



esp

Environmental &
Safety Professionals

ENVIRONMENTAL NOISE MONITORING QUARTER 4, 2018



Northparkes Mines
PO Box 995
Parkes NSW 2870

Job No: J39839
Report issued: 13 February 2019

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This report relates to specific conditions existing at the time of undertaking the work. Current or future conditions of the areas reviewed may not be able to be assumed or inferred from information contained in this report.

REVISION HISTORY

Revision	Revision Description	Issued	Recipient
1	<i>Final version</i>	13/02/2019	N. Jones, NPM

EXECUTIVE SUMMARY

ESP – Environmental and Safety Professionals (ESP) – was commissioned by Northparkes Mines (NPM) to undertake Environmental Noise Assessments at four residential/farming properties (Hubberstone, Lone Pine, Milpose and Hillview) all within the vicinity of the NPM mine site. Monitoring was conducted to assess noise levels, resulting from NPM operations, at four key receivers around the site.

Attended noise monitoring was undertaken from the 21st to the 23rd of November 2018.

Weather conditions during monitoring were very windy, and at times stormy. Not all measurements could be obtained within the specified range of allowable conditions for this period.

Where measurements were successful during milder weather, attended noise monitoring results indicate noise emissions from the mine site comply with the Project Approval criteria during all monitoring periods.

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1. INTRODUCTION

ESP was commissioned by Northparkes Mines (NPM) to undertake an Environmental Noise Assessment during Quarter 4, 2018 as part of their regular noise monitoring program in accordance with Project Approval 11_0060.

This report presents:

- results of attended measurements from day, evening and night operation of the mine for the period from the 21st to the 23rd November 2018;
- an assessment of the results against Project Approval 11_0060 requirements and the criteria described in Northparkes Mine Step Change Project Approval.

2. BACKGROUND

The NPM site is located approximately 27 kilometres NNW of the town of Parkes, NSW.

ESP was asked to conduct attended monitoring at four locations as per the following table.

Location name	Type
Hillview	Residential & farming
Hubberstone	Residential & farming
Milpose	Residential & farming
Lone Pine	Residential & farming

Table 1: Monitoring location and type

A map showing monitoring locations in relation to the mine site is presented in Appendix A of this report.

3. NOISE LIMITS

Noise Management Plan

NPM has implemented a Noise Management Plan (NMP) which requires noise to be monitored at key locations adjacent to the mine site.

The NMP requires that attended noise monitoring be conducted once per quarter for three consecutive 15-minute periods at each monitoring location for each of the day, evening and night time periods.

Project Specific Criteria

According to PA 11_0060 and the Northparkes Mine Step Change Project Approval, the project specific criteria at each location are as follows:

Period		Project Specific Criteria dB*	
Day	0700 - 1800	$L_{Aeq(15min)}$	35
Evening	1800 – 2200	$L_{Aeq(15min)}$	35
Night	2200 – 0700	$L_{Aeq(15min)}$	35
		$L_{A1(1min)}$	45

Table 2: Project specific criteria for day, evening & night periods.

* Note: All noise measurements are “A-weighted” sound pressure level measurements, hence, the notation “dB” has been used in this report without the additional qualifier “(A)” for purposes of brevity and readability.

4. NOISE LEVEL MEASUREMENT

Methodology - Equipment

Attended noise measurements were carried out using a Rion Class 1 sound level meter.

Calibration details are attached in Appendix B.

The equipment used is listed below:

Equipment	Model	Serial Number	Calibration due
Sound level meter (SLM)	Cirrus Optimus 171C	G079949	25/10/2019

Table 3: Noise monitoring equipment details

Measurements were conducted in accordance with AS1055.1-1997 *Acoustics - Description and measurement of environmental noise - General procedures*.

Methodology – Meteorological Conditions

The noise limits in PA 11_0060 apply only in wind speeds up to 3m/s. Meteorological data from NPM's weather station, corresponding with the entire monitoring period, is attached in Appendix C.

It is noted that noise limits apply during relatively calm conditions (wind speeds up to 3 m/s equates to 10.8 km/h). Where wind speeds have exceeded this limit, measurements are marked as being not applicable using "NA". Comparison with the documented limit should only be made when measurement of wind speed conforms to the maximum allowable wind speed.

Observations

The noise output from the mine site was found to be continuous. No adjustments were required to the measured noise level for intermittent, tonal or impulsive characteristics. Additionally, the measurement points were chosen so that no adjustment was required for reflection or indoor measurement.

It is noted that at various times during attended monitoring, extraneous noise sources, i.e. sources other than the mine, were the primary contributor to measured noise levels. Commonly, these noise sources include wildlife (e.g. birds, frogs and insects), livestock (e.g. sheep and cattle), road traffic, overhead aircraft, farm machinery and vegetation noise (i.e. rustling of foliage). Where possible, extraneous noise was excluded from the result either by pausing the sound level meter until the extraneous noise event had ceased (such as for traffic or aircraft noise) or by removing the extraneous noise via frequency analysis – i.e. subtracting the contribution to the overall sound pressure level at key frequencies not related to noise emissions from NPM. Adjusting via frequency analysis is not possible with LA1 results.

Frequency analysis can only be utilised at frequencies where there is no overlap between the frequencies of NPM noise and extraneous noise. Peaks in the frequency spectrum of received noise are present but not caused by NPM noise (e.g. insect, frog and bird noise) at frequencies of approximately 2 kHz and above.

Attended Noise Monitoring Results

Measurements conducted during excessive winds do not conform to the maximum wind speed requirements of PA11_0060 and are not to be compared against the criteria. These levels are marked with the notation "NA" in the tables overleaf. Where noise levels have been adjusted due to the presence of extraneous noise such as insect or bird noise, these levels are marked with the notation "adj.". It is noted that during Q4 monitoring, significant wind speeds and inclement weather were recorded.

Location	Date and Time	L_{A1} dB	L_{A10} dB	L_{Aeq} dB	L_{A90} dB	Compliance?	Notes
Hillview	21/11/18 12:30	44.2	40.1	38.3	36	N/A	
	21/11/18 12:45	40.4	36.2	34.7	32.6	Yes	Wind noise; mine inaudible
	21/11/18 13:00	41.2	36.7	34.9	32.0	Yes	
Hubberstone	21/11/18 16:00	39.3	33.0	31.1	25.5	Yes	
	21/11/18 16:20	38.0	34.4	32.2	28.8	Yes	Goat noise, wind noise; mine inaudible
	21/11/18 16:45	38.3	33.7	31.9	29.2	Yes	
Milpose	21/11/18 14:00	41.4	36.8	34.3	30.6	Yes	
	21/11/18 14:15	44.9	35.5	34.9	31.4	Yes	Wind; mine inaudible
	21/11/18 14:30	42.4	35.3	32.4	27.4	Yes	
Lonepine	21/11/18 15:00	39.0	36.7	34.7	29.8	Yes	
	21/11/18 15:15	45.6	34.3	33.1	22.1	Yes	Wind, bird noise; mine inaudible
	21/11/18 15:30	39.0	35.9	34.1	30.3	Yes	

Table 4: Daytime Attended Noise Results

Location	Date and Time	L_{A1} dB	L_{A10} dB	L_{Aeq} dB	L_{A90} dB	Compliance?	Notes
Hillview	21/11/18 18:48	44.1	39.7	35.9	29.2	N/A	
	21/11/18 19:01	45.2	39.0	35.3	25.8	N/A	Constant traffic; mine inaudible
	21/11/18 19:17	44	38.4	34.9	28.3	Yes	
Hubberstone	21/11/18 18:00	40.4	33.2	31.7	26.6	Yes	
	21/11/18 18:16	39.4	32.2	31.5	25.3	Yes	Thunder, crickets, sheep; mine inaudible
	21/11/18 18:32	44.1	36.7	34.8	28.8	Yes	
Milpose	22/11/18 21:25	48.3	46.3	41.6	37.2	N/A	
	22/11/18 21:40	45.4	43.3	41.8	35.5	N/A	High wind; mine inaudible
	22/11/18 21:55	43.5	44.9	42.1	38.2	N/A	
Lonepine	22/11/18 20:40	49.5	45.8	42.7	37.3	N/A	
	22/11/18 20:55	45.8	43.4	40.5	36.3	N/A	High wind; mine inaudible
	22/11/18 21:10	44.1	42.8	41.2	39.1	N/A	

Table 5: Evening Attended Noise Results

Location	Date and Time	L_{A1} dB	L_{A10} dB	L_{Aeq} dB	L_{A90} dB	Compliance?	Notes
Hillview	23/11/18 01:00	53.1	49.2	48.0	44.4	N/A	
	23/11/18 01:15	49.4	47.8	46.2	42.6	N/A	High wind; mine inaudible
	23/11/18 01:30	53.5	49.4	46.7	43.7	N/A	
Hubberstone	23/11/18 00:00	58.6	51.8	48.7	41.4	N/A	
	23/11/18 00:15	54.7	49.1	45.8	38.4	N/A	High wind; mine inaudible
	23/11/18 00:30	60.8	54.0	50.7	42.0	N/A	
Milpose	22/11/18 23:00	46.1	42.5	40	35.9	N/A	
	22/11/18 23:15	47.0	40.9	38.5	33.8	N/A	High wind; mine inaudible
	22/11/18 23:30	43.1	39.3	36.7	32.4	N/A	
Lonepine	22/11/18 22:00	48.4	45.9	43.5	40.1	N/A	
	22/11/18 22:15	48.8	46.5	43.1	38.4	N/A	High wind; mine inaudible
	22/11/18 22:30	44.9	43.2	40.6	37.0	N/A	

Table 6: Night Attended Noise Results

Unattended Noise Monitoring Results

Noise levels were continuously monitored over a period of seven days from the 19th to the 25th of November 2018. A summary, with average values tabled, is provided below and graphs of the full results are attached in Appendix D. These summarised levels include extraneous noise which cannot be excluded from the continuous monitoring conducted; the results do not include measurements where the wind speed exceeded three meters per second.

