

FARM Report 2039

created for Vortex

October 27, 2010

Run 1626 at 70 m
(Sample Farm)

Report Info

Customer	Vortex
User	explore
Run Submitted	2 June 2010
Run Started	6 June 2010
Run Delivered	11 June 2010
Confidential	Client's discretion
Usage	Refer to VORTEX general terms at www.vortex.es



Report Summary

#	Latitude	Longitude	Mean	A	k	Vref
1	16.560353	-94.962044	10.4	11.3	1.6	44.1
2	16.556898	-94.952688	10.0	10.9	1.5	45.4
3	16.535342	-94.95904	9.7	10.9	1.7	43.0
-	deg.	deg.	m/s	m/s	-	m/s

Point 1
Lat. 16.560353
Lon. -94.962044

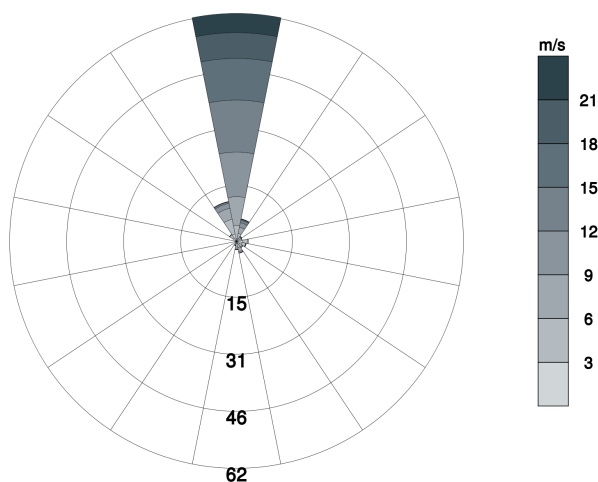


Figure 1: Wind Direction Rose. The radius of each sector is proportional to its frequency in the total wind speed distribution. The color of each bin depends on the wind speed as referred in the legend.

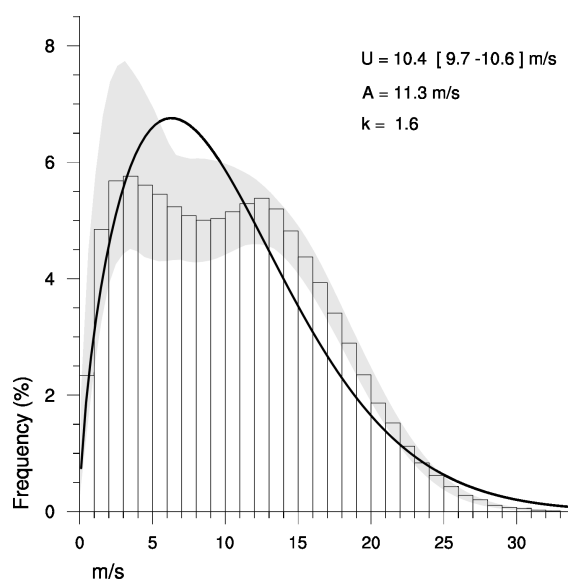


Figure 2: Wind Speed Histogram. A, K parameters indicate Weibull fitting for total (all-sector) histogram. The grey band along histogram bars is the result of different ensemble model configurations which also result in the shown uncertainty range for the mean wind speed.



Point 1
Lat. 16.560353
Lon. -94.962044

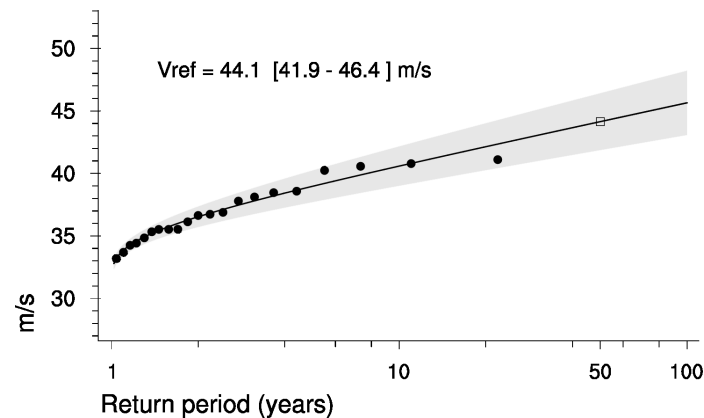


Figure 3: Extreme Events Gumbel Fit. 50-year return period extreme wind speed (Vref) is marked as an empty square. The grey band indicates Gumbel fitting uncertainty which also provide the shown uncertainty range for the Vref.

