

**Faro Grum Wind Analysis  
July 2002 to June 2003**

**For  
Yukon Energy Corporation  
Whitehorse, Yukon**

**September, 2003**

**by**

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# **Faro Grum Wind Analysis**

## **July 2002 to June 2003**

This report summarizes the wind monitoring data from Yukon Energy's Faro Grum wind monitoring site. The monitoring period begins July 4, 2002 at 0830 and ends June 30, 2003 at 2400. The wind monitoring site was decommissioned in July 2003.

The first part of this report describes and summarizes the data for the entire monitoring period. The second part summarizes the data monthly, parameter-by-parameter and is presented in tables and one-page graphs.

### **Part 1.**

#### ***Site Description***

The Faro Grum wind monitoring site consisted of a wind vane and anemometer installed 30 metres up a vertical tower and a second anemometer installed 6.5 metres up the same tower. Both anemometers were unheated Maximum # 40 anemometers (called Maxi 40's for the rest of this report).

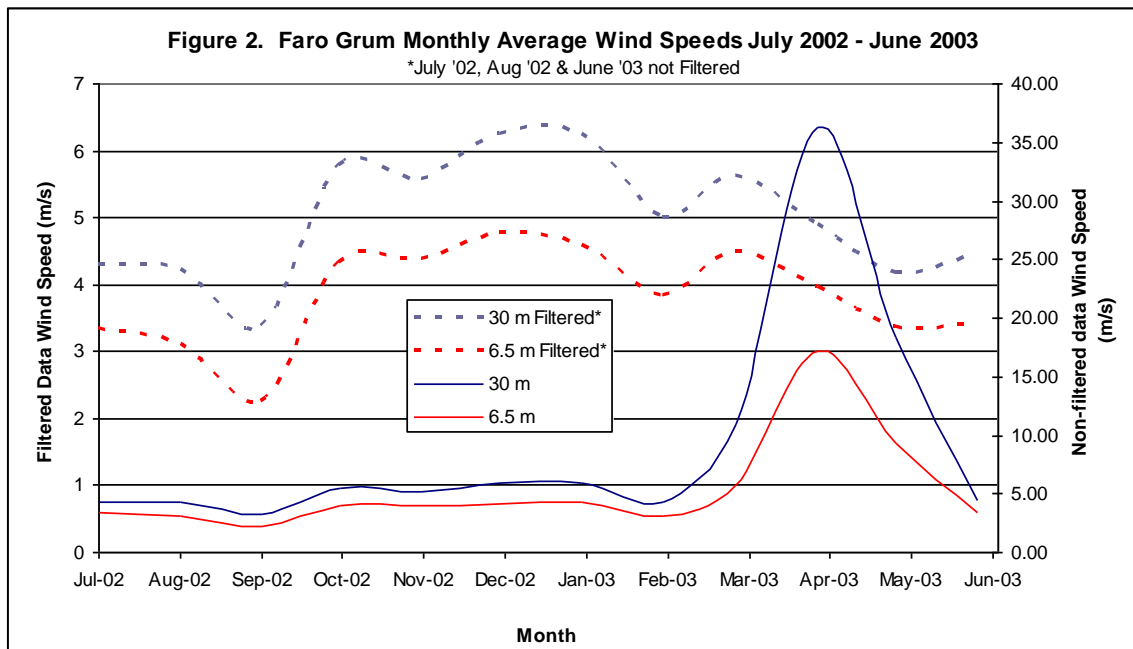
The tower also supported a temperature gauge, Second Wind Nomad data logger and a solar panel to charge the battery for the data logger. The data were stored on Nomad data logger cards.

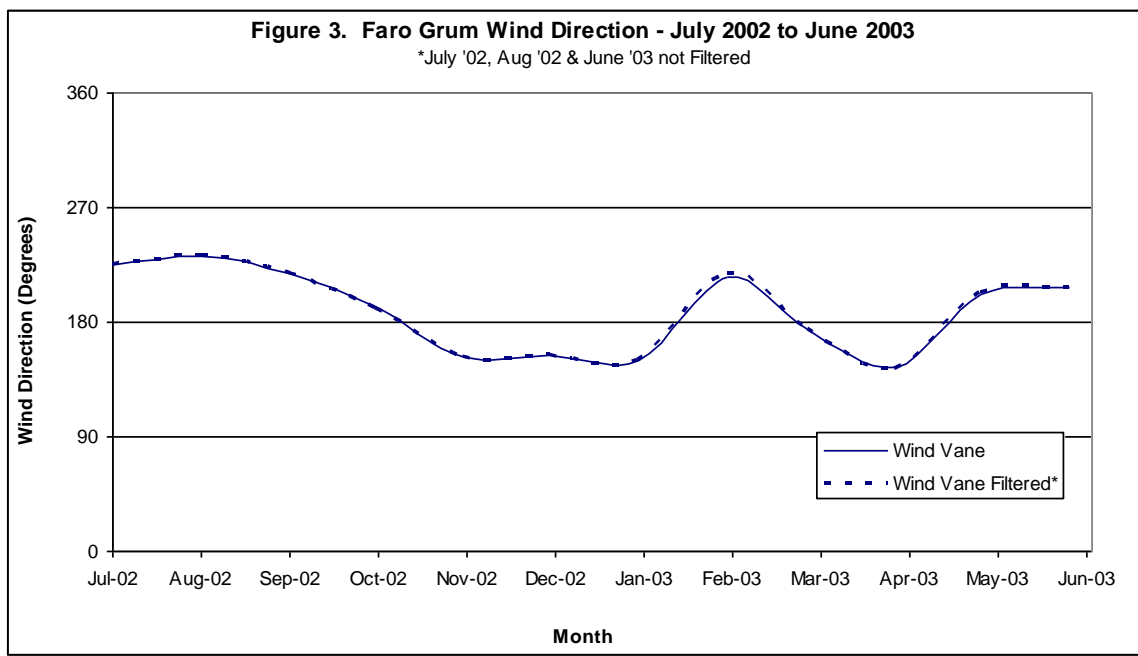
#### ***Wind Speed and Direction Summary***

Figures 1 through 3 summarize the wind speed and wind direction data from the two anemometers over the course of the monitoring period. The filters, noted in the figures, are explained in detail on Page 11 in the Data Quality section of this report.

Figure 1. Monthly Averages for Faro Grum - July 2002 - June 2003						
Month	Wind Speed (m/s)				Wind Direction (Degrees)	
	30 m	30 m Filtered*	6.5 m	6.5 m Filtered*	Wind Vane	Wind Vane Filtered*
Jul-02	4.30	4.30	3.35	3.35	225.35	225.35
Aug-02	4.24	4.24	3.11	3.11	231.95	231.95
Sep-02	3.30	3.38	2.18	2.25	217.99	218.30
Oct-02	5.42	5.79	3.96	4.33	191.82	190.38
Nov-02	5.25	5.59	3.99	4.37	153.17	153.17
Dec-02	5.86	6.26	4.09	4.77	153.75	154.06
Jan-03	5.86	6.24	4.25	4.60	149.85	149.76
Feb-03	4.35	5.01	3.10	3.85	215.14	218.86
Mar-03	10.91	5.62	5.80	4.48	173.95	174.74
Apr-03	36.35	4.90	17.24	3.95	143.90	143.82
May-03	18.44	4.17	9.26	3.37	202.49	202.89
Jun-03	4.46	4.46	3.43	3.43	207.90	207.90
Average	9.06	5.00	5.31	3.82	188.94	189.26
Month	Wind Speed Standard Deviation (m/s)				Wind Direction Standard Deviation (Degrees)	
	30 m	30 m Filtered*	6.5 m	6.5 m Filtered*	Wind Vane	Wind Vane Filtered*
Jul-02	0.61	0.61	0.62	0.62	100.12	100.12
Aug-02	0.58	0.58	0.58	0.58	89.17	89.17
Sep-02	0.46	0.47	0.47	0.49	95.50	95.52
Oct-02	0.59	0.63	0.61	0.68	92.41	92.45
Nov-02	0.54	0.58	0.57	0.63	77.85	77.85
Dec-02	0.58	0.62	0.54	0.64	80.45	79.81
Jan-03	0.58	0.62	0.55	0.60	79.21	79.05
Feb-03	0.47	0.55	0.44	0.56	100.36	98.79
Mar-03	4.57	0.61	1.86	0.63	101.90	102.25
Apr-03	25.73	0.55	10.44	0.58	79.79	76.60
May-03	11.26	0.59	5.48	0.62	96.70	96.45
Jun-03	0.60	0.60	0.62	0.62	97.31	97.31
Average	3.88	0.58	1.90	0.60	90.90	90.45

\*July 02, August 02 & June 03 not filtered.

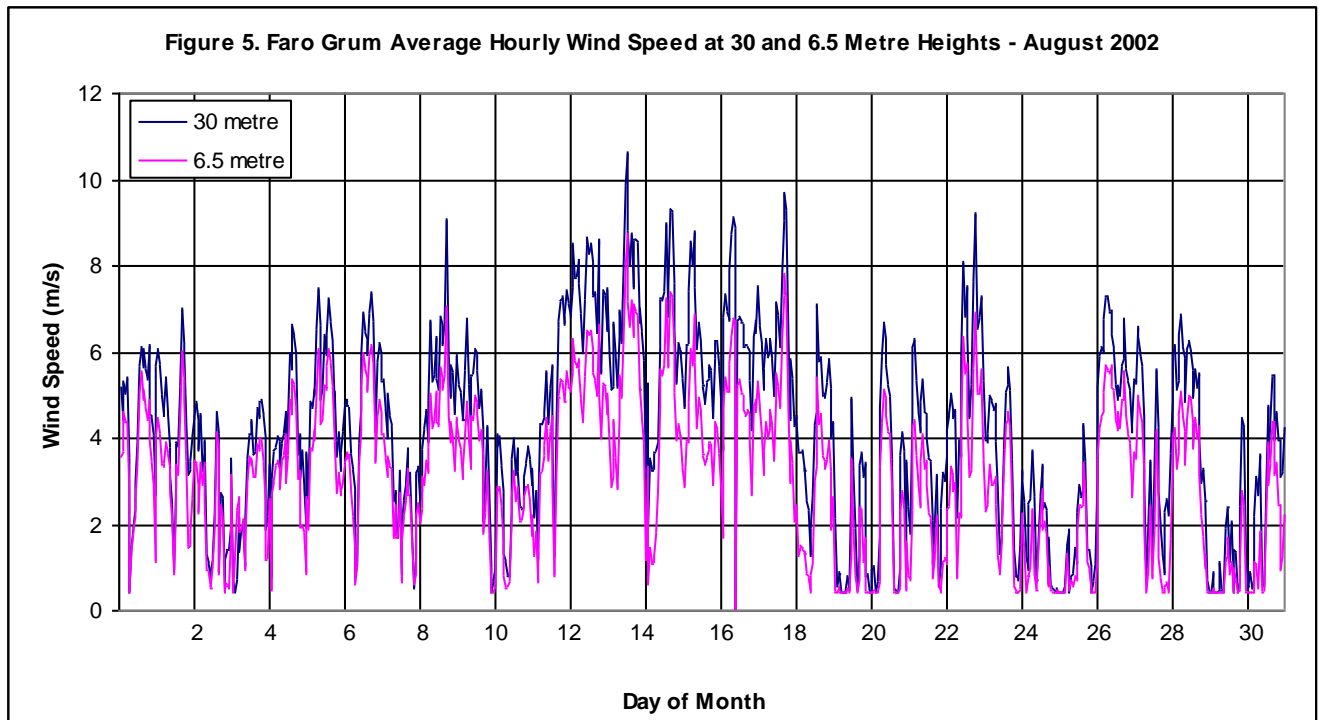
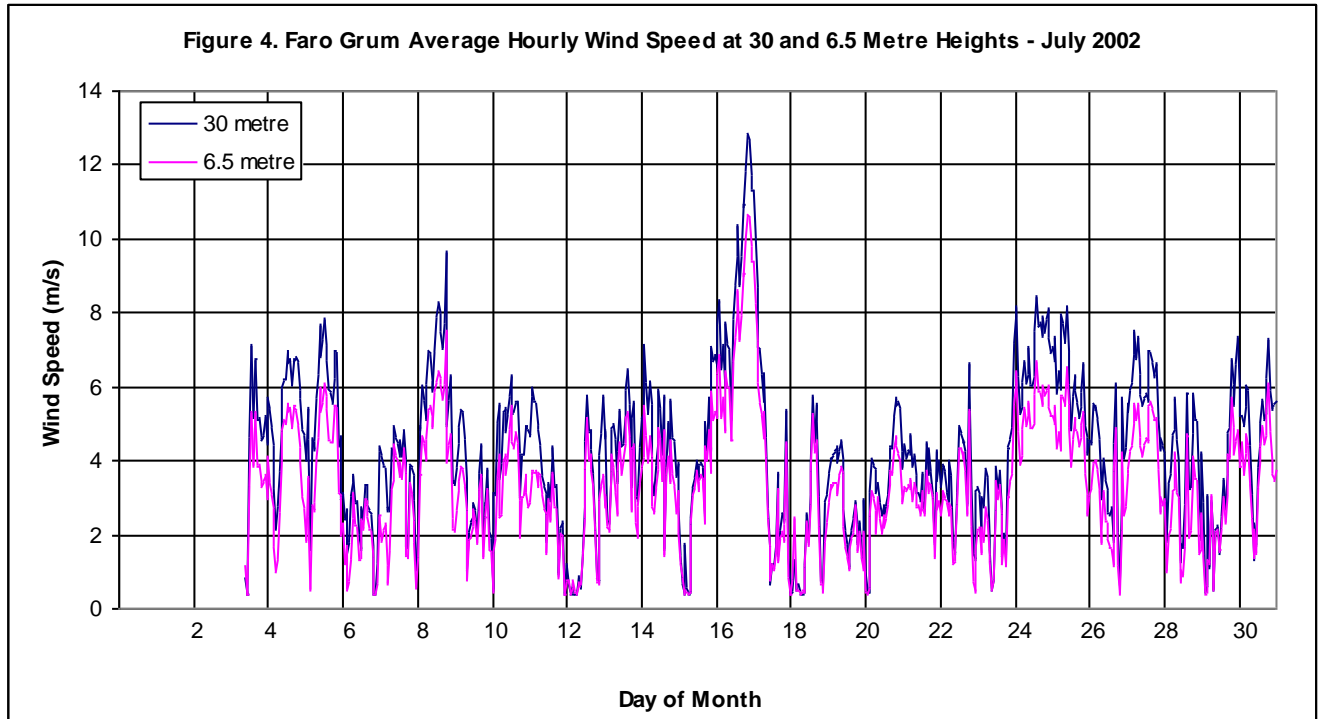




The wind direction for the year is on average from the southeast to the southwest. The average wind speed for the year is calculated to be 5.00 m/s at 30 metres above ground level and 3.82 m/s at 6.5 metres above ground level, using the filtered data in each case.

Figures 4 through 15 compare the 6.5 metre and 30 metre wind speed data on a monthly basis.

**Average Hourly Wind Speed Comparison at 30 metres and 6.5 metres above ground.**



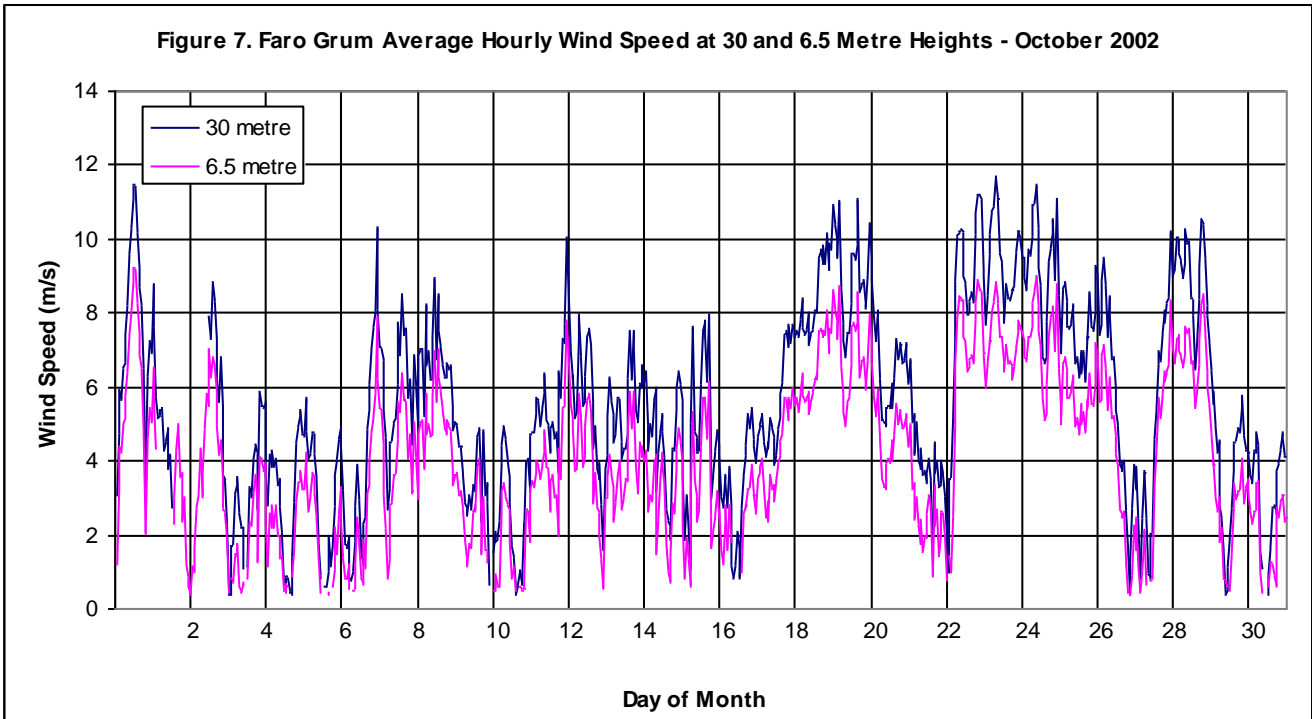
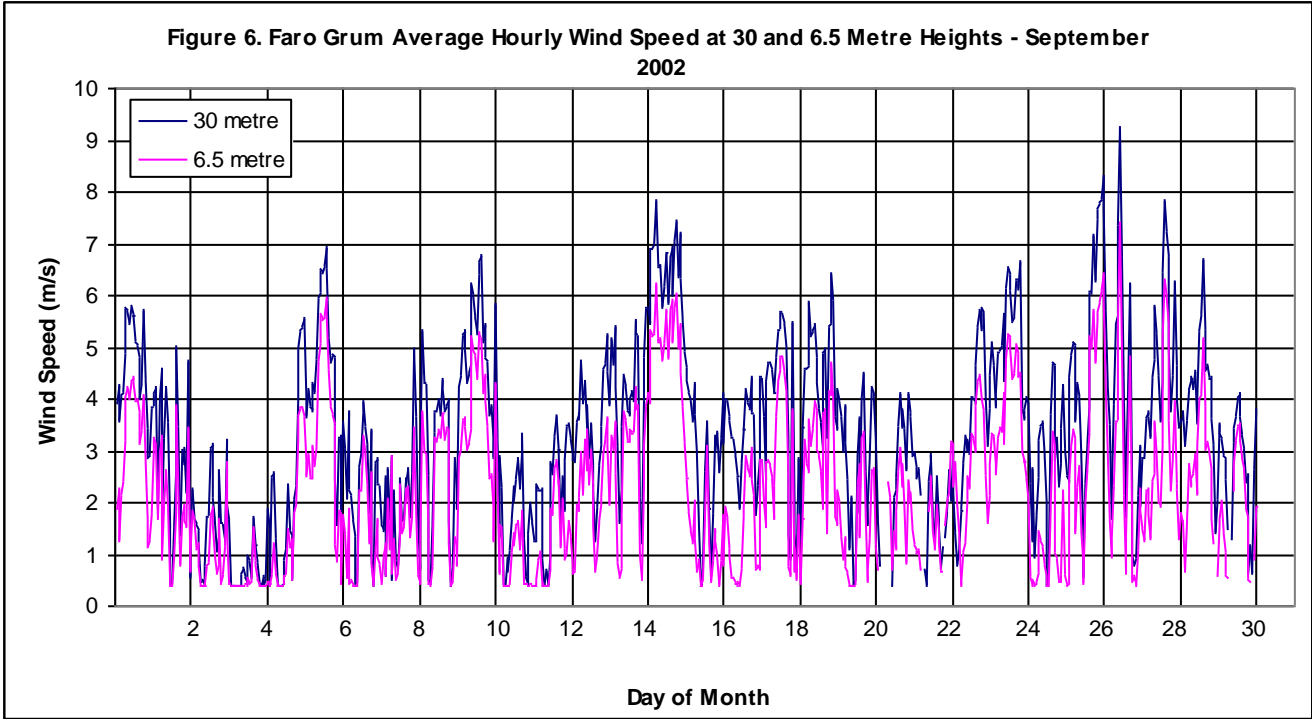


Figure 8. Faro Grum Average Hourly Wind Speed at 30 and 6.5 Metre Heights - November 2002

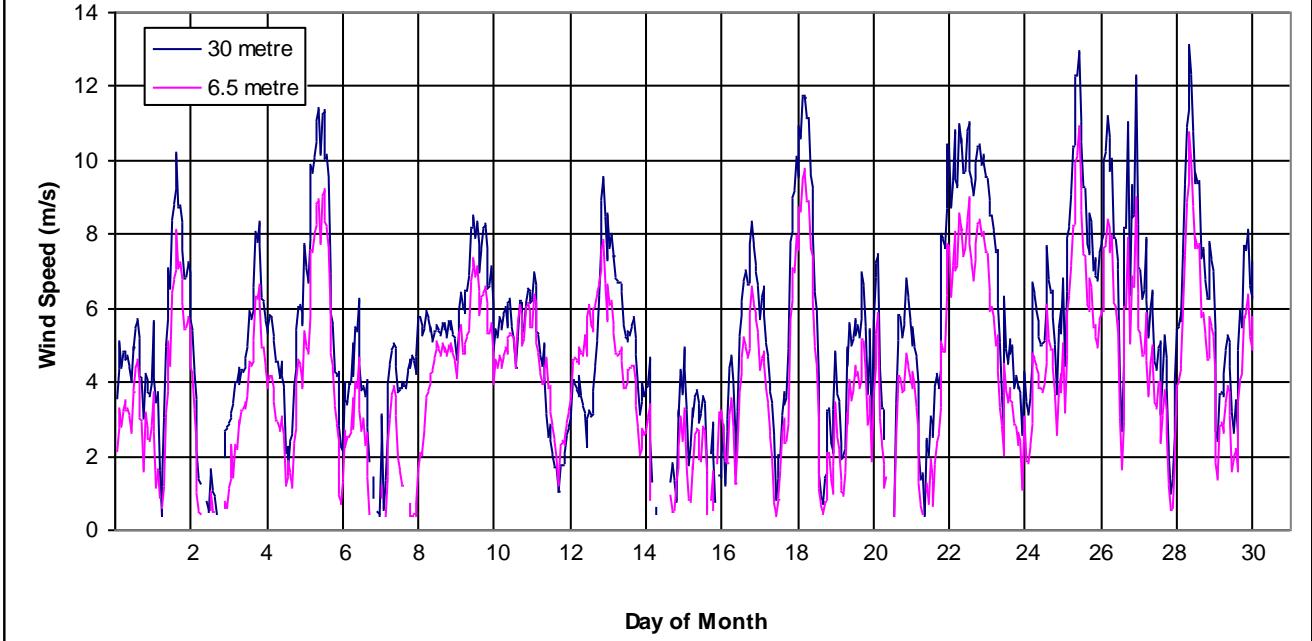
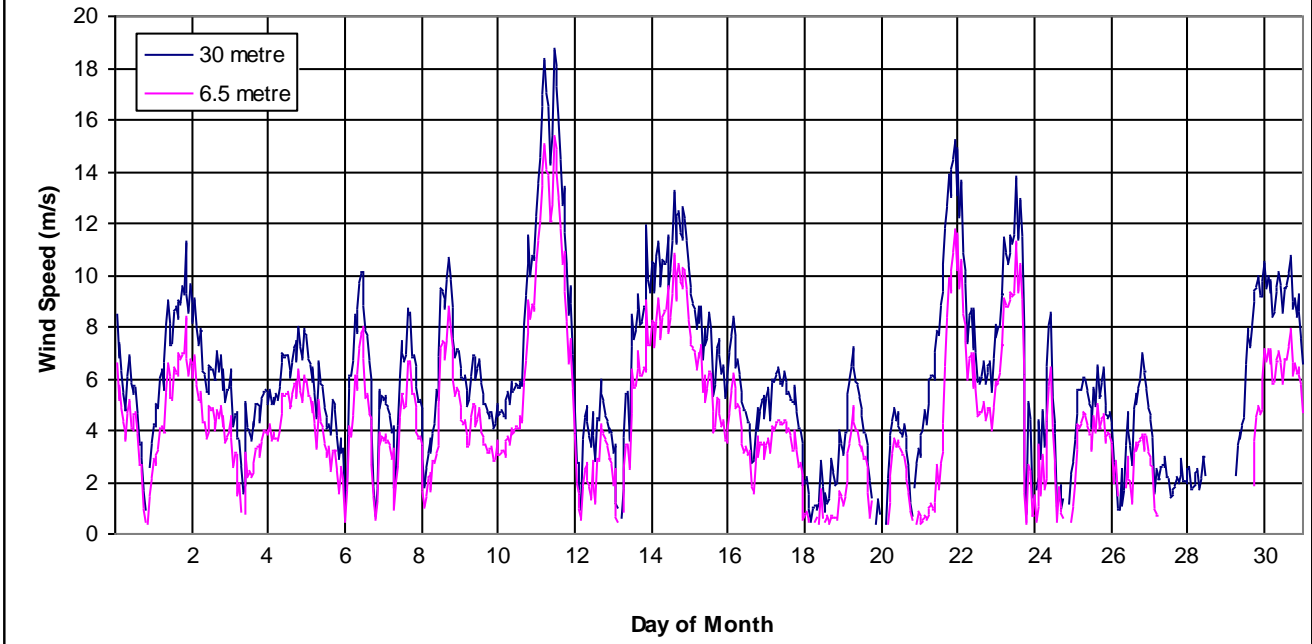
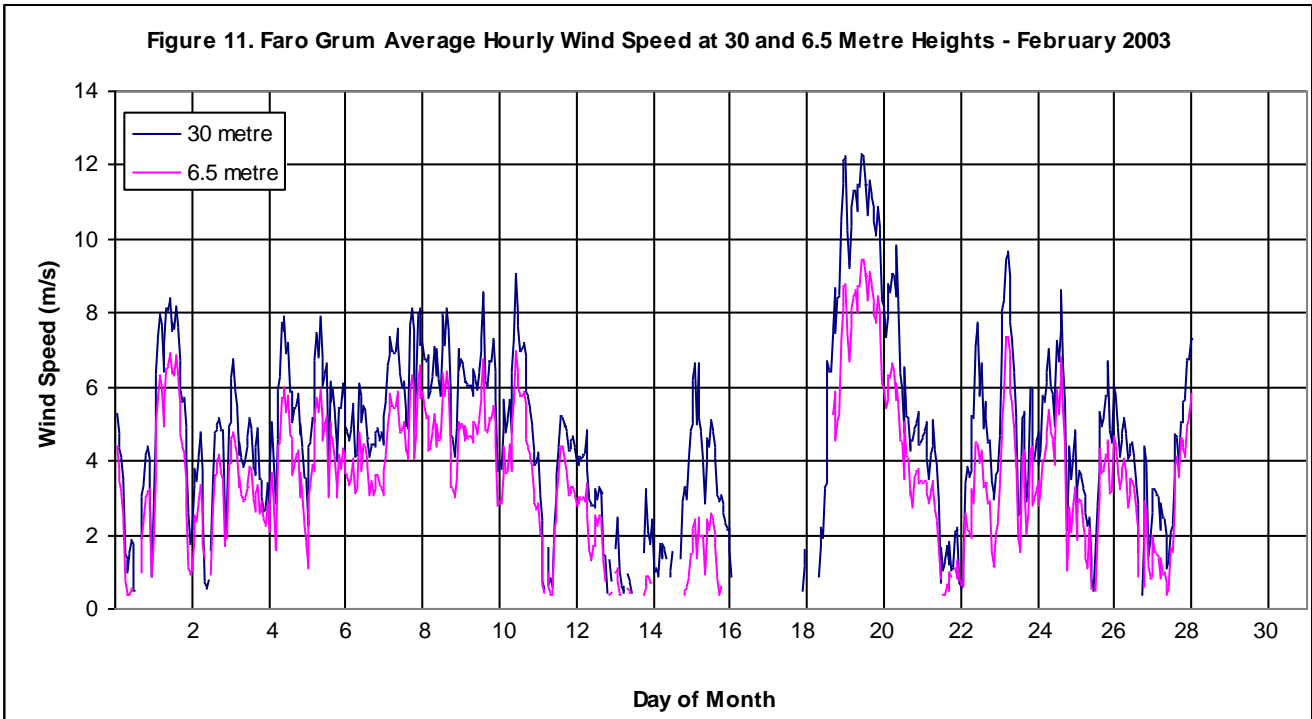
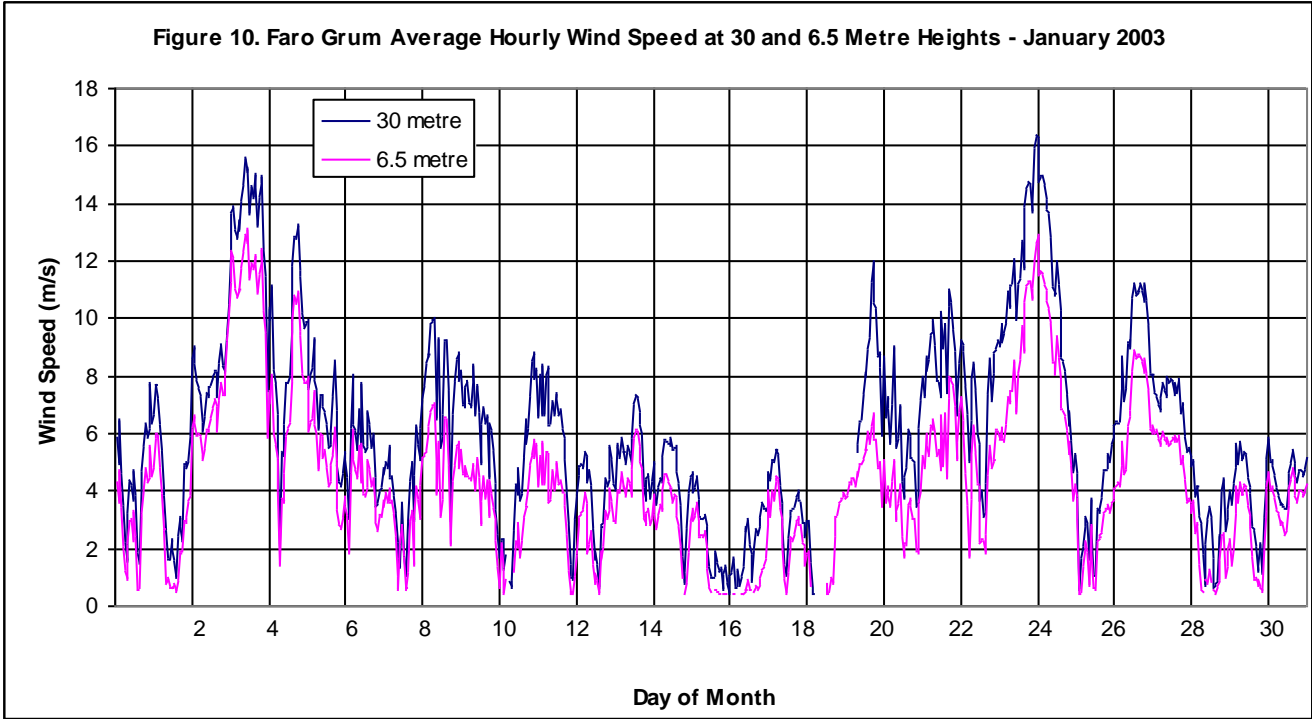
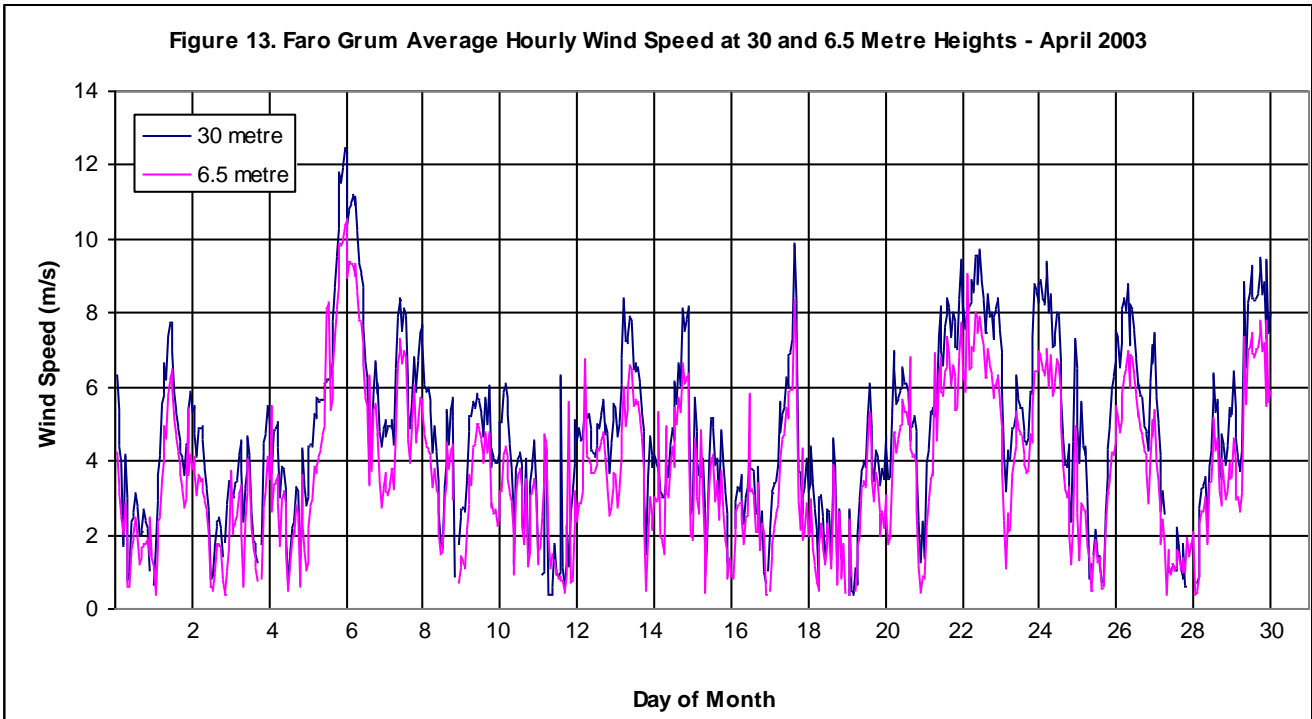
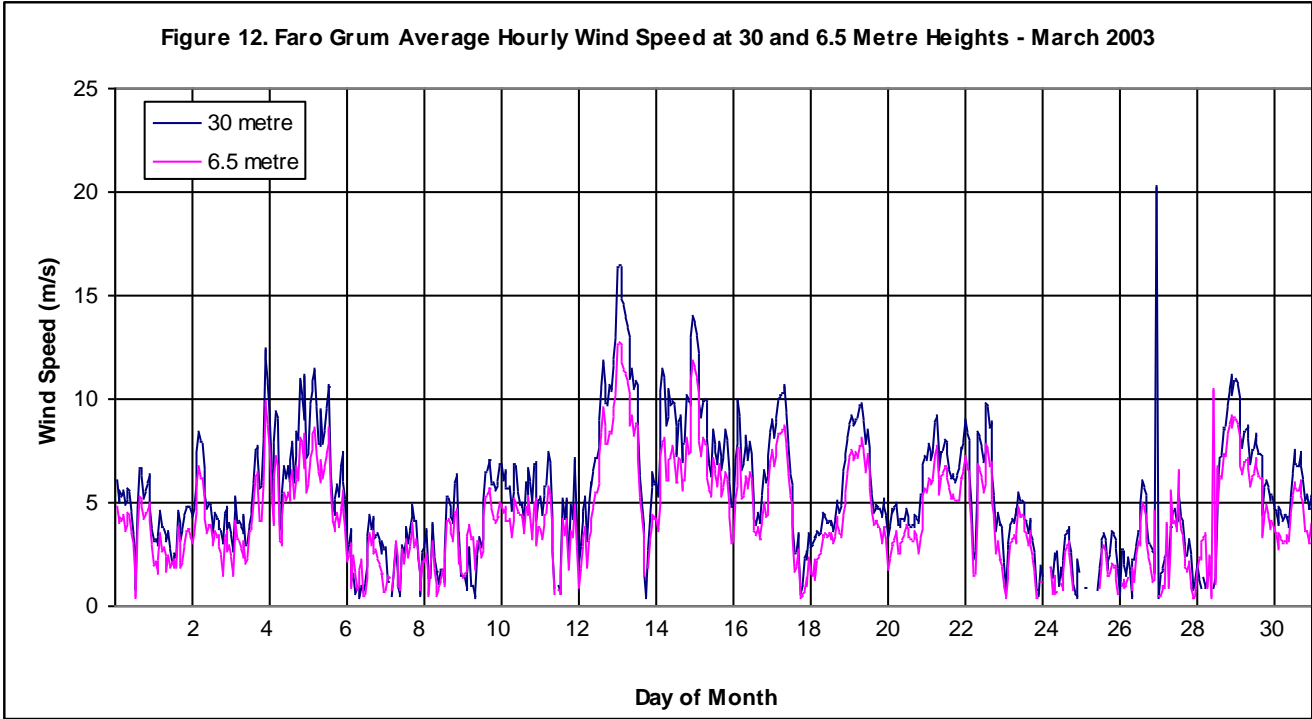
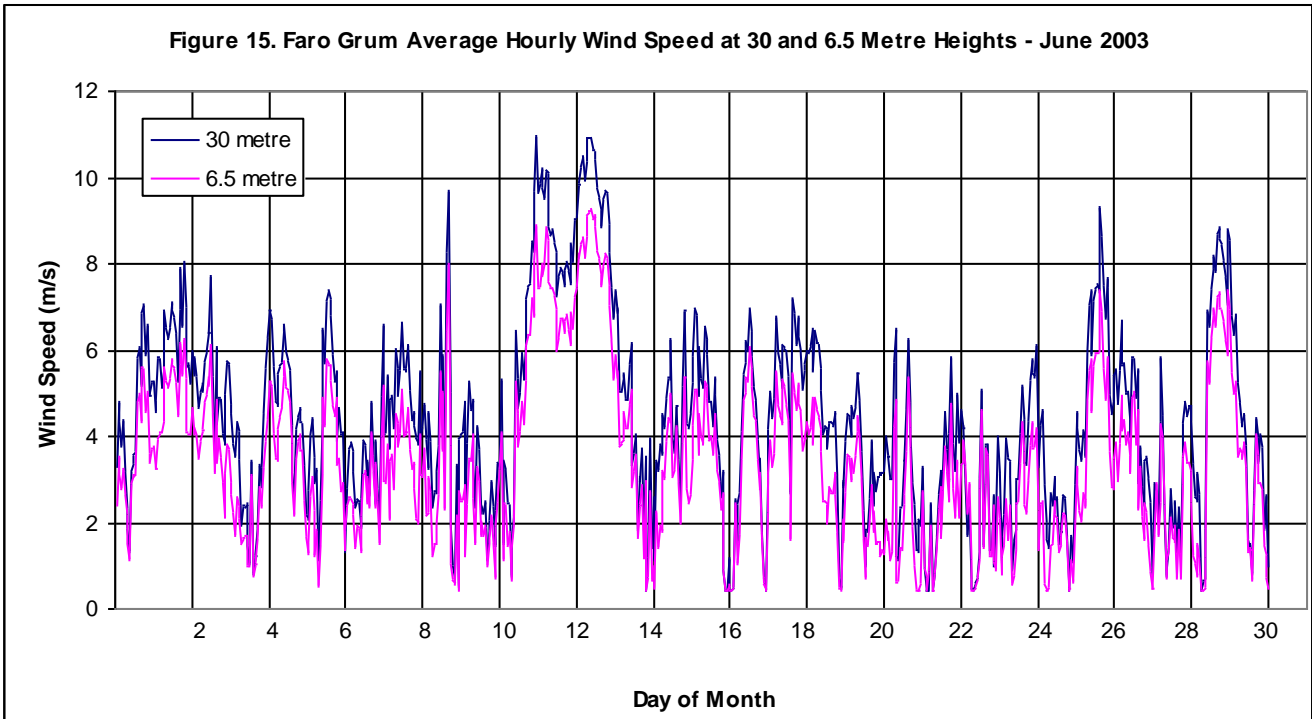
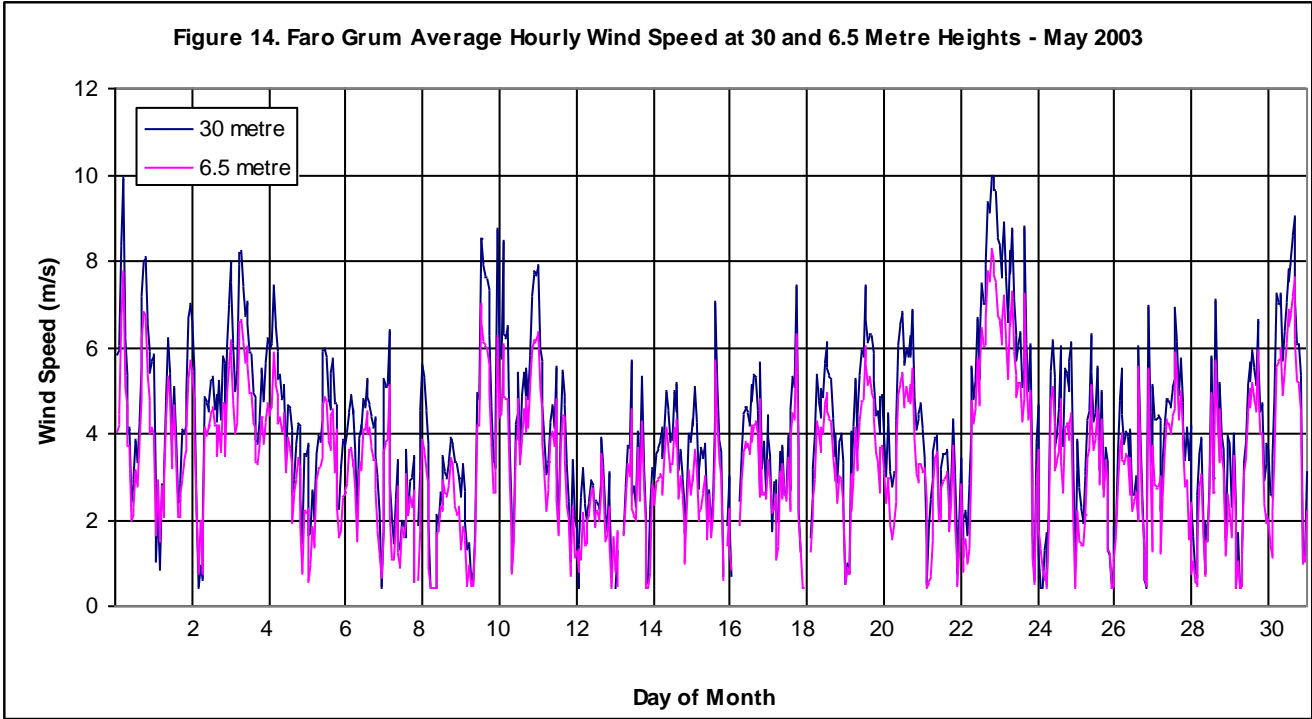


Figure 9. Faro Grum Average Hourly Wind Speed December 2002



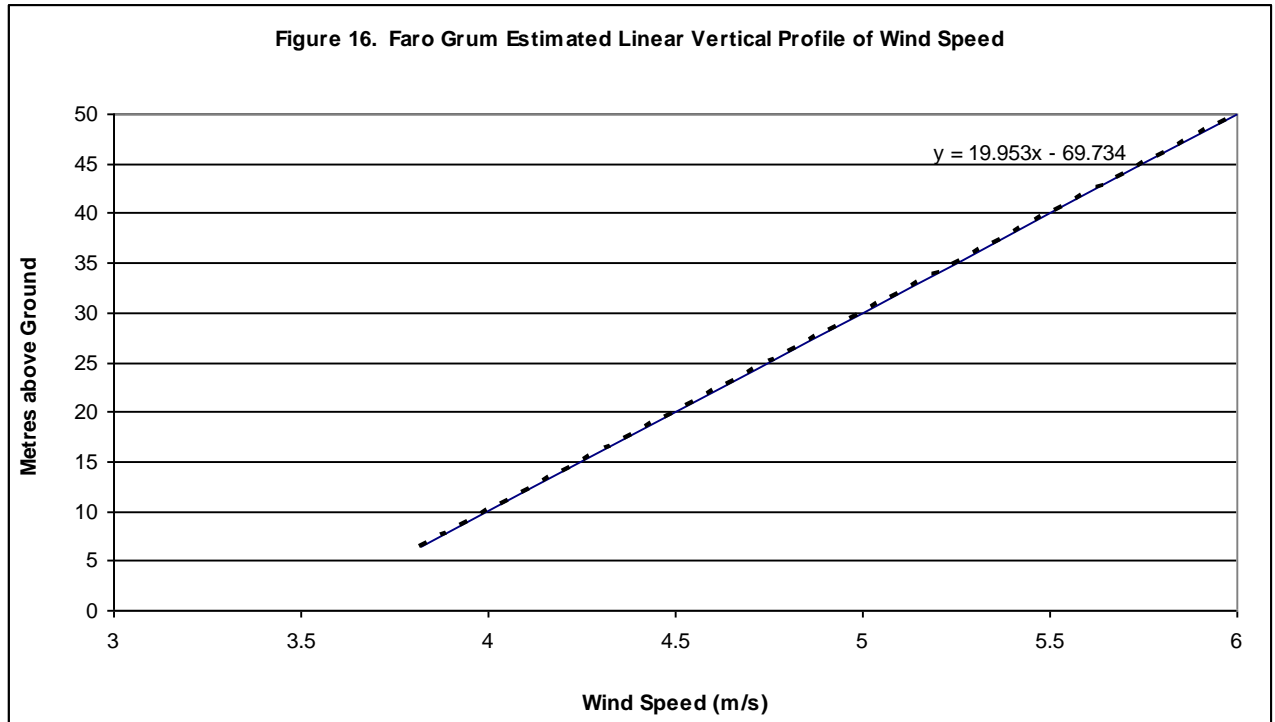






## Wind Speed Vertical Projection

Based on the annual average wind speeds at 6.5 and 30 metres, a linear, vertical profile of the wind speed can be graphed as shown in Figure 16. This profile predicts a 50 metre wind speed of 6.00 m/s.



## Data Quality and Icing

### Data Filtering

The data from both anemometers contain many extended periods of time when the standard deviation of the wind speed is logged as 0 m/s. This could indicate calm periods, or periods when the anemometers were frozen in place. There are no periods when the standard deviations of the wind speeds were logged as 0 m/s in July 2002 and June 2003, when the monthly average temperatures were at their highest and when the hourly temperatures were always above 0°C. These were the only months when the hourly temperature was always above freezing. Therefore, for the rest of the months it is assumed that a standard deviation of the wind speed equal to 0 m/s during a day when the temperatures were at or below 0°C indicates a time when the anemometer was likely frozen in place rather than periods when the wind was calm. This data has been removed. In total, this amounts to 4.6% of the 30 metre data and 6.9% of the 6.5 metre data. The reason for there being more times when the wind speed standard deviation logged as 0 m/s for the anemometer at 6.5 metres may be because there was more icing closer to the ground or that the wind speed was calm more often closer to the ground.

From March 26, 2003 to May 15, 2003, at 10 minutes to the hour, wind speed standard deviations logged at greater than 3 m/s and wind speeds jumped to uncharacteristically high levels for the site. This data was also removed. Finally, within this same time

period there still remained some anomalously high wind speeds which were also removed.

In total, 7.1% of the 30 metre data and 8.1% of the 6.5 metre data were removed.

Figure 17 shows the amount of data filtered out of the 30 and 6.5 metre data by reason, on a monthly basis.

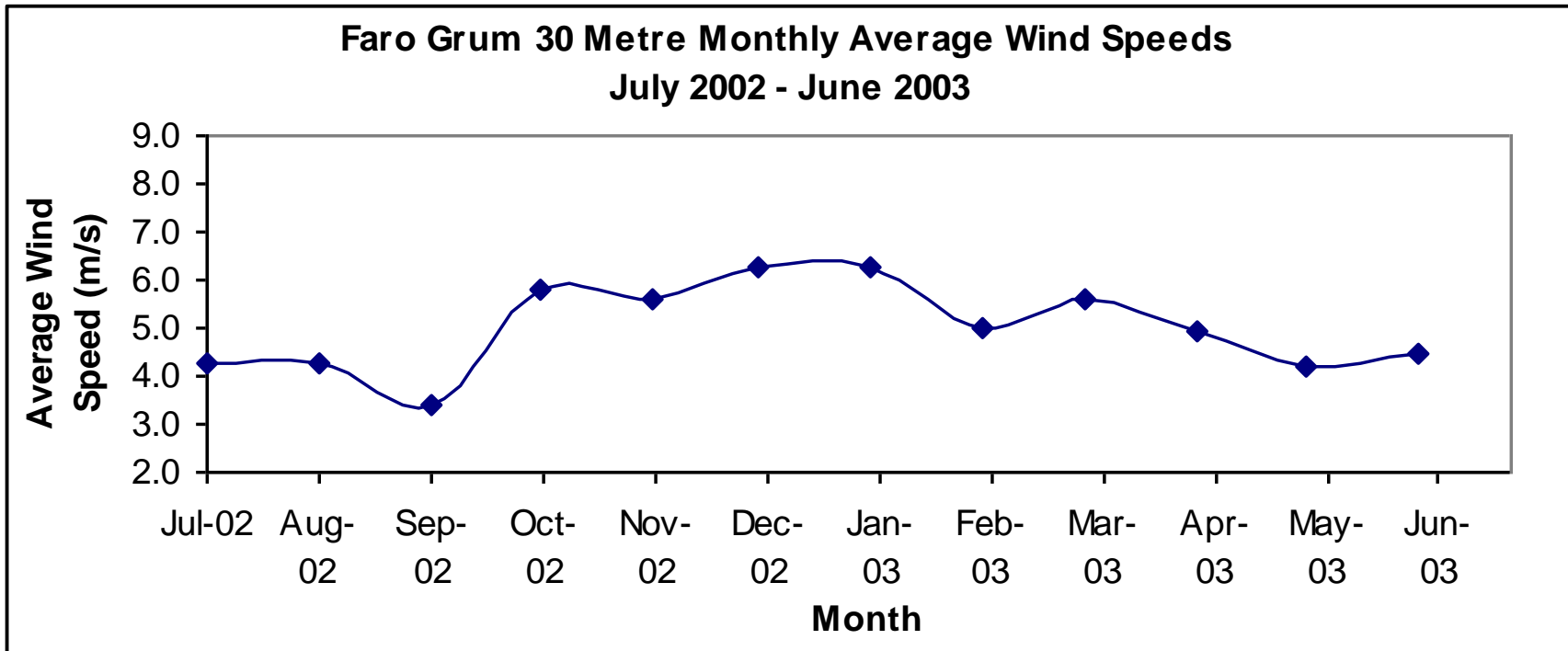
Figure 17. Deleted Data (%)									
Month	30 Metre Maxi 40					6.5 Metre Maxi 40			
	Standard Deviation of Wind Speed = 0 m/s & Temperature <= 0°C	Standard Deviation of Wind Speed > 3m/s	Maximum Wind Speed Too High*	Wind Speed Too High*	Total	Standard Deviation of Wind Speed = 0 m/s & Temperature <=0°C	Standard Deviation of Wind Speed > 3m/s	Wind Speed Too High*	Total
Jul-02	0.0%				0.0%	0.0%			0.0%
Aug-02	0.0%				0.0%	0.0%			0.0%
Sep-02	2.5%				2.5%	3.8%			3.8%
Oct-02	6.9%				6.9%	9.5%			9.5%
Nov-02	6.4%				6.4%	9.7%			9.7%
Dec-02	6.8%				6.8%	15.5%			15.5%
Jan-03	6.5%				6.5%	8.3%			8.3%
Feb-03	14.3%				14.3%	21.6%			21.6%
Mar-03	5.7%	3.2%	0.1%	0.1%	9.1%	7.4%	0.9%	0.4%	8.7%
Apr-03	3.4%	18.1%	0.2%	0.5%	22.2%	4.2%	6.4%	3.0%	13.4%
May-03	3.1%	8.3%	0.2%	0.1%	11.7%	3.7%	3.2%	1.2%	8.2%
Jun-03	0.0%				0.0%	0.0%			0.0%
Annual	4.6%	2.5%	0.0%	0.1%	7.1%	6.9%	0.9%	0.4%	8.1%
*Based on a jump in the data for that month									

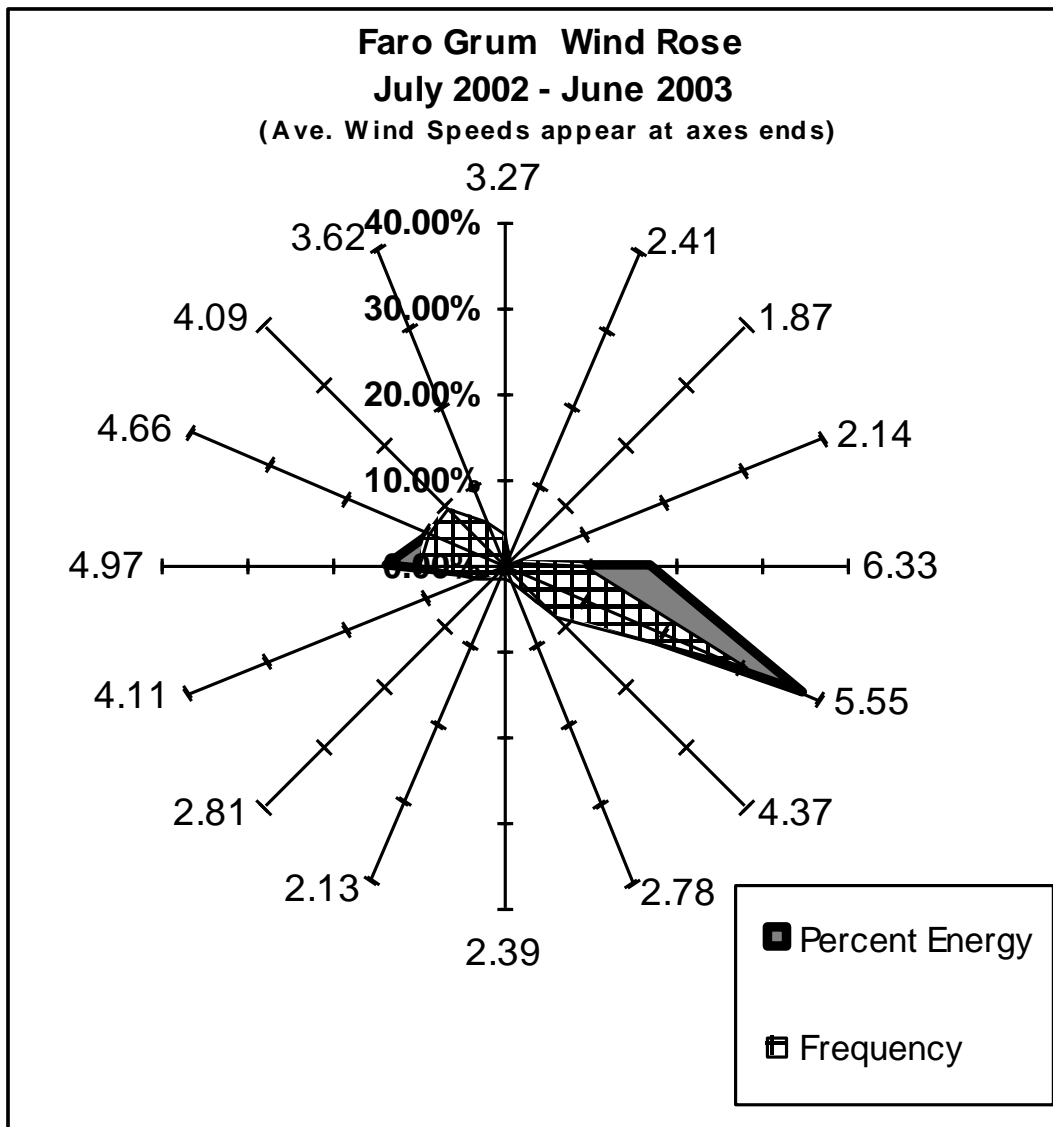
### Data Interruptions

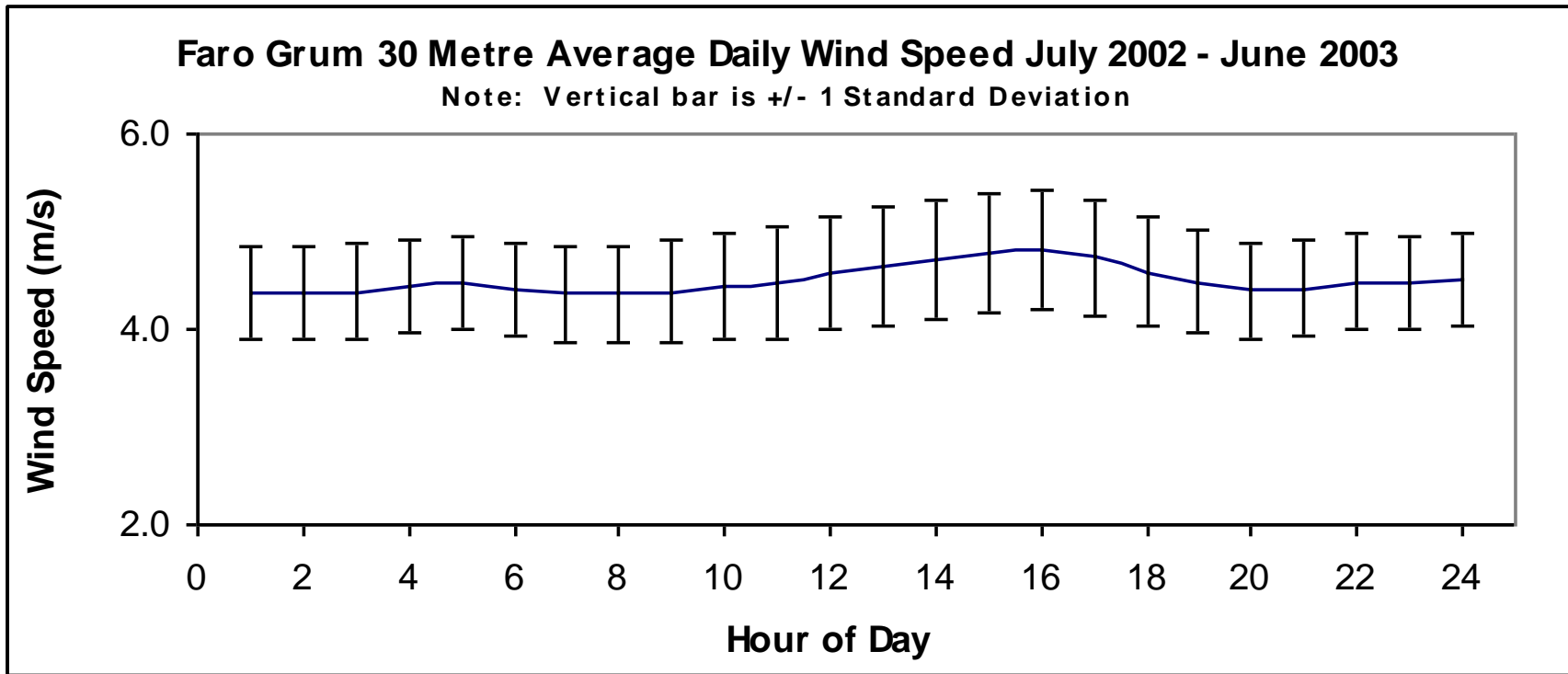
There is a gap in the data for both anemometers, for 1 hour and 40 minutes on August 17, 2002 from 0850 to 1030.

