

## Sandown Pier Tide Gauge

### Location

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

Seaward end of Sandown Pier, upper level

### Instrument

Rosemount WaveRadar Rex

### Benchmarks

Benchmark	Description
TGBM 5.989m OD	Top of NW bolt



### Datum information

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).

### Levelling information

The site was surveyed on 09 May 2006.

### Site Characteristics

The Pier is on open coast, with no nearby estuaries. Spring tidal range is ~4m. Some wave damping from the outer pier arm (see photograph) and some reflection from the Pier legs can occur.

### Data Quality

C1 (%)	Sample interval	Missing data
94	10 minutes	01 Jan, 05 Jan, 24 Feb, 01-02 Mar, 01 May, 01 Jul, 01 Oct, 30 Oct, 22 Nov-01 Dec

### Residuals and Elevations

Residuals and Elevations (OD and CD) for the whole year are shown in Figures 1 to 3 respectively. Tidal elevations are derived as the one minute average of the 4Hz readings. The time stamp is the start of the measuring burst.

### Service history

The radar became operational on 31 January 2008. No re-calibration of the instrument is required.

### Measurements

The Rex is a Frequency Modulated Continuous Wave radar, sampling at 4Hz. Tidal elevations are derived, every 10 minutes, as the one minute average of the 4Hz readings. The time stamp is the start of the measuring burst.

**Statistics**

All times GMT

Month	Surge maxima		Surge minima	
	Value (m)	Date/Time	Value (m)	Date/Time
January	0.60	15-Jan-2008 09:40	-0.52	25-Jan-2008 14:00
February	0.59	01-Feb-2008 04:40	-0.34	15-Feb-2008 21:20
March	0.88	10-Mar-2008 06:30	-0.51	05-Mar-2008 15:30
April	0.30	30-Apr-2008 00:20	-0.49	01-Apr-2008 16:40
May	0.20	26-May-2008 09:30	-0.26	05-May-2008 14:00
June	0.26	19-Jun-2008 00:50	-0.30	09-Jun-2008 14:10
July	0.31	05-Jul-2008 04:30	-0.26	23-Jul-2008 10:10
August	0.37	12-Aug-2008 14:00	-0.20	27-Aug-2008 04:00
September	0.47	05-Sep-2008 19:30	-0.32	26-Sep-2008 15:00
October	0.60	05-Oct-2008 13:40	-0.29	25-Oct-2008 07:30
November	0.45	10-Nov-2008 15:00	-0.27	17-Nov-2008 14:40
December	0.56	04-Dec-2008 07:50	-0.52	26-Dec-2008 22:00

Month	Extreme maxima		Extreme minima	
	Elevation (OD)	Date/Time	Elevation (OD)	Date/Time
January	2.25	11-Jan-2008 12:50	-1.84	25-Jan-2008 18:30
February	2.11	22-Feb-2008 12:00	-1.81	08-Feb-2008 17:20
March	2.53	10-Mar-2008 12:30	-1.72	07-Mar-2008 16:20
April	2.15	08-Apr-2008 00:10	-1.85	06-Apr-2008 16:30
May	2.08	07-May-2008 00:00	-1.84	05-May-2008 16:10
June	2.06	04-Jun-2008 23:40	-1.71	06-Jun-2008 06:00
July	2.23	05-Jul-2008 12:50	-1.63	04-Jul-2008 05:10
August	2.13	18-Aug-2008 12:00	-1.67	03-Aug-2008 05:30
September	2.21	30-Sep-2008 11:40	-1.75	17-Sep-2008 05:20
October	2.28	16-Oct-2008 11:50	-1.65	17-Oct-2008 17:50
November	2.12	14-Nov-2008 11:20	-1.68	14-Nov-2008 17:10
December	2.02	14-Dec-2008 12:00	-1.82	15-Dec-2008 18:30

Month	Mean Sea Level	
	No. of days	MSL (OD)
January	28	0.328
February	28	0.267
March	29	0.341
April	30	0.282
May	30	0.280
June	30	0.265
July	30	0.324
August	31	0.334
September	30	0.316
October	29	0.349
November	21	0.325
December	30	0.230

