

## West Bay Harbour Tide Gauge

### Location

OS: 346142.9E 90195.31N

WGS84: Latitude: 50° 42.532' N Longitude: 002° 45.846' E

Inner end of western breakwater

### Instrument Type

Rosemount WaveRadar REX



TGZ



### Benchmarks

#### Benchmark

TGBM = 3.951m above Ordnance Datum Newlyn

Aux1 = 3.556m above Ordnance Datum Newlyn

TGZ = -2.425m above Ordnance Datum Newlyn

TGZ = -0.175m above Chart Datum

TGZ = 6.376m below TGBM

#### Description

Cross-headed bolt embedded into top of concrete seawall

Top of step gauge

### Datum

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

### Survey information

The site was surveyed on 29 May 2008.

### Site characteristics

The breakwater is on open coast but some wave reflection can occur around the breakwater and harbour entrance. Spring tidal range is 3.3m.

### Data Quality

Recovery rate (%)	Sample interval
62	10 minutes

## Service history

The radar was first deployed in February 2008. 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	2.31	03-Jan-2010 08:10	-1.82	31-Jan-2010 12:40
February	2.34	01-Feb-2010 07:50	-2.00	02-Feb-2010 01:50
March	-	-	-	-
April	-	-	-	-
May	-	-	-	-
June	-	-	-	-
July	2.24	14-Jul-2010 21:10	-1.70	15-Jul-2010 14:30
August	2.18	12-Aug-2010 20:20	-2.15	12-Aug-2010 01:00
September	2.28	09-Sep-2010 19:40	-2.09	10-Sep-2010 00:40
October	2.23	09-Oct-2010 19:30	-1.98	09-Oct-2010 00:20
November	2.11	09-Nov-2010 07:50	-1.85	06-Nov-2010 23:50
December	2.02	07-Dec-2010 07:10	-1.84	24-Dec-2010 13:50

Month	Surge maxima		Surge minima	
	Value (m)	Date/Time	Value (m)	Date/Time
January	0.54	16-Jan-2010 04:00	-0.45	26-Jan-2010 17:00
February	0.44	03-Feb-2010 01:00	-0.39	11-Feb-2010 22:50
March	-	-	-	-
April	-	-	-	-
May	-	-	-	-
June	-	-	-	-
July	0.42	15-Jul-2010 00:50	-0.47	08-Jul-2010 16:30
August	0.28	23-Aug-2010 02:30	-0.39	15-Aug-2010 07:40
September	0.31	10-Sep-2010 11:30	-0.35	13-Sep-2010 07:30
October	0.47	03-Oct-2010 07:30	-0.41	17-Oct-2010 17:40
November	0.66	11-Nov-2010 06:30	-0.33	30-Nov-2010 22:10
December	0.45	16-Dec-2010 21:30	-0.47	13-Dec-2010 03:30

Month	Mean Level	
	No. of days	Elevation (OD)
January	31	0.216
February	19	0.207
March	-	-
April	-	-
May	-	-
June	-	-
July	31	0.091
August	31	0.140
September	30	0.150
October	31	0.222
November	30	0.243
December	31	0.136

Highest values in 2010			
Extreme		Surge	
Elevation (OD) (Surge component)	Date/Time	Value (m)	Date/Time
2.34 (-0.08)	01-Feb-2010 07:50	0.66	11-Nov-2010 06:30
2.31 (0.08)	03-Jan-2010 08:10	0.64	08-Nov-2010 04:20
2.30 (0.01)	31-Jan-2010 07:20	0.59	08-Nov-2010 03:40
2.28 (-0.09)	09-Sep-2010 19:40	0.54	11-Nov-2010 04:10
2.26 (-0.06)	08-Sep-2010 18:20	0.54	16-Jan-2010 04:00
2.26 (0.04)	03-Feb-2010 09:20	0.50	17-Nov-2010 10:10
2.24 (0.10)	14-Jul-2010 21:10	0.50	16-Jan-2010 02:40
2.24 (0.01)	10-Sep-2010 20:50	0.48	17-Nov-2010 01:40
2.23 (-0.07)	09-Oct-2010 19:30	0.47	03-Oct-2010 07:30
2.22 (-0.17)	02-Feb-2010 08:20	0.45	12-Nov-2010 17:30

