



**US Army Corps
of Engineers**
Waterways Experiment
Station

Annual Data Summary for 1992 CERC Field Research Facility

Volume II: Appendices C Through E

by *Michael W. Leffler, Clifford F. Baron, Brian L. Scarborough,
Kent K. Hathaway, Paul R. Hodges, C. Ray Townsend*



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Final Report

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**US Army Corps
of Engineers**
Waterways Experiment
Station



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Appendix C

Wave Data for Gage 111

Wave data summaries for Gage 111 for 1992 and for 1985 through 1992 are presented in the following pages:

Daily H_{mo} and T_p

Figure C1 displays the individual wave height H_{mo} and peak spectral wave period T_p values, along with the monthly mean values.

Joint Distributions of H_{mo} and T_p

Annual and monthly joint distribution tables are presented in Tables C1 and C2, and data for 1985 through 1992 are in Tables C3 and C4. Each table gives the frequency (in parts per 10,000) for which the wave height and peak period were within the specified intervals; these values can be converted to percentages by dividing by 100. Marginal totals are also included. The row total gives the number of observations out of 10,000 that fell within each specified peak period interval. The column total gives the number of observations out of 10,000 that fell within each specified wave height interval.

Cumulative Distributions of Wave Height

Annual and monthly wave height distributions for 1992 are plotted in cumulative form in Figures C2 and C3. Data for 1985 through 1992 are plotted in Figure C4.

Peak Spectral Wave Period Distributions

Annual and monthly peak wave period T_p distribution histograms for 1992 are presented in Figures C5 and C6. Data for 1985 through 1992 are presented in Figure C7.

Persistence of Wave Heights

Table C5 shows the number of times in 1992 when the specified wave height was equaled or exceeded at least once during each day for the duration (consecutive days). Data for 1985 through 1992 are averaged and given in Table C6. An example is shown below:

| Height m | Consecutive Day(s) or Longer | | | | | | | | | | | | | | | | | | |
|-------------|------------------------------|----|----|----|----|----|----|---|---|----|----|----|----|----|----|----|----|----|-----|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19+ |
| 0.5 | 18 | 15 | | 14 | 13 | 12 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19+ |
| 1.0 | 50 | 34 | 24 | 21 | 18 | 14 | 12 | 8 | 7 | 3 | | | 2 | | | | | | |
| 1.5 | 41 | 19 | 8 | 6 | 2 | 1 | | | | | | | | | | | | | |
| 2.0 | 22 | 9 | 5 | 1 | | | | | | | | | | | | | | | |
| 2.5 | 10 | 5 | 2 | | | | | | | | | | | | | | | | |
| 3.0 | 6 | 1 | | | | | | | | | | | | | | | | | |
| 3.5 | | 1 | | | | | | | | | | | | | | | | | |
| 4.0 | 1 | | | | | | | | | | | | | | | | | | |

This example indicates that wave heights equaled or exceeded 1.0 m 50 times for at least 1 day; 34 times for at least 2 days; 24 times for at least 3 days, etc. Therefore, on 16 occasions the height equaled or exceeded 1.0 m for 1 day exactly ($50 - 34 = 16$); on 10 occasions for 2 days; on 3 occasions for 3 days, etc. Note that the height exceeded 1 m 50 times for 1 day or longer, while heights exceeded 0.5 m only 18 times for this same duration. This change in durations occurred because the longer durations of lower waves may be interspersed with shorter, but more frequent, intervals of higher waves. For example, one of the times that the wave heights exceeded 0.5 m for 16 days may have represented three times the height exceeded 1 m for shorter durations.

Spectra

Monthly spectra for the pressure gage (Gage 111) are presented in Figure C8. The plots show "relative" energy density as a function of wave frequency. These figures summarize the large number of spectra for each month. The figures emphasize the higher energy density associated with storms, as well as the general shifts in energy density to different frequencies. As used here, "relative" indicates the spectra have been smoothed by the three-dimensional surface drawing routine. Consequently, extremely high- and low-energy density values are modified to produce a smooth surface. The figures are not intended for quantitative measurements; however, they do provide the energy density as a function of frequency relative to the other spectra for the month.

Monthly and annual wave statistics for Gage 111 for 1992 and for 1985 through 1992 are presented in Table C7.

Figure C9 plots monthly time histories of wave height and period.

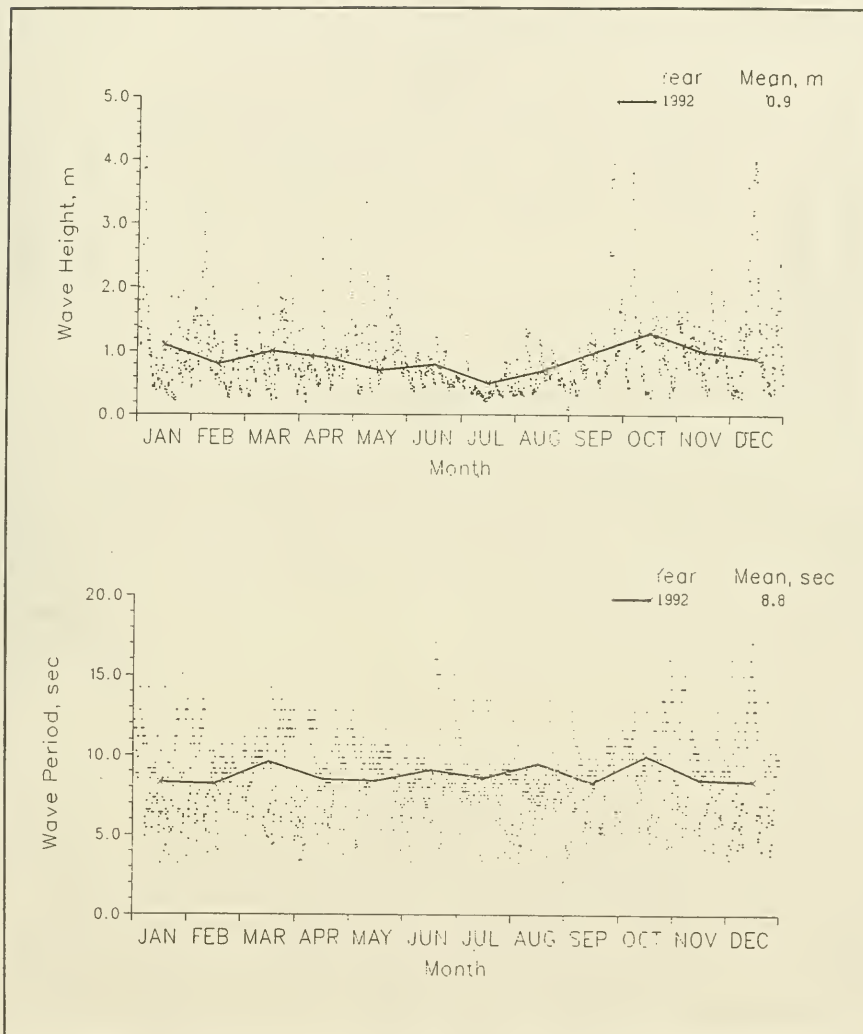


Figure C1. 1992 daily wave height and period values with monthly means for Gage 111

Table C1
Annual Joint Distribution of H_{mo} versus T_p

| Height(m) | Annual 1992, Gage 111 Percent Occurrence(X100) of Height and Period | | | | | | | | | | | | | Total |
|----------------|--|-------------|-------------|-------------|-------------|-------------|-------------|-------------|---------------|---------------|---------------|-----------------|------|-------|
| | Period(sec) | | | | | | | | | | | | | |
| | 2.0- 2.9 | 3.0- 3.9 | 4.0- 4.9 | 5.0- 5.9 | 6.0- 6.9 | 7.0- 7.9 | 8.0- 8.9 | 9.0- 9.9 | 10.0- 11.9 | 12.0- 13.9 | 14.0- 15.9 | 16.0- Longer | | |
| 0.00 - 0.49 | 14 | 84 | 70 | 70 | 77 | 349 | 704 | 509 | 286 | 84 | 167 | 14 | 2428 | |
| 0.50 - 0.99 | . | 84 | 272 | 363 | 467 | 453 | 774 | 802 | 572 | 77 | 286 | 14 | 4164 | |
| 1.00 - 1.49 | . | 14 | 139 | 377 | 279 | 146 | 265 | 237 | 481 | 49 | 119 | . | 2106 | |
| 1.50 - 1.99 | . | . | . | 77 | 181 | 70 | 84 | 84 | 174 | 14 | 42 | . | 726 | |
| 2.00 - 2.49 | . | . | . | 7 | 42 | 21 | 28 | 42 | 49 | 14 | 21 | . | 224 | |
| 2.50 - 2.99 | . | . | . | . | 7 | 28 | 14 | 35 | 42 | . | 28 | . | 154 | |
| 3.00 - 3.49 | . | . | . | . | . | . | 7 | 7 | 28 | 28 | 7 | . | 77 | |
| 3.50 - 3.99 | . | . | . | . | . | . | 14 | 14 | 35 | 7 | 35 | 7 | 112 | |
| 4.00 - 4.49 | . | . | . | . | . | . | . | . | . | 7 | 7 | . | 14 | |
| 4.50 - 4.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 | |
| 5.00 - Greater | . | . | . | . | . | . | . | . | . | . | . | . | 0 | |
| Total | 14 | 182 | 481 | 894 | 1053 | 1067 | 1890 | 1730 | 1667 | 280 | 712 | 35 | 0 | |

Table C2
Monthly Joint Distribution of H_{mo} versus T_p

| Height(m) | January 1992, Gage 111 | | | | | | | | | | | | Total |
|----------------|---|-------------|-------------|-------------|-------------|-------------|-------------|-------------|---------------|---------------|---------------|-----------------|-------|
| | Percent Occurrence(X100) of Height and Period | | | | | | | | | | | | |
| | Period(sec) | | | | | | | | | | | | |
| | 2.0- 2.9 | 3.0- 3.9 | 4.0- 4.9 | 5.0- 5.9 | 6.0- 6.9 | 7.0- 7.9 | 8.0- 8.9 | 9.0- 9.9 | 10.0- 11.9 | 12.0- 13.9 | 14.0- 15.9 | 16.0- Longer | |
| 0.00 - 0.49 | . | 250 | . | 333 | 83 | 500 | 417 | 417 | 83 | 333 | 83 | . | 2499 |
| 0.50 - 0.99 | . | 167 | . | 500 | 1000 | 250 | 417 | 167 | 667 | . | 583 | . | 3751 |
| 1.00 - 1.49 | . | . | 167 | 333 | 750 | . | 250 | . | 500 | . | 83 | . | 2083 |
| 1.50 - 1.99 | . | . | . | . | 167 | . | 167 | 83 | 417 | . | . | . | 917 |
| 2.00 - 2.49 | . | . | . | . | . | . | . | 83 | . | . | . | . | 166 |
| 2.50 - 2.99 | . | . | . | . | . | . | . | . | . | . | . | . | 166 |
| 3.00 - 3.49 | . | . | . | . | . | . | . | . | . | 83 | 83 | . | 166 |
| 3.50 - 3.99 | . | . | . | . | . | . | . | . | 83 | . | 83 | . | 166 |
| 4.00 - 4.49 | . | . | . | . | . | . | . | . | . | 83 | . | . | 83 |
| 4.50 - 4.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 5.00 - Greater | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| Total | 0 | 417 | 167 | 1166 | 2000 | 750 | 1251 | 750 | 1833 | 499 | 1164 | 0 | |

| Height(m) | February 1992, Gage 111 | | | | | | | | | | | | Total |
|----------------|---|-------------|-------------|-------------|-------------|-------------|-------------|-------------|---------------|---------------|---------------|-----------------|-------|
| | Percent Occurrence(X100) of Height and Period | | | | | | | | | | | | |
| | Period(sec) | | | | | | | | | | | | |
| | 2.0- 2.9 | 3.0- 3.9 | 4.0- 4.9 | 5.0- 5.9 | 6.0- 6.9 | 7.0- 7.9 | 8.0- 8.9 | 9.0- 9.9 | 10.0- 11.9 | 12.0- 13.9 | 14.0- 15.9 | 16.0- Longer | |
| 0.00 - 0.49 | . | . | . | . | . | . | 783 | 1043 | 87 | . | . | . | 1913 |
| 0.50 - 0.99 | . | . | 348 | 261 | 522 | 522 | 522 | 783 | 348 | . | 87 | . | 3393 |
| 1.00 - 1.49 | . | 87 | . | 348 | 348 | 435 | 348 | 435 | 522 | 87 | 261 | . | 2871 |
| 1.50 - 1.99 | . | . | . | 87 | 348 | 87 | 261 | . | 174 | . | 87 | . | 1044 |
| 2.00 - 2.49 | . | . | . | . | 87 | 174 | . | . | . | . | 87 | . | 348 |
| 2.50 - 2.99 | . | . | . | . | . | . | . | . | 348 | . | . | . | 348 |
| 3.00 - 3.49 | . | . | . | . | . | . | . | . | 87 | . | . | . | 87 |
| 3.50 - 3.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 4.00 - 4.49 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 4.50 - 4.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 5.00 - Greater | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| Total | 0 | 87 | 348 | 696 | 1305 | 1218 | 1914 | 2261 | 1566 | 87 | 522 | 0 | |

| Height(m) | March 1992, Gage 111 | | | | | | | | | | | | Total |
|----------------|---|-------------|-------------|-------------|-------------|-------------|-------------|-------------|---------------|---------------|---------------|-----------------|-------|
| | Percent Occurrence(X100) of Height and Period | | | | | | | | | | | | |
| | Period(sec) | | | | | | | | | | | | |
| | 2.0- 2.9 | 3.0- 3.9 | 4.0- 4.9 | 5.0- 5.9 | 6.0- 6.9 | 7.0- 7.9 | 8.0- 8.9 | 9.0- 9.9 | 10.0- 11.9 | 12.0- 13.9 | 14.0- 15.9 | 16.0- Longer | |
| 0.00 - 0.49 | . | . | 81 | . | . | 161 | . | 403 | 1129 | 161 | 81 | . | 2016 |
| 0.50 - 0.99 | . | . | 242 | 484 | 565 | 403 | 484 | 887 | 968 | . | 323 | . | 4356 |
| 1.00 - 1.49 | . | . | 323 | 81 | 242 | . | 81 | 242 | 726 | . | 242 | . | 1937 |
| 1.50 - 1.99 | . | . | . | 81 | 81 | 81 | 161 | 161 | 484 | 81 | 161 | . | 1291 |
| 2.00 - 2.49 | . | . | . | . | 81 | . | . | 161 | . | . | 81 | . | 323 |
| 2.50 - 2.99 | . | . | . | . | . | . | . | . | 81 | . | . | . | 81 |
| 3.00 - 3.49 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 3.50 - 3.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 4.00 - 4.49 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 4.50 - 4.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 5.00 - Greater | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| Total | 0 | 0 | 646 | 646 | 969 | 645 | 726 | 1854 | 3388 | 242 | 888 | 0 | |

(Continued)

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Table C2 (Continued)

April 1992, Gage 111
Percent Occurrence(X100) of Height and Period

| Height(m) | Period(sec) | | | | | | | | | | | | Total |
|----------------|-------------|------|------|------|------|------|------|------|-------|-------|-------|--------|-------|
| | 2.0- | 3.0- | 4.0- | 5.0- | 6.0- | 7.0- | 8.0- | 9.0- | 10.0- | 12.0- | 14.0- | 16.0- | |
| | 2.9 | 3.9 | 4.9 | 5.9 | 6.9 | 7.9 | 8.9 | 9.9 | 11.9 | 13.9 | 15.9 | Longer | |
| 0.00 - 0.49 | . | 250 | 83 | . | 167 | 83 | 83 | 250 | 83 | . | 250 | . | 1249 |
| 0.50 - 0.99 | . | . | 333 | 833 | 750 | 500 | 1167 | 667 | 1333 | . | 750 | . | 6333 |
| 1.00 - 1.49 | . | 83 | 83 | 333 | . | 83 | 250 | 333 | 250 | . | . | . | 1415 |
| 1.50 - 1.99 | . | . | . | 83 | . | 83 | 83 | . | 250 | . | . | . | 499 |
| 2.00 - 2.49 | . | . | . | . | 167 | . | . | 83 | . | . | . | . | 250 |
| 2.50 - 2.99 | . | . | . | . | . | . | 83 | 167 | . | . | . | . | 250 |
| 3.00 - 3.49 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 3.50 - 3.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 4.00 - 4.49 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 4.50 - 4.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 5.00 - Greater | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| Total | 0 | 333 | 499 | 1249 | 1084 | 749 | 1666 | 1500 | 1916 | 0 | 1000 | 0 | |

May 1992, Gage 111
Percent Occurrence(X100) of Height and Period

| Height(m) | Period(sec) | | | | | | | | | | | | Total |
|----------------|-------------|------|------|------|------|------|------|------|-------|-------|-------|--------|-------|
| | 2.0- | 3.0- | 4.0- | 5.0- | 6.0- | 7.0- | 8.0- | 9.0- | 10.0- | 12.0- | 14.0- | 16.0- | |
| | 2.9 | 3.9 | 4.9 | 5.9 | 6.9 | 7.9 | 8.9 | 9.9 | 11.9 | 13.9 | 15.9 | Longer | |
| 0.00 - 0.49 | . | . | 163 | . | 81 | 163 | 163 | 244 | 325 | . | . | . | 1139 |
| 0.50 - 0.99 | . | 81 | 325 | 81 | 407 | 81 | 732 | 1463 | 732 | . | . | . | 3902 |
| 1.00 - 1.49 | . | . | 81 | 163 | 81 | 407 | 569 | 569 | 650 | . | 163 | . | 2683 |
| 1.50 - 1.99 | . | . | . | 81 | 244 | . | . | 407 | 488 | . | . | . | 1220 |
| 2.00 - 2.49 | . | . | . | . | 81 | . | 325 | 81 | 81 | . | . | . | 568 |
| 2.50 - 2.99 | . | . | . | . | . | 81 | 81 | 81 | . | . | . | . | 243 |
| 3.00 - 3.49 | . | . | . | . | . | . | . | 81 | 163 | . | . | . | 244 |
| 3.50 - 3.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 4.00 - 4.49 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 4.50 - 4.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 5.00 - Greater | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| Total | 0 | 81 | 569 | 325 | 894 | 732 | 1870 | 2926 | 2439 | 0 | 163 | 0 | |

June 1992, Gage 111
Percent Occurrence(X100) of Height and Period

| Height(m) | Period(sec) | | | | | | | | | | | | Total |
|----------------|-------------|------|------|------|------|------|------|------|-------|-------|-------|--------|-------|
| | 2.0- | 3.0- | 4.0- | 5.0- | 6.0- | 7.0- | 8.0- | 9.0- | 10.0- | 12.0- | 14.0- | 16.0- | |
| | 2.9 | 3.9 | 4.9 | 5.9 | 6.9 | 7.9 | 8.9 | 9.9 | 11.9 | 13.9 | 15.9 | Longer | |
| 0.00 - 0.49 | . | . | 85 | . | . | 254 | 847 | 1186 | . | . | . | 85 | 2457 |
| 0.50 - 0.99 | . | 85 | 85 | 169 | 678 | 847 | 1864 | 1271 | 424 | 254 | 1102 | 169 | 6948 |
| 1.00 - 1.49 | . | . | 85 | 254 | . | . | 85 | . | 169 | . | . | . | 593 |
| 1.50 - 1.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 2.00 - 2.49 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 2.50 - 2.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 3.00 - 3.49 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 3.50 - 3.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 4.00 - 4.49 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 4.50 - 4.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 5.00 - Greater | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| Total | 0 | 85 | 255 | 423 | 678 | 1101 | 2796 | 2457 | 593 | 254 | 1102 | 254 | |

(Continued)

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Table C2 (Continued)

July 1992, Gage 111
Percent Occurrence(X100) of Height and Period

| Height(m) | Period(sec) | | | | | | | | | | | | Total |
|----------------|-------------|------|------|------|------|------|------|------|-------|-------|-------|--------|-------|
| | 2.0- | 3.0- | 4.0- | 5.0- | 6.0- | 7.0- | 8.0- | 9.0- | 10.0- | 12.0- | 14.0- | 16.0- | |
| | 2.9 | 3.9 | 4.9 | 5.9 | 6.9 | 7.9 | 8.9 | 9.9 | 11.9 | 13.9 | 15.9 | Longer | |
| 0.00 - 0.49 | . | 331 | . | 248 | 248 | 1653 | 2893 | 1157 | 331 | 413 | 413 | . | 7687 |
| 0.50 - 0.99 | . | 83 | 83 | 331 | 248 | 413 | 331 | 496 | 165 | . | . | . | 2150 |
| 1.00 - 1.49 | . | . | . | . | . | 83 | 83 | . | . | . | . | . | 166 |
| 1.50 - 1.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 2.00 - 2.49 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 2.50 - 2.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 3.00 - 3.49 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 3.50 - 3.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 4.00 - 4.49 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 4.50 - 4.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 5.00 - Greater | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| Total | 0 | 414 | 83 | 579 | 496 | 2149 | 3307 | 1653 | 496 | 413 | 413 | 0 | 0 |

August 1992, Gage 111
Percent Occurrence(X100) of Height and Period

| Height(m) | Period(sec) | | | | | | | | | | | | Total |
|----------------|-------------|------|------|------|------|------|------|------|-------|-------|-------|--------|-------|
| | 2.0- | 3.0- | 4.0- | 5.0- | 6.0- | 7.0- | 8.0- | 9.0- | 10.0- | 12.0- | 14.0- | 16.0- | |
| | 2.9 | 3.9 | 4.9 | 5.9 | 6.9 | 7.9 | 8.9 | 9.9 | 11.9 | 13.9 | 15.9 | Longer | |
| 0.00 - 0.49 | 172 | 86 | . | 86 | 172 | 948 | 1466 | 86 | 86 | . | 86 | 86 | 3274 |
| 0.50 - 0.99 | . | 172 | 345 | 345 | 776 | 1293 | 1552 | 517 | 431 | 86 | 86 | . | 5603 |
| 1.00 - 1.49 | . | . | 172 | 259 | 172 | 345 | 86 | 86 | . | . | . | . | 1120 |
| 1.50 - 1.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 2.00 - 2.49 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 2.50 - 2.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 3.00 - 3.49 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 3.50 - 3.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 4.00 - 4.49 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 4.50 - 4.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 5.00 - Greater | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| Total | 172 | 258 | 517 | 690 | 1120 | 2586 | 3104 | 689 | 517 | 86 | 172 | 86 | 0 |

September 1992, Gage 111
Percent Occurrence(X100) of Height and Period

| Height(m) | Period(sec) | | | | | | | | | | | | Total |
|----------------|-------------|------|------|------|------|------|------|------|-------|-------|-------|--------|-------|
| | 2.0- | 3.0- | 4.0- | 5.0- | 6.0- | 7.0- | 8.0- | 9.0- | 10.0- | 12.0- | 14.0- | 16.0- | |
| | 2.9 | 3.9 | 4.9 | 5.9 | 6.9 | 7.9 | 8.9 | 9.9 | 11.9 | 13.9 | 15.9 | Longer | |
| 0.00 - 0.49 | . | . | . | . | 87 | 87 | 348 | 174 | 261 | . | 174 | . | 1131 |
| 0.50 - 0.99 | . | 174 | 522 | 696 | 261 | 522 | 1130 | 1304 | 609 | . | . | . | 5218 |
| 1.00 - 1.49 | . | . | 174 | 783 | 174 | 87 | 261 | 348 | 435 | . | . | . | 2262 |
| 1.50 - 1.99 | . | . | . | 174 | 348 | 87 | . | . | . | . | . | . | 609 |
| 2.00 - 2.49 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 2.50 - 2.99 | . | . | . | . | . | 261 | . | 87 | . | . | . | . | 348 |
| 3.00 - 3.49 | . | . | . | . | . | . | 87 | . | . | . | . | . | 87 |
| 3.50 - 3.99 | . | . | . | . | . | . | . | 87 | 261 | . | . | . | 348 |
| 4.00 - 4.49 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 4.50 - 4.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 5.00 - Greater | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| Total | 0 | 174 | 696 | 1653 | 870 | 1044 | 1826 | 1913 | 1653 | 0 | 174 | 0 | 0 |

(Continued)

(Sheet 3 of 4)

Table C2 (Concluded)

October 1992, Gage 111
Percent Occurrence(X100) of Height and Period

| Height(m) | Period(sec) | | | | | | | | | | | | | Total |
|----------------|-------------|------|------|------|------|------|------|------|-------|-------|-------|--------|------|-------|
| | 2.0- | 3.0- | 4.0- | 5.0- | 6.0- | 7.0- | 8.0- | 9.0- | 10.0- | 12.0- | 14.0- | 16.0- | | |
| | 2.9 | 3.9 | 4.9 | 5.9 | 6.9 | 7.9 | 8.9 | 9.9 | 11.9 | 13.9 | 15.9 | Longer | | |
| 0.00 - 0.49 | . | . | 163 | 81 | . | 163 | 569 | 325 | 569 | . | 569 | . | 2439 | |
| 0.50 - 0.99 | . | 81 | 163 | 244 | . | 244 | 325 | 488 | 488 | 244 | 325 | . | 2602 | |
| 1.00 - 1.49 | . | . | 244 | 569 | 407 | 81 | 407 | 325 | 813 | 163 | 244 | . | 3253 | |
| 1.50 - 1.99 | . | . | . | 163 | 325 | 244 | . | . | 244 | . | . | . | 976 | |
| 2.00 - 2.49 | . | . | . | 81 | . | . | . | 81 | 163 | . | . | . | 325 | |
| 2.50 - 2.99 | . | . | . | . | . | . | . | 81 | . | . | . | . | 81 | |
| 3.00 - 3.49 | . | . | . | . | . | . | . | . | 81 | . | . | . | 81 | |
| 3.50 - 3.99 | . | . | . | . | . | . | 163 | . | 81 | . | . | . | 244 | |
| 4.00 - 4.49 | . | . | . | . | . | . | . | . | . | . | . | . | 0 | |
| 4.50 - 4.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 | |
| 5.00 - Greater | . | . | . | . | . | . | . | . | . | . | . | . | 0 | |
| Total | 0 | 81 | 570 | 1138 | 732 | 732 | 1464 | 1300 | 2439 | 407 | 1138 | 0 | | |

November 1992, Gage 111
Percent Occurrence(X100) of Height and Period

| Height(m) | Period(sec) | | | | | | | | | | | | | Total |
|----------------|-------------|------|------|------|------|------|------|------|-------|-------|-------|--------|------|-------|
| | 2.0- | 3.0- | 4.0- | 5.0- | 6.0- | 7.0- | 8.0- | 9.0- | 10.0- | 12.0- | 14.0- | 16.0- | | |
| | 2.9 | 3.9 | 4.9 | 5.9 | 6.9 | 7.9 | 8.9 | 9.9 | 11.9 | 13.9 | 15.9 | Longer | | |
| 0.00 - 0.49 | . | . | . | . | . | . | 667 | 333 | . | . | . | . | 1000 | |
| 0.50 - 0.99 | . | . | 250 | 250 | 83 | 250 | 833 | 833 | 500 | 333 | 167 | . | 3499 | |
| 1.00 - 1.49 | . | . | 83 | 500 | 500 | 250 | 750 | 250 | 1417 | 250 | 167 | . | 4167 | |
| 1.50 - 1.99 | . | . | . | 250 | 500 | 167 | 83 | 250 | . | . | . | . | 1250 | |
| 2.00 - 2.49 | . | . | . | . | 83 | . | . | . | . | . | . | . | 83 | |
| 2.50 - 2.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 | |
| 3.00 - 3.49 | . | . | . | . | . | . | . | . | . | . | . | . | 0 | |
| 3.50 - 3.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 | |
| 4.00 - 4.49 | . | . | . | . | . | . | . | . | . | . | . | . | 0 | |
| 4.50 - 4.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 | |
| 5.00 - Greater | . | . | . | . | . | . | . | . | . | . | . | . | 0 | |
| Total | 0 | 0 | 333 | 1000 | 1166 | 667 | 2333 | 1666 | 1917 | 583 | 334 | 0 | | |

December 1992, Gage 111
Percent Occurrence(X100) of Height and Period

| Height(m) | Period(sec) | | | | | | | | | | | | | Total |
|----------------|-------------|------|------|------|------|------|------|------|-------|-------|-------|--------|------|-------|
| | 2.0- | 3.0- | 4.0- | 5.0- | 6.0- | 7.0- | 8.0- | 9.0- | 10.0- | 12.0- | 14.0- | 16.0- | | |
| | 2.9 | 3.9 | 4.9 | 5.9 | 6.9 | 7.9 | 8.9 | 9.9 | 11.9 | 13.9 | 15.9 | Longer | | |
| 0.00 - 0.49 | . | 84 | 252 | 84 | 84 | 168 | 252 | 504 | 420 | 84 | 336 | . | 2268 | |
| 0.50 - 0.99 | . | 168 | 588 | 168 | 336 | 168 | . | 756 | 168 | . | . | . | 2352 | |
| 1.00 - 1.49 | . | . | 252 | 924 | 672 | 252 | 252 | 252 | 84 | 252 | . | . | 2698 | |
| 1.50 - 1.99 | . | . | . | . | 168 | 84 | 252 | 84 | 84 | 168 | . | . | 840 | |
| 2.00 - 2.49 | . | . | . | . | . | 84 | . | 84 | 252 | 168 | . | . | 588 | |
| 2.50 - 2.99 | . | . | . | . | 84 | . | . | . | . | . | 252 | . | 336 | |
| 3.00 - 3.49 | . | . | . | . | . | . | . | . | . | 252 | . | . | 252 | |
| 3.50 - 3.99 | . | . | . | . | . | . | . | 84 | . | 84 | 336 | 84 | 588 | |
| 4.00 - 4.49 | . | . | . | . | . | . | . | . | . | . | 84 | . | 84 | |
| 4.50 - 4.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 | |
| 5.00 - Greater | . | . | . | . | . | . | . | . | . | . | . | . | 0 | |
| Total | 0 | 252 | 1092 | 1176 | 1344 | 504 | 504 | 1764 | 1092 | 756 | 1428 | 84 | | |

(Sheet 4 of 4)

Table C3
Annual Joint Distribution of H_{mo} versus T_p (All Years)

Annual 1985-1992, Gage 111
 Percent Occurrence(X100) of Height and Period

| Height(m) | Period(sec) | | | | | | | | | | | | Total |
|----------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|---------------|---------------|---------------|-----------------|-------|
| | 2.0- 2.9 | 3.0- 3.9 | 4.0- 4.9 | 5.0- 5.9 | 6.0- 6.9 | 7.0- 7.9 | 8.0- 8.9 | 9.0- 9.9 | 10.0- 11.9 | 12.0- 13.9 | 14.0- 15.9 | 16.0- Longer | |
| 0.00 - 0.49 | 7 | 74 | 37 | 69 | 122 | 228 | 666 | 487 | 399 | 150 | 260 | 13 | 2512 |
| 0.50 - 0.99 | 3 | 141 | 249 | 419 | 488 | 405 | 939 | 772 | 634 | 129 | 292 | 16 | 4487 |
| 1.00 - 1.49 | . | 13 | 130 | 351 | 284 | 149 | 260 | 210 | 273 | 31 | 96 | . | 1797 |
| 1.50 - 1.99 | . | . | 8 | 107 | 183 | 77 | 82 | 67 | 118 | 24 | 55 | 2 | 723 |
| 2.00 - 2.49 | . | . | . | 4 | 54 | 38 | 33 | 31 | 46 | 17 | 28 | 2 | 253 |
| 2.50 - 2.99 | . | . | . | . | 8 | 15 | 10 | 13 | 30 | 5 | 20 | . | 101 |
| 3.00 - 3.49 | . | . | . | . | 3 | 5 | 9 | 13 | 13 | 8 | 5 | . | 56 |
| 3.50 - 3.99 | . | . | . | . | . | 1 | 7 | 6 | 16 | 5 | 7 | 2 | 44 |
| 4.00 - 4.49 | . | . | . | . | . | . | 1 | 3 | 8 | 1 | 4 | 4 | 21 |
| 4.50 - 4.99 | . | . | . | . | . | . | . | . | 2 | . | . | . | 2 |
| 5.00 - Greater | . | . | . | . | . | . | . | 1 | . | . | . | . | 1 |
| Total | 10 | 228 | 424 | 950 | 1142 | 918 | 2007 | 1603 | 1539 | 370 | 767 | 39 | |

Table C4
Monthly Joint Distribution of H_{mo} versus T_p (All Years)

January 1985-1992, Gage 111
 Percent Occurrence(X100) of Height and Period

| Height(m) | Period(sec) | | | | | | | | | | | | Total |
|----------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|---------------|---------------|---------------|-----------------|-------|
| | 2.0- 2.9 | 3.0- 3.9 | 4.0- 4.9 | 5.0- 5.9 | 6.0- 6.9 | 7.0- 7.9 | 8.0- 8.9 | 9.0- 9.9 | 10.0- 11.9 | 12.0- 13.9 | 14.0- 15.9 | 16.0- Longer | |
| 0.00 - 0.49 | . | 125 | 10 | 73 | 42 | 239 | 395 | 706 | 384 | 145 | 218 | 21 | 2358 |
| 0.50 - 0.99 | . | 156 | 166 | 478 | 509 | 291 | 696 | 706 | 748 | 73 | 260 | . | 4083 |
| 1.00 - 1.49 | . | 10 | 187 | 582 | 426 | 135 | 218 | 228 | 249 | 21 | 42 | . | 2098 |
| 1.50 - 1.99 | . | . | 10 | 145 | 270 | 83 | 104 | 73 | 125 | 21 | 21 | . | 852 |
| 2.00 - 2.49 | . | . | . | . | 83 | 83 | 52 | 10 | 52 | . | 31 | . | 311 |
| 2.50 - 2.99 | . | . | . | . | 10 | . | 42 | 21 | 93 | . | 21 | . | 187 |
| 3.00 - 3.49 | . | . | . | . | . | . | 21 | 10 | 21 | 10 | 10 | . | 72 |
| 3.50 - 3.99 | . | . | . | . | . | . | . | . | 21 | . | 10 | . | 31 |
| 4.00 - 4.49 | . | . | . | . | . | . | . | . | . | 10 | . | . | 10 |
| 4.50 - 4.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 5.00 - Greater | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| Total | 0 | 291 | 373 | 1278 | 1340 | 831 | 1528 | 1754 | 1693 | 280 | 613 | 21 | 0 |

February 1985-1992, Gage 111
 Percent Occurrence(X100) of Height and Period

| Height(m) | Period(sec) | | | | | | | | | | | | Total |
|----------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|---------------|---------------|---------------|-----------------|-------|
| | 2.0- 2.9 | 3.0- 3.9 | 4.0- 4.9 | 5.0- 5.9 | 6.0- 6.9 | 7.0- 7.9 | 8.0- 8.9 | 9.0- 9.9 | 10.0- 11.9 | 12.0- 13.9 | 14.0- 15.9 | 16.0- Longer | |
| 0.00 - 0.49 | . | 46 | 34 | 57 | 103 | 57 | 344 | 458 | 344 | 34 | 172 | . | 1649 |
| 0.50 - 0.99 | . | 103 | 298 | 412 | 561 | 424 | 825 | 825 | 745 | 80 | 195 | 11 | 4479 |
| 1.00 - 1.49 | . | 11 | 115 | 504 | 424 | 252 | 309 | 286 | 344 | 23 | 172 | . | 2440 |
| 1.50 - 1.99 | . | . | 11 | 160 | 286 | 92 | 103 | 57 | 137 | . | 23 | . | 869 |
| 2.00 - 2.49 | . | . | . | 11 | 103 | 46 | 11 | 23 | 34 | . | 34 | . | 262 |
| 2.50 - 2.99 | . | . | . | . | 11 | 11 | . | 34 | 57 | . | 34 | . | 147 |
| 3.00 - 3.49 | . | . | . | . | 11 | . | 23 | 46 | 11 | 11 | . | . | 102 |
| 3.50 - 3.99 | . | . | . | . | . | . | . | 11 | 23 | 11 | . | . | 45 |
| 4.00 - 4.49 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 4.50 - 4.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 5.00 - Greater | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| Total | 0 | 160 | 458 | 1144 | 1499 | 882 | 1615 | 1740 | 1695 | 159 | 630 | 11 | 0 |

