

Swanage Pier Tide Gauge

Location

OS: 403692E 78849N

WGS84 Latitude: 50° 36.559806' N Longitude: 01° 56.951038' W

Seaward end of Swanage Pier

Instrument

Rosemount WaveRadar Rex
(inst. No. 47735)

TGZ



Benchmarks

TGBM 6.262m OD Top of S/S horizontal frame

TGZ = 6.337m above Ordnance Datum Newlyn

TGZ = 7.737m above Admiralty Chart Datum

TGZ = 0.075m above TGBM

Datum information

All data are to Ordnance Datum Newlyn. The height of Chart Datum relative to Ordnance Datum at Swanage is -1.40m (Admiralty Tide Tables, Supplementary Table III).

Survey information

The site was last surveyed on 16 July 2008.

Site Characteristics

The Pier is on open coast, with no nearby estuaries, but leeward of a headland. Spring tidal range is 1.5m.

Deployment and Service history

The tide gauge was first deployed on 07 March 2007. 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.

Data Quality

C1(%)	Sample interval	Missing data
94	10 minutes	01-02 Mar, 18-20 Apr, 01 May, 05 May, 11 May, 01 Jul, 05 Jul, 01 Oct, 28 Oct, 23 Nov, 01 Dec

Residuals

Residuals for the whole year are shown in Figure 1.

Statistics

All times GMT

Month	Surge maxima		Surge minima	
	Value (m)	Date/Time	Value (m)	Date/Time
January	0.60	15-Jan-2008 08:00	-0.53	31-Jan-2008 18:00
February	0.51	01-Feb-2008 04:00	-0.37	16-Feb-2008 15:00
March	0.91	10-Mar-2008 05:00	-0.42	04-Mar-2008 08:00
April	0.41	29-Apr-2008 17:00	-0.35	01-Apr-2008 17:00
May	0.21	27-May-2008 03:00	-0.20	06-May-2008 11:00
June	0.21	19-Jun-2008 00:00	-0.29	09-Jun-2008 15:00
July	0.42	07-Jul-2008 00:00	-0.23	23-Jul-2008 01:00
August	0.41	18-Aug-2008 04:00	-0.13	27-Aug-2008 18:00
September	0.61	05-Sep-2008 10:00	-0.14	26-Sep-2008 21:00
October	0.60	05-Oct-2008 14:00	-0.24	25-Oct-2008 08:00
November	0.49	10-Nov-2008 12:00	-0.40	24-Nov-2008 22:00
December	0.55	04-Dec-2008 07:00	-0.54	26-Dec-2008 23:00

Month	Extreme maxima		Extreme minima	
	Elevation (OD)	Date/Time	Elevation (OD)	Date/Time
January	1.26	11-Jan-2008 10:00	-1.18	25-Jan-2008 17:00
February	1.08	23-Feb-2008 09:00	-1.04	10-Feb-2008 17:00
March	1.66	10-Mar-2008 10:00	-1.01	07-Mar-2008 15:00
April	1.02	07-Apr-2008 09:00	-1.09	06-Apr-2008 15:00
May	0.94	07-May-2008 21:00	-1.07	07-May-2008 04:00
June	0.95	04-Jun-2008 20:00	-1.01	07-Jun-2008 05:00
July	1.05	06-Jul-2008 23:00	-0.91	04-Jul-2008 04:00
August	1.13	18-Aug-2008 21:00	-1.01	31-Aug-2008 03:00
September	1.14	01-Sep-2008 21:00	-1.02	17-Sep-2008 04:00
October	1.08	16-Oct-2008 21:00	-0.87	17-Oct-2008 04:00
November	0.95	14-Nov-2008 08:00	-0.97	15-Nov-2008 16:00
December	1.03	13-Dec-2008 07:00	-1.08	15-Dec-2008 17:00

Month	Mean Sea Level	
	No. of days	MSL (OD)
January	30	0.295
February	29	0.215
March	29	0.276
April	27	0.210
May	28	0.252
June	30	0.219
July	29	0.279
August	31	0.288
September	30	0.267
October	29	0.303
November	29	0.276
December	30	0.190

