

Lymington Tide Gauge

Location

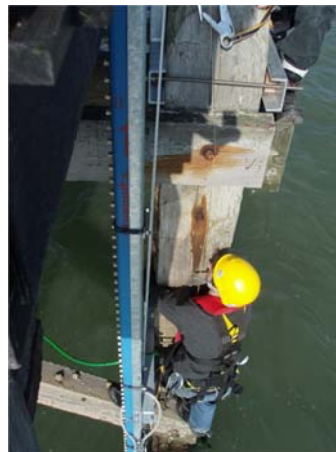
OS: 434874E 93526N

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
99	10 minutes

Service history

The stepgauge became operational on 19 April 2007. 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	1.39	03-Jan-2010 12:00	-1.73	31-Jan-2010 17:10
February	1.53	28-Feb-2010 22:30	-1.77	01-Feb-2010 17:40
March	1.61	30-Mar-2010 22:40	-1.77	02-Mar-2010 17:10
April	1.33	02-Apr-2010 00:10	-1.58	27-Apr-2010 15:20
May	1.12	02-May-2010 00:30	-1.42	16-May-2010 05:20
June	1.17	19-Jun-2010 18:00	-1.64	16-Jun-2010 06:50
July	1.49	15-Jul-2010 00:40	-1.49	14-Jul-2010 05:40
August	1.28	10-Aug-2010 22:40	-1.77	12-Aug-2010 05:10
September	1.39	09-Sep-2010 10:40	-1.72	10-Sep-2010 05:10
October	1.44	06-Oct-2010 09:00	-1.60	09-Oct-2010 04:40
November	1.43	08-Nov-2010 11:20	-1.55	07-Nov-2010 16:40
December	1.38	05-Dec-2010 09:50	-1.66	25-Dec-2010 19:00

Month	Surge maxima		Surge minima	
	Value (m)	Date/Time	Value (m)	Date/Time
January	0.33	05-Jan-2010 23:10	-0.43	25-Jan-2010 22:20
February	0.58	25-Feb-2010 14:10	-0.36	11-Feb-2010 20:10
March	0.53	26-Mar-2010 02:00	-0.44	07-Mar-2010 20:40
April	0.36	02-Apr-2010 09:30	-0.40	12-Apr-2010 08:00
May	0.19	25-May-2010 17:10	-0.44	05-May-2010 08:10
June	0.30	20-Jun-2010 00:40	-0.25	02-Jun-2010 19:00
July	0.49	15-Jul-2010 06:10	-0.30	07-Jul-2010 10:40
August	0.34	30-Aug-2010 02:50	-0.26	13-Aug-2010 15:00
September	0.34	11-Sep-2010 05:20	-0.29	14-Sep-2010 04:00
October	0.57	31-Oct-2010 03:50	-0.24	26-Oct-2010 20:40
November	0.68	12-Nov-2010 17:00	-0.16	25-Nov-2010 17:00
December	0.58	16-Dec-2010 21:30	-0.36	15-Dec-2010 10:30

Month	Mean Level	
	No. of days	Elevation (OD)
January	31	0.091
February	28	0.202
March	31	0.085
April	30	0.028
May	31	0.052
June	30	0.087
July	31	0.103
August	31	0.143
September	30	0.156
October	31	0.221
November	30	0.234
December	31	0.126

Highest values in 2010			
Extreme		Surge	
Elevation (OD) (Surge component)	Date/Time	Value (m)	Date/Time
1.61 (0.49)	30-Mar-2010 22:40	0.68	12-Nov-2010 17:00
1.54 (0.41)	30-Mar-2010 10:30	0.63	08-Nov-2010 05:30
1.53 (0.42)	28-Feb-2010 22:30	0.63	11-Nov-2010 08:20
1.52 (0.43)	28-Feb-2010 10:30	0.61	11-Nov-2010 08:30
1.51 (0.40)	29-Mar-2010 22:10	0.58	16-Dec-2010 21:30
1.51 (0.55)	27-Feb-2010 09:10	0.58	25-Feb-2010 14:10
1.50 (0.45)	03-Feb-2010 01:00	0.57	31-Oct-2010 03:50
1.50 (0.32)	01-Mar-2010 10:50	0.57	27-Feb-2010 08:50
1.49 (0.39)	15-Jul-2010 00:40	0.57	25-Feb-2010 19:40
1.47 (0.44)	27-Feb-2010 21:50	0.56	08-Nov-2010 08:30

