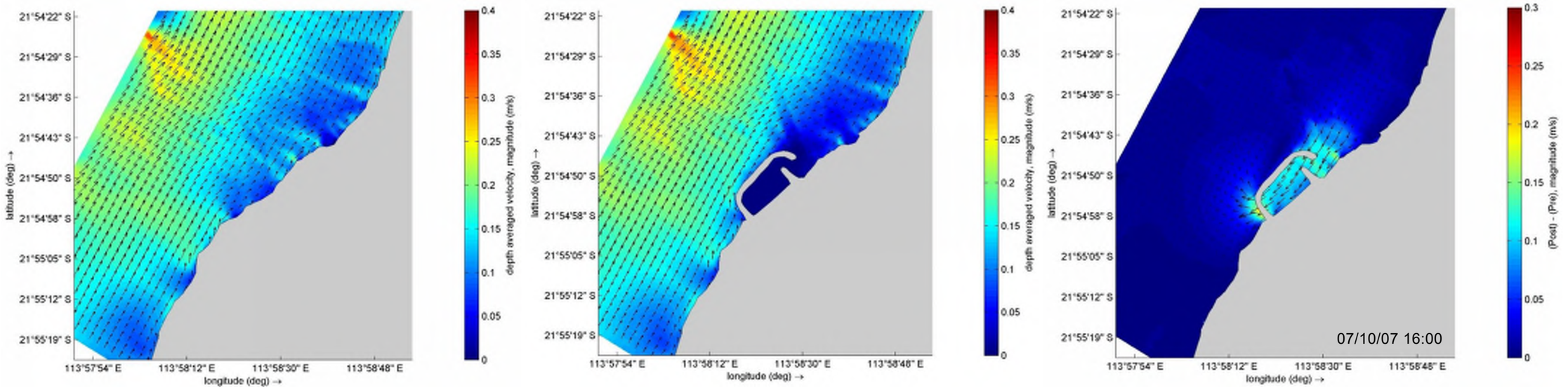


Figure 5.8 Spatial Plots for Neap Ebb Tide (pre – left, post - centre, difference - right)

Reviewing the results of the sea breeze event shows that the current conditions are changed most noticeably adjacent to the breakwaters and in the areas to the north of the TBF. The majority of change to the north of the TBF is a reduction of around 0.1-0.2 m/s magnitude, represented by a south easterly vector. To the south of the TBF the difference vectors show that the current is being trained around the proposed breakwaters. The extent of the differences in currents along the coastline to the north is potentially impacted to a small degree by the channel.

The spatial plot for the calm period with background swell shows the hydrodynamic conditions that would be experienced at the site when a 2.5 m, 15 s swell from a direction of 252° is experienced offshore. The results show that such wave conditions drive an alongshore current travelling to the north east. The largest changes in current conditions arising from the introduction of the TBF during the swell event are again in close proximity to the TBF. Similar to observations under the sea breeze event, there are significant reductions in current magnitudes immediately to the north and south of the proposed facility. This may have some influence on sediment transport in the region. To provide some additional context, plots showing the distribution of the currents through the lagoon are provided in the following figures. These should be considered examples of the possible current trends only.

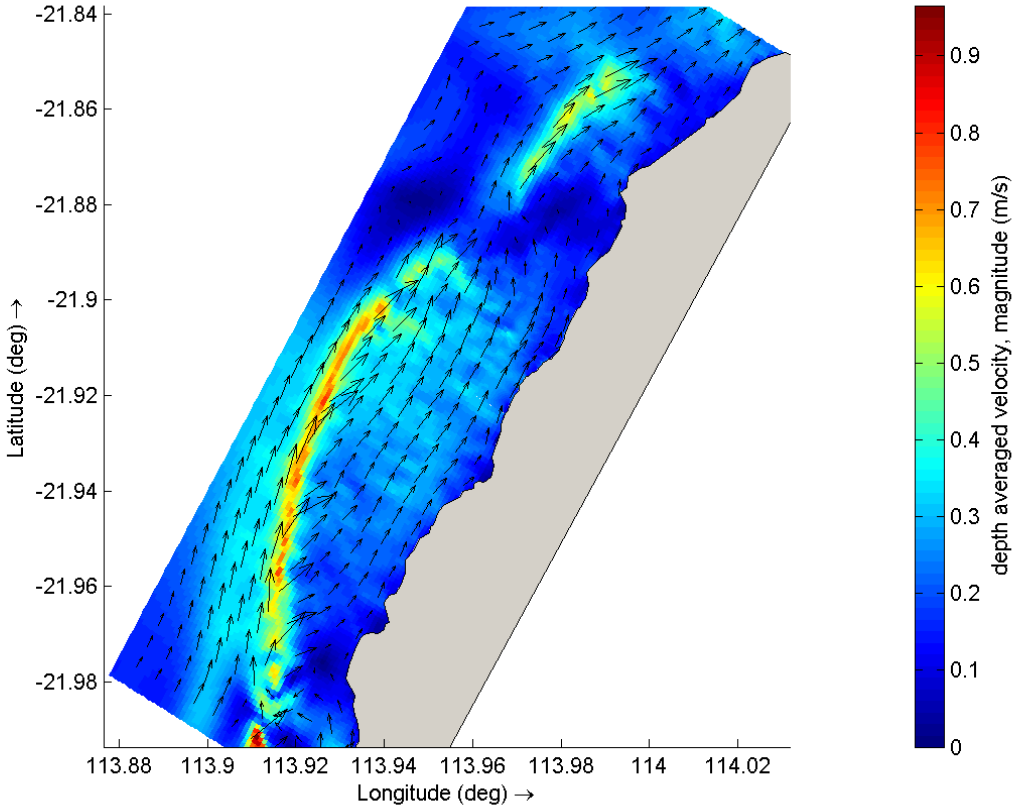


Figure 5.9 Large Scale Spatial Plot for Summer Sea Breeze

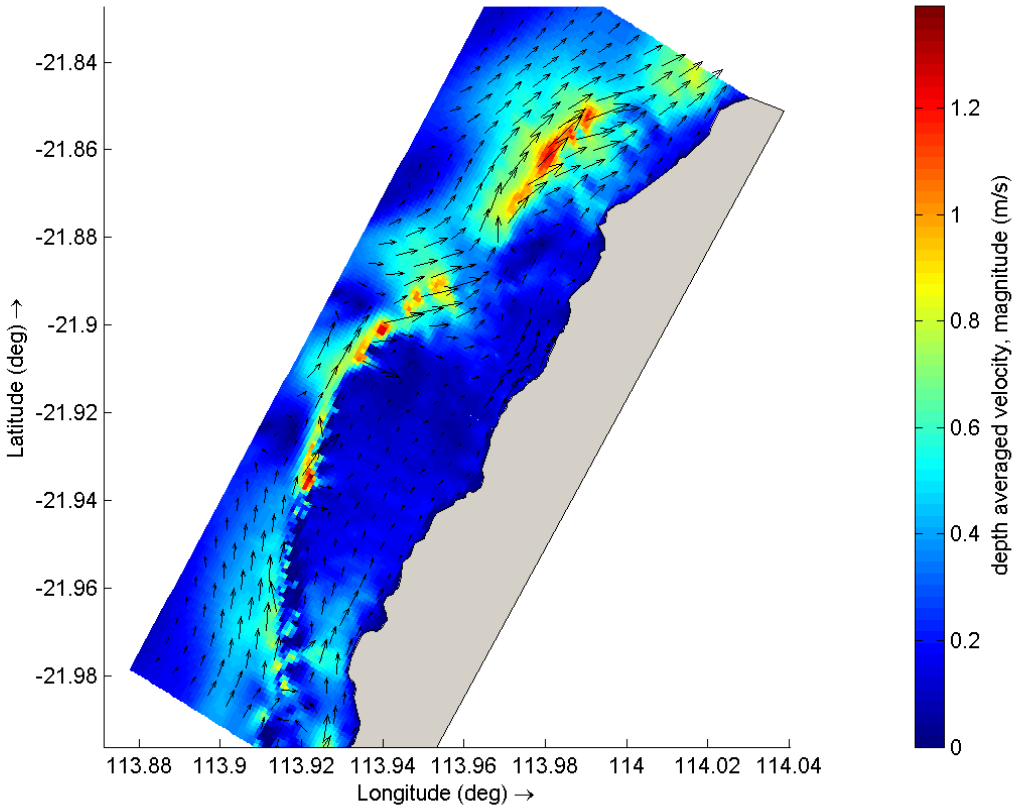


Figure 5.10 Large Scale Spatial Plot for Swell Conditions

The pre-facility current field in the storm event yields interesting results. A bi-directional alongshore current forms across the D-Grid arising from a combination of northerly winter storm wave conditions and the complex nearshore reef system. The northerly waves experienced during the storm generate a current travelling towards the south south west alongshore. However, the channel in the reef to the north of the facility is the key location through which water exits the nearshore basin. Hence, this generates a depth averaged current velocity travelling in the opposite direction alongshore at the offshore side of the basin. The result of these processes is a circular current where water travels south east along the shoreline and then moves offshore and returns to the north to exit the basin.

During the storm event the introduction of the TBF acts to interrupt the nearshore current. Water that was moving from north east to south west alongshore is trained around the facility and appears to join the current on the offshore side of the of the basin travelling towards the channel. This results in reductions in current magnitudes south of the facility, including in locations outside the immediate shadow of the facility.

Similar results are observed across the various tidal periods considered. The events shown occurred at approximately around mean sea level (0 mAHD) and with wind speeds less than 5 m/s. They represent typical neap and spring tides during fairly ambient conditions. Impacts to current dynamics are again limited to adjacent to the proposed TBF. Even during these ambient conditions currents appear to be heavily influenced by wind.

In addition to the plots for key events, average difference plots have been prepared over the entire duration of each of the representative periods and are presented in Figure 5.9 to 5.14.

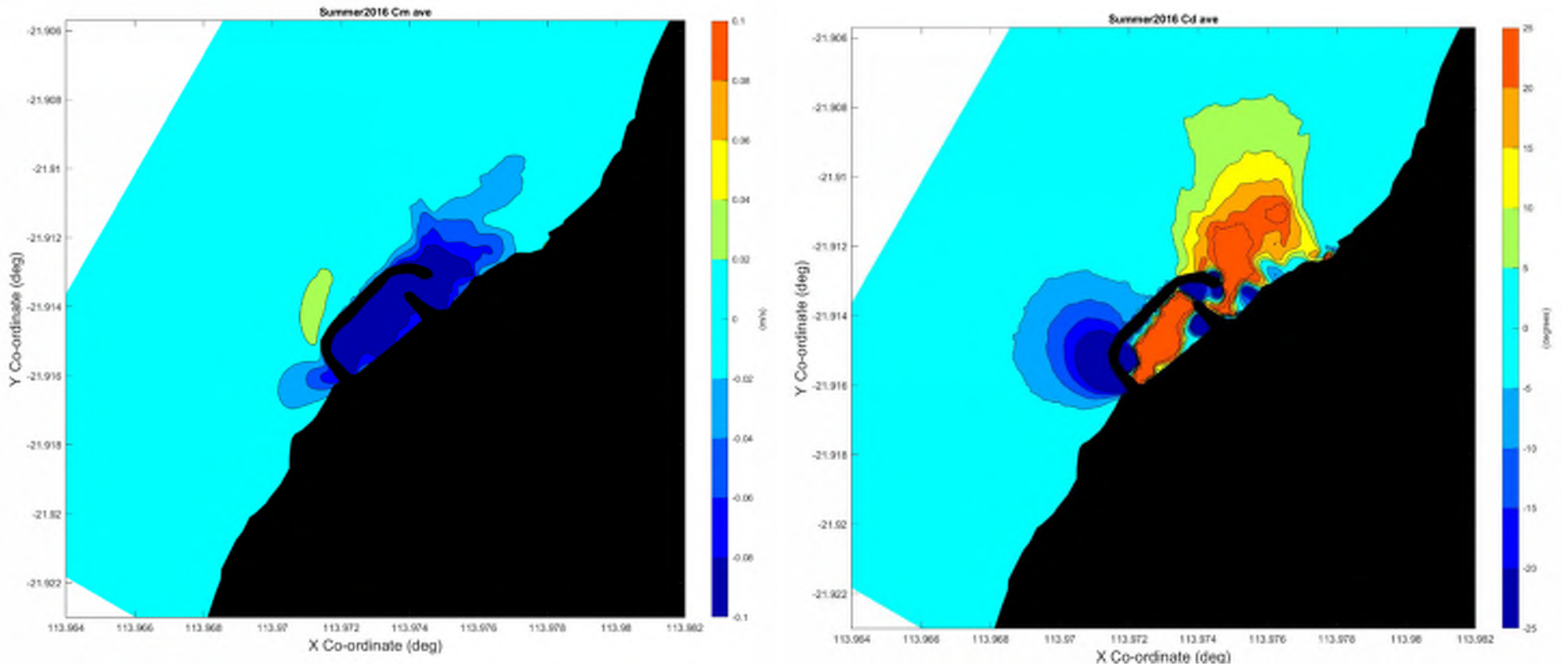


Figure 5.11 Spatial Difference Plots for Typical Summer (2016) – Post Development Minus Pre Development, Current Speed (left) & Current Direction (right)

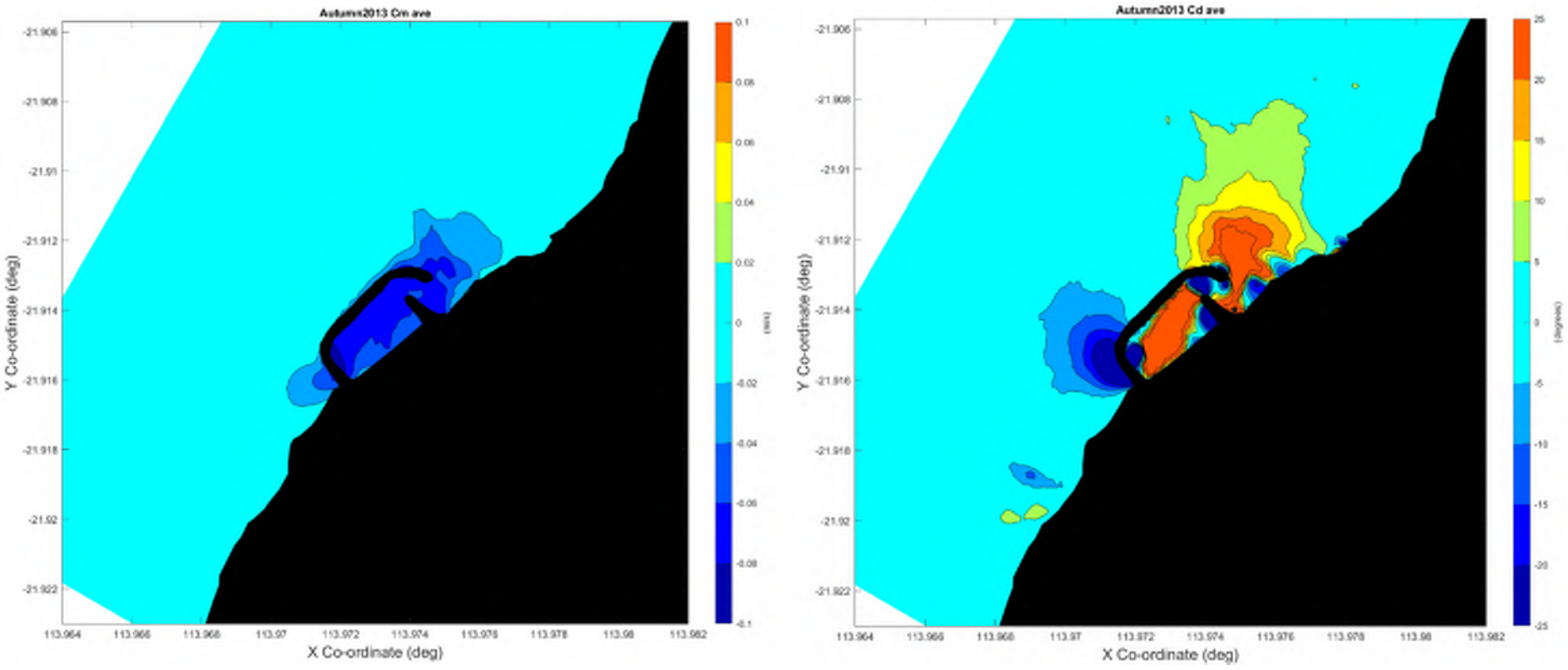


Figure 5.12 Spatial Difference Plots for Typical Autumn (2013) – Post Development Minus Pre Development, Current Speed (left) & Current Direction (right)

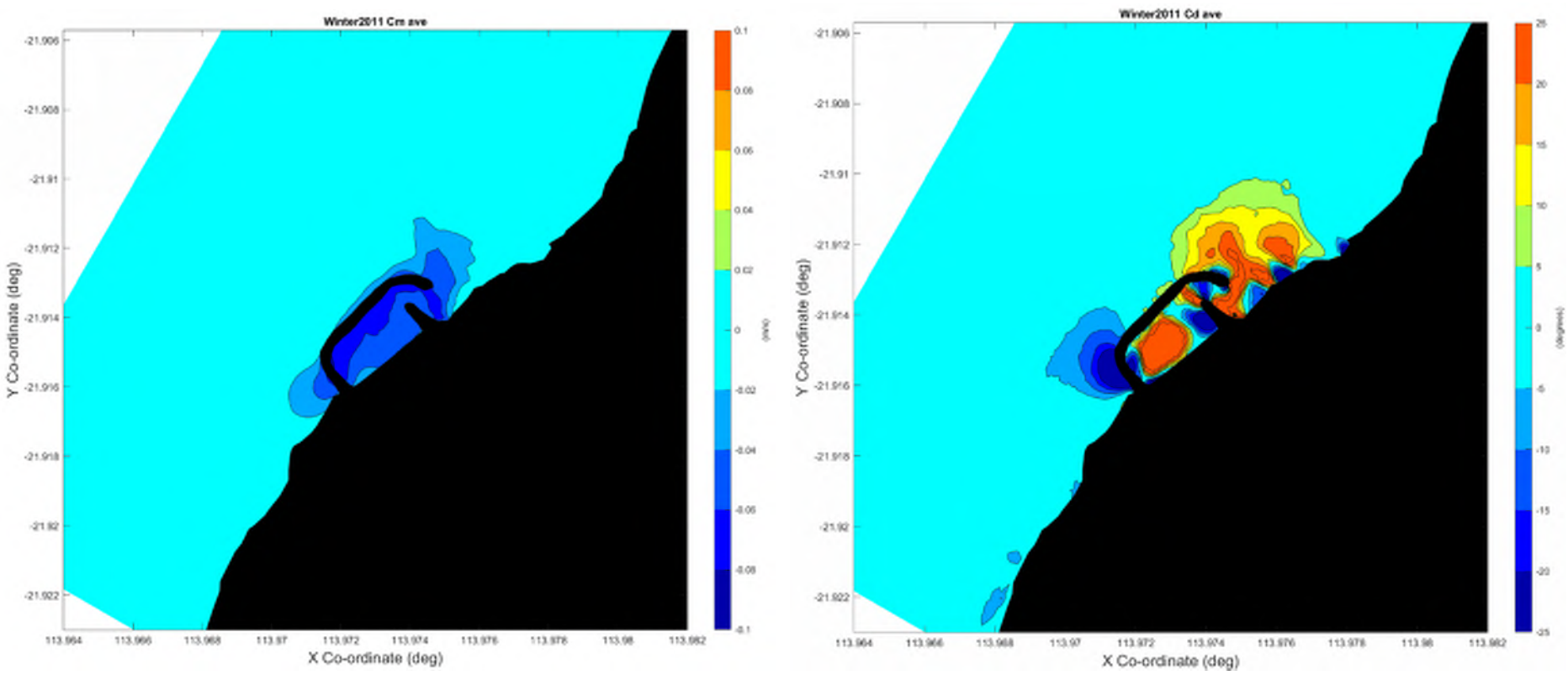


Figure 5.13 Spatial Difference Plots for Typical Winter (2011) – Post Development Minus Pre Development, Current Speed (left) & Current Direction (right)

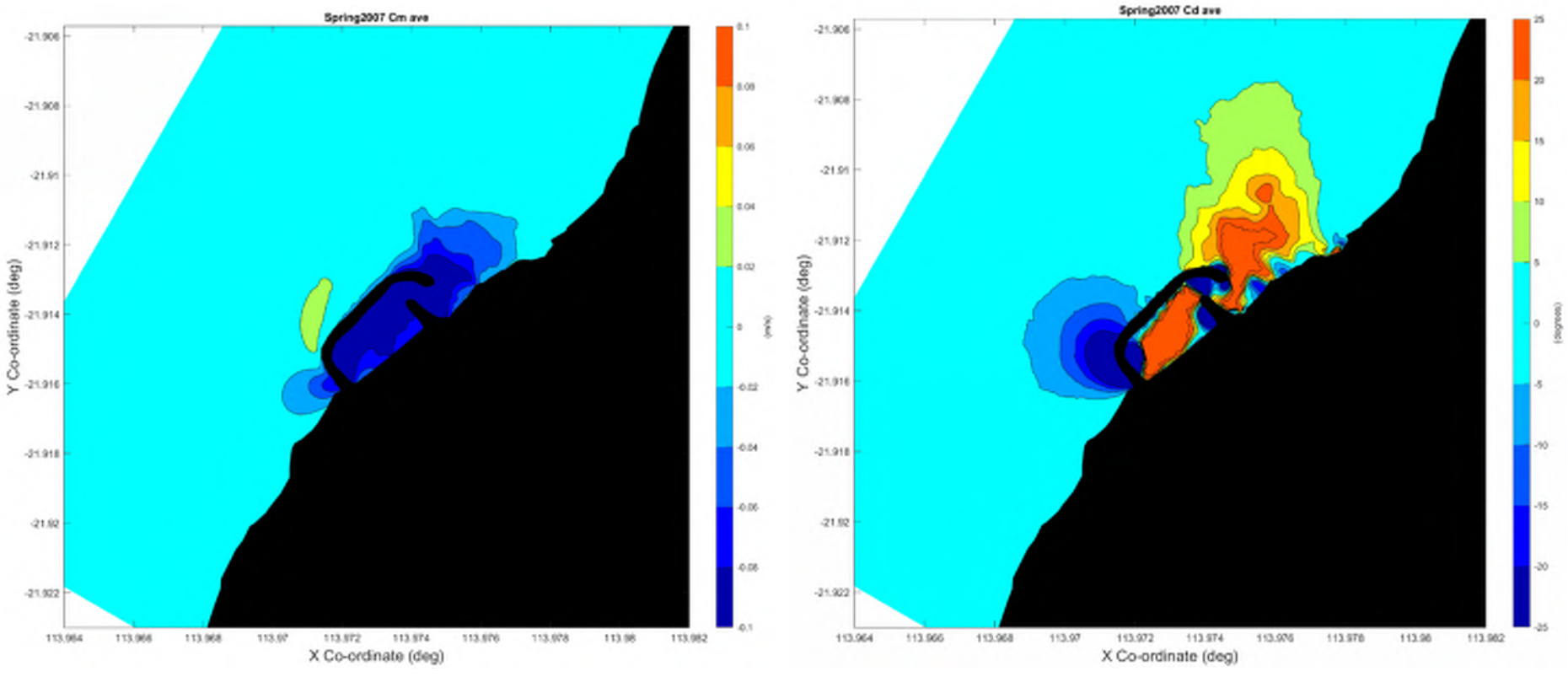


Figure 5.14 Spatial Difference Plots for Typical Spring (2007) – Post Development Minus Pre Development, Current Speed (left) & Current Direction (right)

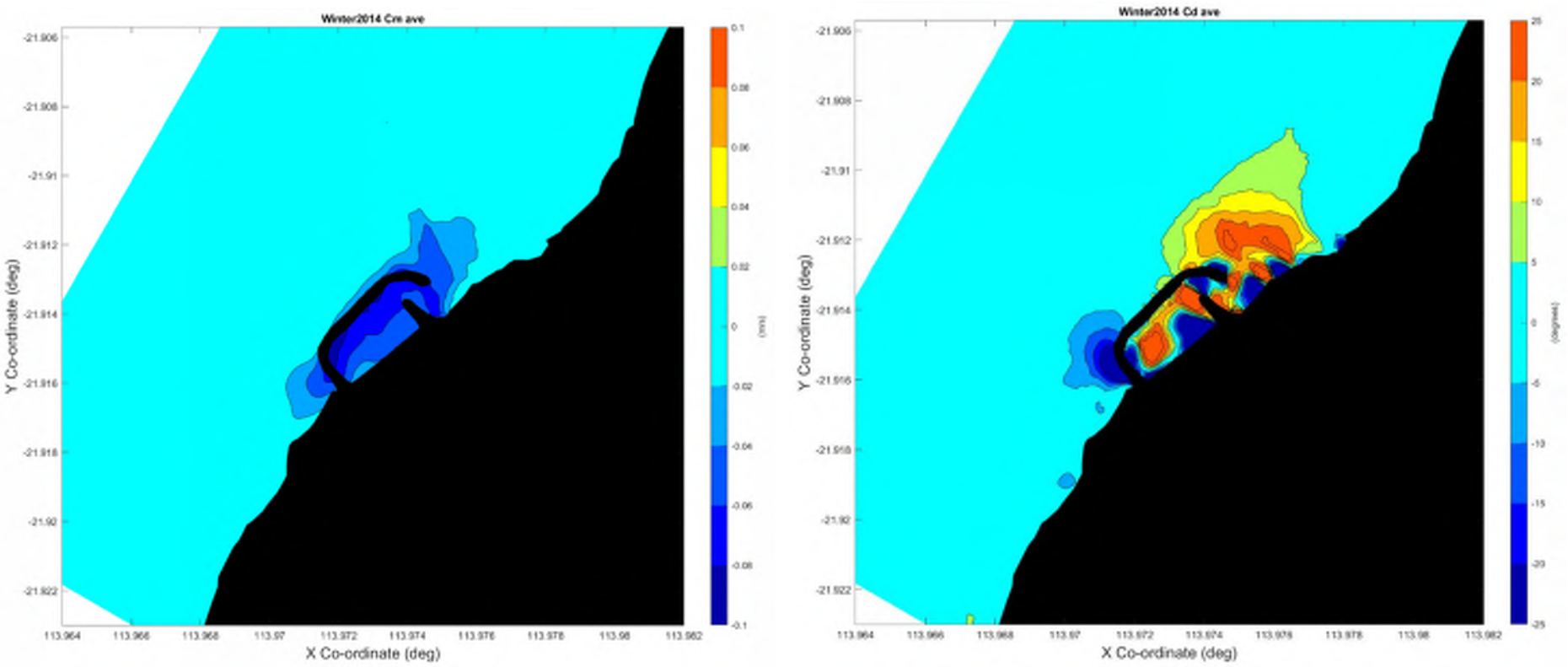


Figure 5.15 Spatial Difference Plots for Abnormal Winter (2014) – Post Development Minus Pre Development, Current Speed (left) & Current Direction (right)

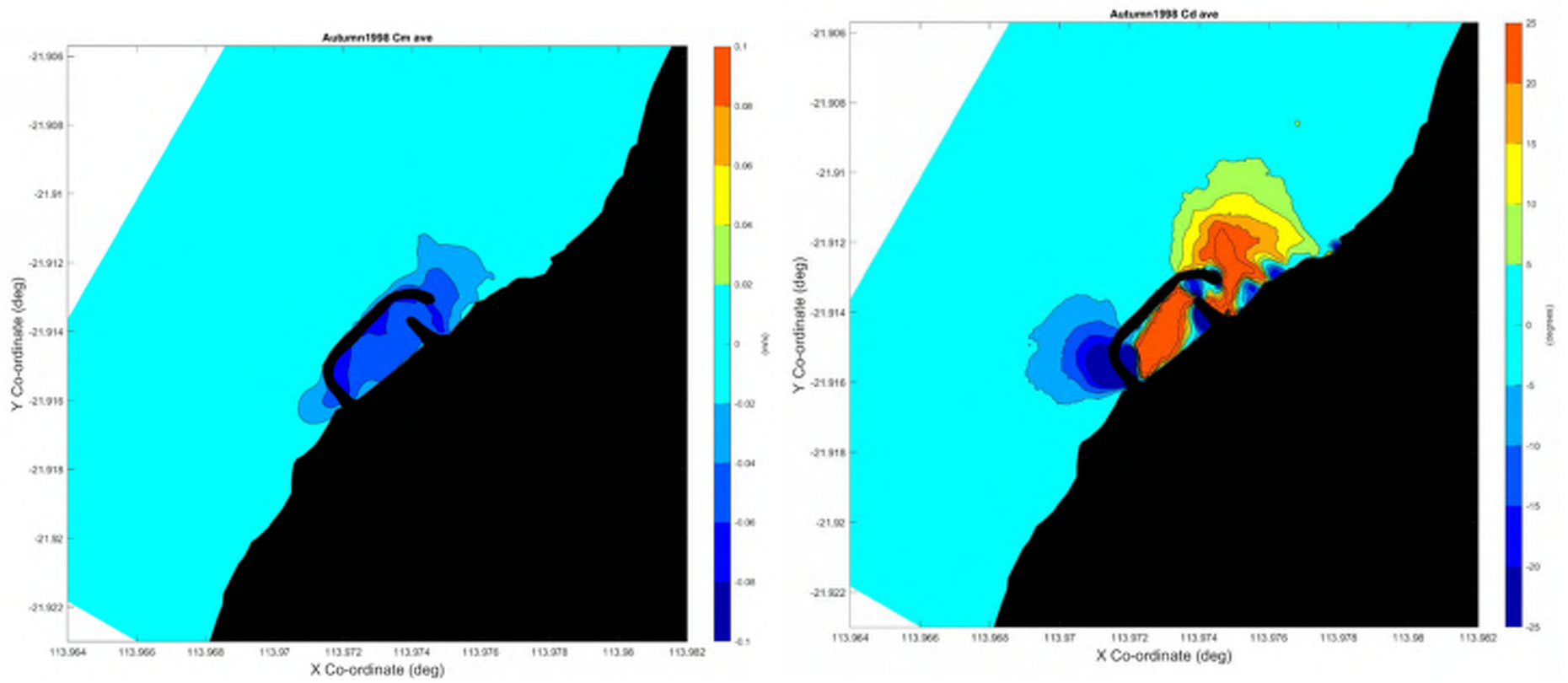


Figure 5.16 Spatial Difference Plots for Abnormal Spring (1998) – Post Development Minus Pre Development, Current Speed (left) & Current Direction (right)

The time average spatial plots along with the time history plots (presented in Appendix A) yields similar results to those presented in the key event plots. Observable impacts to currents dynamics (approx. -0.02 to -0.1 m/s) extend around 500 m either side of the facility. Beyond this, impacts to currents are negligible.

The key observations from the spatial plots are summarised below.

- The introduction of the TBF causes a large reduction in the current magnitudes inside the breakwaters and a few hundred metres to the north and south of the facility. Beyond this, changes to current magnitudes are negligible.

- Changes to current directions extend further than changes to current magnitudes with observable changes present up to approximately 500 m from the proposed facility.

- Changes to the current dynamics likely arise from a combination of the training of flow around the facility and wave shadowing reducing wave generated currents in the lee of the breakwaters. Both of these factors reduce currents immediately adjacent to the facility. The training of flow around the facility also results in a small increase in currents slightly offshore from the southern breakwater during periods dominated by southerly conditions.

Overall, the outcomes of the assessment are reasonably intuitive and expected. At the site, waves are the key driver of sediment transport. Changes to the current dynamics outlined above are unlikely to have any impact to the operation of the facility beyond those impacts already established through the wave modelling assessment presented in Task 5 (MRA 2022a).

5.1.2 Flushing Study

Flushing is a measure of the rate of renewal of waters within a defined water body. A water body that is efficiently flushed experiences a turnover in water that results in local water quality very near that of the adjacent source water. Assuming that the source water quality meets environmental and aesthetic standards, efficient flushing generally indicates that the adjacent water body will also meet those standards (RPS 2017).

The calibrated hydrodynamics model was configured for the purposes of the flushing study and then utilised to simulate representative periods. Groundwater discharges are an important consideration for flushing and water quality. As discussed in Section 3.3.1, average groundwater discharge flows at the site were established by Rockwater (2021).

A total of 8 scenarios were simulated to enable assessment of flushing and water quality. The four typical representative periods were each simulated once with groundwater discharge. These periods are intended to show the likely flushing conditions within the proposed TBF across a typical year. The Autumn (2013) and Spring (2007) were then simulated with no groundwater discharge flows. These are intended to consider the most conservative flushing cases. Additionally, the Autumn 1998 period was also modelled with and without groundwater as this period was specifically selected for modelling of flushing due to its sustained low wind speeds. A summary of the modelled cases is provided in Table 5.2.

Table 5.2 Modelled Cases

Season	Including Groundwater Input	No Groundwater Input
	Case I	Case II
Autumn 2013	✓	✓
Winter 2011	✓	
Spring 2007	✓	✓
Summer 2016	✓	
Autumn 1998	✓	✓

Time varying outputs from the four locations shown in Figure 5.15 within the proposed TBF were analysed in further detail to allow assessment of tracer concentrations throughout the facility over the duration of the simulation. Time history plots of tracer concentrations for each of these locations over the first week of each modelled period are shown in Figures 5.16 to 5.23. Figure 5.24 shows a spatially varying comparison of the impact of groundwater discharge on flushing during Autumn 1998. This period was selected for the comparison because it was the calmest of the identified representative periods.

Figure 5.17 Locations used to Track Change in Tracer Concentration

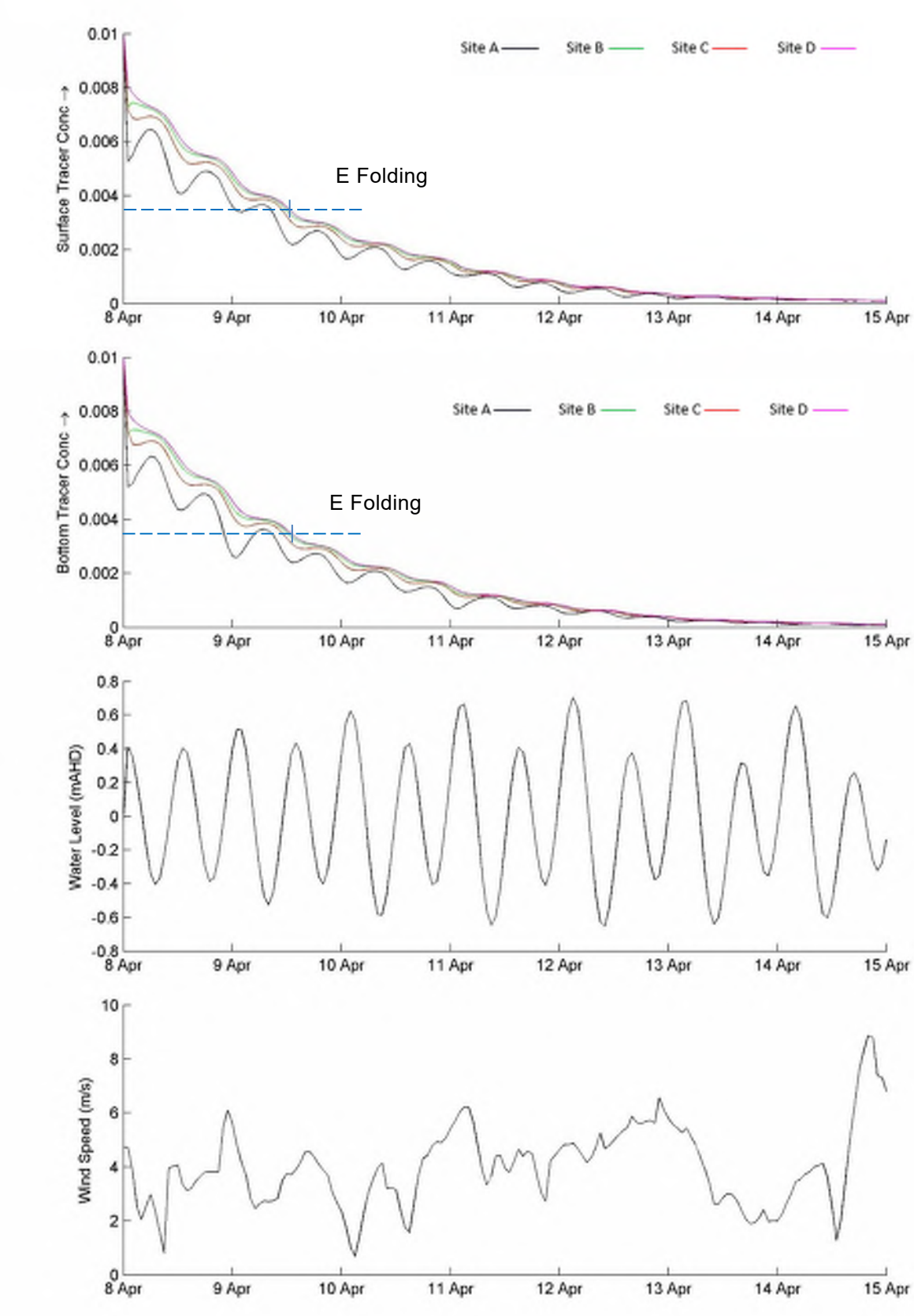


Figure 5.18 Tracer Concentration Change for Period within Autumn 2013 (Case I)

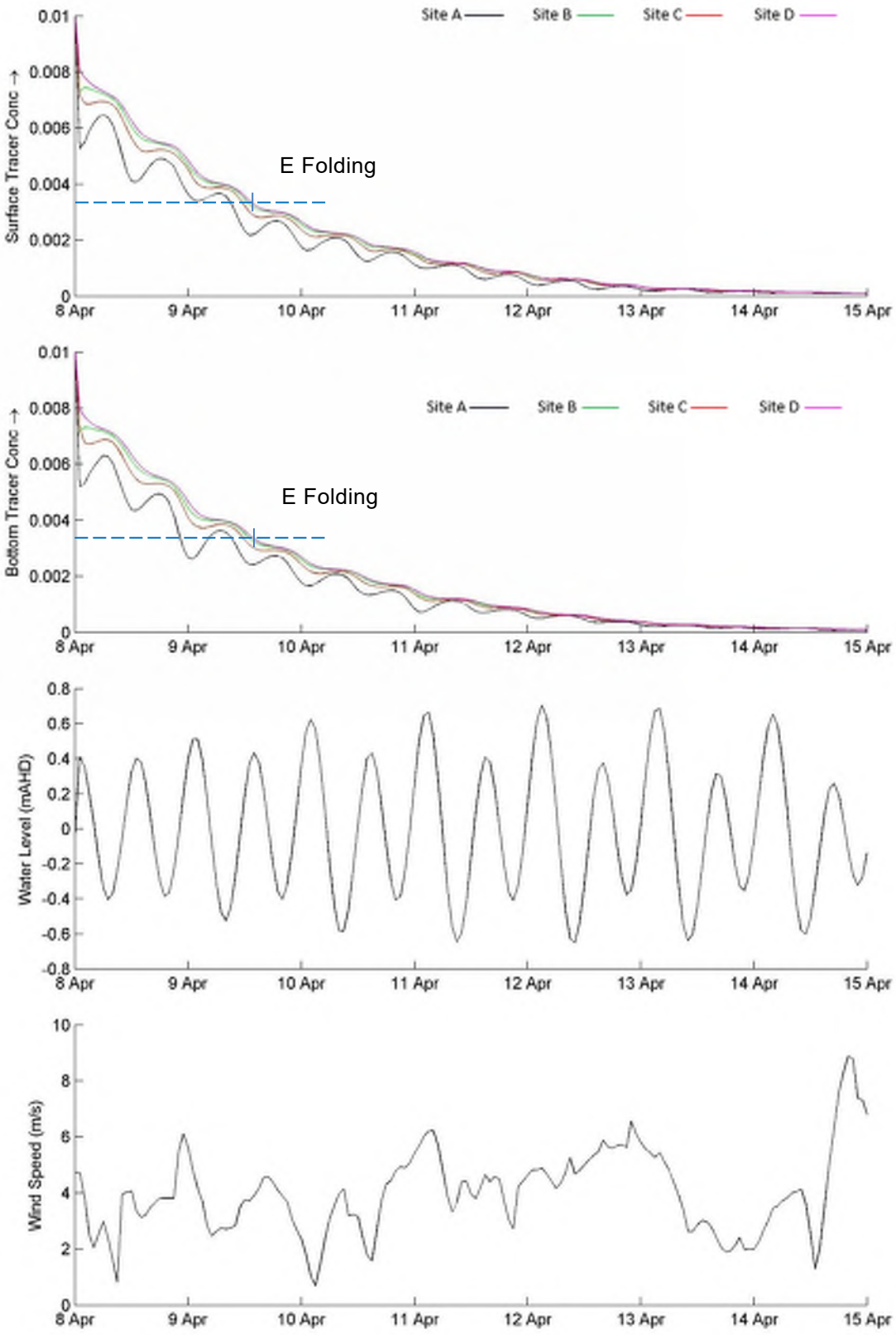


Figure 5.19 Tracer Concentration Change for Period within Autumn 2013 without Groundwater Input (Case II)

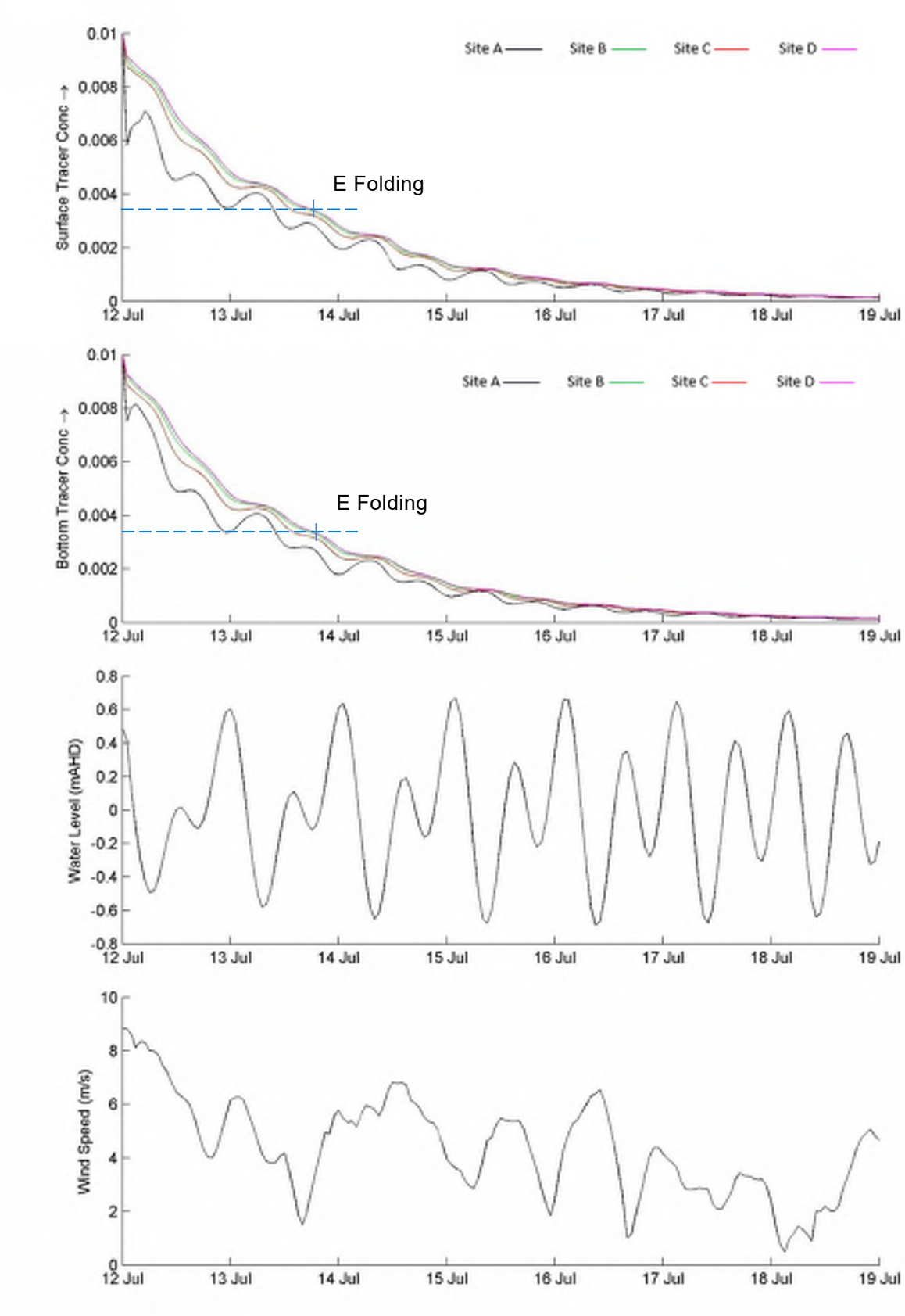


Figure 5.20 Tracer Concentration Change for Period within Winter 2011 (Case I)

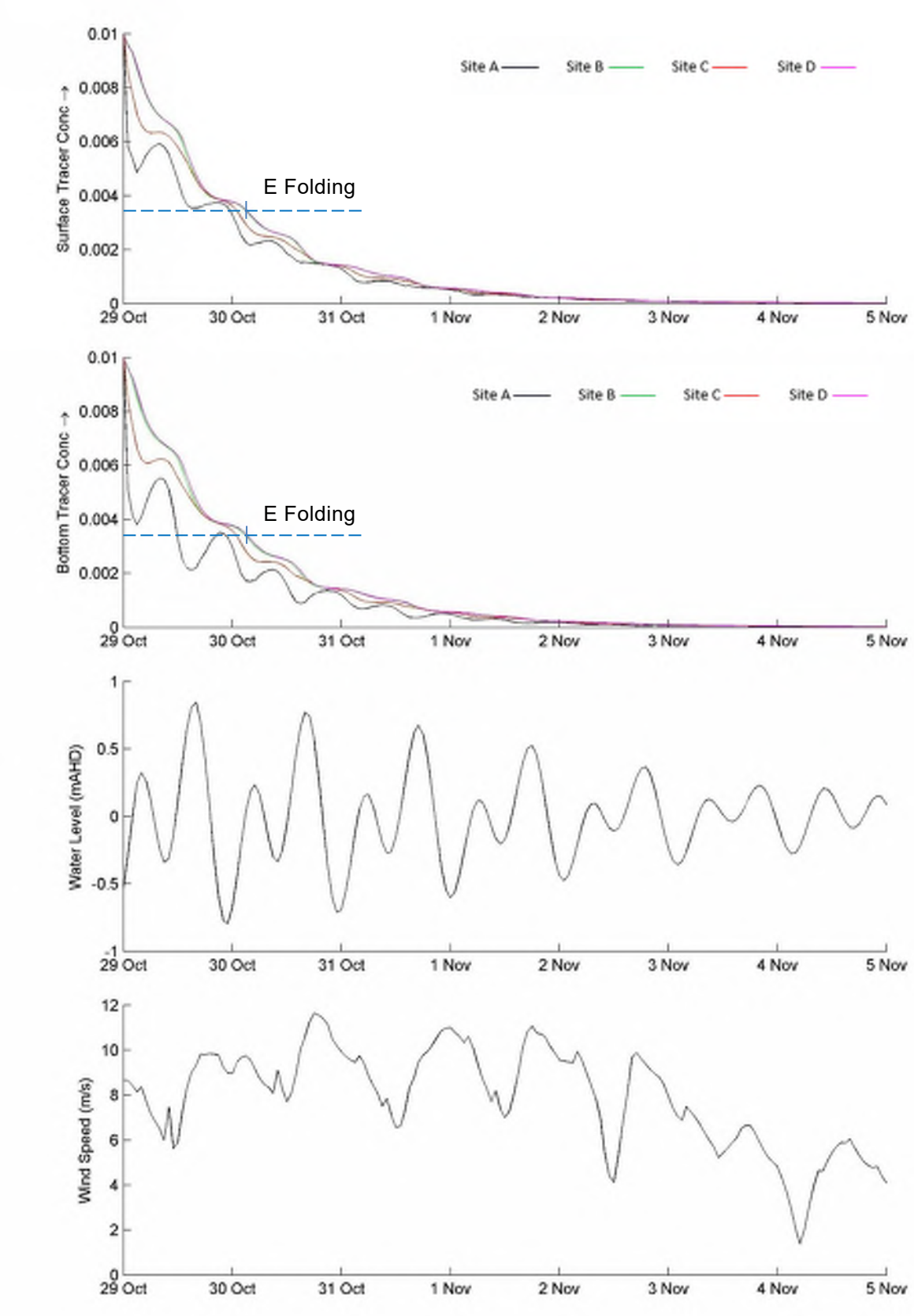


Figure 5.21 Tracer Concentration Change for Period within Spring 2007 (Case I)

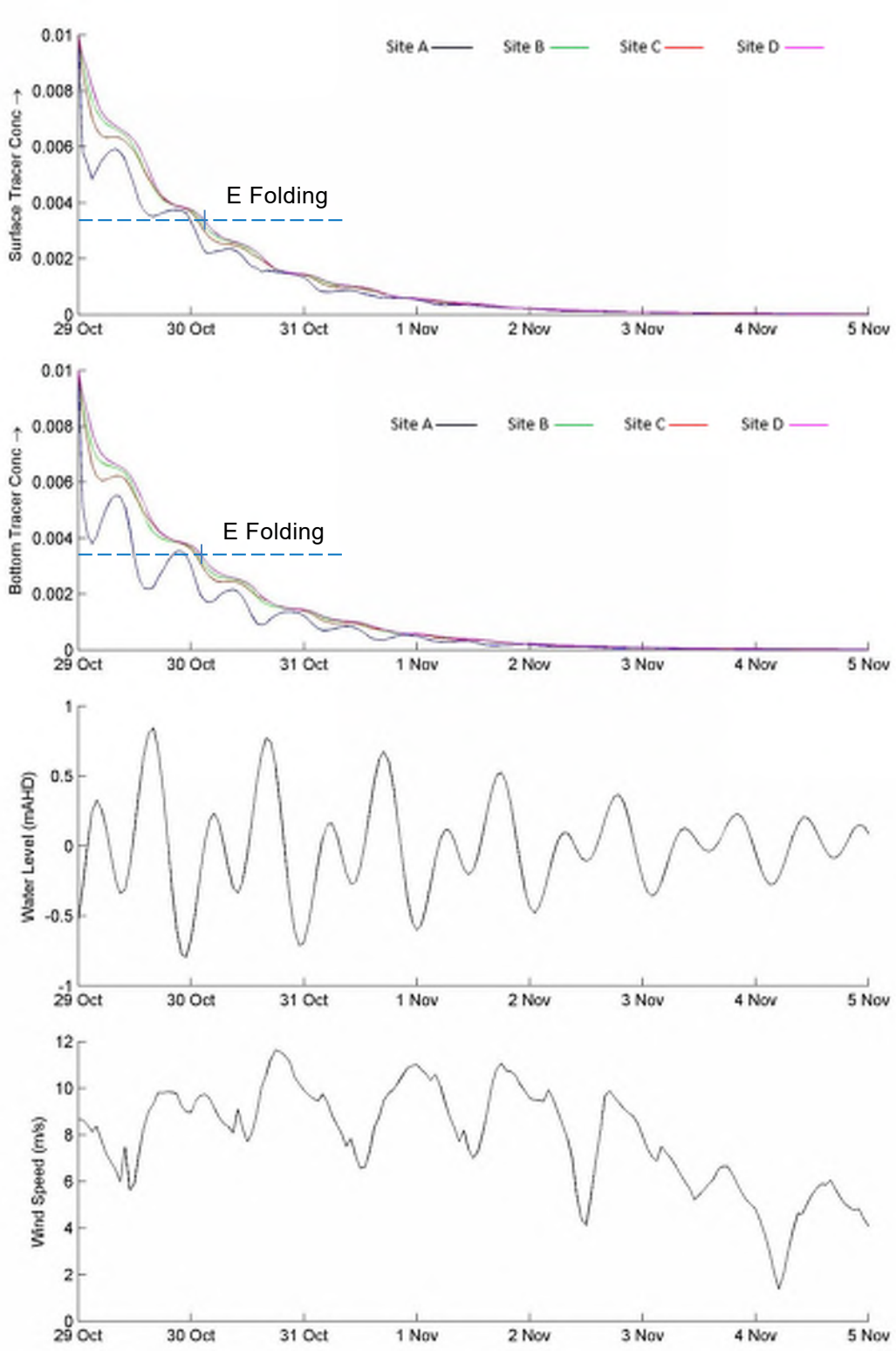


Figure 5.22 Tracer Concentration Change for Period within Spring 2007 without Groundwater Input (Case II)

