

Lymington Tide Gauge

Location

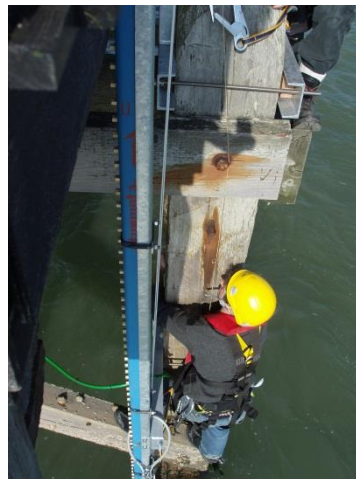
OS: 434874E 93526N

WGS84:Latitude: 50° 44.418' N Longitude: 01° 30.427' W

On the Royal Lymington Yacht Club Starting Platform

Instrument Type

Etrometa Step Gauge



Benchmarks

Benchmark

TGBM = 3.919 m above Ordnance Datum Newlyn

TGZ = -2.217 m above Ordnance Datum Newlyn

TGZ = -0.240 m above Chart Datum

TGZ = 6.136 m below TGBM

Description

Top of step gauge 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. 1.7 km offshore, in the Western Solent. Spring tidal range is 2.1m.

Data Quality

Recovery rate (%)	Sample interval
99	10 minutes

Service history

The step gauge became operational on 19 April 2007 and is serviced at 9-monthly intervals. The lower section of the gauge required replacement during the winter of 2015. 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	1.41	08-Jan-2019 14:00:00	-1.72	23-Jan-2019 18:00:00
February	1.35	08-Feb-2019 12:30:00	-1.91	22-Feb-2019 18:30:00
March	1.47	10-Mar-2019 02:30:00	-2.00	22-Mar-2019 17:20:00
April	1.32	04-Apr-2019 22:30:00	-1.76	19-Apr-2019 16:10:00
May	1.27	08-May-2019 12:30:00	-1.47	06-May-2019 04:50:00
June	1.28	04-Jun-2019 23:10:00	-1.31	18-Jun-2019 04:30:00
July	1.21	30-Jul-2019 09:20:00	-1.57	04-Jul-2019 04:50:00
August	1.37	31-Aug-2019 10:50:00	-1.67	03-Aug-2019 05:30:00
September	1.66	29-Sep-2019 10:30:00	-1.79	02-Sep-2019 06:00:00
October	1.58	01-Oct-2019 12:00:00	-1.74	29-Oct-2019 04:30:00
November	1.74	27-Nov-2019 10:30:00	-1.22	29-Nov-2019 17:50:00
December	1.72	11-Dec-2019 12:10:00	-1.39	28-Dec-2019 17:40:00

Month	Surge maxima		Surge minima	
	Value (m)	Date/Time	Value (m)	Date/Time
January	0.56	08-Jan-2019 14:50:00	-0.46	03-Jan-2019 02:30:00
February	0.46	10-Feb-2019 08:00:00	-0.40	14-Feb-2019 01:40:00
March	0.78	10-Mar-2019 06:50:00	-0.40	12-Mar-2019 16:10:00
April	0.47	25-Apr-2019 09:30:00	-0.26	01-Apr-2019 00:50:00
May	0.52	08-May-2019 06:30:00	-0.28	13-May-2019 09:40:00
June	0.35	07-Jun-2019 19:30:00	-0.31	27-Jun-2019 11:00:00
July	0.40	30-Jul-2019 11:40:00	-0.22	22-Jul-2019 14:50:00
August	0.49	10-Aug-2019 00:00:00	-0.27	22-Aug-2019 06:30:00
September	0.66	29-Sep-2019 03:50:00	-0.35	19-Sep-2019 17:50:00
October	0.59	18-Oct-2019 19:30:00	-0.25	29-Oct-2019 11:50:00
November	0.81	02-Nov-2019 09:40:00	-0.25	16-Nov-2019 16:50:00
December	0.72	11-Dec-2019 12:10:00	-0.55	10-Dec-2019 23:40:00

Month	Mean Level	
	No. of days	Elevation (OD)
January	31	0.096
February	28	0.094
March	31	0.132
April	30	0.133
May	31	0.098
June	30	0.142
July	31	0.165
August	31	0.169
September	30	0.171
October	31	0.276
November	30	0.332
December	31	0.285