Year	Annual extreme maxima		Annual surge maxima		Z ₀ (OD)	Annual recovery rate
	Elevation (OD) (Surge)	Date/Time	Value (m)	Date/Time		
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%

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

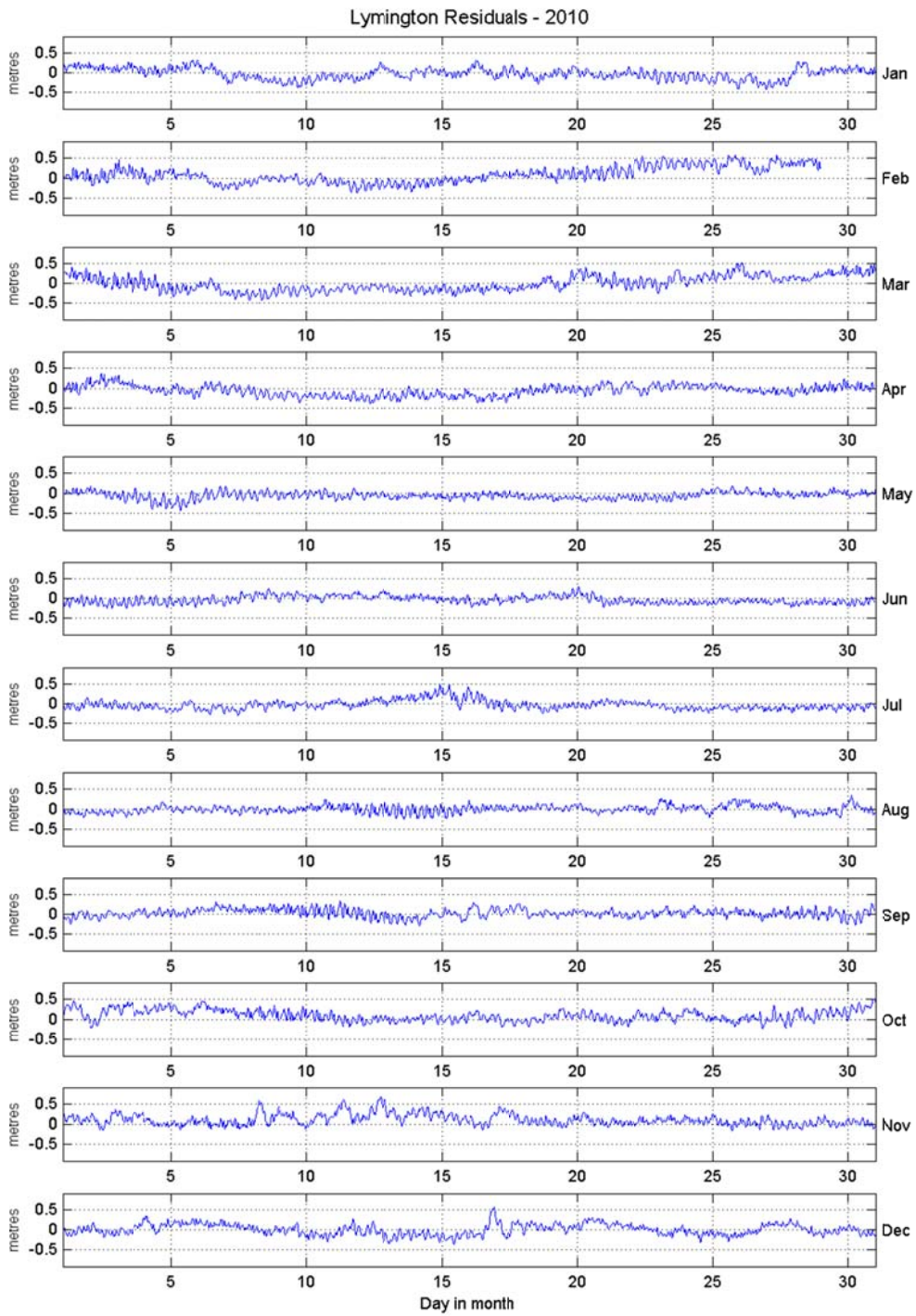


Figure 1: Lymington residuals for 2010

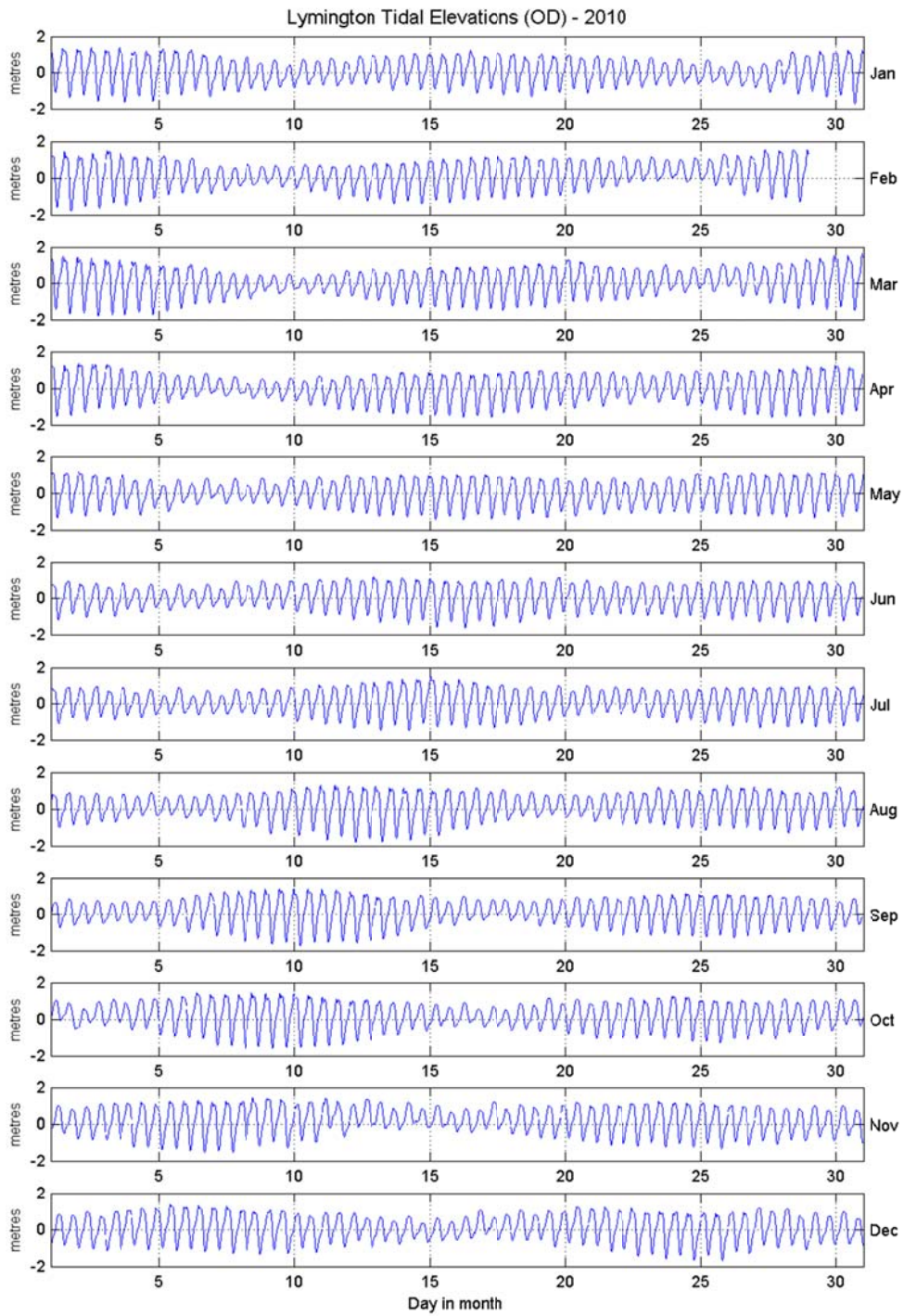