March 1985-1992, Gage 111
 Percent Occurrence(X100) of Height and Period

| Height(m) | Period(sec) | | | | | | | | | | | | Total |
|----------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|---------------|---------------|---------------|-----------------|-------|
| | 2.0- 2.9 | 3.0- 3.9 | 4.0- 4.9 | 5.0- 5.9 | 6.0- 6.9 | 7.0- 7.9 | 8.0- 8.9 | 9.0- 9.9 | 10.0- 11.9 | 12.0- 13.9 | 14.0- 15.9 | 16.0- Longer | |
| 0.00 - 0.49 | 10 | . | 10 | 62 | 62 | 83 | 310 | 206 | 372 | 93 | 144 | . | 1352 |
| 0.50 - 0.99 | . | 103 | 114 | 423 | 413 | 464 | 918 | 877 | 877 | 93 | 227 | . | 4509 |
| 1.00 - 1.49 | . | 10 | 227 | 372 | 402 | 144 | 227 | 310 | 475 | . | 175 | . | 2342 |
| 1.50 - 1.99 | . | . | 10 | 103 | 186 | 124 | 93 | 93 | 237 | 21 | 134 | . | 1001 |
| 2.00 - 2.49 | . | . | . | . | 72 | 10 | 72 | 124 | 72 | . | 72 | . | 422 |
| 2.50 - 2.99 | . | . | . | . | 10 | 21 | . | 31 | 62 | 10 | 31 | . | 165 |
| 3.00 - 3.49 | . | . | . | . | . | . | . | 10 | 41 | . | . | . | 51 |
| 3.50 - 3.99 | . | . | . | . | . | . | 10 | . | 62 | 10 | 10 | . | 92 |
| 4.00 - 4.49 | . | . | . | . | . | . | . | . | 31 | . | 21 | . | 52 |
| 4.50 - 4.99 | . | . | . | . | . | . | . | . | 10 | . | . | . | 10 |
| 5.00 - Greater | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| Total | 10 | 113 | 361 | 960 | 1145 | 846 | 1630 | 1651 | 2239 | 227 | 814 | 0 | 0 |

(Continued)

(Sheet 1 of 4)

Table C4 (Continued)

April 1985-1992, Gage 111
Percent Occurrence(X100) of Height and Period

| Height(m) | Period(sec) | | | | | | | | | | | | Total |
|----------------|-------------|------|------|------|------|------|------|------|-------|-------|-------|--------|-------|
| | 2.0- | 3.0- | 4.0- | 5.0- | 6.0- | 7.0- | 8.0- | 9.0- | 10.0- | 12.0- | 14.0- | 16.0- | |
| | 2.9 | 3.9 | 4.9 | 5.9 | 6.9 | 7.9 | 8.9 | 9.9 | 11.9 | 13.9 | 15.9 | Longer | |
| 0.00 - 0.49 | 11 | 43 | 11 | 64 | 64 | 85 | 395 | 374 | 342 | 171 | 235 | . | 1795 |
| 0.50 - 0.99 | . | 150 | 182 | 385 | 502 | 459 | 1058 | 1004 | 865 | 192 | 524 | 11 | 5332 |
| 1.00 - 1.49 | . | 32 | 53 | 203 | 246 | 128 | 321 | 331 | 160 | 21 | 96 | . | 1591 |
| 1.50 - 1.99 | . | . | 21 | 96 | 128 | 75 | 107 | 75 | 235 | 21 | 64 | . | 822 |
| 2.00 - 2.49 | . | . | . | 11 | 53 | . | 11 | 64 | 53 | . | 21 | . | 213 |
| 2.50 - 2.99 | . | . | . | . | . | . | 21 | 21 | 32 | 32 | . | . | 106 |
| 3.00 - 3.49 | . | . | . | . | 11 | 11 | 11 | 11 | 11 | 11 | . | . | 77 |
| 3.50 - 3.99 | . | . | . | . | . | . | 11 | . | 11 | . | 11 | . | 33 |
| 4.00 - 4.49 | . | . | . | . | . | . | 11 | 11 | . | . | . | . | 22 |
| 4.50 - 4.99 | . | . | . | . | . | . | . | . | 11 | . | . | . | 11 |
| 5.00 - Greater | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| Total | 11 | 225 | 267 | 759 | 1004 | 758 | 1946 | 1891 | 1720 | 448 | 962 | 11 | |

May 1985-1992, Gage 111
Percent Occurrence(X100) of Height and Period

| Height(m) | Period(sec) | | | | | | | | | | | | Total |
|----------------|-------------|------|------|------|------|------|------|------|-------|-------|-------|--------|-------|
| | 2.0- | 3.0- | 4.0- | 5.0- | 6.0- | 7.0- | 8.0- | 9.0- | 10.0- | 12.0- | 14.0- | 16.0- | |
| | 2.9 | 3.9 | 4.9 | 5.9 | 6.9 | 7.9 | 8.9 | 9.9 | 11.9 | 13.9 | 15.9 | Longer | |
| 0.00 - 0.49 | 11 | 107 | 54 | 150 | 236 | 225 | 643 | 407 | 482 | 268 | 450 | . | 3033 |
| 0.50 - 0.99 | . | 150 | 300 | 289 | 461 | 493 | 1147 | 686 | 536 | 96 | 204 | . | 4362 |
| 1.00 - 1.49 | . | 32 | 64 | 161 | 139 | 171 | 418 | 204 | 247 | 11 | 86 | . | 1533 |
| 1.50 - 1.99 | . | . | 11 | 64 | 75 | 21 | 64 | 107 | 171 | 32 | 54 | 11 | 610 |
| 2.00 - 2.49 | . | . | . | . | 54 | 21 | 64 | 21 | 32 | 43 | 21 | . | 256 |
| 2.50 - 2.99 | . | . | . | . | 43 | 11 | 11 | 11 | 21 | 11 | 32 | . | 140 |
| 3.00 - 3.49 | . | . | . | . | . | . | . | 11 | 21 | 11 | 21 | . | 64 |
| 3.50 - 3.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 4.00 - 4.49 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 4.50 - 4.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 5.00 - Greater | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| Total | 11 | 289 | 429 | 664 | 1008 | 942 | 2347 | 1447 | 1510 | 472 | 868 | 11 | |

June 1985-1992, Gage 111
Percent Occurrence(X100) of Height and Period

| Height(m) | Period(sec) | | | | | | | | | | | | Total |
|----------------|-------------|------|------|------|------|------|------|------|-------|-------|-------|--------|-------|
| | 2.0- | 3.0- | 4.0- | 5.0- | 6.0- | 7.0- | 8.0- | 9.0- | 10.0- | 12.0- | 14.0- | 16.0- | |
| | 2.9 | 3.9 | 4.9 | 5.9 | 6.9 | 7.9 | 8.9 | 9.9 | 11.9 | 13.9 | 15.9 | Longer | |
| 0.00 - 0.49 | 22 | 163 | 43 | 65 | 293 | 423 | 1562 | 846 | 336 | 174 | 184 | 11 | 4122 |
| 0.50 - 0.99 | 11 | 108 | 206 | 325 | 477 | 369 | 1410 | 1020 | 282 | 141 | 206 | 22 | 4577 |
| 1.00 - 1.49 | . | 11 | 65 | 152 | 184 | 108 | 119 | 65 | 152 | . | 54 | . | 910 |
| 1.50 - 1.99 | . | . | 22 | 22 | 54 | 54 | 33 | 22 | 43 | . | 43 | . | 293 |
| 2.00 - 2.49 | . | . | . | . | 11 | 11 | 43 | . | 11 | . | 22 | . | 98 |
| 2.50 - 2.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 3.00 - 3.49 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 3.50 - 3.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 4.00 - 4.49 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 4.50 - 4.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 5.00 - Greater | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| Total | 33 | 282 | 336 | 564 | 1019 | 965 | 3167 | 1953 | 824 | 315 | 509 | 33 | |

(Continued)

(Sheet 2 of 4)

Table C4 (Continued)

July 1985-1992, Gage 111
Percent Occurrence(X100) of Height and Period

| Height(m) | Period(sec) | | | | | | | | | | | | Total |
|----------------|-------------|------|------|------|------|------|------|------|-------|-------|-------|--------|-------|
| | 2.0- | 3.0- | 4.0- | 5.0- | 6.0- | 7.0- | 8.0- | 9.0- | 10.0- | 12.0- | 14.0- | 16.0- | |
| | 2.9 | 3.9 | 4.9 | 5.9 | 6.9 | 7.9 | 8.9 | 9.9 | 11.9 | 13.9 | 15.9 | Longer | |
| 0.00 - 0.49 | 11 | 118 | 96 | 64 | 214 | 748 | 1934 | 940 | 566 | 267 | 513 | 21 | 5492 |
| 0.50 - 0.99 | . | 214 | 342 | 459 | 363 | 534 | 1058 | 449 | 267 | 107 | 160 | 21 | 3974 |
| 1.00 - 1.49 | . | . | 32 | 96 | 53 | 53 | 85 | 11 | 53 | . | 21 | . | 404 |
| 1.50 - 1.99 | . | . | . | 11 | 11 | 11 | 21 | 43 | 32 | . | . | . | 129 |
| 2.00 - 2.49 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 2.50 - 2.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 3.00 - 3.49 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 3.50 - 3.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 4.00 - 4.49 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 4.50 - 4.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 5.00 - Greater | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| Total | 11 | 332 | 470 | 630 | 641 | 1346 | 3098 | 1443 | 918 | 374 | 694 | 42 | |

August 1985-1992, Gage 111
Percent Occurrence(X100) of Height and Period

| Height(m) | Period(sec) | | | | | | | | | | | | Total |
|----------------|-------------|------|------|------|------|------|------|------|-------|-------|-------|--------|-------|
| | 2.0- | 3.0- | 4.0- | 5.0- | 6.0- | 7.0- | 8.0- | 9.0- | 10.0- | 12.0- | 14.0- | 16.0- | |
| | 2.9 | 3.9 | 4.9 | 5.9 | 6.9 | 7.9 | 8.9 | 9.9 | 11.9 | 13.9 | 15.9 | Longer | |
| 0.00 - 0.49 | 22 | 66 | 33 | 77 | 186 | 340 | 921 | 691 | 647 | 197 | 197 | 11 | 3388 |
| 0.50 - 0.99 | . | 164 | 208 | 570 | 669 | 461 | 965 | 669 | 537 | 175 | 395 | 77 | 4890 |
| 1.00 - 1.49 | . | . | 164 | 263 | 154 | 132 | 307 | 110 | 99 | 22 | 44 | . | 1295 |
| 1.50 - 1.99 | . | . | . | 88 | 66 | 33 | . | 22 | 33 | 55 | 11 | . | 308 |
| 2.00 - 2.49 | . | . | . | . | 11 | 11 | . | 22 | 44 | 11 | . | . | 99 |
| 2.50 - 2.99 | . | . | . | . | . | . | 11 | . | . | . | . | . | 11 |
| 3.00 - 3.49 | . | . | . | . | 11 | . | . | . | . | . | . | . | 11 |
| 3.50 - 3.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 4.00 - 4.49 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 4.50 - 4.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 5.00 - Greater | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| Total | 22 | 230 | 405 | 998 | 1097 | 977 | 2204 | 1514 | 1360 | 460 | 647 | 88 | |

September 1985-1992, Gage 111
Percent Occurrence(X100) of Height and Period

| Height(m) | Period(sec) | | | | | | | | | | | | Total |
|----------------|-------------|------|------|------|------|------|------|------|-------|-------|-------|--------|-------|
| | 2.0- | 3.0- | 4.0- | 5.0- | 6.0- | 7.0- | 8.0- | 9.0- | 10.0- | 12.0- | 14.0- | 16.0- | |
| | 2.9 | 3.9 | 4.9 | 5.9 | 6.9 | 7.9 | 8.9 | 9.9 | 11.9 | 13.9 | 15.9 | Longer | |
| 0.00 - 0.49 | . | 33 | 11 | 11 | 33 | 111 | 323 | 267 | 445 | 56 | 222 | . | 1512 |
| 0.50 - 0.99 | . | 133 | 245 | 367 | 489 | 434 | 1123 | 990 | 823 | 156 | 300 | . | 5060 |
| 1.00 - 1.49 | . | 11 | 100 | 378 | 189 | 200 | 423 | 311 | 300 | 78 | 100 | . | 2090 |
| 1.50 - 1.99 | . | . | . | 111 | 189 | 167 | 178 | 44 | 56 | 33 | 67 | 11 | 855 |
| 2.00 - 2.49 | . | . | . | . | 56 | 89 | 22 | 11 | . | 67 | 56 | 22 | 323 |
| 2.50 - 2.99 | . | . | . | . | . | 67 | 11 | . | 11 | . | 11 | . | 100 |
| 3.00 - 3.49 | . | . | . | . | . | . | 11 | . | . | . | . | . | 11 |
| 3.50 - 3.99 | . | . | . | . | . | . | . | 11 | 33 | . | . | . | 44 |
| 4.00 - 4.49 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 4.50 - 4.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 5.00 - Greater | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| Total | 0 | 177 | 356 | 867 | 956 | 1068 | 2091 | 1634 | 1668 | 390 | 756 | 33 | |

(Continued)

(Sheet 3 of 4)

Table C4 (Concluded)

October 1985-1992, Gage 111
Percent Occurrence(X100) of Height and Period

| Height(m) | Period(sec) | | | | | | | | | | | | Total |
|----------------|-------------|------|------|------|------|------|------|------|-------|-------|-------|--------|-------|
| | 2.0- | 3.0- | 4.0- | 5.0- | 6.0- | 7.0- | 8.0- | 9.0- | 10.0- | 12.0- | 14.0- | 16.0- | |
| | 2.9 | 3.9 | 4.9 | 5.9 | 6.9 | 7.9 | 8.9 | 9.9 | 11.9 | 13.9 | 15.9 | Longer | |
| 0.00 - 0.49 | . | . | 42 | 21 | 42 | 116 | 284 | 200 | 263 | 95 | 189 | 21 | 1273 |
| 0.50 - 0.99 | . | 116 | 273 | 284 | 473 | 294 | 851 | 777 | 819 | 158 | 420 | 11 | 4476 |
| 1.00 - 1.49 | . | 11 | 242 | 452 | 242 | 105 | 242 | 284 | 536 | 53 | 126 | . | 2293 |
| 1.50 - 1.99 | . | . | 11 | 200 | 284 | 63 | 147 | 116 | 189 | 53 | 84 | . | 1147 |
| 2.00 - 2.49 | . | . | . | 11 | 42 | 53 | 21 | 42 | 126 | 21 | 32 | . | 348 |
| 2.50 - 2.99 | . | . | . | . | 11 | 21 | 11 | 21 | 53 | . | 42 | . | 159 |
| 3.00 - 3.49 | . | . | . | . | . | 21 | 42 | 21 | 21 | 11 | 21 | . | 137 |
| 3.50 - 3.99 | . | . | . | . | . | . | 42 | 11 | 32 | 21 | 11 | 11 | 128 |
| 4.00 - 4.49 | . | . | . | . | . | . | . | . | . | . | . | 42 | 42 |
| 4.50 - 4.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 5.00 - Greater | . | . | . | . | . | . | . | 11 | . | . | . | . | 11 |
| Total | 0 | 127 | 568 | 968 | 1094 | 673 | 1640 | 1483 | 2039 | 412 | 925 | 85 | |

November 1985-1992, Gage 111
Percent Occurrence(X100) of Height and Period

| Height(m) | Period(sec) | | | | | | | | | | | | Total |
|----------------|-------------|------|------|------|------|------|------|------|-------|-------|-------|--------|-------|
| | 2.0- | 3.0- | 4.0- | 5.0- | 6.0- | 7.0- | 8.0- | 9.0- | 10.0- | 12.0- | 14.0- | 16.0- | |
| | 2.9 | 3.9 | 4.9 | 5.9 | 6.9 | 7.9 | 8.9 | 9.9 | 11.9 | 13.9 | 15.9 | Longer | |
| 0.00 - 0.49 | . | 43 | 32 | 86 | 43 | 172 | 516 | 322 | 279 | 118 | 193 | 64 | 1858 |
| 0.50 - 0.99 | 11 | 150 | 344 | 494 | 505 | 376 | 773 | 666 | 494 | 183 | 290 | . | 4286 |
| 1.00 - 1.49 | . | 11 | 183 | 516 | 462 | 226 | 333 | 140 | 354 | 86 | 129 | . | 2440 |
| 1.50 - 1.99 | . | . | . | 150 | 290 | 107 | 64 | 107 | 86 | 11 | 32 | . | 847 |
| 2.00 - 2.49 | . | . | . | 21 | 43 | 97 | 97 | 32 | 54 | . | 21 | . | 365 |
| 2.50 - 2.99 | . | . | . | . | . | 32 | 11 | 11 | 11 | 11 | 11 | . | 65 |
| 3.00 - 3.49 | . | . | . | . | . | 11 | . | . | 21 | 11 | . | . | 21 |
| 3.50 - 3.99 | . | . | . | . | . | . | . | 21 | . | . | . | . | 75 |
| 4.00 - 4.49 | . | . | . | . | . | . | . | 11 | 21 | . | . | . | 32 |
| 4.50 - 4.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 5.00 - Greater | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| Total | 11 | 204 | 559 | 1267 | 1343 | 1021 | 1794 | 1342 | 1309 | 409 | 676 | 64 | |

December 1985-1992, Gage 111
Percent Occurrence(X100) of Height and Period

| Height(m) | Period(sec) | | | | | | | | | | | | Total |
|----------------|-------------|------|------|------|------|------|------|------|-------|-------|-------|--------|-------|
| | 2.0- | 3.0- | 4.0- | 5.0- | 6.0- | 7.0- | 8.0- | 9.0- | 10.0- | 12.0- | 14.0- | 16.0- | |
| | 2.9 | 3.9 | 4.9 | 5.9 | 6.9 | 7.9 | 8.9 | 9.9 | 11.9 | 13.9 | 15.9 | Longer | |
| 0.00 - 0.49 | . | 146 | 68 | 101 | 158 | 124 | 360 | 428 | 338 | 180 | 405 | . | 2308 |
| 0.50 - 0.99 | 11 | 146 | 327 | 552 | 439 | 259 | 439 | 597 | 608 | 90 | 315 | 45 | 3828 |
| 1.00 - 1.49 | . | 23 | 124 | 541 | 495 | 146 | 124 | 236 | 293 | 68 | 113 | . | 2163 |
| 1.50 - 1.99 | . | . | . | 135 | 360 | 101 | 68 | 34 | 56 | 45 | 124 | . | 923 |
| 2.00 - 2.49 | . | . | . | . | 124 | 34 | . | 23 | 68 | 68 | 23 | . | 340 |
| 2.50 - 2.99 | . | . | . | . | 11 | 23 | . | 11 | 23 | 11 | 56 | . | 135 |
| 3.00 - 3.49 | . | . | . | . | . | 23 | . | 11 | 11 | 34 | . | . | 79 |
| 3.50 - 3.99 | . | . | . | . | . | 11 | 23 | 23 | 11 | 23 | 45 | 11 | 147 |
| 4.00 - 4.49 | . | . | . | . | . | . | . | 11 | 45 | . | 23 | . | 79 |
| 4.50 - 4.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 5.00 - Greater | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| Total | 11 | 315 | 519 | 1329 | 1587 | 721 | 1014 | 1374 | 1453 | 519 | 1104 | 56 | |

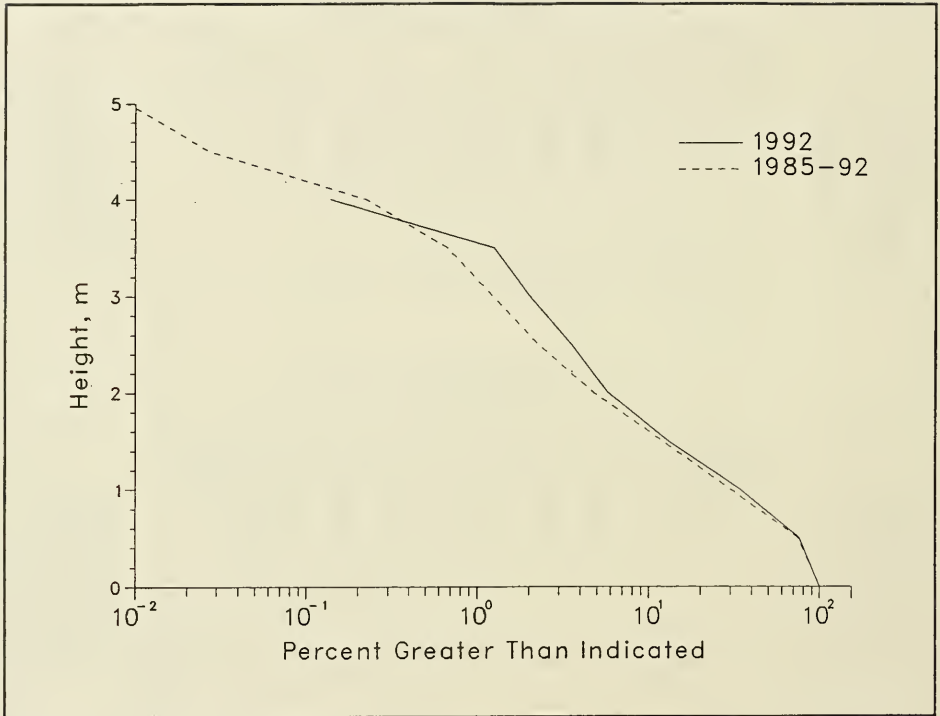


Figure C2. Annual cumulative wave height distributions for Gage 111

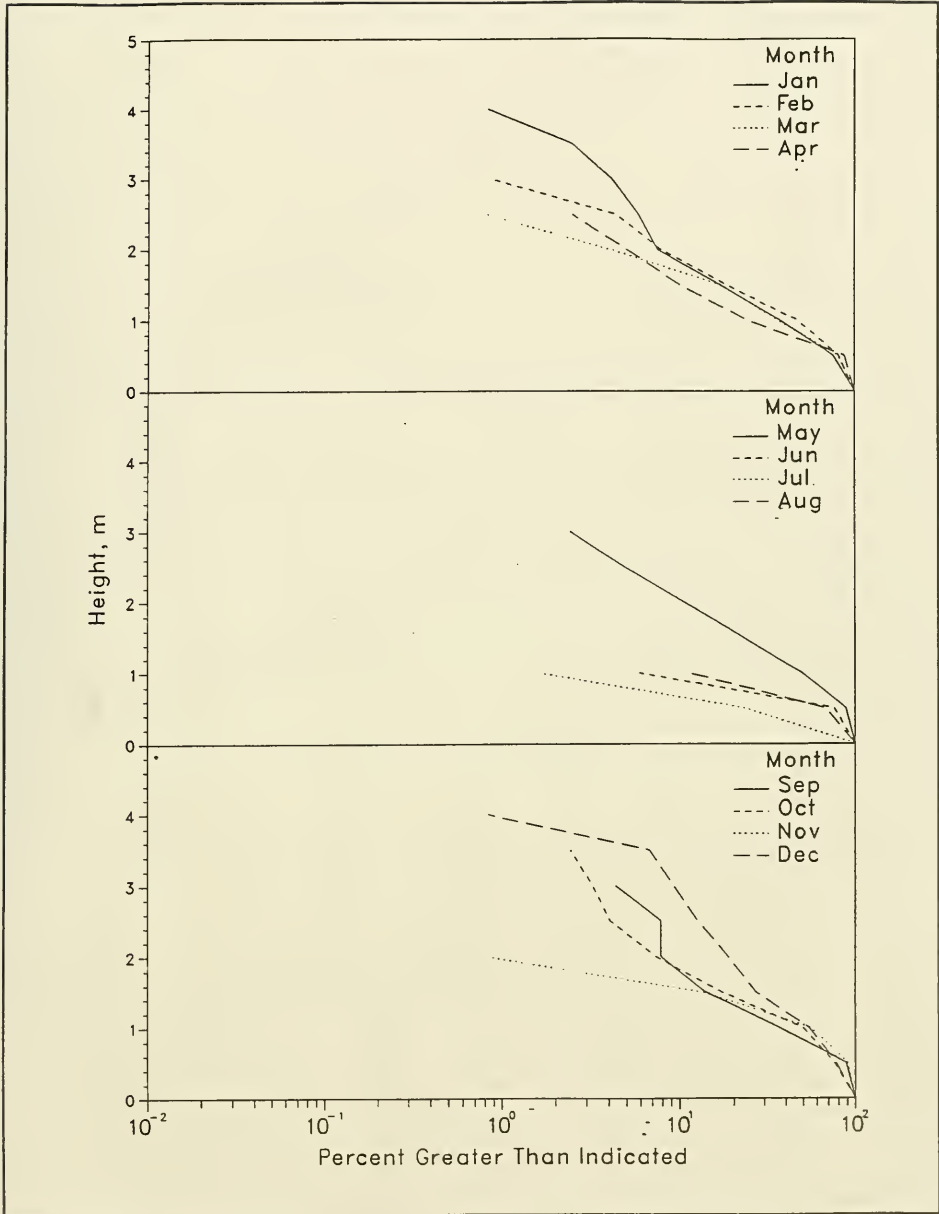


Figure C3. 1992 monthly wave height distributions for Gage 111

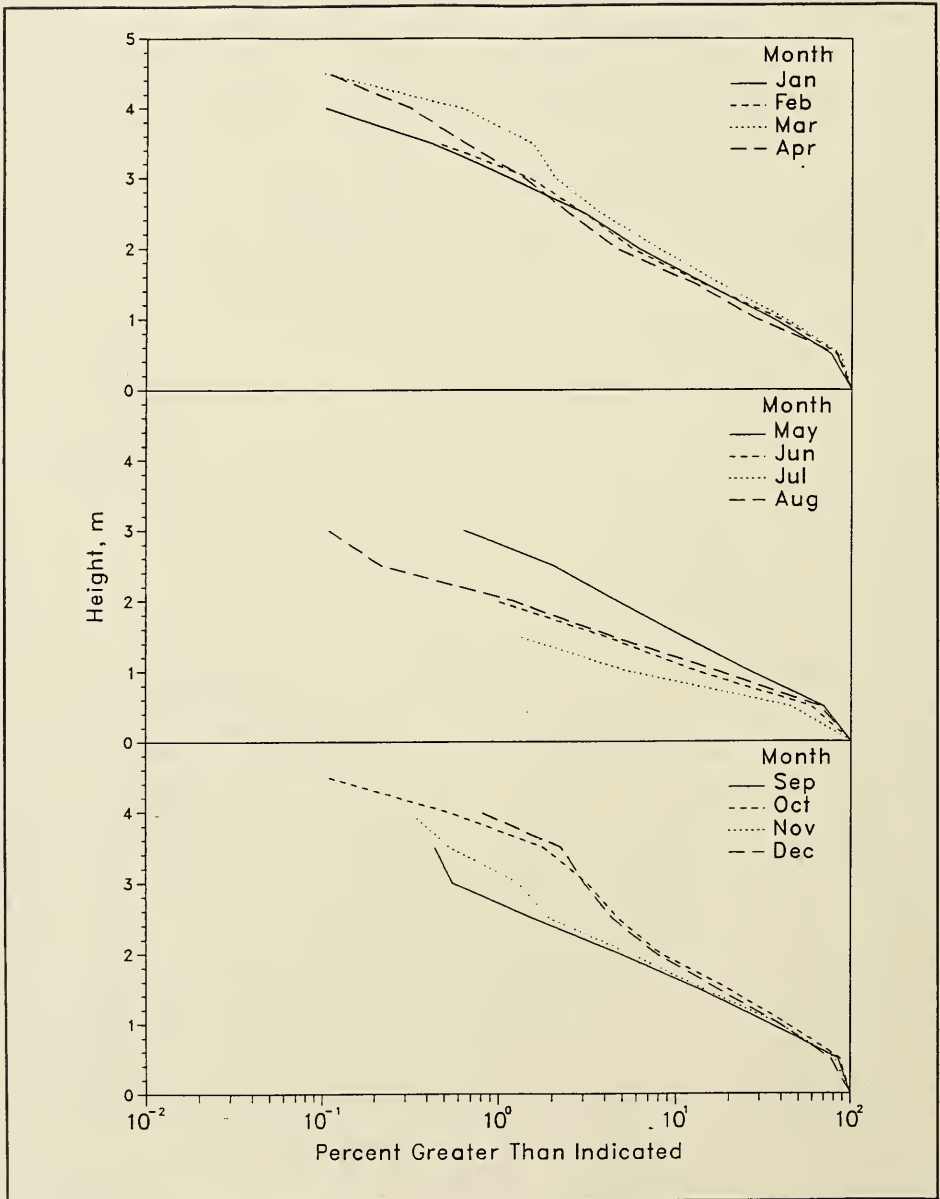


Figure C4. 1985-1992 monthly wave height distributions for Gage 111

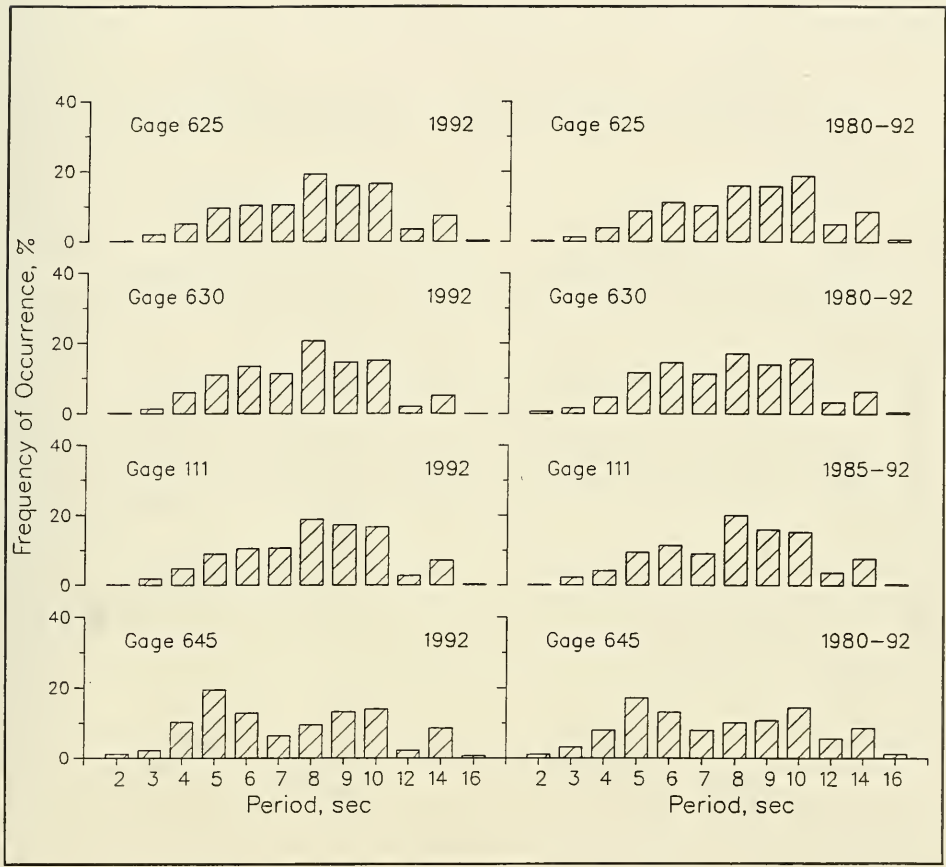


Figure C5. Annual wave period distributions for all gages

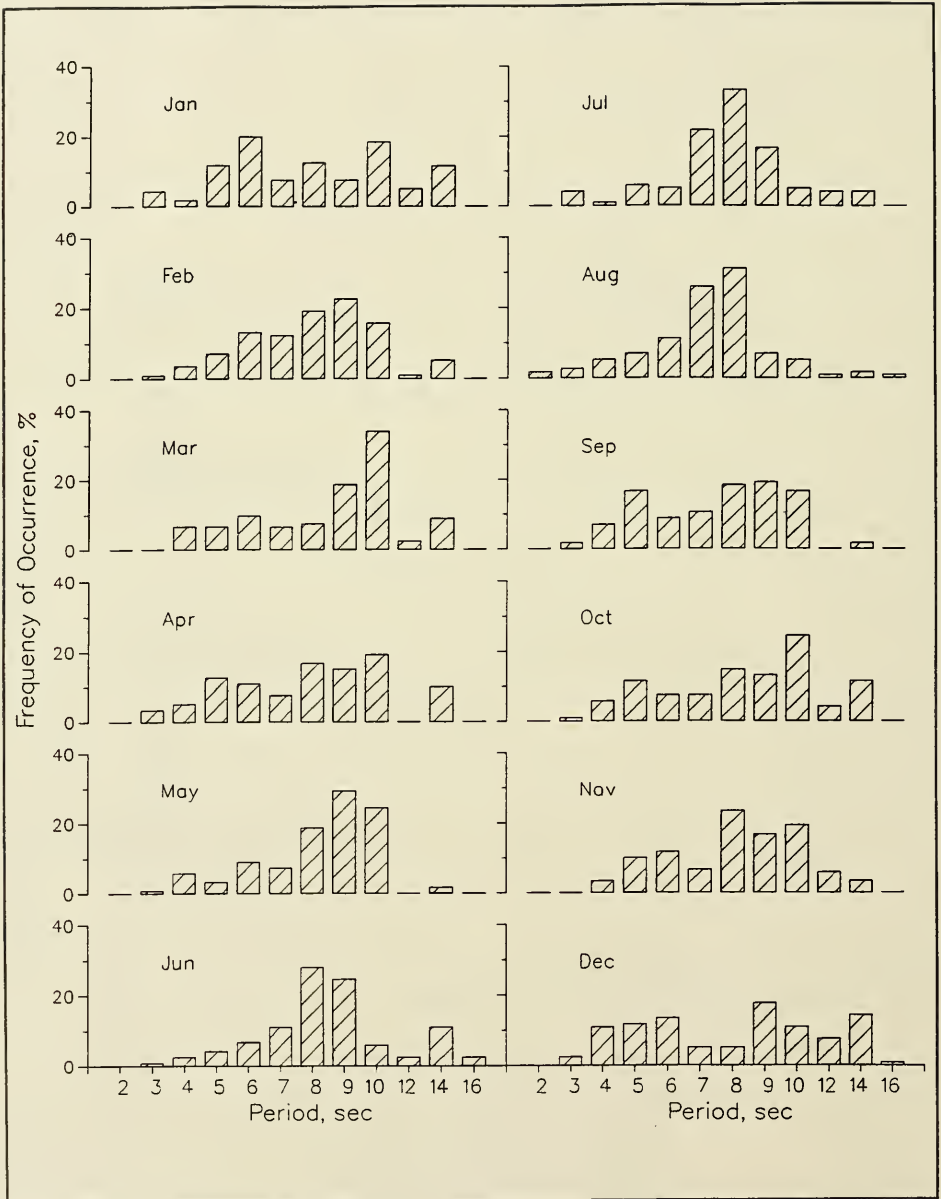


Figure C6. 1992 monthly wave period distributions for Gage 111

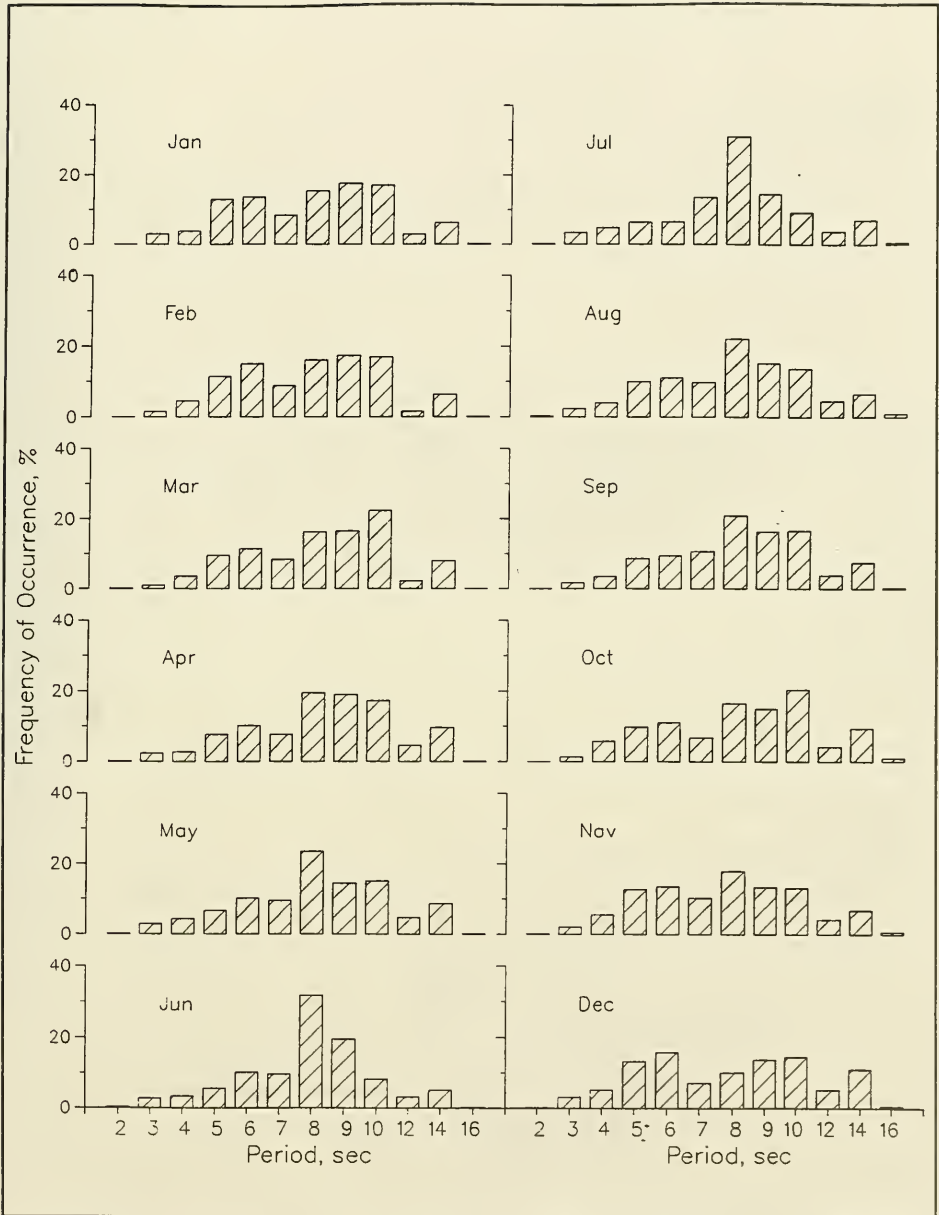


Figure C7. 1985-1992 monthly wave period distributions for Gage 111

Table C5
1992 persistence of H_{mo} for Gage 111

| Height (m) | Consecutive Day(s) or Longer | | | | | | | | | | | | | | | | | | | |
|---------------|------------------------------|----|----|----|----|---|----|---|---|----|----|----|----|----|----|----|----|----|-----|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19+ | |
| 0.5 | 29 | 26 | 23 | 22 | 18 | | 16 | | | 15 | | 12 | 11 | 9 | | | | 7 | | 6 |
| 1.0 | 53 | 35 | 25 | 20 | 13 | 9 | 7 | | 3 | 2 | 1 | | | | | | | | | |
| 1.5 | 33 | 20 | 12 | 6 | | | | 1 | | | | | | | | | | | | |
| 2.0 | 14 | 8 | 6 | | | | 1 | | | | | | | | | | | | | |
| 2.5 | 10 | 6 | 3 | 1 | | | | | | | | | | | | | | | | |
| 3.0 | 7 | 3 | 1 | | | | | | | | | | | | | | | | | |
| 3.5 | 5 | 3 | 1 | | | | | | | | | | | | | | | | | |
| 4.0 | 2 | | | | | | | | | | | | | | | | | | | |

Table C6
1985 through 1992 persistence of H_{mo} for Gage 111

| Height (m) | Consecutive Day(s) or Longer | | | | | | | | | | | | | | | | | | | |
|---------------|------------------------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|-----|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19+ | |
| 0.5 | 29 | 26 | 23 | 22 | 19 | 18 | 16 | 14 | 13 | 12 | 11 | 10 | 8 | | 7 | | 6 | | | 5 |
| 1.0 | 49 | 34 | 22 | 15 | 11 | 7 | 6 | 4 | 3 | 2 | | 1 | | | | | | | | |
| 1.5 | 35 | 19 | 8 | 4 | 2 | | 1 | | | | | | | | | | | | | |
| 2.0 | 16 | 8 | 3 | | 1 | | | | | | | | | | | | | | | |
| 2.5 | 8 | 4 | 2 | | 1 | | | | | | | | | | | | | | | |
| 3.0 | 5 | 2 | 1 | | | | | | | | | | | | | | | | | |
| 3.5 | 3 | 2 | 1 | | | | | | | | | | | | | | | | | |
| 4.0 | 2 | 1 | | | | | | | | | | | | | | | | | | |

* Data from Gage 640 from 1985 and 1986 as well as data from Gage 141 for 1987 were used for comparison with Gage 111.