10 Highest Values in 2008			
Surge		Extreme	
Value (m)	Date/Time	Elevation (OD) (surge component)	Date/Time
0.88	10-Mar-2008 06:30	2.53 (0.52)	10-Mar-2008 12:30
0.73	01-Mar-2008 13:40	2.34 (0.26)	10-Mar-2008 00:40
0.68	10-Mar-2008 11:00	2.33 (0.33)	11-Mar-2008 13:30
0.60	05-Oct-2008 13:40	2.28 (0.23)	16-Oct-2008 11:50
0.60	15-Jan-2008 09:40	2.28 (0.29)	12-Mar-2008 01:50
0.59	01-Feb-2008 04:40	2.26 (0.19)	09-Mar-2008 12:10
0.57	01-Mar-2008 11:20	2.26 (0.35)	21-Mar-2008 11:30
0.56	04-Dec-2008 07:50	2.25 (0.48)	11-Jan-2008 12:50
0.51	05-Dec-2008 08:40	2.23 (0.20)	05-Jul-2008 12:50
0.48	11-Jan-2008 12:50	2.21 (0.18)	30-Sep-2008 11:40

Year	Annual surge maxima		Annual extreme maxima		Annual Mean Sea Level (OD)	Recovery rate (%)
	Value (m)	Date	Elevation (OD) (surge component)	Date		
2007	0.78	09-Nov-2007 05:50	2.54 (0.50)	18-Mar-2007 22:50	0.302	97
2008	0.88	10-Mar-2008 06:30	2.53 (0.52)	10-Mar-2008 12:30	0.303	94

### 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.

Tidal predictions were produced using TASK2000. The monthly Mean Sea Level is calculated as the average of all readings for the given month. The annual MSL is the average of all readings for the given year. These average values should not be used for any purpose without consideration of the recovery rate.

