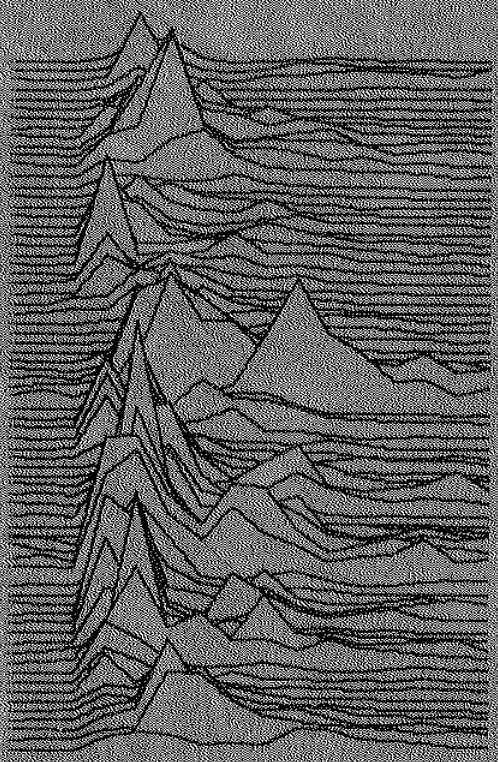
SEA GRANT PUBLICATION 56



# COASTAL ENGINEERING DATA NETWORK

Second Semi-Annual Report
July 1976 to December 1976



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Albert E. Woods

UNIVERSITY OF CALIFORNIA
SEA GRANT COLLEGE PROGRAM
IN COOPERATION WITH THE CALIFORNIA DEPARTMENT
OF NAVIGATION AND OCEAN DEVELOPMENT

INSTITUTE OF MARINE RESOURCES
MAIL CODE A-032
UNIVERSITY OF CALIFORNIA
LA JOLLA, CALIFORNIA 92093

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# COASTAL ENGINEERING DATA NETWORK

## SECOND SEMI-ANNUAL REPORT

## JULY 1976 TO DECEMBER 1976

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and Ocean Development

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Institute of Marine Resources

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## I. INTRODUCTION:

The Coastal Engineering Data Network is a cooperative program sponsored by the University of California Sea Grant College Program and the California Department of Navigation and Ocean Development. The system development was begun in early 1975 and the first station was operational in December of that year. The network is devoted primarily to the collection of long-term wave statistics from a large number of nearshore locations, although the capability to collect other nearshore data exists. The first semi-annual report (reference 1) contained a detailed description of the system, a history of the initiation of the project, and a discussion of the needs for such a system. This report, and succeeding reports in this series, will contain information on operating experience during the report period, changes to the system since the last report, and a discussion of future plans.

## II. SYSTEM DESCRIPTION:

The system configuration remains essentially the same as reported in reference 1, except for the addition in December 1976 of a fifth station at Port Hueneme, California. The input to this station is a pressure transducer installed by the Coastal Engineering Research Center as part of a continuing program of measuring sediment transport at the Channel Islands Breakwater north of Port Hueneme. The site map of the original four stations is shown in Figure 1. The location of the fifth station is shown in Figure 2.

A special interface was constructed so that the output of the CERC wave gage at Port Hueneme would be compatible with this system and still allow CERC to record on the existing data system.

## III. SYSTEM PERFORMANCE:

The system has now been in operation for slightly more than a year. During this period approximately 3,000 data runs or 3 million points were collected with an overall success rate of 95%. The availability of a year's data from a site now allows for some meaningful analysis of the wave climate. Following the method proposed by Thompson and Harris (reference 2), a wave height climatology can be estimated from a single year's data by a linear projection on a log-normal plot of probability and height. A plot of

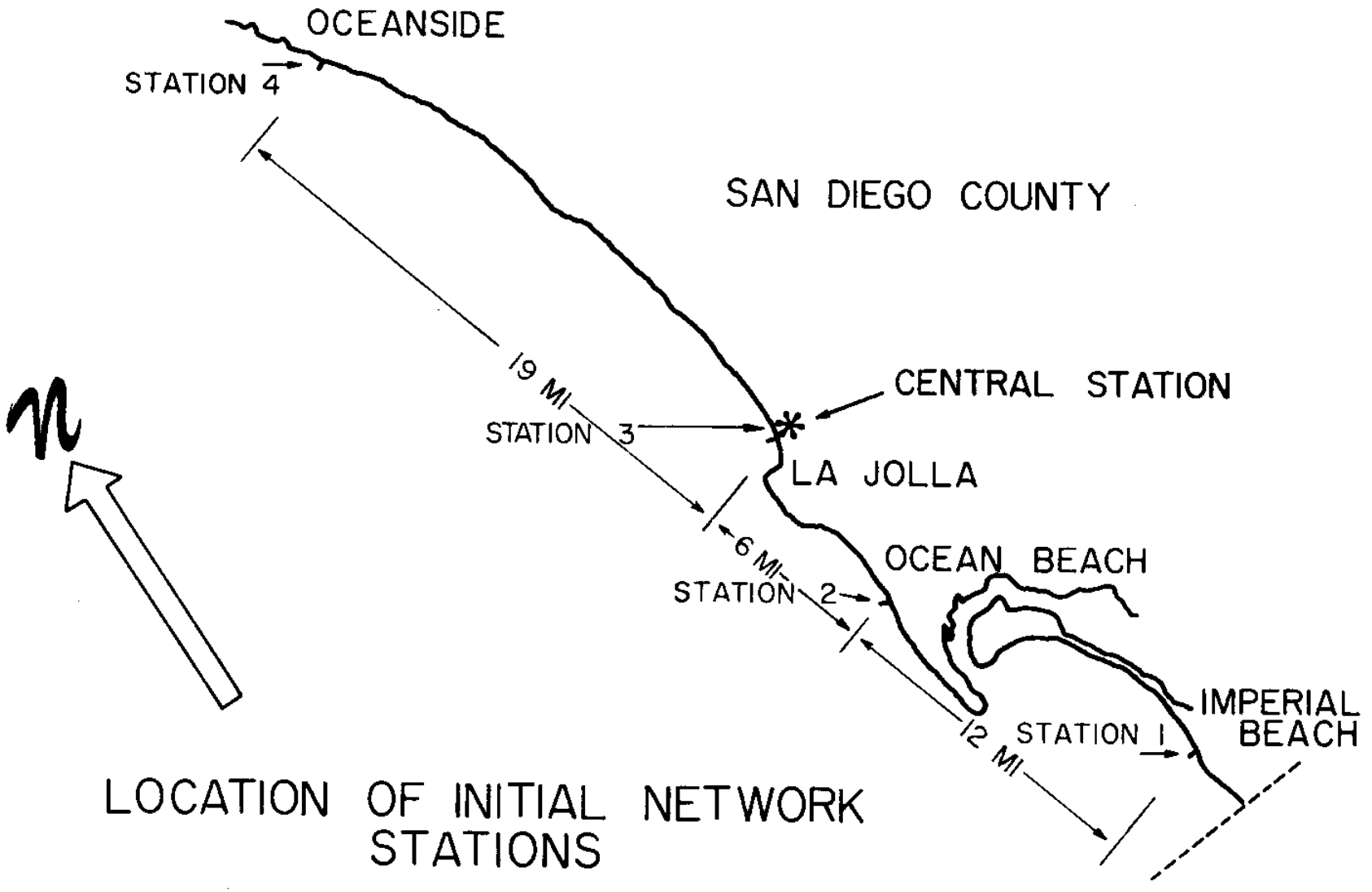

OCEANSIDE
STATION 4
SAN DIEGO COUNTY
19 MI
CENTRAL STATION
STATION 3
LA JOLLA
6 MI
OCEAN BEACH
STATION 2
IMPERIAL BEACH
12 MI
STATION 1
LOCATION OF INITIAL NETWORK STATIONS

FIGURE 1

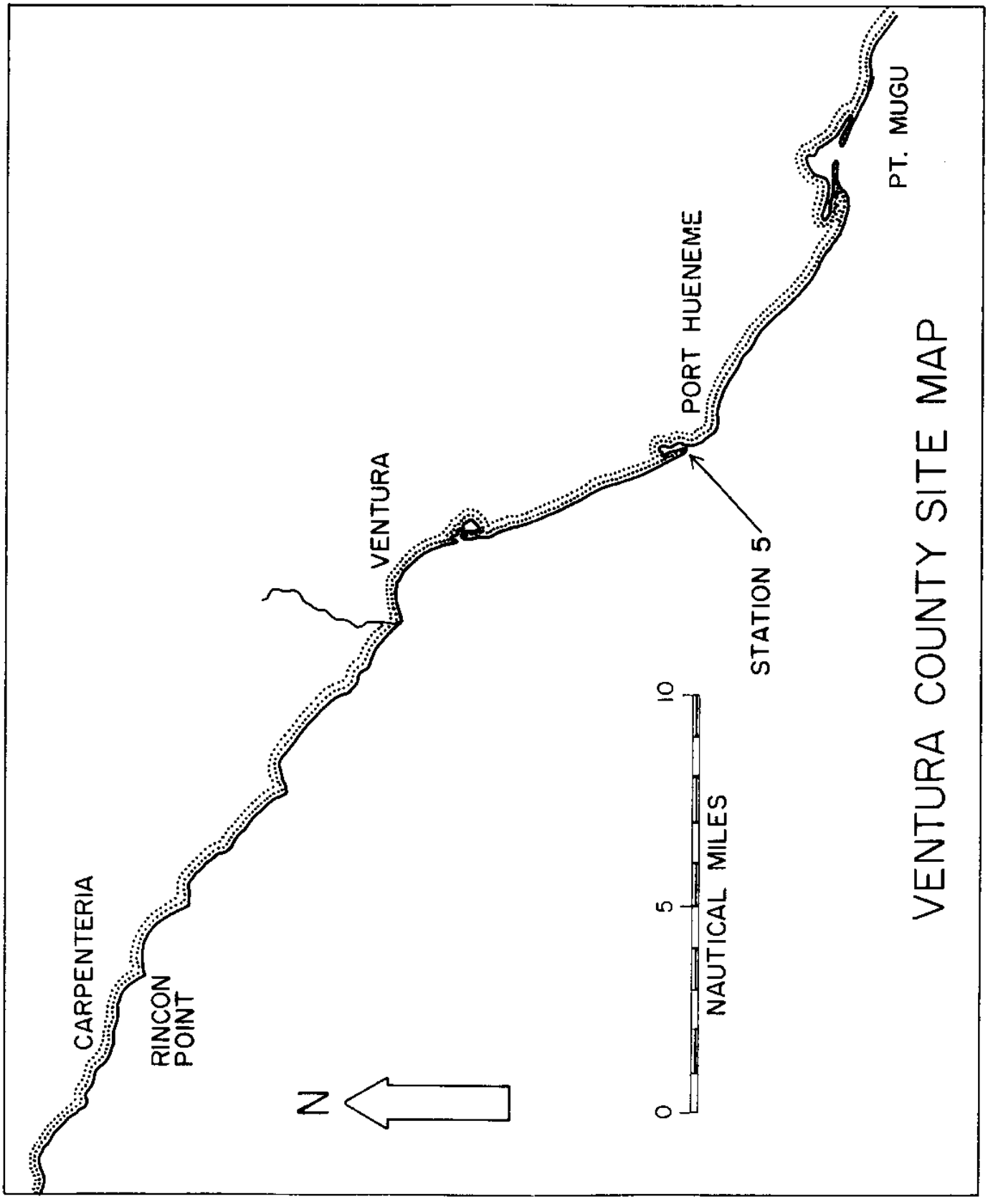

VENTURA COUNTY SITE MAP
CARPENTERIA
RINCON POINT
VENTURA
PORT HUENEME
PT. MUGU
STATION 5
N
0
5
10
NAUTICAL MILES

FIGURE 2

the 1976 data from the Imperial Beach site is shown in Figure 3. It is of interest to note that the storm of April 16, 1976 produced a significant wave height of 2.7 m ( 8.9 ft ), peaked at approximately 10 second period, which is approximately equal to the 25-year probability value suggested by this estimator. Seasonal projections can be inferred from the experience of a single year, but with a much lower reliability. Typical of the kinds of representations that can be made of such data is Figure 4, which shows the probability of exceeding certain significant wave heights for two-month periods during the year. The error bands on such a projection are quite broad, using only a single year's data. However, after several years of data collection, this system can be expected to produce reasonable forecasts of seasonal variation in wave climate.

## IV. DATA ANALYSIS AND UTILIZATION:

The data analysis format has remained unchanged during the past six-month period. Users have indicated a strong preference for the "cartoon" display of spectral shapes provided at the beginning of each monthly report. This provides a quick-look capability for scanning the month's events at several locations to determine where more detailed study of the tabulated data is warranted. With some practice, users have also learned to interpret wave direction from the relative energies observed at certain locations. These spectra are plotted in the traditional manner with the abscissa linear in frequency. Consideration is now being given to altering the plotting routine to make them linear in period. This will have the result of emphasizing the short-period, local wind wave peaks which are presently stretched by the nonlinear scaling to the point where they are difficult to discern.

Of the known applications of the current data, the following representative examples have been selected:

1) The Imperial Beach data have been used by

a) the Tethered Float Breakwater project to evaluate the wave climate experienced by breakwater components under test off Silver Strand beach.

b) the Waterways Experiment Station, Vicksburg, in their model study of a submerged breakwater at Imperial Beach.

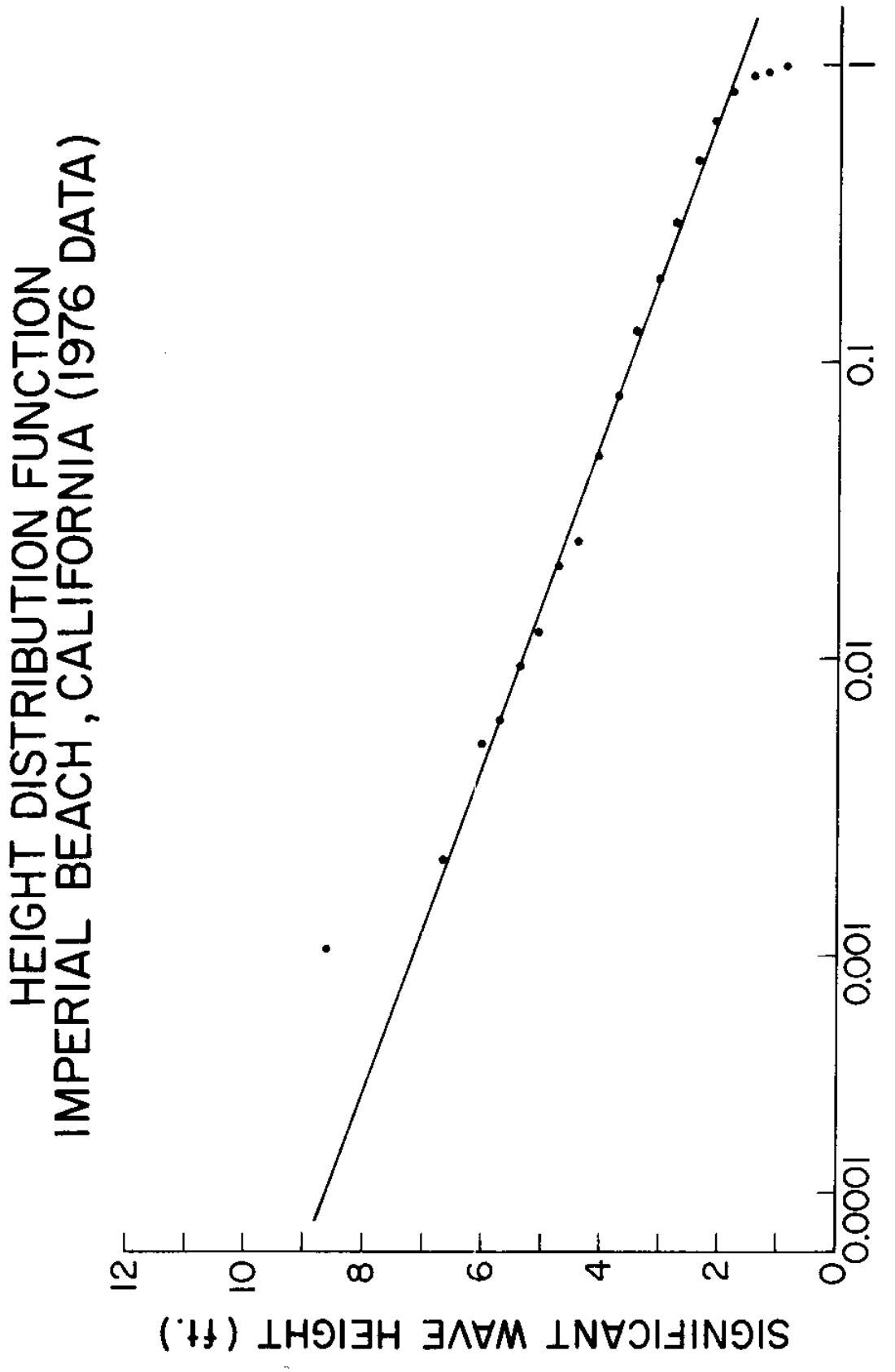

HEIGHT DISTRIBUTION FUNCTION
IMPERIAL BEACH, CALIFORNIA (1976 DATA)
SIGNIFICANT WAVE HEIGHT (ft.)
0
2
4
6
8
10
12
PROBABILITY OF OCCURRENCE
0.0001
0.001
0.01
0.1
1

FIGURE 3

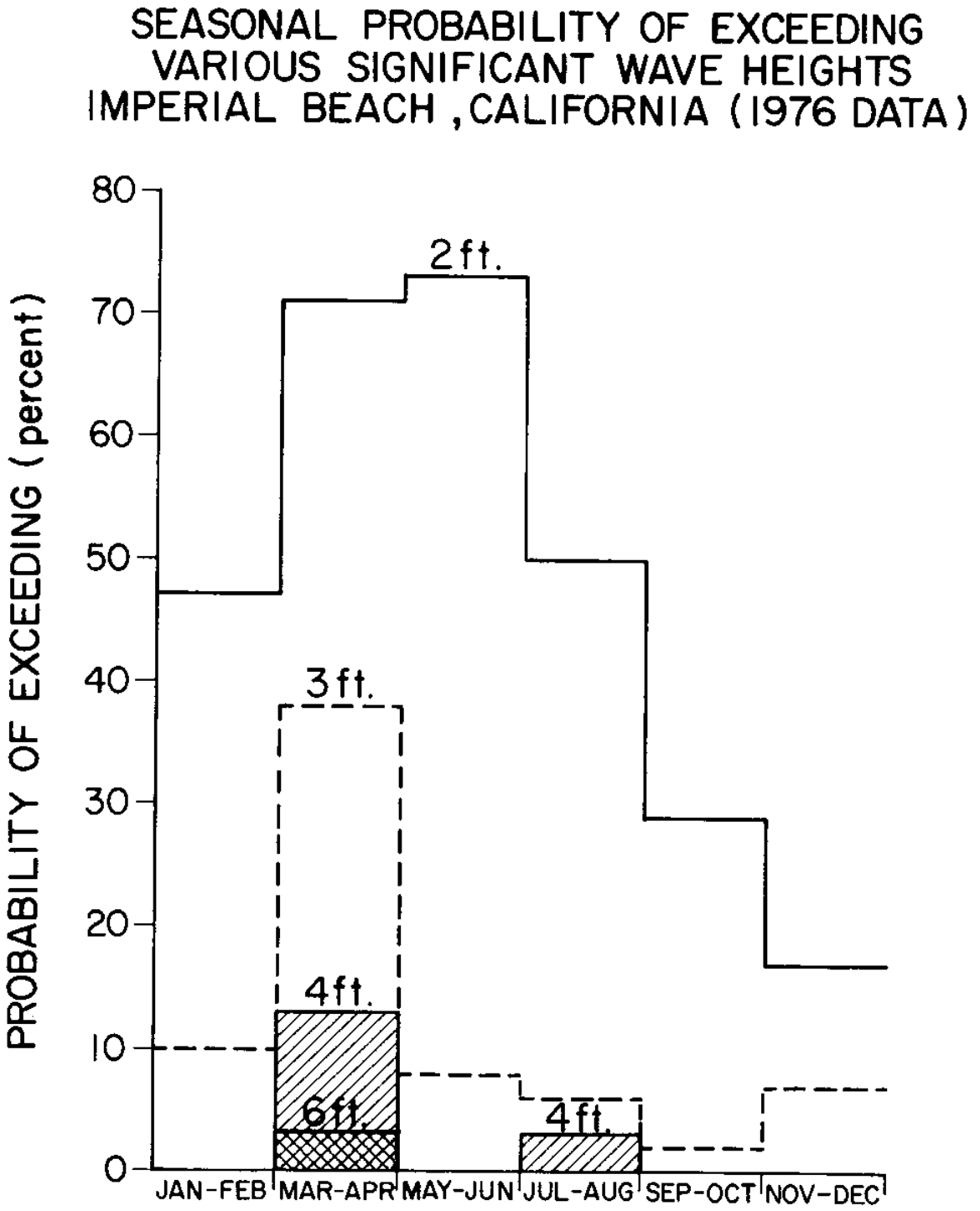

SEASONAL PROBABILITY OF EXCEEDING
VARIOUS SIGNIFICANT WAVE HEIGHTS
IMPERIAL BEACH , CALIFORNIA (1976 DATA)
PROBABILITY OF EXCEEDING (percent)
80
70
60
50
40
30
20
10
0
2ft.
3ft.
4ft.
6ft.
4ft.
JAN-FEB
MAR-APR
MAY-JUN
JUL-AUG
SEP-OCT
NOV-DEC

FIGURE 4

c) the Los Angeles District, Corps of Engineers, in their study of beach erosion at Imperial Beach.

2) The Ocean Beach data have been utilized by

a) Scripps Institution of Oceanography to study the sediment migration at the entrance to Mission Bay harbor.

b) the Los Angeles District, Corps of Engineers, in their investigation of unsafe entrance conditions at Mission Bay harbor. As an example of the wave climate producing unsafe entrance conditions, Figure 5 shows the extreme condition occurring during 1976 (September 29).

3) The Scripps pier data have been used by the Shore Processes Laboratory at Scripps Institution of Oceanography to assist in their long-term studies of nearshore processes at Torrey Pines Beach.

4) The Oceanside data have been used by the Los Angeles District, Corps of Engineers, in their study of beach erosion problems at Oceanside.

In addition to providing monthly reports to an increasing number of users, the project has also consulted with two East Coast universities that propose to build similar systems to monitor Atlantic Coast wave climates.

As part of the system development, an analytical program has been conducted to investigate the most advantageous methods for recording and displaying directional characteristics. In reference 1, a scheme for estimating the longshore component of shoreward momentum flux, $S_{xy}$, using a slope array, was discussed. The motivation for this approach arose from the present model for longshore sediment transport, which can be readily derived to be proportional to $S_{xy}$. A workshop was held at the University of Delaware in December 1976 on the proposed National Sediment Transport Study, an extensive multi-university investigation of nearshore transport sponsored by the Office of Sea Grant. In discussions at the Delaware Conference, it became clear that the resulting model for sediment transport would undoubtedly be more complex than the existing one, and require some greater level of definition of the wave climate. In light of this, it has been decided to utilize a four-element

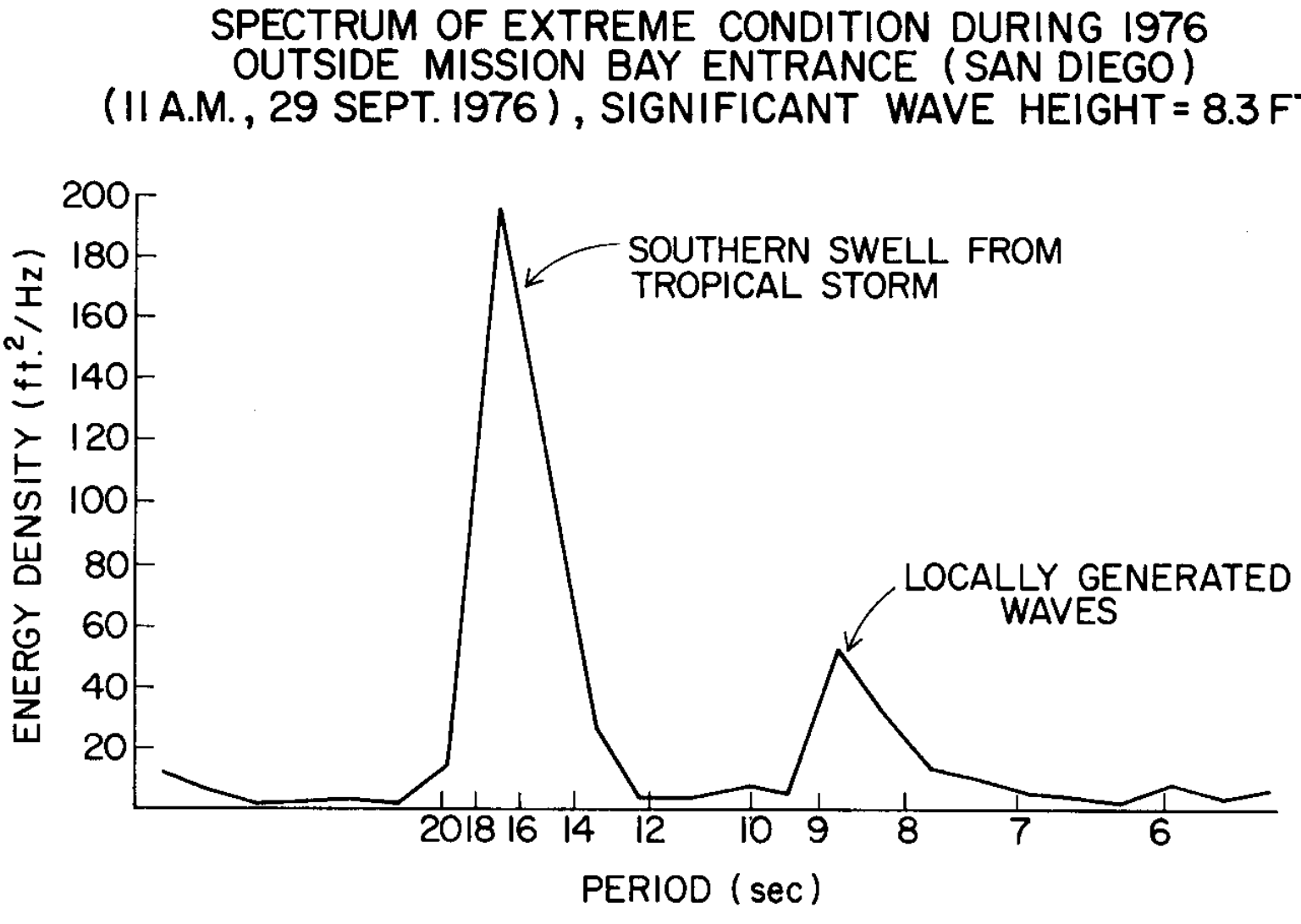

SPECTRUM OF EXTREME CONDITION DURING 1976
OUTSIDE MISSION BAY ENTRANCE (SAN DIEGO)
(11 A.M., 29 SEPT. 1976), SIGNIFICANT WAVE HEIGHT = 8.3 FT.
ENERGY DENSITY (ft.²/Hz)
200
180
160
140
120
100
80
60
40
20
SOUTHERN SWELL FROM
TROPICAL STORM
LOCALLY GENERATED
WAVES
20 18 16 14 12 10 9 8 7 6
PERIOD (sec)

FIGURE 5

linear array which will produce a less accurate estimate of $S_{xy}$, but will allow a reasonable estimate of the directional spectrum to be made. It would appear that the data base acquired by this system would then be compatible with the findings of the National Sediment Transport Study, when they are available, and allow hindcasting of sediment transport rates.

## V. HARDWARE RELIABILITY:

Over the past six months the data system suffered a number of outages caused by transducer and cable failures. Of 1,949 data runs attempted, 147 were lost, mostly from this cause. The failure problem was aggravated by a lack of spares. Thirteen new units had been received from the manufacturer when it was discovered that the reliability of all of them was questionable. The potting technique that was then being used introduced a potential failure mode which could occur any time during the life of the transducers. This took some time to resolve, and meanwhile we were forced to operate with a minimum number of transducers. Thus, delays of days or a week were often incurred before a transducer was replaced.

The majority of the failures came from two causes. The first cause was flexing or corrosion of the cables. With one exception, this happened to older units which used a standard double-wound, steel-armored marine cable. This cable had already been replaced in our newer units with one of our own design, since we were doubtful of its suitability for nearshore water conditions. The one exception, a failure of the new style cable, was clearly a result of overstressing when a large mat of kelp dislodged the transducer from its mounting.

The second cause of failure was brought about by failure of the transducer mounts. This happened in two cases, and each time the transducers were subject to sufficient vibration to induce failure. Consequently, a reevaluation was made of our mounting techniques which has led to the design of sturdier hardware. While installation will be more difficult and time consuming, the reliability benefits clearly make it worthwhile.

One unit, which is still being evaluated at the factory, appears to have had an internal component fail after six weeks of operation. This "infant mortality" of electronic components can always occur; therefore, to reduce its impact on system reliability, we have constructed a test fixture

and are now subjecting all transducers to a burn-in period before they go to a field installation.

Following is a summary of the failures we have experienced:

| Date | Location | Type of Failure | Data Runs Lost |
|---|---|---|---|
| Aug. | Ocean Beach | Cable (superseded design) | 30 |
| Sept. | Imperial Beach | Cable (superseded design) | 15 |
| Oct. | Oceanside | Cable (superseded design) | 19 |
| Oct. | Ocean Beach | Transducer (shock) | 14 |
| Nov. | Ocean Beach | Cable (overstress) | 10 |
| Dec. | Ocean Beach | Cable | 20 |
| Jan. | Oceanside | Transducer (component?) | 38 |

## VI. DATA ACQUISITION AND ANALYSIS SOFTWARE:

A program for the automatic detection and removal of minor data anomalies (phoneline "glitches") has been implemented, greatly reducing the operator time necessary for data analysis.

The data analysis (Fourier transforms) and report generation had previously been performed on a separate IBM 1130 computer system. These functions have now been transferred to the same Data General NOVA 1200 that is used to acquire the raw data. This is a major step toward the capability for real-time data analysis under conditions where this would be advantageous.

## VII. PLANS FOR EXPANDING CAPABILITIES:

The cost of telephone service has always been a major operating expense for this project, and as sites are installed further and further north, it will become increasingly burdensome. For example, the monthly toll charges for a site in Ventura County will be over $300, which would almost double the present phone cost. An alternative data system that could cut these costs by an order of magnitude has been under consideration since the inception of this project, and northerly expansion of the wave network indicates substantial cost benefits to be realized at this time.

This technique, which employs digital data storage and transmission, has always been attractive in many respects, but required a major design effort and a substantial increase in hardware cost. The digital approach allows a much higher data transmission rate (hence, the

lower phone costs) and an increased flexibility in data gathering. Recent developments in components have brought costs down and much simplified the design requirements; so a decision has been made to proceed with the development of a digital data system.

This system will be installed at locations where phone cost savings will justify the additional equipment cost (present estimate of added cost for a four-channel system is $700). All other sites will continue to use the older style equipment. This will require some additional equipment at the central station, but does not involve major modification of the existing system.

Call-up routines and system scheduling will be unchanged, with the exception of a computer-controlled function which will switch the receiver between digital and FM reception modes. The new remote sites will still go through a simple auto answer and data transmission cycle, but the output will consist of a digital dump of a number of small memories rather than a real-time multichannel analog signal.

The remote sites are to be organized as a group of almost completely independent signal processor/memory pairs. Each pair will be responsible for the output of one sensor and perform all of the necessary interfacing and data storage for that sensor. Memory size, sampling interval, and signal processing are configured to suit the particular sensor and data taking requirements. A master clock will synchronize all data taking to preserve simultaneity of measurement, and is to provide the time base for the sampling interval of each sensor.

A master controller will handle data transmission and sequentially transmit the contents of the sensors' memories along with channel identification and any other supplemental information that may be necessary. The controller will be the same at all sites and be jumper programmable for the number of sensors at a particular site.

This organization is quite flexible, since sensors may be added or changed without altering the basic configuration of the system. Furthermore, the output data format is such that the central computer can easily handle site-to-site variations in data type and quantity.

Development of this system presents no major obstacles, and the first field test installation is scheduled for late this spring. Subsequent installations will follow successful testing of this initial site.

Discussions are now being held by the California Department of Navigation and Ocean Development, and Los Angeles District Corps of Engineers representatives to plan the location of the next two or three stations. Several sites in Ventura, Santa Barbara and San Luis Obispo counties are under consideration.

The network will be employed during the NASA/JLP West Coast Experiment to be conducted in the period February through March 1977. This is a major remote sensing experiment and the wave data will be used as additional ground truth. Nearly continuous operation during a two-day storm monitoring experiment is anticipated.

## REFERENCE

1. Seymour, R. J., Sessions, M. H., Wald, S. L., and Woods, A. E.: 1976. "Coastal Engineering Data Network First Semi-Annual Report, December 1975 to June 1976." Institute of Marine Resources, University of California, IMR Ref. 76-11. Sea Grant Pub. No. 50. July 1976.

2. Thompson, E. F., and Harris, D. L., "A Wave Climatology for U. S. Coastal Waters." Proc. Offshore Technology Conf., Dallas, Texas, May 1972. OTC 1693, pp. 675-688.

This work is a result of research sponsored by the Department of Navigation and Ocean Development (State of California), the Resources Agency (State of California), and the University of California Sea Grant College Program. (Sea Grant funded by NOAA Office of Sea Grant, U. S. Department of Commerce, under Grant NOAA-04-6-158-44110 to the Institute of Marine Resources.) The United States Government is authorized to produce and distribute reprints for governmental purposes notwithstanding any copyright notation that may appear herein.

# APPENDIX

Mean Depth at Point of Measurement

MONTHLY REPORTS

July 1976 Through December 1976

## BOTTOM DEPTH BELOW MEAN SEA LEVEL

| Location | *Depth (BMSL) m | ft |
|---|---|---|
| Imperial Beach | 8.3 | 27.2 |
| Ocean Beach | 8.4 | 27.7 |
| Scripps Pier | 6.6 | 21.7 |
| Oceanside | 9.0 | 29.5 |
| Port Hueneme | 5.9 | 19.3 |

* Mean sea level is approximately 0.88 m (2.9 ft) above Mean Lower Low Water (MLLW) in this area.

# CALIFORNIA COASTAL ENGINEERING DATA NETWORK

MONTHLY SUMMARY REPORT NO. 8

JULY 1976

INSTITUTE OF MARINE RESOURCES
SCRIPPS INSTITUTION OF OCEANOGRAPHY
LA JOLLA, CA

THIS PROJECT IS SPONSORED JOINTLY BY THE CALIFORNIA SEA GRANT COLLEGE PROGRAM AND THE DEPARTMENT OF NAVIGATION AND OCEAN DEVELOPMENT.

REPORT NO. 8 JULY 1976

REPORTING STATIONS

| NO. | LOCATION | | |
|---|---|---|---|
| 1 | IMPERIAL BEACH PIER | 32-35N | 117-08W |
| 2 | OCEAN BEACH PIER | 32-45N | 117-15W |
| 3 | SCRIPPS PIER | 32-52N | 117-15W |
| 4 | OCEANSIDE PIER | 33-11N | 117-23W |

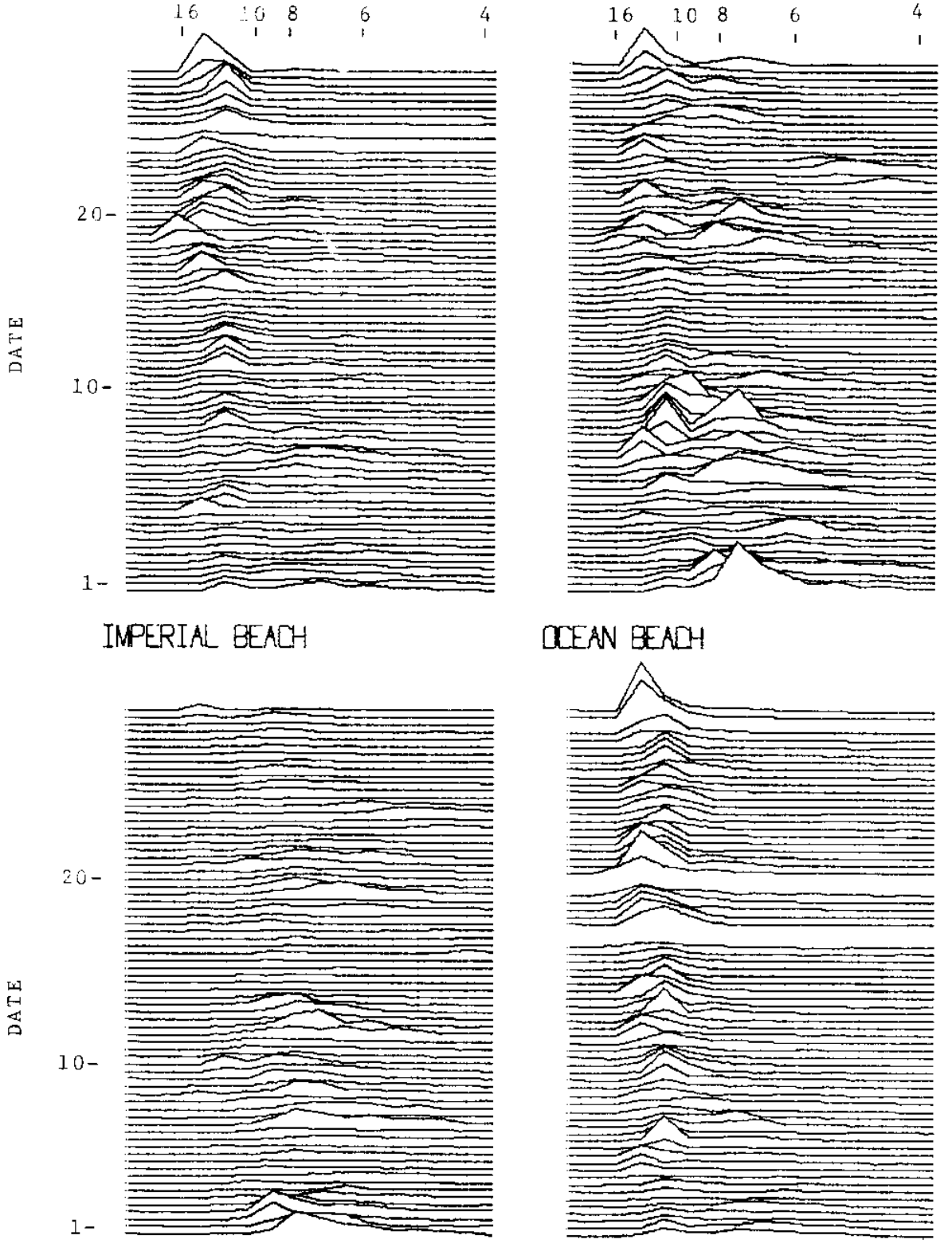
DATA REPORTED

| STA.NO. | DATA TYPE |
|---|---|
| 1 | WAVE SPECTRUM FROM ONE PRESSURE SENSOR |
| 2 | WAVE SPECTRUM FROM ONE PRESSURE SENSOR |
| 3 | WAVE SPECTRUM FROM ONE PRESSURE SENSOR |
| 4 | WAVE SPECTRUM FROM ONE PRESSURE SENSOR |

NOTES -

1. THE SUM OF THE ENERGIES (TOT.EN) IN A WAVE SPECTRUM IS EQUAL TO THE VARIANCE OF THE SURFACE ELEVATION.
2. THE SIGNIFICANT WAVE HEIGHT (SIG.HT) IS EQUAL TO FOUR TIMES THE STANDARD DEVIATION.
3. PACIFIC STANDARD TIME IS THE STARTING TIME FOR THE DATA SAMPLING PERIOD.
4. PERIOD BANDS INCLUDE THE LOWER LIMIT , BUT NOT THE UPPER LIMIT.
5. WAVE ENERGY IS TRUNCATED AT 4 SECOND PERIOD BECAUSE OF DEPTH EXTINCTION CHARACTERISTICS OF THE PRESSURE SENSOR.
6. ROUNDOFF ERRORS MAY PREVENT ENERGIES FROM SUMMING TO 100.0 PERCENT
7. WAVE SPECTRA ARE CALCULATED FROM 1024 SAMPLES AT ONE HZ.
8. SIGNIFICANT WAVE HEIGHTS HAVE BEEN ROUNDED UP TO THE NEAREST FOOT IN THE PERSISTENCE AND MAXIMUM DAILY HEIGHT TABLES.

