

Arun Platform Tide Gauge

Location

OS: 506423E 97778N

WGS84: *Latitude:* 50° 46' 11.3904"N *Longitude:* 00° 29' 31.7360"W

Instrument

Valeport 730 (Drück Pressure Transducer)



TGBM



Benchmarks

Benchmark

TGBM = 10.334m above Ordnance Datum Newlyn

TGZ = -3.79m above Ordnance Datum Newlyn

TGZ = -0.74m above Chart Datum

TGZ = 14.124m below TGBM

Description

Top of transducer pole

Datum

All data are to Ordnance Datum Newlyn. The height of Chart Datum relative to Ordnance Datum at Littlehampton and Bognor Regis is -3.05m (Admiralty Tide Tables, Supplementary Table III).

Survey information

The site was surveyed on 05 April 2017, no change to the datum was found.

Site characteristics

The Platform is approximately 3.7km offshore, with no other nearby structures. The Platform leg is approximately 1.2m diameter and some wave reflection and other wave interference can occur. Spring tidal range is approx. 5.2m.

Data Quality

Recovery rate (%)	Sample interval
71	10 minutes

Service history

The gauge first became operational on 01 August 2008. It was badly damaged in early 2015 and subsequently replaced with a trial low-power radar in September 2015. Difficulties with the instrument and data transmission, compounded by restricted access to the Platform due to health and safety considerations, meant that no data was available for lengthy periods. A new Valeport tide gauge was installed in May 2017 and is serviced at 9-monthly intervals.

Measurements

The pressure transducer samples at 2Hz. Tidal elevations are derived, every 10 minutes, as the 40 second average of the 2Hz readings. The time stamp is the start of the measuring burst. Although the time stamp is accurate, the instrument has to be started manually after servicing and it is not always possible to start exactly on a 10 minute integer. Measurements are interpolated to the hour and 10 minute intervals, if the original time series is not on the hour. Missing data exceeding 2 hours are not interpolated. All data measured prior to the gauge being fully surveyed were adjusted to the correct elevations.

Residuals and Elevations (OD and CD) for the whole year are shown in Figures 1 to 3 respectively.

Statistics

All times GMT

Month	Extreme maxima		Extreme minima	
	Elevation (OD)	Date/Time	Elevation (OD)	Date/Time
January	-	-	-	-
February	-	-	-	-
March	3.01	31-Mar-2018 23:30	-2.65	19-Mar-2018 18:30
April	3.09	02-Apr-2018 00:00	-2.61	17-Apr-2018 18:00
May	2.97	16-May-2018 23:50	-2.64	17-May-2018 06:10
June	3.04	15-Jun-2018 12:00	-2.62	14-June-2018 17:10
July	2.93	15-Jul-2018 12:50	-2.65	14-July-2018 05:30
August	3.16	13-Aug-2018 12:40	-2.63	14-Aug-2018 07:00
September	3.11	12-Sep-2018 00:20	-2.64	11-Sep-2018 18:20
October	3.17	11-Oct-2018 12:20	-2.57	08-Oct-2018 04:00
November	3.28	07-Nov-2018 10:50	-2.33	25-Nov-2018 18:20
December	3.09	23-Dec-2018 11:00	-2.62	24-Dec-2018 18:10

Month	Surge maxima		Surge minima	
	Value (m)	Date/Time	Value (m)	Date/Time
January	-	-	-	-
February	-	-	-	-
March	0.49	12-Mar-2018 12:40	-0.40	21-Mar-2018 09:50
April	0.37	30-Apr-2018 15:10	-0.35	17-Apr-2018 20:40
May	0.28	02-May-2018 04:00	-0.31	04-May-2018 10:30
June	0.17	15-Jun-2018 11:00	-0.38	20-Jun-2018 14:30
July	0.28	29-Jul-2018 11:10	-0.25	14-Jul-2018 12:10
August	0.19	07-Aug-2018 03:00	-0.27	26-Aug-2018 23:50
September	0.38	21-Sep-2018 00:10	-0.43	29-Sep-2018 00:10
October	0.36	13-Oct-2018 18:00	-0.51	23-Oct-2018 07:00
November	0.42	29-Nov-2018 13:50	-0.45	18-Nov-2018 03:20
December	0.43	01-Dec-2018 10:30	-0.45	29-Dec-2018 16:30