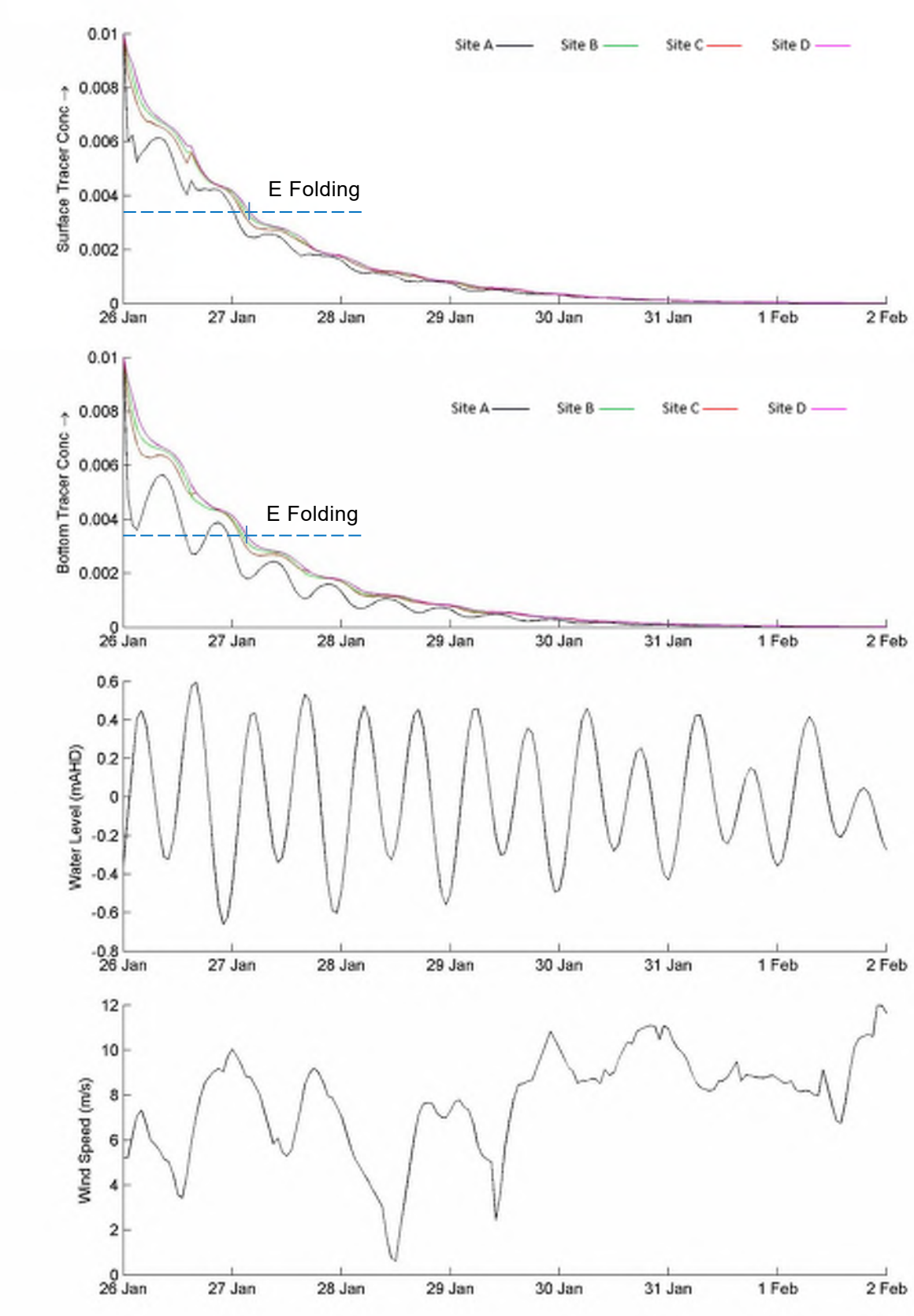


Figure 5.23 Tracer Concentration Change for Period within Summer 2016 (Case I)

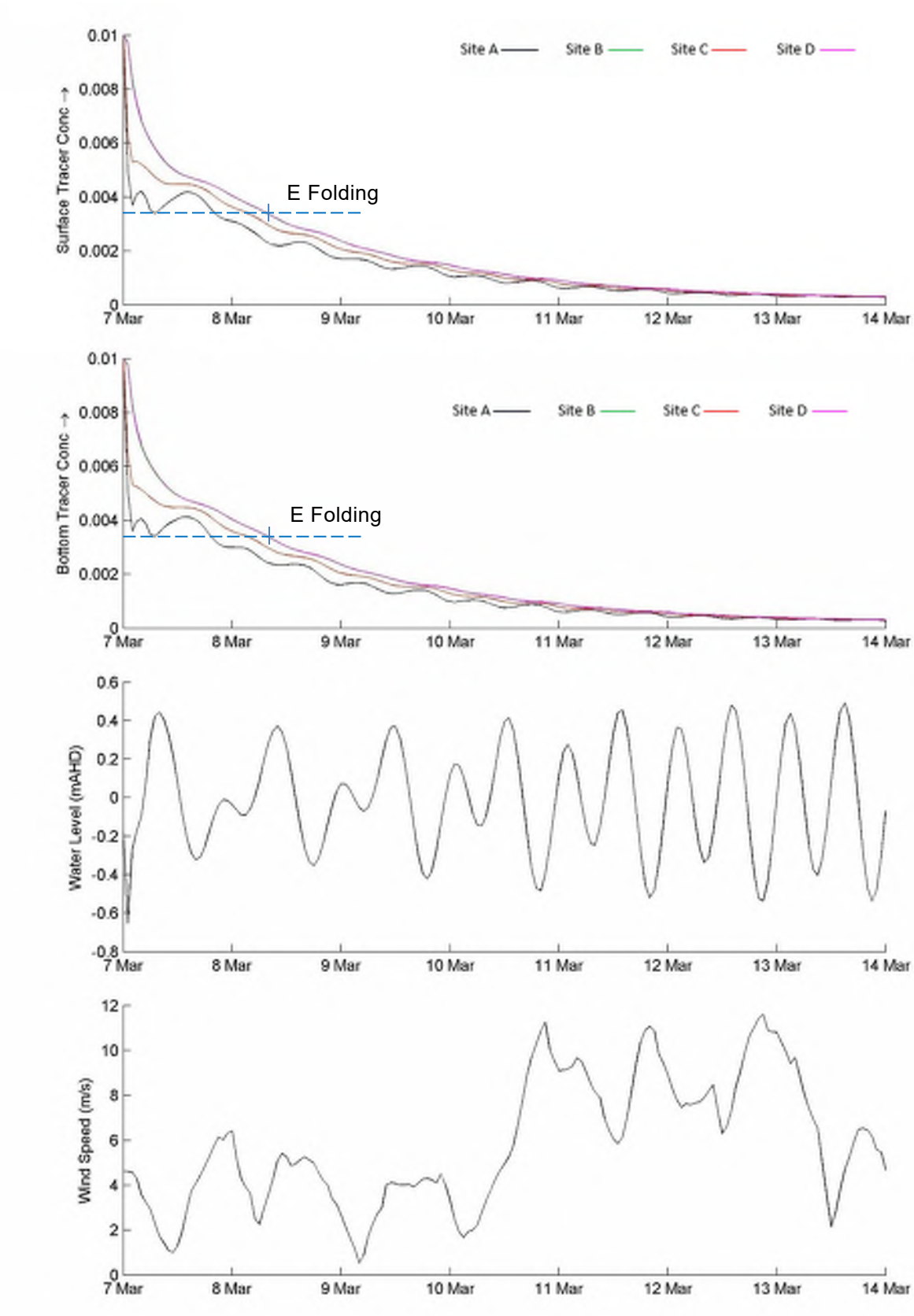


Figure 5.24 Tracer Concentration Change for Period within Autumn 1998 (Case I)

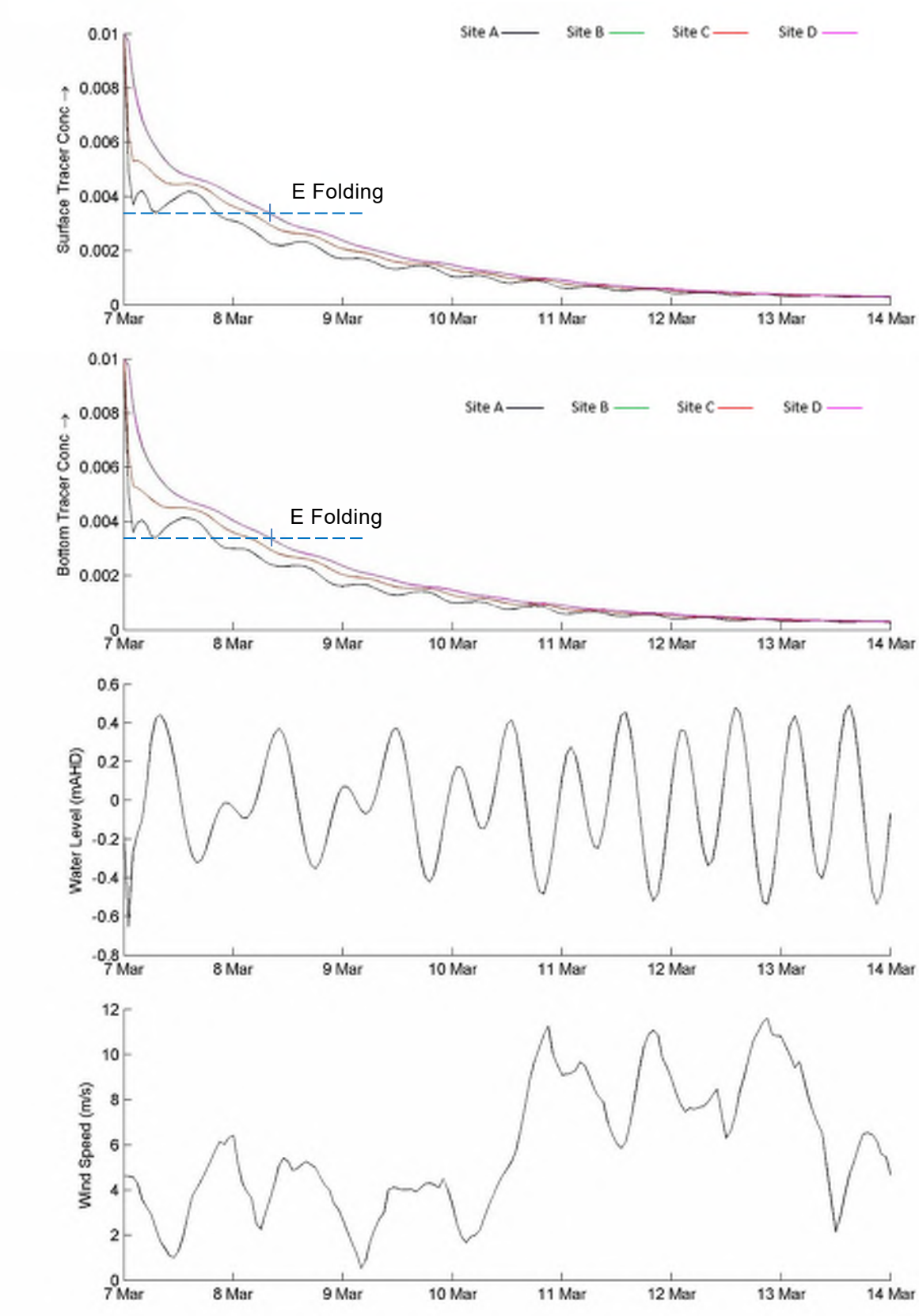


Figure 5.25 Tracer Concentration Change for Period within Autumn 1998 without Groundwater Input (Case II)

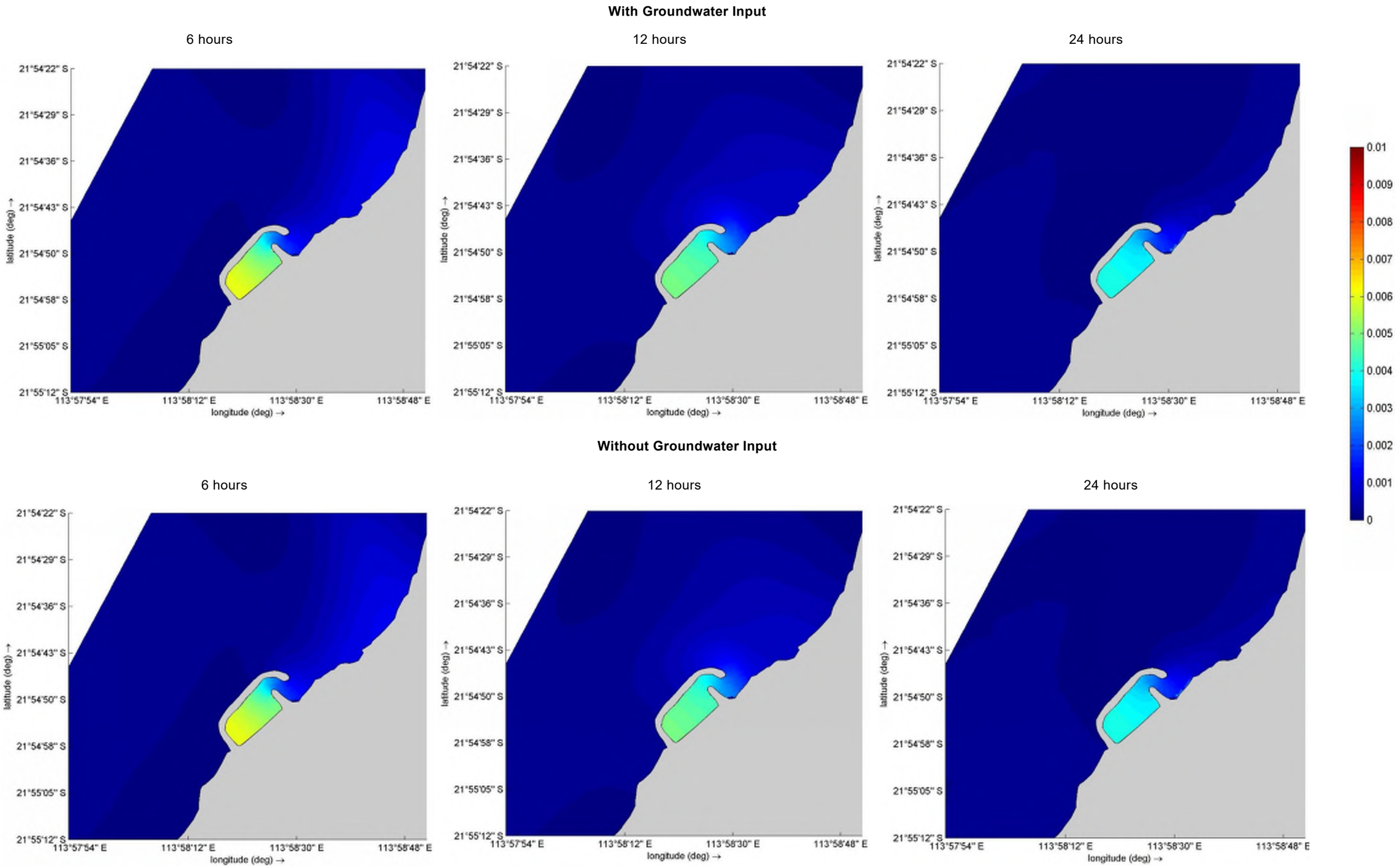


Figure 5.26 Tracer Concentration following Initial Release in Autumn 1998 Simulation with & without Groundwater Input

The presented plots illustrate that flushing within the TBF is unlikely to be of concern. The maximum time taken for the tracer to dilute below the e-folding level (~37%) is shown for each location and for each scenario in Table 5.3. The maximum e-folding time at any site in any of the scenarios was approximately 1.7 days.

Predictably, the Site with the shortest e-folding time was Site A, located at the entrance of the facility. This is followed by Site C which is marginally shorter than Sites B and D which have approximately the same e-folding times.

There was close to negligible variation in e-folding times between the surface and bottom at all sites except Site A. At Site A, located at the entrance of the facility, the e-folding times at the bottom of the water column were faster than the surface. The results also show negligible impact of groundwater flows on the e-folding times, likely due to their inherently low values.

The e-folding times can be put into context with measurements undertaken at Hillary's Marina (Schwartz and Imberger 1988). Based on measurements made in the months of April and May 1987, during a period when winds speeds were up to 12 m/s, the flushing time for Hillarys Marina was calculated to be 5 days. This is far greater than the longest e-folding times predicted for the TBF which were based on a wider sample of weather conditions. Further context can be provided by review against modelling undertaken for Ocean Reef Marina (RPS 2017). E-folding times predicted for this facility across a range of weather conditions varied from approximately 3 to 7 days. These times are also longer than the e-folding durations predicted for the TBF.

Based on this assessment, flushing of the proposed TBF is likely to be equal to or better than comparable facilities in Western Australia.

Table 5.3 Summary of e-folding times for a conservative tracer released instantaneously throughout the volume of the proposed TBF

Site	Elevation	Scenario & E-folding Time in Days							
		Summer 2016	Autumn 2013	Autumn 2013	Winter 2011	Spring 2007	Spring 2007	Autumn 1998	Autumn 1998
		Case I	Case I	Case II	Case I	Case I	Case II	Case I	Case II
A	Surface	1.00	1.00	1.00	0.92	0.58	0.63	0.08	0.08
	Bottom	0.13	0.92	0.92	0.88	0.50	0.50	0.08	0.08
B	Surface	1.17	1.54	1.54	1.67	1.04	1.08	1.17	1.17
	Bottom	1.13	1.54	1.54	1.67	1.04	1.08	1.21	1.21
C	Surface	1.08	1.42	1.42	1.50	1.00	1.00	1.00	1.00
	Bottom	1.04	1.42	1.42	1.50	1.00	1.00	0.96	0.96
D	Surface	1.17	1.54	1.54	1.71	1.08	1.08	1.21	1.21
	Bottom	1.17	1.54	1.54	1.71	1.08	1.08	1.21	1.21

Notes: 1. Site Locations are shown in Figure 5.11.
2. Case I refers to with groundwater input. Case II refers to case without groundwater input.

5.2 Concept C

5.2.1 Current Dynamics

The previously calibrated hydrodynamic model was used to simulate the selected periods for a "typical year" including the new Concept C for the proposed TBF. This simulation was then used to directly compare the wave climate in the area surrounding the proposed TBF. As a first pass review of the differences, time history plots of wave conditions were prepared for each of the locations shown in Figure 5.27. The full time history plots have been included in Appendix C.

Figure 5.27 Locations used to Review Differences in Hydrodynamics (Concept C)

As expected, the time history plots show relatively small differences between the conditions at some locations and larger differences at other locations. A summary of the findings from the review of the time history plots for Concept C is provided in Table 5.4.

Table 5.4 Summary of Differences in Hydrodynamic Conditions at Each Output Location (Concept C)

Location	Importance of Selection of Location	Observations
1	Assessment of potential current induced changes on the beach area to the south	Reductions in current magnitudes of typically around 50% are observed. The most significant reductions in current speeds are observed during winter, particularly during storms. Changes to current directions are observed. Where current directions were typically alongshore, they now trend cross shore, likely due to water being forced around the facility.
2	Assessment of potential current induced changes immediately offshore from the facility	Very minor changes to current magnitudes. Small consistent rotation of currents counter clockwise.
3	Assessment of any current changes in the channel adjacent to the breakwaters (to review potential navigation issues)	Significant reductions of current magnitudes are observed. Outside of winter storms, currents are reduced to almost zero. A clockwise rotation of current directions is observed across all periods.
4	Assessment of any current changes within the approach channel	Very minor changes in current magnitudes and directions are observed
5	Assessment of potential current induced changes on the beach area in the lee of the entrance	Significant reductions in current magnitudes are observed. Outside of winter storms, currents are reduced to almost zero. During northerly conditions this reduction is less significant. A clockwise rotation of current directions is generally observed.
6	Assessment of potential current induced changes on the beach area to the north as a result of the facility and channel	Very minor changes in current magnitudes and directions are observed.

Similar to Concept B, the hydrodynamic conditions closer to the facility show a greater extent of difference than the sites further afield largely attributable to the extent of shadowing provided by the facility against different directions. To better illustrate the extent of differences across different wave conditions for Concept C, spatial plots have been prepared for the same key events as assessed in Section 5.1.1 for Concept B. The spatial plots for Concept B have been provided

again to allow for easy comparison of the differences between the two designs. It is noted that due to time constraints the wave, hydrodynamic and morphological modelling were completed concurrently. As such there may be small differences between the Concept C modelling and that which was completed previously due to the changes in the bathymetry from sediment movement. Whilst this can result in minor differences in the plots of the current magnitudes and directions the larger scale changes are what is of interest.

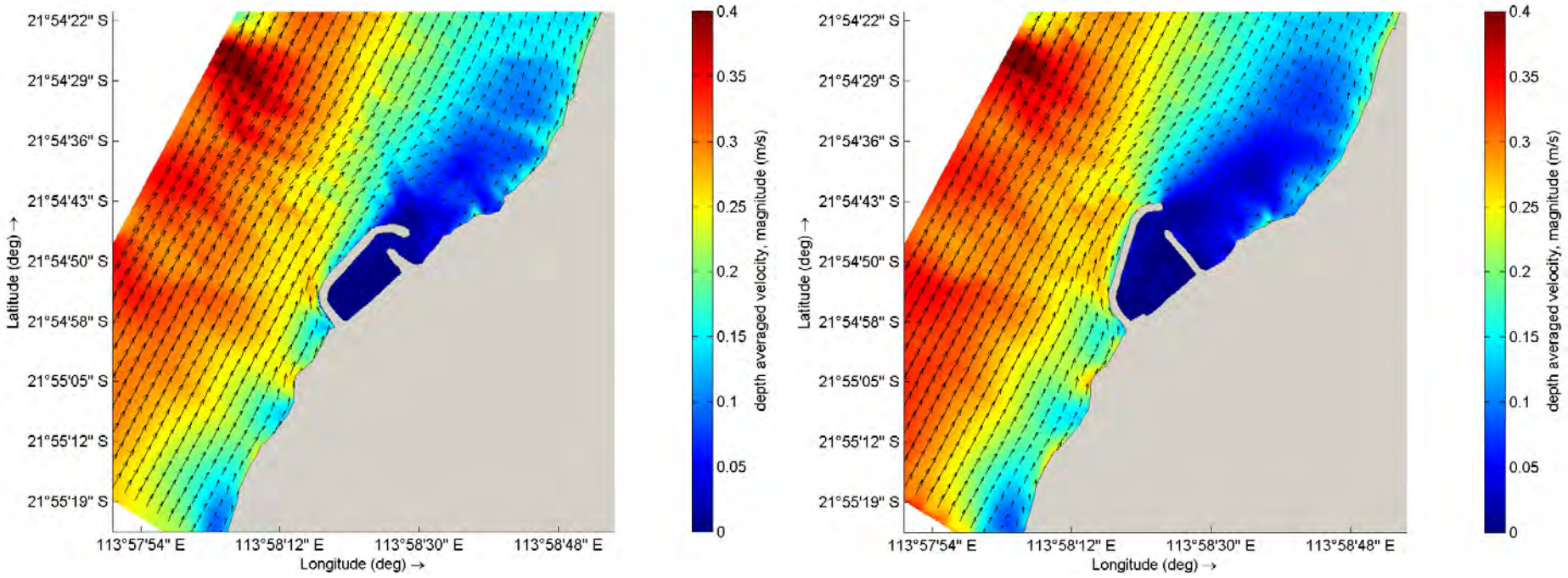


Figure 5.28 Spatial Plots for Typical Summer Sea Breeze Event for Concept B (left) & Concept C (right)

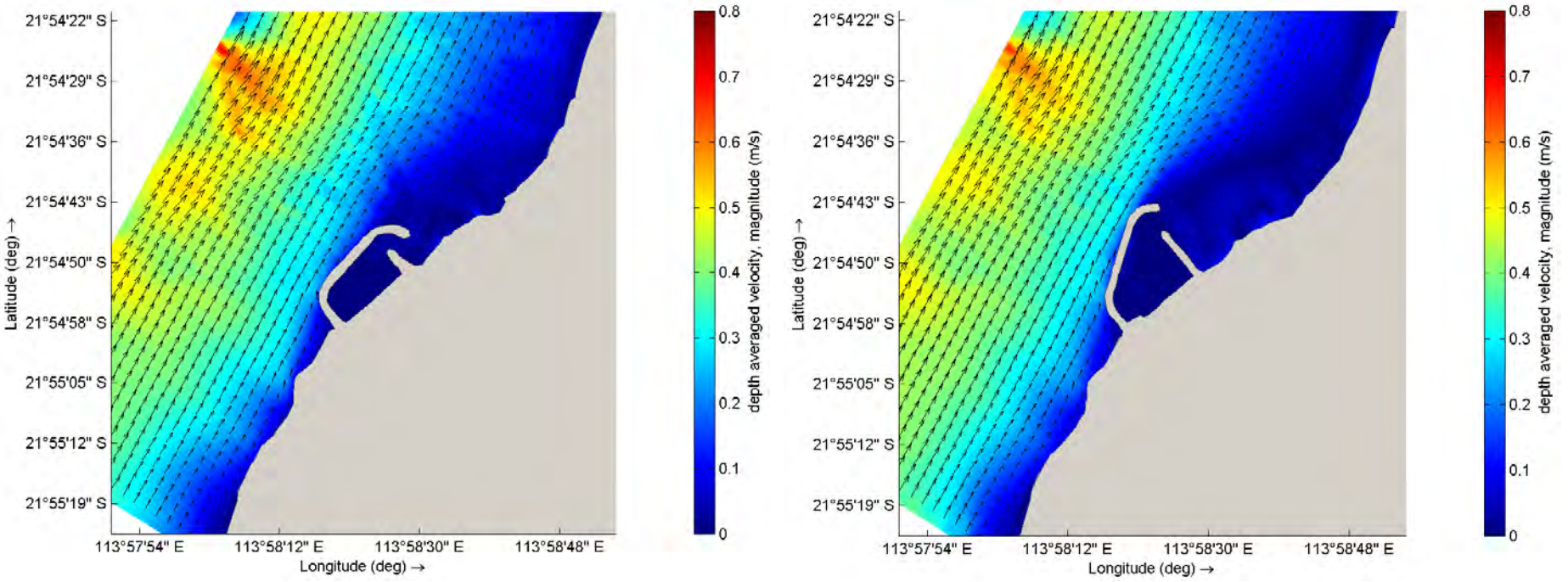


Figure 5.29 Spatial Plots for Typical Swell Event for Concept B (left) & Concept C (right)

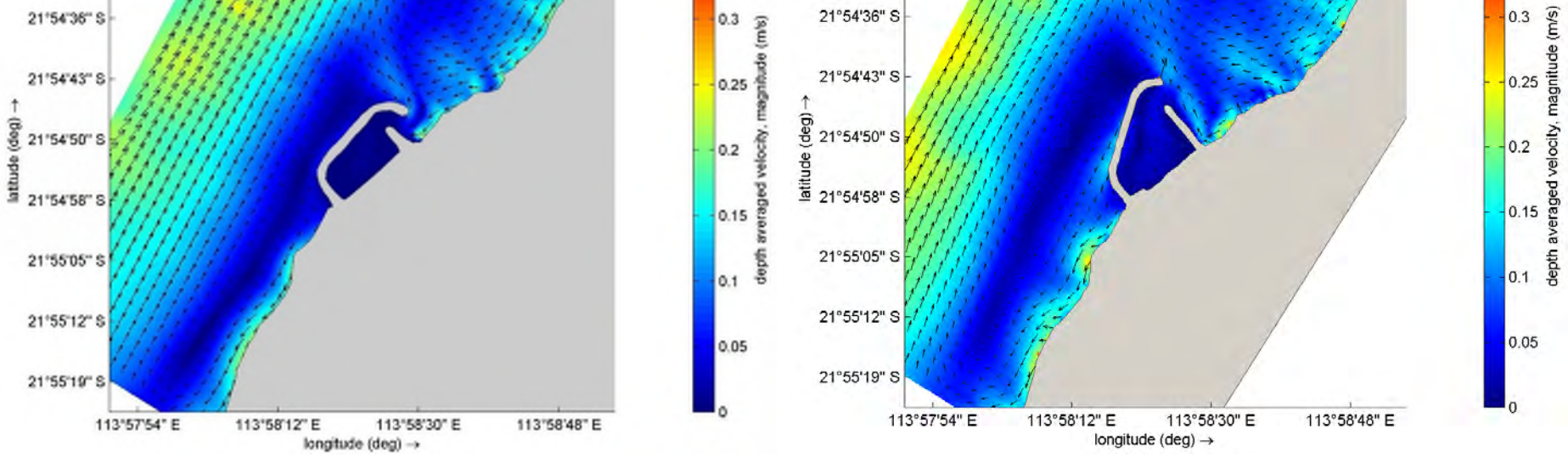


Figure 5.30 Spatial Plots for Typical Swell Event for Concept B (left) & Concept C (right)

Reviewing the results of the sea breeze event shows that, similar to Concept B, the current conditions are changed in the areas to the north of the proposed TBF. There appears to be a greater area of sheltering to the north of Concept C due to the placement of the southern breakwater further offshore. Similar to Concept B the reduction in current magnitudes to the north of the TBF was in the order of 0.1-0.2 m/s. To the south of the TBF the currents are being trained around the proposed breakwaters in both scenarios.

The spatial plots for the swell event show that the Concept C configuration of the proposed TBF has a similar impact on the local current climate as Concept B. The main difference for the swell event is the increase in the area of sheltering. Similar to the sea breeze event , this results in significant reductions in current magnitudes directly to the north of the proposed facility.

During the storm event the introduction of the Concept C layout acts to interrupt the nearshore current similar to Concept B. However for Concept C the boundary layer between the two currents seems to have been pushed further offshore due to the placement of the southern breakwater further offshore. This has resulted in the southerly nearshore current re-establishing much closer to the southern breakwater of Concept C than is observed for Concept B. This may have implications for sediment transport in this area. This will be explored further in the morphological modelling (R1598, MRA 2022c)

In addition to the plots for key events, average difference plots have been prepared over the entire duration of the each of the representative periods and are presented in Figures 5.31 to 5.34.

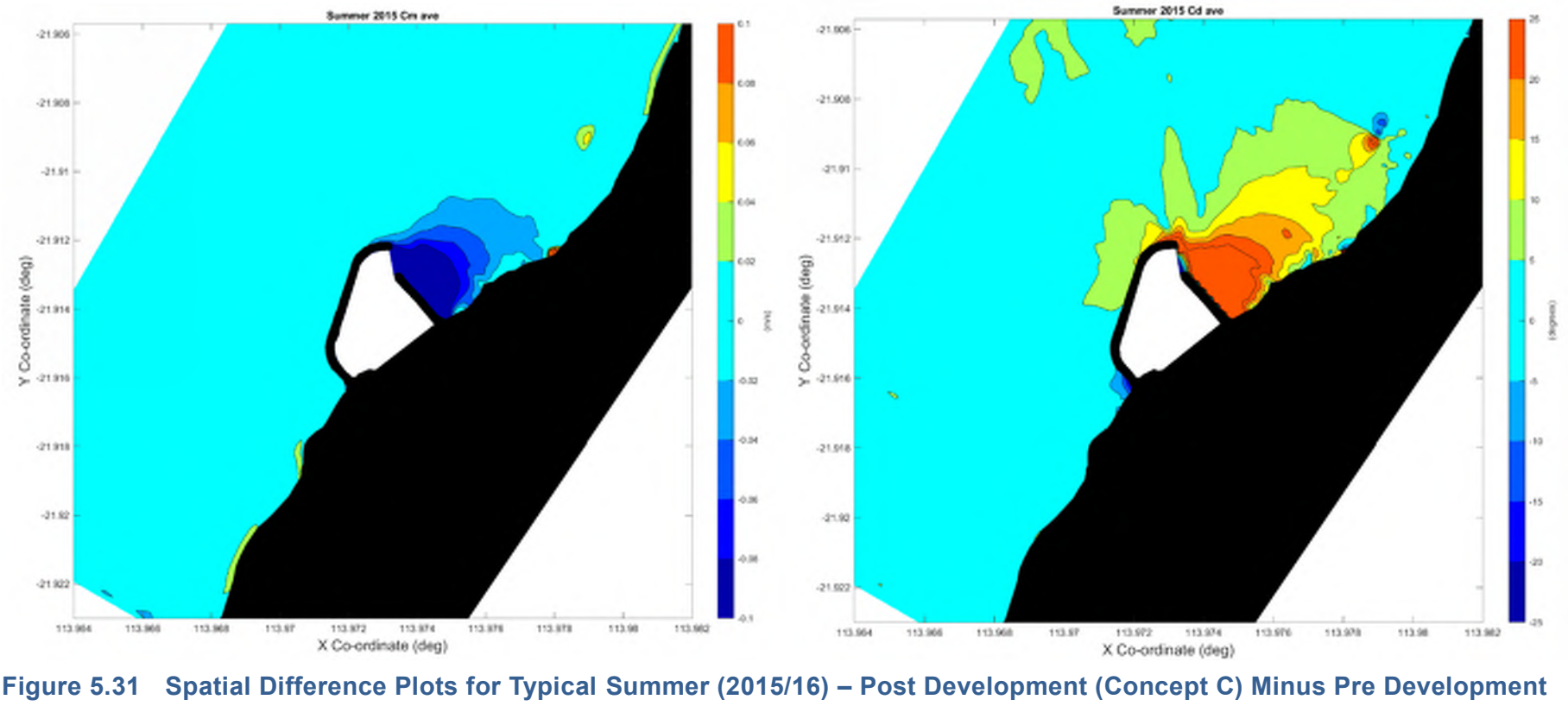


Figure 5.31 Spatial Difference Plots for Typical Summer (2015/16) – Post Development (Concept C) Minus Pre Development

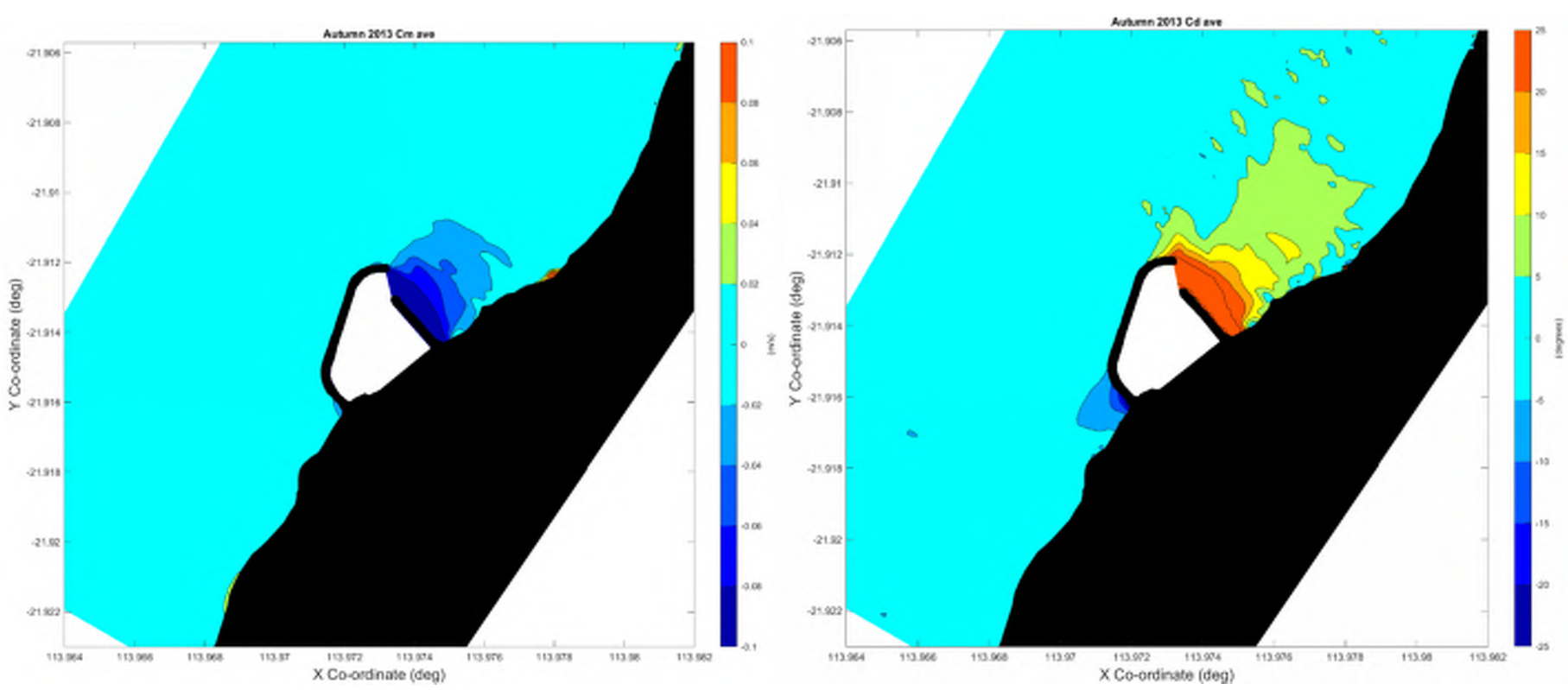


Figure 5.32 Spatial Difference Plots for Typical Autumn (2013) – Post Development (Concept C) Minus Pre Development

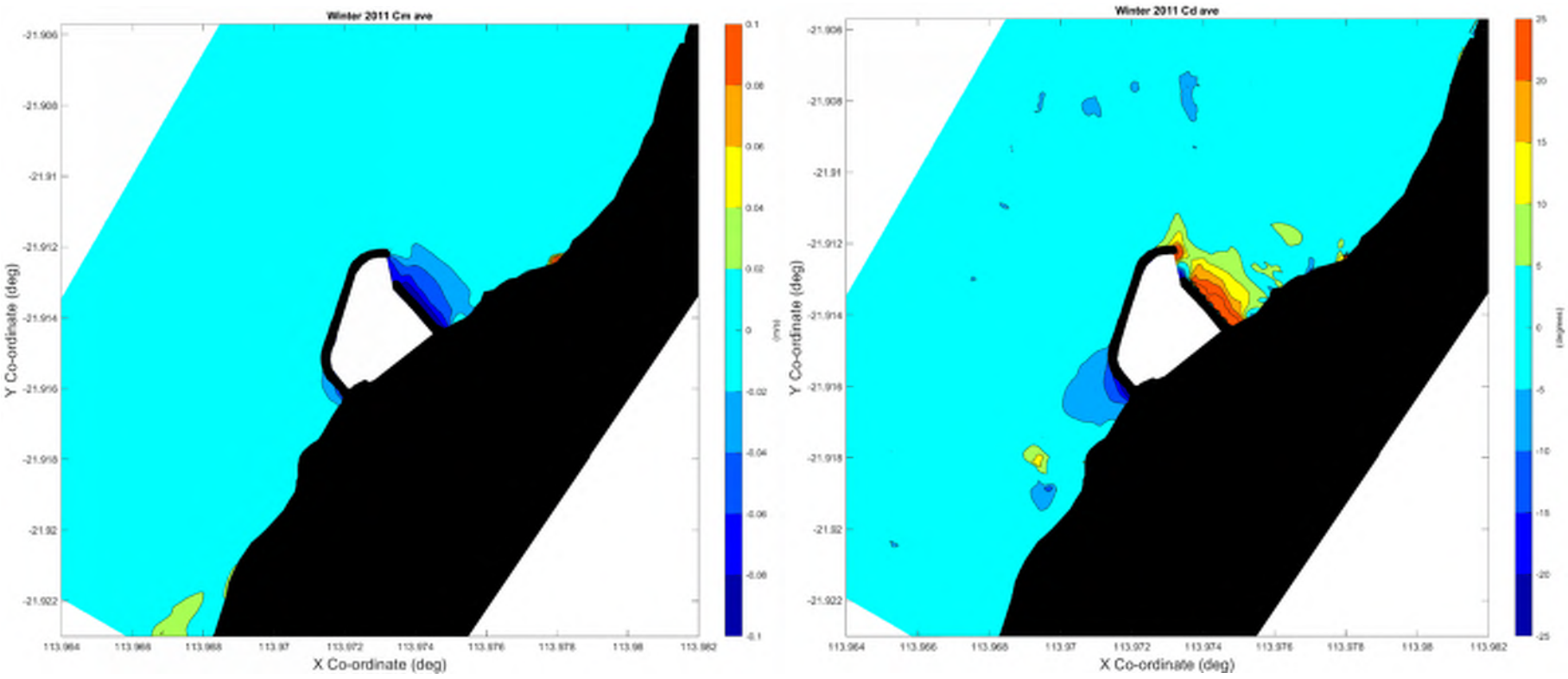


Figure 5.33 Spatial Difference Plots for Typical Winter (2011) – Post Development (Concept C) Minus Pre Development

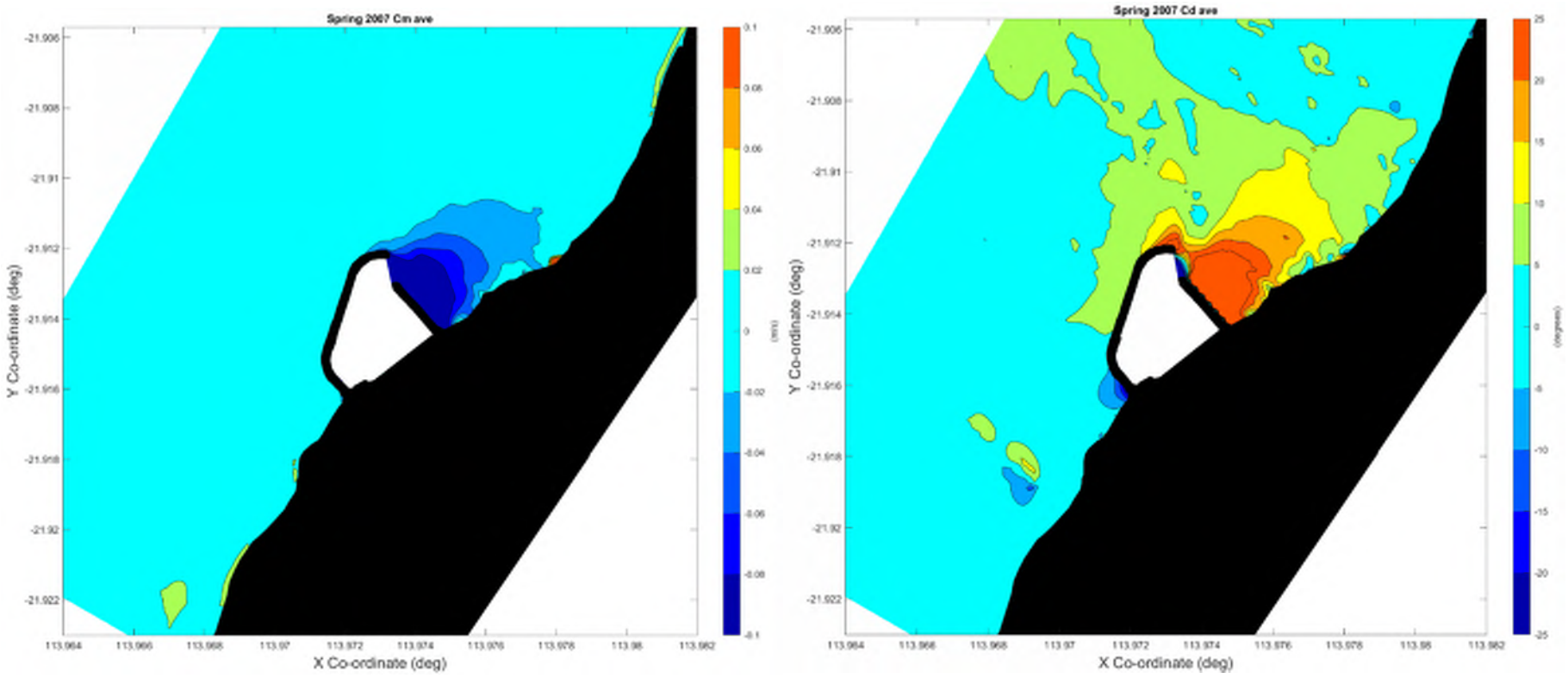


Figure 5.34 Spatial Difference Plots for Typical Spring (2007) – Post Development (Concept C) Minus Pre Development

The time average spatial plots along with the time history plots (presented in Appendix C) yields similar results to those presented in the key event plots. Observable impacts to current dynamics (approx.. -0.02 to -0.1 m/s) extends around 500 m to the north of the facility and around 100 m to the south of the facility. Beyond this, impacts to currents are negligible.

The key observations from the spatial plots are summarised below.

- The introduction of the TBF causes a large reduction in the current magnitude a few hundred metres to the north and south of the facility. There appears to be a slight increase in the extent of the reduction area to the north of the facility compared to Concept B.

- Changes to current directions extend further than changes to current magnitudes with observable changes present up to approximately 500 m from the proposed facility.

- Changes to the current dynamics likely arise from a combination of the training of flow around the facility and wave shadowing reducing wave generated currents in the lee of the breakwaters. Both of these factors reduce currents immediately adjacent to the facility. Unlike Concept B the training of the flow around the southern breakwater does not appear to result in an increase in current magnitude in this area.

Overall, the outcomes of the revised modelling for the Concept C layout of the proposed TBF are reasonably intuitive and expected. As previously discussed for Concept B the changes to the current dynamics outlined above are unlikely to have any impact to the operation of the facility beyond those impacts already established through the wave modelling assessment presented in Task 5 (MRA 2022a).

5.2.2 Flushing

When compared to Concept B, the mouth of Concept C is a little more open and less protected, which may result in a slight improvement of the flushing rate. However, the volume of the enclosed water body within Concept C is slightly larger than for Concept B, which would likely result in a decrease in the rate of flushing. On balance, the rate of flushing for Concept C and B are expected to be in the same order of magnitude. Given the fast e folding times for Concept B and the likely similarity in the flushing characteristics of the two marina layouts no flushing modelling has been completed for Concept C.

6. Recommendations

Based on the review of the coupled wave and hydrodynamics modelling undertaken, it is clear that the construction of the TBF, as proposed, would have a relatively localised impact on the hydrodynamic climate. Changes to the current dynamics discussed herein for either Concept B or Concept C are unlikely to have any impacts to the operation of the facility beyond those already established through the wave modelling assessment presented in Task 5 (MRA 2022a).

Outcomes of the flushing assessment indicated that the rate of flushing of the TBF is likely to be quite good. A range of typical and conservative conditions were modelled to review the e-folding times at various locations within the facility. The maximum time taken for the tracer to dilute below the e-folding level at any site in any of the scenarios was approximately 1.7 days. It was also demonstrated that the e-folding periods were also not sensitive to groundwater flows. Based on this assessment, flushing of the proposed TBF is likely to be equal to or better than comparable facilities in Western Australia.

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8. Appendices

Appendix A **Estimation of Groundwater Flows to Coast (Rockwater 2021)**

Appendix B **Modelled Time History Plots for Selected Locations Concept B**

Appendix C **Modelled Time History Plots for Selected Locations Concept C**

Appendix D **Model Parameters**

Appendix A Estimation of Groundwater Flows to Coast (Rockwater 2021)

TANTABIDDI BOATING FACILITY

ESTIMATION OF GROUNDWATER FLOWS TO COAST

REPORT FOR
MP ROGERS & ASSOCIATES

SEPTEMBER 2021

Report No: 288-68/21/01a

Rockwater
HYDROGEOLOGICAL AND ENVIRONMENTAL CONSULTANTS

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REVISION	AUTHOR	REVIEW	AUTHORISED	ISSUED
0	PHW	JRP	PHW	2 August 2021
1	PHW			16 September 2021

1 INTRODUCTION

The Department of Transport is planning a new boating facility at Tantabiddi on the west coast of Cape Range. MP Rogers & Associates is modelling water quality at the project site, and requires an estimate of groundwater flows to the ocean as an input to the modelling, and engaged Rockwater for that purpose. This report describes the hydrogeological setting, methods used, and the estimates of groundwater flow.

1.1 CLIMATE

Tantabiddi has a semi-arid climate. The nearest Bureau of Meteorology (BoM) station is Exmouth (Station No. 005051), located 15 km east of Tantabiddi.

Rainfall has been recorded at Exmouth since 1968. The mean annual rainfall is 283 mm, with June having the highest monthly average of 61.5 mm and October the lowest at 1.3 mm (Table 1). Rainfall over the winter months is generally associated with the passage of cold fronts from May to July. Summer rainfall is highly erratic, and generally results from thunderstorms or cyclonic weather activity.

Table 1: Average Rainfall and Dam Evaporation (Exmouth), mm

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Rainfall	20.6	34.5	37.0	23.7	46.2	61.5	28.8	10.5	2.2	1.3	1.5	4.9	283.3
Dam Evap.	304	261	261	181	144	106	120	145	208	226	282	336	2574

Average dam evaporation at Exmouth (Luke, Burke and O'Brien, 1988) exceeds average rainfall in all months of the year (Table 1), and by a factor of nine overall.

Temperatures were recorded at Exmouth over an eight-year period, and indicate monthly minimum temperatures ranging from 12.4 to 15 ^{o}C in August to 22.5 to 25 ^{o}C in January; and monthly maximum temperatures ranging from 21.9 to 24.7 ^{o}C in July to 35.2 to 37.8 ^{o}C in January.

2 HYDROGEOLOGICAL SETTING

The Onslow 1:250 000 Geological Sheet (van de Graaff, Denman and Hocking, 1975) shows the Tantabiddi shoreline is formed by quartz sand of Quaternary age overlying calcarenite and calcirudite of the Tantabiddi Member of the Bundera Calcarenite (Quaternary coralgal deposits). Further inland, there are the Tertiary Trealla and Tulki Limestone, and Allen (1993) indicates that the Tulki and Mandu Limestone underlie the Bundera Calcarenite on the western coast of Cape Range.

These formations are all moderately to highly permeable, and near the coast, contain a thin layer of low-salinity groundwater overlying brackish and saline groundwater. The thickness of low-salinity groundwater increases with distance from the coast. Saline groundwater is pumped from the Tantabiddi Member at the Harold E Holt base north of Exmouth; and low-salinity water from the Tulki Limestone is used for the Exmouth water supply.

The Department of Water and Environmental Regulation (DWER) Water Information Reporting (WIR) database was interrogated to obtain hydrogeological data from near Tantabiddi. The few data available are summarised in Table 2. They indicate that the groundwater is brackish to slightly saline, with groundwater levels about 1.4 m to 3.7 m AHD. Note that these levels are inaccurate, as they were reduced to AHD using approximate ground elevations given in the one-second SRTM dataset (Geoscience Australia, 2011), and also there is uncertainty in the bore locations.

Table 2: Hydrogeological Data near Tantabiddi, WIR Database

Site Ref No.	Name	Easting (m, Z49)	Northing (m, Z49)	RLGL (SRTM-H) (m AHD)	SWL (mbgl)	RLWL (m AHD)	TDS (mg/L)
70510417	Yardie Homestead 3	190768	7577463		3.5		2,150
70510418	Yardie Homestead 2	190768	7577463		3.5		4,900
70510419	Yardie Homestead 1	190768	7577464	2.9	1.5	1.4	2,800
70510802	Open Well	186927	7570874	5.8	3.05	2.8	3,300
70518438	Tantabiddy Creek	186933	7570944	6.2	2.5	3.7	2,500

The first detailed description of the hydrogeology of Cape Range was by Forth (1972) in a report on the Exmouth water supply. Hydraulic parameters for the Tulki Limestone in the Exmouth borefield were given as hydraulic conductivity 170 m/d; specific yield 0.2; and recharge 0.025 m/yr. That estimate of recharge has not been updated in more-recent studies.

Martin (1990) also investigated the hydrogeology of the Exmouth water-supply borefield and provided additional information on geological structure, the thickness of low-salinity groundwater, as well as groundwater levels and salinity.

Allen (1993) described the hydrogeology of all of Cape Range, and indicated groundwater levels of about 10 m AHD at the top of the northern end of the range.

Rockwater investigations at Exmouth have determined hydraulic conductivities for the Tulki Limestone of 60 and 160 m/d. With aquifer thickness above the saltwater interface ranging from near zero at the coast to about 100 m inland at the Exmouth borefield, and transmissivities (hydraulic conductivity * aquifer thickness) range from about 200 m^2/d at the coast to 16,000 m^2/d at the borefield. Transmissivities for the Bundera Calcarenite north of Exmouth, near the coast, were calculated from pumping test results to range from 3,400 to 9,000 m^2/d.

3 MODELLING TO ESTIMATE GROUNDWATER FLOWS

3.1 MODEL DESCRIPTION AND CALIBRATION

A simple numerical groundwater model was constructed of the northern end of Cape Range and used to estimate groundwater flows to the ocean at the planned boating facility at Tantabiddi. The model utilises Processing Modflow Pro, which incorporates Modflow-96, finite-difference groundwater flow modelling software designed by the U.S. Geological Survey (McDonald and Harbaugh, 1988).

The model consists of 243 rows and 134 columns covering an area of 20.8 km east-west and 37.7 km north-south, with cell sizes of 155 m by 155 m (Fig. 1). The model grid is aligned 28 degrees east of north to correspond with the strike of Cape Range.

The ocean was represented by constant-head cells at 0 m AHD.

Aquifer transmissivity values were initially set within the ranges described in Section 2, and then varied in calibrating the model in steady-state mode to measured and published groundwater levels. The calculated groundwater levels after calibration can be compared with measured levels in Fig. 2. They show a generally close correspondence between calculated and measured levels; as well as the peak groundwater levels of about 10 m AHD shown in Allen (1993).

The two measured groundwater levels measured in closely-spaced bores south of Tantabiddi appear to be erroneous due to the difference in levels and the high values despite the close proximity to the coast. It is likely they are situated further from the coast where ground elevations are higher.

The adopted aquifer parameters are:

- Transmissivity 2,720 m^2/d for the Exmouth borefield area;
- Transmissivity 3,400 m^2/d for north of Exmouth borefield area;
- Transmissivity 250 m^2/d for the rest of Cape Range, including Tantabiddi; and
- Recharge 25 mm/a.