# WAVE ENERGY SPECTRA DURING JULY 1976



IMPERIAL BEACH
JUL. 1976

| LOCAL DAY/TIME | SIG.HT (CM) | TOT.EN (CM.SQ) | PERCENT ENERGY IN BAND (TOTAL ENERGY INCLUDES RANGE 2048-4 SECS) BAND PERIOD LIMITS (IN SECS) 22+ | 22-18 | 18-16 | 16-14 | 14-12 | 12-10 | 10-8 | 8-6 | 6-4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 0300 | 94.5 | 558.7 | 2.4 | 0.3 | 0.9 | 9.0 | 8.4 | 4.1 | 17.1 | 33.4 | 24.3 |
| 1 1300 | 93.7 | 438.0 | 1.9 | 0.3 | 0.7 | 10.7 | 9.2 | 5.3 | 16.6 | 23.2 | 32.1 |
| 1 2300 | 85.1 | 452.8 | 2.1 | 0.6 | 1.2 | 9.9 | 4.7 | 11.9 | 23.8 | 23.2 | 22.5 |
| 2 0900 | 84.6 | 446.8 | 2.2 | 0.4 | 0.5 | 4.4 | 6.7 | 7.2 | 23.7 | 27.4 | 27.6 |
| 2 1900 | 64.2 | 257.8 | 1.1 | 0.3 | 0.9 | 13.4 | 10.2 | 4.8 | 20.5 | 21.7 | 27.1 |
| 3 0500 | 61.4 | 235.6 | 2.5 | 1.0 | 0.5 | 3.7 | 8.5 | 4.0 | 10.0 | 34.7 | 35.0 |
| 3 1501 | 66.9 | 279.4 | 1.5 | 1.2 | 2.1 | 3.6 | 11.7 | 6.4 | 6.5 | 31.8 | 35.1 |
| 4 0100 | 57.7 | 207.9 | 1.5 | 1.5 | 1.0 | 7.7 | 17.4 | 9.8 | 5.1 | 18.2 | 37.8 |
| 4 1100 | 70.4 | 309.7 | 5.1 | 4.9 | 1.0 | 0.9 | 17.5 | 8.9 | 6.0 | 26.9 | 28.7 |
| 4 2100 | 51.3 | 164.4 | 1.4 | 4.2 | 5.4 | 1.5 | 10.7 | 17.8 | 8.3 | 22.5 | 28.2 |
| 5 0700 | 56.2 | 197.7 | 1.3 | 2.0 | 15.2 | 4.2 | 6.4 | 13.5 | 13.1 | 15.0 | 29.3 |
| 5 1700 | 71.4 | 318.6 | 2.6 | 0.6 | 34.9 | 7.1 | 4.8 | 4.6 | 11.3 | 15.6 | 18.7 |
| 6 0300 | 61.8 | 238.4 | 1.0 | 0.6 | 9.1 | 32.0 | 4.4 | 4.5 | 5.8 | 17.2 | 25.4 |
| 6 1301 | 79.8 | 398.1 | 2.4 | 1.3 | 4.7 | 23.7 | 4.1 | 4.6 | 11.5 | 18.6 | 29.2 |
| 6 2300 | 66.8 | 279.2 | 2.5 | 0.6 | 1.4 | 19.6 | 12.2 | 7.6 | 12.7 | 21.1 | 22.3 |
| 7 0900 | 76.2 | 362.9 | 2.6 | 1.3 | 0.8 | 3.5 | 13.2 | 8.3 | 16.1 | 25.2 | 28.9 |
| 7 1800 | 92.2 | 531.8 | 2.5 | 2.4 | 1.5 | 4.2 | 6.1 | 8.2 | 24.6 | 23.4 | 27.2 |
| 8 0400 | 95.9 | 574.7 | 2.3 | 1.6 | 1.6 | 1.2 | 9.0 | 6.1 | 23.8 | 31.6 | 22.7 |
| 8 1554 | 103.2 | 665.6 | 4.3 | 2.0 | 6.3 | 1.5 | 4.4 | 10.2 | 19.8 | 32.5 | 19.1 |
| 9 0153 | 86.7 | 469.8 | 0.9 | 1.0 | 8.5 | 4.9 | 10.9 | 12.3 | 16.1 | 25.1 | 20.1 |
| 9 1300 | 80.2 | 402.3 | 1.1 | 1.2 | 10.7 | 7.2 | 7.8 | 7.7 | 13.2 | 28.7 | 22.4 |
| 9 2300 | 86.6 | 468.6 | 4.6 | 0.5 | 5.4 | 11.4 | 16.1 | 7.2 | 16.2 | 18.6 | 19.9 |
| 10 0900 | 89.4 | 499.0 | 2.9 | 0.8 | 3.6 | 19.1 | 14.0 | 7.5 | 13.6 | 20.4 | 18.0 |
| 10 1901 | 81.4 | 414.2 | 2.3 | 1.2 | 2.6 | 17.1 | 14.8 | 9.4 | 22.6 | 13.2 | 16.7 |
| 11 0500 | 78.0 | 380.4 | 6.7 | 1.3 | 7.4 | 11.1 | 15.4 | 17.3 | 15.2 | 12.6 | 13.0 |
| 11 1500 | 71.9 | 323.0 | 1.3 | 1.3 | 5.1 | 14.1 | 21.1 | 12.3 | 10.1 | 19.3 | 15.4 |
| 12 0100 | 69.6 | 303.0 | 5.8 | 1.9 | 18.9 | 13.3 | 13.0 | 14.0 | 6.2 | 11.3 | 15.7 |
| 12 1100 | 79.3 | 393.4 | 3.4 | 1.4 | 14.5 | 6.5 | 14.8 | 15.4 | 10.9 | 17.3 | 15.8 |
| 12 2100 | 76.7 | 367.5 | 1.7 | 2.9 | 13.3 | 14.3 | 8.6 | 9.5 | 8.3 | 24.2 | 17.1 |
| 13 0700 | 66.3 | 274.9 | 8.3 | 1.2 | 16.7 | 13.0 | 6.7 | 9.7 | 12.7 | 12.0 | 19.6 |
| 13 1700 | 85.3 | 455.1 | 1.5 | 2.5 | 8.3 | 13.8 | 17.4 | 7.0 | 11.6 | 18.2 | 19.7 |
| 14 0300 | 72.5 | 328.5 | 3.4 | 3.7 | 3.9 | 30.0 | 14.5 | 5.3 | 15.3 | 12.7 | 11.1 |

IMPERIAL BEACH
JUL. 1976

| LOCAL DAY/TIME | | SIG.HT (CM) | TOT.EN (CM.SQ) | PERCENT ENERGY IN BAND (TOTAL ENERGY INCLUDES RANGE 2048-4 SECS) BAND PERIOD LIMITS (IN SECS) 22+ | 22-18 | 18-16 | 16-14 | 14-12 | 12-10 | 10-8 | 8-6 | 6-4 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 14 | 1300 | 76.4 | 365.0 | 2.0 | 1.1 | 2.7 | 21.4 | 25.1 | 3.6 | 12.0 | 19.7 | 12.3 |
| 14 | 2300 | 65.5 | 268.4 | 2.8 | 2.1 | 12.4 | 25.7 | 13.8 | 6.6 | 13.2 | 12.3 | 11.1 |
| 15 | 0900 | 71.9 | 322.9 | 2.0 | 0.3 | 8.7 | 22.2 | 27.8 | 7.6 | 8.2 | 15.9 | 7.4 |
| 15 | 1900 | 55.6 | 193.0 | 2.6 | 1.7 | 4.7 | 25.8 | 24.6 | 7.7 | 8.9 | 9.5 | 14.5 |
| 16 | 0500 | 50.7 | 160.7 | 3.7 | 4.5 | 4.9 | 11.7 | 33.2 | 20.9 | 5.4 | 6.9 | 8.9 |
| 16 | 1508 | 45.8 | 130.8 | 10.3 | 4.9 | 3.7 | 17.1 | 22.0 | 17.8 | 6.9 | 6.6 | 10.6 |
| 17 | 0100 | 49.3 | 151.7 | 9.2 | 7.9 | 6.2 | 12.9 | 22.8 | 8.4 | 10.8 | 7.6 | 14.1 |
| 17 | 1100 | 54.5 | 185.3 | 10.4 | 2.0 | 9.6 | 5.5 | 18.8 | 10.0 | 15.2 | 7.9 | 20.5 |
| 17 | 2100 | 57.6 | 207.5 | 3.1 | 8.8 | 25.7 | 9.4 | 12.0 | 6.6 | 15.2 | 6.9 | 12.4 |
| 18 | 0700 | 78.1 | 381.3 | 1.6 | 8.7 | 10.4 | 29.3 | 16.0 | 6.6 | 2.7 | 4.8 | 19.7 |
| 18 | 1700 | 75.5 | 356.1 | 3.5 | 23.3 | 4.6 | 15.5 | 17.2 | 10.6 | 4.3 | 3.4 | 17.6 |
| 19 | 0300 | 85.4 | 455.7 | 2.0 | 35.0 | 4.1 | 12.6 | 5.0 | 15.0 | 8.3 | 3.3 | 14.6 |
| 19 | 1400 | 87.6 | 479.8 | 2.2 | 18.5 | 4.1 | 6.1 | 7.2 | 7.9 | 10.0 | 22.2 | 21.9 |
| 20 | 0016 | 80.2 | 402.0 | 8.6 | 8.1 | 19.2 | 6.1 | 8.6 | 8.6 | 10.2 | 17.8 | 12.8 |
| 20 | 0904 | 79.0 | 390.3 | 10.2 | 2.4 | 16.3 | 3.3 | 10.2 | 7.5 | 8.2 | 20.0 | 22.0 |
| 20 | 1900 | 87.2 | 474.9 | 21.5 | 11.2 | 13.1 | 2.7 | 3.6 | 10.2 | 13.0 | 11.1 | 13.5 |
| 21 | 0500 | 89.2 | 497.7 | 3.8 | 35.3 | 7.0 | 5.2 | 4.6 | 10.8 | 12.1 | 8.5 | 12.6 |
| 21 | 1616 | 89.4 | 499.1 | 2.8 | 25.0 | 9.1 | 11.7 | 3.8 | 4.9 | 11.4 | 14.5 | 16.9 |
| 22 | 0100 | 87.8 | 482.2 | 1.7 | 24.9 | 7.2 | 17.3 | 4.5 | 6.1 | 15.2 | 14.1 | 9.0 |
| 22 | 1159 | 95.9 | 575.2 | 2.5 | 22.5 | 2.7 | 19.7 | 4.4 | 7.1 | 15.9 | 14.6 | 10.6 |
| 22 | 2100 | 94.9 | 562.5 | 2.6 | 13.3 | 4.9 | 18.2 | 12.8 | 7.5 | 14.2 | 14.8 | 11.7 |
| 23 | 0700 | 82.6 | 426.0 | 2.6 | 15.4 | 22.3 | 11.4 | 20.3 | 6.7 | 6.4 | 7.7 | 7.3 |
| 23 | 1700 | 82.0 | 420.1 | 2.9 | 2.0 | 26.1 | 9.1 | 30.5 | 5.3 | 7.5 | 9.3 | 7.4 |
| 24 | 0300 | 75.1 | 351.3 | 3.7 | 3.6 | 15.2 | 15.7 | 28.0 | 6.6 | 4.5 | 5.2 | 17.5 |
| 24 | 1421 | 72.5 | 328.5 | 4.5 | 5.4 | 14.2 | 23.6 | 22.7 | 4.8 | 3.9 | 6.3 | 14.8 |
| 24 | 2300 | 82.8 | 428.5 | 6.9 | 6.5 | 13.3 | 16.5 | 20.7 | 3.7 | 3.3 | 4.8 | 24.3 |
| 25 | 0900 | 77.5 | 374.9 | 2.0 | 12.7 | 9.5 | 10.9 | 29.7 | 6.0 | 3.0 | 8.1 | 18.0 |
| 25 | 2017 | 76.1 | 361.9 | 2.7 | 20.1 | 17.5 | 8.0 | 23.1 | 4.7 | 3.9 | 6.6 | 13.3 |
| 26 | 1559 | 66.4 | 275.6 | 4.2 | 0.3 | 26.9 | 9.6 | 20.8 | 6.7 | 9.6 | 10.8 | 11.1 |
| 27 | 1110 | 65.9 | 271.2 | 4.1 | 1.4 | 11.6 | 42.1 | 9.8 | 12.4 | 7.3 | 6.8 | 4.7 |
| 27 | 2100 | 59.2 | 219.3 | 4.1 | 4.5 | 13.5 | 31.9 | 12.1 | 10.0 | 9.6 | 7.9 | 6.4 |

IMPERIAL BEACH
JUL. 1976

| LOCAL DAY/TIME | | SIG.HT (CM) | TOT.EN (CM.SQ) | PERCENT ENERGY IN BAND (TOTAL ENERGY INCLUDES RANGE 2048-4 SECS) BAND PERIOD LIMITS (IN SECS) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 22+ | 22-18 | 18-16 | 16-14 | 14-12 | 12-10 | 10-8 | 8-6 | 6-4 |
| 28 | 0700 | 69.4 | 301.0 | 6.6 | 1.6 | 14.5 | 32.8 | 16.6 | 12.0 | 4.7 | 5.8 | 5.3 |
| 28 | 1701 | 75.7 | 358.4 | 2.9 | 2.6 | 13.4 | 30.1 | 22.7 | 8.1 | 7.6 | 7.7 | 5.1 |
| 29 | 0300 | 85.4 | 455.8 | 2.0 | 5.7 | 5.3 | 45.2 | 17.8 | 4.2 | 6.1 | 6.4 | 7.3 |
| 29 | 1300 | 86.0 | 462.7 | 4.6 | 15.7 | 6.4 | 37.7 | 16.4 | 3.5 | 5.2 | 3.5 | 6.8 |
| 29 | 2300 | 85.0 | 451.1 | 4.8 | 22.5 | 16.5 | 27.0 | 9.7 | 3.6 | 7.6 | 4.6 | 3.6 |
| 30 | 0900 | 100.5 | 630.6 | 3.4 | 26.9 | 27.0 | 10.7 | 16.4 | 2.4 | 5.6 | 5.2 | 2.4 |
| 31 | 0500 | 96.2 | 578.4 | 2.6 | 23.2 | 30.5 | 6.8 | 8.9 | 2.7 | 16.4 | 5.3 | 3.6 |
| 31 | 1034 | 99.9 | 623.6 | 3.6 | 17.3 | 41.6 | 11.0 | 7.5 | 2.5 | 9.5 | 3.8 | 3.3 |
| 31 | 1500 | 122.3 | 934.7 | 2.5 | 39.2 | 22.5 | 7.0 | 7.9 | 2.3 | 12.0 | 3.5 | 3.0 |
| 31 | 2000 | 104.4 | 681.4 | 2.1 | 16.1 | 46.7 | 11.3 | 5.3 | 2.9 | 9.0 | 3.9 | 2.6 |

IMPERIAL BEACH

## P E R S I S T E N C E

(CONSECUTIVE DAYS (3 OR MORE) SIGNIFICANT WAVE HEIGHT IS 'N' FEET OR LESS)

31 DAYS OF OBSERVATION
JUL. 1-31, 1976

| FEET | DAYS |
|---|---|
| 1 | 0, |
| 2 | 3, 3, 3, |
| 3 | 30, |
| 4 | 31, |
| 5 | 31, |
| 6 | 31, |
| 8 | 31, |
| 10 | 31, |
| 12 | 31, |

MAXIMUM DAILY SIGNIFICANT WAVE HEIGHT FOR JUL. 1976

| DATE (JUL.) | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|
| SIG.HT (FT.) | 3 | 3 | 2 | 2 | 2 | 3 | 3 |

| DATE (JUL.) | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
|---|---|---|---|---|---|---|---|
| SIG.HT (FT.) | 3 | 3 | 3 | 3 | 3 | 3 | 3 |

| DATE (JUL.) | 15 | 16 | 17 | 18 | 19 | 20 | 21 |
|---|---|---|---|---|---|---|---|
| SIG.HT (FT.) | 2 | 2 | 2 | 3 | 3 | 3 | 3 |

| DATE (JUL.) | 22 | 23 | 24 | 25 | 26 | 27 | 28 |
|---|---|---|---|---|---|---|---|
| SIG.HT (FT.) | 3 | 3 | 3 | 3 | 2 | 2 | 2 |

| DATE (JUL.) | 29 | 30 | 31 |
|---|---|---|---|
| SIG.HT (FT.) | 3 | 3 | 4 |

OCEAN BEACH
JUL. 1976

| LOCAL DAY/TIME | SIG.HT (CM) | TOT.EN (CM.SQ) | PERCENT ENERGY IN BAND (TOTAL ENERGY INCLUDES RANGE 2048-4 SECS) BAND PERIOD LIMITS (IN SECS) 22+ | 22-18 | 18-16 | 16-14 | 14-12 | 12-10 | 10-8 | 8-6 | 6-4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 0319 | 150.2 | 1409.3 | 1.5 | 0.2 | 0.8 | 3.1 | 2.1 | 4.3 | 37.5 | 30.8 | 19.7 |
| 1 1319 | 118.6 | 879.1 | 1.2 | 0.4 | 0.5 | 2.9 | 6.1 | 8.5 | 37.7 | 23.2 | 19.5 |
| 1 2319 | 108.8 | 739.8 | 1.7 | 0.5 | 0.5 | 4.3 | 4.4 | 27.7 | 27.6 | 17.9 | 15.4 |
| 2 0919 | 121.7 | 925.6 | 1.9 | 0.3 | 0.6 | 1.5 | 3.1 | 6.1 | 34.2 | 20.8 | 31.6 |
| 2 1919 | 91.6 | 524.7 | 1.1 | 0.3 | 0.7 | 4.0 | 5.7 | 7.6 | 38.9 | 23.5 | 18.2 |
| 3 0519 | 76.3 | 363.7 | 0.9 | 0.6 | 1.1 | 4.2 | 22.3 | 6.3 | 16.5 | 26.5 | 21.6 |
| 3 1520 | 86.1 | 463.7 | 1.7 | 0.4 | 0.4 | 2.0 | 24.0 | 9.3 | 6.8 | 28.6 | 26.8 |
| 4 0119 | 72.3 | 326.5 | 1.1 | 0.8 | 1.0 | 3.0 | 11.4 | 19.6 | 5.6 | 29.5 | 28.0 |
| 4 1119 | 99.9 | 624.1 | 1.7 | 0.9 | 1.0 | 0.5 | 6.5 | 8.1 | 5.5 | 47.2 | 28.6 |
| 4 2119 | 77.2 | 372.5 | 0.5 | 2.8 | 1.5 | 0.8 | 8.5 | 10.4 | 11.3 | 42.1 | 22.3 |
| 5 0719 | 76.2 | 363.0 | 1.0 | 1.9 | 15.1 | 1.6 | 3.9 | 6.6 | 22.3 | 27.1 | 20.6 |
| 5 1719 | 68.1 | 289.5 | 3.2 | 0.9 | 7.9 | 6.3 | 2.8 | 10.9 | 20.0 | 24.4 | 23.5 |
| 6 0319 | 63.1 | 248.8 | 1.4 | 1.1 | 8.9 | 17.0 | 9.1 | 5.8 | 9.8 | 22.3 | 24.7 |
| 6 1321 | 94.1 | 553.0 | 1.5 | 0.7 | 1.6 | 8.9 | 2.7 | 4.3 | 12.9 | 35.1 | 32.5 |
| 6 2319 | 91.9 | 527.7 | 1.2 | 0.8 | 0.8 | 15.9 | 10.8 | 13.4 | 15.8 | 20.6 | 20.8 |
| 7 0918 | 132.3 | 1093.3 | 1.3 | 0.5 | 0.4 | 2.6 | 5.4 | 5.5 | 33.4 | 30.8 | 20.1 |
| 7 1819 | 106.7 | 712.0 | 1.7 | 2.5 | 5.3 | 8.0 | 4.5 | 5.6 | 30.4 | 20.4 | 21.5 |
| 8 0420 | 115.9 | 839.8 | 1.7 | 2.0 | 7.2 | 2.6 | 19.6 | 5.5 | 21.8 | 20.0 | 19.6 |
| 8 1612 | 115.5 | 833.1 | 3.0 | 5.1 | 13.0 | 2.3 | 3.3 | 13.9 | 18.5 | 22.5 | 18.5 |
| 9 0212 | 124.1 | 961.8 | 1.4 | 1.0 | 21.0 | 4.8 | 2.8 | 13.9 | 24.4 | 18.3 | 12.5 |
| 9 1319 | 111.4 | 775.3 | 1.6 | 0.7 | 10.6 | 20.9 | 2.7 | 8.4 | 20.1 | 20.0 | 15.0 |
| 9 2319 | 128.0 | 1023.3 | 3.3 | 0.8 | 2.5 | 27.5 | 4.9 | 5.5 | 26.9 | 19.9 | 9.8 |
| 10 0919 | 146.3 | 1337.4 | 1.9 | 0.9 | 3.1 | 17.5 | 4.7 | 6.3 | 34.9 | 17.6 | 13.2 |
| 10 1920 | 112.4 | 789.3 | 1.4 | 2.9 | 3.6 | 21.5 | 11.8 | 7.3 | 21.7 | 19.0 | 10.7 |
| 11 0519 | 120.4 | 906.0 | 3.8 | 1.0 | 3.7 | 8.0 | 26.3 | 22.5 | 10.9 | 13.1 | 10.7 |
| 11 1519 | 123.4 | 952.0 | 1.8 | 0.4 | 7.5 | 9.7 | 36.2 | 12.1 | 9.7 | 12.3 | 10.2 |
| 12 0119 | 96.8 | 585.7 | 2.8 | 0.4 | 6.1 | 11.4 | 16.2 | 21.3 | 14.6 | 16.1 | 11.1 |
| 12 1119 | 79.3 | 392.6 | 1.9 | 0.8 | 5.9 | 13.9 | 6.5 | 12.7 | 17.5 | 20.1 | 20.7 |
| 12 2119 | 99.0 | 612.1 | 1.3 | 1.3 | 12.1 | 6.9 | 7.6 | 5.5 | 12.9 | 35.7 | 16.7 |
| 13 0719 | 80.8 | 408.4 | 4.3 | 1.2 | 6.3 | 14.4 | 5.1 | 7.6 | 7.2 | 26.3 | 27.6 |
| 13 1719 | 78.8 | 388.4 | 1.6 | 1.8 | 6.8 | 24.9 | 7.8 | 6.2 | 17.8 | 15.9 | 14.2 |
| 14 0319 | 79.4 | 393.9 | 2.2 | 1.0 | 6.0 | 18.6 | 10.5 | 4.9 | 32.1 | 16.0 | 8.8 |

OCEAN BEACH
JUL. 1976

| LOCAL DAY/TIME | SIG.HT (CM) | TOT.EN (CM.SQ) | PERCENT ENERGY IN BAND (TOTAL ENERGY INCLUDES RANGE 2048-4 SECS) BAND PERIOD LIMITS (IN SECS) 22+ | 22-18 | 18-16 | 16-14 | 14-12 | 12-10 | 10-8 | 8-6 | 6-4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 14 1319 | 72.9 | 331.8 | 2.0 | 2.3 | 6.2 | 21.2 | 15.1 | 8.9 | 13.3 | 13.2 | 17.9 |
| 14 2319 | 58.1 | 211.0 | 4.3 | 1.8 | 8.2 | 27.3 | 9.4 | 5.2 | 12.9 | 17.1 | 13.8 |
| 15 0919 | 61.5 | 236.6 | 3.2 | 0.8 | 11.8 | 16.2 | 13.3 | 10.0 | 14.4 | 12.3 | 17.9 |
| 15 1919 | 53.4 | 178.0 | 2.6 | 1.6 | 7.9 | 24.6 | 15.2 | 8.9 | 12.7 | 11.7 | 14.9 |
| 16 0519 | 51.1 | 162.9 | 1.9 | 1.7 | 4.2 | 20.8 | 26.0 | 8.8 | 11.5 | 13.3 | 11.8 |
| 16 1527 | 50.4 | 159.0 | 4.3 | 2.0 | 2.8 | 25.0 | 16.2 | 20.1 | 10.5 | 9.5 | 9.6 |
| 17 0119 | 53.4 | 178.4 | 3.0 | 4.8 | 4.4 | 12.8 | 11.2 | 10.7 | 13.1 | 5.2 | 34.9 |
| 17 1119 | 55.1 | 189.5 | 7.3 | 5.8 | 18.4 | 13.5 | 11.5 | 7.1 | 9.6 | 7.9 | 18.9 |
| 17 2119 | 56.4 | 199.0 | 2.3 | 10.3 | 8.2 | 12.5 | 21.4 | 6.4 | 12.1 | 5.6 | 21.3 |
| 18 0719 | 74.7 | 348.6 | 1.2 | 8.1 | 4.8 | 22.0 | 7.2 | 5.8 | 13.6 | 7.6 | 29.9 |
| 18 1719 | 89.3 | 498.3 | 3.0 | 10.7 | 2.0 | 21.1 | 9.4 | 9.0 | 17.0 | 8.7 | 19.0 |
| 19 0319 | 77.7 | 377.7 | 4.7 | 6.9 | 6.2 | 7.3 | 9.2 | 16.3 | 13.5 | 8.0 | 27.9 |
| 19 1303 | 99.0 | 612.3 | 4.3 | 2.9 | 10.7 | 6.8 | 6.3 | 5.4 | 10.7 | 25.4 | 27.5 |
| 19 2319 | 78.7 | 387.3 | 5.6 | 3.9 | 11.3 | 2.1 | 4.6 | 8.6 | 23.7 | 24.6 | 15.7 |
| 20 0924 | 109.5 | 749.7 | 5.4 | 2.7 | 11.5 | 2.9 | 1.9 | 4.8 | 10.7 | 32.6 | 27.6 |
| 20 1919 | 118.3 | 875.0 | 4.0 | 8.0 | 5.6 | 3.0 | 3.3 | 8.7 | 31.2 | 26.1 | 10.1 |
| 21 0519 | 105.6 | 697.3 | 2.4 | 17.9 | 6.8 | 1.8 | 2.0 | 12.9 | 25.4 | 19.7 | 11.2 |
| 21 1519 | 105.8 | 700.0 | 3.0 | 20.7 | 5.1 | 10.7 | 5.8 | 4.9 | 22.7 | 15.2 | 11.7 |
| 22 0119 | 102.5 | 656.3 | 1.7 | 9.7 | 2.4 | 11.0 | 4.6 | 10.9 | 32.6 | 16.5 | 10.7 |
| 22 1103 | 100.0 | 625.1 | 2.0 | 8.8 | 3.1 | 9.4 | 4.3 | 15.8 | 18.3 | 21.3 | 17.0 |
| 22 2119 | 92.0 | 529.3 | 3.7 | 15.3 | 2.7 | 15.7 | 2.7 | 10.2 | 23.2 | 14.6 | 11.9 |
| 23 0719 | 88.0 | 483.9 | 2.1 | 5.1 | 31.5 | 4.2 | 7.7 | 8.5 | 17.8 | 13.3 | 10.0 |
| 23 1719 | 66.5 | 276.4 | 2.6 | 6.8 | 21.3 | 7.2 | 9.6 | 4.5 | 15.4 | 14.4 | 18.3 |
| 24 0319 | 81.7 | 417.4 | 2.7 | 1.4 | 11.0 | 7.4 | 10.1 | 3.9 | 11.4 | 8.7 | 43.4 |
| 24 1325 | 70.6 | 311.1 | 1.8 | 4.8 | 5.3 | 15.6 | 13.5 | 4.5 | 9.9 | 9.1 | 35.6 |
| 24 2319 | 95.2 | 565.8 | 3.4 | 1.4 | 7.9 | 7.1 | 10.7 | 2.7 | 4.4 | 10.3 | 52.0 |
| 25 0919 | 78.7 | 386.8 | 1.5 | 7.6 | 10.8 | 4.2 | 9.9 | 3.7 | 5.4 | 20.4 | 36.5 |
| 25 1920 | 76.2 | 363.1 | 2.3 | 15.2 | 21.3 | 6.9 | 4.7 | 8.1 | 8.7 | 12.9 | 19.9 |
| 26 0620 | 71.4 | 318.2 | 3.4 | 4.1 | 32.2 | 10.7 | 8.7 | 7.7 | 9.2 | 10.6 | 13.4 |
| 26 1503 | 67.4 | 283.5 | 2.6 | 0.6 | 17.0 | 12.9 | 7.0 | 9.5 | 13.8 | 14.8 | 21.9 |
| 27 0103 | 77.9 | 379.1 | 4.4 | 0.3 | 21.3 | 17.1 | 8.3 | 12.5 | 14.6 | 9.2 | 12.3 |
| 27 1128 | 76.4 | 364.6 | 2.0 | 0.8 | 2.8 | 20.2 | 8.5 | 26.0 | 14.9 | 12.9 | 11.9 |

OCEAN BEACH
JUL. 1976

| LOCAL DAY/TIME | | SIG.HT (CM) | TOT.EN (CM.SQ) | PERCENT ENERGY IN BAND (TOTAL ENERGY INCLUDES RANGE 2048-4 SECS) BAND PERIOD LIMITS (IN SECS) 22+ | 22-18 | 18-16 | 16-14 | 14-12 | 12-10 | 10-8 | 8-6 | 6-4 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 27 | 2119 | 85.4 | 456.2 | 4.3 | 1.0 | 2.0 | 7.1 | 11.1 | 24.3 | 33.8 | 9.7 | 6.8 |
| 28 | 0719 | 69.4 | 300.7 | 6.6 | 1.1 | 3.7 | 23.6 | 11.3 | 15.5 | 16.9 | 11.2 | 10.0 |
| 28 | 1720 | 70.0 | 305.8 | 4.4 | 3.1 | 13.0 | 14.6 | 10.0 | 9.6 | 22.5 | 15.2 | 7.7 |
| 29 | 0319 | 78.0 | 379.7 | 1.4 | 5.8 | 3.8 | 28.0 | 10.6 | 10.1 | 13.6 | 10.4 | 16.1 |
| 29 | 1319 | 90.9 | 516.3 | 4.1 | 11.1 | 1.7 | 26.7 | 7.0 | 12.5 | 20.2 | 7.9 | 8.8 |
| 29 | 2319 | 80.9 | 409.1 | 4.4 | 24.6 | 6.8 | 10.2 | 16.7 | 9.8 | 11.8 | 7.2 | 8.5 |
| 30 | 0919 | 83.3 | 433.2 | 4.5 | 27.6 | 18.2 | 7.6 | 17.3 | 6.7 | 7.8 | 5.9 | 4.3 |
| 30 | 1919 | 105.2 | 692.2 | 4.2 | 19.3 | 26.7 | 7.7 | 10.3 | 1.7 | 17.5 | 8.4 | 4.3 |
| 31 | 0519 | 99.9 | 623.4 | 2.4 | 19.0 | 33.6 | 3.1 | 6.6 | 2.2 | 18.6 | 8.1 | 6.5 |
| 31 | 1053 | 102.6 | 658.2 | 3.6 | 25.4 | 31.0 | 12.6 | 3.8 | 4.0 | 11.8 | 3.7 | 4.0 |
| 31 | 1519 | 103.3 | 667.3 | 2.6 | 27.5 | 33.3 | 2.6 | 3.9 | 5.0 | 15.0 | 6.0 | 4.0 |
| 31 | 2019 | 94.3 | 555.5 | 2.4 | 6.6 | 56.1 | 6.1 | 4.7 | 3.0 | 12.4 | 4.3 | 4.5 |

OCEAN BEACH

## P E R S I S T E N C E

(CONSECUTIVE DAYS (3 OR MORE) SIGNIFICANT WAVE HEIGHT IS 'N' FEET OR LESS)

31 DAYS OF OBSERVATION
JUL. 1-31, 1976

| FEET | DAYS |
|---|---|
| 1 | 0, |
| 2 | 3, |
| 3 | 11, 8, 4, |
| 4 | 21, 8, |
| 5 | 31, |
| 6 | 31, |
| 8 | 31, |
| 10 | 31, |
| 12 | 31, |

MAXIMUM DAILY SIGNIFICANT WAVE HEIGHT FOR JUL. 1976

| DATE (JUL.) | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|
| SIG.HT (FT.) | 5 | 4 | 3 | 3 | 3 | 3 | 4 |

| DATE (JUL.) | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
|---|---|---|---|---|---|---|---|
| SIG.HT (FT.) | 4 | 4 | 5 | 4 | 3 | 3 | 3 |

| DATE (JUL.) | 15 | 16 | 17 | 18 | 19 | 20 | 21 |
|---|---|---|---|---|---|---|---|
| SIG.HT (FT.) | 2 | 2 | 2 | 3 | 3 | 4 | 3 |

| DATE (JUL.) | 22 | 23 | 24 | 25 | 26 | 27 | 28 |
|---|---|---|---|---|---|---|---|
| SIG.HT (FT.) | 3 | 3 | 3 | 3 | 2 | 3 | 2 |

| DATE (JUL.) | 29 | 30 | 31 |
|---|---|---|---|
| SIG.HT (FT.) | 3 | 3 | 3 |

SCRIPPS PIER
JUL. 1976

| LOCAL DAY/TIME | | SIG.HT (CM) | TOT.EN (CM.SQ) | PERCENT ENERGY IN BAND (TOTAL ENERGY INCLUDES RANGE 2048-4 SECS) BAND PERIOD LIMITS (IN SECS) 22+ | 22-18 | 18-16 | 16-14 | 14-12 | 12-10 | 10-8 | 8-6 | 6-4 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0338 | 109.4 | 747.3 | 1.7 | 0.2 | 0.2 | 1.4 | 0.8 | 2.7 | 32.1 | 35.6 | 25.2 |
| 1 | 1338 | 97.7 | 596.6 | 3.7 | 0.1 | 0.2 | 1.5 | 1.0 | 3.7 | 28.9 | 44.7 | 16.3 |
| 1 | 2338 | 82.2 | 422.2 | 3.4 | 0.2 | 0.2 | 0.6 | 0.8 | 12.0 | 44.9 | 24.6 | 13.3 |
| 2 | 0938 | 105.7 | 697.9 | 2.2 | 0.1 | 0.1 | 0.8 | 1.3 | 9.3 | 38.2 | 24.6 | 23.5 |
| 2 | 1938 | 74.0 | 342.1 | 1.7 | 0.2 | 0.1 | 0.8 | 2.0 | 6.5 | 44.2 | 29.7 | 14.8 |
| 3 | 0538 | 71.6 | 320.6 | 1.2 | 0.1 | 0.1 | 0.7 | 10.0 | 1.9 | 11.8 | 37.7 | 36.6 |
| 3 | 1539 | 55.1 | 189.7 | 2.1 | 0.3 | 0.3 | 0.9 | 7.4 | 6.2 | 7.4 | 38.8 | 36.6 |
| 4 | 0138 | 48.6 | 147.8 | 1.1 | 0.3 | 0.4 | 1.0 | 2.6 | 22.8 | 9.3 | 21.1 | 41.3 |
| 4 | 1138 | 63.4 | 250.8 | 2.5 | 0.4 | 0.2 | 0.1 | 2.2 | 7.2 | 8.7 | 36.7 | 41.9 |
| 4 | 2138 | 46.7 | 136.1 | 1.0 | 0.5 | 0.4 | 0.2 | 2.8 | 17.1 | 17.2 | 31.8 | 29.0 |
| 5 | 0738 | 41.2 | 106.2 | 1.2 | 0.4 | 3.0 | 0.3 | 1.3 | 6.9 | 24.4 | 30.5 | 32.1 |
| 5 | 1738 | 45.2 | 127.9 | 4.2 | 0.5 | 2.5 | 1.0 | 1.3 | 7.4 | 37.6 | 19.2 | 26.5 |
| 6 | 0338 | 39.0 | 95.1 | 1.3 | 0.8 | 3.5 | 8.2 | 2.9 | 6.6 | 16.4 | 23.2 | 37.1 |
| 6 | 1340 | 61.1 | 233.0 | 3.2 | 0.2 | 0.3 | 1.4 | 0.8 | 2.2 | 13.5 | 39.6 | 38.9 |
| 6 | 2338 | 62.7 | 245.5 | 0.5 | 0.1 | 0.2 | 1.6 | 1.0 | 8.1 | 23.7 | 21.4 | 43.4 |
| 7 | 0937 | 103.8 | 672.7 | 0.9 | 0.2 | 0.1 | 0.6 | 0.5 | 6.4 | 25.6 | 34.3 | 31.5 |
| 7 | 1838 | 73.5 | 337.2 | 2.3 | 0.5 | 0.3 | 0.9 | 1.9 | 6.1 | 24.2 | 21.4 | 42.4 |
| 8 | 0439 | 92.2 | 531.6 | 2.4 | 0.3 | 0.7 | 0.3 | 3.8 | 3.8 | 17.6 | 41.8 | 29.2 |
| 8 | 1631 | 82.2 | 422.4 | 3.4 | 0.6 | 2.6 | 0.4 | 3.1 | 13.3 | 22.3 | 28.8 | 25.4 |
| 9 | 0231 | 95.7 | 572.1 | 1.2 | 0.4 | 4.7 | 1.6 | 0.9 | 9.7 | 23.9 | 34.7 | 22.8 |
| 9 | 1338 | 76.1 | 361.5 | 0.9 | 0.2 | 2.0 | 3.8 | 0.8 | 11.5 | 23.6 | 30.4 | 26.6 |
| 9 | 2338 | 77.1 | 371.4 | 5.0 | 0.2 | 0.7 | 3.9 | 1.1 | 10.1 | 37.0 | 26.0 | 16.0 |
| 10 | 0938 | 93.5 | 435.2 | 1.5 | 0.1 | 0.7 | 6.2 | 2.5 | 8.6 | 29.7 | 30.9 | 19.8 |
| 10 | 1939 | 80.0 | 400.4 | 2.0 | 0.5 | 1.2 | 10.5 | 13.1 | 7.2 | 35.2 | 15.5 | 14.7 |
| 11 | 0538 | 62.4 | 243.5 | 4.4 | 0.2 | 2.1 | 4.1 | 14.0 | 10.4 | 33.1 | 19.6 | 12.1 |
| 11 | 1538 | 63.3 | 250.2 | 2.5 | 0.4 | 0.8 | 2.3 | 8.9 | 14.3 | 20.8 | 31.2 | 18.9 |
| 12 | 0138 | 60.9 | 232.1 | 5.2 | 0.2 | 1.8 | 2.7 | 8.0 | 16.6 | 24.1 | 25.2 | 16.2 |
| 12 | 1138 | 91.4 | 521.6 | 1.5 | 0.1 | 1.0 | 3.1 | 1.3 | 10.5 | 22.2 | 29.5 | 30.8 |
| 12 | 2138 | 92.7 | 537.1 | 1.9 | 0.3 | 0.5 | 1.7 | 2.5 | 7.6 | 29.3 | 43.7 | 12.4 |
| 13 | 0738 | 69.1 | 298.0 | 4.4 | 0.1 | 0.7 | 4.1 | 2.9 | 6.3 | 17.0 | 43.7 | 20.8 |
| 13 | 1738 | 79.2 | 392.3 | 2.6 | 0.4 | 0.5 | 0.9 | 1.8 | 8.1 | 33.3 | 40.4 | 12.0 |
| 14 | 0338 | 73.0 | 333.4 | 2.9 | 0.3 | 0.3 | 3.0 | 4.3 | 10.7 | 50.2 | 16.6 | 11.8 |

