



esp

Environmental &
Safety Professionals

ENVIRONMENTAL NOISE MONITORING QUARTER 1, 2018



Northparkes Mines
PO Box 995
Parkes NSW 2870

Job No: J38252
Report issued: 25 June 2018

ESP – ENVIRONMENTAL & SAFETY PROFESSIONALS

A division of Enviro-Net Australia Pty. Ltd.
ABN 39 067 499 389 ACN 067 499 389 NATA Reg. 3110

Unit 2, 2B Parker St
Footscray, VIC 3011
Ph: (03) 9688 8000
Fax: (03) 9689 6470
Email: esp@esplabs.com.au

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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> | 4/6/2018 | <i>N. Jones</i> |

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 March 2018.

Weather conditions for the day monitoring were not favourable and adequate noise measurements could not be obtained during this period. Weather conditions for the evening and night were within range with all results indicating compliance at all locations.

TABLE OF CONTENTS

| | |
|--|-------------------------------------|
| EXECUTIVE SUMMARY | 3 |
| 1. INTRODUCTION | 5 |
| 2. BACKGROUND | 5 |
| 3. NOISE LIMITS | 6 |
| Noise Management Plan | 6 |
| Project Specific Criteria | 6 |
| 4. NOISE LEVEL MEASUREMENT | 7 |
| Methodology - Equipment | 7 |
| Methodology – Meteorological Conditions | 7 |
| Observations | 7 |
| Attended Noise Monitoring Results | 7 |
| 5. DISCUSSION | 11 |
| Attended Noise Monitoring | Error! Bookmark not defined. |
| 6. CONCLUSION | 11 |
| Appendix A – Map of Monitoring Locations | 12 |
| Appendix B – Equipment Calibration Details | 13 |
| Appendix C – Weather Conditions during Monitoring Period | 15 |
| Wind-Rose | 15 |
| Tabulated Meteorological Conditions | 16 |

1. INTRODUCTION

ESP was commissioned by Northparkes Mines (NPM) to undertake an Environmental Noise Assessment during Quarter 1, 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 March 2018;
- an assessment of the results against Project Approval 11_0060 (DC 06-0026) 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 and unattended 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 and Vibration Management Plan (NVMP) which requires noise to be monitored at key locations adjacent to the mine site.

The NVMP 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. In addition, unattended noise monitoring must be conducted continuously for seven days per quarter.

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. Unattended noise measurement results were provided by NPM.

Calibration details are attached in Appendix B.

The equipment used is listed below:

| Equipment | Model | Serial Number | Calibration due |
|-------------------------|------------|---------------|-----------------|
| Sound level meter (SLM) | Rion NL-52 | 00375605 | 24/05/2019 |

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."

| Location | Date and Time | L_{A1} dB | L_{A10} dB | L_{Aeq} dB | L_{A90} dB | Compliance? | Notes |
|--------------------|----------------------|------------------------------|-------------------------------|-------------------------------|-------------------------------|--------------------|--|
| Hillview | 21/03/2018 15:30 | 52.3 | 48.3 | 46.3 | 42.9 | NA | Wind gust continually in excess of 3m/s Mine inaudible |
| | 21/03/2018 15:45 | 52.8 | 48.7 | 46.7 | 43.7 | NA | |
| | 21/03/2018 16:00 | 56.5 | 49.8 | 48.2 | 42.1 | NA | |
| Hubberstone | 21/03/2018 16:50 | 55.1 | 48.2 | 45.6 | 38.8 | NA | Wind gust continually in excess of 3m/s Mine inaudible |
| | 21/03/2018 17:05 | 55.9 | 48.9 | 46.3 | 38.5 | NA | |
| | 21/03/2018 17:20 | 53.3 | 48.2 | 45.0 | 38.6 | NA | |
| Milpose | 21/03/2018 14:28 | 52.2 | 45.7 | 42.9 | 35.7 | NA | Wind gust continually in excess of 3m/s Mine inaudible |
| | 21/03/2018 14:43 | 51.1 | 44.0 | 40.7 | 31.8 | NA | |
| | 21/03/2018 14:58 | 45.0 | 39.0 | 36.6 | 30.7 | NA | |
| Lonepine | 21/03/2018 13:25 | 59.3 | 56.1 | 53.5 | 49.8 | NA | Wind gust continually in excess of 3m/s Mine inaudible |
| | 21/03/2018 13:40 | 60.2 | 56.7 | 53.3 | 47.3 | NA | |
| | 21/03/2018 13:55 | 62.5 | 56.9 | 53.9 | 45.8 | NA | |

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 | 22/03/2018 18:55 | 41.0 | 36.2 | 34.1 | 30.5 | Yes | |
| | 22/03/2018 19:10 | 44.8 | 36.4 | 34.9 | 30.9 | Yes | Wildlife Noise Mine inaudible |
| | 22/03/2018 19:25 | 42.5 | 35.3 | 34.3 | 30.2 | Yes | |
| Hubberstone | 21/03/2018 18:00 | 61.4 | 54.5 | 51.4 | 44.1 | NA | |
| | 21/03/2018 15:15 | 60.3 | 54.6 | 51.7 | 45.9 | NA | Wind gust continually in excess of 3m/s Mine inaudible |
| | 21/03/2018 18:30 | 60.3 | 53.8 | 50.8 | 44.3 | NA | |
| Milpose | 22/03/2018 20:00 | 48.9 | 47.7 | 28.3 | 36.9 | Yes (adj) | |
| | 22/03/2018 20:15 | 48.0 | 47.4 | 28.2 | 36.4 | Yes (adj) | Frogs and insects from adjacent pond – due to this adjustment made to LAeq Mine slightly audible |
| | 22/03/2018 20:30 | 50.2 | 47.8 | 29.1 | 36.4 | Yes (adj) | |
| Lonepine | 22/03/2018 21:00 | 37.3 | 31.3 | 30.5 | 25.5 | Yes | |
| | 22/03/2018 21:15 | 41.4 | 53.3 | 28.5 | 32.9 | Yes | Insect noise necessitating adjustment Dogs barking Wind noise Mine inaudible |
| | 22/03/2018 21:30 | 49.0 | 45.1 | 34.4 | 36.4 | Yes (adj) | |

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 | 23/03/2018 01:25 | 33.3 | 30.5 | 28.2 | 23.5 | Yes | |
| | 23/03/2018 01:40 | 34.8 | 32.2 | 32.2 | 27.4 | Yes | Mine inaudible |
| | 23/03/2018 01:55 | 34.5 | 31.0 | 29.6 | 25.3 | Yes | |
| Hubberstone | 23/03/2018 00:22 | 20.6 | 37.0 | 34.5 | 29.0 | Yes (adj) | |
| | 23/03/2018 00:37 | 41.0 | 34.3 | 32.0 | 27.9 | Yes | Sheep bleating Mine inaudible |
| | 23/03/2018 00:52 | 41.1 | 34.9 | 32.9 | 26.4 | Yes | |
| Milpose | 22/03/2018 23:00 | 47.9 | 40.7 | 29.3 | 28.4 | Yes (adj) | |
| | 22/03/2018 23:15 | 40.7 | 37.6 | 33.9 | 28.3 | Yes | Inspects Might slightly audible |
| | 22/03/2018 23:30 | 47.3 | 43.7 | 34.8 | 28.4 | Yes (adj) | |
| Lonepine | 22/03/2018 22:00 | 50.8 | 43.7 | 34.8 | 38.1 | Yes (adj) | |
| | 22/03/2018 22:15 | 50.7 | 48.2 | 33.7 | 40.6 | Yes (adj) | Dogs barking windy Mine inaudible |
| | 22/03/2018 22:30 | 50.4 | 47.3 | 33.9 | 38.6 | Yes (adj) | |

Table 6: Night Attended Noise Results

5. DISCUSSION

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

No noise result could be obtained during the day period due to constant wind noise with wind speed continually in excess of 3m/s.