Month	Mean Level	
	No. of days	Elevation (OD)
January	0	-
February	0	-
March	20	0.177
April	30	0.152
May	25	0.121
June	30	0.170
July	31	0.166
August	31	0.156
September	30	0.183
October	29	0.264
November	30	0.245
December	31	0.237

Highest values in 2018 (May to December)			
Extreme		Surge	
Elevation (OD) (Surge component)	Date/Time	Value (m)	Date/Time
3.28 (0.12)	07-Nov-2018 10:50	0.43	01-Dec-2018 10:30
3.17 (-0.04)	11-Oct-2018 12:20	0.42	21-Dec-2018 08:10
3.16 (-0.08)	13-Aug-2018 12:40	0.42	29-Nov-2018 13:50
3.15 (0.01)	11-Oct-2018 00:10	0.40	09-Nov-2018 19:50
3.15 (-0.14)	10-Oct-2018 11:50	0.40	09-Nov-2018 22:10
3.12 (-0.01)	13-Aug-2018 00:00	0.40	08-Dec-2018 21:30
3.11 (-0.07)	12-Sep-2018 00:20	0.39	29-Nov-2018 11:30
3.10 (-0.15)	12-Sep-2018 12:50	0.38	07-Nov-2018 06:10
3.09 (0.04)	02-Apr-2018 00:00	0.38	12-Mar-2018 18:30
3.09 (0.07)	23-Dec-2018 11:00	0.38	21-Sep-2018 00:10

Year	Annual extreme maxima		Annual surge maxima		Z ₀ (OD)	Annual recovery rate
	Elevation (OD) (Surge)	Date/Time	Value (m)	Date/Time		
2009	3.40 (0.40)	09-Feb-2009 23:20	0.85	23-Jan-2009 08:00	0.222	99%
2010	3.46 (0.17)	30-Mar-2010 23:50	0.67	16-Dec-2010 18:10	0.253	98%
2011	3.41 (0.52)	28-Nov-2011 00:40	0.67	01-Dec-2011 23:10	0.230	98%
2012	3.54 (0.35)	17-Oct-2012 11:50	0.65	05-Jan-2012 18:50	0.227	100%
2013	3.83 (0.80)	06-Dec-2013 01:20	1.00	06-Dec-2013 02:40	0.238	98%
2014	-	-	-	-	-	0%
2015	-	-	-	-	-	0%
2016	3.40 (0.33)	17-Nov-2016 00:50	0.90	20-Nov-2016 04:30	-	27%
2017	3.19 (0.03)	08-Oct-2017 00:20	0.58	06-Jun-2017 01:10	-	58%
2018	3.28 (0.12)	07-Nov-2018 10:50	0.43	01-Dec-2018 10:30	-	71%

Tidal levels		
Observation period		
Tide Level	Elevation (OD)	Elevation (CD)
HAT	3.38	6.43
MHWS	2.80	5.85
MHWN	1.55	4.60
MSL	-	-
MLWN	-1.09	1.96
MLWS	-2.34	0.71
LAT	-3.01	0.04

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 tide levels were produced by Fugro GB Marine Limited.