Aquifer storativity values are not required as the model is run in steady-state mode.

The model is considered to be suitable for providing a realistic estimate of groundwater flows to the planned boating facility, using existing data. If more certainty was required of the magnitude of the flows it would be necessary to construct and level bores to obtain accurate measurements of groundwater levels, and to run controlled pumping tests to measure aquifer transmissivity.

3.2 MODEL RUN

The model was run in steady-state mode to estimate groundwater flows discharging to the ocean at the planned boating facility, and for a few hundred metres to the north and south. The flows were calculated from each of model cells (zones) 1 to 8 shown in Fig. 3, and listed in Table 3.

Table 3: Estimated Groundwater Flows

Zone	Groundwater Discharge (m^3/d)		
	Adopted Model	2* Transmissivity	0.5* Transmissivity
1	58	104	32
2	51	92	29
3	37	66	20
4	108	194	60
5	49	87	27
6	147	266	80
7	89	162	49
8	85	154	46

The groundwater flows given for the Adopted Model are the best estimate of actual flows top the marina based on available data. They represent average flows to the ocean from each of model cells, which are 155 m wide. The discharge is likely to occur within about 50 m to 100 m of the shore. Actual flows will be higher at low tide and smaller at high tide. Seasonal changes and changes due to high rainfall or drought are expected to be relatively small; and it is unlikely that reclamation and the installation of permeable structures would have any significant impact on the flows.

3.3 SENSITIVITY ANALYSIS

Very few hydrogeological data are available for the western side of Cape Range, and so aquifer parameters and groundwater flows could be higher or lower than those estimated. The 2*Transmissivity and 0.5* Transmissivity values given in Table 3 are an indication of likely maximum and minimum flows, if aquifer parameters are different to those adopted. The flows could range from about half to double the estimated (adopted) flow rates.

4 CONCLUSIONS

The coast at Tantabiddi is formed by aeolian sand overlying permeable limestone.

Average groundwater flows discharging to the coast are estimated to range from 40 to 150 m^3/d per 155 m length of coastline. There is some uncertainty in aquifer parameters: actual flows could range from about half to double the estimated flow rates.

DATED: 16 September 2021 **Rockwater Pty Ltd**

P H Wharton

Principal

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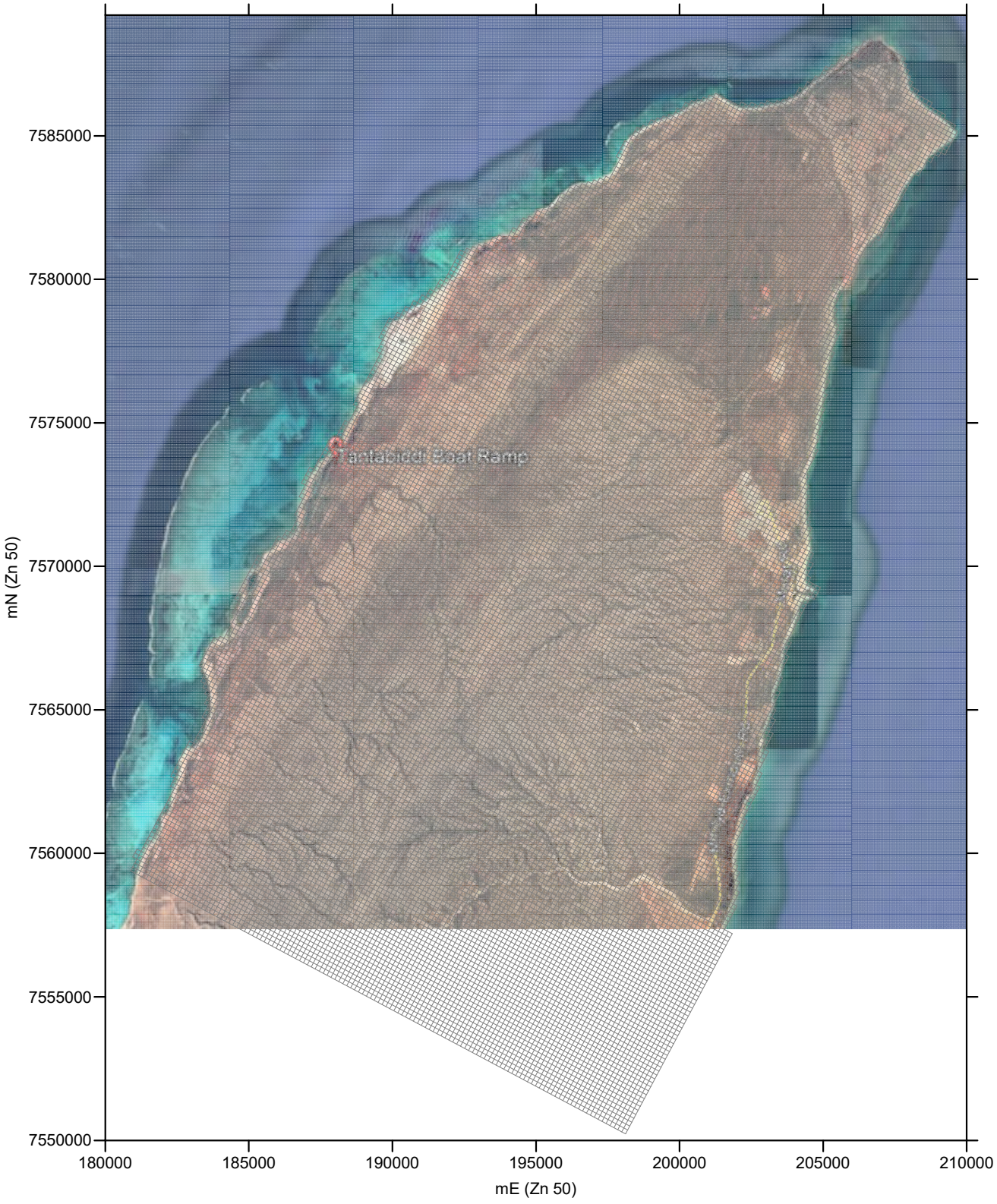
FIGURES

FIGURE 1



model grid.srf

CLIENT: MP Rogers & Assoc.

PROJECT: Tantabiddi

DATE: September 2021

Dwg No: 288-6/21/1-1

LAYOUT OF MODEL GRID

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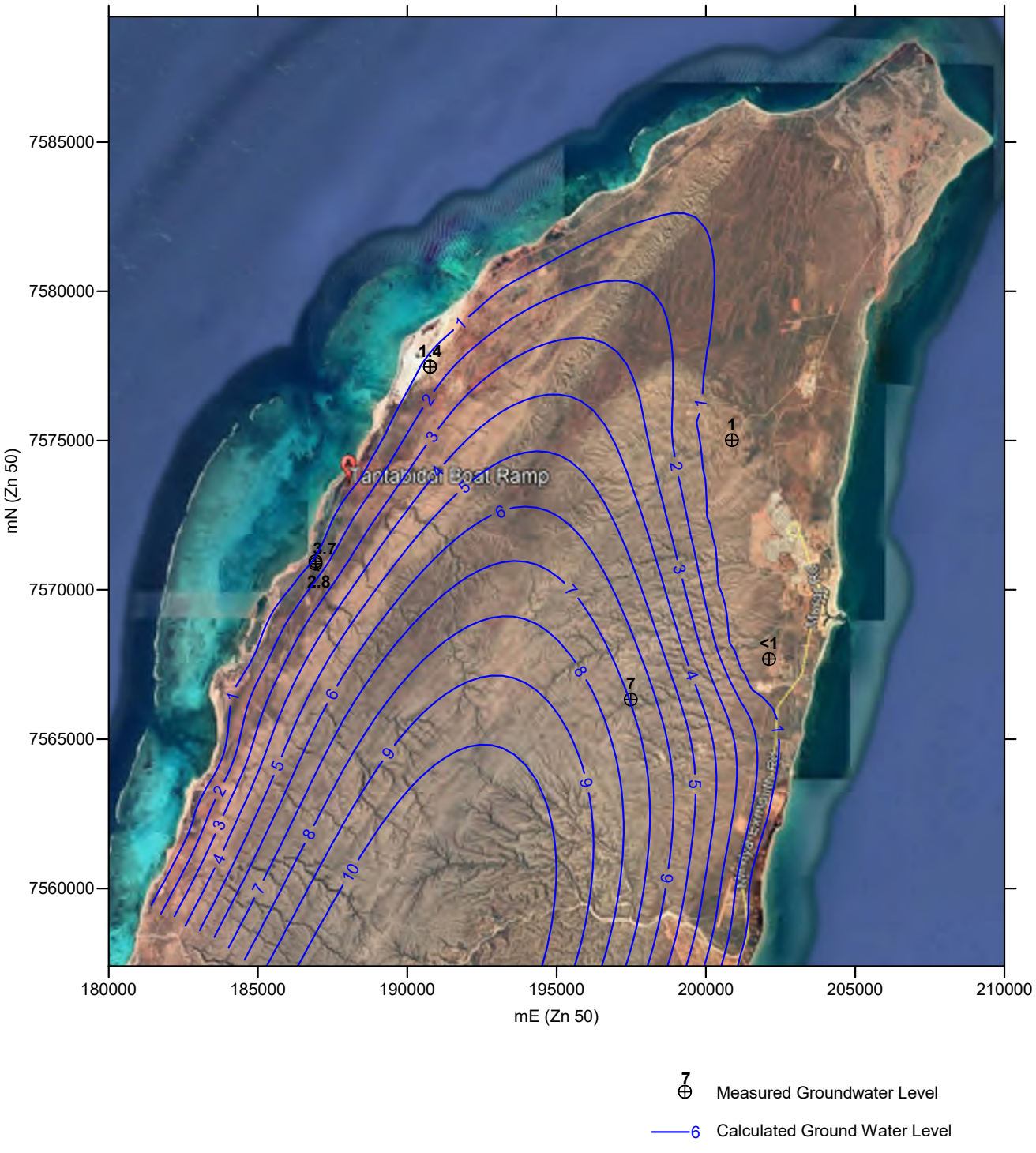
FIGURE 2



tantabiddi z50 wls.srf

CLIENT: MP Rogers & Assoc.

PROJECT: Tantabiddi

DATE: September 2021

Dwg No: 288-6/21/1-2

MEASURED & MODEL-CALCULATED GROUNDWATER LEVELS (m AHD), CAPE RANGE

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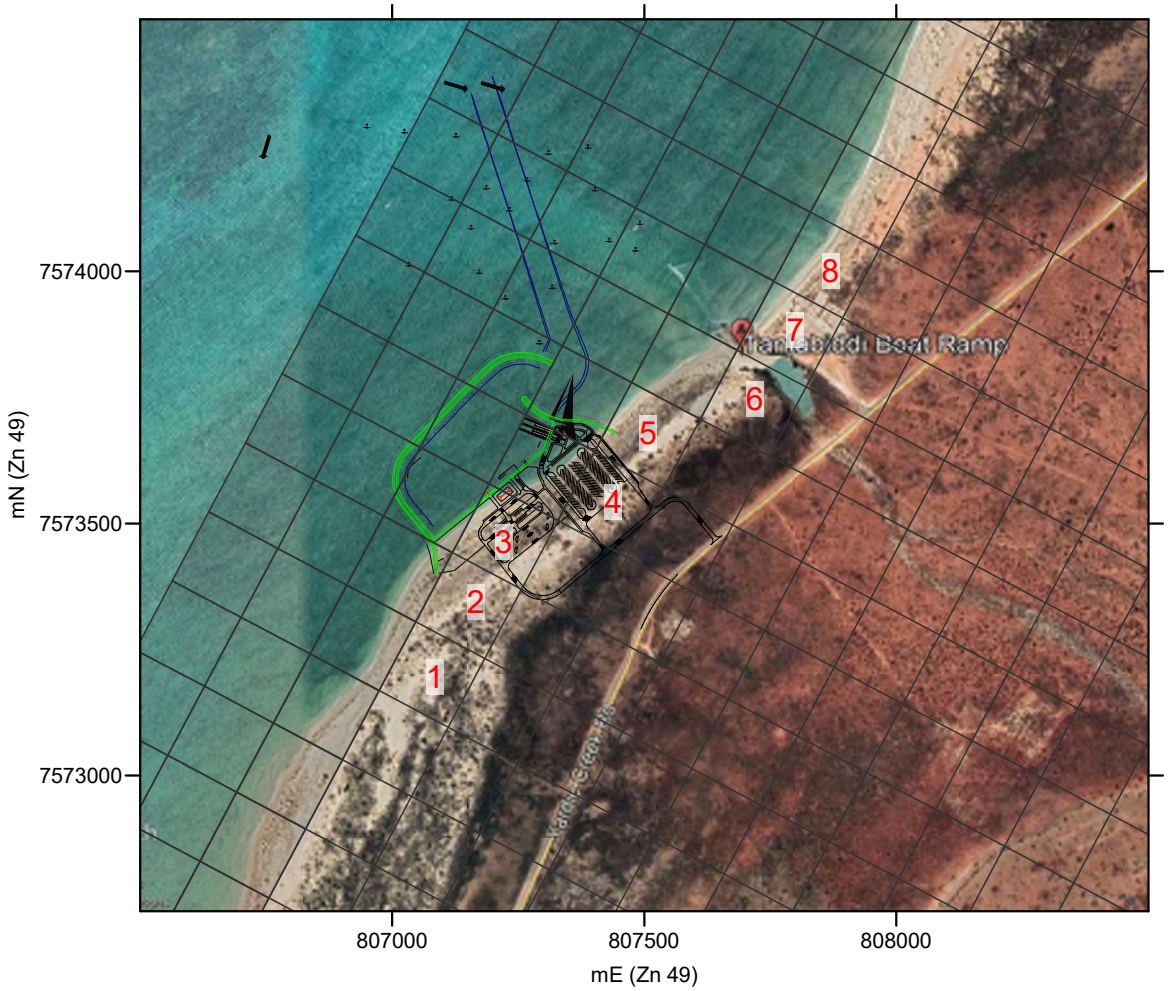
FIGURE 3



2 Model Zone (Cell)

model zones.srf

CLIENT: MP Rogers & Assoc.

PROJECT: Tantabiddi

DATE: December 2021

Dwg No: 288-6/21/1-3

MODEL ZONES, & PLANNED BOATING FACILITY

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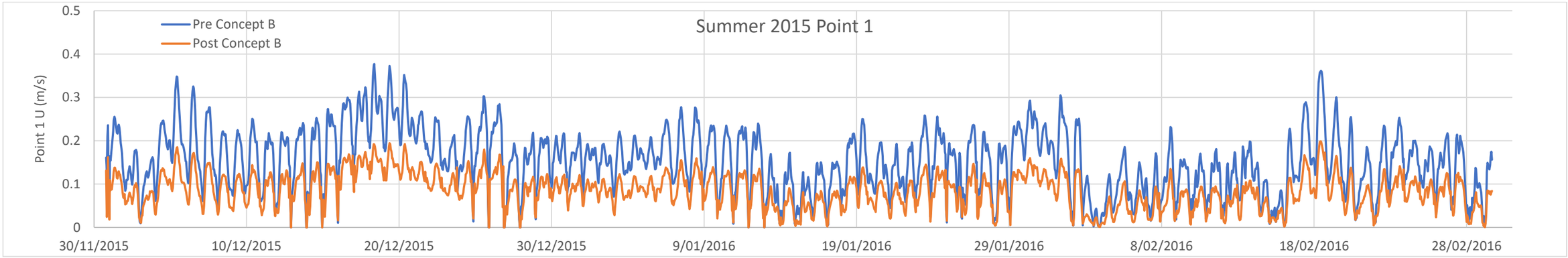
Appendix B Modelled Time History Plots for Selected Locations Concept B

Figure B.1 Output Locations for the Results Shown in Appendix B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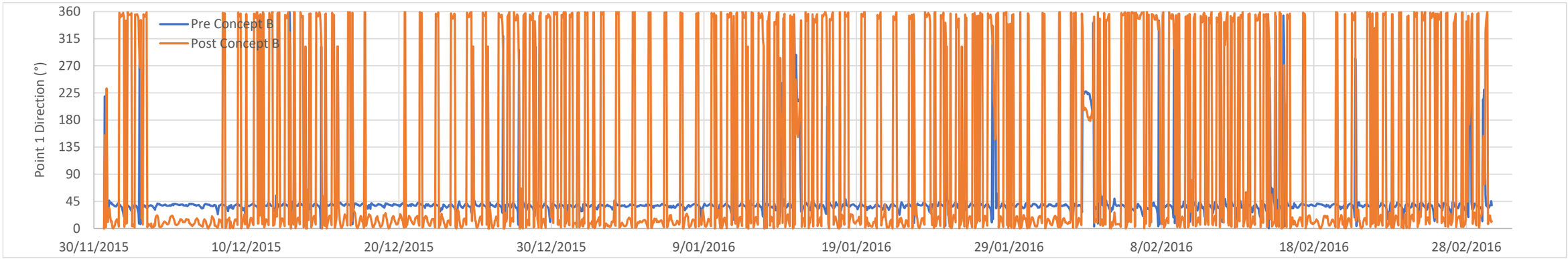
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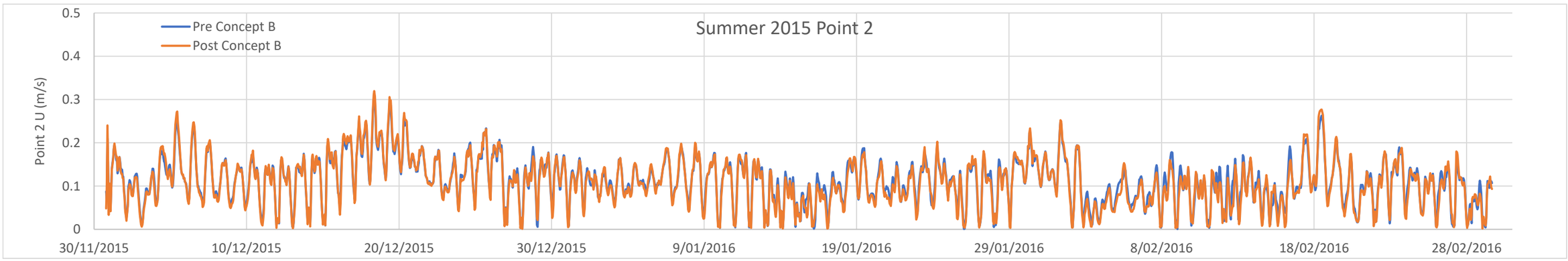
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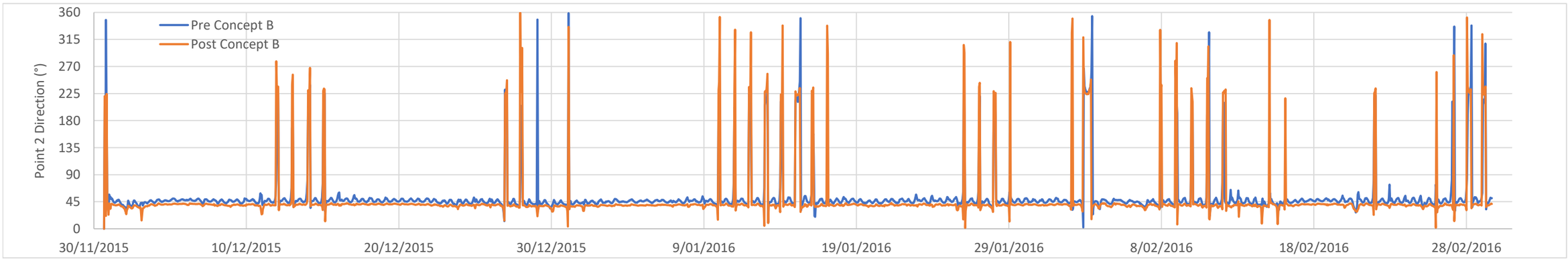
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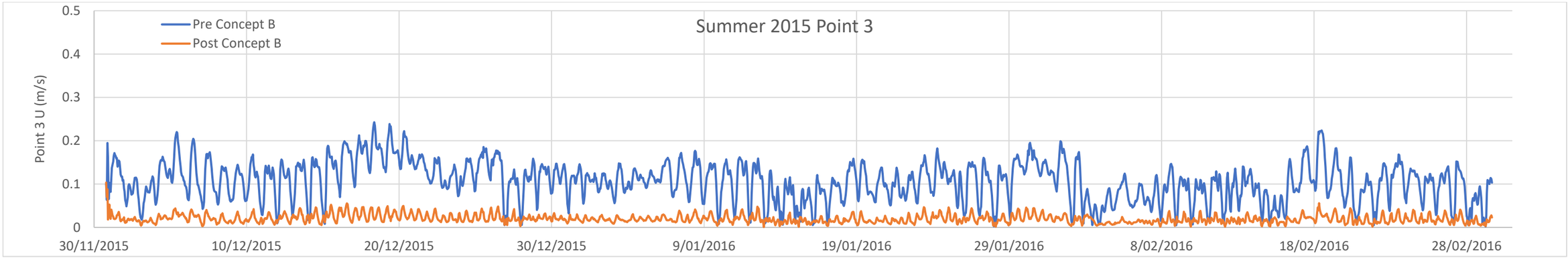
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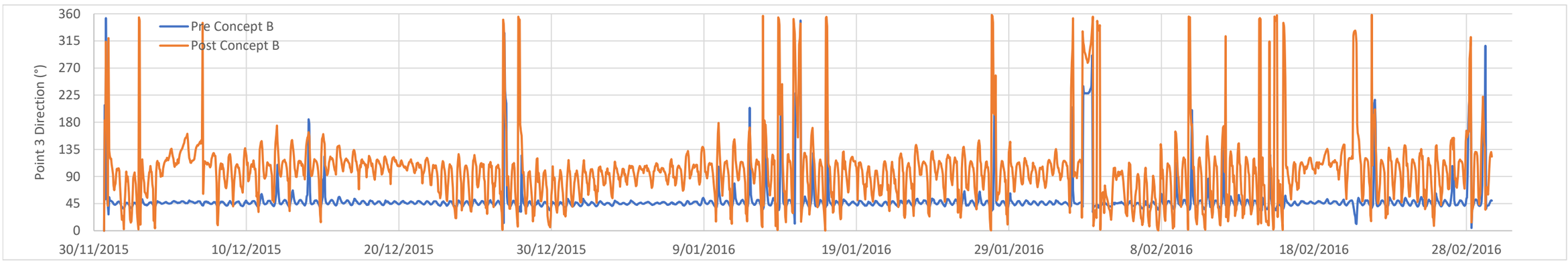
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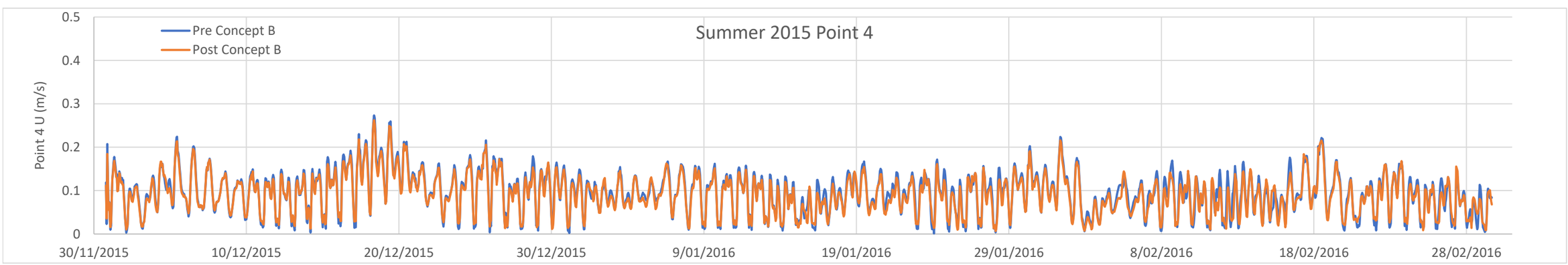
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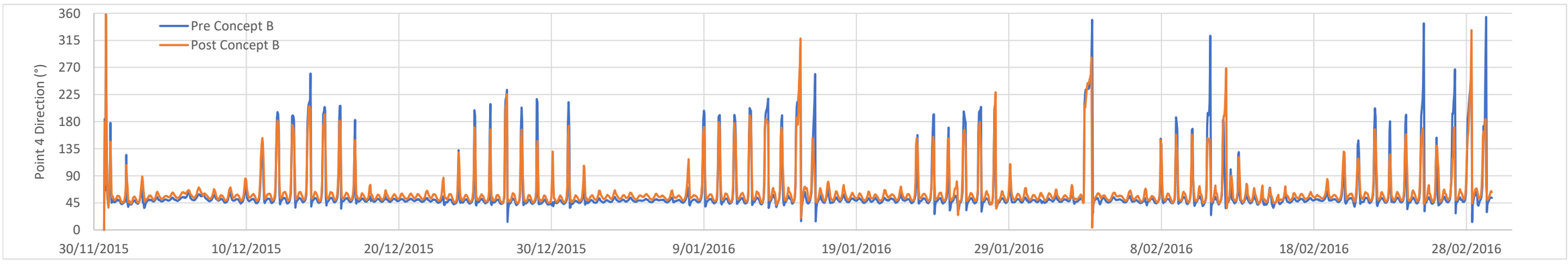
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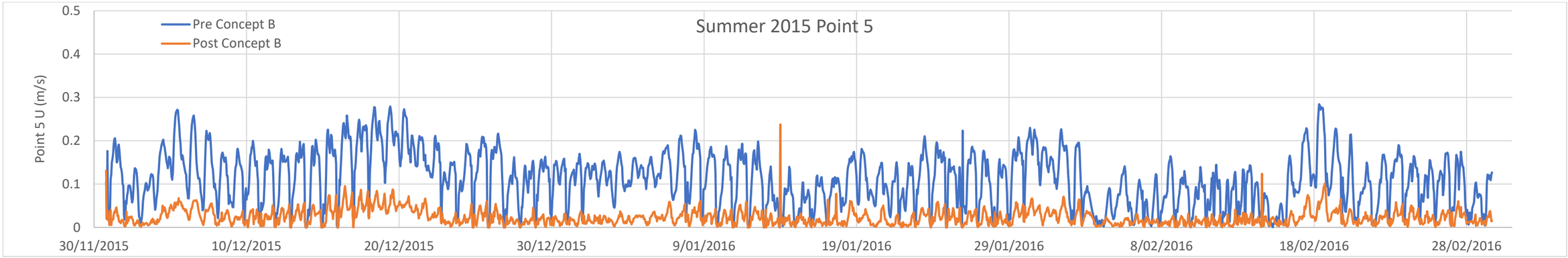
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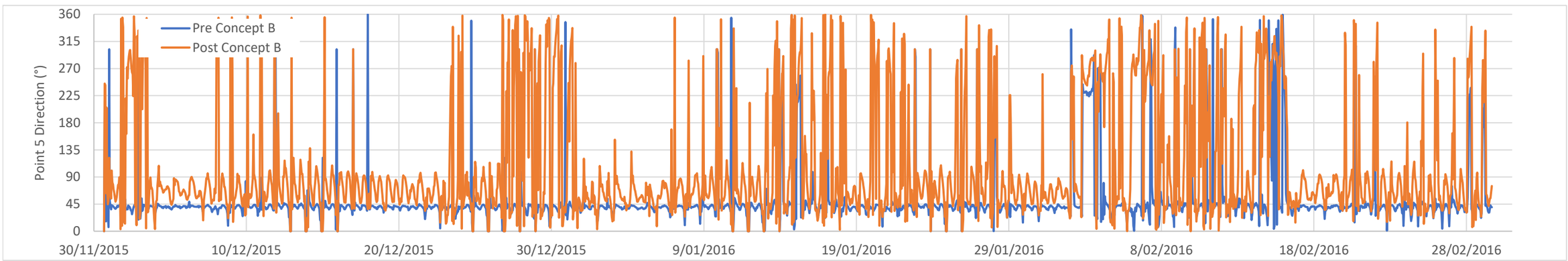
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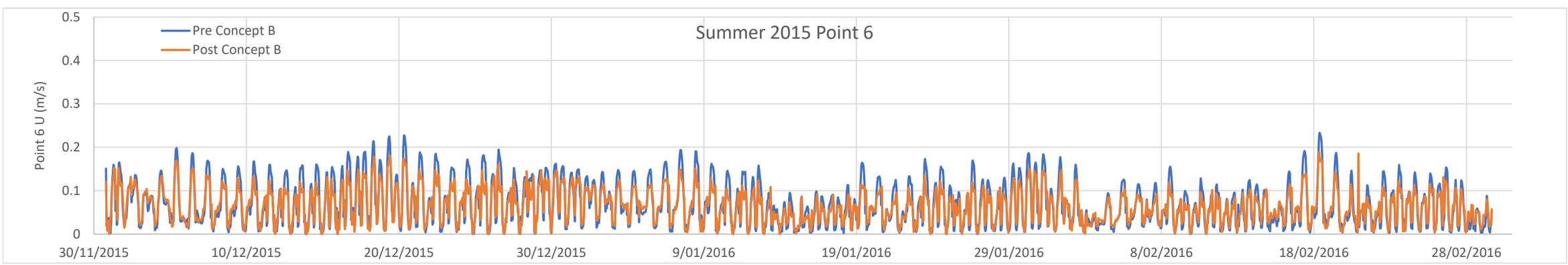
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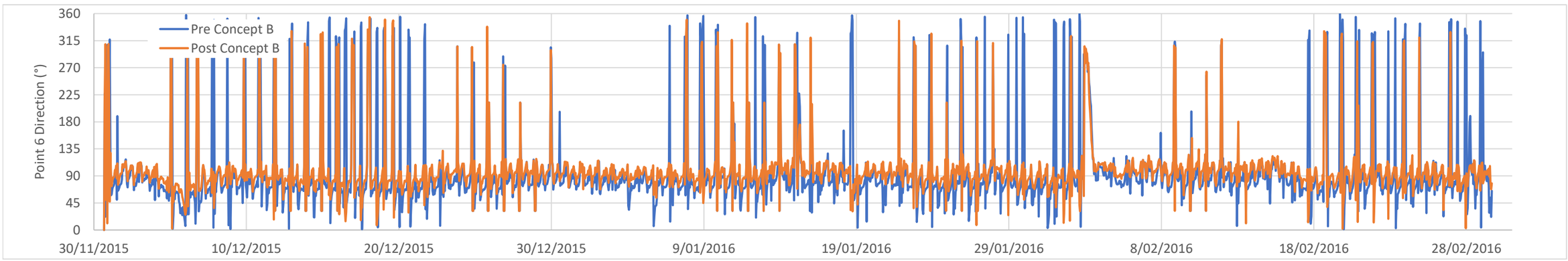
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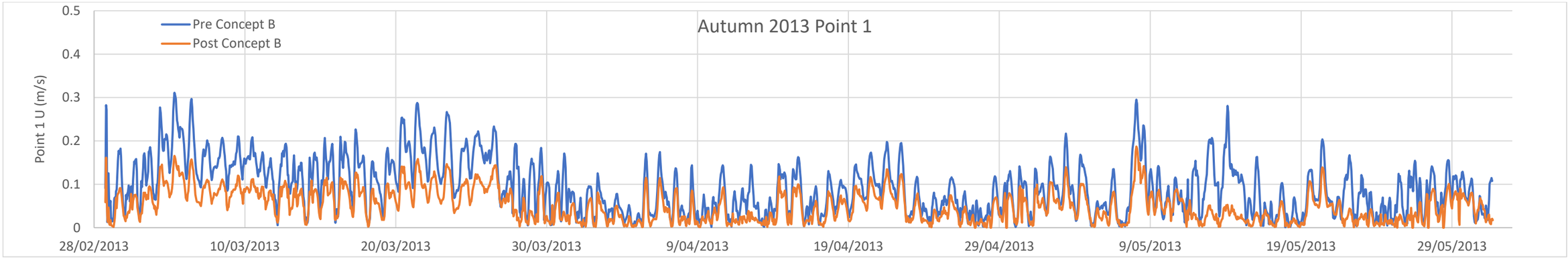
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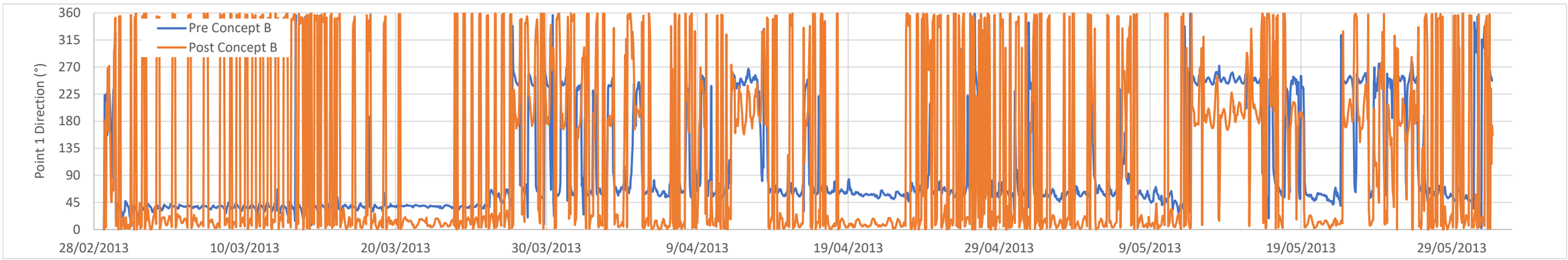
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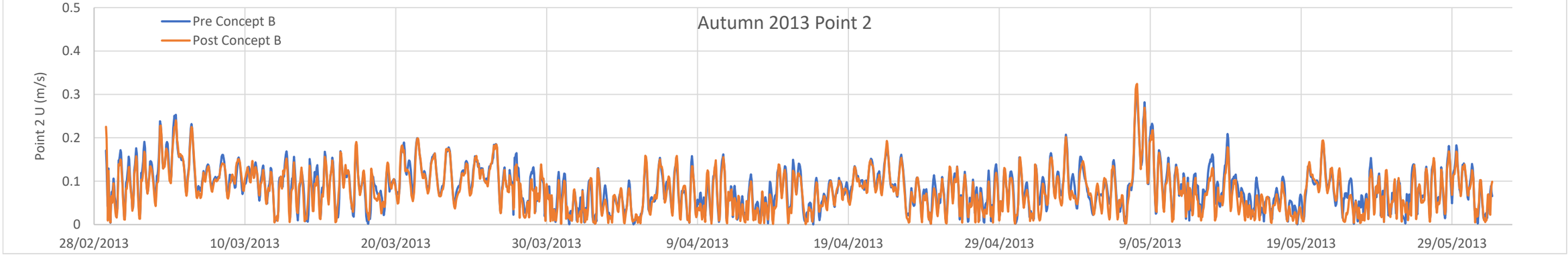
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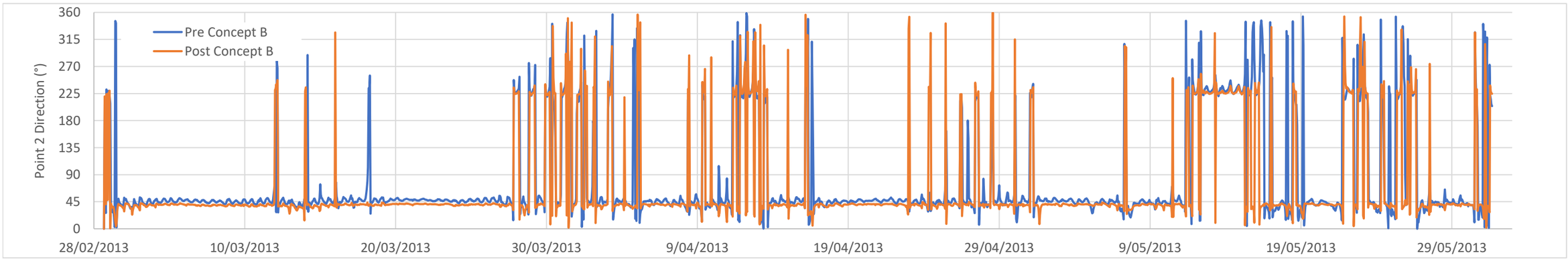
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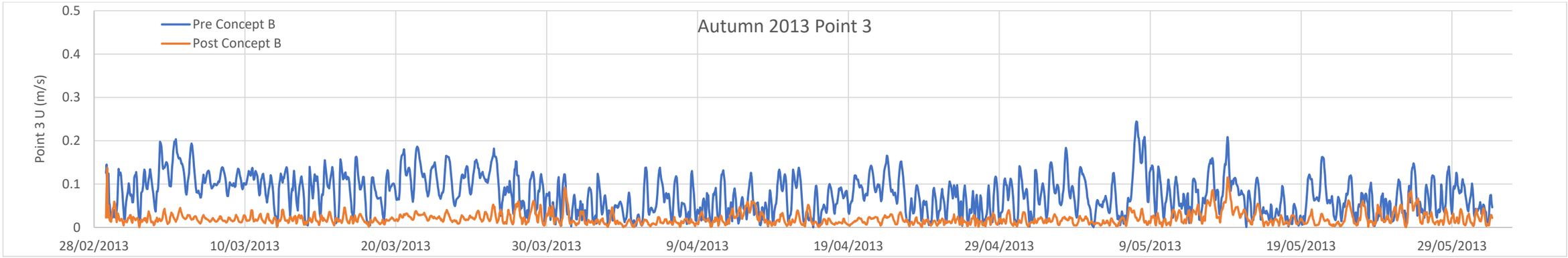
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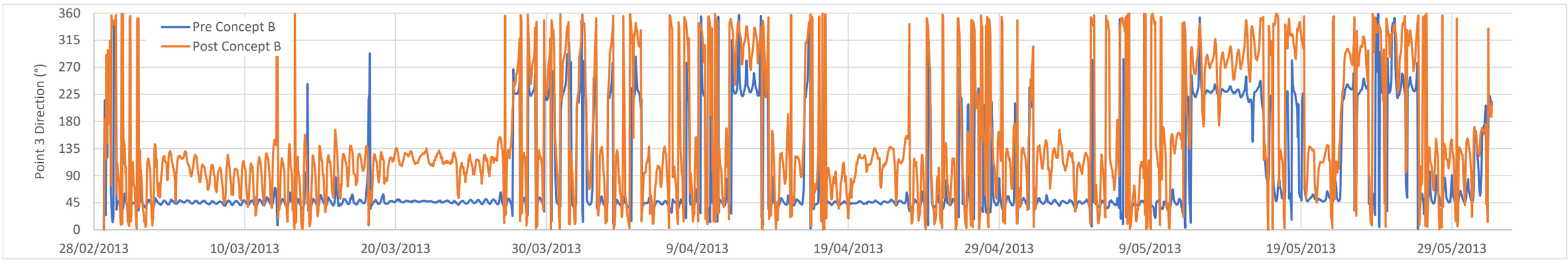
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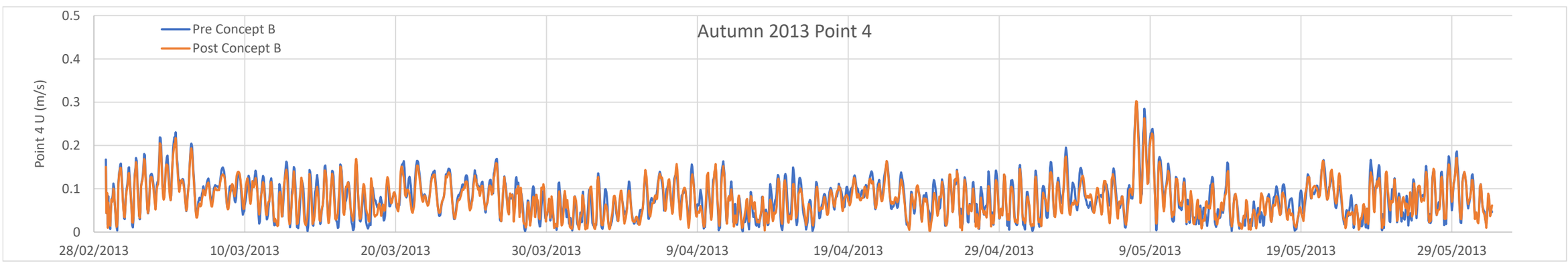
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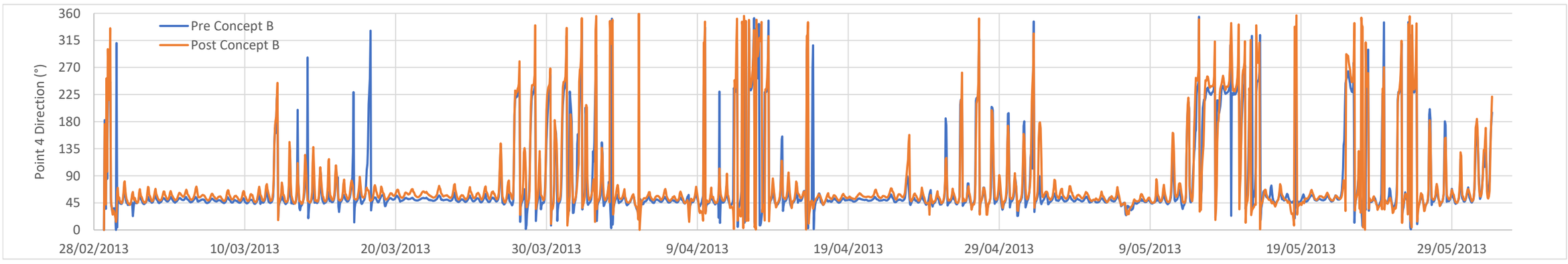
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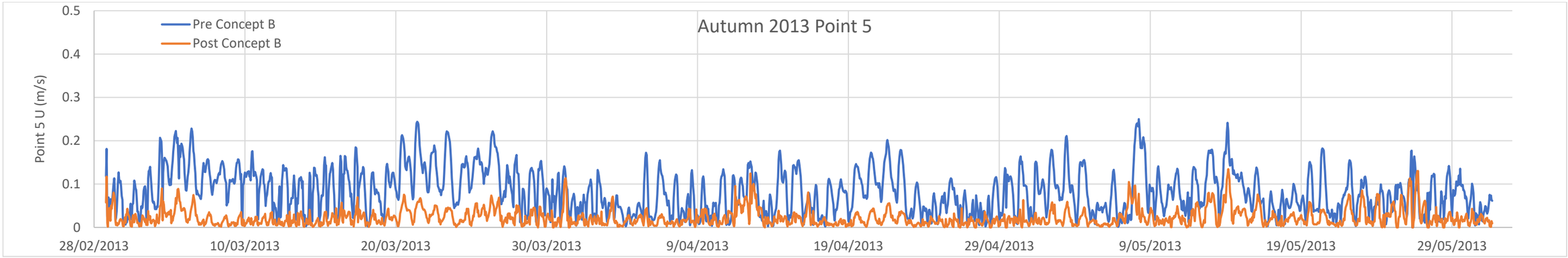
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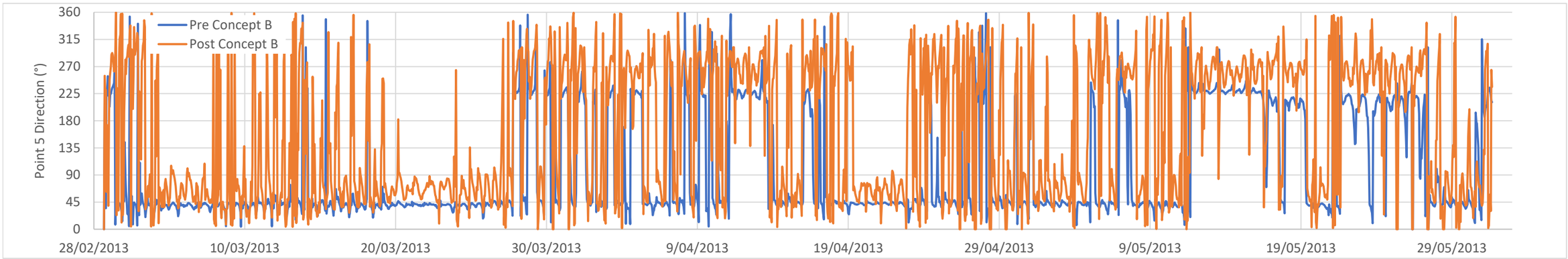
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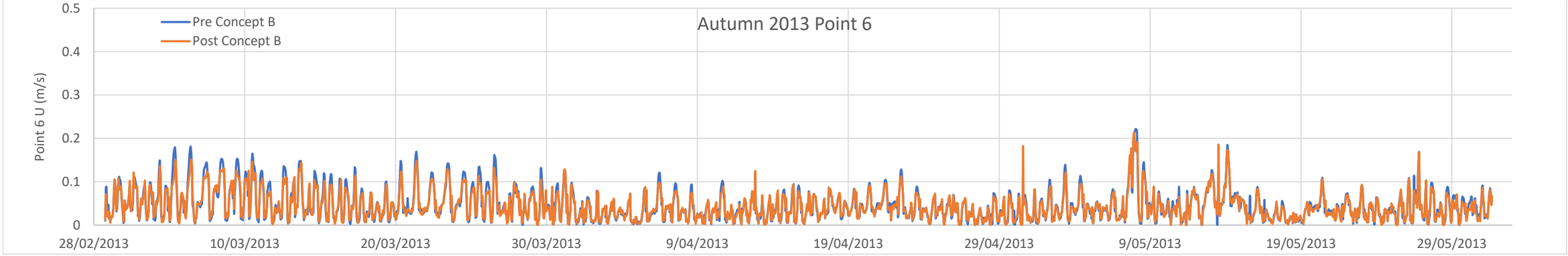
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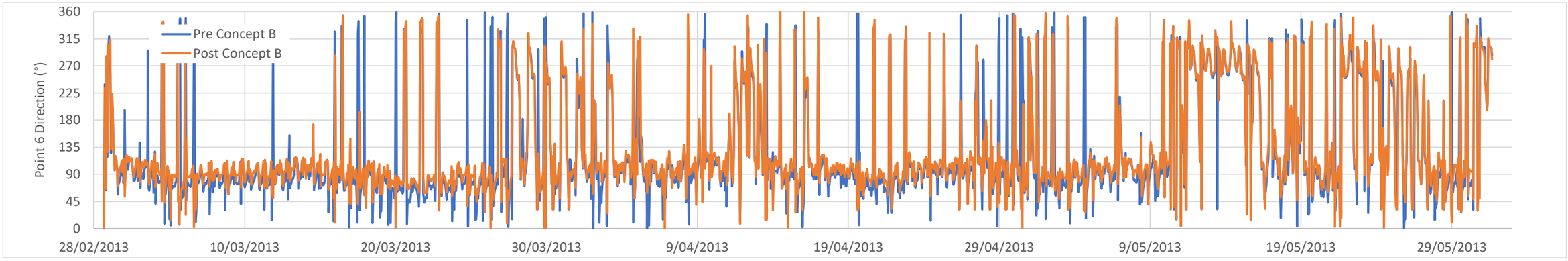
Pre Concept B
Post Concept B
Point 6 Direction (°)
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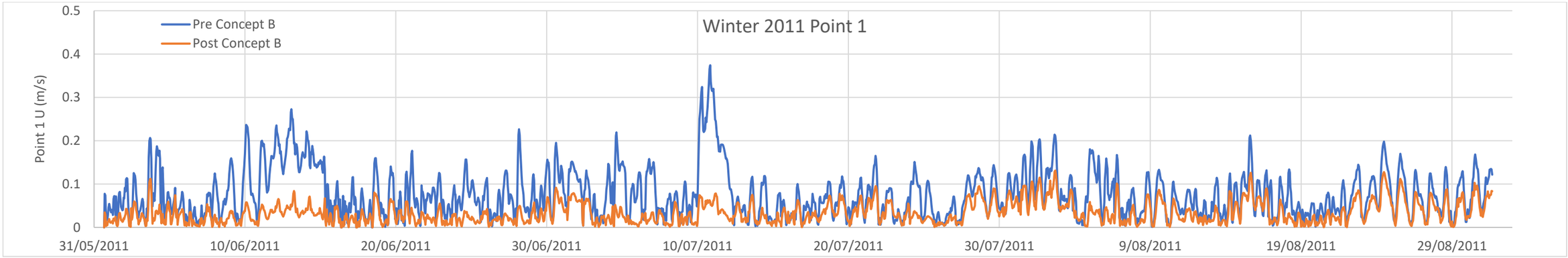
Winter 2011 Point 1
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Post Concept B
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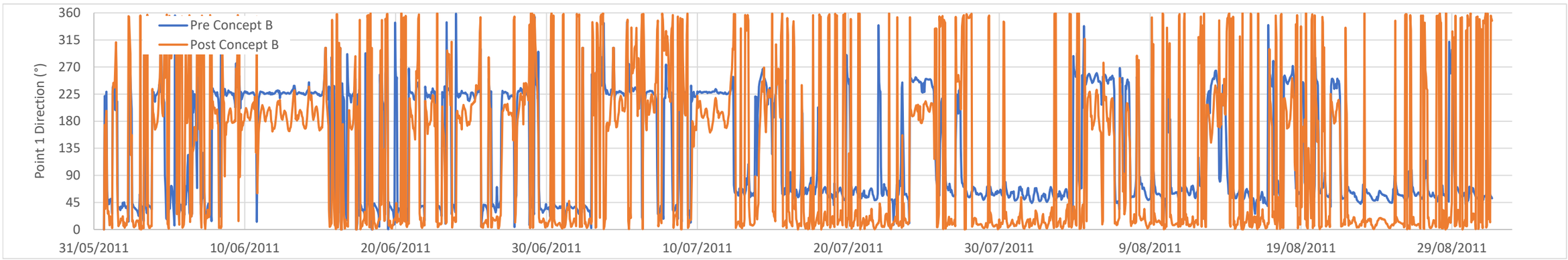
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Point 1 Direction (°)
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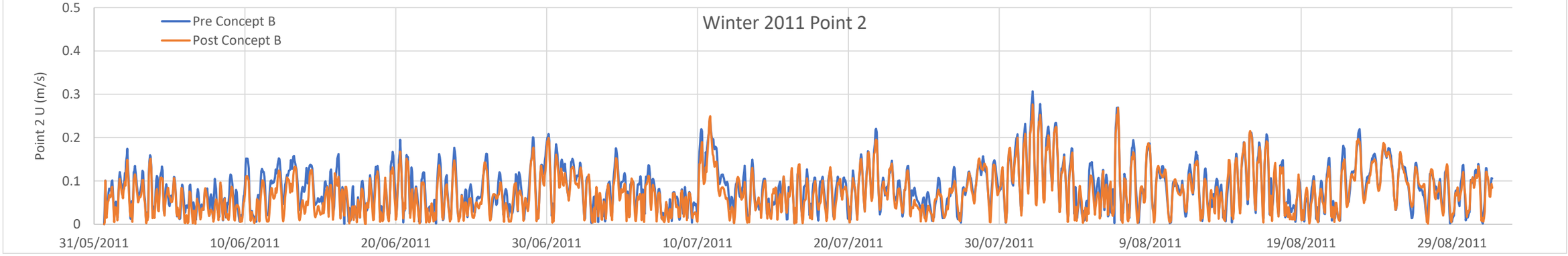
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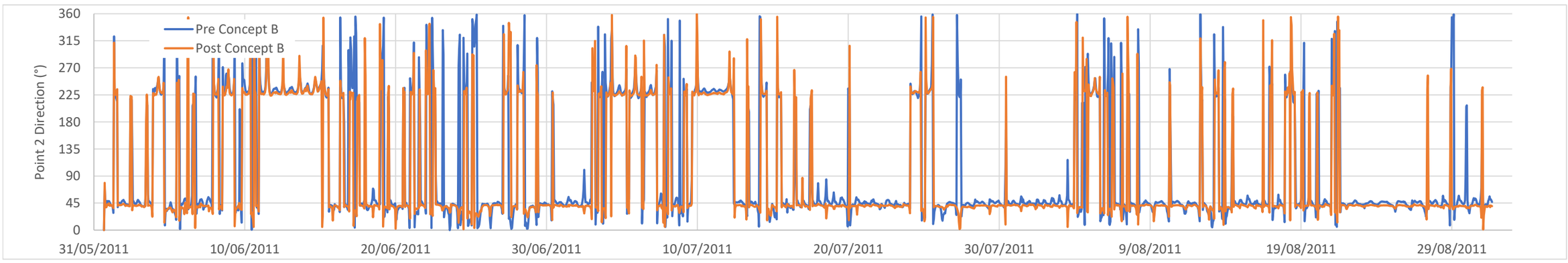
Pre Concept B
Post Concept B
Point 2 Direction (°)
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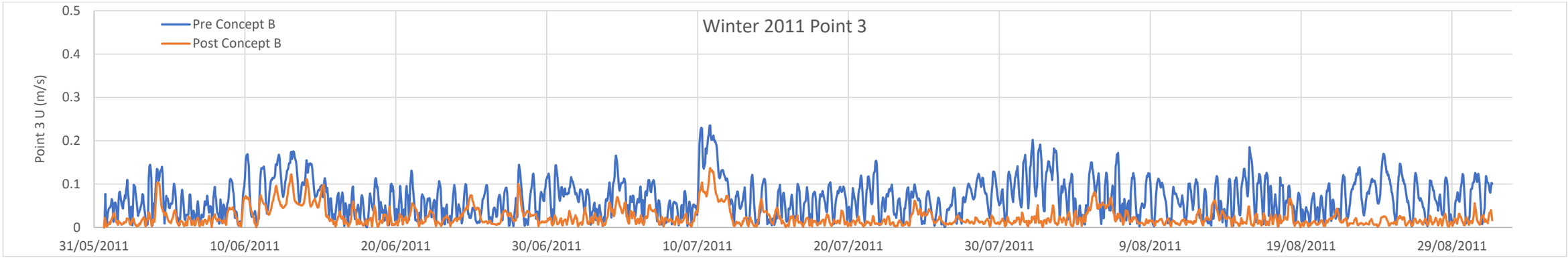
Winter 2011 Point 3
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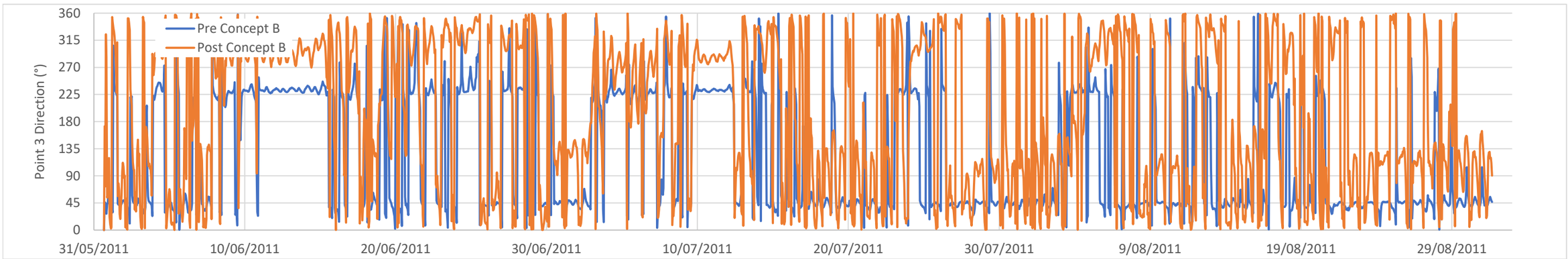
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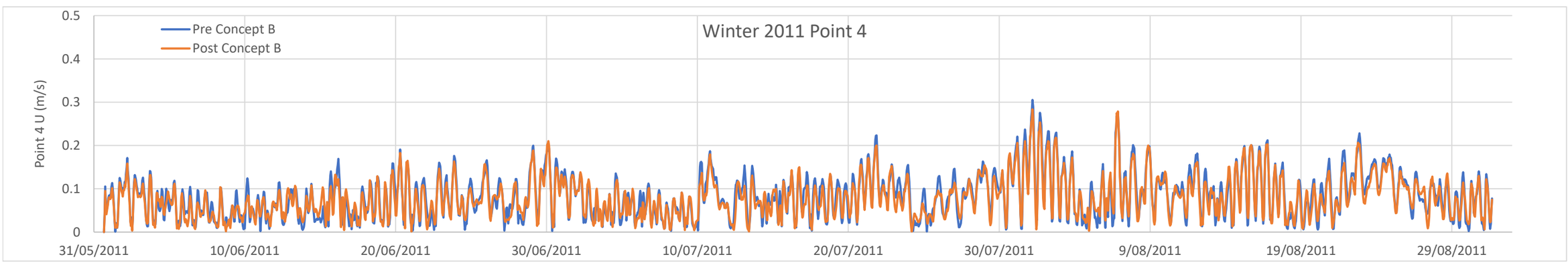
Winter 2011 Point 4
Pre Concept B
Post Concept B
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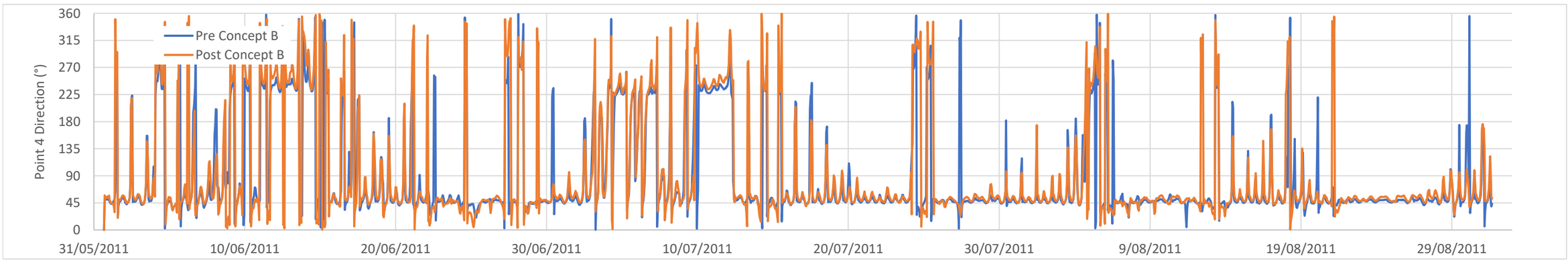
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Post Concept B
Point 4 Direction (°)
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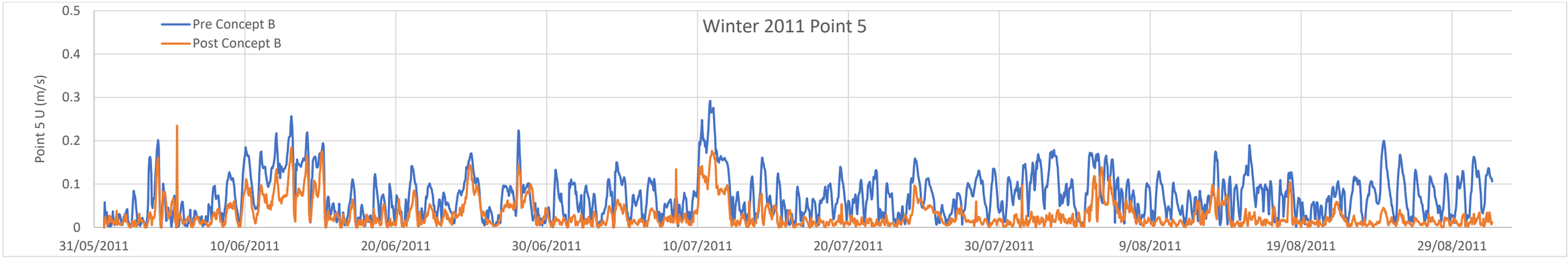
29/08/2011


