

## FUGRO

### Metocean Monitoring Buoy Data Report Walker Ridge Block 29, Gulf of Mexico

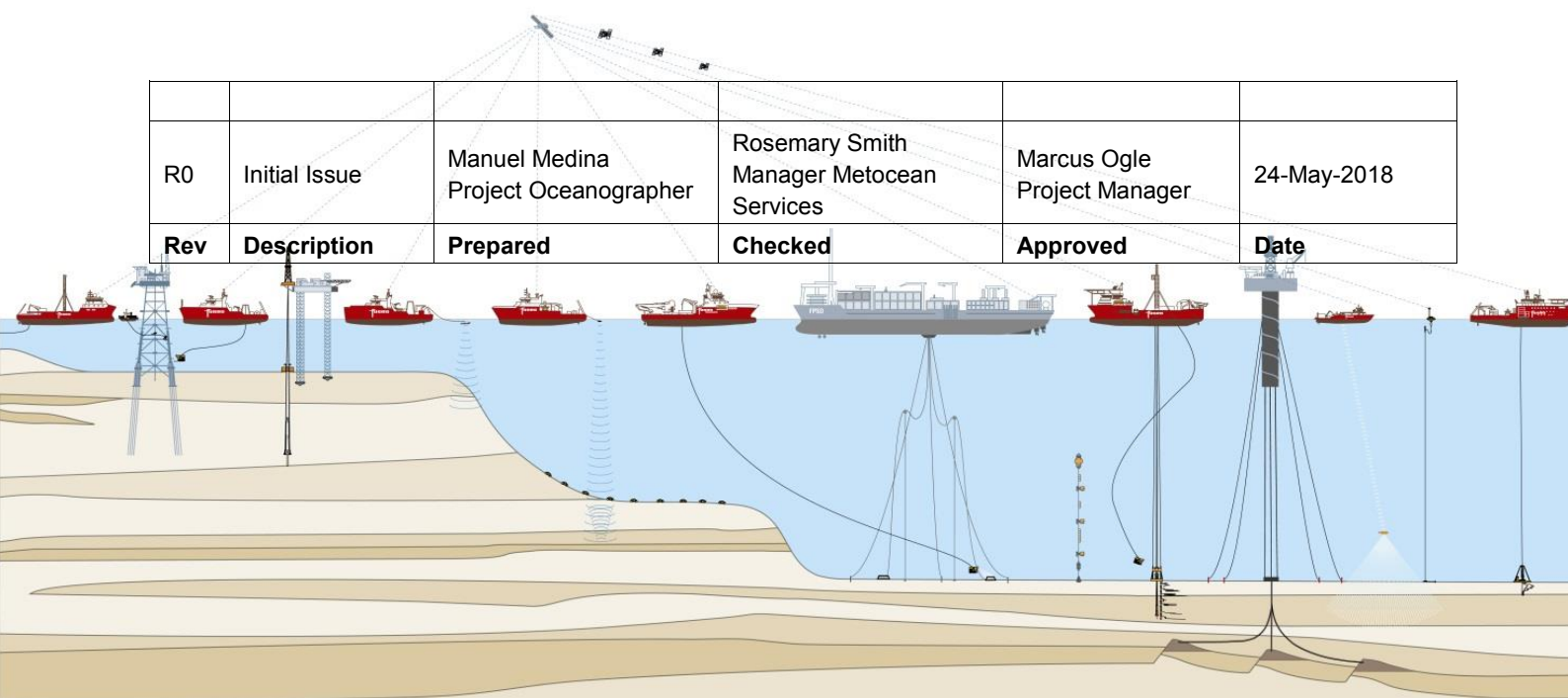
18 December 2017 to 7 April 2018  
Fugro Project No.: 112564-0135-R0

Chevron USA Inc.



Volume 1 of 1

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## **CONTENTS**

<b>EXECUTIVE SUMMARY</b>	<b>4</b>
<b>1. INTRODUCTION</b>	<b>1</b>
1.1 Background	1
1.2 Report Structure	1
<b>2. FRAME OF REFERENCE</b>	<b>2</b>
2.1 Units and Conventions	2
2.2 Parameter Descriptions	3
<b>3. DESCRIPTION OF OPERATIONS</b>	<b>4</b>
3.1 Instrumentation	4
<b>4. DATA ANALYSIS AND QUALITY CONTROL</b>	<b>5</b>
4.1 Quality Control	5
4.2 Instrument Performance	5
<b>5. PRESENTATION OF RESULTS</b>	<b>6</b>
<b>6. DISCUSSION</b>	<b>7</b>
6.1 Regional Description	7
6.2 Results	7
<b>TABLES</b>	<b>10</b>
<b>FIGURES</b>	<b>32</b>

## **APPENDICES**

<b>A. MOORING AND INSTRUMENT LOGSHEETS</b>	<b>133</b>
A.1 Mooring and Instrument Logsheets - Recovery	134
A.2 Mooring and Instrument Logsheets - Deployment	139
<b>B. ATTACHED DATA FILES</b>	<b>147</b>
<b>C. CTD PROFILES</b>	<b>148</b>



## **TABLES IN THE MAIN TEXT**

Summary Table 1.1 Measurement Locations	1
Summary Table 2.1 Parameter Definitions	<u>32</u>
Summary Table 3.1 Instrument Details	4
Summary Table 4.1 Post QC Data Return Rates	<u>56</u>
Summary Table 5.1 Summary of Presentations	<u>67</u>
Summary Table 6.1 Statistics of Current Parameters [Selected bins]	<u>78</u>
Summary Table 6.2 Statistics of Wave Parameters	<u>89</u>
Summary Table 6.3 Statistics of Meteorological Parameters	<u>89</u>
Summary Table 6.4 Statistics of Seawater Temperature	<u>940</u>

## **ABBREVIATIONS**

Abbreviations used in this report are defined below:

ADCP	Acoustic Doppler Current Profiler
ASB	Above Seabed
CDT	Central Daylight Time
DORT	Deep Oceanographic Release Transponder
FAT	Factory Acceptance Test
FPSO	Floating Production Storage and Offloading
GPS	Global Positioning System
HSEQ	Health, Safety, Environment and Quality
JSA	Job Safety Analysis
LC	Loop Current
LCE	Loop Current Eddy
LUMCON	Louisiana Universities Marine Consortium
MSL	Mean Sea Level
PMU	Power Management Unit
QC	Quality Control
R/V	Research Vessel
TBT	Toolbox Talk
UTC	Coordinated Universal Time
WGS84	World Geodetic System, 1984



## EXECUTIVE SUMMARY

Fugro is pleased to provide this metocean measurement data report to Chevron USA Inc, hereafter referred to as the Client, for the provision of a buoy-based metocean monitoring system to monitor near-surface Loop Current and Loop Current Eddy and near bottom current conditions in the Walker Ridge area of the US Gulf of Mexico (GoM).

These measurements are being made over a period of 1 year to provide weather monitoring support to the Big Foot Development location in the Walker Ridge area, Block 29 of the US GoM. Service visits on the mooring and instrumentation will be conducted every 6 months. Throughout the course of the first six-month measurement phase beginning on 18 December 2017, one contingency visit was completed. The visit, from 27 to 29 December 2017, was to get the near bed 300 kHz and 600 kHz ADCPs to transmit in real time.

**Summary Table i: Measurement Location**

Time of Deployment	Deployment Position [WGS84]		Water Depth [m]	Deployment Period
	Latitude	Longitude		
18-Dec-2017	26° 54' 2.58"	90° 29' 7.62"	2032	18-Dec-2017 22:45 to 07-Apr-2018 14:30

The metocean monitoring instrumentation comprised both surface and subsea instruments. At the surface is a Wavescan buoy with a meteorological mast. Below the surface, the mooring has an Aquadopp, 75 kHz ADCP, 300 kHz ADCP, and a 600 kHz ADCP. Summary Table 3.1 within section 3 summarizes the specifications of the mooring instrumentation.

The Wavescan buoy was configured to measure wave height, period and direction. The meteorological sensors measured air temperature, wind speed, and direction at 4 m height. The Aquadopp, at 1 m depth, measured current speed and direction from 6 to 82 m below the surface. The downward-looking 75 kHz ADCP, at 10 m depth, measured current speed and direction from 42 m to approximately 422 m below surface. The upward-looking 300 kHz ADCP, at 2008 m depth and the downward-looking 600 kHz ADCP, at 2010 m depth, measured current speed and direction for the lower 150 m above sea bed.

The maximum current speed during the phase of measurements was 1.28 m/s recorded by the Aquadopp at 22 m below MSL on 28-Mar-2018 at 12:30 UTC with an associated direction of 341°T. The current maxima had associated directions towards the north-northwest. Mean current speed at this level was 0.41 m/s with mean speeds gradually decreasing down the water column to 0.1 m/s at 2027 m. Overall current progression was towards the northwest to southwest throughout the full water column.

**Summary Table ii: Statistics of Current Parameters**

Bin Number	Depth Below MSL [m]	Current Speed [m/s]		Direction of Maximum [° T]	Date and Time of Maximum (UTC)
		Maximum	Mean		
5	22	1.28	0.41	341	28-Mar-2018 12:30
9	39	1.24	0.40	336	25-Mar-2018 10:10
18	74	1.27	0.38	273	26-Mar-2018 07:40
23	142	0.90	0.34	332	24-Mar-2018 22:40



28	242	0.63	0.26	331	24-Mar-2018 22:40
31	302	0.56	0.23	328	07-Apr-2018 07:30
43	1983	0.64	0.12	216	20-Mar-2018 09:00
45	1993	0.67	0.13	207	20-Mar-2018 03:00
48	2015	0.66	0.14	210	20-Mar-2018 02:00
51	2017	0.66	0.14	209	20-Mar-2018 02:00

The maximum significant wave height during measurement phase 1 was 4.1 m and the maximum Hmax was 7.1 m. Waves were predominantly from the southeast, but with the highest wave heights coming from the west.

**Summary Table iii: Statistics of Wave Parameters**

Wave Parameter	Max	Mean	Min	Direction at Time of Max [° T]	Date and Time of Max (UTC)	Date and Time of Min (UTC)
Hmax [m]	7.1	2.1	0.5	289	12-Jan-2018 18:30	18-Feb-2018 21:30
Hs [m]	4.1	1.4	0.4	282	12-Jan-2018 21:30	18-Feb-2018 21:00
Tp [s]	11.9	6.3	2.4	-	12-Jan-2018 22:30	19-Feb-2018 00:00
Tz [s]	7.4	4.7	2.9	-	12-Jan-2018 21:30	03-Apr-2018 03:30

The maximum measured wind speed was 16.8 m/s, from the north direction. The predominant wind direction was from the southeast, although winds were variable in nature, with a fairly even directional spread of the higher winds.

**Summary Table iii: Statistics of Meteorological Parameters**

Met Parameter (at measured height)	Max	Mean	Min	Direction at Time of Max [° T]	Date and Time of Max (UTC)	Date and Time of Min (UTC)
10-min Wind Speed at 10 m [m/s]	16.8	7.7	0.3	004	03-Jan-2018 11:30	02-Feb-2018 06:00
Wind Gust at 10 m [m/s]	23.7	10.1	1.1	314	12-Jan-2018 06:30	18-Feb-2018 03:30
Air Temp [°C]	25.5	21.8	10.1	-	18-Mar-2018 17:00	17-Jan-2018 20:30

Ranging between 26.8°C and 22.6°C, the temperature of the surface waters reflects the seasonal change of early winter to spring as the weather patterns change and temperatures warm. Time of maximum surface temperature corresponds to the site being impacted by a loop current eddy.





**Summary Table iv: Statistics of Seawater Temperature**

Instrument	Depth below MSL [m]	Seawater Temperature [° C]			Date and Time of Maximum (UTC)	Date and Time of Minimum (UTC)
		Max	Mean	Min		
Aquadopp	0.5	26.8	24.4	22.6	19-Mar-2018 19:50	17-Jan-2018 13:00
75 kHz ADCP	10	26.5	24.3	22.5	20-Mar-2018 00:20	17-Jan-2018 13:20
300 kHz ADCP	2008	4.2	4.2	4.2	19-Dec-2017 07:30	10-Jan-2018 11:00
600 kHz ADCP	2010	5.3	4.2	4.2	07-Apr-2018 14:30	27-Dec-2017 15:00







## 1. INTRODUCTION

### 1.1 Background

Fugro is pleased to provide this metocean measurement data report to Chevron USA Inc, hereafter referred to as the Client, for the provision of a buoy-based metocean monitoring system to monitor near-surface Loop Current and Loop Current Eddy and near bottom current conditions in the Walker Ridge area of the US Gulf of Mexico (GoM).

The surface Wavescan buoy was configured to measure wind speed and direction, wind gust, air temperature, and sea surface current speed and direction, in addition to measuring wave parameters. Below the buoy, a downward-looking Aquadopp, at 1 m depth, measured current speed and direction from 6 to 82 m below the surface. The downward-looking 75 kHz ADCP, at 10 m depth, measured current speed and direction from 42 m to approximately 422 m below surface. The upward-looking 300 kHz ADCP, at 2008 m depth and the downward-looking 600 kHz ADCP, at 2010 m depth. Near real-time data were set to transmit hourly from the buoy via Iridium with Inmarsat as backup. The data links to the Fugro Metis website and is accessible worldwide with privileged access.

During the mobilization in December 2017, the mooring was anchored at position 26° 54' 2.58"N, 090° 29' 7.62" W in a water depth of 2032 m. Throughout the course of this six-month measurement phase, one contingency visit was completed. The visit, from 27 to 29 December 2017, was to get the near bed 300 kHz and 600 kHz ADCPs to transmit in real time. Figure 1 shows the as-laid mooring location.

**Summary Table 1.1 Measurement Locations**

Time of Deployment	Deployment Position [WGS84]		Water Depth [m]	Deployment Period
	Latitude [N]	Longitude [W]		
18-Dec-2017	26° 54' 2.58"	90° 29' 7.62"	2032	18-Dec-2017 22:45 to 07-Apr-2018 14:30

### 1.2 Report Structure

This report is presented in accordance with the specification set out in the Fugro recommendations for standard presentation and reporting of measured metocean data.

Units, conventions and other parameter definitions used in this report are described in Section 2. Instrumentation, operations are described in Section 3. Section 4 outlines the methods employed in analysing the data, as well as instrument performance and post QC data return. Section 5 details the presentations. An initial discussion of the data is given in Section 6. Tables and figures are included after the main body of the text, preceded by the list of contents. Specific technical details are presented in a series of appendices, which conclude this report.



## 2. FRAME OF REFERENCE

### 2.1 Units and Conventions

The following list outlines the units and conventions used in this study. Where possible, units have been expressed using SI convention.

- Wind speeds are expressed in metres per second (m/s).
- Wind directions are expressed as compass points (N, NNE, NE, etc) or in degrees, measured clockwise from True North (unless otherwise stated), and describe the direction **from** which the wind is flowing.
- Vertical elevations in the water column are expressed in metres (m). Depths are quoted below Mean Sea Level (MSL) and heights are quoted above the seabed (ASB).
- Wave heights are expressed in metres (m).
- Wave directions are expressed in degrees, measured clockwise **from** true north (unless otherwise stated), and describe the direction **from** which the waves are propagating.
- Current speeds are expressed in metres per second (m/s).
- Current directions are expressed as compass points (N, NNE, NE etc) or in degrees, measured clockwise from True North (unless otherwise stated), and describe the direction **towards** which the current is flowing.
- Seawater temperatures are expressed in degrees Celsius (°C).
- All times are quoted in UTC.
- All positions are relative to the World Geodetic System, 1984 (WGS84).



## 2.2 Parameter Descriptions

The following section provides summary descriptions of all parameters measured during the survey program.

**Summary Table 2.1 Parameter Definitions**

Parameter	Units	Comments
Wind Speed	m/s	Mean wind speed from specified sensor corrected to 10 m above sea level.
Wind Direction	from	Mean wind direction from specified sensor.
Wind Gust	m/s	Highest 60-second wind speed in 10 min averaging period from specified sensor corrected to 10m above sea level.
Air Temperature	°C	Ambient air temperature.
Significant Wave Height (Hs)	m	Average of highest one-third of all waves.
Maximum Wave Height (Hmax)	m	Height of highest wave in averaging period.
Mean Wave Direction (Mdir)	from	Mean wave direction.
Mean Wave Direction, high frequencies (ThHf)	from	Mean direction of high-frequency band (wind-sea waves).
Mean Wave Direction at Tp (ThTp)	from	Direction of peak period wave.
Zero Upcrossing Period (Tz)	s	Mean zero crossing period of all waves.
Peak Period (Tp)	s	Peak wave period.
Directional Wave Spread (SprTp/Speak)	from	Directional wave spreading at Tp.
Current Speed	m/s	Mean current speed at specified depths.
Current Direction	towards	Mean current direction at specified depths.



### 3. DESCRIPTION OF OPERATIONS

#### 3.1 Instrumentation

During the mobilization in December 2017, the mooring was anchored at position 26° 54' 2.58"N, 090° 29' 7.62" W in a water depth of 2032 m to measure current, wave and wind parameters and seawater temperature. Summary Table 3.1 below shows the instruments deployed along with the deployment depth, sampling interval and parameters measured for the mooring.

**Summary Table 3.1 Instrument Details**

	Instrument	Depth below /Height above MSL [m]	Height ASB [m]	Sampling Period [seconds]	Averaging Period [minutes]	Recording Interval [minutes]	Measured Parameters
Wavescan	Gill Wind Sonic	4.0	-	600, 60 (gust)	10	10	Wind Speed/Direction
	Oceanor Air 588	4.0	-	2	2	10	Air Temperature
	Wavesense	0	2032	1	34	60	Waves
Subsea	400kHz Aquadopp	1.0	2031	600	6	10	Current Speed/Direction, Temperature
	RDI Longranger 75kHz	10	2023	600	10	10	Current Speed/Direction, Temperature
	RDI Workhorse 300kHz	2008	24	1800	30	30	Current Speed/Direction, Temperature
	RDI Workhorse 600kHz	2010	22	1800	30	30	Current Speed/Direction, Temperature

Measurement location is shown in the Frontispiece and Figure 1, with the mooring configuration shown in Figure 2. The instrument logsheets are presented in Appendix A.



## 4. DATA ANALYSIS AND QUALITY CONTROL

### 4.1 Quality Control

Data were transferred to the Fugro GEOS server for quality control, processing, and analysis. The main features of the routine data quality control procedures are outlined in this section. For this report, the following have been undertaken on each dataset:

- Application of amended start and end times to remove invalid data recorded during mooring deployment, drift, and recovery.
- Comparison of valid data with logsheet start and end times to ensure no timing drifts occurred.
- Application of 0.95°W for magnetic declination to convert all directional data from magnetic to True North.
- Removal of all zeros.
- Final inspection of data quality by an experienced oceanographer to identify and remove any remaining anomalous values outside of the physical limits of the region.

Typically, quality control parameters for the ADCP data are included in the raw dataset. These parameters include error and vertical velocity, percent good pings, echo intensity and beam correlation values.

### 4.2 Instrument Performance

The table below provides the post QC data return percentages from 18 December 2017 to 7 April 2018.

**Summary Table 4.1 Post QC Data Return Rates**

Instrument or Parameter	Post QC Data Return [%]
Air Temperature	100.0
Aquadopp	92.2
75 kHz ADCP	92.4
300 kHz ADCP	86.1
600 kHz ADCP	92.1
Wave Parameters	100.0
Wind Parameters	100.0



## 5. PRESENTATION OF RESULTS

Quality controlled data for all instruments are presented in this report. Error flagged records have been removed from all data analyses and presentations.

**Summary Table 5.1 Summary of Presentations**

Table/Figure	Description
Table 1	Summary Statistics of Current Measurements
Table 2	Summary Statistics of Meteorological, Wave and Sea Temperature Parameters
Table 3.1 to 3.10	Joint Frequency Distributions of Current Speed and Direction (10 selected levels)
Tables 4.1	Joint Frequency Distributions of Wind Speed and Direction
Tables 5.1 to 5.2	Joint Frequency Distributions of Wave Parameters
Figure 1	Mooring Location Map
Figure 2	Mooring Configuration Diagram
Figures 3.1.1 to 3.5.6	Time Series of Composite Current Speed and Direction (10 selected levels)
Figures 4.1 to 4.5	Colour Flood Plot of Current Speed and Direction
Figures 5.1 to 5.10	Current Rose Plot (10 selected levels)
Figures 6.1.1 to 6.6.5	Current Polar Scatter Plot (10 selected levels)
Figures 7.1 to 7.5	Time Series of Meteorological Parameters
Figures 8.1	Wind Rose Plot
Figures 9.1 to 9.5	Time Series of Wave Parameters
Figures 10.1	Wave Rose Plot
Figures 11.1 to 11.5	Time Series of QC Parameters for 75 kHz ADCP
Figures 12.1 to 12.5	Time Series of QC Parameters for 300 kHz ADCP
Figures 13.1 to 13.5	Time Series of QC Parameters for 600 kHz ADCP



## 6. DISCUSSION

### 6.1 Regional Description

The currents in the Gulf of Mexico are dominated by the Loop Current (LC) with its associated eddies. The LC is an area of warm water that typically flows northward between Cuba and the Yucatan Peninsula into the Gulf, loops in a clockwise direction to the east and south, and finally exits via the Florida Straits to join the Gulf Stream. The general position of the LC is variable with maximum current speeds exceeding 2 m/s. Even more variable are the large warm-core eddies that separate from the main LC and propagate westward towards the continental shelf. Monitoring these Loop Current Eddies (LCE) and their predicted paths are of great importance to the offshore industry.

Although average winds are lower during the spring and summer than during the autumn and winter, tropical storms can occur generating extreme conditions, typically between July and November. Most hurricanes form out in the western Atlantic and move into the Gulf region if the right conditions prevail. However, a small percentage of hurricanes are generated within the Gulf itself; these are commonly known as sudden hurricanes. Between October and February, 'northers' can occur, where cold air from the Rocky Mountains moves south and out over the Gulf.

Most of the waves in the northern Gulf are less than 5 m in height, with periods usually below 8 secs. This, together with the tendency for the wave direction to follow that of the wind, suggests that the waves are generated locally rather than produced by distant storms. Severe storms can result in wave heights exceeding 10 m in the northern Gulf.

### 6.2 Results

The maximum current speed during the phase of measurements was 1.28 m/s recorded by the Aquadopp at 22 m below MSL on 28-Mar-2018 at 12:30 UTC with an associated direction of 341°T. The current maxima had associated directions towards the north-northwest. Mean current speed at this level was 0.41 m/s with mean speeds gradually decreasing down the water column to 0.1 m/s at 2027 m. Overall current progression was towards the northwest to southwest throughout the full water column. Looking at both sea surface temperature and sea surface height satellite data during the same timeframe suggests a Loop Current eddy (LCE) was responsible for the current speed maximum.

In the lower 100 m of the water column, 4 high current speed events were observed. These events are likely attributed to topographic rossby waves influencing the site. The maximum current speed observed during such an event was 0.68 m/s recorded by the 300 kHz ADCP at 1998 m below MSL (34 m above the seabed) on 28-Mar-2018 at 02:00 UTC with an associated direction of 207°T

**Summary Table 6.1 Statistics of Current Parameters [Selected bins]**

Bin Number	Depth Below MSL [m]	Current Speed [m/s]		Direction of Maximum [° T]	Date and Time of Maximum (UTC)
		Maximum	Mean		
5	22	1.28	0.41	341	28-Mar-2018 12:30
9	39	1.24	0.40	336	25-Mar-2018 10:10
18	74	1.27	0.38	273	26-Mar-2018 07:40



23	142	0.90	0.34	332	24-Mar-2018 22:40
28	242	0.63	0.26	331	24-Mar-2018 22:40
31	302	0.56	0.23	328	07-Apr-2018 07:30
43	1983	0.64	0.12	216	20-Mar-2018 09:00
45	1993	0.67	0.13	207	20-Mar-2018 03:00
48	2015	0.66	0.14	210	20-Mar-2018 02:00
51	2017	0.66	0.14	209	20-Mar-2018 02:00

The maximum significant wave height during measurement phase 1 was 4.1 m and the maximum Hmax was 7.1 m. Waves were predominantly from the southeast, but with the highest wave heights coming from the west. Comparing the associated dates and times of these parameter maximums with other meteorological parameters, such as wind gusts, the results suggest the maximums are generated by fronts passing through the region.

**Summary Table 6.2 Statistics of Wave Parameters**

Wave Parameter	Max	Mean	Min	Direction at Time of Max [° T]	Date and Time of Max (UTC)	Date and Time of Min (UTC)
Hmax [m]	7.1	2.1	0.5	289	12-Jan-2018 18:30	18-Feb-2018 21:30
Hs [m]	4.1	1.4	0.4	282	12-Jan-2018 21:30	18-Feb-2018 21:00
Tp [s]	11.9	6.3	2.4	-	12-Jan-2018 22:30	19-Feb-2018 00:00
Tz [s]	7.4	4.7	2.9	-	12-Jan-2018 21:30	03-Apr-2018 03:30

The maximum measured wind speed was 16.8 m/s, from the north direction. The predominant wind direction was from the southeast, although winds were variable in nature, with a fairly even directional spread of the higher winds.

**Summary Table 6.3 Statistics of Meteorological Parameters**

Met Parameter (at measured height)	Max	Mean	Min	Direction at Time of Max [° T]	Date and Time of Max (UTC)	Date and Time of Min (UTC)
10-min Wind Speed at 10 m [m/s]	16.8	7.7	0.3	004	03-Jan-2018 11:30	02-Feb-2018 06:00
Wind Gust at 10 m [m/s]	23.7	10.1	1.1	314	12-Jan-2018 06:30	18-Feb-2018 03:30
Air Temp [°C]	25.5	21.8	10.1	-	18-Mar-2018 17:00	17-Jan-2018 20:30



Ranging between 26.8°C and 22.6°C, the temperature of the surface waters reflects the seasonal change of early winter to spring as the weather patterns change and temperatures warm. Time of maximum surface temperature corresponds to the site being impacted by a loop current eddy.

**Summary Table 6.4 Statistics of Seawater Temperature**

Instrument	Depth below MSL [m]	Seawater Temperature [° C]			Date and Time of Maximum (UTC)	Date and Time of Minimum (UTC)
		Max	Mean	Min		
Aquadopp	0.5	26.8	24.4	22.6	19-Mar-2018 19:50	17-Jan-2018 13:00
75 kHz ADCP	10	26.5	24.3	22.5	20-Mar-2018 00:20	17-Jan-2018 13:20
300 kHz ADCP	2008	4.2	4.2	4.2	19-Dec-2017 07:30	10-Jan-2018 11:00
600 kHz ADCP	2010	5.3	4.2	4.2	07-Apr-2018 14:30	27-Dec-2017 15:00



## **TABLES**

### **Current Summary Statistics**

Table 1: Current Speed and Direction, 18-Dec-2017 to 07-Apr-2018

### **Metocean Parameter Statistics**

Table 2: Metocean Parameters, 18-Dec-2017 to 07-Apr-2018

### **Joint Frequency Distribution of Current Speed and Direction**

Table 3.1: Level 5 (22 m below MSL, 2010 m above Seabed)

Table 3.2: Level 9 (38 m below MSL, 1994 m above Seabed)

Table 3.3: Level 18 (74 m below MSL, 1958 m above Seabed)

Table 3.4: Level 23 (142 m below MSL, 1890 m above Seabed)

Table 3.5: Level 28 (242 m below MSL, 1790 m above Seabed)

Table 3.6: Level 31 (302 m below MSL, 1730 m above Seabed)

Table 3.7: Level 43 (1983 m below MSL, 49 m above Seabed)

Table 3.8: Level 45 (1993 m below MSL, 39 m above Seabed)

Table 3.9: Level 48 (2014 m below MSL, 18 m above Seabed)

Table 3.10: Level 51 (2017 m below MSL, 15 m above Seabed)

### **Joint Frequency Distribution of Meteorological Parameters**

Table 4.1: Wind Speed and Direction, 18-Dec-2017 to 07-Apr-2018

### **Joint Frequency Distribution of Wave Parameters**

Table 5.1: Significant Wave Height/Mean Wave Direction, 18-Dec-2017 to 07-Apr-2018

Table 5.2: Significant Wave Height/Peak Period, 18-Dec-2017 to 07-Apr-2018





**Current Summary Statistics**



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Level	Depth below MSL [m]	Height above Bed [m]	Current Speed [m/s]			Direction of Current Max [°True]	Date and Time of Max Current	% Post QC Data Return
			Max	Mean	STD			
1	6	2026	1.20	0.37	0.21	346	28-Mar-2018 12:30	87.6
2	10	2022	1.04	0.34	0.17	332	07-Mar-2018 12:00	79.6
3	14	2018	1.18	0.41	0.23	339	28-Mar-2018 09:50	90.7
4	18	2014	1.24	0.41	0.23	342	28-Mar-2018 12:20	90.7
5	22	2010	1.28	0.41	0.23	341	28-Mar-2018 12:30	91.3
6	26	2006	1.22	0.41	0.23	338	25-Mar-2018 12:50	91.5
7	30	2002	1.22	0.40	0.23	339	25-Mar-2018 12:00	91.7
8	34	1998	1.23	0.40	0.23	336	25-Mar-2018 10:20	91.9
9	38	1994	1.24	0.40	0.23	336	25-Mar-2018 10:10	92.7
10	42	1990	1.24	0.40	0.23	335	25-Mar-2018 10:30	93.2
11	46	1986	1.23	0.40	0.23	333	25-Mar-2018 10:00	93.0
12	50	1982	1.23	0.40	0.23	334	25-Mar-2018 10:30	93.0
13	54	1978	1.22	0.40	0.23	338	19-Mar-2018 10:10	93.3
14	58	1974	1.22	0.40	0.23	340	19-Mar-2018 09:00	94.4
15	62	1970	1.20	0.40	0.23	339	19-Mar-2018 09:30	94.4
16	66	1966	1.18	0.39	0.23	348	22-Mar-2018 03:30	95.0
17	70	1962	1.16	0.39	0.23	347	22-Mar-2018 03:30	95.1
18	74	1958	1.27	0.38	0.22	273	26-Mar-2018 07:40	94.9
19	78	1954	1.20	0.37	0.21	266	26-Mar-2018 07:50	94.9
20	82	1950	1.24	0.35	0.21	247	26-Mar-2018 08:10	94.3
21	102	1930	1.15	0.39	0.23	330	21-Mar-2018 07:20	97.8
22	122	1910	0.99	0.36	0.21	328	21-Mar-2018 11:00	99.0
23	142	1890	0.90	0.34	0.18	332	24-Mar-2018 22:40	99.6
24	162	1870	0.79	0.32	0.15	329	24-Mar-2018 22:40	99.8
25	182	1850	0.71	0.30	0.13	342	27-Mar-2018 02:00	99.8
26	202	1830	0.69	0.29	0.12	325	24-Mar-2018 22:40	99.8
27	222	1810	0.67	0.28	0.11	332	07-Apr-2018 07:30	99.8
28	242	1790	0.63	0.26	0.10	331	24-Mar-2018 22:40	99.8
29	262	1770	0.58	0.25	0.09	330	25-Mar-2018 22:00	99.8
30	282	1750	0.57	0.24	0.09	326	07-Apr-2018 07:30	99.8
31	302	1730	0.56	0.23	0.08	328	07-Apr-2018 07:30	99.7
32	322	1710	0.54	0.22	0.08	325	07-Apr-2018 07:30	99.8
33	342	1690	0.57	0.22	0.08	331	07-Apr-2018 09:10	99.8



**CHEVRON USA**  
**BIG FOOT METOCEAN MEASUREMENT STUDY DATA REPORT**



34	362	1670	0.56	0.21	0.07	329	07-Apr-2018 10:00	99.0
35	382	1650	0.54	0.20	0.07	329	07-Apr-2018 10:00	93.8
36	402	1630	0.53	0.19	0.07	006	07-Jan-2018 17:40	63.7
37	1953	79	0.60	0.25	0.14	216	20-Mar-2018 09:00	14.2
38	1958	74	0.62	0.21	0.14	206	20-Mar-2018 05:00	27.5
39	1963	69	0.63	0.16	0.15	216	20-Mar-2018 09:00	54.7
40	1968	64	0.63	0.13	0.13	217	20-Mar-2018 09:00	93.1
41	1973	59	0.63	0.12	0.13	216	20-Mar-2018 09:00	100.0
42	1978	54	0.64	0.12	0.13	216	20-Mar-2018 09:00	99.9
43	1983	49	0.64	0.12	0.13	216	20-Mar-2018 09:00	100.0
44	1988	44	0.65	0.13	0.14	208	20-Mar-2018 02:30	99.9
45	1993	39	0.67	0.13	0.14	207	20-Mar-2018 03:00	100.0
46	1998	34	0.67	0.13	0.14	207	20-Mar-2018 02:00	100.0
47	2013	19	0.66	0.13	0.14	210	20-Mar-2018 02:30	100.0
48	2014	18	0.67	0.14	0.14	210	20-Mar-2018 02:00	100.0
49	2015	17	0.66	0.14	0.14	210	20-Mar-2018 02:00	100.0
50	2016	16	0.65	0.14	0.14	209	20-Mar-2018 02:00	100.0
51	2017	15	0.66	0.14	0.13	209	20-Mar-2018 02:00	100.0
52	2018	14	0.65	0.14	0.13	209	20-Mar-2018 02:00	100.0
53	2019	13	0.65	0.14	0.13	209	20-Mar-2018 02:00	100.0
54	2020	12	0.65	0.13	0.13	210	20-Mar-2018 02:00	100.0
55	2021	11	0.64	0.13	0.13	210	20-Mar-2018 02:00	100.0
56	2022	10	0.64	0.13	0.13	209	20-Mar-2018 02:00	100.0
57	2023	9	0.65	0.13	0.13	209	20-Mar-2018 02:30	99.9
58	2024	8	0.64	0.13	0.13	210	20-Mar-2018 02:00	95.8
59	2025	7	0.62	0.12	0.12	205	19-Mar-2018 21:30	84.6
60	2027	5	0.40	0.10	0.09	210	26-Dec-2017 03:00	64.7
61	2028	4	0.37	0.12	0.09	200	01-Jan-2018 22:30	34.1

Location: Big Foot Wavescan	Position: 26° 54.042' N, 089° 30.876' W	Datum: MSL
Water depth: 2032 m	Instrument type: Aquadopp, 75kHz ADCP, 300kHz ADCP, 600kHz ADCP	
Notes:		

Table 1: Current Speed and Direction, 18-Dec-2017 to 07-Apr-2018





**Metocean Parameter Statistics**



**CHEVRON USA**  
**BIG FOOT METOCEAN MEASUREMENT STUDY DATA REPORT**



Parameter	Max	Mean	Min	STD	Direction of Max [°True]	Date and Time of Max	Date and Time of Min	% Post QC Data Return
Wind Speed Sensor [m/s] at 10 m	16.8	7.7	0.3	2.70	004	03-Jan-2018 11:30	02-Feb-2018 06:00	100.0
Wind Gust Sensor [m/s] at 10 m*	23.7	10.1	1.1	3.43	-	12-Jan-2018 06:30	18-Feb-2018 03:30	100.0
Air Temperature [°C]	25.5	21.8	10.1	3.40	-	18-Mar-2018 17:00	17-Jan-2018 20:30	100.0
Hmax - Maximum Wave Height [m]	7.1	2.1	0.5	0.98	289	12-Jan-2018 18:30	18-Feb-2018 21:30	100.0
Hs - Significant Wave Height [m]	4.1	1.4	0.4	0.63	282	12-Jan-2018 21:30	18-Feb-2018 21:00	100.0
Tp - Peak Period [s]	11.9	6.3	2.4	1.20	-	12-Jan-2018 22:30	19-Feb-2018 00:00	100.0
Tz - Average Wave Period [s]	7.4	4.7	2.9	0.72	-	12-Jan-2018 21:30	03-Apr-2018 03:30	100.0
Sea Temperature [°C] (Depth: 0.5)	26.8	24.4	22.6	0.72	-	19-Mar-2018 19:50	17-Jan-2018 13:00	98.1
Sea Temperature [°C] (Depth: 10)	26.5	24.3	22.5	0.69	-	20-Mar-2018 00:20	17-Jan-2018 13:20	99.8
Sea Temperature [°C] (Depth: 2008)	4.2	4.2	4.2	0.01	-	19-Dec-2017 07:30	10-Jan-2018 11:00	100.0
Sea Temperature [°C] (Depth: 2010)	5.3	4.2	4.2	0.02	-	07-Apr-2018 14:30	27-Dec-2017 15:00	100.0

Location: Big Foot Wavescan	Position: 26° 54.042' N, 089° 30.876' W	Datum: MSL
Water depth: 2032 m	Instrument type: Mets, Wavescan, Aquadop, 75kHz ADCP, 300kHz ADCP, 600kHz ADCP	
Notes:		

**Table 2: Metocean Parameters, 18-Dec-2017 to 07-Apr-2018**

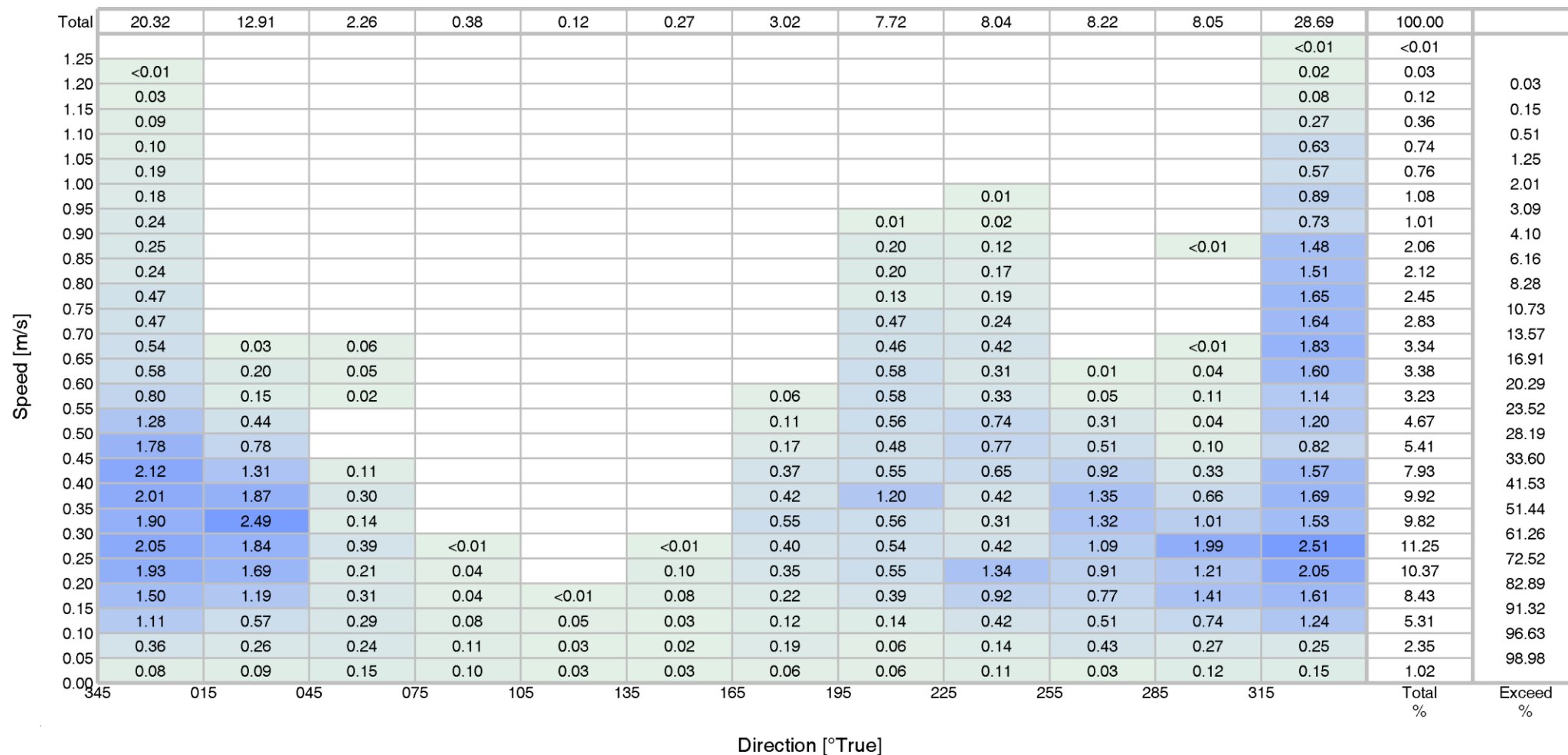




**Joint Frequency Distribution of Current Speed and Direction**



**CHEVRON USA**  
**BIG FOOT METOCEAN MEASUREMENT STUDY DATA REPORT**

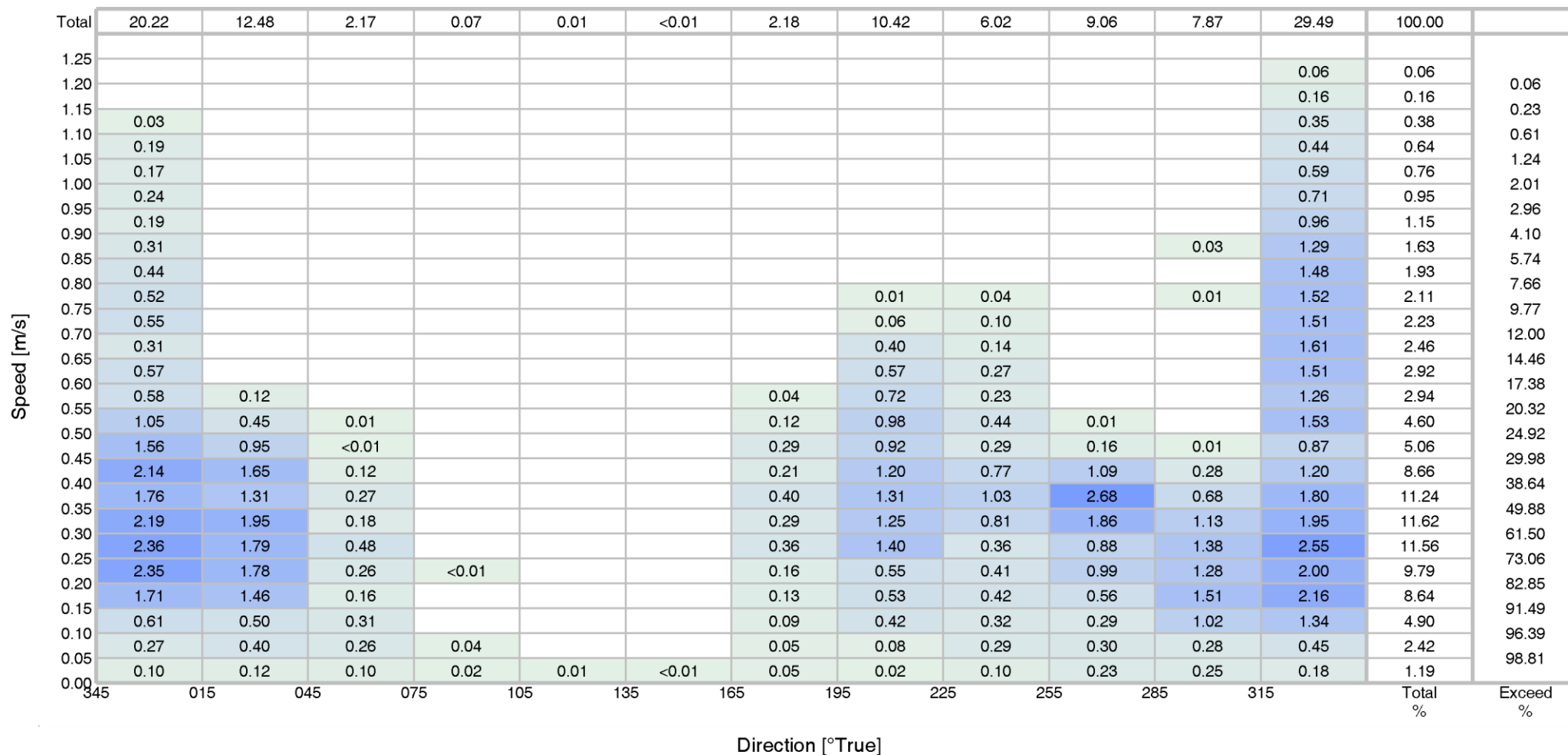


<b>Location:</b> Big Foot Wavescan	<b>Valid records:</b> 14412
<b>Position:</b> 26° 54.042' N, 089° 30.876' W	<b>Missing records:</b> 1381
<b>Instrument type:</b> Aquadopp	<b>Calms/below threshold:</b> 2
<b>Analysis period:</b> 18-Dec-2017 22:50:00 to 07-Apr-2018 14:50:00	<b>Water depth:</b> 2032 m
<b>Notes:</b>	

Table 3.1: Level 5 (22 m below MSL, 2010 m above Seabed)



**CHEVRON USA**  
**BIG FOOT METOCEAN MEASUREMENT STUDY DATA REPORT**

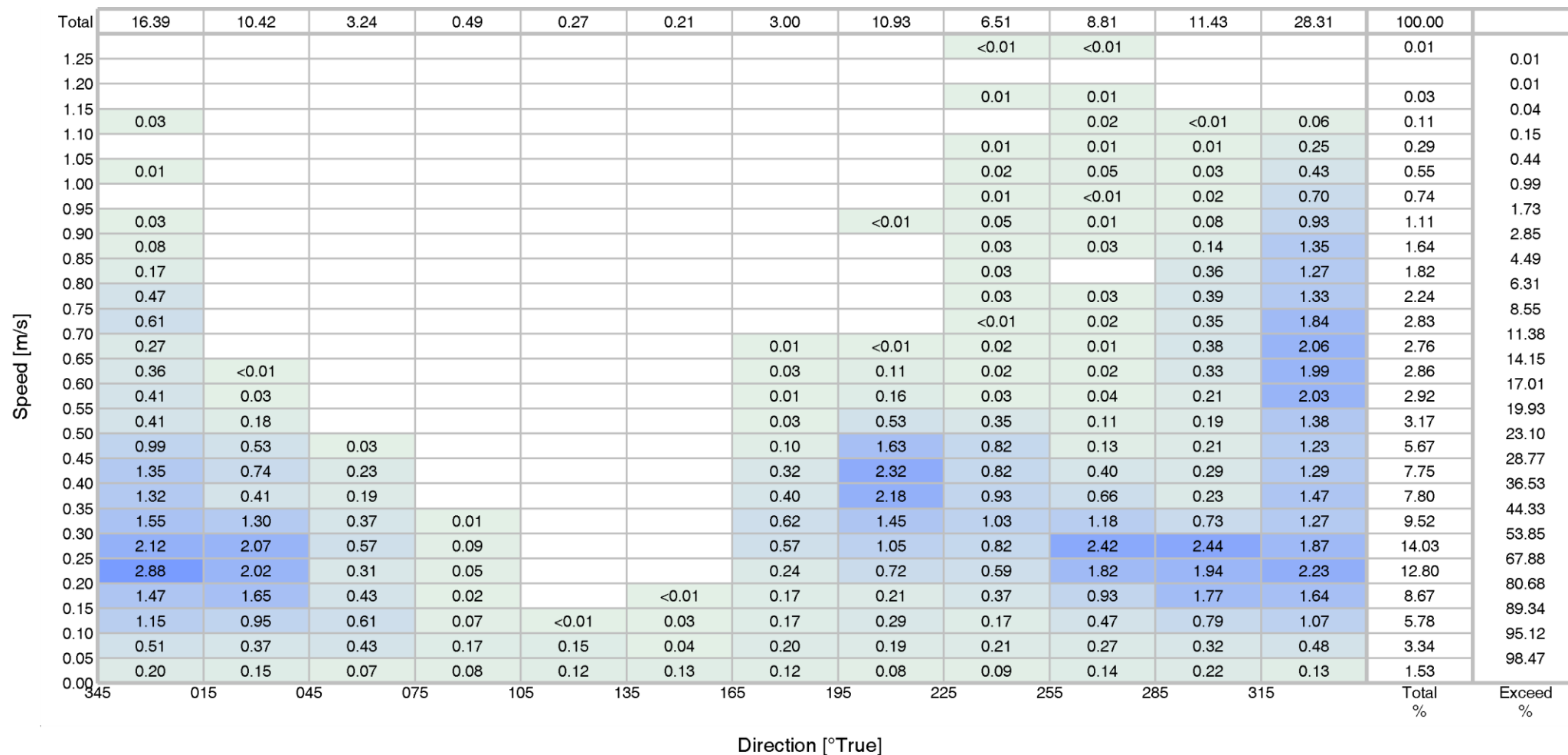


Location: Big Foot Wavescan	Valid records: 14641
Position: 26° 54.042' N, 089° 30.876' W	Missing records: 1152
Instrument type: Aquadopp	Calms/below threshold: 1
Analysis period: 18-Dec-2017 22:50:00 to 07-Apr-2018 14:50:00	Water depth: 2032 m
Notes:	

Table 3.2: Level 9 (38 m below MSL, 1994 m above Seabed)



**CHEVRON USA**  
**BIG FOOT METOCEAN MEASUREMENT STUDY DATA REPORT**

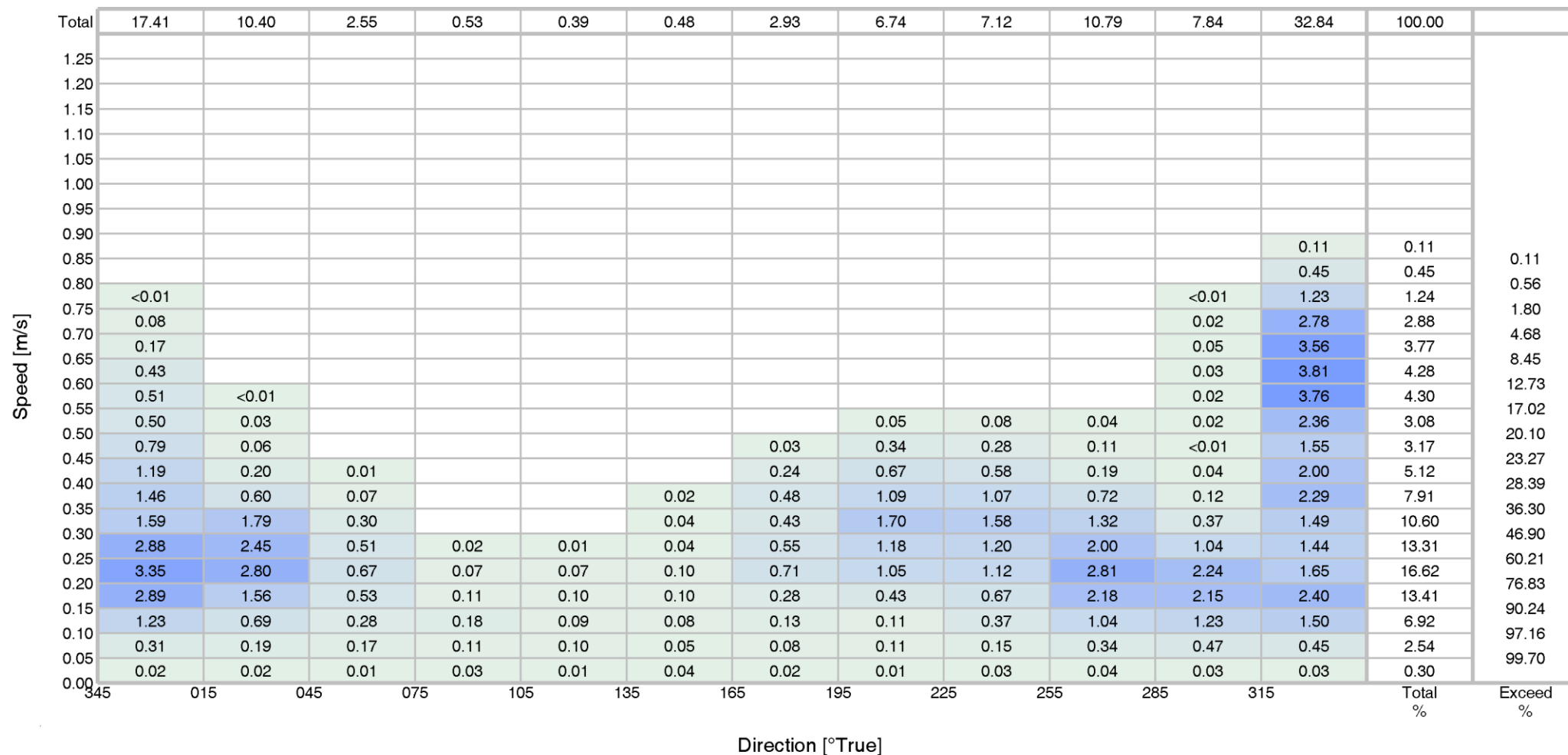


Location: Big Foot Wavescan	Valid records: 14986
Position: 26° 54.042' N, 089° 30.876' W	Missing records: 807
Instrument type: Aquadopp	Calms/below threshold: 2
Analysis period: 18-Dec-2017 22:50:00 to 07-Apr-2018 14:50:00	Water depth: 2032 m
Notes:	

Table 3.3: Level 18 (74 m below MSL, 1958 m above Seabed)



**CHEVRON USA**  
**BIG FOOT METOCEAN MEASUREMENT STUDY DATA REPORT**

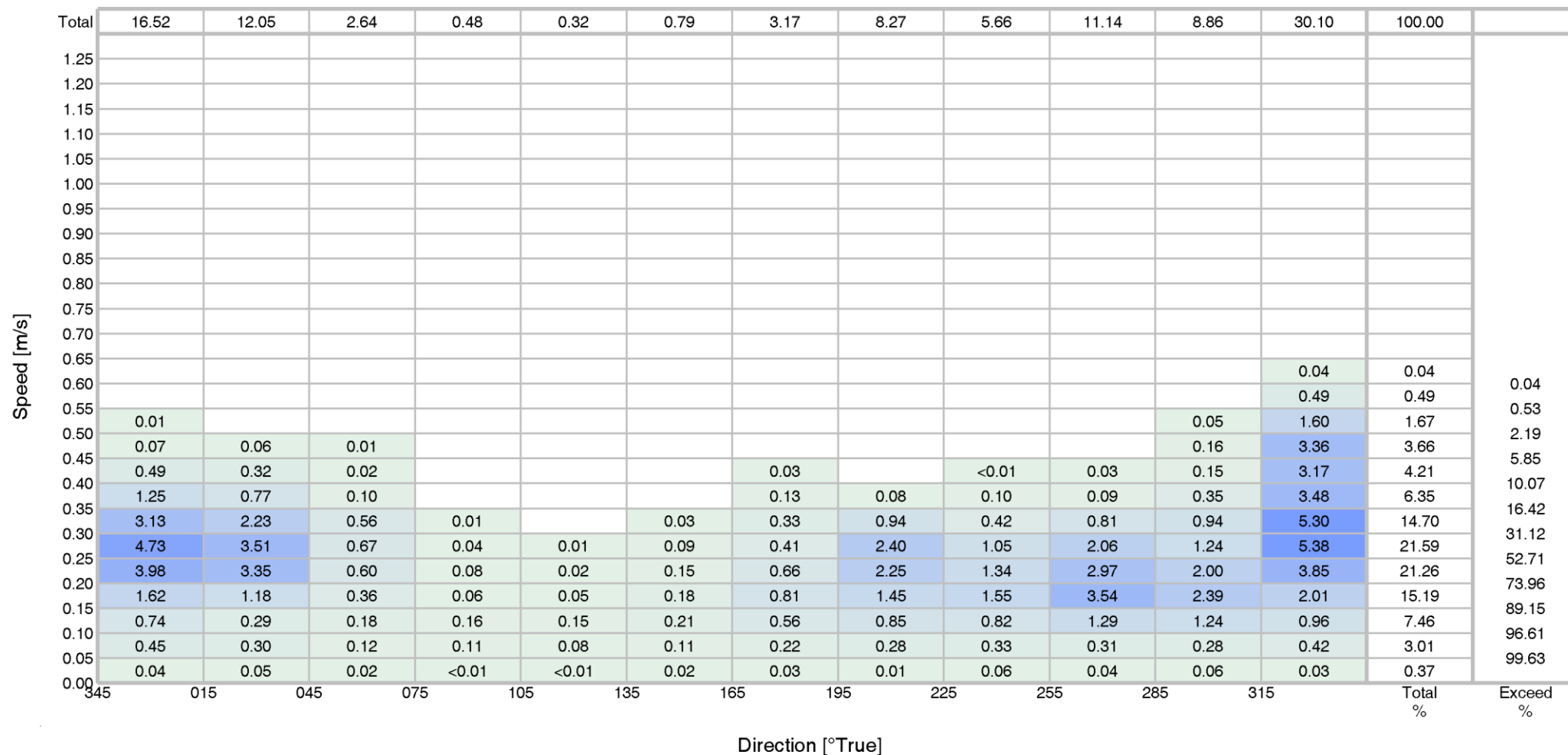


<b>Location:</b> Big Foot Wavescan	<b>Valid records:</b> 15736
<b>Position:</b> 26° 54.042' N, 089° 30.876' W	<b>Missing records:</b> 57
<b>Instrument type:</b> 75kHz ADCP	<b>Calms/below threshold:</b> 0
<b>Analysis period:</b> 18-Dec-2017 22:50:00 to 07-Apr-2018 14:50:00	<b>Water depth:</b> 2032 m
<b>Notes:</b>	

Table 3.4: Level 23 (142 m below MSL, 1890 m above Seabed)



**CHEVRON USA**  
**BIG FOOT METOCEAN MEASUREMENT STUDY DATA REPORT**

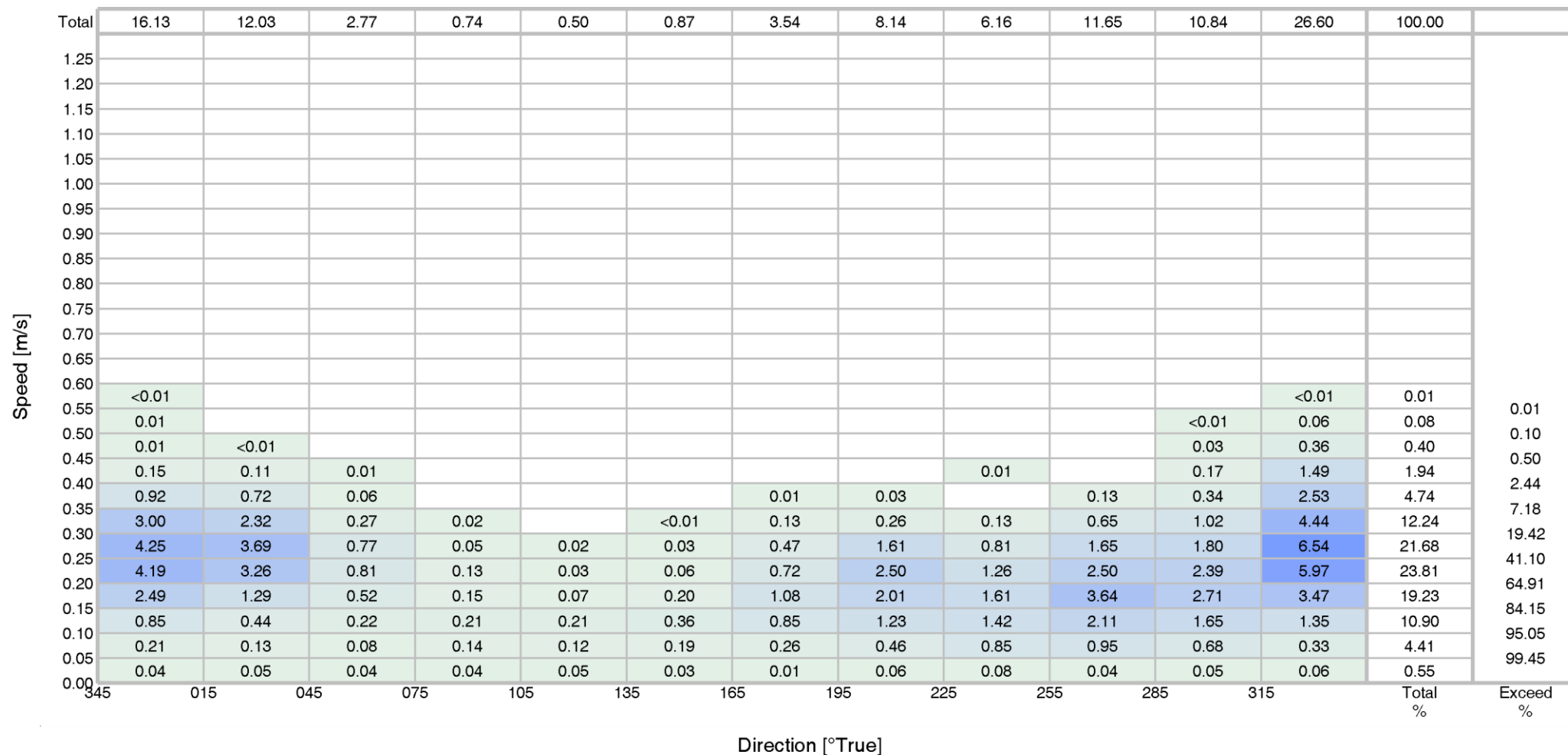


<b>Location:</b> Big Foot Wavescan	<b>Valid records:</b> 15765
<b>Position:</b> 26° 54.042' N, 089° 30.876' W	<b>Missing records:</b> 28
<b>Instrument type:</b> 75kHz ADCP	<b>Calms/below threshold:</b> 0
<b>Analysis period:</b> 18-Dec-2017 22:50:00 to 07-Apr-2018 14:50:00	<b>Water depth:</b> 2032 m
<b>Notes:</b>	