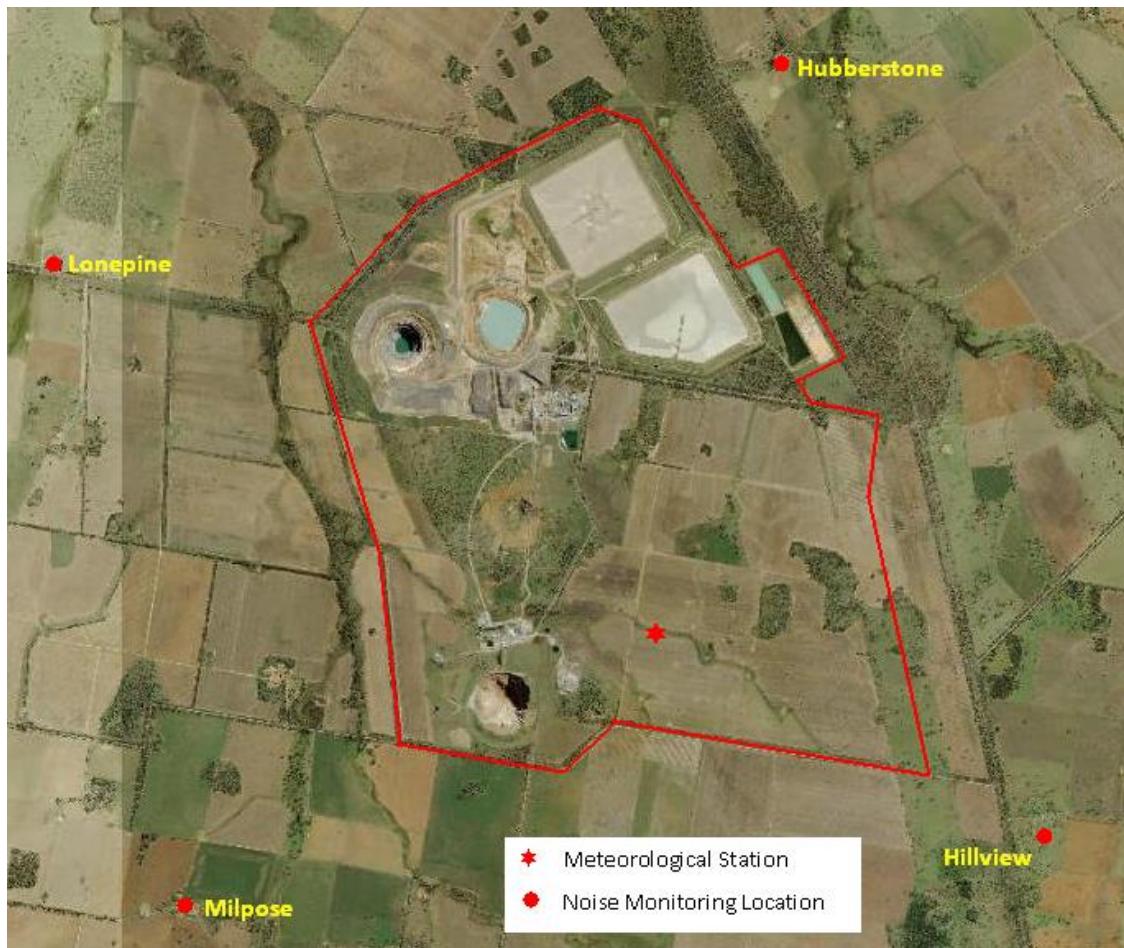
Where possible, extraneous noise sources have been excluded from attended measurements by pausing the sound level meter when non-NPM sources predominate (e.g. passing traffic or aircraft) and/or subtracting the component of the frequency spectrum that is caused by non-NPM sources (e.g. wildlife noise, 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

Environmental noise monitoring was conducted at four noise sensitive receivers around adjacent properties to Northparkes Mine site. attended monitoring was conducted from the 21st to the 23rd March 2018.

Attended noise monitoring results indicate noise emissions from the mine site comply with the development consent criteria. Weather conditions overall were not favourable for noise monitoring; however, measurements indicate compliance at all locations during conforming conditions.

Appendix A – Map of Monitoring Locations



Appendix B – Equipment Calibration Details



**Acoustic
Research
Labs Pty Ltd**

Level 7 Building 2 423 Pennant Hills Rd
Pennant Hills NSW AUSTRALIA 2120
Ph: +61 2 9484 0800 A.B.N. 65 160 399 119
www.acousticresearch.com.au

Sound Level Meter
IEC 61672-3.2013

Calibration Certificate

Calibration Number C17244

| | |
|-----------------------|--|
| Client Details | ESP Environmental & Safety Professionals Unit 2, 2B Parker Street FOOTSCRAY VIC 3011 |
|-----------------------|--|

| | |
|---|--------------|
| Equipment Tested/ Model Number : | Rion NL-52EX |
| Instrument Serial Number : | 00375605 |
| Microphone Serial Number : | 11074 |
| Pre-amplifier Serial Number : | 65732 |

Pre-Test Atmospheric Conditions
Ambient Temperature : 22.1°C
Relative Humidity : 53.1%
Barometric Pressure : 99.31kPa

Post-Test Atmospheric Conditions
Ambient Temperature : 22.2°C
Relative Humidity : 53.1%
Barometric Pressure : 99.29kPa

Calibration Technician : Vicky Jaiswal
Calibration Date : 24/05/2017

Secondary Check: Sandra Minto
Report Issue Date : 24/05/2017

Approved Signatory : 

Ken Williams

| Clause and Characteristic Tested | Result | Clause and Characteristic Tested | Result |
|--|--------|---|--------|
| 12: Acoustical Sig. tests of a frequency weighting | Pass | 17: Level linearity incl. the level range control | Pass |
| 13: Electrical Sig. tests of frequency weightings | Pass | 18: Toneburst response | Pass |
| 14: Frequency and time weightings at 1 kHz | Pass | 19: C Weighted Peak Sound Level | Pass |
| 15: Long Term Stability | Pass | 20: Overload Indication | Pass |
| 16: Level linearity on the reference level range | Pass | 21: High Level Stability | Pass |

The sound level meter submitted for testing has successfully completed the class 1 periodic tests of IEC 61672-3:2006, for the environmental conditions under which the tests were performed.

As public evidence was available, from an independent testing organisation responsible for approving the results of pattern evaluation test performed in accordance with IEC 61672-2:2003, to demonstrate that the model of sound level meter fully conformed to the requirements in IEC 61672-1:2002, the sound level meter submitted for testing conforms to the class 1 requirements of IEC 61672-1:2002.

| Least Uncertainties of Measurement - | | | |
|--------------------------------------|---------|---------------------|-----------|
| Environmental Conditions | | | |
| Acoustic Tests | | Temperature | ±0.05°C |
| 31.5 Hz to 8kHz | ±0.16dB | Relative Humidity | ±0.46% |
| 12.5kHz | ±0.2dB | Barometric Pressure | ±0.017kPa |
| 16kHz | ±0.29dB | | |
| Electrical Tests | | | |
| 31.5 Hz to 20 kHz | ±0.12dB | | |

All uncertainties are derived at the 95% confidence level with a coverage factor of 2.

This calibration certificate is to be read in conjunction with the calibration test report.

Acoustic Research Labs Pty Ltd is NATA Accredited Laboratory Number 14172.
Accredited for compliance with ISO/IEC 17025.

