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General

This document gives the specifications for meteorological data to be used for the design of the bridge alternatives for crossing of the Bjørnafjorden.

Furthermore, the document gives requirements and guidelines for combination of environmental loads.

The data are presently to a varying degree encumbered with uncertainties due to lack of reliable data. This applies in particular to data on current and storm surge. The data given in the specification are mostly based on numerical simulations and only to a limited degree on reliable physical measurements. Both wind and wave data are however to a certain degree corroborated by comparisons with physical measurements.

The situation calls for a need to examine the sensitivities of the response quantities to uncertain parameters. The selection of the parameters and their variation range for such sensitivity evaluations shall be done in close cooperation with the client, where they are not specified herein.

The references give background for the design parameters given in this specification.

Nomenclature

H_s: significant wave height
T_p: spectral peak period
Sp: limiting average wave steepness
JONSWAP: JOint North Sea WAve Project
σ_a & σ_b: JONSWAP spectral width parameters
γ: JONSWAP non-dimensional peak shape parameter
Γ: Gamma function
U: wind speed
Z: height above sea level
α: profile factor for the wind profile
I_u: longitudinal turbulence intensity
I_v: lateral turbulence intensity
I_w: vertical turbulence intensity
V_0: current speed

Table of revisions

Revision	Comments
B	• Table 1: The margin on the upper limit of Tp (0.5s) is removed for the 10 000 year condition. And footnote 3 is updated. • Section 1.4.1: The formula for the JONWAP spectra has been included • Section 1.5.1: Misalignment between Wind wave and wind direction has been updated, from +/- 15 to 30 degrees for extreme conditions, and Appendix C for fatigue. • Figure 2: Some cosmetic changes • Chp. 9. The text is changed • Chp. 10. Table 16 is changed
C	• Chp. 1.3: The text has been updated, ref Appendix D • Table 7: The directional spreading is changed from 4 to 4-6 • Table 9: 500 year return period is included • Table 14: 10 000 year water level is defined • Chp. 10: Table 16 and text (last sentence) is changed • Appendix D, 100 year wind sea scatter diagram is included

1 Wave data

As a general note, the wave conditions given herein shall be assumed constant along the bridge crossing. Presently we do not have adequate data to give reliable estimates of the wave energy along the bridge crossing.

1.1 Wind waves

Design wave conditions for locally generated wind waves shall be taken from the tables below. Estimates are based on simulations from [1] and [2]. Procedure for combining results from analysis and validation of analysis results can be found in ref. [2].

Return period / Sectors	1 year		10 year		100 year		10 000 year	
	Hs [m]	Tp max [s]	Hs [m]	Tp max [s]	Hs [m]	Tp max [s]	Hs [m]	Tp max [s]
345° - 75°	0.8	4.0	1.1	4.5	1.5	5.0	2.3	5.4
75° - 105°	1.6	5.3	2.2	5.9	2.8	6.6	3.9	7.1
105° - 165°	1.1	4.4	1.3	4.8	1.6	5.3	2.3	5.6
165° - 225°	1.2	4.4	1.5	4.9	1.9	5.3	2.7	5.6
225° - 315°	1.3	4.6	1.8	5.3	2.4	5.9	3.3	6.3
315° - 335°	1.5	5.1	1.9	5.6	2.5	6.2	3.5	6.7
335° - 345°	1.2	4.3	1.6	5.0	2.0	5.6	2.9	6.0

Table 1: Wind generated waves, All year

1) Direction 0° is waves coming from north, 90° is east, 180° is south and 270° is west
2) Wave conditions are constant within each sector
3) The upper limit of the Tp includes an added margin of 0.5s for 1, 10 and 100 year return periods
4) Lower peak periods shall also be assessed, if a Hs/Tp combination exceeds wave breaking criteria, then the wave height shall be reduced to fit the limiting wave breaking criteria

Wave conditions for the summer season (May to August) are given in Table 2.

Return period / Sectors	1 year		10 year		100 year	
	Hs [m]	Tp max [s]	Hs [m]	Tp max [s]	Hs [m]	Tp max [s]
345° - 75°	0.5	3.3	0.6	3.5	0.9	4.0
75° - 105°	0.9	4.2	1.3	4.8	1.8	5.4
105° - 165°	0.6	3.6	0.8	3.9	1.0	4.4
165° - 225°	0.7	3.5	0.9	4.0	1.2	4.4
225° - 315°	0.8	3.8	1.1	4.4	1.5	4.8
315° - 335°	0.9	4.2	1.2	4.5	1.6	5.1
335° - 345°	0.7	3.4	1.0	4.0	1.2	4.5

Table 2: Wind generated waves, Summer (May-August)

1) Direction 0° is waves coming from north, 90° is east, 180° is south and 270° is west
2) Wave conditions are constant within each sector
3) The upper limit of the Tp includes an added margin of 0.5s
4) Lower peak periods shall also be assessed, if a Hs/Tp combination exceeds wave breaking criteria, then the wave height shall be reduced to fit the limiting wave breaking criteria

The limiting wave breaking criteria, or limiting average wave steepness as it is also referred to, can be taken as (ref. [3]):

$$S_p = \frac{2\pi}{g}\frac{H_s}{T_p^2}, \quad S_p = \frac{1}{15} \ for \ T_P \leq 8s$$

1.2 Swell

The data for swell waves can be found from the table and figure below. Swell conditions in Bjørnafjorden are based on simulations performed by Norconsult, ref. [1].

Return period / Season	1 year Hs [m]	10 year Hs [m]	100 year Hs [m]	10 000 year Hs [m]
All year	0.26	0.34	0.40	0.55
Summer	0.18	0.24	0.28	Na

Table 3: Significant Waveheight, Swell

The significant wave heights given in Table 3 are valid for peak periods from 12-20 seconds. Wave heights outside this period range can be found by correcting with the coefficients given in Figure 1. The basis for Figure 1 is described in ref. [2].

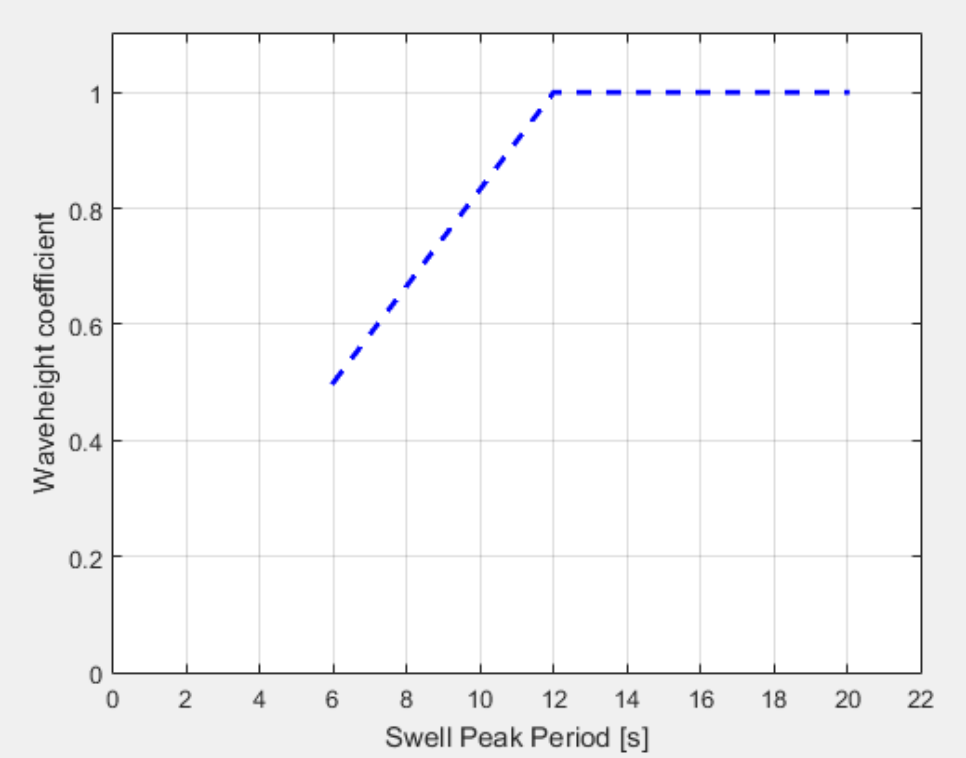


Figure 1: Swel peak periods

Tabulated values of Figure1 are given in Table 4.

Peak period [s]	6	7	8	9	10	11	12	18	20
$H_s/H_{s,max}$	0.50	0.58	0.67	0.75	0.83	0.92	1.0	1.0	1.0

Table 4: Swell peak periods

The swell system consists of two contributions, one coming from the northwest (320°) and one coming from the south - southwest (205°). The contribution from northwest is dominating, and contains on average above 80% of the total wave energy from swell. Since the total wave energy from swell already is small, it is considered adequate to assume that all swell comes from north. Following this approach, the direction of swell shall be taken as the most unfavorable in the sector 300°-330°.

1.3 Scatter diagram

Scatter diagrams for all year all directions are given in this report, see Table 5 and Table 6. Scatter diagrams for different sectors and months for wind sea and swell can be found in Appendix A and B respectively. All scatter diagrams are presented as percentage of occurrence.

It shall also be investigated whether fatigue damage during extreme event are significant, if that is the case, the wind sea scatter diagrams in Appendix D can be used. These scatter diagrams are estimated based on environmental contour lines, and are seen to increase the Hs and Tp for the most probable bins in the scatter somewhat, and is therefore considered overly conservative to use if fatigue damage of the structure is governed by less severe sea states.

1.3.1 Wind sea scatter diagram

The wind sea scatter diagram is based on 6 years of simulated data, which is not sufficient as basis for a long-term analysis. The wind sea scatter diagrams shall only be used for fatigue analysis. For more detail on how the scatter diagram is established, the reader is referred to ref. [2].

	Tp [s]										
Hm0 [m]	0.0 - 0.5	0.5 - 1.0	1.0 - 1.5	1.5 - 2.0	2.0 - 2.5	2.5 - 3.0	3.0 - 3.5	3.5 - 4.0	4.0 - 4.5	4.5 - 5.0	Sum
0.0 - 0.1	0,1064	10,3301	16,7749	5,2128	0,1858						32,6100
0.1 - 0.2			2,5992	19,6681	5,1876	0,1154					27,5703
0.2 - 0.3			0,0018	3,9538	12,7778	1,8218	0,0162				18,5714
0.3 - 0.4				0,1190	6,0390	4,2154	0,1497				10,5231
0.4 - 0.5					1,1111	3,2125	0,6313	0,0018			4,9567
0.5 - 0.6					0,0992	1,2446	1,1093	0,0036	0,0018		2,4585
0.6 - 0.7						0,3283	1,0299	0,0090			1,3672
0.7 - 0.8						0,0920	0,7125	0,1082	0,0018		0,9145
0.8 - 0.9						0,0018	0,2597	0,3139	0,0018		0,5772
0.9 - 1.0							0,0487	0,1912	0,0018	0,0018	0,2435
1.0 - 1.1							0,0108	0,0703	0,0253		0,1064
1.1 - 1.2								0,0253	0,0253		0,0505
1.2 - 1.3								0,0036	0,0144		0,0180
1.3 - 1.4									0,0054	0,0054	0,0108
1.4 - 1.5									0,0054	0,0036	0,0090
1.5 - 1.6										0,0018	0,0018
1.6 - 1.7										0,0036	0,0036
1.7 - 1.8										0,0018	0,0018
1.8 - 1.9										0,0036	0,0036
1.9 - 2.0										0,0018	0,0018
Sum	0,1064	10,3301	19,3759	28,9538	25,4004	11,0317	3,9683	0,7269	0,0830	0,0234	100,0000

Table 5: Wind sea All Year Scatter diagram

1.3.2 Swell scatter diagram

Note that the upper left bin in Table 6 (0<Hs<0.01 & Tp<2), represents sea states where there are no swell present. The swell scatter is based on 37 years of simulated data from Norconsult, ref. [1]. Peak periods have been smoothed, more detail on this approach can be found in ref. [2].

		Tp																			
	Hm0	<2	2 - 3	3 - 4	4 - 5	5 - 6	6 - 7	7 - 8	8 - 9	9 - 10	10 - 11	11 - 12	12 - 13	13 - 14	14 - 15	15 - 16	16 - 17	17 - 18	18 -19	19 - 20	>20	Sum
0,00	0,01	60,9633				1,6344	1,4060	1,1692	1,4633	1,5049	1,4448	1,1229	0,6123	0,3330	0,1545	0,0990	0,0351	0,0139	0,0037			71,9603
0,01	0,02					0,5291	1,2987	0,9278	1,1238	1,1127	0,9925	0,8491	0,7825	0,5291	0,3043	0,1609	0,0647	0,0277	0,0111		0,0018	8,7160
0,02	0,03					0,0990	0,3894	0,7853	0,4357	0,6299	0,6993	0,6151	0,6586	0,4542	0,2969	0,1924	0,0509	0,0231	0,0148	0,0037	0,0018	5,3501
0,03	0,04					0,0028	0,0583	0,7233	0,5272	0,2118	0,3663	0,3950	0,3200	0,2756	0,2183	0,1304	0,0555	0,0203	0,0102	0,0009		3,3160
0,04	0,05						0,0018	0,4486	0,8834	0,3857	0,1045	0,1841	0,2229	0,1554	0,1572	0,1258	0,0620	0,0250	0,0139			2,7703
0,05	0,06							0,1720	0,7169	0,6225	0,1350	0,0684	0,1165	0,0601	0,0684	0,0601	0,0573	0,0176	0,0157	0,0009		2,1117
0,06	0,07							0,0564	0,4199	0,7261	0,2951	0,0610	0,0462	0,0314	0,0287	0,0296	0,0462	0,0222	0,0139			1,7769
0,07	0,08							0,0166	0,1323	0,4116	0,3330	0,0675	0,0166	0,0176	0,0157	0,0166	0,0157	0,0111	0,0120	0,0018		1,0683
0,08	0,09							0,0018	0,0268	0,2405	0,3959	0,1267	0,0157	0,0074	0,0046	0,0046	0,0046	0,0028	0,0120			0,8436
0,09	0,10								0,0046	0,1119	0,2830	0,1933	0,0166	0,0009	0,0028	0,0028	0,0028	0,0046	0,0037			0,6271
0,10	0,11									0,0361	0,1794	0,1545	0,0166	0,0037	0,0009		0,0009	0,0037	0,0018			0,3977
0,11	0,12								0,0009	0,0102	0,1008	0,1526	0,0305	0,0018	0,0018	0,0009		0,0009	0,0028			0,3034
0,12	0,13									0,0074	0,0472	0,1073	0,0518	0,0092	0,0009			0,0018	0,0009			0,2266
0,13	0,14										0,0157	0,0444	0,0601	0,0111	0,0009	0,0009		0,0018	0,0018			0,1369
0,14	0,15										0,0028	0,0213	0,0657	0,0166	0,0028	0,0009		0,0018	0,0009			0,1128
0,15	0,16										0,0018	0,0250	0,0731	0,0176	0,0037	0,0009		0,0009	0,0009			0,1239
0,16	0,17											0,0120	0,0370	0,0111	0,0055	0,0009						0,0666
0,17	0,18											0,0055	0,0231	0,0102	0,0018	0,0028			0,0009			0,0444
0,18	0,19												0,0129	0,0046	0,0028	0,0018		0,0009	0,0018			0,0250
0,19	0,20											0,0009	0,0009	0,0028	0,0046				0,0009			0,0102
0,20	0,21											0,0009	0,0018	0,0009	0,0046	0,0009	0,0009					0,0102
0,21	0,22														0,0009							0,0009
0,22	0,23												0,0009									0,0009
	Sum	60,9633	0,0000	0,0000	0,0000	2,2653	3,1542	4,3011	5,7348	6,0114	5,3972	4,2077	3,1828	1,9545	1,2829	0,8325	0,3968	0,1804	0,1239	0,0074	0,0037	100,0000

Table 6: Swell All Year Scatter diagram

1.4 Wave spectra

1.4.1 Wind sea

By comparing spectrums from both simulations and measurements, we see that the JONSWAP spectra fits reasonable well to the locally wind generated waves in the fjord. JONSWAP with average spectral width (σ_a=0.07 and σ_b=0.09) can be used, the gamma parameter shall be varied in the range γ = 1.8 - 2.3. The JONSWAP definition from DNV-RP-C205 (ref. [3]) shall be used, this is shown below.

$$S_J(\omega) = A_\gamma \cdot \frac{5}{16} \cdot H_s^2 \cdot \omega_p^4 \cdot \omega^{-5} \cdot exp\left(-\frac{5}{4}\left(\frac{\omega}{\omega_p}\right)^{-4}\right) \cdot \gamma^{exp\left(-0.5\left(\frac{\omega-\omega_p}{\sigma\cdot\omega_p}\right)^2\right)}$$

where:

$A_\gamma = 1 - 0.287 \cdot \ln(\gamma)$
$\gamma = non - dimensional\ peak\ shape\ parameter$
$\sigma\ = spectral\ width\ parameter$
$\sigma = \sigma_a\ for\ \omega \leq \omega_p$
$\sigma = \sigma_b\ for\ \omega > \omega_p$

1.4.2 Swell

Presently we do not have theoretical wave spectra that fit the simulated swell conditions very well. There could be an option to run with the numerical spectra from the wave simulations. Instead, it is decided that JONSWAP spectra should be used for swell, with a gamma value between 3-5.

With this simplification, the wave energy from swell is represented by a narrower and steeper wave spectrum than one can expect from the actual wave spectrum. It is therefore crucial that a detailed screening of the wave periods are performed, if not, there is a significant risk that the wave energy at important resonant frequencies will be underestimated.

1.4.3 Directional spreading

Directional spreading for wind sea is defined in Table 7.

The incoming swell has low directional spreading and shall be taken as given in Table 7 or as longcrested waves, whichever gives the largest response. . Recommended values for directional spreading in Table 7, and the formula for the cos n distribution below, is taken from DNV-RP-C205 ref. [3].

Directional spreading / Wave system	Cos n n
Wind Sea	4-6
Swell	10-20

Table 7: Directional spreading parameters

$$D(\theta) = \frac{\Gamma\left(1+\frac{n}{2}\right)}{\sqrt{\pi}\Gamma\left(\frac{1}{2}+\frac{n}{2}\right)} cos^n\left(\theta - \theta_p\right)$$

1.5 Combination of wind, waves, swell and wind

1.5.1 Combination of wind and waves

Locally generated wind waves and wind velocity are directly correlated. Consequently extreme wind sea with a given return period shall be combined with wind conditions with the same return period.

The misalignment between wind and wave direction will vary depending on the position along the crossing. In general, there is a larger difference between directions for parts of the crossing that will be sheltered for waves for a given wave direction. Unsheltered parts of the crossing tend to show less difference between wind and wave direction compared to the center of the crossing. As a compromise, data are given for the middle of the crossing that is considered to give a representative average situation.

In general the misalignment is dependent on significant wave height, and it varies between different sectors. For extreme sea states, it is seen that wind/wave misalignment is within ± 30°. The previously stated ± 15° is too narrow even for extreme conditions. Consequently, for extreme sea states, the wind direction shall be taken as the most unfavorable within a sector of ± 30° from the direction of wind generated waves.

For smaller sea states, which typically will be governing for fatigue, these differences tend to be larger. And they vary significantly dependent on which sector is investigated. For that reason, it is not considered appropriate to give a general condition as is done for the extreme sea states. Distributions of misalignment for all sectors is therefore established, and can be found in Appendix C. Note that the distributions are established with an increment of 5 degrees to allow for a fine discretization for cases and directions where this input may be important.

As an example of how the information in Appendix C should be used: Assuming a wave direction of 270 degrees, bin -50 (from sector 10) will for example give the probability that this wave direction occurs together with a wind direction of 220 degrees.

Correlation of wind and waves to be used for fatigue analysis should be based on wind velocities within each sector, given in Table 8. The table is established based on input wind velocity and direction used to establish the wind sea scatter diagrams; for more information see ref. [2].

	Correlated 1 hour wind speed [m/s]											
Direction [°] / Hs [m]	**0°** 345°-15°	**30°** 15°-45°	**60°** 45°-75°	**90°** 75°-105°	**120°** 105°-135°	**150°** 135°-165°	**180°** 165°-195°	**210°** 195°-225°	**240°** 225°-255°	**270°** 255°-285°	**300°** 285°-315°	**330°** 315°-345°
0.00 - 0.10	1.31	1.21	1.76	2.21	1.97	1.90	1.74	2.00	2.07	2.00	2.00	1.49
0.10 - 0.20	3.56	3.66	3.89	4.07	4.19	4.00	3.77	4.50	4.26	4.27	4.08	3.53
0.20 - 0.30	5.63	3.91	5.40	5.74	6.15	6.19	5.77	6.62	6.37	6.35	5.88	5.46
0.30 - 0.40	7.70		7.04	7.35	8.02	8.47	7.84	8.51	8.34	8.27	7.54	7.08
0.40 - 0.50			9.24	8.54	9.73	10.48	9.22	10.06	9.96	9.88	9.11	8.61
0.50 - 0.60			9.90	9.62	11.21	11.96	10.45	11.14	11.65	11.72	10.33	10.01
0.60 - 0.70				10.94	12.75	13.49	11.84	12.14	13.06	13.56	11.71	10.93
0.70 - 0.80				11.87	14.69	14.70	13.99	13.62	14.37	14.07	13.17	11.76
0.80 - 0.90				12.84	15.09	16.15	14.90	15.09	15.78	15.60	14.17	12.70
0.90 - 1.00				13.58	15.75	17.20	16.60	16.47	18.21	17.32	14.75	13.68
1.00 - 1.10				13.94				17.10		18.94	16.23	14.55
1.10 - 1.20				14.70	17.00				21.00	18.30	17.21	15.90
1.20 - 1.30				17.00							19.80	16.87
1.30 - 1.40				17.60							18.50	17.27
1.40 - 1.50				17.85							21.50	19.85
1.50 - 1.60												22.90
1.60 - 1.70											22.40	21.00
1.70 - 1.80												23.20
1.80 - 1.90											24.85	
1.90 - 2.00											25.50	

Table 8: Correlated wind speed

1.5.2 Combination of wind seas and swell

From ref. [1] it is seen that even severe storms give moderate wave energy from swell at the bridge crossing. The wind direction and thereby the wind wave direction for both offshore and inshore waves are fairly correlated for larger events. This means that large storms with wind coming from westerly directions are likely to give both large wind sea and swell at the bridge location. For that reason, wind sea from westerly directions (180˚-360˚) shall be combined with swell.