Winter 2011 Point 5
Pre Concept B
Post Concept B
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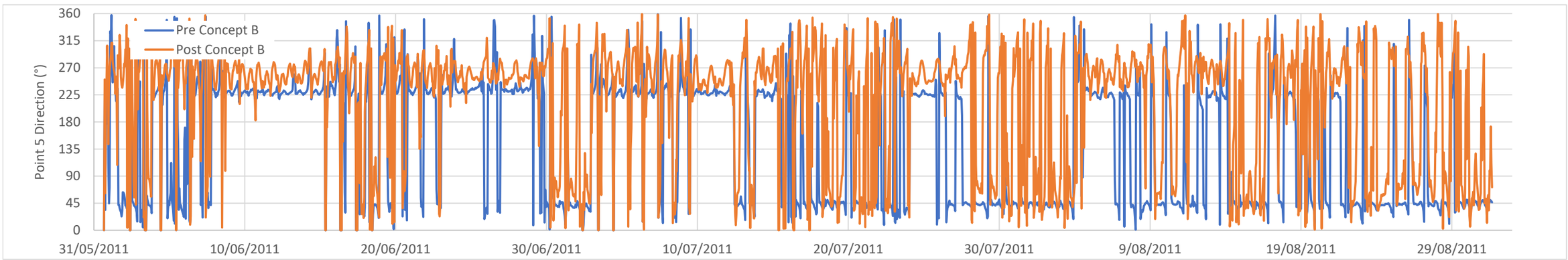
29/08/2011


Pre Concept B
Post Concept B
Point 5 Direction (°)
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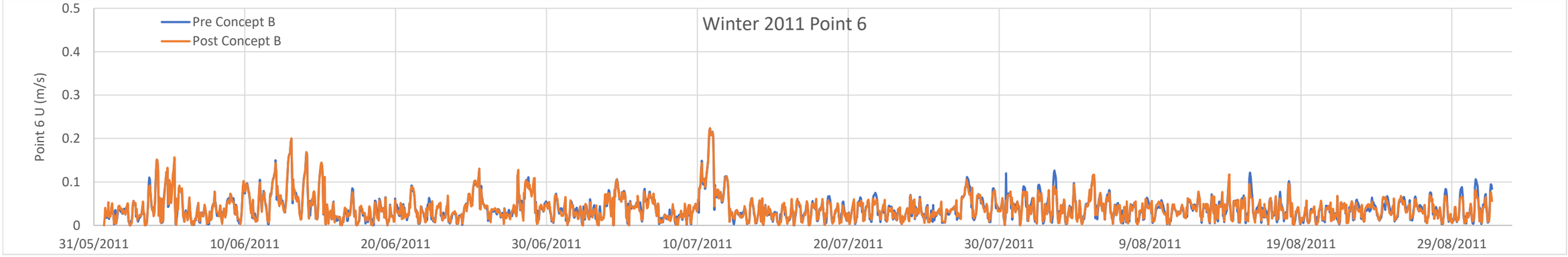
Winter 2011 Point 6
Pre Concept B
Post Concept B
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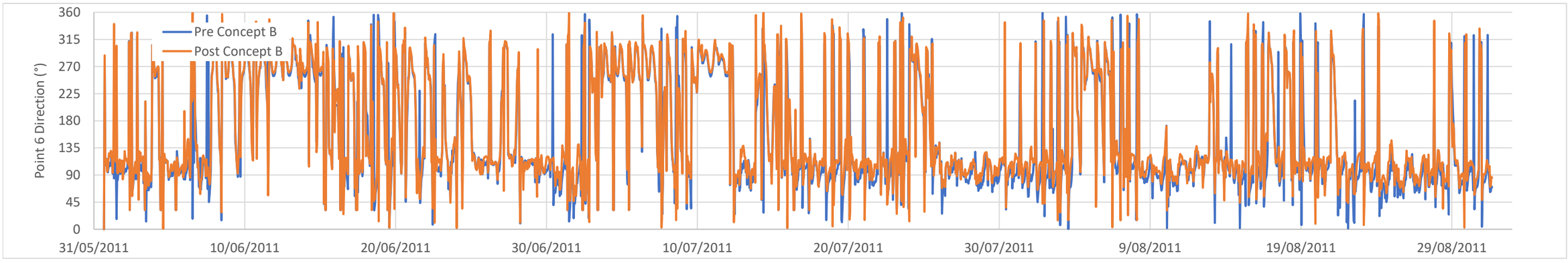
29/08/2011


Pre Concept B
Post Concept B
Point 6 Direction (°)
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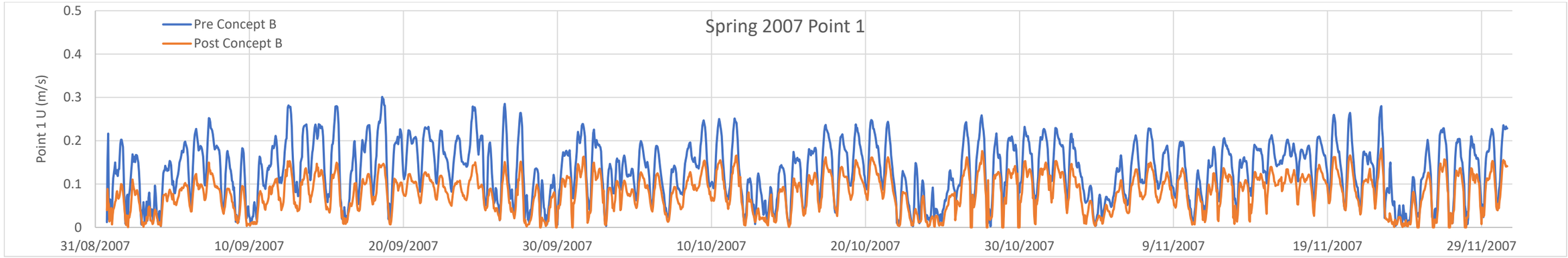
Spring 2007 Point 1
Pre Concept B
Post Concept B
Point 1 U (m/s)
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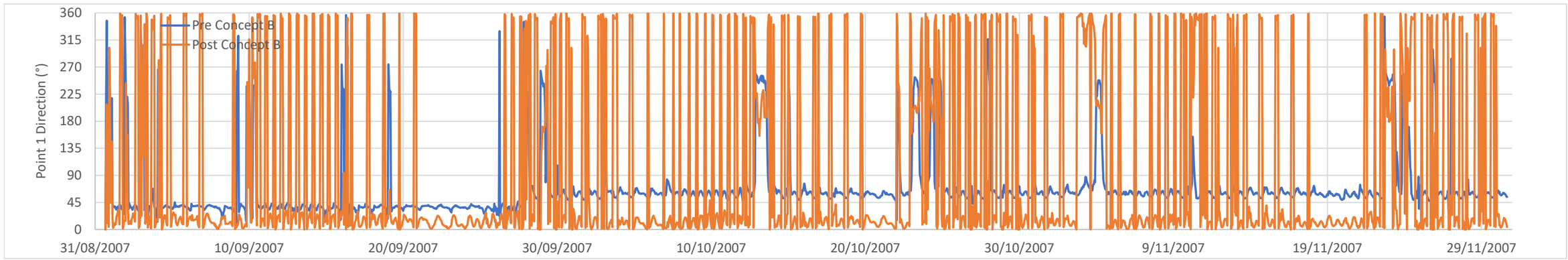
Pre Concept B
Post Concept B
Point 1 Direction (°)
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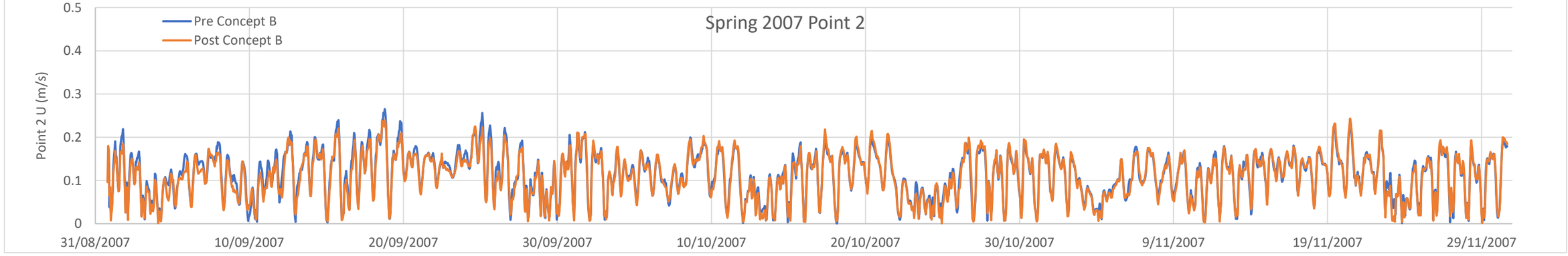
Spring 2007 Point 2
Pre Concept B
Post Concept B
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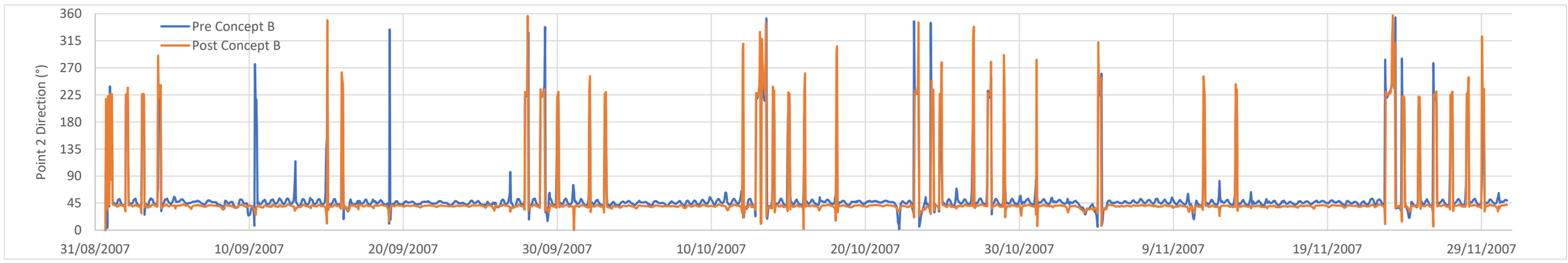
Pre Concept B
Post Concept B
Point 2 Direction (°)
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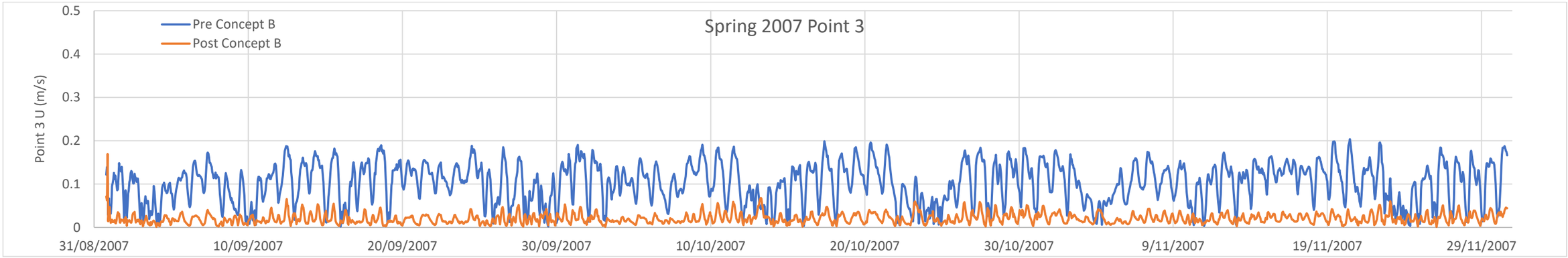
Spring 2007 Point 3
Pre Concept B
Post Concept B
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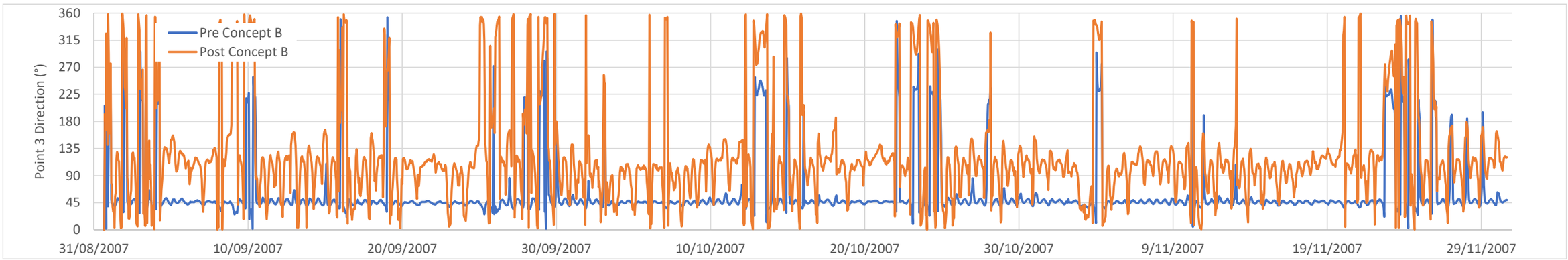
Pre Concept B
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Point 3 Direction (°)
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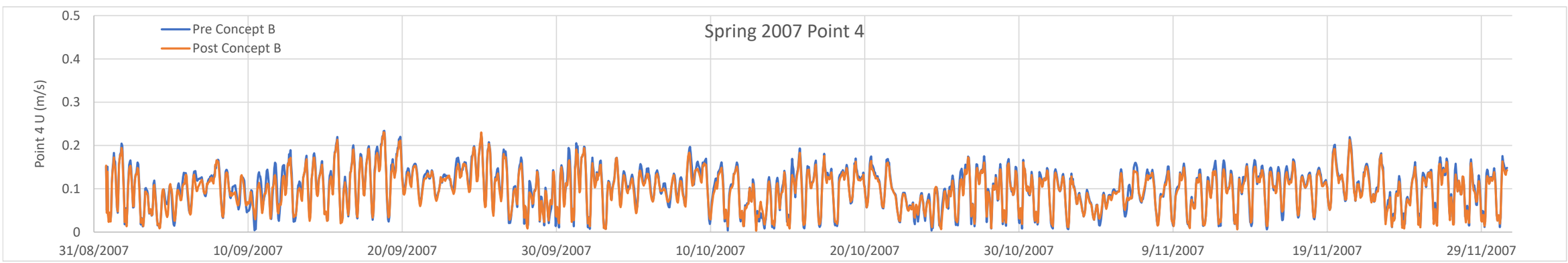
Spring 2007 Point 4
Pre Concept B
Post Concept B
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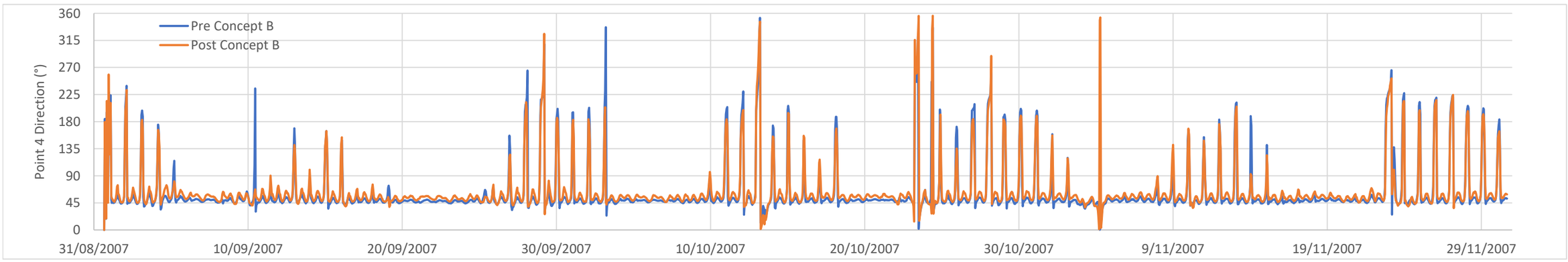
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Post Concept B
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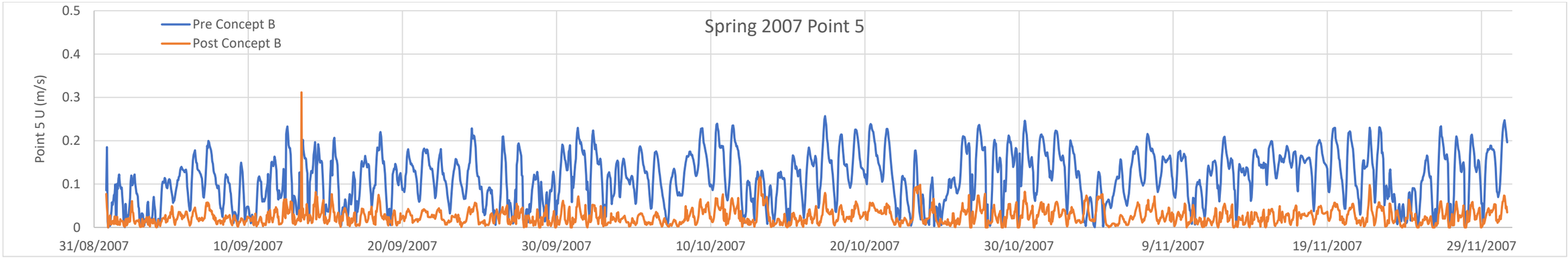
Spring 2007 Point 5
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Post Concept B
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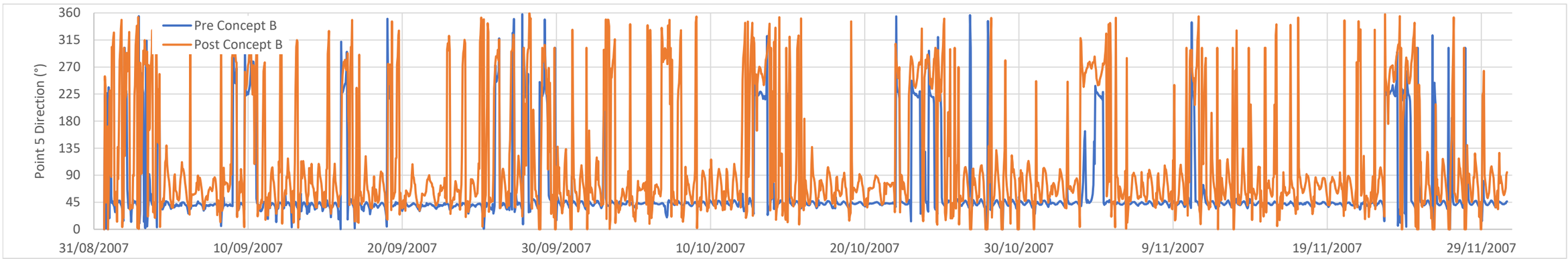
Pre Concept B
Post Concept B
Point 5 Direction (°)
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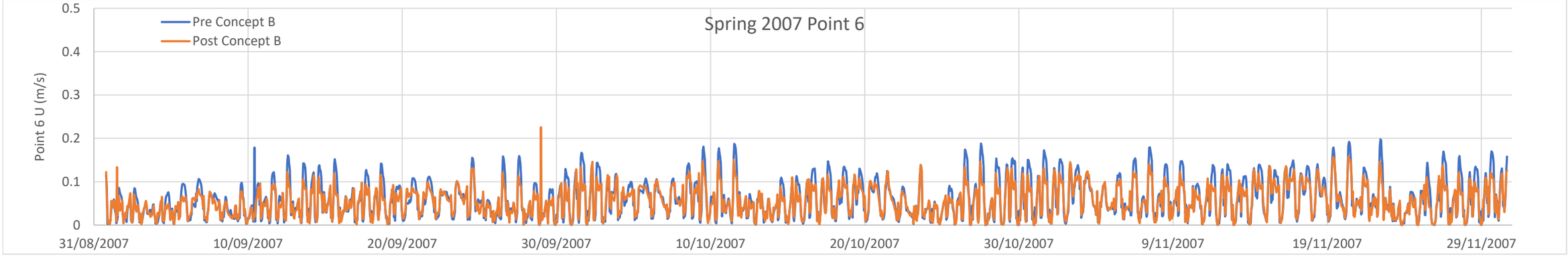
Spring 2007 Point 6
Pre Concept B
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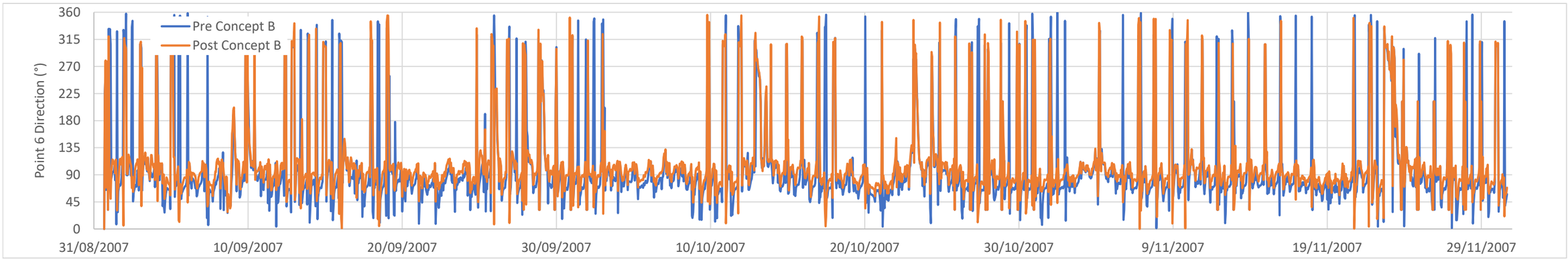
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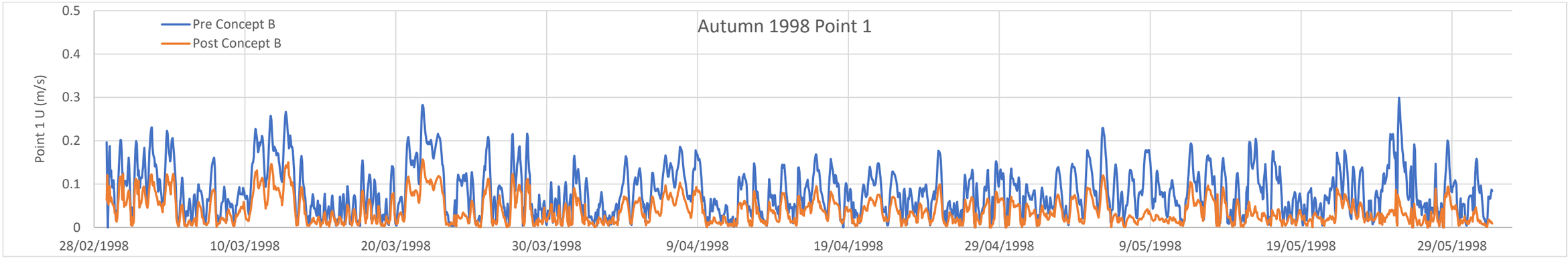
Autumn 1998 Point 1
Pre Concept B
Post Concept B
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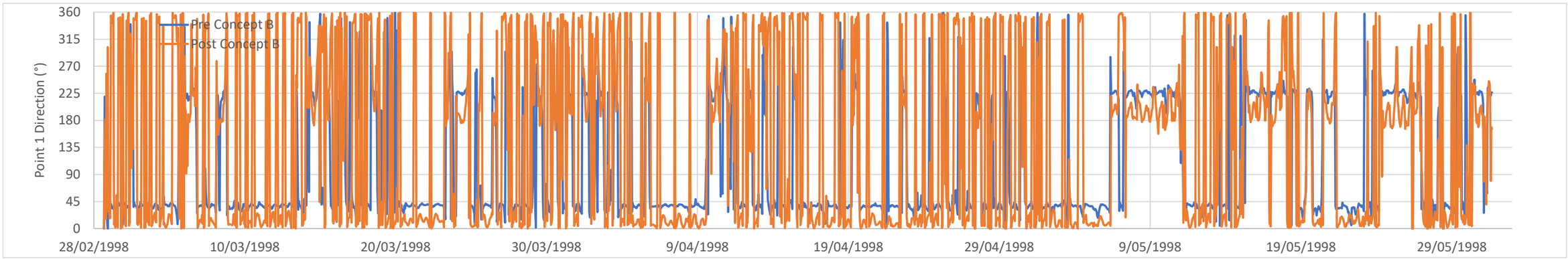
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Post Concept B
Point 1 Direction (°)
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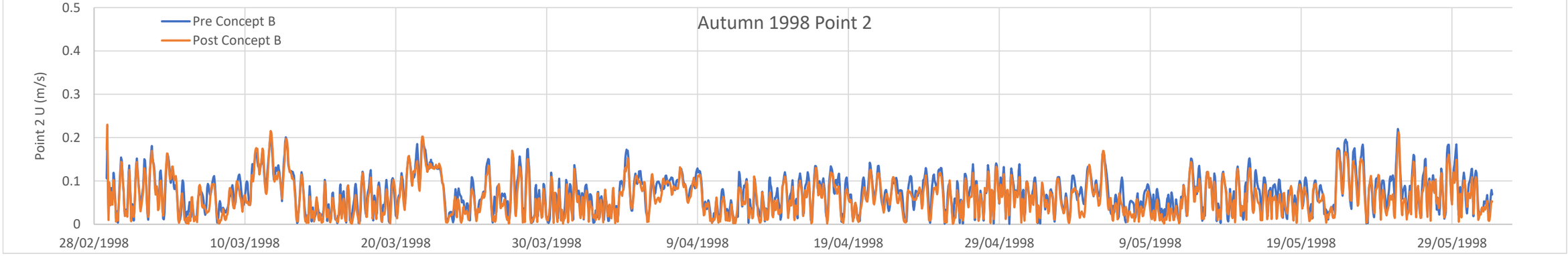
Autumn 1998 Point 2
Pre Concept B
Post Concept B
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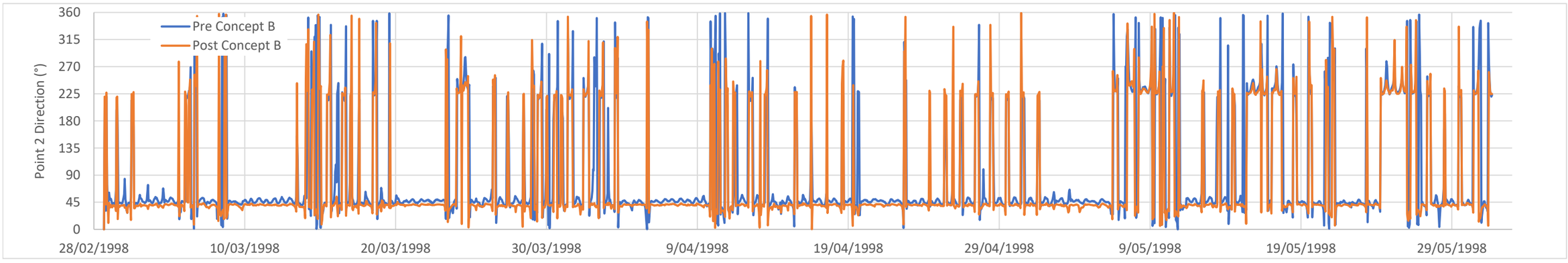
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Post Concept B
Point 2 Direction (°)
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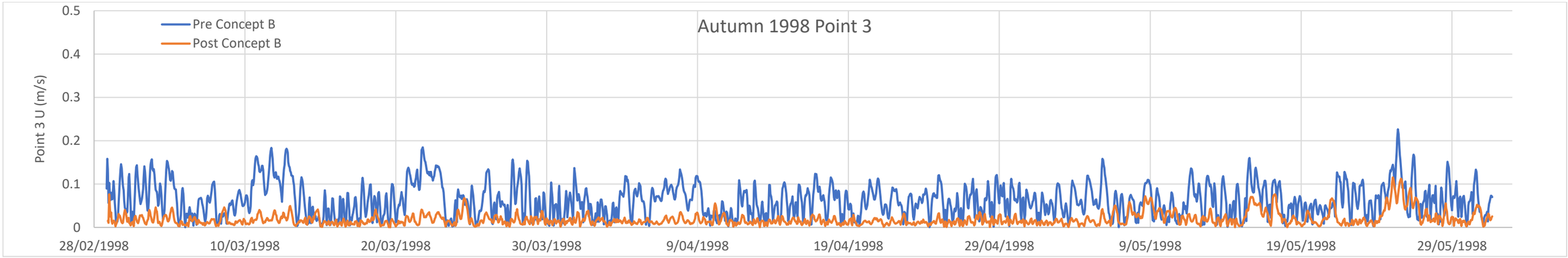
Autumn 1998 Point 3
Pre Concept B
Post Concept B
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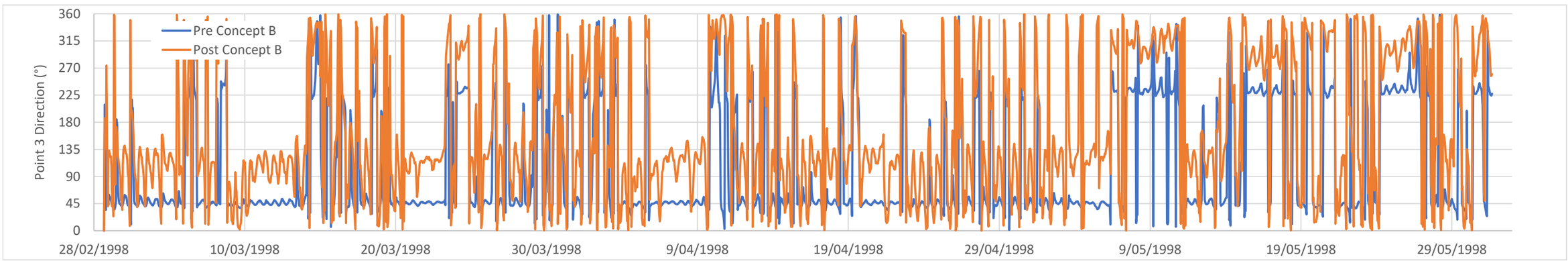
Pre Concept B
Post Concept B
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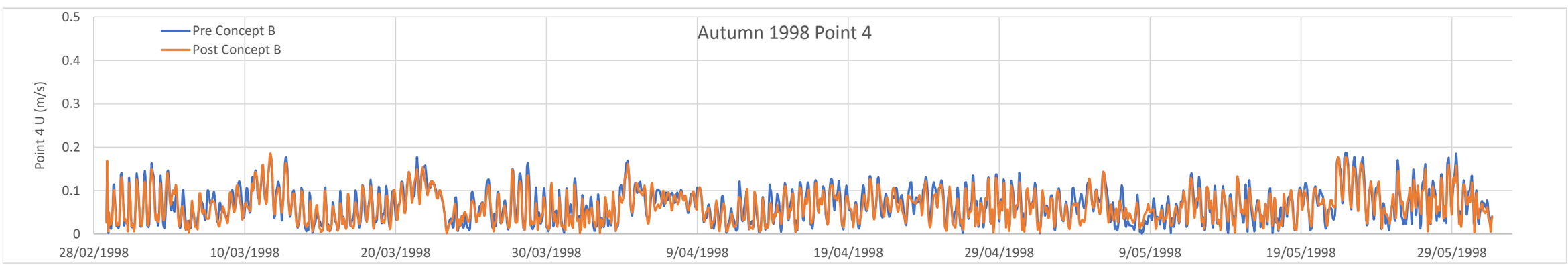
Autumn 1998 Point 4
Pre Concept B
Post Concept B
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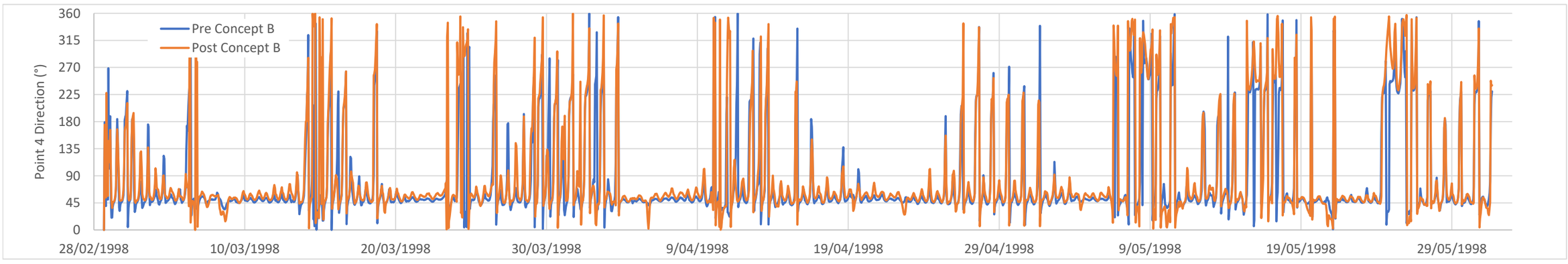
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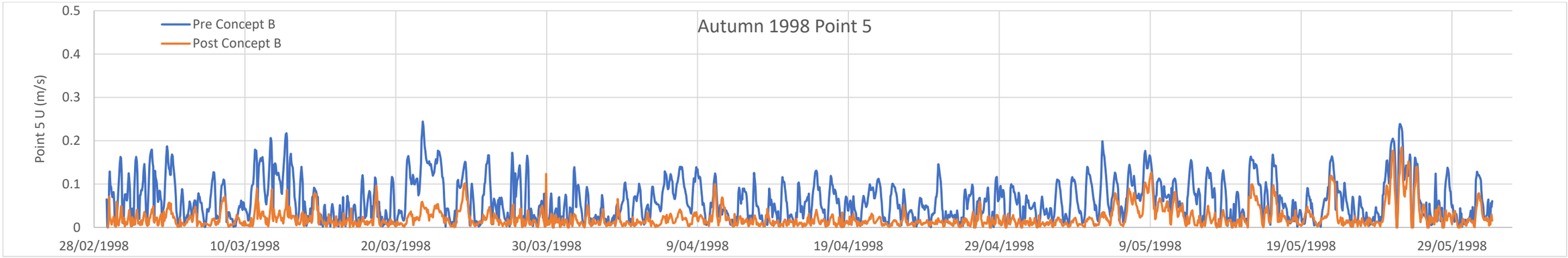
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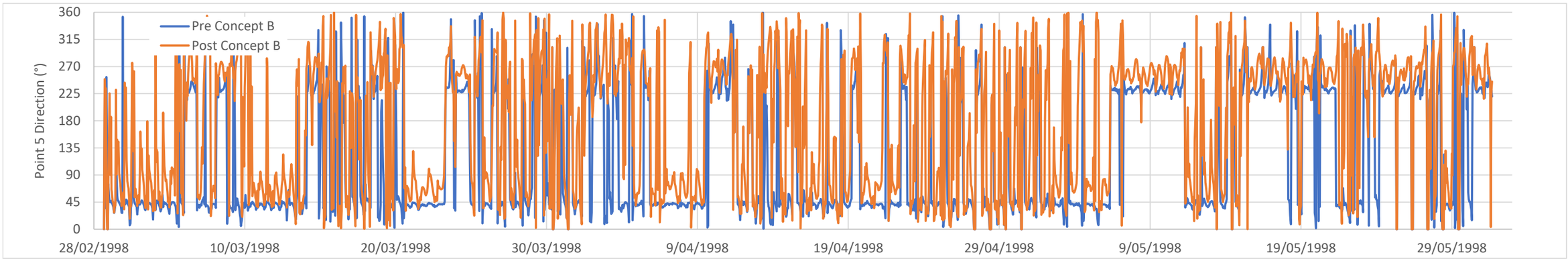
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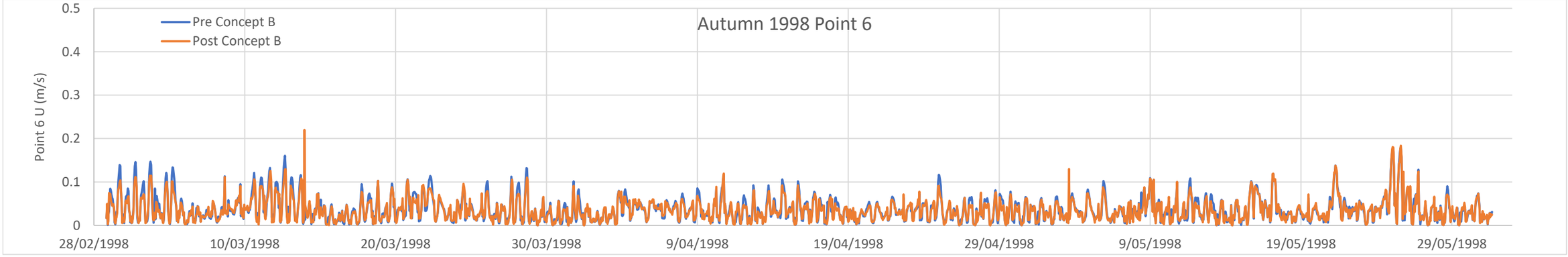
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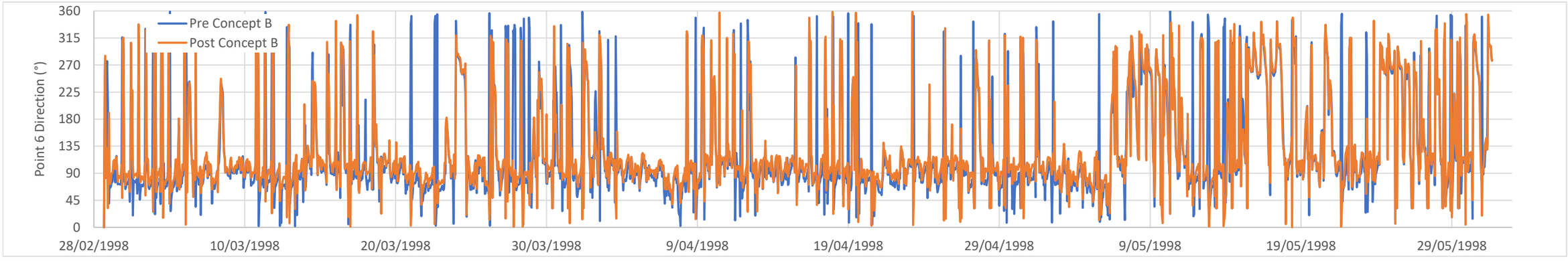
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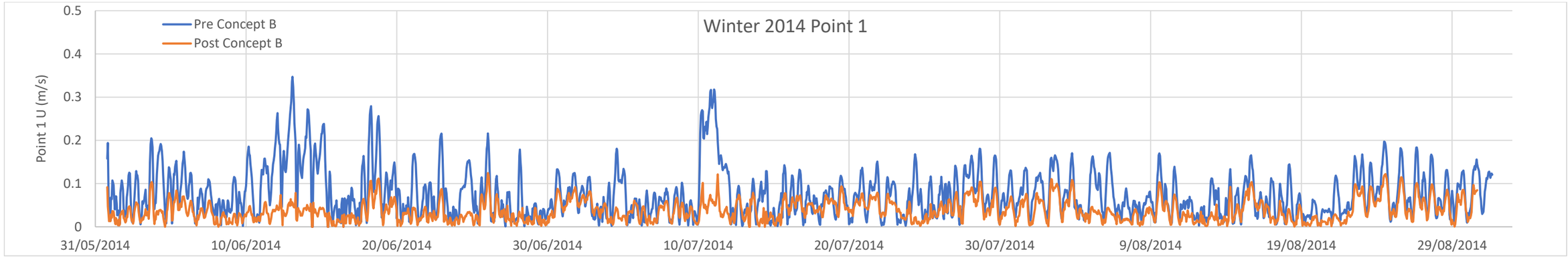
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Post Concept B
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10/06/2014
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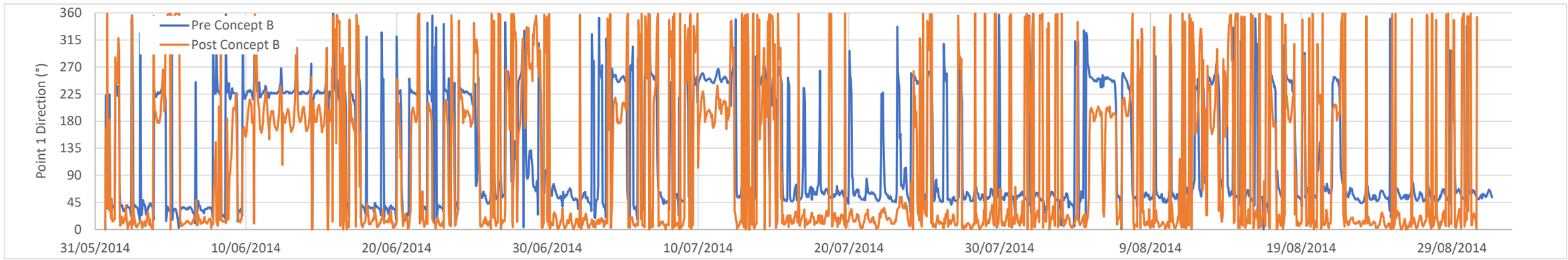
9/08/2014
19/08/2014
29/08/2014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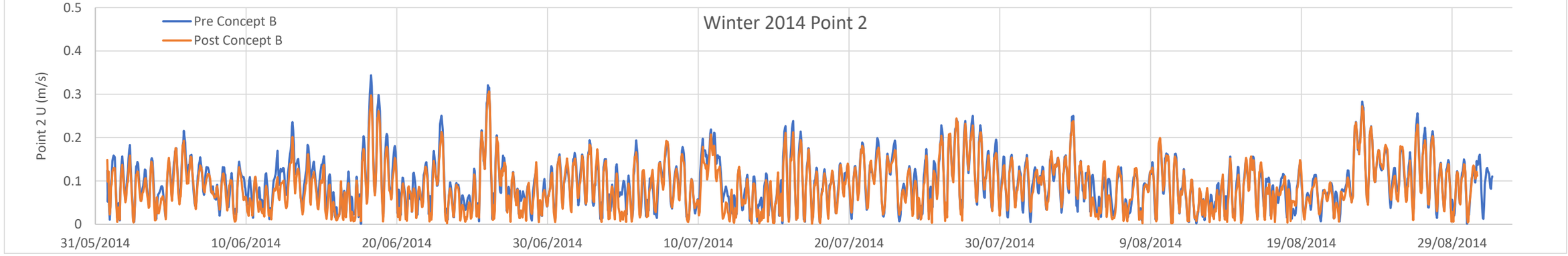
29/08/2014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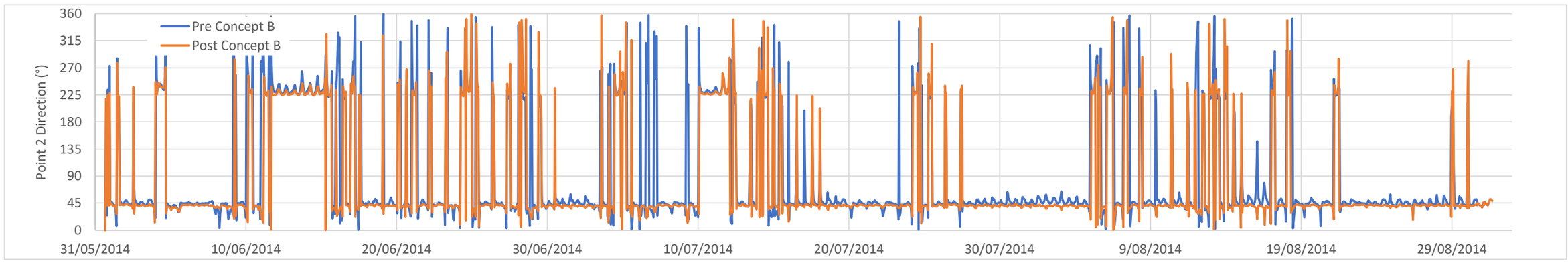
29/08/2014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Post Concept B
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180
135
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45
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31/05/2014
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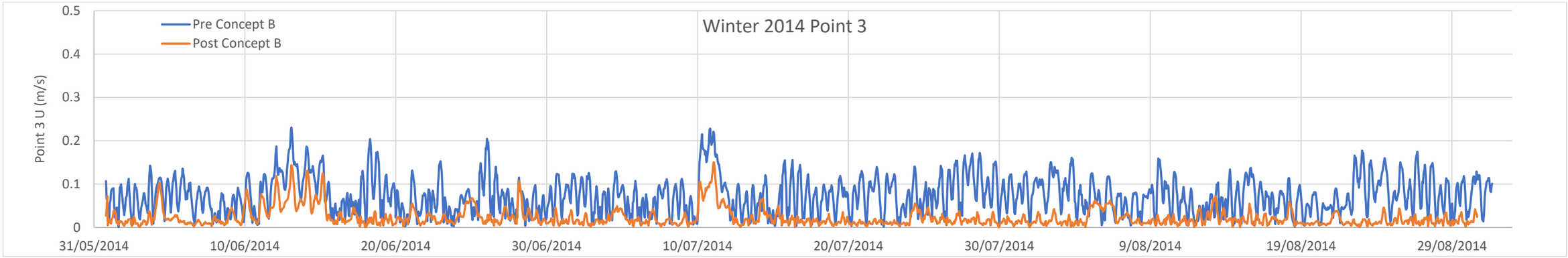
29/08/2014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Post Concept B
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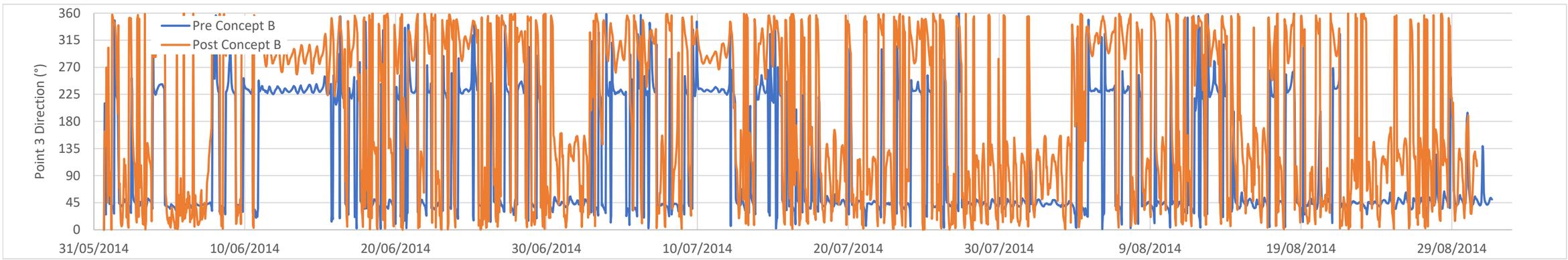
29/08/2014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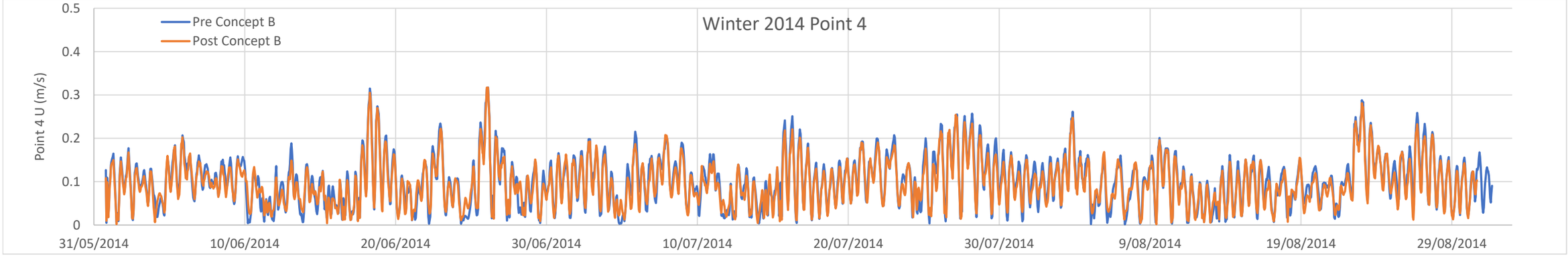
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0.2
0.1
0
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10/06/2014
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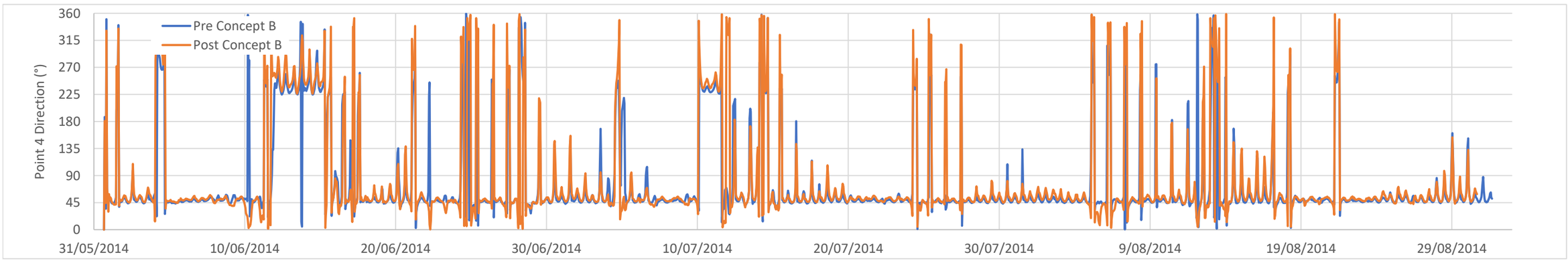
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Point 4 Direction (°)
360
315
270
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90
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31/05/2014
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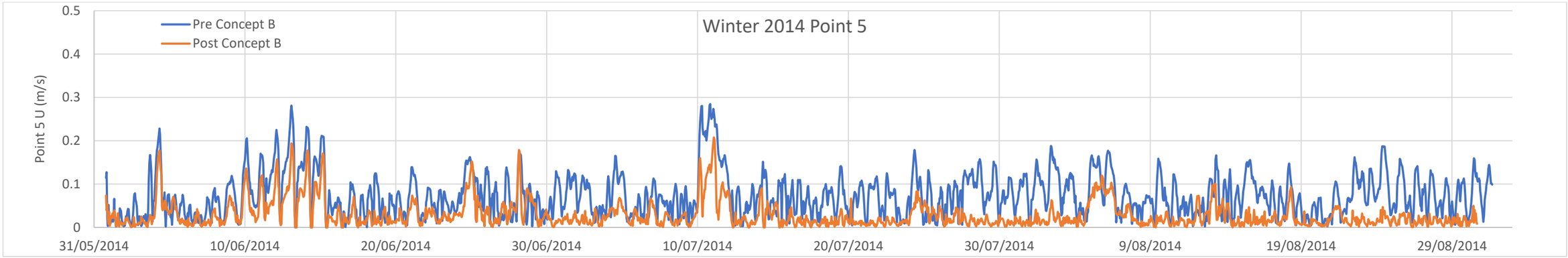
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Point 5 U (m/s)
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0.3
0.2
0.1
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10/06/2014
20/06/2014
30/06/2014
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9/08/2014
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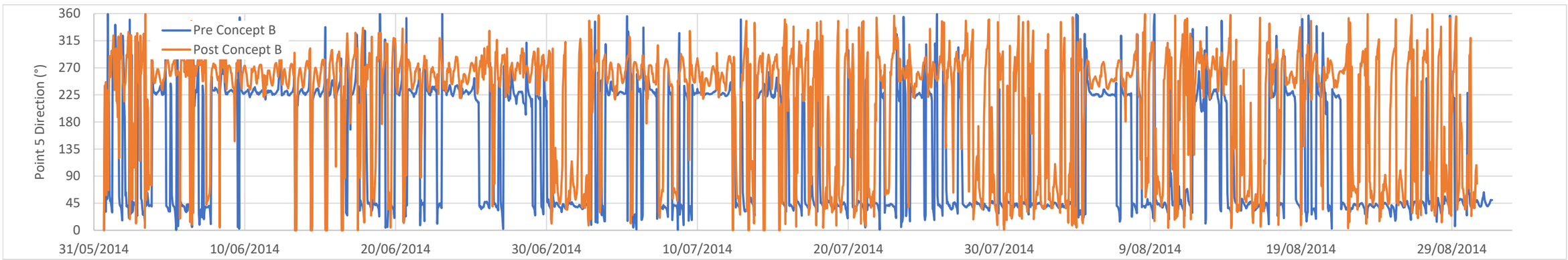
Pre Concept B
Post Concept B
Point 5 Direction (°)
360
315
270
225
180
135
90
45
0
31/05/2014
10/06/2014
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30/06/2014
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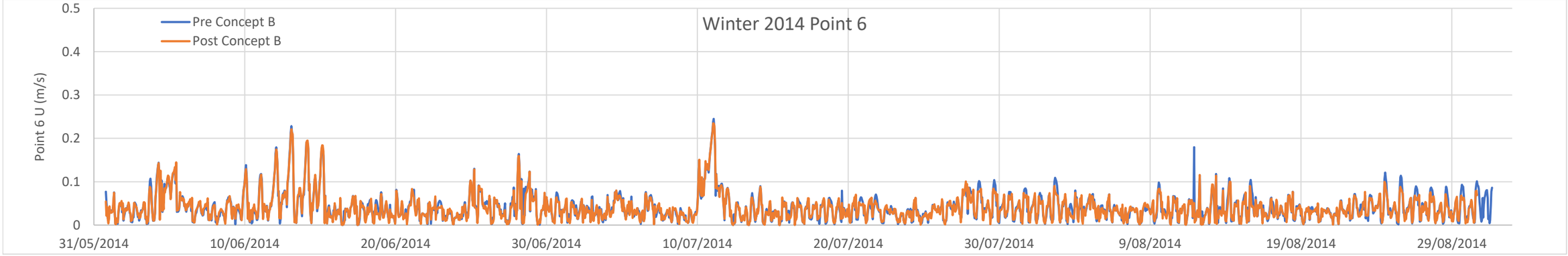
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Post Concept B
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0.3
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20/06/2014
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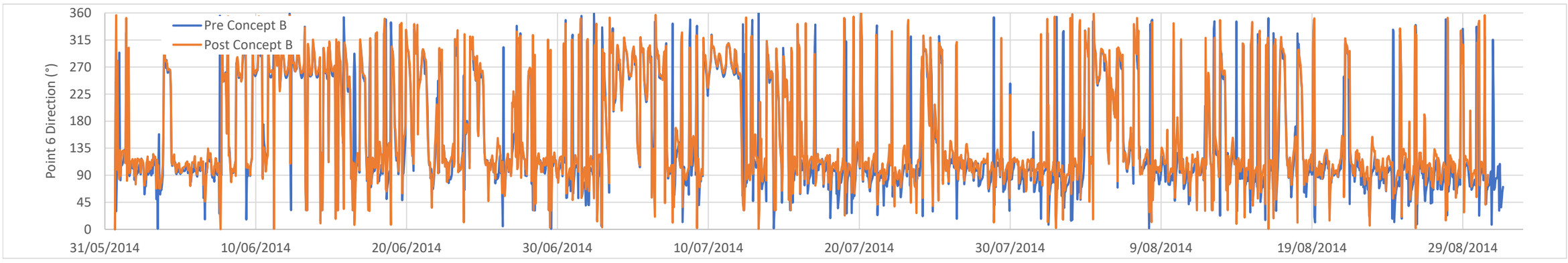
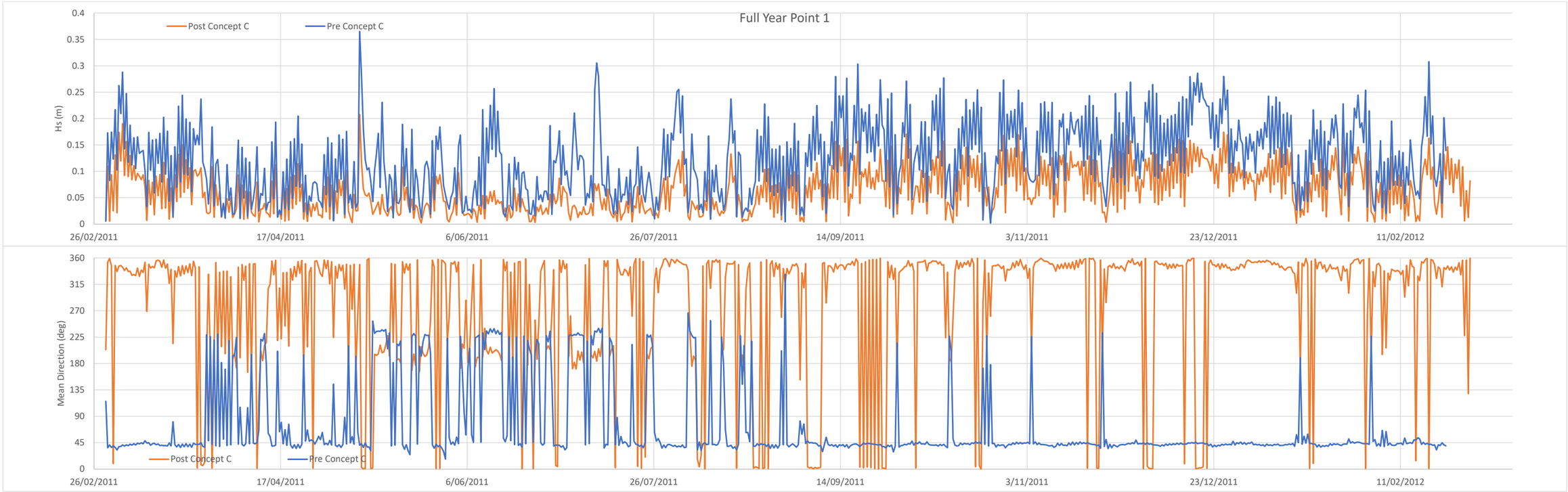
9/08/2014
19/08/2014
29/08/2014


