

TIDES: HOURLY HEIGHTS

Station Manila Year 1951
 Observer M. M. de la Cruz Lat. 14° 35' N Long. 120° 58' E
 Time Meridian 120° E Height datum is 750(461) which is 5.44 m. below B. M. 436

MONTH AND DAY	Month	Day	Month	Day	Month	Day	Month	Day	Month	Day	Month	Day	HORIZONTAL SUM	
	June	25	June	26	June	27	June	28	June	29	June	30		July
DAY OF SERIES	126		127		128		129		130		131		132	
Hour	Meters		Meters		Meters		Meters		Meters		Meters		Meters	
0	2.20		2.26		2.28		2.35		2.40		2.50		2.53	16.57
1	2.30		2.34		2.33		2.38		2.43		2.51		2.58	16.87
2	2.40		2.45		2.44		2.49		2.49		2.56		2.62	17.43
3	2.48		2.54		2.52		2.60		2.60		2.63		2.66	18.07
4	2.57		2.63		2.68		2.72		2.72		2.75		2.78	18.85
5	2.60		2.70		2.79		2.85		2.85		2.91		2.95	19.68
6	2.66		2.76		2.83		2.83		3.00		3.06		3.13	20.29
7	2.61		2.73		2.84		2.93		3.08		3.16		3.25	20.65
8	2.61		2.69		2.79		2.93		3.11		3.24		3.31	20.77
9	2.64		2.62		2.64		2.83		3.02		3.24		3.40	20.44
10	2.63		2.60		2.62		2.68		2.88		3.13		3.33	19.95
11	2.70		2.65		2.54		2.55		2.71		2.92		3.25	19.34
Noon	2.83		2.70		2.54		2.45		2.53		2.70		3.08	18.75
13	2.90		2.76		2.58		2.40		2.40		2.49		2.68	18.21
14	2.77		2.79		2.60		2.40		2.27		2.28		2.41	17.72
15	2.88		2.82		2.62		2.41		2.22		2.13		2.16	17.34
16	2.84		2.83		2.66		2.46		2.22		2.12		2.03	17.26
17	2.86		2.82		2.67		2.50		2.30		2.10		2.01	17.28
18	2.74		2.80		2.12		2.54		2.40		2.21		2.01	17.42
19	2.58		2.68		2.61		2.59		2.47		2.28		2.11	17.39
20	2.40		2.52		2.60		2.60		2.48		2.33		2.20	17.15
21	2.29		2.41		2.48		2.58		2.48		2.41		2.32	16.97
22	2.18		2.31		2.40		2.52		2.49		2.50		2.43	16.83
23	2.19		2.27		2.38		2.43		2.49		2.52		2.50	16.82
Sum	6229		6264		6232		6217		6207		6272		6379	438.03

Sum for June = 7435.13 Divisor = (28d) 672; (29d) 696; (30d) 720; (31d) 744. Mean for month = 2.67

Tabulated by M. Guerrero Date _____ Summed by M. Guerrero Date _____

TIDES: HOURLY HEIGHTS

Station Manila Year 1981
 Observer M. Madriaga Lat. 14° 35' 14" Long. 120° 53' E
 Time Meridian 120° E Height datum is 130 (1901) which is 5.22 m. below B. M. 4276

MONTH AND DAY	Month	Day	Month	Day	Month	Day	Month	Day	Month	Day	Month	Day	HORIZONTAL SUM
	June	18		19		20		21		22		23	24
DAY OF BEGIN	119		120		121		122		123		124		125
Hour	Meters		Meters		Meters		Meters		Meters		Meters		Meters
0	2.52		2.53		2.53		2.42		2.31		2.28		2.26
1	2.56		2.58		2.55		2.47		2.37		2.35		2.30
2	2.60		2.61		2.63		2.52		2.43		2.41		2.42
3	2.67		2.67		2.66		2.58		2.48		2.48		2.50
4	2.74		2.72		2.71		2.63		2.55		2.53		2.55
5	2.87		2.82		2.85		2.70		2.57		2.57		2.60
6	2.97		2.93		2.88		2.78		2.68		2.60		2.60
7	3.11		3.06		3.00		2.90		2.76		2.65		2.64
8	3.25		3.20		3.14		3.04		2.90		2.70		2.66
9	3.32		3.35		3.30		3.17		3.02		2.84		2.73
10	3.35		3.45		3.43		3.28		3.18		3.00		2.84
11	3.30		3.46		3.45		3.33		3.26		3.13		2.97
Noon	3.18		3.37		3.40		3.35		3.30		3.23		3.06
13	2.98		3.23		3.30		3.31		3.26		3.23		3.12
14	2.78		3.00		3.13		3.20		3.20		3.20		3.13
15	2.63		2.80		2.89		2.96		3.05		3.11		3.08
16	2.33		2.59		2.65		2.70		2.88		2.95		2.98
17	2.19		2.20		2.37		2.48		2.65		2.75		2.83
18	2.08		2.17		2.13		2.25		2.42		2.53		2.64
19	2.10		2.10		2.03		2.13		2.23		2.31		2.46
20	2.16		2.18		2.11		2.03		2.10		2.14		2.30
21	2.30		2.30		2.22		2.03		2.14		2.06		2.18
22	2.44		2.41		2.26		2.11		2.10		2.00		2.13
23	2.50		2.49		2.31		2.20		2.20		2.14		2.15
Sum	64.83		66.19		65.92		64.01		61.69		60.27		63.22
Sum for	2.70		2.76		2.78		2.76		2.87		2.90		2.94
Divisor: (28d) 672; (29d) 696; (30d) 720; (31d) 744. Mean for month:													

Tabulated by _____ Date _____ Summed by _____ Date _____

TIDES: HOURLY HEIGHTS

Station Manila Year 1951
 Observer M. Modriago Lat. 14° 35' N Long. 120° 58' E
 Time Meridian 120° E Height datum is ISO (190) which is 5.30 m. below B. M. 426

