

TIDES: HOURLY HEIGHTS

DEPARTMENT OF NATIONAL DEFENSE
BUREAU OF COAST AND GEODETIC SURVEY

Station Manila Year 1915
Observer Leopoldo Frilles Lat. 14° 31' N Long. 120° 56' E
Time Meridian 120° E Height datum is 150 (140) which is 17.527 ft. 5.34 m. ft. below B. M. 4a

| 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 | Feet | | Feet | | Feet | | Feet | | Feet | | Feet | | Feet | |
| 0 | 2.57 | | 2.56 | | 2.58 | | 2.62 | | 2.67 | U.V. 2.64 | 2.74 | | 2.78 | 18.54 |
| 1 | 2.62 | | 2.56 | | 2.56 | | 2.62 | | 2.65 | | 2.72 | | 2.78 | 18.53 |
| 2 | 2.68 | | 2.60 | | 2.56 | | 2.58 | | 2.64 | | 2.70 | | 2.76 | 18.52 |
| 3 | 2.76 | | 2.64 | | 2.56 | | 2.56 | | 2.62 | | 2.66 | | 2.72 | 18.50 |
| 4 | 2.84 | | 2.70 | | 2.62 | | 2.58 | | 2.65 | L.W. 2.64 | 2.62 | | 2.58 | 18.41 |
| 5 | 2.96 | | 2.82 | | 2.68 | | 2.58 | | 2.65 | 2.53 | 2.54 | | 2.48 | 18.58 |
| 6 | 3.10 | | 2.98 | | 2.84 | | 2.70 | | 2.60 | | 2.52 | | 2.42 | 19.16 |
| 7 | 3.25 | | 3.12 | | 2.96 | | 2.83 | | 2.71 | | 2.58 | | 2.40 | 19.55 |
| 8 | 3.33 | | 3.24 | | 3.12 | | 3.00 | | 2.82 | | 2.70 | | 2.52 | 20.72 |
| 9 | 3.36 | | 3.28 | | 3.28 | | 3.10 | | 2.96 | | 2.80 | | 2.60 | 21.25 |
| 10 | 3.28 | | 3.28 | | 3.28 | | 3.18 | | 3.04 | | 2.90 | | 2.70 | 21.92 |
| 11 | 3.14 | | 3.22 | | 3.26 | | 3.18 | | 3.10 | | 3.00 | | 2.80 | 22.50 |
| Noon | 2.98 | | 3.07 | | 3.12 | | 3.12 | | 3.12 | | 3.02 | | 2.86 | 24.29 |
| 13 | 2.74 | | 2.88 | | 2.98 | | 3.06 | | 3.06 | | 2.97 | | 2.88 | 24.57 |
| 14 | 2.53 | | 2.64 | | 2.82 | | 2.88 | | 2.90 | | 2.90 | | 2.84 | 24.84 |
| 15 | 2.31 | | 2.46 | | 2.58 | | 2.70 | | 2.74 | | 2.78 | | 2.76 | 18.53 |
| 16 | 2.18 | | 2.32 | | 2.40 | | 2.48 | | 2.56 | | 2.65 | | 2.62 | 17.75 |
| 17 | 2.14 | | 2.18 | | 2.24 | | 2.30 | L.W. 2.30 | 2.40 | | 2.53 | | 2.52 | 14.57 |
| 18 | 2.18 | | 2.22 | | 2.18 | | 2.22 | 2.25 | 2.30 | 2.35 | 2.40 | | 2.50 | 16.17 |
| 19 | 2.26 | | 2.34 | | 2.26 | | 2.32 | | 2.38 | | 2.40 | | 2.46 | 15.22 |
| 20 | 2.34 | | 2.36 | | 2.40 | | 2.40 | | 2.40 | | 2.44 | | 2.50 | 16.77 |
| 21 | 2.44 | | 2.46 | | 2.50 | | 2.52 | | 2.58 | | 2.55 | | 2.58 | 17.55 |
| 22 | 2.50 | | 2.52 | | 2.60 | | 2.60 | | 2.68 | | 2.65 | | 2.62 | 18.11 |
| 23 | 2.54 | | 2.56 | | 2.62 | | 2.64 | | 2.74 | | 2.72 | | 2.75 | 18.22 |
| Sum | 65.03 | | 64.92 | | 64.91 | | 65.06 | | 64.78 | | 64.60 | | 63.48 | 637.75 |
| Sum for | 2.11 | | 2.70 | | | | | | | | | | | |

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

Tabulated by Skidgry Date 10-2-11 Summed by Skidgry Date 10-6-15

TIDES: HOURLY HEIGHTS

Station Mamla Year 1975
 Observer Leopoldo Trilles Lat. 14° 35' N Long. 120° 56' E
 Time Meridian 120° E Height datum is 150 (140) which is 175.27 ft below B. M. 49

| MONTH AND DAY | Month Day | Month Day | Month Day | Month Day | Month Day | Month Day | Month Day | MONTHLY TOTAL SUM |
|---------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-------------------|
| | Aug. 13 | 14 | 15 | 16 | 17 | 18 | 19 | |
| DAY OF SERIES | 225 | 226 | 227 | 228 | 229 | 230 | 231 | |
| Hour | feet | feet | feet | feet | feet | feet | feet | feet |
| 0 | 2.88 | 2.90 | 2.88 | 2.80 | 2.74 | 2.71 | 2.66 | 19.60 |
| 1 | 2.98 | 3.00 | 2.97 | 2.94 | 2.85 | 2.80 | 2.70 | 20.29 |
| 2 | 3.03 | 3.10 | 3.12 | 3.06 | 3.07 | 2.90 | 2.80 | 21.01 |
| 3 | 3.04 | 3.10 | 3.16 | 3.14 | 3.12 | 3.02 | 2.90 | 21.54 |
| 4 | 2.96 | 3.12 | 3.18 | 3.18 | 3.21 | 3.15 | 3.04 | 21.84 |
| 5 | 2.84 | 3.04 | 3.15 | 3.20 | 3.28 | 3.28 | 3.15 | 21.9 |
| 6 | 2.70 | 2.92 | 3.08 | 3.22 | 3.30 | 3.30 | 3.24 | 21.82 |
| 7 | 2.60 | 2.78 | 2.94 | 3.15 | 3.28 | 3.32 | 3.32 | 21.41 |
| 8 | 2.52 | 2.68 | 2.80 | 3.02 | 3.20 | 3.30 | 3.34 | 20.86 |
| 9 | 2.50 | 2.58 | 2.62 | 2.84 | 3.00 | 3.22 | 3.32 | 20.14 |
| 10 | 2.52 | 2.42 | 2.50 | 2.66 | 2.87 | 3.08 | 3.20 | 19.75 |
| 11 | 2.55 | 2.42 | 2.38 | 2.50 | 2.68 | 2.88 | 3.02 | 18.44 |
| Noon | 2.64 | 2.48 | 2.35 | 2.38 | 2.51 | 2.64 | 2.78 | 17.78 |
| 13 | 2.72 | 2.56 | 2.34 | 2.32 | 2.34 | 2.42 | 2.60 | 17.30 |
| 14 | 2.76 | 2.62 | 2.38 | 2.25 | 2.24 | 2.26 | 2.37 | 16.88 |
| 15 | 2.80 | 2.66 | 2.40 | 2.25 | 2.18 | 2.18 | 2.22 | 16.69 |
| 16 | 2.76 | 2.65 | 2.44 | 2.26 | 2.24 | 2.17 | 2.14 | 16.61 |
| 17 | 2.66 | 2.62 | 2.50 | 2.34 | 2.26 | 2.20 | 2.12 | 16.70 |
| 18 | 2.62 | 2.42 | 2.50 | 2.44 | 2.35 | 2.26 | 2.20 | 16.99 |
| 19 | 2.54 | 2.40 | 2.52 | 2.48 | 2.42 | 2.32 | 2.30 | 17.19 |
| 20 | 2.52 | 2.60 | 2.52 | 2.52 | 2.48 | 2.42 | 2.38 | 17.44 |
| 21 | 2.56 | 2.62 | 2.55 | 2.56 | 2.52 | 2.54 | 2.48 | 17.83 |
| 22 | 2.62 | 2.66 | 2.60 | 2.60 | 2.59 | 2.60 | 2.52 | 18.19 |
| 23 | 2.74 | 2.76 | 2.68 | 2.66 | 2.66 | 2.64 | 2.54 | 18.68 |
| Sum | 65.06 | 65.57 | 64.61 | 64.77 | 65.38 | 65.73 | 65.35 | 456.47 |
| Sum for | 7.71 | 7.73 | | | | | | |

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

Tabulated by Rolopez Date 10-2-75 Summed by Rolopez Date 10-3-75

TIDES: HOURLY HEIGHTS

DEPARTMENT OF NATIONAL DEFENSE
BUREAU OF COAST AND GEODETIC SURVEY

Station Manda Year 1978
 Observer Leopoldo Frilles Lat. 14° 35' N Long. 170° 50' E
 Time Meridian 120° E Height datum is T.S.O. (1901) which is 17.537 ft 5.24 ft below B. M. 4 a