Pre Concept B
Post Concept B
Point 6 Direction (°)
360
315
270
225
180
135
90
45
0
31/05/2014
10/06/2014
20/06/2014
30/06/2014
10/07/2014
20/07/2014
30/07/2014
9/08/2014
19/08/2014
29/08/2014

Appendix C Modelled Time History Plots for Selected Locations Concept C

Figure C.1 Output Locations for the Results Shown in Appendix C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Hs (m)
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0.25
0.2
0.15
0.1
0.05
0
26/02/2011
17/04/2011
6/06/2011
26/07/2011
14/09/2011
3/11/2011
23/12/2011
11/02/2012
Mean Direction (deg)
360
315
270
225
180
135
90
45
0
Post Concept C
Pre Concept C
26/02/2011
17/04/2011
6/06/2011
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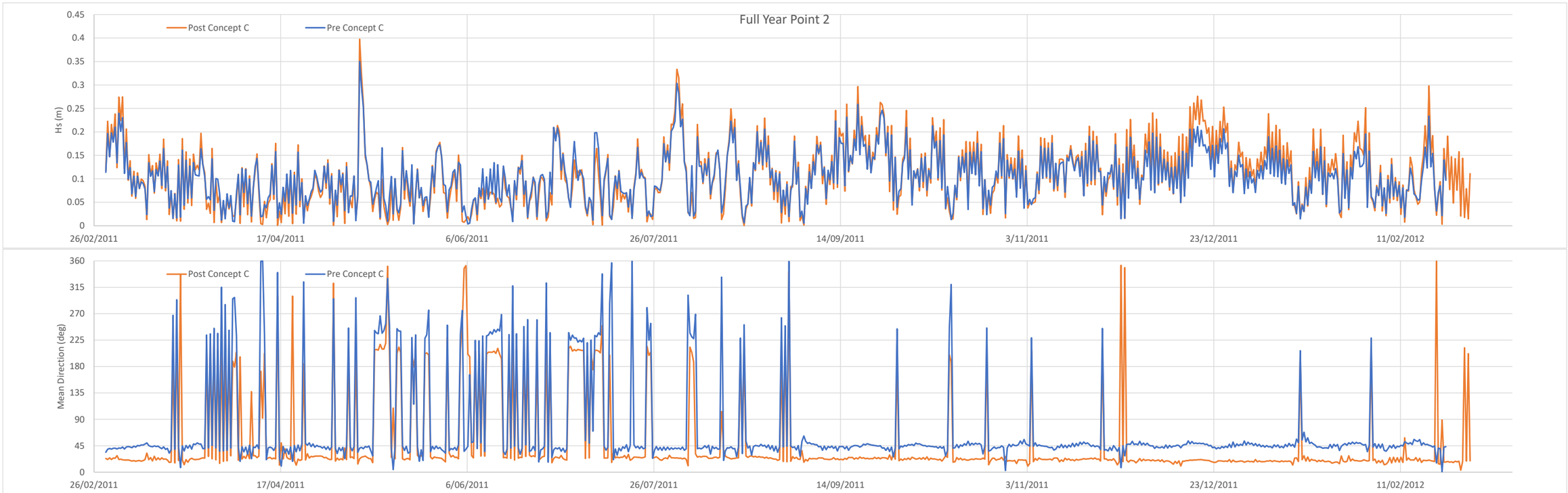
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17/04/2011
6/06/2011
26/07/2011
14/09/2011
3/11/2011
23/12/2011
11/02/2012
Mean Direction (deg)
360
315
270
225
180
135
90
45
0
Post Concept C
Pre Concept C
26/02/2011
17/04/2011
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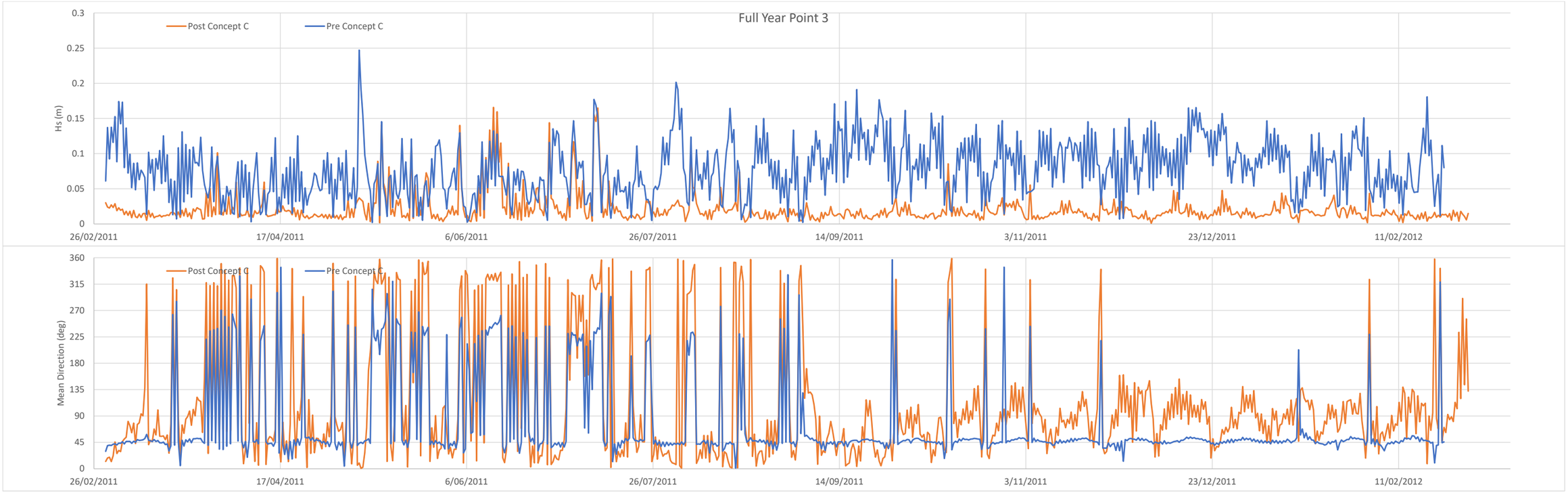
3/11/2011
23/12/2011
11/02/2012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0.1
0.05
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6/06/2011
26/07/2011
14/09/2011
3/11/2011
23/12/2011
11/02/2012
Post Concept C
Pre Concept C
Mean Direction (deg)
360
315
270
225
180
135
90
45
0
26/02/2011
17/04/2011
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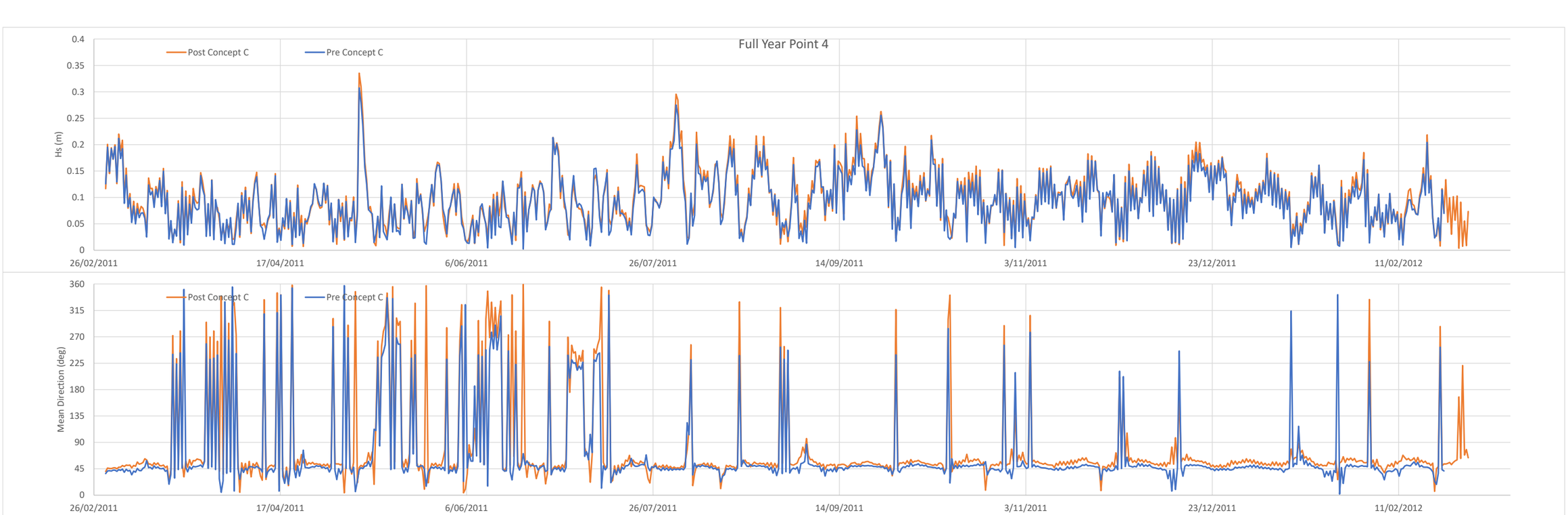
Full Year Point 4
Post Concept C
Pre Concept C
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0.05
0
26/02/2011
17/04/2011
6/06/2011
26/07/2011
14/09/2011
3/11/2011
23/12/2011
11/02/2012
Post Concept C
Pre Concept C
Mean Direction (deg)
360
315
270
225
180
135
90
45
0
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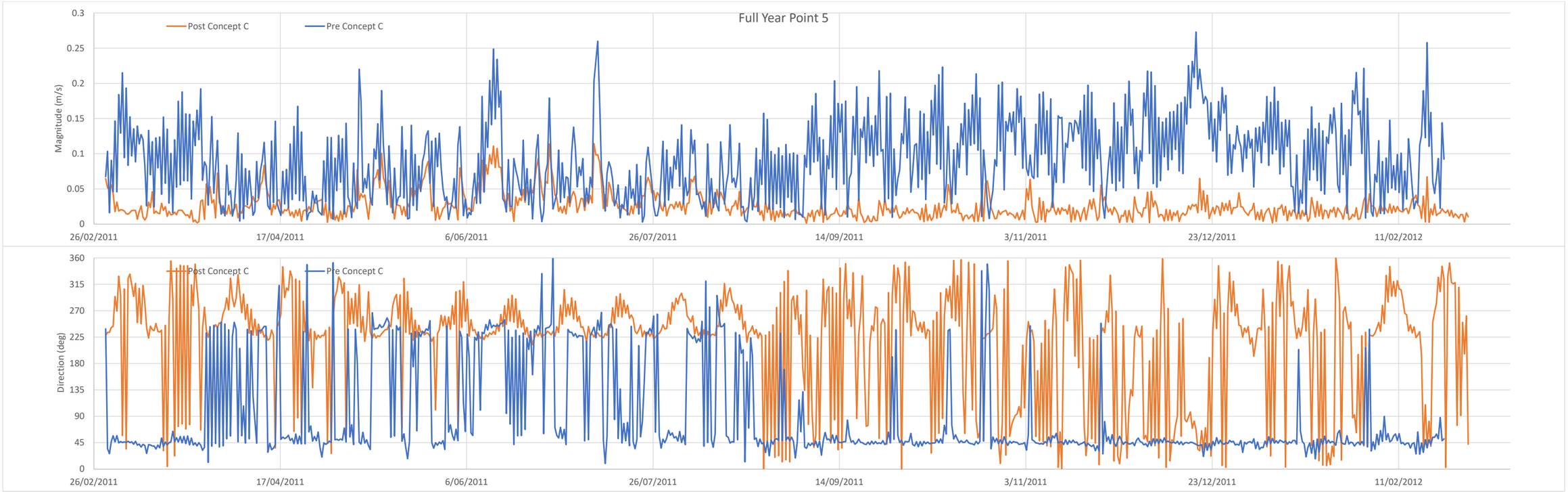
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0.15
0.1
0.05
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26/02/2011
17/04/2011
6/06/2011
26/07/2011
14/09/2011
3/11/2011
23/12/2011
11/02/2012
Post Concept C
Pre Concept C
Direction (deg)
360
315
270
225
180
135
90
45
0
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17/04/2011
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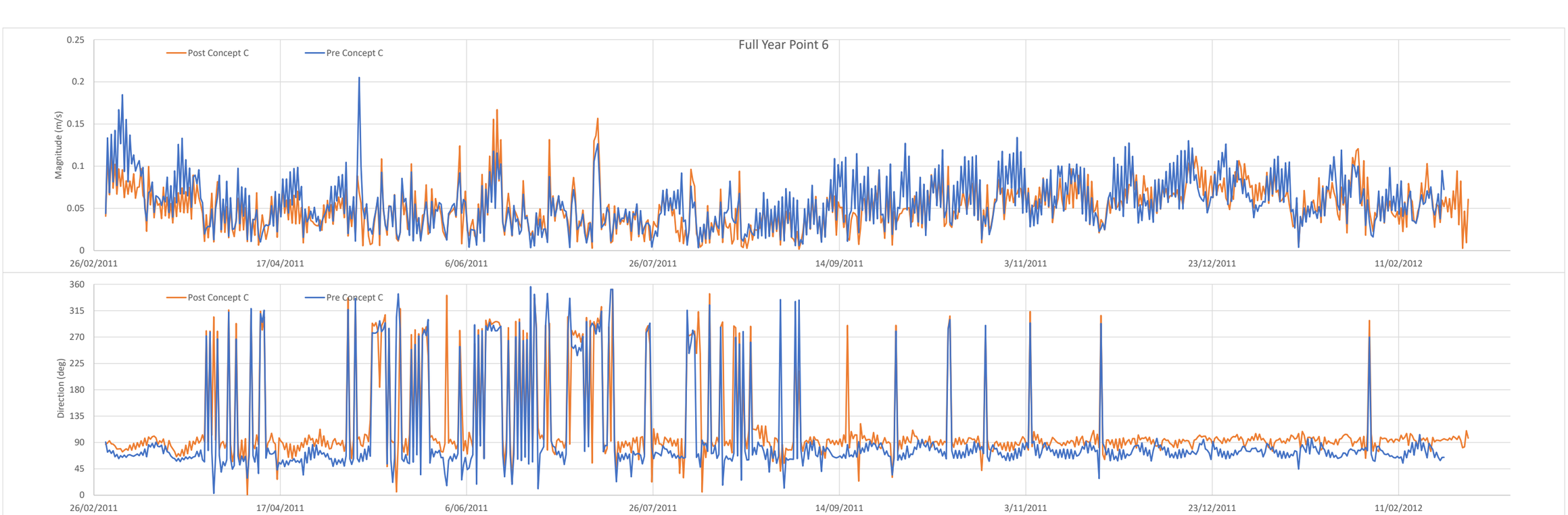
11/02/2012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Post Concept C
Pre Concept C
Magnitude (m/s)
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17/04/2011
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26/07/2011
14/09/2011
3/11/2011
23/12/2011
11/02/2012
Post Concept C
Pre Concept C
Direction (deg)
360
315
270
225
180
135
90
45
0
26/02/2011
17/04/2011
6/06/2011
26/07/2011
14/09/2011
3/11/2011
23/12/2011
11/02/2012

Appendix D Model Parameters

Parameter		Variable	
Time Step (min)		0.25	
Coupling Interval (min)		60	
Gravity (m/s^2)		9.81	
Water Density (kg/m^3)		1025	
Collins Bottom Friction		Sand / Low Relief Reef 0.15 High Relief Reef 0.8	
Horizontal Eddy Viscosity		B Grid 100 C Grid 10 D Grid 1	
Horizontal Eddy Diffusivity		B Grid 10 C Grid 10 D Grid 1	
Air Density (kg/m^3)		1.185	
		Break Point (m/s)	Coefficient
Wind Drag Coefficient	A	20	0.001
	B	41	0.0022
	C	61.5	0.0007
Output Interval (min)		60	

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Appendix F Sediment Transport & Sedimentation Modelling Report

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R1598 Rev 3

November 2022

Tantabiddi Creek
Sediment Transport & Sediment Modelling
Report

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boat harbours
canals
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jetties
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climate change
waves
currents
tides
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K1870, Report R1598 Rev 3
Record of Document Revisions

Rev	Purpose of Document	Prepared	Reviewed	Approved	Date
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0	Updated with Client comments	C Doak	M Peterson	C Doak	30.3.2022
1	Updated to address further comments	C Doak	M Peterson	C Doak	22.4.2022
2	Updated to include Concept C	C Doak	M Peterson	C Doak	10.11.2022
3	Updated to address comments on Concept C	M Peterson	C Doak	C Doak	16.01.2023

Form 035 18/06/2013

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Acknowledgment of Country

M P Rogers & Associates and the Department of Transport would like to acknowledge the traditional custodians of the land to which this investigation relates, the Jinigudira people. We pay our respects to Elders both past, present and emerging for they hold the memories, the traditions, the culture and the hope of their people.

1. Introduction

The Tantabiddi Boat Ramp precinct is of regional significance and is a key asset as a gateway to the Ningaloo Reef tourism and recreational experiences. The Shire of Exmouth (Shire) and the Department of Biodiversity, Conservation and Attractions (DBCA) jointly manage the Tantabiddi land and marine environment under the governance of the Jurabi and Bundegi Coastal Parks and Muiron Island Management Plan 1999. Both agencies manage civil maintenance, environmental maintenance, and preservation programs, though the Shire generally maintains the boat ramp infrastructure. The location of the boat ramp in the context of the North West Cape is shown in Figure 1.1 below.

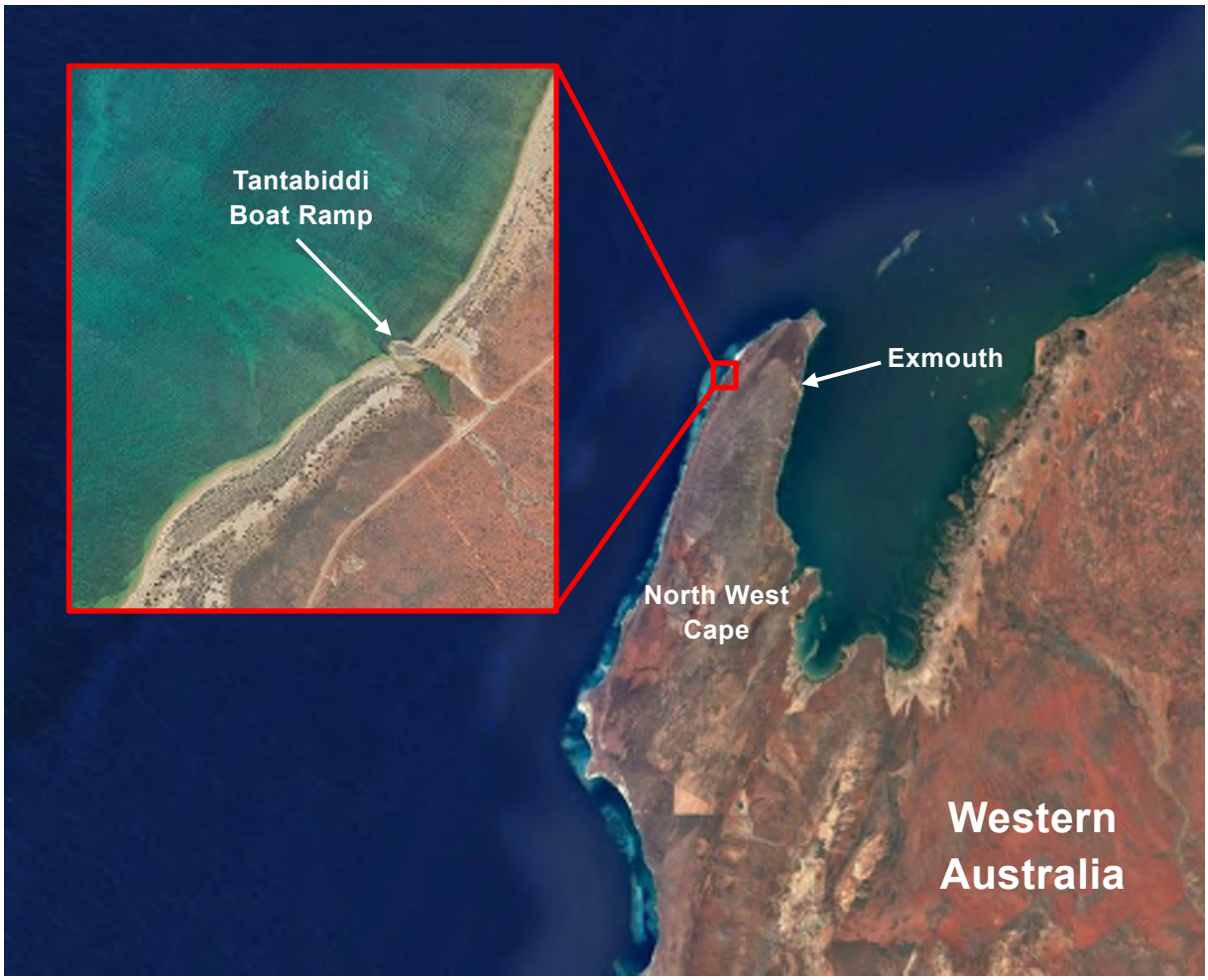

Figure 1.1 Location Plan

To address capacity limitations and maintenance issues associated with the existing Tantabiddi ramp, the Department of Transport (DoT) in collaboration with the Shire, DBCA, Department of Primary Industries and Regional Development (DPIRD), and Tourism WA have resolved to identify the planning, investigations and approvals necessary to develop a new facility at Tantabiddi. The proposed concept plan for the Tantabiddi Boating Facility (TBF) is shown in Figure 1.2. The layout presented in Figure 1.2 is known as Concept B.

Figure 1.2 Proposed Concept for the TBF – Concept B

Work completed by MRA on Concept B (as presented in this and other reports) assessed the wave climate and other aspects associated with the proposed layout. This work identified the potential for reductions in sedimentation rates of the entrance channel at the mouth of the Concept B layout with some modification to the layout. A refinement of the TBF design was subsequently completed by DoT resulting in Concept C. This new concept features a refined layout designed to decrease potential infilling of the entrance to the facility and adjacent channel. The layout of Concept C is presented in Figure 1.3.

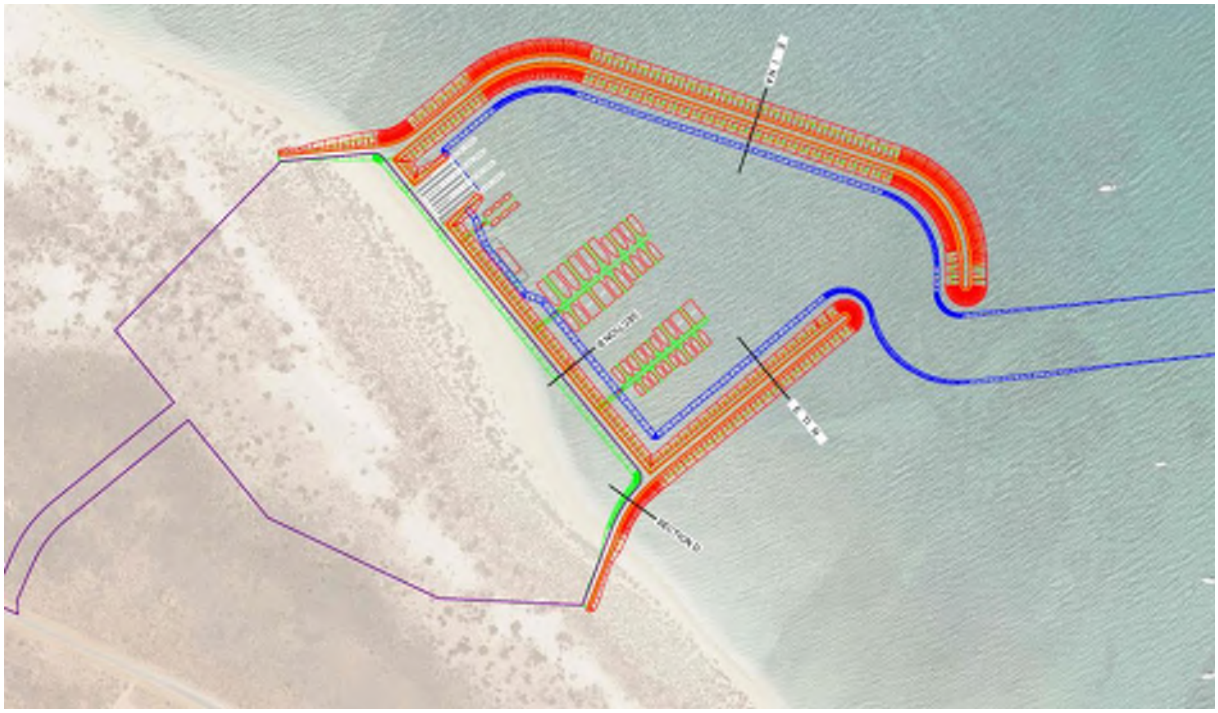

Figure 1.3 Concept C Layout

A comparison of the concept layouts, including an earlier Concept A layout, is presented in Figure 1.4.

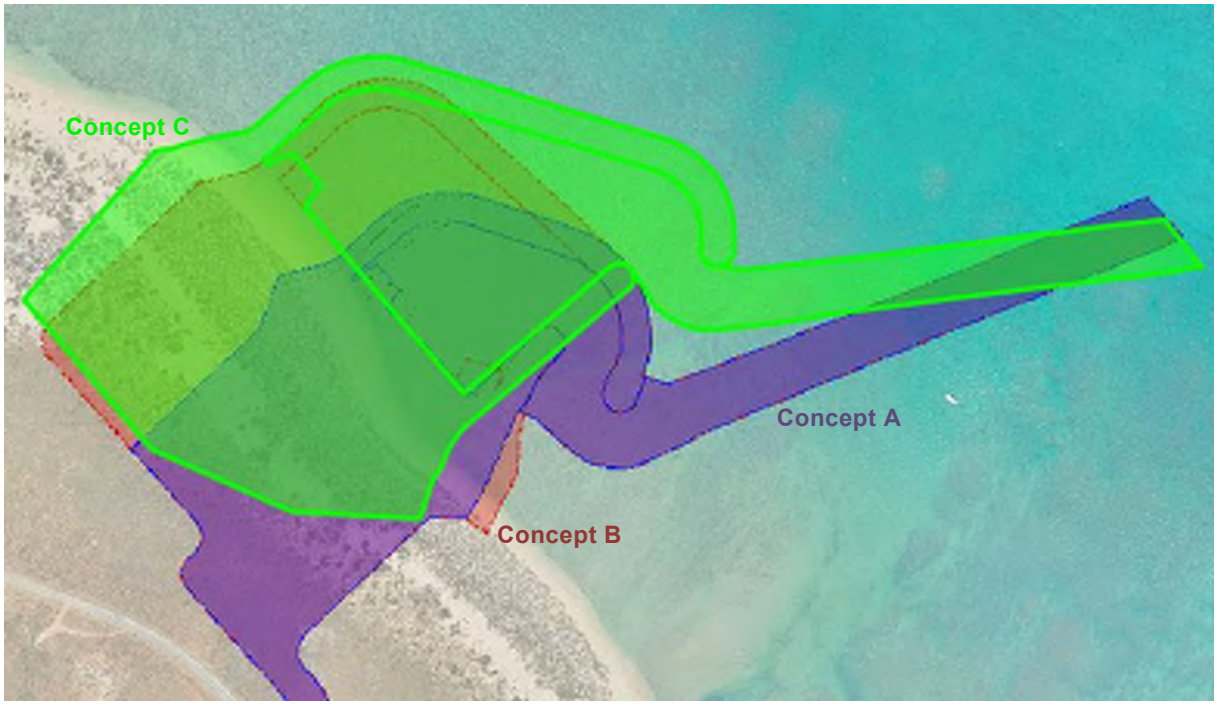

Figure 1.4 Comparison of Concepts A, B & C

In order to investigate the coastal processes at the Tantabiddi site and the impact of the proposed concepts, coastal engineers M P Rogers & Associate Pty Ltd (MRA) were engaged by DoT to undertake the Tantabiddi Creek Coastal Processes Study. This study includes a number of tasks, discussed below. The outcomes of the Tantabiddi Creek Coastal Processes study are contained

within a number of reports prepared by MRA. This is a standalone technical report prepared for the Sediment Modelling (Task 7). It should be noted that this report was initially prepared to investigate the potential impacts of Concept B, however following completion of the reporting Concept C was developed and the results from modelling of Concept C have therefore been added to this report (refer Section 6).

1.1 Tantabiddi Creek Coastal Processes Scope

The scope of this study includes a number of tasks and activities which are detailed below.

- Task 1: Desktop Review, Data Gathering, and Site Visit.
- Task 2: Shoreline Movement Assessment.
- Task 3: Metocean Climate Analysis which includes.
    - Nearshore Ambient Condition Analysis.
    - Offshore Ambient and Extreme Conditions Analysis.
    - Ambient and Extreme Wind Conditions Analysis.
- Task 4: Cyclonic Modelling.
- Task 5: Wave Modelling.
- Task 6: Hydrodynamic Modelling – Impacts and Flushing.
- **Task 7: Sediment Transport and Sedimentation Modelling.**
- Task 8: Wave Penetration and Long Period Wave Assessment.
- Task 9: Wave Penetration Modelling. Contingent on outcome of Task 8.
- Task 10: Long Period Wave Modelling. Contingent on outcome of Task 8.

Tasks 1, 8, 9 and 10 are wholly contained within sections of the overall **Coastal Processes Study Project Report (R1518).** The outcomes of Tasks 2, 3, 4, 5, 6 and 7 are provided as standalone technical reports. This report consists of the standalone technical report for Task 7. Refer to Table 1.1 for further information on the location of the standalone technical reports.

Table 1.1 Standalone Technical Report Locations

Task	Task Title	Report Number	Location
2	Shoreline Movement Assessment	R1535	R1518 Appendix A
3	Metocean Climate Analysis	R1524	R1518 Appendix B
4	Cyclonic Modelling	R1533	R1518 Appendix C
5	Wave Modelling	R1629	R1518 Appendix D
6	Hydrodynamic Modelling	R1585	R1518 Appendix E
7	Sediment Transport & Sediment Modelling	R1598	R1518 Appendix F

Notes: 1. Revision numbers for current versions of reports are noted in the current version of the main report (R1518).

This report consists of the standalone technical report for Task 7 Sediment Transport and Sediment Modelling. The specific scope for Task 7 is introduced below.

1.2 Task 7: Sediment Modelling Scope

The scope of work to be completed for this task, and as outlined within this report, is as follows.

- Set up and calibrate the Delft3D morphological model to replicate the existing sediment budget determined within the Shoreline Movement Assessment (Task 2).
- Use the Delft3D morphological model to simulate sediment movement over the existing shoreline and simulate six sediment transport scenarios, each covering a 3 month duration, plus a cyclone event.
- Set up the Delft3D morphological model for the proposed TBF concept, including the dredge channel, and remodel the sediment transport scenarios.
- Provide recommendations on any changes to the layout that could improve the performance of the maintenance regime.
- Assess the frequency, volume and timing of sand bypassing and the requirement for maintenance dredging of the entrance channel to the facility.
- Assess the required management measures to mitigate the impacts identified.

The data, methods and results of this scope of works are provided within this report.

2. Sediment Budget

2.1 Background

The coastal area surrounding the proposed TBF broadly consists of a living coralgal reef, interspersed with mobile sands, that encloses a sandy bottom lagoon with nearshore reef platforms (refer Figure 2.1). The Ningaloo reef parallels the coastline and is backed by a relatively narrow reef flat that transitions to a lagoon. The enclosed lagoon consists of reef covered with sand, and the nearshore area consists of reef outcrops that are either exposed or covered by a thin veneer of sand. The beach is composed of unconsolidated and poorly consolidated quartzose calcarenite which is backed by sparsely vegetated foredunes and relic foredunes. Photographs of the site showing the typical composition of the nearshore area are provided in Figure 2.2.

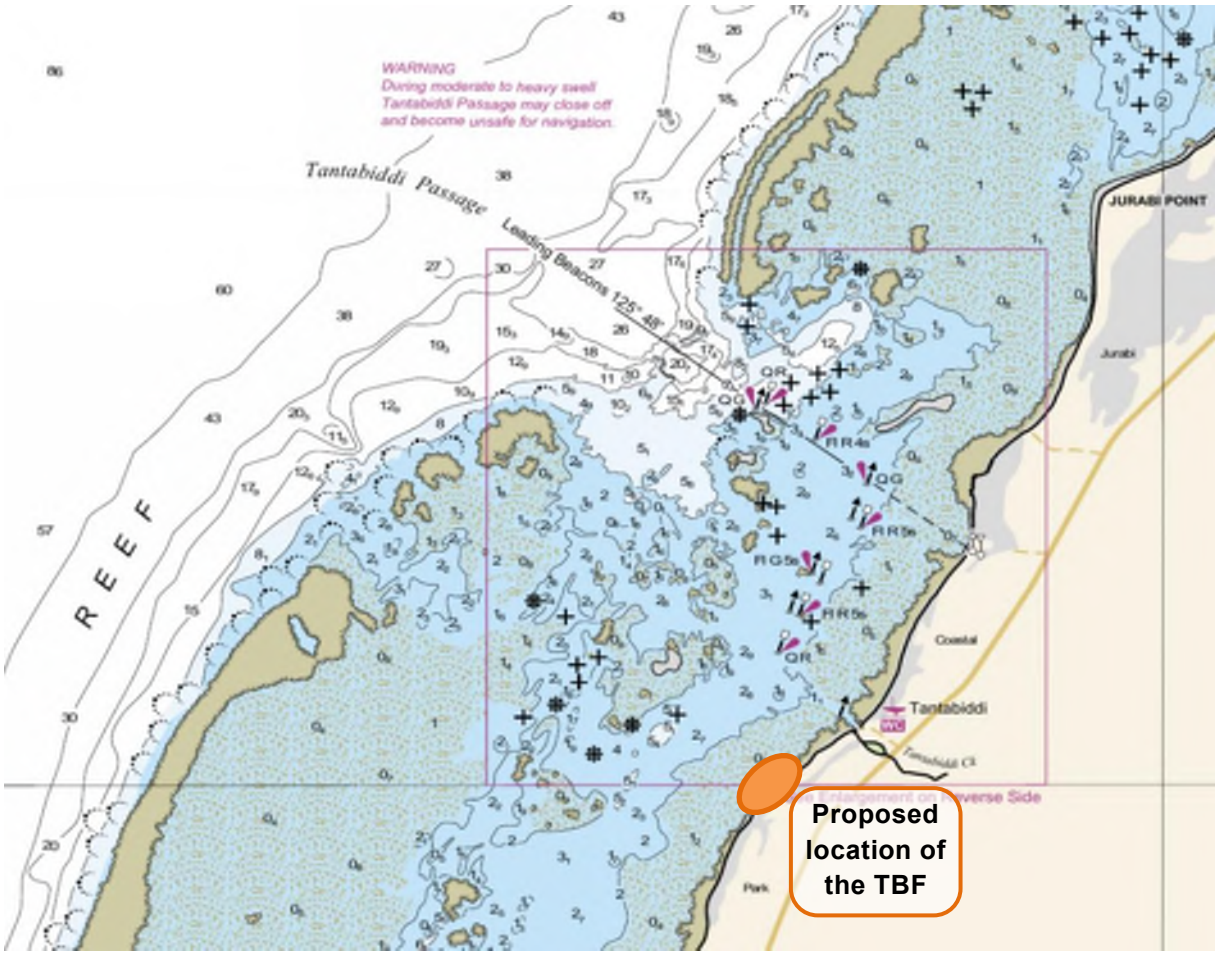

Figure 2.1 Extract from Nautical Chart RAN 900 (DoT)

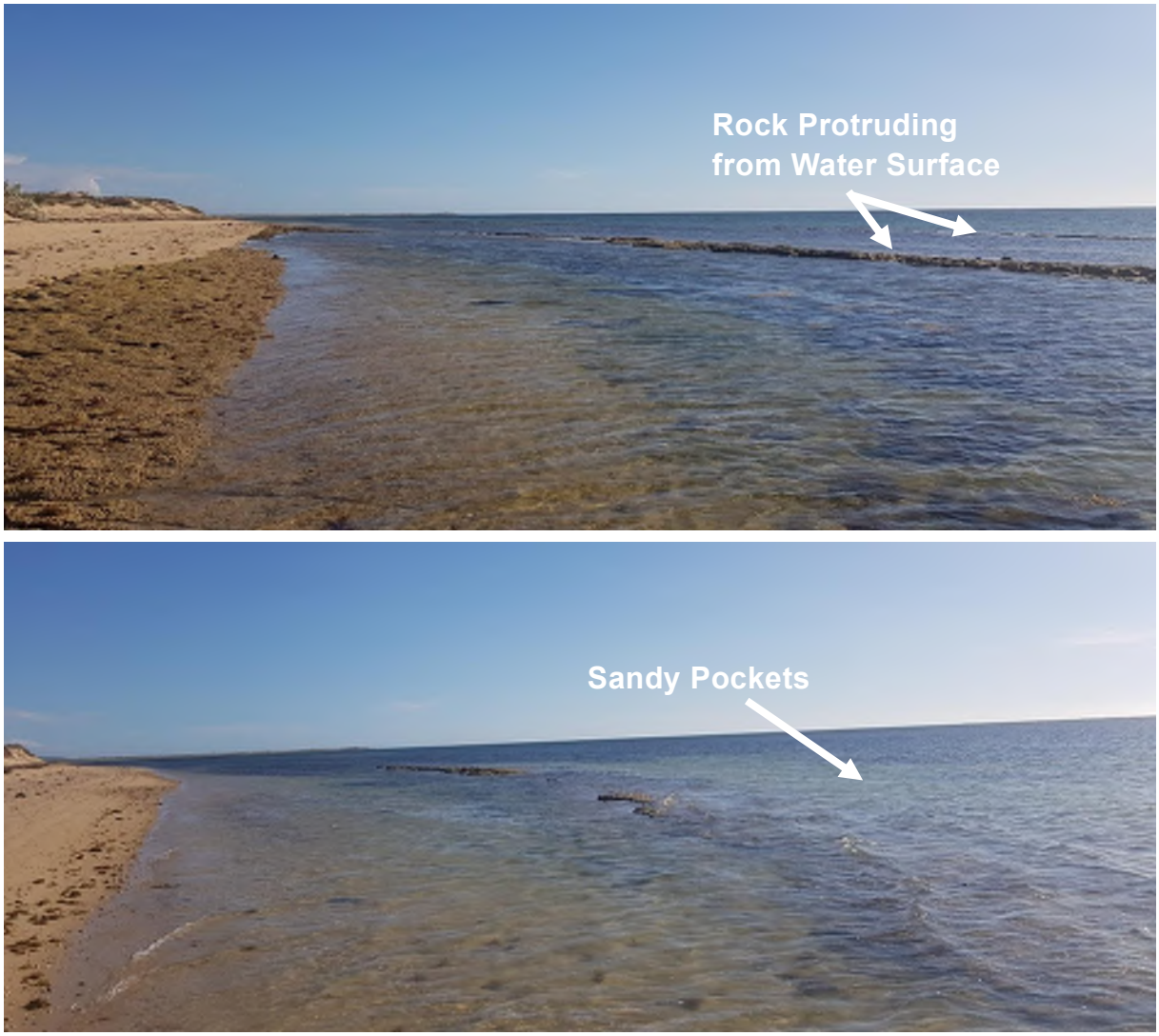

Figure 2.2 Nearshore Beach Rock & Sand Pockets

Sediment is transported across the reef via wave action before longshore transport processes begin to dominate. It is noted that the net sediment transport direction along the shoreline is to the north east, though seasonal variation in the longshore transport directions is known to occur.

The existing Tantabiddi Boat Ramp acts as a barrier to this longshore transport and accretion is observed on the southern side of the ramp. Historically, the Tantabiddi Boat Ramp has required ongoing maintenance excavation or dredging of sediment that accumulates to the south and offshore of the Boat Ramp, with this excavation occurring roughly four times per year. Typically, the excavated material has been removed from the beach or nearshore area and placed onshore, either on the beach to the north of the boat ramp, or behind the dunes. These works are generally carried out by the Shire of Exmouth using a long reach excavator.

Further information regarding the site and the local sediment transport processes is provided in the Coastal Processes Report as well as within the Task 2: Shoreline Movement Analysis report.

2.2 Estimated Sediment Budget

As part of Task 2, a sediment budget was determined showing the approximate volumes of sediment moving through a number of “sediment compartments” along the Tantabiddi coast in a

"typical" year. The assumptions and methodology used to create the sediment budget are discussed in the Task 2 report. An extract of the completed sediment budget which is relevant to the morphological modelling of the proposed TBF is presented in Figure 2.1.

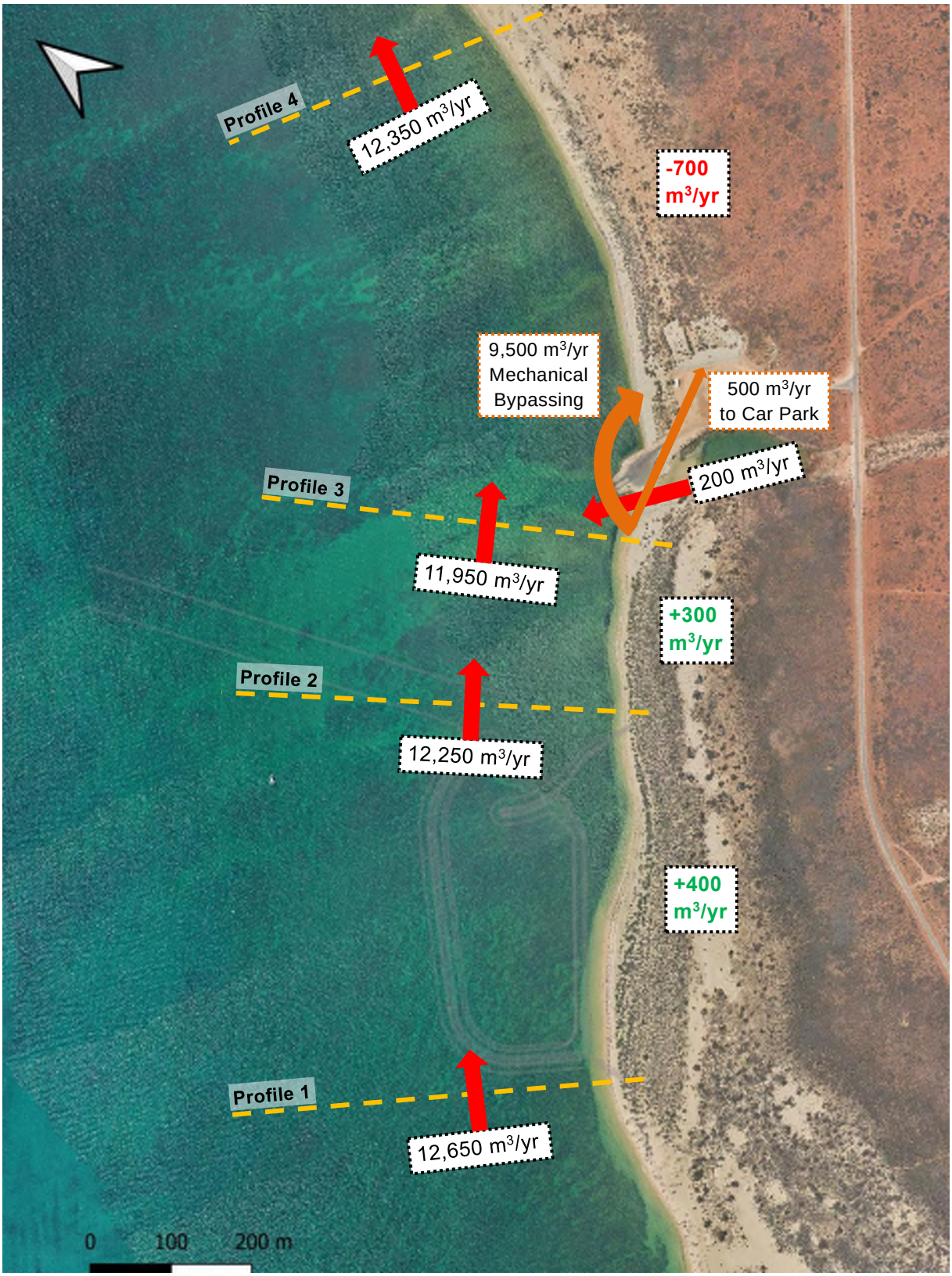

Figure 2.3 Localised Net Sediment Budget Surrounding the Proposed TBF Site

3. Modelling Methodology

Simulation of the local sediment transport, including the potential changes to the local sediment transport regime caused by the construction of the proposed TBF, requires a detailed modelling approach. A summary of the modelling approach, together with details of the tasks required to enable the modelling, is described below.