MONTH AND DAY	Month	Day	Month	Day	Month	Day	Month	Day	Month	Day	Month	Day	HORIZONTAL SUM	
	June	11	June	12	June	13	June	14	June	15	June	16		June
DAY OF SERIES	112		113		114		115		116		117		118	
Hour	Meters		Meters		Meters		Meters		Meters		Meters		Meters	
0	2.36		2.44		2.55		2.56		2.60		2.65		2.65	17.81
1	2.43		2.49		2.60		2.55		2.59		2.67		2.62	17.94
2	2.53		2.57		2.72		2.60		2.61		2.68		2.64	18.35
3	2.60		2.64		2.83		2.67		2.67		2.70		2.69	18.82
4	2.68		2.50		2.93		2.51		2.79		2.74		2.77	19.57
5	2.70		2.87		2.99		2.95		2.91		2.91		2.89	20.24
6	2.79		2.95		3.12		3.02		3.02		3.08		3.04	21.02
7	2.85		3.01		3.18		3.08		3.13		3.20		3.16	21.61
8	2.87		2.98		3.21		3.13		3.18		3.26		3.27	21.90
9	2.85		2.96		3.14		3.15		3.19		3.28		3.28	21.85
10	2.80		2.92		3.03		3.16		3.13		3.23		3.27	21.54
11	2.78		2.85		2.93		3.03		3.00		3.13		3.19	20.91
Noon	2.78		2.80		2.80		2.85		2.88		2.98		3.01	20.07
13	2.82		2.75		2.67		2.69		2.70		2.71		2.82	19.15
14	2.88		2.80		2.58		2.60		2.53		2.50		2.59	18.48
15	2.91		2.81		2.55		2.55		2.38		2.34		2.40	17.95
16	2.95		2.82		2.45		2.54		2.33		2.26		2.23	17.78
17	2.95		2.87		2.70		2.56		2.36		2.21		2.10	17.75
18	2.89		2.89		2.75		2.60		2.42		2.23		2.08	17.86
19	2.82		2.85		2.77		2.61		2.50		2.30		2.13	17.98
20	2.73		2.83		2.80		2.64		2.55		2.33		2.21	18.16
21	2.63		2.82		2.76		2.71		2.60		2.47		2.36	18.35
22	2.54		2.75		2.73		2.73		2.63		2.59		2.48	18.45
23	2.48		2.64		2.65		2.66		2.65		2.60		2.54	18.24
Sum	65.61		67.16		67.67		66.45		65.35		65.72		64.42	461.78
Mean for month	2.73		2.80		2.82		2.77		2.75		2.74		2.71	

Observed by Date Summed by Date
 Divisor = (28d) 672; (29d) 696; (30d) 720; (31d) 744. Mean for month =

TIDES: HOURLY HEIGHTS

Station Manila Year 1951
 Observer M. Madriaga Lat. 14° 30' N Long. 120° 58' E
 Time Meridian 120° E Height datum is TSD (1901) which is 1.75 m. below B. M. 426

MONTH AND DAY	Month	Day	Month	Day	Month	Day	Month	Day	Month	Day	Month	Day	HORIZONTAL SUM	
	June	4	June	5	June	6	June	7	June	8	June	9		June
DAY OF SERIES	105		106		107		108		109		110			
Hour	Meters		Meters		Meters		Meters		Meters		Meters		Meters	
0	2.51		2.46		2.35		2.22		2.23		2.22		2.21	16.25
1	2.50		2.50		2.43		2.32		2.37		2.27		2.28	16.82
2	2.58		2.61		2.55		2.39		2.45		2.35		2.41	17.34
3	2.66		2.63		2.58		2.50		2.52		2.48		2.43	17.78
4	2.62		2.63		2.60		2.58		2.61		2.53		2.50	18.11
5	2.61		2.68		2.64		2.60		2.62		2.60		2.62	18.49
6	2.51		2.75		2.70		2.65		2.64		2.65		2.70	18.92
7	2.48		2.90		2.86		2.73		2.71		2.68		2.73	19.53
8	3.16		3.07		2.95		2.84		2.76		2.73		2.76	20.36
9	3.33		3.26		3.13		3.05		2.97		2.78		2.86	21.20
10	3.44		3.41		3.33		3.17		2.97		2.54		2.56	22.04
11	3.43		3.44		3.50		3.27		3.10		2.91		2.87	22.53
Noon	3.38		3.42		3.53		3.35		3.20		3.00		2.91	22.79
13	3.16		3.26		3.43		3.36		3.21		3.03		2.99	22.46
14	2.88		3.00		3.28		3.23		3.20		3.09		3.03	21.81
15	2.62		3.72		3.08		3.21		3.13		3.10		3.11	20.47
16	2.36		2.45		2.89		3.02		2.95		3.01		3.02	19.18
17	2.12		2.70		2.60		2.51		2.72		2.93		2.94	18.22
18	1.93		2.61		2.33		2.53		2.10		2.73		2.58	16.91
19	1.90		1.90		2.09		2.30		2.31		2.14		2.75	15.85
20	1.91		1.90		1.88		2.14		2.16		2.35		2.43	15.10
21	2.02		1.95		1.98		2.02		2.13		2.27		2.43	14.85
22	2.17		2.06		2.09		2.03		2.11		2.20		2.35	15.04
23	2.31		2.19		2.15		2.16		2.15		2.14		2.32	15.45
Sum	63.95		63.47		65.04		64.65		63.73		63.57		64.89	448.70
Sum for	2.64		2.69		2.71		2.69		2.66		2.62		2.67	
Divisor	(28d) 672;		(29d) 696;		(30d) 720;		(31d) 744.		Mean for month =					

Tabulated by _____ Date _____ Summed by _____ Date _____

TIDES: HOURLY HEIGHTS

DEPARTMENT OF NATIONAL DEFENSE
BUREAU OF COAST AND GEODETIC SURVEY

Station Manila

Year 1951

Observer M. Modriago

Lat. 14° 35' N

Long. 120° 55' E

Time Meridian 120° E Height datum is 130 (1901) which is 5.280

m. below B. M. 4.286

MONTH AND DAY	Month	Day	Month	Day	Month	Day	Month	Day	Month	Day	Month	Day	HORIZONTAL SUM	
	May	28	29	30	31	June	1	2	3					
DAY OF SERIES	98		99		100		101		102		103		104	
Hour	Meters		Meters		Meters		Meters		Meters		Meters		Meters	
0	2.13		2.21		2.31		2.43		2.53		2.58		2.55	16.76
1	2.13		2.21		2.28		2.38		2.46		2.53		2.53	16.52
2	2.14		2.23		2.30		2.40		2.45		2.51		2.53	16.66
3	2.17		2.25		2.34		2.46		2.51		2.54		2.54	17.06
4	2.26		2.45		2.51		2.59		2.66		2.63		2.63	17.81
5	2.40		2.55		2.60		2.69		2.81		2.74		2.72	18.61
6	2.58		2.63		2.70		2.80		2.93		2.91		2.96	19.49
7	2.63		2.70		2.78		2.91		3.05		3.08		3.12	20.27
8	2.66		2.71		2.82		2.96		3.13		3.21		3.24	20.75
9	2.67		2.70		2.82		2.96		3.15		3.26		3.38	20.94
10	2.67		2.63		2.78		2.88		3.10		3.25		3.40	20.71
11	2.67		2.55		2.70		2.75		2.95		3.13		3.33	20.08
Noon	2.69		2.53		2.58		2.57		2.73		2.90		3.18	19.20
13	2.74		2.58		2.49		2.45		2.51		2.65		2.91	18.33
14	2.81		2.62		2.48		2.40		2.33		2.31		2.60	17.55
15	2.90		2.68		2.50		2.36		2.21		2.16		2.33	17.14
16	2.93		2.76		2.55		2.40		2.18		2.08		2.10	16.97
17	2.94		2.85		2.60		2.42		2.21		2.03		1.95	17.00
18	2.88		2.86		2.66		2.51		2.30		2.07		1.93	17.21
19	2.74		2.76		2.70		2.63		2.41		2.20		1.96	17.42
20	2.64		2.72		2.70		2.68		2.51		2.31		2.12	17.68
21	2.48		2.61		2.66		2.71		2.60		2.44		2.17	17.67
22	2.36		2.50		2.60		2.70		2.63		2.53		2.29	17.61
23	2.27		2.40		2.51		2.61		2.61		2.52		2.40	17.38
Sum	61.84		61.86		62.02		62.65		63.00		62.58		62.85	436.82

Sum for May 18 = 1913.39 Divisor = (28d) 672; (29d) 696; (30d) 720; (31d) 744. Mean for month = 2.57

Tabulated by _____ Date _____ Summed by _____ Date _____

Gen. J. 1981
Aug.

