

## Sandown Pier Tide Gauge

### Location

OS: 459964E 83835N

WGS84: Latitude: 50° 39.0666' N Longitude: 01° 9.18960' W

### Instrument

Rosemount WaveRadar REX



### Benchmarks

#### Benchmark

TGBM = 5.989m above Ordnance Datum Newlyn

TGZ = 8.112m above Ordnance Datum Newlyn

TGZ = 10.552m above Chart Datum

TGZ = 2.123m above TGBM

#### Description

Top of NW bolt

### Datum

All data are to Ordnance Datum Newlyn. The height of Chart Datum relative to Ordnance Datum at Sandown is -2.44m (Admiralty Tide Tables, Supplementary Table III).

### Survey information

The site was surveyed on 09 May 2006.

### Site characteristics

The Pier is on open coast, with no nearby estuaries. Some wave damping from the outer pier arm (see photograph) and some reflection from the Pier legs can occur. Spring tidal range is 3.3m.

### Data quality

Recovery rate (%)	Sample interval
72	10 minutes

### Service history

The radar was first deployed on 04 May 2006 and is serviced at 9-monthly intervals. No re-calibration of the instrument is required.

## Measurements

Residuals and Elevations (OD and CD) for the whole year are shown in Figures 1 to 3 respectively.

## Statistics

*All times GMT*

Month	Extreme maxima		Extreme minima	
	Elevation (OD)	Date/Time	Elevation (OD)	Date/Time
January	2.50	04-Jan-2018 12:50	-1.72	30-Jan-2018 15:30
February	2.20	01-Feb-2018 00:00	-1.97	02-Feb-2018 17:50
March	2.32	04-Mar-2018 00:40	-1.92	02-Mar-2018 16:50
April	2.16	02-Apr-2018 00:10	-1.72	19-Apr-2018 06:20
May	1.99	01-May-2018 00:00	-1.81	18-May-2018 06:10
June	2.13	15-Jun-2018 12:10	-1.75	16-Jun-2018 06:00
July	2.01	16-Jul-2018 13:40	-1.81	16-Jul-2018 06:40
August	2.19	13-Aug-2018 12:40	-1.76	13-Aug-2018 05:40
September	2.15	12-Sep-2018 00:30	-1.81	12-Sep-2018 05:50
October	2.24	11-Oct-2018 12:20	-1.75	10-Oct-2018 04:50
November	2.42	07-Nov-2018 10:50	-1.52	25-Nov-2018 17:40
December	2.21	07-Dec-2018 10:50	-1.81	24-Dec-2018 17:40

Month	Surge maxima		Surge minima	
	Value (m)	Date/Time	Value (m)	Date/Time
January	0.40	05-Jan-2018 05:10	-0.62	07-Jan-2018 14:20
February	0.23	14-Feb-2018 12:10	-0.49	28-Feb-2018 21:10
March	0.42	12-Mar-2018 00:40	-0.37	01-Mar-2018 11:40
April	0.39	04-Apr-2018 08:00	-0.27	19-Apr-2018 16:20
May	0.19	02-May-2018 07:30	-0.26	09-May-2018 02:30
June	0.15	15-Jun-2018 12:00	-0.35	20-Jun-2018 15:30
July	0.08	28-Jul-2018 00:40	-0.25	08-Jul-2018 09:50
August	0.15	26-Aug-2018 18:20	-0.26	15-Aug-2018 02:20
September	0.30	20-Sep-2018 20:20	-0.42	24-Sep-2018 09:50
October	0.30	13-Oct-2018 18:00	-0.52	23-Oct-2018 03:10
November	0.35	07-Nov-2018 02:40	-0.38	18-Nov-2018 04:50
December	0.40	01-Dec-2018 08:50	-0.48	29-Dec-2018 17:00

Month	Mean Level	
	No. of days	Elevation (OD)
January	28	0.264
February	27	0.081
March	29	0.314
April	30	0.254
May	17	0.162
June	22	0.101
July	27	0.248
August	30	0.261
September	30	0.253
October	31	0.287
November	30	0.349
December	30	0.346