Table 3.5: Level 28 (242 m below MSL, 1790 m above Seabed)



**CHEVRON USA**  
**BIG FOOT METOCEAN MEASUREMENT STUDY DATA REPORT**

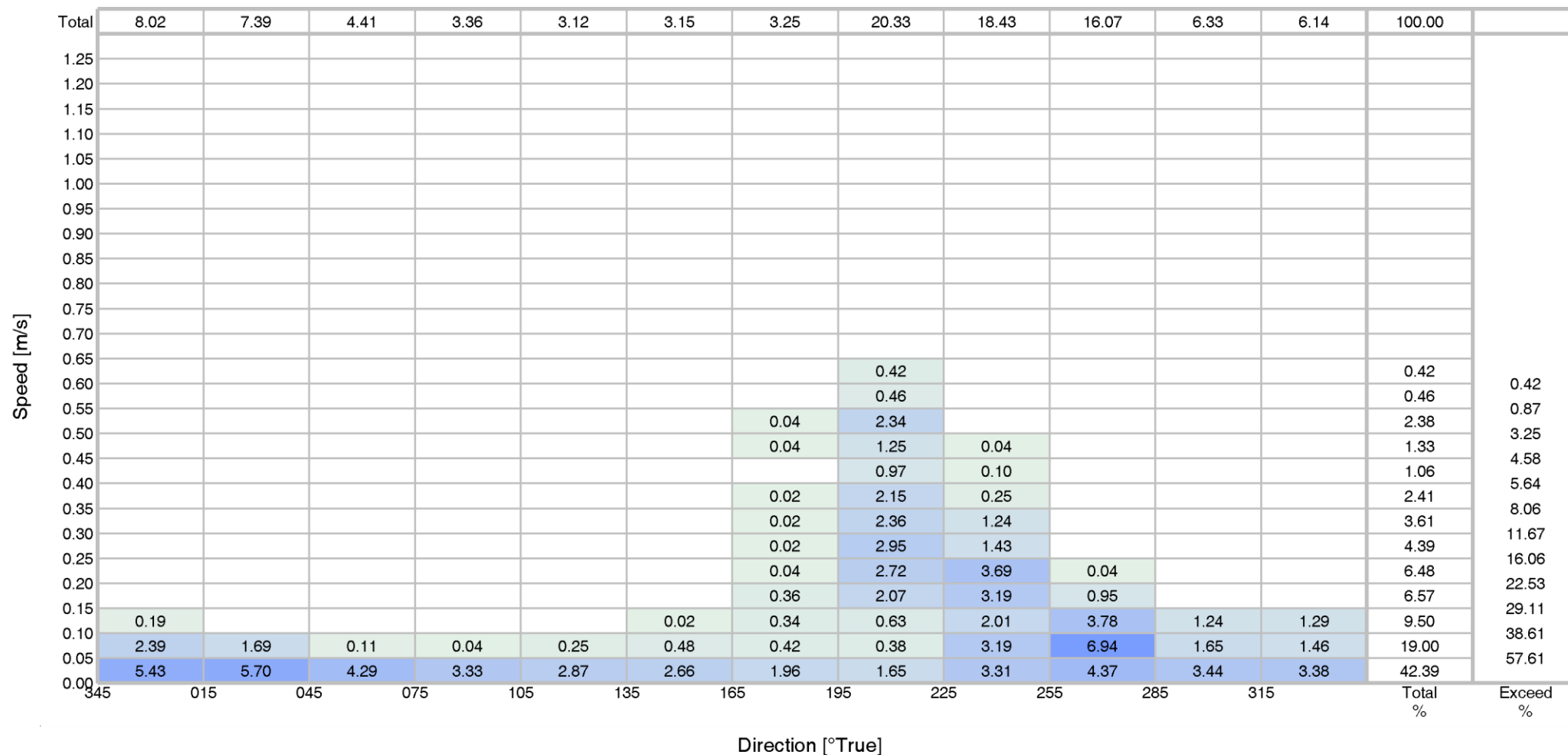


<b>Location:</b> Big Foot Wavescan	<b>Valid records:</b> 15753
<b>Position:</b> 26° 54.042' N, 089° 30.876' W	<b>Missing records:</b> 40
<b>Instrument type:</b> 75kHz ADCP	<b>Calms/below threshold:</b> 0
<b>Analysis period:</b> 18-Dec-2017 22:50:00 to 07-Apr-2018 14:50:00	<b>Water depth:</b> 2032 m
<b>Notes:</b>	

Table 3.6: Level 31 (302 m below MSL, 1730 m above Seabed)



**CHEVRON USA**  
**BIG FOOT METOCEAN MEASUREMENT STUDY DATA REPORT**

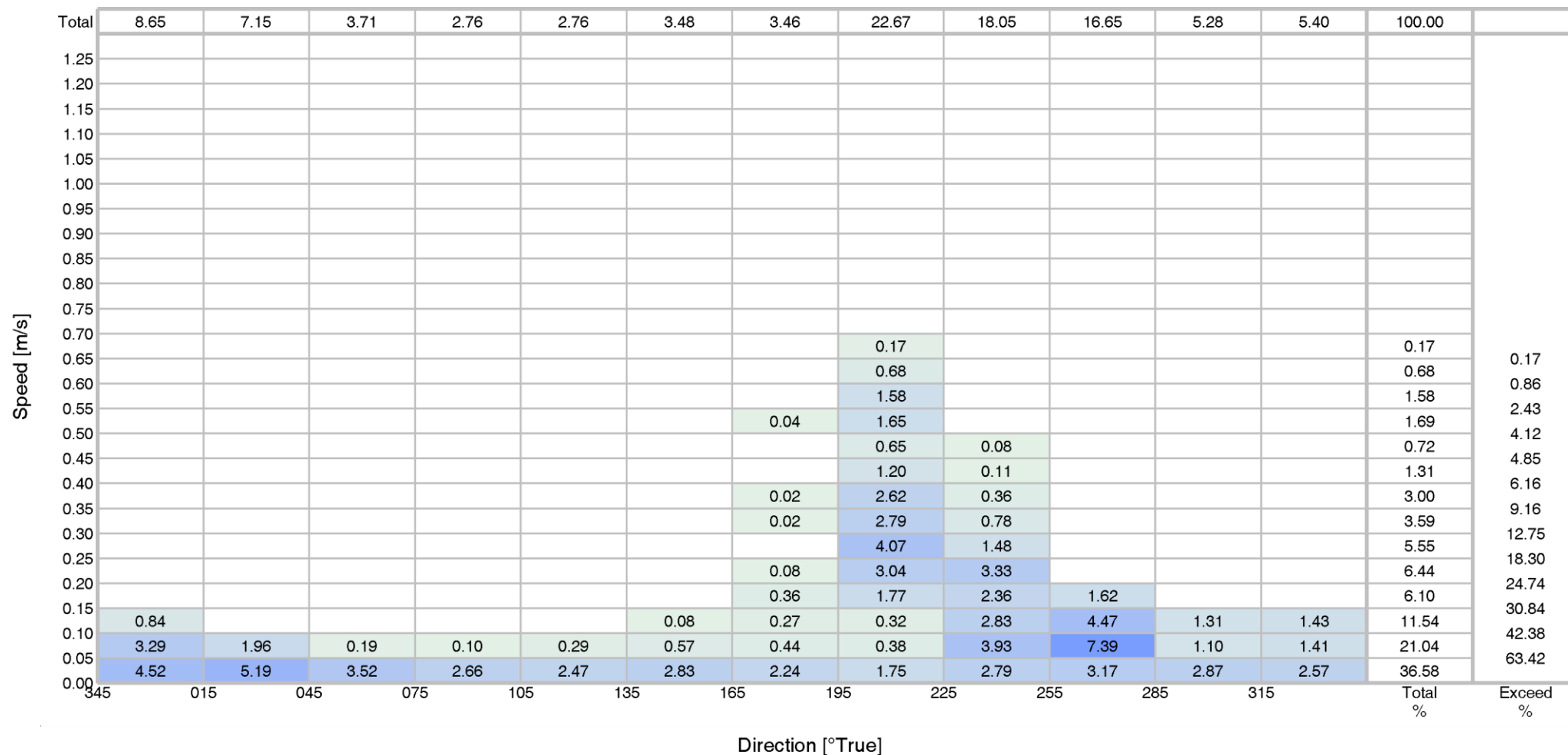


<b>Location:</b> Big Foot Wavescan	<b>Valid records:</b> 5263
<b>Position:</b> 26° 54.042' N, 089° 30.876' W	<b>Missing records:</b> 1
<b>Instrument type:</b> 300kHz ADCP	<b>Calms/below threshold:</b> 0
<b>Analysis period:</b> 18-Dec-2017 22:50:00 to 07-Apr-2018 14:50:00	<b>Water depth:</b> 2032 m
<b>Notes:</b>	

Table 3.7: Level 43 (1983 m below MSL, 49 m above Seabed)



CHEVRON USA  
BIG FOOT METOCEAN MEASUREMENT STUDY DATA REPORT

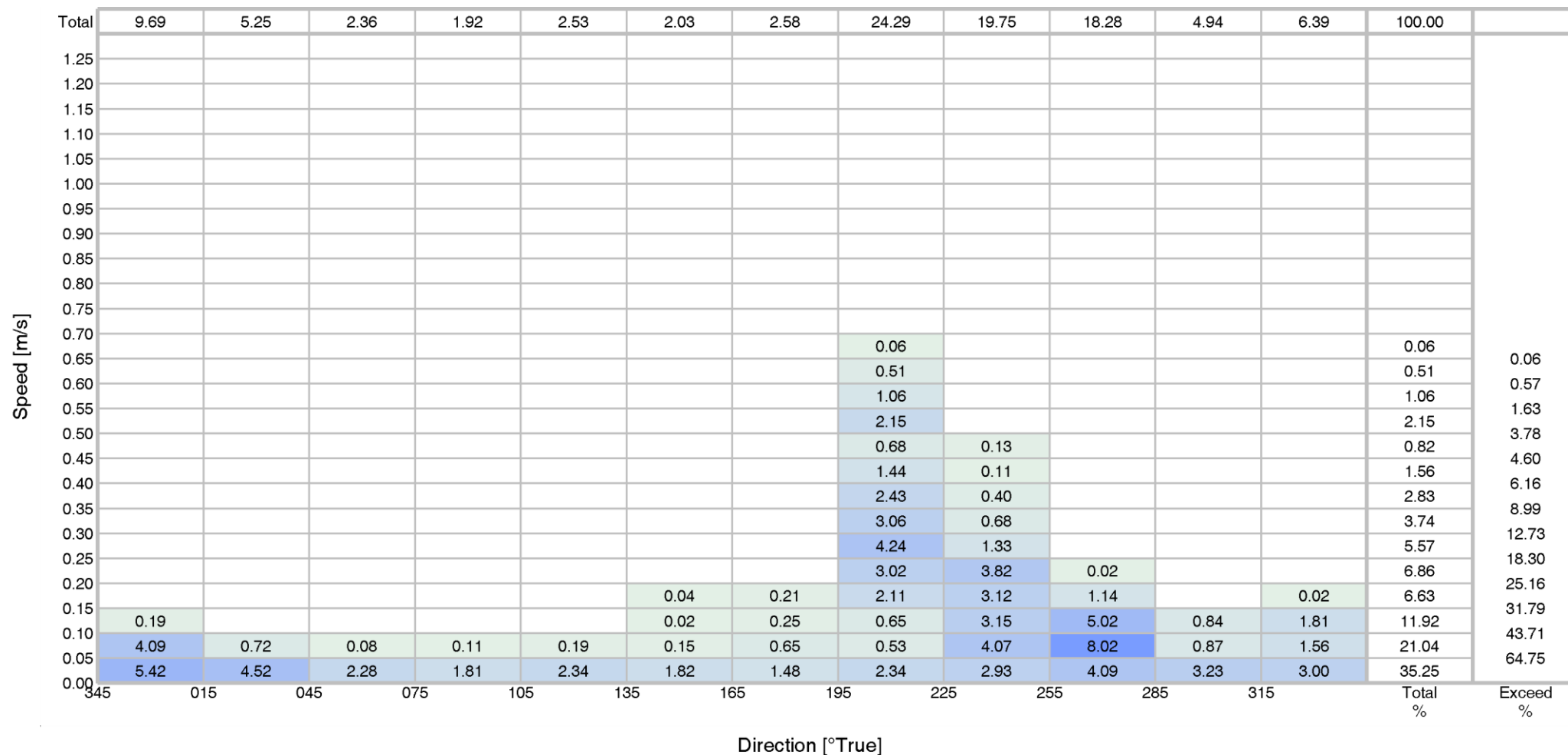


Location: Big Foot Wavescan	Valid records: 5262
Position: 26° 54.042' N, 089° 30.876' W	Missing records: 2
Instrument type: 300kHz ADCP	Calms/below threshold: 0
Analysis period: 18-Dec-2017 22:50:00 to 07-Apr-2018 14:50:00	Water depth: 2032 m
Notes:	

Table 3.8: Level 45 (1993 m below MSL, 39 m above Seabed)



**CHEVRON USA**  
**BIG FOOT METOCEAN MEASUREMENT STUDY DATA REPORT**

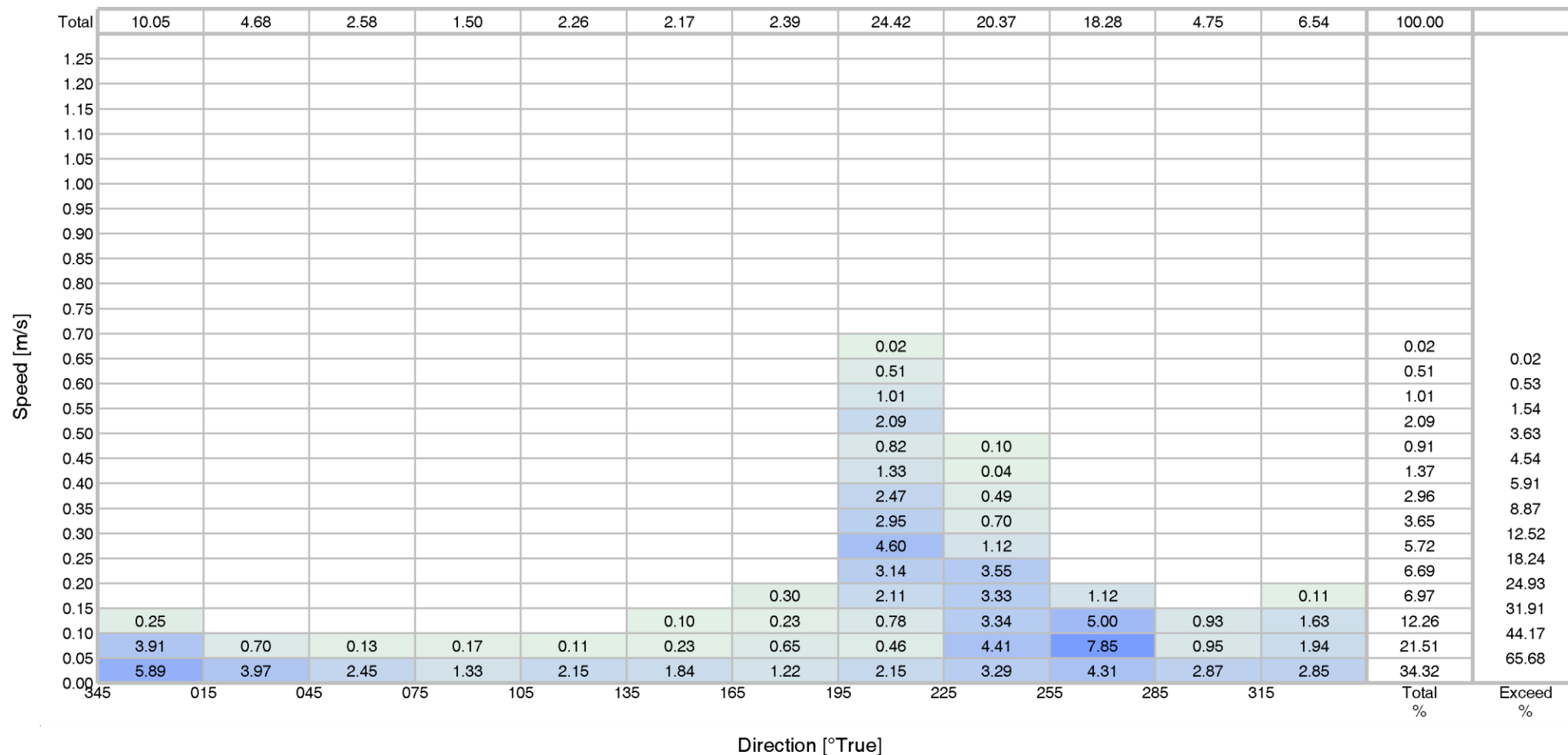


<b>Location:</b> Big Foot Wavescan	<b>Valid records:</b> 5262
<b>Position:</b> 26° 54.042' N, 089° 30.876' W	<b>Missing records:</b> 2
<b>Instrument type:</b> 600kHz ADCP	<b>Calms/below threshold:</b> 0
<b>Analysis period:</b> 18-Dec-2017 22:50:00 to 07-Apr-2018 14:50:00	<b>Water depth:</b> 2032 m
<b>Notes:</b>	

Table 3.9: Level 48 (2014 m below MSL, 18 m above Seabed)



**CHEVRON USA**  
**BIG FOOT METOCEAN MEASUREMENT STUDY DATA REPORT**



<b>Location:</b> Big Foot Wavescan	<b>Valid records:</b> 5262
<b>Position:</b> 26° 54.042' N, 089° 30.876' W	<b>Missing records:</b> 2
<b>Instrument type:</b> 600kHz ADCP	<b>Calms/below threshold:</b> 0
<b>Analysis period:</b> 18-Dec-2017 22:50:00 to 07-Apr-2018 14:50:00	<b>Water depth:</b> 2032 m
<b>Notes:</b>	

Table 3.10: Level 51 (2017 m below MSL, 15 m above Seabed)





**Joint Frequency Distribution of Meteorological Parameters**



**CHEVRON USA**  
**BIG FOOT METOCEAN MEASUREMENT STUDY DATA REPORT**



Total	8.43	13.05	9.14	10.03	13.05	20.31	14.57	3.84	2.18	1.14	1.23	3.02	100.00	
22														
20														
18														
16	0.04												0.04	0.04
14	0.04	0.08			0.02	0.47	0.06	0.02	0.02	0.06	0.09		0.85	0.89
12	0.70	1.18	0.13	0.02	0.82	0.89	0.15	0.19	0.02		0.34	0.13	4.58	5.47
10	2.51	2.94	2.18	0.70	1.25	2.07	2.18	0.21	0.15	0.04	0.09	0.97	15.31	20.78
8	2.15	3.63	2.36	2.87	2.94	5.24	5.13	0.70	0.21	0.09	0.11	0.85	26.29	47.07
6	1.54	2.83	2.24	3.27	4.54	6.67	4.41	0.80	0.49	0.19	0.06	0.28	27.32	74.39
4	0.91	1.42	1.29	1.65	2.24	3.36	1.80	1.37	0.76	0.53	0.27	0.44	16.05	90.44
2	0.47	0.82	0.84	1.41	1.08	1.42	0.76	0.42	0.42	0.21	0.25	0.30	8.40	98.84
0	0.08	0.15	0.09	0.11	0.15	0.17	0.08	0.13	0.11	0.02	0.02	0.04	1.16	
	000	030	060	090	120	150	180	210	240	270	300	330	Total %	Exceed %

Direction [°True]

<b>Location:</b> Big Foot Wavescan	<b>Valid records:</b> 5264
<b>Position:</b> 26° 54.042' N, 089° 30.876' W	<b>Missing records:</b> 0
<b>Instrument type:</b> Mets	<b>Calms/below threshold:</b> 0
<b>Analysis period:</b> 18-Dec-2017 23:00:00 to 07-Apr-2018 14:30:00	<b>Water depth:</b> 2032 m
<b>Notes:</b>	

Table 4.1: Wind Speed and Direction, 18-Dec-2017 to 07-Apr-2018

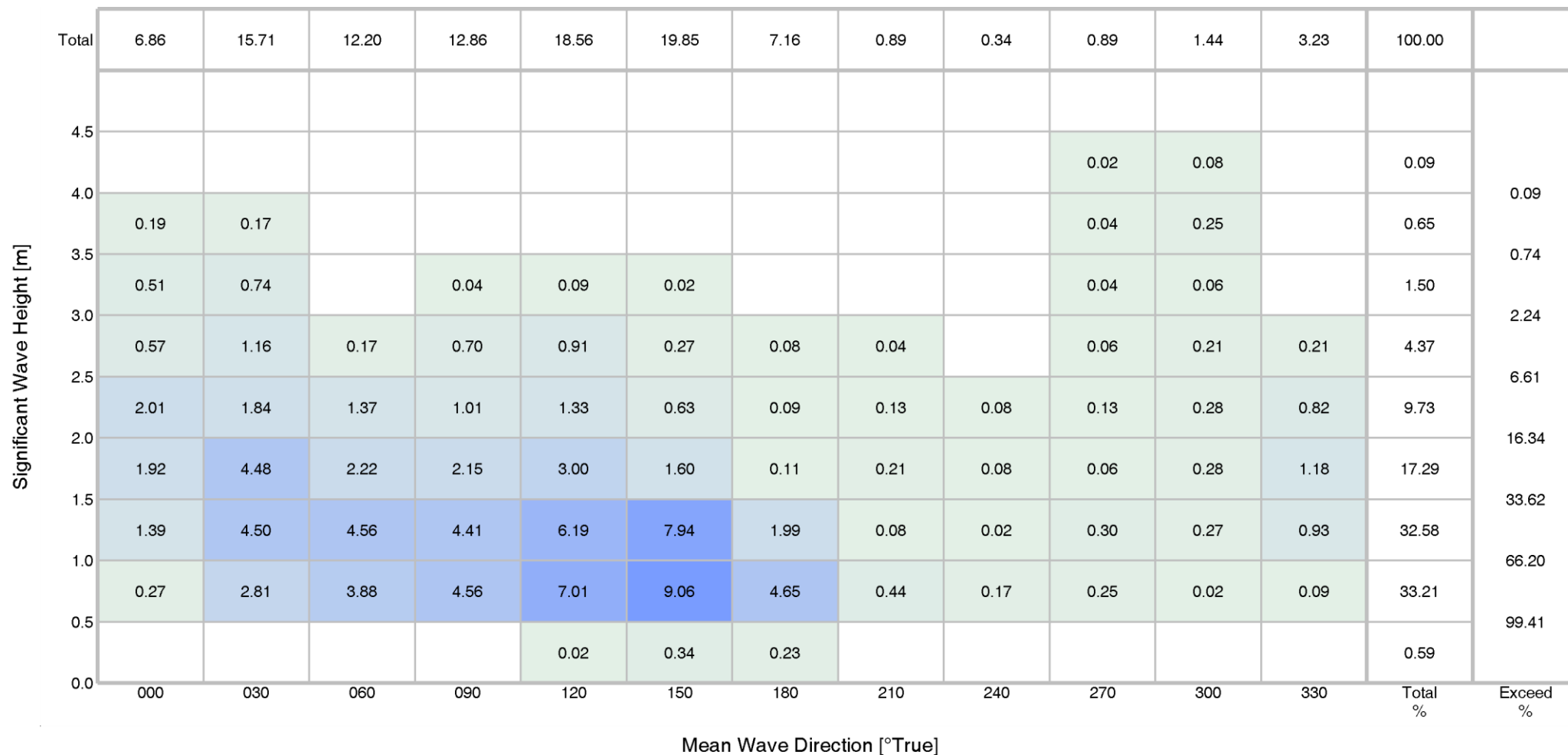




**Joint Frequency Distribution of Wave Parameters**



**CHEVRON USA**  
**BIG FOOT METOCEAN MEASUREMENT STUDY DATA REPORT**

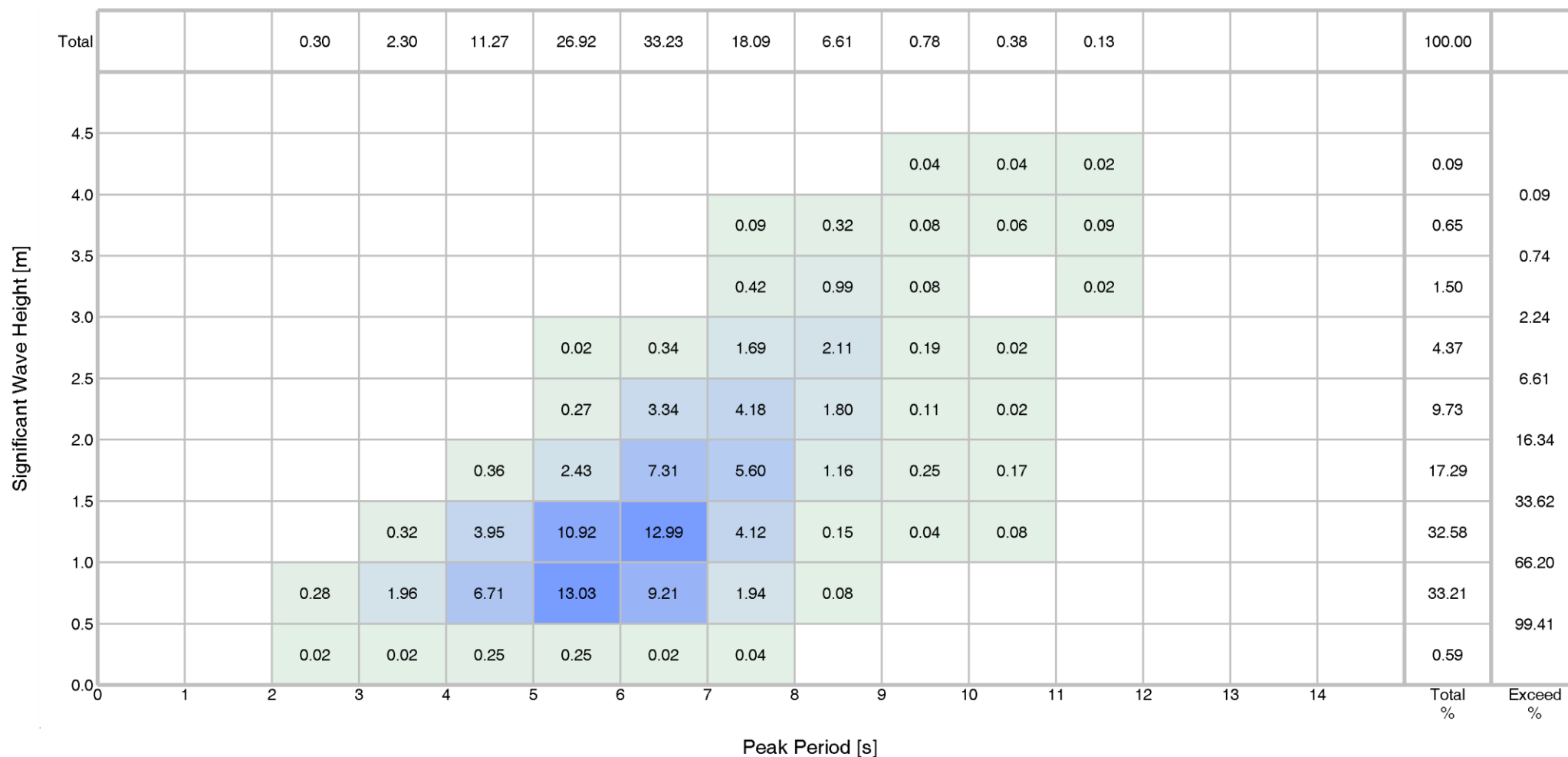


<b>Location:</b> Big Foot Wavescan	<b>Valid records:</b> 5264
<b>Position:</b> 26° 54.042' N, 089° 30.876' W	<b>Missing records:</b> 0
<b>Instrument type:</b> Wavescan	<b>Calms/below threshold:</b>
<b>Analysis period:</b> 18-Dec-2017 23:00:00 to 07-Apr-2018 14:30:00	<b>Water depth:</b> 2032 m
<b>Notes:</b>	

Table 5.1: Significant Wave Height/Mean Wave Direction, 18-Dec-2017 to 07-Apr-2018



**CHEVRON USA**  
**BIG FOOT METOCEAN MEASUREMENT STUDY DATA REPORT**



<b>Location:</b> Big Foot Wavescan	<b>Valid records:</b> 5264
<b>Position:</b> 26° 54.042' N, 089° 30.876' W	<b>Missing records:</b> 0
<b>Instrument type:</b> Wavescan	<b>Calms/below threshold:</b>
<b>Analysis period:</b> 18-Dec-2017 23:00:00 to 07-Apr-2018 14:30:00	<b>Water depth:</b> 2032 m
<b>Notes:</b>	

Table 5.2: Significant Wave Height/Peak Period, 18-Dec-2017 to 07-Apr-2018



## **FIGURES**

### **Mooring Location Map**

Figure 1: Mooring Location Map – As Recovered and Redeployed (Feb 2016)

### **Mooring Configuration Diagram**

Figure 2: Mooring Configuration Diagram

### **Time Series of Composite Current Speed and Direction**

Figure 3.1.1: Selected Levels, 18-Dec-17 to 31-Dec-17

Figure 3.1.2: Selected Levels, 18-Dec-17 to 31-Dec-17

Figure 3.1.3: Selected Levels, 18-Dec-17 to 31-Dec-17

Figure 3.1.4: Selected Levels, 18-Dec-17 to 31-Dec-17

Figure 3.1.5: Selected Levels, 18-Dec-17 to 31-Dec-17

Figure 3.1.6: Selected Levels, 18-Dec-17 to 31-Dec-17

Figure 3.2.1: Selected Levels, 01-Jan-18 to 31-Jan-18

Figure 3.2.2: Selected Levels, 01-Jan-18 to 31-Jan-18

Figure 3.2.3: Selected Levels, 01-Jan-18 to 31-Jan-18

Figure 3.2.4: Selected Levels, 01-Jan-18 to 31-Jan-18

Figure 3.2.5: Selected Levels, 01-Jan-18 to 31-Jan-18

Figure 3.2.6: Selected Levels, 01-Jan-18 to 31-Jan-18

Figure 3.3.1: Selected Levels, 01-Feb-18 to 28-Feb-18

Figure 3.3.2: Selected Levels, 01-Feb-18 to 28-Feb-18

Figure 3.3.3: Selected Levels, 01-Feb-18 to 28-Feb-18

Figure 3.3.4: Selected Levels, 01-Feb-18 to 28-Feb-18

Figure 3.3.5: Selected Levels, 01-Feb-18 to 28-Feb-18

Figure 3.3.6: Selected Levels, 01-Feb-18 to 28-Feb-18

Figure 3.4.1: Selected Levels, 01-Mar-18 to 31-Mar-18

Figure 3.4.2: Selected Levels, 01-Mar-18 to 31-Mar-18

Figure 3.4.3: Selected Levels, 01-Mar-18 to 31-Mar-18

Figure 3.4.4: Selected Levels, 01-Mar-18 to 31-Mar-18

Figure 3.4.5: Selected Levels, 01-Mar-18 to 31-Mar-18

Figure 3.4.6: Selected Levels, 01-Mar-18 to 31-Mar-18

Figure 3.5.1: Selected Levels, 01-Apr-18 to 07-Apr-18

Figure 3.5.2: Selected Levels, 01-Apr-18 to 07-Apr-18

Figure 3.5.3: Selected Levels, 01-Apr-18 to 07-Apr-18

Figure 3.5.4: Selected Levels, 01-Apr-18 to 07-Apr-18

Figure 3.5.5: Selected Levels, 01-Apr-18 to 07-Apr-18



Figure 3.5.6: Selected Levels, 01-Apr-18 to 07-Apr-18

### **Colour Flood Plot**

Figure 4.1: 18-Dec-17 to 31-Dec-17

Figure 4.2: 01-Jan-18 to 31-Jan-18

Figure 4.3: 01-Feb-18 to 28-Feb-18

Figure 4.4: 01-Mar-18 to 31-Mar-18

Figure 4.5: 01-Apr-18 to 07-Apr-18

### **Current Rose of Current Speed and Direction**

Figure 5.1: Level 5 (22 m below MSL, 2010 m above Seabed)

Figure 5.2: Level 9 (38 m below MSL, 1994 m above Seabed)

Figure 5.3: Level 18 (74 m below MSL, 1958 m above Seabed)

Figure 5.4: Level 23 (142 m below MSL, 1890 m above Seabed)

Figure 5.5: Level 28 (242 m below MSL, 1790 m above Seabed)

Figure 5.6: Level 31 (302 m below MSL, 1730 m above Seabed)

Figure 5.7: Level 43 (1983 m below MSL, 49 m above Seabed)

Figure 5.8: Level 45 (1993 m below MSL, 39 m above Seabed)

Figure 5.9: Level 48 (2014 m below MSL, 18 m above Seabed)

Figure 5.10: Level 51 (2017 m below MSL, 15 m above Seabed)

### **Polar Scatter Plot**

Figure 6.1: Level 5 (22 m below MSL, 2010 m above Seabed)

Figure 6.2: Level 9 (38 m below MSL, 1994 m above Seabed)

Figure 6.3: Level 18 (74 m below MSL, 1958 m above Seabed)

Figure 6.4: Level 23 (142 m below MSL, 1890 m above Seabed)

Figure 6.5: Level 28 (242 m below MSL, 1790 m above Seabed)

Figure 6.6: Level 31 (302 m below MSL, 1730 m above Seabed)

Figure 6.7: Level 43 (1983 m below MSL, 49 m above Seabed)

Figure 6.8: Level 45 (1993 m below MSL, 39 m above Seabed)

Figure 6.9: Level 48 (2014 m below MSL, 18 m above Seabed)

Figure 6.10: Level 51 (2017 m below MSL, 15 m above Seabed)

### **Meteorological Parameters**

Figure 7.1 Level 1, 18-Dec-2017 23:00:00 - 31-Dec-2017 23:50:00 (UTC)

Figure 7.2 Level 1, 01-Jan-2018 00:00:00 - 31-Jan-2018 23:50:00 (UTC)

Figure 7.3 Level 1, 01-Feb-2018 00:00:00 - 28-Feb-2018 23:50:00 (UTC)

Figure 7.4 Level 1, 01-Mar-2018 00:00:00 - 31-Mar-2018 23:50:00 (UTC)

Figure 7.5 Level 1, 01-Apr-2018 00:00:00 - 07-Apr-2018 14:30:00 (UTC)



## **Wind Rose**

Figure 8.1: Wind Speed and Direction, 18-Dec-2017 to 07-Apr-2018

## **Wave Parameters**

Figure 9.1 Level 1, 18-Dec-2017 23:00:00 - 31-Dec-2017 23:30:00 (UTC)

Figure 9.2 Level 1, 01-Jan-2018 00:00:00 - 31-Jan-2018 23:30:00 (UTC)

Figure 9.3 Level 1, 01-Feb-2018 00:00:00 - 28-Feb-2018 23:30:00 (UTC)

Figure 9.4 Level 1, 01-Mar-2018 00:00:00 - 31-Mar-2018 23:30:00 (UTC)

Figure 9.5 Level 1, 01-Apr-2018 00:00:00 - 07-Apr-2018 14:30:00 (UTC)

## **Wave Rose**

Figure 10.1: Significant Wave Height/Mean Wave Direction, 18-Dec-2017 to 07-Apr-2018

## **QC Plots - 75 kHz ADCP**

Figure 11.1 Level 1-20, 17-Dec-2017 20:55:11 - 31-Dec-2017 23:55:11 (UTC)

Figure 11.2 Level 1-20, 01-Jan-2018 00:05:11 - 31-Jan-2018 23:55:11 (UTC)

Figure 11.3 Level 1-20, 01-Feb-2018 00:05:11 - 28-Feb-2018 23:55:11 (UTC)

Figure 11.4 Level 1-20, 01-Mar-2018 00:05:11 - 31-Mar-2018 23:55:11 (UTC)

Figure 11.5 Level 1-20, 01-Apr-2018 00:05:11 - 08-Apr-2018 15:06:35 (UTC)

## **QC Plots - 300 kHz ADCP**

Figure 12.1 Level 1-25, 18-Dec-2017 15:02:32 - 31-Dec-2017 23:32:32 (UTC)

Figure 12.2 Level 1-25, 01-Jan-2018 00:02:32 - 31-Jan-2018 23:32:32 (UTC)

Figure 12.3 Level 1-25, 01-Feb-2018 00:02:32 - 28-Feb-2018 23:32:32 (UTC)

Figure 12.4 Level 1-25, 01-Mar-2018 00:02:32 - 31-Mar-2018 23:32:32 (UTC)

Figure 12.5 Level 1-25, 01-Apr-2018 00:02:32 - 07-Apr-2018 19:32:32 (UTC)

## **QC Plots - 600 kHz ADCP**

Figure 13.1 Level 1-25, 18-Dec-2017 12:15:08 - 31-Dec-2017 23:34:32 (UTC)

Figure 13.2 Level 1-25, 01-Jan-2018 00:04:32 - 31-Jan-2018 23:34:32 (UTC)

Figure 13.3 Level 1-25, 01-Feb-2018 00:04:32 - 28-Feb-2018 23:34:32 (UTC)

Figure 13.4 Level 1-25, 01-Mar-2018 00:04:32 - 31-Mar-2018 23:34:32 (UTC)

Figure 13.5 Level 1-25, 01-Apr-2018 00:04:32 - 07-Apr-2018 19:34:32 (UTC)



**Mooring Location Map**



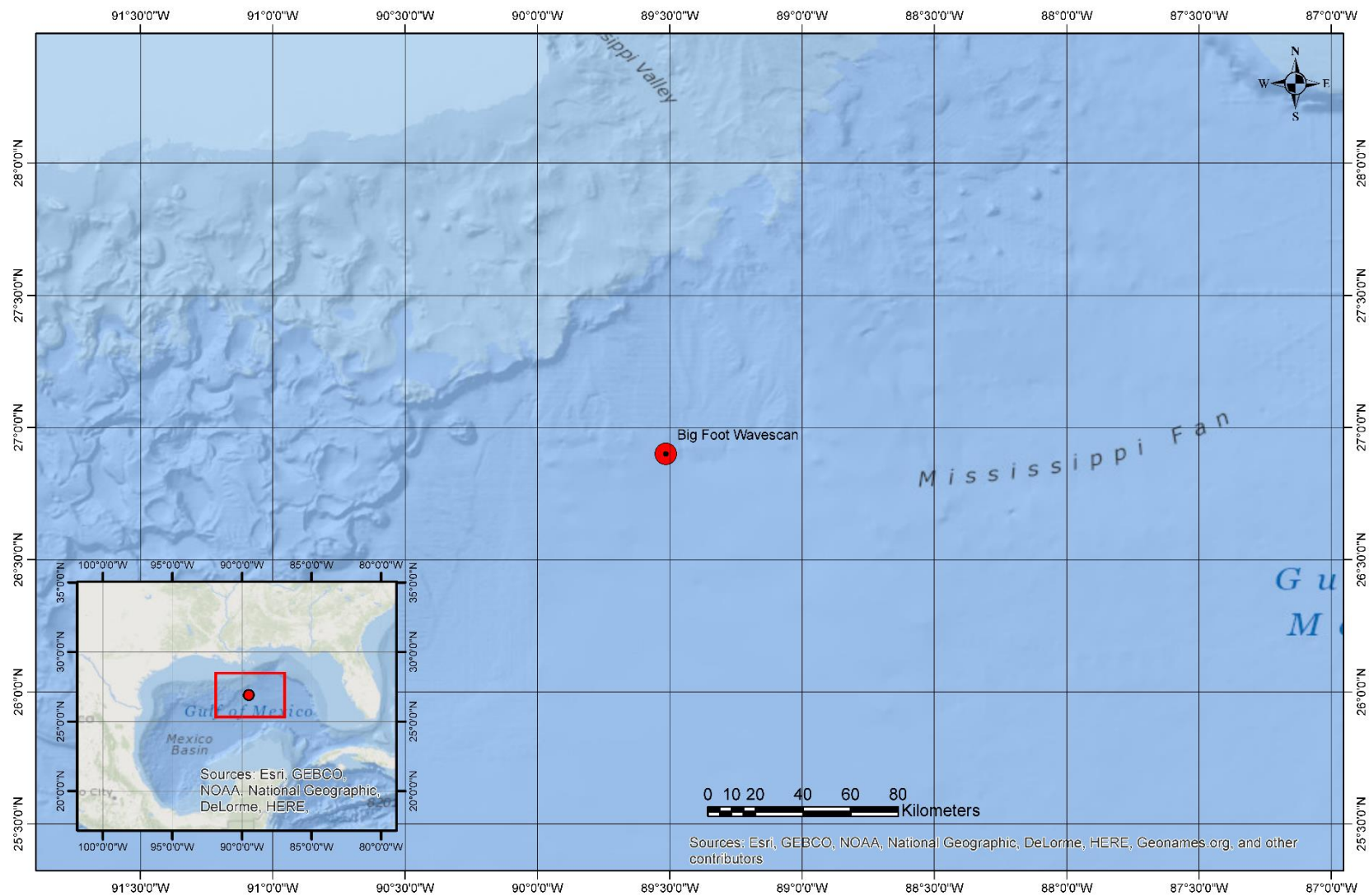


Figure 1: Mooring Location Map – As Recovered and Redepolyed (Feb 2016)



**Mooring Configuration Diagram**



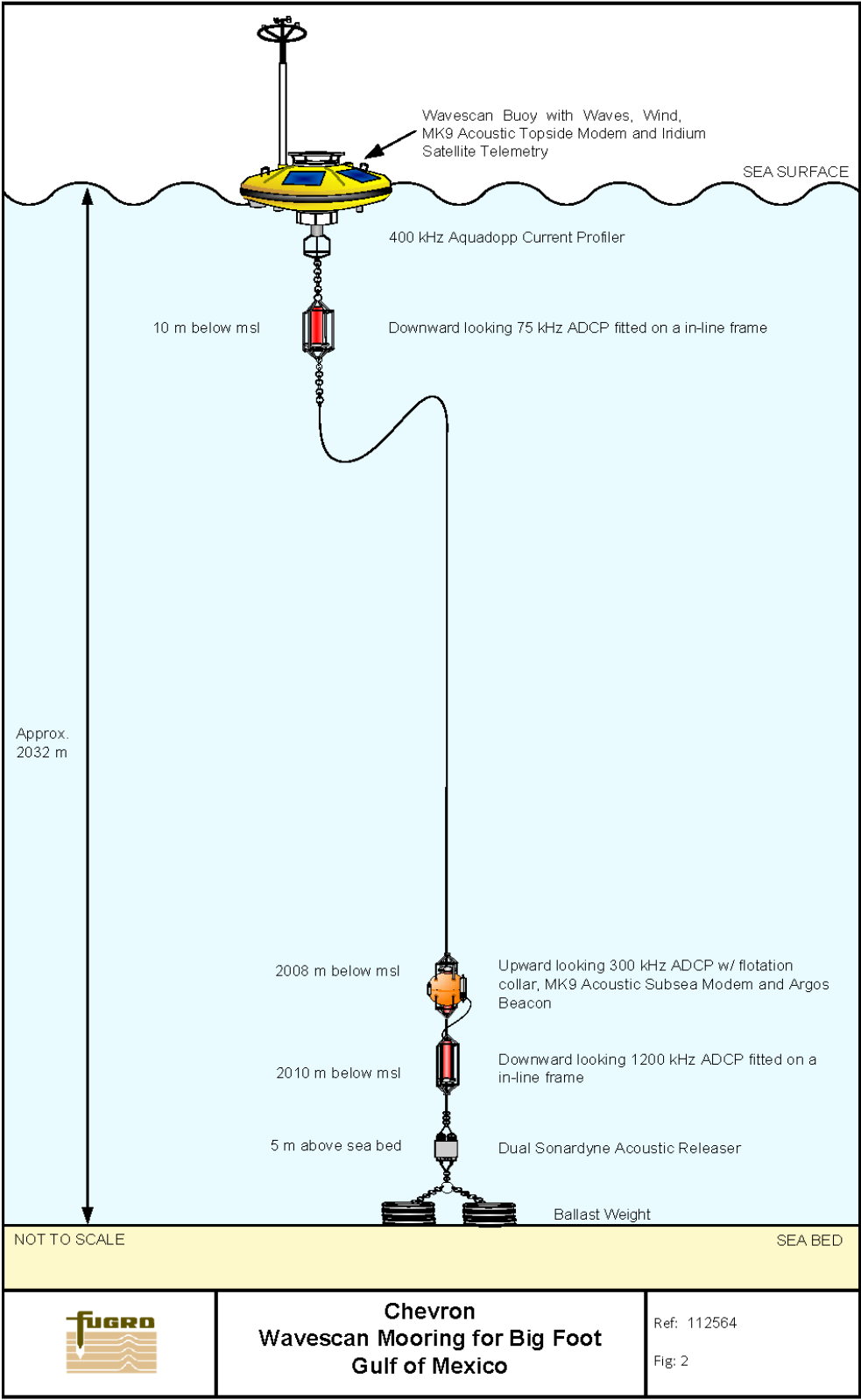


Figure 2: Mooring Configuration Diagram



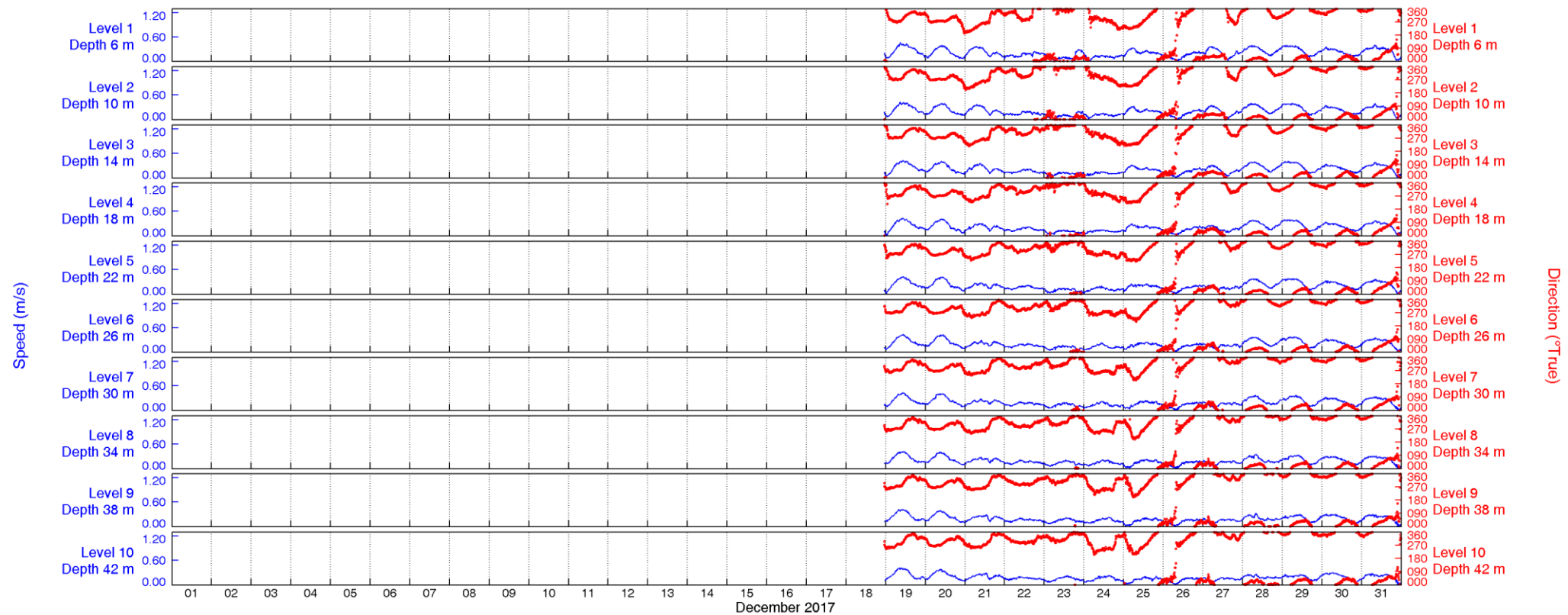


**Time Series of Composite Current Speed and Direction**





27-Apr-18 12:20:44



Location: Big Foot Wavescan	Position: 26° 54.042' N, 089° 30.876' W	Datum: MSL
Water depth: 2032 m	Instrument type: Aquadopp	
Notes:		

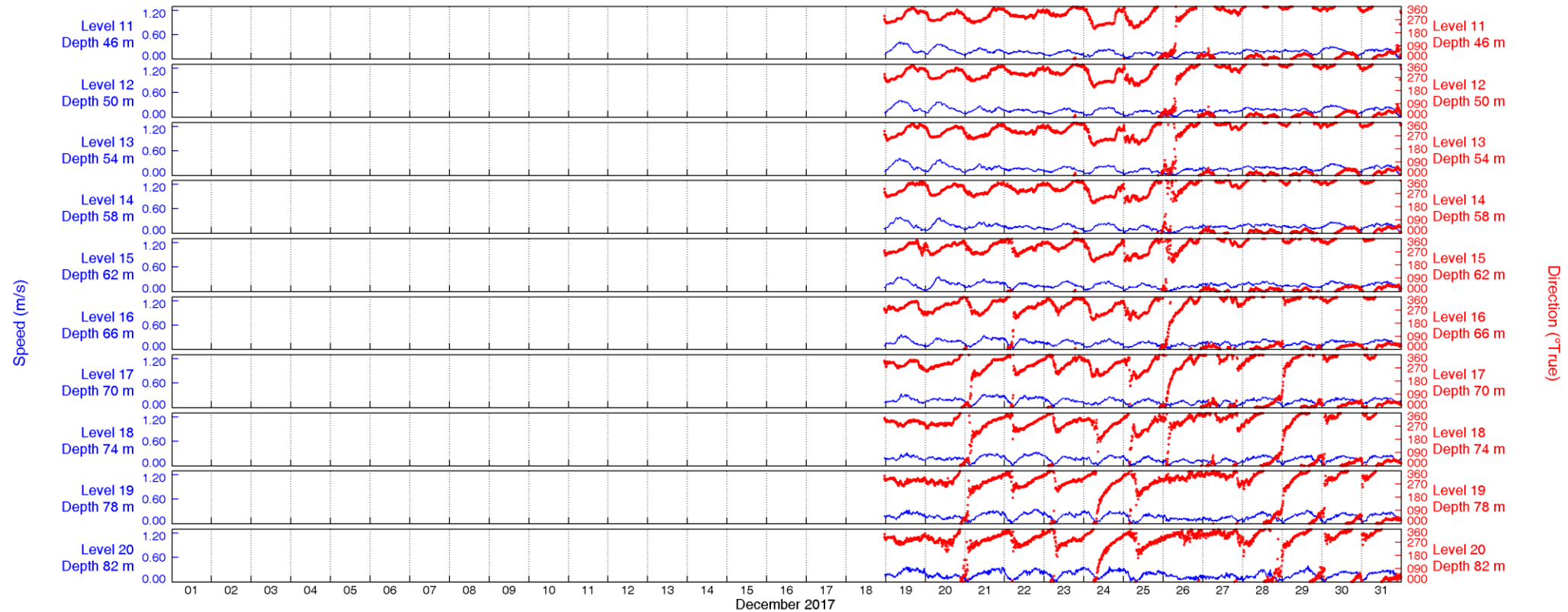
Figure 3.1.1: Selected Levels, 18-Dec-17 to 31-Dec-17



CHEVRON USA  
BIG FOOT METOCEAN MEASUREMENT STUDY DATA REPORT



27-Apr-18 12:20:46



Location: Big Foot Wavescan	Position: 26° 54.042' N, 089° 30.876' W	Datum: MSL
Water depth: 2032 m	Instrument type: Aquadopp	
Notes:		

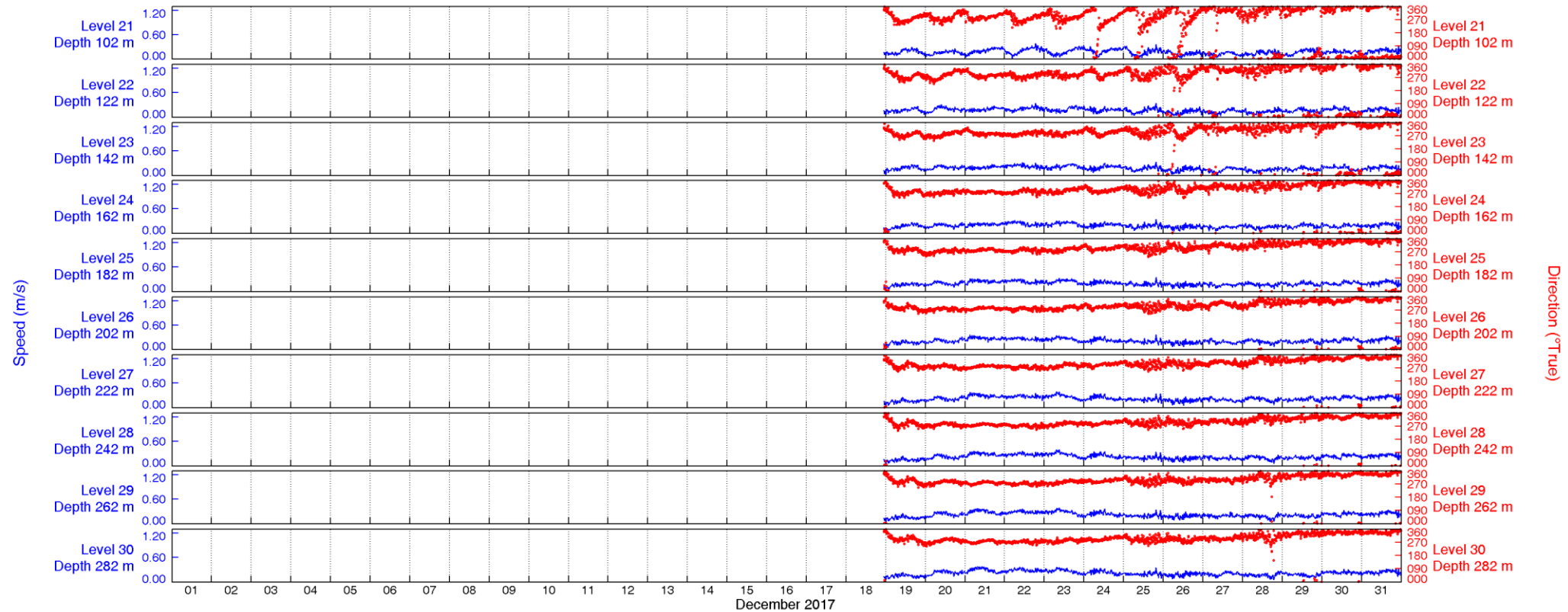
Figure 3.1.2: Selected Levels, 18-Dec-17 to 31-Dec-17



CHEVRON USA  
BIG FOOT METOCEAN MEASUREMENT STUDY DATA REPORT



27-Apr-18 12:20:47



Location: Big Foot Wavescan	Position: 26° 54.042' N, 089° 30.876' W	Datum: MSL
Water depth: 2032 m	Instrument type: 75kHz ADCP	
Notes:		

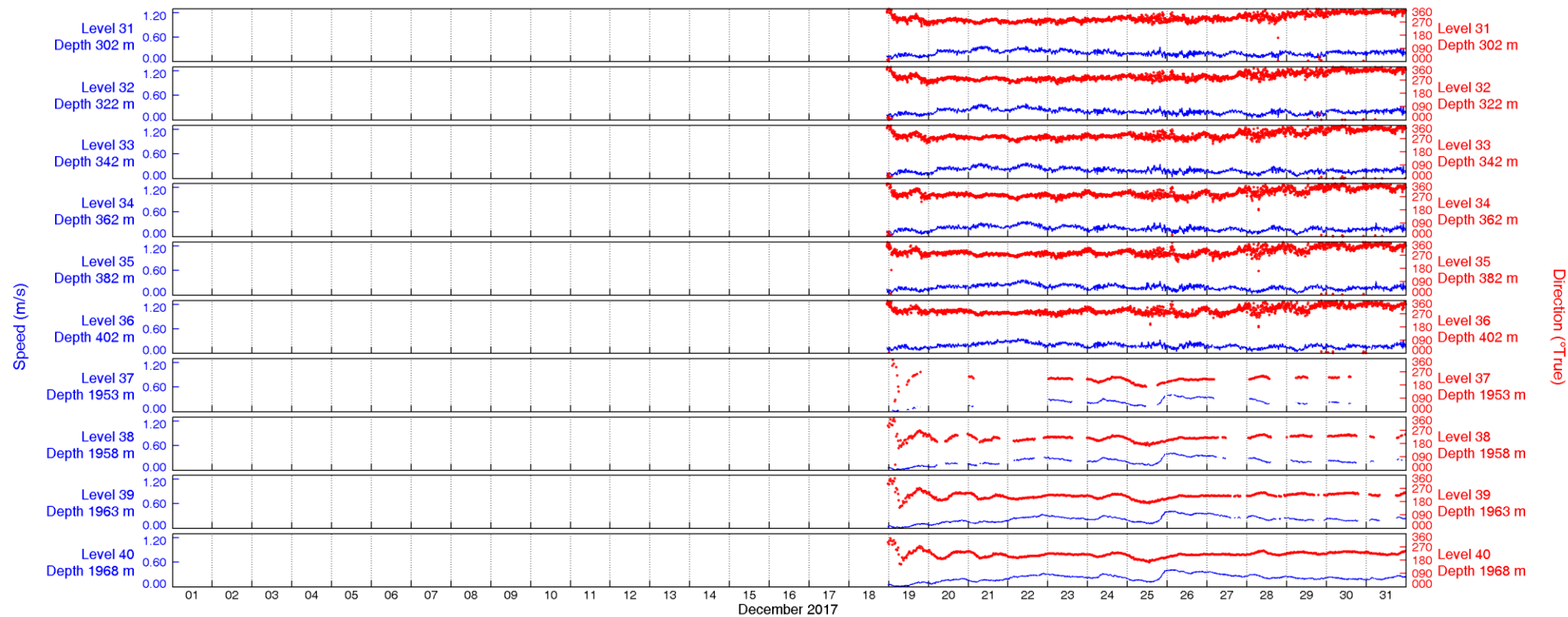
Figure 3.1.3: Selected Levels, 18-Dec-17 to 31-Dec-17