TIDES: HOURLY HEIGHTS

DEPARTMENT OF NATIONAL DEFENSE
BUREAU OF COAST AND GEODETIC SURVEY

Station Manila (Engg. Is.) Year 1979
 Observer Fr. Madriaga 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	
	July	30	Aug.	31	Aug.	1	Aug.	2	Aug.	3	Aug.	4		Aug.
DAY OF SERIES														
Hour	Meters		Meters		Meters		Meters		Meters		Meters		Meters	
0	2.67		2.69		2.75		2.74		2.70		2.68		2.65	18.88
1	2.74		2.77		2.86		2.84		2.74		2.69		2.74	19.38
2	2.77		2.82		2.95		2.95		2.86		2.83		2.80	20.04
3	2.80		2.84		2.99		3.04		2.95		2.90		2.95	20.41
4	2.77		2.84		3.02		3.08		3.02		3.02		3.08	20.83
5	2.71		2.80		2.99		3.08		3.10		3.11		3.23	21.02
6	2.69		2.74		2.90		2.99		3.06		3.14		3.35	20.87
7	2.69		2.70		2.80		2.89		3.00		3.11		3.35	20.54
8	2.75		2.69		2.72		2.83		2.89		3.03		3.23	20.14
9	2.84		2.76		2.65		2.74		2.80		2.89		3.16	19.84
10	2.92		2.83		2.62		2.69		2.68		2.77		3.03	19.53
11	2.98		2.90		2.65		2.63		2.54		2.62		2.85	19.17
Noon	3.03		2.96		2.71		2.60		2.45		2.53		2.68	18.90
13	3.04		3.00		2.80		2.62		2.39		2.38		2.47	18.72
14	3.06		3.03		2.88		2.65		2.35		2.27		2.30	18.54
15	3.05		3.03		2.92		3.71		2.38		2.22		2.22	18.51
16	2.95		2.98		2.91		2.74		2.44		2.28		2.16	18.46
17	2.82		2.89		2.86		2.71		2.49		2.38		2.29	18.44
18	2.69		2.76		2.80		2.68		2.54		2.47		2.37	18.31
19	2.56		2.44		2.69		2.65		2.57		2.51		2.40	18.06
20	2.44		2.53		2.64		2.62		2.58		2.54		2.53	17.88
21	2.41		2.47		2.59		2.59		2.59		2.59		2.56	17.98
22	2.46		2.50		2.63		2.60		2.60		2.60		2.60	17.98
23	2.56		2.63		2.68		2.63		2.62		2.62		2.62	18.36
Sum	66.40		66.79		67.00		66.29		64.34		64.16		65.72	460.71
Sum for	July 79	2.68	2.46	Divisor	(28d) 672	(29d) 696	(30d) 720	(31d) 744	Mean for month	2.69				

Tabulated by J. L. B. Date Aug. 1979 Summed by J. L. B. Date Aug. 1979

Aug. 1979

BCGS FORM No. XXXX

TIDES: HOURLY HEIGHTS

DEPARTMENT OF NATIONAL DEFENSE
BUREAU OF COAST AND GEODETIC SURVEY

Station Manila (Engg Is.) Year 1979
 Observer Pr. Madriaga Lat. 14° 35' N Long. 120° 58' E
 Time Meridian 120° E Height datum is T50(1961) which is 5.34 m. below B. M. 4a

MONTH AND DAY	Month	Day	Month	Day	Month	Day	Month	Day	Month	Day	Month	Day	HORIZONTAL SUM	
	Aug.	6		7		8		9		10		11		12
DAY OF READING														
Hour	Meters		Meters		Meters		Meters		Meters		Meters		Meters	
0	2.63		2.60		2.56		2.54		2.57		2.68		2.77	18.99
1	2.68		2.65		2.56		2.55		2.60		2.67		2.83	18.56
2	2.79		2.68		2.56		2.53		2.58		2.68		2.86	18.88
3	2.89		2.77		2.62		2.55		2.55		2.63		2.83	18.84
4	3.04		2.90		2.69		2.57		2.55		2.57		2.75	17.11
5	3.20		3.06		2.87		2.68		2.58		2.56		2.68	19.63
6	3.32		3.22		3.05		2.86		2.68		2.57		2.65	20.37
7	3.41		3.38		3.22		3.08		2.81		2.67		2.66	21.23
8	3.44		3.44		3.35		3.20		3.05		2.87		2.71	22.08
9	3.38		3.44		3.44		3.44		3.22		3.01		2.83	22.77
10	3.23		3.30		3.44		3.50		3.39		3.16		3.00	23.68
11	3.05		3.22		3.36		3.47		3.44		3.28		3.17	22.94
Noon	2.74		2.95		3.23		3.32		3.43		3.52		3.24	22.23
13	2.62		2.74		2.92		3.11		3.35		3.52		3.27	21.35
14	2.34		2.47		2.65		2.86		3.17		3.26		3.24	19.99
15	2.19		2.23		2.38		2.62		2.87		3.08		3.17	18.66
16	2.08		2.06		2.16		2.38		2.62		2.83		3.02	17.15
17	2.16		2.00		2.01		2.19		2.41		2.62		2.80	16.25
18	2.20		2.06		2.01		2.04		2.26		2.50		2.68	15.76
19	2.32		2.17		2.08		2.00		2.21		2.44		2.55	15.83
20	2.44		2.29		2.16		2.16		2.21		2.38		2.50	16.14
21	2.53		2.41		2.30		2.31		2.31		2.39		2.51	16.76
22	2.50		2.53		2.41		2.47		2.45		2.47		2.57	17.48
23	2.60		2.55		2.52		2.54		2.58		2.62		2.67	18.10
Sum	65.86		65.18		64.53		65.13		65.93		66.62		68.08	461.35
Sum for	2.74		2.72		2.67		2.71		2.74		2.78		2.84	
Divisor = (28d) 672; (29d) 696; (30d) 720; (31d) 744. Mean for month =														

Tabulated by LDW Date Summed by Date 1-20-80

TIDES: HOURLY HEIGHTS

DEPARTMENT OF NATIONAL DEFENSE
BUREAU OF COAST AND GEODETIC SURVEY

Station Manila (Engly. Is.)