The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

NATA is a signatory to the ILAC Mutual Recognition Arrangement for the mutual recognition of the equivalence of testing, medical testing, calibration and inspection reports.



PAGE 1 OF 1



**Acoustic
Research
Labs Pty Ltd**

Level 7 Building 2 423 Pennant Hills Rd
Pennant Hills NSW AUSTRALIA 2120
Ph: +61 2 9484 0800 A.B.N. 65 160 399 119
www.acousticresearch.com.au

**Octave Band Filter
AS 4476:1997**
Calibration Certificate

Calibration Number C17244A

| | |
|-----------------------|--|
| Client Details | ESP Environmental & Safety Professionals Unit 2, 2B Parker Street FOOTSCRAY VIC 3011 |
|-----------------------|--|

| | |
|-------------------------------|--------------|
| Filter Model Number : | Rion NL-52EX |
| Filter Serial Number : | N/A |
| Instrument Serial Number : | 00375605 |
| Microphone Serial Number : | 11074 |
| Pre-amplifier Serial Number : | 65732 |

Atmospheric Conditions

Ambient Temperature : 21.8°C
Relative Humidity : 49.1%
Barometric Pressure : 99.27kPa

| | | | |
|--------------------------|---------------|---------------------|--------------|
| Calibration Technician : | Vicky Jaiswal | Secondary Check: | Sandra Minto |
| Calibration Date : | 24/05/2017 | Report Issue Date : | 24/05/2017 |

Approved Signatory :  Ken Williams

| Clause and Characteristic Tested | Result | Clause and Characteristic Tested | Result |
|--|--------|-------------------------------------|--------|
| 4.4 & 5.3: 1/1 Octave relative attenuation | Pass | 4.6 & 5.5: Linear operating range | Pass |
| 4.4 & 5.3: 1/3 Octave relative attenuation | Pass | 4.8 & 5.7: Anti-alias filters | Pass |
| | | 4.10 & 5.9: Flat frequency response | Pass |

The fractional octave band meter under test has been shown to conform to the class 1 requirements for periodic testing as described in AS 4476:1997 for the tests stated above.

| Electrical Test | Least Uncertainties of Measurement - Environmental Conditions | | | |
|-----------------|---|-------------------|---------------------|-----------|
| | Temperature | Relative Humidity | Barometric Pressure | |
| < 16Hz | ±0.19dB | | | ±0.05°C |
| 16Hz-100Hz | ±0.11dB | | | ±0.46% |
| 100Hz-1000Hz | ±0.09dB | | | ±0.017kPa |
| 1000Hz-10kHz | ±0.09dB | | | |
| > 10kHz | ±0.16dB | | | |

All uncertainties are derived at the 95% confidence level with a coverage factor of 2.

This calibration certificate is to be read in conjunction with the calibration test report.

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PAGE 1 OF 1

Appendix C – Weather Conditions during Monitoring Period

Note: Data provided by Northparkes Mine.