10 Highest Values in 2008			
Surge		Extreme	
Value (m)	Date/Time	Elevation (OD) (surge component)	Date/Time
0.91	10-Mar-2008 05:00	1.66 (0.64)	10-Mar-2008 10:00
0.91	10-Mar-2008 06:00	1.26 (0.43)	11-Jan-2008 10:00
0.61	01-Mar-2008 14:00	1.18 (0.28)	11-Mar-2008 10:00
0.61	05-Sep-2008 10:00	1.17 (0.11)	09-Mar-2008 09:00
0.60	05-Oct-2008 14:00	1.14 (0.35)	01-Sep-2008 21:00
0.60	15-Jan-2008 08:00	1.13 (0.27)	18-Aug-2008 21:00
0.59	10-Mar-2008 18:00	1.13 (0.40)	13-Jan-2008 11:00
0.58	05-Sep-2008 20:00	1.10 (0.21)	09-Mar-2008 22:00
0.55	04-Dec-2008 07:00	1.08 (0.15)	16-Oct-2008 21:00
0.54	29-Mar-2008 16:00	1.08 (0.31)	30-Sep-2008 20:00

Year	Annual surge maxima		Annual extreme maxima		Annual Mean Sea Level (OD)	Recovery rate (C1)
	Value (m)	Date	Elevation (OD) (surge component)	Date		
2008	0.91	10-Mar-2008 05:40	1.66 (0.64)	10-Mar-2008 10:10	0.256	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.

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 kindly provided by the UK Hydrographic Office. The Rex is installed on Swanage Pier by kind permission of the Swanage Pier Trust.

