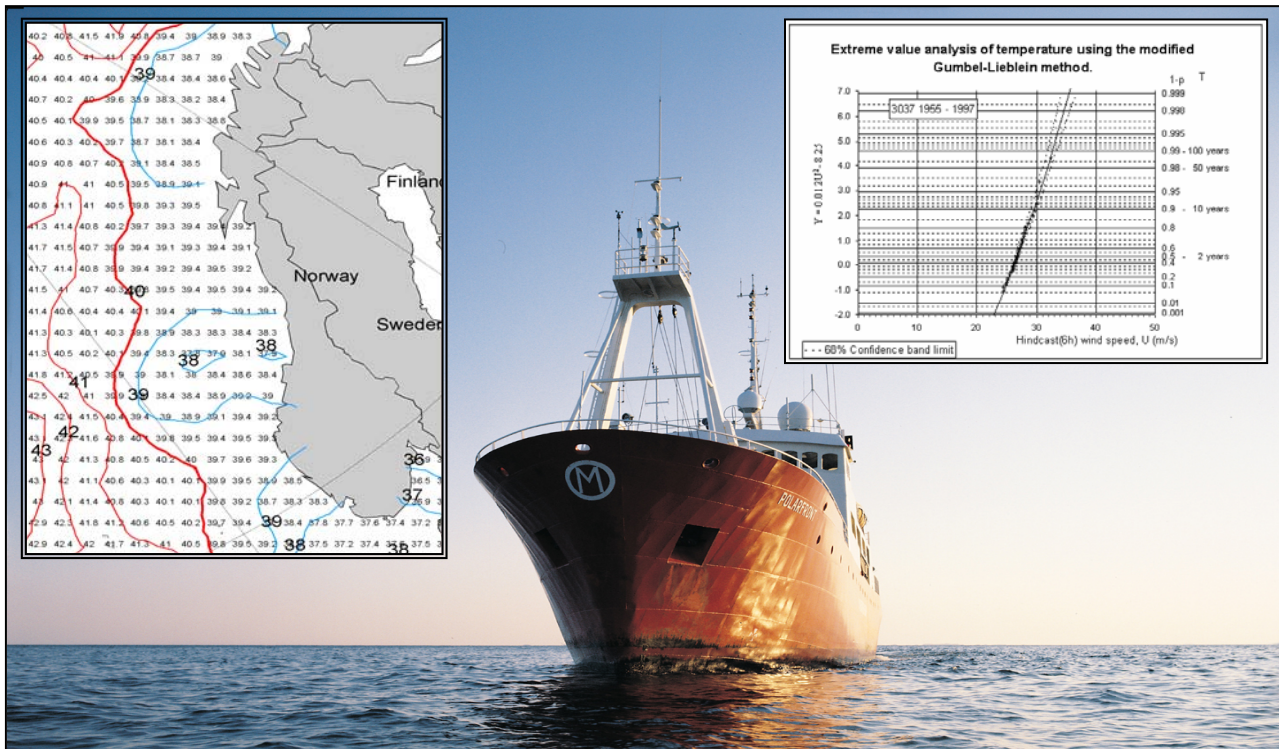




# Extreme value analysis of hindcast wind data from the maritime areas surrounding Norway

**Knut Harstveit**







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<b>Abstract</b> The hindcast data archive is used to produce wind speed at the sea surface outside the Norwegian Coast with 50 year return period. The geographical, seasonal and directional variations are given as maps and as tabled values on 395 points. Also a map showing land and sea values of 50 year standard values is presented, where all values are transferred to an artificial surface of roughness 0.05 m.	
<b>Keywords</b> Hindcast, 50-year, wind-speed, Gumbel, Lieblein	


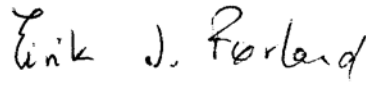
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<b>Knut Harstveit</b>	<b>Eirik J. Førland</b>



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## Summary

The hindcast data archive is used to produce wind speed at the sea surface in the Norwegian parts and adjacent areas of the North Sea, the Norwegian Sea and the Barents Sea with 50 year return period. The data archive is used to produce the geographical, seasonal and directional variations while the level of the extreme wind speed is transferred from the result from the archive wind speed, representing a time/area smoothed value, to a point value of the 10 minute wind speed. The transfer coefficient is established by a theoretical justification. The results are checked and found consistent with results from wind speed records at the Mike position, oil installations and exposed lighthouse and airport stations along the coast. The results are given as tabled values in 395 points, and are also given as maps. Also a map showing land and sea values of 50 year standard values is presented, where all values are transferred to an artificial surface of roughness 0.05 m. This map is published in the Norwegian Wind Load Standard NS3491-4.

Hindcast data from the period 1955 – 1997 is used in the analysis. Yearly maximum of the squared wind speed in the 43 years is run by a Gumbel-Lieblein model to establish the return periods.

No trend or homogeneity break is found in the 1955 - 1997 data series.

# 1. Introduction

In The Norwegian Standard for Wind Loads, published by Standards Norway [1], a map of the basic wind speed for the land and the sea areas for Norway is presented. In this report the background for the ocean part of the map is given.

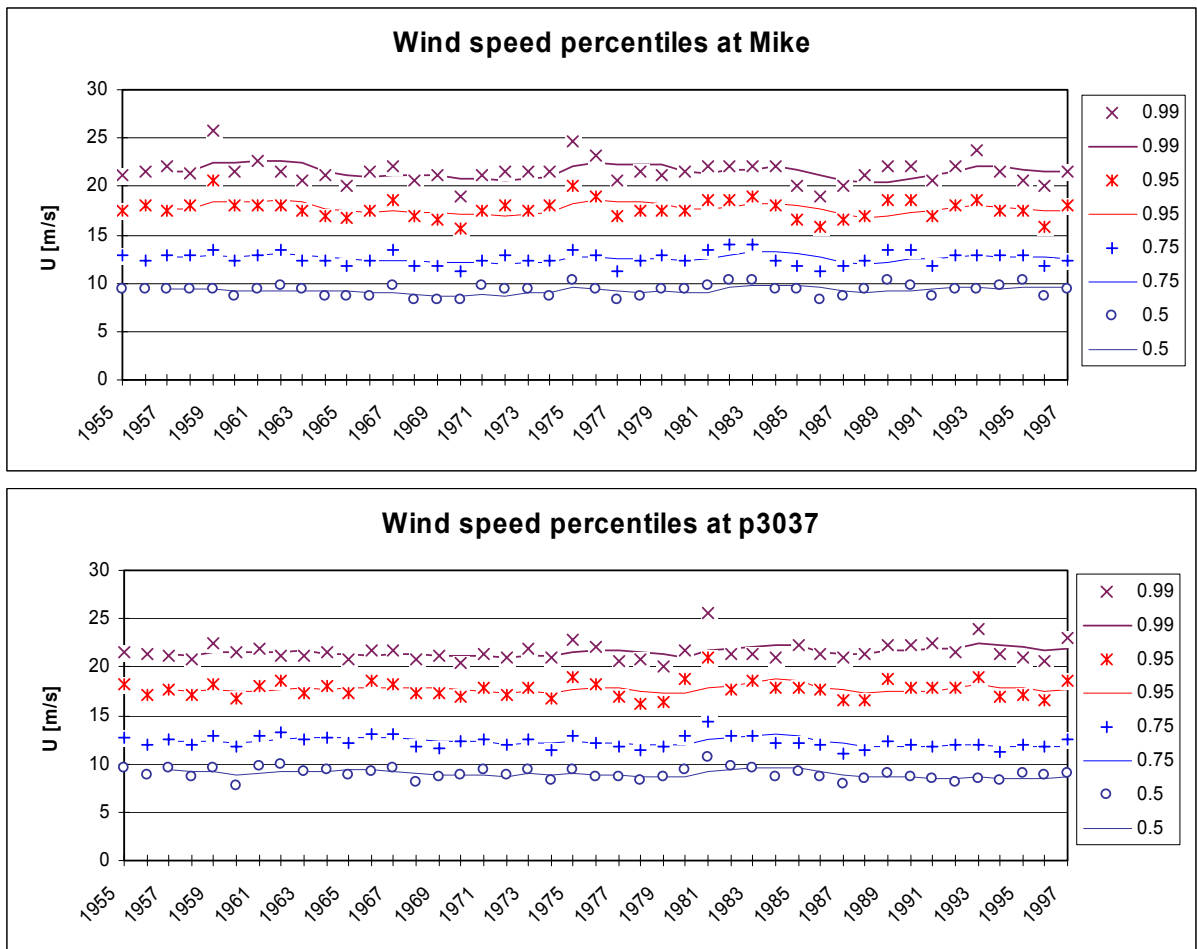
Former recommendations for the extreme wind speeds of 50 and 100 years return periods within the ocean area were taken from weather ship data and oil platform data, and extrapolated to a larger area. We will now use the Hindcast archive to describe the variation of the extreme wind speeds, and the weather ship data and oil platform data, together with coastal wind speed data, to transfer the data set to extreme values of 10 minute wind speed. A smoothing procedure is used to filter out noise from the data set of resolution 75x75 km.

## 2. Data and method

### 2.1 *The hindcast archive*

Since 1955 surface pressure data from re-analyzed weather maps have been used to produce geostrophic wind data offshore. In this hindcast archive the pressure gradient data are given as average values of cells of size 75x75 km. From this data set, hindcast wind calculations for the 10 m level at open sea at 00, 06, 12 and 18 UTC are made [2]. This transformation is made by assuming the surface roughness of the sea as a function of the pressure gradient. For a test period, the calculated wind speeds were calibrated to some data from oil – installations and weather ships [2]. Further references to the hindcast method can be found in [2].

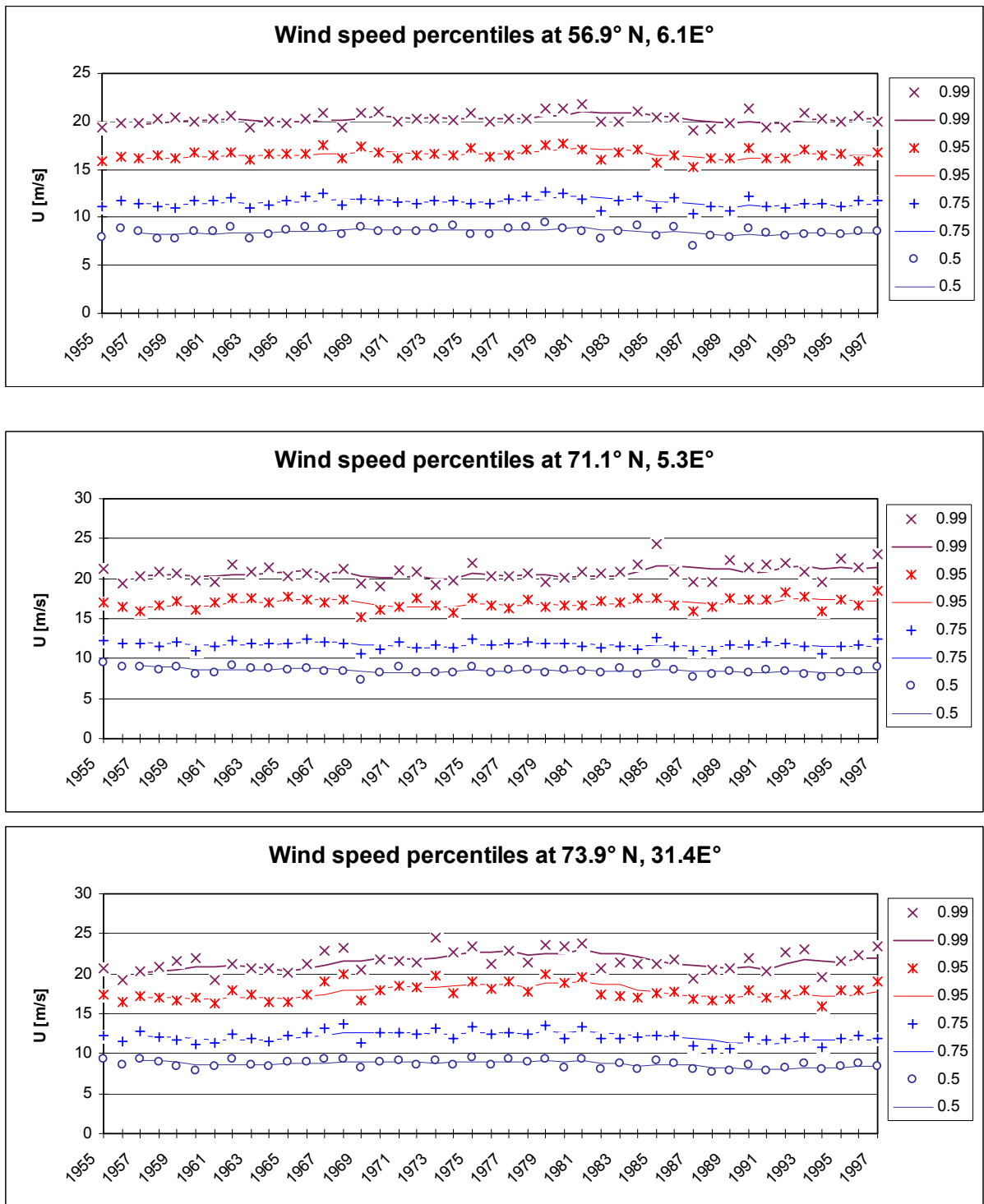
The method of re-analyzing as well as the observation network of the pressure data have been changed through the period. To study the homogeneity of the occurrence of strong wind speeds we have compared data from the weather ship in position M ("Mike" 66°N, 2°E) in the Norwegian Sea with the corresponding hindcast data (Figure 1). Besides, hindcast data from three different offshore sites in the North Sea, the Norwegian Sea and the Barents Sea (Figure 2) is presented. The results indicate no break in the homogeneity through the period and no obvious trends in the frequency of strong winds which should influence the extreme value analysis.



**Figure 1**

*0.5 – 0.99 percentiles at position M in the Norwegian Sea ("Mike" 66°N, 2E°) from the weathership and the corresponding hindcast archive point no 3037(65.9°N, 2.2E°), given as yearly values and the smoothed for 5 year periods.*





**Figure 2**  
 0.5 – 0.99 percentiles at sites in the North Sea (56.9°N, 6.1E°) the Norwegian Sea (70.2°N, 8.6E°), and the Barents Sea (73.9°N, 31.4E°), given as yearly values and smoothed for 5 year periods.

Figure 1 suggests that the occurrence of strong wind speed from the hindcast archives fits observed wind speed data at position M. To get information also at other sites, we have taken data from the three most exposed airports where long data series exist, that is, Vigra, Ørland and Bodø. We also look at data from the Bear Island and the combined data from the oil platforms Statfjord A / Gullfaks C, together with the Mike - data. Table 1 shows a comparison of the 0.9 – 0.999 percentiles from those stations and the corresponding values from the nearest hindcast position. The comparison is made by dividing corresponding percentile values.

**Table 1**

*Yearly 0.9 to 0.999 percentiles for hindcast – values divided to the corresponding observations, averaged from 1961 – 1997.*

	Vigra	Ørland	Bodø	Bear Island	Mike	Statfjord-G
0.9	1.55	1.41	1.31	1.26	0.99	1.04
0.99	1.44	1.27	1.25	1.23	1.00	1.00
0.999	1.35	1.20	1.22	1.18	0.98	0.97

Table 1 shows that the risk for high wind speeds calculated from the hindcast – values fits the data from the sea stations Mike and Statfjord-G rather well.

At the land stations it is reasonable that the best fit is found for the highest percentiles because lower percentiles include situations in the hindcast data base which do not enter the wind station data base due to wind crossing rougher terrain.

The hindcast – values represent values in open sea, surface roughness at extremely high wind speed is assumed to be 0.003 m. By using [1], 1.29 transforms the 0.05 m value to 0.003 m, and 1.11 transforms the 0.01 m value to 0.003 m. At the land stations the local roughness may be put to 0.05 m, and the effective roughness when the strong wind arrive from the sea, slightly lower (0.01 – 0.05m). Therefore, a factor of 1.1 – 1.3 should be reasonable, and this makes the 0.999 percentile to fit at Ørland, Bodø and the Bear Island. Vigra is still showing too low wind speed, probably due to sheltering effects at southwesterly wind speed which do not affect the hindcast point area as much as the airport site.

## **2.2 Extreme – value analysis of the hindcast data**

The hindcast data set represents wind data (FF) at 00, 06, 12 and 18 UTC. From this, 50 – years wind speed values, representing an area of 75x75 km, are calculated by a Gumbel – Lieblein extreme value analysis (Appendix 1). To transfer those values to 50 year values of the maximum 10 minute wind speed (FX) values, we have to establish two coefficients. First, from the 6 hour resolution set to the continuous data set, and second, from the 75x75 km to the point value.

For the wind stations where high quality long data series (>20 years) of yearly maximum of FX and max (FF) exist, the 50 year values are calculated for both data sets. The transfer coefficients varied rather much, so we have to use all the available coastal stations. The mean value from the 15 available stations was calculated to 1.153, and the standard deviation 0.072. We now assume the same factor to be valid for the Hindcast values.

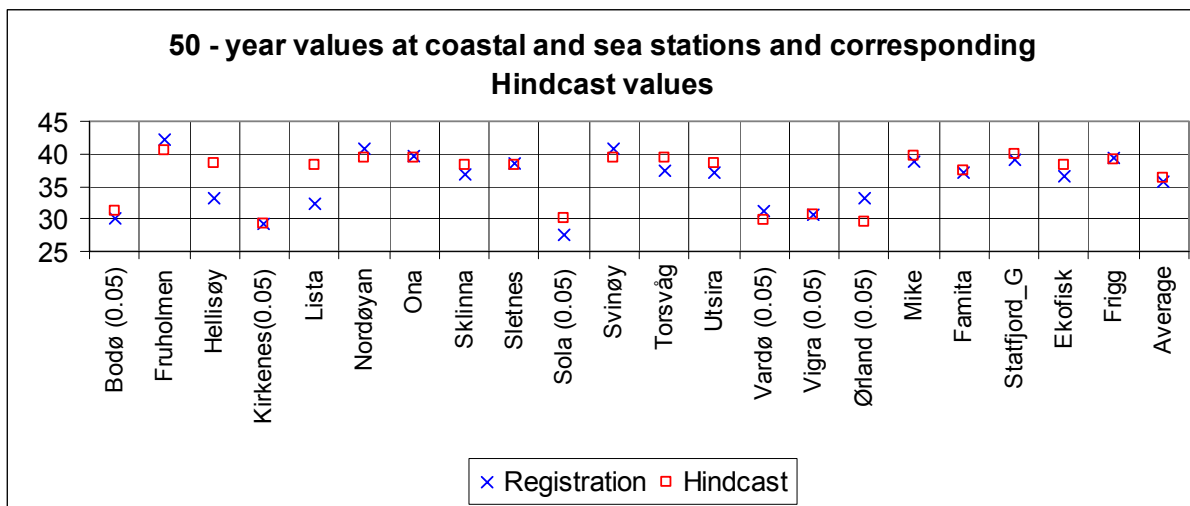
To find a factor for the average 75x75 km value to the point value we may think that this area is typical swept over by a wind storm in one hour. It then seems reasonable to use a

factor transferring one hour average values to 10 min average values, and may use the factor 1.08 [3]. So the transfer coefficient from the 50 year values from the data set of 4 hindcast values a day to a point value of the 50 year value of the 10 minute maximum wind speed may be  $1.153 \cdot 1.08 \approx 1.25$ .

We now look closer at this factor. The 50 year value of the highest 10 minute value from a series of 4 observations a day is calculated to 33.9 m/s at Mike, by using the series from 1949 to 2002. The corresponding value from the hindcast data set was 31.8 m/s, that is, a transfer factor of 1.066. Correspondingly, the series from the weather ship Famita produce a factor of 1.09, the oil platforms at Statfjord-Gullfaks 1.10, Frigg 1.10, and Ekofisk 1.10, though those data series are shorter, typically 17- 25 years. For the platforms, also a reduction from 60 – 100 m to 10 m introduces some possibility for inaccuracy. Nevertheless, an average value of 1.09 for the five stations fit the former discussion (factor 1.08) very well.

A set of 24 observations a day from Mike (1982-2002) gives a factor of 1.077 from 6 hours to 1 hour. From 1 hour to ten minutes, 1.08 may be used, and  $1.09 \cdot 1.077 \cdot 1.08 = 1.268$ , not far from the factor 1.25.

We now may compare the transformed hindcast values to the corresponding 50 year values at some ocean stations and exposed coastal stations. To compare the airport stations, and also Vardø radio, a reduction of the transformed hindcast value to the reference value ( $z_0=0.05$  m) is made.



**Figure 3**

*Comparison of 50 year values of 10 min wind speed ( $ms^{-1}$ ) calculated by the Gumbel - Lieblein method based on measured data to the corresponding point values from the Hindcast archive.*

The figure illustrates a very good agreement in the computations based on the two data sources, both for the sea stations, as well as for the land stations. When we remember all possibilities for inaccuracies connected to the transfer coefficients, the station speed up, the surface roughness, and coastal ageostrophic effects, we may find this agreement very good. It should be remembered, however, that this is data from the strongest storms where many of those effects are of less importance than for typical average wind speeds. It may also be reasonable to think that a somewhat higher surface roughness at the coast may reduce the wind speed and counteract possible speed up at the lighthouse stations. This may indicate that the real sea values close to the coast may be lower than measured at the lighthouses as well as predicted by the hindcast data set.

In detail, at Hellisøy lighthouse a rather low 50 year value is calculated from the station data, which is difficult to explain. At Lista and Ørland, however, the differences are probably due to the effective surface roughness, being larger (Lista) or lower (Ørland) than presumed.

## 3. Results

### 3.1 Mapping

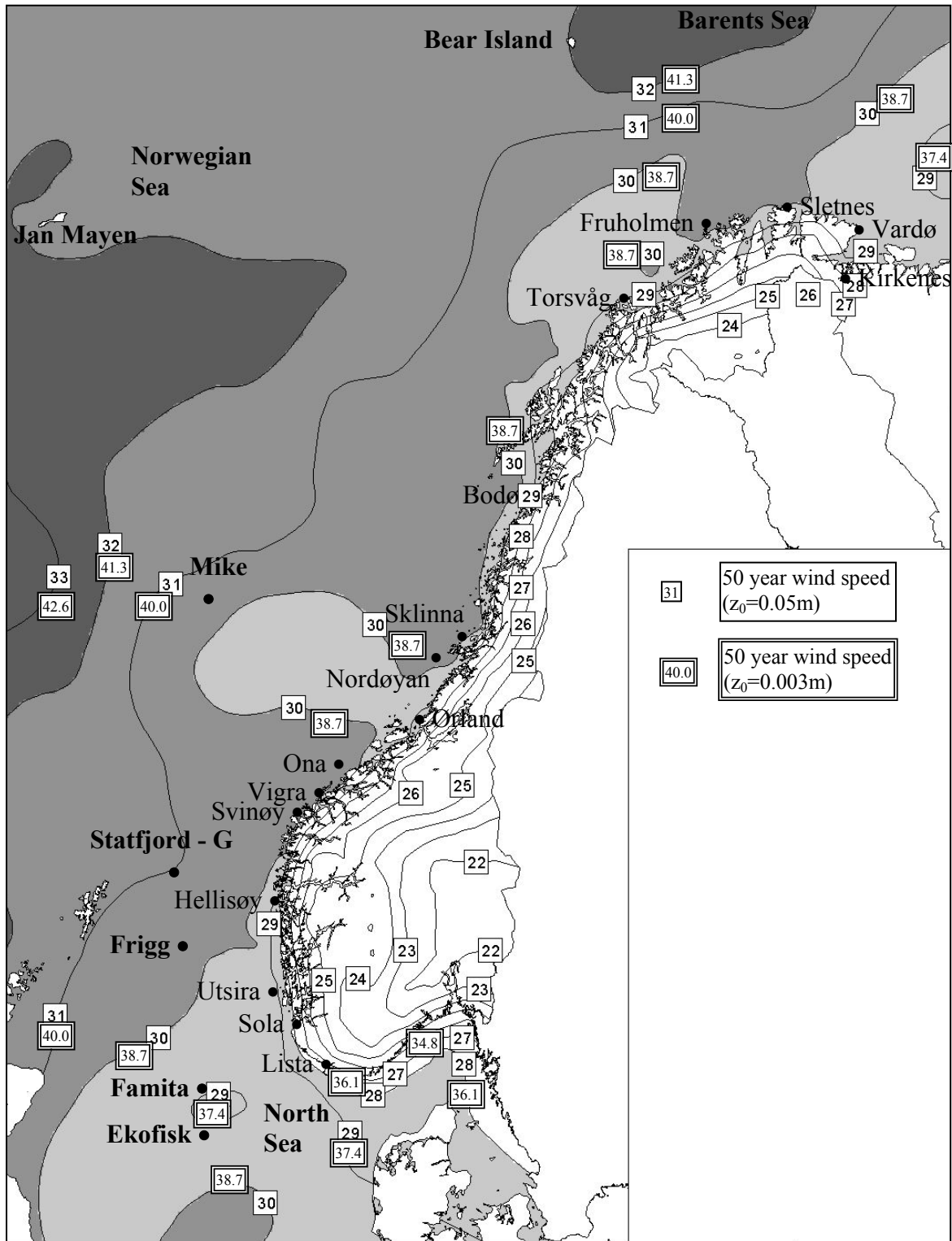
We now have justified 1.25 as a transfer value between the extreme value data computed directly from the hindcast data set, calculated as a 50 year value of the values sampled 4 times a day, and a value valid at open sea with a surface roughness of 0.003m, representing the 50 year value of the 10 minute wind speed. Then, the use of a factor 0.97 ( $=1.25/1.29$ ) gives the direct transfer to the reference wind speed according to NS 3491-4. 1.29 is the transfer factor from a terrain of roughness class II ( $z_0=0.05\text{m}$ ) to a terrain of roughness class 0 ( $z_0=0.003\text{m}$ )

All point values were multiplied by the 0.97 factor. A map of those values, however, will contain some noise due to the actual output of yearly data. To illustrate, if the storm tracks of the few highest storms was slightly different, the values would be modified. So, the values in the grid net of the 50 year data are smoothed. Each point value is substituted by a mean value of the point itself (weight 1.0) and the 8 neighbouring points, where the four main neighbouring points are given a 0.5 weight, and the corner points 0.25. Those data were put in a data program (ArcView), together with the land values. Some singular Hindcast values close to land, probably due to ageostrophic effects from the topography, are removed.

The extreme wind speed data computed from representative land stations, mostly from airports and lighthouse stations, are first transformed to a common surface, that is the reference surface of roughness height,  $z_0=0.05\text{ m}$ . All those data are then subjectively interpolated to county values, valid for the commune centers. In this process singular values due to strong local topographical influence are removed.

To produce a smooth map, all the county values are run by the Gis – system. A new subjective replacement of the isolines is made, and grid values are read. The map in Figure 4 is produced by combining those data with the smoothed Hindcast data mentioned above in a final GIS analysis.

The final map is presented as Figure 4. This is map of the basic wind speed which connects the sea and the land areas. The real wind speed, however, has to be recalculated using the wind standard [1]. Figure 4 should be preferred for the land stations and the area close to the coast, where a smoothing procedure between the sea values and the land values have been made.