Highest values in 2018			
Extreme		Surge	
Elevation (OD) (Surge component)	Date/Time	Value (m)	Date/Time
1.74 (0.52)	27-Nov-2019 10:30:00	0.81	02-Nov-2019 09:40:00
1.72 (0.72)	11-Dec-2019 12:10:00	0.78	10-Mar-2019 06:50:00
1.66 (0.43)	26-Nov-2019 09:50:00	0.76	02-Nov-2019 08:00:00
1.66 (0.43)	29-Sep-2019 10:30:00	0.72	11-Dec-2019 12:10:00
1.61 (0.38)	28-Sep-2019 22:10:00	0.66	29-Sep-2019 03:50:00
1.58 (0.39)	01-Oct-2019 12:00:00	0.63	14-Dec-2019 04:30:00
1.55 (0.71)	02-Nov-2019 13:30:00	0.62	03-Mar-2019 15:50:00
1.54 (0.28)	29-Sep-2019 22:50:00	0.62	03-Mar-2019 16:50:00
1.54 (0.48)	20-Dec-2019 06:30:00	0.61	22-Dec-2019 01:40:00
1.54 (0.31)	30-Sep-2019 11:10:00	0.60	08-Dec-2019 23:00:00

Year	Annual extreme maxima		Annual surge maxima		Z ₀ (OD)	Annual recover y 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%
2015	1.52 (0.37)	25-Dec-2015 10:00	0.65	17-Nov-2015 01:10	-	76%
2016	1.76 (0.94)	28-Mar-2016 03:40	1.03	28-Mar-2016 04:10	-	96%
2017	1.56 (0.38)	14-Jan-2017 01:40	0.79	02-Feb-2017 20:20	-	97%
2018	1.75 (0.52)	04-Jan-2018 12:10	0.62	29-Nov-2018 09:00	0.145	96%
2019	1.74 (0.52)	27-Nov-2019 10:30	0.81	02-Nov-2019 09:40	0.174	99%

* 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 GB Marine Limited. The step gauge is mounted on their Starting Platform by kind permission of the Royal Lymington Yacht Club.