SCRIPPS PIER
JUL. 1976

| LOCAL DAY/TIME | SIG.HT (CM) | TOT.EN (CM.SQ) | PERCENT ENERGY IN BAND (TOTAL ENERGY INCLUDES RANGE 2048-4 SECS) BAND PERIOD LIMITS (IN SECS) 22+ | 22-18 | 18-16 | 16-14 | 14-12 | 12-10 | 10-8 | 8-6 | 6-4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 14 1338 | 54.3 | 184.5 | 4.0 | 0.3 | 0.9 | 1.9 | 5.4 | 13.8 | 28.8 | 27.2 | 17.6 |
| 14 2338 | 37.1 | 86.2 | 5.2 | 0.6 | 4.1 | 5.2 | 7.9 | 17.4 | 22.0 | 15.9 | 21.5 |
| 15 0938 | 35.2 | 77.6 | 10.5 | 0.2 | 3.1 | 2.1 | 8.3 | 11.6 | 17.3 | 15.1 | 31.9 |
| 15 1938 | 34.8 | 75.7 | 2.6 | 0.7 | 1.6 | 2.9 | 8.8 | 14.0 | 21.9 | 33.5 | 13.9 |
| 16 0538 | 30.7 | 58.8 | 2.1 | 0.7 | 0.7 | 6.1 | 12.0 | 8.7 | 11.9 | 28.9 | 28.9 |
| 16 1546 | 27.7 | 47.7 | 5.1 | 0.7 | 2.6 | 6.0 | 4.3 | 20.8 | 20.7 | 19.3 | 20.6 |
| 17 0138 | 45.2 | 127.8 | 1.3 | 0.3 | 1.8 | 1.3 | 1.3 | 6.0 | 22.1 | 6.1 | 59.7 |
| 17 1138 | 31.8 | 63.2 | 3.4 | 0.8 | 2.3 | 1.5 | 3.8 | 6.7 | 15.6 | 14.9 | 51.0 |
| 17 2138 | 35.5 | 78.7 | 1.2 | 0.7 | 3.5 | 0.9 | 4.2 | 6.9 | 33.0 | 11.1 | 38.5 |
| 18 0738 | 47.5 | 141.0 | 0.9 | 5.8 | 0.4 | 1.6 | 3.8 | 8.2 | 17.0 | 10.0 | 52.3 |
| 18 1738 | 46.0 | 132.2 | 2.0 | 7.5 | 0.8 | 3.1 | 2.9 | 27.1 | 21.7 | 11.5 | 23.4 |
| 19 0338 | 46.2 | 133.6 | 1.2 | 6.1 | 1.2 | 1.4 | 2.8 | 19.1 | 20.8 | 8.6 | 38.8 |
| 19 1322 | 72.4 | 327.3 | 1.7 | 2.0 | 1.7 | 0.5 | 0.6 | 6.7 | 23.1 | 32.3 | 31.4 |
| 19 2338 | 55.4 | 191.9 | 0.8 | 1.0 | 2.4 | 0.7 | 1.4 | 7.6 | 24.1 | 35.0 | 27.0 |
| 20 0943 | 89.7 | 503.2 | 1.8 | 0.2 | 1.5 | 0.3 | 0.7 | 3.4 | 15.8 | 50.3 | 26.0 |
| 20 1938 | 71.2 | 316.8 | 2.0 | 0.9 | 2.1 | 0.3 | 1.1 | 6.6 | 40.7 | 31.7 | 14.6 |
| 21 0538 | 65.2 | 265.4 | 2.5 | 1.8 | 1.6 | 0.6 | 1.2 | 9.9 | 31.4 | 32.7 | 18.3 |
| 21 1538 | 58.1 | 211.3 | 3.2 | 3.8 | 1.1 | 2.8 | 1.5 | 4.3 | 31.1 | 29.9 | 21.7 |
| 22 0138 | 75.0 | 351.3 | 1.7 | 5.8 | 0.5 | 1.9 | 5.0 | 20.0 | 27.9 | 24.8 | 12.4 |
| 22 1122 | 81.6 | 416.3 | 1.4 | 2.2 | 1.1 | 1.4 | 0.8 | 10.9 | 24.9 | 36.8 | 20.4 |
| 22 2138 | 57.9 | 209.7 | 4.4 | 1.2 | 3.9 | 1.5 | 1.8 | 10.1 | 31.5 | 23.8 | 21.9 |
| 23 0738 | 57.6 | 207.1 | 1.7 | 2.6 | 3.4 | 2.3 | 2.0 | 5.4 | 24.3 | 35.9 | 22.4 |
| 23 1738 | 49.5 | 153.0 | 3.9 | 0.9 | 8.3 | 0.7 | 5.0 | 5.3 | 18.5 | 19.2 | 38.1 |
| 24 0338 | 60.2 | 226.7 | 2.4 | 0.6 | 4.0 | 1.1 | 3.2 | 1.3 | 21.1 | 10.9 | 55.4 |
| 24 1344 | 45.3 | 128.4 | 1.7 | 1.3 | 2.3 | 3.7 | 2.0 | 2.7 | 7.7 | 13.6 | 65.0 |
| 24 2338 | 72.6 | 329.6 | 2.9 | 0.8 | 1.0 | 1.6 | 1.8 | 1.9 | 5.1 | 9.4 | 75.5 |
| 25 0938 | 64.4 | 259.2 | 1.4 | 0.5 | 2.6 | 0.4 | 1.4 | 3.9 | 5.8 | 33.9 | 50.1 |
| 25 1939 | 49.8 | 154.9 | 2.2 | 1.2 | 7.7 | 0.9 | 4.4 | 10.2 | 10.2 | 22.2 | 41.1 |
| 26 0639 | 52.8 | 174.5 | 5.2 | 0.1 | 5.5 | 1.5 | 1.6 | 15.0 | 30.1 | 16.2 | 24.8 |
| 26 1522 | 56.2 | 197.1 | 2.0 | 0.1 | 1.5 | 1.5 | 2.7 | 8.2 | 30.7 | 25.4 | 27.9 |
| 27 0122 | 40.7 | 103.3 | 9.9 | 0.2 | 0.8 | 3.9 | 5.0 | 14.6 | 27.6 | 22.1 | 16.0 |
| 27 1147 | 44.4 | 123.3 | 4.5 | 0.8 | 0.7 | 2.3 | 7.1 | 18.2 | 33.5 | 17.7 | 15.3 |

SCRIPPS PIER
JUL. 1976

| LOCAL DAY | LOCAL TIME | SIG.HT (CM) | TOT.EN (CM.SQ) | PERCENT ENERGY IN BAND (TOTAL ENERGY INCLUDES RANGE 2048-4 SECS) BAND PERIOD LIMITS (IN SECS) 22+ | 22-18 | 18-16 | 16-14 | 14-12 | 12-10 | 10-8 | 8-6 | 6-4 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 27 | 2138 | 41.3 | 106.7 | 5.0 | 0.8 | 2.3 | 4.7 | 4.1 | 19.0 | 27.5 | 24.0 | 12.6 |
| 28 | 0738 | 45.2 | 127.6 | 7.4 | 0.4 | 3.4 | 4.9 | 3.7 | 21.8 | 29.1 | 18.3 | 11.0 |
| 28 | 1739 | 43.0 | 115.2 | 6.9 | 1.1 | 4.3 | 9.1 | 5.9 | 11.4 | 24.9 | 20.9 | 15.5 |
| 29 | 0338 | 46.0 | 132.0 | 1.3 | 1.0 | 1.2 | 6.2 | 5.6 | 27.3 | 22.8 | 10.7 | 24.0 |
| 29 | 1338 | 49.4 | 152.5 | 6.0 | 3.1 | 1.2 | 6.3 | 3.1 | 24.6 | 27.7 | 9.4 | 18.6 |
| 29 | 2338 | 45.7 | 130.6 | 8.1 | 11.1 | 2.6 | 5.0 | 4.4 | 15.2 | 27.2 | 10.9 | 15.5 |
| 30 | 0938 | 48.5 | 147.0 | 5.3 | 7.1 | 9.6 | 1.8 | 6.9 | 22.0 | 28.5 | 11.5 | 7.4 |
| 30 | 1938 | 43.9 | 120.3 | 7.3 | 29.6 | 12.3 | 1.4 | 5.3 | 4.9 | 22.1 | 10.1 | 7.0 |
| 31 | 0538 | 38.8 | 94.1 | 2.1 | 18.0 | 30.4 | 4.9 | 8.5 | 6.8 | 14.4 | 6.9 | 8.0 |
| 31 | 1112 | 45.8 | 130.8 | 5.5 | 13.0 | 35.4 | 4.4 | 5.3 | 9.5 | 16.2 | 5.9 | 4.8 |
| 31 | 1538 | 45.1 | 127.0 | 9.6 | 10.2 | 28.1 | 5.5 | 4.9 | 7.5 | 18.7 | 10.2 | 5.3 |
| 31 | 2038 | 39.3 | 96.3 | 6.9 | 8.6 | 33.6 | 4.6 | 4.6 | 5.3 | 16.0 | 10.1 | 10.3 |

SCRIPPS PIER

## P E R S I S T E N C E

(CONSECUTIVE DAYS (3 OR MORE) SIGNIFICANT WAVE HEIGHT IS 'N' FEET OR LESS)

31 DAYS OF OBSERVATION
JUL. 1-31, 1976

| FEET | DAYS |
|---|---|
| 1 | 3, |
| 2 | 9, 6, 4, |
| 3 | 30, |
| 4 | 31, |
| 5 | 31, |
| 6 | 31, |
| 8 | 31, |
| 10 | 31, |
| 12 | 31, |

MAXIMUM DAILY SIGNIFICANT WAVE HEIGHT FOR JUL. 1976

| DATE (JUL.) | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|
| SIG.HT (FT.) | 4 | 3 | 2 | 2 | 1 | 2 | 3 |

| DATE (JUL.) | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
|---|---|---|---|---|---|---|---|
| SIG.HT (FT.) | 3 | 3 | 3 | 2 | 3 | 3 | 2 |

| DATE (JUL.) | 15 | 16 | 17 | 18 | 19 | 20 | 21 |
|---|---|---|---|---|---|---|---|
| SIG.HT (FT.) | 1 | 1 | 1 | 2 | 2 | 3 | 2 |

| DATE (JUL.) | 22 | 23 | 24 | 25 | 26 | 27 | 28 |
|---|---|---|---|---|---|---|---|
| SIG.HT (FT.) | 3 | 2 | 2 | 2 | 2 | 1 | 1 |

| DATE (JUL.) | 29 | 30 | 31 |
|---|---|---|---|
| SIG.HT (FT.) | 2 | 2 | 2 |

OCEANSIDE
JUL. 1976

| LOCAL DAY/TIME | SIG.HT (CM) | TOT.EN (CM.SQ) | PERCENT ENERGY IN BAND (TOTAL ENERGY INCLUDES RANGE 2048-4 SECS) BAND PERIOD LIMITS (IN SECS) 22+ | 22-18 | 18-16 | 16-14 | 14-12 | 12-10 | 10-8 | 8-6 | 6-4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 0357 | 83.9 | 439.9 | 1.7 | 0.6 | 3.0 | 11.2 | 7.8 | 7.2 | 19.6 | 25.2 | 23.6 |
| 1 1357 | 84.0 | 440.6 | 1.9 | 0.9 | 1.3 | 10.2 | 10.1 | 5.1 | 18.6 | 32.4 | 19.5 |
| 1 2357 | 68.4 | 292.2 | 2.2 | 0.6 | 1.6 | 5.3 | 18.4 | 6.8 | 13.8 | 25.4 | 24.9 |
| 2 0957 | 67.9 | 288.4 | 3.0 | 0.8 | 0.9 | 9.9 | 10.2 | 9.1 | 20.8 | 20.7 | 24.5 |
| 2 1957 | 70.5 | 310.8 | 2.9 | 0.5 | 0.8 | 3.5 | 8.6 | 4.1 | 22.1 | 36.5 | 21.0 |
| 3 0557 | 50.2 | 157.7 | 0.6 | 0.6 | 1.0 | 6.5 | 10.9 | 10.9 | 14.4 | 26.1 | 29.0 |
| 3 1557 | 53.7 | 180.5 | 5.8 | 0.9 | 3.5 | 6.0 | 22.0 | 6.9 | 7.4 | 26.4 | 21.1 |
| 4 0157 | 54.9 | 188.2 | 1.8 | 3.0 | 4.0 | 6.1 | 26.1 | 17.3 | 8.1 | 9.8 | 23.7 |
| 4 1157 | 54.7 | 187.2 | 3.6 | 8.8 | 3.2 | 2.2 | 12.9 | 9.9 | 7.5 | 23.0 | 28.8 |
| 4 2157 | 56.3 | 197.9 | 1.5 | 20.8 | 17.2 | 4.0 | 10.7 | 7.3 | 6.9 | 14.6 | 17.0 |
| 5 0757 | 63.5 | 251.6 | 1.4 | 2.3 | 31.9 | 2.8 | 9.0 | 10.2 | 12.2 | 22.3 | 7.7 |
| 5 1757 | 69.4 | 300.8 | 4.3 | 1.1 | 30.7 | 10.1 | 6.3 | 4.5 | 15.0 | 18.5 | 9.3 |
| 6 0357 | 55.1 | 190.0 | 3.2 | 1.4 | 12.6 | 43.3 | 5.6 | 6.3 | 13.1 | 6.0 | 8.5 |
| 6 1358 | 87.5 | 478.2 | 2.3 | 1.1 | 2.5 | 36.3 | 11.6 | 6.7 | 13.2 | 16.2 | 10.1 |
| 6 2357 | 66.4 | 275.2 | 0.9 | 1.4 | 5.0 | 23.3 | 13.4 | 5.4 | 10.2 | 12.6 | 29.0 |
| 7 0954 | 81.5 | 415.2 | 1.7 | 1.4 | 1.5 | 7.2 | 13.8 | 11.4 | 21.4 | 24.3 | 17.3 |
| 7 1857 | 82.0 | 420.1 | 2.6 | 2.0 | 1.5 | 4.9 | 16.8 | 8.7 | 31.3 | 16.1 | 16.1 |
| 8 0457 | 68.3 | 291.9 | 5.2 | 2.6 | 10.3 | 7.8 | 18.4 | 9.8 | 11.6 | 18.1 | 16.2 |
| 8 1650 | 78.7 | 387.1 | 3.0 | 1.4 | 10.0 | 2.7 | 9.9 | 19.5 | 18.5 | 20.4 | 14.6 |
| 9 0250 | 71.8 | 321.7 | 2.2 | 0.9 | 20.3 | 14.4 | 11.5 | 10.1 | 10.7 | 16.9 | 13.0 |
| 9 1357 | 70.0 | 306.1 | 2.3 | 0.9 | 9.4 | 23.2 | 5.1 | 13.6 | 11.4 | 17.1 | 16.9 |
| 9 2357 | 81.4 | 413.7 | 6.2 | 0.6 | 7.7 | 23.9 | 16.7 | 7.4 | 13.7 | 13.6 | 10.2 |
| 10 0957 | 85.9 | 461.2 | 2.8 | 0.8 | 4.4 | 25.7 | 27.0 | 12.7 | 6.5 | 8.5 | 11.7 |
| 10 1957 | 83.1 | 431.1 | 3.2 | 2.8 | 8.2 | 34.4 | 12.3 | 11.1 | 13.3 | 7.7 | 7.1 |
| 11 0557 | 70.4 | 309.4 | 7.6 | 3.0 | 8.9 | 24.8 | 19.2 | 13.7 | 9.0 | 7.0 | 6.9 |
| 11 1557 | 64.7 | 261.4 | 4.8 | 8.4 | 9.6 | 14.6 | 15.8 | 13.4 | 9.6 | 10.8 | 13.0 |
| 12 0157 | 75.6 | 356.8 | 3.2 | 2.8 | 11.5 | 14.8 | 19.9 | 15.2 | 12.9 | 11.9 | 7.8 |
| 12 1157 | 74.4 | 346.0 | 2.6 | 2.5 | 31.6 | 2.6 | 12.4 | 8.1 | 11.1 | 14.5 | 14.5 |
| 12 2157 | 75.7 | 358.2 | 4.2 | 1.6 | 37.3 | 15.4 | 9.9 | 8.1 | 7.8 | 7.7 | 8.1 |
| 13 0757 | 70.6 | 311.2 | 4.3 | 1.1 | 23.7 | 24.6 | 15.5 | 8.1 | 5.2 | 8.3 | 9.4 |
| 13 1757 | 85.7 | 458.5 | 3.8 | 2.3 | 4.2 | 45.1 | 5.8 | 5.6 | 16.0 | 11.6 | 5.5 |
| 14 0357 | 71.5 | 319.0 | 2.1 | 13.9 | 4.9 | 26.7 | 12.8 | 8.8 | 16.2 | 9.0 | 5.6 |

OCEANSIDE
JUL. 1976

| LOCAL DAY/TIME | | SIG.HT (CM) | TOT.EN (CM.SQ) | PERCENT ENERGY IN BAND (TOTAL ENERGY INCLUDES RANGE 2048-4 SECS) BAND PERIOD LIMITS (IN SECS) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 22+ | 22-18 | 18-16 | 16-14 | 14-12 | 12-10 | 10-8 | 8-6 | 6-4 |
| 14 | 1357 | 73.9 | 341.4 | 4.3 | 4.0 | 5.1 | 29.9 | 26.5 | 8.9 | 6.9 | 6.7 | 7.7 |
| 14 | 2357 | 82.6 | 426.7 | 3.2 | 0.6 | 32.6 | 24.9 | 16.7 | 6.1 | 6.3 | 5.5 | 4.1 |
| 15 | 0957 | 72.1 | 324.4 | 3.9 | 1.7 | 12.7 | 22.8 | 36.4 | 8.2 | 4.0 | 4.9 | 5.4 |
| 15 | 1957 | 51.0 | 162.9 | 7.4 | 2.7 | 10.4 | 23.8 | 26.6 | 9.4 | 7.7 | 5.7 | 6.3 |
| 16 | 0557 | 55.2 | 190.5 | 2.1 | 3.1 | 4.3 | 31.1 | 28.3 | 13.7 | 4.9 | 4.8 | 7.8 |
| 16 | 1604 | 50.4 | 158.4 | 8.1 | 4.3 | 7.0 | 36.9 | 9.4 | 17.2 | 8.3 | 5.3 | 3.5 |
| 17 | 0157 | 58.9 | 216.5 | 6.4 | 4.1 | 16.1 | 21.9 | 10.4 | 6.3 | 8.1 | 3.8 | 22.9 |
| 17 | 1157 | 54.7 | 186.9 | 8.6 | 8.8 | 19.4 | 13.0 | 10.4 | 10.8 | 11.0 | 5.1 | 13.1 |
| 18 | 1757 | 88.3 | 487.0 | 5.5 | 15.4 | 9.4 | 29.9 | 11.0 | 12.9 | 4.6 | 3.1 | 8.1 |
| 19 | 0357 | 90.2 | 508.3 | 4.9 | 17.8 | 17.3 | 15.3 | 16.0 | 12.1 | 4.1 | 3.6 | 8.9 |
| 19 | 1341 | 92.0 | 529.0 | 6.9 | 23.6 | 9.1 | 11.3 | 15.2 | 7.2 | 9.4 | 9.1 | 8.3 |
| 19 | 2357 | 90.6 | 513.5 | 6.1 | 10.9 | 20.2 | 5.8 | 20.0 | 12.4 | 6.9 | 8.3 | 9.5 |
| 20 | 1001 | 83.1 | 431.7 | 10.3 | 5.3 | 19.1 | 5.0 | 14.7 | 8.4 | 9.8 | 13.6 | 13.9 |
| 21 | 1557 | 86.8 | 471.0 | 7.0 | 37.9 | 6.1 | 10.0 | 8.7 | 7.1 | 9.0 | 7.1 | 7.1 |
| 22 | 0157 | 105.9 | 700.9 | 2.2 | 41.9 | 2.5 | 22.6 | 3.3 | 4.7 | 13.5 | 4.3 | 5.0 |
| 22 | 1141 | 88.7 | 491.1 | 4.1 | 27.2 | 3.3 | 21.4 | 12.4 | 6.0 | 12.4 | 8.2 | 5.0 |
| 22 | 2157 | 82.9 | 429.2 | 7.4 | 21.4 | 9.4 | 27.6 | 9.7 | 4.2 | 6.6 | 8.5 | 5.2 |
| 23 | 0757 | 85.4 | 455.6 | 4.5 | 19.4 | 23.7 | 15.6 | 16.4 | 4.5 | 6.2 | 5.3 | 4.0 |
| 23 | 1757 | 76.9 | 369.4 | 3.4 | 4.0 | 30.6 | 14.6 | 27.1 | 4.8 | 5.9 | 4.3 | 5.3 |
| 24 | 0357 | 66.8 | 278.9 | 5.2 | 3.5 | 22.5 | 18.2 | 19.5 | 9.4 | 7.2 | 3.2 | 11.4 |
| 24 | 1402 | 67.9 | 288.5 | 3.6 | 2.9 | 12.3 | 35.4 | 13.1 | 7.4 | 4.6 | 4.9 | 15.9 |
| 24 | 2357 | 76.2 | 362.9 | 5.0 | 4.7 | 10.4 | 18.1 | 19.5 | 8.2 | 3.2 | 4.1 | 26.8 |
| 25 | 0957 | 73.7 | 339.0 | 3.5 | 3.0 | 21.4 | 11.9 | 33.7 | 4.3 | 2.9 | 7.4 | 11.9 |
| 25 | 1958 | 73.8 | 339.9 | 2.9 | 1.5 | 16.9 | 17.2 | 24.3 | 18.9 | 5.1 | 5.1 | 8.2 |
| 26 | 0658 | 70.0 | 306.0 | 5.7 | 1.8 | 33.2 | 9.8 | 17.2 | 14.1 | 7.9 | 4.6 | 5.7 |
| 26 | 1541 | 72.6 | 329.0 | 3.5 | 0.4 | 29.8 | 20.4 | 13.5 | 9.4 | 5.6 | 8.1 | 9.4 |
| 27 | 0140 | 64.2 | 257.9 | 4.3 | 0.9 | 13.7 | 40.1 | 14.9 | 8.8 | 8.4 | 5.3 | 3.8 |
| 27 | 1206 | 64.3 | 258.8 | 4.7 | 1.7 | 7.6 | 22.7 | 18.4 | 22.1 | 14.2 | 4.6 | 4.0 |
| 27 | 2157 | 71.5 | 319.4 | 5.2 | 2.1 | 8.4 | 41.2 | 13.5 | 9.1 | 13.8 | 3.5 | 3.1 |
| 28 | 0757 | 67.1 | 281.5 | 5.7 | 2.2 | 11.2 | 27.5 | 29.8 | 9.4 | 6.4 | 4.2 | 3.5 |
| 28 | 1757 | 64.8 | 262.4 | 5.1 | 2.8 | 8.4 | 33.6 | 25.8 | 7.2 | 7.5 | 4.8 | 4.8 |

OCEANSIDE
JUL. 1976

| LOCAL DAY/TIME | | SIG.HT (CM) | TOT.EN (CM.SQ) | PERCENT ENERGY IN BAND (TOTAL ENERGY INCLUDES RANGE 2048-4 SECS) BAND PERIOD LIMITS (IN SECS) 22+ | 22-18 | 18-16 | 16-14 | 14-12 | 12-10 | 10-8 | 8-6 | 6-4 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 29 | 0357 | 68.8 | 295.8 | 2.0 | 14.9 | 17.9 | 23.7 | 15.0 | 10.0 | 6.9 | 4.1 | 5.4 |
| 29 | 1357 | 83.9 | 439.8 | 4.3 | 24.8 | 5.2 | 30.7 | 11.0 | 8.1 | 8.1 | 3.3 | 4.5 |
| 30 | 0957 | 103.7 | 671.8 | 6.3 | 27.9 | 23.1 | 7.1 | 20.5 | 4.6 | 4.9 | 3.7 | 1.9 |
| 30 | 1957 | 108.6 | 736.5 | 4.4 | 29.0 | 28.6 | 6.1 | 15.6 | 4.1 | 7.3 | 3.7 | 1.3 |
| 31 | 0557 | 110.7 | 766.0 | 3.8 | 23.9 | 37.8 | 3.6 | 10.8 | 4.4 | 10.9 | 3.3 | 1.4 |
| 31 | 1130 | 159.9 | 1597.8 | 3.9 | 25.3 | 41.9 | 5.3 | 4.7 | 3.2 | 9.7 | 2.9 | 3.1 |
| 31 | 1557 | 97.6 | 595.0 | 4.6 | 12.2 | 44.3 | 11.3 | 12.6 | 3.6 | 6.5 | 3.5 | 1.5 |
| 31 | 2057 | 127.3 | 1012.8 | 4.2 | 16.5 | 50.1 | 7.2 | 7.6 | 2.4 | 7.0 | 2.1 | 2.9 |

# P E R S I S T E N C E

(CONSECUTIVE DAYS (3 OR MORE) SIGNIFICANT WAVE HEIGHT IS 'N' FEET OR LESS)

31 DAYS OF OBSERVATION
JUL. 1-31, 1976

| FEET | DAYS |
|---|---|
| 1 | 0, |
| 2 | 4, 4, 3, |
| 3 | 29, |
| 4 | 30, |
| 5 | 31, |
| 6 | 31, |
| 8 | 31, |
| 10 | 31, |
| 12 | 31, |

MAXIMUM DAILY SIGNIFICANT WAVE HEIGHT FOR JUL. 1976

| DATE (JUL.) | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|
| SIG.HT (FT.) | 3 | 2 | 2 | 2 | 2 | 3 | 3 |
| DATE (JUL.) | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
| SIG.HT (FT.) | 3 | 3 | 3 | 2 | 2 | 3 | 3 |
| DATE (JUL.) | 15 | 16 | 17 | 18 | 19 | 20 | 21 |
| SIG.HT (FT.) | 2 | 2 | 2 | 3 | 3 | 3 | 3 |
| DATE (JUL.) | 22 | 23 | 24 | 25 | 26 | 27 | 28 |
| SIG.HT (FT.) | 3 | 3 | 3 | 2 | 2 | 2 | 2 |

| DATE (JUL.) | 29 | 30 | 31 |
|---|---|---|---|
| SIG.HT (FT.) | 3 | 4 | 5 |

# CALIFORNIA COASTAL ENGINEERING DATA NETWORK

## MONTHLY SUMMARY REPORT NO. 9

AUGUST 1976

INSTITUTE OF MARINE RESOURCES
SCRIPPS INSTITUTION OF OCEANOGRAPHY
LA JOLLA, CA

THIS PROJECT IS SPONSORED JOINTLY BY THE CALIFORNIA SEA GRANT COLLEGE PROGRAM AND THE DEPARTMENT OF NAVIGATION AND OCEAN DEVELOPMENT.

REPORT NO. 9 AUGUST 1976

REPORTING STATIONS

| NO. | LOCATION | | |
|---|---|---|---|
| 1 | IMPERIAL BEACH PIER | 32-35N | 117-08W |
| 2 | OCEAN BEACH PIER | 32-45N | 117-15W |
| 3 | SCRIPPS PIER | 32-52N | 117-15W |
| 4 | OCEANSIDE PIER | 33-11N | 117-23W |

DATA REPORTED

| STA.NO. | DATA TYPE |
|---|---|
| 1 | WAVE SPECTRUM FROM ONE PRESSURE SENSOR |
| 2 | WAVE SPECTRUM FROM ONE PRESSURE SENSOR |
| 3 | WAVE SPECTRUM FROM ONE PRESSURE SENSOR |
| 4 | WAVE SPECTRUM FROM ONE PRESSURE SENSOR |

NOTES -

1. THE SUM OF THE ENERGIES (TOT.EN) IN A WAVE SPECTRUM IS EQUAL TO THE VARIANCE OF THE SURFACE ELEVATION.

2. THE SIGNIFICANT WAVE HEIGHT (SIG.HT) IS EQUAL TO FOUR TIMES THE STANDARD DEVIATION.

3. PACIFIC STANDARD TIME IS THE STARTING TIME FOR THE DATA SAMPLING PERIOD.

4. PERIOD BANDS INCLUDE THE LOWER LIMIT , BUT NOT THE UPPER LIMIT.

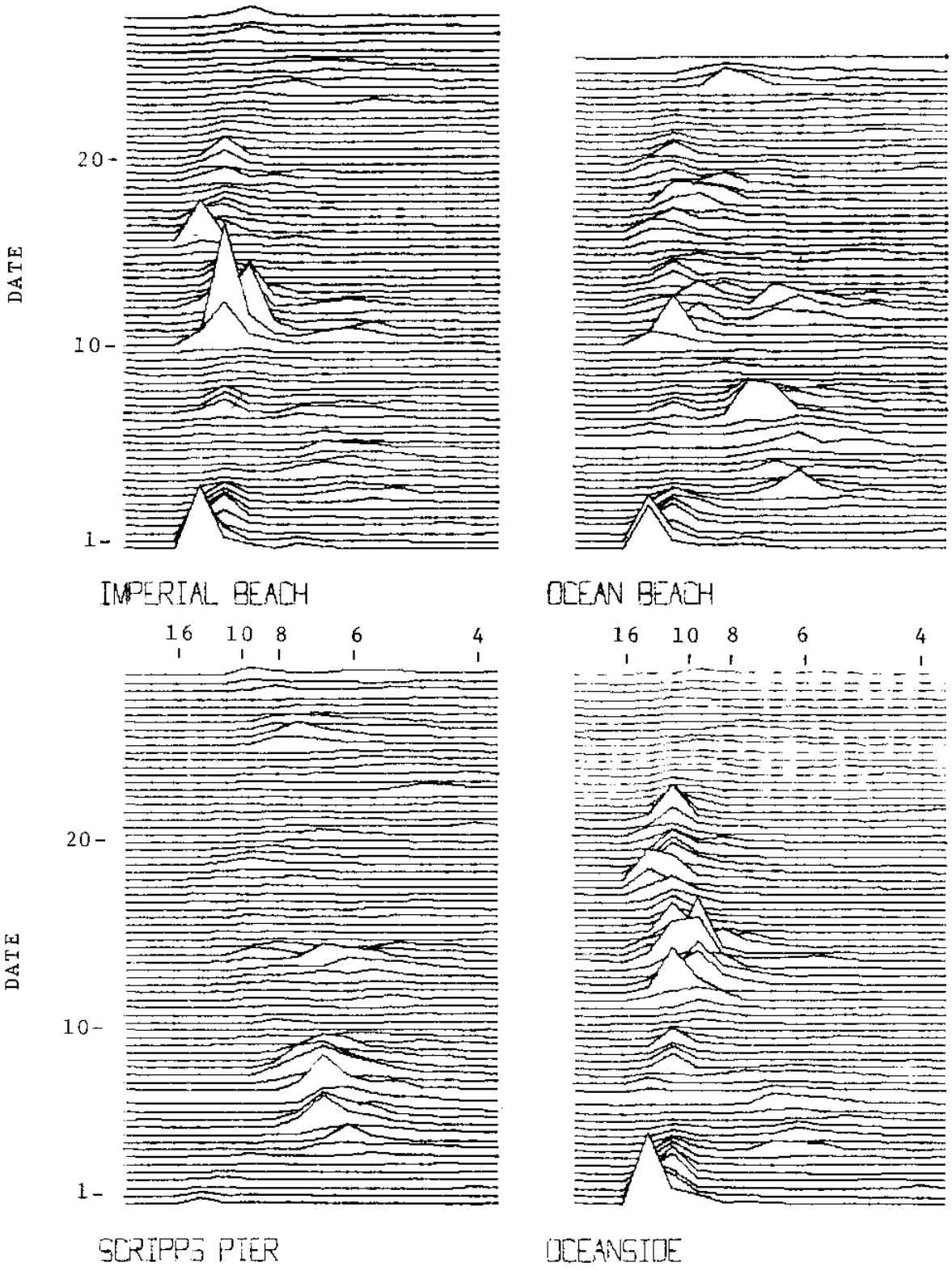
5. WAVE ENERGY IS TRUNCATED AT 4 SECOND PERIOD BECAUSE OF DEPTH EXTINCTION CHARACTERISTICS OF THE PRESSURE SENSOR.

6. ROUNDOFF ERRORS MAY PREVENT ENERGIES FROM SUMMING TO 10=.0 PERCENT

7. WAVE SPECTRA ARE CALCULATED FROM 1024 SAMPLES AT ONE HZ.

8. SIGNIFICANT WAVE HEIGHTS HAVE BEEN ROUNDED UP TO THE NEAREST FOOT IN THE PERSISTENCE AND MAXIMUM DAILY HEIGHT TABLES.

# WAVE ENERGY SPECTRA DURING AUGUST 1976



IMPERIAL BEACH
AUG. 1976

| LOCAL DAY/TIME | | SIG.HT (CM) | TOT.EN (CM.SQ) | PERCENT ENERGY IN BAND (TOTAL ENERGY INCLUDES RANGE 2048-4 SECS) BAND PERIOD LIMITS (IN SECS) 22+ | 22-18 | 18-16 | 16-14 | 14-12 | 12-10 | 10-8 | 8-6 | 6-4 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0100 | 115.2 | 829.2 | 2.7 | 10.9 | 54.8 | 8.4 | 5.5 | 3.3 | 8.4 | 3.5 | 2.6 |
| 1 | 0600 | 94.2 | 554.6 | 2.1 | 1.7 | 55.7 | 13.2 | 6.9 | 4.0 | 9.2 | 4.5 | 2.7 |
| 1 | 1100 | 103.8 | 672.9 | 2.8 | 1.0 | 63.4 | 13.4 | 5.2 | 2.2 | 7.5 | 3.1 | 1.5 |
| 1 | 1600 | 87.7 | 480.5 | 4.1 | 1.7 | 39.1 | 32.6 | 8.4 | 3.0 | 6.5 | 2.9 | 1.6 |
| 1 | 2100 | 80.6 | 406.4 | 2.0 | 1.8 | 48.5 | 15.3 | 7.9 | 3.6 | 5.9 | 4.0 | 11.1 |
| 2 | 0000 | 99.8 | 623.0 | 1.0 | 1.1 | 43.6 | 27.2 | 3.8 | 3.3 | 5.0 | 5.4 | 9.6 |
| 2 | 0900 | 66.7 | 277.6 | 2.7 | 0.6 | 9.2 | 37.2 | 13.2 | 4.2 | 6.7 | 4.8 | 21.3 |
| 2 | 1900 | 75.3 | 354.5 | 3.3 | 0.2 | 12.9 | 50.1 | 11.3 | 4.2 | 3.4 | 6.2 | 8.5 |
| 3 | 0500 | 73.7 | 339.4 | 2.4 | 0.4 | 8.7 | 32.2 | 18.5 | 3.5 | 4.5 | 2.9 | 26.7 |
| 3 | 0617 | 68.6 | 294.1 | 1.0 | 0.3 | 6.1 | 36.6 | 14.6 | 2.3 | 4.4 | 5.1 | 29.4 |
| 3 | 1554 | 69.6 | 302.4 | 1.2 | 0.4 | 3.5 | 35.0 | 8.3 | 4.0 | 1.9 | 19.1 | 26.5 |
| 4 | 0100 | 88.6 | 490.1 | 1.7 | 0.2 | 0.5 | 18.6 | 8.1 | 1.9 | 2.7 | 27.7 | 38.6 |
| 4 | 1100 | 68.1 | 289.8 | 1.8 | 0.3 | 3.9 | 6.0 | 15.4 | 3.1 | 4.8 | 35.5 | 29.3 |
| 4 | 2100 | 70.4 | 309.8 | 1.0 | 0.2 | 0.9 | 4.4 | 6.0 | 2.1 | 3.3 | 31.6 | 50.7 |
| 5 | 0700 | 88.8 | 492.5 | 1.4 | 0.3 | 0.3 | 3.2 | 7.9 | 2.1 | 17.1 | 44.7 | 23.1 |
| 5 | 0816 | 80.8 | 408.4 | 2.5 | 0.3 | 0.4 | 2.6 | 7.0 | 1.6 | 6.9 | 54.8 | 23.9 |
| 5 | 1700 | 85.2 | 454.0 | 1.7 | 0.7 | 0.2 | 1.6 | 3.5 | 1.5 | 14.0 | 40.5 | 36.3 |
| 6 | 0300 | 74.0 | 341.8 | 3.2 | 0.6 | 0.4 | 2.1 | 4.6 | 2.2 | 6.8 | 48.4 | 31.6 |
| 6 | 1446 | 77.6 | 376.3 | 2.4 | 2.0 | 1.0 | 0.8 | 3.8 | 1.2 | 5.4 | 46.0 | 37.4 |
| 6 | 2300 | 55.6 | 193.0 | 6.3 | 2.1 | 3.8 | 4.6 | 7.4 | 2.2 | 8.3 | 32.7 | 32.8 |
| 7 | 0900 | 63.1 | 249.0 | 1.8 | 0.7 | 5.4 | 1.7 | 7.2 | 2.7 | 7.7 | 33.5 | 39.3 |
| 7 | 1900 | 58.9 | 216.5 | 2.1 | 0.9 | 16.4 | 6.2 | 5.3 | 6.4 | 13.7 | 18.3 | 30.7 |
| 8 | 0500 | 79.6 | 395.7 | 2.5 | 0.2 | 3.8 | 7.6 | 2.6 | 4.5 | 23.9 | 23.7 | 31.2 |
| 8 | 1500 | 94.0 | 551.8 | 1.1 | 0.2 | 7.7 | 20.3 | 3.4 | 2.4 | 14.0 | 29.7 | 21.1 |
| 9 | 0100 | 79.4 | 394.3 | 3.3 | 0.2 | 2.0 | 12.2 | 20.3 | 4.4 | 7.2 | 23.7 | 26.5 |
| 9 | 1100 | 71.5 | 319.8 | 2.1 | 0.2 | 0.8 | 25.6 | 10.6 | 5.9 | 10.9 | 19.6 | 24.4 |
| 9 | 2100 | 67.3 | 283.0 | 2.8 | 0.5 | 1.7 | 7.3 | 20.3 | 8.1 | 5.0 | 18.2 | 36.1 |
| 10 | 0700 | 59.2 | 218.8 | 4.6 | 0.3 | 3.5 | 6.6 | 13.2 | 17.9 | 10.7 | 17.5 | 25.7 |
| 10 | 1700 | 64.3 | 258.0 | 11.2 | 0.1 | 1.5 | 8.1 | 17.4 | 7.7 | 6.5 | 21.9 | 25.4 |
| 11 | 0300 | 62.4 | 243.1 | 2.7 | 0.2 | 0.4 | 3.6 | 27.2 | 20.3 | 9.7 | 4.6 | 31.3 |
| 11 | 1302 | 56.6 | 200.1 | 3.1 | 1.3 | 0.8 | 7.4 | 16.9 | 19.7 | 13.8 | 7.4 | 29.6 |
| 11 | 2300 | 64.2 | 257.9 | 5.2 | 4.9 | 8.1 | 7.7 | 9.6 | 15.4 | 5.8 | 6.4 | 37.0 |
| 12 | 0016 | 69.6 | 302.9 | 4.0 | 2.8 | 4.2 | 10.0 | 10.2 | 14.9 | 9.6 | 4.4 | 39.8 |
| 12 | 0900 | 116.9 | 853.6 | 1.9 | 3.8 | 12.8 | 25.7 | 23.3 | 7.3 | 5.7 | 9.2 | 10.2 |