Location	$L_{Aeq\ (15min)}$			$L_{A1\ (1min)}$
	Day	Evening	Night	Night
Hillview	47	42	31	35
Hubberstone	50	50	50	50
Lonepine	48	52	38	41
Milpose	48	54	44	48

Table 7: Summary of Unattended Noise Monitoring, 19/11/2018 – 25/11/2018

5. DISCUSSION

Measurements indicate compliance with the 15-minute L_{Aeq} limitation of 35 dB at all locations during conforming weather conditions.

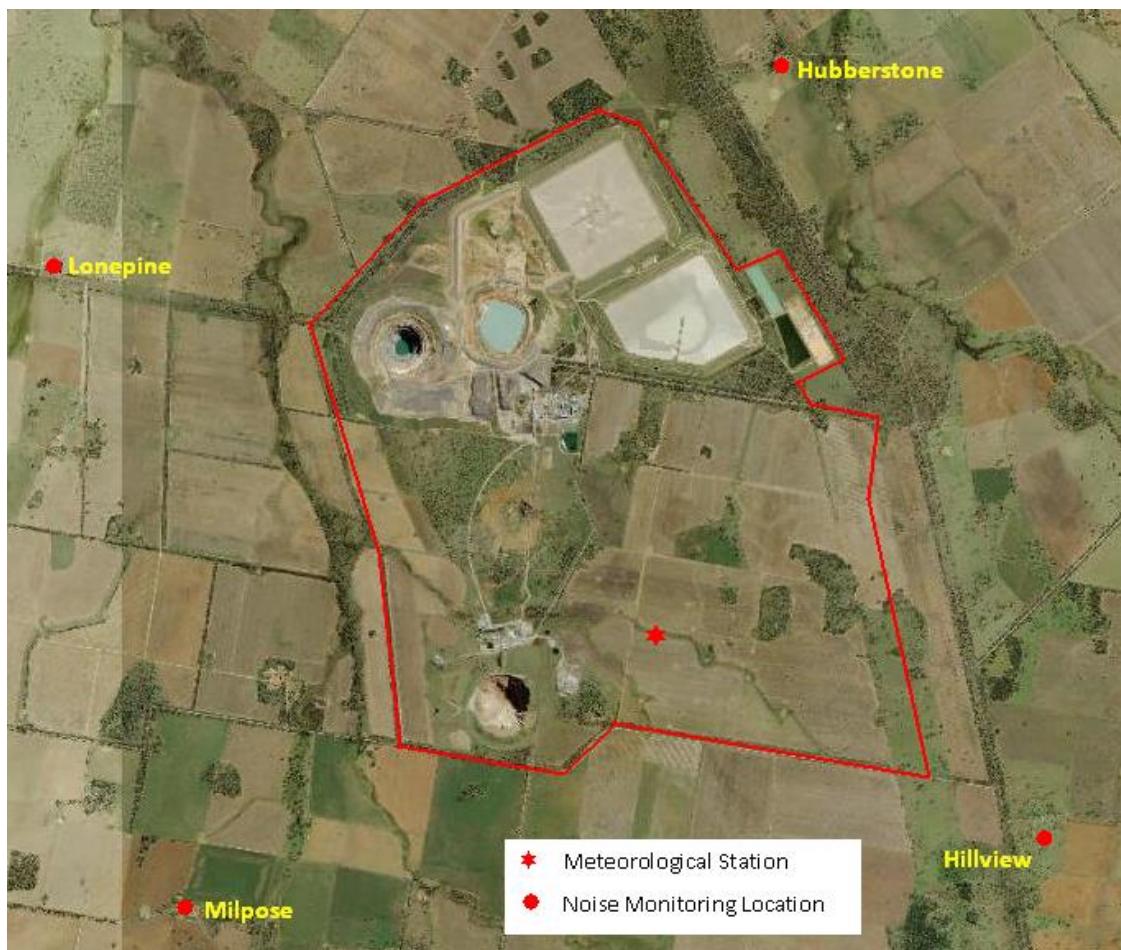
Where possible, extraneous noise sources have been excluded from attended measurements by pausing the sound level meter when non-NPM sources predominate (e.g. passing traffic or aircraft) and/or subtracting the component of the frequency spectrum that is caused by non-NPM sources (e.g. wildlife noise, livestock noise or foliage noise). Extraneous noise sources may contribute as much as 15 to 20 dB to the overall measured noise levels.

6. CONCLUSION

Attended environmental noise monitoring was conducted at four noise sensitive receivers around adjacent properties to Northparkes Mine site from the 19th to the 25th November 2018.

Attended noise monitoring results indicate noise emissions from the mine site comply with the Project Approval criteria.

Appendix A – Map of Monitoring Locations



Appendix B – Equipment Calibration Details



THE CALIBRE TECHNOLOGY
ACOUSTIC & VIBRATION CALIBRATION CENTRE

Certificate Number: 1697

CERTIFICATE OF CALIBRATION

Certificate Number: **1697**

NATA Accreditation No: 15841

Customer: Active Environmental Solutions
23 Ashtan Place, Banyo, QLD, 4014
Thomas Nolan

Test object:	Manufacturer:	Test object:	Serial no:	ID:
Sound level meter	Cirrus	Optimus 171C	G079949	1697
Microphone:	Cirrus	MK224	209704D	1697
Preamplifier	Cirrus	Included	7435F	1697
Calibrator	Cirrus	515	81740	1696
Wind screen	None			

Environmental conditions:	Pressure:	Temperature:	Relative humidity:
Reference conditions:	101.325 kPa	23.0 °C	50 %RH
Conditions before measurement:	101.44 ±0.03 kPa	25.2 ±0.4 °C	50.4 ±2.8 %RH
Conditions after measurement:	101.17 ±0.03 kPa	26.1 ±0.4 °C	48.1 ±2.8 %RH

The measurements are performed according to the IEC 61672 Sound level meters – Part 3: Periodic tests, DIN 45657 Sound Level Meters – Requirements for Special Applications and IEC 61260 Electroacoustics – Octave-band and fractional-octave-band filters.

The expanded uncertainty of measurement is reported at approximately 95% confidence level with a coverage factor k, of 2.

Accredited for compliance with ISO/IEC 17025.

Date of calibration: 25/10/17
Date of issue: 25/10/17
Technician: Jaie Wilde
Authorised Signatory:

Beau Weyers

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Appendix C – Weather Conditions during Monitoring Period

Note: Data provided by Northparkes Mine.