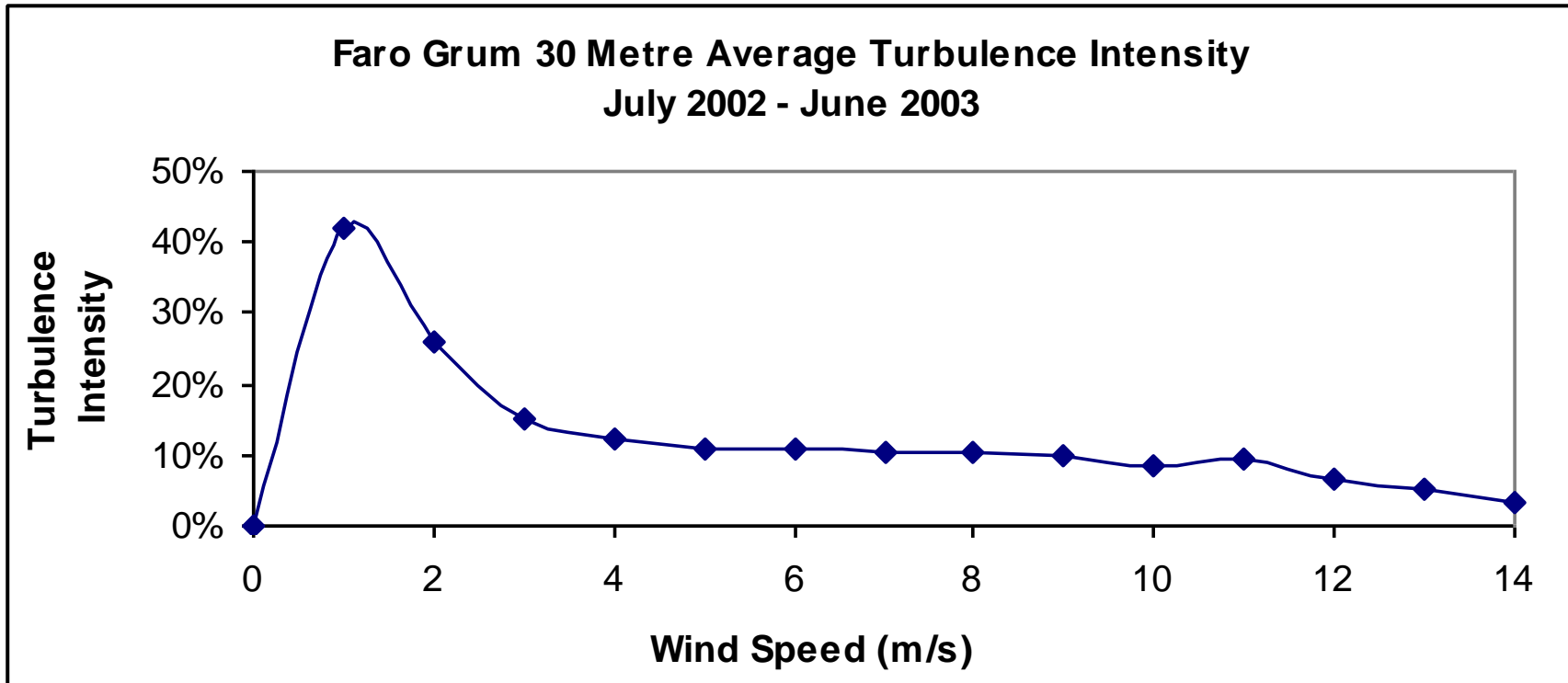
**Faro Grum Wind Analysis  
July 2002 to June 2003  
Part 2.**

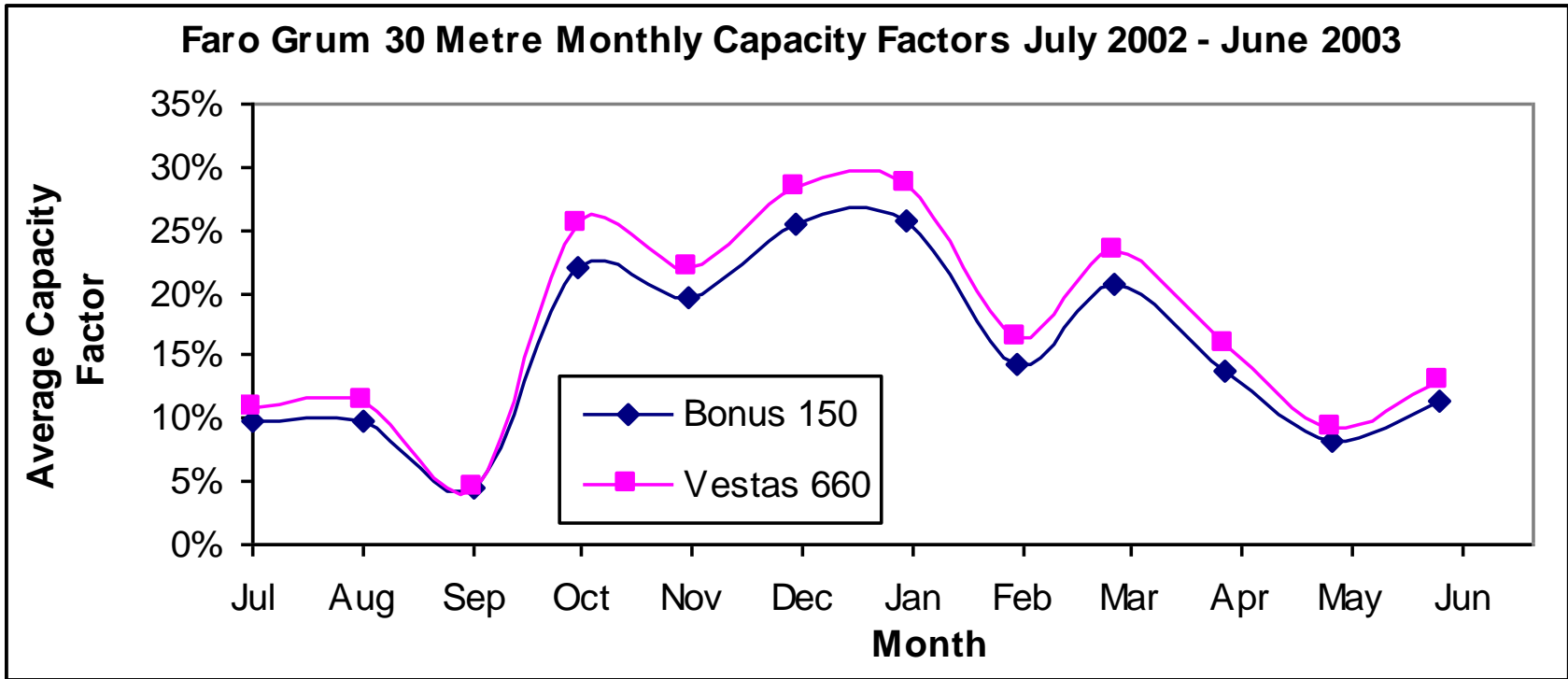
Faro Grum - 30 Metre Anemometer							
Annual Summary: July 4, 2002 - June 30, 2003							
Wind Speed (m/s)		Std. Dev. W.S. (m/s)		Temp (°C)		Maximum 10 Minute Average Wind Speed	
Average		0.58		0.33		22.90	
				m/s on December 12, 2002 at 0605; Direction 100 Deg., -3.1°C			
Elevation (m.a.s.l.)=				1,318.00			
Hour of Day	Ave. Wind Speed (m/s)	Std. Dev. Of W.S. (m/s)		Direction	Ave Wind Speed (m/s)	Frequency of Occurrence	% Energy by Direction
1	4.38	0.48					
2	4.38	0.47					
3	4.39	0.48					
4	4.44	0.49					
5	4.47	0.48					
6	4.41	0.48					
7	4.37	0.49					
8	4.36	0.50					
9	4.39	0.52					
10	4.44	0.54					
11	4.47	0.57					
12	4.58	0.59					
13	4.64	0.60					
14	4.70	0.61					
15	4.79	0.61					
16	4.81	0.60					
17	4.74	0.59					
18	4.59	0.57					
19	4.49	0.53					
20	4.40	0.50					
21	4.42	0.49					
22	4.49	0.49		N	3.27	3.61%	2.33%
23	4.47	0.48		NNE	2.41	1.06%	0.59%
24	4.50	0.48		NE	1.87	0.71%	0.19%
				E	6.33	9.37%	17.21%
				ESE	5.55	30.56%	37.82%
				SE	4.37	8.58%	5.74%
				SSE	2.78	1.69%	0.80%
				S	2.39	1.35%	0.37%
				SSW	2.13	1.31%	0.32%
				SW	2.81	1.79%	0.56%
				WSW	4.11	3.87%	2.97%
				W	4.97	10.10%	13.52%
				WNW	4.66	9.78%	9.22%
				NW	4.09	9.70%	5.70%
				NNW	3.62	5.50%	2.37%
Wind Speed (m/s)	Frequency	Ave. Turbulence Intensity		Potential Energy Production at 30 Metres			
0	4.00%			Energy Production (MWh)	Capacity Factor		
1	5.50%	41.76%		Bonus 150	186.97	15.46%	
2	7.41%	25.91%		Vestas 660	928.16	17.45%	
3	13.01%	15.02%		<b>Notes:</b> Data deleted as described in report. Total of 7.1% of the data deleted.			
4	16.93%	12.09%					
5	15.99%	11.04%					
6	12.41%	10.82%					
7	8.53%	10.53%					
8	6.19%	10.21%					
9	3.85%	9.69%					
10	2.61%	8.58%					
11	1.63%	9.40%					
12	0.80%	6.60%					
13	0.39%	4.96%					
14	0.30%	3.48%					
15	0.24%	2.16%					
16	0.10%	2.30%					
17	0.06%	2.16%					
18	0.03%	2.01%					
19	0.02%	0.70%					
20	0.00%	0.57%					
21	0.00%	0.00%					
22	0.00%	0.00%					
23	0.00%	0.21%					
24	0.00%	0.00%					



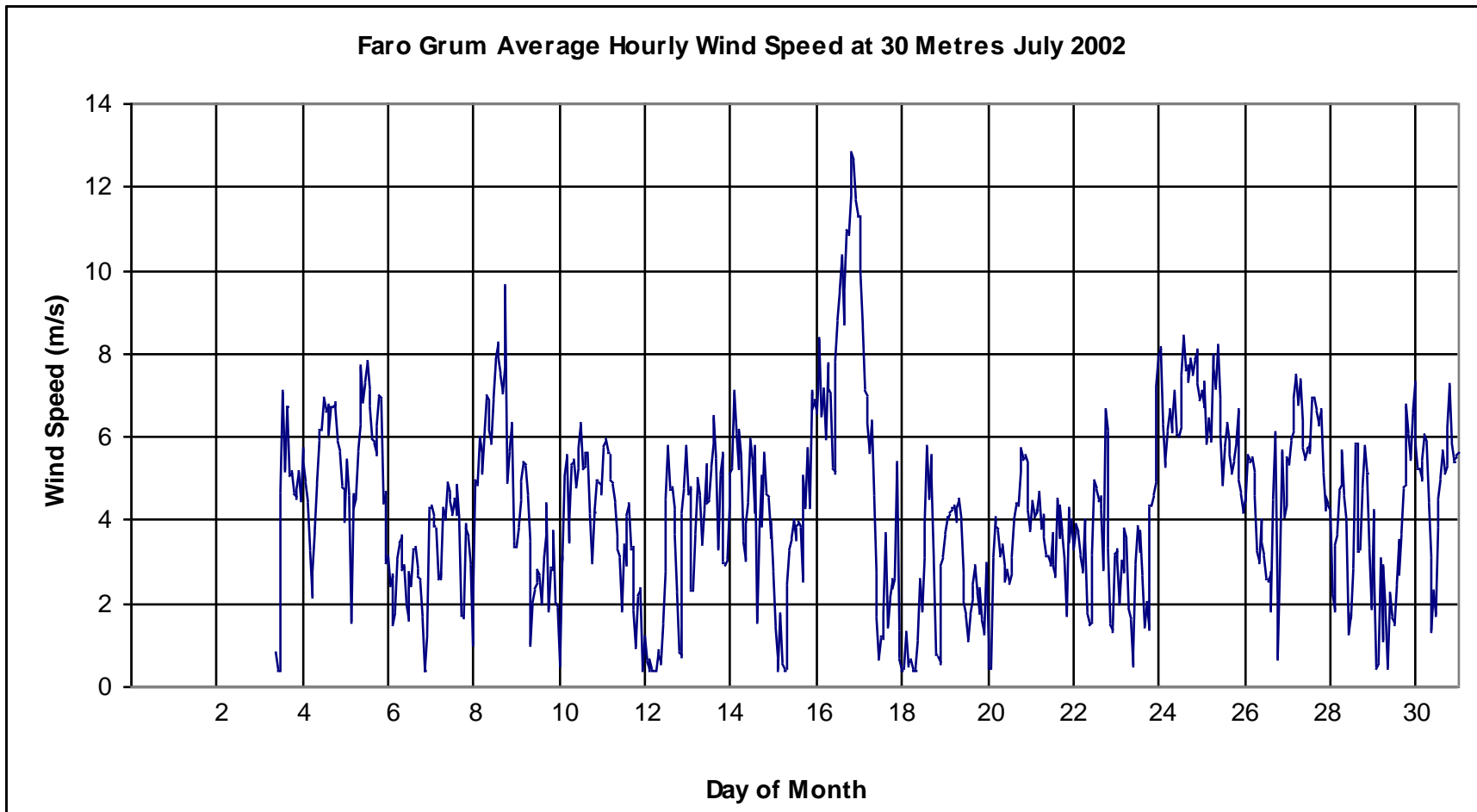


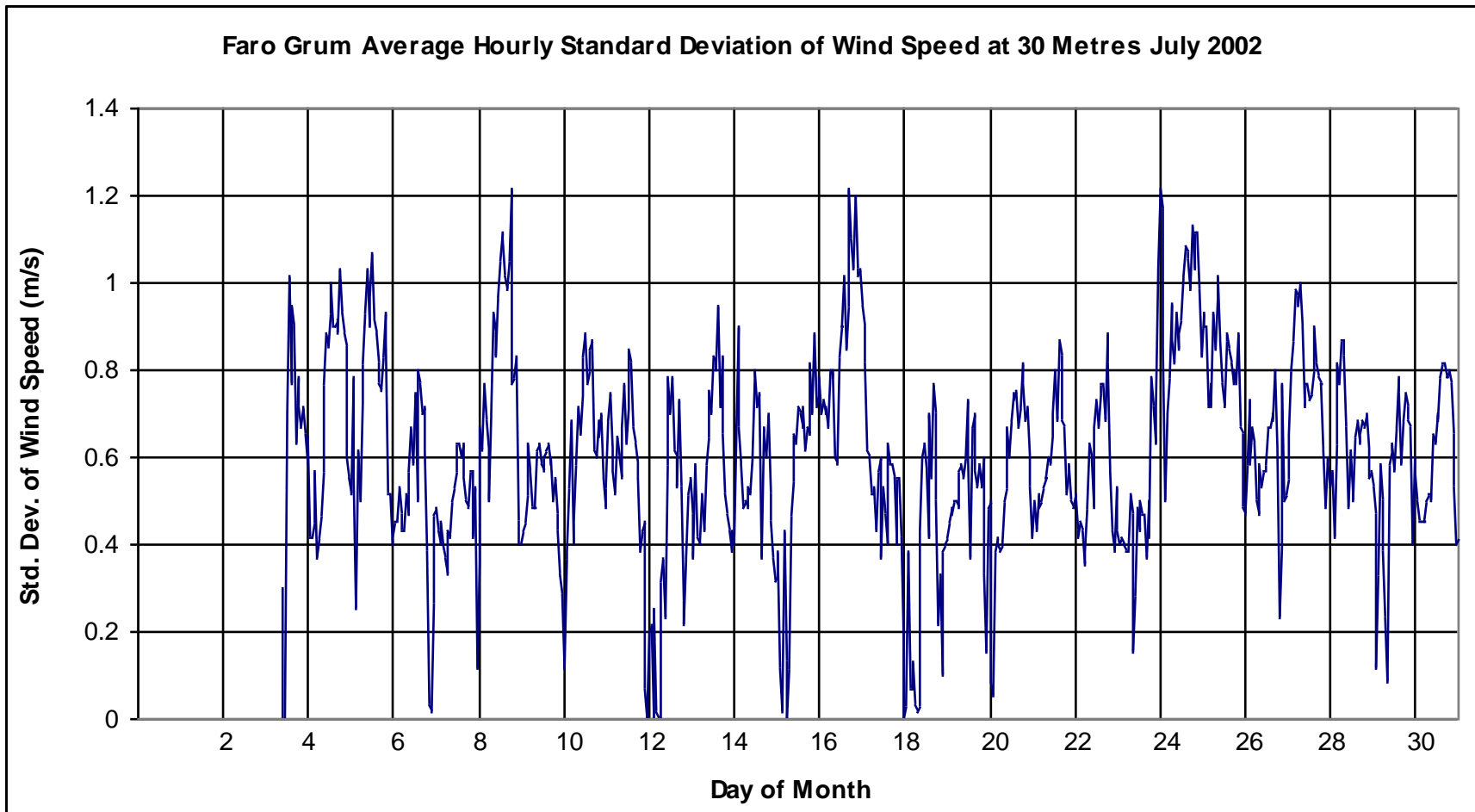


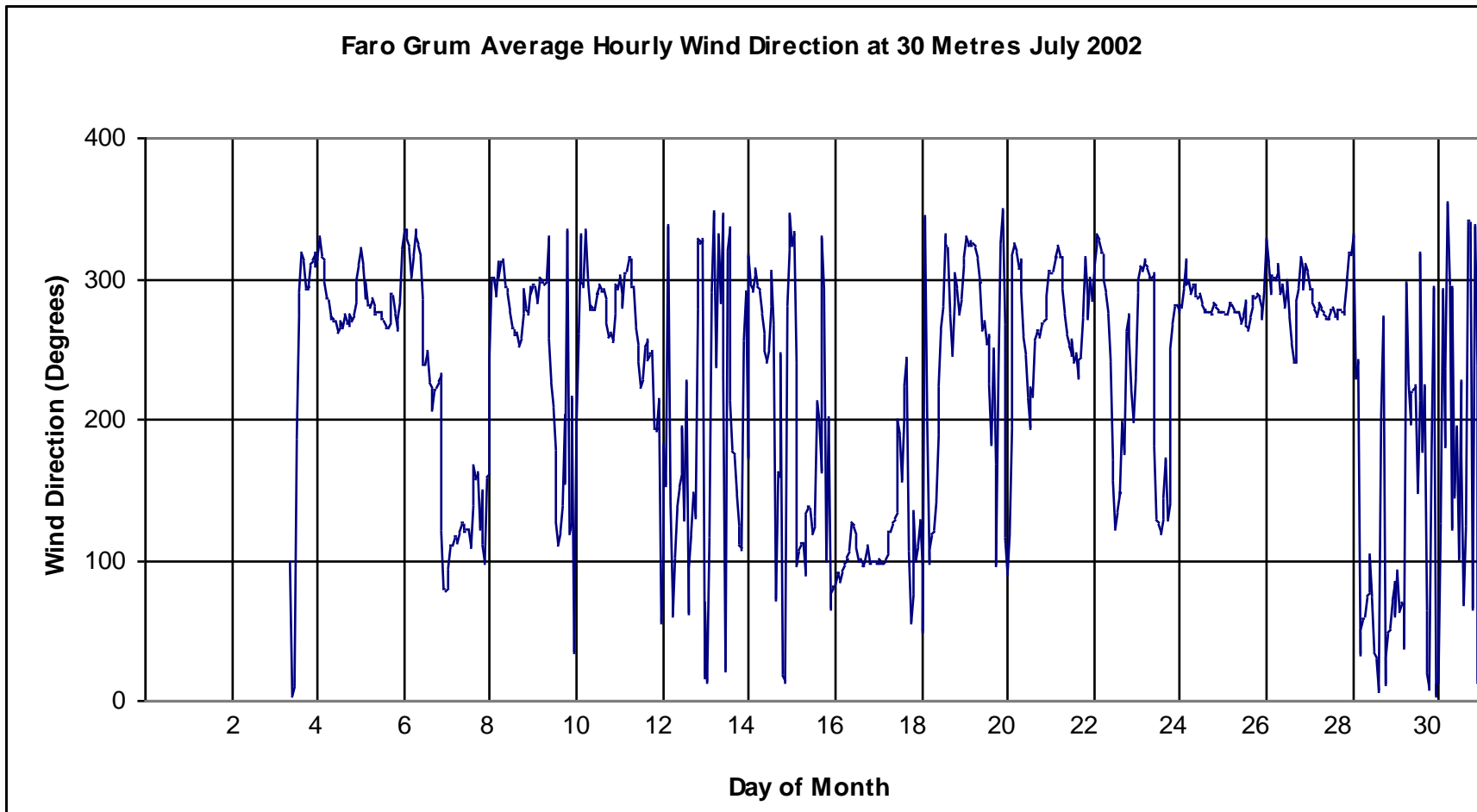


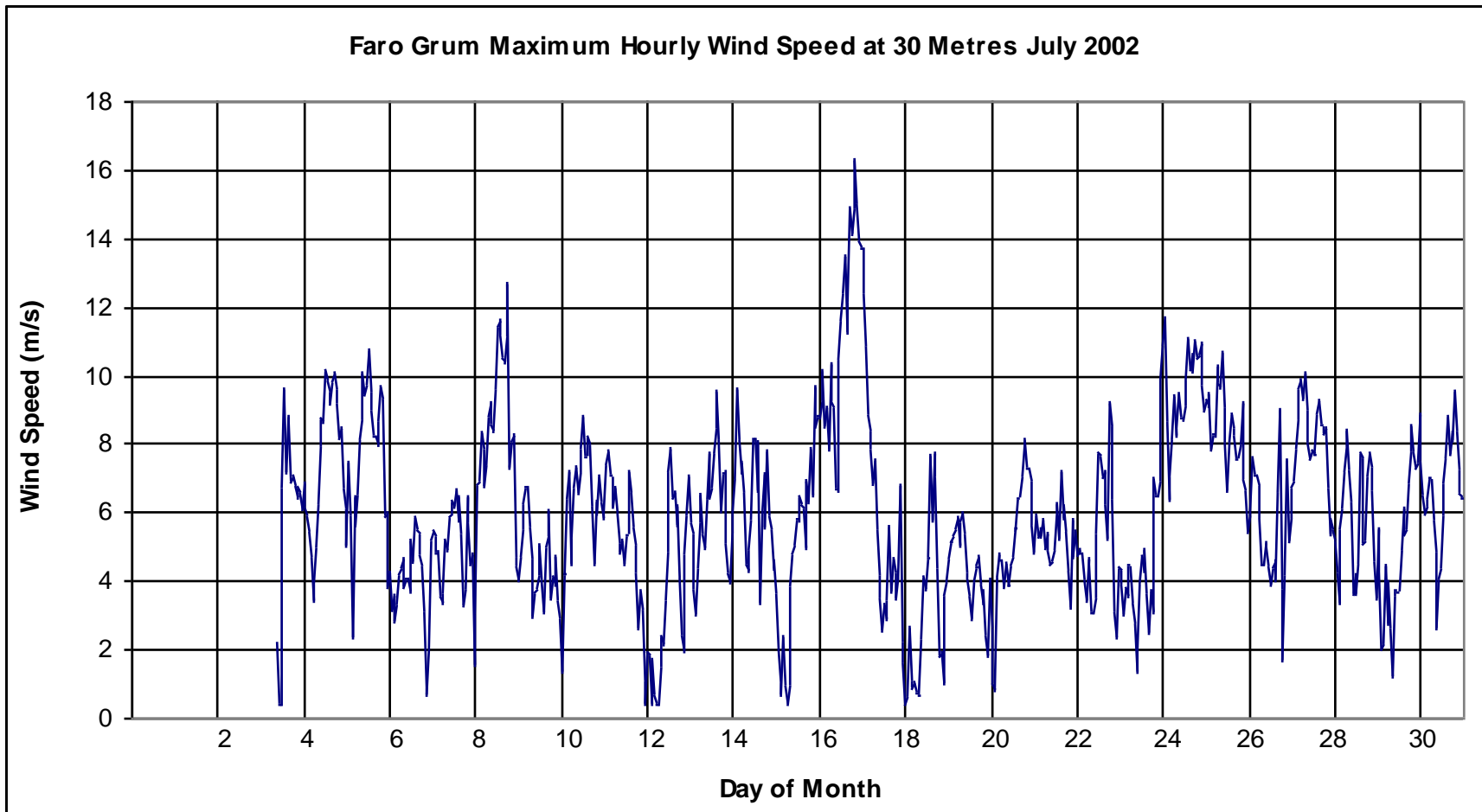


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14	4.47	0.68																																																																																					
15	4.37	0.68																																																																																					
16	4.23	0.66																																																																																					
17	4.24	0.65																																																																																					
18	4.12	0.65																																																																																					
19	4.23	0.59																																																																																					
20	3.94	0.57																																																																																					
21	4.19	0.53																																																																																					
22	3.75	0.46																																																																																					
23	3.88	0.45																																																																																					
24	3.86	0.45																																																																																					
<b>Potential Energy Production at 30 m</b>				Direction	Ave Wind Speed (m/s)	Frequency of Occurrence	% Energy by Direction																																																																																
Energy Production (MWh)				Capacity Factor	N	4.02	6.68%	4.62%																																																																															
Bonus 150				9.70	9.74%	NNE	4.20	2.96%	2.35%																																																																														
Vestas 660				48.14	10.99%	NE	3.19	1.83%	0.63%																																																																														
Notes						ENE	3.35	2.18%	0.87%																																																																														
						E	6.14	5.95%	14.76%																																																																														
						ESE	3.98	5.80%	3.91%																																																																														
						SE	3.08	5.50%	1.72%																																																																														
						SSE	2.58	2.11%	0.39%																																																																														
						S	2.16	1.58%	0.17%																																																																														
						SSW	2.07	2.31%	0.22%																																																																														
						SW	2.62	3.09%	0.60%																																																																														
						WSW	3.79	6.38%	3.70%																																																																														
						W	5.60	19.61%	36.74%																																																																														
						WNW	4.77	14.99%	17.35%																																																																														
						NW	4.04	12.36%	8.73%																																																																														
						NNW	3.58	6.65%	3.26%																																																																														

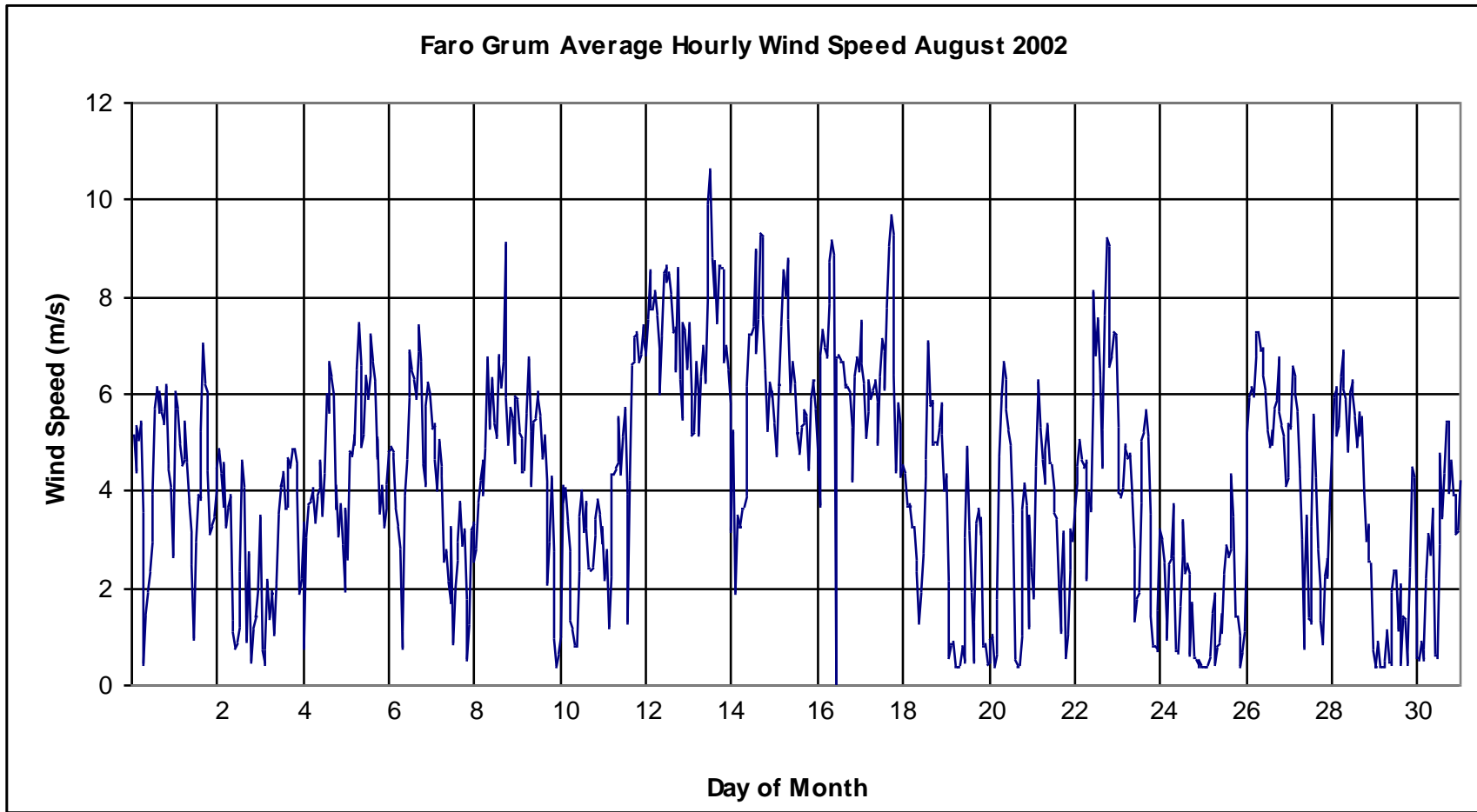


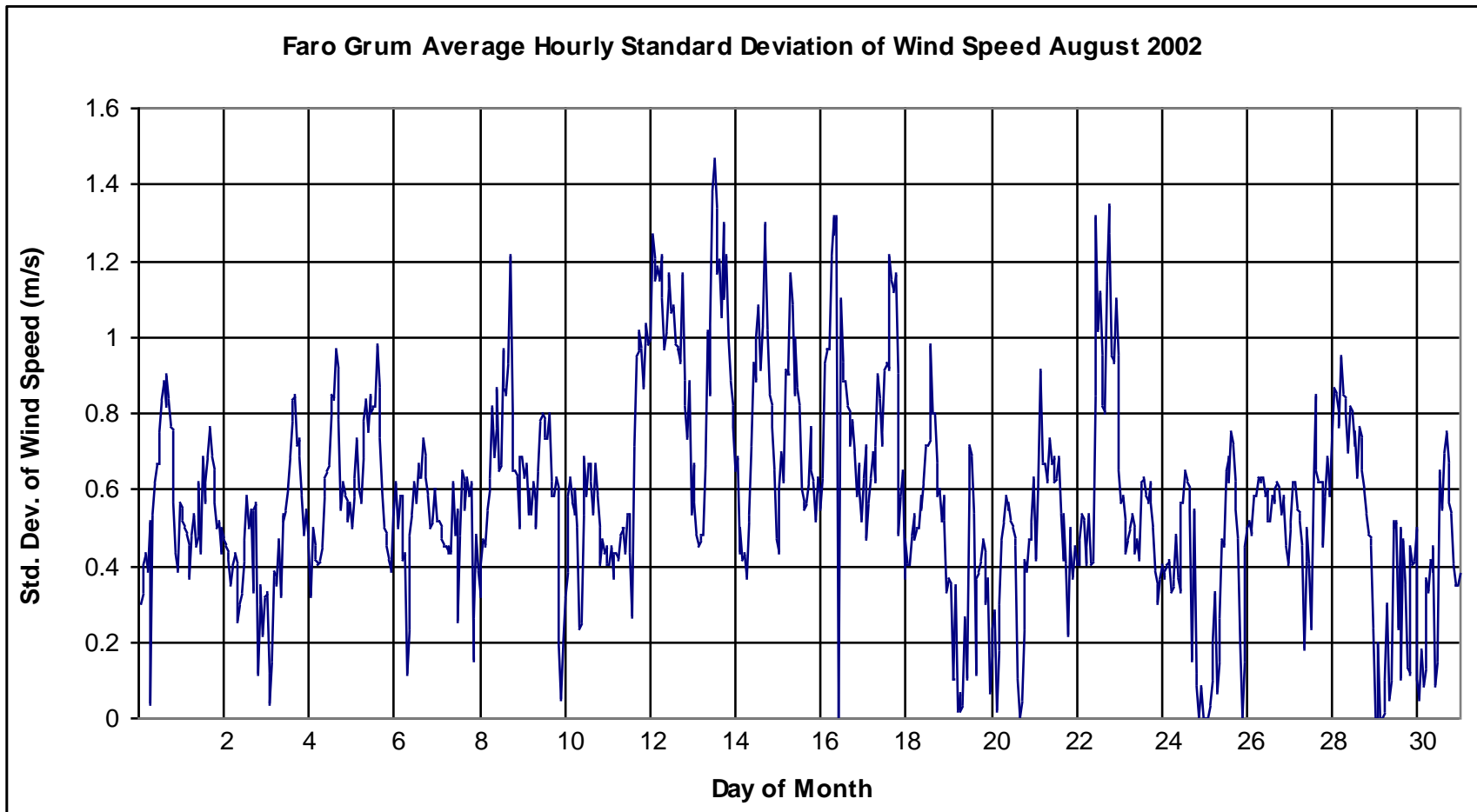


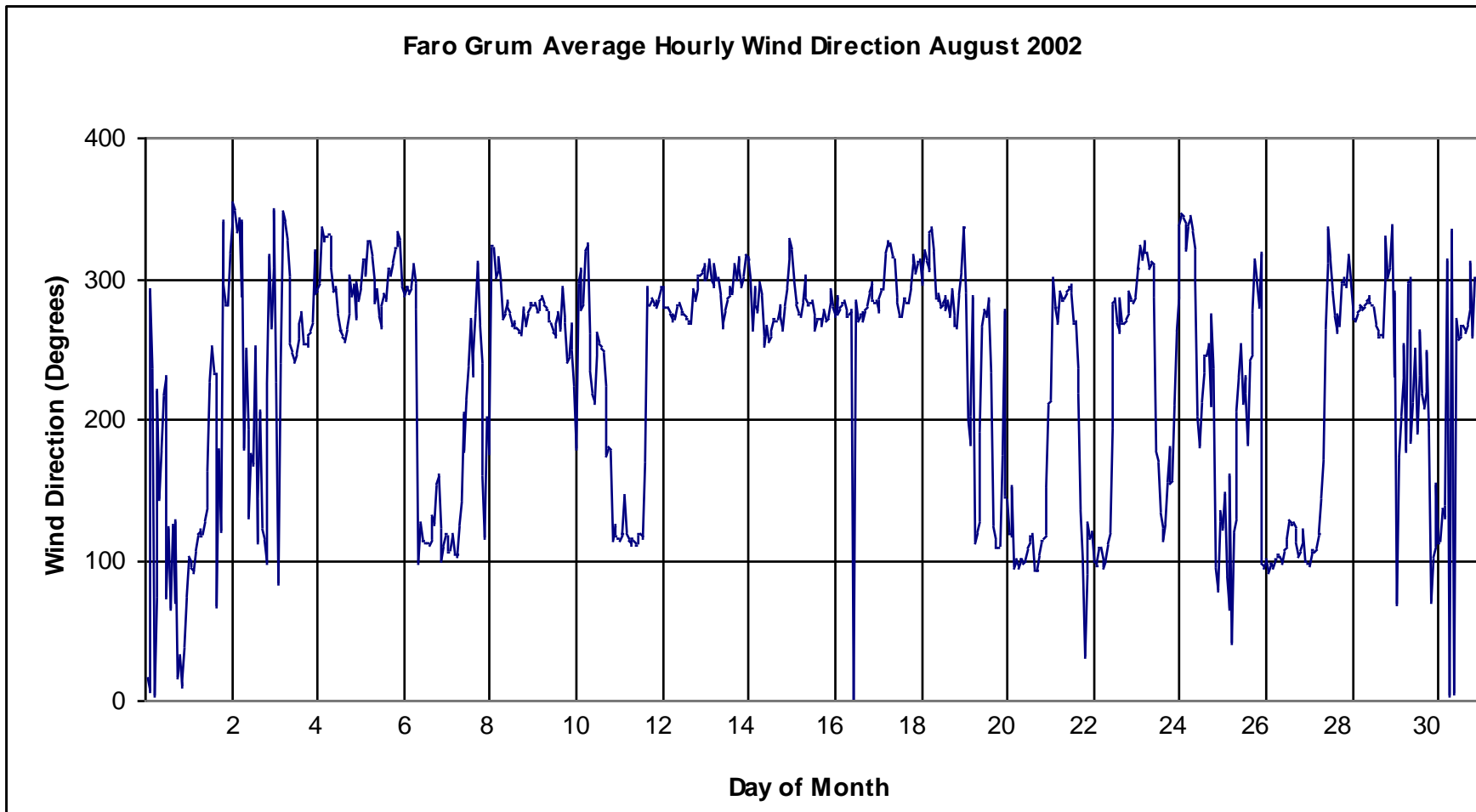


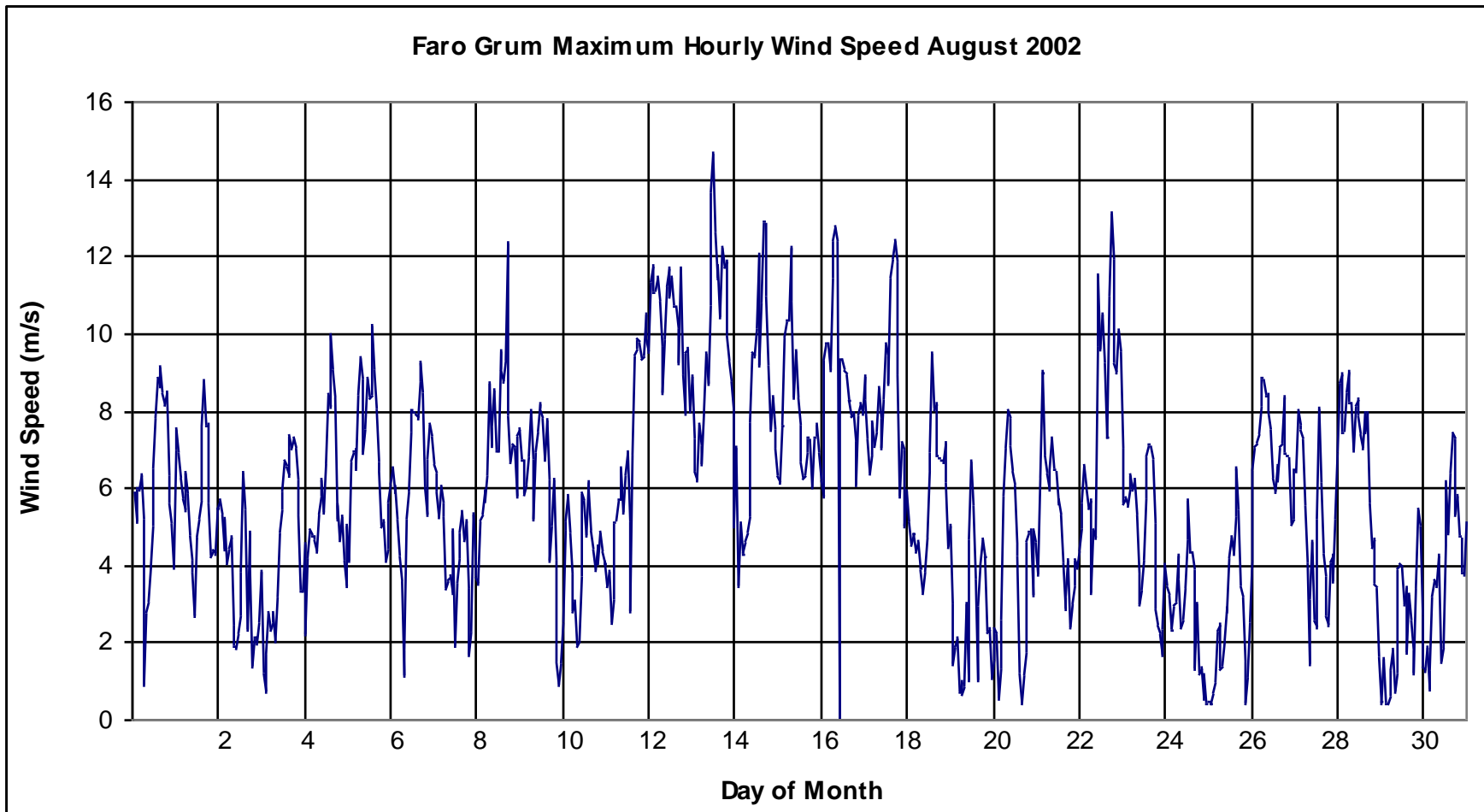


Faro Grum - 30 metre data										
Monthly Summary: August 1, 2002 at 0010 to August 31, 2002 at 2400										
Wind Speed (m/s)	Std. Dev. W.S. (m/s)	Temp (°C)	Maximum 10 Minute Wind Speed	Elevation (m.a.s.l.)=	1,318					
Average	4.24	0.58	9.00	18.90	m/s on August 23, 2002 at 1007; Direction 239 Deg., 6.6 °C					
			Hour of Day	Ave. Wind Speed (m/s)	Std. Dev. Of W.S. (m/s)					
Wind Speed (m/s)	Frequency	Ave. Turbulence Intensity	1	3.76	0.46					
0	9.31%		2	4.00	0.48					
1	7.11%	44.28%	3	3.92	0.48					
2	7.63%	28.54%	4	4.12	0.51					
3	12.50%	16.25%	5	4.28	0.50					
4	16.58%	12.84%	6	4.41	0.53					
5	16.16%	11.86%	7	4.11	0.54					
6	14.61%	11.90%	8	3.86	0.54					
7	9.29%	12.00%	9	3.83	0.58					
8	3.70%	13.27%	10	3.87	0.60					
9	2.24%	13.38%	11	4.42	0.68					
10	0.65%	13.19%	12	4.72	0.70					
11	0.20%	13.99%	13	4.96	0.73					
12	0.00%	0.00%	14	4.84	0.72					
13	0.00%	0.00%	15	4.71	0.70					
14	0.00%	0.00%	16	4.95	0.71					
15	0.00%	0.00%	17	4.96	0.71					
16	0.00%	0.00%	18	4.73	0.68					
17	0.00%	0.00%	19	4.08	0.60					
18	0.00%	0.00%	20	3.74	0.53					
19	0.00%	0.00%	21	3.97	0.50					
20	0.00%	0.00%	22	3.76	0.50					
21	0.00%	0.00%	23	3.62	0.47					
22	0.00%	0.00%	24	3.93	0.46					
23	0.00%	0.00%	<b>Potential Energy Production at 30 m</b>		Direction	Ave Wind Speed (m/s)	Frequency of Occurrence	% Energy by Direction		
24	0.00%	0.00%		Energy Production (MWh)	Capacity Factor	N	3.67	4.24%	2.26%	
25	0.00%	0.00%		Bonus 150	10.95	9.83%	NNE	3.70	1.12%	0.61%
				Vestas 660	55.50	11.32%	NE	1.87	0.65%	0.05%
				Notes			ENE	0.91	0.61%	0.00%
				1 hour and 40 minutes missing on August 17 from 0850 to 1030			E	4.19	4.89%	3.90%
							ESE	4.20	11.74%	9.40%
							SE	2.53	5.12%	0.90%
							SSE	1.97	1.89%	0.16%
							S	1.75	1.68%	0.10%
							SSW	1.67	1.95%	0.10%
							SW	1.90	2.83%	0.21%
							WSW	3.58	5.68%	2.83%
							W	5.55	23.68%	43.75%
							WNW	5.09	17.80%	25.33%
							NW	4.22	10.46%	8.50%
							NNW	3.15	5.68%	1.92%

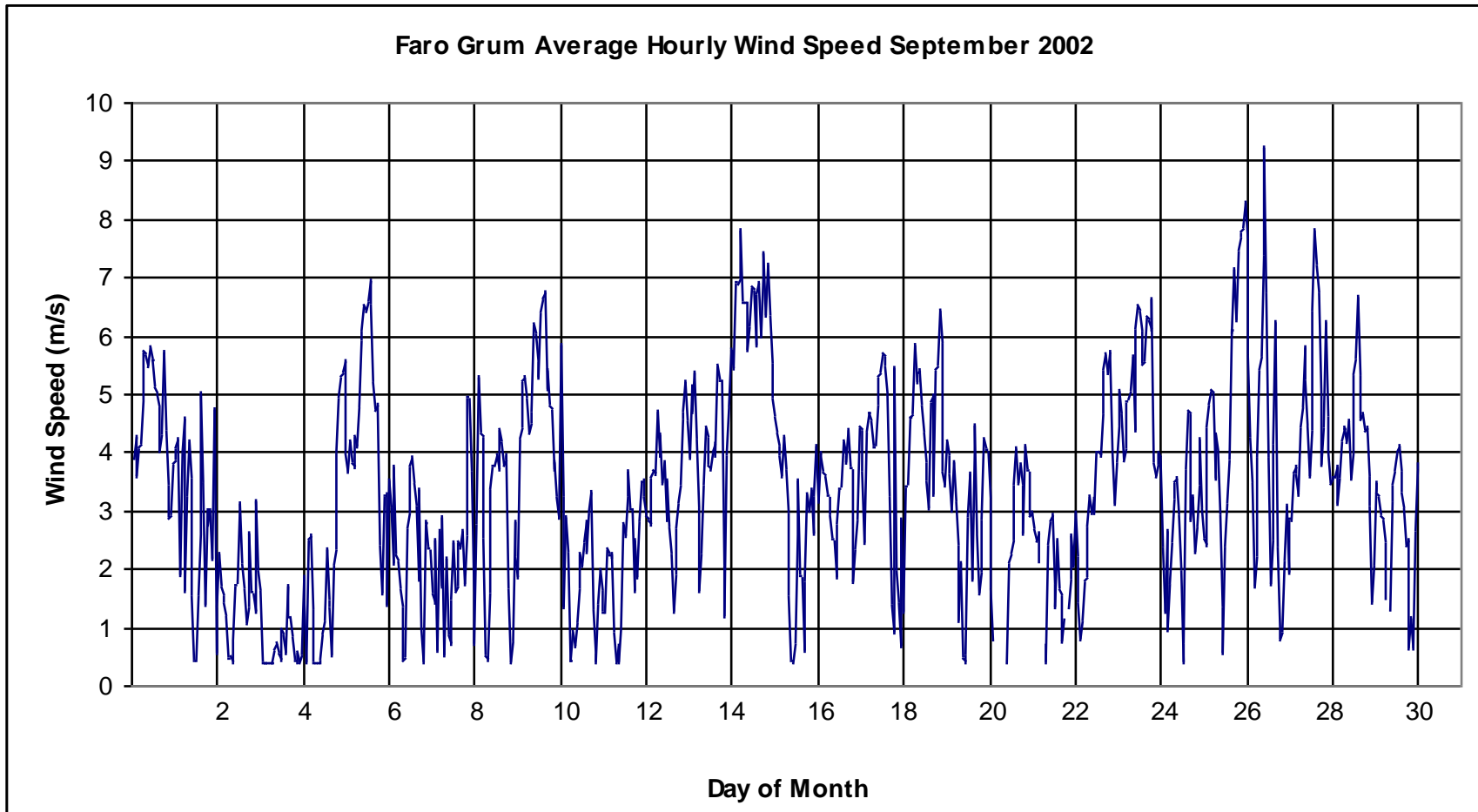


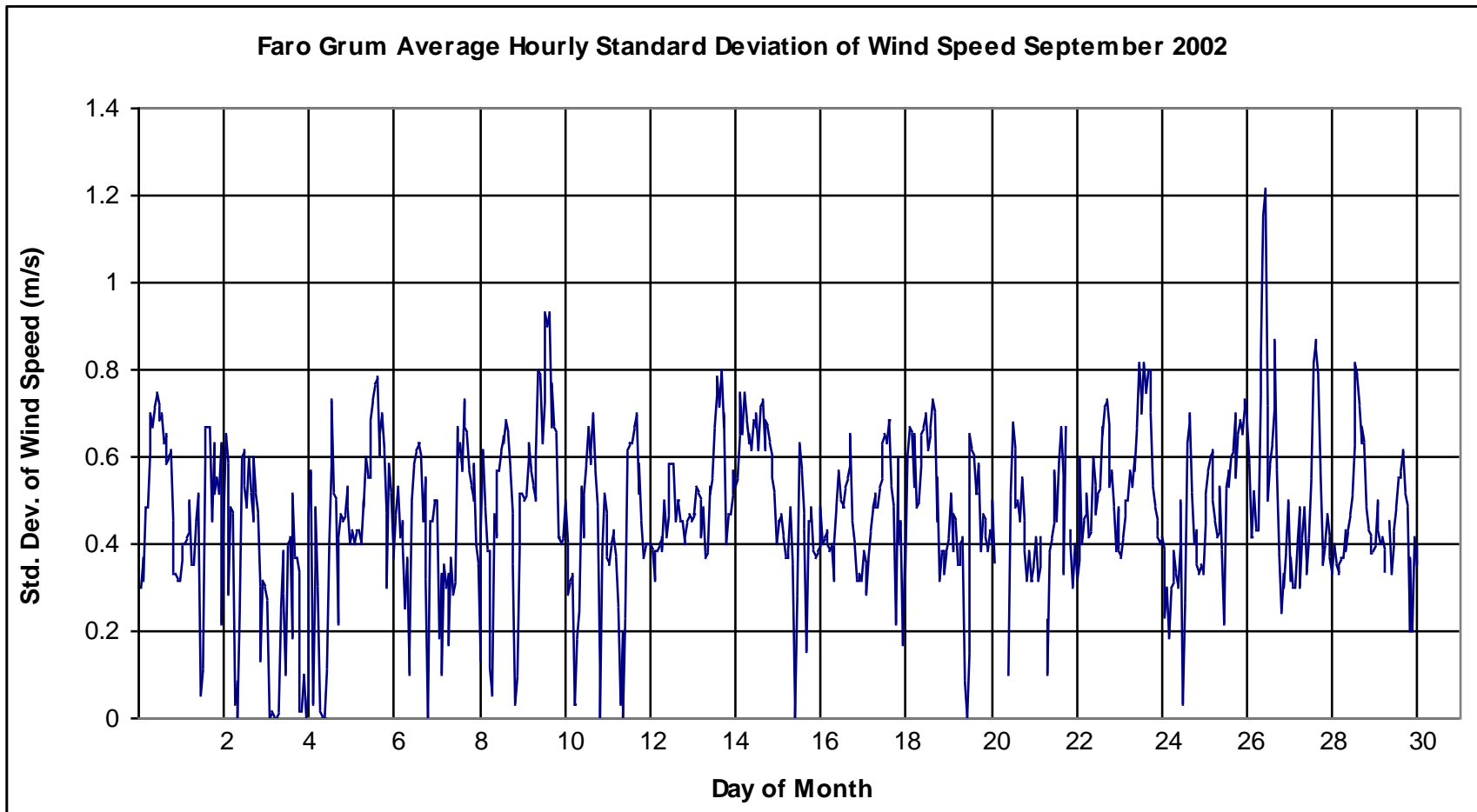


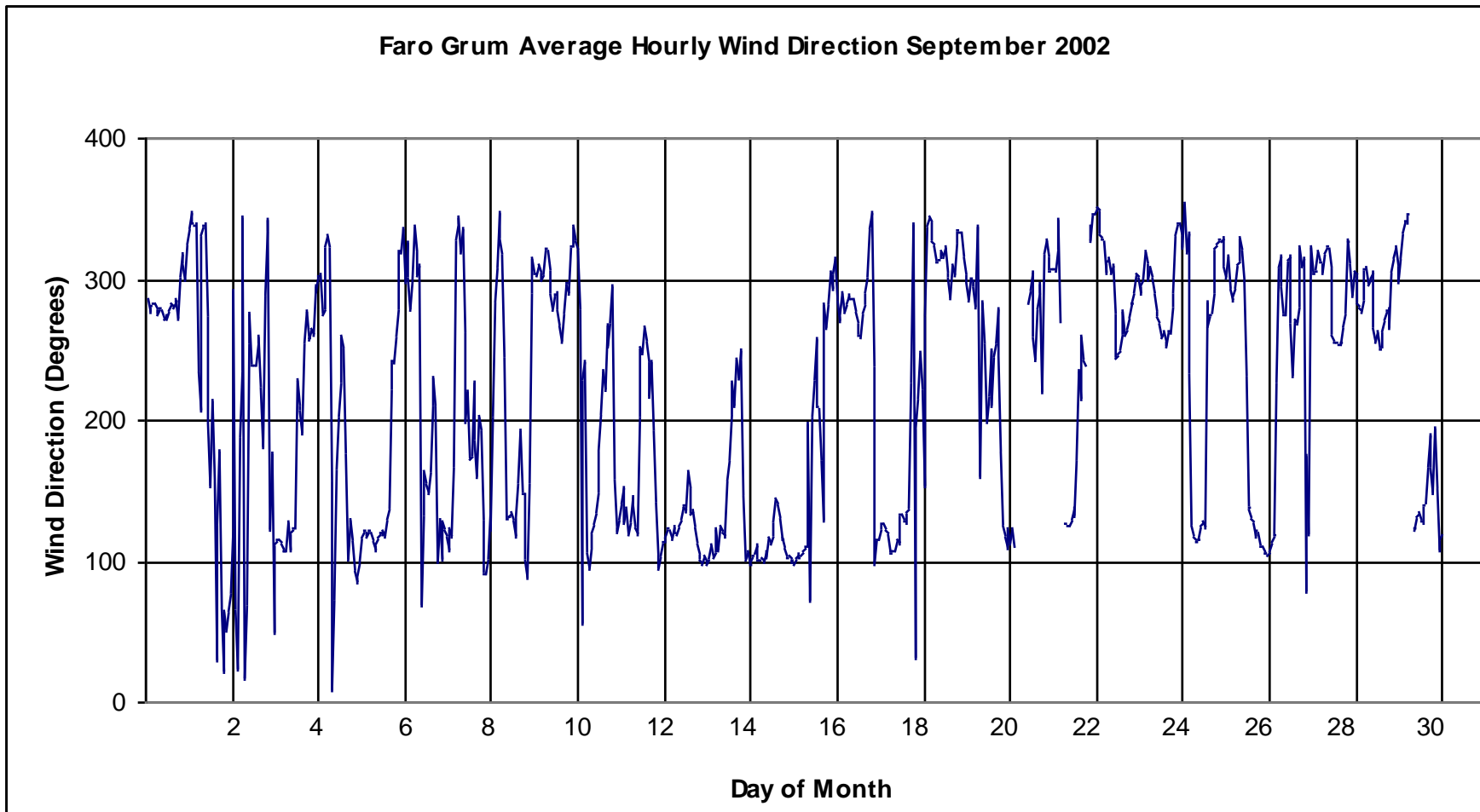


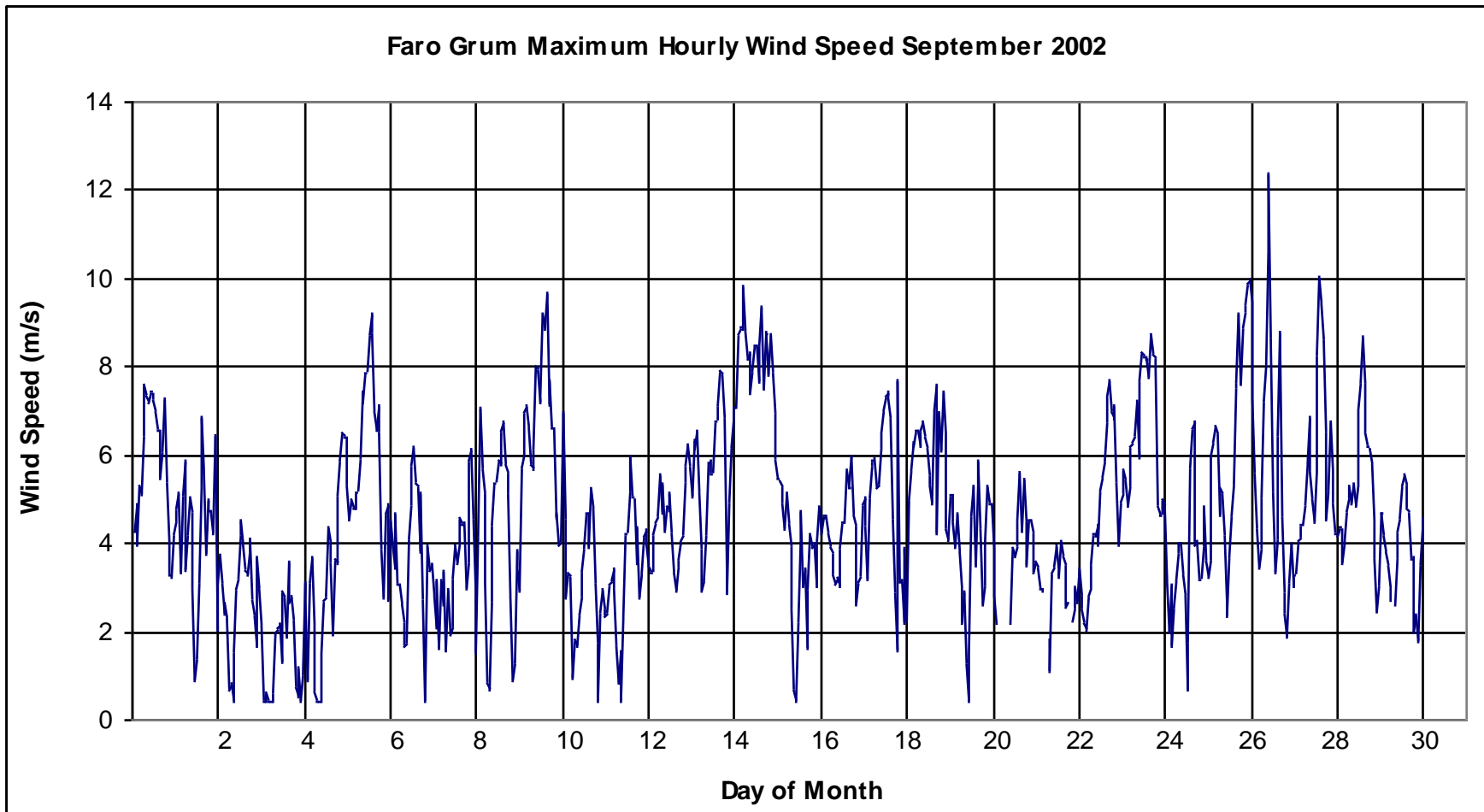


Faro Grum - 30 metre data - FILTERED										
Monthly Summary: September 1, 2002 at 0010 to September 30, 2002 at 2400										
Wind Speed (m/s)		Std. Dev. W.S. (m/s)		Temp (°C)	Maximum 10 Minute Wind Speed		Elevation (m.a.s.l.)= 1,318			
Average		3.38		0.47		6.24		14.30 m/s on September 27, 2002 at 1004; Direction 283 Deg., 3.7°C		
				Hour of Day	Ave. Wind Speed (m/s)	Std. Dev. Of W.S. (m/s)				
Wind Speed (m/s)	Frequency	Ave. Turbulence Intensity		1	3.11	0.41	Direction	Ave Wind Speed (m/s)	Frequency of Occurrence	% Energy by Direction
0	10.02%			2	3.06	0.39	N	2.23	4.87%	1.30%
1	9.07%	43.43%		3	3.09	0.37	NNE	2.15	1.19%	0.28%
2	12.78%	26.35%		4	3.06	0.39	NE	2.00	0.52%	0.10%
3	21.07%	14.61%		5	2.89	0.36	ENE	1.74	0.62%	0.08%
4	21.12%	11.95%		6	2.66	0.32	E	4.09	4.92%	8.04%
5	12.59%	11.08%		7	2.67	0.32	ESE	3.86	16.70%	23.05%
6	8.10%	10.89%		8	2.92	0.37	SE	3.18	10.21%	7.85%
7	3.80%	10.42%		9	3.01	0.41	SSE	2.51	2.76%	1.04%
8	1.14%	9.90%		10	3.12	0.45	S	1.87	1.88%	0.29%
9	0.26%	8.49%		11	3.12	0.49	SSW	2.20	2.26%	0.58%
10	0.00%	0.00%		12	3.38	0.55	SW	2.42	2.52%	0.85%
11	0.05%	11.77%		13	3.53	0.60	WSW	3.67	6.60%	7.78%
12	0.00%	0.00%		14	3.69	0.61	W	3.91	12.14%	17.31%
13	0.00%	0.00%		15	3.88	0.62	WNW	3.64	12.04%	13.93%
14	0.00%	0.00%		16	3.63	0.58	NW	3.32	11.95%	10.45%
15	0.00%	0.00%		17	3.39	0.55	NNW	3.22	8.84%	7.07%
16	0.00%	0.00%		18	3.29	0.49				
17	0.00%	0.00%		19	3.02	0.38				
18	0.00%	0.00%		20	3.11	0.37				
19	0.00%	0.00%		21	3.15	0.38				
20	0.00%	0.00%		22	3.36	0.39				
21	0.00%	0.00%		23	3.13	0.39				
22	0.00%	0.00%		24	3.20	0.40				
23	0.00%	0.00%		Potential Energy Production at 30 m						
24	0.00%	0.00%			Energy					
25	0.00%	0.00%			Production					
					(MWh)	Capacity				
					Factor					
					Bonus 150	4.66	4.43%			
					Vestas 660	21.19	4.58%			
					Notes					
					2.5% of the data deleted based on w.s. std=0 and temperature at or below freezing					