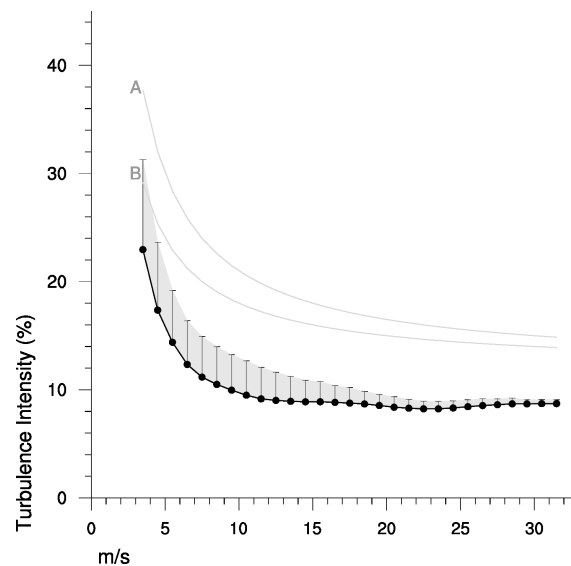


Figure 4: Turbulence Intensity Plot. Vertical thin lines at each point indicate the standard deviation of turbulence intensity showing the characteristic turbulence intensity. A & B curves are the thresholds from IEC 61400-1 Second Edition 1999-02.



