

## 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
95	10 minutes

### Service history

The radar was last serviced in August 2012. 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	2.10	21-Jan-2012 22:10	-1.72	11-Jan-2012 17:50
February	1.90	23-Feb-2012 12:10	-2.08	10-Feb-2012 18:10
March	2.07	07-Mar-2012 22:40	-2.10	11-Mar-2012 18:30
April	2.30	09-Apr-2012 13:10	-1.87	08-Apr-2012 17:30
May	2.22	08-May-2012 00:10	-1.77	08-May-2012 05:50
June	2.32	07-Jun-2012 13:30	-1.70	05-Jun-2012 04:50
July	2.15	07-Jul-2012 13:40	-1.61	05-Jul-2012 05:10
August	2.19	19-Aug-2012 12:50	-1.62	21-Aug-2012 06:30
September	2.26	18-Sep-2012 12:30	-1.86	19-Sep-2012 06:10
October	2.61	17-Oct-2012 12:10	-1.55	16-Oct-2012 16:40
November	2.26	16-Nov-2012 12:30	-1.71	15-Nov-2012 17:10
December	2.40	16-Dec-2012 00:50	-1.49	13-Dec-2012 16:10

Month	Surge maxima		Surge minima	
	Value (m)	Date/Time	Value (m)	Date/Time
January	0.52	05-Jan-2012 18:30	-0.36	11-Jan-2012 05:50
February	0.12	19-Feb-2012 11:40	-0.56	09-Feb-2012 00:30
March	0.14	07-Mar-2012 22:40	-0.45	21-Mar-2012 16:30
April	0.53	25-Apr-2012 20:10	-0.29	06-Apr-2012 01:20
May	0.26	14-May-2012 19:30	-0.37	13-May-2012 04:50
June	0.45	07-Jun-2012 23:30	-0.25	22-Jun-2012 21:00
July	0.24	07-Jul-2012 10:10	-0.29	23-Jul-2012 04:20
August	0.45	15-Aug-2012 16:30	-0.23	31-Aug-2012 23:50
September	0.39	14-Sep-2012 23:40	-0.32	01-Sep-2012 05:10
October	0.73	17-Oct-2012 04:10	-0.21	28-Oct-2012 03:40
November	0.57	04-Nov-2012 07:50	-0.25	25-Nov-2012 10:10
December	0.57	25-Dec-2012 08:50	-0.30	08-Dec-2012 14:10

Month	Mean Level	
	No. of days	Elevation (OD)
January	27	0.241
February	28	0.067
March	29	0.115
April	30	0.317
May	30	0.274
June	30	0.326
July	30	0.330
August	31	0.358
September	30	0.351
October	30	0.440
November	30	0.425
December	30	0.392

Highest values in 2012			
Extreme		Surge	
Elevation (OD) (Surge component)	Date/Time	Value (m)	Date/Time
2.61 (0.46)	17-Oct-2012 12:10	0.73	17-Oct-2012 04:10
2.40 (0.32)	16-Dec-2012 00:50	0.57	04-Nov-2012 07:50
2.39 (0.28)	18-Oct-2012 12:50	0.57	25-Dec-2012 08:50
2.39 (0.35)	16-Oct-2012 23:40	0.56	01-Nov-2012 11:30
2.39 (0.28)	14-Dec-2012 11:40	0.55	14-Dec-2012 09:40
2.38 (0.33)	18-Oct-2012 00:30	0.54	17-Oct-2012 09:50
2.34 (0.26)	17-Dec-2012 02:10	0.53	25-Apr-2012 20:10
2.32 (0.25)	15-Dec-2012 12:10	0.52	05-Jan-2012 18:30
2.32 (0.28)	07-Jun-2012 13:30	0.51	01-Nov-2012 23:30
2.31 (0.33)	15-Oct-2012 22:50	0.50	26-Apr-2012 01:00

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		95%

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.

## 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 Fugro EMU Limited. The REX is mounted on Sandown Pier by kind permission of the Pier owners.

