

# TIDES: HOURLY HEIGHTS

DEPARTMENT OF NATIONAL DEFENSE  
BUREAU OF COAST AND GEODETIC SURVEY

Station Msnits Year 1953  
 Observer M. Madrigal Lat. 16° 31' N Long. 120° 15' E  
 Time Meridian 120° E Height datum is T20(1401) which is 5.34 m. below B. M. 426

MONTH AND DAY	Month	Day	Month	Day	Month	Day	Month	Day	Month	Day	Month	Day	HORI- ZONTAL SUM
	July	15	16	17	18	19	20	21					
DAY OF SERIES	196	200	206	207	208	208	208	208	208	208	208	208	
Hour	Meters	Meters	Meters	Meters	Meters	Meters	Meters	Meters	Meters	Meters	Meters	Meters	Meters
0	248	264	279	288	288	284	284	284	284	284	284	284	17.89
1	253	265	274	284	284	283	284	284	284	284	284	284	18.20
2	269	273	276	278	278	277	277	277	277	277	277	277	18.81
3	284	285	290	287	284	284	282	282	282	282	282	282	19.64
4	291	298	304	304	304	304	304	304	304	304	304	304	20.52
5	298	309	312	315	315	313	304	304	304	304	304	304	21.39
6	294	309	315	322	322	327	327	327	327	327	327	327	21.94
7	296	302	312	325	325	336	337	337	337	337	337	337	22.26
8	291	293	307	321	321	340	345	345	345	345	345	345	22.29
9	284	282	296	312	312	333	347	347	347	347	347	347	22.08
10	280	277	281	296	296	321	341	341	341	341	341	341	21.52
11	287	268	267	274	274	302	326	326	326	326	326	326	20.75
Noon	289	260	254	251	251	275	301	301	301	301	301	301	19.63
13	294	260	245	232	232	247	269	269	269	269	269	269	18.53
14	296	263	246	219	219	222	238	238	238	238	238	238	17.51
15	298	269	238	214	214	205	213	213	213	213	213	213	16.79
16	302	270	242	216	216	197	196	196	196	196	196	196	16.39
17	298	275	247	221	221	200	188	188	188	188	188	188	16.24
18	291	274	252	224	224	208	190	190	190	190	190	190	16.29
19	280	272	256	236	236	227	198	198	198	198	198	198	16.55
20	270	267	259	249	249	238	207	207	207	207	207	207	16.81
21	260	264	259	252	252	247	224	224	224	224	224	224	17.12
22	258	261	256	257	257	251	237	237	237	237	237	237	17.37
23	263	258	255	253	253	253	246	246	246	246	246	246	17.58
Sum	67.84	66.27	64.86	63.76	63.76	64.12	63.56	63.56	63.56	63.56	63.69	63.69	454.10
Sum for	2.83	2.76	2.70	2.66	2.66	2.66	2.66	2.66	2.66	2.66	2.66	2.66	

Division = (28d) 672; (29d) 696; (30d) 720; (31d) 744 Mean for month =

tabulated by M. Cozzarard Date \_\_\_\_\_ Summed by M. Madrigal Date \_\_\_\_\_

TIDES: HOURLY HEIGHTS

Station Manila Year 1937  
 Observer M. Madroga Lat. 14°31' N Long. 120°55' E  
 Time Meridian 120° E Height datum is 750 (1901) which is 0.30 m. below B. M.

MONTH AND DAY	Month	Day	Month	Day	Month	Day	Month	Day	Month	Day	Month	Day	MONTH-LUNAR SUM
	July	8	July	9	July	10	July	11	July	12	July	13	
DAY OF SERIES	189		190		191		192		193		194		
Hour	Meters		Meters		Meters		Meters		Meters		Meters		Meters
0	247		248		235		235		233		236		1671
1	252		247		244		244		243		244		1723
2	257		252		250		251		250		255		1771
3	256		252		252		254		260		260		1802
4	263		259		254		256		260		261		1852
5	274		264		258		258		261		265		1862
6	289		280		267		262		262		264		1900
7	305		292		281		270		266		264		1952
8	320		308		298		282		272		263		2012
9	334		323		312		296		284		272		2079
10	340		332		324		308		297		282		2157
11	340		338		332		320		308		292		2208
Noon	333		335		336		325		316		301		2232
13	318		321		331		320		321		308		2219
14	297		307		314		320		320		310		2169
15	271		286		297		308		311		305		2098
16	240		260		272		290		302		297		1973
17	230		240		252		267		280		284		1851
18	213		222		230		245		261		272		1726
19	206		208		219		226		241		257		1625
20	205		206		209		216		227		242		1563
21	214		212		209		213		224		233		1551
22	225		220		216		220		223		230		1582
23	231		229		222		227		228		235		1621
Sum	6473		6451		6420		6416		6448		6441		48163

Sum for 270 = 2.69 Days 2-28d 672; 3-31d 696; 4-30d 720; 5-31d 744. Mean 2.67 months

Tabulated by M. Guerrero Date \_\_\_\_\_ Summed by M. Madroga Date \_\_\_\_\_

# TIDES: HOURLY HEIGHTS

Station Manila Year 1917  
 Observer M. Modriaga  
 Time Meridian 120°E Height datum is 1.60 (1901) which is 5.3X m. below B. M.

Lat. 14°35'N Long. 120°05'E

MONTH AND DAY	Month	Day	Month	Day	Month	Day	Month	Day	Month	Day	Month	Day	HORIZONTAL SUR.	
	July	1	2	3	4	5	6	7						
DAY OF SERIES	182		183		184		185		186		187		188	
Hour	Meters	Meters	Meters	Meters	Meters	Meters	Meters	Meters	Meters	Meters	Meters	Meters	Meters	
0	254	259	262	264	258	252	257	17.98						
1	257	266	268	264	260	258	251	18.24						
2	266	273	277	271	265	260	257	18.69						
3	276	278	285	279	274	265	270	19.24						
4	285	288	293	293	283	276	264	19.82						
5	295	298	302	306	296	288	282	20.67						
6	301	312	317	316	308	305	297	21.36						
7	307	321	327	327	324	320	315	22.38						
8	307	320	320	328	332	329	331	22.77						
9	300	310	321	323	333	335	328	22.65						
10	292	299	308	321	323	333	340	22.16						
11	279	284	295	308	310	325	333	21.33						
Noon	268	271	285	287	293	310	324	20.58						
13	263	256	268	267	277	289	308	19.28						
14	257	250	248	248	256	248	287	18.16						
15	247	244	235	231	233	246	260	17.08						
16	238	242	232	224	214	230	237	16.39						
17	230	242	238	220	206	212	219	15.77						
18	218	248	242	221	212	206	210	16.01						
19	209	258	249	231	220	204	210	16.46						
20	209	263	252	237	228	221	214	16.84						
21	216	267	255	246	235	223	222	17.24						
22	212	269	259	251	246	241	231	17.53						
23	258	267	260	255	249	245	242	17.69						
Sum	6569	6580	6608	6518	6451	6458	6492	45656						
Sum for	2.74	= 2.74	2.74	2.74	2.74	2.74	2.74	Mean for month =						

