

Lymington Tide Gauge

Location

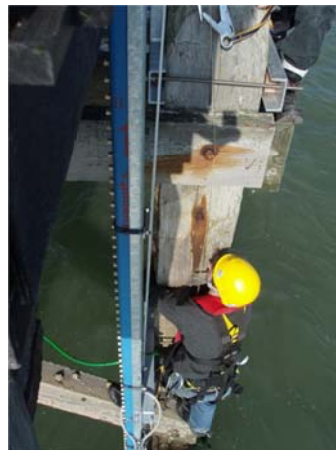
OS: 434874E 93526N

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 |
|-------------------|-----------------|
| 98 | 10 minutes |

Service history

The stepgauge became operational on 19 April 2007. The gauge was last serviced in September 2011. 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 | 1.37 | 08-Jan-2011 03:10 | -1.77 | 22-Jan-2011 05:40 |
| February | 1.35 | 19-Feb-2011 11:00 | -1.77 | 19-Feb-2011 17:20 |
| March | 1.17 | 21-Mar-2011 23:50 | -1.77 | 20-Mar-2011 04:00 |
| April | 1.28 | 19-Apr-2011 23:20 | -1.76 | 18-Apr-2011 16:20 |
| May | 1.13 | 18-May-2011 23:10 | -1.61 | 18-May-2011 04:20 |
| June | 1.24 | 17-Jun-2011 23:40 | -1.45 | 03-Jun-2011 05:00 |
| July | 1.18 | 16-Jul-2011 23:20 | -1.48 | 04-Jul-2011 06:00 |
| August | 1.26 | 31-Aug-2011 23:50 | -1.72 | 31-Aug-2011 05:40 |
| September | 1.28 | 28-Sep-2011 23:00 | -1.77 | 28-Sep-2011 04:10 |
| October | 1.57 | 27-Oct-2011 10:10 | -1.64 | 28-Oct-2011 17:00 |
| November | 1.56 | 28-Nov-2011 02:20 | -1.66 | 26-Nov-2011 16:50 |
| December | 1.52 | 12-Dec-2011 23:30 | -1.62 | 26-Dec-2011 17:30 |

| Month | Surge maxima | | Surge minima | |
|-----------|--------------|-------------------|--------------|-------------------|
| | Value (m) | Date/Time | Value (m) | Date/Time |
| January | 0.47 | 08-Jan-2011 07:00 | -0.49 | 23-Jan-2011 13:50 |
| February | 0.39 | 04-Feb-2011 23:40 | -0.43 | 04-Feb-2011 10:10 |
| March | 0.26 | 12-Mar-2011 21:20 | -0.48 | 02-Mar-2011 15:30 |
| April | 0.21 | 22-Apr-2011 00:50 | -0.24 | 11-Apr-2011 19:50 |
| May | 0.32 | 08-May-2011 07:10 | -0.33 | 24-May-2011 04:40 |
| June | 0.36 | 12-Jun-2011 15:00 | -0.30 | 01-Jun-2011 23:20 |
| July | 0.34 | 06-Jul-2011 20:20 | -0.21 | 01-Jul-2011 03:20 |
| August | 0.30 | 08-Aug-2011 04:20 | -0.21 | 18-Aug-2011 13:50 |
| September | 0.31 | 12-Sep-2011 07:30 | -0.33 | 27-Sep-2011 23:10 |
| October | 0.40 | 24-Oct-2011 02:50 | -0.32 | 14-Oct-2011 12:20 |
| November | 0.44 | 03-Nov-2011 16:10 | -0.31 | 26-Nov-2011 18:40 |
| December | 0.65 | 12-Dec-2011 23:20 | -0.61 | 08-Dec-2011 23:20 |

| Month | Mean Level | |
|-----------|-------------|----------------|
| | No. of days | Elevation (OD) |
| January | 31 | 0.087 |
| February | 28 | 0.098 |
| March | 31 | -0.018 |
| April | 30 | 0.022 |
| May | 31 | 0.051 |
| June | 30 | 0.108 |
| July | 31 | 0.120 |
| August | 31 | 0.131 |
| September | 30 | 0.153 |
| October | 31 | 0.152 |
| November | 30 | 0.193 |
| December | 31 | 0.186 |

