

TITLE	Reference	Last amendment (CL or IHC)	1 st Edition Reference
Digital Tide and Tidal Current Tables.	XX/1919 as amended	Draft	Ver 2.0

NOTE: Items in red still need clarification and approval by the working group members.

1 It is resolved that member Hydrographic Organizations (HO) may choose to publish their tide and tidal current tables in either paper format or digitally. If digitally, they can be distributed either through the HO's web site, or representative complement or via portable media such as a DVD.

General Guidelines for Digital Tide and Tidal Current Tables

2 It is resolved that digital tide and tidal current tables should adhere to all the same requirements as existing paper tide and tidal current tables as specified in IHO Programme 2 "Hydrographic Services and Standards" Section 2.2 – Tides and Water Levels

3 It is resolved that the issuing office should provide documentation on how to install or read the electronic tables, minimum computer specifications how to obtain product support and general information on the Digital Tide and Tidal Current Tables. This information should be provided in either hardcopy written form (for example, on a separate sheet of paper or on the cover of the disk or other media), or electronically in a plain ASCII text 'readme.txt' type of file. This file should also include user license and/or condition of use information.

4 It is resolved that 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 on the production of the tables (including both address and website), information on how to obtain annual updates, and how to obtain interim updates or errata information.

5 It is resolved that the digital tide and tidal current tables should include a statement concerning the standing of the digital tables as meeting the applicable maritime regulations, either SOLAS and/or local country carriage requirements.

Formats for Digital Tide and Tidal Current Tables

6 It is resolved that there shall be two allowable formats for digital tide and tidal current tables.

A. Scanned Images of Tide and Tidal Current Tables: This format consists of scanned images of the paper tide tables. This format should have the following attributes.

B. Electronically generated Tide and Tidal Current Predictions: This format consists of software and a user interface that calculates tide and tidal current predictions from stored harmonic constituents or time and range offsets.

Detailed Specifications for Digital Tide Tables – Scanned Images of Tide Tables:

7 It is resolved that Scanned Images of Tide Tables should follow the following specifications.

- 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 and clearly identified.
- d. No modification of the scanned images is permitted by users.

Detailed Specifications for Digital Tide Tables – Electronically Generated Tide Predictions

8 It is resolved that Electronically Generated Tide Predictions should follow the following specifications:

- a. Station Selection: It is recommended that station selections can either be map based or list based, and should be organized by water body.
- b. Station Information: It is recommended that the following information be included with each station;
Station Name and Number (or ID) as appropriate
Body of Water Descriptor (if 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**)
Horizontal and Vertical Datum convention
Location Map with nearby prediction stations identified
URL to station or data portal.
- c. It is recommended that Earth-Moon-Sun Astronomical Calendar Information (Tabular and/or integrated with graphical data output) be included.
- d. It is recommended that Sunrise/Sunset Calendar Information (Tabular and/or integrated with graphical data output)
- e. It is recommended that the default reference datum is the Chart Datum used by the Country furthermore, it is recommended that the user have the ability to reference predictions to other tidal datums supported by the HO (such as LAT, HAT, MHW, MSL) and user identified datums such as a national geodetic or ellipsoidal datum or other coastal engineering or threshold datums that are pertinent.
- f. It is recommended that data displays and tables can be toggled to both in Metric or English units, with default depending upon country
- g. It is recommended that the time displayed is the legal local time as default, with user selected option for UTC/GMT, daylight savings time, etc. Legal time includes daylight savings time if applicable. Furthermore, when time zone information is

displayed it should follow the convention that negative time zone offsets are used for east longitude and positive offsets for west longitude.

- h. It is recommended that the following tide prediction source metadata information be provided;
Harmonic Constituents or Time and Range Correction to Reference Station,
Dates of Harmonic Analyses time series used to create the set of Harmonic Constituents used in the prediction,
Dates of the observations used to create time and height corrections (for nonharmonic based predictions) to a reference Station,
Links to the list of the Harmonic Constituents used in the Prediction. Furthermore, the display of the Harmonic Constituents should adhere to the IHO [National Tidal Constituent Banks Resolution 2/1977 as amended 42/2000 A6.8](#)
The name of the Harmonic Analysis program used to generate the harmonic constituents.
- i. **It is recommended that the HO provide and display tidal sea level amplitude prediction with a minimum of 4 decimals precision (for metric system) if possible.**
- j. It is recommended that users have the ability to obtain output in common formats such as PDF, TXT, XML, CSV, S-112 single point formats
- k. It is recommended that additional information be provide special warning 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..)
- l. It is recommended, when applicable, that estimates of uncertainty in the predicted times and heights of high and low waters be provided to users.