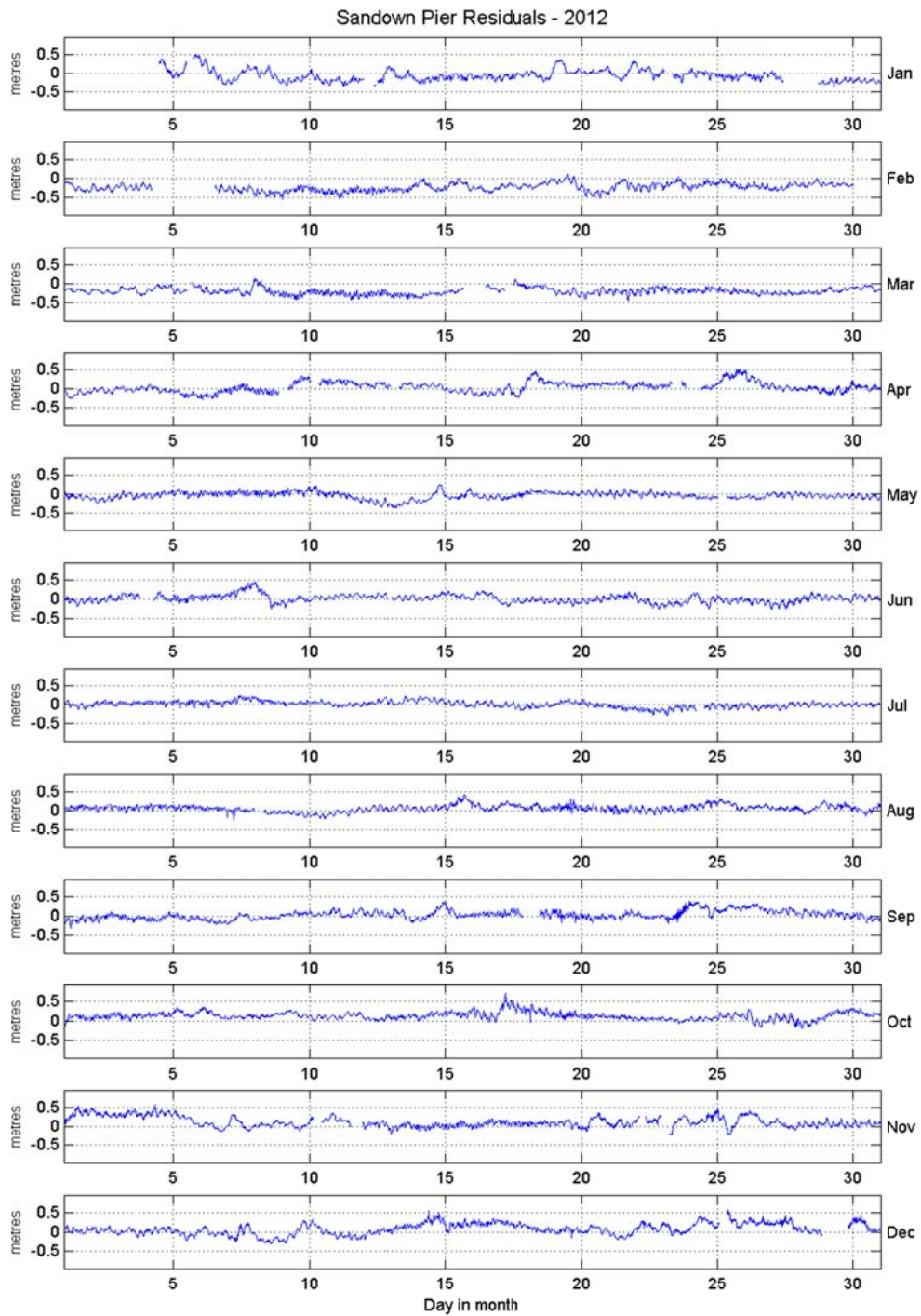


Figure 1: Sandown Pier residuals for 2012

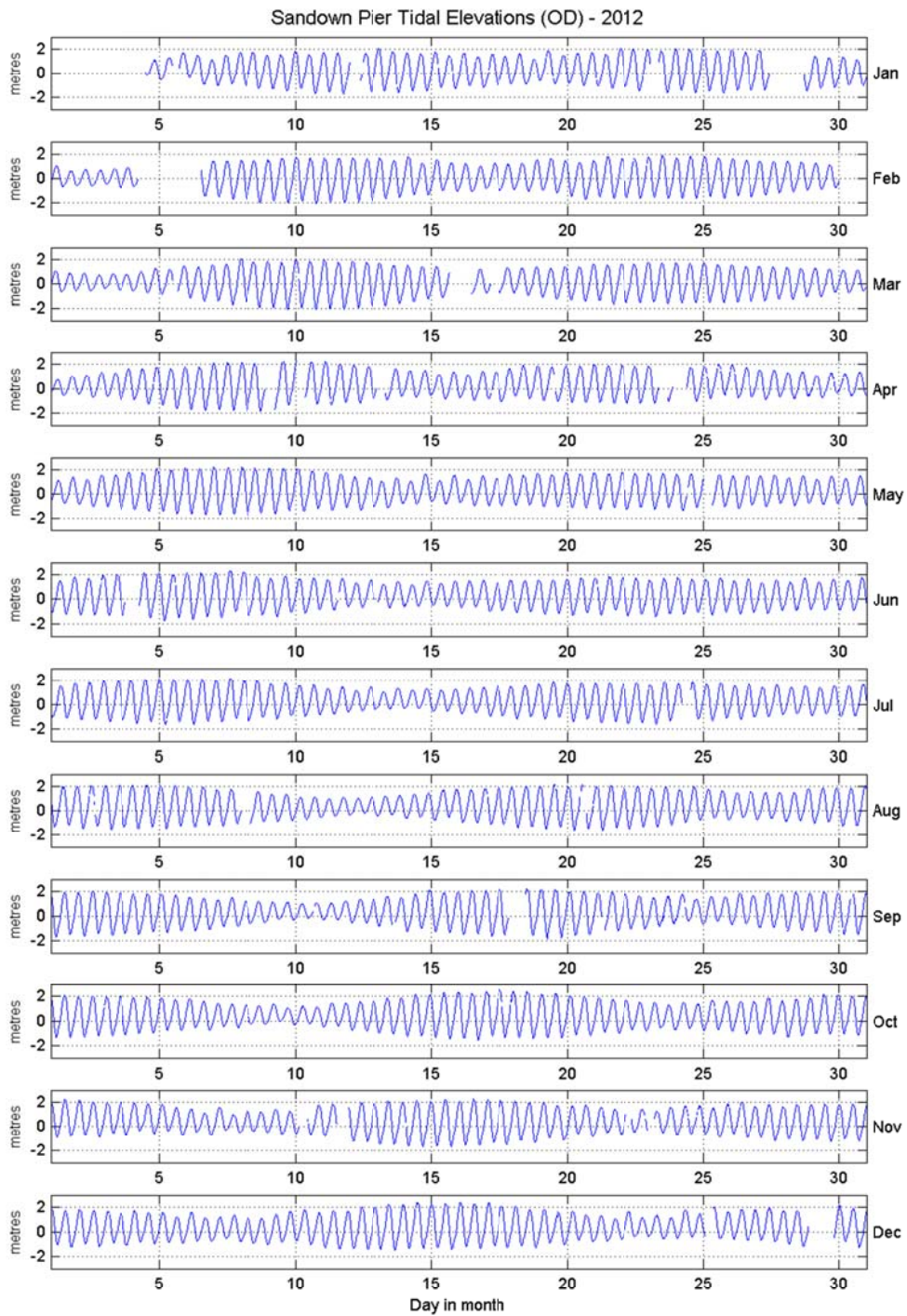