| MONTH AND DAY | Month | Day | Month | Day | Month | Day | Month | Day | Month | Day | Month | Day | HORI- ZONTAL SUM | |
|---------------|------------------------------------------------------------------------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|------------------------|--------|
| | Aug | 6 | | 7 | | 8 | | 9 | | 10 | | 11 | | 12 |
| DAY OF SERIES | 218 | | 219 | | 220 | | 221 | | 222 | | 223 | | 224 | |
| Hour | | | | | | | | | | | | | | Feet |
| 0 | 2.54 | | 2.56 | | 2.56 | | 2.64 | | 2.68 | | 2.84 | | 2.82 | 18.64 |
| 1 | 2.54 | | 2.60 | | 2.58 | | 2.58 | | 2.76 | | 2.84 | | 2.88 | 18.78 |
| 2 | 2.68 | | 2.60 | | 2.56 | | 2.58 | | 2.72 | | 2.78 | | 2.86 | 18.78 |
| 3 | 2.80 | | 2.66 | | 2.56 | | 2.58 | | 2.60 | | 2.75 | | 2.84 | 18.79 |
| 4 | 2.92 | | 2.78 | | 2.58 | | 2.62 | | 2.58 | | 2.65 | | 2.77 | 18.90 |
| 5 | 3.02 | | 2.94 | | 2.75 | | 2.64 | | 2.56 | | 2.60 | | 2.66 | 19.17 |
| 6 | 3.20 | | 3.08 | | 2.98 | | 2.72 | | 2.59 | | 2.54 | | 2.55 | 19.66 |
| 7 | 3.33 | | 3.28 | | 3.18 | | 2.86 | | 2.68 | | 2.52 | | 2.48 | 20.33 |
| 8 | 3.43 | | 3.38 | | 3.30 | | 3.10 | | 2.88 | | 2.58 | | 2.44 | 21.11 |
| 9 | 3.40 | | 3.46 | | 3.38 | | 3.35 | | 3.00 | | 2.74 | | 2.54 | 21.87 |
| 10 | 3.26 | | 3.42 | | 3.44 | | 3.38 | | 3.18 | | 2.92 | | 2.65 | 22.25 |
| 11 | 3.04 | | 3.30 | | 3.42 | | 3.45 | | 3.28 | | 3.02 | | 2.78 | 22.35 |
| Noon | 2.82 | | 3.08 | | 3.30 | | 3.38 | | 3.32 | | 3.10 | | 2.86 | 21.85 |
| 13 | 2.54 | | 2.84 | | 3.04 | | 3.26 | | 3.24 | | 3.10 | | 2.92 | 21.07 |
| 14 | 2.30 | | 2.52 | | 2.75 | | 3.02 | | 3.18 | | 3.06 | | 2.92 | 19.80 |
| 15 | 2.10 | | 2.27 | | 2.54 | | 2.80 | | 2.98 | | 2.88 | | 2.92 | 18.61 |
| 16 | 1.94 | | 2.07 | | 2.28 | | 2.62 | | 2.74 | | 2.80 | | 2.82 | 17.30 |
| 17 | 1.92 | | 2.00 | | 2.20 | | 2.36 | | 2.58 | | 2.62 | | 2.70 | 16.38 |
| 18 | 2.00 | | 2.02 | | 2.06 | | 2.28 | | 2.42 | | 2.50 | | 2.59 | 15.87 |
| 19 | 2.14 | | 2.20 | | 2.12 | | 2.26 | | 2.38 | | 2.40 | | 2.44 | 15.94 |
| 20 | 2.24 | | 2.20 | | 2.22 | | 2.38 | | 2.38 | | 2.44 | | 2.46 | 16.32 |
| 21 | 2.34 | | 2.32 | | 2.42 | | 2.48 | | 2.50 | | 2.46 | | 2.55 | 17.07 |
| 22 | 2.42 | | 2.44 | | 2.56 | | 2.50 | | 2.65 | | 2.62 | | 2.64 | 17.83 |
| 23 | 2.58 | | 2.52 | | 2.64 | | 2.70 | | 2.76 | | 2.78 | | 2.78 | 18.68 |
| Sum | 63.42 | | 64.54 | | 65.42 | | 66.62 | | 66.60 | | 65.64 | | 64.91 | 457.35 |
| Sum for | Divisor = (20d) 672; (29d) 696; (36d) 720; (31d) 744. Mean for month = | | | | | | | | | | | | | |

Tabulated by R. Lopez Date 10-2-75 Summed by R. Lopez Date 10-3-75

TIDES: HOURLY HEIGHTS

Station Manila Year 1975
 Observer Leopoldo Grilles Lat. 14° 35' N Long. 120° 58' E
 Time Meridian 170° E Height datum is 17.557 ft which is 5.242 ft. below B. M. 49

| MONTH AND DAY | Month | Day | Month | Day | Month | Day | Month | Day | Month | Day | Month | Day | MONTHIAL SUM |
|---------------|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|--------------|
| | July | 30 | | 31 | Aug. | 1 | | 2 | | 3 | | 4 | |
| DAY OF SERIES | 211 | | 212 | | 213 | | 214 | | 215 | | 216 | | 217 |
| Hour | 2.58 | | 2.58 | | 2.70 | | 2.72 | | 2.74 | | 2.68 | | 2.54 |
| 0 | 2.58 | | 2.58 | | 2.70 | | 2.72 | | 2.74 | | 2.68 | | 2.54 |
| 1 | 2.64 | | 2.72 | | 2.80 | | 2.82 | | 2.84 | | 2.75 | | 2.62 |
| 2 | 2.70 | | 2.80 | | 2.84 | | 2.90 | | 2.94 | | 2.85 | | 2.72 |
| 3 | 2.76 | | 2.84 | | 2.86 | | 2.98 | | 3.04 | | 2.97 | | 2.84 |
| 4 | 2.72 | | 2.82 | | 2.90 | | 3.02 | | 3.10 | | 3.10 | | 2.96 |
| 5 | 2.68 | | 2.76 | | 2.94 | | 3.05 | | 3.15 | | 3.20 | | 3.08 |
| 6 | 2.62 | | 2.72 | | 2.90 | | 3.02 | | 3.15 | | 3.24 | | 3.20 |
| 7 | 2.58 | | 2.64 | | 2.80 | | 2.92 | | 3.10 | | 3.25 | | 3.22 |
| 8 | 2.56 | | 2.58 | | 2.66 | | 2.78 | | 3.00 | | 3.13 | | 3.28 |
| 9 | 2.50 | | 2.50 | | 2.56 | | 2.62 | | 2.84 | | 3.02 | | 3.22 |
| 10 | 2.54 | | 2.46 | | 2.46 | | 2.50 | | 2.68 | | 2.86 | | 3.05 |
| 11 | 2.62 | | 2.46 | | 2.44 | | 2.44 | | 2.50 | | 2.66 | | 2.85 |
| Noon | 2.68 | | 2.52 | | 2.44 | | 2.36 | | 2.36 | | 2.44 | | 2.59 |
| 13 | 2.78 | | 2.60 | | 2.44 | | 2.34 | | 2.20 | | 2.24 | | 2.56 |
| 14 | 2.78 | | 2.64 | | 2.42 | | 2.30 | | 2.18 | | 2.12 | | 2.78 |
| 15 | 2.74 | | 2.64 | | 2.48 | | 2.36 | | 2.20 | | 2.10 | | 2.06 |
| 16 | 2.70 | | 2.62 | | 2.48 | | 2.40 | | 2.25 | | 2.08 | | 2.02 |
| 17 | 2.60 | | 2.60 | | 2.54 | | 2.40 | | 2.33 | | 2.12 | | 2.00 |
| 18 | 2.52 | | 2.58 | | 2.52 | | 2.48 | | 2.38 | | 2.14 | | 2.06 |
| 19 | 2.46 | | 2.54 | | 2.52 | | 2.46 | | 2.44 | | 2.20 | | 2.16 |
| 20 | 2.42 | | 2.48 | | 2.48 | | 2.48 | | 2.42 | | 2.31 | | 2.26 |
| 21 | 2.40 | | 2.42 | | 2.48 | | 2.52 | | 2.50 | | 2.42 | | 2.40 |
| 22 | 2.42 | | 2.48 | | 2.54 | | 2.56 | | 2.52 | | 2.44 | | 2.48 |
| 23 | 2.50 | | 2.54 | | 2.62 | | 2.64 | | 2.62 | | 2.48 | | 2.48 |
| Sum | 62.55 | | 62.52 | | 62.82 | | 63.07 | | 63.78 | | 62.86 | | 62.68 |

Sum for July 1975 = 4895.82 Divisor = (28d) 672; (29d) 696; (30d) 720; (31d) 744. Mean for month = 2.55

Tabulated by Relopez Date 10-2-75 Summed by Relopez Date 10-3-75

Aug. } 1975
 Oct. }
 Dec. }

BCGS Form No 382

TIDES: HOURLY HEIGHTS

DEPARTMENT OF NATIONAL DEFENSE
BUREAU OF COAST AND GEODETIC SURVEY

Station Manila Year 1977
 Observer de la Cruz, Lilles 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. 4a

| MONTH AND DAY | Month Day | | Month Day | | Month Day | | Month Day | | Month Day | | HORI-ZONTAL SUM | | | |
|----------------|-----------|--------|-----------|--------|-----------|--------|-----------|--------|-----------|--------|-----------------|--------|--------|--|
| | Month | Day | Month | Day | Month | Day | Month | Day | Month | Day | | | | |
| | Nov | 26 | | 27 | | 28 | | 29 | | 30 | Dec | 1 | 2 | |
| DAY OF SERVICE | 330 | | 331 | | 332 | | 333 | | 434 | | 335 | | 336 | |
| Hour | Meters | Meters | Meters | Meters | Meters | Meters | Meters | Meters | Meters | Meters | Meters | Meters | Meters | |
| 0 | 2.96 | 2.99 | 3.08 | 3.14 | 3.19 | 3.24 | 3.29 | 3.34 | 3.38 | 3.42 | 3.45 | 3.48 | 3.51 | |
| 1 | 2.65 | 2.80 | 2.93 | 3.02 | 3.05 | 3.08 | 3.11 | 3.14 | 3.17 | 3.20 | 3.23 | 3.26 | 3.29 | |
| 2 | 2.44 | 2.56 | 2.65 | 2.73 | 2.76 | 2.79 | 2.82 | 2.85 | 2.88 | 2.91 | 2.94 | 2.97 | 3.00 | |
| 3 | 2.25 | 2.38 | 2.53 | 2.62 | 2.65 | 2.68 | 2.71 | 2.74 | 2.77 | 2.80 | 2.83 | 2.86 | 2.89 | |
| 4 | 2.16 | 2.16 | 2.29 | 2.38 | 2.41 | 2.44 | 2.47 | 2.50 | 2.53 | 2.56 | 2.59 | 2.62 | 2.65 | |
| 5 | 2.08 | 2.07 | 2.16 | 2.16 | 2.19 | 2.19 | 2.22 | 2.25 | 2.28 | 2.31 | 2.34 | 2.37 | 2.40 | |
| 6 | 2.08 | 2.01 | 2.07 | 2.04 | 2.03 | 2.03 | 2.03 | 2.03 | 2.03 | 2.03 | 2.03 | 2.03 | 2.03 | |
| 7 | 2.13 | 2.04 | 2.01 | 2.01 | 2.01 | 2.01 | 2.01 | 2.01 | 2.01 | 2.01 | 2.01 | 2.01 | 2.01 | |
| 8 | 2.19 | 2.10 | 2.04 | 2.01 | 2.01 | 2.01 | 2.01 | 2.01 | 2.01 | 2.01 | 2.01 | 2.01 | 2.01 | |
| 9 | 2.24 | 2.19 | 2.10 | 2.04 | 2.01 | 2.01 | 2.01 | 2.01 | 2.01 | 2.01 | 2.01 | 2.01 | 2.01 | |
| 10 | 2.35 | 2.29 | 2.22 | 2.19 | 2.07 | 2.07 | 2.07 | 2.07 | 2.07 | 2.07 | 2.07 | 2.07 | 2.07 | |
| 11 | 2.44 | 2.35 | 2.05 | 2.18 | 2.19 | 2.19 | 2.19 | 2.19 | 2.19 | 2.19 | 2.19 | 2.19 | 2.19 | |
| Noon | 2.48 | 2.38 | 2.35 | 2.29 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 | |
| 13 | 2.44 | 2.38 | 2.38 | 2.31 | 2.31 | 2.31 | 2.31 | 2.31 | 2.31 | 2.31 | 2.31 | 2.31 | 2.31 | |
| 14 | 2.44 | 2.38 | 2.39 | 2.35 | 2.34 | 2.34 | 2.34 | 2.34 | 2.34 | 2.34 | 2.34 | 2.34 | 2.34 | |
| 15 | 2.44 | 2.38 | 2.40 | 2.35 | 2.33 | 2.33 | 2.33 | 2.33 | 2.33 | 2.33 | 2.33 | 2.33 | 2.33 | |
| 16 | 2.50 | 2.44 | 2.45 | 2.38 | 2.34 | 2.34 | 2.34 | 2.34 | 2.34 | 2.34 | 2.34 | 2.34 | 2.34 | |
| 17 | 2.57 | 2.56 | 2.50 | 2.44 | 2.45 | 2.45 | 2.45 | 2.45 | 2.45 | 2.45 | 2.45 | 2.45 | 2.45 | |
| 18 | 2.71 | 2.65 | 2.49 | 2.50 | 2.44 | 2.44 | 2.44 | 2.44 | 2.44 | 2.44 | 2.44 | 2.44 | 2.44 | |
| 19 | 2.86 | 2.83 | 2.71 | 2.60 | 2.53 | 2.53 | 2.53 | 2.53 | 2.53 | 2.53 | 2.53 | 2.53 | 2.53 | |
| 20 | 2.99 | 2.93 | 2.89 | 2.80 | 2.69 | 2.69 | 2.69 | 2.69 | 2.69 | 2.69 | 2.69 | 2.69 | 2.69 | |
| 21 | 3.08 | 3.05 | 3.05 | 2.99 | 2.77 | 2.77 | 2.77 | 2.77 | 2.77 | 2.77 | 2.77 | 2.77 | 2.77 | |
| 22 | 3.10 | 3.08 | 3.14 | 3.05 | 2.89 | 2.89 | 2.89 | 2.89 | 2.89 | 2.89 | 2.89 | 2.89 | 2.89 | |
| 23 | 3.11 | 3.10 | 3.19 | 3.14 | 2.96 | 2.96 | 2.96 | 2.96 | 2.96 | 2.96 | 2.96 | 2.96 | 2.96 | |
| Mid | 6.68 | 6.21 | 6.34 | 59.11 | 59.06 | 59.06 | 59.06 | 59.06 | 59.06 | 59.06 | 59.06 | 59.06 | 59.06 | |