Wind-Rose

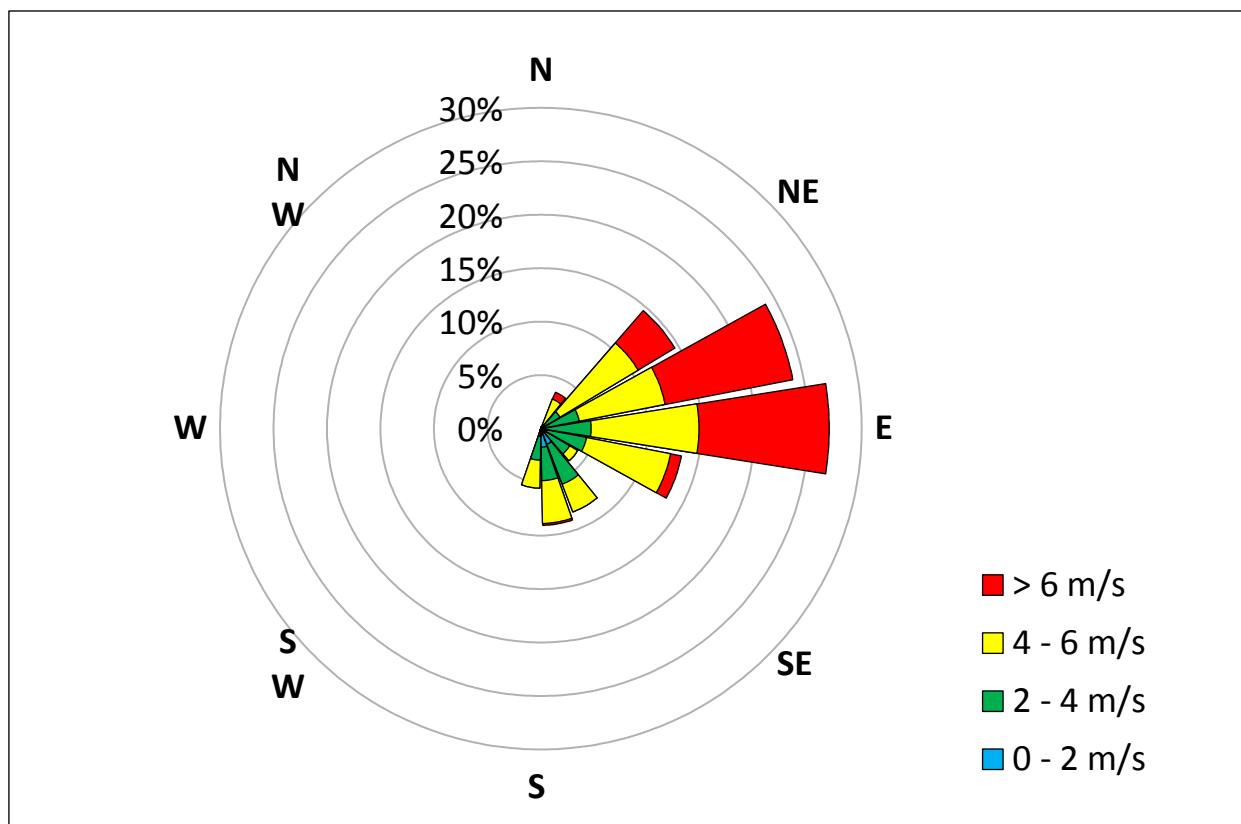


Figure 1 - Wind rose for period 20/03/2018 – 23/03/2018

Tabulated Meteorological Conditions

| Date & time | Wind speed (m/s) | Wind Direction (°) |
|-----------------|---------------------|--------------------------|
| 20/03/2018 0:00 | 2.411 | 180.7 |
| 20/03/2018 0:10 | 1.952 | 184.7 |
| 20/03/2018 0:20 | 1.725 | 177.8 |
| 20/03/2018 0:30 | 1.759 | 180.4 |
| 20/03/2018 0:40 | 1.88 | 182.3 |
| 20/03/2018 0:50 | 1.958 | 175.5 |
| 20/03/2018 1:00 | 2.223 | 170.5 |
| 20/03/2018 1:10 | 2.283 | 174.1 |
| 20/03/2018 1:20 | 2.599 | 176.3 |
| 20/03/2018 1:30 | 2.803 | 188.4 |
| 20/03/2018 1:40 | 2.055 | 185.7 |
| 20/03/2018 1:50 | 1.368 | 174 |
| 20/03/2018 2:00 | 1.959 | 144 |
| 20/03/2018 2:10 | 2.319 | 143.4 |
| 20/03/2018 2:20 | 1.79 | 156.1 |
| 20/03/2018 2:30 | 2.244 | 150.8 |
| 20/03/2018 2:40 | 2.013 | 153.2 |
| 20/03/2018 2:50 | 1.893 | 164.5 |
| 20/03/2018 3:00 | 2.08 | 164.3 |
| 20/03/2018 3:10 | 2.162 | 168.1 |
| 20/03/2018 3:20 | 1.582 | 150.5 |
| 20/03/2018 3:30 | 1.628 | 130.8 |
| 20/03/2018 3:40 | 1.444 | 144.8 |
| 20/03/2018 3:50 | 1.51 | 167.5 |
| 20/03/2018 4:00 | 1.44 | 149.3 |
| 20/03/2018 4:10 | 1.74 | 130 |
| 20/03/2018 4:20 | 2.441 | 152.2 |
| 20/03/2018 4:30 | 2.069 | 154.4 |
| 20/03/2018 4:40 | 2.206 | 163.3 |
| 20/03/2018 4:50 | 2.508 | 169.7 |
| 20/03/2018 5:00 | 2.671 | 164 |
| 20/03/2018 5:10 | 2.85 | 158.1 |
| 20/03/2018 5:20 | 2.679 | 155.7 |
| 20/03/2018 5:30 | 2.696 | 156.6 |
| 20/03/2018 5:40 | 2.407 | 152.9 |
| 20/03/2018 5:50 | 2.325 | 157.1 |
| 20/03/2018 6:00 | 2.721 | 162.3 |
| 20/03/2018 6:10 | 2.819 | 157.3 |
| 20/03/2018 6:20 | 2.393 | 152 |
| 20/03/2018 6:30 | 2.623 | 150 |
| 20/03/2018 6:40 | 2.706 | 150.6 |
| 20/03/2018 6:50 | 2.211 | 156.6 |
| 20/03/2018 7:00 | 2.081 | 163.3 |
| 20/03/2018 7:10 | 1.953 | 162.8 |
| 20/03/2018 7:20 | 1.447 | 155.8 |
| 20/03/2018 7:30 | 1.596 | 167.3 |
| 20/03/2018 7:40 | 1.328 | 179.9 |
| 20/03/2018 7:50 | 1.968 | 170.7 |

| Date & time | Wind speed (m/s) | Wind Direction (°) |
|------------------|---------------------|--------------------------|
| 20/03/2018 8:00 | 2.51 | 166 |
| 20/03/2018 8:10 | 2.679 | 159.9 |
| 20/03/2018 8:20 | 3.251 | 146.1 |
| 20/03/2018 8:30 | 4.083 | 145.8 |
| 20/03/2018 8:40 | 5.342 | 139.1 |
| 20/03/2018 8:50 | 5.771 | 148.6 |
| 20/03/2018 9:00 | 4.372 | 147.9 |
| 20/03/2018 9:10 | 5.865 | 146.3 |
| 20/03/2018 9:20 | 5.892 | 154.7 |
| 20/03/2018 9:30 | 5.941 | 153.3 |
| 20/03/2018 9:40 | 5.702 | 142.9 |
| 20/03/2018 9:50 | 6.602 | 162.9 |
| 20/03/2018 10:00 | 5.858 | 160.4 |
| 20/03/2018 10:10 | 5.225 | 159.1 |
| 20/03/2018 10:20 | 4.736 | 163.6 |
| 20/03/2018 10:30 | 5.01 | 157.8 |
| 20/03/2018 10:40 | 4.755 | 165.1 |
| 20/03/2018 10:50 | 5.291 | 156 |
| 20/03/2018 11:00 | 4.82 | 171.3 |
| 20/03/2018 11:10 | 5.333 | 169.8 |
| 20/03/2018 11:20 | 5.244 | 158.8 |
| 20/03/2018 11:30 | 4.835 | 162.8 |
| 20/03/2018 11:40 | 4.913 | 165.7 |
| 20/03/2018 11:50 | 4.601 | 155.5 |
| 20/03/2018 12:00 | 4.964 | 161.1 |
| 20/03/2018 12:10 | 4.797 | 178.7 |
| 20/03/2018 12:20 | 5.392 | 166.3 |
| 20/03/2018 12:30 | 5.135 | 178.4 |
| 20/03/2018 12:40 | 5.11 | 175.7 |
| 20/03/2018 12:50 | 5.086 | 174 |
| 20/03/2018 13:00 | 4.504 | 187.1 |
| 20/03/2018 13:10 | 4.493 | 148.2 |
| 20/03/2018 13:20 | 3.638 | 164.1 |
| 20/03/2018 13:30 | 4.314 | 162.9 |
| 20/03/2018 13:40 | 3.963 | 185 |
| 20/03/2018 13:50 | 4.322 | 190.7 |
| 20/03/2018 14:00 | 4.617 | 182.8 |
| 20/03/2018 14:10 | 3.713 | 180.9 |
| 20/03/2018 14:20 | 4.58 | 191.7 |
| 20/03/2018 14:30 | 5.157 | 198.7 |
| 20/03/2018 14:40 | 4.142 | 160.4 |
| 20/03/2018 14:50 | 4.224 | 178.2 |
| 20/03/2018 15:00 | 3.828 | 150.3 |
| 20/03/2018 15:10 | 4.274 | 171.4 |
| 20/03/2018 15:20 | 4.617 | 150 |
| 20/03/2018 15:30 | 4.369 | 158.2 |
| 20/03/2018 15:40 | 4.247 | 171.9 |
| 20/03/2018 15:50 | 4.934 | 157.6 |

| Date & time | Wind speed (m/s) | Wind Direction (°) |
|------------------|---------------------|--------------------------|
| 20/03/2018 16:00 | 4.277 | 196.1 |
| 20/03/2018 16:10 | 4.584 | 163.8 |
| 20/03/2018 16:20 | 5.222 | 164.4 |
| 20/03/2018 16:30 | 4.377 | 177.4 |
| 20/03/2018 16:40 | 4.606 | 176.7 |
| 20/03/2018 16:50 | 4.751 | 165.6 |
| 20/03/2018 17:00 | 4.794 | 196.6 |
| 20/03/2018 17:10 | 4.716 | 181.1 |
| 20/03/2018 17:20 | 4.858 | 180.3 |
| 20/03/2018 17:30 | 4.546 | 181.8 |
| 20/03/2018 17:40 | 4.529 | 184.1 |
| 20/03/2018 17:50 | 5.137 | 187.4 |
| 20/03/2018 18:00 | 5.384 | 186.6 |
| 20/03/2018 18:10 | 4.717 | 183.9 |
| 20/03/2018 18:20 | 4.106 | 187.4 |
| 20/03/2018 18:30 | 3.663 | 189.3 |
| 20/03/2018 18:40 | 3.608 | 194.5 |
| 20/03/2018 18:50 | 3.425 | 193.6 |
| 20/03/2018 19:00 | 3.369 | 194 |
| 20/03/2018 19:10 | 3.514 | 197.1 |
| 20/03/2018 19:20 | 3.287 | 195.2 |
| 20/03/2018 19:30 | 3.038 | 190.8 |
| 20/03/2018 19:40 | 1.756 | 167.6 |
| 20/03/2018 19:50 | 1.961 | 169.3 |
| 20/03/2018 20:00 | 2.171 | 170.9 |
| 20/03/2018 20:10 | 1.846 | 152.9 |
| 20/03/2018 20:20 | 1.825 | 157 |
| 20/03/2018 20:30 | 2.257 | 169.3 |
| 20/03/2018 20:40 | 2.669 | 161.6 |
| 20/03/2018 20:50 | 2.716 | 146.8 |
| 20/03/2018 21:00 | 3.954 | 149.4 |
| 20/03/2018 21:10 | 4.482 | 122.8 |
| 20/03/2018 21:20 | 5.445 | 82.3 |
| 20/03/2018 21:30 | 6.284 | 75.11 |
| 20/03/2018 21:40 | 7.851 | 78.26 |
| 20/03/2018 21:50 | 8.65 | 69.03 |
| 20/03/2018 22:00 | 8.71 | 70.51 |
| 20/03/2018 22:10 | 7.59 | 68 |
| 20/03/2018 22:20 | 7.936 | 77.59 |
| 20/03/2018 22:30 | 8.28 | 79.86 |
| 20/03/2018 22:40 | 8.04 | 75.2 |
| 20/03/2018 22:50 | 6.666 | 70.01 |
| 20/03/2018 23:00 | 5.198 | 74.48 |
| 20/03/2018 23:10 | 7.452 | 73.99 |
| 20/03/2018 23:20 | 7.361 | 74.79 |
| 20/03/2018 23:30 | 8.06 | 80.6 |
| 20/03/2018 23:40 | 8.52 | 78.8 |
| 20/03/2018 23:50 | 7.116 | 79.64 |
| 21/03/2018 0:00 | 5.591 | 79.43 |
| 21/03/2018 0:10 | 4.563 | 79.52 |
| 21/03/2018 0:20 | 4.83 | 83.9 |

