

Sandown Pier Tide Gauge

Location

OS: 459964E 83835N
 WGS84: Latitude: 50° 39.0666' N Longitude: 01° 9.18960'W

Instrument Type

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
98	10 minutes

Service history

The radar was last serviced in October 2011. 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	2.16	06-Jan-2011 12:10	-2.01	22-Jan-2011 18:20
February	2.22	18-Feb-2011 23:30	-1.98	19-Feb-2011 17:20
March	2.12	22-Mar-2011 00:40	-2.10	21-Mar-2011 17:20
April	2.20	20-Apr-2011 00:10	-1.92	19-Apr-2011 17:10
May	2.03	19-May-2011 00:00	-1.72	18-May-2011 04:50
June	2.07	17-Jun-2011 12:20	-1.52	03-Jun-2011 05:10
July	2.04	17-Jul-2011 12:40	-1.61	04-Jul-2011 06:10
August	2.21	31-Aug-2011 12:40	-1.87	31-Aug-2011 05:30
September	2.21	29-Sep-2011 12:10	-2.05	28-Sep-2011 04:30
October	2.48	27-Oct-2011 11:00	-1.74	28-Oct-2011 04:40
November	2.46	28-Nov-2011 01:20	-1.78	26-Nov-2011 17:00
December	2.29	26-Dec-2011 12:20	-1.70	26-Dec-2011 17:40

Month	Surge maxima		Surge minima	
	Value (m)	Date/Time	Value (m)	Date/Time
January	0.44	08-Jan-2011 05:40	-0.40	23-Jan-2011 12:40
February	0.37	15-Feb-2011 20:00	-0.33	28-Feb-2011 05:10
March	0.25	12-Mar-2011 15:10	-0.50	02-Mar-2011 15:40
April	0.20	29-Apr-2011 23:10	-0.29	17-Apr-2011 13:10
May	0.26	24-May-2011 17:40	-0.36	24-May-2011 04:10
June	0.30	17-Jun-2011 16:20	-0.28	01-Jun-2011 22:00
July	0.32	24-Jul-2011 12:00	-0.19	01-Jul-2011 03:50
August	0.25	26-Aug-2011 10:30	-0.20	10-Aug-2011 21:30
September	0.27	10-Sep-2011 17:40	-0.32	06-Sep-2011 18:50
October	0.35	18-Oct-2011 13:40	-0.23	09-Oct-2011 10:10
November	0.58	28-Nov-2011 02:30	-0.26	25-Nov-2011 09:50
December	0.63	16-Dec-2011 07:20	-0.48	08-Dec-2011 23:00

Month	Mean Level	
	No. of days	Elevation (OD)
January	31	0.270
February	28	0.281
March	31	0.162
April	30	0.224
May	31	0.240
June	30	0.297
July	31	0.310
August	31	0.326
September	30	0.339
October	31	0.349
November	30	0.376
December	27	0.416

Highest values in 2011			
Extreme		Surge	
Elevation (OD) (Surge component)	Date/Time	Value (m)	Date/Time
2.48 (0.33)	27-Oct-2011 11:00	0.63	16-Dec-2011 07:20
2.46 (0.46)	28-Nov-2011 01:20	0.61	09-Dec-2011 17:20
2.29 (0.29)	26-Dec-2011 12:20	0.59	02-Dec-2011 03:50
2.29 (0.12)	28-Oct-2011 11:50	0.58	28-Nov-2011 02:30
2.28 (0.20)	26-Oct-2011 10:10	0.57	04-Dec-2011 00:30
2.26 (0.26)	25-Nov-2011 23:10	0.56	12-Dec-2011 22:10
2.25 (0.21)	26-Oct-2011 22:40	0.56	01-Dec-2011 23:30
2.22 (0.14)	18-Feb-2011 23:30	0.53	14-Dec-2011 17:50
2.21 (0.02)	29-Sep-2011 12:10	0.48	04-Dec-2011 01:30
2.21 (0.05)	20-Feb-2011 12:30	0.46	09-Dec-2011 18:50

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%

Tidal levels		
Observation period	June 2006 to December 2011	
Tide Level	Elevation (OD)	Elevation (CD)
HAT	2.35	4.79
MHWS	1.97	4.41
MHWN	1.18	3.62
MSL	0.31	2.75
MLWN	-0.56	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.