Point 1
Lat. 16.560353
Lon. -94.962044

m/s - deg	0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5	%	TI	STI
0 - 1	5.5	8.3	29.6	36.3	23.7	22.1	21.2	5.7	7.0	12.8	0.0	0.0	0.0	0.0	11.2	21.5	2.3		
1 - 2	23.7	23.7	33.5	49.4	60.8	49.4	34.6	15.5	17.1	18.3	0.0	0.0	0.0	0.0	36.9	61.8	4.9		
2 - 3	42.1	31.2	23.8	28.9	68.0	57.1	35.7	24.4	23.3	18.2	0.0	0.0	0.0	0.0	51.0	93.8	5.7		
3 - 4	66.3	38.2	18.1	13.3	57.2	46.5	29.8	31.0	27.0	15.1	0.0	0.0	0.0	0.0	48.3	113.9	5.8	23.0	8.3
4 - 5	101.8	45.3	13.8	5.9	37.2	30.1	22.3	36.9	29.0	12.4	0.0	0.0	0.0	0.0	32.2	124.3	5.6	17.4	6.3
5 - 6	142.8	50.5	10.0	1.7	21.3	17.6	15.8	39.2	28.9	9.4	0.0	0.0	0.0	0.0	16.5	123.8	5.5	14.4	4.8
6 - 7	186.5	51.4	6.7	0.0	9.0	7.6	11.3	37.8	25.0	6.5	0.0	0.0	0.0	0.0	5.9	111.0	5.2	12.4	4.0
7 - 8	228.6	50.1	4.5	0.0	3.9	4.3	7.1	35.7	17.1	4.3	0.0	0.0	0.0	0.0	1.4	88.2	5.1	11.2	3.8
8 - 9	270.6	49.5	3.5	0.0	0.0	1.6	3.3	26.5	12.1	3.1	0.0	0.0	0.0	0.0	0.0	68.2	5.0	10.5	3.5
9 - 10	315.5	42.9	2.3	0.0	0.0	0.0	2.1	15.0	7.4	1.6	0.0	0.0	0.0	0.0	0.0	54.2	5.0	10.0	3.3
10 - 11	356.3	36.4	1.3	0.0	0.0	0.0	1.1	9.9	5.3	1.0	0.0	0.0	0.0	0.0	0.0	39.9	5.2	9.5	3.2
11 - 12	394.8	30.0	1.0	0.0	0.0	0.0	0.0	6.6	3.1	0.0	0.0	0.0	0.0	0.0	0.0	27.9	5.3	9.2	2.9
12 - 13	423.5	24.1	0.0	0.0	0.0	0.0	0.0	3.6	1.7	0.0	0.0	0.0	0.0	0.0	0.0	18.7	5.4	9.0	2.6
13 - 14	423.5	20.0	0.0	0.0	0.0	0.0	0.0	1.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.2	5.2	8.9	2.3
14 - 15	397.3	16.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.3	4.8	8.9	2.0
15 - 16	368.8	10.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.1	4.4	8.9	1.9
16 - 17	334.0	8.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.5	3.9	8.8	1.6
17 - 18	293.1	5.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.4	8.8	1.4
18 - 19	249.8	3.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.9	8.7	1.2
19 - 20	203.3	2.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.4	8.6	1.0
20 - 21	161.8	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.9	8.4	1.0
21 - 22	132.4	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	8.3	0.8
22 - 23	98.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	8.3	0.7
23 - 24	73.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	8.3	0.7
24 - 25	54.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	8.3	0.7
25 - 26	37.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	8.4	0.6
26 - 27	24.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	8.6	0.6
27 - 28	17.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	8.6	0.5
28 - 29	9.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	8.7	0.5
29 - 30	6.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	8.7	0.4
30 - 31	4.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	8.7	0.4
31 - 32	2.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.7	0.4
32 - 33	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
33 - 34	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
%	62.2	6.3	1.7	1.6	3.2	2.7	2.1	3.3	2.3	1.2	0.0	0.0	0.0	0.0	2.3	11.1		11.2	3.2
Inflow (deg.)	0.2	0.2	-0.1	0.4	0.3	0.0	0.1	0.0	-0.3	-0.6	0.8	-0.3	0.3	0.0	0.3	0.5	0.2		
Shear	0.26	0.26	0.28	0.17	0.25	0.63	0.18	0.04	0.07	0.07	0.08	0.00	-0.17	-0.10	0.10	0.08	0.22		

Figure 5: Bin/Sector Occurrence Table. Occurrences are expressed in hours per year. Rows and Columns totals are expressed in percentages. Turbulence intensity and its standard deviation are shown in the last two columns. Inflow angle (vertical wind) is shown for each direction sector at the next-to-the-last row. Shear "exponent" shown in the last row is the result of a potential fitting of wind speed versus height above ground. Total turbulent intensity, inflow angle and shear are a weighted average of these magnitudes according to the percentages of wind speed bins and wind direction sectors respectively.

Point 2
Lat. 16.556898
Lon. -94.952688

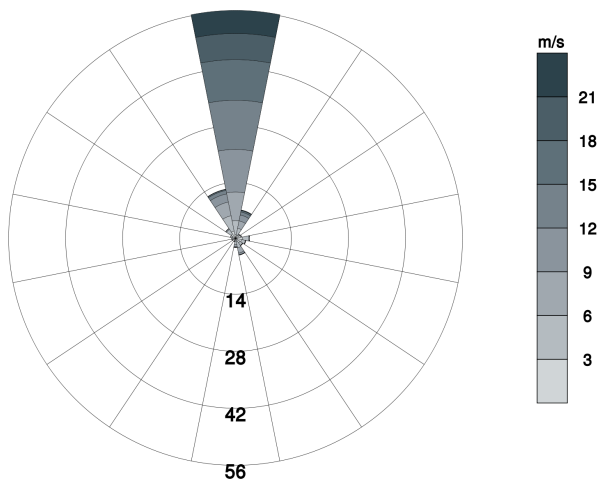


Figure 6: Wind Direction Rose. The radius of each sector is proportional to its frequency in the total wind speed distribution. The color of each bin depends on the wind speed as referred in the legend.