| Date & time | Wind speed (m/s) | Wind Direction (°) |
|-----------------|---------------------|--------------------------|
| 21/03/2018 0:30 | 4.948 | 87.2 |
| 21/03/2018 0:40 | 4.222 | 93.1 |
| 21/03/2018 0:50 | 4.163 | 100.6 |
| 21/03/2018 1:00 | 3.4 | 103.5 |
| 21/03/2018 1:10 | 3.744 | 91.2 |
| 21/03/2018 1:20 | 4.321 | 90.8 |
| 21/03/2018 1:30 | 4.774 | 95.8 |
| 21/03/2018 1:40 | 4.872 | 100.3 |
| 21/03/2018 1:50 | 4.454 | 101.6 |
| 21/03/2018 2:00 | 2.508 | 102.3 |
| 21/03/2018 2:10 | 3.386 | 102.3 |
| 21/03/2018 2:20 | 3.734 | 94 |
| 21/03/2018 2:30 | 4.048 | 91.3 |
| 21/03/2018 2:40 | 4.411 | 88.2 |
| 21/03/2018 2:50 | 4.632 | 85.9 |
| 21/03/2018 3:00 | 5.053 | 92.3 |
| 21/03/2018 3:10 | 4.273 | 89.9 |
| 21/03/2018 3:20 | 4.765 | 97.4 |
| 21/03/2018 3:30 | 4.372 | 94.3 |
| 21/03/2018 3:40 | 4.672 | 95.4 |
| 21/03/2018 3:50 | 5.988 | 95.1 |
| 21/03/2018 4:00 | 5.878 | 98 |
| 21/03/2018 4:10 | 5.036 | 104 |
| 21/03/2018 4:20 | 5.465 | 103.1 |
| 21/03/2018 4:30 | 4.589 | 101.4 |
| 21/03/2018 4:40 | 3.511 | 114.9 |
| 21/03/2018 4:50 | 3.384 | 128.5 |
| 21/03/2018 5:00 | 2.383 | 142.8 |
| 21/03/2018 5:10 | 2.132 | 138 |
| 21/03/2018 5:20 | 1.847 | 139.8 |
| 21/03/2018 5:30 | 2.501 | 119.7 |
| 21/03/2018 5:40 | 2.847 | 116.7 |
| 21/03/2018 5:50 | 2.844 | 122.5 |
| 21/03/2018 6:00 | 2.461 | 117.5 |
| 21/03/2018 6:10 | 3.353 | 111.8 |
| 21/03/2018 6:20 | 4.261 | 109.8 |
| 21/03/2018 6:30 | 3.318 | 108.8 |
| 21/03/2018 6:40 | 4.18 | 113 |
| 21/03/2018 6:50 | 4.297 | 115.4 |
| 21/03/2018 7:00 | 3.639 | 121.4 |
| 21/03/2018 7:10 | 4.314 | 115.5 |
| 21/03/2018 7:20 | 5.382 | 108.8 |
| 21/03/2018 7:30 | 6.05 | 101 |
| 21/03/2018 7:40 | 6.555 | 100.4 |
| 21/03/2018 7:50 | 6.352 | 98.7 |
| 21/03/2018 8:00 | 6.582 | 99.9 |
| 21/03/2018 8:10 | 5.929 | 91.8 |
| 21/03/2018 8:20 | 7.092 | 88.1 |
| 21/03/2018 8:30 | 7.887 | 86 |
| 21/03/2018 8:40 | 7.309 | 82.3 |
| 21/03/2018 8:50 | 7.741 | 75.92 |

| Date & time | Wind speed (m/s) | Wind Direction (°) |
|------------------|---------------------|--------------------------|
| 21/03/2018 9:00 | 7.145 | 65.24 |
| 21/03/2018 9:10 | 7.36 | 70.41 |
| 21/03/2018 9:20 | 7.555 | 81.7 |
| 21/03/2018 9:30 | 8.49 | 79.68 |
| 21/03/2018 9:40 | 7.925 | 71.4 |
| 21/03/2018 9:50 | 7.588 | 75.96 |
| 21/03/2018 10:00 | 6.906 | 73.34 |
| 21/03/2018 10:10 | 8.67 | 67.52 |
| 21/03/2018 10:20 | 7.773 | 71.86 |
| 21/03/2018 10:30 | 7.694 | 60.1 |
| 21/03/2018 10:40 | 7.696 | 74.73 |
| 21/03/2018 10:50 | 8.93 | 83.3 |
| 21/03/2018 11:00 | 8.96 | 68.14 |
| 21/03/2018 11:10 | 8.64 | 70.16 |
| 21/03/2018 11:20 | 9.66 | 83.6 |
| 21/03/2018 11:30 | 8.95 | 74.7 |
| 21/03/2018 11:40 | 7.12 | 71.86 |
| 21/03/2018 12:00 | 8.59 | 63.91 |
| 21/03/2018 12:10 | 7.815 | 72.93 |
| 21/03/2018 12:20 | 8.95 | 67.1 |
| 21/03/2018 12:30 | 8.06 | 71.84 |
| 21/03/2018 12:40 | 7.854 | 69.53 |
| 21/03/2018 12:50 | 7.039 | 73.41 |
| 21/03/2018 13:00 | 7.457 | 54.16 |
| 21/03/2018 13:10 | 7.56 | 54.93 |
| 21/03/2018 13:20 | 7.116 | 66.56 |
| 21/03/2018 13:30 | 6.645 | 47.41 |
| 21/03/2018 13:40 | 6.198 | 59.81 |
| 21/03/2018 13:50 | 6.215 | 61.15 |
| 21/03/2018 14:00 | 5.668 | 60.5 |
| 21/03/2018 14:10 | 7.064 | 51.76 |
| 21/03/2018 14:20 | 6.184 | 56.4 |
| 21/03/2018 14:30 | 6.766 | 59.97 |
| 21/03/2018 14:40 | 6.956 | 59.77 |
| 21/03/2018 14:50 | 6.993 | 52.69 |
| 21/03/2018 15:00 | 7.638 | 71.2 |
| 21/03/2018 15:10 | 7.499 | 71.54 |
| 21/03/2018 15:20 | 6.553 | 62.44 |
| 21/03/2018 15:30 | 7.656 | 66.03 |
| 21/03/2018 15:40 | 7.456 | 71.32 |
| 21/03/2018 15:50 | 7.137 | 73.91 |
| 21/03/2018 16:00 | 7.041 | 75.3 |
| 21/03/2018 16:10 | 6.868 | 67.53 |
| 21/03/2018 16:20 | 7.488 | 71.01 |
| 21/03/2018 16:30 | 6.968 | 61.54 |
| 21/03/2018 16:40 | 7.279 | 61.89 |
| 21/03/2018 16:50 | 7.856 | 61.11 |
| 21/03/2018 17:00 | 8.12 | 64.34 |
| 21/03/2018 17:10 | 7.704 | 60.28 |
| 21/03/2018 17:20 | 7.957 | 62.71 |
| 21/03/2018 17:30 | 8.93 | 66.34 |