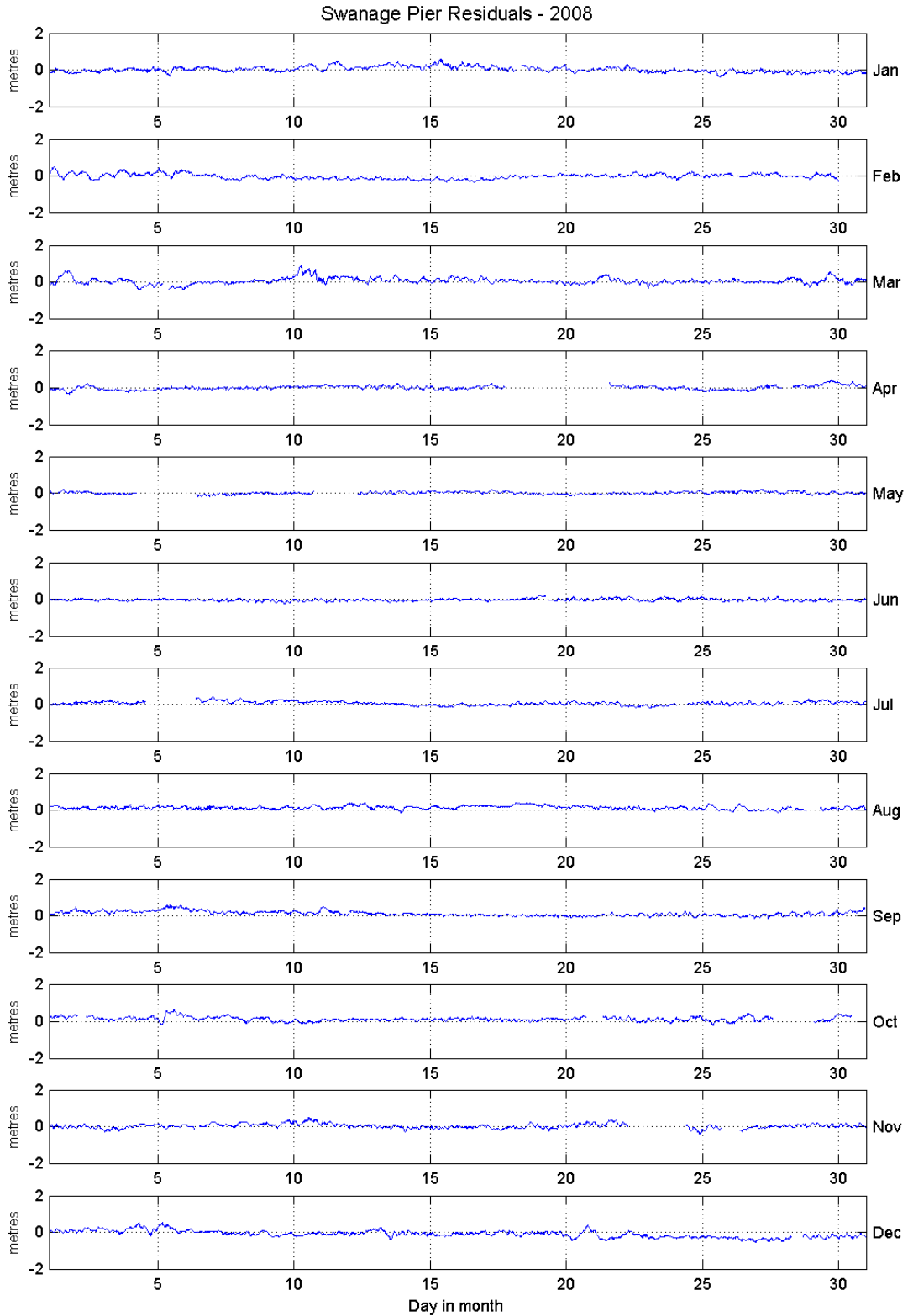


Figure 1 Residuals for 2008

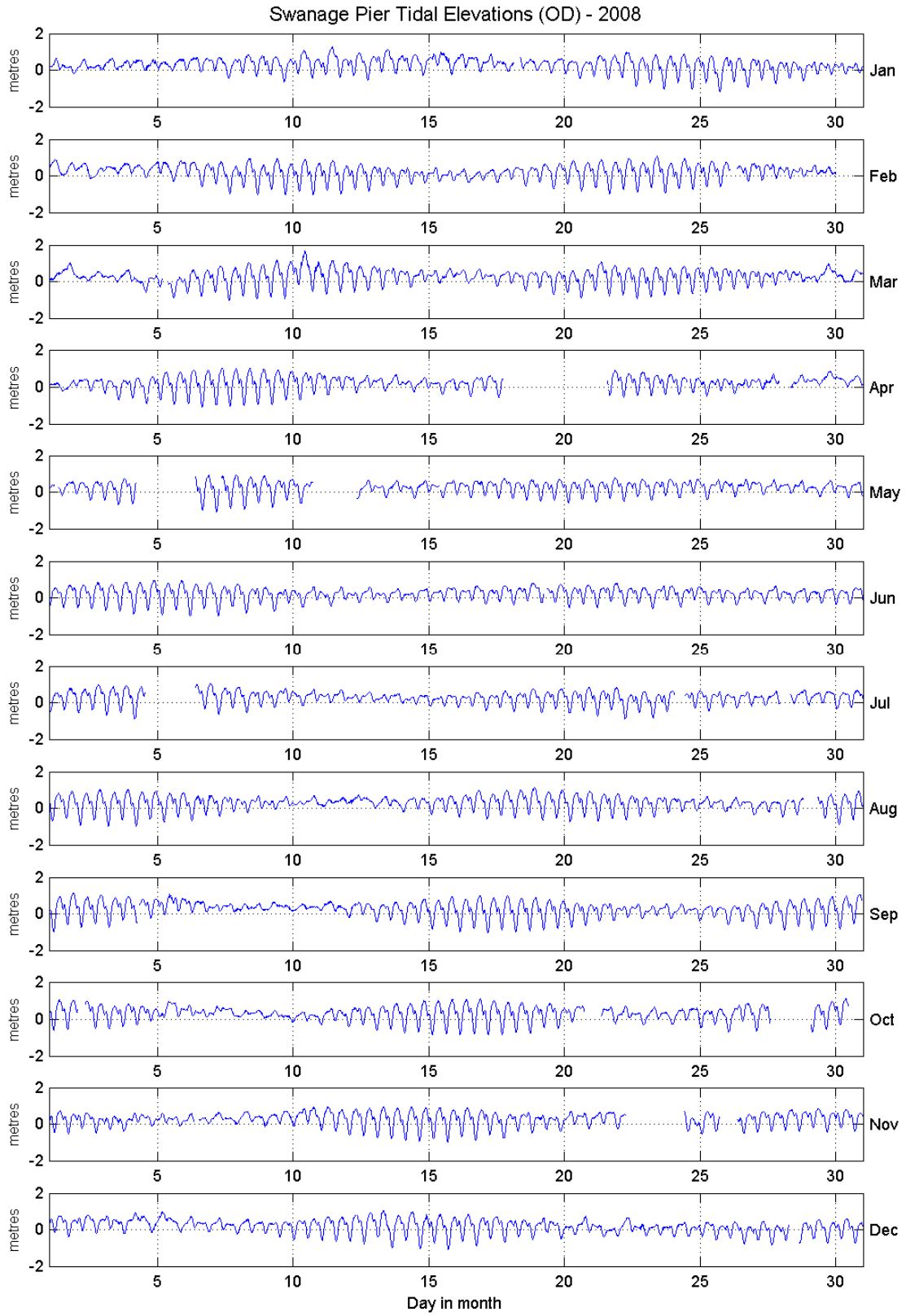


Figure 2 Tidal elevations