Wind-Rose

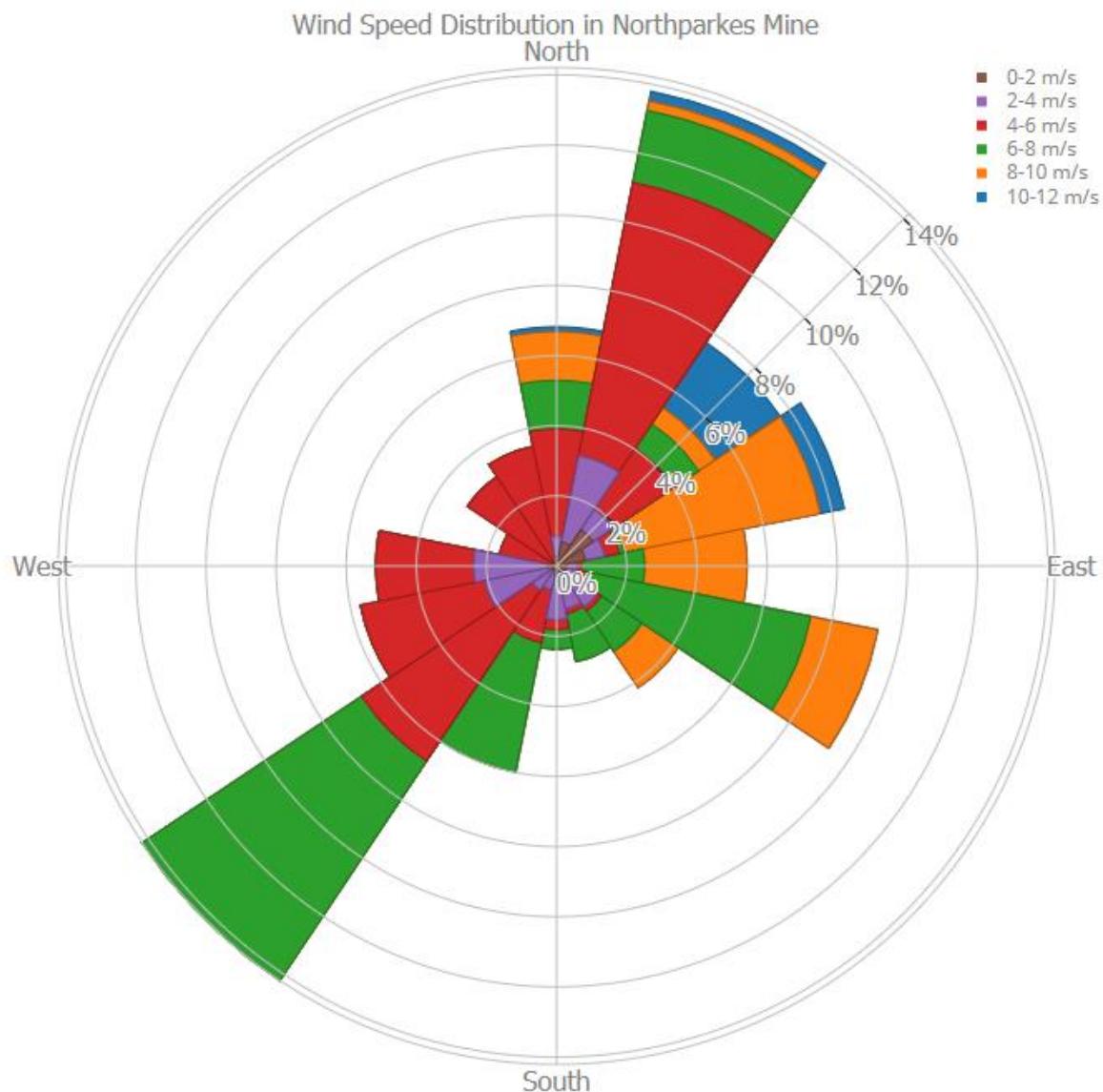


Figure 1 - Wind rose for period 19/10/2018 – 25/11/2018

Tabulated Meteorological Conditions

Date & Time	Wind Speed (m/s)	Wind Direction (°)
19/11/2018 00:00	6.1	50.9
19/11/2018 00:10	6.2	58.5
19/11/2018 00:20	5.9	58.3
19/11/2018 00:30	6.1	52.5
19/11/2018 00:40	6.4	53.4
19/11/2018 00:50	6.0	45.2
19/11/2018 01:00	5.4	47.8
19/11/2018 01:10	4.9	49.1
19/11/2018 01:20	5.0	40.6
19/11/2018 01:30	5.7	40.3
19/11/2018 01:40	5.3	19.9
19/11/2018 01:50	5.8	10.3
19/11/2018 02:00	5.6	10.8
19/11/2018 02:10	5.3	25.0
19/11/2018 02:20	5.0	24.5
19/11/2018 02:30	5.1	24.8
19/11/2018 02:40	5.5	27.7
19/11/2018 02:50	6.2	26.4
19/11/2018 03:00	5.4	26.1
19/11/2018 03:10	6.1	34.8
19/11/2018 03:20	5.4	34.8
19/11/2018 03:30	6.0	33.6
19/11/2018 03:40	5.6	34.4
19/11/2018 03:50	6.3	33.3
19/11/2018 04:00	7.7	39.5
19/11/2018 04:10	6.9	38.4
19/11/2018 04:20	6.4	44.1
19/11/2018 04:30	5.8	49.1
19/11/2018 04:40	5.5	45.0
19/11/2018 04:50	6.1	41.8
19/11/2018 05:00	6.0	45.6
19/11/2018 05:10	6.4	43.7
19/11/2018 05:20	6.4	43.1
19/11/2018 05:30	6.1	41.4
19/11/2018 05:40	6.0	40.8
19/11/2018 05:50	4.6	39.9
19/11/2018 06:00	5.5	41.7
19/11/2018 06:10	5.3	37.7
19/11/2018 06:20	4.6	33.5
19/11/2018 06:30	5.1	32.5
19/11/2018 06:40	5.8	24.9
19/11/2018 06:50	6.9	29.1
19/11/2018 07:00	6.1	31.6
19/11/2018 07:10	5.8	26.8
19/11/2018 07:20	5.8	25.0
19/11/2018 07:30	5.3	38.2
19/11/2018 07:40	5.6	26.8

Date & Time	Wind Speed (m/s)	Wind Direction (°)
19/11/2018 07:50	6.4	19.9
19/11/2018 08:00	5.8	28.5
19/11/2018 08:10	6.4	37.9
19/11/2018 08:20	5.1	24.2
19/11/2018 08:30	5.8	15.1
19/11/2018 08:40	5.7	6.6
19/11/2018 08:50	5.7	13.6
19/11/2018 09:00	6.5	16.0
19/11/2018 09:10	7.1	354.9
19/11/2018 09:20	8.0	354.9
19/11/2018 09:30	7.9	353.0
19/11/2018 09:40	7.2	1.9
19/11/2018 09:50	8.0	5.3
19/11/2018 10:00	8.1	6.6
19/11/2018 10:10	7.1	354.3
19/11/2018 10:20	7.1	5.1
19/11/2018 10:30	6.6	356.2
19/11/2018 10:40	7.2	351.2
19/11/2018 10:50	6.1	7.5
19/11/2018 11:00	7.4	346.9
19/11/2018 11:10	5.8	359.4
19/11/2018 11:20	7.0	339.4
19/11/2018 11:30	7.4	344.7
19/11/2018 11:40	7.5	348.4
19/11/2018 11:50	6.5	339.2
19/11/2018 12:00	6.9	334.8
19/11/2018 12:10	6.4	338.7
19/11/2018 12:20	5.9	341.0
19/11/2018 12:30	5.3	358.1
19/11/2018 12:40	5.7	356.5
19/11/2018 12:50	5.5	327.9
19/11/2018 13:00	5.8	348.9
19/11/2018 13:10	4.8	327.2
19/11/2018 13:20	4.3	349.6
19/11/2018 13:30	4.7	6.0
19/11/2018 13:40	5.5	345.3
19/11/2018 13:50	4.8	334.8
19/11/2018 14:00	5.3	341.7
19/11/2018 14:10	4.7	344.2
19/11/2018 14:20	4.8	347.4
19/11/2018 14:30	5.0	322.9
19/11/2018 14:40	4.9	342.7
19/11/2018 14:50	5.5	337.9
19/11/2018 15:00	4.1	6.1
19/11/2018 15:10	4.4	12.1
19/11/2018 15:20	3.9	20.7
19/11/2018 15:30	3.5	338.7

Date & Time	Wind Speed (m/s)	Wind Direction (°)
19/11/2018 15:40	2.9	346.4
19/11/2018 15:50	3.6	344.8
19/11/2018 16:00	4.8	327.3
19/11/2018 16:10	3.7	342.3
19/11/2018 16:20	4.2	334.2
19/11/2018 16:30	3.7	342.8
19/11/2018 16:40	4.8	14.2
19/11/2018 16:50	5.1	8.2
19/11/2018 17:00	4.3	0.9
19/11/2018 17:10	4.4	12.1
19/11/2018 17:20	3.9	13.0
19/11/2018 17:30	3.8	8.1
19/11/2018 17:40	3.7	352.6
19/11/2018 17:50	4.2	336.0
19/11/2018 18:00	4.4	336.6
19/11/2018 18:10	4.6	334.0
19/11/2018 18:20	3.4	352.5
19/11/2018 18:30	2.9	341.2
19/11/2018 18:40	3.3	345.0
19/11/2018 18:50	3.7	344.7
19/11/2018 19:00	3.4	344.7
19/11/2018 19:10	3.1	341.4
19/11/2018 19:20	3.3	333.5
19/11/2018 19:30	3.4	328.4
19/11/2018 19:40	3.5	323.3
19/11/2018 19:50	3.8	324.4
19/11/2018 20:00	3.9	321.2
19/11/2018 20:10	3.4	321.9
19/11/2018 20:20	3.1	321.3
19/11/2018 20:30	2.9	321.2
19/11/2018 20:40	2.4	312.6
19/11/2018 20:50	1.9	313.6
19/11/2018 21:00	1.7	322.5
19/11/2018 21:10	1.6	339.1
19/11/2018 21:20	1.5	351.1
19/11/2018 21:30	1.6	2.5
19/11/2018 21:40	1.5	28.5
19/11/2018 21:50	1.6	44.8
19/11/2018 22:00	1.3	55.2
19/11/2018 22:10	1.6	67.8
19/11/2018 22:20	1.4	62.3
19/11/2018 22:30	1.5	62.0
19/11/2018 22:40	1.8	63.6
19/11/2018 22:50	1.5	49.8
19/11/2018 23:00	1.0	43.9
19/11/2018 23:10	1.1	49.0
19/11/2018 23:20	1.1	39.7
19/11/2018 23:30	1.4	36.2
19/11/2018 23:40	2.0	51.3
19/11/2018 23:50	4.1	49.1

Date & Time	Wind Speed (m/s)	Wind Direction (°)
20/11/2018 00:00	3.5	45.4
20/11/2018 00:10	3.4	41.3
20/11/2018 00:20	3.8	36.7
20/11/2018 00:30	3.8	42.3
20/11/2018 00:40	4.7	39.4
20/11/2018 00:50	4.6	40.6
20/11/2018 01:00	4.3	40.7
20/11/2018 01:10	4.1	41.7
20/11/2018 01:20	4.0	43.6
20/11/2018 01:30	4.6	38.8
20/11/2018 01:40	4.1	38.4
20/11/2018 01:50	4.3	39.0
20/11/2018 02:00	4.0	34.8
20/11/2018 02:10	4.0	35.9
20/11/2018 02:20	4.1	34.2
20/11/2018 02:30	3.8	31.7
20/11/2018 02:40	3.9	32.4
20/11/2018 02:50	3.9	31.7
20/11/2018 03:00	3.7	35.2
20/11/2018 03:10	4.0	36.0
20/11/2018 03:20	4.4	36.2
20/11/2018 03:30	4.4	34.5
20/11/2018 03:40	4.5	36.4
20/11/2018 03:50	4.5	37.7
20/11/2018 04:00	4.8	34.8
20/11/2018 04:10	4.3	33.7
20/11/2018 04:20	4.3	38.4
20/11/2018 04:30	4.7	40.7
20/11/2018 04:40	4.3	41.4
20/11/2018 04:50	4.2	39.9
20/11/2018 05:00	4.1	38.3
20/11/2018 05:10	3.8	39.4
20/11/2018 05:20	4.0	38.5
20/11/2018 05:30	4.0	32.0
20/11/2018 05:40	3.6	24.3
20/11/2018 05:50	3.3	27.6
20/11/2018 06:00	3.7	29.4
20/11/2018 06:10	4.0	31.0
20/11/2018 06:20	4.0	26.8
20/11/2018 06:30	5.6	25.2
20/11/2018 06:40	6.2	23.5
20/11/2018 06:50	6.0	21.9
20/11/2018 07:00	6.3	17.6
20/11/2018 07:10	7.3	15.8
20/11/2018 07:20	8.4	9.2
20/11/2018 07:30	9.1	359.4
20/11/2018 07:40	9.8	3.4
20/11/2018 07:50	9.6	2.1
20/11/2018 08:00	9.7	2.5
20/11/2018 08:10	9.2	2.3