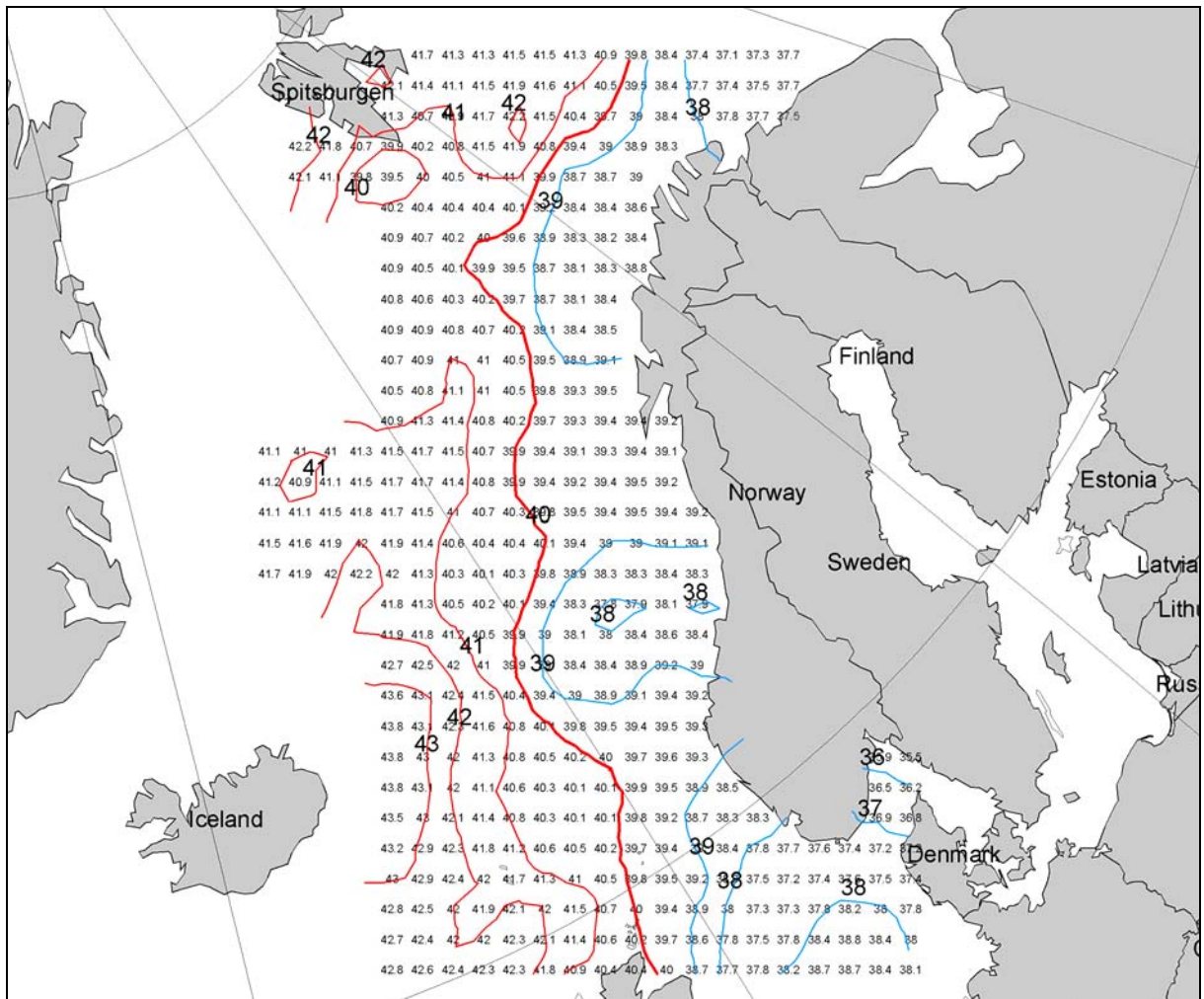


**Figure 4**

Map of extreme values of 10 minute wind speeds with 50 year return period valid for 10 m above a reference surface,  $z_0=0.05\text{m}$ . Also shown are the stations discussed and the isoline – values of a real sea surface of  $z_0=0.003\text{m}$ .

### 3.2 The sea map

The smoothed 50 year value for the analyzed 395 points is  $40.0 \text{ ms}^{-1}$ , when transferred to real sea value ( $z_0=0.003\text{m}$ ). In Figure 5 the smoothed point values are shown, and isolines drawn. The map shows the highest values ( $>40 \text{ ms}^{-1}$ ) some distance west and north of the coast. Values below  $38 \text{ ms}^{-1}$  are found in the Skagerrak area, and parts of the North Sea, and also east of Varanger. Surprisingly, some low values are also found around the area northwest of Ona, at  $65^\circ\text{N}$ ,  $5^\circ\text{E}$



**Figure 5**

*Map of extreme values of 10 minute wind speeds with 50 year return period valid for 10 m above the sea surface,  $z_0=0.003\text{m}$ .*

### 3.3 Seasonal variation

The average of the 5 highest values of the 43 yearly maxima for each of the calendar month is divided to the 5 highest yearly maxima independent of the month. The average fractions along three x-lines and two y-lines together with the whole 395 point average values are given in Table 2. Also given are the summer window values where the period May – August is treated as a season. The average values are shown in Table 2, and the complete tables in Appendix 2.

The reduction factor is above 0.9 for each of the three winter months and 0.75 or lower for each of the months from May to August. The strongest winds are found in January (0.94), while July is the months where the risk of very strong winds is least (reduction factor 0.67). 0.7 may be used as a reduction factor for each of the summer months June - August, while 0.77 may be used for this summer – period as a whole.

**Table 2**

*Calculated transfer coefficients from the seasonal independent wind speed to the monthly and summer season values, given as average values, and also illustrated as averages along five point – lines.*

	No	U <sub>50</sub>	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	May-Aug
1/nΣx <sub>i</sub> y <sub>28</sub>	18	39.8	0.94	0.90	0.85	0.78	0.75	0.69	0.69	0.72	0.87	0.86	0.92	0.90	0.78
1/nΣx <sub>i</sub> y <sub>40</sub>	15	40.5	0.93	0.94	0.91	0.81	0.75	0.69	0.66	0.68	0.78	0.90	0.91	0.92	0.76
1/nΣx <sub>i</sub> y <sub>52</sub>	10	40.1	0.96	0.92	0.88	0.82	0.75	0.68	0.65	0.69	0.77	0.89	0.88	0.91	0.78
1/nΣx <sub>25</sub> y <sub>i</sub>	30	41.9	0.92	0.93	0.88	0.81	0.76	0.68	0.66	0.70	0.80	0.89	0.88	0.91	0.78
1/nΣx <sub>32</sub> y <sub>i</sub>	31	39.3	0.95	0.92	0.87	0.80	0.74	0.70	0.68	0.69	0.81	0.90	0.89	0.90	0.77
Average	395	40.0	0.94	0.92	0.87	0.80	0.75	0.69	0.67	0.70	0.81	0.88	0.89	0.91	0.77
Standard deviation*	395	1.6	0.02	0.02	0.03	0.04	0.03	0.03	0.04	0.03	0.05	0.03	0.03	0.03	0.03

\*After smoothing procedure

Typically, the seasonal pattern does not vary very much within the mapped region, and further discussion is not made.

### 3.4 Directional variation

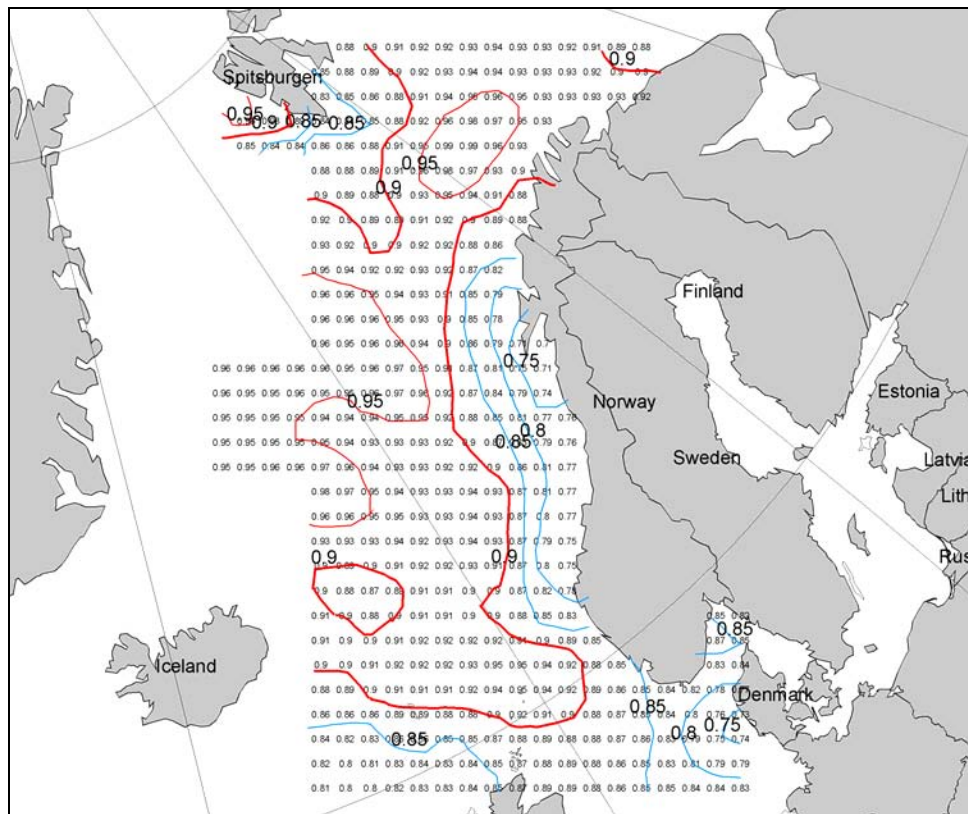
The technique for calculating seasonal transfer coefficients is also applied to a directional analysis, giving Table 3 and Figures 6 – 8, and Appendix 3.

**Table 3**

Calculated transfer coefficients from the sector independent wind speed to each of the 8 and 4 sectors, averaged for all of the 395 hindcast points.

	$U_{50}$	N	NE	E	SE	S	SW	W	NW	North-erly	East-erly	South-erly	West-erly
Average	40.0	0.89	0.86	0.85	0.85	0.88	0.89	0.90	0.91	0.96	0.91	0.93	0.96
Standard deviation	1.6	0.06	0.07	0.07	0.03	0.04	0.05	0.05	0.04	0.03	0.05	0.03	0.04

In table 3, coefficients for each of 8 and each of 4 main directions are given. The 8 direction distribution is shown in Figure 6 (a – h). This figure gives a factor for each sector in all geographical positions within the mapped area, and gives the sector wind speed when multiplied to the wind speed taken from the same position in Fig.5. Tabular values are found in Appendix 3.



**Figure 6a.** The distribution of the relative N - sector extreme wind speed



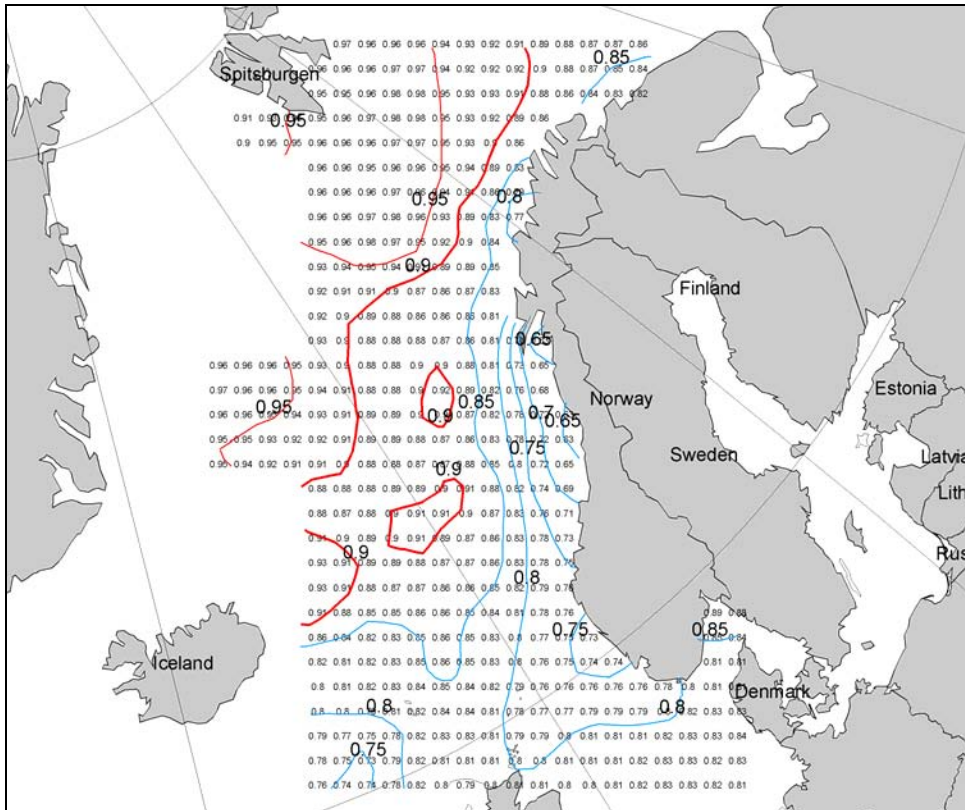


Figure 6b. The distribution of the relative NE - sector extreme wind speed

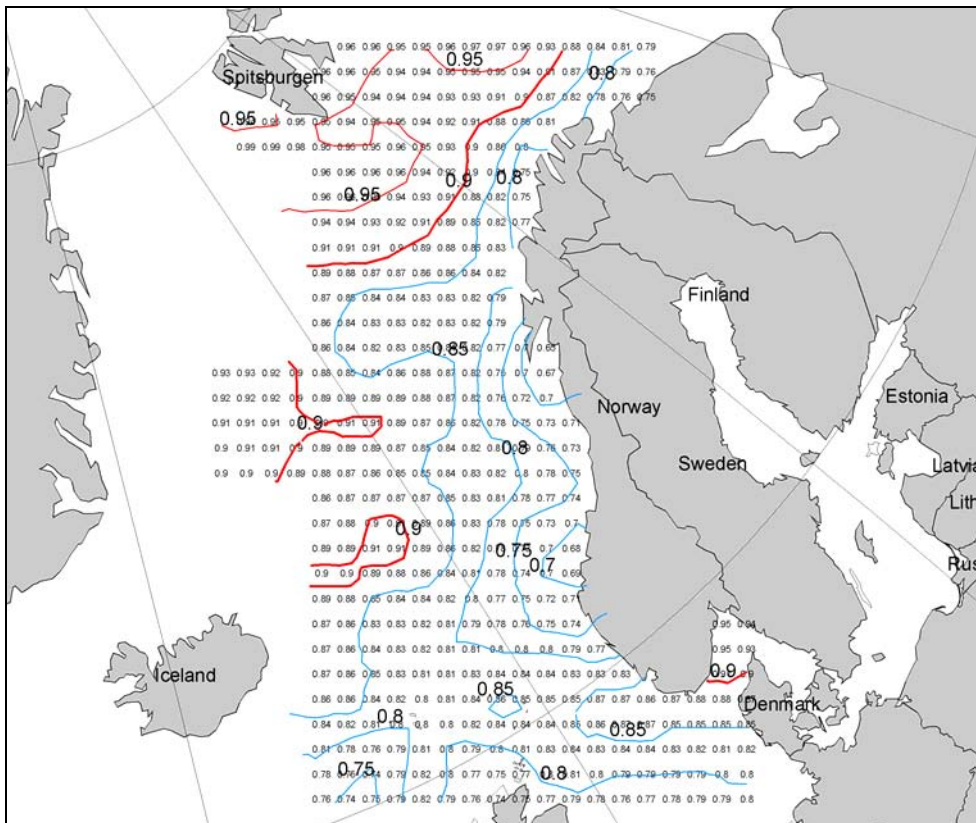


Figure 6c. The distribution of the relative E - sector extreme wind speed

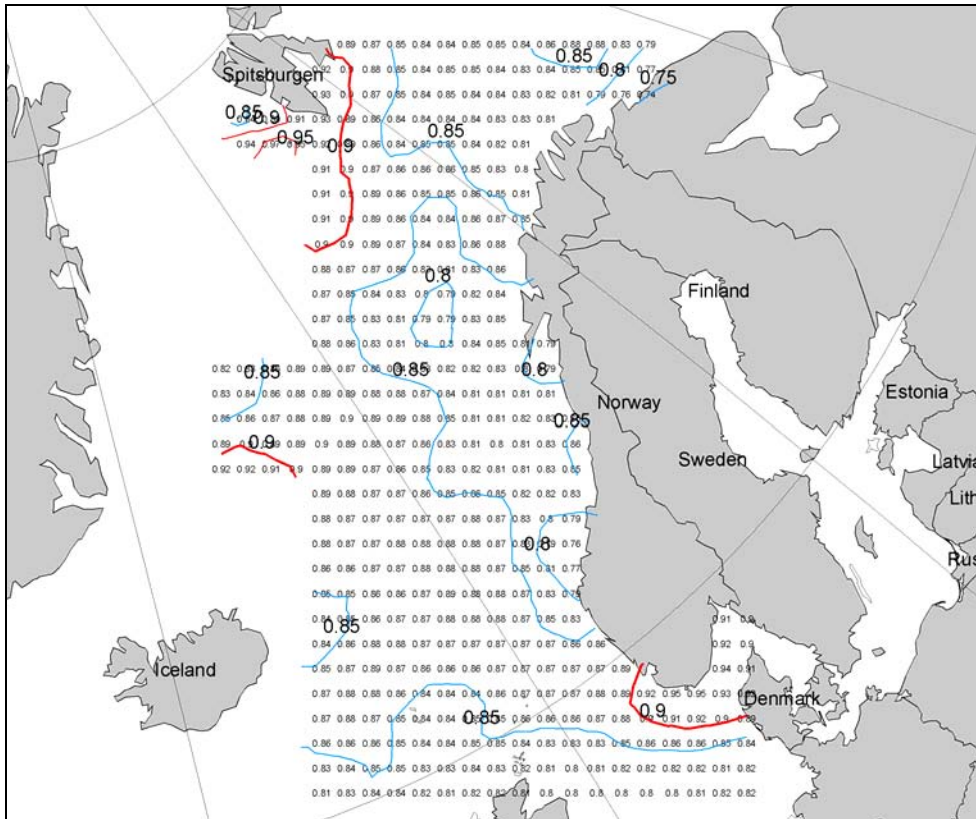


Figure 6d. The distribution of the relative SE - sector extreme wind speed

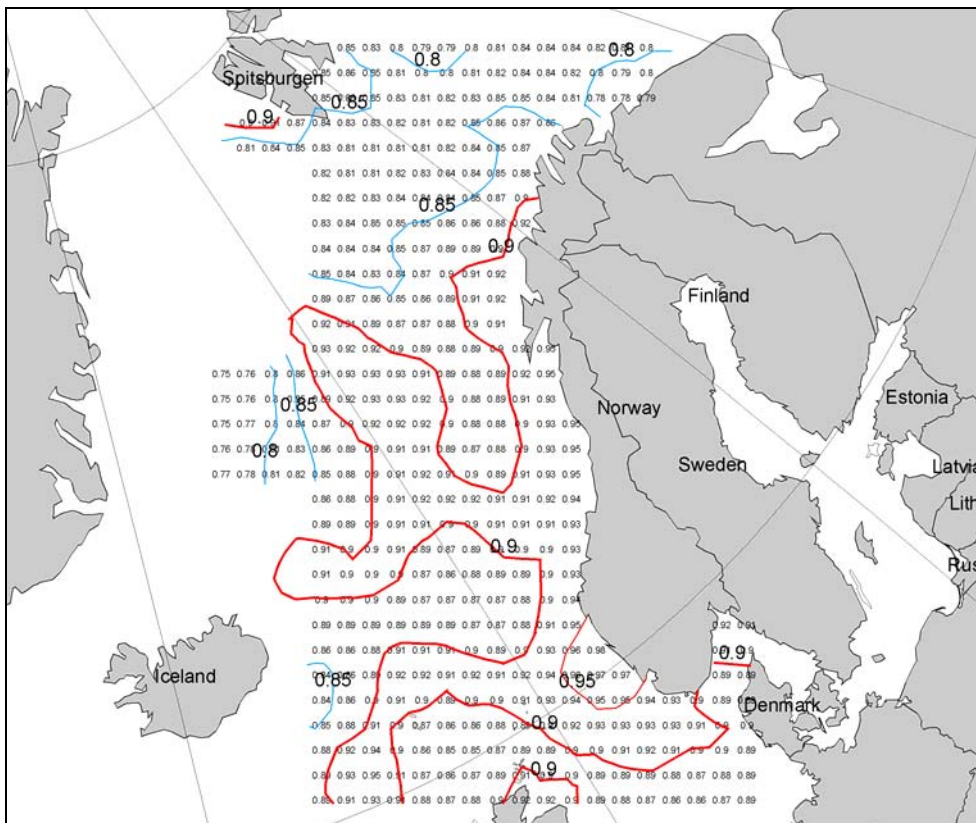


Figure 6e. The distribution of the relative S - sector extreme wind speed

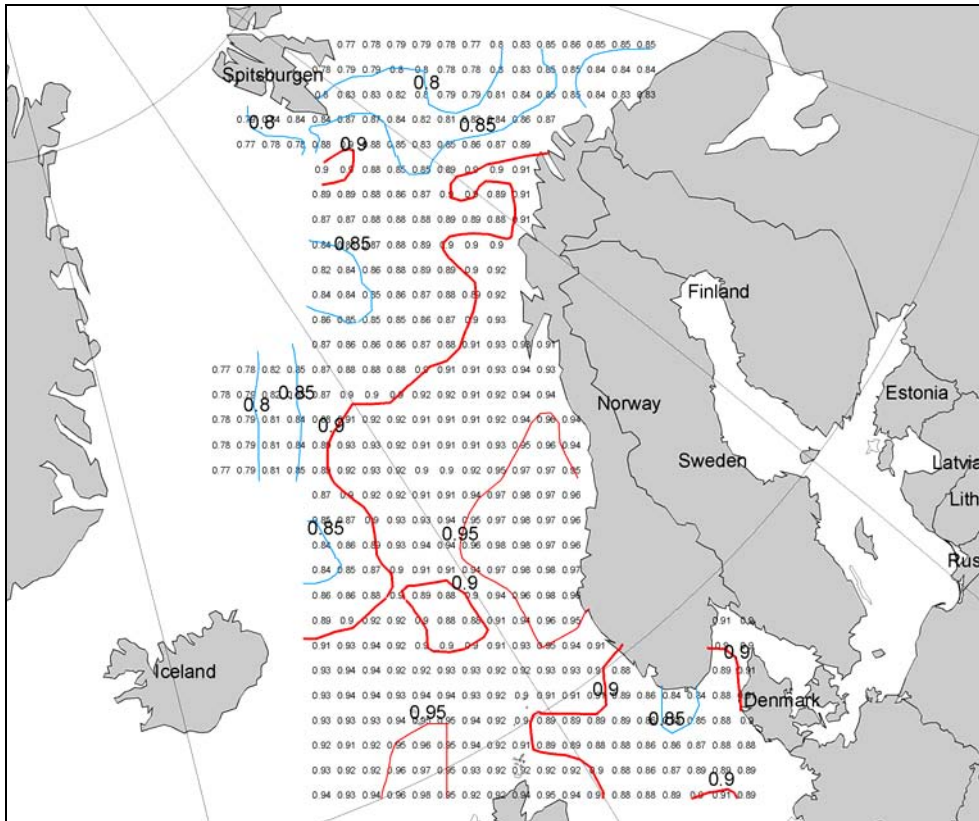


Figure 6f. The distribution of the relative SW - sector extreme wind speed

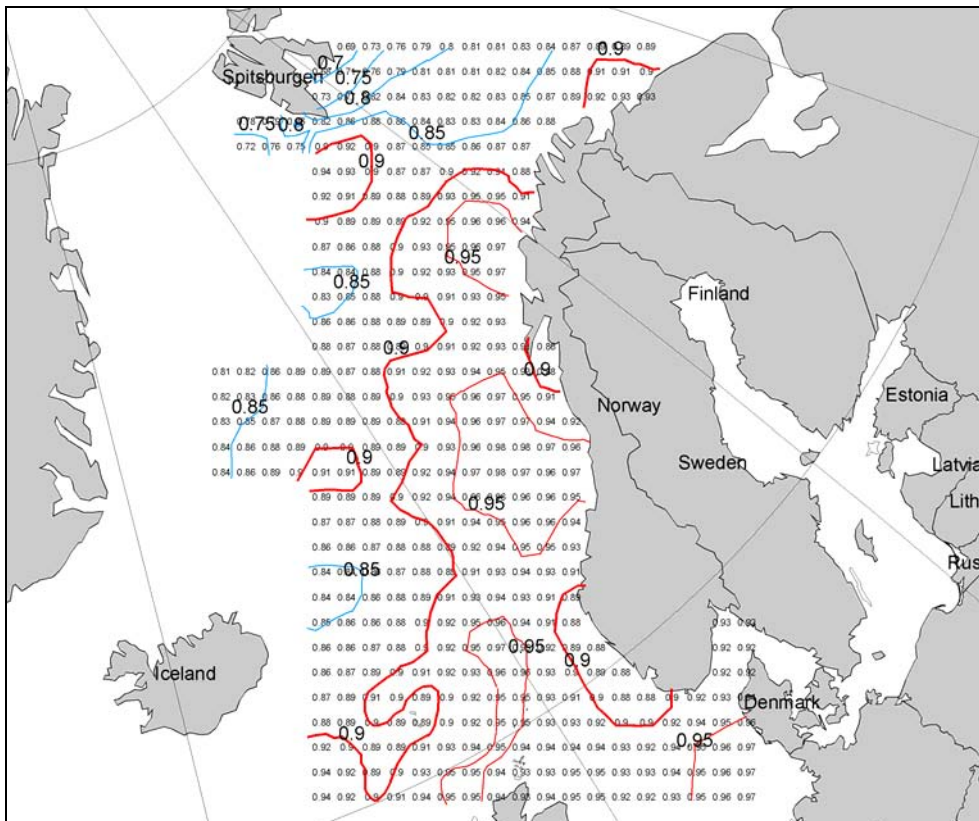
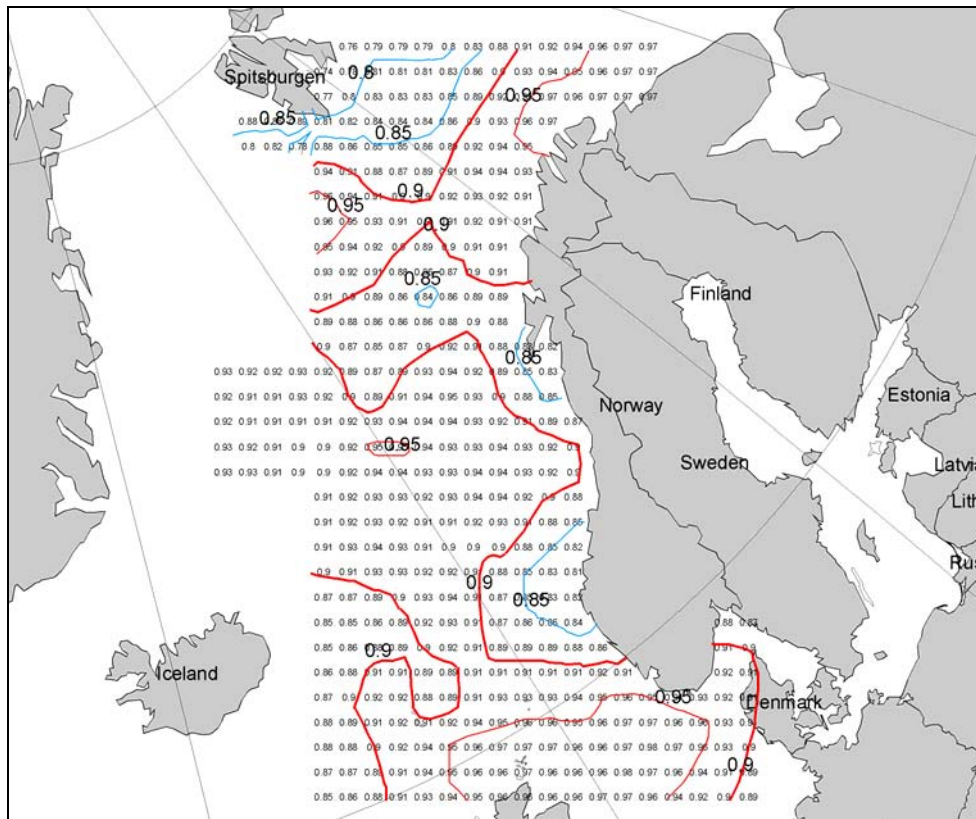


Figure 6g. The distribution of the relative W - sector extreme wind speed



**Figure 6h.** *The distribution of the relative NW - sector extreme wind speed*

The figures 6a-6h show the geographical distribution of the relative strength of the extreme wind speed from each sector.