Calculated by M. Queiroz Date \_\_\_\_\_ Summed by \_\_\_\_\_ Date \_\_\_\_\_

# TIDES: HOURLY HEIGHTS

DEPARTMENT OF NATIONAL DEFENSE  
BUREAU OF COAST AND GEODETIC SURVEY

Station Monilo Year 1918  
 Observer M. Madriaga Lat. 14°35'N Long. 120°45'E  
 Time Meridian 120°E Height datum is 150(1901) which is 5.24 m. below B. M. 178

MONTH AND DAY	Month	Day	Month	Day	Month	Day	Month	Day	Month	Day	Month	Day	HORIZONTAL SUM	
	June	24		25		26		27		28		29	30	
DAY OF SERIES	175		176		177		178		179		180		181	
Hour	Meters		Meters		Meters		Meters		Meters		Meters		Meters	
0	240		238		238		231		232		241		252	16.54
1	250		237		240		246		243		246		257	17.17
2	253		246		248		253		252		251		262	17.70
3	258		250		256		260		270		273		272	18.46
4	264		260		259		266		275		280		282	18.82
5	272		265		266		275		280		285		290	19.33
6	287		277		278		276		282		288		292	19.75
7	302		292		282		280		282		289		292	20.19
8	320		306		296		281		285		290		287	20.65
9	325		320		305		290		291		290		285	21.19
10	333		336		320		303		296		290		280	21.86
11	364		348		336		314		298		291		276	22.27
Noon	365		357		344		325		305		293		271	22.66
13	353		356		350		350		310		296		270	22.65
14	333		345		341		332		314		295		271	22.54
15	306		328		320		324		320		300		270	21.82
16	280		299		318		315		315		300		276	21.66
17	250		271		294		307		307		296		277	20.02
18	222		241		273		285		293		290		273	18.77
19	202		222		249		266		278		280		271	17.68
20	196		216		226		240		260		270		256	16.72
21	202		204		213		231		258		260		262	16.36
22	214		219		210		230		247		252		257	16.18
23	218		215		224		232		240		248		251	16.28
Sum	6643		6626		6679		6705		6730		6706		6546	466.29
Sum for 27 hours =	1811.43													Divisor = (28d) 672; (29d) 696; (30d) 720; (31d) 744. Mean for month = 26.5

Tabulated by M. Goussard Date \_\_\_\_\_ Summed by \_\_\_\_\_ Date \_\_\_\_\_

# TIDES: HOURLY HEIGHTS

DEPARTMENT OF NATIONAL DEFENSE  
BUREAU OF COAST AND GEODETIC SURVEY

Station Manila Year 1932  
 Observer M. Madrigal Lat. 14° 35' N Long. 120° 58' E  
 Time Meridian 120° E Height datum is 750 (931) which is 5.38 m. below B. M. 416

MONTH AND DAY	Month	Day	Month	Day	Month	Day	Month	Day	Month	Day	Month	Day	HORIZONTAL SUM
	17	18	19	20	21	22	23	24					
DAY OF SPRING	168		169		170		171		172		173		174
Hour	Meters	Meters	Meters	Meters	Meters	Meters	Meters	Meters	Meters	Meters	Meters	Meters	Meters
0	230	238	247	254	257	259	258	248	17.27				
1	230	236	244	250	252	253	253	253	17.20				
2	238	240	248	252	256	256	254	254	17.44				
3	250	249	256	259	264	258	256	256	17.92				
4	262	263	268	270	272	269	264	264	18.70				
5	273	275	283	286	286	284	278	278	19.65				
6	280	287	297	302	302	303	293	293	20.64				
7	284	294	308	315	320	324	311	311	21.56				
8	283	294	312	323	334	339	330	330	22.15				
9	276	287	304	324	340	348	349	349	22.30				
10	268	276	293	313	336	352	359	359	21.97				
11	262	265	276	296	322	343	362	362	21.26				
Noon	256	253	259	271	298	330	374	374	20.21				
13	256	245	245	247	271	305	333	333	19.02				
14	258	241	232	228	244	273	304	304	17.80				
15	241	242	226	214	221	241	272	272	16.77				
16	260	244	224	204	202	215	238	238	15.94				
17	275	256	232	204	183	197	215	215	15.72				
18	274	263	241	214	192	189	185	185	15.72				
19	274	266	250	226	202	192	187	187	15.99				
20	271	268	265	239	217	199	190	190	16.37				
21	262	264	262	249	229	215	200	200	16.81				
22	253	259	262	254	240	226	214	214	17.10				
23	244	253	260	254	249	240	231	231	17.31				
Sum	62.84	66.61	62.88	62.53	62.96	64.04	64.92	64.92	142.77				
Sum for	21.62	2.41	2.42	2.16	2.16	2.16	2.16	2.16	Mean for month:				
Divisor = (28d) 67; (29d) 69; (30d) 70; (31d) 74													

Calculated by M. Guerrero Date \_\_\_\_\_ Summed by Madrigal Date \_\_\_\_\_



# TIDES: HOURLY HEIGHTS

Station Manila Year 1952  
 Observer M. Madrigal Lat. 14° 35' N Long. 120° 45' E  
 Time Meridian 130° E Height datum is T.S.O. (1931) which is 5.38 m. below B. M.

MONTH AND DAY	Month	Day	Month	Day	Month	Day	Month	Day	Month	Day	Month	Day	HORIZONTAL SUM	
	June	10		11		12		13		14		15		
DAY OF SERIES	161		162		163		164		165		166		167	
Hour	Meters		Meters		Meters		Meters		Meters		Meters		Meters	
0	2.29		2.27		2.18		2.20		2.19		2.20		2.24	15.57
1	2.36		2.33		2.30		2.38		2.26		2.26		2.38	16.07
2	2.40		2.40		2.36		2.35		2.25		2.33		2.36	16.63
3	2.43		2.45		2.42		2.44		2.43		2.45		2.50	17.11
4	2.48		2.48		2.41		2.48		2.50		2.58		2.63	17.59
5	2.50		2.52		2.49		2.49		2.54		2.60		2.68	17.88
6	2.67		2.60		2.53		2.54		2.58		2.62		2.70	18.28
7	2.81		2.72		2.65		2.62		2.61		2.60		2.70	18.31
8	2.96		2.86		2.77		2.71		2.68		2.66		2.73	19.51
9	3.10		3.00		2.89		2.79		2.74		2.70		2.71	19.93
10	3.21		3.12		3.03		2.92		2.80		2.74		2.70	20.52
11	3.27		3.20		3.13		3.02		2.90		2.78		2.70	21.10
Noon	3.27		3.22		3.18		3.11		3.00		2.84		2.71	21.50
13	3.18		3.18		3.21		3.16		3.07		2.92		2.72	21.54
14	3.04		3.08		3.16		3.14		3.16		2.93		2.78	21.28
15	2.85		2.91		3.00		3.10		3.09		3.03		2.82	20.84
16	2.62		2.72		2.89		2.99		3.01		2.90		2.88	20.17
17	2.39		2.49		2.69		2.83		2.95		2.95		2.84	19.22
18	2.21		2.29		2.49		2.66		2.78		2.88		2.83	18.14
19	2.08		2.14		2.33		2.49		2.62		2.73		2.77	17.16
20	2.01		2.06		2.19		2.32		2.44		2.58		2.65	16.25
21	2.06		2.02		2.11		2.21		2.32		2.46		2.54	15.72
22	2.10		2.04		2.10		2.16		2.26		2.36		2.44	15.44
23	2.20		2.11		2.16		2.15		2.21		2.30		2.35	15.46
Sum	62.54		62.21		62.72		63.17		63.47		63.73		63.59	441.23