Wind sea from easterly directions are not likely to see any significant contributions from swell, of course offshore swell could in principal give some swell seas at the bridge site, even for fairly severe easterly storms. The wave heights for offshore swell are small, and it is thought that the swell energy at the bridge crossing will be negligible for such events. Wind sea from easterly directions (0˚-180˚) shall not be combined with swell.

1.6 Averaging period for waves

For local wind generated waves, the significant wave height is based on 1-hour wind speeds, and can therefore be used directly as input to a 1 hour wave simulation. The basis for the significant wave height for swell is based on 3-hour storms offshore. An inflation factor of 9% going from 3- hour to 1-hour storm duration is included in the wave heights given in Section 1.2.

1.7 Waves from passing vessels

During the measurement campaign that are underway in Bjørnafjorden, there has been observed a significant number of cases that are presently believed to be waves induced by passing vessels. Many of these cases give waves with periods around 6 seconds. The periods of vessel generated waves are dependent on the vessel speed; 20 knots gives waves with periods around 6 seconds, which is a case that matches fairly well with the ferries crossing Bjørnafjorden.

When a bridge is built sometime in the future, there will most likely be traffic control of the ship traffic in the area, and in that context a speed limit around 12 knots have been suggested. With a speed limit of 12 knots, the wave periods of vessel generated waves will be so short that the wave energy of such events will be negligible compared to the wave energy from wind driven seas.

But even if speed restrictions are enforced in Bjørnafjorden when the bridge is completed, the concepts need to be robust enough to withstand the loading from waves generated by rogue vessels that do not follow these speed restrictions.

The following cases with vessel generated waves shall be considered for the concepts as ALS-cases, as shown in Figure 2. The time series are established with a time step of 0.1s, and are therefore considered impractical to include as tables in an Appendix. Time series will be made available to the project groups by an excel sheet. For more information on how these time series are established, the reader is referred to ref.[2].

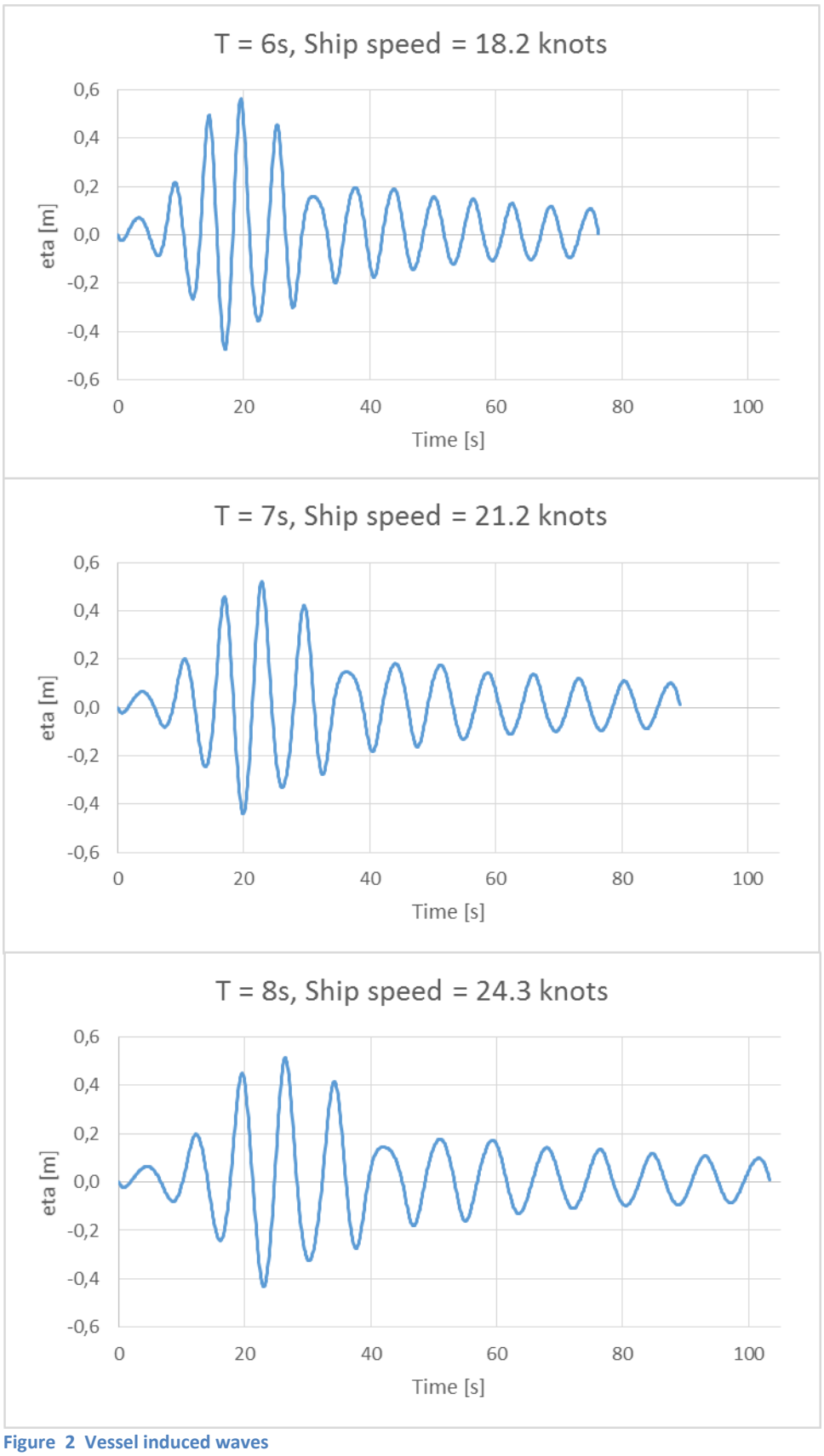


Figure 2 Vessel induced waves

2 Wind

The wind design basis is based on measurements and simulations performed and analysed by Kjeller vindteknikk, ref. [4]. Section 2.3 is referring to available handbooks, as we do not have analysis from measurements available. For a discussion of the recommended values and how they are obtained, see ref. [5].

2.1 Return periods

The wind speed, U, in Table 9 is the 1 hour mean wind for given return periods in 10 m height. For extrapolation to higher levels, see section 2.1.3.

Return period	Wind speed, U [m/s]
1	21.5
10	26
100	29.5
500	32
10 000	36

Table 9: 1 hour mean wind in 10m height

A summer reduction (May-Aug) of 0.7 can be used for all heights, return periods and averaging periods, ref. [4].

2.1.1 Sectoral extremes

The extreme wind speed in the different sectors are found from the wind speeds in Table 9 multiplied by the reduction factor in Table 10, ref. [4].

Sectors	Reduction coeff.
0°-75°	0.7
75°-225°	0.85
225°-255°	0.9
255°-285°	1.0
285°-345°	0.9
345°-360°	0.7

Table 10: Directional reduction coefficients

Wind directions refer to the direction from which the wind is coming. 0°/360° means wind coming from the North, 90° coming from the East, 180° from the South and 270° from the West.

2.1.2 Distribution along the bridge

The mean wind speed can be assumed to have the following distributions along the bridge axis:

1) Constant
2) Linearly varying from 0,6 x U (Table 9) at one end to U on the other.
   The maximum wind speed shall be assumed to occur at the end which gives the most unfavourable load effects.

2.1.3 Profile factor

The wind profile is given by the following equation

$$\frac{U(Z_2)}{U(Z_1)} = \left(\frac{Z_2}{Z_1}\right)^{\alpha}$$

where U is the wind speed, Z_2 is the height in question, Z_1 is 10 m and α is the profile factor. The profile factor shall be taken as α= 0,127.

The extreme wind profile for given return periods and different sectors can be calculated by using the wind speeds in Table 9 and the directional reduction coefficients in Table 10.

2.2 Turbulence intensity

The turbulence intensity referred to 1 hour mean wind in the direction of the wind, I_u, is given in Table 11.

Sector/ Height above sea	0°-150° and 210°-360° Turbulence intensity	150°-210° Turbulence intensity
10	14%	Linearly decreasing from 30% at southern tower to 17% in the north
50	14%	Linearly decreasing from 30% at southern tower to 17% in the north
200	12%	15%

Table 11: Turbulence intensity

The lateral and the vertical turbulence components I_v and I_w found from measurements are [6].

$$\begin{bmatrix} I_v \\ I_w \end{bmatrix} = \begin{bmatrix} 0.85 \\ 0.55 \end{bmatrix} I_u$$

Wind coming from the south is very turbulent on the southern side of the fjord. Measurements shows a turbulence intensity of 30% for strong winds in 50 meter height. The measurements are representative for the conditions at the location of the southern tower. The turbulence intensity can be assumed to decrease linearly from 30% to 17% in the north.

2.3 Power spectral density of wind turbulence

The frequency distribution of the turbulence components in all three directions shall be taken from Eqs. 5.2 - 5.5 in N400 [7]. Z_{min} is given in NS-EN 1991-1-4 [8].

The parameters A_i shall be varied in the range between ± 40% relative to the numbers given in N400 for sensitivity evaluations.

The statistical dependence between the turbulence components at two points at a given frequency shall be described by the normalized co-spectrum given in N400 Eq. 5.6.

The parameters C_{ij} shall be varied in the range between ± 50% relative to the numbers given in N400 for sensitivity evaluations.

The parameters A_i and C_{ij} used for design checks shall be agreed with the client.

3 Current

The estimates in Table 12 are based on simulations from SINTEF [9]. Extreme values are calculated from 2 years and 8 months of simulated data. The short period of available data results in uncertainties for the current velocities given below. Due to the uncertainties, a case where the 100-year and 10000-year return period velocities are increased with 20% shall be considered as a sensitivity case. If this presents problems, it should be discussed with the client.

Current directions refer to the direction towards which the current is flowing. 0° means that the current is flowing towards the North, 90° towards the East, 180° towards the South and 270° towards the West.

The values in Table 12 are termed V_0 and can be assumed to go in or out the fjord, i.e. in 90° or 270° direction. Linear interpolation can be used between depths.

Depth [m]	V_0 [cm/s] 1 year	10 year	100 year
0-5	100	120	140
15	60	80	95
25	40	50	60
50	35	45	55
100	20	25	30

Table 12: Current velocity [cm/s] related to return period

The 10 000 year extreme current velocity can be assumed as 1.3*100-year value given in Table 12.

For the upper 50 m the following cases shall be considered:

1. The current is constant V_0 along the bridge
2. The current increases linearly from $0{,}5xV_0$ in the south to V_0 in the north.
3. The current is constant in or out the fjord in the south half of the bridge and constant acting in the opposite direction in the northern half. The velocity shall be taken as $2/3xV_0$.
4. The current is V_0 in the mid half of the bridge and $0{,}5xV_0$ in the rest

The current velocities in the north-south (0°-180°) directions, can be taken as the following representing eddies:

- The velocity is zero at both ends and linearly increasing to $0{,}5xV_0$ at the midsection of the bridge.
  a) Case1:The velocity is directed either towards north or south
  b) Case2: The velocity is directed from the ends of the bridge towards the midsection of the bridge

The current in the 90°- 270° direction can act alone or in combination with the current in the 0°-180° direction.

When current is acting together with wind, they shall both act inwards or outwards in the fjord.

4 Earthquake

The bridges shall be designed against earthquake according to N400, Cl. 5.4.9.

5 Water level variations

The water level variation is defined as an astronomical component and a surge component combined. The surge component includes effects from low/high atmospheric pressure and storm surge. The astronomical component is independent of the environmental conditions, whereas the surge component is connected to the wind situation.

The reference level for the tidal amplitudes in Table 13 and the water level in Table 14 is chart datum (LAT). The values are based on data from Kartverket.

Tidal amplitudes [m]	
Lowest Astronomical Tide (LAT)	0,0
Mean Low Water (MLW)	0,36
Mean Sea Level (MSL)	0,73
Mean high water (MHW)	1,09
Highest Astronomical Tide(HAT)	1,46
NN 1954	0,71
NN 2000	0,81

Table 13: Tidal amplitudes

The water level for different return periods may be taken from Table 14.

Return periods [years]	Highest water level [m]	Lowest water level [m]
1	1,81	-0,20
10	1,97	-0,30
100	2,10	-0,50
10000	2,50	-0,65

Table 14: Water level related to return periods relative to LAT

The mean water level shall be increased by 0,8 m due to climate change where this is unfavourable. This number includes the effect of land elevation rise.

The surge component (air pressure effect, storm surge etc) may for simplicity and until more reliable data are collected be taken as the difference between the values in Table 14 and MSL.

6 Water density variations

Water density variations shall be taken according to N400, Cl. 13.12.2.2.

7 Marine fouling

Marine fouling shall be designed for according to N400, Cl. 13.12.2.3.

8 Temperature

Design for temperature variations may be carried out in accordance with NS-EN 1991-1-5:2003+ NA:2008 and NS-EN 1993-2:2006+NA:2009.

For pontoons or other structures with compartments in air/water the following two temperature cases shall be considered:

Temperature gradient over the thickness of external walls/slabs	Case A	Case B
External face (towards air/water)	20/10	-10/0
Inner face (inside structure)	5	-5
Temperature difference between structural parts		
Top slab	15	-15
Walls above MSL	10	-10
Walls/slabs below MSL	0	0

Table 15: Temperature cases for structures with compartments in air/water

9 Characteristic response values

In principle, the characteristic response values due to environmental loads like wind and waves should be determined based on a long-term response analysis. In lieu of available data supporting such analyses the characteristic response values for wind and wave action shall be determined based on the most critical short term storm state of 1 hour duration. The longterm characteristic responses shall then be taken as the following fractiles from the extreme value distribution (Gumbel distribution) of the short term response:

In ULS: the 90% fractile
In ALS: the 95% fractile
In SLS: the 50% fractile

provided that the Coefficient of Variation of the maxima does not exceed 0,20.

Here, the short term storm states refer to the yearly probability of occurrence of 10^{-2}, 10^{-4} and 0,63, respectively.

It shall be documented that the number of realizations are sufficient.

10 Environmental load combinations

The combination of the various environmental load components to form characteristic loads for different return periods shall be taken from Table 16.

Return period (Years)	Wind	Waves		Current	Sea level	
		Wind generated	Swell		Astronomical	Surge
1	1	1	1	1	MSL	1
10	10	10	1	10	MSL	10
	1	1	10	1	MSL	1
100	100	100	100	100	MSL	100
10000	10000	10000	100	10000	MSL	10000
	100	100	10000	100	MSL	100

Table 16: Combinations of environmental load components

If low water is governing, the water level corresponding to LAT shall be used.

If the omission of one or more components may give larger response values (eg wind and/or current cause increased damping of wave response) this situation should be used for the design checks.

11 References

[1] A. Lothe, «E39 Bjørnafjord Crossing, Design Wave Data, Assignment no: 514672, Doc. No. 1, Ver. 1,» Norconsult, 21/06-2016.

[2] E. Svangstu, «Technical Note, Wave conditions for phase 3,» Norwegian Public Road Administration, December 2016.

[3] DNV, «Recommended practise DNV-RP-C205,» April 2014.

[4] K. Harstveit, R. E. Bredesen og H. Agustsson, «Bjørnafjorden, Hordaland, Kartlegging av vindforhold,» Kjeller vindteknikk, 2016.

[5] H. K. Fuhr, «Wind, background for design basis,» National Public Roads Administration, December 2016.

[6] K. Harstveit og H. Agustsson, «E 39, brukryssinger Hordaland. Status rapport for vindmålinger pr november 2015,» Kjeller vindteknikk, 2016.

[7] Statens Vegvesen, Vegdirektoratet, «Håndbok N400 Bruporsjektering, Prosjektering av bruer, ferjekaier og andre bærende konstruksjoner,» 2015.

[8] 2. EN-1991-1-4: 2005+NA, «Eurocode 1: Laster på konstruksjoner. Standard Norge,» 2009.

[9] Ø. Knutsen, G. Eidnes og T. McClimans, «Simulation of currents and hydrography in Bjørnafjorden,» SINTEF, 2015

[10] O. Øiseth: "A note on long-term distribution of wind induced load effects with applications to structures with high natural periods", NTNU 2017

Appendix A
Wind Sea Scatter Diagrams

Wind Sea, Scatter diagram: January											
	Tp [s]										
Hm0 [m]	0.0 - 0.5	0.5 - 1.0	1.0 - 1.5	1.5 - 2.0	2.0 - 2.5	2.5 - 3.0	3.0 - 3.5	3.5 - 4.0	4.0 - 4.5	4.5 - 5.0	Sum
0.0 - 0.1	0,0050	1,0483	1,3654	0,2248	0,0067						2,6502
0.1 - 0.2			0,2281	1,3704	0,3053	0,0101					1,9138
0.2 - 0.3				0,3606	1,1037	0,0906	0,0067				1,5616
0.3 - 0.4				0,0084	0,6458	0,3422	0,0067				1,0030
0.4 - 0.5					0,1409	0,3439	0,0554				0,5401
0.5 - 0.6					0,0168	0,2046	0,1107	0,0017			0,3338
0.6 - 0.7						0,0654	0,1141	0,0017			0,1812
0.7 - 0.8						0,0151	0,0939	0,0034			0,1124
0.8 - 0.9							0,0654	0,0285			0,0939
0.9 - 1.0							0,0268	0,0218			0,0486
1.0 - 1.1							0,0067	0,0101	0,0050		0,0218
1.1 - 1.2								0,0084	0,0034		0,0117
1.2 - 1.3									0,0017		0,0017
1.3 - 1.4									0,0017	0,0017	0,0034
1.4 - 1.5									0,0034		0,0034
1.5 - 1.6											0
1.6 - 1.7										0,0017	0,0017
1.7 - 1.8											0
1.8 - 1.9										0,0034	0,0034
1.9 - 2.0										0,0017	0,0017
Sum	0,0050	1,0483	1,5935	1,9642	2,2191	1,0718	0,4864	0,0755	0,0151	0,0084	8,4873

Wind Sea, Scatter diagram: February											
	Tp [s]										
Hm0 [m]	0.0 - 0.5	0.5 - 1.0	1.0 - 1.5	1.5 - 2.0	2.0 - 2.5	2.5 - 3.0	3.0 - 3.5	3.5 - 4.0	4.0 - 4.5	4.5 - 5.0	Sum
0.0 - 0.1	0,0098	1,2629	1,1647	0,3272	0,0147						2,7794
0.1 - 0.2			0,1489	1,2040	0,2896	0,0131					1,6555
0.2 - 0.3				0,3501	1,0633	0,1096	0,0016				1,5246
0.3 - 0.4				0,0131	0,6020	0,2552	0,0082				0,8785
0.4 - 0.5					0,1080	0,2748	0,0344	0,0016			0,4188
0.5 - 0.6					0,0164	0,1390	0,0573	0,0016			0,2143
0.6 - 0.7						0,0393	0,0589	0,0016			0,0998
0.7 - 0.8						0,0196	0,0540	0,0098			0,0834
0.8 - 0.9							0,0245	0,0213			0,0458
0.9 - 1.0							0,0033	0,0147			0,0180
1.0 - 1.1								0,0049			0,0049
1.1 - 1.2								0,0049	0,0033		0,0082
1.2 - 1.3									0,0016		0,0016
1.3 - 1.4										0,0016	0,0016
1.4 - 1.5											0
1.5 - 1.6											0
1.6 - 1.7											0
1.7 - 1.8											0
1.8 - 1.9											0
1.9 - 2.0											0
Sum	0,0098	1,2629	1,3136	1,8943	2,0939	0,8507	0,2421	0,0605	0,0049	0,0016	7,7344

Wind Sea, Scatter diagram: March

Hm0 [m] \ Tp [s]	0.0 - 0.5	0.5 - 1.0	1.0 - 1.5	1.5 - 2.0	2.0 - 2.5	2.5 - 3.0	3.0 - 3.5	3.5 - 4.0	4.0 - 4.5	4.5 - 5.0	Sum
0.0 - 0.1	0,0114	1,3021	1,4977	0,5769	0,0228						3,4109
0.1 - 0.2			0,1923	1,6672	0,4791	0,0130					2,3516
0.2 - 0.3				0,3406	0,8996	0,1483	0,0016				1,3901
0.3 - 0.4				0,0114	0,4808	0,2167	0,0130				0,7219
0.4 - 0.5					0,1010	0,1825	0,0244				0,3080
0.5 - 0.6					0,0130	0,0896	0,0228				0,1255
0.6 - 0.7						0,0277	0,0717				0,0994
0.7 - 0.8						0,0065	0,0342				0,0407
0.8 - 0.9							0,0212	0,0065			0,0277
0.9 - 1.0							0,0016	0,0049			0,0065
1.0 - 1.1								0,0033			0,0033
1.1 - 1.2								0,0016			0,0016
1.2 - 1.3											0
1.3 - 1.4											0
1.4 - 1.5											0
1.5 - 1.6											0
1.6 - 1.7											0
1.7 - 1.8											0
1.8 - 1.9											0
1.9 - 2.0											0
Sum	0,01141	1,30211	1,68997	2,59607	1,99635	0,68446	0,19067	0,01630	0	0	8,4873

Wind Sea, Scatter diagram: April

Hm0 [m] \ Tp [s]	0.0 - 0.5	0.5 - 1.0	1.0 - 1.5	1.5 - 2.0	2.0 - 2.5	2.5 - 3.0	3.0 - 3.5	3.5 - 4.0	4.0 - 4.5	4.5 - 5.0	Sum
0.0 - 0.1	0,0082	1,0864	1,5789	0,5481	0,0229						3,2445
0.1 - 0.2			0,2012	1,6084	0,5121	0,0180					2,3397
0.2 - 0.3				0,2863	0,9588	0,1800					1,4251
0.3 - 0.4				0,0098	0,4434	0,2585	0,0164				0,7281
0.4 - 0.5					0,0589	0,1849	0,0376				0,2814
0.5 - 0.6						0,0491	0,0540				0,1031
0.6 - 0.7						0,0049	0,0278	0,0016			0,0344
0.7 - 0.8							0,0196	0,0131			0,0327
0.8 - 0.9							0,0033	0,0115			0,0147
0.9 - 1.0								0,0049			0,0049
1.0 - 1.1								0,0016			0,0016
1.1 - 1.2								0,0016			0,0016
1.2 - 1.3								0,0016			0,0016
1.3 - 1.4											0
1.4 - 1.5											0
1.5 - 1.6											0
1.6 - 1.7											0
1.7 - 1.8											0
1.8 - 1.9											0
1.9 - 2.0											0
Sum	0,0082	1,0864	1,7801	2,4526	1,9961	0,6954	0,1587	0,0360	0	0	8,2136