The Northerly sector has the highest factors in the northern regions, but along the  $0^{\circ}$  - median strong northerly winds progress towards  $60^{\circ}\text{N}$ . Low relative values (0.7 – 0.85) are found south of Spitsbergen, and towards the Norwegian coast south of Troms.

The Northeastern sector shows some of the same pattern, but the minimum area south of Spitsbergen and the progress along the  $0^{\circ}$  median down to  $60^{\circ}\text{N}$  are not found. Besides, the minimum area close to the Norwegian coast is even more distinct.

The Eastern sector has high values only north of  $72^{\circ}\text{N}$ , partly also in the Jan Mayen – region and northeast of Iceland. In Skagerrak, the relative strength is also getting up to 0.95.

The Southeastern sector has high values only southwest of Spitsbergen and along the coast from Arendal to Stavanger. Large parts of the ocean have values of 0.8 – 0.9, leaving an impression of a relative “flat” structure.

In the Southern sector, higher coefficients are found in the North Sea and along the Norwegian coast up to Troms, the highest values are found from Karmøy to Stad. It should be noted that the southern hindcast wind at the Trøndelag and Nordland coast may cause southeastern surface wind due to the topography. The coefficients are low ( $<0.8$ ) in the western Jan – Mayen region.

The Southwestern sector shows some of the same pattern, but the maximum area has moved from the Karmøy – Stad to the Stad - Lofoten area, and the maximum area are progressing to the area between Iceland and Scotland.

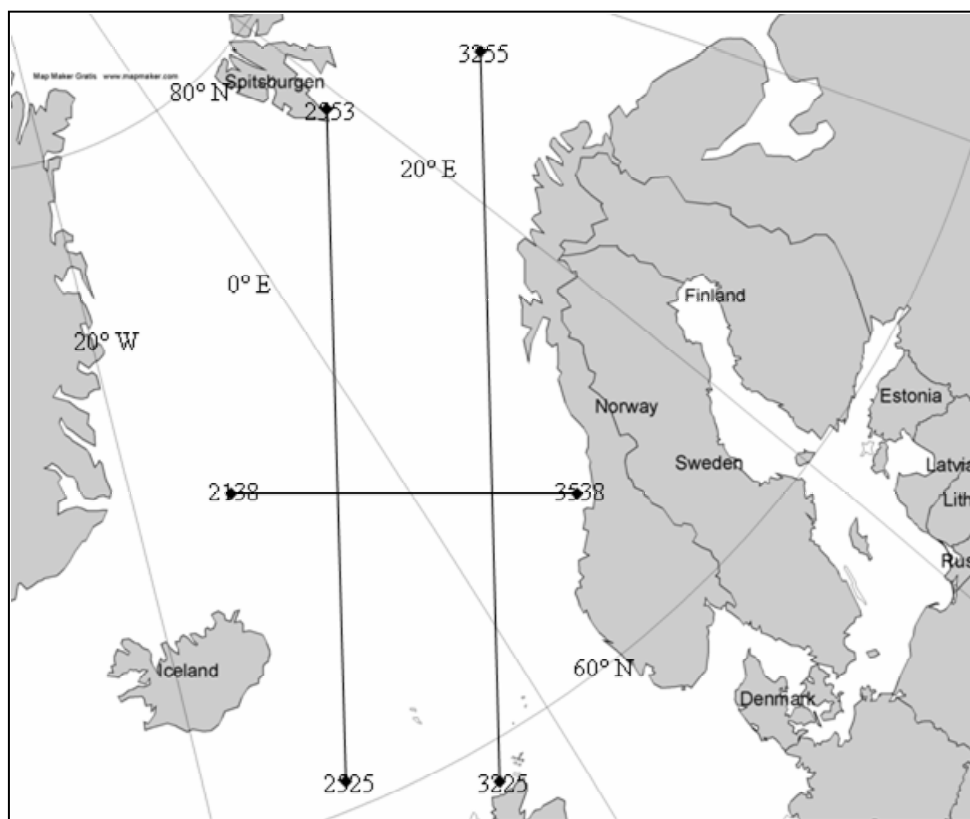
The Western sector has a maximum also further to the North Cape and also in the south part of the North Sea. Minimum areas are found at both sides of Spitsbergen, and partly at the western coast from Stavanger to Stad.

The Northwestern sector has high coefficients except close to Spitsbergen and parts of the Norwegian coast. The highest coefficients are found in the North Sea between Stavanger and Scotland, and in the southern Barents Sea.

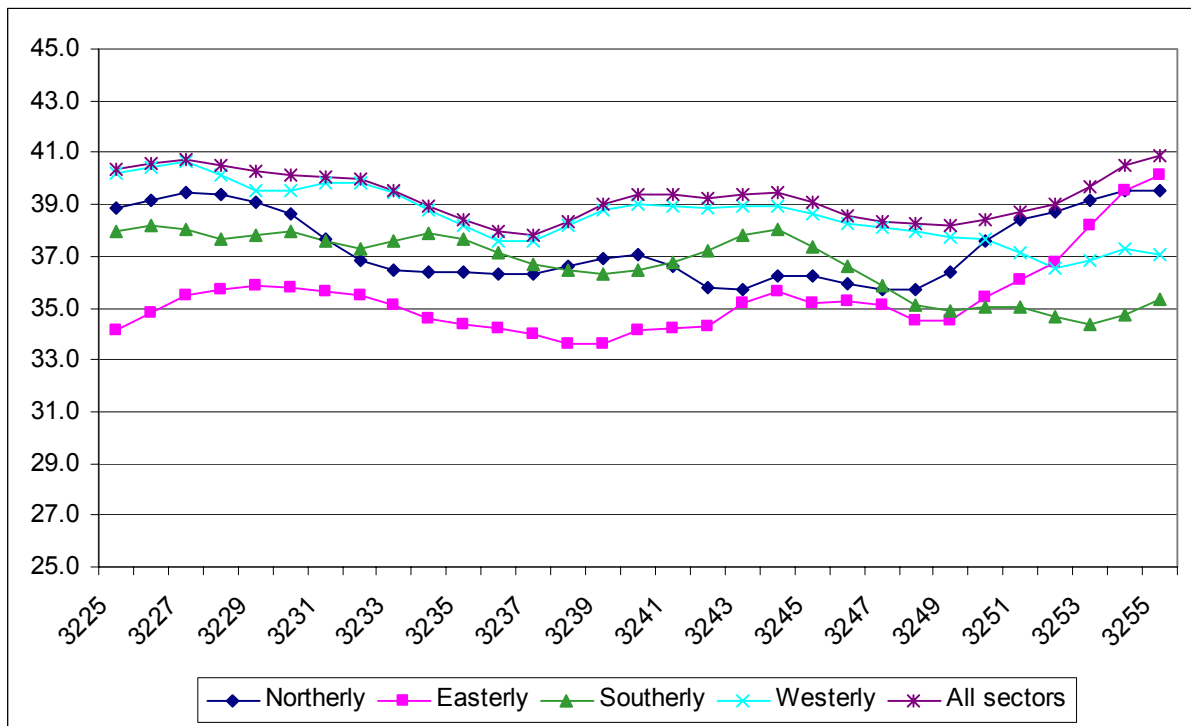
The distribution may be seen as a combination of long fetches along the oceans, blocking high mountains and the typical paths of the travelling pressure systems. The latter is probably responsible for the low northern sector factors towards the Norwegian coast – the North Sea, and the low southern sector factors in the northern regions and the area west of Jan Mayen.

#### Absolute sector wind speed distribution

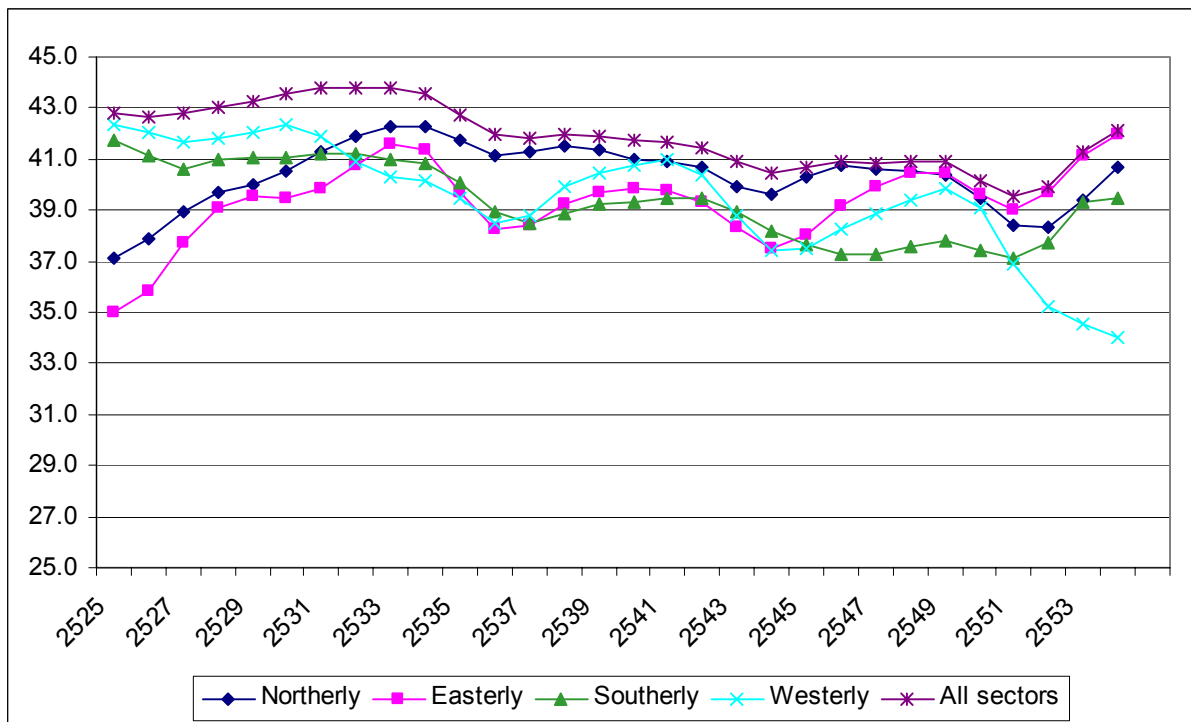
The wind speed in 4 sectors is shown along three section lines defines from the hindcast number data archive, see Figure7a.



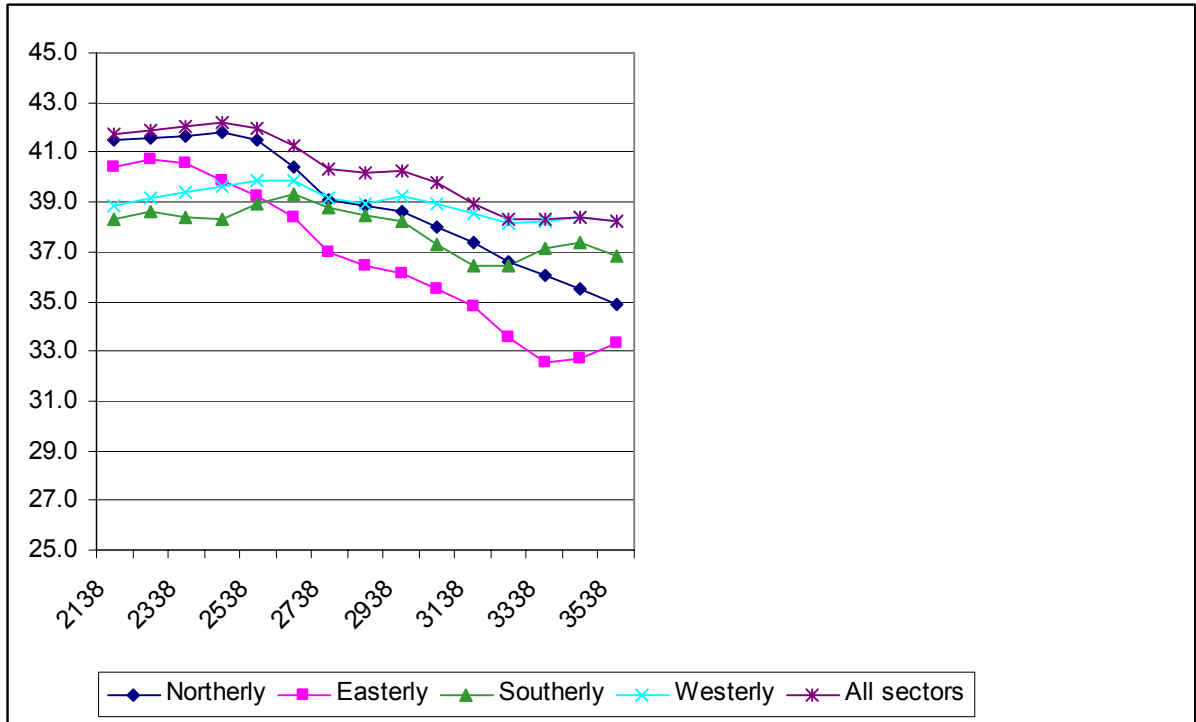
**Figure7a.** *The hindcast archive point sections referred to in Figures 7b – 7d.*



**Figure 7b**  
*The distribution of the extreme wind speed along the vertical line 3225 - 3255 (Figure 7a)*



**Figure 7c**  
*The distribution of the extreme wind speed along the vertical line 2525 - 2553 (Figure 7a)*



**Figure 7d**

*The distribution of the extreme wind speed along the horizontal line 2138 - 3538 (Figure 7a)*

Winds from the northwest are in average the strongest, while the risk of strong easterly to south-easterly winds are somewhat lower (Table 3). The variation is, however, distinct through the area, and very strong easterly winds are found in the northern part. Figure 7 also illustrates that strong westerly wind dominates in the area west of Norway, from the Northern part of Scotland to 72°N;20°E . Further west, in the area from east of Iceland to Spitsbergen along the y=25, the strong westerly winds are still blowing, but even stronger northerly winds now dominate and make the overall 50 year wind speed higher (Figure 7).

A striking point in Figure 5 is the strong gradients that occur when moving from southeast/ east to northwest/west in the area around, and some west of Mike. Figure 7d illustrates that this is mainly due to strong gradients of the northerly wind, and the figure also illustrates that the easterly winds have a corresponding strong gradient. This is probably due to the land/sea distribution which allows for the strong winds in the sector N – E in the area west of Mike.

### 3.5 Transformation to return periods of 2 to 100 years

The Gumbel – distribution for the transformed wind speed,  $V=U^2$ , may be written as

$$f(V) = f(U^2) = e^{-e^{-(\alpha U^2 - \beta)}} \quad (\text{Eq. 1})$$

where  $\alpha$  and  $\beta$  are coefficients to be determined from the actual data set. For a given return period,  $T$ , the probability  $p_T=1/T$ , we have that  $1-p_T = f(U_T^2)$ . The Eq.1 may then be rewritten as

$$\alpha U_T^2 = \beta - \ln(-\ln(1 - p_T)) \quad (\text{Eq. 2})$$

When taking  $p_T$  and  $p_{50\text{years}}$  and dividing, remembering,  $C_{SAN}=V_T/V_{50\text{years}}$ , defining  $K_1=\beta^{-1}$  and  $n=0.5$  we get Eq.3. This equation is adopted from the CEN –standard [4] and given in the national wind standard [1]

$$C_{SAN} = \left( \frac{1 - K_1 \ln[-\ln(1 - p)]}{1 - K_1 \ln[-\ln(0.98)]} \right)^n \quad (\text{Eq. 3})$$

where  $n=0.5$  fit a Rayleigh distribution of the parent data. Further on, the  $\beta$  -value (and  $K_1$ ) should be rather invariant for Rayleigh – distributed stations, the constant taking care of the relative variation.

In Table 4 the average  $K_1$  – values for groups of data is given. In [1],  $K_1 = 0.2$  is recommended if no other information is available. From the Gumbel analysis for the maximum 10 min yearly wind speed for those stations, we find 0.767 and 1.040 as the 2/50 and 100/50 year values. For the 395 analyzed point values of the Hindcast archive, the corresponding values were 0.815 and 1.033 with standard deviation of 0.02 and 0.003. Eq. 3 with  $K_1 = 0.2$ ;  $n=0.5$  give 0.776;1.038, in perfect agreement with the exposed land stations, while 0.15;0.5 fit the hindcast archive data analyzed slightly better. The lower  $K_1$  – values are consistent with the area – point relation. If an extreme storm of a given intensity occur  $n$  times, it will produce larger scattering in a data series from a point value of 10 minute wind speed, than as an average over an area of 75x75 km. The 50 year values are calibrated to statistics from 10 minute wind speed data. Therefore, we keep these values and use  $K_1=0.2$  and  $n=0.5$  in the Eq.3 for transferring to other return periods.

**Table 4**  
*Comparison of statistical parameters*

Station (types)	Number	Type	Period	50/2	100/50	n	$K_1$
Exposed lighthouses	12	Mean	30 years	0.772	1.039	0.5	0.2
Exposed airports	17	Mean	30 years	0.764	1.040	0.5	0.21
Mike, ship	1	Mean	1955-93	0.793	1.036	0.5	0.18
Hindcast	395	Mean	1955-97	0.815	1.033	0.5	0.15
Hindcast, upper	395	Lower	1955-97	0.835	1.030	0.5	0.13
Hindcast, lower	395	Upper	1955-97	0.795	1.036	0.5	0.18
Theoretical				0.776	1.038	0.5	0.2



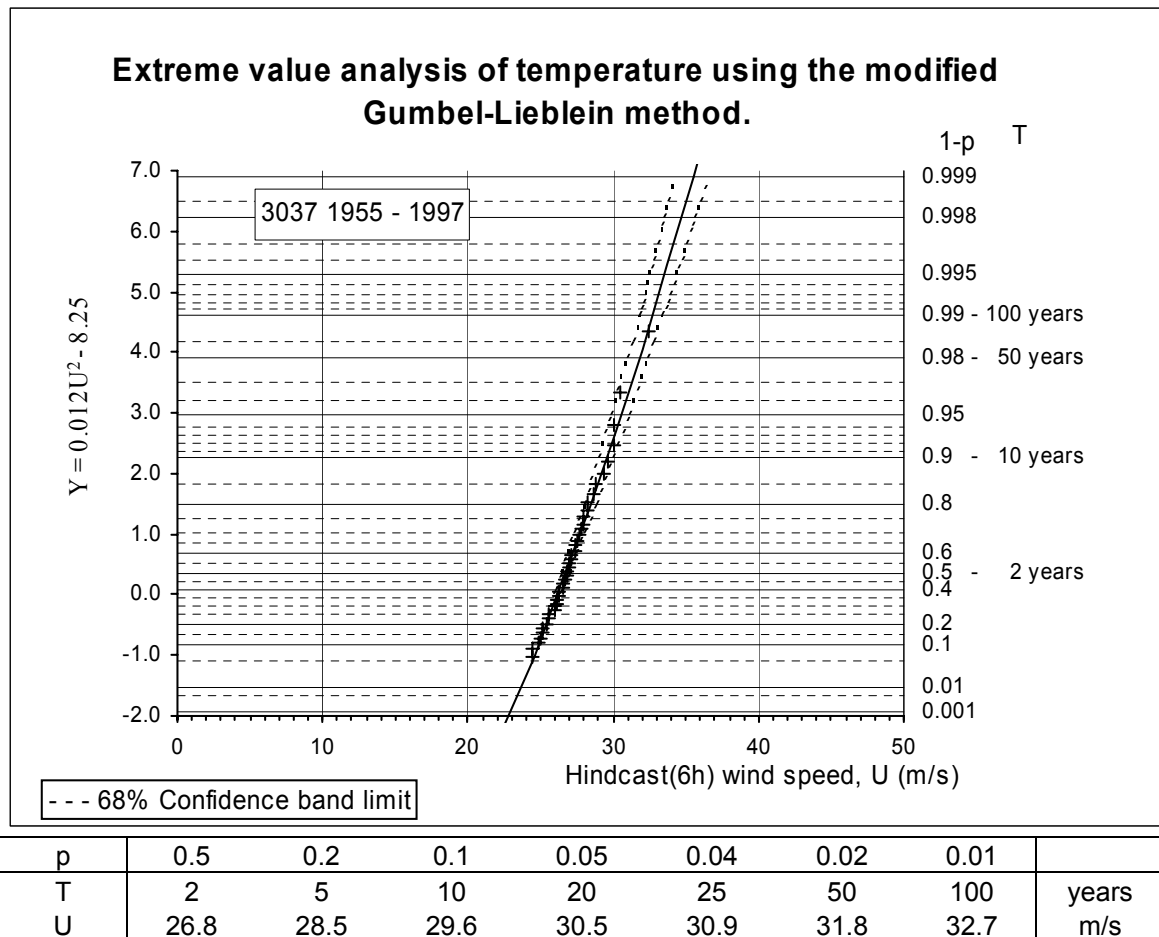
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# Appendix 1

## Extreme value analysis

The yearly maximum wind speed values,  $U$  from the hindcast archive, were transformed to  $V = U^2$  which represents the input data to the Gumbel - parameter estimation, using the modified Gumbel - Lieblein technique [5]. The Gumbel - distribution, also named the Fisher-Tippet Type I distribution, is given by  $P(v > V) = \exp(-\exp(-\alpha V - \beta))$  where  $\alpha$  and  $\beta$  represent parameters to be optimised. The maximum 10 min wind speeds were used as input data, and wind speeds of return periods 2 - 100 years were calculated. For example, giving  $P=0.02$ , the corresponding wind speed,  $U(50 \text{ years}) = V^{1/2} (50 \text{ years})$ . The shape parameter,  $\alpha$  was found to  $1.6 \pm 0.07$  at the 395 hindcast sites, and varied within 1.5 - 2.1 at the lighthouse stations and coastal airports. In Great Britain, 1.8 - 2.2 were typical values [6]. We then adopt the value 2.0 in this analysis.

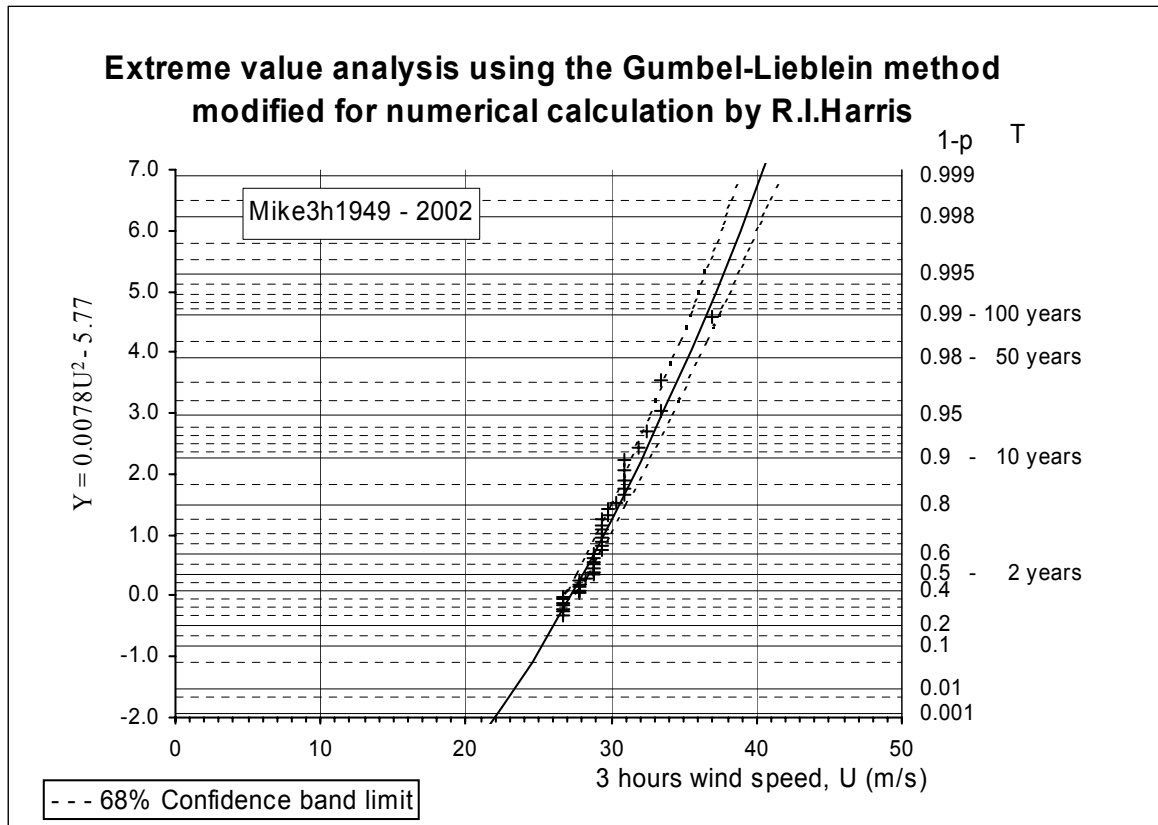


**Figure A.1**

*Extreme value analysis of the wind speed from the Hindcast point 3037 close to position M ("Mike" 66°N, 2E°).*

Typical plots is given in Figure A.1 and A.2, where the return period and corresponding probability is plotted against the return wind speed. The curve is concave due to the use of

$V=U^2$  as the transformed parameter in the Gumbel – distribution. The method is adopted from Harris [5], using a programmed version of the Lieblein method. This method is transferred to Visual basic and drawn as an Excel graph.



p	0.5	0.2	0.1	0.05	0.04	0.02	0.01	
T	2	5	10	20	25	50	100	years
U	28.1	30.6	32.1	33.5	33.9	35.2	36.5	m/s

**Figure A.2**

*Extreme value analysis of the wind speed from the yearly maximum of 8 observations a day from the weather ship in position M ("Mike" 66°N, 2E°).*

## **Appendix 2**

**Calculated 50 year wind speed and transfer coefficients from the sector independent wind speed to each of the 8 and 4 sectors for all of the 395 analysed hindcast points**