Observer Br. Bradinger

Lat. 14° 55' N

Year 1979

Long. 120° 53' E

Time Meridian 120° E Height datum is TSD (1901) which is 5.34 m. below B. M. 42

MONTH AND DAY	Month Day		Month Day		Month Day		Month Day		Month Day		Month Day		HORI- ZONTAL SUM		
	Month	Day	Month	Day	Month	Day	Month	Day	Month	Day	Month	Day			
	Aug.	13		14		15		16		17		18		19	
DAY OF SERIES															
Hour	Meters		Meters		Meters		Meters		Meters		Meters		Meters		Meters
0	2.83		2.93		2.80		2.72		2.65		2.50		2.56		19.05
1	2.95		2.99		2.92		2.85		2.70		2.69		2.62		19.74
2	3.02		3.05		3.01		2.95		2.87		2.74		2.71		20.27
3	3.00		3.07		3.07		3.02		2.90		2.86		2.78		21.76
4	2.93		3.05		3.10		3.08		3.04		2.98		2.92		21.10
5	2.84		3.00		3.05		3.11		3.10		3.05		3.05		21.20
6	2.77		2.92		2.98		3.07		3.12		3.11		3.14		21.11
7	2.71		2.84		2.90		3.01		3.06		3.14		3.18		21.84
8	2.71		2.73		2.82		2.93		3.00		3.11		3.18		20.48
9	2.77		2.69		2.73		2.84		2.92		3.02		3.11		21.08
10	2.86		2.75		2.67		2.73		2.82		2.86		3.02		19.71
11	2.95		2.83		2.67		2.63		2.73		2.67		2.86		19.54
Noon	3.07		2.92		2.77		2.56		2.60		2.50		2.68		19.10
13	3.1		3.01		2.87		2.57		2.48		2.40		2.50		18.94
14	3.14		3.09		3.00		2.69		2.41		2.28		2.34		18.95
15	3.13		3.13		3.07		2.81		2.42		2.20		2.25		19.01
16	3.05		3.10		3.10		2.94		2.42		2.21		2.17		18.99
17	2.95		2.97		3.03		3.02		2.45		2.25		2.18		18.87
18	2.77		2.83		2.96		3.07		2.44		2.30		2.21		18.58
19	2.68		2.75		2.84		3.02		2.46		2.35		2.34		18.40
20	2.60		2.64		2.71		2.87		2.47		2.37		2.41		18.04
21	2.60		2.57		2.61		2.70		2.50		2.41		2.27		17.88
22	2.62		2.62		2.61		2.61		2.51		2.46		2.53		17.96
23	2.73		2.67		2.66		2.63		2.53		2.53		2.56		18.33
Sum	68.79		69.19		68.97		68.13		64.76		63.03		63.74		466.88
Sum for	2.87		2.88		2.87		2.81		2.70		2.63		2.66		2.68
Divisor = (28d) 672; (29d) 696; (30d) 720; (31d) 744. Mean for month =															

Tabulated by 11800

Date

Summed by Officer

Date

TIDES: HOURLY HEIGHTS

Station Manila (Eng'g. Is.) Year 1979
 Observer R. Modridge 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. 4a

MONTH AND DAY	Month	Day	Month	Day	Month	Day	Month	Day	Month	Day	Month	Day	HORIZONTAL SUM
	Aug.	30		31		22		23		24		25	
DAY OF SERIES													
Hour	Meters		Meters		Meters		Meters		Meters		Meters		Meters
0	2.57		2.60		2.64								
1	2.59		2.60		2.67								
2	2.65		2.60		2.68								
3	2.74		2.69		2.69								
4	2.86		2.82		2.71								
5	2.98		2.95		2.81								
6	3.08		3.06		2.95								
7	3.18		3.15		3.05								
8	3.23		3.23		3.15								
9	3.23		3.27		3.21								
10	3.15		3.25		3.26								
11	3.02		3.18		3.22								
Noon	2.83		3.06		3.16								
13	2.65		2.85		3.02								
14	2.47		2.62		2.84								
15	2.31		2.45		2.60								
16	2.18		2.29		2.36								
17	2.15		2.16		2.20								
18	2.22		2.18		2.20								
19	2.30		2.26		2.27								
20	2.38		2.34		2.36								
21	2.44		2.41		2.46								
22	2.51		2.50		2.57								
23	2.56		2.58		2.65								
Sum	64.28		65.10		65.73								

No observations taken (page)

Sum for Aug. 79 = 2750.86 Divisor = 28d 672; (29d) 696; (30d) 720; (31d) 744. Mean for month = 2.75

Tabulated by J. J. [Signature] Date _____ Summed by _____ Date _____

TIDES: HOURLY HEIGHTS

Station MANILA (ENG. 15.) Year 1975
 Observer LEOPOLDO FELLES Lat. 14° 25' 12" Long. 120° 58' 15"
 Time Meridian 120° E Height datum to 250 (1911) which is 17.537 m. below B. M. 49

MONTH AND DAY	Month	Day	Month	Day	Month	Day	Month	Day	Month	Day	HORIZONTAL SUM				
	Oct	29	30	31	NOV.	1	2	3	4						
DAY OF SERIES	302		303		304		305		306		307		308		
Hour	Meters		Meters		Meters		Meters		Meters		Meters		Meters		
0	245		246		248		245		246		245		247		19.99
1	246		256		254		263		274		303		308		19.84
2	264	2.0	250		241		246		259		284		294		18.96
3	246	2.64	249	3.1	239	3.8	236		238		244		248		17.58
4	273		250	2.49	238	2.38	230		225		230		245		16.97
5	279		253		242		228	5.0	219	5.6	218		221		16.60
6	250		240		247		224	7.25	218	7.18	209	6.4	205		16.59
7	280		266		254		247		202		209	2.08	201	7.3	16.87
8	287	2.0	277		271		257		232		210		201	7.01	17.35
9	286	2.87	279	2.0	276	2.7	247		243		234		209		17.82
10	277		279	2.7	277	2.77	270	10.7	253		240		216		18.12
11	268		270		271		271	8.71	247		252		294		18.16
Noon	260		268		265		265		267	12.5	263		232		18.14
13	248		257		256		263		248	7.68	256	13.5	245		17.86
14	244	14.5	248	14.8	254		253		257		256	2.57	247	14.4	17.69
15	244	2.44	247		253	15.0	252	15.4	259		258		247	2.48	17.56
16	249		251		254	2.53	250	7.57	255	16.5	258	15.8	246	16.0	17.61
17	254		263		263		250		256	2.56	256	2.55	244	2.46	17.88
18	263		275		277		253		257		253		249		18.68
19	272		283		290		288		279		274		260		19.46
20	279		295		303		304		299		286		274		20.40
21	283	21.3	299	21.2	306	21.0	310		311		298		296		21.05
22	283	2.83	296	2.99	303	3.06	311	22.2	315	22.7	313	14	304		21.25
23	277		280		294		310		312		315	23.2	318	13.13	21.15
Sum	6458		6411		6396		6358		6293		6246		6060		442.28
Sum of	2169	78	2065	31	2067	31	2067	31	2067	31	2067	31	2067	31	2067
Divisor	(28d)	(29d)	(30d)	(31d)	(31d)	(31d)	(31d)	(31d)	(31d)	(31d)	(31d)	(31d)	(31d)	(31d)	(31d)
Mean for month	= 2.77														

Calculated by J.P. Date 7-11-79 Summed by Ally Date

TIDES: HOURLY HEIGHTS

DEPARTMENT OF NATIONAL DEFENSE
BUREAU OF COAST AND GEODETIC SURVEY

Station MANILA (ENG. 13.)

