

DRAFT Version 1.1

Standards for Digital Tide and Tidal Current Tables

The following is a list of fundamental attributes that digital tide prediction tables should have.

A. General Guidelines for all types of Digital Tide and Tidal Current Tables

- The issuing office should provide documentation on how to install or read the electronic tables. This information should be provided in either hardcopy written form (for example, on a separate sheet of paper or on the cover of a CD or other media), or electronically in a plain ASCII text 'readme.txt' type of file.
- The issuing office should provide its formal name, mailing address, web url and point of contact information on the cover of the media. It should also provide information anproducing the tables (including both address and website), information on how to obtain annual updates, and how to obtain interim updates or errata information.
- There should be a statement outlining minimum computer system requirements,
- There should be user license and/or condition of use information.
- There should be a statement concerning the standing of the digital tables as meeting the applicable maritime regulations, either SOLAS and/or local country carriage requirements.
- Information on how to obtain product support should be provided.

B. Digital Tide Tables

Digital tide predictions can follow one of two formats.

1. Scanned image of Tide Tables:

This format consists of scanned images of the paper tide tables. This format should have the following attributes.

- a. Should be a faithful reproduction of all the pages of printed tide tables.
- b. The images should be formatted in a widely available, common format. Examples formats include, but not limited to, PDF, tiff, Jpeg, Gif. If PDF files are provided, then information on how to download Adobe[®] Reader must be provided.
- c. If multiple books are published, then each book should be located within its own folder.
- d. No modification of the scanned images is permitted.

2. Electronically Generated Tide Predictions

a. Station Selection:

Can either be map based or list based, organized by water body

b. Station Information

Station Name

Body of Water Descriptor (if appropriate)

Station Number (as appropriate)

Latitude and Longitude (degrees:min:sec and tenths? or decimal equivalent using GIS convention with western and southern hemispheres as being negative latitude and longitude)

Location Map with nearby prediction stations identified.

c. Earth-Moon-Sun Astronomical Calendar Information (Tabular and/or integrated with graphical data output)

d. Sunrise/Sunset Calendar Information (Tabular and/or integrated with graphical data output)

e. Datum reference for all predicted data

Default Reference Datum is the Chart Datum used by the Country.

Ability to reference predictions to LAT if not the default Reference Datum.

Ability to reference predictions to other tidal datums (such as HAT, MHW, MSL) and user identified datum such as a national geodetic datum or other coastal engineering or threshold datums.

f. Data displays and tables in Metric or English units, with default depending upon country

g. Time Zone display with Local Standard Time as default, with user selected option for UTC/GMT , daylight savings time, etc.

h. Source of tidal predictions is provided via links to metadata information:

Harmonic Constants or Time and Range Correction to Reference Station

Dates of Harmonic Analyses time series used to create the set of Harmonic Constants used in the prediction.

Links to list of the Harmonic Constants used in the Prediction

Dates of the observations used to create tabular time and height corrections (for Table 2 or secondary port stations) to a reference Station.

i. Ability to obtain graphical and tabular output for desired time period (historical and into the future) for:

Time series at minimum 1- hour increments.

Times and heights of predicted high and low tides.

Time series plots non-harmonic stations using curve fit to times and heights of high and low waters

j. Ability to obtain output in common formats such as PDF, TXT, XML, CSV, S-112 single point formats

k. Links to text files that contain special warning notes explaining areas of anomalous tidal conditions, special datums, or tidal based hazards to navigations (dual high or low waters, tidal bores, river flow dependencies and river datums, frequent non-tidal conditions, etc..)

1. Estimates of uncertainty in the predicted times and heights of high and low waters.

3. Graphical Display of Electronic Tide Predictions

If the product contains graphical representations of tidal predictions, they should follow the following recommendations. The objective of these recommendations is not to prescribe specific graphical views but rather to identify common elements that transcend all types of graphs.

- a. All axes should be clearly labelled
- b. The default datum should be the same as chart datum for the location of the prediction
- c. The tidal height units default should be the same as the country's printed tables.
- d. The display should include station information (as defined above)
- e. The display should include information on the source authority organization.
- f. The display should have the option to view the tide prediction numerical values used to create the graphic.

C. Digital Tidal Currents Tables

Digital Tidal Current Tables can be in the same two formats as Tide Tables and many of the same requirements that apply to digital tide tables should pertain to tidal current tables.

1. Scanned image of Tidal Current Tables:

This format consists of scanned images of the paper tide tables. This format should have the following attributes.