Figure 2: Lymington tidal elevations for 2010 relative to Ordnance Datum

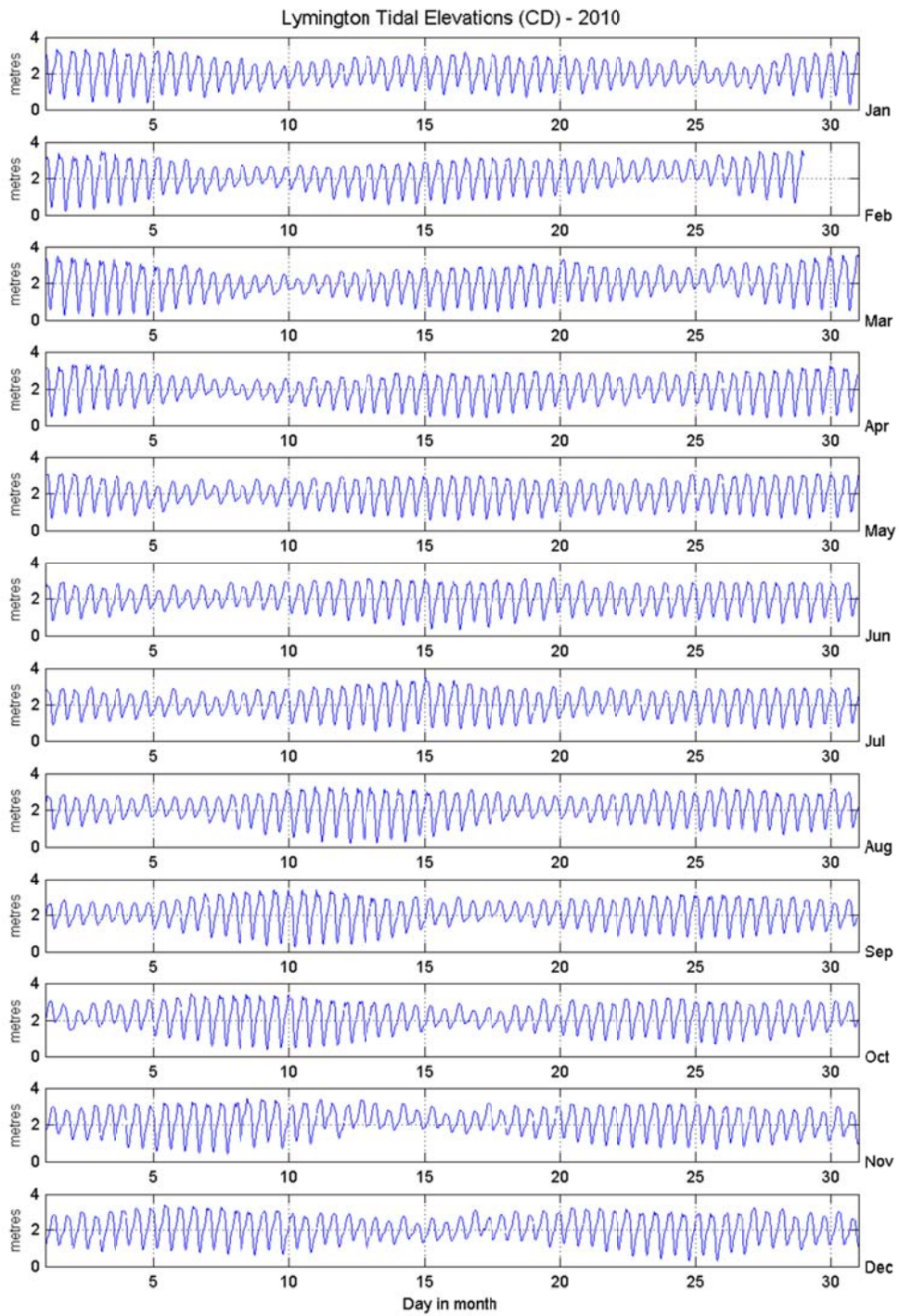


Figure 3: Lymington tidal elevations for 2010 relative to Chart Datum