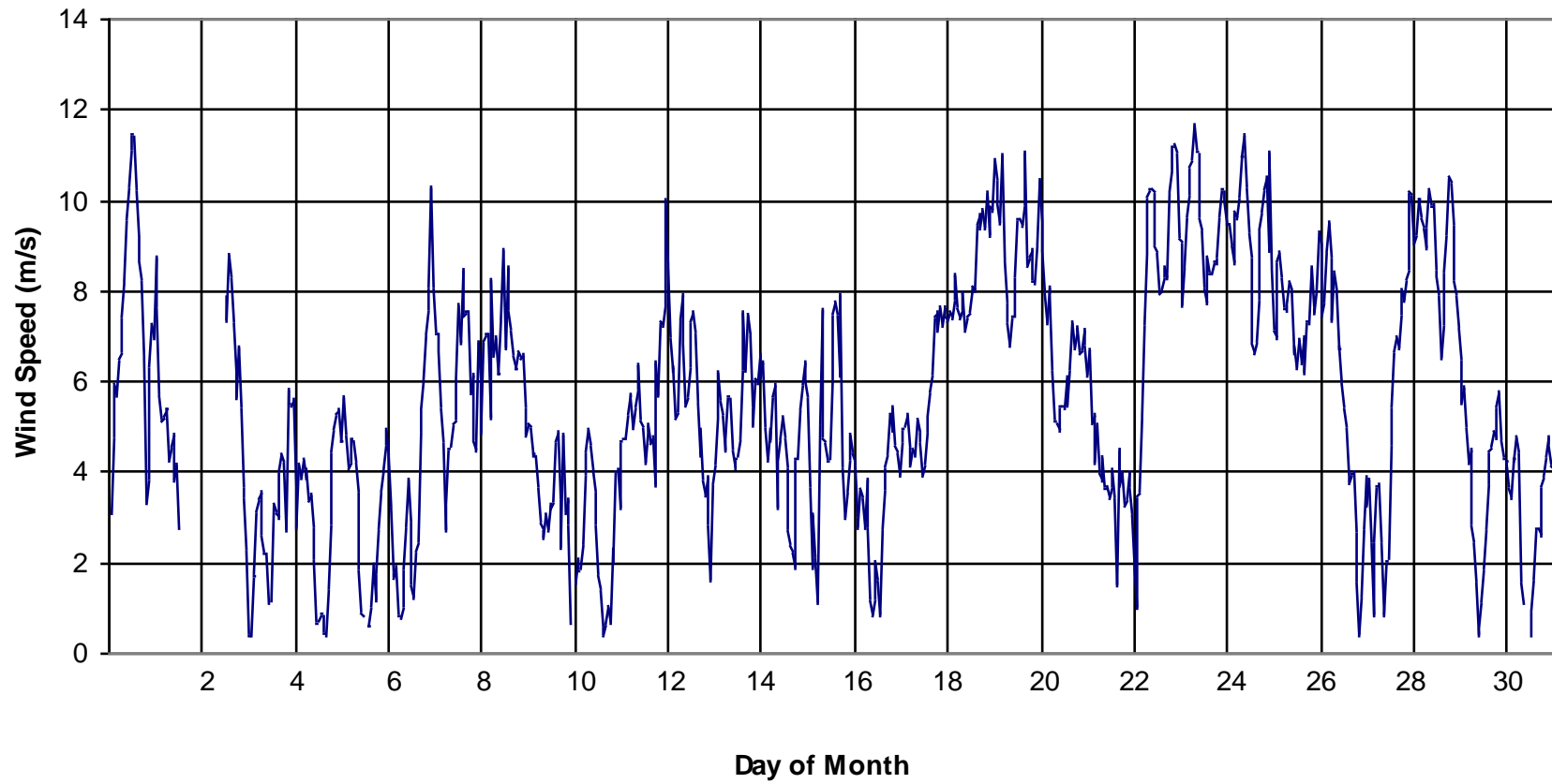


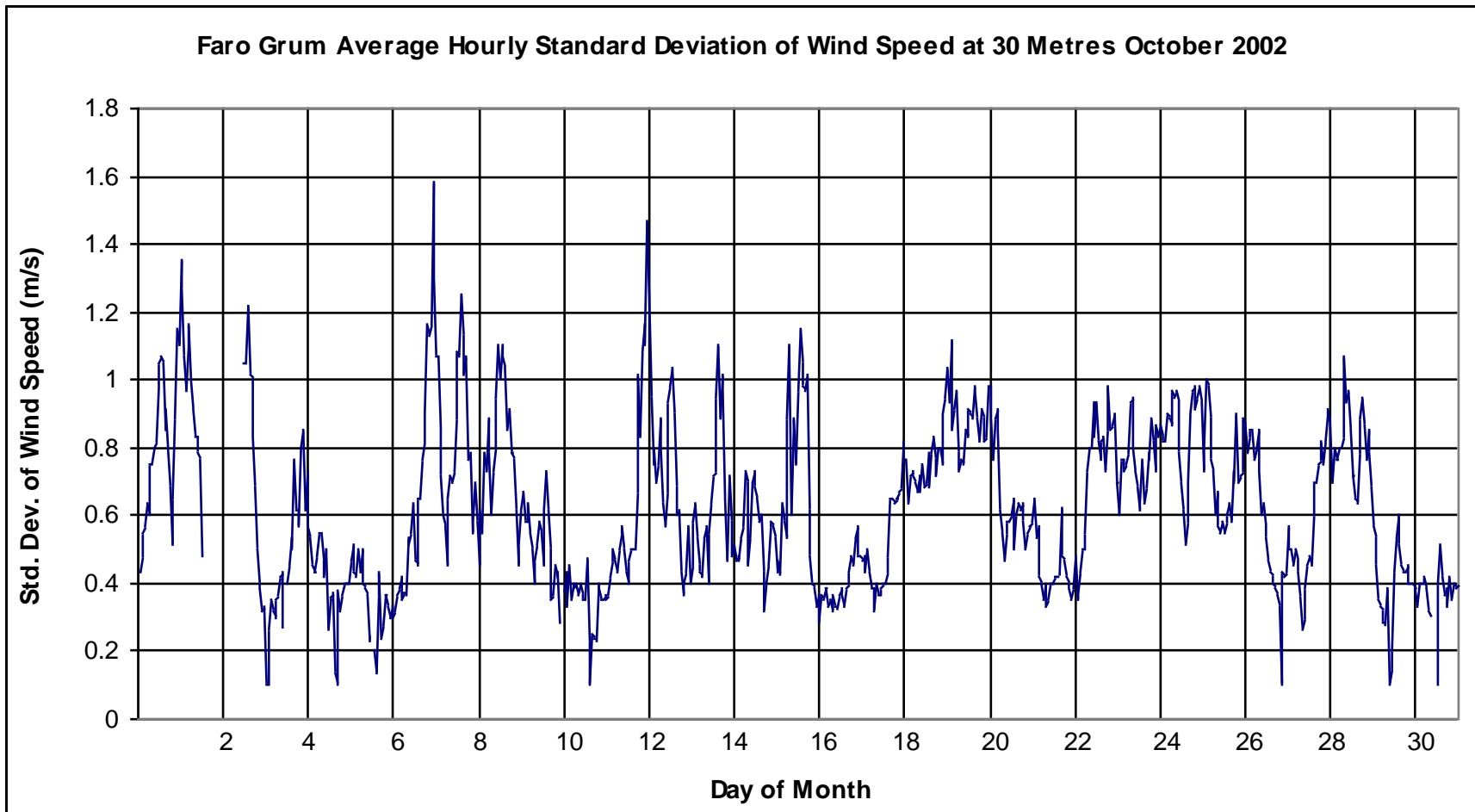


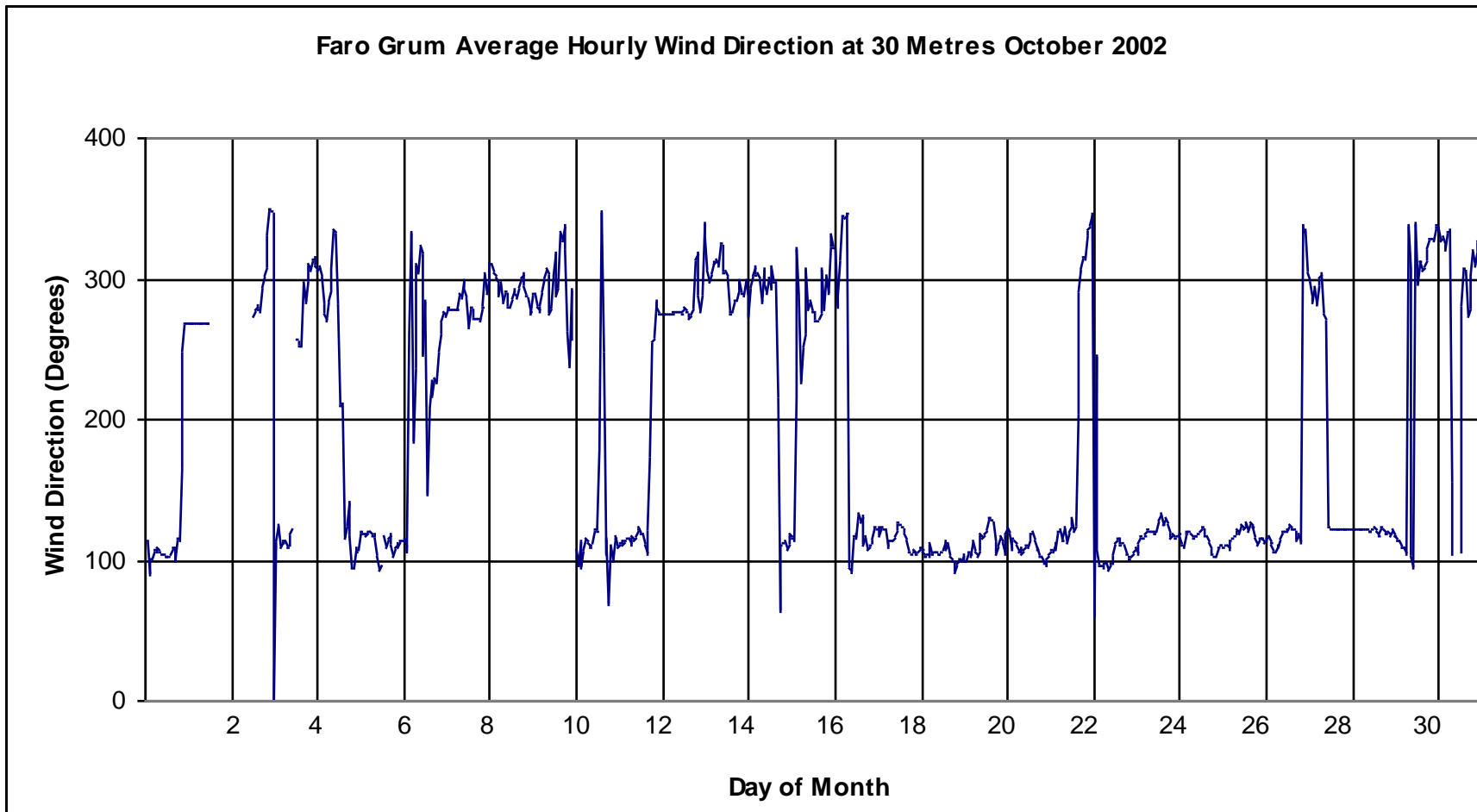


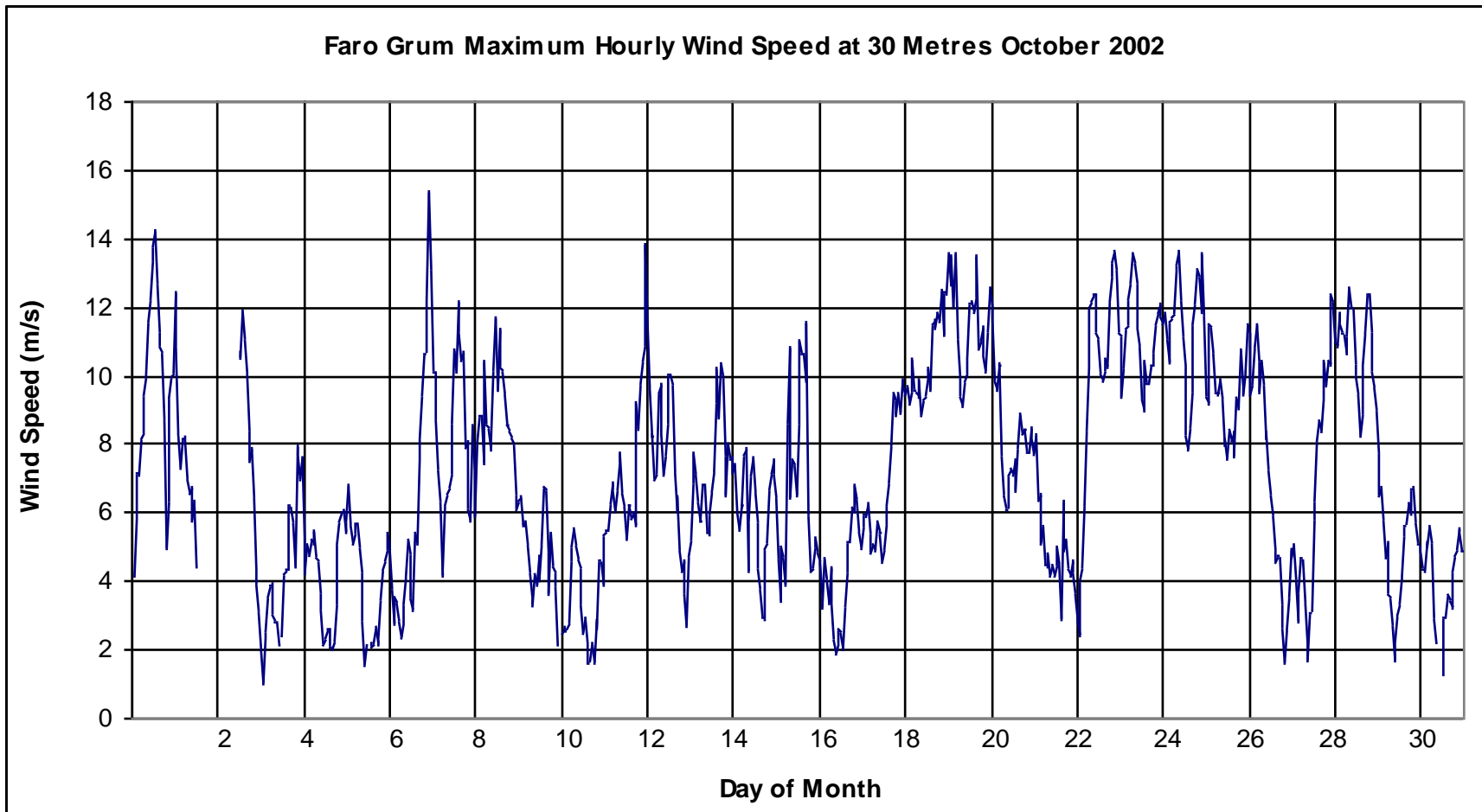
Faro Grum - 30 metre data - FILTERED									
Monthly Summary: October 1, 2002 at 0010 to October 31, 2002 at 2400									
Wind Speed (m/s)	Std. Dev. W.S. (m/s)	Temp (°C)	Maximum 10 Minute Wind Speed	Elevation (m.a.s.l.)= 1,318					
Average	5.79	0.63	-0.14	17.40	m/s on October 7, 2002 at 2217; Direction 267 Deg., 1.9°C				
			Hour of Day	Ave. Wind Speed (m/s)	Std. Dev. Of W.S. (m/s)				
Wind Speed (m/s)	Frequency	Ave. Turbulence Intensity	1	5.35	0.58				
0	1.56%		2	5.22	0.56				
1	3.87%	41.28%	3	5.30	0.59				
2	4.69%	23.88%	4	5.40	0.58				
3	9.57%	14.11%	5	5.38	0.58				
4	16.14%	11.43%	6	5.43	0.57				
5	14.14%	10.71%	7	5.45	0.57				
6	11.14%	11.16%	8	5.16	0.56				
7	10.92%	10.85%	9	4.96	0.53				
8	10.73%	10.42%	10	4.80	0.55				
9	7.24%	9.71%	11	4.76	0.55				
10	6.62%	8.95%	12	4.90	0.59				
11	2.36%	8.59%	13	5.05	0.61				
12	1.01%	8.47%	14	5.22	0.63				
13	0.00%	0.00%	15	5.26	0.61				
14	0.00%	0.00%	16	5.41	0.62				
15	0.00%	0.00%	17	5.53	0.63				
16	0.00%	0.00%	18	5.72	0.60				
17	0.00%	0.00%	19	5.63	0.61				
18	0.00%	0.00%	20	5.86	0.58				
19	0.00%	0.00%	21	5.88	0.62				
20	0.00%	0.00%	22	6.18	0.63				
21	0.00%	0.00%	23	5.97	0.62				
22	0.00%	0.00%	24	5.64	0.60				
23	0.00%	0.00%	Potential Energy Production at 30 m			Direction	Ave Wind Speed (m/s)	Frequency of Occurrence	% Energy by Direction
24	0.00%	0.00%	Energy Production Capacity (MWh) Factor			N	2.51	1.23%	0.09%
25	0.00%	0.00%	Bonus 150 22.88 22.01%			NNE	0.83	0.10%	0.00%
			Vestas 660 116.08 25.39%			NE	0.65	0.10%	0.00%
			Notes			ENE	0.68	0.12%	0.00%
						E	6.72	7.26%	10.09%
						ESE	6.78	42.51%	60.67%
						SE	5.80	6.30%	5.62%
						SSE	1.52	0.12%	0.00%
						S	2.16	0.24%	0.01%
						SSW	2.11	0.31%	0.01%
						SW	3.21	0.87%	0.13%
						WSW	4.08	1.64%	0.51%
						W	5.88	13.66%	12.70%
						WNW	4.95	10.92%	6.06%
						NW	4.18	9.29%	3.09%
						NNW	3.46	5.34%	1.01%
						data associated with w.s. std=0 removed			
						6.9% of data removed			

Faro Grum Average Hourly Wind Speed at 30 Metres October 2002

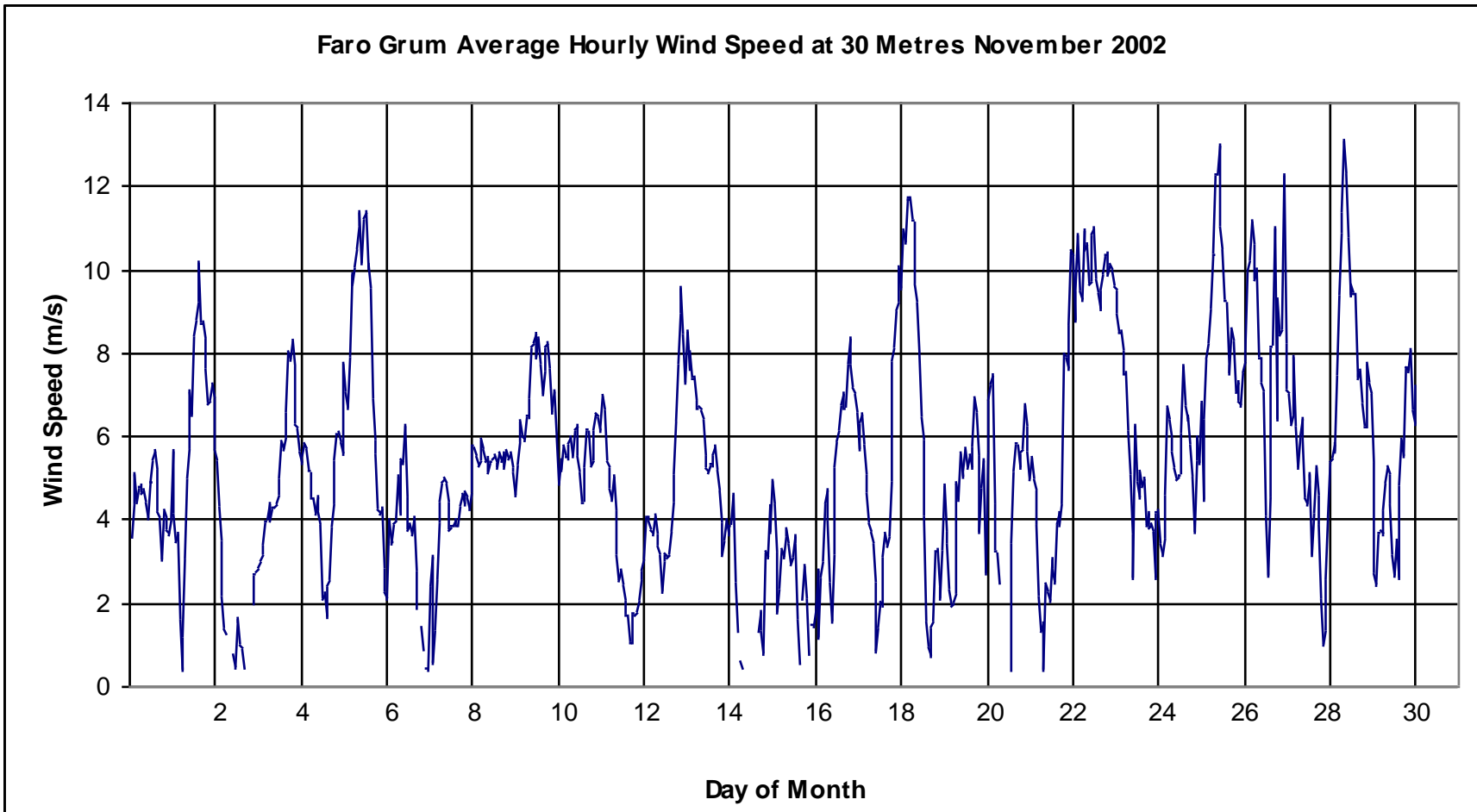


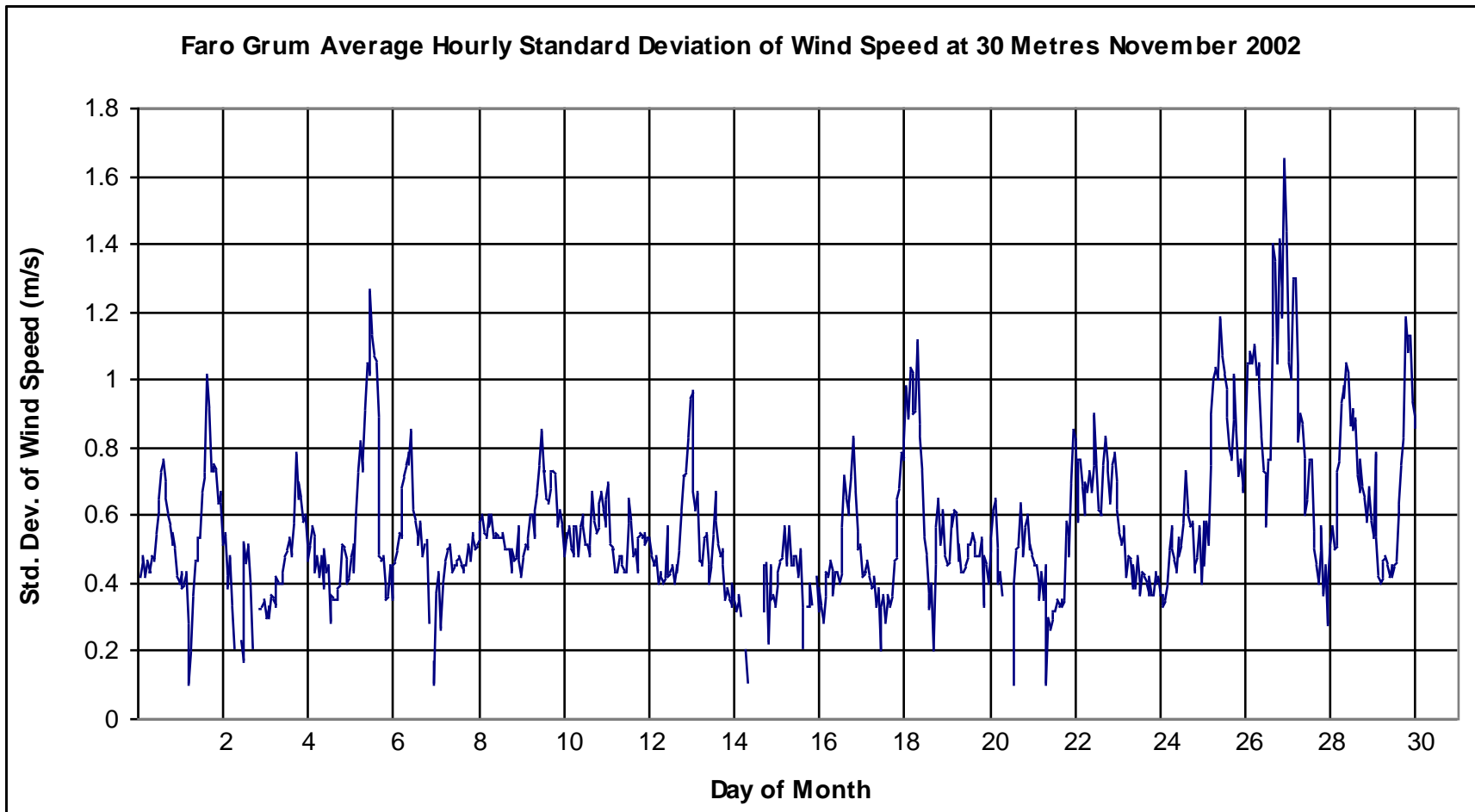




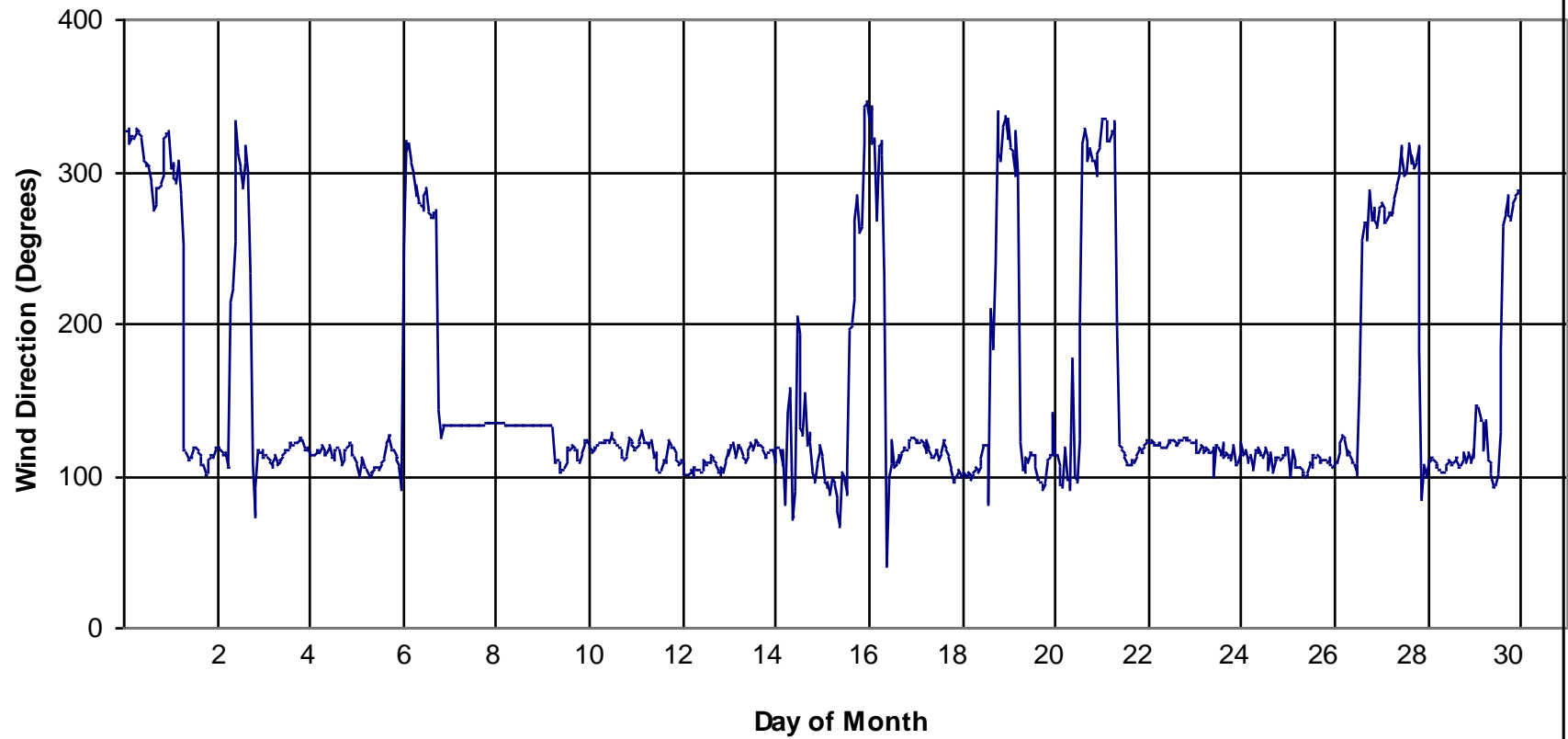


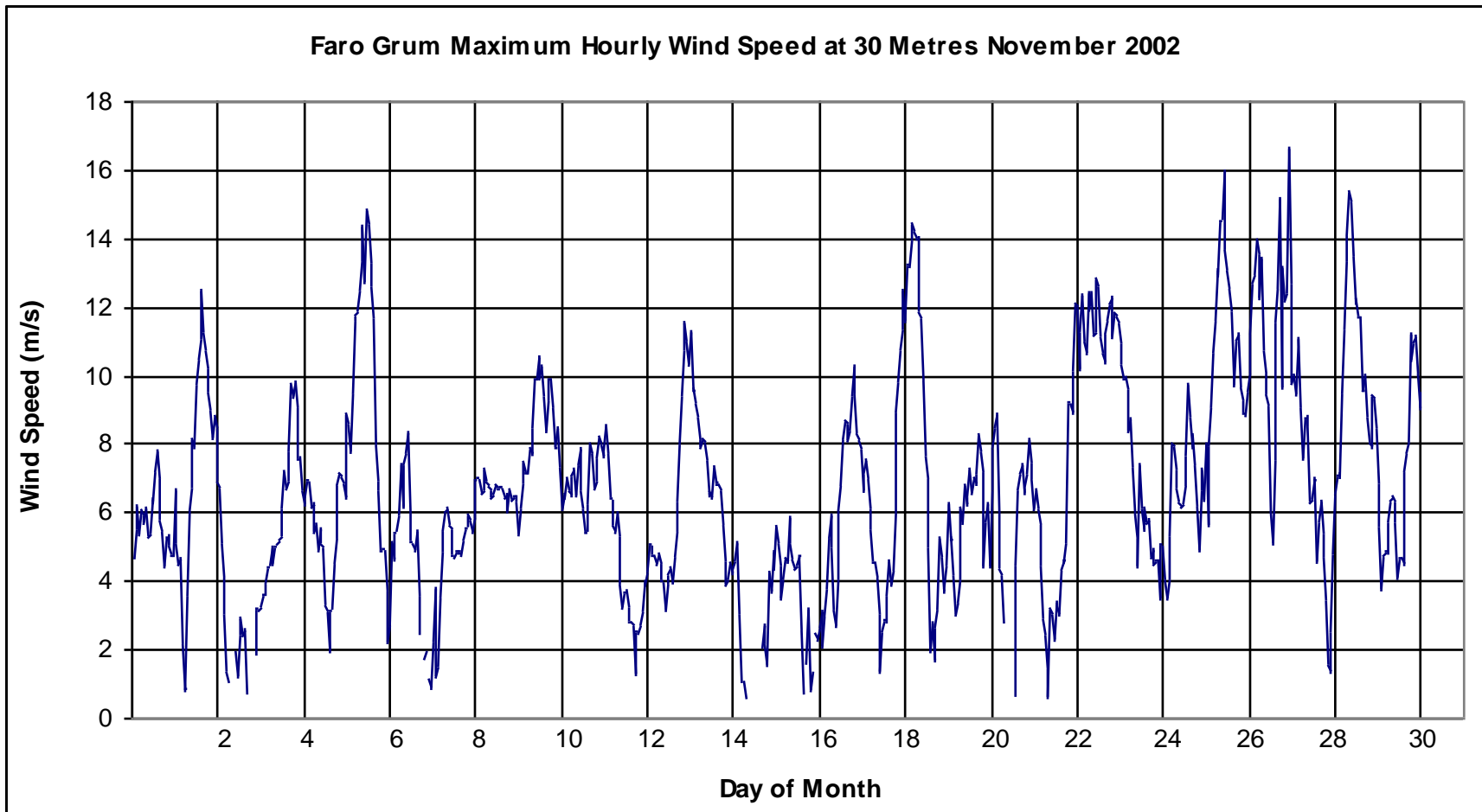
<b>Faro Grum - 30 metre data - FILTERED</b>									
<b>Monthly Summary: November 1, 2002 at 0010 to November 30, 2002 at 2400</b>									
Wind Speed (m/s)	Std. Dev. W.S. (m/s)	Temp (°C)	Maximum 10 Minute Wind Speed	Elevation (m.a.s.l.)= 1,318					
Average	5.59	0.58	-4.84	18.10	m/s on November 27, 2002 at 2154; Direction 270 Deg., 0°C				
			Hour of Day	Ave. Wind Speed (m/s)	Std. Dev. Of W.S. (m/s)				
			1	5.30	0.53				
			2	5.19	0.51				
			3	5.28	0.54				
			4	5.17	0.53				
			5	5.12	0.51				
			6	5.24	0.51				
			7	5.30	0.53				
			8	5.23	0.49				
			9	5.14	0.50				
			10	4.85	0.51				
			11	4.86	0.51				
			12	4.81	0.52				
			13	4.66	0.53				
			14	4.61	0.52				
			15	4.84	0.52				
			16	4.80	0.50				
			17	5.03	0.53				
			18	4.95	0.54				
			19	5.11	0.55				
			20	4.96	0.52				
			21	5.13	0.52				
			22	5.31	0.55				
			23	5.11	0.52				
			24	5.47	0.53				
Wind Speed (m/s)	Frequency	Ave. Turbulence Intensity	<b>Potential Energy Production at 30 m</b>			Direction	Ave Wind Speed (m/s)	Frequency of Occurrence	% Energy by Direction
0	1.16%		Energy Production (MWh)	Capacity Factor	<b>N</b>	1.44	0.51%	0.01%	
1	3.51%	40.33%	Bonus 150	19.73	19.51%	<b>NNE</b>	0.48	0.28%	0.00%
2	5.46%	24.51%	Vestas 660	98.40	22.12%	<b>NE</b>	0.30	0.28%	0.00%
3	11.03%	13.72%	Notes			<b>ENE</b>	1.17	1.27%	0.01%
4	15.70%	11.10%				<b>E</b>	5.40	9.03%	8.87%
5	17.71%	10.06%				<b>ESE</b>	5.96	50.28%	66.51%
6	14.42%	9.46%				<b>SE</b>	5.13	16.85%	14.19%
7	9.37%	9.31%				<b>SSE</b>	1.51	0.49%	0.01%
8	7.15%	9.47%				<b>S</b>	0.55	0.35%	0.00%
9	5.22%	9.23%				<b>SSW</b>	0.31	0.16%	0.00%
10	4.35%	8.38%				<b>SW</b>	0.59	0.42%	0.00%
11	3.17%	8.71%				<b>WSW</b>	3.74	0.79%	0.26%
12	1.11%	9.11%				<b>W</b>	5.50	4.70%	4.87%
13	0.62%	8.69%				<b>WNW</b>	4.57	4.91%	2.91%
14	0.02%	7.35%				<b>NW</b>	3.55	6.57%	1.83%
15	0.00%	0.00%				<b>NNW</b>	3.00	3.13%	0.53%
16	0.00%	0.00%							
17	0.00%	0.00%							
18	0.00%	0.00%							
19	0.00%	0.00%							
20	0.00%	0.00%							
21	0.00%	0.00%							
22	0.00%	0.00%							
23	0.00%	0.00%							
24	0.00%	0.00%							
25	0.00%	0.00%							





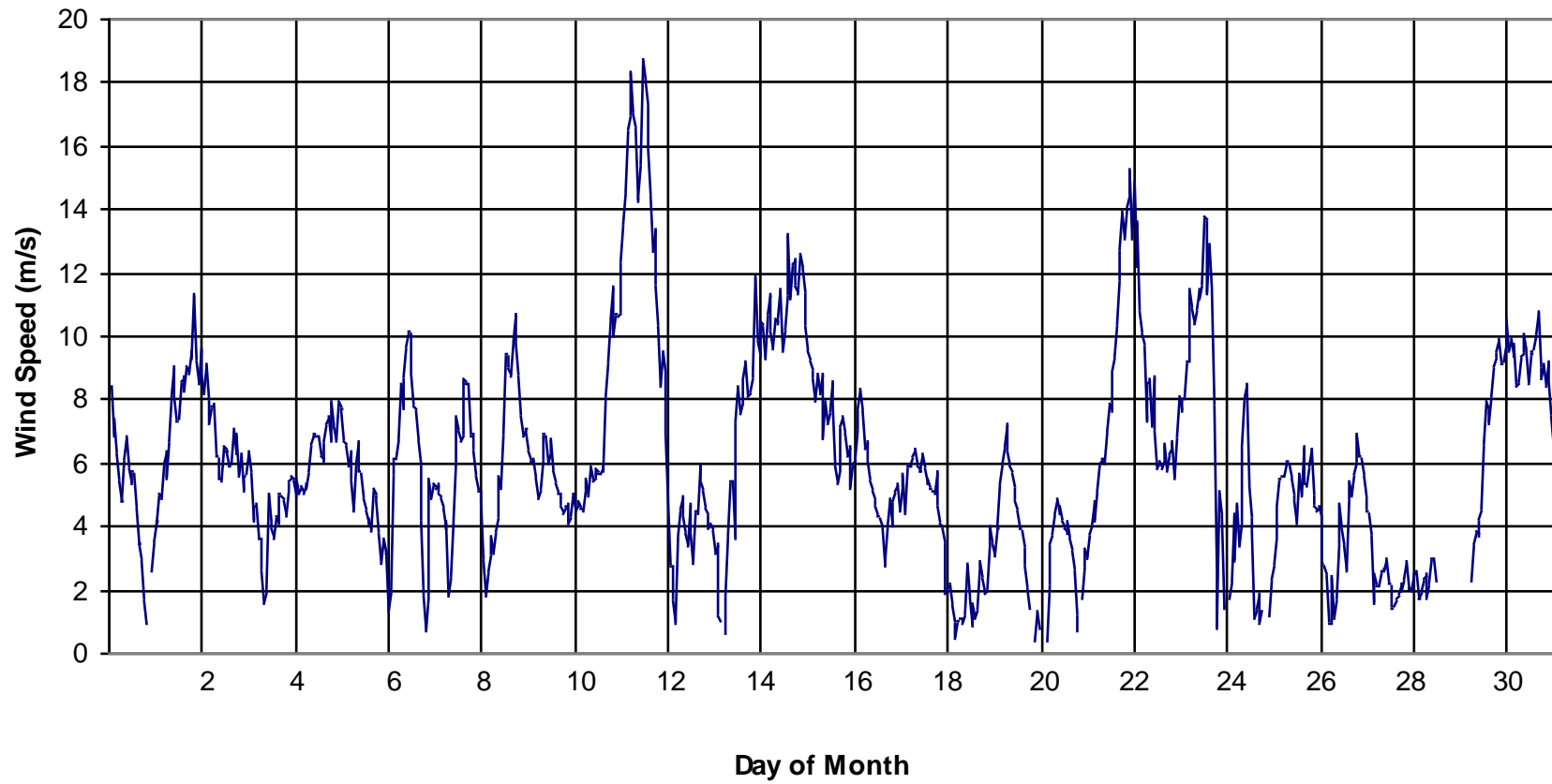
Faro Grum Average Hourly Wind Direction at 30 Metres November 2002

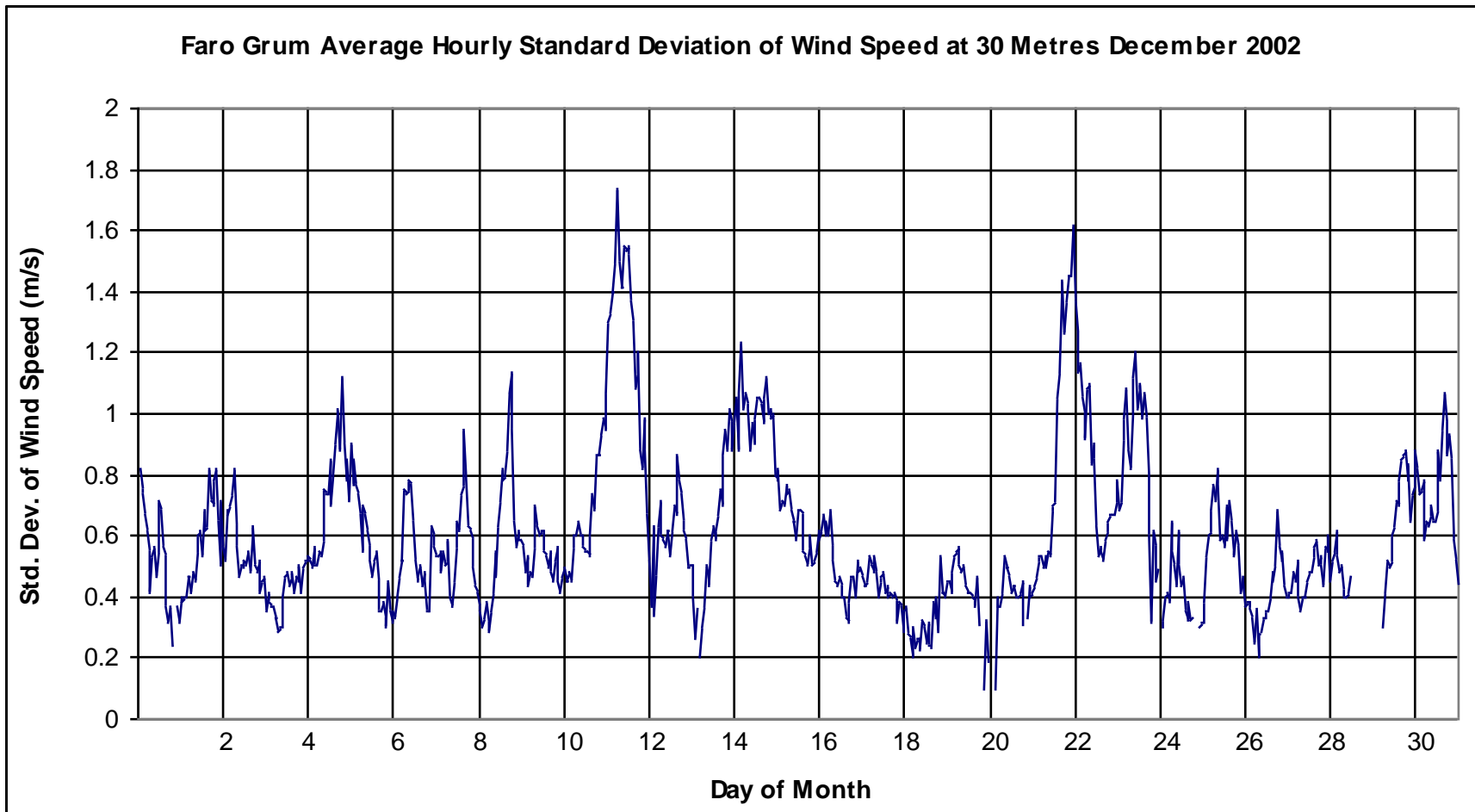


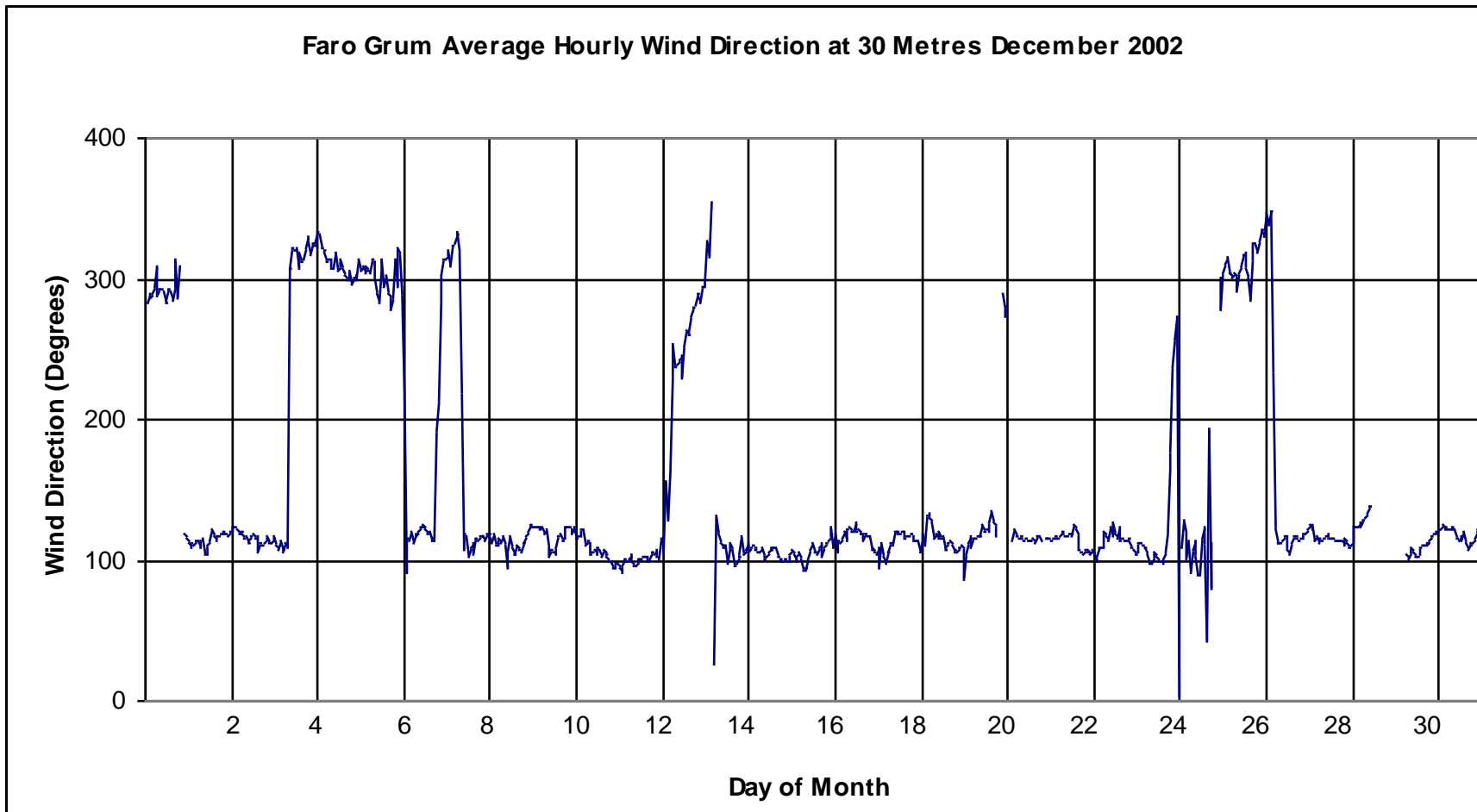


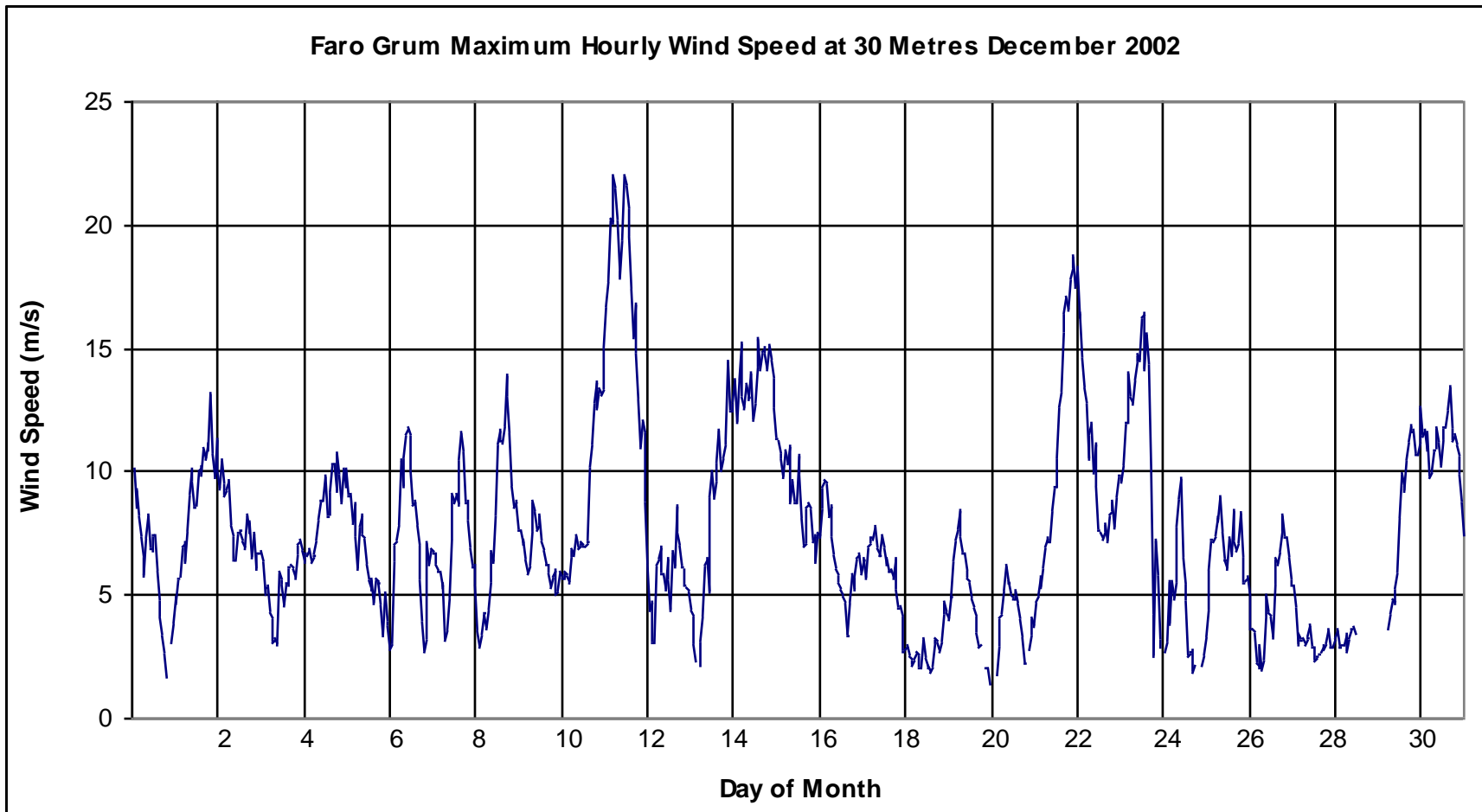
Faro Grum - 30 metre data - FILTERED										
Monthly Summary: December 1, 2002 at 0010 to December 31, 2002 at 2400										
Wind Speed (m/s)		Std. Dev. W.S. (m/s)		Temp (°C)	Maximum 10 Minute Wind Speed		Elevation (m.a.s.l.)= 1,318			
Average	6.26	0.62		-9.18	22.90 m/s on December 12, 2002 at 0605; Direction 100 Deg., -3.1°C					
				Hour of Day	Ave. Wind Speed (m/s)	Std. Dev. Of W.S. (m/s)				
Wind Speed (m/s)	Frequency	Ave. Turbulence Intensity		1	5.36	0.53	Direction	Ave Wind Speed (m/s)	Frequency of Occurrence	% Energy by Direction
0	1.03%			2	5.26	0.52	N	2.42	0.62%	0.03%
1	3.29%	35.99%		3	5.42	0.54	NNE	0.83	0.07%	0.00%
2	6.06%	22.89%		4	5.31	0.55	NE	1.60	0.07%	0.00%
3	8.34%	13.09%		5	5.58	0.56	E	9.48	10.91%	32.92%
4	11.32%	11.09%		6	5.55	0.58	ESE	6.40	57.87%	53.79%
5	16.58%	9.94%		7	5.74	0.58	SE	5.20	8.53%	4.26%
6	14.64%	9.50%		8	5.96	0.59	SSE	2.30	0.17%	0.01%
7	9.37%	9.26%		9	6.21	0.58	S	1.80	0.07%	0.00%
8	7.55%	8.96%		10	6.41	0.60	SSW	1.86	0.12%	0.00%
9	7.14%	8.52%		11	6.41	0.60	SW	4.20	0.65%	0.17%
10	4.93%	8.81%		12	6.39	0.60	WSW	3.89	0.89%	0.19%
11	3.24%	9.18%		13	6.30	0.61	W	3.74	2.09%	0.39%
12	2.04%	8.78%		14	6.15	0.61	WNW	5.22	6.83%	3.44%
13	1.18%	8.89%		15	6.10	0.62	NW	5.16	8.65%	4.20%
14	1.15%	9.54%		16	6.45	0.65	NNW	4.18	2.33%	0.60%
15	0.79%	9.01%		17	6.26	0.63				
16	0.41%	9.34%		18	5.87	0.62				
17	0.38%	8.66%		19	5.53	0.57				
18	0.29%	8.57%		20	5.56	0.54				
19	0.22%	8.34%		21	5.68	0.55				
20	0.05%	6.85%		22	5.60	0.55				
21	0.00%	0.00%		23	5.53	0.54				
22	0.00%	0.00%		24	5.36	0.52				
23	0.00%	0.00%		Potential Energy Production at 30 m						
24	0.00%	0.00%			Energy Production (MWh)	Capacity Factor				
25	0.00%	0.00%			Bonus 150	26.40	25.38%			
					Vestas 660	130.05	28.41%			
					Notes					
					6.8% data deleted					