No	N[°]	E[°]	U <sub>50</sub>	N	NE	E	SE	S	SW	W	NW	North erly	East erly	South erly	West erly
2138	69.4	-11.7	41.7	0.95	0.95	0.90	0.92	0.77	0.77	0.84	0.93	0.99	0.97	0.92	0.93
2139	70.0	-11.0	41.5	0.95	0.95	0.90	0.89	0.76	0.78	0.84	0.93	0.99	0.97	0.90	0.94
2140	70.7	-10.2	41.1	0.95	0.96	0.91	0.85	0.75	0.78	0.83	0.92	0.99	0.97	0.86	0.94
2141	71.3	-9.4	41.2	0.96	0.97	0.92	0.83	0.75	0.78	0.82	0.92	0.99	0.98	0.84	0.93
2142	72.0	-8.5	41.1	0.96	0.96	0.93	0.82	0.75	0.77	0.81	0.93	0.99	0.98	0.83	0.93
2238	69.1	-9.8	41.9	0.95	0.94	0.90	0.92	0.78	0.79	0.86	0.93	0.99	0.97	0.92	0.94
2239	69.8	-9.1	41.6	0.95	0.95	0.91	0.90	0.78	0.79	0.86	0.92	0.99	0.97	0.90	0.94
2240	70.4	-8.3	41.1	0.95	0.96	0.91	0.86	0.77	0.79	0.85	0.91	0.99	0.97	0.87	0.93
2241	71.1	-7.4	40.9	0.95	0.96	0.92	0.84	0.76	0.79	0.83	0.91	0.99	0.98	0.84	0.92
2242	71.7	-6.4	41.0	0.96	0.96	0.93	0.83	0.76	0.78	0.82	0.92	0.99	0.98	0.84	0.93
2251	77.2	6.2	42.1	0.85	0.90	0.99	0.94	0.81	0.77	0.72	0.80	0.91	1.00	0.94	0.82
2252	77.7	8.2	42.2	0.96	0.91	0.94	0.84	0.90	0.79	0.78	0.88	0.98	0.96	0.92	0.91
2338	68.9	-8.0	42.0	0.96	0.92	0.90	0.91	0.81	0.81	0.89	0.91	0.99	0.96	0.91	0.94
2339	69.5	-7.2	41.9	0.95	0.93	0.91	0.89	0.81	0.81	0.88	0.91	0.99	0.97	0.90	0.94
2340	70.1	-6.4	41.5	0.95	0.95	0.91	0.87	0.80	0.81	0.87	0.91	0.99	0.97	0.89	0.94
2341	70.8	-5.4	41.1	0.95	0.96	0.92	0.86	0.80	0.82	0.86	0.91	0.99	0.97	0.88	0.93
2342	71.4	-4.4	41.0	0.96	0.96	0.92	0.86	0.80	0.82	0.86	0.92	0.99	0.98	0.87	0.94
2351	76.7	8.6	41.1	0.84	0.95	0.99	0.97	0.84	0.78	0.76	0.82	0.95	1.00	0.97	0.83
2352	77.2	10.7	41.8	0.93	0.93	0.95	0.89	0.91	0.84	0.79	0.86	0.96	0.96	0.95	0.92
2438	68.6	-6.3	42.2	0.96	0.91	0.89	0.90	0.82	0.85	0.90	0.90	0.99	0.95	0.91	0.94
2439	69.2	-5.4	42.0	0.95	0.92	0.90	0.89	0.83	0.84	0.89	0.90	0.99	0.95	0.91	0.95
2440	69.8	-4.5	41.8	0.95	0.94	0.90	0.88	0.84	0.84	0.88	0.91	0.99	0.96	0.91	0.96
2441	70.4	-3.6	41.5	0.96	0.95	0.90	0.88	0.85	0.85	0.88	0.93	0.99	0.97	0.92	0.97
2442	71.0	-2.5	41.3	0.96	0.95	0.90	0.89	0.86	0.85	0.89	0.93	0.99	0.97	0.92	0.96
2451	76.2	10.9	39.8	0.84	0.95	0.98	0.95	0.85	0.78	0.75	0.78	0.95	1.00	0.95	0.81
2452	76.7	13.0	40.7	0.89	0.96	0.95	0.91	0.87	0.84	0.86	0.89	0.96	0.99	0.93	0.90
2525	60.0	-12.7	42.8	0.81	0.76	0.76	0.81	0.89	0.94	0.94	0.85	0.87	0.82	0.98	0.99
2526	60.7	-12.3	42.7	0.82	0.78	0.78	0.83	0.89	0.93	0.94	0.87	0.89	0.84	0.96	0.99
2527	61.3	-11.8	42.8	0.84	0.79	0.81	0.86	0.88	0.92	0.92	0.88	0.91	0.88	0.95	0.97
2528	61.9	-11.3	43.0	0.86	0.80	0.84	0.87	0.85	0.93	0.88	0.88	0.92	0.91	0.95	0.97
2529	62.6	-10.7	43.2	0.88	0.80	0.86	0.87	0.84	0.93	0.87	0.87	0.92	0.91	0.95	0.97
2530	63.2	-10.2	43.5	0.90	0.82	0.87	0.85	0.84	0.93	0.86	0.86	0.93	0.91	0.94	0.97
2531	63.8	-9.6	43.8	0.91	0.86	0.87	0.84	0.86	0.91	0.86	0.85	0.94	0.91	0.94	0.96
2532	64.5	-9.0	43.8	0.91	0.91	0.87	0.84	0.89	0.89	0.85	0.85	0.96	0.93	0.94	0.93
2533	65.1	-8.4	43.8	0.90	0.93	0.89	0.85	0.90	0.86	0.84	0.87	0.97	0.95	0.94	0.92
2534	65.7	-7.7	43.6	0.90	0.93	0.90	0.86	0.91	0.84	0.84	0.90	0.97	0.95	0.94	0.92
2535	66.4	-7.0	42.7	0.93	0.91	0.89	0.88	0.91	0.84	0.86	0.91	0.98	0.93	0.94	0.92
2536	67.0	-6.2	41.9	0.96	0.88	0.87	0.88	0.89	0.85	0.87	0.91	0.98	0.91	0.93	0.92
2537	67.6	-5.4	41.8	0.98	0.88	0.86	0.89	0.86	0.87	0.89	0.91	0.99	0.92	0.92	0.93
2538	68.2	-4.6	42.0	0.97	0.91	0.88	0.89	0.85	0.89	0.91	0.90	0.99	0.93	0.93	0.95
2539	68.9	-3.7	41.9	0.95	0.92	0.89	0.90	0.86	0.89	0.90	0.90	0.99	0.95	0.94	0.97
2540	69.5	-2.8	41.7	0.94	0.93	0.90	0.89	0.87	0.88	0.89	0.91	0.98	0.95	0.94	0.98
2541	70.1	-1.7	41.7	0.95	0.94	0.89	0.89	0.89	0.87	0.89	0.92	0.98	0.95	0.95	0.98
2542	70.7	-0.7	41.5	0.96	0.93	0.88	0.89	0.91	0.87	0.89	0.92	0.98	0.95	0.95	0.97
2543	71.3	0.5	40.9	0.96	0.93	0.86	0.88	0.93	0.87	0.88	0.90	0.98	0.94	0.95	0.95
2544	71.9	1.7	40.5	0.96	0.92	0.86	0.87	0.92	0.86	0.86	0.89	0.98	0.93	0.94	0.92
2545	72.5	3.0	40.7	0.96	0.92	0.87	0.87	0.89	0.84	0.83	0.91	0.99	0.94	0.92	0.92
2546	73.0	4.4	40.9	0.95	0.93	0.89	0.88	0.85	0.82	0.84	0.93	1.00	0.96	0.91	0.93
2547	73.6	5.9	40.8	0.93	0.95	0.91	0.90	0.84	0.84	0.87	0.95	1.00	0.98	0.91	0.95
2548	74.2	7.5	40.9	0.92	0.96	0.94	0.91	0.83	0.87	0.90	0.96	0.99	0.99	0.92	0.96
2549	74.7	9.2	40.9	0.90	0.96	0.96	0.91	0.82	0.89	0.92	0.96	0.99	0.99	0.92	0.97
2550	75.2	11.0	40.2	0.88	0.96	0.96	0.91	0.82	0.90	0.94	0.94	0.98	0.99	0.93	0.97
2551	75.7	13.0	39.5	0.86	0.96	0.95	0.92	0.83	0.88	0.90	0.88	0.97	0.99	0.94	0.93
2552	76.2	15.1	39.9	0.84	0.95	0.95	0.93	0.84	0.84	0.82	0.81	0.96	0.99	0.95	0.88

No	N[°]	E[°]	U <sub>50</sub>	N	NE	E	SE	S	SW	W	NW	North erly	East erly	South erly	West erly
2553	76.7	17.4	41.3	0.83	0.95	0.96	0.93	0.85	0.80	0.73	0.77	0.95	1.00	0.95	0.84
2554	77.2	19.8	42.1	0.85	0.96	0.96	0.92	0.85	0.78	0.68	0.74	0.97	1.00	0.94	0.81
2625	59.8	-11.4	42.6	0.80	0.74	0.74	0.83	0.91	0.93	0.92	0.86	0.87	0.83	0.99	0.97
2626	60.4	-11.0	42.4	0.80	0.75	0.75	0.84	0.93	0.92	0.92	0.87	0.88	0.84	0.98	0.96
2627	61.1	-10.5	42.5	0.82	0.77	0.78	0.86	0.92	0.91	0.90	0.88	0.90	0.87	0.97	0.96
2628	61.7	-9.9	42.9	0.86	0.80	0.82	0.88	0.88	0.93	0.89	0.89	0.92	0.90	0.96	0.97
2629	62.3	-9.4	42.9	0.89	0.81	0.86	0.88	0.86	0.94	0.89	0.90	0.93	0.91	0.96	0.98
2630	62.9	-8.8	43.0	0.90	0.81	0.86	0.87	0.86	0.94	0.87	0.88	0.93	0.91	0.95	0.98
2631	63.6	-8.2	43.1	0.90	0.84	0.86	0.86	0.86	0.93	0.86	0.86	0.93	0.91	0.96	0.97
2632	64.2	-7.6	43.0	0.90	0.88	0.86	0.85	0.89	0.90	0.86	0.85	0.94	0.92	0.95	0.94
2633	64.8	-6.9	43.1	0.88	0.91	0.88	0.85	0.90	0.86	0.84	0.87	0.95	0.94	0.94	0.92
2634	65.5	-6.2	43.1	0.89	0.91	0.90	0.86	0.90	0.85	0.84	0.91	0.96	0.94	0.93	0.93
2635	66.1	-5.4	42.5	0.93	0.90	0.89	0.87	0.90	0.86	0.86	0.93	0.97	0.93	0.94	0.94
2636	66.7	-4.7	41.8	0.96	0.87	0.88	0.87	0.89	0.87	0.87	0.92	0.98	0.91	0.93	0.93
2637	67.3	-3.8	41.3	0.97	0.88	0.87	0.88	0.88	0.90	0.89	0.92	0.98	0.91	0.94	0.94
2638	67.9	-2.9	41.3	0.96	0.90	0.87	0.89	0.88	0.92	0.91	0.92	0.98	0.93	0.95	0.97
2639	68.5	-2.0	41.4	0.94	0.91	0.89	0.89	0.89	0.93	0.90	0.92	0.98	0.94	0.96	0.98
2640	69.1	-1.0	41.5	0.94	0.91	0.91	0.90	0.90	0.91	0.89	0.92	0.97	0.95	0.96	0.98
2641	69.7	0.0	41.7	0.95	0.91	0.89	0.89	0.92	0.90	0.88	0.90	0.97	0.94	0.96	0.97
2642	70.3	1.1	41.7	0.95	0.90	0.85	0.87	0.93	0.88	0.87	0.89	0.97	0.93	0.96	0.96
2643	70.9	2.3	41.3	0.95	0.90	0.84	0.86	0.92	0.86	0.87	0.87	0.97	0.92	0.95	0.93
2644	71.5	3.5	40.8	0.96	0.90	0.84	0.85	0.91	0.85	0.86	0.88	0.98	0.91	0.93	0.92
2645	72.0	4.9	40.9	0.96	0.91	0.85	0.85	0.87	0.84	0.85	0.90	0.99	0.92	0.91	0.92
2646	72.6	6.3	40.9	0.94	0.94	0.88	0.87	0.84	0.84	0.84	0.92	0.99	0.96	0.91	0.93
2647	73.2	7.8	40.6	0.92	0.96	0.91	0.90	0.84	0.85	0.86	0.94	0.99	0.98	0.92	0.95
2648	73.7	9.4	40.5	0.90	0.96	0.94	0.90	0.84	0.87	0.89	0.95	0.99	0.99	0.92	0.96
2649	74.2	11.2	40.7	0.89	0.96	0.96	0.90	0.82	0.89	0.91	0.94	0.98	0.99	0.92	0.96
2650	74.7	13.0	40.4	0.88	0.96	0.96	0.90	0.81	0.90	0.93	0.91	0.98	0.99	0.93	0.96
2651	75.2	15.0	40.0	0.86	0.96	0.95	0.89	0.81	0.90	0.92	0.86	0.98	0.98	0.93	0.95
2652	75.7	17.1	40.2	0.84	0.96	0.94	0.89	0.83	0.87	0.86	0.82	0.97	0.99	0.92	0.92
2653	76.2	19.3	40.7	0.85	0.95	0.95	0.90	0.86	0.83	0.77	0.80	0.96	0.99	0.93	0.87
2654	76.6	21.7	41.4	0.88	0.96	0.96	0.90	0.86	0.79	0.71	0.78	0.97	1.00	0.92	0.83
2655	77.0	24.3	41.7	0.88	0.97	0.96	0.89	0.85	0.77	0.69	0.76	0.98	1.00	0.90	0.81
2725	59.5	-10.2	42.4	0.80	0.74	0.75	0.84	0.93	0.94	0.90	0.88	0.89	0.86	0.99	0.96
2726	60.2	-9.7	42.0	0.81	0.73	0.74	0.85	0.95	0.92	0.89	0.89	0.90	0.86	0.99	0.95
2727	60.8	-9.2	42.0	0.83	0.75	0.76	0.86	0.94	0.92	0.89	0.90	0.91	0.87	0.98	0.96
2728	61.4	-8.6	42.4	0.86	0.79	0.81	0.87	0.91	0.93	0.90	0.91	0.93	0.88	0.96	0.97
2729	62.0	-8.0	42.3	0.90	0.82	0.84	0.88	0.90	0.94	0.91	0.92	0.95	0.90	0.96	0.99
2730	62.7	-7.4	42.1	0.91	0.82	0.85	0.89	0.89	0.94	0.89	0.91	0.94	0.91	0.96	0.98
2731	63.3	-6.8	42.0	0.90	0.82	0.84	0.88	0.88	0.94	0.87	0.88	0.93	0.91	0.97	0.97
2732	63.9	-6.1	42.0	0.88	0.85	0.83	0.86	0.89	0.92	0.86	0.86	0.93	0.91	0.97	0.96
2733	64.5	-5.4	42.3	0.87	0.88	0.85	0.86	0.90	0.88	0.86	0.89	0.95	0.92	0.95	0.95
2734	65.1	-4.7	42.4	0.90	0.89	0.89	0.87	0.90	0.87	0.86	0.93	0.96	0.93	0.95	0.95
2735	65.8	-3.9	42.0	0.93	0.89	0.91	0.87	0.90	0.89	0.87	0.94	0.97	0.93	0.94	0.95
2736	66.4	-3.1	41.2	0.95	0.88	0.90	0.87	0.90	0.90	0.88	0.93	0.97	0.92	0.94	0.95
2737	67.0	-2.3	40.5	0.95	0.88	0.87	0.87	0.90	0.92	0.89	0.93	0.97	0.91	0.95	0.96
2738	67.6	-1.3	40.3	0.94	0.88	0.86	0.87	0.90	0.93	0.89	0.94	0.97	0.92	0.96	0.97
2739	68.2	-0.4	40.6	0.93	0.89	0.89	0.88	0.90	0.93	0.89	0.95	0.97	0.93	0.97	0.98
2740	68.8	0.6	41.0	0.94	0.89	0.91	0.89	0.92	0.92	0.89	0.93	0.98	0.94	0.97	0.97
2741	69.3	1.7	41.4	0.96	0.88	0.89	0.88	0.93	0.90	0.89	0.89	0.97	0.93	0.96	0.96
2742	69.9	2.8	41.5	0.96	0.88	0.84	0.85	0.93	0.88	0.88	0.87	0.97	0.91	0.95	0.94
2743	70.5	4.0	41.4	0.96	0.88	0.82	0.83	0.92	0.86	0.88	0.85	0.97	0.91	0.93	0.92
2744	71.1	5.3	41.1	0.96	0.89	0.83	0.83	0.89	0.85	0.88	0.86	0.98	0.90	0.91	0.92
2745	71.6	6.7	41.0	0.95	0.91	0.84	0.84	0.86	0.85	0.88	0.89	0.99	0.92	0.90	0.92

No	N[°]	E[°]	U <sub>50</sub>	N	NE	E	SE	S	SW	W	NW	North erly	East erly	South erly	West erly
2746	72.2	8.1	40.8	0.92	0.95	0.87	0.87	0.83	0.86	0.88	0.91	0.99	0.96	0.91	0.94
2747	72.7	9.6	40.3	0.90	0.98	0.91	0.89	0.84	0.87	0.88	0.92	0.99	0.99	0.92	0.94
2748	73.2	11.3	40.1	0.89	0.97	0.93	0.89	0.85	0.88	0.89	0.93	0.99	0.99	0.92	0.95
2749	73.7	13.0	40.2	0.88	0.96	0.95	0.89	0.83	0.88	0.89	0.91	0.98	0.99	0.91	0.94
2750	74.2	14.8	40.4	0.89	0.95	0.96	0.87	0.81	0.88	0.90	0.88	0.98	0.99	0.90	0.93
2751	74.7	16.8	40.5	0.88	0.96	0.95	0.86	0.81	0.88	0.90	0.85	0.98	0.98	0.89	0.93
2752	75.2	18.9	40.8	0.85	0.97	0.95	0.86	0.83	0.87	0.88	0.84	0.98	0.99	0.89	0.92
2753	75.6	21.1	40.9	0.86	0.96	0.94	0.87	0.85	0.83	0.82	0.83	0.98	0.99	0.90	0.89
2754	76.0	23.5	41.1	0.89	0.96	0.95	0.88	0.85	0.79	0.76	0.81	0.98	0.99	0.90	0.85
2755	76.4	26.0	41.3	0.90	0.96	0.96	0.87	0.83	0.78	0.73	0.79	0.98	0.99	0.89	0.83
2825	59.3	-9.0	42.3	0.82	0.78	0.79	0.84	0.91	0.96	0.91	0.91	0.92	0.88	0.99	0.97
2826	59.9	-8.4	42.0	0.83	0.79	0.79	0.85	0.91	0.96	0.90	0.91	0.92	0.88	0.99	0.98
2827	60.5	-7.9	41.9	0.86	0.78	0.79	0.85	0.90	0.95	0.89	0.92	0.93	0.87	0.98	0.98
2828	61.1	-7.3	42.0	0.89	0.81	0.80	0.85	0.90	0.94	0.89	0.92	0.94	0.87	0.96	0.99
2829	61.8	-6.7	41.8	0.91	0.83	0.82	0.86	0.91	0.93	0.90	0.92	0.95	0.88	0.96	0.98
2830	62.4	-6.1	41.4	0.92	0.83	0.83	0.87	0.92	0.92	0.90	0.91	0.95	0.90	0.96	0.97
2831	63.0	-5.4	41.1	0.91	0.83	0.83	0.88	0.91	0.92	0.88	0.89	0.95	0.91	0.96	0.97
2832	63.6	-4.7	41.3	0.90	0.85	0.83	0.87	0.89	0.92	0.88	0.89	0.94	0.91	0.96	0.97
2833	64.2	-4.0	41.6	0.89	0.87	0.84	0.86	0.89	0.90	0.88	0.90	0.95	0.92	0.95	0.97
2834	64.8	-3.3	41.5	0.91	0.89	0.88	0.87	0.90	0.90	0.87	0.93	0.97	0.94	0.96	0.97
2835	65.4	-2.5	41.0	0.94	0.90	0.91	0.88	0.91	0.93	0.88	0.93	0.97	0.95	0.96	0.96
2836	66.0	-1.6	40.5	0.95	0.90	0.91	0.87	0.91	0.93	0.89	0.92	0.96	0.94	0.96	0.96
2837	66.6	-0.7	40.2	0.94	0.89	0.87	0.87	0.91	0.92	0.90	0.93	0.96	0.92	0.96	0.96
2838	67.2	0.2	40.1	0.93	0.88	0.85	0.86	0.91	0.92	0.89	0.94	0.97	0.91	0.96	0.97
2839	67.8	1.2	40.4	0.93	0.89	0.87	0.87	0.91	0.92	0.89	0.95	0.98	0.93	0.96	0.97
2840	68.4	2.2	40.7	0.95	0.89	0.89	0.89	0.92	0.92	0.89	0.94	0.99	0.94	0.97	0.97
2841	68.9	3.3	40.8	0.97	0.88	0.89	0.88	0.93	0.90	0.90	0.91	0.99	0.93	0.97	0.96
2842	69.5	4.5	40.7	0.97	0.88	0.86	0.84	0.93	0.88	0.91	0.89	0.98	0.92	0.95	0.94
2843	70.1	5.7	40.8	0.96	0.88	0.83	0.81	0.90	0.86	0.89	0.87	0.98	0.91	0.92	0.94
2844	70.6	7.0	41.0	0.95	0.88	0.83	0.81	0.87	0.85	0.89	0.86	0.98	0.90	0.90	0.93
2845	71.2	8.4	41.0	0.94	0.90	0.84	0.83	0.85	0.86	0.90	0.86	0.97	0.91	0.90	0.93
2846	71.7	9.8	40.7	0.92	0.94	0.87	0.86	0.84	0.88	0.90	0.88	0.98	0.96	0.92	0.93
2847	72.2	11.4	40.2	0.90	0.97	0.90	0.87	0.85	0.88	0.90	0.90	0.99	0.98	0.92	0.94
2848	72.7	13.0	39.9	0.89	0.98	0.92	0.86	0.85	0.88	0.89	0.91	0.99	0.99	0.90	0.94
2849	73.2	14.7	40.0	0.90	0.97	0.94	0.86	0.84	0.86	0.88	0.90	0.99	0.99	0.89	0.93
2850	73.7	16.6	40.4	0.91	0.96	0.96	0.86	0.82	0.85	0.87	0.87	0.99	0.98	0.87	0.91
2851	74.2	18.5	41.0	0.91	0.97	0.96	0.84	0.81	0.85	0.87	0.85	0.99	0.99	0.86	0.90
2852	74.6	20.6	41.5	0.88	0.98	0.95	0.84	0.82	0.84	0.86	0.84	0.99	0.99	0.87	0.90
2853	75.0	22.8	41.7	0.88	0.98	0.94	0.85	0.83	0.82	0.84	0.83	0.99	0.99	0.87	0.88
2854	75.4	25.1	41.5	0.90	0.97	0.94	0.85	0.81	0.80	0.79	0.81	0.99	0.99	0.87	0.86
2855	75.8	27.5	41.3	0.91	0.96	0.95	0.85	0.80	0.79	0.76	0.79	0.98	0.99	0.86	0.84
2925	59.0	-7.8	42.3	0.83	0.82	0.82	0.82	0.88	0.98	0.94	0.93	0.94	0.86	0.98	1.00
2926	59.6	-7.2	42.3	0.84	0.82	0.82	0.83	0.87	0.97	0.93	0.94	0.94	0.87	0.98	1.00
2927	60.2	-6.7	42.1	0.86	0.82	0.81	0.84	0.86	0.96	0.91	0.94	0.95	0.87	0.97	0.99
2928	60.9	-6.1	41.7	0.89	0.82	0.80	0.84	0.87	0.95	0.89	0.91	0.95	0.86	0.96	0.98
2929	61.5	-5.4	41.2	0.91	0.84	0.80	0.84	0.90	0.94	0.89	0.88	0.95	0.87	0.96	0.97
2930	62.1	-4.8	40.8	0.92	0.85	0.81	0.86	0.92	0.92	0.91	0.89	0.95	0.88	0.95	0.96
2931	62.7	-4.1	40.6	0.92	0.85	0.82	0.87	0.91	0.90	0.90	0.90	0.96	0.90	0.95	0.97
2932	63.3	-3.4	40.8	0.91	0.86	0.82	0.87	0.89	0.90	0.90	0.92	0.96	0.91	0.94	0.98
2933	63.9	-2.6	40.8	0.91	0.87	0.84	0.87	0.87	0.89	0.89	0.93	0.96	0.93	0.94	0.98
2934	64.5	-1.9	40.4	0.92	0.88	0.86	0.88	0.87	0.91	0.88	0.92	0.96	0.94	0.95	0.98
2935	65.1	-1.0	39.9	0.92	0.91	0.89	0.88	0.89	0.94	0.88	0.91	0.96	0.96	0.96	0.97
2936	65.7	-0.2	39.9	0.93	0.91	0.89	0.87	0.91	0.93	0.90	0.91	0.95	0.95	0.97	0.96
2937	66.2	0.7	40.1	0.93	0.89	0.87	0.86	0.92	0.91	0.92	0.92	0.95	0.92	0.96	0.97