CHEVRON USA  
BIG FOOT METOCEAN MEASUREMENT STUDY DATA REPORT



27-Apr-18 12:20:48



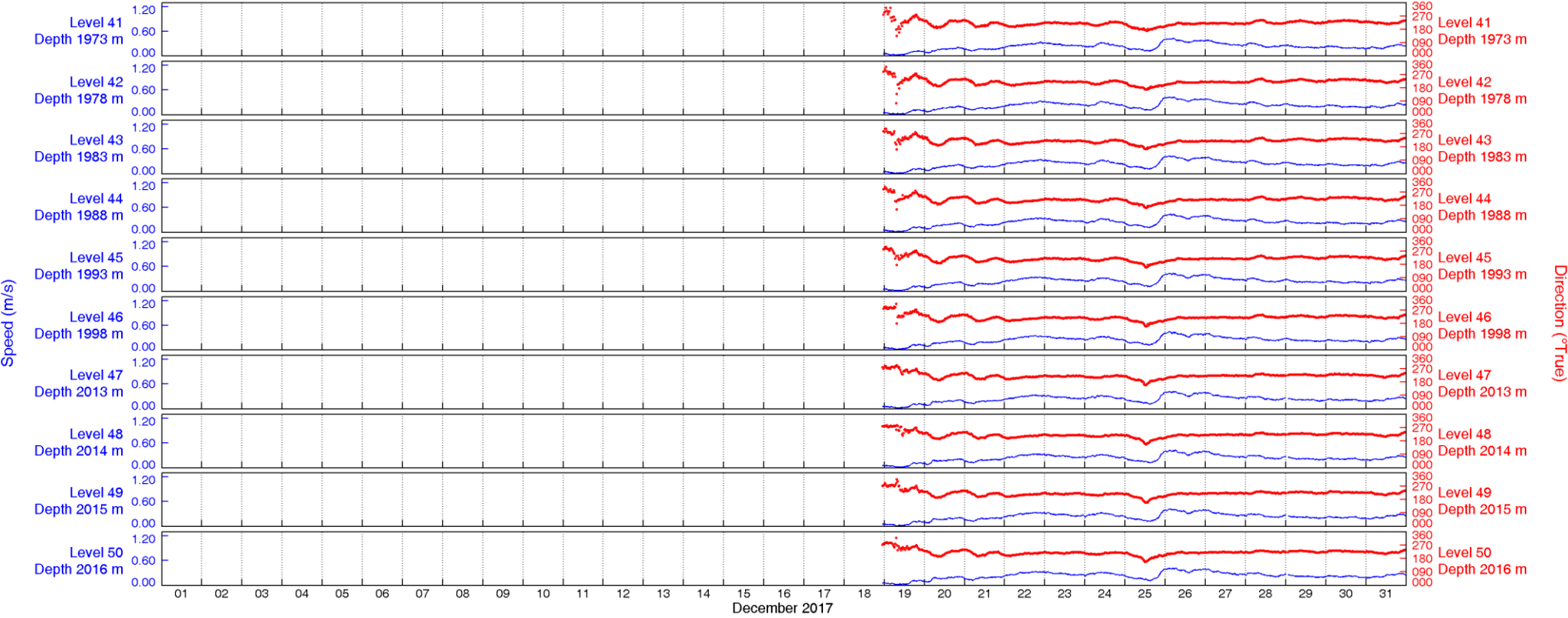
Location: Big Foot Wavescan	Position: 26° 54.042' N, 089° 30.876' W	Datum: MSL
Water depth: 2032 m	Instrument type: 75kHz ADCP, 300kHz ADCP	
Notes:		

Figure 3.1.4: Selected Levels, 18-Dec-17 to 31-Dec-17





27-Apr-18 12:20:50



Location: Big Foot Wavescan	Position: 26° 54.042' N, 089° 30.876' W	Datum: MSL
Water depth: 2032 m	Instrument type: 300kHz ADCP, 600kHz ADCP	
Notes:		

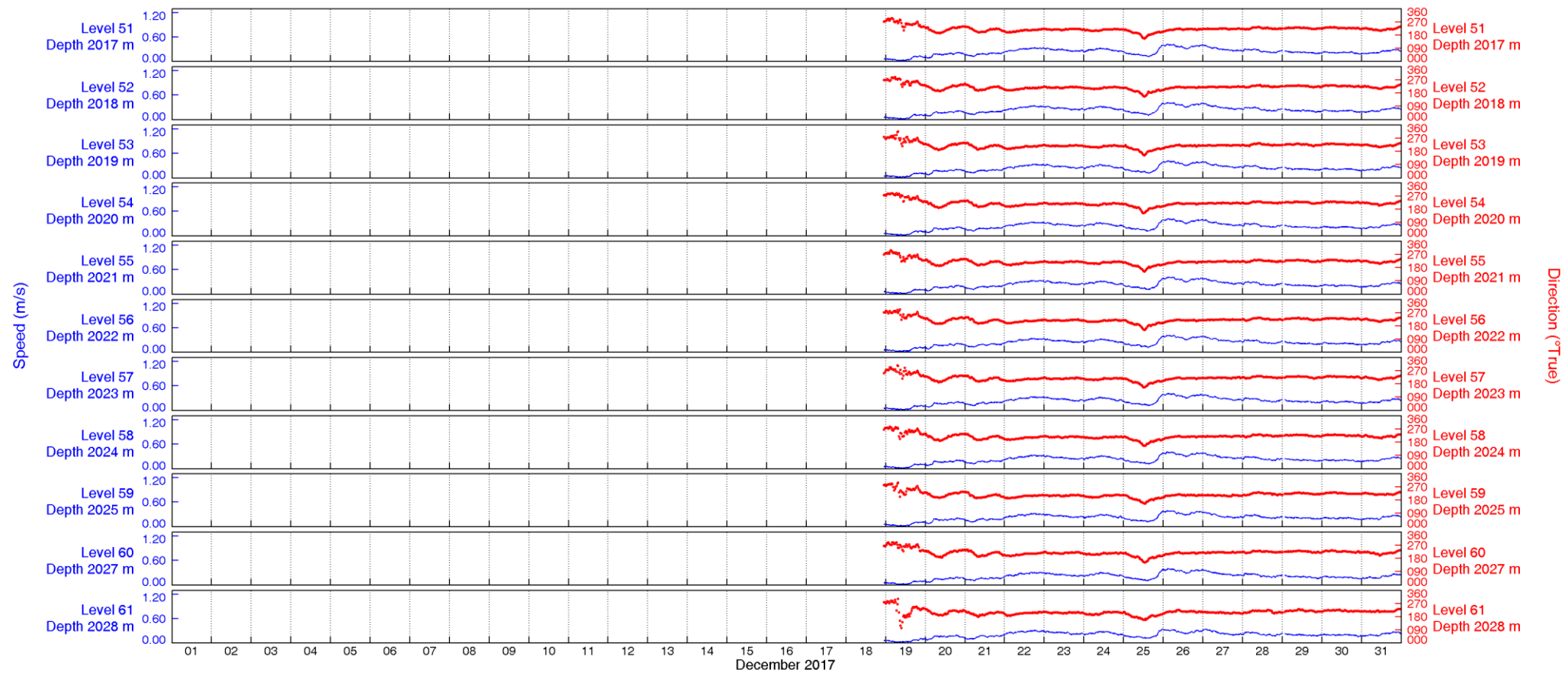
Figure 3.1.5: Selected Levels, 18-Dec-17 to 31-Dec-17



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27-Apr-18 12:20:51



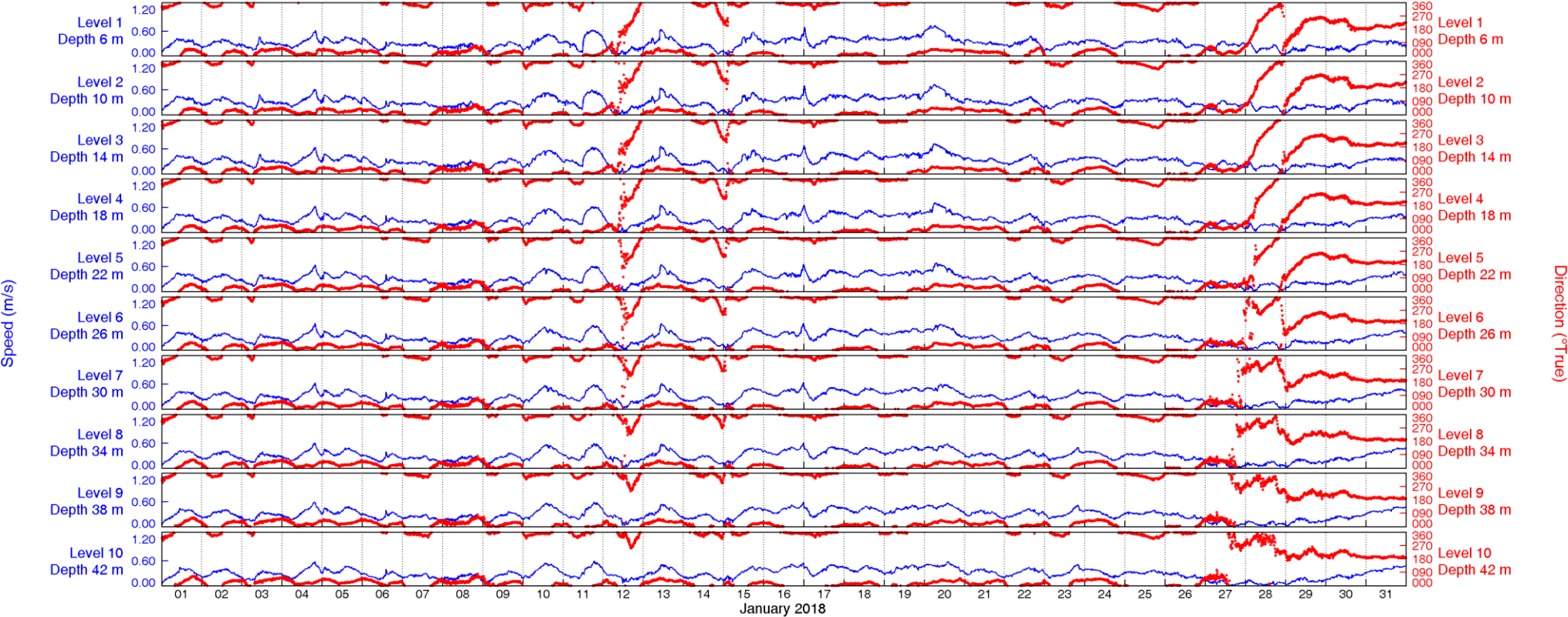
Location: Big Foot Wavescan	Position: 26° 54.042' N, 089° 30.876' W	Datum: MSL
Water depth: 2032 m	Instrument type: 600kHz ADCP	
Notes:		

Figure 3.1.6: Selected Levels, 18-Dec-17 to 31-Dec-17





27-Apr-18 12:20:52



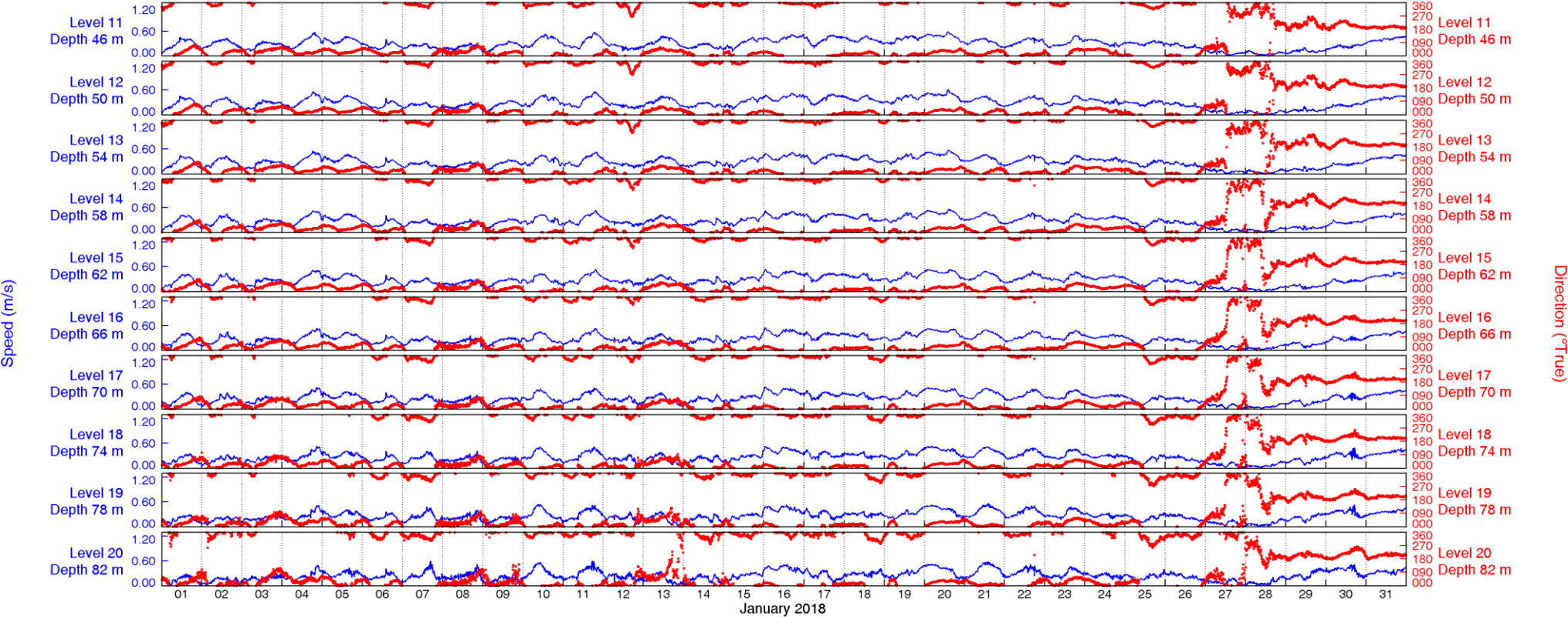
Location: Big Foot Wavescan	Position: 26° 54.042' N, 089° 30.876' W	Datum: MSL
Water depth: 2032 m	Instrument type: Aquadopp	
Notes:		

Figure 3.2.1: Selected Levels, 01-Jan-18 to 31-Jan-18





27-Apr-18 12:20:54



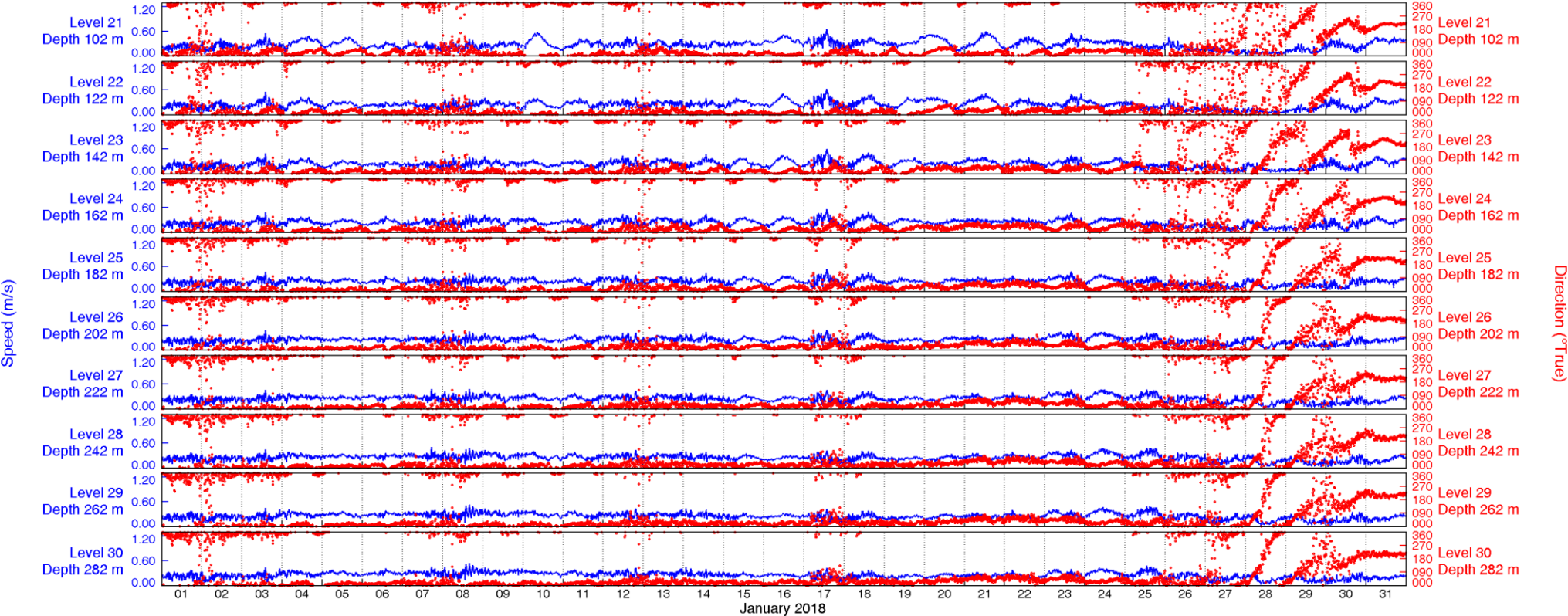
Location: Big Foot Wavescan	Position: 26° 54.042' N, 089° 30.876' W	Datum: MSL
Water depth: 2032 m	Instrument type: Aquadopp	
Notes:		

Figure 3.2.2: Selected Levels, 01-Jan-18 to 31-Jan-18





27-Apr-18 12:20:55



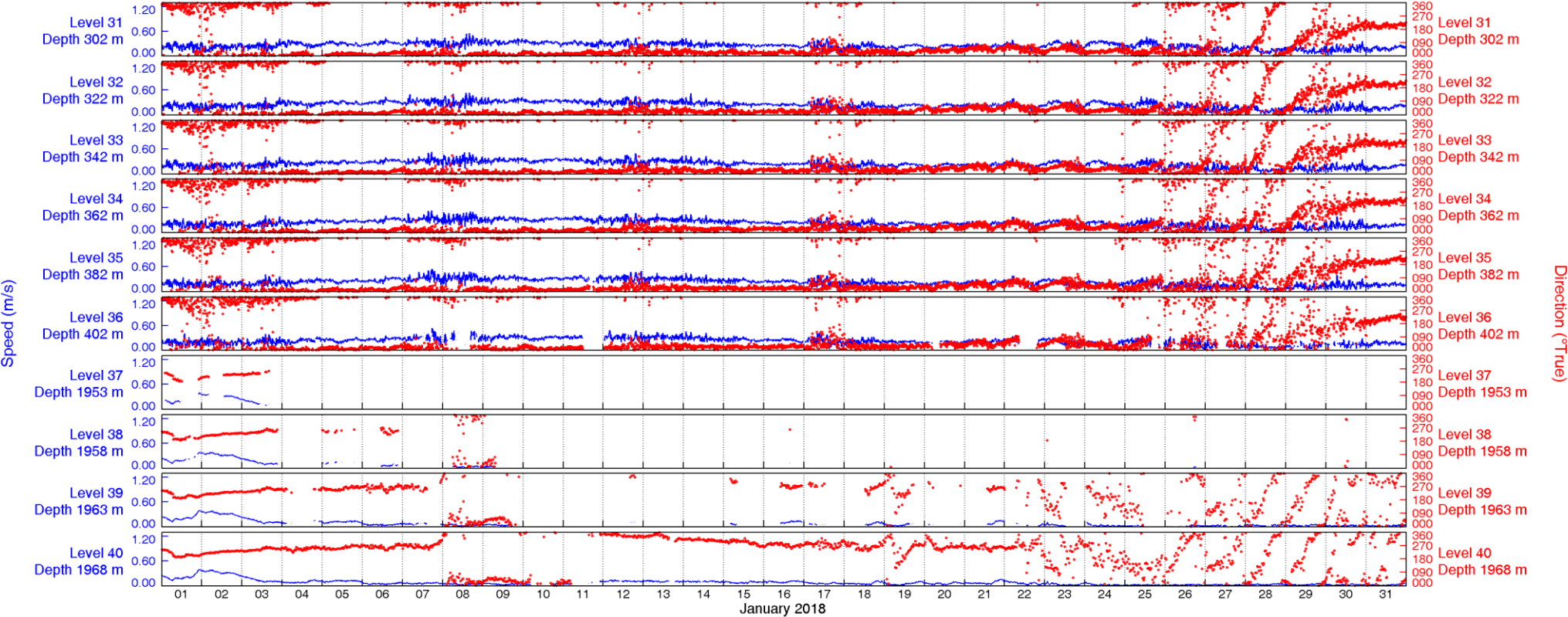
Location: Big Foot Wavescan	Position: 26° 54.042' N, 089° 30.876' W	Datum: MSL
Water depth: 2032 m	Instrument type: 75kHz ADCP	
Notes:		

Figure 3.2.3: Selected Levels, 01-Jan-18 to 31-Jan-18





27-Apr-18 12:20:57



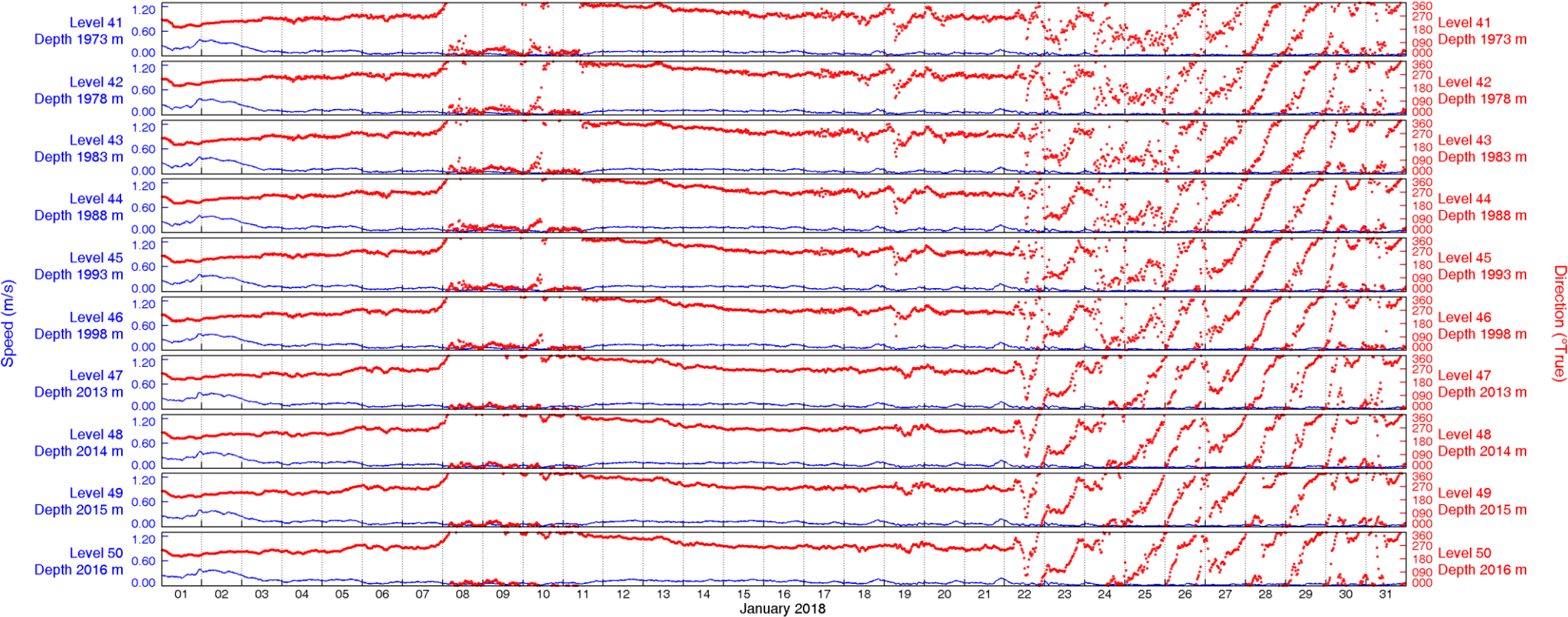
Location: Big Foot Wavescan	Position: 26° 54.042' N, 089° 30.876' W	Datum: MSL
Water depth: 2032 m	Instrument type: 75kHz ADCP, 300kHz ADCP	
Notes:		

Figure 3.2.4: Selected Levels, 01-Jan-18 to 31-Jan-18





27-Apr-18 12:20:58



Location: Big Foot Wavescan	Position: 26° 54.042' N, 089° 30.876' W	Datum: MSL
Water depth: 2032 m	Instrument type: 300kHz ADCP, 600kHz ADCP	
Notes:		

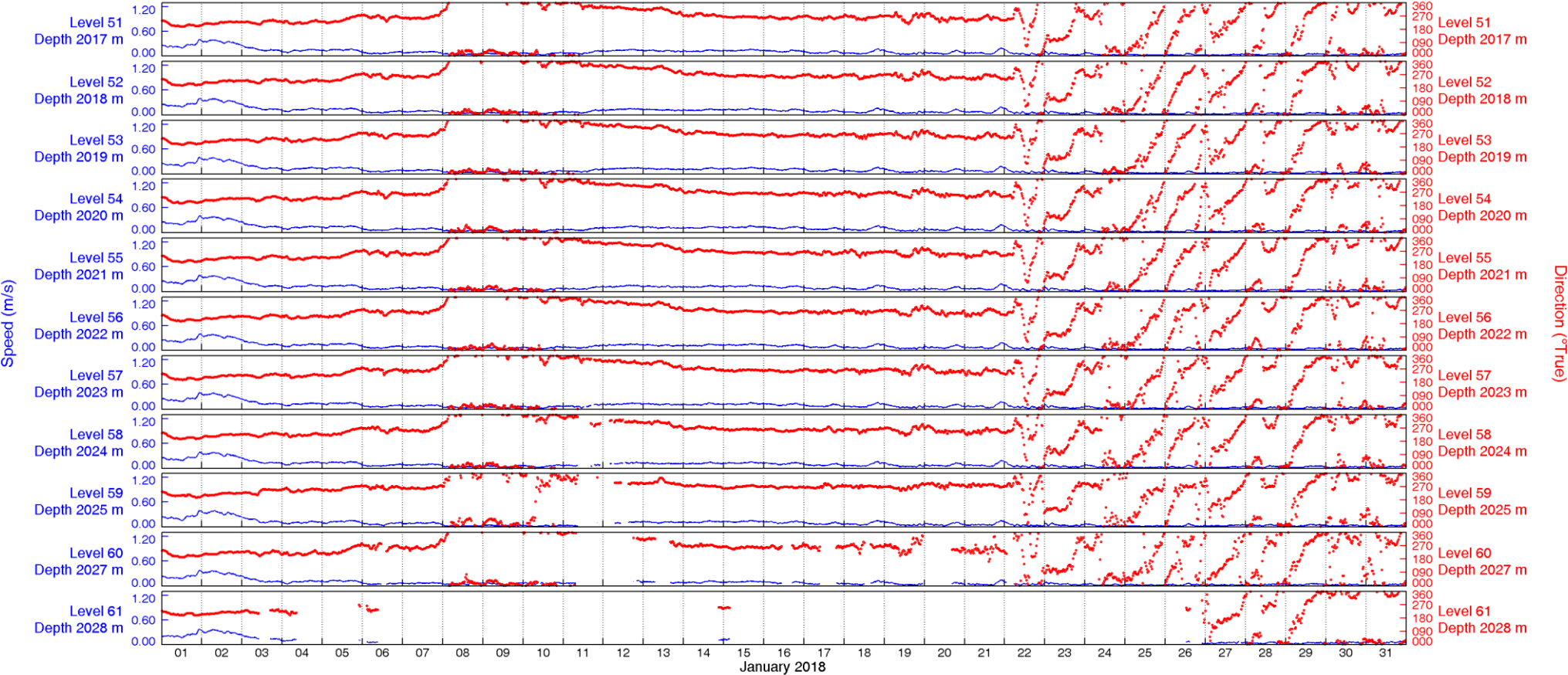
Figure 3.2.5: Selected Levels, 01-Jan-18 to 31-Jan-18



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27-Apr-18 12:20:59



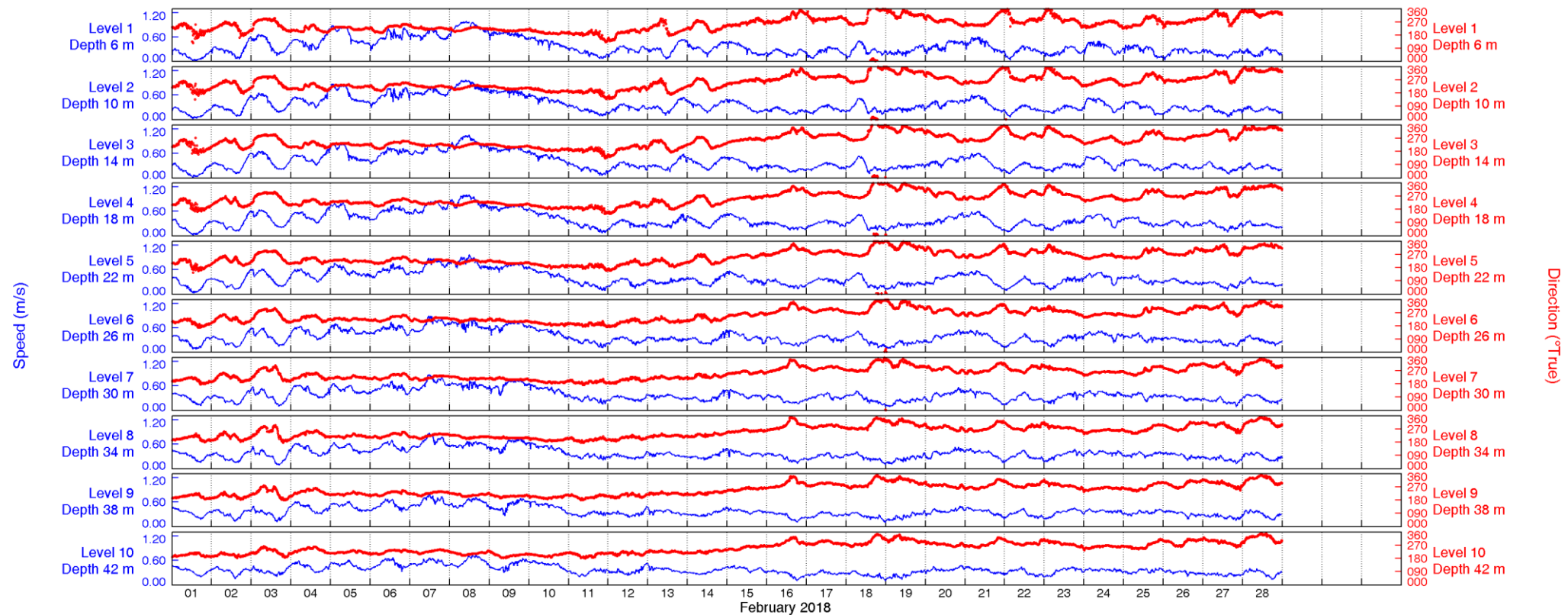
Location: Big Foot Wavescan	Position: 26° 54.042' N, 089° 30.876' W	Datum: MSL
Water depth: 2032 m	Instrument type: 600kHz ADCP	
Notes:		

Figure 3.2.6: Selected Levels, 01-Jan-18 to 31-Jan-18





27-Apr-18 12:21:01



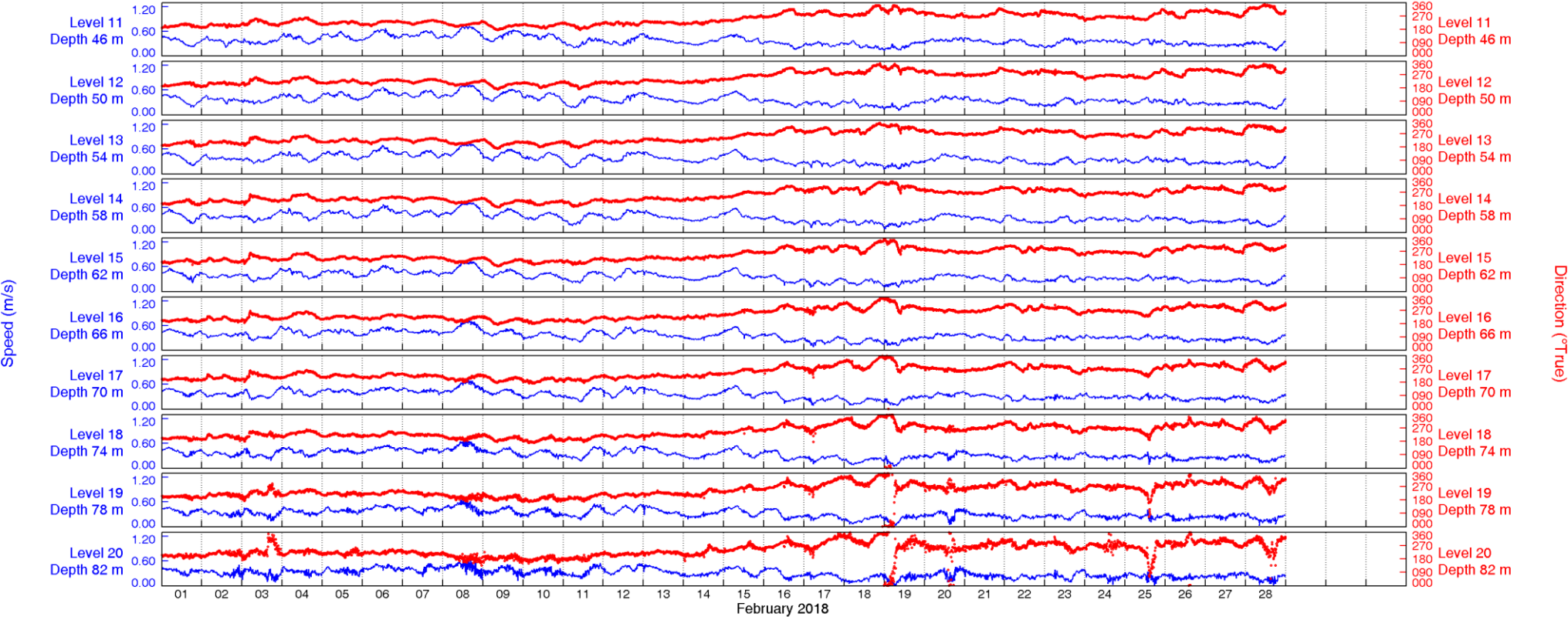
Location: Big Foot Wavescan	Position: 26° 54.042' N, 089° 30.876' W	Datum: MSL
Water depth: 2032 m	Instrument type: Aquadopp	
Notes:		

Figure 3.3.1: Selected Levels, 01-Feb-18 to 28-Feb-18





27-Apr-18 12:21:02



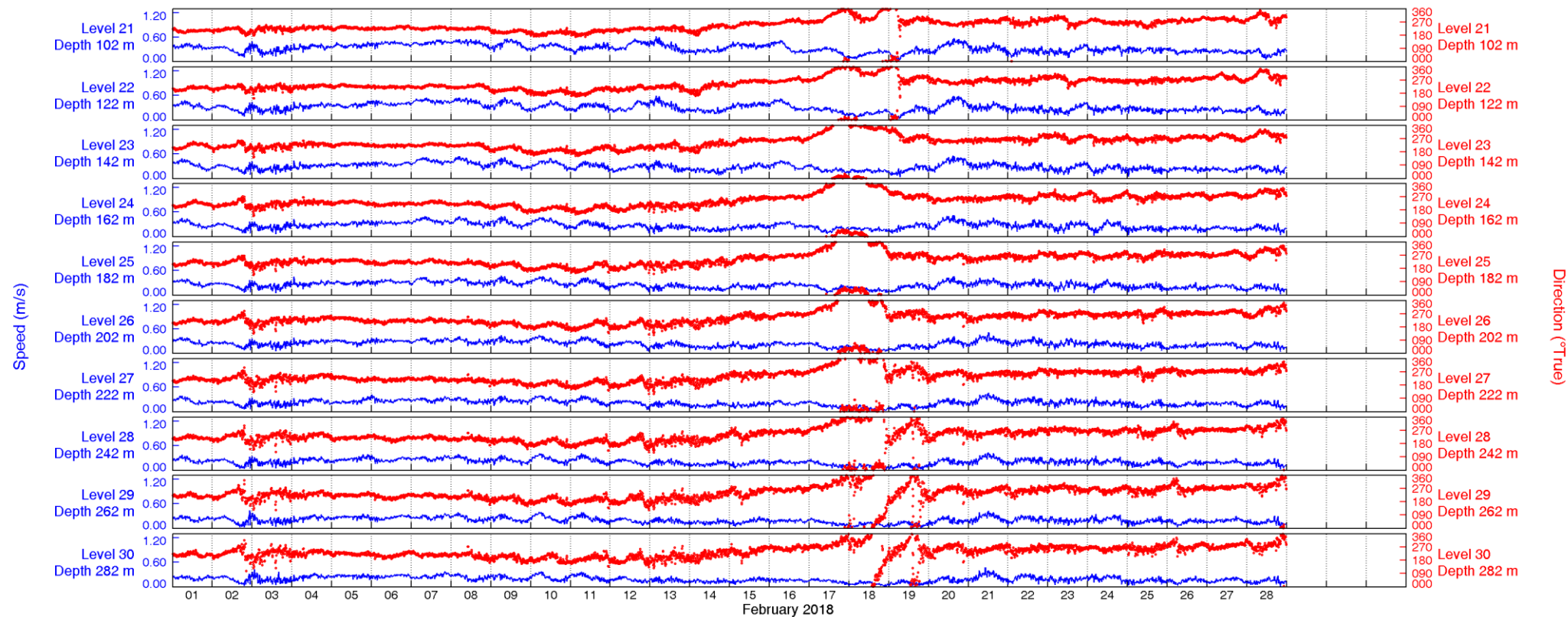
Location: Big Foot Wavescan	Position: 26° 54.042' N, 089° 30.876' W	Datum: MSL
Water depth: 2032 m	Instrument type: Aquadopp	
Notes:		

Figure 3.3.2: Selected Levels, 01-Feb-18 to 28-Feb-18





27-Apr-18 12:21:04



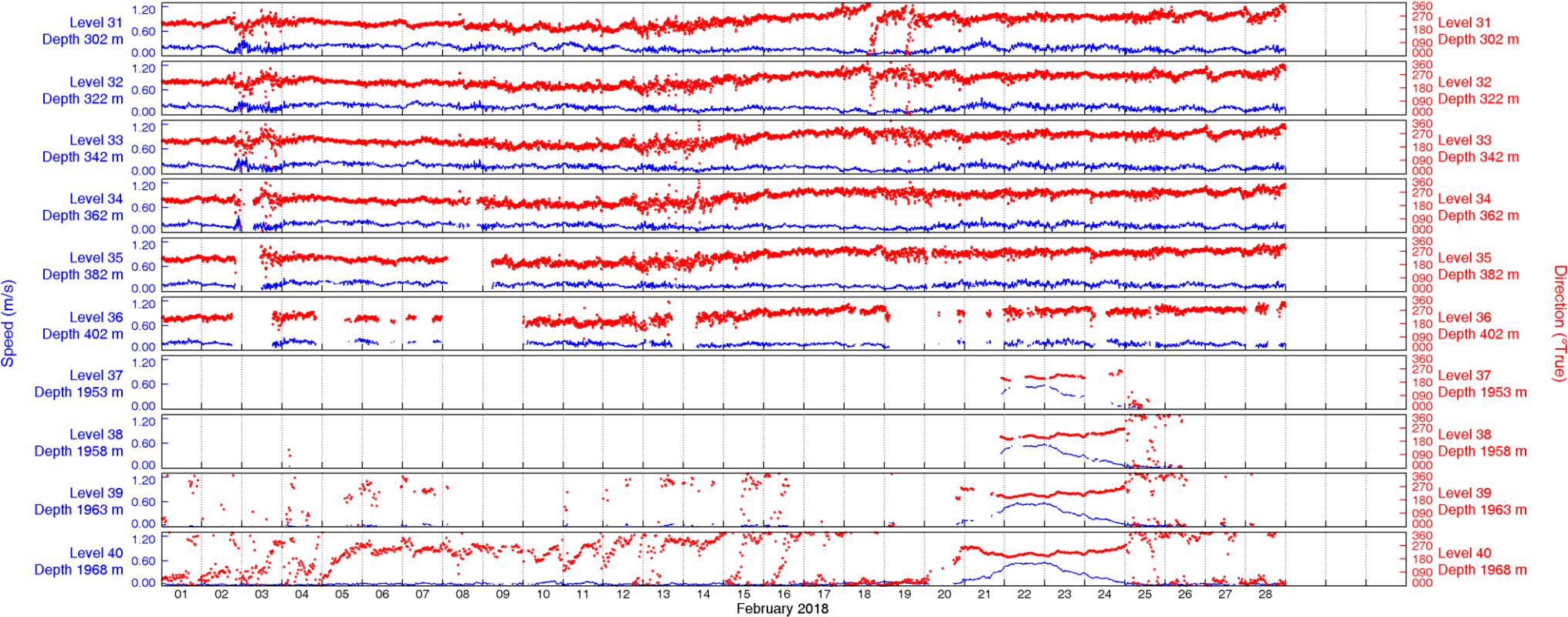
Location: Big Foot Wavescan	Position: 26° 54.042' N, 089° 30.876' W	Datum: MSL
Water depth: 2032 m	Instrument type: 75kHz ADCP	
Notes:		

Figure 3.3.3: Selected Levels, 01-Feb-18 to 28-Feb-18





27-Apr-18 12:21:05



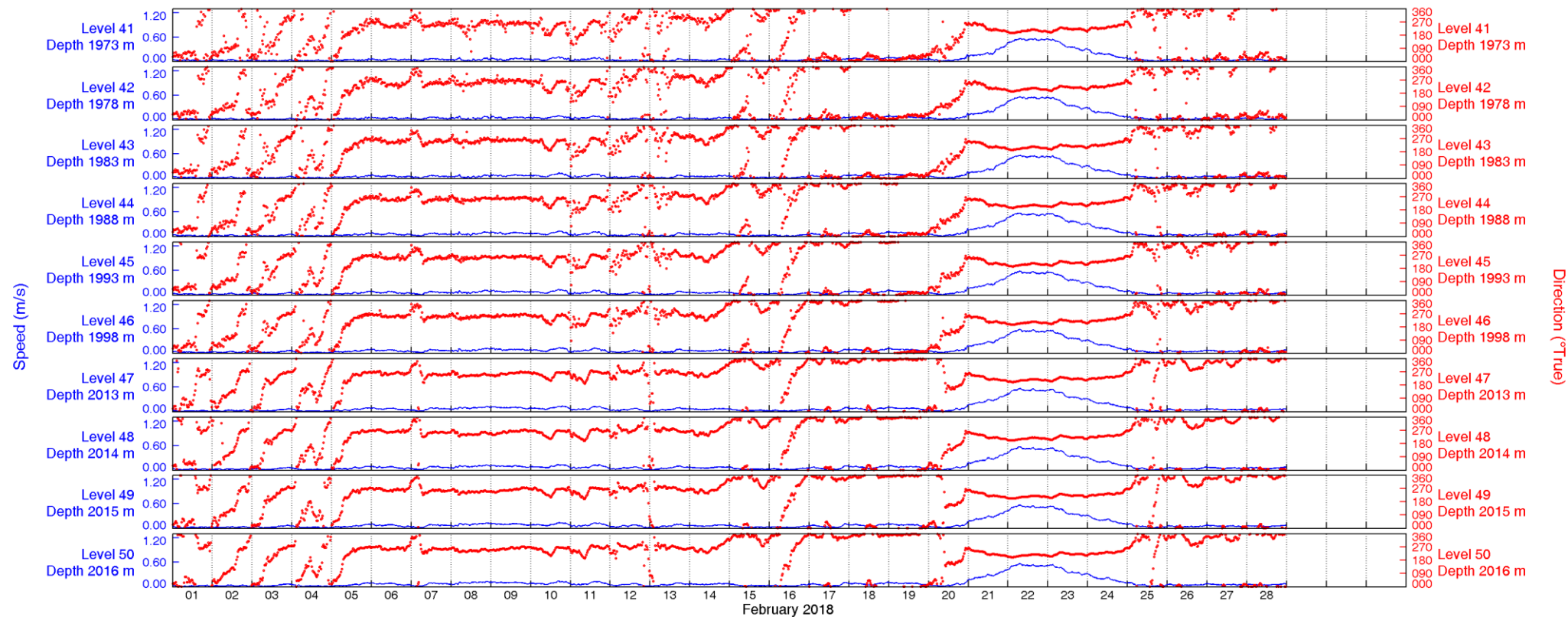
Location: Big Foot Wavescan	Position: 26° 54.042' N, 089° 30.876' W	Datum: MSL
Water depth: 2032 m	Instrument type: 75kHz ADCP, 300kHz ADCP	
Notes:		

Figure 3.3.4: Selected Levels, 01-Feb-18 to 28-Feb-18





27-Apr-18 12:21:07



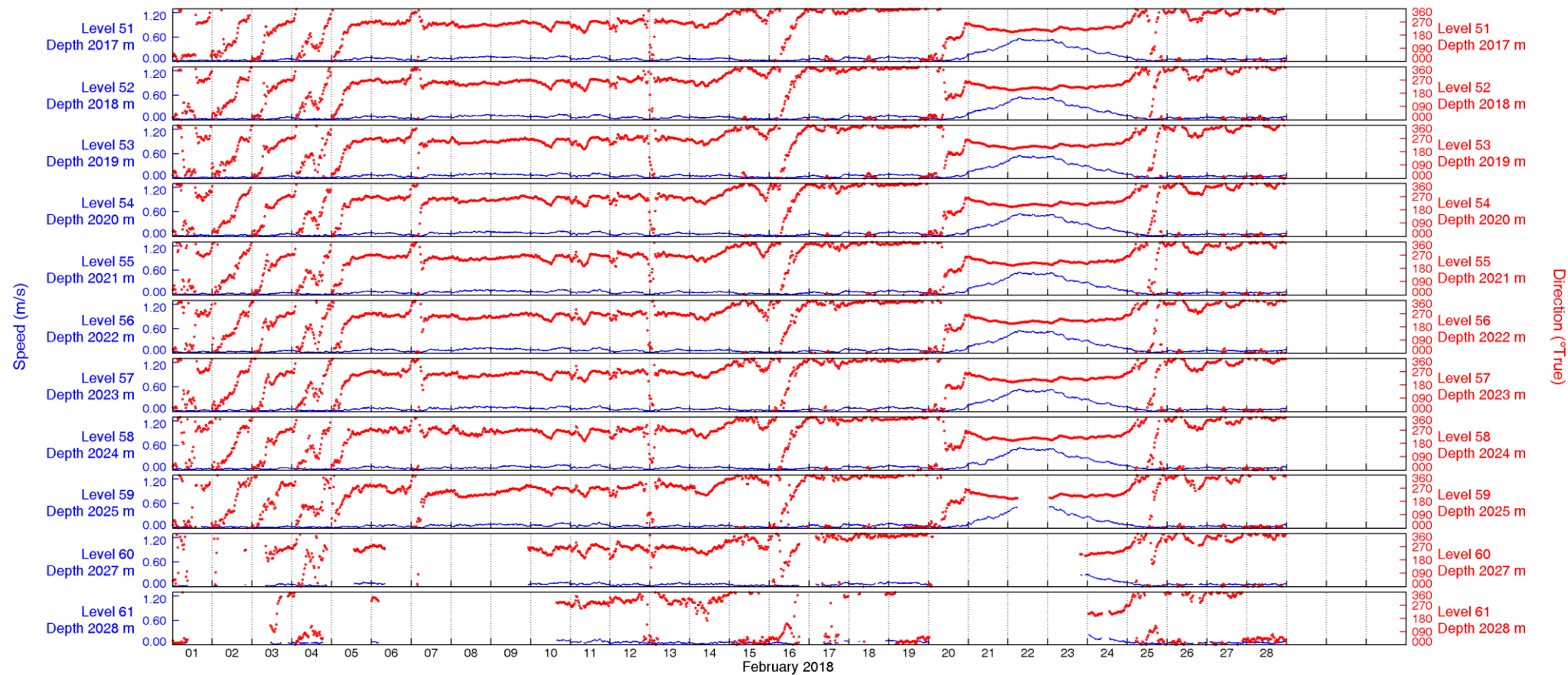
Location: Big Foot Wavescan	Position: 26° 54.042' N, 089° 30.876' W	Datum: MSL
Water depth: 2032 m	Instrument type: 300kHz ADCP, 600kHz ADCP	
Notes:		

Figure 3.3.5: Selected Levels, 01-Feb-18 to 28-Feb-18





27-Apr-18 12:21:08



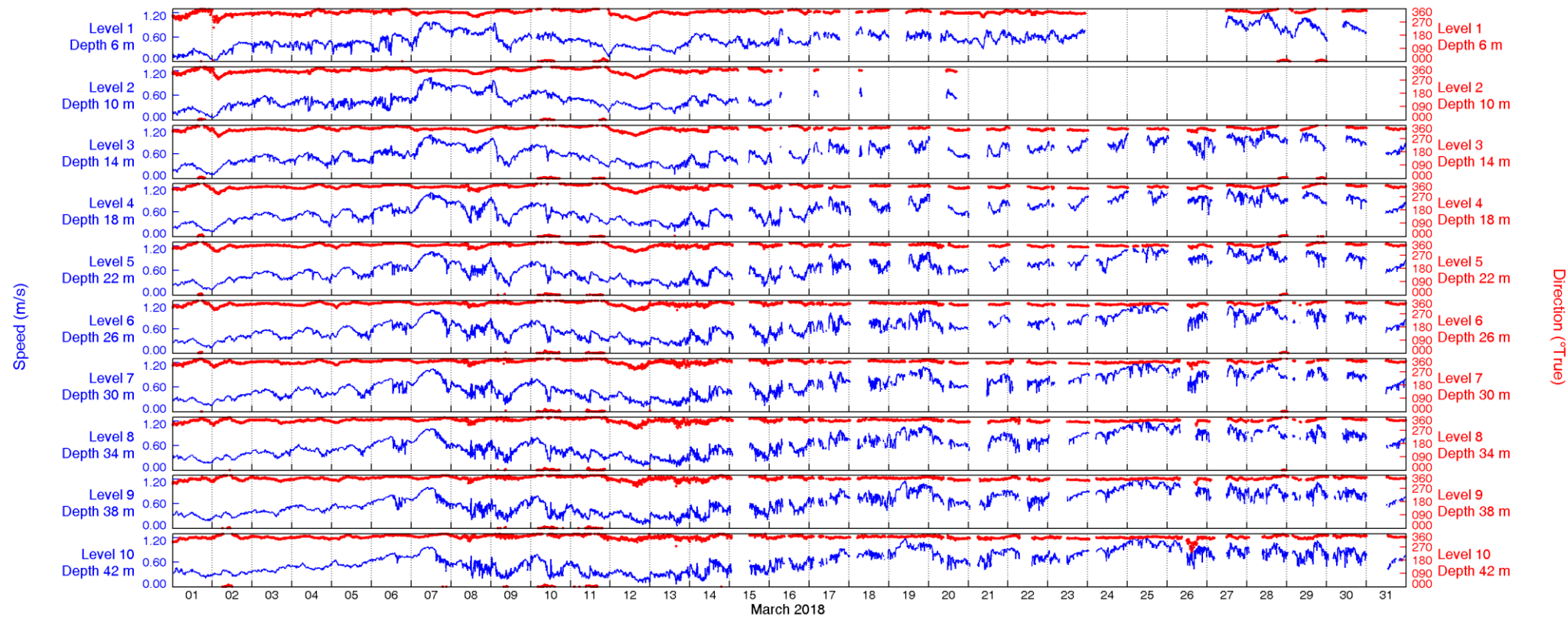
Location: Big Foot Wavescan	Position: 26° 54.042' N, 089° 30.876' W	Datum: MSL
Water depth: 2032 m	Instrument type: 600kHz ADCP	
Notes:		

Figure 3.3.6: Selected Levels, 01-Feb-18 to 28-Feb-18





27-Apr-18 12:21:09



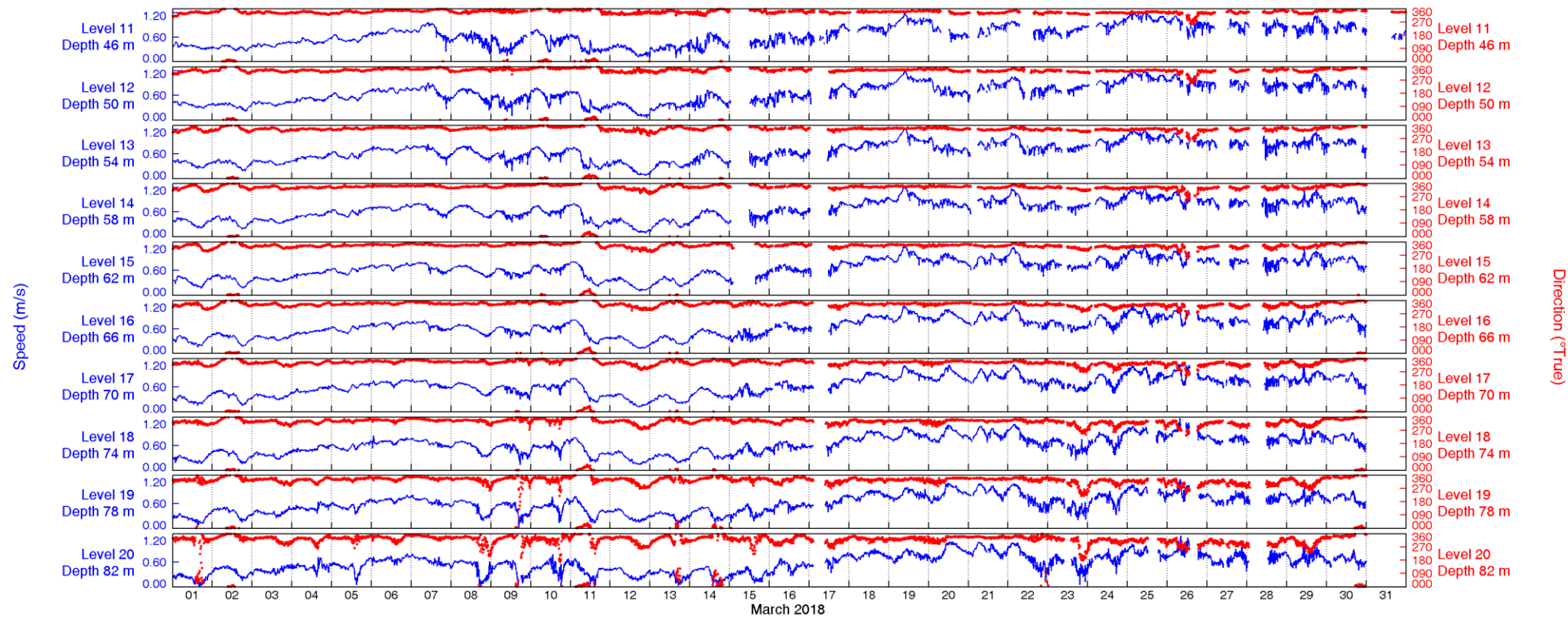
Location: Big Foot Wavescan	Position: 26° 54.042' N, 089° 30.876' W	Datum: MSL
Water depth: 2032 m	Instrument type: Aquadopp	
Notes:		

Figure 3.4.1: Selected Levels, 01-Mar-18 to 31-Mar-18





27-Apr-18 12:21:11



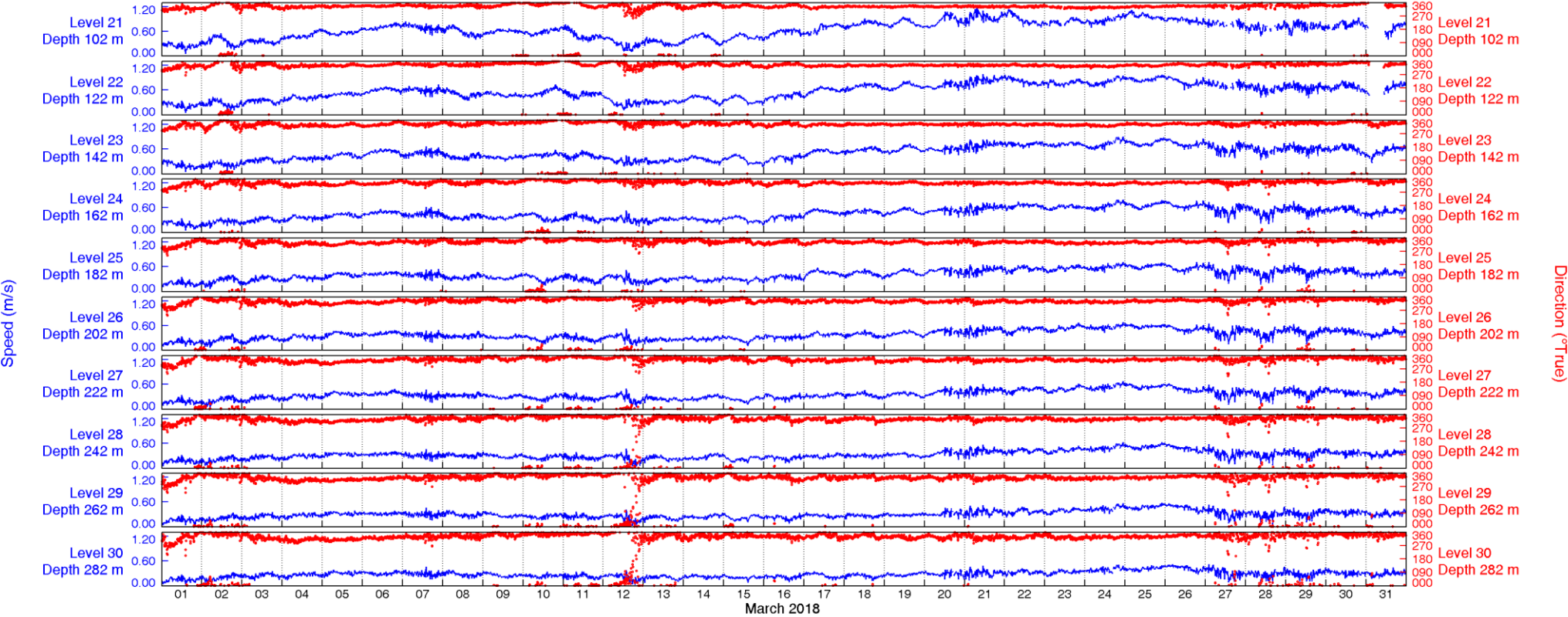
Location: Big Foot Wavescan	Position: 26° 54.042' N, 089° 30.876' W	Datum: MSL
Water depth: 2032 m	Instrument type: Aquadopp	
Notes:		