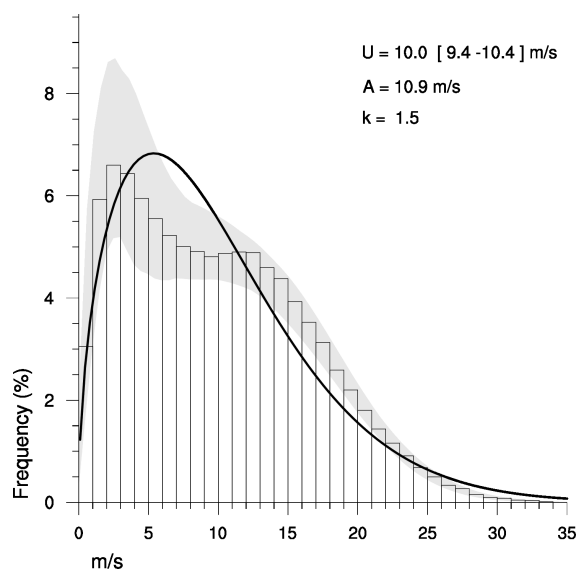


Figure 7: Wind Speed Histogram. A, K parameters indicate Weibull fitting for total (all-sector) histogram. The grey band along histogram bars is the result of different ensemble model configurations which also result in the shown uncertainty range for the mean wind speed.



Point 2
Lat. 16.556898
Lon. -94.952688

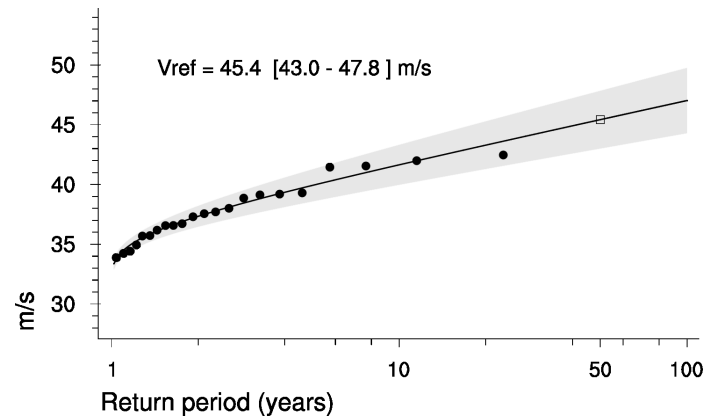


Figure 8: Extreme Events Gumbel Fit. 50-year return period extreme wind speed (V_{ref}) is marked as an empty square. The grey band indicates Gumbel fitting uncertainty which also provide the shown uncertainty range for the V_{ref} .

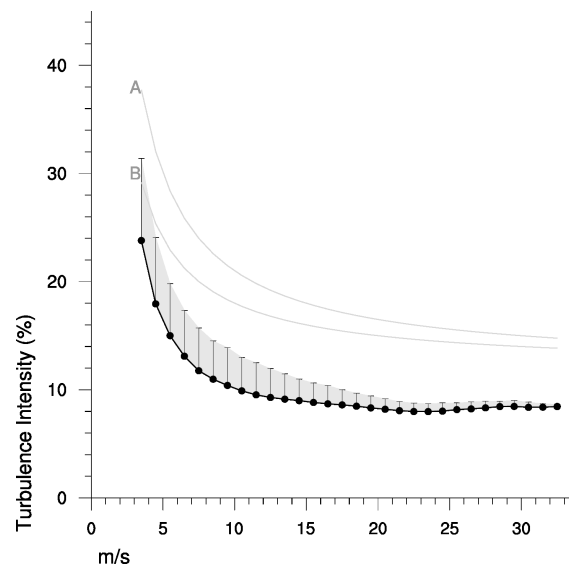


Figure 9: Turbulence Intensity Plot. Vertical thin lines at each point indicate the standard deviation of turbulence intensity showing the characteristic turbulence intensity. A & B curves are the thresholds from IEC 61400-1 Second Edition 1999-02.