No	N[°]	E[°]	U <sub>50</sub>	N	NE	E	SE	S	SW	W	NW	North erly	East erly	South erly	West erly
2938	66.8	1.7	40.3	0.93	0.87	0.85	0.85	0.92	0.90	0.92	0.93	0.96	0.90	0.95	0.97
2939	67.4	2.7	40.4	0.93	0.88	0.85	0.86	0.91	0.91	0.90	0.94	0.98	0.92	0.95	0.97
2940	68.0	3.8	40.3	0.95	0.90	0.87	0.88	0.92	0.91	0.91	0.94	0.99	0.94	0.96	0.97
2941	68.5	4.9	39.9	0.96	0.90	0.88	0.87	0.92	0.92	0.93	0.94	0.99	0.94	0.96	0.97
2942	69.1	6.0	39.9	0.95	0.90	0.88	0.83	0.91	0.90	0.92	0.93	0.98	0.93	0.94	0.97
2943	69.6	7.3	40.2	0.94	0.88	0.85	0.80	0.89	0.87	0.90	0.90	0.97	0.90	0.91	0.96
2944	70.2	8.6	40.5	0.93	0.86	0.82	0.79	0.87	0.86	0.89	0.86	0.96	0.88	0.90	0.94
2945	70.7	10.0	40.5	0.93	0.87	0.83	0.80	0.86	0.87	0.90	0.84	0.96	0.89	0.91	0.93
2946	71.2	11.5	40.2	0.93	0.91	0.86	0.83	0.87	0.89	0.92	0.86	0.97	0.92	0.93	0.93
2947	71.7	13.0	39.7	0.92	0.95	0.89	0.84	0.87	0.89	0.93	0.89	0.98	0.95	0.92	0.95
2948	72.2	14.6	39.5	0.91	0.96	0.91	0.84	0.85	0.88	0.92	0.90	0.99	0.97	0.90	0.95
2949	72.7	16.4	39.6	0.93	0.96	0.93	0.85	0.84	0.87	0.89	0.90	0.99	0.97	0.89	0.93
2950	73.2	18.2	40.1	0.96	0.96	0.94	0.86	0.83	0.85	0.87	0.89	1.00	0.97	0.88	0.91
2951	73.6	20.1	41.1	0.95	0.97	0.95	0.85	0.81	0.83	0.85	0.86	1.00	0.98	0.86	0.89
2952	74.0	22.2	41.9	0.92	0.98	0.94	0.84	0.81	0.82	0.84	0.84	1.00	0.99	0.86	0.88
2953	74.4	24.3	42.2	0.91	0.98	0.94	0.84	0.81	0.80	0.83	0.83	1.00	0.99	0.86	0.87
2954	74.8	26.6	41.9	0.92	0.97	0.94	0.84	0.80	0.80	0.81	0.81	0.99	0.98	0.86	0.86
2955	75.2	28.9	41.5	0.92	0.96	0.95	0.84	0.79	0.79	0.79	0.79	0.99	0.98	0.85	0.85
3025	58.7	-6.6	41.8	0.83	0.80	0.79	0.81	0.87	0.95	0.95	0.94	0.94	0.85	0.95	1.00
3026	59.3	-6.0	42.1	0.83	0.81	0.80	0.83	0.86	0.95	0.95	0.95	0.95	0.86	0.95	1.00
3027	60.0	-5.4	42.0	0.85	0.83	0.80	0.84	0.85	0.95	0.93	0.95	0.96	0.88	0.95	0.99
3028	60.6	-4.8	41.3	0.88	0.84	0.80	0.84	0.86	0.95	0.90	0.92	0.96	0.87	0.95	0.98
3029	61.2	-4.2	40.6	0.91	0.85	0.81	0.84	0.89	0.94	0.90	0.89	0.95	0.87	0.96	0.97
3030	61.8	-3.5	40.3	0.92	0.86	0.81	0.86	0.91	0.93	0.92	0.89	0.96	0.89	0.96	0.97
3031	62.4	-2.8	40.3	0.92	0.86	0.81	0.87	0.91	0.90	0.92	0.92	0.96	0.90	0.94	0.98
3032	62.9	-2.1	40.5	0.91	0.86	0.81	0.88	0.89	0.88	0.92	0.93	0.96	0.90	0.93	0.99
3033	63.5	-1.3	40.1	0.91	0.86	0.82	0.89	0.87	0.88	0.91	0.94	0.96	0.91	0.93	0.99
3034	64.1	-0.5	39.4	0.92	0.87	0.84	0.88	0.86	0.91	0.89	0.92	0.96	0.92	0.94	0.98
3035	64.7	0.3	39.0	0.93	0.89	0.86	0.88	0.87	0.94	0.89	0.90	0.95	0.94	0.96	0.97
3036	65.3	1.2	39.0	0.93	0.91	0.86	0.87	0.90	0.94	0.91	0.91	0.95	0.94	0.97	0.97
3037	65.9	2.2	39.4	0.93	0.90	0.85	0.85	0.92	0.91	0.94	0.93	0.95	0.92	0.96	0.97
3038	66.4	3.1	39.8	0.92	0.87	0.84	0.83	0.91	0.90	0.94	0.93	0.95	0.89	0.94	0.98
3039	67.0	4.2	40.1	0.92	0.87	0.84	0.83	0.89	0.91	0.93	0.93	0.96	0.90	0.94	0.98
3040	67.6	5.2	39.8	0.92	0.90	0.86	0.85	0.90	0.91	0.94	0.94	0.98	0.93	0.95	0.98
3041	68.1	6.4	39.4	0.92	0.92	0.87	0.84	0.90	0.92	0.95	0.95	0.99	0.94	0.94	0.98
3042	68.7	7.6	39.4	0.91	0.90	0.87	0.82	0.89	0.91	0.93	0.94	0.98	0.93	0.93	0.98
3043	69.2	8.8	39.7	0.90	0.87	0.84	0.80	0.88	0.88	0.91	0.92	0.96	0.91	0.92	0.97
3044	69.7	10.1	39.8	0.90	0.86	0.83	0.79	0.88	0.87	0.90	0.88	0.96	0.89	0.92	0.95
3045	70.2	11.5	39.5	0.91	0.86	0.83	0.79	0.89	0.88	0.91	0.86	0.96	0.88	0.93	0.95
3046	70.7	13.0	39.1	0.92	0.89	0.86	0.81	0.90	0.89	0.93	0.87	0.96	0.91	0.94	0.95
3047	71.2	14.5	38.7	0.92	0.92	0.88	0.83	0.89	0.90	0.95	0.90	0.97	0.93	0.93	0.97
3048	71.7	16.2	38.7	0.92	0.93	0.89	0.84	0.86	0.89	0.95	0.91	0.98	0.94	0.91	0.98
3049	72.2	17.9	38.9	0.95	0.94	0.91	0.85	0.84	0.90	0.93	0.92	0.99	0.95	0.91	0.96
3050	72.6	19.7	39.2	0.98	0.95	0.92	0.86	0.84	0.89	0.90	0.91	1.00	0.96	0.90	0.94
3051	73.0	21.6	39.9	0.99	0.95	0.93	0.85	0.82	0.85	0.85	0.89	1.00	0.96	0.88	0.91
3052	73.4	23.6	40.8	0.96	0.95	0.92	0.84	0.82	0.81	0.83	0.86	1.00	0.97	0.87	0.88
3053	73.8	25.7	41.5	0.94	0.95	0.93	0.85	0.82	0.79	0.82	0.85	0.99	0.98	0.87	0.88
3054	74.2	27.9	41.6	0.93	0.94	0.95	0.85	0.80	0.78	0.81	0.83	0.99	0.98	0.86	0.87
3055	74.6	30.2	41.5	0.92	0.94	0.96	0.84	0.79	0.78	0.80	0.80	0.98	0.98	0.85	0.85
3125	58.4	-5.4	40.9	0.84	0.79	0.76	0.82	0.88	0.92	0.95	0.95	0.96	0.84	0.93	1.00
3126	59.0	-4.9	41.4	0.84	0.81	0.77	0.84	0.87	0.93	0.95	0.96	0.96	0.86	0.94	1.00
3127	59.6	-4.2	41.5	0.85	0.83	0.79	0.85	0.85	0.94	0.94	0.96	0.97	0.88	0.94	1.00
3128	60.2	-3.6	41.0	0.88	0.84	0.82	0.85	0.86	0.94	0.92	0.94	0.97	0.88	0.94	0.99
3129	60.8	-2.9	40.5	0.92	0.84	0.84	0.84	0.90	0.93	0.92	0.91	0.96	0.88	0.95	0.98



No	N[°]	E[°]	U <sub>50</sub>	N	NE	E	SE	S	SW	W	NW	North erly	East rly	Soth erly	West erly
3130	61.4	-2.3	40.1	0.93	0.85	0.83	0.86	0.92	0.93	0.93	0.91	0.96	0.89	0.96	0.98
3131	62.0	-1.5	40.1	0.92	0.85	0.81	0.87	0.90	0.90	0.95	0.91	0.95	0.89	0.94	0.99
3132	62.6	-0.8	40.2	0.90	0.85	0.79	0.88	0.87	0.88	0.95	0.91	0.94	0.89	0.92	0.99
3133	63.2	0.0	39.8	0.90	0.86	0.80	0.88	0.87	0.90	0.93	0.91	0.95	0.90	0.93	1.00
3134	63.8	0.8	39.0	0.93	0.87	0.81	0.88	0.88	0.94	0.91	0.91	0.96	0.90	0.95	0.99
3135	64.3	1.7	38.4	0.94	0.87	0.82	0.88	0.89	0.96	0.92	0.90	0.96	0.92	0.97	0.98
3136	64.9	2.6	38.1	0.94	0.90	0.83	0.88	0.90	0.95	0.94	0.92	0.96	0.93	0.97	0.98
3137	65.5	3.5	38.3	0.94	0.91	0.83	0.86	0.92	0.94	0.96	0.94	0.97	0.92	0.96	0.99
3138	66.0	4.5	38.9	0.92	0.88	0.83	0.82	0.90	0.92	0.97	0.94	0.96	0.89	0.94	0.99
3139	66.6	5.6	39.4	0.90	0.86	0.82	0.81	0.87	0.91	0.96	0.93	0.96	0.88	0.93	0.99
3140	67.1	6.7	39.5	0.88	0.87	0.82	0.81	0.88	0.91	0.96	0.93	0.96	0.90	0.92	0.98
3141	67.7	7.8	39.2	0.87	0.89	0.82	0.81	0.88	0.91	0.96	0.93	0.97	0.91	0.93	0.98
3142	68.2	9.0	39.1	0.87	0.88	0.82	0.82	0.88	0.91	0.94	0.92	0.96	0.91	0.94	0.98
3143	68.7	10.3	39.3	0.86	0.86	0.82	0.84	0.89	0.91	0.92	0.91	0.95	0.91	0.94	0.98
3144	69.2	11.6	39.3	0.85	0.86	0.82	0.83	0.90	0.90	0.92	0.90	0.95	0.91	0.95	0.97
3145	69.7	13.0	38.9	0.85	0.87	0.82	0.82	0.91	0.89	0.93	0.89	0.95	0.90	0.94	0.97
3146	70.2	14.5	38.4	0.87	0.89	0.84	0.83	0.91	0.90	0.95	0.90	0.96	0.92	0.94	0.98
3147	70.7	16.0	38.1	0.88	0.90	0.86	0.86	0.89	0.90	0.96	0.91	0.96	0.93	0.93	0.99
3148	71.2	17.6	38.1	0.90	0.89	0.86	0.86	0.86	0.89	0.96	0.92	0.96	0.92	0.91	0.99
3149	71.6	19.3	38.3	0.94	0.91	0.88	0.86	0.85	0.90	0.95	0.93	0.97	0.93	0.91	0.98
3150	72.0	21.1	38.4	0.97	0.94	0.90	0.85	0.84	0.90	0.92	0.94	0.99	0.95	0.91	0.97
3151	72.5	23.0	38.7	0.99	0.93	0.90	0.84	0.84	0.86	0.86	0.92	1.00	0.95	0.89	0.93
3152	72.9	25.0	39.4	0.98	0.93	0.91	0.84	0.85	0.82	0.83	0.90	0.99	0.95	0.88	0.91
3153	73.2	27.0	40.4	0.95	0.93	0.93	0.84	0.83	0.79	0.82	0.89	0.99	0.97	0.87	0.90
3154	73.6	29.2	41.1	0.94	0.92	0.95	0.85	0.81	0.78	0.81	0.86	0.98	0.98	0.86	0.89
3155	73.9	31.4	41.3	0.93	0.93	0.97	0.85	0.80	0.77	0.81	0.83	0.97	0.98	0.85	0.87
3225	58.1	-4.3	40.4	0.85	0.80	0.74	0.82	0.90	0.92	0.94	0.96	0.96	0.85	0.94	1.00
3226	58.7	-3.7	40.6	0.85	0.81	0.75	0.83	0.89	0.92	0.94	0.96	0.97	0.86	0.94	1.00
3227	59.3	-3.1	40.7	0.87	0.81	0.80	0.85	0.87	0.92	0.95	0.97	0.97	0.87	0.93	1.00
3228	59.9	-2.4	40.5	0.90	0.81	0.84	0.85	0.88	0.92	0.95	0.95	0.97	0.88	0.93	0.99
3229	60.5	-1.7	40.2	0.94	0.82	0.86	0.86	0.90	0.92	0.95	0.93	0.97	0.89	0.94	0.98
3230	61.1	-1.0	40.1	0.95	0.83	0.84	0.87	0.91	0.92	0.96	0.91	0.96	0.89	0.95	0.99
3231	61.7	-0.3	40.1	0.92	0.83	0.80	0.87	0.89	0.91	0.97	0.89	0.94	0.89	0.94	0.99
3232	62.2	0.5	40.0	0.90	0.84	0.78	0.88	0.87	0.91	0.96	0.87	0.92	0.89	0.93	1.00
3233	62.8	1.3	39.5	0.90	0.85	0.77	0.88	0.87	0.94	0.94	0.87	0.92	0.89	0.95	1.00
3234	63.4	2.1	38.9	0.91	0.86	0.78	0.87	0.89	0.97	0.93	0.88	0.93	0.89	0.97	1.00
3235	63.9	3.0	38.4	0.93	0.86	0.78	0.87	0.90	0.98	0.94	0.90	0.95	0.89	0.98	0.99
3236	64.5	3.9	38.0	0.93	0.87	0.78	0.87	0.91	0.97	0.95	0.93	0.96	0.90	0.98	0.99
3237	65.1	4.9	37.8	0.93	0.88	0.81	0.85	0.91	0.97	0.96	0.94	0.96	0.90	0.97	0.99
3238	65.6	5.9	38.3	0.90	0.85	0.82	0.81	0.89	0.95	0.98	0.94	0.95	0.88	0.95	1.00
3239	66.2	6.9	39.0	0.87	0.83	0.81	0.80	0.88	0.93	0.98	0.94	0.95	0.86	0.93	0.99
3240	66.7	8.0	39.4	0.85	0.82	0.78	0.81	0.88	0.92	0.97	0.92	0.94	0.87	0.93	0.99
3241	67.2	9.2	39.4	0.84	0.82	0.76	0.81	0.89	0.92	0.97	0.90	0.93	0.87	0.93	0.99
3242	67.7	10.4	39.3	0.81	0.81	0.75	0.83	0.89	0.93	0.95	0.89	0.91	0.87	0.95	0.99
3243	68.2	11.7	39.4	0.79	0.81	0.77	0.85	0.90	0.93	0.93	0.88	0.91	0.89	0.96	0.99
3244	68.7	13.0	39.5	0.78	0.81	0.79	0.85	0.91	0.93	0.93	0.88	0.92	0.90	0.96	0.99
3245	69.2	14.4	39.1	0.79	0.83	0.79	0.84	0.92	0.92	0.95	0.89	0.93	0.90	0.96	0.99
3246	69.7	15.9	38.5	0.82	0.85	0.82	0.86	0.92	0.92	0.97	0.91	0.93	0.91	0.95	0.99
3247	70.2	17.4	38.4	0.86	0.84	0.83	0.88	0.90	0.90	0.97	0.91	0.93	0.92	0.94	0.99
3248	70.6	19.0	38.3	0.89	0.83	0.82	0.87	0.88	0.88	0.96	0.91	0.93	0.90	0.92	0.99
3249	71.1	20.7	38.2	0.91	0.86	0.82	0.85	0.87	0.89	0.95	0.92	0.95	0.90	0.91	0.99
3250	71.5	22.5	38.4	0.93	0.89	0.84	0.83	0.85	0.90	0.91	0.94	0.98	0.92	0.91	0.98
3251	71.9	24.3	38.7	0.96	0.90	0.86	0.82	0.85	0.87	0.87	0.94	0.99	0.93	0.91	0.96
3252	72.3	26.2	39.0	0.97	0.92	0.88	0.83	0.86	0.84	0.84	0.93	0.99	0.94	0.89	0.94

No	N[°]	E[°]	U <sub>50</sub>	N	NE	E	SE	S	SW	W	NW	North erly	East erly	South erly	West erly
3253	72.6	28.3	39.7	0.96	0.93	0.91	0.84	0.85	0.81	0.83	0.92	0.99	0.96	0.87	0.93
3254	73.0	30.4	40.5	0.94	0.92	0.95	0.84	0.82	0.80	0.82	0.90	0.97	0.98	0.86	0.92
3255	73.3	32.5	40.9	0.94	0.92	0.97	0.85	0.81	0.80	0.81	0.88	0.97	0.98	0.86	0.91
3325	57.8	-3.2	40.4	0.87	0.81	0.75	0.81	0.92	0.94	0.93	0.96	0.97	0.85	0.96	0.99
3326	58.4	-2.6	40.2	0.87	0.80	0.77	0.82	0.91	0.92	0.93	0.97	0.97	0.86	0.94	1.00
3327	59.0	-1.9	40.0	0.88	0.79	0.81	0.84	0.89	0.91	0.94	0.97	0.97	0.87	0.92	1.00
3328	59.6	-1.3	39.8	0.92	0.78	0.84	0.86	0.89	0.90	0.95	0.96	0.98	0.88	0.92	0.99
3329	60.2	-0.6	39.7	0.95	0.79	0.85	0.87	0.91	0.90	0.95	0.93	0.98	0.89	0.93	0.98
3330	60.7	0.2	39.8	0.95	0.80	0.84	0.87	0.92	0.92	0.96	0.91	0.96	0.89	0.94	0.99
3331	61.3	0.9	39.9	0.91	0.80	0.80	0.87	0.90	0.93	0.96	0.89	0.94	0.88	0.95	0.99
3332	61.9	1.7	39.7	0.88	0.81	0.76	0.87	0.88	0.94	0.94	0.86	0.91	0.88	0.95	1.00
3333	62.4	2.5	39.4	0.87	0.82	0.75	0.87	0.88	0.96	0.93	0.85	0.89	0.88	0.97	1.00
3334	63.0	3.4	39.1	0.87	0.83	0.74	0.85	0.89	0.98	0.94	0.85	0.90	0.87	0.98	1.00
3335	63.5	4.3	38.9	0.87	0.83	0.73	0.83	0.90	0.98	0.95	0.88	0.91	0.86	0.98	1.00
3336	64.1	5.2	38.4	0.87	0.83	0.75	0.83	0.91	0.98	0.96	0.91	0.92	0.86	0.98	1.00
3337	64.6	6.2	37.9	0.87	0.82	0.78	0.82	0.91	0.98	0.96	0.92	0.94	0.86	0.98	1.00
3338	65.2	7.2	38.3	0.86	0.80	0.80	0.81	0.91	0.97	0.97	0.93	0.94	0.85	0.97	1.00
3339	65.7	8.2	39.0	0.83	0.78	0.79	0.81	0.90	0.95	0.98	0.93	0.94	0.84	0.95	1.00
3340	66.2	9.3	39.5	0.81	0.78	0.75	0.82	0.90	0.94	0.97	0.91	0.92	0.85	0.95	1.00
3341	66.8	10.5	39.5	0.79	0.76	0.72	0.81	0.91	0.94	0.95	0.88	0.89	0.84	0.96	0.99
3342	67.3	11.7	39.4	0.75	0.73	0.70	0.80	0.92	0.94	0.93	0.85	0.87	0.84	0.96	0.99
3343	67.8	13.0	39.4	0.71	0.71	0.70	0.81	0.92	0.93	0.91	0.83	0.85	0.85	0.96	0.98
3348	70.1	20.3	38.8	0.88	0.77	0.77	0.85	0.92	0.91	0.94	0.91	0.93	0.88	0.94	0.99
3349	70.5	22.0	38.4	0.88	0.79	0.75	0.81	0.90	0.91	0.91	0.91	0.94	0.86	0.94	0.99
3350	70.9	23.7	38.6	0.90	0.83	0.75	0.80	0.88	0.91	0.88	0.93	0.97	0.87	0.93	0.98
3351	71.3	25.5	39.0	0.93	0.86	0.80	0.81	0.87	0.89	0.87	0.95	0.99	0.90	0.92	0.98
3352	71.7	27.4	38.9	0.95	0.89	0.85	0.83	0.87	0.86	0.86	0.96	1.00	0.92	0.90	0.97
3353	72.0	29.4	39.0	0.95	0.91	0.90	0.83	0.85	0.84	0.85	0.95	0.99	0.95	0.87	0.96
3354	72.3	31.4	39.5	0.93	0.92	0.94	0.83	0.84	0.83	0.84	0.93	0.98	0.97	0.87	0.95
3355	72.6	33.6	39.8	0.93	0.91	0.96	0.84	0.84	0.83	0.83	0.91	0.97	0.97	0.88	0.93
3425	57.5	-2.1	40.0	0.89	0.81	0.77	0.80	0.92	0.95	0.94	0.96	0.96	0.85	0.96	1.00
3426	58.1	-1.5	39.7	0.88	0.80	0.80	0.81	0.90	0.92	0.93	0.96	0.97	0.86	0.94	1.00
3427	58.7	-0.8	39.4	0.89	0.79	0.83	0.83	0.89	0.89	0.94	0.97	0.98	0.87	0.92	1.00
3428	59.2	-0.1	39.5	0.91	0.77	0.84	0.86	0.90	0.89	0.93	0.96	0.98	0.88	0.92	0.99
3429	59.8	0.6	39.4	0.94	0.76	0.85	0.87	0.93	0.91	0.93	0.93	0.97	0.89	0.95	0.98
3430	60.4	1.3	39.2	0.94	0.76	0.84	0.87	0.94	0.93	0.93	0.91	0.96	0.89	0.96	0.98
3431	60.9	2.1	39.5	0.90	0.77	0.80	0.87	0.93	0.95	0.92	0.89	0.94	0.87	0.96	0.98
3432	61.5	2.9	39.6	0.85	0.78	0.75	0.85	0.91	0.96	0.91	0.86	0.90	0.86	0.97	0.99
3433	62.0	3.7	39.5	0.82	0.79	0.72	0.83	0.90	0.98	0.91	0.83	0.87	0.85	0.98	1.00
3434	62.6	4.6	39.4	0.80	0.78	0.70	0.81	0.90	0.98	0.93	0.83	0.86	0.83	0.98	1.00
3435	63.1	5.5	39.2	0.79	0.78	0.70	0.79	0.90	0.97	0.95	0.85	0.87	0.82	0.97	1.00
3436	63.7	6.4	38.6	0.80	0.76	0.73	0.80	0.91	0.97	0.96	0.88	0.89	0.83	0.97	1.00
3437	64.2	7.4	38.1	0.81	0.74	0.77	0.82	0.92	0.97	0.96	0.90	0.91	0.85	0.98	1.00
3438	64.7	8.4	38.4	0.81	0.72	0.78	0.83	0.93	0.97	0.96	0.92	0.92	0.85	0.97	1.00
3439	65.3	9.5	39.1	0.79	0.72	0.76	0.83	0.93	0.96	0.97	0.92	0.92	0.85	0.97	1.00
3440	65.8	10.6	39.4	0.77	0.72	0.73	0.83	0.93	0.96	0.94	0.89	0.90	0.85	0.96	0.99
3441	66.3	11.8	39.2	0.74	0.68	0.70	0.81	0.93	0.94	0.91	0.85	0.86	0.84	0.96	0.98
3442	66.8	13.0	39.1	0.71	0.65	0.67	0.79	0.95	0.93	0.88	0.83	0.86	0.83	0.96	0.98
3443	67.3	14.3	39.2	0.70	0.63	0.65	0.79	0.95	0.91	0.86	0.82	0.86	0.84	0.96	0.97
3452	71.0	28.5	38.3	0.93	0.86	0.81	0.81	0.86	0.87	0.88	0.97	1.00	0.89	0.89	0.98
3453	71.4	30.4	38.4	0.93	0.88	0.87	0.82	0.84	0.85	0.87	0.97	0.99	0.92	0.87	0.97
3454	71.7	32.4	38.4	0.93	0.90	0.91	0.84	0.84	0.85	0.85	0.94	0.98	0.95	0.88	0.96
3455	72.0	34.5	38.4	0.93	0.89	0.93	0.86	0.84	0.85	0.84	0.92	0.97	0.96	0.89	0.94
3525	57.2	-1.0	38.7	0.89	0.80	0.79	0.80	0.90	0.94	0.95	0.96	0.96	0.84	0.95	1.00

No	N[°]	E[°]	U <sub>50</sub>	N	NE	E	SE	S	SW	W	NW	North erly	East erly	Soth erly	West erly
3526	57.7	-0.4	38.6	0.89	0.81	0.81	0.80	0.90	0.92	0.95	0.96	0.96	0.85	0.93	1.00
3527	58.3	0.3	38.9	0.88	0.80	0.84	0.83	0.90	0.89	0.94	0.96	0.97	0.87	0.92	0.99
3528	58.9	1.0	39.2	0.90	0.77	0.85	0.86	0.92	0.89	0.93	0.95	0.97	0.89	0.94	0.99
3529	59.4	1.7	39.0	0.92	0.76	0.85	0.87	0.94	0.91	0.91	0.94	0.97	0.90	0.96	0.98
3530	60.0	2.4	38.7	0.92	0.75	0.83	0.87	0.96	0.93	0.90	0.91	0.96	0.89	0.97	0.97
3531	60.5	3.2	38.9	0.89	0.75	0.79	0.86	0.96	0.94	0.89	0.88	0.93	0.88	0.97	0.97
3532	61.1	4.0	39.3	0.83	0.76	0.74	0.83	0.95	0.95	0.88	0.84	0.89	0.86	0.98	0.99
3533	61.6	4.9	39.3	0.78	0.76	0.71	0.79	0.94	0.96	0.89	0.82	0.86	0.83	0.99	1.00
3534	62.2	5.7	39.2	0.75	0.75	0.69	0.77	0.93	0.97	0.91	0.81	0.85	0.81	0.99	1.00
3535	62.7	6.7	39.0	0.75	0.73	0.68	0.76	0.93	0.96	0.93	0.82	0.85	0.80	0.97	1.00
3536	63.2	7.6	38.4	0.77	0.71	0.70	0.79	0.93	0.96	0.94	0.85	0.87	0.82	0.97	1.00
3537	63.8	8.6	37.9	0.77	0.69	0.74	0.83	0.94	0.96	0.95	0.88	0.90	0.85	0.97	1.00
3538	64.3	9.6	38.3	0.77	0.65	0.75	0.85	0.95	0.95	0.97	0.90	0.91	0.87	0.96	1.00
3539	64.8	10.7	39.1	0.76	0.63	0.73	0.86	0.95	0.94	0.96	0.90	0.91	0.87	0.96	1.00
3540	65.3	11.8	39.2	0.76	0.63	0.71	0.85	0.95	0.94	0.92	0.87	0.89	0.87	0.96	0.99
3553	70.8	31.4	38.0	0.93	0.86	0.82	0.81	0.81	0.85	0.89	0.96	0.99	0.90	0.87	0.98
3554	71.1	33.4	37.7	0.93	0.88	0.87	0.85	0.82	0.85	0.88	0.95	0.98	0.93	0.89	0.96
3555	71.3	35.4	37.4	0.92	0.88	0.88	0.88	0.84	0.86	0.87	0.94	0.97	0.94	0.90	0.95
3625	56.8	0.0	37.7	0.88	0.80	0.78	0.80	0.89	0.91	0.95	0.97	0.97	0.83	0.93	1.00
3626	57.4	0.7	37.8	0.88	0.81	0.80	0.81	0.89	0.90	0.95	0.96	0.97	0.84	0.92	0.99
3627	57.9	1.3	38.0	0.88	0.81	0.83	0.83	0.90	0.88	0.94	0.96	0.97	0.87	0.92	0.99
3628	58.5	2.0	38.3	0.88	0.79	0.86	0.87	0.93	0.89	0.92	0.96	0.97	0.90	0.94	0.99
3629	59.0	2.8	38.4	0.89	0.76	0.87	0.88	0.95	0.91	0.90	0.95	0.97	0.91	0.97	0.98
3630	59.6	3.5	38.3	0.88	0.74	0.83	0.87	0.97	0.91	0.89	0.92	0.94	0.90	0.97	0.96
3631	60.1	4.3	38.5	0.85	0.73	0.77	0.86	0.98	0.91	0.88	0.86	0.91	0.89	0.98	0.96
3653	70.1	32.4	37.8	0.93	0.84	0.78	0.79	0.78	0.84	0.92	0.97	1.00	0.87	0.86	0.98
3654	70.4	34.3	37.4	0.92	0.87	0.83	0.85	0.80	0.84	0.91	0.96	0.99	0.91	0.88	0.98
3655	70.7	36.2	37.1	0.91	0.87	0.84	0.88	0.82	0.85	0.89	0.96	0.98	0.93	0.90	0.97
3725	56.5	1.0	37.8	0.86	0.81	0.76	0.80	0.88	0.88	0.92	0.97	0.98	0.82	0.91	1.00
3726	57.0	1.7	37.5	0.86	0.81	0.79	0.82	0.89	0.88	0.93	0.98	0.98	0.84	0.91	1.00
3727	57.6	2.4	37.3	0.87	0.81	0.84	0.85	0.91	0.88	0.93	0.97	0.98	0.87	0.93	0.99
3728	58.1	3.1	37.5	0.87	0.79	0.87	0.88	0.93	0.89	0.90	0.97	0.98	0.91	0.94	0.98
3729	58.7	3.8	37.8	0.86	0.76	0.87	0.89	0.95	0.89	0.88	0.96	0.96	0.92	0.96	0.97
3730	59.2	4.6	38.3	0.85	0.74	0.83	0.89	0.97	0.88	0.88	0.91	0.93	0.91	0.98	0.95
3753	69.5	33.2	37.7	0.93	0.83	0.76	0.76	0.78	0.83	0.93	0.97	1.00	0.84	0.85	0.99
3754	69.8	35.1	37.5	0.90	0.85	0.79	0.81	0.79	0.84	0.91	0.97	1.00	0.88	0.87	0.98
3755	70.0	37.0	37.3	0.89	0.87	0.81	0.83	0.81	0.85	0.89	0.97	0.99	0.90	0.88	0.98
3825	56.1	2.0	38.2	0.85	0.82	0.77	0.80	0.87	0.88	0.92	0.96	0.97	0.84	0.90	1.00
3826	56.6	2.7	37.8	0.85	0.82	0.79	0.82	0.89	0.86	0.93	0.97	0.98	0.85	0.91	1.00
3827	57.2	3.4	37.3	0.86	0.81	0.84	0.86	0.92	0.86	0.92	0.98	0.98	0.88	0.92	0.99
3828	57.7	4.1	37.2	0.85	0.79	0.87	0.90	0.93	0.86	0.90	0.97	0.98	0.92	0.94	0.98
3829	58.3	4.9	37.7	0.85	0.76	0.86	0.92	0.94	0.86	0.88	0.95	0.96	0.94	0.96	0.96
3853	68.9	34.0	37.5	0.92	0.82	0.75	0.74	0.79	0.83	0.93	0.97	1.00	0.83	0.85	0.98
3854	69.1	35.8	37.7	0.90	0.84	0.76	0.77	0.80	0.84	0.90	0.97	1.00	0.86	0.86	0.98
3855	69.4	37.7	37.7	0.88	0.86	0.79	0.79	0.80	0.85	0.89	0.97	1.00	0.88	0.87	0.98
3925	55.7	3.0	38.7	0.85	0.83	0.78	0.80	0.86	0.89	0.93	0.94	0.96	0.86	0.91	1.00
3926	56.3	3.7	38.4	0.83	0.83	0.79	0.82	0.88	0.87	0.94	0.96	0.97	0.86	0.91	1.00
3927	56.8	4.4	37.8	0.83	0.82	0.83	0.86	0.91	0.86	0.94	0.97	0.97	0.89	0.93	0.99
3928	57.3	5.1	37.4	0.84	0.80	0.85	0.91	0.93	0.84	0.92	0.96	0.97	0.93	0.95	0.98
3929	57.9	5.9	37.6	0.84	0.78	0.87	0.95	0.93	0.84	0.90	0.94	0.95	0.95	0.96	0.97
4025	55.3	3.9	38.7	0.84	0.83	0.79	0.81	0.86	0.90	0.95	0.92	0.95	0.88	0.92	0.99
4026	55.9	4.6	38.8	0.81	0.83	0.79	0.82	0.87	0.89	0.95	0.94	0.95	0.87	0.92	0.99
4027	56.4	5.3	38.2	0.79	0.83	0.82	0.86	0.90	0.87	0.95	0.96	0.96	0.89	0.93	0.99
4028	56.9	6.1	37.6	0.80	0.82	0.85	0.92	0.91	0.85	0.94	0.96	0.96	0.93	0.95	0.98