### Acknowledgements

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

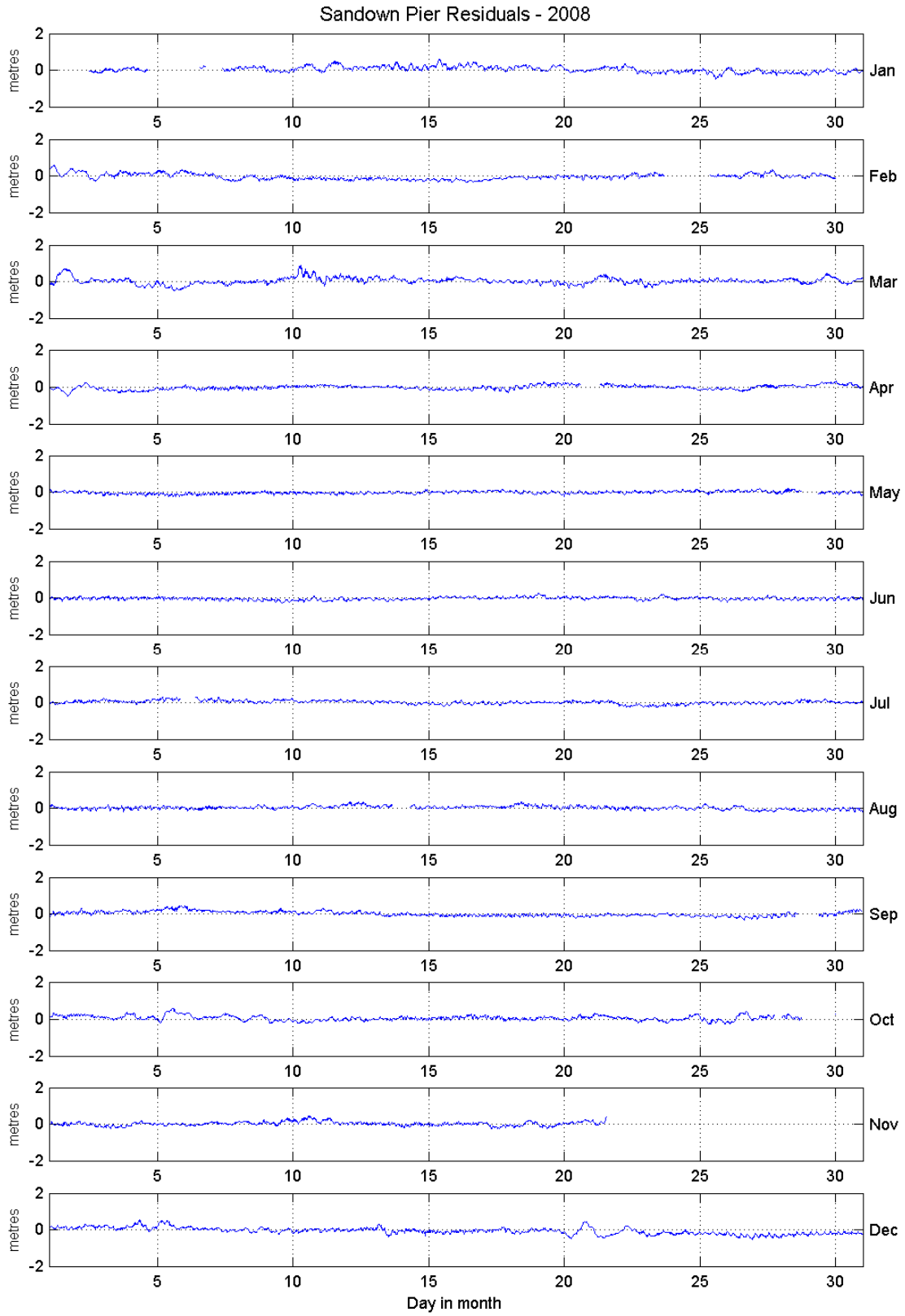


Figure 1 Residuals for 2008

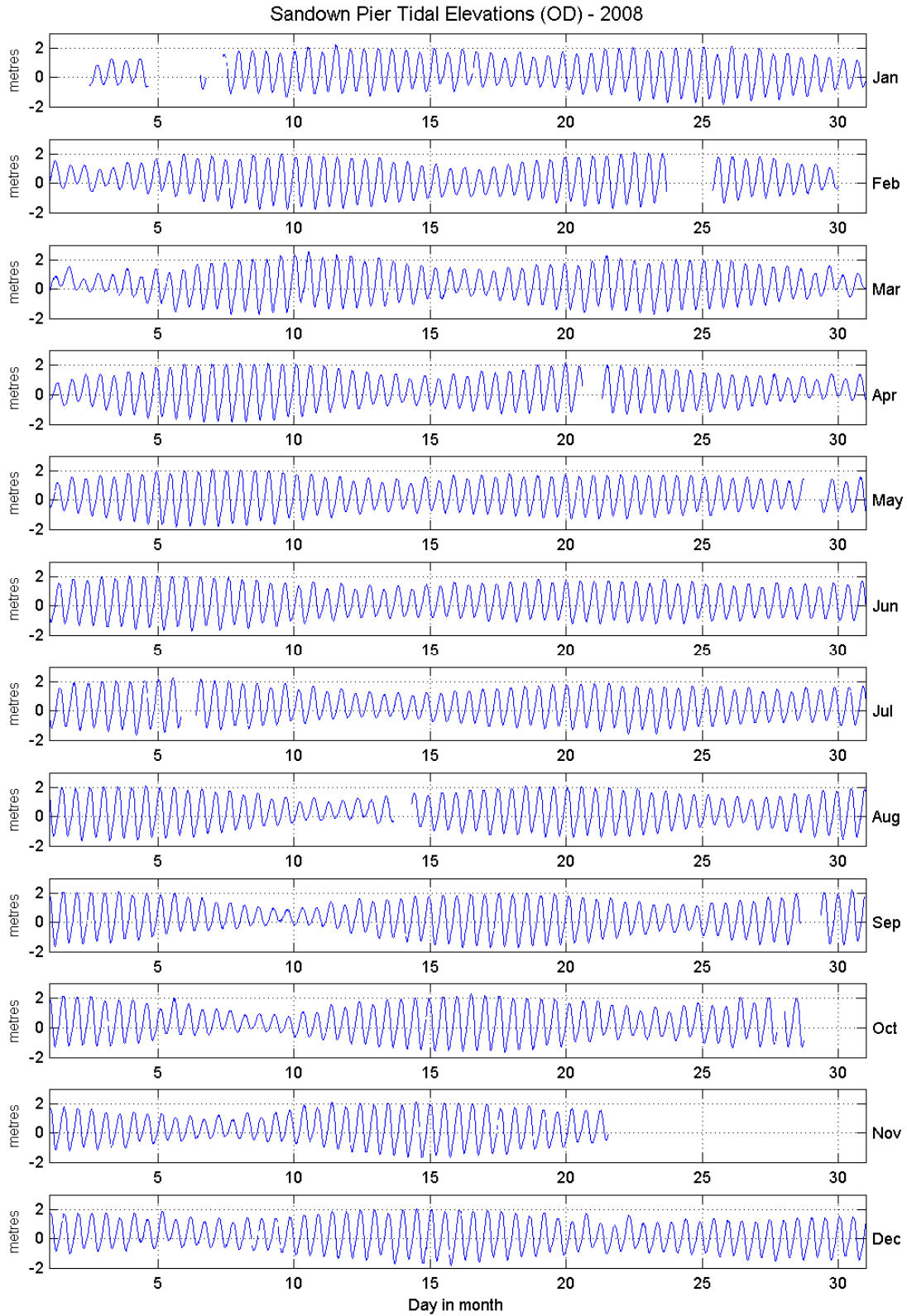


