

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
99	10 minutes

Service history

The radar became operational on 01 June 2006. 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	2.23	31-Jan-2010 11:50	-1.85	31-Jan-2010 17:10
February	2.48	28-Feb-2010 10:50	-1.93	01-Feb-2010 18:00
March	2.48	30-Mar-2010 23:50	-2.05	02-Mar-2010 17:40
April	2.30	01-Apr-2010 00:20	-1.75	28-Apr-2010 04:10
May	2.04	01-May-2010 00:30	-1.57	16-May-2010 05:20
June	1.99	12-Jun-2010 23:10	-1.71	16-Jun-2010 07:00
July	2.29	15-Jul-2010 01:30	-1.60	14-Jul-2010 05:50
August	2.21	11-Aug-2010 12:00	-1.92	12-Aug-2010 05:40
September	2.33	09-Sep-2010 11:40	-1.82	10-Sep-2010 05:20
October	2.35	08-Oct-2010 11:20	-1.70	09-Oct-2010 05:00
November	2.27	09-Nov-2010 00:30	-1.69	07-Nov-2010 17:10
December	2.23	05-Dec-2010 10:30	-1.72	25-Dec-2010 19:00

Month	Surge maxima		Surge minima	
	Value (m)	Date/Time	Value (m)	Date/Time
January	0.32	05-Jan-2010 18:50	-0.41	27-Jan-2010 06:00
February	0.49	28-Feb-2010 12:40	-0.35	06-Feb-2010 21:50
March	0.41	31-Mar-2010 04:20	-0.37	08-Mar-2010 08:30
April	0.33	02-Apr-2010 11:10	-0.38	12-Apr-2010 09:10
May	0.16	31-May-2010 02:20	-0.42	05-May-2010 07:40
June	0.24	19-Jun-2010 19:10	-0.25	16-Jun-2010 14:50
July	0.34	15-Jul-2010 05:40	-0.26	18-Jul-2010 22:50
August	0.43	30-Aug-2010 01:50	-0.21	13-Aug-2010 06:50
September	0.33	16-Sep-2010 04:00	-0.26	30-Sep-2010 05:30
October	0.41	30-Oct-2010 22:20	-0.26	02-Oct-2010 05:40
November	0.62	12-Nov-2010 15:40	-0.20	02-Nov-2010 10:20
December	0.63	16-Dec-2010 19:30	-0.31	15-Dec-2010 09:40

Month	Mean Level	
	No. of days	Elevation (OD)
January	31	0.279
February	28	0.392
March	31	0.271
April	30	0.222
May	31	0.245
June	30	0.275
July	31	0.287
August	31	0.342
September	30	0.348
October	31	0.409
November	30	0.421
December	31	0.322

Highest values in 2010			
Extreme		Surge	
Elevation (OD) (Surge component)	Date/Time	Value (m)	Date/Time
2.48 (0.24)	30-Mar-2010 23:50	0.63	16-Dec-2010 19:30
2.48 (0.44)	28-Feb-2010 10:50	0.62	12-Nov-2010 15:40
2.46 (0.26)	03-Feb-2010 02:00	0.57	11-Nov-2010 08:50
2.45 (0.33)	28-Feb-2010 23:10	0.49	28-Feb-2010 12:40
2.40 (0.23)	29-Mar-2010 23:00	0.49	25-Feb-2010 19:40
2.36 (0.27)	30-Mar-2010 11:10	0.47	08-Nov-2010 07:00
2.35 (0.18)	01-Mar-2010 11:40	0.47	27-Feb-2010 09:30
2.35 (0.12)	08-Oct-2010 11:20	0.47	22-Feb-2010 10:20
2.35 (0.12)	02-Mar-2010 00:00	0.46	12-Nov-2010 08:40
2.33 (0.11)	09-Sep-2010 11:40	0.46	08-Nov-2010 08:40

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%

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.