- a. Should be a faithful reproduction of all the pages of printed tide tables.
- b. The images should be formatted in a widely available, common format. Examples formats include, but not limited to, PDF, tiff, Jpeg, Gif. If PDF files are provided, then information on how to download Adobe[®] Reader must be provided.
- c. If multiple books are published, then each book should be located within its own folder.
- d. No modification of the scanned images is permitted.

2. Electronically Generated Tidal Current Predictions

a. Station Selection:

Can either be map based or list based, organized by water body

b. Station Information

Station Name

Body of Water Descriptor (if appropriate)

Station Number (as appropriate)

Depth of prediction, with the descriptor that the depth is either from the surface down or from the bottom up.

Latitude and Longitude (degrees:min:sec and tenths? or decimal equivalent using GIS convention with western and southern hemispheres as being negative latitude and longitude)

Location Map with nearby prediction stations identified.

c. Earth-Moon-Sun Astronomical Calendar Information (Tabular and/or integrated with graphical data output)

d. Sunrise/Sunset Calendar Information (Tabular and/or integrated with graphical data output)

e. If applicable, Flood and ebb direction (True North) Datum reference for all predicted data

f. Data displays and tables in Metric or English units, with default depending upon country

g. Time Zone display with Local Standard Time as default, with user selected option for UTC/GMT , daylight savings time, etc.

h. Source of tidal predictions is provided via links to metadata information:
Harmonic Constants or Time and Range Correction to Reference Station
Dates of Harmonic Analyses time series used to create the set of Harmonic Constants used in the prediction.
Links to list of the Harmonic Constants used in the Prediction
Dates of the observations used to create tabular time and height corrections (for Table 2 or secondary port stations) to a reference Station.

i. Ability to obtain graphical and tabular output for desired time period (historical and into the future) for:
Time series at minimum 1- hour increments.
Times and heights of predicted high and low tides.
Time series plots non-harmonic stations using curve fit to times and heights of high and low waters

j. Ability to obtain output in common formats such as PDF, TXT, XML, CSV, S-112 single point formats

k. Links to text files that contain special warning notes explaining areas of anomalous current conditions, or tidal based hazards to navigations (e.g. tidal bores, river flow dependencies, frequent non-tidal conditions, etc..)

l. Estimates of uncertainty in the predicted times and heights of high and low waters.

3. Graphical Display of Electronic Tide Current Predictions

If the product contains graphical representations of tidal predictions, they should follow the following recommendations. The objective of these recommendations is not to prescribe specific graphical views but rather to identify common elements that transcend all types of graphs.

- g. All axes should be clearly labelled
- h. The default datum should be the same as chart datum for the location of the prediction
- i. The tidal height units default should be the same as the country's printed tables.
- j. The display should include station information (as defined above)
- k. The display should include information on the source authority organization.
- l. The display should have the option to view the tide prediction numerical values used to create the graphic.