IMPERIAL BEACH
AUG. 1976

| LOCAL DAY/TIME | | SIG.HT (CM) | TOT.EN (CM.SQ) | PERCENT ENERGY IN BAND (TOTAL ENERGY INCLUDES RANGE 2048-4 SECS) BAND PERIOD LIMITS (IN SECS) 22+ | 22-18 | 18-16 | 16-14 | 14-12 | 12-10 | 10-8 | 8-6 | 6-4 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 12 | 1900 | 158.2 | 1563.7 | 2.5 | 0.6 | 1.0 | 46.2 | 21.7 | 7.7 | 2.0 | 13.7 | 4.5 |
| 13 | 0500 | 137.8 | 1187.2 | 1.2 | 1.7 | 0.2 | 3.2 | 50.8 | 23.4 | 3.0 | 9.3 | 7.2 |
| 13 | 1504 | 103.0 | 663.3 | 1.6 | 3.2 | 1.3 | 3.0 | 34.7 | 26.4 | 6.1 | 12.8 | 10.8 |
| 14 | 0103 | 85.7 | 459.4 | 2.4 | 5.1 | 2.0 | 5.3 | 9.0 | 17.9 | 8.0 | 13.1 | 37.3 |
| 14 | 1103 | 121.2 | 918.7 | 1.8 | 0.5 | 8.2 | 7.1 | 35.2 | 10.9 | 4.8 | 17.5 | 14.0 |
| 14 | 2103 | 102.0 | 649.7 | 2.2 | 0.7 | 7.0 | 5.2 | 9.5 | 50.2 | 4.4 | 9.5 | 11.2 |
| 15 | 0703 | 76.2 | 362.4 | 2.8 | 0.3 | 6.8 | 20.5 | 4.7 | 19.8 | 17.0 | 6.2 | 22.0 |
| 15 | 1703 | 68.4 | 292.0 | 2.5 | 0.6 | 3.9 | 31.4 | 23.0 | 11.1 | 11.1 | 7.5 | 8.8 |
| 16 | 0303 | 62.3 | 242.6 | 2.3 | 0.6 | 7.4 | 35.7 | 27.7 | 4.4 | 5.3 | 8.1 | 8.4 |
| 16 | 1300 | 56.7 | 200.5 | 2.5 | 0.4 | 5.5 | 20.8 | 41.1 | 11.7 | 5.7 | 4.9 | 7.5 |
| 16 | 2300 | 52.6 | 173.0 | 2.1 | 2.5 | 6.1 | 13.3 | 14.2 | 12.5 | 11.0 | 8.5 | 29.9 |
| 17 | 0900 | 62.5 | 244.0 | 2.3 | 14.2 | 1.5 | 4.0 | 14.5 | 12.0 | 16.2 | 13.4 | 22.0 |
| 17 | 1900 | 65.9 | 271.6 | 4.4 | 25.0 | 2.6 | 10.0 | 5.6 | 12.7 | 13.4 | 9.1 | 17.4 |
| 18 | 0500 | 94.1 | 553.5 | 2.7 | 11.3 | 50.3 | 4.3 | 10.0 | 3.8 | 9.3 | 3.5 | 4.7 |
| 18 | 1502 | 75.4 | 355.6 | 3.1 | 1.2 | 41.2 | 5.9 | 28.9 | 3.4 | 4.9 | 6.1 | 5.2 |
| 19 | 0101 | 61.8 | 238.7 | 4.7 | 1.3 | 21.4 | 24.4 | 18.9 | 9.3 | 8.4 | 7.0 | 4.6 |
| 19 | 0217 | 72.2 | 325.8 | 3.9 | 1.3 | 37.4 | 14.0 | 14.7 | 6.4 | 11.8 | 5.1 | 5.3 |
| 19 | 1100 | 73.1 | 333.6 | 2.3 | 1.0 | 28.4 | 27.4 | 13.2 | 9.2 | 8.7 | 5.3 | 4.5 |
| 19 | 2100 | 62.6 | 244.6 | 4.1 | 1.5 | 8.9 | 31.3 | 14.5 | 14.3 | 9.4 | 10.0 | 5.9 |
| 20 | 0700 | 65.7 | 269.8 | 2.3 | 3.6 | 2.3 | 25.3 | 17.2 | 14.5 | 9.9 | 7.0 | 17.8 |
| 20 | 1700 | 70.0 | 306.2 | 2.6 | 3.7 | 5.9 | 20.2 | 16.4 | 10.0 | 14.2 | 9.7 | 17.3 |
| 21 | 0300 | 61.3 | 234.5 | 3.5 | 9.5 | 4.0 | 12.5 | 8.3 | 15.6 | 16.4 | 13.1 | 17.1 |
| 21 | 1300 | 73.6 | 338.2 | 3.1 | 2.1 | 13.5 | 26.4 | 12.0 | 14.6 | 15.3 | 7.4 | 5.6 |
| 21 | 1416 | 70.2 | 308.4 | 3.8 | 4.3 | 13.4 | 13.6 | 10.3 | 9.7 | 21.2 | 14.1 | 9.6 |
| 21 | 2300 | 62.5 | 243.7 | 2.7 | 0.4 | 23.4 | 11.4 | 15.0 | 5.8 | 15.4 | 16.6 | 9.2 |
| 22 | 0900 | 66.2 | 273.8 | 2.4 | 1.0 | 14.1 | 30.3 | 23.7 | 6.1 | 5.9 | 8.5 | 8.1 |
| 22 | 1900 | 70.7 | 312.6 | 1.9 | 1.3 | 7.6 | 44.4 | 20.0 | 6.9 | 4.7 | 6.1 | 7.1 |
| 23 | 0500 | 56.1 | 196.9 | 3.6 | 1.1 | 5.5 | 11.5 | 14.5 | 8.5 | 13.0 | 7.8 | 34.5 |
| 23 | 1503 | 52.3 | 171.1 | 6.4 | 0.5 | 2.9 | 12.5 | 31.2 | 7.2 | 9.6 | 8.8 | 20.9 |
| 24 | 0100 | 58.8 | 216.4 | 0.7 | 0.6 | 2.9 | 15.8 | 14.9 | 9.1 | 6.5 | 4.4 | 45.2 |
| 24 | 1100 | 54.2 | 183.5 | 0.9 | 0.2 | 3.6 | 12.5 | 30.2 | 15.3 | 3.6 | 3.0 | 30.7 |
| 24 | 1216 | 51.0 | 162.4 | 4.1 | 0.9 | 7.1 | 8.6 | 29.0 | 15.7 | 5.5 | 6.2 | 22.8 |
| 24 | 2100 | 54.1 | 183.0 | 4.6 | 1.3 | 3.6 | 10.4 | 14.5 | 16.9 | 7.1 | 6.2 | 35.4 |

IMPERIAL BEACH
AUG. 1976

| LOCAL DAY/TIME | | SIG.HT (CM) | TOT.EN (CM.SQ) | PERCENT ENERGY IN BAND (TOTAL ENERGY INCLUDES RANGE 2048-4 SECS) BAND PERIOD LIMITS (IN SECS) 22+ | 22-18 | 18-16 | 16-14 | 14-12 | 12-10 | 10-8 | 8-6 | 6-4 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 25 | 0700 | 56.4 | 199.0 | 6.0 | 0.9 | 1.3 | 9.4 | 12.0 | 11.5 | 5.4 | 10.0 | 43.6 |
| 25 | 0817 | 61.9 | 239.3 | 1.1 | 0.4 | 1.0 | 4.2 | 6.8 | 12.0 | 3.7 | 14.9 | 56.1 |
| 25 | 1700 | 65.0 | 263.9 | 4.2 | 0.9 | 1.7 | 4.8 | 5.0 | 11.2 | 4.5 | 25.8 | 42.0 |
| 26 | 0300 | 51.8 | 167.7 | 6.8 | 0.9 | 1.8 | 4.7 | 22.4 | 15.0 | 13.3 | 10.0 | 25.2 |
| 26 | 0416 | 58.7 | 215.5 | 2.5 | 0.2 | 2.9 | 3.8 | 8.9 | 10.3 | 13.9 | 16.8 | 40.6 |
| 26 | 1308 | 75.2 | 353.8 | 1.6 | 0.5 | 2.3 | 1.7 | 4.6 | 10.0 | 37.6 | 16.7 | 25.0 |
| 26 | 2300 | 70.1 | 307.2 | 2.5 | 0.3 | 2.6 | 5.7 | 3.1 | 14.6 | 18.4 | 25.0 | 27.6 |
| 27 | 0016 | 62.4 | 243.0 | 13.7 | 0.3 | 3.4 | 3.8 | 6.1 | 9.1 | 18.1 | 18.2 | 27.4 |
| 27 | 1001 | 73.2 | 335.1 | 2.5 | 0.8 | 3.0 | 3.8 | 3.8 | 6.8 | 10.5 | 31.2 | 37.7 |
| 27 | 1900 | 80.6 | 406.0 | 4.2 | 0.1 | 0.5 | 2.4 | 5.1 | 5.7 | 27.3 | 36.2 | 18.5 |
| 28 | 0500 | 55.6 | 193.4 | 6.7 | 0.3 | 4.1 | 7.2 | 5.6 | 11.0 | 21.7 | 24.8 | 18.6 |
| 28 | 0616 | 58.0 | 210.0 | 5.1 | 0.3 | 0.4 | 6.8 | 9.8 | 7.1 | 25.6 | 26.3 | 18.7 |
| 28 | 1500 | 52.2 | 170.0 | 2.7 | 0.8 | 0.7 | 7.5 | 11.3 | 11.5 | 12.5 | 18.6 | 34.5 |
| 29 | 0100 | 62.0 | 240.0 | 1.4 | 0.5 | 1.1 | 7.7 | 10.1 | 7.7 | 4.5 | 17.7 | 49.5 |
| 29 | 1301 | 65.3 | 266.1 | 2.3 | 0.6 | 1.0 | 5.1 | 16.2 | 29.5 | 3.8 | 12.7 | 28.8 |
| 29 | 2300 | 61.6 | 237.4 | 1.5 | 2.2 | 2.2 | 4.8 | 8.9 | 18.1 | 14.9 | 8.9 | 38.5 |
| 30 | 1100 | 80.2 | 402.3 | 3.5 | 1.2 | 2.9 | 3.8 | 15.3 | 22.9 | 8.8 | 16.0 | 25.7 |
| 31 | 1010 | 91.8 | 527.0 | 1.7 | 0.3 | 33.6 | 1.4 | 2.5 | 13.4 | 18.3 | 18.3 | 10.4 |
| 31 | 1702 | 78.7 | 387.2 | 2.6 | 1.3 | 10.4 | 15.0 | 3.7 | 12.3 | 27.8 | 11.7 | 15.2 |

IMPERIAL BEACH

# P E R S I S T E N C E

(CONSECUTIVE DAYS (3 OR MORE) SIGNIFICANT WAVE HEIGHT IS 'N' FEET OR LESS)

31 DAYS OF OBSERVATION
AUG. 1-31, 1976

| FEET | DAYS |
|---|---|
| 1 | 0, |
| 2 | 8, 3, |
| 3 | 17, 10, |
| 4 | 18, 11, |
| 5 | 31, |
| 6 | 31, |
| 8 | 31, |
| 10 | 31, |
| 12 | 31, |

MAXIMUM DAILY SIGNIFICANT WAVE HEIGHT FOR AUG. 1976

| DATE (AUG.) | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|
| SIG.HT (FT.) | 4 | 3 | 2 | 3 | 3 | 3 | 2 |

| DATE (AUG.) | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
|---|---|---|---|---|---|---|---|
| SIG.HT (FT.) | 3 | 3 | 2 | 2 | 5 | 5 | 4 |

| DATE (AUG.) | 15 | 16 | 17 | 18 | 19 | 20 | 21 |
|---|---|---|---|---|---|---|---|
| SIG.HT (FT.) | 2 | 2 | 2 | 3 | 2 | 2 | 2 |

| DATE (AUG.) | 22 | 23 | 24 | 25 | 26 | 27 | 28 |
|---|---|---|---|---|---|---|---|
| SIG.HT (FT.) | 2 | 2 | 2 | 2 | 2 | 3 | 2 |

| DATE (AUG.) | 29 | 30 | 31 |
|---|---|---|---|
| SIG.HT (FT.) | 2 | 3 | 3 |

OCEAN BEACH
AUG. 1976

| LOCAL DAY/TIME | | SIG.HT (CM) | TOT.EN (CM.SQ) | PERCENT ENERGY IN BAND (TOTAL ENERGY INCLUDES RANGE 2048-4 SECS) BAND PERIOD LIMITS (IN SECS) 22+ | 22-18 | 18-16 | 16-14 | 14-12 | 12-10 | 10-8 | 8-6 | 6-4 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0119 | 99.4 | 617.7 | 2.6 | 6.1 | 53.6 | 6.5 | 6.6 | 5.5 | 9.8 | 5.2 | 4.1 |
| 1 | 0619 | 85.6 | 457.6 | 2.2 | 6.1 | 48.0 | 10.3 | 3.9 | 3.6 | 13.5 | 8.4 | 4.1 |
| 1 | 1119 | 101.9 | 648.7 | 2.4 | 3.4 | 57.9 | 12.7 | 4.8 | 3.9 | 8.2 | 3.6 | 3.2 |
| 1 | 1619 | 90.6 | 513.0 | 3.2 | 3.6 | 42.3 | 24.1 | 4.8 | 2.3 | 11.2 | 4.8 | 3.7 |
| 1 | 2119 | 77.2 | 372.0 | 1.6 | 1.4 | 20.0 | 25.6 | 8.2 | 5.1 | 5.2 | 6.7 | 26.3 |
| 2 | 0019 | 107.0 | 714.9 | 1.3 | 0.8 | 21.9 | 37.5 | 7.1 | 2.2 | 5.5 | 8.1 | 15.7 |
| 2 | 1016 | 82.7 | 427.9 | 3.5 | 0.5 | 21.1 | 23.0 | 25.0 | 2.0 | 6.4 | 4.2 | 14.3 |
| 2 | 1919 | 71.6 | 320.7 | 2.0 | 0.4 | 7.2 | 42.4 | 16.2 | 8.5 | 3.5 | 7.5 | 12.3 |
| 3 | 0520 | 84.6 | 446.8 | 1.0 | 0.4 | 1.2 | 15.5 | 21.5 | 16.9 | 3.8 | 5.3 | 34.5 |
| 3 | 1613 | 83.4 | 434.5 | 1.4 | 0.1 | 1.7 | 18.1 | 15.7 | 11.4 | 3.8 | 19.3 | 28.5 |
| 4 | 0119 | 101.9 | 649.0 | 0.7 | 0.1 | 0.7 | 4.3 | 4.6 | 3.2 | 4.0 | 55.3 | 27.2 |
| 4 | 1119 | 80.5 | 405.1 | 1.4 | 0.2 | 0.8 | 7.6 | 5.4 | 3.3 | 4.9 | 44.7 | 31.7 |
| 4 | 2119 | 71.4 | 318.3 | 2.8 | 0.3 | 0.5 | 2.8 | 7.1 | 1.9 | 11.4 | 32.0 | 41.1 |
| 5 | 0720 | 84.1 | 441.6 | 1.3 | 0.2 | 0.4 | 2.2 | 3.5 | 1.9 | 8.4 | 41.1 | 40.9 |
| 5 | 1719 | 82.1 | 421.0 | 1.2 | 0.4 | 0.3 | 1.7 | 3.3 | 2.6 | 10.4 | 35.2 | 44.9 |
| 6 | 0319 | 79.9 | 398.7 | 1.5 | 0.4 | 0.3 | 1.0 | 1.9 | 1.3 | 14.3 | 40.0 | 39.2 |
| 6 | 1505 | 99.4 | 617.5 | 2.7 | 1.0 | 1.5 | 0.7 | 1.3 | 0.8 | 5.2 | 44.0 | 42.8 |
| 6 | 2319 | 86.9 | 471.7 | 2.6 | 1.3 | 2.4 | 0.5 | 1.1 | 1.1 | 7.3 | 48.9 | 34.9 |
| 7 | 0919 | 90.9 | 516.7 | 1.4 | 1.7 | 3.5 | 0.6 | 1.5 | 0.8 | 9.6 | 45.6 | 34.3 |
| 7 | 1919 | 95.6 | 571.2 | 1.2 | 0.9 | 7.6 | 1.9 | 0.8 | 2.5 | 14.1 | 39.0 | 31.9 |
| 8 | 0519 | 137.6 | 1183.3 | 2.0 | 0.2 | 0.5 | 3.8 | 0.7 | 1.6 | 33.5 | 40.3 | 17.5 |
| 8 | 1519 | 108.6 | 736.8 | 1.3 | 0.3 | 3.0 | 12.7 | 1.5 | 1.7 | 20.0 | 37.0 | 22.6 |
| 9 | 0119 | 118.8 | 881.4 | 1.1 | 0.2 | 1.3 | 6.8 | 1.5 | 2.4 | 27.2 | 31.1 | 28.3 |
| 9 | 1119 | 108.1 | 730.0 | 2.5 | 0.1 | 0.5 | 2.7 | 4.7 | 2.2 | 29.0 | 30.0 | 28.3 |
| 9 | 2119 | 85.3 | 454.9 | 1.7 | 0.3 | 0.9 | 7.2 | 5.5 | 3.3 | 18.2 | 23.1 | 39.9 |
| 10 | 0719 | 67.4 | 284.0 | 3.0 | 0.2 | 1.1 | 1.8 | 7.2 | 7.1 | 17.0 | 27.8 | 34.8 |
| 10 | 1719 | 52.1 | 169.7 | 6.9 | 0.2 | 1.0 | 5.6 | 16.1 | 15.8 | 9.1 | 12.1 | 33.1 |
| 11 | 0319 | 60.4 | 228.1 | 2.4 | 0.2 | 0.7 | 2.5 | 9.0 | 20.6 | 20.5 | 12.2 | 31.9 |
| 11 | 1321 | 58.2 | 211.9 | 2.1 | 0.8 | 0.6 | 4.3 | 6.0 | 9.1 | 11.6 | 11.2 | 54.2 |
| 11 | 2320 | 69.6 | 303.1 | 3.2 | 3.5 | 1.5 | 2.4 | 3.1 | 7.4 | 15.3 | 5.9 | 57.6 |
| 12 | 0919 | 96.8 | 470.5 | 2.4 | 6.5 | 18.2 | 15.0 | 5.6 | 6.1 | 6.5 | 13.0 | 26.6 |
| 12 | 1919 | 101.3 | 641.0 | 3.0 | 1.8 | 4.6 | 39.5 | 20.3 | 5.6 | 3.8 | 8.7 | 12.8 |
| 13 | 0519 | 93.5 | 545.9 | 1.7 | 1.3 | 0.6 | 7.6 | 24.9 | 12.1 | 9.9 | 20.0 | 21.9 |

OCEAN BEACH
AUG. 1976

| LOCAL DAY/TIME | | SIG.HT (CM) | TOT.EN (CM.SQ) | PERCENT ENERGY IN BAND (TOTAL ENERGY INCLUDES RANGE 2048-4 SECS) BAND PERIOD LIMITS (IN SECS) 22+ | 22-18 | 18-16 | 16-14 | 14-12 | 12-10 | 10-8 | 8-6 | 6-4 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13 | 1523 | 109.2 | 745.7 | 1.3 | 1.6 | 0.7 | 1.6 | 16.5 | 12.6 | 8.2 | 38.0 | 19.4 |
| 14 | 0203 | 123.6 | 954.5 | 1.5 | 2.2 | 1.8 | 5.0 | 7.9 | 10.1 | 7.6 | 31.3 | 32.7 |
| 14 | 1124 | 132.2 | 1093.0 | 0.9 | 0.2 | 6.3 | 0.9 | 14.4 | 8.1 | 5.7 | 41.0 | 22.5 |
| 14 | 2122 | 102.6 | 658.2 | 1.2 | 0.5 | 7.3 | 5.7 | 7.7 | 23.8 | 6.4 | 11.8 | 35.6 |
| 15 | 0722 | 84.6 | 447.1 | 1.5 | 0.4 | 10.4 | 12.7 | 1.7 | 20.6 | 13.2 | 8.6 | 30.9 |
| 15 | 0819 | 83.6 | 436.8 | 3.2 | 0.5 | 7.4 | 14.5 | 1.6 | 8.9 | 16.7 | 9.7 | 37.5 |
| 15 | 1723 | 75.1 | 352.8 | 2.0 | 0.8 | 8.5 | 24.8 | 8.6 | 9.8 | 17.7 | 9.9 | 18.0 |
| 16 | 0322 | 73.5 | 338.0 | 1.5 | 0.4 | 4.4 | 10.4 | 34.0 | 8.4 | 18.6 | 8.9 | 13.4 |
| 16 | 1319 | 72.6 | 329.6 | 1.7 | 0.3 | 2.2 | 10.2 | 26.9 | 19.0 | 19.2 | 6.3 | 14.2 |
| 16 | 2319 | 79.2 | 392.4 | 1.2 | 0.6 | 2.0 | 8.5 | 19.2 | 11.3 | 13.6 | 8.2 | 35.2 |
| 17 | 0920 | 71.6 | 320.7 | 1.9 | 3.4 | 1.1 | 7.7 | 10.7 | 10.7 | 7.8 | 16.2 | 40.5 |
| 17 | 1919 | 77.0 | 370.0 | 1.3 | 11.1 | 4.2 | 10.4 | 9.6 | 8.8 | 10.9 | 9.4 | 34.3 |
| 18 | 0520 | 79.5 | 394.5 | 1.5 | 1.6 | 22.2 | 18.9 | 7.5 | 9.0 | 12.3 | 9.2 | 17.8 |
| 18 | 1521 | 74.3 | 345.1 | 3.0 | 1.1 | 33.0 | 21.2 | 8.6 | 5.5 | 8.1 | 10.5 | 8.9 |
| 19 | 0121 | 80.4 | 403.8 | 1.3 | 0.4 | 13.5 | 28.3 | 16.8 | 10.5 | 14.6 | 10.4 | 4.2 |
| 19 | 1119 | 72.0 | 324.3 | 3.2 | 1.4 | 9.5 | 14.4 | 14.3 | 15.3 | 23.9 | 10.1 | 7.8 |
| 19 | 2119 | 83.5 | 436.0 | 2.7 | 0.8 | 3.6 | 16.6 | 16.8 | 27.3 | 12.6 | 12.5 | 7.0 |
| 20 | 0719 | 101.5 | 644.2 | 1.4 | 0.8 | 1.4 | 22.9 | 13.9 | 27.2 | 13.9 | 9.7 | 8.7 |
| 20 | 1719 | 78.5 | 384.8 | 1.5 | 1.3 | 1.6 | 7.9 | 12.5 | 37.0 | 12.0 | 16.5 | 9.6 |
| 21 | 0319 | 88.6 | 491.1 | 2.3 | 1.4 | 5.4 | 6.7 | 8.2 | 22.4 | 24.9 | 10.0 | 18.7 |
| 21 | 1320 | 75.3 | 354.4 | 1.8 | 1.7 | 6.8 | 14.2 | 13.5 | 13.4 | 20.1 | 21.3 | 7.2 |
| 21 | 2319 | 82.5 | 424.9 | 1.8 | 0.8 | 18.2 | 13.0 | 10.8 | 3.6 | 12.6 | 10.5 | 28.6 |
| 22 | 0919 | 71.1 | 316.3 | 2.4 | 0.9 | 19.7 | 11.2 | 12.2 | 6.3 | 9.7 | 19.3 | 18.4 |
| 22 | 1919 | 74.6 | 347.7 | 2.2 | 0.7 | 5.0 | 26.2 | 15.6 | 6.3 | 6.3 | 8.7 | 29.1 |
| 23 | 0519 | 72.4 | 327.9 | 3.3 | 0.8 | 1.0 | 11.7 | 17.2 | 7.5 | 13.1 | 9.7 | 35.7 |
| 23 | 1522 | 60.2 | 226.2 | 6.0 | 0.5 | 6.8 | 15.9 | 25.7 | 4.8 | 7.5 | 4.0 | 28.8 |
| 24 | 0119 | 70.2 | 308.3 | 1.7 | 0.6 | 3.3 | 4.7 | 15.4 | 10.5 | 3.8 | 6.3 | 53.7 |
| 24 | 1120 | 53.4 | 177.9 | 6.6 | 0.3 | 3.1 | 15.4 | 20.3 | 6.4 | 7.2 | 5.2 | 35.6 |
| 24 | 2119 | 67.9 | 287.7 | 3.7 | 0.1 | 1.9 | 8.4 | 7.6 | 3.3 | 4.2 | 9.6 | 61.2 |
| 25 | 0720 | 63.1 | 248.9 | 2.5 | 0.3 | 1.0 | 5.4 | 8.4 | 7.7 | 5.0 | 15.0 | 54.7 |
| 25 | 1719 | 67.8 | 287.0 | 4.6 | 0.4 | 0.5 | 3.0 | 3.3 | 8.7 | 4.4 | 23.5 | 51.5 |
| 26 | 0320 | 58.9 | 216.9 | 0.4 | 0.3 | 1.0 | 4.3 | 7.1 | 2.8 | 8.6 | 22.8 | 52.6 |

OCEAN BEACH
AUG. 1976

| LOCAL DAY/TIME | SIG.HT (CM) | TOT.EN (CM.SQ) | PERCENT ENERGY IN BAND (TOTAL ENERGY INCLUDES RANGE 2048-4 SECS) BAND PERIOD LIMITS (IN SECS) 22+ | 22-18 | 18-16 | 16-14 | 14-12 | 12-10 | 10-8 | 8-6 | 6-4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 26 1327 | 96.5 | 581.6 | 2.6 | 0.2 | 0.5 | 1.3 | 3.3 | 9.8 | 45.1 | 15.1 | 22.3 |
| 26 2320 | 81.6 | 416.4 | 2.7 | 0.2 | 0.9 | 1.1 | 2.3 | 14.6 | 40.0 | 19.2 | 19.0 |
| 27 0903 | 90.3 | 509.1 | 1.1 | 0.2 | 1.2 | 1.0 | 2.5 | 15.9 | 26.4 | 23.6 | 28.1 |
| 28 0520 | 59.0 | 217.8 | 2.1 | 0.2 | 1.2 | 5.5 | 3.4 | 6.5 | 17.3 | 29.7 | 34.1 |

OCEAN BEACH

## P E R S I S T E N C E

(CONSECUTIVE DAYS (3 OR MORE) SIGNIFICANT WAVE HEIGHT IS 'N' FEET OR LESS)

28 DAYS OF OBSERVATION
AUG. 1-28, 1976

| FEET | DAYS |
|---|---|
| 1 | 0, |
| 2 | 4, |
| 3 | 14, 5, 3, |
| 4 | 20, 7, |
| 5 | 28, |
| 6 | 28, |
| 8 | 28, |
| 10 | 28, |
| 12 | 28, |

MAXIMUM DAILY SIGNIFICANT WAVE HEIGHT FOR AUG. 1976

| DATE (AUG.) | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|
| SIG.HT (FT.) | 3 | 4 | 3 | 3 | 3 | 3 | 3 |

| DATE (AUG.) | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
|---|---|---|---|---|---|---|---|
| SIG.HT (FT.) | 5 | 4 | 2 | 2 | 3 | 4 | 4 |

| DATE (AUG.) | 15 | 16 | 17 | 18 | 19 | 20 | 21 |
|---|---|---|---|---|---|---|---|
| SIG.HT (FT.) | 3 | 3 | 3 | 3 | 3 | 3 | 3 |

| DATE (AUG.) | 22 | 23 | 24 | 25 | 26 | 27 | 28 |
|---|---|---|---|---|---|---|---|
| SIG.HT (FT.) | 2 | 2 | 2 | 2 | 3 | 3 | 2 |

SCRIPPS PIER
AUG. 1976

| LOCAL DAY/TIME | SIG.HT (CM) | TOT.EN (CM.SQ) | PERCENT ENERGY IN BAND (TOTAL ENERGY INCLUDES RANGE 2048-4 SECS) BAND PERIOD LIMITS (IN SECS) 22+ | 22-18 | 18-16 | 16-14 | 14-12 | 12-10 | 10-8 | 8-6 | 6-4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 0138 | 45.9 | 131.4 | 5.7 | 1.7 | 38.4 | 3.7 | 4.1 | 4.7 | 16.3 | 8.3 | 17.0 |
| 1 0638 | 34.6 | 74.6 | 3.6 | 1.5 | 30.3 | 10.5 | 3.9 | 13.4 | 18.7 | 10.7 | 7.4 |
| 1 1138 | 38.9 | 94.4 | 6.4 | 1.3 | 38.4 | 4.0 | 4.0 | 10.8 | 22.6 | 6.6 | 6.0 |
| 1 1638 | 32.9 | 67.5 | 13.6 | 0.4 | 28.7 | 17.9 | 2.4 | 7.2 | 12.3 | 7.6 | 9.8 |
| 1 2138 | 41.8 | 109.1 | 3.6 | 0.4 | 6.7 | 14.8 | 4.9 | 3.9 | 5.9 | 5.1 | 54.7 |
| 1 2216 | 46.2 | 133.5 | 2.3 | 0.8 | 13.2 | 6.6 | 4.4 | 5.2 | 8.0 | 4.8 | 54.7 |
| 2 0038 | 55.0 | 189.0 | 2.4 | 0.2 | 6.8 | 9.4 | 3.7 | 3.1 | 5.6 | 3.4 | 65.5 |
| 2 0939 | 43.8 | 119.6 | 6.1 | 0.2 | 8.3 | 9.7 | 10.3 | 2.4 | 6.2 | 5.3 | 51.5 |
| 2 1938 | 33.7 | 71.1 | 4.0 | 0.2 | 2.1 | 9.6 | 7.1 | 6.7 | 12.0 | 4.9 | 53.4 |
| 3 0539 | 45.4 | 129.0 | 1.7 | 0.1 | 0.4 | 3.9 | 8.5 | 8.7 | 10.2 | 7.0 | 59.5 |
| 3 1632 | 57.9 | 209.2 | 2.3 | 0.2 | 0.7 | 2.1 | 5.9 | 12.5 | 7.7 | 27.5 | 41.2 |
| 4 0138 | 85.2 | 453.3 | 2.0 | 0.1 | 0.2 | 0.9 | 1.4 | 2.2 | 5.2 | 37.6 | 50.5 |
| 4 1138 | 79.0 | 390.1 | 1.6 | 0.1 | 0.1 | 0.6 | 1.1 | 1.9 | 4.2 | 60.3 | 30.1 |
| 4 2138 | 84.0 | 440.7 | 1.8 | 0.1 | 0.1 | 0.2 | 0.9 | 1.5 | 3.7 | 46.8 | 45.0 |
| 5 0835 | 109.0 | 742.7 | 2.1 | 0.1 | 0.1 | 0.2 | 0.3 | 0.9 | 11.4 | 64.7 | 20.3 |
| 5 1738 | 114.1 | 813.7 | 1.6 | 0.3 | 0.0 | 0.2 | 0.3 | 0.5 | 11.6 | 58.7 | 26.7 |
| 6 0338 | 98.8 | 492.6 | 2.1 | 0.1 | 0.1 | 0.2 | 0.5 | 0.4 | 5.2 | 49.5 | 41.9 |
| 6 1524 | 100.6 | 632.5 | 2.9 | 0.1 | 0.1 | 0.1 | 0.2 | 0.3 | 2.7 | 50.8 | 42.8 |
| 6 2338 | 90.0 | 506.6 | 2.5 | 0.1 | 0.4 | 0.1 | 0.3 | 0.4 | 9.5 | 53.4 | 33.3 |
| 7 0938 | 110.6 | 764.7 | 1.7 | 0.1 | 0.2 | 0.1 | 0.2 | 0.4 | 9.5 | 62.2 | 25.6 |
| 7 1938 | 86.5 | 467.1 | 2.4 | 0.2 | 1.1 | 0.2 | 0.5 | 1.6 | 21.7 | 41.2 | 31.1 |
| 8 0538 | 124.0 | 961.4 | 2.3 | 0.1 | 0.2 | 0.2 | 0.2 | 1.4 | 23.4 | 50.6 | 21.7 |
| 8 1538 | 116.4 | 846.4 | 2.0 | 0.2 | 0.1 | 0.3 | 0.1 | 1.3 | 29.2 | 48.1 | 18.7 |
| 9 0138 | 95.8 | 573.0 | 1.0 | 0.1 | 0.2 | 0.6 | 0.3 | 1.2 | 16.3 | 42.8 | 37.5 |
| 9 1138 | 95.9 | 574.6 | 1.8 | 0.1 | 0.1 | 0.4 | 0.2 | 2.4 | 15.1 | 56.3 | 23.6 |
| 9 2138 | 68.2 | 290.4 | 2.1 | 0.2 | 0.1 | 0.6 | 4.0 | 6.7 | 8.9 | 25.9 | 51.5 |
| 10 0738 | 63.7 | 253.7 | 3.3 | 0.1 | 0.1 | 0.1 | 1.1 | 11.2 | 13.2 | 30.9 | 40.1 |
| 10 1738 | 44.0 | 121.1 | 9.8 | 0.1 | 0.5 | 0.8 | 1.5 | 6.3 | 11.2 | 21.3 | 48.6 |
| 11 0338 | 43.2 | 116.6 | 0.7 | 0.1 | 0.2 | 0.7 | 1.5 | 8.3 | 41.4 | 6.9 | 40.4 |
| 11 1340 | 46.3 | 133.7 | 3.6 | 0.1 | 0.2 | 0.4 | 1.9 | 4.8 | 18.4 | 11.2 | 59.4 |
| 11 2339 | 58.1 | 211.0 | 4.2 | 0.4 | 0.2 | 0.2 | 1.8 | 6.7 | 19.2 | 8.2 | 59.1 |
| 12 0938 | 66.3 | 274.7 | 1.6 | 1.1 | 0.7 | 0.7 | 3.1 | 13.2 | 13.2 | 14.6 | 51.6 |
| 12 1938 | 68.5 | 293.4 | 4.0 | 0.7 | 0.5 | 1.7 | 4.3 | 12.4 | 10.6 | 17.4 | 48.4 |

SCRIPPS PIER
AUG. 1976

| LOCAL DAY/TIME | SIG.HT (CM) | TOT.EN (CM.SQ) | PERCENT ENERGY IN BAND (TOTAL ENERGY INCLUDES RANGE 2048-4 SECS) BAND PERIOD LIMITS (IN SECS) 22+ | 22-18 | 18-16 | 16-14 | 14-12 | 12-10 | 10-8 | 8-6 | 6-4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 13 0538 | 66.7 | 278.4 | 1.6 | 0.6 | 0.2 | 1.2 | 4.8 | 9.1 | 23.3 | 22.8 | 36.5 |
| 13 1542 | 78.8 | 388.1 | 1.2 | 0.4 | 0.5 | 0.1 | 3.4 | 7.1 | 14.1 | 38.2 | 35.0 |
| 14 0125 | 92.1 | 529.7 | 1.3 | 0.4 | 0.7 | 0.4 | 2.4 | 4.7 | 12.4 | 37.7 | 40.0 |
| 14 1143 | 104.2 | 678.4 | 1.2 | 0.1 | 0.9 | 0.4 | 2.1 | 5.7 | 9.4 | 53.7 | 26.4 |
| 14 2141 | 81.1 | 411.1 | 0.9 | 0.1 | 1.1 | 0.5 | 2.0 | 20.8 | 7.2 | 16.3 | 51.0 |
| 15 0742 | 65.3 | 266.9 | 1.1 | 0.1 | 1.0 | 2.9 | 0.6 | 13.1 | 25.0 | 7.2 | 49.0 |
| 15 1742 | 41.0 | 105.0 | 1.3 | 0.2 | 3.4 | 8.1 | 2.1 | 8.1 | 28.0 | 20.4 | 28.5 |
| 16 0341 | 34.7 | 75.1 | 3.1 | 0.2 | 1.5 | 5.2 | 8.0 | 7.0 | 28.1 | 16.2 | 30.8 |
| 16 1339 | 40.9 | 104.3 | 2.5 | 0.3 | 0.5 | 4.3 | 5.9 | 9.6 | 30.2 | 15.3 | 31.3 |
| 16 2338 | 50.1 | 156.8 | 1.1 | 0.2 | 0.5 | 1.6 | 10.4 | 8.1 | 7.9 | 11.8 | 58.3 |
| 17 0939 | 49.4 | 152.2 | 1.7 | 0.9 | 0.5 | 1.1 | 1.8 | 9.9 | 9.8 | 20.6 | 53.8 |
| 17 1938 | 47.9 | 143.3 | 4.1 | 5.7 | 0.8 | 2.0 | 3.2 | 9.2 | 10.3 | 14.9 | 49.8 |
| 18 0540 | 48.0 | 143.9 | 1.4 | 3.3 | 7.3 | 3.3 | 2.9 | 4.4 | 14.2 | 14.5 | 48.7 |
| 18 1540 | 43.0 | 115.3 | 2.7 | 0.3 | 11.7 | 5.5 | 5.7 | 16.3 | 22.7 | 16.4 | 18.6 |
| 19 0139 | 48.5 | 147.0 | 2.8 | 0.4 | 9.9 | 4.8 | 12.1 | 11.5 | 37.6 | 13.8 | 7.1 |
| 19 1138 | 48.8 | 148.9 | 3.2 | 0.5 | 4.2 | 5.1 | 12.7 | 18.0 | 31.2 | 16.3 | 8.7 |
| 19 2138 | 55.6 | 193.3 | 3.0 | 0.3 | 1.2 | 5.4 | 12.1 | 32.7 | 18.9 | 19.0 | 7.3 |
| 20 0738 | 57.6 | 207.2 | 2.2 | 0.5 | 0.4 | 2.7 | 8.4 | 24.7 | 25.0 | 16.1 | 20.0 |
| 20 1738 | 52.4 | 171.4 | 2.3 | 0.2 | 0.6 | 3.2 | 4.0 | 23.8 | 20.8 | 28.4 | 16.6 |
| 21 0338 | 48.3 | 146.0 | 2.7 | 0.4 | 1.5 | 1.6 | 3.0 | 10.4 | 28.8 | 18.2 | 33.3 |
| 21 1339 | 54.9 | 188.0 | 1.6 | 0.3 | 2.7 | 2.4 | 1.9 | 6.1 | 26.5 | 44.8 | 13.6 |
| 21 2338 | 58.9 | 216.8 | 2.2 | 0.1 | 1.5 | 1.4 | 2.9 | 2.3 | 12.2 | 19.4 | 57.9 |
| 22 0938 | 46.3 | 133.7 | 3.1 | 0.3 | 2.0 | 4.4 | 2.4 | 3.9 | 20.9 | 31.5 | 31.5 |
| 22 1938 | 42.0 | 110.2 | 4.8 | 0.4 | 1.2 | 8.4 | 5.8 | 6.7 | 11.1 | 16.7 | 45.0 |
| 23 0538 | 45.7 | 130.5 | 6.9 | 0.5 | 0.8 | 6.1 | 3.4 | 6.3 | 6.9 | 11.4 | 57.6 |
| 23 1541 | 38.6 | 93.0 | 9.4 | 0.5 | 1.1 | 2.5 | 5.6 | 7.8 | 10.2 | 13.6 | 49.3 |
| 24 0138 | 59.1 | 218.1 | 1.0 | 0.0 | 0.5 | 1.2 | 3.1 | 3.8 | 2.4 | 4.3 | 83.6 |
| 24 1139 | 36.5 | 83.4 | 5.8 | 0.2 | 1.3 | 1.6 | 6.8 | 10.6 | 10.6 | 9.3 | 54.0 |
| 24 2138 | 55.4 | 191.8 | 4.1 | 0.2 | 0.6 | 1.0 | 3.2 | 6.2 | 5.9 | 22.0 | 56.9 |
| 25 0739 | 57.1 | 204.1 | 2.9 | 0.0 | 0.2 | 0.7 | 1.3 | 4.2 | 6.4 | 16.6 | 67.8 |
| 25 1738 | 56.8 | 201.7 | 6.3 | 0.1 | 0.1 | 0.4 | 1.2 | 2.8 | 5.1 | 27.5 | 56.4 |
| 26 0339 | 48.6 | 147.5 | 0.6 | 0.1 | 0.2 | 0.9 | 1.2 | 4.1 | 8.2 | 28.5 | 56.2 |

SCRIPPS PIER
AUG. 1976

| LOCAL DAY | LOCAL TIME | SIG.HT (CM) | TOT.EN (CM.SQ) | PERCENT ENERGY IN BAND (TOTAL ENERGY INCLUDES RANGE 2048-4 SECS) BAND PERIOD LIMITS (IN SECS) 22+ | 22-18 | 18-16 | 16-14 | 14-12 | 12-10 | 10-8 | 8-6 | 6-4 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 26 | 1346 | 75.2 | 352.9 | 2.4 | 0.1 | 0.1 | 0.4 | 1.0 | 13.2 | 34.3 | 29.0 | 19.5 |
| 26 | 2339 | 81.8 | 418.2 | 3.6 | 0.1 | 0.1 | 0.3 | 1.1 | 2.9 | 45.0 | 34.6 | 12.4 |
| 27 | 0922 | 78.2 | 382.0 | 2.9 | 0.3 | 0.4 | 0.5 | 0.7 | 7.2 | 24.1 | 32.0 | 32.0 |
| 27 | 1938 | 75.6 | 356.7 | 3.3 | 0.1 | 0.1 | 0.4 | 0.7 | 9.1 | 34.0 | 35.7 | 16.6 |
| 28 | 0539 | 48.0 | 143.7 | 3.3 | 0.1 | 0.1 | 0.5 | 0.8 | 3.4 | 17.8 | 35.3 | 38.8 |
| 28 | 1522 | 50.3 | 158.2 | 3.6 | 0.1 | 0.1 | 0.5 | 1.2 | 1.8 | 16.2 | 33.2 | 43.3 |
| 29 | 0122 | 51.4 | 164.9 | 3.1 | 0.2 | 0.1 | 0.4 | 0.8 | 2.2 | 7.5 | 23.2 | 62.5 |
| 29 | 1323 | 64.8 | 262.4 | 2.9 | 0.2 | 0.1 | 0.5 | 1.0 | 10.5 | 16.5 | 15.5 | 52.9 |
| 29 | 2322 | 57.2 | 204.7 | 1.0 | 0.3 | 0.3 | 0.1 | 4.3 | 20.8 | 18.1 | 11.4 | 43.7 |
| 30 | 1122 | 69.5 | 301.6 | 1.5 | 0.2 | 0.3 | 0.2 | 2.8 | 20.8 | 8.2 | 26.8 | 39.1 |
| 31 | 1032 | 77.6 | 376.1 | 2.2 | 0.1 | 0.6 | 0.5 | 3.0 | 15.9 | 20.0 | 39.6 | 18.0 |
| 31 | 1724 | 61.8 | 238.5 | 3.8 | 0.2 | 0.7 | 0.8 | 2.2 | 9.8 | 29.3 | 34.7 | 18.4 |

SCRIPPS PIER

## P E R S I S T E N C E

(CONSECUTIVE DAYS (3 OR MORE) SIGNIFICANT WAVE HEIGHT IS 'N' FEET OR LESS)

31 DAYS OF OBSERVATION
AUG. 1-31, 1976

| FEET | DAYS |
|---|---|
| 1 | 0, |
| 2 | 11, 3, 3, 3, |
| 3 | 23, 4, |
| 4 | 31, |
| 5 | 31, |
| 6 | 31, |
| 8 | 31, |
| 10 | 31, |
| 12 | 31, |

