

Deal Pier Tide Gauge

Location

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

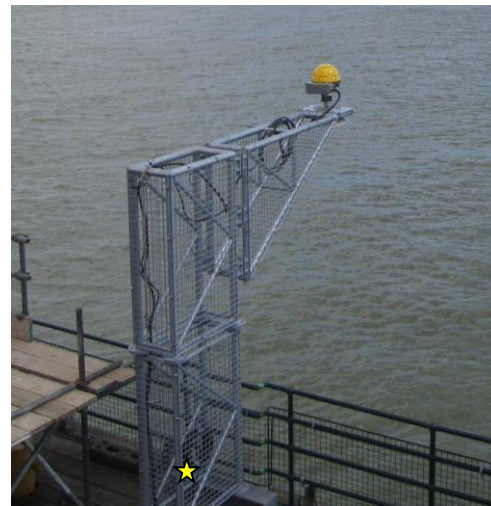
Seaward end of Deal Pier, lower deck

Instrument

Rosemount WaveRadar REX



TGZ



Benchmarks

Benchmark

TGBM = 3.893 m above Ordnance Datum Newlyn

Aux1 = 3.813 m above Ordnance Datum Newlyn

TGZ = 6.986 m above Ordnance Datum Newlyn

TGZ = 10.386 m above Chart Datum

TGZ = 3.093 m 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
92	10 minutes

Service history

The gauge was first deployed on 26 August 2005 and is serviced at 9-monthly intervals. 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	3.11	15-Jan-2016 02:30	-2.90	26-Jan-2016 20:10
February	3.27	11-Feb-2016 00:40	-2.84	12-Feb-2016 08:50
March	2.92	09-Mar-2016 23:40	-3.31	11-Mar-2016 08:00
April	3.11	07-Apr-2016 23:10	-3.09	09-Apr-2016 07:40
May	3.08	07-May-2016 23:40	-2.87	08-May-2016 07:20
June	2.86	04-Jun-2016 22:40	-2.82	06-Jun-2016 19:10
July	2.77	06-Jul-2016 12:20	-2.76	06-Jul-2016 20:00
August	3.11	21-Aug-2016 13:00	-2.85	20-Aug-2016 20:00
September	3.20	19-Sep-2016 12:40	-2.86	18-Sep-2016 19:30
October	3.27	19-Oct-2016 13:00	-3.02	17-Oct-2016 19:20
November	3.26	17-Nov-2016 00:20	-2.92	14-Nov-2016 17:50
December	2.93	15-Dec-2016 11:40	-2.77	14-Dec-2016 18:30

Month	Surge maxima		Surge minima	
	Value (m)	Date/Time	Value (m)	Date/Time
January	0.65	27-Jan-2016 10:30	-0.88	27-Jan-2016 00:30
February	0.86	08-Feb-2016 20:40	-0.59	20-Feb-2016 00:20
March	0.62	28-Mar-2016 23:50	-0.78	01-Mar-2016 14:50
April	0.58	25-Apr-2016 21:10	-0.61	20-Apr-2016 20:20
May	0.36	13-May-2016 21:00	-0.39	02-May-2016 14:40
June	0.34	02-Jun-2016 04:20	-0.41	09-Jun-2016 12:00
July	0.18	12-Jul-2016 02:50	-0.46	07-Jul-2016 11:00
August	0.49	08-Aug-2016 19:20	-0.46	21-Aug-2016 00:10
September	0.40	10-Sep-2016 21:40	-0.68	27-Sep-2016 18:20
October	0.36	28-Oct-2016 16:20	-0.55	26-Oct-2016 05:20
November	0.66	20-Nov-2016 07:30	-0.84	12-Nov-2016 08:50
December	0.73	24-Dec-2016 13:40	-1.04	23-Dec-2016 20:40

Month	Mean Level	
	No. of days	Elevation (OD)
January	30	0.083
February	29	0.113
March	29	-0.021
April	30	0.100
May	30	0.102
June	30	0.065
July	30	0.099
August	31	0.101
September	30	0.147
October	30	0.075
November	30	0.154
December	30	0.091