| Date & time | Wind speed (m/s) | Wind Direction (°) |
|------------------|---------------------|--------------------------|
| 21/03/2018 17:40 | 8.52 | 64.05 |
| 21/03/2018 17:50 | 8.57 | 60.55 |
| 21/03/2018 18:00 | 7.481 | 66.04 |
| 21/03/2018 18:10 | 7.875 | 70 |
| 21/03/2018 18:20 | 8.49 | 61.64 |
| 21/03/2018 18:30 | 8.64 | 69.84 |
| 21/03/2018 18:40 | 7.718 | 76.23 |
| 21/03/2018 18:50 | 8.03 | 76.41 |
| 21/03/2018 19:00 | 8.49 | 73.59 |
| 21/03/2018 19:10 | 8.48 | 76.61 |
| 21/03/2018 19:20 | 8 | 71.85 |
| 21/03/2018 19:30 | 6.15 | 75.83 |
| 21/03/2018 19:40 | 8.16 | 79.07 |
| 21/03/2018 19:50 | 8.41 | 82.6 |
| 21/03/2018 20:00 | 6.95 | 77.3 |
| 21/03/2018 20:10 | 5.654 | 88.8 |
| 21/03/2018 20:20 | 4.363 | 100.9 |
| 21/03/2018 20:30 | 5.724 | 102.1 |
| 21/03/2018 20:40 | 5.533 | 102.8 |
| 21/03/2018 20:50 | 5.474 | 104.9 |
| 21/03/2018 21:00 | 5.357 | 107 |
| 21/03/2018 21:10 | 5.454 | 109.1 |
| 21/03/2018 21:20 | 5.374 | 110.3 |
| 21/03/2018 21:30 | 5.9 | 111.5 |
| 21/03/2018 21:40 | 5.866 | 106.3 |
| 21/03/2018 21:50 | 5.721 | 101.8 |
| 21/03/2018 22:00 | 6.045 | 101.6 |
| 21/03/2018 22:10 | 6.984 | 100.9 |
| 21/03/2018 22:20 | 5.787 | 102.7 |
| 21/03/2018 22:30 | 5.404 | 98.5 |
| 21/03/2018 22:40 | 5.813 | 101.5 |
| 21/03/2018 22:50 | 5.467 | 102.9 |
| 21/03/2018 23:00 | 5.511 | 104.5 |
| 21/03/2018 23:10 | 5.452 | 101.4 |
| 21/03/2018 23:20 | 5.203 | 101.5 |
| 21/03/2018 23:30 | 5.08 | 95 |
| 21/03/2018 23:40 | 4.455 | 91.1 |
| 21/03/2018 23:50 | 4.922 | 90.4 |
| 22/03/2018 0:00 | 5.486 | 96.6 |
| 22/03/2018 0:10 | 4.592 | 93.6 |
| 22/03/2018 0:20 | 4.173 | 99.1 |
| 22/03/2018 0:30 | 3.565 | 111.7 |
| 22/03/2018 0:40 | 2.446 | 118.7 |
| 22/03/2018 0:50 | 2.244 | 157.4 |
| 22/03/2018 1:00 | 2.623 | 145.9 |
| 22/03/2018 1:10 | 3.259 | 134.3 |
| 22/03/2018 1:20 | 4.165 | 127.5 |
| 22/03/2018 1:30 | 4.95 | 119.7 |
| 22/03/2018 1:40 | 4.442 | 112.1 |
| 22/03/2018 1:50 | 3.439 | 109.3 |
| 22/03/2018 2:00 | 4.244 | 96.7 |

| Date & time | Wind speed (m/s) | Wind Direction (°) |
|------------------|---------------------|--------------------------|
| 22/03/2018 2:10 | 5.39 | 90.8 |
| 22/03/2018 2:20 | 5.262 | 87.1 |
| 22/03/2018 2:30 | 4.355 | 87.5 |
| 22/03/2018 2:40 | 3.95 | 92.8 |
| 22/03/2018 2:50 | 3.432 | 98.5 |
| 22/03/2018 3:00 | 2.866 | 123 |
| 22/03/2018 3:10 | 2.971 | 131.2 |
| 22/03/2018 3:20 | 3.432 | 126.1 |
| 22/03/2018 3:30 | 2.283 | 192.3 |
| 22/03/2018 3:40 | 2.986 | 205.1 |
| 22/03/2018 3:50 | 3.335 | 174.1 |
| 22/03/2018 4:00 | 4.941 | 124.2 |
| 22/03/2018 4:10 | 6.713 | 103 |
| 22/03/2018 4:20 | 4.846 | 109 |
| 22/03/2018 4:30 | 2.892 | 129.3 |
| 22/03/2018 4:40 | 2.389 | 159.6 |
| 22/03/2018 4:50 | 2.953 | 144.1 |
| 22/03/2018 5:00 | 4.098 | 116.7 |
| 22/03/2018 5:10 | 4.138 | 114.2 |
| 22/03/2018 5:20 | 4.105 | 117.3 |
| 22/03/2018 5:30 | 3.605 | 118.2 |
| 22/03/2018 5:40 | 3.196 | 116.2 |
| 22/03/2018 5:50 | 3.46 | 120.7 |
| 22/03/2018 6:00 | 3.94 | 124 |
| 22/03/2018 6:10 | 3.699 | 121.3 |
| 22/03/2018 6:20 | 4.089 | 110.8 |
| 22/03/2018 6:30 | 3.084 | 107.2 |
| 22/03/2018 6:40 | 3.322 | 104.8 |
| 22/03/2018 6:50 | 3.156 | 104.5 |
| 22/03/2018 7:00 | 3.507 | 98.3 |
| 22/03/2018 7:10 | 4.05 | 102.2 |
| 22/03/2018 7:20 | 4.577 | 98.5 |
| 22/03/2018 7:30 | 4.917 | 107.9 |
| 22/03/2018 7:40 | 4.09 | 114.8 |
| 22/03/2018 7:50 | 3.743 | 116.7 |
| 22/03/2018 8:00 | 4.545 | 104.9 |
| 22/03/2018 8:10 | 4.42 | 94.2 |
| 22/03/2018 8:20 | 4.135 | 101 |
| 22/03/2018 8:30 | 3.064 | 81.3 |
| 22/03/2018 8:40 | 2.837 | 83.9 |
| 22/03/2018 8:50 | 4.014 | 73.77 |
| 22/03/2018 9:00 | 2.787 | 77.04 |
| 22/03/2018 9:10 | 1.888 | 109.6 |
| 22/03/2018 9:20 | 1.637 | 92.8 |
| 22/03/2018 9:30 | 2.591 | 87.1 |
| 22/03/2018 9:40 | 3.244 | 93.1 |
| 22/03/2018 9:50 | 3.547 | 91.3 |
| 22/03/2018 10:00 | 3.062 | 69.39 |
| 22/03/2018 10:10 | 3.124 | 60.4 |
| 22/03/2018 10:20 | 3.239 | 54.23 |
| 22/03/2018 10:30 | 5.54 | 71.71 |

