

Teignmouth Pier Tide Gauge

Location

OS: 294370E 72631N

WGS84: *Latitude: 50° 32' 37.904" N Longitude: 03° 29' 31.720" W*

Instrument Type

Rosemount WaveRadar REX

TGZ



Benchmarks

Benchmark

TGBM = 6.613 above Ordnance Datum Newlyn

TGZ = 6.688m above Ordnance Datum Newlyn

TGZ = 9.338m above Chart Datum

TGZ = 0.075m above TGBM

Description

Top of S/S horizontal frame bar

Datum

All data are to Ordnance Datum Newlyn. The height of Chart Datum relative to Ordnance Datum at Teignmouth Approaches is -2.65m (Admiralty Tide Tables, Supplementary Table III).

Survey information

The site was surveyed on 29 May 2008.

Site characteristics

The Pier is on open coast. Spring tidal range is 3.7m.

Data Quality

Recovery rate (%)	Sample interval
94	10 minutes

Service history

The radar was last serviced in September 2011. 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	2.32	07-Jan-2011 07:50	-2.45	23-Jan-2011 14:40
February	2.58	20-Feb-2011 08:00	-2.38	20-Feb-2011 01:10
March	2.35	21-Mar-2011 07:20	-2.72	21-Mar-2011 00:50
April	2.36	19-Apr-2011 07:20	-2.39	18-Apr-2011 12:00
May	2.13	18-May-2011 19:10	-2.17	19-May-2011 00:50
June	2.31	17-Jun-2011 19:30	-1.84	17-Jun-2011 00:30
July	2.22	31-Jul-2011 19:00	-1.90	04-Jul-2011 01:40
August	2.49	31-Aug-2011 20:00	-2.39	31-Aug-2011 01:20
September	2.51	28-Sep-2011 18:50	-2.42	29-Sep-2011 13:10
October	2.63	27-Oct-2011 06:40	-2.25	28-Oct-2011 12:40
November	2.29	28-Nov-2011 08:00	-2.16	26-Nov-2011 12:30
December	2.15	12-Dec-2011 19:30	-2.20	27-Dec-2011 01:30

Month	Surge maxima		Surge minima	
	Value (m)	Date/Time	Value (m)	Date/Time
January	0.63	08-Jan-2011 03:10	-0.44	23-Jan-2011 14:50
February	0.45	16-Feb-2011 11:50	-0.47	03-Feb-2011 00:40
March	0.35	12-Mar-2011 17:20	-0.52	22-Mar-2011 14:20
April	0.32	29-Apr-2011 23:40	-0.45	15-Apr-2011 06:10
May	0.32	08-May-2011 03:50	-0.35	24-May-2011 06:10
June	0.39	17-Jun-2011 16:00	-0.35	02-Jun-2011 00:10
July	0.29	24-Jul-2011 07:20	-0.29	27-Jul-2011 21:40
August	0.28	26-Aug-2011 03:20	-0.25	10-Aug-2011 21:50
September	0.25	03-Sep-2011 20:30	-0.28	27-Sep-2011 01:40
October	0.56	24-Oct-2011 10:40	-0.29	08-Oct-2011 09:40
November	0.54	02-Nov-2011 18:00	-0.25	27-Nov-2011 01:20
December	0.54	12-Dec-2011 23:40	-0.49	27-Dec-2011 01:40

Month	Mean Level	
	No. of days	Elevation (OD)
January	31	0.189
February	28	0.200
March	31	0.071
April	30	0.125
May	31	0.140
June	30	0.195
July	31	0.206
August	31	0.216
September	14	0.221
October	31	0.241
November	30	0.308
December	31	0.239

Highest values in 2011			
Extreme		Surge	
Elevation (OD) (Surge component)	Date/Time	Value (m)	Date/Time
2.63 (0.32)	27-Oct-2011 06:40	0.63	08-Jan-2011 03:10
2.58 (-0.06)	20-Feb-2011 08:00	0.56	07-Jan-2011 15:20
2.57 (-0.02)	21-Feb-2011 08:40	0.56	24-Oct-2011 10:40
2.54 (0.00)	19-Feb-2011 06:50	0.54	12-Dec-2011 23:40
2.52 (0.18)	26-Oct-2011 17:50	0.54	02-Nov-2011 18:00
2.51 (-0.07)	28-Sep-2011 18:50	0.53	15-Dec-2011 23:00
2.51 (0.08)	27-Oct-2011 18:40	0.53	23-Oct-2011 22:10
2.49 (-0.07)	31-Aug-2011 20:00	0.52	08-Jan-2011 04:30
2.43 (-0.13)	30-Aug-2011 19:10	0.50	24-Oct-2011 15:30
2.43 (-0.09)	29-Sep-2011 20:00	0.49	03-Nov-2011 07:00