Date & Time	Wind Speed (m/s)	Wind Direction (°)
20/11/2018 08:20	9.4	4.1
20/11/2018 08:30	8.7	1.0
20/11/2018 08:40	9.6	5.5
20/11/2018 08:50	8.4	356.4
20/11/2018 09:00	9.1	355.2
20/11/2018 09:10	9.1	351.7
20/11/2018 09:20	8.3	0.0
20/11/2018 09:30	8.9	355.3
20/11/2018 09:40	9.1	341.1
20/11/2018 09:50	8.2	351.6
20/11/2018 10:00	7.5	357.3
20/11/2018 10:10	7.6	348.2
20/11/2018 10:20	8.0	356.3
20/11/2018 10:30	7.8	330.9
20/11/2018 10:40	7.9	342.2
20/11/2018 10:50	7.4	331.2
20/11/2018 11:00	7.6	350.8
20/11/2018 11:10	7.7	349.4
20/11/2018 11:20	8.5	342.4
20/11/2018 11:30	7.4	345.0
20/11/2018 11:40	6.9	331.6
20/11/2018 11:50	7.5	337.7
20/11/2018 12:00	7.8	344.5
20/11/2018 12:10	7.7	329.6
20/11/2018 12:20	7.3	337.7
20/11/2018 12:30	7.5	347.9
20/11/2018 12:40	6.7	345.6
20/11/2018 12:50	7.1	351.3
20/11/2018 13:00	7.6	333.6
20/11/2018 13:10	6.5	331.7
20/11/2018 13:20	6.3	342.1
20/11/2018 13:30	5.8	329.8
20/11/2018 13:40	6.1	329.2
20/11/2018 13:50	7.5	342.7
20/11/2018 14:00	6.5	325.1
20/11/2018 14:10	7.8	340.1
20/11/2018 14:20	7.9	339.3
20/11/2018 14:30	8.0	330.3
20/11/2018 14:40	7.3	348.7
20/11/2018 14:50	7.3	345.7
20/11/2018 15:00	7.2	345.8
20/11/2018 15:10	7.8	347.5
20/11/2018 15:20	7.9	338.3
20/11/2018 15:30	6.6	340.2
20/11/2018 15:40	7.2	347.4
20/11/2018 15:50	7.5	344.8
20/11/2018 16:00	7.2	347.1
20/11/2018 16:10	6.8	340.3
20/11/2018 16:20	6.5	349.9
20/11/2018 16:30	5.8	354.0

Date & Time	Wind Speed (m/s)	Wind Direction (°)
20/11/2018 16:40	6.6	351.2
20/11/2018 16:50	6.5	347.0
20/11/2018 17:00	6.2	353.2
20/11/2018 17:10	5.8	346.6
20/11/2018 17:20	5.7	340.0
20/11/2018 17:30	5.2	339.8
20/11/2018 17:40	4.8	344.4
20/11/2018 17:50	4.1	333.7
20/11/2018 18:00	5.5	311.1
20/11/2018 18:10	10.9	270.7
20/11/2018 18:20	9.0	236.7
20/11/2018 18:30	8.2	225.7
20/11/2018 18:40	3.0	243.5
20/11/2018 18:50	3.6	40.5
20/11/2018 19:00	6.5	86.6
20/11/2018 19:10	5.7	79.9
20/11/2018 19:20	5.3	41.1
20/11/2018 19:30	6.0	49.9
20/11/2018 19:40	6.5	47.1
20/11/2018 19:50	5.6	34.6
20/11/2018 20:00	1.5	84.9
20/11/2018 20:10	1.6	101.4
20/11/2018 20:20	3.3	68.5
20/11/2018 20:30	5.5	24.0
20/11/2018 20:40	5.4	43.2
20/11/2018 20:50	4.7	46.1
20/11/2018 21:00	4.3	52.7
20/11/2018 21:10	3.9	50.4
20/11/2018 21:20	3.3	41.0
20/11/2018 21:30	2.0	79.7
20/11/2018 21:40	2.6	118.1
20/11/2018 21:50	3.2	134.6
20/11/2018 22:00	5.7	157.4
20/11/2018 22:10	8.2	188.1
20/11/2018 22:20	4.9	167.9
20/11/2018 22:30	4.9	130.1
20/11/2018 22:40	4.2	112.0
20/11/2018 22:50	2.9	81.9
20/11/2018 23:00	5.1	71.0
20/11/2018 23:10	5.5	69.6
20/11/2018 23:20	5.5	59.9
20/11/2018 23:30	5.5	60.1
20/11/2018 23:40	6.0	61.1
20/11/2018 23:50	5.6	54.2
21/11/2018 00:00	5.3	46.0
21/11/2018 00:10	5.1	44.3
21/11/2018 00:20	5.3	37.9
21/11/2018 00:30	4.8	31.8
21/11/2018 00:40	5.2	30.1
21/11/2018 00:50	4.6	29.6

Date & Time	Wind Speed (m/s)	Wind Direction (°)
21/11/2018 01:00	4.8	24.8
21/11/2018 01:10	5.0	18.4
21/11/2018 01:20	5.1	21.4
21/11/2018 01:30	4.5	18.8
21/11/2018 01:40	4.6	15.4
21/11/2018 01:50	5.0	13.6
21/11/2018 02:00	5.2	12.6
21/11/2018 02:10	6.3	7.9
21/11/2018 02:20	6.0	5.6
21/11/2018 02:30	5.4	1.2
21/11/2018 02:40	5.9	2.3
21/11/2018 02:50	5.9	358.5
21/11/2018 03:00	5.9	353.6
21/11/2018 03:10	5.5	348.0
21/11/2018 03:20	6.0	344.4
21/11/2018 03:30	6.8	342.1
21/11/2018 03:40	6.5	345.4
21/11/2018 03:50	6.4	344.0
21/11/2018 04:00	6.0	345.4
21/11/2018 04:10	6.1	345.6
21/11/2018 04:20	6.7	347.7
21/11/2018 04:30	6.0	346.6
21/11/2018 04:40	4.9	338.2
21/11/2018 04:50	5.7	339.1
21/11/2018 05:00	6.9	344.8
21/11/2018 05:10	6.6	345.0
21/11/2018 05:20	6.8	345.4
21/11/2018 05:30	7.7	350.9
21/11/2018 05:40	8.3	352.3
21/11/2018 05:50	8.0	342.4
21/11/2018 06:00	7.6	329.6
21/11/2018 06:10	6.8	325.9
21/11/2018 06:20	6.3	322.4
21/11/2018 06:30	6.8	318.9
21/11/2018 06:40	7.3	313.4
21/11/2018 06:50	7.1	319.7
21/11/2018 07:00	6.4	321.5
21/11/2018 07:10	6.5	328.4
21/11/2018 07:20	6.0	322.2
21/11/2018 07:30	6.8	321.8
21/11/2018 07:40	6.6	316.5
21/11/2018 07:50	6.7	315.3
21/11/2018 08:00	6.2	309.9
21/11/2018 08:10	6.7	307.6
21/11/2018 08:20	6.7	311.9
21/11/2018 08:30	6.2	318.9
21/11/2018 08:40	5.3	307.3
21/11/2018 08:50	5.2	307.4
21/11/2018 09:00	5.7	300.9
21/11/2018 09:10	5.1	295.7

Date & Time	Wind Speed (m/s)	Wind Direction (°)
21/11/2018 09:20	5.0	297.4
21/11/2018 09:30	5.5	300.2
21/11/2018 09:40	5.5	291.6
21/11/2018 09:50	5.0	303.1
21/11/2018 10:00	5.5	302.1
21/11/2018 10:10	5.3	303.0
21/11/2018 10:20	5.5	299.0
21/11/2018 10:30	5.8	288.6
21/11/2018 10:40	6.3	284.1
21/11/2018 10:50	5.9	272.1
21/11/2018 11:00	5.6	286.3
21/11/2018 11:10	6.9	270.9
21/11/2018 11:20	7.0	272.0
21/11/2018 11:30	7.0	273.7
21/11/2018 11:40	4.5	244.0
21/11/2018 11:50	4.3	228.0
21/11/2018 12:00	4.1	240.8
21/11/2018 12:10	3.9	243.7
21/11/2018 12:20	4.2	269.3
21/11/2018 12:30	4.4	266.1
21/11/2018 12:40	4.5	267.2
21/11/2018 12:50	4.7	278.9
21/11/2018 13:00	4.8	263.9
21/11/2018 13:10	3.8	270.9
21/11/2018 13:20	4.2	268.2
21/11/2018 13:30	4.9	273.3
21/11/2018 13:40	5.4	270.0
21/11/2018 13:50	6.1	269.7
21/11/2018 14:00	6.0	283.3
21/11/2018 14:10	6.1	289.0
21/11/2018 14:20	5.2	280.4
21/11/2018 14:30	5.5	275.8
21/11/2018 14:40	4.9	281.8
21/11/2018 14:50	4.3	279.6
21/11/2018 15:00	3.0	280.0
21/11/2018 15:10	4.2	280.8
21/11/2018 15:20	4.8	267.4
21/11/2018 15:30	4.9	282.0
21/11/2018 15:40	4.9	281.1
21/11/2018 15:50	5.0	261.3
21/11/2018 16:00	5.2	255.3
21/11/2018 16:10	4.6	271.4
21/11/2018 16:20	4.1	274.5
21/11/2018 16:30	4.3	265.1
21/11/2018 16:40	5.0	265.2
21/11/2018 16:50	4.2	266.6
21/11/2018 17:00	4.8	270.1
21/11/2018 17:10	4.3	270.5
21/11/2018 17:20	3.6	292.2
21/11/2018 17:30	2.9	303.4

