

Form for semi-diurnal tides

Step	Instruction – semi-diurnal tides
1	Obtain predicted times and heights of HW and LW at the standard port. Enter them in Box 1 (times) and 2 (heights).
2	Obtain MSL and spring levels for the standard port. Enter them in Box 3 (MSL) and Box 4 (MHWS and MLWS).
3	Subtract the MLWS value from that of MHWS for the standard port. Enter the result in Box 5 (levels range).
4	Subtract the MSL value for the standard port in Box 3 from the height predictions in Box 2. Enter results in Box 6. The HW column should have positive values. The LW column should have negative values.
5	Obtain data for the secondary port. Enter the mean time difference in Box 7, the MSL in Box 8, the MHWS and MLWS in Box 9.
6	Subtract the MLWS value from that of MHWS for the secondary port. Enter the result in Box 10 (levels range).
7	Obtain the range ratio by dividing the secondary port levels range in Box 10 by the standard port in Box 5. Enter the result in Box 11.
8	Multiply the figures in Box 6 by the range ratio in Box 11. Enter the corresponding products in Box 12.
9	Obtain the correction to CD and enter in Box 13.
10	Add the mean time difference for the secondary port in Box 7 to all predicted times for the standard port in Box 1. Enter the results in Box 14. These are the times of high and low water for the secondary port.
11	Add the values in Box 12 and Box 13 to the MSL value for the secondary port in Box 8. Enter the results in Box 15. These are the heights of high and low water for the secondary port.

Standard Port Data	(1) Time		(2) Height		(3) MSL	(4) Levels		(5) Levels Range
	HW	LW	HW	LW		MHWS	MLWS	
(6) Predicted Height - MSL (2) - (3)								
Secondary Port Data	(7) Mean Time Difference				(8) MSL	(9)		(10) Levels Range MHWS - MLWS
						MHWS	MLWS	
(12) Calculation (6)*(11)								(11) Range Ratio (10) / (5)
(13) To Chart Datum								
Secondary Port Results	(14) Time (1) + (7)		(15) Height (8)+(12)+(13)					

Form for diurnal tides

Step	Instruction – diurnal tides
1	Obtain predicted times and heights of HW and LW at the standard port. Enter them in Box 1 (times) and 2 (heights).
2	Obtain MSL and spring levels for the standard port. Enter them in Box 3 (MSL) and Box 4 (MHHW and MLLW).
3	Subtract the MLLW value from that of MHHW for the standard port. Enter the result in Box 5 (levels range).
4	Subtract the MSL value for the standard port in Box 3 from the height predictions in Box 2. Enter results in Box 6. The HW column should have positive values. The LW column should have negative values.
5	Obtain data for the secondary port. Enter the mean time difference in Box 7, the MSL in Box 8, the MHHW and MLLW in Box 9.
6	Subtract the MLLW value from that of MHHW for the secondary port. Enter the result in Box 10 (levels range).
7	Obtain the range ratio by dividing the secondary port levels range in Box 10 by the standard port in Box 5. Enter the result in Box 11.
8	Multiply the figures in Box 6 by the range ratio in Box 11. Enter the corresponding products in Box 12.
9	Obtain the correction to CD and enter in Box 13.
10	Add the mean time difference for the secondary port in Box 7 to all predicted times for the standard port in Box 1. Enter the results in Box 14. These are the times of high and low water for the secondary port.
11	Add the values in Box 12 and Box 13 to the MSL value for the secondary port in Box 8. Enter the results in Box 15. These are the heights of high and low water for the secondary port.

Standard Port Data	(1) Time		(2) Height		(3) MSL	(4) Levels		(5) Levels Range
	HW	LW	HW	LW		MHHW	MLLW	
(6) Predicted Height - MSL (2) - (3)								
Secondary Port Data	(7) Mean Time Difference				(8) MSL	(9)		(10) Levels Range
						MHHW	MLLW	
(12) Calculation (6)*(11)								(11) Range Ratio (10) / (5)
(13) To Chart Datum								
Secondary Port Results	(14) Time (1) + (7)		(15) Height (8)+(12)+(13)					

Example 1 – Secondary Port – Semi-diurnal Tides

Find the times and heights of HW and LW at 'secondary port' (predominantly semi-diurnal area) on 1 February (Note that the data used for this example does not refer to the year of these tables nor to any particular port).