USA - NOAA Example
Scanned Tide Table

80


Albany, New York, 2015

Times and Heights of High and Low Waters

January				February				March			
Time	Height	Time	Height	Time	Height	Time	Height	Time	Height	Time	Height
1 0048 5.1 155		16 0028 4.2 128		1 0214 5.2 158		16 0144 4.8 146		1 0102 5.4 165		16 0023 5.1 155	
0741 -0.3 -9		0706 0.4 12		0859 -0.1 -3		0743 0.5 15		0743 0.5 15		0715 0.8 27	
1317 5.3 168		1241 5.0 152		1435 5.4 165		1323 5.6 171		1324 5.5 168		1330 5.7 174	
2026 -0.4 -12		2006 0.4 12		2145 -0.3 -9		2127 0.1 3		2029 0.1 3		2006 0.7 21	
2 0142 5.1 155		17 0121 4.3 131		2 0302 5.2 158		17 0234 5.0 152		2 0153 5.5 168		17 0120 5.4 168	
0853 -0.2 -9		0820 0.3 9		0946 -0.1 -3		0853 0.1 3		0834 0.4 12		0817 0.6 18	
1407 5.5 168		1331 5.2 158		1510 5.4 165		1445 5.7 174		1413 5.6 171		1333 5.9 180	
2150 -0.4 -12		2101 0.2 6		2230 -0.3 -9		2217 -0.1 -3		2117 0.1 3		2095 0.5 15	
3 0233 5.1 155		18 0211 4.4 134		3 0348 5.2 158		18 0322 5.3 162		3 0241 5.6 171		18 0212 5.7 174	
0922 -0.3 -9		0858 0.1 3		1030 0.0 0		1027 -0.2 -6		0922 0.4 12		0915 0.3 9	
1454 5.6 171		1417 5.4 165		1526 5.6 171		1526 5.6 171		1457 5.6 171		1428 6.0 183	
2210 -0.5 -15		2153 0.0 0		2313 -0.2 -6		2302 -0.1 -3		2201 0.1 3		2150 0.3 9	
4 0321 5.1 155		19 0257 4.6 140		4 0431 5.1 155		19 0409 5.4 165		4 0325 5.7 174		19 0300 6.0 183	
1059 -0.2 -6		0952 -0.1 -3		1112 0.1 3		1119 -0.3 -9		1036 0.4 12		1009 0.1 3	
1538 5.5 168		1503 5.6 171		1640 5.3 162		1628 5.9 180		1538 5.6 171		1519 6.2 189	
2300 -0.4 -12		2243 -0.2 -6		2352 -0.1 -3		2353 -0.3 -9		2341 0.1 3		2299 0.1 3	
5 0408 5.0 152		20 0343 4.6 146		5 0513 5.1 155		20 0459 5.6 171		5 0406 5.7 174		20 0347 6.2 189	
1054 -0.1 -3		1044 -0.2 -6		1152 0.2 6		1211 -0.4 -12		1049 0.4 12		1102 -0.1 -3	
1631 5.4 165		1549 5.7 174		1718 5.2 158		1719 5.9 180		1617 5.5 168		1610 6.2 189	
2341 -0.3 -9		2331 -0.4 -12		2352 -0.1 -3		2353 -0.3 -9		2341 0.1 3		2328 0.1 3	
6 0454 4.9 149		21 0430 4.9 149		6 0529 0.0 0		21 0040 -0.3 -9		6 0444 5.6 171		21 0435 6.3 192	
1138 0.1 3		1136 -0.4 -12		1231 0.3 9		1300 0.3 -9		1190 0.4 12		1154 -0.1 -3	
1702 5.3 162		1639 5.7 174		1754 5.1 155		1815 5.8 177		1654 5.4 165		1702 6.1 186	
7 0022 -0.2 -6		22 0018 -0.5 -15		7 0104 0.2 6		22 0128 -0.2 -6		7 0520 5.6 171		22 0013 0.2 6	
0540 4.8 146		0520 5.0 152		0632 5.0 152		0642 5.6 171		1209 0.5 15		0923 6.3 192	
1246 0.2 6		1227 -0.4 -12		1310 0.5 15		1356 -0.2 -6		1728 5.3 162		1245 0.0 0	
1742 5.1 155		1730 5.7 174		1826 5.0 152		1913 5.6 171		1855 5.1 155		1756 6.0 183	
8 0103 0.0 0		23 0106 -0.5 -15		8 0127 0.3 9		23 0216 -0.1 -3		8 0027 0.5 15		23 0100 0.3 9	
0625 4.7 143		0612 5.1 155		0706 5.0 152		0739 5.6 171		0550 5.6 171		0615 6.2 189	
1255 0.4 12		1230 -0.4 -12		1350 0.6 18		1452 -0.1 -3		1249 0.6 18		1327 0.1 3	
1822 5.0 152		1830 5.6 171		1851 4.9 149		1851 4.9 149		1757 5.2 158		1853 5.8 177	
9 0141 0.1 3		24 0154 -0.5 -15		9 0208 0.4 12		24 0307 0.1 3		9 0058 0.6 18		24 0148 0.5 15	
0710 4.8 140		0706 5.2 158		0730 5.0 152		0837 5.6 171		0607 5.3 164		0710 6.1 186	
1334 0.5 15		1414 -0.4 -12		1434 0.7 21		1540 0.1 3		1330 0.7 21		1431 0.3 9	
1901 4.9 149		1931 5.5 168		1924 4.8 146		2111 5.4 165		1821 5.2 158		1951 5.7 174	
10 0219 0.2 6		25 0244 -0.4 -12		10 0240 0.1 3		25 0400 0.2 6		10 0139 0.7 21		25 0239 0.7 21	
0755 4.8 140		0806 5.2 158		0940 0.5 15		0927 5.5 168		0627 5.8 174		0607 5.9 180	
1416 0.6 18		1511 -0.3 -9		1526 0.8 24		1647 0.2 6		1414 0.8 24		1526 0.8 24	
1940 4.8 146		2032 5.4 165		2009 4.6 140		2210 5.3 162		1855 5.1 155		2049 5.6 171	
11 0256 0.3 9		26 0336 -0.3 -9		11 0320 0.5 15		26 0455 0.4 12		11 0202 0.8 24		26 0331 0.9 27	
0839 4.6 140		0904 5.3 162		0832 5.2 158		1034 5.4 165		0704 5.8 177		0606 5.8 177	
1503 0.7 21		1610 -0.2 -6		1627 0.9 27		1746 0.3 9		1504 1.0 30		1622 0.6 18	
2021 4.6 140		2132 5.2 158		2109 4.5 137		2309 5.2 158		1942 5.0 152		2147 5.5 168	
12 0334 0.4 12		27 0429 -0.3 -9		12 0413 0.7 21		27 0552 0.5 15		12 0245 0.9 27		27 0426 1.0 30	
0922 4.7 143		1002 5.3 162		1023 5.2 158		1123 5.4 165		0751 5.8 177		1005 5.6 171	
1559 0.9 24		1710 -0.1 -3		1733 0.9 27		1843 0.3 9		1602 1.1 34		1718 0.7 21	
2155 4.4 154		2221 5.1 155		2224 4.4 134				2041 4.9 149		2245 5.5 168	
13 0416 0.4 12		28 0524 -0.2 -6		13 0520 0.7 21		28 0007 5.3 162		13 0341 1.0 30		28 0522 1.1 34	
1006 4.7 143		1101 5.3 162		1029 5.2 158		0649 0.5 15		0644 5.8 177		1104 5.6 171	
1701 0.8 24		1810 -0.1 -3		1837 0.8 24		1231 5.4 165		1705 1.1 34		1814 0.8 24	
2220 4.3 131		2330 5.0 152		2348 4.4 134		1938 0.2 6		2201 4.9 149		2342 5.6 171	
14 0507 0.5 15		29 0620 -0.1 -3		14 0631 0.7 21		14 0453 1.1 34		14 0349 1.1 34		29 0619 1.2 37	
1806 0.8 24		1908 0.1 3		1938 0.6 18		1604 5.6 171		1506 5.6 171		1607 5.9 180	
2325 4.2 128		2008 0.2 6		2004 0.4 12		1746 0.3 9		1504 1.0 30		1957 0.6 18	
15 0605 0.5 15		30 0028 5.0 152		15 0050 4.5 137		15 0607 1.1 34		15 0607 1.1 34		30 0037 5.7 174	
1148 4.8 140		0715 -0.1 -3		0736 0.5 15		1110 5.6 171		1005 5.6 171		0714 1.1 34	
1908 0.7 21		1255 5.3 162		1256 5.4 165		1909 0.9 27		1909 0.9 27		1256 5.6 171	
		2004 -0.2 -6		2034 0.4 12						1346 5.7 174	
		31 0123 5.1 155		31 0128 5.9 180						2043 0.6 18	
		0808 -0.1 -3									
		1247 5.4 165									
		2057 -0.3 -9									