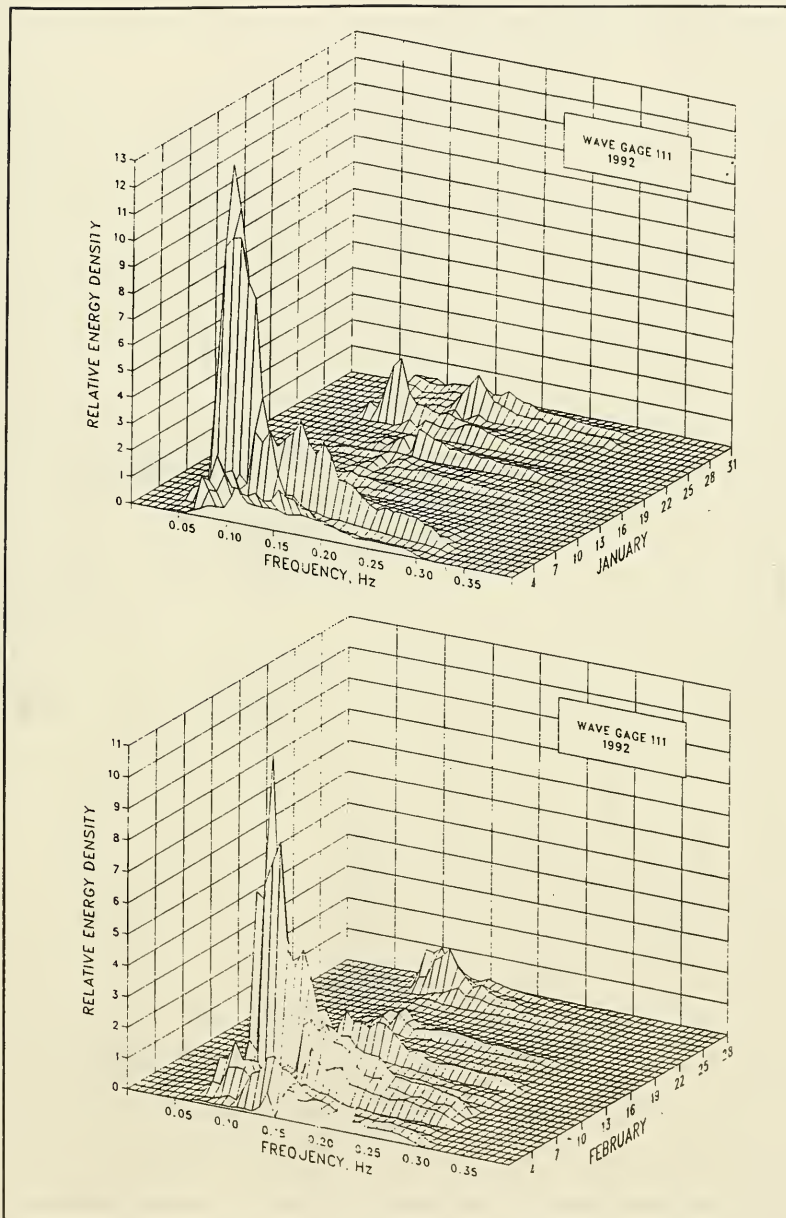


Figure C8. 1992 monthly spectra for Gage 111 (Sheet 1 of 6)

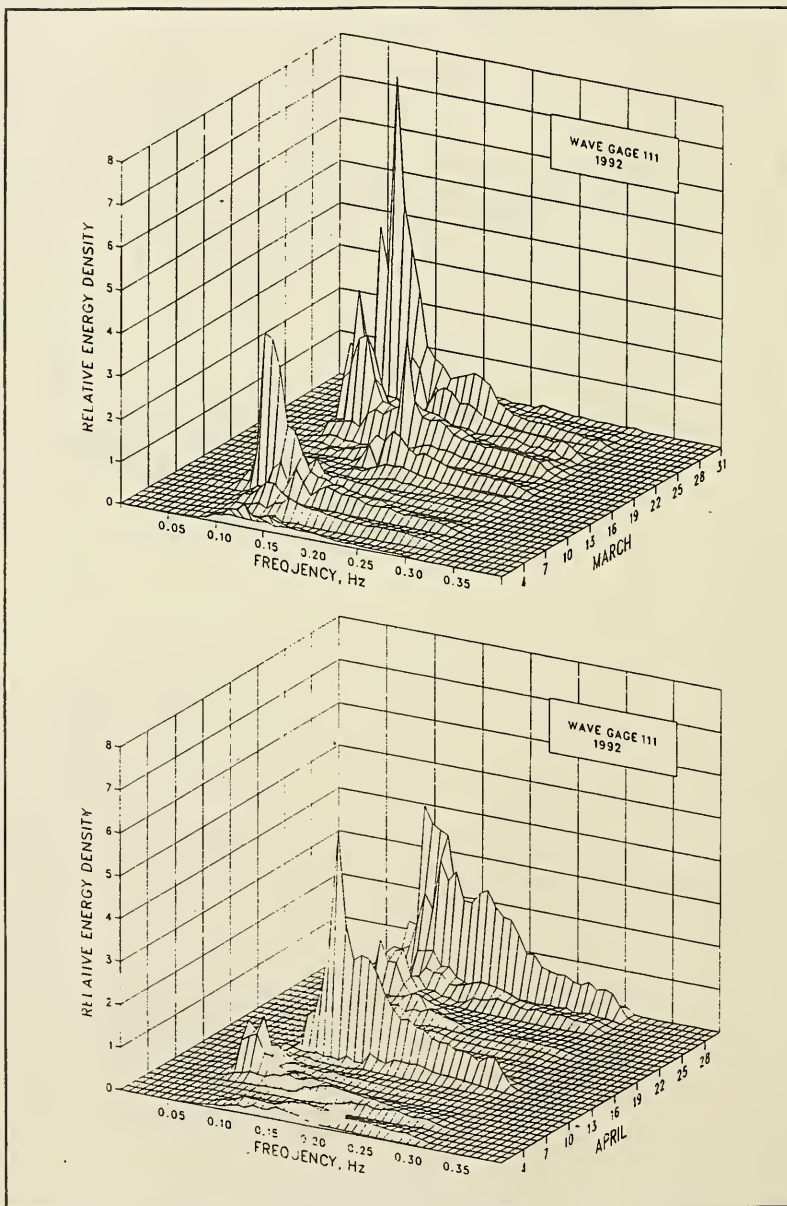


Figure C8. (Sheet 2 of 6)

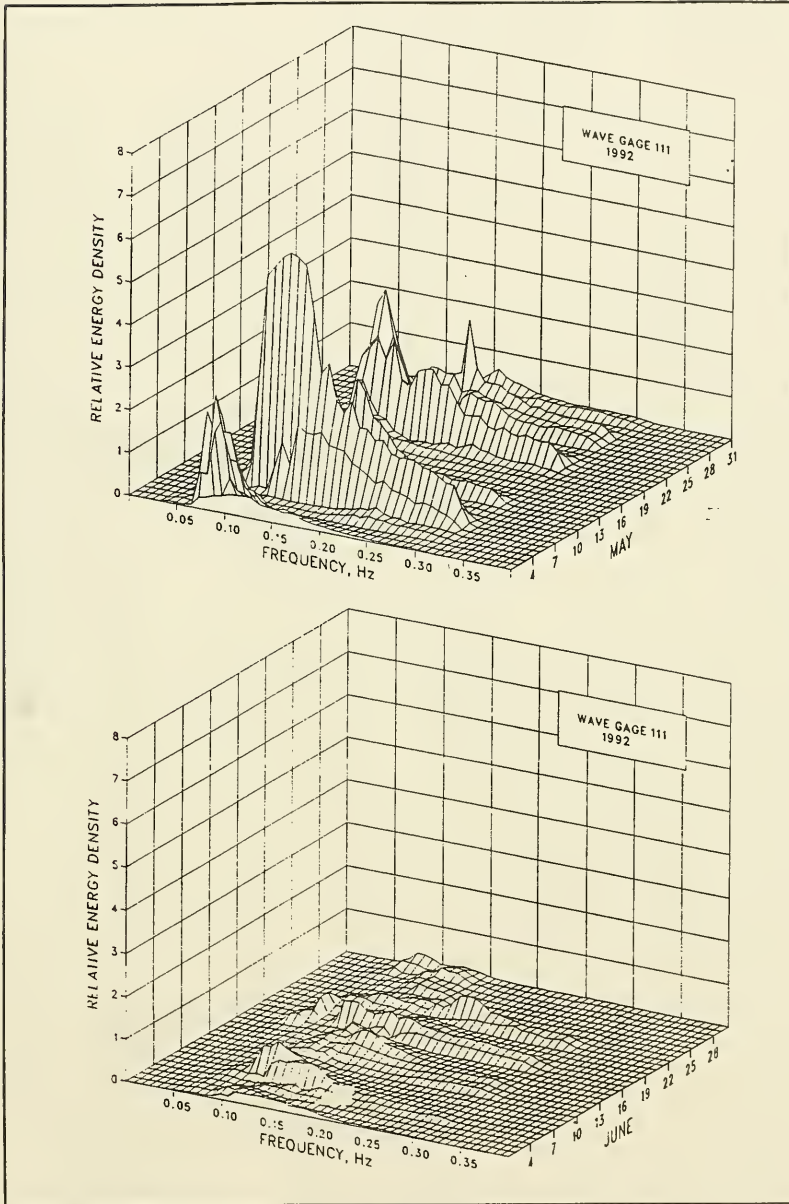


Figure C8. (Sheet 3 of 6)

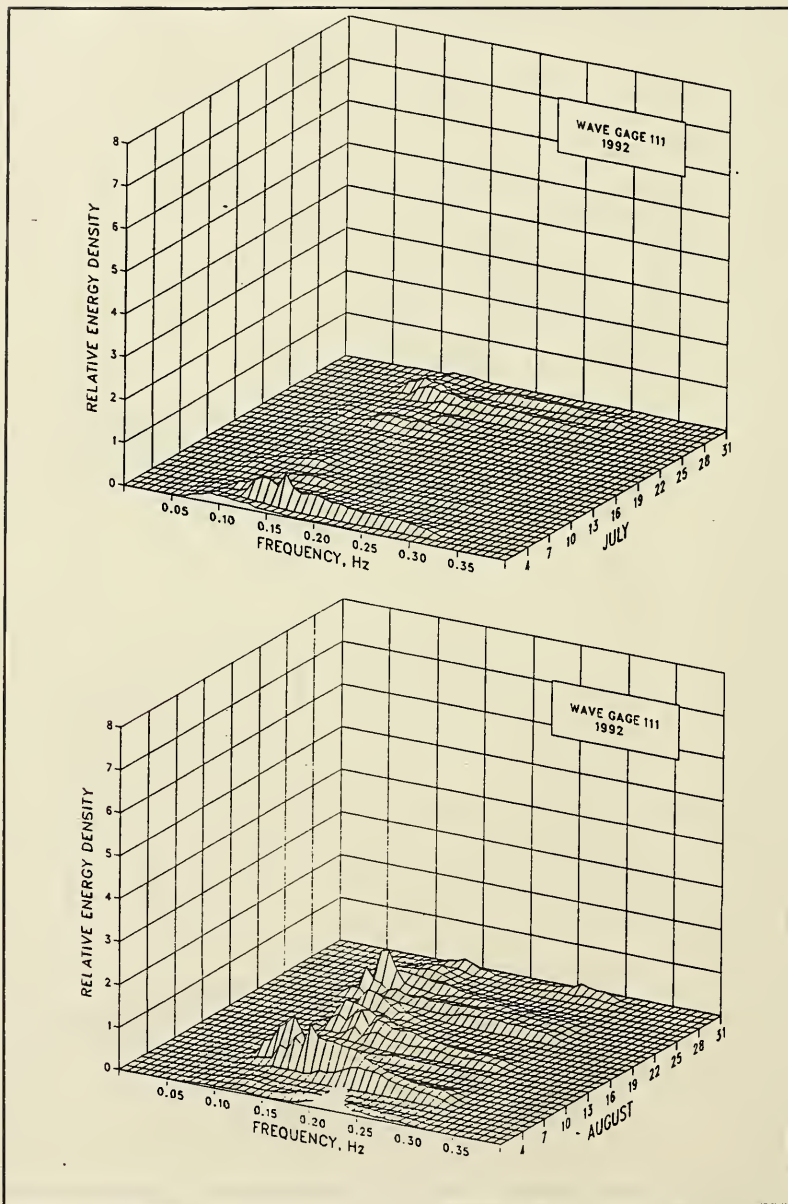


Figure C8. (Sheet 4 of 6)

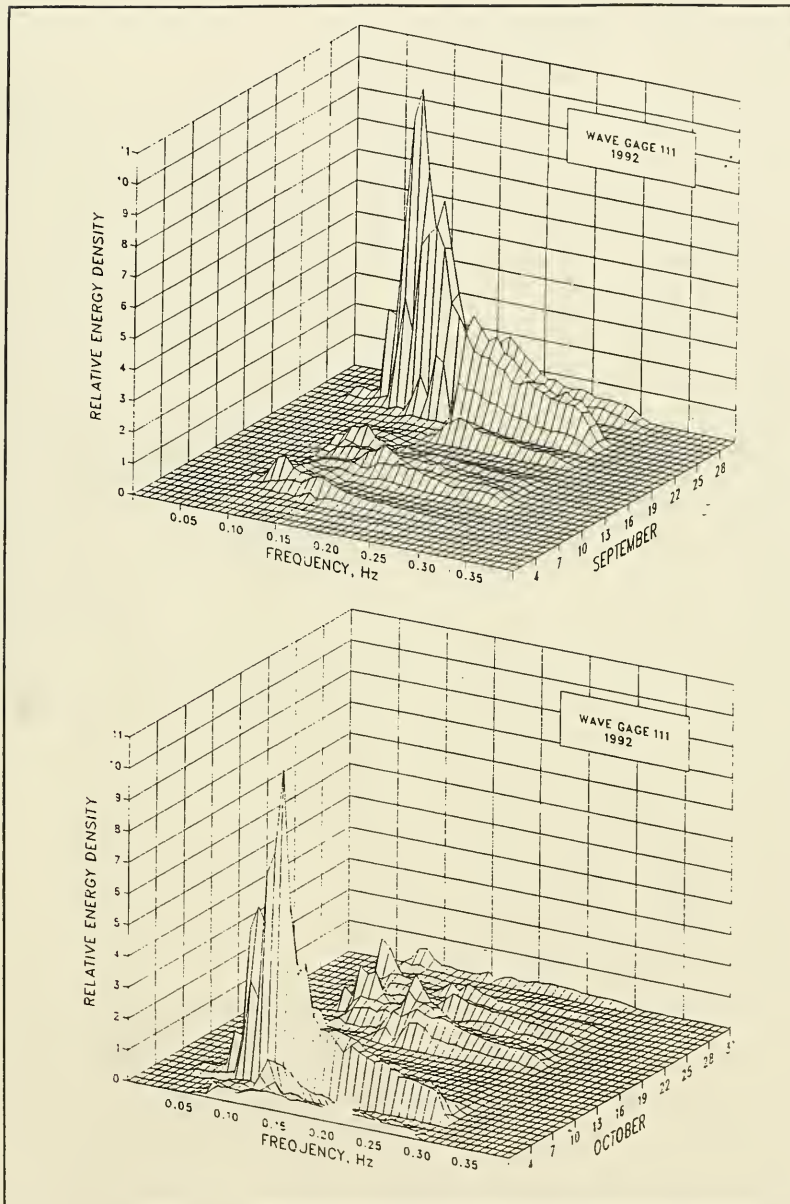


Figure C8. (Sheet 5 of 6)

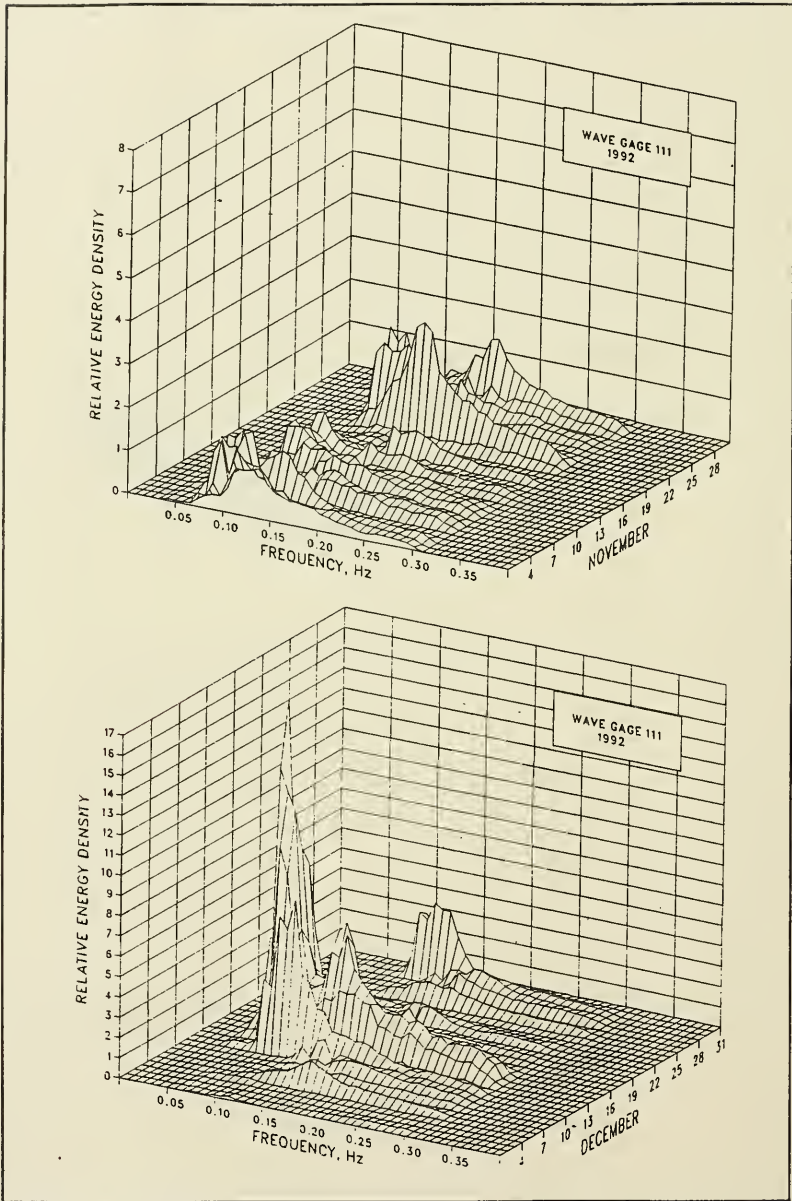


Figure C8. (Sheet 6 of 6)

Table C7
Wave statistics for Gage 111

| Month | 1992 | | | | | | | 1985-1992 | | | | | | |
|--------|--------|-----------|---------|------|--------|-----------|--------|-----------|-----------|---------|----------|--------|-----------|--------|
| | Height | | | Date | Period | | | Height | | | Date | Period | | |
| | Mean | Std. Dev. | Extreme | | Mean | Std. Dev. | Number | Mean | Std. Dev. | Extreme | | Mean | Std. Dev. | Number |
| m | m | m | sec | sec | Obs. | m | m | m | sec | sec | Obs. | | | |
| Jan | 1.1 | 0.8 | 4.0 | 4 | 8.7 | 3.0 | 120 | 1.0 | 0.7 | 4.0 | 1992 | 8.5 | 2.7 | 963 |
| Feb | 1.1 | 0.7 | 3.2 | 7 | 8.6 | 2.1 | 115 | 1.0 | 0.6 | 4.0 | 1989 | 8.5 | 2.5 | 873 |
| Mar | 1.0 | 0.6 | 2.7 | 26 | 9.3 | 2.5 | 124 | 1.1 | 0.7 | 4.5 | 1987 | 8.9 | 2.4 | 969 |
| Apr | 0.9 | 0.6 | 2.8 | 29 | 8.5 | 2.5 | 120 | 1.0 | 0.6 | 4.8 | 1988 | 9.1 | 2.6 | 936 |
| May | 1.2 | 0.7 | 3.3 | 7 | 8.8 | 2.0 | 123 | 0.9 | 0.6 | 3.3 | 1986 | 8.9 | 2.7 | 933 |
| Jun | 0.7 | 0.2 | 1.3 | 17 | 9.4 | 3.0 | 118 | 0.7 | 0.4 | 2.4 | 1986 | 8.6 | 2.4 | 922 |
| Jul | 0.5 | 0.2 | 1.3 | 3 | 8.4 | 2.2 | 121 | 0.6 | 0.3 | 1.9 | 1986 | 8.6 | 2.6 | 936 |
| Aug | 0.7 | 0.3 | 1.4 | 6 | 7.8 | 2.3 | 116 | 0.8 | 0.4 | 3.4 | 1991 | 8.7 | 2.7 | 912 |
| Sep | 1.1 | 0.8 | 4.0 | 25 | 8.0 | 2.2 | 115 | 1.0 | 0.6 | 4.0 | 1992 | 8.9 | 2.6 | 899 |
| Oct | 1.1 | 0.7 | 3.8 | 5 | 9.2 | 2.8 | 123 | 1.1 | 0.7 | 5.0 | 1991 | 9.0 | 2.8 | 952 |
| Nov | 1.1 | 0.4 | 2.3 | 20 | 8.9 | 2.5 | 120 | 1.0 | 0.6 | 4.2 | 1991 | 8.5 | 2.8 | 931 |
| Dec | 1.4 | 1.0 | 4.0 | 14 | 9.0 | 3.5 | 119 | 1.1 | 0.8 | 4.5 | 1989 | 8.8 | 3.2 | 888 |
| Annual | 1.0 | 0.7 | 4.0 | Jan | 8.7 | 2.6 | 1434 | 0.9 | 0.6 | 5.0 | Oct 1991 | 8.7 | 2.7 | 11114 |

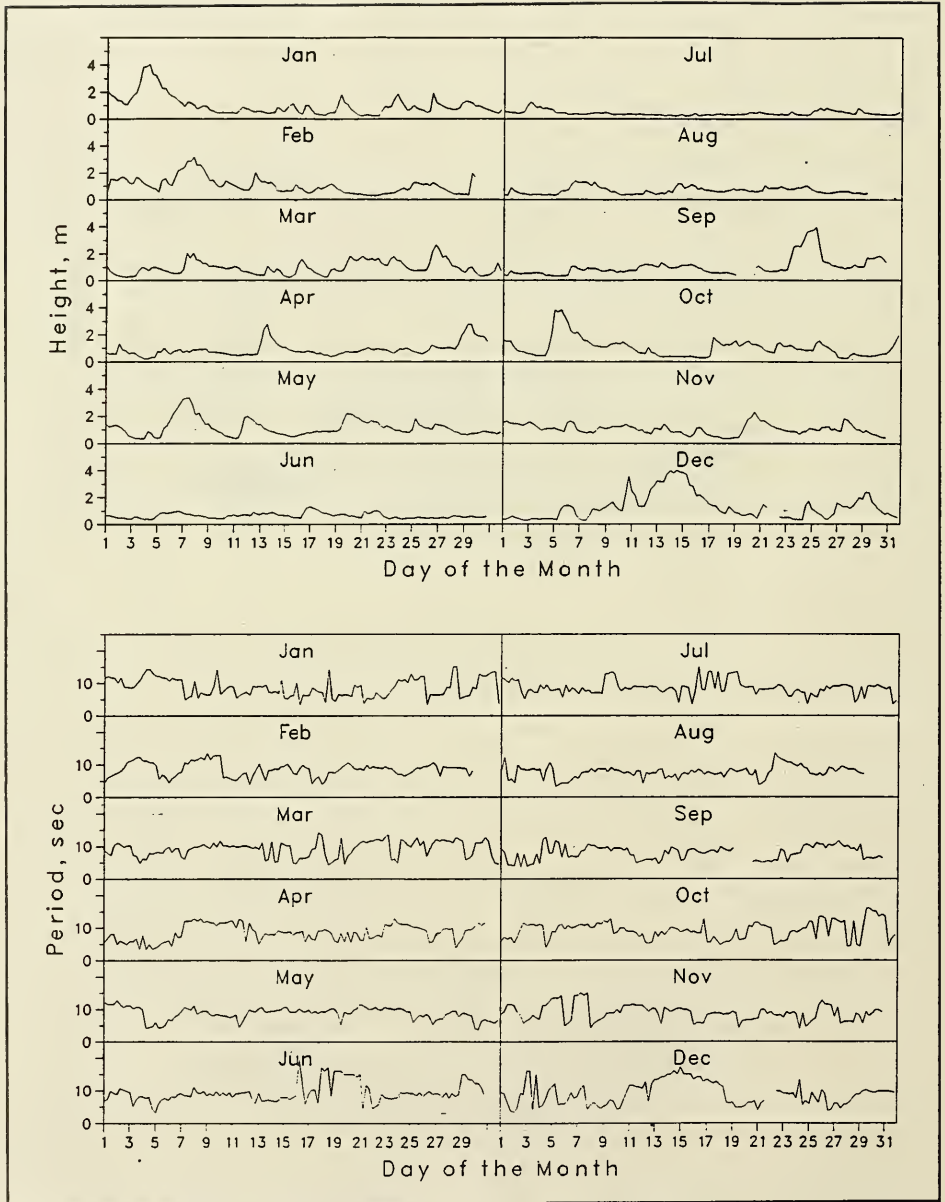


Figure C9. Time-histories of wave height and period for Gage 111

Appendix D

Wave Data for Gage 625

Wave data summaries for Gage 625 for 1992 and for 1980 through 1992 are presented in the following pages:

Daily H_{mo} and T_p

Figure D1 displays the individual wave height H_{mo} and peak spectral wave period T_p values, along with the monthly mean values.

Joint Distributions of H_{mo} and T_p

Annual and monthly joint distribution tables are presented in Tables D1 and D2, and data for 1980 through 1992 are in Tables D3 and D4. Each table gives the frequency (in parts per 10,000) for which the wave height and peak period were within the specified intervals; these values can be converted to percentages by dividing by 100. Marginal totals are also included. The row total gives the number of observations out of 10,000 that fell within each specified peak period interval. The column total gives the number of observations out of 10,000 that fell within each specified wave height interval.

Cumulative Distributions of Wave Height

Annual and monthly wave height distributions for 1992 are plotted in cumulative form in Figures D2 and D3. Data for 1980 through 1992 are plotted in Figure D4.

Peak Spectral Wave Period Distributions

Annual and monthly peak wave period T_p distribution histograms for 1992 are presented in Figures D5 and D6. Data for 1980 through 1992 are presented in Figure D7.

Persistence of Wave Heights

Table D5 shows the number of times in 1992 when the specified wave height was equaled or exceeded at least once during each day for the duration (consecutive days). Data for 1980 through 1992 are averaged and given in Table D6. An example is shown below:

| Height m | Consecutive Day(s) or Longer | | | | | | | | | | | | | | | | | | |
|-------------|------------------------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|-----|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19+ |
| 0.5 | 18 | 15 | 3 | 14 | 13 | 12 | 7 | 11 | 10 | 9 | | | | | | | | | |
| 1.0 | 50 | 34 | 24 | 21 | 18 | 14 | 12 | 8 | 7 | 3 | | | 2 | | | | | | |
| 1.5 | 41 | 19 | 8 | 6 | 2 | 1 | | | | | | | | | | | | | |
| 2.0 | 22 | 9 | 5 | 1 | | | | | | | | | | | | | | | |
| 2.5 | 10 | 5 | 2 | | | | | | | | | | | | | | | | |
| 3.0 | 6 | 1 | | | | | | | | | | | | | | | | | |
| 3.5 | | 1 | | | | | | | | | | | | | | | | | |
| 4.0 | 1 | | | | | | | | | | | | | | | | | | |

This example indicates that wave heights equaled or exceeded 1.0 m 50 times for at least 1 day; 34 times for at least 2 days; 24 times for at least 3 days, etc. Therefore, on 16 occasions the height equaled or exceeded 1.0 m for 1 day exactly ($50 - 34 = 16$); on 10 occasions for 2 days; on 3 occasions for 3 days, etc. Note that the height exceeded 1 m 50 times for 1 day or longer, while heights exceeded 0.5 m only 18 times for this same duration. This change in durations occurred because the longer durations of lower waves may be interspersed with shorter, but more frequent, intervals of higher waves. For example, one of the times that the wave heights exceeded 0.5 m for 16 days may have represented three times the height exceeded 1 m for shorter durations.

Spectra

Monthly spectra for the offshore staff gage (Gage 625) are presented in Figure D8. The plots show "relative" energy density as a function of wave frequency. These figures summarize the large number of spectra for each month. The figures emphasize the higher energy density associated with storms, as well as the general shifts in energy density to different frequencies. As used here, "relative" indicates the spectra have been smoothed by the three-dimensional surface drawing routine. Consequently, extremely high- and low-energy density values are modified to produce a smooth surface. The figures are not intended for quantitative measurements; however, they do provide the energy density as a function of frequency relative to the other spectra for the month.

Monthly and annual wave statistics for Gage 625 for 1992 and for 1980 through 1992 are presented in Table D7.

Figure D9 plots monthly time histories of wave height and period.