Date & Time	Wind Speed (m/s)	Wind Direction (°)
21/11/2018 17:40	3.8	310.3
21/11/2018 17:50	2.8	303.5
21/11/2018 18:00	2.7	315.8
21/11/2018 18:10	2.7	328.3
21/11/2018 18:20	3.7	337.7
21/11/2018 18:30	2.7	339.2
21/11/2018 18:40	2.3	346.8
21/11/2018 18:50	2.6	332.1
21/11/2018 19:00	7.4	288.8
21/11/2018 19:10	4.1	300.5
21/11/2018 19:20	2.2	331.3
21/11/2018 19:30	0.6	282.4
21/11/2018 19:40	0.8	56.0
21/11/2018 19:50	1.0	90.3
21/11/2018 20:00	1.4	85.5
21/11/2018 20:10	1.6	79.0
21/11/2018 20:20	2.7	68.0
21/11/2018 20:30	2.5	63.1
21/11/2018 20:40	1.9	58.2
21/11/2018 20:50	1.2	77.8
21/11/2018 21:00	0.8	69.6
21/11/2018 21:10	0.9	60.3
21/11/2018 21:20	2.0	47.0
21/11/2018 21:30	2.7	43.5
21/11/2018 21:40	2.3	24.5
21/11/2018 21:50	3.7	11.7
21/11/2018 22:00	5.2	359.3
21/11/2018 22:10	5.8	274.9
21/11/2018 22:20	5.7	246.7
21/11/2018 22:30	3.3	281.5
21/11/2018 22:40	2.9	293.2
21/11/2018 22:50	3.4	324.4
21/11/2018 23:00	3.5	334.7
21/11/2018 23:10	4.5	334.3
21/11/2018 23:20	5.3	334.4
21/11/2018 23:30	5.5	332.7
21/11/2018 23:40	5.8	330.5
21/11/2018 23:50	5.8	332.4
22/11/2018 00:00	6.0	330.5
22/11/2018 00:10	6.1	328.9
22/11/2018 00:20	5.9	330.1
22/11/2018 00:30	5.4	329.3
22/11/2018 00:40	5.6	329.9
22/11/2018 00:50	6.0	331.3
22/11/2018 01:00	6.1	332.7
22/11/2018 01:10	5.9	334.3
22/11/2018 01:20	6.1	334.5
22/11/2018 01:30	6.1	331.6
22/11/2018 01:40	5.8	333.5
22/11/2018 01:50	6.7	283.6

Date & Time	Wind Speed (m/s)	Wind Direction (°)
22/11/2018 02:00	6.5	241.4
22/11/2018 02:10	4.1	262.7
22/11/2018 02:20	3.2	234.3
22/11/2018 02:30	3.7	225.5
22/11/2018 02:40	4.0	211.9
22/11/2018 02:50	4.3	214.3
22/11/2018 03:00	3.3	211.7
22/11/2018 03:10	2.4	200.2
22/11/2018 03:20	2.6	204.5
22/11/2018 03:30	2.1	200.3
22/11/2018 03:40	0.9	195.7
22/11/2018 03:50	0.8	202.3
22/11/2018 04:00	0.7	223.7
22/11/2018 04:10	0.9	204.4
22/11/2018 04:20	0.6	212.2
22/11/2018 04:30	0.3	206.0
22/11/2018 04:40	0.3	210.3
22/11/2018 04:50	0.1	267.0
22/11/2018 05:00	0.0	0.0
22/11/2018 05:10	0.4	256.7
22/11/2018 05:20	1.6	247.0
22/11/2018 05:30	4.9	280.1
22/11/2018 05:40	9.9	229.4
22/11/2018 05:50	10.2	223.5
22/11/2018 06:00	6.5	209.1
22/11/2018 06:10	5.6	205.1
22/11/2018 06:20	4.5	202.3
22/11/2018 06:30	4.3	193.1
22/11/2018 06:40	3.1	185.2
22/11/2018 06:50	2.3	204.3
22/11/2018 07:00	2.6	220.4
22/11/2018 07:10	3.8	230.8
22/11/2018 07:20	3.2	247.4
22/11/2018 07:30	3.6	256.6
22/11/2018 07:40	4.1	251.0
22/11/2018 07:50	4.0	258.9
22/11/2018 08:00	5.7	246.7
22/11/2018 08:10	6.9	242.6
22/11/2018 08:20	6.6	241.1
22/11/2018 08:30	7.8	233.1
22/11/2018 08:40	8.2	246.2
22/11/2018 08:50	7.2	236.4
22/11/2018 09:00	6.9	238.9
22/11/2018 09:10	8.0	242.2
22/11/2018 09:20	7.7	234.5
22/11/2018 09:30	7.8	254.6
22/11/2018 09:40	8.0	251.9
22/11/2018 09:50	7.9	261.5
22/11/2018 10:00	8.1	275.0
22/11/2018 10:10	8.1	265.7

Date & Time	Wind Speed (m/s)	Wind Direction (°)
22/11/2018 10:20	8.8	259.6
22/11/2018 10:30	8.1	272.9
22/11/2018 10:40	8.0	282.7
22/11/2018 10:50	7.5	277.4
22/11/2018 11:00	8.9	268.0
22/11/2018 11:10	8.6	271.2
22/11/2018 11:20	9.8	284.6
22/11/2018 11:30	8.7	271.9
22/11/2018 11:40	9.5	273.8
22/11/2018 11:50	10.6	276.6
22/11/2018 12:00	11.1	268.5
22/11/2018 12:10	9.2	273.3
22/11/2018 12:20	9.9	272.3
22/11/2018 12:30	10.4	282.6
22/11/2018 12:40	11.3	271.9
22/11/2018 12:50	11.3	266.4
22/11/2018 13:00	9.7	263.6
22/11/2018 13:10	10.4	260.3
22/11/2018 13:20	11.2	262.4
22/11/2018 13:30	10.9	266.5
22/11/2018 13:40	11.5	253.1
22/11/2018 13:50	9.3	276.5
22/11/2018 14:00	10.3	273.9
22/11/2018 14:10	10.4	265.5
22/11/2018 14:20	10.3	256.1
22/11/2018 14:30	11.3	255.4
22/11/2018 14:40	10.1	260.5
22/11/2018 14:50	9.5	277.6
22/11/2018 15:00	9.2	272.6
22/11/2018 15:10	10.1	257.6
22/11/2018 15:20	9.6	273.7
22/11/2018 15:30	9.7	272.3
22/11/2018 15:40	10.4	258.7
22/11/2018 15:50	8.7	270.6
22/11/2018 16:00	10.2	260.3
22/11/2018 16:10	10.2	265.6
22/11/2018 16:20	10.2	263.5
22/11/2018 16:30	9.3	266.7
22/11/2018 16:40	9.9	255.2
22/11/2018 16:50	8.5	266.7
22/11/2018 17:00	9.4	254.3
22/11/2018 17:10	10.4	251.4
22/11/2018 17:20	9.7	247.8
22/11/2018 17:30	8.4	259.5
22/11/2018 17:40	8.3	263.9
22/11/2018 17:50	8.8	260.2
22/11/2018 18:00	9.0	253.5
22/11/2018 18:10	8.9	256.8
22/11/2018 18:20	7.8	254.6
22/11/2018 18:30	7.6	254.4

Date & Time	Wind Speed (m/s)	Wind Direction (°)
22/11/2018 18:40	9.3	247.0
22/11/2018 18:50	8.5	242.2
22/11/2018 19:00	7.2	235.4
22/11/2018 19:10	7.8	224.6
22/11/2018 19:20	9.9	200.6
22/11/2018 19:30	8.4	209.5
22/11/2018 19:40	6.4	208.5
22/11/2018 19:50	5.2	216.5
22/11/2018 20:00	6.1	219.6
22/11/2018 20:10	4.6	225.7
22/11/2018 20:20	6.1	230.2
22/11/2018 20:30	5.7	231.3
22/11/2018 20:40	6.2	233.8
22/11/2018 20:50	6.2	240.6
22/11/2018 21:00	6.8	247.1
22/11/2018 21:10	6.3	246.3
22/11/2018 21:20	6.6	245.2
22/11/2018 21:30	5.6	249.2
22/11/2018 21:40	6.5	246.0
22/11/2018 21:50	9.7	239.1
22/11/2018 22:00	9.2	233.3
22/11/2018 22:10	9.3	236.3
22/11/2018 22:20	8.1	238.4
22/11/2018 22:30	7.9	242.6
22/11/2018 22:40	9.0	230.6
22/11/2018 22:50	6.7	228.6
22/11/2018 23:00	6.5	236.6
22/11/2018 23:10	6.0	239.2
22/11/2018 23:20	4.7	245.4
22/11/2018 23:30	4.3	253.5
22/11/2018 23:40	3.8	262.3
22/11/2018 23:50	3.7	254.0
23/11/2018 00:00	4.2	255.5
23/11/2018 00:10	4.1	257.1
23/11/2018 00:20	6.9	253.3
23/11/2018 00:30	7.4	246.5
23/11/2018 00:40	7.1	249.0
23/11/2018 00:50	8.5	243.0
23/11/2018 01:00	7.6	241.5
23/11/2018 01:10	7.8	243.0
23/11/2018 01:20	8.1	239.5
23/11/2018 01:30	7.2	232.6
23/11/2018 01:40	7.2	231.0
23/11/2018 01:50	6.3	225.8
23/11/2018 02:00	4.0	237.9
23/11/2018 02:10	4.1	233.8
23/11/2018 02:20	4.3	236.1
23/11/2018 02:30	3.8	238.9
23/11/2018 02:40	4.8	236.9
23/11/2018 02:50	4.2	240.5