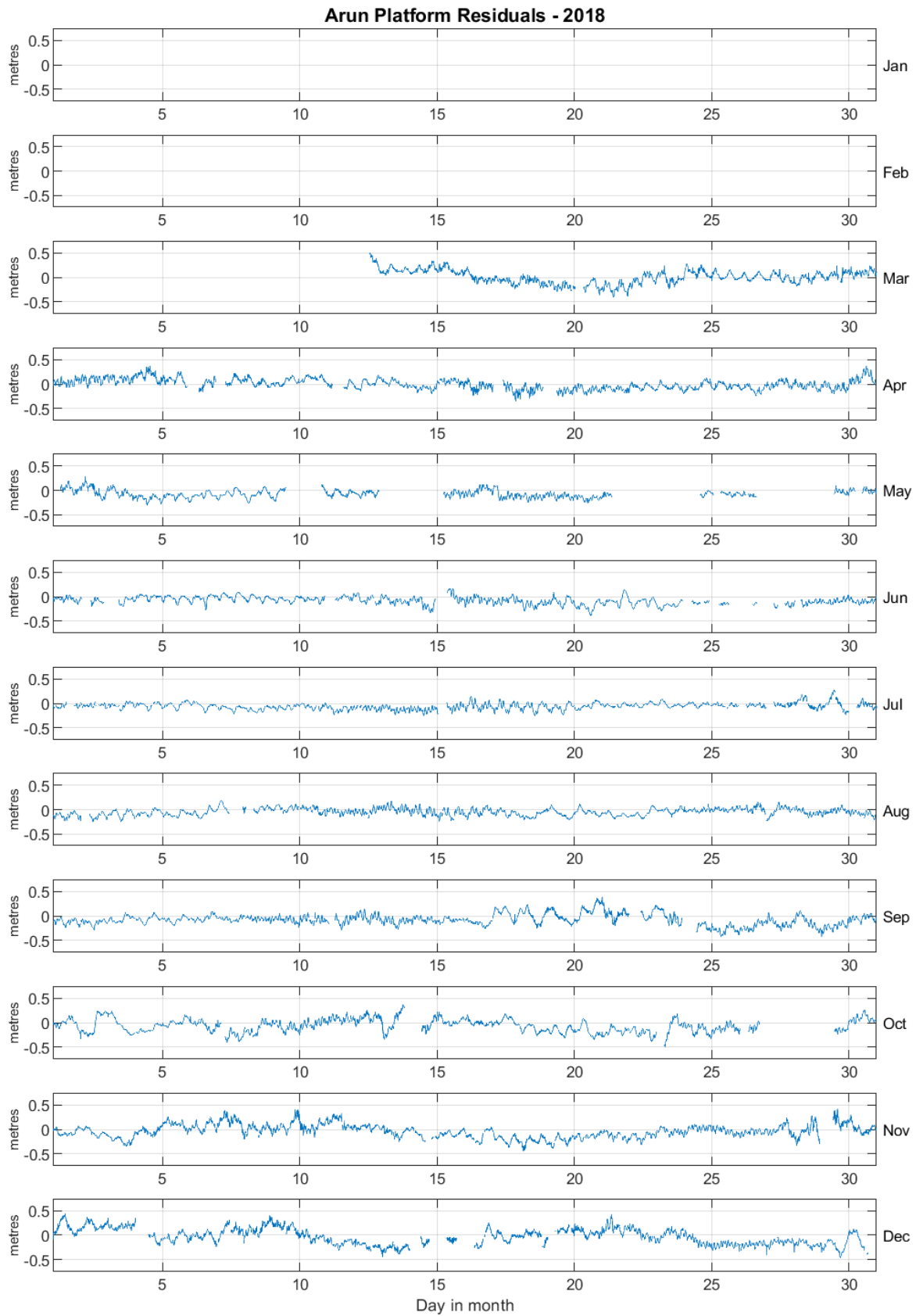


Figure 1: Arun Platform residuals for 2018

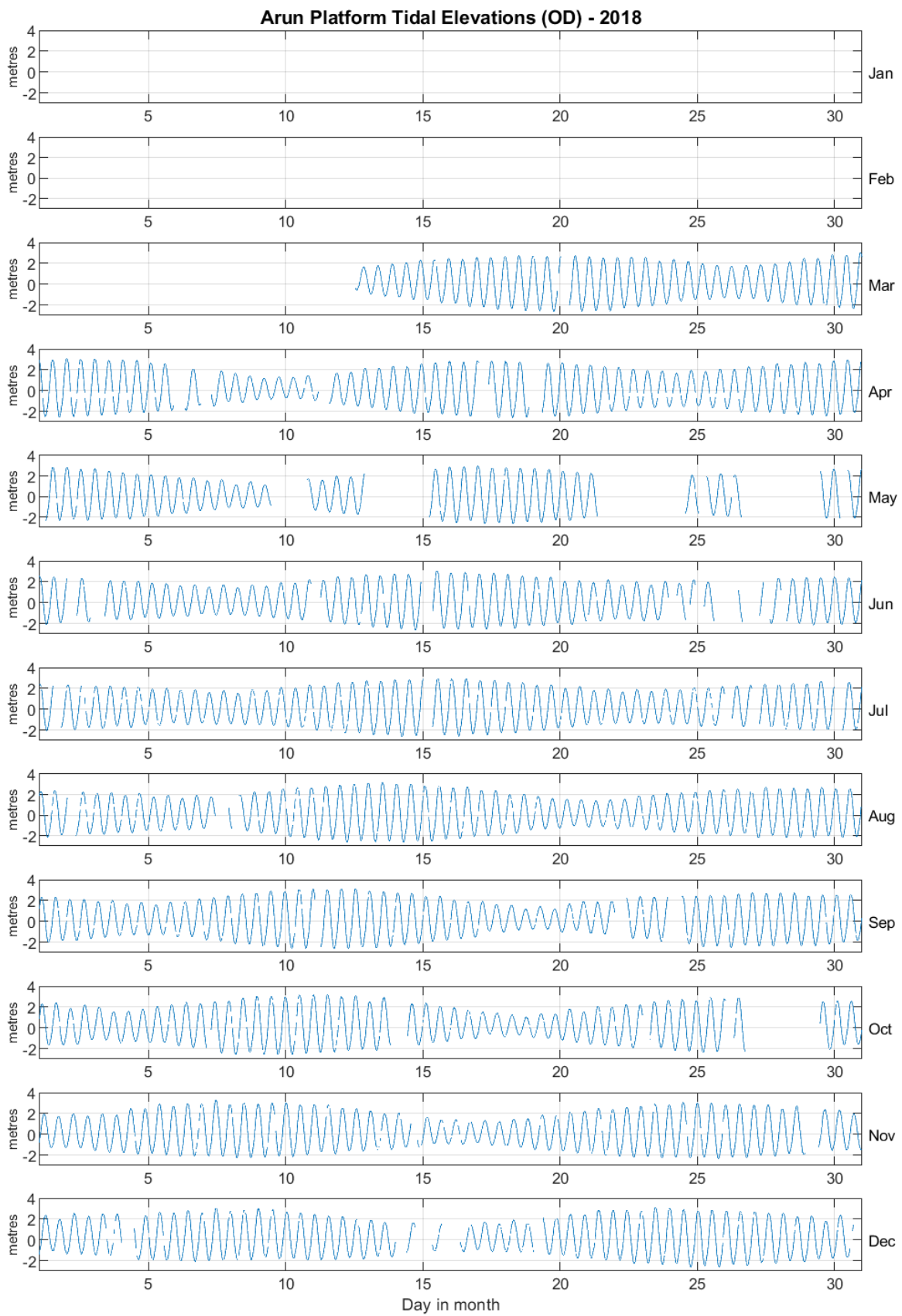


