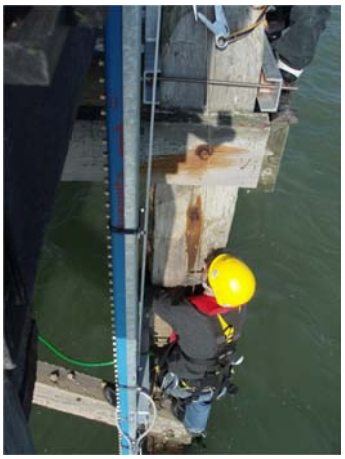
Lymington Tide Gauge

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	*Description*
TGBM = 3.919m above Ordnance Datum Newlyn	Top of stepgauge frame
TGZ = -2.22m above Ordnance Datum Newlyn	
TGZ = -0.24m above Chart Datum	
TGZ = 6.136m below TGBM	

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
89	10 minutes

Service history

The stepgauge became operational on 19 April 2007. The gauge was last serviced in October 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. 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	1.27	21-Jan-2012 21:20	-1.65	11-Jan-2012 17:40
February	1.05	23-Feb-2012 11:20	-1.77	11-Feb-2012 06:00
March	0.96	07-Mar-2012 09:40	-1.77	08-Mar-2012 16:00
April	1.52	26-Apr-2012 01:20	-1.75	08-Apr-2012 17:20
May	1.36	07-May-2012 23:20	-1.62	07-May-2012 04:30
June	1.56	08-Jun-2012 00:40	-1.60	05-Jun-2012 04:20
July	1.30	07-Jul-2012 15:10	-1.52	22-Jul-2012 06:00
August	1.28	03-Aug-2012 23:20	-1.47	20-Aug-2012 05:30
September	1.32	17-Sep-2012 10:50	-1.61	01-Sep-2012 04:20
October	1.78	17-Oct-2012 11:10	-1.39	16-Oct-2012 16:30
November	1.44	01-Nov-2012 11:50	-1.63	15-Nov-2012 17:00
December	1.73	14-Dec-2012 10:30	-1.41	13-Dec-2012 15:50

Month	Surge maxima		Surge minima	
	Value (m)	Date/Time	Value (m)	Date/Time
January	0.47	05-Jan-2012 19:20	-0.40	07-Jan-2012 02:40
February	0.16	19-Feb-2012 12:00	-0.53	05-Feb-2012 06:30
March	0.19	31-Mar-2012 11:50	-0.38	09-Mar-2012 12:00
April	0.71	26-Apr-2012 01:20	-0.24	06-Apr-2012 02:10
May	0.30	10-May-2012 00:50	-0.34	13-May-2012 05:40
June	0.55	08-Jun-2012 00:40	-0.28	01-Jun-2012 11:50
July	0.35	07-Jul-2012 09:50	-0.28	23-Jul-2012 04:30
August	0.45	15-Aug-2012 17:10	-0.29	10-Aug-2012 08:50
September	0.38	24-Sep-2012 04:30	-0.30	06-Sep-2012 14:30
October	0.69	17-Oct-2012 04:50	-0.30	28-Oct-2012 03:40
November	0.57	04-Nov-2012 07:30	-0.34	23-Nov-2012 08:10
December	0.51	14-Dec-2012 10:20	-0.41	08-Dec-2012 09:40

Month	Mean Level	
	No. of days	Elevation (OD)
January	30	0.062
February	29	-0.122
March	26	-0.086
April	28	0.159
May	28	0.090
June	30	0.146
July	30	0.140
August	31	0.184
September	30	0.151
October	30	0.242
November	30	0.248
December	30	0.207

Highest values in 2012			
Extreme		Surge	
Elevation (OD) *(Surge component)*	Date/Time	Value (m)	Date/Time
1.78 *(0.53)*	17-Oct-2012 11:10	0.71	26-Apr-2012 01:20
1.73 *(0.50)*	14-Dec-2012 10:30	0.69	17-Oct-2012 04:50
1.56 *(0.55)*	08-Jun-2012 00:40	0.69	25-Apr-2012 09:10
1.55 *(0.37)*	17-Oct-2012 23:30	0.64	18-Apr-2012 08:30
1.53 *(0.31)*	15-Dec-2012 11:30	0.58	25-Apr-2012 06:00
1.52 *(0.71)*	26-Apr-2012 01:20	0.57	04-Nov-2012 07:30
1.50 *(0.37)*	14-Dec-2012 23:00	0.55	08-Jun-2012 00:40
1.49 *(0.45)*	15-Oct-2012 23:40	0.55	25-Apr-2012 08:20
1.48 *(0.44)*	10-Apr-2012 00:20	0.53	17-Oct-2012 11:10
1.47 *(0.20)*	17-Dec-2012 03:20	0.51	14-Dec-2012 10:20

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%

* 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.