Faro Grum Average Hourly Wind Speed at 30 Metres December 2002



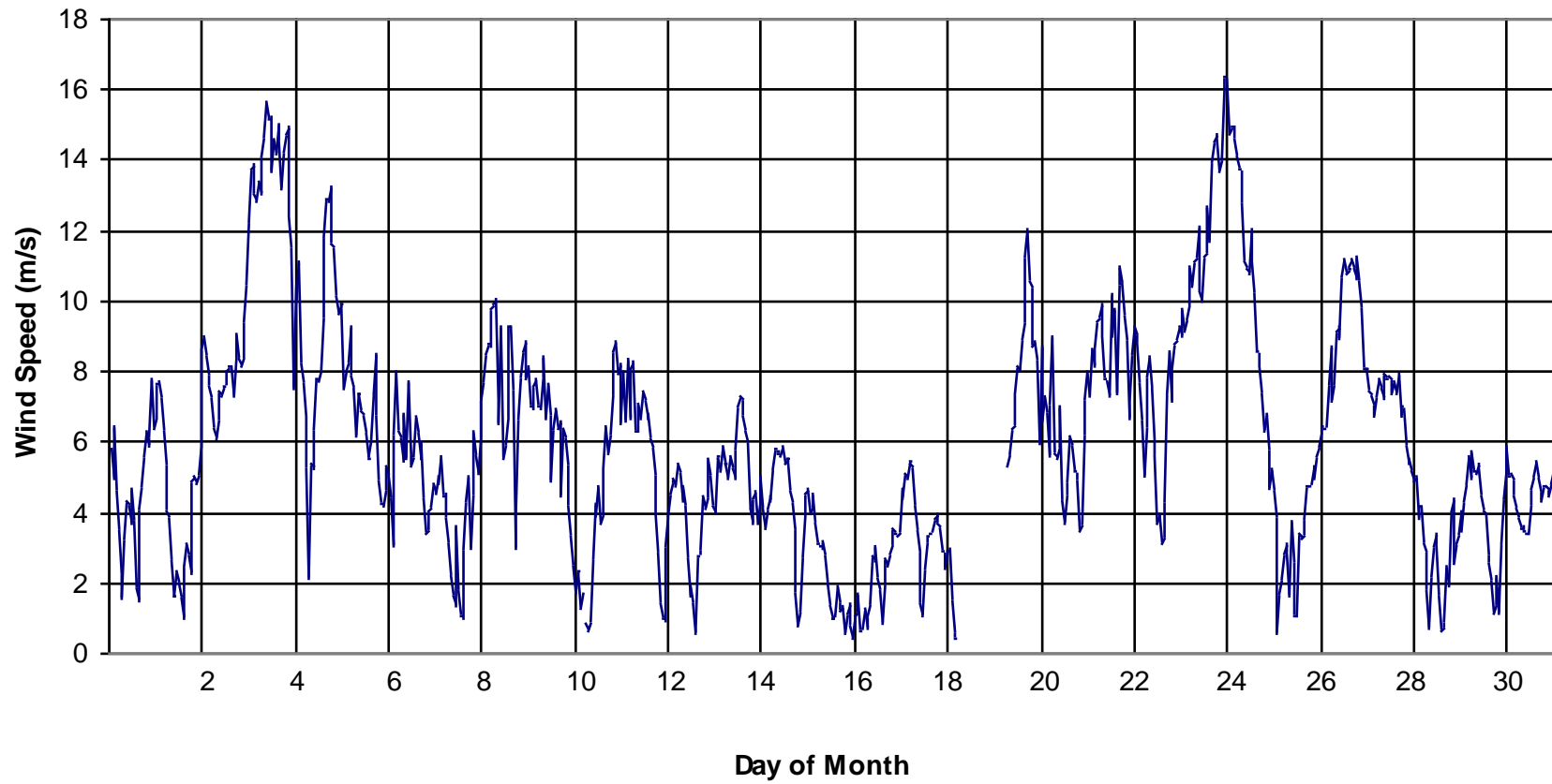


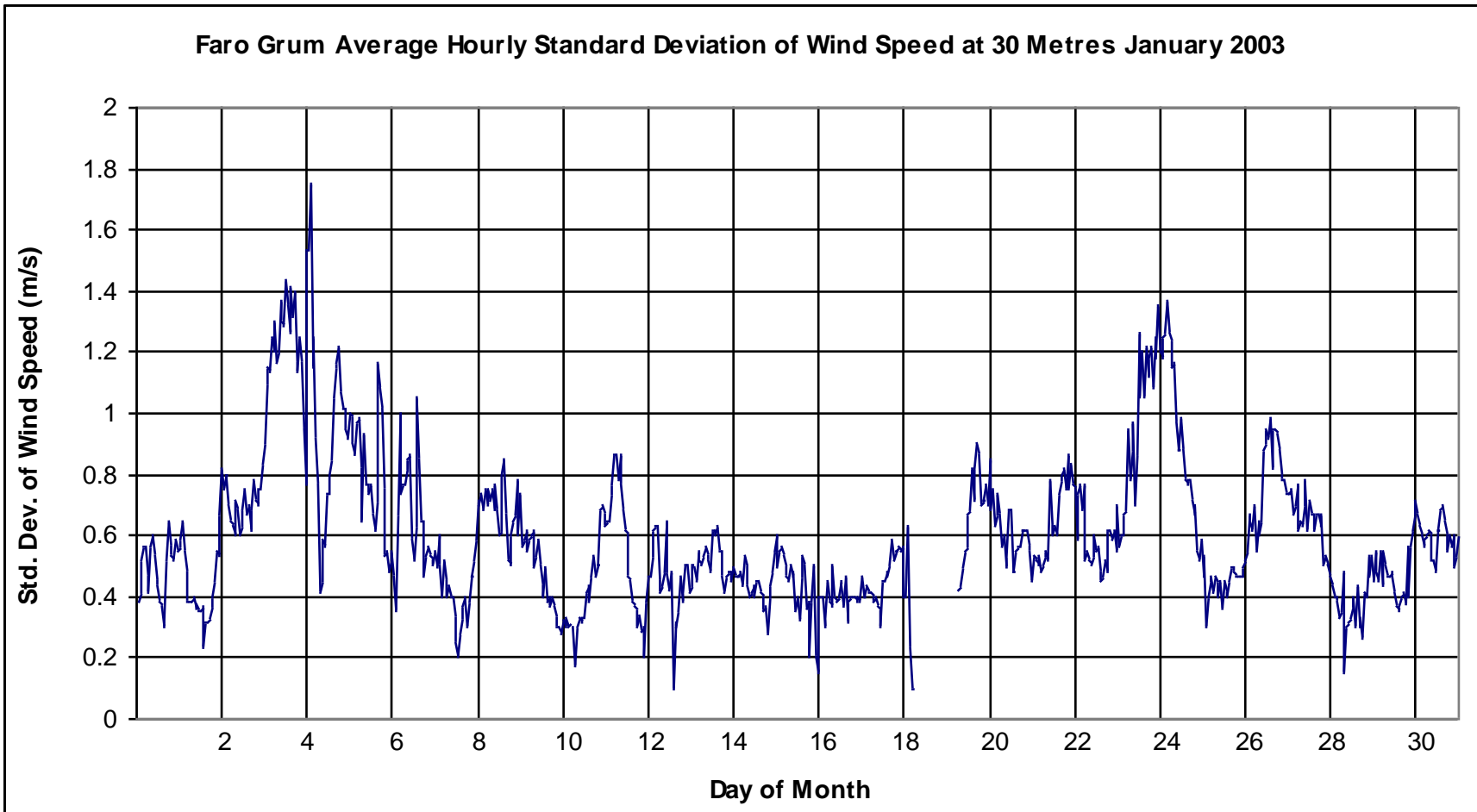


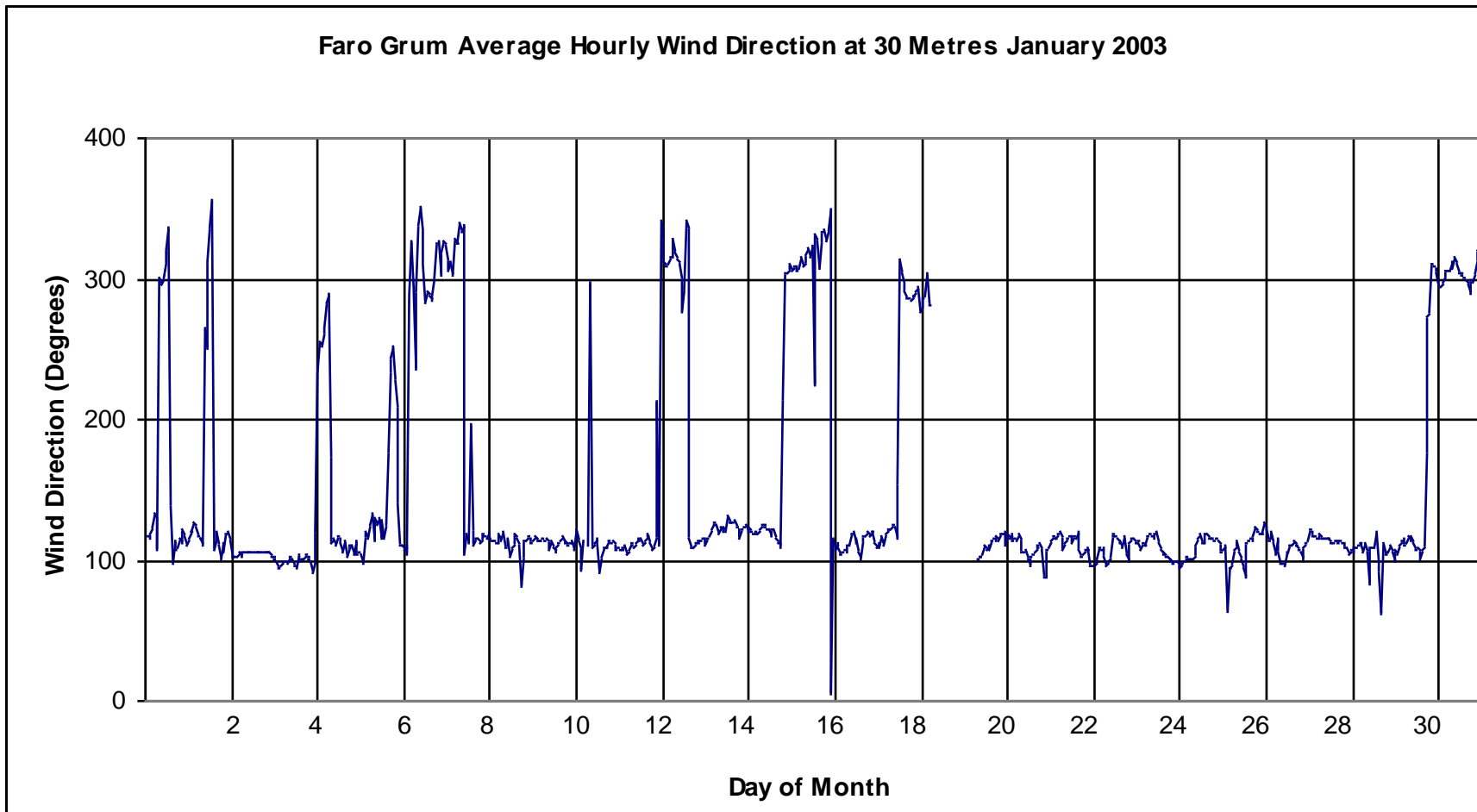


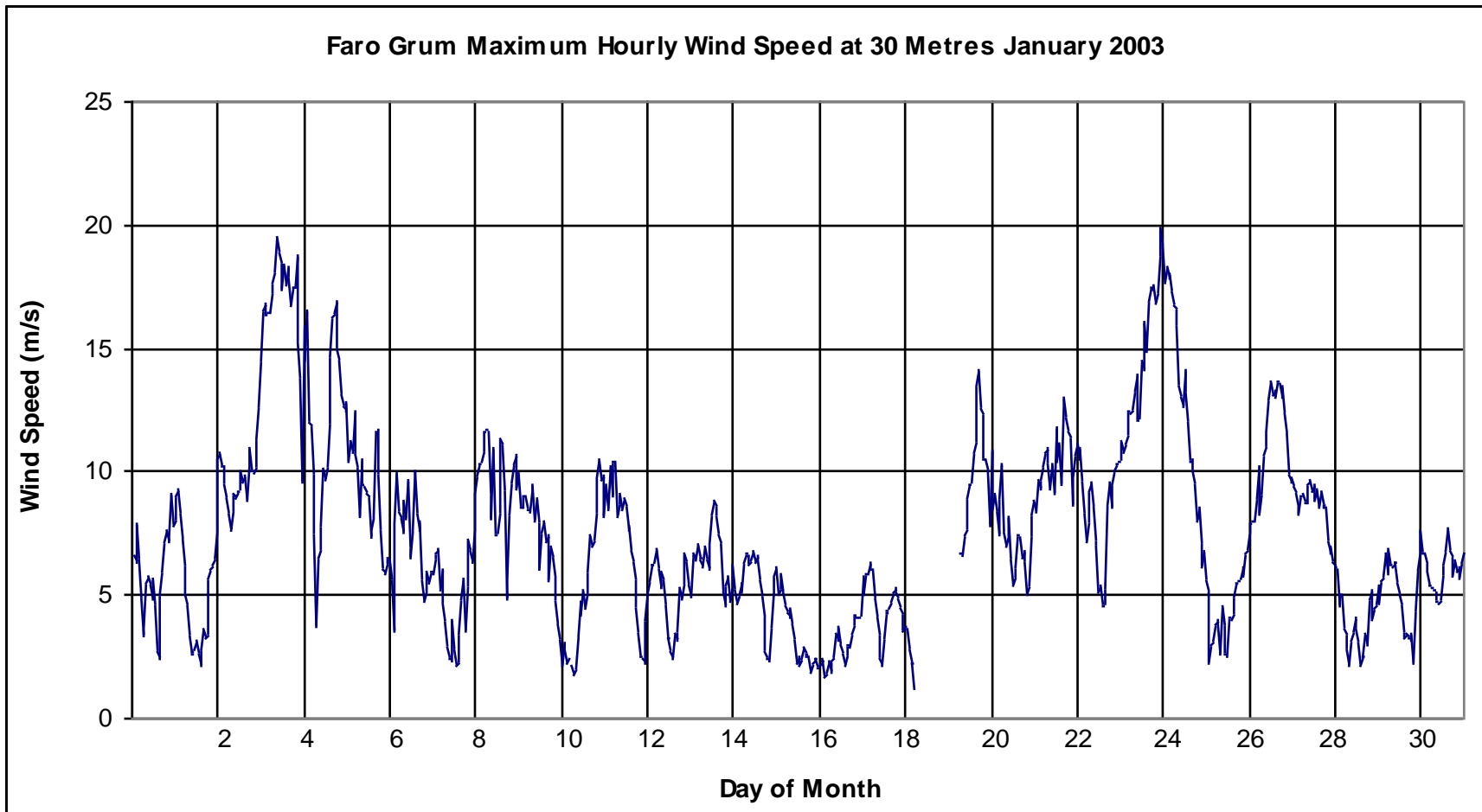
<b>Faro Grum - 30 metre data - FILTERED</b>																																																																																	
<b>Monthly Summary: January 1, 2003 at 0010 to January 31, 2003 at 2400</b>																																																																																	
Wind Speed (m/s)		Std. Dev. W.S. (m/s)	Temp (°C)	Maximum 10 Minute Wind Speed		Elevation (m.a.s.l.)=																																																																											
Average		6.24	-12.96	21.40		1,318																																																																											
m/s on January 24, 2003 at 2312; Direction 89 Deg., -24.1°C																																																																																	
			<table border="1"> <thead> <tr> <th>Hour of Day</th> <th>Ave. Wind Speed (m/s)</th> <th>Std. Dev. Of W.S. (m/s)</th> </tr> </thead> <tr><td>1</td><td>6.25</td><td>0.60</td></tr> <tr><td>2</td><td>6.09</td><td>0.62</td></tr> <tr><td>3</td><td>6.05</td><td>0.58</td></tr> <tr><td>4</td><td>6.02</td><td>0.61</td></tr> <tr><td>5</td><td>5.88</td><td>0.59</td></tr> <tr><td>6</td><td>5.74</td><td>0.57</td></tr> <tr><td>7</td><td>5.54</td><td>0.55</td></tr> <tr><td>8</td><td>5.64</td><td>0.56</td></tr> <tr><td>9</td><td>5.70</td><td>0.56</td></tr> <tr><td>10</td><td>5.66</td><td>0.57</td></tr> <tr><td>11</td><td>5.47</td><td>0.54</td></tr> <tr><td>12</td><td>5.47</td><td>0.56</td></tr> <tr><td>13</td><td>5.46</td><td>0.55</td></tr> <tr><td>14</td><td>5.55</td><td>0.56</td></tr> <tr><td>15</td><td>5.77</td><td>0.58</td></tr> <tr><td>16</td><td>6.16</td><td>0.59</td></tr> <tr><td>17</td><td>6.07</td><td>0.60</td></tr> <tr><td>18</td><td>5.93</td><td>0.58</td></tr> <tr><td>19</td><td>5.93</td><td>0.57</td></tr> <tr><td>20</td><td>5.88</td><td>0.56</td></tr> <tr><td>21</td><td>5.68</td><td>0.58</td></tr> <tr><td>22</td><td>5.78</td><td>0.56</td></tr> <tr><td>23</td><td>5.87</td><td>0.57</td></tr> <tr><td>24</td><td>6.34</td><td>0.62</td></tr> </table>		Hour of Day	Ave. Wind Speed (m/s)	Std. Dev. Of W.S. (m/s)	1	6.25	0.60	2	6.09	0.62	3	6.05	0.58	4	6.02	0.61	5	5.88	0.59	6	5.74	0.57	7	5.54	0.55	8	5.64	0.56	9	5.70	0.56	10	5.66	0.57	11	5.47	0.54	12	5.47	0.56	13	5.46	0.55	14	5.55	0.56	15	5.77	0.58	16	6.16	0.59	17	6.07	0.60	18	5.93	0.58	19	5.93	0.57	20	5.88	0.56	21	5.68	0.58	22	5.78	0.56	23	5.87	0.57	24	6.34	0.62		
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Faro Grum Average Hourly Wind Speed at 30 Metres January 2003



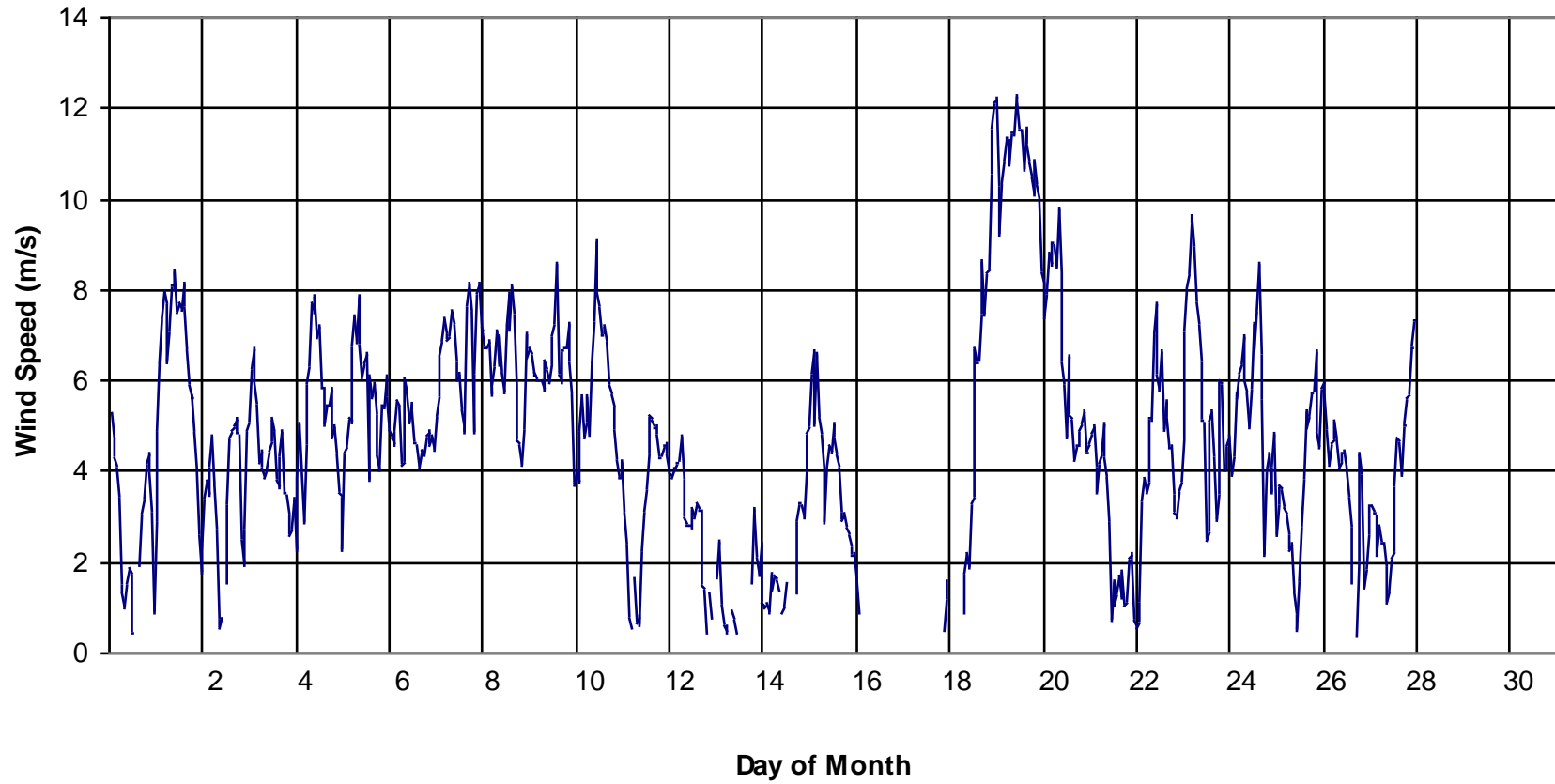


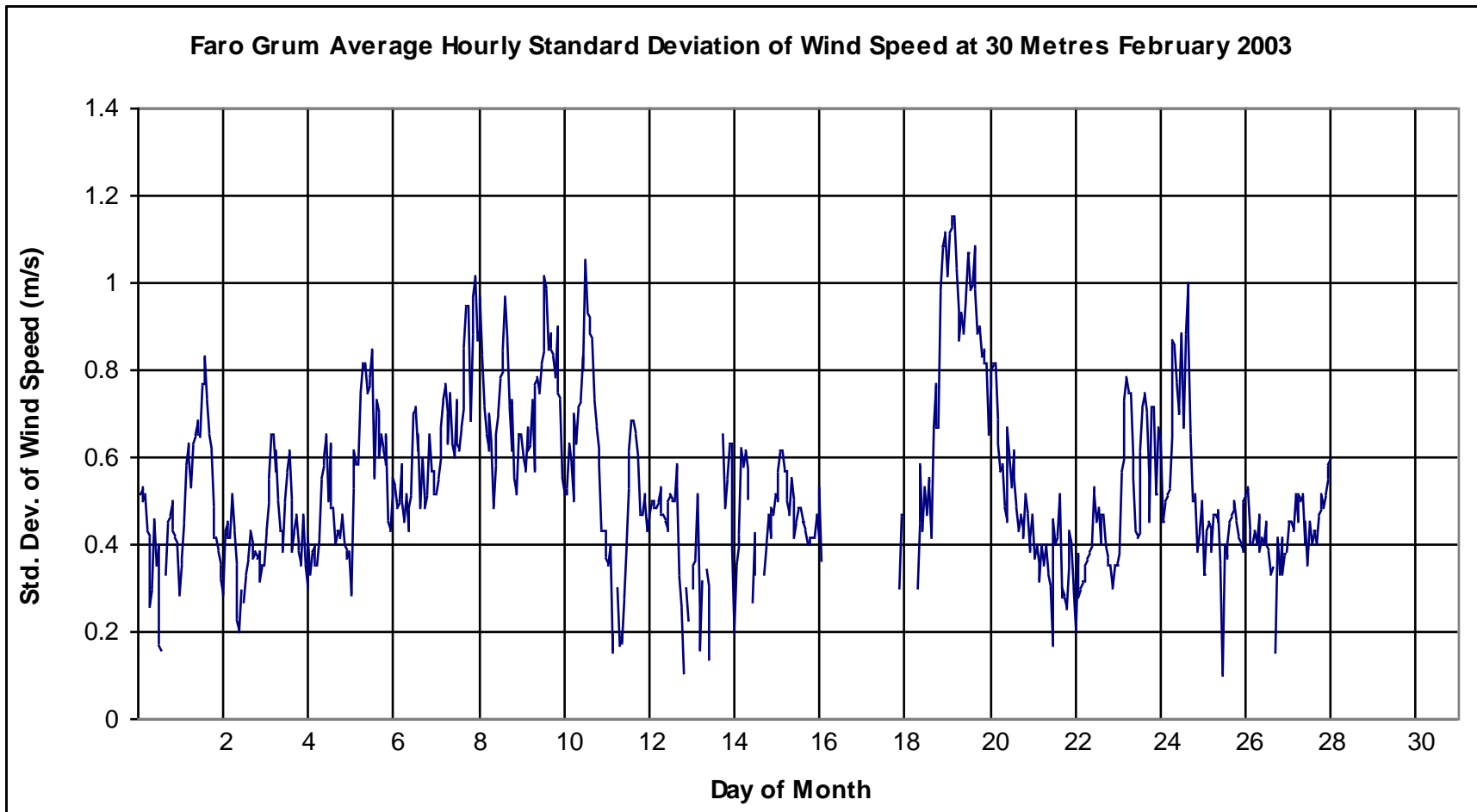


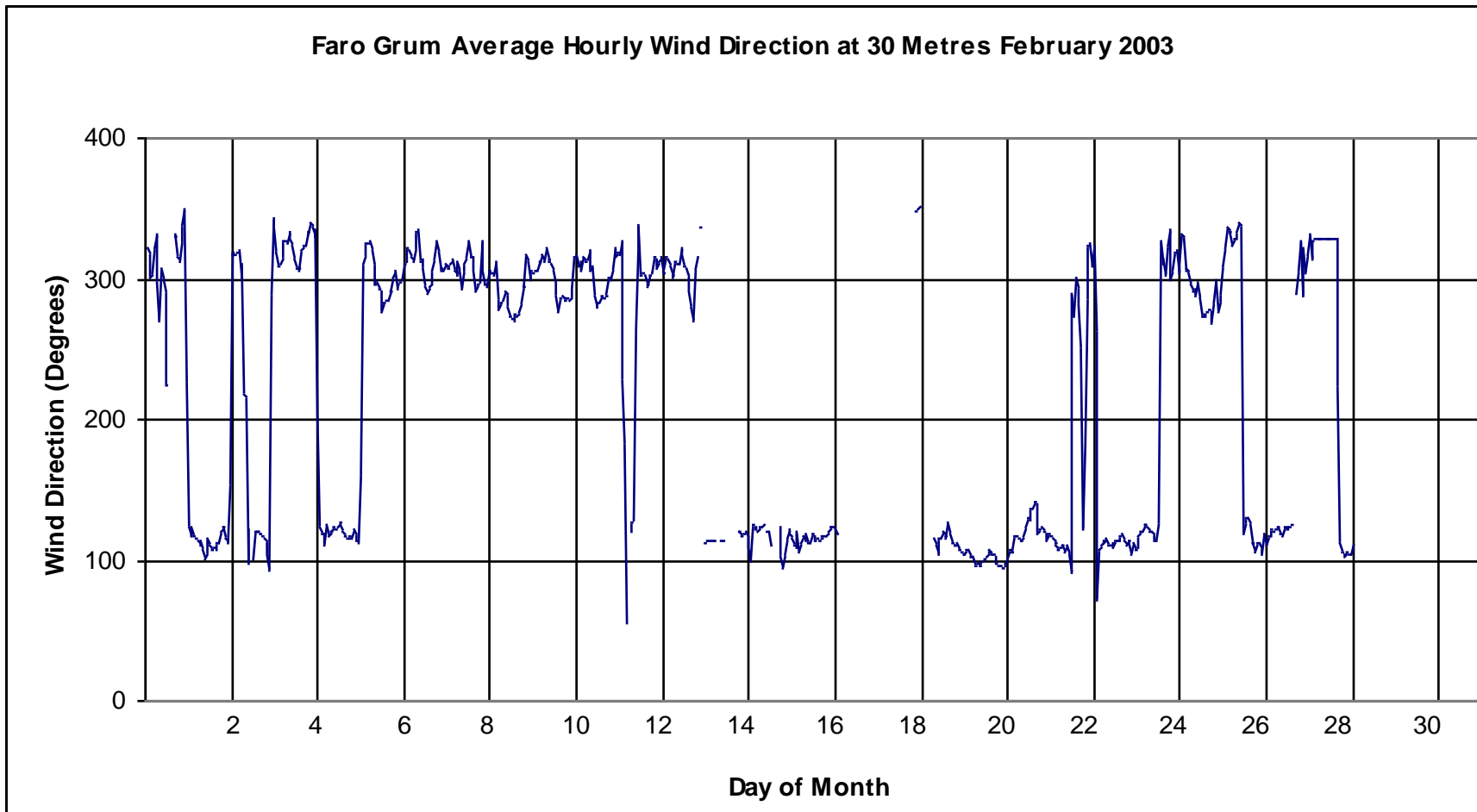


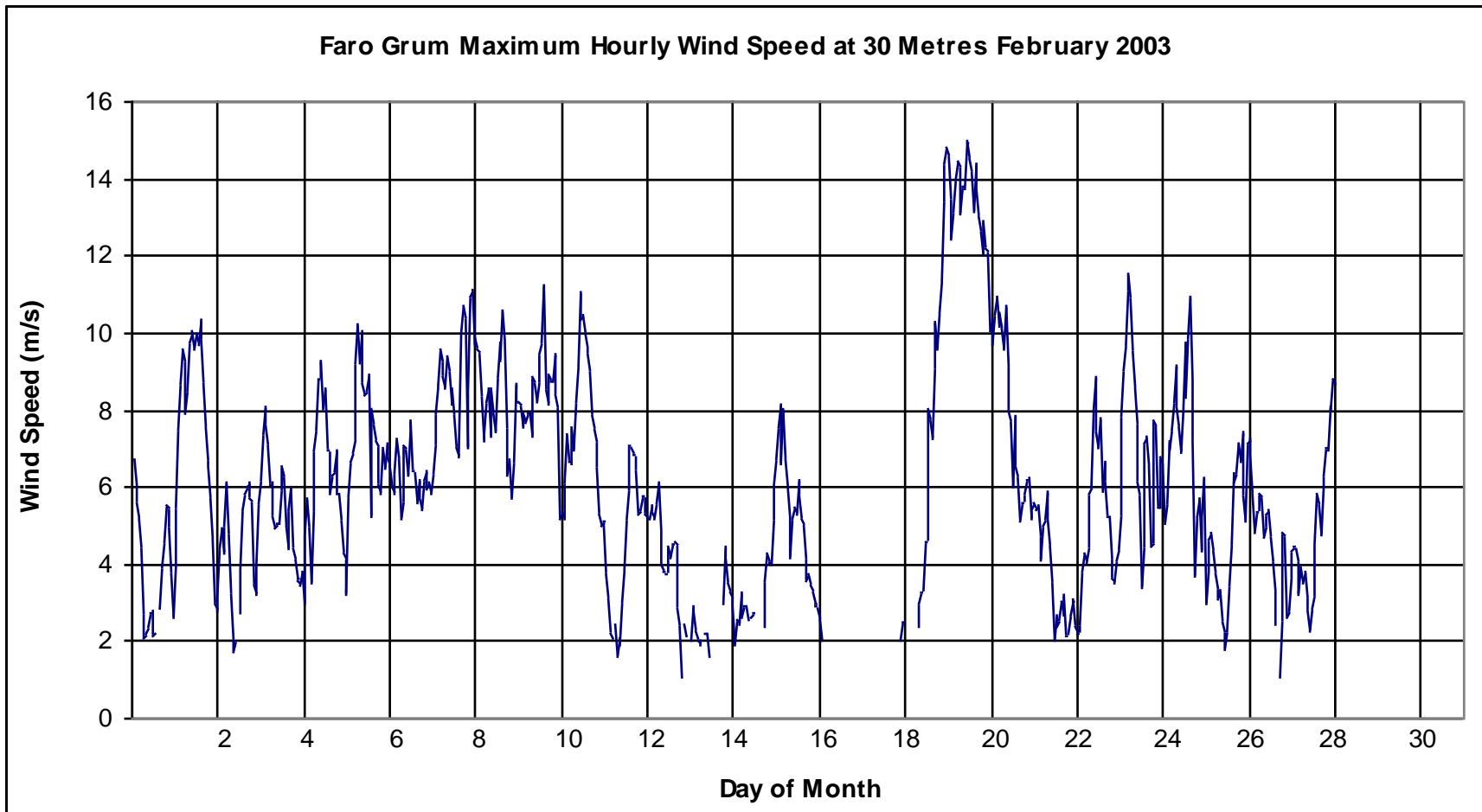
<b>Faro Grum - 30 metre data - FILTERED</b>										
<b>Monthly Summary: February 1, 2003 at 0010 to February 28, 2003 at 2400</b>										
Wind Speed (m/s)	Std. Dev. W.S. (m/s)	Temp (°C)	Maximum 10 Minute Wind Speed	Elevation (m.a.s.l.)=	1,318					
Average	5.01	0.55	-9.01	15.90	m/s on February 20, 2003 at 0945; Direction 100 Deg.,-21.4°C					
			Hour of Day	Ave. Wind Speed (m/s)	Std. Dev. Of W.S. (m/s)					
Wind Speed (m/s)	Frequency	Ave. Turbulence Intensity	1	3.83	0.42					
0	2.34%		2	3.98	0.42					
1	4.92%	39.36%	3	3.98	0.43					
2	6.74%	23.28%	4	3.99	0.43					
3	12.07%	13.49%	5	4.08	0.42					
4	18.09%	11.14%	6	4.04	0.44					
5	18.64%	10.33%	7	3.89	0.42					
6	13.63%	10.23%	8	3.97	0.42					
7	10.22%	9.97%	9	3.86	0.39					
8	6.08%	9.55%	10	3.81	0.40					
9	2.72%	8.79%	11	3.70	0.41					
10	1.24%	8.51%	12	3.85	0.47					
11	1.94%	9.03%	13	3.92	0.45					
12	1.04%	8.36%	14	4.07	0.46					
13	0.32%	8.05%	15	4.03	0.45					
14	0.00%	0.00%	16	3.90	0.44					
15	0.00%	0.00%	17	3.85	0.42					
16	0.00%	0.00%	18	3.73	0.42					
17	0.00%	0.00%	19	3.87	0.41					
18	0.00%	0.00%	20	3.94	0.44					
19	0.00%	0.00%	21	3.72	0.43					
20	0.00%	0.00%	22	3.79	0.44					
21	0.00%	0.00%	23	3.66	0.40					
22	0.00%	0.00%	24	3.62	0.39					
23	0.00%	0.00%	<b>Potential Energy Production at 30 m</b>			Direction	Ave Wind Speed (m/s)	Frequency of Occurrence	% Energy by Direction	
24	0.00%	0.00%		Energy Production (MWh)	Capacity Factor	<b>N</b>	1.98	1.13%	0.06%	
25	0.00%	0.00%		Bonus 150	12.47	14.44%	<b>NNE</b>	1.16	0.14%	0.00%
				Vestas 660	62.21	16.37%	<b>NE</b>	0.61	0.20%	0.00%
				<b>Notes</b>			<b>ENE</b>	1.37	0.09%	0.00%
				14.3% of the data deleted.			<b>E</b>	8.11	4.49%	16.87%
							<b>ESE</b>	5.26	33.43%	34.37%
							<b>SE</b>	4.64	7.09%	5.00%
							<b>SSE</b>	2.03	0.09%	0.01%
							<b>S</b>	0.80	0.03%	0.00%
							<b>SSW</b>	0.00	0.00%	0.00%
							<b>SW</b>	0.00	0.00%	0.00%
							<b>WSW</b>	1.34	0.26%	0.00%
							<b>W</b>	5.73	5.01%	6.63%
							<b>WNW</b>	5.51	15.40%	18.21%
							<b>NW</b>	4.67	22.60%	16.24%
							<b>NNW</b>	3.33	10.04%	2.61%

Faro Grum Average Hourly Wind Speed at 30 Metres February 2003

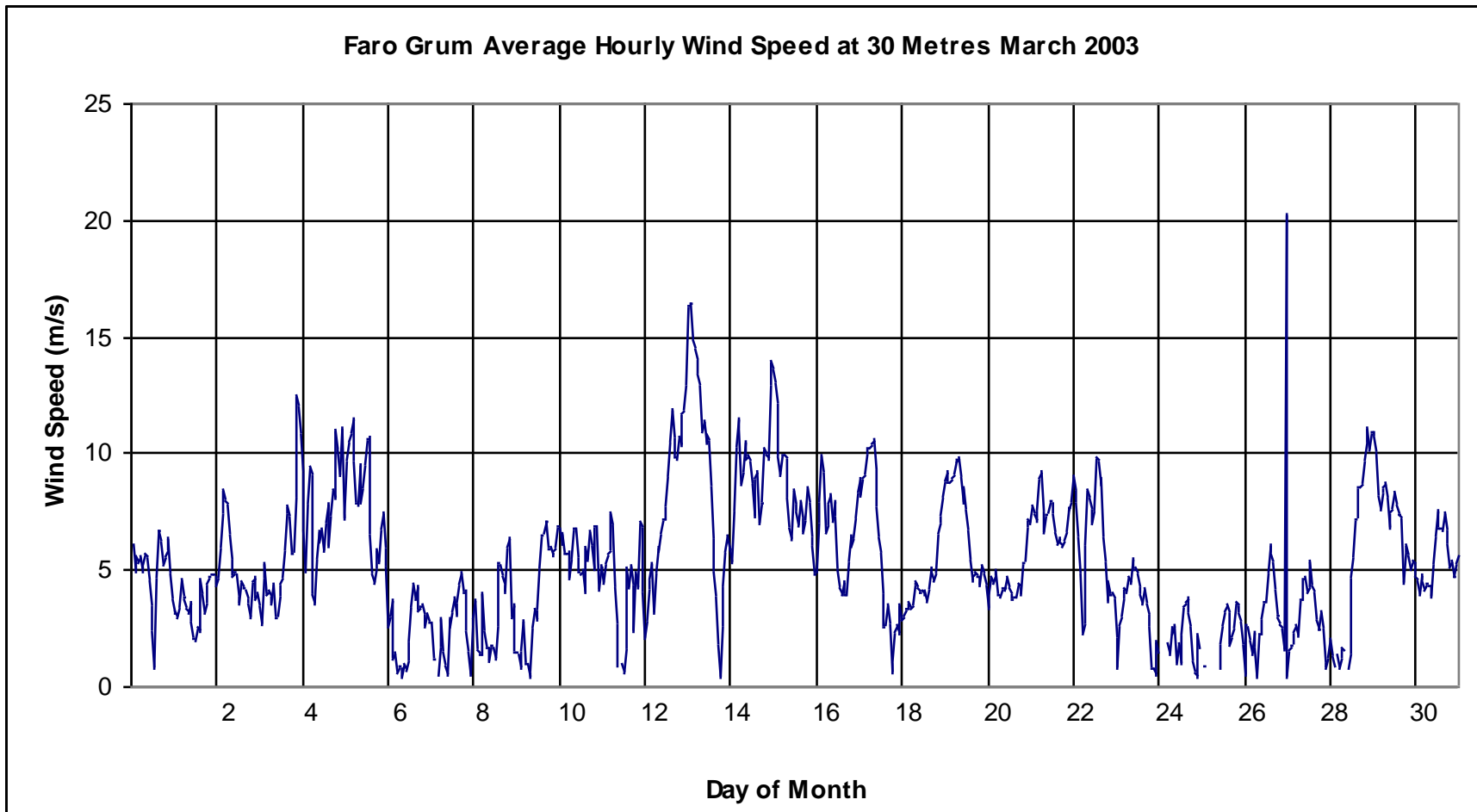


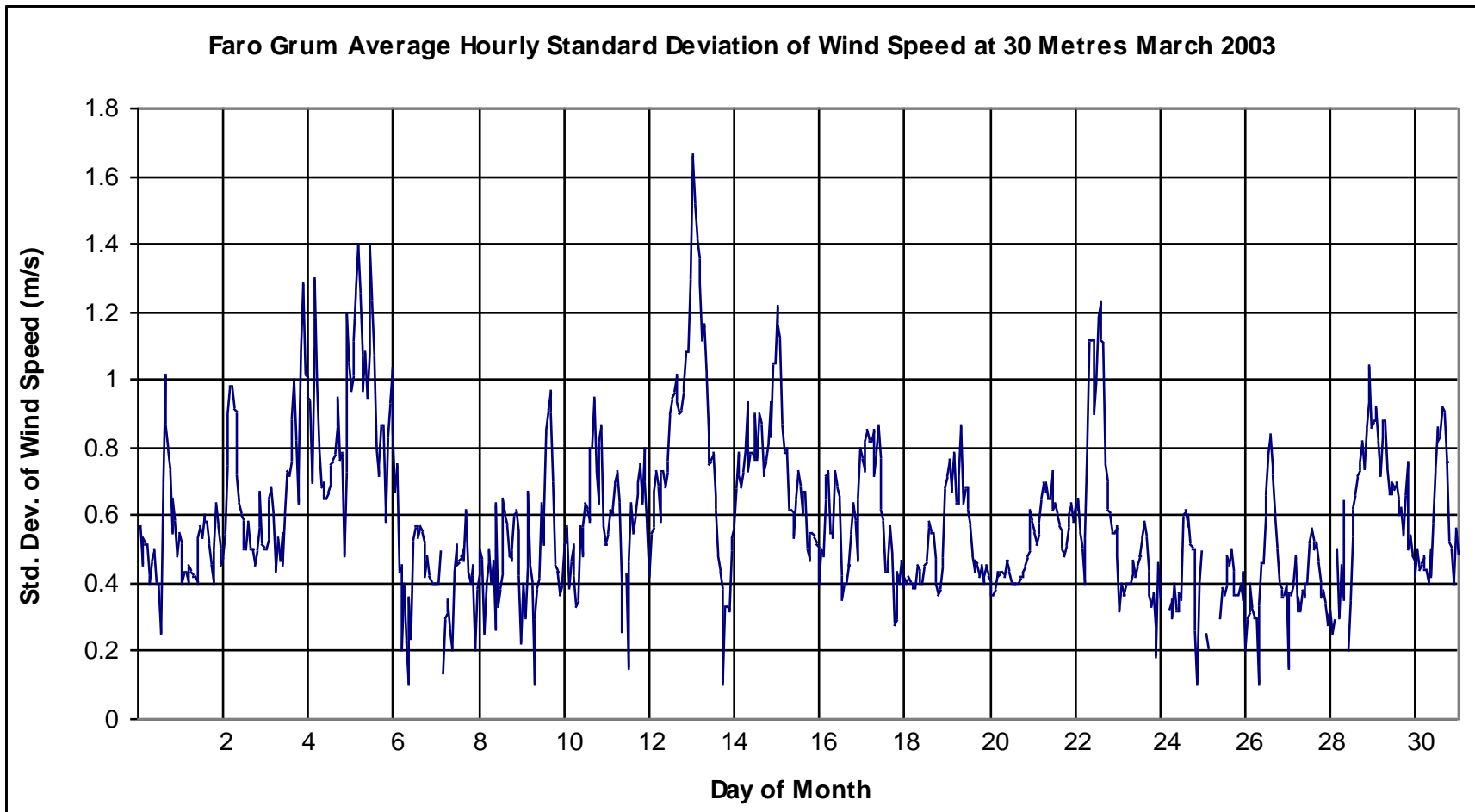


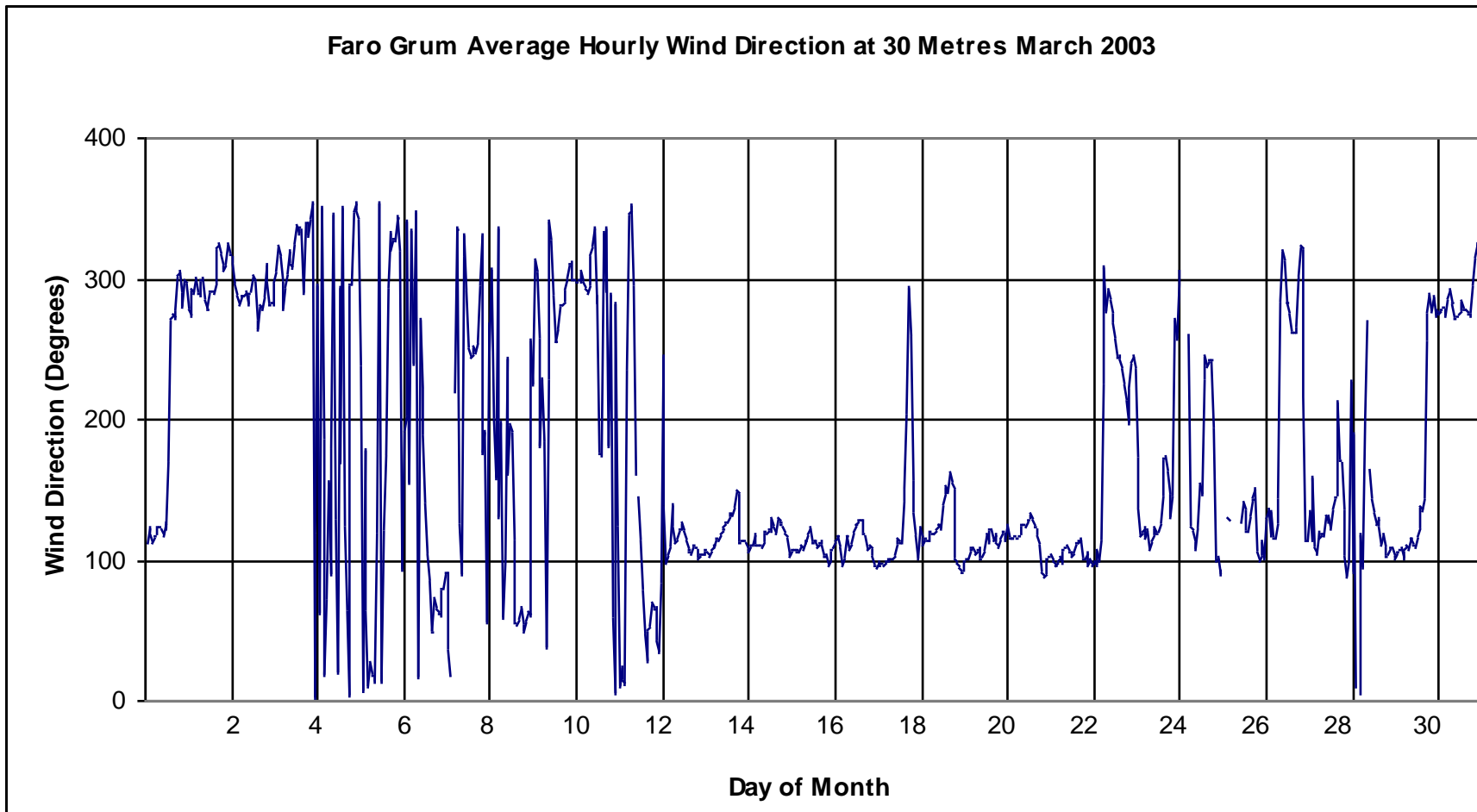


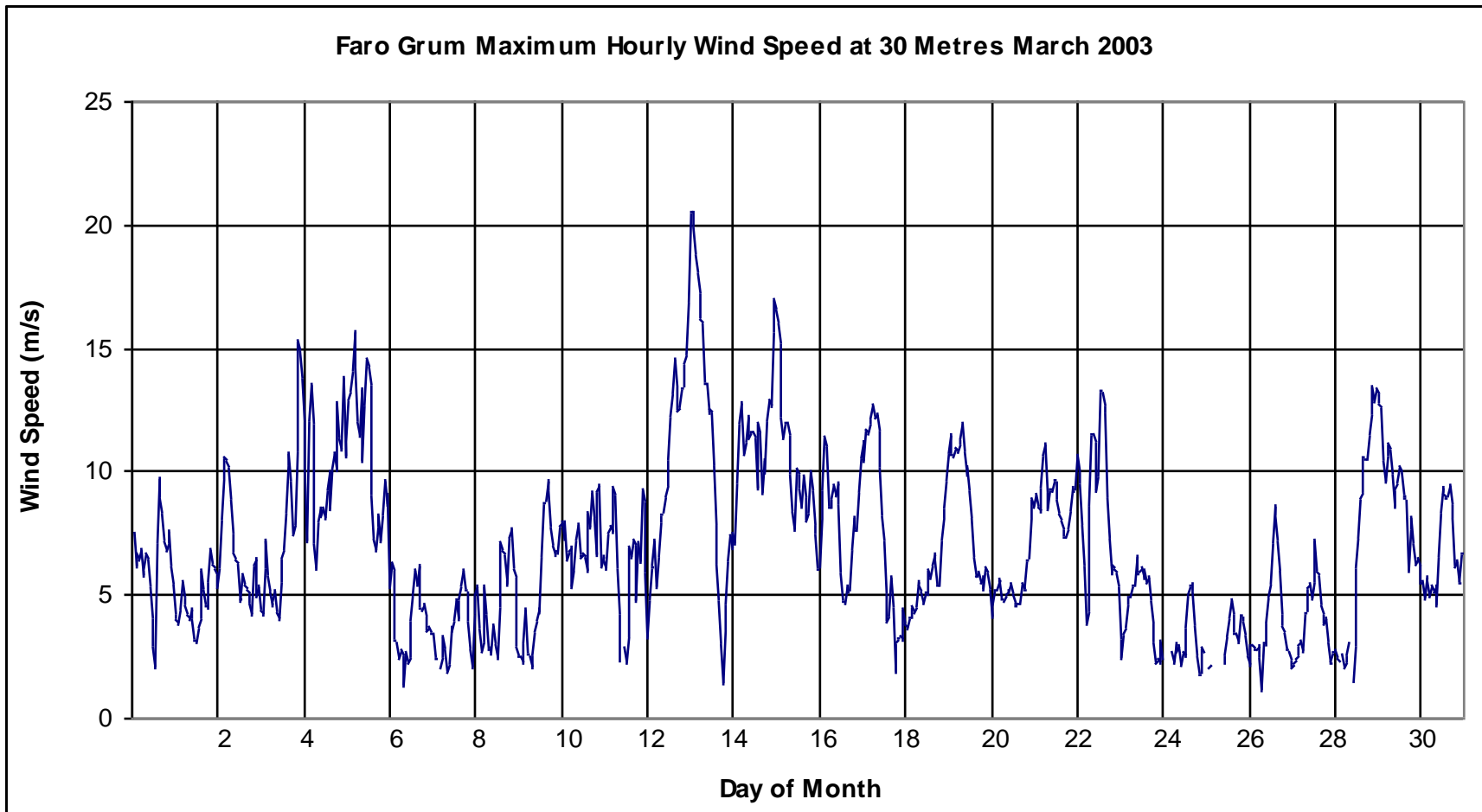


<b>Faro Grum - 30 metre data - FILTERED</b>										
<b>Monthly Summary: March 1, 2003 at 0010 to March 31, 2003 at 2400</b>										
Wind Speed (m/s)	Std. Dev. W.S. (m/s)	Temp (°C)	Maximum 10 Minute Wind Speed	Elevation (m.a.s.l.)=	1,318					
Average	5.62	0.61	-8.84	21.60	m/s on March 14, 2003 at 0101; Direction 105 Deg., -23.0°C					
			Hour of Day	Ave. Wind Speed (m/s)	Std. Dev. Of W.S. (m/s)					
Wind Speed (m/s)	Frequency	Ave. Turbulence Intensity	1	4.95	0.54					
0	2.07%		2	5.14	0.54					
1	4.68%	40.17%	3	5.18	0.53					
2	6.11%	23.71%	4	5.39	0.57					
3	11.78%	14.87%	5	5.28	0.55					
4	16.29%	12.07%	6	4.90	0.53					
5	14.05%	10.78%	7	4.90	0.50					
6	10.94%	10.53%	8	5.04	0.52					
7	9.78%	10.02%	9	4.83	0.50					
8	8.16%	9.47%	10	4.79	0.52					
9	5.15%	9.42%	11	4.94	0.57					
10	4.88%	8.71%	12	4.93	0.58					
11	2.59%	8.25%	13	5.08	0.59					
12	1.31%	8.78%	14	5.35	0.64					
13	0.84%	8.75%	15	5.42	0.64					
14	0.62%	8.86%	16	5.37	0.64					
15	0.32%	8.43%	17	4.99	0.60					
16	0.17%	10.17%	18	4.63	0.53					
17	0.20%	9.29%	19	5.00	0.51					
18	0.05%	8.40%	20	5.28	0.53					
19	0.00%	0.00%	21	5.42	0.55					
20	0.00%	0.00%	22	5.40	0.55					
21	0.00%	0.00%	23	5.40	0.56					
22	0.00%	0.00%	24	4.95	0.53					
23	0.00%	0.00%	<b>Potential Energy Production at 30 m</b>			Direction	Ave Wind Speed (m/s)	Frequency of Occurrence	% Energy by Direction	
24	0.00%	0.00%		Energy Production (MWh)	Capacity Factor	<b>N</b>	6.48	7.98%	10.63%	
25	0.00%	0.00%		Bonus 150	21.02	20.72%	<b>NNE</b>	5.94	2.24%	2.29%
				Vestas 660	104.23	23.35%	<b>NE</b>	4.49	2.17%	0.96%
				<b>Notes</b>			<b>ENE</b>	3.61	1.92%	0.44%
				5.7% of data deleted based on std w.s. = 0			<b>E</b>	6.65	9.39%	13.51%
				8.9% deleted when data associated with std w.s. > 3 m/s also deleted.			<b>ESE</b>	7.05	29.50%	50.55%
				9% deleted when max w.s. > 22m/s also deleted			<b>SE</b>	4.65	10.18%	4.99%
				9.1% deleted when w.s. > 40m/s also deleted			<b>SSE</b>	3.00	2.44%	0.32%
							<b>S</b>	2.61	0.99%	0.09%
							<b>SSW</b>	2.57	0.84%	0.07%
							<b>SW</b>	3.97	1.31%	0.40%
							<b>WSW</b>	4.40	3.20%	1.33%
							<b>W</b>	4.99	6.92%	4.21%
							<b>WNW</b>	4.84	8.58%	4.75%
							<b>NW</b>	4.10	6.09%	2.05%
							<b>NNW</b>	4.81	6.26%	3.41%