Time meridian 75° W. 0000 is midnight, 1200 is noon. Times are not adjusted for Daylight Saving Time. Heights are referred to mean low water during lowest river stages which is the chart datum of soundings.

UK Example



THE UNITED KINGDOM
HYDROGRAPHIC OFFICE
ADMIRALTY EASYTIDE

[PREDICT](#) | [ABOUT EASYTIDE](#) | [PRICING](#) | [FAQ](#) | [MY ACCOUNT](#)

Your EasyTide Prediction (free)


[View printer friendly prediction](#)

Bridlington, England

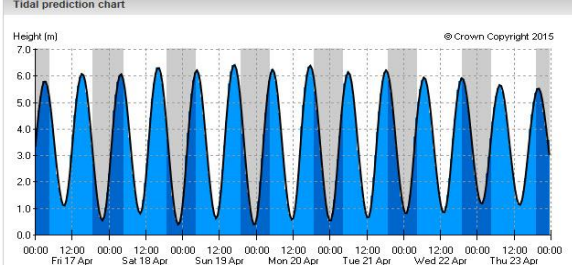
Port predictions (Standard Local Time) are equal to UTC

Start Date: Today - Friday 17th April 2015 (Standard Local Time)

Duration: 7 days



Tidal prediction chart



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Note: the date shown underneath 12:00 on any given day is applicable to the previous and next periods of 12 hours

