

Sandown Pier Tide Gauge

Location

OS: 459964E 83835N

WGS84: *Latitude: 50° 39.067' N Longitude: 01° 9.190' 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
92	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	2.28	23-Jan-2019 00:30:00	-1.84	23-Jan-2019 18:20:00
February	2.17	21-Feb-2019 12:20:00	-2.04	22-Feb-2019 18:40:00
March	2.21	10-Mar-2019 01:30:00	-2.14	22-Mar-2019 17:30:00
April	2.00	05-Apr-2019 23:40:00	-1.91	19-Apr-2019 16:30:00
May	2.08	18-May-2019 23:10:00	-1.61	06-May-2019 05:10:00
June	2.06	05-Jun-2019 00:00:00	-1.48	18-Jun-2019 05:00:00
July	2.03	06-Jul-2019 14:10:00	-1.74	04-Jul-2019 05:20:00
August	2.23	31-Aug-2019 11:50:00	-1.81	03-Aug-2019 05:40:00
September	2.45	29-Sep-2019 11:20:00	-1.84	01-Sep-2019 05:30:00
October	2.47	01-Oct-2019 12:50:00	-1.87	29-Oct-2019 04:50:00
November	2.31	25-Nov-2019 09:50:00	-1.30	15-Nov-2019 18:00:00
December	2.45	11-Dec-2019 10:30:00	-1.56	28-Dec-2019 17:50:00

Month	Surge maxima		Surge minima	
	Value (m)	Date/Time	Value (m)	Date/Time
January	0.56	08-Jan-2019 14:10:00	-0.46	03-Jan-2019 02:20:00
February	0.35	10-Feb-2019 03:50:00	-0.37	06-Feb-2019 08:50:00
March	0.62	10-Mar-2019 06:40:00	-0.49	12-Mar-2019 15:50:00
April	0.34	25-Apr-2019 09:50:00	-0.31	01-Apr-2019 00:20:00
May	0.32	08-May-2019 11:40:00	-0.33	13-May-2019 08:40:00
June	0.24	07-Jun-2019 18:30:00	-0.33	28-Jun-2019 11:40:00
July	0.26	30-Jul-2019 04:00:00	-0.28	22-Jul-2019 13:20:00
August	0.32	10-Aug-2019 00:50:00	-0.30	22-Aug-2019 11:10:00
September	0.49	29-Sep-2019 03:20:00	-0.39	14-Sep-2019 10:20:00
October	0.36	18-Oct-2019 18:30:00	-0.32	29-Oct-2019 11:00:00
November	0.60	02-Nov-2019 09:20:00	-0.27	15-Nov-2019 03:20:00
December	0.63	11-Dec-2019 12:10:00	-0.65	10-Dec-2019 23:10:00

Month	Mean Level	
	No. of days	Elevation (OD)
January	31	0.236
February	28	0.216
March	29	0.258
April	30	0.261
May	31	0.225
June	30	0.265
July	31	0.282
August	31	0.288
September	30	0.295
October	31	0.381
November	25	0.434
December	28	0.405

Highest values in 2019			
Extreme		Surge	
Elevation (OD) (Surge component)	Date/Time	Value (m)	Date/Time
2.47 (0.20)	01-Oct-2019 12:50:00	0.63	11-Dec-2019 12:10:00
2.45 (0.19)	29-Sep-2019 11:20:00	0.62	10-Mar-2019 06:40:00
2.45 (0.54)	11-Dec-2019 10:30:00	0.60	02-Nov-2019 09:20:00
2.43 (0.12)	30-Sep-2019 12:10:00	0.56	08-Jan-2019 14:10:00
2.38 (0.24)	02-Oct-2019 01:10:00	0.53	22-Dec-2019 01:50:00
2.37 (0.15)	29-Sep-2019 23:40:00	0.53	02-Nov-2019 12:20:00
2.37 (0.22)	28-Sep-2019 23:00:00	0.51	14-Dec-2019 03:50:00
2.36 (0.13)	01-Oct-2019 00:30:00	0.50	15-Dec-2019 07:00:00
2.31 (0.15)	25-Nov-2019 09:50:00	0.50	06-Mar-2019 05:40:00
2.31 (0.36)	13-Dec-2019 11:40:00	0.49	29-Sep-2019 03:20:00

Year	Annual extreme maxima		Annual surge maxima		Z ₀ (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%
2019	2.47 (0.20)	01-Oct-2019 12:50	0.63	11-Dec-2019 12:10	-	92%

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_0 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.