Sum for 2.61 = 2.49 Divisor = (28d) 672; (29d) 656; (30d) 720; (31d) 744. Mean for month =

Tabulated by M. Guerrero Date \_\_\_\_\_ Summed by M. Madrigal Date \_\_\_\_\_

# TIDES: HOURLY HEIGHTS

Station Manila Year 1982  
 Observer M. Madriaga Lat. 14°35'N Long. 120°05'E  
 Time Meridian 120°E Height datum is 750(1901) which is 5.32 m. below B.M. 4026

MONTH AND DAY	Month Day	Month Day	Month Day	Month Day	Month Day	Month Day	Month Day	Month Day	MONTH- ZONTAL SUN
	June 3	4	5	6	7	8	9		
DAY OF BERNIES	154	155	156	157	158	159	160		
Hour	Meters	Meters	Meters	Meters	Meters	Meters	Meters	Meters	Meters
0	248	252	253	252	252	242	237	17.38	
1	247	248	249	248	250	243	242	17.27	
2	246	248	250	248	250	246	244	17.32	
3	244	250	251	254	256	248	247	17.65	
4	256	262	266	264	262	254	251	18.15	
5	270	275	277	274	272	266	259	18.93	
6	282	286	288	288	286	276	274	19.80	
7	290	294	299	300	299	291	285	20.61	
8	293	298	305	311	312	310	304	21.33	
9	288	298	308	317	319	319	317	21.61	
10	280	292	306	316	322	326	323	21.65	
11	269	281	296	306	319	324	326	21.21	
Noon	258	265	278	292	306	313	322	20.54	
13	250	269	285	268	286	298	310	19.16	
14	246	236	236	246	260	277	292	17.93	
15	242	228	224	228	228	256	268	16.82	
16	240	226	214	216	210	235	242	15.91	
17	246	229	211	204	208	216	234	15.38	
18	284	234	214	206	203	203	205	15.22	
19	263	247	224	211	202	200	201	15.43	
20	267	248	229	222	210	202	191	15.76	
21	269	285	242	233	221	212	201	16.33	
22	265	261	282	240	230	234	216	16.92	
23	258	260	254	248	238	239	221	17.18	
Sum	6276	6221	6187	6192	6221	6228	6209	455.34	
Sum for	2162	2149	2152	2152	2162	2162	2162	Mean for month =	

Calculated by M. Guerrero Date \_\_\_\_\_ Summed by \_\_\_\_\_ Date \_\_\_\_\_

# TIDES: HOURLY HEIGHTS

Station Manila Year 1982  
 Observer M. Modriaga Lat. 14°35'N Long. 120°15'E  
 Time Meridian 120°E Height datum is 750 (901) which is 5.320 m. below B. M. 426

MONTH AND DAY	Month	Day	Month	Day	Month	Day	Month	Day	Month	Day	Month	Day	MONTHIAL SUM	
DAY OF SERIES	140		141		142		143		144		145		146	
HOUR	Meters		Meters		Meters		Meters		Meters		Meters		Meters	
0	245		256		260		266		267		246		234	17.73
1	237		246		254		258		260		250		240	17.45
2	233		240		251		252		258		252		246	17.36
3	240		240		248		252		258		255		251	17.44
4	249		246		253		256		262		258		255	17.74
5	260		259		264		265		270		267		263	18.48
6	272		274		279		279		282		250		270	19.46
7	281		286		293		294		298		296		286	20.54
8	288		295		303		308		315		313		304	21.26
9	288		296		308		316		326		329		322	21.55
10	280		290		306		320		333		338		337	22.64
11	272		277		296		314		331		342		346	21.75
Noon	262		264		275		292		315		337		344	22.89
13	256		250		254		266		290		318		333	19.65
14	256		238		234		238		259		289		312	18.26
15	257		234		220		25		230		257		286	16.99
16	262		236		217		204		210		229		256	16.14
17	270		244		219		200		192		205		228	15.53
18	276		255		228		200		186		188		200	15.30
19	284		266		239		211		186		180		184	15.56
20	286		273		250		224		202		182		178	15.75
21	285		278		262		239		218		196		182	16.66
22	279		277		268		253		229		210		196	17.16
23	268		272		272		262		240		222		206	17.82
Sum	623.86		622.92		622.57		621.79		621.2		622.59		626.1	4182.6
Sum for	2.66		2.62		2.61		2.61		2.59		2.59		2.61	Mean for month =

tabulated by M. Guerrero Date \_\_\_\_\_ Summed by \_\_\_\_\_ Date \_\_\_\_\_



# TIDES: HOURLY HEIGHTS

Station Manila Year 1982  
 Observer M. Madrigal Lat. 14° 35' N Long. 120° 05' E  
 Time Meridian 120° E Height datum is TSD (1901) which is 0.38 m. below B. M. 4.61