Figure 2: Arun Platform tidal elevations for 2018 relative to Ordnance Datum

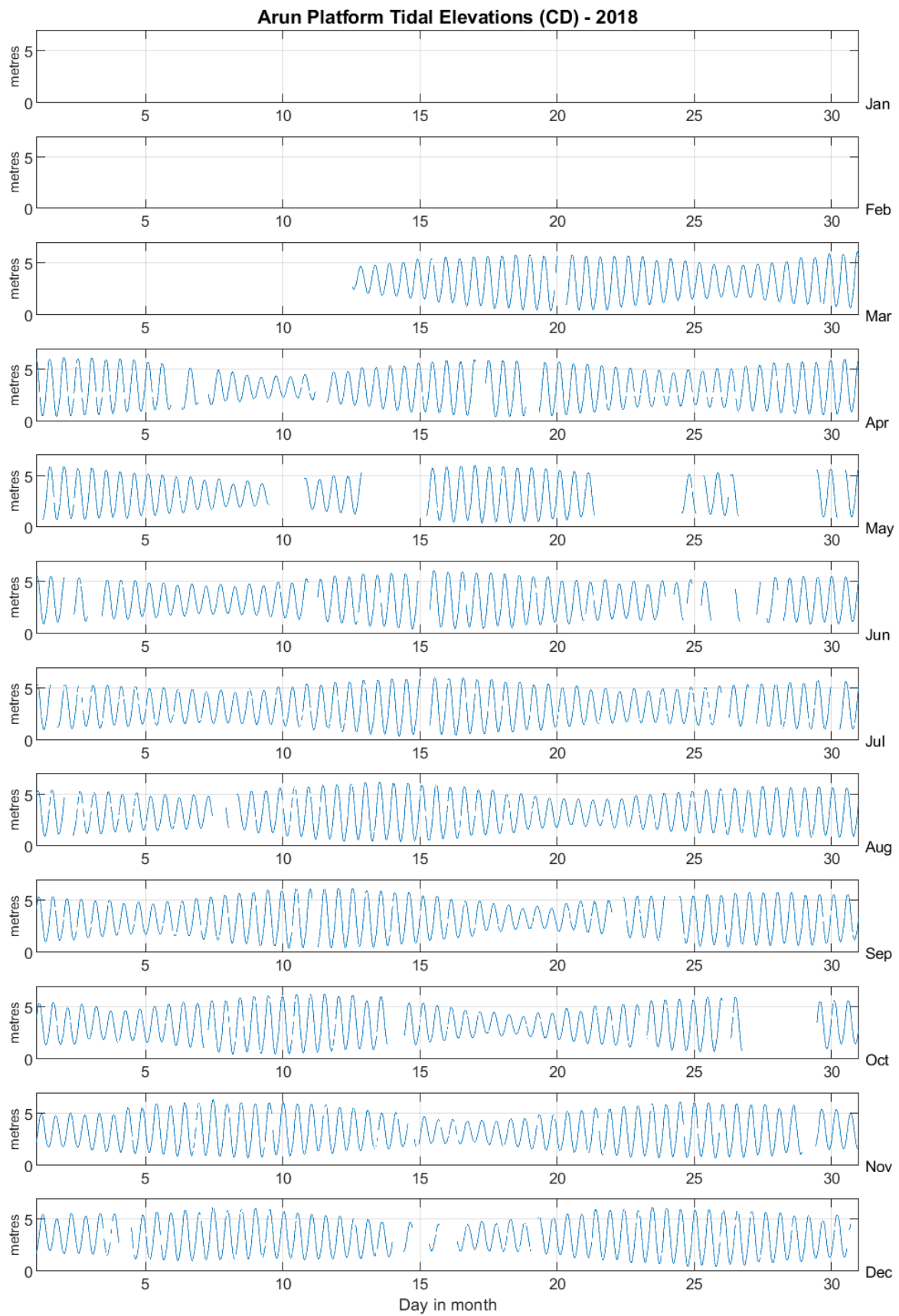


Figure 3: Arun Platform tidal elevations for 2018 relative to Chart Datum