

Lymington Tide Gauge

Location

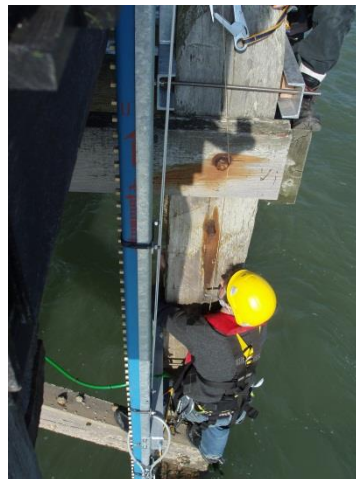
OS: 434874E 93526N

WGS84:Latitude: 50° 44' 25.0638'' N Longitude: 01° 30' 25.6398'' W

On the Royal Lymington Yacht Club Starting Platform

Instrument Type

Etrometa Step Gauge



Benchmarks

Benchmark

TGBM = 3.919m above Ordnance Datum Newlyn

TGZ = -2.22m above Ordnance Datum Newlyn

TGZ = -0.24m above Chart Datum

TGZ = 6.136m below TGBM

Description

Top of stepgauge frame

Datum

All data are to Ordnance Datum Newlyn. The height of Chart Datum relative to Ordnance Datum at Lymington is -1.98m (Admiralty Tide Tables, Supplementary Table III).

Survey information

The site was surveyed on 20 December 2007.

Site characteristics

The Royal Lymington Yacht Club Starting Platform is approx. 1.7km offshore, in the Western Solent. Spring tidal range is 2.1m.

Data Quality

Recovery rate (%)	Sample interval
75	10 minutes

Service history

The stepgauge became operational on 19 April 2007. The gauge was last serviced in September 2014. 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. It should be noted that, given the small tidal range and double High Waters, tidal predictions are particularly difficult at this site, both for elevation and especially for timing. Accordingly, there may be instances of apparent tidal surge and/or a periodicity in the surge which are, in reality, an artefact of the predictions.

Statistics

All times GMT

Month	Extreme maxima		Extreme minima	
	Elevation (OD)	Date/Time	Elevation (OD)	Date/Time
January	1.64	04-Jan-2014 12:10	-1.52	30-Jan-2014 15:40
February	1.66	05-Feb-2014 03:30	-1.71	02-Feb-2014 18:20
March	1.59	03-Mar-2014 11:40	-1.73	01-Mar-2014 16:20
April	1.31	02-Apr-2014 12:00	-1.62	01-Apr-2014 05:00
May	1.21	19-May-2014 16:00	-1.75	16-May-2014 05:00
June	1.18	19-Jun-2014 17:40	-1.73	16-Jun-2014 06:10
July	1.33	13-Jul-2014 23:10	-1.73	15-Jul-2014 06:00
August	1.47	10-Aug-2014 11:50	-1.71	13-Aug-2014 05:50
September	1.37	09-Sep-2014 22:40	-1.77	11-Sep-2014 05:40
October	1.21	26-Oct-2014 11:40	-1.28	26-Oct-2014 17:40
November	1.62	08-Nov-2014 11:00	-1.46	24-Nov-2014 17:10
December	1.14	01-Dec-2014 07:00	-1.23	03-Dec-2014 13:40

Month	Surge maxima		Surge minima	
	Value (m)	Date/Time	Value (m)	Date/Time
January	0.86	01-Jan-2014 16:10	-0.45	25-Jan-2014 14:00
February	0.93	14-Feb-2014 20:40	-0.44	15-Feb-2014 12:40
March	0.52	02-Mar-2014 20:20	-0.47	08-Mar-2014 20:50
April	0.38	26-Apr-2014 04:30	-0.32	16-Apr-2014 06:50
May	0.38	22-May-2014 03:00	-0.35	16-May-2014 07:10
June	0.26	07-Jun-2014 00:20	-0.27	11-Jun-2014 13:20
July	0.26	05-Jul-2014 10:50	-0.28	16-Jul-2014 15:40
August	0.44	10-Aug-2014 11:50	-0.22	16-Aug-2014 16:50
September	0.27	10-Sep-2014 20:30	-0.27	12-Sep-2014 07:40
October	0.46	16-Oct-2014 23:20	-0.18	26-Oct-2014 19:50
November	0.54	15-Nov-2014 19:40	-0.18	20-Nov-2014 14:00
December	0.33	01-Dec-2014 00:40	-0.28	03-Dec-2014 08:20