Acknowledgement

Tidal predictions were produced using the TASK2000 software, kindly provided by the Permanent Service for Mean Sea Level (PSMSL), Proudman Oceanographic Laboratory. Tide levels were produced by EMU Limited. The REX is mounted on Sandown Pier by kind permission of the Pier owners.

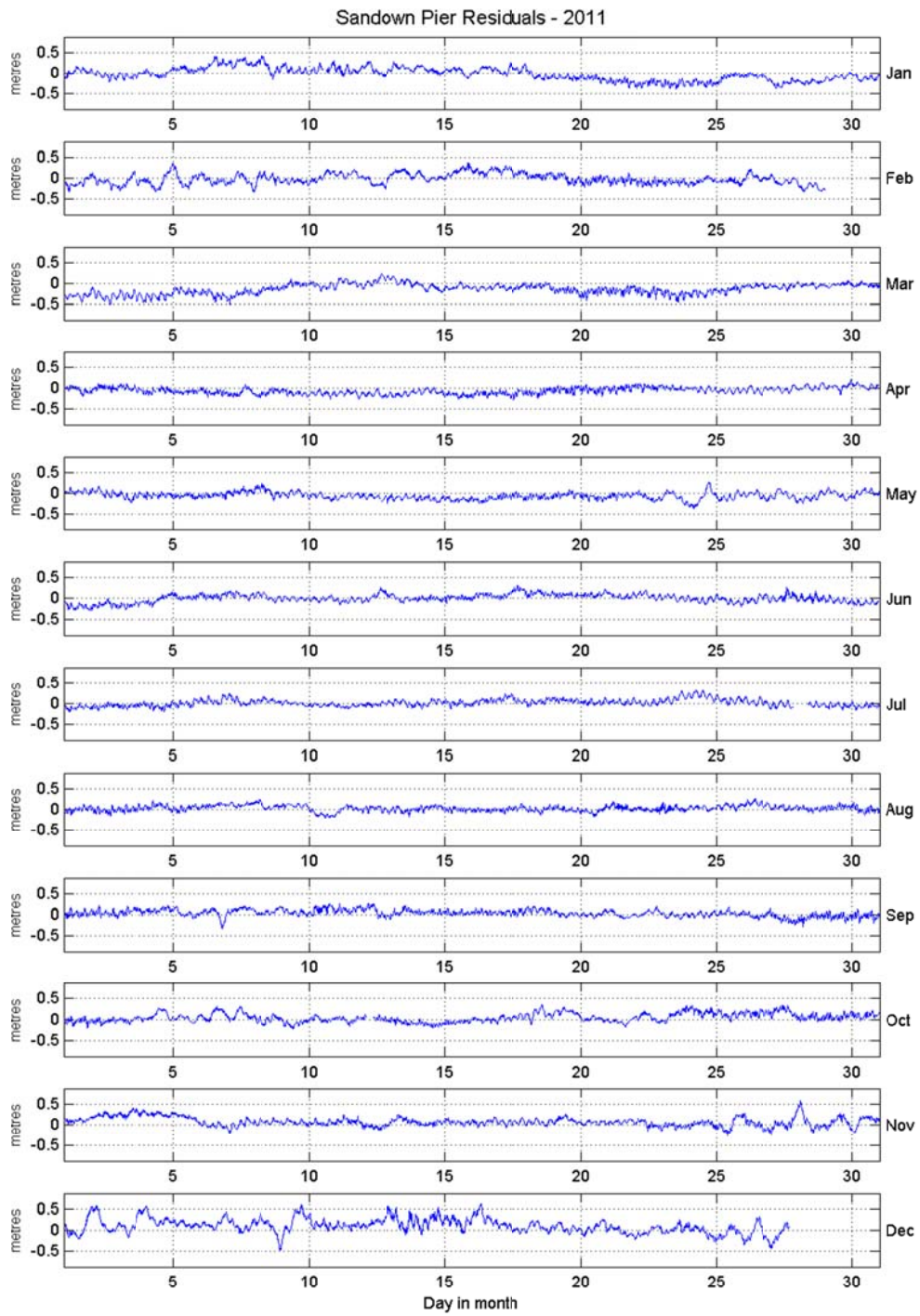


Figure 1: Sandown Pier residuals for 2011

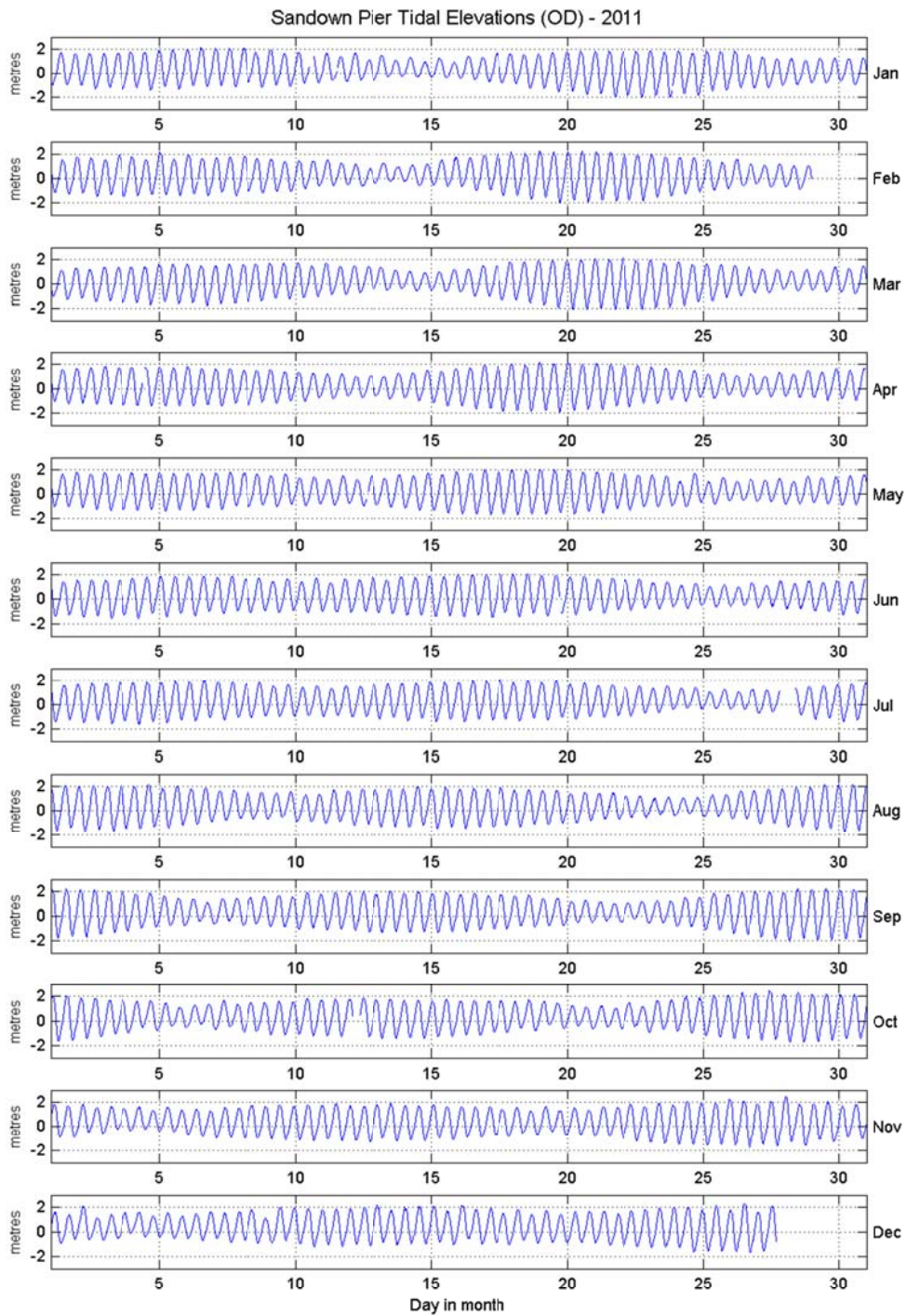