relative to Ordnance Datum for 2008

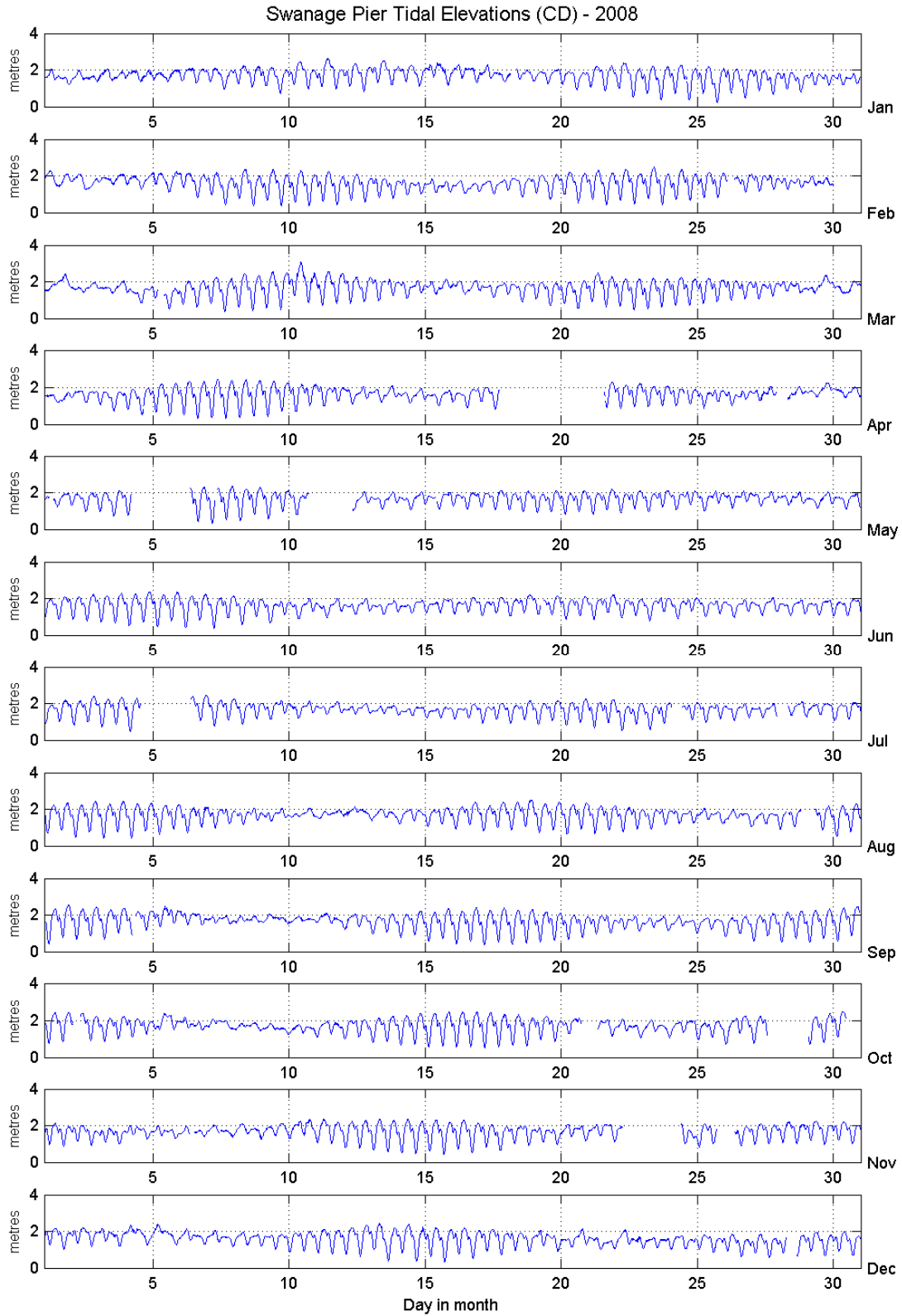


Figure 3 Tidal elevations relative to Chart Datum for 2008