Month	Mean Level	
	No. of days	Elevation (OD)
January	31	0.265
February	28	0.274
March	31	0.074
April	30	0.097
May	25	0.087
June	30	0.106
July	31	0.133
August	24	0.143
September	30	0.142
October	20	0.158
November	24	0.256
December	4	0.148

Highest values in 2014			
Extreme		Surge	
Elevation (OD) (Surge component)	Date/Time	Value (m)	Date/Time
1.66 (0.49)	05-Feb-2014 03:30	0.93	14-Feb-2014 20:40
1.64 (0.50)	04-Jan-2014 12:10	0.86	01-Jan-2014 16:10
1.64 (0.64)	15-Feb-2014 00:30	0.84	05-Feb-2014 11:20
1.64 (0.64)	01-Jan-2014 12:10	0.83	14-Feb-2014 17:40
1.62 (0.46)	08-Nov-2014 11:00	0.79	05-Feb-2014 01:30
1.60 (0.39)	01-Feb-2014 11:20	0.78	12-Feb-2014 14:10
1.59 (0.42)	03-Mar-2014 11:40	0.77	03-Jan-2014 17:30
1.59 (0.40)	02-Mar-2014 11:00	0.76	06-Jan-2014 19:40
1.59 (0.48)	03-Feb-2014 12:50	0.65	08-Feb-2014 12:00
1.59 (0.53)	01-Jan-2014 22:20	0.64	03-Jan-2014 06:00

Year	Annual extreme maxima		Annual surge maxima		Z ₀ (OD)	Annual recovery rate
	Elevation (OD) (Surge)	Date/Time	Value (m)	Date/Time		
2006*	1.58 (-)	05-Dec-2006 10:00	-	-	-	-
2007*	1.64 (-)	06-Mar-2007 01:40	-	-	-	-
2008	2.01 (0.91)	10-Mar-2008 12:10	1.14	10-Mar-2008 06:20	-	95%
2009	1.68 (0.67)	14-Nov-2009 08:20	0.85	14-Nov-2009 13:00	-	89%
2010	1.61 (0.49)	30-Mar-2010 22:40	0.68	12-Nov-2010 17:00	-	99%
2011	1.57 (0.29)	27-Oct-2011 10:10	0.65	12-Dec-2011 23:20	-	98%
2012	1.78 (0.53)	17-Oct-2012 11:10	0.71	26-Apr-2012 01:20	-	89%
2013	1.88 (0.67)	06-Dec-2013 02:50	0.87	28-Oct-2013 05:10	-	92%
2014	1.66 (0.49)	05-Feb-2014 03:30	0.93	14-Feb-2014 20:40	-	72%

* Note that tidal elevations prior to August 2007 were derived using a different instrument; the elevations are thought to be reasonably reliable but timing issues prevented production of residuals

Tidal levels		
Observation period	August 2008 to December 2012	
Tide Level	Elevation (OD)	Elevation (CD)
HAT	1.34	3.32
MHWS	1.19	3.17
MHWN	0.69	2.67
MSL	0.12	2.10
MLWN	-0.46	1.52
MLWS	-0.95	1.03
LAT	-1.99	-0.01

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.

Acknowledgements

Tidal predictions and levels were produced by Fugro EMU Limited. The step gauge is mounted on their Starting Platform by kind permission of the Royal Lymington Yacht Club.