Figure 2 Tidal elevations relative to Ordnance Datum for 2008

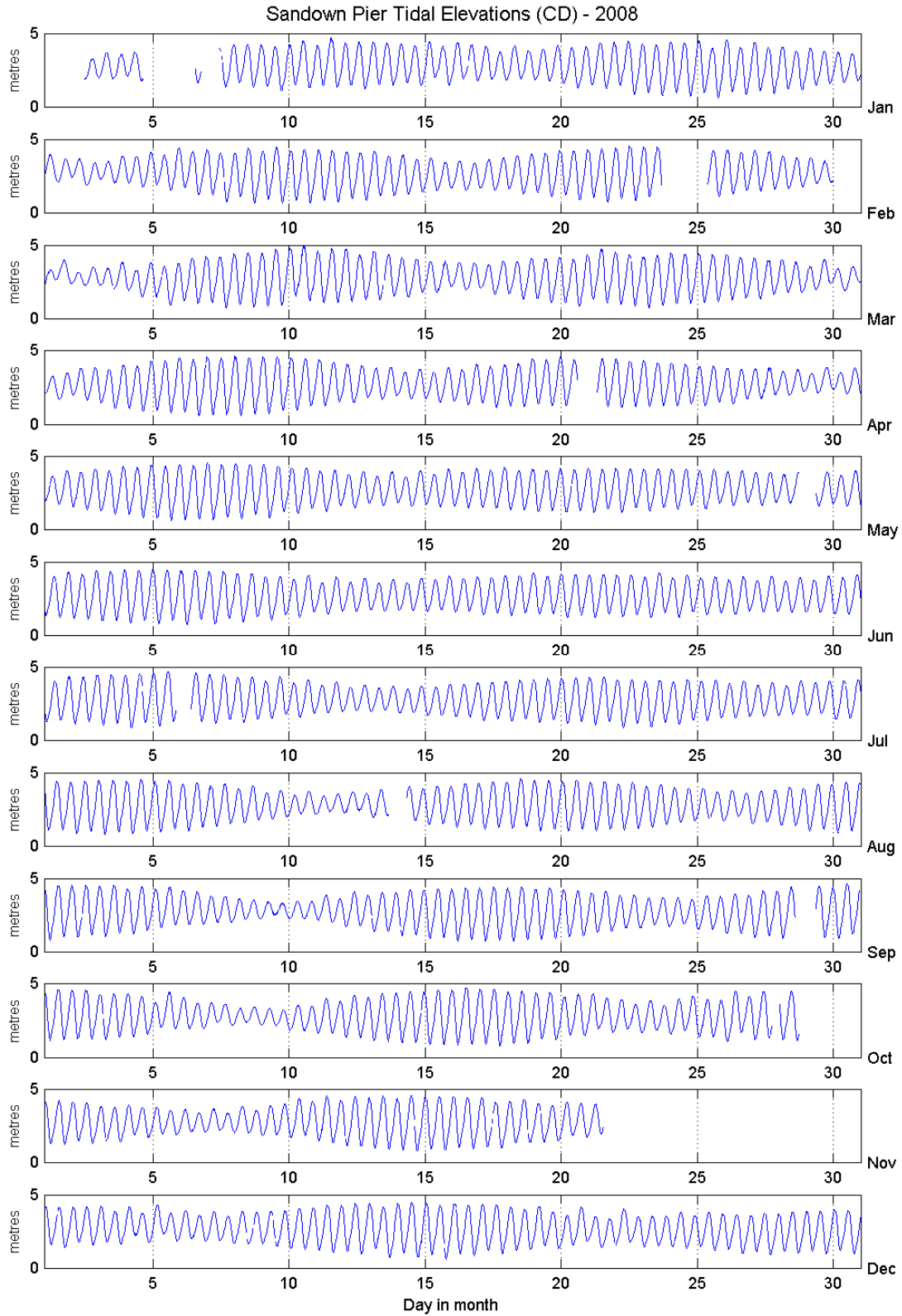


Figure 3 Tidal elevations relative to Chart Datum for 2008