Acknowledgement

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.

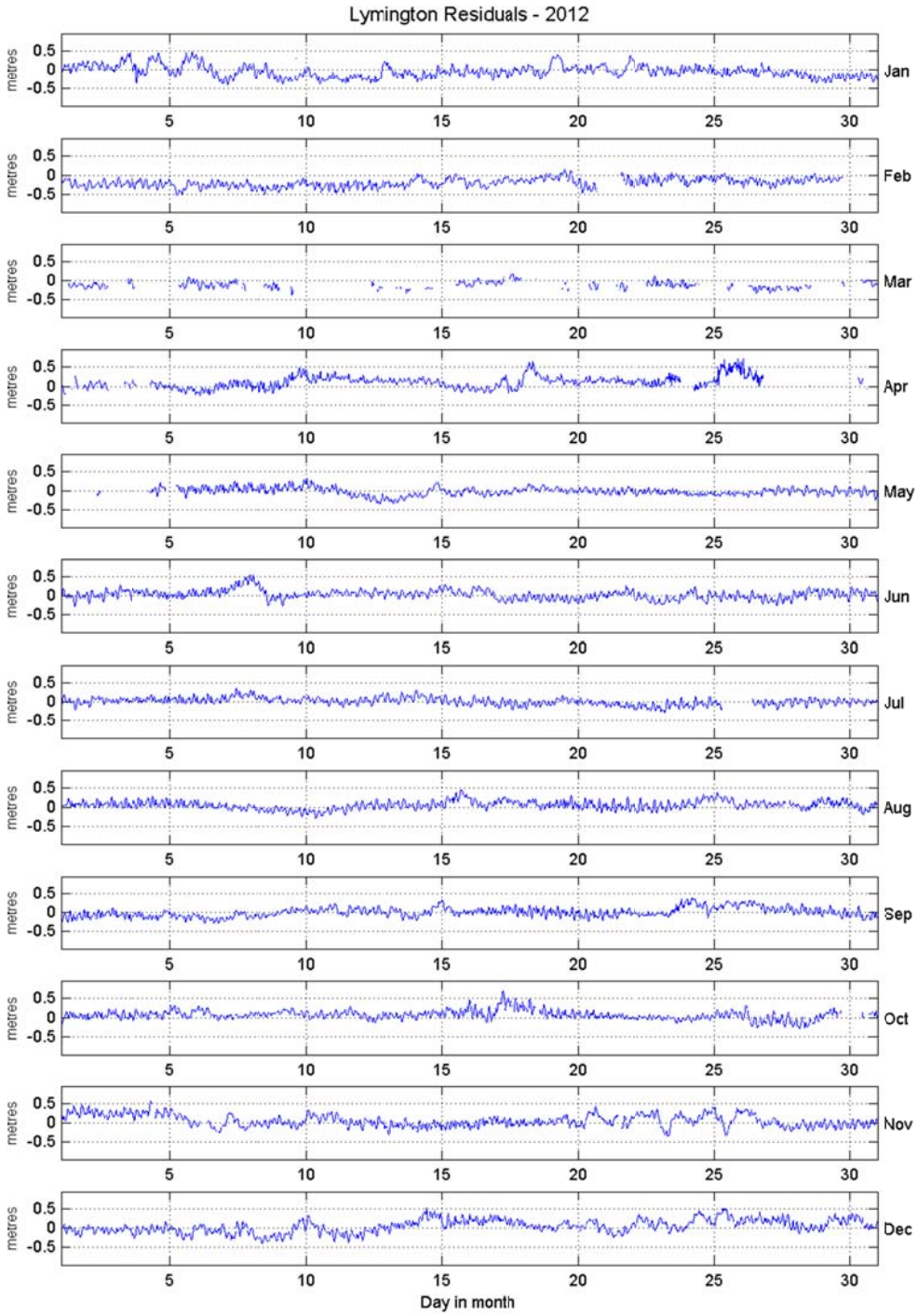