Detailed Specifications for Graphical Display of Electronic Tide Predictions

9 It is resolved that the predictions have the ability to obtain graphical and tabular output for desired time period (either historical and into the future) and should contain the following attributes with the objective not to prescribe a specific graphical view but rather to identify common elements that transcend all types of graphs:

- a It is recommend that the predictions can be displayed as discrete points or a continuous curve using a curve fit routine to times and heights of high and low waters or to the time series values.
- b It is recommended that all axes should be clearly labelled
- c It is recommended that time series data should have a minimum, 1- hour increments
- d It is recommended that times and heights of predicted high and low tides should be provided
- e It is recommended that the default datum should be the same as chart datum for the location of the prediction

f It is recommended that the tidal height units default should be the same as the HO's printed tables

g It is recommended that the display should include station information (as defined above)

h It is recommended that the display include the name and/or the insignia of the source authority organization

i It is recommended that the display should have the option to view the tide prediction numerical values used to create the graphic.

j It is recommended that the display of the graphical data should be able to be adjusted to suit daytime, twilight, and night time viewing

Detailed Specifications for Digital Tidal Current Tables

10 It is resolved that Digital Tidal Current Tables can be in the same two formats as Digital Tide Tables and the same requirements that apply to digital tide tables pertain to tidal current tables.

11 It is resolved that electronically generated Tidal Current Predictions do have additional specifications as identified:

a It is recommended that the depth of prediction be included in the metadata and include a the descriptor that the depth is either from the surface down or from the bottom up

b It is recommended, if applicable, flood and ebb current direction (referenced to True North) be presented.

c It is recommended that for graphical display of tidal currents the default speed units should be knots

d It is recommended that for graphical display of tidal currents the default direction units should be degrees (referenced to true north).

Below are examples of Digital Tide Tables. I do not know if they can be included in the IHO Resolution.