| Highest values in 2011 | | | |
|-------------------------------------|-------------------|-----------|-------------------|
| Extreme | | Surge | |
| Elevation (OD) (Surge component) | Date/Time | Value (m) | Date/Time |
| 1.57 (0.29) | 27-Oct-2011 10:10 | 0.65 | 12-Dec-2011 23:20 |
| 1.56 (0.35) | 28-Nov-2011 02:20 | 0.59 | 16-Dec-2011 07:50 |
| 1.52 (0.64) | 12-Dec-2011 23:30 | 0.55 | 04-Dec-2011 00:40 |
| 1.43 (0.46) | 02-Dec-2011 04:30 | 0.53 | 14-Dec-2011 18:30 |
| 1.42 (0.21) | 26-Oct-2011 21:50 | 0.53 | 03-Dec-2011 23:40 |
| 1.42 (0.17) | 26-Oct-2011 09:30 | 0.52 | 09-Dec-2011 17:40 |
| 1.39 (0.38) | 16-Dec-2011 04:00 | 0.50 | 09-Dec-2011 17:30 |
| 1.37 (0.40) | 08-Jan-2011 03:10 | 0.48 | 13-Dec-2011 18:30 |
| 1.36 (0.21) | 26-Dec-2011 11:30 | 0.48 | 02-Dec-2011 04:00 |
| 1.36 (0.43) | 15-Dec-2011 01:10 | 0.47 | 08-Jan-2011 07:00 |

| 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% |
| 2011 | 1.57 (0.29) | 27-Oct-2011 10:10 | 0.65 | 12-Dec-2011 23:20 | - | 98% |

| Tidal levels | | |
|--------------------|------------------------------|----------------|
| Observation period | August 2007 to December 2011 | |
| Tide Level | Elevation (OD) | Elevation (CD) |
| HAT | 1.33 | 3.31 |
| 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 EMU Limited. The step gauge is mounted on their Starting Platform by kind permission of the Royal Lymington Yacht Club.