Point 2
Lat. 16.556898
Lon. -94.952688

m/s - deg	0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5	%	TI	STI
0 - 1	6.9	10.5	29.4	31.7	20.6	27.1	28.4	9.0	14.4	15.7	0.0	8.0	13.6	13.6	17.9	20.9	3.1		
1 - 2	27.5	27.9	34.9	47.6	55.9	51.3	44.8	23.0	22.9	16.0	0.0	14.1	24.3	28.5	43.8	56.7	5.9		
2 - 3	46.3	35.7	23.0	30.3	69.9	54.7	41.0	34.2	24.8	12.8	0.0	15.1	20.8	31.5	54.2	83.8	6.6		
3 - 4	69.9	44.1	14.4	14.1	65.1	41.6	31.2	42.8	25.8	9.2	0.0	14.5	14.4	21.9	51.8	103.0	6.4	23.8	7.6
4 - 5	99.4	52.5	7.8	5.5	45.9	25.8	20.2	47.6	23.3	6.8	0.0	13.7	8.2	11.1	39.1	114.2	6.0	17.9	6.1
5 - 6	133.0	53.8	3.5	2.0	26.7	15.0	13.5	50.3	22.2	4.9	0.0	8.1	3.4	4.2	27.1	118.6	5.6	15.0	4.8
6 - 7	169.2	54.0	1.7	0.0	12.8	6.7	7.3	49.1	19.6	3.5	0.0	5.2	0.0	1.0	13.9	113.8	5.2	13.1	4.2
7 - 8	206.6	54.4	0.0	0.0	5.8	3.5	3.5	39.8	13.1	2.1	0.0	3.1	0.0	0.0	5.4	101.1	5.0	11.8	3.9
8 - 9	241.6	52.7	0.0	0.0	1.6	1.6	1.4	29.4	10.0	1.5	0.0	1.7	0.0	0.0	2.3	86.3	4.9	11.0	3.5
9 - 10	274.1	49.4	0.0	0.0	0.0	0.0	0.0	17.8	6.8	0.0	0.0	0.0	0.0	0.0	0.0	73.1	4.8	10.4	3.5
10 - 11	307.8	43.8	0.0	0.0	0.0	0.0	0.0	11.8	4.4	0.0	0.0	0.0	0.0	0.0	0.0	59.2	4.9	9.9	3.1
11 - 12	335.0	36.4	0.0	0.0	0.0	0.0	0.0	6.6	3.6	0.0	0.0	0.0	0.0	0.0	0.0	47.6	4.9	9.5	3.0
12 - 13	359.3	27.0	0.0	0.0	0.0	0.0	0.0	4.5	2.5	0.0	0.0	0.0	0.0	0.0	0.0	35.0	4.9	9.3	2.7
13 - 14	352.2	21.8	0.0	0.0	0.0	0.0	0.0	2.3	1.6	0.0	0.0	0.0	0.0	0.0	0.0	24.7	4.6	9.1	2.3
14 - 15	347.2	18.0	0.0	0.0	0.0	0.0	0.0	1.1	1.0	0.0	0.0	0.0	0.0	0.0	0.0	16.4	4.4	9.0	2.0
15 - 16	318.0	13.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.3	3.9	8.8	1.8
16 - 17	293.2	8.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.9	3.5	8.7	1.7
17 - 18	262.5	7.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.2	3.1	8.6	1.4
18 - 19	219.3	5.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.3	2.6	8.5	1.2
19 - 20	187.8	3.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4	2.2	8.3	1.1
20 - 21	155.4	2.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.8	8.2	1.0
21 - 22	124.4	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4	8.1	0.8
22 - 23	100.7	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	8.0	0.8
23 - 24	79.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	8.0	0.7
24 - 25	59.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	8.0	0.8
25 - 26	43.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	8.2	0.6
26 - 27	29.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	8.2	0.6
27 - 28	23.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	8.3	0.6
28 - 29	13.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	8.5	0.5
29 - 30	8.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	8.5	0.5
30 - 31	7.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	8.4	0.5
31 - 32	3.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.4	0.3
32 - 33	3.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.5	0.2
33 - 34	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
34 - 35	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
%	56.1	7.1	1.3	1.5	3.5	2.6	2.2	4.2	2.2	0.8	0.0	1.0	1.0	1.3	2.9	12.3		11.7	3.3
Inflow (deg.)	0.1	0.1	0.3	0.4	0.2	-0.1	0.1	0.0	-0.4	-0.6	-0.4	-0.4	-1.0	-0.2	0.5	0.5	0.1		
Shear	0.27	0.27	0.23	0.19	0.31	0.55	0.16	0.03	0.06	0.07	0.14	-0.07	-0.23	-0.15	0.07	-0.00	0.20		

