

## Deal Pier Tide Gauge

### Location

OS: 638145E 152700N  
 WGS84: Latitude: 51° 13.427' N Longitude: 001° 24.550' E

Seaward end of Deal Pier, lower deck

### Instrument Type

Rosemount WaveRadar REX



### Benchmarks

#### Benchmark

TGBM = 3.893 above Ordnance Datum Newlyn

Aux1 = 3.813 above Ordnance Datum Newlyn

TGZ = 6.986m above Ordnance Datum Newlyn

TGZ = 10.386m above Chart Datum

TGZ = 3.093m above TGBM

#### Description

Top corner of NE leg of frame baseplate

Top of bolt

### Datum

All data are to Ordnance Datum Newlyn. The height of Chart Datum relative to Ordnance Datum at Deal is -3.40m (Admiralty Tide Tables, Supplementary Table III).

### Survey information

The site was first surveyed on 25 August 2005 by levelling from a nearby surveyed benchmark. The re-survey of the TGBM on 08 December 2009 used an 8 hour GPS static survey on the frame. The result was 0.016m lower than the original survey. No change was made to the tide gauge datum.

### Site characteristics

The Pier is on open coast, with no nearby estuaries. Spring tidal range is 5.4m. Some wave reflection from the Pier legs can occur.

### Data Quality

Recovery rate (%)	Sample interval
94	10 minutes

### Service history

The radar was last serviced in March 2012. 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	3.17	13-Jan-2012 01:20	-3.05	26-Jan-2012 08:20
February	2.93	25-Feb-2012 01:00	-3.20	10-Feb-2012 08:00
March	3.07	11-Mar-2012 00:50	-3.15	09-Mar-2012 07:00
April	3.05	07-Apr-2012 23:40	-3.02	08-Apr-2012 07:10
May	3.00	06-May-2012 23:20	-2.92	08-May-2012 07:40
June	2.96	07-Jun-2012 13:00	-2.76	05-Jun-2012 19:00
July	2.93	05-Jul-2012 12:10	-2.73	22-Jul-2012 20:30
August	3.05	19-Aug-2012 12:00	-2.70	03-Aug-2012 19:20
September	3.21	17-Sep-2012 11:30	-2.78	30-Sep-2012 18:40
October	3.18	17-Oct-2012 11:50	-2.78	16-Oct-2012 18:40
November	3.12	15-Nov-2012 11:40	-2.64	15-Nov-2012 19:20
December	3.10	16-Dec-2012 00:40	-2.90	15-Dec-2012 07:20

Month	Surge maxima		Surge minima	
	Value (m)	Date/Time	Value (m)	Date/Time
January	1.30	05-Jan-2012 17:20	-0.65	06-Jan-2012 18:40
February	0.51	19-Feb-2012 08:40	-0.82	10-Feb-2012 22:50
March	0.56	07-Mar-2012 19:10	-0.91	07-Mar-2012 10:40
April	0.32	11-Apr-2012 00:20	-0.50	17-Apr-2012 14:20
May	0.42	15-May-2012 18:50	-0.53	13-May-2012 01:10
June	0.30	07-Jun-2012 23:30	-0.42	08-Jun-2012 16:40
July	0.41	14-Jul-2012 05:30	-0.33	23-Jul-2012 01:10
August	0.59	31-Aug-2012 06:00	-0.33	31-Aug-2012 20:40
September	0.71	14-Sep-2012 20:40	-0.38	30-Sep-2012 14:10
October	0.73	27-Oct-2012 05:00	-0.28	28-Oct-2012 07:30
November	0.73	04-Nov-2012 11:50	-0.52	23-Nov-2012 03:00
December	0.73	10-Dec-2012 00:20	-0.67	07-Dec-2012 04:20

Month	Mean Level	
	No. of days	Elevation (OD)
January	30	0.124
February	29	-0.087
March	29	-0.032
April	30	0.137
May	30	0.080
June	30	0.112
July	30	0.155
August	31	0.159
September	30	0.199
October	30	0.251
November	30	0.233
December	30	0.161

Highest values in 2012			
Extreme		Surge	
Elevation (OD) (Surge component)	Date/Time	Value (m)	Date/Time
3.21 (0.15)	17-Sep-2012 11:30	1.30	05-Jan-2012 17:20
3.19 (0.08)	19-Sep-2012 13:00	1.21	05-Jan-2012 16:30
3.18 (0.03)	17-Oct-2012 11:50	0.94	04-Jan-2012 04:40
3.18 (0.05)	18-Sep-2012 12:20	0.73	10-Dec-2012 00:20
3.17 (0.32)	13-Jan-2012 01:20	0.73	27-Oct-2012 05:00
3.14 (0.11)	16-Oct-2012 23:30	0.73	04-Nov-2012 11:50
3.12 (0.06)	15-Nov-2012 11:40	0.71	07-Dec-2012 14:20
3.11 (0.02)	18-Oct-2012 12:40	0.71	14-Sep-2012 20:40
3.10 (0.13)	19-Sep-2012 00:40	0.70	29-Dec-2012 22:20
3.10 (0.19)	16-Dec-2012 00:40	0.69	01-Nov-2012 22:40