Highest values in 2018			
Extreme		Surge	
Elevation (OD) (Surge component)	Date/Time	Value (m)	Date/Time
2.50 (0.34)	04-Jan-2018 12:50	0.42	12-Mar-2018 00:40
2.42 (0.22)	07-Nov-2018 10:50	0.40	01-Dec-2018 08:50
2.38 (0.23)	04-Jan-2018 00:30	0.40	12-Mar-2018 14:20
2.33 (0.15)	03-Jan-2018 12:00	0.40	05-Jan-2018 05:10
2.32 (0.21)	04-Mar-2018 00:40	0.39	04-Apr-2018 08:00
2.29 (0.26)	31-Jan-2018 23:20	0.38	03-Jan-2018 16:50
2.29 (0.26)	05-Mar-2018 01:10	0.38	04-Jan-2018 11:00
2.28 (0.20)	05-Jan-2018 13:30	0.37	03-Jan-2018 04:10
2.27 (0.09)	05-Jan-2018 01:40	0.35	04-Apr-2018 11:40
2.26 (0.11)	02-Jan-2018 11:20	0.35	07-Nov-2018 02:40

Year	Annual extreme maxima		Annual surge maxima		Z <sub>0</sub> (OD)	Annual recovery rate
	Elevation (OD) (Surge)	Date/Time	Value (m)	Date/Time		
2007	2.54 (0.50)	18-Mar-2007 22:50	0.78	09-Nov-2007 05:50	0.303	97%
2008	2.53 (0.52)	10-Mar-2008 12:30	0.88	10-Mar-2008 06:30	0.302	94%
2009	2.55 (0.47)	09-Feb-2009 23:30	0.73	23-Jan-2009 07:50	0.314	99%
2010	2.48 (0.24)	30-Mar-2010 23:50	0.63	16-Dec-2010 19:30	0.316	99%
2011	2.48 (0.33)	27-Oct-2011 11:00	0.63	16-Dec-2011 07:20	0.298	98%
2012	2.61 (0.46)	17-Oct-2012 12:10	0.73	17-Oct-2012 04:10	0.310	95%
2013	2.86 (0.85)	06-Dec-2013 02:10	0.88	06-Dec-2013 02:50	0.315	97%
2014	2.67 (0.91)	14-Feb-2014 23:10	1.00	14-Feb-2014 21:30	-	90%
2015	2.48 (0.15)	28-Oct-2015 11:30	0.69	13-Jan-2015 03:40	-	93%
2016	2.46 (0.61)	20-Nov-2016 03:50	0.84	28-Mar-2016 04:10	-	91%
2017	2.53 (0.44)	14-Jan-2017 00:20	0.67	02-Feb-2017 20:20	-	88%
2018	2.50 (0.34)	04-Jan-2018 12:50	0.42	12-Mar-2018 00:40	-	72%

Tidal levels		
Observation period	June 2006 to December 2012	
Tide Level	Elevation (OD)	Elevation (CD)
HAT	2.36	4.80
MHWS	1.96	4.40
MHWN	1.18	3.62
MSL	0.31	2.75
MLWN	-0.55	1.89
MLWS	-1.34	1.10
LAT	-1.99	0.45

## General

The time series of 10 minute tidal elevations for one year is quality-checked in accordance with ESEAS guidelines, flagged and archived. The archived time series is continuous and monotonic, with missing data given as 9999. The missing data shown are days where the entire 24 hours of data are missing.

Monthly **extreme maxima/minima** are the maximum and minimum water levels from all measured data for that month. Monthly **surge maxima/minima** (residuals) are calculated in a similar manner from the time series of residuals. Residuals are derived as the measured tidal elevation minus the predicted tidal elevation.

The monthly Mean Level is calculated as the average of all readings for the given month. The annual Z<sub>0</sub> is the value of Mean Sea Level derived by the harmonic analysis of the year's data. These values should not be used for any purpose without consideration of the recovery rate.