Wind Sea, Scatter diagram: May

Hm0 [m] \ Tp [s]	0.0 - 0.5	0.5 - 1.0	1.0 - 1.5	1.5 - 2.0	2.0 - 2.5	2.5 - 3.0	3.0 - 3.5	3.5 - 4.0	4.0 - 4.5	4.5 - 5.0	Sum
0.0 - 0.1	0,0057	0,5742	1,3879	0,5152	0,0228						2,5059
0.1 - 0.2			0,2377	1,5743	0,5761	0,0076					2,3956
0.2 - 0.3				0,2947	1,1256	0,2282					1,6484
0.3 - 0.4				0,0171	0,4297	0,5856	0,0133				1,0457
0.4 - 0.5					0,0399	0,2985	0,1103				0,4487
0.5 - 0.6						0,0494	0,1635				0,2129
0.6 - 0.7						0,0019	0,0951				0,0970
0.7 - 0.8							0,0703	0,0038			0,0742
0.8 - 0.9							0,0133	0,0247			0,0380
0.9 - 1.0								0,0133			0,0133
1.0 - 1.1											0
1.1 - 1.2									0,0038		0,0038
1.2 - 1.3									0,0038		0,0038
1.3 - 1.4											0
1.4 - 1.5											0
1.5 - 1.6											0
1.6 - 1.7											0
1.7 - 1.8											0
1.8 - 1.9											0
1.9 - 2.0											0
Sum	0,0057	0,5742	1,6256	2,4013	2,1941	1,1712	0,4658	0,0418	0,0076	0	8,4873

Wind Sea, Scatter diagram: June

Hm0 [m] \ Tp [s]	0.0 - 0.5	0.5 - 1.0	1.0 - 1.5	1.5 - 2.0	2.0 - 2.5	2.5 - 3.0	3.0 - 3.5	3.5 - 4.0	4.0 - 4.5	4.5 - 5.0	Sum
0.0 - 0.1	0,0076	0,8118	1,5343	0,5152	0,0038						2,8728
0.1 - 0.2			0,3346	1,5933	0,3917	0,0038					2,3234
0.2 - 0.3				0,1711	0,8385	0,2015					1,2111
0.3 - 0.4				0,0019	0,1882	0,4810	0,0114				0,6826
0.4 - 0.5					0,0076	0,3422	0,0875				0,4373
0.5 - 0.6						0,0570	0,2282				0,2852
0.6 - 0.7						0,0038	0,1597				0,1635
0.7 - 0.8							0,0932	0,0190			0,1122
0.8 - 0.9							0,0133	0,0437			0,0570
0.9 - 1.0								0,0304			0,0304
1.0 - 1.1								0,0228	0,0076		0,0304
1.1 - 1.2								0,0038	0,0038		0,0076
1.2 - 1.3											0
1.3 - 1.4											0
1.4 - 1.5											0
1.5 - 1.6											0
1.6 - 1.7											0
1.7 - 1.8											0
1.8 - 1.9											0
1.9 - 2.0											0
Sum	0,0076	0,8118	1,8690	2,2815	1,4298	1,0894	0,5932	0,1198	0,0114	0	8,2136

Wind Sea, Scatter diagram: July

Hm0 [m] \ Tp [s]	0.0 - 0.5	0.5 - 1.0	1.0 - 1.5	1.5 - 2.0	2.0 - 2.5	2.5 - 3.0	3.0 - 3.5	3.5 - 4.0	4.0 - 4.5	4.5 - 5.0	Sum
0.0 - 0.1	0,0120	0,8068	1,5673	0,5013	0,0155						2,9029
0.1 - 0.2			0,3039	2,0514	0,4704	0,0052					2,8308
0.2 - 0.3				0,2781	0,9510	0,2163					1,4455
0.3 - 0.4				0,0052	0,2592	0,4498	0,0103				0,7244
0.4 - 0.5					0,0069	0,1906	0,0841				0,2815
0.5 - 0.6						0,0155	0,1047				0,1202
0.6 - 0.7							0,0498				0,0498
0.7 - 0.8							0,0429	0,0086			0,0515
0.8 - 0.9							0,0069	0,0395			0,0464
0.9 - 1.0								0,0326			0,0326
1.0 - 1.1								0,0017			0,0017
1.1 - 1.2											0
1.2 - 1.3											0
1.3 - 1.4											0
1.4 - 1.5											0
1.5 - 1.6											0
1.6 - 1.7											0
1.7 - 1.8											0
1.8 - 1.9											0
1.9 - 2.0											0
Sum	0,0120	0,8068	1,8712	2,8360	1,7030	0,8772	0,2987	0,0824	0	0	8,4873

Wind Sea, Scatter diagram: August

Hm0 [m] \ Tp [s]	0.0 - 0.5	0.5 - 1.0	1.0 - 1.5	1.5 - 2.0	2.0 - 2.5	2.5 - 3.0	3.0 - 3.5	3.5 - 4.0	4.0 - 4.5	4.5 - 5.0	Sum
0.0 - 0.1	0,0191	0,8040	1,6597	0,5806	0,0172						3,0806
0.1 - 0.2			0,2521	1,9977	0,4851	0,0095					2,7444
0.2 - 0.3				0,2655	1,0848	0,1547					1,5050
0.3 - 0.4				0,0095	0,2521	0,3610	0,0191				0,6417
0.4 - 0.5					0,0325	0,1662	0,0649				0,2636
0.5 - 0.6						0,0229	0,0840				0,1070
0.6 - 0.7						0,0019	0,0458				0,0477
0.7 - 0.8							0,0401	0,0095			0,0497
0.8 - 0.9							0,0076	0,0325			0,0401
0.9 - 1.0								0,0076			0,0076
1.0 - 1.1											0
1.1 - 1.2											0
1.2 - 1.3											0
1.3 - 1.4											0
1.4 - 1.5											0
1.5 - 1.6											0
1.6 - 1.7											0
1.7 - 1.8											0
1.8 - 1.9											0
1.9 - 2.0											0
Sum	0,0191	0,8040	1,9118	2,8533	1,8716	0,7162	0,2616	0,0497	0	0	8,4873

Wind Sea, Scatter diagram: September

	Tp [s]										
Hm0 [m]	**0.0 - 0.5**	**0.5 - 1.0**	**1.0 - 1.5**	**1.5 - 2.0**	**2.0 - 2.5**	**2.5 - 3.0**	**3.0 - 3.5**	**3.5 - 4.0**	**4.0 - 4.5**	**4.5 - 5.0**	**Sum**
0.0 - 0.1	0,0134	0,7884	1,5118	0,5014	0,0096						2,8246
0.1 - 0.2			0,1971	1,7204	0,5473	0,0057					2,4706
0.2 - 0.3			0,0019	0,4287	1,1080	0,1703	0,0019				1,7108
0.3 - 0.4				0,0057	0,4363	0,2583	0,0057				0,7062
0.4 - 0.5					0,0478	0,2029	0,0325				0,2832
0.5 - 0.6					0,0038	0,0536	0,0478				0,1053
0.6 - 0.7						0,0172	0,0498				0,0670
0.7 - 0.8							0,0153	0,0057			0,0211
0.8 - 0.9							0,0019	0,0172			0,0191
0.9 - 1.0								0,0038			0,0038
1.0 - 1.1									0,0019		0,0019
1.1 - 1.2											0
1.2 - 1.3											0
1.3 - 1.4											0
1.4 - 1.5											0
1.5 - 1.6											0
1.6 - 1.7											0
1.7 - 1.8											0
1.8 - 1.9											0
1.9 - 2.0											0
Sum	0,0134	0,7884	1,7108	2,6562	2,1529	0,7081	0,1550	0,0268	0,0019	0	8,2136

Wind Sea, Scatter diagram: October

	Tp [s]										
Hm0 [m]	**0.0 - 0.5**	**0.5 - 1.0**	**1.0 - 1.5**	**1.5 - 2.0**	**2.0 - 2.5**	**2.5 - 3.0**	**3.0 - 3.5**	**3.5 - 4.0**	**4.0 - 4.5**	**4.5 - 5.0**	**Sum**
0.0 - 0.1	0,0038	0,5457	1,1332	0,3784	0,0133						2,0743
0.1 - 0.2			0,1407	1,7264	0,3479	0,0076					2,2226
0.2 - 0.3				0,4126	1,2453	0,1502					1,8081
0.3 - 0.4				0,0190	0,8632	0,3765	0,0247				1,2834
0.4 - 0.5					0,2015	0,3194	0,0456				0,5666
0.5 - 0.6					0,0171	0,1312	0,0970				0,2453
0.6 - 0.7						0,0285	0,1198	0,0019			0,1502
0.7 - 0.8						0,0019	0,0418	0,0095			0,0532
0.8 - 0.9							0,0114	0,0304			0,0418
0.9 - 1.0								0,0209			0,0209
1.0 - 1.1								0,0076	0,0038		0,0114
1.1 - 1.2									0,0076		0,0076
1.2 - 1.3											0
1.3 - 1.4									0,0019		0,0019
1.4 - 1.5											0
1.5 - 1.6											0
1.6 - 1.7											0
1.7 - 1.8											0
1.8 - 1.9											0
1.9 - 2.0											0
Sum	0,0038	0,5457	1,2739	2,5363	2,6884	1,0153	0,3403	0,0703	0,0133	0	8,4873

Wind Sea, Scatter diagram: November

	Tp [s]										
Hm0 [m]	**0.0 - 0.5**	**0.5 - 1.0**	**1.0 - 1.5**	**1.5 - 2.0**	**2.0 - 2.5**	**2.5 - 3.0**	**3.0 - 3.5**	**3.5 - 4.0**	**4.0 - 4.5**	**4.5 - 5.0**	**Sum**
0.0 - 0.1	0,0079	0,6648	1,2883	0,3363	0,0197						2,3169
0.1 - 0.2			0,1947	1,8449	0,4484	0,0039					2,4920
0.2 - 0.3				0,4052	1,1014	0,0806	0,0039				1,5912
0.3 - 0.4				0,0138	0,6589	0,3265	0,0079				1,0070
0.4 - 0.5					0,1514	0,2124	0,0197				0,3835
0.5 - 0.6					0,0138	0,1377	0,0433				0,1947
0.6 - 0.7						0,0492	0,0629				0,1121
0.7 - 0.8						0,0256	0,0374	0,0020			0,0649
0.8 - 0.9							0,0197	0,0020			0,0216
0.9 - 1.0							0,0039	0,0020			0,0059
1.0 - 1.1							0,0020	0,0059	0,0020		0,0098
1.1 - 1.2								0,0020	0,0020		0,0039
1.2 - 1.3									0,0020		0,0020
1.3 - 1.4											0
1.4 - 1.5									0,0020		0,0020
1.5 - 1.6										0,0020	0,0020
1.6 - 1.7										0,0020	0,0020
1.7 - 1.8										0,0020	0,0020
1.8 - 1.9											0
1.9 - 2.0											0
Sum	0,0079	0,6648	1,4830	2,6002	2,3937	0,8359	0,2006	0,0138	0,0079	0,0059	8,2136

Wind Sea, Scatter diagram: Descember											
	Tp [s]										
Hm0 [m]	0.0 - 0.5	0.5 - 1.0	1.0 - 1.5	1.5 - 2.0	2.0 - 2.5	2.5 - 3.0	3.0 - 3.5	3.5 - 4.0	4.0 - 4.5	4.5 - 5.0	Sum
0.0 - 0.1	0,0020	0,4126	1,0413	0,1906	0,0157						1,6621
0.1 - 0.2			0,1709	1,3615	0,3458	0,0157					1,8939
0.2 - 0.3				0,3654	1,3537	0,0904					1,8095
0.3 - 0.4				0,0039	0,7937	0,3438	0,0138				1,1552
0.4 - 0.5					0,2240	0,5226	0,0393				0,7859
0.5 - 0.6					0,0177	0,3026	0,1140		0,0020		0,4362
0.6 - 0.7						0,0904	0,1925	0,0020			0,2849
0.7 - 0.8						0,0236	0,1807	0,0255	0,0020		0,2318
0.8 - 0.9						0,0020	0,0707	0,0609	0,0020		0,1356
0.9 - 1.0							0,0118	0,0354	0,0020	0,0020	0,0511
1.0 - 1.1							0,0020	0,0138	0,0059		0,0216
1.1 - 1.2								0,0020	0,0020		0,0039
1.2 - 1.3								0,0020	0,0059		0,0079
1.3 - 1.4									0,0020	0,0020	0,0039
1.4 - 1.5										0,0039	0,0039
1.5 - 1.6											0
1.6 - 1.7											0
1.7 - 1.8											0
1.8 - 1.9											0
1.9 - 2.0											0
Sum	0,0020	0,4126	1,2122	1,9214	2,7505	1,3910	0,6248	0,1415	0,0236	0,0079	8,4873

Wind Sea, Scatter diagram: Sector 1: 345° - 15°											
	Tp [s]										
Hm0 [m]	0.0 - 0.5	0.5 - 1.0	1.0 - 1.5	1.5 - 2.0	2.0 - 2.5	2.5 - 3.0	3.0 - 3.5	3.5 - 4.0	4.0 - 4.5	4.5 - 5.0	Sum
0.0 - 0.1	0,0162	0,2038	0,4419	0,1407							0,8027
0.1 - 0.2			0,0126	0,0884	0,0397						0,1407
0.2 - 0.3				0,0018	0,0234	0,0072					0,0325
0.3 - 0.4					0,0072	0,0108					0,0180
0.4 - 0.5											0
0.5 - 0.6											0
0.6 - 0.7											0
0.7 - 0.8											0
0.8 - 0.9											0
0.9 - 1.0											0
1.0 - 1.1											0
1.1 - 1.2											0
1.2 - 1.3											0
1.3 - 1.4											0
1.4 - 1.5											0
1.5 - 1.6											0
1.6 - 1.7											0
1.7 - 1.8											0
1.8 - 1.9											0
1.9 - 2.0											0
Sum	0,0162	0,2038	0,4545	0,2309	0,0703	0,0180	0	0	0	0	0,9939

Wind Sea, Scatter diagram: Sector 2: 15° - 45°											
	Tp [s]										
Hm0 [m]	0.0 - 0.5	0.5 - 1.0	1.0 - 1.5	1.5 - 2.0	2.0 - 2.5	2.5 - 3.0	3.0 - 3.5	3.5 - 4.0	4.0 - 4.5	4.5 - 5.0	Sum
0.0 - 0.1	0,0126	0,3229	0,2435	0,0397							0,6187
0.1 - 0.2			0,0108	0,0325	0,0072						0,0505
0.2 - 0.3					0,0126						0,0126
0.3 - 0.4											0
0.4 - 0.5											0
0.5 - 0.6											0
0.6 - 0.7											0
0.7 - 0.8											0
0.8 - 0.9											0
0.9 - 1.0											0
1.0 - 1.1											0
1.1 - 1.2											0
1.2 - 1.3											0
1.3 - 1.4											0
1.4 - 1.5											0
1.5 - 1.6											0
1.6 - 1.7											0
1.7 - 1.8											0
1.8 - 1.9											0
1.9 - 2.0											0
Sum	0,0126	0,3229	0,2543	0,0722	0,0198	0	0	0	0	0	0,6818

Wind Sea, Scatter diagram: Sector 3: 45° - 75°

	Tp [s]										
Hm0 [m]	**0.0 - 0.5**	**0.5 - 1.0**	**1.0 - 1.5**	**1.5 - 2.0**	**2.0 - 2.5**	**2.5 - 3.0**	**3.0 - 3.5**	**3.5 - 4.0**	**4.0 - 4.5**	**4.5 - 5.0**	**Sum**
0.0 - 0.1	0,0126	0,6349	0,8171	0,2417	0,0018						1,7082
0.1 - 0.2			0,0216	0,5447	0,0595						0,6259
0.2 - 0.3				0,0162	0,1353	0,0018					0,1533
0.3 - 0.4					0,0343	0,0216					0,0559
0.4 - 0.5					0,0036	0,0198					0,0234
0.5 - 0.6						0,0018					0,0018
0.6 - 0.7											0
0.7 - 0.8											0
0.8 - 0.9											0
0.9 - 1.0											0
1.0 - 1.1											0
1.1 - 1.2											0
1.2 - 1.3											0
1.3 - 1.4											0
1.4 - 1.5											0
1.5 - 1.6											0
1.6 - 1.7											0
1.7 - 1.8											0
1.8 - 1.9											0
1.9 - 2.0											0
Sum	0,0126	0,6349	0,8387	0,8027	0,2345	0,0451	0	0	0	0	2,5685

Wind Sea, Scatter diagram: Sector 4: 75° - 105°

	Tp [s]										
Hm0 [m]	**0.0 - 0.5**	**0.5 - 1.0**	**1.0 - 1.5**	**1.5 - 2.0**	**2.0 - 2.5**	**2.5 - 3.0**	**3.0 - 3.5**	**3.5 - 4.0**	**4.0 - 4.5**	**4.5 - 5.0**	**Sum**
0.0 - 0.1	0,0072	4,3380	5,6548	0,8838	0,0162						10,9001
0.1 - 0.2			0,4690	5,7973	0,9776	0,0054					7,2493
0.2 - 0.3				0,4744	3,2991	0,1497	0,0054				3,9286
0.3 - 0.4					1,0552	0,6512	0,0072				1,7136
0.4 - 0.5					0,0595	0,5159	0,0559	0,0018			0,6331
0.5 - 0.6						0,1768	0,1154	0,0036			0,2958
0.6 - 0.7						0,0379	0,1136	0,0018			0,1533
0.7 - 0.8							0,0595	0,0126			0,0722
0.8 - 0.9							0,0198	0,0343			0,0541
0.9 - 1.0								0,0234	0,0018		0,0253
1.0 - 1.1								0,0108	0,0036		0,0144
1.1 - 1.2									0,0072		0,0072
1.2 - 1.3									0,0018		0,0018
1.3 - 1.4									0,0036		0,0036
1.4 - 1.5										0,0036	0,0036
1.5 - 1.6											0
1.6 - 1.7											0
1.7 - 1.8											0
1.8 - 1.9											0
1.9 - 2.0											0
Sum	0,0072	4,3380	6,1237	7,1555	5,4076	1,5368	0,3770	0,0884	0,0180	0,0036	25,0559

Wind Sea, Scatter diagram: Sector 5: 105° - 135°

	Tp [s]										
Hm0 [m]	**0.0 - 0.5**	**0.5 - 1.0**	**1.0 - 1.5**	**1.5 - 2.0**	**2.0 - 2.5**	**2.5 - 3.0**	**3.0 - 3.5**	**3.5 - 4.0**	**4.0 - 4.5**	**4.5 - 5.0**	**Sum**
0.0 - 0.1	0,0090	1,4827	1,4394	0,2237							3,1548
0.1 - 0.2			0,2742	2,2727	0,3211						2,8680
0.2 - 0.3				0,4095	1,3799	0,0379					1,8272
0.3 - 0.4				0,0036	0,6313	0,2074	0,0018				0,8442
0.4 - 0.5					0,0812	0,2128	0,0108				0,3048
0.5 - 0.6						0,1064	0,0216				0,1281
0.6 - 0.7						0,0234	0,0253				0,0487
0.7 - 0.8						0,0054	0,0234				0,0289
0.8 - 0.9							0,0054	0,0090			0,0144
0.9 - 1.0								0,0036			0,0036
1.0 - 1.1											0
1.1 - 1.2								0,0018			0,0018
1.2 - 1.3											0
1.3 - 1.4											0
1.4 - 1.5											0
1.5 - 1.6											0
1.6 - 1.7											0
1.7 - 1.8											0
1.8 - 1.9											0
1.9 - 2.0											0
Sum	0,0090	1,4827	1,7136	2,9095	2,4134	0,5934	0,0884	0,0144	0	0	9,2244

Wind Sea, Scatter diagram: Sector 6: 135° - 165°											
	Tp [s]										
Hm0 [m]	0.0 - 0.5	0.5 - 1.0	1.0 - 1.5	1.5 - 2.0	2.0 - 2.5	2.5 - 3.0	3.0 - 3.5	3.5 - 4.0	4.0 - 4.5	4.5 - 5.0	Sum
0.0 - 0.1		0,4527	0,7161	0,1353	0,0018						1,3059
0.1 - 0.2			0,2814	1,2843	0,0974						1,6631
0.2 - 0.3			0,0018	0,8351	0,7738	0,0036					1,6144
0.3 - 0.4				0,0343	1,0011	0,0541					1,0895
0.4 - 0.5					0,4600	0,1118	0,0054				0,5772
0.5 - 0.6					0,0433	0,1587	0,0090				0,2110
0.6 - 0.7						0,0794	0,0162				0,0956
0.7 - 0.8						0,0325	0,0307				0,0631
0.8 - 0.9							0,0216				0,0216
0.9 - 1.0							0,0090				0,0090
1.0 - 1.1											0
1.1 - 1.2											0
1.2 - 1.3											0
1.3 - 1.4											0
1.4 - 1.5											0
1.5 - 1.6											0
1.6 - 1.7											0
1.7 - 1.8											0
1.8 - 1.9											0
1.9 - 2.0											0
Sum	0	0,4527	0,9993	2,2890	2,3773	0,4401	0,0920	0	0	0	6,6504

Wind Sea, Scatter diagram: Sector 7: 165° - 195°											
	Tp [s]										
Hm0 [m]	0.0 - 0.5	0.5 - 1.0	1.0 - 1.5	1.5 - 2.0	2.0 - 2.5	2.5 - 3.0	3.0 - 3.5	3.5 - 4.0	4.0 - 4.5	4.5 - 5.0	Sum
0.0 - 0.1	0,0018	0,3175	0,7179	0,2020							1,2392
0.1 - 0.2			0,2399	1,1273	0,1750	0,0036					1,5458
0.2 - 0.3				0,5213	0,6259	0,0054					1,1526
0.3 - 0.4				0,0613	0,4419	0,0956	0,0036				0,6025
0.4 - 0.5					0,0776	0,1082	0,0036				0,1894
0.5 - 0.6					0,0144	0,0649	0,0722				0,1515
0.6 - 0.7						0,0126	0,0451				0,0577
0.7 - 0.8						0,0072	0,0216				0,0289
0.8 - 0.9							0,0144	0,0036			0,0180
0.9 - 1.0								0,0036			0,0036
1.0 - 1.1											0
1.1 - 1.2											0
1.2 - 1.3											0
1.3 - 1.4											0
1.4 - 1.5											0
1.5 - 1.6											0
1.6 - 1.7											0
1.7 - 1.8											0
1.8 - 1.9											0
1.9 - 2.0											0
Sum	0,0018	0,3175	0,9578	1,9120	1,3348	0,2976	0,1605	0,0072	0	0	4,9892