No	N[°]	E[°]	U <sub>50</sub>	N	NE	E	SE	S	SW	W	NW	North erly	East erly	South erly	West erly
4029	57.4	6.9	37.4	0.82	0.80	0.88	0.95	0.90	0.84	0.92	0.93	0.94	0.96	0.96	0.97
4125	54.9	4.9	38.4	0.84	0.82	0.79	0.82	0.87	0.91	0.96	0.90	0.93	0.88	0.93	0.98
4126	55.5	5.6	38.4	0.79	0.82	0.80	0.81	0.88	0.89	0.96	0.91	0.93	0.87	0.92	0.99
4127	56.0	6.3	38.0	0.75	0.83	0.81	0.85	0.90	0.88	0.96	0.93	0.94	0.89	0.93	0.99
4128	56.5	7.0	37.5	0.76	0.83	0.85	0.90	0.90	0.88	0.95	0.93	0.94	0.93	0.95	0.98
4129	57.0	7.8	37.2	0.78	0.81	0.88	0.93	0.89	0.88	0.93	0.92	0.92	0.95	0.97	0.98
4130	57.5	8.6	36.9	0.83	0.81	0.91	0.94	0.89	0.89	0.92	0.92	0.93	0.96	0.97	0.97
4131	58.0	9.4	36.5	0.87	0.85	0.95	0.92	0.91	0.90	0.92	0.91	0.94	0.97	0.96	0.96
4132	58.5	10.3	35.9	0.85	0.89	0.95	0.91	0.92	0.91	0.93	0.88	0.94	0.98	0.96	0.96
4225	54.5	5.8	38.1	0.83	0.81	0.80	0.82	0.89	0.89	0.97	0.89	0.91	0.87	0.93	0.98
4226	55.1	6.5	38.0	0.79	0.83	0.80	0.82	0.89	0.89	0.97	0.89	0.92	0.88	0.93	0.98
4227	55.6	7.2	37.8	0.74	0.84	0.82	0.84	0.89	0.88	0.97	0.90	0.92	0.89	0.93	0.98
4228	56.1	8.0	37.4	0.73	0.83	0.85	0.89	0.90	0.90	0.96	0.91	0.92	0.92	0.95	0.99
4229	56.6	8.7	37.2	0.77	0.81	0.87	0.92	0.89	0.91	0.94	0.91	0.92	0.94	0.97	0.99
4230	57.1	9.5	36.8	0.84	0.81	0.90	0.91	0.89	0.91	0.92	0.91	0.93	0.94	0.97	0.97
4231	57.6	10.4	36.2	0.85	0.84	0.93	0.90	0.90	0.90	0.92	0.90	0.94	0.96	0.96	0.96
4232	58.1	11.2	35.5	0.82	0.88	0.94	0.90	0.91	0.90	0.92	0.87	0.94	0.98	0.96	0.95
Average			40.0	0.89	0.86	0.85	0.85	0.88	0.89	0.90	0.91	0.96	0.91	0.93	0.96
Stand. dev.			1.6	0.06	0.07	0.07	0.03	0.04	0.05	0.05	0.04	0.03	0.05	0.03	0.04

## **Appendix 3**

**Calculated 50 year wind speed and transfer coefficients from the seasonal independent wind speed to the monthly and summer season values for all of the analysed 395 hindcast points**

No	N[°]	E[°]	U <sub>50</sub>	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Mar- Apr	Mai- Aug	Sep- Oct	Dec- Jan
2138	69.4	-11.7	41.7	0.93	0.92	0.90	0.82	0.79	0.70	0.65	0.72	0.82	0.91	0.95	0.92	0.90	0.80	0.91	0.96
2139	70.0	-11.0	41.5	0.92	0.93	0.90	0.82	0.78	0.69	0.65	0.71	0.81	0.91	0.95	0.92	0.90	0.79	0.91	0.95
2140	70.7	-10.2	41.1	0.91	0.93	0.91	0.82	0.76	0.69	0.65	0.72	0.80	0.91	0.94	0.94	0.91	0.77	0.91	0.95
2141	71.3	-9.4	41.2	0.91	0.94	0.91	0.83	0.74	0.68	0.64	0.73	0.80	0.91	0.92	0.96	0.91	0.76	0.91	0.97
2142	72.0	-8.5	41.1	0.92	0.94	0.90	0.83	0.73	0.68	0.64	0.73	0.80	0.90	0.91	0.97	0.90	0.75	0.90	0.98
2238	69.1	-9.8	41.9	0.93	0.93	0.91	0.82	0.79	0.69	0.67	0.73	0.82	0.92	0.95	0.92	0.91	0.80	0.92	0.96
2239	69.8	-9.1	41.6	0.92	0.92	0.92	0.81	0.78	0.70	0.66	0.72	0.81	0.92	0.94	0.92	0.92	0.79	0.92	0.95
2240	70.4	-8.3	41.1	0.90	0.92	0.91	0.81	0.76	0.69	0.65	0.71	0.80	0.91	0.93	0.94	0.91	0.77	0.91	0.95
2241	71.1	-7.4	40.9	0.91	0.93	0.90	0.82	0.74	0.68	0.64	0.71	0.79	0.90	0.91	0.96	0.90	0.75	0.90	0.98
2242	71.7	-6.4	41.0	0.92	0.93	0.90	0.82	0.73	0.68	0.64	0.72	0.80	0.89	0.89	0.97	0.90	0.75	0.89	0.99
2251	77.2	6.2	42.1	0.97	0.93	0.89	0.81	0.73	0.60	0.60	0.65	0.77	0.86	0.87	0.94	0.89	0.74	0.86	0.98
2252	77.7	8.2	42.2	0.97	0.92	0.88	0.80	0.71	0.59	0.58	0.64	0.74	0.85	0.86	0.94	0.89	0.73	0.85	0.99
2338	68.9	-8.0	42.0	0.92	0.93	0.92	0.80	0.78	0.69	0.70	0.73	0.82	0.91	0.92	0.92	0.92	0.79	0.91	0.95
2339	69.5	-7.2	41.9	0.91	0.92	0.93	0.80	0.78	0.70	0.69	0.72	0.81	0.91	0.92	0.93	0.93	0.79	0.91	0.95
2340	70.1	-6.4	41.5	0.91	0.91	0.92	0.79	0.76	0.69	0.67	0.70	0.79	0.91	0.90	0.95	0.92	0.77	0.91	0.97
2341	70.8	-5.4	41.1	0.92	0.92	0.91	0.80	0.75	0.69	0.66	0.69	0.79	0.89	0.89	0.96	0.91	0.75	0.90	0.99
2342	71.4	-4.4	41.0	0.93	0.93	0.91	0.82	0.74	0.69	0.65	0.70	0.80	0.89	0.88	0.97	0.91	0.75	0.90	0.99
2351	76.7	8.6	41.1	0.96	0.94	0.89	0.83	0.75	0.61	0.61	0.66	0.77	0.86	0.87	0.93	0.90	0.76	0.87	0.98
2352	77.2	10.7	41.8	0.96	0.93	0.89	0.82	0.73	0.61	0.59	0.66	0.75	0.86	0.87	0.94	0.90	0.75	0.87	0.98
2438	68.6	-6.3	42.2	0.90	0.93	0.93	0.80	0.78	0.69	0.73	0.72	0.80	0.90	0.90	0.93	0.93	0.79	0.91	0.95
2439	69.2	-5.4	42.0	0.90	0.92	0.93	0.80	0.77	0.70	0.72	0.70	0.79	0.91	0.89	0.93	0.93	0.78	0.91	0.95
2440	69.8	-4.5	41.8	0.91	0.92	0.93	0.80	0.76	0.70	0.69	0.68	0.78	0.91	0.89	0.94	0.93	0.77	0.91	0.96
2441	70.4	-3.6	41.5	0.92	0.93	0.93	0.81	0.75	0.71	0.68	0.68	0.78	0.92	0.89	0.95	0.93	0.77	0.92	0.97
2442	71.0	-2.5	41.3	0.92	0.94	0.93	0.83	0.75	0.71	0.67	0.70	0.79	0.92	0.88	0.96	0.93	0.77	0.92	0.97
2451	76.2	10.9	39.8	0.96	0.96	0.91	0.86	0.79	0.63	0.64	0.69	0.78	0.87	0.87	0.93	0.92	0.80	0.87	0.97
2452	76.7	13.0	40.7	0.96	0.94	0.89	0.84	0.76	0.62	0.60	0.67	0.74	0.87	0.87	0.93	0.91	0.78	0.87	0.97
2525	60.0	-12.7	42.8	0.94	0.85	0.80	0.73	0.69	0.65	0.64	0.65	0.82	0.85	0.86	0.83	0.80	0.70	0.89	0.94
2526	60.7	-12.3	42.7	0.94	0.87	0.81	0.74	0.70	0.66	0.65	0.66	0.82	0.87	0.86	0.85	0.81	0.71	0.90	0.95
2527	61.3	-11.8	42.8	0.94	0.88	0.81	0.74	0.71	0.67	0.64	0.67	0.83	0.88	0.85	0.87	0.81	0.72	0.91	0.96
2528	61.9	-11.3	43.0	0.94	0.90	0.81	0.74	0.70	0.66	0.64	0.68	0.82	0.88	0.85	0.88	0.81	0.73	0.90	0.97
2529	62.6	-10.7	43.2	0.93	0.92	0.82	0.75	0.70	0.65	0.63	0.68	0.80	0.86	0.86	0.87	0.82	0.73	0.88	0.96
2530	63.2	-10.2	43.5	0.91	0.93	0.82	0.76	0.70	0.64	0.62	0.68	0.79	0.85	0.87	0.86	0.83	0.72	0.87	0.94
2531	63.8	-9.6	43.8	0.90	0.93	0.84	0.78	0.70	0.65	0.63	0.68	0.80	0.85	0.89	0.85	0.85	0.73	0.87	0.92
2532	64.5	-9.0	43.8	0.91	0.92	0.86	0.80	0.72	0.66	0.64	0.68	0.81	0.85	0.90	0.86	0.87	0.74	0.87	0.92
2533	65.1	-8.4	43.8	0.91	0.93	0.88	0.83	0.75	0.67	0.66	0.69	0.82	0.86	0.91	0.87	0.89	0.76	0.87	0.92
2534	65.7	-7.7	43.6	0.91	0.95	0.88	0.85	0.77	0.68	0.69	0.69	0.83	0.86	0.91	0.88	0.90	0.77	0.88	0.92
2535	66.4	-7.0	42.7	0.90	0.95	0.90	0.86	0.78	0.71	0.72	0.70	0.84	0.87	0.90	0.90	0.91	0.79	0.88	0.93
2536	67.0	-6.2	41.9	0.90	0.93	0.91	0.85	0.80	0.72	0.74	0.71	0.83	0.88	0.89	0.92	0.92	0.80	0.88	0.94
2537	67.6	-5.4	41.8	0.90	0.92	0.92	0.83	0.80	0.72	0.75	0.71	0.82	0.89	0.89	0.93	0.93	0.81	0.89	0.95
2538	68.2	-4.6	42.0	0.91	0.93	0.92	0.83	0.79	0.71	0.75	0.70	0.81	0.90	0.91	0.94	0.93	0.80	0.90	0.96
2539	68.9	-3.7	41.9	0.91	0.94	0.93	0.82	0.77	0.71	0.73	0.69	0.79	0.91	0.91	0.93	0.93	0.79	0.91	0.95
2540	69.5	-2.8	41.7	0.91	0.95	0.94	0.83	0.76	0.71	0.70	0.68	0.78	0.91	0.90	0.92	0.94	0.77	0.92	0.94
2541	70.1	-1.7	41.7	0.90	0.95	0.95	0.84	0.74	0.71	0.68	0.69	0.78	0.93	0.90	0.93	0.95	0.77	0.93	0.94
2542	70.7	-0.7	41.5	0.90	0.95	0.94	0.84	0.74	0.72	0.68	0.71	0.78	0.93	0.88	0.93	0.94	0.78	0.94	0.95
2543	71.3	0.5	40.9	0.90	0.95	0.91	0.83	0.76	0.72	0.67	0.71	0.78	0.93	0.88	0.93	0.92	0.80	0.93	0.95
2544	71.9	1.7	40.5	0.90	0.94	0.89	0.81	0.77	0.71	0.66	0.72	0.79	0.92	0.88	0.93	0.89	0.82	0.93	0.96
2545	72.5	3.0	40.7	0.91	0.91	0.86	0.80	0.77	0.69	0.65	0.74	0.78	0.93	0.87	0.93	0.86	0.84	0.93	0.97
2546	73.0	4.4	40.9	0.93	0.90	0.85	0.79	0.77	0.67	0.64	0.76	0.78	0.93	0.86	0.94	0.85	0.84	0.93	0.98
2547	73.6	5.9	40.8	0.96	0.92	0.85	0.80	0.80	0.67	0.64	0.77	0.78	0.92	0.87	0.94	0.86	0.85	0.92	0.99
2548	74.2	7.5	40.9	0.98	0.94	0.88	0.83	0.83	0.66	0.65	0.77	0.79	0.91	0.88	0.94	0.88	0.86	0.91	0.99
2549	74.7	9.2	40.9	0.98	0.95	0.90	0.85	0.84	0.66	0.67	0.77	0.81	0.90	0.89	0.95	0.91	0.87	0.91	0.99
2550	75.2	11.0	40.2	0.97	0.96	0.92	0.87	0.83	0.66	0.67	0.75	0.83	0.88	0.89	0.95	0.93	0.85	0.89	0.98
2551	75.7	13.0	39.5	0.95	0.97	0.90	0.87	0.81	0.65	0.65	0.71	0.80	0.87	0.87	0.93	0.92	0.82	0.88	0.97
2552	76.2	15.1	39.9	0.94	0.95	0.88	0.85	0.78	0.63	0.60	0.67	0.76	0.86	0.86	0.93	0.91	0.79	0.86	0.96

No	N[°]	E[°]	U <sub>50</sub>	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Mar-	Mai-	Sep-	Dec-
																Apr	Aug	Oct	Jan
2553	76.7	17.4	41.3	0.94	0.93	0.89	0.83	0.76	0.63	0.58	0.66	0.72	0.86	0.86	0.94	0.91	0.77	0.86	0.97
2554	77.2	19.8	42.1	0.95	0.91	0.90	0.84	0.76	0.64	0.59	0.66	0.72	0.86	0.87	0.96	0.93	0.78	0.86	0.98
2625	59.8	-11.4	42.6	0.94	0.85	0.81	0.74	0.70	0.65	0.64	0.65	0.82	0.84	0.87	0.84	0.81	0.70	0.88	0.95
2626	60.4	-11.0	42.4	0.94	0.86	0.80	0.73	0.70	0.65	0.64	0.65	0.83	0.85	0.86	0.85	0.81	0.71	0.89	0.96
2627	61.1	-10.5	42.5	0.94	0.87	0.81	0.73	0.71	0.65	0.64	0.66	0.83	0.87	0.85	0.87	0.81	0.73	0.90	0.96
2628	61.7	-9.9	42.9	0.94	0.90	0.82	0.74	0.72	0.65	0.64	0.68	0.84	0.87	0.86	0.89	0.82	0.74	0.90	0.97
2629	62.3	-9.4	42.9	0.93	0.92	0.82	0.75	0.72	0.66	0.64	0.70	0.83	0.87	0.89	0.89	0.82	0.75	0.89	0.96
2630	62.9	-8.8	43.0	0.92	0.93	0.82	0.76	0.71	0.66	0.63	0.70	0.82	0.86	0.90	0.87	0.82	0.75	0.88	0.94
2631	63.6	-8.2	43.1	0.91	0.93	0.83	0.76	0.70	0.66	0.62	0.69	0.81	0.85	0.88	0.86	0.83	0.73	0.87	0.93
2632	64.2	-7.6	43.0	0.91	0.93	0.84	0.78	0.72	0.66	0.64	0.68	0.82	0.84	0.88	0.86	0.85	0.74	0.86	0.92
2633	64.8	-6.9	43.1	0.91	0.93	0.86	0.81	0.75	0.67	0.66	0.67	0.82	0.84	0.88	0.86	0.87	0.75	0.86	0.92
2634	65.5	-6.2	43.1	0.90	0.94	0.88	0.85	0.77	0.69	0.69	0.68	0.83	0.85	0.90	0.88	0.89	0.77	0.87	0.92
2635	66.1	-5.4	42.5	0.89	0.95	0.90	0.86	0.79	0.72	0.73	0.70	0.83	0.87	0.90	0.91	0.92	0.80	0.87	0.93
2636	66.7	-4.7	41.8	0.90	0.93	0.91	0.86	0.80	0.73	0.75	0.71	0.83	0.88	0.89	0.93	0.93	0.81	0.88	0.95
2637	67.3	-3.8	41.3	0.91	0.92	0.92	0.85	0.80	0.73	0.75	0.70	0.82	0.89	0.90	0.94	0.93	0.81	0.89	0.96
2638	67.9	-2.9	41.3	0.92	0.93	0.92	0.85	0.79	0.72	0.74	0.68	0.81	0.90	0.92	0.94	0.93	0.80	0.90	0.96
2639	68.5	-2.0	41.4	0.92	0.96	0.93	0.86	0.77	0.72	0.73	0.68	0.80	0.90	0.93	0.93	0.93	0.79	0.90	0.95
2640	69.1	-1.0	41.5	0.91	0.97	0.93	0.86	0.75	0.72	0.71	0.69	0.79	0.91	0.91	0.92	0.94	0.77	0.91	0.94
2641	69.7	0.0	41.7	0.89	0.95	0.94	0.85	0.73	0.71	0.69	0.70	0.78	0.92	0.90	0.92	0.94	0.76	0.93	0.93
2642	70.3	1.1	41.7	0.88	0.94	0.92	0.83	0.72	0.71	0.67	0.70	0.77	0.93	0.89	0.91	0.92	0.76	0.93	0.93
2643	70.9	2.3	41.3	0.88	0.94	0.89	0.81	0.73	0.70	0.66	0.69	0.77	0.92	0.89	0.91	0.89	0.77	0.93	0.94
2644	71.5	3.5	40.8	0.89	0.92	0.87	0.80	0.74	0.70	0.65	0.71	0.77	0.92	0.88	0.91	0.87	0.80	0.92	0.95
2645	72.0	4.9	40.9	0.90	0.89	0.86	0.79	0.75	0.69	0.65	0.74	0.77	0.92	0.86	0.92	0.86	0.84	0.92	0.96
2646	72.6	6.3	40.9	0.92	0.89	0.86	0.79	0.78	0.69	0.64	0.75	0.78	0.93	0.86	0.93	0.86	0.85	0.94	0.97
2647	73.2	7.8	40.6	0.95	0.91	0.86	0.80	0.81	0.70	0.65	0.76	0.78	0.93	0.86	0.94	0.87	0.86	0.93	0.98
2648	73.7	9.4	40.5	0.97	0.93	0.88	0.82	0.81	0.69	0.66	0.76	0.79	0.92	0.87	0.94	0.89	0.86	0.92	0.98
2649	74.2	11.2	40.7	0.97	0.94	0.90	0.84	0.82	0.67	0.67	0.76	0.80	0.91	0.89	0.94	0.91	0.85	0.91	0.98
2650	74.7	13.0	40.4	0.96	0.96	0.90	0.86	0.82	0.66	0.67	0.74	0.82	0.89	0.90	0.95	0.92	0.84	0.90	0.98
2651	75.2	15.0	40.0	0.95	0.97	0.89	0.86	0.81	0.65	0.65	0.71	0.82	0.87	0.88	0.94	0.91	0.81	0.88	0.97
2652	75.7	17.1	40.2	0.94	0.95	0.87	0.84	0.77	0.64	0.60	0.68	0.78	0.85	0.86	0.93	0.89	0.78	0.86	0.97
2653	76.2	19.3	40.7	0.93	0.93	0.88	0.83	0.75	0.63	0.58	0.66	0.75	0.85	0.85	0.94	0.90	0.77	0.85	0.97
2654	76.6	21.7	41.4	0.94	0.91	0.89	0.84	0.76	0.64	0.59	0.66	0.74	0.86	0.87	0.96	0.91	0.78	0.86	0.98
2655	77.0	24.3	41.7	0.94	0.90	0.89	0.85	0.76	0.65	0.60	0.65	0.74	0.86	0.87	0.96	0.92	0.79	0.87	0.98
2725	59.5	-10.2	42.4	0.96	0.87	0.82	0.75	0.72	0.66	0.66	0.67	0.83	0.83	0.88	0.87	0.83	0.72	0.87	0.97
2726	60.2	-9.7	42.0	0.96	0.87	0.81	0.74	0.73	0.65	0.65	0.67	0.84	0.84	0.88	0.87	0.82	0.73	0.88	0.97
2727	60.8	-9.2	42.0	0.95	0.88	0.81	0.73	0.73	0.64	0.65	0.67	0.85	0.85	0.87	0.88	0.81	0.74	0.89	0.97
2728	61.4	-8.6	42.4	0.94	0.90	0.82	0.74	0.75	0.65	0.65	0.69	0.86	0.87	0.88	0.90	0.82	0.76	0.90	0.97
2729	62.0	-8.0	42.3	0.93	0.92	0.83	0.75	0.75	0.67	0.66	0.72	0.87	0.88	0.91	0.91	0.83	0.78	0.91	0.96
2730	62.7	-7.4	42.1	0.93	0.93	0.82	0.76	0.74	0.67	0.64	0.71	0.86	0.87	0.91	0.90	0.82	0.77	0.90	0.96
2731	63.3	-6.8	42.0	0.92	0.93	0.81	0.75	0.71	0.67	0.62	0.69	0.83	0.84	0.88	0.88	0.81	0.74	0.87	0.94
2732	63.9	-6.1	42.0	0.91	0.94	0.82	0.77	0.71	0.67	0.63	0.66	0.82	0.82	0.85	0.87	0.83	0.73	0.84	0.93
2733	64.5	-5.4	42.3	0.90	0.93	0.85	0.81	0.74	0.67	0.67	0.65	0.82	0.82	0.85	0.87	0.86	0.75	0.85	0.92
2734	65.1	-4.7	42.4	0.90	0.94	0.88	0.85	0.78	0.70	0.71	0.67	0.83	0.85	0.88	0.90	0.90	0.78	0.86	0.93
2735	65.8	-3.9	42.0	0.90	0.95	0.91	0.87	0.80	0.73	0.74	0.69	0.83	0.86	0.89	0.94	0.92	0.80	0.87	0.95
2736	66.4	-3.1	41.2	0.91	0.95	0.91	0.86	0.80	0.75	0.74	0.69	0.82	0.88	0.89	0.95	0.92	0.81	0.88	0.96
2737	67.0	-2.3	40.5	0.92	0.94	0.92	0.85	0.79	0.73	0.71	0.67	0.81	0.88	0.90	0.95	0.92	0.80	0.88	0.97
2738	67.6	-1.3	40.3	0.92	0.94	0.92	0.85	0.78	0.72	0.70	0.66	0.80	0.88	0.91	0.93	0.92	0.79	0.88	0.96
2739	68.2	-0.4	40.6	0.92	0.95	0.92	0.86	0.77	0.72	0.70	0.66	0.79	0.89	0.92	0.93	0.93	0.78	0.89	0.96
2740	68.8	0.6	41.0	0.91	0.96	0.92	0.86	0.75	0.72	0.71	0.69	0.78	0.91	0.92	0.94	0.93	0.77	0.91	0.95
2741	69.3	1.7	41.4	0.90	0.95	0.92	0.84	0.73	0.71	0.70	0.70	0.77	0.92	0.91	0.93	0.92	0.76	0.93	0.94
2742	69.9	2.8	41.5	0.89	0.94	0.90	0.82	0.72	0.69	0.67	0.69	0.76	0.92	0.91	0.91	0.90	0.74	0.92	0.93
2743	70.5	4.0	41.4	0.89	0.92	0.87	0.80	0.71	0.68	0.65	0.68	0.76	0.92	0.90	0.90	0.88	0.75	0.92	0.94
2744	71.1	5.3	41.1	0.90	0.90	0.86	0.78	0.72	0.69	0.64	0.69	0.76	0.92	0.88	0.90	0.86	0.78	0.92	0.95
2745	71.6	6.7	41.0	0.90	0.88	0.87	0.79	0.75	0.70	0.65	0.73	0.76	0.93	0.86	0.91	0.87	0.83	0.93	0.95