Figure 3.4.2: Selected Levels, 01-Mar-18 to 31-Mar-18





27-Apr-18 12:21:12



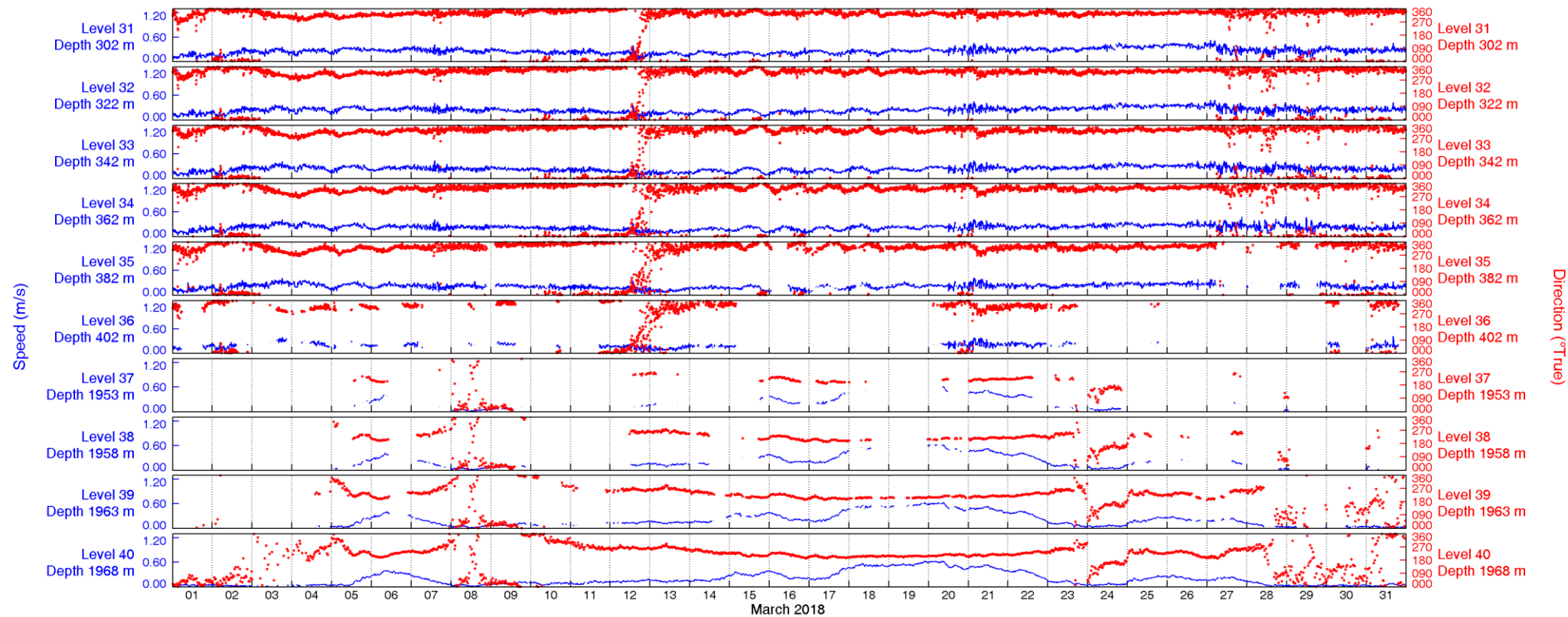
Location: Big Foot Wavescan	Position: 26° 54.042' N, 089° 30.876' W	Datum: MSL
Water depth: 2032 m	Instrument type: 75kHz ADCP	
Notes:		

Figure 3.4.3: Selected Levels, 01-Mar-18 to 31-Mar-18





27-Apr-18 12:21:14



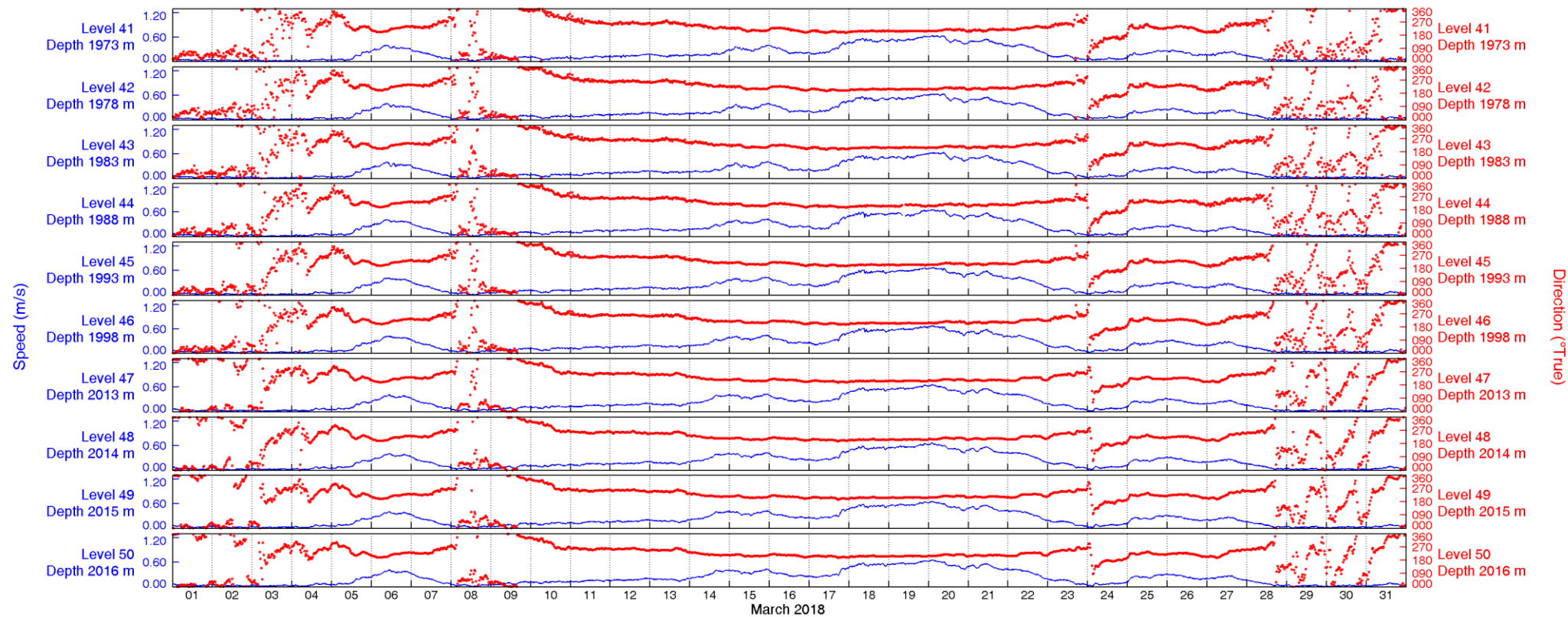
Location: Big Foot Wavescan	Position: 26° 54.042' N, 089° 30.876' W	Datum: MSL
Water depth: 2032 m	Instrument type: 75kHz ADCP, 300kHz ADCP	
Notes:		

Figure 3.4.4: Selected Levels, 01-Mar-18 to 31-Mar-18





27-Apr-18 12:21:15



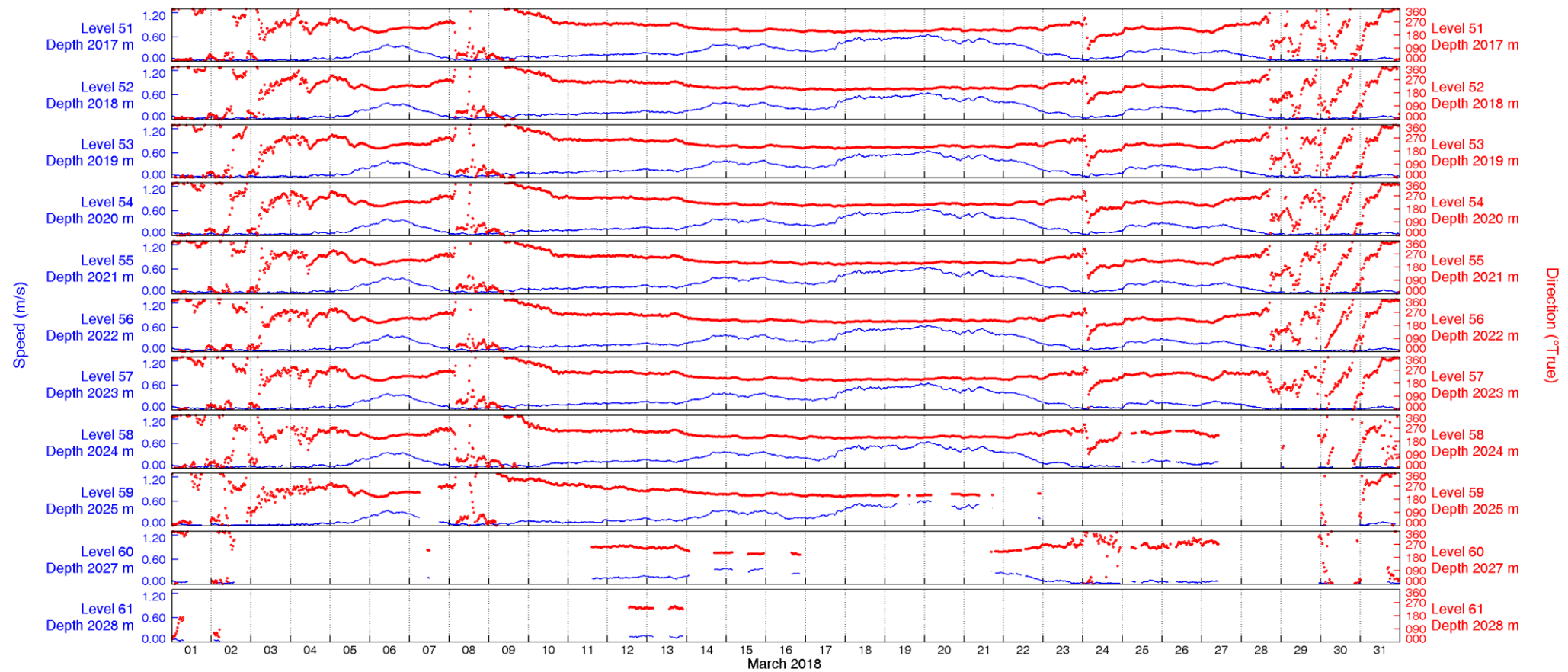
Location: Big Foot Wavescan	Position: 26° 54.042' N, 089° 30.876' W	Datum: MSL
Water depth: 2032 m	Instrument type: 300kHz ADCP, 600kHz ADCP	
Notes:		

Figure 3.4.5: Selected Levels, 01-Mar-18 to 31-Mar-18





27-Apr-18 12:21:16



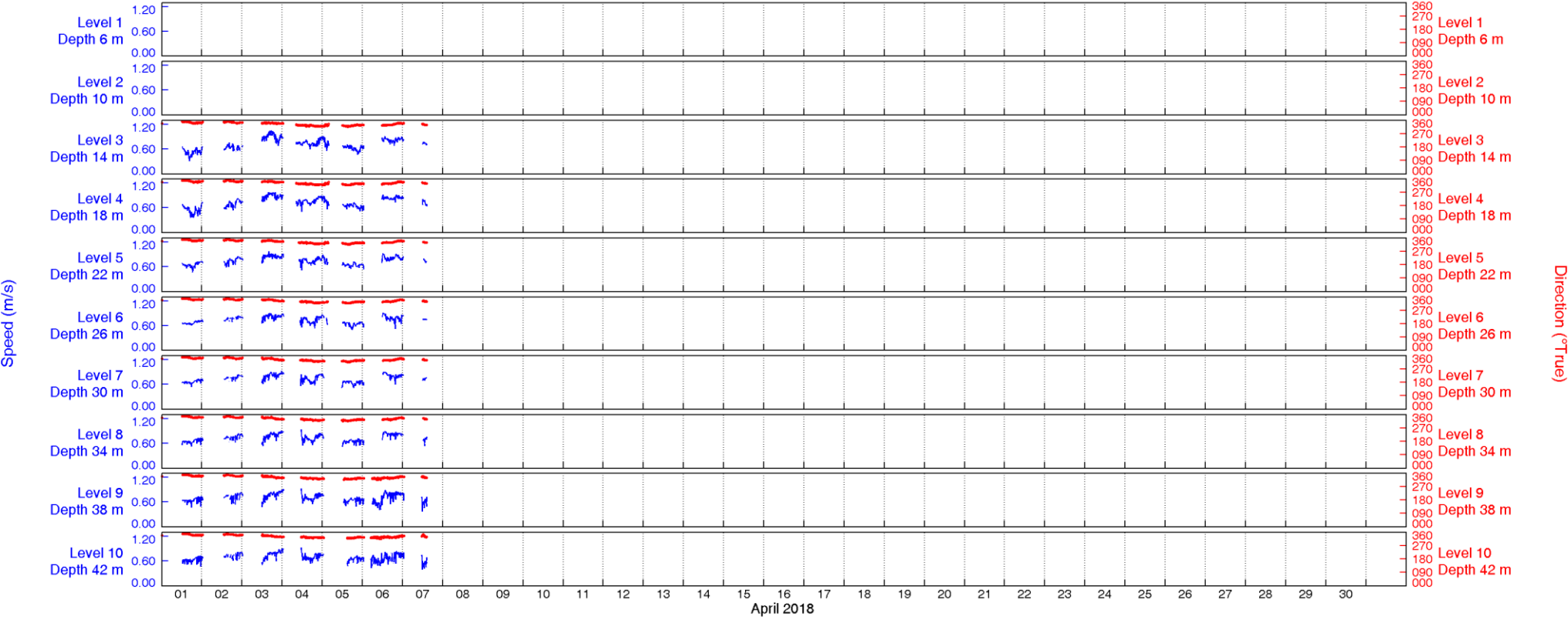
Location: Big Foot Wavescan	Position: 26° 54.042' N, 089° 30.876' W	Datum: MSL
Water depth: 2032 m	Instrument type: 600kHz ADCP	
Notes:		

Figure 3.4.6: Selected Levels, 01-Mar-18 to 31-Mar-18





27-Apr-18 12:21:18



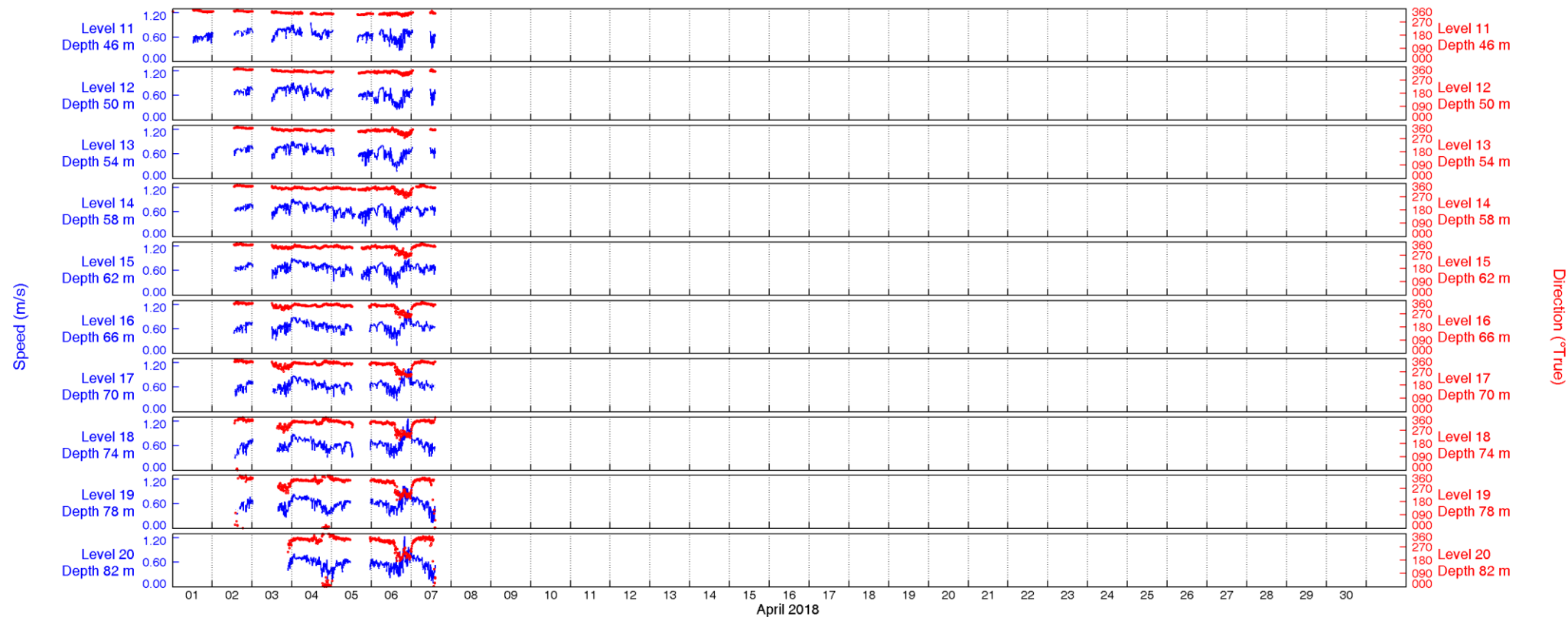
Location: Big Foot Wavescan	Position: 26° 54.042' N, 089° 30.876' W	Datum: MSL
Water depth: 2032 m	Instrument type: Aquadopp	
Notes:		

Figure 3.5.1: Selected Levels, 01-Apr-18 to 07-Apr-18





27-Apr-18 12:21:19



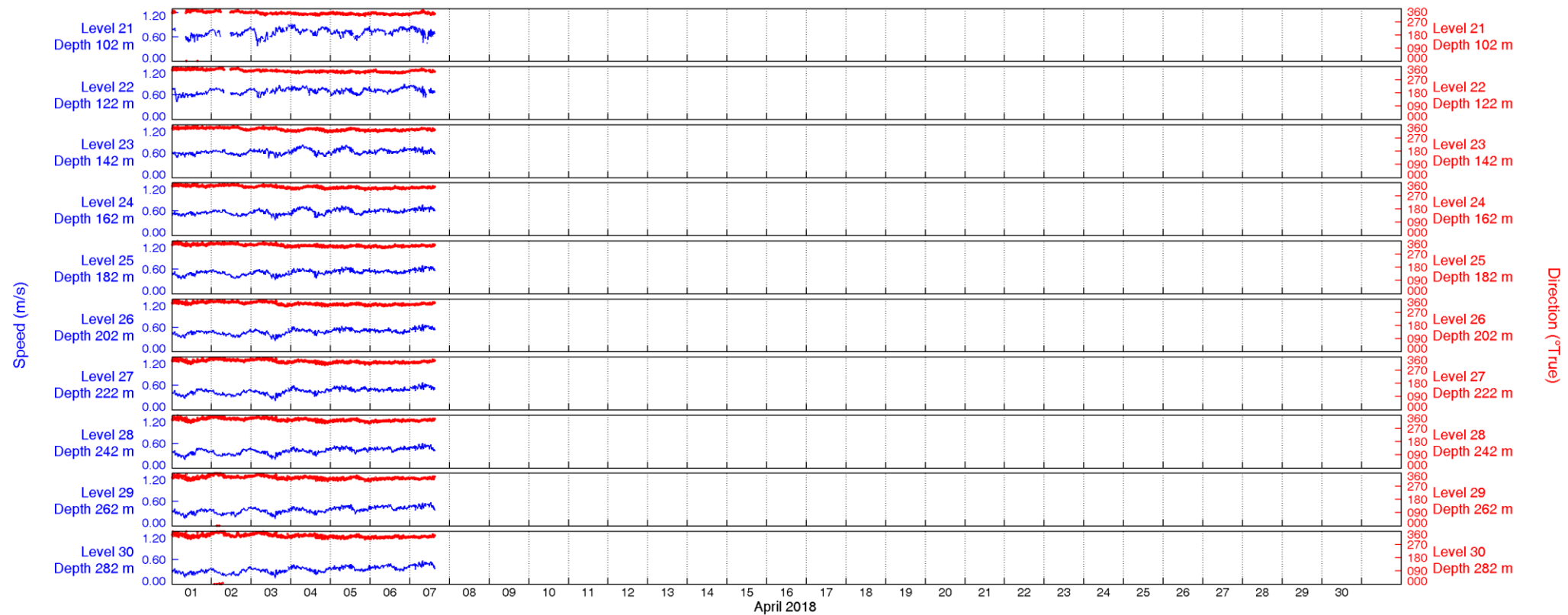
Location: Big Foot Wavescan	Position: 26° 54.042' N, 089° 30.876' W	Datum: MSL
Water depth: 2032 m	Instrument type: Aquadopp	
Notes:		

Figure 3.5.2: Selected Levels, 01-Apr-18 to 07-Apr-18





27-Apr-18 12:21:20



Location: Big Foot Wavescan	Position: 26° 54.042' N, 089° 30.876' W	Datum: MSL
Water depth: 2032 m	Instrument type: 75kHz ADCP	
Notes:		

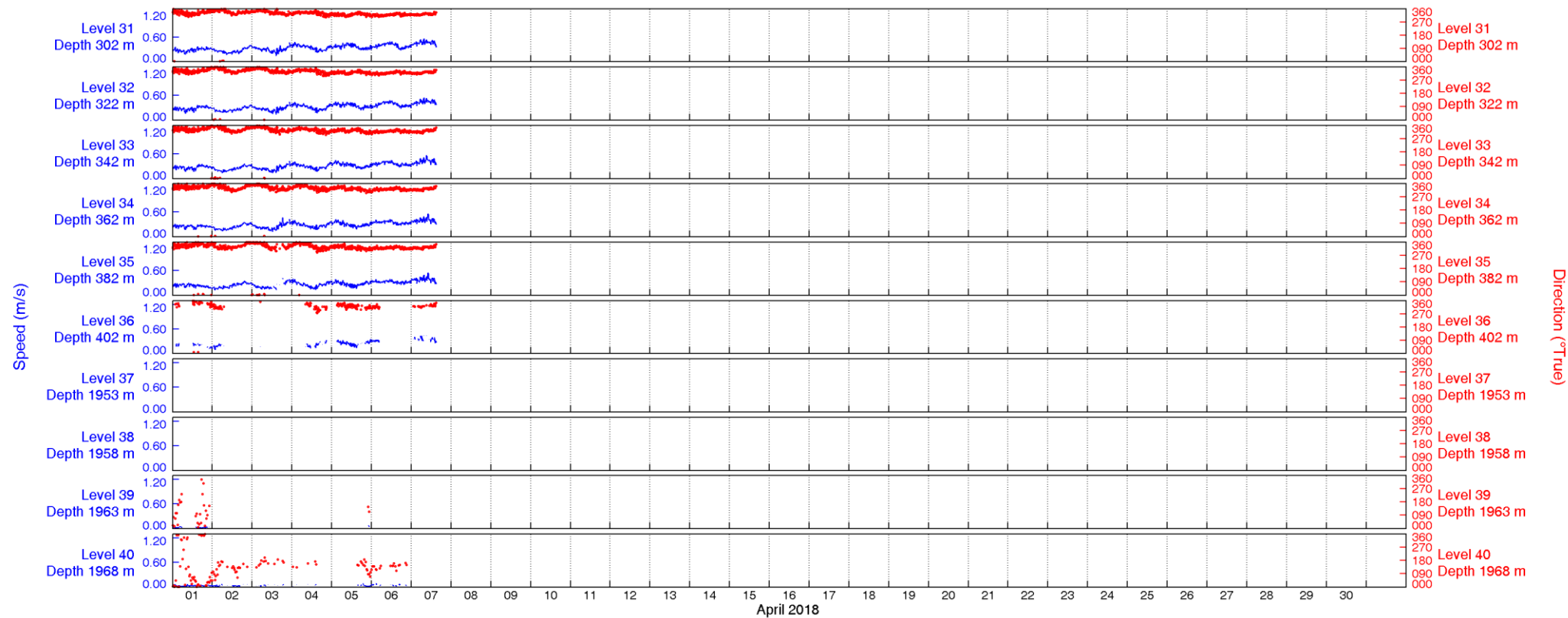
Figure 3.5.3: Selected Levels, 01-Apr-18 to 07-Apr-18



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27-Apr-18 12:21:22



Location: Big Foot Wavescan	Position: 26° 54.042' N, 089° 30.876' W	Datum: MSL
Water depth: 2032 m	Instrument type: 75kHz ADCP, 300kHz ADCP	
Notes:		

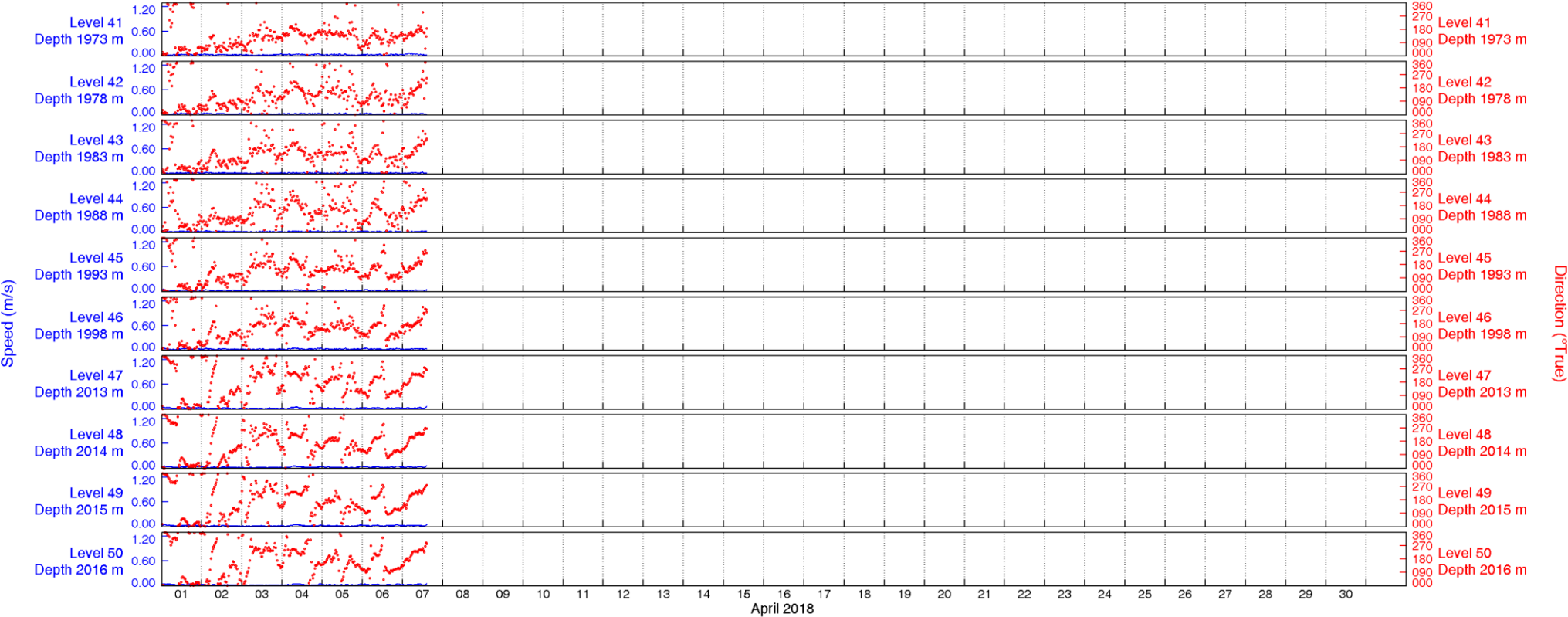
Figure 3.5.4: Selected Levels, 01-Apr-18 to 07-Apr-18



CHEVRON USA  
BIG FOOT METOCEAN MEASUREMENT STUDY DATA REPORT



27-Apr-18 12:21:23



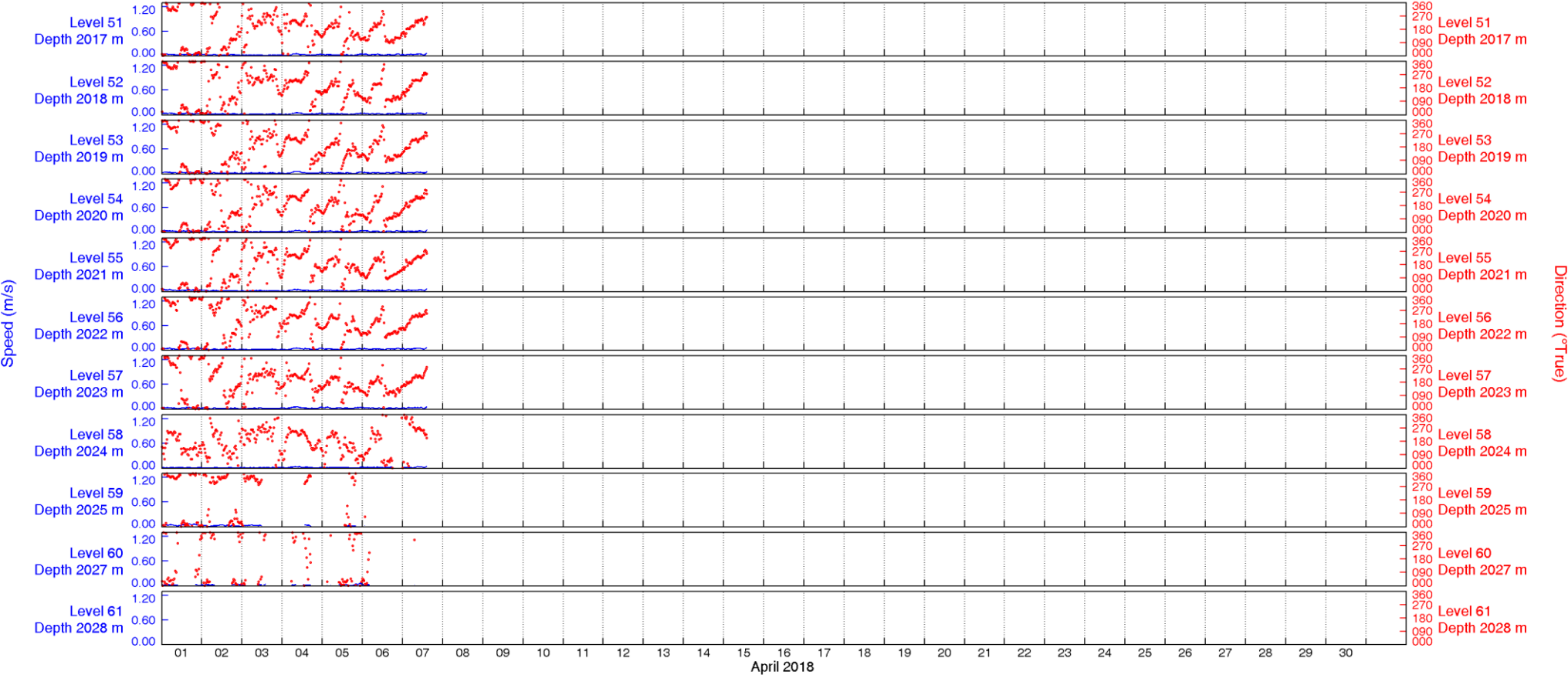
Location: Big Foot Wavescan	Position: 26° 54.042' N, 089° 30.876' W	Datum: MSL
Water depth: 2032 m	Instrument type: 300kHz ADCP, 600kHz ADCP	
Notes:		

Figure 3.5.5: Selected Levels, 01-Apr-18 to 07-Apr-18





27-Apr-18 12:21:24



Location: Big Foot Wavescan	Position: 26° 54.042' N, 089° 30.876' W	Datum: MSL
Water depth: 2032 m	Instrument type: 600kHz ADCP	
Notes:		

Figure 3.5.6: Selected Levels, 01-Apr-18 to 07-Apr-18



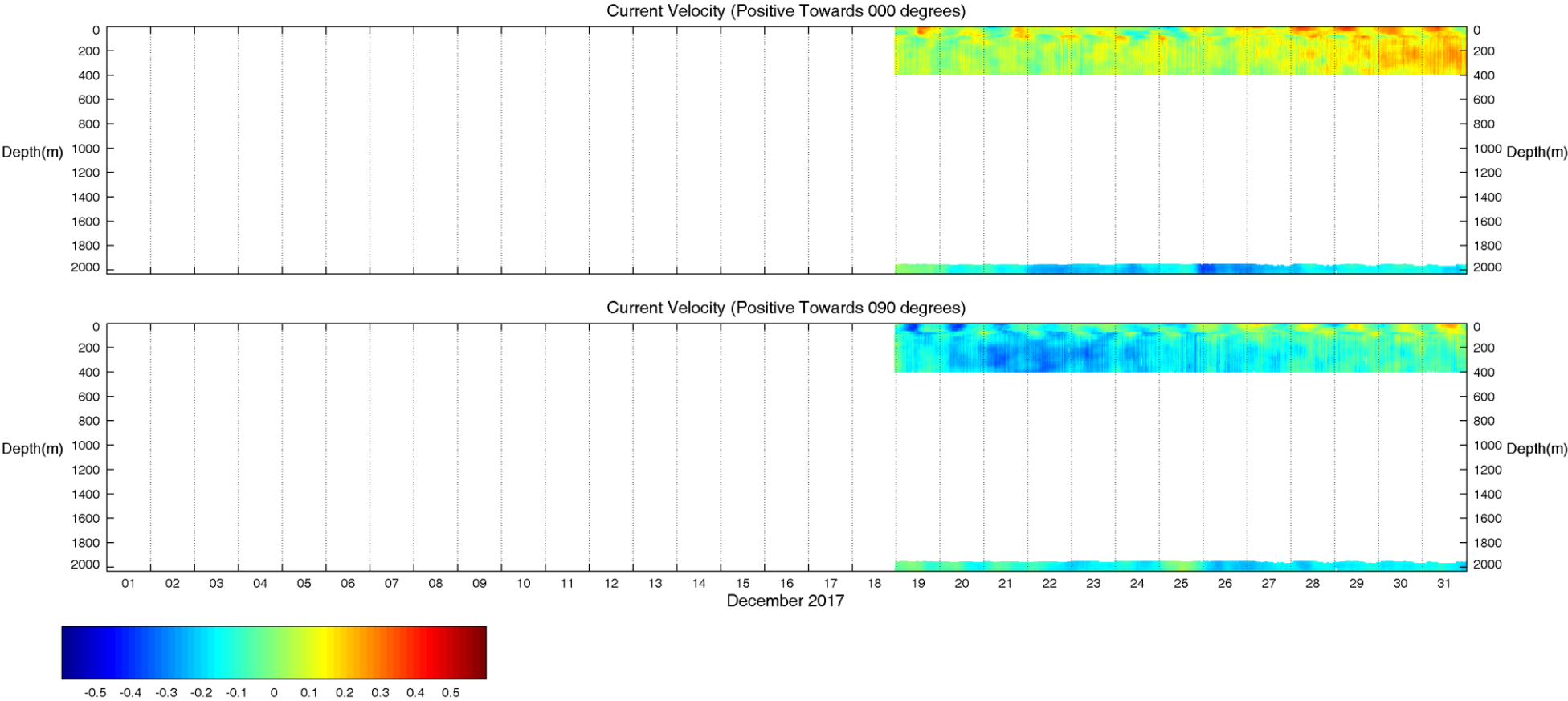


**Colour Flood Plot**





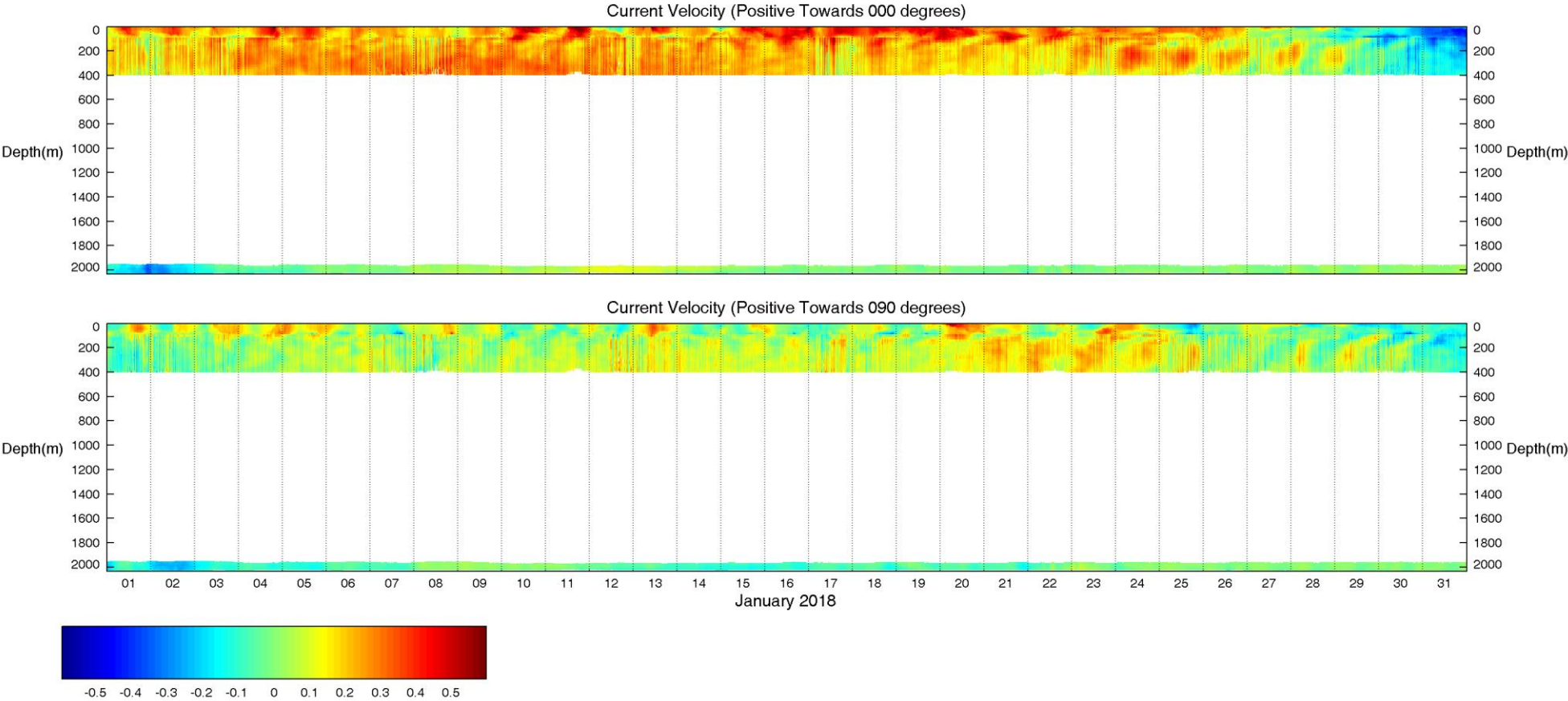
01-May-18 08:53:21



Location: Big Foot Wavescan	Position: 26° 54.042' N, 089° 30.876' W	Datum: MSL
Water depth: 2032 m	Instrument type: Aquadopp, 75kHz ADCP, 300kHz ADCP, 600kHz ADCP	
Notes:		

Figure 4.1: 18-Dec-17 to 31-Dec-17





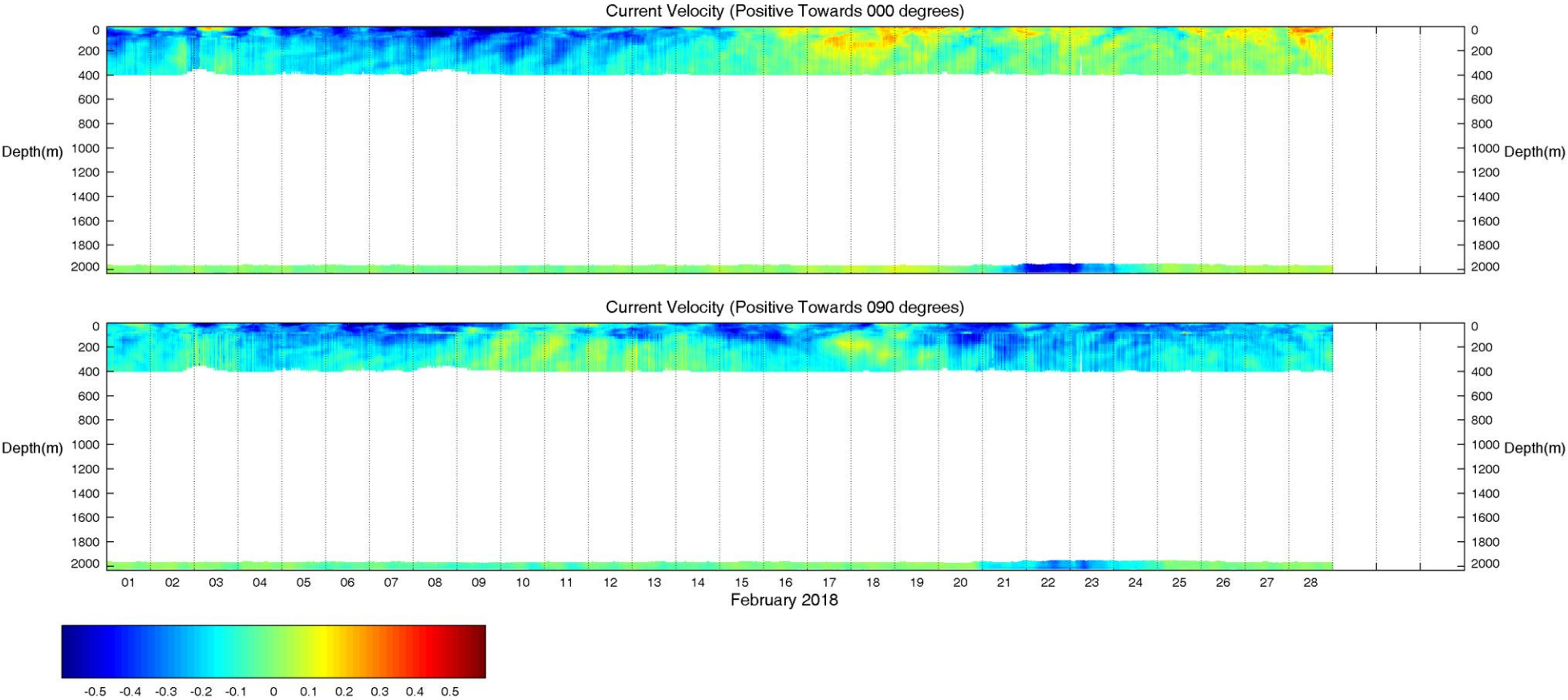
Location: Big Foot Wavescan	Position: 26° 54.042' N, 089° 30.876' W	Datum: MSL
Water depth: 2032 m	Instrument type: Aquadopp, 75kHz ADCP, 300kHz ADCP, 600kHz ADCP	
Notes:		

Figure 4.2: 01-Jan-18 to 31-Jan-18





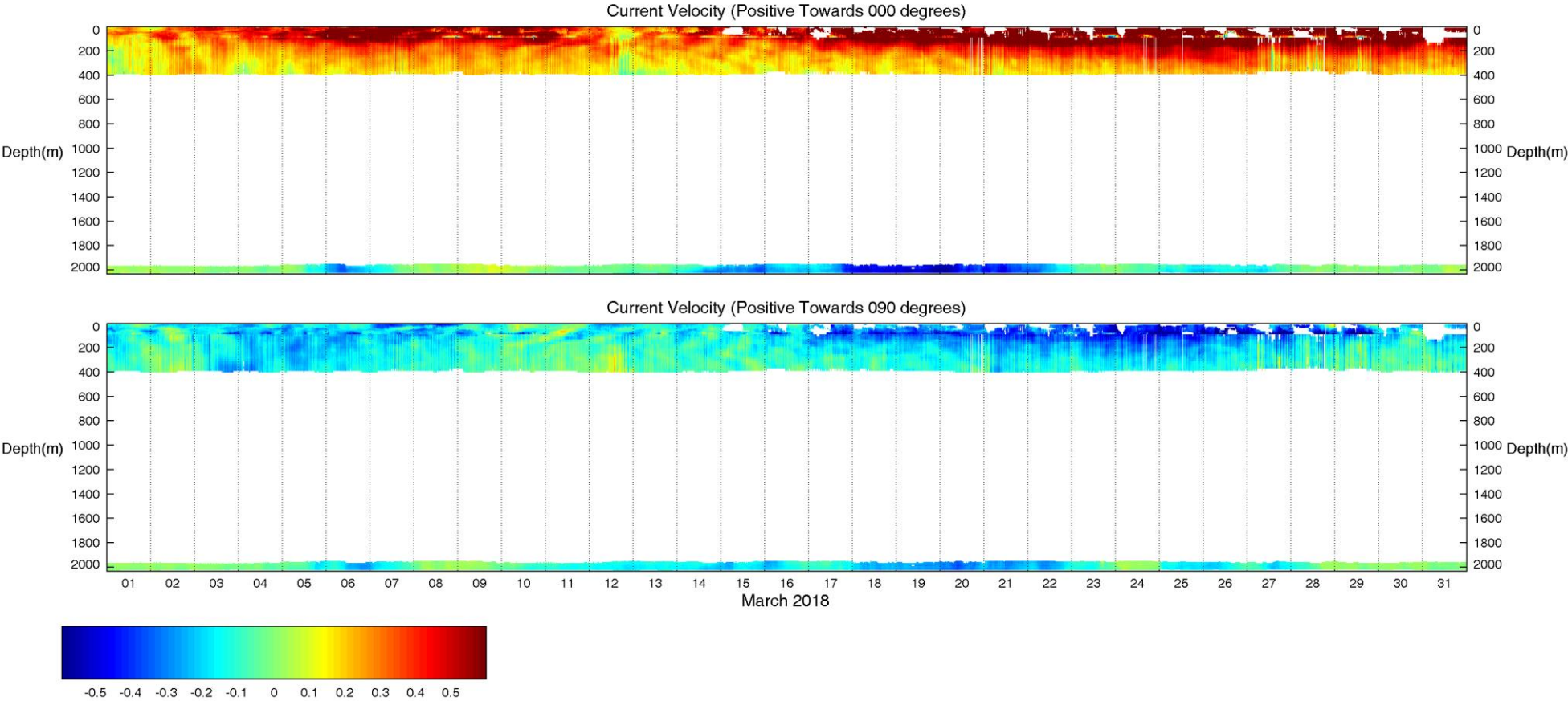
01-May-18 08:53:23



Location: Big Foot Wavescan	Position: 26° 54.042' N, 089° 30.876' W	Datum: MSL
Water depth: 2032 m	Instrument type: Aquadopp, 75kHz ADCP, 300kHz ADCP, 600kHz ADCP	
Notes:		

Figure 4.3: 01-Feb-18 to 28-Feb-18





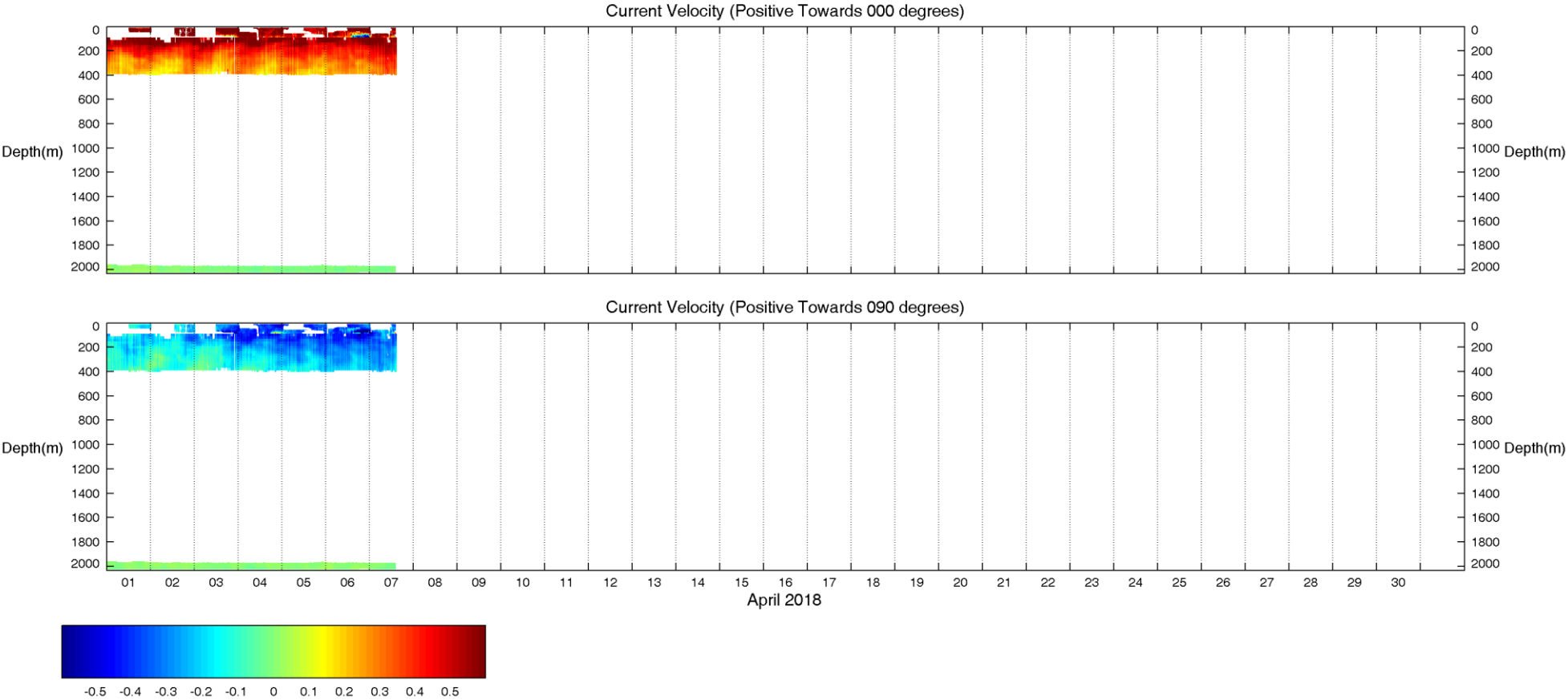
Location: Big Foot Wavescan	Position: 26° 54.042' N, 089° 30.876' W	Datum: MSL
Water depth: 2032 m	Instrument type: Aquadopp, 75kHz ADCP, 300kHz ADCP, 600kHz ADCP	
Notes:		

Figure 4.4: 01-Mar-18 to 31-Mar-18





01-May-18 08:53:25



Location: Big Foot Wavescan	Position: 26° 54.042' N, 089° 30.876' W	Datum: MSL
Water depth: 2032 m	Instrument type: Aquadopp, 75kHz ADCP, 300kHz ADCP, 600kHz ADCP	
Notes:		

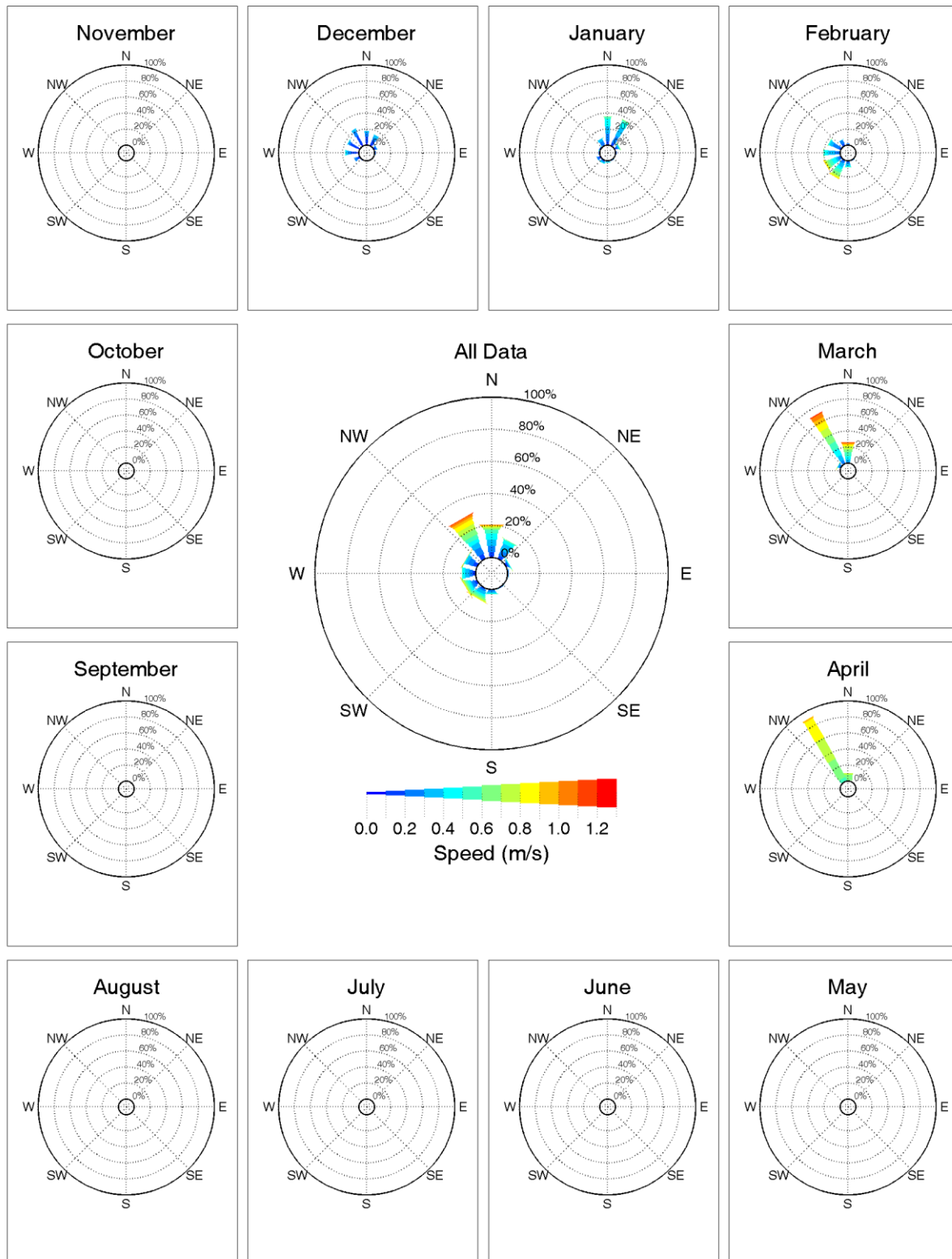
Figure 4.5: 01-Apr-18 to 07-Apr-18





**Current Rose of Current Speed and Direction**

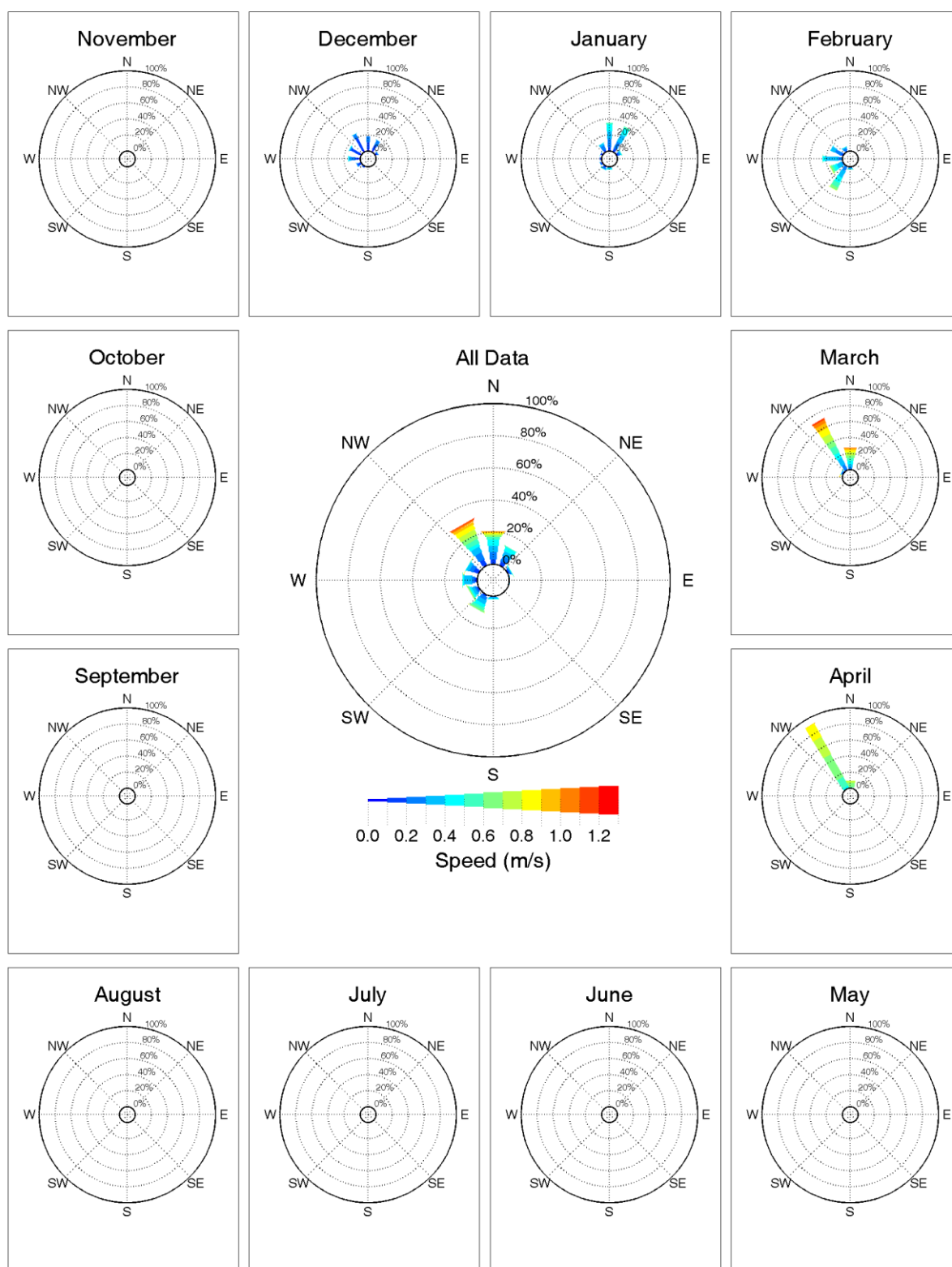




<b>Location:</b> Big Foot Wavescan	<b>Valid records:</b> 14412
<b>Position:</b> 26° 54.042' N, 089° 30.876' W	<b>Missing records:</b> 1381
<b>Instrument type:</b> Aquadopp	<b>Calms/below threshold:</b> 2
<b>Analysis period:</b> 18-Dec-2017 22:50:00 to 07-Apr-2018 14:50:00	<b>Water depth:</b> 2032 m
<b>Notes:</b>	

Figure 5.1: Level 5 (22 m below MSL, 2010 m above Seabed)



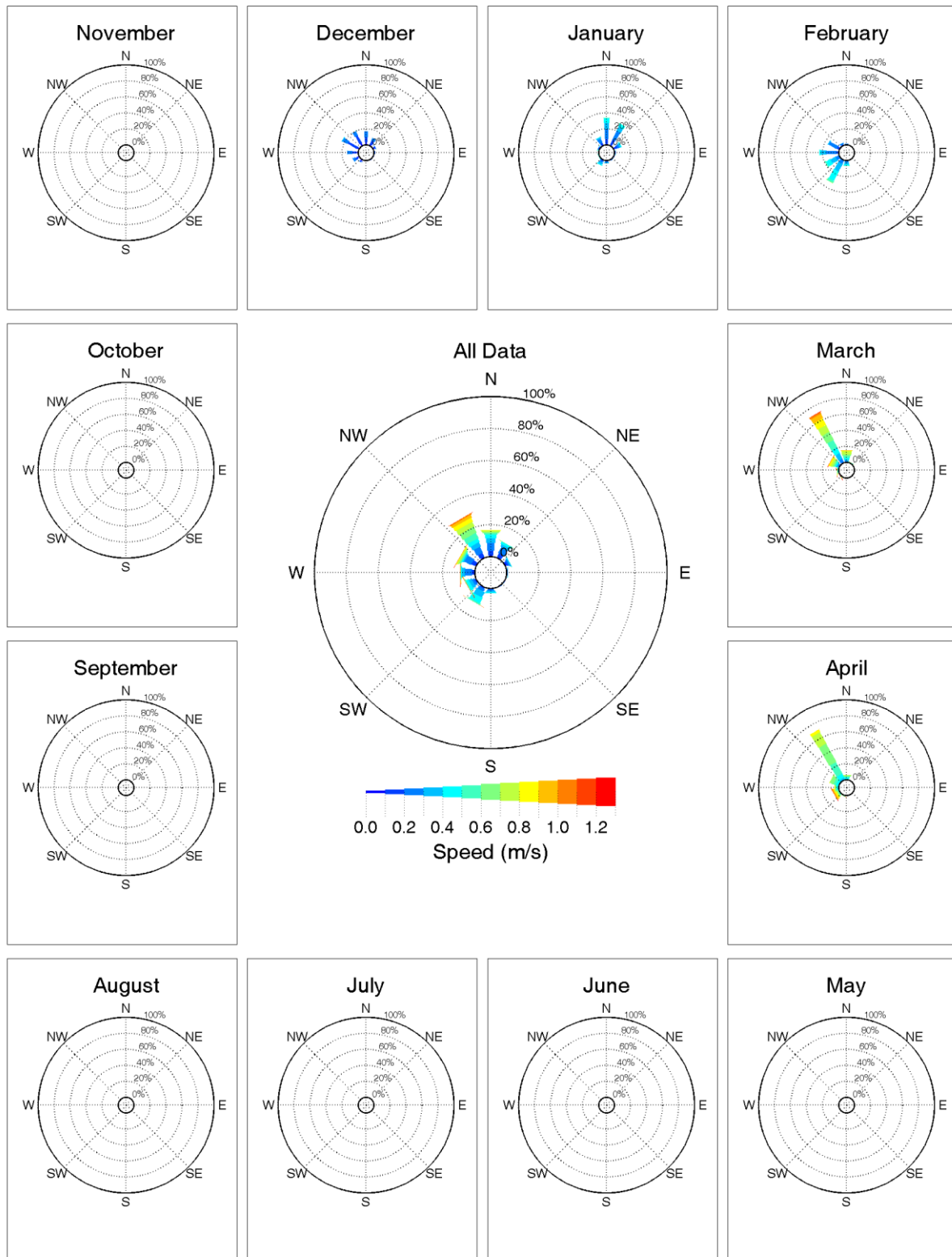


01-May-18 08:53:30

<b>Location:</b> Big Foot Wavescan	<b>Valid records:</b> 14641
<b>Position:</b> 26° 54.042' N, 089° 30.876' W	<b>Missing records:</b> 1152
<b>Instrument type:</b> Aquadopp	<b>Calms/below threshold:</b> 1
<b>Analysis period:</b> 18-Dec-2017 22:50:00 to 07-Apr-2018 14:50:00	<b>Water depth:</b> 2032 m
<b>Notes:</b>	