Highest values in 2016			
Extreme		Surge	
Elevation (OD) (Surge component)	Date/Time	Value (m)	Date/Time
3.27 (0.21)	11-Feb-2016 00:40	0.86	08-Feb-2016 20:40
3.27 (0.21)	19-Oct-2016 13:00	0.85	08-Feb-2016 20:10
3.26 (0.26)	17-Nov-2016 00:20	0.73	24-Dec-2016 13:40
3.20 (0.01)	19-Sep-2016 12:40	0.71	27-Dec-2016 01:30
3.19 (0.09)	15-Nov-2016 23:30	0.67	03-Feb-2016 00:50
3.16 (0.18)	09-Feb-2016 23:50	0.66	20-Nov-2016 07:30
3.13 (0.03)	17-Sep-2016 11:20	0.65	27-Jan-2016 10:30
3.11 (0.05)	21-Aug-2016 13:00	0.64	30-Jan-2016 06:50
3.11 (0.00)	07-Apr-2016 23:10	0.63	27-Jan-2016 10:20
3.11 (0.19)	10-Feb-2016 12:20	0.62	28-Mar-2016 23:50

Year	Annual extreme maxima		Annual surge maxima		Z ₀ (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%
2013	4.40 (1.53)	06-Dec-2013 01:00	1.77	05-Dec-2013 22:10	0.103	85%
2014	3.36 (0.18)	05-Jan-2014 01:30	1.54	22-Oct-2014 02:20	-	92%
2015	3.30 (0.73)	11-Jan-2015 02:20	1.06	10-Jan-2015 21:40	-	95%
2016	3.27 (0.21)	11-Feb-2016 00:40	0.86	08-Feb-2016 20:40	-	92%

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_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 TASK windows edition software, kindly provided by the Marine Data Products team at the UK National Oceanography Centre (Liverpool). Tide levels were produced by Fugro EMU Limited.

