

West Bay Harbour Tide Gauge

Location

OS: 346142.9E 90195.31N
 WGS84 *Latitude:* 50° 42.532' N *Longitude:* 002° 45.846' E

West Bay Harbour, inner end of western breakwater

Instrument

Rosemount WaveRadar REX



TGZ



<i>Benchmark</i>	<i>OS Co-ordinates</i>	<i>Description</i>
TGBM	4.607 OD	Top of horizontal S/S frame
TGZ =	4.647m above Ordnance Datum (Newlyn)	
TGZ =	6.897m above Admiralty Chart Datum	
TGZ =	0.040m above TGBM	

Datum information

Tidal elevations are measured reference to Ordnance Datum (Newlyn). The height of Chart Datum at Bridport relative to Ordnance Datum is -2.25m (Admiralty Tide Tables, Supplementary Table III).

Survey information

The site was last surveyed on 7 January 2008.

Site Characteristics

The breakwater is on open coast. Spring tidal range is 2.5m. Some wave reflection can occur around the breakwater and harbour entrance.

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.

Data Quality

C1 (%)	Sample interval	Missing days
88	10 minutes	01-02 Mar, 01 May, 25 Jun, 01 Jul, 01 Oct, 01, 14, 20,21 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.

Statistics*All times GMT*

Month	Surge maxima		Surge minima	
	Value (m)	Date/Time	Value (m)	Date/Time
January	-	-	-	-
February	0.63	05-Feb-2008 00:30	-0.43	12-Feb-2008 05:40
March	1.10	10-Mar-2008 05:20	-0.47	04-Mar-2008 07:50
April	0.35	29-Apr-2008 20:20	-0.44	01-Apr-2008 18:00
May	0.20	28-May-2008 11:10	-0.31	05-May-2008 14:00
June	0.35	19-Jun-2008 01:30	-0.35	08-Jun-2008 15:40
July	0.54	05-Jul-2008 15:30	-0.31	23-Jul-2008 05:30
August	0.47	18-Aug-2008 12:00	-0.32	22-Aug-2008 18:10
September	0.58	05-Sep-2008 16:30	-0.37	26-Sep-2008 09:30
October	0.51	30-Oct-2008 02:00	-0.32	10-Oct-2008 07:10
November	0.54	10-Nov-2008 09:40	-0.48	24-Nov-2008 22:10
December	0.63	04-Dec-2008 04:40	-0.52	26-Dec-2008 23:40

Month	Extreme maxima		Extreme minima	
	Elevation (OD)	Date/Time	Elevation (OD)	Date/Time
January	-	-	-	-
February	2.16	23-Feb-2008 08:10	-1.94	10-Feb-2008 01:50
March	2.22	09-Mar-2008 07:00	-1.91	23-Mar-2008 00:30
April	2.16	08-Apr-2008 08:00	-2.03	07-Apr-2008 12:40
May	2.08	06-May-2008 19:20	-1.96	06-May-2008 12:10
June	2.07	04-Jun-2008 18:50	-1.68	06-Jun-2008 01:10
July	2.21	04-Jul-2008 19:30	-1.62	22-Jul-2008 14:20
August	2.22	03-Aug-2008 20:20	-1.79	04-Aug-2008 01:30
September	2.21	01-Sep-2008 20:00	-1.94	18-Sep-2008 01:20
October	2.17	16-Oct-2008 19:20	-1.76	17-Oct-2008 00:50
November	2.00	13-Nov-2008 18:20	-1.78	13-Nov-2008 23:50
December	2.09	13-Dec-2008 06:10	-1.79	15-Dec-2008 13:40

Month	Mean Sea Level	
	No. of days	MSL (OD)
January	-	-
February	29	0.194
March	29	0.207
April	30	0.192
May	30	0.192
June	29	0.170
July	30	0.249
August	31	0.255
September	30	0.232
October	30	0.266
November	30	0.237
December	27	0.156