MAXIMUM DAILY SIGNIFICANT WAVE HEIGHT FOR AUG. 1976

| DATE (AUG.) | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|
| SIG.HT (FT.) | 2 | 2 | 2 | 3 | 4 | 3 | 4 |

| DATE (AUG.) | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
|---|---|---|---|---|---|---|---|
| SIG.HT (FT.) | 4 | 3 | 2 | 2 | 2 | 3 | 3 |

| DATE (AUG.) | 15 | 16 | 17 | 18 | 19 | 20 | 21 |
|---|---|---|---|---|---|---|---|
| SIG.HT (FT.) | 2 | 2 | 2 | 2 | 2 | 2 | 2 |

| DATE (AUG.) | 22 | 23 | 24 | 25 | 26 | 27 | 28 |
|---|---|---|---|---|---|---|---|
| SIG.HT (FT.) | 2 | 1 | 2 | 2 | 3 | 3 | 2 |

| DATE (AUG.) | 29 | 30 | 31 |
|---|---|---|---|
| SIG.HT (FT.) | 2 | 2 | 3 |

OCEANSIDE
AUG. 1976

| LOCAL DAY/TIME | SIG.HT (CM) | TOT.EN (CM.SQ) | PERCENT ENERGY IN BAND (TOTAL ENERGY INCLUDES RANGE 2048-4 SECS) BAND PERIOD LIMITS (IN SECS) 22+ | 22-18 | 18-16 | 16-14 | 14-12 | 12-10 | 10-8 | 8-6 | 6-4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 0157 | 123.9 | 959.8 | 3.9 | 4.3 | 59.8 | 11.8 | 6.1 | 5.1 | 5.1 | 2.5 | 1.3 |
| 1 0657 | 114.0 | 812.9 | 1.9 | 3.6 | 64.0 | 8.9 | 5.3 | 4.3 | 8.8 | 2.2 | 1.0 |
| 1 1157 | 99.4 | 617.5 | 5.1 | 4.8 | 41.4 | 27.6 | 4.7 | 7.4 | 4.4 | 3.2 | 1.4 |
| 1 1657 | 93.7 | 548.6 | 4.2 | 1.4 | 42.9 | 28.7 | 6.6 | 5.1 | 5.8 | 3.1 | 2.2 |
| 1 2157 | 97.7 | 596.6 | 1.8 | 1.1 | 37.9 | 24.6 | 4.5 | 4.0 | 4.4 | 2.9 | 18.7 |
| 2 0057 | 96.8 | 586.1 | 2.5 | 0.9 | 39.5 | 31.2 | 2.9 | 3.3 | 7.3 | 2.7 | 9.6 |
| 2 0957 | 86.4 | 466.0 | 2.7 | 0.5 | 21.3 | 41.6 | 10.3 | 4.2 | 3.8 | 3.2 | 12.5 |
| 2 1957 | 73.9 | 341.7 | 1.9 | 0.4 | 9.2 | 47.7 | 21.3 | 3.9 | 4.6 | 3.3 | 7.6 |
| 3 0558 | 74.1 | 343.3 | 2.5 | 0.3 | 5.8 | 33.4 | 13.1 | 5.0 | 4.7 | 4.6 | 30.6 |
| 3 1650 | 67.7 | 286.7 | 2.6 | 0.5 | 2.4 | 27.3 | 22.3 | 4.1 | 3.5 | 17.8 | 19.5 |
| 4 0157 | 92.7 | 537.3 | 1.4 | 0.3 | 1.1 | 14.5 | 12.9 | 2.6 | 4.2 | 40.3 | 22.8 |
| 4 0217 | 80.0 | 400.3 | 1.9 | 0.1 | 2.9 | 19.3 | 7.9 | 3.4 | 6.5 | 35.8 | 22.1 |
| 4 1157 | 62.7 | 245.3 | 2.0 | 0.2 | 2.1 | 12.4 | 18.7 | 5.6 | 2.9 | 23.0 | 33.1 |
| 4 2157 | 73.1 | 333.8 | 1.3 | 0.2 | 1.2 | 3.3 | 16.2 | 2.0 | 6.6 | 39.7 | 29.4 |
| 5 0757 | 72.1 | 324.9 | 1.1 | 0.4 | 0.7 | 10.5 | 7.4 | 3.6 | 7.6 | 37.8 | 30.9 |
| 5 1757 | 66.3 | 274.3 | 1.7 | 1.0 | 1.0 | 2.8 | 3.6 | 2.4 | 7.7 | 25.8 | 54.0 |
| 6 0357 | 63.5 | 251.6 | 2.7 | 1.6 | 1.2 | 3.8 | 8.6 | 2.9 | 7.7 | 45.6 | 25.9 |
| 6 1543 | 82.7 | 427.5 | 2.6 | 1.2 | 1.4 | 1.0 | 2.3 | 1.0 | 5.9 | 59.8 | 24.7 |
| 6 2357 | 49.6 | 153.5 | 2.9 | 4.9 | 6.8 | 2.8 | 5.2 | 2.9 | 3.6 | 16.3 | 54.6 |
| 7 0957 | 65.7 | 269.4 | 1.7 | 4.0 | 8.4 | 1.7 | 3.1 | 1.4 | 4.9 | 42.2 | 32.6 |
| 7 1957 | 61.5 | 236.3 | 2.5 | 2.2 | 20.8 | 3.6 | 2.8 | 3.4 | 9.8 | 31.6 | 23.1 |
| 8 0557 | 81.0 | 410.0 | 4.9 | 0.8 | 6.5 | 4.8 | 2.3 | 2.9 | 19.4 | 32.8 | 25.6 |
| 8 1557 | 79.3 | 393.1 | 3.1 | 0.3 | 5.3 | 32.2 | 1.7 | 2.1 | 6.1 | 25.4 | 23.9 |
| 9 0157 | 73.3 | 336.1 | 1.5 | 0.5 | 6.2 | 33.2 | 7.9 | 4.2 | 5.1 | 16.5 | 25.0 |
| 9 1157 | 63.2 | 249.4 | 4.5 | 0.3 | 1.6 | 18.7 | 18.6 | 9.3 | 4.2 | 16.1 | 26.6 |
| 9 2157 | 71.5 | 319.0 | 2.7 | 0.3 | 1.5 | 32.0 | 23.3 | 7.6 | 2.3 | 9.0 | 21.4 |
| 10 0757 | 60.1 | 225.9 | 3.3 | 0.2 | 0.9 | 19.3 | 19.3 | 11.8 | 4.2 | 8.4 | 32.6 |
| 10 1757 | 50.1 | 156.9 | 8.2 | 0.3 | 2.6 | 7.0 | 29.6 | 16.3 | 6.3 | 6.8 | 22.8 |
| 11 0357 | 48.0 | 143.8 | 3.4 | 0.2 | 1.6 | 8.7 | 20.2 | 31.3 | 9.7 | 2.3 | 22.7 |
| 11 1358 | 57.2 | 204.5 | 3.7 | 1.6 | 1.0 | 3.4 | 14.1 | 30.2 | 12.3 | 6.0 | 27.6 |
| 11 2357 | 62.5 | 243.9 | 4.7 | 5.0 | 1.2 | 5.6 | 9.8 | 33.4 | 12.1 | 3.3 | 24.8 |
| 12 0957 | 86.3 | 466.0 | 4.9 | 4.4 | 5.0 | 9.8 | 21.3 | 26.3 | 9.6 | 4.3 | 14.4 |
| 12 1957 | 112.6 | 791.7 | 4.4 | 3.2 | 3.8 | 31.9 | 24.3 | 11.4 | 3.0 | 6.2 | 11.8 |

OCEANSIDE
AUG. 1976

| LOCAL DAY/TIME | | SIG.HT (CM) | TOT.EN (CM.SQ) | PERCENT ENERGY IN BAND (TOTAL ENERGY INCLUDES RANGE 2048-4 SECS) BAND PERIOD LIMITS (IN SECS) 22+ | 22-18 | 18-16 | 16-14 | 14-12 | 12-10 | 10-8 | 8-6 | 6-4 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13 | 0557 | 115.5 | 833.3 | 4.8 | 6.4 | 0.7 | 4.5 | 38.4 | 20.7 | 11.5 | 6.1 | 7.1 |
| 13 | 1600 | 106.1 | 703.5 | 2.8 | 1.0 | 1.4 | 2.0 | 15.6 | 42.3 | 16.5 | 8.4 | 10.1 |
| 14 | 0144 | 110.8 | 767.0 | 3.1 | 3.4 | 2.5 | 10.9 | 17.7 | 21.3 | 13.4 | 10.7 | 17.1 |
| 14 | 1202 | 139.5 | 1216.2 | 4.3 | 0.4 | 6.9 | 2.7 | 46.2 | 14.1 | 6.4 | 11.8 | 7.2 |
| 14 | 2200 | 115.4 | 831.9 | 3.1 | 0.8 | 10.5 | 3.2 | 19.1 | 45.0 | 4.3 | 3.5 | 10.4 |
| 15 | 0800 | 100.8 | 634.5 | 2.4 | 0.4 | 13.3 | 19.6 | 2.3 | 19.9 | 28.3 | 4.6 | 9.2 |
| 15 | 1801 | 74.9 | 350.2 | 2.3 | 0.7 | 6.9 | 28.4 | 17.6 | 8.9 | 22.3 | 7.0 | 5.8 |
| 16 | 0400 | 77.1 | 371.4 | 2.0 | 0.5 | 3.1 | 36.7 | 33.6 | 7.2 | 7.6 | 5.8 | 3.4 |
| 16 | 1357 | 62.8 | 246.8 | 4.4 | 1.9 | 6.4 | 18.8 | 29.4 | 10.5 | 16.9 | 6.6 | 5.2 |
| 16 | 2357 | 62.3 | 242.9 | 2.7 | 1.5 | 3.1 | 14.0 | 30.6 | 18.3 | 11.8 | 5.1 | 13.1 |
| 17 | 0958 | 66.8 | 279.2 | 2.6 | 4.2 | 2.4 | 26.9 | 26.2 | 4.6 | 4.7 | 5.1 | 23.3 |
| 17 | 1957 | 67.6 | 285.6 | 2.7 | 9.3 | 2.7 | 26.1 | 24.9 | 11.5 | 6.4 | 4.1 | 12.4 |
| 18 | 0600 | 77.9 | 379.3 | 4.2 | 11.7 | 12.8 | 19.6 | 30.2 | 9.4 | 4.4 | 2.7 | 5.0 |
| 18 | 1559 | 73.5 | 337.4 | 6.7 | 3.5 | 48.3 | 9.1 | 12.1 | 7.4 | 5.8 | 4.6 | 2.5 |
| 19 | 0158 | 101.1 | 638.3 | 2.6 | 0.9 | 41.4 | 28.6 | 7.7 | 6.7 | 8.1 | 3.0 | 1.0 |
| 19 | 1157 | 77.0 | 370.6 | 2.9 | 0.9 | 27.4 | 19.7 | 13.6 | 15.3 | 10.3 | 6.9 | 3.1 |
| 19 | 2157 | 81.8 | 417.9 | 2.2 | 2.5 | 5.9 | 27.2 | 25.7 | 16.9 | 8.4 | 6.1 | 5.1 |
| 20 | 0757 | 72.7 | 330.3 | 3.3 | 1.4 | 2.6 | 43.0 | 18.1 | 10.3 | 7.8 | 6.9 | 6.6 |
| 20 | 1757 | 80.6 | 406.3 | 2.8 | 1.1 | 2.3 | 31.7 | 18.9 | 18.3 | 12.3 | 8.0 | 4.7 |
| 21 | 0357 | 73.1 | 334.0 | 3.1 | 2.1 | 13.4 | 26.4 | 12.0 | 14.5 | 15.4 | 7.2 | 5.8 |
| 21 | 1357 | 71.9 | 323.4 | 4.3 | 3.0 | 23.6 | 14.1 | 22.3 | 7.6 | 10.6 | 10.6 | 4.0 |
| 21 | 2357 | 78.4 | 384.3 | 2.2 | 1.0 | 8.6 | 29.5 | 25.3 | 8.9 | 6.4 | 6.5 | 11.6 |
| 22 | 0957 | 88.7 | 492.1 | 5.1 | 1.9 | 8.5 | 49.0 | 16.5 | 7.6 | 2.9 | 5.1 | 3.4 |
| 22 | 1957 | 84.9 | 450.6 | 2.6 | 0.7 | 2.4 | 46.5 | 12.7 | 4.7 | 3.4 | 3.5 | 23.6 |
| 23 | 0557 | 65.8 | 270.2 | 3.6 | 0.8 | 3.8 | 16.5 | 39.4 | 11.8 | 5.1 | 5.5 | 13.4 |
| 23 | 1559 | 53.3 | 177.8 | 5.9 | 0.8 | 9.3 | 13.9 | 39.2 | 11.7 | 5.9 | 3.4 | 9.8 |
| 24 | 0157 | 54.5 | 185.7 | 0.9 | 0.2 | 3.6 | 12.3 | 29.9 | 15.2 | 3.6 | 3.0 | 31.3 |
| 24 | 1157 | 48.3 | 145.6 | 4.8 | 0.5 | 2.6 | 13.2 | 29.7 | 19.6 | 8.7 | 4.6 | 16.2 |
| 24 | 2157 | 67.0 | 280.9 | 5.5 | 0.3 | 1.2 | 12.6 | 15.6 | 21.1 | 6.7 | 4.7 | 32.2 |
| 25 | 0758 | 64.1 | 256.5 | 2.7 | 0.5 | 0.5 | 12.3 | 8.1 | 18.4 | 12.3 | 11.8 | 33.4 |
| 25 | 1757 | 52.3 | 171.0 | 6.7 | 0.9 | 1.8 | 4.6 | 22.1 | 14.8 | 13.1 | 10.1 | 26.0 |
| 26 | 0357 | 54.3 | 184.1 | 2.1 | 0.5 | 0.6 | 8.4 | 13.7 | 15.6 | 20.2 | 12.2 | 26.8 |

OCEANSIDE
AUG. 1976

| LOCAL DAY | LOCAL TIME | SIG.HT (CM) | TOT.EN (CM.SQ) | PERCENT ENERGY IN BAND (TOTAL ENERGY INCLUDES RANGE 2048-4 SECS) BAND PERIOD LIMITS (IN SECS) 22+ | 22-18 | 18-16 | 16-14 | 14-12 | 12-10 | 10-8 | 8-6 | 6-4 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 26 | 1404 | 63.1 | 248.8 | 3.0 | 0.2 | 1.1 | 4.1 | 9.4 | 21.1 | 17.8 | 28.1 | 15.2 |
| 26 | 2357 | 52.2 | 170.5 | 9.6 | 0.2 | 4.4 | 5.7 | 14.1 | 14.3 | 16.3 | 18.9 | 16.6 |
| 27 | 0942 | 63.5 | 251.9 | 2.3 | 0.5 | 2.8 | 5.5 | 4.1 | 14.6 | 30.7 | 22.8 | 16.7 |
| 27 | 1957 | 55.9 | 195.3 | 6.6 | 0.3 | 4.1 | 7.1 | 5.6 | 11.0 | 21.6 | 24.8 | 18.8 |
| 28 | 0557 | 47.1 | 138.8 | 3.8 | 0.4 | 1.2 | 8.3 | 12.5 | 22.0 | 19.7 | 14.2 | 17.9 |
| 28 | 1541 | 48.9 | 149.5 | 2.5 | 0.8 | 2.2 | 8.6 | 13.3 | 9.6 | 14.9 | 25.0 | 23.2 |
| 29 | 0141 | 50.7 | 160.6 | 2.8 | 0.9 | 0.6 | 8.7 | 17.2 | 7.0 | 4.7 | 11.5 | 46.6 |
| 29 | 1341 | 48.1 | 144.7 | 7.1 | 3.4 | 3.7 | 8.0 | 13.4 | 16.9 | 6.9 | 16.2 | 24.5 |
| 29 | 2341 | 48.7 | 148.3 | 2.6 | 3.4 | 2.4 | 5.0 | 15.0 | 20.9 | 16.8 | 7.3 | 26.5 |
| 30 | 1141 | 64.4 | 258.9 | 2.6 | 3.7 | 4.1 | 4.0 | 10.4 | 21.7 | 9.8 | 22.2 | 21.6 |
| 31 | 1051 | 75.1 | 352.6 | 3.6 | 1.4 | 18.2 | 20.8 | 7.2 | 11.2 | 13.9 | 14.5 | 9.2 |
| 31 | 1743 | 107.2 | 718.1 | 2.7 | 0.6 | 11.1 | 10.1 | 1.8 | 32.2 | 31.6 | 5.8 | 3.9 |

OCEANSIDE

## P E R S I S T E N C E

(CONSECUTIVE DAYS (3 OR MORE) SIGNIFICANT WAVE HEIGHT IS 'N' FEET OR LESS)

31 DAYS OF OBSERVATION
AUG. 1-31, 1976

| FEET | DAYS |
|---|---|
| 1 | 0, |
| 2 | 8, 3, |
| 3 | 16, 10, |
| 4 | 17, 13, |
| 5 | 31, |
| 6 | 31, |
| 8 | 31, |
| 10 | 31, |
| 12 | 31, |

MAXIMUM DAILY SIGNIFICANT WAVE HEIGHT FOR AUG. 1976

| DATE (AUG.) | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|
| SIG.HT (FT.) | 4 | 3 | 2 | 3 | 2 | 3 | 2 |

| DATE (AUG.) | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
|---|---|---|---|---|---|---|---|
| SIG.HT (FT.) | 3 | 2 | 2 | 2 | 4 | 4 | 5 |

| DATE (AUG.) | 15 | 16 | 17 | 18 | 19 | 20 | 21 |
|---|---|---|---|---|---|---|---|
| SIG.HT (FT.) | 3 | 3 | 2 | 3 | 3 | 3 | 3 |

| DATE (AUG.) | 22 | 23 | 24 | 25 | 26 | 27 | 28 |
|---|---|---|---|---|---|---|---|
| SIG.HT (FT.) | 3 | 2 | 2 | 2 | 2 | 2 | 2 |

| DATE (AUG.) | 29 | 30 | 31 |
|---|---|---|---|
| SIG.HT (FT.) | 2 | 2 | 4 |

# CALIFORNIA COASTAL ENGINEERING DATA NETWORK

## MONTHLY SUMMARY REPORT NO. 10

SEPTEMBER 1976

INSTITUTE OF MARINE RESOURCES
SCRIPPS INSTITUTION OF OCEANOGRAPHY
LA JOLLA, CA

THIS PROJECT IS SPONSORED JOINTLY BY THE CALIFORNIA SEA GRANT COLLEGE PROGRAM AND THE DEPARTMENT OF NAVIGATION AND OCEAN DEVELOPMENT.

REPORT NO. 10 SEPTEMBER 1976

REPORTING STATIONS

| NO. | LOCATION | | |
|---|---|---|---|
| 1 | IMPERIAL BEACH PIER | 32-35N | 117-08W |
| 2 | OCEAN BEACH PIER | 32-45N | 117-15W |
| 3 | SCRIPPS PIER | 32-52N | 117-15W |
| 4 | OCEANSIDE PIER | 33-11N | 117-23W |

DATA REPORTED

| STA.NO. | DATA TYPE |
|---|---|
| 1 | WAVE SPECTRUM FROM ONE PRESSURE SENSOR |
| 2 | WAVE SPECTRUM FROM ONE PRESSURE SENSOR |
| 3 | WAVE SPECTRUM FROM ONE PRESSURE SENSOR |
| 4 | WAVE SPECTRUM FROM ONE PRESSURE SENSOR |

NOTES -

1. THE SUM OF THE ENERGIES (TOT.EN) IN A WAVE SPECTRUM IS EQUAL TO THE VARIANCE OF THE SURFACE ELEVATION.

2. THE SIGNIFICANT WAVE HEIGHT (SIG.HT) IS EQUAL TO FOUR TIMES THE STANDARD DEVIATION.

3. PACIFIC STANDARD TIME IS THE STARTING TIME FOR THE DATA SAMPLING PERIOD.

4. PERIOD BANDS INCLUDE THE LOWER LIMIT , BUT NOT THE UPPER LIMIT.

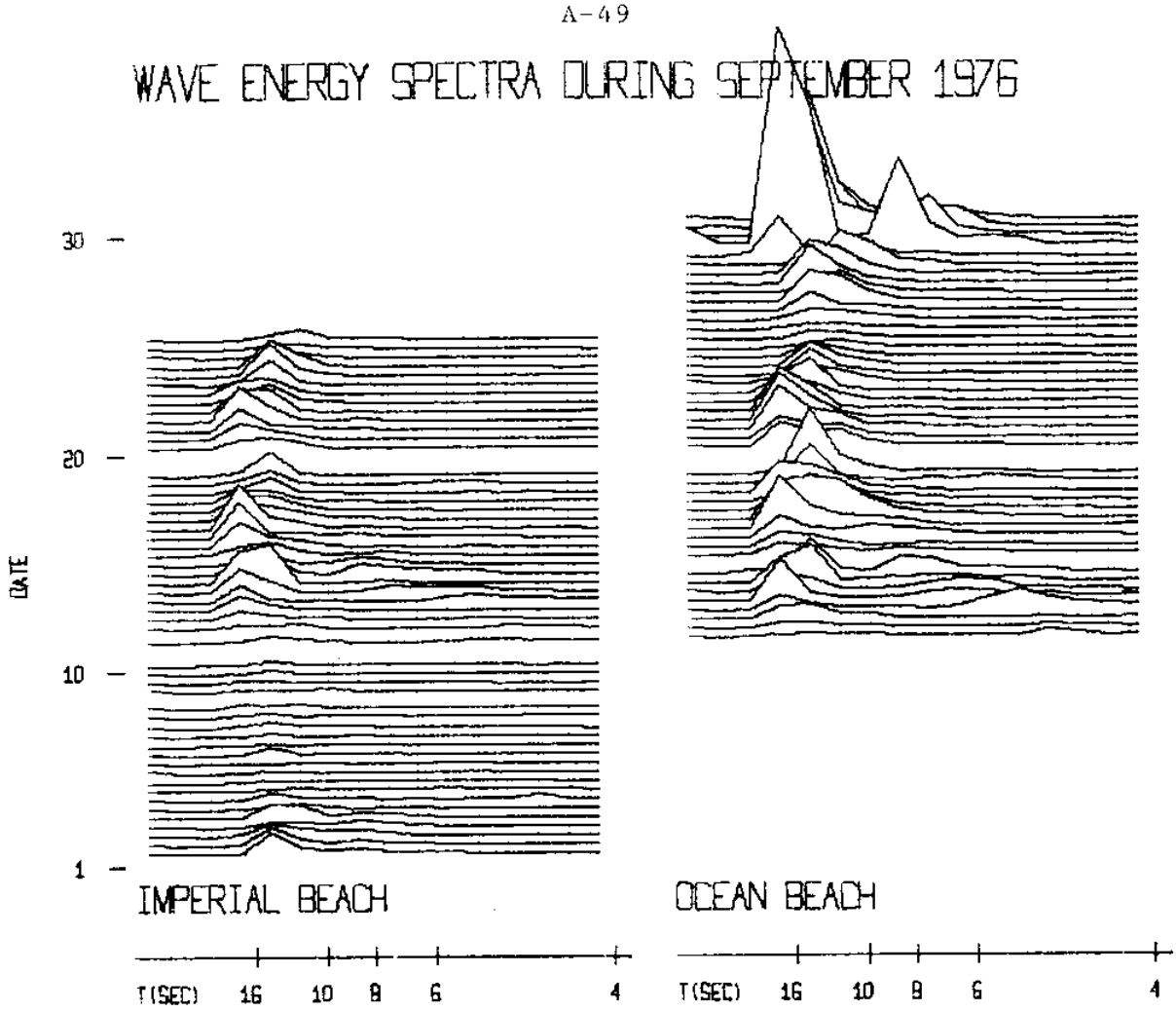
5. WAVE ENERGY IS TRUNCATED AT 4 SECOND PERIOD BECAUSE OF DEPTH EXTINCTION CHARACTERISTICS OF THE PRESSURE SENSOR.

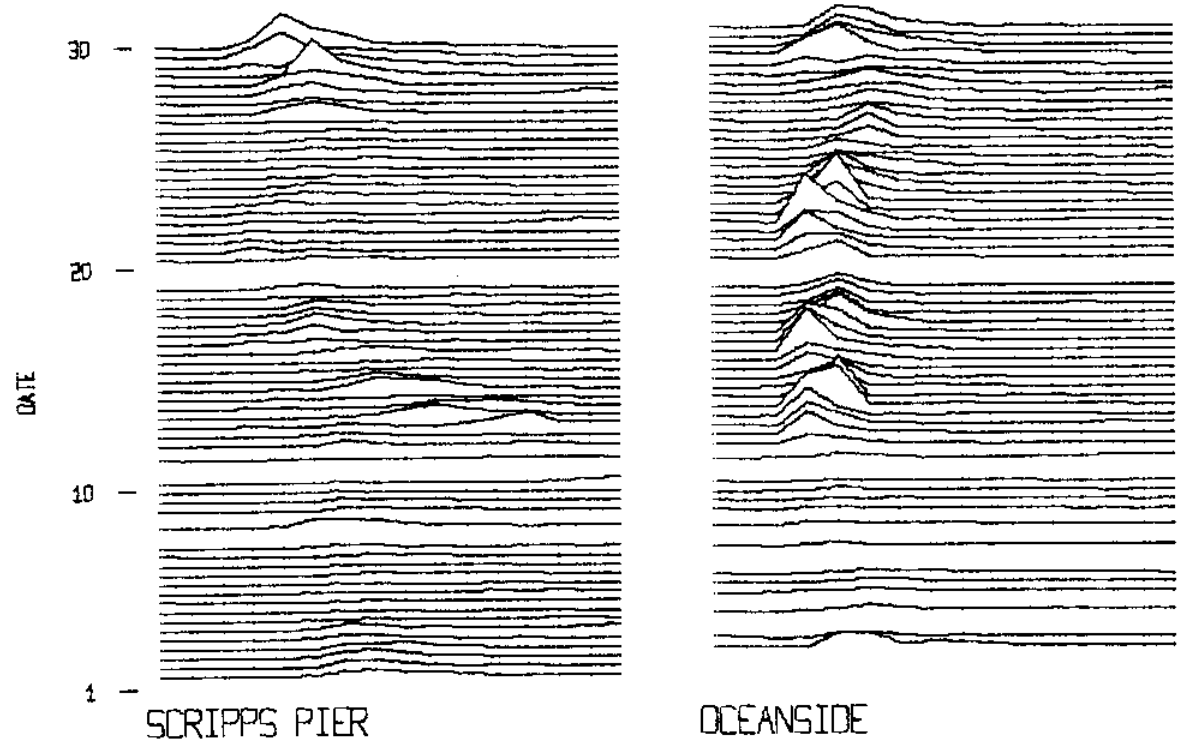
6. ROUNDOFF ERRORS MAY PREVENT ENERGIES FROM SUMMING TO 100.0 PERCENT

7. WAVE SPECTRA ARE CALCULATED FROM 1024 SAMPLES AT ONE HZ.

8. SIGNIFICANT WAVE HEIGHTS HAVE BEEN ROUNDED UP TO THE NEAREST FOOT IN THE PERSISTENCE AND MAXIMUM DAILY HEIGHT TABLES.

# WAVE ENERGY SPECTRA DURING SEPTEMBER 1976



IMPERIAL BEACH
SEP. 1976

| LOCAL DAY/TIME | | SIG.HT (CM) | TOT.EN (CM.SQ) | PERCENT ENERGY IN BAND (TOTAL ENERGY INCLUDES RANGE 2048-4 SECS) BAND PERIOD LIMITS (IN SECS) 22+ | 22-18 | 18-16 | 16-14 | 14-12 | 12-10 | 10-8 | 8-6 | 6-4 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0302 | 107.7 | 725.1 | 2.7 | 0.6 | 11.2 | 10.2 | 1.8 | 32.3 | 31.5 | 5.8 | 3.8 |
| 1 | 1318 | 78.0 | 379.9 | 3.4 | 0.9 | 1.0 | 26.7 | 17.6 | 11.2 | 16.7 | 13.9 | 8.4 |
| 1 | 2300 | 72.4 | 327.9 | 1.0 | 0.2 | 2.5 | 27.1 | 18.3 | 10.1 | 17.4 | 16.7 | 6.8 |
| 2 | 0900 | 74.4 | 345.8 | 2.2 | 0.2 | 4.0 | 19.5 | 16.0 | 14.7 | 23.2 | 13.9 | 6.4 |
| 2 | 1000 | 72.0 | 323.6 | 2.3 | 0.3 | 1.8 | 12.3 | 19.4 | 10.2 | 29.2 | 16.2 | 8.3 |
| 2 | 1901 | 66.5 | 276.6 | 3.0 | 0.3 | 0.9 | 6.1 | 17.0 | 9.6 | 31.4 | 21.9 | 10.0 |
| 3 | 0500 | 77.4 | 374.2 | 3.7 | 0.5 | 0.7 | 13.8 | 29.2 | 13.6 | 15.2 | 16.8 | 6.6 |
| 3 | 1511 | 54.9 | 188.6 | 3.0 | 0.8 | 1.3 | 7.2 | 16.9 | 19.7 | 12.5 | 20.1 | 18.5 |
| 4 | 0100 | 66.6 | 277.2 | 2.2 | 0.5 | 1.0 | 6.3 | 19.0 | 5.5 | 11.1 | 13.0 | 41.4 |
| 4 | 1200 | 57.5 | 206.3 | 0.7 | 0.4 | 3.1 | 3.0 | 10.0 | 12.9 | 13.1 | 18.7 | 38.1 |
| 4 | 2100 | 57.5 | 206.3 | 0.7 | 0.4 | 3.1 | 3.0 | 10.0 | 12.9 | 13.1 | 18.7 | 38.1 |
| 4 | 2200 | 50.5 | 159.0 | 12.4 | 0.5 | 4.9 | 2.1 | 8.8 | 10.9 | 14.0 | 14.7 | 31.7 |
| 5 | 0700 | 50.5 | 159.0 | 12.4 | 0.5 | 4.9 | 2.1 | 8.8 | 10.9 | 14.0 | 14.7 | 31.7 |
| 5 | 0800 | 46.9 | 137.5 | 2.5 | 1.2 | 5.5 | 4.7 | 9.5 | 11.7 | 12.5 | 9.3 | 43.0 |
| 5 | 1700 | 51.3 | 164.7 | 5.4 | 1.6 | 3.4 | 4.9 | 4.7 | 13.5 | 13.0 | 16.2 | 37.4 |
| 6 | 0300 | 53.9 | 181.4 | 3.8 | 1.7 | 4.8 | 28.1 | 4.5 | 7.1 | 22.8 | 16.6 | 10.6 |
| 6 | 1300 | 45.1 | 127.1 | 2.0 | 2.7 | 4.9 | 7.2 | 8.1 | 5.1 | 28.0 | 22.6 | 19.4 |
| 6 | 2300 | 44.6 | 124.0 | 9.4 | 4.6 | 1.9 | 21.9 | 9.8 | 6.9 | 19.2 | 10.3 | 16.1 |
| 7 | 0900 | 51.8 | 167.6 | 5.4 | 6.8 | 3.3 | 20.2 | 9.8 | 13.3 | 19.1 | 13.3 | 8.9 |
| 7 | 1000 | 48.0 | 143.9 | 6.2 | 14.1 | 1.9 | 23.9 | 12.9 | 8.2 | 12.0 | 6.3 | 14.5 |
| 7 | 2113 | 58.0 | 210.5 | 3.2 | 3.2 | 6.7 | 7.6 | 7.3 | 6.8 | 15.2 | 13.2 | 36.9 |
| 8 | 0730 | 50.3 | 158.3 | 5.7 | 5.0 | 17.6 | 6.8 | 11.9 | 11.5 | 8.2 | 13.2 | 20.2 |
| 8 | 1524 | 54.7 | 187.1 | 1.2 | 1.1 | 11.9 | 9.8 | 14.0 | 12.9 | 18.9 | 14.9 | 15.2 |
| 9 | 0100 | 49.1 | 150.8 | 10.2 | 2.8 | 11.0 | 8.5 | 10.5 | 17.2 | 19.1 | 9.9 | 10.8 |
| 9 | 1100 | 39.3 | 96.4 | 6.9 | 0.6 | 17.6 | 19.7 | 12.0 | 7.8 | 11.4 | 12.8 | 11.1 |
| 9 | 1200 | 45.6 | 129.9 | 3.0 | 1.3 | 9.2 | 14.3 | 15.6 | 13.2 | 16.1 | 12.4 | 14.8 |
| 9 | 2100 | 41.7 | 108.4 | 4.1 | 2.5 | 5.6 | 13.6 | 19.0 | 6.6 | 14.5 | 17.7 | 16.4 |
| 10 | 0700 | 37.6 | 88.3 | 3.3 | 1.8 | 7.4 | 28.1 | 12.2 | 8.6 | 12.7 | 10.2 | 15.7 |
| 10 | 0800 | 54.2 | 183.2 | 10.6 | 0.9 | 3.5 | 18.3 | 22.5 | 10.7 | 4.7 | 5.8 | 23.0 |
| 11 | 0812 | 62.8 | 246.1 | 2.0 | 2.9 | 2.9 | 6.9 | 17.0 | 11.2 | 5.1 | 7.2 | 44.9 |
| 11 | 1300 | 55.1 | 189.4 | 4.5 | 4.9 | 3.8 | 6.7 | 19.2 | 9.6 | 2.9 | 3.7 | 44.7 |
| 11 | 1416 | 63.8 | 254.1 | 6.2 | 7.3 | 6.5 | 3.3 | 13.9 | 11.9 | 7.0 | 5.1 | 38.8 |
| 11 | 2300 | 63.8 | 254.1 | 6.2 | 7.3 | 6.5 | 3.3 | 13.9 | 11.9 | 7.0 | 5.1 | 38.8 |
| 12 | 0016 | 57.7 | 208.3 | 2.9 | 27.7 | 5.3 | 9.0 | 9.8 | 6.0 | 10.7 | 4.8 | 23.7 |

IMPERIAL BEACH
SEP. 1976

| LOCAL DAY/TIME | | SIG.HT (CM) | TOT.EN (CM.SQ) | PERCENT ENERGY IN BAND (TOTAL ENERGY INCLUDES RANGE 2048-4 SECS) BAND PERIOD LIMITS (IN SECS) 22+ | 22-18 | 18-16 | 16-14 | 14-12 | 12-10 | 10-8 | 8-6 | 6-4 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 12 | 0900 | 57.7 | 208.3 | 2.9 | 27.7 | 5.3 | 9.0 | 9.8 | 6.0 | 10.7 | 4.8 | 23.7 |
| 12 | 1016 | 62.2 | 242.0 | 2.3 | 13.2 | 29.4 | 16.4 | 5.4 | 6.3 | 10.3 | 4.0 | 12.7 |
| 12 | 1900 | 62.2 | 242.0 | 2.3 | 13.2 | 29.4 | 16.4 | 5.4 | 6.3 | 10.3 | 4.0 | 12.7 |
| 12 | 2016 | 85.9 | 460.9 | 1.2 | 3.1 | 20.6 | 4.8 | 2.3 | 2.0 | 5.5 | 14.1 | 46.3 |
| 13 | 0500 | 79.2 | 392.3 | 1.5 | 1.2 | 28.2 | 3.5 | 2.0 | 2.6 | 7.2 | 9.5 | 44.3 |
| 13 | 0617 | 80.7 | 406.5 | 2.3 | 3.0 | 27.2 | 5.3 | 2.5 | 1.9 | 5.7 | 23.3 | 28.7 |
| 13 | 1505 | 95.4 | 569.1 | 1.5 | 1.2 | 29.2 | 11.1 | 3.5 | 2.0 | 5.6 | 24.9 | 20.9 |
| 14 | 0104 | 102.5 | 656.9 | 1.2 | 1.2 | 34.4 | 39.6 | 3.4 | 1.7 | 3.1 | 7.4 | 8.0 |
| 14 | 0220 | 64.2 | 257.3 | 1.7 | 4.7 | 16.6 | 21.8 | 9.4 | 3.4 | 6.1 | 16.4 | 19.8 |
| 14 | 1100 | 88.4 | 488.2 | 1.9 | 3.3 | 3.8 | 25.6 | 4.4 | 2.5 | 18.6 | 23.8 | 16.1 |
| 14 | 2100 | 76.3 | 364.0 | 2.1 | 4.2 | 4.0 | 10.2 | 12.2 | 7.2 | 25.5 | 23.0 | 11.6 |
| 15 | 0700 | 83.2 | 433.1 | 2.5 | 10.9 | 13.1 | 16.8 | 12.0 | 8.1 | 10.0 | 18.3 | 8.3 |
| 15 | 1700 | 86.0 | 462.7 | 1.3 | 32.7 | 6.1 | 11.1 | 11.8 | 10.0 | 6.1 | 9.2 | 11.6 |
| 16 | 0300 | 94.4 | 557.4 | 1.8 | 22.0 | 23.3 | 6.3 | 7.4 | 6.8 | 11.1 | 8.5 | 12.8 |
| 16 | 1300 | 102.9 | 662.4 | 1.9 | 10.6 | 38.6 | 8.0 | 8.8 | 7.2 | 7.7 | 5.9 | 11.4 |
| 16 | 2300 | 86.9 | 472.4 | 3.3 | 5.2 | 23.9 | 12.8 | 14.1 | 13.0 | 12.7 | 6.4 | 8.7 |
| 17 | 0900 | 85.5 | 457.2 | 2.5 | 3.2 | 22.7 | 23.7 | 7.2 | 9.3 | 6.6 | 10.7 | 14.1 |
| 17 | 1900 | 75.9 | 360.5 | 4.7 | 1.6 | 24.5 | 16.3 | 12.3 | 9.4 | 7.4 | 7.1 | 16.7 |
| 18 | 0500 | 69.0 | 297.9 | 2.1 | 3.5 | 13.4 | 29.8 | 12.0 | 6.5 | 6.9 | 6.1 | 19.7 |
| 18 | 1500 | 72.4 | 327.7 | 3.3 | 1.8 | 13.3 | 22.7 | 10.8 | 4.5 | 4.5 | 9.2 | 30.0 |
| 19 | 0100 | 71.8 | 322.5 | 3.0 | 3.1 | 8.8 | 39.0 | 15.5 | 4.4 | 5.1 | 8.2 | 13.0 |
| 20 | 0747 | 64.0 | 256.0 | 3.2 | 7.5 | 20.5 | 22.2 | 17.0 | 7.2 | 8.4 | 5.5 | 8.7 |
| 20 | 1700 | 67.0 | 280.7 | 4.6 | 12.7 | 29.8 | 19.9 | 9.2 | 8.2 | 4.7 | 5.4 | 5.6 |
| 21 | 0300 | 73.5 | 337.4 | 3.5 | 9.5 | 38.2 | 10.8 | 9.7 | 8.2 | 6.8 | 4.2 | 9.1 |
| 21 | 1300 | 87.4 | 477.8 | 1.6 | 4.3 | 47.2 | 19.5 | 5.8 | 3.0 | 8.9 | 3.5 | 6.3 |
| 21 | 2300 | 87.0 | 473.0 | 3.5 | 1.2 | 34.8 | 24.3 | 13.8 | 3.4 | 4.5 | 4.4 | 10.1 |
| 22 | 0900 | 76.6 | 366.6 | 4.1 | 1.1 | 18.9 | 30.9 | 13.8 | 7.2 | 4.6 | 6.8 | 12.8 |
| 22 | 1900 | 72.0 | 323.8 | 2.0 | 0.9 | 30.8 | 20.4 | 18.0 | 8.6 | 4.9 | 6.1 | 8.2 |
| 23 | 0500 | 74.6 | 347.8 | 7.1 | 0.5 | 8.1 | 40.6 | 17.9 | 6.2 | 6.3 | 6.8 | 6.5 |
| 23 | 1500 | 79.2 | 391.7 | 0.9 | 0.1 | 3.8 | 33.0 | 32.1 | 8.5 | 4.9 | 6.1 | 10.5 |
| 24 | 0100 | 76.6 | 367.0 | 1.6 | 0.2 | 2.2 | 36.3 | 37.3 | 7.1 | 4.3 | 6.1 | 4.9 |
| 24 | 1108 | 50.5 | 159.4 | 11.1 | 0.3 | 1.7 | 18.3 | 15.5 | 24.3 | 14.4 | 5.6 | 8.7 |
| 24 | 2100 | 48.3 | 145.7 | 3.0 | 0.9 | 2.2 | 17.1 | 18.4 | 25.6 | 17.9 | 6.8 | 8.1 |

IMPERIAL BEACH
SEP. 1976

| LOCAL DAY/TIME | SIG.HT (CM) | TOT.EN (CM.SQ) | PERCENT ENERGY IN BAND (TOTAL ENERGY INCLUDES RANGE 2048-4 SECS) BAND PERIOD LIMITS (IN SECS) 22+ | 22-18 | 18-16 | 16-14 | 14-12 | 12-10 | 10-8 | 8-6 | 6-4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 25 0700 | 58.6 | 214.5 | 4.1 | 0.6 | 1.6 | 12.1 | 33.4 | 16.2 | 13.7 | 10.5 | 7.7 |