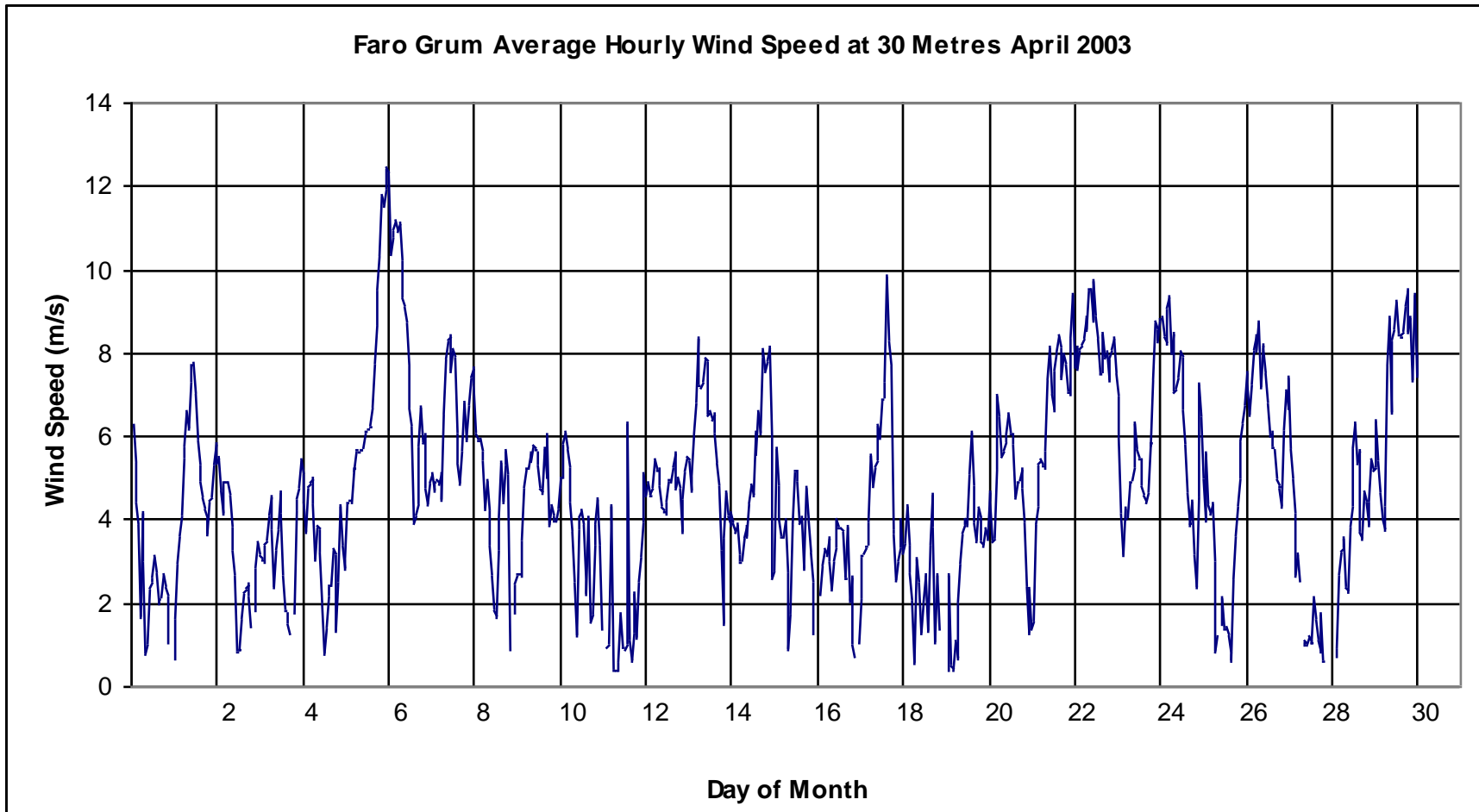


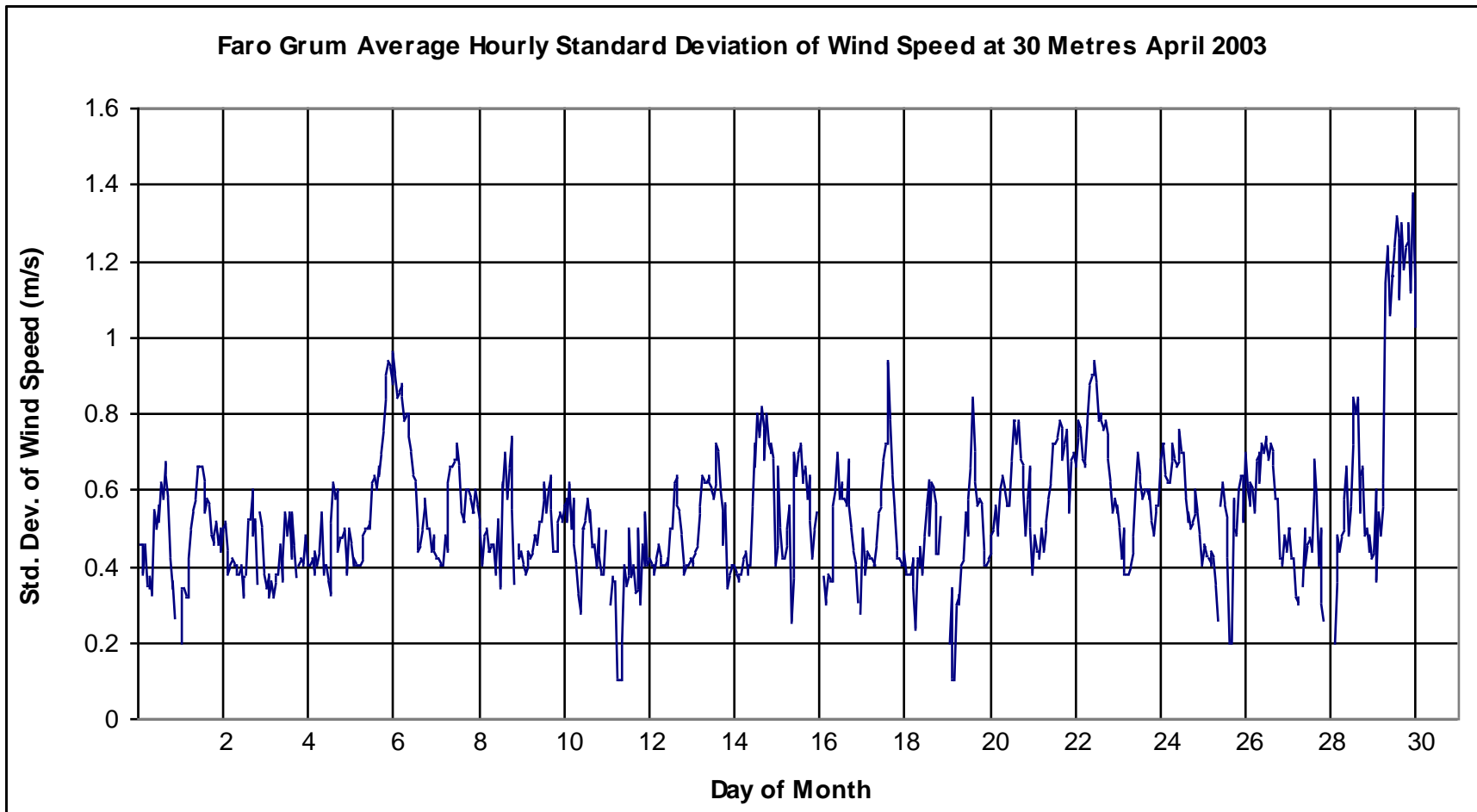


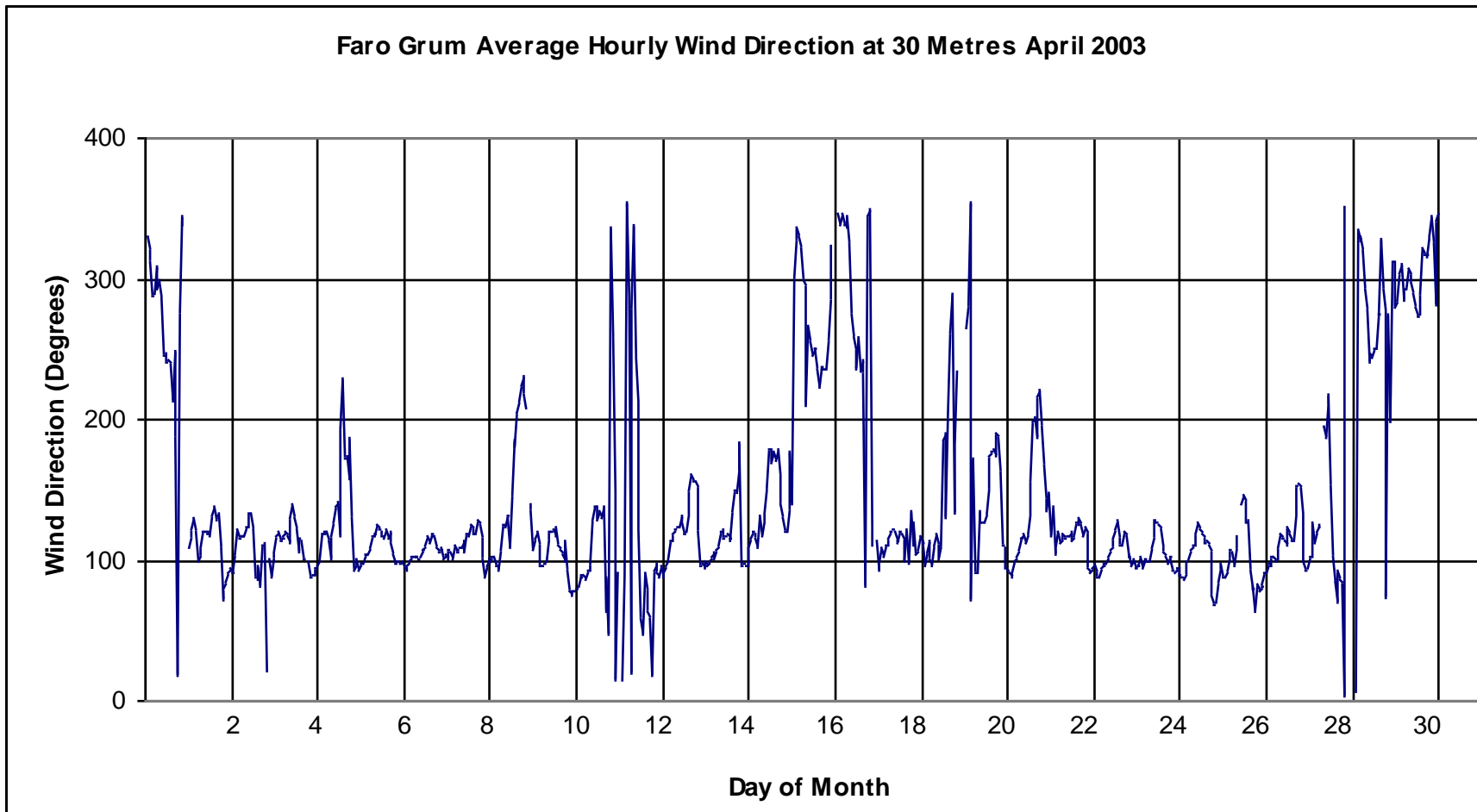


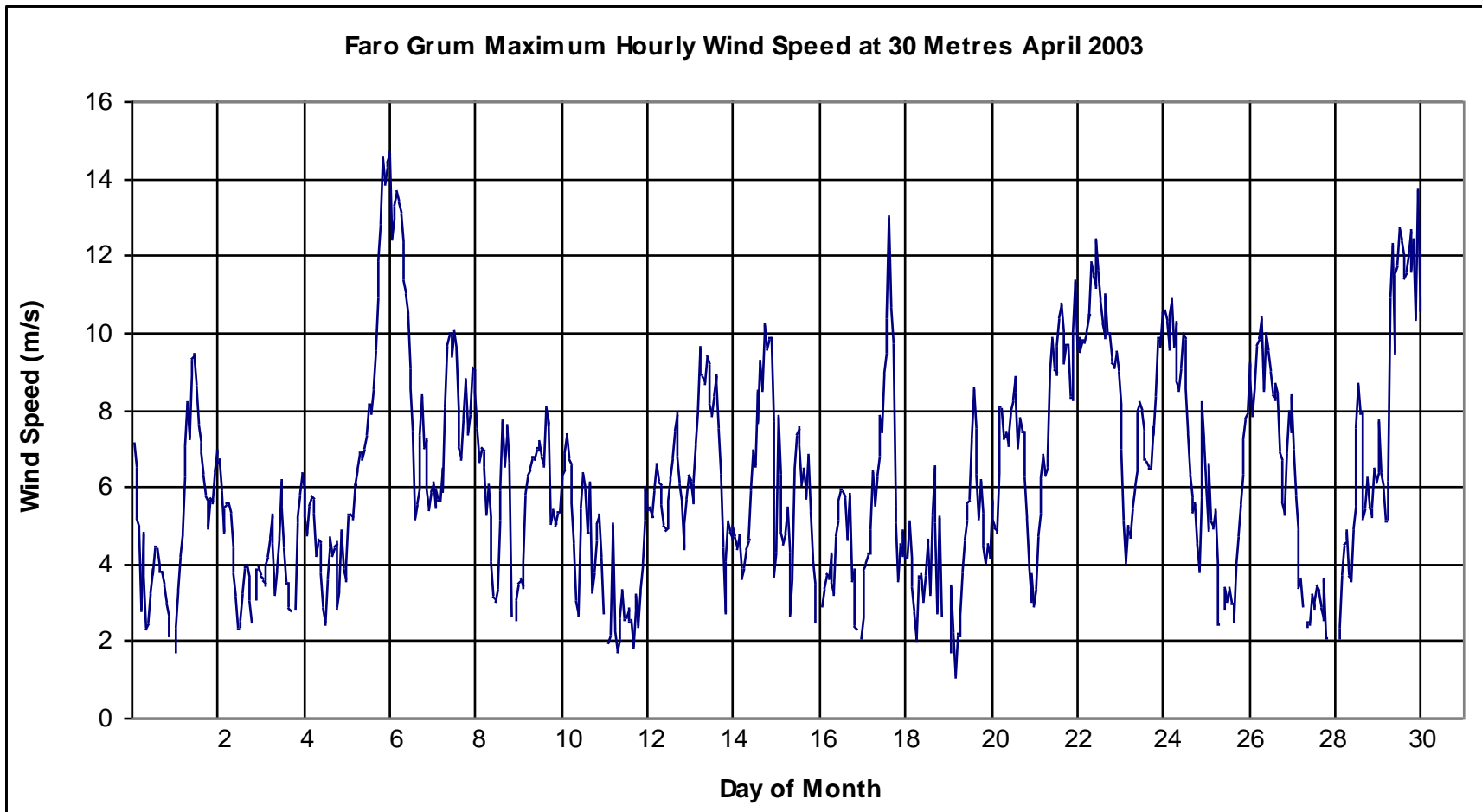


<b>Faro Grum - 30 metre data - FILTERED</b>						
<b>Monthly Summary: April 1, 2003 at 0010 to April 30, 2003 at 2400</b>						
Wind Speed (m/s)	Std. Dev. W.S. (m/s)	Temp (°C)	Maximum 10 Minute Wind Speed	Elevation (m.a.s.l.)=	1,318	
Average	4.90	0.55	2.70	15.60	m/s on April 6, 2003 at 1921; Direction 96 Deg., -5.8°C	
			Hour of Day	Ave. Wind Speed (m/s)	Std. Dev. Of W.S. (m/s)	
Wind Speed (m/s)	Frequency	Ave. Turbulence Intensity	1	3.56	0.35	
0	1.82%		2	3.60	0.34	
1	6.25%	42.94%	3	3.61	0.36	
2	7.38%	26.64%	4	3.88	0.36	
3	13.19%	14.54%	5	4.02	0.36	
4	18.19%	11.55%	6	3.82	0.36	
5	17.59%	10.04%	7	3.77	0.39	
6	12.38%	9.62%	8	3.57	0.38	
7	7.68%	9.35%	9	3.67	0.40	
8	8.07%	9.06%	10	4.05	0.46	
9	4.14%	9.09%	11	3.99	0.48	
10	1.61%	9.73%	12	3.88	0.48	
11	0.92%	8.03%	13	3.89	0.51	
12	0.60%	7.78%	14	3.76	0.50	
13	0.15%	7.02%	15	3.67	0.50	
14	0.00%	0.00%	16	3.53	0.49	
15	0.00%	0.00%	17	3.60	0.46	
16	0.00%	0.00%	18	3.59	0.44	
17	0.00%	0.00%	19	3.29	0.39	
18	0.00%	0.00%	20	3.33	0.38	
19	0.00%	0.00%	21	3.51	0.37	
20	0.00%	0.00%	22	3.77	0.40	
21	0.00%	0.00%	23	3.61	0.34	
22	0.00%	0.00%	24	3.66	0.34	
23	0.03%	2.56%	<b>Potential Energy Production at 30 m</b>			Direction
24	0.00%	0.00%	Energy	Production	Capacity	Ave Wind Speed (m/s)
25	0.00%	0.00%	(MWh)	Factor		Frequency of Occurrence
			Bonus 150	11.65	13.88%	% Energy by Direction
			Vestas 660	58.57	15.85%	N
			<b>Notes</b>			NNE
			3.4% of data deleted based on std w.s. = 0			NE
			21.5% of data deleted when data associated with std w.s. > 3 m/s added to data already deleted. 21.7% when max w.s. >16m/s also deleted, 22.2% deleted when w.s. > 40 m/s also deleted.			ENE
						E
						ESE
						SE
						SSE
						S
						SSW
						SW
						WSW
						W
						WNW
						NW
						NNW

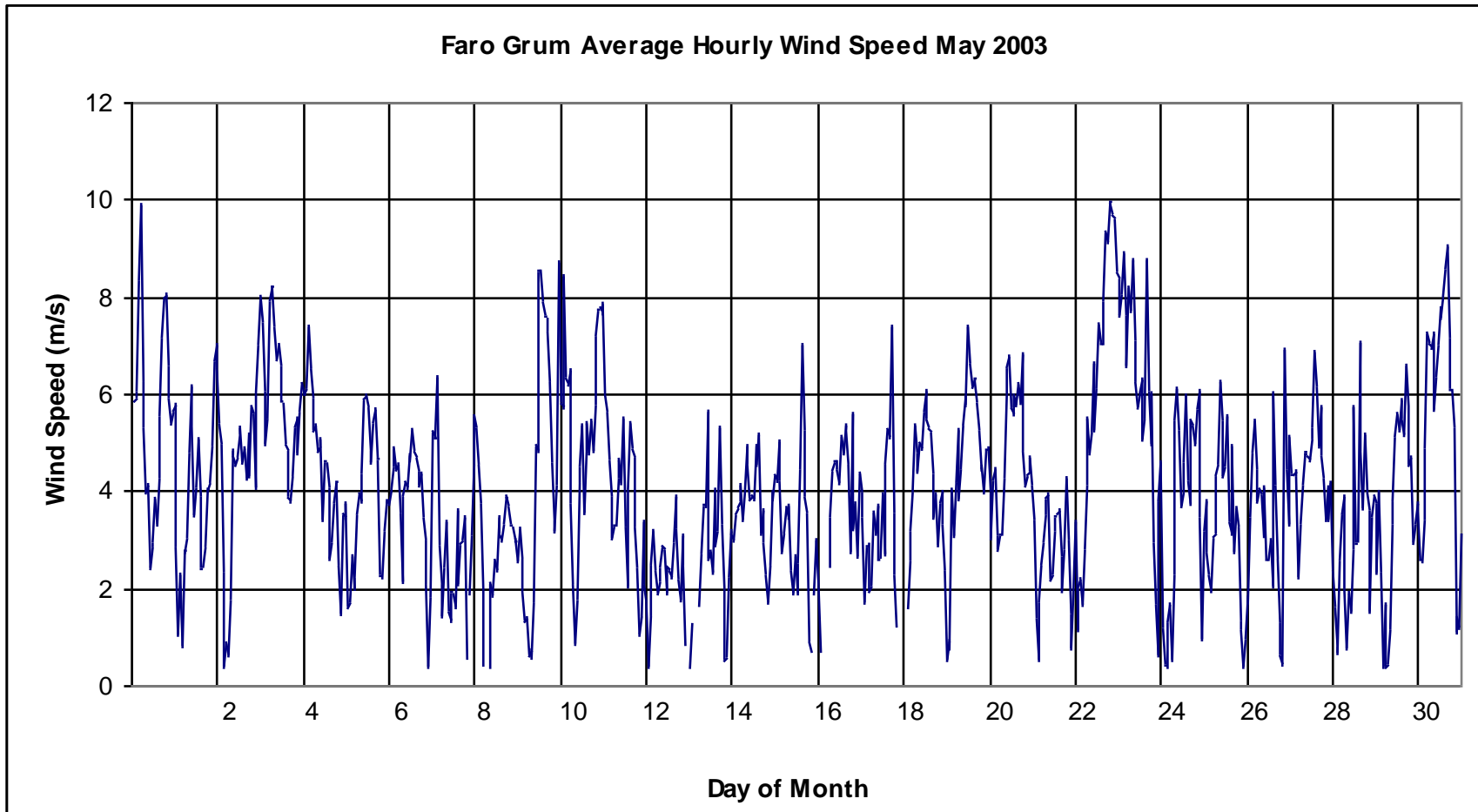


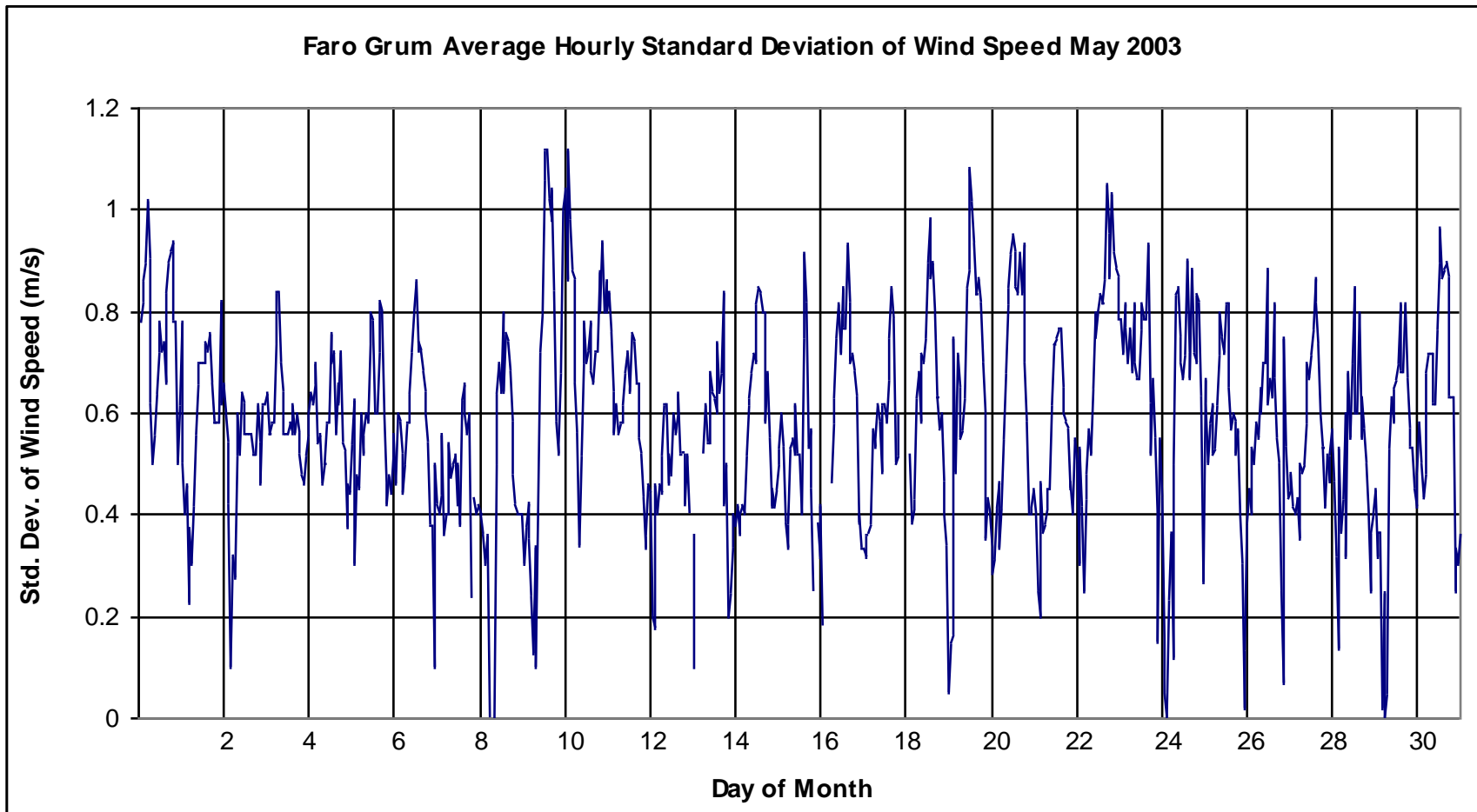


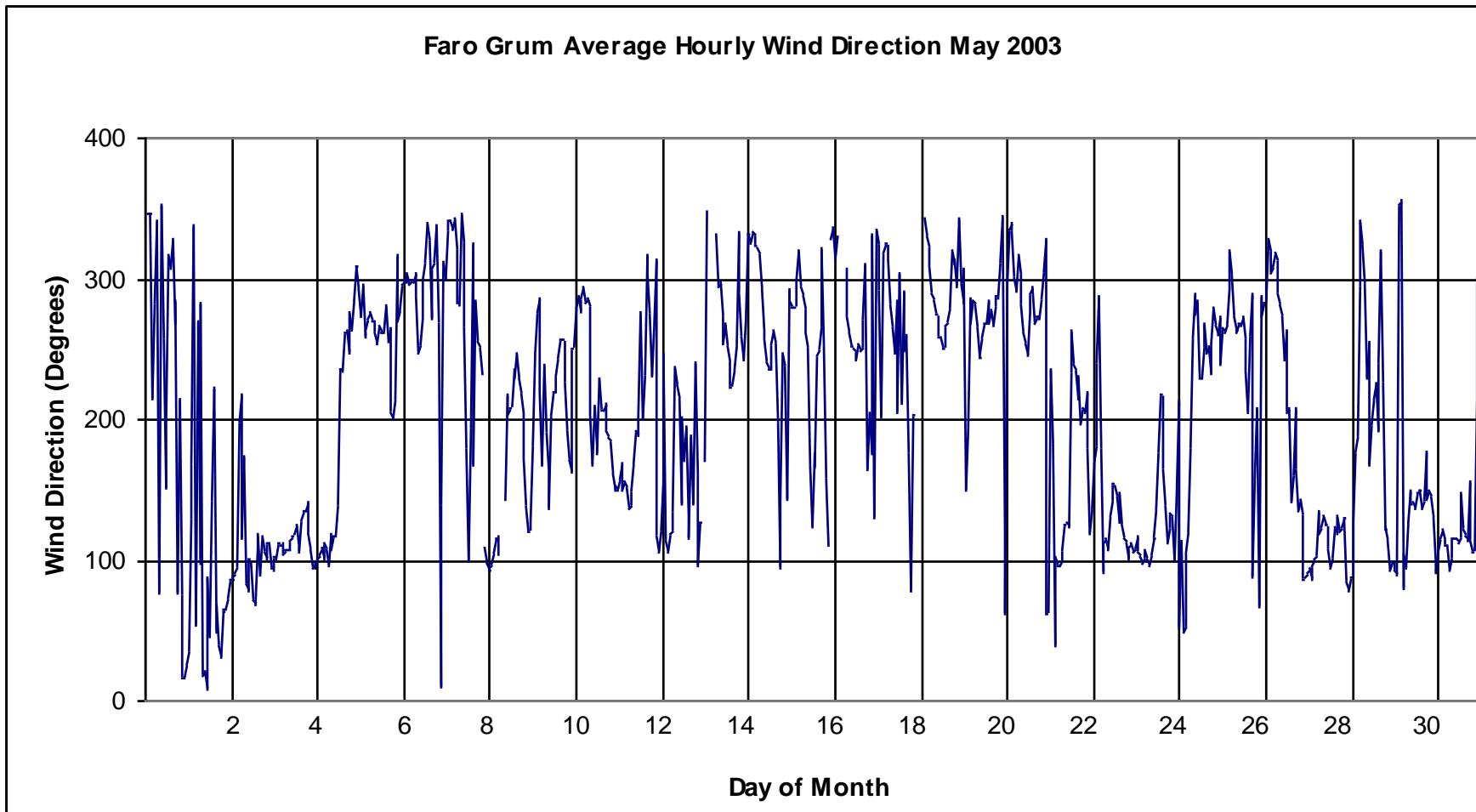


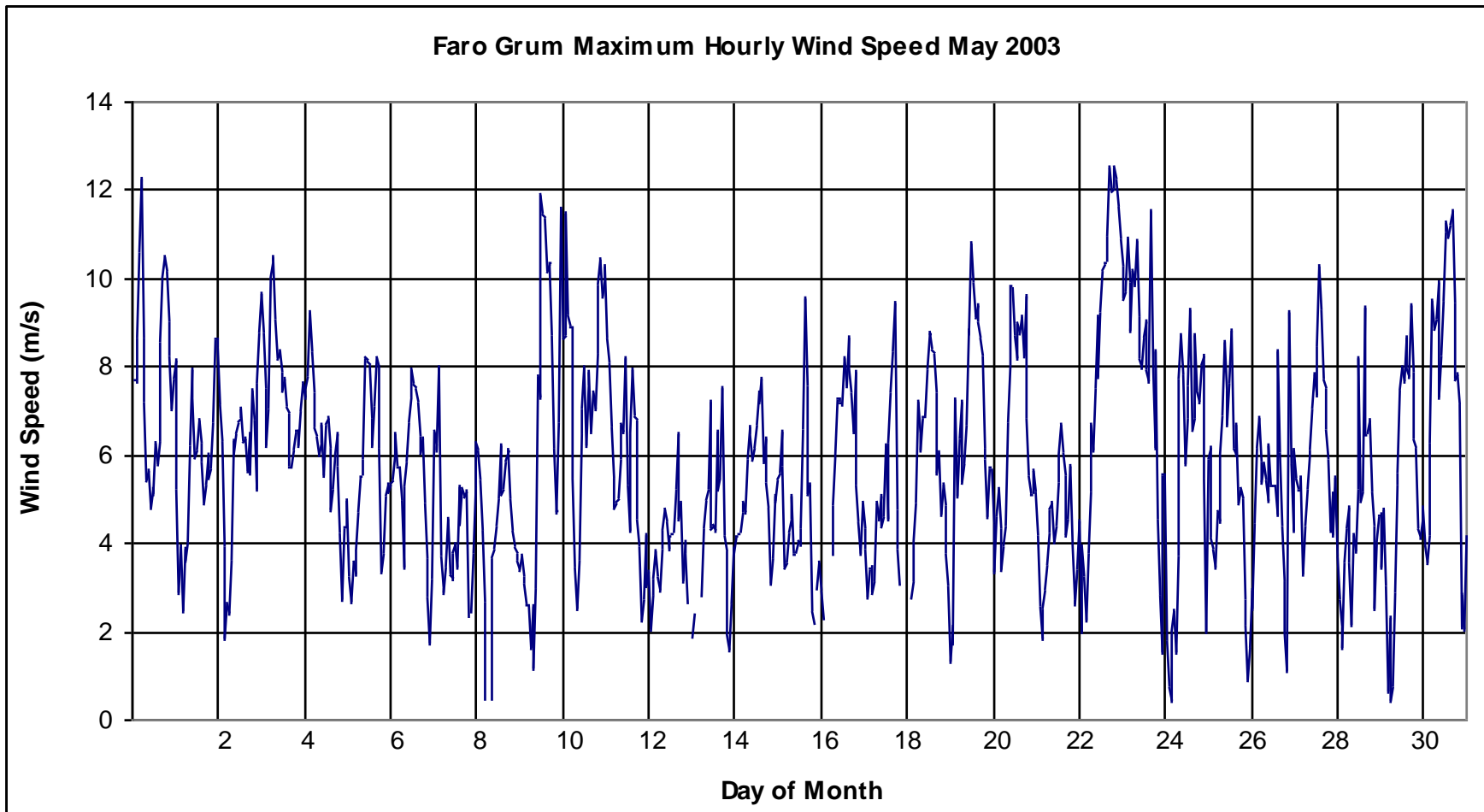


<b>Faro Grum - 30 metre data - FILTERED</b>																																																																																	
<b>Monthly Summary: May 1, 2003 at 0010 to May 31, 2003 at 2400</b>																																																																																	
Wind Speed (m/s)		Std. Dev. W.S. (m/s)	Temp (°C)	Maximum 10 Minute Wind Speed		Elevation (m.a.s.l.)= 1,318																																																																											
Average		4.17	6.07	14.20 m/s on May 18, 2003 at 1618; Direction 332 Deg.,13.7°C																																																																													
			<table border="1"> <thead> <tr> <th>Hour of Day</th> <th>Ave. Wind Speed (m/s)</th> <th>Std. Dev. Of W.S. (m/s)</th> </tr> </thead> <tr><td>1</td><td>3.02</td><td>0.40</td></tr> <tr><td>2</td><td>3.01</td><td>0.39</td></tr> <tr><td>3</td><td>3.15</td><td>0.41</td></tr> <tr><td>4</td><td>2.87</td><td>0.38</td></tr> <tr><td>5</td><td>3.10</td><td>0.41</td></tr> <tr><td>6</td><td>3.16</td><td>0.43</td></tr> <tr><td>7</td><td>3.34</td><td>0.49</td></tr> <tr><td>8</td><td>3.72</td><td>0.51</td></tr> <tr><td>9</td><td>4.00</td><td>0.58</td></tr> <tr><td>10</td><td>4.07</td><td>0.62</td></tr> <tr><td>11</td><td>3.93</td><td>0.65</td></tr> <tr><td>12</td><td>4.25</td><td>0.67</td></tr> <tr><td>13</td><td>4.26</td><td>0.67</td></tr> <tr><td>14</td><td>4.39</td><td>0.69</td></tr> <tr><td>15</td><td>4.70</td><td>0.70</td></tr> <tr><td>16</td><td>4.57</td><td>0.69</td></tr> <tr><td>17</td><td>4.48</td><td>0.65</td></tr> <tr><td>18</td><td>4.12</td><td>0.58</td></tr> <tr><td>19</td><td>3.73</td><td>0.53</td></tr> <tr><td>20</td><td>3.14</td><td>0.43</td></tr> <tr><td>21</td><td>3.00</td><td>0.41</td></tr> <tr><td>22</td><td>3.15</td><td>0.38</td></tr> <tr><td>23</td><td>3.52</td><td>0.41</td></tr> <tr><td>24</td><td>3.70</td><td>0.43</td></tr> </table>		Hour of Day	Ave. Wind Speed (m/s)	Std. Dev. Of W.S. (m/s)	1	3.02	0.40	2	3.01	0.39	3	3.15	0.41	4	2.87	0.38	5	3.10	0.41	6	3.16	0.43	7	3.34	0.49	8	3.72	0.51	9	4.00	0.58	10	4.07	0.62	11	3.93	0.65	12	4.25	0.67	13	4.26	0.67	14	4.39	0.69	15	4.70	0.70	16	4.57	0.69	17	4.48	0.65	18	4.12	0.58	19	3.73	0.53	20	3.14	0.43	21	3.00	0.41	22	3.15	0.38	23	3.52	0.41	24	3.70	0.43		
Hour of Day	Ave. Wind Speed (m/s)	Std. Dev. Of W.S. (m/s)																																																																															
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Wind Speed (m/s)	Frequency	Ave. Turbulence Intensity																																																																															
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1	6.42%	41.92%																																																																															
2	9.34%	28.36%																																																																															
3	17.53%	17.15%																																																																															
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25	0.00%	0.00%																																																																															
			<b>Potential Energy Production at 30 m</b>																																																																														
			Energy Production (MWh)		Capacity Factor																																																																												
			Bonus 150	8.22	8.34%																																																																												
			Vestas 660	40.23	9.28%																																																																												
			<b>Notes</b>																																																																														
			3.1% of data deleted based on std of w.s.=0& temperature at or below freezing																																																																														
			11.4% of data deleted when data associated with std of w.s. >3 m/s also deleted.																																																																														
			11.6% of data deleted when data associated with max w.s. >15m/s also deleted.																																																																														
			11.7% deleted when data associated with w.s. >15m/s also deleted.																																																																														
			Direction	Ave Wind Speed (m/s)	Frequency of Occurrence	% Energy by Direction																																																																											
			N	4.00	6.77%	5.67%																																																																											
			NNE	3.60	1.73%	1.05%																																																																											
			NE	2.86	1.22%	0.37%																																																																											
			ENE	3.69	1.50%	0.99%																																																																											
			E	4.65	8.35%	10.95%																																																																											
			ESE	5.27	12.71%	24.31%																																																																											
			SE	4.08	8.42%	7.45%																																																																											
			SSE	4.51	4.39%	5.26%																																																																											
			S	3.64	3.27%	2.06%																																																																											
			SSW	3.57	3.37%	2.00%																																																																											
			SW	3.59	4.87%	2.94%																																																																											
			WSW	4.38	9.61%	10.57%																																																																											
			W	4.34	12.58%	13.40%																																																																											
			WNW	3.92	7.81%	6.16%																																																																											
			NW	3.24	7.31%	3.25%																																																																											
			NNW	3.56	6.09%	3.58%																																																																											

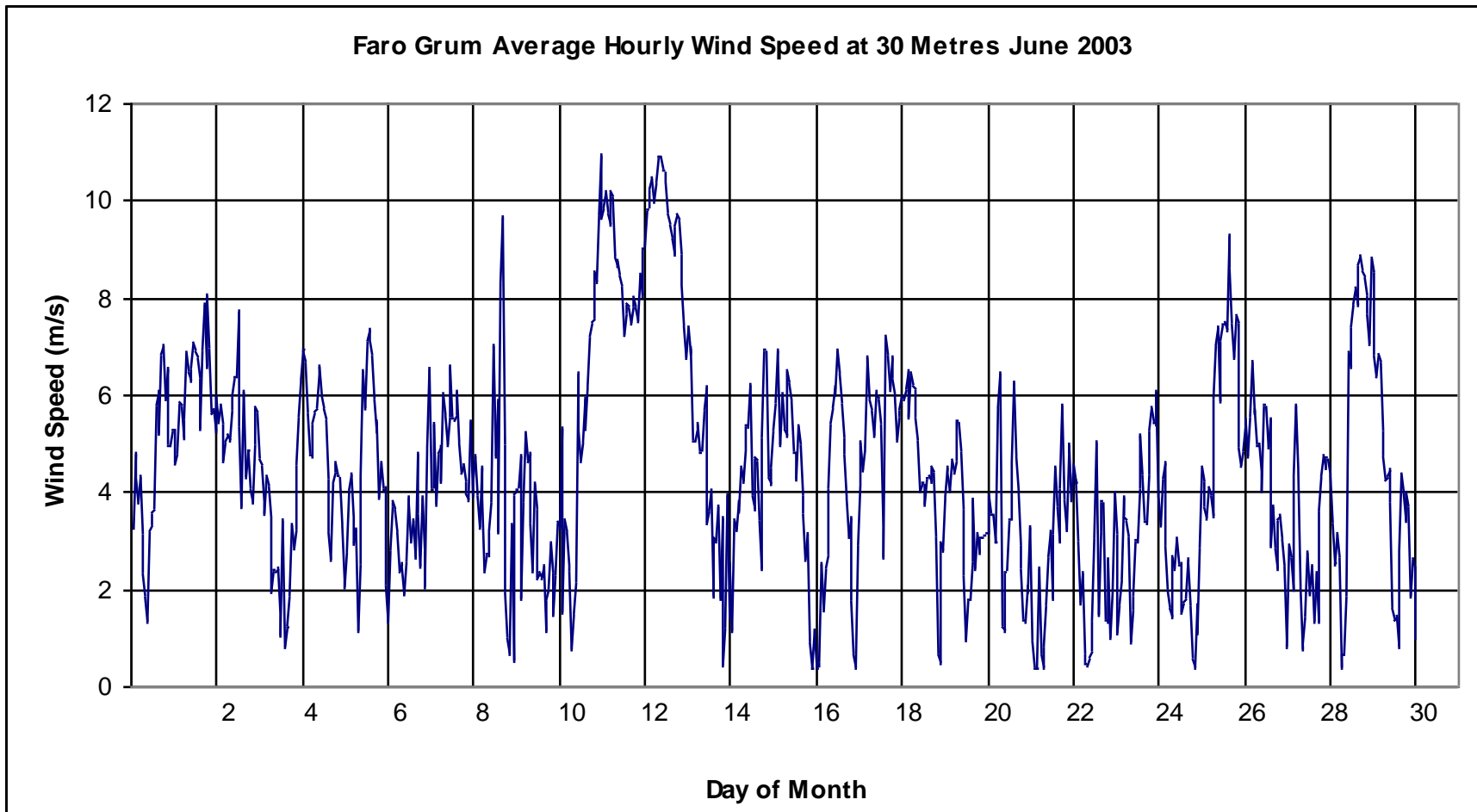


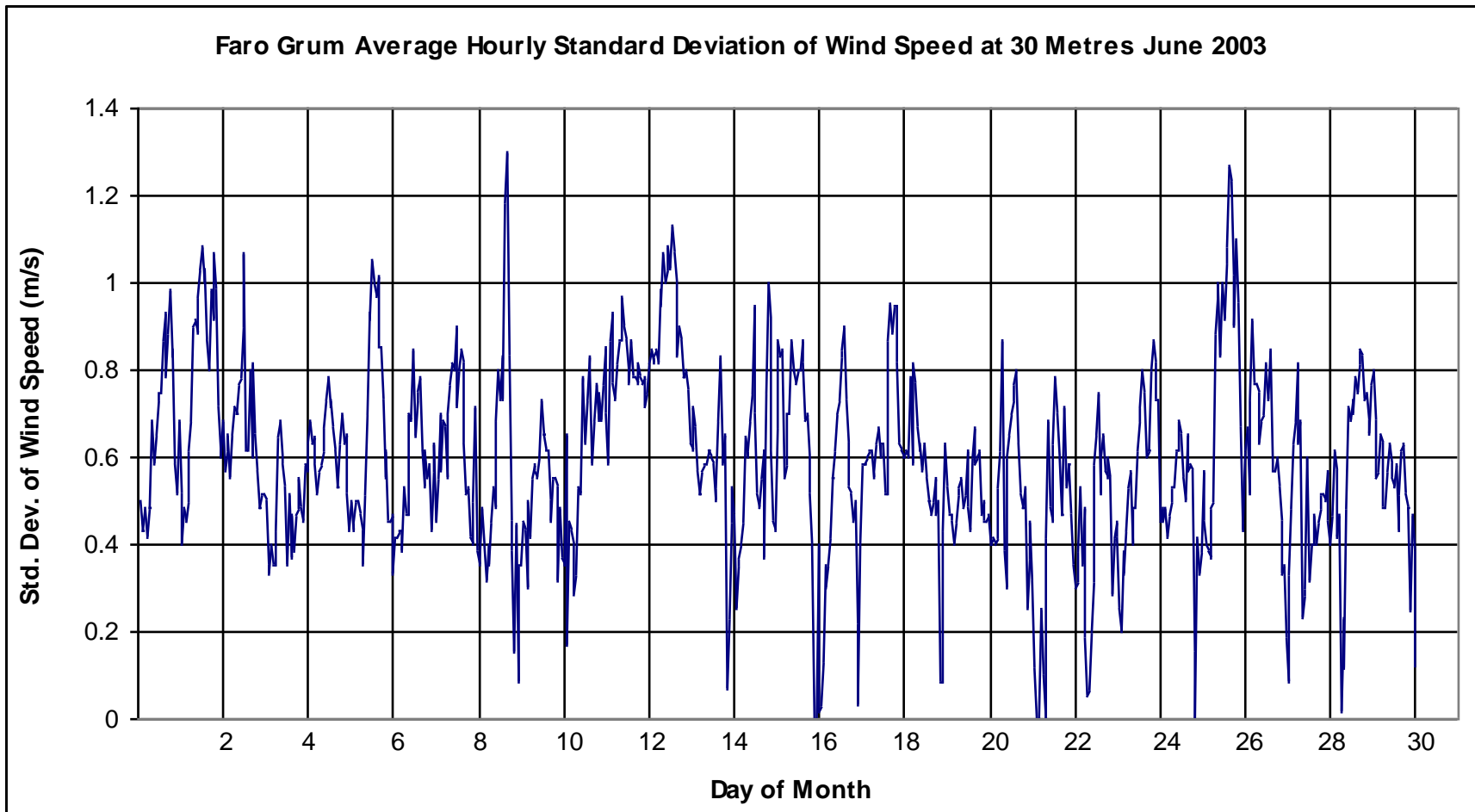


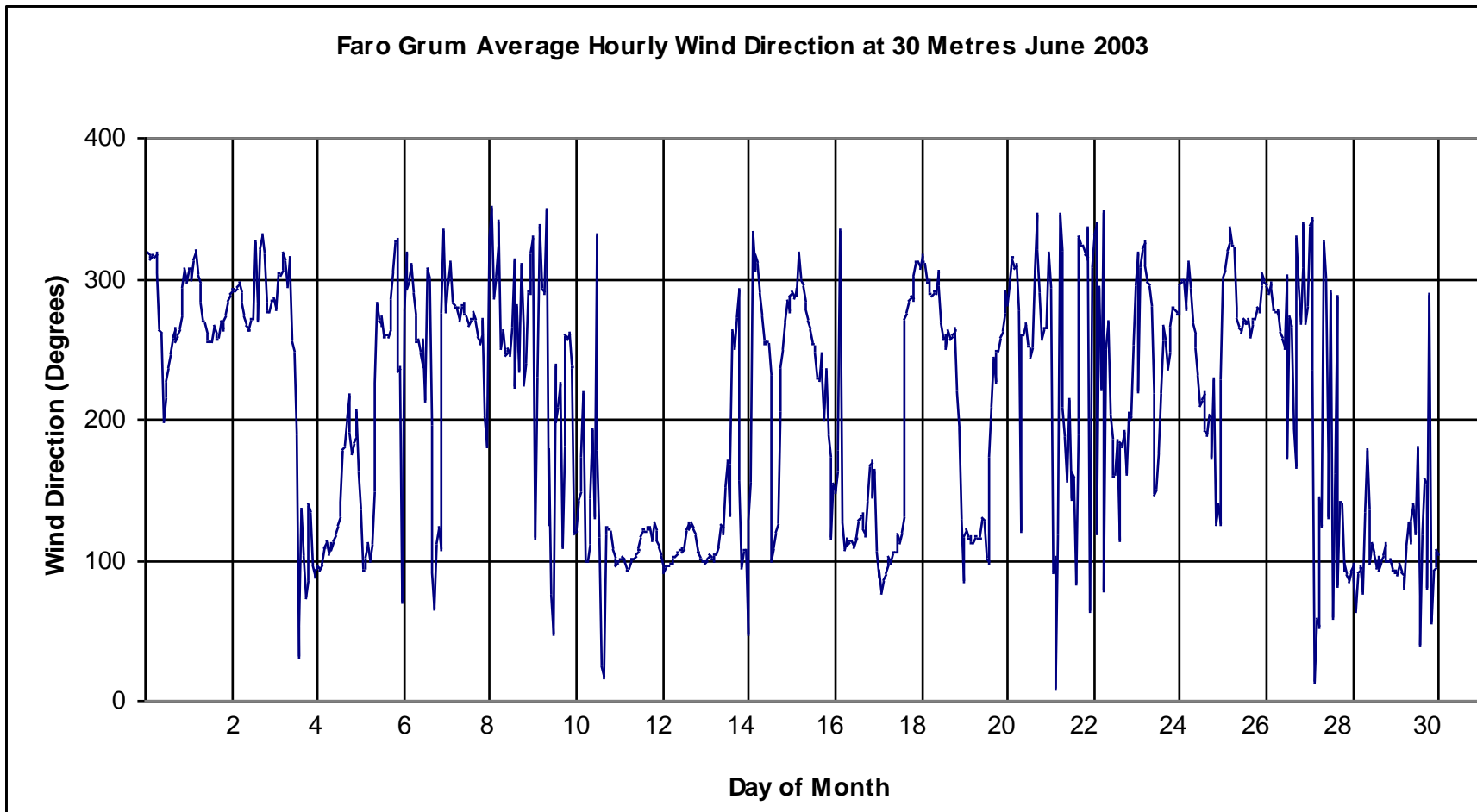


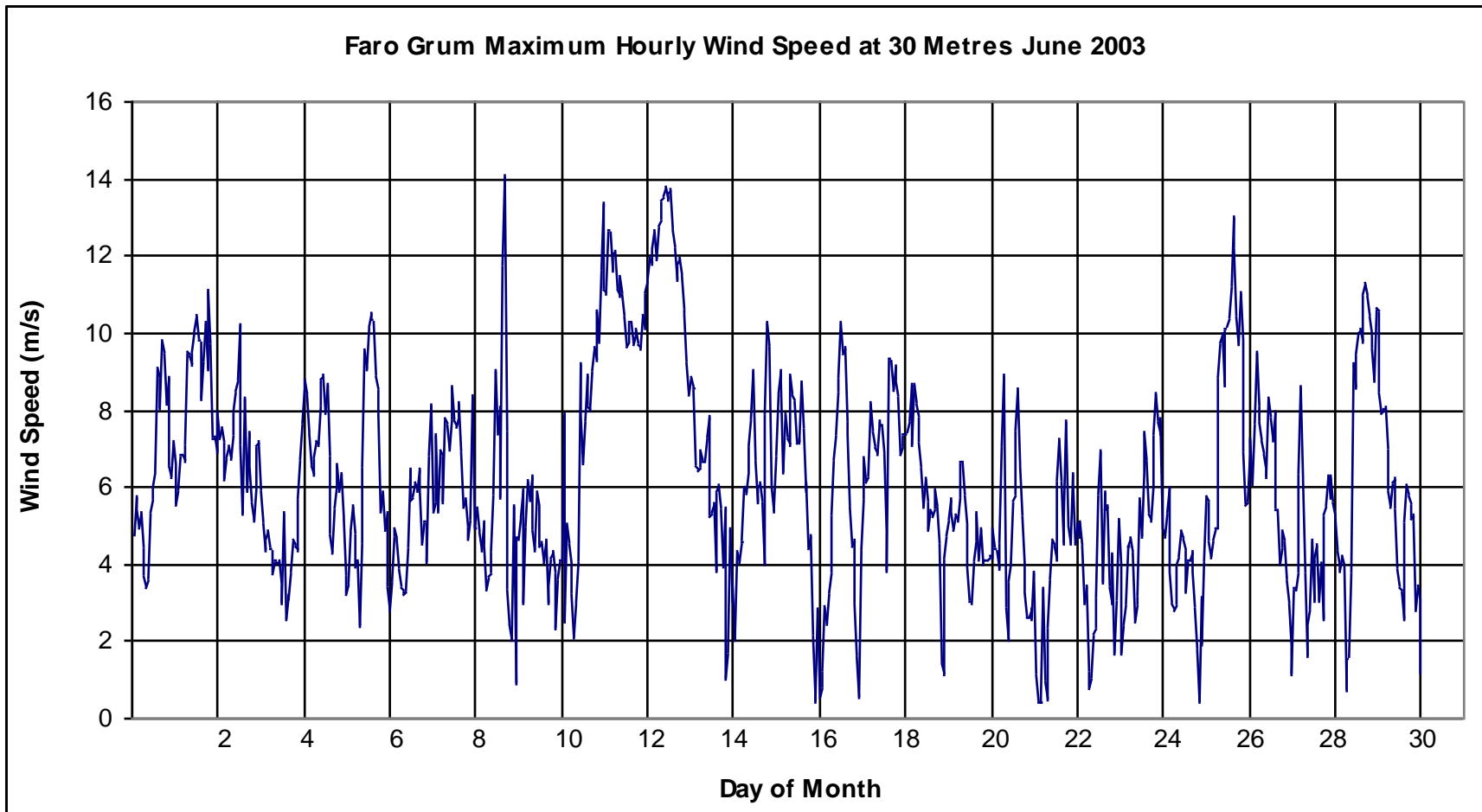


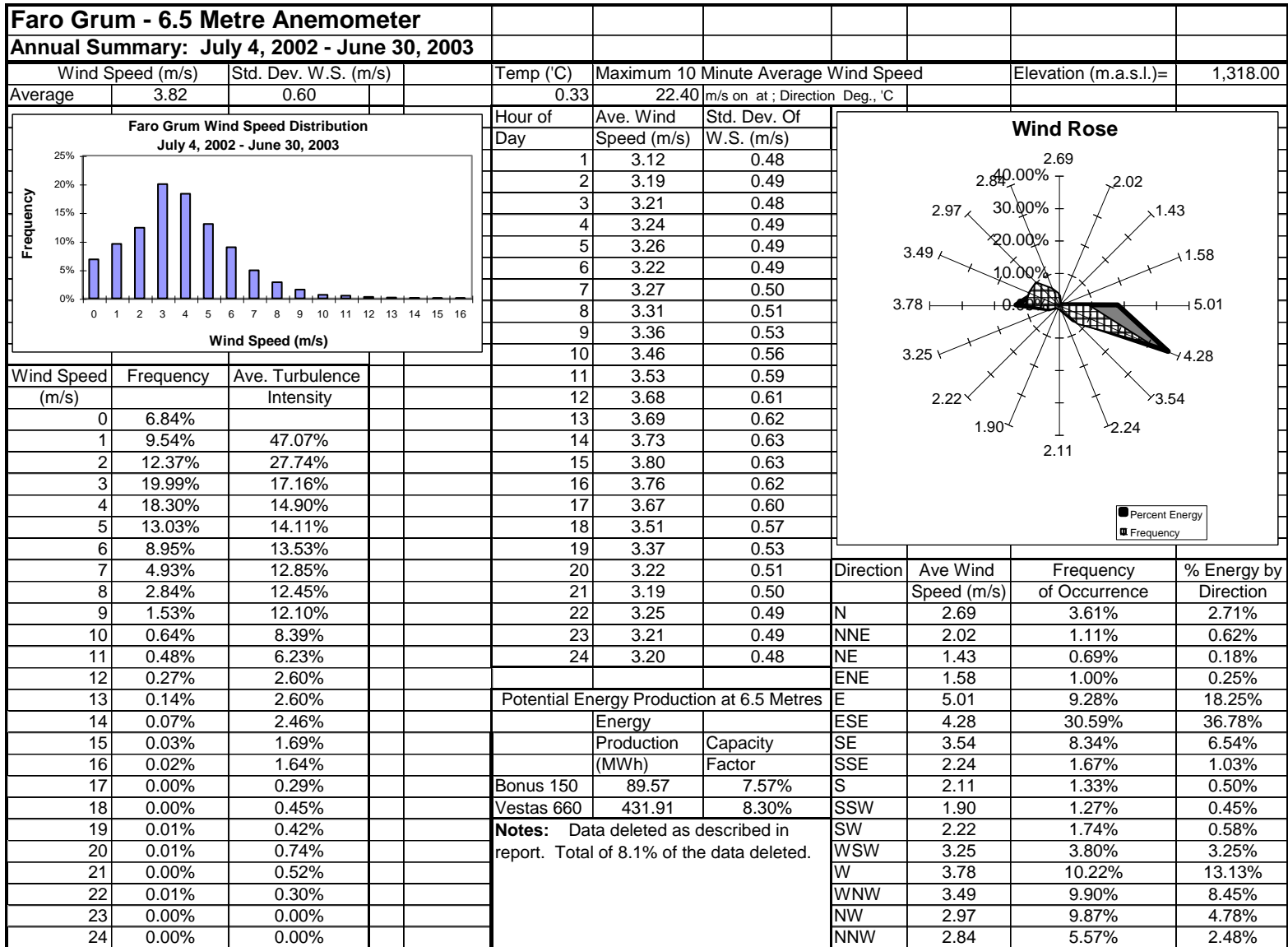
Faro Grum - 30 metre data									
Monthly Summary: June 1, 2003 at 0010 to June 30, 2003 at 2400									
Wind Speed (m/s)	Std. Dev. W.S. (m/s)	Temp (°C)	Maximum 10 Minute Wind Speed	Elevation (m.a.s.l.)= 1,318					
Average	4.46	0.60	10.73	15.80 m/s on June 9, 2003 at 1423; Direction 330 Deg., 5.6°C					
			Hour of Day	Ave. Wind Speed (m/s)	Std. Dev. Of W.S. (m/s)				
0	5.88%	44.77%	1	4.34	0.47				
1	6.41%	28.97%	2	4.40	0.47				
2	9.38%	16.74%	3	4.27	0.50				
3	13.61%	13.05%	4	4.39	0.48				
4	18.22%	12.09%	5	4.44	0.51				
5	16.06%	12.13%	6	4.13	0.51				
6	12.06%	11.78%	7	4.03	0.56				
7	7.75%	10.90%	8	3.93	0.57				
8	4.51%	8.79%	9	4.08	0.62				
9	3.01%	8.91%	10	4.63	0.66				
10	1.90%	9.92%	11	4.66	0.72				
11	1.09%	0.00%	12	4.46	0.69				
12	0.12%	0.00%	13	4.50	0.69				
13	0.00%	0.00%	14	4.34	0.69				
14	0.00%	0.00%	15	4.71	0.72				
15	0.00%	0.00%	16	4.67	0.66				
16	0.00%	0.00%	17	4.49	0.64				
17	0.00%	0.00%	18	4.38	0.64				
18	0.00%	0.00%	19	4.42	0.61				
19	0.00%	0.00%	20	4.03	0.55				
20	0.00%	0.00%	21	3.73	0.46				
21	0.00%	0.00%	22	4.04	0.47				
22	0.00%	0.00%	23	4.31	0.49				
23	0.00%	0.00%	24	4.26	0.45				
24	0.00%	0.00%	Potential Energy Production at 30 m		Direction	Ave Wind Speed (m/s)	Frequency of Occurrence	% Energy by Direction	
25	0.00%	0.00%	Energy Production Capacity (MWh) Factor		N	3.51	5.60%	2.30%	
			Bonus 150	12.39	11.47%	NNE	3.13	1.69%	0.49%
			Vestas 660	61.82	13.01%	NE	2.56	0.86%	0.14%
			Notes			ENE	3.06	1.48%	0.40%
						E	6.17	10.95%	24.48%
						ESE	5.76	13.24%	24.07%
						SE	4.15	5.63%	3.83%
						SSE	2.48	2.31%	0.34%
						S	2.36	3.03%	0.38%
						SSW	2.39	2.57%	0.34%
						SW	2.75	2.71%	0.54%
						WSW	4.25	7.41%	5.41%
						W	4.94	17.41%	20.02%
						WNW	4.57	10.09%	9.22%
						NW	3.93	9.58%	5.54%
						NNW	3.64	5.44%	2.51%