Date & Time	Wind Speed (m/s)	Wind Direction (°)
23/11/2018 03:00	4.3	247.8
23/11/2018 03:10	4.8	246.5
23/11/2018 03:20	4.5	246.6
23/11/2018 03:30	4.7	252.1
23/11/2018 03:40	5.4	245.0
23/11/2018 03:50	5.5	248.9
23/11/2018 04:00	5.8	247.4
23/11/2018 04:10	5.2	245.0
23/11/2018 04:20	5.0	244.1
23/11/2018 04:30	4.8	249.3
23/11/2018 04:40	4.2	251.5
23/11/2018 04:50	5.3	252.2
23/11/2018 05:00	5.5	250.8
23/11/2018 05:10	5.3	244.0
23/11/2018 05:20	5.3	241.4
23/11/2018 05:30	5.1	242.2
23/11/2018 05:40	5.3	238.7
23/11/2018 05:50	5.0	237.0
23/11/2018 06:00	4.4	236.4
23/11/2018 06:10	5.1	239.2
23/11/2018 06:20	5.7	237.6
23/11/2018 06:30	5.4	246.4
23/11/2018 06:40	5.1	243.8
23/11/2018 06:50	5.7	249.0
23/11/2018 07:00	6.3	245.3
23/11/2018 07:10	6.1	246.1
23/11/2018 07:20	5.3	245.9
23/11/2018 07:30	7.0	244.1
23/11/2018 07:40	7.4	245.1
23/11/2018 07:50	6.7	237.6
23/11/2018 08:00	7.1	243.4
23/11/2018 08:10	5.6	238.3
23/11/2018 08:20	6.9	234.5
23/11/2018 08:30	6.0	233.4
23/11/2018 08:40	5.0	227.3
23/11/2018 08:50	6.6	233.6
23/11/2018 09:00	6.7	230.0
23/11/2018 09:10	6.7	237.1
23/11/2018 09:20	7.9	238.4
23/11/2018 09:30	6.9	247.5
23/11/2018 09:40	7.1	239.9
23/11/2018 09:50	6.7	244.4
23/11/2018 10:00	6.8	231.7
23/11/2018 10:20	9.2	257.1
23/11/2018 10:30	7.8	238.9
23/11/2018 10:40	7.5	249.8
23/11/2018 10:50	8.6	237.2
23/11/2018 11:10	8.6	253.5
23/11/2018 11:20	8.7	226.0
23/11/2018 11:30	9.6	227.1

Date & Time	Wind Speed (m/s)	Wind Direction (°)
23/11/2018 11:40	9.7	251.0
23/11/2018 11:50	8.2	242.1
23/11/2018 12:00	8.1	249.5
23/11/2018 12:10	8.3	250.3
23/11/2018 12:20	8.0	247.5
23/11/2018 12:30	8.7	244.4
23/11/2018 12:40	7.3	230.4
23/11/2018 12:50	7.8	238.4
23/11/2018 13:00	9.2	227.1
23/11/2018 13:10	8.3	240.5
23/11/2018 13:20	7.7	232.5
23/11/2018 13:30	7.2	229.2
23/11/2018 13:40	8.8	232.4
23/11/2018 13:50	8.1	244.4
23/11/2018 14:00	9.1	245.9
23/11/2018 14:10	8.7	237.2
23/11/2018 14:20	8.5	232.8
23/11/2018 14:30	8.3	232.3
23/11/2018 14:40	8.9	232.8
23/11/2018 14:50	6.7	219.8
23/11/2018 15:00	7.6	221.8
23/11/2018 15:10	8.5	233.4
23/11/2018 15:20	7.1	230.8
23/11/2018 15:30	8.3	236.6
23/11/2018 15:40	8.9	246.4
23/11/2018 15:50	8.7	231.3
23/11/2018 16:00	10.2	233.9
23/11/2018 16:10	6.9	229.5
23/11/2018 16:20	9.4	235.8
23/11/2018 16:30	10.1	232.3
23/11/2018 16:40	9.2	251.8
23/11/2018 16:50	9.1	234.2
23/11/2018 17:00	9.7	243.7
23/11/2018 17:10	9.5	240.0
23/11/2018 17:20	8.7	238.4
23/11/2018 17:30	8.4	240.7
23/11/2018 17:40	8.9	236.7
23/11/2018 17:50	7.6	232.6
23/11/2018 18:00	9.4	239.6
23/11/2018 18:10	7.7	218.6
23/11/2018 18:20	8.6	212.5
23/11/2018 18:30	8.5	215.2
23/11/2018 18:40	8.0	214.6
23/11/2018 18:50	8.0	218.5
23/11/2018 19:00	8.8	221.6
23/11/2018 19:10	7.9	224.4
23/11/2018 19:20	8.8	226.2
23/11/2018 19:30	7.9	224.3
23/11/2018 19:40	7.9	215.5
23/11/2018 19:50	5.9	220.7

Date & Time	Wind Speed (m/s)	Wind Direction (°)
23/11/2018 20:00	5.8	220.8
23/11/2018 20:10	6.2	219.5
23/11/2018 20:20	6.0	217.5
23/11/2018 20:30	4.7	213.5
23/11/2018 20:40	5.6	212.3
23/11/2018 20:50	5.4	213.4
23/11/2018 21:00	5.0	219.0
23/11/2018 21:10	5.4	218.4
23/11/2018 21:20	5.3	226.9
23/11/2018 21:30	4.8	229.0
23/11/2018 21:40	5.0	227.3
23/11/2018 21:50	5.2	229.7
23/11/2018 22:00	5.8	234.3
23/11/2018 22:10	4.9	235.5
23/11/2018 22:20	4.9	238.8
23/11/2018 22:30	5.1	241.4
23/11/2018 22:40	5.0	240.2
23/11/2018 22:50	4.4	246.2
23/11/2018 23:00	4.2	250.6
23/11/2018 23:10	3.5	253.6
23/11/2018 23:20	3.5	252.4
23/11/2018 23:30	3.5	252.6
23/11/2018 23:40	3.4	255.6
23/11/2018 23:50	3.5	257.8
19/11/2018 00:00	6.1	50.9
19/11/2018 00:10	6.2	58.5
19/11/2018 00:20	5.9	58.3
19/11/2018 00:30	6.1	52.5
19/11/2018 00:40	6.4	53.4
19/11/2018 00:50	6.0	45.2
19/11/2018 01:00	5.4	47.8
19/11/2018 01:10	4.9	49.1
19/11/2018 01:20	5.0	40.6
19/11/2018 01:30	5.7	40.3
19/11/2018 01:40	5.3	19.9
19/11/2018 01:50	5.8	10.3
19/11/2018 02:00	5.6	10.8
19/11/2018 02:10	5.3	25.0
19/11/2018 02:20	5.0	24.5
19/11/2018 02:30	5.1	24.8
19/11/2018 02:40	5.5	27.7
19/11/2018 02:50	6.2	26.4
19/11/2018 03:00	5.4	26.1
19/11/2018 03:10	6.1	34.8
19/11/2018 03:20	5.4	34.8
19/11/2018 03:30	6.0	33.6
19/11/2018 03:40	5.6	34.4
19/11/2018 03:50	6.3	33.3
19/11/2018 04:00	7.7	39.5
19/11/2018 04:10	6.9	38.4

Date & Time	Wind Speed (m/s)	Wind Direction (°)
19/11/2018 04:20	6.4	44.1
19/11/2018 04:30	5.8	49.1
19/11/2018 04:40	5.5	45.0
19/11/2018 04:50	6.1	41.8
19/11/2018 05:00	6.0	45.6
19/11/2018 05:10	6.4	43.7
19/11/2018 05:20	6.4	43.1
19/11/2018 05:30	6.1	41.4
19/11/2018 05:40	6.0	40.8
19/11/2018 05:50	4.6	39.9
19/11/2018 06:00	5.5	41.7
19/11/2018 06:10	5.3	37.7
19/11/2018 06:20	4.6	33.5
19/11/2018 06:30	5.1	32.5
19/11/2018 06:40	5.8	24.9
19/11/2018 06:50	6.9	29.1
19/11/2018 07:00	6.1	31.6
19/11/2018 07:10	5.8	26.8
19/11/2018 07:20	5.8	25.0
19/11/2018 07:30	5.3	38.2
19/11/2018 07:40	5.6	26.8
19/11/2018 07:50	6.4	19.9
19/11/2018 08:00	5.8	28.5
19/11/2018 08:10	6.4	37.9
19/11/2018 08:20	5.1	24.2
19/11/2018 08:30	5.8	15.1
19/11/2018 08:40	5.7	6.6
19/11/2018 08:50	5.7	13.6
19/11/2018 09:00	6.5	16.0
19/11/2018 09:10	7.1	354.9
19/11/2018 09:20	8.0	354.9
19/11/2018 09:30	7.9	353.0
19/11/2018 09:40	7.2	1.9
19/11/2018 09:50	8.0	5.3
19/11/2018 10:00	8.1	6.6
19/11/2018 10:10	7.1	354.3
19/11/2018 10:20	7.1	5.1
19/11/2018 10:30	6.6	356.2
19/11/2018 10:40	7.2	351.2
19/11/2018 10:50	6.1	7.5
19/11/2018 11:00	7.4	346.9
19/11/2018 11:10	5.8	359.4
19/11/2018 11:20	7.0	339.4
19/11/2018 11:30	7.4	344.7
19/11/2018 11:40	7.5	348.4
19/11/2018 11:50	6.5	339.2
19/11/2018 12:00	6.9	334.8
19/11/2018 12:10	6.4	338.7
19/11/2018 12:20	5.9	341.0
19/11/2018 12:30	5.3	358.1

Date & Time	Wind Speed (m/s)	Wind Direction (°)
19/11/2018 12:40	5.7	356.5
19/11/2018 12:50	5.5	327.9
19/11/2018 13:00	5.8	348.9
19/11/2018 13:10	4.8	327.2
19/11/2018 13:20	4.3	349.6
19/11/2018 13:30	4.7	6.0
19/11/2018 13:40	5.5	345.3
19/11/2018 13:50	4.8	334.8
19/11/2018 14:00	5.3	341.7
19/11/2018 14:10	4.7	344.2
19/11/2018 14:20	4.8	347.4
19/11/2018 14:30	5.0	322.9
19/11/2018 14:40	4.9	342.7
19/11/2018 14:50	5.5	337.9
19/11/2018 15:00	4.1	6.1
19/11/2018 15:10	4.4	12.1
19/11/2018 15:20	3.9	20.7
19/11/2018 15:30	3.5	338.7
19/11/2018 15:40	2.9	346.4
19/11/2018 15:50	3.6	344.8
19/11/2018 16:00	4.8	327.3
19/11/2018 16:10	3.7	342.3
19/11/2018 16:20	4.2	334.2
19/11/2018 16:30	3.7	342.8
19/11/2018 16:40	4.8	14.2
19/11/2018 16:50	5.1	8.2
19/11/2018 17:00	4.3	0.9
19/11/2018 17:10	4.4	12.1
19/11/2018 17:20	3.9	13.0
19/11/2018 17:30	3.8	8.1
19/11/2018 17:40	3.7	352.6
19/11/2018 17:50	4.2	336.0
19/11/2018 18:00	4.4	336.6
19/11/2018 18:10	4.6	334.0
19/11/2018 18:20	3.4	352.5
19/11/2018 18:30	2.9	341.2
19/11/2018 18:40	3.3	345.0
19/11/2018 18:50	3.7	344.7
19/11/2018 19:00	3.4	344.7
19/11/2018 19:10	3.1	341.4
19/11/2018 19:20	3.3	333.5
19/11/2018 19:30	3.4	328.4
19/11/2018 19:40	3.5	323.3
19/11/2018 19:50	3.8	324.4
19/11/2018 20:00	3.9	321.2
19/11/2018 20:10	3.4	321.9
19/11/2018 20:20	3.1	321.3
19/11/2018 20:30	2.9	321.2
19/11/2018 20:40	2.4	312.6
19/11/2018 20:50	1.9	313.6