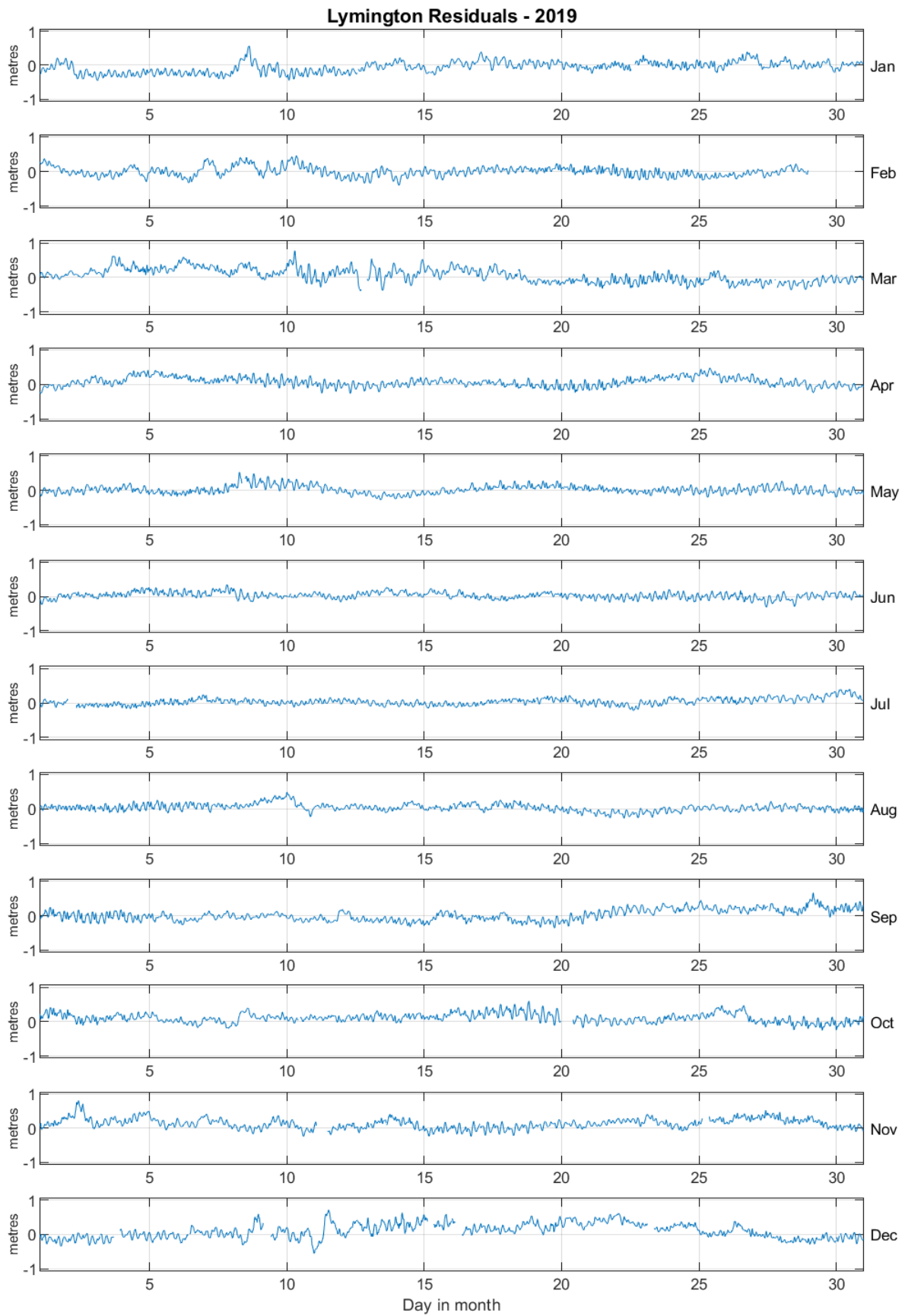


Figure 1: Lymington residuals for 2019

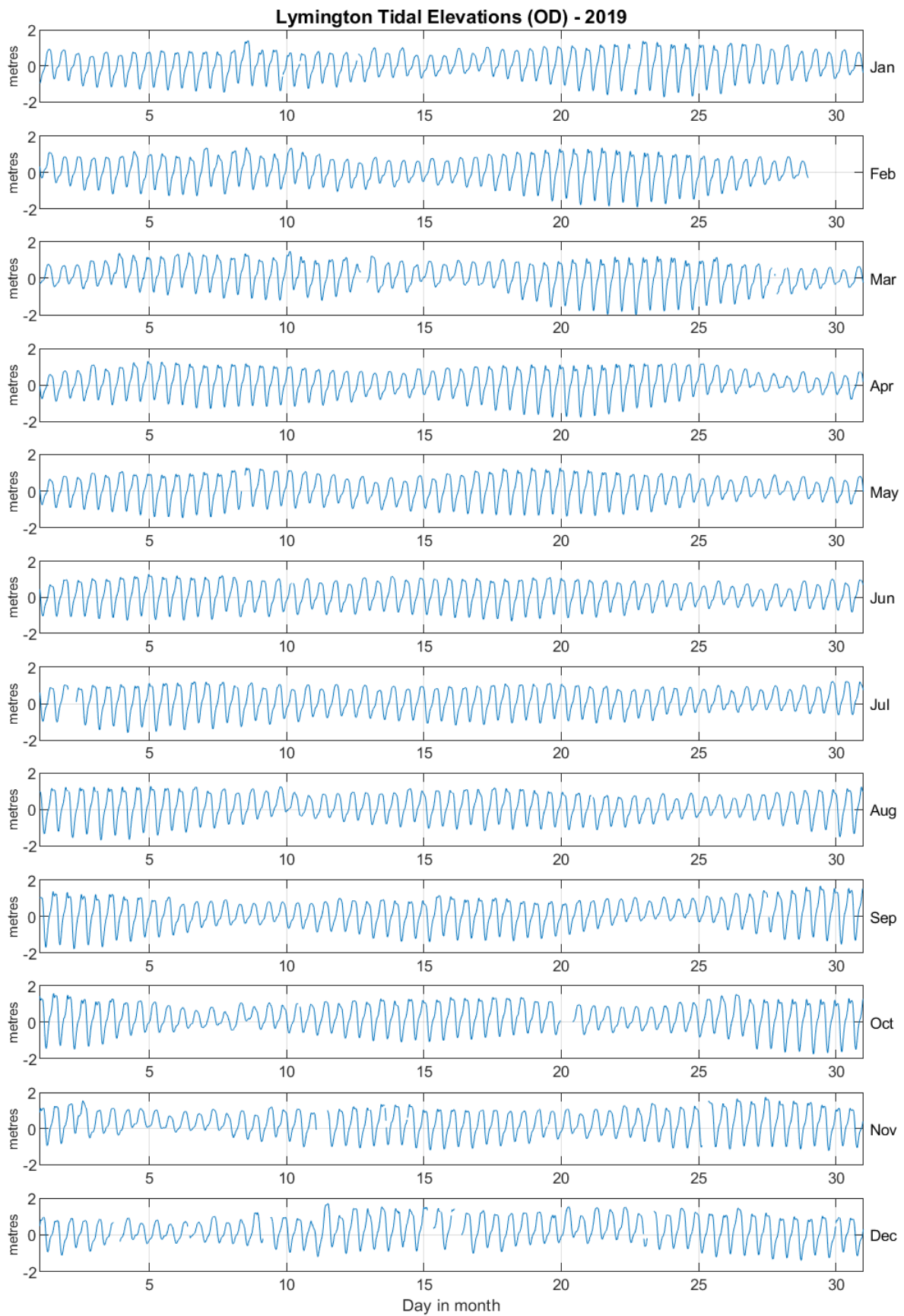


Figure 2: Lymington tidal