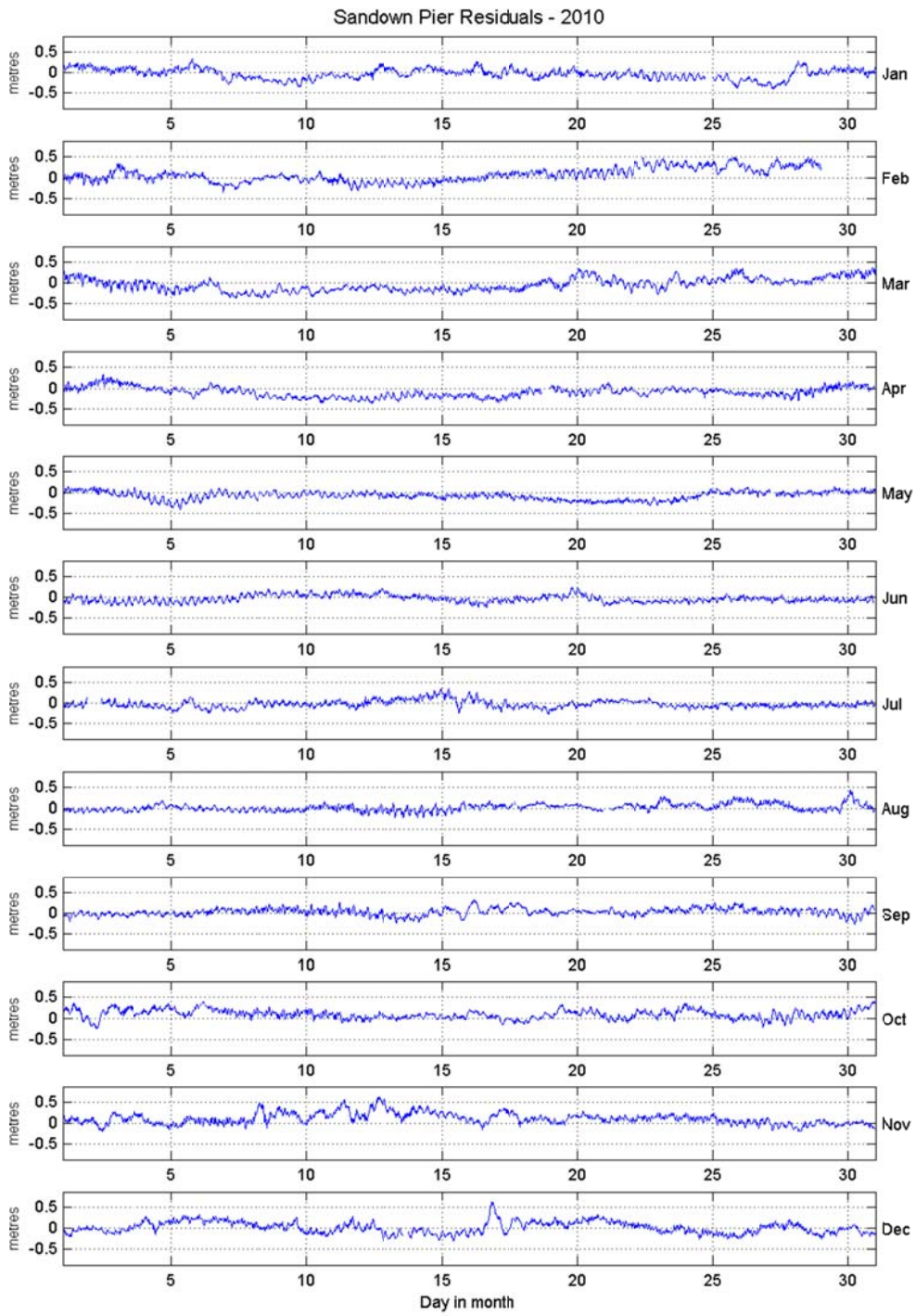


Figure 1: Sandown Pier residuals for 2010

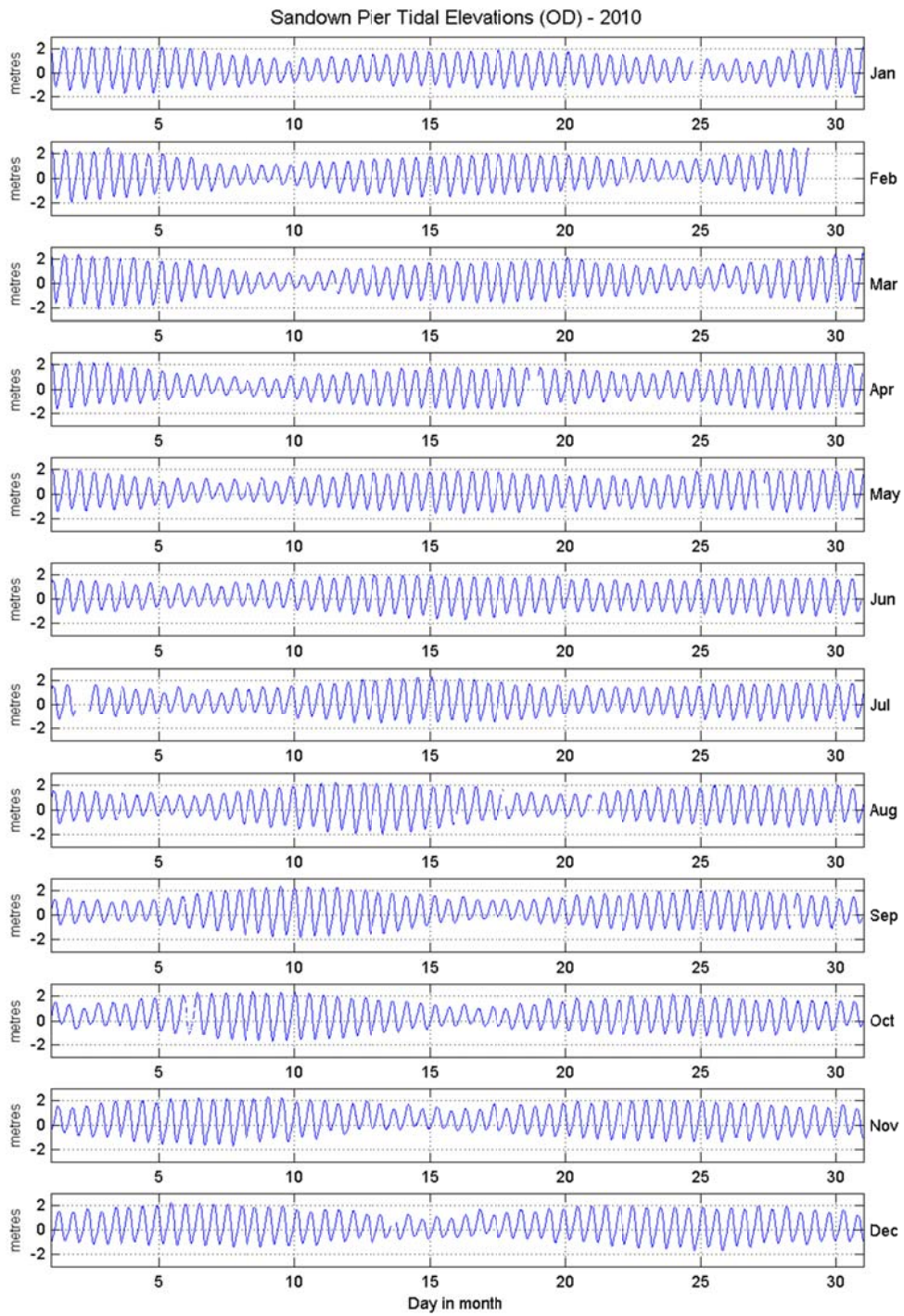