Date & Time	Wind Speed (m/s)	Wind Direction (°)
19/11/2018 21:00	1.7	322.5
19/11/2018 21:10	1.6	339.1
19/11/2018 21:20	1.5	351.1
19/11/2018 21:30	1.6	2.5
19/11/2018 21:40	1.5	28.5
19/11/2018 21:50	1.6	44.8
19/11/2018 22:00	1.3	55.2
19/11/2018 22:10	1.6	67.8
19/11/2018 22:20	1.4	62.3
19/11/2018 22:30	1.5	62.0
19/11/2018 22:40	1.8	63.6
19/11/2018 22:50	1.5	49.8
19/11/2018 23:00	1.0	43.9
19/11/2018 23:10	1.1	49.0
19/11/2018 23:20	1.1	39.7
19/11/2018 23:30	1.4	36.2
19/11/2018 23:40	2.0	51.3
19/11/2018 23:50	4.1	49.1
20/11/2018 00:00	3.5	45.4
20/11/2018 00:10	3.4	41.3
20/11/2018 00:20	3.8	36.7
20/11/2018 00:30	3.8	42.3
20/11/2018 00:40	4.7	39.4
20/11/2018 00:50	4.6	40.6
20/11/2018 01:00	4.3	40.7
20/11/2018 01:10	4.1	41.7
20/11/2018 01:20	4.0	43.6
20/11/2018 01:30	4.6	38.8
20/11/2018 01:40	4.1	38.4
20/11/2018 01:50	4.3	39.0
20/11/2018 02:00	4.0	34.8
20/11/2018 02:10	4.0	35.9
20/11/2018 02:20	4.1	34.2
20/11/2018 02:30	3.8	31.7
20/11/2018 02:40	3.9	32.4
20/11/2018 02:50	3.9	31.7
20/11/2018 03:00	3.7	35.2
20/11/2018 03:10	4.0	36.0
20/11/2018 03:20	4.4	36.2
20/11/2018 03:30	4.4	34.5
20/11/2018 03:40	4.5	36.4
20/11/2018 03:50	4.5	37.7
20/11/2018 04:00	4.8	34.8
20/11/2018 04:10	4.3	33.7
20/11/2018 04:20	4.3	38.4
20/11/2018 04:30	4.7	40.7
20/11/2018 04:40	4.3	41.4
20/11/2018 04:50	4.2	39.9
20/11/2018 05:00	4.1	38.3
20/11/2018 05:10	3.8	39.4

Date & Time	Wind Speed (m/s)	Wind Direction (°)
20/11/2018 05:20	4.0	38.5
20/11/2018 05:30	4.0	32.0
20/11/2018 05:40	3.6	24.3
20/11/2018 05:50	3.3	27.6
20/11/2018 06:00	3.7	29.4
20/11/2018 06:10	4.0	31.0
20/11/2018 06:20	4.0	26.8
20/11/2018 06:30	5.6	25.2
20/11/2018 06:40	6.2	23.5
20/11/2018 06:50	6.0	21.9
20/11/2018 07:00	6.3	17.6
20/11/2018 07:10	7.3	15.8
20/11/2018 07:20	8.4	9.2
20/11/2018 07:30	9.1	359.4
20/11/2018 07:40	9.8	3.4
20/11/2018 07:50	9.6	2.1
20/11/2018 08:00	9.7	2.5
20/11/2018 08:10	9.2	2.3
20/11/2018 08:20	9.4	4.1
20/11/2018 08:30	8.7	1.0
20/11/2018 08:40	9.6	5.5
20/11/2018 08:50	8.4	356.4
20/11/2018 09:00	9.1	355.2
20/11/2018 09:10	9.1	351.7
20/11/2018 09:20	8.3	0.0
20/11/2018 09:30	8.9	355.3
20/11/2018 09:40	9.1	341.1
20/11/2018 09:50	8.2	351.6
20/11/2018 10:00	7.5	357.3
20/11/2018 10:10	7.6	348.2
20/11/2018 10:20	8.0	356.3
20/11/2018 10:30	7.8	330.9
20/11/2018 10:40	7.9	342.2
20/11/2018 10:50	7.4	331.2
20/11/2018 11:00	7.6	350.8
20/11/2018 11:10	7.7	349.4
20/11/2018 11:20	8.5	342.4
20/11/2018 11:30	7.4	345.0
20/11/2018 11:40	6.9	331.6
20/11/2018 11:50	7.5	337.7
20/11/2018 12:00	7.8	344.5
20/11/2018 12:10	7.7	329.6
20/11/2018 12:20	7.3	337.7
20/11/2018 12:30	7.5	347.9
20/11/2018 12:40	6.7	345.6
20/11/2018 12:50	7.1	351.3
20/11/2018 13:00	7.6	333.6
20/11/2018 13:10	6.5	331.7
20/11/2018 13:20	6.3	342.1
20/11/2018 13:30	5.8	329.8

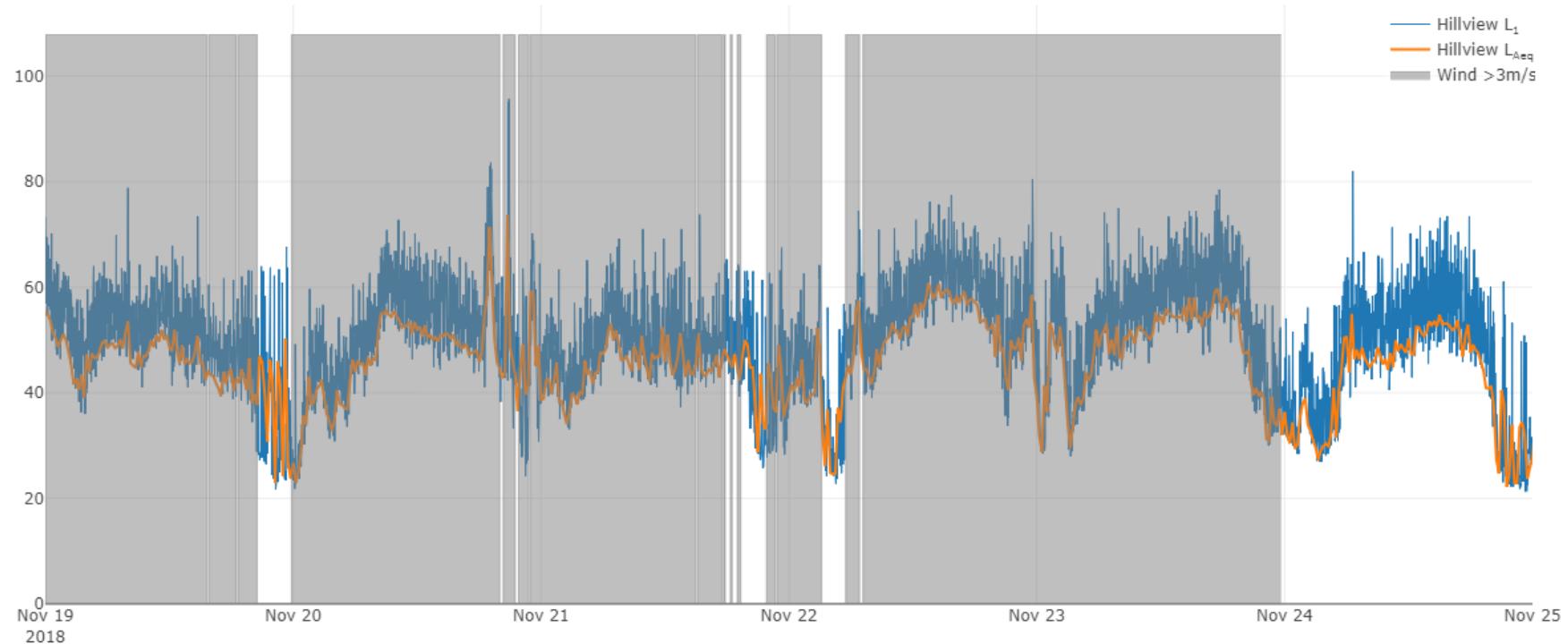
Date & Time	Wind Speed (m/s)	Wind Direction (°)
20/11/2018 13:40	6.1	329.2
20/11/2018 13:50	7.5	342.7
20/11/2018 14:00	6.5	325.1
20/11/2018 14:10	7.8	340.1
20/11/2018 14:20	7.9	339.3
20/11/2018 14:30	8.0	330.3
20/11/2018 14:40	7.3	348.7
20/11/2018 14:50	7.3	345.7
20/11/2018 15:00	7.2	345.8
20/11/2018 15:10	7.8	347.5
20/11/2018 15:20	7.9	338.3
20/11/2018 15:30	6.6	340.2
20/11/2018 15:40	7.2	347.4
20/11/2018 15:50	7.5	344.8
20/11/2018 16:00	7.2	347.1
20/11/2018 16:10	6.8	340.3
20/11/2018 16:20	6.5	349.9
20/11/2018 16:30	5.8	354.0
20/11/2018 16:40	6.6	351.2
20/11/2018 16:50	6.5	347.0
20/11/2018 17:00	6.2	353.2
20/11/2018 17:10	5.8	346.6
20/11/2018 17:20	5.7	340.0
20/11/2018 17:30	5.2	339.8
20/11/2018 17:40	4.8	344.4
20/11/2018 17:50	4.1	333.7
20/11/2018 18:00	5.5	311.1
20/11/2018 18:10	10.9	270.7
20/11/2018 18:20	9.0	236.7
20/11/2018 18:30	8.2	225.7
20/11/2018 18:40	3.0	243.5