- Setup calibrate and validate a coupled Delft3D wave and hydrodynamic model for the region (completed in Tasks 5 and 6).
- Modify the coupled Delft3D model to include morphological modelling processes for assessment of sediment transport.
- Selection of modelling periods for the simulation (completed in Tasks 5 and 6). The selected periods aimed to provide a "typical year" of conditions through selection of typical summer, autumn, winter and spring conditions, as well two abnormal periods with metocean conditions that demonstrated a significant departure from the typical conditions.
- Calibration of the model via comparison of the sediment transport volumes modelled during a "typical year" against the results of the estimated sediment budget (completed in Task 2).
- Simulation of the sediment transport over the "typical year" of conditions including the proposed TBF.
- Modelling the sediment transport over the two abnormal periods both with and without the proposed TBF.
- Modelling a cyclonic event determined from the cyclone modelling (Task 3) with the proposed TBF to determine likely sediment transport under extreme conditions.
- Review and compare the model results from each of the simulated periods to enable assessment of the potential impacts of the facility as well as the potential management requirements.

3.1 Model Setup

Delft3D is a fully integrated computer software suite that enables a multi-disciplinary approach to 3D computations for coastal, river and estuarine areas. It can carry out simulations of waves, flows, sediment transport, water quality, morphological developments and ecology (Deltares 2011).

The Delft3D Flow module is a multi-dimensional hydrodynamic and morphological simulation program which calculates non-steady flow and transport phenomena that result from tidal, wave and meteorological forcing (Deltares 2011).

The key drivers for sediment transport processes along the coastline are waves and currents. The establishment of the wave and hydrodynamic models for Tantabiddi, including the grid sizing, nesting, bathymetry, roughness, bottom friction and other key factors were outlined in the Task 5 and Task 6 reports for wave and hydrodynamics respectively. For the sediment modelling the simulations were completed using a 2D hydrodynamics scheme, as minimal benefit would be derived from completing 3D simulations, particularly when considering the extended simulation times.

In addition to the setup of the Delft3D model completed previously for wave and hydrodynamics, there are additional parameters that are required for the modelling of sediment transport and morphological change.

To allow for the transport of sediment, a non-uniform sediment layer thickness was added to the model. The sediment layer was composed of a single layer of a uniformly distributed sediment with respect to particle size. The varying thickness of the sediment layer was determined through analysis of the bore hole and probe data, which is discussed in detail in Section 4.2 of the Coastal Processes Report. Where borehole or probe data was not available, the sediment layer thickness was estimated based on visual inspection of aerial photographs and interpolation between known points. Plots of the model bathymetry and associated sediment thickness are provided in Figures 3.1 to 3.3.

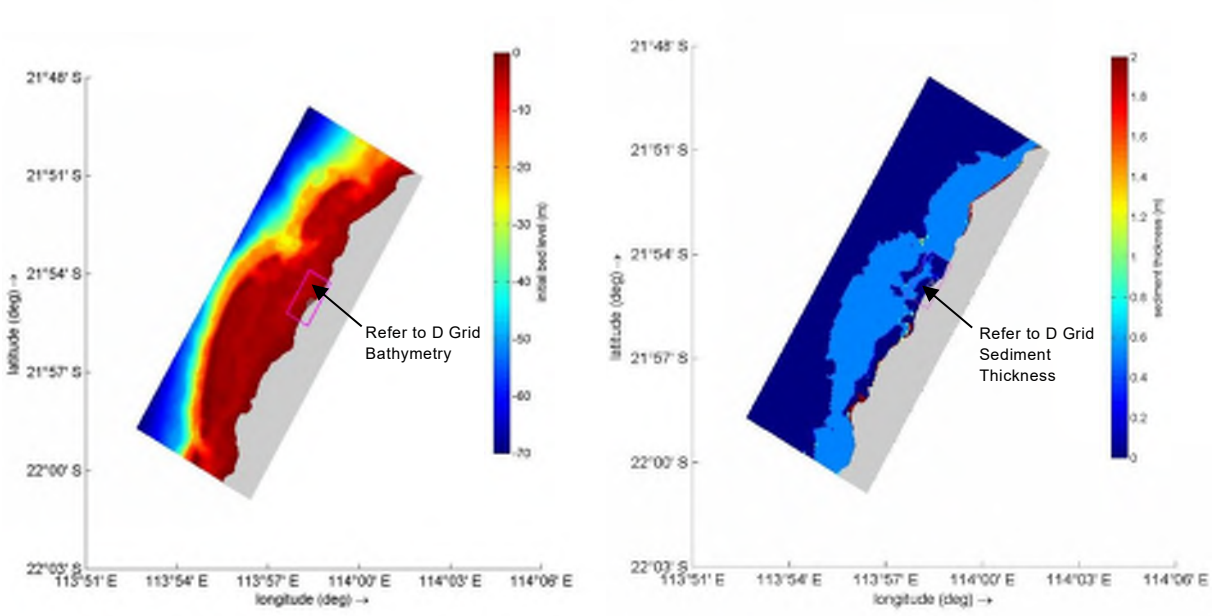

Figure 3.1 C Grid Morphological Modelling Bathymetry (Left) and Sediment Thickness (Right)

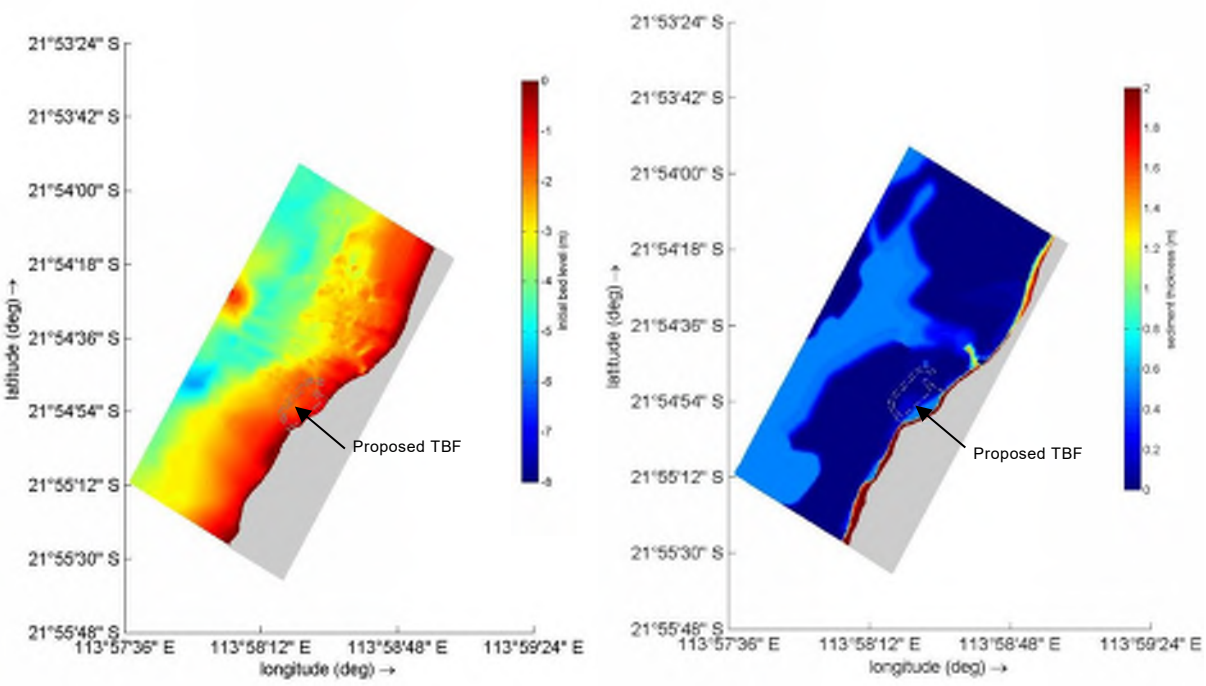

Figure 3.2 D Grid Morphological Modelling Bathymetry(Left) and Sediment Thickness (Right)

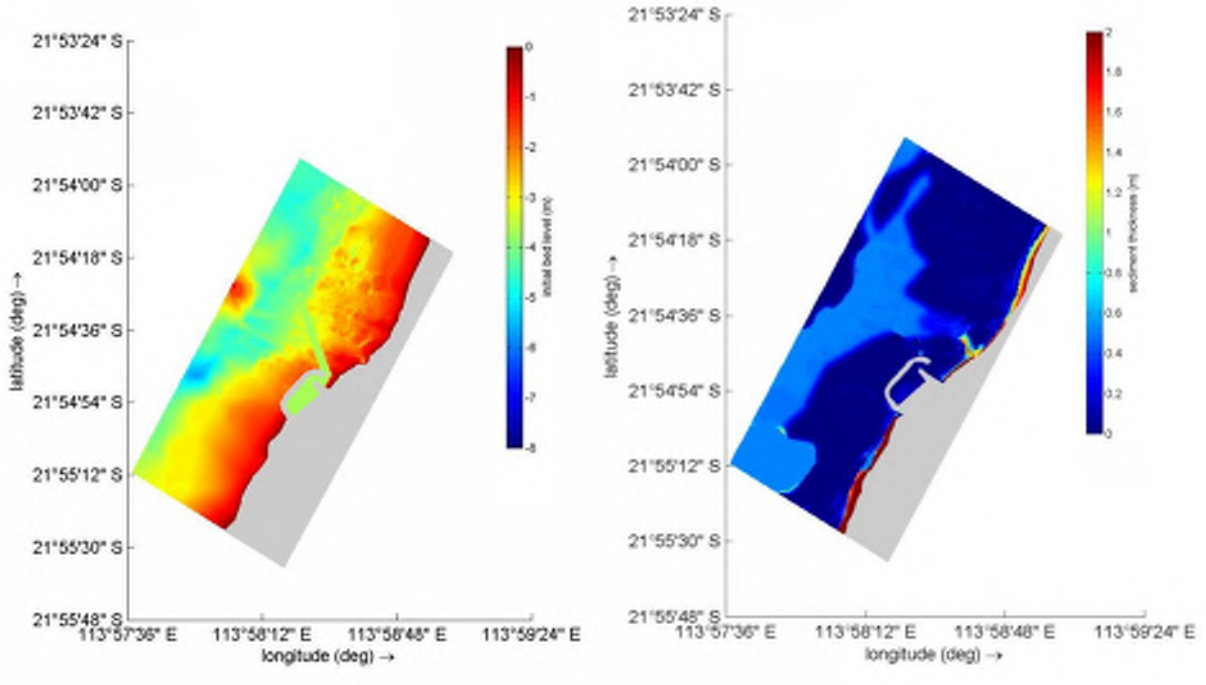

Figure 3.3 D Grid Morphological Modelling Including the Proposed TBF: Bathymetry(Left) and Sediment Thickness (Right)

The sediment characteristics used within the model were determined based on review of the borehole data taken by CMW Geosciences (2021) as well as from the collection and analysis of

samples completed by various parties, as described in Section 3.5 of the Coastal Processes Report. The sediment characteristics used in the model are summarised in Table 3.1.

It is noted that a single sediment size was used within the model, as details of the spatial variability of sediment sizes, both in the horizontal and vertical, are not known with anywhere near enough accuracy to represent these in the model. Further, general mixing of layers within the model during simulations would result in a mixed sediment layer in any case, as the processes of sediment production and granular weathering that led to differences in sediment sizes along the coastline are not replicated within the model. The D50 used within the model was also taken to be slightly smaller than recorded by MRA at most of the sediment sample locations, as it is noted that works completed by Cuttler et al (2015) and Pomeroy et al (2018) noted a distribution of finer sediment (D50 of 0.25 mm) within the region based on more comprehensive field measurement campaigns. The decision to use a D50 of 0.3 mm was based on providing a reasonably balanced outcome in terms of sediment size for the area.

Significantly, the modelling approach that has been adopted, whereby the sediment transport rates are calibrated to the estimated sediment budget, means that the choice of actual sediment size will not have a significant bearing on the model outcomes. Nevertheless, selection of a regionally appropriate sediment size that is smaller than some of the local measurements helps to prevent non-conservative outcomes with respect to material moving around the proposed facility.

Table 3.1 Sediment Characteristics

Characteristic	Value
D50 (mm)	0.3
Specific Density (kg/m^3)	2,100
Dry Bed Density (kg/m^3)	1,400

Another key aspect of the modelling was the fact that the existing Tantabiddi boat launching facility is likely to be removed following the construction of the proposed TBF. The structure of the Tantabiddi boat launching facility has therefore been removed from the model bathymetry that includes the proposed TBF. In this scenario the shoreline where the boat launching facility was previously located has been smoothed to better represent the likely shoreline alignment following removal. However, it needs to be acknowledged that there would be some degree of shoreline response as a result of the removal of the launching ramps.

3.2 Model Calibration

Following establishment of the sediment layer and characteristics, calibration of the model was undertaken to ensure model predictions adequately reflected reality.

Calibration of the Delft3D module was completed to ensure that the modelled sediment transport rates matched the long term estimates of sediment transport presented in the sediment budget (Figure 2.3). This process was used to ensure that the modelling suite accurately reflected the actual long term sediment movement at the site.

Calibration of the module was completed using the multiplication (calibration) factors within the model that factor current and wave related sediment concentration and transport vector

magnitudes. These factors are applied to the sediment transport calculations completed within the model based on the results of Van Rijn et al (2000) for currents and Van Rijn (2001) for waves. The model provides an acceptable range for these factors of between 0 and 100. The factors used within the model, are presented in Table 3.2.

Table 3.2 Factors Used within the Calibrated Morphological Model

Characteristic	Value
Factor for erosion of adjacent dry cells	0.3
Current-Related Reference Concentration Factor	25
Current-Related Transport Vector Magnitude Factor	10
Wave-Related Suspended Transport Factor	25
Wave-Related Bed Load Transport Factor	25

The model was used to simulate the 4 representative seasons (selected in Tasks 5 and 6) to provide a representation of a typical year with respect to meteorological conditions. Each of the seasons were modelled in sequence, with the cumulative sediment transport and bathymetric change tracked within the model.

Table 3.3 Dates of the 4 Representative Periods used to Create the Synthetic Average Year

Season	Representative Period
Summer (Typical)	01/12/15 – 29/02/16
Autumn (Typical)	01/03/13 – 31/05/13
Winter (Typical)	01/06/11 – 31/08/11
Spring (Typical)	01/09/07 – 31/11/07

To best match reality, the dredging and dumping function was also enabled in the model calibration to simulate the bypassing of sand past the boat ramp. The dredging component of the function was set up to simulate the excavation of material on the southern side of the ramp which occurs approximately 4 times per year. A total volume of 2,500 m^3 was extracted during each extraction period. In the absence of better information about the timing, extraction periods were simulated every three months, at a timing that roughly corresponded with the commencement of each season.

The dumping or disposal scheme within the model was also implemented coincident with the dredging scheme. Materials were predominately placed on the beach to the north of the boat

ramp, though a total of 500 m^3 of material was not replaced on the beach. This was completed to match the average volume of material that was stockpiled adjacent to the car park area over time.

The locations of the dredging and dumping zones within the model are shown in Figure 3.4.

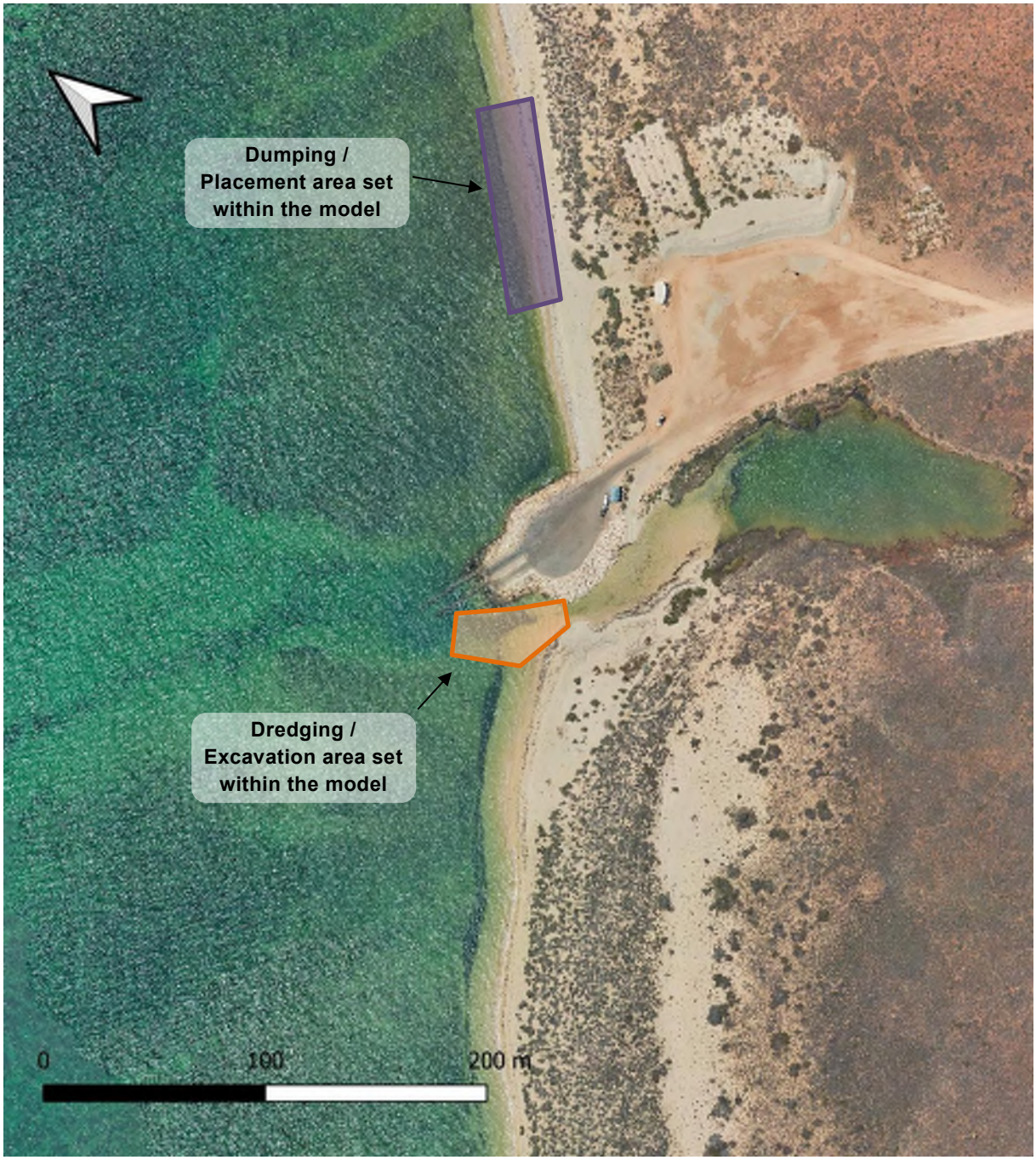

Figure 3.4 Dredging and Dumping Locations used within the Model

The results of the calibrated model simulation are presented in Figure 3.5, with the volumes of sediment transport provided in Table 3.4. The volumes of sediment transport given by the model have been reported as net transport volumes, together with total volumes of transport in both northerly and southerly directions along the coast.

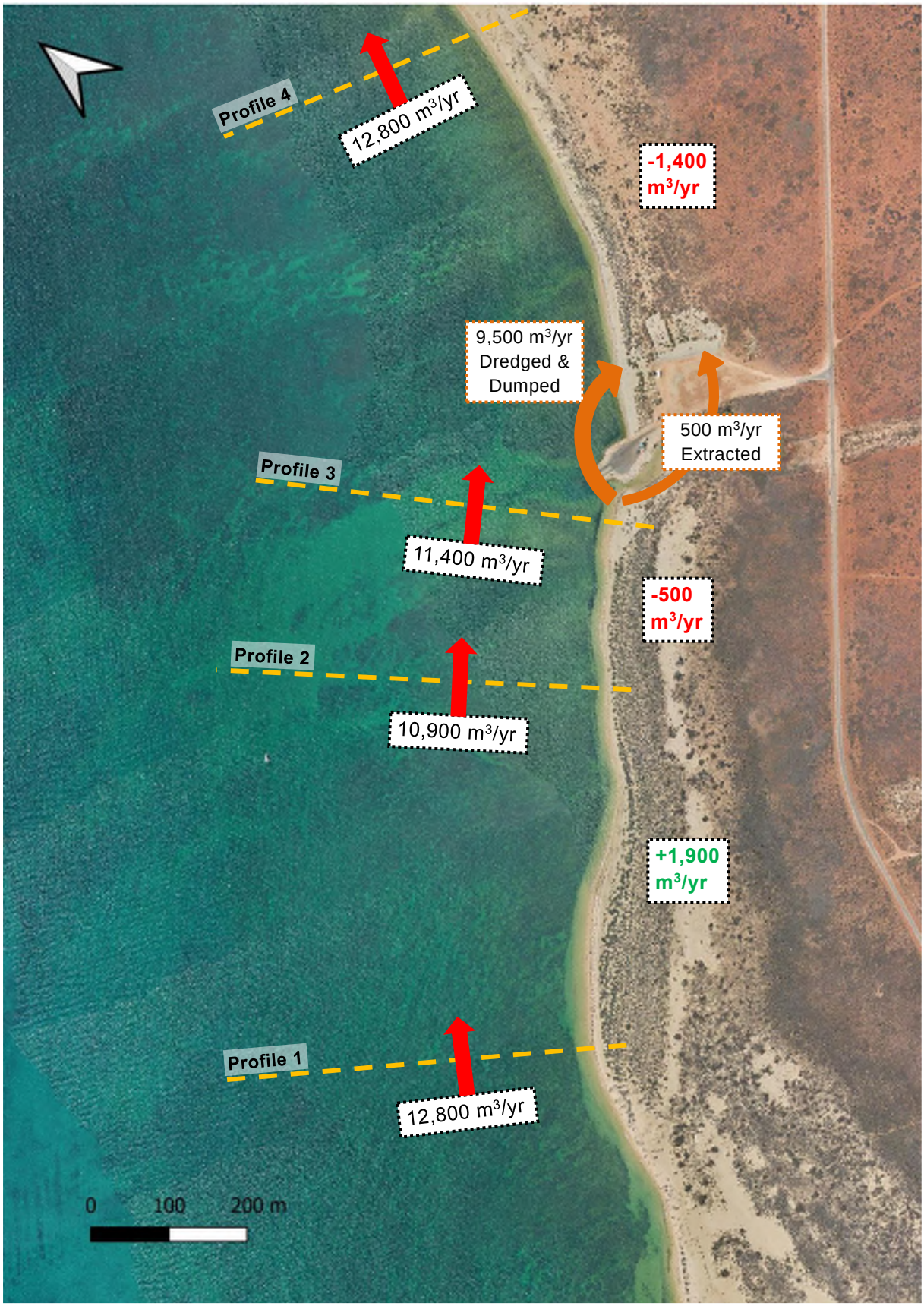

Figure 3.5 Modelled Net Sediment Transport Volumes

Table 3.4 Estimated and Modelled Sediment Transport Volumes

Profile	Estimated Net Annual Average Sediment Transport in a Northerly Direction (m^3)	Modelled Net Annual Average Sediment Transport in a Northerly Direction (m^3)	Modelled Annual Northerly Transport Volume (m^3)	Modelled Annual Southerly Transport Volume (m^3)
1	12,650	12,800	16,800	(4,000)
2	12,250	10,900	12,300	(1,400)
3	11,950	11,400	12,900	(1,500)
4	12,350	12,800	19,500	(6,700)

As discussed previously, the volume estimates within the sediment budget are expected to be accurate to ±50% at best. The net annual sediment transport volumes predicted by the model generally provide good agreement with the estimated values within the sediment budget and are certainly within the level of accuracy of the estimates. Furthermore, the model also exhibits a shift in sediment transport direction over the winter period, with sediment being transported in a southerly direction. This means that gross sediment transport rates are reasonably higher than the net sediment transport rates. This matches the general trend expected within the Task 2 report.

In order to show the distribution and character of the sediment transport and to further confirm the suitability of the model, plots of the total sediment transport during typical sea breeze and storm conditions are presented in Figures 3.6 and 3.7. This figure shows the magnitudes and directions of the sediment transport.

The plots of the total sediment transport rates match an intuitive understanding of the coastal dynamics. That is, there are larger volumes of sediment moving along the coastline than elsewhere within the model, though it must be noted that in some nearshore areas the potential for sediment transport is likely to be much higher than the actual transport rate, as the actual rates of transport are limited by sediment availability.

Given the results that have been presented, the model is considered to be appropriate to use for the simulation of effects of the proposed TBF on the local sediment transport regime.

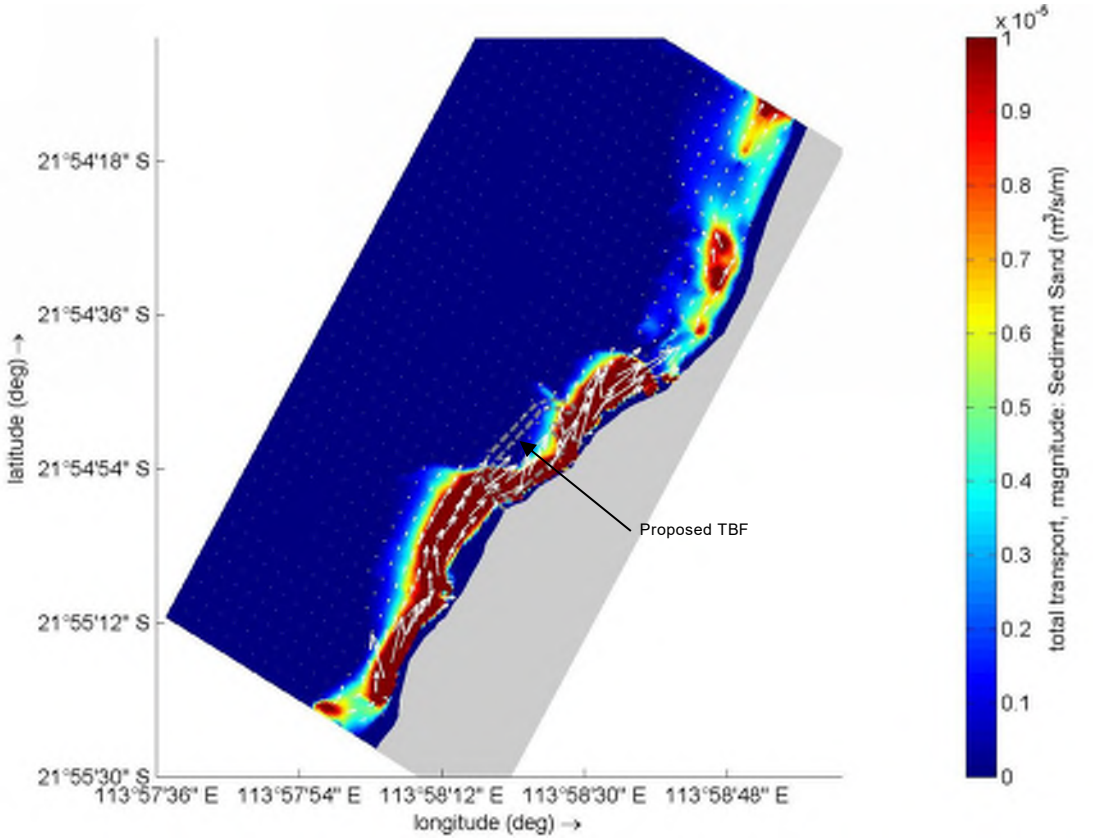

Figure 3.6 Total Sediment Transport Rate under Sea Breeze Conditions

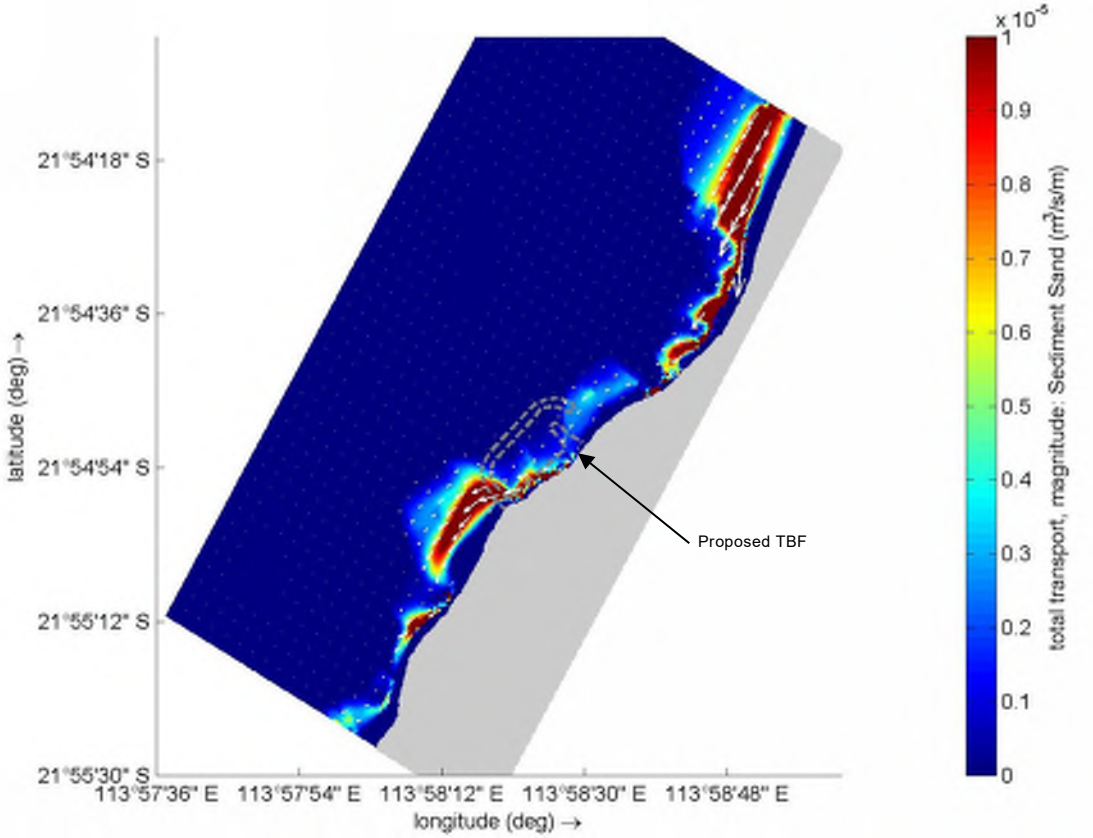

Figure 3.7 Total Sediment Transport Rate under Storm Conditions

4. Modelling Results

Modelling of the local wave and hydrodynamics following the construction of the proposed TBF (completed under Tasks 5 and 6) showed that shadows in both waves and currents occurred to the north and south of the facility under different conditions. Furthermore, with respect to currents, the modelling showed that under some conditions current speeds were accelerated around the facility as a result of the constriction that the facility creates for currents flowing along the coastline. Thus, the impact of the proposed TBF will not just be the physical barrier that it poses for sediment transport, it will also be the corollary of the secondary sediment transport impacts caused by the modified wave and current climate.

To assess the potential impacts that the construction of the proposed TBF would have on the local sediment transport, the calibrated model was updated to include the concept for the proposed TBF. The concept included the breakwaters and the dredged approach channel. Modelling was then completed to simulate the post development sediment transport conditions across the conditions encountered during the typical year.

Additionally, modelling was also completed to simulate the impacts of events that can be considered abnormal. The following events were simulated.

- Winter of 2014 – The winter in 2014 had one of the highest average wave heights of all the available data dating back to 1979. The average wave height was equal to two standard deviations above the mean value. Additionally, the average peak wave direction was from a slightly more northerly direction, approximately 1.7 standard deviations above the mean. Therefore this period has the potential to cause higher than normal southerly transport of sediment, which could be an issue for sediment build up on the northern side of the marina and inflow into the dredged entrance channel.

- Autumn of 1998 – The autumn of 1998 was characterised as one of the calmest periods on record with low total wave heights and low wind speeds. This period is most critical to the assessment of flushing within the proposed TBF, however review of the sediment movement in this period will provide information about what occurs during periods of background swell as opposed to local seas.

- 50 year ARI cyclone event – The cyclone modelling report (Task 4) identified synthesised events with different ARI's that could impact the proposed TBF. Of the identified events, one of the 50 year ARI events that travelled down the coast was selected to assess the potential impacts of sediment transport under extreme conditions, particularly with respect to accumulation within and around the entrance channel.

Results of the modelling for the typical year as well as the abnormal events are presented hereafter.

4.1 Typical Year

The simulation of the typical year provides an indication of the likely changes that will be observed around the proposed TBF on average over a one year period. It should be noted, however, that changes in conditions, both seasonally and annually, would be expected to result in reasonably significant differences in the sediment transport rates around the facility. This is an important consideration that needs to be remembered when reviewing the sediment transport rates and impacts presented in this section.

The Delft3D morphological model is a useful tool to assess the potential changes that can occur around the proposed TBF. To help provide context to the assessment of the potential changes it is useful to inspect the characteristics of sediment transport under different conditions. Two of the key conditions for sediment transport at the site are sea breeze and storm conditions.

Figures 4.1 and 4.2 show the total sediment transport rates around the proposed TBF during typical sea breeze and storm conditions respectively. The results show relatively intuitive outcomes, with sediment transport predominately along the coastal margin, with a northerly sediment transport direction during the sea breeze and a southerly sediment transport direction under storm conditions. Importantly, it must be noted that the rates of sediment transport shown in the plots are contingent on their being sufficient sediment within the area to allow the transport to occur. For instance, if there is no, or minimal, sediment available the sediment transport rates will be low.

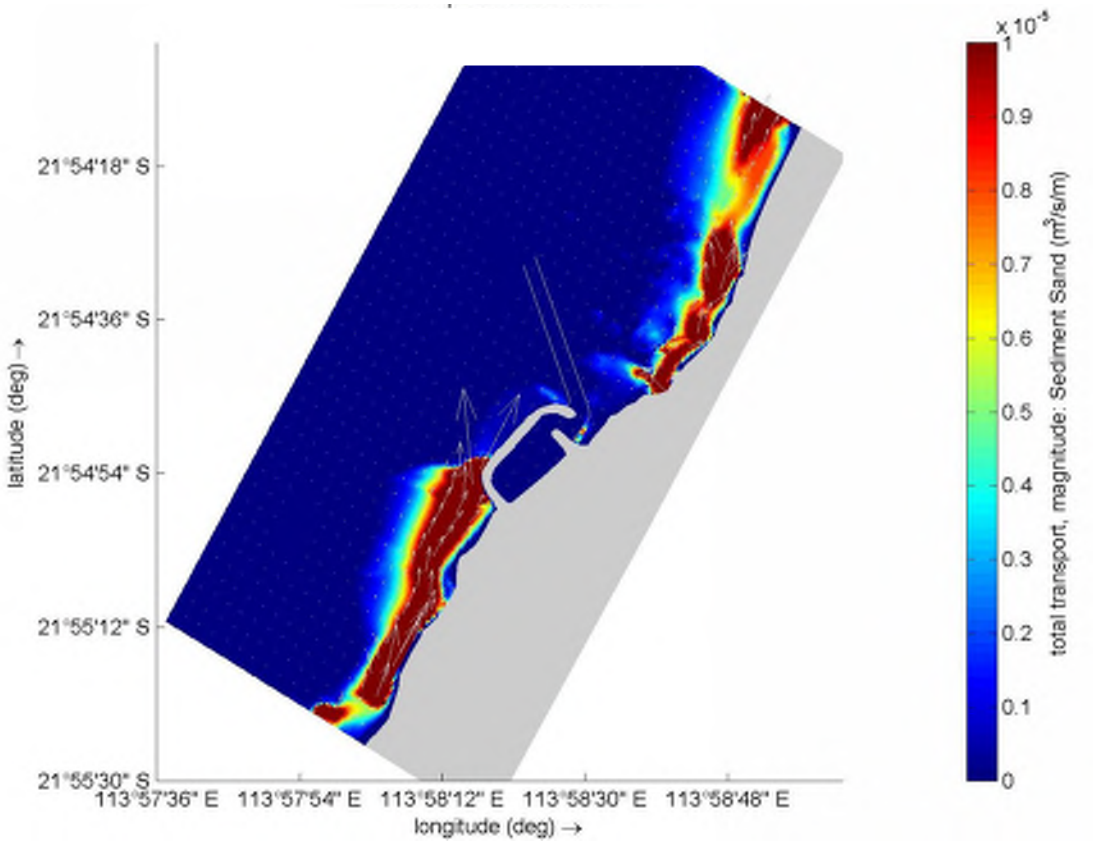

Figure 4.1 Total Sediment Transport Rates under Sea Breeze Conditions Post Development

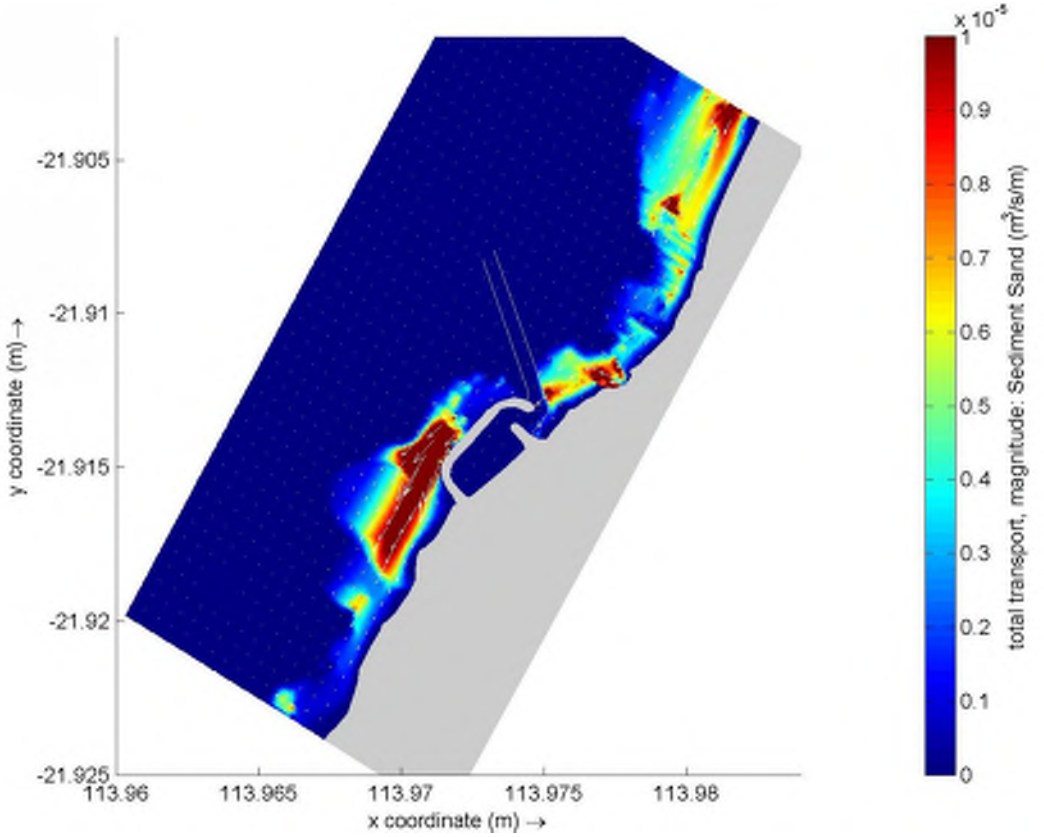

Figure 4.2 Total Sediment Transport Rates under Storm Conditions Post Development

One obvious feature of the sediment transport rate plots is the fact that both the sea breeze and storm events show sediment transport around the offshore extent of the facility. This is expected to be the result of both the increase in current speeds around the facility, as identified in the hydrodynamic modelling, as well as the fact that the water depths around the outside of the facility are relatively shallow (-0.8 mCD). The shallowness of the water depths around the facility means that the potential for sediment transport across this area is relatively high, however as the area generally consists of exposed rock, in some cases with only a thin vernier of sand, the typical rates of sediment transport over these depths are relatively low – due to the lack of available sediment.

The construction of the proposed TBF is likely to change the sediment dynamics in this area and the modelling suggests that as sediment builds up around the facility the alteration to hydrodynamics will result in an increase in sand transport over the reef flat around the seaward side of the breakwaters. Plots of pre and post construction bed shear stress from the model, as shown in Figures 4.3 and 4.4, further support the fact that there is sufficient energy to transport sediment along this pathway, however prior to the construction of the breakwaters the action of the waves and hydrodynamics typically constrained the majority of the sediment against the shoreline. Comparison of the pre and post construction cases also shows the increase in bed shear stress around the breakwaters.

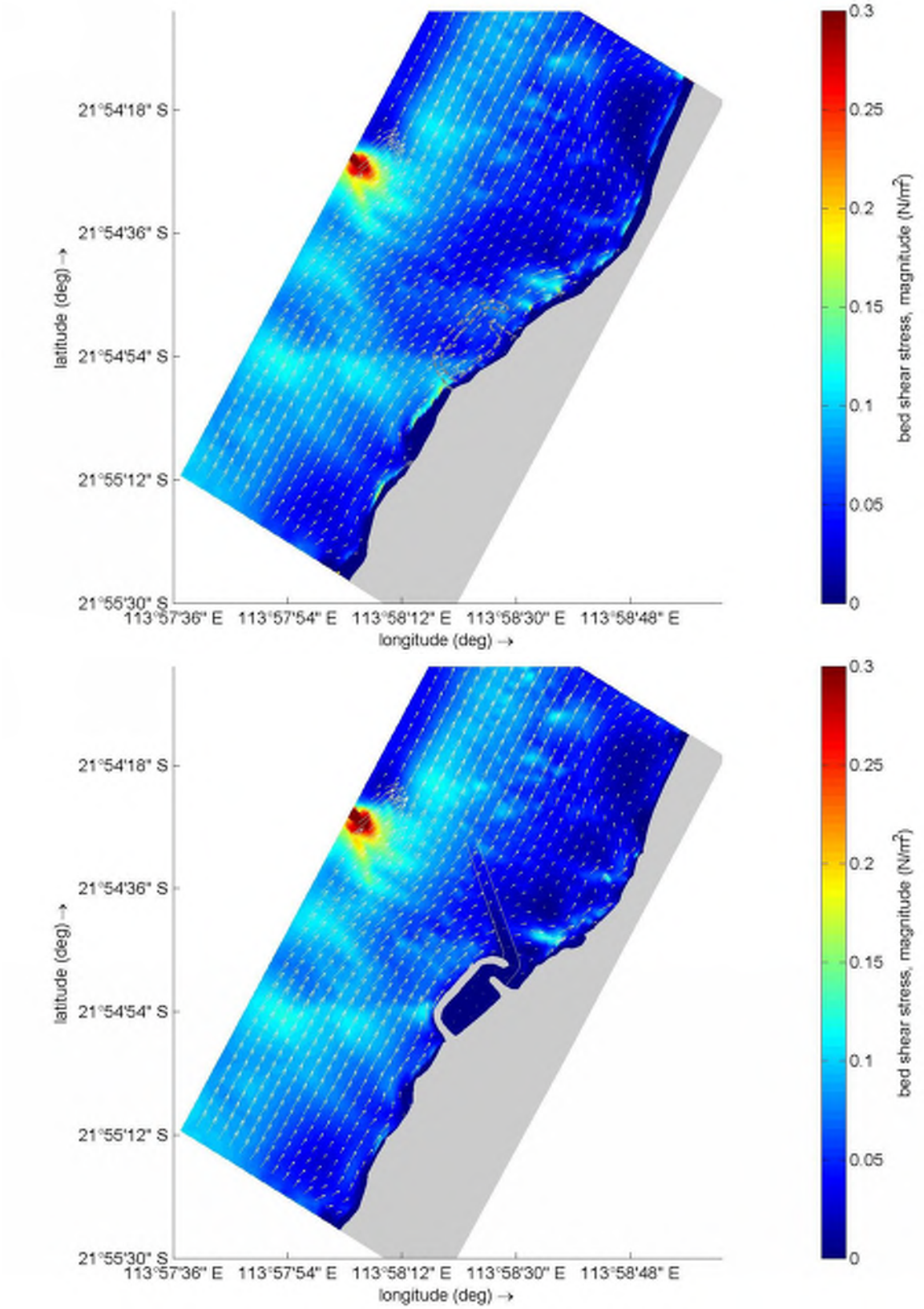

Figure 4.3 Modelled Bed Shear Stress during Sea Breeze Conditions: Pre Development (Top); Post Development (Bottom)

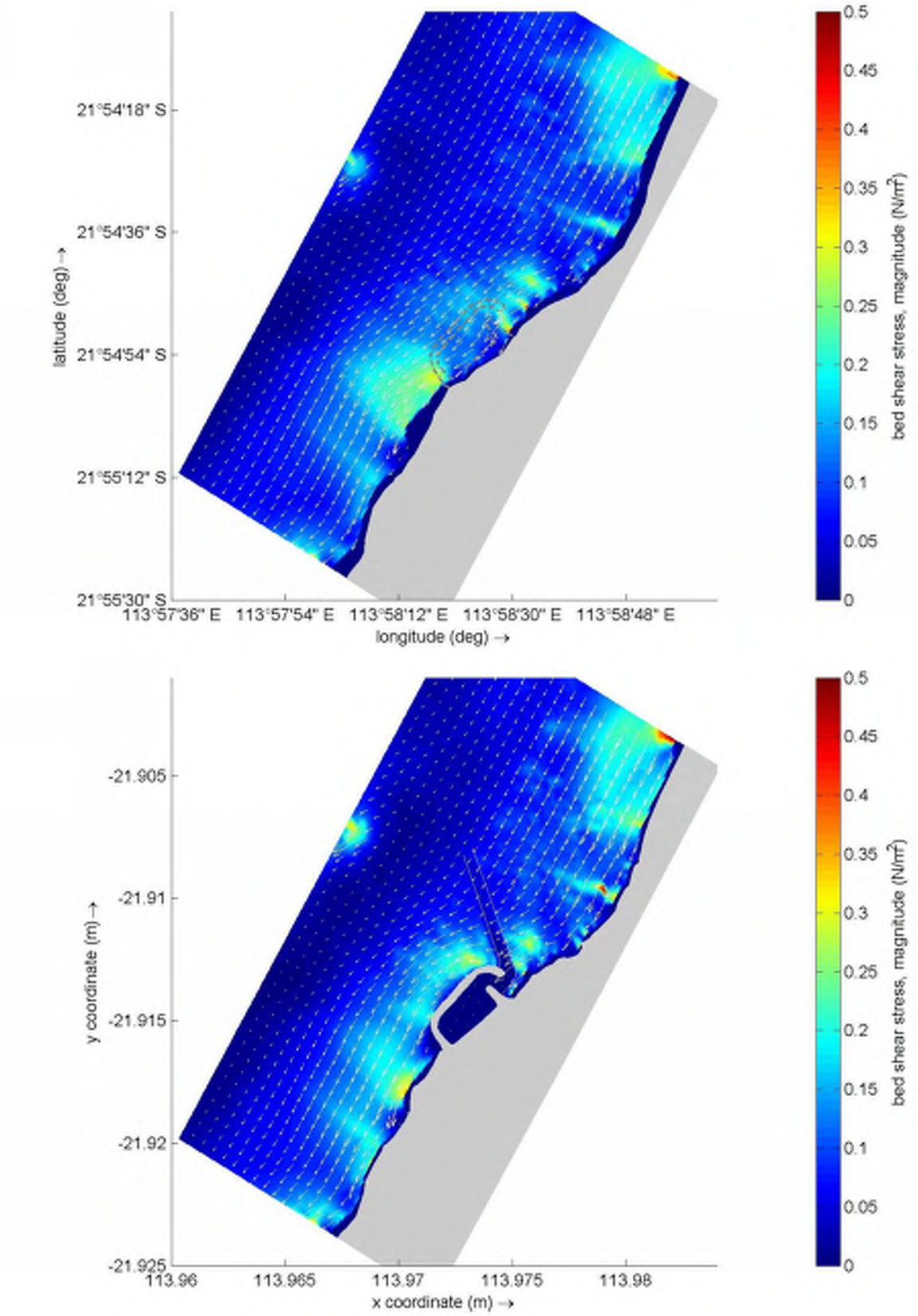

Figure 4.4 Modelled Bed Shear Stress during Storm Conditions: Pre Development (Top); Post Development (Bottom)

The above finding has implications for the management of the facility, as it means that if sediment is allowed to build up on the shoreline south of the proposed TBF, then the local waves and hydrodynamics are likely to result in the transport of sediment around the breakwaters into areas that are harder to access. This process would also be likely to result in an increase in sediment infill into the channel.

Figure 4.5 shows the potential changes to bed levels over the average year that was modelled. The model suggests that changes could occur in the offshore areas of the lagoon, particularly around shallow sections of reef, however data is not available to verify if these changes actually occur. Furthermore, some changes are noticeable around the location of the existing Boat Ramp Facility. These changes are expected to be largely the result of short term changes caused by the removal of the Boat Ramp from within the model.

Closer to shore, Figure 4.5 shows that changes to the area south of the proposed TBF are expected, with accumulation of sediment likely to occur to the south of the facility. The figure also shows the transport and accumulation of sediment around the outer breakwater. Accumulation of sediment along the edges of the entrance channel is also obvious. Figure 4.6 provides a zoomed in view of the accumulation around the channel.