MONTH AND DAY	Month Day	Month Day	Month Day	Month Day	Month Day	Month Day	Month Day	Month Day	HORI-ZONTAL SUM
	May 27	28	29	30	31	June 1	2		
DAY OF SERIES	147	148	149	150	151	152	153		
Hour	Meters	Meters	Meters	Meters	Meters	Meters	Meters	Meters	Meters
0	217	207	207	206	210	222	236	150.2	
1	226	218	210	212	216	220	235	15.37	
2	235	228	220	220	222	225	238	15.88	
3	243	236 <sup>6</sup>	233	228	232	236	242	16.50	
4	249	246	241	237	243	245	250	17.11	
5	256	257	247	245	252	257	260	17.68	
6	264	260	254	253	258	266	268	18.23	
7	270	267	261	260	263	271	276	18.72	
8	290	278	271	265	265	274	282	19.25	
9	310	292	280	268	266	270	279	19.65	
10	326	309	291	276	267	268	271	20.08	
11	338	322	303	284	269	266	262	20.44	
Noon	340	329	313	294	274	267	256	20.73	
13	338	333	321	302	279	268	256	20.97	
14	330	332	326	309	280	271	253	21.12	
15	312	320	324	312	294	277	259	21.62	
16	285	308	314	306	298	282	260	20.60	
17	254	284	297	306	298	287	266	19.92	
18	228	254	276	294	292	287	270	19.02	
19	204	232	256	274	282	284	280	18.16	
20	190	212	231	254	269	282	282	17.25	
21	184	198	217	240	255	270	274	16.38	
22	188	195	204	228	241	257	264	15.77	
23	200	196	203	218	230	245	255	15.46	
Sum	62.81	63.11	62.97	62.95	62.65	62.97	62.83	440.29	
Sum for	May = 1928.52	June = 1928.52	July = 1928.52	Aug = 1928.52	Sept = 1928.52	Oct = 1928.52	Nov = 1928.52	Dec = 1928.52	Mean for month = 2.58

Tabulated by M. G. Overman Date \_\_\_\_\_ Summed by M. Madrigal Date \_\_\_\_\_

June, July, Aug. 1982

**TIDES: HOURLY HEIGHTS**

Station Manila Year 1950  
 Observer \_\_\_\_\_ Lat. 14° 35' N Long. 120° 58' E  
 Time Meridian 120° E Height datum is 7.50 (190) which is 5.34 m. below B. M. 40

MONTH AND DAY	Month Day		Month Day		Month Day		Month Day		Month Day		Month Day		HORIZONTAL SUM		
	Month	Day	Month	Day	Month	Day	Month	Day	Month	Day	Month	Day			
	Sept.	30	Oct.	1		2		3		4		5		6	
DAY OF MONTH															
Hour	Meters		Meters		Meters		Meters		Meters		Meters		Meters		Meters
0	3.05		2.99		2.82		2.72		2.60		2.53		2.50		19.21
1	3.11		3.08		2.90		2.79		2.67		2.54		2.49		19.58
2	3.12		3.10		2.97		2.87		2.75		2.58		2.47		19.88
3	3.09		3.12		3.03		2.93		2.83		2.64		2.52		20.16
4	2.99		3.08		3.07		3.02		2.87		2.73		2.58		20.34
5	2.83		2.91		3.03		3.03		2.95		2.83		2.67		20.31
6	2.64		2.60		2.92		3.00		3.00		2.90		2.74		20.02
7	2.47		2.65		2.79		2.90		2.98		2.97		2.84		19.60
8	2.33		2.47		2.60		2.74		2.92		2.98		2.94		19.03
9	2.20		2.33		2.42		2.62		2.78		2.95		2.95		18.29
10	2.21		2.17		2.28		2.42		2.59		2.84		2.87		17.38
11	2.26		2.15		2.17		2.34		2.42		2.68		2.75		16.67
12 noon	2.32		2.16		2.11		2.11		2.27		2.52		2.57		16.06
13	2.40		2.20		2.10		2.05		2.16		2.30		2.46		15.73
14	2.47		2.25		2.11		2.07		2.07		2.18		2.30		15.41
15	2.53		2.29		2.17		2.07		2.02		2.09		2.16		15.33
16	2.57		2.34		2.24		2.14		2.03		2.07		2.11		15.52
17	2.58		2.39		2.30		2.21		2.12		2.15		2.14		15.89
18	2.58		2.47		2.35		2.30		2.23		2.22		2.22		16.40
19	2.60		2.51		2.47		2.42		2.34		2.30		2.29		16.93
20	2.65		2.54		2.52		2.47		2.44		2.37		2.40		17.39
21	2.69		2.59		2.55		2.53		2.47		2.47		2.48		17.80
22	2.78		2.62		2.60		2.54		2.50		2.50		2.57		18.15
23	2.87		2.71		2.62		2.56		2.53		2.52		2.59		18.40
Sum	63.35		62.00		61.17		60.78		60.58		60.96		60.63		429.47
Sum for	Sept. 30 = 2164		Oct. 1 = 2158		2153		2143		2147		2144		2143		Mean for month = 2.65
Divisor	= 28d		= 29d		= 29d		= 30d		= 31d		= 31d		= 31d		

Computed by J. J. ... Date \_\_\_\_\_ Summed by \_\_\_\_\_ Date \_\_\_\_\_

# TIDES: HOURLY HEIGHTS

DEPARTMENT OF NATIONAL DEFENSE  
BUREAU OF COAST AND GEODETIC SURVEY

Station Granville

Year 1980

Observer \_\_\_\_\_

Lat. 14° 35' N

Long. 120° 53' E

Time Meridian 120° E

Height datum is TSD (1901) which is 5.34 m. below B. M. 40

MONTH AND DAY	Month	Day	Month	Day	Month	Day	Month	Day	Month	Day	Month	Day	HORIZONTAL SUM	
	<u>Sept. 23</u>		<u>24</u>		<u>25</u>		<u>26</u>		<u>27</u>		<u>28</u>			<u>29</u>
DAY OF SERIES														
Hour	Meters		Meters		Meters		Meters		Meters		Meters		Meters	
0	2.57		2.57		2.67		2.74		2.83		2.97		3.02	19.37
1	2.57		2.51		2.57		2.66		2.83		2.94		3.07	19.22
2	2.57		2.46		2.46		2.52		2.72		2.92		3.06	18.71
3	2.57		2.45		2.42		2.41		2.57		2.77		2.93	18.14
4	2.70		2.49		2.41		2.33		2.40		2.59		2.77	17.64
5	2.86		2.57		2.42		2.29		2.28		2.39		2.59	17.42
6	2.97		2.73		2.48		2.29		2.24		2.30		2.42	17.45
7	3.12		2.88		2.65		2.35		2.24		2.25		2.50	17.77
8	3.22		3.02		2.77		2.47		2.30		2.22		2.42	18.22
9	3.27		3.17		2.92		2.62		2.40		2.29		2.21	18.84
10	3.18		3.19		3.05		2.77		2.51		2.37		2.27	19.34
11	3.02		3.14		3.11		2.88		2.62		2.48		2.37	19.62
Noon	2.79		2.97		3.07		2.93		2.73		2.54		2.47	19.52
13	2.53		2.76		2.92		2.92		2.81		2.67		2.52	19.21
14	2.31		2.52		2.70		2.82		2.82		2.71		2.61	18.50
15	2.15		2.37		2.52		2.65		2.77		2.72		2.63	17.82
16	2.11		2.27		2.39		2.51		2.67		2.69		2.64	17.28
17	2.12		2.19		2.31		2.39		2.58		2.62		2.64	16.85
18	2.21		2.20		2.27		2.33		2.52		2.58		2.63	16.74
19	2.32		2.27		2.28		2.33		2.51		2.57		2.62	16.90
20	2.42		2.38		2.36		2.42		2.53		2.57		2.61	17.29
21	2.53		2.52		2.49		2.55		2.62		2.65		2.63	17.97
22	2.58		2.62		2.62		2.68		2.73		2.81		2.78	18.82
23	2.59		2.68		2.72		2.78		2.87		2.93		2.92	19.49
24														
Sum	63.70		62.45		62.61		61.64		62.11		62.58		63.01	438.20