Mean for Nov = 2.76 m. Divisor = (28d) 672; (29d) 696; (30d) 720; (31d) 744. Mean for month = 2.51

Tabulated by AD Date 11-12-78 Summed by SB Date 1-17-78

BCGS Form No. 802

TIDES: HOURLY HEIGHTS

DEPARTMENT OF NATIONAL DEFENSE
BUREAU OF COAST AND GEODETIC SURVEY

Station Maguila

Year 1977

Observer Leopoldo Fuller

Lat. 14°35'N

Long. 120°58'E

Time Meridian 100°E Height datum is 250 (190) which is 5.84

m. below B. M. 70

| MONTH AND DAY | Month | Day | Month | Day | Month | Day | Month | Day | Month | Day | Month | Day | Month | Day | HORI- ZONTAL SUM |
|------------------|--------|-----|--------|------|--------|------|--------|------|--------|------|--------|------|--------|------|------------------------|
| | 700 | 19 | 700 | 20 | 700 | 21 | 700 | 22 | 700 | 23 | 700 | 24 | 700 | 25 | |
| DAY OF EMERGE | 323 | | 324 | | 325 | | 326 | | 327 | | 328 | | 329 | | |
| Hour | Meters | | Meters | | Meters | | Meters | | Meters | | Meters | | Meters | | Meters |
| 0 | 245 | | 250 | | 245 | 1.6 | 250 | | 250 | | 259 | | 274 | | 17.93 |
| 1 | 274 | | 259 | | 244 | 2.44 | 244 | | 241 | | 244 | | 256 | | 17.65 |
| 2 | 286 | | 268 | | 248 | | 244 | 12.2 | 235 | | 235 | | 241 | | 17.57 |
| 3 | 289 | | 270 | | 255 | | 244 | 2.42 | 232 | 3.2 | 232 | 2.3 | 229 | | 17.59 |
| 4 | 288 | | 274 | 11 | 260 | | 247 | | 233 | | 242 | 4.2 | 219 | | 17.50 |
| 5 | 289 | | 250 | 4.8 | 267 | | 247 | | 236 | | 227 | 2.2 | 216 | 5.9 | 17.51 |
| 6 | 274 | | 276 | | 270 | 6.4 | 250 | | 246 | | 235 | | 213 | 2.13 | 17.48 |
| 7 | 262 | | 267 | | 267 | 2.70 | 253 | | 246 | | 234 | | 216 | | 17.42 |
| 8 | 250 | | 256 | | 262 | | 258 | 8.1 | 250 | H | 241 | | 229 | | 17.44 |
| 9 | 235 | | 243 | | 251 | | 253 | 9.2 | 253 | 2.5 | 247 | | 241 | | 17.26 |
| 10 | 203 | | 237 | | 241 | | 247 | | 250 | | 250 | 10.3 | 250 | H | 16.89 |
| 11 | 210 | | 222 | | 232 | | 244 | | 247 | | 247 | 2.5 | 253 | 11.3 | 16.55 |
| Noon | 202 | | 217 | 12.4 | 226 | 12.4 | 238 | | 241 | | 244 | | 252 | | 16.25 |
| 12 | 290 | | 247 | 2.16 | 240 | 2.25 | 232 | 13.4 | 238 | 13.7 | 241 | 13.9 | 247 | | 16.10 |
| 13 | 213 | | 220 | | 229 | | 232 | 2.31 | 235 | 2.35 | 238 | 2.38 | 244 | 13.7 | 16.10 |
| 14 | 219 | | 226 | | 241 | | 235 | | 244 | | 241 | | 250 | 2.44 | 16.16 |
| 15 | 243 | | 233 | | 247 | | 244 | | 250 | | 250 | | 256 | | 16.95 |
| 16 | 232 | | 241 | | 256 | | 253 | | 259 | | 259 | | 262 | | 17.55 |
| 17 | 247 | | 250 | | 265 | | 265 | | 271 | | 271 | | 277 | | 18.36 |
| 18 | 250 | | 257 | 19.5 | 271 | | 274 | | 283 | | 286 | | 289 | | 19.00 |
| 19 | 250 | | 257 | 2.54 | 284 | | 277 | 20.4 | 289 | 20.8 | 296 | | 302 | | 19.35 |
| 20 | 247 | | 256 | | 291 | | 277 | 2.78 | 290 | 2.70 | 302 | 21.3 | 302 | H | 19.45 |
| 21 | 247 | | 256 | | 291 | | 277 | | 290 | | 302 | 30.4 | 310 | 21.5 | 19.45 |
| 22 | 247 | | 256 | | 291 | | 277 | | 290 | | 302 | | 310 | 3.11 | 19.27 |
| 23 | 246 | | 249 | | 262 | | 262 | | 280 | | 293 | | 302 | | 18.84 |
| Sum | 5936 | | 5988 | | 5988 | | 6045 | | 6079 | | 6070 | | 6140 | | 622.10 |

Sum for 1977 = 2179
 Divisor = (28d) 672 + (29d) 686 + (30d) 720 + (31d) 744. Mean for month = 2156

Tabulated by 411

Date 7-12-77

Summed by S. Balagu

Date 2-16-78

TIDES: HOURLY HEIGHTS

DEPARTMENT OF NATIONAL DEFENSE
BUREAU OF COAST AND GEODETIC SURVEY

Station Manila

Observer J. Fuller

Time Meridian 120°E

Height datum is 160 (1901) which is 5.34

Lat. 14° 35' N

Year 1977

Long. 120° 58' E

m. below B. M. 4a

| MONTH AND DAY | Month | Day | Month | Day | Month | Day | Month | Day | Month | Day | Month | Day | HORIZONTAL SUM |
|---------------|--------|-----|--------|-----|--------|-----|--------|-------|--------|-----|--------|-------|----------------|
| | Nov | 12 | | 13 | | 14 | | 15 | | 16 | | 17 | 18 |
| Hour | Meters | | Meters | | Meters | | Meters | | Meters | | Meters | | Meters |
| 0 | | | | | | | | | 3.18 | | | 2.86 | 6.04 |
| 1 | | | | | | | | | 3.23 | | | 2.97 | 6.22 |
| 2 | | | | | | | | | 3.20 | | | 3.22 | 6.22 |
| 3 | | | | | | | | | 3.14 | | | 2.97 | 6.13 |
| 4 | | | | | | | | | 2.96 | | | 2.90 | 5.86 |
| 5 | | | | | | | | | 2.75 | | | 2.77 | 5.52 |
| 6 | | | | | | | | | 2.56 | | | 2.62 | 5.18 |
| 7 | | | | | | | | | 2.35 | | | 2.41 | 4.76 |
| 8 | | | | | | | | | 2.16 | | | 2.22 | 4.38 |
| 9 | | | | | | | | | 2.04 | | | 2.07 | 4.11 |
| 10 | | | | | | | | | 2.01 | | | 1.98 | 3.99 |
| 11 | | | | | | | | 2.03 | 2.04 | | | 1.95 | 6.06 |
| Noon | | | | | | | | 2.16 | 2.07 | | | 1.98 | 6.21 |
| 12 | | | | | | | | 2.32 | 2.16 | | | 2.04 | 6.52 |
| 13 | | | | | | | | 2.41 | 2.25 | | | 2.14 | 6.80 |
| 14 | | | | | | | | 2.50 | 2.23 | | | 2.25 | 7.08 |
| 15 | | | | | | | | 2.50 | 2.41 | | | 2.35 | 7.32 |
| 16 | | | | | | | | 2.50 | 2.47 | | | 2.44 | 7.47 |
| 17 | | | | | | | | 2.59 | 2.49 | | | 2.47 | 7.55 |
| 18 | | | | | | | | 2.63 | 2.57 | | | 2.50 | 7.66 |
| 19 | | | | | | | | 2.71 | 2.50 | | | 2.53 | 7.80 |
| 20 | | | | | | | | 2.83 | 2.62 | | | 2.56 | 8.01 |
| 21 | | | | | | | | 2.96 | 2.71 | | | 2.59 | 8.26 |
| 22 | | | | | | | | 3.08 | 2.80 | | | 2.62 | 8.50 |
| 23 | | | | | | | | | | | | | |
| Sum | | | | | | | | 33.38 | 61.02 | | | 59.26 | 153.66 |