Figure 5.2: Level 9 (38 m below MSL, 1994 m above Seabed)



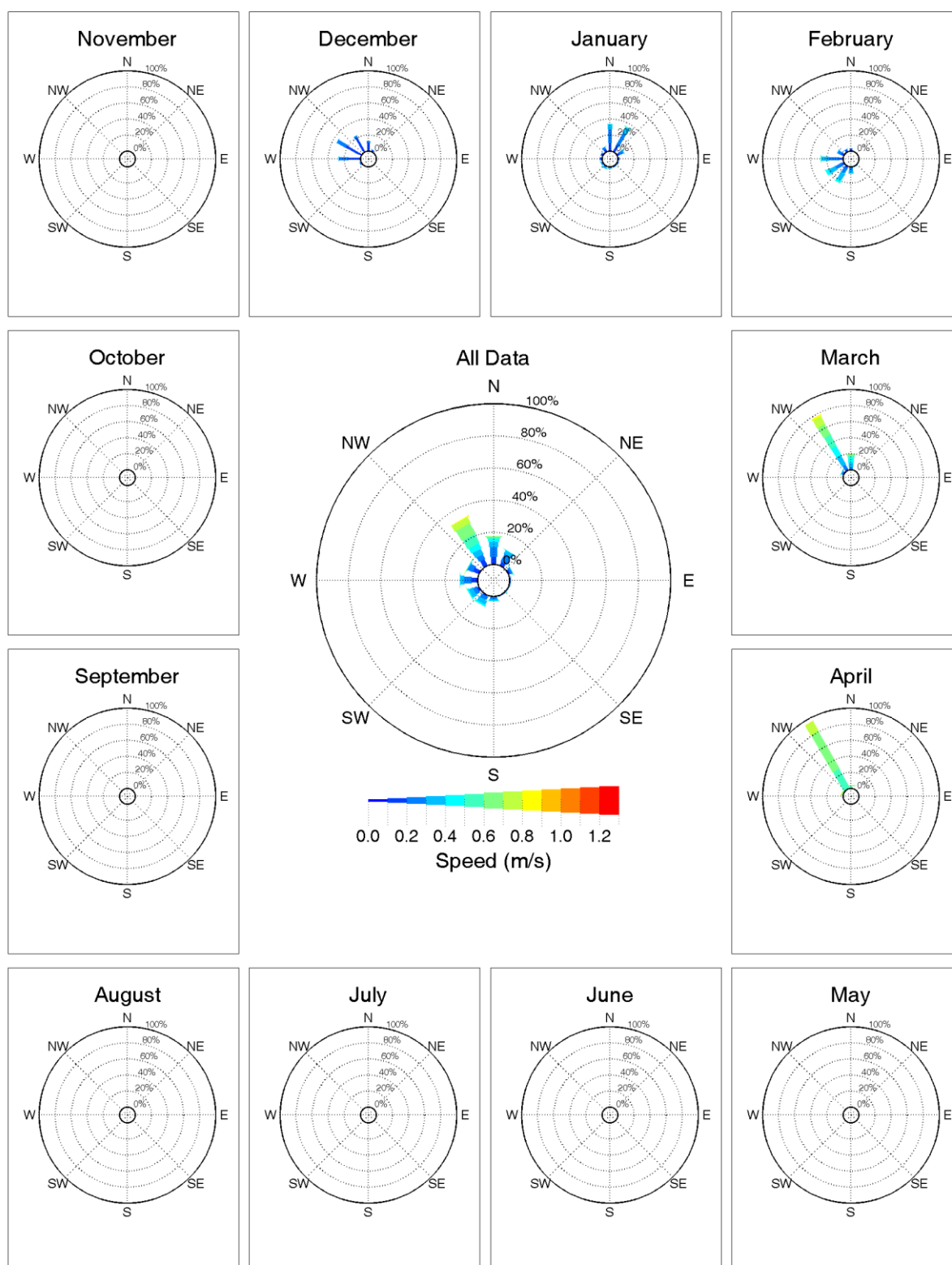


01-May-18 08:53:32

<b>Location:</b> Big Foot Wavescan	<b>Valid records:</b> 14986
<b>Position:</b> 26° 54.042' N, 089° 30.876' W	<b>Missing records:</b> 807
<b>Instrument type:</b> Aquadopp	<b>Calms/below threshold:</b> 2
<b>Analysis period:</b> 18-Dec-2017 22:50:00 to 07-Apr-2018 14:50:00	<b>Water depth:</b> 2032 m
<b>Notes:</b>	

Figure 5.3: Level 18 (74 m below MSL, 1958 m above Seabed)



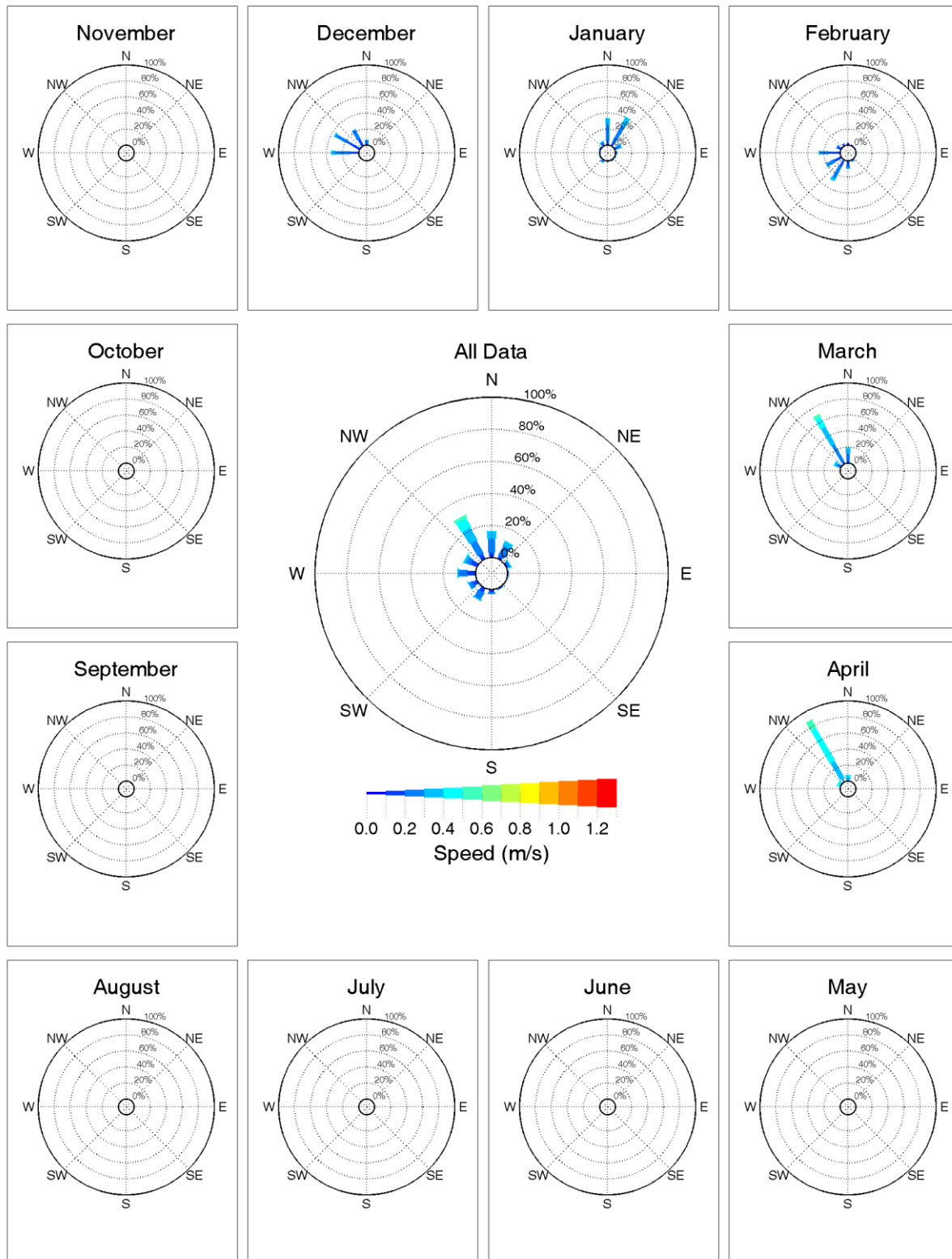


01-May-18 08:53:34

<b>Location:</b> Big Foot Wavescan	<b>Valid records:</b> 15736
<b>Position:</b> 26° 54.042' N, 089° 30.876' W	<b>Missing records:</b> 57
<b>Instrument type:</b> 75kHz ADCP	<b>Calms/below threshold:</b> 0
<b>Analysis period:</b> 18-Dec-2017 22:50:00 to 07-Apr-2018 14:50:00	<b>Water depth:</b> 2032 m
<b>Notes:</b>	

Figure 5.4: Level 23 (142 m below MSL, 1890 m above Seabed)



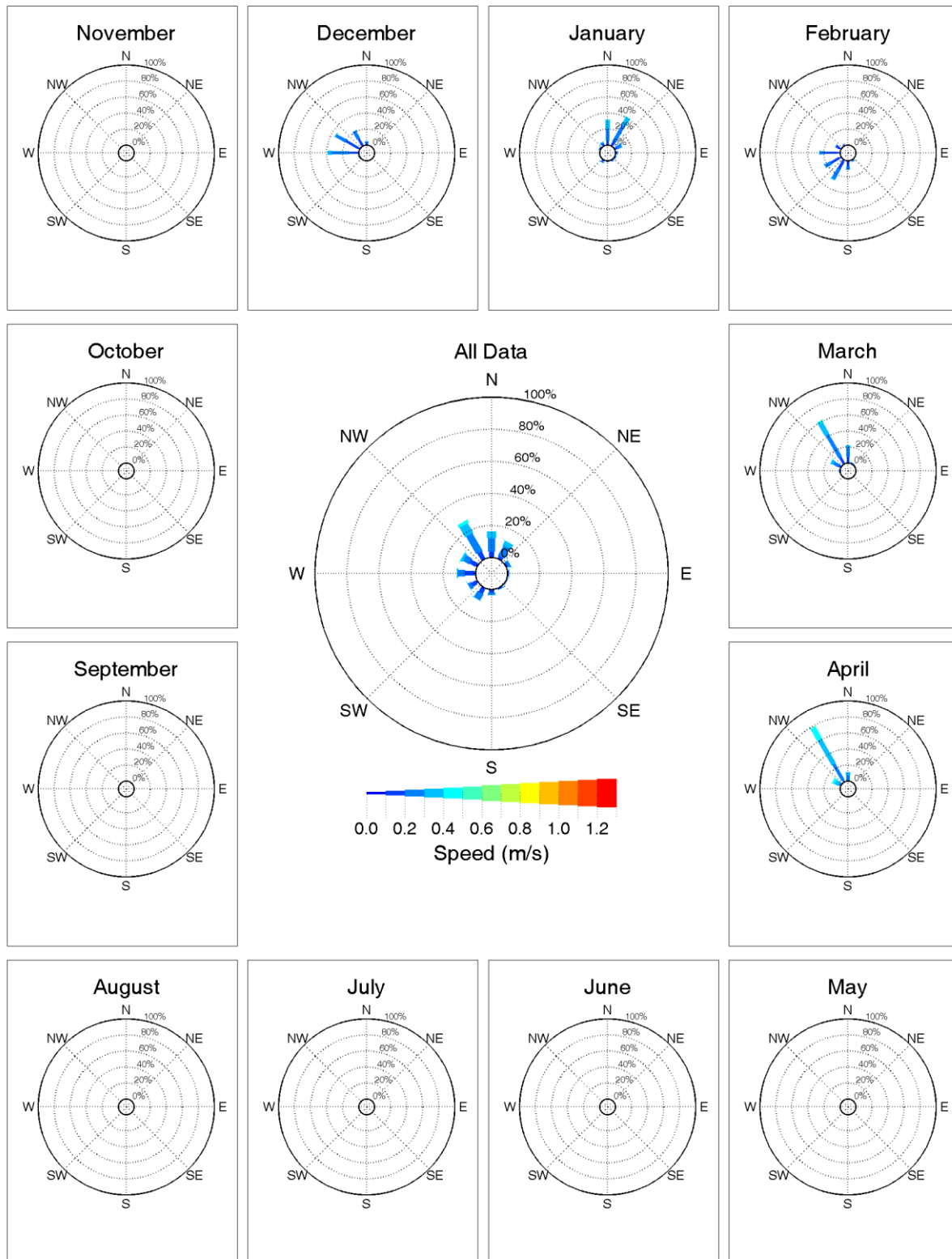


01-May-18 08:53:36

<b>Location:</b> Big Foot Wavescan	<b>Valid records:</b> 15765
<b>Position:</b> 26° 54.042' N, 089° 30.876' W	<b>Missing records:</b> 28
<b>Instrument type:</b> 75kHz ADCP	<b>Calms/below threshold:</b> 0
<b>Analysis period:</b> 18-Dec-2017 22:50:00 to 07-Apr-2018 14:50:00	<b>Water depth:</b> 2032 m
<b>Notes:</b>	

Figure 5.5: Level 28 (242 m below MSL, 1790 m above Seabed)

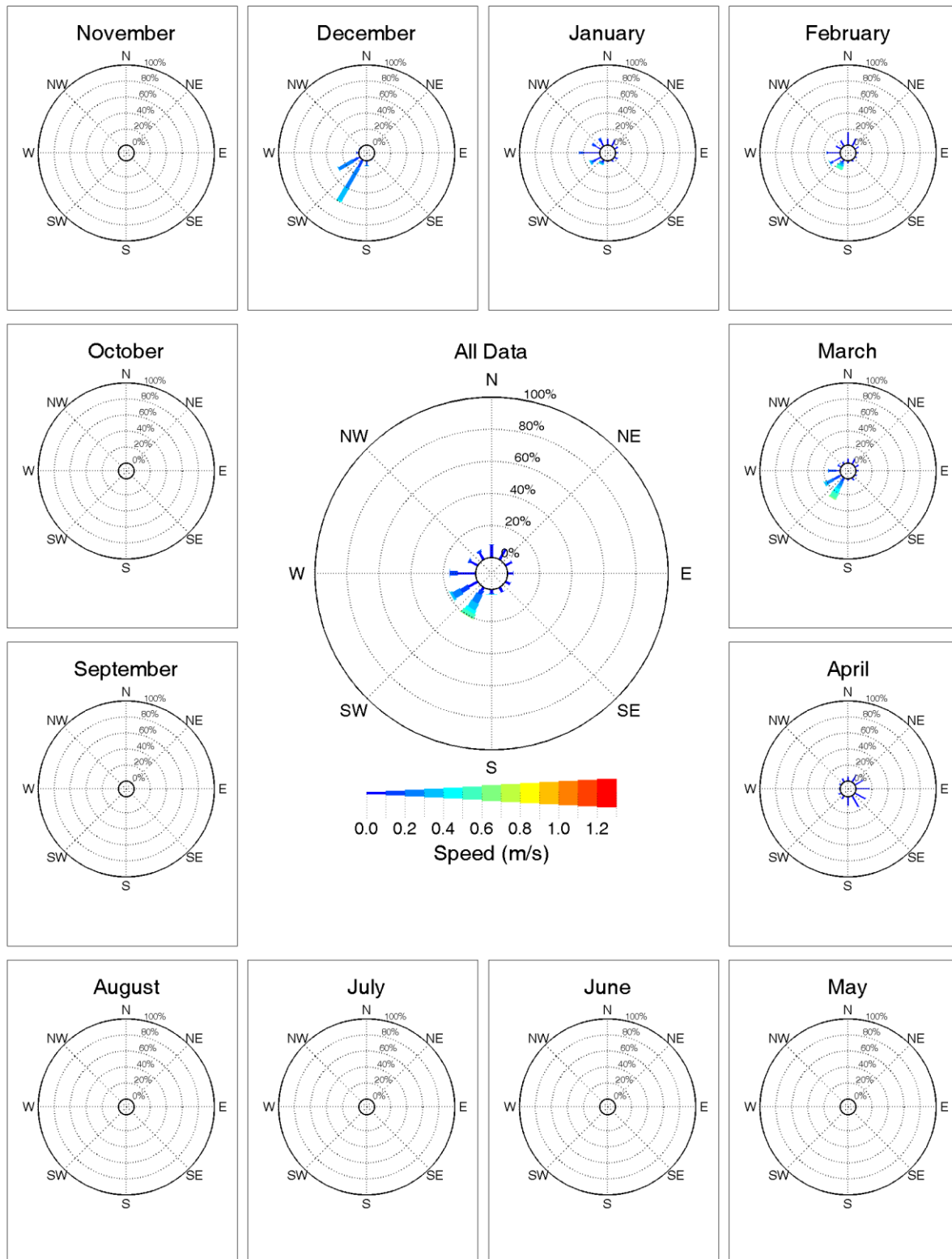




<b>Location:</b> Big Foot Wavescan	<b>Valid records:</b> 15753
<b>Position:</b> 26° 54.042' N, 089° 30.876' W	<b>Missing records:</b> 40
<b>Instrument type:</b> 75kHz ADCP	<b>Calms/below threshold:</b> 0
<b>Analysis period:</b> 18-Dec-2017 22:50:00 to 07-Apr-2018 14:50:00	<b>Water depth:</b> 2032 m
<b>Notes:</b>	

Figure 5.6: Level 31 (302 m below MSL, 1730 m above Seabed)

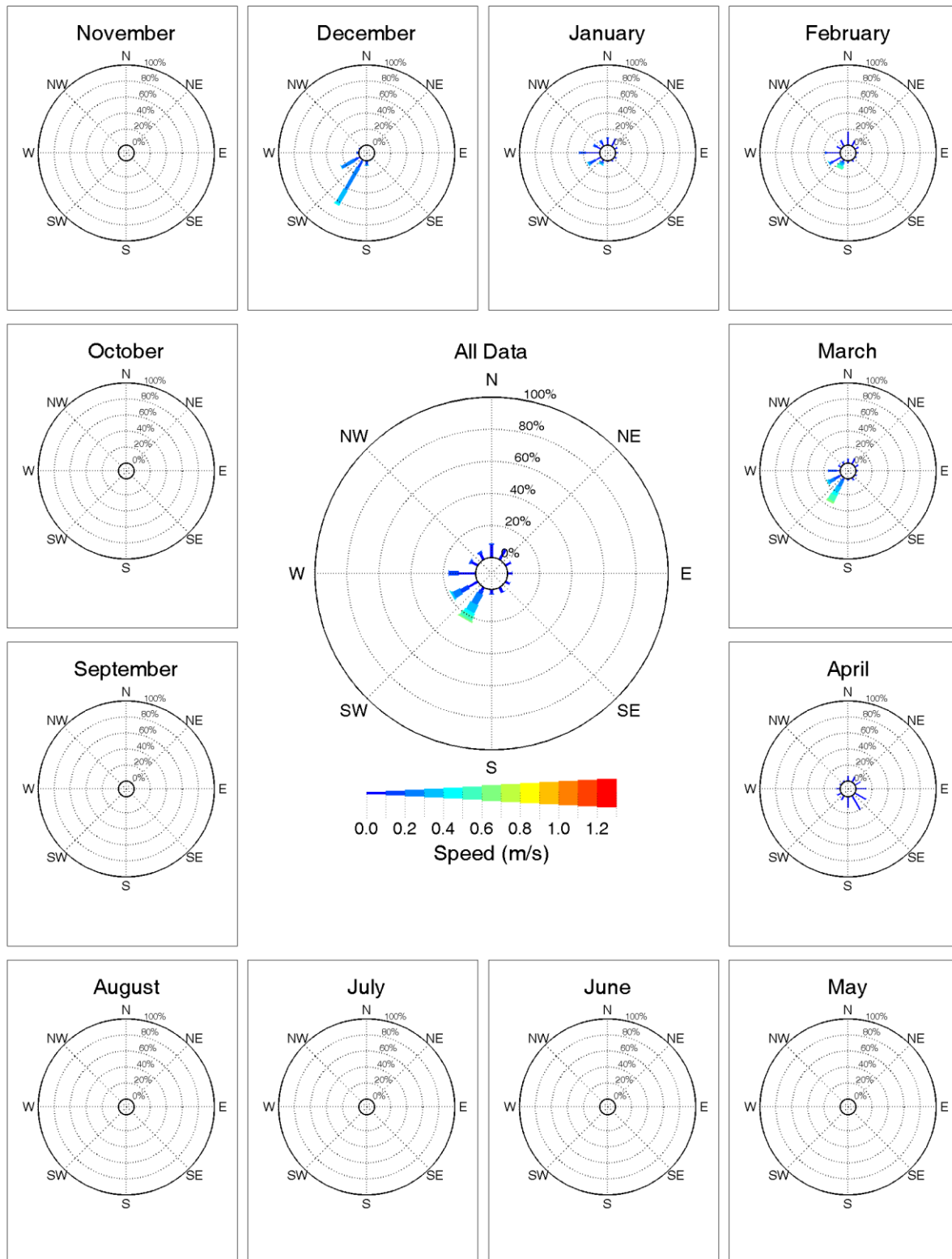




<b>Location:</b> Big Foot Wavescan	<b>Valid records:</b> 5263
<b>Position:</b> 26° 54.042' N, 089° 30.876' W	<b>Missing records:</b> 1
<b>Instrument type:</b> 300kHz ADCP	<b>Calms/below threshold:</b> 0
<b>Analysis period:</b> 18-Dec-2017 22:50:00 to 07-Apr-2018 14:50:00	<b>Water depth:</b> 2032 m
<b>Notes:</b>	

Figure 5.7: Level 43 (1983 m below MSL, 49 m above Seabed)

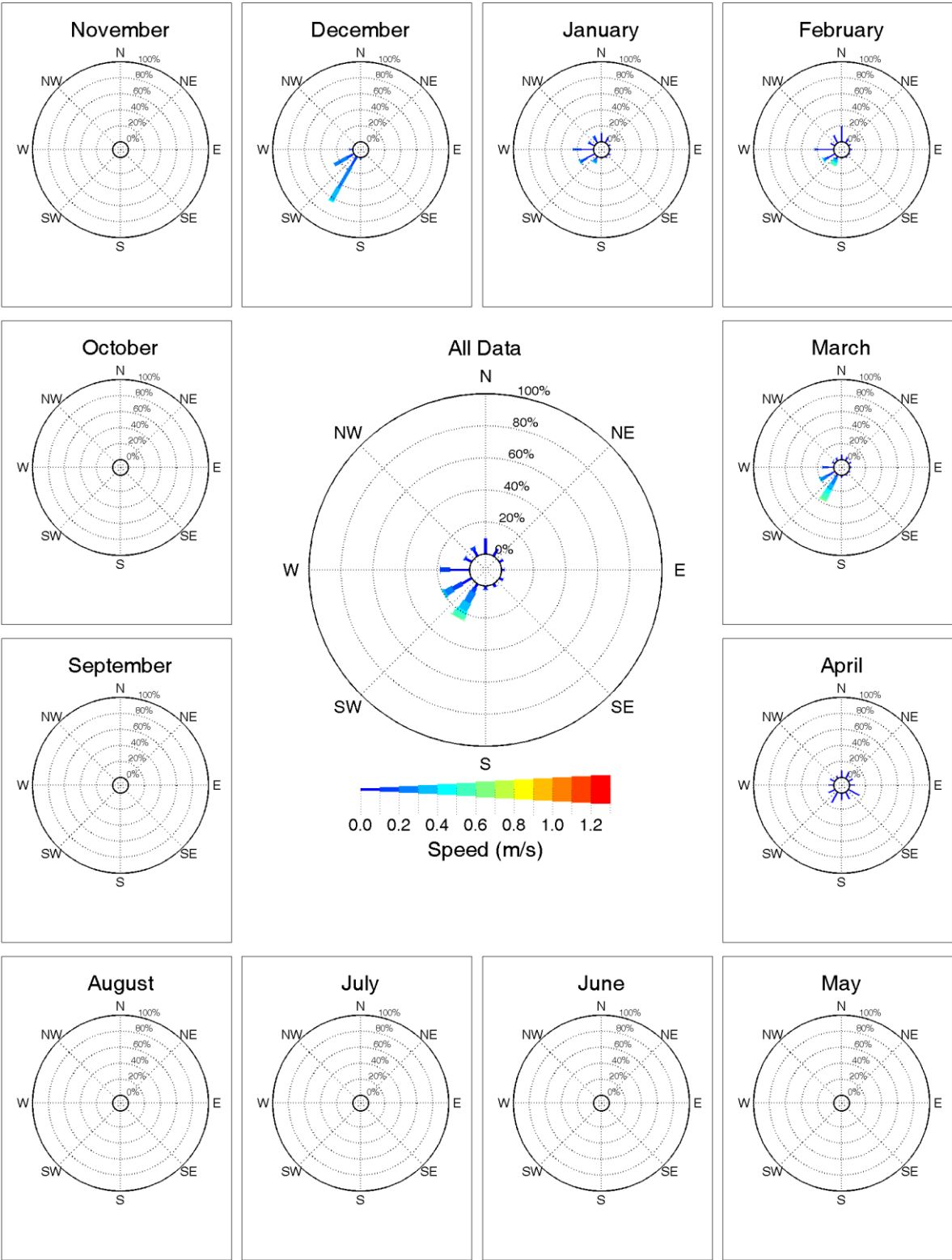




<b>Location:</b> Big Foot Wavescan	<b>Valid records:</b> 5262
<b>Position:</b> 26° 54.042' N, 089° 30.876' W	<b>Missing records:</b> 2
<b>Instrument type:</b> 300kHz ADCP	<b>Calms/below threshold:</b> 0
<b>Analysis period:</b> 18-Dec-2017 22:50:00 to 07-Apr-2018 14:50:00	<b>Water depth:</b> 2032 m
<b>Notes:</b>	

Figure 5.8: Level 45 (1993 m below MSL, 39 m above Seabed)

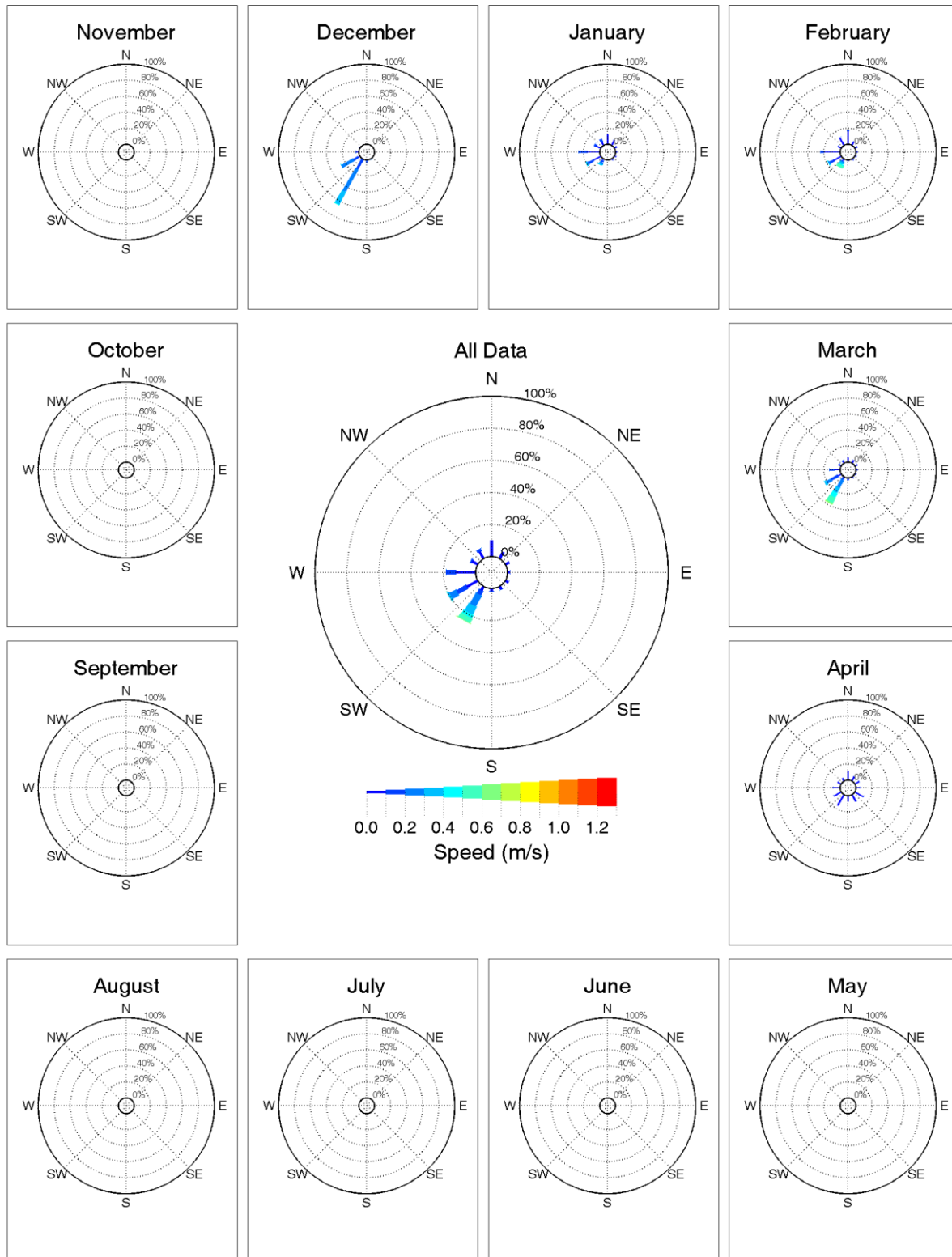




01-May-18 08:53:45	
Location: Big Foot Wavescan	Valid records: 5262
Position: 26° 54.042' N, 089° 30.876' W	Missing records: 2
Instrument type: 600kHz ADCP	Calms/below threshold: 0
Analysis period: 18-Dec-2017 22:50:00 to 07-Apr-2018 14:50:00	Water depth: 2032 m
Notes:	

Figure 5.9: Level 48 (2014 m below MSL, 18 m above Seabed)





<b>Location:</b> Big Foot Wavescan	<b>Valid records:</b> 5262
<b>Position:</b> 26° 54.042' N, 089° 30.876' W	<b>Missing records:</b> 2
<b>Instrument type:</b> 600kHz ADCP	<b>Calms/below threshold:</b> 0
<b>Analysis period:</b> 18-Dec-2017 22:50:00 to 07-Apr-2018 14:50:00	<b>Water depth:</b> 2032 m
<b>Notes:</b>	

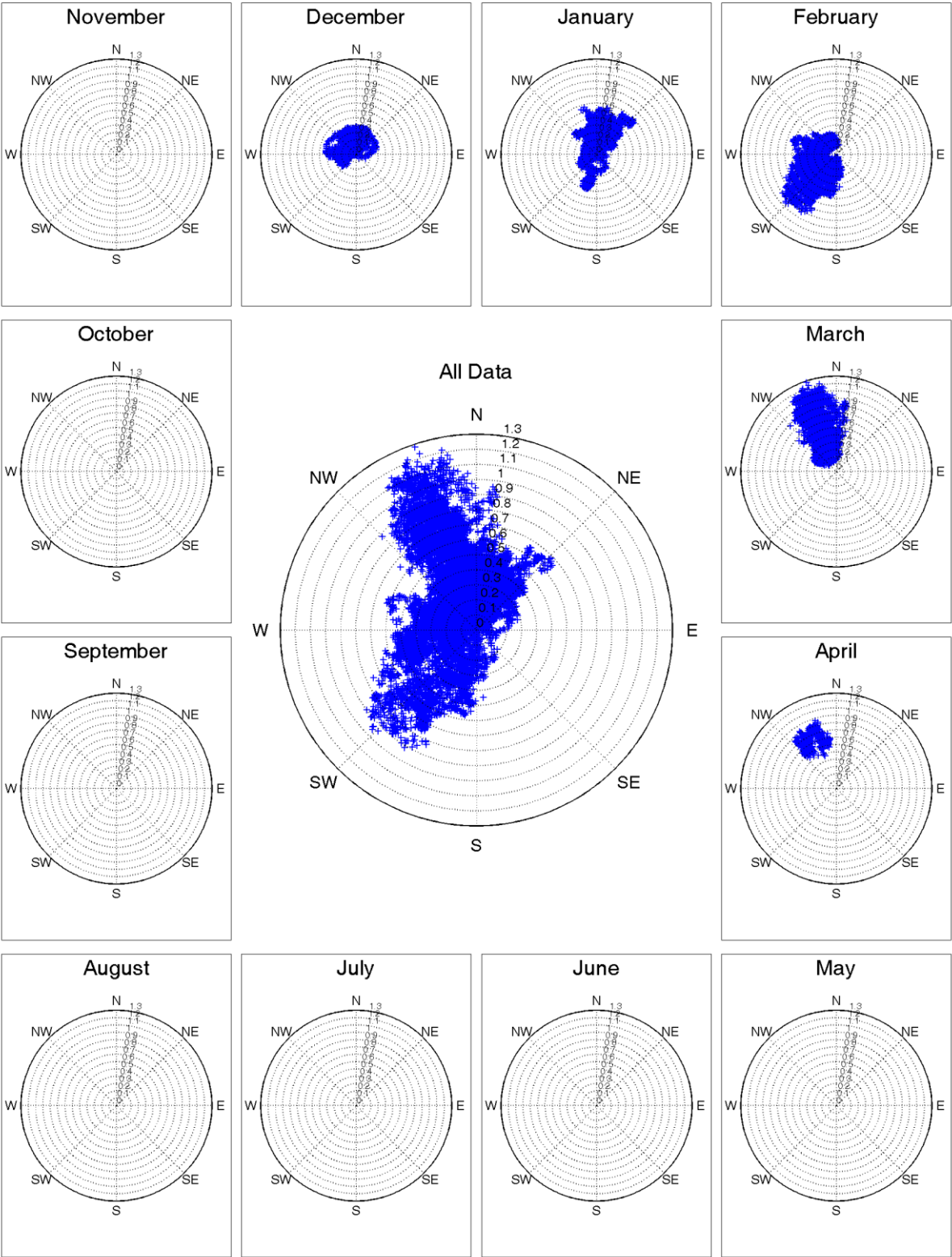
Figure 5.10: Level 51 (2017 m below MSL, 15 m above Seabed)





**Polar Scatter Plot**

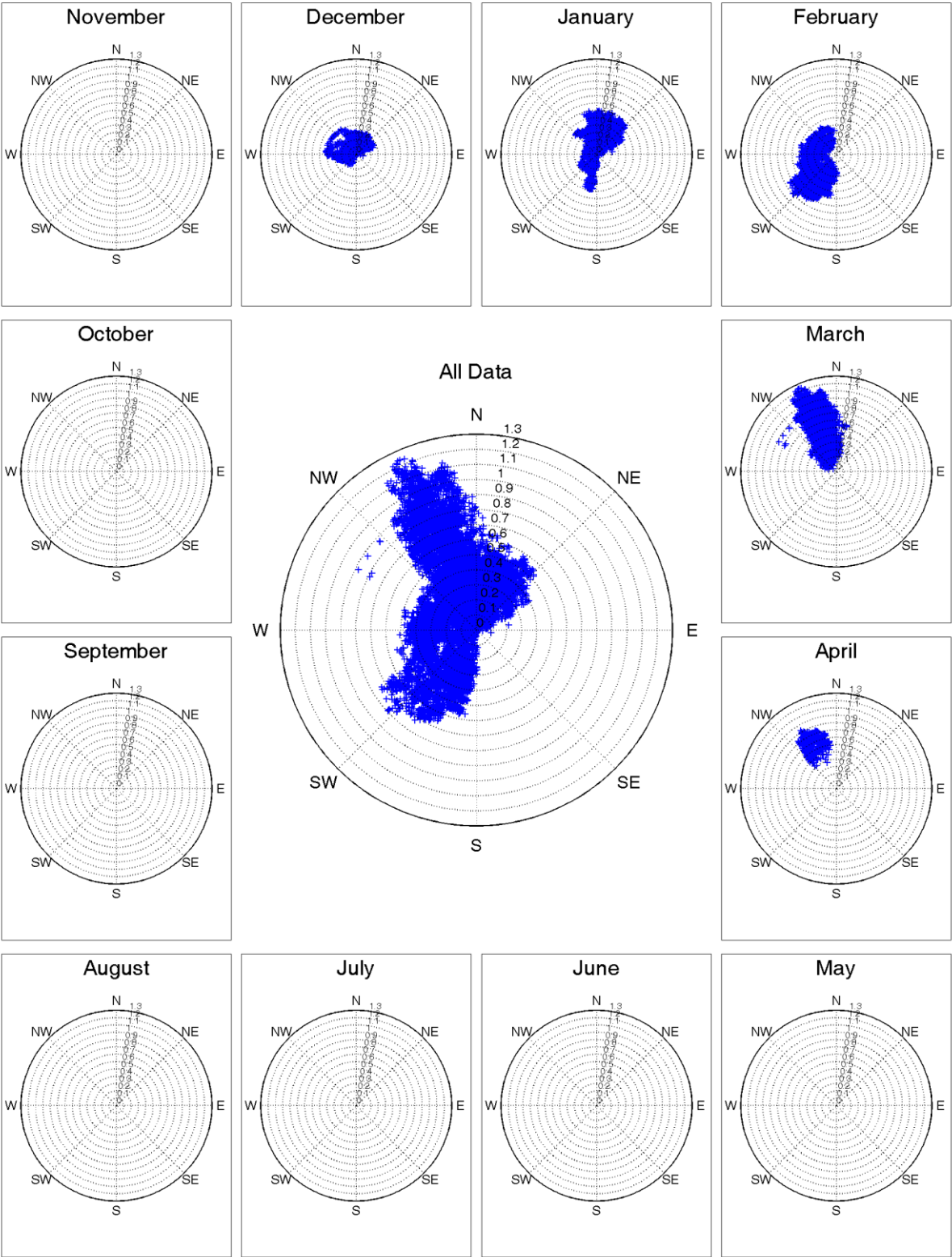




02-May-18 09:21:38	
Location: Big Foot Wavescan	Valid records: 14412
Position: 26° 54.042' N, 089° 30.876' W	Missing records: 1381
Instrument type: Aquadopp	Calms/below threshold: 2
Analysis period: 18-Dec-2017 22:50:00 to 07-Apr-2018 14:50:00	Water depth: 2032 m
Notes:	

Figure 6.1: Level 5 (22 m below MSL, 2010 m above Seabed)

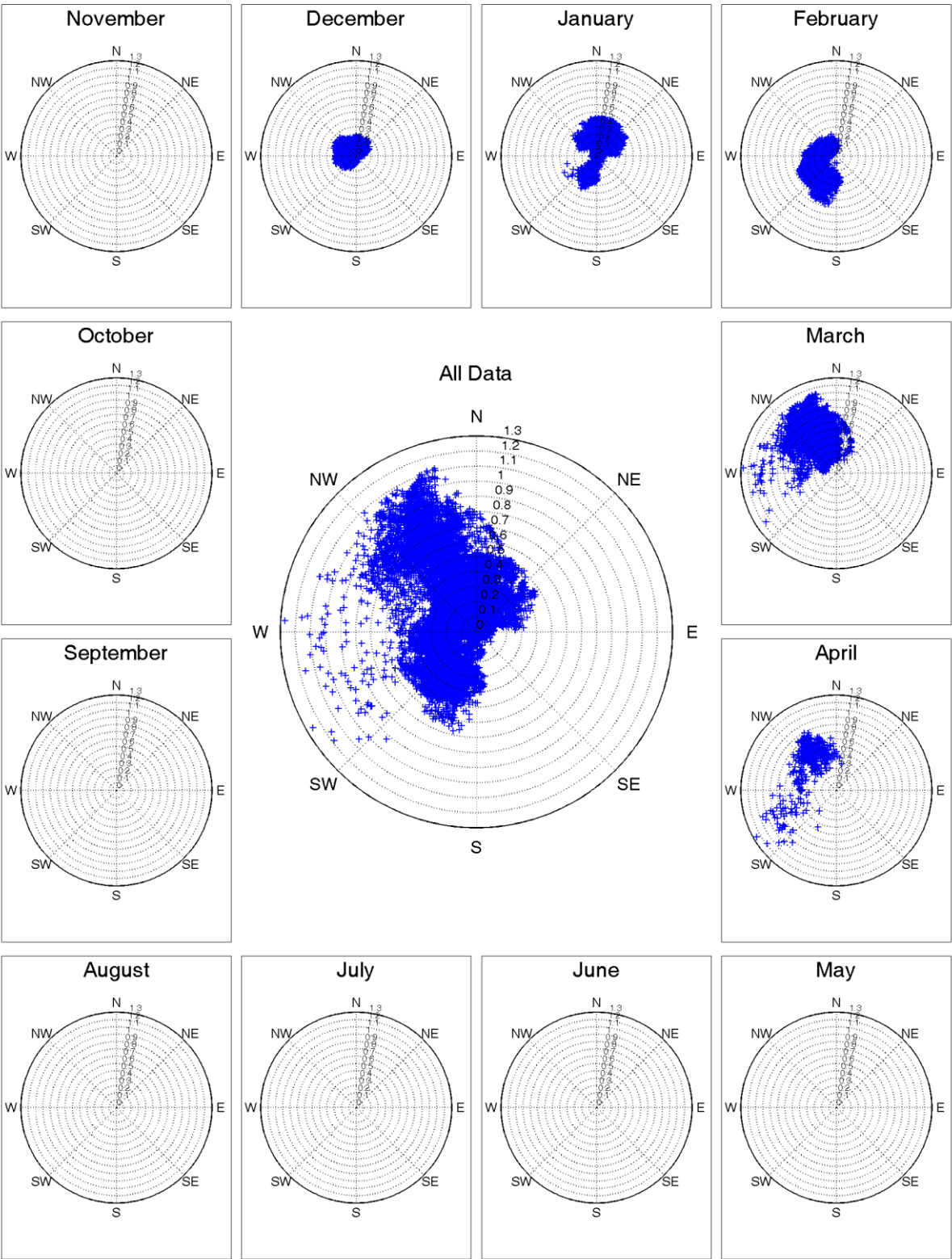




02-May-18 09:21:39	
Location: Big Foot Wavescan	Valid records: 14641
Position: 26° 54.042' N, 089° 30.876' W	Missing records: 1152
Instrument type: Aquadopp	Calms/below threshold: 1
Analysis period: 18-Dec-2017 22:50:00 to 07-Apr-2018 14:50:00	Water depth: 2032 m
Notes:	

Figure 6.2: Level 9 (38 m below MSL, 1994 m above Seabed)

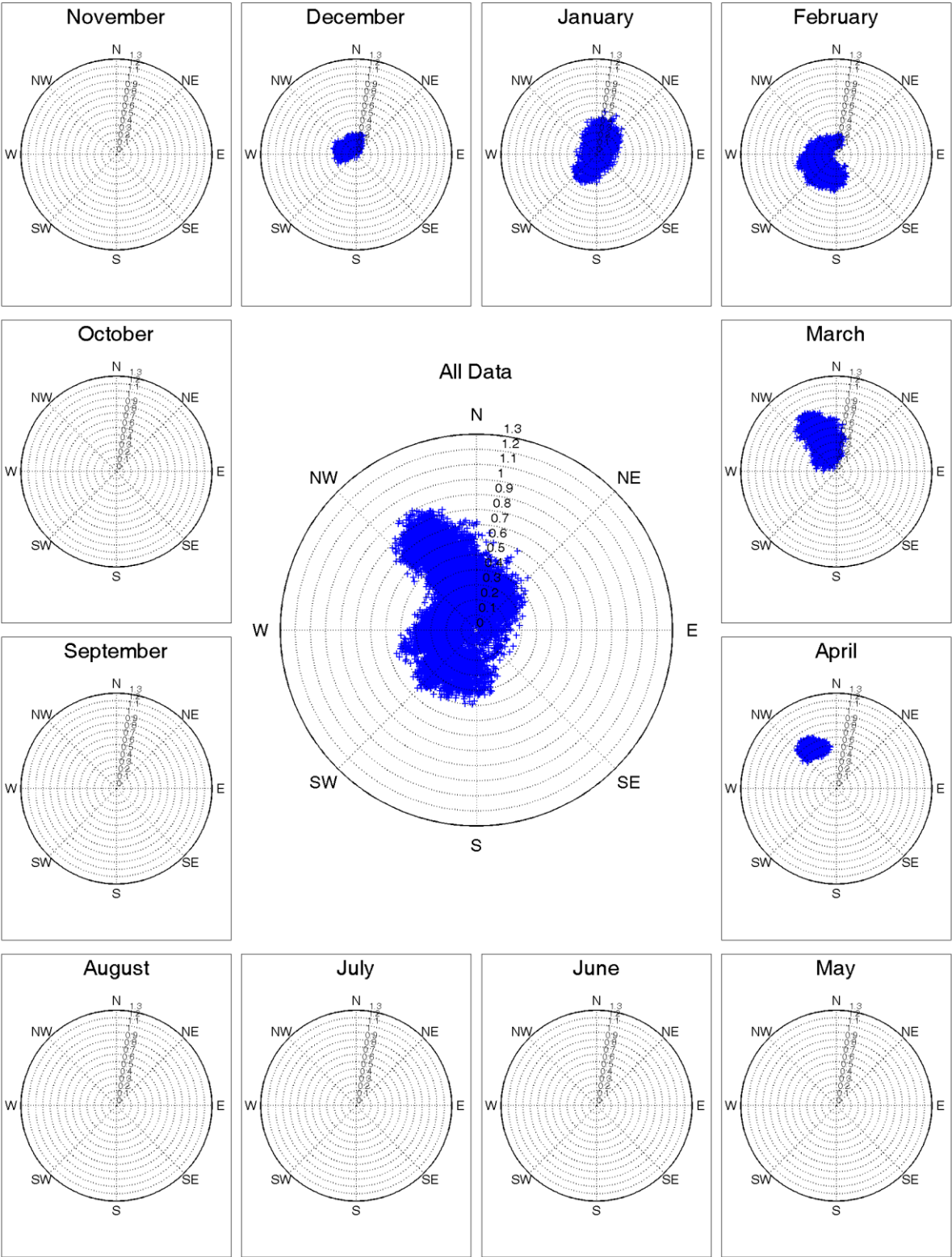




02-May-18 09:21:41	
Location: Big Foot Wavescan	Valid records: 14986
Position: 26° 54.042' N, 089° 30.876' W	Missing records: 807
Instrument type: Aquadopp	Calms/below threshold: 2
Analysis period: 18-Dec-2017 22:50:00 to 07-Apr-2018 14:50:00	Water depth: 2032 m
Notes:	

Figure 6.3: Level 18 (74 m below MSL, 1958 m above Seabed)

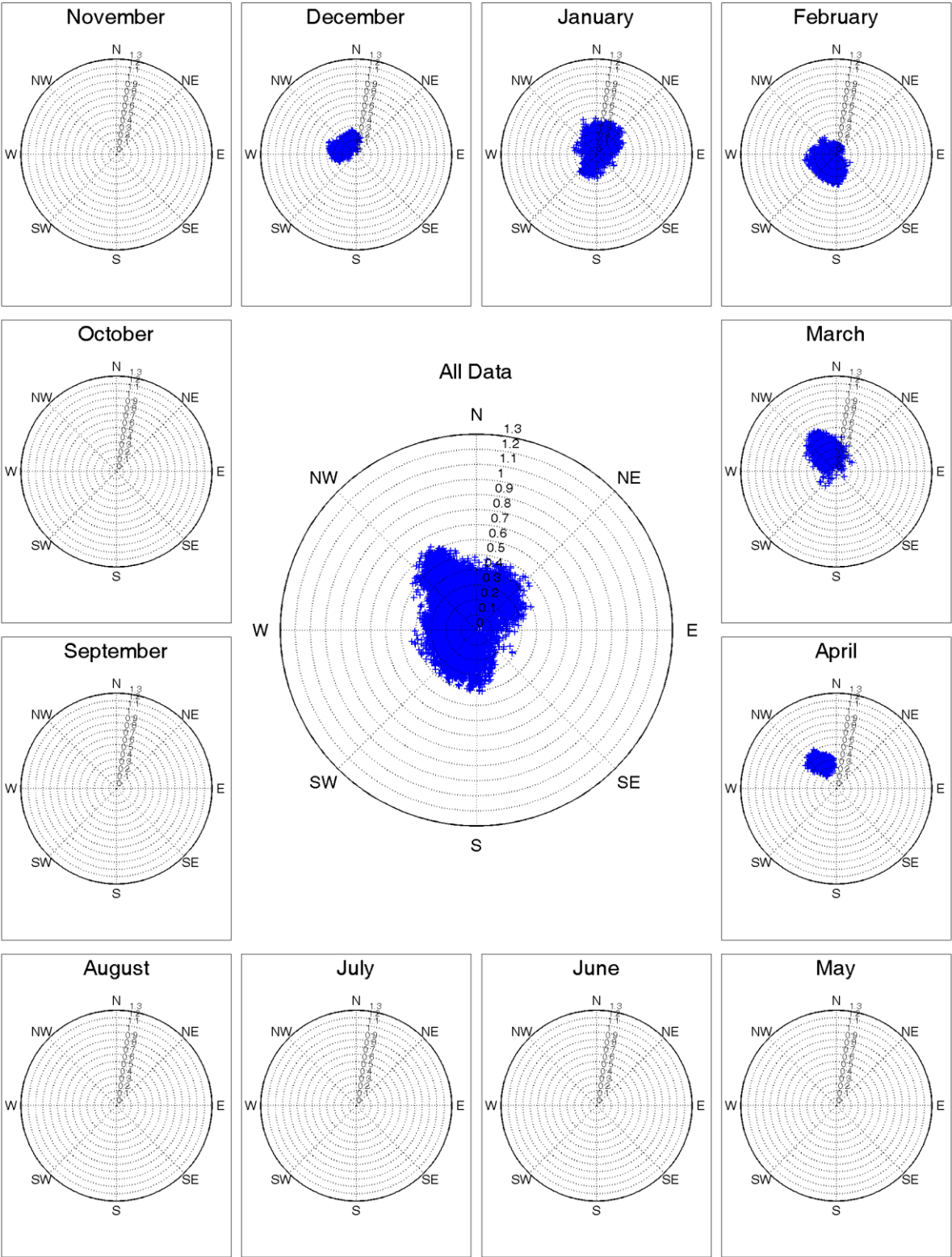




02-May-18 09:21:43	
Location: Big Foot Wavescan	Valid records: 15736
Position: 26° 54.042' N, 089° 30.876' W	Missing records: 57
Instrument type: 75kHz ADCP	Calms/below threshold: 0
Analysis period: 18-Dec-2017 22:50:00 to 07-Apr-2018 14:50:00	Water depth: 2032 m
Notes:	

Figure 6.4: Level 23 (142 m below MSL, 1890 m above Seabed)

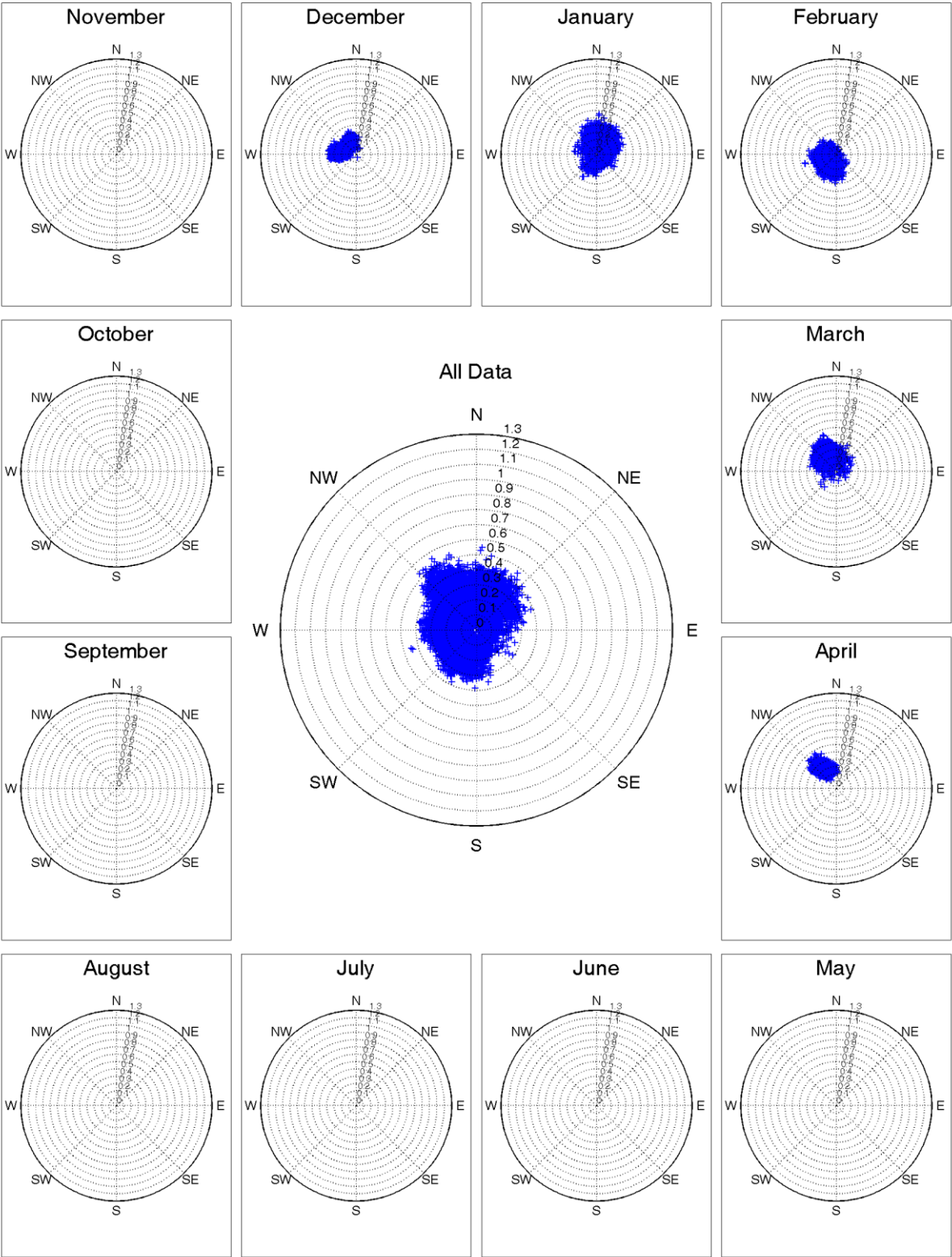




02-May-18 09:21:44	
Location: Big Foot Wavescan	Valid records: 15765
Position: 26° 54.042' N, 089° 30.876' W	Missing records: 28
Instrument type: 75kHz ADCP	Calms/below threshold: 0
Analysis period: 18-Dec-2017 22:50:00 to 07-Apr-2018 14:50:00	Water depth: 2032 m
Notes:	

Figure 6.5: Level 28 (242 m below MSL, 1790 m above Seabed)

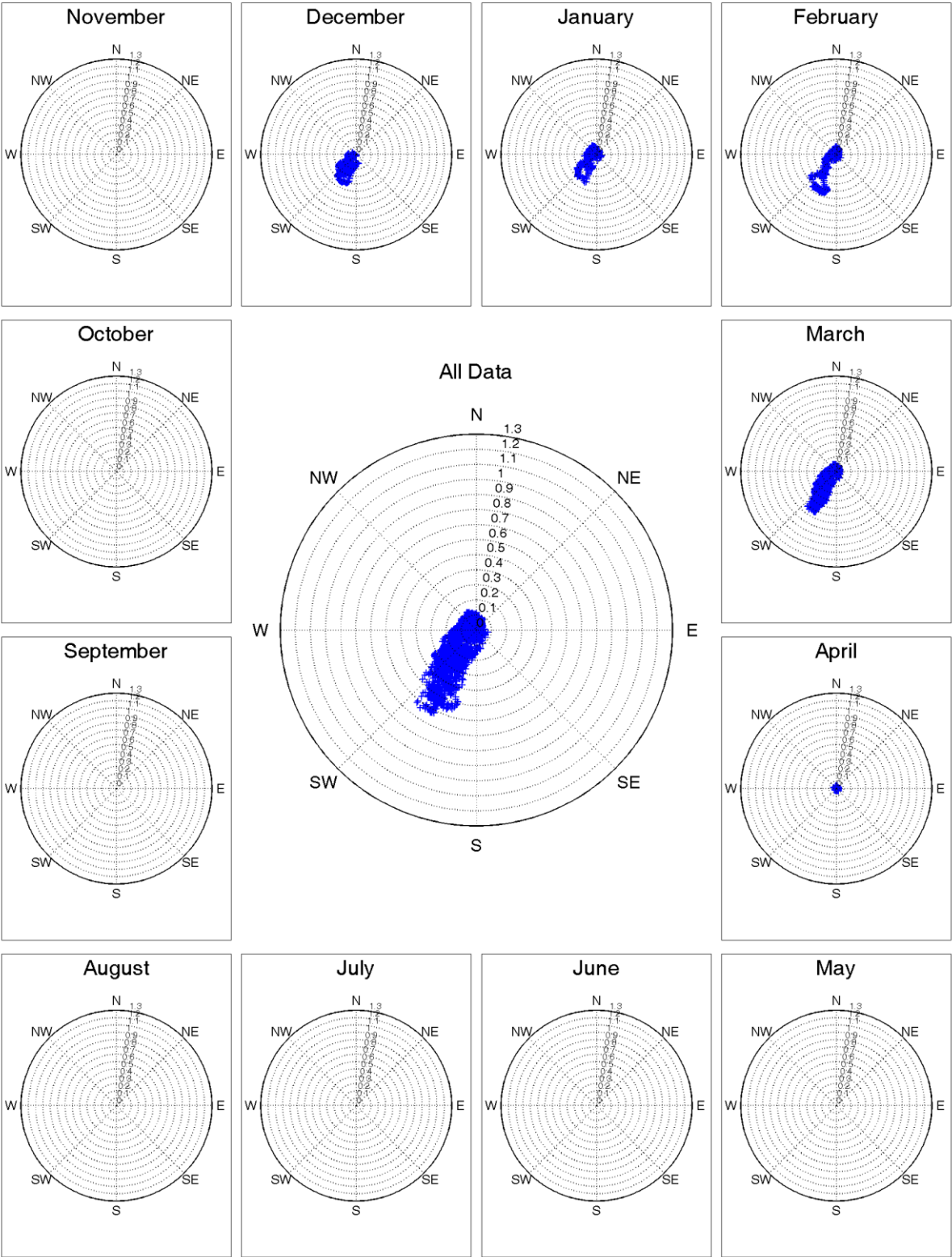




02-May-18 09:21:46	
Location: Big Foot Wavescan	Valid records: 15753
Position: 26° 54.042' N, 089° 30.876' W	Missing records: 40
Instrument type: 75kHz ADCP	Calms/below threshold: 0
Analysis period: 18-Dec-2017 22:50:00 to 07-Apr-2018 14:50:00	Water depth: 2032 m
Notes:	