Sum for 2.64 = 2.62 Divisor = (23d) 672; (29d) 696; (30d) 720; (31d) 744. Mean for month: 2.63

Adjusted by JRW Date \_\_\_\_\_ Summed by \_\_\_\_\_ Date \_\_\_\_\_

# TIDES: HOURLY HEIGHTS

Station Manila (Eng'g. Co.) Year 1980  
 Observer \_\_\_\_\_ Lat. 14° 35' N Long. 120° 58' E  
 Time Meridian 120° E Height datum is 130/1901 which is 5.34 m. below B. M. 402

MONTH AND DAY	Month Day		Month Day		Month Day		Month Day		Month Day		Month Day		HEIGHT-ZONAL SUM		
	Month	Day	Month	Day	Month	Day	Month	Day	Month	Day	Month	Day			
	Sept.	16		17		18		19		20		21		22	
DAY OF SERIES													HEIGHT-ZONAL SUM		
Hour	Meters		Meters		Meters		Meters		Meters		Meters		Meters		
0	2.92		2.94		2.79		2.82		2.70		2.57		2.57	19.31	
1	2.94		2.97		2.86		2.92		2.78		2.63		2.60	19.70	
2	2.95		3.00		2.92		3.02		2.83		2.73		2.67	20.12	
3	2.92		3.00		2.99		3.05		2.90		2.82		2.75	20.43	
4	2.88		2.95		3.03		3.07		2.97		2.90		2.83	20.63	
5	2.75		2.87		3.03		3.08		3.02		2.99		2.93	20.67	
6	2.62		2.72		3.10		3.06		3.06		3.15		3.07	20.66	
7	2.52		2.62		2.93		3.00		3.23		3.07		3.17	20.33	
8	2.44		2.52		2.83		2.84		2.92		3.05		3.18	19.78	
9	2.42		2.41		2.63		2.64		2.76		2.91		3.08	18.85	
10	2.42		2.39		2.47		2.46		2.59		2.71		2.92	17.96	
11	2.48		2.36		2.38		2.37		2.42		2.52		2.72	17.25	
Noon	2.51		2.37		2.37		2.31		2.31		2.33		2.52	16.71	
13	2.58		2.39		2.37		2.28		2.17		2.17		2.34	16.32	
14	2.58		2.41		2.42		2.26		2.11		2.09		2.16	16.03	
15	2.62		2.44		2.42		2.26		2.10		2.02		2.05	15.91	
16	2.63		2.48		2.42		2.28		2.11		2.03		2.02	15.46	
17	2.63		2.52		2.47		2.33		2.18		2.11		2.05	16.29	
18	2.63		2.55		2.56		2.43		2.26		2.22		2.16	16.81	
19	2.64		2.58		2.61		2.50		2.36		2.33		2.27	17.29	
20	2.65		2.61		2.63		2.52		2.44		2.44		2.38	17.67	
21	2.68		2.63		2.67		2.52		2.50		2.51		2.48	17.99	
22	2.78		2.67		2.67		2.53		2.52		2.53		2.65	18.29	
23	2.85		2.72		2.70		2.63		2.53		2.54		2.52	18.49	
Sum	64.04		63.11		64.19		63.19		61.59		61.21		61.99	439.35	

Sum for 2.67 2.63 2.64 2.63 2.57 2.58  
 Deficit (23d) 672; (29d) 696; (30th) 700; (31st) 711. Mean for month.

Calculated by JFW Date \_\_\_\_\_ Summed by \_\_\_\_\_ Date \_\_\_\_\_

# TIDES: HOURLY HEIGHTS

DEPARTMENT OF NATIONAL DEFENSE  
BUREAU OF COAST AND GEODETIC SURVEY

Station Manila (Engiz Is.)

Year 1940

Observer \_\_\_\_\_ Lat. 14° 35' N

Long. 120° 58' E

Time Meridian 120° E Height datum is TSD (1901) which is 5.34 m. below B. M. 40

MONTH AND DAY	Month	Day	Month	Day	Month	Day	Month	Day	Month	Day	Month	Day	HORIZONTAL SUM
	Sept.	9	10	11	12	13	14	15					
DAY OF SERIES	Meters		Meters		Meters		Meters		Meters		Meters		
Hour													
0	2.53	2.58	2.83	2.88	2.93	2.97	2.88	19.60					
1	2.51	2.55	2.82	2.88	2.95	2.98	2.98	19.61					
2	2.49	2.53	2.68	2.74	2.80	2.93	2.98	19.27					
3	2.48	2.47	2.54	2.67	2.78	2.87	2.84	18.67					
4	2.47	2.47	2.48	2.50	2.68	2.73	2.72	18.17					
5	2.59	2.53	2.40	2.50	2.57	2.68	2.62	17.94					
6	2.72	2.70	2.57	2.50	2.49	2.57	2.58	18.13					
7	2.86	2.88	2.73	2.59	2.50	2.47	2.51	18.55					
8	3.03	3.09	2.90	2.79	2.56	2.48	2.48	19.12					
9	3.15	3.18	3.03	2.87	2.70	2.48	2.45	19.34					
10	3.18	3.26	3.13	2.98	2.84	2.54	2.45	20.38					
11	3.13	3.20	3.21	3.06	2.95	2.65	2.54	20.80					
Noon	2.90	3.19	3.22	3.08	3.01	2.78	2.70	20.94					
13	2.78	3.05	3.18	3.07	3.01	2.82	2.73	20.65					
14	2.58	2.90	3.02	2.98	2.90	2.83	2.74	20.01					
15	2.37	2.72	2.83	2.85	2.88	2.73	2.72	19.10					
16	2.25	2.53	2.63	2.67	2.75	2.63	2.68	18.14					
17	2.21	2.41	2.44	2.52	2.63	2.60	2.64	17.50					
18	2.19	2.34	2.43	2.47	2.54	2.58	2.62	17.22					
19	2.27	2.45	2.44	2.47	2.52	2.57	2.58	17.30					
20	2.43	2.56	2.54	2.57	2.57	2.57	2.57	17.83					
21	2.50	2.65	2.68	2.67	2.67	2.58	2.61	18.40					
22	2.54	2.72	2.78	2.80	2.83	2.64	2.74	19.05					
23	2.56	2.80	2.87	2.88	2.90	2.74	2.85	19.65					
Sum	62.81	65.83	66.41	66.04	66.13	64.52	64.11	455.99					