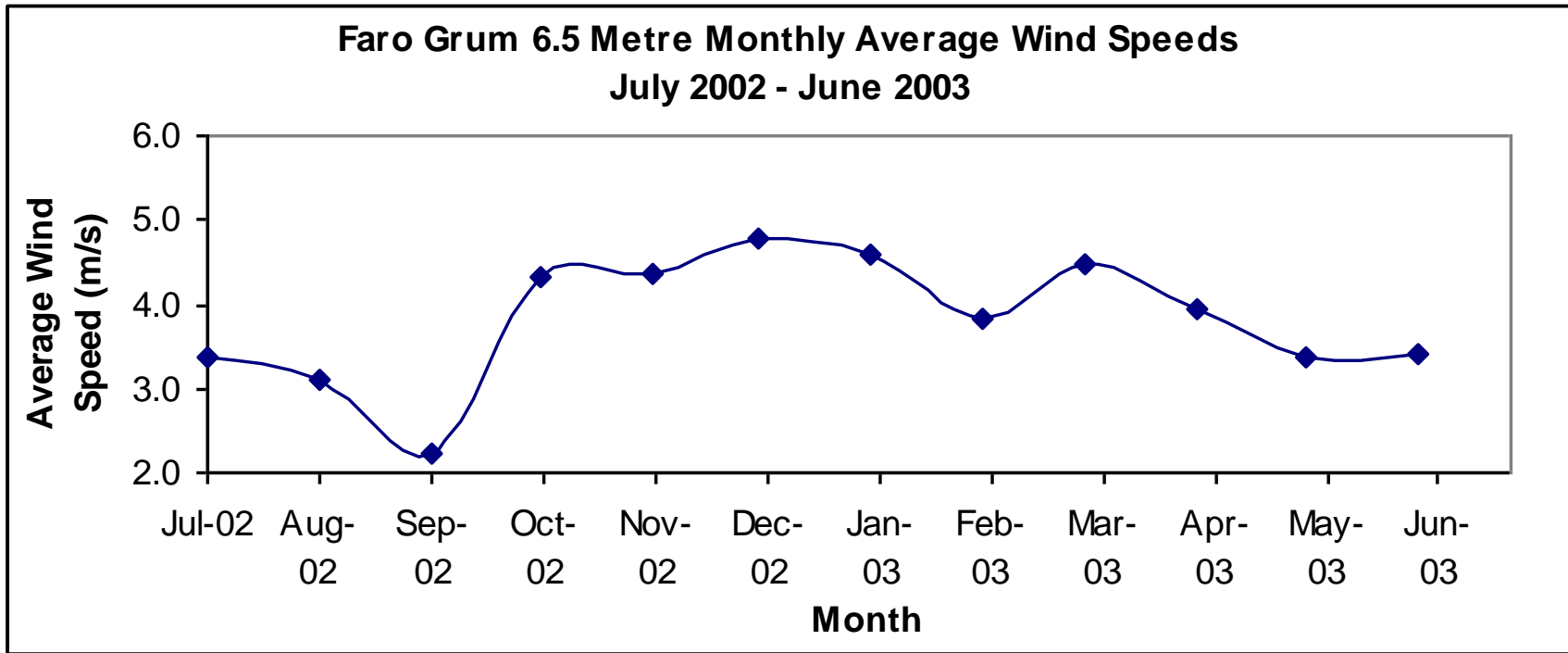


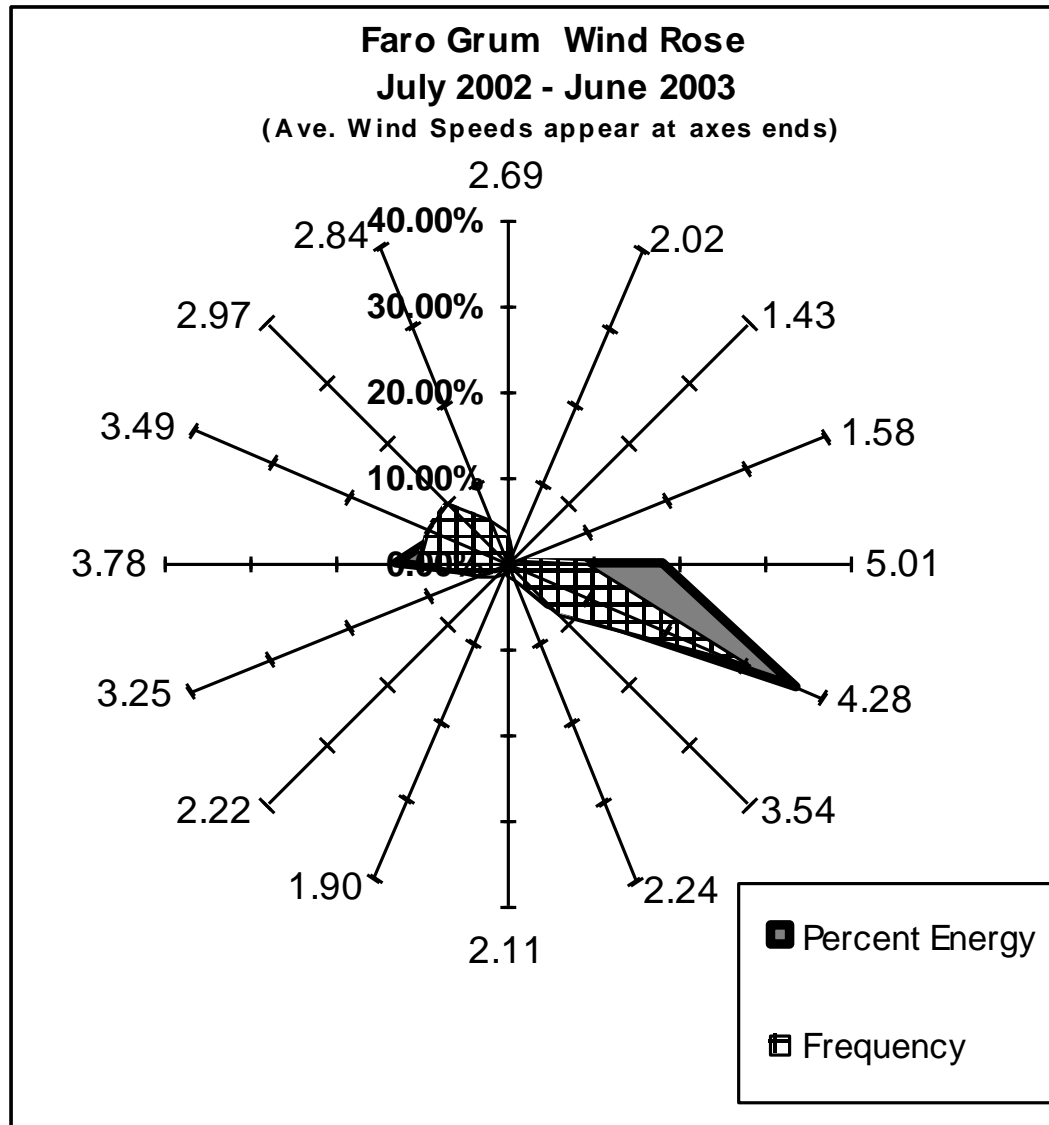


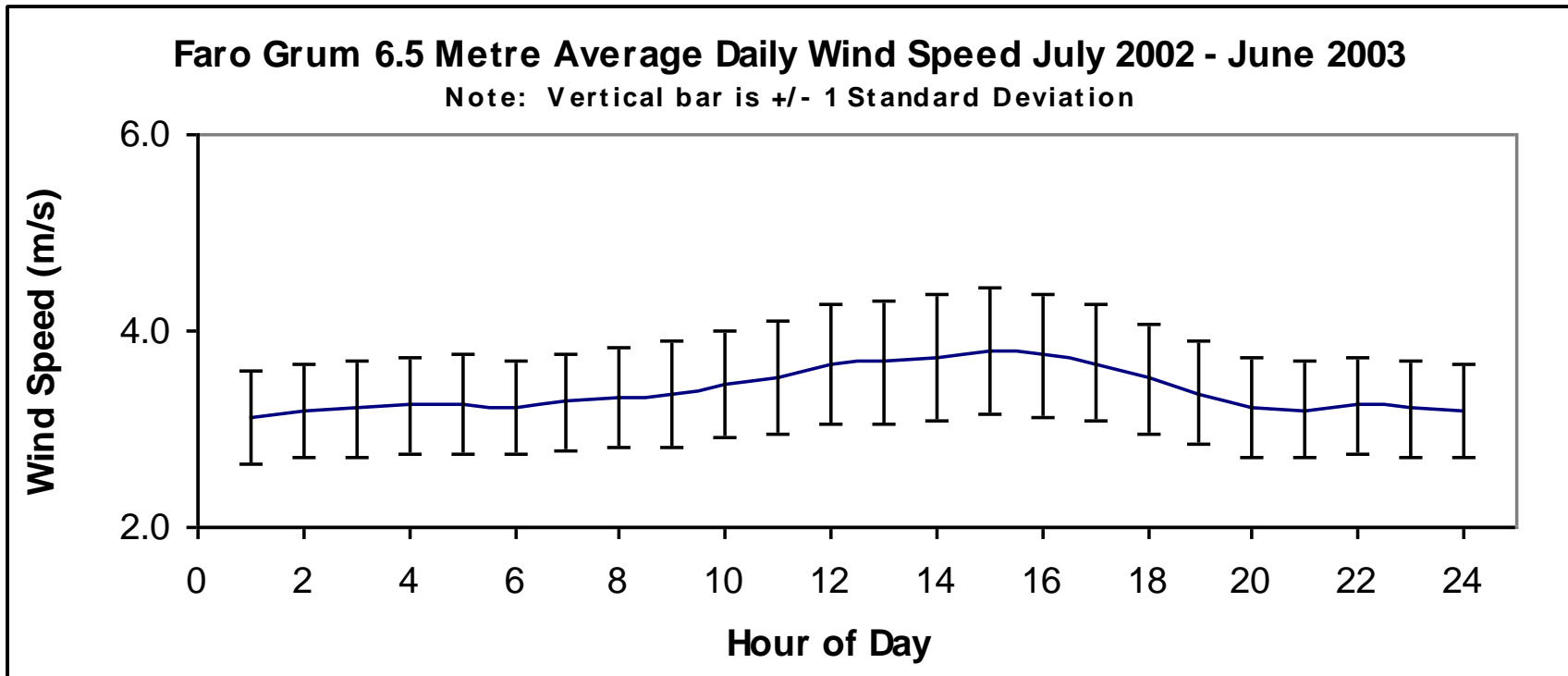




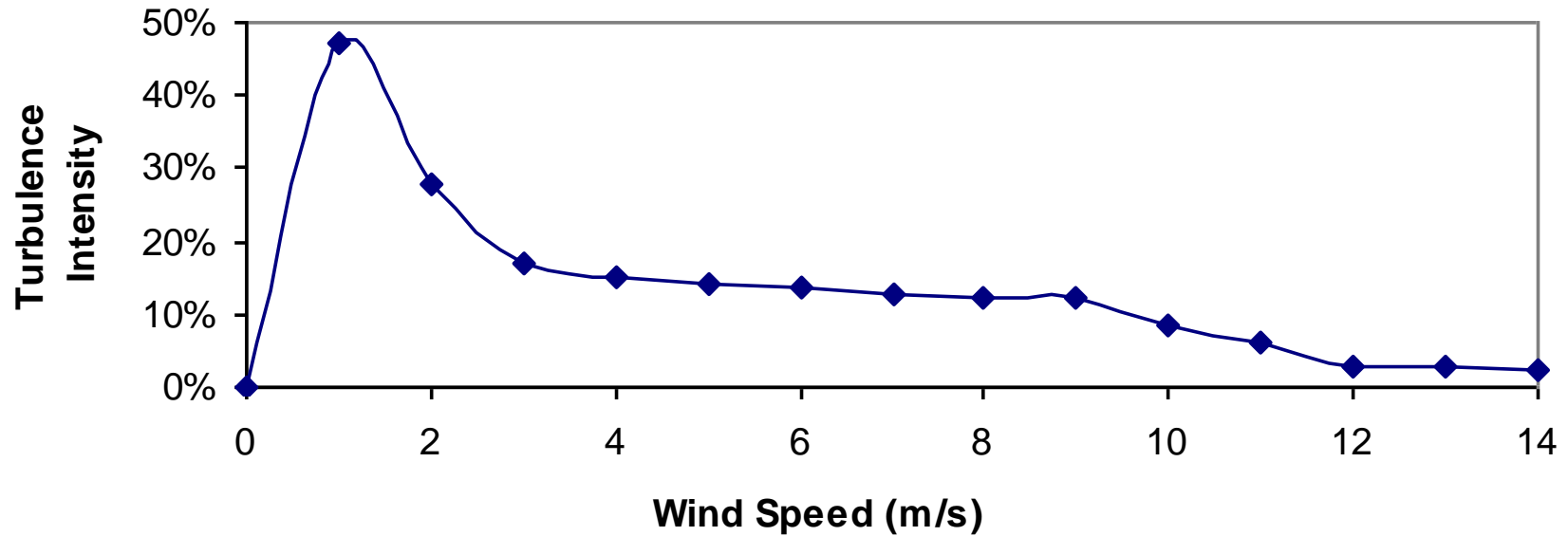


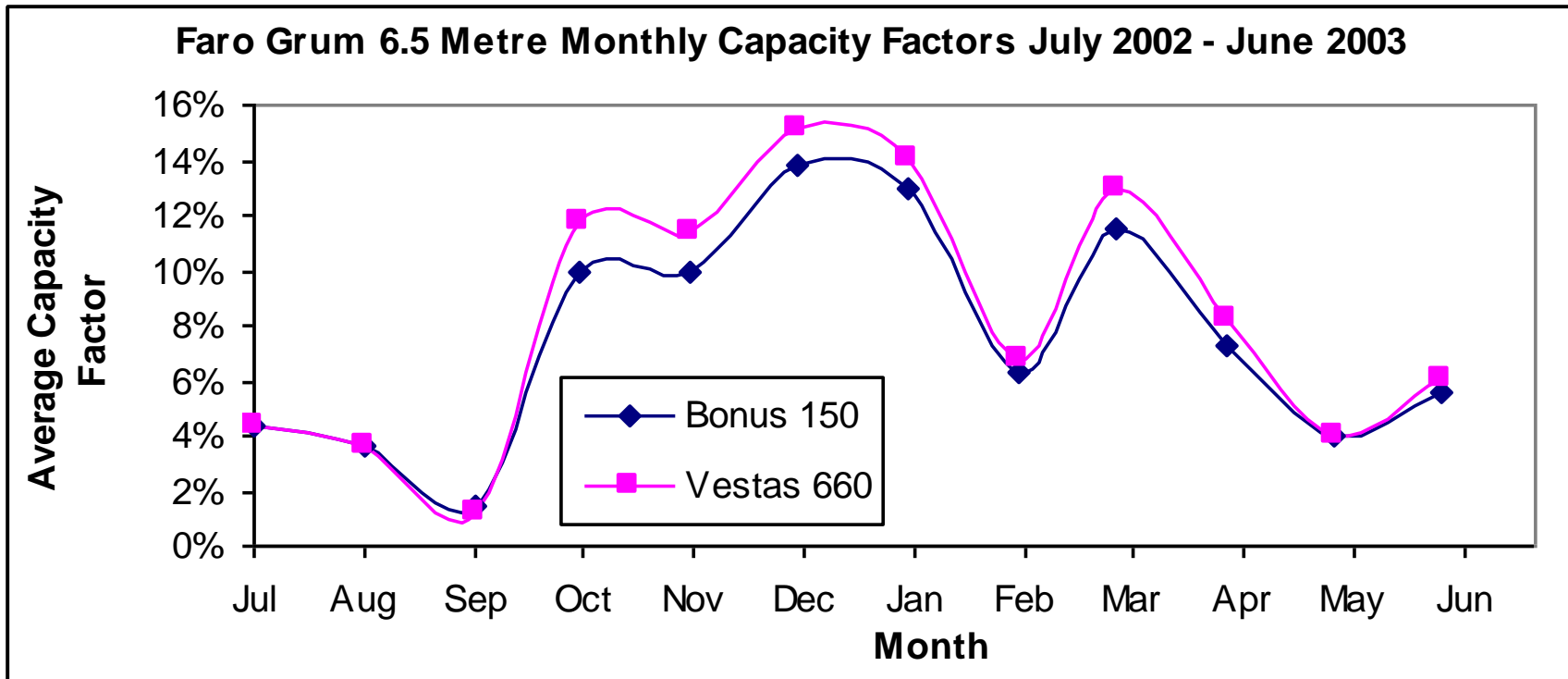




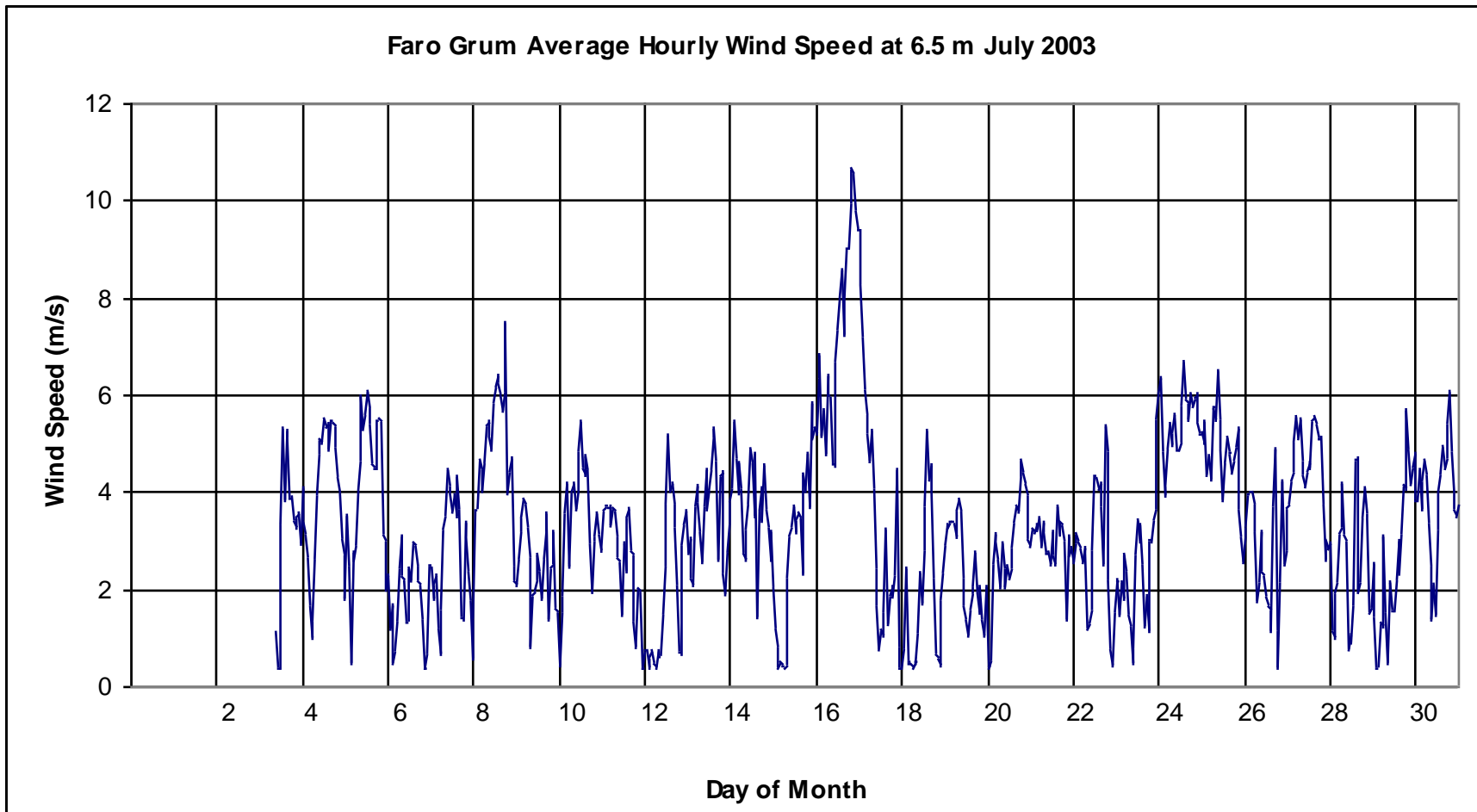


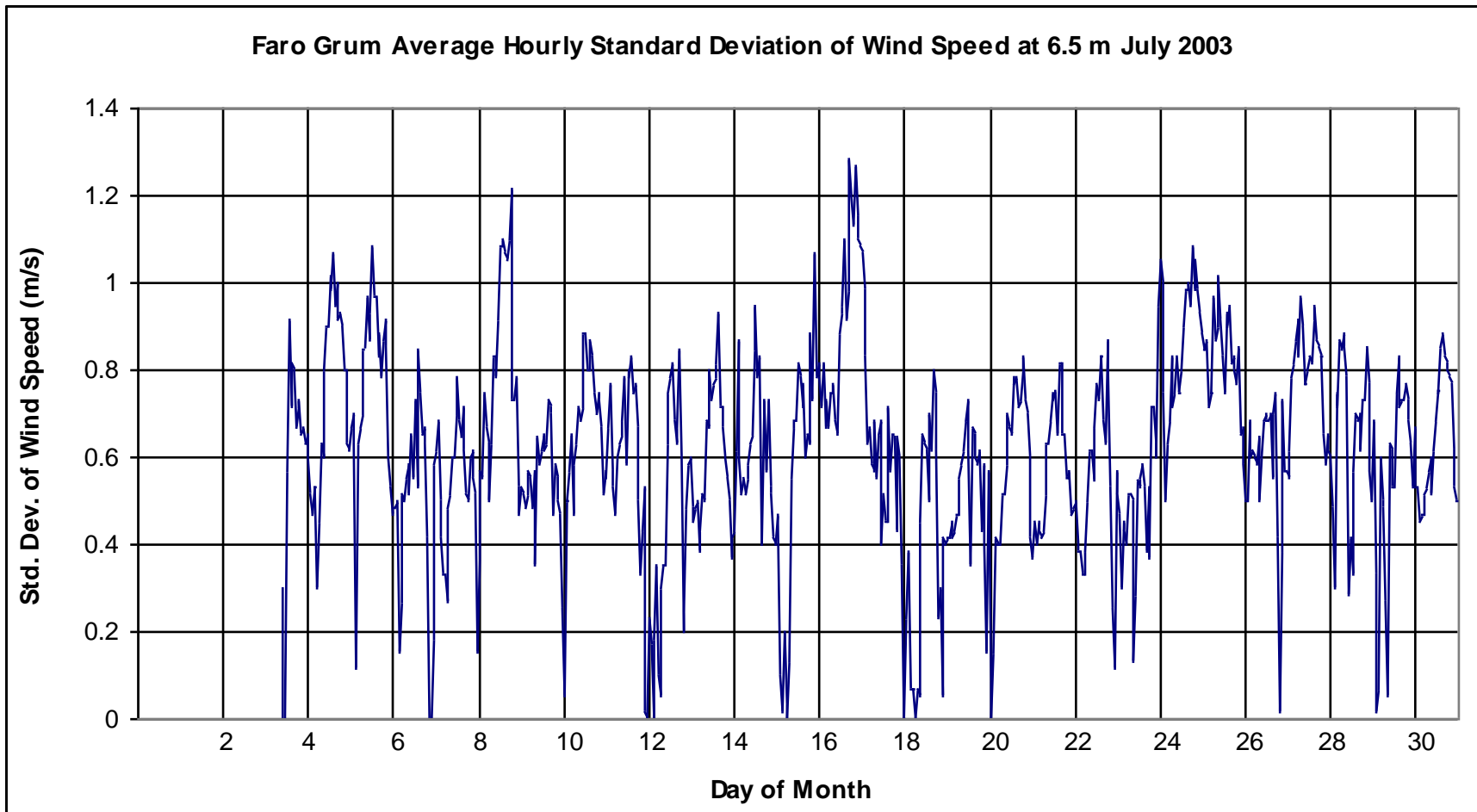
**Faro Grum 6.5 Metre Average Turbulence Intensity  
July 2002 - June 2003**

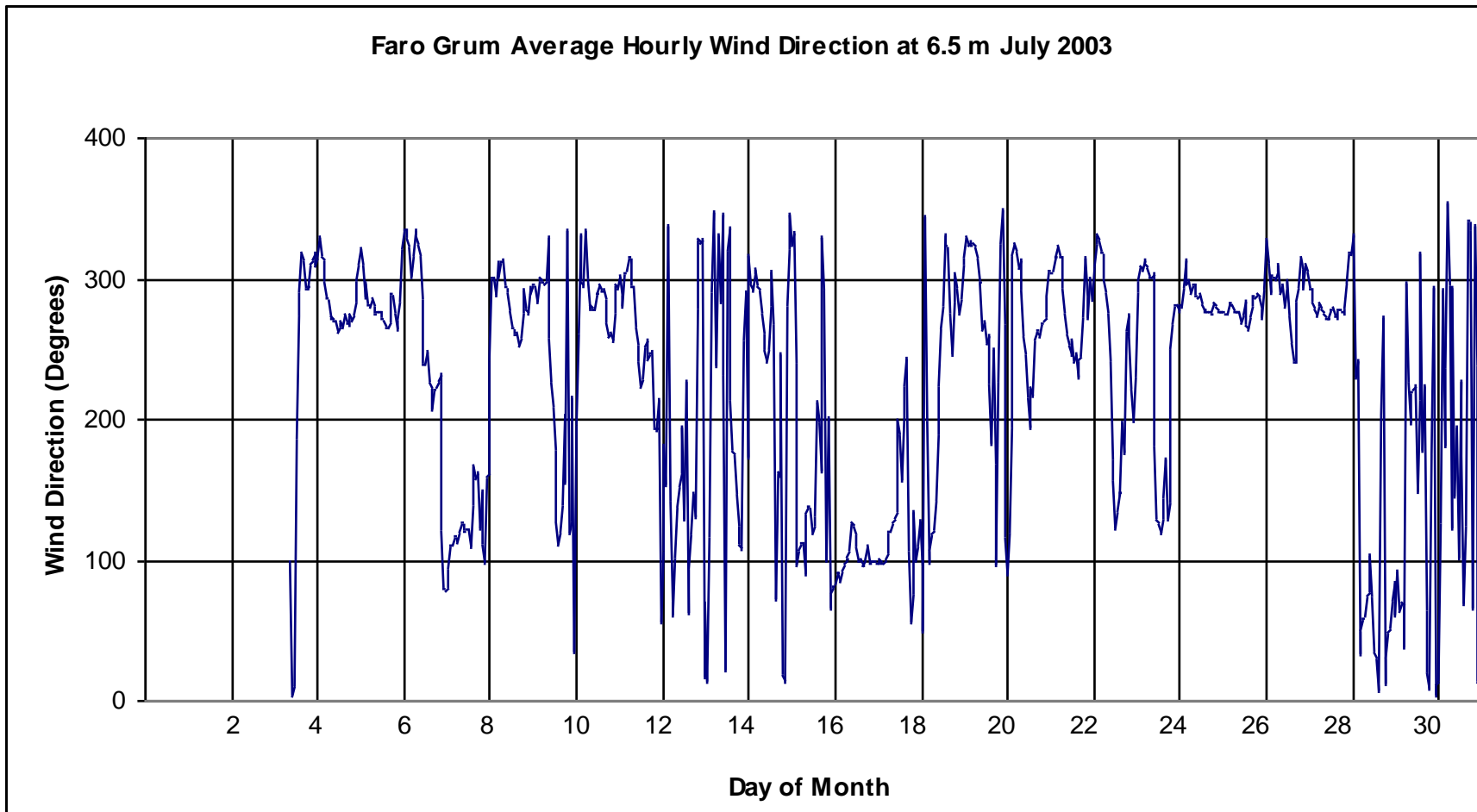


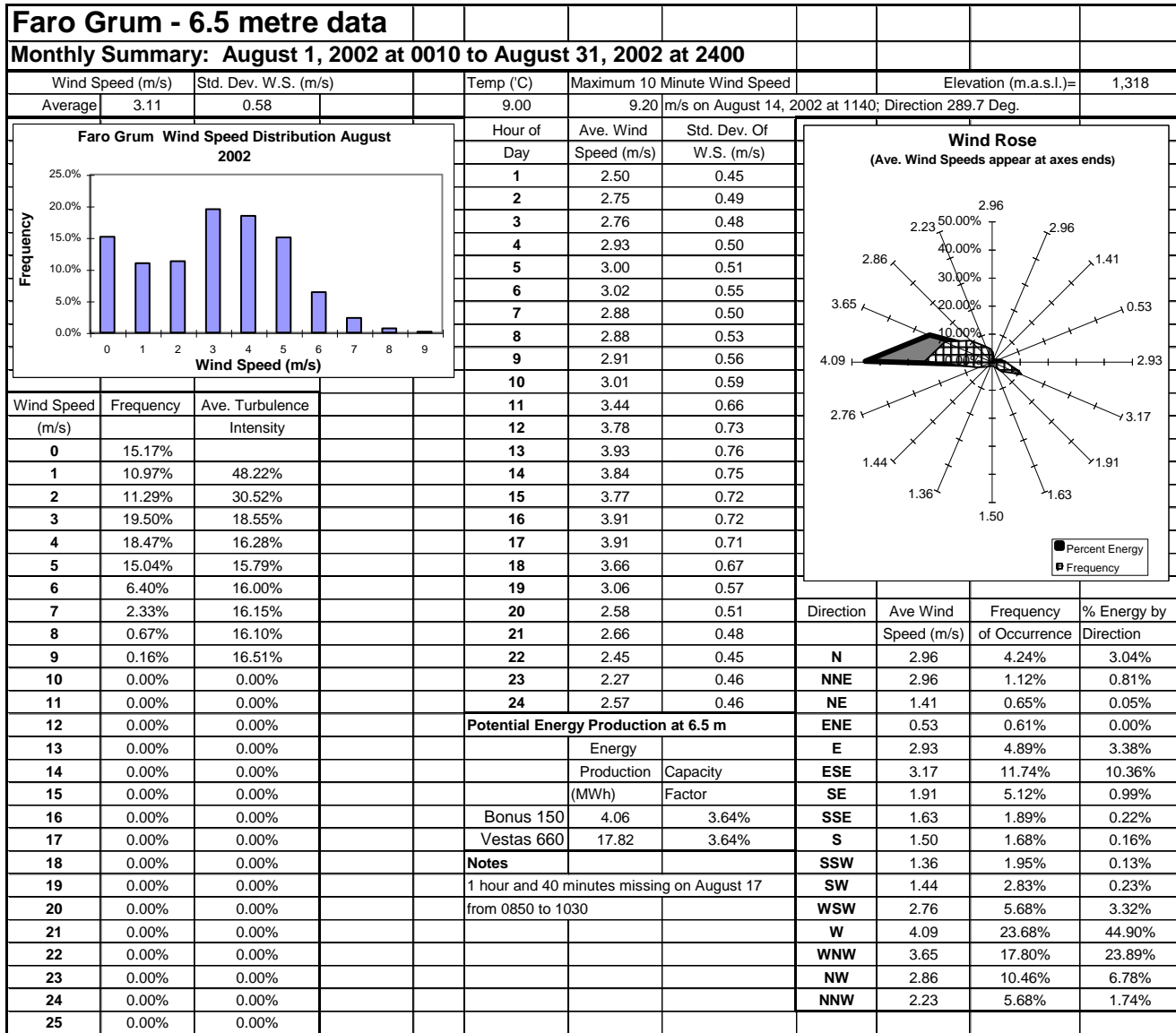


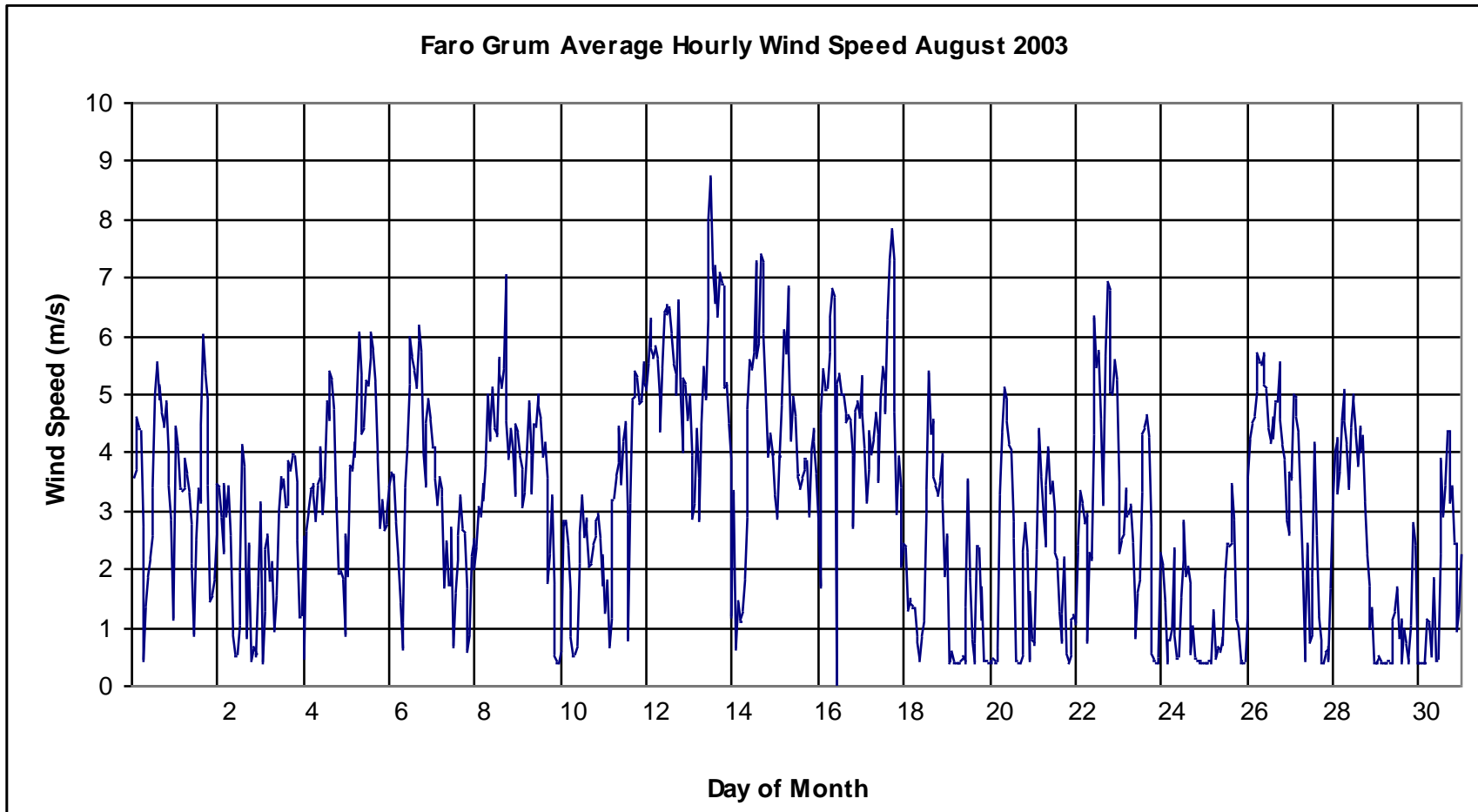
<b>Faro Grum - 6.5 metre data</b>										
<b>Monthly Summary: July 4, 2002 at 0830 to July 31, 2003 at 2400</b>										
Wind Speed (m/s)		Std. Dev. W.S. (m/s)	Temp (°C)	Maximum 10 Minute Wind Speed	Elevation (m.a.s.l.)= 1,318					
Average		3.35	0.62	14.21	11.30 m/s on July 17, 2002 at 1920; Direction 99.8 Deg.					
			Hour of Day	Ave. Wind Speed (m/s)	Std. Dev. Of W.S. (m/s)					
Wind Speed (m/s)	Frequency	Ave. Turbulence Intensity	1	2.68	0.46					
0	8.49%		2	2.69	0.43					
1	9.37%	48.28%	3	2.52	0.40					
2	15.14%	30.82%	4	2.69	0.44					
3	21.97%	18.78%	5	2.64	0.43					
4	19.96%	16.74%	6	2.80	0.44					
5	14.31%	15.91%	7	2.84	0.50					
6	7.08%	15.49%	8	2.66	0.52					
7	1.73%	13.96%	9	2.81	0.57					
8	0.53%	12.95%	10	2.66	0.59					
9	0.68%	12.42%	11	2.82	0.62					
10	0.45%	11.63%	12	3.26	0.68					
11	0.28%	11.90%	13	3.40	0.68					
12	0.00%	0.00%	14	3.72	0.72					
13	0.00%	0.00%	15	3.66	0.70					
14	0.00%	0.00%	16	3.50	0.68					
15	0.00%	0.00%	17	3.46	0.68					
16	0.00%	0.00%	18	3.34	0.65					
17	0.00%	0.00%	19	3.39	0.59					
18	0.00%	0.00%	20	3.09	0.58					
19	0.00%	0.00%	21	3.14	0.55					
20	0.00%	0.00%	22	2.63	0.47					
21	0.00%	0.00%	23	2.70	0.48					
22	0.00%	0.00%	24	2.71	0.47					
23	0.00%	0.00%	<b>Potential Energy Production at 6.5 m</b>			Direction	Ave Wind Speed (m/s)	Frequency of Occurrence	% Energy by Direction	
24	0.00%	0.00%		Energy Production (MWh)	Capacity Factor	<b>N</b>	3.24	6.68%	5.23%	
25	0.00%	0.00%		Bonus 150	4.31	4.33%	<b>NNE</b>	3.12	2.96%	2.06%
				Vestas 660	19.04	4.35%	<b>NE</b>	2.24	1.83%	0.47%
				<b>Notes</b>			<b>ENE</b>	2.40	2.18%	0.69%
							<b>E</b>	4.91	5.95%	16.20%
							<b>ESE</b>	3.26	5.80%	4.60%
							<b>SE</b>	2.66	5.50%	2.39%
							<b>SSE</b>	2.37	2.11%	0.64%
							<b>S</b>	2.02	1.58%	0.30%
							<b>SSW</b>	1.85	2.31%	0.34%
							<b>SW</b>	2.18	3.09%	0.73%
							<b>WSW</b>	3.02	6.38%	4.03%
							<b>W</b>	4.26	19.61%	34.90%
							<b>WNW</b>	3.59	14.99%	15.90%
							<b>NW</b>	3.01	12.36%	7.71%
							<b>NNW</b>	2.92	6.65%	3.81%

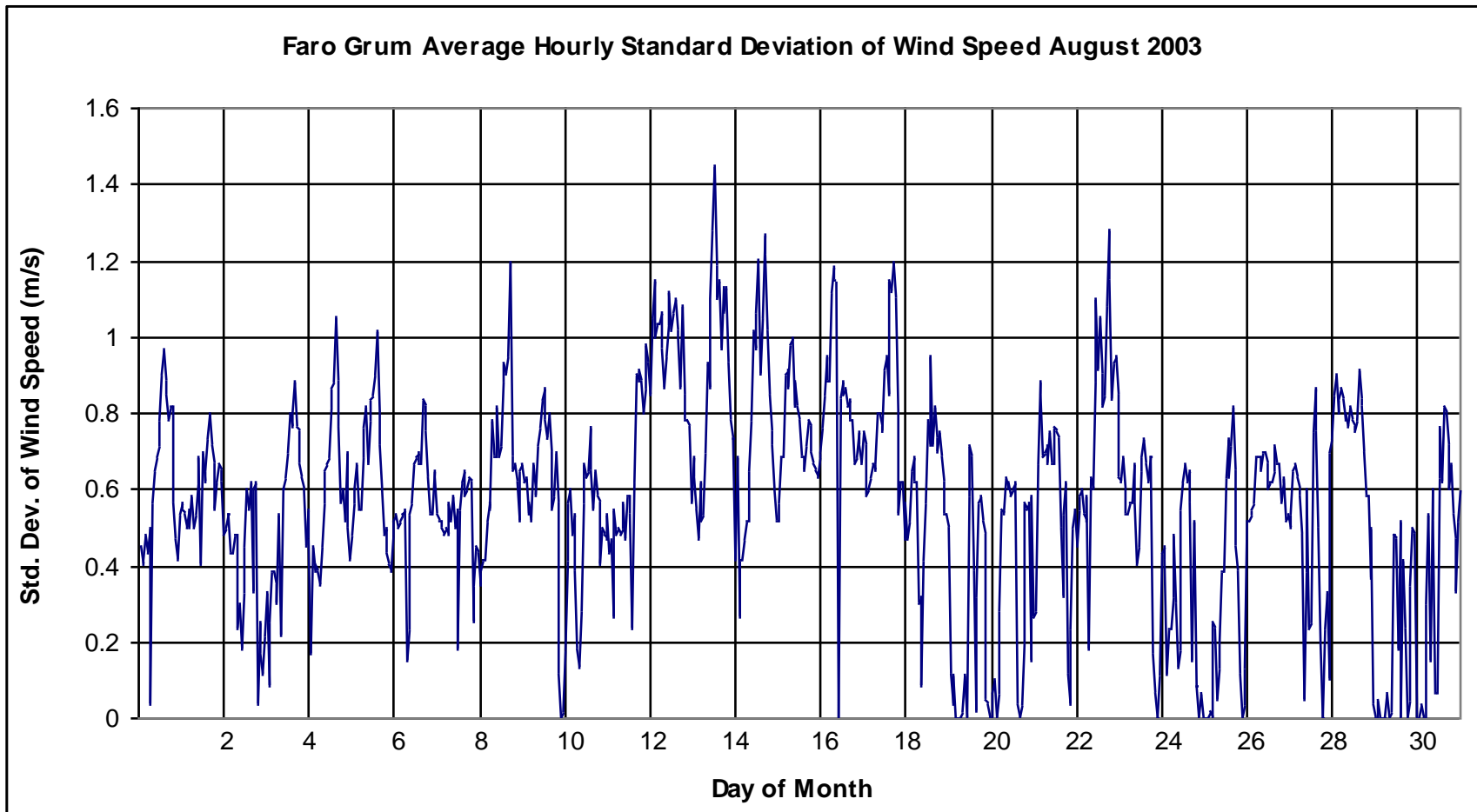


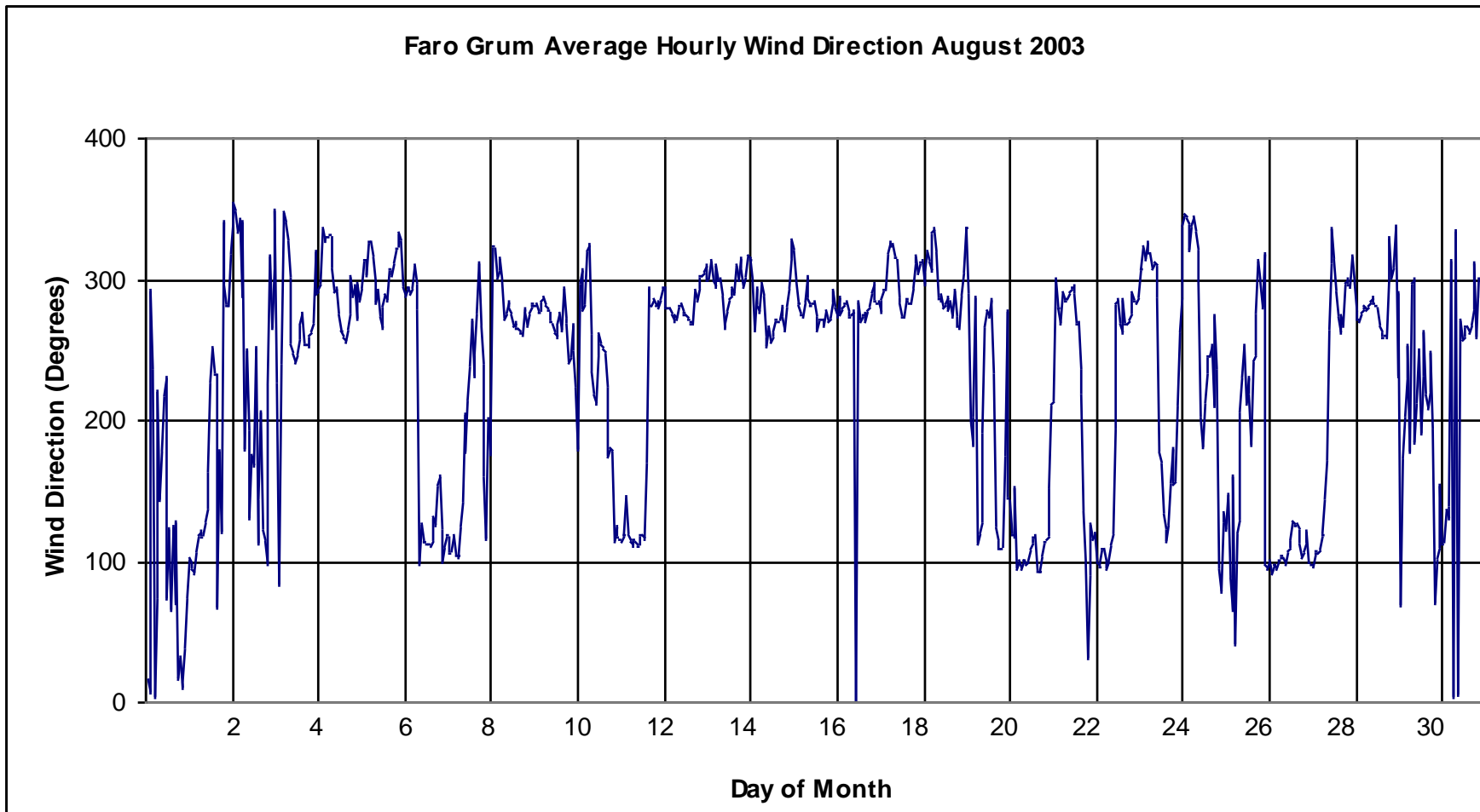




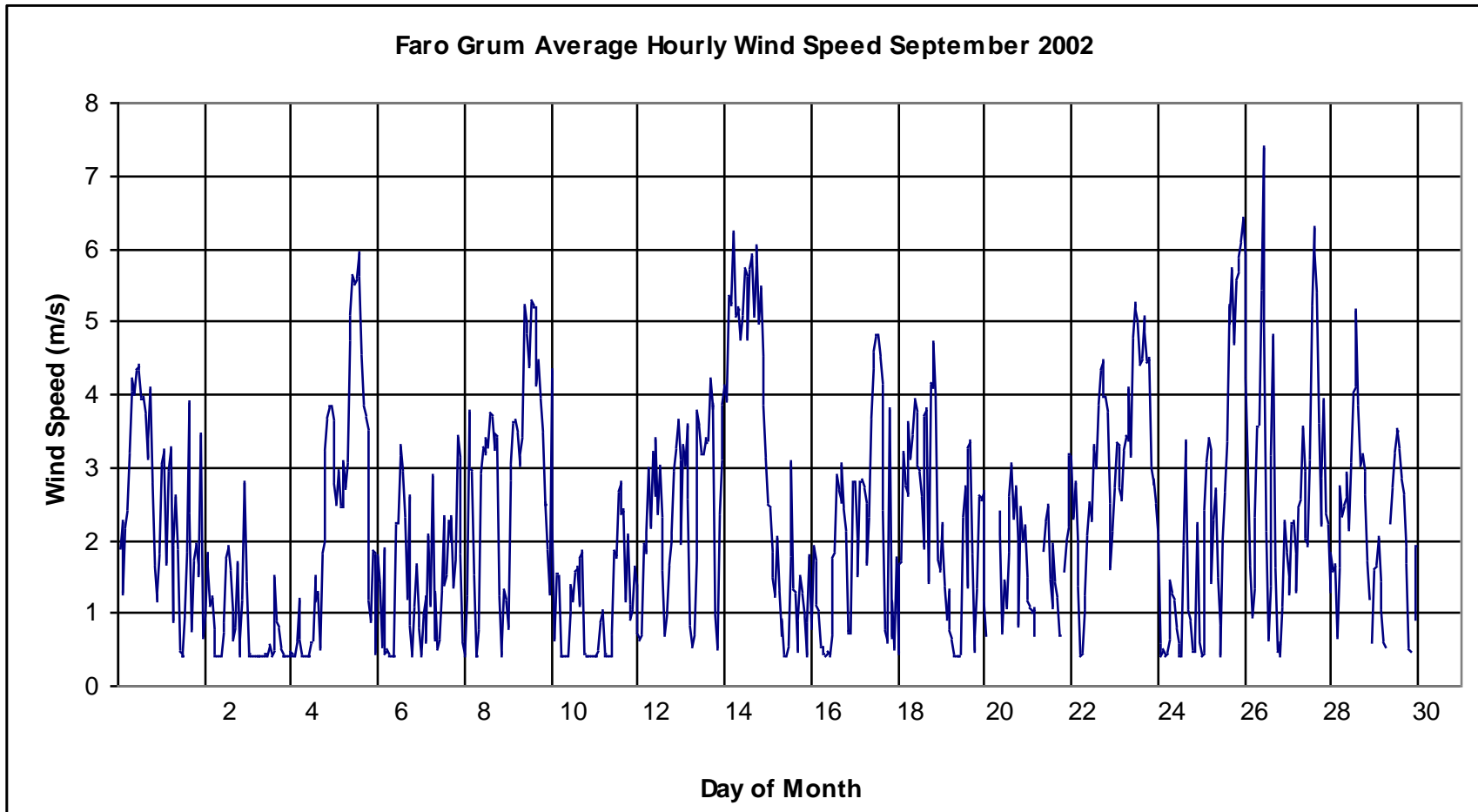


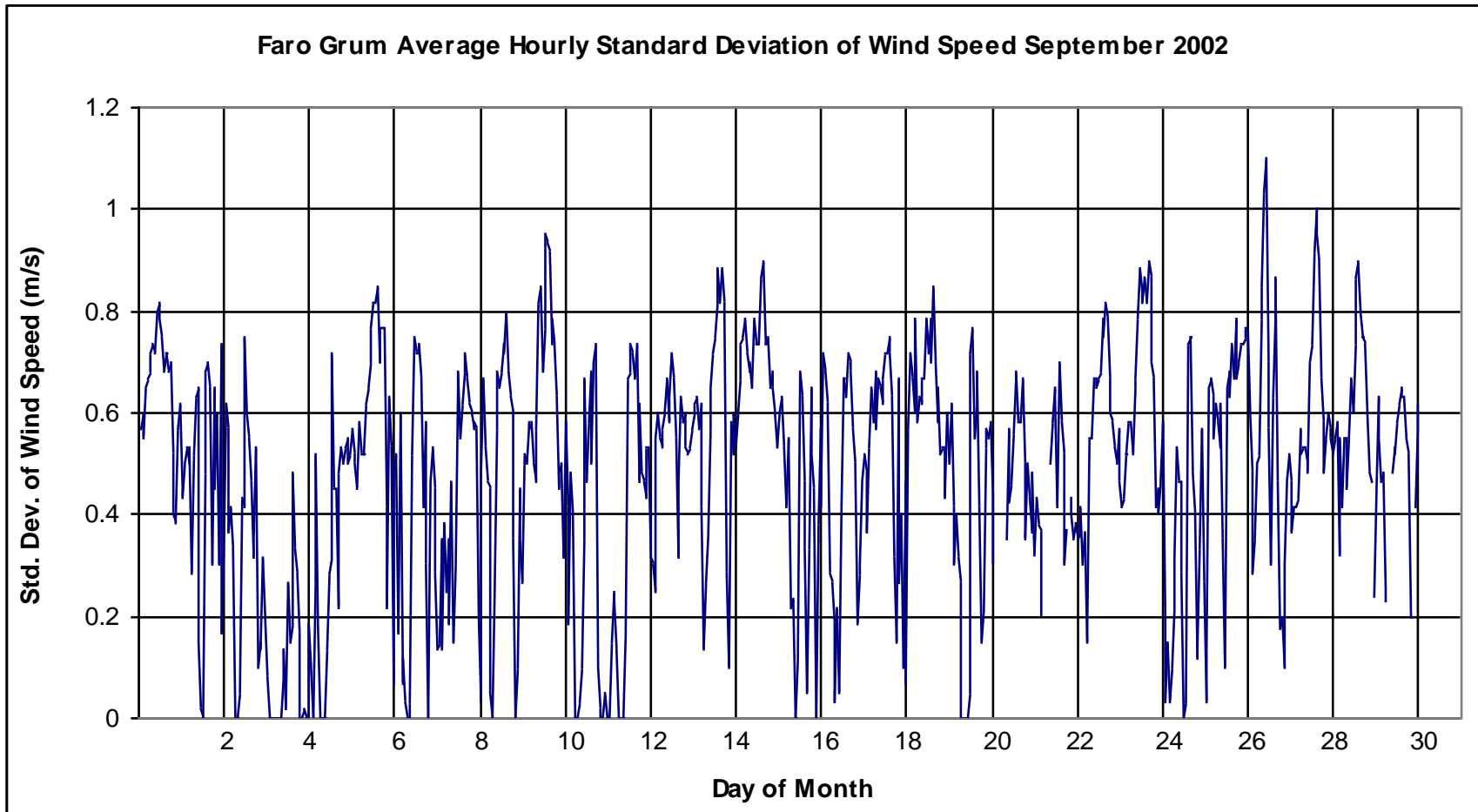


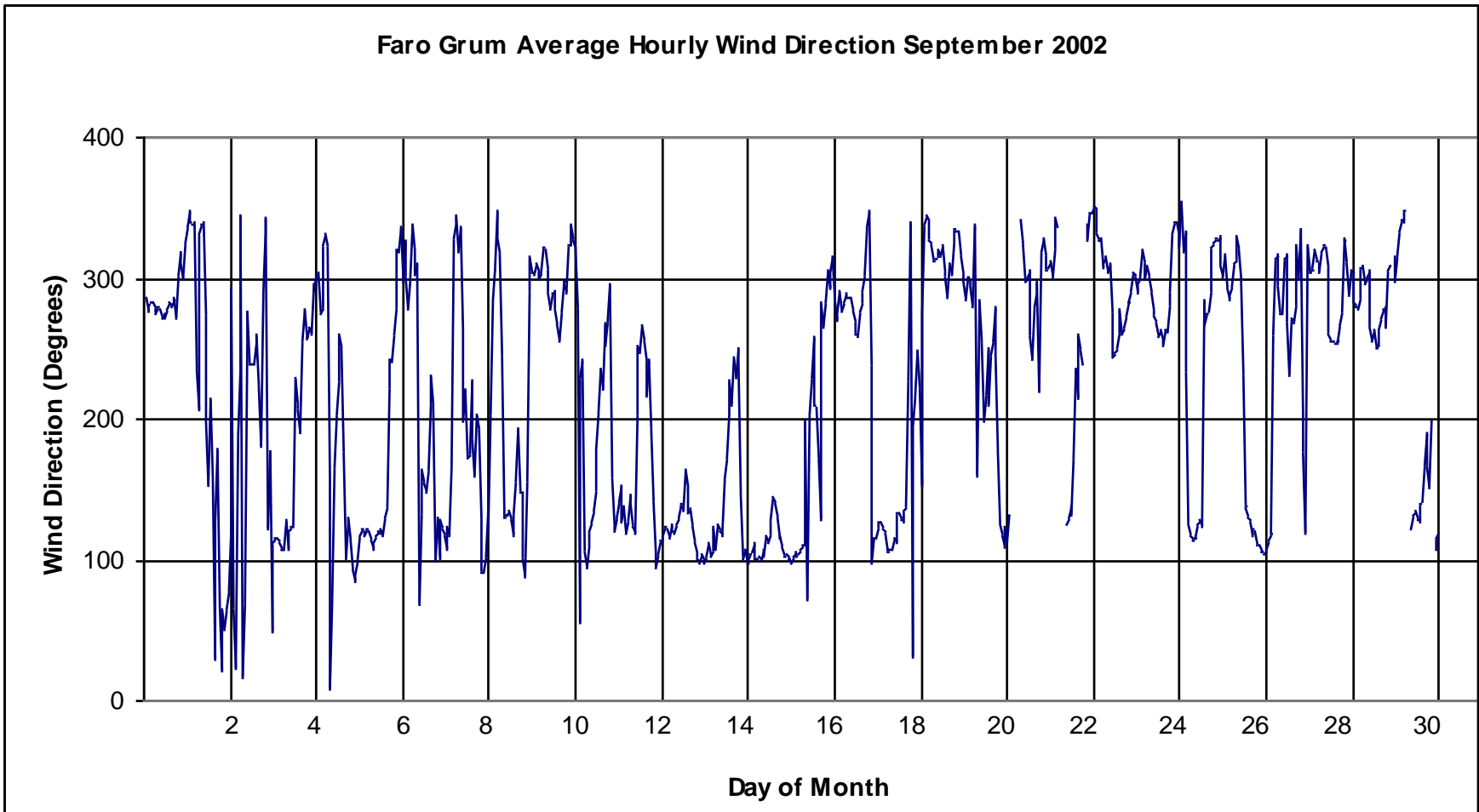




<b>Faro Grum - 6.5 metre data - FILTERED</b>																																																																																							
<b>Monthly Summary: September 1, 2002 at 0010 to September 30, 2002 at 2400</b>																																																																																							
Wind Speed (m/s)		Std. Dev. W.S. (m/s)	Temp (°C)	Maximum 10 Minute Wind Speed		Elevation (m.a.s.l.)= 1,318																																																																																	
Average		2.25	6.24	8.90 m/s on September 27, 2002 at 0950; Direction 331.9 Deg.																																																																																			
			Hour of Day	Ave. Wind Speed (m/s)	Std. Dev. Of W.S. (m/s)																																																																																		
<table border="1"> <thead> <tr> <th>Wind Speed (m/s)</th> <th>Frequency</th> <th>Ave. Turbulence Intensity</th> </tr> </thead> <tbody> <tr><td>0</td><td>21.55%</td><td></td></tr> <tr><td>1</td><td>17.85%</td><td>49.12%</td></tr> <tr><td>2</td><td>19.44%</td><td>30.79%</td></tr> <tr><td>3</td><td>20.28%</td><td>19.32%</td></tr> <tr><td>4</td><td>11.04%</td><td>16.64%</td></tr> <tr><td>5</td><td>6.47%</td><td>15.31%</td></tr> <tr><td>6</td><td>2.93%</td><td>13.93%</td></tr> <tr><td>7</td><td>0.34%</td><td>12.82%</td></tr> <tr><td>8</td><td>0.05%</td><td>13.82%</td></tr> <tr><td>9</td><td>0.05%</td><td>14.04%</td></tr> <tr><td>10</td><td>0.00%</td><td>0.00%</td></tr> <tr><td>11</td><td>0.00%</td><td>0.00%</td></tr> <tr><td>12</td><td>0.00%</td><td>0.00%</td></tr> <tr><td>13</td><td>0.00%</td><td>0.00%</td></tr> <tr><td>14</td><td>0.00%</td><td>0.00%</td></tr> <tr><td>15</td><td>0.00%</td><td>0.00%</td></tr> <tr><td>16</td><td>0.00%</td><td>0.00%</td></tr> <tr><td>17</td><td>0.00%</td><td>0.00%</td></tr> <tr><td>18</td><td>0.00%</td><td>0.00%</td></tr> <tr><td>19</td><td>0.00%</td><td>0.00%</td></tr> <tr><td>20</td><td>0.00%</td><td>0.00%</td></tr> <tr><td>21</td><td>0.00%</td><td>0.00%</td></tr> <tr><td>22</td><td>0.00%</td><td>0.00%</td></tr> <tr><td>23</td><td>0.00%</td><td>0.00%</td></tr> <tr><td>24</td><td>0.00%</td><td>0.00%</td></tr> <tr><td>25</td><td>0.00%</td><td>0.00%</td></tr> </tbody> </table>			Wind Speed (m/s)	Frequency	Ave. Turbulence Intensity		0	21.55%		1	17.85%	49.12%	2	19.44%	30.79%	3	20.28%	19.32%	4	11.04%	16.64%	5	6.47%	15.31%	6	2.93%	13.93%	7	0.34%	12.82%	8	0.05%	13.82%	9	0.05%	14.04%	10	0.00%	0.00%	11	0.00%	0.00%	12	0.00%	0.00%	13	0.00%	0.00%	14	0.00%	0.00%	15	0.00%	0.00%	16	0.00%	0.00%	17	0.00%	0.00%	18	0.00%	0.00%	19	0.00%	0.00%	20	0.00%	0.00%	21	0.00%	0.00%	22	0.00%	0.00%	23	0.00%	0.00%	24	0.00%	0.00%	25	0.00%	0.00%	1	1.72	0.40
Wind Speed (m/s)	Frequency	Ave. Turbulence Intensity																																																																																					
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13	2.76	0.63																																																																																					
14	2.86	0.67																																																																																					
15	3.07	0.66																																																																																					
16	2.77	0.62																																																																																					
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24	1.76	0.37																																																																																					
<b>Potential Energy Production at 6.5 m</b>				<b>Direction</b>	<b>Ave Wind Speed (m/s)</b>	<b>Frequency of Occurrence</b>	<b>% Energy by Direction</b>																																																																																
Energy Production (MWh)				<b>N</b>	1.53	4.81%	1.40%																																																																																
Capacity Factor				<b>NNE</b>	1.62	1.18%	0.41%																																																																																
Bonus 150				<b>NE</b>	1.40	0.53%	0.12%																																																																																
Vestas 660				<b>ENE</b>	1.12	0.63%	0.07%																																																																																
Notes				<b>E</b>	2.69	4.98%	7.90%																																																																																
3.8% of the data deleted based on w.s. std=0 and temperature at or below freezing				<b>ESE</b>	2.59	16.62%	23.55%																																																																																
Note that this is 1.3% more of the data than at 30m. Is there more icing closer to the ground or simply calmer winds?				<b>SE</b>	2.36	10.15%	10.92%																																																																																
				<b>SSE</b>	2.08	2.72%	1.99%																																																																																
				<b>S</b>	1.57	1.80%	0.57%																																																																																
				<b>SSW</b>	1.78	2.21%	1.02%																																																																																
				<b>SW</b>	1.68	2.53%	0.98%																																																																																
				<b>WSW</b>	2.71	6.66%	10.75%																																																																																
				<b>W</b>	2.59	12.20%	17.20%																																																																																
				<b>WNW</b>	2.16	12.12%	9.91%																																																																																
				<b>NW</b>	1.87	11.98%	6.38%																																																																																
				<b>NNW</b>	2.11	8.88%	6.82%																																																																																