Year 1975

Observer LEOPOLDO FRILLES

Lat. 14° 35' N

Long. 120° 55' E

Time Meridian 120° E

Height datum is MLLW (1901) which is 5.24 m. below B. M. 4.2

MONTH AND DAY	Month	Day	Month	Day	Month	Day	Month	Day	Month	Day	Month	Day	HORIZONTAL SUM		
	007	22	007	23	007	24	007	25	007	26	007	27	007	28	
DAY OF SERIES	295		296		297		298		299		300		301		
Hour	Meters		Meters		Meters		Meters		Meters		Meters		Meters		
0	317	0.6	311	H	309	H	307		298		311		290	20.92	
1	317	3.17	312	1.3	310	1.5	306		289		326	1.7	266	1.6	21.20
2	314		314	3.17	311	3.11	309		286		331	3.35	265	2.66	21.28
3	303		306		308		309	3.0	287		325		274		21.15
4	284		293		300		305	3.09	285	1.4	317	2.59	281		20.68
5	265		274		288		297		288		312		287		20.11
6	249		262		270		284		287		304		291	6.8	19.49
7	235		248		257		270		282		310		293	7.73	18.83
8	224		238		245		258		266		296		291		18.23
9	222	29.2	233		245		247		255		285		283		17.72
10	223	2.31	232	10.0	239		237		244		285	6.1	286		17.24
11	234		232	2.31	238	11.2	225		235		285	5.0	266		16.73
Noon	240		234		229	7.25	223	13.3	238		282	3.4	258	12.2	16.56
12	248		239		234		220	2.23	237	13.0	280	3.9	245	2.34	16.65
13	253		246		241		234		237	2.37	243		241	14.0	16.85
14	256		250		248		239		242		244		243	2.41	17.14
15	259		253		254		240		245		248		250		17.49
16	259		257		256		245		252		256		263		17.92
17	262		262		260		253		268		268		272		18.47
18	272		267		269		256		277		274		278		18.91
19	280		275		274		267		287		275	70.8	280		19.27
20	290		281		280		264		286		276	276	284	21.0	19.63
21	301		294		286		268		294		274		276	2.80	19.94
22	308		301		292		279		296		273		276		20.19
Sum	6443		6410		6413		6305		6446		6727		6520		462.60
Sum for	2168		2167		2167		2165		2169		2170		2172		
Divisor = (28d) 672; (29d) 696; (30d) 720; (31d) 744. Mean for month =															

Tabulated by JFA Date 75-11-21 Summed by [Signature] Date

TIDES: HOURLY HEIGHTS

Station: MANILA CANAL (S.) Year: 1928
 Observer: LEOPOLD FRILLES Lat. 14° 45' N Long. 121° 55' E
 Time Meridian: 120° E Height datum is 190 (1901) which is 11.5-37 FT 3.5-24 m. below B. M. 42

Month	Day	Month	Day	Month	Day	Month	Day	Month	Day	Month	Day	Horizontal Sum
Oct	15	16	17	18	19	20	21					
Hour	Meters	Meters	Meters	Meters	Meters	Meters	Meters	Meters	Meters	Meters	Meters	
0	280	293	293	305	300	317	318	317	315	318	0.0	21.24
1	286	299	297	303	299	309	317	317	317	317	3/4	20.44
2	279	285	287	299	281	295	304	304	304	304		19.57
3	272	281	284	295	285	294	299	299	299	299		18.69
4	277	283	285	298	281	293	298	298	298	298		17.89
5	290	297	298	302	292	298	297	297	297	297		17.59
6	304	294	297	290	299	295	293	293	293	293		17.62
7	315	287	289	291	290	292	295	295	295	295		17.99
8	322	297	297	290	299	292	295	295	295	295		18.49
9	324	304	304	286	294	298	297	297	297	297		18.94
10	322	307	307	288	294	295	294	295	295	295		19.27
11	312	304	304	290	297	292	293	293	293	293		19.44
Noon	296	295	289	280	271	261	252	252	252	252		19.44
12	281	279	282	280	273	265	256	256	256	256		19.76
13	265	269	273	276	271	266	266	266	266	266		18.81
14	263	266	268	270	268	266	266	266	266	266		18.57
15	271	259	260	264	262	266	266	266	266	266		18.41
16	270	260	266	264	264	266	266	266	266	266		18.52
17	279	266	268	270	269	266	266	266	266	266		18.81
18	293	282	280	281	278	279	275	275	275	275		19.68
19	304	298	298	296	289	287	285	285	285	285		20.47
20	310	310	305	309	305	302	298	298	298	298		21.39
21	309	311	308	311	312	312	310	310	310	310		21.73
22	303	306	307	310	312	317	317	317	317	317		21.77
Sum	6023	6193	6162	6530	6458	6484	6481	6481	6481	6481		663.93
Sum for	2.90	2.83	2.76	2.72	2.69	2.70	2.70	2.70	2.70	2.70		
Divisor = (28d) 672; (29d) 696; (30d) 720; (31d) 744. Mean for month =												

Calculated by W. H. G. Date 7-11-27 Summed by W. H. G. Date _____

TIDES: HOURLY HEIGHTS

DEPARTMENT OF NATIONAL DEFENSE
BUREAU OF COAST AND GEODETIC SURVEY

Station MANILA (ENGG. IS.)

Year 1974

Observer LEOPOLDO FRILLES

Lat. 14° 35' N

Long. 120° 58' E

Time Meridian 120° E Height datum is 100 (140) which is 5.24 m. below B. M. 42

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				
	281	8	282	9	283	10	284	11	285	12	286	13	287	14
Hour	Meters	L	Meters	L	Meters	L	Meters	L	Meters	L	Meters	L	Meters	L
0	320	0.5	329	H	334		340		322	304	0.4	299	0.5	22.49
1	329	2.0	337	1.6	335		340		329	299	2.9	294	2.9	22.54
2	319		338	3.28	340	2.9	338		332	305		296		22.68
3	317		337		343	3.43	341		340			301		22.91
4	297		321		337		349	4.2	348	H		308		22.91
5	274		302		325		345	3.49	353	5.5		340	H	22.61
6	254		287		318		334		350	3.54		342	6.3	22.24
7	243		271		306		323		341			338	3.43	21.64
8	232		255		289		307		325			334	3.44	20.80
9	223	L	240	L	274		292		308			327		20.06
10	229	2.28	238	10.2	268		281		299			319		19.57
11	229		252	2.93	256	L	270	L	279			309		19.04
Noon	250		252		262	2.58	264	2.63	266			279		18.71
13	256		263		276		282		254	1.35		282	0.5	18.65
14	261		265		271		268		257	2.55		260	2.55	18.69
15	268		279		280		280		262			262	1.50	18.97
16	272		305		297		286		276			274	2.59	19.72
17	275		314		317	H	295		287			283		20.48
18	276		315		314	3.21	306		294			297		20.91
19	298		313		314		314		305			306		21.22
20	283		306		304	L	314		305	H		317		21.39
21	294		315		300	2.2	314		305	3.07		318	H	21.07
22	302		321		300	2.97	313		306			312	3.18	21.68
23	317		328		314		317		304			303		21.85
Sum	66.15		70.84		72.93		73.99		73.53			75.37		573.43
Sum for	2.76		-2.75		3.84		3.88		3.06			3.06		3.03