Year	Annual extreme maxima		Annual surge maxima		Z <sub>0</sub> (OD)	Annual recovery rate
	Elevation (OD) (Surge)	Date/Time	Value (m)	Date/Time		
2006	3.58 (0.33)	07-Oct-2006 10:50	1.60	31-Oct-2006 22:10	0.156	98%
2007	3.83 (1.26)	09-Nov-2007 10:40	1.87	09-Nov-2007 06:00	0.182	97%
2008	3.34 (0.25)	16-Oct-2008 11:50	1.15	21-Nov-2008 12:20	0.158	92%
2009	3.36 (0.03)	20-Sep-2009 11:50	1.03	23-Jan-2009 07:30	-	90%
2010	3.48 (0.39)	03-Feb-2010 01:30	1.13	16-Dec-2010 17:10	0.164	96%
2011	3.75 (1.00)	28-Nov-2011 00:30	1.25	27-Nov-2011 20:30	0.110	96%
2012	3.21 (0.15)	17-Sep-2012 11:30	1.30	05-Jan-2012 17:20	0.127	94%

Tidal levels		
Observation period	January 2006 to December 2012	
Tide Level	Elevation (OD)	Elevation (CD)
HAT	3.40	6.80
MHWS	2.84	6.24
MHWN	1.57	4.97
MSL	0.15	3.55
MLWN	-1.27	2.13
MLWS	-2.54	0.86
LAT	-3.22	0.18