Wind Sea, Scatter diagram: Sector 8: 195° - 225°											
	Tp [s]										
Hm0 [m]	0.0 - 0.5	0.5 - 1.0	1.0 - 1.5	1.5 - 2.0	2.0 - 2.5	2.5 - 3.0	3.0 - 3.5	3.5 - 4.0	4.0 - 4.5	4.5 - 5.0	Sum
0.0 - 0.1	0,0036	0,4113	1,8795	0,9235	0,0090						3,2269
0.1 - 0.2			0,1533	3,6562	0,8766	0,0090					4,6952
0.2 - 0.3				0,5195	3,3315	0,1010	0,0018				3,9538
0.3 - 0.4				0,0018	1,4863	0,7918	0,0036				2,2835
0.4 - 0.5					0,0920	0,8712	0,0108				0,9740
0.5 - 0.6						0,3120	0,1118				0,4239
0.6 - 0.7						0,0144	0,3030				0,3175
0.7 - 0.8							0,1840	0,0090			0,1930
0.8 - 0.9							0,0451	0,0415			0,0866
0.9 - 1.0								0,0126			0,0126
1.0 - 1.1								0,0018			0,0018
1.1 - 1.2											0
1.2 - 1.3											0
1.3 - 1.4											0
1.4 - 1.5											0
1.5 - 1.6											0
1.6 - 1.7											0
1.7 - 1.8											0
1.8 - 1.9											0
1.9 - 2.0											0
Sum	0,0036	0,4113	2,0328	5,1010	5,7955	2,0996	0,6602	0,0649	0	0	16,1688

Wind Sea, Scatter diagram: Sector 9: 225° - 255°											
	Tp [s]										
Hm0 [m]	0.0 - 0.5	0.5 - 1.0	1.0 - 1.5	1.5 - 2.0	2.0 - 2.5	2.5 - 3.0	3.0 - 3.5	3.5 - 4.0	4.0 - 4.5	4.5 - 5.0	Sum
0.0 - 0.1	0,0054	0,3734	0,7197	0,0685	0,0018						1,1688
0.1 - 0.2			0,3824	0,6908	0,0036						1,0768
0.2 - 0.3				0,5844	0,1227						0,7071
0.3 - 0.4				0,0108	0,4401	0,0126					0,4636
0.4 - 0.5					0,1389	0,0685					0,2074
0.5 - 0.6					0,0234	0,1010	0,0018				0,1263
0.6 - 0.7						0,0631	0,0180				0,0812
0.7 - 0.8						0,0090	0,0253				0,0343
0.8 - 0.9							0,0234				0,0234
0.9 - 1.0							0,0198	0,0018			0,0216
1.0 - 1.1											0
1.1 - 1.2								0,0018			0,0018
1.2 - 1.3											0
1.3 - 1.4											0
1.4 - 1.5											0
1.5 - 1.6											0
1.6 - 1.7											0
1.7 - 1.8											0
1.8 - 1.9											0
1.9 - 2.0											0
Sum	0,0054	0,3734	1,1021	1,3546	0,7305	0,2543	0,0884	0,0036	0	0	3,9123

Wind Sea, Scatter diagram: Sector 10: 255° - 285°											
	Tp [s]										
Hm0 [m]	0.0 - 0.5	0.5 - 1.0	1.0 - 1.5	1.5 - 2.0	2.0 - 2.5	2.5 - 3.0	3.0 - 3.5	3.5 - 4.0	4.0 - 4.5	4.5 - 5.0	Sum
0.0 - 0.1	0,0162	0,6349	0,9235	0,0234							1,5981
0.1 - 0.2			0,6169	0,6638	0,0072						1,2879
0.2 - 0.3				0,3680	0,1010						0,4690
0.3 - 0.4				0,0072	0,2940	0,0018					0,3030
0.4 - 0.5					0,1515	0,0289					0,1804
0.5 - 0.6					0,0162	0,0667					0,0830
0.6 - 0.7						0,0361	0,0018				0,0379
0.7 - 0.8						0,0343	0,0072				0,0415
0.8 - 0.9						0,0018	0,0162				0,0180
0.9 - 1.0							0,0090				0,0090
1.0 - 1.1							0,0108	0,0036			0,0144
1.1 - 1.2								0,0018			0,0018
1.2 - 1.3											0
1.3 - 1.4											0
1.4 - 1.5											0
1.5 - 1.6											0
1.6 - 1.7											0
1.7 - 1.8											0
1.8 - 1.9											0
1.9 - 2.0											0
Sum	0,0162	0,6349	1,5404	1,0624	0,5700	0,1696	0,0451	0,0054	0	0	4,0440

Wind Sea, Scatter diagram: Sector 11: 285° - 315°											
	Tp [s]										
Hm0 [m]	0.0 - 0.5	0.5 - 1.0	1.0 - 1.5	1.5 - 2.0	2.0 - 2.5	2.5 - 3.0	3.0 - 3.5	3.5 - 4.0	4.0 - 4.5	4.5 - 5.0	Sum
0.0 - 0.1	0,0054	0,7630	1,7280	0,4690	0,0054						2,9708
0.1 - 0.2			0,1263	2,2240	0,2092						2,5595
0.2 - 0.3				0,1948	0,8874	0,0343					1,1165
0.3 - 0.4					0,4131	0,1010					0,5141
0.4 - 0.5					0,0451	0,2110	0,0036				0,2597
0.5 - 0.6					0,0018	0,1335	0,0234		0,0018		0,1605
0.6 - 0.7						0,0595	0,0361	0,0018			0,0974
0.7 - 0.8						0,0036	0,0559	0,0018			0,0613
0.8 - 0.9							0,0667	0,0144			0,0812
0.9 - 1.0							0,0108	0,0216			0,0325
1.0 - 1.1								0,0180	0,0018		0,0198
1.1 - 1.2								0,0126	0,0018		0,0144
1.2 - 1.3								0,0036			0,0036
1.3 - 1.4									0,0018		0,0018
1.4 - 1.5									0,0018		0,0018
1.5 - 1.6											0
1.6 - 1.7										0,0018	0,0018
1.7 - 1.8											0
1.8 - 1.9										0,0036	0,0036
1.9 - 2.0										0,0018	0,0018
Sum	0,0054	0,7630	1,8543	2,8878	1,5620	0,5429	0,1966	0,0740	0,0090	0,0072	7,9022

Wind Sea, Scatter diagram: Sector 12: 315° - 345°											
	Tp [s]										
Hm0 [m]	0.0 - 0.5	0.5 - 1.0	1.0 - 1.5	1.5 - 2.0	2.0 - 2.5	2.5 - 3.0	3.0 - 3.5	3.5 - 4.0	4.0 - 4.5	4.5 - 5.0	Sum
0.0 - 0.1	0,0162	0,3950	1,4935	1,8615	0,1497						3,9159
0.1 - 0.2			0,0108	1,2861	2,4134	0,0974					3,8077
0.2 - 0.3				0,0289	2,0851	1,4809	0,0090				3,6039
0.3 - 0.4					0,2345	2,2673	0,1335				2,6353
0.4 - 0.5					0,0018	1,0642	0,5411				1,6071
0.5 - 0.6						0,1227	0,7540				0,8766
0.6 - 0.7						0,0018	0,4708	0,0054			0,4780
0.7 - 0.8							0,3048	0,0848	0,0018		0,3914
0.8 - 0.9							0,0469	0,2110	0,0018		0,2597
0.9 - 1.0								0,1245		0,0018	0,1263
1.0 - 1.1								0,0361	0,0198		0,0559
1.1 - 1.2								0,0072	0,0162		0,0234
1.2 - 1.3									0,0126		0,0126
1.3 - 1.4										0,0054	0,0054
1.4 - 1.5									0,0036		0,0036
1.5 - 1.6										0,0018	0,0018
1.6 - 1.7										0,0018	0,0018
1.7 - 1.8										0,0018	0,0018
1.8 - 1.9											0
1.9 - 2.0											0
Sum	0,0162	0,3950	1,5043	3,1764	4,8846	5,0343	2,2601	0,4690	0,0559	0,0126	17,8084

Appendix B
Swell Scatter Diagrams

Swell, Scatter diagram, January

		Tp																			
	Hm0	<2	2 - 3	3 - 4	4 - 5	5 - 6	6 - 7	7 - 8	8 - 9	9 - 10	10 - 11	11 - 12	12 - 13	13 - 14	14 - 15	15 - 16	16 - 17	17 - 18	18 -19	19 - 20	>20	Sum
0,00	0,01	4,6277				0,0055	0,0379	0,0444	0,0592	0,0536	0,0805	0,0749	0,0546	0,0213	0,0194	0,0148	0,0009	0,0009				5,0957
0,01	0,02					0,0139	0,0342	0,0231	0,1017	0,0795	0,0583	0,0490	0,0435	0,0518	0,0416	0,0277	0,0083	0,0065	0,0028		0,0018	0,5439
0,02	0,03					0,0092	0,0379	0,0444	0,0435	0,1110	0,0721	0,0573	0,0518	0,0592	0,0472	0,0296	0,0092	0,0046	0,0083	0,0018		0,5874
0,03	0,04						0,0083	0,0490	0,0287	0,0240	0,0620	0,0601	0,0305	0,0388	0,0472	0,0231	0,0074	0,0018	0,0028			0,3839
0,04	0,05							0,0435	0,0860	0,0342	0,0166	0,0388	0,0379	0,0213	0,0324	0,0231	0,0157	0,0046	0,0028			0,3570
0,05	0,06							0,0203	0,0823	0,0712	0,0148	0,0083	0,0213	0,0065	0,0139	0,0148	0,0111		0,0046			0,2692
0,06	0,07							0,0055	0,0546	0,1202	0,0453	0,0176	0,0074	0,0065	0,0102	0,0046	0,0037	0,0065	0,0046			0,2867
0,07	0,08							0,0028	0,0268	0,0703	0,0638	0,0129	0,0018	0,0037	0,0018	0,0028	0,0046	0,0009	0,0028			0,1952
0,08	0,09							0,0009	0,0037	0,0425	0,0758	0,0222	0,0065	0,0046			0,0009	0,0009	0,0009			0,1591
0,09	0,10								0,0009	0,0194	0,0509	0,0481	0,0055	0,0009				0,0009	0,0009			0,1276
0,10	0,11									0,0092	0,0425	0,0499	0,0018	0,0009	0,0009			0,0009	0,0018			0,1082
0,11	0,12								0,0009	0,0018	0,0324	0,0435	0,0120		0,0009			0,0009	0,0009			0,0934
0,12	0,13									0,0028	0,0092	0,0314	0,0120	0,0037	0,0009			0,0009	0,0009			0,0620
0,13	0,14										0,0046	0,0157	0,0194					0,0009				0,0407
0,14	0,15										0,0018	0,0102	0,0203	0,0037	0,0018	0,0009			0,0009			0,0398
0,15	0,16											0,0074	0,0231	0,0102	0,0018				0,0009			0,0435
0,16	0,17											0,0037	0,0185	0,0055	0,0018	0,0009						0,0305
0,17	0,18											0,0046	0,0129	0,0074	0,0018	0,0028			0,0009			0,0305
0,18	0,19												0,0065	0,0046	0,0009	0,0009		0,0009	0,0018			0,0157
0,19	0,20											0,0009	0,0009	0,0018	0,0037				0,0009			0,0083
0,20	0,21											0,0009	0,0018	0,0009	0,0018	0,0009	0,0009					0,0074
0,21	0,22														0,0009							0,0009
0,22	0,23												0,0009									0,0009
	Sum	4,6277	0,0000	0,0000	0,0000	0,0287	0,1184	0,2340	0,4884	0,6401	0,6308	0,5578	0,3913	0,2534	0,2312	0,1471	0,0629	0,0324	0,0398	0,0018	0,0018	8,4876

Swell, Scatter diagram, February

		Tp																			
	Hm0	<2	2 - 3	3 - 4	4 - 5	5 - 6	6 - 7	7 - 8	8 - 9	9 - 10	10 - 11	11 - 12	12 - 13	13 - 14	14 - 15	15 - 16	16 - 17	17 - 18	18 -19	19 - 20	>20	Sum
0,00	0,01	4,1615				0,0324	0,0250	0,0342	0,0509	0,0509	0,1110	0,0842	0,0527	0,0472	0,0259	0,0120	0,0083	0,0037	0,0009			4,7007
0,01	0,02					0,0213	0,0407	0,0509	0,0814	0,0610	0,0546	0,0573	0,0712	0,0490	0,0425	0,0176	0,0120	0,0037	0,0009			0,5642
0,02	0,03					0,0065	0,0231	0,0416	0,0305	0,0610	0,0703	0,0601	0,0758	0,0860	0,0573	0,0361	0,0083	0,0046	0,0009	0,0018	0,0018	0,5661
0,03	0,04					0,0018	0,0065	0,0388	0,0398	0,0324	0,0518	0,0481	0,0379	0,0287	0,0379	0,0213	0,0139	0,0055	0,0055	0,0009		0,3709
0,04	0,05						0,0009	0,0425	0,0888	0,0398	0,0111	0,0157	0,0231	0,0240	0,0231	0,0277	0,0102	0,0074	0,0028			0,3173
0,05	0,06							0,0194	0,0786	0,0953	0,0240	0,0083	0,0129	0,0074	0,0083	0,0083	0,0092	0,0028				0,2747
0,06	0,07							0,0102	0,0592	0,1128	0,0518	0,0092	0,0065	0,0083	0,0028	0,0037	0,0074	0,0028	0,0028			0,2775
0,07	0,08							0,0037	0,0139	0,0620	0,0435	0,0129	0,0028	0,0009	0,0065	0,0065	0,0028	0,0018	0,0028	0,0009		0,1609
0,08	0,09								0,0046	0,0259	0,0694	0,0194	0,0018	0,0018	0,0009	0,0009	0,0009		0,0028			0,1286
0,09	0,10								0,0009	0,0231	0,0555	0,0398	0,0037			0,0018	0,0009	0,0028	0,0018			0,1304
0,10	0,11									0,0102	0,0314	0,0222	0,0009				0,0009	0,0028				0,0684
0,11	0,12									0,0037	0,0148	0,0250	0,0055	0,0018					0,0009			0,0518
0,12	0,13									0,0028	0,0055	0,0240	0,0092	0,0018				0,0009				0,0444
0,13	0,14										0,0046	0,0074	0,0083	0,0037					0,0009			0,0250
0,14	0,15											0,0018	0,0139	0,0028				0,0009				0,0194
0,15	0,16										0,0009	0,0018	0,0065	0,0037				0,0009				0,0139
0,16	0,17											0,0037	0,0055		0,0028							0,0120
0,17	0,18												0,0028	0,0018								0,0046
0,18	0,19															0,0009						0,0009
0,19	0,20													0,0009								0,0009
0,20	0,21																					0,0000
0,21	0,22																					0,0000
0,22	0,23																					0,0000
	Sum	4,1615	0,0000	0,0000	0,0000	0,0620	0,0962	0,2414	0,4486	0,5809	0,6003	0,4412	0,3413	0,2701	0,2081	0,1369	0,0749	0,0407	0,0231	0,0037	0,0018	7,7328

Swell, Scatter diagram, March

		Tp																			
	Hm0	<2	2 - 3	3 - 4	4 - 5	5 - 6	6 - 7	7 - 8	8 - 9	9 - 10	10 - 11	11 - 12	12 - 13	13 - 14	14 - 15	15 - 16	16 - 17	17 - 18	18 -19	19 - 20	>20	Sum
0,00	0,01	4,8422				0,0166	0,0518	0,0583	0,0666	0,1017	0,0971	0,0953	0,0860	0,0268	0,0222	0,0129	0,0028	0,0009				5,4814
0,01	0,02					0,0185	0,0740	0,0749	0,0999	0,0860	0,0518	0,0888	0,0971	0,0925	0,0527	0,0213	0,0102	0,0018				0,7696
0,02	0,03					0,0120	0,0416	0,0351	0,0416	0,0462	0,0805	0,0555	0,0740	0,0546	0,0277	0,0203	0,0074	0,0037	0,0018			0,5023
0,03	0,04						0,0092	0,0462	0,0435	0,0176	0,0527	0,0583	0,0296	0,0379	0,0314	0,0213	0,0065					0,3543
0,04	0,05							0,0499	0,0647	0,0407	0,0185	0,0250	0,0342	0,0111	0,0203	0,0176	0,0102	0,0018	0,0009			0,2951
0,05	0,06							0,0231	0,0925	0,0777	0,0240	0,0092	0,0129	0,0129	0,0148	0,0139	0,0083	0,0037	0,0028			0,2960
0,06	0,07							0,0083	0,0573	0,0777	0,0388	0,0092	0,0018	0,0055	0,0055	0,0065	0,0092	0,0037	0,0009			0,2248
0,07	0,08							0,0009	0,0287	0,0499	0,0481	0,0185	0,0028	0,0009		0,0009	0,0018	0,0037				0,1563
0,08	0,09								0,0055	0,0361	0,0601	0,0231	0,0028		0,0018			0,0009	0,0046			0,1350
0,09	0,10								0,0009	0,0176	0,0388	0,0361	0,0009		0,0009		0,0009	0,0009				0,0971
0,10	0,11									0,0009	0,0231	0,0231	0,0028	0,0009								0,0509
0,11	0,12									0,0018	0,0092	0,0185	0,0009									0,0305
0,12	0,13									0,0018	0,0102	0,0120	0,0074	0,0009								0,0324
0,13	0,14											0,0028	0,0074	0,0028		0,0009						0,0139
0,14	0,15										0,0009		0,0102	0,0009	0,0009							0,0129
0,15	0,16											0,0037	0,0166	0,0028								0,0231
0,16	0,17											0,0009	0,0028	0,0028	0,0009							0,0074
0,17	0,18											0,0009	0,0018									0,0028
0,18	0,19												0,0018									0,0018
0,19	0,20																					0,0000
0,20	0,21																					0,0000
0,21	0,22																					0,0000
0,22	0,23																					0,0000
	Sum	4,8422	0,0000	0,0000	0,0000	0,0472	0,1767	0,2969	0,5013	0,5559	0,5541	0,4810	0,3940	0,2534	0,1794	0,1156	0,0573	0,0213	0,0111	0,0000	0,0000	8,4876

Swell, Scatter diagram, April

		Tp																			
	Hm0	<2	2 - 3	3 - 4	4 - 5	5 - 6	6 - 7	7 - 8	8 - 9	9 - 10	10 - 11	11 - 12	12 - 13	13 - 14	14 - 15	15 - 16	16 - 17	17 - 18	18 -19	19 - 20	>20	Sum
0,00	0,01	5,2280				0,0805	0,0906	0,0694	0,0962	0,1128	0,1443	0,1665	0,0768	0,0657	0,0213	0,0139	0,0028	0,0018				6,1705
0,01	0,02					0,0416	0,1147	0,0657	0,0823	0,0509	0,0925	0,1073	0,1073	0,0592	0,0398	0,0203	0,0074	0,0018	0,0018			0,7927
0,02	0,03					0,0102	0,0305	0,0573	0,0277	0,0490	0,0601	0,0629	0,0777	0,0490	0,0194	0,0120	0,0055	0,0018				0,4634
0,03	0,04						0,0055	0,0620	0,0324	0,0222	0,0250	0,0314	0,0305	0,0296	0,0213	0,0129	0,0037	0,0018	0,0009			0,2793
0,04	0,05							0,0296	0,0694	0,0287	0,0129	0,0055	0,0185	0,0176	0,0203	0,0092	0,0018					0,2137
0,05	0,06							0,0092	0,0370	0,0333	0,0083	0,0065	0,0102	0,0046	0,0065	0,0055	0,0018					0,1230
0,06	0,07							0,0046	0,0213	0,0314	0,0166	0,0037	0,0028		0,0009	0,0009	0,0055	0,0009				0,0888
0,07	0,08								0,0046	0,0194	0,0157	0,0055	0,0009	0,0009								0,0472
0,08	0,09									0,0009	0,0139											0,0148
0,09	0,10									0,0028	0,0046											0,0074
0,10	0,11										0,0018	0,0018	0,0009									0,0046
0,11	0,12											0,0009	0,0009									0,0018
0,12	0,13												0,0018									0,0018
0,13	0,14												0,0028									0,0028
0,14	0,15												0,0009									0,0009
0,15	0,16												0,0009									0,0009
0,16	0,17																					0,0000
0,17	0,18																					0,0000
0,18	0,19																					0,0000
0,19	0,20																					0,0000
0,20	0,21																					0,0000
0,21	0,22																					0,0000
0,22	0,23																					0,0000
	Sum	5,2280	0,0000	0,0000	0,0000	0,1323	0,2414	0,2978	0,3709	0,3515	0,3959	0,3922	0,3330	0,2266	0,1295	0,0749	0,0287	0,0083	0,0028	0,0000	0,0000	8,2138

Swell, Scatter diagram, May

		Tp																			
	Hm0	<2	2 - 3	3 - 4	4 - 5	5 - 6	6 - 7	7 - 8	8 - 9	9 - 10	10 - 11	11 - 12	12 - 13	13 - 14	14 - 15	15 - 16	16 - 17	17 - 18	18 -19	19 - 20	>20	Sum
0,00	0,01	5,9985				0,1452	0,1424	0,1489	0,1073	0,1239	0,1572	0,1230	0,0518	0,0296	0,0148	0,0092	0,0009	0,0009				7,0539
0,01	0,02					0,0509	0,1249	0,0897	0,0795	0,0832	0,0897	0,1073	0,0694	0,0296	0,0139	0,0065		0,0009				0,7455
0,02	0,03					0,0055	0,0231	0,0666	0,0185	0,0268	0,0259	0,0314	0,0379	0,0231	0,0129	0,0028						0,2747
0,03	0,04						0,0018	0,0388	0,0287	0,0046	0,0074	0,0065	0,0222	0,0213	0,0065	0,0046	0,0018					0,1443
0,04	0,05							0,0176	0,0425	0,0231	0,0037	0,0046	0,0065	0,0055	0,0028	0,0028		0,0009				0,1101
0,05	0,06							0,0102	0,0240	0,0194	0,0018	0,0018	0,0065			0,0009						0,0647
0,06	0,07							0,0018	0,0102	0,0148	0,0074		0,0028	0,0018								0,0388
0,07	0,08								0,0018	0,0074	0,0065		0,0009									0,0166
0,08	0,09									0,0055	0,0083	0,0037										0,0176
0,09	0,10									0,0009	0,0037	0,0009										0,0055
0,10	0,11										0,0018	0,0009										0,0028
0,11	0,12											0,0018	0,0009									0,0028
0,12	0,13											0,0018	0,0018									0,0037
0,13	0,14											0,0018										0,0018
0,14	0,15											0,0009	0,0037									0,0046
0,15	0,16																					0,0000
0,16	0,17																					0,0000
0,17	0,18																					0,0000
0,18	0,19																					0,0000
0,19	0,20																					0,0000
0,20	0,21																					0,0000
0,21	0,22																					0,0000
0,22	0,23																					0,0000
	Sum	5,9985	0,0000	0,0000	0,0000	0,2016	0,2923	0,3737	0,3126	0,3099	0,3136	0,2867	0,2044	0,1110	0,0509	0,0268	0,0028	0,0028	0,0000	0,0000	0,0000	8,4876