Year	Annual extreme maxima		Annual surge maxima		Z <sub>0</sub> (OD)	Annual recovery rate
	Elevation (OD) (Surge)	Date/Time	Value (m)	Date/Time		
2008 <sup>1</sup>	2.22 (-0.04)	09-Mar-2008 07:00	1.10	10-Mar-2008 05:20	-	88%
2009	2.36 (0.39)	09-Feb-2009 18:40	1.04	14-Nov-2009 08:20	0.232	78%
2010	2.34 (-0.08)	01-Feb-2010 07:50	0.66	11-Nov-2010 06:30	-	62%

## 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 EMU Limited.

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<sup>1</sup> Due to the requirements of the Harbour owners, the tide gauge in 2008 was sited at a lower elevation than ideal. A combination of high surge, high spring tides and significant wave action caused the instrument to be swamped on 10 March 2008 and, accordingly, the elevations given in the table may be an under-estimate of the actual tidal levels.

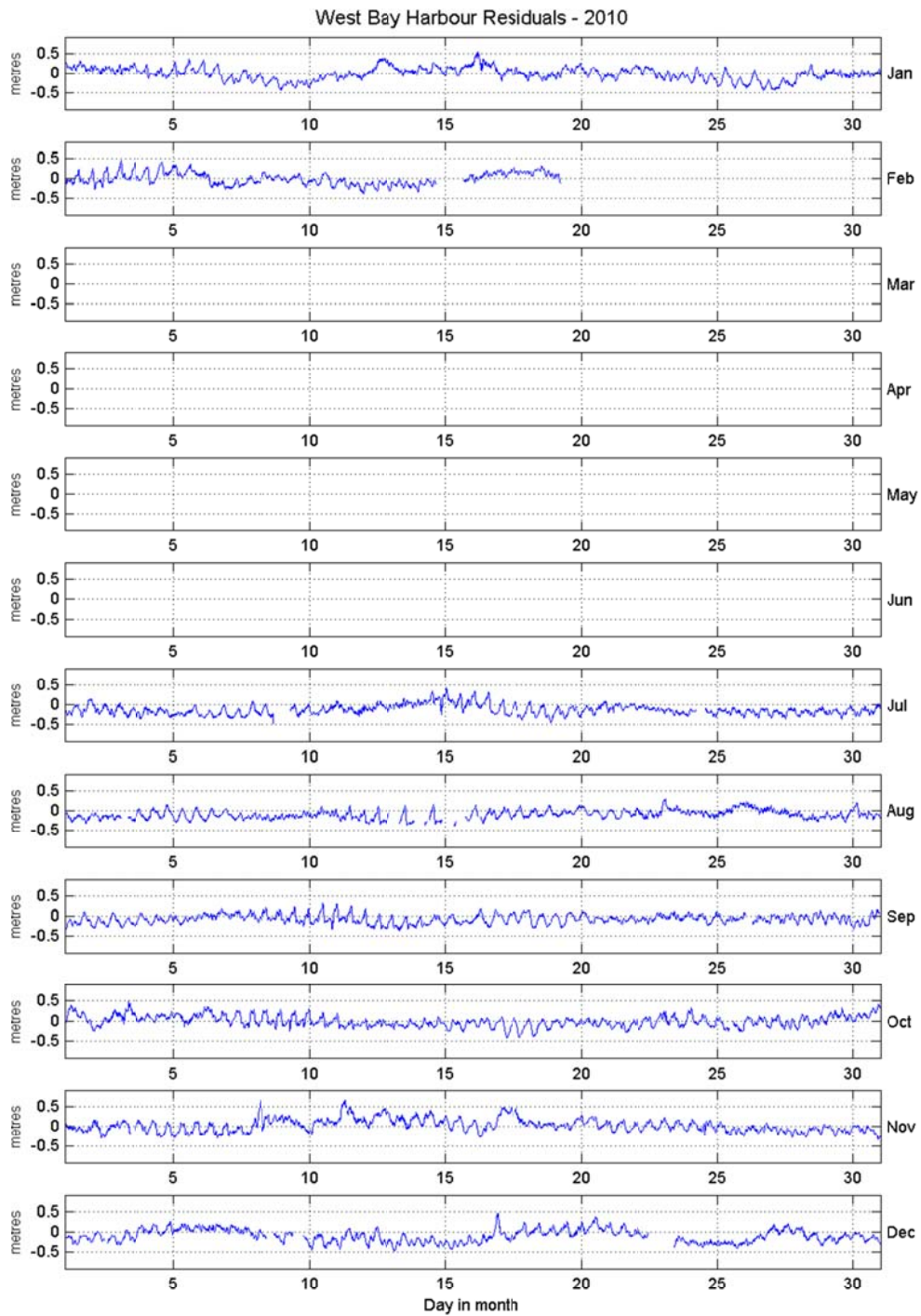


Figure 1: West Bay Harbour residuals for 2010

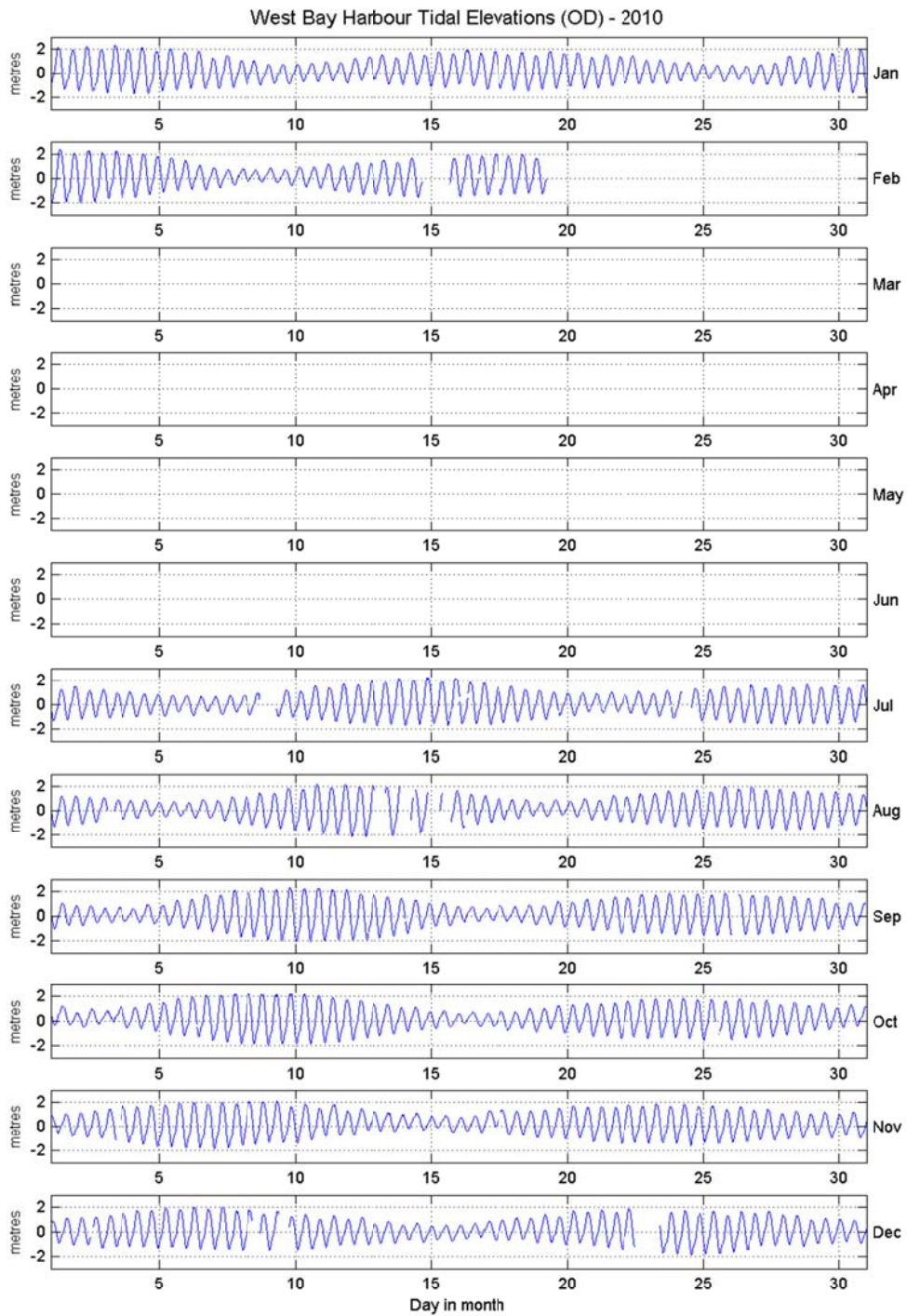


Figure 2: West Bay Harbour tidal elevations for 2010 relative to Ordnance Datum



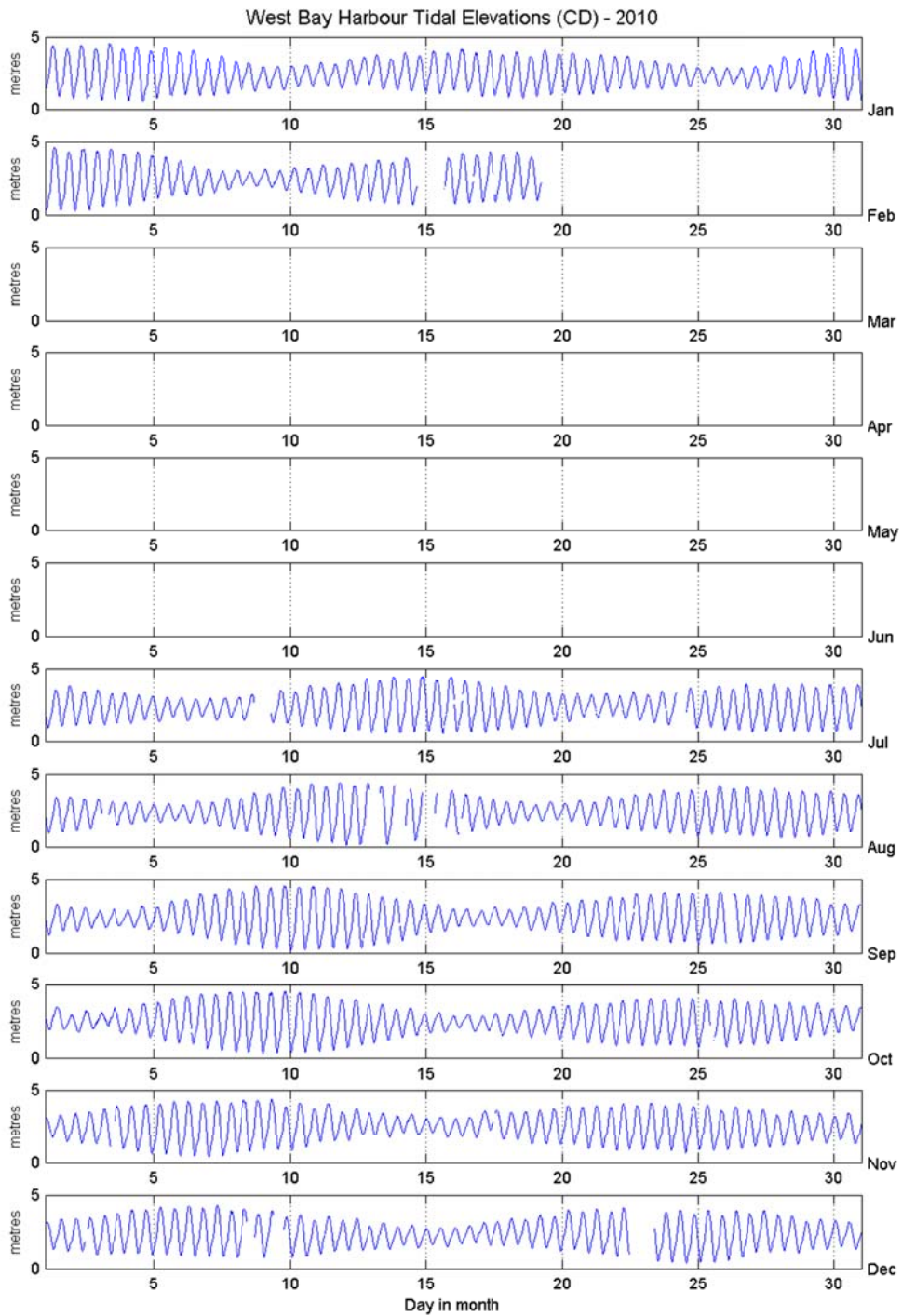


Figure 3: West Bay Harbour tidal elevations for 2010 relative to Chart Datum