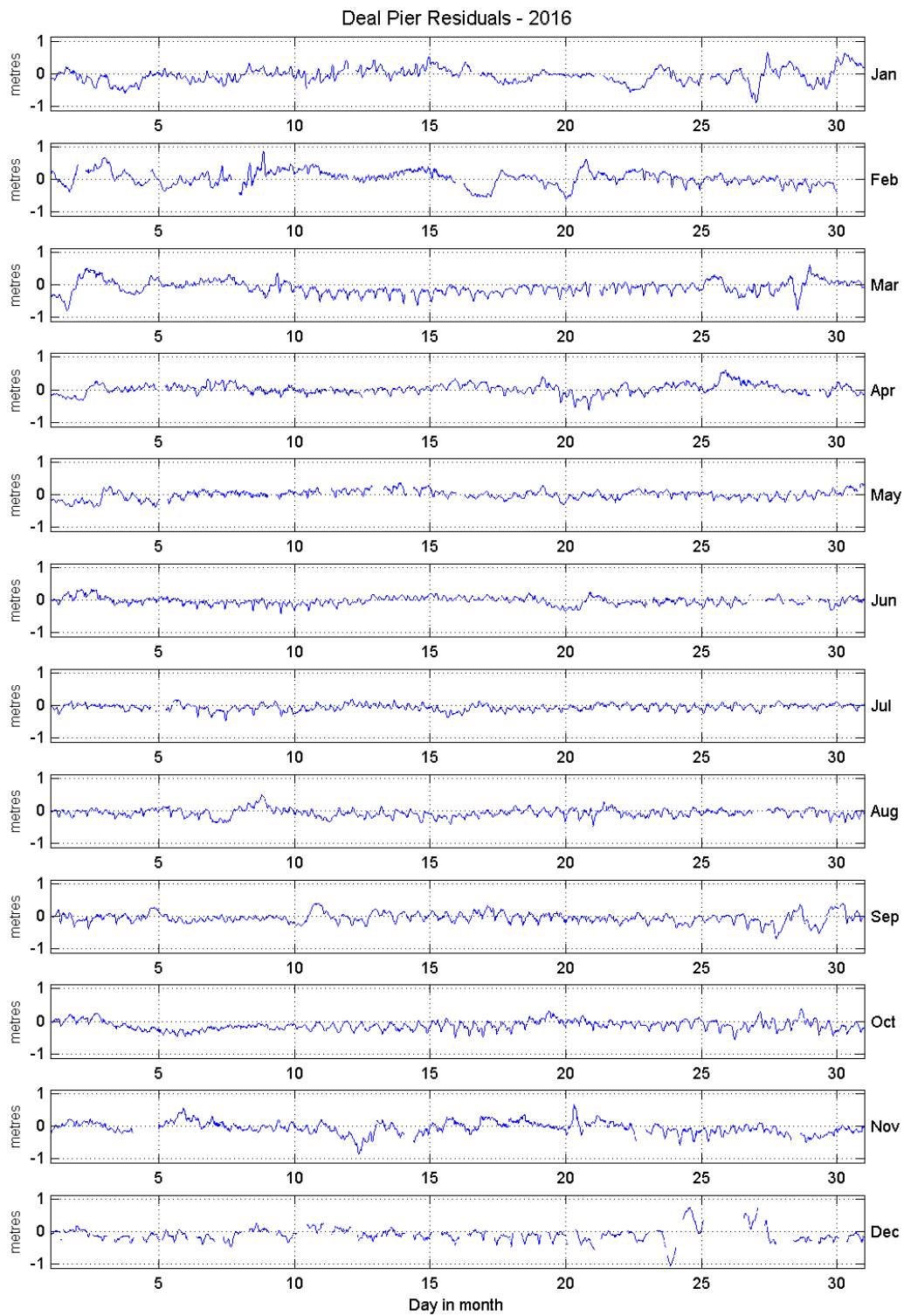


Figure 1: Deal Pier residuals for 2016

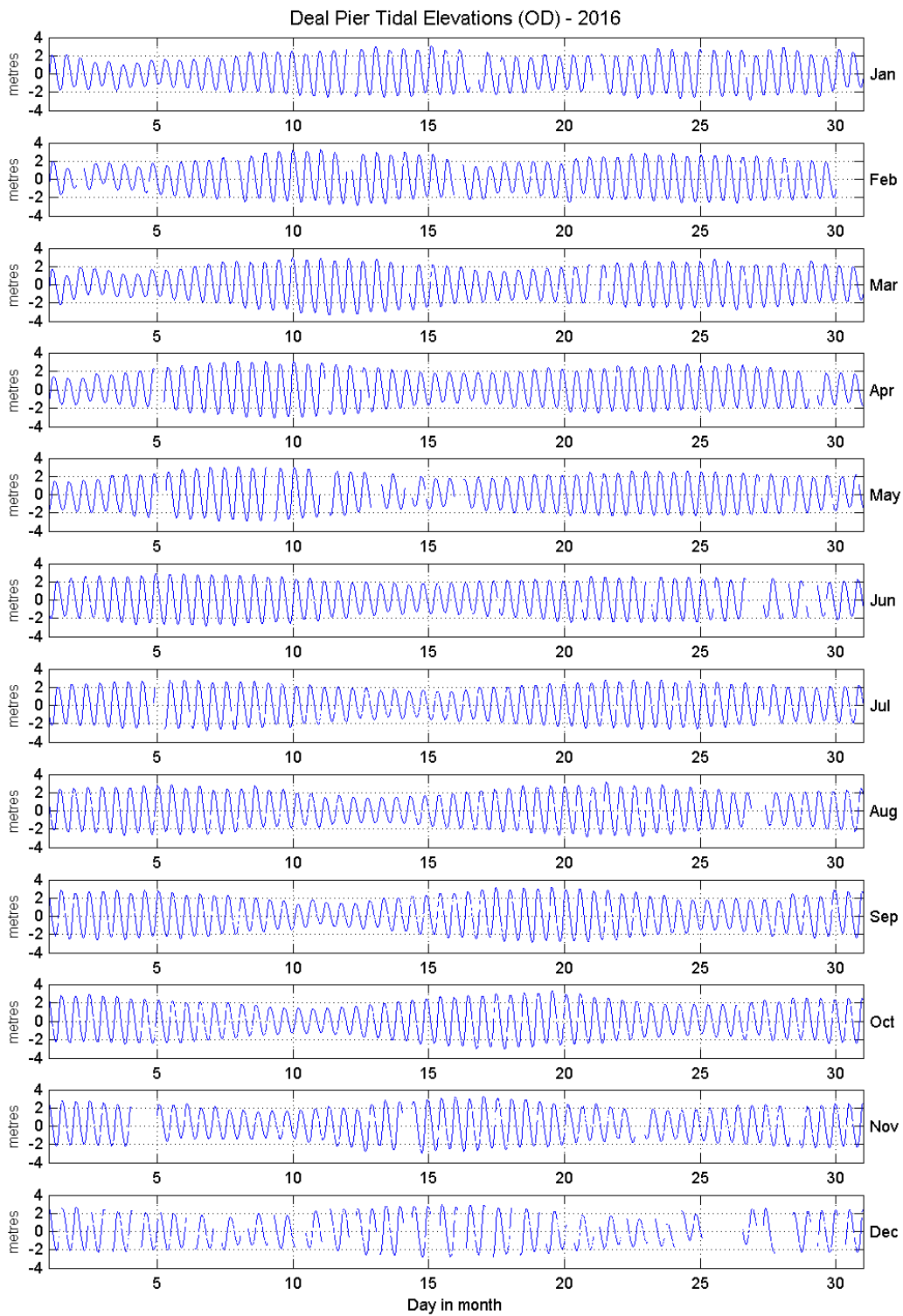


Figure 2: Deal Pier tidal