Figure 6.6: Level 31 (302 m below MSL, 1730 m above Seabed)

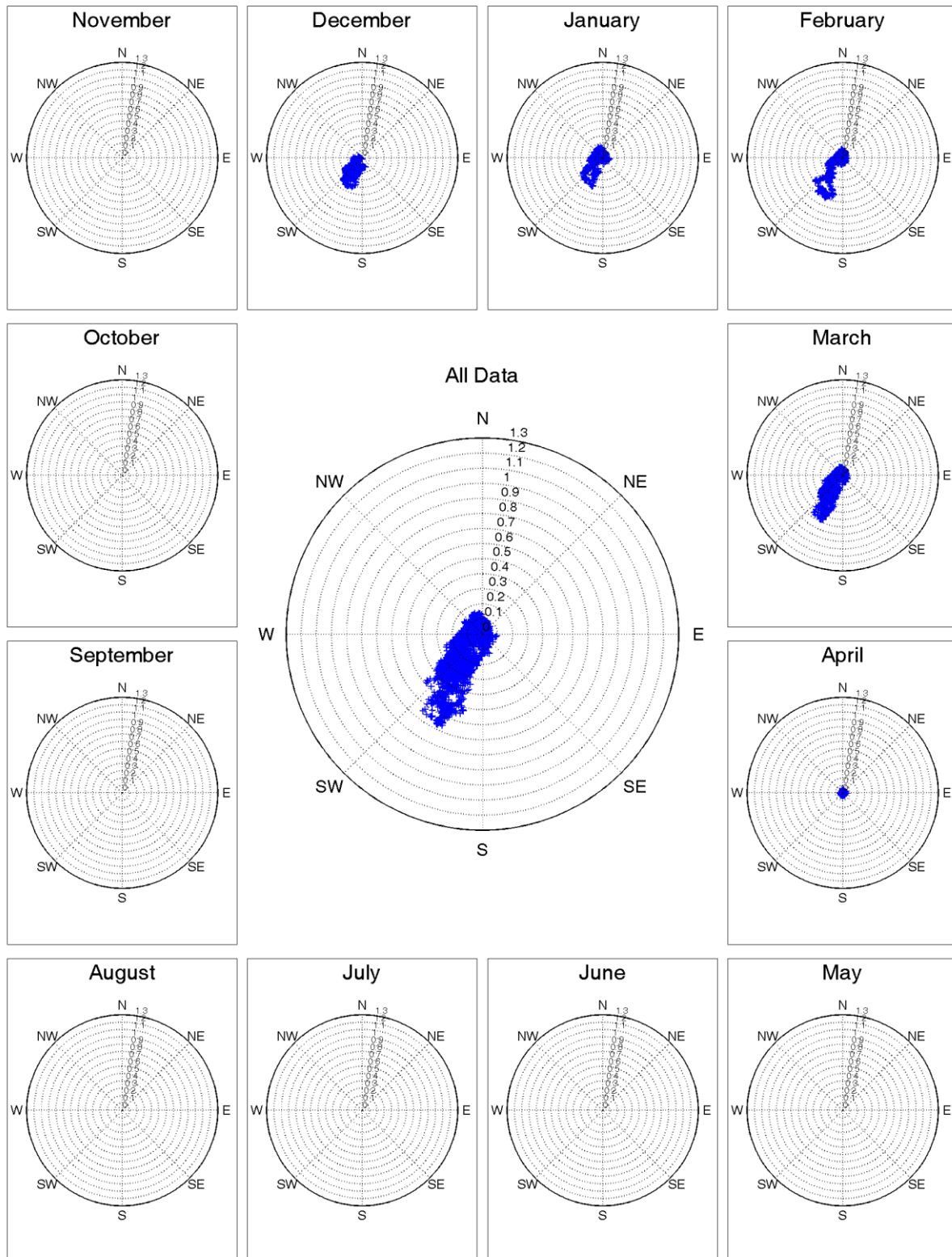




02-May-18 09:21:48	
Location: Big Foot Wavescan	Valid records: 5263
Position: 26° 54.042' N, 089° 30.876' W	Missing records: 1
Instrument type: 300kHz ADCP	Calms/below threshold: 0
Analysis period: 18-Dec-2017 22:50:00 to 07-Apr-2018 14:50:00	Water depth: 2032 m
Notes:	

Figure 6.7: Level 43 (1983 m below MSL, 49 m above Seabed)

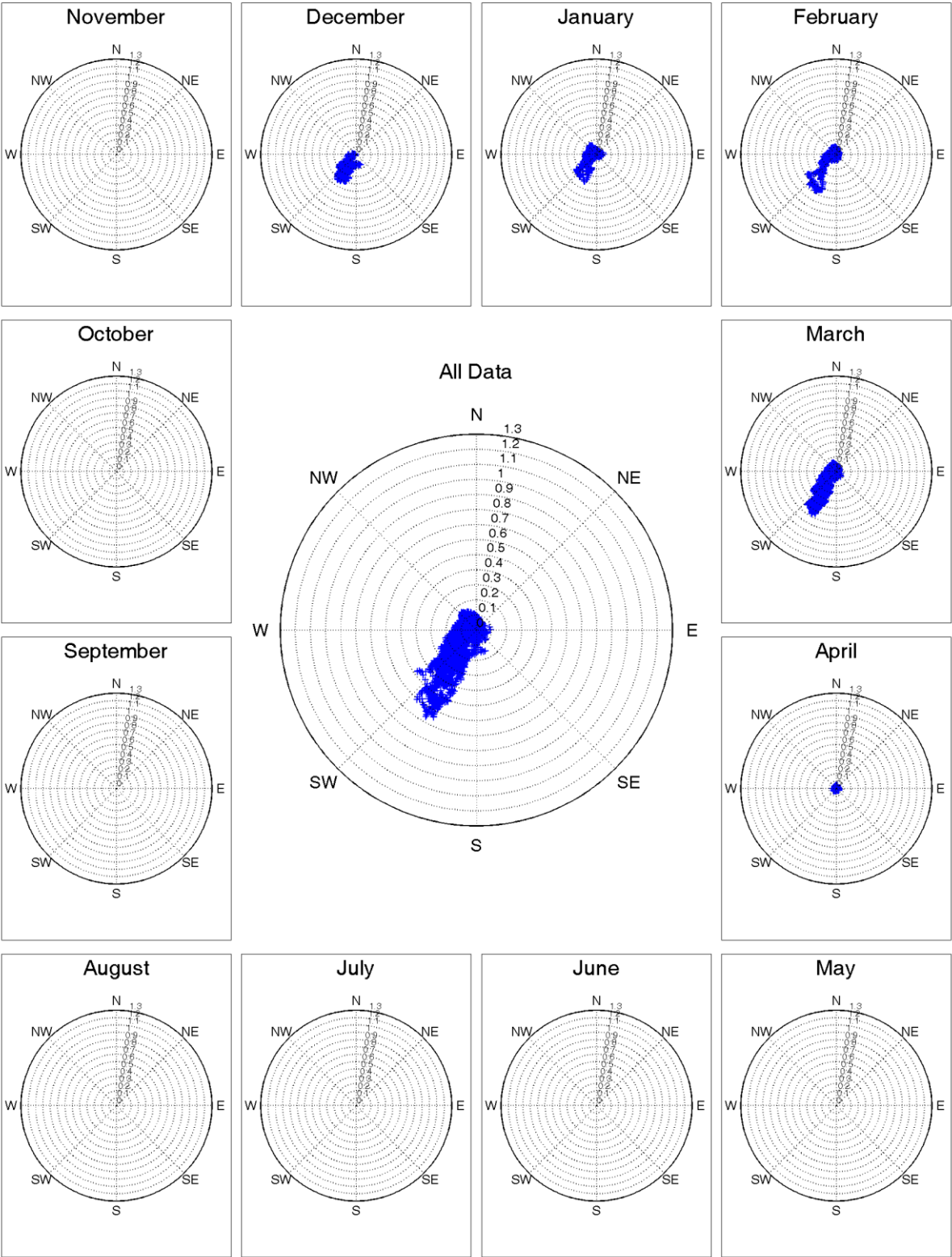




<b>Location:</b> Big Foot Wavescan	<b>Valid records:</b> 5262
<b>Position:</b> 26° 54.042' N, 089° 30.876' W	<b>Missing records:</b> 2
<b>Instrument type:</b> 300kHz ADCP	<b>Calms/below threshold:</b> 0
<b>Analysis period:</b> 18-Dec-2017 22:50:00 to 07-Apr-2018 14:50:00	<b>Water depth:</b> 2032 m
<b>Notes:</b>	

Figure 6.8: Level 45 (1993 m below MSL, 39 m above Seabed)

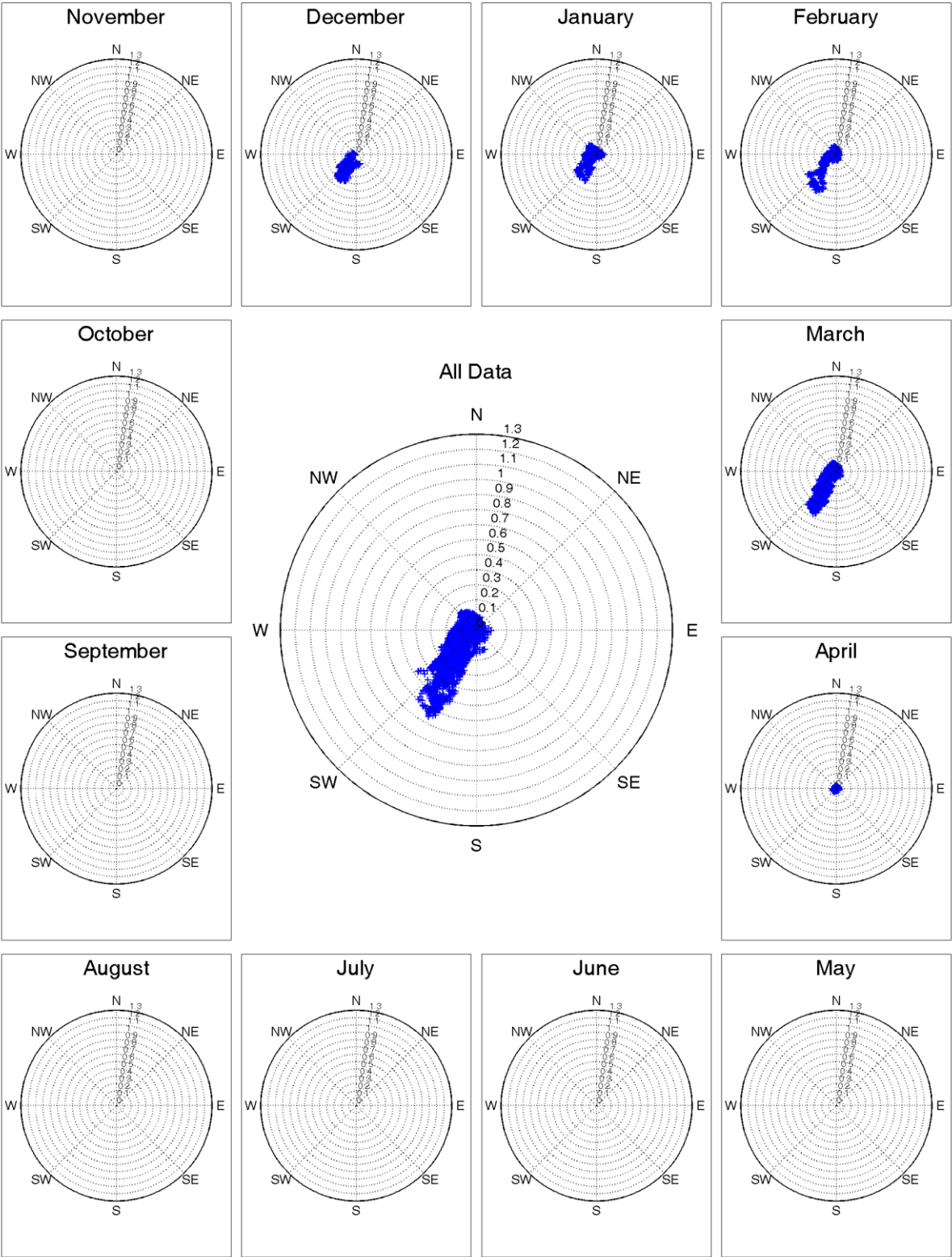




02-May-18 09:21:50	
Location: Big Foot Wavescan	Valid records: 5262
Position: 26° 54.042' N, 089° 30.876' W	Missing records: 2
Instrument type: 600kHz ADCP	Calms/below threshold: 0
Analysis period: 18-Dec-2017 22:50:00 to 07-Apr-2018 14:50:00	Water depth: 2032 m
Notes:	

Figure 6.9: Level 48 (2014 m below MSL, 18 m above Seabed)





02-May-18 09:21:52	
Location: Big Foot Wavescan	Valid records: 5262
Position: 26° 54.042' N, 089° 30.876' W	Missing records: 2
Instrument type: 600kHz ADCP	Calms/below threshold: 0
Analysis period: 18-Dec-2017 22:50:00 to 07-Apr-2018 14:50:00	Water depth: 2032 m
Notes:	

Figure 6.10: Level 51 (2017 m below MSL, 15 m above Seabed)

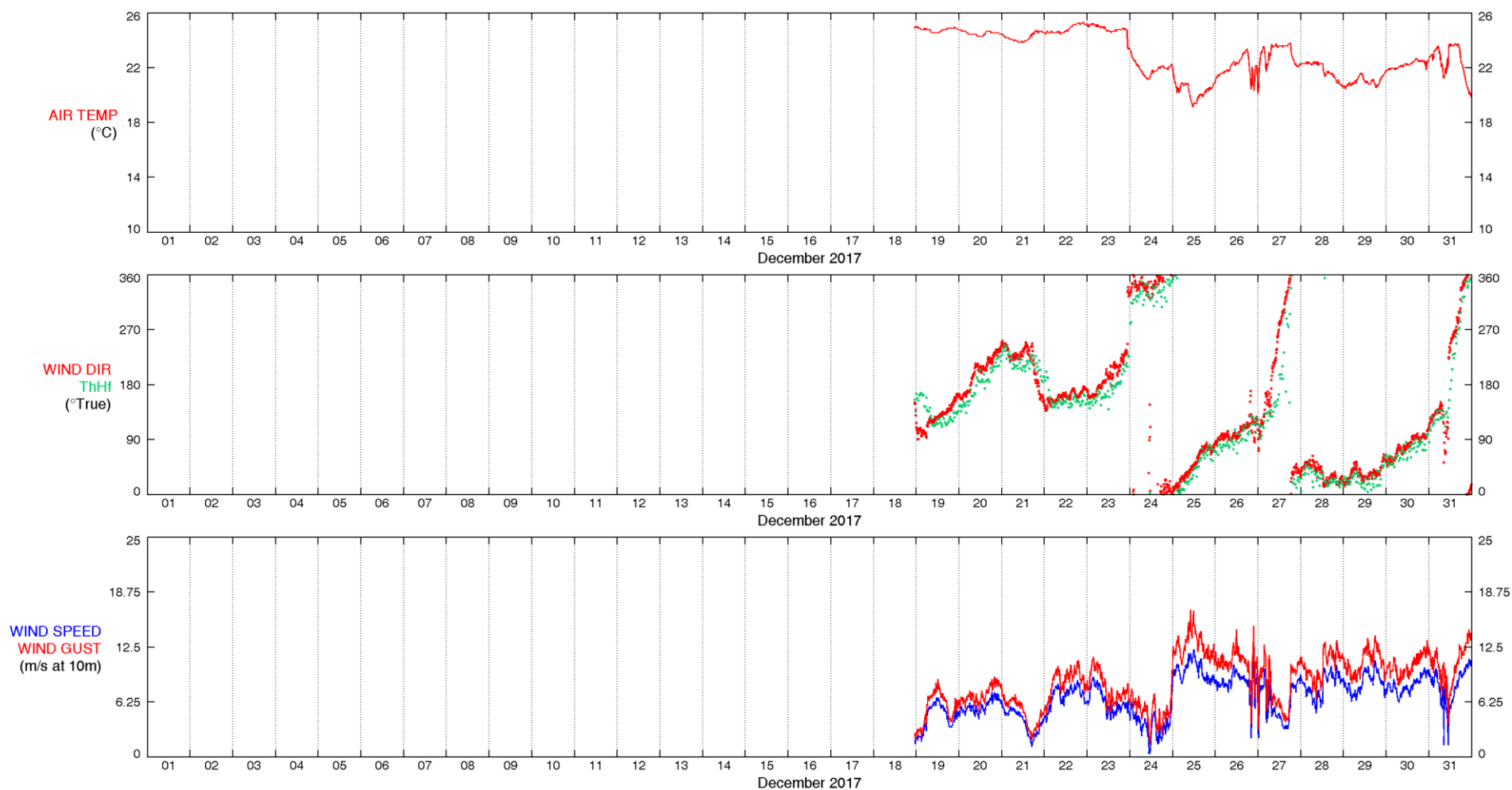




**Meteorological Parameters**



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**BIG FOOT METOCEAN MEASUREMENT STUDY DATA REPORT**

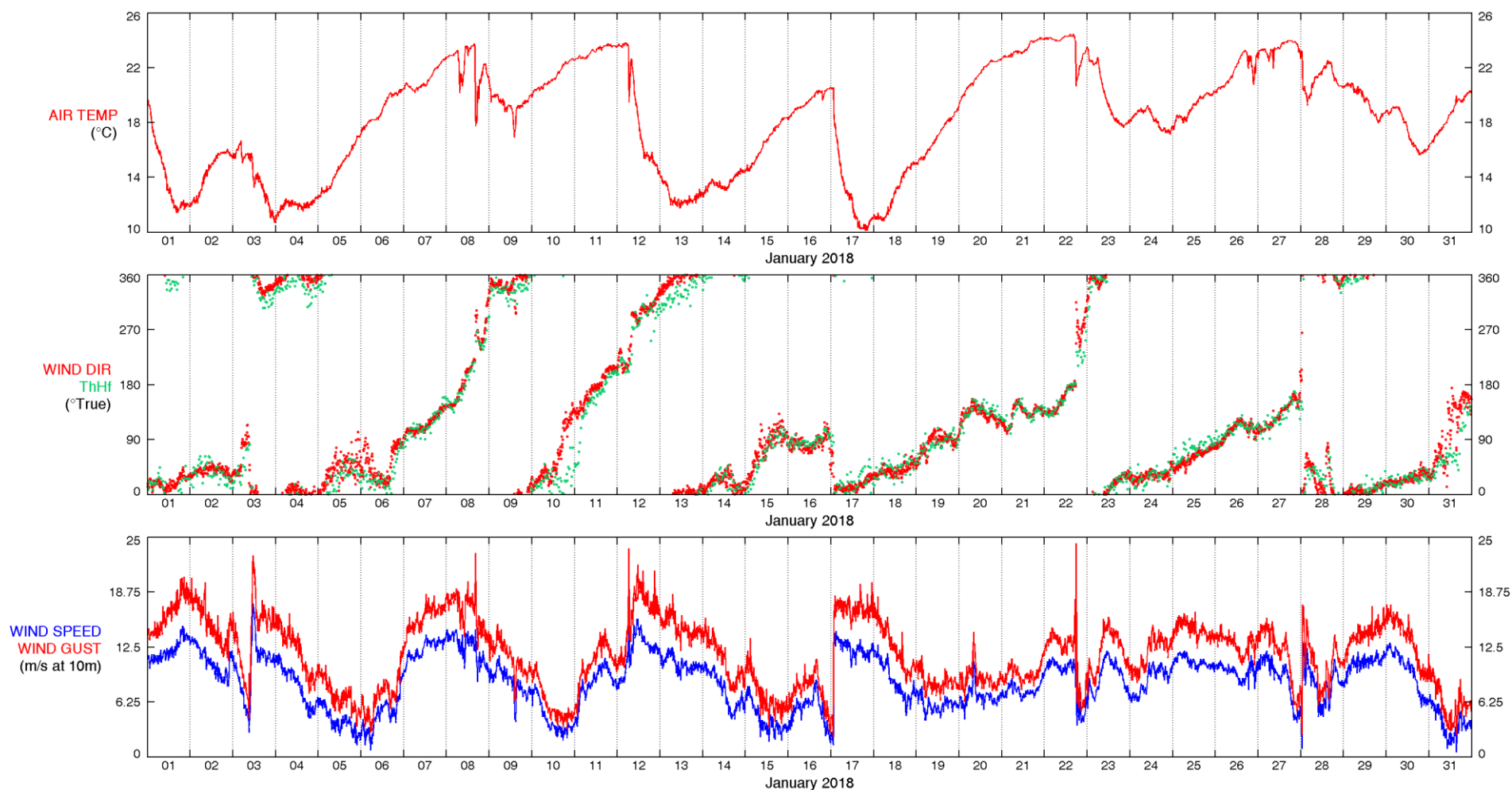


<b>Location:</b> Big Foot Wavescan	<b>Valid records:</b> 8138
<b>Position:</b> 26° 54.042' N, 089° 30.876' W	<b>Missing records:</b> 0
<b>Instrument type:</b> Mets, Wavescan	<b>Calms/below threshold:</b>
<b>Analysis period:</b> 18-Dec-2017 23:00:00 - 31-Dec-2017 23:50:00 (UTC)	<b>Water depth:</b> 2032 m
<b>Notes:</b>	

**Figure 7.1 Level 1, 18-Dec-2017 23:00:00 - 31-Dec-2017 23:50:00 (UTC)**



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**BIG FOOT METOCEAN MEASUREMENT STUDY DATA REPORT**

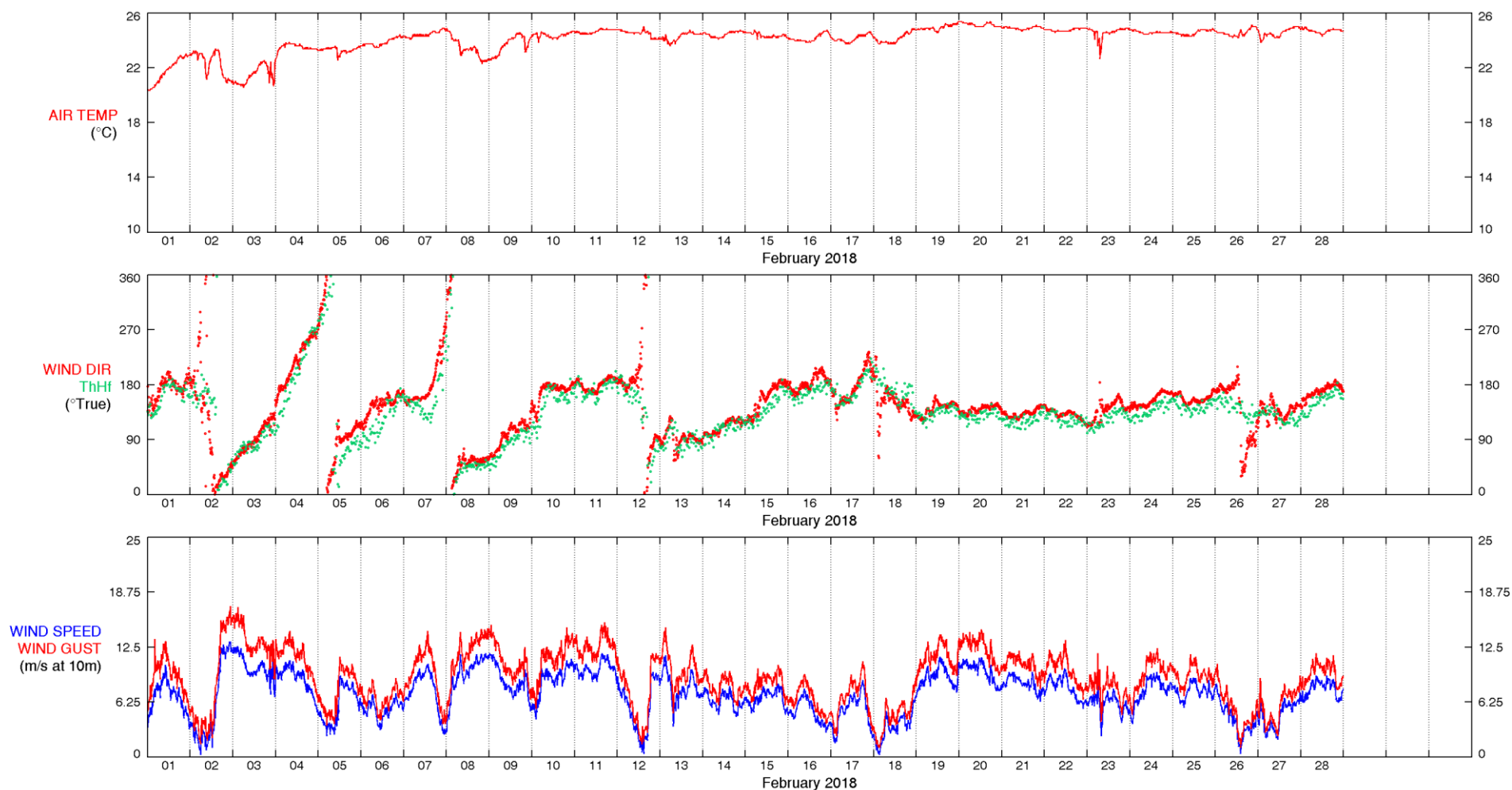


<b>Location:</b> Big Foot Wavescan	<b>Valid records:</b> 19344
<b>Position:</b> 26° 54.042' N, 089° 30.876' W	<b>Missing records:</b> 0
<b>Instrument type:</b> Mets, Wavescan	<b>Calms/below threshold:</b>
<b>Analysis period:</b> 01-Jan-2018 00:00:00 - 31-Jan-2018 23:50:00 (UTC)	<b>Water depth:</b> 2032 m
<b>Notes:</b>	

**Figure 7.2 Level 1, 01-Jan-2018 00:00:00 - 31-Jan-2018 23:50:00 (UTC)**



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**BIG FOOT METOCEAN MEASUREMENT STUDY DATA REPORT**

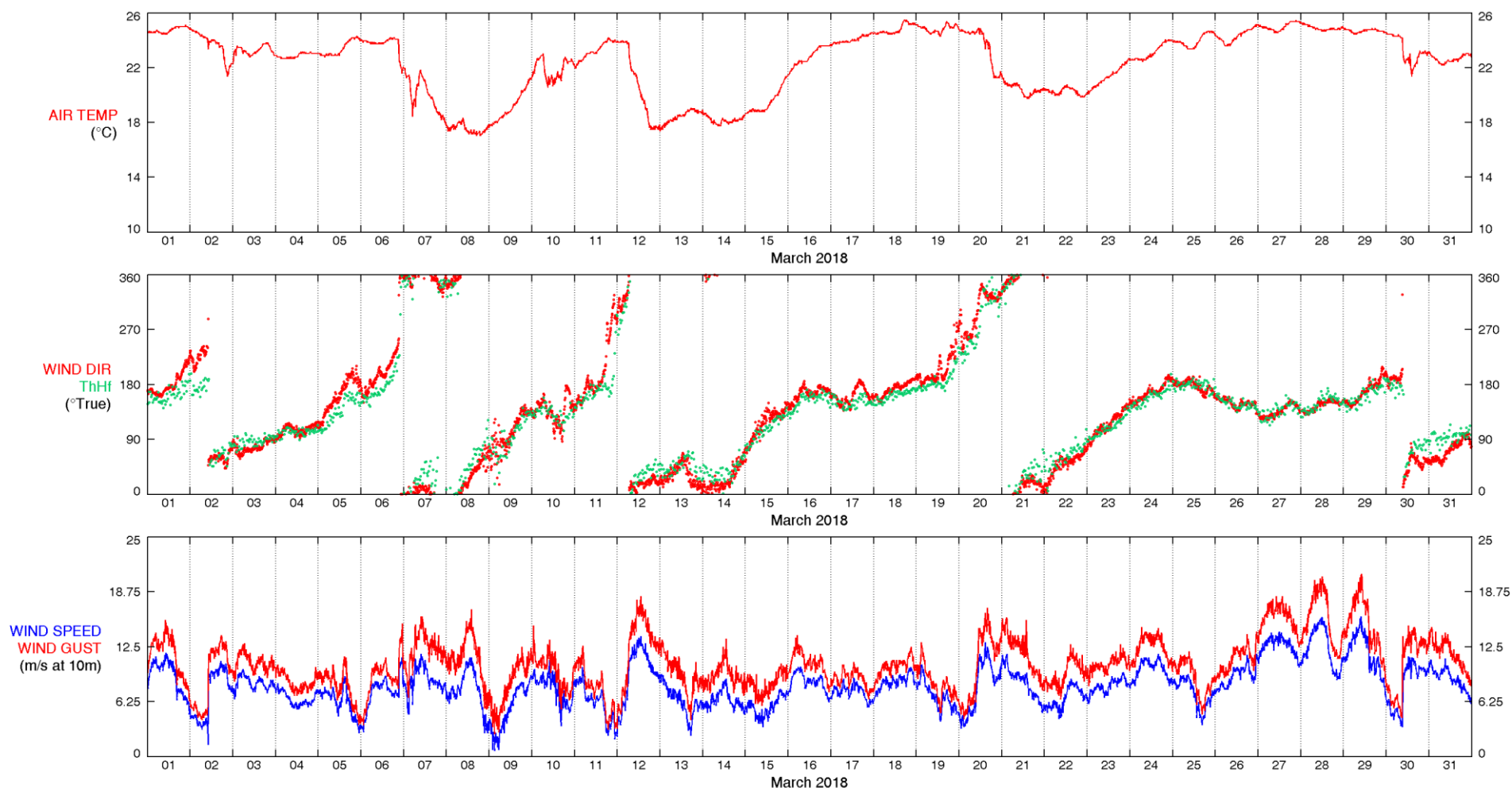


<b>Location:</b> Big Foot Wavescan	<b>Valid records:</b> 17472
<b>Position:</b> 26° 54.042' N, 089° 30.876' W	<b>Missing records:</b> 0
<b>Instrument type:</b> Mets, Wavescan	<b>Calms/below threshold:</b>
<b>Analysis period:</b> 01-Feb-2018 00:00:00 - 28-Feb-2018 23:50:00 (UTC)	<b>Water depth:</b> 2032 m
<b>Notes:</b>	

**Figure 7.3 Level 1, 01-Feb-2018 00:00:00 - 28-Feb-2018 23:50:00 (UTC)**



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**BIG FOOT METOCEAN MEASUREMENT STUDY DATA REPORT**

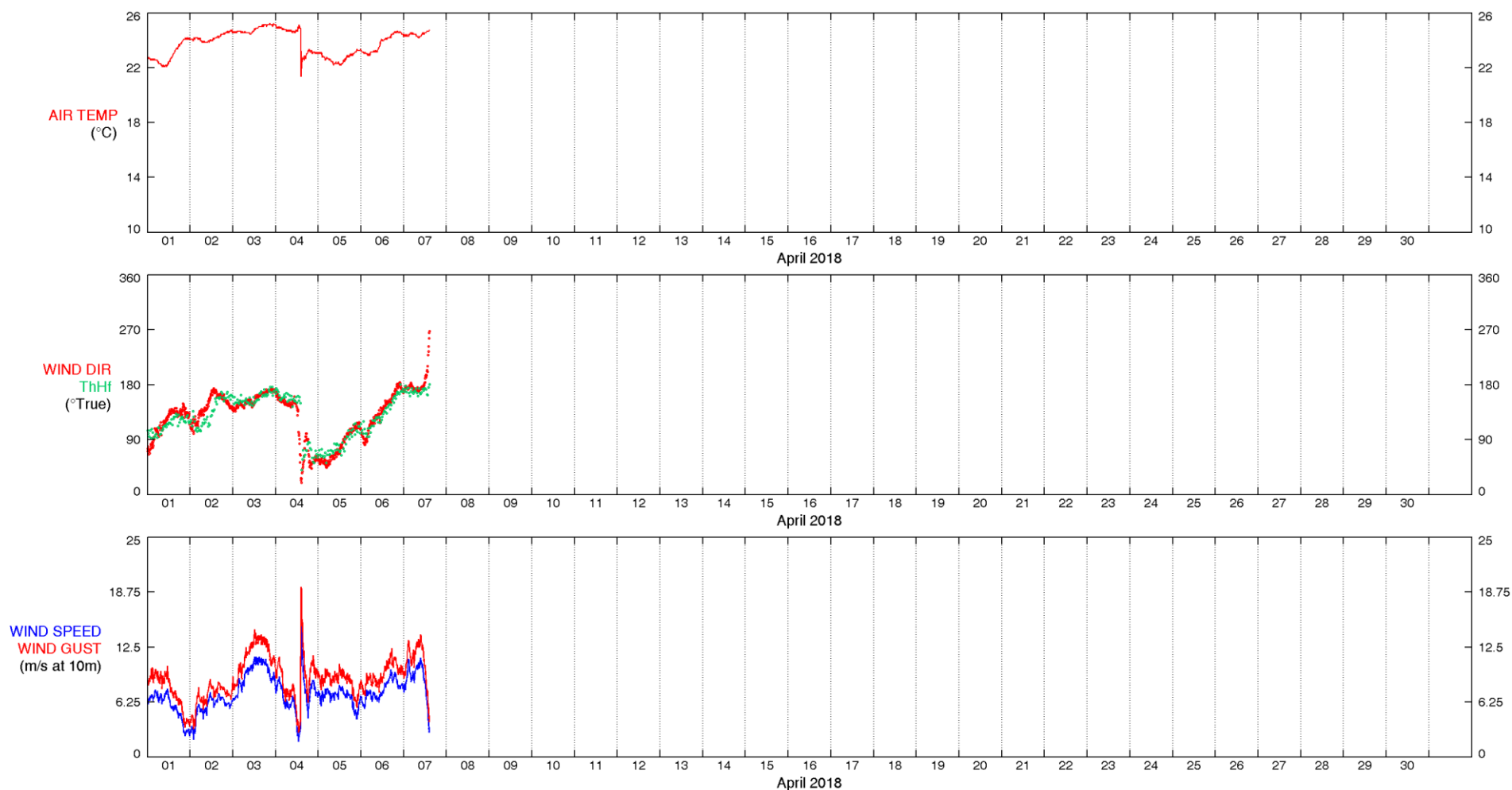


<b>Location:</b> Big Foot Wavescan	<b>Valid records:</b> 19344
<b>Position:</b> 26° 54.042' N, 089° 30.876' W	<b>Missing records:</b> 0
<b>Instrument type:</b> Mets, Wavescan	<b>Calms/below threshold:</b>
<b>Analysis period:</b> 01-Mar-2018 00:00:00 - 31-Mar-2018 23:50:00 (UTC)	<b>Water depth:</b> 2032 m
<b>Notes:</b>	

**Figure 7.4 Level 1, 01-Mar-2018 00:00:00 - 31-Mar-2018 23:50:00 (UTC)**



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**BIG FOOT METOCEAN MEASUREMENT STUDY DATA REPORT**



<b>Location:</b> Big Foot Wavescan	<b>Valid records:</b> 4126
<b>Position:</b> 26° 54.042' N, 089° 30.876' W	<b>Missing records:</b> 0
<b>Instrument type:</b> Mets, Wavescan	<b>Calms/below threshold:</b>
<b>Analysis period:</b> 01-Apr-2018 00:00:00 - 07-Apr-2018 14:30:00 (UTC)	<b>Water depth:</b> 2032 m
<b>Notes:</b>	

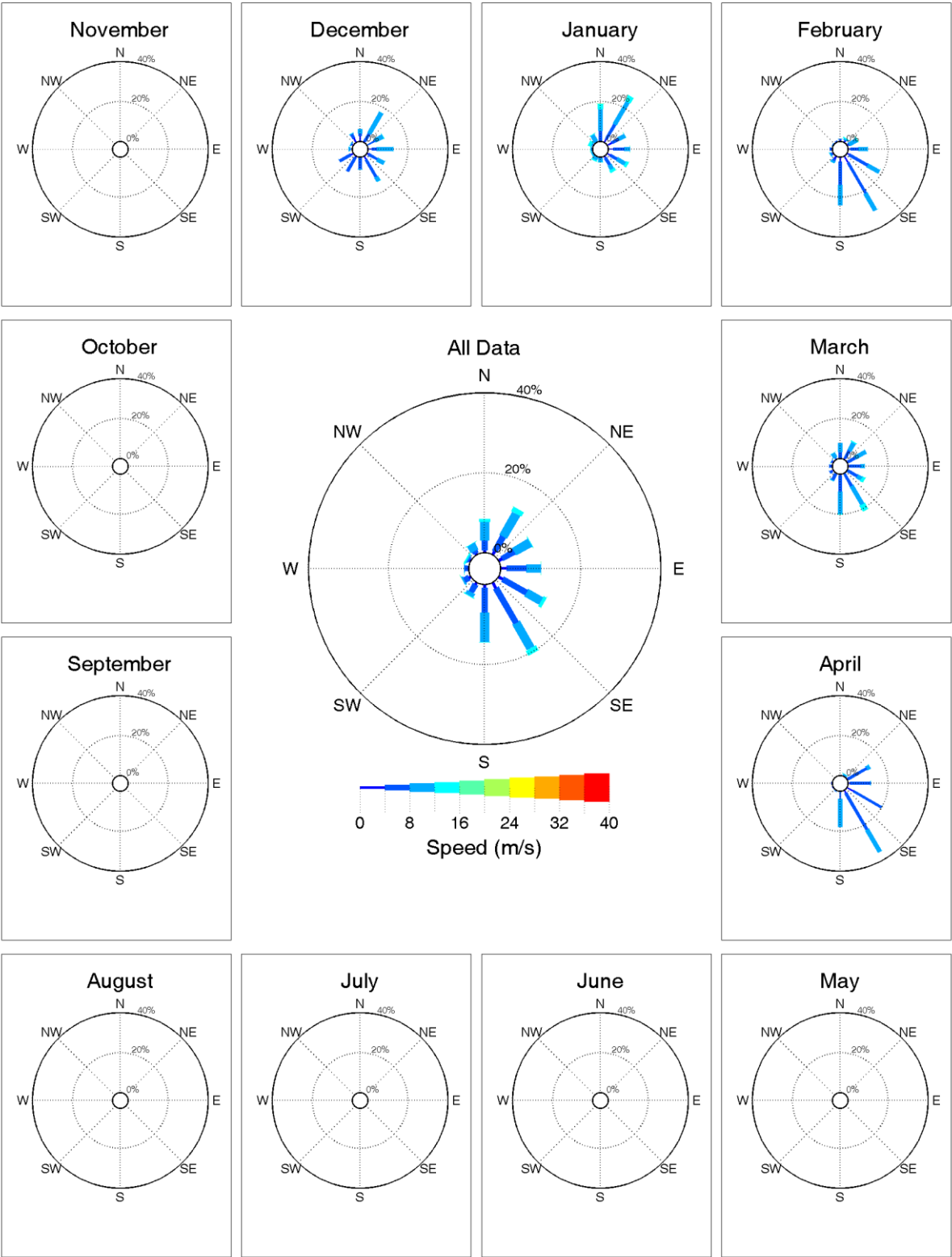
**Figure 7.5 Level 1, 01-Apr-2018 00:00:00 - 07-Apr-2018 14:30:00 (UTC)**





**Wind Rose**





Location: Big Foot Wavescan	Valid records: 5264
Position: 26° 54.042' N, 089° 30.876' W	Missing records: 0
Instrument type: Mets	Calms/below threshold: 0
Analysis period: 18-Dec-2017 23:00:00 to 07-Apr-2018 14:30:00	Water depth: 2032 m
Notes:	

Figure 8.1: Wind Speed and Direction, 18-Dec-2017 to 07-Apr-2018

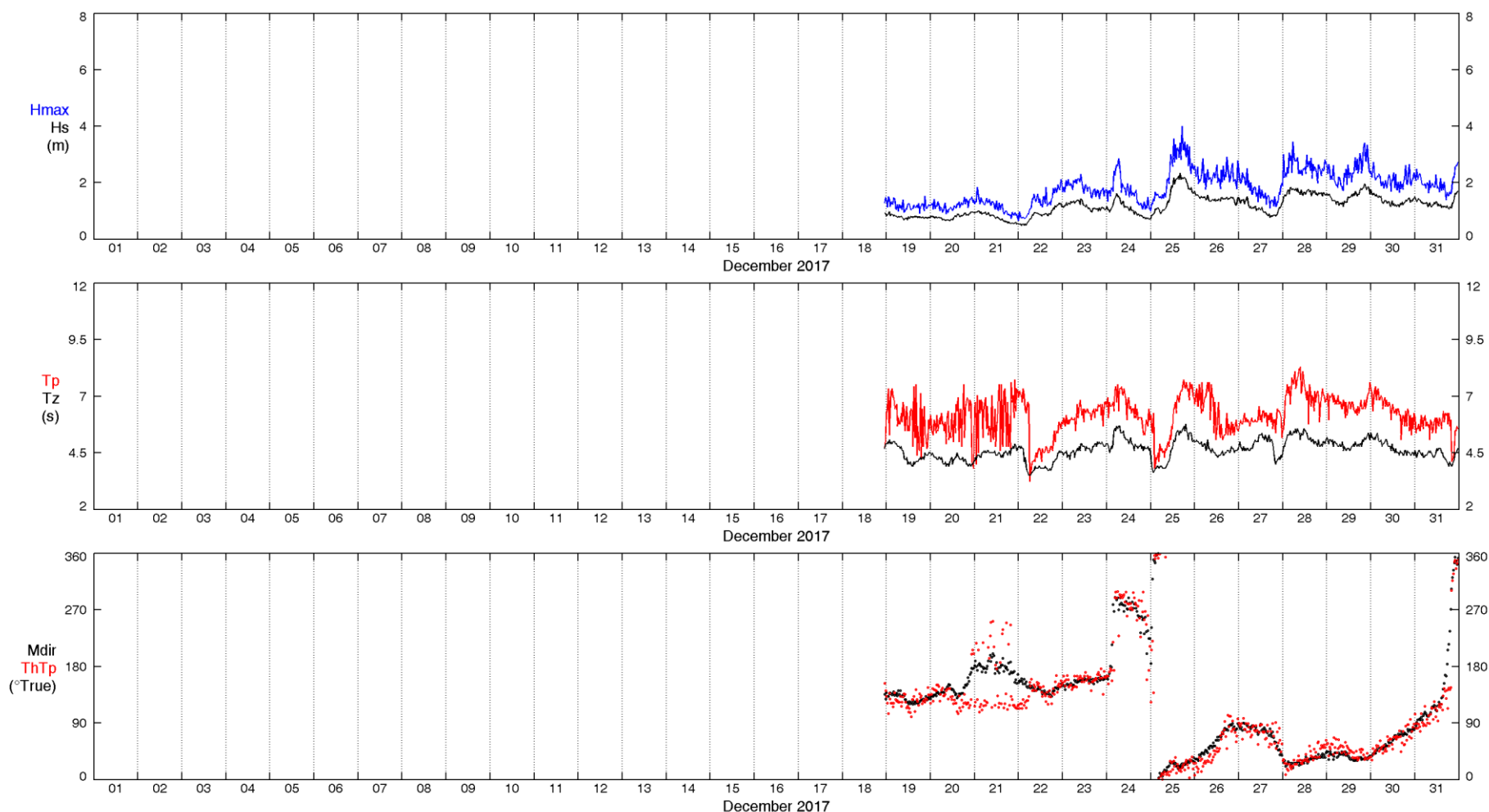




**Wave Parameters**



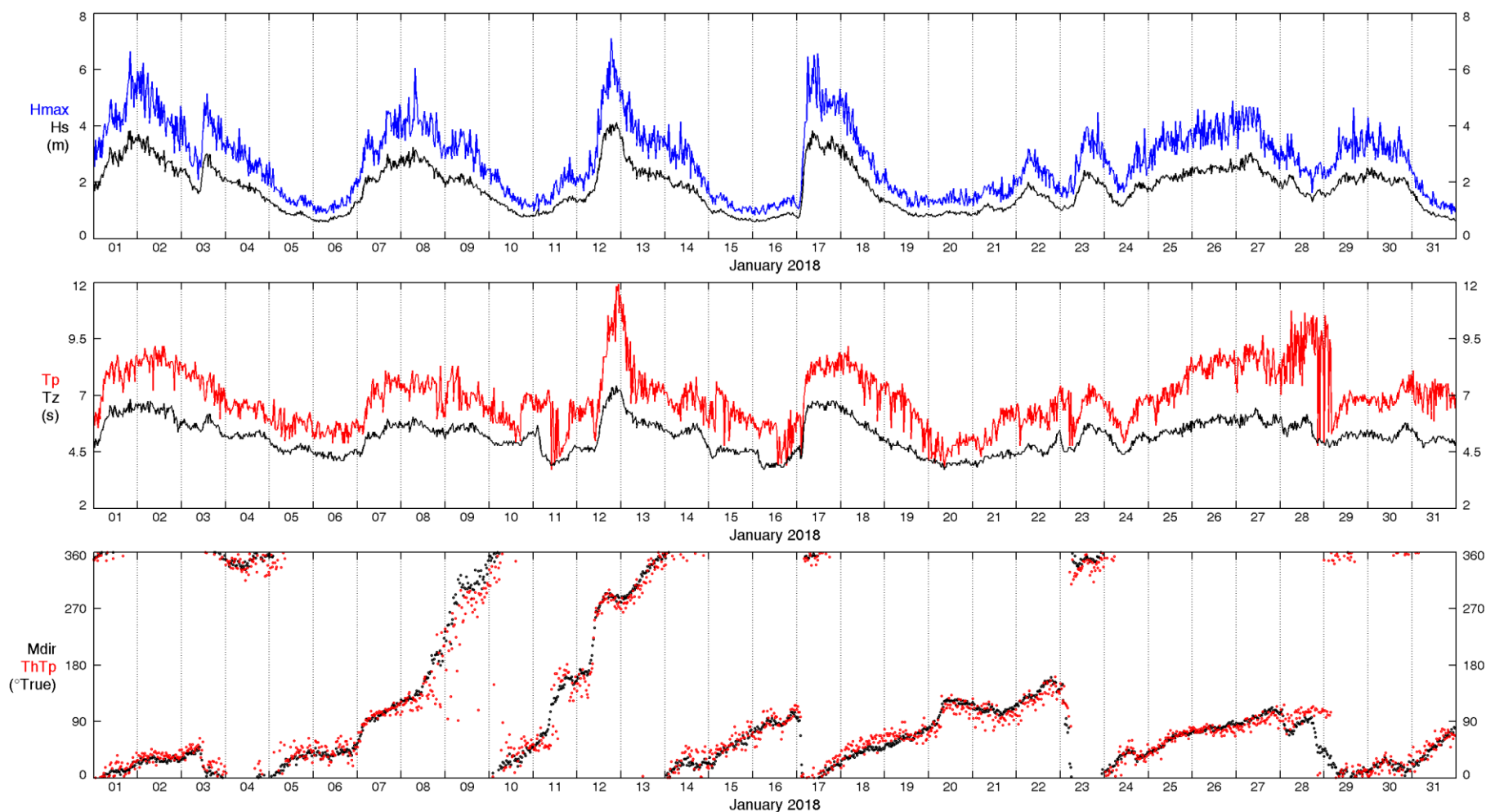
CHEVRON USA  
BIG FOOT METOCEAN MEASUREMENT STUDY DATA REPORT



<b>Location:</b> Big Foot Wavescan	<b>Valid records:</b> 3756
<b>Position:</b> 26° 54.042' N, 089° 30.876' W	<b>Missing records:</b> 0
<b>Instrument type:</b> Wavescan	<b>Calms/below threshold:</b>
<b>Analysis period:</b> 18-Dec-2017 23:00:00 - 31-Dec-2017 23:30:00 (UTC)	<b>Water depth:</b> 2032 m
<b>Notes:</b>	

Figure 9.1 Level 1, 18-Dec-2017 23:00:00 - 31-Dec-2017 23:30:00 (UTC)

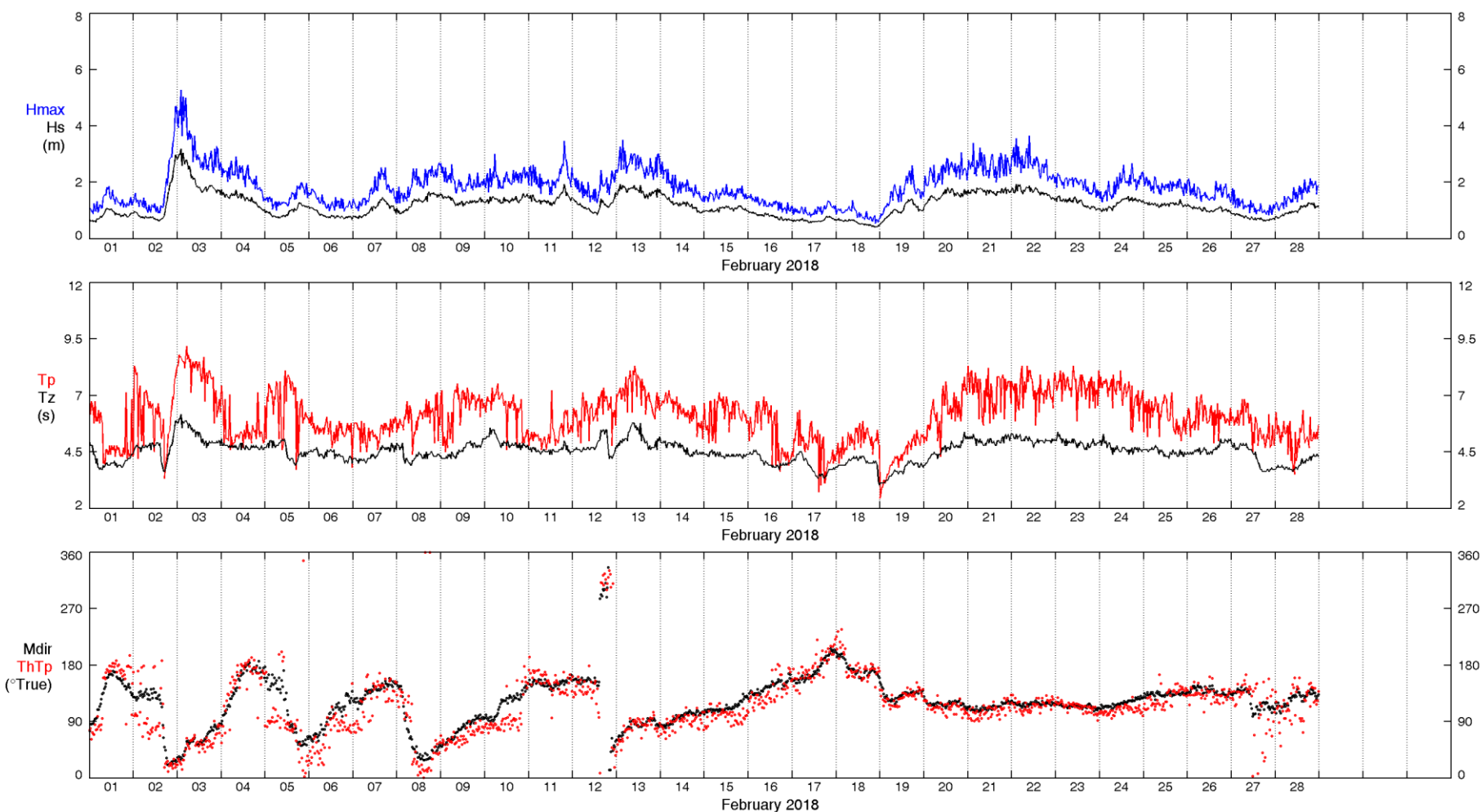




<b>Location:</b> Big Foot Wavescan	<b>Valid records:</b> 8928
<b>Position:</b> 26° 54.042' N, 089° 30.876' W	<b>Missing records:</b> 0
<b>Instrument type:</b> Wavescan	<b>Calms/below threshold:</b>
<b>Analysis period:</b> 01-Jan-2018 00:00:00 - 31-Jan-2018 23:30:00 (UTC)	<b>Water depth:</b> 2032 m
<b>Notes:</b>	

Figure 9.2 Level 1, 01-Jan-2018 00:00:00 - 31-Jan-2018 23:30:00 (UTC)

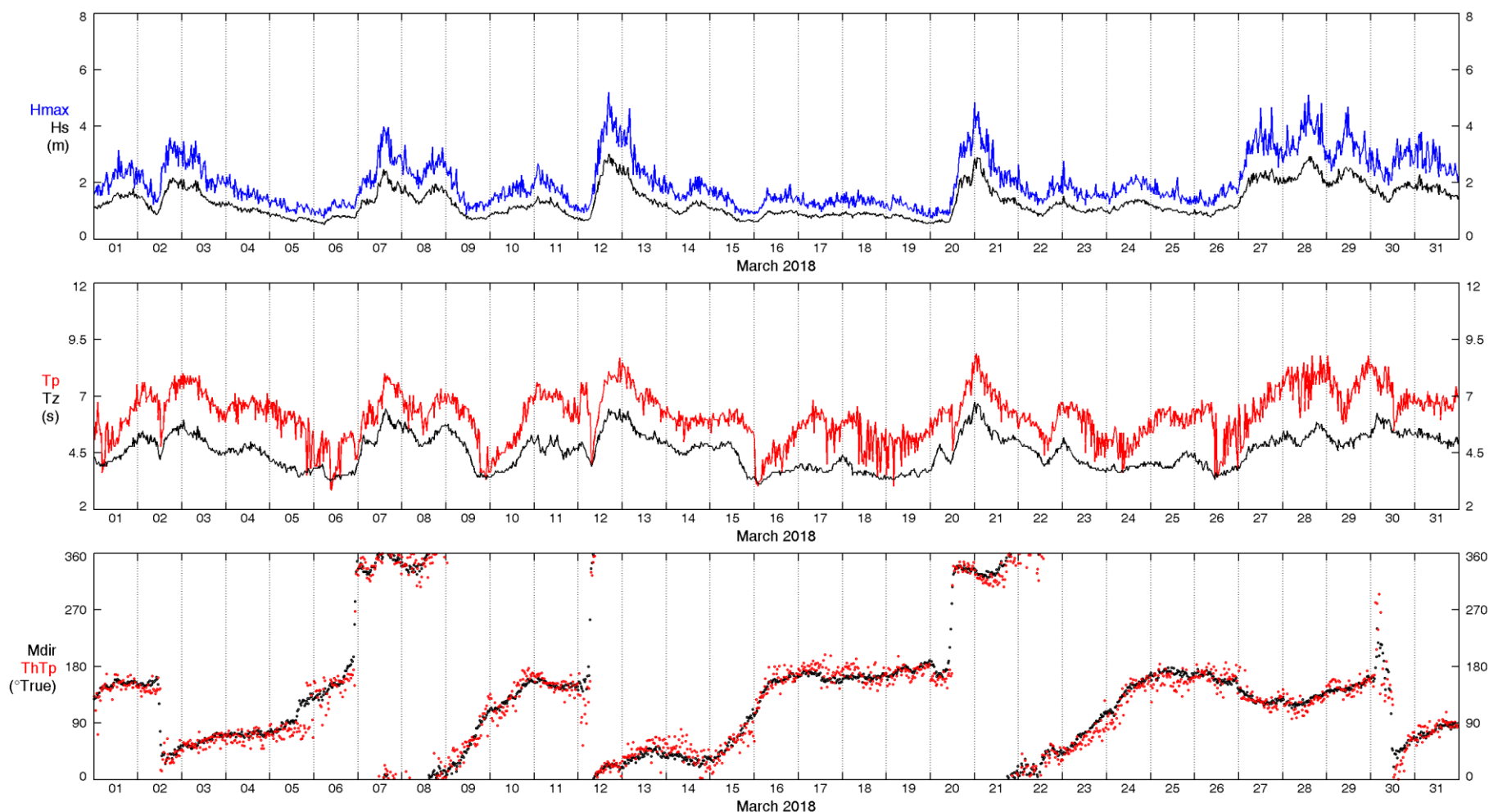




<b>Location:</b> Big Foot Wavescan	<b>Valid records:</b> 8064
<b>Position:</b> 26° 54.042' N, 089° 30.876' W	<b>Missing records:</b> 0
<b>Instrument type:</b> Wavescan	<b>Calms/below threshold:</b>
<b>Analysis period:</b> 01-Feb-2018 00:00:00 - 28-Feb-2018 23:30:00 (UTC)	<b>Water depth:</b> 2032 m
<b>Notes:</b>	

Figure 9.3 Level 1, 01-Feb-2018 00:00:00 - 28-Feb-2018 23:30:00 (UTC)



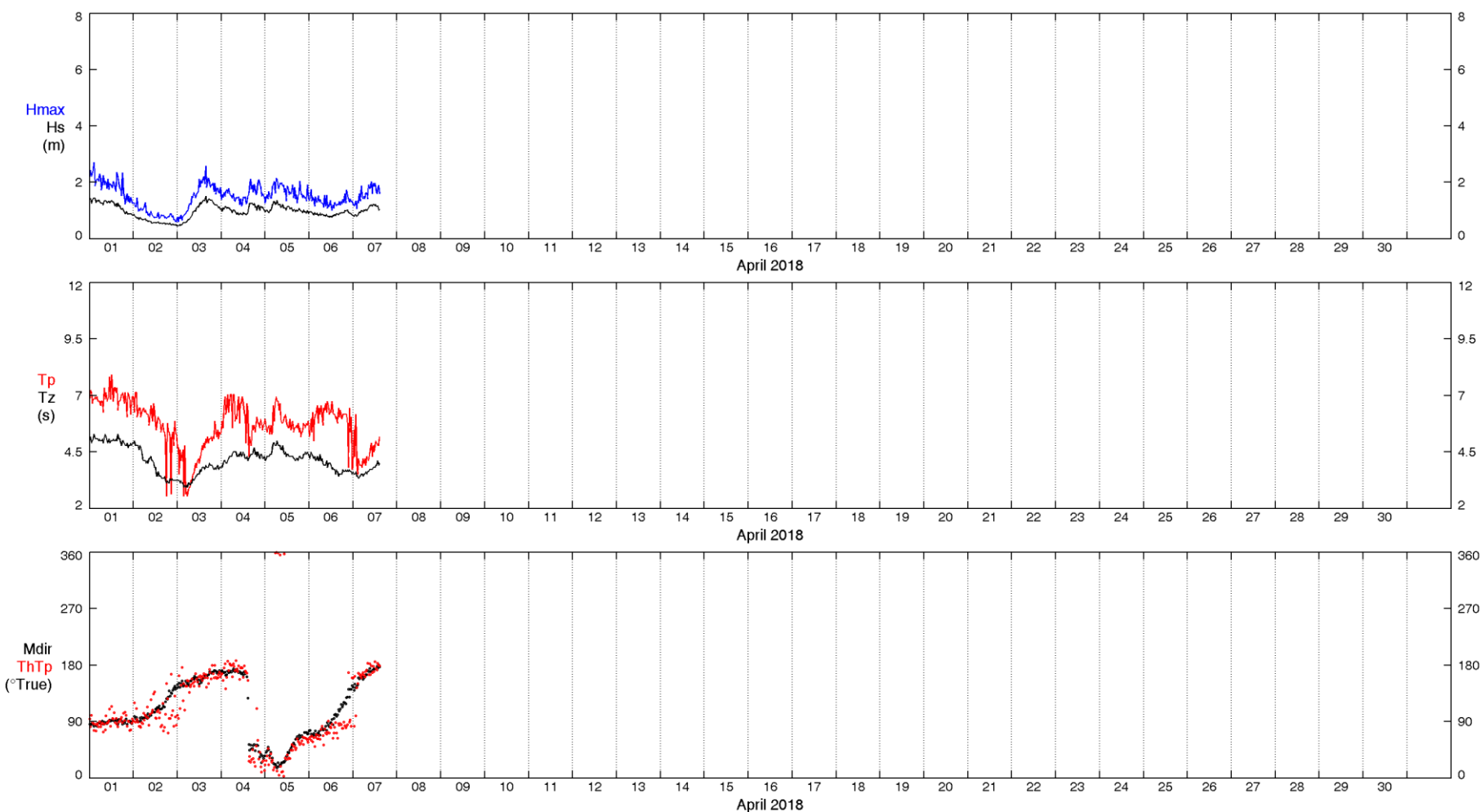


<b>Location:</b> Big Foot Wavescan	<b>Valid records:</b> 8928
<b>Position:</b> 26° 54.042' N, 089° 30.876' W	<b>Missing records:</b> 0
<b>Instrument type:</b> Wavescan	<b>Calms/below threshold:</b>
<b>Analysis period:</b> 01-Mar-2018 00:00:00 - 31-Mar-2018 23:30:00 (UTC)	<b>Water depth:</b> 2032 m
<b>Notes:</b>	