Figure 10: Bin/Sector Occurrence Table. Occurrences are expressed in hours per year. Rows and Columns totals are expressed in percentages. Turbulence intensity and its standard deviation are shown in the last two columnns. Inflow angle (vertical wind) is shown for each direction sector at the next-to-the-last row. Shear "exponent" shown in the last row is the result of a potential fitting of wind speed versus height above ground. Total turbulent intensity, inflow angle and shear are a weighted average of these magnitudes according to the percentages of wind speed bins and wind direction sectors respectively.



Point 3
Lat. 16.535342
Lon. -94.95904

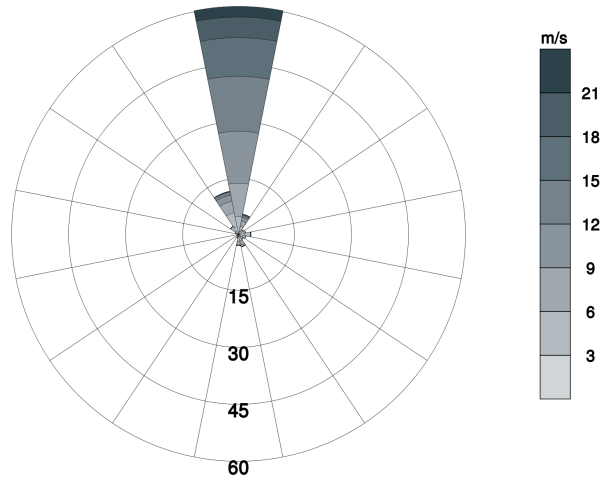


Figure 11: Wind Direction Rose. The radius of each sector is proportional to its frequency in the total wind speed distribution. The color of each bin depends on the wind speed as referred in the legend.

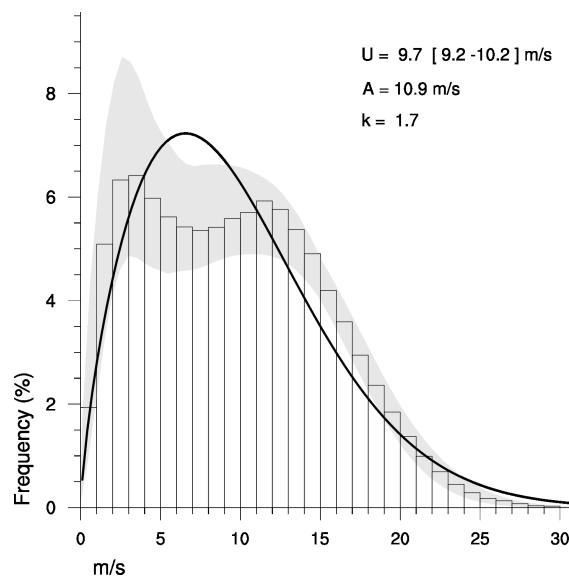


Figure 12: Wind Speed Histogram. A, K parameters indicate Weibull fitting for total (all-sector) histogram. The grey band along histogram bars is the result of different ensemble model configurations which also result in the shown uncertainty range for the mean wind speed.