## 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 Fugro EMU Limited.

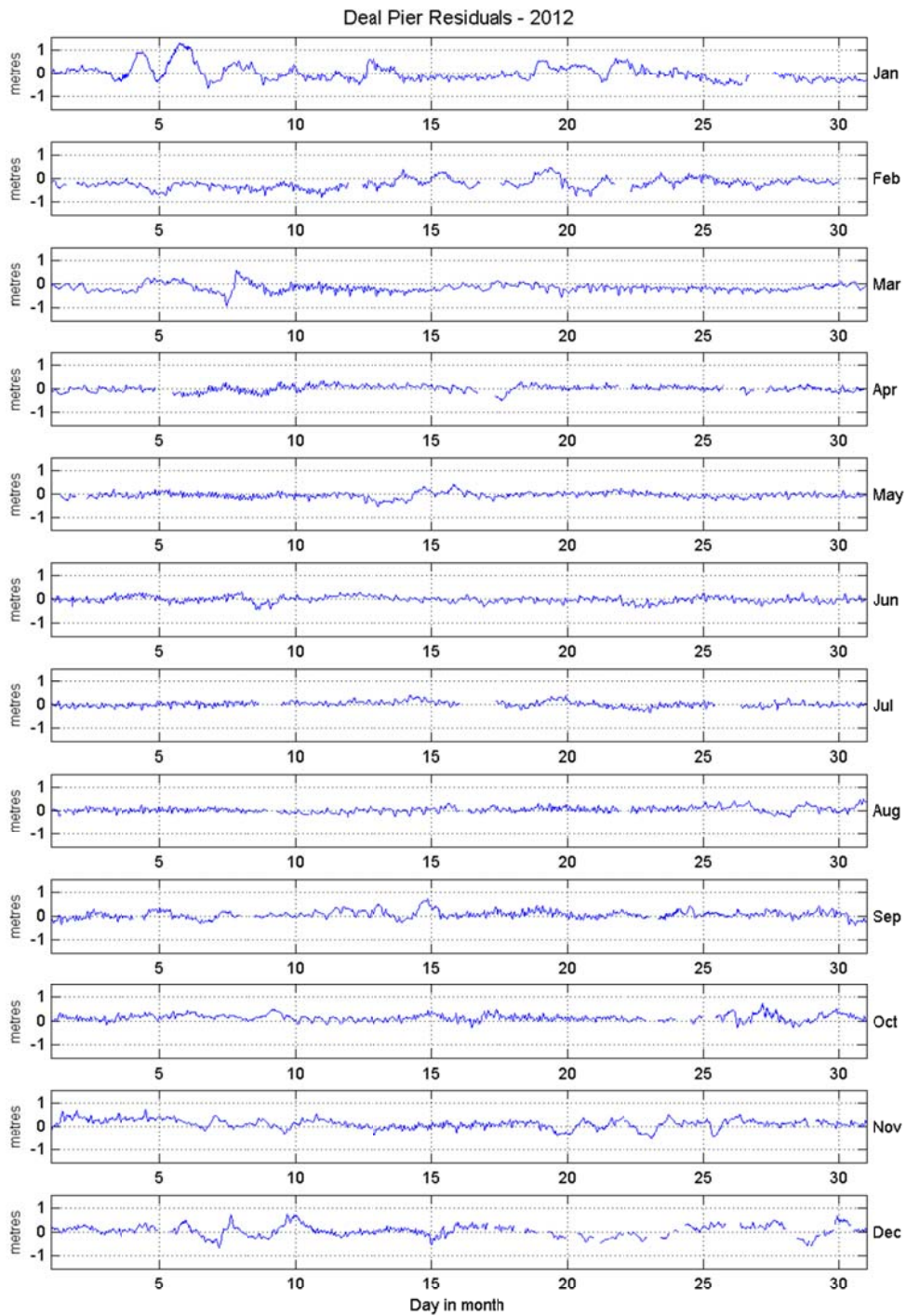


Figure 1: Deal Pier residuals for 2012

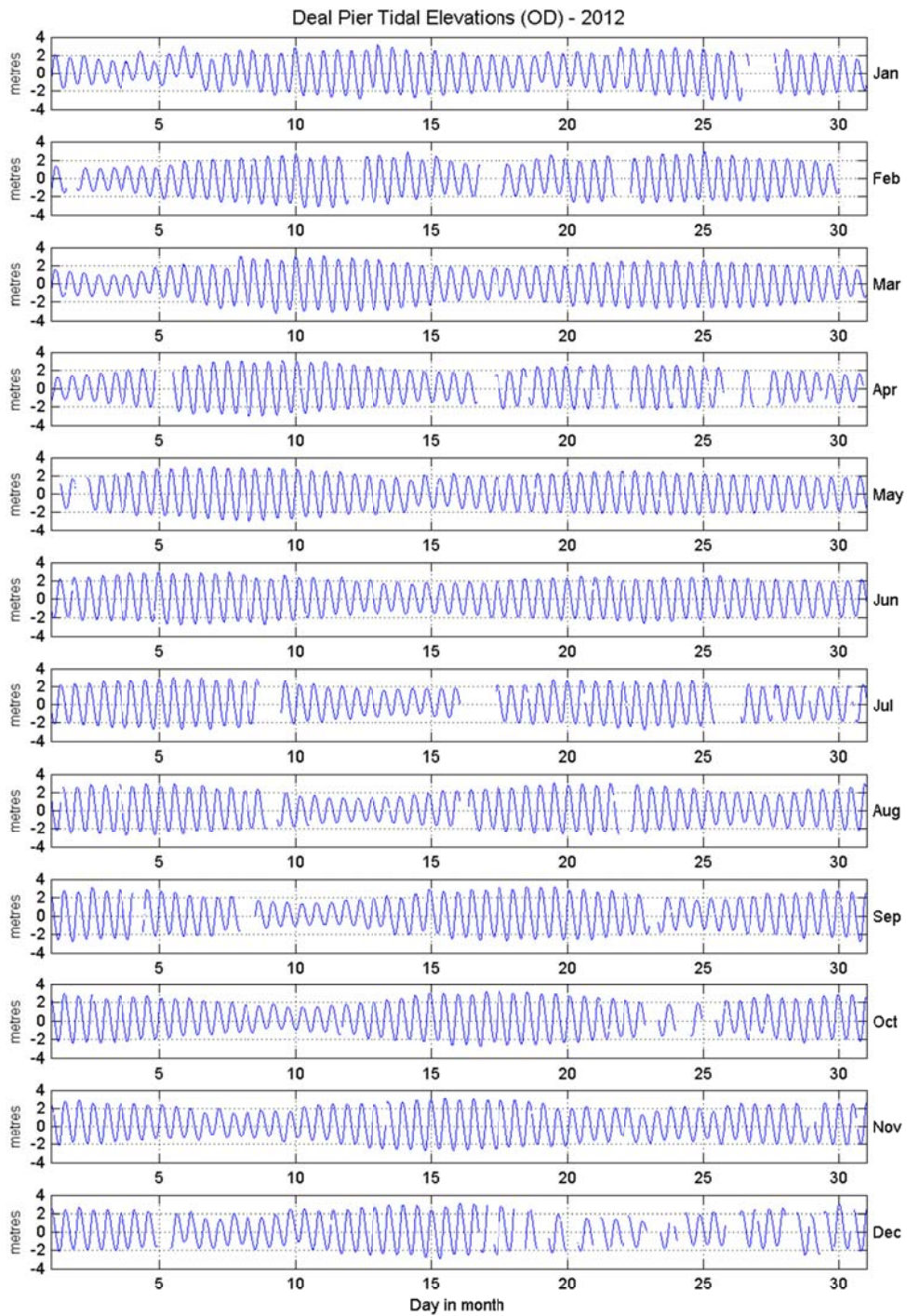