Swell, Scatter diagram, June

		Tp																			
	Hm0	<2	2 - 3	3 - 4	4 - 5	5 - 6	6 - 7	7 - 8	8 - 9	9 - 10	10 - 11	11 - 12	12 - 13	13 - 14	14 - 15	15 - 16	16 - 17	17 - 18	18 -19	19 - 20	>20	Sum
0,00	0,01	5,7062				0,2738	0,1785	0,1276	0,1757	0,1868	0,1619	0,0953	0,0324	0,0074	0,0018	0,0028						6,9503
0,01	0,02					0,0712	0,1017	0,0971	0,0610	0,1017	0,0916	0,0721	0,0647	0,0194	0,0055	0,0018						0,6882
0,02	0,03					0,0037	0,0176	0,1017	0,0277	0,0287	0,0379	0,0296	0,0351	0,0065	0,0028	0,0009						0,2923
0,03	0,04							0,0536	0,0647	0,0065	0,0083	0,0092	0,0046	0,0046	0,0028	0,0009						0,1554
0,04	0,05							0,0157	0,0314	0,0129	0,0009	0,0009	0,0009	0,0037	0,0028							0,0694
0,05	0,06								0,0120	0,0120	0,0009											0,0250
0,06	0,07								0,0055	0,0092	0,0018											0,0166
0,07	0,08								0,0009	0,0055	0,0028											0,0092
0,08	0,09									0,0009	0,0028											0,0037
0,09	0,10										0,0009											0,0009
0,10	0,11																					0,0000
0,11	0,12																					0,0000
0,12	0,13												0,0009									0,0009
0,13	0,14																					0,0000
0,14	0,15																					0,0000
0,15	0,16											0,0009	0,0009									0,0018
0,16	0,17																					0,0000
0,17	0,18																					0,0000
0,18	0,19																					0,0000
0,19	0,20																					0,0000
0,20	0,21																					0,0000
0,21	0,22																					0,0000
0,22	0,23																					0,0000
	Sum	5,7062	0,0000	0,0000	0,0000	0,3487	0,2978	0,3959	0,3792	0,3644	0,3099	0,2081	0,1397	0,0416	0,0157	0,0065	0,0000	0,0000	0,0000	0,0000	0,0000	8,2138

Swell, Scatter diagram, July

		Tp																			
	Hm0	<2	2 - 3	3 - 4	4 - 5	5 - 6	6 - 7	7 - 8	8 - 9	9 - 10	10 - 11	11 - 12	12 - 13	13 - 14	14 - 15	15 - 16	16 - 17	17 - 18	18 -19	19 - 20	>20	Sum
0,00	0,01	5,3556				0,5087	0,3062	0,1933	0,2553	0,2211	0,1017	0,0610	0,0213	0,0092	0,0009	0,0009	0,0009					7,0363
0,01	0,02					0,1156	0,2655	0,1276	0,0953	0,1230	0,1221	0,0536	0,0250	0,0102	0,0046	0,0055						0,9481
0,02	0,03					0,0009	0,0213	0,0731	0,0314	0,0185	0,0324	0,0370	0,0203	0,0092	0,0028	0,0028						0,2497
0,03	0,04						0,0009	0,0536	0,0222	0,0018	0,0018	0,0092	0,0139	0,0074	0,0018							0,1128
0,04	0,05							0,0194	0,0527	0,0139		0,0009	0,0028	0,0009	0,0028	0,0028		0,0009				0,0971
0,05	0,06								0,0148	0,0092	0,0018											0,0259
0,06	0,07								0,0055	0,0055	0,0018											0,0129
0,07	0,08									0,0028	0,0009											0,0037
0,08	0,09										0,0009											0,0009
0,09	0,10																					0,0000
0,10	0,11																					0,0000
0,11	0,12																					0,0000
0,12	0,13																					0,0000
0,13	0,14																					0,0000
0,14	0,15																					0,0000
0,15	0,16																					0,0000
0,16	0,17																					0,0000
0,17	0,18																					0,0000
0,18	0,19																					0,0000
0,19	0,20																					0,0000
0,20	0,21																					0,0000
0,21	0,22																					0,0000
0,22	0,23																					0,0000
	Sum	5,3556	0,0000	0,0000	0,0000	0,6253	0,5938	0,4671	0,4773	0,3959	0,2636	0,1619	0,0832	0,0370	0,0129	0,0120	0,0009	0,0009	0,0000	0,0000	0,0000	8,4876

Swell, Scatter diagram, August

		Tp																			
	Hm0	<2	2 - 3	3 - 4	4 - 5	5 - 6	6 - 7	7 - 8	8 - 9	9 - 10	10 - 11	11 - 12	12 - 13	13 - 14	14 - 15	15 - 16	16 - 17	17 - 18	18 -19	19 - 20	>20	Sum
0,00	0,01	5,2169				0,3635	0,2904	0,1693	0,2627	0,2645	0,1730	0,0684	0,0250	0,0166	0,0046	0,0028						6,8578
0,01	0,02					0,0601	0,2285	0,1230	0,0934	0,1221	0,1360	0,0592	0,0370	0,0111	0,0046	0,0018	0,0018					0,8787
0,02	0,03					0,0083	0,0296	0,0990	0,0305	0,0111	0,0388	0,0398	0,0398	0,0065	0,0028	0,0028						0,3089
0,03	0,04							0,0990	0,0592	0,0028	0,0028	0,0111	0,0166	0,0065	0,0028	0,0009						0,2016
0,04	0,05							0,0287	0,0647	0,0250	0,0018	0,0028	0,0018	0,0009		0,0028						0,1286
0,05	0,06							0,0009	0,0231	0,0222	0,0037		0,0018		0,0009	0,0009						0,0536
0,06	0,07								0,0065	0,0139	0,0074	0,0009	0,0009									0,0296
0,07	0,08									0,0046	0,0046											0,0092
0,08	0,09									0,0028	0,0046	0,0028										0,0102
0,09	0,10										0,0009	0,0046										0,0055
0,10	0,11									0,0009	0,0018		0,0009									0,0037
0,11	0,12																					0,0000
0,12	0,13																					0,0000
0,13	0,14																					0,0000
0,14	0,15																					0,0000
0,15	0,16																					0,0000
0,16	0,17																					0,0000
0,17	0,18																					0,0000
0,18	0,19																					0,0000
0,19	0,20																					0,0000
0,20	0,21																					0,0000
0,21	0,22																					0,0000
0,22	0,23																					0,0000
	Sum	5,2169	0,0000	0,0000	0,0000	0,4320	0,5485	0,5198	0,5402	0,4699	0,3755	0,1896	0,1239	0,0416	0,0157	0,0120	0,0018	0,0000	0,0000	0,0000	0,0000	8,4876

Swell, Scatter diagram, September

		Tp																			
	Hm0	<2	2 - 3	3 - 4	4 - 5	5 - 6	6 - 7	7 - 8	8 - 9	9 - 10	10 - 11	11 - 12	12 - 13	13 - 14	14 - 15	15 - 16	16 - 17	17 - 18	18 -19	19 - 20	>20	Sum
0,00	0,01	4,7738				0,1101	0,1239	0,1147	0,1646	0,1406	0,1128	0,0897	0,0435	0,0240	0,0111	0,0065	0,0065	0,0028	0,0009			5,7256
0,01	0,02					0,0629	0,1397	0,0814	0,1424	0,1239	0,0971	0,0897	0,0814	0,0453	0,0157	0,0046	0,0046	0,0037	0,0009			0,8935
0,02	0,03					0,0083	0,0444	0,0823	0,0425	0,0620	0,0657	0,0601	0,0731	0,0305	0,0203	0,0139	0,0028	0,0009				0,5069
0,03	0,04						0,0046	0,1064	0,0629	0,0129	0,0166	0,0314	0,0240	0,0120	0,0018	0,0046	0,0009	0,0018				0,2803
0,04	0,05							0,0518	0,0860	0,0407	0,0111	0,0166	0,0120	0,0111	0,0065	0,0046						0,2405
0,05	0,06							0,0139	0,0999	0,0851	0,0120	0,0046	0,0129	0,0009	0,0046	0,0028						0,2368
0,06	0,07							0,0037	0,0416	0,0768	0,0222		0,0037	0,0018	0,0009	0,0028						0,1535
0,07	0,08								0,0065	0,0268	0,0268	0,0018		0,0037	0,0028	0,0028						0,0712
0,08	0,09								0,0009	0,0111	0,0166	0,0065					0,0009					0,0361
0,09	0,10									0,0092	0,0157	0,0055										0,0305
0,10	0,11									0,0018	0,0065	0,0065	0,0018									0,0166
0,11	0,12										0,0028	0,0009	0,0009									0,0046
0,12	0,13										0,0009	0,0009	0,0018									0,0037
0,13	0,14										0,0018		0,0018	0,0009	0,0009							0,0055
0,14	0,15											0,0018		0,0018								0,0037
0,15	0,16											0,0028	0,0009									0,0037
0,16	0,17												0,0009									0,0009
0,17	0,18																					0,0000
0,18	0,19																					0,0000
0,19	0,20																					0,0000
0,20	0,21																					0,0000
0,21	0,22																					0,0000
0,22	0,23																					0,0000
	Sum	4,7738	0,0000	0,0000	0,0000	0,1813	0,3126	0,4542	0,6475	0,5911	0,4088	0,3191	0,2590	0,1323	0,0647	0,0425	0,0157	0,0092	0,0018	0,0000	0,0000	8,2138

Swell, Scatter diagram, October

		Tp																			
	Hm0	<2	2 - 3	3 - 4	4 - 5	5 - 6	6 - 7	7 - 8	8 - 9	9 - 10	10 - 11	11 - 12	12 - 13	13 - 14	14 - 15	15 - 16	16 - 17	17 - 18	18 -19	19 - 20	>20	Sum
0,00	0,01	5,2289				0,0388	0,0610	0,0934	0,1101	0,1323	0,1369	0,0860	0,0610	0,0240	0,0092	0,0074	0,0037	0,0018				5,9948
0,01	0,02					0,0231	0,0888	0,0749	0,1156	0,0832	0,0592	0,0573	0,0435	0,0333	0,0259	0,0166	0,0065	0,0037	0,0009			0,6327
0,02	0,03					0,0102	0,0536	0,0842	0,0527	0,0731	0,0740	0,0657	0,0546	0,0277	0,0166	0,0148	0,0046	0,0046	0,0009			0,5374
0,03	0,04						0,0102	0,0620	0,0555	0,0203	0,0296	0,0259	0,0370	0,0268	0,0166	0,0046	0,0018	0,0009	0,0009			0,2923
0,04	0,05							0,0416	0,1128	0,0453	0,0037	0,0176	0,0194	0,0222	0,0166	0,0102	0,0028	0,0037	0,0009			0,2969
0,05	0,06							0,0240	0,0842	0,0647	0,0120	0,0065	0,0046	0,0055	0,0028	0,0037	0,0111					0,2192
0,06	0,07							0,0065	0,0444	0,0795	0,0231	0,0018	0,0046	0,0009	0,0018	0,0009	0,0009	0,0028	0,0009			0,1683
0,07	0,08								0,0139	0,0472	0,0361	0,0037		0,0009				0,0009	0,0009	0,0009		0,1045
0,08	0,09								0,0037	0,0259	0,0407	0,0065			0,0009				0,0009			0,0786
0,09	0,10									0,0129	0,0407	0,0166	0,0009			0,0009	0,0009					0,0731
0,10	0,11									0,0009	0,0176	0,0092	0,0009									0,0287
0,11	0,12									0,0009	0,0083	0,0102	0,0009									0,0203
0,12	0,13										0,0009	0,0055	0,0018									0,0083
0,13	0,14											0,0009	0,0083									0,0092
0,14	0,15											0,0009	0,0037	0,0037								0,0083
0,15	0,16											0,0009	0,0092	0,0009	0,0009							0,0120
0,16	0,17																					0,0000
0,17	0,18												0,0009									0,0009
0,18	0,19												0,0009		0,0009							0,0018
0,19	0,20																					0,0000
0,20	0,21																					0,0000
0,21	0,22																					0,0000
0,22	0,23																					0,0000
	Sum	5,2289	0,0000	0,0000	0,0000	0,0721	0,2137	0,3866	0,5929	0,5864	0,4828	0,3154	0,2525	0,1461	0,0925	0,0592	0,0324	0,0185	0,0065	0,0009	0,0000	8,4876

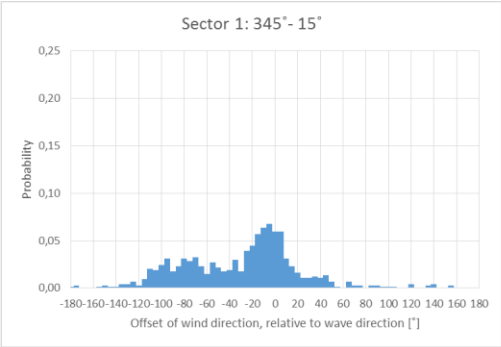
Swell, Scatter diagram, November

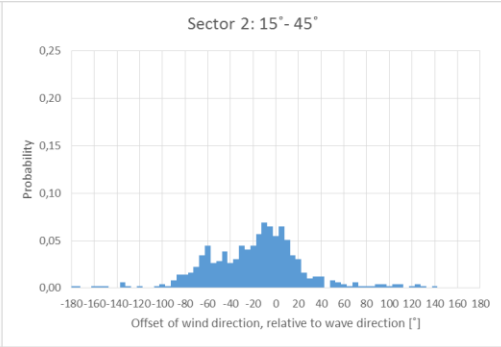
		Tp																			
	Hm0	<2	2 - 3	3 - 4	4 - 5	5 - 6	6 - 7	7 - 8	8 - 9	9 - 10	10 - 11	11 - 12	12 - 13	13 - 14	14 - 15	15 - 16	16 - 17	17 - 18	18 -19	19 - 20	>20	Sum
0,00	0,01	4,9791				0,0222	0,0499	0,0703	0,0564	0,0731	0,0916	0,0888	0,0379	0,0277	0,0092	0,0074	0,0009					5,5147
0,01	0,02					0,0324	0,0536	0,0629	0,0823	0,1073	0,0749	0,0518	0,0564	0,0555	0,0250	0,0139	0,0065	0,0037	0,0009			0,6271
0,02	0,03					0,0120	0,0416	0,0481	0,0453	0,0629	0,0666	0,0518	0,0749	0,0610	0,0444	0,0259	0,0018		0,0009			0,5374
0,03	0,04					0,0009	0,0037	0,0536	0,0416	0,0342	0,0564	0,0490	0,0351	0,0324	0,0213	0,0102	0,0074	0,0037				0,3496
0,04	0,05							0,0453	0,0860	0,0351	0,0092	0,0287	0,0333	0,0139	0,0148	0,0083	0,0009	0,0009	0,0018			0,2784
0,05	0,06							0,0287	0,0777	0,0518	0,0148	0,0083	0,0194	0,0129	0,0083	0,0055	0,0074	0,0028				0,2377
0,06	0,07							0,0102	0,0453	0,0749	0,0435	0,0083	0,0074	0,0028	0,0055	0,0046	0,0092	0,0009	0,0009			0,2137
0,07	0,08							0,0037	0,0111	0,0425	0,0361	0,0065	0,0037	0,0028		0,0009	0,0046	0,0009	0,0009			0,1138
0,08	0,09							0,0009	0,0046	0,0398	0,0555	0,0213	0,0037	0,0009			0,0018		0,0009			0,1295
0,09	0,10								0,0009	0,0157	0,0342	0,0166	0,0009						0,0009			0,0694
0,10	0,11									0,0055	0,0203	0,0185	0,0028	0,0009								0,0481
0,11	0,12										0,0139	0,0176	0,0028						0,0009			0,0351
0,12	0,13										0,0046	0,0037	0,0083	0,0009								0,0176
0,13	0,14										0,0018	0,0046	0,0037	0,0018				0,0009				0,0129
0,14	0,15											0,0009	0,0055	0,0009				0,0009				0,0083
0,15	0,16											0,0028	0,0065									0,0092
0,16	0,17											0,0018	0,0037	0,0009								0,0065
0,17	0,18												0,0028									0,0028
0,18	0,19												0,0018									0,0018
0,19	0,20																					0,0000
0,20	0,21																					0,0000
0,21	0,22																					0,0000
0,22	0,23																					0,0000
	Sum	4,9791	0,0000	0,0000	0,0000	0,0675	0,1489	0,3237	0,4514	0,5430	0,5235	0,3811	0,3108	0,2155	0,1286	0,0768	0,0407	0,0148	0,0083	0,0000	0,0000	8,2138

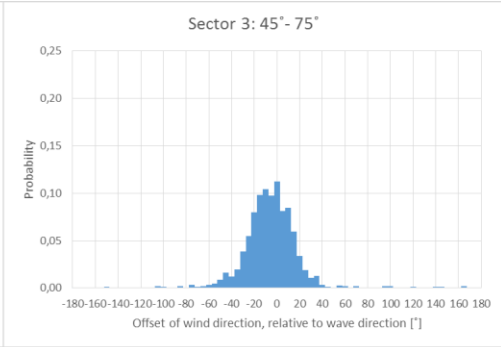
Swell, Scatter diagram, December

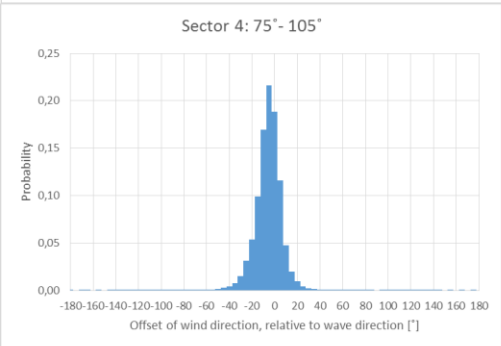
		Tp																			
	Hm0	<2	2 - 3	3 - 4	4 - 5	5 - 6	6 - 7	7 - 8	8 - 9	9 - 10	10 - 11	11 - 12	12 - 13	13 - 14	14 - 15	15 - 16	16 - 17	17 - 18	18 -19	19 - 20	>20	Sum
0,00	0,01	4,8450				0,0370	0,0481	0,0453	0,0583	0,0435	0,0768	0,0897	0,0694	0,0333	0,0139	0,0083	0,0074	0,0009	0,0018			5,3787
0,01	0,02					0,0176	0,0324	0,0564	0,0888	0,0906	0,0647	0,0555	0,0860	0,0721	0,0324	0,0231	0,0074	0,0018	0,0028			0,6318
0,02	0,03					0,0120	0,0250	0,0518	0,0435	0,0795	0,0749	0,0638	0,0435	0,0407	0,0425	0,0305	0,0111	0,0028	0,0018			0,5235
0,03	0,04						0,0074	0,0601	0,0481	0,0324	0,0518	0,0546	0,0379	0,0296	0,0268	0,0259	0,0120	0,0046				0,3913
0,04	0,05						0,0009	0,0629	0,0980	0,0462	0,0148	0,0268	0,0324	0,0231	0,0148	0,0166	0,0203	0,0046	0,0046			0,3663
0,05	0,06							0,0222	0,0906	0,0805	0,0166	0,0148	0,0139	0,0092	0,0083	0,0037	0,0083	0,0083	0,0083	0,0009		0,2858
0,06	0,07							0,0055	0,0684	0,1091	0,0351	0,0102	0,0083	0,0037	0,0009	0,0055	0,0102	0,0046	0,0037			0,2655
0,07	0,08							0,0055	0,0240	0,0731	0,0481	0,0055	0,0037	0,0037	0,0046	0,0028	0,0018	0,0028	0,0046			0,1804
0,08	0,09								0,0037	0,0490	0,0472	0,0213	0,0009		0,0009	0,0037		0,0009	0,0018			0,1295
0,09	0,10								0,0009	0,0102	0,0370	0,0250	0,0046		0,0018							0,0795
0,10	0,11									0,0065	0,0324	0,0222	0,0037	0,0009								0,0657
0,11	0,12									0,0018	0,0194	0,0342	0,0055		0,0009	0,0009						0,0629
0,12	0,13										0,0157	0,0277	0,0065	0,0018								0,0518
0,13	0,14										0,0028	0,0111	0,0083	0,0018					0,0009			0,0250
0,14	0,15											0,0046	0,0074	0,0028								0,0148
0,15	0,16										0,0009	0,0046	0,0083		0,0009	0,0009						0,0157
0,16	0,17											0,0018	0,0055	0,0018								0,0092
0,17	0,18												0,0018	0,0009								0,0028
0,18	0,19												0,0018		0,0009							0,0028
0,19	0,20														0,0009							0,0009
0,20	0,21														0,0028							0,0028
0,21	0,22																					0,0000
0,22	0,23																					0,0000
	Sum	4,8450	0,0000	0,0000	0,0000	0,0666	0,1138	0,3099	0,5245	0,6225	0,5383	0,4736	0,3496	0,2257	0,1535	0,1221	0,0786	0,0314	0,0305	0,0009	0,0000	8,4866

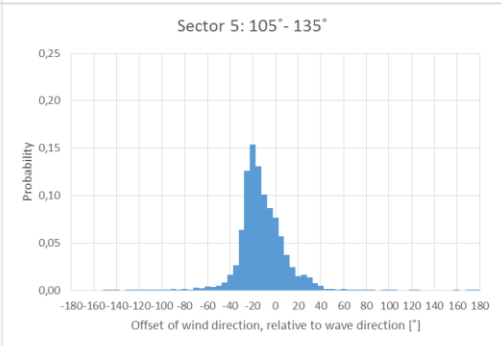
Appendix C
Wind Wave Misalignment

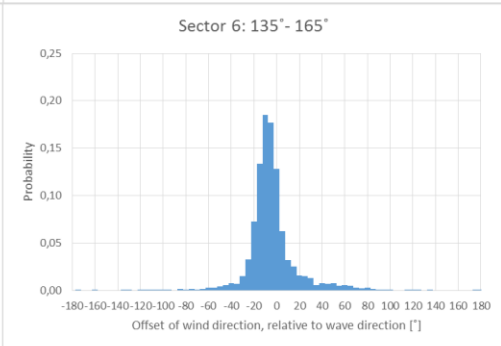

Sector 1: 345˚- 15˚
Probability
0,25
0,20
0,15
0,10
0,05
0,00
-180 -160 -140 -120 -100 -80 -60 -40 -20 0 20 40 60 80 100 120 140 160 180
Offset of wind direction, relative to wave direction [˚]