| Date & time | Wind speed (m/s) | Wind Direction (°) |
|------------------|---------------------|--------------------------|
| 22/03/2018 10:40 | 4.755 | 64.95 |
| 22/03/2018 10:50 | 4.914 | 71.54 |
| 22/03/2018 11:00 | 3.742 | 74.92 |
| 22/03/2018 11:10 | 4.017 | 95.1 |
| 22/03/2018 11:20 | 5.163 | 113.5 |
| 22/03/2018 11:30 | 4.9 | 111.5 |
| 22/03/2018 11:40 | 4.716 | 96.9 |
| 22/03/2018 11:50 | 4.699 | 108 |
| 22/03/2018 12:00 | 5.678 | 87.5 |
| 22/03/2018 12:10 | 5.654 | 100.8 |
| 22/03/2018 12:20 | 5.37 | 105 |
| 22/03/2018 12:30 | 5.541 | 92.5 |
| 22/03/2018 12:40 | 6.006 | 82.4 |
| 22/03/2018 12:50 | 5.504 | 84.3 |
| 22/03/2018 13:00 | 4.384 | 72.18 |
| 22/03/2018 13:10 | 5.643 | 73.09 |
| 22/03/2018 13:20 | 3.93 | 98.8 |
| 22/03/2018 13:30 | 4.025 | 91.9 |
| 22/03/2018 13:40 | 5.72 | 67.89 |
| 22/03/2018 13:50 | 5.382 | 70.26 |
| 22/03/2018 14:00 | 4.666 | 65.75 |
| 22/03/2018 14:10 | 4.332 | 88.6 |
| 22/03/2018 14:20 | 5.17 | 112.1 |
| 22/03/2018 14:30 | 5.03 | 111.6 |
| 22/03/2018 14:40 | 4.25 | 96.8 |
| 22/03/2018 14:50 | 5.863 | 89 |
| 22/03/2018 15:00 | 5.72 | 80.1 |
| 22/03/2018 15:10 | 5.449 | 85.1 |
| 22/03/2018 15:20 | 5.382 | 90.9 |
| 22/03/2018 15:30 | 5.297 | 95.9 |
| 22/03/2018 15:40 | 5.181 | 95.9 |
| 22/03/2018 15:50 | 5.835 | 103.1 |
| 22/03/2018 16:00 | 5.656 | 95.5 |
| 22/03/2018 16:10 | 5.712 | 91.4 |
| 22/03/2018 16:20 | 5.64 | 94.4 |
| 22/03/2018 16:30 | 5.659 | 93.4 |
| 22/03/2018 16:40 | 5.486 | 94 |
| 22/03/2018 16:50 | 5.878 | 95.3 |
| 22/03/2018 17:00 | 5.63 | 94.2 |
| 22/03/2018 17:10 | 5.646 | 99.3 |
| 22/03/2018 17:20 | 5.288 | 97 |
| 22/03/2018 17:30 | 5.059 | 94.9 |
| 22/03/2018 17:40 | 4.989 | 75.43 |
| 22/03/2018 17:50 | 5.913 | 62.64 |
| 22/03/2018 18:00 | 4.826 | 65.48 |
| 22/03/2018 18:10 | 4.27 | 66.27 |
| 22/03/2018 18:20 | 3.918 | 65.12 |
| 22/03/2018 18:30 | 2.958 | 71.9 |
| 22/03/2018 18:40 | 2.151 | 60.65 |
| 22/03/2018 18:50 | 1.869 | 56.9 |
| 22/03/2018 19:00 | 1.819 | 68.18 |

| Date & time | Wind speed (m/s) | Wind Direction (°) |
|------------------|---------------------|--------------------------|
| 22/03/2018 19:10 | 1.536 | 98.9 |
| 22/03/2018 19:20 | 2.54 | 88.6 |
| 22/03/2018 19:30 | 3.11 | 91.3 |
| 22/03/2018 19:40 | 2.813 | 97.5 |
| 22/03/2018 19:50 | 2.58 | 116.9 |
| 22/03/2018 20:00 | 2.304 | 125.9 |
| 22/03/2018 20:10 | 2.296 | 120.3 |
| 22/03/2018 20:20 | 2.574 | 102 |
| 22/03/2018 20:30 | 2.732 | 95.2 |
| 22/03/2018 20:40 | 2.713 | 89.4 |
| 22/03/2018 20:50 | 3.132 | 82.5 |
| 22/03/2018 21:00 | 3.003 | 67.48 |
| 22/03/2018 21:10 | 3.697 | 65.43 |
| 22/03/2018 21:20 | 4.28 | 70.43 |
| 22/03/2018 21:30 | 4.323 | 67.86 |
| 22/03/2018 21:40 | 4.318 | 66.15 |
| 22/03/2018 21:50 | 3.573 | 67.76 |
| 22/03/2018 22:00 | 3.261 | 76.71 |
| 22/03/2018 22:10 | 2.144 | 88.3 |
| 22/03/2018 22:20 | 2.118 | 90.1 |
| 22/03/2018 22:30 | 3.138 | 77.2 |
| 22/03/2018 22:40 | 4.077 | 61.85 |
| 22/03/2018 22:50 | 3.772 | 66.62 |
| 22/03/2018 23:00 | 3.608 | 65.5 |
| 22/03/2018 23:10 | 5.263 | 69.97 |
| 22/03/2018 23:20 | 5.824 | 68.83 |
| 22/03/2018 23:30 | 5.963 | 69.76 |
| 22/03/2018 23:40 | 4.99 | 72.5 |
| 22/03/2018 23:50 | 4.677 | 78.59 |
| 23/03/2018 0:00 | 4.713 | 77.69 |
| 23/03/2018 0:10 | 5.162 | 77.67 |
| 23/03/2018 0:20 | 4.959 | 76.8 |
| 23/03/2018 0:30 | 4.442 | 81.7 |
| 23/03/2018 0:40 | 4.06 | 77.44 |
| 23/03/2018 0:50 | 2.747 | 67.36 |
| 23/03/2018 1:00 | 1.636 | 66.52 |
| 23/03/2018 1:10 | 2.445 | 85.8 |
| 23/03/2018 1:20 | 3.025 | 87.1 |
| 23/03/2018 1:30 | 4.344 | 91.3 |
| 23/03/2018 1:40 | 3.898 | 95 |
| 23/03/2018 1:50 | 2.856 | 95.5 |
| 23/03/2018 2:00 | 2.721 | 90.2 |
| 23/03/2018 2:10 | 2.52 | 104.2 |
| 23/03/2018 2:20 | 2.643 | 102.3 |
| 23/03/2018 2:30 | 1.781 | 118.4 |
| 23/03/2018 2:40 | 1.556 | 119.3 |
| 23/03/2018 2:50 | 1.683 | 119.8 |
| 23/03/2018 3:00 | 2.054 | 100.1 |
| 23/03/2018 3:10 | 2.685 | 85.7 |
| 23/03/2018 3:20 | 3.912 | 72.26 |
| 23/03/2018 3:30 | 4.581 | 58.15 |