Appendix D – Full Results Graphs

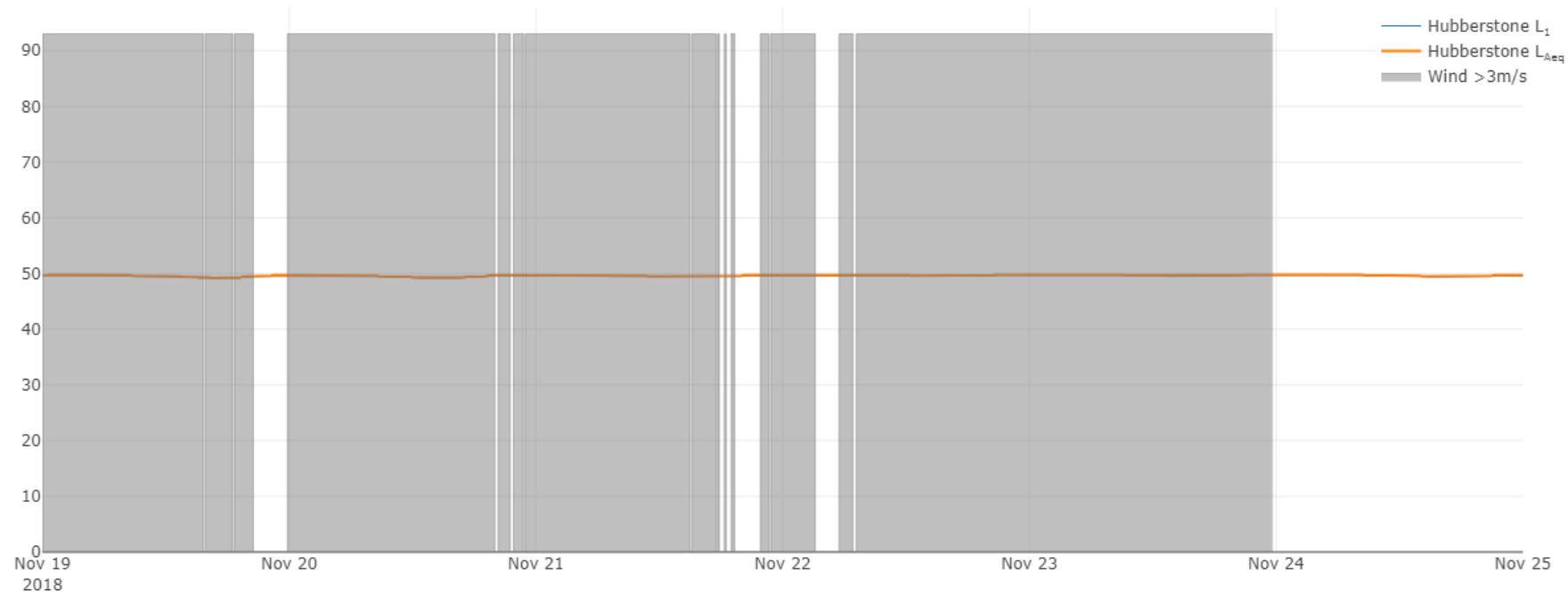
Note:

- Grey shaded areas indicate periods when wind speeds were in excess of 3 m/s; data from these periods have been excluded in the calculation for average results presented in Table 7.
- Noise data for Hubberstone appears incomplete, it is possible that equipment has malfunctioned.

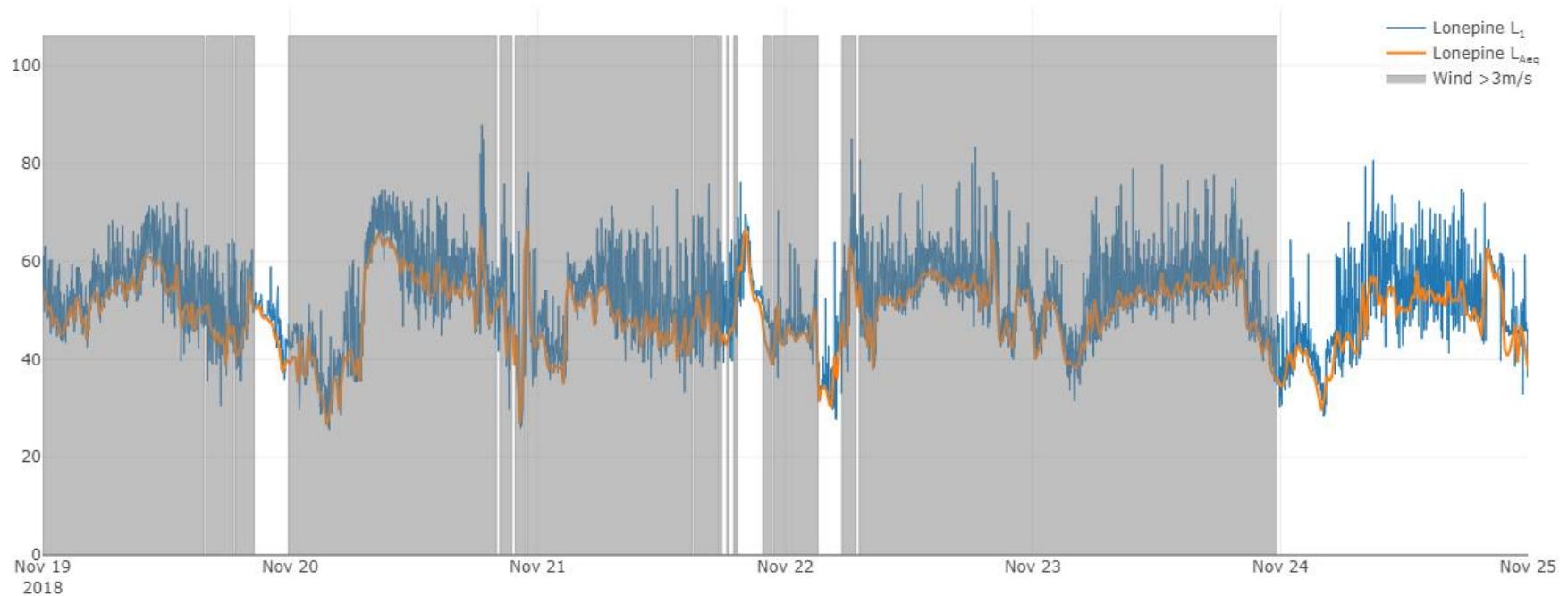
Hillview L₁ (1min) and L_{Aeq} (15min)



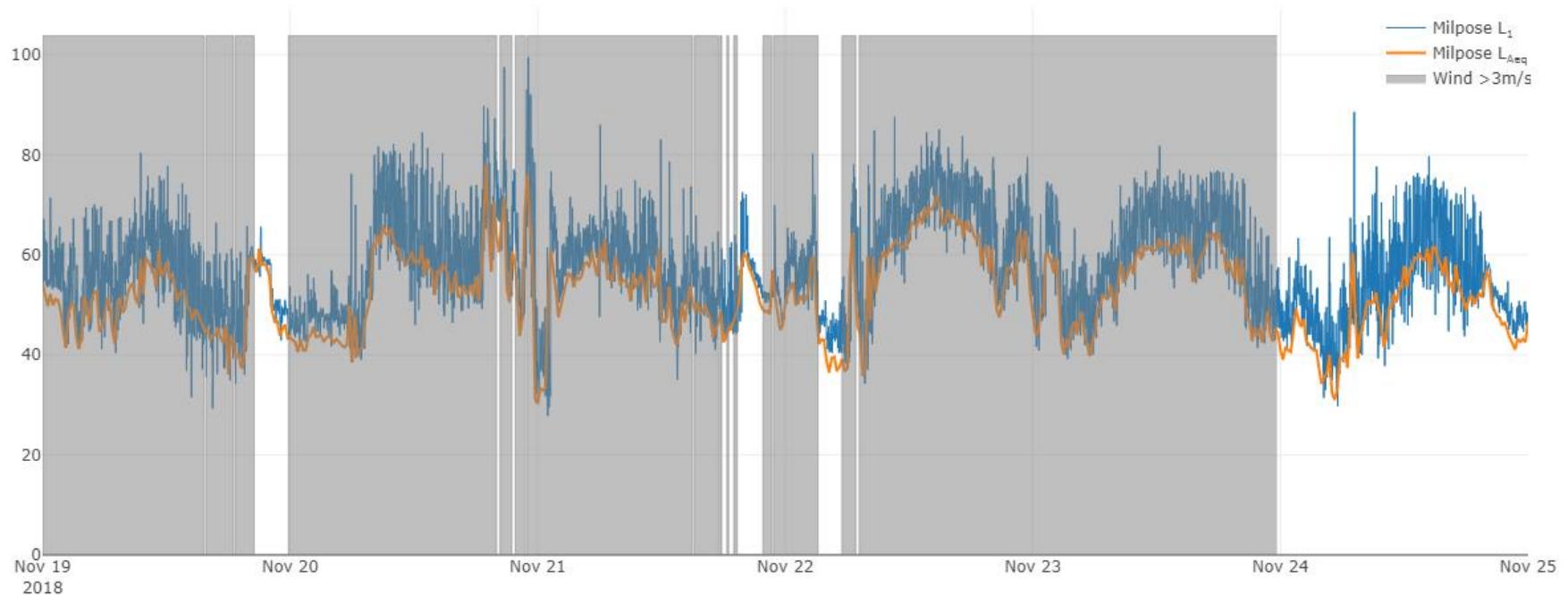
Hubberstone L₁ (1min) and L_{Aeq} (15min)



Lonepine L₁ (1min) and L_{Aeq} (15min)



Milpose L₁ (1min) and L_{Aeq} (15min)



-End of report-