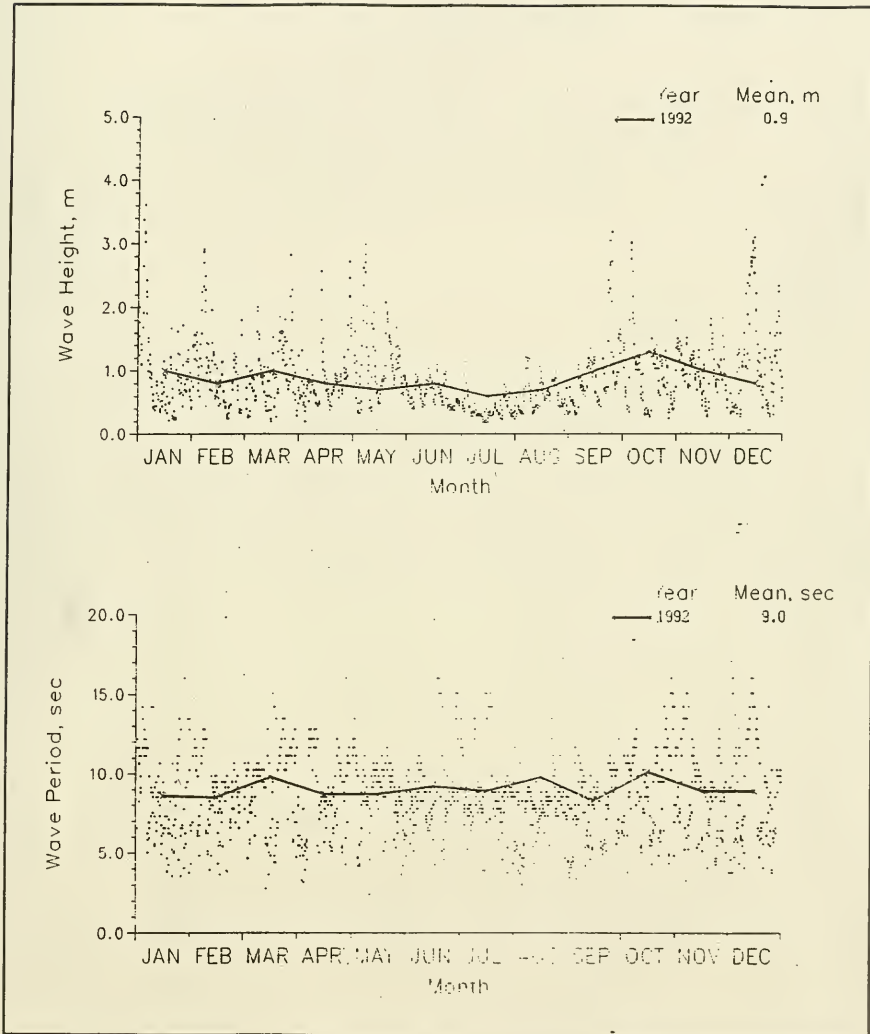


Figure D1. 1992 daily wave height and period values with monthly means for Gage 625

Table D1
Annual Joint Distribution of H_{mo} versus T_p

| Height(m) | Annual 1992, Gage 625 | | | | | | | | | | | | | Total |
|----------------|---|------|------|------|------|------|------|------|-------|-------|-------|--------|------|-------|
| | Percent Occurrence(X100) of Height and Period | | | | | | | | | | | | | |
| | Period(sec) | | | | | | | | | | | | | |
| | 2.0- | 3.0- | 4.0- | 5.0- | 6.0- | 7.0- | 8.0- | 9.0- | 10.0- | 12.0- | 14.0- | 16.0- | | |
| | 2.9 | 3.9 | 4.9 | 5.9 | 6.9 | 7.9 | 8.9 | 9.9 | 11.9 | 13.9 | 15.9 | Longer | | |
| 0.00 - 0.49 | 7 | 90 | 76 | 62 | 104 | 381 | 707 | 499 | 326 | 104 | 187 | 7 | 2550 | |
| 0.50 - 0.99 | 7 | 111 | 284 | 479 | 409 | 402 | 777 | 818 | 624 | 111 | 243 | 21 | 4286 | |
| 1.00 - 1.49 | . | 7 | 146 | 340 | 361 | 166 | 257 | 173 | 361 | 42 | 173 | . | 2026 | |
| 1.50 - 1.99 | . | . | . | 69 | 139 | 49 | 97 | 49 | 166 | 35 | 28 | . | 632 | |
| 2.00 - 2.49 | . | . | . | . | 14 | 42 | 28 | 28 | 69 | 7 | 35 | . | 223 | |
| 2.50 - 2.99 | . | . | . | . | . | 7 | 42 | 14 | 62 | 28 | 42 | . | 195 | |
| 3.00 - 3.49 | . | . | . | . | . | . | 7 | 7 | 35 | 14 | 21 | . | 84 | |
| 3.50 - 3.99 | . | . | . | . | . | . | . | . | . | 7 | . | . | 7 | |
| 4.00 - 4.49 | . | . | . | . | . | . | . | . | . | . | . | . | 0 | |
| 4.50 - 4.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 | |
| 5.00 - Greater | . | . | . | . | . | . | . | . | . | . | . | . | 0 | |
| Total | 14 | 208 | 506 | 950 | 1027 | 1047 | 1915 | 1588 | 1643 | 348 | 729 | 28 | | |

Table D2
Monthly Joint Distribution of H_{mo} versus T_p

January 1992, Gage 625
 Percent Occurrence(X100) of Height and Period

| Height(m) | Period(sec) | | | | | | | | | | | | Total |
|----------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|---------------|---------------|---------------|-----------------|-------|
| | 2.0- 2.9 | 3.0- 3.9 | 4.0- 4.9 | 5.0- 5.9 | 6.0- 6.9 | 7.0- 7.9 | 8.0- 8.9 | 9.0- 9.9 | 10.0- 11.9 | 12.0- 13.9 | 14.0- 15.9 | 16.0- Longer | |
| 0.00 - 0.49 | . | 167 | . | 167 | 167 | 333 | 667 | 333 | 83 | 250 | 167 | . | 2334 |
| 0.50 - 0.99 | . | 250 | 333 | 417 | 1083 | 333 | 583 | 333 | 583 | 167 | 167 | . | 4249 |
| 1.00 - 1.49 | . | . | 83 | 417 | 333 | 83 | 250 | . | 500 | . | 167 | . | 1833 |
| 1.50 - 1.99 | . | . | . | . | 250 | . | 83 | 167 | 250 | . | . | . | 750 |
| 2.00 - 2.49 | . | . | . | . | . | . | . | . | 167 | . | 167 | . | 334 |
| 2.50 - 2.99 | . | . | . | . | . | . | . | 83 | . | . | . | . | 83 |
| 3.00 - 3.49 | . | . | . | . | . | . | . | . | 167 | 167 | . | . | 334 |
| 3.50 - 3.99 | . | . | . | . | . | . | . | . | . | 83 | . | . | 83 |
| 4.00 - 4.49 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 4.50 - 4.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 5.00 - Greater | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| Total | 0 | 417 | 416 | 1001 | 1833 | 749 | 1583 | 916 | 1750 | 667 | 668 | 0 | |

February 1992, Gage 625
 Percent Occurrence(X100) of Height and Period

| Height(m) | Period(sec) | | | | | | | | | | | | Total |
|----------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|---------------|---------------|---------------|-----------------|-------|
| | 2.0- 2.9 | 3.0- 3.9 | 4.0- 4.9 | 5.0- 5.9 | 6.0- 6.9 | 7.0- 7.9 | 8.0- 8.9 | 9.0- 9.9 | 10.0- 11.9 | 12.0- 13.9 | 14.0- 15.9 | 16.0- Longer | |
| 0.00 - 0.49 | . | 87 | . | . | . | 87 | 783 | 957 | . | . | . | . | 1914 |
| 0.50 - 0.99 | . | 87 | 261 | 261 | 522 | 261 | 1130 | 348 | . | 174 | . | . | 3566 |
| 1.00 - 1.49 | . | 87 | 174 | 87 | 783 | 174 | 783 | 174 | 348 | . | 435 | . | 3045 |
| 1.50 - 1.99 | . | . | . | . | 435 | 87 | 87 | . | . | . | 174 | . | 783 |
| 2.00 - 2.49 | . | . | . | . | . | 87 | 87 | . | 87 | 174 | . | . | 435 |
| 2.50 - 2.99 | . | . | . | . | . | . | . | . | 261 | . | . | . | 261 |
| 3.00 - 3.49 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 3.50 - 3.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 4.00 - 4.49 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 4.50 - 4.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 5.00 - Greater | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| Total | 0 | 261 | 435 | 348 | 1740 | 957 | 2001 | 2261 | 1044 | 0 | 957 | 0 | |

March 1992, Gage 625
 Percent Occurrence(X100) of Height and Period

| Height(m) | Period(sec) | | | | | | | | | | | | Total |
|----------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|---------------|---------------|---------------|-----------------|-------|
| | 2.0- 2.9 | 3.0- 3.9 | 4.0- 4.9 | 5.0- 5.9 | 6.0- 6.9 | 7.0- 7.9 | 8.0- 8.9 | 9.0- 9.9 | 10.0- 11.9 | 12.0- 13.9 | 14.0- 15.9 | 16.0- Longer | |
| 0.00 - 0.49 | . | 81 | . | . | 81 | . | . | 403 | 968 | 161 | 161 | . | 1855 |
| 0.50 - 0.99 | 81 | . | 323 | 806 | 323 | 403 | 323 | 726 | 1371 | 81 | 161 | . | 4598 |
| 1.00 - 1.49 | . | . | 242 | 81 | 161 | 81 | 81 | 161 | 806 | 81 | 323 | . | 2017 |
| 1.50 - 1.99 | . | . | . | . | 161 | . | 81 | 81 | 726 | 161 | . | . | 1210 |
| 2.00 - 2.49 | . | . | . | . | . | 81 | . | 81 | 81 | . | . | . | 243 |
| 2.50 - 2.99 | . | . | . | . | . | . | . | . | 81 | . | . | . | 81 |
| 3.00 - 3.49 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 3.50 - 3.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 4.00 - 4.49 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 4.50 - 4.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 5.00 - Greater | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| Total | 81 | 81 | 565 | 887 | 726 | 565 | 485 | 1452 | 4033 | 484 | 645 | 0 | |

(Continued)

(Sheet 1 of 4)

Table D2 (Continued)

April 1992, Gage 625
Percent Occurrence(X100) of Height and Period

| Height(m) | Period(sec) | | | | | | | | | | | | Total |
|----------------|-------------|------|------|------|------|------|------|------|-------|-------|-------|--------|-------|
| | 2.0- | 3.0- | 4.0- | 5.0- | 6.0- | 7.0- | 8.0- | 9.0- | 10.0- | 12.0- | 14.0- | 16.0- | |
| | 2.9 | 3.9 | 4.9 | 5.9 | 6.9 | 7.9 | 8.9 | 9.9 | 11.9 | 13.9 | 15.9 | Longer | |
| 0.00 - 0.49 | . | 167 | 83 | . | . | 83 | 167 | 333 | 167 | . | 250 | . | 1250 |
| 0.50 - 0.99 | . | 167 | 167 | 1500 | 500 | 500 | 1250 | 667 | 917 | . | 1167 | . | 6835 |
| 1.00 - 1.49 | . | . | 167 | 333 | . | 83 | 250 | . | . | . | . | . | 833 |
| 1.50 - 1.99 | . | . | . | 83 | . | 167 | . | . | 333 | . | . | . | 583 |
| 2.00 - 2.49 | . | . | . | . | 83 | 83 | . | 83 | 83 | . | . | . | 332 |
| 2.50 - 2.99 | . | . | . | . | . | . | 83 | . | 83 | . | . | . | 166 |
| 3.00 - 3.49 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 3.50 - 3.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 4.00 - 4.49 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 4.50 - 4.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 5.00 - Greater | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| Total | 0 | 334 | 417 | 1916 | 583 | 749 | 1917 | 1083 | 1583 | 0 | 1417 | 0 | |

May 1992, Gage 625
Percent Occurrence(X100) of Height and Period

| Height(m) | Period(sec) | | | | | | | | | | | | Total |
|----------------|-------------|------|------|------|------|------|------|------|-------|-------|-------|--------|-------|
| | 2.0- | 3.0- | 4.0- | 5.0- | 6.0- | 7.0- | 8.0- | 9.0- | 10.0- | 12.0- | 14.0- | 16.0- | |
| | 2.9 | 3.9 | 4.9 | 5.9 | 6.9 | 7.9 | 8.9 | 9.9 | 11.9 | 13.9 | 15.9 | Longer | |
| 0.00 - 0.49 | 81 | . | 81 | 81 | . | 163 | 163 | 81 | 325 | . | . | . | 975 |
| 0.50 - 0.99 | . | 81 | 407 | 81 | 407 | 81 | 894 | 1382 | 894 | . | 81 | . | 4308 |
| 1.00 - 1.49 | . | . | 81 | 163 | 163 | 325 | 488 | 569 | 650 | 81 | 81 | . | 2601 |
| 1.50 - 1.99 | . | . | . | 325 | 81 | 81 | 244 | 163 | 407 | . | . | . | 1301 |
| 2.00 - 2.49 | . | . | . | . | 81 | . | 163 | 81 | 81 | . | . | . | 406 |
| 2.50 - 2.99 | . | . | . | . | . | . | 163 | 81 | 163 | . | . | . | 407 |
| 3.00 - 3.49 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 3.50 - 3.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 4.00 - 4.49 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 4.50 - 4.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 5.00 - Greater | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| Total | 81 | 81 | 569 | 650 | 732 | 650 | 2115 | 2357 | 2520 | 81 | 162 | 0 | |

June 1992, Gage 625
Percent Occurrence(X100) of Height and Period

| Height(m) | Period(sec) | | | | | | | | | | | | Total |
|----------------|-------------|------|------|------|------|------|------|------|-------|-------|-------|--------|-------|
| | 2.0- | 3.0- | 4.0- | 5.0- | 6.0- | 7.0- | 8.0- | 9.0- | 10.0- | 12.0- | 14.0- | 16.0- | |
| | 2.9 | 3.9 | 4.9 | 5.9 | 6.9 | 7.9 | 8.9 | 9.9 | 11.9 | 13.9 | 15.9 | Longer | |
| 0.00 - 0.49 | . | . | . | . | . | 339 | 1102 | 1017 | 169 | 85 | 339 | . | 3051 |
| 0.50 - 0.99 | . | . | 169 | 424 | 932 | 847 | 1441 | 1186 | 508 | 169 | 678 | 254 | 6608 |
| 1.00 - 1.49 | . | . | 85 | 85 | . | 85 | 85 | . | . | . | . | . | 340 |
| 1.50 - 1.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 2.00 - 2.49 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 2.50 - 2.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 3.00 - 3.49 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 3.50 - 3.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 4.00 - 4.49 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 4.50 - 4.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 5.00 - Greater | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| Total | 0 | 0 | 254 | 509 | 932 | 1271 | 2628 | 2203 | 677 | 254 | 1017 | 254 | |

(Continued)

(Sheet 2 of 4)

Table D2 (Continued)

| July 1992, Gage 625 | | | | | | | | | | | | | | Total |
|---|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|---------------|---------------|---------------|-----------------|---|-------|
| Percent Occurrence(X100) of Height and Period | | | | | | | | | | | | | | |
| Height(m) | Period(sec) | | | | | | | | | | | | | |
| | 2.0- 2.9 | 3.0- 3.9 | 4.0- 4.9 | 5.0- 5.9 | 6.0- 6.9 | 7.0- 7.9 | 8.0- 8.9 | 9.0- 9.9 | 10.0- 11.9 | 12.0- 13.9 | 14.0- 15.9 | 16.0- Longer | | |
| 0.00 - 0.49 | . | 248 | 83 | 83 | 496 | 1818 | 2479 | 1322 | 248 | 661 | 661 | . | . | 8099 |
| 0.50 - 0.99 | . | 83 | 83 | 248 | 248 | 165 | 661 | 165 | 83 | 83 | . | . | . | 1819 |
| 1.00 - 1.49 | . | . | . | . | . | 83 | . | . | . | . | . | . | . | 83 |
| 1.50 - 1.99 | . | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 2.00 - 2.49 | . | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 2.50 - 2.99 | . | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 3.00 - 3.49 | . | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 3.50 - 3.99 | . | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 4.00 - 4.49 | . | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 4.50 - 4.99 | . | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 5.00 - Greater | . | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| Total | 0 | 331 | 166 | 331 | 744 | 2066 | 3140 | 1487 | 331 | 744 | 661 | 0 | | 0 |

| August 1992, Gage 625 | | | | | | | | | | | | | | Total |
|---|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|---------------|---------------|---------------|-----------------|---|-------|
| Percent Occurrence(X100) of Height and Period | | | | | | | | | | | | | | |
| Height(m) | Period(sec) | | | | | | | | | | | | | |
| | 2.0- 2.9 | 3.0- 3.9 | 4.0- 4.9 | 5.0- 5.9 | 6.0- 6.9 | 7.0- 7.9 | 8.0- 8.9 | 9.0- 9.9 | 10.0- 11.9 | 12.0- 13.9 | 14.0- 15.9 | 16.0- Longer | | |
| 0.00 - 0.49 | . | 161 | 161 | 161 | 242 | 1048 | 1774 | 161 | 242 | . | . | . | . | 3950 |
| 0.50 - 0.99 | . | 81 | 403 | 323 | 242 | 1290 | 1452 | 806 | 403 | 81 | 81 | . | . | 5162 |
| 1.00 - 1.49 | . | . | 242 | 161 | 81 | 242 | 161 | . | . | . | . | . | . | 887 |
| 1.50 - 1.99 | . | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 2.00 - 2.49 | . | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 2.50 - 2.99 | . | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 3.00 - 3.49 | . | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 3.50 - 3.99 | . | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 4.00 - 4.49 | . | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 4.50 - 4.99 | . | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 5.00 - Greater | . | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| Total | 0 | 242 | 806 | 645 | 565 | 2580 | 3387 | 967 | 645 | 81 | 81 | 0 | | 0 |

| September 1992, Gage 625 | | | | | | | | | | | | | | Total |
|---|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|---------------|---------------|---------------|-----------------|---|-------|
| Percent Occurrence(X100) of Height and Period | | | | | | | | | | | | | | |
| Height(m) | Period(sec) | | | | | | | | | | | | | |
| | 2.0- 2.9 | 3.0- 3.9 | 4.0- 4.9 | 5.0- 5.9 | 6.0- 6.9 | 7.0- 7.9 | 8.0- 8.9 | 9.0- 9.9 | 10.0- 11.9 | 12.0- 13.9 | 14.0- 15.9 | 16.0- Longer | | |
| 0.00 - 0.49 | . | 87 | 348 | . | . | 261 | 435 | . | 174 | . | . | . | . | 1305 |
| 0.50 - 0.99 | . | 174 | 522 | 609 | 87 | 435 | 1130 | 1304 | 957 | . | . | . | . | 5218 |
| 1.00 - 1.49 | . | . | 174 | 783 | 435 | 261 | 261 | 87 | 174 | . | 87 | . | . | 2262 |
| 1.50 - 1.99 | . | . | . | 174 | 261 | . | . | . | . | . | . | . | . | 435 |
| 2.00 - 2.49 | . | . | . | . | . | 174 | 87 | . | 87 | . | . | . | . | 348 |
| 2.50 - 2.99 | . | . | . | . | . | . | 174 | . | 87 | . | . | . | . | 261 |
| 3.00 - 3.49 | . | . | . | . | . | . | . | . | 174 | . | . | . | . | 174 |
| 3.50 - 3.99 | . | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 4.00 - 4.49 | . | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 4.50 - 4.99 | . | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 5.00 - Greater | . | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| Total | 0 | 261 | 1044 | 1566 | 783 | 1131 | 2087 | 1391 | 1653 | 0 | 87 | 0 | | 0 |

(Continued)

(Sheet 3 of 4)

Table D2 (Concluded)

October 1992, Gage 625
Percent Occurrence(X100) of Height and Period

| Height(m) | Period(sec) | | | | | | | | | | | Total | |
|----------------|-------------|------|------|------|------|------|------|------|-------|-------|-------|-------|--------|
| | 2.0- | 3.0- | 4.0- | 5.0- | 6.0- | 7.0- | 8.0- | 9.0- | 10.0- | 12.0- | 14.0- | | 16.0- |
| | 2.9 | 3.9 | 4.9 | 5.9 | 6.9 | 7.9 | 8.9 | 9.9 | 11.9 | 13.9 | 15.9 | | Longer |
| 0.00 - 0.49 | . | . | . | 81 | . | 325 | 407 | 407 | 894 | . | 488 | . | 2602 |
| 0.50 - 0.99 | . | 81 | 244 | 244 | 163 | 163 | 407 | 488 | 407 | 244 | 163 | . | 2604 |
| 1.00 - 1.49 | . | . | 325 | 407 | 1057 | . | 244 | 244 | 976 | 244 | 244 | . | 3741 |
| 1.50 - 1.99 | . | . | . | 81 | 81 | 81 | 81 | 81 | 163 | . | . | . | 568 |
| 2.00 - 2.49 | . | . | . | . | . | . | . | . | 81 | . | . | . | 81 |
| 2.50 - 2.99 | . | . | . | . | . | 81 | . | . | 81 | . | . | . | 243 |
| 3.00 - 3.49 | . | . | . | . | . | . | 81 | . | 81 | . | . | . | 162 |
| 3.50 - 3.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 4.00 - 4.49 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 4.50 - 4.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 5.00 - Greater | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| Total | 0 | 81 | 569 | 813 | 1301 | 650 | 1301 | 1220 | 2683 | 488 | 895 | 0 | |

November 1992, Gage 625
Percent Occurrence(X100) of Height and Period

| Height(m) | Period(sec) | | | | | | | | | | | Total | |
|----------------|-------------|------|------|------|------|------|------|------|-------|-------|-------|-------|--------|
| | 2.0- | 3.0- | 4.0- | 5.0- | 6.0- | 7.0- | 8.0- | 9.0- | 10.0- | 12.0- | 14.0- | | 16.0- |
| | 2.9 | 3.9 | 4.9 | 5.9 | 6.9 | 7.9 | 8.9 | 9.9 | 11.9 | 13.9 | 15.9 | | Longer |
| 0.00 - 0.49 | . | . | . | 84 | . | 336 | 420 | . | . | . | . | . | 840 |
| 0.50 - 0.99 | . | . | 252 | 504 | 84 | 84 | 840 | 1345 | 756 | 504 | 168 | . | 4537 |
| 1.00 - 1.49 | . | . | 84 | 588 | 504 | 588 | 420 | 504 | 672 | . | 420 | . | 3780 |
| 1.50 - 1.99 | . | . | . | 84 | 420 | 168 | 168 | . | . | . | . | . | 840 |
| 2.00 - 2.49 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 2.50 - 2.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 3.00 - 3.49 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 3.50 - 3.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 4.00 - 4.49 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 4.50 - 4.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 5.00 - Greater | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| Total | 0 | 0 | 336 | 1260 | 1008 | 840 | 1764 | 2269 | 1428 | 504 | 588 | 0 | |

December 1992, Gage 625
Percent Occurrence(X100) of Height and Period

| Height(m) | Period(sec) | | | | | | | | | | | Total | |
|----------------|-------------|------|------|------|------|------|------|------|-------|-------|-------|-------|--------|
| | 2.0- | 3.0- | 4.0- | 5.0- | 6.0- | 7.0- | 8.0- | 9.0- | 10.0- | 12.0- | 14.0- | | 16.0- |
| | 2.9 | 3.9 | 4.9 | 5.9 | 6.9 | 7.9 | 8.9 | 9.9 | 11.9 | 13.9 | 15.9 | | Longer |
| 0.00 - 0.49 | . | 83 | 167 | 83 | 250 | 83 | 167 | 583 | 583 | 83 | 167 | 83 | 2332 |
| 0.50 - 0.99 | . | 333 | 250 | 333 | 333 | . | 83 | 333 | 250 | . | 83 | . | 1998 |
| 1.00 - 1.49 | . | . | 83 | 1000 | 833 | . | 83 | 333 | 167 | 83 | 333 | . | 2915 |
| 1.50 - 1.99 | . | . | . | 83 | . | 167 | 250 | 83 | 83 | 250 | 167 | . | 1083 |
| 2.00 - 2.49 | . | . | . | . | . | 83 | . | 83 | 167 | 83 | 83 | . | 499 |
| 2.50 - 2.99 | . | . | . | . | . | . | . | . | . | 333 | 500 | . | 833 |
| 3.00 - 3.49 | . | . | . | . | . | . | . | 83 | . | . | 250 | . | 333 |
| 3.50 - 3.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 4.00 - 4.49 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 4.50 - 4.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 5.00 - Greater | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| Total | 0 | 416 | 500 | 1499 | 1416 | 333 | 583 | 1498 | 1250 | 832 | 1583 | 83 | |

Table D3
Annual Joint Distribution of H_{mo} versus T_p (All Years)

Annual 1980-1992, Gage 625
 Percent Occurrence(X100) of Height and Period

| Height(m) | Period(sec) | | | | | | | | | | | | Total |
|----------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|---------------|---------------|---------------|-----------------|-------|
| | 2.0- 2.9 | 3.0- 3.9 | 4.0- 4.9 | 5.0- 5.9 | 6.0- 6.9 | 7.0- 7.9 | 8.0- 8.9 | 9.0- 9.9 | 10.0- 11.9 | 12.0- 13.9 | 14.0- 15.9 | 16.0- Longer | |
| 0.00 - 0.49 | 10 | 24 | 39 | 63 | 113 | 236 | 547 | 491 | 414 | 191 | 262 | 22 | 2412 |
| 0.50 - 0.99 | 5 | 92 | 241 | 437 | 456 | 427 | 724 | 764 | 845 | 165 | 300 | 30 | 4486 |
| 1.00 - 1.49 | . | 5 | 97 | 304 | 326 | 211 | 207 | 197 | 345 | 46 | 140 | 2 | 1880 |
| 1.50 - 1.99 | . | . | 3 | 63 | 179 | 93 | 67 | 63 | 141 | 41 | 69 | 4 | 723 |
| 2.00 - 2.49 | . | . | . | 1 | 39 | 41 | 24 | 33 | 66 | 35 | 43 | 2 | 284 |
| 2.50 - 2.99 | . | . | . | . | 3 | 13 | 22 | 21 | 41 | 17 | 32 | 2 | 151 |
| 3.00 - 3.49 | . | . | . | . | 1 | . | 5 | 7 | 18 | 7 | 12 | 1 | 51 |
| 3.50 - 3.99 | . | . | . | . | . | . | . | . | 2 | 2 | 2 | 1 | 7 |
| 4.00 - 4.49 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 4.50 - 4.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 5.00 - Greater | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| Total | 15 | 121 | 380 | 868 | 1117 | 1021 | 1596 | 1576 | 1872 | 504 | 860 | 64 | |

Table D4
Monthly Joint Distribution of H_{mo} versus T_p (All Years)

January 1980-1992, Gage 625
 Percent Occurrence(X100) of Height and Period

| Height (m) | Period(sec) | | | | | | | | | | | | | Total |
|----------------|-------------|------|------|------|------|------|------|------|-------|-------|-------|--------|------|-------|
| | 2.0- | 3.0- | 4.0- | 5.0- | 6.0- | 7.0- | 8.0- | 9.0- | 10.0- | 12.0- | 14.0- | 16.0- | | |
| | 2.9 | 3.9 | 4.9 | 5.9 | 6.9 | 7.9 | 8.9 | 9.9 | 11.9 | 13.9 | 15.9 | Longer | | |
| 0.00 - 0.49 | 8 | 38 | 46 | 84 | 114 | 205 | 350 | 524 | 372 | 144 | 182 | 15 | 2082 | |
| 0.50 - 0.99 | . | 160 | 243 | 403 | 524 | 274 | 532 | 509 | 866 | 137 | 236 | 8 | 3892 | |
| 1.00 - 1.49 | . | . | 84 | 562 | 524 | 213 | 205 | 175 | 441 | . | 84 | . | 2288 | |
| 1.50 - 1.99 | . | . | . | 84 | 236 | 190 | 84 | 114 | 182 | 30 | 30 | . | 950 | |
| 2.00 - 2.49 | . | . | . | . | 61 | 129 | 30 | 30 | 152 | 38 | 84 | . | 524 | |
| 2.50 - 2.99 | . | . | . | . | 8 | 15 | 30 | 38 | 61 | 23 | 30 | . | 205 | |
| 3.00 - 3.49 | . | . | . | . | . | . | . | 8 | 23 | 15 | . | . | 46 | |
| 3.50 - 3.99 | . | . | . | . | . | . | . | . | 8 | 8 | . | . | 16 | |
| 4.00 - 4.49 | . | . | . | . | . | . | . | . | . | . | . | . | 0 | |
| 4.50 - 4.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 | |
| 5.00 - Greater | . | . | . | . | . | . | . | . | . | . | . | . | 0 | |
| Total | 8 | 198 | 373 | 1133 | 1467 | 1026 | 1231 | 1398 | 2105 | 395 | 646 | 23 | | |

February 1980-1992, Gage 625
 Percent Occurrence(X100) of Height and Period

| Height (m) | Period(sec) | | | | | | | | | | | | | Total |
|----------------|-------------|------|------|------|------|------|------|------|-------|-------|-------|--------|------|-------|
| | 2.0- | 3.0- | 4.0- | 5.0- | 6.0- | 7.0- | 8.0- | 9.0- | 10.0- | 12.0- | 14.0- | 16.0- | | |
| | 2.9 | 3.9 | 4.9 | 5.9 | 6.9 | 7.9 | 8.9 | 9.9 | 11.9 | 13.9 | 15.9 | Longer | | |
| 0.00 - 0.49 | . | 15 | 23 | 38 | 61 | 61 | 259 | 327 | 305 | 84 | 190 | . | 1363 | |
| 0.50 - 0.99 | 15 | 61 | 175 | 396 | 396 | 411 | 670 | 739 | 1005 | 69 | 289 | 8 | 4234 | |
| 1.00 - 1.49 | . | 8 | 107 | 381 | 457 | 274 | 259 | 228 | 564 | 53 | 198 | . | 2529 | |
| 1.50 - 1.99 | . | . | . | 122 | 305 | 114 | 84 | 107 | 206 | 69 | 99 | . | 1106 | |
| 2.00 - 2.49 | . | . | . | . | 30 | 61 | 46 | 53 | 69 | 53 | 107 | . | 419 | |
| 2.50 - 2.99 | . | . | . | . | . | 15 | 15 | 30 | 84 | 15 | 84 | . | 243 | |
| 3.00 - 3.49 | . | . | . | . | . | . | 23 | 8 | 30 | 8 | 8 | . | 77 | |
| 3.50 - 3.99 | . | . | . | . | . | . | . | . | 8 | 8 | 15 | . | 31 | |
| 4.00 - 4.49 | . | . | . | . | . | . | . | . | . | . | . | . | 0 | |
| 4.50 - 4.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 | |
| 5.00 - Greater | . | . | . | . | . | . | . | . | . | . | . | . | 0 | |
| Total | 15 | 84 | 305 | 937 | 1249 | 936 | 1356 | 1492 | 2271 | 359 | 990 | 8 | | |

March 1980-1992, Gage 625
 Percent Occurrence(X100) of Height and Period

| Height (m) | Period(sec) | | | | | | | | | | | | | Total |
|----------------|-------------|------|------|------|------|------|------|------|-------|-------|-------|--------|------|-------|
| | 2.0- | 3.0- | 4.0- | 5.0- | 6.0- | 7.0- | 8.0- | 9.0- | 10.0- | 12.0- | 14.0- | 16.0- | | |
| | 2.9 | 3.9 | 4.9 | 5.9 | 6.9 | 7.9 | 8.9 | 9.9 | 11.9 | 13.9 | 15.9 | Longer | | |
| 0.00 - 0.49 | 7 | 7 | . | 67 | 47 | 74 | 262 | 215 | 323 | 128 | 168 | . | 1298 | |
| 0.50 - 0.99 | 13 | 34 | 202 | 531 | 410 | 471 | 706 | 659 | 1015 | 114 | 343 | . | 4498 | |
| 1.00 - 1.49 | . | 7 | 148 | 289 | 316 | 276 | 202 | 222 | 632 | 40 | 336 | . | 2468 | |
| 1.50 - 1.99 | . | . | . | 61 | 182 | 81 | 94 | 74 | 276 | 67 | 148 | 7 | 990 | |
| 2.00 - 2.49 | . | . | . | 7 | 54 | 40 | 34 | 40 | 121 | 61 | 54 | . | 411 | |
| 2.50 - 2.99 | . | . | . | . | . | 7 | 27 | 13 | 87 | 34 | 47 | . | 215 | |
| 3.00 - 3.49 | . | . | . | . | . | . | 13 | 13 | 47 | 13 | 34 | . | 120 | |
| 3.50 - 3.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 | |
| 4.00 - 4.49 | . | . | . | . | . | . | . | . | . | . | . | . | 0 | |
| 4.50 - 4.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 | |
| 5.00 - Greater | . | . | . | . | . | . | . | . | . | . | . | . | 0 | |
| Total | 20 | 48 | 350 | 955 | 1009 | 949 | 1338 | 1236 | 2501 | 457 | 1130 | 7 | | |

(Continued)

(Sheet 1 of 4)

Table D4 (Continued)

April 1980-1992, Gage 625
Percent Occurrence(X100) of Height and Period

| Height(m) | Period(sec) | | | | | | | | | | | | Total |
|----------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|---------------|---------------|---------------|-----------------|-------|
| | 2.0- 2.9 | 3.0- 3.9 | 4.0- 4.9 | 5.0- 5.9 | 6.0- 6.9 | 7.0- 7.9 | 8.0- 8.9 | 9.0- 9.9 | 10.0- 11.9 | 12.0- 13.9 | 14.0- 15.9 | 16.0- Longer | |
| 0.00 - 0.49 | 14 | 21 | 14 | 57 | 50 | 85 | 412 | 391 | 405 | 135 | 305 | . | 1889 |
| 0.50 - 0.99 | 7 | 71 | 170 | 355 | 369 | 419 | 874 | 938 | 1278 | 192 | 554 | 14 | 5241 |
| 1.00 - 1.49 | . | 7 | 85 | 199 | 241 | 206 | 220 | 277 | 327 | 43 | 163 | . | 1768 |
| 1.50 - 1.99 | . | . | 7 | 36 | 121 | 50 | 78 | 114 | 213 | 14 | 71 | . | 704 |
| 2.00 - 2.49 | . | . | . | 7 | 28 | 7 | 28 | 28 | 71 | 14 | 7 | . | 190 |
| 2.50 - 2.99 | . | . | . | . | 7 | 21 | 28 | 14 | 50 | 28 | 7 | . | 155 |
| 3.00 - 3.49 | . | . | . | . | . | . | . | 7 | 28 | . | 14 | . | 49 |
| 3.50 - 3.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 4.00 - 4.49 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 4.50 - 4.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 5.00 - Greater | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| Total | 21 | 99 | 276 | 654 | 816 | 788 | 1640 | 1769 | 2372 | 426 | 1121 | 14 | |

May 1980-1992, Gage 625
Percent Occurrence(X100) of Height and Period

| Height(m) | Period(sec) | | | | | | | | | | | | Total |
|----------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|---------------|---------------|---------------|-----------------|-------|
| | 2.0- 2.9 | 3.0- 3.9 | 4.0- 4.9 | 5.0- 5.9 | 6.0- 6.9 | 7.0- 7.9 | 8.0- 8.9 | 9.0- 9.9 | 10.0- 11.9 | 12.0- 13.9 | 14.0- 15.9 | 16.0- Longer | |
| 0.00 - 0.49 | 26 | 26 | 46 | 93 | 185 | 317 | 595 | 503 | 536 | 225 | 351 | 7 | 2910 |
| 0.50 - 0.99 | 7 | 152 | 298 | 384 | 522 | 489 | 1025 | 992 | 708 | 99 | 212 | 7 | 4895 |
| 1.00 - 1.49 | . | . | 60 | 126 | 139 | 192 | 317 | 205 | 311 | 20 | 86 | . | 1456 |
| 1.50 - 1.99 | . | . | . | 66 | 73 | 20 | 66 | 60 | 106 | 13 | 60 | . | 464 |
| 2.00 - 2.49 | . | . | . | . | 53 | 26 | 20 | 20 | 7 | 33 | 20 | 7 | 186 |
| 2.50 - 2.99 | . | . | . | . | . | . | 13 | 7 | 33 | 20 | 13 | . | 86 |
| 3.00 - 3.49 | . | . | . | . | . | . | . | . | . | . | 7 | . | 7 |
| 3.50 - 3.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 4.00 - 4.49 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 4.50 - 4.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 5.00 - Greater | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| Total | 33 | 178 | 404 | 669 | 972 | 1044 | 2036 | 1787 | 1701 | 410 | 749 | 21 | |

June 1980-1992, Gage 625
Percent Occurrence(X100) of Height and Period

| Height(m) | Period(sec) | | | | | | | | | | | | Total |
|----------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|---------------|---------------|---------------|-----------------|-------|
| | 2.0- 2.9 | 3.0- 3.9 | 4.0- 4.9 | 5.0- 5.9 | 6.0- 6.9 | 7.0- 7.9 | 8.0- 8.9 | 9.0- 9.9 | 10.0- 11.9 | 12.0- 13.9 | 14.0- 15.9 | 16.0- Longer | |
| 0.00 - 0.49 | 30 | 53 | 76 | 84 | 305 | 473 | 1357 | 838 | 450 | 160 | 160 | 15 | 4001 |
| 0.50 - 0.99 | 8 | 130 | 236 | 412 | 373 | 480 | 1159 | 1075 | 595 | 107 | 122 | 38 | 4735 |
| 1.00 - 1.49 | . | . | 53 | 130 | 152 | 122 | 130 | 122 | 183 | . | 38 | 8 | 938 |
| 1.50 - 1.99 | . | . | . | 30 | 53 | 23 | 15 | 8 | 114 | . | 46 | . | 289 |
| 2.00 - 2.49 | . | . | . | . | 8 | 15 | 8 | 8 | 8 | . | . | . | 47 |
| 2.50 - 2.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 3.00 - 3.49 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 3.50 - 3.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 4.00 - 4.49 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 4.50 - 4.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 5.00 - Greater | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| Total | 38 | 183 | 365 | 656 | 891 | 1113 | 2669 | 2051 | 1350 | 267 | 366 | 61 | |

(Continued)

(Sheet 2 of 4)