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

Calculated by JFW Date 11-12-77 Summed by JFW Date 2-16-78

BCGS FORM No 302

TIDES: HOURLY HEIGHTS

DEPARTMENT OF NATIONAL DEFENSE
BUREAU OF COAST AND GEODESIC SURVEY

Station Manila

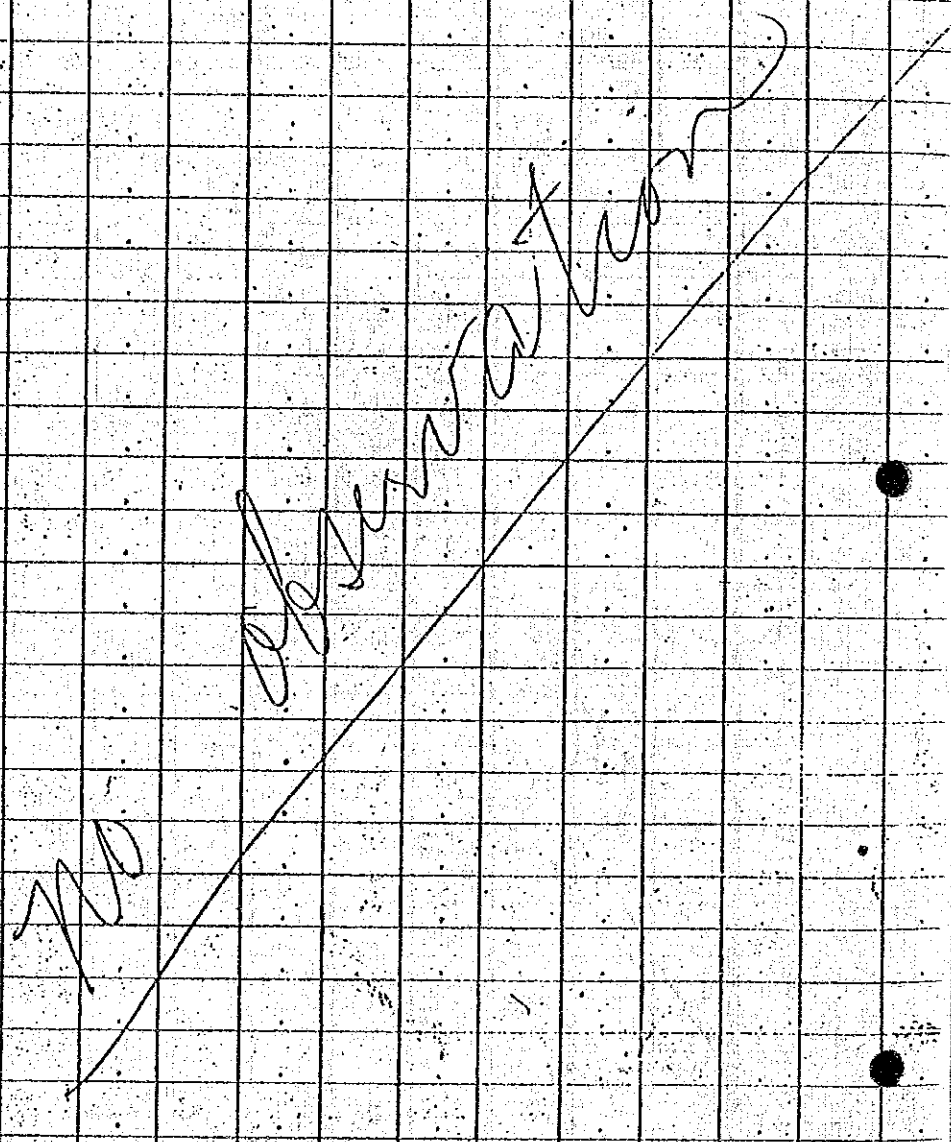
Year _____

Observer _____

Lat. _____ Long. _____

Time Meridian _____ Height datum is _____ which is _____ m. below E

| MONTH AND DAY | Month | Day | Month | Day | Month | Day | Month | Day | Month | Day | Month | Day | Month |
|---------------|------------|----------|--------|----------|--------|----------|--------|----------|--------|----------|--------|-----------|--------|
| | <u>Nov</u> | <u>6</u> | | <u>6</u> | | <u>7</u> | | <u>8</u> | | <u>9</u> | | <u>10</u> | |
| DAY OF SERIES | | | | | | | | | | | | | |
| Hour | Meters | | Meters | | Meters | | Meters | | Meters | | Meters | | Meters |
| 0 | | | | | | | | | | | | | |
| 1 | | | | | | | | | | | | | |
| 2 | | | | | | | | | | | | | |
| 3 | | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | |
| 11 | | | | | | | | | | | | | |
| Noon | | | | | | | | | | | | | |
| 13 | | | | | | | | | | | | | |
| 14 | | | | | | | | | | | | | |
| 15 | | | | | | | | | | | | | |
| 16 | | | | | | | | | | | | | |
| 17 | | | | | | | | | | | | | |
| 18 | | | | | | | | | | | | | |
| 19 | | | | | | | | | | | | | |
| 20 | | | | | | | | | | | | | |
| 21 | | | | | | | | | | | | | |
| 22 | | | | | | | | | | | | | |
| 23 | | | | | | | | | | | | | |
| Sum | | | | | | | | | | | | | |



Sum for _____ Divisor—(28d) 672; (29d) 696; (30d) 720; (31d) 744. Mean for _____

Tabulated by _____ Date _____ Summed by _____ D

NOV

TIDES: HOURLY HEIGHTS

DEPARTMENT OF NATIONAL DEFENSE
BUREAU OF COAST AND GEODETIC SURVEY

Station Mexilla Year 1977
 Observer Leopoldo Feller Lat. 14° 35' N Long. 120° 55' E
 Time Meridian 120° E Height datum is 750 (1901) which is 15.34 m. below B. M. 42

| MONTH AND DAY | Month | Day | Month | Day | Month | Day | Month | Day | Month | Day | Month | Day | HORIZONTAL SUR. |
|---------------|--------------------------------------------------------------|----------------------|----------------------|----------------------|--------|--------------------|--------|----------------------|--------|--------|--------|--------|-----------------|
| | Sept | 3 | | 4 | | 5 | | 6 | | 7 | | 8 | 9 |
| DAY OF MONTH | 248 | | 247 | | 248 | | 249 | | 250 | | 251 | | 252 |
| Hour | Meters | Meters | Meters | Meters | Meters | Meters | Meters | Meters | Meters | Meters | Meters | Meters | Meters |
| 0 | 2.93 ¹¹ | 2.99 | 2.93 | 2.86 | 2.87 | 2.80 | 2.86 | 2.80 | 2.86 | 2.80 | 2.86 | 2.80 | 20.18 |
| 1 | 3.05 ^{3.05} | 3.05 | 3.02 | 2.94 | 2.97 | 2.93 | 2.87 | 2.93 | 2.87 | 2.93 | 2.87 | 2.93 | 20.88 |
| 2 | 3.03 | 3.03 ¹⁰ | 3.05 ²⁴ | 3.05 | 3.03 | 3.00 | 3.03 | 3.00 | 3.06 | 3.00 | 3.06 | 3.00 | 21.23 |
| 3 | 3.00 | 3.05 ^{3.08} | 3.05 ^{3.08} | 3.05 ^{3.2} | 3.05 | 3.05 | 3.05 | 3.05 | 3.05 | 3.05 | 3.05 | 3.05 | 21.37 |
| 4 | 2.89 | 2.87 | 3.02 | 3.02 | 3.09 | 3.11 ¹³ | 3.12 | 3.12 | 3.09 | 3.12 | 3.09 | 3.12 | 21.71 |
| 5 | 2.77 | 2.80 | 2.93 | 3.05 | 3.10 | 3.11 ³¹ | 3.17 | 3.17 ⁵³ | 3.20 | 3.17 | 3.20 | 3.17 | 21.08 |
| 6 | 2.65 | 2.74 | 2.83 | 2.94 | 3.00 | 3.05 | 3.15 | 3.23 ⁶⁴ | 3.23 | 3.15 | 3.23 | 3.15 | 20.60 |
| 7 | 2.57 ¹¹ | 2.67 | 2.74 | 2.81 | 2.87 | 2.97 | 3.05 | 3.22 ^{3.24} | 3.22 | 3.05 | 3.22 | 3.05 | 20.13 |
| 8 | 2.56 | 2.59 | 2.59 | 2.64 | 2.66 | 2.69 | 2.69 | 2.69 | 2.69 | 2.69 | 2.69 | 2.69 | 19.41 |
| 9 | 2.71 | 2.56 ^{2.53} | 2.50 | 2.57 | 2.71 | 2.84 | 2.84 | 3.03 | 3.03 | 2.84 | 3.03 | 2.84 | 18.92 |
| 10 | 2.74 | 2.54 ^{2.41} | 2.43 | 2.50 | 2.53 | 2.74 | 2.74 | 2.86 | 2.86 | 2.74 | 2.86 | 2.74 | 18.39 |
| 11 | 2.74 | 2.56 | 2.44 | 2.44 | 2.50 | 2.60 | 2.74 | 2.74 | 2.74 | 2.60 | 2.74 | 2.60 | 18.00 |
| Noon | 2.77 | 2.62 | 2.47 | 2.41 ^{12.1} | 2.44 | 2.50 | 2.57 | 2.57 | 2.57 | 2.50 | 2.57 | 2.50 | 17.79 |
| 12 | 2.80 | 2.68 | 2.51 | 2.41 ^{2.41} | 2.39 | 2.43 | 2.44 | 2.44 | 2.44 | 2.39 | 2.44 | 2.39 | 17.77 |
| 13 | 2.83 ^{11.0} | 2.71 ^{11.2} | 2.50 | 2.42 | 2.38 | 2.38 | 2.38 | 2.38 | 2.38 | 2.38 | 2.38 | 2.38 | 17.82 |
| 14 | 2.93 ^{2.93} | 2.71 ^{2.71} | 2.56 ^{16.5} | 2.45 | 2.39 | 2.39 | 2.39 | 2.39 | 2.39 | 2.39 | 2.39 | 2.39 | 17.77 |
| 15 | 2.93 | 2.65 | 2.57 ^{2.54} | 2.47 | 2.44 | 2.42 | 2.34 | 2.34 | 2.34 | 2.34 | 2.34 | 2.34 | 17.78 |
| 16 | 2.86 | 2.62 | 2.50 | 2.45 | 2.50 | 2.47 | 2.39 | 2.39 | 2.39 | 2.47 | 2.39 | 2.47 | 17.81 |
| 17 | 2.78 | 2.59 ^{11.9} | 2.56 ^{11.9} | 2.52 | 2.52 | 2.52 | 2.52 | 2.52 | 2.52 | 2.52 | 2.52 | 2.52 | 17.85 |
| 18 | 2.70 | 2.59 ^{11.9} | 2.56 ^{11.9} | 2.52 | 2.52 | 2.52 | 2.52 | 2.52 | 2.52 | 2.52 | 2.52 | 2.52 | 17.93 |
| 19 | 2.67 ^{11.9} | 2.59 ^{11.9} | 2.56 ^{11.9} | 2.52 | 2.52 | 2.52 | 2.52 | 2.52 | 2.52 | 2.52 | 2.52 | 2.52 | 18.15 |
| 20 | 2.66 | 2.63 | 2.63 | 2.63 | 2.63 | 2.63 | 2.63 | 2.63 | 2.63 | 2.63 | 2.63 | 2.63 | 18.45 |
| 21 | 2.62 | 2.65 | 2.62 | 2.65 | 2.64 | 2.62 | 2.62 | 2.62 | 2.62 | 2.62 | 2.62 | 2.62 | 18.85 |
| 22 | 2.71 | 2.74 | 2.68 | 2.70 | 2.65 | 2.68 | 2.68 | 2.68 | 2.68 | 2.68 | 2.68 | 2.68 | 19.35 |
| 23 | 2.83 | 2.80 | 2.80 | 2.78 | 2.74 | 2.74 | 2.74 | 2.74 | 2.74 | 2.74 | 2.74 | 2.74 | 458.69 |
| Sum | 66.94 | 65.62 | 64.62 | 64.58 | 65.13 | 65.69 | 66.05 | 66.05 | 66.05 | 66.05 | 66.05 | 66.05 | 458.69 |
| Sum for 24 | = 2.73 | | | | | | | | | | | | |
| Divisor | (28d) 672; (29d) 696; (30d) 720; (31d) 744. Mean for month = | | | | | | | | | | | | |