Figure 9.4 Level 1, 01-Mar-2018 00:00:00 - 31-Mar-2018 23:30:00 (UTC)



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<b>Location:</b> Big Foot Wavescan	<b>Valid records:</b> 1908
<b>Position:</b> 26° 54.042' N, 089° 30.876' W	<b>Missing records:</b> 0
<b>Instrument type:</b> Wavescan	<b>Calms/below threshold:</b>
<b>Analysis period:</b> 01-Apr-2018 00:00:00 - 07-Apr-2018 14:30:00 (UTC)	<b>Water depth:</b> 2032 m
<b>Notes:</b>	

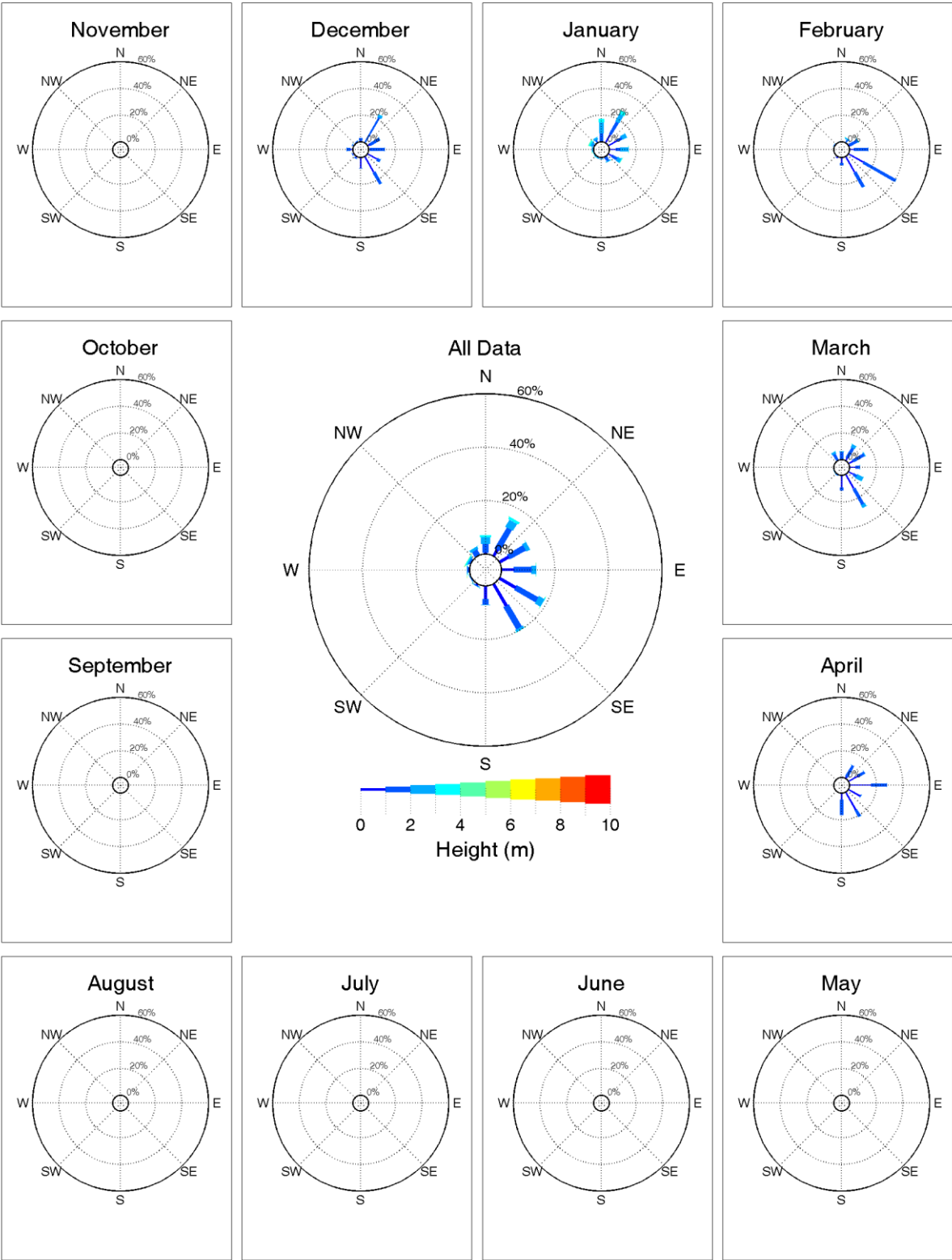
Figure 9.5 Level 1, 01-Apr-2018 00:00:00 - 07-Apr-2018 14:30:00 (UTC)





**Wave Rose**





01-May-18 08:53:54	
Location: Big Foot Wavescan	Valid records: 5264
Position: 26° 54.042' N, 089° 30.876' W	Missing records: 0
Instrument type: Wavescan	Calms/below threshold: 0
Analysis period: 18-Dec-2017 23:00:00 to 07-Apr-2018 14:30:00	Water depth: 2032 m
Notes:	

Figure 10.1: Significant Wave Height/Mean Wave Direction, 18-Dec-2017 to 07-Apr-2018

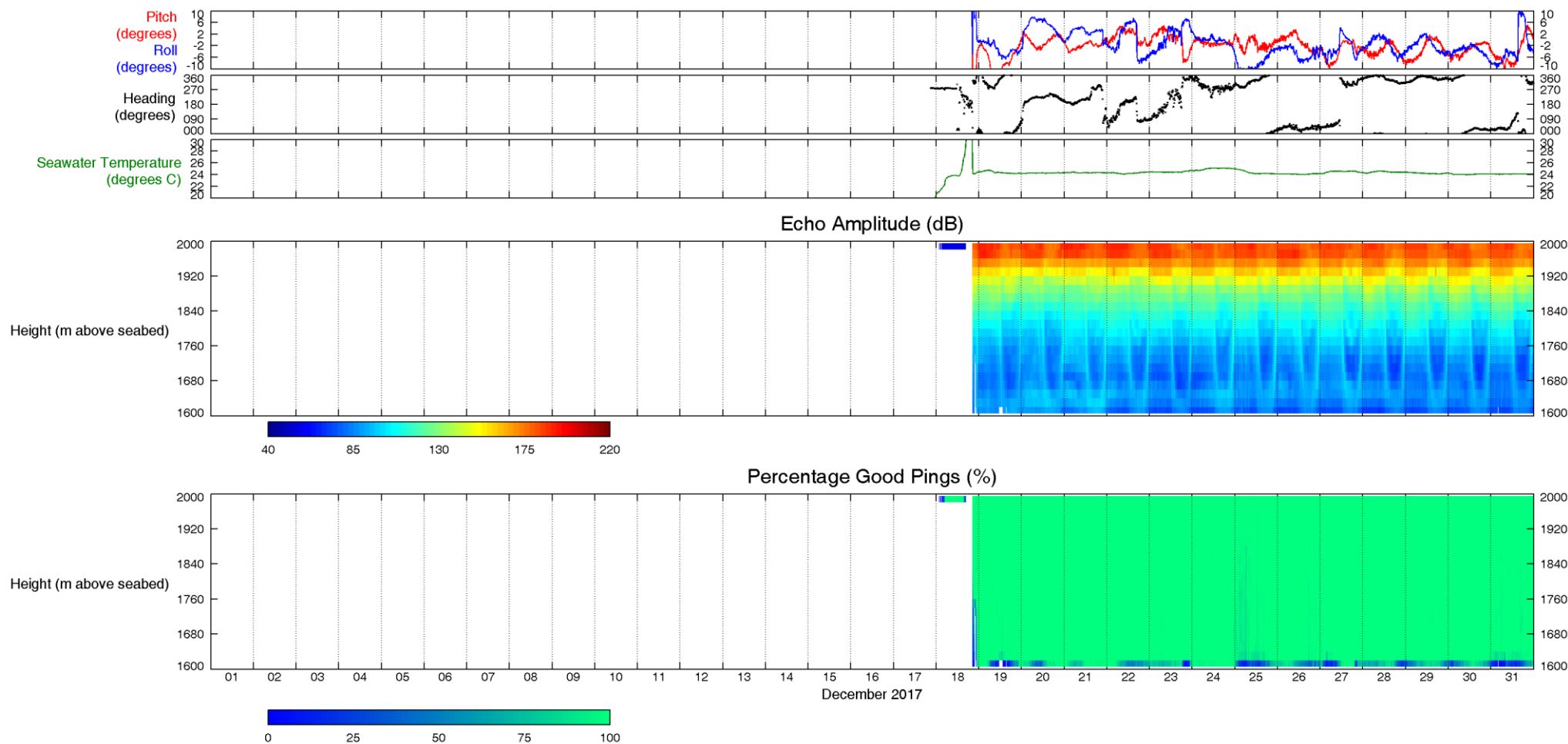




**QC Plots - 75 kHz ADCP**



**CHEVRON USA**  
**BIG FOOT METOCEAN MEASUREMENT STUDY DATA REPORT**

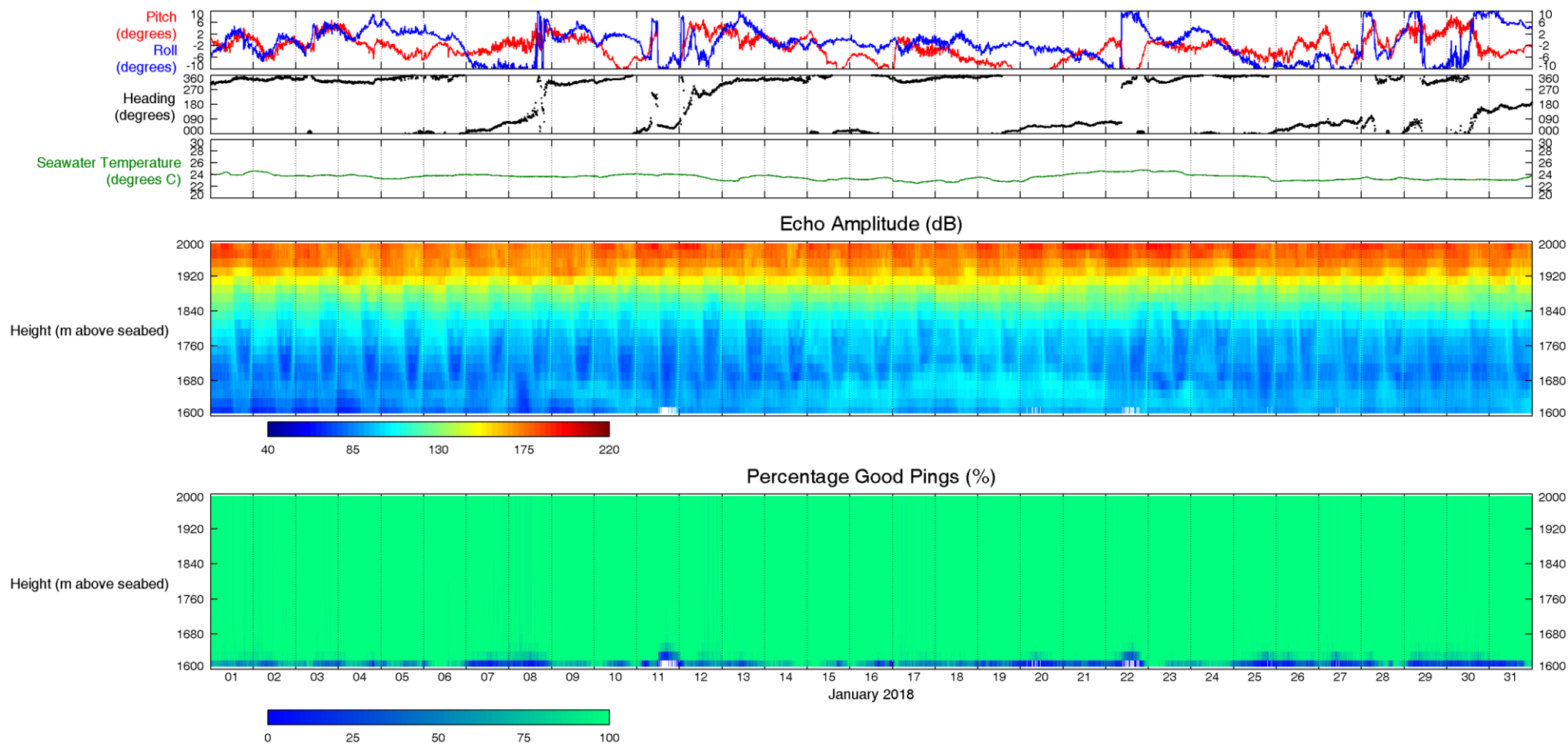


<b>Location:</b> Big Foot Wavescan	<b>Position:</b> 26° 54.042' N, 089° 30.876' W	<b>Datum:</b> MSL
<b>Water depth:</b> 2032 m	<b>Instrument type:</b> 75-kHz SYSTEM	
<b>Notes:</b>		

**Figure 11.1 Level 1-20, 17-Dec-2017 20:55:11 - 31-Dec-2017 23:55:11 (UTC)**



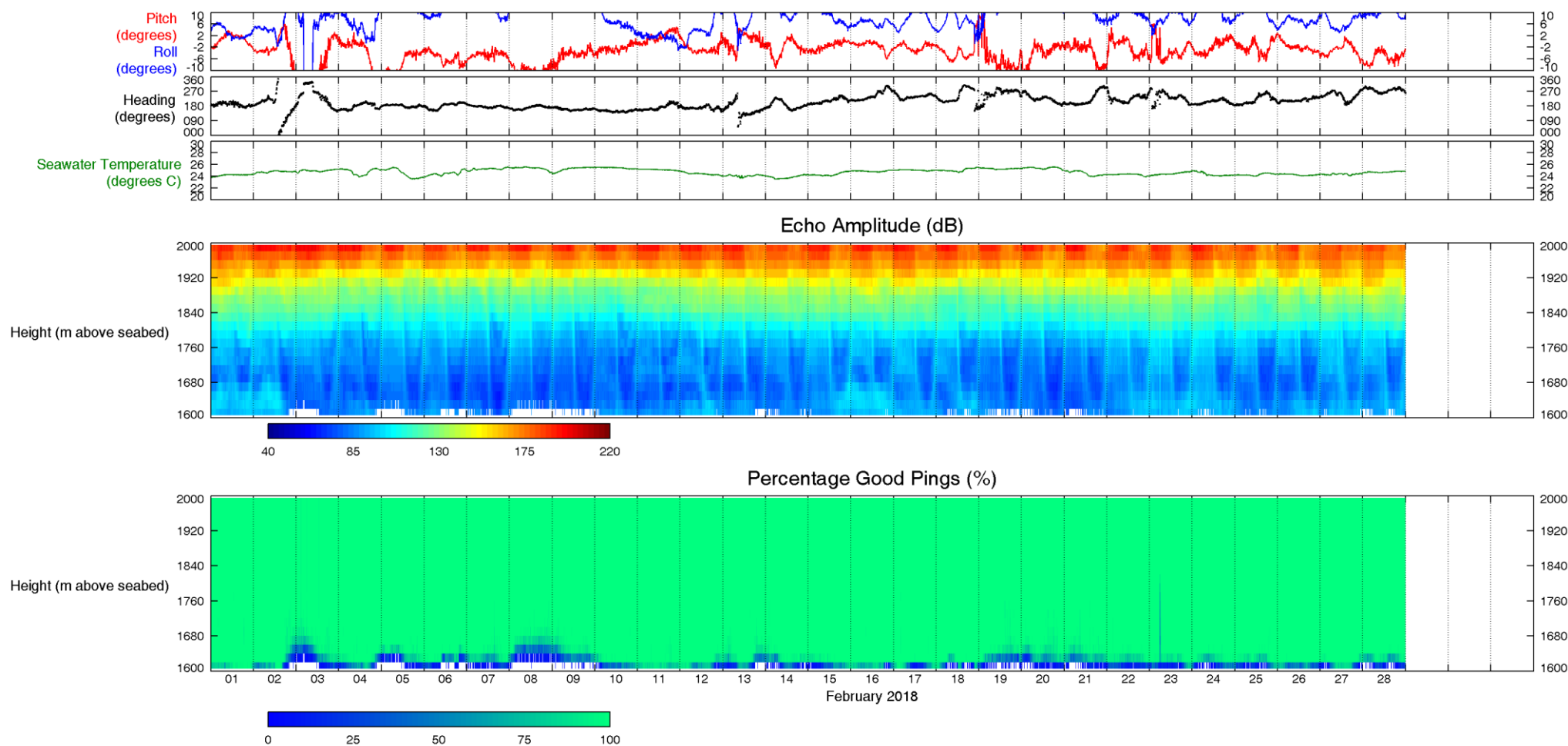
**CHEVRON USA**  
**BIG FOOT METOCEAN MEASUREMENT STUDY DATA REPORT**



<b>Location:</b> Big Foot Wavescan	<b>Position:</b> 26° 54.042' N, 089° 30.876' W	<b>Datum:</b> MSL
<b>Water depth:</b> 2032 m	<b>Instrument type:</b> 75-kHz SYSTEM	
<b>Notes:</b>		

Figure 11.2 Level 1-20, 01-Jan-2018 00:05:11 - 31-Jan-2018 23:55:11 (UTC)

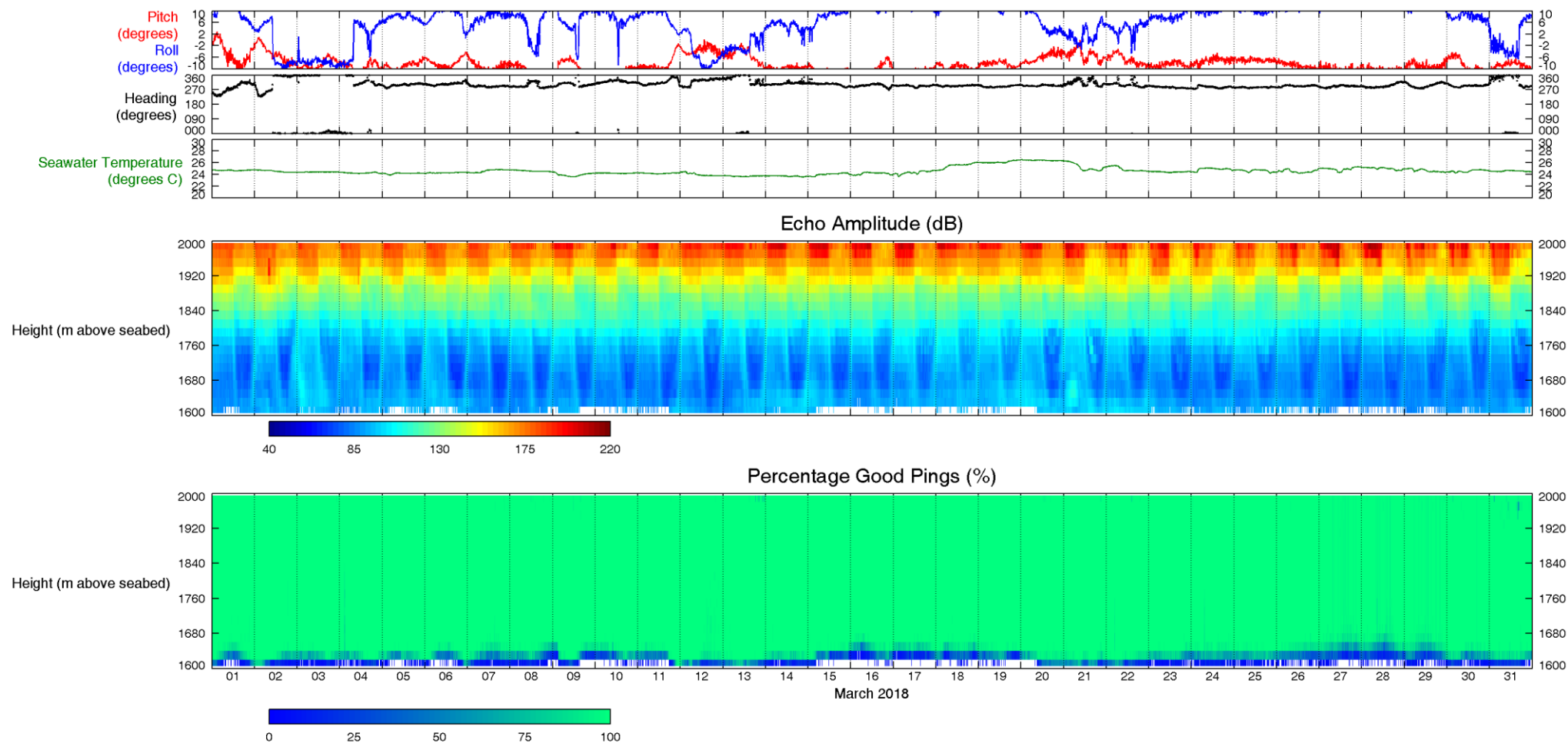




Location: Big Foot Wavescan	Position: 26° 54.042' N, 089° 30.876' W	Datum: MSL
Water depth: 2032 m	Instrument type: 75-kHz SYSTEM	
Notes:		

Figure 11.3 Level 1-20, 01-Feb-2018 00:05:11 - 28-Feb-2018 23:55:11 (UTC)



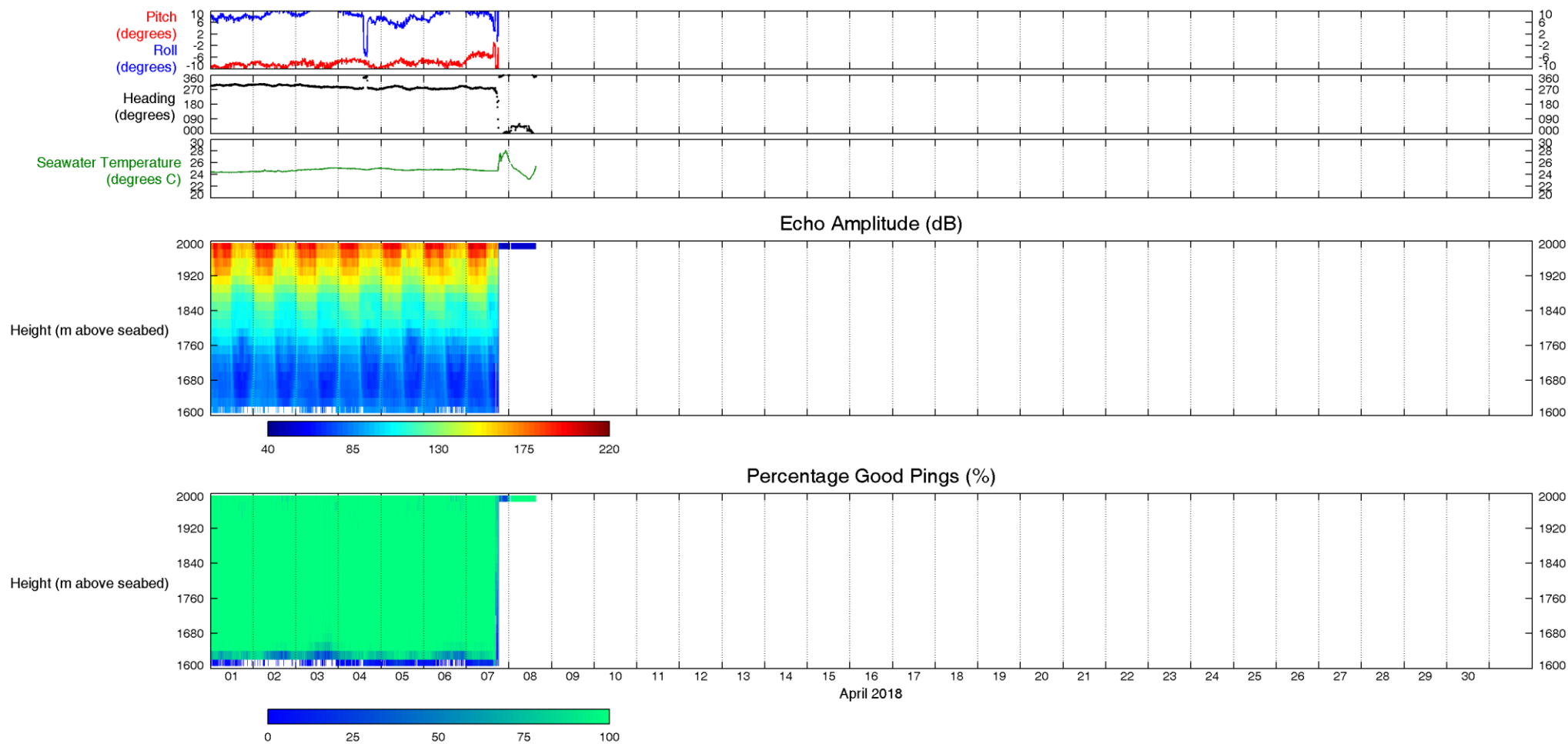


Location: Big Foot Wavescan	Position: 26° 54.042' N, 089° 30.876' W	Datum: MSL
Water depth: 2032 m	Instrument type: 75-kHz SYSTEM	
Notes:		

Figure 11.4 Level 1-20, 01-Mar-2018 00:05:11 - 31-Mar-2018 23:55:11 (UTC)



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**BIG FOOT METOCEAN MEASUREMENT STUDY DATA REPORT**



<b>Location:</b> Big Foot Wavescan	<b>Position:</b> 26° 54.042' N, 089° 30.876' W	<b>Datum:</b> MSL
<b>Water depth:</b> 2032 m	<b>Instrument type:</b> 75-kHz SYSTEM	
<b>Notes:</b>		

**Figure 11.5 Level 1-20, 01-Apr-2018 00:05:11 - 08-Apr-2018 15:06:35 (UTC)**

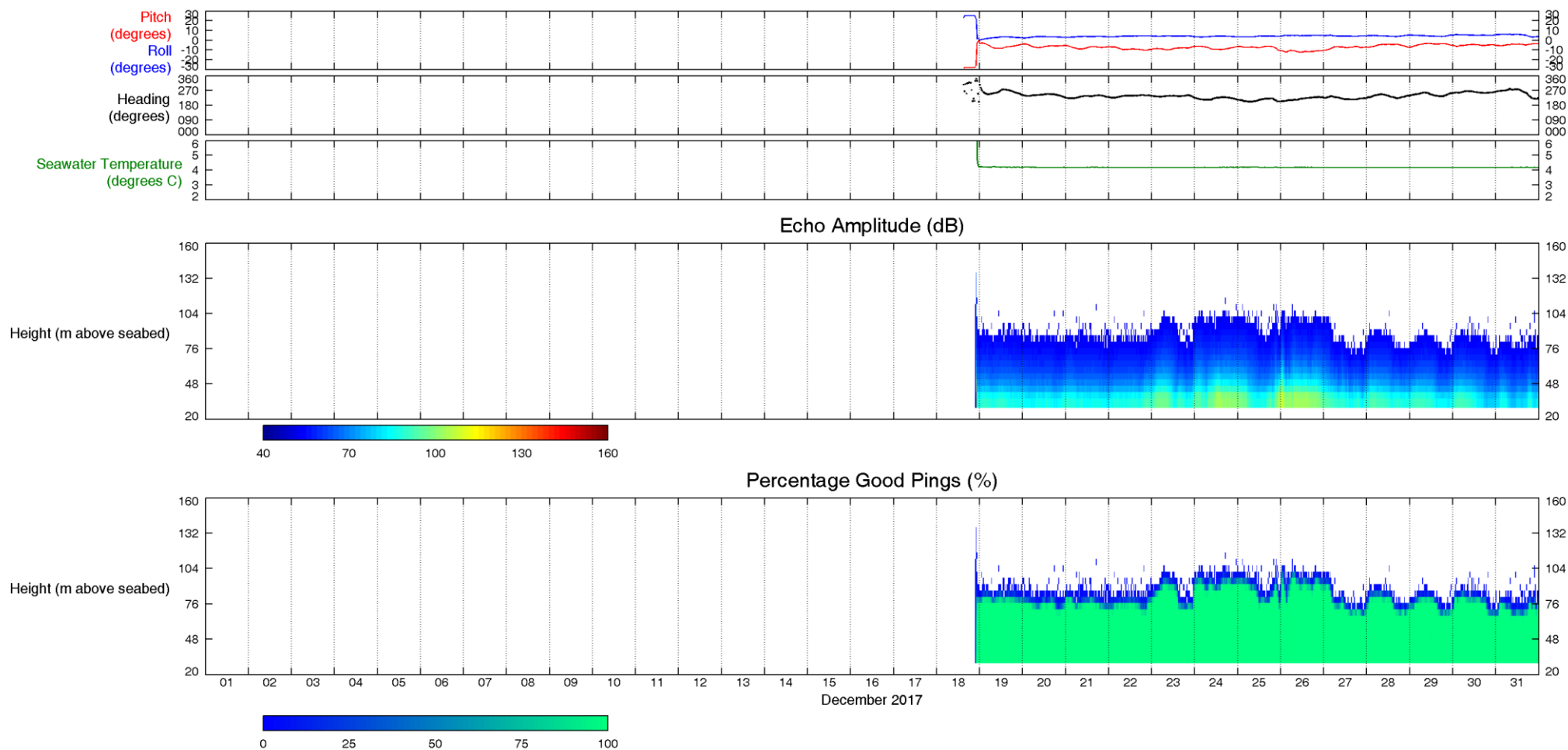




**QC Plots - 300 kHz ADCP**



**CHEVRON USA**  
**BIG FOOT METOCEAN MEASUREMENT STUDY DATA REPORT**

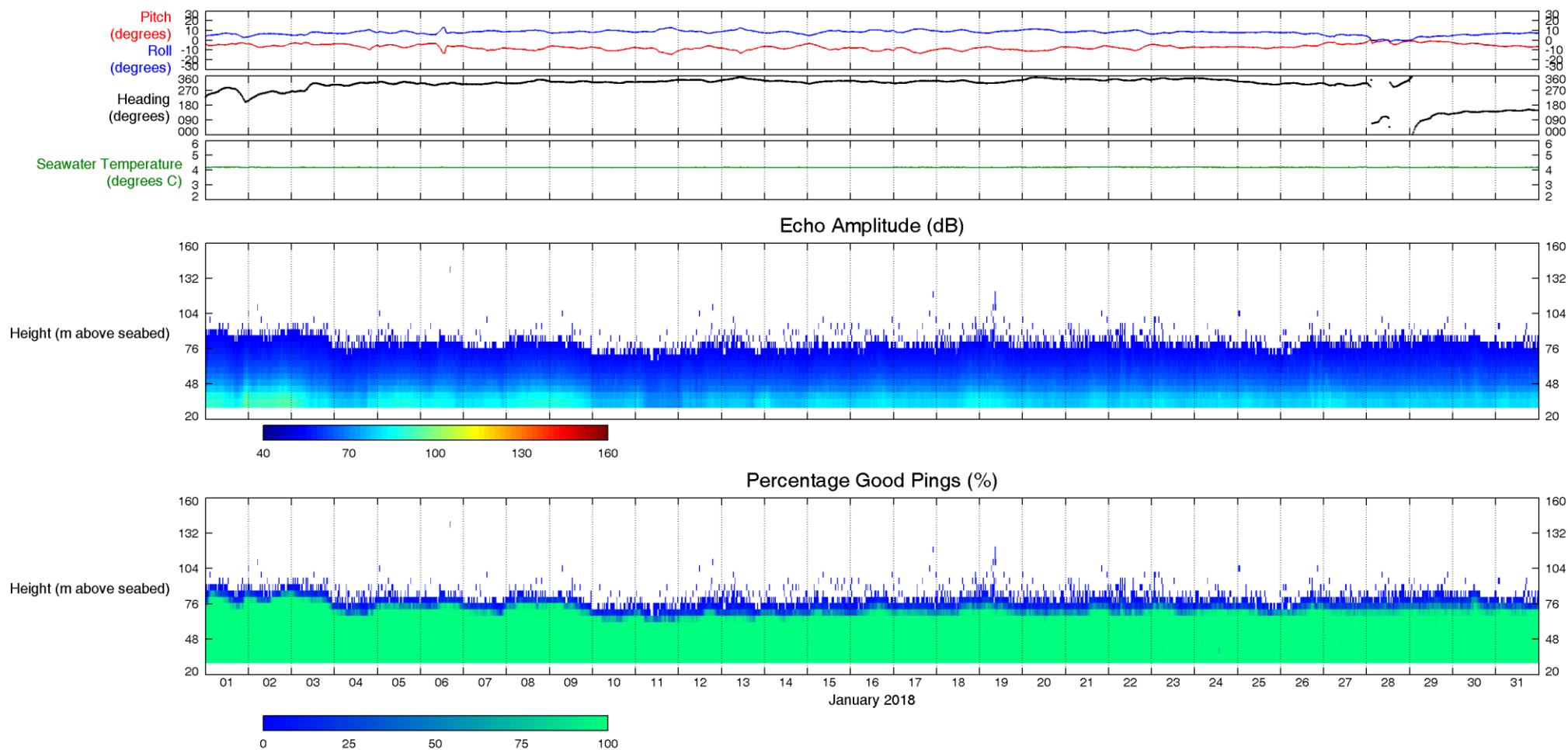


<b>Location:</b> Big Foot Wavescan	<b>Position:</b> 26° 54.042' N, 089° 30.876' W	<b>Datum:</b> MSL
<b>Water depth:</b> 2032 m	<b>Instrument type:</b> 300-kHz SYSTEM	
<b>Notes:</b>		

**Figure 12.1 Level 1-25, 18-Dec-2017 15:02:32 - 31-Dec-2017 23:32:32 (UTC)**



**CHEVRON USA**  
**BIG FOOT METOCEAN MEASUREMENT STUDY DATA REPORT**

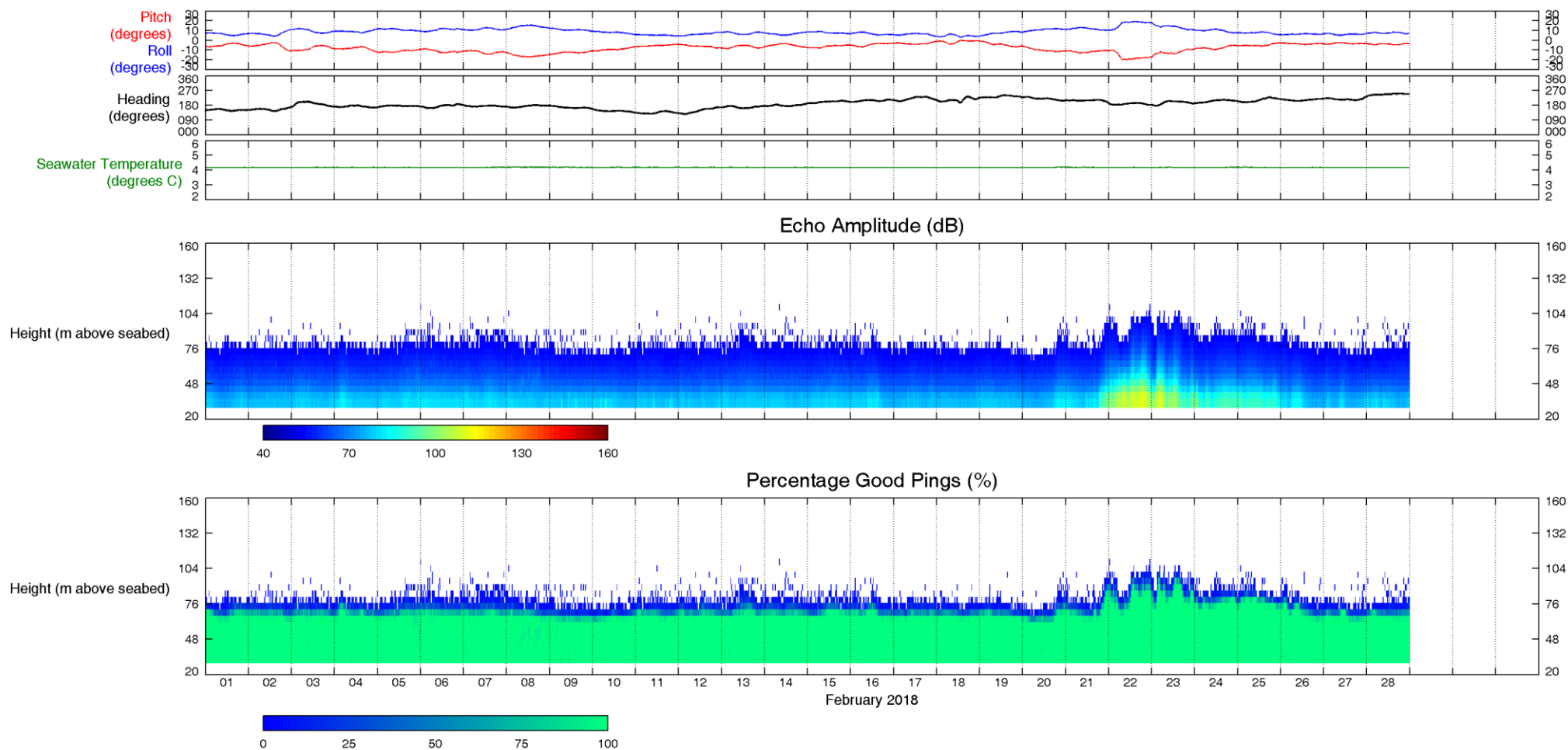


<b>Location:</b> Big Foot Wavescan	<b>Position:</b> 26° 54.042' N, 089° 30.876' W	<b>Datum:</b> MSL
<b>Water depth:</b> 2032 m	<b>Instrument type:</b> 300-kHz SYSTEM	
<b>Notes:</b>		

**Figure 12.2 Level 1-25, 01-Jan-2018 00:02:32 - 31-Jan-2018 23:32:32 (UTC)**



**CHEVRON USA**  
**BIG FOOT METOCEAN MEASUREMENT STUDY DATA REPORT**

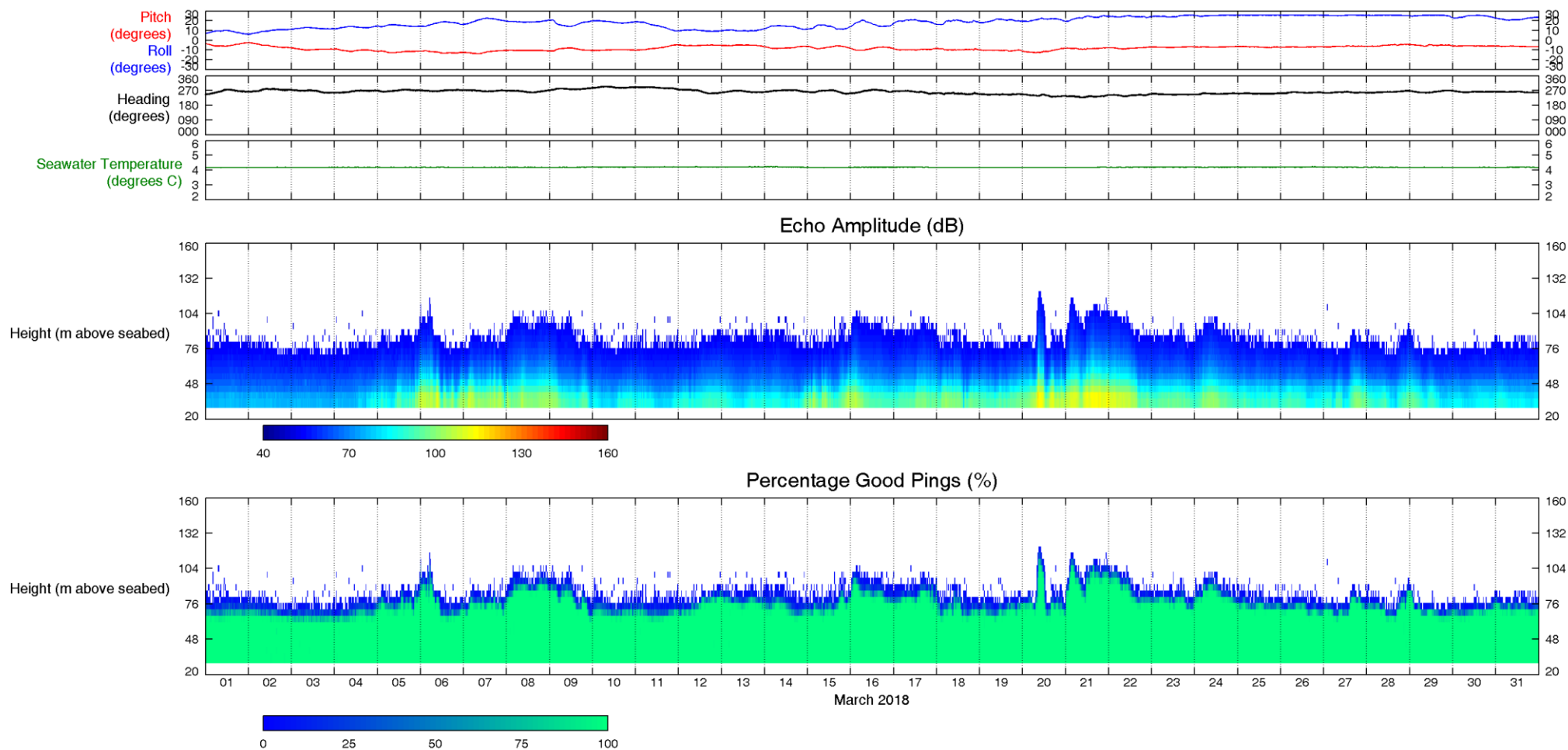


<b>Location:</b> Big Foot Wavescan	<b>Position:</b> 26° 54.042' N, 089° 30.876' W	<b>Datum:</b> MSL
<b>Water depth:</b> 2032 m	<b>Instrument type:</b> 300-kHz SYSTEM	
<b>Notes:</b>		

**Figure 12.3 Level 1-25, 01-Feb-2018 00:02:32 - 28-Feb-2018 23:32:32 (UTC)**



**CHEVRON USA**  
**BIG FOOT METOCEAN MEASUREMENT STUDY DATA REPORT**

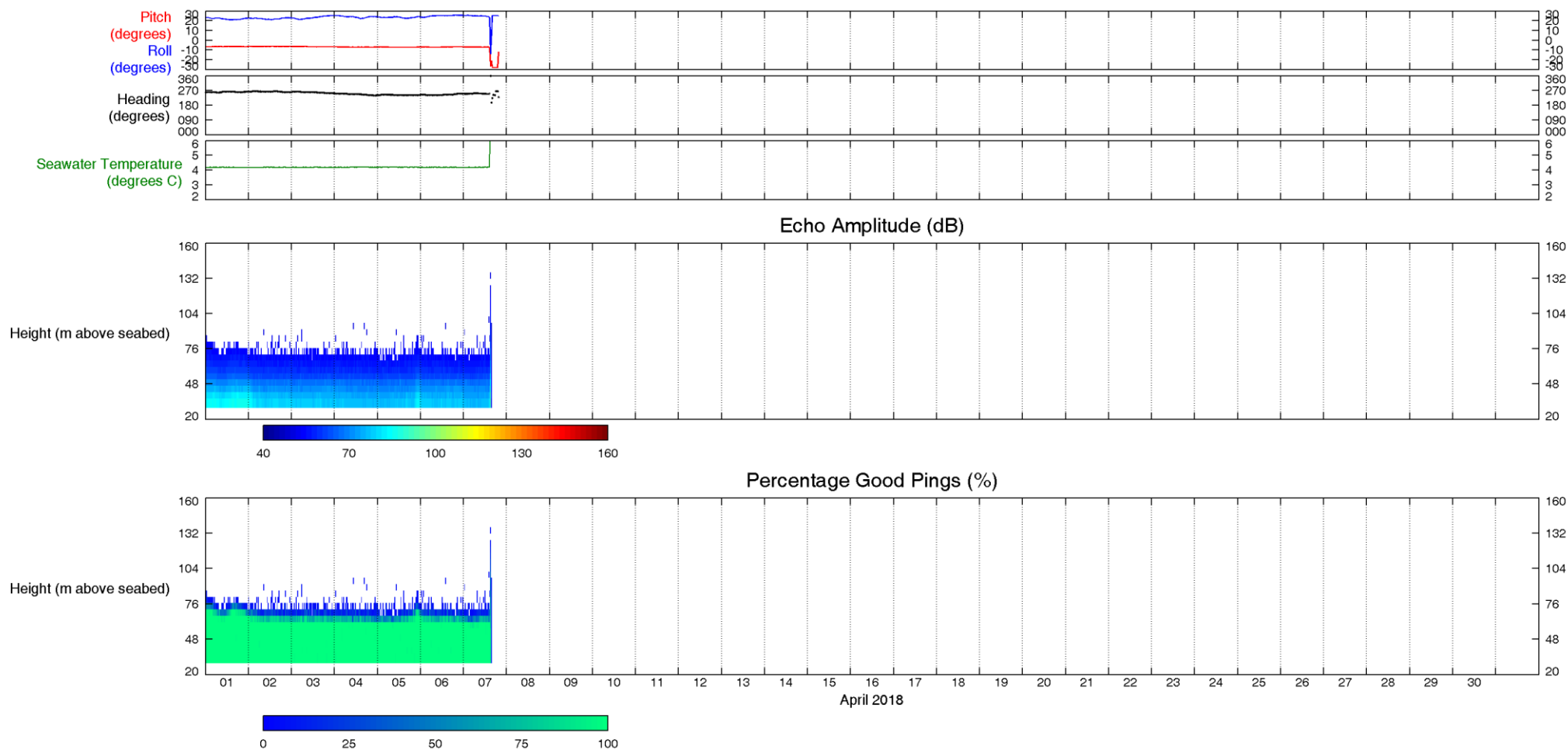


<b>Location:</b> Big Foot Wavescan	<b>Position:</b> 26° 54.042' N, 089° 30.876' W	<b>Datum:</b> MSL
<b>Water depth:</b> 2032 m	<b>Instrument type:</b> 300-kHz SYSTEM	
<b>Notes:</b>		

**Figure 12.4 Level 1-25, 01-Mar-2018 00:02:32 - 31-Mar-2018 23:32:32 (UTC)**



**CHEVRON USA**  
**BIG FOOT METOCEAN MEASUREMENT STUDY DATA REPORT**



<b>Location:</b> Big Foot Wavescan	<b>Position:</b> 26° 54.042' N, 089° 30.876' W	<b>Datum:</b> MSL
<b>Water depth:</b> 2032 m	<b>Instrument type:</b> 300-kHz SYSTEM	
<b>Notes:</b>		

**Figure 12.5 Level 1-25, 01-Apr-2018 00:02:32 - 07-Apr-2018 19:32:32 (UTC)**

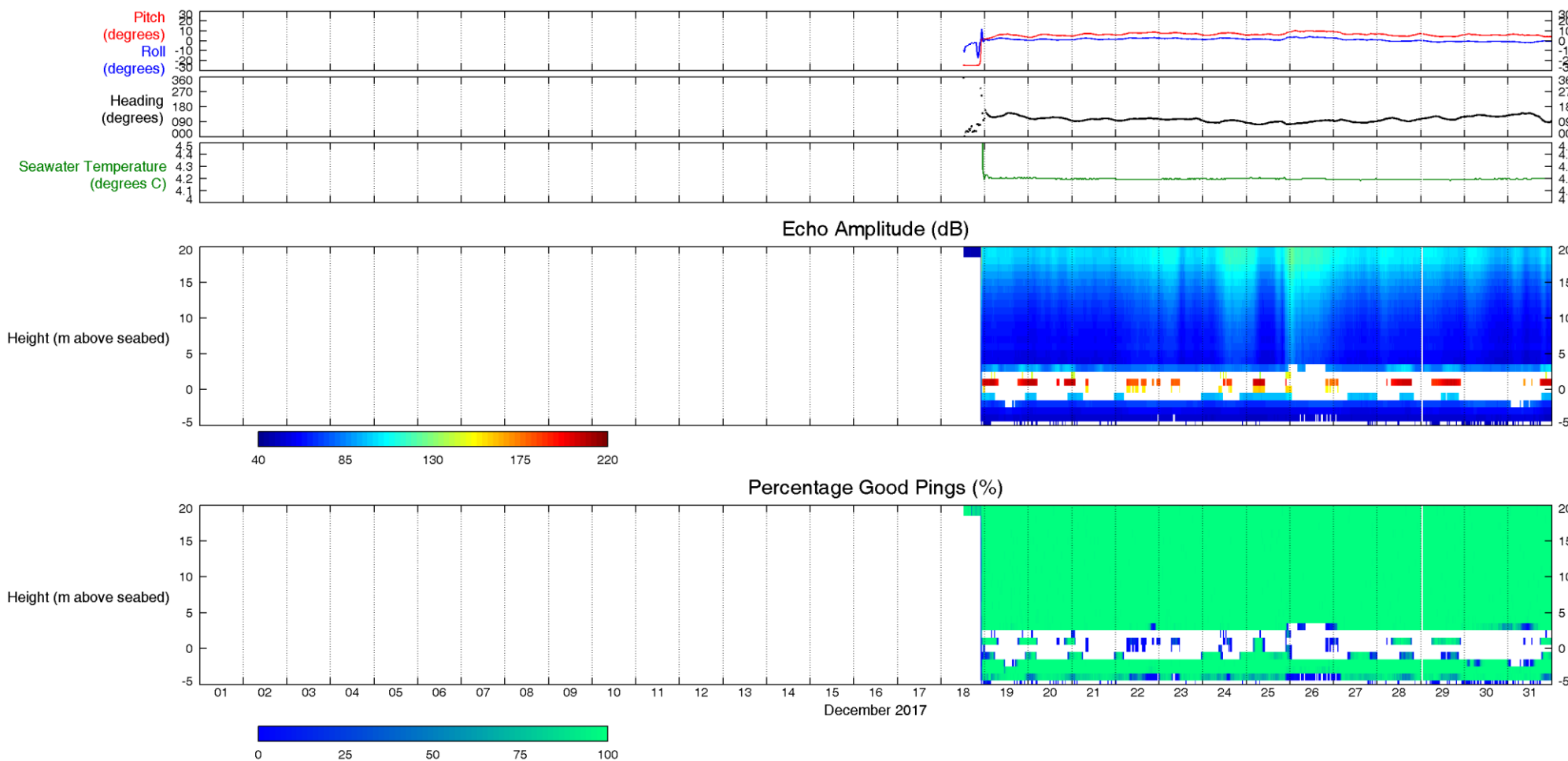




**QC Plots - 600 kHz ADCP**



**CHEVRON USA**  
**BIG FOOT METOCEAN MEASUREMENT STUDY DATA REPORT**

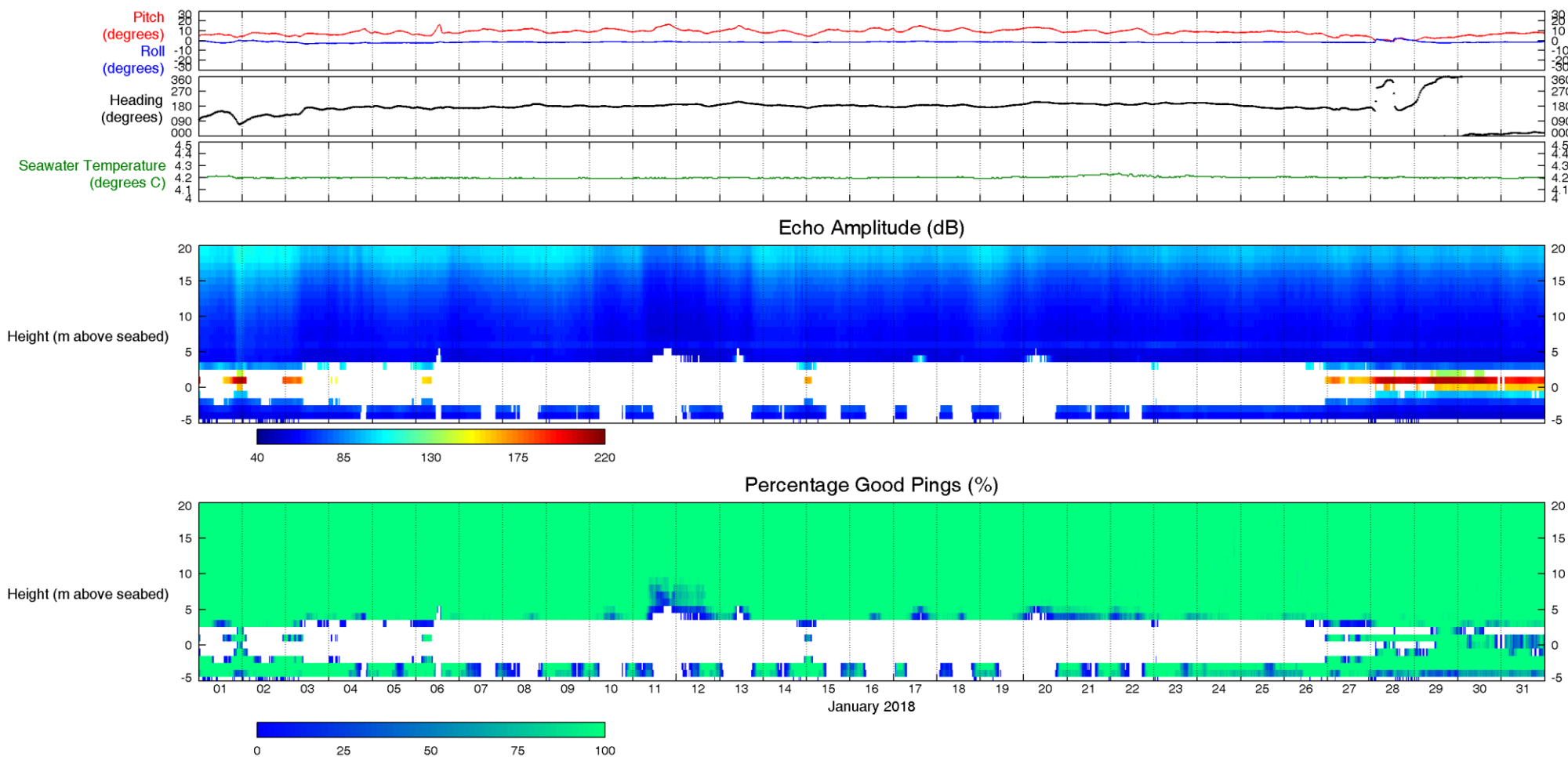


<b>Location:</b> Big Foot Wavescan	<b>Position:</b> 26° 54.042' N, 089° 30.876' W	<b>Datum:</b> MSL
<b>Water depth:</b> 2032 m	<b>Instrument type:</b> 600-kHz SYSTEM	
<b>Notes:</b>		

**Figure 13.1 Level 1-25, 18-Dec-2017 12:15:08 - 31-Dec-2017 23:34:32 (UTC)**



**CHEVRON USA**  
**BIG FOOT METOCEAN MEASUREMENT STUDY DATA REPORT**

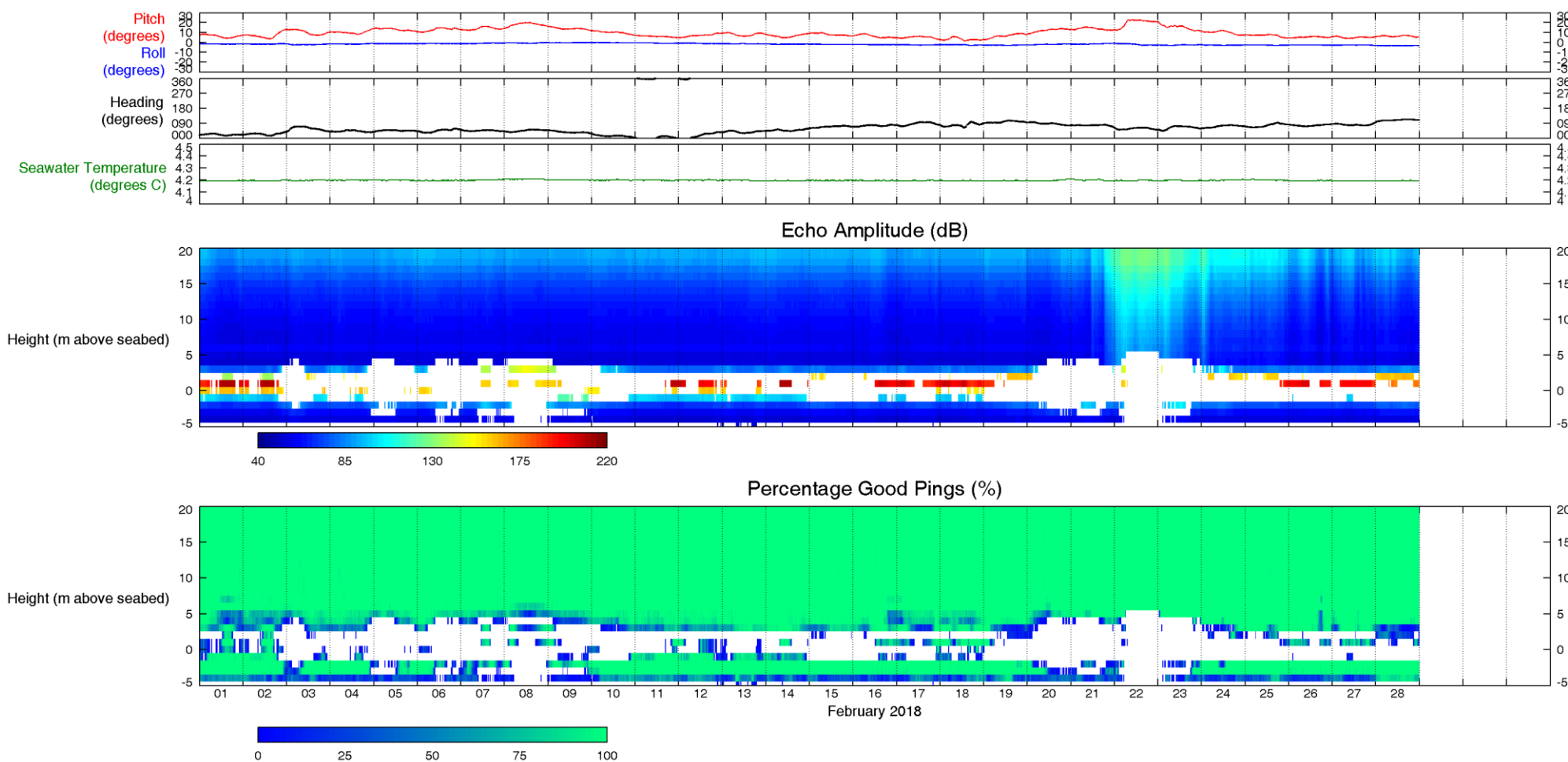


<b>Location:</b> Big Foot Wavescan	<b>Position:</b> 26° 54.042' N, 089° 30.876' W	<b>Datum:</b> MSL
<b>Water depth:</b> 2032 m	<b>Instrument type:</b> 600-kHz SYSTEM	
<b>Notes:</b>		