Table D4 (Continued)

| July 1980-1992, Gage 625 | | | | | | | | | | | | | Total |
|---|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|---------------|---------------|---------------|-----------------|-------|
| Percent Occurrence(X100) of Height and Period | | | | | | | | | | | | | |
| Height(m) | Period(sec) | | | | | | | | | | | | |
| | 2.0- 2.9 | 3.0- 3.9 | 4.0- 4.9 | 5.0- 5.9 | 6.0- 6.9 | 7.0- 7.9 | 8.0- 8.9 | 9.0- 9.9 | 10.0- 11.9 | 12.0- 13.9 | 14.0- 15.9 | 16.0- Longer | |
| 0.00 - 0.49 | . | 64 | 104 | 72 | 207 | 701 | 1457 | 1115 | 661 | 390 | 398 | 64 | 5233 |
| 0.50 - 0.99 | . | 127 | 303 | 430 | 565 | 573 | 709 | 613 | 398 | 239 | 151 | 64 | 4172 |
| 1.00 - 1.49 | . | . | 40 | 135 | 111 | 88 | 56 | 32 | 40 | . | 16 | . | 518 |
| 1.50 - 1.99 | . | . | . | 8 | 16 | 16 | 16 | 8 | 8 | . | . | . | 72 |
| 2.00 - 2.49 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 2.50 - 2.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 3.00 - 3.49 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 3.50 - 3.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 4.00 - 4.49 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 4.50 - 4.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 5.00 - Greater | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| Total | 0 | 191 | 447 | 645 | 899 | 1378 | 2238 | 1768 | 1107 | 629 | 565 | 128 | |

| August 1980-1992, Gage 625 | | | | | | | | | | | | | Total |
|---|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|---------------|---------------|---------------|-----------------|-------|
| Percent Occurrence(X100) of Height and Period | | | | | | | | | | | | | |
| Height(m) | Period(sec) | | | | | | | | | | | | |
| | 2.0- 2.9 | 3.0- 3.9 | 4.0- 4.9 | 5.0- 5.9 | 6.0- 6.9 | 7.0- 7.9 | 8.0- 8.9 | 9.0- 9.9 | 10.0- 11.9 | 12.0- 13.9 | 14.0- 15.9 | 16.0- Longer | |
| 0.00 - 0.49 | . | 30 | 30 | 53 | 166 | 467 | 910 | 880 | 662 | 263 | 241 | 8 | 3710 |
| 0.50 - 0.99 | 15 | 90 | 226 | 504 | 564 | 670 | 858 | 790 | 662 | 211 | 309 | 68 | 4967 |
| 1.00 - 1.49 | . | . | 83 | 181 | 173 | 135 | 196 | 83 | 53 | 15 | 8 | . | 927 |
| 1.50 - 1.99 | . | . | . | 38 | 90 | 38 | 15 | 8 | 38 | 15 | 30 | . | 272 |
| 2.00 - 2.49 | . | . | . | . | 15 | 8 | . | . | 23 | . | 38 | . | 84 |
| 2.50 - 2.99 | . | . | . | . | . | . | . | 8 | 8 | . | . | . | 24 |
| 3.00 - 3.49 | . | . | . | . | 8 | . | . | 8 | 8 | . | . | . | 24 |
| 3.50 - 3.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 4.00 - 4.49 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 4.50 - 4.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 5.00 - Greater | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| Total | 15 | 120 | 339 | 776 | 1016 | 1318 | 1987 | 1777 | 1454 | 504 | 626 | 76 | |

| September 1980-1992, Gage 625 | | | | | | | | | | | | | Total |
|---|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|---------------|---------------|---------------|-----------------|-------|
| Percent Occurrence(X100) of Height and Period | | | | | | | | | | | | | |
| Height(m) | Period(sec) | | | | | | | | | | | | |
| | 2.0- 2.9 | 3.0- 3.9 | 4.0- 4.9 | 5.0- 5.9 | 6.0- 6.9 | 7.0- 7.9 | 8.0- 8.9 | 9.0- 9.9 | 10.0- 11.9 | 12.0- 13.9 | 14.0- 15.9 | 16.0- Longer | |
| 0.00 - 0.49 | . | 8 | 40 | 16 | 64 | 136 | 200 | 328 | 344 | 184 | 208 | 48 | 1576 |
| 0.50 - 0.99 | . | 80 | 248 | 344 | 424 | 464 | 687 | 847 | 1015 | 152 | 416 | . | 4677 |
| 1.00 - 1.49 | . | . | 64 | 368 | 336 | 304 | 312 | 328 | 400 | 112 | 192 | . | 2416 |
| 1.50 - 1.99 | . | . | . | 104 | 240 | 136 | 96 | 88 | 72 | 48 | 80 | 8 | 872 |
| 2.00 - 2.49 | . | . | . | . | 16 | 88 | 48 | 16 | 16 | 72 | 56 | 8 | 320 |
| 2.50 - 2.99 | . | . | . | . | . | 8 | 24 | 24 | 40 | . | 24 | . | 120 |
| 3.00 - 3.49 | . | . | . | . | . | . | . | . | 24 | . | . | . | 24 |
| 3.50 - 3.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 4.00 - 4.49 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 4.50 - 4.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 5.00 - Greater | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| Total | 0 | 88 | 352 | 832 | 1080 | 1136 | 1367 | 1631 | 1911 | 568 | 976 | 64 | |

(Continued)

(Sheet 3 of 4)

Table D4 (Concluded)

| October 1980-1992, Gage 625 | | | | | | | | | | | | | | Total |
|---|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|---------------|---------------|---------------|-----------------|------|-------|
| Percent Occurrence(X100) of Height and Period | | | | | | | | | | | | | | |
| Height(m) | Period(sec) | | | | | | | | | | | | | |
| | 2.0- 2.9 | 3.0- 3.9 | 4.0- 4.9 | 5.0- 5.9 | 6.0- 6.9 | 7.0- 7.9 | 8.0- 8.9 | 9.0- 9.9 | 10.0- 11.9 | 12.0- 13.9 | 14.0- 15.9 | 16.0- Longer | | |
| 0.00 - 0.49 | 7 | | 20 | 52 | 13 | 131 | 274 | 242 | 327 | 98 | 255 | 33 | 1452 | |
| 0.50 - 0.99 | | 78 | 209 | 333 | 366 | 287 | 536 | 705 | 1006 | 202 | 307 | 33 | 4062 | |
| 1.00 - 1.49 | | 7 | 144 | 405 | 405 | 176 | 157 | 307 | 483 | 111 | 216 | 13 | 2424 | |
| 1.50 - 1.99 | | | 26 | 98 | 235 | 72 | 78 | 72 | 229 | 105 | 118 | 20 | 1053 | |
| 2.00 - 2.49 | | | | | 78 | 59 | 46 | 98 | 137 | 65 | 59 | 7 | 549 | |
| 2.50 - 2.99 | | | | | 13 | 46 | 59 | 39 | 33 | 26 | 72 | 20 | 308 | |
| 3.00 - 3.49 | | | | | | | 20 | 13 | 13 | 39 | 33 | 13 | 131 | |
| 3.50 - 3.99 | | | | | | | | | 13 | 7 | | 7 | 27 | |
| 4.00 - 4.49 | | | | | | | | | | | | | 0 | |
| 4.50 - 4.99 | | | | | | | | | | | | | 0 | |
| 5.00 - Greater | | | | | | | | | | | | | 0 | |
| Total | 7 | 85 | 399 | 888 | 1110 | 771 | 1170 | 1476 | 2241 | 653 | 1060 | 146 | | |

| November 1980-1992, Gage 625 | | | | | | | | | | | | | | Total |
|---|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|---------------|---------------|---------------|-----------------|------|-------|
| Percent Occurrence(X100) of Height and Period | | | | | | | | | | | | | | |
| Height(m) | Period(sec) | | | | | | | | | | | | | |
| | 2.0- 2.9 | 3.0- 3.9 | 4.0- 4.9 | 5.0- 5.9 | 6.0- 6.9 | 7.0- 7.9 | 8.0- 8.9 | 9.0- 9.9 | 10.0- 11.9 | 12.0- 13.9 | 14.0- 15.9 | 16.0- Longer | | |
| 0.00 - 0.49 | 7 | 7 | 42 | 70 | 42 | 126 | 363 | 300 | 251 | 216 | 300 | 56 | 1780 | |
| 0.50 - 0.99 | | 49 | 349 | 517 | 545 | 370 | 594 | 670 | 656 | 265 | 314 | 28 | 4357 | |
| 1.00 - 1.49 | | 28 | 140 | 377 | 545 | 321 | 258 | 189 | 300 | 105 | 147 | 7 | 2417 | |
| 1.50 - 1.99 | | | | 56 | 258 | 196 | 112 | 56 | 105 | 77 | 56 | 14 | 930 | |
| 2.00 - 2.49 | | | | | 70 | 21 | 21 | 7 | 63 | 49 | 49 | | 280 | |
| 2.50 - 2.99 | | | | | | 14 | 28 | 42 | 14 | 21 | 35 | | 154 | |
| 3.00 - 3.49 | | | | | | | 7 | 7 | 28 | 7 | 21 | | 70 | |
| 3.50 - 3.99 | | | | | | | | | | | 14 | | 14 | |
| 4.00 - 4.49 | | | | | | | | | | | | | 0 | |
| 4.50 - 4.99 | | | | | | | | | | | | | 0 | |
| 5.00 - Greater | | | | | | | | | | | | | 0 | |
| Total | 7 | 84 | 531 | 1020 | 1460 | 1048 | 1383 | 1271 | 1417 | 740 | 936 | 105 | | |

| December 1980-1992, Gage 625 | | | | | | | | | | | | | | Total |
|---|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|---------------|---------------|---------------|-----------------|------|-------|
| Percent Occurrence(X100) of Height and Period | | | | | | | | | | | | | | |
| Height(m) | Period(sec) | | | | | | | | | | | | | |
| | 2.0- 2.9 | 3.0- 3.9 | 4.0- 4.9 | 5.0- 5.9 | 6.0- 6.9 | 7.0- 7.9 | 8.0- 8.9 | 9.0- 9.9 | 10.0- 11.9 | 12.0- 13.9 | 14.0- 15.9 | 16.0- Longer | | |
| 0.00 - 0.49 | 15 | 23 | 38 | 69 | 130 | 122 | 244 | 343 | 359 | 290 | 389 | 31 | 2053 | |
| 0.50 - 0.99 | | 76 | 229 | 648 | 427 | 236 | 328 | 610 | 885 | 198 | 336 | 107 | 4080 | |
| 1.00 - 1.49 | | | 137 | 503 | 511 | 221 | 160 | 175 | 343 | 46 | 168 | | 2264 | |
| 1.50 - 1.99 | | | | 53 | 343 | 191 | 61 | 46 | 107 | 38 | 76 | | 915 | |
| 2.00 - 2.49 | | | | | 46 | 46 | 8 | 84 | 114 | 31 | 38 | | 367 | |
| 2.50 - 2.99 | | | | | 8 | 23 | 23 | 38 | 76 | 31 | 69 | | 268 | |
| 3.00 - 3.49 | | | | | | | | 23 | 8 | | 23 | | 54 | |
| 3.50 - 3.99 | | | | | | | | | | | | | 0 | |
| 4.00 - 4.49 | | | | | | | | | | | | | 0 | |
| 4.50 - 4.99 | | | | | | | | | | | | | 0 | |
| 5.00 - Greater | | | | | | | | | | | | | 0 | |
| Total | 15 | 99 | 404 | 1273 | 1465 | 839 | 824 | 1319 | 1892 | 634 | 1099 | 138 | | |

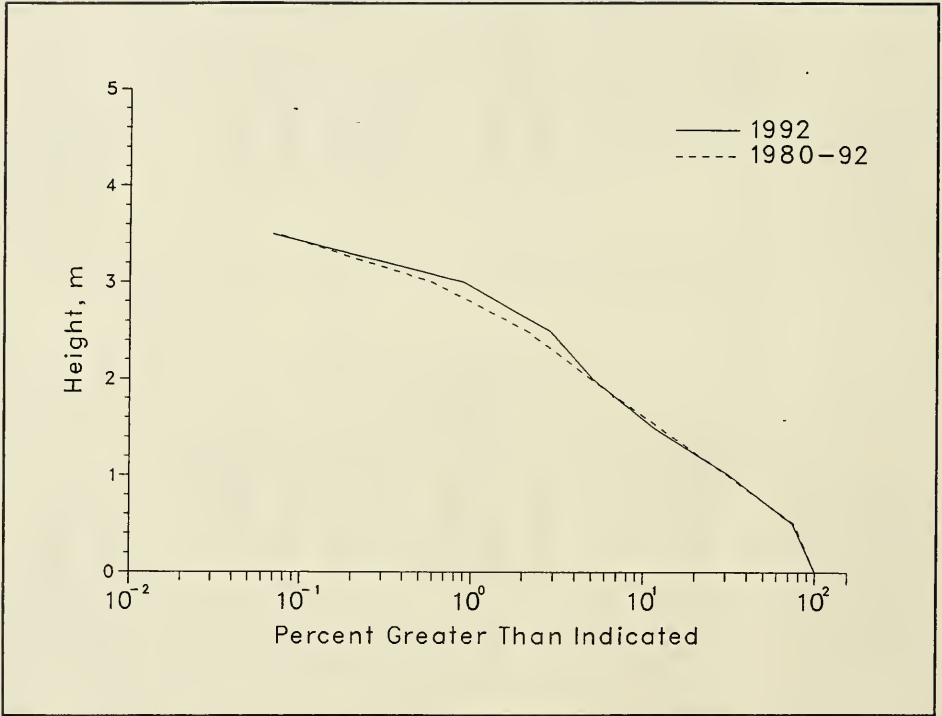


Figure D2. Annual cumulative wave height distributions for Gage 625

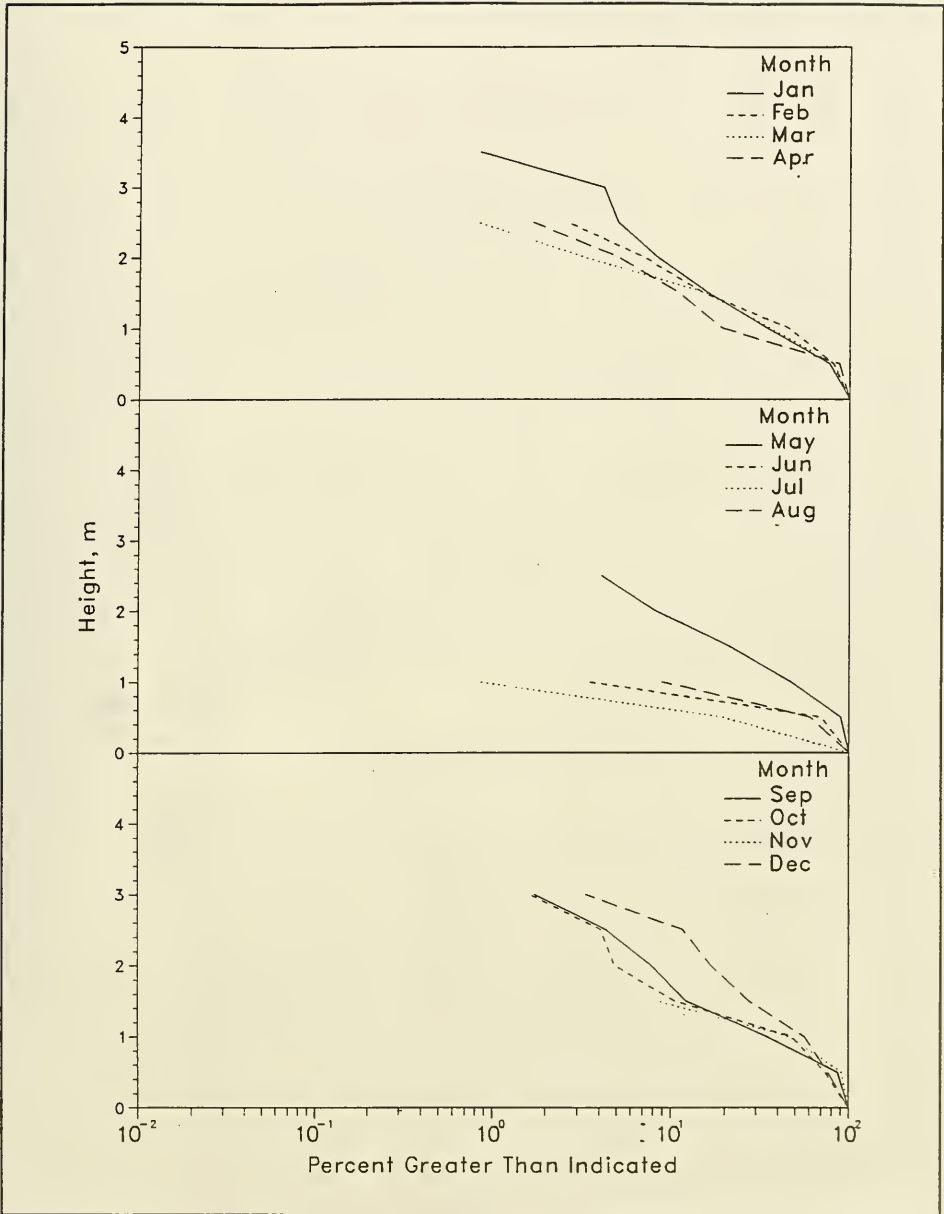


Figure D3. 1992 monthly wave height distributions for Gage 625

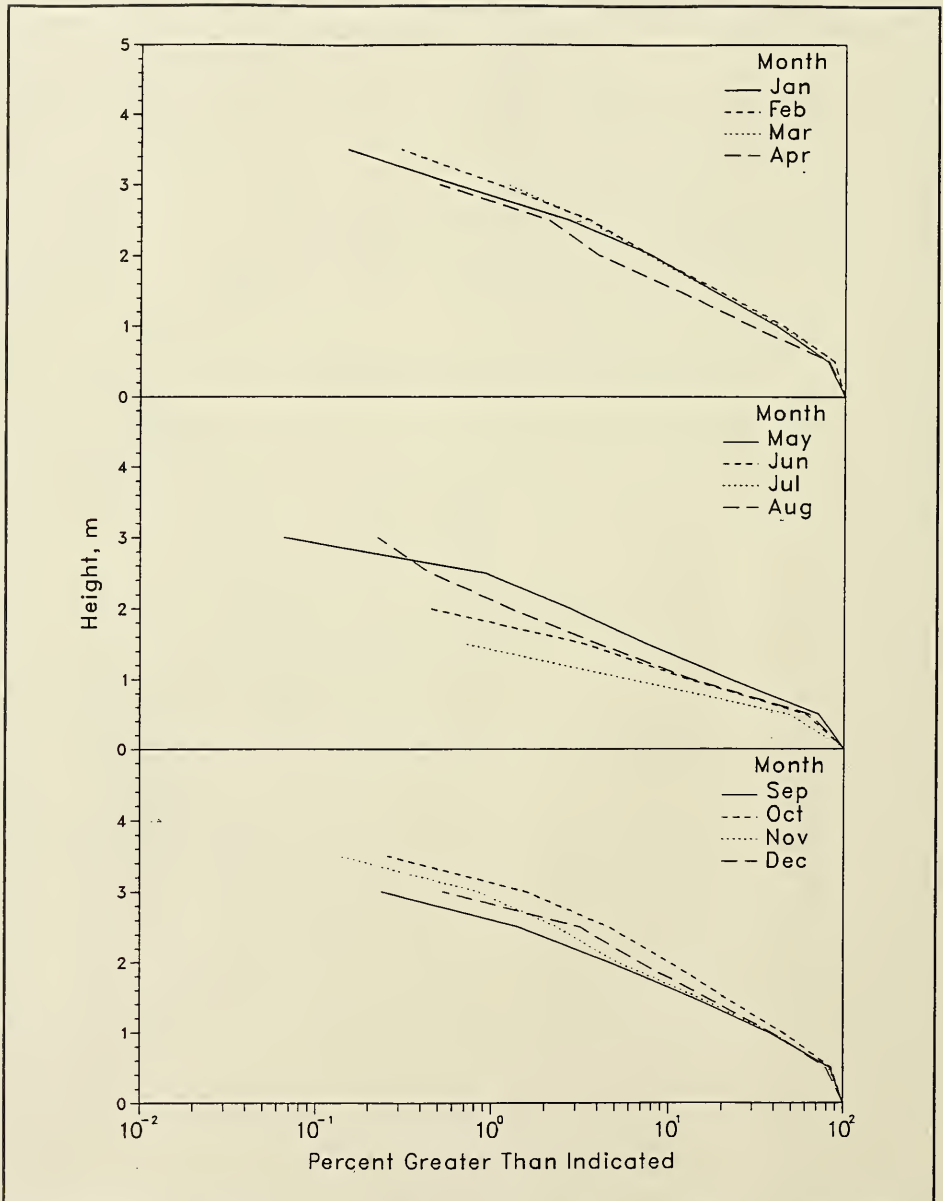


Figure D4. 1980-1992 monthly wave height distributions for Gage 625

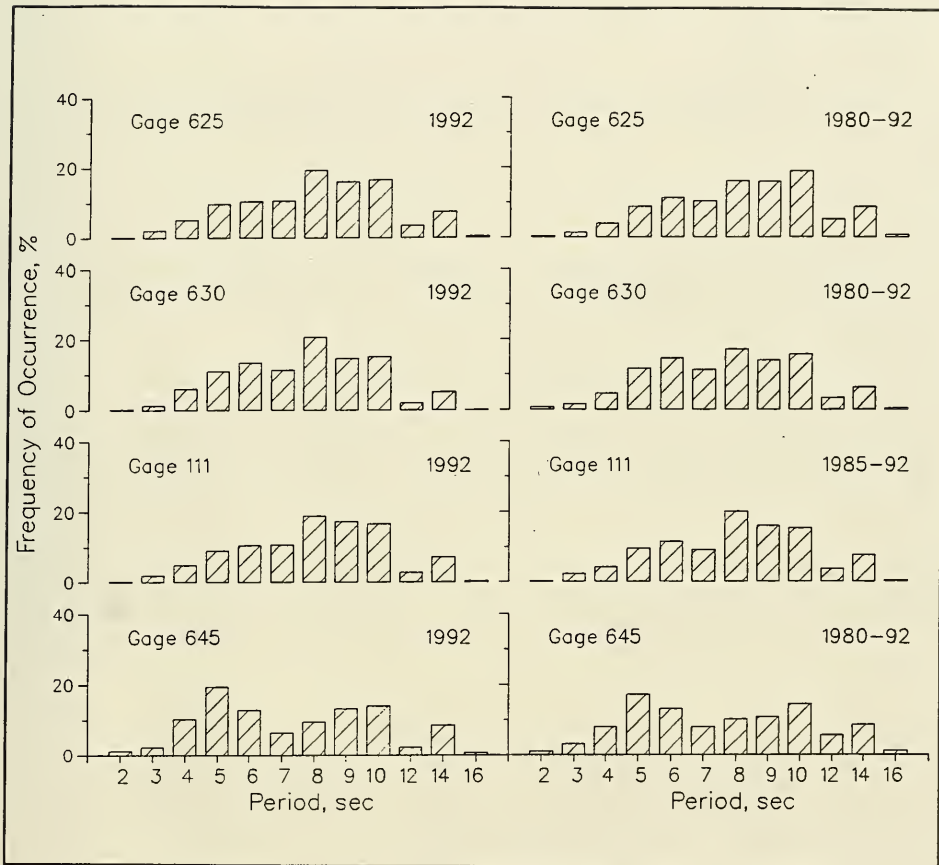


Figure D5. Annual wave period distributions for all gages

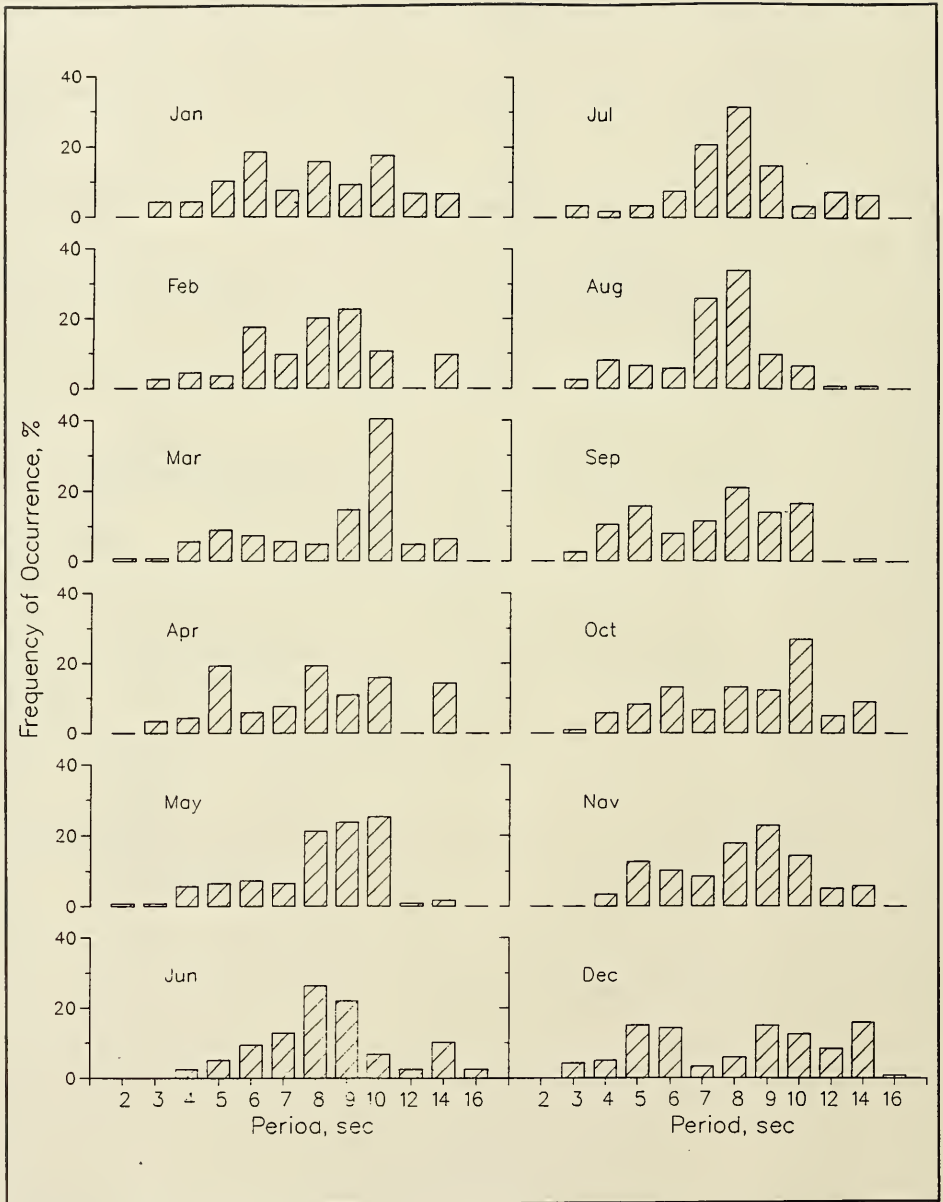


Figure D6. 1992 monthly wave period distributions for Gage 625

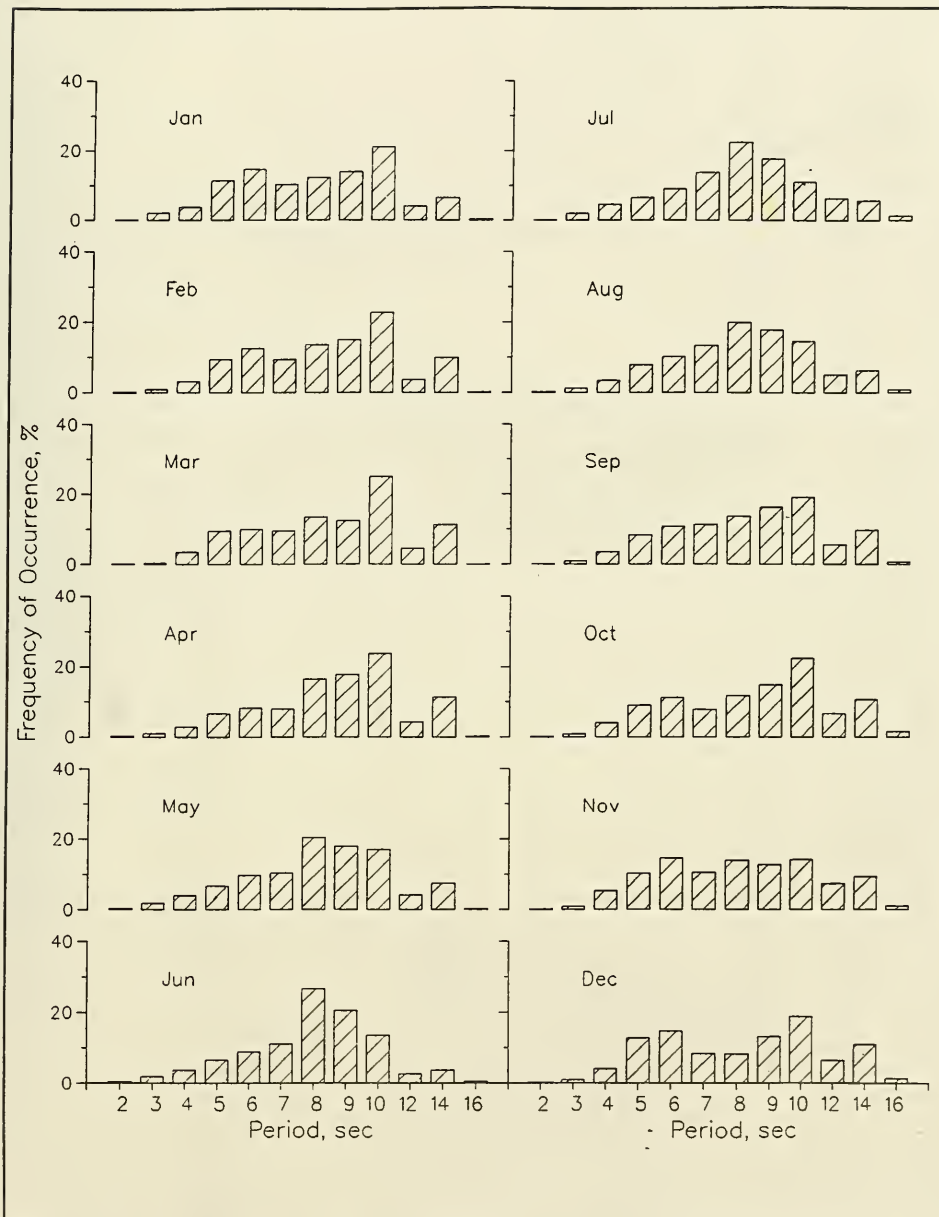


Figure D7. 1980-1992 monthly wave period distributions for Gage 625

Table D5
1992 persistence of H_{mo} for Gage 625

| Height (m) | Consecutive Day(s) or Longer | | | | | | | | | | | | | | | | | | |
|---------------|------------------------------|----|----|----|----|---|----|----|----|----|----|----|----|----|----|----|----|----|-----|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19+ |
| 0.5 | 28 | 24 | 21 | 20 | 18 | | 17 | 16 | 15 | 14 | 11 | | 10 | 8 | | | | | |
| 1.0 | 53 | 32 | 24 | 17 | 12 | 8 | 7 | | | 2 | 1 | | | | | | | 6 | 5 |
| 1.5 | 31 | 18 | 10 | 6 | | | | 1 | | | | | | | | | | | |
| 2.0 | 13 | 7 | 5 | | | | 1 | | | | | | | | | | | | |
| 2.5 | 10 | 5 | | 1 | | | | | | | | | | | | | | | |
| 3.0 | 5 | 3 | | | | | | | | | | | | | | | | | |
| 3.5 | 1 | | | | | | | | | | | | | | | | | | |

Table D6
1980 through 1992 persistence of H_{mo} for Gage 625

| Height (m) | Consecutive Day(s) or Longer | | | | | | | | | | | | | | | | | | |
|---------------|------------------------------|----|----|----|----|----|----|---|----|----|----|----|----|----|----|----|----|----|-----|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19+ |
| 0.5 | 28 | 23 | 21 | 18 | 16 | 14 | 13 | | 11 | 10 | 9 | 8 | | 7 | 6 | 5 | | 4 | 3 |
| 1.0 | 45 | 31 | 21 | 14 | 10 | 7 | 5 | 4 | 2 | | | 1 | | | | | | | |
| 1.5 | 29 | 16 | 9 | 5 | 3 | 2 | 1 | | | | | | | | | | | | |
| 2.0 | 14 | 7 | 4 | | 1 | | | | | | | | | | | | | | |
| 2.5 | 7 | 3 | | 1 | | | | | | | | | | | | | | | |
| 3.0 | 3 | 1 | | | | | | | | | | | | | | | | | |
| 3.5 | | | | | | | | | | | | | | | | | | | |
| 4.0 | | | | | | | | | | | | | | | | | | | |

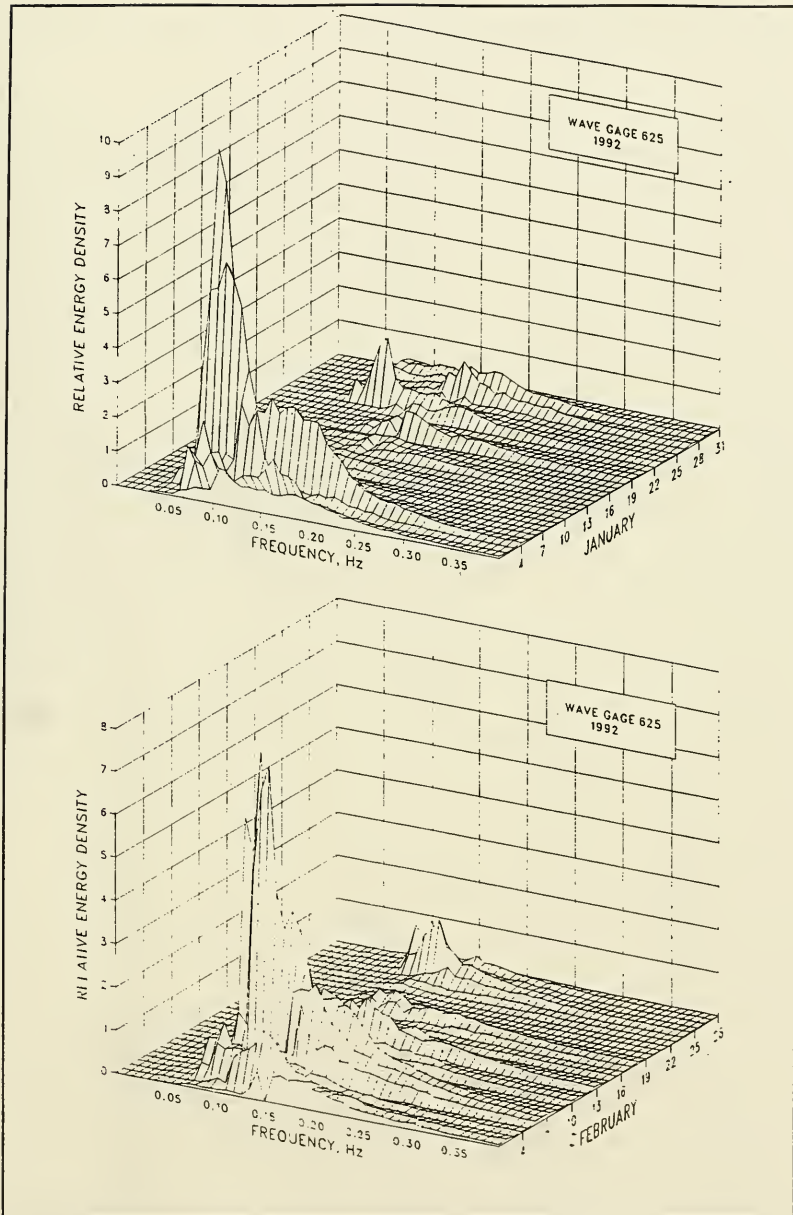


Figure D8. 1992 monthly spectra for Gage 625 (Sheet 1 of 6)

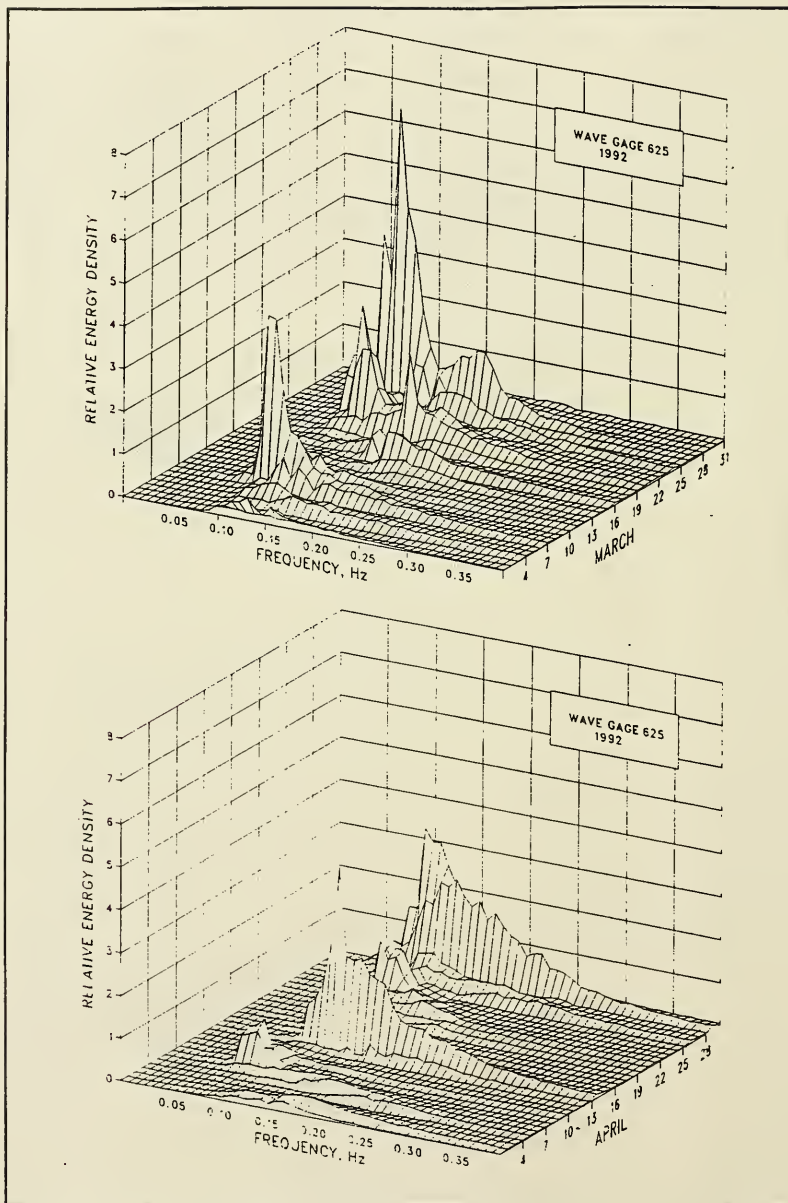


Figure D8. (Sheet 2 of 6)