Tabulated by W. F. ... Date ... Summed by ... Date ...

TIDES: HOURLY HEIGHTS

DEPARTMENT OF NATIONAL DEFENSE
BUREAU OF COAST AND GEODETIC SURVEY

Station Manila Year 1977
 Observer Franko Fricke Lat. 14° 35' N Long. 120° 55' E
 Time Meridian 122° E Height datum is TSD (1901) which is 0.34 m. below B. M. 4.2

| MONTH AND DAY | Month | Day | Month | Day | Month | Day | Month | Day | Month | Day | Month | Day | HORIZONTAL SUM |
|---------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|--------|--------|--------|--------|--------|----------------|
| | Aug. | 27 | | 28 | | 29 | | 30 | | 31 | Sept. | 1 | 2 |
| DAY OF BEARS | 209 | | 210 | | 211 | | 212 | | 213 | | 214 | | 215 |
| Hour | Meters | Meters | Meters | Meters | Meters | Meters | Meters | Meters | Meters | Meters | Meters | Meters | Meters |
| 0 | 2.35 | 2.56 ^{0.9} | 2.68 | 2.68 | 2.76 ^{0.0} | 2.86 ^{0.3} | 2.89 ^{0.1} | 18.92 | | | | | |
| 1 | 2.56 | 2.57 | 2.55 | 2.66 | 2.72 ^{0.16} | 2.83 ^{0.16} | 2.93 ^{0.25} | 18.70 | | | | | |
| 2 | 2.67 | 2.56 | 2.53 ^{0.4} | 2.57 | 2.61 | 2.71 | 2.87 | 18.40 | | | | | |
| 3 | 2.74 | 2.61 | 2.53 ^{1.33} | 2.50 ^{0.35} | 2.52 | 2.60 | 2.80 | 18.36 | | | | | |
| 4 | 2.87 | 2.80 | 2.58 | 2.50 ^{0.47} | 2.47 ^{0.5} | 2.53 | 2.70 | 18.45 | | | | | |
| 5 | 3.04 | 2.87 | 2.67 | 2.54 | 2.47 ^{0.46} | 2.47 ^{0.56} | 2.63 | 18.68 | | | | | |
| 6 | 3.14 | 3.04 | 2.77 | 2.62 | 2.51 | 2.47 ^{0.47} | 2.54 ^{0.68} | 17.07 | | | | | |
| 7 | 3.29 | 3.19 | 2.94 | 2.70 | 2.59 | 2.48 | 2.50 ^{0.31} | 17.75 | | | | | |
| 8 | 3.34 ^{0.3} | 3.22 ^{0.31} | 3.11 | 2.94 | 2.71 | 2.57 | 2.57 | 20.47 | | | | | |
| 9 | 3.33 | 3.34 ^{0.2} | 3.24 | 3.09 | 2.89 | 2.67 | 2.62 | 21.20 | | | | | |
| 10 | 3.36 | 3.33 ^{0.34} | 3.29 ^{0.1} | 3.20 ^{0.8} | 3.03 | 2.84 | 2.74 | 21.67 | | | | | |
| 11 | 3.41 | 3.34 | 3.27 | 3.22 | 3.09 ^{0.16} | 2.98 | 2.84 | 21.73 | | | | | |
| Noon | 2.86 | 3.04 | 3.17 | 3.16 | 3.11 | 3.02 ^{0.32} | 2.92 | 21.26 | | | | | |
| 13 | 2.61 | 2.77 | 2.96 | 3.04 | 3.07 | 3.01 ^{0.02} | 2.96 ^{0.13} | 20.47 | | | | | |
| 14 | 2.39 | 2.54 | 2.76 | 2.87 | 2.90 | 2.96 | 2.95 ^{0.16} | 17.45 | | | | | |
| 15 | 2.21 | 2.35 | 2.68 | 2.68 | 2.81 | 2.83 | 2.90 | 18.35 | | | | | |
| 16 | 2.14 ^{0.6} | 2.23 ^{0.13} | 2.37 | 2.52 | 2.63 | 2.70 | 2.82 | 17.44 | | | | | |
| 17 | 2.13 | 2.19 ^{0.17} | 2.26 ^{0.16} | 2.39 | 2.50 | 2.61 | 2.75 | 16.81 | | | | | |
| 18 | 2.18 | 2.21 | 2.25 ^{0.25} | 2.35 ^{0.3} | 2.43 ^{0.32} | 2.52 ^{0.34} | 2.60 ^{0.37} | 16.54 | | | | | |
| 19 | 2.26 | 2.28 | 2.29 | 2.34 | 2.41 | 2.50 | 2.55 ^{0.35} | 16.66 | | | | | |
| 20 | 2.35 | 2.36 | 2.40 | 2.41 | 2.42 | 2.52 | 2.59 | 17.68 | | | | | |
| 21 | 2.44 | 2.48 | 2.52 | 2.53 | 2.56 | 2.58 | 2.66 | 17.77 | | | | | |
| 22 | 2.57 ^{0.28} | 2.60 | 2.63 | 2.63 | 2.62 | 2.71 | 2.74 | 18.50 | | | | | |
| 23 | 2.57 | 2.63 ^{0.31} | 2.67 ^{0.35} | 2.72 | 2.71 | 2.80 | 2.82 | 18.40 | | | | | |
| Sum | 64.64 | 64.97 | 64.91 | 64.80 | 63.96 | 64.81 | 65.95 | 450.00 | | | | | |

Sum for Aug. = 2800.69 Divisor = (28d) 87.2; (29d) 696; (30d) 720; (31d) 744. Mean for month = 2.69

Tabulated by JS Date 7-11-73 Summed by JSW Date _____

TIDES: HOURLY HEIGHTS

DEPARTMENT OF NATIONAL DEFENSE
BUREAU OF COAST AND GEODETIC SURVEY

Station MARILLA Year 1977
 Observer LEOPOLDO FRILLES Lat. 14° 35' N Long. 120° 58' E
 Time Meridian 120° E Height datum is 750 (1901) which is 5.34 m. below B. M. 4 A

