

## 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
9	10 minutes

## Service history

The radar was last serviced in October 2012. No re-calibration of the instrument is required. The pier was badly damaged during a storm on 03 February 2014. The section of pier on which the REX is deployed will not be repaired, neither will mains power be restored. Accordingly, the site has been de-commissioned.

## 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	2.82	03-Jan-2014 06:50	-1.98	30-Jan-2014 23:50
February	2.67	03-Feb-2014 08:20	-2.45	02-Feb-2014 13:50

Month	Surge maxima		Surge minima	
	Value (m)	Date/Time	Value (m)	Date/Time
January	0.77	01-Jan-2014 12:30	-0.38	25-Jan-2014 08:20
February	0.40	03-Feb-2014 06:50	-0.20	02-Feb-2014 14:00

Month	Mean Level	
	No. of days	Elevation (OD)
January	31	0.394
February	3	0.256

Highest values in 2014			
Extreme		Surge	
Elevation (OD) (Surge component)	Date/Time	Value (m)	Date/Time
2.82 (0.49)	03-Jan-2014 06:50	0.77	01-Jan-2014 12:30
2.66 (0.18)	04-Jan-2014 08:10	0.72	03-Jan-2014 16:30
2.59 (0.05)	01-Feb-2014 06:50	0.66	26-Jan-2014 08:00
2.54 (0.14)	02-Jan-2014 06:40	0.66	06-Jan-2014 15:00
2.54 (0.09)	31-Jan-2014 06:40	0.63	01-Jan-2014 15:00
2.51 (0.20)	31-Jan-2014 19:00	0.62	03-Jan-2014 17:20
2.50 (0.42)	01-Jan-2014 18:00	0.56	16-Jan-2014 17:20

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	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%
2012	2.81 (0.52)	14-Dec-2012 06:50	0.79	25-Apr-2012 15:30	0.199	93%
2013	2.58 (0.30)	05-Nov-2013 07:10	0.81	23-Dec-2013 21:50	0.210	88%
2014	2.82 (0.49)	03-Jan-2014 06:50	0.77	01-Jan-2014 12:30	-	9%

Tidal levels		
Observation period	July 2008 to December 2012	
Tide Level	Elevation (OD)	Elevation (CD)
HAT	2.74	5.39
MHWS	2.06	4.71
MHWN	0.98	3.63
MSL	0.23	2.88
MLWN	-0.53	2.12
MLWS	-1.61	1.05
LAT	-2.46	0.19

## 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.

## Acknowledgements

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 Fugro EMU Limited. The REX is mounted on Teignmouth Pier by kind permission of the Pier owners.

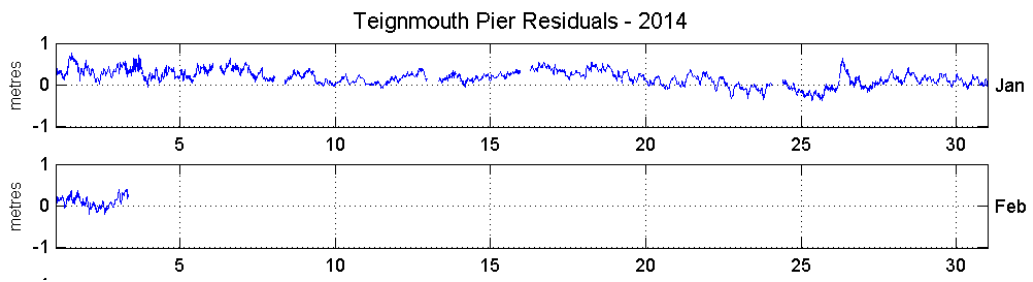


Figure 1: Teignmouth Pier residuals for 2014

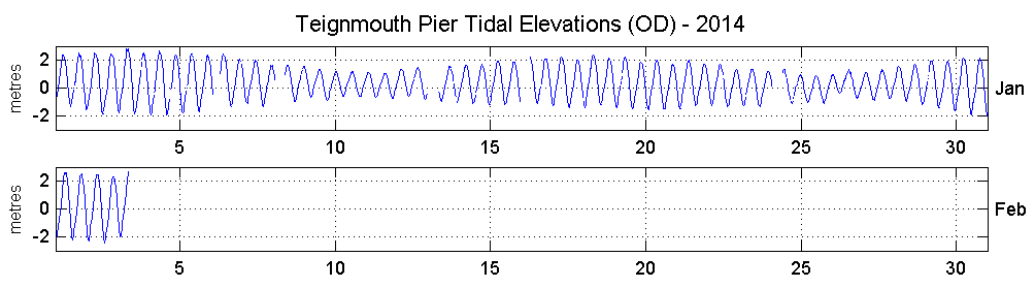


Figure 2: Teignmouth Pier tidal elevations for 2014 relative to Ordnance Datum

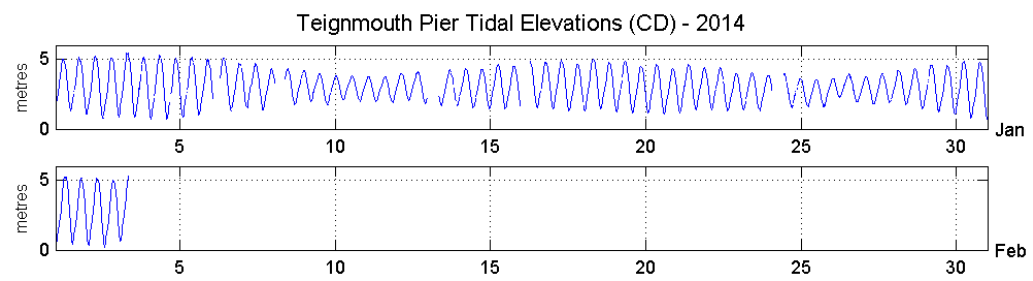


Figure 3: Teignmouth Pier tidal elevations for 2014 relative to Chart Datum