Figure 1: Lymington residuals for 2012

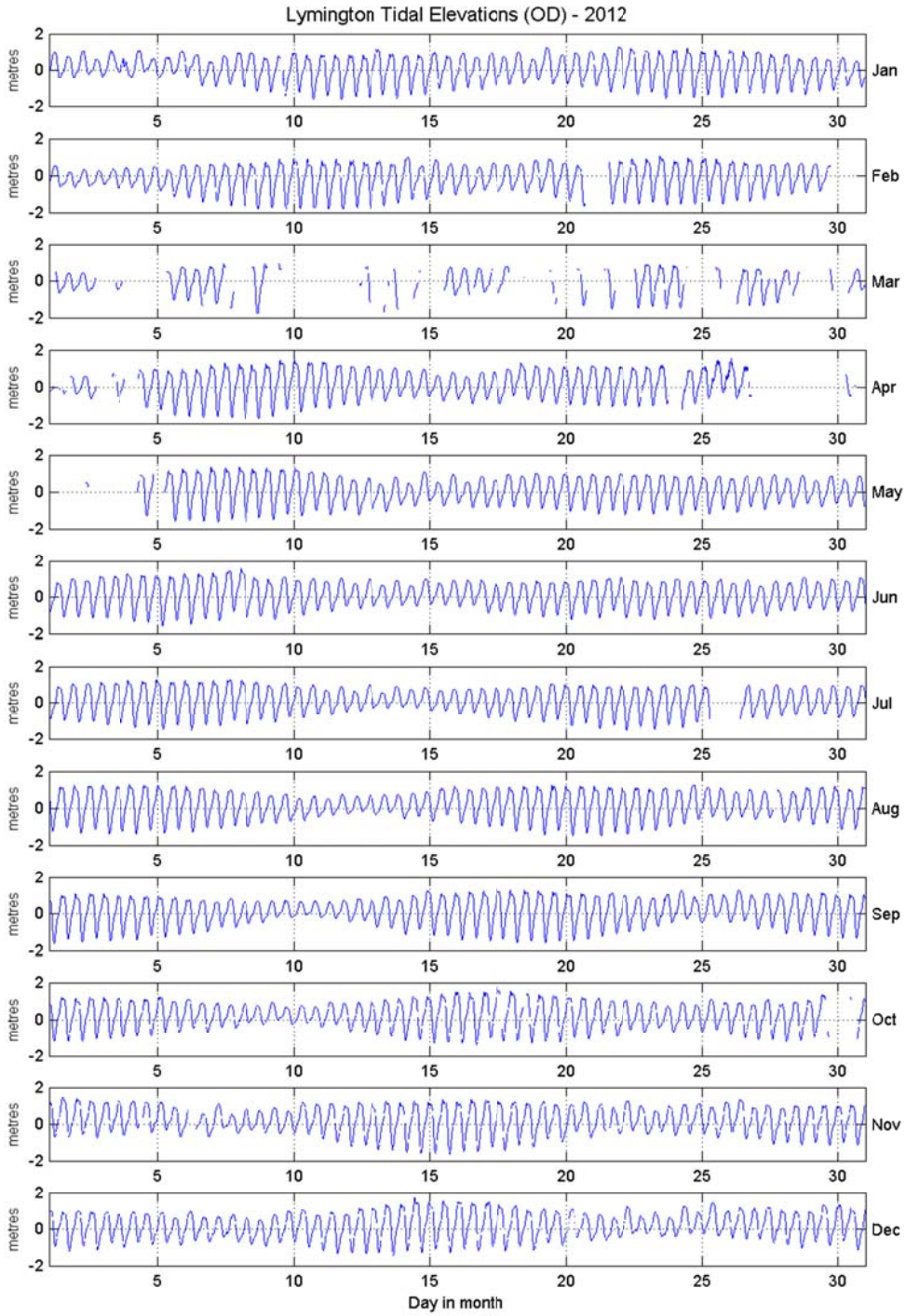


Figure 2: Lymington tidal elevations for 2012 relative to Ordnance Datum