| MONTH AND DAY | Month | Day | Month | Day | Month | Day | Month | Day | Month | Day | Month | Day | HORIZONTAL SUM | |
|---------------|--------|------|--------|-------|--------|------|--------|------|------------------|------|--------|------|----------------|--------|
| | JUN | 20 | | 21 | | 22 | | 23 | | 24 | | 25 | 26 | |
| DAY OF SURVEY | 232 | | 233 | | 234 | | 235 | | 236 | | 237 | | 238 | |
| Hour | Meters | | Meters | | Meters | | Meters | | Meters | | Meters | | Meters | |
| 0 | 2.93 | | 2.93 | | 2.93 | | 2.86 | | 2.76 | | 2.65 | | 2.57 | 17.65 |
| 1 | 2.97 | H | 3.00 | H | 3.04 | | 2.99 | | 2.95 | | 2.76 | | 2.67 | 20.39 |
| 2 | 2.97 | 2.99 | 3.05 | 3.05 | 3.11 | H | 3.09 | | 3.05 | | 2.99 | | 2.76 | 20.98 |
| 3 | 2.96 | | 3.04 | | 3.13 | 2.19 | 3.15 | H | 3.16 | | 3.03 | | 2.93 | 21.48 |
| 4 | 2.84 | | 2.96 | | 3.09 | | 3.17 | 3.17 | 3.22 | H | (3.26) | H | 3.10 | 21.64 |
| 5 | 2.72 | | 2.87 | | 3.02 | | 3.14 | 3.14 | 3.23 | 3.23 | (3.30) | 3.30 | 3.23 | 21.51 |
| 6 | 2.61 | | 2.77 | | 2.93 | | 3.07 | 3.07 | 3.22 | | (3.29) | | 3.30 | 21.30 |
| 7 | 2.53 | 2.4 | 2.67 | | 2.81 | | 2.97 | 2.97 | 3.17 | | (3.26) | | 3.35 | 20.48 |
| 8 | 2.50 | 2.50 | 2.60 | | 2.69 | | 2.85 | 2.85 | 3.08 | | (3.21) | | 3.32 | 20.25 |
| 9 | 2.55 | | 2.56 | 2.4 | 2.56 | | 2.82 | 2.82 | 2.88 | | 3.10 | | 3.25 | 19.56 |
| 10 | 2.66 | | 2.56 | | 2.47 | 2.0 | 2.81 | 2.81 | 2.67 | | 2.86 | | 3.09 | 18.82 |
| 11 | 2.87 | | 2.62 | | 2.46 | 2.48 | 2.43 | 2.43 | 2.49 | | 2.63 | | 2.84 | 18.26 |
| Noon | 2.87 | H | 2.69 | | 2.48 | | 2.37 | 12.7 | 2.36 | | 2.47 | | 2.59 | 17.83 |
| 12 | 2.83 | 13.8 | 2.75 | | 2.52 | | 2.36 | 7.34 | 2.28 | L | 2.30 | | 2.87 | 17.53 |
| 13 | 2.94 | 2.94 | 2.77 | H | 2.53 | | 2.46 | | 2.26 | 11.4 | 2.20 | L | 2.84 | 17.40 |
| 14 | 2.95 | | 2.80 | 15.00 | 2.64 | | 2.43 | | 2.26 | | 2.18 | 15.2 | 2.15 | 17.32 |
| 15 | 2.74 | | 2.78 | | 2.66 | H | 2.46 | | 2.29 | | 2.19 | | 2.14 | 17.28 |
| 16 | 2.65 | | 2.73 | | 2.67 | 2.67 | 2.57 | | 2.37 | | 2.22 | | 2.16 | 17.34 |
| 17 | 2.60 | | 2.67 | | 2.66 | | 2.57 | | 2.43 | | 2.23 | | 2.23 | 17.49 |
| 18 | 2.56 | 19.7 | 2.62 | 19.9 | 2.62 | L | 2.59 | | 2.48 | | 2.40 | | 2.34 | 17.62 |
| 19 | 2.52 | | 2.62 | 2.62 | 2.60 | 2.60 | 2.60 | | 2.52 | | 2.48 | | 2.42 | 17.80 |
| 20 | 2.61 | | 2.66 | | 2.61 | | 2.61 | | 2.56 | | 2.53 | | 2.48 | 18.05 |
| 21 | 2.68 | | 2.72 | | 2.66 | | 2.62 | | 2.58 | | 2.56 | | 2.57 | 18.36 |
| 22 | 2.81 | | 2.81 | | 2.73 | | 2.70 | | 2.63 | | 2.56 | | 2.57 | 18.78 |
| Sum | 65.90 | | 66.28 | | 65.68 | | 65.15 | | 64.90 | | 64.70 | | 64.65 | 457.35 |
| Sum for | 7.75 | | 2.76 | | 2.73 | | 2.70 | | 2.70 | | 2.70 | | 2.71 | |
| Divisor | (28d) | 612 | (29d) | 636 | (30d) | 720 | (31d) | 744 | Mean for month = | | | | | |

Calculated by [Signature] Date 77-9-30 Summed by [Signature] Date _____

TIDES: HOURLY HEIGHTS

Station MANILA Year _____
 Observer LEOPOLDO FRILLES Lat. 14° 35' N Long. 120° 31' E
 Time Meridian 120° E Height datum is 250 (190) which is 53.30 m. below

| MONTH AND DAY | Month | Day | Month | Day | Month | Day | Month | Day | Month | Day |
|---------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| | Aug. | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 |
| DAY OF SERIES | 225 | 226 | 227 | 228 | 229 | 230 | | | | |
| Hour | Meters | Meters | Meters | Meters | Meters | Meters | Meters | Meters | Meters | Meters |
| 0 | 2.48 | 2.52 | 2.57 | 2.64 | 2.66 | 2.68 | 2.70 | 2.70 | 2.70 | 2.70 |
| 1 | 2.49 | 2.57 | 2.67 | 2.71 | 2.71 | 2.71 | 2.71 | 2.71 | 2.71 | 2.71 |
| 2 | 2.53 | 2.59 | 2.65 | 2.67 | 2.67 | 2.67 | 2.67 | 2.67 | 2.67 | 2.67 |
| 3 | 2.65 | 2.57 | 2.50 | 2.52 | 2.50 | 2.50 | 2.50 | 2.50 | 2.50 | 2.50 |
| 4 | 2.73 | 2.64 | 2.55 | 2.54 | 2.50 | 2.50 | 2.50 | 2.50 | 2.50 | 2.50 |
| 5 | 2.89 | 2.74 | 2.65 | 2.61 | 2.50 | 2.50 | 2.50 | 2.50 | 2.50 | 2.50 |
| 6 | 3.03 | 2.87 | 2.76 | 2.71 | 2.59 | 2.59 | 2.59 | 2.59 | 2.59 | 2.59 |
| 7 | 3.15 | 3.05 | 2.98 | 2.84 | 2.73 | 2.73 | 2.73 | 2.73 | 2.73 | 2.73 |
| 8 | 3.22 | 3.19 | 3.12 | 3.00 | 2.86 | 2.86 | 2.86 | 2.86 | 2.86 | 2.86 |
| 9 | 3.28 | 3.27 | 3.27 | 3.17 | 3.03 | 3.03 | 3.03 | 3.03 | 3.03 | 3.03 |
| 10 | 3.21 | 3.27 | 3.28 | 3.28 | 3.16 | 3.16 | 3.16 | 3.16 | 3.16 | 3.16 |
| 11 | 3.11 | 3.22 | 3.31 | 3.32 | 3.23 | 3.23 | 3.23 | 3.23 | 3.23 | 3.23 |
| Noon | 2.92 | 3.02 | 3.23 | 3.27 | 3.23 | 3.23 | 3.23 | 3.23 | 3.23 | 3.23 |
| 12 | 2.69 | 2.83 | 3.08 | 3.17 | 3.17 | 3.17 | 3.17 | 3.17 | 3.17 | 3.17 |
| 13 | 2.50 | 2.64 | 2.87 | 2.99 | 3.05 | 3.05 | 3.05 | 3.05 | 3.05 | 3.05 |
| 14 | 2.32 | 2.48 | 2.60 | 2.72 | 2.80 | 2.80 | 2.80 | 2.80 | 2.80 | 2.80 |
| 15 | 2.04 | 2.30 | 2.39 | 2.51 | 2.62 | 2.62 | 2.62 | 2.62 | 2.62 | 2.62 |
| 16 | 2.02 | 2.20 | 2.20 | 2.25 | 2.37 | 2.46 | 2.46 | 2.46 | 2.46 | 2.46 |
| 17 | 2.02 | 2.20 | 2.20 | 2.25 | 2.37 | 2.46 | 2.46 | 2.46 | 2.46 | 2.46 |
| 18 | 2.01 | 2.01 | 2.01 | 2.01 | 2.01 | 2.01 | 2.01 | 2.01 | 2.01 | 2.01 |
| 19 | 2.05 | 2.04 | 2.04 | 2.04 | 2.04 | 2.04 | 2.04 | 2.04 | 2.04 | 2.04 |
| 20 | 2.33 | 2.31 | 2.37 | 2.38 | 2.41 | 2.41 | 2.41 | 2.41 | 2.41 | 2.41 |
| 21 | 2.40 | 2.38 | 2.49 | 2.47 | 2.44 | 2.44 | 2.44 | 2.44 | 2.44 | 2.44 |
| 22 | 2.46 | 2.49 | 2.53 | 2.59 | 2.60 | 2.60 | 2.60 | 2.60 | 2.60 | 2.60 |
| 23 | 2.50 | 2.52 | 2.63 | 2.65 | 2.70 | 2.70 | 2.70 | 2.70 | 2.70 | 2.70 |
| Sum | 63.12 | 64.06 | 64.94 | 65.48 | 65.99 | 65.98 | 65.98 | 65.98 | 65.98 | 65.98 |

Sum for 2.65 = 2.67 Divisor = (28d) 672; (29d) 696; (30d) 720; (31d) 744. Mea
 Tabulated by JFB Date 7-2-30 Summed by JFB

TIDES: HOURLY HEIGHTS

DEPARTMENT OF NATIONAL DEFENSE
BUREAU OF COAST AND GEODETIC SURVEY

Station MONILLO

Year 1977

Observer LEOPOLDO FRILLES

Lat. 14° 25' N

Long. 120° 58' E

Time Meridian 120° E Height datum is 750 (90) which is 5.34 m. below B. M. 4 C

| 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 SERIES | 218 | | 219 | | 220 | | 221 | | 222 | | 223 | | 224 | |
| Hour | Meters | Meters | Meters | Meters | Meters | Meters | Meters | Meters | Meters | Meters | Meters | Meters | Meters | Meters |
| 0 | 264 | 260 | 262 | 260 | 249 | 250 | 249 | 250 | 259 | 267 | 274 | 280 | 18.64 | |
| 1 | 275 | 277 | 272 | 271 | 251 | 259 | 267 | 274 | 280 | 287 | 294 | 299 | 18.72 | |
| 2 | 284 | 287 | 283 | 282 | 262 | 269 | 274 | 279 | 285 | 291 | 297 | 302 | 19.38 | |
| 3 | 287 | 294 | 290 | 290 HW | 272 | 278 | 280 | 280 | 285 | 290 | 295 | 300 | 19.91 | |
| 4 | 285 | 293 | 298 | 299 HW | 282 | 289 | 293 | 293 | 297 | 302 | 307 | 312 | 20.41 | |
| 5 | 280 | 288 | 295 | 301 HW | 288 | 295 | 300 | 300 | 303 | 307 | 311 | 315 | 20.75 | |
| 6 | 277 | 282 | 285 | 301 HW | 295 | 300 | 300 | 300 | 303 | 307 | 311 | 315 | 20.80 | |
| 7 | 262 | 274 | 288 | 300 | 305 | 312 | 312 | 312 | 312 | 312 | 312 | 312 | 20.60 | |
| 8 | 255 | 264 | 277 | 294 | 301 | 310 | 310 | 310 | 310 | 310 | 310 | 310 | 20.73 | |
| 9 | 253 | 256 | 265 | 275 | 283 | 293 | 305 | 310 | 310 | 310 | 310 | 310 | 19.72 | |
| 10 | 254 | 250 | 249 | 254 | 254 | 250 | 244 | 244 | 244 | 244 | 244 | 244 | 18.97 | |
| 11 | 250 | 250 | 247 | 249 | 253 | 264 | 277 | 291 | 299 | 306 | 312 | 317 | 18.37 | |
| Noon | 267 | 257 | 246 | 247 | 250 | 250 | 253 | 253 | 253 | 253 | 253 | 253 | 17.85 | |
| 12 | 268 | 254 | 246 | 246 | 246 | 246 | 246 | 246 | 246 | 246 | 246 | 246 | 17.37 | |
| 13 | 272 | 257 | 246 | 246 | 246 | 246 | 246 | 246 | 246 | 246 | 246 | 246 | 16.96 | |
| 14 | 271 | 253 | 246 | 246 | 246 | 246 | 246 | 246 | 246 | 246 | 246 | 246 | 16.72 | |
| 15 | 268 | 257 | 247 | 247 | 247 | 247 | 247 | 247 | 247 | 247 | 247 | 247 | 16.61 | |
| 16 | 265 | 256 | 245 | 245 | 245 | 245 | 245 | 245 | 245 | 245 | 245 | 245 | 16.69 | |
| 17 | 253 | 254 | 245 | 245 | 245 | 245 | 245 | 245 | 245 | 245 | 245 | 245 | 16.80 | |
| 18 | 250 | 257 | 247 | 247 | 247 | 247 | 247 | 247 | 247 | 247 | 247 | 247 | 16.92 | |
| 19 | 246 | 245 | 246 | 246 | 246 | 246 | 246 | 246 | 246 | 246 | 246 | 246 | 16.90 | |
| 20 | 244 | 246 | 244 | 244 | 244 | 244 | 244 | 244 | 244 | 244 | 244 | 244 | 16.97 | |
| 21 | 245 | 245 | 245 | 245 | 245 | 245 | 245 | 245 | 245 | 245 | 245 | 245 | 17.21 | |
| 22 | 253 | 253 | 253 | 253 | 253 | 253 | 253 | 253 | 253 | 253 | 253 | 253 | 17.55 | |
| Sum | 63.32 | 63.08 | 62.91 | 62.84 | 62.00 | 62.73 | 63.71 | 63.71 | 63.71 | 63.71 | 63.71 | 63.71 | 440.59 | |