Sum for 2162 = 2174 Divisor =  $\frac{2174}{24} = 90.58$  (28d) 672; (29d) 696; (30d) 720; (31d) 744 Mean for month = 2162

culated by J.M. Date \_\_\_\_\_ Summed by \_\_\_\_\_ Date \_\_\_\_\_



# TIDES: HOURLY HEIGHTS

Station Manila (Engg. Is.) Year 1980  
 Observer \_\_\_\_\_ Lat. 14° 35' N Long. 120° 58' E  
 Time Meridian 120° E Height datum is T50(1901) which is 5.34 m. below B. M. 40

MONTH AND DAY	Month Day		Month Day		Month Day		Month Day		Month Day		Month Day		HORIZONTAL SUM		
	Month	Day	Month	Day	Month	Day	Month	Day	Month	Day	Month	Day			
	Sept.	2		3		4		5		6		7		8	
Hour	Meters		Meters		Meters		Meters		Meters		Meters		Meters		Meters
0	2.72		2.73		2.61		2.61		2.53		2.52		2.49		18.20
1	2.86		2.80		2.70		2.64		2.58		2.53		2.49		18.60
2	2.96		2.89		2.79		2.76		2.66		2.58		2.49		19.13
3	3.00		3.00		2.88		2.83		2.76		2.63		2.49		19.59
4	3.00		3.04		2.98		2.94		2.83		2.75		2.58		20.12
5	2.93		3.04		3.03		3.05		2.93		2.88		2.72		20.58
6	2.81		2.98		3.04		3.08		3.03		3.00		2.86		20.80
7	2.66		2.87		2.97		3.07		3.08		3.13		2.99		20.79
8	2.53		2.69		2.83		3.03		3.08		3.20		3.08		20.43
9	2.39		2.53		2.65		2.90		3.03		3.18		3.12		19.80
10	2.33		2.38		2.50		2.70		2.88		3.10		3.11		19.00
11	2.27		2.27		2.34		2.53		2.70		2.96		3.02		18.09
Noon	2.25		2.20		2.23		2.33		2.51		2.81		2.84		17.17
13	2.30		2.16		2.12		2.19		2.34		2.61		2.68		16.34
14	2.34		2.16		2.08		2.09		2.21		2.43		2.42		15.73
15	2.40		2.21		2.08		2.04		2.13		2.24		2.25		15.35
16	2.43		2.24		2.12		2.07		2.12		2.13		2.18		15.29
17	2.45		2.30		2.20		2.13		2.13		2.10		2.15		15.46
18	2.48		2.33		2.28		2.19		2.23		2.14		2.16		15.78
19	2.46		2.37		2.34		2.28		2.30		2.25		2.23		16.23
20	2.47		2.41		2.41		2.37		2.39		2.30		2.34		16.71
21	2.49		2.46		2.48		2.46		2.47		2.40		2.45		17.23
22	2.60		2.51		2.51		2.49		2.50		2.45		2.50		17.56
23	2.62		2.57		2.56		2.50		2.52		2.48		2.53		17.77
Sum	61.72		61.12		60.13		61.32		61.96		62.80		62.10		431.75

Sum for 257 = 2.55 Divisor 280 672; 290 696; 300 720; 310 744. Mean for month =

Calculated by J.W. Date 4 Summed by \_\_\_\_\_ Date \_\_\_\_\_

# TIDES: HOURLY HEIGHTS

DEPARTMENT OF NATIONAL DEFENSE  
BUREAU OF COAST AND GEODETIC SURVEY

Station Granada (Griffith Is.)

Year 1980

Observer \_\_\_\_\_

Lat. 14° 35' N

Long. 120° 58' E

Time Meridian 120° E Height datum is TSL (1921) which is 5.34 m. below B. M. 402

MONTH AND DAY	Month	Day	Month	Day	Month	Day	Month	Day	Month	Day	Month	Day	HORIZONTAL SUM		
	Aug.	26		27		28		29		30		31		Sept 1	
DAY OF MONTH															
Hour	Meters		Meters		Meters		Meters		Meters		Meters		Meters		
0	2.58		2.59		2.74		2.86		2.96		2.88		2.80	19.41	
1	2.54		2.55		2.78		2.87		2.98		2.44		2.96	19.52	
2	2.53		2.50		2.84		2.78		2.87		2.96		2.98	19.81	
3	2.55		2.49		2.77		2.76		2.74		2.92		2.90	19.01	
4	2.64		2.53		2.62		2.63		2.67		2.71		2.84	18.76	
5	2.80		2.66		2.63		2.59		2.63		2.68		2.73	18.72	
6	2.93		2.84		2.70		2.61		2.57		2.58		2.63	18.86	
7	3.11		2.98		2.88		2.65		2.53		2.46		2.53	19.14	
8	3.23		3.14		3.05		2.75		2.51		2.37		2.45	19.52	
9	3.33		3.28		3.21		2.95		2.58		2.38		2.38	20.11	
10	3.39		3.38		3.36		3.11		2.74		2.43		2.36	20.76	
11	3.35		3.42		3.42		3.21		2.93		2.54		2.37	21.20	
Noon	3.13		3.33		3.41		3.28		3.03		2.67		2.41	21.26	
13	2.88		3.16		3.37		3.29		3.04		2.74		2.52	20.49	
14	2.62		2.90		3.23		3.19		3.07		2.78		2.57	20.30	
15	2.37		2.58		3.07		2.97		2.93		2.95		2.66	19.23	
16	2.21		2.43		2.73		2.76		2.84		2.68		2.66	18.27	
17	2.09		2.28		2.58		2.63		2.72		2.60		2.54	17.49	
18	2.13		2.24		2.42		2.53		2.62		2.53		2.54	17.01	
19	2.23		2.26		2.38		2.48		2.52		2.49		2.54	16.87	
20	2.33		2.38		2.42		2.45		2.48		2.48		2.50	17.06	
21	2.51		2.50		2.53		2.52		2.48		2.48		2.53	17.47	
22	2.57		2.63		2.63		2.65		2.59		2.53		2.56	18.10	
23	2.56		2.89		2.75		2.71		2.74		2.64		2.61	18.86	
Sum	64.42		65.40		68.16		67.14		65.72		63.32		62.52	457.23	
Sum for August	1778.13		1780.13		1800.13		1780.13		1760.13		1740.13		1720.13		Mean for month: 2.65

Calculated by CSW Date \_\_\_\_\_ Summed by \_\_\_\_\_ Date \_\_\_\_\_

Sept. 1980

# TIDES: HOURLY HEIGHTS

Station Manila Year 1951  
 Observer M. Modriaga Lat. 14° 35' N Long. 120° 58' E  
 Time Meridian 120° E Height datum is TSO(1901) which is 5.19<sup>00</sup> m. below B. M. 4.135