10 Highest Values in 2008 ¹			
Surge		Extreme	
Value (m)	Date/Time	Elevation (OD) (surge component)	Date/Time
1.10	10-Mar-2008 05:20	2.22 (-0.04)	09-Mar-2008 07:00
0.77	10-Mar-2008 03:30	2.22 (0.02)	03-Aug-2008 20:20
0.63	05-Feb-2008 00:30	2.21 (0.11)	04-Jul-2008 19:30
0.63	03-Feb-2008 15:50	2.21 (0.02)	01-Sep-2008 20:00
0.63	04-Dec-2008 04:40	2.18 (0.11)	09-Mar-2008 20:30
0.58	05-Sep-2008 16:30	2.17 (0.01)	16-Oct-2008 19:20
0.57	29-Mar-2008 18:30	2.17 (0.09)	05-Jul-2008 20:40
0.54	10-Nov-2008 09:40	2.16 (0.02)	15-Oct-2008 19:10
0.54	05-Jul-2008 15:30	2.16 (0.04)	18-Aug-2008 19:40
0.53	10-Nov-2008 14:10	2.16 (0.00)	10-Mar-2008 07:30

Year	Annual surge maxima		Annual extreme maxima		Annual Mean Sea Level (OD)	Recovery rate (%)
	Value (m)	Date	Elevation (OD) (surge component)	Date		
2008	1.10	10-Mar-2008 05:20	2.22 (-0.038)	09-Mar-2008 07:00	0.215	88

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 produced using the TASK2000 software, kindly provided by the Permanent Service for Mean Sea Level (PSMSL), Proudman Oceanographic Laboratory.

¹ Due to the requirements of the Harbour owners, the Rex is sited at a lower elevation than ideal, and a combination of high surge, high spring tides and significant wave action can cause the instrument to be swamped. This appears to have happened on 10 March 2008, and accordingly the elevations given in the tables below may be an under-estimate of the actual tidal levels.