Figure 2: Deal Pier tidal elevations for 2012 relative to Ordnance Datum

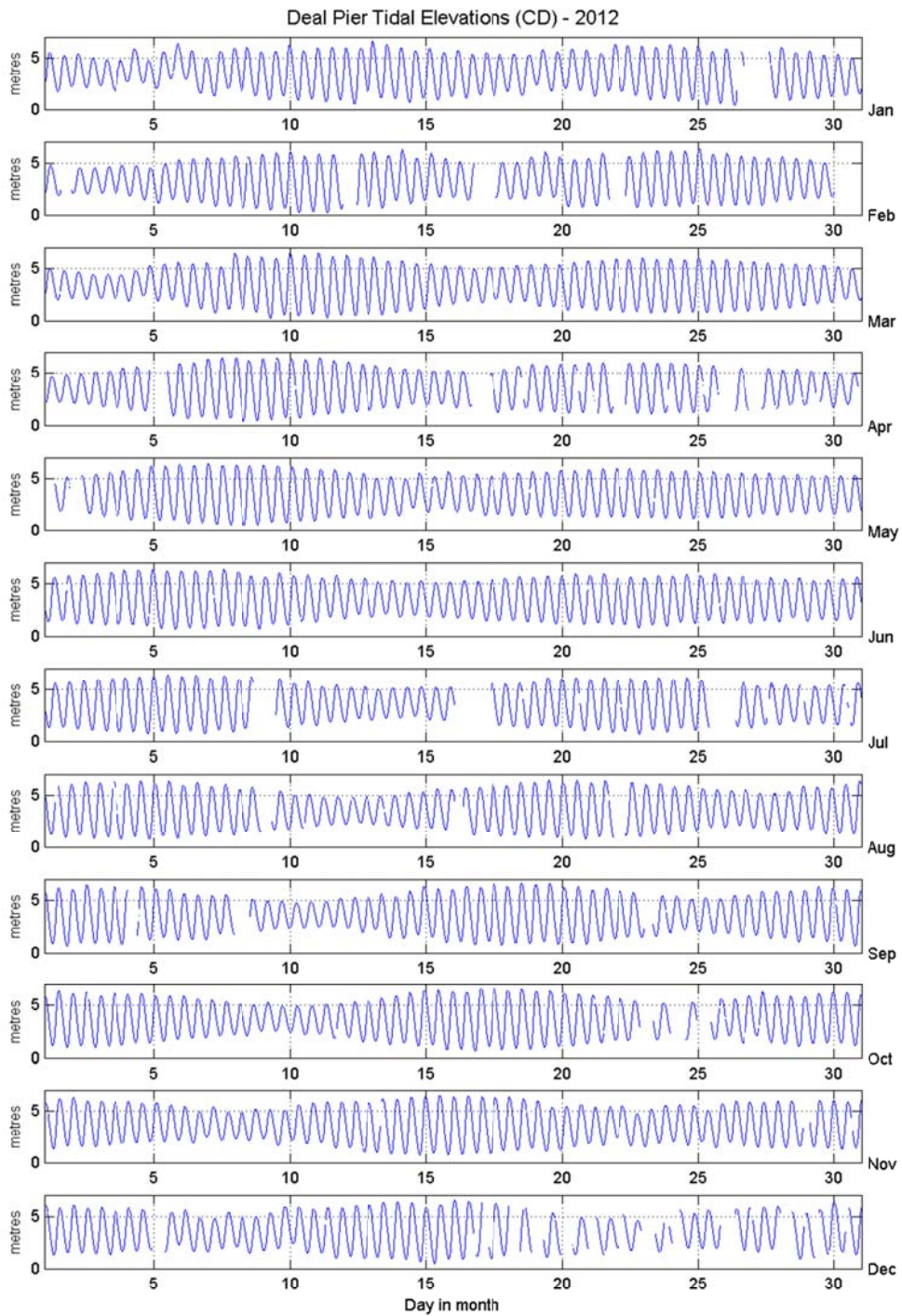


Figure 3: Deal Pier tidal elevations for 2012 relative to Chart Datum