Year	Annual extreme maxima		Annual surge maxima		Z ₀ (OD)	Annual recovery rate
	Elevation (OD) (Surge)	Date/Time	Value (m)	Date/Time		
2008	2.56 (0.24)	04-Jul-2008 19:10	0.65	04-Dec-2008 05:20	-	95%
2009	2.56 (0.39)	09-Feb-2009 18:30	0.80	13-Nov-2009 19:20	0.284	75%
2010	2.70 (0.26)	30-Mar-2010 06:40	0.75	23-Feb-2010 06:40	-	99%
2011	2.63 (0.32)	27-Oct-2011 06:40	0.63	08-Jan-2011 03:10	0.194	94%

Tidal levels		
Observation period	July 2008 to December 2011	
Tide Level	Elevation (OD)	Elevation (CD)
HAT	2.74	5.39
MHWS	2.07	4.72
MHWN	0.99	3.64
MSL	0.24	2.89
MLWN	-0.52	2.13
MLWS	-1.60	1.05
LAT	-2.45	0.20

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 Teignmouth Pier by kind permission of the Pier owners.

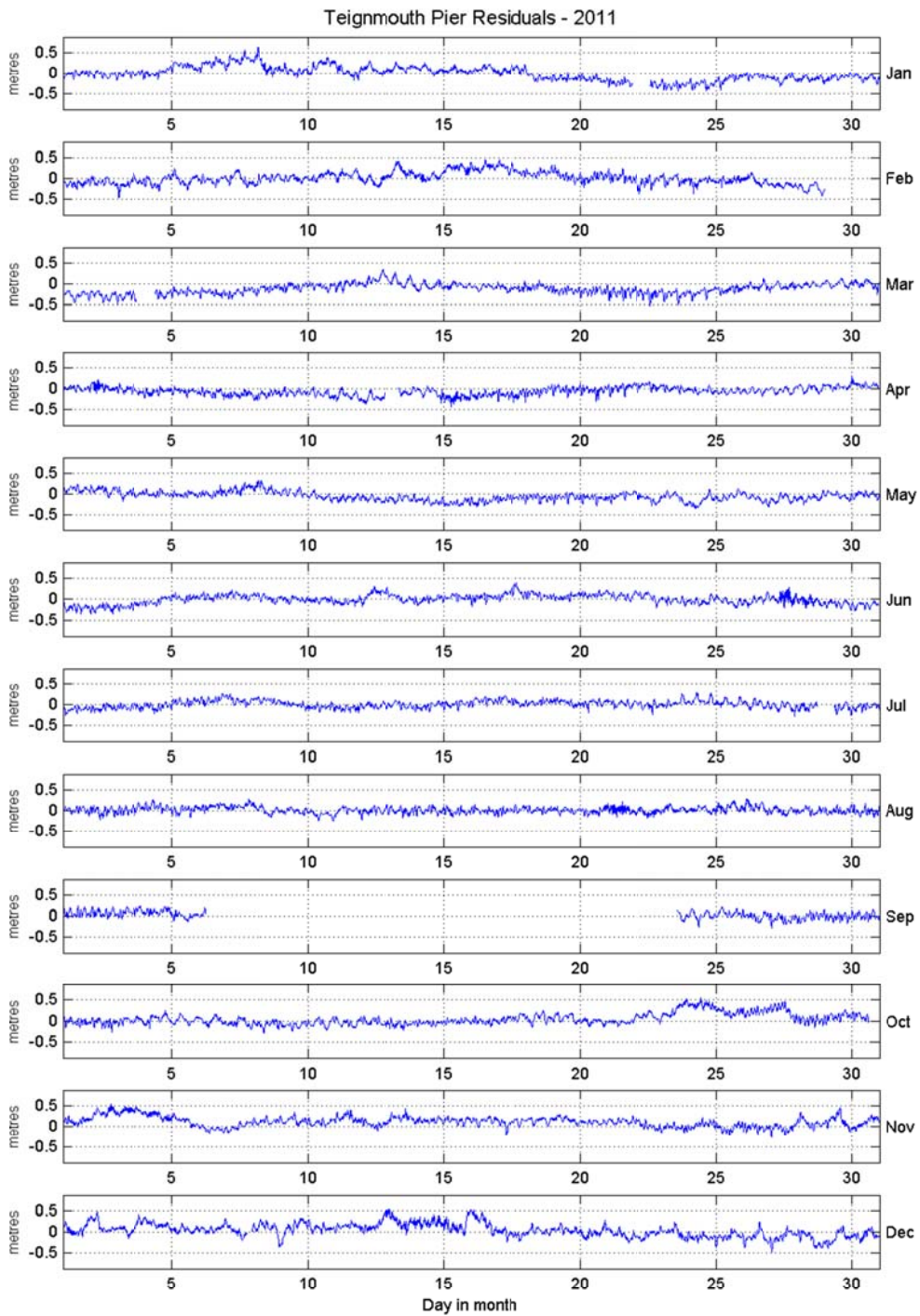


Figure 1: Teignmouth Pier residuals for 2011

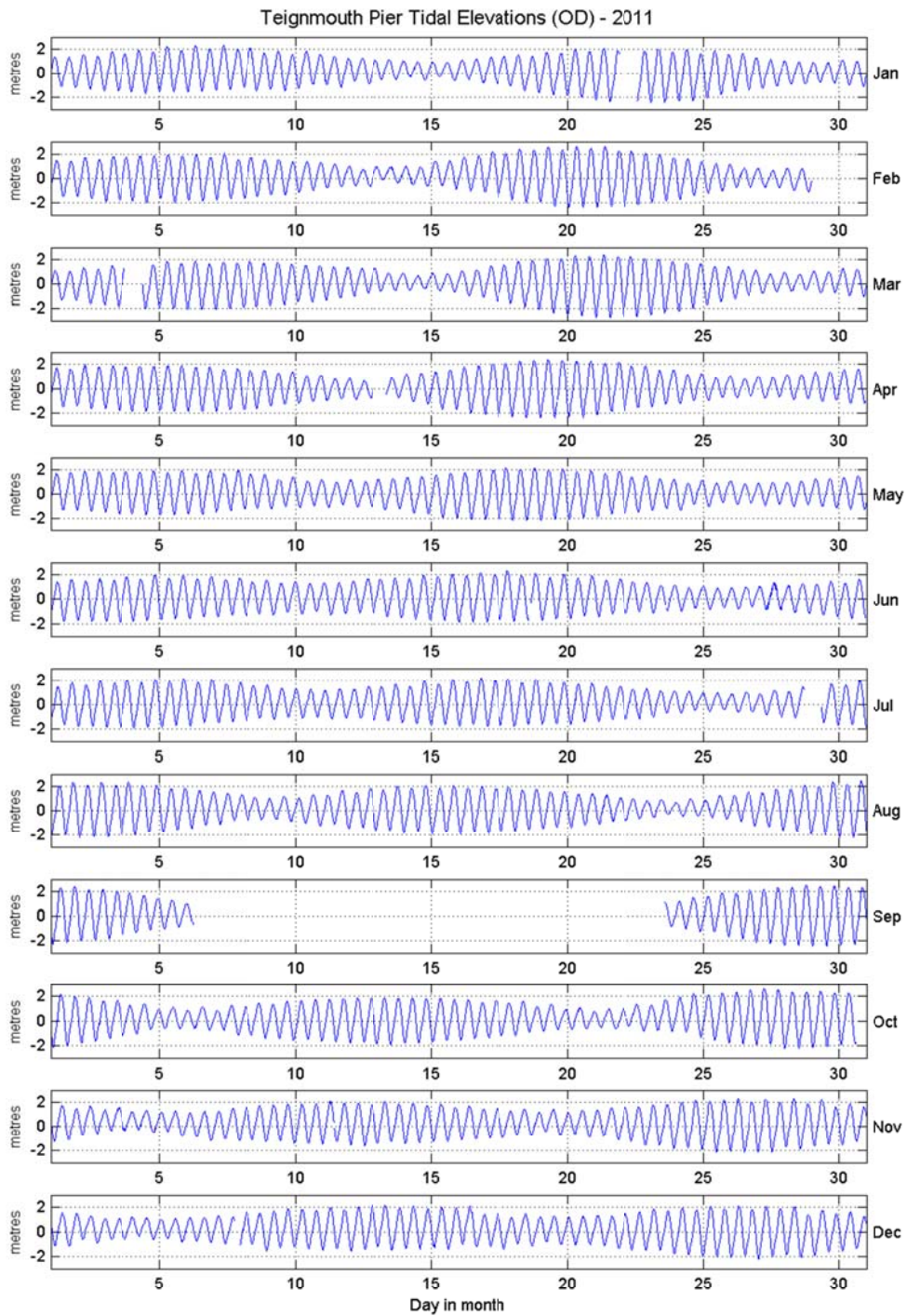


Figure 2: Teignmouth Pier tidal elevations for 2011 relative to Ordnance Datum

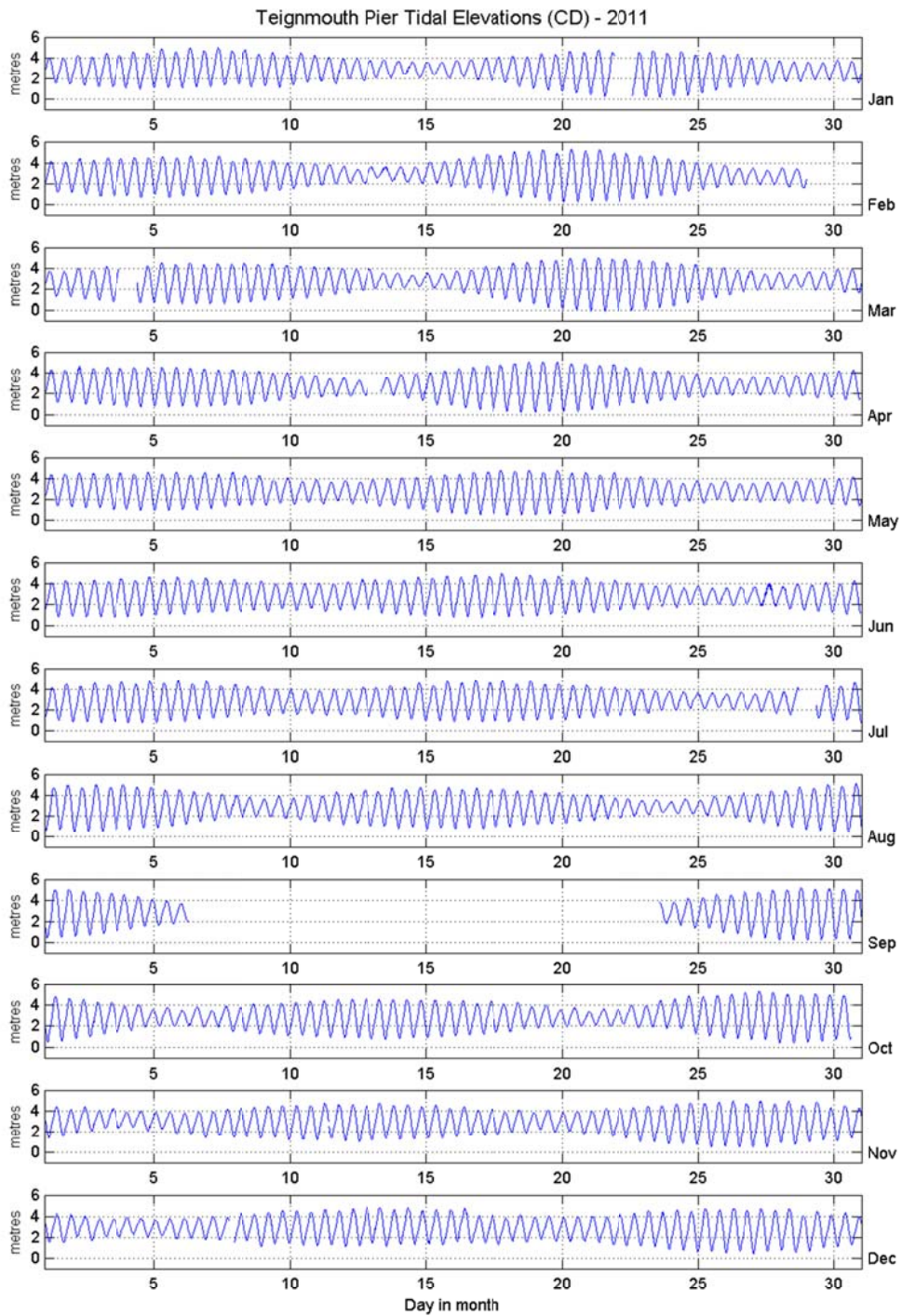


Figure 3: Teignmouth Pier tidal elevations for 2011 relative to Chart Datum