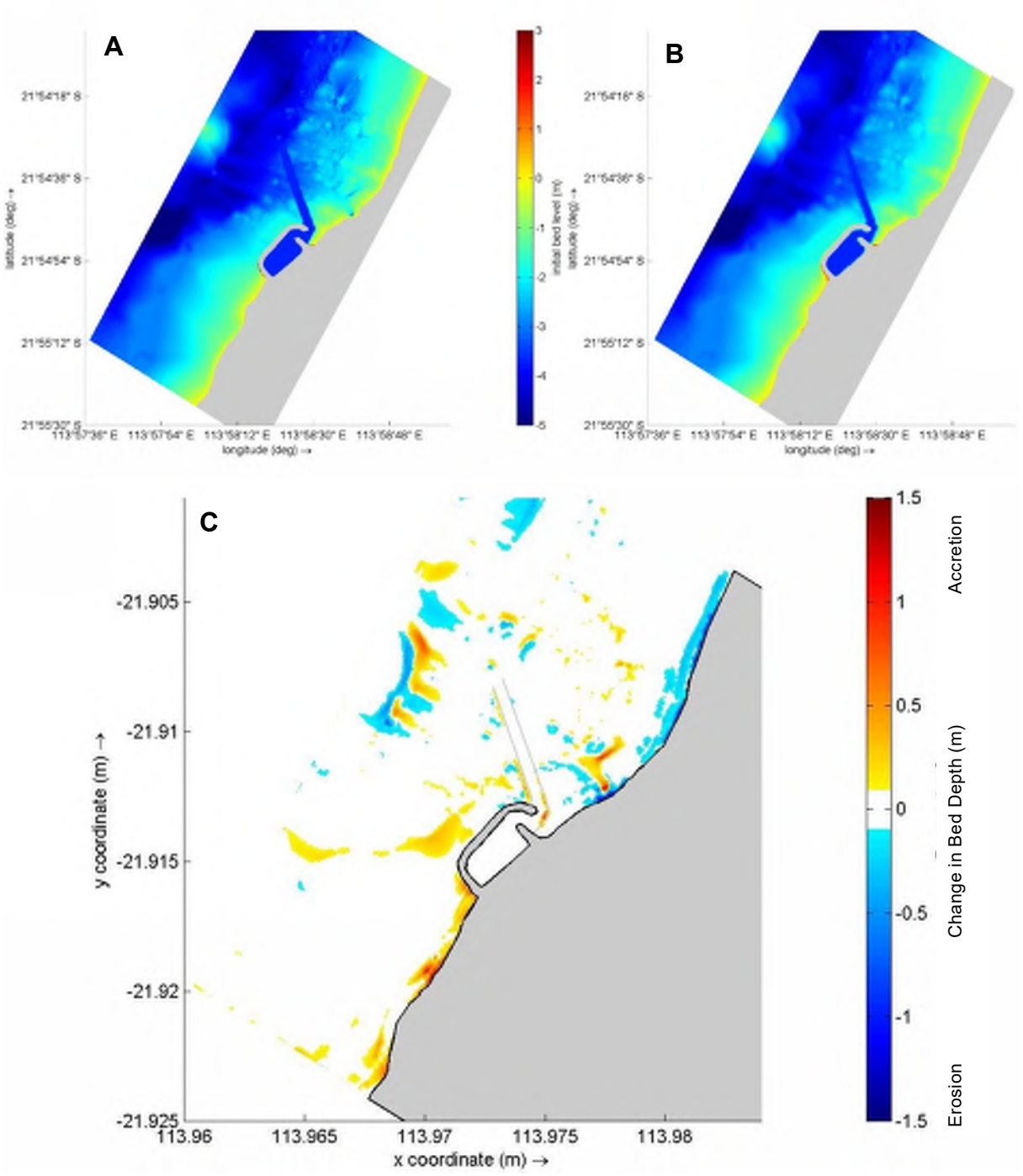

Figure 4.5 Potential Changes to Bed Elevation Over the Course of the Typical Year: (A) Initial Bed Level; (B) Final Bed Level; (C) Difference

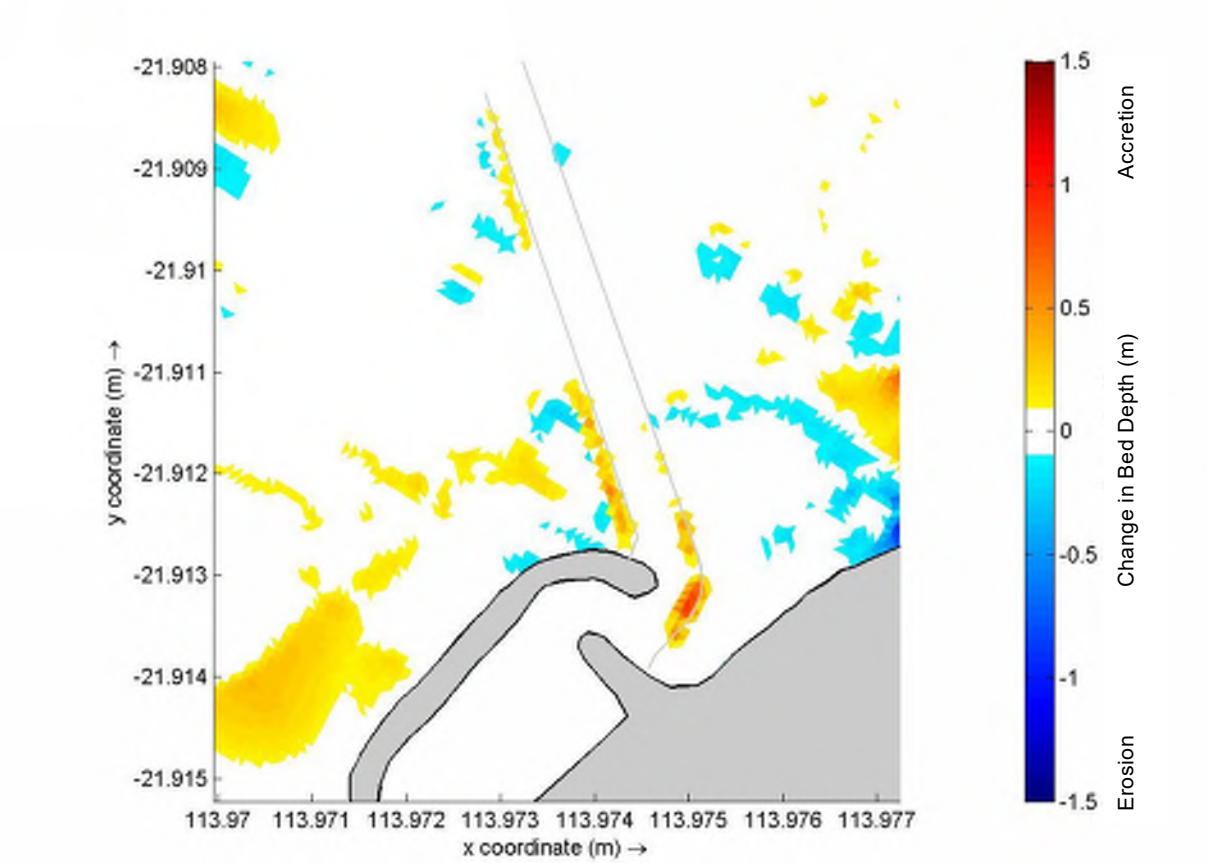

Figure 4.6 Potential Infill of the Entrance Channel over a Typical Year

The plots of potential change in bed level illustrate that accretion of sediment is expected along the shoreline to the south of the proposed TBF, with erosion of the shorelines to the north. As discussed previously, the accumulation of sediment offshore from the breakwaters is also realised within the model.

Accretion within the entrance channel is observed along the batters on both sides of the channel. The most significant accretion is predicted along the most inshore portion of the channel opposite the entrance to the proposed TBF. This accretion would mainly occur during periods of southerly sediment transport driven mainly by storm events; however persistent swell action also contributes with potential diffraction effects around the outer breakwater also likely to have an impact. The accretion along the western margin of the channel is largely predicted to occur as a result of persistent slow rates of infill under the more typical sea breeze conditions. Over the course of the year, the total volume of infill into the channel was estimated by the model to be around 2,600 m^3. As shown in Figure 4.6, the majority of this material accumulates on the batters and along the edges of the channel, with the model suggesting that the total accumulation over the course of the year would generally be less than 0.05 m within the mid sections of the channel. Nevertheless, variability in weather conditions could change this result.

One point to note about the modelling is that the plot of sediment accumulation on the northern boundary of the site does not appear to show any considerable accumulation of sediment along the shoreline adjacent to the inner northern breakwater. Whilst not indicated in the model, this is something that should not be discounted as a possibility. One limitation that may be reducing the extent to which this occurs is the fact that the model does not explicitly model local diffraction processes. Whilst energy is directionally distributed within the model as a crude approximation of

diffraction, actual diffraction processes would be different and would likely see a greater modification to wave directions in the lee of the outer breakwater that could result in an increased transport of sediment along the coastline towards the inner breakwater, and subsequently towards the entrance channel.

Neglecting the above, based on the outcomes from the modelling, the local sediment budget for the post development case is presented in Figure 4.7. It must be noted that the modelling results match the general expectations regarding sediment transport post development, however the outcomes of the model need to be considered in the context that they present results for the range of conditions modelled. These changes are therefore indicative of the types of changes that would be expected along the shoreline, but would be subject to fluctuation based on weather conditions, etc.

The accuracy of the local sediment budget is also the subject of some degree of error, as it has been noted that there are considerable error bounds in the initial sediment budget that was used for the calibration of the model. Accurate calibration of sediment transport models such as that used in this investigation would require a much greater level of data to confirm that the sediment transport pathways were being accurately represented under all conditions. The outcomes from the model should therefore be treated as an indication of the potential shoreline response, though planning for the future management of the facility should account for a reasonable level of variability or departure from the modelled values.

To improve the confidence in the model outcomes would require collection of data that could be used to determine the quantities of sediment moving both along the beach and over the nearshore areas under a range of different conditions. Regular detailed surveys could be used to track shoals of sediment in the nearshore area, however even this approach would not provide any detail with respect to fluxes of sediment over areas where there is limited change to the bed levels. More detailed estimates of the volumes of material that are bypassed would also help to understand the level of transport along the beaches. This information could include tracking of the quantities that are transported (i.e. by truck count) and review of the rate of transport of material into and out of the excavation and placement areas through the use of detailed survey.

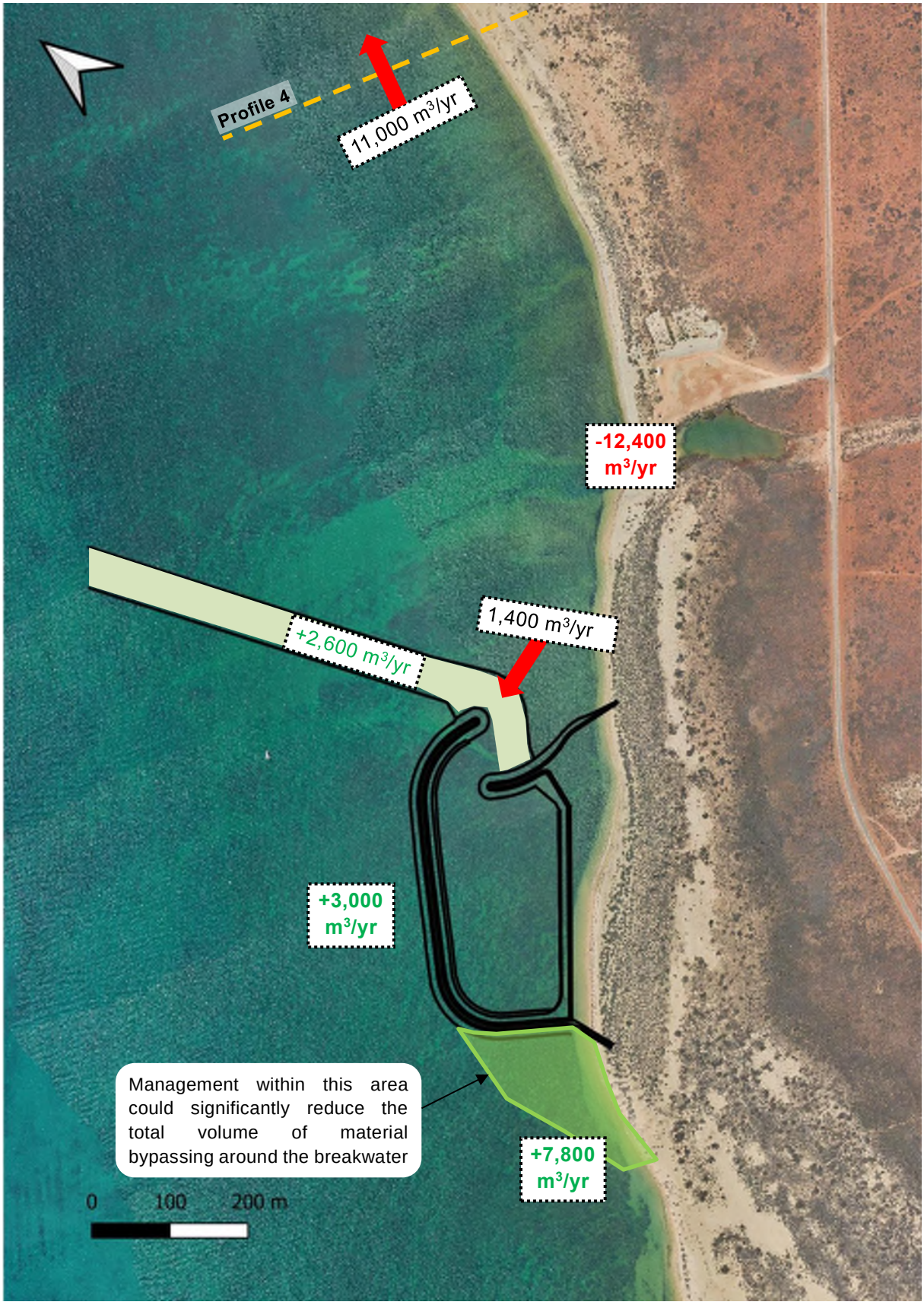

Figure 4.7 Modelled Sediment Budget Post Construction of the Proposed TBF

4.2 Winter 2014

As described previously, the winter of 2014 was far more energetic than average. The average wave height was two standard deviations above the mean value. Additionally, the average peak wave direction was from a slightly more northerly direction, approximately 1.7 standard deviations above the mean.

The winter of 2014 was simulated within the model to enable the resulting shoreline changes to be compared to those modelled over an average winter period. A difference plot of the change in sea bed levels for the average winter is presented in Figure 4.8. The difference plot for the winter of 2014 is presented in Figure 4.9.

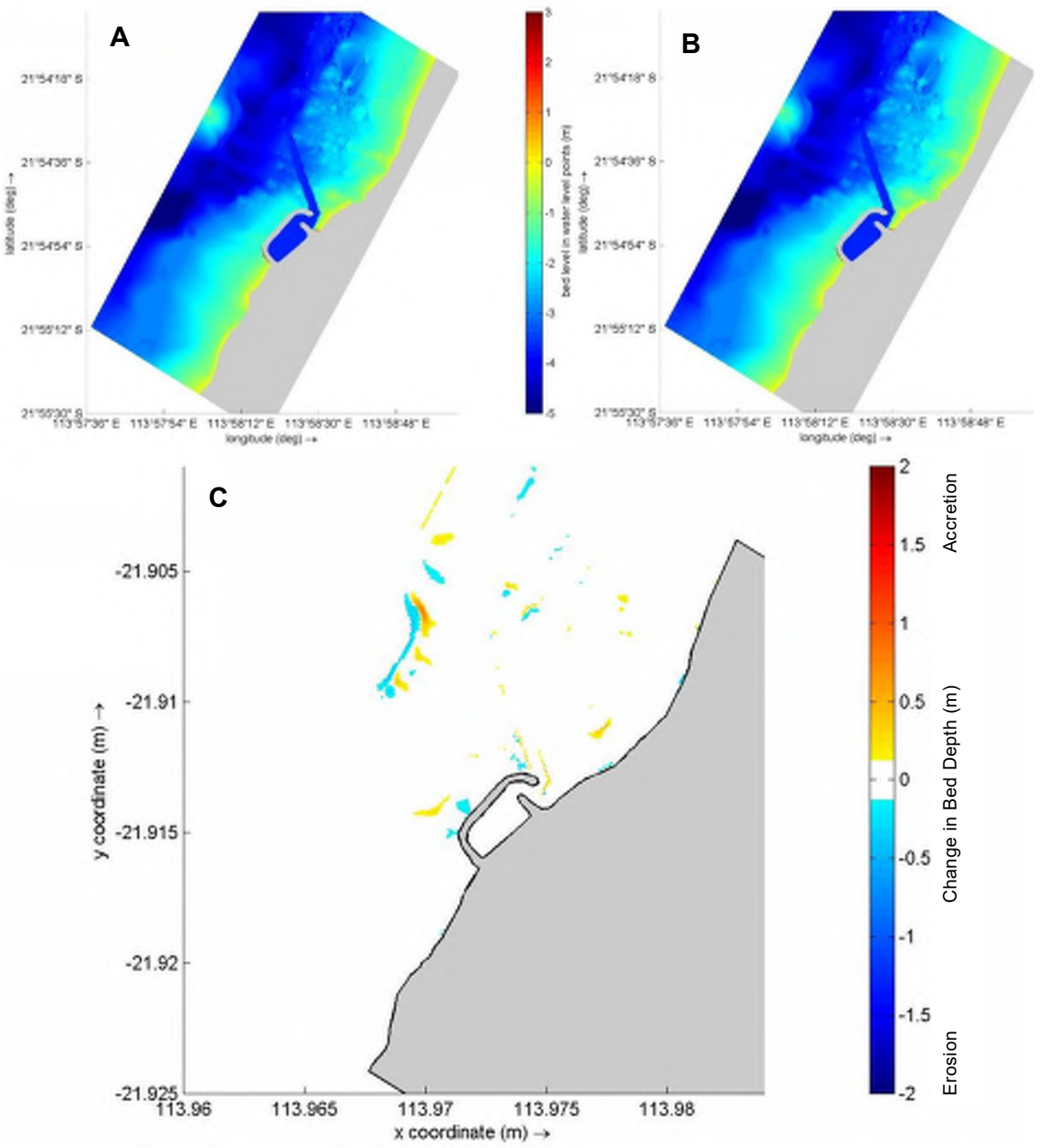

Figure 4.8 Difference in Sea Bed Levels During an Average Winter: (A) Initial Bed Level; (B) Final Bed Level; (C) Difference

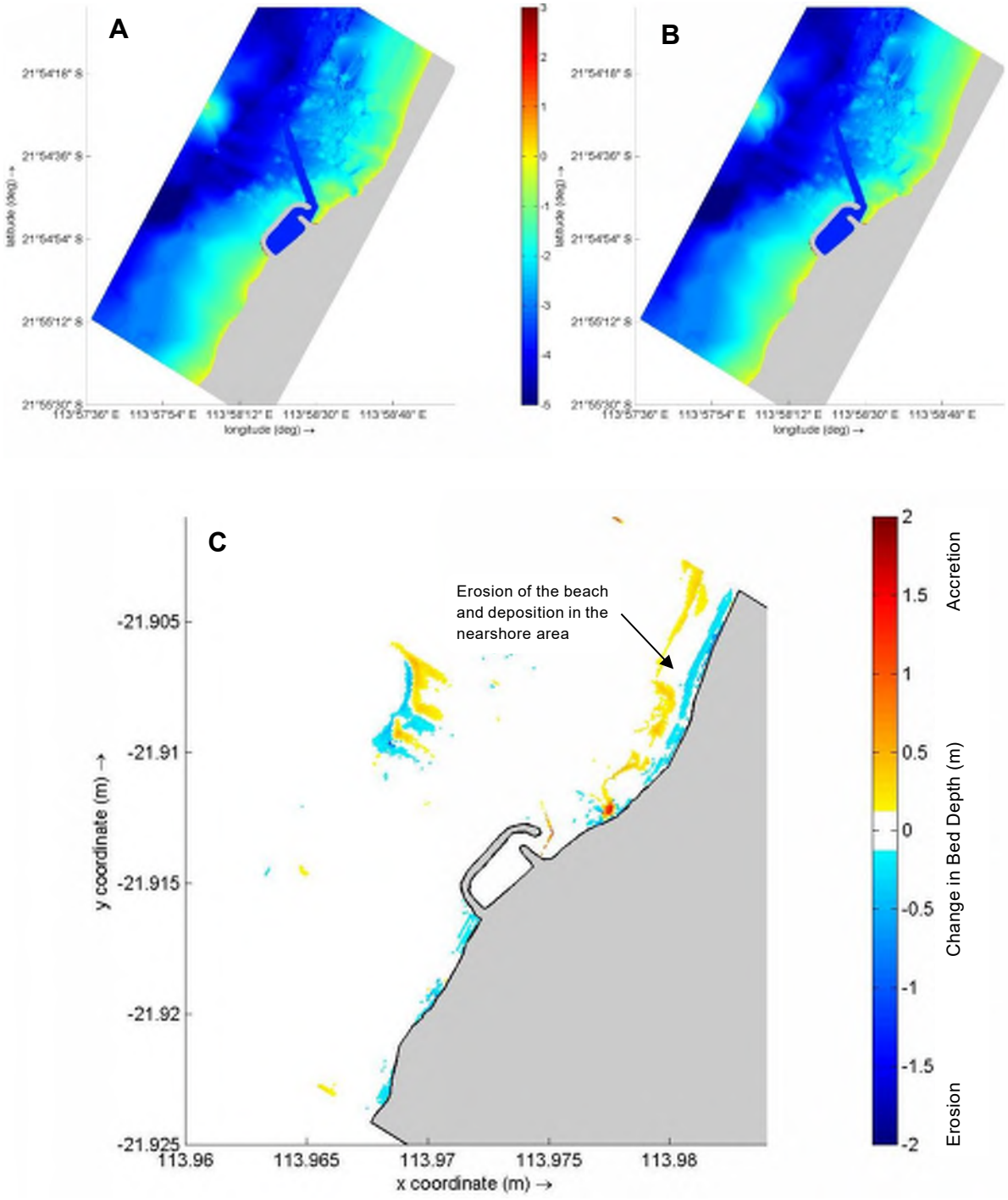

Figure 4.9 Difference in Sea Bed Levels During Winter 2014: (A) Initial Bed Level; (B) Final Bed Level; (C) Difference

As can be seen by comparing the figures, the relative changes in bed level during the average winter are relatively small, with the general magnitude of changes less than 0.1 m vertically along the shoreline. The general changes over the winter of 2014 are much more significant and show an erosion of the shoreline and deposition of material in the nearshore area. The figures also show that an increase in the volume of sedimentation within the entrance channel is also likely to be experienced over a more energetic winter.

Calculation of the differences in channel infill over the nearshore portion of the channel provide an indication of the potential impacts of a more energetic winter period. Over the average winter approximately 500 m^3 of material was estimated to be deposited along the landward margin of the channel. In the winter of 2014 the volume of deposition increased to an estimated 1,200 m^3 of material.

4.3 Autumn 1998

Autumn 1998 was a very calm period. Whilst consideration of calm periods was most relevant for the flushing investigations that were completed for the proposed TBF, review of the impacts of the calm period on the local sediment transport can also provide useful information for future management. Plots of the change in sea bed level for the average autumn and the autumn of 1998 are provided in Figure 4.10 and 4.11 respectively.

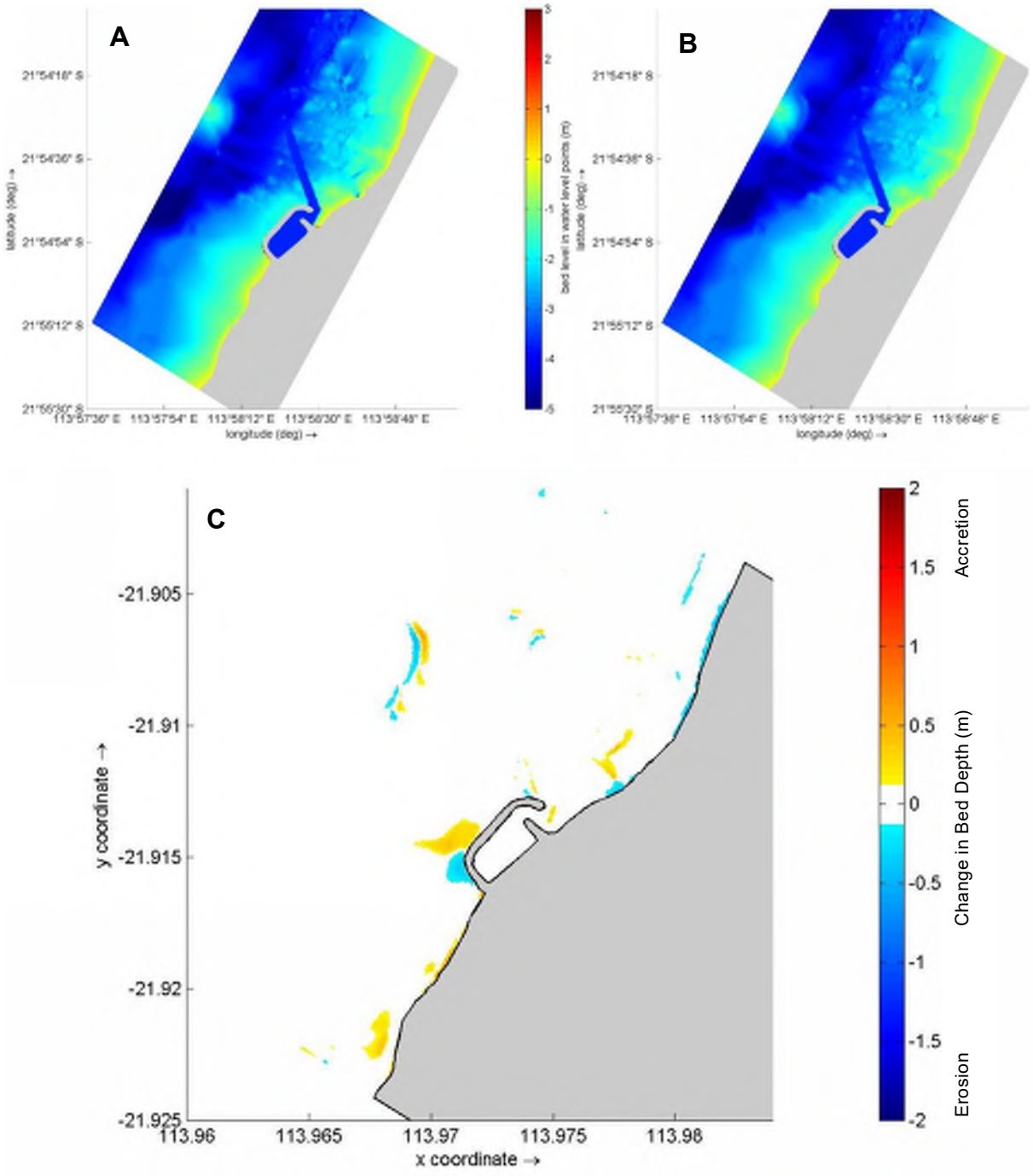

Figure 4.10 Difference in Sea Bed Levels During an Average Autumn: (A) Initial Bed Level; (B) Final Bed Level; (C) Difference

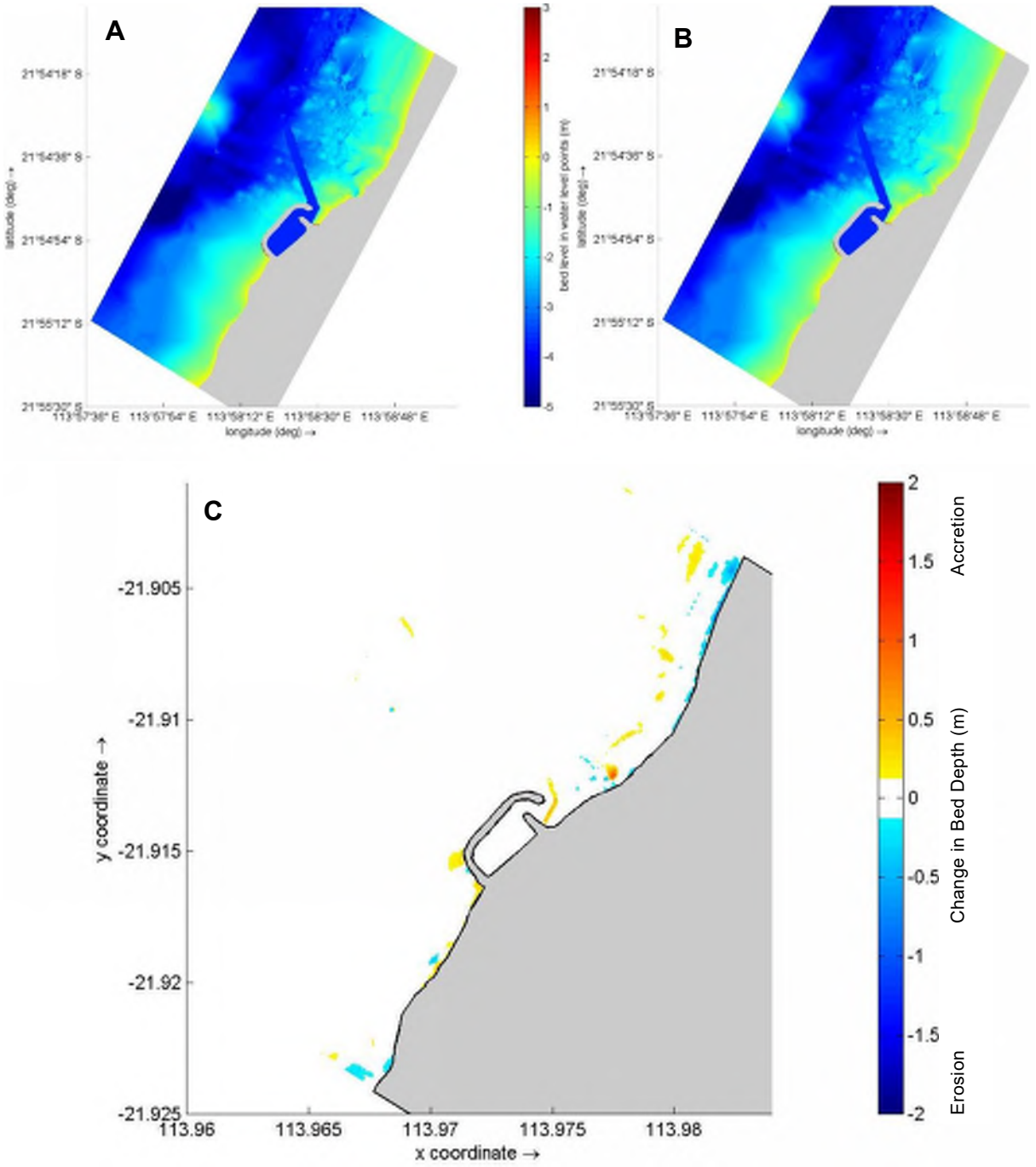

Figure 4.11 Difference in Sea Bed Levels During Autumn 1998: (A) Initial Bed Level; (B) Final Bed Level; (C) Difference

As can be seen in the figures, the changes in bed level over the two periods are not overly significant. This is not unexpected, as autumn is typically the calmest season in this region. The one thing that is noticeable is that there is slightly more sediment accumulation on the southern side of the proposed TBF during an average autumn compared to the calm autumn. This supports the notion that if calmer than usual conditions are experienced during periods of northerly sediment transport, then the volume of sediment requiring management would be reduced compared to average years. Intuitively the converse would also be true.

4.4 Cyclonic Conditions

The passage of severe tropical cyclone events has the potential to result in significant changes to nearshore bathymetry. These changes are driven by periods of extreme sediment transport caused by elevated wave heights and current speeds associated with the passage of the system. The findings of Dufois et al (2018) support this assertion, with their investigation showing that the vast majority of sediment transport along the north west shelf is predominately related to the passage of tropical cyclone events. Cutler (2018) looked more closely at Tantabiddi and showed that whilst the extent of morphological change along the coastline associated with the passage of Tropical Cyclone Olwyn was much less than for a coastline without a fringing reef, the extent of the morphological changes was still obvious.

To assess the potential impacts on the nearshore morphology associated with a severe tropical cyclone event, one of the 50 year ARI events selected in the Cyclone Modelling Report (Task 4) was simulated within the morphological model. The track of the selected event is presented in Figure 4.12. As can be seen from the figure, the event tracks down the coastline before tracking in a south westerly direction offshore from the North West Cape. This track means that winds at Tantabiddi would begin from the south east before shifting to the north east when the cyclone is at its closest location and winds would be at their strongest. Following this, winds would reduce in velocity and would slowly begin to swing towards the north west.

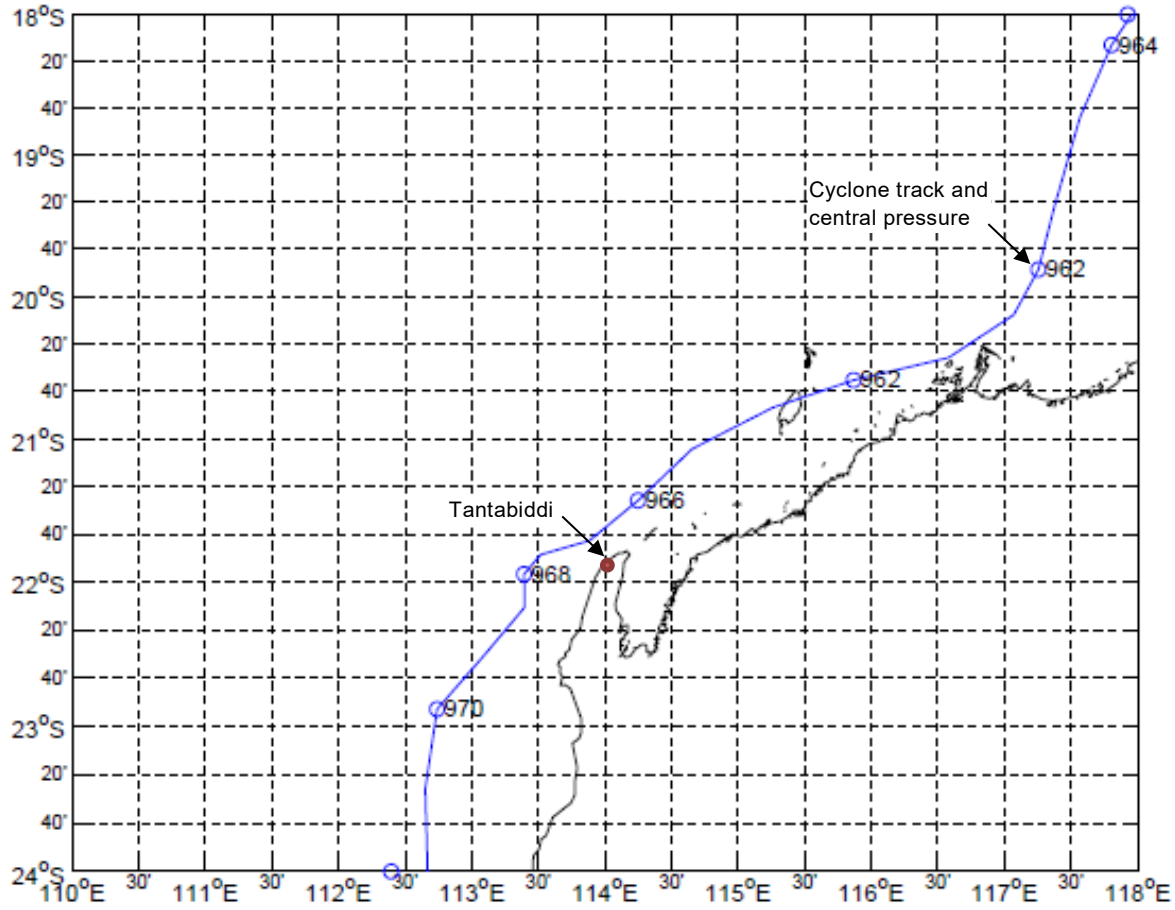

Figure 4.12 Track Map of the 50 Year ARI Cyclone Event

Morphological modelling for the cyclone event resulted in large scale changes to the nearshore bathymetry surrounding the proposed TBF. Figure 4.13 shows the initial bathymetry prior to the

passage of the cyclone, with Figure 4.14 showing the bathymetry after the cyclone has impacted the area. The figures show a clear post cyclone accumulation of sediment in the area surrounding the facility. This includes a significant infill of sediment into the entrance channel.

The infill of sediment into the entrance channel is most significant closest to the shoreline, however the extent of the infill also extends further offshore. A zoomed view of the final bathymetry is provided in Figure 4.15, which shows that the majority of the entrance channel between the breakwaters has been filled with sediment during the event. Accumulation of sediment also occurs along the coastline to both the north and south of the facility. South of the facility this accumulation is mainly driven by erosion of the beach face and dunes and deposition in the nearshore area. To the north of the facility similar cross shore transport is observed, however a further southerly net transport of sediment is also obvious. These sediment transport changes are illustrated well in the difference plot provided in Figure 4.16.

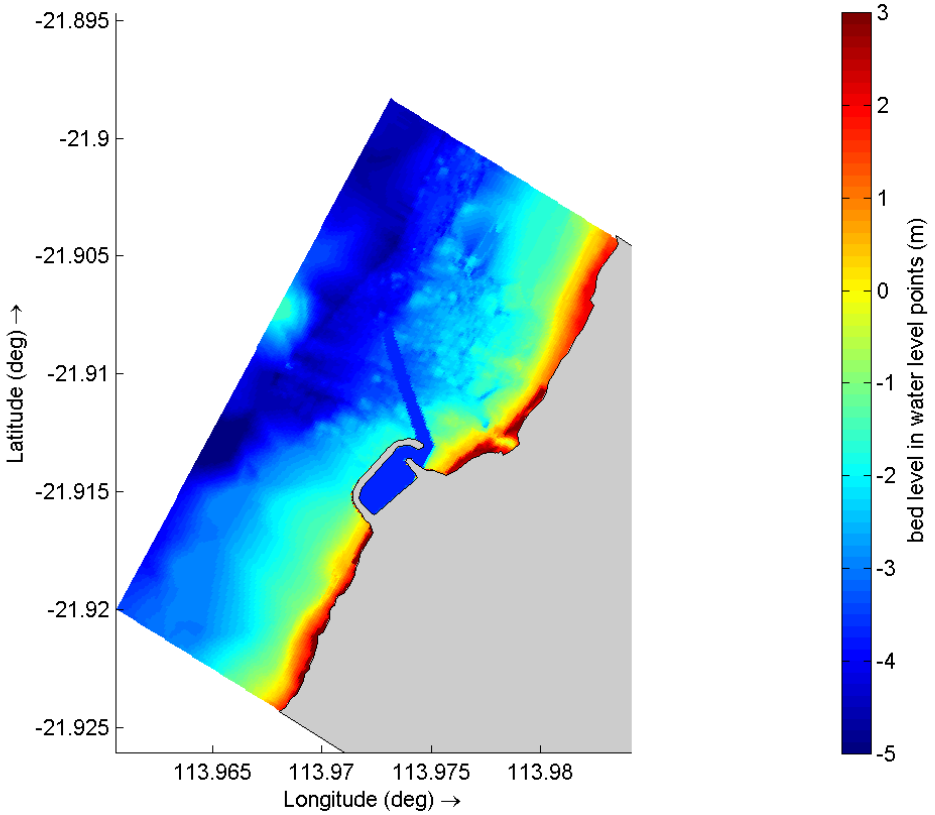

Figure 4.13 Initial Bathymetry prior to Cyclone Impact

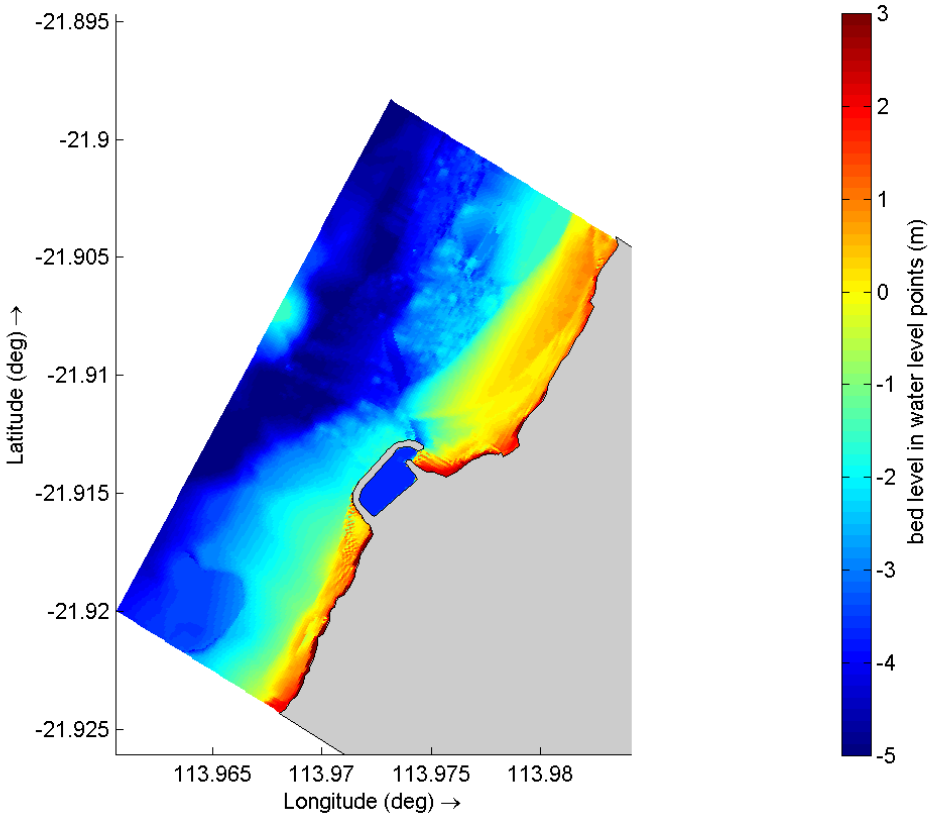

Figure 4.14 Final Bathymetry following Cyclone Impact

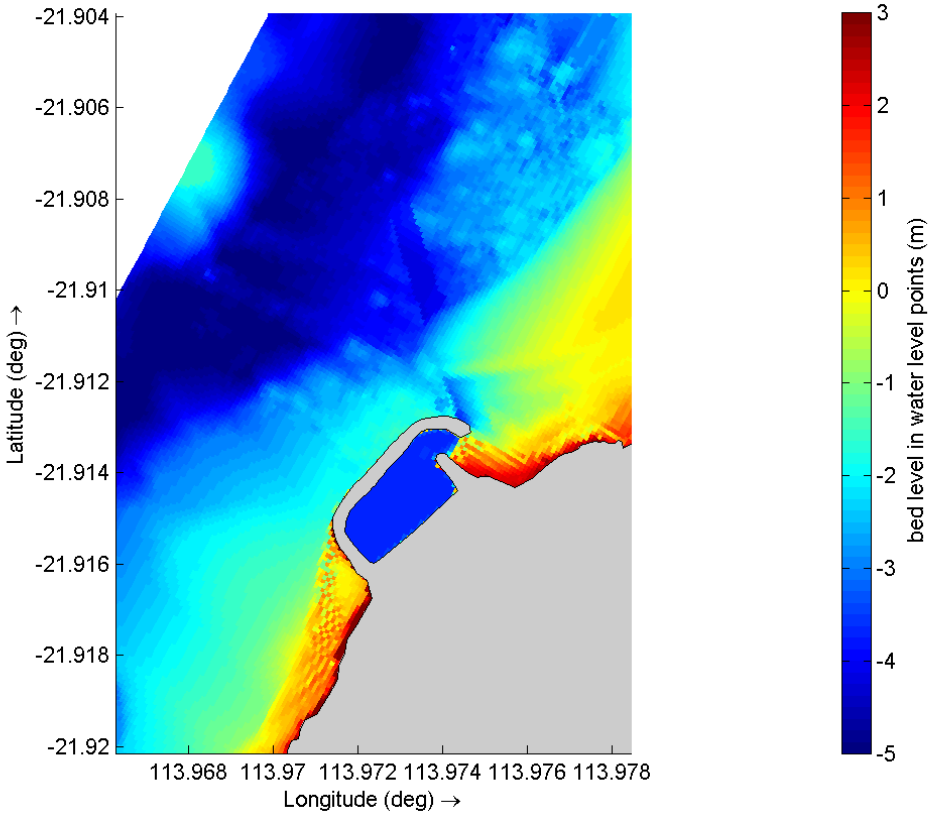

Figure 4.15 Final Bathymetry Surrounding the Proposed TBF Post Cyclone

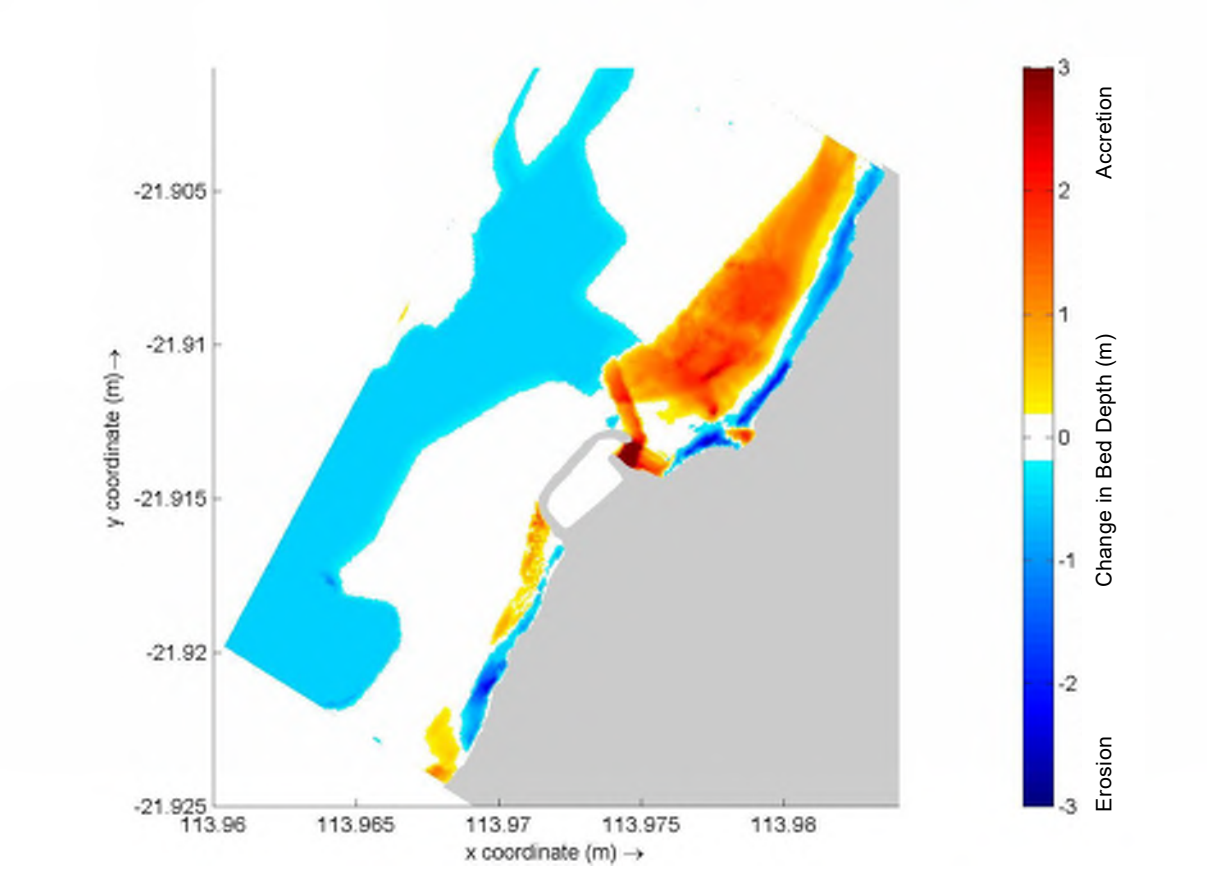

Figure 4.16 Bathymetry Difference Plot Pre Versus Post Cyclone

The volume of material deposited in the channel is approximately 50,000 m^3, and results in a complete infill of the channel in the entrance – i.e fill depths in the order of 3 - 5 m vertically, as in some areas the channel is filled and a beach forms above this level. This is a substantial volume of infill and would have clear operational impacts for the facility. However, as shown in the difference plot, the extent of sediment movement in the nearshore area is impacted by the initial volume of sediment that is included within the model. The offshore blue hatched areas in Figure 4.16 show those areas where sediment that was assumed to be present within the model has been stripped. This highlights the importance of understanding the actual depth of sediment coverage across the broader lagoon.

Without further details on sediment depths (for example collection of sediment thickness data using sub bottom profiling or jet probing) the modelling outcomes will be limited with respect to their potential accuracy. Nevertheless, review of the overall extent of bed changes within the region seem reasonable based on a review of Figures 4.17 and 4.18 which show the pre and post cyclone model bathymetry for the C and D model grids. These figures show a general deepening of sandy areas within the lagoon, with formation of shallow shoals in other areas.

The modelled cyclone represents an event with a 50 year ARI. Therefore the modelled morphological changes represent conditions that would only have a 2% chance of being experienced in any given year. The trends in cyclone induced morphological changes would be reasonably consistent across events that follow this track; however the magnitudes of the impact would change. This needs to be considered as part of the planning for the facility.

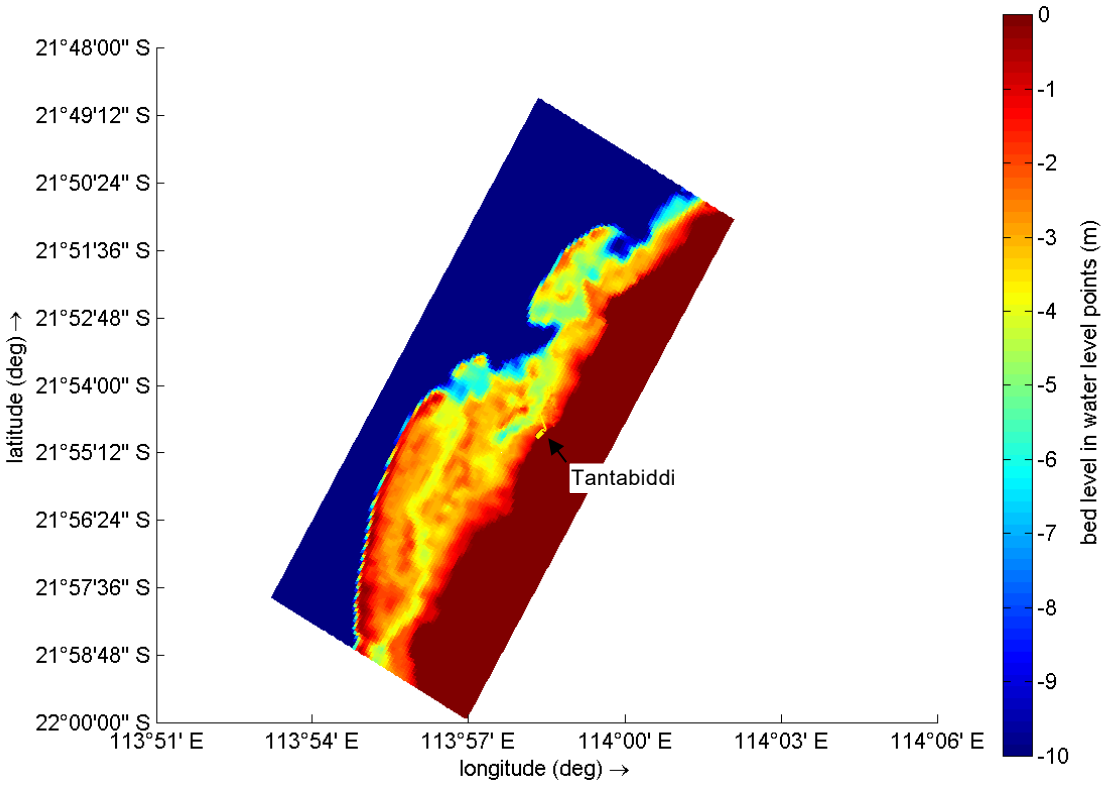

Figure 4.17 Initial Model Bathymetry over the C & D Grids

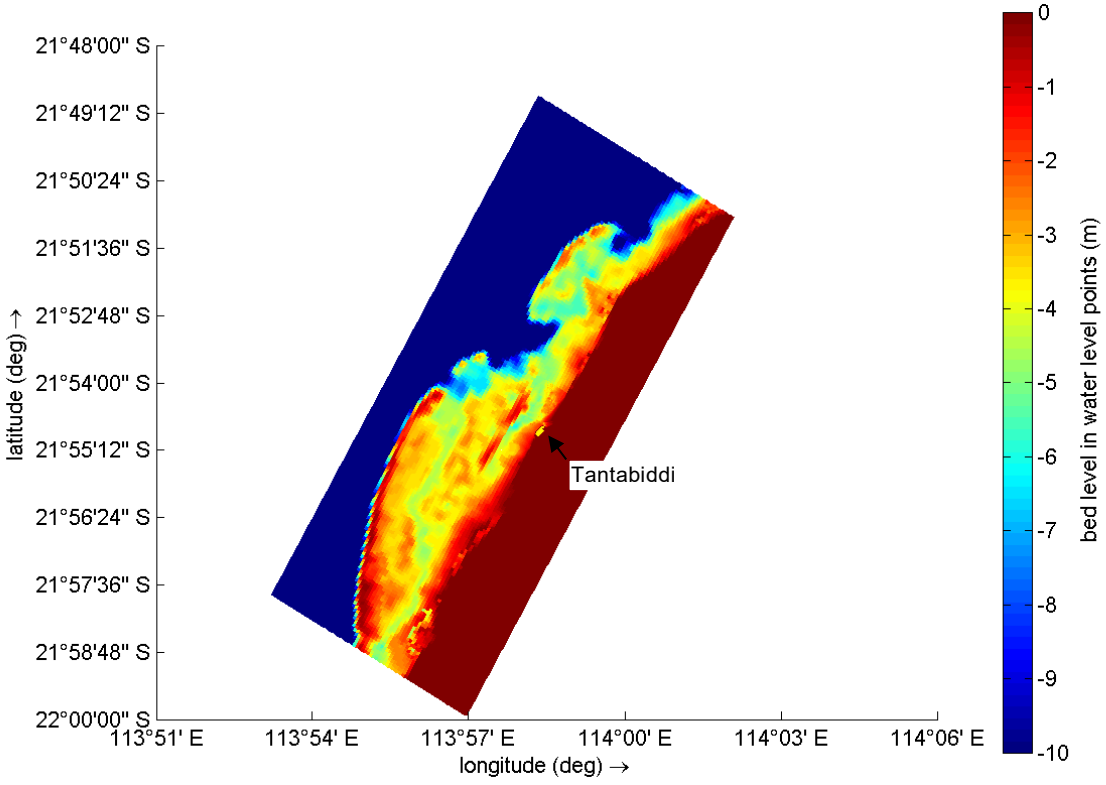

Figure 4.18 Final Model Bathymetry over the C & D Grids

5. Potential Shoreline Impacts & Management Requirements

Modelling of the sediment transport around the proposed TBF has shown that there will be the requirement to actively manage sediment around the facility. Figure 5.1 provides a high level description of the changes that could be expected to occur if the sediment is not managed. It should be noted that these changes have been modelled on the basis that the existing Tantabiddi Boat Ramp is removed following construction of the proposed TBF. This was represented in the model by including a smoothed shoreline in the place of the boat ramp. This is a potential simplification of the shoreline response in the area immediately surrounding the ramp and may not be a true reflection of the short term shoreline response. Nevertheless, over the longer term the modelled results and shoreline behaviours should be consistent.