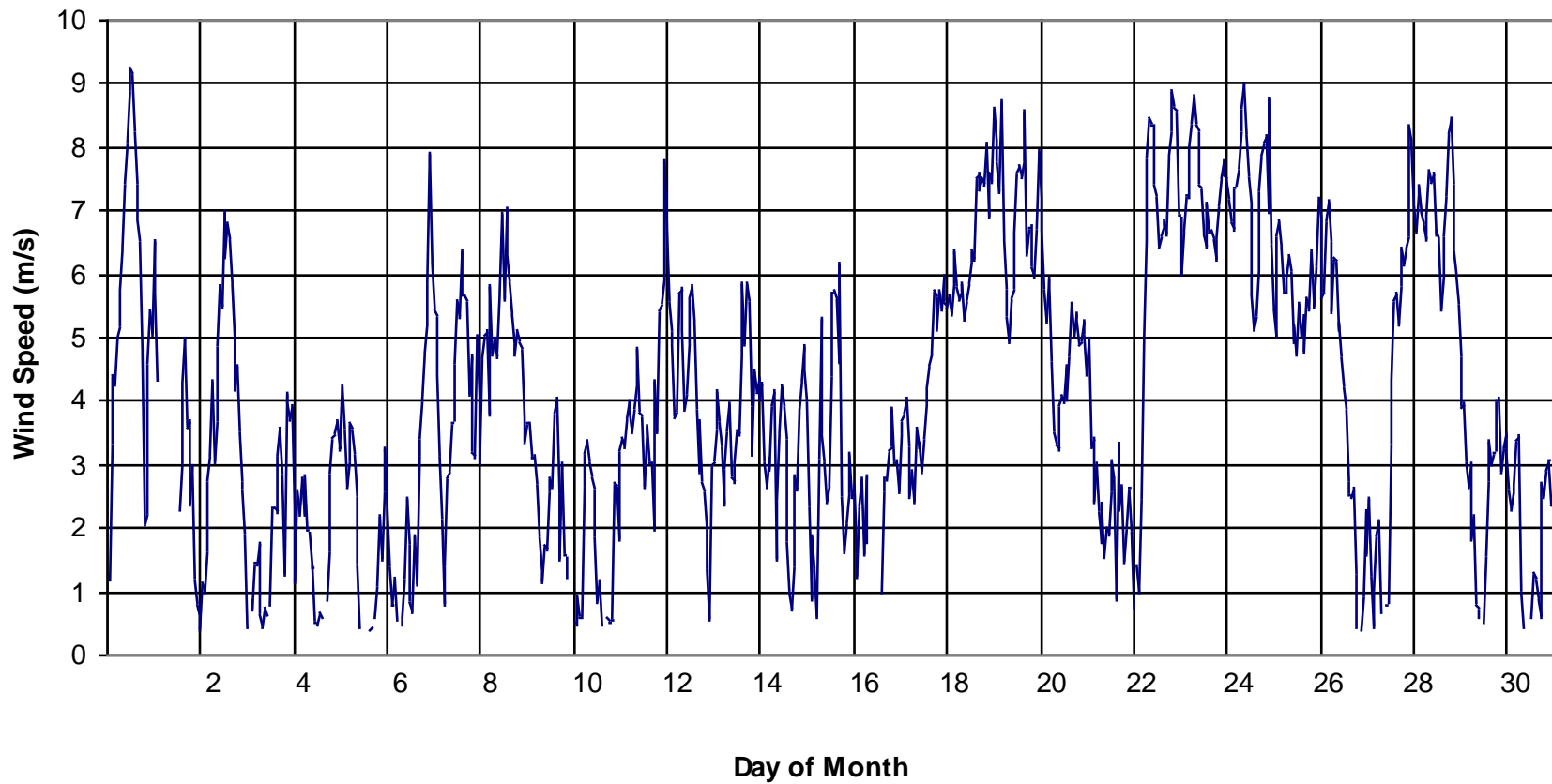


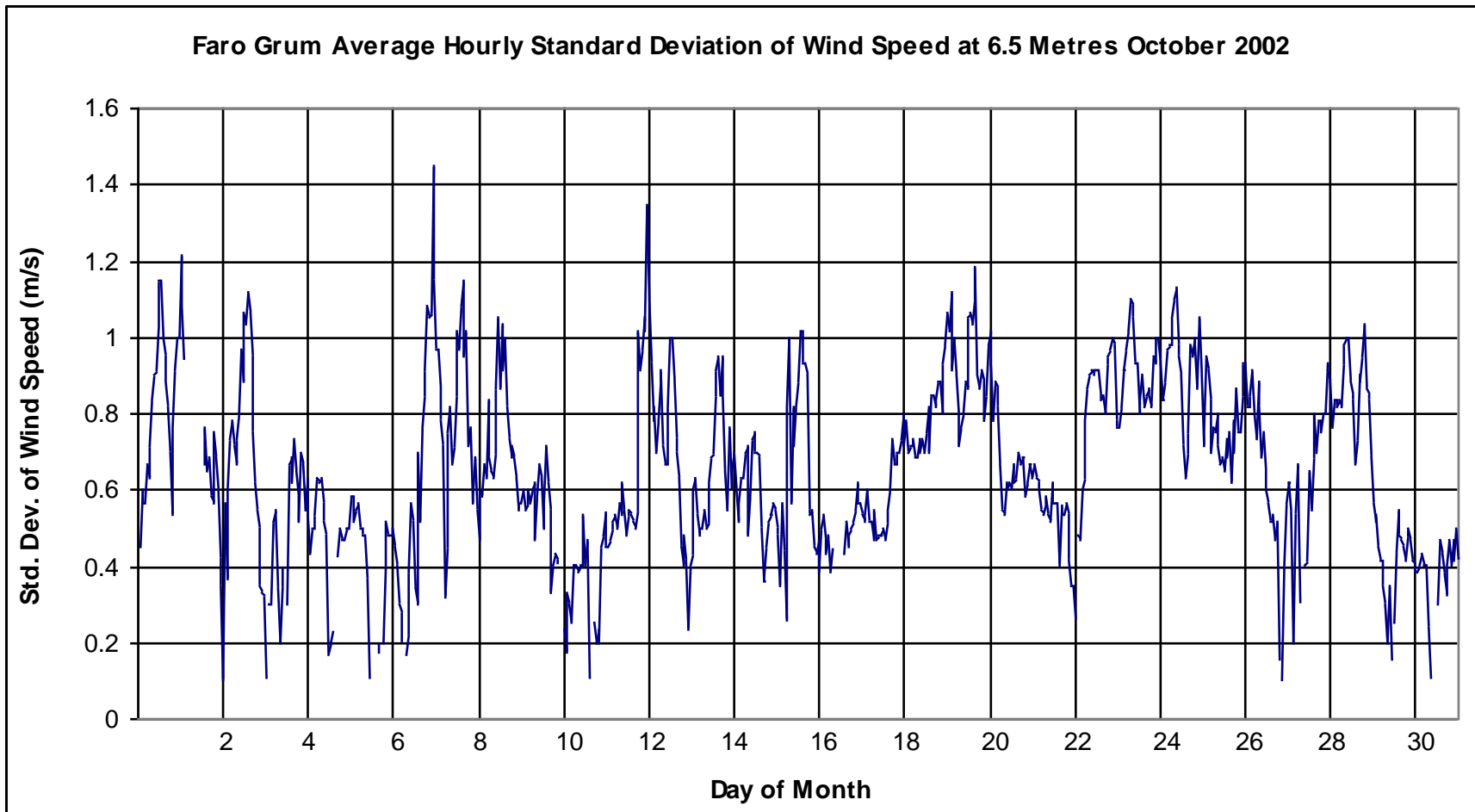


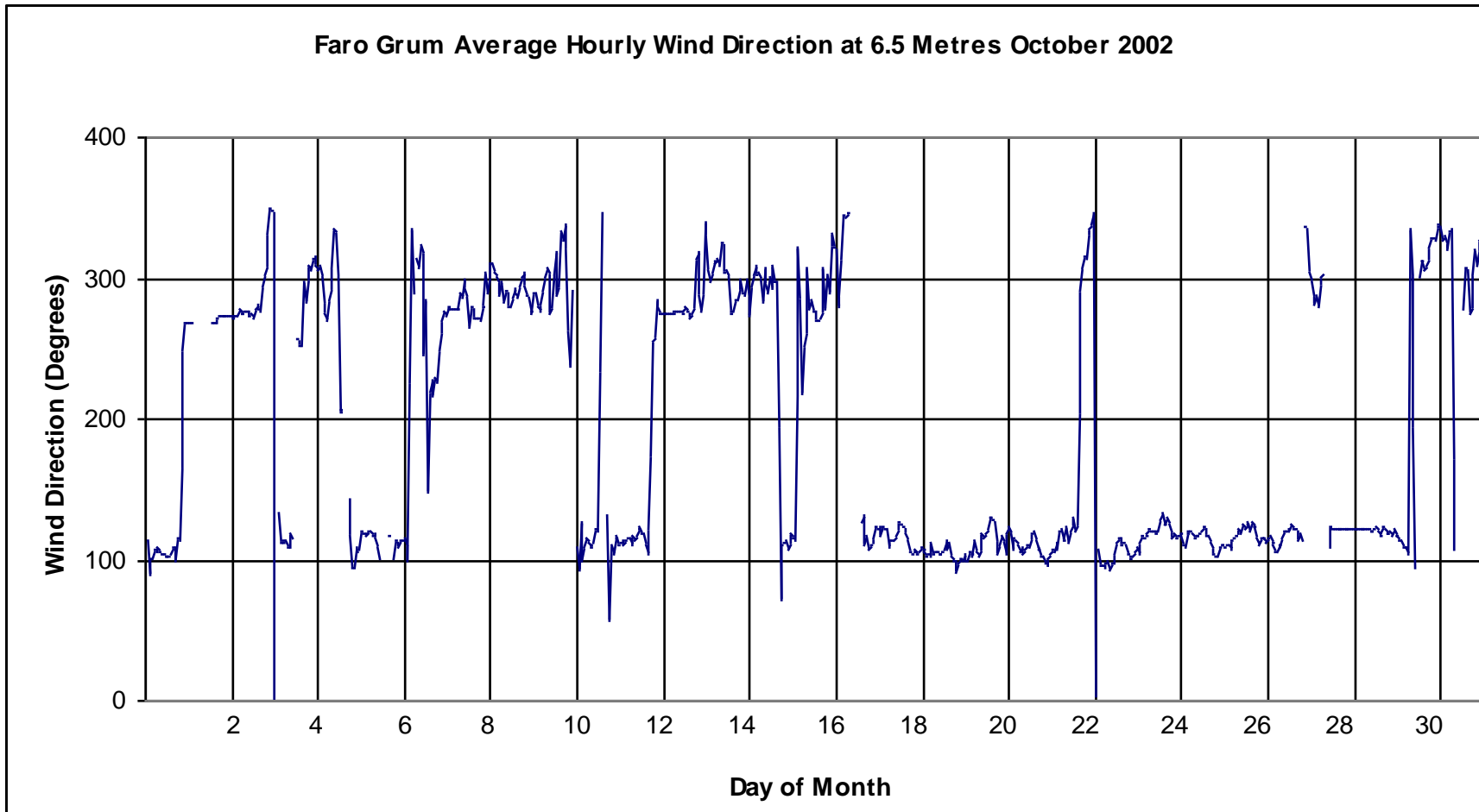


Faro Grum - 6.5 metre data - FILTERED									
Monthly Summary: October 1, 2002 at 0010 to October 31, 2002 at 2400									
Wind Speed (m/s)	Std. Dev. W.S. (m/s)	Temp (°C)	Maximum 10 Minute Wind Speed	Elevation (m.a.s.l.)	1,318				
Average	4.33	0.68	-0.14	10.10	m/s on October 1, 2002 at 1250, Direction 99.8 Deg.				
			Hour of Day	Ave. Wind Speed (m/s)	Std. Dev. Of W.S. (m/s)				
Wind Speed (m/s)	Frequency	Ave. Turbulence Intensity	1	3.81	0.61				
0	3.41%		2	3.62	0.58				
1	7.64%	48.56%	3	3.56	0.57				
2	10.59%	27.88%	4	3.65	0.59				
3	18.93%	17.36%	5	3.67	0.59				
4	14.32%	15.39%	6	3.86	0.60				
5	13.41%	14.54%	7	3.76	0.60				
6	12.74%	14.14%	8	3.59	0.54				
7	10.34%	13.06%	9	3.54	0.57				
8	6.33%	12.45%	10	3.59	0.57				
9	2.15%	12.10%	11	3.61	0.58				
10	0.12%	11.46%	12	3.75	0.58				
11	0.00%	0.00%	13	4.01	0.64				
12	0.00%	0.00%	14	4.10	0.67				
13	0.00%	0.00%	15	4.11	0.65				
14	0.00%	0.00%	16	4.14	0.64				
15	0.00%	0.00%	17	4.13	0.63				
16	0.00%	0.00%	18	4.24	0.63				
17	0.00%	0.00%	19	4.01	0.64				
18	0.00%	0.00%	20	4.24	0.64				
19	0.00%	0.00%	21	4.20	0.64				
20	0.00%	0.00%	22	4.54	0.65				
21	0.00%	0.00%	23	4.36	0.65				
22	0.00%	0.00%	24	4.05	0.61				
23	0.00%	0.00%	Potential Energy Production at 6.5 m			Direction	Ave Wind Speed (m/s)	Frequency of Occurrence	% Energy by Direction
24	0.00%	0.00%	Energy Production Capacity (MWh) Factor			N	1.55	1.19%	0.05%
25	0.00%	0.00%	Bonus 150	10.07	9.97%	NNE	0.80	0.05%	0.00%
			Vestas 660	52.21	11.74%	NE	0.00	0.00%	0.00%
			Notes			ENE	0.45	0.05%	0.00%
			Data associated with w.s. std = 0 removed			E	5.41	6.78%	11.38%
			9.5% of data removed			ESE	5.17	42.16%	61.71%
			still more data removed than at the 30 m height.			SE	4.57	6.19%	6.27%
						SSE	0.96	0.12%	0.00%
						S	1.42	0.20%	0.01%
						SSW	1.59	0.27%	0.01%
						SW	2.44	0.69%	0.11%
						WSW	2.84	1.53%	0.37%
						W	4.15	15.59%	11.82%
						WNW	3.59	10.81%	5.32%
						NW	2.76	9.25%	2.07%
						NNW	2.53	5.12%	0.88%

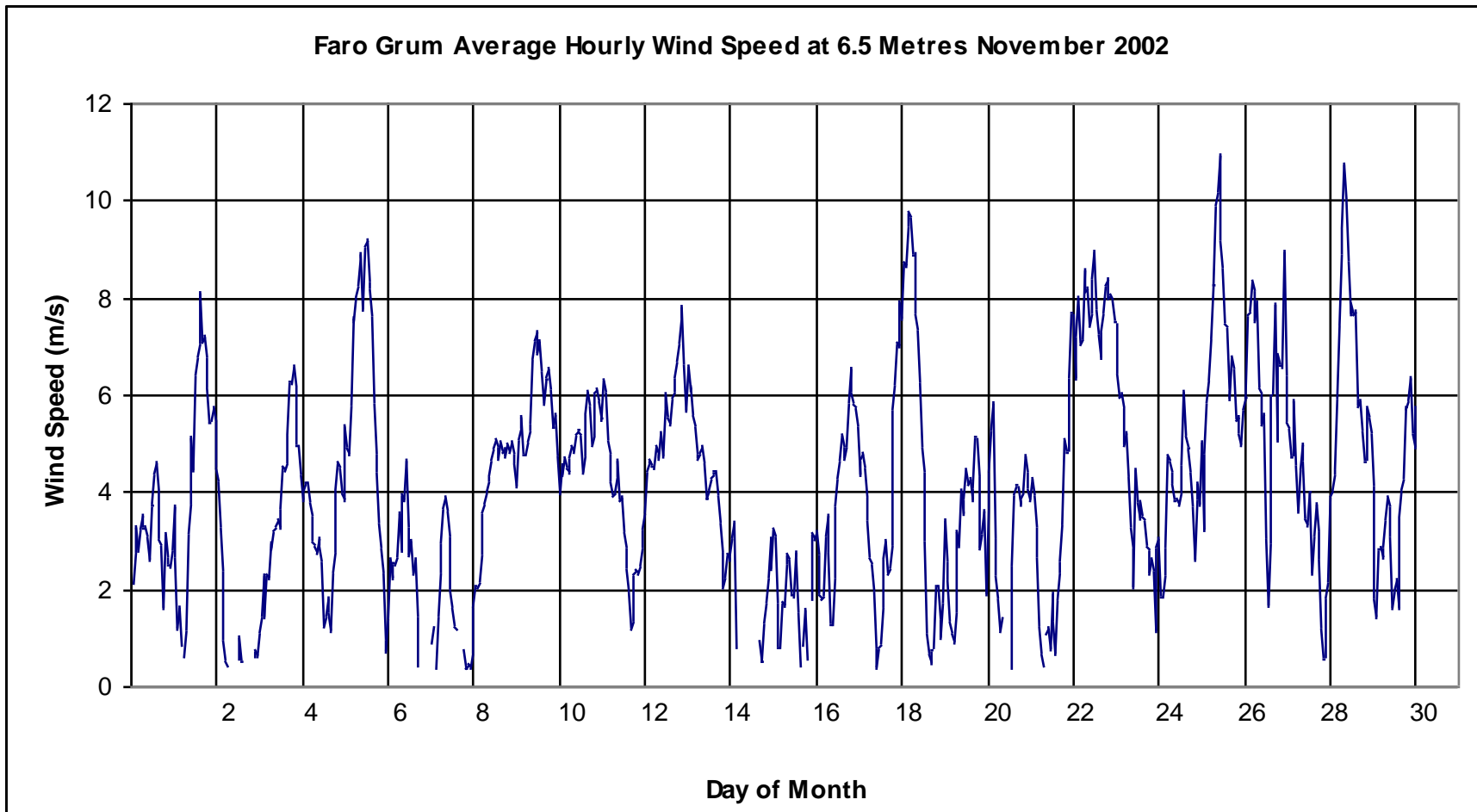
Faro Grum Average Hourly Wind Speed at 6.5 Metres October 2002

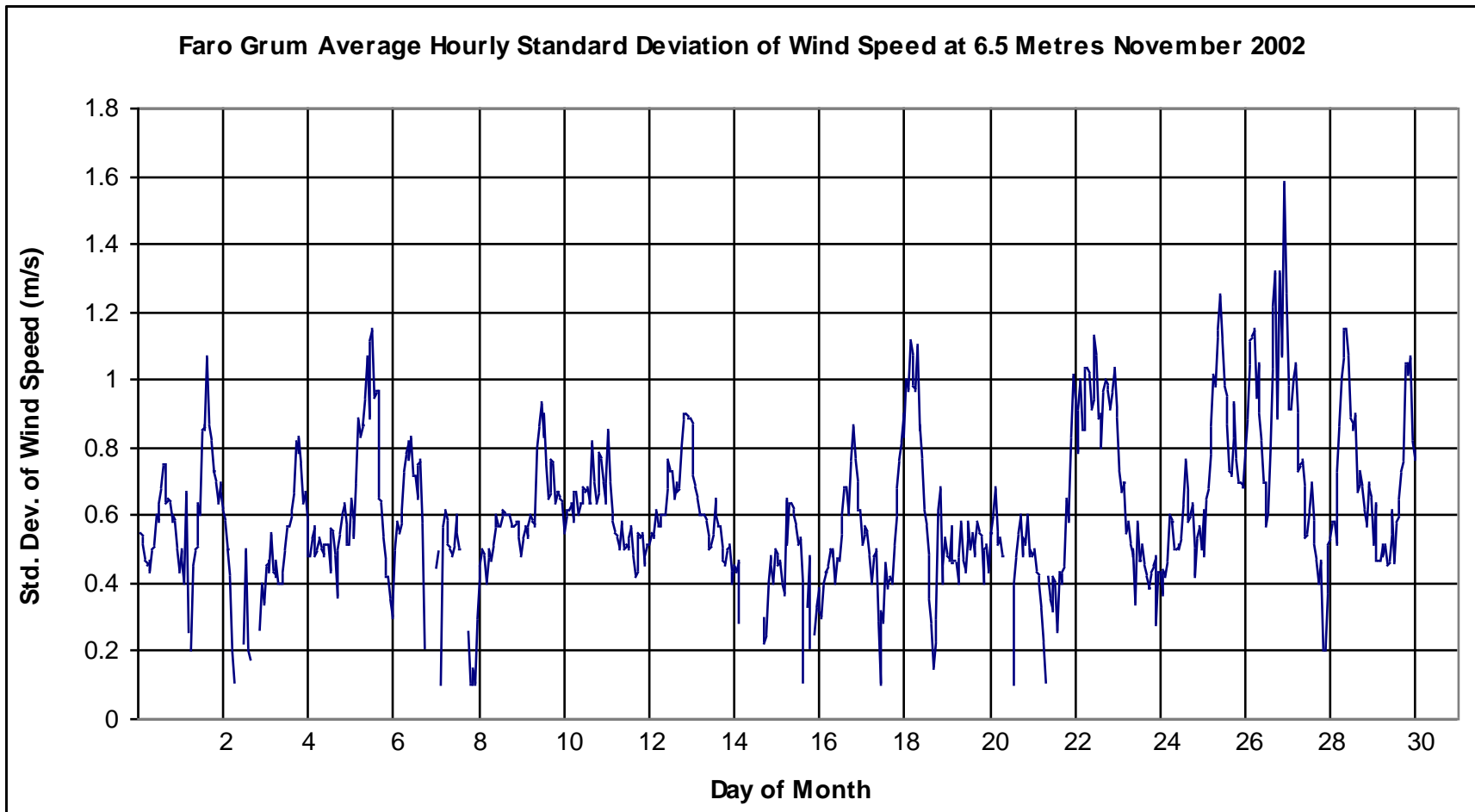


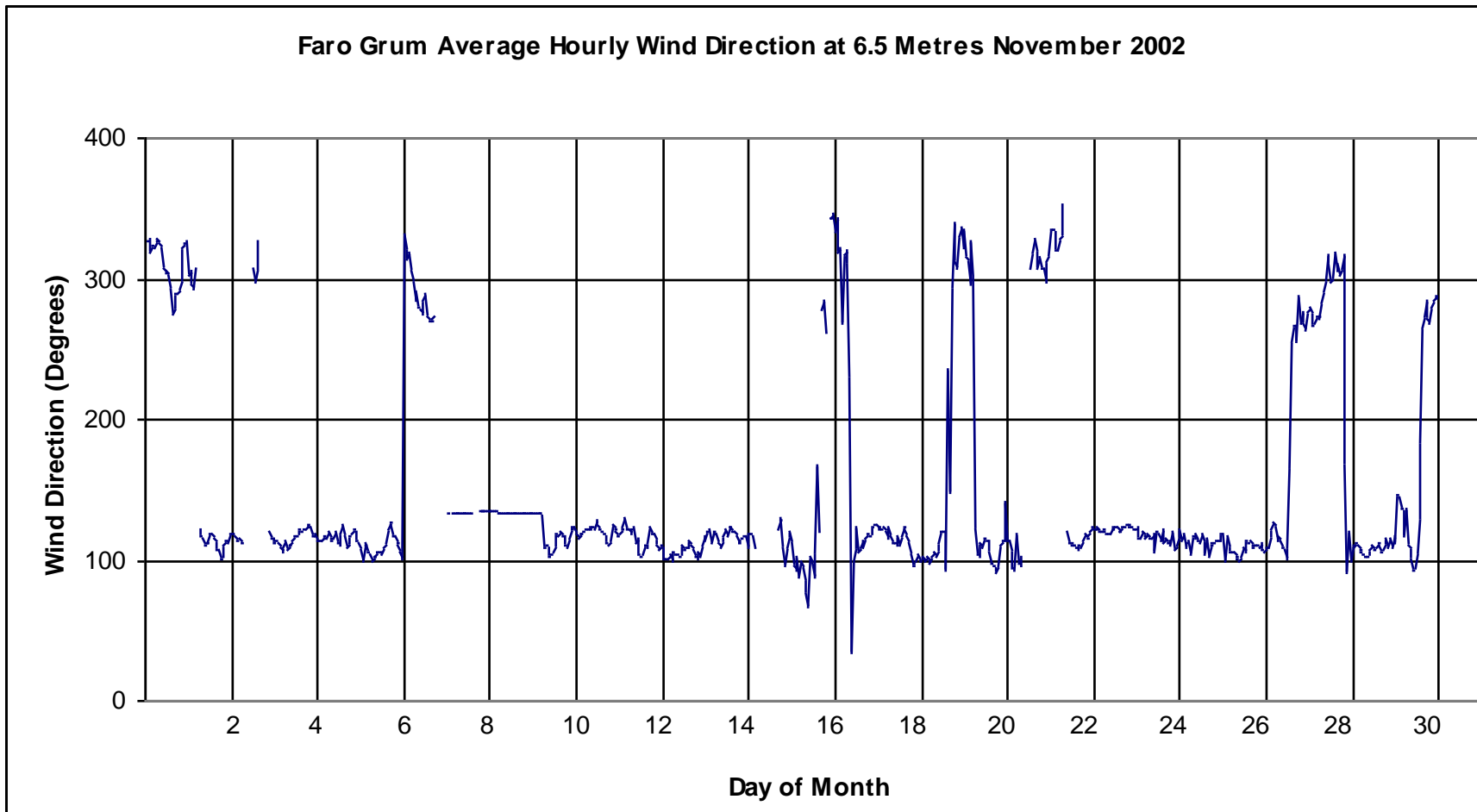




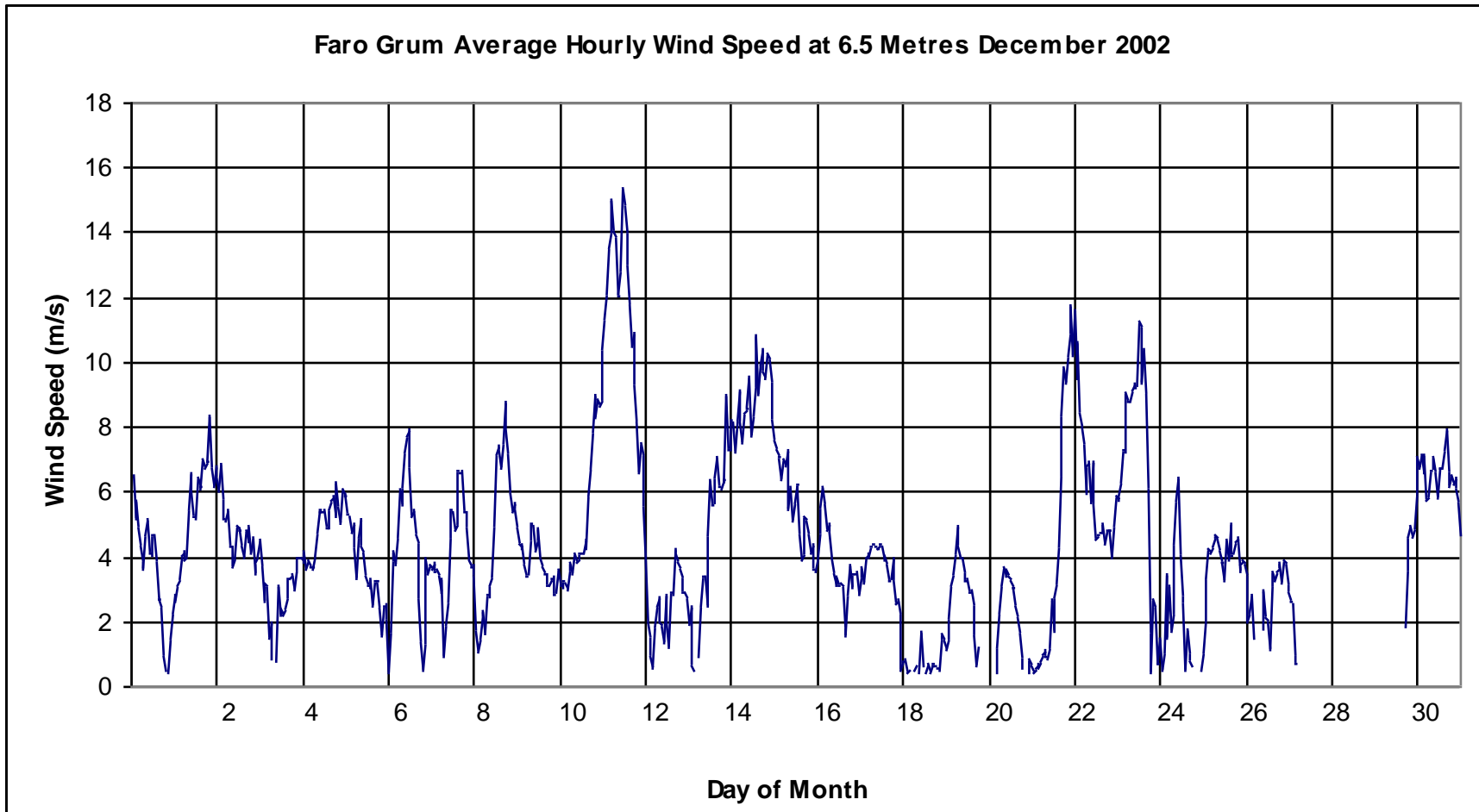
Faro Grum - 6.5 metre data - FILTERED										
Monthly Summary: November 1, 2002 at 0010 to November 30, 2002 at 2400										
Wind Speed (m/s)	Std. Dev. W.S. (m/s)	Temp (°C)	Maximum 10 Minute Wind Speed	Elevation (m.a.s.l.)= 1,318						
Average	4.37	0.63	-4.84	11.20 m/s on November 26, 2002 at 0840; Direction 97 Deg.						
			Hour of Day	Ave. Wind Speed (m/s)	Std. Dev. Of W.S. (m/s)					
Wind Speed (m/s)	Frequency	Ave. Turbulence Intensity	1	3.88	0.56					
0	2.51%		2	3.83	0.55					
1	7.05%	44.82%	3	3.82	0.56					
2	10.84%	26.20%	4	3.73	0.55					
3	16.58%	16.04%	5	3.76	0.54					
4	18.34%	13.63%	6	3.92	0.55					
5	17.19%	12.78%	7	4.00	0.56					
6	11.17%	12.56%	8	4.08	0.56					
7	6.92%	12.63%	9	4.06	0.55					
8	5.35%	12.34%	10	3.81	0.53					
9	2.74%	12.00%	11	3.85	0.56					
10	0.90%	11.21%	12	3.88	0.56					
11	0.41%	11.17%	13	3.71	0.57					
12	0.00%	0.00%	14	3.63	0.55					
13	0.00%	0.00%	15	3.73	0.53					
14	0.00%	0.00%	16	3.60	0.51					
15	0.00%	0.00%	17	3.75	0.52					
16	0.00%	0.00%	18	3.73	0.55					
17	0.00%	0.00%	19	3.81	0.55					
18	0.00%	0.00%	20	3.66	0.53					
19	0.00%	0.00%	21	3.79	0.54					
20	0.00%	0.00%	22	3.89	0.55					
21	0.00%	0.00%	23	3.77	0.55					
22	0.00%	0.00%	24	4.05	0.55					
23	0.00%	0.00%	<b>Potential Energy Production at 6.5 m</b>			Direction	Ave Wind Speed (m/s)	Frequency of Occurrence	% Energy by Direction	
24	0.00%	0.00%		Energy Production (MWh)	Capacity Factor	<b>N</b>	1.36	0.44%	0.01%	
25	0.00%	0.00%		Bonus 150	9.74	9.98%	<b>NNE</b>	1.02	0.20%	0.00%
				Vestas 660	48.69	11.34%	<b>NE</b>	0.80	0.08%	0.00%
				<b>Notes</b>			<b>ENE</b>	2.01	0.54%	0.05%
				9.7% of the data removed			<b>E</b>	4.88	8.58%	11.09%
							<b>ESE</b>	4.73	54.39%	64.29%
							<b>SE</b>	4.36	15.73%	14.53%
							<b>SSE</b>	1.69	0.31%	0.02%
							<b>S</b>	1.87	0.08%	0.01%
							<b>SSW</b>	1.00	0.03%	0.00%
							<b>SW</b>	2.20	0.08%	0.01%
							<b>WSW</b>	5.14	0.44%	0.66%
							<b>W</b>	4.58	4.48%	4.79%
							<b>WNW</b>	3.48	5.05%	2.37%
							<b>NW</b>	2.79	6.43%	1.55%
							<b>NNW</b>	2.63	3.15%	0.64%

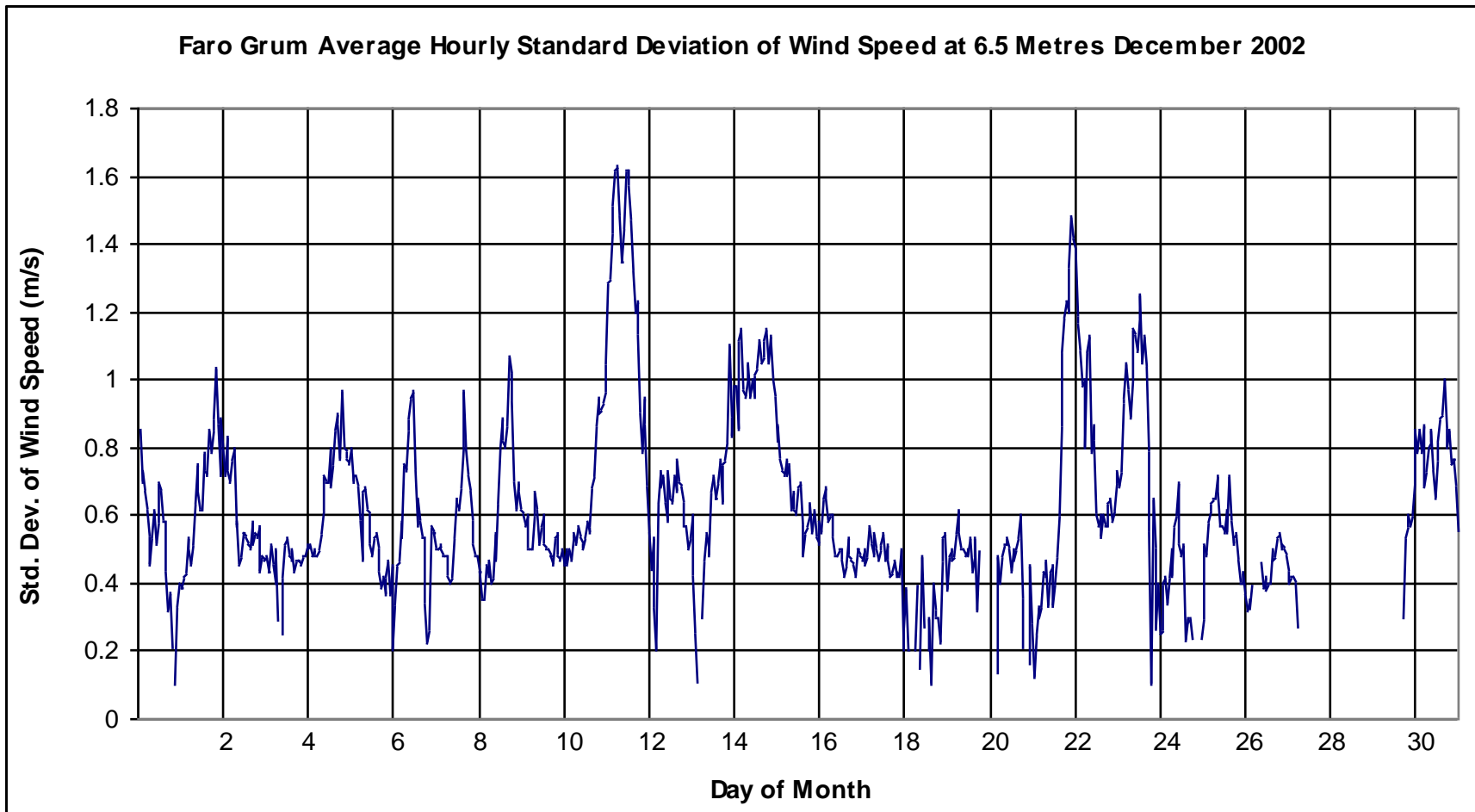


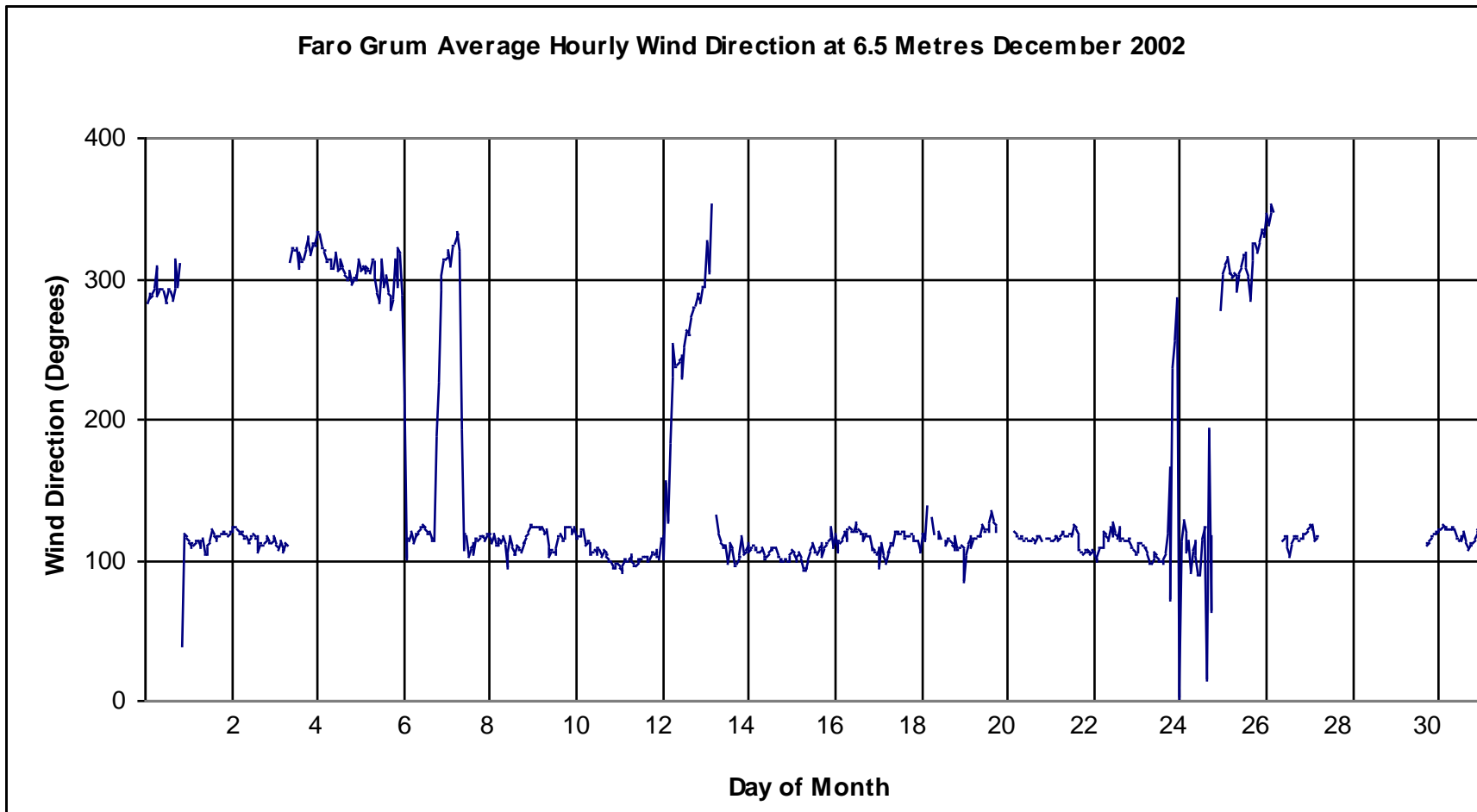


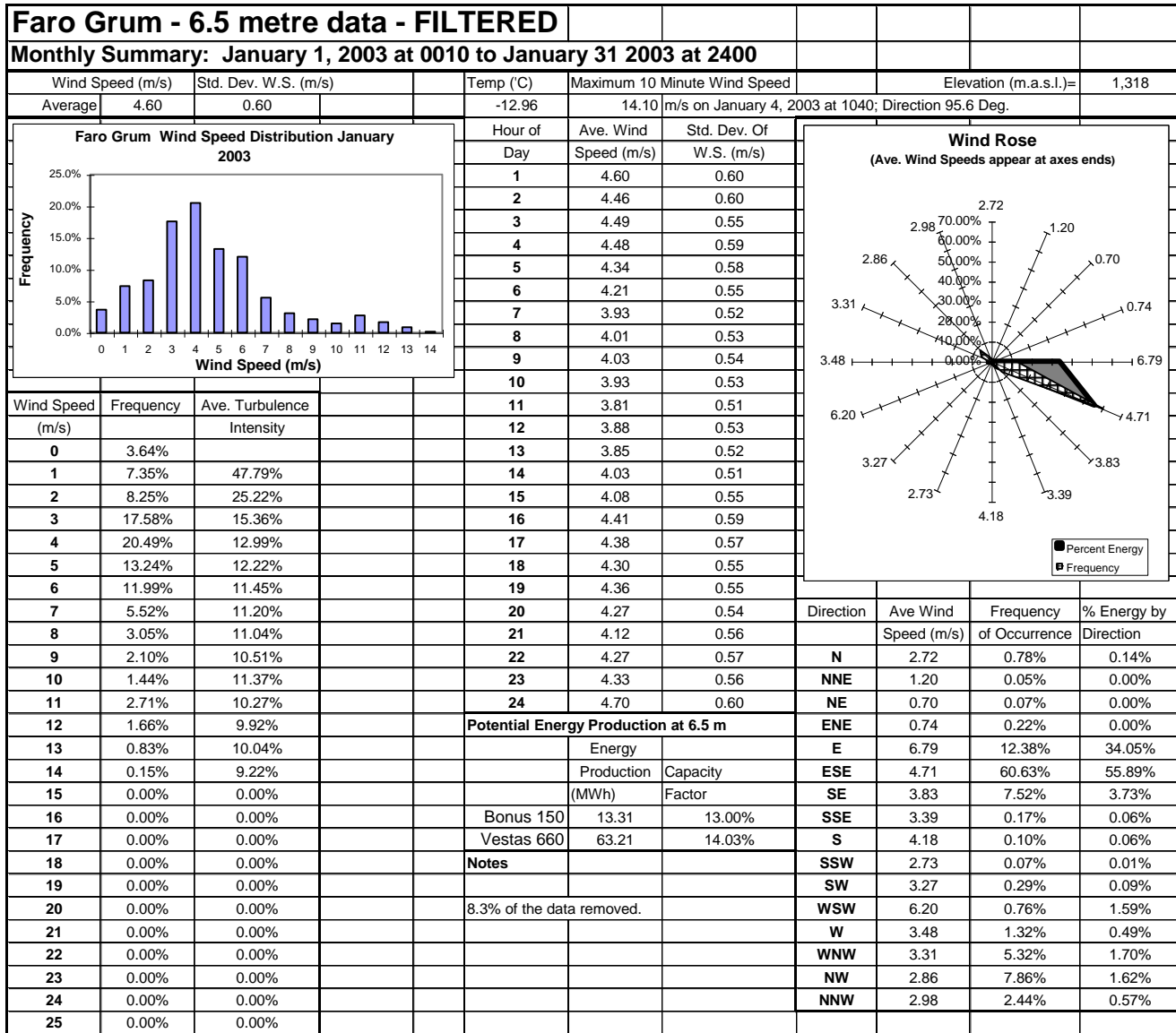


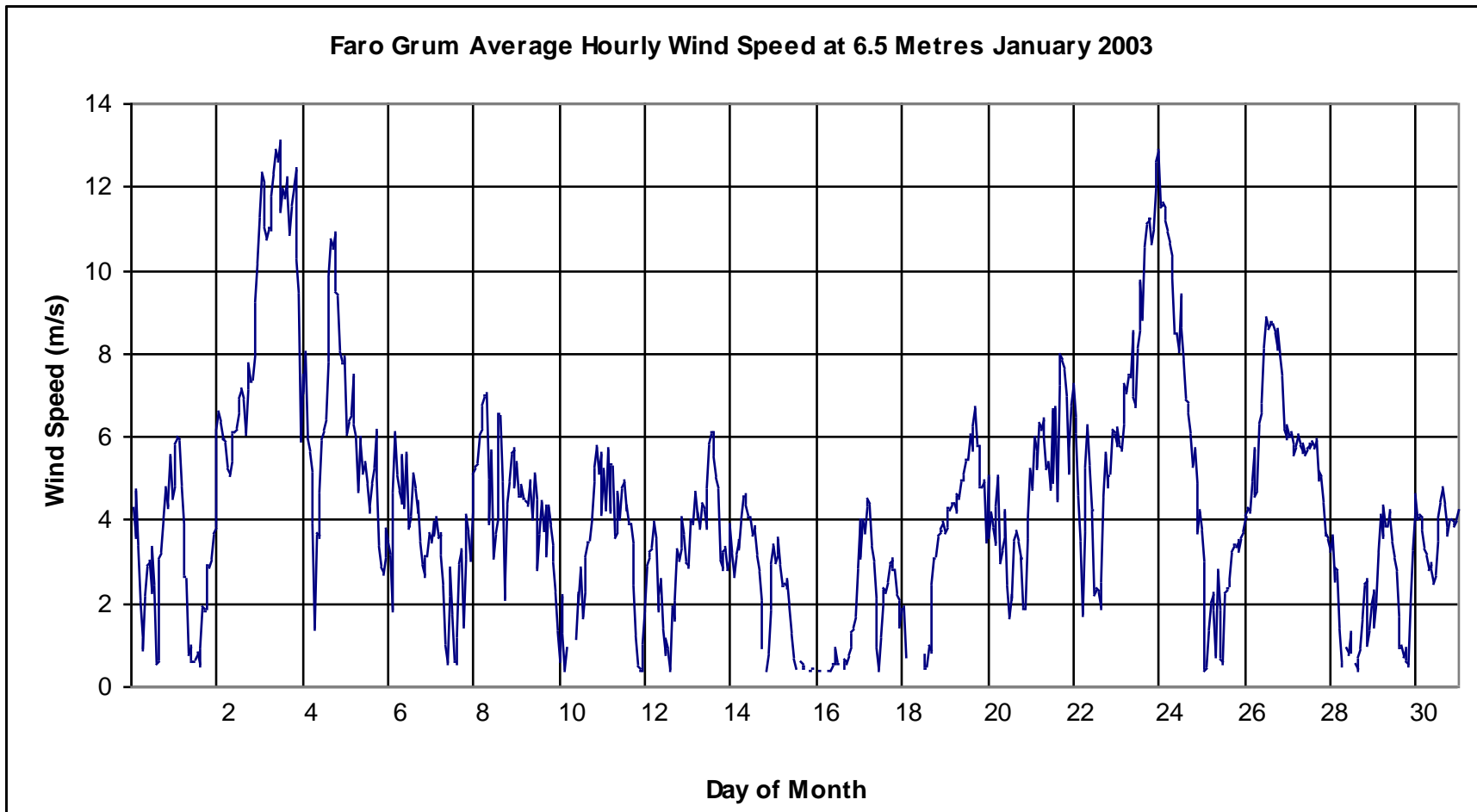
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Monthly Summary: December 1, 2002 at 0010 to December 31, 2002 at 2400																																																																																						
Wind Speed (m/s)		Std. Dev. W.S. (m/s)		Temp (°C)	Maximum 10 Minute Wind Speed																																																																																	
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Elevation (m.a.s.l.)=		1,318																																																																																				
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19	3.89	0.51																																																																																				
20	3.86	0.51																																																																																				
21	4.01	0.53																																																																																				
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1	6.50%	45.70%																																																																																				
2	6.53%	24.37%																																																																																				
3	18.59%	15.23%																																																																																				
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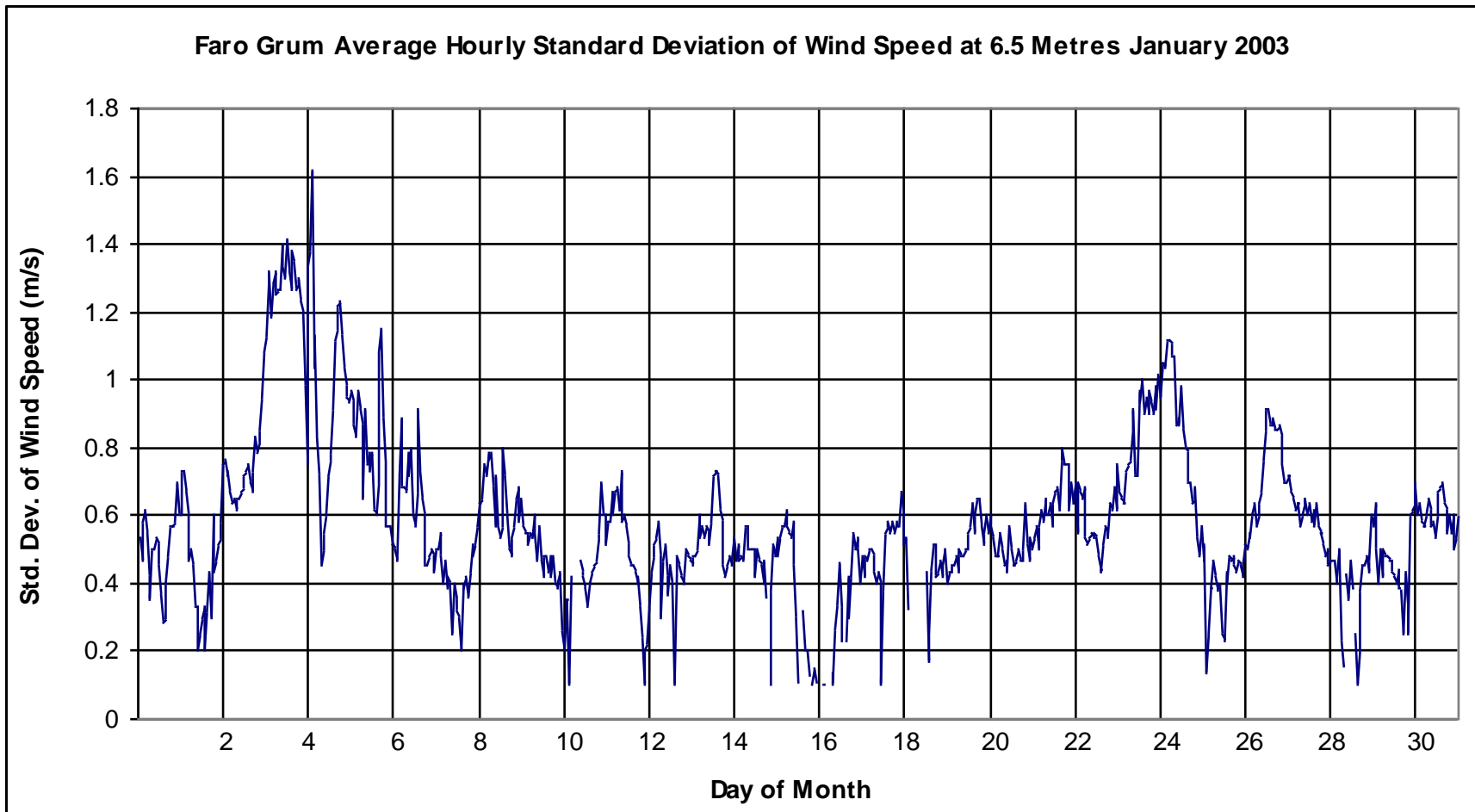


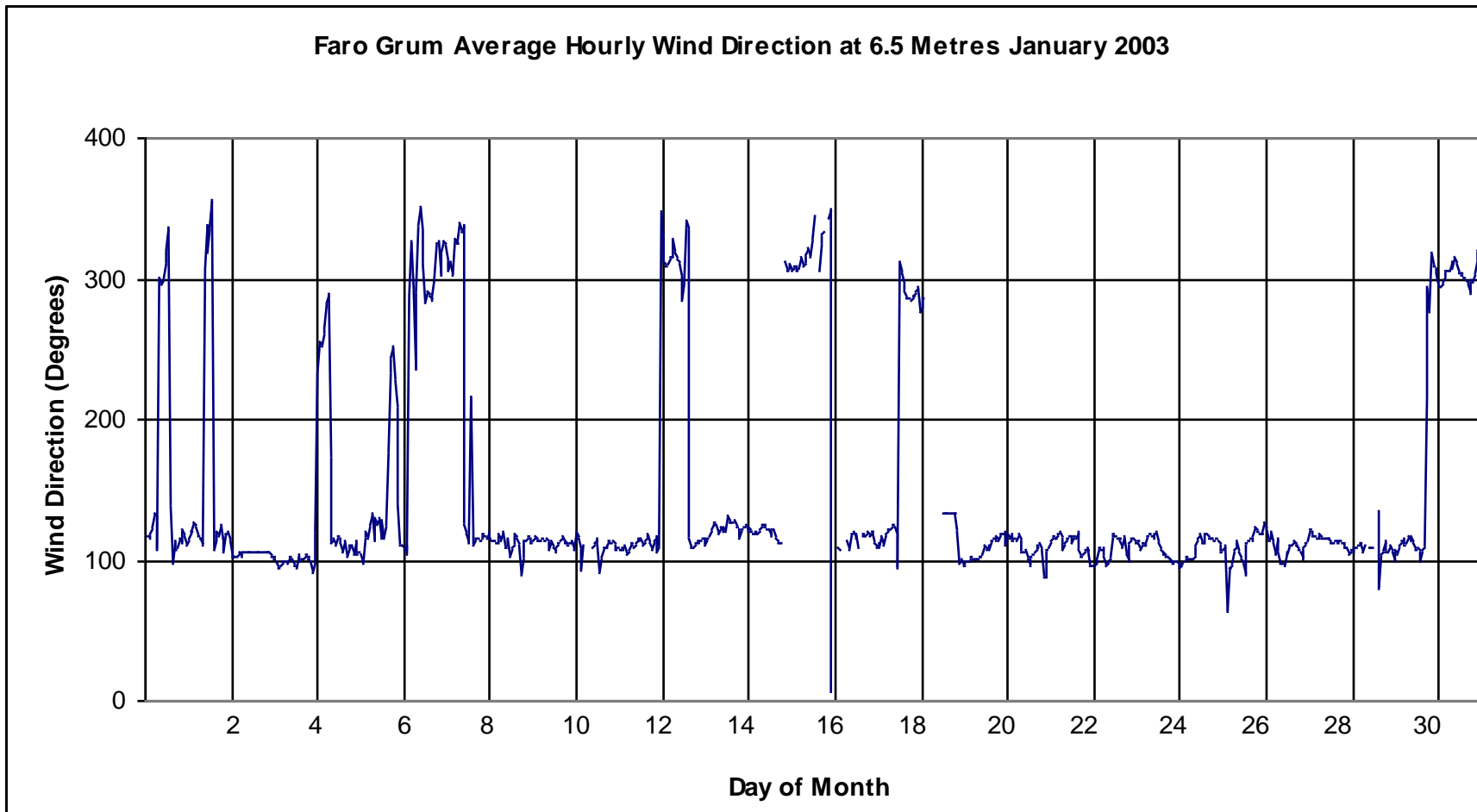












Faro Grum - 6.5 metre data - FILTERED																																																																																	
Monthly Summary: February 1, 2003 at 0010 to February 28, 2003 at 2400																																																																																	
Wind Speed (m/s)		Std. Dev. W.S. (m/s)		Temp (°C)	Maximum 10 Minute Wind Speed																																																																												
Average		0.56		-9.01	9.90 m/s on February 20, 2003 at 0950; Direction 99.8 Deg.																																																																												
3.85						Elevation (m.a.s.l.)= 1,318																																																																											
			<table border="1"> <thead> <tr> <th>Hour of Day</th> <th>Ave. Wind Speed (m/s)</th> <th>Std. Dev. Of W.S. (m/s)</th> </tr> </thead> <tbody> <tr><td>1</td><td>2.67</td><td>0.39</td></tr> <tr><td>2</td><td>2.79</td><td>0.40</td></tr> <tr><td>3</td><td>2.84</td><td>0.40</td></tr> <tr><td>4</td><td>2.83</td><td>0.40</td></tr> <tr><td>5</td><td>2.92</td><td>0.41</td></tr> <tr><td>6</td><td>2.85</td><td>0.41</td></tr> <tr><td>7</td><td>2.73</td><td>0.38</td></tr> <tr><td>8</td><td>2.76</td><td>0.38</td></tr> <tr><td>9</td><td>2.70</td><td>0.36</td></tr> <tr><td>10</td><td>2.70</td><td>0.37</td></tr> <tr><td>11</td><td>2.70</td><td>0.39</td></tr> <tr><td>12</td><td>2.79</td><td>0.41</td></tr> <tr><td>13</td><td>2.82</td><td>0.42</td></tr> <tr><td>14</td><td>3.02</td><td>0.44</td></tr> <tr><td>15</td><td>2.93</td><td>0.43</td></tr> <tr><td>16</td><td>2.81</td><td>0.41</td></tr> <tr><td>17</td><td>2.77</td><td>0.40</td></tr> <tr><td>18</td><td>2.53</td><td>0.38</td></tr> <tr><td>19</td><td>2.56</td><td>0.37</td></tr> <tr><td>20</td><td>2.62</td><td>0.38</td></tr> <tr><td>21</td><td>2.50</td><td>0.39</td></tr> <tr><td>22</td><td>2.55</td><td>0.40</td></tr> <tr><td>23</td><td>2.46</td><td>0.37</td></tr> <tr><td>24</td><td>2.52</td><td>0.36</td></tr> </tbody> </table>		Hour of Day	Ave. Wind Speed (m/s)	Std. Dev. Of W.S. (m/s)	1	2.67	0.39	2	2.79	0.40	3	2.84	0.40	4	2.83	0.40	5	2.92	0.41	6	2.85	0.41	7	2.73	0.38	8	2.76	0.38	9	2.70	0.36	10	2.70	0.37	11	2.70	0.39	12	2.79	0.41	13	2.82	0.42	14	3.02	0.44	15	2.93	0.43	16	2.81	0.41	17	2.77	0.40	18	2.53	0.38	19	2.56	0.37	20	2.62	0.38	21	2.50	0.39	22	2.55	0.40	23	2.46	0.37	24	2.52	0.36		
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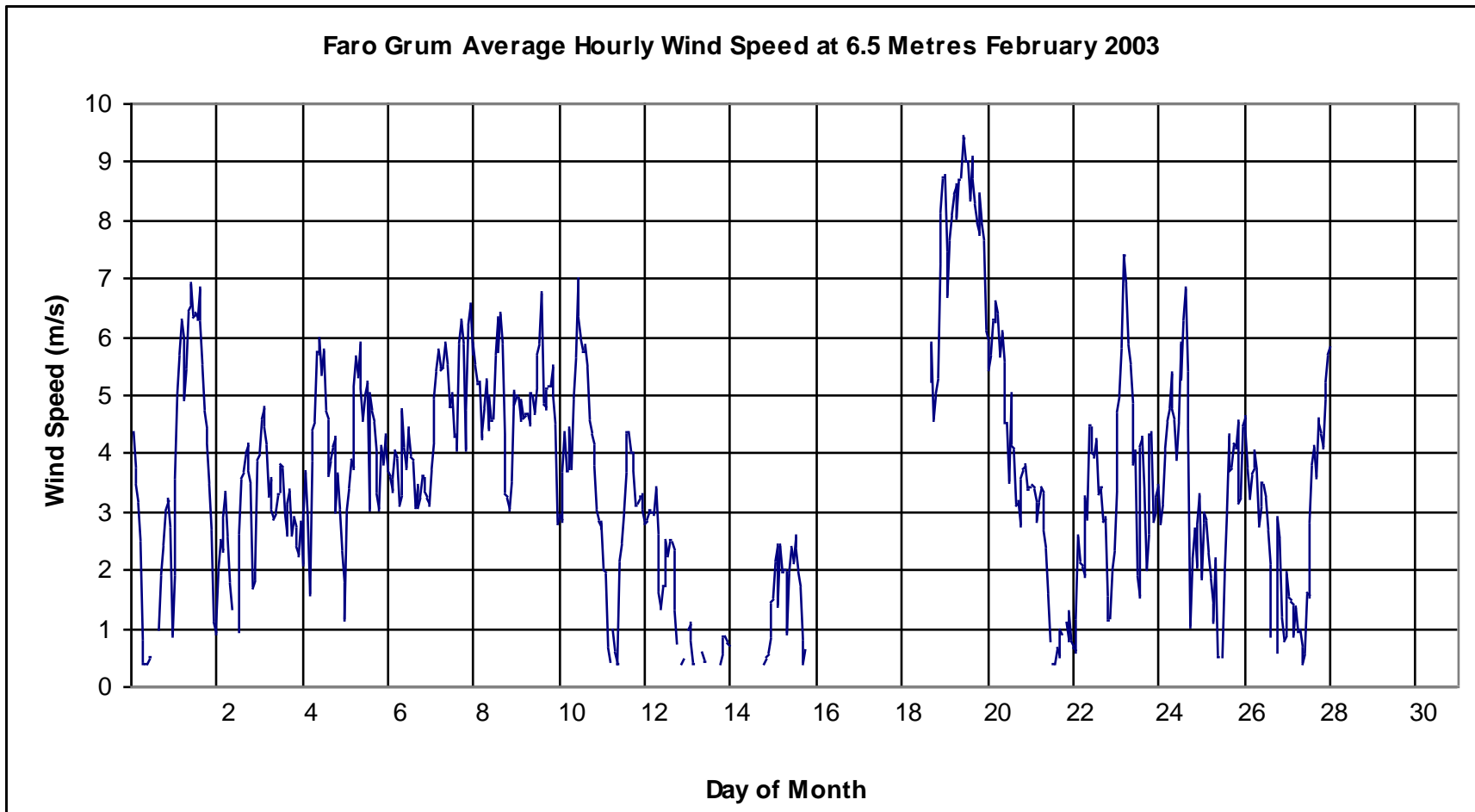
Potential Energy Production at 6.5 m

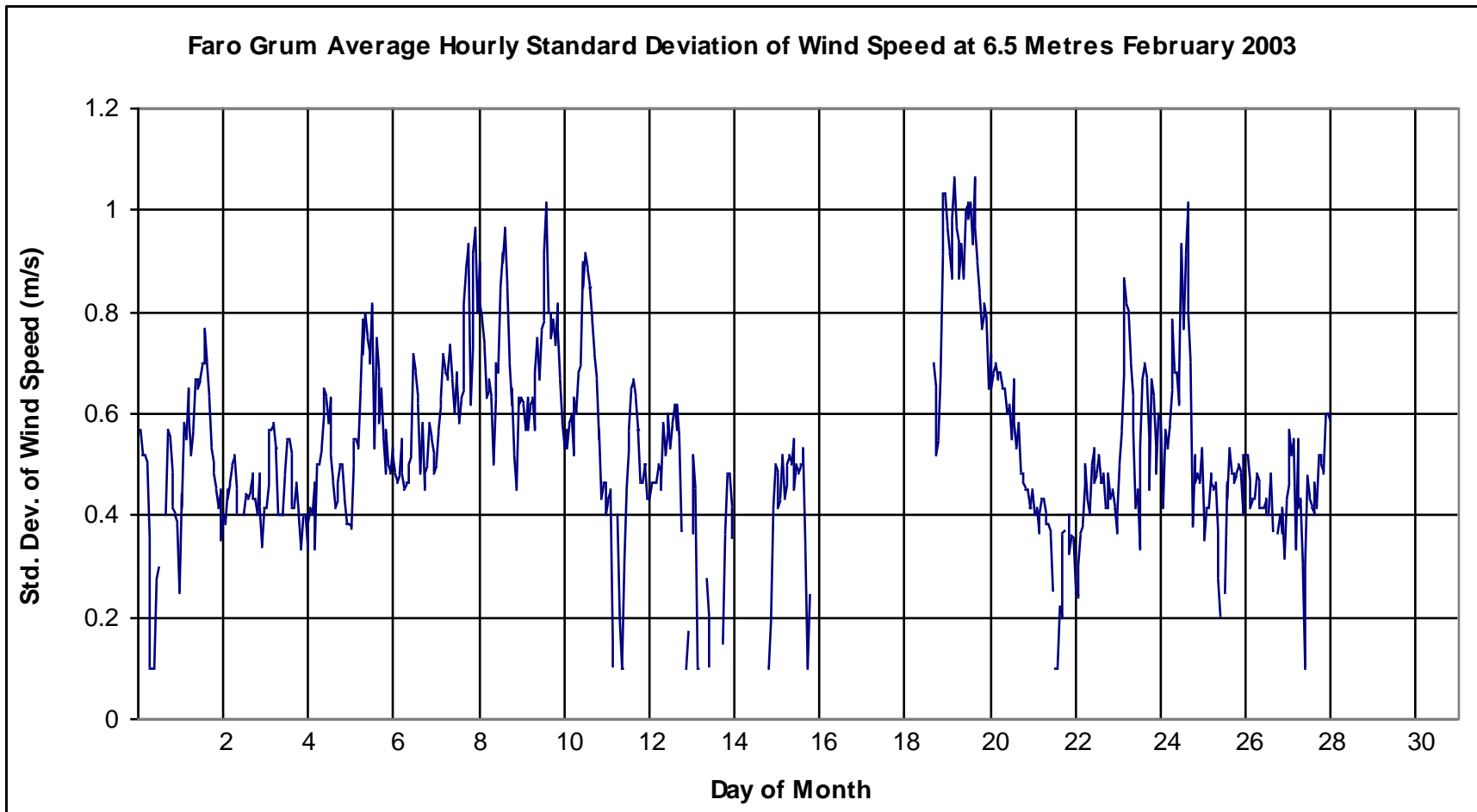
Energy Production (MWh)	Capacity Factor
Bonus 150	4.99 6.31%
Vestas 660	23.44 6.74%