| Date & time | Wind speed (m/s) | Wind Direction (°) |
|------------------|---------------------|--------------------------|
| 23/03/2018 3:40 | 5.372 | 61.52 |
| 23/03/2018 3:50 | 4.545 | 63.23 |
| 23/03/2018 4:00 | 3.768 | 58.84 |
| 23/03/2018 4:10 | 4.738 | 58.27 |
| 23/03/2018 4:20 | 5.383 | 60.43 |
| 23/03/2018 4:30 | 5.586 | 59.73 |
| 23/03/2018 4:40 | 5.421 | 58.42 |
| 23/03/2018 4:50 | 4.832 | 57.69 |
| 23/03/2018 5:00 | 4.646 | 56.82 |
| 23/03/2018 5:10 | 5.764 | 61.87 |
| 23/03/2018 5:20 | 5.707 | 68.13 |
| 23/03/2018 5:30 | 5.881 | 68.96 |
| 23/03/2018 5:40 | 6.91 | 65.57 |
| 23/03/2018 5:50 | 5.182 | 61.09 |
| 23/03/2018 6:00 | 5.652 | 57.46 |
| 23/03/2018 6:10 | 5.48 | 60.86 |
| 23/03/2018 6:20 | 5.668 | 55.11 |
| 23/03/2018 6:30 | 5.663 | 51.56 |
| 23/03/2018 6:40 | 5.535 | 48.57 |
| 23/03/2018 6:50 | 5.744 | 51.72 |
| 23/03/2018 7:00 | 5.752 | 49.52 |
| 23/03/2018 7:10 | 6.011 | 61.71 |
| 23/03/2018 7:20 | 5.732 | 54.97 |
| 23/03/2018 7:30 | 4.651 | 57.94 |
| 23/03/2018 7:40 | 5.002 | 49.82 |
| 23/03/2018 7:50 | 5.035 | 42.14 |
| 23/03/2018 8:00 | 4.76 | 51.04 |
| 23/03/2018 8:10 | 4.112 | 51.32 |
| 23/03/2018 8:20 | 4.375 | 68.18 |
| 23/03/2018 8:30 | 4.579 | 55.66 |
| 23/03/2018 8:40 | 3.896 | 55.15 |
| 23/03/2018 8:50 | 3.427 | 53.87 |
| 23/03/2018 9:00 | 5.247 | 60 |
| 23/03/2018 9:10 | 6.485 | 55.33 |
| 23/03/2018 9:20 | 6.557 | 59.36 |
| 23/03/2018 9:30 | 6.446 | 53.92 |
| 23/03/2018 9:40 | 5.159 | 55.25 |
| 23/03/2018 9:50 | 5.396 | 45.47 |
| 23/03/2018 10:00 | 6.613 | 37.45 |
| 23/03/2018 10:10 | 6.49 | 36.89 |
| 23/03/2018 10:20 | 6.031 | 53.96 |
| 23/03/2018 10:30 | 6.381 | 47.74 |
| 23/03/2018 10:40 | 6.664 | 43.45 |
| 23/03/2018 10:50 | 5.004 | 50.17 |
| 23/03/2018 11:00 | 4.521 | 47.17 |
| 23/03/2018 11:10 | 5.249 | 37.28 |
| 23/03/2018 11:20 | 5.08 | 39.95 |
| 23/03/2018 11:30 | 5.504 | 46.56 |
| 23/03/2018 11:40 | 5.225 | 38.61 |
| 23/03/2018 11:50 | 5.968 | 49.22 |
| 23/03/2018 12:00 | 5.535 | 41.56 |

| Date & time | Wind speed (m/s) | Wind Direction (°) |
|------------------|---------------------|--------------------------|
| 23/03/2018 12:10 | 5.602 | 60.99 |
| 23/03/2018 12:20 | 6.379 | 51.25 |
| 23/03/2018 12:30 | 5.348 | 53.06 |
| 23/03/2018 12:40 | 5.307 | 66.07 |
| 23/03/2018 12:50 | 4.866 | 53.61 |
| 23/03/2018 13:00 | 6.227 | 44.73 |
| 23/03/2018 13:10 | 6.037 | 48.91 |
| 23/03/2018 13:20 | 4.781 | 35.51 |
| 23/03/2018 13:30 | 5.111 | 39.9 |
| 23/03/2018 13:40 | 5.066 | 43.57 |
| 23/03/2018 13:50 | 5.734 | 27.44 |
| 23/03/2018 14:00 | 5.447 | 17.57 |
| 23/03/2018 14:10 | 4.567 | 22.72 |
| 23/03/2018 14:20 | 5.018 | 31.97 |
| 23/03/2018 14:30 | 5.309 | 30.73 |
| 23/03/2018 14:40 | 4.505 | 47.17 |
| 23/03/2018 14:50 | 5.609 | 25.55 |
| 23/03/2018 15:00 | 5.241 | 21.8 |
| 23/03/2018 15:10 | 5.589 | 48.67 |
| 23/03/2018 15:20 | 5.14 | 42.78 |
| 23/03/2018 15:30 | 4.811 | 35.95 |
| 23/03/2018 15:40 | 5.14 | 56.39 |
| 23/03/2018 15:50 | 5.407 | 36.07 |
| 23/03/2018 16:00 | 6.003 | 21.81 |
| 23/03/2018 16:10 | 4.491 | 25.84 |
| 23/03/2018 16:20 | 5.705 | 43.94 |
| 23/03/2018 16:30 | 5.593 | 53.39 |
| 23/03/2018 16:40 | 6.13 | 46.86 |
| 23/03/2018 16:50 | 6.017 | 60 |
| 23/03/2018 17:00 | 5.396 | 58 |
| 23/03/2018 17:10 | 5.261 | 66.32 |
| 23/03/2018 17:20 | 5.615 | 60.24 |
| 23/03/2018 17:30 | 5.484 | 55.2 |
| 23/03/2018 17:40 | 5.156 | 46.89 |
| 23/03/2018 17:50 | 5.017 | 46.37 |
| 23/03/2018 18:00 | 3.967 | 46.33 |
| 23/03/2018 18:10 | 4.247 | 51.4 |
| 23/03/2018 18:20 | 3.644 | 55.6 |
| 23/03/2018 18:30 | 3.682 | 51.25 |
| 23/03/2018 18:40 | 3.588 | 53.7 |
| 23/03/2018 18:50 | 3.655 | 59.91 |
| 23/03/2018 19:00 | 3.564 | 63.58 |
| 23/03/2018 19:10 | 3.45 | 53.56 |
| 23/03/2018 19:20 | 3.829 | 54.46 |
| 23/03/2018 19:30 | 3.762 | 57.57 |
| 23/03/2018 19:40 | 3.76 | 64.76 |
| 23/03/2018 19:50 | 4.216 | 70.95 |
| 23/03/2018 20:00 | 5.169 | 76.42 |
| 23/03/2018 20:10 | 6.367 | 69.97 |
| 23/03/2018 20:20 | 5.649 | 63.87 |
| 23/03/2018 20:30 | 5.668 | 59.23 |

| Date & time | Wind speed (m/s) | Wind Direction (°) |
|------------------|---------------------|--------------------------|
| 23/03/2018 20:40 | 5.668 | 57.49 |
| 23/03/2018 20:50 | 5.603 | 58.51 |
| 23/03/2018 21:00 | 6.102 | 57.13 |
| 23/03/2018 21:10 | 6.178 | 57.55 |
| 23/03/2018 21:20 | 5.623 | 54.55 |
| 23/03/2018 21:30 | 6.118 | 52.09 |
| 23/03/2018 21:40 | 6.381 | 51.31 |
| 23/03/2018 21:50 | 6.004 | 49.95 |
| 23/03/2018 22:00 | 5.712 | 47.13 |
| 23/03/2018 22:10 | 6.286 | 42.98 |
| 23/03/2018 22:20 | 5.909 | 43.95 |
| 23/03/2018 22:30 | 6.307 | 43.21 |
| 23/03/2018 22:40 | 5.766 | 41.94 |
| 23/03/2018 22:50 | 4.914 | 41.19 |
| 23/03/2018 23:00 | 4.345 | 37.53 |
| 23/03/2018 23:10 | 4.138 | 33.52 |
| 23/03/2018 23:20 | 4.184 | 28.75 |
| 23/03/2018 23:30 | 5.702 | 29.46 |
| 23/03/2018 23:40 | 5.717 | 37.04 |
| 23/03/2018 23:50 | 5.852 | 39.42 |

-End of report-