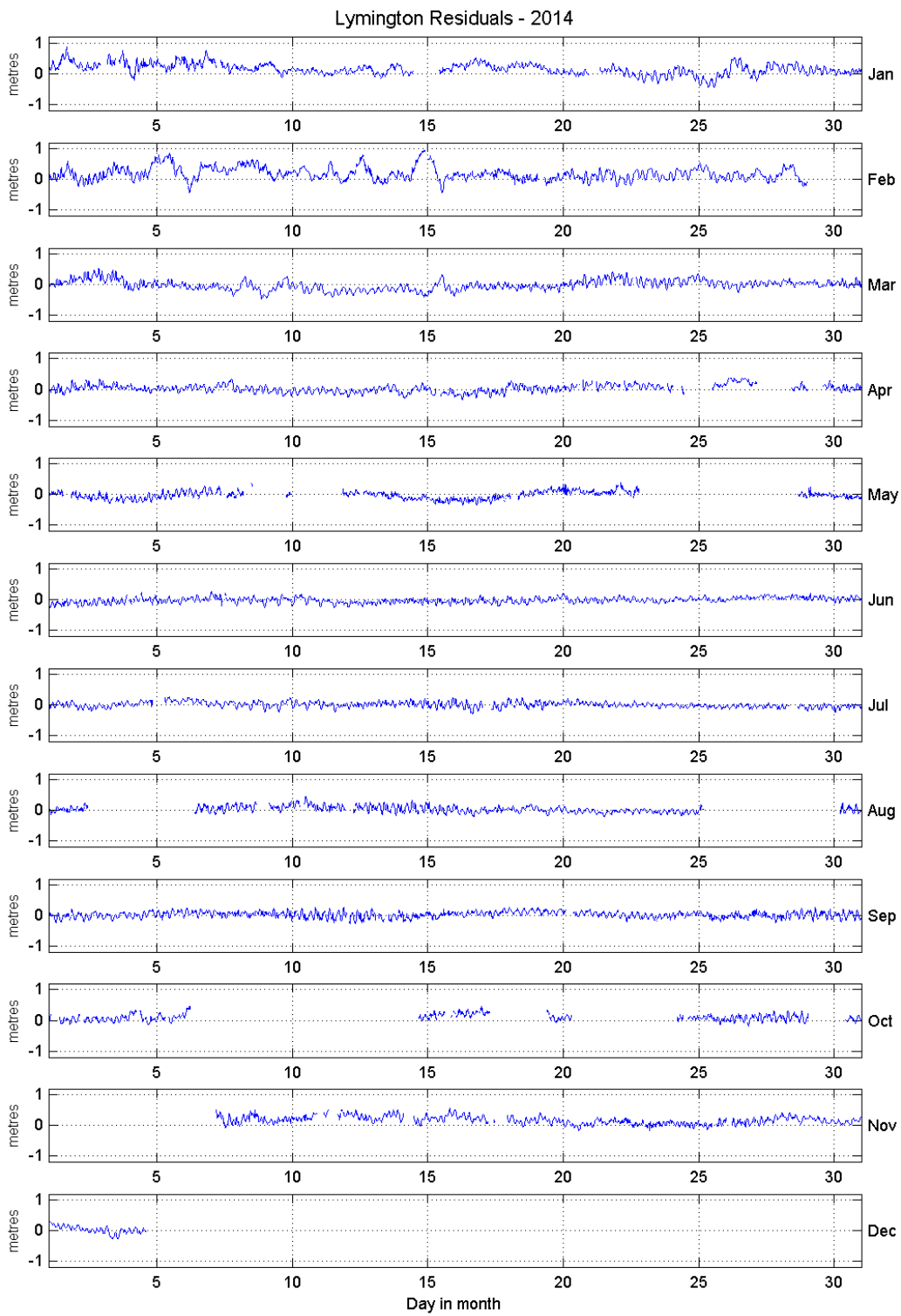


Figure 1: Lymington residuals for 2014

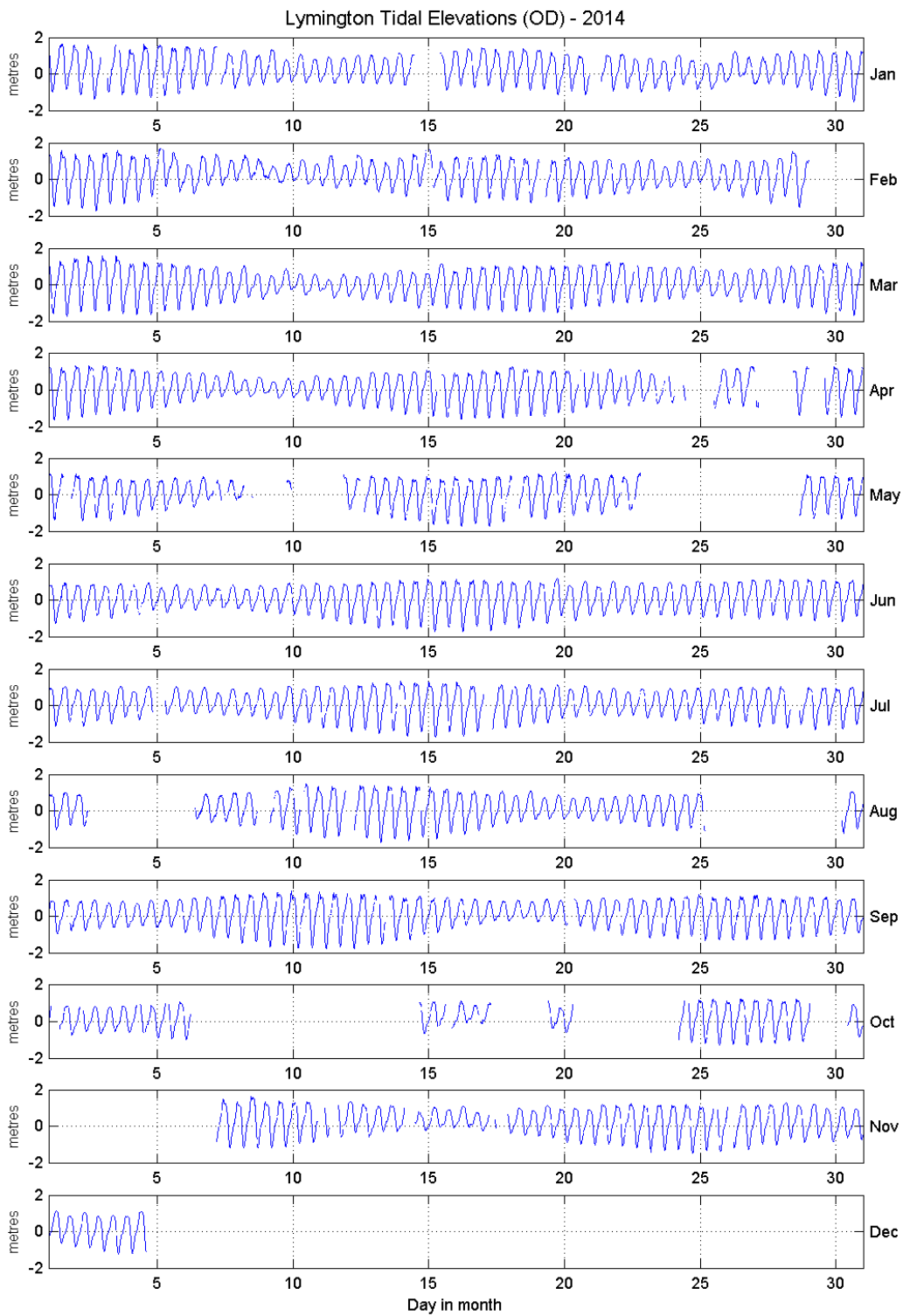