elevations for 2016 relative to Ordnance Datum

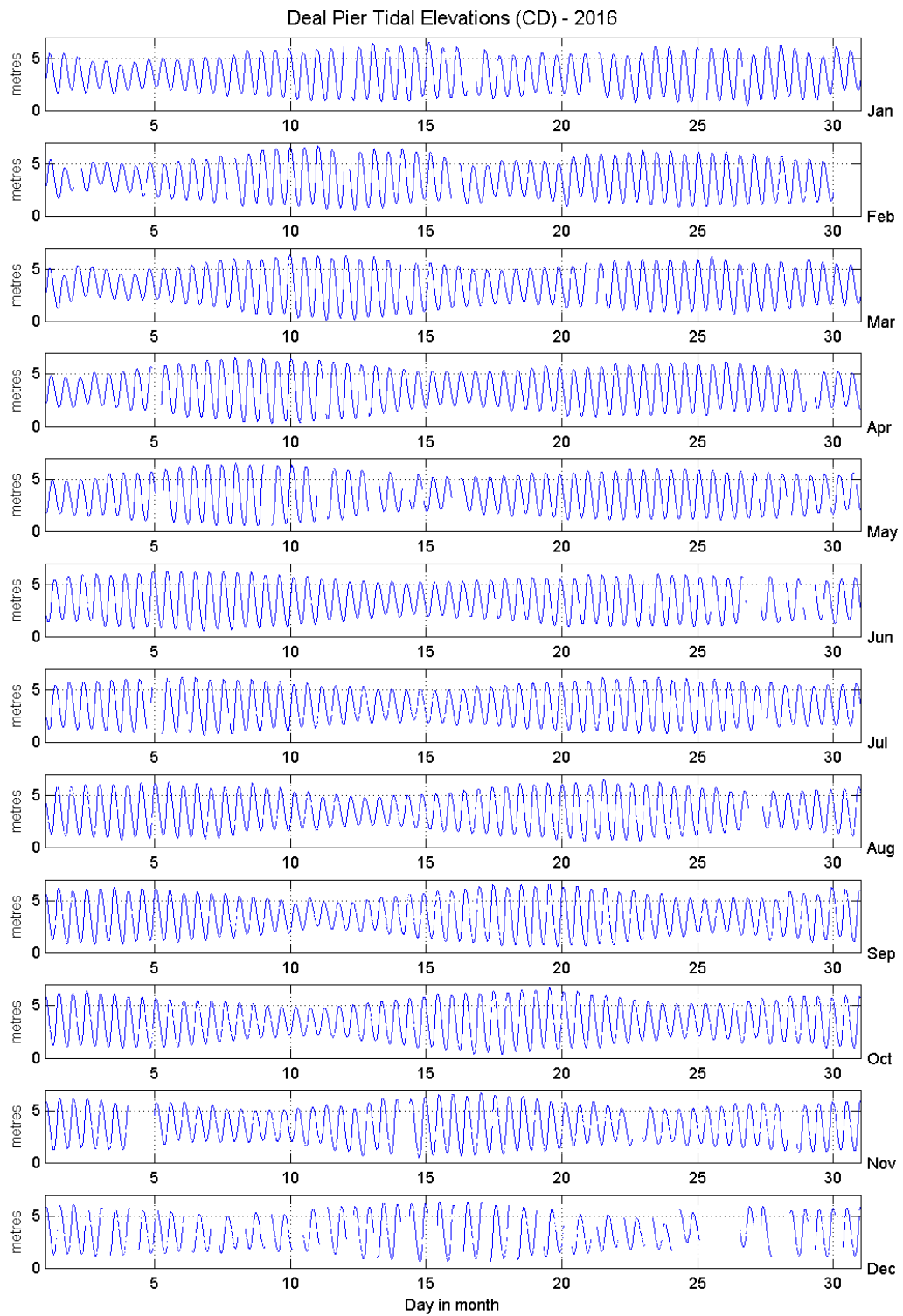


Figure 3: Deal Pier tidal elevations for 2016 relative to Chart Datum