Figure 2: Sandown Pier tidal elevations for 2010 relative to Ordnance Datum

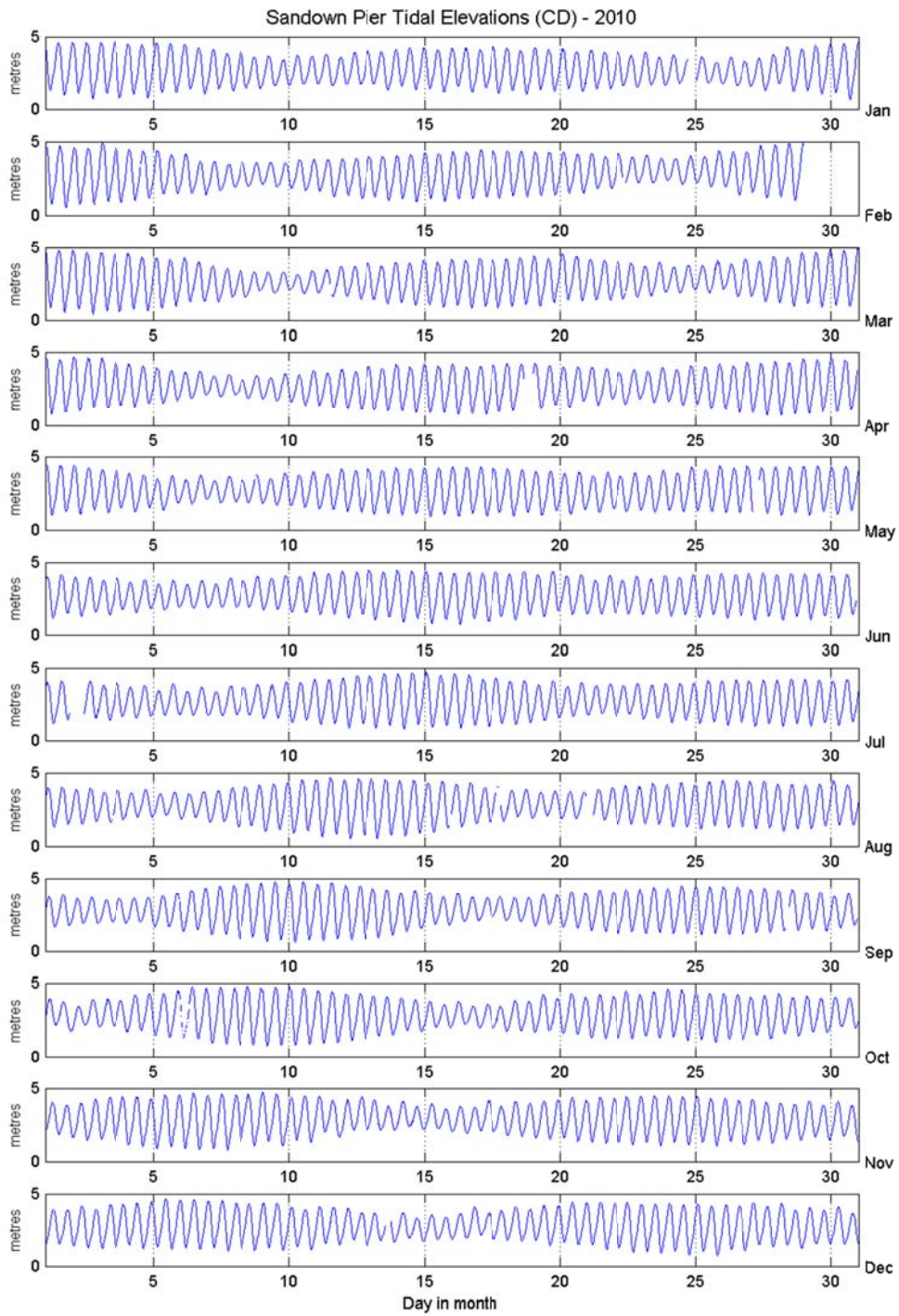


Figure 3: Sandown Pier tidal elevations for 2010 relative to Chart Datum