Point 3
Lat. 16.535342
Lon. -94.95904

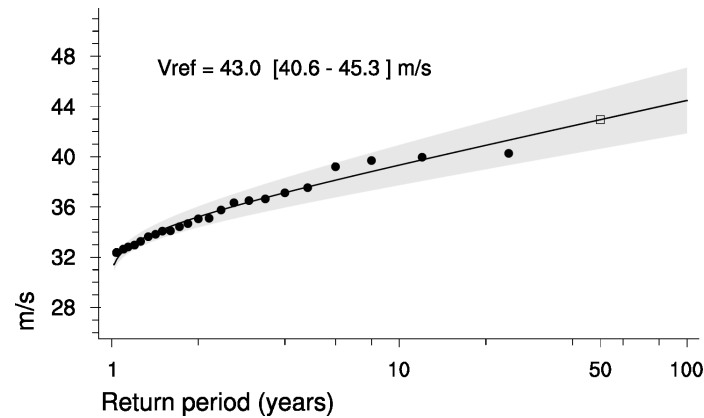


Figure 13: Extreme Events Gumbel Fit. 50-year return period extreme wind speed (Vref) is marked as an empty square. The grey band indicates Gumbel fitting uncertainty which also provide the shown uncertainty range for the Vref.

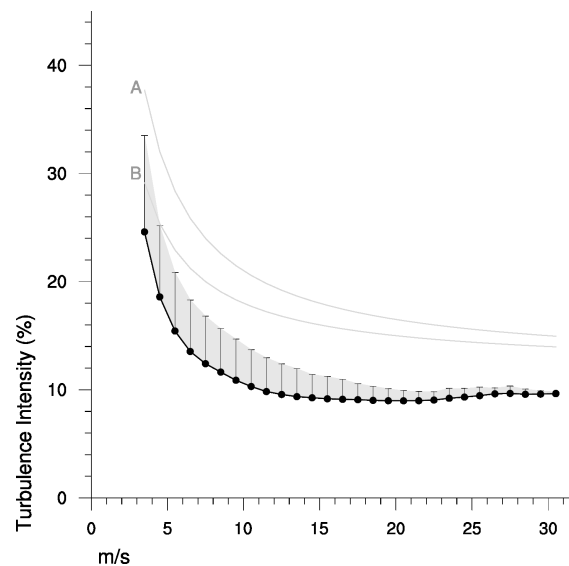


Figure 14: Turbulence Intensity Plot. Vertical thin lines at each point indicate the standard deviation of turbulence intensity showing the characteristic turbulence intensity. A & B curves are the thresholds from IEC 61400-1 Second Edition 1999-02.