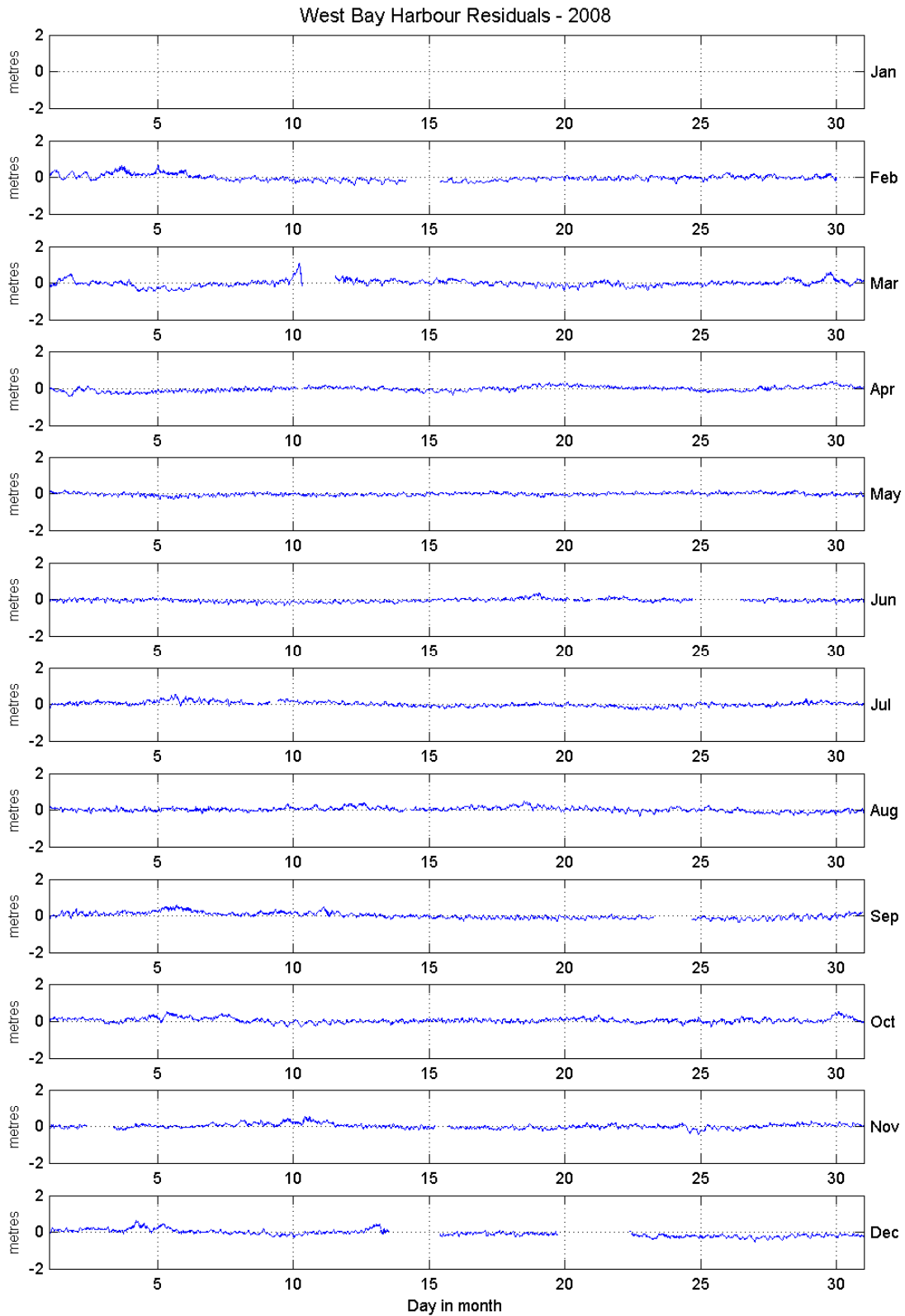


Figure 1 Residuals for 2008

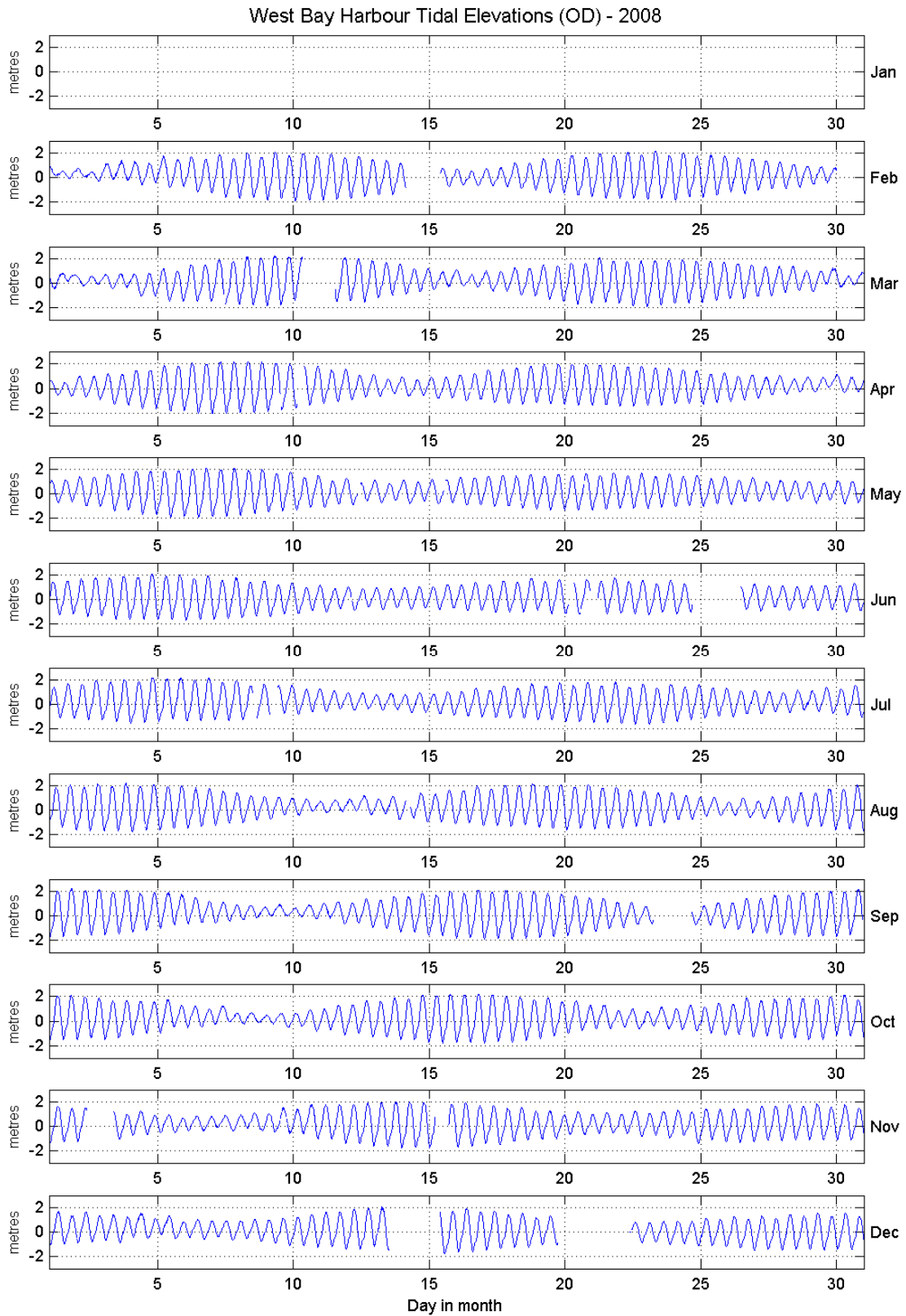


Figure 2 Tidal elevations