No	N[°]	E[°]	U <sub>50</sub>													Mar-	Mai-	Sep-	Dec-	
				Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Apr	Aug	Oct	Jan	
2746	72.2	8.1	40.8	0.90	0.88	0.88	0.80	0.79	0.72	0.66	0.74	0.77	0.95	0.85	0.92	0.88	0.86	0.95	0.95	
2747	72.7	9.6	40.3	0.92	0.90	0.89	0.82	0.80	0.73	0.66	0.75	0.78	0.95	0.86	0.93	0.89	0.86	0.95	0.95	
2748	73.2	11.3	40.1	0.94	0.92	0.90	0.82	0.79	0.72	0.66	0.75	0.79	0.94	0.87	0.93	0.90	0.85	0.94	0.96	
2749	73.7	13.0	40.2	0.95	0.93	0.90	0.83	0.79	0.69	0.67	0.74	0.79	0.92	0.89	0.94	0.91	0.83	0.92	0.96	
2750	74.2	14.8	40.4	0.94	0.94	0.89	0.83	0.80	0.67	0.67	0.72	0.80	0.90	0.89	0.94	0.90	0.81	0.90	0.97	
2751	74.7	16.8	40.5	0.94	0.95	0.88	0.84	0.79	0.66	0.65	0.70	0.81	0.88	0.89	0.94	0.90	0.80	0.89	0.97	
2752	75.2	18.9	40.8	0.94	0.94	0.87	0.84	0.77	0.65	0.62	0.68	0.80	0.86	0.87	0.94	0.89	0.77	0.87	0.98	
2753	75.6	21.1	40.9	0.94	0.93	0.87	0.83	0.75	0.64	0.60	0.66	0.78	0.85	0.86	0.95	0.89	0.76	0.85	0.98	
2754	76.0	23.5	41.1	0.94	0.92	0.87	0.82	0.73	0.65	0.59	0.66	0.76	0.86	0.87	0.95	0.88	0.76	0.86	0.98	
2755	76.4	26.0	41.3	0.94	0.91	0.87	0.83	0.72	0.65	0.60	0.66	0.75	0.87	0.88	0.95	0.88	0.76	0.87	0.98	
2825	59.3	-9.0	42.3	0.97	0.91	0.84	0.77	0.75	0.67	0.67	0.69	0.85	0.84	0.90	0.90	0.85	0.76	0.88	0.99	
2826	59.9	-8.4	42.0	0.97	0.91	0.83	0.77	0.76	0.66	0.66	0.67	0.69	0.86	0.84	0.90	0.90	0.84	0.76	0.88	0.98
2827	60.5	-7.9	41.9	0.96	0.90	0.83	0.76	0.76	0.65	0.65	0.69	0.86	0.85	0.88	0.89	0.83	0.77	0.89	0.97	
2828	61.1	-7.3	42.0	0.94	0.89	0.83	0.75	0.76	0.64	0.65	0.69	0.88	0.85	0.88	0.90	0.83	0.78	0.90	0.96	
2829	61.8	-6.7	41.8	0.93	0.90	0.82	0.75	0.76	0.66	0.65	0.70	0.89	0.86	0.89	0.91	0.82	0.78	0.91	0.97	
2830	62.4	-6.1	41.4	0.93	0.90	0.82	0.75	0.75	0.67	0.64	0.70	0.88	0.86	0.88	0.92	0.82	0.77	0.91	0.97	
2831	63.0	-5.4	41.1	0.92	0.91	0.83	0.76	0.73	0.67	0.63	0.69	0.85	0.85	0.86	0.91	0.83	0.75	0.88	0.96	
2832	63.6	-4.7	41.3	0.90	0.92	0.84	0.79	0.73	0.68	0.65	0.66	0.83	0.82	0.85	0.89	0.85	0.74	0.86	0.94	
2833	64.2	-4.0	41.6	0.90	0.92	0.85	0.83	0.74	0.69	0.69	0.64	0.82	0.82	0.85	0.90	0.88	0.76	0.85	0.94	
2834	64.8	-3.3	41.5	0.90	0.93	0.88	0.86	0.77	0.71	0.72	0.65	0.83	0.84	0.88	0.92	0.91	0.79	0.86	0.95	
2835	65.4	-2.5	41.0	0.92	0.94	0.90	0.87	0.79	0.74	0.73	0.67	0.82	0.86	0.89	0.94	0.92	0.80	0.87	0.96	
2836	66.0	-1.6	40.5	0.93	0.95	0.91	0.85	0.78	0.74	0.71	0.68	0.81	0.87	0.89	0.95	0.92	0.79	0.88	0.97	
2837	66.6	-0.7	40.2	0.94	0.94	0.91	0.84	0.77	0.72	0.68	0.66	0.79	0.87	0.89	0.94	0.92	0.78	0.88	0.97	
2838	67.2	0.2	40.1	0.93	0.93	0.92	0.84	0.75	0.70	0.67	0.65	0.77	0.87	0.90	0.93	0.92	0.76	0.87	0.97	
2839	67.8	1.2	40.4	0.92	0.94	0.92	0.85	0.75	0.70	0.68	0.66	0.76	0.89	0.92	0.94	0.93	0.76	0.89	0.96	
2840	68.4	2.2	40.7	0.92	0.94	0.92	0.85	0.75	0.71	0.69	0.68	0.76	0.91	0.93	0.95	0.92	0.77	0.91	0.96	
2841	68.9	3.3	40.8	0.92	0.95	0.91	0.84	0.75	0.70	0.69	0.68	0.76	0.93	0.92	0.94	0.92	0.76	0.93	0.96	
2842	69.5	4.5	40.7	0.91	0.94	0.89	0.82	0.74	0.69	0.67	0.67	0.75	0.93	0.92	0.91	0.90	0.75	0.93	0.95	
2843	70.1	5.7	40.8	0.90	0.92	0.87	0.80	0.73	0.68	0.64	0.66	0.75	0.93	0.89	0.89	0.88	0.75	0.93	0.94	
2844	70.6	7.0	41.0	0.90	0.90	0.86	0.78	0.73	0.68	0.63	0.67	0.74	0.93	0.86	0.90	0.86	0.77	0.93	0.95	
2845	71.2	8.4	41.0	0.89	0.89	0.87	0.78	0.75	0.71	0.64	0.70	0.74	0.94	0.84	0.91	0.87	0.80	0.94	0.94	
2846	71.7	9.8	40.7	0.88	0.90	0.89	0.80	0.78	0.72	0.65	0.72	0.75	0.95	0.84	0.92	0.89	0.84	0.96	0.94	
2847	72.2	11.4	40.2	0.90	0.91	0.90	0.82	0.79	0.73	0.66	0.74	0.77	0.96	0.85	0.92	0.90	0.85	0.96	0.94	
2848	72.7	13.0	39.9	0.92	0.92	0.91	0.83	0.78	0.73	0.67	0.74	0.78	0.94	0.87	0.92	0.91	0.84	0.95	0.95	
2849	73.2	14.7	40.0	0.94	0.92	0.91	0.83	0.78	0.71	0.67	0.73	0.79	0.92	0.88	0.93	0.91	0.82	0.93	0.96	
2850	73.7	16.6	40.4	0.95	0.93	0.90	0.82	0.78	0.69	0.68	0.70	0.78	0.91	0.89	0.94	0.91	0.80	0.91	0.97	
2851	74.2	18.5	41.0	0.95	0.93	0.90	0.83	0.77	0.69	0.66	0.68	0.79	0.90	0.90	0.94	0.91	0.78	0.90	0.98	
2852	74.6	20.6	41.5	0.95	0.93	0.89	0.84	0.76	0.67	0.64	0.67	0.79	0.88	0.89	0.95	0.91	0.77	0.88	0.99	
2853	75.0	22.8	41.7	0.95	0.93	0.87	0.83	0.74	0.66	0.62	0.67	0.78	0.87	0.87	0.95	0.89	0.75	0.87	0.99	
2854	75.4	25.1	41.5	0.94	0.92	0.85	0.81	0.71	0.65	0.61	0.66	0.76	0.86	0.87	0.95	0.86	0.74	0.86	0.99	
2855	75.8	27.5	41.3	0.93	0.91	0.84	0.80	0.70	0.64	0.60	0.66	0.74	0.87	0.87	0.94	0.85	0.73	0.87	0.98	
2925	59.0	-7.8	42.3	0.97	0.92	0.85	0.78	0.77	0.69	0.68	0.71	0.87	0.85	0.91	0.92	0.86	0.78	0.90	0.98	
2926	59.6	-7.2	42.3	0.96	0.92	0.85	0.79	0.77	0.69	0.67	0.72	0.88	0.85	0.91	0.91	0.85	0.79	0.90	0.98	
2927	60.2	-6.7	42.1	0.95	0.90	0.84	0.78	0.77	0.67	0.66	0.71	0.88	0.84	0.90	0.89	0.85	0.79	0.90	0.96	
2928	60.9	-6.1	41.7	0.93	0.88	0.83	0.75	0.77	0.65	0.65	0.69	0.88	0.83	0.88	0.89	0.83	0.78	0.90	0.96	
2929	61.5	-5.4	41.2	0.93	0.87	0.83	0.75	0.77	0.65	0.64	0.68	0.89	0.84	0.87	0.90	0.83	0.78	0.91	0.96	
2930	62.1	-4.8	40.8	0.92	0.88	0.84	0.76	0.78	0.67	0.64	0.69	0.88	0.85	0.87	0.92	0.84	0.78	0.91	0.97	
2931	62.7	-4.1	40.6	0.92	0.89	0.86	0.79	0.77	0.68	0.65	0.70	0.87	0.85	0.87	0.92	0.87	0.78	0.90	0.96	
2932	63.3	-3.4	40.8	0.91	0.90	0.86	0.83	0.76	0.68	0.68	0.68	0.85	0.84	0.87	0.91	0.89	0.77	0.89	0.95	
2933	63.9	-2.6	40.8	0.90	0.90	0.86	0.85	0.77	0.69	0.71	0.66	0.84	0.84	0.87	0.92	0.90	0.78	0.88	0.95	
2934	64.5	-1.9	40.4	0.91	0.91	0.87	0.86	0.77	0.70	0.72	0.65	0.82	0.84	0.87	0.92	0.91	0.78	0.87	0.96	
2935	65.1	-1.0	39.9	0.93	0.92	0.89	0.86	0.76	0.72	0.71	0.66	0.81	0.86	0.88	0.92	0.91	0.78	0.87	0.96	
2936	65.7	-0.2	39.9	0.95	0.93	0.90	0.86	0.75	0.73	0.69	0.66	0.81	0.87	0.88	0.93	0.92	0.77	0.88	0.97	
2937	66.2	0.7	40.1	0.97	0.92	0.90	0.85	0.75	0.71	0.67	0.66	0.79	0.87	0.89	0.92	0.91	0.76	0.88	0.99	



No	N[°]	E[°]	U <sub>50</sub>													Mar-	Mai-	Sep-	Dec-
				Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Apr	Aug	Oct	Jan
2938	66.8	1.7	40.3	0.96	0.91	0.90	0.84	0.74	0.69	0.66	0.65	0.76	0.87	0.90	0.92	0.91	0.75	0.87	0.98
2939	67.4	2.7	40.4	0.94	0.93	0.91	0.85	0.74	0.68	0.66	0.66	0.75	0.89	0.91	0.92	0.92	0.75	0.89	0.97
2940	68.0	3.8	40.3	0.93	0.94	0.92	0.86	0.75	0.69	0.66	0.67	0.74	0.92	0.92	0.93	0.93	0.76	0.92	0.96
2941	68.5	4.9	39.9	0.93	0.95	0.91	0.85	0.76	0.69	0.66	0.67	0.74	0.94	0.92	0.93	0.93	0.77	0.94	0.96
2942	69.1	6.0	39.9	0.92	0.95	0.90	0.83	0.76	0.68	0.65	0.65	0.74	0.94	0.90	0.91	0.91	0.77	0.94	0.95
2943	69.6	7.3	40.2	0.90	0.93	0.87	0.79	0.75	0.67	0.63	0.64	0.73	0.93	0.86	0.90	0.88	0.76	0.93	0.94
2944	70.2	8.6	40.5	0.88	0.91	0.85	0.77	0.74	0.68	0.62	0.64	0.72	0.93	0.83	0.90	0.86	0.76	0.93	0.94
2945	70.7	10.0	40.5	0.88	0.90	0.86	0.77	0.74	0.71	0.63	0.67	0.72	0.94	0.82	0.90	0.86	0.78	0.94	0.94
2946	71.2	11.5	40.2	0.89	0.92	0.88	0.79	0.76	0.72	0.65	0.70	0.74	0.95	0.83	0.90	0.89	0.80	0.95	0.94
2947	71.7	13.0	39.7	0.91	0.92	0.91	0.82	0.78	0.72	0.66	0.73	0.76	0.96	0.85	0.91	0.91	0.83	0.96	0.94
2948	72.2	14.6	39.5	0.93	0.92	0.92	0.83	0.78	0.71	0.67	0.74	0.78	0.94	0.86	0.90	0.92	0.83	0.94	0.95
2949	72.7	16.4	39.6	0.95	0.92	0.92	0.83	0.77	0.71	0.68	0.73	0.79	0.93	0.87	0.92	0.92	0.82	0.93	0.96
2950	73.2	18.2	40.1	0.96	0.93	0.92	0.84	0.77	0.71	0.69	0.71	0.78	0.93	0.89	0.94	0.93	0.81	0.93	0.98
2951	73.6	20.1	41.1	0.96	0.93	0.92	0.83	0.75	0.71	0.68	0.67	0.77	0.92	0.90	0.95	0.93	0.78	0.92	0.98
2952	74.0	22.2	41.9	0.95	0.93	0.90	0.83	0.74	0.69	0.66	0.67	0.77	0.90	0.89	0.95	0.91	0.76	0.90	0.98
2953	74.4	24.3	42.2	0.95	0.93	0.87	0.83	0.74	0.66	0.64	0.68	0.76	0.89	0.88	0.94	0.89	0.75	0.89	0.99
2954	74.8	26.6	41.9	0.94	0.92	0.84	0.81	0.73	0.65	0.63	0.67	0.74	0.88	0.88	0.94	0.85	0.74	0.88	0.99
2955	75.2	28.9	41.5	0.94	0.91	0.83	0.79	0.71	0.64	0.62	0.67	0.73	0.87	0.87	0.93	0.83	0.73	0.87	0.98
3025	58.7	-6.6	41.8	0.94	0.91	0.84	0.79	0.77	0.71	0.68	0.72	0.89	0.86	0.89	0.93	0.85	0.80	0.92	0.97
3026	59.3	-6.0	42.1	0.94	0.91	0.85	0.79	0.78	0.70	0.68	0.72	0.89	0.86	0.91	0.92	0.85	0.80	0.92	0.96
3027	60.0	-5.4	42.0	0.94	0.90	0.85	0.79	0.78	0.68	0.67	0.72	0.89	0.85	0.91	0.90	0.86	0.80	0.92	0.95
3028	60.6	-4.8	41.3	0.93	0.88	0.85	0.77	0.78	0.67	0.66	0.69	0.88	0.84	0.90	0.89	0.86	0.79	0.91	0.95
3029	61.2	-4.2	40.6	0.92	0.87	0.86	0.78	0.79	0.67	0.65	0.68	0.88	0.84	0.89	0.90	0.86	0.79	0.90	0.95
3030	61.8	-3.5	40.3	0.92	0.88	0.87	0.80	0.80	0.68	0.65	0.69	0.88	0.86	0.89	0.91	0.88	0.80	0.91	0.96
3031	62.4	-2.8	40.3	0.92	0.89	0.87	0.83	0.80	0.68	0.66	0.70	0.87	0.86	0.89	0.91	0.89	0.80	0.91	0.95
3032	62.9	-2.1	40.5	0.92	0.89	0.86	0.85	0.79	0.68	0.69	0.69	0.86	0.85	0.88	0.91	0.89	0.79	0.90	0.96
3033	63.5	-1.3	40.1	0.92	0.90	0.86	0.85	0.78	0.69	0.72	0.67	0.84	0.85	0.88	0.93	0.89	0.79	0.89	0.97
3034	64.1	-0.5	39.4	0.92	0.91	0.87	0.85	0.77	0.70	0.72	0.65	0.82	0.86	0.87	0.92	0.89	0.78	0.87	0.96
3035	64.7	0.3	39.0	0.93	0.91	0.88	0.85	0.75	0.71	0.71	0.66	0.82	0.87	0.88	0.91	0.90	0.77	0.88	0.95
3036	65.3	1.2	39.0	0.96	0.92	0.89	0.87	0.75	0.72	0.70	0.67	0.83	0.87	0.89	0.91	0.92	0.78	0.89	0.97
3037	65.9	2.2	39.4	0.98	0.91	0.89	0.87	0.75	0.72	0.69	0.67	0.81	0.88	0.89	0.92	0.92	0.78	0.89	0.99
3038	66.4	3.1	39.8	0.98	0.90	0.89	0.86	0.74	0.69	0.67	0.66	0.78	0.88	0.89	0.91	0.91	0.75	0.88	0.99
3039	67.0	4.2	40.1	0.96	0.92	0.90	0.85	0.74	0.67	0.65	0.66	0.75	0.90	0.89	0.90	0.92	0.74	0.90	0.98
3040	67.6	5.2	39.8	0.95	0.94	0.92	0.85	0.74	0.67	0.63	0.66	0.74	0.93	0.90	0.90	0.93	0.75	0.93	0.96
3041	68.1	6.4	39.4	0.94	0.93	0.92	0.84	0.76	0.68	0.63	0.65	0.74	0.95	0.90	0.91	0.93	0.76	0.95	0.96
3042	68.7	7.6	39.4	0.92	0.93	0.90	0.82	0.76	0.67	0.63	0.64	0.73	0.95	0.88	0.91	0.91	0.76	0.95	0.95
3043	69.2	8.8	39.7	0.89	0.93	0.87	0.78	0.75	0.67	0.63	0.63	0.72	0.93	0.84	0.91	0.87	0.75	0.93	0.94
3044	69.7	10.1	39.8	0.88	0.92	0.85	0.76	0.75	0.68	0.63	0.63	0.72	0.93	0.83	0.90	0.85	0.76	0.93	0.93
3045	70.2	11.5	39.5	0.89	0.92	0.86	0.76	0.74	0.70	0.64	0.65	0.72	0.94	0.83	0.89	0.86	0.76	0.94	0.93
3046	70.7	13.0	39.1	0.91	0.93	0.89	0.78	0.75	0.72	0.65	0.69	0.73	0.96	0.85	0.89	0.89	0.78	0.96	0.94
3047	71.2	14.5	38.7	0.93	0.93	0.92	0.81	0.76	0.72	0.66	0.72	0.76	0.95	0.87	0.89	0.92	0.80	0.95	0.94
3048	71.7	16.2	38.7	0.94	0.92	0.93	0.83	0.77	0.71	0.67	0.75	0.78	0.94	0.87	0.88	0.93	0.82	0.94	0.95
3049	72.2	17.9	38.9	0.95	0.93	0.93	0.84	0.78	0.71	0.69	0.76	0.79	0.94	0.88	0.90	0.93	0.83	0.94	0.97
3050	72.6	19.7	39.2	0.96	0.93	0.93	0.85	0.77	0.71	0.71	0.74	0.79	0.95	0.89	0.93	0.94	0.82	0.95	0.98
3051	73.0	21.6	39.9	0.96	0.92	0.91	0.83	0.74	0.70	0.70	0.70	0.77	0.94	0.89	0.94	0.92	0.78	0.94	0.98
3052	73.4	23.6	40.8	0.96	0.91	0.89	0.81	0.72	0.68	0.68	0.69	0.76	0.92	0.88	0.93	0.89	0.75	0.92	0.98
3053	73.8	25.7	41.5	0.96	0.91	0.86	0.81	0.73	0.67	0.66	0.69	0.75	0.90	0.88	0.92	0.87	0.75	0.90	0.99
3054	74.2	27.9	41.6	0.96	0.90	0.85	0.81	0.74	0.67	0.64	0.69	0.73	0.89	0.89	0.91	0.85	0.75	0.89	0.99
3055	74.6	30.2	41.5	0.95	0.90	0.84	0.80	0.73	0.67	0.63	0.68	0.71	0.88	0.89	0.91	0.84	0.75	0.88	0.98
3125	58.4	-5.4	40.9	0.93	0.91	0.84	0.79	0.76	0.71	0.71	0.72	0.90	0.87	0.89	0.93	0.85	0.80	0.94	0.96
3126	59.0	-4.9	41.4	0.93	0.91	0.84	0.79	0.76	0.70	0.70	0.72	0.89	0.87	0.90	0.92	0.85	0.79	0.94	0.95
3127	59.6	-4.2	41.5	0.93	0.91	0.86	0.79	0.77	0.67	0.69	0.72	0.88	0.87	0.92	0.91	0.87	0.79	0.93	0.94
3128	60.2	-3.6	41.0	0.93	0.88	0.87	0.80	0.78	0.67	0.67	0.70	0.88	0.87	0.93	0.90	0.88	0.78	0.92	0.94
3129	60.8	-2.9	40.5	0.93	0.88	0.89	0.81	0.79	0.68	0.67	0.68	0.88	0.86	0.93	0.90	0.90	0.79	0.91	0.95

No	N[°]	E[°]	U <sub>50</sub>													Mar-	Mai-	Sep-	Dec-
				Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Apr	Aug	Oct	Jan
3130	61.4	-2.3	40.1	0.93	0.89	0.89	0.83	0.80	0.70	0.67	0.69	0.87	0.87	0.92	0.91	0.90	0.80	0.91	0.96
3131	62.0	-1.5	40.1	0.93	0.90	0.87	0.83	0.80	0.69	0.67	0.69	0.86	0.86	0.91	0.91	0.88	0.80	0.90	0.96
3132	62.6	-0.8	40.2	0.93	0.89	0.85	0.83	0.78	0.68	0.68	0.67	0.85	0.85	0.88	0.92	0.87	0.78	0.89	0.97
3133	63.2	0.0	39.8	0.92	0.90	0.87	0.83	0.77	0.69	0.70	0.67	0.84	0.86	0.88	0.93	0.88	0.79	0.88	0.97
3134	63.8	0.8	39.0	0.92	0.92	0.87	0.84	0.77	0.71	0.72	0.67	0.83	0.87	0.89	0.92	0.89	0.79	0.88	0.96
3135	64.3	1.7	38.4	0.93	0.94	0.88	0.86	0.76	0.72	0.73	0.68	0.85	0.88	0.90	0.91	0.90	0.79	0.90	0.96
3136	64.9	2.6	38.1	0.96	0.94	0.90	0.89	0.77	0.74	0.74	0.70	0.86	0.90	0.91	0.92	0.93	0.80	0.91	0.97
3137	65.5	3.5	38.3	0.98	0.94	0.90	0.90	0.78	0.73	0.72	0.70	0.85	0.90	0.91	0.93	0.94	0.80	0.91	0.99
3138	66.0	4.5	38.9	0.98	0.93	0.89	0.88	0.76	0.70	0.68	0.68	0.81	0.90	0.89	0.91	0.93	0.77	0.91	0.99
3139	66.6	5.6	39.4	0.97	0.94	0.89	0.84	0.73	0.66	0.64	0.66	0.78	0.91	0.87	0.89	0.91	0.74	0.91	0.97
3140	67.1	6.7	39.5	0.95	0.94	0.91	0.82	0.73	0.65	0.62	0.65	0.76	0.92	0.88	0.88	0.91	0.74	0.92	0.96
3141	67.7	7.8	39.2	0.95	0.92	0.91	0.81	0.74	0.66	0.62	0.63	0.75	0.94	0.88	0.88	0.91	0.74	0.94	0.96
3142	68.2	9.0	39.1	0.93	0.91	0.89	0.79	0.74	0.66	0.63	0.63	0.74	0.95	0.86	0.89	0.89	0.74	0.95	0.95
3143	68.7	10.3	39.3	0.90	0.92	0.87	0.77	0.74	0.66	0.63	0.62	0.73	0.95	0.84	0.89	0.87	0.75	0.95	0.93
3144	69.2	11.6	39.3	0.89	0.93	0.86	0.76	0.74	0.67	0.64	0.63	0.72	0.95	0.85	0.90	0.86	0.75	0.95	0.93
3145	69.7	13.0	38.9	0.90	0.92	0.87	0.75	0.73	0.68	0.64	0.65	0.72	0.96	0.86	0.89	0.87	0.75	0.96	0.93
3146	70.2	14.5	38.4	0.93	0.93	0.89	0.77	0.73	0.71	0.65	0.68	0.73	0.96	0.87	0.88	0.89	0.76	0.96	0.94
3147	70.7	16.0	38.1	0.95	0.94	0.91	0.79	0.74	0.72	0.66	0.71	0.76	0.94	0.88	0.87	0.91	0.78	0.94	0.95
3148	71.2	17.6	38.1	0.95	0.92	0.92	0.81	0.75	0.71	0.68	0.74	0.77	0.93	0.88	0.87	0.92	0.80	0.93	0.95
3149	71.6	19.3	38.3	0.95	0.92	0.93	0.83	0.77	0.71	0.70	0.77	0.78	0.94	0.89	0.90	0.93	0.82	0.94	0.96
3150	72.0	21.1	38.4	0.95	0.92	0.92	0.83	0.77	0.70	0.72	0.77	0.79	0.94	0.89	0.92	0.93	0.83	0.94	0.97
3151	72.5	23.0	38.7	0.96	0.91	0.89	0.81	0.75	0.69	0.71	0.74	0.78	0.93	0.88	0.92	0.90	0.80	0.93	0.98
3152	72.9	25.0	39.4	0.97	0.89	0.87	0.79	0.72	0.68	0.68	0.72	0.77	0.92	0.88	0.90	0.87	0.77	0.92	0.98
3153	73.2	27.0	40.4	0.97	0.89	0.86	0.79	0.72	0.68	0.66	0.71	0.75	0.90	0.89	0.90	0.86	0.76	0.90	0.99
3154	73.6	29.2	41.1	0.97	0.89	0.85	0.80	0.73	0.70	0.64	0.70	0.73	0.89	0.90	0.90	0.86	0.77	0.89	0.99
3155	73.9	31.4	41.3	0.96	0.90	0.85	0.81	0.75	0.71	0.63	0.70	0.72	0.89	0.90	0.90	0.86	0.77	0.89	0.99
3225	58.1	-4.3	40.4	0.92	0.91	0.85	0.79	0.74	0.70	0.73	0.71	0.90	0.87	0.91	0.92	0.86	0.80	0.94	0.95
3226	58.7	-3.7	40.6	0.92	0.91	0.84	0.79	0.74	0.68	0.72	0.71	0.89	0.88	0.92	0.91	0.86	0.78	0.94	0.94
3227	59.3	-3.1	40.7	0.93	0.90	0.85	0.79	0.75	0.67	0.70	0.71	0.88	0.89	0.93	0.90	0.86	0.77	0.94	0.94
3228	59.9	-2.4	40.5	0.93	0.89	0.88	0.80	0.77	0.68	0.70	0.71	0.89	0.89	0.94	0.91	0.88	0.77	0.93	0.95
3229	60.5	-1.7	40.2	0.94	0.89	0.89	0.82	0.79	0.70	0.69	0.71	0.89	0.88	0.95	0.92	0.90	0.79	0.92	0.96
3230	61.1	-1.0	40.1	0.95	0.91	0.89	0.82	0.80	0.71	0.69	0.70	0.88	0.87	0.94	0.92	0.90	0.80	0.92	0.97
3231	61.7	-0.3	40.1	0.94	0.90	0.86	0.81	0.78	0.70	0.68	0.68	0.86	0.86	0.91	0.91	0.87	0.78	0.90	0.98
3232	62.2	0.5	40.0	0.93	0.90	0.85	0.80	0.76	0.69	0.67	0.66	0.84	0.85	0.88	0.92	0.86	0.76	0.88	0.98
3233	62.8	1.3	39.5	0.93	0.91	0.86	0.80	0.76	0.69	0.69	0.66	0.84	0.85	0.88	0.93	0.87	0.77	0.87	0.98
3234	63.4	2.1	38.9	0.93	0.94	0.87	0.83	0.77	0.71	0.72	0.68	0.85	0.87	0.90	0.93	0.88	0.79	0.89	0.97
3235	63.9	3.0	38.4	0.94	0.96	0.89	0.86	0.78	0.73	0.75	0.70	0.87	0.89	0.91	0.93	0.91	0.80	0.91	0.97
3236	64.5	3.9	38.0	0.95	0.96	0.91	0.89	0.78	0.75	0.76	0.72	0.88	0.91	0.91	0.93	0.93	0.81	0.93	0.97
3237	65.1	4.9	37.8	0.97	0.96	0.91	0.89	0.78	0.73	0.73	0.72	0.86	0.91	0.90	0.93	0.94	0.80	0.92	0.98
3238	65.6	5.9	38.3	0.98	0.95	0.89	0.86	0.76	0.70	0.68	0.70	0.83	0.91	0.89	0.91	0.92	0.77	0.91	0.98
3239	66.2	6.9	39.0	0.97	0.95	0.88	0.81	0.74	0.68	0.65	0.67	0.80	0.90	0.87	0.90	0.90	0.74	0.90	0.97
3240	66.7	8.0	39.4	0.96	0.94	0.88	0.79	0.73	0.66	0.63	0.66	0.78	0.90	0.87	0.88	0.88	0.74	0.90	0.97
3241	67.2	9.2	39.4	0.96	0.92	0.87	0.78	0.73	0.66	0.63	0.64	0.77	0.92	0.86	0.87	0.87	0.74	0.92	0.96
3242	67.7	10.4	39.3	0.94	0.90	0.86	0.77	0.72	0.65	0.63	0.63	0.75	0.95	0.85	0.86	0.86	0.73	0.95	0.95
3243	68.2	11.7	39.4	0.92	0.91	0.84	0.75	0.71	0.65	0.62	0.62	0.73	0.96	0.84	0.86	0.85	0.72	0.96	0.93
3244	68.7	13.0	39.5	0.91	0.92	0.85	0.74	0.70	0.65	0.62	0.62	0.72	0.96	0.85	0.88	0.85	0.72	0.96	0.93
3245	69.2	14.4	39.1	0.93	0.92	0.86	0.74	0.70	0.67	0.62	0.63	0.72	0.96	0.87	0.89	0.86	0.72	0.96	0.93
3246	69.7	15.9	38.5	0.95	0.93	0.88	0.77	0.71	0.70	0.63	0.66	0.74	0.96	0.89	0.88	0.88	0.74	0.96	0.95
3247	70.2	17.4	38.4	0.96	0.93	0.89	0.78	0.72	0.72	0.65	0.69	0.75	0.93	0.89	0.88	0.90	0.77	0.93	0.96
3248	70.6	19.0	38.3	0.96	0.92	0.90	0.80	0.73	0.71	0.67	0.72	0.76	0.91	0.87	0.88	0.90	0.78	0.91	0.97
3249	71.1	20.7	38.2	0.95	0.91	0.90	0.80	0.74	0.70	0.69	0.75	0.77	0.91	0.87	0.90	0.91	0.80	0.91	0.97
3250	71.5	22.5	38.4	0.95	0.91	0.90	0.79	0.75	0.69	0.69	0.76	0.78	0.91	0.87	0.90	0.90	0.81	0.92	0.97
3251	71.9	24.3	38.7	0.96	0.89	0.88	0.78	0.75	0.70	0.69	0.75	0.78	0.92	0.88	0.89	0.88	0.80	0.92	0.98
3252	72.3	26.2	39.0	0.97	0.88	0.86	0.78	0.73	0.71	0.67	0.73	0.77	0.91	0.89	0.88	0.86	0.79	0.91	0.98