Divisor = (28d) 612; (29d) 696; (30d) 720; (31d) 744. Mean for month =

Tabulated by NA Date 12-11-70 Summed by Allyn Date

TIDES: HOURLY HEIGHTS

DEPARTMENT OF NATIONAL DEFENSE
BUREAU OF COAST AND GEODETIC SURVEY

Station MANILA (ENR.G. 151) Year 1978
 Observer LEOPOLDO FRILLES Lat. 14° 35' N Long. 120° 58' E
 Time Meridian 122° E Height datum is 750 (190) which is 5.34 m. below B. M. 42

Month and Day	Month	Day	Month	Day	Month	Day	Month	Day	Month	Day	Month	Day	Month	Day	Horizontal Sum
Day of Month	24		25		26		27		28		29		30		
Hour	Meters	Meters	Meters	Meters	Meters	Meters	Meters	Meters	Meters	Meters	Meters	Meters	Meters	Meters	Meters
0	285	280	277	274	274	276	270	270	270	270	270	270	270	270	19.54
1	289	290	288	278	278	271	274	274	274	274	274	274	274	274	19.72
2	292	298	290	288	288	284	275	275	275	275	275	275	275	275	20.02
3	291	301	299	297	297	290	280	280	280	280	280	280	280	280	20.53
4	288	299	295	295	295	285	286	286	286	286	286	286	286	286	20.72
5	286	297	295	295	295	285	286	286	286	286	286	286	286	286	20.82
6	274	292	299	305	305	304	304	304	304	304	304	304	304	304	20.78
7	262	282	291	300	300	306	306	306	306	306	306	306	306	306	20.59
8	253	266	281	288	288	306	306	306	306	306	306	306	306	306	20.11
9	244	252	271	280	280	299	302	302	302	302	302	302	302	302	19.60
10	238	237	250	277	277	286	293	293	293	293	293	293	293	293	18.83
11	235	230	238	256	256	271	283	283	283	283	283	283	283	283	18.03
Noon	236	209	231	244	244	253	266	266	266	266	266	266	266	266	17.35
13	239	230	219	233	233	246	250	250	250	250	250	250	250	250	16.76
14	245	232	216	232	232	238	238	238	238	238	238	238	238	238	16.36
15	251	235	220	228	228	226	228	228	228	228	228	228	228	228	16.31
16	256	241	232	239	239	239	239	239	239	239	239	239	239	239	16.65
17	257	244	244	234	234	247	241	241	241	241	241	241	241	241	17.09
18	257	252	246	244	244	262	250	250	250	250	250	250	250	250	17.08
19	258	257	246	241	241	262	258	258	258	258	258	258	258	258	17.82
20	261	260	253	246	246	268	265	265	265	265	265	265	265	265	18.21
21	264	259	262	264	264	271	271	271	271	271	271	271	271	271	18.65
22	263	269	269	273	273	274	274	274	274	274	274	274	274	274	19.03
23	269	271	273	275	275	274	274	274	274	274	274	274	274	274	19.08
Sum	63.88	63.06	63.01	63.86	63.86	65.71	65.33	65.25	65.25	65.25	65.25	65.25	65.25	65.25	450.09
Sum for	21.69	21.65	21.63	21.66	21.66	21.74	21.72	21.72	21.72	21.72	21.72	21.72	21.72	21.72	Mean for month = 2.70

Tabulated by [Signature] Date [Date] Summed by [Signature] Date [Date]

TIDES HOURLY HEIGHTS

DEPARTMENT OF NATIONAL DEFENSE
BUREAU OF COAST AND GEODETIC SURVEY

Station DANILA (ENGG. IS.) Year 1978
 Observer LEOPOLDO EXILLES Lat. 14° 35' N Long. 120° 50' E
 Time Meridian 120° E Height datum IGSO (1901) which is 175.37 m. below B.M. 42

MONTH AND DAY	Month	Day	Month	Day	Month	Day	Month	Day	Month	Day	Month	Day	HORIZONTAL SUN
	Oct.	1		2		3		4		5		6	7
DAY OF SEASONS	276		275		276		277		278		279		280
Hour	Meters	Meters	Meters	Meters	Meters	Meters	Meters	Meters	Meters	Meters	Meters	Meters	Meters
0	288	286	283	286	300	314	314	314	314	314	314	314	20.41
1	288	283	277	277	290	308	318	318	318	318	318	318	19.79
2	288	280	275	275	294	308	318	318	318	318	318	318	19.04
3	288	275	270	270	298	308	318	318	318	318	318	318	18.34
4	288	267	264	264	302	308	318	318	318	318	318	318	17.62
5	288	263	261	261	305	308	318	318	318	318	318	318	17.28
6	288	264	264	264	306	308	318	318	318	318	318	318	17.27
7	288	270	272	272	306	308	318	318	318	318	318	318	17.31
8	288	274	273	273	306	308	318	318	318	318	318	318	18.02
9	300	292	283	283	306	308	318	318	318	318	318	318	18.79
10	302	302	294	294	306	308	318	318	318	318	318	318	19.26
11	300	301	296	296	306	308	318	318	318	318	318	318	19.69
Noon	287	289	293	293	306	308	318	318	318	318	318	318	19.65
12	288	277	280	280	306	308	318	318	318	318	318	318	19.34
13	288	271	266	266	306	308	318	318	318	318	318	318	18.77
14	288	261	258	258	306	308	318	318	318	318	318	318	18.30
15	288	250	248	248	306	308	318	318	318	318	318	318	17.84
16	288	244	245	245	306	308	318	318	318	318	318	318	17.75
17	288	245	246	246	306	308	318	318	318	318	318	318	17.97
18	288	257	248	248	306	308	318	318	318	318	318	318	18.54
19	288	266	257	257	306	308	318	318	318	318	318	318	19.37
20	288	274	271	271	306	308	318	318	318	318	318	318	20.24
21	288	281	283	283	306	308	318	318	318	318	318	318	20.91
22	288	289	289	289	306	308	318	318	318	318	318	318	21.10
23	288	287	290	290	306	308	318	318	318	318	318	318	21.10
Sum	6480	6480	6426	6415	6608	6657	6657	6657	6657	6657	6657	6657	452.68
Sup for	270	270	270	270	270	270	270	270	270	270	270	270	Mean for month =