USA - NOAA Example
Scanned Tide Table

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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
0048 5.1 155		0026 4.2 128		0214 5.2 158		0144 4.8 146		0102 5.4 165		0023 5.1 155	
0741 -0.3 -9	F	0705 0.4 12	Su	0889 -0.1 -3	M	0898 0.3 9	W	0743 0.5 15	M	0715 0.9 27	W
1317 5.3 168		1417 5.4 165		1455 5.4 168		1532 5.6 171		1412 5.6 171		1200 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	
0142 5.1 155	F	0121 4.3 131	Sa	0302 5.2 158	Tu	0234 5.0 152	W	0153 5.5 168	Th	0120 5.4 165	Fr
0853 -0.3 -9		0803 0.1 3		0946 -0.1 -3		0933 0.1 3		0854 0.4 12		0817 0.6 18	
1407 5.3 168		1331 5.2 158		1510 5.4 165		1445 5.7 174		1412 5.6 171		1333 5.9 180	
2150 -0.4 -12		2101 0.2 6		2250 -0.3 -9		2217 -0.1 -3		2117 0.1 3		2059 0.5 15	
0233 5.1 155	F	0211 4.4 134	Sa	0348 5.2 158	Tu	0322 5.3 162	W	0241 5.6 171	Th	0212 5.7 174	Fr
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 5.8 171		1417 5.4 165		1600 5.4 165		1535 5.9 180		1457 5.6 171		1428 6.0 183	
2150 -0.5 -15		2155 0.0 0		2313 -0.2 -6		2306 -0.2 -6		2201 0.1 3		2150 0.3 9	
0321 5.1 155	F	0257 4.6 140	Sa	0431 5.1 155	Tu	0409 5.4 165	W	0325 5.7 174	Th	0300 6.0 183	Fr
1009 -0.2 -6		0952 -0.1 -3		1112 0.1 3		1119 -0.3 -9		1036 0.4 12		1008 0.1 3	
1538 5.5 168		1503 5.6 171		1640 5.3 162		1626 5.9 180		1538 5.6 171		1519 6.2 189	
2256 -0.4 -12		2243 -0.2 -6		2352 -0.1 -3		2353 -0.3 -9		2241 0.1 3		2239 0.1 3	
0408 5.0 152	F	0345 4.8 146	Sa	0513 5.1 157	Tu	0468 5.6 171	W	0406 5.7 174	Th	0367 6.2 189	Fr
1054 -0.1 -3		1044 -0.2 -6		1152 0.2 6		1211 -0.4 -12		1049 0.4 12		1102 -0.2 6	
1621 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		2321 -0.4 -12		0029 0.0 0		0040 -0.3 -9		0044 5.6 171		0035 6.3 192	
0454 4.9 149	F	0430 4.9 149	Sa	0550 5.0 152	Tu	0549 5.6 171	W	0444 5.6 171	Th	0435 6.3 192	Fr
1136 0.1 3		1136 -0.4 -12		1231 0.2 6		1232 -0.3 -9		1130 0.4 12		1154 -0.1 -3	
1702 5.3 162		1659 5.7 174		1823 5.0 152		1913 5.0 171		1854 5.4 165		1702 6.1 186	
0022 -0.2 -6		0018 -0.5 -15		0104 0.2 6		0128 -0.2 -6		0020 5.6 171		0019 0.2 6	
0540 4.8 146		0520 5.0 152		0632 5.0 152		0642 5.6 171		0520 5.6 171		0525 6.5 192	
1248 0.2 6		1227 -0.4 -12		1310 0.5 15		1356 -0.2 -6		1228 5.3 162		1245 0.0 0	
1742 5.1 155		1730 5.7 174		1826 5.0 152		1913 5.0 171		1728 5.3 162		1756 6.0 183	
0103 0.0 0		0106 -0.5 -15		0157 0.3 9		0216 -0.1 -3		0027 0.5 15		0100 0.3 9	
0626 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		1320 -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		1931 4.9 149		2012 5.5 168		1757 5.2 158		1853 5.8 177	
0141 0.1 3	F	0154 -0.5 -15	Sa	0208 0.4 12	Tu	0307 0.1 3	W	0058 0.6 18	Th	0148 0.5 15	Fr
0710 4.8 146		0708 5.2 158		0730 5.0 152		0827 5.8 171		0607 5.7 174		0710 6.1 186	
1334 0.5 15		1414 -0.4 -12		1434 0.7 21		1549 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		1901 5.7 174	
0219 0.2 6	F	0244 -0.4 -12	Sa	0340 0.5 15	Tu	0400 0.2 6	W	0129 0.7 21	Th	0238 0.7 21	Fr
0752 4.8 146		0736 5.2 158		0826 5.2 158		0922 5.3 168		0727 5.8 177		0807 5.9 180	
1416 0.6 18		1511 -0.3 -9		1526 0.8 24		1647 0.2 6		1414 0.8 24		1526 0.5 15	
1940 4.8 146		1932 5.4 165		2009 4.6 140		2210 5.3 162		1855 5.1 165		2046 4.6 171	
0126 0.3 9	F	0336 -0.3 -9	Sa	0320 0.5 15	Tu	0455 0.4 12	W	0202 0.8 24	Th	0331 0.9 27	Fr
0839 4.6 140		0904 5.3 162		0832 5.2 158		0934 5.4 165		0704 5.8 177		0806 5.8 177	
1503 0.7 21		1510 0.3 -9		1627 0.9 27		1746 0.3 9		1504 1.0 20		1625 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	
0334 0.4 12	F	0429 -0.3 -9	Sa	0413 0.7 21	Tu	0552 0.5 15	W	0245 0.9 27	Th	0426 1.0 30	Fr
0922 4.7 143		0922 5.2 158		1023 0.9 27		1133 5.4 165		0711 5.8 177		0825 5.6 171	
1559 0.8 24		1710 -0.1 -3		1723 0.9 27		1843 0.3 9		1602 1.1 34		1718 0.7 21	
2145 4.9 154		2231 5.1 155		2234 4.4 134				1904 1.0 20		2045 5.5 168	
0416 0.4 12	F	0524 -0.2 -6	Sa	0520 0.7 21	Tu	0607 5.3 162	W	0341 1.0 30	Th	0522 1.1 34	Fr
1036 4.7 143		1101 5.3 162		1029 5.2 158		1146 0.5 15		0844 5.8 177		1044 5.6 171	
1701 0.8 24		1810 -0.1 -3		1837 0.8 24		1938 0.2 6		1705 1.1 34		1814 0.8 24	
2305 4.3 131		2330 5.0 152		2348 4.4 134				2201 4.9 149		2242 5.8 171	
0507 0.5 15	F	0620 -0.1 -3	Sa	0631 0.7 21	Tu	0831 5.2 158	W	0453 1.1 34	Th	0619 1.2 37	Fr
1055 4.8 146		1158 5.3 162		1050 5.2 158		1146 5.6 171		0847 5.6 171		0925 5.9 180	
1636 0.9 24		1608 0.1 -3		1698 0.6 18				1506 1.1 34		1607 0.7 21	
2325 4.2 128								2318 4.9 149			
0505 0.5 15	F	0528 5.0 152	Sa	0650 4.5 137	Tu	0798 0.5 15	W	0607 1.1 34	Th	0397 5.7 174	Fr
1148 4.9 149		0715 -0.1 -3		0798 0.5 15		0854 5.9 180		1110 5.6 171		0714 1.1 34	
1908 0.7 21		1955 5.3 162		2054 5.4 165		2054 5.4 165		1909 0.9 27		1256 5.6 171	
		2094 -0.2 -6		2054 5.4 165		2054 5.4 165				1945 5.7 174	
		2057 -0.3 -9								2043 0.6 18	

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.