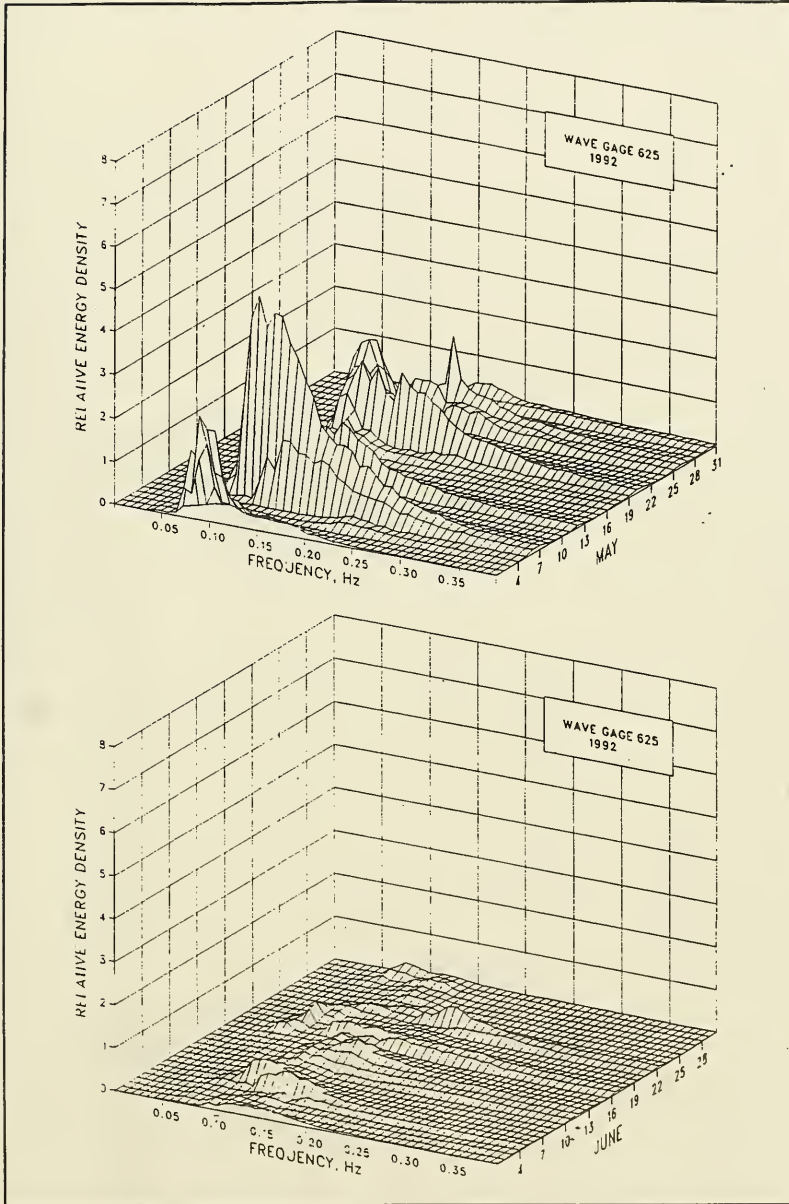


Figure D8. (Sheet 3 of 6)

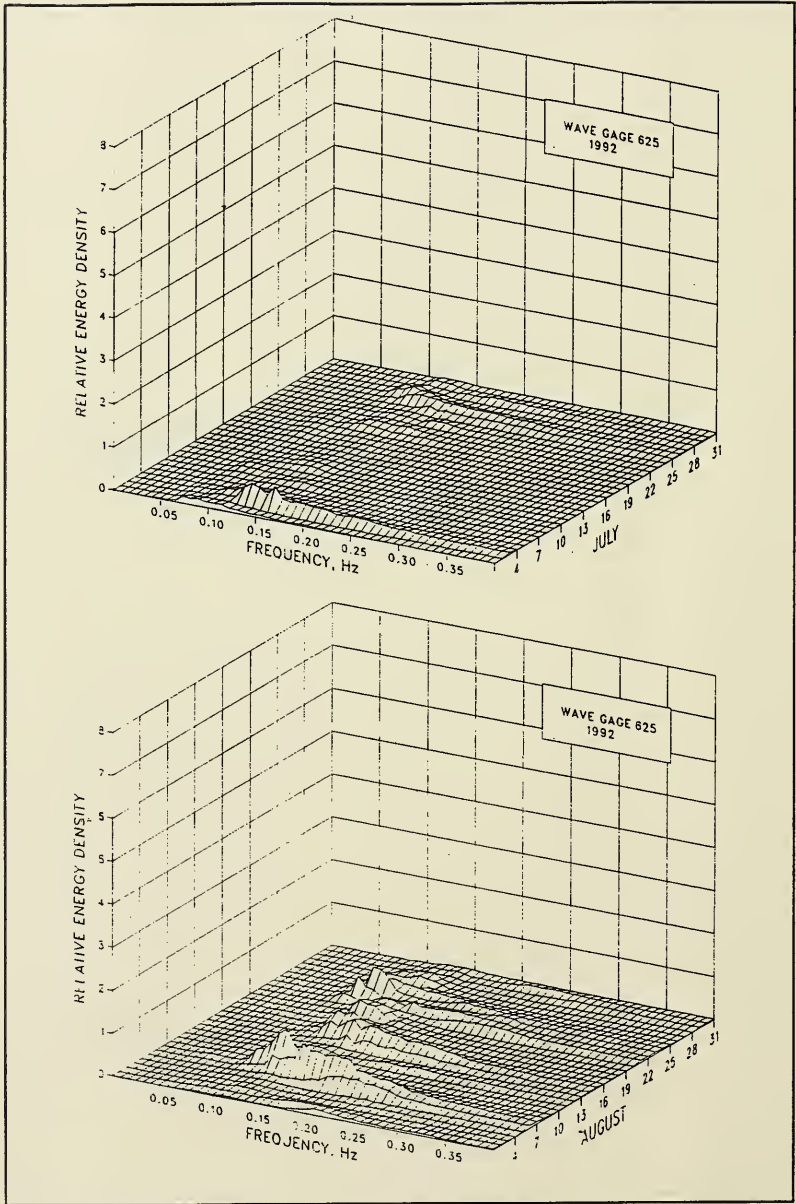


Figure D8. (Sheet 4 of 6)

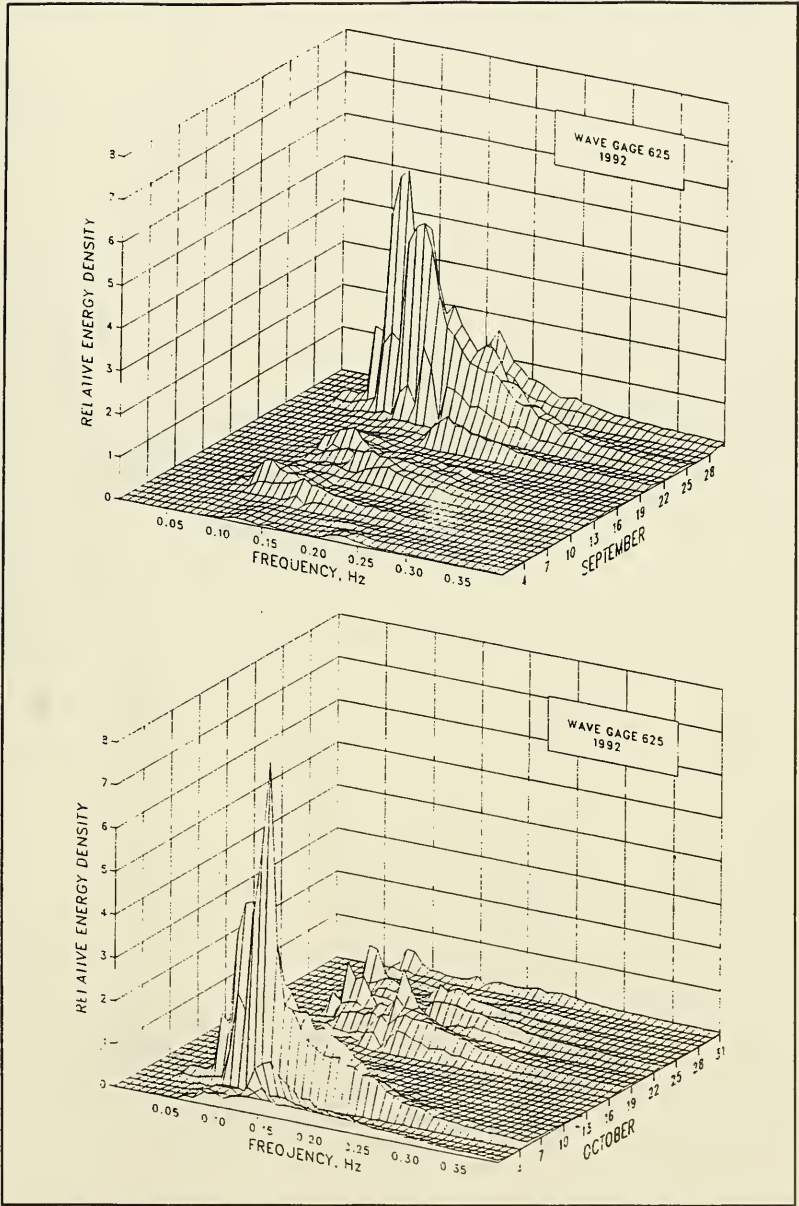


Figure D8. (Sheet 5 of 6)

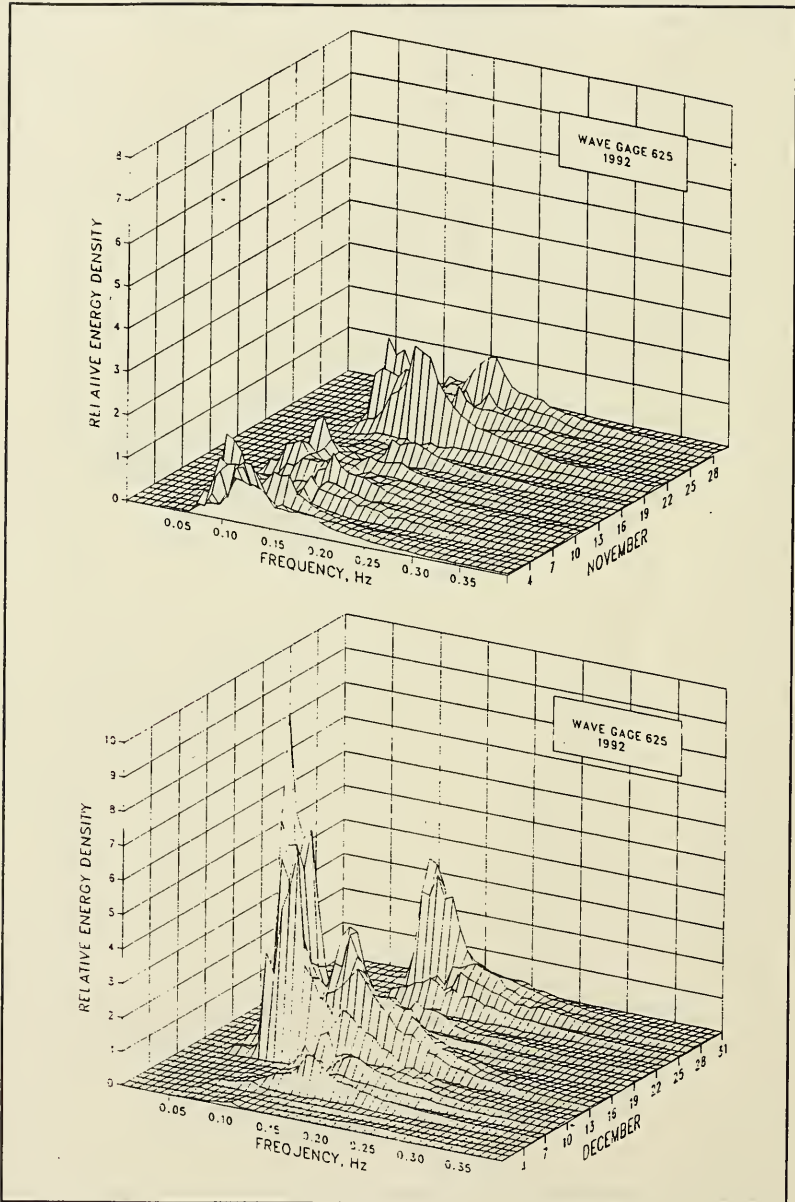


Figure D8. (Sheet 6 of 6)

Table D7
Wave statistics for Gage 625

| Month | 1992 | | | | | | | 1980-1992 | | | | | | |
|--------|--------|-----------|---------|------|--------|-----------|--------|-----------|-----------|---------|----------|--------|-----------|--------|
| | Height | | | Date | Period | | | Height | | | Date | Period | | |
| | Mean | Std. Dev. | Extreme | | Mean | Std. Dev. | Number | Mean | Std. Dev. | Extreme | | Mean | Std. Dev. | Number |
| m | m | m | sec | sec | Obs. | m | m | m | sec | sec | Obs. | | | |
| Jan | 1.0 | 0.7 | 3.6 | 4 | 8.6 | 2.9 | 120 | 1.0 | 0.6 | 3.6 | 1992 | 8.5 | 2.7 | 1316 |
| Feb | 1.1 | 0.6 | 2.9 | 7 | 8.5 | 2.2 | 115 | 1.1 | 0.6 | 3.8 | 1989 | 8.9 | 2.6 | 1313 |
| Mar | 1.0 | 0.5 | 2.8 | 26 | 9.3 | 2.6 | 124 | 1.1 | 0.6 | 3.4 | 1983 | 9.1 | 2.6 | 1487 |
| Apr | 0.9 | 0.5 | 2.7 | 29 | 8.5 | 2.8 | 120 | 0.9 | 0.5 | 3.4 | 1988 | 9.3 | 2.6 | 1408 |
| May | 1.2 | 0.6 | 3.0 | 7 | 8.6 | 2.1 | 123 | 0.8 | 0.5 | 3.0 | 1986 | 8.7 | 2.6 | 1512 |
| Jun | 0.7 | 0.2 | 1.3 | 16 | 9.3 | 3.0 | 118 | 0.7 | 0.4 | 2.3 | 1983 | 8.5 | 2.4 | 1312 |
| Jul | 0.4 | 0.2 | 1.1 | 3 | 8.9 | 2.5 | 121 | 0.6 | 0.3 | 1.8 | 1985 | 8.8 | 2.8 | 1256 |
| Aug | 0.7 | 0.3 | 1.4 | 6 | 7.8 | 1.9 | 124 | 0.7 | 0.4 | 3.1 | 1981 | 8.7 | 2.6 | 1329 |
| Sep | 1.0 | 0.6 | 3.2 | 25 | 7.7 | 2.2 | 115 | 1.0 | 0.6 | 3.2 | 1992 | 9.0 | 2.7 | 1251 |
| Oct | 1.0 | 0.6 | 3.0 | 5 | 9.2 | 2.8 | 123 | 1.1 | 0.7 | 3.5 | 1991 | 9.2 | 2.9 | 1531 |
| Nov | 1.0 | 0.4 | 2.0 | 20 | 8.8 | 2.5 | 119 | 1.0 | 0.6 | 3.5 | 1981 | 8.8 | 3.0 | 1432 |
| Dec | 1.3 | 0.8 | 3.2 | 10 | 9.2 | 3.5 | 120 | 1.0 | 0.6 | 3.2 | 1992 | 9.0 | 3.1 | 1311 |
| Annual | 0.9 | 0.6 | 3.6 | Jan | 8.7 | 2.7 | 1442 | 0.9 | 0.6 | 3.8 | Feb 1989 | 8.9 | 2.7 | 16458 |

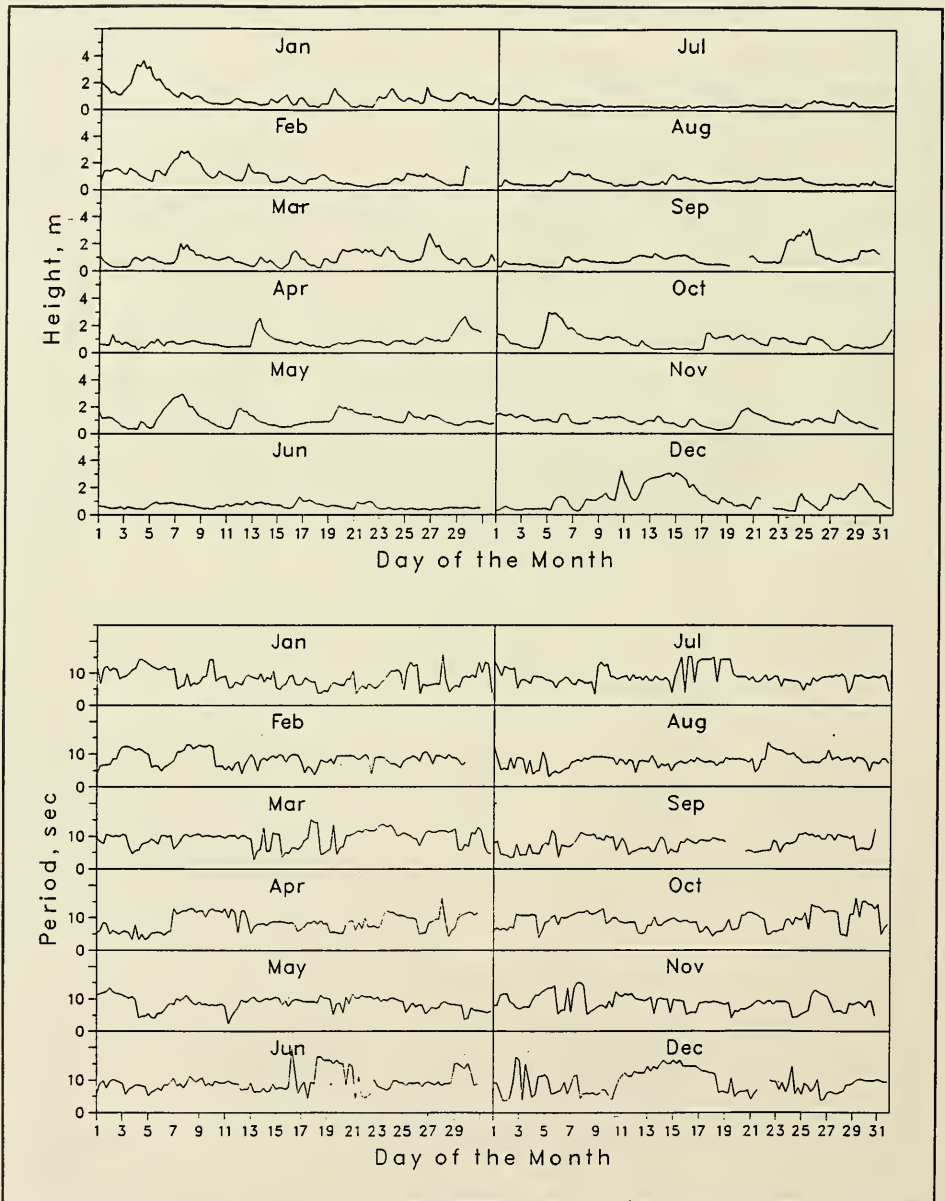


Figure D9. Time-histories of wave height and period for Gage 625

Appendix E

Wave Data for Gage 645

Wave data summaries for Gage 645 for 1992 and for 1980 through 1992 are presented in the following pages:

Daily H_{mo} and T_p

Figure E1 displays the individual wave height H_{mo} and peak spectral wave period T_p values, along with the monthly mean values.

Joint Distributions of H_{mo} and T_p

Annual and monthly joint distribution tables are presented in Tables E1 and E2, and data for 1980 through 1992 are in Tables E3 and E4. Each table gives the frequency (in parts per 10,000) for which the wave height and peak period were within the specified intervals; these values can be converted to percentages by dividing by 100. Marginal totals are also included. The row total gives the number of observations out of 10,000 that fell within each specified peak period interval. The column total gives the number of observations out of 10,000 that fell within each specified wave height interval.

Cumulative Distributions of Wave Height

Annual and monthly wave height distributions for 1992 are plotted in cumulative form in Figures E2 and E3. Data for 1980 through 1992 are plotted in Figure E4.

Peak Spectral Wave Period Distributions

Annual and monthly peak wave period T_p distribution histograms for 1992 are presented in Figures E5 and E6. Data for 1980 through 1992 are presented in Figure E7.

Persistence of Wave Heights

Table E5 shows the number of times in 1992 when the specified wave height was equaled or exceeded at least once during each day for the duration (consecutive days). Data for 1980 through 1992 are averaged and given in Table E6. An example is shown below:

| Height m | Consecutive Day(s) or Longer | | | | | | | | | | | | | | | | | | |
|-------------|------------------------------|----|----|----|----|----|----|---|---|----|----|----|----|----|----|----|----|----|-----|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19+ |
| 0.5 | 18 | 15 | 14 | 13 | 12 | 11 | 10 | 9 | | | | | | 8 | | 7 | | | |
| 1.0 | 50 | 34 | 24 | 21 | 18 | 14 | 12 | 8 | 7 | 3 | | | 2 | | | | | | |
| 1.5 | 41 | 19 | 8 | 6 | 2 | 1 | | | | | | | | | | | | | |
| 2.0 | 22 | 9 | 5 | 1 | | | | | | | | | | | | | | | |
| 2.5 | 10 | 5 | 2 | | | | | | | | | | | | | | | | |
| 3.0 | 6 | 1 | | | | | | | | | | | | | | | | | |
| 3.5 | | 1 | | | | | | | | | | | | | | | | | |
| 4.0 | 1 | | | | | | | | | | | | | | | | | | |

This example indicates that wave heights equaled or exceeded 1.0 m 50 times for at least 1 day; 34 times for at least 2 days; 24 times for at least 3 days, etc. Therefore, on 16 occasions the height equaled or exceeded 1.0 m for 1 day exactly ($50 - 34 = 16$); on 10 occasions for 2 days; on 3 occasions for 3 days, etc. Note that the height exceeded 1 m 50 times for 1 day or longer, while heights exceeded 0.5 m only 18 times for this same duration. This change in durations occurred because the longer durations of lower waves may be interspersed with shorter, but more frequent, intervals of higher waves. For example, one of the times that the wave heights exceeded 0.5 m for 16 days may have represented three times the height exceeded 1 m for shorter durations.

Spectra

Monthly spectra for the offshore staff gage (Gage 645) are presented in Figure E8. The plots show "relative" energy density as a function of wave frequency. These figures summarize the large number of spectra for each month. The figures emphasize the higher energy density associated with storms, as well as the general shifts in energy density to different frequencies. As used here, "relative" indicates the spectra have been smoothed by the three-dimensional surface drawing routine. Consequently, extremely high- and low-energy density values are modified to produce a smooth surface. The figures are not intended for quantitative measurements; however, they do provide the energy density as a function of frequency relative to the other spectra for the month.

Monthly and annual wave statistics for Gage 645 for 1992 and for 1980 through 1992 are presented in Table E7.

Figure E9 plots monthly time histories of wave height and period.

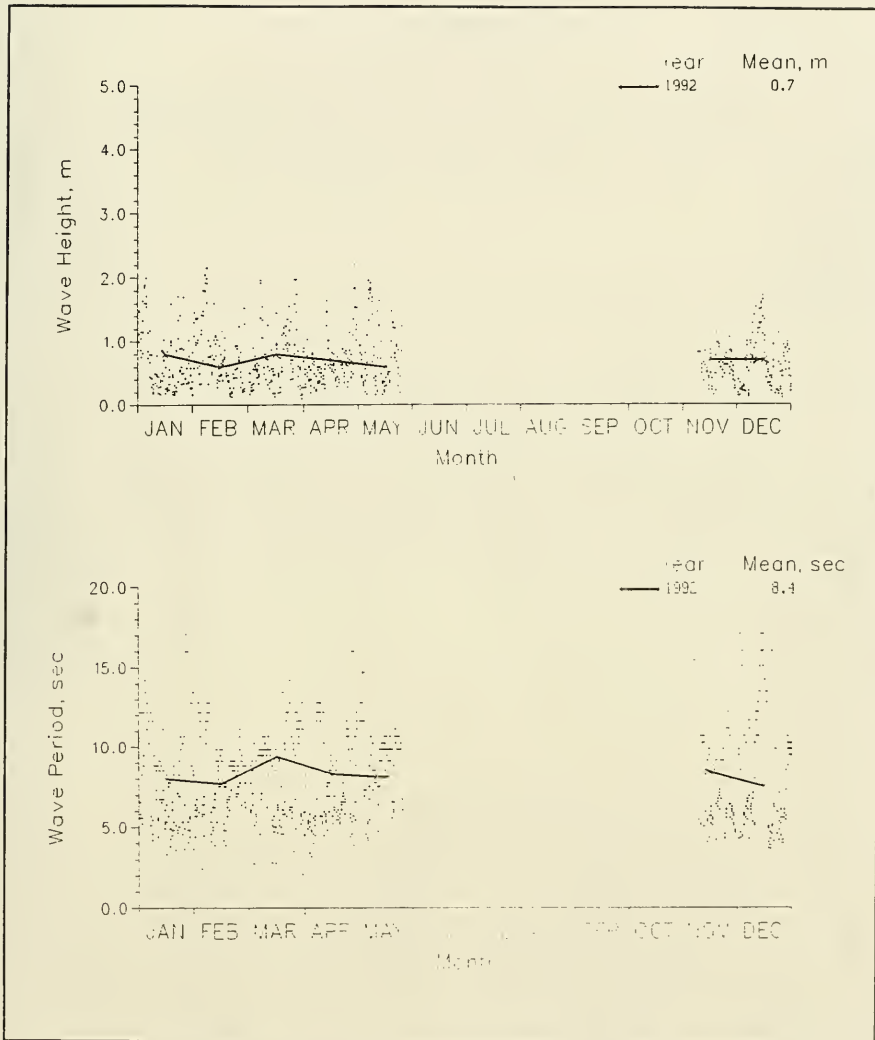


Figure E1. 1992 daily wave height and period values with monthly means for Gage 645

Table E1
Annual Joint Distribution of H_{mo} versus T_p

| | | Annual 1992, Gage 645 Percent Occurrence(X100) of Height and Period | | | | | | | | | | | | |
|----------------|-------------|--|-------------|-------------|-------------|-------------|-------------|-------------|---------------|---------------|---------------|-----------------|-------|--|
| Height(m) | Period(sec) | | | | | | | | | | | | Total | |
| | 2.0- 2.9 | 3.0- 3.9 | 4.0- 4.9 | 5.0- 5.9 | 6.0- 6.9 | 7.0- 7.9 | 8.0- 8.9 | 9.0- 9.9 | 10.0- 11.9 | 12.0- 13.9 | 14.0- 15.9 | 16.0- Longer | | |
| 0.00 - 0.49 | 78 | 105 | 444 | 641 | 183 | 261 | 562 | 641 | 497 | 26 | 261 | 39 | 3738 | |
| 0.50 - 0.99 | 39 | 92 | 510 | 1059 | 614 | 235 | 261 | 510 | 562 | 52 | 261 | . | 4195 | |
| 1.00 - 1.49 | . | 13 | 65 | 235 | 379 | 65 | 92 | 105 | 157 | 78 | 157 | 13 | 1359 | |
| 1.50 - 1.99 | . | . | . | 13 | 105 | 65 | 26 | 65 | 157 | 65 | 144 | 13 | 653 | |
| 2.00 - 2.49 | . | . | . | . | . | . | . | . | 26 | . | 26 | . | 52 | |
| 2.50 - 2.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 | |
| 3.00 - 3.49 | . | . | . | . | . | . | . | . | . | . | . | . | 0 | |
| 3.50 - 3.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 | |
| 4.00 - 4.49 | . | . | . | . | . | . | . | . | . | . | . | . | 0 | |
| 4.50 - 4.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 | |
| 5.00 - Greater | . | . | . | . | . | . | . | . | . | . | . | . | 0 | |
| Total | 117 | 210 | 1019 | 1948 | 1281 | 626 | 941 | 1321 | 1399 | 221 | 849 | 65 | | |

Table E2
Monthly Joint Distribution of H_{mo} versus T_p

| Height(m) | January 1992, Gage 645 | | | | | | | | | | | | Total |
|----------------|---|-------------|-------------|-------------|-------------|-------------|-------------|-------------|---------------|---------------|---------------|-----------------|-------|
| | Percent Occurrence(X100) of Height and Period | | | | | | | | | | | | |
| | Period(sec) | | | | | | | | | | | | |
| | 2.0- 2.9 | 3.0- 3.9 | 4.0- 4.9 | 5.0- 5.9 | 6.0- 6.9 | 7.0- 7.9 | 8.0- 8.9 | 9.0- 9.9 | 10.0- 11.9 | 12.0- 13.9 | 14.0- 15.9 | 16.0- Longer | |
| 0.00 - 0.49 | . | 250 | 583 | 750 | 333 | 417 | 1083 | 250 | 333 | 83 | 417 | 83 | 4582 |
| 0.50 - 0.99 | . | 167 | 667 | 833 | 250 | 83 | 333 | 83 | 417 | . | 167 | . | 3000 |
| 1.00 - 1.49 | . | . | 167 | 333 | 250 | . | 250 | 83 | 250 | . | 83 | . | 1416 |
| 1.50 - 1.99 | . | . | . | . | 167 | . | . | 83 | 83 | 333 | 250 | . | 916 |
| 2.00 - 2.49 | . | . | . | . | . | . | . | . | . | . | 83 | . | 83 |
| 2.50 - 2.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 3.00 - 3.49 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 3.50 - 3.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 4.00 - 4.49 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 4.50 - 4.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 5.00 - Greater | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| Total | 0 | 417 | 1417 | 1916 | 1000 | 500 | 1666 | 499 | 1083 | 416 | 1000 | 83 | 0 |

| Height(m) | February 1992, Gage 645 | | | | | | | | | | | | Total |
|----------------|---|-------------|-------------|-------------|-------------|-------------|-------------|-------------|---------------|---------------|---------------|-----------------|-------|
| | Percent Occurrence(X100) of Height and Period | | | | | | | | | | | | |
| | Period(sec) | | | | | | | | | | | | |
| | 2.0- 2.9 | 3.0- 3.9 | 4.0- 4.9 | 5.0- 5.9 | 6.0- 6.9 | 7.0- 7.9 | 8.0- 8.9 | 9.0- 9.9 | 10.0- 11.9 | 12.0- 13.9 | 14.0- 15.9 | 16.0- Longer | |
| 0.00 - 0.49 | 87 | . | . | 87 | 435 | 522 | 1304 | 783 | 87 | . | 174 | . | 3479 |
| 0.50 - 0.99 | . | 174 | 696 | 522 | 435 | 609 | 261 | 522 | 261 | . | 348 | . | 3828 |
| 1.00 - 1.49 | . | . | . | 435 | 696 | 174 | 87 | 87 | 87 | . | 174 | . | 1740 |
| 1.50 - 1.99 | . | . | . | . | 261 | . | . | . | 348 | . | 174 | . | 783 |
| 2.00 - 2.49 | . | . | . | . | . | . | . | . | 87 | . | 87 | . | 174 |
| 2.50 - 2.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 3.00 - 3.49 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 3.50 - 3.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 4.00 - 4.49 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 4.50 - 4.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 5.00 - Greater | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| Total | 87 | 174 | 696 | 1044 | 1827 | 1305 | 1652 | 1392 | 870 | 0 | 957 | 0 | 0 |

| Height(m) | March 1992, Gage 645 | | | | | | | | | | | | Total |
|----------------|---|-------------|-------------|-------------|-------------|-------------|-------------|-------------|---------------|---------------|---------------|-----------------|-------|
| | Percent Occurrence(X100) of Height and Period | | | | | | | | | | | | |
| | Period(sec) | | | | | | | | | | | | |
| | 2.0- 2.9 | 3.0- 3.9 | 4.0- 4.9 | 5.0- 5.9 | 6.0- 6.9 | 7.0- 7.9 | 8.0- 8.9 | 9.0- 9.9 | 10.0- 11.9 | 12.0- 13.9 | 14.0- 15.9 | 16.0- Longer | |
| 0.00 - 0.49 | 242 | . | 161 | 484 | 81 | 323 | 323 | 1048 | 645 | . | 81 | . | 3388 |
| 0.50 - 0.99 | 81 | 81 | 403 | 1290 | 565 | 81 | . | 1129 | 484 | 81 | 323 | . | 4518 |
| 1.00 - 1.49 | . | . | 81 | 161 | 323 | . | 81 | 242 | 242 | 81 | 242 | . | 1453 |
| 1.50 - 1.99 | . | . | . | . | 81 | 81 | . | 161 | 242 | . | 81 | . | 646 |
| 2.00 - 2.49 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 2.50 - 2.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 3.00 - 3.49 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 3.50 - 3.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 4.00 - 4.49 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 4.50 - 4.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 5.00 - Greater | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| Total | 323 | 81 | 645 | 1935 | 1050 | 485 | 404 | 2580 | 1613 | 162 | 727 | 0 | 0 |

(Continued)

(Sheet 1 of 4)

Table E2 (Continued)

April 1992, Gage 645
Percent Occurrence(X100) of Height and Period

| Height(m) | Period(sec) | | | | | | | | | | | Total | |
|----------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|---------------|---------------|---------------|-------|-----------------|
| | 2.0- 2.9 | 3.0- 3.9 | 4.0- 4.9 | 5.0- 5.9 | 6.0- 6.9 | 7.0- 7.9 | 8.0- 8.9 | 9.0- 9.9 | 10.0- 11.9 | 12.0- 13.9 | 14.0- 15.9 | | 16.0- Longer |
| 0.00 - 0.49 | . | 167 | 250 | 1333 | 167 | 83 | 250 | 83 | 250 | . | 750 | . | 3333 |
| 0.50 - 0.99 | 83 | . | 417 | 1667 | 1000 | 167 | 500 | 500 | 500 | . | 333 | . | 5167 |
| 1.00 - 1.49 | . | 83 | 167 | 167 | 167 | 167 | . | . | 167 | . | 83 | . | 1001 |
| 1.50 - 1.99 | . | . | . | 83 | 83 | 83 | 83 | . | 83 | . | . | . | 415 |
| 2.00 - 2.49 | . | . | . | . | . | . | . | . | 83 | . | . | . | 83 |
| 2.50 - 2.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 3.00 - 3.49 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 3.50 - 3.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 4.00 - 4.49 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 4.50 - 4.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 5.00 - Greater | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| Total | 83 | 250 | 834 | 3250 | 1417 | 500 | 833 | 583 | 1083 | 0 | 1166 | 0 | |

May 1992, Gage 645
Percent Occurrence(X100) of Height and Period

| Height(m) | Period(sec) | | | | | | | | | | | Total | |
|----------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|---------------|---------------|---------------|-------|-----------------|
| | 2.0- 2.9 | 3.0- 3.9 | 4.0- 4.9 | 5.0- 5.9 | 6.0- 6.9 | 7.0- 7.9 | 8.0- 8.9 | 9.0- 9.9 | 10.0- 11.9 | 12.0- 13.9 | 14.0- 15.9 | | 16.0- Longer |
| 0.00 - 0.49 | 211 | . | 211 | 105 | 105 | 421 | 526 | 1368 | 1158 | . | . | . | 4105 |
| 0.50 - 0.99 | 105 | 105 | 421 | . | . | 211 | 211 | 632 | 1053 | . | 316 | . | 3054 |
| 1.00 - 1.49 | . | . | . | 421 | 632 | 211 | 316 | 211 | 211 | . | . | . | 1791 |
| 1.50 - 1.99 | . | . | . | . | 105 | 316 | 105 | 211 | 316 | . | . | . | 1053 |
| 2.00 - 2.49 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 2.50 - 2.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 3.00 - 3.49 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 3.50 - 3.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 4.00 - 4.49 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 4.50 - 4.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 5.00 - Greater | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| Total | 316 | 105 | 632 | 526 | 842 | 948 | 1053 | 2527 | 2738 | 0 | 316 | 0 | |

June 1992, Gage 645
Percent Occurrence(X100) of Height and Period

| Height(m) | Period(sec) | | | | | | | | | | | Total | |
|----------------|-------------|-------------|-------------|-------------|-------------|------------------|-------------|-------------|---------------|---------------|---------------|-------|-----------------|
| | 2.0- 2.9 | 3.0- 3.9 | 4.0- 4.9 | 5.0- 5.9 | 6.0- 6.9 | 7.0- 7.9 | 8.0- 8.9 | 9.0- 9.9 | 10.0- 11.9 | 12.0- 13.9 | 14.0- 15.9 | | 16.0- Longer |
| 0.00 - 0.49 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 0.50 - 0.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 1.00 - 1.49 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 1.50 - 1.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 2.00 - 2.49 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 2.50 - 2.99 | . | . | . | . | . | Gage inoperative | . | . | . | . | . | . | 0 |
| 3.00 - 3.49 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 3.50 - 3.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 4.00 - 4.49 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 4.50 - 4.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 5.00 - Greater | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| Total | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |

(Continued)

(Sheet 2 of 4)

Table E2 (Continued)

July 1992, Gage 645
Percent Occurrence(X100) of Height and Period

| Height(m) | Period(sec) | | | | | | | | | | | | Total |
|----------------|-------------|------|------|------|------|------------------|------|------|-------|-------|-------|--------|-------|
| | 2.0- | 3.0- | 4.0- | 5.0- | 6.0- | 7.0- | 8.0- | 9.0- | 10.0- | 12.0- | 14.0- | 16.0- | |
| | 2.9 | 3.9 | 4.9 | 5.9 | 6.9 | 7.9 | 8.9 | 9.9 | 11.9 | 13.9 | 15.9 | Longer | |
| 0.00 - 0.49 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 0.50 - 0.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 1.00 - 1.49 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 1.50 - 1.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 2.00 - 2.49 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 2.50 - 2.99 | . | . | . | . | . | Gage Inoperative | | . | . | . | . | . | 0 |
| 3.00 - 3.49 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 3.50 - 3.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 4.00 - 4.49 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 4.50 - 4.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 5.00 - Greater | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| Total | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

August 1992, Gage 645
Percent Occurrence(X100) of Height and Period

| Height(m) | Period(sec) | | | | | | | | | | | | Total |
|----------------|-------------|------|------|------|------|------------------|------|------|-------|-------|-------|--------|-------|
| | 2.0- | 3.0- | 4.0- | 5.0- | 6.0- | 7.0- | 8.0- | 9.0- | 10.0- | 12.0- | 14.0- | 16.0- | |
| | 2.9 | 3.9 | 4.9 | 5.9 | 6.9 | 7.9 | 8.9 | 9.9 | 11.9 | 13.9 | 15.9 | Longer | |
| 0.00 - 0.49 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 0.50 - 0.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 1.00 - 1.49 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 1.50 - 1.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 2.00 - 2.49 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 2.50 - 2.99 | . | . | . | . | . | Gage Inoperative | | . | . | . | . | . | 0 |
| 3.00 - 3.49 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 3.50 - 3.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 4.00 - 4.49 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 4.50 - 4.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 5.00 - Greater | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| Total | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

September 1992, Gage 645
Percent Occurrence(X100) of Height and Period

| Height(m) | Period(sec) | | | | | | | | | | | | Total |
|----------------|-------------|------|------|------|------|------------------|------|------|-------|-------|-------|--------|-------|
| | 2.0- | 3.0- | 4.0- | 5.0- | 6.0- | 7.0- | 8.0- | 9.0- | 10.0- | 12.0- | 14.0- | 16.0- | |
| | 2.9 | 3.9 | 4.9 | 5.9 | 6.9 | 7.9 | 8.9 | 9.9 | 11.9 | 13.9 | 15.9 | Longer | |
| 0.00 - 0.49 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 0.50 - 0.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 1.00 - 1.49 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 1.50 - 1.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 2.00 - 2.49 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 2.50 - 2.99 | . | . | . | . | . | Gage Inoperative | | . | . | . | . | . | 0 |
| 3.00 - 3.49 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 3.50 - 3.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 4.00 - 4.49 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 4.50 - 4.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 5.00 - Greater | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| Total | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

(Continued)

(Sheet 3 of 4)

Table E2 (Concluded)

| October 1992, Gage 645 | | | | | | | | | | | | | Total |
|---|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|---------------|---------------|---------------|-----------------|-------|
| Percent Occurrence(X100) of Height and Period | | | | | | | | | | | | | |
| Height(m) | Period(sec) | | | | | | | | | | | | |
| | 2.0- 2.9 | 3.0- 3.9 | 4.0- 4.9 | 5.0- 5.9 | 6.0- 6.9 | 7.0- 7.9 | 8.0- 8.9 | 9.0- 9.9 | 10.0- 11.9 | 12.0- 13.9 | 14.0- 15.9 | 16.0- Longer | |
| 0.00 - 0.49 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 0.50 - 0.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 1.00 - 1.49 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 1.50 - 1.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 2.00 - 2.49 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 2.50 - 2.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 3.00 - 3.49 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 3.50 - 3.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 4.00 - 4.49 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 4.50 - 4.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 5.00 - Greater | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| Total | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| November 1992, Gage 645 | | | | | | | | | | | | | Total |
|---|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|---------------|---------------|---------------|-----------------|-------|
| Percent Occurrence(X100) of Height and Period | | | | | | | | | | | | | |
| Height(m) | Period(sec) | | | | | | | | | | | | |
| | 2.0- 2.9 | 3.0- 3.9 | 4.0- 4.9 | 5.0- 5.9 | 6.0- 6.9 | 7.0- 7.9 | 8.0- 8.9 | 9.0- 9.9 | 10.0- 11.9 | 12.0- 13.9 | 14.0- 15.9 | 16.0- Longer | |
| 0.00 - 0.49 | . | 132 | 921 | 921 | . | . | 263 | 526 | 658 | . | . | . | 3421 |
| 0.50 - 0.99 | . | . | 526 | 2105 | 1447 | 395 | 263 | 395 | 789 | . | 263 | . | 6183 |
| 1.00 - 1.49 | . | . | . | . | 395 | . | . | . | . | . | . | . | 395 |
| 1.50 - 1.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 2.00 - 2.49 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 2.50 - 2.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 3.00 - 3.49 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 3.50 - 3.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 4.00 - 4.49 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 4.50 - 4.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 5.00 - Greater | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| Total | 0 | 132 | 1447 | 3026 | 1842 | 395 | 526 | 921 | 1447 | 0 | 263 | 0 | 0 |

| December 1992, Gage 645 | | | | | | | | | | | | | Total |
|---|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|---------------|---------------|---------------|-----------------|-------|
| Percent Occurrence(X100) of Height and Period | | | | | | | | | | | | | |
| Height(m) | Period(sec) | | | | | | | | | | | | |
| | 2.0- 2.9 | 3.0- 3.9 | 4.0- 4.9 | 5.0- 5.9 | 6.0- 6.9 | 7.0- 7.9 | 8.0- 8.9 | 9.0- 9.9 | 10.0- 11.9 | 12.0- 13.9 | 14.0- 15.9 | 16.0- Longer | |
| 0.00 - 0.49 | . | 174 | 1130 | 783 | 87 | . | 87 | 522 | 522 | 87 | 261 | 174 | 3827 |
| 0.50 - 0.99 | . | 87 | 435 | 1130 | 783 | 174 | 261 | 261 | 609 | 261 | 87 | . | 4088 |
| 1.00 - 1.49 | . | . | . | 87 | 261 | 87 | . | . | 87 | 435 | 435 | 87 | 1479 |
| 1.50 - 1.99 | . | . | . | . | . | . | . | . | . | 87 | 435 | 87 | 609 |
| 2.00 - 2.49 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 2.50 - 2.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 3.00 - 3.49 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 3.50 - 3.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 4.00 - 4.49 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 4.50 - 4.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 5.00 - Greater | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| Total | 0 | 261 | 1565 | 2000 | 1131 | 261 | 348 | 783 | 1218 | 870 | 1218 | 348 | 0 |

Table E3
Annual Joint Distribution of H_{mo} versus T_p (All Years)

| Height(m) | Annual 1980-1992, Gage 645 | | | | | | | | | | | | Total |
|----------------|---|-------------|-------------|-------------|-------------|-------------|-------------|-------------|---------------|---------------|---------------|-----------------|-------|
| | Percent Occurrence(X100) of Height and Period | | | | | | | | | | | | |
| | Period(sec) | | | | | | | | | | | | |
| | 2.0- 2.9 | 3.0- 3.9 | 4.0- 4.9 | 5.0- 5.9 | 6.0- 6.9 | 7.0- 7.9 | 8.0- 8.9 | 9.0- 9.9 | 10.0- 11.9 | 12.0- 13.9 | 14.0- 15.9 | 16.0- Longer | |
| 0.00 - 0.49 | 74 | 129 | 264 | 435 | 281 | 293 | 564 | 627 | 695 | 309 | 409 | 78 | 4158 |
| 0.50 - 0.99 | 23 | 178 | 466 | 931 | 619 | 294 | 312 | 318 | 497 | 126 | 244 | 23 | 4031 |
| 1.00 - 1.49 | . | 2 | 57 | 328 | 354 | 161 | 111 | 88 | 173 | 82 | 133 | 6 | 1495 |
| 1.50 - 1.99 | . | . | . | 10 | 48 | 32 | 21 | 33 | 60 | 30 | 56 | 6 | 296 |
| 2.00 - 2.49 | . | . | . | . | 1 | 2 | 1 | 1 | 5 | 4 | 5 | . | 19 |
| 2.50 - 2.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 3.00 - 3.49 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 3.50 - 3.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 4.00 - 4.49 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 4.50 - 4.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 5.00 - Greater | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| Total | 97 | 309 | 787 | 1704 | 1303 | 782 | 1009 | 1067 | 1430 | 551 | 847 | 113 | |

Table E4
Monthly Joint Distribution of H_{mo} versus T_p (All Years)

January 1980-1992, Gage 645
 Percent Occurrence(X100) of Height and Period

| Height(m) | Period(sec) | | | | | | | | | | | | Total |
|----------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|---------------|---------------|---------------|-----------------|-------|
| | 2.0- 2.9 | 3.0- 3.9 | 4.0- 4.9 | 5.0- 5.9 | 6.0- 6.9 | 7.0- 7.9 | 8.0- 8.9 | 9.0- 9.9 | 10.0- 11.9 | 12.0- 13.9 | 14.0- 15.9 | 16.0- Longer | |
| 0.00 - 0.49 | 79 | 121 | 307 | 407 | 228 | 200 | 357 | 642 | 678 | 228 | 286 | 86 | 3619 |
| 0.50 - 0.99 | 29 | 200 | 435 | 999 | 671 | 207 | 243 | 293 | 542 | 79 | 214 | 14 | 3926 |
| 1.00 - 1.49 | . | . | 107 | 600 | 557 | 250 | 207 | 71 | 236 | 29 | 136 | . | 2193 |
| 1.50 - 1.99 | . | . | . | 7 | 21 | 14 | 14 | 21 | 79 | 43 | 50 | . | 249 |
| 2.00 - 2.49 | . | . | . | . | . | . | . | . | . | 7 | 7 | . | 14 |
| 2.50 - 2.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 3.00 - 3.49 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 3.50 - 3.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 4.00 - 4.49 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 4.50 - 4.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 5.00 - Greater | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| Total | 108 | 321 | 849 | 2013 | 1477 | 671 | 821 | 1027 | 1535 | 386 | 693 | 100 | 0 |

February 1980-1992, Gage 645
 Percent Occurrence(X100) of Height and Period

| Height(m) | Period(sec) | | | | | | | | | | | | Total |
|----------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|---------------|---------------|---------------|-----------------|-------|
| | 2.0- 2.9 | 3.0- 3.9 | 4.0- 4.9 | 5.0- 5.9 | 6.0- 6.9 | 7.0- 7.9 | 8.0- 8.9 | 9.0- 9.9 | 10.0- 11.9 | 12.0- 13.9 | 14.0- 15.9 | 16.0- Longer | |
| 0.00 - 0.49 | 119 | 97 | 224 | 350 | 164 | 194 | 380 | 373 | 656 | 127 | 380 | 7 | 3071 |
| 0.50 - 0.99 | 45 | 179 | 470 | 955 | 544 | 254 | 231 | 336 | 649 | 119 | 268 | . | 4050 |
| 1.00 - 1.49 | . | . | 52 | 567 | 641 | 254 | 119 | 119 | 276 | 164 | 186 | . | 2378 |
| 1.50 - 1.99 | . | . | . | 15 | 97 | 60 | 37 | 30 | 52 | 45 | 134 | . | 470 |
| 2.00 - 2.49 | . | . | . | . | 7 | . | . | . | 7 | 7 | 7 | . | 28 |
| 2.50 - 2.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 3.00 - 3.49 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 3.50 - 3.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 4.00 - 4.49 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 4.50 - 4.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 5.00 - Greater | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| Total | 164 | 276 | 746 | 1887 | 1453 | 762 | 767 | 858 | 1640 | 462 | 975 | 7 | 0 |

March 1980-1992, Gage 645
 Percent Occurrence(X100) of Height and Period

| Height(m) | Period(sec) | | | | | | | | | | | | Total |
|----------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|---------------|---------------|---------------|-----------------|-------|
| | 2.0- 2.9 | 3.0- 3.9 | 4.0- 4.9 | 5.0- 5.9 | 6.0- 6.9 | 7.0- 7.9 | 8.0- 8.9 | 9.0- 9.9 | 10.0- 11.9 | 12.0- 13.9 | 14.0- 15.9 | 16.0- Longer | |
| 0.00 - 0.49 | 135 | 88 | 209 | 351 | 175 | 121 | 337 | 412 | 506 | 169 | 371 | . | 2874 |
| 0.50 - 0.99 | 47 | 196 | 459 | 1026 | 553 | 270 | 277 | 412 | 668 | 189 | 385 | 7 | 4489 |
| 1.00 - 1.49 | . | 7 | 108 | 378 | 398 | 162 | 135 | 108 | 250 | 155 | 263 | . | 1964 |
| 1.50 - 1.99 | . | . | . | 13 | 61 | 47 | 40 | 94 | 169 | 88 | 115 | . | 627 |
| 2.00 - 2.49 | . | . | . | . | 7 | 7 | 7 | . | . | 13 | 13 | . | 47 |
| 2.50 - 2.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 3.00 - 3.49 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 3.50 - 3.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 4.00 - 4.49 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 4.50 - 4.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 5.00 - Greater | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| Total | 182 | 291 | 776 | 1768 | 1194 | 607 | 796 | 1026 | 1593 | 614 | 1147 | 7 | 0 |

(Continued)

(Sheet 1 of 4)

Table E4 (Continued)

April 1980-1992, Gage 645
Percent Occurrence(X100) of Height and Period

| Height(m) | Period(sec) | | | | | | | | | | | | | Total |
|----------------|-------------|------|------|------|------|------|------|------|-------|-------|-------|--------|------|-------|
| | 2.0- | 3.0- | 4.0- | 5.0- | 6.0- | 7.0- | 8.0- | 9.0- | 10.0- | 12.0- | 14.0- | 16.0- | | |
| | 2.9 | 3.9 | 4.9 | 5.9 | 6.9 | 7.9 | 8.9 | 9.9 | 11.9 | 13.9 | 15.9 | Longer | | |
| 0.00 - 0.49 | 51 | 152 | 253 | 426 | 282 | 275 | 455 | 578 | 788 | 347 | 455 | 22 | 4084 | |
| 0.50 - 0.99 | 29 | 246 | 441 | 838 | 542 | 282 | 405 | 340 | 658 | 101 | 354 | 7 | 4243 | |
| 1.00 - 1.49 | . | 7 | 51 | 246 | 275 | 116 | 116 | 123 | 210 | 58 | 137 | . | 1339 | |
| 1.50 - 1.99 | . | . | . | 14 | 51 | 29 | 58 | 29 | 79 | 22 | 22 | . | 304 | |
| 2.00 - 2.49 | . | . | . | . | . | . | . | 14 | 22 | . | . | . | 36 | |
| 2.50 - 2.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 | |
| 3.00 - 3.49 | . | . | . | . | . | . | . | . | . | . | . | . | 0 | |
| 3.50 - 3.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 | |
| 4.00 - 4.49 | . | . | . | . | . | . | . | . | . | . | . | . | 0 | |
| 4.50 - 4.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 | |
| 5.00 - Greater | . | . | . | . | . | . | . | . | . | . | . | . | 0 | |
| Total | 80 | 405 | 745 | 1524 | 1150 | 702 | 1034 | 1084 | 1757 | 528 | 968 | 29 | | |

May 1980-1992, Gage 645
Percent Occurrence(X100) of Height and Period

| Height(m) | Period(sec) | | | | | | | | | | | | | Total |
|----------------|-------------|------|------|------|------|------|------|------|-------|-------|-------|--------|------|-------|
| | 2.0- | 3.0- | 4.0- | 5.0- | 6.0- | 7.0- | 8.0- | 9.0- | 10.0- | 12.0- | 14.0- | 16.0- | | |
| | 2.9 | 3.9 | 4.9 | 5.9 | 6.9 | 7.9 | 8.9 | 9.9 | 11.9 | 13.9 | 15.9 | Longer | | |
| 0.00 - 0.49 | 98 | 167 | 279 | 482 | 279 | 412 | 684 | 677 | 886 | 314 | 502 | 49 | 4829 | |
| 0.50 - 0.99 | 21 | 181 | 579 | 851 | 670 | 363 | 349 | 300 | 461 | 84 | 161 | 21 | 4041 | |
| 1.00 - 1.49 | . | . | 42 | 188 | 161 | 42 | 91 | 112 | 154 | 42 | 91 | . | 923 | |
| 1.50 - 1.99 | . | . | . | 21 | 63 | 28 | 7 | 21 | 35 | 14 | 14 | . | 203 | |
| 2.00 - 2.49 | . | . | . | . | . | . | 7 | . | . | . | . | . | 7 | |
| 2.50 - 2.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 | |
| 3.00 - 3.49 | . | . | . | . | . | . | . | . | . | . | . | . | 0 | |
| 3.50 - 3.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 | |
| 4.00 - 4.49 | . | . | . | . | . | . | . | . | . | . | . | . | 0 | |
| 4.50 - 4.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 | |
| 5.00 - Greater | . | . | . | . | . | . | . | . | . | . | . | . | 0 | |
| Total | 119 | 348 | 900 | 1542 | 1173 | 845 | 1138 | 1110 | 1536 | 454 | 768 | 70 | | |

June 1980-1992, Gage 645
Percent Occurrence(X100) of Height and Period

| Height(m) | Period(sec) | | | | | | | | | | | | | Total |
|----------------|-------------|------|------|------|------|------|------|------|-------|-------|-------|--------|------|-------|
| | 2.0- | 3.0- | 4.0- | 5.0- | 6.0- | 7.0- | 8.0- | 9.0- | 10.0- | 12.0- | 14.0- | 16.0- | | |
| | 2.9 | 3.9 | 4.9 | 5.9 | 6.9 | 7.9 | 8.9 | 9.9 | 11.9 | 13.9 | 15.9 | Longer | | |
| 0.00 - 0.49 | 109 | 233 | 365 | 807 | 543 | 567 | 1110 | 1056 | 606 | 380 | 217 | 124 | 6117 | |
| 0.50 - 0.99 | 23 | 163 | 365 | 784 | 411 | 256 | 349 | 326 | 342 | 54 | 47 | 23 | 3143 | |
| 1.00 - 1.49 | . | . | 39 | 155 | 163 | 54 | 62 | 39 | 132 | . | 54 | . | 698 | |
| 1.50 - 1.99 | . | . | . | . | 23 | 8 | 8 | . | . | . | . | . | 39 | |
| 2.00 - 2.49 | . | . | . | . | . | . | . | . | . | . | . | . | 0 | |
| 2.50 - 2.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 | |
| 3.00 - 3.49 | . | . | . | . | . | . | . | . | . | . | . | . | 0 | |
| 3.50 - 3.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 | |
| 4.00 - 4.49 | . | . | . | . | . | . | . | . | . | . | . | . | 0 | |
| 4.50 - 4.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 | |
| 5.00 - Greater | . | . | . | . | . | . | . | . | . | . | . | . | 0 | |
| Total | 132 | 396 | 769 | 1746 | 1140 | 885 | 1529 | 1421 | 1080 | 434 | 318 | 147 | | |

(Continued)

(Sheet 2 of 4)

Table E4 (Continued)

July 1980-1992, Gage 645
Percent Occurrence(X100) of Height and Period

| Height (m) | Period(sec) | | | | | | | | | | | | | Total |
|----------------|-------------|------|------|------|------|------|------|------|-------|-------|-------|--------|------|-------|
| | 2.0- | 3.0- | 4.0- | 5.0- | 6.0- | 7.0- | 8.0- | 9.0- | 10.0- | 12.0- | 14.0- | 16.0- | | |
| | 2.9 | 3.9 | 4.9 | 5.9 | 6.9 | 7.9 | 8.9 | 9.9 | 11.9 | 13.9 | 15.9 | Longer | | |
| 0.00 - 0.49 | 53 | 197 | 439 | 659 | 522 | 568 | 1408 | 1143 | 810 | 416 | 522 | 159 | 6896 | |
| 0.50 - 0.99 | . | 151 | 401 | 704 | 500 | 257 | 295 | 189 | 159 | 76 | 53 | 45 | 2830 | |
| 1.00 - 1.49 | . | . | 8 | 136 | 38 | 15 | 23 | . | 38 | . | 8 | . | 266 | |
| 1.50 - 1.99 | . | . | . | . | 8 | . | . | . | . | . | . | . | 8 | |
| 2.00 - 2.49 | . | . | . | . | . | . | . | . | . | . | . | . | 0 | |
| 2.50 - 2.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 | |
| 3.00 - 3.49 | . | . | . | . | . | . | . | . | . | . | . | . | 0 | |
| 3.50 - 3.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 | |
| 4.00 - 4.49 | . | . | . | . | . | . | . | . | . | . | . | . | 0 | |
| 4.50 - 4.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 | |
| 5.00 - Greater | . | . | . | . | . | . | . | . | . | . | . | . | 0 | |
| Total | 53 | 348 | 848 | 1499 | 1068 | 840 | 1726 | 1332 | 1007 | 492 | 583 | 204 | 0 | |

August 1980-1992, Gage 645
Percent Occurrence(X100) of Height and Period

| Height (m) | Period(sec) | | | | | | | | | | | | | Total |
|----------------|-------------|------|------|------|------|------|------|------|-------|-------|-------|--------|------|-------|
| | 2.0- | 3.0- | 4.0- | 5.0- | 6.0- | 7.0- | 8.0- | 9.0- | 10.0- | 12.0- | 14.0- | 16.0- | | |
| | 2.9 | 3.9 | 4.9 | 5.9 | 6.9 | 7.9 | 8.9 | 9.9 | 11.9 | 13.9 | 15.9 | Longer | | |
| 0.00 - 0.49 | 52 | 155 | 237 | 533 | 570 | 473 | 814 | 1065 | 1043 | 370 | 518 | 59 | 5889 | |
| 0.50 - 0.99 | 7 | 192 | 518 | 858 | 518 | 318 | 333 | 237 | 259 | 30 | 111 | . | 3381 | |
| 1.00 - 1.49 | . | . | 30 | 163 | 170 | 74 | 59 | 15 | 37 | 37 | 67 | . | 652 | |
| 1.50 - 1.99 | . | . | . | . | 15 | 22 | 7 | . | 22 | 15 | . | . | 81 | |
| 2.00 - 2.49 | . | . | . | . | . | . | . | . | . | . | . | . | 0 | |
| 2.50 - 2.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 | |
| 3.00 - 3.49 | . | . | . | . | . | . | . | . | . | . | . | . | 0 | |
| 3.50 - 3.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 | |
| 4.00 - 4.49 | . | . | . | . | . | . | . | . | . | . | . | . | 0 | |
| 4.50 - 4.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 | |
| 5.00 - Greater | . | . | . | . | . | . | . | . | . | . | . | . | 0 | |
| Total | 59 | 347 | 785 | 1554 | 1273 | 887 | 1213 | 1317 | 1361 | 452 | 696 | 59 | 0 | |

September 1980-1992, Gage 645
Percent Occurrence(X100) of Height and Period

| Height (m) | Period(sec) | | | | | | | | | | | | | Total |
|----------------|-------------|------|------|------|------|------|------|------|-------|-------|-------|--------|------|-------|
| | 2.0- | 3.0- | 4.0- | 5.0- | 6.0- | 7.0- | 8.0- | 9.0- | 10.0- | 12.0- | 14.0- | 16.0- | | |
| | 2.9 | 3.9 | 4.9 | 5.9 | 6.9 | 7.9 | 8.9 | 9.9 | 11.9 | 13.9 | 15.9 | Longer | | |
| 0.00 - 0.49 | 62 | 46 | 147 | 279 | 147 | 325 | 433 | 511 | 642 | 325 | 426 | 54 | 3397 | |
| 0.50 - 0.99 | 39 | 193 | 449 | 759 | 557 | 433 | 441 | 433 | 534 | 255 | 488 | 15 | 4596 | |
| 1.00 - 1.49 | . | . | 46 | 457 | 348 | 217 | 155 | 124 | 147 | 85 | 139 | 15 | 1733 | |
| 1.50 - 1.99 | . | . | . | 15 | 46 | 62 | 15 | 8 | 15 | 23 | 54 | 8 | 246 | |
| 2.00 - 2.49 | . | . | . | . | . | . | . | . | . | 8 | 15 | . | 23 | |
| 2.50 - 2.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 | |
| 3.00 - 3.49 | . | . | . | . | . | . | . | . | . | . | . | . | 0 | |
| 3.50 - 3.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 | |
| 4.00 - 4.49 | . | . | . | . | . | . | . | . | . | . | . | . | 0 | |
| 4.50 - 4.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 | |
| 5.00 - Greater | . | . | . | . | . | . | . | . | . | . | . | . | 0 | |
| Total | 101 | 239 | 642 | 1510 | 1098 | 1037 | 1044 | 1076 | 1338 | 696 | 1122 | 92 | 0 | |

(Continued)

(Sheet 3 of 4)

Table E4 (Concluded)

October 1980-1992, Gage 645
Percent Occurrence(X100) of Height and Period

| Height(m) | Period(sec) | | | | | | | | | | | | Total |
|----------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|---------------|---------------|---------------|-----------------|-------|
| | 2.0- 2.9 | 3.0- 3.9 | 4.0- 4.9 | 5.0- 5.9 | 6.0- 6.9 | 7.0- 7.9 | 8.0- 8.9 | 9.0- 9.9 | 10.0- 11.9 | 12.0- 13.9 | 14.0- 15.9 | 16.0- Longer | |
| 0.00 - 0.49 | 30 | 75 | 113 | 174 | 158 | 121 | 302 | 325 | 574 | 279 | 377 | 60 | 2588 |
| 0.50 - 0.99 | 8 | 91 | 423 | 853 | 664 | 226 | 385 | 453 | 853 | 204 | 302 | 38 | 4500 |
| 1.00 - 1.49 | . | . | 45 | 408 | 430 | 279 | 181 | 166 | 347 | 196 | 196 | 23 | 2271 |
| 1.50 - 1.99 | . | . | . | 15 | 68 | 60 | 30 | 68 | 136 | 60 | 91 | 53 | 581 |
| 2.00 - 2.49 | . | . | . | . | . | 8 | . | . | 23 | 15 | 15 | . | 61 |
| 2.50 - 2.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 3.00 - 3.49 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 3.50 - 3.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 4.00 - 4.49 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 4.50 - 4.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 5.00 - Greater | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| Total | 38 | 166 | 581 | 1450 | 1320 | 694 | 898 | 1012 | 1933 | 754 | 981 | 174 | |

November 1980-1992, Gage 645
Percent Occurrence(X100) of Height and Period

| Height(m) | Period(sec) | | | | | | | | | | | | Total |
|----------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|---------------|---------------|---------------|-----------------|-------|
| | 2.0- 2.9 | 3.0- 3.9 | 4.0- 4.9 | 5.0- 5.9 | 6.0- 6.9 | 7.0- 7.9 | 8.0- 8.9 | 9.0- 9.9 | 10.0- 11.9 | 12.0- 13.9 | 14.0- 15.9 | 16.0- Longer | |
| 0.00 - 0.49 | 23 | 60 | 265 | 385 | 159 | 174 | 378 | 302 | 484 | 333 | 370 | 151 | 3084 |
| 0.50 - 0.99 | 15 | 144 | 567 | 1187 | 839 | 423 | 257 | 280 | 431 | 219 | 234 | 53 | 4649 |
| 1.00 - 1.49 | . | 8 | 45 | 295 | 552 | 280 | 106 | 76 | 121 | 159 | 159 | 30 | 1831 |
| 1.50 - 1.99 | . | . | . | 15 | 68 | 38 | 15 | 91 | 91 | 30 | 83 | . | 431 |
| 2.00 - 2.49 | . | . | . | . | . | . | . | . | 8 | . | . | . | 8 |
| 2.50 - 2.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 3.00 - 3.49 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 3.50 - 3.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 4.00 - 4.49 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 4.50 - 4.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 5.00 - Greater | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| Total | 38 | 212 | 877 | 1882 | 1618 | 915 | 756 | 749 | 1135 | 741 | 846 | 234 | |

December 1980-1992, Gage 645
Percent Occurrence(X100) of Height and Period

| Height(m) | Period(sec) | | | | | | | | | | | | Total |
|----------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|---------------|---------------|---------------|-----------------|-------|
| | 2.0- 2.9 | 3.0- 3.9 | 4.0- 4.9 | 5.0- 5.9 | 6.0- 6.9 | 7.0- 7.9 | 8.0- 8.9 | 9.0- 9.9 | 10.0- 11.9 | 12.0- 13.9 | 14.0- 15.9 | 16.0- Longer | |
| 0.00 - 0.49 | 71 | 150 | 336 | 386 | 171 | 121 | 171 | 479 | 657 | 436 | 471 | 171 | 3620 |
| 0.50 - 0.99 | 14 | 193 | 479 | 1329 | 936 | 250 | 193 | 221 | 386 | 107 | 293 | 50 | 4451 |
| 1.00 - 1.49 | . | . | 100 | 336 | 507 | 193 | 71 | 100 | 121 | 57 | 150 | 7 | 1642 |
| 1.50 - 1.99 | . | . | . | 7 | 50 | 14 | 21 | 29 | 29 | 14 | 100 | 7 | 271 |
| 2.00 - 2.49 | . | . | . | . | . | 14 | . | . | . | . | . | . | 14 |
| 2.50 - 2.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 3.00 - 3.49 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 3.50 - 3.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 4.00 - 4.49 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 4.50 - 4.99 | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| 5.00 - Greater | . | . | . | . | . | . | . | . | . | . | . | . | 0 |
| Total | 85 | 343 | 915 | 2058 | 1664 | 592 | 456 | 829 | 1193 | 614 | 1014 | 235 | |