Tabulated by JO Date 7-8-11-78 Summed by JO Date 7-8-11-78

Oct

TIDES: HOURLY HEIGHTS

Station MANILA (ENG 15.) Year 1978
 Observer LEOPOLDO PRILLES Lat. 14° 35' N Long. 120° 58' E
 Time Meridian 120° E Height datum is 750 (1901) which is 175.37 m. below B. M. 4.2

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		
Day of Month	246		247		248		249		250		251	252
Hour	Meters		Meters		Meters		Meters		Meters		Meters	
0	268		270		278 H 0.1		284 H 0.5		289 H 0.9		293	19.71
1	260		261		276 H 2.75		284 H 2.86		292 H 2.94		299 H 2.99	19.69
2	253		256		269		280		281		298	19.64
3	250	3.4	248	L	254		261		281		286	18.90
4	251	2.50	244	4.4	244		260		270		289	18.42
5	257		245	2.44	244	5.2	249		257		268	18.00
6	271		252		246	2.44	244	6.1	248		255	17.80
7	288		267		256		246	2.44	244	7.1	247	17.97
8	302		284		268		252		247	2.44	244	18.63
9	310		301		284		270		256		249	19.08
10	319	10.5	318		298		283		268		255	19.74
11	319	3.20	319	H 11.2	308 H 11.9		293 H 12.4		279 H 12.4		260	20.22
Noon	312		318	3.19	312	3.10	298	12.4	283		264	20.35
12	296		304		307		289	3.02	280	H 13.4	268	20.26
13	284		294		287		273		258	2.86	270	19.80
14	261		270		276		270		264	14.2	265	18.92
15	239		250		257		254		261	2.70	266	17.99
16	230	17.6	233		241		241		252		262	17.28
17	227	2.28	238	L 18.0	248	L 18.4	241	18.6	247	L 18.7	258	17.02
18	235		230	2.28	248	2.14	241	2.16	246	2.45	250	17.03
19	240		238		248		241		251		257	19.36
20	251		247		254		257		262		261	18.00
21	262		262		265		268		271		272	18.74
22	269	23.7	273		276		279		283		281	19.47
23	269	27.0	273		276		279		283		286	
Sum	6434		6414		6449		6426		6422		6402	449.60
Sum for	2167		2167		2167		2167		2167		2167	

Obs. begun Sept. 7, 1977 after clearing installation of floatwell

Tabulated by AD Date Sept 11, 1978 Summed by AD Date Sept 11, 1978
 Divisor = (28d) 672 (29d) 696 (30d) 720 (31d) 744 Mean for month = 2167

TIDES: HOURLY HEIGHTS

DEPARTMENT OF NATIONAL DEFENSE
BUREAU OF COAST AND GEODESIC SURVEY

Station MANILA (ENGR. 12) Year 1978
 Observer LEOPOLDO FRILLES Lat. 14° 25' N Long. 120° 58' E
 Time Meridian 120° E Height datum is 50 (190) which is 17.33771 m. below B. M. 42

MONTH AND DAY	Month	Day	Month	Day	Month	Day	Month	Day	Month	Day	Month	Day	HORIZONTAL SUM
	Aug	29	29	29	30	30	31	SEPT.	1	2			
DAY OF BEARS	239	240	241	242	243	244	245						
Hour	Meters	Meters	Meters	Meters	Meters	Meters	Meters	Meters	Meters	Meters	Meters	Meters	Meters
0	273	275	271	268	267	268	265	1.5	265				18.87
1	284	281	277	272	267	264	264	2.6	262	2.4			19.07
2	294	280	284	277	270	265	265		256	2.3			19.30
3	302	301	295	287	277	269	269		257				19.89
4	307	310	305	298	289	278	278		264				20.51
5	308	312	312	302	300	290	290		275				21.04
6	302	312	315	304	309	304	304		288				21.44
7	292	306	316	316	317	312	312		301				21.62
8	280	296	311	318	321	320	320		313				21.60
9	267	286	301	310	320	322	322	9.1	320	9.7			21.26
10	253	270	287	298	310	320	320	3.2	301	3.2			20.59
11	240	258	271	284	296	310	310		315				19.74
Noon	223	242	256	267	280	294	304		304				18.76
12	231	242	241	250	261	276	286		286				17.77
13	232	227	228	234	244	257	267		267				16.90
14	238	228	224	230	240	247	247		247				16.23
15	240	236	226	232	240	247	247		234				16.18
16	246	244	234	239	247	248	248		248				16.40
17	248	248	240	257	265	274	274		274				16.73
18	249	250	241	259	264	273	273		273				17.05
19	257	250	245	248	253	253	253		249				17.57
20	255	260	257	257	259	261	261		254				18.07
21	259	265	264	266	266	266	266		266				18.52
22	266	268	268	268	268	267	268		269				18.74
Sum	63.88	64.51	64.69	65.91	65.37	65.70	65.15		65.15				624.01
Sum for	18	20	21	21	21	21	21		21				21

Tabulated by [Signature] Date 7-8-10-3 Summed by [Signature] Date [Signature]
 Sum for 18 = 2032.43 Divisor = (28d) 672 (29d) 696 (30d) 720 (31d) 744 Mean for month = 2.73
 (29, 29 + 1 = Ave. 37, 30, 31, 2 = interpolation) (float will align)

TIDES: HOURLY HEIGHTS

DEPARTMENT OF NATIONAL DEFENSE
BUREAU OF COAST AND GEODETIC SURVEY

Station MARINA (ENCLIC. 13.)

Year 1975

Observer LEOPOLDO ERILLES

Lat. 14° 35' N

Long. 120° 58' E

Time Meridian 120° E

Height datum is (1905) which is 5.34 m. below B. M. 49

MONTH AND DAY	Month	Day	Month	Day	Month	Day	Month	Day	Month	Day	Month	Day	HORI-ZONTAL SUM	
	Aug.	20		21		22		23		24		25	26	
DAY OF SERIES	232		233		234		235		236		237		238	
Hour	Meters		Meters		Meters		Meters		Meters		Meters		Meters	
0	261		278 ^H _{5.3}		287 _{0.8}		276		282		278		274	19.26
1	258		276 ^H _{7.7}		281 _{2.51}		284 _H		289 _{1.9}		292		288	19.68
2	252		267		276		283 _{2.64}		291 _{2.91}		297 _H		296 _H	19.62
3	247		258 ^L _{3.4}		249		277		287		297 _{2.78}		291 _{3.5}	19.30
4	248		247 ^L _{4.6}		256		266		277		291		301 _{3.07}	18.86
5	255		246 ^L _{3.46}		247 _{5.8}		257		265		281		296	18.44
6	269		250 ^L _{2.38}		244 _{2.44}		245		253		269		284	18.15
7	289		268 ^H		248		242 _{7.1}		246		257		275	18.18
8	304		279 ^H		258		244 _{2.44}		249 _{2.49}		248		261	18.41
9	327		302 ^H		273		252		249 _{2.49}		242 _{7.8}		252	18.89
10	336 ^H _{12.5}		318 ^H		288		264		248		241 _{7.41}		241	19.36
11	338 ^H _{3.38}		327 ^H _{11.7}		301		275		257		238 _{4.3}		237 _{11.4}	19.78
Noon	325		328 ^H _{8.25}		307 _{12.4}		285		266		238 _{2.37}		238	20.07
18	318		320		306 _{3.06}		288 ^H _{13.2}		271 _{13.9}		242		242	19.96
14	295		306		295		287 _{2.87}		270 _{2.70}		244 _{17.9}		244	19.56
15	274		287		283		286		268		246 _{2.57}		246	18.97
16	257		269		270		269		263		247 _{2.47}		247	18.28
17	238		252		253		257		255		248 _{17.5}		248	17.28
18	231 ^L _{15.2}		241 ^L _{15.5}		240		245		247		248 _{2.48}		248	17.04
19	230 ^L _{8.31}		238 ^L _{2.38}		247 _{19.3}		240 _{19.6}		242 _{17.9}		247		248	16.84
20	238		242		245 _{2.37}		235 _{7.37}		240 _{2.40}		247 _{20.1}		247 _{20.1}	16.92
21	247		252		253		242		245		248 _{2.48}		248 _{2.47}	17.24
22	258		260		265		252		259		252		252	17.88
23	270		278 ^H		265		266		266		263		263	18.67
Sum	605.79		65.73		642.0		623.1		621.73		626.3		627.5	446.94
Sum for 23 Hrs =	2.77		2.77		2.77		2.77		2.77		2.77		2.77	
Divisor = (28d) 672; (29d) 696; (30d) 720; (31d) 744. Mean for month =														