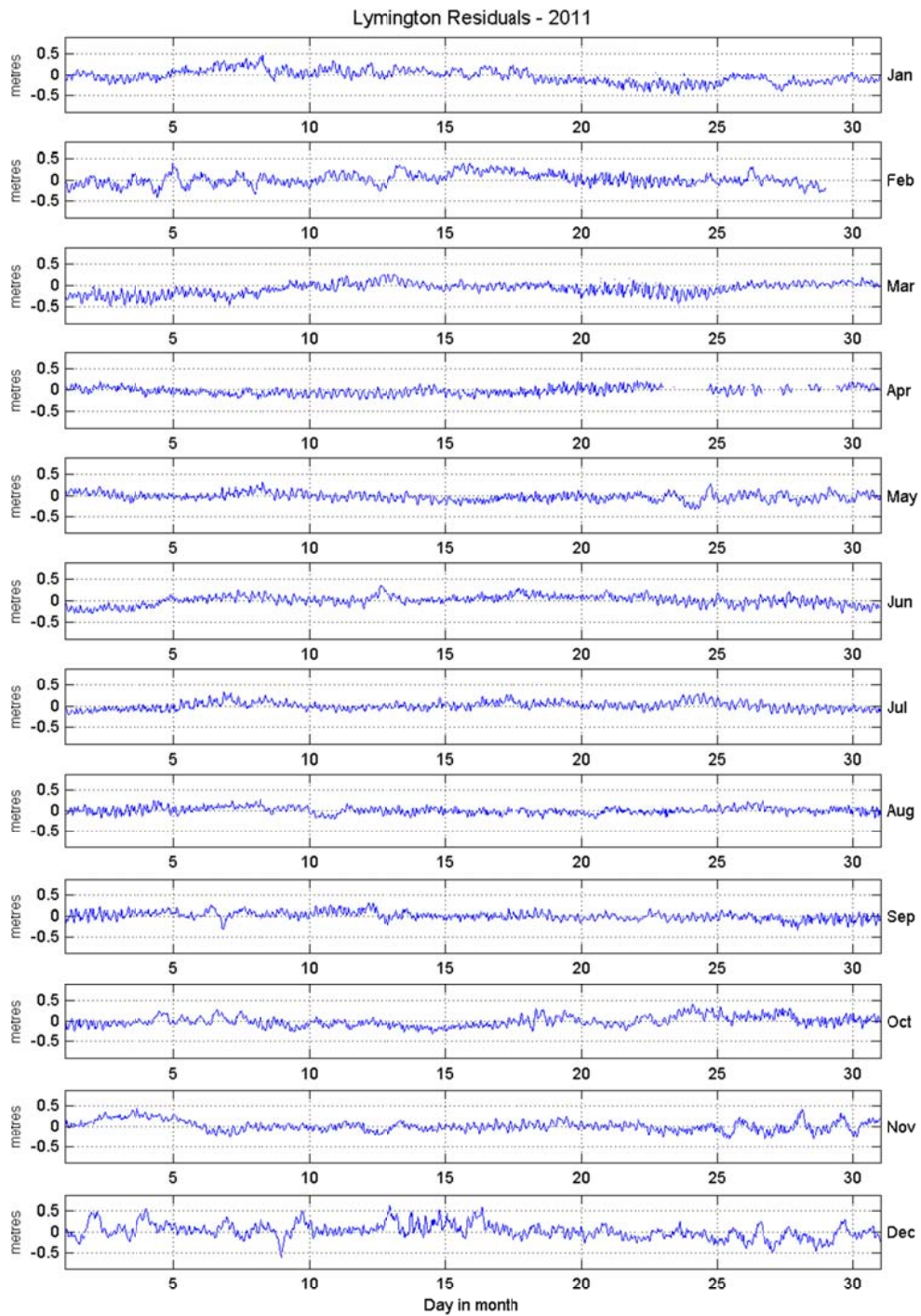


Figure 1: Lyminster residuals for 2011

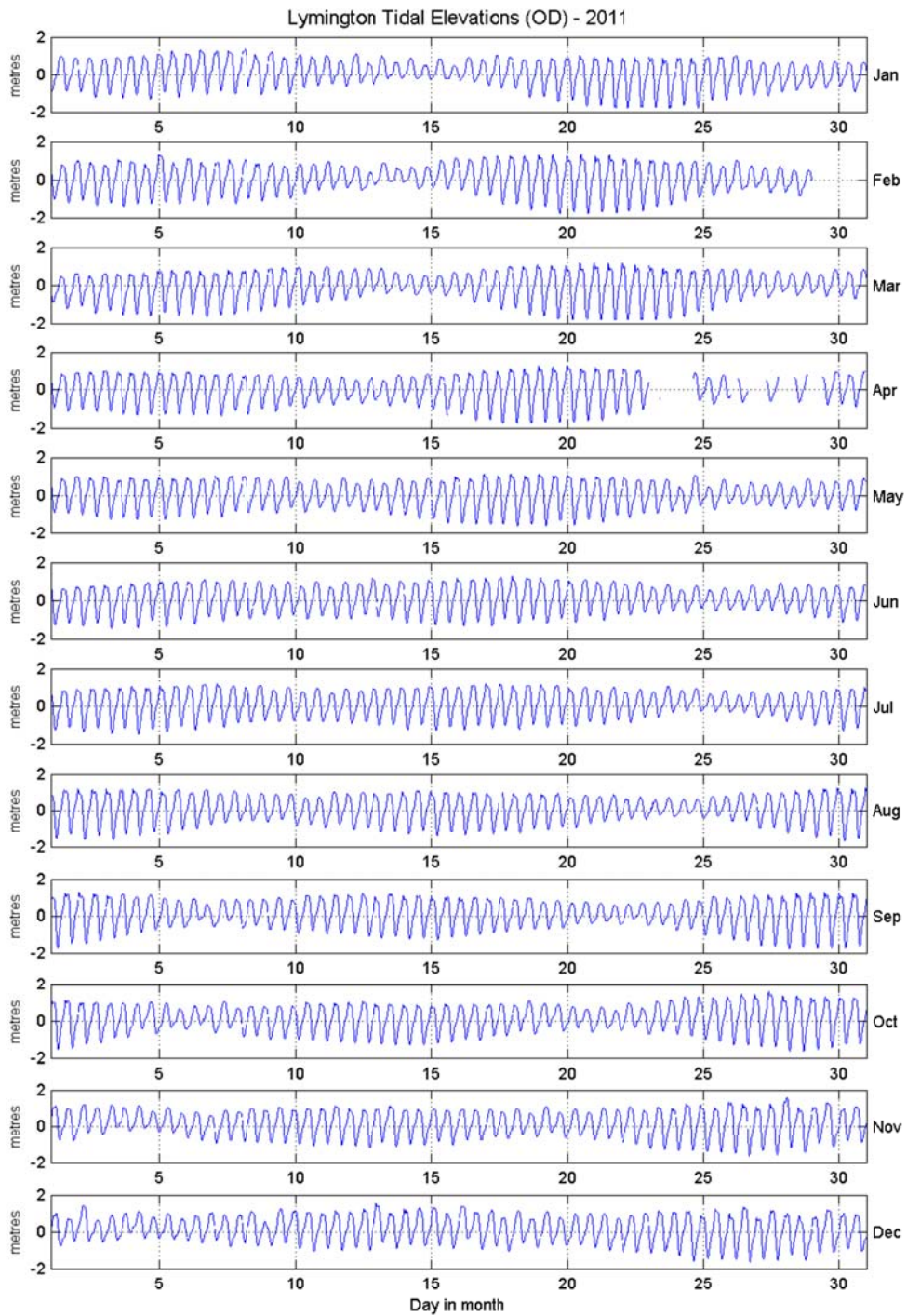


Figure 2: Lymington tidal