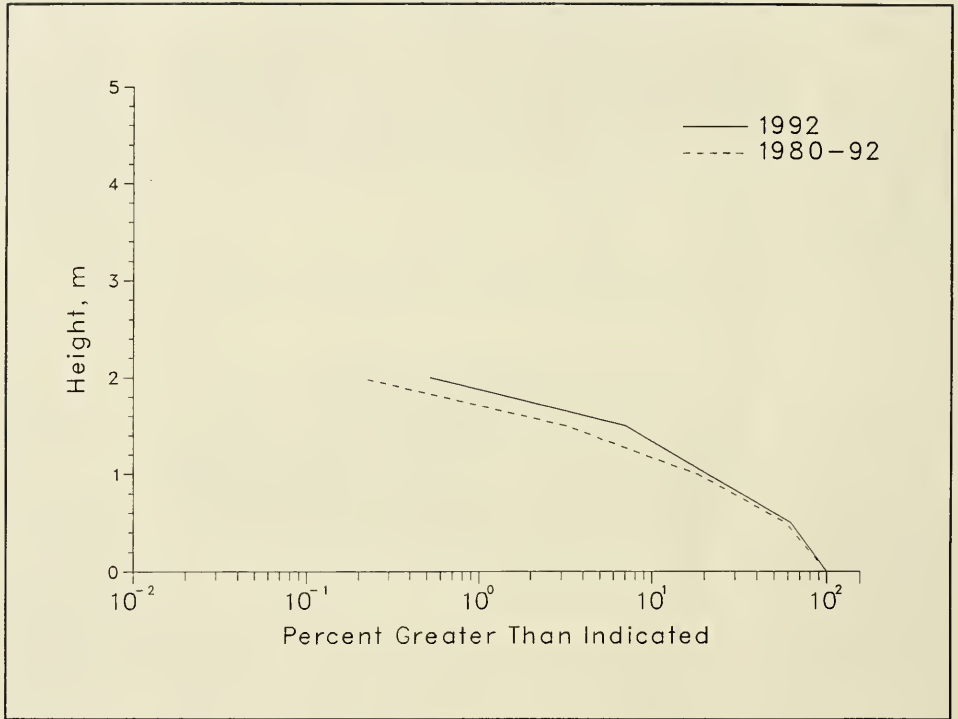


Figure E2. Annual cumulative wave height distributions for Gage 645

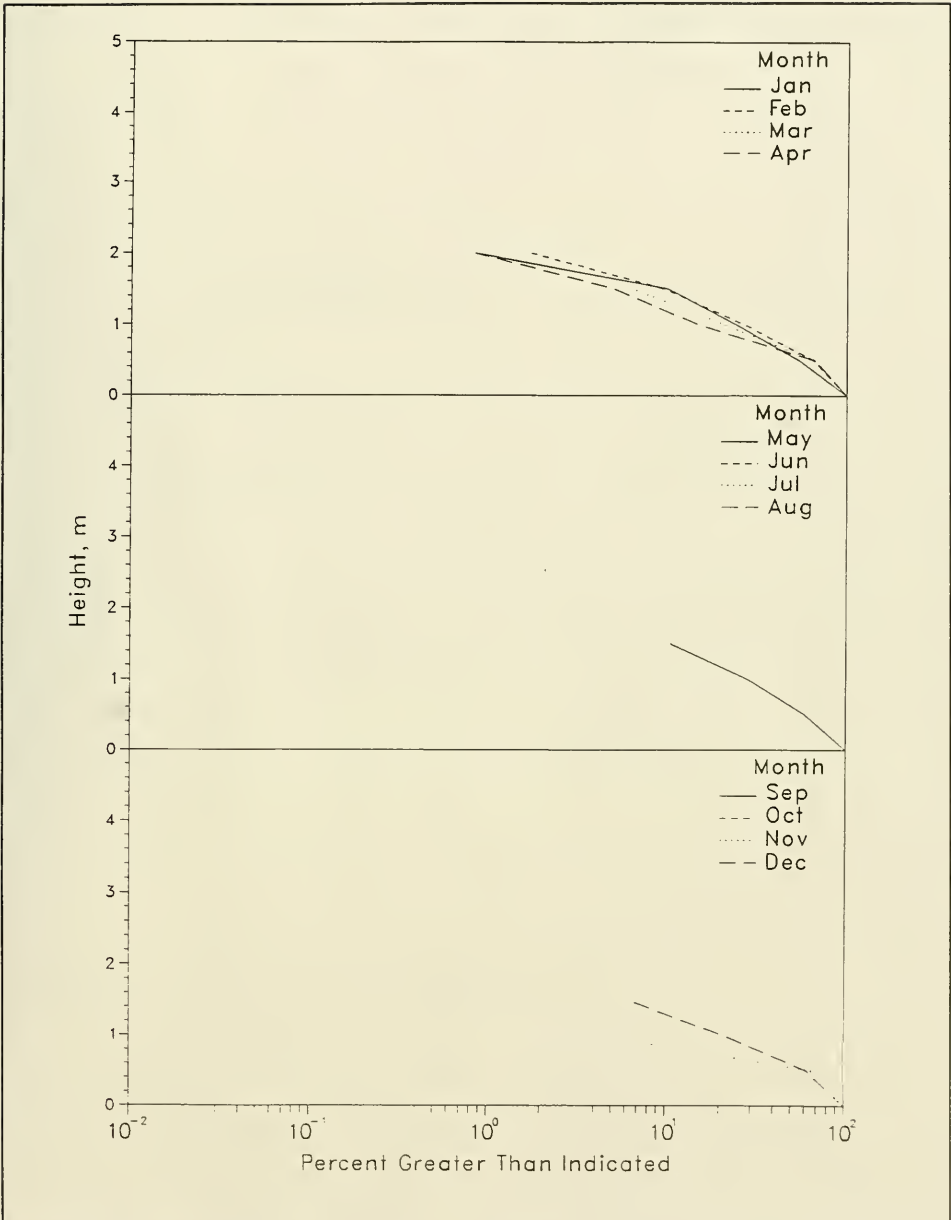


Figure E3. 1992 monthly wave height distributions for Gage 645

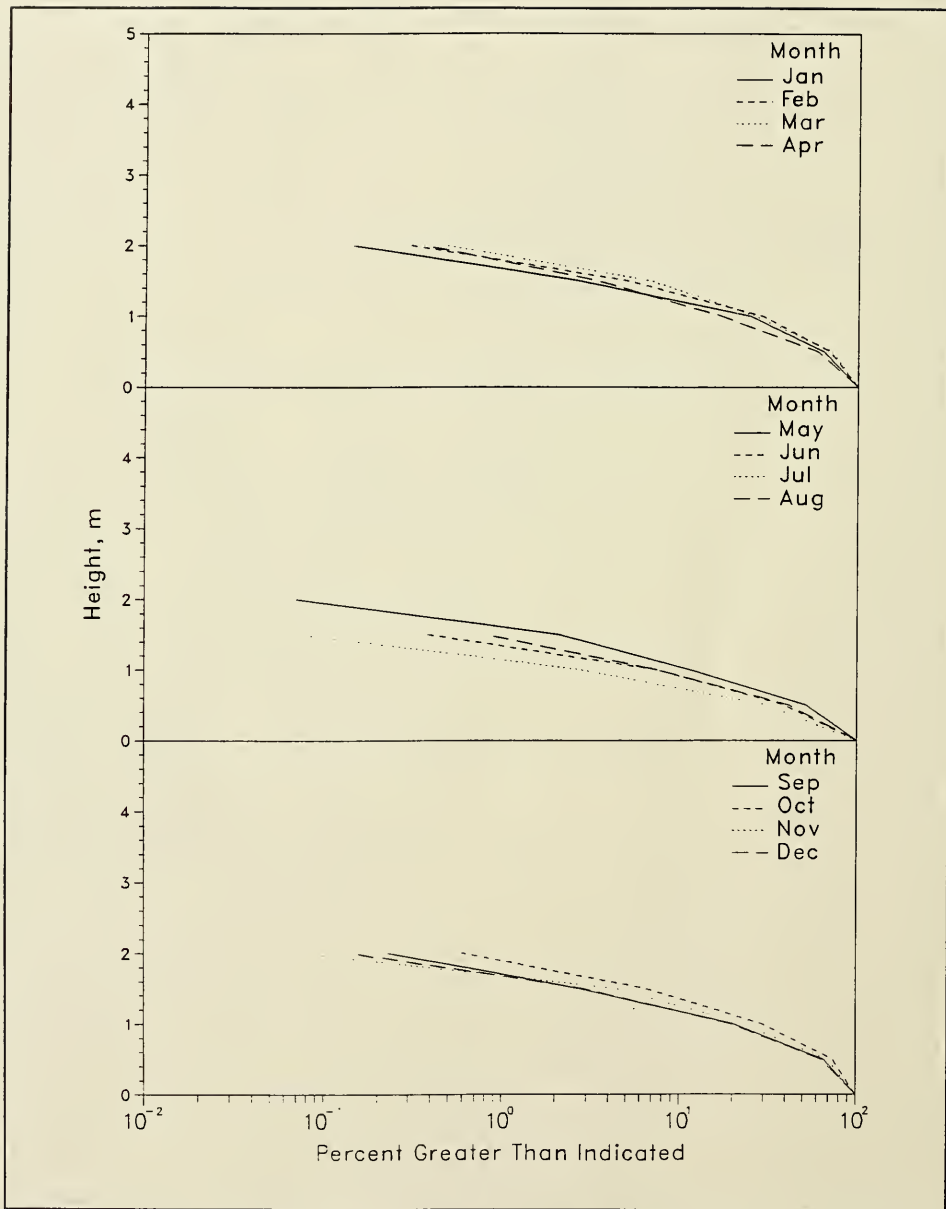


Figure E4. 1980-1992 monthly wave height distributions for Gage 645

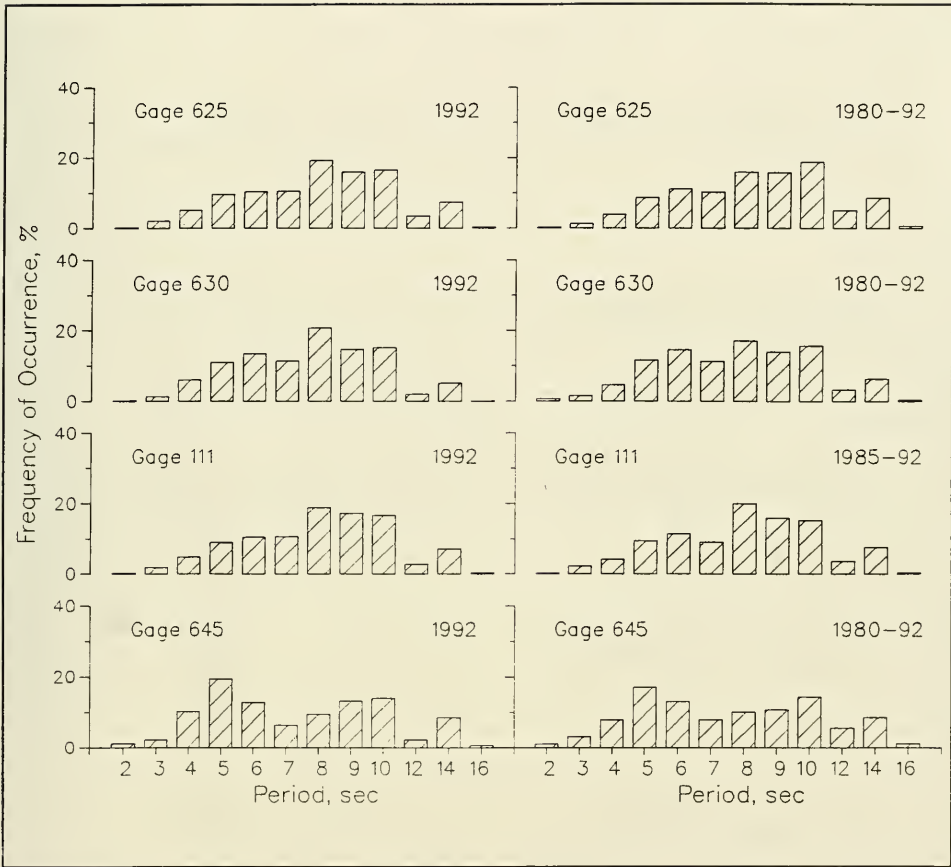


Figure E5. Annual wave period distributions for all gages

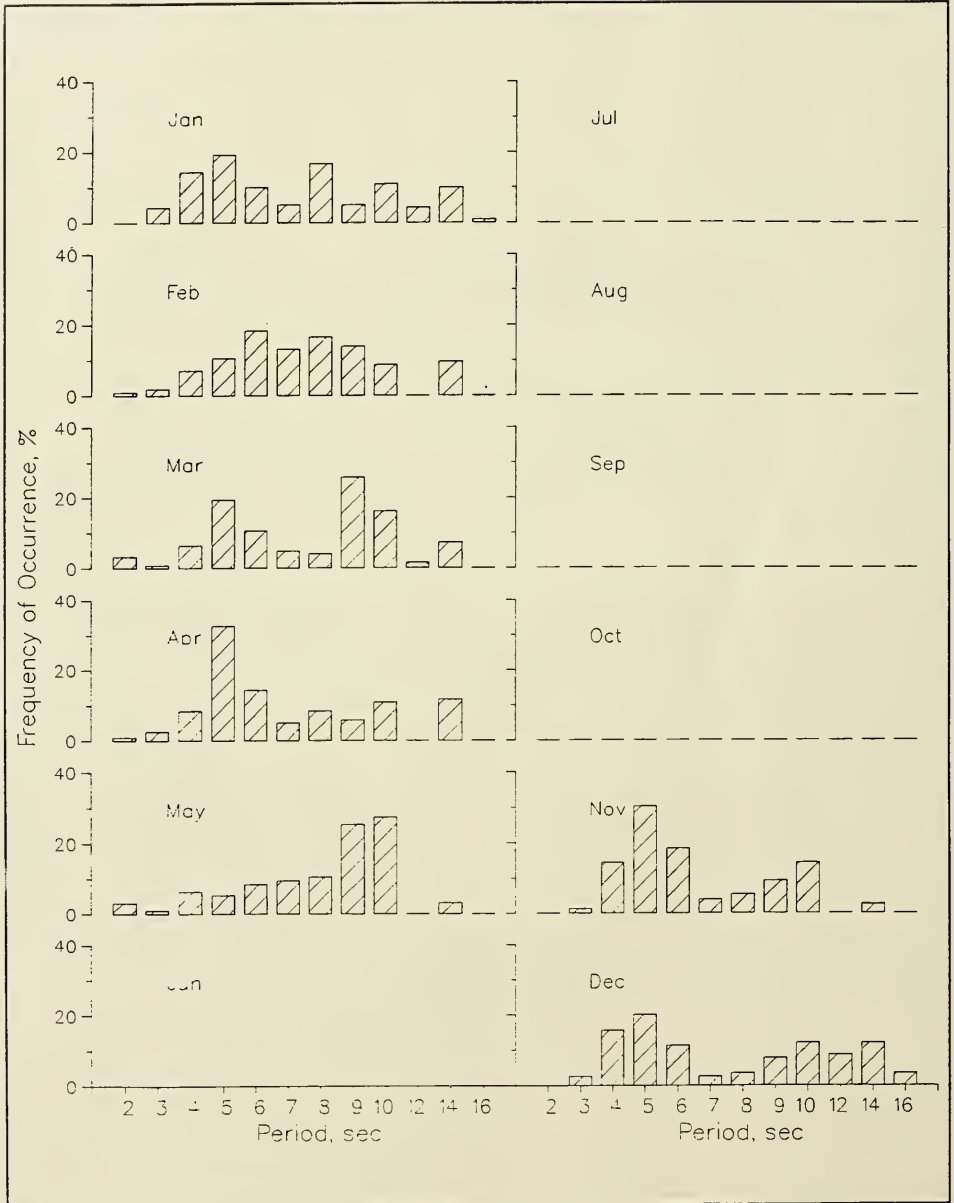


Figure E6. 1992 monthly wave period distributions for Gage 645

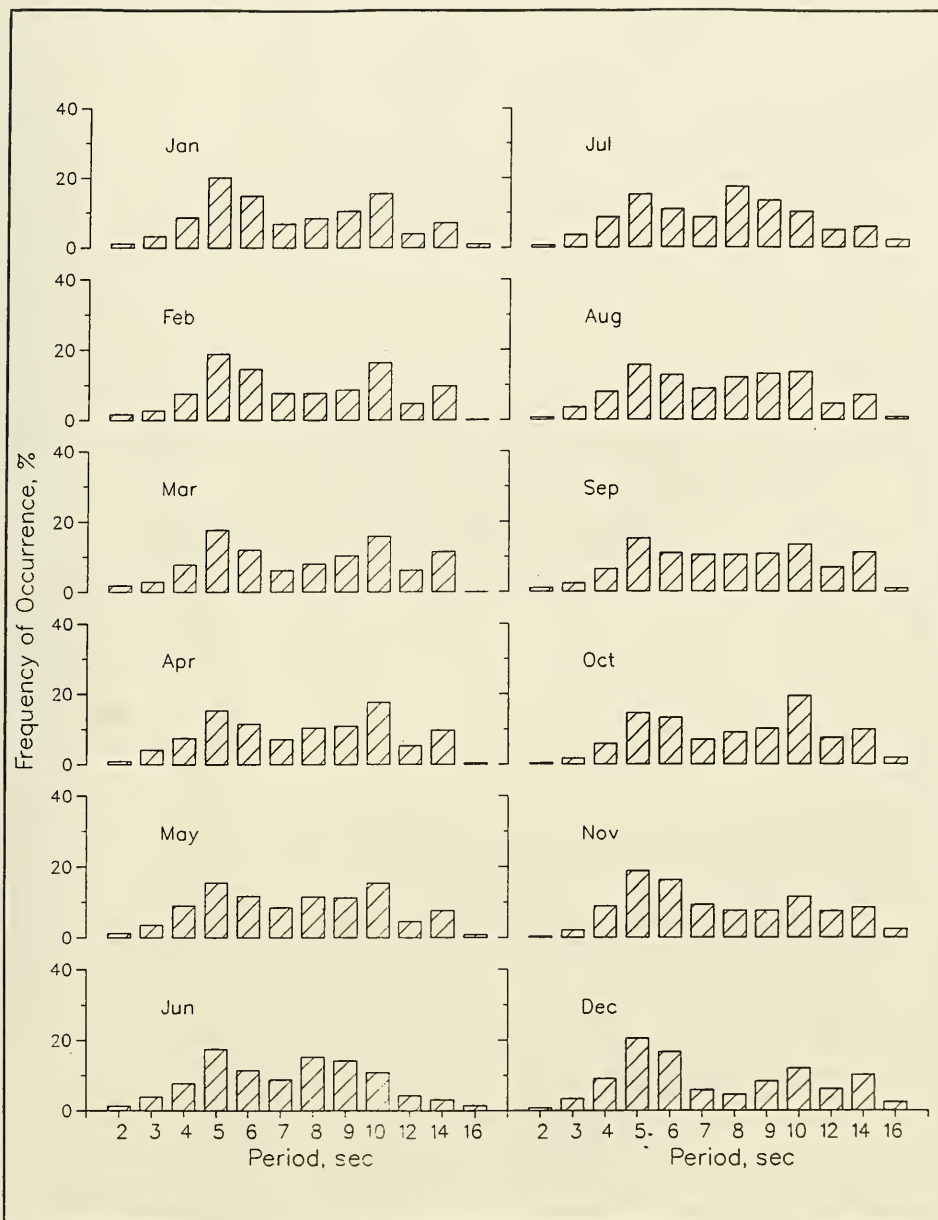


Figure E7. 1980-1992 monthly wave period distributions for Gage 645

Table E5
1992 persistence of H_{mo} for Gage 645

| Height (m) | Consecutive Day(s) or Longer | | | | | | | | | | | | | | | | | | | |
|---------------|------------------------------|----|----|----|----|----|----|----|---|----|----|----|----|----|----|----|----|----|-----|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19+ | |
| 0.5 | 33 | 30 | 25 | 21 | 18 | 16 | 14 | 13 | | 12 | 10 | 9 | | 8 | | | | | 6 | 5 |
| 1.0 | 51 | 30 | 19 | 13 | 9 | 8 | 6 | | 5 | 2 | | | | | | | | | | |
| 1.5 | 29 | 15 | 9 | 5 | 1 | | | | | | | | | | | | | | | |
| 2.0 | 3 | 2 | 1 | | | | | | | | | | | | | | | | | |
| 2.5 | 3 | 2 | 1 | | | | | | | | | | | | | | | | | |
| 3.0 | 2 | 1 | | | | | | | | | | | | | | | | | | |
| 3.5 | 2 | 1 | | | | | | | | | | | | | | | | | | |
| 4.0 | | | | | | | | | | | | | | | | | | | | |

Table E6
1980 through 1992 persistence of H_{mo} for Gage 645

| Height (m) | Consecutive Day(s) or Longer | | | | | | | | | | | | | | | | | | | |
|---------------|------------------------------|----|----|----|----|----|----|----|---|----|----|----|----|----|----|----|----|----|-----|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19+ | |
| 0.5 | 42 | 35 | 29 | 24 | 19 | 15 | 12 | 11 | 9 | 8 | 7 | 6 | | 5 | 4 | | | | | 3 |
| 1.0 | 44 | 26 | 15 | 9 | 5 | 4 | 2 | | 1 | | | | | | | | | | | |
| 1.5 | 15 | 6 | 3 | 2 | 1 | | | | | | | | | | | | | | | |
| 2.0 | 3 | | 1 | | | | | | | | | | | | | | | | | |
| 2.5 | 1 | | | | | | | | | | | | | | | | | | | |
| 3.0 | 1 | | | | | | | | | | | | | | | | | | | |
| 3.5 | | | | | | | | | | | | | | | | | | | | |
| 4.0 | | | | | | | | | | | | | | | | | | | | |

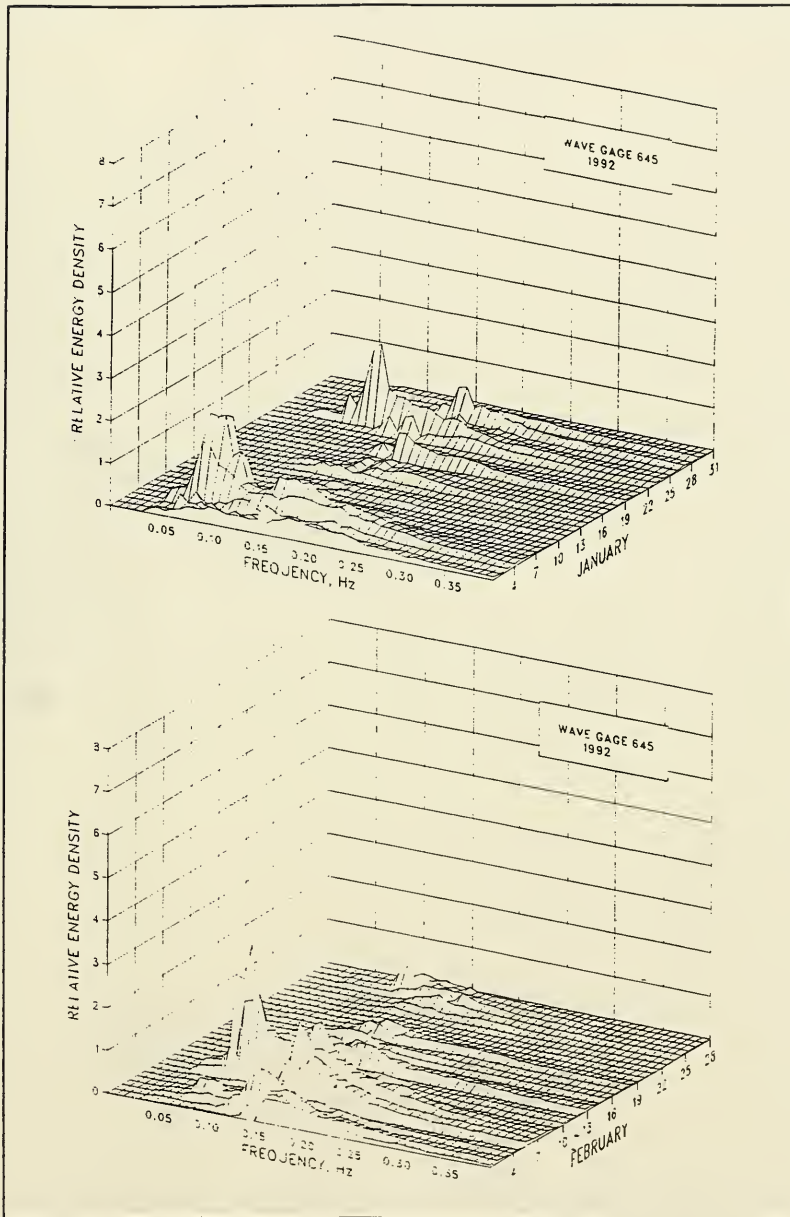


Figure E8. 1992 monthly spectra for Gage 645 (Sheet 1 of 6)

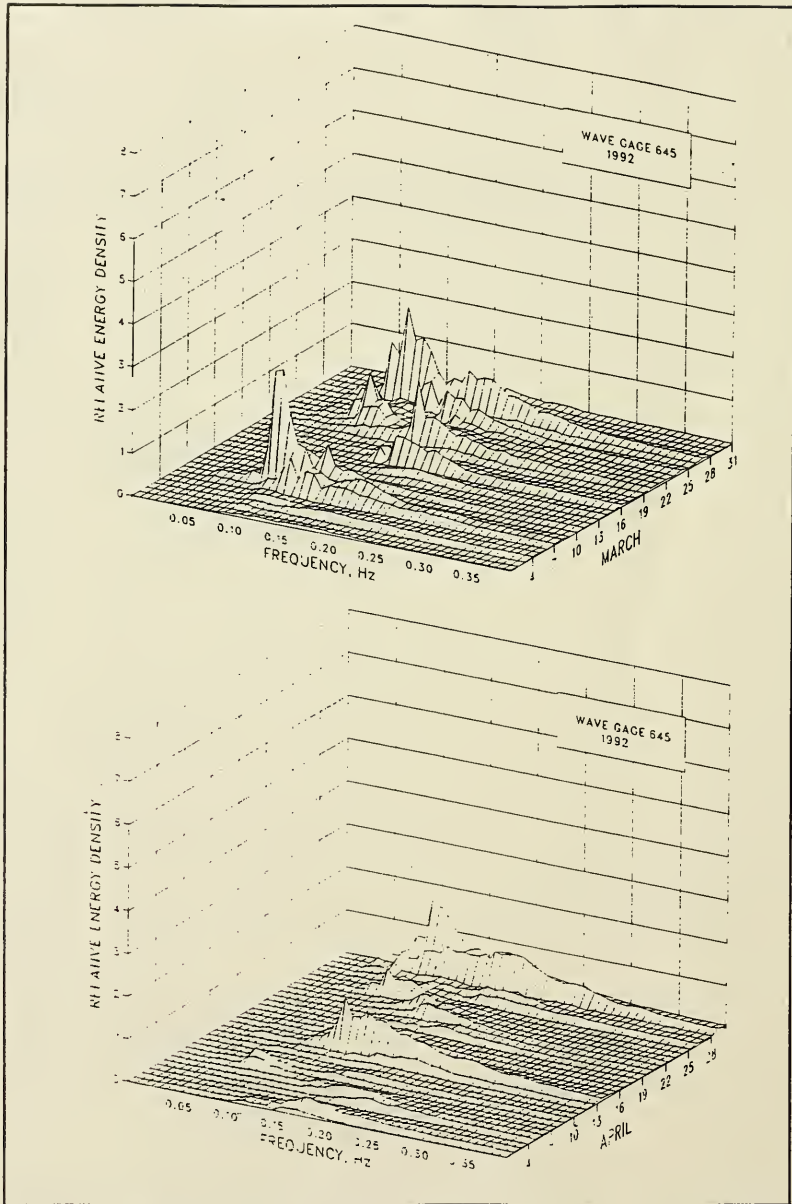


Figure E8. (Sheet 2 of 6)

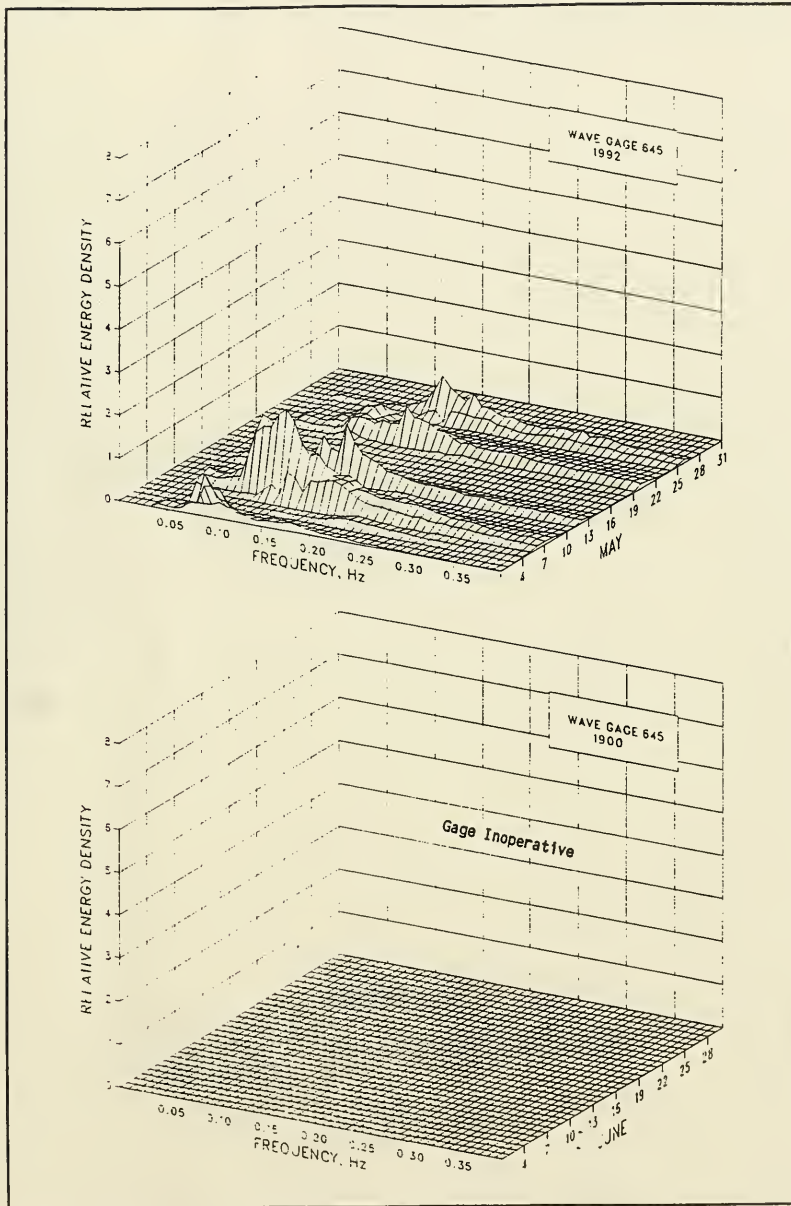


Figure E8. (Sheet 3 of 6)

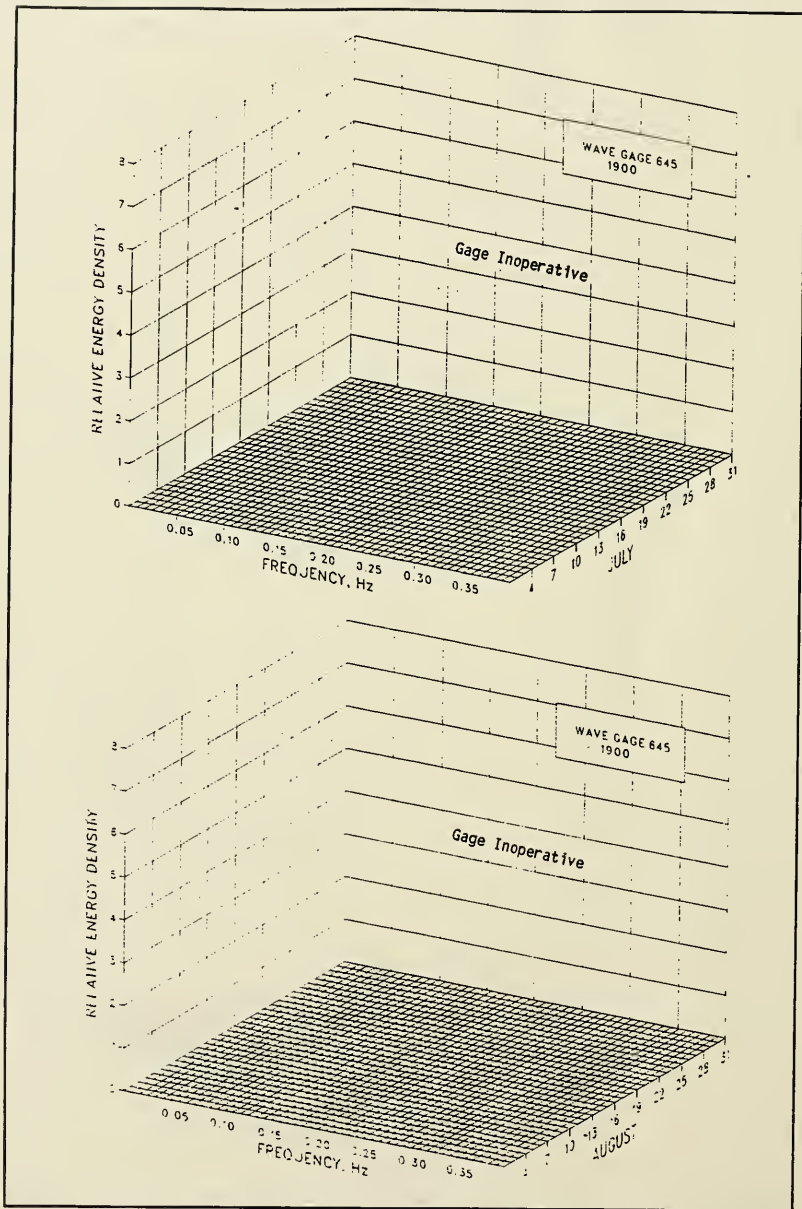


Figure E8. (Sheet 4 of 6)

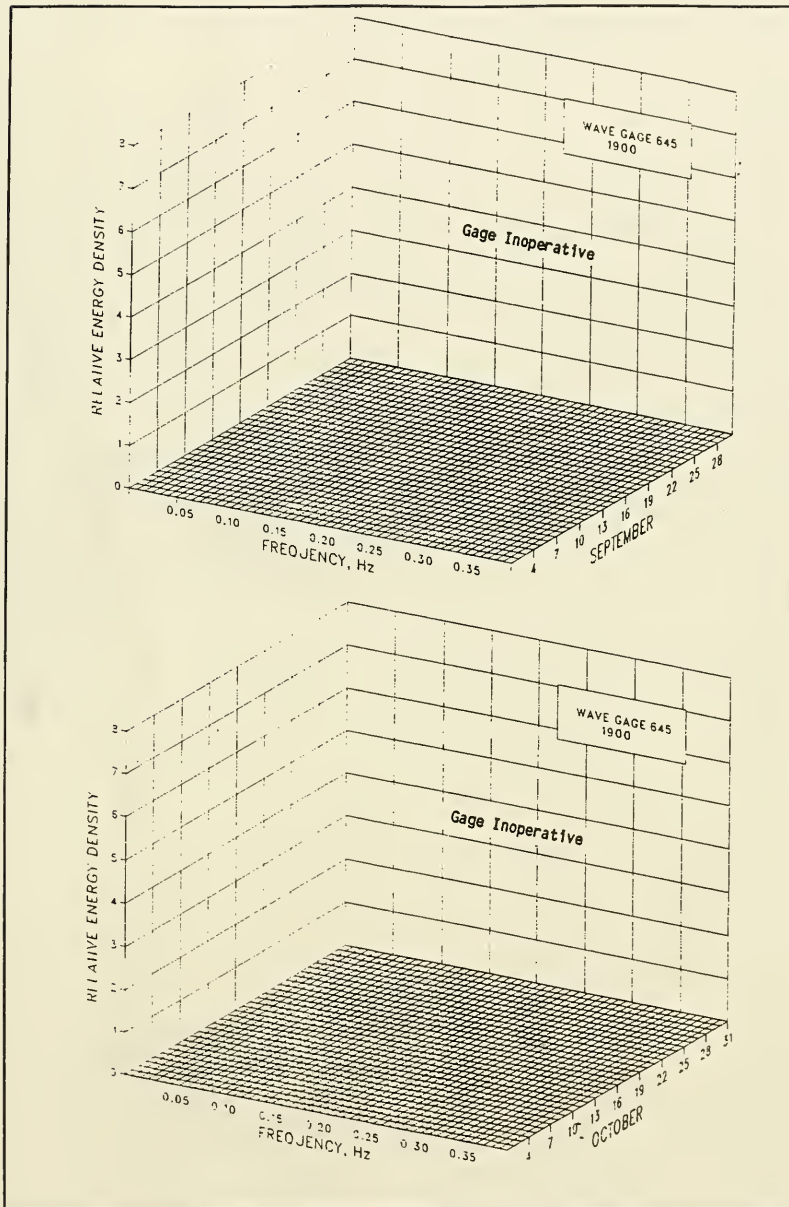


Figure E8. (Sheet 5 of 6)

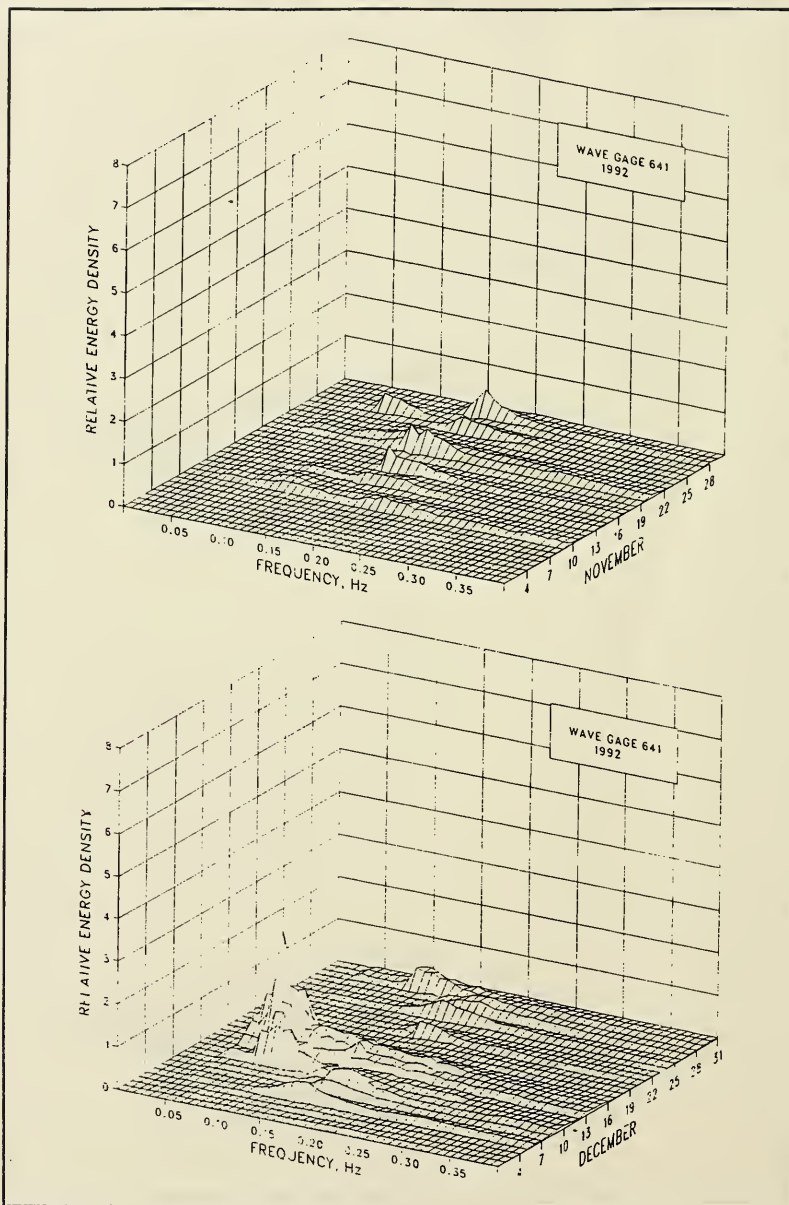


Figure E8. (Sheet 6 of 6)

Table E7
Wave statistics for Gage 645

| Month | 1992 | | | | | | | 1980-1992 | | | | | | | |
|--------|-----------|-------------------|--------------|------|-------------|---------------------|--------|----------------|-----------|-------------------|--------------|------|-------------|---------------------|----------------|
| | Height | | | Date | Period | | | Number Obs. | Height | | | Date | Period | | |
| | Mean m | Std. Dev. m | Extreme m | | Mean sec | Std. Dev. sec | Number | | Mean m | Std. Dev. m | Extreme m | | Mean sec | Std. Dev. sec | Number Obs. |
| Jan | 0.8 | 0.5 | 2.0 | 5 | 8.0 | 3.2 | 120 | 0.7 | 0.4 | 2.0 | 1980 | 8.0 | 3.2 | 1401 | |
| Feb | 0.8 | 0.5 | 2.2 | 8 | 8.1 | 2.4 | 115 | 0.8 | 0.4 | 2.2 | 1992 | 8.1 | 3.1 | 1341 | |
| Mar | 0.8 | 0.5 | 2.0 | 26 | 8.2 | 2.8 | 124 | 0.8 | 0.5 | 2.3 | 1980 | 8.3 | 3.3 | 1482 | |
| Apr | 0.7 | 0.4 | 2.2 | 29 | 7.6 | 3.0 | 120 | 0.7 | 0.4 | 2.3 | 1987 | 8.4 | 3.2 | 1384 | |
| May | 0.8 | 0.5 | 2.0 | 6 | 8.6 | 2.4 | 95 | 0.6 | 0.4 | 2.0 | 1987 | 8.1 | 3.2 | 1433 | |
| Jun | | | | | | | 0 | 0.5 | 0.3 | 1.7 | 1990 | 7.8 | 3.0 | 1288 | |
| Jul | | | | | | | 0 | 0.5 | 0.3 | 1.6 | 1990 | 8.2 | 3.2 | 1321 | |
| Aug | | | | | | | 0 | 0.6 | 0.3 | 1.7 | 1982 | 8.1 | 3.1 | 1352 | |
| Sep | | | | | | | 0 | 0.7 | 0.4 | 2.1 | 1985 | 8.6 | 3.2 | 1292 | |
| Oct | | | | | | | 0 | 0.8 | 0.5 | 2.2 | 1982 | 8.8 | 3.3 | 1325 | |
| Nov | 0.6 | 0.3 | 1.1 | 20 | 7.1 | 2.4 | 76 | 0.8 | 0.4 | 2.0 | 1981 | 8.3 | 3.5 | 1323 | |
| Dec | 0.7 | 0.5 | 1.7 | 15 | 8.8 | 4.2 | 115 | 0.7 | 0.4 | 2.2 | 1989 | 8.2 | 3.6 | 1400 | |
| Annual | 0.8 | 0.5 | 2.2 | Apr | 8.1 | 3.1 | 765 | 0.7 | 0.4 | 2.3 | Apr 1987 | 8.2 | 3.2 | 16342 | |

Destroy this report when no longer needed. Do not return it to the originator.