No	N[°]	E[°]	U <sub>50</sub>	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Mar- Apr	Mai- Aug	Sep- Oct	Dec- Jan
3253	72.6	28.3	39.7	0.98	0.88	0.85	0.79	0.72	0.71	0.66	0.72	0.75	0.90	0.90	0.89	0.86	0.78	0.90	0.99
3254	73.0	30.4	40.5	0.98	0.89	0.85	0.80	0.73	0.72	0.65	0.71	0.74	0.89	0.91	0.91	0.86	0.78	0.89	0.99
3255	73.3	32.5	40.9	0.97	0.90	0.85	0.81	0.74	0.73	0.65	0.70	0.74	0.88	0.91	0.91	0.86	0.78	0.89	0.99
3325	57.8	-3.2	40.4	0.93	0.92	0.85	0.78	0.73	0.69	0.73	0.71	0.90	0.86	0.92	0.91	0.87	0.79	0.93	0.95
3326	58.4	-2.6	40.2	0.92	0.91	0.84	0.78	0.73	0.68	0.72	0.70	0.89	0.87	0.94	0.91	0.86	0.77	0.93	0.94
3327	59.0	-1.9	40.0	0.92	0.89	0.84	0.79	0.73	0.69	0.71	0.71	0.88	0.89	0.94	0.91	0.85	0.76	0.92	0.94
3328	59.6	-1.3	39.8	0.94	0.89	0.86	0.80	0.75	0.71	0.71	0.72	0.89	0.89	0.95	0.92	0.86	0.77	0.92	0.95
3329	60.2	-0.6	39.7	0.95	0.90	0.88	0.81	0.78	0.73	0.72	0.73	0.90	0.88	0.95	0.92	0.88	0.79	0.92	0.97
3330	60.7	0.2	39.8	0.96	0.91	0.88	0.81	0.79	0.73	0.71	0.72	0.89	0.87	0.93	0.92	0.89	0.79	0.92	0.98
3331	61.3	0.9	39.9	0.96	0.90	0.87	0.79	0.76	0.72	0.70	0.69	0.86	0.86	0.90	0.92	0.87	0.77	0.90	0.98
3332	61.9	1.7	39.7	0.95	0.89	0.85	0.78	0.73	0.71	0.68	0.66	0.84	0.84	0.88	0.92	0.86	0.75	0.87	0.98
3333	62.4	2.5	39.4	0.95	0.91	0.85	0.79	0.73	0.70	0.69	0.66	0.85	0.83	0.88	0.93	0.86	0.75	0.87	0.99
3334	63.0	3.4	39.1	0.95	0.93	0.85	0.81	0.74	0.70	0.71	0.68	0.86	0.85	0.89	0.93	0.86	0.76	0.88	0.98
3335	63.5	4.3	38.9	0.94	0.95	0.87	0.83	0.75	0.72	0.73	0.69	0.87	0.87	0.89	0.94	0.88	0.78	0.90	0.97
3336	64.1	5.2	38.4	0.94	0.96	0.89	0.85	0.76	0.74	0.73	0.71	0.86	0.89	0.89	0.93	0.91	0.79	0.92	0.97
3337	64.6	6.2	37.9	0.96	0.97	0.90	0.85	0.76	0.72	0.71	0.71	0.84	0.89	0.89	0.92	0.91	0.78	0.90	0.97
3338	65.2	7.2	38.3	0.97	0.97	0.89	0.82	0.75	0.70	0.67	0.70	0.82	0.88	0.89	0.92	0.90	0.76	0.89	0.98
3339	65.7	8.2	39.0	0.97	0.97	0.88	0.79	0.74	0.69	0.65	0.68	0.81	0.88	0.89	0.91	0.89	0.75	0.88	0.98
3340	66.2	9.3	39.5	0.97	0.96	0.86	0.77	0.73	0.68	0.64	0.67	0.79	0.88	0.88	0.90	0.87	0.74	0.88	0.97
3341	66.8	10.5	39.5	0.96	0.94	0.84	0.76	0.72	0.66	0.63	0.66	0.77	0.89	0.86	0.88	0.85	0.73	0.89	0.96
3342	67.3	11.7	39.4	0.94	0.92	0.82	0.74	0.69	0.63	0.61	0.63	0.74	0.91	0.84	0.86	0.83	0.71	0.91	0.95
3343	67.8	13.0	39.4	0.92	0.91	0.81	0.71	0.66	0.61	0.59	0.60	0.71	0.91	0.84	0.85	0.81	0.68	0.91	0.93
3348	70.1	20.3	38.8	0.97	0.93	0.88	0.78	0.71	0.70	0.66	0.69	0.76	0.91	0.87	0.91	0.88	0.77	0.91	0.98
3349	70.5	22.0	38.4	0.96	0.91	0.88	0.77	0.71	0.69	0.66	0.71	0.76	0.90	0.85	0.91	0.88	0.77	0.90	0.98
3350	70.9	23.7	38.6	0.96	0.89	0.87	0.77	0.71	0.69	0.66	0.73	0.77	0.90	0.84	0.90	0.88	0.78	0.90	0.98
3351	71.3	25.5	39.0	0.97	0.89	0.87	0.77	0.73	0.71	0.67	0.73	0.77	0.91	0.87	0.88	0.87	0.79	0.91	0.98
3352	71.7	27.4	38.9	0.98	0.88	0.87	0.78	0.74	0.72	0.66	0.73	0.77	0.91	0.89	0.87	0.87	0.80	0.91	0.98
3353	72.0	29.4	39.0	0.99	0.88	0.86	0.79	0.74	0.74	0.66	0.72	0.75	0.89	0.90	0.88	0.86	0.80	0.89	0.99
3354	72.3	31.4	39.5	0.98	0.88	0.85	0.80	0.73	0.74	0.67	0.70	0.75	0.88	0.90	0.91	0.86	0.79	0.88	0.99
3355	72.6	33.6	39.8	0.97	0.89	0.85	0.80	0.73	0.75	0.66	0.69	0.75	0.88	0.91	0.92	0.86	0.79	0.88	0.99
3425	57.5	-2.1	40.0	0.94	0.92	0.86	0.77	0.74	0.70	0.72	0.72	0.90	0.86	0.94	0.91	0.86	0.79	0.92	0.95
3426	58.1	-1.5	39.7	0.93	0.91	0.84	0.78	0.73	0.70	0.72	0.72	0.89	0.86	0.94	0.91	0.85	0.78	0.91	0.95
3427	58.7	-0.8	39.4	0.93	0.89	0.83	0.79	0.73	0.71	0.71	0.72	0.89	0.87	0.95	0.91	0.84	0.77	0.91	0.95
3428	59.2	-0.1	39.5	0.95	0.89	0.84	0.80	0.75	0.72	0.71	0.73	0.89	0.87	0.95	0.91	0.85	0.77	0.90	0.96
3429	59.8	0.6	39.4	0.96	0.90	0.87	0.81	0.77	0.73	0.72	0.74	0.89	0.87	0.95	0.92	0.87	0.79	0.91	0.97
3430	60.4	1.3	39.2	0.96	0.91	0.88	0.80	0.77	0.73	0.72	0.73	0.89	0.87	0.93	0.92	0.88	0.79	0.92	0.97
3431	60.9	2.1	39.5	0.96	0.90	0.88	0.79	0.75	0.73	0.71	0.70	0.87	0.86	0.90	0.92	0.88	0.78	0.90	0.98
3432	61.5	2.9	39.6	0.97	0.89	0.86	0.78	0.73	0.73	0.69	0.68	0.84	0.84	0.88	0.93	0.87	0.76	0.88	0.99
3433	62.0	3.7	39.5	0.97	0.90	0.85	0.78	0.71	0.72	0.68	0.67	0.83	0.82	0.87	0.93	0.85	0.74	0.86	0.99
3434	62.6	4.6	39.4	0.96	0.92	0.83	0.78	0.70	0.70	0.68	0.66	0.83	0.82	0.86	0.93	0.85	0.73	0.86	0.99
3435	63.1	5.5	39.2	0.94	0.93	0.83	0.80	0.71	0.70	0.68	0.67	0.83	0.83	0.86	0.93	0.85	0.74	0.87	0.97
3436	63.7	6.4	38.6	0.94	0.95	0.86	0.82	0.72	0.73	0.69	0.70	0.83	0.86	0.86	0.93	0.88	0.76	0.88	0.97
3437	64.2	7.4	38.1	0.95	0.97	0.88	0.82	0.73	0.72	0.68	0.70	0.82	0.87	0.89	0.92	0.89	0.76	0.88	0.96
3438	64.7	8.4	38.4	0.96	0.98	0.89	0.80	0.73	0.70	0.66	0.69	0.81	0.86	0.90	0.92	0.89	0.75	0.86	0.97
3439	65.3	9.5	39.1	0.97	0.97	0.88	0.78	0.73	0.69	0.65	0.67	0.80	0.85	0.91	0.92	0.88	0.74	0.86	0.97
3440	65.8	10.6	39.4	0.96	0.97	0.86	0.77	0.72	0.66	0.64	0.66	0.78	0.85	0.89	0.91	0.86	0.73	0.85	0.96
3441	66.3	11.8	39.2	0.94	0.95	0.83	0.75	0.70	0.64	0.62	0.64	0.75	0.85	0.86	0.88	0.83	0.72	0.85	0.94
3442	66.8	13.0	39.1	0.93	0.94	0.81	0.74	0.67	0.61	0.60	0.62	0.73	0.85	0.84	0.87	0.81	0.69	0.85	0.94
3443	67.3	14.3	39.2	0.93	0.92	0.80	0.72	0.64	0.58	0.58	0.59	0.70	0.86	0.84	0.86	0.80	0.66	0.86	0.93
3452	71.0	28.5	38.3	0.98	0.89	0.87	0.78	0.73	0.73	0.65	0.71	0.77	0.91	0.87	0.86	0.88	0.80	0.91	0.98
3453	71.4	30.4	38.4	0.98	0.87	0.86	0.78	0.73	0.74	0.65	0.71	0.76	0.89	0.88	0.86	0.87	0.80	0.89	0.99
3454	71.7	32.4	38.4	0.98	0.88	0.85	0.78	0.73	0.75	0.66	0.70	0.76	0.87	0.89	0.89	0.86	0.79	0.88	0.99
3455	72.0	34.5	38.4	0.97	0.89	0.85	0.78	0.72	0.74	0.67	0.68	0.76	0.86	0.90	0.91	0.86	0.77	0.87	0.99
3525	57.2	-1.0	38.7	0.94	0.91	0.86	0.78	0.75	0.71	0.70	0.74	0.88	0.88	0.94	0.90	0.86	0.79	0.91	0.95

No	N[°]	E[°]	U <sub>50</sub>	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Mar- Apr	Mai- Aug	Sep- Oct	Dec- Jan
3526	57.7	-0.4	38.6	0.93	0.90	0.85	0.79	0.74	0.71	0.70	0.75	0.88	0.87	0.95	0.90	0.85	0.78	0.91	0.95
3527	58.3	0.3	38.9	0.93	0.89	0.84	0.80	0.74	0.72	0.70	0.74	0.89	0.85	0.95	0.91	0.85	0.78	0.90	0.94
3528	58.9	1.0	39.2	0.95	0.90	0.85	0.81	0.76	0.73	0.71	0.73	0.88	0.85	0.95	0.91	0.86	0.78	0.89	0.96
3529	59.4	1.7	39.0	0.96	0.92	0.87	0.82	0.76	0.73	0.72	0.73	0.89	0.86	0.94	0.91	0.88	0.79	0.90	0.97
3530	60.0	2.4	38.7	0.96	0.92	0.88	0.80	0.75	0.74	0.72	0.72	0.89	0.87	0.93	0.92	0.88	0.79	0.91	0.97
3531	60.5	3.2	38.9	0.96	0.90	0.88	0.78	0.74	0.74	0.70	0.70	0.87	0.86	0.91	0.92	0.88	0.77	0.91	0.98
3532	61.1	4.0	39.3	0.97	0.90	0.88	0.78	0.72	0.74	0.69	0.68	0.84	0.84	0.88	0.93	0.88	0.76	0.88	0.99
3533	61.6	4.9	39.3	0.98	0.91	0.87	0.78	0.70	0.73	0.67	0.66	0.82	0.82	0.87	0.93	0.87	0.74	0.86	0.99
3534	62.2	5.7	39.2	0.97	0.92	0.85	0.78	0.68	0.70	0.66	0.65	0.81	0.80	0.86	0.92	0.86	0.72	0.84	0.98
3535	62.7	6.7	39.0	0.94	0.93	0.83	0.78	0.67	0.70	0.65	0.66	0.80	0.79	0.85	0.92	0.85	0.72	0.83	0.97
3536	63.2	7.6	38.4	0.93	0.95	0.85	0.79	0.69	0.71	0.65	0.68	0.80	0.81	0.86	0.92	0.86	0.74	0.84	0.96
3537	63.8	8.6	37.9	0.94	0.97	0.87	0.81	0.70	0.72	0.67	0.69	0.81	0.84	0.89	0.92	0.88	0.75	0.85	0.96
3538	64.3	9.6	38.3	0.95	0.97	0.89	0.80	0.71	0.70	0.66	0.69	0.80	0.84	0.91	0.92	0.89	0.74	0.85	0.96
3539	64.8	10.7	39.1	0.96	0.97	0.89	0.79	0.71	0.67	0.65	0.67	0.78	0.83	0.91	0.92	0.89	0.74	0.84	0.97
3540	65.3	11.8	39.2	0.94	0.96	0.87	0.77	0.71	0.64	0.64	0.66	0.76	0.83	0.90	0.90	0.87	0.73	0.83	0.95
3553	70.8	31.4	38.0	0.97	0.88	0.86	0.75	0.70	0.74	0.64	0.69	0.76	0.89	0.87	0.87	0.87	0.78	0.90	0.98
3554	71.1	33.4	37.7	0.98	0.88	0.85	0.76	0.72	0.74	0.65	0.69	0.77	0.87	0.89	0.88	0.86	0.77	0.88	0.99
3555	71.3	35.4	37.4	0.98	0.88	0.85	0.77	0.72	0.74	0.66	0.68	0.77	0.86	0.89	0.89	0.85	0.76	0.87	0.99
3625	56.8	0.0	37.7	0.95	0.89	0.85	0.79	0.74	0.71	0.68	0.76	0.85	0.89	0.94	0.88	0.86	0.78	0.91	0.95
3626	57.4	0.7	37.8	0.93	0.88	0.85	0.79	0.74	0.71	0.68	0.76	0.86	0.88	0.94	0.89	0.86	0.79	0.90	0.94
3627	57.9	1.3	38.0	0.92	0.89	0.86	0.80	0.75	0.72	0.69	0.76	0.87	0.86	0.95	0.90	0.86	0.79	0.89	0.93
3628	58.5	2.0	38.3	0.94	0.91	0.86	0.82	0.77	0.73	0.71	0.75	0.88	0.86	0.95	0.90	0.87	0.79	0.90	0.95
3629	59.0	2.8	38.4	0.95	0.93	0.88	0.81	0.76	0.74	0.71	0.73	0.89	0.86	0.94	0.91	0.88	0.79	0.91	0.96
3630	59.6	3.5	38.3	0.96	0.91	0.88	0.79	0.75	0.74	0.71	0.71	0.88	0.86	0.92	0.92	0.88	0.78	0.91	0.97
3631	60.1	4.3	38.5	0.97	0.90	0.87	0.78	0.73	0.73	0.69	0.69	0.87	0.85	0.90	0.92	0.87	0.77	0.90	0.98
3653	70.1	32.4	37.8	0.97	0.88	0.87	0.74	0.68	0.73	0.63	0.67	0.77	0.91	0.87	0.88	0.87	0.76	0.92	0.98
3654	70.4	34.3	37.4	0.98	0.88	0.85	0.75	0.70	0.73	0.64	0.67	0.78	0.89	0.89	0.88	0.86	0.76	0.90	0.99
3655	70.7	36.2	37.1	0.98	0.88	0.84	0.77	0.71	0.74	0.66	0.68	0.77	0.88	0.89	0.88	0.85	0.76	0.88	0.99
3725	56.5	1.0	37.8	0.95	0.87	0.84	0.78	0.73	0.70	0.67	0.75	0.82	0.88	0.92	0.87	0.84	0.77	0.89	0.96
3726	57.0	1.7	37.5	0.94	0.88	0.85	0.79	0.74	0.71	0.67	0.76	0.84	0.88	0.94	0.88	0.86	0.78	0.89	0.94
3727	57.6	2.4	37.3	0.92	0.90	0.86	0.81	0.76	0.72	0.69	0.77	0.86	0.87	0.96	0.90	0.87	0.79	0.89	0.93
3728	58.1	3.1	37.5	0.93	0.92	0.87	0.82	0.77	0.73	0.71	0.76	0.88	0.86	0.95	0.90	0.88	0.80	0.90	0.94
3729	58.7	3.8	37.8	0.95	0.93	0.87	0.81	0.78	0.73	0.71	0.74	0.88	0.86	0.93	0.90	0.87	0.79	0.91	0.95
3730	59.2	4.6	38.3	0.97	0.92	0.87	0.80	0.77	0.73	0.70	0.72	0.88	0.86	0.91	0.91	0.87	0.79	0.91	0.97
3753	69.5	33.2	37.7	0.96	0.88	0.86	0.74	0.68	0.72	0.63	0.66	0.78	0.93	0.85	0.87	0.86	0.75	0.93	0.97
3754	69.8	35.1	37.5	0.97	0.87	0.84	0.76	0.69	0.72	0.64	0.66	0.78	0.91	0.87	0.86	0.85	0.74	0.92	0.98
3755	70.0	37.0	37.3	0.97	0.86	0.83	0.78	0.70	0.73	0.65	0.66	0.77	0.89	0.87	0.86	0.85	0.74	0.90	0.98
3825	56.1	2.0	38.2	0.96	0.87	0.83	0.78	0.72	0.69	0.67	0.73	0.80	0.86	0.92	0.87	0.84	0.76	0.86	0.97
3826	56.6	2.7	37.8	0.95	0.89	0.84	0.79	0.73	0.70	0.68	0.75	0.82	0.86	0.94	0.88	0.85	0.77	0.87	0.96
3827	57.2	3.4	37.3	0.93	0.91	0.86	0.81	0.75	0.72	0.70	0.76	0.84	0.86	0.96	0.90	0.87	0.79	0.88	0.94
3828	57.7	4.1	37.2	0.93	0.92	0.86	0.81	0.77	0.72	0.71	0.77	0.87	0.86	0.95	0.89	0.87	0.79	0.90	0.94
3829	58.3	4.9	37.7	0.95	0.92	0.86	0.82	0.78	0.72	0.71	0.75	0.88	0.86	0.93	0.89	0.87	0.79	0.91	0.95
3853	68.9	34.0	37.5	0.96	0.88	0.86	0.76	0.69	0.72	0.63	0.66	0.79	0.94	0.85	0.86	0.87	0.75	0.94	0.97
3854	69.1	35.8	37.7	0.96	0.86	0.83	0.77	0.68	0.71	0.63	0.65	0.78	0.92	0.85	0.85	0.85	0.73	0.92	0.97
3855	69.4	37.7	37.7	0.96	0.86	0.81	0.78	0.68	0.72	0.65	0.65	0.77	0.90	0.86	0.86	0.84	0.73	0.90	0.97
3925	55.7	3.0	38.7	0.97	0.87	0.81	0.77	0.72	0.69	0.67	0.71	0.79	0.85	0.93	0.86	0.82	0.75	0.86	0.97
3926	56.3	3.7	38.4	0.96	0.89	0.83	0.77	0.73	0.71	0.68	0.72	0.80	0.85	0.94	0.87	0.83	0.76	0.86	0.96
3927	56.8	4.4	37.8	0.95	0.90	0.85	0.78	0.75	0.71	0.70	0.75	0.83	0.86	0.95	0.88	0.85	0.78	0.88	0.95
3928	57.3	5.1	37.4	0.94	0.91	0.86	0.80	0.76	0.71	0.71	0.77	0.86	0.86	0.94	0.89	0.86	0.79	0.90	0.95
3929	57.9	5.9	37.6	0.95	0.91	0.85	0.82	0.78	0.71	0.72	0.77	0.89	0.86	0.92	0.89	0.88	0.80	0.92	0.96
4025	55.3	3.9	38.7	0.97	0.89	0.81	0.76	0.73	0.71	0.67	0.70	0.78	0.85	0.93	0.84	0.82	0.76	0.86	0.97
4026	55.9	4.6	38.8	0.97	0.89	0.82	0.75	0.73	0.71	0.68	0.70	0.78	0.86	0.93	0.85	0.82	0.76	0.86	0.97
4027	56.4	5.3	38.2	0.95	0.90	0.83	0.76	0.74	0.70	0.69	0.73	0.81	0.87	0.95	0.87	0.84	0.77	0.88	0.96
4028	56.9	6.1	37.6	0.94	0.91	0.85	0.79	0.75	0.70	0.72	0.77	0.86	0.87	0.94	0.89	0.86	0.79	0.91	0.95

No	N[°]	E[°]	U <sub>50</sub>	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Mar- Apr	Mai- Aug	Sep- Oct	Dec- Jan
4029	57.4	6.9	37.4	0.95	0.90	0.85	0.82	0.76	0.71	0.73	0.77	0.89	0.86	0.92	0.89	0.87	0.80	0.92	0.96
4125	54.9	4.9	38.4	0.99	0.90	0.82	0.75	0.72	0.72	0.68	0.70	0.78	0.84	0.92	0.83	0.82	0.77	0.84	0.99
4126	55.5	5.6	38.4	0.98	0.90	0.82	0.75	0.72	0.71	0.68	0.71	0.78	0.85	0.93	0.84	0.83	0.76	0.85	0.98
4127	56.0	6.3	38.0	0.96	0.91	0.83	0.76	0.72	0.70	0.69	0.73	0.80	0.87	0.94	0.87	0.84	0.77	0.88	0.97
4128	56.5	7.0	37.5	0.94	0.90	0.84	0.79	0.73	0.71	0.72	0.75	0.84	0.87	0.94	0.89	0.85	0.79	0.90	0.96
4129	57.0	7.8	37.2	0.94	0.89	0.84	0.81	0.75	0.72	0.74	0.75	0.87	0.87	0.93	0.89	0.85	0.80	0.92	0.96
4130	57.5	8.6	36.9	0.95	0.89	0.84	0.83	0.77	0.72	0.74	0.75	0.89	0.87	0.92	0.90	0.87	0.80	0.92	0.97
4131	58.0	9.4	36.5	0.97	0.91	0.86	0.83	0.75	0.72	0.73	0.73	0.90	0.86	0.91	0.91	0.88	0.79	0.93	0.98
4132	58.5	10.3	35.9	0.98	0.92	0.85	0.83	0.72	0.72	0.71	0.72	0.90	0.85	0.90	0.90	0.87	0.78	0.92	0.99
4225	54.5	5.8	38.1	1.00	0.91	0.83	0.76	0.72	0.73	0.68	0.71	0.78	0.84	0.92	0.84	0.83	0.77	0.84	1.00
4226	55.1	6.5	38.0	0.98	0.91	0.83	0.76	0.71	0.72	0.68	0.72	0.79	0.85	0.93	0.85	0.83	0.76	0.85	0.99
4227	55.6	7.2	37.8	0.96	0.91	0.83	0.77	0.72	0.72	0.69	0.73	0.80	0.86	0.94	0.87	0.83	0.77	0.87	0.97
4228	56.1	8.0	37.4	0.94	0.90	0.83	0.79	0.73	0.72	0.72	0.74	0.83	0.87	0.94	0.88	0.84	0.78	0.90	0.96
4229	56.6	8.7	37.2	0.94	0.88	0.83	0.80	0.75	0.72	0.74	0.74	0.85	0.87	0.93	0.89	0.85	0.80	0.91	0.96
4230	57.1	9.5	36.8	0.94	0.89	0.83	0.82	0.75	0.72	0.74	0.73	0.87	0.87	0.92	0.89	0.86	0.79	0.92	0.96
4231	57.6	10.4	36.2	0.95	0.91	0.84	0.83	0.72	0.71	0.73	0.71	0.87	0.86	0.91	0.89	0.86	0.78	0.91	0.97
4232	58.1	11.2	35.5	0.97	0.91	0.84	0.84	0.70	0.71	0.73	0.69	0.88	0.85	0.91	0.89	0.87	0.78	0.91	0.98
Average			40.0	0.94	0.92	0.87	0.80	0.75	0.69	0.67	0.70	0.81	0.88	0.89	0.91	0.88	0.77	0.90	0.96
Stand. dev.			1.6	0.02	0.02	0.03	0.04	0.03	0.03	0.04	0.03	0.05	0.03	0.03	0.03	0.03	0.03	0.03	0.02