Extract from secondary ports table:

AUSTRALIA - QUEENSLAND													
2020													
PORT No.	PORT NAME	GEOGRAPHICAL POSITION		MEAN TIME DIFFERENCE	TIDAL LEVELS (metres, ref. to LAT)						To CHART DATUM (m)	SOURCE	Remarks See page
					HAT	MHWS	MHWN	MSL	MLWN	MLWS			
91000	STANDARD PORT	10° 28'S	142° 26' E	TZ -1000 (EST)	8.1	6.8	5.1	4.09	3.1	1.5	NA	STANDARD PORT	o
91111	SECONDARY PORT	10° 10'S	142° 31'E	+0015	7.2	6.1	4.6	3.88	3.2	1.7	0.0	HYDRO 1941 MSQ	

Extract from standard ports table for required day:

	FEBRUARY	
	Time	m
1	0338	5.8
	0958	3.7
SA	1441	5.2
	2121	0.9

Complete the calculation form for semi-diurnal tides:

Standard Port Data	(1) Time		(2) Height		(3) MSL	(4) Levels		(5) Levels Range
	HW	LW	HW	LW		MHWS	MLWS	
		0338 1441	0958 2121	5.8 5.2	3.7 0.9	4.1	6.8	1.5
(6) Predicted Height - MSL (2) - (3)			1.7 1.1	-0.4 -3.2				
Secondary Port Data	(7) Mean Time Difference				(8) MSL	(9)		(10) Levels Range
					MHWS	MLWS	MHWS - MLWS	
	+0015				3.9	6.1	1.7	4.4
(12) Calculation (6)*(11)			1.4	-0.3				(11) Range Ratio (10) / (5)
			0.9	-2.7				0.83
(13) To chart datum			-0.2					
Secondary Port Results	(14) Time (1) + (7)		(15) Height (8)+(12)+(13)					
	0353	1013	5.1	3.4				
	1456	2136	4.6	1.0				

Example 2 – Secondary Port – Diurnal Tides

Find the times and heights of HW and LW at 'secondary port' (predominantly semi-diurnal area) on 1 April.
(Note that the data used for this example does not refer to the year of these tables nor to any particular port).

Extract from secondary ports table:

AUSTRALIA - QUEENSLAND												
2020												
PORT No.	PORT NAME	GEOGRAPHICAL POSITION		MEAN TIME DIFFERENCE	TIDAL LEVELS (metres, ref. to LAT)							TO CHART DATUM (m)
					HAT	MHHW	MLHW	MSL	MHLW	MLLW		SOURCE
92000	STANDARD PORT	20° 30' S	140° 50' E	TZ -1000 (EST)	1.9	1.5	1.0	0.90	0.7	0.2	NA	STANDARD PORT
92222	SECONDARY PORT	19° 4' S	139° 10' E	-0120	2.0	1.7	1.1	1.01	0.9	0.2	0.4	HYDRO 1941 MSQ

Extract from standard ports table for required day:

	APRIL	
	Time	m
1	0246	1.8
	0918	0.4
SA	1512	1.4
	2050	0.5

Complete the calculation form for diurnal tides:

Standard Port Data	(1) Time		(2) Height		(3) MSL	(4) Levels		(5) Levels Range
	HW	LW	HW	LW		MHHW	MLLW	
		0246 1512	0918 2050	1.8 1.4	0.4 0.5	0.9	1.5	0.2
(6) Predicted Height - MSL (2) - (3)			0.9 0.5	-0.5 -0.4				
Secondary Port Data	(7) Mean Time Difference				(8) MSL	(9)		(10) Levels Range
						MHHW	MLLW	
	-0120				1.0	1.7	0.2	1.5
(12) Calculation (6)*(11)			1.0	-0.6				
			0.6	-0.5				
(13) To Chart Datum			+0.4					
Secondary Port Results	(14) Time (1) + (7)		(15) Height (8)+(12)+(13)					
	0126	0758	2.4	0.8				
	1352	1930	2.0	0.9				