IMPERIAL BEACH

P E R S I S T E N C E

(CONSECUTIVE DAYS (3 OR MORE) SIGNIFICANT WAVE HEIGHT IS 'N' FEET OR LESS)

25 DAYS OF OBSERVATION
SEP. 1-25, 1976

| FEET | DAYS |
|---|---|
| 1 | 0, |
| 2 | 8, 3, |
| 3 | 24, |
| 4 | 25, |
| 5 | 25, |
| 6 | 25, |
| 8 | 25, |
| 10 | 25, |
| 12 | 25, |

MAXIMUM DAILY SIGNIFICANT WAVE HEIGHT FOR SEP. 1976

| DATE (SEP.) | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|
| SIG.HT (FT.) | 4 | 2 | 3 | 2 | 2 | 2 | 2 |

| DATE (SEP.) | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
|---|---|---|---|---|---|---|---|
| SIG.HT (FT.) | 2 | 2 | 2 | 2 | 3 | 3 | 3 |

| DATE (SEP.) | 15 | 16 | 17 | 18 | 19 | 20 | 21 |
|---|---|---|---|---|---|---|---|
| SIG.HT (FT.) | 3 | 3 | 3 | 2 | 2 | 2 | 3 |

| DATE (SEP.) | 22 | 23 | 24 | 25 |
|---|---|---|---|---|
| SIG.HT (FT.) | 3 | 3 | 3 | 2 |

OCEAN BEACH
SEP. 1976

| LOCAL DAY/TIME | | SIG.HT (CM) | TOT.EN (CM.SQ) | PERCENT ENERGY IN BAND (TOTAL ENERGY INCLUDES RANGE 2048-4 SECS) BAND PERIOD LIMITS (IN SECS) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 22+ | 22-18 | 18-16 | 16-14 | 14-12 | 12-10 | 10-8 | 8-6 | 6-4 |
| 11 | 1320 | 64.1 | 256.8 | 4.5 | 5.1 | 4.5 | 7.3 | 8.6 | 5.8 | 7.8 | 6.0 | 50.4 |
| 11 | 2320 | 61.6 | 237.3 | 1.8 | 6.4 | 11.3 | 13.2 | 9.0 | 9.0 | 9.8 | 5.4 | 34.1 |
| 12 | 0920 | 77.3 | 373.2 | 2.6 | 18.8 | 7.8 | 23.8 | 10.2 | 6.2 | 9.6 | 4.1 | 16.9 |
| 12 | 1920 | 107.6 | 723.0 | 1.0 | 2.0 | 12.7 | 5.4 | 2.4 | 2.9 | 5.3 | 10.5 | 57.8 |
| 12 | 2035 | 106.0 | 701.8 | 1.3 | 1.0 | 24.5 | 3.0 | 1.7 | 2.4 | 6.6 | 9.3 | 50.2 |
| 13 | 0520 | 116.9 | 854.2 | 1.0 | 1.0 | 33.9 | 4.6 | 2.2 | 2.7 | 4.6 | 23.3 | 26.8 |
| 13 | 1531 | 102.3 | 653.8 | 2.7 | 0.7 | 18.7 | 11.9 | 3.1 | 2.9 | 7.1 | 32.3 | 20.4 |
| 14 | 0124 | 113.4 | 803.3 | 1.6 | 1.2 | 20.9 | 28.6 | 4.9 | 3.2 | 8.6 | 17.9 | 13.1 |
| 14 | 1119 | 112.2 | 786.7 | 4.2 | 1.4 | 3.3 | 23.5 | 9.6 | 2.7 | 17.6 | 23.7 | 13.9 |
| 15 | 0816 | 85.9 | 460.8 | 2.1 | 7.5 | 12.1 | 13.5 | 7.8 | 4.3 | 14.7 | 19.1 | 19.0 |
| 15 | 1719 | 79.2 | 391.8 | 2.8 | 21.7 | 5.8 | 13.9 | 10.2 | 5.6 | 6.8 | 19.3 | 13.9 |
| 16 | 0319 | 103.1 | 664.1 | 2.0 | 7.8 | 16.3 | 8.3 | 5.6 | 10.4 | 20.8 | 15.1 | 13.6 |
| 16 | 1319 | 124.9 | 975.0 | 1.6 | 6.0 | 32.1 | 8.6 | 9.6 | 11.0 | 12.3 | 6.4 | 12.3 |
| 16 | 2319 | 143.1 | 1280.3 | 1.6 | 3.0 | 18.6 | 12.9 | 14.7 | 21.7 | 12.3 | 9.5 | 5.7 |
| 17 | 0919 | 110.9 | 768.0 | 1.4 | 3.1 | 11.7 | 15.6 | 16.0 | 16.3 | 14.7 | 8.9 | 12.3 |
| 17 | 1919 | 101.3 | 641.8 | 2.6 | 1.3 | 10.7 | 19.7 | 15.9 | 12.5 | 15.1 | 9.4 | 12.8 |
| 18 | 0519 | 108.8 | 739.5 | 1.6 | 1.8 | 27.8 | 20.2 | 8.6 | 15.2 | 9.2 | 6.9 | 8.8 |
| 18 | 1519 | 105.8 | 700.2 | 2.0 | 1.2 | 6.2 | 28.0 | 13.7 | 5.5 | 6.6 | 14.6 | 22.1 |
| 19 | 0119 | 118.3 | 875.3 | 1.4 | 1.0 | 3.4 | 29.7 | 28.9 | 11.0 | 6.4 | 8.8 | 9.3 |
| 20 | 0806 | 92.6 | 535.7 | 4.5 | 27.3 | 5.4 | 10.1 | 19.3 | 14.5 | 7.5 | 6.5 | 4.9 |
| 20 | 1719 | 85.5 | 456.8 | 2.2 | 17.9 | 16.8 | 12.8 | 12.6 | 16.4 | 7.5 | 5.5 | 8.4 |
| 21 | 0320 | 110.9 | 768.1 | 3.7 | 5.5 | 35.1 | 10.9 | 8.4 | 15.3 | 7.3 | 6.3 | 7.4 |
| 21 | 1319 | 106.0 | 702.5 | 1.2 | 2.9 | 43.9 | 16.5 | 13.0 | 2.9 | 7.0 | 6.4 | 6.1 |
| 21 | 2319 | 107.5 | 721.6 | 3.6 | 1.8 | 41.3 | 15.9 | 11.5 | 3.4 | 5.9 | 4.8 | 11.6 |
| 22 | 0919 | 88.9 | 493.8 | 3.2 | 2.7 | 26.1 | 17.4 | 17.7 | 9.2 | 6.2 | 6.6 | 11.0 |
| 22 | 1919 | 94.2 | 554.5 | 1.9 | 0.4 | 22.2 | 31.3 | 16.8 | 6.2 | 4.9 | 7.1 | 9.3 |
| 23 | 0519 | 87.2 | 475.5 | 7.6 | 0.6 | 14.1 | 16.5 | 18.6 | 19.6 | 8.4 | 8.3 | 6.4 |
| 23 | 1519 | 77.0 | 370.1 | 2.3 | 0.2 | 3.1 | 18.6 | 37.6 | 14.7 | 8.1 | 10.9 | 4.6 |
| 24 | 0119 | 72.7 | 330.5 | 1.8 | 0.2 | 2.5 | 31.1 | 29.8 | 15.6 | 7.8 | 6.9 | 4.3 |
| 24 | 1127 | 61.3 | 234.7 | 6.3 | 0.6 | 1.0 | 18.7 | 36.8 | 13.4 | 8.4 | 10.0 | 4.8 |
| 24 | 2119 | 50.5 | 159.6 | 1.9 | 0.3 | 0.7 | 11.1 | 34.6 | 26.6 | 12.4 | 7.5 | 4.9 |

OCEAN BEAC
SEP. 1976

| LOCAL DAY/TIME | SIG.HT (CM) | TOT.EN (CM.SQ) | PERCENT ENERGY IN BAND (TOTAL ENERGY INCLUDES RANGE 2048-4 SECS) BAND PERIOD LIMITS (IN SECS) 22+ | 22-18 | 18-16 | 16-14 | 14-12 | 12-10 | 10-8 | 8-6 | 6-4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 25 0719 | 52.5 | 172.4 | 6.6 | 0.6 | 1.7 | 10.4 | 36.7 | 14.3 | 12.3 | 11.8 | 5.8 |
| 25 1703 | 57.5 | 206.9 | 1.5 | 0.7 | 10.4 | 9.1 | 22.0 | 20.3 | 15.6 | 13.3 | 7.2 |
| 26 0303 | 67.1 | 281.4 | 1.4 | 0.3 | 7.7 | 22.3 | 18.2 | 24.9 | 13.4 | 7.0 | 4.7 |
| 26 1303 | 69.1 | 298.7 | 5.2 | 0.4 | 2.7 | 28.5 | 22.6 | 18.7 | 14.1 | 4.3 | 3.5 |
| 26 2303 | 95.0 | 564.0 | 1.7 | 0.4 | 1.9 | 20.4 | 34.9 | 26.3 | 6.9 | 5.0 | 2.6 |
| 27 0903 | 75.7 | 358.3 | 3.7 | 0.8 | 1.2 | 4.4 | 50.6 | 20.2 | 14.1 | 3.8 | 1.2 |
| 27 1920 | 93.9 | 551.6 | 1.6 | 0.4 | 1.5 | 16.5 | 44.9 | 13.8 | 6.8 | 6.8 | 7.7 |
| 28 0503 | 98.1 | 600.8 | 3.1 | 0.3 | 2.3 | 3.8 | 49.4 | 21.7 | 11.2 | 5.8 | 2.2 |
| 28 1503 | 95.2 | 566.5 | 4.0 | 0.3 | 1.4 | 2.5 | 19.8 | 41.8 | 20.3 | 7.9 | 2.0 |
| 29 0103 | 100.5 | 631.6 | 5.3 | 38.5 | 8.7 | 0.7 | 6.5 | 19.9 | 9.2 | 9.0 | 2.1 |
| 29 1103 | 253.7 | 4021.3 | 5.3 | 2.9 | 35.3 | 21.7 | 3.3 | 2.3 | 16.7 | 6.7 | 5.7 |
| 29 2103 | 197.2 | 2431.1 | 2.5 | 1.7 | 12.9 | 32.3 | 10.0 | 7.6 | 11.0 | 17.2 | 4.8 |
| 30 0703 | 188.7 | 2225.7 | 2.9 | 1.7 | 10.3 | 27.3 | 21.3 | 10.0 | 6.6 | 15.4 | 4.5 |
| 30 1736 | 143.7 | 1289.7 | 4.5 | 1.1 | 0.9 | 25.0 | 27.1 | 17.6 | 8.9 | 10.0 | 4.9 |

# P E R S I S T E N C E

(CONSECUTIVE DAYS (3 OR MORE) SIGNIFICANT WAVE HEIGHT IS 'N' FEET OR LESS)

20 DAYS OF OBSERVATION
SEP. 11-30, 1976

| FEET | DAYS | |
|---|---|---|
| 1 | 0, | |
| 2 | 0, | |
| 3 | 7, | |
| 4 | 12, | 5, |
| 5 | 18, | |
| 6 | 18, | |
| 8 | 20, | |
| 10 | 20, | |
| 12 | 20, | |

MAXIMUM DAILY SIGNIFICANT WAVE HEIGHT FOR SEP. 1976

| DATE (SEP.) | 11 | 12 | 13 | 14 | 15 | 16 | 17 |
|---|---|---|---|---|---|---|---|
| SIG.HT (FT.) | 2 | 4 | 4 | 4 | 3 | 5 | 4 |

| DATE (SEP.) | 18 | 19 | 20 | 21 | 22 | 23 | 24 |
|---|---|---|---|---|---|---|---|
| SIG.HT (FT.) | 4 | 4 | 3 | 4 | 3 | 3 | 2 |

| DATE (SEP.) | 25 | 26 | 27 | 28 | 29 | 30 | |
|---|---|---|---|---|---|---|---|
| SIG.HT (FT.) | 2 | 3 | 3 | 3 | 8 | 6 | |

SCRIPPS P[illegible]R
SEP. 1976

| LOCAL DAY/TIME | SIG.HT (CM) | TOT.EN (CM.SQ) | PERCENT ENERGY IN BAND (TOTAL ENERGY INCLUDES RANGE 2048-4 SECS) BAND PERIOD LIMITS (IN SECS) 22+ | 22-18 | 18-16 | 16-14 | 14-12 | 12-10 | 10-8 | 8-6 | 6-4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 0324 | 47.4 | 140.6 | 1.0 | 0.1 | 0.3 | 3.9 | 2.1 | 13.6 | 37.1 | 31.6 | 10.4 |
| 1 1340 | 56.0 | 195.7 | 2.1 | 0.2 | 0.3 | 1.6 | 1.6 | 13.3 | 40.2 | 27.2 | 13.4 |
| 1 2322 | 54.6 | 186.0 | 1.2 | 0.1 | 0.2 | 1.5 | 1.6 | 13.1 | 44.1 | 22.4 | 15.8 |
| 2 0922 | 55.8 | 194.2 | 1.2 | 0.1 | 0.4 | 0.5 | 1.2 | 12.5 | 48.6 | 22.4 | 13.2 |
| 2 1923 | 56.5 | 199.7 | 3.6 | 0.1 | 0.1 | 0.3 | 1.7 | 9.2 | 34.6 | 36.2 | 14.2 |
| 3 0522 | 47.7 | 141.9 | 1.5 | 0.1 | 0.1 | 0.9 | 4.3 | 15.5 | 38.5 | 23.3 | 15.8 |
| 3 1532 | 66.5 | 276.1 | 3.1 | 0.1 | 0.1 | 0.6 | 2.0 | 10.8 | 26.0 | 16.9 | 40.4 |
| 4 0122 | 51.9 | 168.1 | 2.8 | 0.1 | 0.1 | 0.3 | 2.0 | 6.5 | 22.8 | 15.0 | 50.5 |
| 4 1122 | 41.6 | 108.1 | 1.8 | 0.1 | 0.8 | 0.3 | 1.0 | 9.8 | 24.8 | 17.7 | 43.6 |
| 4 2122 | 47.3 | 139.6 | 8.3 | 0.1 | 0.5 | 0.3 | 1.0 | 4.9 | 27.6 | 19.7 | 37.7 |
| 5 0722 | 51.5 | 165.8 | 1.1 | 0.3 | 0.4 | 0.6 | 1.1 | 9.5 | 15.4 | 13.5 | 58.2 |
| 5 1722 | 36.4 | 82.6 | 4.0 | 0.6 | 0.5 | 0.7 | 1.5 | 9.6 | 26.9 | 13.2 | 42.9 |
| 6 0322 | 48.7 | 148.1 | 3.3 | 0.1 | 0.4 | 1.8 | 1.8 | 3.7 | 30.2 | 24.9 | 33.8 |
| 6 1322 | 40.6 | 102.9 | 0.6 | 0.4 | 0.3 | 1.0 | 0.8 | 3.3 | 26.0 | 35.6 | 32.0 |
| 6 2322 | 38.9 | 94.7 | 13.8 | 0.9 | 0.3 | 1.6 | 1.8 | 6.9 | 31.9 | 23.3 | 19.5 |
| 7 0922 | 45.5 | 129.5 | 3.7 | 2.7 | 0.8 | 1.0 | 2.0 | 12.6 | 25.5 | 14.4 | 37.3 |
| 8 0752 | 69.2 | 299.5 | 3.7 | 0.2 | 0.9 | 0.7 | 7.1 | 30.7 | 21.7 | 16.1 | 19.0 |
| 8 1546 | 57.1 | 203.8 | 2.3 | 0.1 | 0.7 | 0.7 | 3.6 | 28.7 | 27.9 | 26.3 | 9.7 |
| 9 0122 | 44.1 | 121.5 | 4.8 | 0.2 | 0.9 | 0.8 | 1.8 | 13.5 | 26.9 | 28.3 | 22.8 |
| 9 1122 | 41.6 | 108.4 | 6.8 | 0.3 | 0.9 | 1.9 | 2.0 | 17.4 | 30.4 | 21.1 | 19.2 |
| 9 2122 | 28.3 | 50.1 | 3.8 | 0.9 | 1.1 | 4.0 | 5.9 | 5.8 | 22.4 | 29.5 | 26.7 |
| 10 0722 | 43.5 | 118.4 | 6.4 | 0.1 | 0.5 | 0.8 | 1.8 | 3.6 | 8.5 | 6.2 | 72.1 |
| 11 0833 | 47.6 | 141.7 | 3.7 | 0.5 | 0.6 | 0.7 | 3.8 | 9.5 | 8.5 | 6.0 | 66.7 |
| 11 1339 | 41.6 | 108.0 | 4.5 | 0.4 | 0.4 | 0.8 | 2.5 | 7.3 | 20.5 | 9.1 | 54.4 |
| 11 2339 | 45.9 | 131.4 | 1.5 | 1.2 | 0.5 | 1.2 | 1.4 | 8.5 | 29.0 | 12.6 | 44.0 |
| 12 0939 | 39.0 | 95.1 | 2.2 | 4.6 | 3.0 | 2.0 | 3.5 | 15.6 | 30.1 | 9.6 | 29.3 |
| 12 1939 | 75.2 | 353.4 | 0.9 | 0.8 | 2.1 | 0.4 | 0.4 | 2.8 | 9.0 | 9.2 | 74.4 |
| 13 0539 | 78.2 | 382.5 | 1.3 | 0.1 | 1.5 | 0.4 | 0.3 | 2.2 | 8.5 | 46.8 | 39.0 |
| 13 1551 | 70.0 | 306.5 | 1.7 | 0.2 | 2.6 | 2.1 | 0.8 | 1.9 | 7.5 | 33.5 | 49.5 |
| 14 0143 | 48.8 | 148.8 | 2.0 | 0.2 | 1.6 | 4.4 | 0.8 | 5.5 | 17.5 | 37.2 | 30.7 |
| 14 1138 | 77.9 | 379.2 | 2.9 | 0.3 | 0.5 | 1.1 | 1.8 | 2.5 | 33.5 | 40.9 | 16.4 |
| 14 2139 | 59.2 | 218.6 | 1.2 | 0.1 | 0.6 | 1.7 | 1.4 | 4.9 | 37.4 | 34.2 | 18.4 |

SCRIPPS PIER
SEP. 1976

| LOCAL DAY/TIME | | SIG.HT (CM) | TOT.EN (CM.SQ) | PERCENT ENERGY IN BAND (TOTAL ENERGY INCLUDES RANGE 2048-4 SECS) BAND PERIOD LIMITS (IN SECS) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 22+ | 22-18 | 18-16 | 16-14 | 14-12 | 12-10 | 10-8 | 8-6 | 6-4 |
| 15 | 0738 | 50.6 | 160.1 | 2.1 | 1.1 | 2.8 | 1.7 | 3.4 | 5.0 | 25.9 | 32.6 | 25.3 |
| 15 | 1738 | 41.6 | 108.1 | 2.3 | 2.0 | 0.5 | 2.4 | 3.6 | 4.3 | 13.3 | 40.7 | 30.8 |
| 16 | 0338 | 62.1 | 241.3 | 1.9 | 1.0 | 1.0 | 1.4 | 1.3 | 10.1 | 32.0 | 23.7 | 27.6 |
| 16 | 1338 | 60.3 | 227.0 | 2.5 | 2.3 | 8.0 | 1.1 | 8.0 | 18.6 | 11.3 | 15.7 | 32.5 |
| 16 | 2338 | 67.2 | 281.8 | 1.9 | 0.4 | 4.6 | 2.5 | 20.4 | 20.3 | 17.7 | 14.7 | 17.4 |
| 17 | 0938 | 66.0 | 272.4 | 2.1 | 1.3 | 2.9 | 2.1 | 14.6 | 30.1 | 19.5 | 9.6 | 17.9 |
| 17 | 1938 | 58.6 | 214.7 | 4.2 | 0.4 | 2.8 | 3.7 | 15.0 | 19.7 | 22.4 | 11.7 | 20.0 |
| 18 | 0538 | 59.9 | 224.0 | 2.7 | 0.3 | 2.7 | 2.1 | 7.5 | 26.5 | 15.9 | 11.5 | 30.7 |
| 18 | 1538 | 50.0 | 156.5 | 2.8 | 0.7 | 0.9 | 5.5 | 5.4 | 12.5 | 14.8 | 18.6 | 38.9 |
| 19 | 0138 | 47.2 | 139.5 | 3.3 | 0.3 | 1.2 | 2.2 | 18.6 | 24.3 | 12.3 | 13.5 | 24.1 |
| 20 | 0825 | 45.9 | 131.5 | 5.2 | 5.4 | 2.7 | 3.4 | 8.9 | 26.8 | 18.7 | 15.0 | 13.8 |
| 20 | 1738 | 43.1 | 116.2 | 4.9 | 13.8 | 17.9 | 3.2 | 9.1 | 16.2 | 10.3 | 12.7 | 11.9 |
| 21 | 0339 | 39.3 | 96.3 | 10.0 | 8.1 | 12.8 | 3.2 | 4.6 | 10.6 | 12.1 | 9.0 | 29.5 |
| 21 | 1338 | 44.0 | 121.2 | 2.8 | 2.7 | 23.3 | 1.6 | 7.5 | 15.8 | 10.3 | 13.7 | 22.3 |
| 21 | 2338 | 61.2 | 233.8 | 4.5 | 0.4 | 13.5 | 6.7 | 5.2 | 6.4 | 12.9 | 7.3 | 43.1 |
| 22 | 0938 | 44.5 | 124.0 | 11.3 | 0.5 | 17.7 | 7.2 | 5.9 | 10.2 | 7.4 | 6.7 | 33.2 |
| 22 | 1938 | 49.9 | 155.8 | 2.7 | 0.4 | 11.7 | 19.7 | 13.4 | 9.5 | 13.0 | 12.1 | 17.5 |
| 23 | 0538 | 53.5 | 178.9 | 8.5 | 0.1 | 2.7 | 5.4 | 15.6 | 13.1 | 16.8 | 23.1 | 14.7 |
| 23 | 1538 | 55.4 | 191.9 | 4.1 | 0.1 | 1.1 | 6.5 | 6.4 | 19.3 | 25.1 | 19.2 | 18.2 |
| 24 | 0138 | 43.8 | 119.7 | 2.9 | 0.1 | 1.1 | 8.3 | 8.7 | 19.0 | 25.5 | 16.7 | 17.7 |
| 24 | 1146 | 41.3 | 106.7 | 15.9 | 0.2 | 0.5 | 6.3 | 23.3 | 13.9 | 21.1 | 8.9 | 9.8 |
| 24 | 2138 | 41.4 | 107.1 | 3.0 | 0.3 | 0.3 | 8.9 | 11.1 | 13.2 | 36.8 | 13.2 | 13.3 |
| 25 | 0738 | 41.4 | 106.9 | 10.7 | 0.2 | 0.3 | 2.0 | 13.1 | 15.5 | 27.1 | 22.1 | 8.9 |
| 25 | 1722 | 40.0 | 100.1 | 7.4 | 0.3 | 1.1 | 1.2 | 17.0 | 19.8 | 24.6 | 14.7 | 13.9 |
| 26 | 0322 | 38.7 | 93.4 | 1.0 | 0.2 | 4.2 | 13.6 | 10.9 | 19.0 | 25.6 | 15.5 | 10.0 |
| 26 | 1322 | 42.0 | 110.0 | 16.9 | 0.2 | 0.6 | 10.1 | 8.4 | 13.2 | 24.3 | 15.5 | 10.8 |
| 26 | 2322 | 61.4 | 235.3 | 1.7 | 0.3 | 0.5 | 6.5 | 19.2 | 37.4 | 20.1 | 7.2 | 7.1 |
| 27 | 0922 | 47.9 | 143.3 | 7.5 | 0.3 | 0.3 | 3.1 | 23.1 | 35.1 | 18.8 | 7.7 | 4.1 |
| 27 | 1939 | 72.2 | 325.8 | 2.0 | 0.3 | 0.5 | 5.7 | 19.7 | 26.2 | 13.6 | 5.7 | 26.2 |
| 28 | 0522 | 75.8 | 359.4 | 3.9 | 0.1 | 0.3 | 2.9 | 36.0 | 19.2 | 29.0 | 4.0 | 4.6 |
| 28 | 1522 | 90.7 | 513.6 | 3.6 | 0.1 | 0.3 | 0.5 | 10.8 | 51.2 | 18.7 | 10.7 | 4.0 |

SCRIPPS F R
SEP. 1976

| LOCAL DAY/TIME | IG.HT (CM) | TOT.EN (CM.SQ) | PERCENT ENERGY IN BAND (TOTAL ENERGY INCLUDES RANGE 2048-4 SECS) BAND PERIOD LIMITS (IN SECS) 22+ | 22-18 | 18-16 | 16-14 | 14-12 | 12-10 | 10-8 | 8-6 | 6-4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 29 0122 | 75.0 | 351.4 | 1.9 | 3.4 | 2.3 | 0.5 | 8.0 | 25.8 | 29.9 | 19.9 | 8.2 |
| 29 1122 | 96.3 | 579.1 | 4.5 | 0.5 | 12.1 | 21.6 | 14.1 | 10.7 | 15.3 | 13.2 | 8.0 |
| 29 2122 | 08.7 | 737.8 | 2.8 | 0.7 | 7.8 | 26.1 | 16.9 | 17.7 | 10.4 | 8.9 | 8.7 |
| 30 0722 | 07.7 | 724.6 | 3.7 | 0.2 | 4.3 | 23.3 | 16.9 | 20.2 | 10.4 | 11.3 | 9.6 |
| 30 1755 | 93.3 | 544.5 | 3.4 | 0.3 | 0.4 | 9.1 | 14.2 | 26.2 | 23.5 | 16.8 | 6.2 |

SCRIPPS PIER

## P E R S I S T E N C E

(CONSECUTIVE DAYS (3 OR MORE) SIGNIFICANT WAVE HEIGHT IS 'N' FEET OR LESS)

30 DAYS OF OBSERVATION
SEP. 1-30, 1976

| FEET | DAYS |
|---|---|
| 1 | 0, |
| 2 | 13, 12, |
| 3 | 28, |
| 4 | 30, |
| 5 | 30, |
| 6 | 30, |
| 8 | 30, |
| 10 | 30, |
| 12 | 30, |

MAXIMUM DAILY SIGNIFICANT WAVE HEIGHT FOR SEP. 1976

| DATE (SEP.) | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|
| SIG.HT (FT.) | 2 | 2 | 2 | 2 | 2 | 2 | 1 |

| DATE (SEP.) | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
|---|---|---|---|---|---|---|---|
| SIG.HT (FT.) | 2 | 1 | 1 | 2 | 2 | 3 | 3 |

| DATE (SEP.) | 15 | 16 | 17 | 18 | 19 | 20 | 21 |
|---|---|---|---|---|---|---|---|
| SIG.HT (FT.) | 2 | 2 | 2 | 2 | 2 | 2 | 2 |

| DATE (SEP.) | 22 | 23 | 24 | 25 | 26 | 27 | 28 |
|---|---|---|---|---|---|---|---|
| SIG.HT (FT.) | 2 | 2 | 1 | 1 | 2 | 2 | 3 |

| DATE (SEP.) | 29 | 30 |
|---|---|---|
| SIG.HT (FT.) | 4 | 4 |

OCEANSIDE
SEP. 1976

| LOCAL DAY/TIME | SIG.HT (CM) | TOT.EN (CM.SQ) | PERCENT ENERGY IN BAND (TOTAL ENERGY INCLUDES RANGE 2048-4 SECS) BAND PERIOD LIMITS (IN SECS) 22+ | 22-18 | 18-16 | 16-14 | 14-12 | 12-10 | 10-8 | 8-6 | 6-4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 0343 | 72.0 | 324.4 | 3.1 | 0.6 | 11.3 | 14.7 | 5.3 | 8.6 | 37.6 | 12.9 | 6.0 |
| 1 1358 | 100.2 | 627.9 | 2.8 | 0.6 | 4.6 | 33.3 | 10.8 | 14.4 | 21.3 | 8.0 | 4.2 |
| 1 2341 | 75.5 | 356.2 | 2.1 | 0.2 | 3.9 | 19.3 | 15.9 | 14.8 | 23.2 | 14.0 | 6.6 |
| 2 0941 | 75.5 | 356.4 | 1.5 | 0.4 | 2.4 | 10.7 | 30.1 | 14.3 | 16.7 | 17.4 | 6.4 |
| 2 1942 | 76.6 | 366.5 | 3.7 | 0.5 | 0.7 | 13.8 | 29.0 | 13.5 | 15.2 | 16.8 | 6.9 |
| 3 0541 | 55.8 | 194.9 | 9.7 | 0.5 | 1.0 | 12.5 | 19.1 | 16.7 | 13.2 | 19.2 | 8.1 |
| 4 1141 | 50.8 | 161.0 | 1.0 | 0.6 | 2.7 | 3.8 | 25.1 | 19.9 | 14.8 | 7.9 | 24.1 |
| 5 0741 | 47.3 | 139.8 | 3.3 | 1.0 | 9.3 | 5.1 | 13.3 | 16.6 | 13.2 | 9.6 | 28.8 |
| 5 1741 | 50.4 | 158.8 | 5.9 | 1.6 | 2.9 | 12.1 | 9.7 | 26.2 | 17.5 | 8.7 | 15.4 |
| 6 0341 | 47.7 | 142.2 | 7.6 | 2.5 | 2.2 | 15.5 | 7.7 | 16.1 | 24.3 | 13.1 | 11.0 |
| 6 1341 | 47.9 | 143.6 | 1.0 | 4.4 | 3.2 | 20.1 | 17.6 | 19.2 | 17.7 | 9.5 | 7.4 |
| 6 2341 | 53.0 | 175.5 | 5.6 | 6.6 | 3.3 | 20.4 | 9.4 | 13.5 | 18.9 | 13.2 | 9.2 |
| 7 0941 | 43.4 | 117.7 | 8.1 | 12.9 | 1.6 | 13.1 | 12.5 | 10.1 | 15.8 | 10.6 | 15.3 |
| 8 0810 | 45.7 | 130.2 | 3.0 | 1.8 | 13.2 | 9.8 | 13.1 | 12.0 | 13.6 | 14.5 | 19.0 |
| 8 1605 | 44.3 | 122.4 | 7.6 | 0.9 | 21.2 | 10.7 | 16.7 | 17.2 | 12.6 | 7.5 | 5.6 |
| 9 0141 | 39.8 | 99.1 | 6.8 | 0.6 | 17.4 | 19.7 | 12.0 | 7.7 | 11.5 | 12.9 | 11.4 |
| 9 1141 | 38.0 | 90.0 | 13.9 | 1.1 | 10.3 | 11.3 | 11.2 | 15.1 | 15.6 | 9.5 | 12.1 |
| 9 2141 | 39.2 | 96.2 | 3.3 | 1.8 | 7.2 | 28.1 | 12.3 | 8.6 | 12.7 | 10.1 | 15.8 |
| 10 0741 | 37.3 | 87.1 | 13.9 | 2.7 | 5.7 | 20.0 | 11.0 | 6.7 | 9.5 | 9.1 | 21.3 |
| 11 0852 | 58.2 | 211.5 | 4.4 | 4.8 | 3.7 | 6.5 | 18.7 | 9.4 | 2.8 | 3.8 | 45.9 |
| 11 1357 | 50.0 | 156.4 | 4.3 | 12.9 | 4.0 | 5.7 | 11.0 | 10.8 | 8.9 | 5.7 | 36.6 |
| 11 2357 | 55.1 | 190.0 | 3.7 | 28.1 | 9.6 | 14.2 | 13.0 | 5.8 | 9.7 | 3.3 | 12.6 |
| 12 0957 | 68.6 | 294.2 | 4.5 | 29.6 | 22.6 | 17.8 | 3.7 | 6.6 | 8.5 | 2.7 | 4.0 |
| 12 1957 | 79.3 | 393.2 | 2.2 | 7.7 | 31.9 | 17.7 | 4.2 | 3.6 | 6.0 | 4.5 | 22.1 |
| 13 0558 | 84.0 | 441.3 | 2.0 | 1.5 | 44.6 | 9.5 | 4.8 | 1.9 | 5.2 | 13.0 | 17.6 |
| 13 1610 | 102.3 | 653.7 | 1.3 | 1.2 | 34.3 | 39.7 | 3.4 | 1.7 | 3.0 | 7.3 | 8.2 |
| 14 0201 | 81.7 | 416.9 | 4.8 | 3.2 | 6.5 | 58.3 | 7.3 | 1.5 | 3.2 | 6.6 | 8.6 |
| 14 1157 | 73.4 | 336.6 | 7.9 | 1.6 | 9.1 | 19.7 | 16.6 | 6.2 | 14.5 | 13.7 | 10.7 |
| 14 2157 | 70.8 | 313.7 | 3.7 | 3.3 | 15.8 | 37.3 | 8.9 | 6.9 | 7.8 | 9.9 | 6.6 |
| 15 0757 | 65.6 | 268.8 | 3.8 | 11.0 | 32.7 | 17.5 | 11.2 | 8.1 | 6.0 | 4.1 | 5.7 |
| 15 1757 | 71.4 | 318.2 | 5.8 | 28.5 | 9.2 | 18.9 | 9.6 | 11.5 | 6.0 | 5.2 | 5.4 |

OCEANSIDE

## P E R S I S T E N C E

(CONSECUTIVE DAYS (3 OR MORE) SIGNIFICANT WAVE HEIGHT IS 'N' FEET OR LESS)

30 DAYS OF OBSERVATION
SEP. 1-30, 1976

| FEET | DAYS |
|---|---|
| 1 | 4, |
| 2 | 9, 5, 3, |
| 3 | 30, |
| 4 | 30, |
| 5 | 30, |
| 6 | 30, |
| 8 | 30, |
| 10 | 30, |
| 12 | 30, |

MAXIMUM DAILY SIGNIFICANT WAVE HEIGHT FOR SEP. 1976

| DATE (SEP.) | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|
| SIG.HT (FT.) | 3 | 3 | 2 | 2 | 2 | 2 | 1 |

| DATE (SEP.) | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
|---|---|---|---|---|---|---|---|
| SIG.HT (FT.) | 1 | 1 | 1 | 2 | 3 | 3 | 3 |

| DATE (SEP.) | 15 | 16 | 17 | 18 | 19 | 20 | 21 |
|---|---|---|---|---|---|---|---|
| SIG.HT (FT.) | 2 | 3 | 3 | 2 | 2 | 2 | 3 |

| DATE (SEP.) | 22 | 23 | 24 | 25 | 26 | 27 | 28 |
|---|---|---|---|---|---|---|---|
| SIG.HT (FT.) | 3 | 3 | 2 | 2 | 2 | 2 | 2 |

| DATE (SEP.) | 29 | 30 |
|---|---|---|
| SIG.HT (FT.) | 3 | 3 |

A-67

# CALIFORNIA COASTAL ENGINEERING DATA NETWORK

## MONTHLY SUMMARY REPORT NO. 11

OCTOBER 1976

INSTITUTE OF MARINE RESOURCES
SCRIPPS INSTITUTION OF OCEANOGRAPHY
LA JOLLA, CA

THIS PROJECT IS SPONSORED JOINTLY BY THE CALIFORNIA SEA GRANT COLLEGE PROGRAM AND THE DEPARTMENT OF NAVIGATION AND OCEAN DEVELOPMENT.

REPORT NO. 11 OCTOBER 1976

REPORTING STATIONS

| NO. | LOCATION | | |
|---|---|---|---|
| 1 | IMPERIAL BEACH PIER | 32-35N | 117-08W |
| 2 | OCEAN BEACH PIER | 32-45N | 117-15W |
| 3 | SCRIPPS PIER | 32-52N | 117-15W |
| 4 | OCEANSIDE PIER | 33-11N | 117-23W |

DATA REPORTED

| STA.NO. | DATA TYPE |
|---|---|
| 1 | WAVE SPECTRUM FROM ONE PRESSURE SENSOR |
| 2 | WAVE SPECTRUM FROM ONE PRESSURE SENSOR |
| 3 | WAVE SPECTRUM FROM ONE PRESSURE SENSOR |
| 4 | WAVE SPECTRUM FROM ONE PRESSURE SENSOR |

NOTES -

1. THE SUM OF THE ENERGIES (TOT.EN) IN A WAVE SPECTRUM IS EQUAL TO THE VARIANCE OF THE SURFACE ELEVATION.

2. THE SIGNIFICANT WAVE HEIGHT (SIG.HT) IS EQUAL TO FOUR TIMES THE STANDARD DEVIATION.

3. PACIFIC STANDARD TIME IS THE STARTING TIME FOR THE DATA SAMPLING PERIOD.

4. PERIOD BANDS INCLUDE THE LOWER LIMIT , BUT NOT THE UPPER LIMIT.

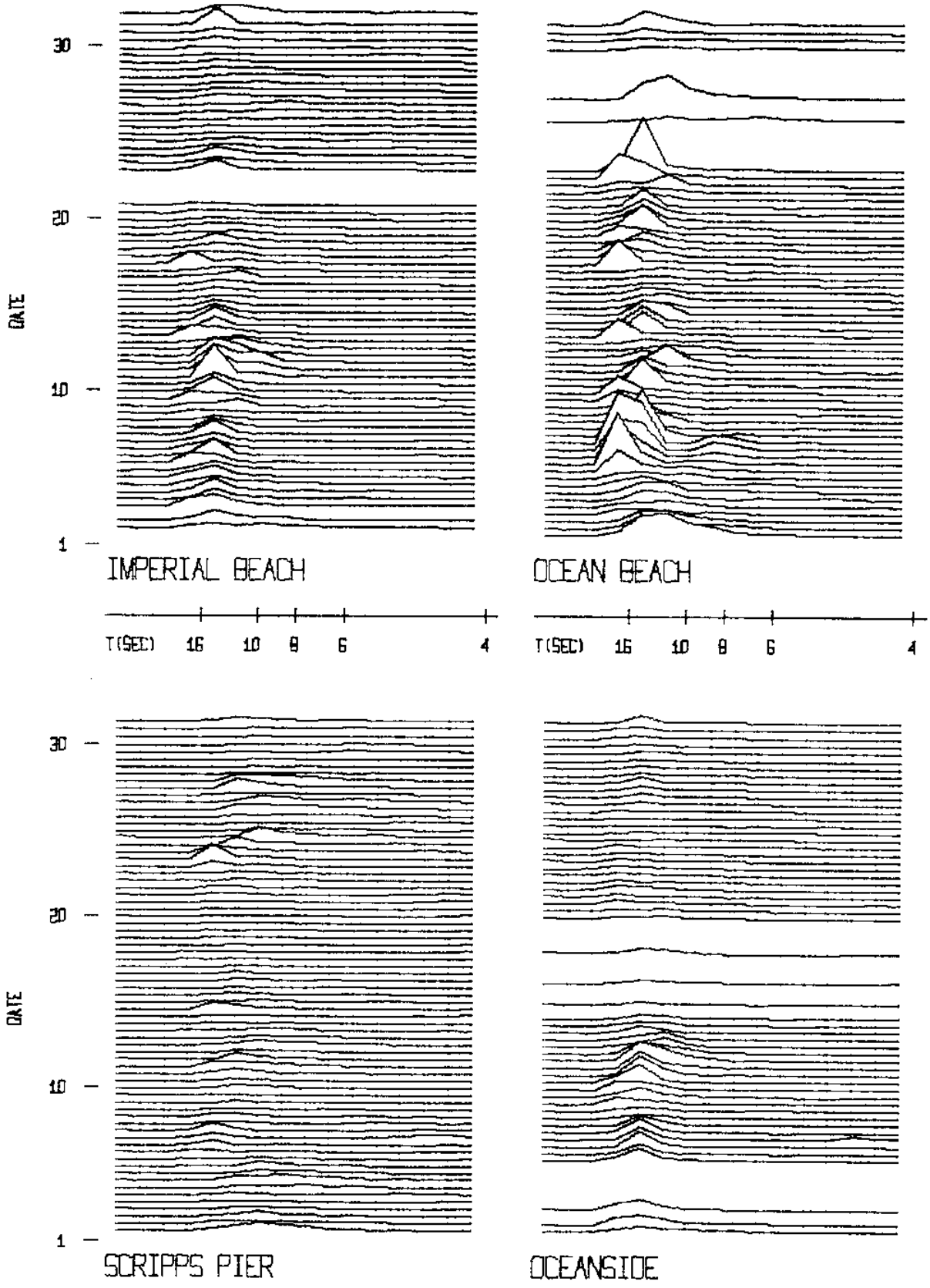
5. WAVE ENERGY IS TRUNCATED AT 4 SECOND PERIOD BECAUSE OF DEPTH EXTINCTION CHARACTERISTICS OF THE PRESSURE SENSOR.