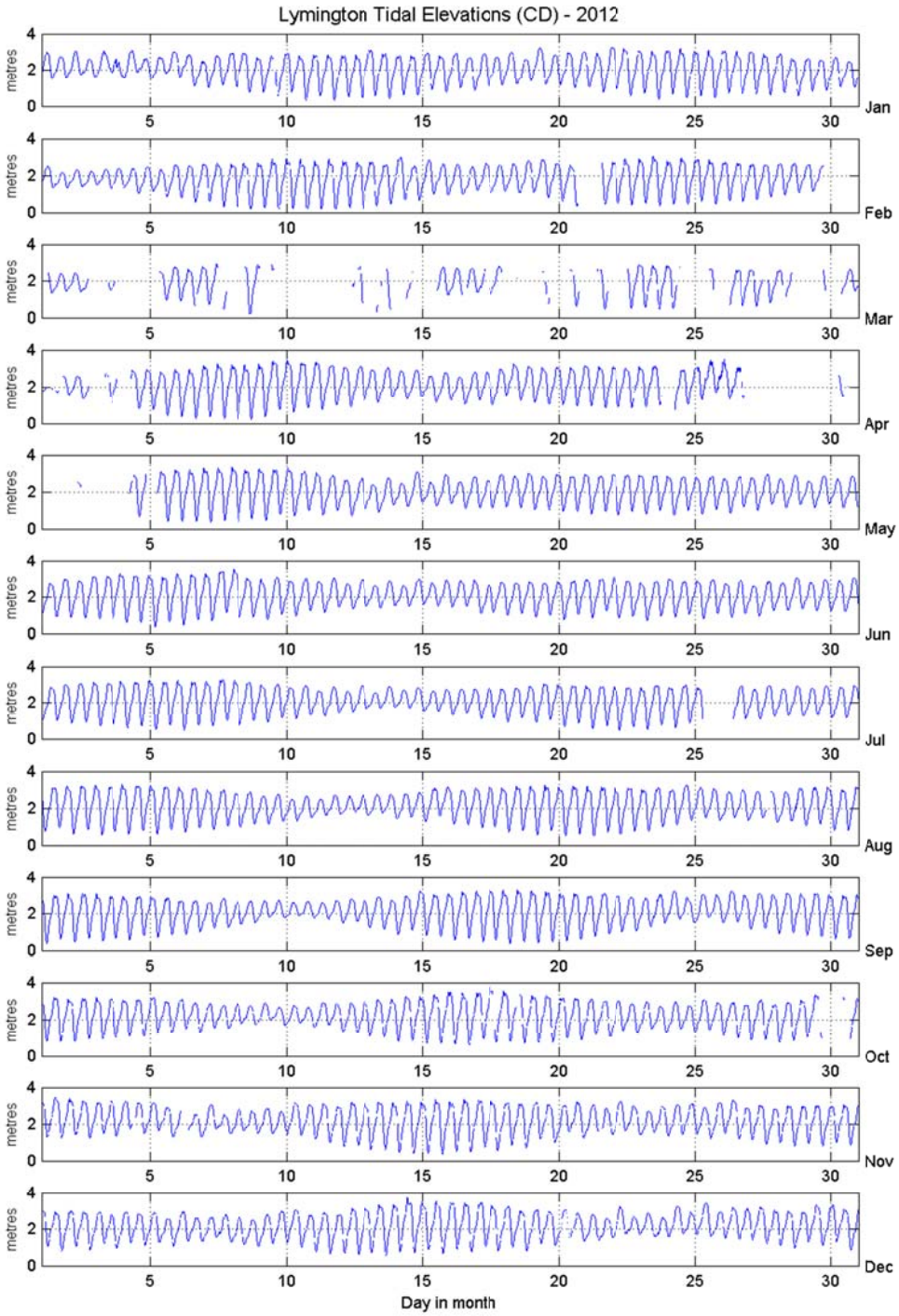


Figure 3: Lymington tidal elevations for 2012 relative to Chart Datum