## Acknowledgements

Tidal predictions and tide levels were produced by Fugro GB Marine Limited. The REX is mounted on Sandown Pier by kind permission of the Pier owners.

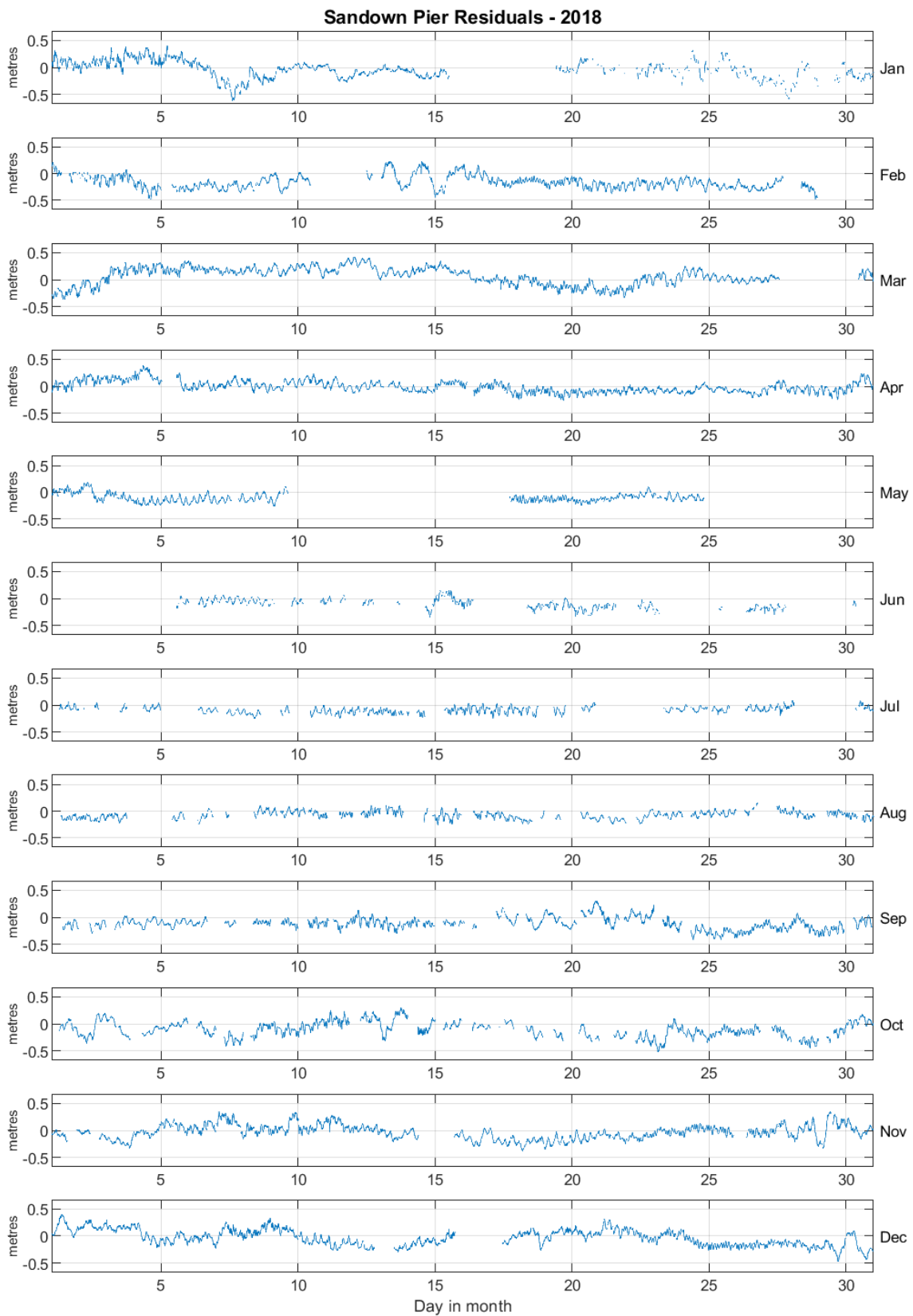
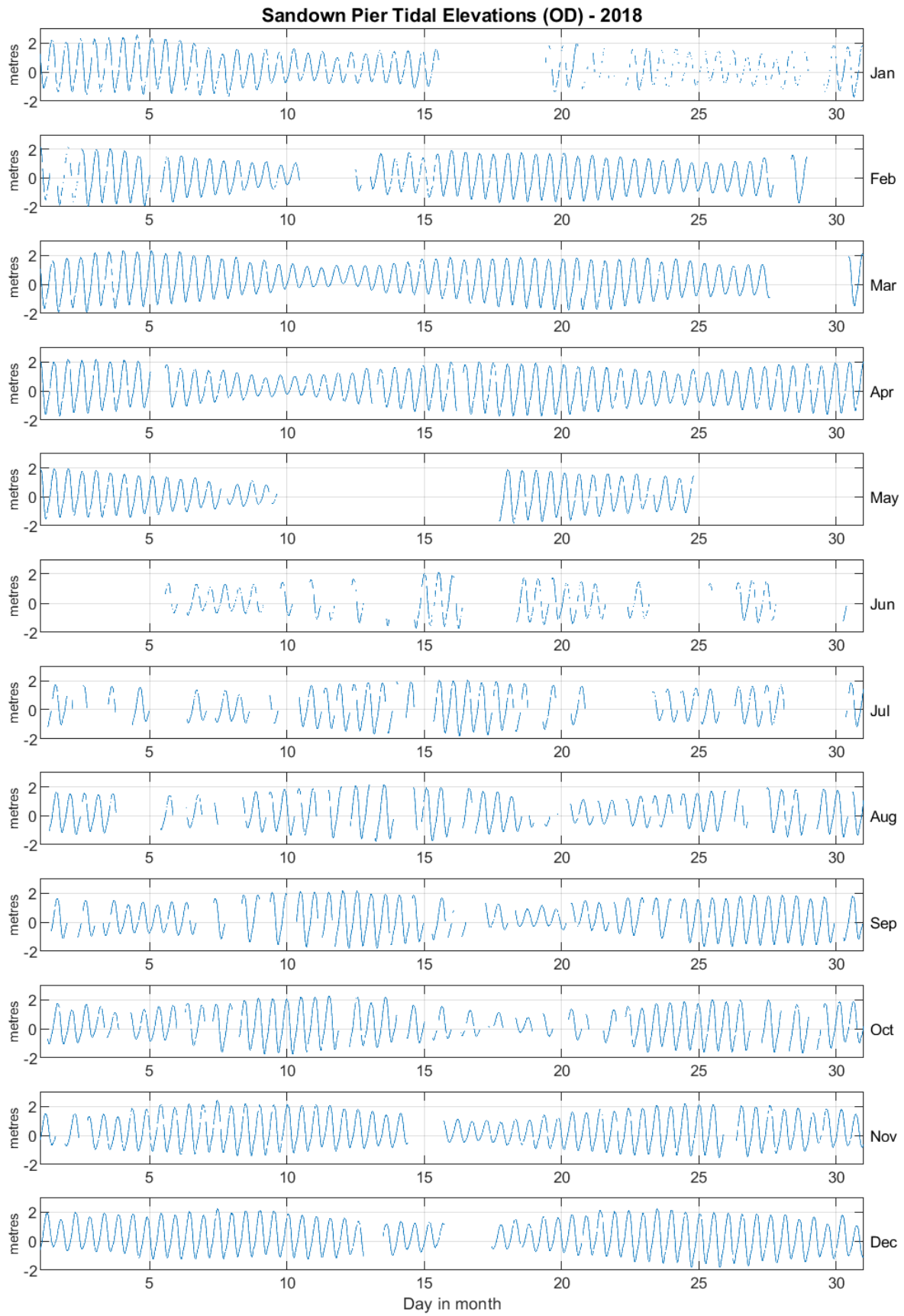
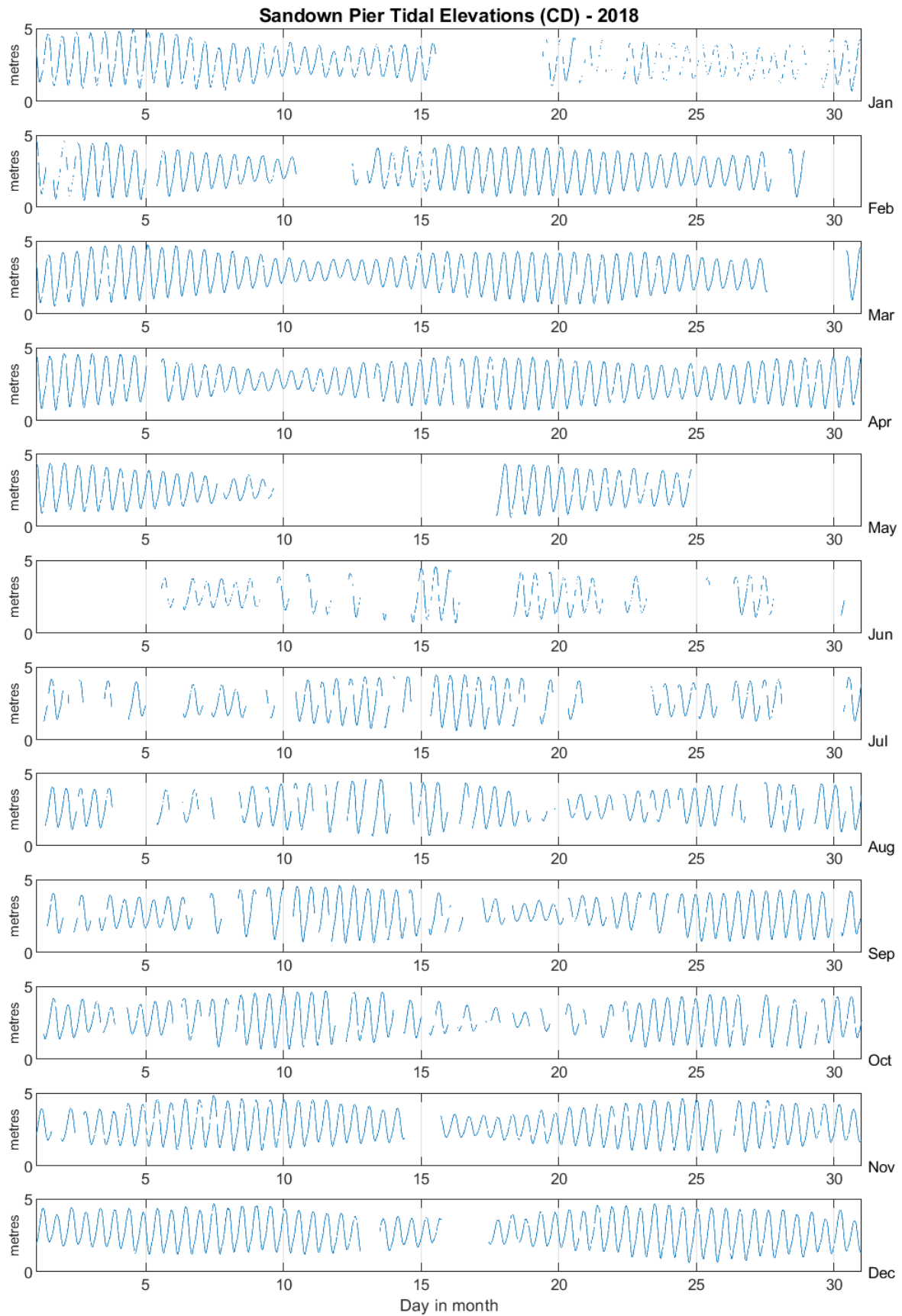


Figure 1: Sandown Pier residuals for 2018



**Figure 2:** Sandown Pier tidal elevations for 2018 relative to Ordnance Datum



**Figure 3:** Sandown Pier tidal elevations for 2018 relative to Chart Datum