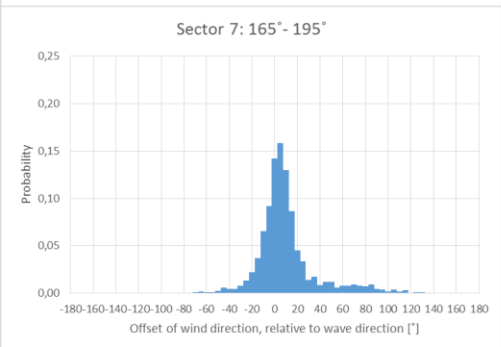

Sector 2: 15˚- 45˚
Probability
0,25
0,20
0,15
0,10
0,05
0,00
-180 -160 -140 -120 -100 -80 -60 -40 -20 0 20 40 60 80 100 120 140 160 180
Offset of wind direction, relative to wave direction [˚]

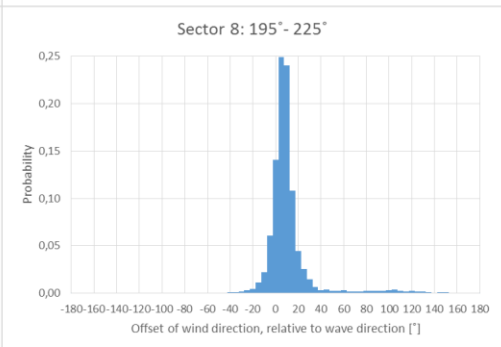

Sector 3: 45˚- 75˚
Probability
0,25
0,20
0,15
0,10
0,05
0,00
-180 -160 -140 -120 -100 -80 -60 -40 -20 0 20 40 60 80 100 120 140 160 180
Offset of wind direction, relative to wave direction [˚]

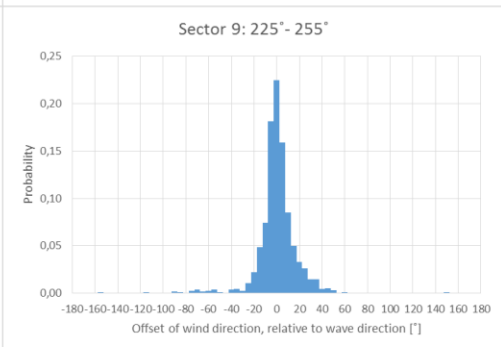

Sector 4: 75˚- 105˚
Probability
0,25
0,20
0,15
0,10
0,05
0,00
-180 -160 -140 -120 -100 -80 -60 -40 -20 0 20 40 60 80 100 120 140 160 180
Offset of wind direction, relative to wave direction [˚]

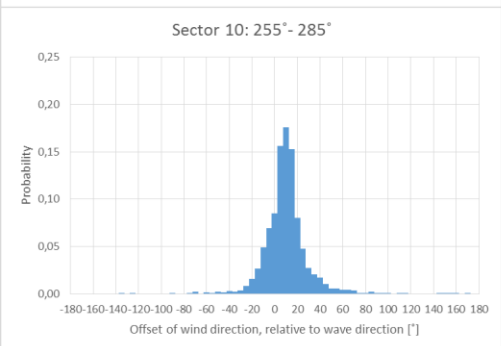

Sector 5: 105˚- 135˚
Probability
0,25
0,20
0,15
0,10
0,05
0,00
-180 -160 -140 -120 -100 -80 -60 -40 -20 0 20 40 60 80 100 120 140 160 180
Offset of wind direction, relative to wave direction [˚]

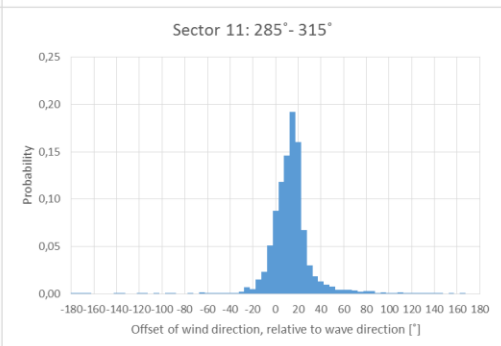

Sector 6: 135˚- 165˚
Probability
0,25
0,20
0,15
0,10
0,05
0,00
-180 -160 -140 -120 -100 -80 -60 -40 -20 0 20 40 60 80 100 120 140 160 180
Offset of wind direction, relative to wave direction [˚]

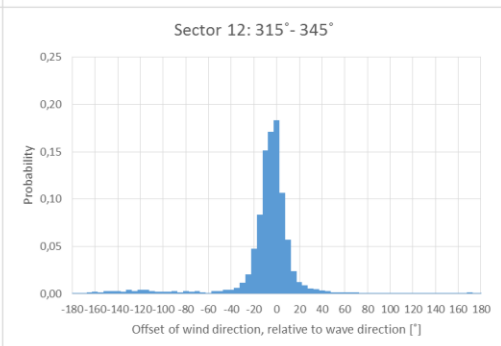

Sector 7: 165˚- 195˚
Probability
0,25
0,20
0,15
0,10
0,05
0,00
-180 -160 -140 -120 -100 -80 -60 -40 -20 0 20 40 60 80 100 120 140 160 180
Offset of wind direction, relative to wave direction [˚]


Sector 8: 195˚- 225˚
Probability
0,25
0,20
0,15
0,10
0,05
0,00
-180 -160 -140 -120 -100 -80 -60 -40 -20 0 20 40 60 80 100 120 140 160 180
Offset of wind direction, relative to wave direction [˚]


Sector 9: 225˚- 255˚
Probability
0,25
0,20
0,15
0,10
0,05
0,00
-180 -160 -140 -120 -100 -80 -60 -40 -20 0 20 40 60 80 100 120 140 160 180
Offset of wind direction, relative to wave direction [˚]


Sector 10: 255˚- 285˚
Probability
0,25
0,20
0,15
0,10
0,05
0,00
-180 -160 -140 -120 -100 -80 -60 -40 -20 0 20 40 60 80 100 120 140 160 180
Offset of wind direction, relative to wave direction [˚]


Sector 11: 285˚- 315˚
Probability
0,25
0,20
0,15
0,10
0,05
0,00
-180 -160 -140 -120 -100 -80 -60 -40 -20 0 20 40 60 80 100 120 140 160 180
Offset of wind direction, relative to wave direction [˚]


Sector 12: 315˚- 345˚
Probability
0,25
0,20
0,15
0,10
0,05
0,00
-180 -160 -140 -120 -100 -80 -60 -40 -20 0 20 40 60 80 100 120 140 160 180
Offset of wind direction, relative to wave direction [˚]

Offset [deg]	Sector 1	Sector 2	Sector 3	Sector 4	Sector 5	Sector 6	Sector 7	Sector 8	Sector 9	Sector 10	Sector 11	Sector 12
-180	1,35501E-03	2,02840E-03	7,02247E-04	7,19891E-05	0,00000E+00	0,00000E+00	6,08458E-04	2,23115E-04	0,00000E+00	0,00000E+00	2,28258E-04	1,01286E-04
-175	2,71003E-03	2,02840E-03	0,00000E+00	0,00000E+00	0,00000E+00	1,86881E-04	3,04229E-04	3,34672E-04	0,00000E+00	0,00000E+00	2,28258E-04	9,11577E-04
-170	0,00000E+00	0,00000E+00	7,02247E-04	2,15967E-04	0,00000E+00	0,00000E+00	0,00000E+00	3,34672E-04	0,00000E+00	0,00000E+00	2,28258E-04	9,11577E-04
-165	0,00000E+00	0,00000E+00	7,02247E-04	7,19891E-05	0,00000E+00	0,00000E+00	3,04229E-04	2,23115E-04	0,00000E+00	0,00000E+00	2,28258E-04	1,51930E-03
-160	0,00000E+00	2,02840E-03	0,00000E+00	0,00000E+00	0,00000E+00	1,86881E-04	0,00000E+00	1,11557E-04	0,00000E+00	0,00000E+00	0,00000E+00	2,02573E-03
-155	1,35501E-03	2,02840E-03	7,02247E-04	7,19891E-05	0,00000E+00	0,00000E+00	0,00000E+00	1,11557E-04	9,22084E-04	0,00000E+00	0,00000E+00	1,72187E-03
-150	2,71003E-03	2,02840E-03	1,40449E-03	0,00000E+00	1,95542E-04	0,00000E+00	0,00000E+00	2,23115E-04	0,00000E+00	0,00000E+00	0,00000E+00	2,83602E-03
-145	1,35501E-03	0,00000E+00	7,02247E-04	7,19891E-05	3,91083E-04	0,00000E+00	3,04229E-04	2,23115E-04	0,00000E+00	0,00000E+00	0,00000E+00	3,03859E-03
-140	1,35501E-03	0,00000E+00	0,00000E+00	1,43978E-04	3,91083E-04	0,00000E+00	3,04229E-04	0,00000E+00	0,00000E+00	0,00000E+00	9,13034E-04	2,83602E-03
-135	4,06504E-03	6,08519E-03	0,00000E+00	2,15967E-04	0,00000E+00	1,86881E-04	0,00000E+00	2,23115E-04	4,61042E-04	8,92061E-04	4,56517E-04	2,12701E-03
-130	4,06504E-03	2,02840E-03	0,00000E+00	2,87956E-04	1,95542E-04	1,86881E-04	0,00000E+00	0,00000E+00	0,00000E+00	0,00000E+00	0,00000E+00	4,15274E-03
-125	6,77507E-03	0,00000E+00	0,00000E+00	1,43978E-04	1,95542E-04	0,00000E+00	6,08458E-04	4,46229E-04	0,00000E+00	4,46030E-04	0,00000E+00	2,73473E-03
-120	2,71003E-03	2,02840E-03	7,02247E-04	1,43978E-04	1,95542E-04	1,86881E-04	0,00000E+00	1,11557E-04	4,61042E-04	0,00000E+00	2,28258E-04	4,25403E-03
-115	9,48510E-03	0,00000E+00	7,02247E-04	7,19891E-05	5,86625E-04	3,73762E-04	3,04229E-04	2,23115E-04	9,22084E-04	0,00000E+00	2,28258E-04	4,35531E-03
-110	2,03252E-02	0,00000E+00	7,02247E-04	2,15967E-04	1,95542E-04	5,60643E-04	3,04229E-04	2,23115E-04	0,00000E+00	0,00000E+00	0,00000E+00	3,24116E-03
-105	1,89702E-02	2,02840E-03	2,10674E-03	2,87956E-04	3,91083E-04	3,73762E-04	0,00000E+00	2,23115E-04	4,61042E-04	0,00000E+00	2,28258E-04	2,63345E-03
-100	2,43902E-02	4,05680E-03	1,40449E-03	7,19891E-05	3,91083E-04	3,73762E-04	0,00000E+00	1,11557E-04	4,61042E-04	0,00000E+00	0,00000E+00	2,12701E-03
-95	3,11653E-02	2,02840E-03	0,00000E+00	7,19891E-05	3,91083E-04	5,60643E-04	0,00000E+00	4,46229E-04	4,61042E-04	0,00000E+00	2,28258E-04	2,53216E-03
-90	1,76152E-02	8,11359E-03	0,00000E+00	1,43978E-04	1,17325E-03	0,00000E+00	3,04229E-04	4,46229E-04	1,84417E-03	4,46030E-04	4,56517E-04	2,73473E-03
-85	2,30352E-02	1,41988E-02	2,10674E-03	1,43978E-04	9,77708E-04	1,12129E-03	0,00000E+00	5,57787E-04	9,22084E-04	0,00000E+00	0,00000E+00	1,62058E-03
-80	3,11653E-02	1,41988E-02	7,02247E-04	2,15967E-04	1,17325E-03	7,47524E-04	0,00000E+00	2,23115E-04	4,61042E-04	0,00000E+00	0,00000E+00	2,73473E-03
-75	2,84553E-02	1,62272E-02	3,51124E-03	5,75913E-04	7,82167E-04	1,49505E-03	6,08458E-04	4,46229E-04	2,30521E-03	4,46030E-04	2,28258E-04	2,22830E-03
-70	3,25203E-02	2,23124E-02	1,40449E-03	5,75913E-04	2,54204E-03	3,73762E-04	9,12686E-04	4,46229E-04	4,14938E-03	2,67618E-03	0,00000E+00	2,73473E-03
-65	2,30352E-02	3,44828E-02	2,10674E-03	3,59945E-04	1,95542E-03	1,30817E-03	1,52114E-03	4,46229E-04	1,84417E-03	0,00000E+00	1,36955E-03	1,82315E-03
-60	1,49052E-02	4,46248E-02	3,51124E-03	7,91880E-04	3,91083E-03	2,99010E-03	1,21692E-03	4,46229E-04	2,76625E-03	1,78412E-03	6,84775E-04	1,11415E-03
-55	2,71003E-02	2,63692E-02	4,91573E-03	8,63869E-04	3,71529E-03	2,80321E-03	9,12686E-04	6,69344E-04	3,68834E-03	8,92061E-04	2,28258E-04	2,93730E-03
-50	2,16802E-02	2,83976E-02	8,42697E-03	1,15183E-03	4,88854E-03	4,11138E-03	2,73806E-03	7,80901E-04	1,38313E-03	2,67618E-03	1,14129E-03	2,73473E-03
-45	1,76152E-02	3,85396E-02	1,61517E-02	3,02354E-03	8,01721E-03	5,60643E-03	5,78035E-03	5,57787E-04	4,61042E-04	1,78412E-03	1,14129E-03	4,25403E-03
-40	1,89702E-02	2,63692E-02	1,19382E-02	4,10338E-03	1,60344E-02	7,84900E-03	4,25920E-03	1,00402E-03	4,14938E-03	3,12221E-03	6,84775E-04	4,65917E-03
-35	2,98103E-02	3,04260E-02	1,96629E-02	7,84681E-03	2,65937E-02	6,54083E-03	4,25920E-03	1,33869E-03	4,61042E-03	2,67618E-03	9,13034E-04	6,38104E-03
-30	1,76152E-02	4,46248E-02	3,86236E-02	1,52617E-02	6,35510E-02	1,49505E-02	8,21418E-03	2,00803E-03	2,76625E-03	4,01427E-03	2,28258E-03	1,20531E-02
-25	3,92954E-02	4,05680E-02	5,47753E-02	3,13872E-02	1,26124E-01	3,23304E-02	1,30818E-02	3,01205E-03	1,06040E-02	8,47458E-03	6,84775E-03	2,06624E-02
-20	4,47155E-02	4,46248E-02	8,00562E-02	5,34159E-02	1,53891E-01	7,28836E-02	2,19045E-02	4,57385E-03	2,21300E-02	1,56111E-02	5,02169E-03	4,76046E-02
-15	5,69106E-02	5,67951E-02	9,83146E-02	9,89130E-02	1,30622E-01	1,33433E-01	3,68117E-02	1,10442E-02	4,84094E-02	2,67618E-02	1,52933E-02	8,39664E-02
-10	6,36856E-02	6,89655E-02	1,03933E-01	1,69318E-01	1,01291E-01	1,85012E-01	6,54092E-02	2,19768E-02	7,42278E-02	4,90633E-02	2,32824E-02	1,51322E-01
-5	6,77507E-02	6,49087E-02	9,76124E-02	2,16039E-01	8,68205E-02	1,76976E-01	9,21813E-02	6,10219E-02	1,81651E-01	6,95807E-02	5,13581E-02	1,70870E-01
0	5,96206E-02	5,47667E-02	1,12360E-01	1,88179E-01	7,68479E-02	1,28014E-01	1,41771E-01	1,41009E-01	2,24527E-01	8,47458E-02	8,78795E-02	1,83024E-01
5	5,96206E-02	6,49087E-02	8,14607E-02	1,15614E-01	5,72937E-02	6,26051E-02	1,58503E-01	2,49331E-01	1,59060E-01	1,56111E-01	1,18010E-01	1,06655E-01
10	3,11653E-02	5,07099E-02	8,42697E-02	4,78007E-02	3,71529E-02	3,15829E-02	1,29602E-01	2,40071E-01	8,52928E-02	1,75736E-01	1,45629E-01	5,70242E-02
15	2,30352E-02	3,44828E-02	5,96910E-02	1,95810E-02	2,46383E-02	2,50421E-02	8,67052E-02	1,08099E-01	4,97925E-02	1,52988E-01	1,92194E-01	2,40049E-02
20	1,62602E-02	3,04260E-02	3,37079E-02	9,71852E-03	1,50567E-02	1,56980E-02	4,50259E-02	4,43998E-02	3,31950E-02	8,02855E-02	1,60466E-01	1,24582E-02
25	1,08401E-02	1,62272E-02	1,89607E-02	3,95940E-03	1,64255E-02	1,51374E-02	3,34652E-02	2,55466E-02	2,62794E-02	4,77253E-02	6,71080E-02	8,81191E-03
30	1,08401E-02	1,01420E-02	1,05337E-02	2,37564E-03	1,36879E-02	1,28948E-02	1,39945E-02	1,45025E-02	1,47533E-02	2,72079E-02	3,03584E-02	5,67204E-03
35	1,21951E-02	1,21704E-02	1,26405E-02	1,36779E-03	7,23504E-03	5,60643E-03	1,73410E-02	6,47033E-03	1,47533E-02	2,09634E-02	1,84889E-02	4,76046E-03
40	1,08401E-02	1,21704E-02	3,51124E-03	1,00785E-03	5,08408E-03	7,66212E-03	8,51841E-03	3,45828E-03	4,61042E-03	1,73952E-02	1,32390E-02	3,54502E-03
45	1,35501E-02	0,00000E+00	1,40449E-03	5,75913E-04	1,36879E-03	7,10148E-03	1,18649E-02	3,79295E-03	5,07146E-03	1,07047E-02	9,58685E-03	3,13988E-03
50	6,77507E-03	8,11359E-03	7,02247E-04	4,31934E-04	1,75988E-03	7,28836E-03	1,18649E-02	2,56582E-03	3,22729E-03	5,79839E-03	7,53253E-03	1,82315E-03
55	1,35501E-03	6,08519E-03	2,80899E-03	2,15967E-04	9,77708E-04	5,04579E-03	5,78035E-03	2,56582E-03	0,00000E+00	5,79839E-03	4,56517E-03	1,82315E-03
60	0,00000E+00	4,05680E-03	2,10674E-03	2,87956E-04	1,17325E-03	5,79331E-03	8,21418E-03	2,90049E-03	1,38313E-03	4,46030E-03	4,56517E-03	1,41801E-03
65	6,77507E-03	2,02840E-03	0,00000E+00	4,31934E-04	3,91083E-04	4,48514E-03	7,90995E-03	1,56180E-03	4,61042E-04	4,46030E-03	4,33691E-03	1,72187E-03
70	2,71003E-03	6,08519E-03	2,10674E-03	1,43978E-04	1,95542E-04	2,99010E-03	9,43109E-03	1,89648E-03	0,00000E+00	4,01427E-03	3,65213E-03	1,51930E-03
75	2,71003E-03	2,02840E-03	7,02247E-04	1,43978E-04	5,86625E-04	1,86881E-03	8,21418E-03	1,89648E-03	4,61042E-04	1,33809E-03	2,28258E-03	9,11577E-04
80	0,00000E+00	2,02840E-03	7,02247E-04	7,19891E-05	5,86625E-04	2,99010E-03	6,99726E-03	2,78893E-03	4,61042E-04	8,92061E-04	2,73910E-03	5,06432E-04
85	2,71003E-03	2,02840E-03	0,00000E+00	7,19891E-05	1,95542E-04	1,30817E-03	9,43109E-03	2,78893E-03	0,00000E+00	2,23015E-03	2,96736E-03	9,11577E-04
90	2,71003E-03	4,05680E-03	7,02247E-04	0,00000E+00	0,00000E+00	5,60643E-04	4,56343E-03	2,34270E-03	0,00000E+00	4,46030E-04	9,13034E-04	9,11577E-04
95	1,35501E-03	4,05680E-03	2,10674E-03	2,15967E-04	1,95542E-04	5,60643E-04	3,65075E-03	2,67738E-03	0,00000E+00	8,92061E-04	1,36955E-03	6,07718E-04
100	1,35501E-03	2,02840E-03	2,10674E-03	1,43978E-04	1,95542E-04	3,73762E-04	2,12960E-03	3,12361E-03	0,00000E+00	8,92061E-04	1,14129E-03	6,07718E-04
105	1,35501E-03	4,05680E-03	0,00000E+00	7,19891E-05	1,95542E-04	0,00000E+00	3,65075E-03	3,68139E-03	0,00000E+00	0,00000E+00	9,13034E-04	5,06432E-04
110	0,00000E+00	4,05680E-03	7,02247E-04	7,19891E-05	0,00000E+00	0,00000E+00	1,52114E-03	2,67738E-03	4,61042E-04	4,46030E-04	1,82607E-03	9,11577E-04
115	0,00000E+00	0,00000E+00	0,00000E+00	7,19891E-05	0,00000E+00	5,60643E-04	3,04229E-03	2,11959E-03	0,00000E+00	4,46030E-04	1,14129E-03	6,07718E-04
120	4,06504E-03	2,02840E-03	1,40449E-03	7,19891E-05	1,95542E-04	1,86881E-04	6,08458E-04	2,45426E-03	4,61042E-04	0,00000E+00	4,56517E-04	2,02573E-04
125	0,00000E+00	4,05680E-03	7,02247E-04	7,19891E-05	1,95542E-04	1,86881E-04	1,21692E-03	1,56180E-03	0,00000E+00	0,00000E+00	6,84775E-04	6,07718E-04
130	0,00000E+00	2,02840E-03	0,00000E+00	7,19891E-05	0,00000E+00	0,00000E+00	9,12686E-04	1,89648E-03	4,61042E-04	0,00000E+00	2,28258E-04	1,01286E-03
135	2,71003E-03	0,00000E+00	7,02247E-04	7,19891E-05	0,00000E+00	1,86881E-04	3,04229E-04	1,11557E-03	4,61042E-04	0,00000E+00	2,28258E-04	5,06432E-04
140	4,06504E-03	2,02840E-03	1,40449E-03	2,87956E-04	0,00000E+00	0,00000E+00	0,00000E+00	7,80901E-04	4,61042E-04	0,00000E+00	2,28258E-04	3,03859E-04
145	0,00000E+00	0,00000E+00	1,40449E-03	7,19891E-05	0,00000E+00	0,00000E+00	0,00000E+00	1,11557E-03	4,61042E-04	4,46030E-04	4,56517E-04	7,09004E-04
150	0,00000E+00	0,00000E+00	0,00000E+00	0,00000E+00	0,00000E+00	0,00000E+00	0,00000E+00	8,92459E-04	9,22084E-04	4,46030E-04	0,00000E+00	6,07718E-04
155	2,71003E-03	0,00000E+00	0,00000E+00	7,19891E-05	0,00000E+00	0,00000E+00	0,00000E+00	5,57787E-04	4,61042E-04	8,92061E-04	2,28258E-04	7,09004E-04
160	0,00000E+00	0,00000E+00	0,00000E+00	0,00000E+00	1,95542E-04	0,00000E+00	3,04229E-04	4,46229E-04	0,00000E+00	4,46030E-04	0,00000E+00	1,21544E-03
165	0,00000E+00	0,00000E+00	2,10674E-03	2,87956E-04	0,00000E+00	0,00000E+00	0,00000E+00	6,69344E-04	0,00000E+00	0,00000E+00	4,56517E-04	8,10291E-04
170	0,00000E+00	0,00000E+00	0,00000E+00	0,00000E+00	1,95542E-04	0,00000E+00	3,04229E-04	5,57787E-04	0,00000E+00	4,46030E-04	0,00000E+00	1,41801E-03
175	0,00000E+00	0,00000E+00	7,02247E-04	1,43978E-04	1,95542E-04	1,86881E-04	0,00000E+00	6,69344E-04	0,00000E+00	0,00000E+00	0,00000E+00	1,01286E-03
180	0,00000E+00	0,00000E+00	0,00000E+00	0,00000E+00	1,95542E-04	3,73762E-04	0,00000E+00	2,23115E-04	0,00000E+00	0,00000E+00	0,00000E+00	5,06432E-04