Tabulated by _____

Date _____

Summed by [Signature]

Date _____

TIDES: HOURLY HEIGHTS

DEPARTMENT OF NATIONAL DEFENSE
BUREAU OF COAST AND GEODETIC SURVEY

Station MANILA (ENGL. IS.)

Year 1978

Observer LEOPOLDO PAJLES

Lat. 12° 25' N

Long. 120° 55'

Time Meridian 125° E Height datum is 1905 which is 17.537 Ft or 5.24 m. below B. M. 40

MONTH AND DAY	Month	Day	Month	Day	Month	Day	Month	Day	Month	Day	Month	Day	HORIZONTAL SUM	
DAY OF SERIES	225		226		227		228		229		230		231	
Hour	Meters		Meters		Meters		Meters		Meters		Meters		Meters	
0	271		277		272		266		268		251	0.6 2.52	258	18.51
1	258		280		279		271		260		250		257	18.85
2	263		302		294		285		268		254		248	19.52
3	270		315		309		302		283		265		250	20.37
4	276	H 4.2	324		323		317		312		281		260	21.21
5	285	3.6	327	5.1	323		322		317		298		277	21.96
6	312		325	2.7	326	6.0	338		322		318		298	22.59
7	305		318		333	3.36	342	7.0	342		324		320	22.94
8	296		307		324		339	3.22	346	8.0	344		337	22.93
9	284		296		313		330		342	3.46	347	H 7.0	347	22.59
10	271		280		287		316		331		343	3.47	348	21.80
11	258		265		280		297		315		333		345	20.93
Noon	246		252		263		277		295		314		330	19.79
13	240	L 13.4	240		249		260		272		290		308	18.61
14	242	2.40	228	L 14.2	238		244		257		267		284	17.65
15	246		239	2.38	235	L 15.0	234	L 15.8	238		246		265	16.96
16	235		245		237	8.35	232	7.32	229	L 16.0	230		240	16.70
17	262		252		244		235		229	2.28	246	L 17.3	238	16.76
18	265		257		249		242		239		227	2.26	224	16.98
19	267		261		255		247		241		233		227	17.31
20	268		263		257		250		246		241		234	17.61
21	268		269		260		254		252		245		244	17.88
22	268		266		262		256		257	H 23.2	254	H 23.3	253	18.10
23	272		268		265		258		252	23.2	256	23.3	260	18.31
Sum	6631		6667		6707		6725		6685		6654		6625	46692
Sum for	276		278		279		279		279		276		275	
Divisor = (28d) 672; (29d) 696; (30d) 720; (31d) 744. Mean for month =														

Tabulated by [Signature] Date 7-8-78 Summed by [Signature] Date [Blank]

TIDES: HOURLY HEIGHTS

DEPARTMENT OF NATIONAL DEFENSE
BUREAU OF COAST AND GEODETIC SURVEY

Station RODIER (ENGL. IS.)

Year 1978

Observer RODOLFO PRILLES

Lat. 16° 45' N

Long. 120° 58' W

Time Meridian 120° E Height datum is 50 (1905) which is 5.34 m. below B. M. 49

MONTH AND DAY	Month	Day	Month	Day	Month	Day	Month	Day	Month	Day	Month	Day	HORIZONTAL SUM		
	218	6	219	7	220	8	221	9	222	10	223	11		224	
Hour	Meters		Meters		Meters		Meters		Meters		Meters		Meters		
0	265		263		261		273		274		271		280	18.93	
1	266		268	H. 2.2	270	H. 2.8	278		280		283		289	19.34	
2	266		266	2.65	271	2.71	279	H. 2.1	283	H. 2.6	293		299	19.57	
3	267		267		270		278	2.71	283	2.83	296	H. 3.02	302	H. 3.5	19.58
4	268		263	L. 4.7	268		276		280		285	H. 3.74	302	3.63	19.41
5	273		264	2.54	260	L. 3.5	266		272		280		301		19.19
6	274		259		260	2.59	263	L. 6.5	265		284		297		19.10
7	275		268		267		263	2.62	267	L. 7.8	274		286		19.12
8	312		285		276		268		266	2.58	265		285	L. 7.4	19.36
9	327		319		289		274		269		266	L. 9.3	265		19.73
10	338		319		305		286		283		287	2.58	280		20.21
11	341	H. 3.41	326		316		300		274		259		250	L. 11.1	20.66
Noon	340		329	H. 12.1	323	H. 12.7	311		285		267		253	L. 12.50	21.08
12	332		325	3.71	324		314	H. 13.7	289		276		259		21.17
13	311		317		315		312	H. 13.12	293	H. 14.1	297	H. 14.7	268		20.96
14	293		295		305		311		292	H. 14.93	278	H. 15.78	273		20.47
15	268		279		285		301		289		277		274	H. 16.2	19.83
16	250		259		271		275		277		274		293	H. 17.4	18.99
17	222		244		255		257		257		268		265		17.80
18	205	L. 19.0	235	L. 19.4	244		245		248		253		258		17.12
19	230	2.20	235	2.34	242	L. 20.0	245	L. 20.3	243	L. 20.3	253	L. 20.5	253	L. 20.5	16.99
20	237		238		244	L. 20.40	244	2.43	244	2.43	256	2.52	259	L. 20.52	17.13
21	240		246		252		257		258		256		258		17.61
22	259		258		261		262		260		260		268		18.28
Sum	6728		6589		6653		6627		6573		6521		6558		661.45
Sum for	7.80		2.74		2.77		2.76		2.73		2.72		2.73		Mean for month =

Tabulated by PH Date 5/16 Summed by PH Date 5/16