Fri 17 Apr				Sat 18 Apr				Sun 19 Apr			
HW	LW	HW	LW	HW	LW	HW	LW	HW	LW	HW	LW
03:05	09:19	15:15	21:49	03:51	10:07	16:01	22:36	04:34	10:53	16:46	23:20
6.8 m	1.1 m	6.1 m	0.6 m	6.1 m	0.8 m	6.3 m	0.4 m	6.2 m	0.6 m	6.4 m	0.4 m

Adjust chart time axis

Daylight saving:

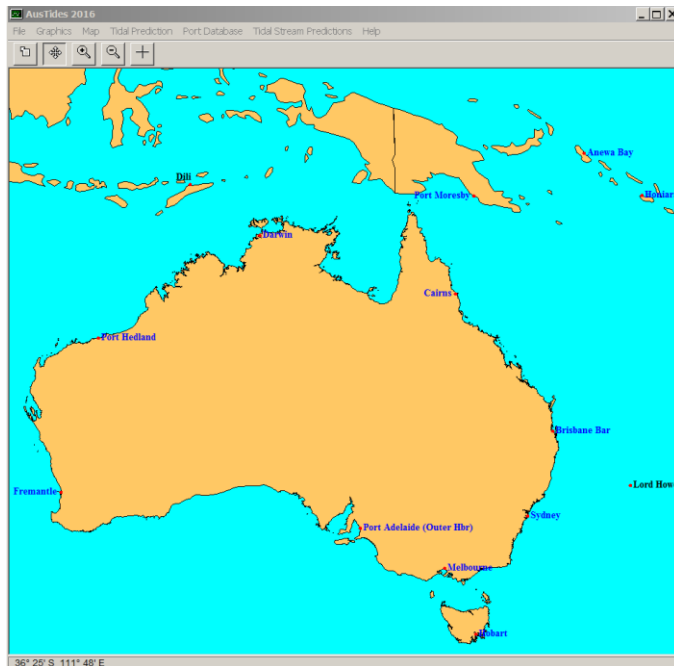
Max graph size:

Daylight Saving Warning

EasyTide predictions are based on the standard time of the country concerned. For the UK this is GMT (which is in force from 02:00 am on the last Sunday in October until 01:00am on the last Sunday in March). The specific dates of the Sundays in October and March for the next three years can be found on the directgov website at <http://www.direct.gov.uk/en/index.htm>

The "Daylight saving" drop-down box in the top right-hand corner of the screen can be used to convert the predicted times to "Daylight Saving Time". In the UK this is known as British Summer Time (BST) and is one hour later than GMT. Therefore BST applies to dates and times outside those mentioned above.

Australian Example



BRISBANE BAR

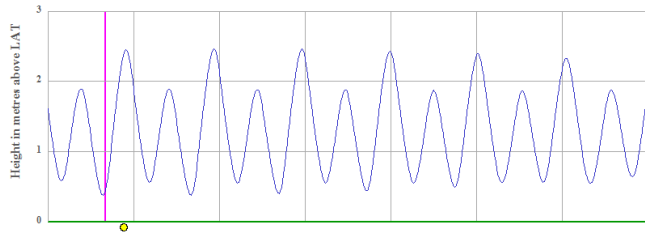
Local Standard
Time Zone: -10:00 U.T.

27° 22' S 153° 10' E

PREDICTION DATUM below MSL: 1.31 (m)

Year 2016

Port 59980



16:00 0.4m

Jun 20 Mo		21 Tu		22 We		23 Th		24 Fr		25 Sa		26 Su	
Time	m	Time	m	Time	m	Time	m	Time	m	Time	m	Time	m
0343	0.6	0423	0.6	0503	0.5	0543	0.5	0624	0.5	0024	2.4	0109	2.3
0911	1.9	0951	1.9	1032	1.9	1115	1.9	1200	1.9	0707	0.5	0755	0.5
1520	0.4	1557	0.4	1635	0.4	1713	0.4	1755	0.5	1250	1.9	1347	1.9
2150	2.4	2227	2.5	2304	2.5	2343	2.4			1843	0.6	1939	0.6



Moon phases supplied by Sydney Observatory

No account is taken of Daylight Saving Time

These predictions are identical to those published in ANTT and can thus be used as an official navigational publication
 Prediction Datum is LAT, which may not be Chart Datum. Correction to Chart Datum can be found at:
 Level / To Chart Datum Corrections and Zero of Predictions Window
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