Appendix D
100 year Wind Sea Scatter Diagrams

Wind Sea, Scatter diagram: All directions

Hm0 [m] \ Tp [s]	0.0 - 0.5	0.5 - 1.0	1.0 - 1.5	1.5 - 2.0	2.0 - 2.5	2.5 - 3.0	3.0 - 3.5	3.5 - 4.0	4.0 - 4.5	4.5 - 5.0	5.0 - 5.5	5.5 - 6.0	6.0 - 6.5	6.5 - 7.0	Sum
0.0 - 0.1	1,83E-03	3,12E-01	3,44E+00	2,70E+00	3,33E-01	7,19E-03	1,14E-04								6,79
0.1 - 0.2		6,96E-03	2,15E+00	1,24E+01	6,31E+00	5,07E-01	1,22E-02	1,14E-04							21,39
0.2 - 0.3			1,05E-01	5,47E+00	1,35E+01	3,80E+00	1,64E-01	3,54E-03							23,08
0.3 - 0.4			1,71E-03	7,70E-01	8,06E+00	7,85E+00	8,42E-01	2,36E-02	3,42E-04						17,54
0.4 - 0.5				5,42E-02	2,41E+00	6,96E+00	2,19E+00	9,67E-02	1,71E-03						11,72
0.5 - 0.6				2,40E-03	4,53E-01	3,61E+00	3,10E+00	2,85E-01	6,39E-03						7,46
0.6 - 0.7				2,28E-04	5,66E-02	1,28E+00	2,68E+00	5,86E-01	2,01E-02	2,28E-04					4,63
0.7 - 0.8					5,14E-03	3,42E-01	1,62E+00	8,30E-01	5,24E-02	7,99E-04					2,85
0.8 - 0.9					6,85E-04	7,29E-02	7,34E-01	8,29E-01	1,06E-01	2,63E-03					1,74
0.9 - 1.0					1,14E-04	1,30E-02	2,68E-01	6,18E-01	1,64E-01	6,96E-03	1,14E-04				1,07
1.0 - 1.1						2,28E-03	8,44E-02	3,65E-01	1,93E-01	1,48E-02	3,42E-04				0,66
1.1 - 1.2						3,42E-04	2,40E-02	1,78E-01	1,79E-01	2,51E-02	6,85E-04				0,41
1.2 - 1.3						1,14E-04	6,28E-03	7,60E-02	1,34E-01	3,45E-02	1,60E-03				0,25
1.3 - 1.4							1,71E-03	2,93E-02	8,49E-02	3,84E-02	3,20E-03				0,16
1.4 - 1.5							3,42E-04	1,05E-02	4,67E-02	3,54E-02	5,02E-03	1,14E-04			0,10
1.5 - 1.6							1,14E-04	3,77E-03	2,31E-02	2,77E-02	6,28E-03	3,42E-04			0,06
1.6 - 1.7								1,37E-03	1,05E-02	1,91E-02	6,96E-03	5,71E-04			0,04
1.7 - 1.8								2,28E-04	4,45E-03	1,18E-02	6,39E-03	7,99E-04			0,02
1.8 - 1.9								1,14E-04	1,83E-03	6,62E-03	5,37E-03	1,14E-03			0,02
1.9 - 2.0									6,85E-04	3,31E-03	4,00E-03	1,14E-03	1,14E-04		0,01
2.0 - 2.1									1,14E-04	1,71E-03	2,74E-03	1,26E-03	1,14E-04		0,01
2.1 - 2.2										7,99E-04	1,71E-03	1,03E-03	1,14E-04		0,00
2.2 - 2.3										3,42E-04	9,13E-04	6,85E-04	2,28E-04		0,00
2.3 - 2.4										1,14E-04	3,42E-04	4,57E-04	1,14E-04		0,00
2.4 - 2.5											1,14E-04	3,42E-04	1,14E-04		0,00
2.5 - 2.6												1,14E-04	1,14E-04		0,00
2.6 - 2.7												1,14E-04	1,14E-04		0,00
2.7 - 2.8															0,00
2.8 - 2.9															0,00
2.9 - 3.0															0,00
Sum	0,00	0,32	5,69	21,40	31,17	24,44	11,73	3,94	1,03	0,23	0,05	0,01	0,00	0,00	100,00

Wind Sea, Scatter diagram: Sector 1: 345° - 15°

Hm0 [m] \ Tp [s]	0.0 - 0.5	0.5 - 1.0	1.0 - 1.5	1.5 - 2.0	2.0 - 2.5	2.5 - 3.0	3.0 - 3.5	3.5 - 4.0	4.0 - 4.5	4.5 - 5.0	5.0 - 5.5	5.5 - 6.0	6.0 - 6.5	6.5 - 7.0	Sum
0.0 - 0.1		3,42E-03	7,96E-02	1,18E-01	1,93E-02	1,37E-03	1,14E-04								2,22E-01
0.1 - 0.2			1,45E-02	1,69E-01	1,20E-01	1,74E-02	1,26E-03								3,23E-01
0.2 - 0.3			4,57E-04	3,52E-02	1,17E-01	4,35E-02	4,79E-03	2,28E-04							2,01E-01
0.3 - 0.4				3,88E-03	4,82E-02	5,06E-02	9,47E-03	6,85E-04							1,13E-01
0.4 - 0.5				2,28E-04	1,21E-02	3,52E-02	1,29E-02	1,14E-03							6,15E-02
0.5 - 0.6					1,94E-03	1,66E-02	1,31E-02	1,83E-03	1,14E-04						3,36E-02
0.6 - 0.7					2,28E-04	5,48E-03	9,93E-03	2,40E-03	1,14E-04						1,82E-02
0.7 - 0.8						1,37E-03	5,82E-03	2,63E-03	2,28E-04						1,00E-02
0.8 - 0.9						2,28E-04	2,63E-03	2,40E-03	3,42E-04						5,59E-03
0.9 - 1.0							9,13E-04	1,71E-03	3,42E-04						2,97E-03
1.0 - 1.1							2,28E-04	1,03E-03	4,57E-04						1,71E-03
1.1 - 1.2							1,14E-04	4,57E-04	3,42E-04						9,13E-04
1.2 - 1.3								2,28E-04	3,42E-04						5,71E-04
1.3 - 1.4								1,14E-04	2,28E-04	1,14E-04					4,57E-04
1.4 - 1.5									1,14E-04						1,14E-04
1.5 - 1.6															0,00E+00
1.6 - 1.7															0,00E+00
1.7 - 1.8															0,00E+00
1.8 - 1.9															0,00E+00
1.9 - 2.0															0,00E+00
2.0 - 2.1															0,00E+00
2.1 - 2.2															0,00E+00
2.2 - 2.3															0,00E+00
2.3 - 2.4															0,00E+00
2.4 - 2.5															0,00E+00
2.5 - 2.6															0,00E+00
2.6 - 2.7															0,00E+00
2.7 - 2.8															0,00E+00
2.8 - 2.9															0,00E+00
2.9 - 3.0															0,00E+00
Sum	0,00E+00	3,42E-03	9,45E-02	3,27E-01	3,19E-01	1,72E-01	6,13E-02	1,48E-02	2,63E-03	1,14E-04	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,9938

Wind Sea, Scatter diagram: Sector 2: 15° - 45°

Hm0 [m] \ Tp [s]	0.0 - 0.5	0.5 - 1.0	1.0 - 1.5	1.5 - 2.0	2.0 - 2.5	2.5 - 3.0	3.0 - 3.5	3.5 - 4.0	4.0 - 4.5	4.5 - 5.0	5.0 - 5.5	5.5 - 6.0	6.0 - 6.5	6.5 - 7.0	Sum
0.0 - 0.1		1,34E-02	1,79E-01	1,10E-01	1,13E-02	5,71E-04									3,14E-01
0.1 - 0.2		1,14E-04	3,17E-02	1,35E-01	5,21E-02	5,59E-03	3,42E-04								2,25E-01
0.2 - 0.3			1,26E-03	3,08E-02	4,49E-02	1,04E-02	7,99E-04								8,81E-02
0.3 - 0.4				3,77E-03	1,86E-02	1,00E-02	1,26E-03								3,37E-02
0.4 - 0.5				2,28E-04	4,91E-03	6,51E-03	1,37E-03								1,30E-02
0.5 - 0.6					7,99E-04	2,97E-03	1,26E-03	1,14E-04							5,14E-03
0.6 - 0.7					1,14E-04	1,03E-03	7,99E-04	1,14E-04							2,05E-03
0.7 - 0.8						2,28E-04	4,57E-04	1,14E-04							7,99E-04
0.8 - 0.9							2,28E-04								2,28E-04
0.9 - 1.0															0,00E+00
1.0 - 1.1															0,00E+00
1.1 - 1.2															0,00E+00
1.2 - 1.3															0,00E+00
1.3 - 1.4															0,00E+00
1.4 - 1.5															0,00E+00
1.5 - 1.6															0,00E+00
1.6 - 1.7															0,00E+00
1.7 - 1.8															0,00E+00
1.8 - 1.9															0,00E+00
1.9 - 2.0															0,00E+00
2.0 - 2.1															0,00E+00
2.1 - 2.2															0,00E+00
2.2 - 2.3															0,00E+00
2.3 - 2.4															0,00E+00
2.4 - 2.5															0,00E+00
2.5 - 2.6															0,00E+00
2.6 - 2.7															0,00E+00
2.7 - 2.8															0,00E+00
2.8 - 2.9															0,00E+00
2.9 - 3.0															0,00E+00
Sum	0,00E+00	1,35E-02	2,12E-01	2,80E-01	1,33E-01	3,73E-02	6,51E-03	3,42E-04	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,6818

Wind Sea, Scatter diagram: Sector 3: 45° - 75°

Hm0 [m] \ Tp [s]	0.0 - 0.5	0.5 - 1.0	1.0 - 1.5	1.5 - 2.0	2.0 - 2.5	2.5 - 3.0	3.0 - 3.5	3.5 - 4.0	4.0 - 4.5	4.5 - 5.0	5.0 - 5.5	5.5 - 6.0	6.0 - 6.5	6.5 - 7.0	Sum
0.0 - 0.1		3,06E-02	2,90E-01	1,70E-01	1,03E-02	2,28E-04									5,01E-01
0.1 - 0.2		1,14E-04	8,13E-02	5,90E-01	2,40E-01	1,96E-02	6,85E-04								9,32E-01
0.2 - 0.3			1,37E-03	1,18E-01	3,48E-01	9,99E-02	7,42E-03	2,28E-04							5,75E-01
0.3 - 0.4				7,65E-03	1,25E-01	1,38E-01	2,31E-02	1,26E-03							2,96E-01
0.4 - 0.5				2,28E-04	2,08E-02	8,30E-02	3,53E-02	3,08E-03	1,14E-04						1,42E-01
0.5 - 0.6					1,83E-03	2,77E-02	3,14E-02	5,37E-03	2,28E-04						6,66E-02
0.6 - 0.7					1,14E-04	5,71E-03	1,78E-02	6,39E-03	4,57E-04						3,05E-02
0.7 - 0.8						7,99E-04	6,96E-03	5,48E-03	6,85E-04						1,39E-02
0.8 - 0.9						1,14E-04	1,94E-03	3,42E-03	7,99E-04						6,28E-03
0.9 - 1.0							3,42E-04	1,60E-03	7,99E-04						2,74E-03
1.0 - 1.1								5,71E-04	5,71E-04	1,14E-04					1,26E-03
1.1 - 1.2								1,14E-04	3,42E-04	1,14E-04					5,71E-04
1.2 - 1.3									1,14E-04						1,14E-04
1.3 - 1.4															0,00E+00
1.4 - 1.5															0,00E+00
1.5 - 1.6															0,00E+00
1.6 - 1.7															0,00E+00
1.7 - 1.8															0,00E+00
1.8 - 1.9															0,00E+00
1.9 - 2.0															0,00E+00
2.0 - 2.1															0,00E+00
2.1 - 2.2															0,00E+00
2.2 - 2.3															0,00E+00
2.3 - 2.4															0,00E+00
2.4 - 2.5															0,00E+00
2.5 - 2.6															0,00E+00
2.6 - 2.7															0,00E+00
2.7 - 2.8															0,00E+00
2.8 - 2.9															0,00E+00
2.9 - 3.0															0,00E+00
Sum	0,00E+00	3,07E-02	3,73E-01	8,87E-01	7,46E-01	3,76E-01	1,25E-01	2,75E-02	4,11E-03	2,28E-04	0,00E+00	0,00E+00	0,00E+00	0,00E+00	2,5685

Wind Sea, Scatter diagram: Sector 4: 75° - 105°

Hm0 [m] \ Tp [s]	0.0 - 0.5	0.5 - 1.0	1.0 - 1.5	1.5 - 2.0	2.0 - 2.5	2.5 - 3.0	3.0 - 3.5	3.5 - 4.0	4.0 - 4.5	4.5 - 5.0	5.0 - 5.5	5.5 - 6.0	6.0 - 6.5	6.5 - 7.0	Sum
0.0 - 0.1		1,87E-02	7,92E-01	6,83E-01	4,87E-02	1,26E-03									1,54E+00
0.1 - 0.2		4,57E-04	4,69E-01	3,94E+00	1,69E+00	1,23E-01	4,22E-03								6,23E+00
0.2 - 0.3			1,15E-02	1,18E+00	3,71E+00	8,82E-01	5,53E-02	1,71E-03							5,85E+00
0.3 - 0.4			1,14E-04	1,02E-01	1,84E+00	1,85E+00	2,45E-01	1,07E-02	2,28E-04						4,05E+00
0.4 - 0.5				4,11E-03	4,17E-01	1,62E+00	5,64E-01	3,94E-02	1,03E-03						2,65E+00
0.5 - 0.6				1,14E-04	5,26E-02	7,77E-01	7,65E-01	1,01E-01	3,65E-03						1,70E+00
0.6 - 0.7					3,77E-03	2,32E-01	6,52E-01	1,85E-01	1,02E-02	2,28E-04					1,08E+00
0.7 - 0.8					2,28E-04	4,59E-02	3,76E-01	2,46E-01	2,34E-02	5,71E-04					6,92E-01
0.8 - 0.9					1,14E-04	6,28E-03	1,55E-01	2,38E-01	4,32E-02	1,60E-03					4,44E-01
0.9 - 1.0						5,71E-04	4,75E-02	1,71E-01	6,26E-02	3,88E-03	1,14E-04				2,86E-01
1.0 - 1.1						1,14E-04	1,12E-02	9,54E-02	7,08E-02	7,65E-03	2,28E-04				1,85E-01
1.1 - 1.2							2,05E-03	4,25E-02	6,34E-02	1,23E-02	4,57E-04				1,21E-01
1.2 - 1.3							3,42E-04	1,55E-02	4,58E-02	1,63E-02	1,03E-03				7,90E-02
1.3 - 1.4							1,14E-04	4,79E-03	2,75E-02	1,76E-02	1,94E-03				5,19E-02
1.4 - 1.5								1,26E-03	1,40E-02	1,59E-02	2,97E-03	1,14E-04			3,42E-02
1.5 - 1.6								3,42E-04	6,28E-03	1,21E-02	3,65E-03	2,28E-04			2,26E-02
1.6 - 1.7								1,14E-04	2,51E-03	7,99E-03	4,00E-03	4,57E-04			1,51E-02
1.7 - 1.8									9,13E-04	4,68E-03	3,65E-03	5,71E-04			9,82E-03
1.8 - 1.9									3,42E-04	2,51E-03	2,97E-03	7,99E-04			6,62E-03
1.9 - 2.0									1,14E-04	1,14E-03	2,17E-03	7,99E-04	1,14E-04		4,34E-03
2.0 - 2.1										5,71E-04	1,48E-03	7,99E-04	1,14E-04		2,97E-03
2.1 - 2.2										2,28E-04	9,13E-04	6,85E-04	1,14E-04		1,94E-03
2.2 - 2.3										1,14E-04	4,57E-04	5,71E-04	1,14E-04		1,26E-03
2.3 - 2.4											2,28E-04	3,42E-04	1,14E-04		6,85E-04
2.4 - 2.5											1,14E-04	2,28E-04	1,14E-04		4,57E-04
2.5 - 2.6												1,14E-04	1,14E-04		2,28E-04
2.6 - 2.7												1,14E-04	1,14E-04		2,28E-04
2.7 - 2.8															0,00E+00
2.8 - 2.9															0,00E+00
2.9 - 3.0															0,00E+00
Sum	0,00E+00	1,92E-02	1,27E+00	5,91E+00	7,77E+00	5,54E+00	2,88E+00	1,15E+00	3,76E-01	1,05E-01	2,64E-02	5,82E-03	9,13E-04	0,00E+00	25,0578

Wind Sea, Scatter diagram: Sector 5: 105° - 135°

Hm0 [m] \ Tp [s]	0.0 - 0.5	0.5 - 1.0	1.0 - 1.5	1.5 - 2.0	2.0 - 2.5	2.5 - 3.0	3.0 - 3.5	3.5 - 4.0	4.0 - 4.5	4.5 - 5.0	5.5 - 6.0	6.0 - 6.5	6.5 - 7.0	Sum
0.0 - 0.1	6,85E-04	1,17E-01	4,83E-01	1,08E-01	3,42E-03									7,12E-01
0.1 - 0.2		2,63E-03	5,17E-01	1,59E+00	3,05E-01	1,47E-02	3,42E-04							2,43E+00
0.2 - 0.3			2,28E-02	9,47E-01	1,31E+00	1,83E-01	8,56E-03	2,28E-04						2,47E+00
0.3 - 0.4			2,28E-04	1,07E-01	9,41E-01	5,33E-01	5,06E-02	1,83E-03						1,63E+00
0.4 - 0.5				4,91E-03	2,47E-01	5,57E-01	1,33E-01	7,53E-03	1,14E-04					9,49E-01
0.5 - 0.6				1,14E-04	3,21E-02	2,76E-01	1,86E-01	1,95E-02	5,71E-04					5,14E-01
0.6 - 0.7					2,28E-03	7,80E-02	1,50E-01	3,36E-02	1,60E-03					2,65E-01
0.7 - 0.8					1,14E-04	1,36E-02	7,60E-02	3,92E-02	3,31E-03	1,14E-04				1,32E-01
0.8 - 0.9						1,48E-03	2,60E-02	3,14E-02	5,02E-03	1,14E-04				6,40E-02
0.9 - 1.0						1,14E-04	6,28E-03	1,79E-02	5,71E-03	3,42E-04				3,04E-02
1.0 - 1.1							1,14E-03	7,53E-03	4,91E-03	4,57E-04				1,40E-02
1.1 - 1.2							1,14E-04	2,51E-03	3,20E-03	5,71E-04				6,39E-03
1.2 - 1.3								6,85E-04	1,71E-03	5,71E-04				2,97E-03
1.3 - 1.4								1,14E-04	6,85E-04	4,57E-04	1,14E-04			1,37E-03
1.4 - 1.5									2,28E-04	2,28E-04				4,57E-04
1.5 - 1.6									1,14E-04	1,14E-04				2,28E-04
1.6 - 1.7														0,00E+00
1.7 - 1.8														0,00E+00
1.8 - 1.9														0,00E+00
1.9 - 2.0														0,00E+00
2.0 - 2.1														0,00E+00
2.1 - 2.2														0,00E+00
2.2 - 2.3														0,00E+00
2.3 - 2.4														0,00E+00
2.4 - 2.5														0,00E+00
2.5 - 2.6														0,00E+00
2.6 - 2.7														0,00E+00
2.7 - 2.8														0,00E+00
2.8 - 2.9														0,00E+00
2.9 - 3.0														0,00E+00
Sum	6,85E-04	1,19E-01	1,02E+00	2,76E+00	2,84E+00	1,66E+00	6,38E-01	1,62E-01	2,72E-02	2,97E-03	1,14E-04	0,00E+00	0,00E+00	0,00E+00	9,2226