Figure 2: Sandown Pier tidal elevations for 2012 relative to Ordnance Datum

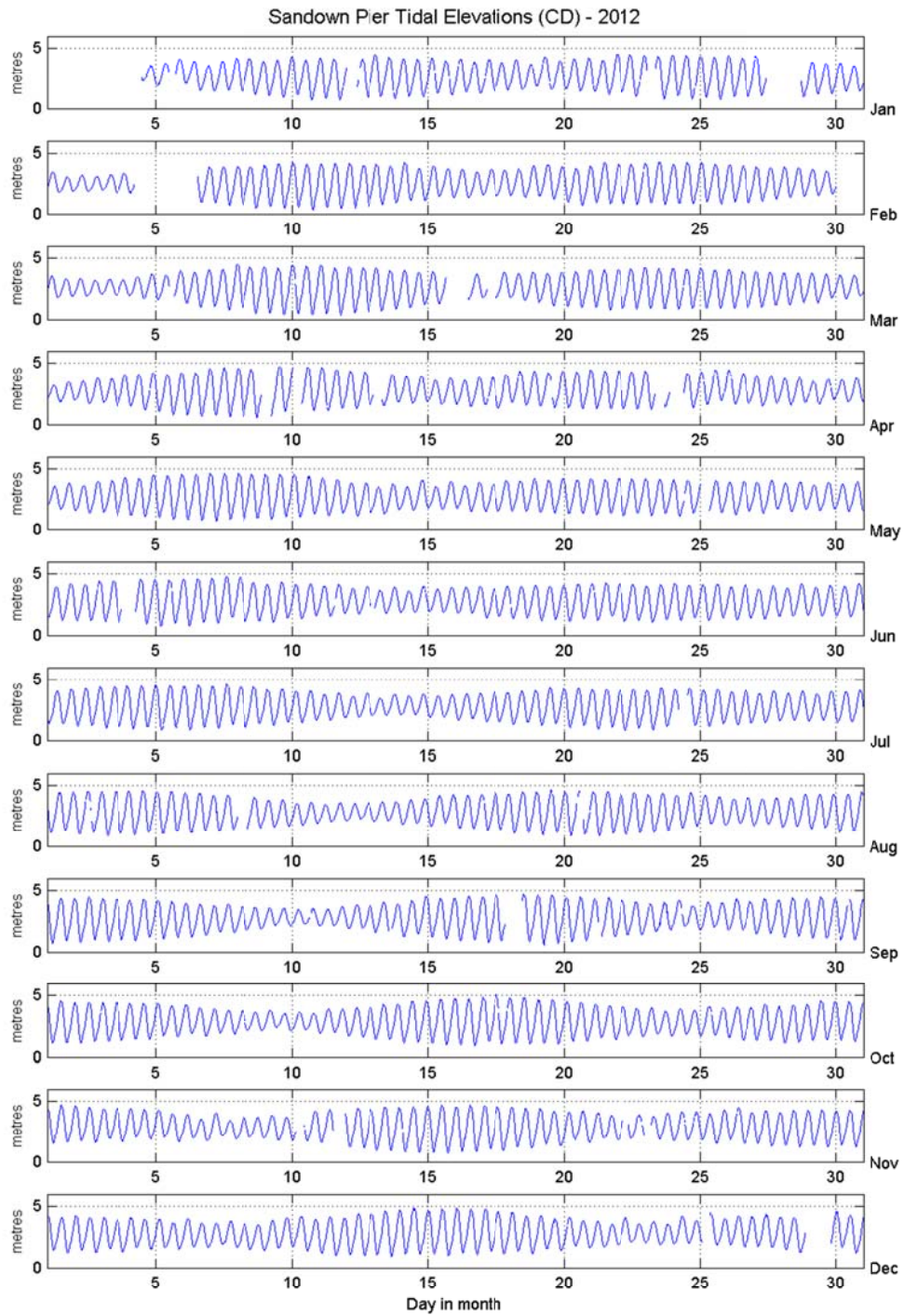


Figure 3: Sandown Pier tidal elevations for 2012 relative to Chart Datum