Figure 2: Sandown Pier tidal elevations for 2011 relative to Ordnance Datum

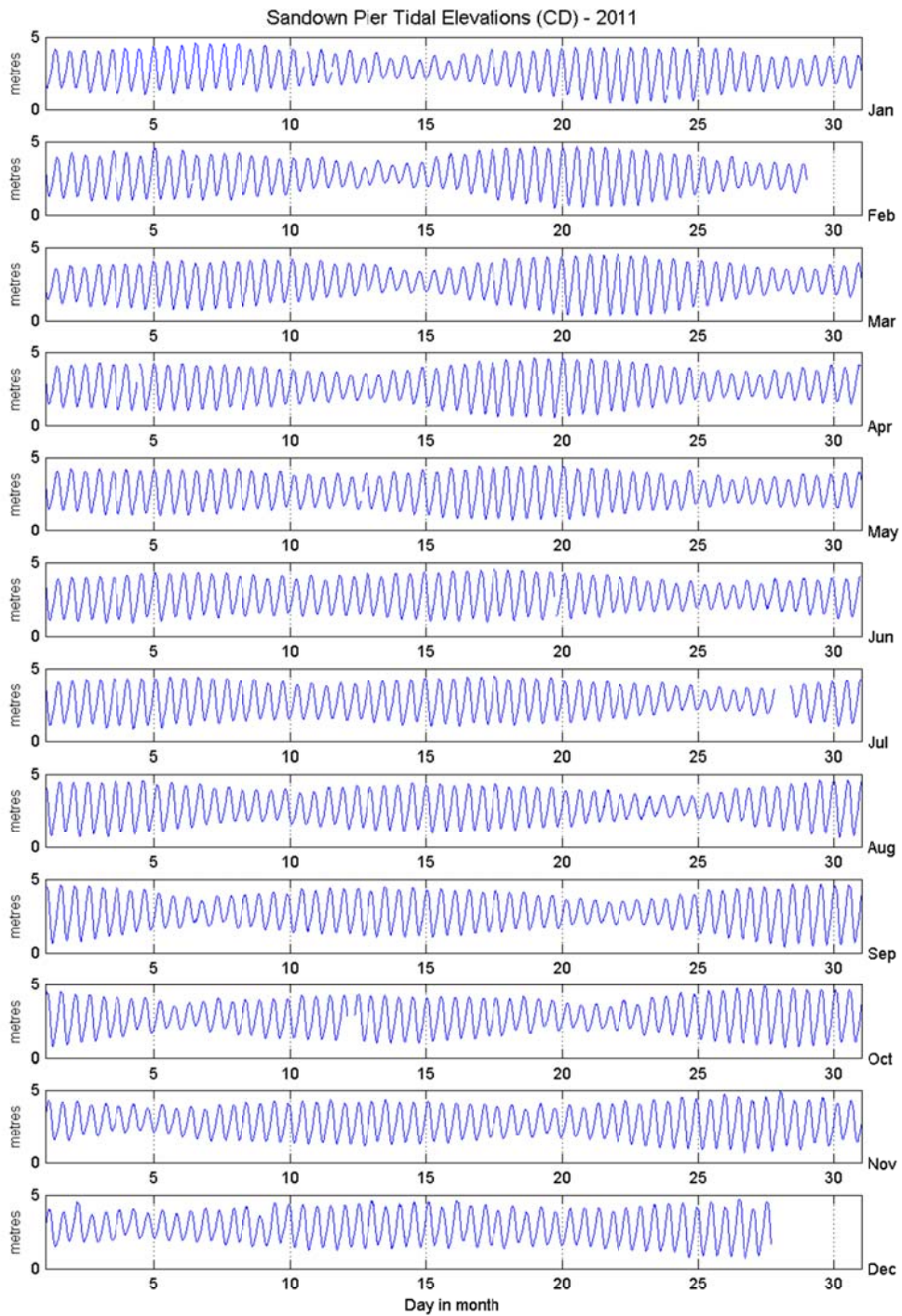


Figure 3: Sandown Pier tidal elevations for 2011 relative to Chart Datum