Wind Sea, Scatter diagram: Sector 6: 135° - 165°

Hm0 [m] \ Tp [s]	0.0 - 0.5	0.5 - 1.0	1.0 - 1.5	1.5 - 2.0	2.0 - 2.5	2.5 - 3.0	3.0 - 3.5	3.5 - 4.0	4.0 - 4.5	4.5 - 5.0	5.5 - 6.0	6.0 - 6.5	6.5 - 7.0	Sum
0.0 - 0.1	5,71E-04	3,88E-02	1,67E-01	4,28E-02	1,83E-03									2,51E-01
0.1 - 0.2		1,60E-03	2,52E-01	6,71E-01	1,25E-01	5,82E-03	1,14E-04							1,05E+00
0.2 - 0.3			2,77E-02	7,99E-01	7,95E-01	7,73E-02	2,97E-03							1,70E+00
0.3 - 0.4			6,85E-04	1,77E-01	1,00E+00	3,07E-01	1,92E-02	5,71E-04						1,51E+00
0.4 - 0.5				1,58E-02	4,23E-01	4,93E-01	6,14E-02	2,17E-03						9,95E-01
0.5 - 0.6				6,85E-04	8,96E-02	3,65E-01	1,14E-01	6,28E-03	1,14E-04					5,76E-01
0.6 - 0.7					1,06E-02	1,52E-01	1,27E-01	1,29E-02	3,42E-04					3,03E-01
0.7 - 0.8					6,85E-04	3,96E-02	8,80E-02	1,86E-02	6,85E-04					1,48E-01
0.8 - 0.9						6,74E-03	4,05E-02	1,88E-02	1,26E-03					6,74E-02
0.9 - 1.0						7,99E-04	1,29E-02	1,35E-02	1,60E-03					2,88E-02
1.0 - 1.1						1,14E-04	2,97E-03	6,96E-03	1,60E-03	1,14E-04				1,18E-02
1.1 - 1.2							5,71E-04	2,63E-03	1,26E-03	1,14E-04				4,57E-03
1.2 - 1.3								7,99E-04	6,85E-04	1,14E-04				1,60E-03
1.3 - 1.4								1,14E-04	3,42E-04					4,57E-04
1.4 - 1.5									1,14E-04					1,14E-04
1.5 - 1.6														0,00E+00
1.6 - 1.7														0,00E+00
1.7 - 1.8														0,00E+00
1.8 - 1.9														0,00E+00
1.9 - 2.0														0,00E+00
2.0 - 2.1														0,00E+00
2.1 - 2.2														0,00E+00
2.2 - 2.3														0,00E+00
2.3 - 2.4														0,00E+00
2.4 - 2.5														0,00E+00
2.5 - 2.6														0,00E+00
2.6 - 2.7														0,00E+00
2.7 - 2.8														0,00E+00
2.8 - 2.9														0,00E+00
2.9 - 3.0														0,00E+00
Sum	5,71E-04	4,04E-02	4,47E-01	1,71E+00	2,45E+00	1,45E+00	4,70E-01	8,33E-02	7,99E-03	3,42E-04	0,00E+00	0,00E+00	0,00E+00	0,00E+00	6,6505

Wind Sea, Scatter diagram: Sector 7: 165° - 195°

Hm0 [m] \ Tp [s]	0.0 - 0.5	0.5 - 1.0	1.0 - 1.5	1.5 - 2.0	2.0 - 2.5	2.5 - 3.0	3.0 - 3.5	3.5 - 4.0	4.0 - 4.5	4.5 - 5.0	5.0 - 5.5	5.5 - 6.0	6.0 - 6.5	6.5 - 7.0	Sum
0.0 - 0.1		2,63E-03	7,90E-02	7,82E-02	8,90E-03	3,42E-04									1,69E-01
0.1 - 0.2		1,14E-04	6,93E-02	5,01E-01	2,30E-01	2,00E-02	9,13E-04	1,14E-04							8,22E-01
0.2 - 0.3			5,02E-03	3,15E-01	7,49E-01	1,33E-01	8,11E-03	2,28E-04							1,21E+00
0.3 - 0.4			1,14E-04	5,47E-02	5,92E-01	3,41E-01	3,20E-02	1,26E-03							1,02E+00
0.4 - 0.5				4,57E-03	2,08E-01	4,08E-01	7,59E-02	3,77E-03	1,14E-04						7,00E-01
0.5 - 0.6				2,28E-04	4,38E-02	2,71E-01	1,20E-01	8,68E-03	2,28E-04						4,44E-01
0.6 - 0.7					5,82E-03	1,17E-01	1,29E-01	1,62E-02	4,57E-04						2,68E-01
0.7 - 0.8					4,57E-04	3,50E-02	9,67E-02	2,37E-02	1,03E-03						1,57E-01
0.8 - 0.9					1,14E-04	7,53E-03	5,31E-02	2,72E-02	1,83E-03	1,14E-04					8,98E-02
0.9 - 1.0						1,14E-03	2,20E-02	2,40E-02	2,85E-03	1,14E-04					5,01E-02
1.0 - 1.1						1,14E-04	7,19E-03	1,66E-02	3,65E-03	1,14E-04					2,76E-02
1.1 - 1.2							1,83E-03	9,02E-03	3,88E-03	2,28E-04					1,50E-02
1.2 - 1.3							3,42E-04	4,00E-03	3,20E-03	3,42E-04					7,88E-03
1.3 - 1.4							1,14E-04	1,48E-03	2,17E-03	3,42E-04					4,11E-03
1.4 - 1.5								4,57E-04	1,26E-03	3,42E-04					2,05E-03
1.5 - 1.6								1,14E-04	5,71E-04	3,42E-04					1,03E-03
1.6 - 1.7								1,14E-04	2,28E-04	2,28E-04	1,14E-04				6,85E-04
1.7 - 1.8									1,14E-04	1,14E-04					2,28E-04
1.8 - 1.9										1,14E-04					1,14E-04
1.9 - 2.0															0,00E+00
2.0 - 2.1															0,00E+00
2.1 - 2.2															0,00E+00
2.2 - 2.3															0,00E+00
2.3 - 2.4															0,00E+00
2.4 - 2.5															0,00E+00
2.5 - 2.6															0,00E+00
2.6 - 2.7															0,00E+00
2.7 - 2.8															0,00E+00
2.8 - 2.9															0,00E+00
2.9 - 3.0															0,00E+00
Sum	0,00E+00	2,74E-03	1,53E-01	9,54E-01	1,84E+00	1,33E+00	5,47E-01	1,37E-01	2,16E-02	2,40E-03	1,14E-04	0,00E+00	0,00E+00	0,00E+00	4,9892

Wind Sea, Scatter diagram: Sector 8: 195° - 225°

Hm0 [m] \ Tp [s]	0.0 - 0.5	0.5 - 1.0	1.0 - 1.5	1.5 - 2.0	2.0 - 2.5	2.5 - 3.0	3.0 - 3.5	3.5 - 4.0	4.0 - 4.5	4.5 - 5.0	5.0 - 5.5	5.5 - 6.0	6.0 - 6.5	6.5 - 7.0	Sum
0.0 - 0.1		1,03E-03	1,68E-01	3,56E-01	4,89E-02	1,48E-03									5,75E-01
0.1 - 0.2			8,44E-02	1,61E+00	1,28E+00	1,03E-01	2,97E-03								3,08E+00
0.2 - 0.3			2,28E-03	5,78E-01	3,02E+00	7,20E-01	3,55E-02	7,99E-04							4,36E+00
0.3 - 0.4				5,67E-02	1,57E+00	1,58E+00	1,53E-01	4,45E-03	1,14E-04						3,36E+00
0.4 - 0.5				2,40E-03	3,67E-01	1,40E+00	3,50E-01	1,53E-02	2,28E-04						2,13E+00
0.5 - 0.6				1,14E-04	5,07E-02	6,81E-01	4,73E-01	3,71E-02	6,85E-04						1,24E+00
0.6 - 0.7					4,22E-03	2,14E-01	4,01E-01	6,48E-02	1,83E-03						6,85E-01
0.7 - 0.8					2,28E-04	4,60E-02	2,31E-01	8,24E-02	3,88E-03						3,63E-01
0.8 - 0.9						7,08E-03	9,66E-02	7,64E-02	6,62E-03	1,14E-04					1,87E-01
0.9 - 1.0						7,99E-04	3,05E-02	5,29E-02	8,79E-03	2,28E-04					9,32E-02
1.0 - 1.1						1,14E-04	7,53E-03	2,82E-02	9,13E-03	4,57E-04					4,54E-02
1.1 - 1.2							1,48E-03	1,20E-02	7,53E-03	5,71E-04					2,16E-02
1.2 - 1.3							2,28E-04	4,11E-03	4,91E-03	6,85E-04					9,93E-03
1.3 - 1.4								1,26E-03	2,63E-03	6,85E-04					4,57E-03
1.4 - 1.5								3,42E-04	1,14E-03	5,71E-04	1,14E-04				2,17E-03
1.5 - 1.6								1,14E-04	4,57E-04	3,42E-04					9,13E-04
1.6 - 1.7									1,14E-04	2,28E-04					3,42E-04
1.7 - 1.8										1,14E-04					1,14E-04
1.8 - 1.9															0,00E+00
1.9 - 2.0															0,00E+00
2.0 - 2.1															0,00E+00
2.1 - 2.2															0,00E+00
2.2 - 2.3															0,00E+00
2.3 - 2.4															0,00E+00
2.4 - 2.5															0,00E+00
2.5 - 2.6															0,00E+00
2.6 - 2.7															0,00E+00
2.7 - 2.8															0,00E+00
2.8 - 2.9															0,00E+00
2.9 - 3.0															0,00E+00
Sum	0,00E+00	1,03E-03	2,54E-01	2,61E+00	6,34E+00	4,75E+00	1,78E+00	3,80E-01	4,81E-02	4,00E-03	1,14E-04	0,00E+00	0,00E+00	0,00E+00	16,1688

Wind Sea, Scatter diagram: Sector 9: 225° - 255°

Hm0 [m] \ Tp [s]	0.0 - 0.5	0.5 - 1.0	1.0 - 1.5	1.5 - 2.0	2.0 - 2.5	2.5 - 3.0	3.0 - 3.5	3.5 - 4.0	4.0 - 4.5	4.5 - 5.0	5.0 - 5.5	5.5 - 6.0	6.0 - 6.5	6.5 - 7.0	Sum
0.0 - 0.1	5,71E-04	5,14E-02	1,29E-01	9,70E-03	1,14E-04										1,90E-01
0.1 - 0.2		1,83E-03	2,63E-01	3,86E-01	2,47E-02	3,42E-04									6,76E-01
0.2 - 0.3			2,29E-02	5,70E-01	2,72E-01	1,08E-02	1,14E-04								8,76E-01
0.3 - 0.4			4,57E-04	1,37E-01	5,04E-01	7,51E-02	1,83E-03								7,19E-01
0.4 - 0.5				1,27E-02	2,95E-01	1,94E-01	1,03E-02	1,14E-04							5,13E-01
0.5 - 0.6				5,71E-04	8,48E-02	2,25E-01	3,29E-02	6,85E-04							3,44E-01
0.6 - 0.7				1,14E-04	1,39E-02	1,45E-01	6,27E-02	2,51E-03							2,24E-01
0.7 - 0.8					1,48E-03	5,97E-02	7,44E-02	6,62E-03	1,14E-04						1,42E-01
0.8 - 0.9					1,14E-04	1,70E-02	5,91E-02	1,23E-02	3,42E-04						8,89E-02
0.9 - 1.0						3,54E-03	3,39E-02	1,67E-02	7,99E-04						5,49E-02
1.0 - 1.1						5,71E-04	1,48E-02	1,66E-02	1,60E-03						3,36E-02
1.1 - 1.2						1,14E-04	5,25E-03	1,26E-02	2,40E-03						2,03E-02
1.2 - 1.3							1,48E-03	7,65E-03	2,85E-03	1,14E-04					1,21E-02
1.3 - 1.4							3,42E-04	3,88E-03	2,74E-03	2,28E-04					7,19E-03
1.4 - 1.5							1,14E-04	1,71E-03	2,17E-03	3,42E-04					4,34E-03
1.5 - 1.6								6,85E-04	1,48E-03	3,42E-04					2,51E-03
1.6 - 1.7								2,28E-04	9,13E-04	3,42E-04					1,48E-03
1.7 - 1.8									4,57E-04	3,42E-04					7,99E-04
1.8 - 1.9									2,28E-04	2,28E-04	1,14E-04				5,71E-04
1.9 - 2.0									1,14E-04	1,14E-04					2,28E-04
2.0 - 2.1										1,14E-04					1,14E-04
2.1 - 2.2															0,00E+00
2.2 - 2.3															0,00E+00
2.3 - 2.4															0,00E+00
2.4 - 2.5															0,00E+00
2.5 - 2.6															0,00E+00
2.6 - 2.7															0,00E+00
2.7 - 2.8															0,00E+00
2.8 - 2.9															0,00E+00
2.9 - 3.0															0,00E+00
Sum	5,71E-04	5,32E-02	4,15E-01	1,12E+00	1,20E+00	7,32E-01	2,97E-01	8,22E-02	1,62E-02	2,17E-03	1,14E-04	0,00E+00	0,00E+00	0,00E+00	3,9123

Wind Sea, Scatter diagram: Sector 10: 255° - 285°

Hm0 [m] \ Tp [s]	0.0 - 0.5	0.5 - 1.0	1.0 - 1.5	1.5 - 2.0	2.0 - 2.5	2.5 - 3.0	3.0 - 3.5	3.5 - 4.0	4.0 - 4.5	4.5 - 5.0	5.0 - 5.5	5.5 - 6.0	6.0 - 6.5	6.5 - 7.0	Sum
0.0 - 0.1		2,36E-02	2,91E-01	7,21E-02	9,13E-04										3,88E-01
0.1 - 0.2		1,14E-04	1,95E-01	7,12E-01	6,61E-02	7,99E-04									9,74E-01
0.2 - 0.3			8,11E-03	4,83E-01	3,57E-01	1,42E-02	1,14E-04								8,63E-01
0.3 - 0.4			1,14E-04	9,18E-02	4,47E-01	7,05E-02	1,14E-03								6,11E-01
0.4 - 0.5				8,11E-03	2,41E-01	1,55E-01	6,16E-03								4,11E-01
0.5 - 0.6				4,57E-04	7,39E-02	1,78E-01	1,95E-02	2,28E-04							2,72E-01
0.6 - 0.7				1,14E-04	1,39E-02	1,25E-01	3,96E-02	9,13E-04							1,79E-01
0.7 - 0.8					1,71E-03	5,95E-02	5,33E-02	2,97E-03							1,17E-01
0.8 - 0.9					2,28E-04	2,05E-02	5,00E-02	6,51E-03	1,14E-04						7,74E-02
0.9 - 1.0					1,14E-04	5,25E-03	3,47E-02	1,07E-02	2,28E-04						5,10E-02
1.0 - 1.1						1,03E-03	1,87E-02	1,32E-02	6,85E-04						3,37E-02
1.1 - 1.2						2,28E-04	8,11E-03	1,26E-02	1,48E-03						2,24E-02
1.2 - 1.3						1,14E-04	2,97E-03	9,70E-03	2,28E-03						1,51E-02
1.3 - 1.4							9,13E-04	6,16E-03	2,74E-03	1,14E-04					9,93E-03
1.4 - 1.5							2,28E-04	3,31E-03	2,85E-03	2,28E-04					6,62E-03
1.5 - 1.6							1,14E-04	1,60E-03	2,40E-03	3,42E-04					4,45E-03
1.6 - 1.7								6,85E-04	1,83E-03	4,57E-04					2,97E-03
1.7 - 1.8								2,28E-04	1,14E-03	5,71E-04					1,94E-03
1.8 - 1.9								1,14E-04	6,85E-04	5,71E-04					1,37E-03
1.9 - 2.0									3,42E-04	4,57E-04	1,14E-04				9,13E-04
2.0 - 2.1									1,14E-04	3,42E-04	1,14E-04				5,71E-04
2.1 - 2.2										2,28E-04	1,14E-04				3,42E-04
2.2 - 2.3										1,14E-04	1,14E-04				2,28E-04
2.3 - 2.4										1,14E-04					1,14E-04
2.4 - 2.5															0,00E+00
2.5 - 2.6															0,00E+00
2.6 - 2.7															0,00E+00
2.7 - 2.8															0,00E+00
2.8 - 2.9															0,00E+00
2.9 - 3.0															0,00E+00
Sum	0,00E+00	2,37E-02	4,94E-01	1,37E+00	1,20E+00	6,30E-01	2,36E-01	6,89E-02	1,69E-02	3,54E-03	4,57E-04	0,00E+00	0,00E+00	0,00E+00	4,0441

Wind Sea, Scatter diagram: Sector 11: 285° - 315°

Hm0 [m] \ Tp [s]	0.0 - 0.5	0.5 - 1.0	1.0 - 1.5	1.5 - 2.0	2.0 - 2.5	2.5 - 3.0	3.0 - 3.5	3.5 - 4.0	4.0 - 4.5	4.5 - 5.0	5.0 - 5.5	5.5 - 6.0	6.0 - 6.5	6.5 - 7.0	Sum
0.0 - 0.1		1,20E-02	7,59E-01	5,45E-01	1,48E-02	1,14E-04									1,33E+00
0.1 - 0.2			1,72E-01	1,79E+00	5,22E-01	1,64E-02	1,14E-04								2,50E+00
0.2 - 0.3			1,71E-03	3,91E-01	1,06E+00	1,53E-01	3,54E-03								1,61E+00
0.3 - 0.4				2,72E-02	5,43E-01	3,72E-01	2,25E-02	2,28E-04							9,65E-01
0.4 - 0.5				9,13E-04	1,30E-01	3,76E-01	6,82E-02	1,71E-03							5,77E-01
0.5 - 0.6				1,14E-04	1,71E-02	2,08E-01	1,16E-01	6,28E-03							3,48E-01
0.6 - 0.7					1,37E-03	7,32E-02	1,22E-01	1,56E-02	2,28E-04						2,12E-01
0.7 - 0.8					1,14E-04	1,75E-02	8,58E-02	2,71E-02	1,03E-03						1,32E-01
0.8 - 0.9					1,14E-04	2,97E-03	4,38E-02	3,34E-02	2,51E-03						8,29E-02
0.9 - 1.0						4,57E-04	1,70E-02	3,04E-02	4,79E-03	1,14E-04					5,27E-02
1.0 - 1.1						1,14E-04	5,14E-03	2,13E-02	7,08E-03	3,42E-04					3,40E-02
1.1 - 1.2							1,26E-03	1,20E-02	8,11E-03	6,85E-04					2,20E-02
1.2 - 1.3							3,42E-04	5,59E-03	7,42E-03	1,14E-03					1,45E-02
1.3 - 1.4							1,14E-04	2,28E-03	5,59E-03	1,60E-03					9,59E-03
1.4 - 1.5								7,99E-04	3,65E-03	1,83E-03	1,14E-04				6,39E-03
1.5 - 1.6								2,28E-04	2,05E-03	1,71E-03	2,28E-04				4,22E-03
1.6 - 1.7								1,14E-04	1,03E-03	1,48E-03	3,42E-04				2,97E-03
1.7 - 1.8									4,57E-04	1,03E-03	3,42E-04				1,83E-03
1.8 - 1.9									1,14E-04	6,85E-04	3,42E-04				1,14E-03
1.9 - 2.0										4,57E-04	3,42E-04				7,99E-04
2.0 - 2.1										2,28E-04	2,28E-04	1,14E-04			5,71E-04
2.1 - 2.2										1,14E-04	2,28E-04	1,14E-04			4,57E-04
2.2 - 2.3											1,14E-04				1,14E-04
2.3 - 2.4															0,00E+00
2.4 - 2.5															0,00E+00
2.5 - 2.6															0,00E+00
2.6 - 2.7															0,00E+00
2.7 - 2.8															0,00E+00
2.8 - 2.9															0,00E+00
2.9 - 3.0															0,00E+00
Sum	0,00E+00	1,20E-02	9,33E-01	2,75E+00	2,29E+00	1,22E+00	4,86E-01	1,57E-01	4,41E-02	1,14E-02	2,28E-03	2,28E-04	0,00E+00	0,00E+00	7,9040

Wind Sea, Scatter diagram: Sector 12: 315° - 345°

Hm0 [m] \ Tp [s]	0.0 - 0.5	0.5 - 1.0	1.0 - 1.5	1.5 - 2.0	2.0 - 2.5	2.5 - 3.0	3.0 - 3.5	3.5 - 4.0	4.0 - 4.5	4.5 - 5.0	5.0 - 5.5	5.5 - 6.0	6.0 - 6.5	6.5 - 7.0	Sum
0.0 - 0.1			2,07E-02	4,05E-01	1,64E-01	1,83E-03									5,92E-01
0.1 - 0.2			1,14E-04	3,09E-01	1,66E+00	1,81E-01	1,26E-03								2,15E+00
0.2 - 0.3				1,91E-02	1,75E+00	1,48E+00	3,65E-02	1,14E-04							3,28E+00
0.3 - 0.4				4,57E-04	4,27E-01	2,52E+00	2,83E-01	2,63E-03							3,23E+00
0.4 - 0.5				1,14E-04	4,94E-02	1,63E+00	8,73E-01	2,25E-02	1,14E-04						2,58E+00
0.5 - 0.6					3,54E-03	5,81E-01	1,23E+00	9,82E-02	7,99E-04						1,91E+00
0.6 - 0.7					2,28E-04	1,35E-01	9,72E-01	2,45E-01	4,91E-03						1,36E+00
0.7 - 0.8					1,14E-04	2,27E-02	5,21E-01	3,75E-01	1,80E-02	1,14E-04					9,38E-01
0.8 - 0.9						2,97E-03	2,05E-01	3,79E-01	4,42E-02	6,85E-04					6,32E-01
0.9 - 1.0						3,42E-04	6,24E-02	2,77E-01	7,51E-02	2,28E-03					4,18E-01
1.0 - 1.1						1,14E-04	1,54E-02	1,57E-01	9,28E-02	5,59E-03	1,14E-04				2,71E-01
1.1 - 1.2							3,20E-03	7,21E-02	8,73E-02	1,05E-02	2,28E-04				1,73E-01
1.2 - 1.3							5,71E-04	2,77E-02	6,52E-02	1,52E-02	5,71E-04				1,09E-01
1.3 - 1.4							1,14E-04	9,13E-03	4,03E-02	1,72E-02	1,14E-03				6,79E-02
1.4 - 1.5								2,63E-03	2,11E-02	1,60E-02	1,83E-03				4,16E-02
1.5 - 1.6								6,85E-04	9,70E-03	1,24E-02	2,40E-03	1,14E-04			2,53E-02
1.6 - 1.7								1,14E-04	3,88E-03	8,33E-03	2,51E-03	1,14E-04			1,50E-02
1.7 - 1.8									1,37E-03	4,91E-03	2,40E-03	2,28E-04			8,90E-03
1.8 - 1.9									4,57E-04	2,51E-03	1,94E-03	3,42E-04			5,25E-03
1.9 - 2.0									1,14E-04	1,14E-03	1,37E-03	3,42E-04			2,97E-03
2.0 - 2.1										4,57E-04	9,13E-04	3,42E-04			1,71E-03
2.1 - 2.2										2,28E-04	4,57E-04	2,28E-04			9,13E-04
2.2 - 2.3										1,14E-04	2,28E-04	1,14E-04	1,14E-04		5,71E-04
2.3 - 2.4											1,14E-04	1,14E-04			2,28E-04
2.4 - 2.5												1,14E-04			1,14E-04
2.5 - 2.6															0,00E+00
2.6 - 2.7															0,00E+00
2.7 - 2.8															0,00E+00
2.8 - 2.9															0,00E+00
2.9 - 3.0															0,00E+00
Sum	0,00E+00	0,00E+00	2,08E-02	7,34E-01	4,05E+00	6,55E+00	4,20E+00	1,67E+00	4,65E-01	9,77E-02	1,62E-02	2,05E-03	1,14E-04	0,00E+00	17,8066