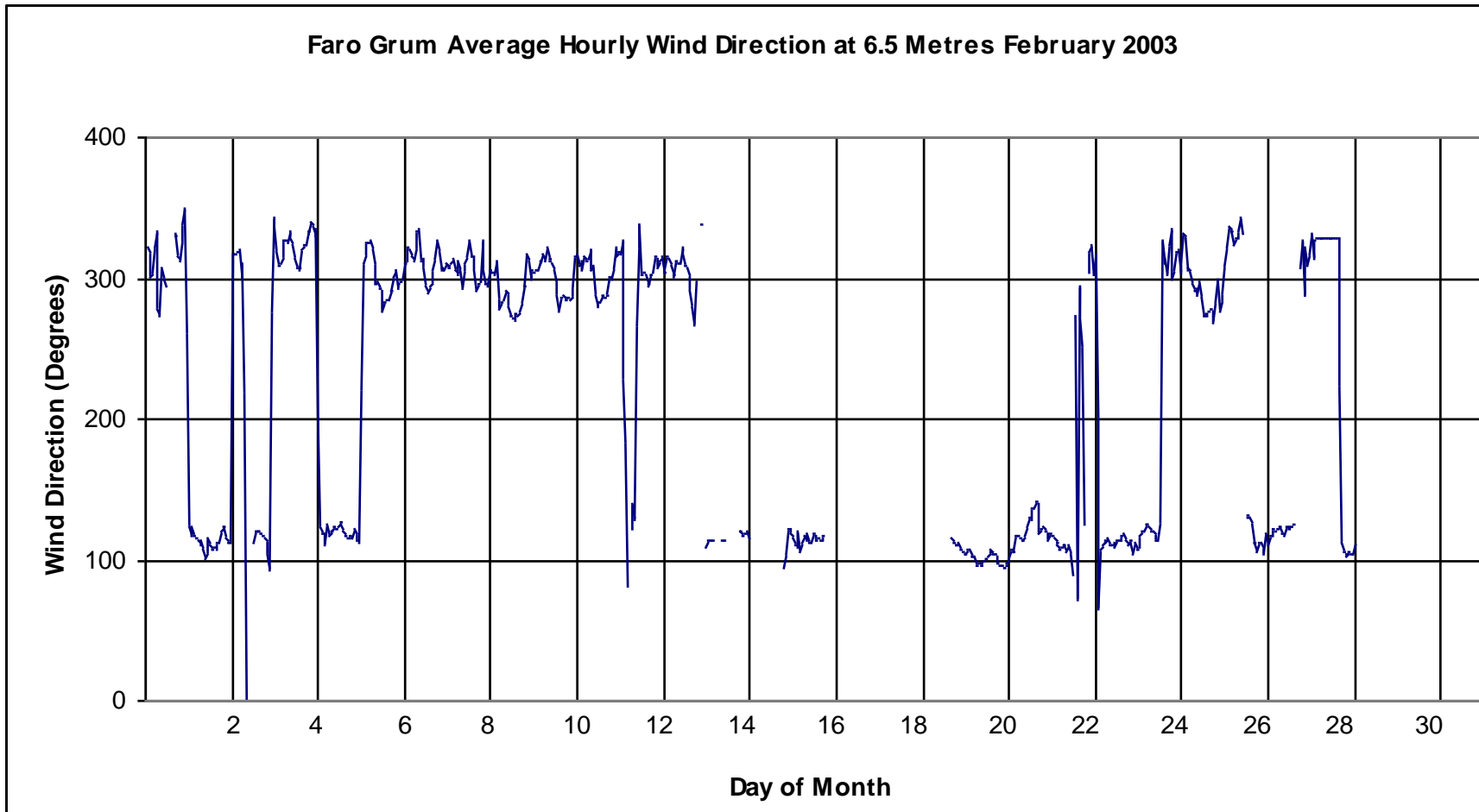
Notes

21.6% of the data removed.  
 This is a lot more deleted data than for the anem at 30 m

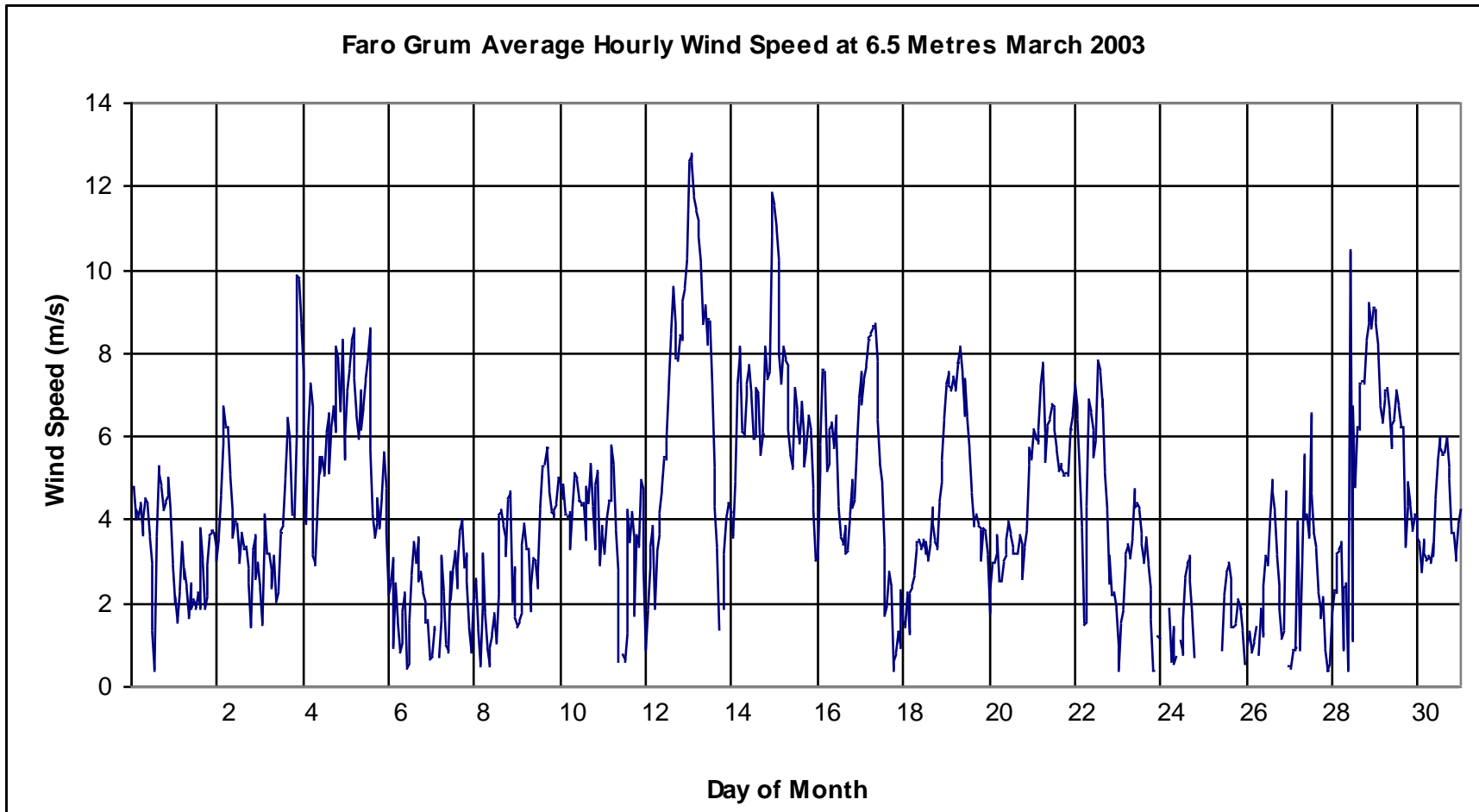
Direction	Ave Wind Speed (m/s)	Frequency of Occurrence	% Energy by Direction
N	1.98	0.82%	0.10%
NNE	0.67	0.22%	0.00%
NE	0.63	0.19%	0.00%
ENE	0.93	0.13%	0.00%
E	6.69	4.33%	19.61%
ESE	3.88	32.08%	28.27%
SE	3.91	6.14%	5.55%
SSE	1.35	0.13%	0.00%
S	1.30	0.03%	0.00%
SSW	0.00	0.00%	0.00%
SW	0.00	0.00%	0.00%
WSW	0.75	0.19%	0.00%
W	4.83	4.90%	8.38%
WNW	4.33	16.20%	19.89%
NW	3.50	24.14%	15.73%
NNW	2.49	10.50%	2.47%

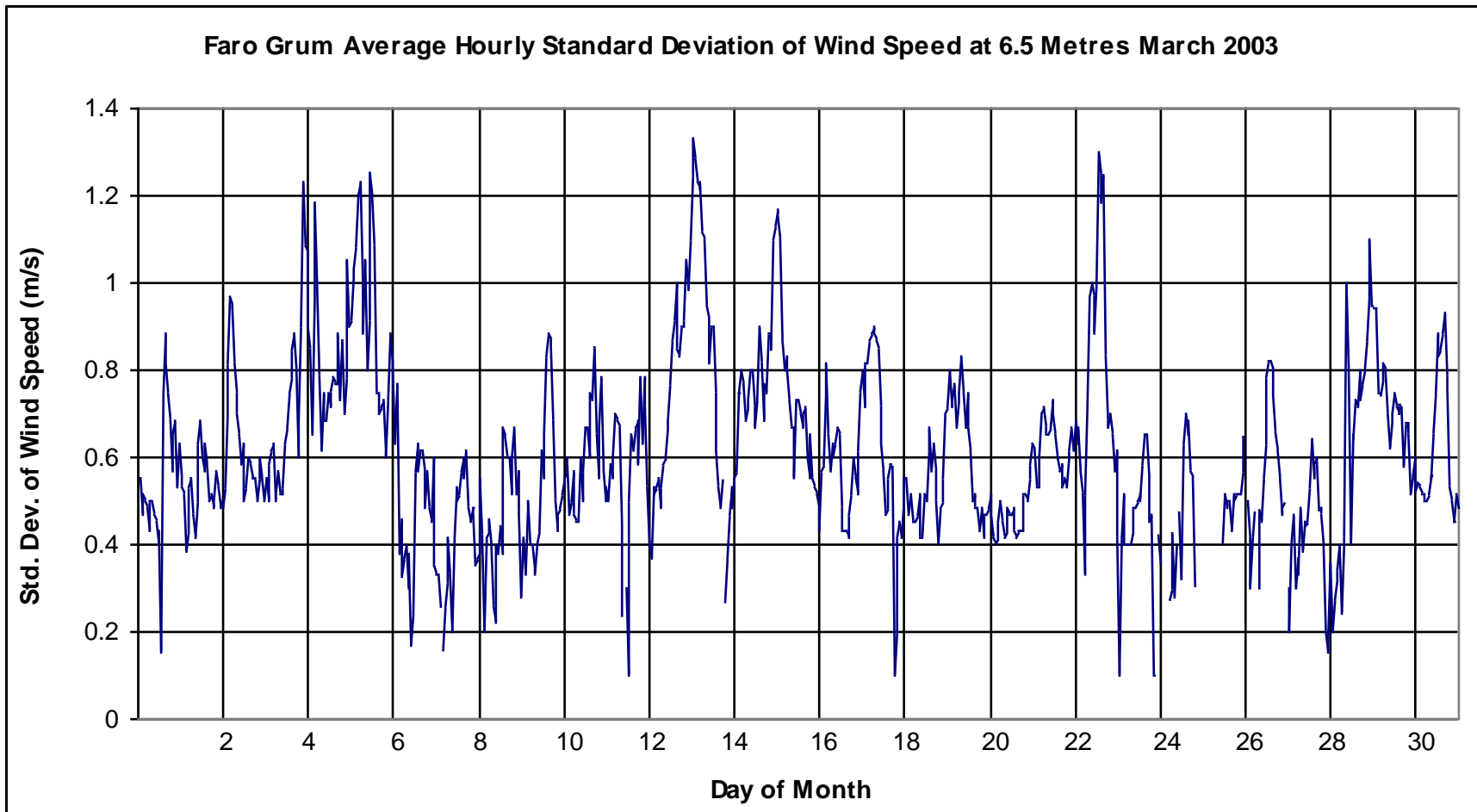


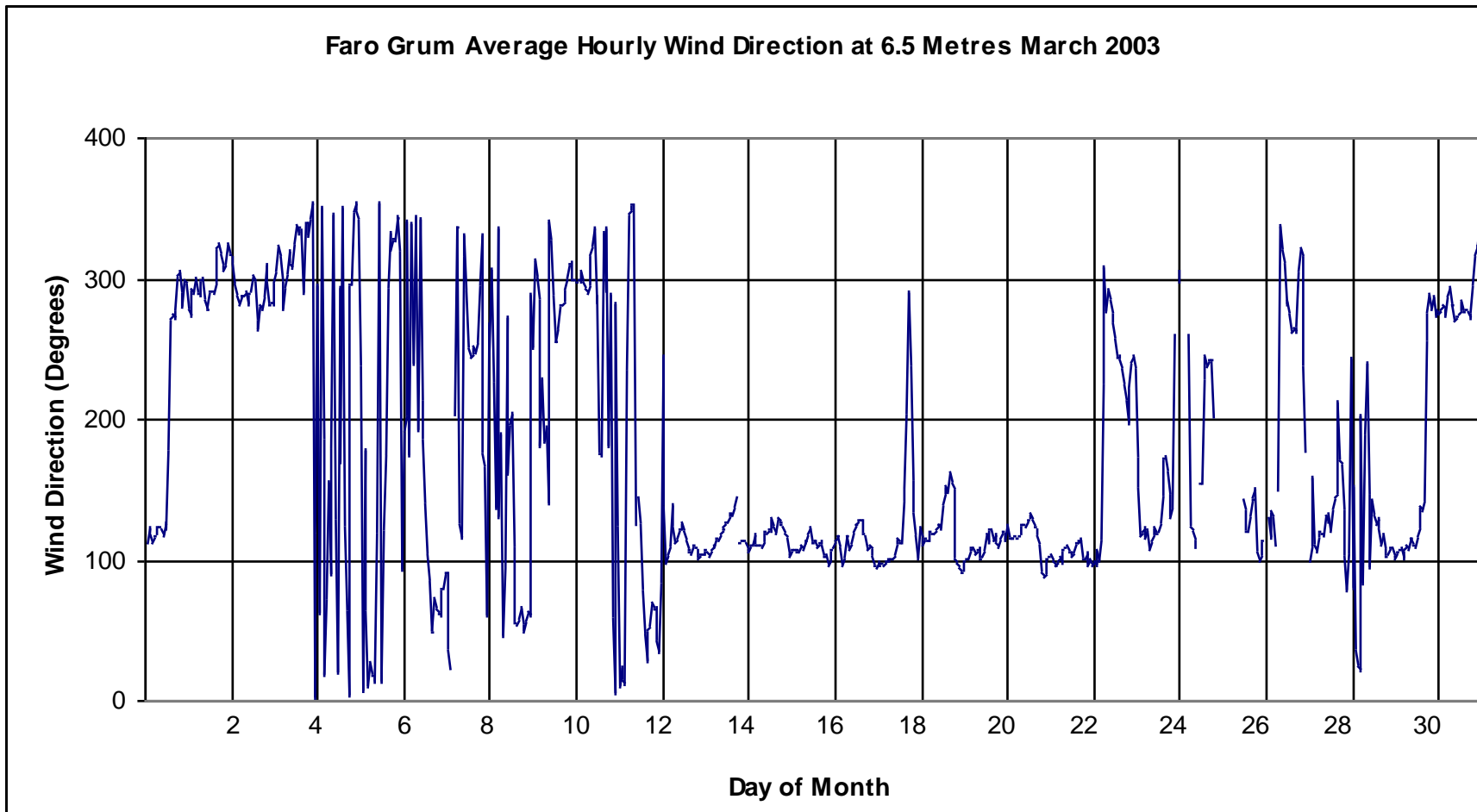




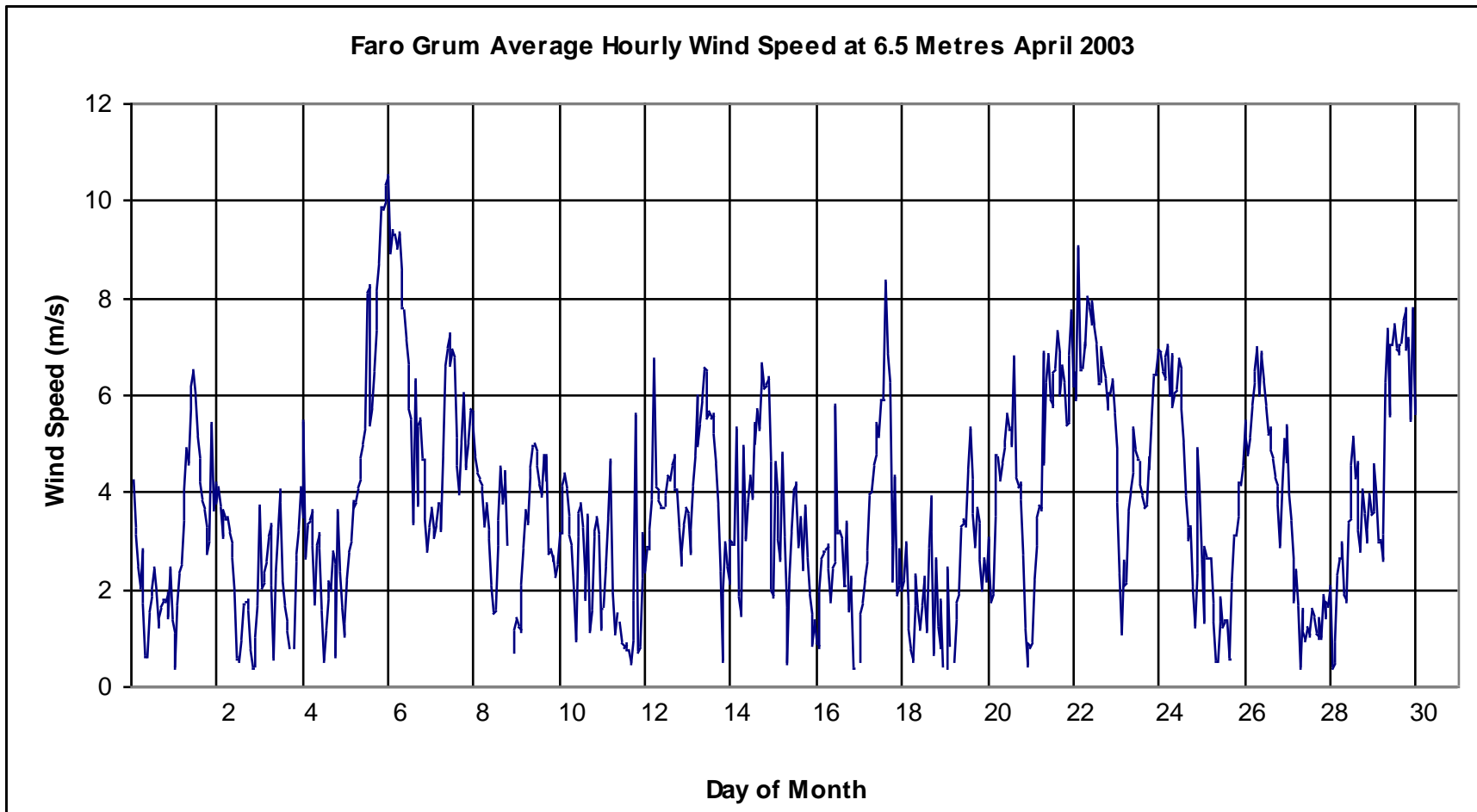


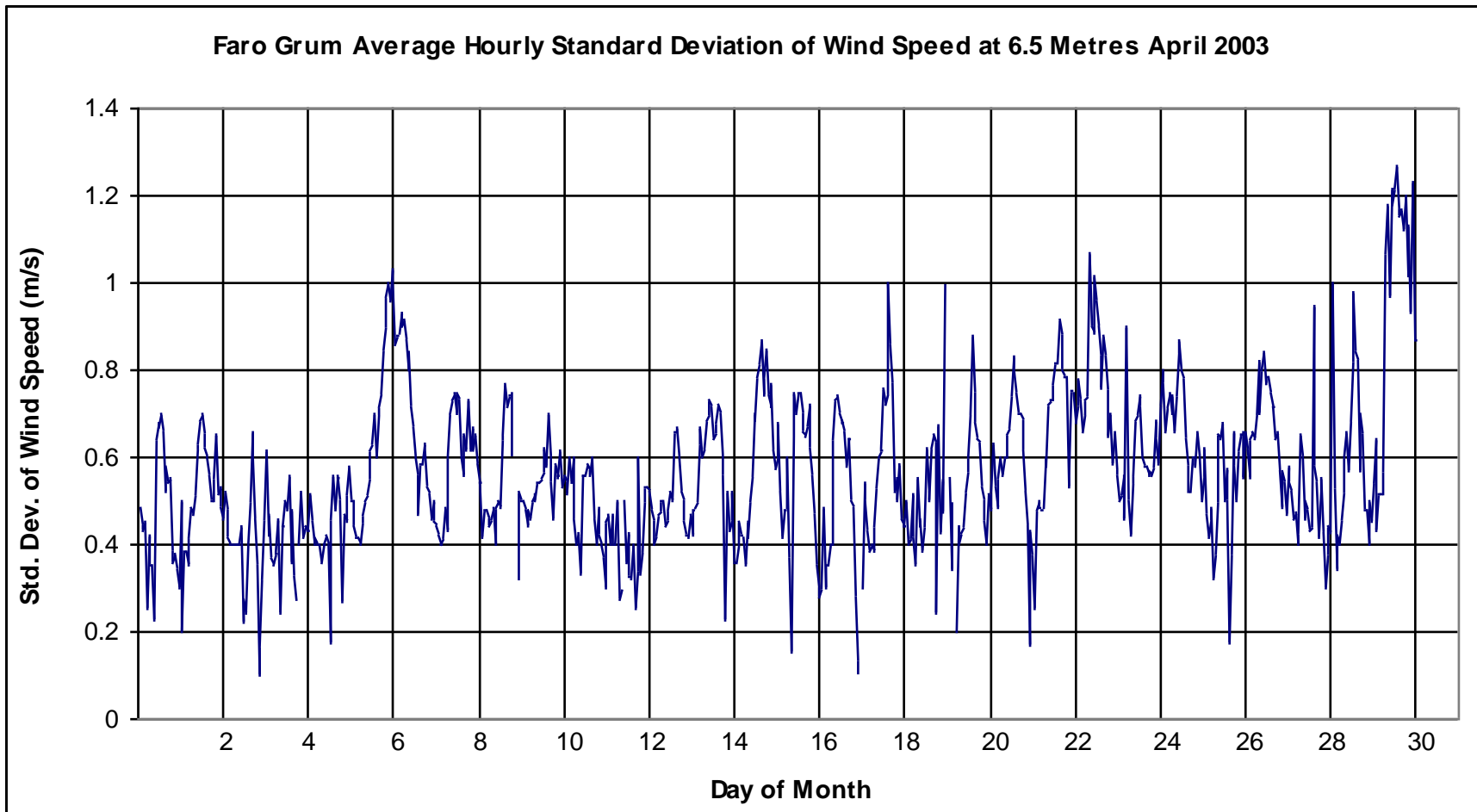


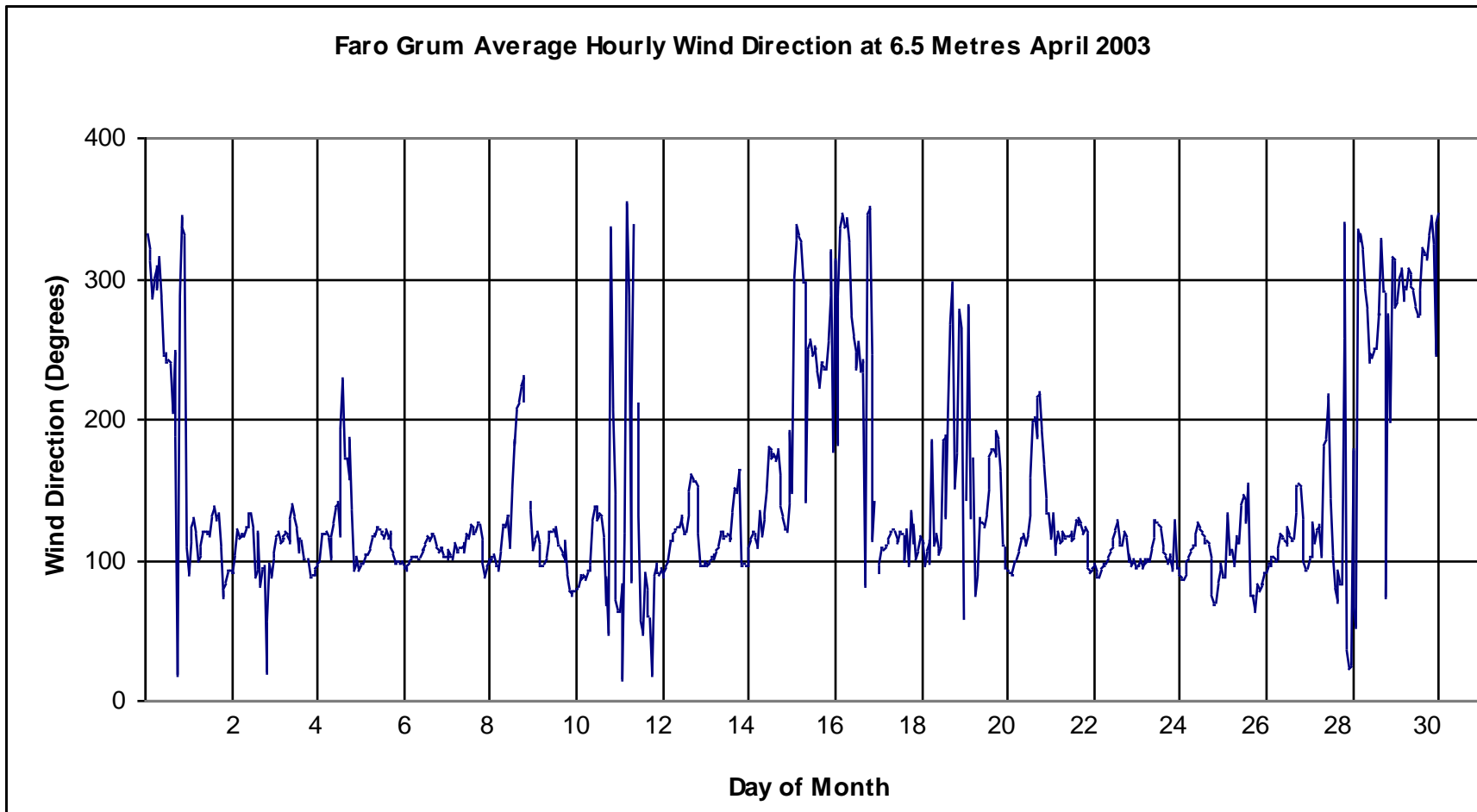




<b>Faro Grum - 6.5 metre data - FILTERED</b>									
<b>Monthly Summary: April 1, 2003 at 0010 to April 30, 2003 at 2400</b>									
Wind Speed (m/s)	Std. Dev. W.S. (m/s)	Temp (°C)	Maximum 10 Minute Wind Speed	Elevation (m.a.s.l.)	1,318				
Average	3.88	0.58	22.40	m/s on April 23, 2003 at 0250; Direction 90 Deg.					
			Hour of Day	Ave. Wind Speed (m/s)	Std. Dev. Of W.S. (m/s)				
Wind Speed (m/s)	Frequency	Ave. Turbulence Intensity	1	2.63	0.40				
0	3.32%		2	2.89	0.44				
1	10.66%	47.52%	3	3.15	0.43				
2	14.09%	26.27%	4	3.15	0.42				
3	21.03%	15.75%	5	3.46	0.44				
4	18.03%	13.67%	6	3.17	0.43				
5	11.44%	12.77%	7	3.34	0.44				
6	10.21%	12.10%	8	3.14	0.44				
7	6.27%	12.21%	9	3.29	0.46				
8	2.41%	11.84%	10	3.82	0.56				
9	1.15%	10.53%	11	3.91	0.57				
10	0.72%	10.12%	12	3.73	0.56				
11	0.19%	9.29%	13	3.75	0.59				
12	0.00%	0.00%	14	3.35	0.58				
13	0.00%	0.00%	15	3.56	0.57				
14	0.00%	0.00%	16	3.26	0.56				
15	0.03%	2.60%	17	3.29	0.54				
16	0.05%	5.06%	18	3.27	0.52				
17	0.05%	3.47%	19	3.00	0.48				
18	0.03%	5.43%	20	2.96	0.46				
19	0.11%	2.91%	21	2.93	0.44				
20	0.08%	3.98%	22	3.05	0.45				
21	0.03%	3.27%	23	3.02	0.44				
22	0.08%	3.63%	24	2.73	0.38				
23	0.00%	0.00%	<b>Potential Energy Production at 6.5 m</b>			Direction	Ave Wind Speed (m/s)	Frequency of Occurrence	% Energy by Direction
24	0.00%	0.00%	Energy Production Capacity (MWh) Factor			N	3.01	3.32%	1.44%
25	0.00%	0.00%	Bonus 150 6.84 7.33%			NNE	1.50	1.50%	0.08%
			Vestas 660 33.73 8.22%			NE	1.23	0.54%	0.02%
			<b>Notes</b>			ENE	2.11	2.44%	0.37%
			4.2% of data deleted based on std w.s. =0			E	4.13	24.22%	27.26%
			10.6% of data deleted when data associated with std w.s. >3m/s also deleted.			ESE	4.43	31.51%	43.71%
			13.6% of data deleted when data associated with w.s. > 30m/s also deleted.			SE	3.86	12.25%	11.27%
						SSE	3.54	3.30%	2.33%
						S	3.25	3.03%	1.67%
						SSW	3.24	1.66%	0.90%
						SW	2.98	1.82%	0.77%
						WSW	3.19	3.05%	1.59%
						W	3.70	2.06%	1.68%
						WNW	3.81	2.25%	1.98%
						NW	3.88	3.40%	3.18%
						NNW	3.11	3.64%	1.76%

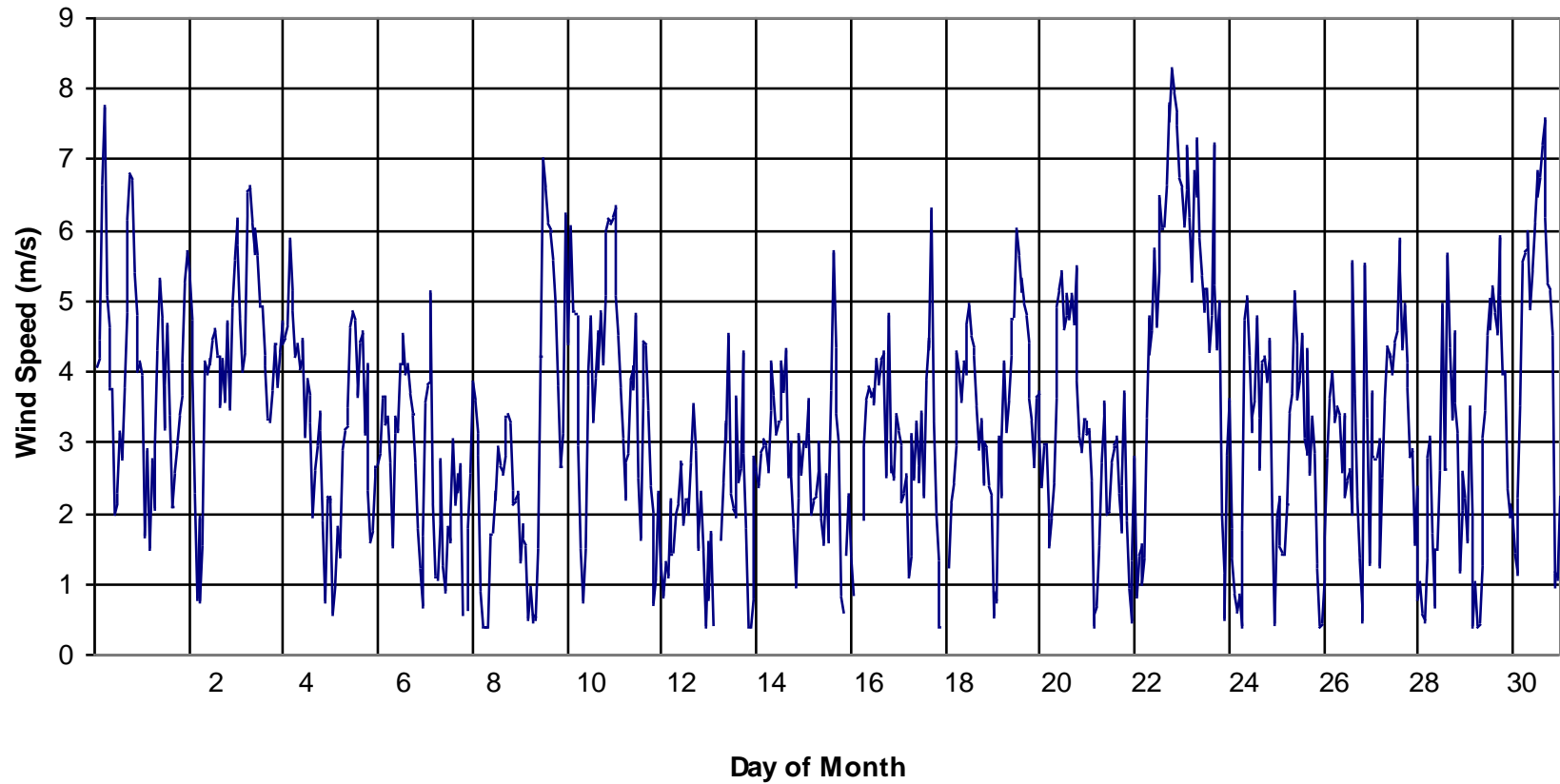


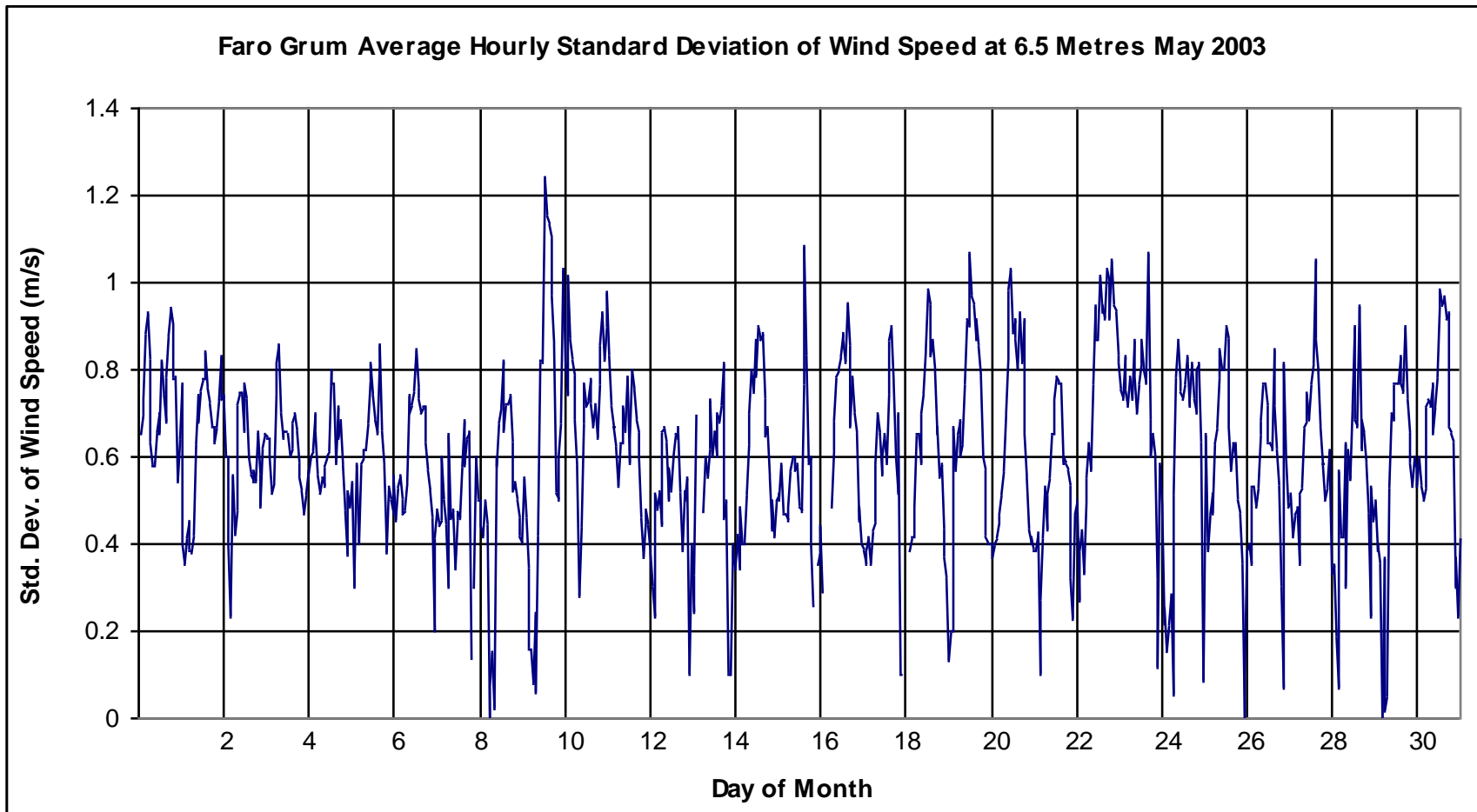


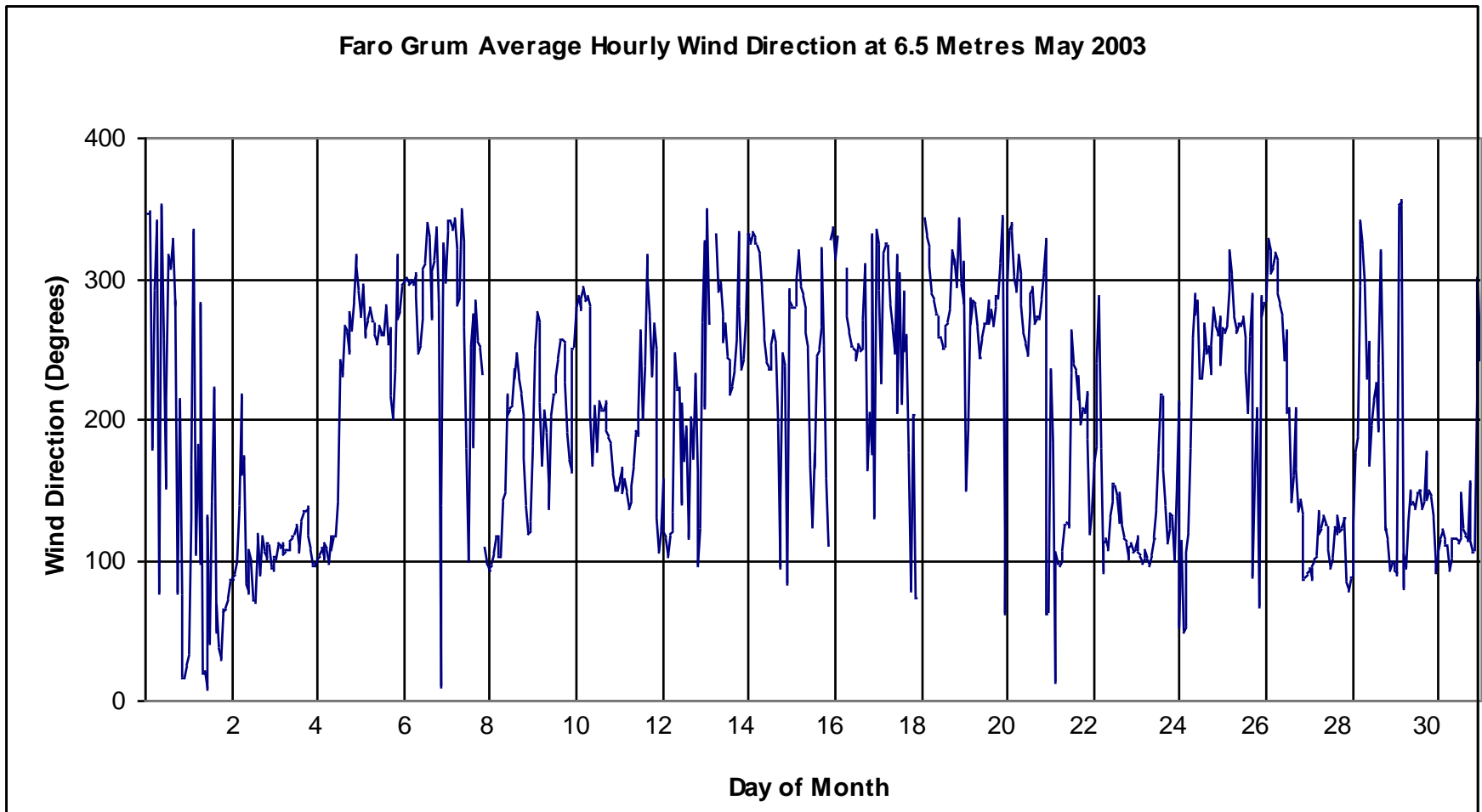


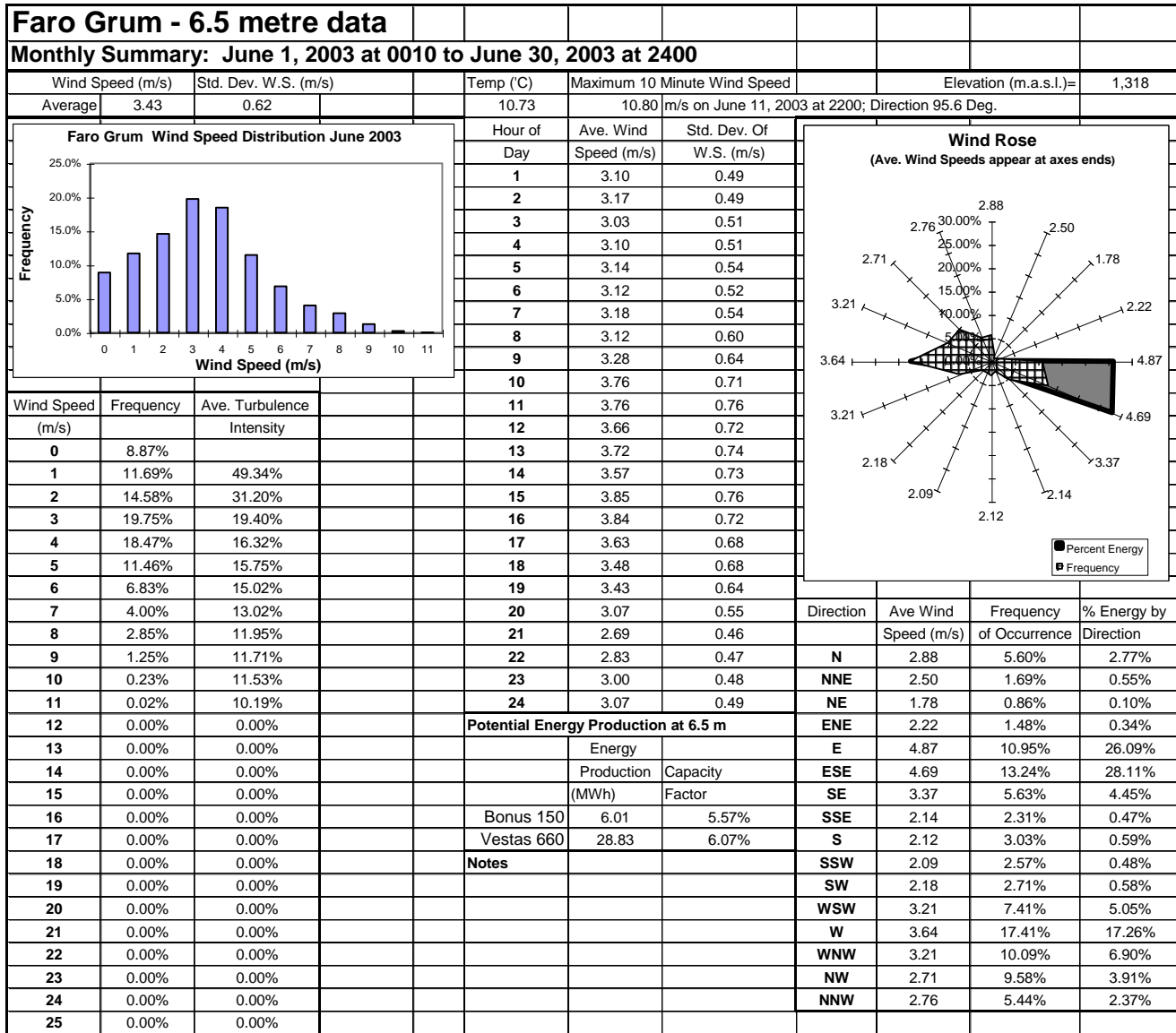
Faro Grum - 6.5 metre data - FILTERED											
Monthly Summary: May 1, 2003 at 0010 to May 31, 2003 at 2400											
Wind Speed (m/s)		Std. Dev. W.S. (m/s)		Temp (°C)	Maximum 10 Minute Wind Speed		Elevation (m.a.s.l.)= 1,318				
Average		3.37		0.62	6.07	8.90		May 23, 2003 at 1840; Direction 97 Deg.			
				Hour of Day	Ave. Wind Speed (m/s)	Std. Dev. Of W.S. (m/s)					
				1	2.37	0.41					
				2	2.48	0.40					
				3	2.62	0.45					
				4	2.20	0.40					
				5	2.43	0.45					
				6	2.55	0.46					
				7	2.89	0.54					
				8	3.33	0.57					
				9	3.43	0.64					
				10	3.48	0.66					
				11	3.53	0.71					
				12	3.82	0.75					
				13	3.70	0.73					
				14	3.89	0.76					
				15	4.07	0.76					
				16	3.99	0.74					
				17	3.91	0.69					
				18	3.58	0.63					
				19	3.27	0.55					
				20	2.47	0.46					
				21	2.37	0.44					
				22	2.34	0.42					
				23	2.76	0.46					
				24	2.70	0.44					
				<b>Potential Energy Production at 6.5 m</b>							
				Energy Production (MWh)		Capacity Factor					
				Bonus 150	4.07	3.98%					
				Vestas 660	18.16	4.03%					
				<b>Notes</b>							
				3.7% of data deleted based on std of w.s. =0& temperature at or below freezing							
				6.9% of data deleted when data associated with std of w.s.>3m/s also deleted.							
				8.2% of data deleted when data associated with wind speed > 15 m/s also deleted.							
Wind Speed (m/s)	Frequency	Ave. Turbulence Intensity		Direction		Ave Wind Speed (m/s)	Frequency of Occurrence	% Energy by Direction			
0	5.93%					N	3.37	6.76%	6.43%		
1	9.74%	44.27%				NNE	3.13	1.83%	1.40%		
2	16.89%	28.29%				NE	2.40	1.20%	0.41%		
3	22.82%	18.95%				ENE	3.06	1.66%	1.19%		
4	20.01%	16.54%				E	3.52	8.15%	8.85%		
5	13.52%	15.55%				ESE	4.20	12.69%	23.41%		
6	6.86%	14.65%				SE	3.46	8.23%	8.52%		
7	3.00%	13.42%				SSE	3.90	4.37%	6.49%		
8	1.07%	12.39%				S	3.19	3.37%	2.72%		
9	0.15%	12.34%				SSW	3.10	3.34%	2.50%		
10	0.00%	0.00%				SW	2.94	4.88%	3.08%		
11	0.00%	0.00%				WSW	3.52	9.54%	10.39%		
12	0.00%	0.00%				W	3.36	12.40%	11.74%		
13	0.00%	0.00%				WNW	3.11	7.86%	5.91%		
14	0.00%	0.00%				NW	2.55	7.37%	3.04%		
15	0.00%	0.00%				NNW	2.91	6.35%	3.92%		

Faro Grum Average Hourly Wind Speed at 6.5 Metres May 2003

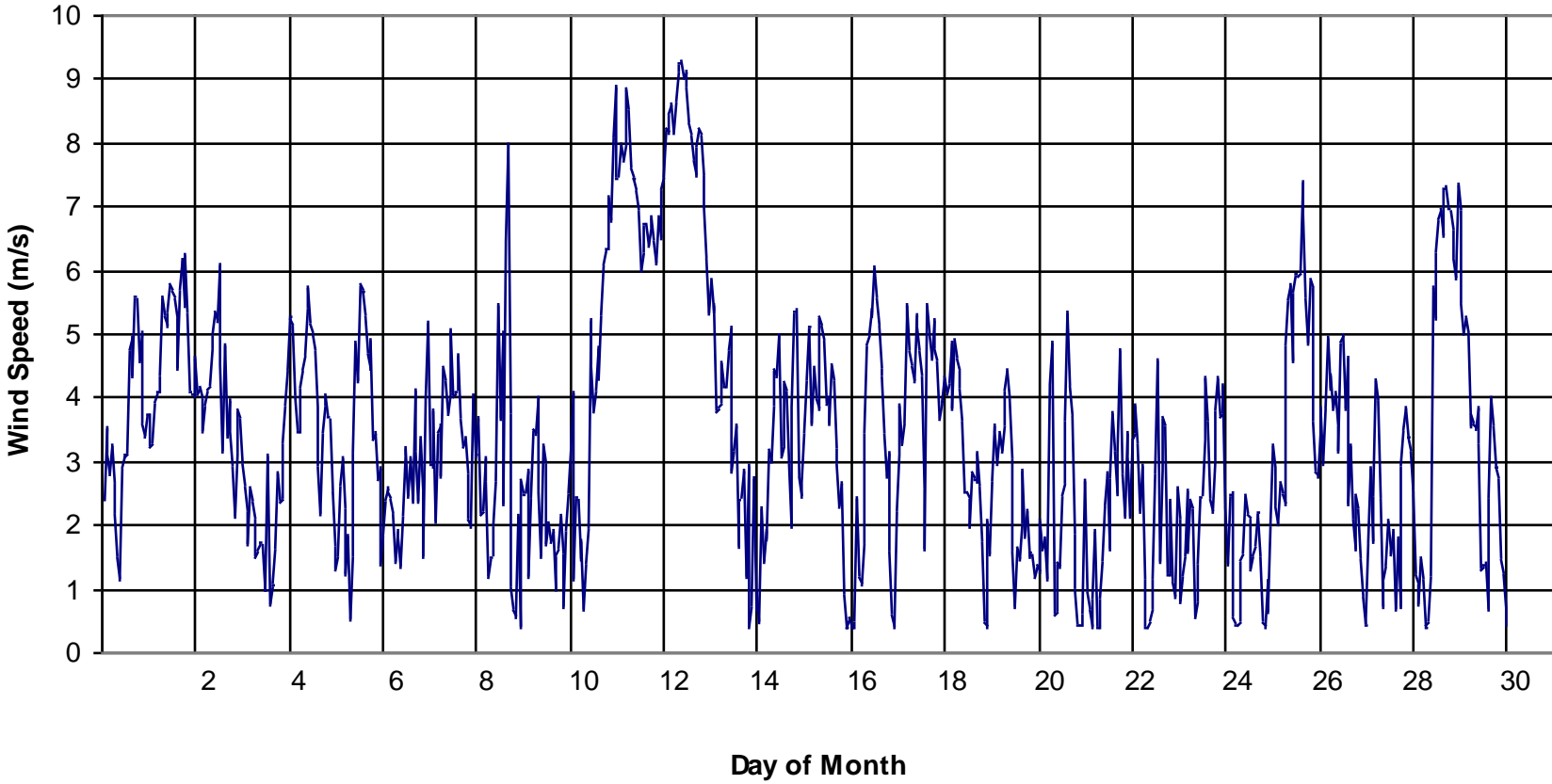


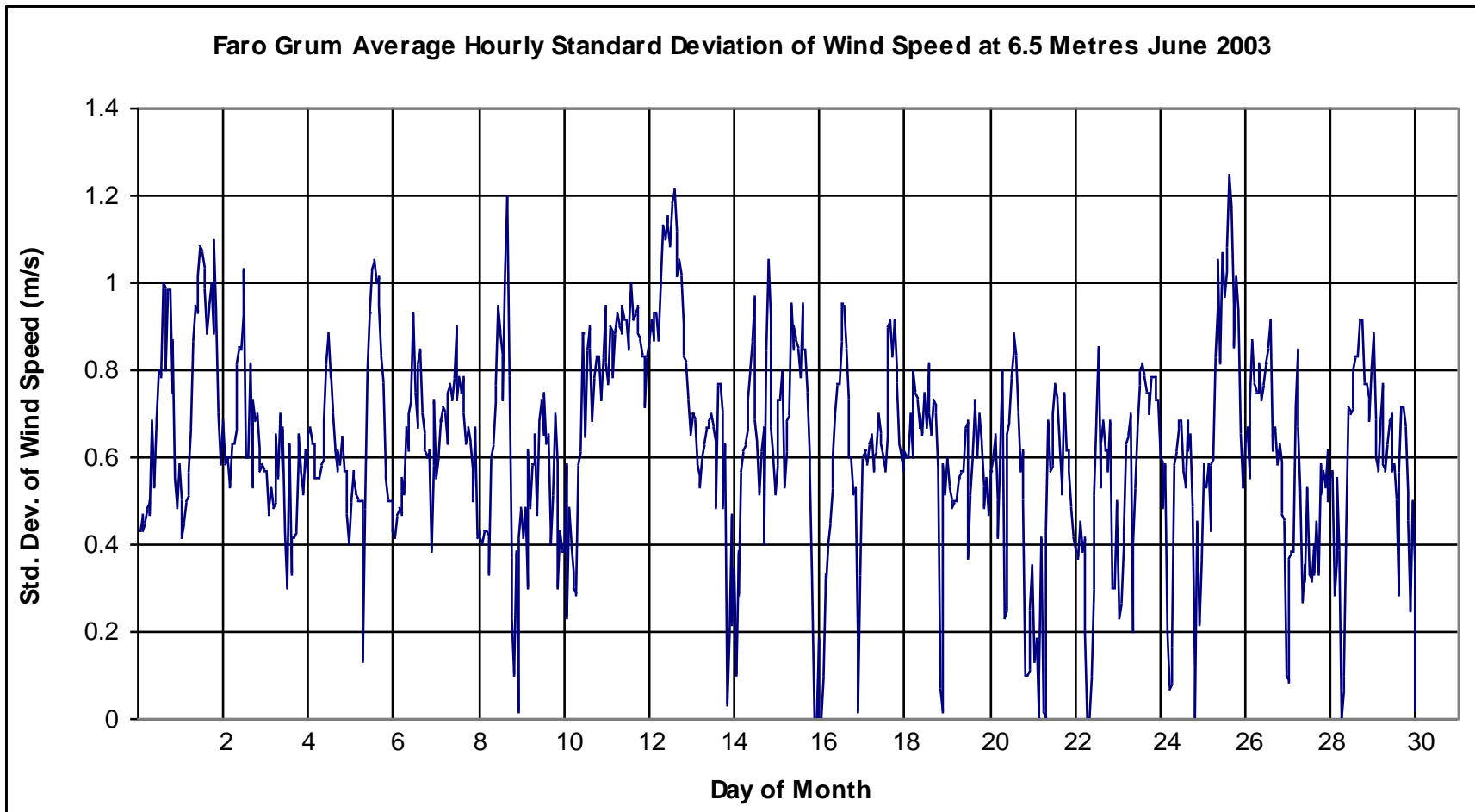


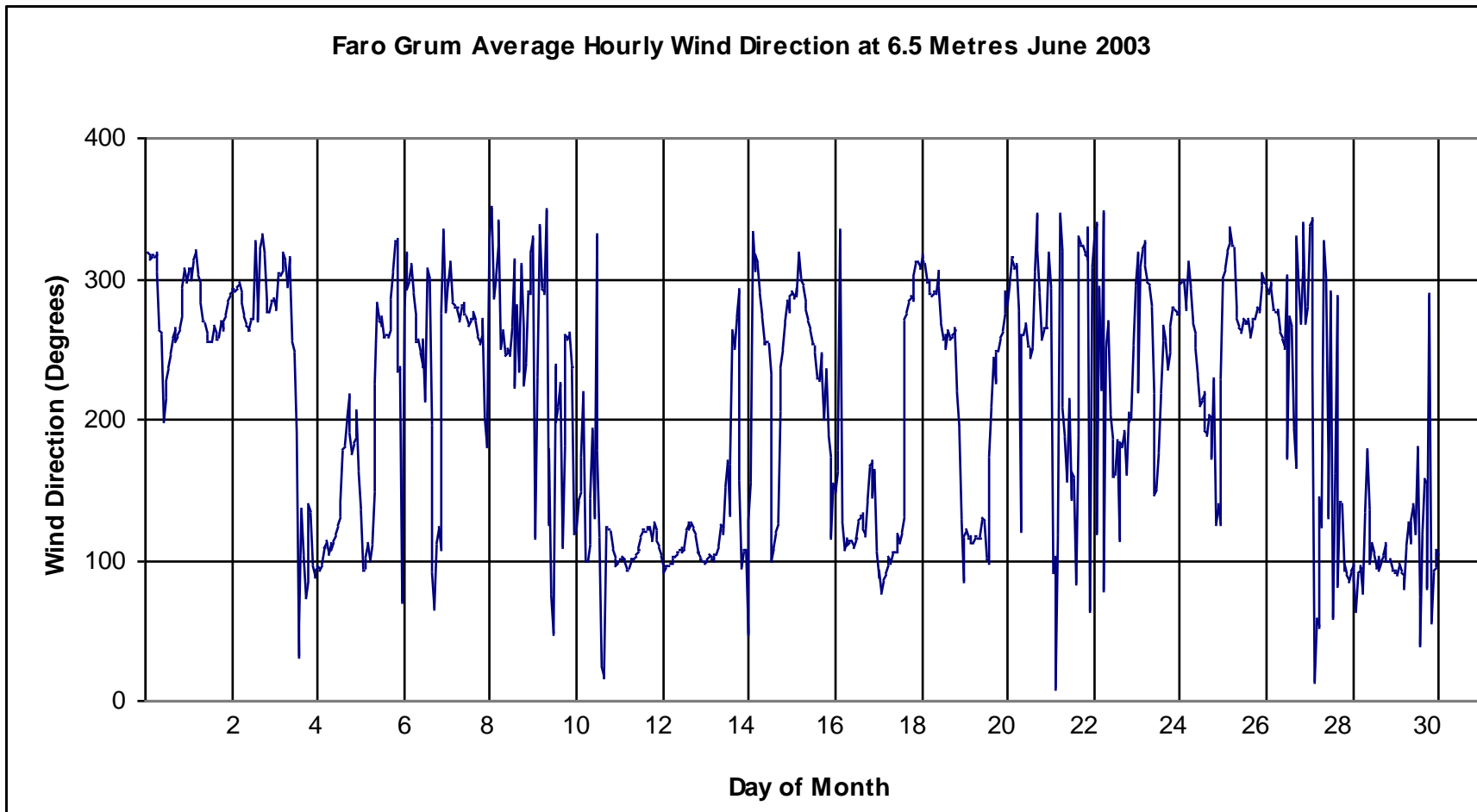




Faro Grum Average Hourly Wind Speed at 6.5 Metres June 2003







# Temperature