Figure 2: Lymington tidal elevations for 2014 relative to Ordnance Datum

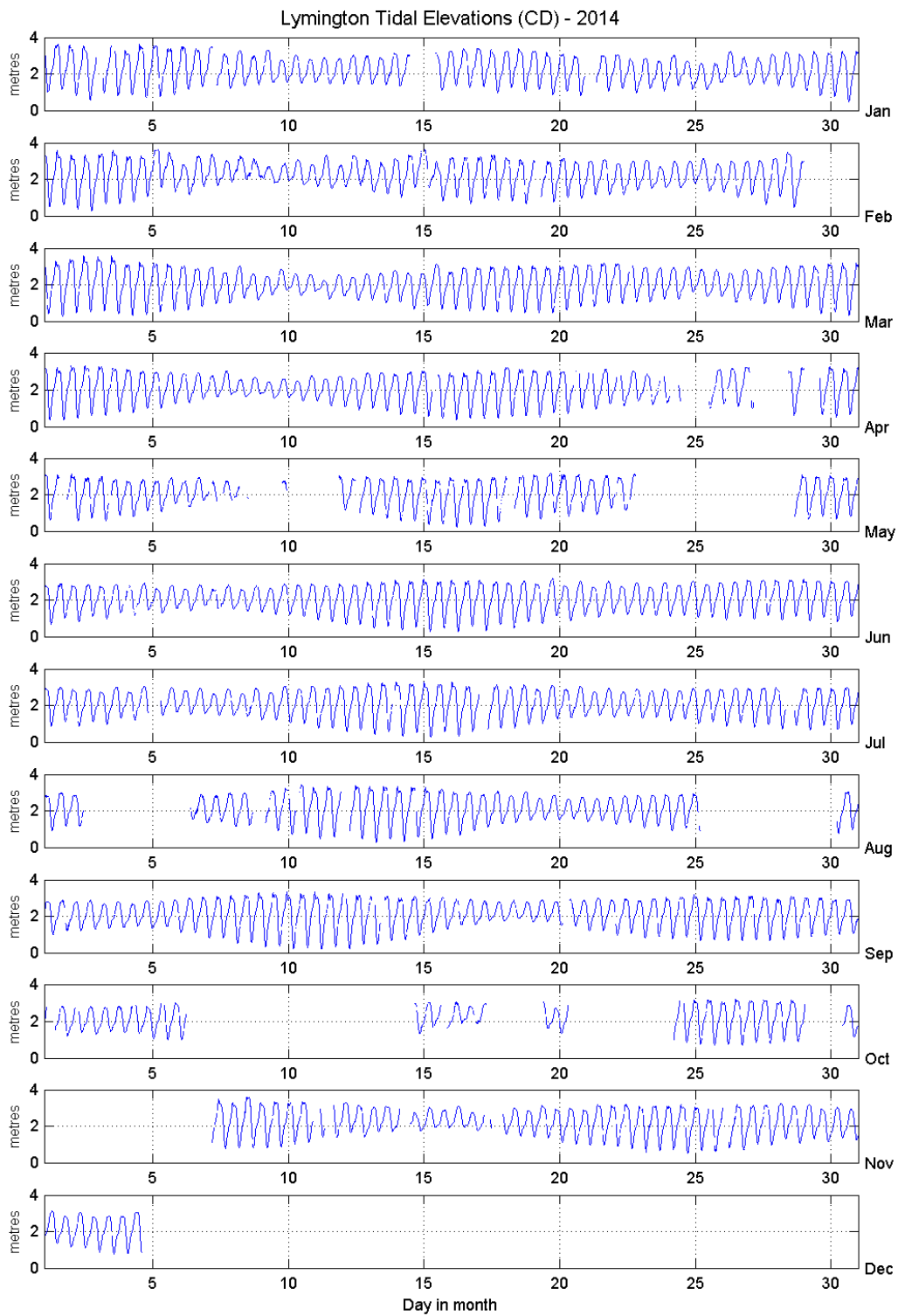


Figure 3: Lymington tidal elevations for 2014 relative to Chart Datum