elevations for 2019 relative to Ordnance Datum

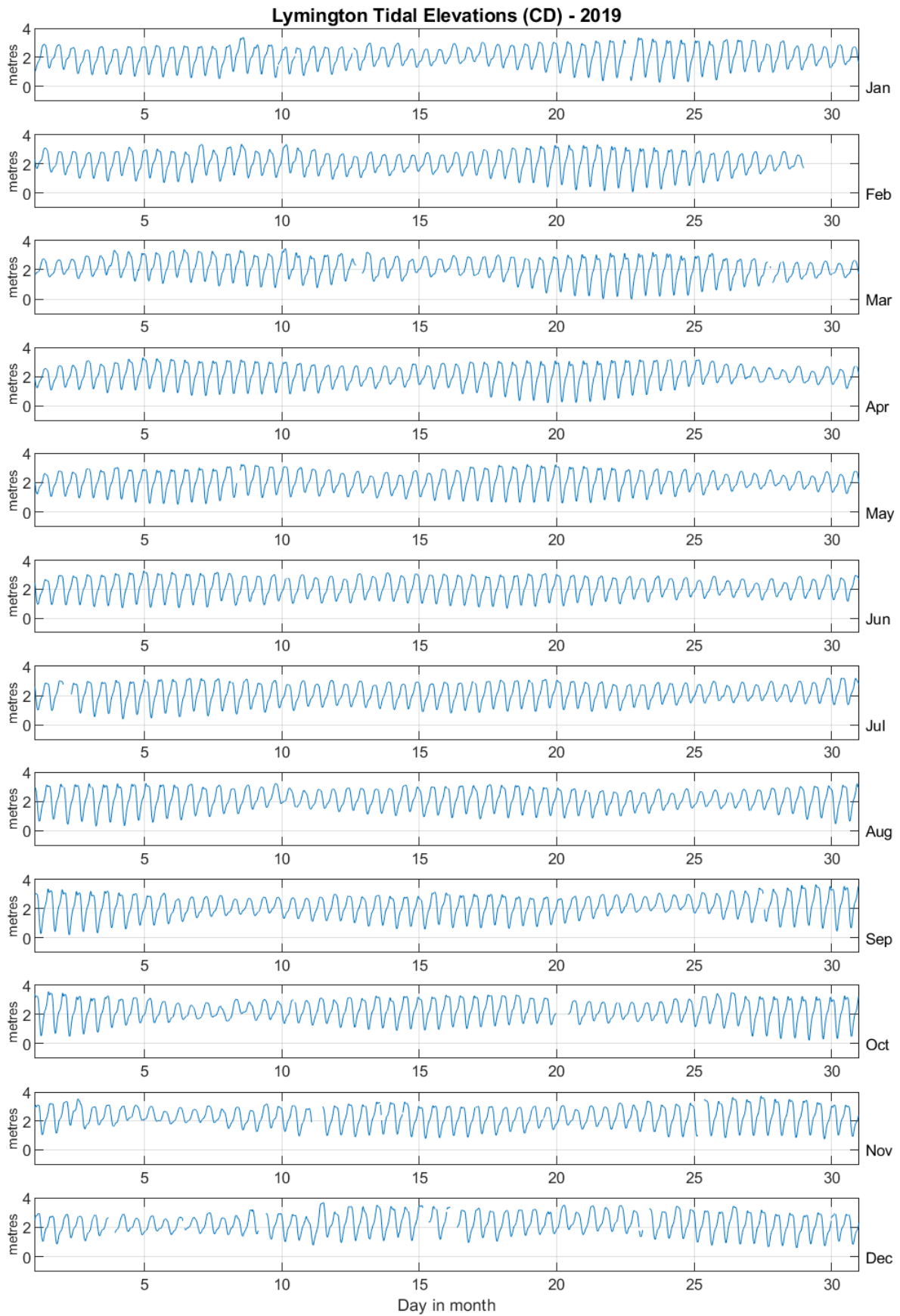


Figure 3: Lymington tidal elevations for 2019 relative to Chart Datum