MONTH AND DAY	Month	Day	Month	Day	Month	Day	Month	Day	Month	Day	Month	Day	HORI-ZONTAL SUM	
	Aug.	27	Aug.	28	Aug.	29	Aug.	30	Aug.	31	Sept.	1	2	
DAY OF SERIES		189		190		191		192		193		194	195	
Hour	Meters		Meters		Meters		Meters		Meters		Meters		Meters	
0	268		263		262		267		267		267		272	18.61
1	275		265		260		264		260		265		264	18.58
2	283		269		261		263		262		259		262	18.53
3	293		276		264		266		256		252		253	18.65
4	305		291		280		269		258		248		251	19.02
5	318		308		295		279		263		250		253	19.61
6	330		323		310		291		271		258		249	20.32
7	338		338		326		309		289		269		253	21.22
8	337		345		338		325		303		282		262	21.12
9	330		343		345		336		316		295		273	22.38
10	316		333		346		341		326		304		285	22.53
11	298		319		338		339		328		316		297	22.55
Noon	273		295		320		328		326		318		303	21.83
13	250		270		296		310		316		312		302	20.56
14	230		249		268		286		296		295		293	19.17
15	214		225		246		263		273		273		280	17.74
16	211		215		228		244		257		254		265	16.65
17	215		213		220		228		236		241		250	16.03
18	221		219		223		227		231		232		240	15.87
19	230		230		231		227		231		230		236	16.15
20	240		238		240		239		235		234		236	16.62
21	252		248		253		250		246		245		244	17.36
22	266		256		260		259		256		258		255	18.00
23	260		261		265		262		264		267		265	18.44
Sum	65.61		65.94		66.86		66.61		65.49		63.46		63.43	457.34

Sum for Aug 31 = 203.76 Divisor = (28d) 672; (29d) 696; (30d) 720; (31d) 744. Mean for month = 2.76

Tabulated by M. Querrero Date \_\_\_\_\_ Summed by \_\_\_\_\_ Date \_\_\_\_\_

# TIDES: HOURLY HEIGHTS

DEPARTMENT OF NATIONAL DEFENSE  
BUREAU OF COAST AND GEODETIC SURVEY

Station Manila

Year 1951

Observer M. Modriaga

Lat. 14° 35' N

Long. 120° 53' E

Time Meridian 120° E

Height datum is TSD (1901) which is 5.23 m. below B. M.

4.26

MONTH AND DAY	Month	Day	Month	Day	Month	Day	Month	Day	Month	Day	Month	Day	HORIZONTAL SUM	
	Aug	20		21		22		23		24		25		26
DAY OF SEASON	122		183		184		185		186		187		188	
Hour	Meters		Meters		Meters		Meters		Meters		Meters		Meters	
0	2.73		2.80		2.87		2.84		2.83		2.77		2.88	19.46
1	2.79		2.84		2.90		2.91		2.94		2.85		2.78	20.01
2	2.76		2.85		2.97		3.01		3.01		2.96		2.90	20.46
3	2.68		2.82		2.96		3.05		3.12		3.06		3.00	20.69
4	2.66		2.75		2.91		3.05		3.18		3.18		3.10	20.77
5	2.55		2.63		2.81		3.06		3.18		3.23		3.13	20.58
6	2.53		2.59		2.76		2.90		3.11		3.22		3.26	20.31
7	2.56		2.51		2.60		2.76		3.00		3.17		3.23	19.88
8	2.61		2.51		2.51		2.65		2.91		3.03		3.23	19.25
9	2.71		2.53		2.47		2.53		2.66		2.87		3.07	18.84
10	2.89		2.61		2.50		2.48		2.54		2.68		2.94	18.60
11	3.01		2.75		2.56		2.45		2.45		2.50		2.64	18.41
Noon	3.04		2.85		2.65		2.44		2.36		2.36		2.48	18.28
13	3.13		2.91		2.72		2.53		2.33		2.26		2.33	18.21
14	3.09		2.92		2.76		2.55		2.33		2.21		2.23	18.09
15	3.00		2.91		2.78		2.60		2.40		2.21		2.17	18.07
16	2.84		2.83		2.76		2.65		2.48		2.25		2.14	17.97
17	2.69		2.73		2.71		2.67		2.51		2.33		2.31	17.85
18	2.55		2.62		2.65		2.64		2.52		2.42		2.31	17.71
19	2.47		2.56		2.60		2.61		2.52		2.48		2.42	17.66
20	2.44		2.48		2.56		2.60		2.54		2.52		2.51	17.65
21	2.50		2.50		2.58		2.60		2.58		2.54		2.55	17.85
22	2.58		2.59		2.61		2.65		2.62		2.58		2.58	18.21
23	2.69		2.64		2.71		2.72		2.68		2.63		2.63	18.75
Sum	65.50		64.78		64.74		64.94		64.70		64.31		64.64	453.66
Sum for	6.73		2.70		2.70		2.71		2.70		2.67		2.67	

Divisor = (28d) 672; (29d) 696; (30d) 720; (31d) 744. Mean for month = 2.67

Tabulated by M. Guerrero

Date \_\_\_\_\_

Summed by \_\_\_\_\_

Date \_\_\_\_\_

# TIDES: HOURLY HEIGHTS

Station Manila Year 1931  
 Observer M. Modriaga Lat. 14°35'N Long. 120°58'E  
 Time Meridian 120°E Height datum is 730 (1901) which is 5.13 m. below B. M. 426