UKHO Example

**THE UNITED KINGDOM
HYDROGRAPHIC OFFICE
ADMIRALTY EASYTIDE**

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

Your EasyTide Prediction (free)

[View printer friendly prediction](#)

Briddington, England

Port predictions (Standard Local Time) are equal to UTC

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

Duration: 7 days

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
5.8 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: ▼

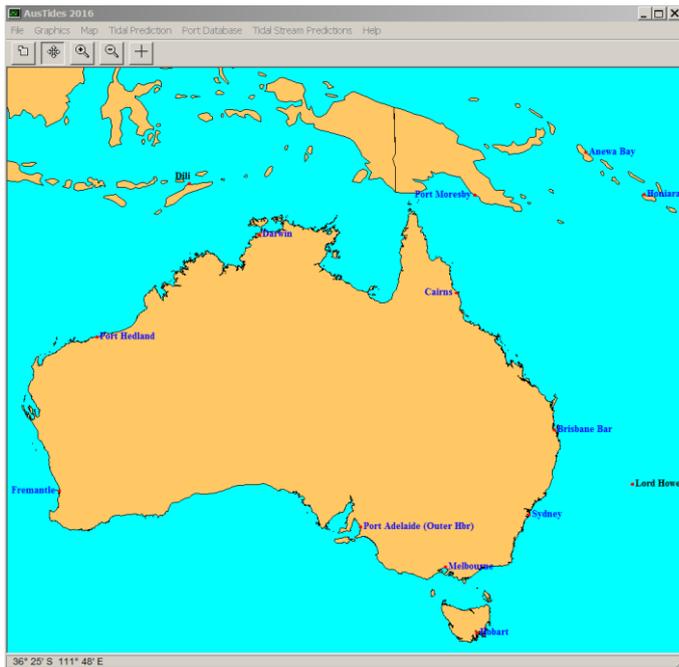
Max graph size: ▼

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

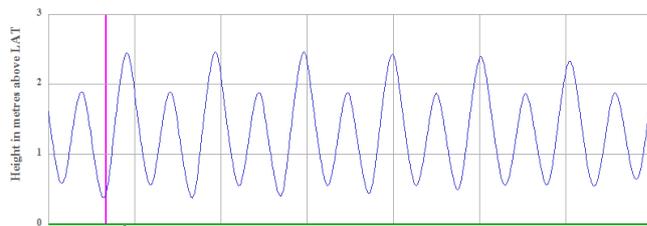


BRISBANE BAR

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

27° 22' S 153° 10' E

PREDICTION DATUM below MSL: 1.31 (m)



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

Year 2016

Port 59980



16:00 0.4m



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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Example from SHOM (France)

Select harbor

Search harbor



Close the map

Select harbor

Search harbor

Show the map

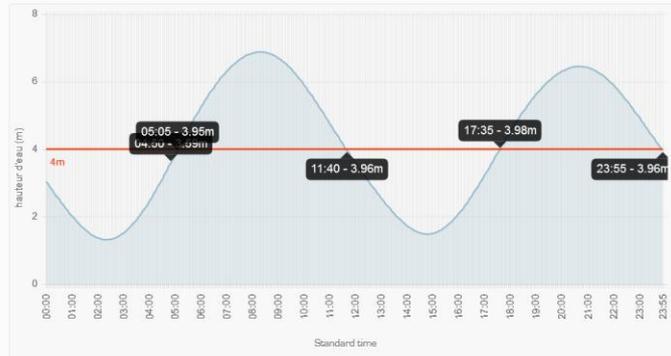
Brest (France)

Coordinates : 048° 23' 00.0" N, 004° 30' 00.0" W

Tides tables | Water level by hour | Tides coefficient

05/02/2018 S_Time

Monday February 5, 2018				Tuesday February 6, 2018			Wednesday February 7, 2018			Thursday February 8, 2018					
	Hour	Height	Coefficient	Hour	Height	Coefficient	Hour	Height	Coefficient	Hour	Height	Coefficient			
LW	02:20	1.31	—	LW	03:03	1.74	—	LW	03:49	2.20	—	LW	04:42	2.62	—
HW	08:18	6.88	85	HW	08:59	6.40	71	HW	09:45	5.91	56	HW	10:41	5.48	43
LW	14:46	1.49	—	LW	15:30	1.99	—	LW	16:19	2.45	—	LW	17:17	2.91	—
HW	20:41	6.45	78	HW	21:24	6.02	63	HW	22:16	5.62	49	HW	23:21	5.34	39



You can display the water level to a given hour [Water level option] or the hours according to a threshold [Threshold option].
 Click on the chart to put a line (keep the mouse pressed to move the line) or enter a value in the following field

Water level
 Threshold
 None