Point 3
Lat. 16.535342
Lon. -94.95904

m/s - deg	0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5	%	TI	STI
0 - 1	5.2	10.6	23.0	19.2	12.4	14.1	11.2	5.1	5.2	9.8	7.2	0.0	0.0	10.4	8.8	27.0	1.9		
1 - 2	22.8	27.7	37.8	55.2	49.6	42.4	25.6	16.4	15.7	15.9	16.3	0.0	0.0	21.0	34.8	64.6	5.1		
2 - 3	44.6	33.6	29.9	51.8	72.7	50.3	27.3	24.9	25.2	16.8	15.1	0.0	0.0	21.0	53.0	88.3	6.3		
3 - 4	76.3	38.4	20.2	28.6	69.5	38.2	24.8	31.9	33.9	13.5	9.4	0.0	0.0	15.6	54.7	107.3	6.4	24.6	8.9
4 - 5	113.3	41.6	12.5	11.3	49.0	20.5	19.3	36.4	41.2	11.1	4.4	0.0	0.0	7.6	40.9	114.5	6.0	18.6	6.6
5 - 6	157.0	43.6	6.7	3.3	24.3	8.7	14.2	39.6	40.4	8.4	1.5	0.0	0.0	3.4	26.0	115.0	5.6	15.4	5.4
6 - 7	206.3	43.7	3.3	0.0	9.9	3.2	8.6	40.8	36.4	5.7	0.0	0.0	0.0	1.0	10.0	106.3	5.4	13.6	4.8
7 - 8	260.1	41.3	1.5	0.0	2.2	0.0	5.2	34.5	25.9	3.4	0.0	0.0	0.0	0.0	2.9	92.2	5.4	12.4	4.4
8 - 9	310.8	40.1	0.0	0.0	0.0	0.0	3.2	26.9	17.3	1.7	0.0	0.0	0.0	0.0	0.0	74.6	5.4	11.6	4.0
9 - 10	363.3	35.2	0.0	0.0	0.0	0.0	1.6	16.8	10.7	1.0	0.0	0.0	0.0	0.0	0.0	60.5	5.6	10.9	3.8
10 - 11	403.3	30.8	0.0	0.0	0.0	0.0	0.0	10.9	5.4	0.0	0.0	0.0	0.0	0.0	0.0	49.3	5.7	10.3	3.4
11 - 12	443.6	23.8	0.0	0.0	0.0	0.0	0.0	7.9	3.2	0.0	0.0	0.0	0.0	0.0	0.0	40.5	5.9	9.8	3.1
12 - 13	448.3	18.3	0.0	0.0	0.0	0.0	0.0	3.7	1.4	0.0	0.0	0.0	0.0	0.0	0.0	33.1	5.8	9.6	2.8
13 - 14	433.3	14.5	0.0	0.0	0.0	0.0	0.0	2.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20.6	5.4	9.4	2.6
14 - 15	400.4	13.2	0.0	0.0	0.0	0.0	0.0	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	14.8	4.9	9.3	2.1
15 - 16	350.1	9.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.4	4.2	9.2	2.1
16 - 17	302.9	6.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.7	3.6	9.1	1.8
17 - 18	248.9	4.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.2	3.0	9.1	1.5
18 - 19	201.4	3.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.1	2.4	9.0	1.3
19 - 20	158.4	2.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	1.9	9.0	1.1
20 - 21	118.9	1.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4	9.0	0.9
21 - 22	85.9	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	9.0	0.8
22 - 23	60.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	9.1	0.8
23 - 24	39.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	9.2	0.9
24 - 25	25.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	9.3	0.8
25 - 26	15.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	9.5	0.8
26 - 27	11.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	9.6	0.5
27 - 28	6.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	9.7	0.7
28 - 29	3.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.6	0.5
29 - 30	2.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.6	0.3
30 - 31	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
%	60.7	5.6	1.5	1.9	3.3	2.0	1.6	3.4	3.0	1.0	0.6	0.0	0.0	0.9	2.6	11.8		12.3	3.8
Inflow (deg.)	0.2	0.2	-0.3	-0.2	0.0	-0.1	-0.1	-0.4	-0.6	-0.2	-0.1	-1.0	-0.4	-0.3	0.5	0.7	0.2		
Shear	0.24	0.24	0.16	0.11	0.24	0.43	0.12	0.04	0.07	0.08	0.09	0.12	-0.08	-0.06	0.04	0.05	0.19		

Figure 15: Bin/Sector Occurrence Table. Occurrences are expressed in hours per year. Rows and Columns totals are expressed in percentages. Turbulence intensity and its standard deviation are shown in the last two columnns. Inflow angle (vertical wind) is shown for each direction sector at the next-to-the-last row. Shear "exponent" shown in the last row is the result of a potential fitting of wind speed versus height above ground. Total turbulent intensity, inflow angle and shear are a weighted average of these magnitudes according to the percentages of wind speed bins and wind direction sectors respectively.



Vortex S.L. | +34 933 543 453 | info@vortex.es | www.vortex.es
Parc Tecnològic BCNord | Marie Curie 8-14 | 08042 Barcelona, Spain

Registered in Spain | VAT Number: B63955348

©2010 Vortex S.L. All rights reserved. Vortex claims a copyright in all proprietary and copyrightable text and graphics in this Report, the overall design of this Report, and the selection, arrangement and presentation of all materials in this Report. Reproduction and redistribution are prohibited without the express written permission from Vortex.