MONTH AND DAY	Month	Day	Month	Day	Month	Day	Month	Day	Month	Day	Month	Day	HORIZONTAL SUM	
	Aug.	13	14	15	16	17	18	19						
DAY OF SERIES	175		176		177		178		179		180		181	
Hour	Meters		Meters		Meters		Meters		Meters		Meters		Meters	
0	2.65		2.62		2.61		2.62		2.71		2.70		2.75	18.70
1	2.69		2.66		2.66		2.66		2.68		2.70		2.77	18.78
2	2.78		2.68		2.70		2.68		2.68		2.68		2.73	18.91
3	2.88		2.70		2.73		2.78		2.63		2.64		2.69	19.05
4	3.00		2.79		2.83		2.90		2.69		2.63		2.65	19.49
5	3.14		2.90		2.96		3.03		2.82		2.65		2.61	20.11
6	3.23		3.08		3.14		3.16		2.96		2.71		2.60	20.94
7	3.28		3.24		3.28		3.29		3.10		2.86		2.72	21.77
8	3.30		3.35		3.41		3.46		3.26		3.05		2.88	22.65
9	3.24		3.46		3.48		3.50		3.39		3.24		3.03	23.24
10	3.14		3.29		3.42		3.55		3.50		3.36		3.13	23.39
11	2.98		3.16		3.30		3.53		3.55		3.56		3.26	23.24
Noon	2.77		2.96		3.08		3.43		3.48		3.45		3.31	22.48
13	2.57		2.74		2.90		3.23		3.30		3.40		3.28	21.42
14	2.40		2.49		2.65		2.96		3.05		3.20		3.18	19.93
15	2.29		2.30		2.44		2.68		2.77		2.86		3.01	11.49
16	2.23		2.20		2.32		2.45		2.53		2.68		2.78	17.19
17	2.25		2.16		2.20		2.32		2.38		2.50		2.63	14.44
18	2.27		2.22		2.18		2.28		2.30		2.35		2.45	16.05
19	2.33		2.30		2.30		2.31		2.31		2.35		2.40	16.30
20	2.42		2.38		2.42		2.36		2.37		2.40		2.36	16.71
21	2.57		2.50		2.51		2.44		2.49		2.50		2.42	17.37
22	2.55		2.55		2.58		2.58		2.56		2.62		2.52	17.96
23	2.61		2.62		2.61		2.68		2.66		2.70		2.63	18.51
Sum.	65.51		65.23		66.79		68.80		68.15		67.79		66.85	469.12
Sum for	2.73		2.72		2.78		2.85		2.86		2.82		2.79	
Divisor (28d) 672; (29d) 696; (30d) 720; (31d) 744. Mean for month.														

culated by M. Guerrero Date \_\_\_\_\_ Summed by M. Guerrero Date \_\_\_\_\_



# TIDES: HOURLY HEIGHTS

Station Manila

Year 1981

Observer M. Madriaga

Lat. 14° 35' N

Long. 120° 51' E

Time Meridian 120° E Height datum is TSD (1981) which is 1.75 m. below B. M. 456

MONTH AND DAY	Month	Day	Month	Day	Month	Day	Month	Day	Month	Day	HORIZONTAL SUM				
	Aug. 6		7		8		9		10			11		12	
DAY OF SERIES	168		169		170		171		172		173		174		
Hour	Meters		Meters		Meters		Meters		Meters		Meters		Meters		
0	2.75		2.79		2.71		2.75		2.70		2.68		2.70		19.08
1	2.83		2.80		2.83		2.85		2.84		2.77		2.79		19.71
2	2.90		2.88		2.84		2.91		2.91		2.86		2.80		20.27
3	2.91		2.91		3.05		2.95		2.98		2.93		2.95		20.68
4	2.88		3.00		3.10		3.06		3.00		3.00		3.04		21.08
5	2.88		2.99		2.98		3.06		3.04		3.05		3.15		21.15
6	2.91		2.91		2.91		3.00		3.10		3.10		3.21		21.14
7	2.91		2.82		2.84		2.90		3.06		3.10		3.25		20.88
8	2.89		2.76		2.81		2.88		2.94		3.06		3.21		20.57
9	2.84		2.72		2.76		2.74		2.82		2.93		3.11		20.04
10	2.95		2.82		2.68		2.68		2.68		2.79		2.99		19.59
11	3.07		2.88		2.69		2.62		2.61		2.64		2.53		19.36
Noon	3.19		2.95		2.72		2.59		2.58		2.52		2.62		19.19
13	3.22		3.01		2.79		2.59		2.53		2.43		2.53		19.10
14	3.21		3.01		2.88		2.61		2.44		2.36		2.36		18.89
15	3.16		2.98		2.84		2.65		2.47		2.30		2.26		18.66
16	3.05		2.93		2.82		2.68		2.51		2.33		2.26		18.53
17	2.94		2.92		2.80		2.68		2.55		2.42		2.26		18.57
18	2.80		2.73		2.75		2.66		2.60		2.49		2.36		18.39
19	2.68		2.63		2.68		2.63		2.60		2.54		2.41		18.17
20	2.54		2.57		2.68		2.61		2.56		2.57		2.44		17.80
21	2.53		2.56		2.60		2.60		2.57		2.58		2.52		17.96
22	2.55		2.53		2.61		2.63		2.60		2.59		2.59		18.10
23	2.64		2.54		2.64		2.66		2.64		2.64		2.62		18.36
Sum	69.33		67.58		67.06		65.99		65.37		64.68		65.34		465.35
Mean for	2.89		2.82		2.79		2.74		2.70		2.68		2.68		

Division (23d) 672; (29d) 696; (30d) 720; (31d) 744 Mean for month

Tabulated by M. Guerrero Date \_\_\_\_\_

Summed by \_\_\_\_\_ Date \_\_\_\_\_

# TIDES: HOURLY HEIGHTS

Station Manila Year 1981  
 Observer M. Modriaga Lat. 14°35'N Long. 120°15'E  
 Time Meridian 120°E Height datum is TSD (1901) which is 5.73 m. below B. M. 425

MONTH AND DAY	Month Day		Month Day		Month Day		Month Day		Month Day		HORIZONTAL SUM			
	Month	Day	Month	Day	Month	Day	Month	Day	Month	Day				
	July	30	Aug.	31	Aug.	1	Aug.	2	Aug.	3	Aug.	4	Aug.	5
DAY OF SERVICE	161		162		163		164		165		166		167	
Hour	Meters		Meters		Meters		Meters		Meters		Meters		Meters	
0	262		262		261		263		255		260		264	18.27
1	267		260		261		260		260		210		275	18.53
2	274		264		264		261		261		264		282	18.72
3	280		272		269		262		263		264		277	18.87
4	292		283		276		269		267		261		270	19.18
5	304		297		282		276		270		261		270	19.62
6	321		313		302		284		273		269		273	20.40
7	339		328		323		304		284		276		276	21.30
8	358		345		341		322		300		284		285	22.27
9	352		350		352		333		317		297		291	22.97
10	346		357		357		344		331		310		305	23.46
11	323		347		353		350		338		331		314	23.46
Noon	300		325		343		345		340		331		325	23.09
13	272		299		324		331		334		328		326	22.14
14	250		271		299		312		321		320		325	20.98
15	229		248		271		285		305		305		323	19.66
16	213		227		244		262		280		284		306	18.16
17	203		211		223		241		261		266		283	16.93
18	207		210		213		225		241		253		263	16.16
19	218		213		213		215		231		241		255	15.90
20	230		225		220		215		224		244		248	16.95
21	242		238		234		223		228		244		254	16.65
22	254		249		245		237		239		240		263	17.31
23	259		258		255		246		250		255		266	17.89
Sum	6597		6657		6725		6667		6672		6653		6821	46797

Sum for July 31 = 206743 Divisor = (28d) 672; (29d) 696; (30d) 720; (31d) 744 Mean for month = 26.9

Tabulated by M. Guerrero Date \_\_\_\_\_ Summed by M. Guerrero Date \_\_\_\_\_

Aug. 1981