relative to Ordnance Datum for 2008

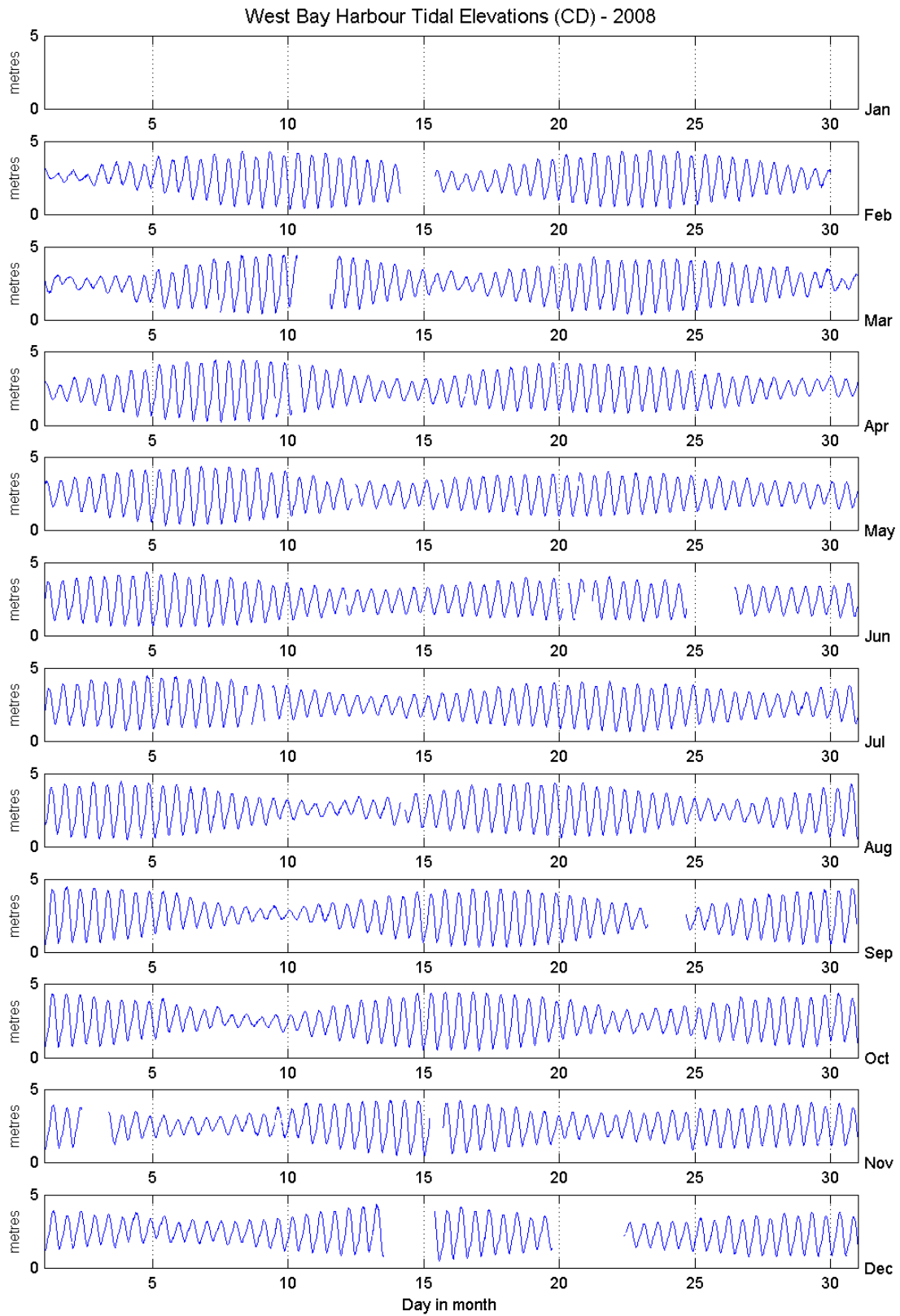


Figure 3 Tidal elevations relative to Chart Datum for 2008