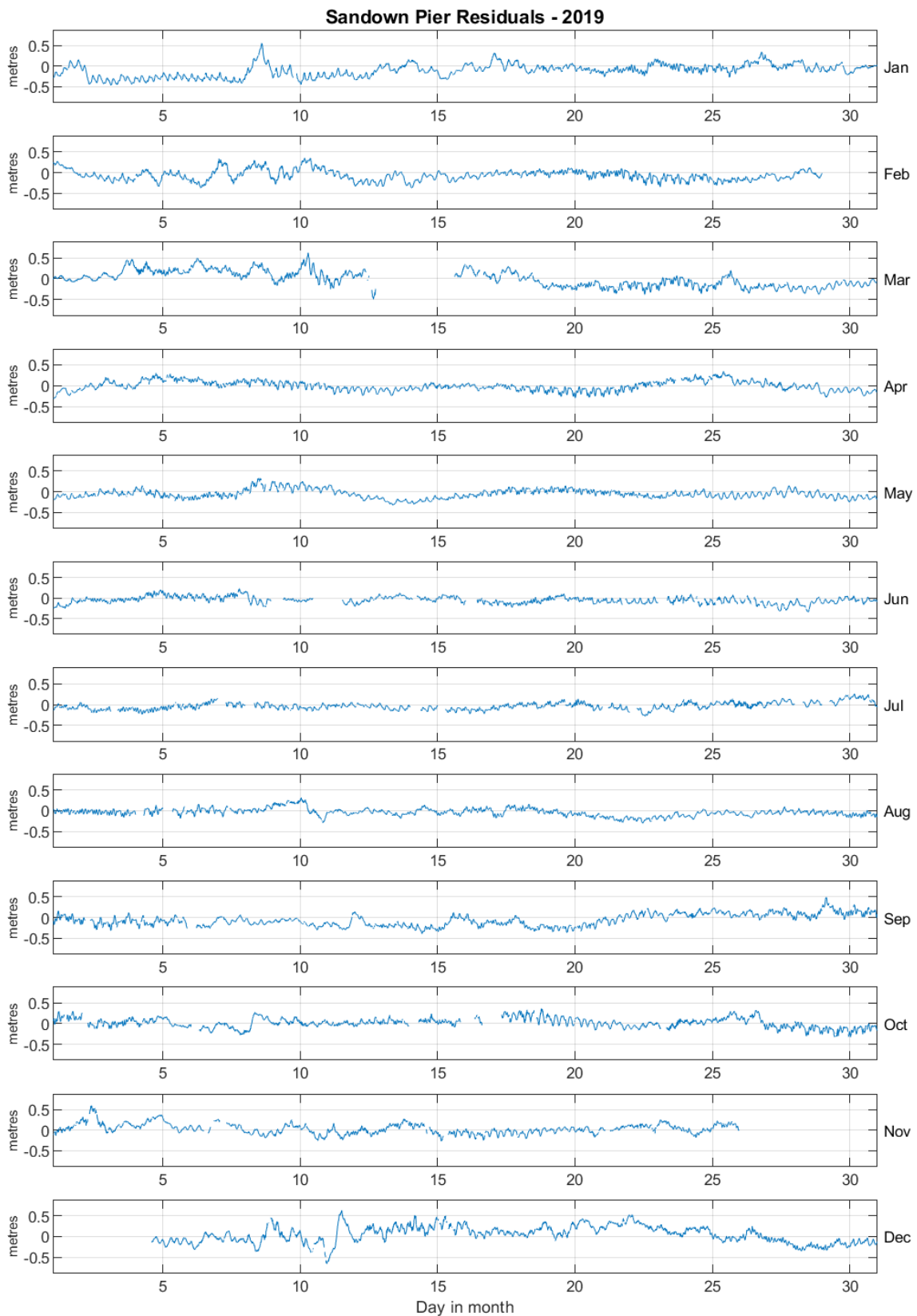


Figure 1: Sandown Pier residuals for 2019

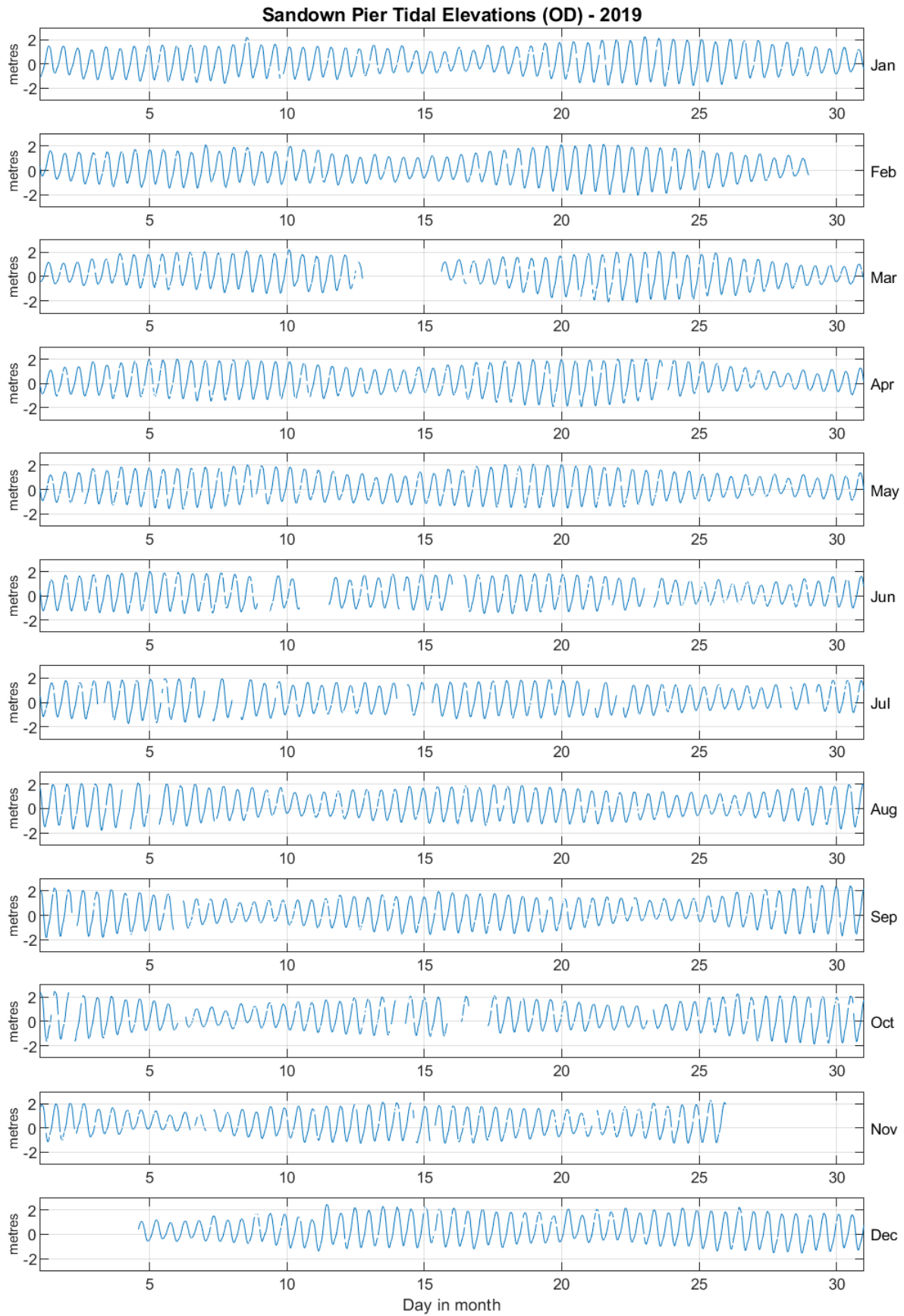