6. ROUNDOFF ERRORS MAY PREVENT ENERGIES FROM SUMMING TO 10 .0 PERCENT

7. WAVE SPECTRA ARE CALCULATED FROM 1024 SAMPLES AT ONE HZ.

8. SIGNIFICANT WAVE HEIGHTS HAVE BEEN ROUNDED UP TO THE NEAREST FOOT IN THE PERSISTENCE AND MAXIMUM DAILY HEIGHT TABLES.

# WAVE ENERGY SPECTRA DURING OCTOBER 1976



IMPERIAL BEACH
OCT. 1976

| LOCAL DAY/TIME | SIG.HT (CM) | TOT.EN (CM.SQ) | PERCENT ENERGY IN BAND (TOTAL ENERGY INCLUDES RANGE 2048-4 SECS) BAND PERIOD LIMITS (IN SECS) 22+ | 22-18 | 18-16 | 16-14 | 14-12 | 12-10 | 10-8 | 8-6 | 6-4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 2300 | 59.6 | 222.2 | 1.6 | 1.4 | 12.9 | 11.3 | 14.7 | 12.1 | 23.3 | 15.7 | 7.0 |
| 2 1001 | 59.9 | 223.9 | 3.4 | 1.8 | 7.8 | 27.9 | 14.1 | 15.3 | 16.5 | 7.3 | 5.8 |
| 3 0500 | 71.3 | 317.3 | 2.6 | 1.9 | 24.4 | 25.5 | 13.4 | 13.7 | 5.8 | 3.7 | 9.1 |
| 3 1500 | 64.7 | 261.3 | 4.8 | 4.0 | 5.6 | 31.6 | 10.1 | 16.5 | 5.8 | 7.3 | 14.3 |
| 4 0100 | 66.1 | 272.9 | 0.8 | 0.7 | 11.3 | 36.7 | 6.7 | 11.4 | 7.7 | 11.7 | 12.9 |
| 4 1130 | 66.3 | 274.4 | 2.9 | 1.2 | 13.3 | 21.1 | 15.1 | 9.2 | 16.5 | 11.8 | 8.9 |
| 4 2100 | 68.0 | 288.8 | 4.3 | 1.4 | 19.6 | 15.9 | 24.4 | 11.2 | 7.6 | 8.9 | 6.7 |
| 5 0700 | 60.0 | 224.7 | 1.9 | 8.9 | 7.6 | 18.3 | 22.2 | 14.2 | 7.6 | 8.5 | 10.9 |
| 5 1700 | 68.0 | 289.1 | 3.8 | 7.8 | 26.7 | 19.8 | 12.0 | 5.1 | 9.9 | 4.9 | 10.1 |
| 6 0300 | 70.3 | 309.3 | 2.4 | 2.6 | 9.2 | 41.8 | 17.1 | 2.5 | 4.9 | 4.8 | 14.6 |
| 6 1303 | 57.7 | 208.1 | 2.6 | 3.7 | 21.0 | 21.5 | 25.0 | 6.8 | 5.1 | 5.1 | 9.1 |
| 6 2300 | 59.4 | 220.3 | 4.6 | 1.2 | 14.2 | 28.0 | 15.7 | 4.0 | 2.2 | 5.0 | 25.0 |
| 7 0900 | 61.1 | 233.3 | 3.4 | 1.8 | 6.7 | 28.0 | 32.5 | 5.0 | 1.5 | 3.7 | 17.5 |
| 7 1900 | 53.6 | 179.7 | 4.4 | 2.3 | 1.7 | 22.9 | 28.5 | 9.0 | 2.0 | 7.5 | 21.7 |
| 8 0500 | 45.9 | 131.4 | 5.6 | 2.9 | 5.1 | 11.4 | 36.1 | 9.0 | 2.9 | 5.0 | 22.0 |
| 8 1500 | 45.7 | 130.7 | 2.8 | 6.1 | 15.5 | 17.3 | 18.6 | 7.5 | 4.9 | 12.6 | 14.8 |
| 9 0100 | 52.7 | 173.8 | 3.7 | 3.3 | 18.8 | 8.6 | 32.1 | 19.5 | 2.0 | 4.0 | 8.0 |
| 9 1101 | 57.7 | 208.3 | 3.9 | 3.6 | 31.5 | 14.7 | 29.6 | 7.2 | 2.8 | 3.0 | 3.8 |
| 9 2100 | 60.3 | 227.5 | 2.4 | 1.1 | 15.5 | 55.2 | 8.1 | 9.4 | 3.1 | 2.7 | 2.6 |
| 10 0700 | 57.7 | 208.3 | 7.0 | 1.6 | 7.2 | 42.8 | 11.7 | 15.8 | 3.2 | 4.8 | 6.0 |
| 10 1700 | 85.7 | 458.7 | 1.5 | 0.7 | 2.1 | 54.7 | 12.4 | 12.9 | 3.4 | 8.2 | 4.1 |
| 11 0100 | 79.6 | 395.7 | 2.4 | 2.1 | 2.0 | 17.8 | 35.5 | 15.5 | 13.2 | 5.0 | 6.5 |
| 11 1300 | 88.5 | 490.0 | 3.7 | 0.3 | 1.4 | 22.8 | 17.7 | 27.5 | 13.8 | 8.2 | 4.6 |
| 11 2300 | 80.1 | 401.3 | 2.3 | 0.7 | 2.2 | 20.7 | 26.9 | 24.0 | 12.8 | 6.4 | 4.0 |
| 12 0016 | 76.6 | 366.2 | 2.6 | 0.5 | 3.7 | 8.9 | 38.0 | 18.1 | 15.6 | 9.0 | 3.6 |
| 12 0900 | 69.0 | 297.3 | 2.3 | 0.2 | 2.1 | 9.1 | 24.6 | 23.3 | 24.0 | 9.2 | 5.2 |
| 12 1900 | 57.1 | 203.9 | 1.1 | 0.6 | 4.8 | 7.3 | 23.2 | 18.8 | 26.0 | 10.6 | 7.5 |
| 13 0500 | 66.2 | 273.6 | 2.2 | 0.4 | 29.4 | 16.7 | 11.8 | 14.5 | 9.0 | 7.7 | 8.3 |
| 13 1500 | 54.3 | 184.3 | 2.0 | 0.7 | 1.5 | 44.0 | 9.2 | 13.5 | 10.8 | 9.1 | 9.3 |
| 14 0100 | 60.1 | 225.7 | 1.4 | 0.6 | 1.3 | 33.1 | 24.4 | 11.4 | 4.7 | 5.7 | 17.5 |
| 14 1100 | 47.6 | 141.7 | 2.1 | 1.0 | 1.4 | 31.8 | 28.6 | 14.5 | 4.6 | 7.1 | 8.8 |
| 14 2100 | 47.8 | 142.5 | 1.4 | 1.2 | 1.6 | 17.4 | 33.8 | 10.0 | 4.0 | 10.9 | 19.8 |

IMPERIAL BEACH
OCT. 1976

| LOCAL DAY/TIME | | SIG.HT (CM) | TOT.EN (CM.SQ) | PERCENT ENERGY IN BAND (TOTAL ENERGY INCLUDES RANGE 2048-4 SECS) BAND PERIOD LIMITS (IN SECS) 22+ | 22-18 | 18-16 | 16-14 | 14-12 | 12-10 | 10-8 | 8-6 | 6-4 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 15 | 0700 | 41.5 | 107.4 | 1.9 | 0.8 | 2.7 | 9.8 | 33.2 | 17.9 | 9.6 | 7.3 | 16.8 |
| 15 | 1700 | 46.7 | 136.0 | 2.1 | 1.3 | 4.1 | 7.7 | 32.5 | 9.9 | 7.5 | 14.6 | 20.2 |
| 16 | 0300 | 44.3 | 122.3 | 1.9 | 1.4 | 3.8 | 5.7 | 43.6 | 17.8 | 5.5 | 10.0 | 10.3 |
| 16 | 1400 | 48.2 | 145.3 | 2.6 | 5.9 | 3.0 | 5.2 | 32.6 | 32.3 | 6.4 | 5.1 | 6.9 |
| 16 | 2300 | 38.9 | 94.5 | 2.5 | 5.9 | 4.0 | 9.5 | 33.8 | 29.7 | 5.3 | 4.1 | 5.3 |
| 17 | 0900 | 57.3 | 205.4 | 2.3 | 20.4 | 29.2 | 5.2 | 14.1 | 17.5 | 6.6 | 2.9 | 1.7 |
| 17 | 1900 | 52.6 | 172.8 | 5.7 | 1.5 | 22.2 | 11.3 | 24.8 | 16.4 | 11.5 | 2.6 | 4.0 |
| 18 | 0500 | 53.7 | 180.2 | 5.9 | 3.2 | 16.7 | 15.3 | 22.7 | 22.5 | 6.6 | 3.5 | 3.5 |
| 18 | 1500 | 52.7 | 173.5 | 4.7 | 4.4 | 9.2 | 39.6 | 10.9 | 14.3 | 12.0 | 3.6 | 1.2 |
| 19 | 0100 | 51.9 | 168.6 | 3.1 | 7.4 | 12.9 | 15.7 | 13.0 | 24.5 | 15.9 | 6.4 | 1.3 |
| 19 | 1100 | 48.1 | 144.3 | 2.0 | 7.5 | 12.0 | 20.3 | 19.4 | 16.8 | 14.8 | 6.0 | 1.2 |
| 19 | 2100 | 46.6 | 135.6 | 5.0 | 7.0 | 6.1 | 9.0 | 19.4 | 19.6 | 14.9 | 8.4 | 10.5 |
| 20 | 0700 | 46.5 | 134.8 | 4.0 | 16.0 | 5.5 | 13.5 | 13.1 | 19.6 | 9.4 | 9.6 | 9.2 |
| 20 | 1700 | 50.3 | 158.1 | 11.5 | 10.0 | 8.8 | 9.1 | 13.2 | 14.0 | 7.3 | 5.7 | 20.6 |
| 22 | 1900 | 54.9 | 188.5 | 3.7 | 5.3 | 12.9 | 41.0 | 9.9 | 10.4 | 5.3 | 5.7 | 5.8 |
| 23 | 0500 | 54.4 | 185.0 | 11.0 | 2.9 | 10.5 | 19.6 | 22.5 | 12.3 | 8.2 | 5.9 | 7.1 |
| 23 | 0616 | 62.4 | 243.1 | 9.4 | 1.8 | 15.8 | 30.8 | 21.4 | 5.9 | 5.4 | 3.5 | 6.0 |
| 23 | 1500 | 60.0 | 225.2 | 2.6 | 0.7 | 7.7 | 10.3 | 33.8 | 14.6 | 10.8 | 8.6 | 10.9 |
| 24 | 0100 | 57.9 | 209.6 | 2.1 | 0.3 | 12.2 | 7.1 | 20.8 | 16.6 | 9.5 | 10.2 | 21.3 |
| 24 | 1100 | 63.3 | 250.6 | 7.6 | 0.7 | 6.0 | 4.0 | 13.9 | 13.6 | 15.3 | 14.4 | 24.6 |
| 24 | 2100 | 50.6 | 159.7 | 5.0 | 0.7 | 3.6 | 7.4 | 5.4 | 10.4 | 14.6 | 23.1 | 29.8 |
| 25 | 0700 | 51.2 | 163.7 | 6.0 | 0.7 | 5.9 | 5.2 | 7.1 | 8.2 | 5.6 | 19.5 | 41.8 |
| 25 | 1700 | 49.4 | 152.2 | 0.8 | 0.6 | 3.7 | 5.4 | 5.9 | 9.0 | 12.3 | 33.3 | 29.0 |
| 26 | 0300 | 59.2 | 219.1 | 1.0 | 0.3 | 5.8 | 6.9 | 1.9 | 10.7 | 22.7 | 26.8 | 23.9 |
| 26 | 1301 | 61.6 | 237.5 | 6.8 | 0.2 | 1.7 | 3.5 | 5.8 | 9.3 | 27.7 | 26.2 | 18.9 |
| 26 | 2301 | 54.0 | 182.4 | 2.7 | 0.1 | 0.7 | 15.3 | 13.2 | 21.3 | 12.3 | 20.4 | 13.9 |
| 27 | 0901 | 53.0 | 175.7 | 3.3 | 0.4 | 1.4 | 6.9 | 21.9 | 11.7 | 18.7 | 24.6 | 11.0 |
| 27 | 1900 | 44.1 | 121.3 | 2.0 | 0.4 | 0.4 | 15.1 | 10.3 | 25.9 | 21.9 | 15.4 | 8.8 |
| 28 | 0500 | 54.5 | 185.6 | 1.3 | 1.0 | 0.8 | 8.3 | 8.5 | 20.2 | 33.3 | 12.2 | 14.5 |
| 28 | 1500 | 41.1 | 105.4 | 4.0 | 1.7 | 2.8 | 7.4 | 28.3 | 11.0 | 19.0 | 10.1 | 15.6 |
| 29 | 0102 | 43.8 | 120.0 | 4.5 | 3.1 | 6.2 | 5.8 | 29.3 | 10.0 | 12.4 | 14.2 | 14.6 |
| 29 | 1111 | 44.7 | 125.1 | 3.8 | 2.5 | 2.9 | 3.9 | 9.0 | 12.9 | 7.5 | 12.2 | 45.3 |

IMPERIAL BEACH
OCT. 1976

| LOCAL DAY/TIME | | SIG.HT (CM) | TOT.EN (CM.SQ) | PERCENT ENERGY IN BAND (TOTAL ENERGY INCLUDES RANGE 2048-4 SECS) BAND PERIOD LIMITS (IN SECS) 22+ | 22-18 | 18-16 | 16-14 | 14-12 | 12-10 | 10-8 | 8-6 | 6-4 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 29 | 2105 | 42.4 | 112.2 | 0.6 | 4.2 | 9.5 | 8.2 | 12.5 | 7.7 | 6.4 | 21.7 | 29.2 |
| 30 | 0842 | 45.6 | 130.0 | 1.6 | 1.0 | 12.6 | 17.8 | 10.8 | 11.5 | 10.5 | 16.7 | 17.5 |
| 30 | 1939 | 44.7 | 124.8 | 3.3 | 0.6 | 10.0 | 16.3 | 24.5 | 10.8 | 8.4 | 7.4 | 18.7 |
| 31 | 0657 | 61.6 | 237.1 | 1.6 | 0.3 | 5.0 | 32.7 | 34.7 | 4.6 | 6.7 | 7.0 | 7.3 |
| 31 | 2354 | 58.0 | 209.9 | 1.0 | 2.1 | 1.1 | 22.2 | 35.7 | 21.0 | 9.5 | 3.1 | 4.4 |

## P E R S I S T E N C E

(CONSECUTIVE DAYS (3 OR MORE) SIGNIFICANT WAVE HEIGHT IS 'N' FEET OR LESS)

30 DAYS OF OBSERVATION
OCT. 1-31, 1976

| FEET | DAYS |
|---|---|
| 1 | 0, |
| 2 | 10, 9, 8 |
| 3 | 20, 10 |
| 4 | 20, 10 |
| 5 | 20, 10 |
| 6 | 20, 10 |
| 8 | 20, 10 |
| 10 | 20, 10 |
| 12 | 20, 10 |

MAXIMUM DAILY SIGNIFICANT WAVE HEIGHT FOR OCT. 1976

| DATE (OCT.) | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|
| SIG.HT (FT.) | 2 | 2 | 2 | 2 | 2 | 2 | 2 |

| DATE (OCT.) | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
|---|---|---|---|---|---|---|---|
| SIG.HT (FT.) | 2 | 2 | 3 | 3 | 3 | 2 | 2 |

| DATE (OCT.) | 15 | 16 | 17 | 18 | 19 | 20 | 22 |
|---|---|---|---|---|---|---|---|
| SIG.HT (FT.) | 2 | 2 | 2 | 2 | 2 | 2 | 2 |

| DATE (OCT.) | 23 | 24 | 25 | 26 | 27 | 28 | 29 |
|---|---|---|---|---|---|---|---|
| SIG.HT (FT.) | 2 | 2 | 2 | 2 | 2 | 2 | 1 |

| DATE (OCT.) | 30 | 31 |
|---|---|---|
| SIG.HT (FT.) | 1 | 2 |

OCEAN BEACH
OCT. 1976

| LOCAL DAY/TIME | SIG.HT (CM) | TOT.EN (CM.SQ) | PERCENT ENERGY IN BAND (TOTAL ENERGY INCLUDES RANGE 2048-4 SECS) BAND PERIOD LIMITS (IN SECS) 22+ | 22-18 | 18-16 | 16-14 | 14-12 | 12-10 | 10-8 | 8-6 | 6-4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 0335 | 136.4 | 1162.5 | 2.6 | 1.9 | 0.9 | 8.5 | 44.7 | 20.4 | 6.4 | 10.0 | 4.7 |
| 1 1306 | 111.5 | 776.9 | 2.5 | 2.8 | 2.6 | 19.5 | 20.4 | 18.0 | 19.1 | 9.5 | 5.5 |
| 1 2319 | 82.5 | 425.3 | 0.7 | 0.5 | 8.3 | 10.4 | 27.8 | 15.7 | 17.0 | 13.3 | 6.4 |
| 2 0920 | 77.9 | 379.6 | 1.7 | 0.8 | 6.0 | 11.7 | 20.5 | 32.4 | 12.5 | 8.2 | 6.3 |
| 2 1920 | 66.8 | 278.9 | 3.4 | 2.6 | 18.5 | 15.4 | 14.6 | 11.1 | 14.3 | 13.0 | 7.0 |
| 3 0519 | 68.9 | 296.9 | 3.3 | 1.8 | 11.3 | 11.9 | 11.8 | 31.1 | 9.2 | 6.5 | 13.1 |
| 3 1519 | 79.2 | 391.6 | 3.3 | 3.0 | 2.3 | 17.8 | 15.6 | 15.8 | 7.0 | 14.3 | 21.0 |
| 4 0119 | 85.4 | 455.4 | 0.8 | 0.8 | 5.4 | 15.6 | 14.8 | 17.8 | 12.7 | 15.8 | 16.4 |
| 4 1149 | 75.2 | 353.1 | 1.2 | 0.5 | 15.8 | 16.7 | 12.5 | 11.6 | 13.5 | 16.4 | 11.9 |
| 4 2119 | 73.3 | 335.7 | 4.4 | 6.4 | 11.1 | 18.3 | 4.5 | 19.4 | 14.7 | 10.9 | 10.3 |
| 5 0719 | 88.1 | 485.4 | 1.3 | 27.7 | 12.1 | 11.9 | 4.7 | 13.2 | 11.8 | 6.2 | 11.2 |
| 5 1720 | 110.3 | 760.4 | 2.1 | 3.8 | 57.1 | 12.1 | 2.6 | 3.9 | 8.4 | 4.6 | 5.4 |
| 6 0319 | 100.7 | 634.2 | 2.2 | 23.6 | 23.5 | 19.9 | 3.8 | 1.5 | 12.3 | 3.8 | 9.5 |
| 6 1322 | 111.4 | 775.2 | 0.8 | 2.8 | 33.4 | 26.6 | 6.3 | 1.2 | 12.3 | 7.8 | 9.0 |
| 6 2319 | 128.0 | 1024.5 | 1.4 | 2.2 | 41.5 | 25.7 | 9.2 | 0.5 | 8.3 | 5.8 | 5.3 |
| 7 0919 | 107.5 | 722.5 | 1.6 | 0.7 | 19.1 | 46.9 | 14.2 | 3.8 | 1.6 | 6.7 | 5.5 |
| 7 1919 | 61.8 | 238.3 | 3.2 | 1.6 | 1.7 | 31.2 | 35.6 | 4.3 | 1.3 | 4.5 | 16.7 |
| 8 0519 | 65.0 | 263.8 | 4.4 | 3.1 | 2.9 | 23.0 | 37.7 | 7.3 | 2.6 | 5.5 | 13.5 |
| 8 1519 | 56.0 | 196.0 | 1.6 | 3.1 | 9.3 | 23.5 | 40.9 | 6.4 | 2.0 | 6.7 | 6.5 |
| 9 0119 | 47.9 | 143.3 | 2.2 | 1.4 | 16.6 | 18.2 | 26.7 | 20.8 | 3.2 | 4.6 | 6.3 |
| 9 1120 | 60.4 | 227.9 | 6.1 | 1.5 | 39.7 | 10.4 | 16.6 | 14.6 | 4.0 | 2.8 | 4.3 |
| 9 2119 | 66.1 | 273.4 | 2.0 | 0.5 | 55.9 | 11.9 | 9.4 | 8.5 | 3.4 | 4.5 | 3.9 |
| 10 0719 | 77.3 | 373.8 | 2.0 | 1.1 | 3.6 | 61.7 | 10.8 | 8.4 | 3.1 | 6.8 | 2.5 |
| 10 1719 | 67.3 | 282.7 | 1.4 | 0.5 | 2.2 | 36.6 | 16.2 | 22.4 | 7.8 | 7.8 | 5.2 |
| 11 0319 | 70.9 | 313.8 | 2.2 | 1.0 | 1.1 | 27.6 | 27.8 | 19.8 | 11.5 | 4.8 | 4.1 |
| 11 1319 | 78.9 | 389.3 | 4.0 | 1.2 | 1.5 | 10.0 | 24.3 | 34.1 | 15.8 | 5.7 | 3.4 |
| 11 2320 | 64.6 | 260.4 | 2.7 | 0.4 | 7.1 | 7.6 | 26.8 | 18.6 | 18.9 | 11.5 | 6.2 |
| 12 0919 | 58.8 | 216.0 | 2.7 | 0.8 | 2.3 | 6.4 | 19.8 | 24.7 | 26.3 | 9.8 | 7.3 |
| 12 1919 | 52.8 | 174.0 | 3.7 | 1.9 | 4.9 | 10.4 | 18.7 | 14.9 | 24.7 | 11.7 | 8.9 |
| 13 0519 | 68.7 | 294.6 | 1.1 | 1.0 | 52.2 | 7.8 | 6.6 | 5.8 | 15.4 | 5.3 | 4.7 |
| 13 1519 | 62.0 | 239.8 | 2.1 | 0.5 | 2.3 | 60.9 | 5.6 | 7.7 | 8.9 | 8.1 | 4.1 |
| 14 0119 | 59.5 | 221.1 | 0.8 | 0.3 | 0.9 | 55.2 | 13.0 | 9.7 | 6.2 | 5.0 | 9.0 |

OCEAN BEACH
OCT. 1976

| LOCAL DAY/TIME | | SIG.HT (CM) | TOT.EN (CM.SQ) | PERCENT ENERGY IN BAND (TOTAL ENERGY INCLUDES RANGE 2048-4 SECS) BAND PERIOD LIMITS (IN SECS) 22+ | 22-18 | 18-16 | 16-14 | 14-12 | 12-10 | 10-8 | 8-6 | 6-4 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 14 | 1119 | 68.7 | 295.0 | 1.8 | 0.5 | 1.0 | 16.7 | 51.6 | 11.7 | 4.4 | 6.6 | 5.7 |
| 14 | 2119 | 47.7 | 142.4 | 1.4 | 0.5 | 2.1 | 8.0 | 44.7 | 21.7 | 5.8 | 5.1 | 10.7 |
| 15 | 0719 | 52.8 | 174.1 | 1.4 | 0.6 | 2.4 | 9.2 | 41.6 | 23.9 | 6.7 | 5.2 | 9.0 |
| 15 | 1719 | 51.8 | 167.4 | 1.9 | 0.8 | 2.5 | 6.0 | 40.6 | 23.1 | 5.6 | 9.7 | 9.8 |
| 16 | 0319 | 44.1 | 121.4 | 2.1 | 0.6 | 4.5 | 9.5 | 27.6 | 28.4 | 9.5 | 6.5 | 11.1 |
| 16 | 1303 | 40.9 | 104.3 | 3.3 | 3.0 | 4.2 | 5.6 | 40.6 | 21.9 | 9.2 | 4.0 | 8.2 |
| 16 | 2319 | 43.8 | 119.8 | 3.7 | 8.2 | 2.3 | 10.2 | 33.7 | 27.5 | 8.0 | 3.2 | 3.3 |
| 17 | 0919 | 73.5 | 337.7 | 1.3 | 14.9 | 50.5 | 6.4 | 8.1 | 8.5 | 7.5 | 1.7 | 1.1 |
| 17 | 1919 | 63.2 | 249.6 | 3.3 | 4.2 | 39.7 | 10.6 | 19.0 | 11.1 | 6.0 | 2.5 | 3.6 |
| 18 | 0519 | 67.1 | 281.1 | 3.2 | 4.5 | 29.3 | 33.5 | 7.6 | 11.3 | 4.4 | 3.6 | 2.5 |
| 18 | 1519 | 60.4 | 228.2 | 4.2 | 4.8 | 5.8 | 38.4 | 23.8 | 9.8 | 7.8 | 3.5 | 2.0 |
| 19 | 0119 | 64.0 | 255.7 | 2.1 | 9.6 | 28.5 | 20.5 | 9.3 | 10.7 | 12.4 | 5.8 | 1.0 |
| 19 | 1119 | 78.5 | 385.0 | 1.2 | 5.5 | 13.5 | 37.2 | 24.0 | 4.7 | 7.1 | 5.7 | 1.1 |
| 19 | 2119 | 71.4 | 318.9 | 4.1 | 12.7 | 6.8 | 25.2 | 24.7 | 8.7 | 6.9 | 4.1 | 6.7 |
| 20 | 0719 | 67.2 | 282.4 | 2.8 | 9.6 | 3.6 | 34.8 | 23.7 | 7.8 | 7.0 | 5.1 | 5.5 |
| 20 | 1719 | 66.0 | 272.2 | 3.3 | 5.3 | 3.1 | 11.6 | 54.7 | 6.7 | 2.2 | 5.1 | 8.0 |
| 21 | 0303 | 59.1 | 218.0 | 6.2 | 9.1 | 7.1 | 5.4 | 30.3 | 16.2 | 3.3 | 4.5 | 18.0 |
| 21 | 1303 | 56.9 | 202.0 | 0.6 | 8.9 | 11.5 | 7.0 | 34.9 | 14.3 | 4.8 | 6.9 | 11.0 |
| 21 | 2303 | 64.6 | 260.7 | 3.9 | 6.0 | 12.1 | 3.2 | 31.0 | 25.6 | 5.9 | 7.9 | 4.5 |
| 22 | 0903 | 91.6 | 524.8 | 3.8 | 3.5 | 37.6 | 24.1 | 6.0 | 7.7 | 7.9 | 5.0 | 4.3 |
| 22 | 1919 | 108.2 | 731.5 | 2.0 | 3.3 | 7.9 | 49.3 | 18.9 | 5.8 | 4.8 | 5.6 | 2.4 |
| 25 | 1719 | 64.3 | 258.0 | 0.8 | 0.1 | 3.6 | 5.6 | 7.9 | 17.6 | 10.5 | 32.4 | 21.5 |
| 26 | 2320 | 101.6 | 644.8 | 1.5 | 0.2 | 0.9 | 6.5 | 35.3 | 21.4 | 16.5 | 11.0 | 6.7 |
| 29 | 2124 | 51.1 | 163.1 | 0.6 | 0.5 | 6.0 | 7.9 | 12.4 | 18.9 | 9.0 | 18.6 | 26.1 |
| 30 | 0900 | 53.6 | 179.5 | 1.0 | 0.5 | 10.1 | 9.5 | 9.6 | 10.7 | 15.6 | 14.5 | 28.4 |
| 30 | 1958 | 50.9 | 162.1 | 2.9 | 0.6 | 2.8 | 27.8 | 14.6 | 14.7 | 11.9 | 9.6 | 15.1 |
| 31 | 0716 | 74.4 | 346.2 | 1.7 | 0.5 | 4.3 | 14.5 | 34.2 | 15.3 | 8.2 | 11.5 | 9.9 |

# P E R S I S T E N C E

(CONSECUTIVE DAYS (3 OR MORE) SIGNIFICANT WAVE HEIGHT IS 'N' FEET OR LESS)

27 DAYS OF OBSERVATION
OCT. 1-31, 1976

| FEET | DAYS |
|---|---|
| 1 | 0, |
| 2 | 7, 3, |
| 3 | 14, 3, 3, |
| 4 | 22, 3 |
| 5 | 22, 3 |
| 6 | 22, 3 |
| 8 | 22, 3 |
| 10 | 22, 3 |
| 12 | 22, 3 |

MAXIMUM DAILY SIGNIFICANT WAVE HEIGHT FOR OCT. 1976

| DATE (OCT.) | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|
| SIG.HT (FT.) | 4 | 3 | 3 | 3 | 4 | 4 | 4 |
| DATE (OCT.) | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
| SIG.HT (FT.) | 2 | 2 | 3 | 3 | 2 | 2 | 2 |
| DATE (OCT.) | 15 | 16 | 17 | 18 | 19 | 20 | 21 |
| SIG.HT (FT.) | 2 | 1 | 2 | 2 | 3 | 2 | 2 |
| DATE (OCT.) | 22 | 25 | 26 | 29 | 30 | 31 | |
| SIG.HT (FT.) | 4 | 2 | 3 | 2 | 2 | 2 | |

SCRIPPS PIER
OCT. 1976

| LOCAL DAY/TIME | SIG.HT (CM) | TOT.EN (CM.SQ) | PERCENT ENERGY IN BAND (TOTAL ENERGY INCLUDES RANGE 2048-4 SECS) BAND PERIOD LIMITS (IN SECS) 22+ | 22-18 | 18-16 | 16-14 | 14-12 | 12-10 | 10-8 | 8-6 | 6-4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 0354 | 85.2 | 453.7 | 3.2 | 0.6 | 0.3 | 4.8 | 15.4 | 37.0 | 17.4 | 14.5 | 6.9 |
| 1 1325 | 69.4 | 301.3 | 3.2 | 0.2 | 0.7 | 1.8 | 12.2 | 22.2 | 32.5 | 17.8 | 9.3 |
| 1 2338 | 52.7 | 173.3 | 0.9 | 0.3 | 2.6 | 2.4 | 23.3 | 11.0 | 22.7 | 23.9 | 12.9 |
| 2 0939 | 49.9 | 155.5 | 2.3 | 0.3 | 2.3 | 2.6 | 12.1 | 34.5 | 19.5 | 13.6 | 12.8 |
| 2 1939 | 44.7 | 124.6 | 7.6 | 0.6 | 2.7 | 2.4 | 3.5 | 27.9 | 26.8 | 16.0 | 12.5 |
| 3 0538 | 41.9 | 109.7 | 3.1 | 1.0 | 0.9 | 10.3 | 4.4 | 11.1 | 12.6 | 13.8 | 42.8 |
| 3 1538 | 47.3 | 139.9 | 4.5 | 0.3 | 2.9 | 4.9 | 9.4 | 13.2 | 9.8 | 11.8 | 43.0 |
| 4 0138 | 56.0 | 196.3 | 2.4 | 0.3 | 0.7 | 2.0 | 3.1 | 15.7 | 21.8 | 30.2 | 23.7 |
| 4 1208 | 69.9 | 305.6 | 1.2 | 0.1 | 1.0 | 1.9 | 1.8 | 21.7 | 26.1 | 28.1 | 18.1 |
| 4 2138 | 53.6 | 179.6 | 6.5 | 0.5 | 1.2 | 1.0 | 3.2 | 18.9 | 21.7 | 29.8 | 17.3 |
| 5 0738 | 53.1 | 176.3 | 2.6 | 3.5 | 2.1 | 4.3 | 4.2 | 22.1 | 29.6 | 12.8 | 18.8 |
| 5 1739 | 50.4 | 158.8 | 4.9 | 0.4 | 10.0 | 5.0 | 2.7 | 11.7 | 24.8 | 17.7 | 22.7 |
| 6 0338 | 50.2 | 157.5 | 5.1 | 1.8 | 12.4 | 16.8 | 2.9 | 5.9 | 11.8 | 12.2 | 31.1 |
| 6 1341 | 47.5 | 141.1 | 1.2 | 0.8 | 11.4 | 28.7 | 6.8 | 4.0 | 9.1 | 12.2 | 25.7 |
| 6 2338 | 58.8 | 216.0 | 3.5 | 0.6 | 3.8 | 20.8 | 4.3 | 3.4 | 2.4 | 4.0 | 57.2 |
| 7 0938 | 59.3 | 219.5 | 5.0 | 0.3 | 7.2 | 20.3 | 19.2 | 7.5 | 2.2 | 6.0 | 32.3 |
| 7 1938 | 49.4 | 152.7 | 3.4 | 0.7 | 0.7 | 10.2 | 14.8 | 15.8 | 2.5 | 12.7 | 39.3 |
| 8 0538 | 50.7 | 160.9 | 5.9 | 0.6 | 0.7 | 10.6 | 21.5 | 17.5 | 7.2 | 9.9 | 26.2 |
| 8 1538 | 39.7 | 98.3 | 2.6 | 0.6 | 1.8 | 7.9 | 10.3 | 12.2 | 8.5 | 18.6 | 37.4 |
| 9 0138 | 35.6 | 79.1 | 3.4 | 0.3 | 4.9 | 3.2 | 19.3 | 16.9 | 9.4 | 13.4 | 29.2 |
| 9 1139 | 33.0 | 68.1 | 16.1 | 0.6 | 6.1 | 5.8 | 12.0 | 17.6 | 10.3 | 6.0 | 25.4 |
| 9 2138 | 40.3 | 101.6 | 3.0 | 0.4 | 3.7 | 6.7 | 6.7 | 36.6 | 18.4 | 11.4 | 13.2 |
| 10 0738 | 37.9 | 89.9 | 8.9 | 1.0 | 2.4 | 17.0 | 10.9 | 19.4 | 10.6 | 12.5 | 17.3 |
| 10 1738 | 51.8 | 167.7 | 3.9 | 0.2 | 0.8 | 6.8 | 7.9 | 34.9 | 11.2 | 21.3 | 13.1 |
| 11 0338 | 58.6 | 214.3 | 2.2 | 0.3 | 0.3 | 3.4 | 31.3 | 18.3 | 22.3 | 13.1 | 8.9 |
| 11 1338 | 52.4 | 171.3 | 6.2 | 0.4 | 0.4 | 1.3 | 5.7 | 43.4 | 20.9 | 11.1 | 10.6 |
| 11 2339 | 42.6 | 113.5 | 3.3 | 0.2 | 1.8 | 2.1 | 13.5 | 26.3 | 20.2 | 17.3 | 15.4 |
| 12 0938 | 54.2 | 183.8 | 2.8 | 0.3 | 0.3 | 2.2 | 5.9 | 25.0 | 25.7 | 20.8 | 17.0 |
| 12 1938 | 41.4 | 107.2 | 2.1 | 0.3 | 1.3 | 0.4 | 7.0 | 11.6 | 31.2 | 27.5 | 18.7 |
| 13 0538 | 43.7 | 119.1 | 1.8 | 0.1 | 8.5 | 2.8 | 6.4 | 9.1 | 32.2 | 16.6 | 22.3 |
| 13 1538 | 34.4 | 74.1 | 4.7 | 0.2 | 1.7 | 11.4 | 5.5 | 15.8 | 20.5 | 12.8 | 27.4 |
| 14 0138 | 43.0 | 115.8 | 0.8 | 0.3 | 0.7 | 9.8 | 7.6 | 11.5 | 7.5 | 7.8 | 54.0 |

SCRIPPS PIER
OCT. 1976

| LOCAL DAY/TIME | SIG.HT (CM) | TOT.EN (CM.SQ) | PERCENT ENERGY IN BAND (TOTAL ENERGY INCLUDES RANGE 2048-4 SECS) BAND PERIOD LIMITS (IN SECS) 22+ | 22-18 | 18-16 | 16-14 | 14-12 | 12-10 | 10-8 | 8-6 | 6-4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 14 1138 | 52.7 | 173.6 | 2.1 | 0.3 | 0.3 | 6.2 | 41.4 | 15.6 | 9.8 | 7.0 | 17.3 |
| 14 2138 | 44.6 | 124.5 | 1.9 | 0.2 | 0.2 | 2.8 | 9.5 | 20.2 | 21.4 | 9.4 | 34.5 |
| 15 0738 | 39.5 | 97.4 | 2.1 | 0.4 | 0.4 | 2.6 | 21.7 | 19.8 | 12.7 | 15.2 | 25.1 |
| 15 1738 | 36.2 | 81.7 | 3.0 | 0.2 | 1.1 | 1.9 | 17.0 | 11.9 | 8.4 | 26.2 | 30.4 |
| 16 0338 | 35.5 | 78.8 | 1.8 | 0.5 | 1.0 | 0.8 | 7.3 | 34.7 | 11.5 | 20.4 | 22.1 |
| 16 1322 | 31.4 | 61.6 | 2.9 | 0.4 | 1.4 | 1.7 | 12.2 | 33.7 | 12.2 | 13.6 | 21.9 |
| 16 2338 | 29.1 | 53.0 | 3.6 | 3.7 | 2.2 | 4.8 | 8.8 | 33.5 | 21.6 | 6.7 | 15.2 |
| 17 0938 | 33.2 | 69.0 | 1.8 | 2.5 | 21.4 | 2.3 | 7.6 | 33.9 | 14.9 | 4.8 | 10.9 |
| 17 1938 | 34.3 | 73.5 | 8.6 | 0.6 | 11.3 | 6.4 | 8.0 | 14.9 | 13.6 | 5.0 | 31.6 |
| 18 0538 | 33.1 | 68.3 | 2.5 | 0.9 | 5.6 | 7.7 | 6.4 | 17.0 | 13.6 | 10.9 | 35.4 |
| 18 1538 | 31.7 | 62.9 | 5.6 | 2.9 | 9.5 | 14.6 | 8.8 | 17.2 | 26.2 | 7.7 | 7.5 |
| 19 0138 | 30.2 | 56.8 | 9.9 | 1.2 | 2.4 | 13.6 | 7.4 | 12.6 | 30.8 | 18.2 | 3.8 |
| 19 1138 | 32.6 | 66.3 | 2.2 | 4.2 | 3.9 | 15.5 | 14.2 | 8.5 | 29.3 | 17.9 | 4.4 |
| 19 2138 | 45.5 | 129.4 | 7.8 | 1.6 | 1.5 | 6.2 | 7.7 | 4.1 | 14.7 | 14.3 | 42.1 |
| 20 0738 | 41.3 | 106.7 | 4.5 | 2.1 | 1.3 | 4.0 | 7.9 | 13.4 | 16.8 | 17.1 | 32.9 |
| 20 1738 | 47.2 | 139.5 | 3.9 | 3.9 | 0.7 | 2.8 | 12.5 | 9.3 | 9.6 | 6.1 | 51.2 |
| 21 0322 | 51.7 | 166.9 | 7.9 | 1.1 | 2.7 | 2.8 | 15.3 | 11.5 | 7.2 | 6.3 | 45.1 |
| 21 1322 | 47.6 | 141.5 | 1.1 | 1.0 | 1.5 | 2.1 | 22.8 | 14.3 | 5.3 | 14.4 | 37.4 |
| 21 2322 | 40.2 | 101.1 | 8.7 | 3.2 | 7.5 | 0.9 | 15.2 | 18.1 | 19.6 | 12.4 | 14.4 |
| 22 0922 | 46.9 | 137.2 | 10.9 | 1.2 | 9.5 | 6.2 | 5.5 | 24.1 | 17.3 | 11.0 | 14.3 |
| 22 1938 | 50.2 | 157.3 | 2.8 | 1.2 | 2.9 | 20.4 | 16.9 | 13.5 | 19.9 | 9.3 | 13.1 |
| 23 0539 | 63.9 | 255.2 | 5.9 | 0.3 | 1.1 | 27.2 | 31.8 | 7.8 | 10.5 | 4.7 | 10.9 |
| 23 1538 | 62.9 | 247.3 | 1.3 | 0.1 | 1.1 | 13.6 | 16.6 | 14.0 | 11.3 | 12.0 | 30.0 |
| 24 0138 | 64.3 | 258.1 | 1.6 | 0.1 | 0.8 | 0.5 | 14.0 | 22.5 | 13.0 | 15.3 | 32.2 |
| 24 1138 | 78.3 | 383.0 | 6.8 | 0.1 | 0.3 | 0.6 | 2.9 | 17.2 | 29.1 | 18.9 | 24.0 |
| 24 2138 | 55.7 | 193.6 | 1.1 | 0.1 | 0.5 | 1.3 | 2.5 | 11.4 | 22.9 | 29.9 | 30.2 |
| 25 0739 | 52.5 | 172.5 | 4.4 | 0.2 | 0.3 | 0.4 | 4.7 | 5.0 | 9.9 | 17.0 | 58.2 |
| 25 1738 | 57.1 | 203.8 | 2.3 | 0.2 | 0.4 | 0.6 | 5.3 | 10.7 | 16.1 | 40.9 | 23.7 |
| 26 0339 | 68.4 | 292.3 | 1.3 | 0.1 | 0.4 | 0.6 | 1.7 | 28.1 | 20.1 | 27.7 | 20.0 |
| 26 1339 | 72.6 | 329.1 | 5.6 | 0.1 | 0.1 | 0.6 | 3.7 | 9.7 | 31.8 | 20.7 | 27.6 |
| 26 2338 | 53.9 | 181.6 | 2.5 | 0.2 | 0.1 | 4.5 | 9.8 | 16.8 | 23.6 | 22.9 | 19.6 |
| 27 0939 | 60.4 | 227.7 | 2.2 | 0.1 | 0.1 | 1.3 | 8.1 | 42.0 | 24.1 | 13.9 | 8.2 |