As has been discussed previously within this report, the accuracy of the modelled outcomes within this study needs to be considered when reviewing the potential for future shoreline change and subsequent management allowances. Accurate modelling of sediment transport, particularly 3-dimensional sediment transport as has been completed within this study, is particularly difficult and requires a number of assumptions and simplification to be made within the modelling. For example, detailed information on the sediment types and availability (sediment depth) from areas within the region of the proposed TBF would be required to ensure that the volume of sediment available under different conditions is accurately represented. Without such information the volume of sediment moving within the model under conditions such as those experienced during severe tropical cyclone events could be grossly over or under estimated.

To overcome these limitations as best as possible, the sediment transport model was calibrated against the estimated sediment budget for the region. This helps to ensure that the modelled rates of sediment transport are reasonably in keeping with the reality, though realistically, these estimates are likely to only be accurate to an order of magnitude. A much greater level of data collection and interrogation would be required to improve modelled outcomes beyond this level of accuracy. This could include the following.

- Better tracking of the bypassing works completed by the Shire, including the actual volumes that are bypassed along with tracking of the rate of transport into and out of the areas impacted by the bypassing works.
- A continuous high resolution survey across the nearshore area, lagoon and reef to provide a snapshot of the actual bathymetry across the area, rather than needing to use a range of different surveys with different levels of accuracy. The survey could include reflectivity to provide an indication of bottom type.
- Better understanding of the sediment depths across the lagoon, through jet probing or sub-bottom profiling.
- Better understanding of the sediment transport rates in the nearshore area, through periods of consecutive survey to track movement of shoals, etc, or potentially through the use of sediment traps (noting that both of these options are not likely to provide overly certain results).
- Ongoing collection of metocean data to compliment the above data collections.

Based on the limitations of the modelling, whilst the general processes required to manage the impact of the construction of the proposed TBF should be reasonably well understood, the actual sediment management volumes across an average year may vary by up to 100%. Seasonal and

interannual variability, as well as the impact of tropical cyclones, could further impact these volumes. It is therefore recommended that an adaptive approach to management be adopted, whereby the volumes of material moved during the management regime are modified to achieve a certain outcome, rather than a fixed volume.

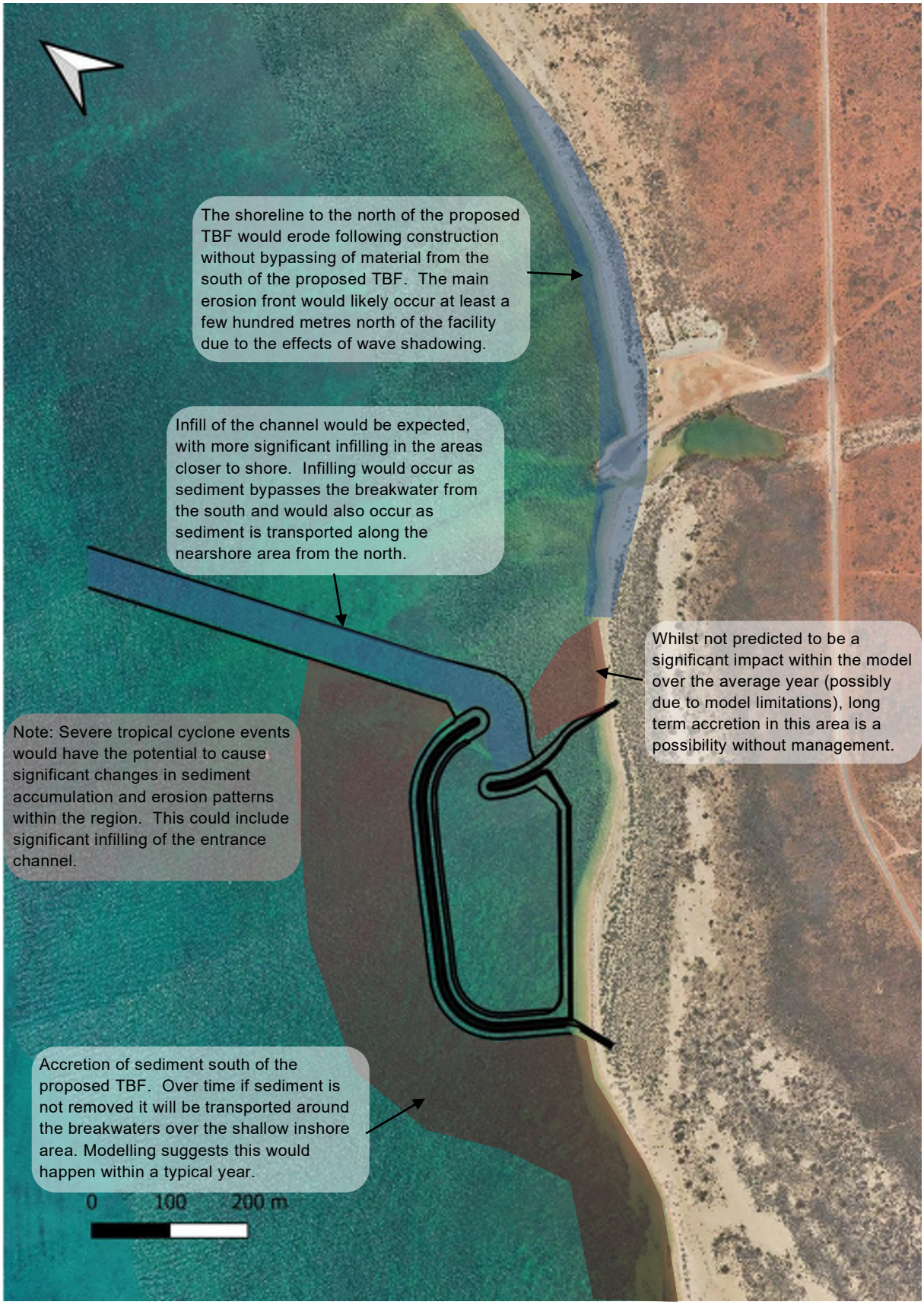

Figure 5.1 Anticipated Shoreline Response Following Construction of the Proposed TBF in the Absence of Active Sediment Management

5.1 Proposed Coastal Management Regime

The proposed coastal management regime associated with the proposed TBF will need to consist of the following operations.

- Bypassing of sediment from the south of the facility to the shoreline north of the facility.
- Management of sediment on the northern side of the facility adjacent to the inner breakwater and entrance channel.
- Dredging of the entrance channel.

To some degree, the management of the sediment on the shoreline to both the north and south of the facility will have the potential to reduce the volume of sediment accumulation within the entrance channel. The relative ease of sediment extraction from the shoreline, as compared to dredging, may therefore dictate that a higher level of effort be placed on the onshore sand management to reduce the incidence of more expensive dredging works.

Further discussion regarding each of the components of the likely management regime are discussed in the following sections.

5.1.1 Sand Bypassing

Modelling results suggest that around 12,000 m^3 of material would need to be bypassed from the shoreline south of the proposed TBF to the shoreline to the north of the proposed TBF each year to maintain the general status quo of sediment movement along the coastline. However, the modelling showed that if this bypassing operation happened only once, there is the potential that material would have already been transported around the breakwaters, with some material being deposited within the entrance channel.

The modelled volume of around 12,000 m^3 is not overly dissimilar to the approximately 10,000 m^3 of material that is mechanically bypassed around the existing launch ramps each year, as outlined in the Shoreline Movement Report. This provides a level of comfort that the volumes of sediment transport are of the right order of magnitude, however the total magnitude of movement along the coastline was calibrated against the sediment budget and the sediment budget was derived from an estimate of the rate of natural sand bypassing around the existing boat ramp, which is not known. As a result, the total volume of sediment transport in this area could be higher and, as discussed previously, a contingency volume should be allowed for in any consideration of future management requirements. A contingency of at least 50% should be included over and above this estimate.

By way of comparison, the average annual volumes requiring bypassing at other locations around Western Australia are presented in Table 5.1.

Table 5.1 Comparison of Bypass Volumes with Other Locations Around Western Australia

Location	Average Annual Bypass Volume (m^3)
Proposed TBF	12,000 to 18,000
Tantabiddi Boat Ramp	10,000
Spoil Bank Marina[2]	49,800
Port Coogee	5,000
Geraldton Port	12,000
Hillarys	10,000
Mandurah Channel	100,000

Note: 1. The volumes presented above are the average annual volumes that require bypassing. Actual bypassing events may be less frequent than annual.
2. The volume from the Spoil Bank Marina has been derived from modelling completed by Baird (2020)

With respect to the bypassing process, it is recommended that extraction from the southern beach be completed at least twice per year initially, with a view towards monitoring the sediment behaviour and modifying the extraction timings as required to achieve an improved outcome. Extraction of sediment from the southern beach should ideally focus on removing as much material as possible from the lower elevations of the profile, i.e. removing material from the toe of the beach at the intersection with the underlying rock platform in an attempt to prevent this material from being available to bypass the structure. Removal of material should be completed over at least 200 m of beach to try to create a pseudo trap for sand transported into the area so that it has less chance of bypassing the breakwaters. The balance with this approach is that creation of a sand trap that is too big would actually increase the rate of sediment transport into the area which would be counterproductive.

Material that is excavated from the southern beach should be placed on the beach to the north of the facility as nourishment. The placement of this material should occur on the northern side of Tantabiddi creek to limit the potential for it to be transported south and deposit in the entrance channel. The area for placement of the material would roughly align with the location of the existing boat ramp.

Given the potential for reversal of the sediment transport directions during winter, bypassing events should be completed outside of this time. Nevertheless, the turtle nesting period runs from November to March (inclusive) so it is unlikely that bypassing could be completed during this period. As a result, it would be recommended that bypassing initially be completed in October and April. A summary of the recommended initial bypassing approach is summarised in Figure 5.2.

It must be noted that the above discussion relates to the typical conditions that are experienced along the coastline. Severe cyclone events have the potential to significantly change the sediment transport regime and cause much larger volumes of sediment to be transported along the coastline. As shown in the modelling, the rates of sediment transport under such events can

be much higher than under typical conditions. In the event of severe tropical cyclone impact careful consideration would be required to determine whether, and how much, additional bypassing should be completed. Consideration of these requirements should be on a case by case basis.

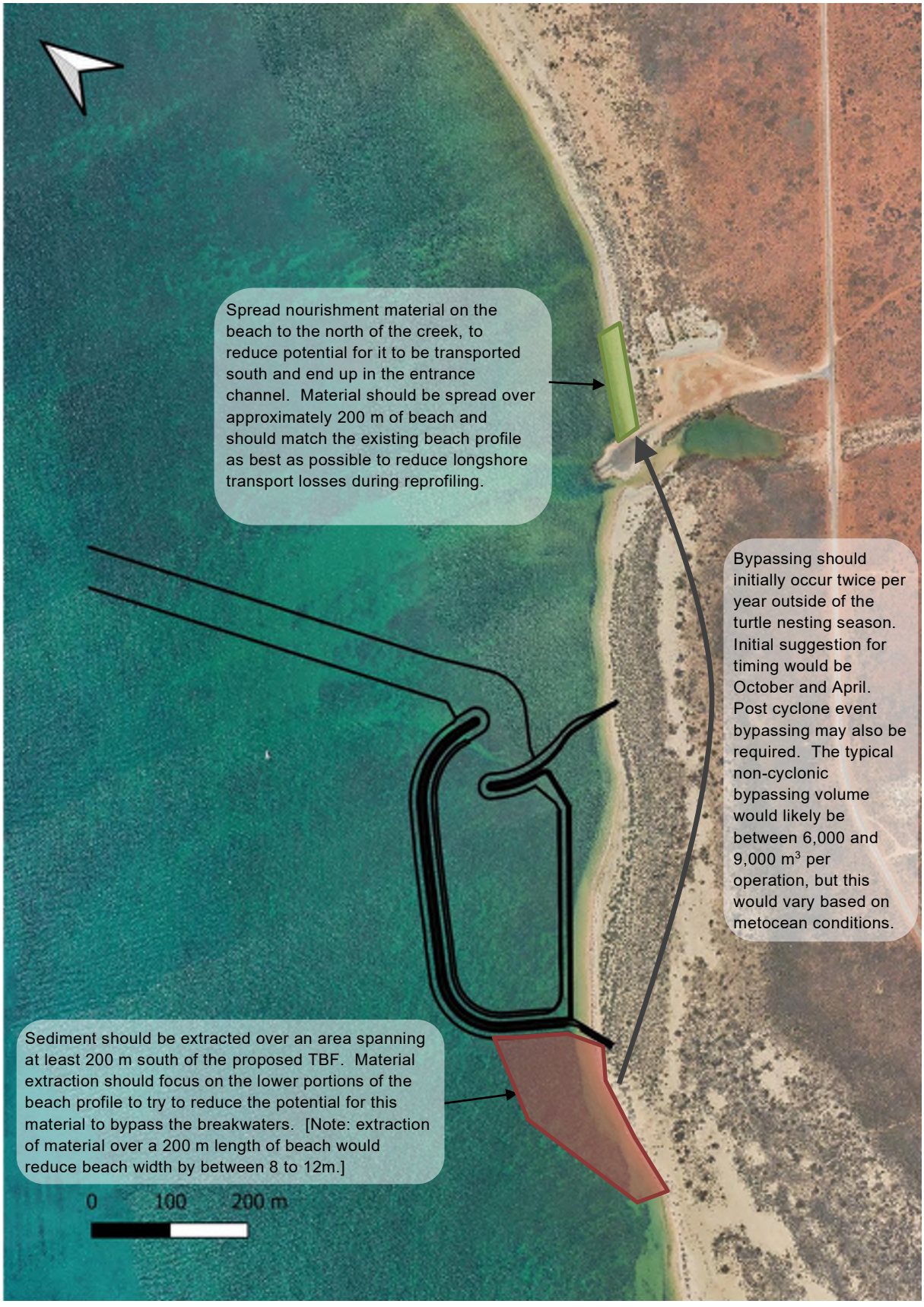

Figure 5.2 Recommended Initial Sand Bypassing Regime

5.1.2 Management of Sediment Adjacent to Entrance

As discussed previously, there is the potential that sediment could begin to accumulate adjacent to the inner breakwater and over time this could feed into the entrance channel. A proactive approach to the management of this area would be preferred, to capture material before it became a problem and accumulated within the entrance channel.

The recommendation for management of sediment in this area would be to complete the works at the same time as the sand bypassing is completed. Works would generally involve reprofiling of the beach to push any accumulated material to the north, or simply excavating any material and moving it north to the nourishment area. The modelling results suggest that any volume associated with this type of management would be small under typical conditions, however it may be a limitation of the modelling that the process of accumulation in this area was not adequately resolved. It is suggested that allowance should be made for management of a volume of between 1,000 and 2,000 m^3 per operation under typical conditions.

The impact of cyclone events on the volume of sediment accumulation within this area could be significant. Any such management would need to be completed on a case by case basis.

5.1.3 Entrance Channel Dredging

To some extent, the volume of dredging required within the entrance channel will depend on the effectiveness of the management of sediment along the shoreline. Nevertheless, even with the best management along the shoreline, it is still anticipated that there would be accumulation of sediment within the entrance channel. The modelling suggests that under typical conditions the majority of the sediment accumulation would occur along the batters of the channel, however over time there would be accumulation of material within the centres of the channel that would need to be managed.

The modelling suggests that under typical conditions approximately 2,600 m^3 of material would accumulate in the channel annually. Given the limitations in the modelling, particularly with respect to the unknowns regarding sediment transport rates over the nearshore rock platform, it would be prudent to allow for an annual infill rate of up to 5,200 m^3 under typical conditions. However, as shown, the potential impact of severe cyclones could be significant, and could result in almost the complete infill of the channel.

Notwithstanding the potential impact of cyclone events, which would need to be managed on a case by case basis, the general management approach to the dredging would be dictated by the available width of the entrance channel and the impact that sediment accumulation, predominately along the batters, would have on the navigability of the entrance. A detailed review would be required to determine the optimal outcome with respect to channel width and initial capital cost versus the required frequency and cost of maintenance dredging. It is expected that a maintenance dredging frequency of approximately every 3 years would be preferable.

5.2 Potential Mitigation Strategies

There is little that can be done to mitigate the potential impact of the proposed TBF on the overall sediment transport along the shoreline. The breakwaters and dredge channel will provide an almost complete barrier to sediment transport regardless of their configuration. Potential mitigation strategies would therefore be limited to those that can reduce the cost and effort required to manage the impacts of the sediment transport regime. One way of doing this would be to maximise the potential for works to be completed by land based earthmoving equipment (relatively cheap), while minimising the requirement for works to be completed using dredging plant (relatively expensive). There are two primary options that may assist with this approach.

The first option would be to modify the design around the entrance of the proposed TBF to push the entrance channel further offshore. This would reduce the potential for the infill of sediment which has been observed along the shoreward margins and is particularly relevant during cyclone events. There would be many options available to do this and the fact that the wave climate surrounding the facility is reasonably benign removes some of the constraints that would typically apply with respect to sheltering of vessels as they navigate through the entrance. An example of a layout that could achieve better outcomes is provided in Figure 5.3. The main benefits of this example are as follows.

- The dredge channel has been moved from a distance of approximately 90 m offshore in Concept B to a distance of 245 m offshore in the example layout. This provides a much greater sediment trapping volume adjacent to the northern breakwater before sediment would begin to infill within the entrance channel. This is able to be achieved by pushing the marina entrance channel further offshore and also opening up the entrance slightly, which is possible due to the reasonably benign wave climate.

- The potential for sediment to bypass the breakwaters from the south would be reduced given the breakwaters would now extend around 345 m offshore compared to around 245 m for Concept B. This would provide improved trapping on the southern side of the facility before sediment could accumulate within the entrance channel.

- The revised layout could potentially result in a decrease in the volume of capital dredging, as even if the size of the basin remains the same, less dredging would be required for the entrance channel.

- A revised layout such as this may also result in an improved outcome with respect to long waves within the basin.

Further refinements to the example layout would also be possible to further increase the benefits to the project.

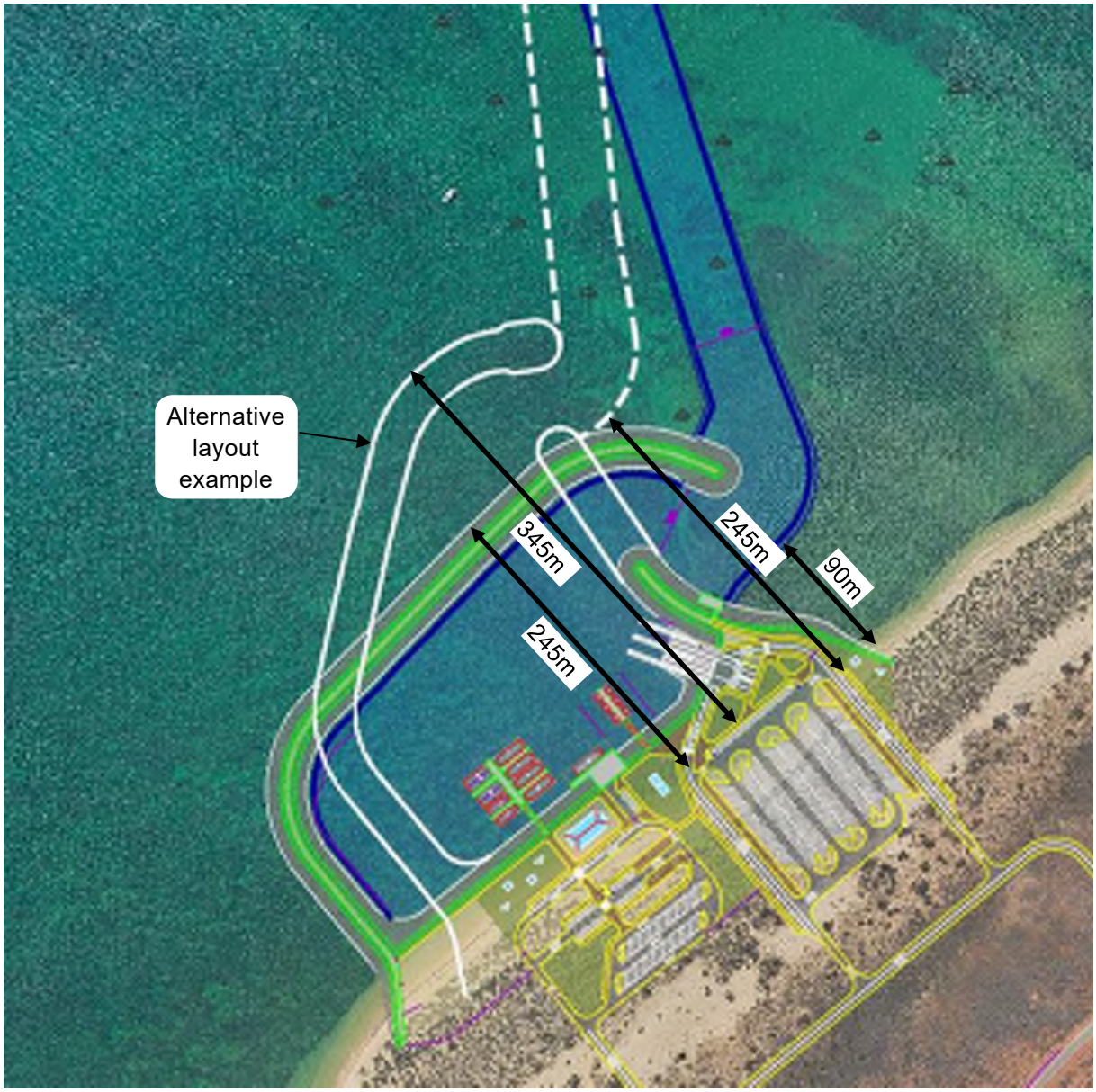

Figure 5.3 Possible Alternative Design for the Marina Layout to Minimise the Potential Impacts of Sediment Transport Processes

The second option would be to add a spur off the southern portion of the breakwater to try to prevent sediment from being transported around the breakwater in the relatively shallow water depths. Whilst there may be merit in this option, as it would potentially stop the bypassing of material, it would perhaps be best to treat this option as a mitigation strategy that could be implemented in the future if the management of sediment on the shoreline is not sufficiently effective.

6. Concept C

Concept C was prepared based on the results of the investigations and recommendations provided hereto in this report. To assess the potential impacts that the construction of the Concept C layout of the proposed TBF would have on the local sediment transport, the calibrated model was updated to include the Concept C layout. This included the revised breakwaters and the dredged approach channel. Modelling was then completed for a typical year to simulate the average annual post development sediment transport during.

Additionally, modelling was completed to simulate the impacts of a 50 year ARI cyclone event identified in Task 4 and to assess the potential impacts of sediment transport under extreme conditions, particularly with respect to accumulation within and around the entrance channel.

6.1 Typical Year Modelling Results

The simulation of the typical year provides an indication of the likely changes that will be observed around the proposed TBF on average over a one year period. It should be noted, however, that changes in conditions, both seasonally and annually, would be expected to result in reasonably significant differences in the sediment transport rates around the facility. This is an important consideration that needs to be remembered when reviewing the sediment transport rates and impacts presented in this section.

The Delft3D morphological model is a useful tool to assess the potential changes that can occur around the proposed TBF. To help provide context to the assessment of the potential changes it is useful to inspect the characteristics of sediment transport under different conditions. Two of the key conditions for sediment transport at the site are sea breeze and storm conditions.

Figures 6.1 and 6.2 show the total sediment transport rates around the proposed Concept C layout during typical sea breeze, and storm conditions respectively. The results mirror those observed for Concept B, with northward sediment transport under the sea breeze conditions and southward sediment transport under the storm conditions. Significantly, when compared to the results from Concept B, it is obvious that the southern sediment transport under storm conditions does not appear to deposit as much material directly into the channel. All other patterns remain similar.

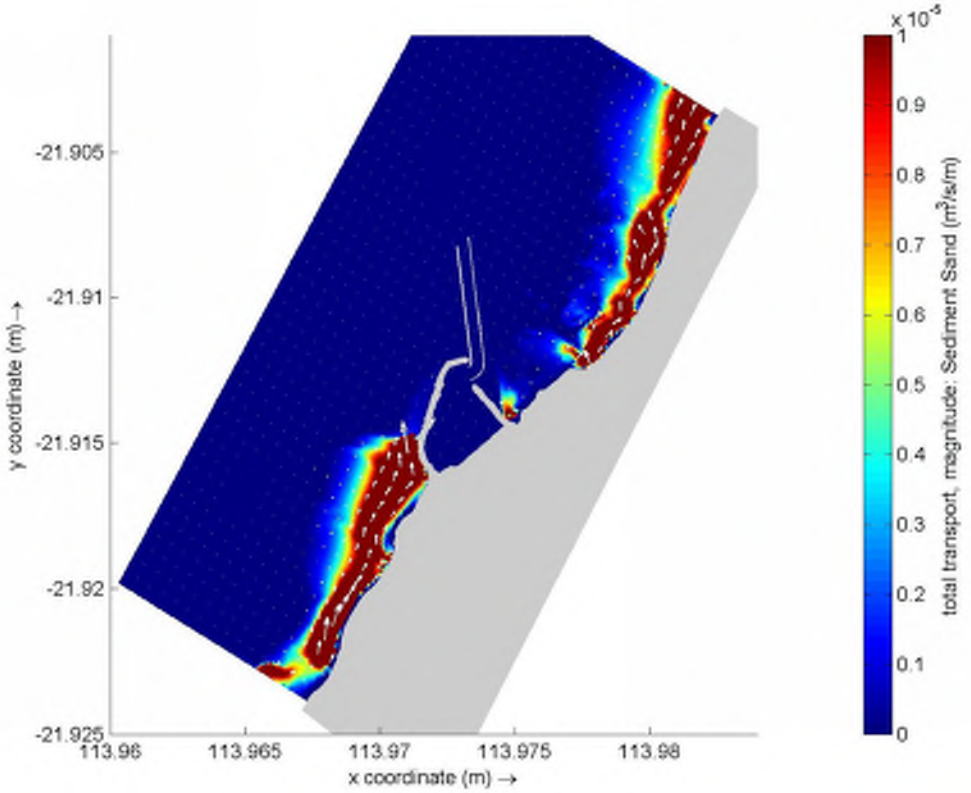

Figure 6.1 Total Sediment Transport Rates under Sea Breeze Conditions Concept C Layout

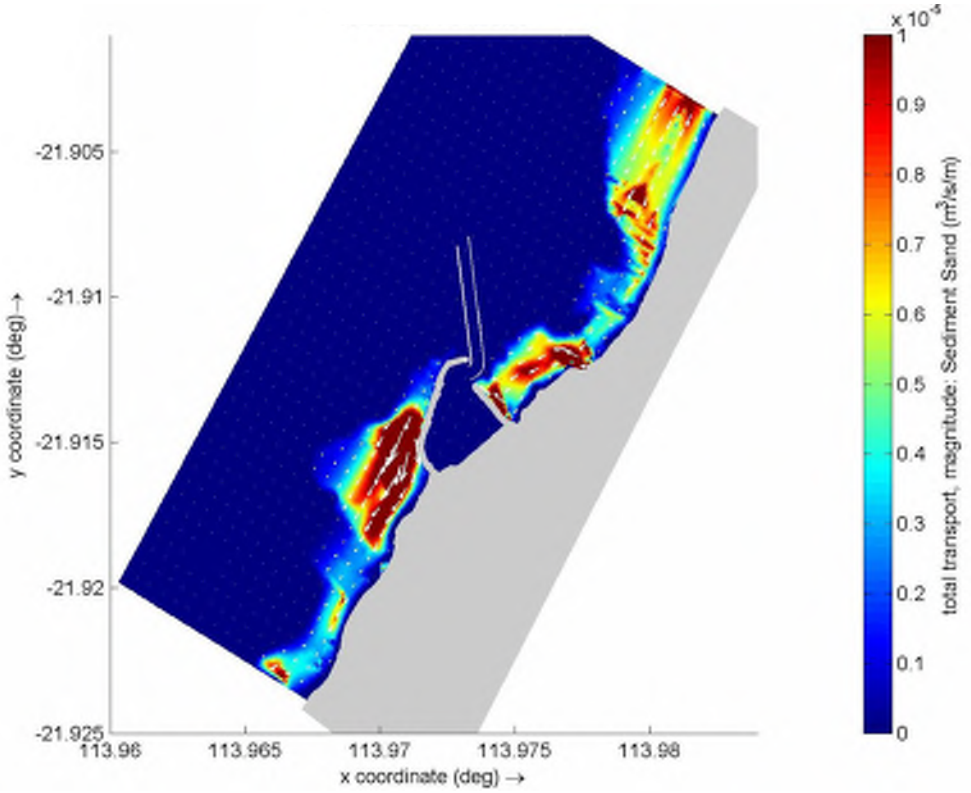

Figure 6.2 Total Sediment Transport Rates under Storm Conditions Concept C Layout

Figure 6.3 shows the potential changes to bed levels over the average year that was modelled. The model shows similar trends around the offshore reefs and existing boat ramp as observed and discussed for Concept B. Closer to shore, the figure shows similar accumulations to the south of the proposed TBF are expected for Concept C, with accumulation of sediment likely to occur to the south of the facility. The extent of sediment transport around the breakwaters is slightly different, with some accumulation happening offshore from the breakwaters, however within the simulated period this accumulation does not occur to the extent that it would begin to significantly accumulate within the entrance channel.

A better view of the potential changes within the entrance channel is provided in Figure 6.4. This plot shows that the overall extent of sediment accumulation within the entrance channel is noticeably less than that predicted by the modelling for Concept B. Some small areas of accumulation are observed on the batters along the northern side and southern side of the channel around the breakwaters. Most significantly, the total volume of accumulation within the channel over the modelled period was approximately 1,000 m^3 of material for Concept C, compared to around 2,600 m^3 for Concept B – a significant improvement. Noting that these estimates are based on the conditions that were modelled, and that changes to these conditions would likely change the volumes of sediment accumulation. Nevertheless, the rate of sedimentation experienced for Concept C would likely always be less than for Concept B.

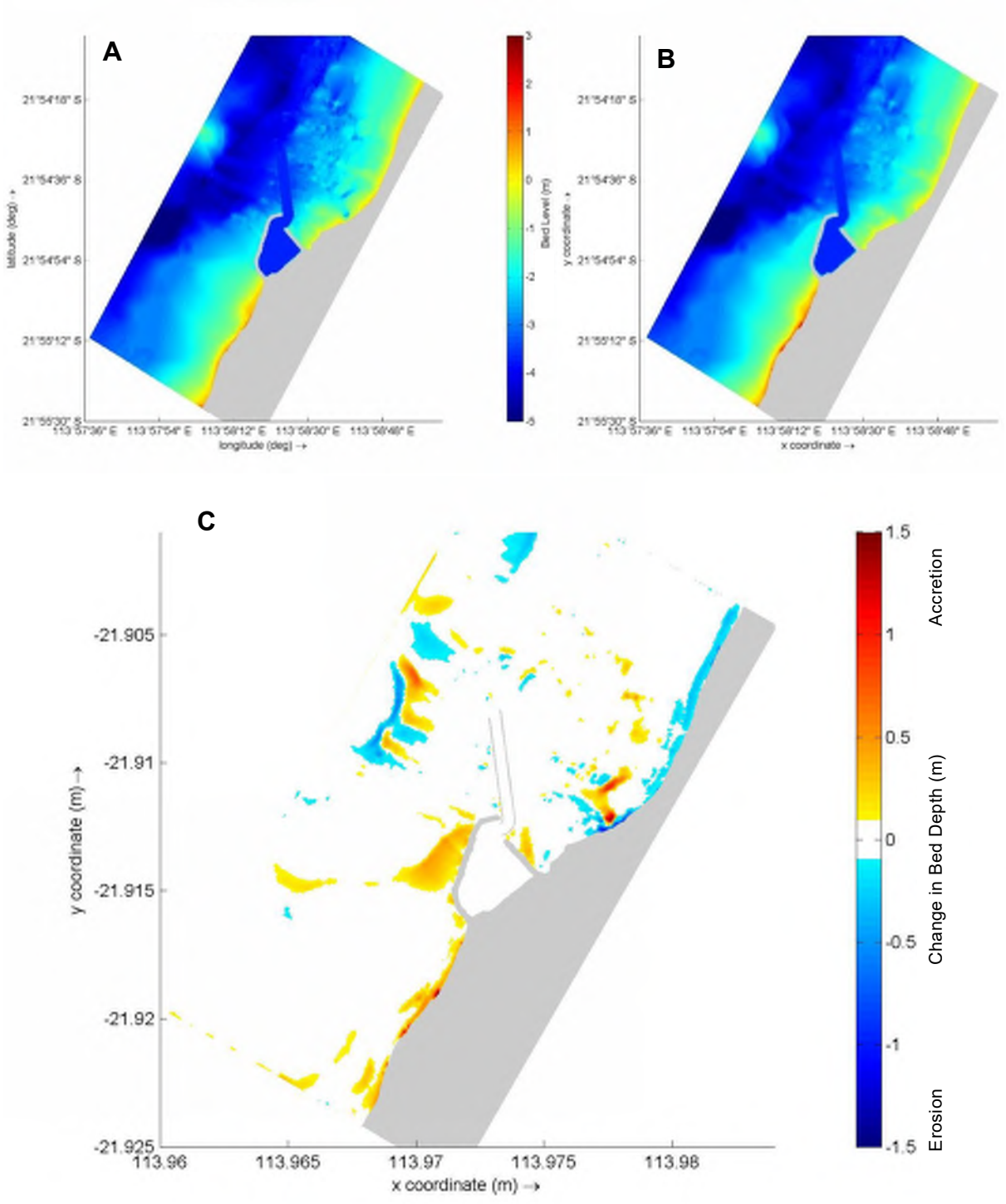

Figure 6.3 Potential Changes to Bed Elevation Over the Course of the Typical Year for Concept C: (A) Initial Bed Level; (B) Final Bed Level; (C) Difference

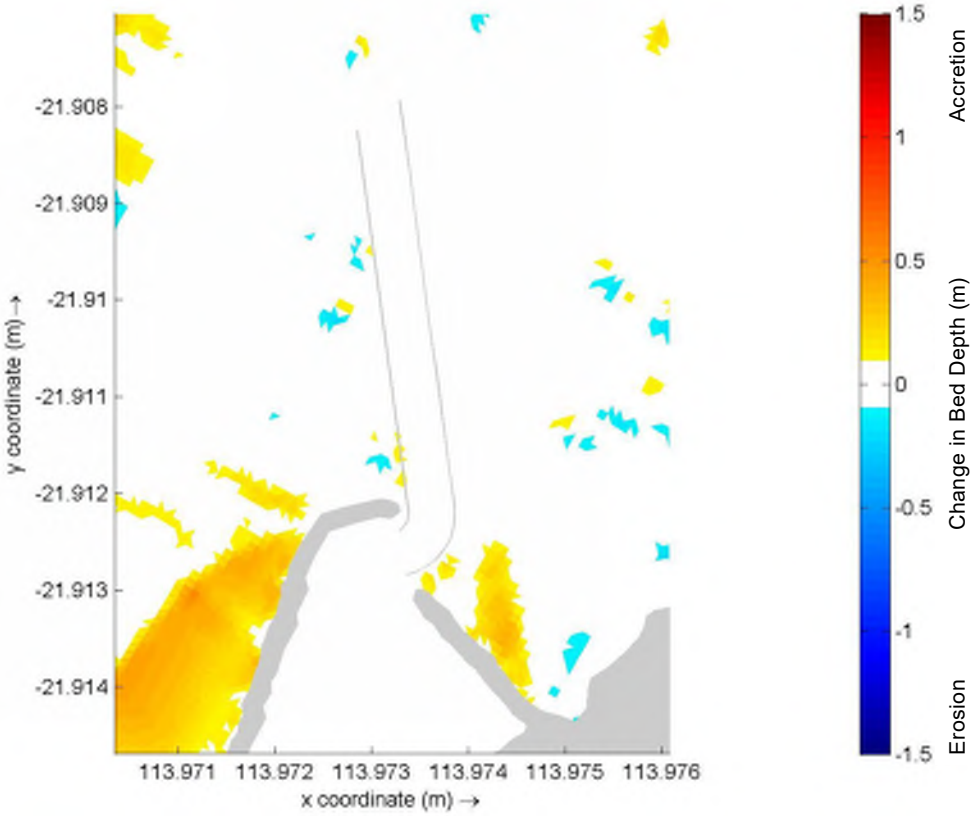

Figure 6.4 Potential Infill of the Concept C Entrance Channel over a Typical Year

Based on the outcomes from the modelling, the local average annual sediment budget for the post development case is presented in Figure 6.5. It must be noted that the modelling results match the general expectations regarding sediment transport post development, however the outcomes of the model need to be considered in the context that they present results for the range of conditions modelled. These changes are therefore indicative of the types of changes that would be expected along the shoreline, but would be subject to fluctuation based on weather conditions, etc.

The accuracy of the local sediment budget is also the subject of some degree of error, as it has been noted that there are considerable error bounds in the initial sediment budget that was used for the calibration of the model. Accurate calibration of sediment transport models such as that used in this investigation would require a much greater level of data to confirm that the sediment transport pathways were being accurately represented under all conditions. The outcomes from the model should therefore be treated as an indication of the potential shoreline response, though planning for the future management of the facility should account for a reasonable level of variability or departure from the modelled values. This is the same as was discussed for Concept B.

Figure 6.5 Modelled Sediment Budget Post Construction of the Proposed TBF

Ultimately the sediment budget shows that the overall volumes are similar to Concept B, though with less accumulation within the entrance channel. It is noted that there is a larger volume of material accumulating offshore from the outer breakwater, though this was really the intention of the design – to encourage the accumulation of this material adjacent to the breakwater rather than within the entrance channel. Over time, if left unchecked, this material could begin to accumulate to the extent that it would begin to impact the entrance channel, though proactive management could reduce the potential for this to occur.

6.2 Cyclonic Modelling Results

To assess the impacts of a severe tropical cyclone event on the local sediment transport and nearshore bathymetry for Concept C, the 50 year ARI event used previously for the Concept B modelling was simulated within the updated morphological model.

Morphological modelling for the cyclone event resulted in large scale changes to the nearshore bathymetry surrounding the proposed TBF. Figure 6.6 shows the results from the modelling.

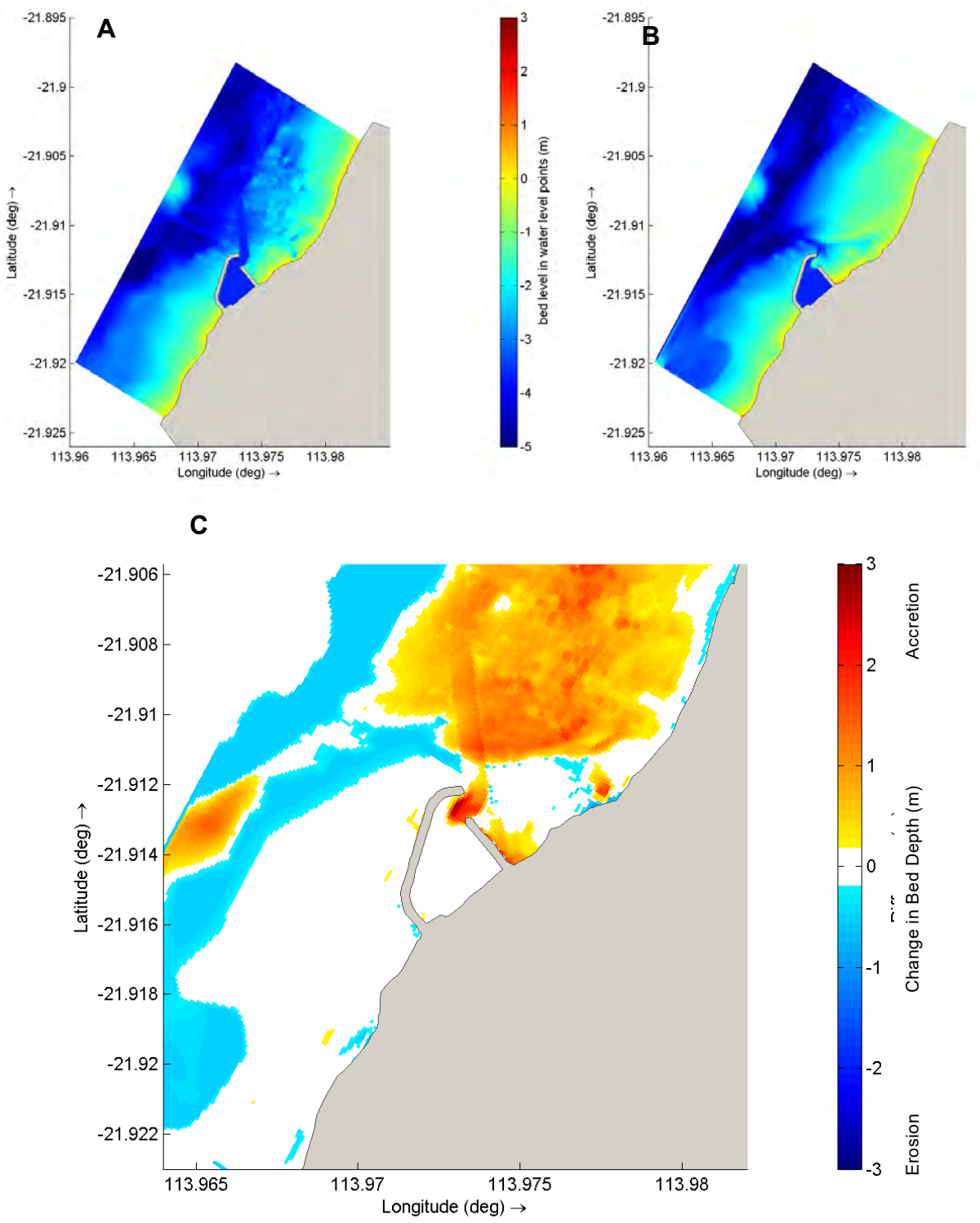

Figure 6.6 Potential Changes to Bed Elevation During a 50 year ARI Cyclone for Concept C: (A) Initial Bed Level; (B) Final Bed Level; (C) Difference

The volume of material deposited in the channel is approximately 50,000 m^3, which is similar to the volume predicted for Concept B. This volume of accumulation results in a significant infill of the channel at the entrance, though would not completely shut off the entrance to the facility as was predicted for Concept B. Nevertheless, this is a substantial volume of infill and would have clear operational impacts for the facility. As previously stated, the extent of sediment movement in the nearshore area is impacted by the initial volume of sediment that is included within the model. Without further details on sediment depths and composition, the modelling outcomes are be limited with respect to their potential accuracy. This reinforces the importance of understanding the actual depth of sediment coverage across the lagoon.

The modelled cyclone represents an event with a 50 year ARI and a wind direction that is critical for this facility. Therefore, the modelled morphological changes represent conditions that would only have a 2% chance of being experienced in any given year. The trends in cyclone induced morphological changes would be reasonably consistent across events that follow this track; however, the magnitudes of the impact would change. This needs to be considered as part of the planning for the facility.

6.3 Potential Shoreline Impacts & Management Requirements

Modelling of the sediment transport around the proposed Concept C layout has shown that there will be similar impacts to those observed for Concept B, albeit the volume of sediment accumulation in the channel will be slightly less during typical conditions. As a result, all of the management recommendations presented in Section 5 remain valid for Concept C. The only modification would be that a total channel infill rate under typical conditions of approximately 2,000 m^3 per year should be allowed for in any future planning. This volume is approximately double that predicted by the model to account for limitations in the modelling, as have previously been discussed.

6.3.1 Proposed Coastal Management Regime

The proposed coastal management regime associated with the Concept C layout of the TBF will need to consist of the following operations.

- Bypassing of sediment from the south of the facility to the shoreline north of the facility.
- Management of sediment on the northern side of the facility adjacent to the inner breakwater and entrance channel.
- Dredging of the entrance channel.

To some degree, the management of the sediment on the shoreline to both the north and south of the facility will have the potential to reduce the volume of sediment accumulation within the entrance channel. The relative ease of sediment extraction from the shoreline, as compared to dredging, may therefore dictate that a higher level of effort be placed on the onshore sand management to reduce the incidence of more expensive dredging works.

Further discussion regarding each of the components of the likely management regime are discussed in the following sections.

Sand Bypassing

Modelling results suggest that around 12,000 m^3 of material would need to be bypassed from the shoreline south of the Concept C layout of the proposed TBF to the north. This is the same as for the previous Concept B layout. As such it is recommended that bypassing operations are

completed at least twice per year initially, with a view towards monitoring the sediment behaviour and modifying the extraction timings as required to achieve an improved outcome. As discussed previously, a contingency of at least 50% should be included over and above this estimate.

Extraction of sediment from the southern beach should ideally focus on removing as much material as possible from the lower elevations of the profile, i.e. removing material from the toe of the beach at the intersection with the underlying rock platform in an attempt to prevent this material from being available to bypass the structure. Removal of material should be completed over at least 200 m of beach to try to create a pseudo trap for sand transported into the area so that it has less chance of bypassing the breakwaters. The balance with this approach is that creation of a sand trap that is too big would actually increase the rate of sediment transport into the area which would be counterproductive.

Material that is excavated from the southern beach should be placed on the beach to the north of the facility as nourishment. The placement of this material should occur on the northern side of Tantabiddi creek to limit the potential for it to be transported south and deposit in the entrance channel. The area for placement of the material would roughly align with the location of the existing boat ramp.

Given the potential for reversal of the sediment transport directions during winter, bypassing events should be completed outside of this time. Nevertheless, the turtle nesting period runs from November to March (inclusive) so it is unlikely that bypassing could be completed during this period. As a result, it would be recommended that bypassing initially be completed in October and April. A summary of the recommended initial bypassing approach is summarised in Figure 6.7.

It must be noted that the above discussion relates to the typical conditions that are experienced along the coastline. Severe cyclone events have the potential to significantly change the sediment transport regime and cause much larger volumes of sediment to be transported along the coastline. As shown in the modelling, the rates of sediment transport under such events can be much higher than under typical conditions. In the event of severe tropical cyclone impact careful consideration would be required to determine whether, and how much, additional bypassing should be completed. Consideration of these requirements should be on a case by case basis.

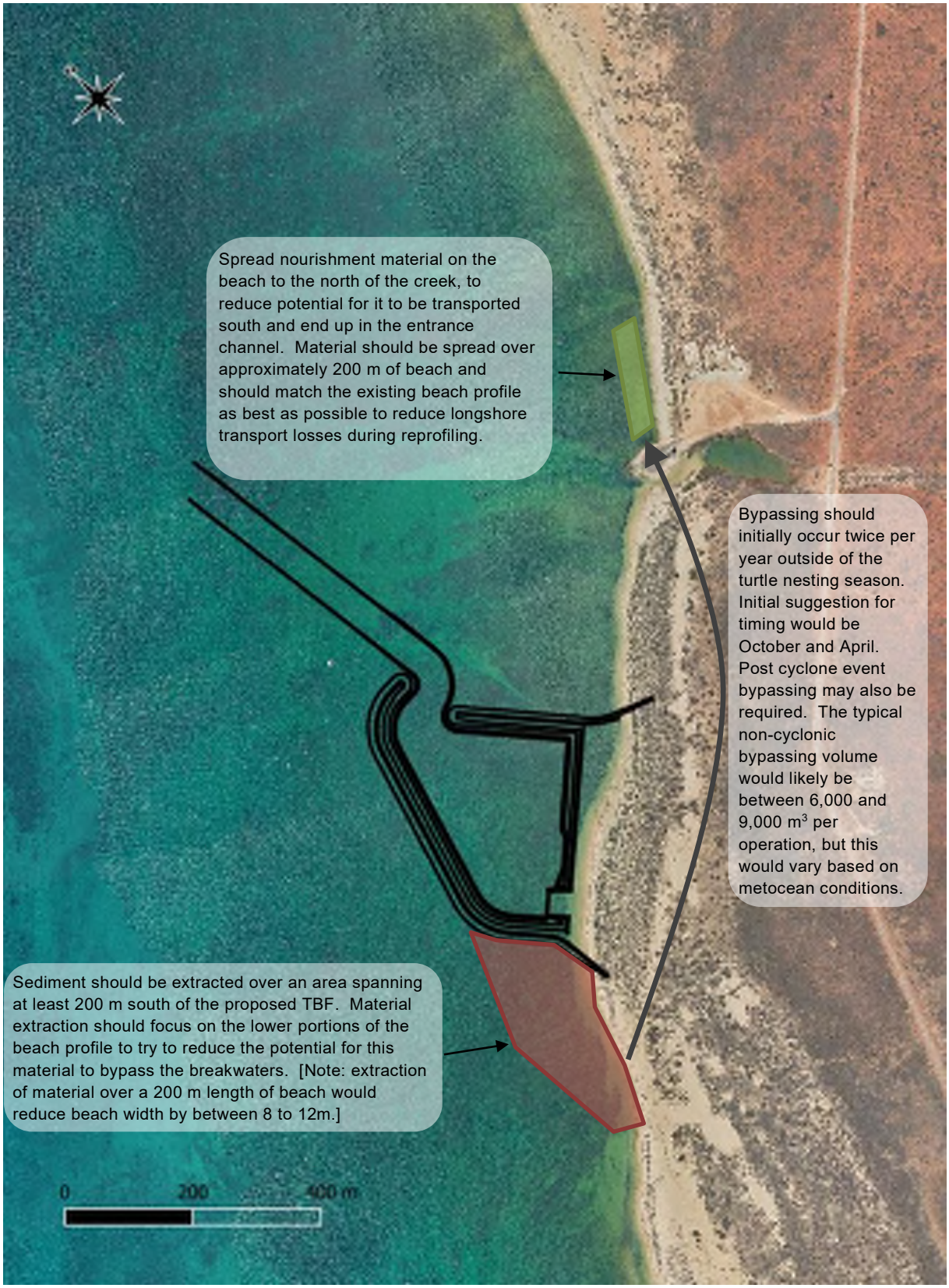

Figure 6.7 Recommended Initial Sand Bypassing Regime Concept C

Management of Sediment Adjacent to Entrance

There is the potential that sediment could begin to accumulate next to the northern breakwater for the Concept C layout. A proactive approach to the management of this sediment as outlined in Section 5.1.2 would be preferred.

Entrance Channel Dredging

As discussed previously the volume of dredging required within the entrance channel will likely depend upon the effectiveness of the management of sediment along the shoreline. Nevertheless, it is still anticipated that there would be accumulation of sediment within the entrance channel. Similarly, to the previous layout of the proposed TBF the modelling suggests that the majority of the sediment accumulation would occur along the batters of the channel, however over time there would be accumulation of material within the centre of the channel.

The modelling suggests that under typical conditions approximately 2,000 m^3 of material would accumulate in the channel annually. Given the limitations in the modelling, particularly with respect to the unknowns regarding sediment transport rates over the nearshore rock platform, it would be prudent to allow for an annual infill rate of up to 4,000 m^3 under typical conditions. However, as shown, the potential impact of severe cyclones could be significant, and could result in almost the complete infill of the channel.

Notwithstanding the potential impact of cyclone events, which would need to be managed on a case-by-case basis, the general management approach to the dredging would be dictated by the available width of the entrance channel and the impact that sediment accumulation, predominately along the batters, would have on the navigability of the entrance. A detailed review would be required to determine the optimal outcome with respect to channel width and initial capital cost versus the required frequency and cost of maintenance dredging. It is expected that a maintenance dredging frequency of approximately every 4 years would be preferable.

7. Summary

MRA was engaged to complete numerical modelling of the changes to the local sediment transport regime following the construction of the proposed TBF. The numerical modelling was completed using the calibrated wave and hydrodynamic models (presented in Tasks 5 and 6) as the drivers for sediment transport, with the morphological modelling module of Delft3D simulating the sediment response. Modelling was completed for a typical year as well as for a selection of less frequent conditions, including a more energetic winter period, a calm autumn period and a 50 year ARI tropical cyclone event. The main points to note with regard to the sediment transport are as follows.

- The modelling suggests that over a typical year approximately 16,000 m^3 of material is transported north along the coastline, with approximately 4,000 m^3 of material transported to the south.
- The construction of the proposed TBF would trap sediment on the southern side of the facility. The modelling suggests that this accumulated material could be transported around the breakwater over the shallow rock platform, before being deposited into the entrance channel.
- Some degree of accumulation on the northern side of the marina should be expected, with some infill of the entrance channel likely to occur in this area, particularly for the Concept B layout.
- The model suggests that for Concept B approximately 2,600 m^3 of material could be deposited in the entrance channel over a typical year, however given limitations in the modelling, an allowance for an average accumulation of around 5,200 m^3 of material per year should be used in the planning stage.
- Following modelling and reporting of results for Concept B, an updated Concept C was prepared. Modelling for this Concept yielded similar results as for Concept B, though demonstrated less potential for channel infill under typical conditions. Approximately 1,000 m^3 of material was predicted to be deposited in the entrance channel for Concept C over a typical year, although as discussed above, an allowance for an annual accumulation of around 2,000 m^3 should be used in the planning stage.
- Abnormal conditions as well as seasonal or interannual variability could significantly change the volumes sediment accumulation or infill within the channel.
- Details of the recommended requirements for sand bypassing and management have been presented. Albeit future management of the facility should favour an adaptive management approach, whereby all management tasks are set up to maintain a given outcome, rather than simply managing specified volumes.
- The potential impacts of severe tropical cyclones could be significant for the management of the facility, with the 50 year event potentially resulting in almost complete infill of the entrance channel. Management responses to severe cyclonic events would need to be considered on a case by case basis.
- Sediment transport modelling is extremely complex and if often only as good as the quality of the inputs into the model. Capture of further data, as recommended within the report, could help to improve the accuracy of the modelling.

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