Sum for 64 = 2.63 Divisor = (20d) 62; (20d) 696; (30d) 720; (31d) 744. Mean for month = 2.65

Tabulated by JF Date 7-9-77 Summed by JF Date 7-9-77

TIDES: HOURLY HEIGHTS

DEPARTMENT OF NATIONAL DEFENSE
BUREAU OF COAST AND GEODETIC SURVEY

Station MANILA

Year

Observer LEOPOLDO FRILLES

Lat. 14° 35' N

Long.

Time Meridian 120° E

Height datum is 250 (1902) which is 17321 ft 5.24 m. below

| MONTH AND DAY | Month | Day | Month | Day | Month | Day | Month | Day | Month | Day |
|---------------|--------|-------|--------|-------|--------|-------|--------|-------|--------|-------|
| | | July | 30 | | 31 | Aug. | 1 | | 2 | |
| DAY OF SERIES | 211 | | 212 | | 213 | | 214 | | 215 | |
| Hour | Meters | | Meters | | Meters | | Meters | | Meters | |
| 0 | 253 | 258 | 258 | 257 | 257 | 257 | 257 | 257 | 257 | 257 |
| 1 | 252 | 255 | 255 | 253 | 256 | 256 | 256 | 256 | 256 | 256 |
| 2 | 256 | 257 | 257 | 256 | 260 | 260 | 260 | 260 | 260 | 260 |
| 3 | 268 | 267 | 267 | 259 | 256 | 256 | 256 | 256 | 256 | 256 |
| 4 | 272 | 274 | 274 | 262 | 257 | 257 | 257 | 257 | 257 | 257 |
| 5 | 297 | 290 | 290 | 265 | 257 | 257 | 257 | 257 | 257 | 257 |
| 6 | 317 | 309 | 309 | 274 | 263 | 263 | 263 | 263 | 263 | 263 |
| 7 | 330 | 319 | 319 | 310 | 277 | 277 | 277 | 277 | 277 | 277 |
| 8 | 344 | 328 | 328 | 310 | 289 | 289 | 289 | 289 | 289 | 289 |
| 9 | 347 | 331 | 331 | 321 | 311 | 311 | 311 | 311 | 311 | 311 |
| 10 | 344 | 327 | 327 | 330 | 323 | 323 | 323 | 323 | 323 | 323 |
| 11 | 334 | 316 | 316 | 340 | 332 | 332 | 332 | 332 | 332 | 332 |
| Noon | 319 | 304 | 304 | 338 | 322 | 322 | 322 | 322 | 322 | 322 |
| 13 | 293 | 314 | 314 | 325 | 326 | 326 | 326 | 326 | 326 | 326 |
| 14 | 268 | 288 | 288 | 300 | 314 | 314 | 314 | 314 | 314 | 314 |
| 15 | 240 | 260 | 260 | 284 | 286 | 286 | 286 | 286 | 286 | 286 |
| 16 | 219 | 234 | 234 | 257 | 260 | 260 | 260 | 260 | 260 | 260 |
| 17 | 212 | 214 | 214 | 225 | 242 | 242 | 242 | 242 | 242 | 242 |
| 18 | 204 | 207 | 207 | 217 | 226 | 226 | 226 | 226 | 226 | 226 |
| 19 | 210 | 214 | 214 | 213 | 219 | 219 | 219 | 219 | 219 | 219 |
| 20 | 219 | 214 | 214 | 217 | 209 | 209 | 209 | 209 | 209 | 209 |
| 21 | 235 | 241 | 241 | 220 | 220 | 220 | 220 | 220 | 220 | 220 |
| 22 | 243 | 250 | 250 | 238 | 245 | 245 | 245 | 245 | 245 | 245 |
| 23 | 252 | 253 | 253 | 250 | 257 | 257 | 257 | 257 | 257 | 257 |
| Sum | 65.27 | 66.04 | 66.04 | 65.50 | 65.03 | 65.03 | 65.03 | 65.03 | 65.03 | 65.03 |

Sum for 347 = 1979.75 Divisor = (28d) 672; (29d) 696; (30d) 720; (31d) 744. Mean

Tabulated by RLS Date 27-9-77 Summed by RLS

Aug } 1977
Nov }

TIDES: HOURLY HEIGHTS

DEPARTMENT OF NATIONAL DEFENSE
BUREAU OF COAST AND GEODETIC SURVEY

Station Manila (Engineering Island) Year 1976
 Observer Leopoldo S. Irujo Lat. 14° 35' N Long. 120° 58' E
 Time Meridian 120° E Height datum is 750 (1901) which is 17.55 ft or 5.35 m. below B. M. 4A

| MONTH AND DAY | Month | Day | Month | Day | Month | Day | Month | Day | Month | Day | Month | Day | HORIZONTAL SUM | |
|---------------|--------|-----|--------|-----|--------|-----|--------|-----|--------|-----|--------|-----|----------------|--------|
| DAY OF SURVEY | | | | | | | | | | | | | | |
| Hour | Meters | | Meters | | Meters | | Meters | | Meters | | Meters | | Meters | |
| 0 | 3.11 | | 2.87 | | 2.83 | | 2.68 | | 2.54 | | 2.50 | | 2.47 | 19.52 |
| 1 | 3.17 | | 2.94 | | 2.90 | | 2.74 | | 2.59 | | 2.44 | | 2.44 | 19.27 |
| 2 | 3.20 | | 3.08 | | 2.99 | | 2.83 | | 2.68 | | 2.47 | | 2.41 | 18.75 |
| 3 | 3.20 | | 3.11 | | 3.02 | | 2.96 | | 2.77 | | 2.52 | | 2.44 | 18.06 |
| 4 | 3.11 | | 3.08 | | 2.95 | | 3.05 | | 2.87 | | 2.66 | | 2.53 | 18.35 |
| 5 | 2.96 | | 2.96 | | 3.05 | | 3.08 | | 2.90 | | 2.75 | | 2.59 | 18.19 |
| 6 | 2.77 | | 2.80 | | 3.02 | | 3.08 | | 2.96 | | 2.84 | | 2.65 | 18.12 |
| 7 | 2.53 | | 2.62 | | 2.90 | | 2.99 | | 2.96 | | 2.90 | | 2.74 | 19.64 |
| 8 | 2.41 | | 2.61 | | 2.71 | | 2.90 | | 2.96 | | 2.90 | | 2.80 | 19.72 |
| 9 | 2.29 | | 2.54 | | 2.53 | | 2.71 | | 2.87 | | 2.90 | | 2.80 | 18.34 |
| 10 | 2.19 | | 2.19 | | 2.35 | | 2.53 | | 2.65 | | 2.75 | | 2.77 | 17.43 |
| 11 | 2.13 | | 2.10 | | 2.23 | | 2.41 | | 2.44 | | 2.64 | | 2.65 | 16.62 |
| Noon | 2.16 | | 2.07 | | 2.17 | | 2.29 | | 2.32 | | 2.41 | | 2.47 | 15.89 |
| 13 | 2.19 | | 2.10 | | 2.11 | | 2.16 | | 2.23 | | 2.32 | | 2.32 | 15.42 |
| 14 | 2.29 | | 2.16 | | 2.10 | | 2.13 | | 2.17 | | 2.23 | | 2.23 | 15.31 |
| 15 | 2.38 | | 2.23 | | 2.17 | | 2.16 | | 2.14 | | 2.20 | | 2.23 | 15.51 |
| 16 | 2.47 | | 2.22 | | 2.23 | | 2.24 | | 2.20 | | 2.20 | | 2.23 | 15.82 |
| 17 | 2.47 | | 2.22 | | 2.22 | | 2.25 | | 2.29 | | 2.29 | | 2.29 | 16.33 |
| 18 | 2.47 | | 2.34 | | 2.10 | | 2.41 | | 2.38 | | 2.35 | | 2.41 | 16.80 |
| 19 | 2.47 | | 2.44 | | 2.44 | | 2.47 | | 2.44 | | 2.47 | | 2.47 | 17.20 |
| 20 | 2.53 | | 2.47 | | 2.47 | | 2.50 | | 2.53 | | 2.53 | | 2.59 | 17.62 |
| 21 | 2.68 | | 2.50 | | 2.50 | | 2.53 | | 2.56 | | 2.56 | | 2.62 | 17.95 |
| 22 | 2.74 | | 2.56 | | 2.55 | | 2.53 | | 2.56 | | 2.56 | | 2.65 | 18.15 |
| 23 | 2.87 | | 2.62 | | 2.62 | | 2.53 | | 2.53 | | 2.56 | | 2.59 | 18.35 |
| Sum | 62.79 | | 60.60 | | 61.64 | | 62.08 | | 61.54 | | 61.01 | | 61.31 | 4130.3 |