**Figure 13.2 Level 1-25, 01-Jan-2018 00:04:32 - 31-Jan-2018 23:34:32 (UTC)**



**CHEVRON USA**  
**BIG FOOT METOCEAN MEASUREMENT STUDY DATA REPORT**

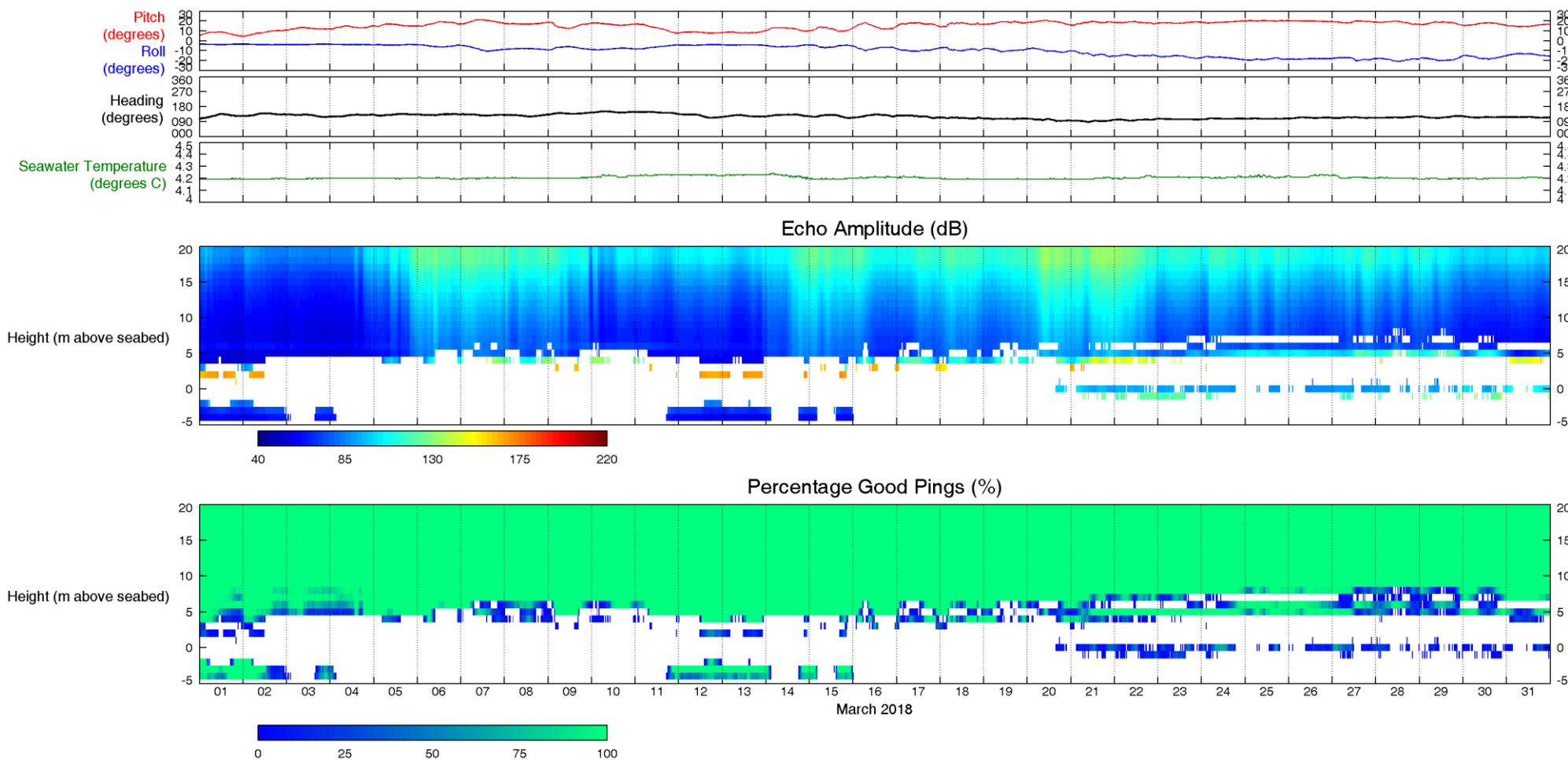


<b>Location:</b> Big Foot Wavescan	<b>Position:</b> 26° 54.042' N, 089° 30.876' W	<b>Datum:</b> MSL
<b>Water depth:</b> 2032 m	<b>Instrument type:</b> 600-kHz SYSTEM	
<b>Notes:</b>		

**Figure 13.3 Level 1-25, 01-Feb-2018 00:04:32 - 28-Feb-2018 23:34:32 (UTC)**



**CHEVRON USA**  
**BIG FOOT METOCEAN MEASUREMENT STUDY DATA REPORT**

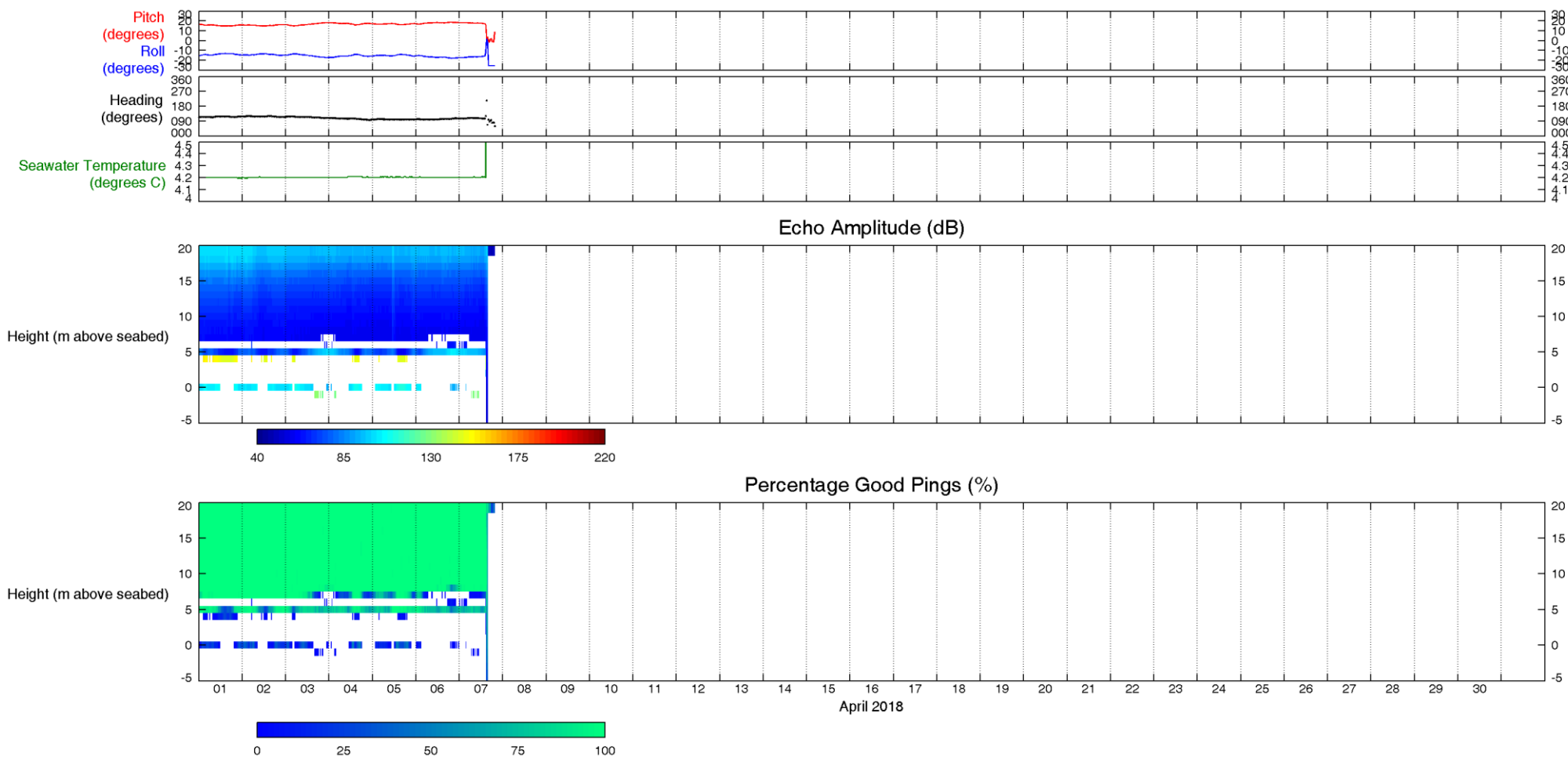


<b>Location:</b> Big Foot Wavescan	<b>Position:</b> 26° 54.042' N, 089° 30.876' W	<b>Datum:</b> MSL
<b>Water depth:</b> 2032 m	<b>Instrument type:</b> 600-kHz SYSTEM	
<b>Notes:</b>		

**Figure 13.4 Level 1-25, 01-Mar-2018 00:04:32 - 31-Mar-2018 23:34:32 (UTC)**



**CHEVRON USA**  
**BIG FOOT METOCEAN MEASUREMENT STUDY DATA REPORT**



<b>Location:</b> Big Foot Wavescan	<b>Position:</b> 26° 54.042' N, 089° 30.876' W	<b>Datum:</b> MSL
<b>Water depth:</b> 2032 m	<b>Instrument type:</b> 600-kHz SYSTEM	
<b>Notes:</b>		

**Figure 13.5 Level 1-25, 01-Apr-2018 00:04:32 - 07-Apr-2018 19:34:32 (UTC)**



## **APPENDICES**

### **A. MOORING AND INSTRUMENT LOGSHEETS**

- A.1 Mooring and Instrument Logsheets - Recovery
- A.2 Mooring and Instrument Logsheets - Deployment

### **B. ATTACHED DATA FILES**

### **C. CTD PROFILES**





**A. MOORING AND INSTRUMENT LOGSHEETS**



A.1 MOORING AND INSTRUMENT LOGSHEETS - RECOVERY

FUGRO GEOS		FUGRO																																					
Site Log Sheet																																							
MOORING																																							
<b>IDENTIFICATION</b> (Essential reference to instrument log sheet) Contract No. <u>112564</u> Contract Name <u>B.16 FOOT</u> Mooring Name <u>WS 053</u> Phase <u>MOB SVI Recover</u>																																							
<b>ANCILARY DETAILS</b> <b>ARGOS BEACONS</b> (mark position on mooring diagram) <table border="1"> <thead> <tr> <th></th> <th>ID No.</th> <th>Ser No.</th> <th>SIM500 / SIM2000</th> <th>Tested</th> <th>Rebattered?</th> </tr> </thead> <tbody> <tr> <td>ADCP Floatation Collar (top)</td> <td></td> <td></td> <td></td> <td><input checked="" type="checkbox"/></td> <td><input checked="" type="radio"/> No</td> </tr> <tr> <td>ADCP Floatation Collar (bottom)</td> <td><u>30043462359</u></td> <td><u>343</u></td> <td>SIM500 / SIM2000</td> <td><input checked="" type="checkbox"/></td> <td><input checked="" type="radio"/> Yes No</td> </tr> <tr> <td>In line/CRP80 Deep/Normal</td> <td></td> <td></td> <td>SIM500 / SIM2000</td> <td><input type="checkbox"/></td> <td><input type="radio"/> Yes/No</td> </tr> <tr> <td>In line/CRP80 Deep/Normal</td> <td></td> <td></td> <td>SIM500 / SIM2000</td> <td><input type="checkbox"/></td> <td><input type="radio"/> Yes/No</td> </tr> </tbody> </table>					ID No.	Ser No.	SIM500 / SIM2000	Tested	Rebattered?	ADCP Floatation Collar (top)				<input checked="" type="checkbox"/>	<input checked="" type="radio"/> No	ADCP Floatation Collar (bottom)	<u>30043462359</u>	<u>343</u>	SIM500 / SIM2000	<input checked="" type="checkbox"/>	<input checked="" type="radio"/> Yes No	In line/CRP80 Deep/Normal			SIM500 / SIM2000	<input type="checkbox"/>	<input type="radio"/> Yes/No	In line/CRP80 Deep/Normal			SIM500 / SIM2000	<input type="checkbox"/>	<input type="radio"/> Yes/No						
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Releases not tilted pre recovery	<input checked="" type="checkbox"/>		<u>07 APR 2018 @ 1502 GMT</u>																																				
<b>NOTES</b> <u>Position will move @ SVI deploy</u>																																							

Every field must be complete and all boxes must be ticked. Circle selected options and strikethrough others.

Further details of each step in Site Technical Instructions (TI)

[\Site\\_Technical\\_Instructions\SiteTI\\_RDI\\_BB\\_ADCP\\_SC.doc](#)



# FUGRO GEOS

## Site Log Sheet

### MOORING



IDENTIFICATION (Essential reference to instrument log sheet)

Contract No. 112564 Contract Name CHEVRON B.16.5601 Mooring Name WS 053 Phase MaB

AS LAID MOORING CONFIGURATION

Instrument/ buoyancy Type	Serial/geos address number	Height above bed	Depth below msl	In water date/time GMT
WS 053			1820	18 DEC 2017
AQUADCP	6670		1830	
WHLR	17500		1820	
MODEM ATM-916	52680		1820	
ATM-916	52510088			
FLAT	HMB-40	51728-001		
Buoy ADCP 40"	525.06159			
RDI WHS 300	21714		2232	
BENTHOS ATM-965	51365		2232	
XEOS XMI	23006176		2232	
WH FRAME	525.A3828		2232	
WHS 600KHZ	295.A3459		2232	
DORT	200.04171	ADDRESS (BB)		
DORT	200.A2049	(99)		

AS LAID MOORING DIAGRAM

Every field must be complete and all boxes must be ticked. Circle selected options and strikethrough others.

Further details of each step in Site Technical Instructions (TI)

\\Site Technical Instructions\\SiteTI RDI BB ADCP SC.doc





# FUGRO GEOS

Site Log Sheet

OCEANOR WAVESCAN BUOY

1. IDENTIFICATION (Essential to reference individual sensor log sheets deployed with Wavescan)	
Contract No. <u>112564</u>	Contract Name <u>CARVER BIG FOOT</u> Mooring Name <u>WS053</u> Phase <u>Mar</u>
2. INSTRUMENT SPECIFICATION AND CONFIGURATION	
Wavescan serial no. <u>WS053</u>	XML latitude <u>26</u>
Geni/Wavesense type & No <u>2000 / 3</u>	XML longitude <u>-95</u>
PMU no. <u>180</u>	Water depth (m) <u>2000 m</u>
TCM Compass present <input checked="" type="checkbox"/> N SN: <u>1032124</u>	Transmitter type <u>Iridium / VHF</u>
IMEI No. / Radio Freq <u>30025010726900</u>	Details of modem sent to GEOS and activated <input checked="" type="checkbox"/>
XMLs prepared and tech checked <input checked="" type="checkbox"/>	Wavescan weight on load cell Y <input checked="" type="checkbox"/>
CLS tracker on <input checked="" type="checkbox"/> N <u>(new)</u> CLS rebatteried <input checked="" type="checkbox"/> CLS tracker No. <u>300434022915</u>	Mast cable No. <u>4</u>
Battery stack total capacity (excl. active radar) no. <u>4</u> Lead <u>4</u> Lithium <u>4</u>	No. of batteries installed <u>4</u> Lith (excl. active radar) <u>0</u> Extra lith for active radar Y <input checked="" type="checkbox"/>
Lead voltages (no charging) <u>13.4</u>	Lithium voltages <u>0</u>
3. SETUP & TESTING	
Waves <input checked="" type="checkbox"/> N	Met Sensors
Sample interval: <u>2 Hz</u>	Atmospheric press <u>PTB 330 3320003 3s</u>
Samples per burst: 1024 (2048)	Wind speed & dir <u>GILL WINDS 1.5 14110050</u>
Duration of burst: 17-mins (34-mins)	Air temperature <u>OCEANOR AIR 588</u>
Aquadop <input checked="" type="checkbox"/> N	Humidity <u>N/A</u>
Type: <u>400kHz</u> 600kHz / 1Hz / 2Hz	Air temp & humid <u>RS232/485</u>
SN: <u>6670/9582</u>	Solar radiation <u>N/A</u>
Opposite rudder & x-beam away from keel <input checked="" type="checkbox"/>	Active radar <u>N/A</u>
AQD log sheet completed <input type="checkbox"/>	Passive radar <u>ECHOMAX</u>
ADCP <input checked="" type="checkbox"/> N	Flashlight <u>YUP</u>
SN <u>21714/20241</u>	Other (specify) <u>YUP</u>
Frequency <u>300 / 600 KHz</u>	WLR <input checked="" type="checkbox"/> N SN <u>17588</u>
ADCP log sheet completed <input type="checkbox"/> ~0	WLR log sheet completed <input checked="" type="checkbox"/>
SBE <input checked="" type="checkbox"/> N	Benthos modem <input checked="" type="checkbox"/> N SN <u>52365 (BOTTOM)</u>
SN <u>52680 (TOP)</u>	Modem log sheet completed <input type="checkbox"/>
Type <u>DONT NAV</u>	Complete page 2 servicing & testing checklist <input checked="" type="checkbox"/>
SBE log sheet completed <input type="checkbox"/>	Initials <u>cam</u> Date <u>18 DEC 2017</u>
4. START UP & DEPLOYMENT	
Data, log & xmls copied & backed up <input checked="" type="checkbox"/>	Sensor cables secure <input checked="" type="checkbox"/>
Data & log files cleared <input checked="" type="checkbox"/>	Mast cable tightened <input checked="" type="checkbox"/>
New xmls uploaded & buoy restarted <input checked="" type="checkbox"/>	Bird spikes attached <input checked="" type="checkbox"/>
Name of new xmls <u>WS_53_MTO_15 DEC 17</u>	Weather or security cover installed <input checked="" type="checkbox"/>
Lead acid batteries recharged <input checked="" type="checkbox"/>	Canister filled with nitrogen <input checked="" type="checkbox"/>
All lid bolts secured <input checked="" type="checkbox"/>	Initials <u>cam</u> Date <u>18 DEC 2017</u>
5. RECOVERY	
Date/Time of recovery GMT <u>7 APR 18 15029MT</u>	Downloaded data/pff files <input checked="" type="checkbox"/>
Condition <u>GOOD</u>	Downloaded Syslog <input checked="" type="checkbox"/>
Purged with nitrogen <input checked="" type="checkbox"/>	Downloaded xmls <input checked="" type="checkbox"/>
Purge date <u>7 APR 18</u>	All files backed up <input checked="" type="checkbox"/>
Wavescan weight on load cell <u>1002LT</u>	Initials <u>PVCH</u> Date <u>7 APR 2018</u>
NOTES <u>GPS was missing at recovery - pulled off by fishermen</u> <u>Fishing line and hook around shearbulk @ 751412 adcp</u>	

Every field must be complete and all boxes must be ticked. Circle selected options and strikethrough others.

Further details of each step in Site Technical Instructions (TI) ..Site\_Technical\_Instructions\SiteTI\_Wavescan



FUGRO GEOS

Site Log Sheet

WAVESCAN MOORING SERVICING CHECKLIST

IDENTIFICATION (Essential reference to instrument log sheet)

Contract No. 112564 Contract Name Chevron Mooring Name WS053 Phase Mob

1. VISUAL INSPECTION / CHECKS:

Visual inspection for damage / corrosion	<input checked="" type="checkbox"/>	Aquadopp opposite rudder / x-beam away from keel	<input checked="" type="checkbox"/>
Purged with nitrogen / air / checklist complete	<input checked="" type="checkbox"/>	Lid o-ring replaced & greased.	<input checked="" type="checkbox"/>
Solar panels inspected / cleaned	<input checked="" type="checkbox"/>	Lid o-ring seated correctly and not pinched	<input checked="" type="checkbox"/>
Mast inspected / cleaned	<input checked="" type="checkbox"/>	Connectors on lid inspected / cleaned	<input checked="" type="checkbox"/>
Check & clean mast cable and mast connection orings	<input checked="" type="checkbox"/>	Dummy / blanking plugs present	<input checked="" type="checkbox"/>
Sensor ring inspected / cleaned	<input checked="" type="checkbox"/>	Internal cables inspected	<input checked="" type="checkbox"/>
Lid clamps in good condition. Anti-seize lid bolts.	<input checked="" type="checkbox"/>	Internal units aligned to buoy north	<input checked="" type="checkbox"/>
Keel plate inspected / cleaned	<input checked="" type="checkbox"/>	Ext TCM compass present, aligned to buoy north	<input checked="" type="checkbox"/>
Keel weight inspected for damage / cracks	<input checked="" type="checkbox"/>	Anodes replaced on keel / canister	<input checked="" type="checkbox"/>
Floatation clamps inspected / replaced	<input checked="" type="checkbox"/>	Floatation weighed (< 150kg each)	<input checked="" type="checkbox"/>
Clear float vent holes	<input checked="" type="checkbox"/>	Floatation cleaned & antifouled	<input checked="" type="checkbox"/>
External / subsea cables inspected for damage	<input checked="" type="checkbox"/>	GEOS contact details present	<input checked="" type="checkbox"/>
Rudder in place / securing OK	<input checked="" type="checkbox"/>	Check battery stack cable & fuses	<input checked="" type="checkbox"/>
Tag line points in place / securing OK	<input checked="" type="checkbox"/>	Air pressure / vent hoses clear	<input checked="" type="checkbox"/>
Lifting ring inspected	<input checked="" type="checkbox"/>	Extended purge system present / installed	<input checked="" type="checkbox"/>
Mast bolts replaced, tighten to 70Nm (max)	<input checked="" type="checkbox"/>	Pressure relief valve present / installed	<input checked="" type="checkbox"/>
Sensor ring bolts replaced, tighten to 40Nm (max)	<input checked="" type="checkbox"/>	Check DC/DC converter & cable screws	<input checked="" type="checkbox"/>
Sensor / mast ring repainted	<input checked="" type="checkbox"/>	Desiccant bag in electronics can	<input checked="" type="checkbox"/>
Wind sensor aligned to buoy north	<input checked="" type="checkbox"/>	Amalgamate GPS and Iridium mast connections	<input checked="" type="checkbox"/>
	<input checked="" type="checkbox"/>	Mast cable tightened	<input checked="" type="checkbox"/>

2. SYSTEM TESTS / PROCEDURES:

Old data, log & xmls downloaded, cleared & backed-up	<input checked="" type="checkbox"/>	Real-time data observed transmitting	<input checked="" type="checkbox"/>
New xmls loaded. Name: .....	<input checked="" type="checkbox"/>	Set system & hardware clocks to GMT	<input checked="" type="checkbox"/>
Wind adjustment channel set to Compass Correction	<input checked="" type="checkbox"/>	Solar panels charging batteries	<input checked="" type="checkbox"/>
Real-time data observed in 'Display / Menu'	<input checked="" type="checkbox"/>	GPS values correct	<input checked="" type="checkbox"/>

3. SENSOR TESTS:	Predeployment values			Post deployment values		
	Date & time (GMT)	Buoy	Test instrument	Date & time (GMT)	Buoy (Tx data)	Test instrument
Air pressure (hPa)	.....	.....	.....	.....	.....	.....
Air temperature (°C)	.....	.....	.....	.....	.....	.....
Air humidity (%)	.....	.....	.....	.....	.....	.....
Wind speed (~m/s)	.....	.....	.....	.....	.....	.....
Wind dir 1	.....	.....	.....	.....	.....	.....
Wind dir 1 +90°	.....	.....	.....	N/A	.....	.....
Ext Compass dir 1	.....	.....	N/A	N/A	.....	.....
Ext Compass dir 1+90°	.....	.....	N/A	N/A	.....	.....
AQD speed (Bin1)	.....	.....	N/A	.....	.....	N/A
AQD dir (Bin1)	.....	.....	N/A	.....	.....	N/A
AQD temp (°C)	.....	.....	N/A	.....	.....	N/A
Hs	.....	.....	N/A	.....	.....	N/A
Tp	.....	.....	N/A	.....	.....	N/A
Mdir	.....	.....	N/A	.....	.....	N/A
Wavesense Compass	.....	.....	N/A	.....	.....	.....
Heave	.....	.....	N/A	Do these change when the buoy is moved? Y N		
Pitch	.....	.....	N/A			
Roll	.....	.....	N/A			
			Initials .....	Date.....		

NOTES



FUGRO GEOS		FUGRO	
Site Log Sheet			
RDI LONGRANGER ADCP (DIRECT READING)			
1. IDENTIFICATION (Essential reference to Rig/Drillship Installation log sheet with deployment details)			
Contract No. 112564	Contract Name BIG FOOT		
Rig/Installation WSP53	Visit No. MOB SVI Recovery		
2. INSTRUMENT DETAILS			
Instrument s/n 17588	RDI Firmware Version 50.40		
Frequency (kHz) 75	Planned Orientation Upward / Downward		
Beam angle (degrees) 20 / 30	Depth rating - Transducer/housing 1500m		
Housing length cms	Comms Settings (e.g. 9600,n,8,1?) 9600 n 8 1		
	Comms switch set to RS232 RS422		
3. TESTING			
Run built in tests (TestADCP)	Y / N	Clock set to correct date/time (GMT)	Y / N
Printout Attached ?	Y / N	Backed up testlog files	Y / N
Passed all tests ?	Y / N		
4. PRE-DEPLOYMENT CHECKS SERVICED IN SHOP			
O' rings checked ?	Y / N	Anodes checked ?	Y / N
Silica gel fitted ?	Y / N	Transducer faces OK	Y / N
Connector OK ?	Y / N	Rigadcp cfg file stored	Y / N
Anode test - check for continuity between the head anodes and the end cap anode			
ADCP isolation test - With the ADCP lifted off or isolated from the deck, ensure that there is no continuity between the deck and instrument.			
5. DATE / TIME DETAILS (GMT)			
ADCP deployed	Date / Time 21 DEC 2017 (IN SHOP)	Operator Initials	
Rig ADCP switched on	Date / Time	Operator Initials	
Rig ADCP switched off	Date / Time 7 APR 18 @ 1500GMT	Operator Initials	
ADCP Recovery OFF	Date / Time 8 APR 18 @ 1527GMT	Operator Initials	PVGW
6. RigADCP Software Setup			
Settings	QC Options		
Rig ADCP Version Number	% Good (Display Threshold)	Y / N	
Operating Mode Broadband (Longranger) (NB)	% Good Minimum		
Power Low / High	Check ADCP Type Ticked ?	Y / N	
Bin Length	Set PC Time to ADCP's	Y / N	
No of Bins	Serial Ports		
Blank after Transmit	ADCP Settings (eg COM1, 9600)		
Transducer Depth	Raw Data Broadcast	Dissabled / enabled	
Default Pitch/Roll	Raw Data Broadcast Settings		
Default Heading	Predicted Data Broadcast		
Ensemble Interval	Predicted Broadcast Settings	Dissabled / enabled	
Time between pings	No of forecast bins		
Pings per ensemble	File Locations		
% Good Minimum	File Stem		
Default Water Temp	Raw Data Storage (e.g. C:/)		
Default Salinity	Summary Data (e.g. C:/)		
Extra Commands Y / N	Password Protected	Y / N	
List Extra Commands	Password		
	Status Bar Message		





A.2 MOORING AND INSTRUMENT LOGSHEETS - DEPLOYMENT

FUGRO GEOS		FUGRO	
Site Log Sheet			
MOORING			
IDENTIFICATION (Essential reference to instrument log sheet)			
Contract No. <u>112564</u>	Contract Name <u>Chevron Bigfoot</u>	Mooring Name <u>WS053</u>	Phase <u>SVI deploy</u>
ANCILLARY DETAILS			
ARGOS BEACONS (mark position on mooring diagram)			
ADCP Floatation Collar (top)	ID No. <u>300434062359</u>	Ser No. <u>343</u>	SIM500./SIM2000
ADCP Floatation Collar (bottom)	ID No.	Ser No.	SIM500./SIM2000
In line/CRP80 Deep/Normal	ID No.	Ser No.	SIM500./SIM2000
In line/CRP80 Deep/Normal	ID No.	Ser No.	SIM500./SIM2000
		Tested	Rebattered?
		<input type="checkbox"/>	Yes/No
		<input checked="" type="checkbox"/>	<u>Yes</u> /No
		<input type="checkbox"/>	Yes/No
		<input type="checkbox"/>	Yes/No
ACOUSTIC RELEASES			
<u>BB</u> DORT / ORT / LRT	Address <u>99</u>	GEOS No. <u>200 04171</u>	Battery fitted date <u>7 APR 2018</u>
<u>99</u> DORT / ORT / LRT	Address <u>99</u>	GEOS No. <u>200 A2449</u>	Battery fitted date <u>7 APR 2018</u>
		Tested	Rebattered? Batt type?
		<input checked="" type="checkbox"/>	<u>Yes</u> /No <u>Alk</u> Lith
		<input checked="" type="checkbox"/>	<u>Yes</u> /No <u>Alk</u> Lith
Mooring spreadsheet stored in contract file		<input type="checkbox"/>	
Mooring analysis results stored in contract file		<input type="checkbox"/>	
Antifouling applied		<input type="checkbox"/>	
		Dissimilar metals isolated <input checked="" type="checkbox"/>	
DEPLOYMENT			
Safety/Operations briefing carried out	<input checked="" type="checkbox"/>		
Sheet No 2 details completed	<input checked="" type="checkbox"/>		
Release batteries ok post deployment	<input checked="" type="checkbox"/>		
Releases not tilted post deployment	<input checked="" type="checkbox"/>		
Argos details sent to GEOS	<input checked="" type="checkbox"/>		
Box in done	<input checked="" type="checkbox"/>		
Target Latitude <u>26° 54.990</u>		Actual Latitude <u>26° 55.02956</u>	
Target Longitude <u>-90° 30.1618</u>		Actual Longitude <u>-90° 30.21161</u>	
Depth (m) <u>1954m (CTD)</u>		<u>1959m (Climax) 1934 (DORT)</u>	
RECOVERY			
Release batteries ok pre recovery	<input checked="" type="checkbox"/>		
Releases not tilted pre recovery	<input checked="" type="checkbox"/>		
		Date/ time of release of mooring GMT <u>09 APR 2018 1750 GMT</u>	
NOTES <u>New location - shallower depth</u>			

Every field must be complete and all boxes must be ticked. Circle selected options and strikethrough others.

Further details of each step in Site Technical Instructions (TI)

..Site Technical Instructions\SiteTI RDI BB ADCP SC.doc



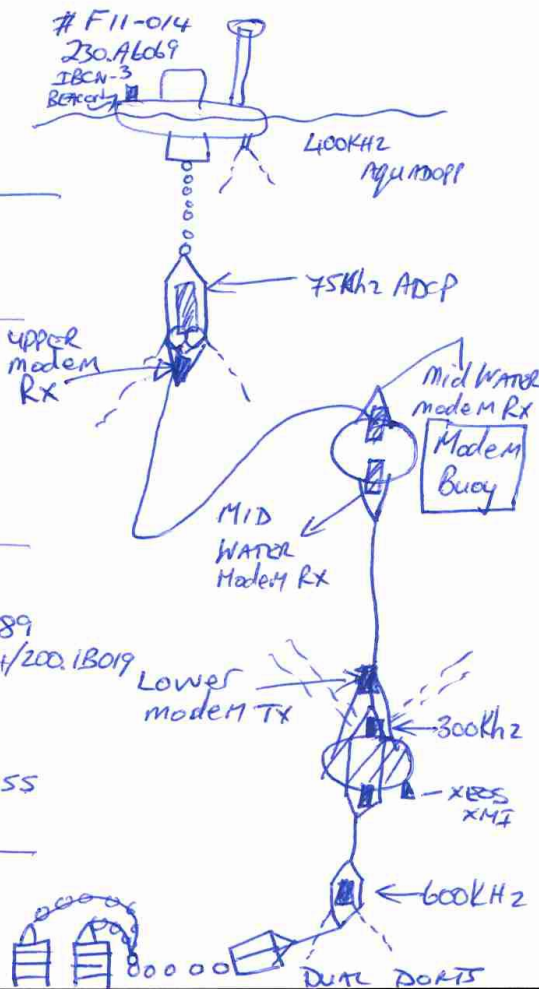
# FUGRO GEOS



## Site Log Sheet

### MOORING

IDENTIFICATION (Essential reference to instrument log sheet)				
Contract No. 112544		Contract Name CHEVRON Bigfoot		Mooring Name WS053
		Phase SVI deployment		
AS LAID MOORING CONFIGURATION				
Instrument/ buoyancy Type	Serial/geos address number	Height above bed	Depth below msl	In water date/time GMT
WS053				
ARUNDP	#6670/295.A2144			
WHLR	#17588/295.A2095			
MODEM ATM 916	#52689			
INLINE FRAME	#525.10088			
* = new instruments				
* UP Modem	#57435			
ATM 925-LS1-B				
* 40 Modem Buoy	J06911-004			
(750m - no FAIM)				
* Down Modem	#57436			
ATM 925 LS1-B				
Buoy 40"	525.06159			
* WH 300KHz	#20877/295.A3689			
* BENTROS ATM	#52680			
XEOS XMT	50084/200.1B019			
	236.D6176			
WH INLINE FRAME	525.A3828			
* WH 600KHz	#20237/295.A3455			
DORT	200.04171			(BB)
DORT	200.A2049			(99)
BALLAST	2X 4RL			



Every field must be complete and all boxes must be ticked. Circle selected options and strikethrough others.

Further details of each step in Site Technical Instructions (TI)

\\Site Technical Instructions\\SiteTI\_RDI\_BB\_ADCP\_SC.doc



FUGRO GEOS		FUGRO	
Site Log Sheet			
OCEANOR WAVESCAN BUOY			
1. IDENTIFICATION (Essential to reference individual sensor log sheets deployed with Wavescan)			
Contract No. <u>112564</u>		Contract Name <u>CHEVRON BIGFOOT</u> Mooring Name <u>WS053</u> Phase <u>SVI Deploy</u>	
2. INSTRUMENT SPECIFICATION AND CONFIGURATION <u>GENI FAIR SID. A6096</u>			
Wavescan serial no. <u>WS053</u>		XML latitude <u>26</u>	
Geni/Wavesense type & No <u>2000 / 3</u>		XML longitude <u>-95</u>	
PMU no. <u>180</u>		Water depth (m) <u>2000M</u>	
TCM Compass present <u>Y</u> N SN: <u>1032124</u>		Transmitter type <u>idium</u> / VHF	
IMEI No. / Radio Freq <u>300025010726900</u>		Details of modem sent to GEOS and activated <input checked="" type="checkbox"/>	
XMLs prepared and tech checked <input checked="" type="checkbox"/> <u>new XMLS</u>		Wavescan weight on load cell <u>Y</u> N	
CLS tracker on <u>Y</u> N <u>METOCEAN</u> CLS rebatteried <u>Y</u> N CLS tracker No. <u>30043406</u> Mast cable No. <u>22975</u>			
Battery stack total capacity (excl. active radar) no. <u>Lead</u> Lithium			
No. of batteries installed <u>Lead</u> Lith (excl. active radar)		Extra lith for active radar <u>Y</u> N	
Lead voltages (no charging)		Lithium voltages	
3. SETUP & TESTING			
Waves <u>Y</u> N		Met Sensors Model & SN Sampling int.	
Sample interval: <u>30mins</u>		Atmospheric press <u>PTB 330 / J332000 / B's not configured</u>	
Samples per burst: 1024 / <u>2048</u>		Wind speed & dir <u>GILL WINDSONIC 14410050</u>	
Duration of burst: 17-mins / <u>34-mins</u>		Air temperature <u>Oceanor #588</u>	
Aquadopp <u>Y</u> N		Humidity <u>N/A</u>	
Type: (400kHz / 600kHz / 1Hz / 2Hz)		Air temp & humid <u>RS232/485</u> <u>N/A</u>	
SN: <u>6570 / 9582</u>		Solar radiation <u>N/A</u>	
Opposite rudder & x-beam away from keel <input checked="" type="checkbox"/>		Active radar <u>N/A</u>	
AQD log sheet completed <input checked="" type="checkbox"/>		Passive radar <u>OCOMAX</u>	
ADCP <u>Y</u> N <u>x3</u>		Flashlight <u>yes</u>	
SN <u>20877 / 20237 / 17588</u>		Other (specify)	
Frequency <u>300 / 600 / 75 KHz</u>		WLR <u>Y</u> N SN <u>17588</u>	
ADCP log sheet completed <input checked="" type="checkbox"/>		WLR log sheet completed <input checked="" type="checkbox"/>	
SBE <u>Y</u> N <input type="checkbox"/>		Benthos modem <u>Y</u> N SN <u>52680 (TOP)</u>	
SN		Modem log sheet completed <input type="checkbox"/>	
Type		<u>50084 (BOT)</u>	
SBE log sheet completed <input type="checkbox"/>		<u>57435 MID (UPPER)</u>	
		<u>57436 MID (LOWER)</u>	
		Complete page 2 servicing & testing checklist <input type="checkbox"/>	
Initials		Date	
4. START UP & DEPLOYMENT			
Sensor cables secure <input checked="" type="checkbox"/>		<input checked="" type="checkbox"/> Oring seated correctly	
Data, log & xmls copied & backed up <input checked="" type="checkbox"/>		<input checked="" type="checkbox"/> Oring not pinched	
Data & log files cleared <input checked="" type="checkbox"/>		<input checked="" type="checkbox"/> Buoy turned on	
New xmls uploaded & buoy restarted <input checked="" type="checkbox"/>		<input checked="" type="checkbox"/> Date/time deployed GMT	
Name of new xmls <u>WS053 XML 8/18/2018</u>		<input checked="" type="checkbox"/>	
Lead acid batteries recharged <input checked="" type="checkbox"/>		All lid bolts secured <input checked="" type="checkbox"/>	
Initials <u>PUGW</u>		Date <u>09 APR 18</u>	
5. RECOVERY			
Downloaded data/pff files <input type="checkbox"/>		File name	
Date/Time of recovery GMT		Downloaded Syslog <input type="checkbox"/>	
Condition		Downloaded xmls <input type="checkbox"/>	
Purged with nitrogen <input type="checkbox"/>		Purge date	
All files backed up <input type="checkbox"/>		Date	
Wavescan weight on load cell		Initials	
NOTES <u>new GENI FITTED</u> <u>2 additional mid water modems</u>			
<u>new Lower modem fitted #50084 (model 965 LFOMNI)</u>			
<u>(New 300+600 ADCPs SWAPPED FAIR 200. 18019)</u>			

Every field must be complete and all boxes must be ticked. Circle selected options and strikethrough others.

Further details of each step in Site Technical Instructions (TI) Site\_Technical\_Instructions/SiteTI\_Wavescan





FUGRO GEOS

Site Log Sheet



WAVESCAN MOORING SERVICING CHECKLIST

IDENTIFICATION (Essential reference to instrument log sheet)

Contract No. 112564 Contract Name Chevron Bigfoot Mooring Name Bigfoot Phase Service

1. VISUAL INSPECTION / CHECKS:

Visual inspection for damage / corrosion	<input checked="" type="checkbox"/>	Aquadopp opposite rudder / x-beam away from keel	<input checked="" type="checkbox"/>
Purged with nitrogen / air / checklist complete	<input checked="" type="checkbox"/>	Lid o-ring replaced & greased.	<input checked="" type="checkbox"/>
Solar panels inspected / cleaned	<input checked="" type="checkbox"/>	Lid o-ring seated correctly and not pinched	<input checked="" type="checkbox"/>
Mast inspected / cleaned	<input checked="" type="checkbox"/>	Connectors on lid inspected / cleaned	<input checked="" type="checkbox"/>
Check & clean mast cable and mast connection orings	<input checked="" type="checkbox"/>	Dummy / blanking plugs present	<input checked="" type="checkbox"/>
Sensor ring inspected / cleaned	<input checked="" type="checkbox"/>	Internal cables inspected	<input checked="" type="checkbox"/>
Lid clamps in good condition. Anti-seize lid bolts.	<input checked="" type="checkbox"/>	Internal units aligned to buoy north	<input checked="" type="checkbox"/>
Keel plate inspected / cleaned	<input checked="" type="checkbox"/>	Ext TCM compass present, aligned to buoy north	<input checked="" type="checkbox"/>
Keel weight inspected for damage / cracks	<input checked="" type="checkbox"/>	Anodes replaced on keel / canister <u>Struggled</u>	<input checked="" type="checkbox"/>
Floatation clamps inspected / <u>replaced</u>	<input checked="" type="checkbox"/>	Floatation weighed (< 150kg each)	<input checked="" type="checkbox"/>
Clear float vent holes	<input checked="" type="checkbox"/>	Floatation cleaned & antifouled	<input checked="" type="checkbox"/>
External / subsea cables inspected for damage	<input checked="" type="checkbox"/>	GEOS contact details present	<input checked="" type="checkbox"/>
Rudder in place / securing OK	<input checked="" type="checkbox"/>	Check battery stack cable & fuses	<input checked="" type="checkbox"/>
Tag line points in place / securing OK	<input checked="" type="checkbox"/>	Air pressure / vent hoses clear	<input checked="" type="checkbox"/>
Lifting ring inspected	<input checked="" type="checkbox"/>	Extended purge system present / installed	<input checked="" type="checkbox"/>
Mast bolts replaced, tighten to 70Nm (max)	<input checked="" type="checkbox"/>	Pressure relief valve present / installed	<input checked="" type="checkbox"/>
Sensor ring bolts replaced, tighten to 40Nm (max)	<input checked="" type="checkbox"/>	Check DC/DC convertor & cable screws	<input checked="" type="checkbox"/>
Sensor / mast ring repainted	<input checked="" type="checkbox"/>	Desiccant bag in electronics can	<input checked="" type="checkbox"/>
Wind sensor aligned to buoy north	<input checked="" type="checkbox"/>	Amalgamate GPS and Iridium mast connections	<input checked="" type="checkbox"/>
	<input checked="" type="checkbox"/>	Mast cable tightened	<input checked="" type="checkbox"/>

2. SYSTEM TESTS / PROCEDURES:

Old data, log & xmls downloaded, cleared & backed-up	<input checked="" type="checkbox"/>	Real-time data observed transmitting	<input checked="" type="checkbox"/>
New xmls loaded. Name: <u>WSS3_XML_8Feb18</u>	<input checked="" type="checkbox"/>	Set system & hardware clocks to GMT	<input checked="" type="checkbox"/>
Wind adjustment channel set to Compass Correction	<input checked="" type="checkbox"/>	Solar panels charging batteries	<input checked="" type="checkbox"/>
Real-time data observed in 'Display / Menu'	<input checked="" type="checkbox"/>	GPS values correct	<input checked="" type="checkbox"/>

3. SENSOR TESTS:							
Predeployment values				Post deployment values			
Date & time (GMT)	Buoy	Test instrument		Date & time (GMT)	Buoy (Tx data)	Test instrument	
Air pressure (hPa)							
Air temperature (°C)							
Air humidity (%)							
Wind speed (~m/s)							
Wind dir 1							
Wind dir 1 +90°							
Ext Compass dir 1			N/A				N/A
Ext Compass dir 1+90°			N/A				N/A
AQD speed (Bin1)			N/A				N/A
AQD dir (Bin1)			N/A				N/A
AQD temp (°C)			N/A				N/A
Hs			N/A				N/A
Tp			N/A				N/A
Mdir			N/A				N/A
Wavesense Compass			N/A				N/A
Heave			N/A				N/A
Pitch			N/A				N/A
Roll			N/A				N/A

Do these change when the buoy is moved? Y N

NOTES





FUGRO GEOS		FUGRO	
Site Log Sheet			
NORTEK AQUADOPP			
1. IDENTIFICATION (record all details on this log sheet - separate mooring log sheet not to be used)			
Contract No. <u>11254</u>	Contract Name <u>Chevron Bigfoot</u>	Mooring Name <u>WS 553</u>	Buoy no <u>WSS</u> Phase <u>SVI deploy</u>
2. INSTRUMENT SPECIFICATION			
Type: <u>400kHz</u> / 600kHz / 1Hz / 2Hz	Serial no. <u>#6670</u>	Head no. ....	Pressur Sensor rating .....
Firmware .....	Housing depth rating .....	Memory <u>3 meg</u>	
3. BATTERIES AND ASSEMBLY			
Battery Type: <u>Alkaline</u> / Lithium	New batteries fitted <u>YES</u> / NO		
Battery Voltage: <u>11V</u>	Cell make: .....	O rings prepared <input checked="" type="checkbox"/>	Silica pack installed <input checked="" type="checkbox"/>
4. AQUADOPP SETUP			
Baud rate set to 9600 <input checked="" type="checkbox"/>	Deployment file used <u>Y</u> N	Dep file name <u>#6670 coil</u>	
Standard settings		Advanced settings	
Freq <u>400</u>	Avg interval (s) <u>600</u>	Wave bursts <input type="checkbox"/> <u>none</u>	
Mounting: <u>Buoy</u> / Mooring line / Fixed	Blanking distance (m) <u>1.48</u>	Cell size (m) .....	
Profile interval (s) <u>600</u>	Compass upd rate (s) <u>1</u>	No. of samples .....	
No. of cells <u>20</u>	Coord: <u>ENU</u> / XYZ / Beam	Sampling rate .....	
Cell size (m) <u>1</u>	Power level: Low / <u>High</u>	Interval (s) .....	
Env: <u>Coastal</u> / River / Deep (>300m) / Open ocean	File wrapping <input type="checkbox"/> <u>none</u>	Analog input 1 <u>none</u>	
Use Advanced Settings <input checked="" type="checkbox"/>	Measured sal value (ppt) <u>35</u> Or Fixed value (m/s) .....	Analog input 2 <u>none</u>	
DEPLOYMENT			
Check transducer heads are clean <input checked="" type="checkbox"/>	Pressure sensor checked and clean <input checked="" type="checkbox"/>	Erased recorder <input checked="" type="checkbox"/>	
Start time and date <u>08 APR 18 @ 18:10</u>	Configuration file name <u>#6670 dp</u>	Enable serial output / TellTale <input type="checkbox"/>	
Set clock to GMT <input checked="" type="checkbox"/>	Verified audible click <input checked="" type="checkbox"/>	Verified logging internally <input checked="" type="checkbox"/>	
Secured in buoy Y N	Secured opposite rudder and x-beam is angled away from keel weight <input checked="" type="checkbox"/>		
If secured / mounted otherwise, please specify .....			
Initials <u>PUGW</u>	Date <u>08 APR 18</u>		
5. RECOVERY			
Date and time of recovery (GMT) .....	Data downloaded <input type="checkbox"/>	File name .....	
Stopped logging at (GMT) .....	Data converted <input type="checkbox"/>		
Time difference .....	Data backed up <input type="checkbox"/>		
Condition of sensor .....			
Initials .....	Date .....		
6. NOTES			
<u>Transducer head has slight crack - see photos</u> <u>clock - 3 min @ Recovery</u>			

Every field must be complete and all boxes must be ticked. Circle selected options and strikethrough others.

Further details of each step in Site Technical Instructions (TI)





# FUGRO GEOS



## Site Log Sheet

### REDI LONGRANGER ADCP (SELF CONTAINED)

<b>1. IDENTIFICATION</b> (Essential reference to mooring log sheet with deployment details)			
Contract No.	112564	Contract Name	CHEVRON BIGFOOT
Mooring Name	WS053	Phase	SVI Deploy
<b>2. INSTRUMENT SPECIFICATION AND CONFIGURATION</b>			
ADCP serial no.	17588	No. of battery packs	4
CPU Firmware version	50.4	Battery supplier	RD1 / A1M / Consolidated
Memory fitted (MB)	256	New battery capacity (Wh)	
Head depth rating (m)	1500	New batteries fitted	Y N
Housing depth rating (m)	1500m	Remaining battery life (days)	210
Battery type	alk / lith	Measured voltage	44.8v
		Comms settings e.g. RS232, 9600, N, 8, 1	
<b>3. PLAN</b>			
Power	High / Low	Mode	Narrow / Wide
		Data storage	Internal / External
Choices		Consequences	
Deployment Duration (days)	210	First Bin Range (m)	30
Interval (hh:mm:ss)	10min	Last Bin Range (m)	410
Salinity (ppt)	35	Max range (m)	411.33
Temperature	20	Battery Usage (Wh)	1513
Pings Per Ensemble	40	Temperature (Deg C)	20
Number of Bins	20	Standard Deviation (cm/s)	0.97
Bin Size (m)	20	Byte Ensembles	554
		Storage Required (MB)	15.98
<b>Advanced settings</b>		<b>Expert settings</b>	
Transducer Depth (m)	10	Blank after transmit (m)	10.31
Magnetic Variation (deg)	0	Ambiguity velocity	1.75
Ping interval (secs)	15		
Ping immediately After Deployment	Y N		
Time and Date of 1st ping	08 APR 18 @ 1630 GMT		
<b>4. START UP</b>			
Set ADCP's Clock - set to GMT	<input checked="" type="checkbox"/>	Commands sent to ADCP	<input checked="" type="checkbox"/>
Compass Verification	<input checked="" type="checkbox"/>	ADCP pinging audible	Y N
Pre-deployment Tests	<input checked="" type="checkbox"/>	Final .whp filename	BCE-7
zero pressure sensor	<input checked="" type="checkbox"/>	Files backed up	Y N
Memory erased	<input checked="" type="checkbox"/>	In water test conducted	Y N
		Initials	PVGZ
		Date	8 APR 18
<b>5. RECOVERY</b>			
Switch off date and time (GMT)		Data filename	
		Data backed up	<input type="checkbox"/>
		Internal clock error	
SC data recovered	<input type="checkbox"/>	Data inspected and satisfactory	<input type="checkbox"/>
		Initials	
		Date	
<b>NOTES</b>			
START ON THE HOUR / OR 10MINS			

Every field must be complete and all boxes must be ticked. Circle selected options and strikethrough others.

Further details of each step in Site Technical Instructions (TI) [\Site Technical Instructions\SiteTI\\_RDI\\_LR\\_ADCP\\_SC.doc](#)







# FUGRO GEOS



## Site Log Sheet

### RED WORKHORSE ADCP (SELF CONTAINED)

300KHz

1. IDENTIFICATION (Essential reference to mooring log sheet with deployment details)			
Contract No.	112564	Contract Name	BIGFOOT CHEVRON
Mooring Name	BEWS	Phase	Sv1 Deploy
2. INSTRUMENT SPECIFICATION			
Serial no.	20877	Bottom track fitted	Y <input checked="" type="radio"/> N
Frequency (kHz)	300	Waves capability	Y <input checked="" type="radio"/> N
CPU Firmware version	50.41	Housing depth rating (m)	6000m
3. PLAN ABCDE			
Deployment/CMD name	BFT-3		
Choices	Consequences	Wave commands	Y <input checked="" type="radio"/> N
No of bins	25	First depth cell (m)	10m
Bin size (m)	5m	Last depth cell (m)	130m
Pings per ensemble	50	Predicted max range (m)	120m
Ensemble Interval	30 mins	Energy required @ ... C	271W 0.6 Bms
Deployment duration (days)	210	Days spare (see Table 1)	-
Depth of transducer (m)	1990	Velocity std dev (cm/s)	0.40
Water salinity (ppt)	35	Memory required (MB)	6.28
Magnetic variation set to 0	<input checked="" type="checkbox"/>	Other commands	mode=1
Date & time first ping	08 APR 2018 @ 1400 GMT		
Record data internally	<input checked="" type="checkbox"/>	CF = 1111	
Send data out serial port	<input checked="" type="checkbox"/>	BLANK = 4.6m	
		Ambiguity = 1.75m/s	
4. BATTERIES AND ASSEMBLY			
Measured voltage	Fitted Ted Ship		
Battery type	alk / lith	New battery capacity (Wh)	
Battery supplier	RDI / A1M / Consolidated	New batteries fitted	Y <input checked="" type="radio"/> N
No. of battery packs	one	Comms switch	RS232 RS422
5. DEPLOY			
In water test?	Y <input checked="" type="radio"/> N	DEPLOY to send CMD file to ADCP	<input checked="" type="checkbox"/>
Computer clock set to GMT	<input checked="" type="checkbox"/>	Start date and time (GMT)	08 APR 18 @ 1400 GMT
TESTADCP filename		Deployment log filename	BFT-3
Memory erased	<input checked="" type="checkbox"/>	CMD and log files backed up	<input checked="" type="checkbox"/>
Pressure sensor zeroed (AZ)	<input checked="" type="checkbox"/>	Initials	PVG Date 08 APR 18
6. RECOVER			
Still pinging?	Y N	Physical condition?	
Switch off date and time		Clock error	
Data recovered	Y N	Data inspected	<input type="checkbox"/>
Data filename		Data backed up	<input type="checkbox"/>
NOTES			
PING ON THE HOUR			

Every field must be complete and all boxes must be ticked. Circle selected options and strikethrough others.

Further details of each step in Site Technical Instructions (TI)

..Site Technical Instructions\SiteTI RDI WH ADCP SC.doc





# FUGRO GEOS



## Site Log Sheet

### RDI WORKHORSE ADCP (SELF CONTAINED)

600KHz

1. IDENTIFICATION (Essential reference to mooring log sheet with deployment details) <i>WS053</i>			
Contract No. <i>112864</i>	Contract Name <i>CHEVRON BIGFOOT</i>	Mooring Name <i>BIGFOOT</i>	Phase <i>SVT Deploy</i>
2. INSTRUMENT SPECIFICATION			
Serial no. <i>#20237</i>	Bottom track fitted <i>Y</i> <input checked="" type="radio"/> <i>N</i>	Memory fitted (MB) <i>512</i>	
Frequency (kHz) <i>(20°) 600KHz</i>	Waves capability <i>Y</i> <input checked="" type="radio"/> <i>N</i>	Planned orientation <i>upward</i> <input checked="" type="radio"/> <i>downward</i>	
CPU Firmware version <i>50.40</i>	Housing depth rating (m) <i>6000m</i>		
3. PLAN ABCDE			
Deployment/CMD name <i>BGF-6</i>			
Choices	Consequences	Wave commands	<i>Y</i> <input checked="" type="radio"/> <i>N</i>
No of bins <i>25</i>	First depth cell (m) <i>30</i>	Burst Duration (min)	
Bin size (m) <i>10m</i>	Last depth cell (m) <i>270</i>	Burst Interval (min)	
Pings per ensemble <i>90</i>	Predicted max range (m) <i>455</i>	Samples per Burst	
Ensemble Interval <i>30mins</i>	Energy required @ .....C <i>182Wh/0.4</i>	Collect Motion Data <i>Y</i> <input checked="" type="radio"/> <i>N</i>	
Deployment duration (days) <i>200</i>	Days spare (see Table 1)		
Depth of transducer (m) <i>1980</i>	Velocity std dev (cm/s) <i>0.74</i>	Other commands <i>Water profile ✓</i>	
Water salinity (ppt) <i>35</i>	Memory required (MB) <i>5.99</i>	<i>CF 1111</i>	
Magnetic variation set to 0 <input checked="" type="checkbox"/>	<i>T.P = 20secs</i>	<i>BLAN2 = 1.78m</i>	
Date & time first ping <i>08 APR 18 @ 15.15 GMT</i>		<i>AMBIGUITY = 1.75m/s</i>	
Record data internally <input checked="" type="checkbox"/>	<i>STORE INTERNAL AND REAL TIME</i>	<i>WIDE BW</i>	
Send data out serial port <input checked="" type="checkbox"/>		<i>WM15 - MASTER (N/A)</i>	
4. BATTERIES AND ASSEMBLY			
Measured voltage <i>45.1V</i>	Silica descent installed <input checked="" type="checkbox"/>		
Battery type <i>alk / lith</i>	New battery capacity (Wh) <i>TECH 4P</i>	Battery connected <input checked="" type="checkbox"/>	
Battery supplier <i>RDI / A1M / Consolidated</i>	New batteries fitted <i>Y</i> <input checked="" type="radio"/> <i>N</i>	Instrument sealed <input checked="" type="checkbox"/>	
No. of battery packs <i>one</i>	Comms switch <i>RS232</i> <input checked="" type="radio"/> <i>RS422</i>		
5. DEPLOY			
In water test? <i>Y</i> <input checked="" type="radio"/> <i>N</i>	DEPLOY to send CMD file to ADCP <input checked="" type="checkbox"/>	Dummy plug greased & replaced <input checked="" type="checkbox"/>	
Computer clock set to GMT <input checked="" type="checkbox"/>	Start date and time (GMT) <i>08 APR 18 @ 15.15 GMT</i>	Dummy plug tied in <i>Modem</i> <input checked="" type="radio"/> <i>N</i>	
TESTADCP filename	Deployment log filename <i>BGF-6.DLG</i>	ADCP pinging audible <input checked="" type="checkbox"/>	
Memory erased <input checked="" type="checkbox"/>	.CMD and log files backed up <input checked="" type="checkbox"/>	Chilli applied to Tx <input checked="" type="checkbox"/>	
Pressure sensor zeroed (AZ) <input checked="" type="checkbox"/>		Initials <i>P.V.G.W.</i> Date <i>08 APR 18</i>	
6. RECOVER			
Still pinging? <i>Y</i> <input checked="" type="radio"/> <i>N</i>	Physical condition? .....		
Switch off date and time.....	Clock error .....		
Data recovered <i>Y</i> <input checked="" type="radio"/> <i>N</i>	Data inspected <input type="checkbox"/>		
Data filename .....	Data backed up <input type="checkbox"/>		
	Initials .....	Date .....	
NOTES <i>PING 15 MINS PAST THE HOUR</i>			

Every field must be complete and all boxes must be ticked. Circle selected options and strikethrough others.

Further details of each step in Site Technical Instructions (TI)

..\\Site Technical Instructions\\SiteTI RDI WH ADCP SC.doc



## B. ATTACHED DATA FILES

Files containing ASCII listings of raw and quality controlled data retrieved from the instrumentation during the service visits are provided with this report. All data files span the period from 18 December 2017 22:45 UTC to 7 April 2018 14:30 UTC. The following table provides the names of the files and describes the parameters included in each.

FILENAME	DESCRIPTION
<b>Aqua_RAW.LIS</b>	Raw surface current speed and direction from all bins; surface water temperature
<b>75kHz_RAW.LIS</b>	Raw (transmitted) current speed and direction from all bins, sea water temperature, pitch, roll, and heading at 10 m depth
<b>300kHz_RAW.LIS</b>	Raw (transmitted) current speed and direction from all bins, sea water temperature, pitch, roll, and heading at 2008 m depth
<b>600kHz_RAW.LIS</b>	Raw (transmitted) current speed and direction from all bins, sea water temperature, pitch, roll, and heading at 2010 m depth
<b>Waves_RAW.LIS</b>	Raw wave parameters – Significant Wave Height (Hm0), Maximum Wave Height (Hmax), Mean Wave Direction (Mdir), Directional Wave Spread at Tp (SprTp), Mean Direction at High Freq Band (Thhf), Mean Wave Direction at Tp (ThTp), Mean Wave Period (Tz), Peak Wave Period (Tp)
<b>Mets_RAW.LIS</b>	Raw wind speed, direction, and gust at 4 m above MSL, air temperature
<b>Compass.txt</b>	Raw compass data from Wavesense
<b>Heave.txt</b>	Raw heave data from Wavesense
<b>Pitch.txt</b>	Raw pitch data from Wavesense
<b>Roll.txt</b>	Raw roll data from Wavesense
<b>Aqua_QC.LIS</b>	QC surface current speed and direction from all bins; surface water temperature
<b>75kHz_QC.LIS</b>	QC (transmitted) current speed and direction from all bins, sea water temperature, pitch, roll, and heading at 10 m depth
<b>300kHz_QC.LIS</b>	QC (transmitted) current speed and direction from all bins, sea water temperature, pitch, roll, and heading at 2008 m depth
<b>600kHz_QC.LIS</b>	QC (transmitted) current speed and direction from all bins, sea water temperature, pitch, roll, and heading at 2010 m depth
<b>Waves_QC.LIS</b>	QC wave parameters – Significant Wave Height (Hm0), Maximum Wave Height (Hmax), Mean Wave Direction (Mdir), Directional Wave Spread at Tp (SprTp), Mean Direction at High Freq Band (Thhf), Mean Wave Direction at Tp (ThTp), Mean Wave Period (Tz), Peak Wave Period (Tp)
<b>Mets_QC.LIS</b>	QC wind speed, direction, and gust at 4 m and corrected to 10 m above MSL, air temperature



**C. CTD PROFILES**