Figure 2: Sandown Pier tidal elevations for 2019 relative to Ordnance Datum

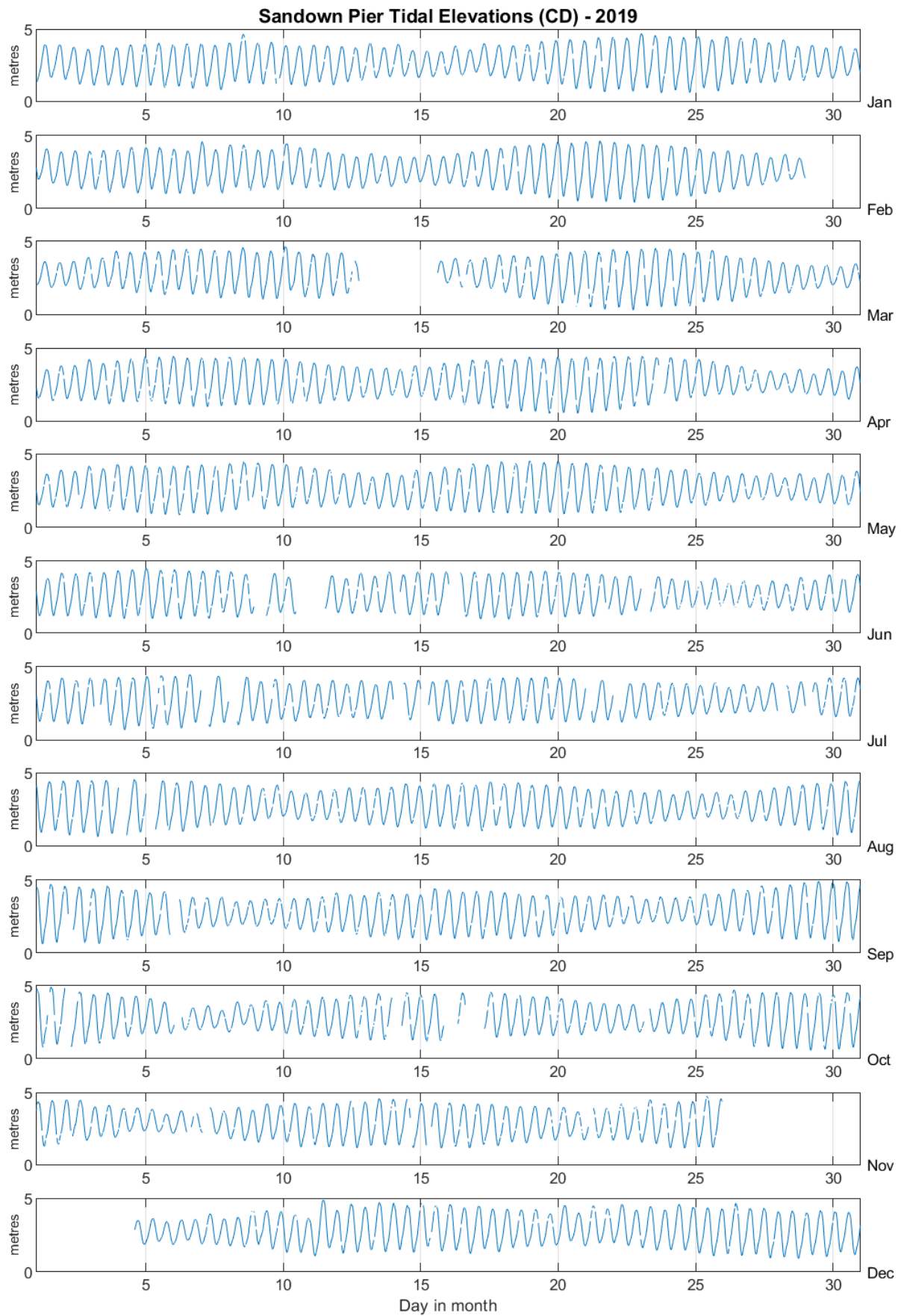


Figure 3: Sandown Pier tidal elevations for 2019 relative to Chart Datum