Sum for Sept 1976 = 1930.79 Divisor = (28d) 672; (29d) 696; (30d) 720; (31d) 744. Mean for month = 2.68

Tabulated by P-10 Date 11/30/76 Summed by P-10 Date 11/30/76

TIDES: HOURLY HEIGHTS

Station Manila (Engineering Island) Year 1957
 Observer Leopoldo F. Llorente
 Time Meridian 120° E Height datum is 750 (1901) which is 17.57 ft 5.34 m. below Long. 1

| MONTH AND DAY | Month Day | | Month Day | | Month Day | | Month Day | | Month Day | |
|---------------|-----------|--------|-----------|--------|-----------|--------|-----------|--------|-----------|--------|
| | Month | Day | Month | Day | Month | Day | Month | Day | Month | Day |
| DAY OF SERIES | Sept. 23 | | 24 | | 25 | | 26 | | 27 | |
| Hour | Meters | Meters | Meters | Meters | Meters | Meters | Meters | Meters | Meters | Meters |
| 0 | 2.68 | 2.74 | 2.90 | 3.02 | 3.14 | 3.20 | 3.20 | 3.20 | 3.20 | 3.20 |
| 1 | 2.62 | 2.56 | 2.77 | 2.87 | 2.99 | 3.11 | 3.20 | 3.20 | 3.20 | 3.20 |
| 2 | 2.62 | 2.57 | 2.59 | 2.71 | 2.99 | 3.11 | 3.20 | 3.20 | 3.20 | 3.20 |
| 3 | 2.62 | 2.47 | 2.47 | 2.53 | 2.77 | 2.99 | 3.11 | 3.20 | 3.20 | 3.20 |
| 4 | 2.65 | 2.47 | 2.41 | 2.41 | 2.53 | 2.77 | 2.99 | 3.11 | 3.11 | 3.11 |
| 5 | 2.77 | 2.50 | 2.38 | 2.32 | 2.53 | 2.77 | 2.99 | 3.11 | 3.11 | 3.11 |
| 6 | 2.93 | 2.59 | 2.47 | 2.29 | 2.38 | 2.53 | 2.77 | 2.99 | 3.11 | 3.11 |
| 7 | 3.05 | 2.74 | 2.59 | 2.35 | 2.26 | 2.44 | 2.77 | 2.99 | 3.11 | 3.11 |
| 8 | 3.17 | 2.90 | 2.71 | 2.44 | 2.26 | 2.35 | 2.53 | 2.77 | 2.99 | 3.11 |
| 9 | 3.23 | 3.05 | 2.83 | 2.59 | 2.29 | 2.32 | 2.53 | 2.77 | 2.99 | 3.11 |
| 10 | 3.23 | 3.11 | 2.96 | 2.71 | 2.35 | 2.32 | 2.53 | 2.77 | 2.99 | 3.11 |
| 11 | 3.11 | 3.14 | 3.05 | 2.83 | 2.47 | 2.38 | 2.53 | 2.77 | 2.99 | 3.11 |
| Noon | 2.96 | 3.02 | 3.05 | 2.90 | 2.59 | 2.47 | 2.53 | 2.77 | 2.99 | 3.11 |
| 13 | 2.77 | 2.80 | 2.96 | 2.87 | 2.71 | 2.50 | 2.53 | 2.77 | 2.99 | 3.11 |
| 14 | 2.53 | 2.65 | 2.74 | 2.89 | 2.74 | 2.59 | 2.53 | 2.77 | 2.99 | 3.11 |
| 15 | 2.44 | 2.43 | 2.56 | 2.65 | 2.74 | 2.62 | 2.53 | 2.77 | 2.99 | 3.11 |
| 16 | 2.38 | 2.47 | 2.50 | 2.59 | 2.68 | 2.62 | 2.53 | 2.77 | 2.99 | 3.11 |
| 17 | 2.41 | 2.44 | 2.50 | 2.59 | 2.68 | 2.62 | 2.53 | 2.77 | 2.99 | 3.11 |
| 18 | 2.47 | 2.50 | 2.50 | 2.56 | 2.68 | 2.62 | 2.53 | 2.77 | 2.99 | 3.11 |
| 19 | 2.56 | 2.62 | 2.62 | 2.65 | 2.68 | 2.62 | 2.53 | 2.77 | 2.99 | 3.11 |
| 20 | 2.62 | 2.74 | 2.71 | 2.77 | 2.71 | 2.62 | 2.53 | 2.77 | 2.99 | 3.11 |
| 21 | 2.74 | 2.80 | 2.83 | 2.96 | 2.71 | 2.62 | 2.53 | 2.77 | 2.99 | 3.11 |
| 22 | 2.80 | 2.90 | 2.96 | 3.05 | 2.87 | 2.83 | 2.71 | 2.77 | 2.99 | 3.11 |
| 23 | 2.80 | 2.93 | 3.02 | 3.14 | 3.02 | 3.03 | 2.99 | 2.99 | 2.99 | 2.99 |
| Sum | 66.16 | 66.17 | 65.11 | 64.57 | 64.02 | 64.57 | 63.40 | 63.40 | 63.40 | 63.40 |
| Sum for | 2.76 | 2.71 | 2.71 | 2.69 | 2.66 | 2.69 | 2.69 | 2.69 | 2.69 | 2.69 |

Tabulated by 10 Date 11
 Divisor = (28d) 672; (29d) 696; (30d) 720; (31d) 744. Mean for month -
 Summed by Allopy Date 11

BCGS Form No 382
 DEPARTMENT OF NATIONAL DEFENSE
 BUREAU OF NAUTIC AND CHARTING SURVEY

TIDES: HOURLY HEIGHTS

Station Manila (Engineering Island) Year 1976
 Observer Leopoldo Fuller Lat. 14° 35' N Long. 120° 58' E
 Time Meridian 120° E Height datum is TSD (1901) which is 17.53 ft 5.26 m. below B. M. 1A

| MONTH AND DAY | Month | Day | Month | Day | Month | Day | Month | Day | Month | Day | Month | Day | HORIZONTAL SUM | |
|------------------------------------------------------------------------|--------|-----|--------|-----|--------|-----|--------|-----|--------|-----|--------|-----|----------------|--------|
| | Sept. | 16 | | 17 | | 18 | | 19 | | 20 | | 21 | 22 | |
| DAY OF SERIES | | | | | | | | | | | | | | |
| HOUR | Meters | | Meters | | Meters | | Meters | | Meters | | Meters | | Meters | |
| 0 | 3.11 | | 3.05 | | 3.03 | | 2.90 | | 2.80 | | 2.62 | | 2.62 | 20.12 |
| 1 | 3.17 | | 3.11 | | 3.08 | | 2.99 | | 2.87 | | 2.68 | | 2.59 | 20.49 |
| 2 | 3.23 | | 3.14 | | 3.14 | | 3.05 | | 2.96 | | 2.74 | | 2.65 | 20.91 |
| 3 | 3.20 | | 3.17 | | 3.17 | | 3.08 | | 3.05 | | 2.87 | | 2.74 | 21.28 |
| 4 | 3.17 | | 3.14 | | 3.20 | | 3.08 | | 3.11 | | 2.96 | | 2.87 | 21.53 |
| 5 | 3.05 | | 3.11 | | 3.17 | | 3.11 | | 3.17 | | 3.05 | | 2.99 | 21.65 |
| 6 | 2.95 | | 3.02 | | 3.08 | | 3.11 | | 3.20 | | 3.11 | | 3.05 | 21.50 |
| 7 | 2.80 | | 2.83 | | 2.99 | | 3.05 | | 3.26 | | 3.17 | | 3.11 | 21.16 |
| 8 | 2.71 | | 2.71 | | 2.87 | | 2.93 | | 3.11 | | 3.17 | | 3.20 | 20.70 |
| 9 | 2.65 | | 2.56 | | 2.71 | | 2.74 | | 2.96 | | 3.05 | | 3.23 | 19.90 |
| 10 | 2.56 | | 2.47 | | 2.59 | | 2.62 | | 2.74 | | 2.96 | | 3.14 | 19.02 |
| 11 | 2.58 | | 2.41 | | 2.44 | | 2.44 | | 2.52 | | 2.71 | | 2.93 | 18.02 |
| Noon | 2.53 | | 2.41 | | 2.38 | | 2.41 | | 2.41 | | 2.53 | | 2.74 | 17.41 |
| 13 | 2.52 | | 2.41 | | 2.32 | | 2.29 | | 2.32 | | 2.41 | | 2.50 | 16.81 |
| 14 | 2.42 | | 2.41 | | 2.35 | | 2.26 | | 2.32 | | 2.32 | | 2.44 | 16.72 |
| 15 | 2.68 | | 2.47 | | 2.38 | | 2.29 | | 2.26 | | 2.29 | | 2.35 | 16.72 |
| 16 | 2.68 | | 2.50 | | 2.44 | | 2.38 | | 2.29 | | 2.29 | | 2.32 | 16.90 |
| 17 | 2.68 | | 2.56 | | 2.47 | | 2.44 | | 2.38 | | 2.35 | | 2.35 | 17.23 |
| 18 | 2.71 | | 2.62 | | 2.53 | | 2.50 | | 2.44 | | 2.44 | | 2.41 | 17.65 |
| 19 | 2.71 | | 2.65 | | 2.59 | | 2.53 | | 2.50 | | 2.53 | | 2.53 | 18.04 |
| 20 | 2.74 | | 2.71 | | 2.65 | | 2.56 | | 2.52 | | 2.52 | | 2.65 | 18.43 |
| 21 | 2.80 | | 2.77 | | 2.68 | | 2.62 | | 2.59 | | 2.62 | | 2.74 | 18.79 |
| 22 | 2.87 | | 2.90 | | 2.74 | | 2.71 | | 2.62 | | 2.68 | | 2.77 | 19.29 |
| 23 | 2.96 | | 2.96 | | 2.77 | | 2.74 | | 2.62 | | 2.71 | | 2.74 | 19.50 |
| Sum | 67.63 | | 66.09 | | 65.76 | | 64.82 | | 65.04 | | 64.76 | | 65.68 | 459.76 |
| Sum for | 2.81 | | 2.75 | | 2.74 | | 2.68 | | 2.71 | | 2.70 | | 2.73 | |
| Divisor = (28d) 672; (29d) 696; (30d) 720; (31d) 744. Mean for month = | | | | | | | | | | | | | | |

Tabulated by _____ Date _____ Summed by Alf Lopez Date 11-18-76