elevations for 2011 relative to Ordnance Datum

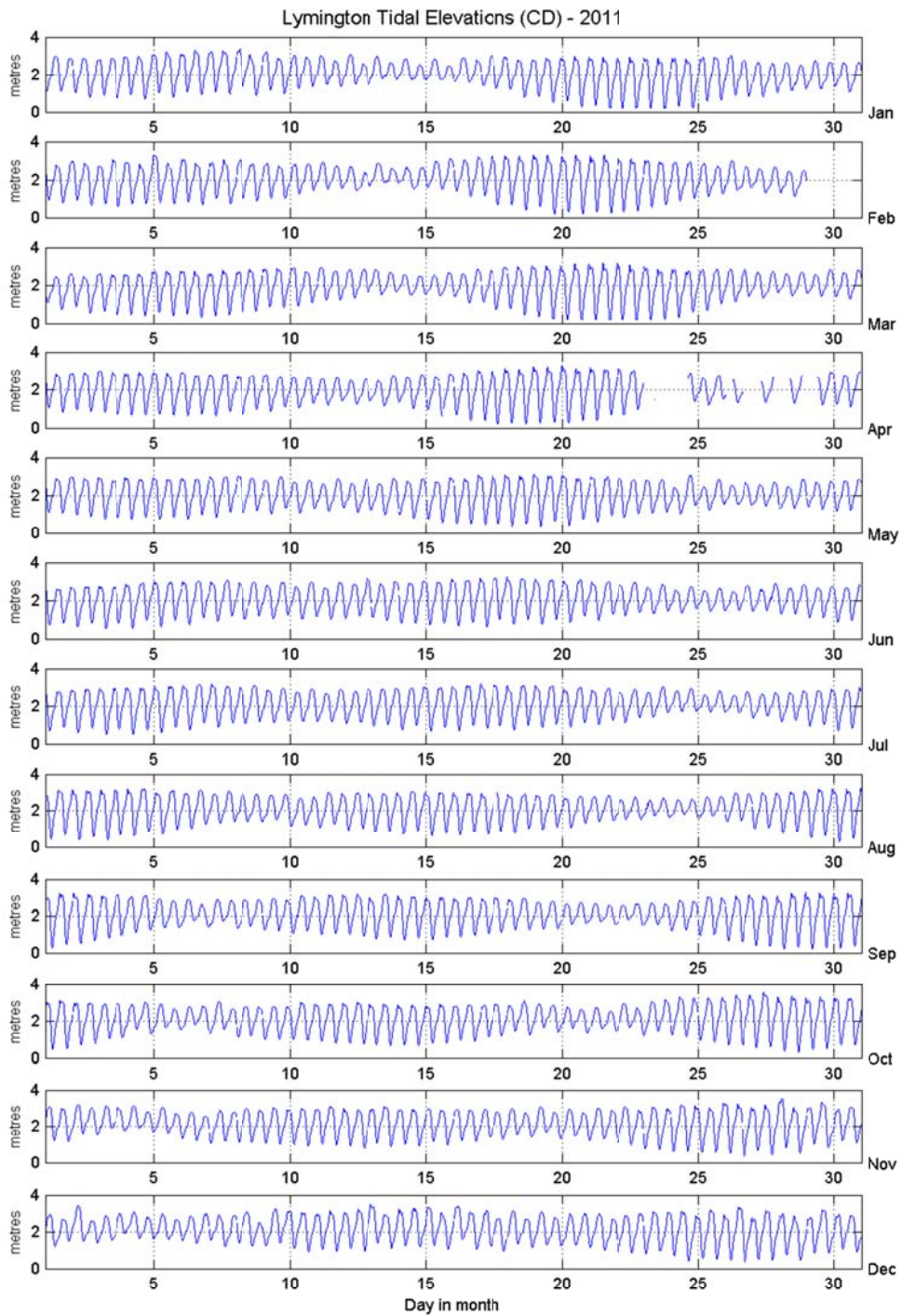


Figure 3: Lymington tidal elevations for 2011 relative to Chart Datum