SCRIPPS PIER
OCT. 1976

| LOCAL DAY/TIME | SIG.HT (CM) | TOT.EN (CM.SQ) | PERCENT ENERGY IN BAND (TOTAL ENERGY INCLUDES RANGE 2048-4 SECS) BAND PERIOD LIMITS (IN SECS) 22+ | 22-18 | 18-16 | 16-14 | 14-12 | 12-10 | 10-8 | 8-6 | 6-4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 27 1938 | 67.7 | 286.7 | 1.6 | 0.1 | 0.2 | 0.9 | 5.8 | 25.7 | 28.4 | 24.3 | 13.0 |
| 28 0538 | 44.2 | 121.9 | 0.9 | 0.1 | 0.2 | 1.2 | 3.0 | 13.5 | 14.2 | 24.6 | 42.3 |
| 28 1538 | 37.5 | 87.8 | 7.3 | 0.2 | 0.2 | 0.9 | 6.1 | 10.3 | 23.7 | 22.2 | 29.2 |
| 29 0140 | 31.3 | 61.3 | 2.7 | 0.3 | 0.5 | 0.8 | 7.0 | 10.5 | 20.7 | 22.5 | 35.1 |
| 29 1149 | 47.9 | 143.1 | 1.6 | 0.3 | 0.3 | 1.3 | 5.5 | 11.0 | 9.2 | 25.8 | 45.0 |
| 29 2143 | 46.1 | 132.7 | 1.0 | 0.2 | 0.7 | 1.8 | 4.2 | 12.8 | 10.2 | 30.9 | 38.1 |
| 30 0919 | 36.0 | 81.1 | 1.0 | 0.1 | 1.8 | 2.3 | 2.5 | 16.5 | 17.8 | 17.6 | 40.4 |
| 30 2017 | 45.9 | 131.4 | 3.1 | 0.1 | 0.4 | 2.0 | 4.6 | 15.1 | 14.0 | 25.5 | 35.2 |
| 31 0735 | 46.0 | 132.3 | 3.1 | 0.2 | 1.1 | 1.6 | 18.0 | 22.1 | 18.4 | 16.2 | 19.3 |

# P E R S I S T E N C E

(CONSECUTIVE DAYS (3 OR MORE) SIGNIFICANT WAVE HEIGHT IS 'N' FEET OR LESS)

31 DAYS OF OBSERVATION
OCT. 1-31, 1976

| FEET | DAYS |
|---|---|
| 1 | 5, |
| 2 | 22, 7, |
| 3 | 31, |
| 4 | 31, |
| 5 | 31, |
| 6 | 31, |
| 8 | 31, |
| 10 | 31, |
| 12 | 31, |

MAXIMUM DAILY SIGNIFICANT WAVE HEIGHT FOR OCT. 1976

| DATE (OCT.) | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|
| SIG.HT (FT.) | 3 | 2 | 2 | 2 | 2 | 2 | 2 |

| DATE (OCT.) | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
|---|---|---|---|---|---|---|---|
| SIG.HT (FT.) | 2 | 1 | 2 | 2 | 2 | 1 | 2 |

| DATE (OCT.) | 15 | 16 | 17 | 18 | 19 | 20 | 21 |
|---|---|---|---|---|---|---|---|
| SIG.HT (FT.) | 1 | 1 | 1 | 1 | 1 | 2 | 2 |

| DATE (OCT.) | 22 | 23 | 24 | 25 | 26 | 27 | 28 |
|---|---|---|---|---|---|---|---|
| SIG.HT (FT.) | 2 | 2 | 3 | 2 | 2 | 2 | 1 |

| DATE (OCT.) | 29 | 30 | 31 |
|---|---|---|---|
| SIG.HT (FT.) | 2 | 2 | 2 |

OCEANSIDE
OCT. 1976

| LOCAL DAY/TIME | SIG.HT (CM) | TOT.EN (CM.SQ) | PERCENT ENERGY IN BAND (TOTAL ENERGY INCLUDES RANGE 2048-4 SECS) BAND PERIOD LIMITS (IN SECS) 22+ | 22-18 | 18-16 | 16-14 | 14-12 | 12-10 | 10-8 | 8-6 | 6-4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 0413 | 67.4 | 284.0 | 3.7 | 10.0 | 6.1 | 6.9 | 21.7 | 24.0 | 12.1 | 8.7 | 6.8 |
| 1 1343 | 61.0 | 232.1 | 4.3 | 1.9 | 11.2 | 12.5 | 19.0 | 13.1 | 15.1 | 15.2 | 7.7 |
| 1 2357 | 69.3 | 300.3 | 1.4 | 0.9 | 21.3 | 20.6 | 18.1 | 13.0 | 8.8 | 10.7 | 5.4 |
| 2 1957 | 70.3 | 308.8 | 6.5 | 3.8 | 18.7 | 15.4 | 23.1 | 12.1 | 8.5 | 3.5 | 8.6 |
| 5 1758 | 67.0 | 280.7 | 4.0 | 2.3 | 14.9 | 22.7 | 26.4 | 7.6 | 9.8 | 5.6 | 6.7 |
| 6 0357 | 54.5 | 185.5 | 4.9 | 2.7 | 7.5 | 34.0 | 21.7 | 11.3 | 6.0 | 4.0 | 7.8 |
| 6 1359 | 59.7 | 222.8 | 1.4 | 1.4 | 4.0 | 30.4 | 40.9 | 8.6 | 4.3 | 3.9 | 5.0 |
| 6 2357 | 68.6 | 293.8 | 2.5 | 1.2 | 3.6 | 29.0 | 15.5 | 6.7 | 2.5 | 4.2 | 34.7 |
| 7 0957 | 65.2 | 265.8 | 4.6 | 1.3 | 7.7 | 15.6 | 42.4 | 8.9 | 3.0 | 3.5 | 13.0 |
| 7 1957 | 58.3 | 212.4 | 3.2 | 3.2 | 1.1 | 23.2 | 25.2 | 17.8 | 3.5 | 6.3 | 16.5 |
| 8 0557 | 52.3 | 170.6 | 7.9 | 6.2 | 2.7 | 11.5 | 28.1 | 9.7 | 2.7 | 6.2 | 25.0 |
| 8 1557 | 55.1 | 189.4 | 2.8 | 2.8 | 11.7 | 16.3 | 19.9 | 6.4 | 2.9 | 17.7 | 19.7 |
| 9 0157 | 57.8 | 208.7 | 2.3 | 1.9 | 34.3 | 7.6 | 22.1 | 13.1 | 3.0 | 6.3 | 9.5 |
| 9 1158 | 61.5 | 236.7 | 6.4 | 2.3 | 17.3 | 16.9 | 31.8 | 12.3 | 5.4 | 2.8 | 4.8 |
| 9 1218 | 62.1 | 240.8 | 5.0 | 1.6 | 39.9 | 4.9 | 20.7 | 14.0 | 3.9 | 2.9 | 7.0 |
| 9 2157 | 64.9 | 263.1 | 3.4 | 1.7 | 30.8 | 17.9 | 16.2 | 14.0 | 4.1 | 4.4 | 7.5 |
| 10 0757 | 72.4 | 327.1 | 3.9 | 1.1 | 19.9 | 40.4 | 14.8 | 6.8 | 3.3 | 5.6 | 4.3 |
| 10 1757 | 75.9 | 360.2 | 3.3 | 1.6 | 3.8 | 42.6 | 14.8 | 16.8 | 3.1 | 8.0 | 6.0 |
| 11 0357 | 75.4 | 355.0 | 1.8 | 0.5 | 2.4 | 18.0 | 31.8 | 16.6 | 11.2 | 11.5 | 6.3 |
| 11 1446 | 83.2 | 432.7 | 2.7 | 0.3 | 3.5 | 15.8 | 30.6 | 23.8 | 13.5 | 6.1 | 3.8 |
| 11 2357 | 75.4 | 355.0 | 2.2 | 0.2 | 4.0 | 11.1 | 28.7 | 24.0 | 15.5 | 7.8 | 6.5 |
| 12 0957 | 64.6 | 261.0 | 4.3 | 0.4 | 5.0 | 6.5 | 36.2 | 25.5 | 7.7 | 6.0 | 8.5 |
| 12 1957 | 62.2 | 241.8 | 2.0 | 0.5 | 7.5 | 14.1 | 23.6 | 23.0 | 9.3 | 7.8 | 12.2 |
| 13 0557 | 54.3 | 184.1 | 2.9 | 0.5 | 7.4 | 29.3 | 17.3 | 16.0 | 9.2 | 3.7 | 13.7 |
| 13 1557 | 49.8 | 155.2 | 2.8 | 0.8 | 8.8 | 18.8 | 18.7 | 21.6 | 12.3 | 6.5 | 9.6 |
| 14 0157 | 46.4 | 134.6 | 2.0 | 1.0 | 5.2 | 26.4 | 17.5 | 17.5 | 10.5 | 5.5 | 14.5 |
| 14 2157 | 39.6 | 98.2 | 7.3 | 2.3 | 3.5 | 28.1 | 13.2 | 11.9 | 9.3 | 4.5 | 19.8 |
| 16 0357 | 36.8 | 84.7 | 3.6 | 3.7 | 2.4 | 7.1 | 53.7 | 9.0 | 5.8 | 4.6 | 10.0 |
| 17 1957 | 53.9 | 181.7 | 11.0 | 1.1 | 8.9 | 12.2 | 28.2 | 22.9 | 4.4 | 1.8 | 9.5 |
| 19 2157 | 41.2 | 106.0 | 8.9 | 14.9 | 5.6 | 9.3 | 10.5 | 35.7 | 9.7 | 3.8 | 1.6 |

OCEANSIDE
OCT. 1976

| DAY | LOCAL TIME | SIG.HT (CM) | TOT.EN (CM.SQ) | PERCENT ENERGY IN BAND (TOTAL ENERGY INCLUDES RANGE 2048-4 SECS) BAND PERIOD LIMITS (IN SECS) 22+ | 22-18 | 18-16 | 16-14 | 14-12 | 12-10 | 10-8 | 8-6 | 6-4 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 20 | 0757 | 43.4 | 117.5 | 12.4 | 16.6 | 4.7 | 6.6 | 16.1 | 22.7 | 12.1 | 6.2 | 2.5 |
| 20 | 1757 | 43.9 | 120.4 | 10.4 | 27.9 | 13.7 | 6.8 | 13.2 | 8.1 | 10.0 | 3.3 | 6.7 |
| 21 | 0341 | 39.5 | 97.6 | 20.0 | 16.5 | 20.9 | 7.6 | 8.2 | 10.9 | 6.6 | 2.8 | 6.5 |
| 21 | 1341 | 40.4 | 102.1 | 3.2 | 10.0 | 30.0 | 15.5 | 15.5 | 14.4 | 7.0 | 2.4 | 2.0 |
| 21 | 2341 | 34.4 | 73.8 | 9.2 | 18.9 | 20.0 | 11.0 | 13.9 | 14.7 | 6.6 | 3.8 | 1.9 |
| 22 | 0941 | 37.4 | 87.5 | 20.9 | 13.0 | 17.4 | 12.7 | 6.5 | 12.3 | 11.6 | 3.2 | 2.4 |
| 22 | 1957 | 36.0 | 80.8 | 4.8 | 29.3 | 9.6 | 21.4 | 10.5 | 10.9 | 8.9 | 2.5 | 2.1 |
| 23 | 0557 | 39.4 | 96.9 | 20.4 | 13.7 | 25.0 | 6.9 | 14.4 | 7.8 | 6.4 | 2.8 | 2.7 |
| 23 | 1557 | 30.0 | 56.0 | 6.6 | 2.5 | 33.1 | 13.8 | 16.6 | 11.6 | 7.7 | 4.1 | 4.1 |
| 24 | 0157 | 37.0 | 85.6 | 1.5 | 1.3 | 43.0 | 5.3 | 15.1 | 10.9 | 8.1 | 8.5 | 6.4 |
| 24 | 1157 | 37.5 | 87.9 | 24.4 | 1.1 | 10.8 | 6.5 | 8.5 | 14.7 | 19.0 | 9.4 | 5.6 |
| 24 | 2157 | 27.6 | 47.6 | 3.0 | 3.0 | 15.4 | 24.4 | 10.3 | 5.8 | 9.1 | 17.1 | 12.0 |
| 25 | 0757 | 26.3 | 43.0 | 11.7 | 2.7 | 9.6 | 13.7 | 9.2 | 12.6 | 18.3 | 10.7 | 11.5 |
| 25 | 1757 | 32.0 | 63.9 | 7.4 | 0.9 | 14.1 | 13.9 | 7.2 | 9.2 | 14.5 | 24.3 | 8.5 |
| 26 | 0357 | 31.6 | 62.4 | 2.8 | 0.6 | 27.1 | 12.2 | 4.1 | 16.3 | 13.5 | 16.7 | 6.6 |
| 26 | 1358 | 36.4 | 82.8 | 19.5 | 0.5 | 11.1 | 27.1 | 7.9 | 10.3 | 13.7 | 6.6 | 3.2 |
| 26 | 2357 | 35.0 | 76.7 | 3.5 | 0.5 | 2.7 | 46.6 | 13.7 | 9.8 | 14.4 | 6.3 | 2.7 |
| 27 | 0957 | 35.1 | 77.1 | 3.5 | 0.5 | 3.2 | 53.5 | 14.0 | 8.2 | 9.1 | 5.1 | 2.9 |
| 27 | 1957 | 39.0 | 95.1 | 3.4 | 0.6 | 2.4 | 46.8 | 12.2 | 8.2 | 19.4 | 5.1 | 1.8 |
| 28 | 0557 | 28.8 | 51.9 | 3.4 | 1.9 | 3.5 | 11.9 | 45.8 | 11.4 | 11.1 | 6.3 | 4.7 |
| 28 | 1557 | 34.3 | 73.5 | 11.4 | 3.9 | 3.2 | 18.7 | 30.7 | 10.3 | 14.5 | 4.5 | 2.8 |
| 29 | 0159 | 28.3 | 50.2 | 4.2 | 3.5 | 6.6 | 13.6 | 41.2 | 12.4 | 8.9 | 5.4 | 4.2 |
| 29 | 1207 | 35.6 | 79.0 | 3.5 | 2.9 | 6.2 | 16.7 | 31.1 | 14.6 | 7.3 | 8.9 | 8.8 |
| 29 | 2201 | 29.8 | 55.5 | 2.6 | 2.1 | 19.2 | 22.3 | 22.3 | 16.8 | 3.6 | 7.4 | 3.7 |
| 30 | 0938 | 34.3 | 73.3 | 1.9 | 3.6 | 18.3 | 33.0 | 9.6 | 17.6 | 7.9 | 4.9 | 3.0 |
| 30 | 2035 | 37.2 | 86.2 | 5.8 | 2.1 | 26.9 | 37.3 | 9.0 | 7.7 | 4.3 | 2.6 | 4.3 |
| 31 | 0753 | 42.5 | 112.6 | 6.1 | 1.1 | 6.5 | 42.1 | 20.8 | 13.0 | 5.2 | 3.2 | 2.1 |

OCEANSIDE

# P E R S I S T E N C E

(CONSECUTIVE DAYS (3 OR MORE) SIGNIFICANT WAVE HEIGHT IS 'N' FEET OR LESS)

27 DAYS OF OBSERVATION
OCT. 1-31, 1976

| FEET | DAYS |
|---|---|
| 1 | 13. |
| 2 | 13, 6, 3 |
| 3 | 13, 10 |
| 4 | 13, 10 |
| 5 | 13, 10 |
| 6 | 13, 10 |
| 8 | 13, 10 |
| 10 | 13, 10 |
| 12 | 13, 10 |

MAXIMUM DAILY SIGNIFICANT WAVE HEIGHT FOR OCT. 1976

| DATE (OCT.) | 1 | 2 | 5 | 6 | 7 | 8 | 9 |
|---|---|---|---|---|---|---|---|
| SIG.HT (FT.) | 2 | 2 | 2 | 2 | 2 | 2 | 2 |

| DATE (OCT.) | 10 | 11 | 12 | 13 | 14 | 16 | 17 |
|---|---|---|---|---|---|---|---|
| SIG.HT (FT.) | 2 | 3 | 2 | 2 | 2 | 1 | 2 |

| DATE (OCT.) | 19 | 20 | 21 | 22 | 23 | 24 | 25 |
|---|---|---|---|---|---|---|---|
| SIG.HT (FT.) | 1 | 1 | 1 | 1 | 1 | 1 | 1 |

| DATE (OCT.) | 26 | 27 | 28 | 29 | 30 | 31 |
|---|---|---|---|---|---|---|
| SIG.HT (FT.) | 1 | 1 | 1 | 1 | 1 | 1 |

# CALIFORNIA COASTAL ENGINEERING DATA NETWORK

## MONTHLY SUMMARY REPORT NO. 12

NOVEMBER 1976

INSTITUTE OF MARINE RESOURCES
SCRIPPS INSTITUTION OF OCEANOGRAPHY
LA JOLLA, CA

THIS PROJECT IS SPONSORED JOINTLY BY THE CALIFORNIA SEA GRANT COLLEGE PROGRAM AND THE DEPARTMENT OF NAVIGATION AND OCEAN DEVELOPMENT.

REPORT NO. 12 NOVEMBER 1976

REPORTING STATIONS

| NO. | LOCATION | | |
|---|---|---|---|
| 1 | IMPERIAL BEACH PIER | 32-35N | 117-08W |
| 2 | OCEAN BEACH PIER | 32-45N | 117-15W |
| 3 | SCRIPPS PIER | 32-52N | 117-15W |
| 4 | OCEANSIDE PIER | 33-11N | 117-23W |

DATA REPORTED

| STA.NO. | DATA TYPE |
|---|---|
| 1 | WAVE SPECTRUM FROM ONE PRESSURE SENSOR |
| 2 | WAVE SPECTRUM FROM ONE PRESSURE SENSOR |
| 3 | WAVE SPECTRUM FROM ONE PRESSURE SENSOR |
| 4 | WAVE SPECTRUM FROM ONE PRESSURE SENSOR |

NOTES -

1. THE SUM OF THE ENERGIES (TOT.EN) IN A WAVE SPECTRUM IS EQUAL TO THE VARIANCE OF THE SURFACE ELEVATION.

2. THE SIGNIFICANT WAVE HEIGHT (SIG.HT) IS EQUAL TO FOUR TIMES THE STANDARD DEVIATION.

3. PACIFIC STANDARD TIME IS THE STARTING TIME FOR THE DATA SAMPLING PERIOD.

4. PERIOD BANDS INCLUDE THE LOWER LIMIT , BUT NOT THE UPPER LIMIT.

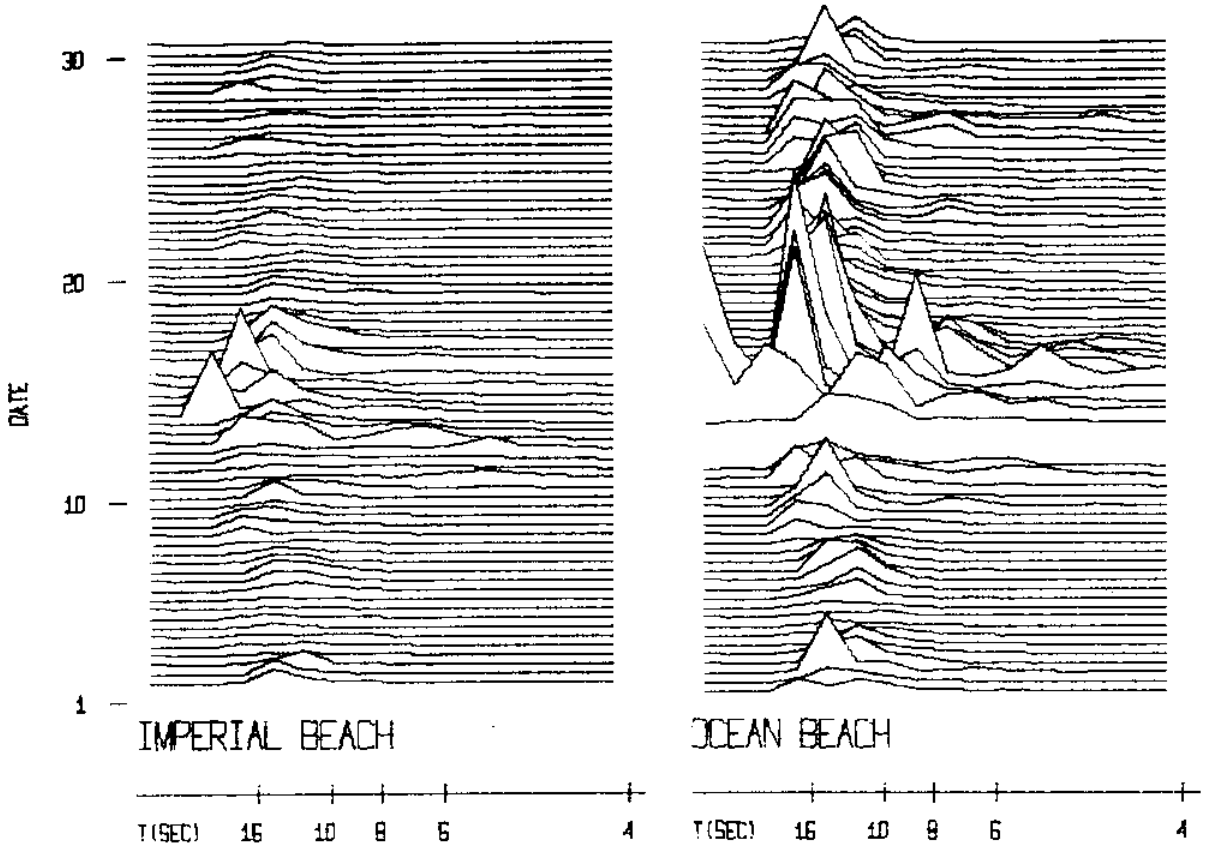
5. WAVE ENERGY IS TRUNCATED AT 4 SECOND PERIOD BECAUSE OF DEPTH EXTINCTION CHARACTERISTICS OF THE PRESSURE SENSOR.

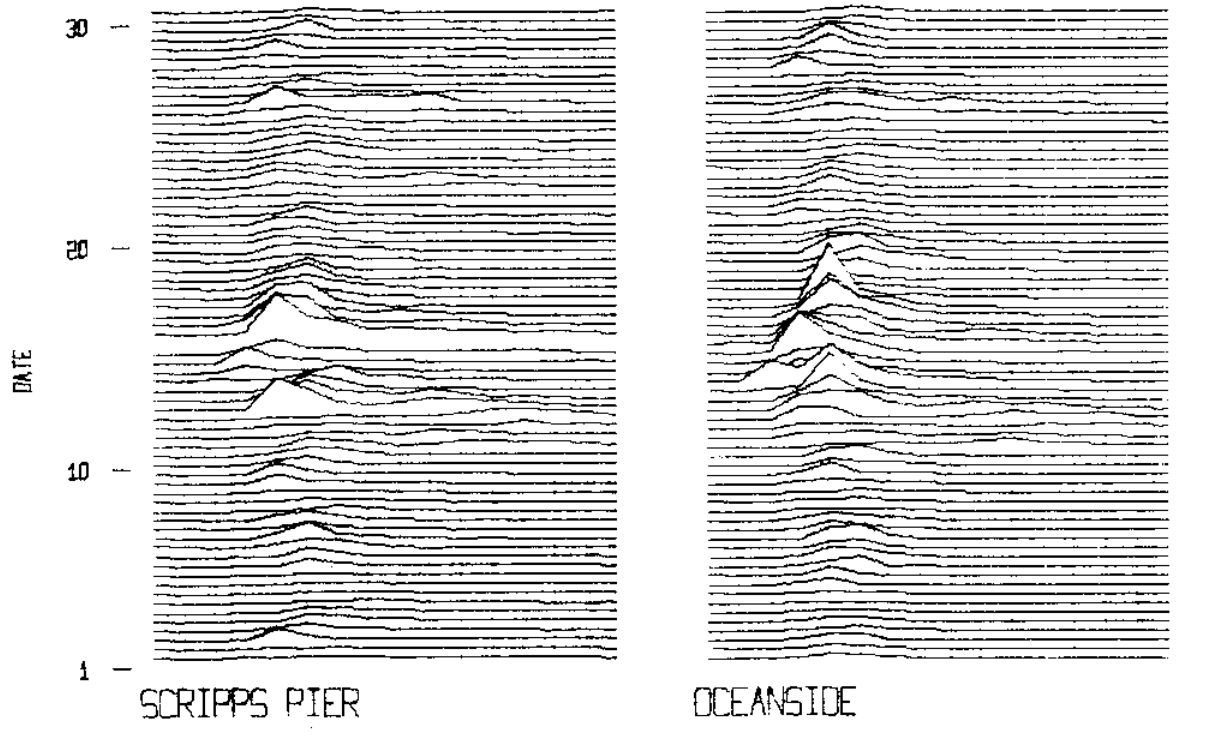
6. ROUNDOFF ERRORS MAY PREVENT ENERGIES FROM SUMMING TO 100.0 PERCENT

7. WAVE SPECTRA ARE CALCULATED FROM 1024 SAMPLES AT ONE HZ.

8. SIGNIFICANT WAVE HEIGHTS HAVE BEEN ROUNDED UP TO THE NEAREST FOOT IN THE PERSISTENCE AND MAXIMUM DAILY HEIGHT TABLES.

# WAVE ENERGY SPECTRA DURING NOVEMBER 1976



IMPERIAL BEACH
NOV. 1976

| LOCAL DAY/TIME | SIG.HT (CM) | TOT.EN (CM.SQ) | PERCENT ENERGY IN BAND (TOTAL ENERGY INCLUDES RANGE 2048-4 SECS) BAND PERIOD LIMITS (IN SECS) 22+ | 22-18 | 18-16 | 16-14 | 14-12 | 12-10 | 10-8 | 8-6 | 6-4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 1000 | 52.7 | 173.3 | 3.4 | 1.5 | 20.2 | 17.9 | 19.0 | 17.7 | 7.9 | 5.9 | 6.6 |
| 1 2000 | 56.3 | 197.9 | 3.5 | 1.1 | 4.9 | 38.1 | 13.8 | 17.3 | 9.9 | 6.9 | 4.5 |
| 2 0600 | 53.6 | 179.2 | 3.3 | 1.0 | 3.3 | 21.8 | 39.8 | 13.9 | 6.0 | 3.9 | 7.1 |
| 2 1600 | 59.9 | 224.3 | 5.6 | 2.7 | 3.4 | 11.6 | 36.8 | 22.1 | 12.2 | 2.9 | 2.7 |
| 3 0200 | 44.8 | 125.5 | 8.6 | 3.2 | 7.1 | 8.8 | 26.3 | 14.4 | 16.0 | 11.3 | 4.3 |
| 3 1200 | 46.7 | 136.2 | 3.1 | 3.0 | 11.4 | 5.4 | 13.5 | 32.3 | 11.2 | 12.8 | 7.4 |
| 3 2200 | 47.8 | 142.6 | 7.8 | 1.5 | 12.1 | 18.4 | 5.6 | 17.0 | 24.0 | 8.7 | 4.9 |
| 4 0800 | 40.7 | 103.5 | 2.6 | 2.5 | 9.4 | 31.0 | 10.0 | 11.9 | 6.7 | 12.1 | 13.7 |
| 4 1800 | 46.4 | 134.4 | 6.4 | 1.3 | 15.7 | 19.3 | 13.5 | 11.8 | 10.9 | 7.7 | 13.3 |
| 5 0400 | 41.3 | 106.4 | 8.0 | 0.8 | 13.1 | 9.8 | 25.7 | 13.1 | 11.5 | 8.4 | 9.6 |
| 5 1400 | 38.7 | 93.7 | 3.2 | 0.3 | 10.0 | 11.4 | 17.2 | 20.7 | 13.6 | 15.5 | 8.0 |
| 6 0000 | 54.4 | 184.9 | 4.5 | 0.4 | 6.8 | 15.5 | 29.8 | 23.1 | 9.1 | 4.2 | 6.7 |
| 6 1000 | 59.6 | 221.7 | 5.2 | 0.6 | 1.0 | 19.8 | 33.2 | 20.3 | 12.7 | 2.9 | 4.2 |
| 6 2000 | 62.7 | 245.5 | 3.2 | 1.4 | 0.8 | 17.7 | 32.5 | 30.1 | 10.0 | 2.9 | 1.5 |
| 7 0600 | 54.8 | 187.4 | 8.0 | 5.5 | 0.5 | 12.6 | 28.3 | 29.7 | 8.5 | 4.4 | 2.6 |
| 7 1600 | 48.9 | 149.2 | 5.7 | 11.5 | 1.0 | 19.8 | 24.7 | 21.7 | 11.4 | 2.2 | 2.0 |
| 7 1716 | 57.3 | 205.4 | 5.6 | 10.1 | 1.5 | 3.7 | 22.0 | 33.1 | 17.2 | 4.8 | 1.9 |
| 8 0200 | 47.5 | 141.1 | 1.8 | 9.7 | 8.8 | 5.1 | 20.3 | 29.9 | 15.9 | 7.1 | 1.5 |
| 8 1200 | 53.3 | 177.6 | 7.7 | 4.4 | 32.4 | 4.0 | 12.9 | 12.8 | 18.7 | 6.1 | 1.0 |
| 8 2200 | 54.5 | 185.4 | 1.9 | 2.9 | 39.5 | 14.5 | 13.3 | 12.9 | 8.9 | 5.1 | 1.0 |
| 9 0800 | 59.3 | 219.5 | 3.6 | 1.5 | 29.0 | 21.0 | 16.6 | 10.5 | 8.9 | 6.5 | 1.6 |
| 9 1800 | 45.2 | 127.9 | 5.5 | 0.3 | 15.4 | 23.3 | 26.3 | 13.7 | 8.8 | 5.1 | 1.5 |
| 10 0400 | 59.2 | 218.8 | 2.4 | 0.4 | 7.8 | 43.4 | 18.9 | 13.8 | 6.8 | 4.5 | 2.1 |
| 10 1400 | 65.7 | 269.9 | 5.0 | 2.2 | 1.5 | 14.7 | 20.3 | 24.8 | 13.5 | 6.1 | 11.9 |
| 11 0000 | 85.3 | 454.7 | 2.0 | 4.7 | 2.4 | 3.2 | 7.1 | 9.2 | 11.3 | 17.6 | 42.5 |
| 11 1000 | 73.7 | 339.3 | 3.5 | 6.6 | 3.8 | 8.0 | 7.3 | 12.6 | 13.9 | 27.2 | 17.2 |
| 11 2000 | 77.1 | 371.7 | 2.0 | 14.6 | 3.3 | 11.4 | 6.3 | 11.2 | 11.9 | 18.0 | 21.3 |
| 12 0600 | 94.7 | 560.0 | 1.7 | 2.5 | 7.6 | 9.1 | 4.4 | 5.0 | 10.6 | 14.5 | 44.7 |
| 12 1600 | 122.7 | 941.7 | 1.8 | 0.8 | 19.7 | 7.1 | 13.8 | 11.3 | 6.4 | 27.3 | 11.9 |
| 13 0200 | 105.9 | 700.5 | 3.7 | 0.8 | 9.0 | 11.8 | 17.3 | 12.6 | 10.8 | 22.3 | 11.6 |
| 13 1200 | 92.5 | 535.1 | 2.5 | 0.8 | 14.7 | 19.7 | 16.2 | 16.4 | 9.8 | 11.9 | 8.2 |
| 13 1316 | 93.7 | 549.0 | 7.8 | 1.3 | 7.6 | 19.6 | 14.9 | 10.2 | 11.0 | 13.8 | 13.7 |
| 13 2200 | 126.0 | 992.4 | 14.5 | 34.5 | 2.1 | 5.2 | 4.9 | 10.9 | 9.1 | 11.5 | 6.4 |

IMPERIAL BEACH
NOV. 1976

| LOCAL DAY/TIME | | SIG.HT (CM) | TOT.EN (CM.SQ) | PERCENT ENERGY IN BAND (TOTAL ENERGY INCLUDES RANGE 2048-4 SECS) BAND PERIOD LIMITS (IN SECS) 22+ | 22-18 | 18-16 | 16-14 | 14-12 | 12-10 | 10-8 | 8-6 | 6-4 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 14 | 0800 | 115.4 | 831.8 | 19.2 | 7.3 | 5.6 | 25.5 | 8.4 | 14.4 | 8.6 | 7.8 | 3.3 |
| 14 | 0916 | 122.2 | 933.4 | 5.3 | 48.5 | 9.0 | 6.1 | 4.5 | 7.1 | 7.2 | 6.2 | 6.1 |
| 14 | 1800 | 105.4 | 694.4 | 6.6 | 26.7 | 11.9 | 12.9 | 12.8 | 3.3 | 12.6 | 7.9 | 5.2 |
| 15 | 0400 | 126.7 | 1003.7 | 6.2 | 37.3 | 16.9 | 4.9 | 5.8 | 5.2 | 7.4 | 5.2 | 11.0 |
| 15 | 1530 | 113.9 | 810.8 | 5.9 | 4.7 | 17.3 | 30.8 | 8.2 | 6.4 | 5.9 | 13.4 | 7.4 |
| 15 | 2359 | 86.3 | 465.3 | 10.4 | 2.7 | 18.2 | 15.3 | 19.7 | 9.1 | 8.1 | 11.1 | 5.5 |
| 16 | 0959 | 106.5 | 708.9 | 3.7 | 0.4 | 6.4 | 18.0 | 27.0 | 13.9 | 10.5 | 12.3 | 7.8 |
| 16 | 1115 | 68.0 | 289.2 | 5.8 | 2.9 | 13.4 | 21.1 | 21.5 | 11.4 | 8.9 | 9.7 | 5.4 |
| 16 | 2000 | 73.2 | 335.0 | 6.7 | 1.0 | 7.7 | 41.9 | 15.2 | 11.0 | 6.3 | 7.4 | 2.9 |
| 17 | 0600 | 106.5 | 708.6 | 2.8 | 0.6 | 9.4 | 20.7 | 17.6 | 21.0 | 13.0 | 9.4 | 5.5 |
| 17 | 0716 | 66.2 | 274.2 | 8.8 | 0.5 | 5.9 | 24.0 | 26.0 | 15.7 | 10.0 | 5.5 | 3.7 |
| 17 | 1600 | 61.7 | 238.1 | 7.3 | 0.4 | 7.8 | 32.5 | 19.1 | 13.1 | 10.3 | 5.3 | 4.2 |
| 18 | 0200 | 56.2 | 197.6 | 10.8 | 0.2 | 1.1 | 21.2 | 32.0 | 19.9 | 8.5 | 4.1 | 2.2 |
| 18 | 1200 | 40.2 | 101.0 | 3.7 | 0.8 | 4.2 | 20.4 | 29.0 | 19.5 | 10.0 | 7.8 | 4.5 |
| 18 | 2200 | 42.2 | 111.2 | 9.0 | 1.1 | 1.2 | 21.6 | 28.4 | 17.4 | 6.0 | 6.5 | 8.8 |
| 19 | 0900 | 62.0 | 240.3 | 14.1 | 0.7 | 2.8 | 14.6 | 28.1 | 13.4 | 15.7 | 7.3 | 3.2 |
| 19 | 1800 | 57.5 | 206.8 | 6.5 | 1.4 | 1.0 | 18.4 | 25.4 | 21.7 | 10.5 | 9.3 | 5.7 |
| 20 | 0400 | 53.8 | 180.5 | 11.3 | 1.8 | 3.1 | 15.2 | 26.7 | 20.3 | 9.0 | 7.1 | 5.6 |
| 20 | 1400 | 55.7 | 194.2 | 7.4 | 0.6 | 0.7 | 5.5 | 29.3 | 20.3 | 18.3 | 9.1 | 8.8 |
| 20 | 1516 | 45.3 | 128.2 | 6.8 | 3.4 | 1.9 | 8.0 | 42.8 | 12.3 | 13.3 | 6.4 | 5.1 |
| 21 | 0000 | 45.3 | 128.2 | 6.8 | 3.4 | 1.9 | 8.0 | 42.8 | 12.3 | 13.3 | 6.4 | 5.1 |
| 21 | 0116 | 52.3 | 170.9 | 4.1 | 13.2 | 4.7 | 11.9 | 31.1 | 19.3 | 5.8 | 6.4 | 3.4 |
| 21 | 1000 | 52.5 | 172.5 | 12.3 | 24.2 | 13.8 | 6.0 | 17.6 | 11.8 | 6.1 | 5.0 | 3.2 |
| 21 | 2000 | 52.2 | 170.0 | 8.3 | 3.3 | 33.5 | 7.7 | 15.6 | 19.4 | 7.0 | 3.5 | 1.8 |
| 22 | 0600 | 51.0 | 162.8 | 3.2 | 3.7 | 22.6 | 13.9 | 26.1 | 18.0 | 7.5 | 2.7 | 2.3 |
| 22 | 1600 | 48.8 | 149.0 | 5.3 | 0.6 | 8.2 | 43.6 | 12.4 | 9.6 | 4.6 | 8.1 | 7.7 |
| 23 | 0200 | 48.2 | 145.0 | 4.5 | 1.2 | 18.3 | 16.5 | 20.3 | 11.5 | 4.8 | 16.0 | 6.9 |
| 23 | 1201 | 49.2 | 151.2 | 16.7 | 2.1 | 3.1 | 27.3 | 24.8 | 11.4 | 5.6 | 6.1 | 2.9 |
| 23 | 2200 | 49.3 | 151.7 | 8.8 | 0.5 | 3.9 | 8.2 | 27.8 | 30.1 | 9.2 | 7.8 | 3.7 |
| 24 | 0800 | 44.5 | 123.7 | 4.0 | 0.7 | 4.5 | 4.2 | 30.5 | 22.0 | 17.9 | 10.7 | 5.5 |
| 24 | 0916 | 49.0 | 150.0 | 5.6 | 0.9 | 3.0 | 13.8 | 21.8 | 32.3 | 12.1 | 5.6 | 4.9 |
| 24 | 1800 | 36.5 | 83.2 | 5.5 | 4.4 | 4.2 | 9.5 | 24.2 | 21.3 | 16.0 | 10.4 | 4.5 |
| 25 | 0400 | 38.8 | 93.9 | 6.3 | 1.1 | 1.5 | 10.8 | 20.1 | 26.0 | 21.8 | 6.8 | 5.5 |
| 25 | 0516 | 44.9 | 125.8 | 4.8 | 11.6 | 10.4 | 6.9 | 31.8 | 8.6 | 13.0 | 5.1 | 7.8 |

IMPERIAL BEACH
NOV. 1976

| LOCAL DAY/TIME | | SIG.HT (CM) | TOT.EN (CM.SQ) | PERCENT ENERGY IN BAND (TOTAL ENERGY INCLUDES RANGE 2048-4 SECS) BAND PERIOD LIMITS (IN SECS) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 22+ | 22-18 | 18-16 | 16-14 | 14-12 | 12-10 | 10-8 | 8-6 | 6-4 |
| 25 | 1400 | 42.2 | 111.4 | 9.6 | 9.4 | 10.2 | 10.8 | 14.9 | 16.4 | 8.4 | 6.1 | 14.2 |
| 26 | 0000 | 57.2 | 204.7 | 4.5 | 1.5 | 27.5 | 25.8 | 9.5 | 9.8 | 7.7 | 8.4 | 5.4 |
| 26 | 1000 | 52.7 | 173.3 | 8.5 | 1.2 | 9.6 | 17.0 | 14.8 | 15.8 | 11.9 | 13.8 | 7.3 |
| 26 | 2000 | 47.0 | 137.7 | 4.9 | 0.8 | 4.7 | 11.8 | 14.3 | 12.5 | 12.4 | 22.0 | 16.6 |
| 27 | 0600 | 66.6 | 277.1 | 1.7 | 0.7 | 4.5 | 7.0 | 18.0 | 15.3 | 12.1 | 13.5 | 27.3 |
| 27 | 0716 | 45.5 | 129.5 | 3.8 | 1.6 | 4.3 | 12.5 | 11.2 | 11.6 | 30.2 | 13.5 | 11.2 |
| 27 | 1600 | 36.5 | 83.0 | 6.4 | 4.7 | 3.3 | 5.3 | 23.5 | 20.4 | 20.7 | 12.6 | 3.1 |
| 28 | 0200 | 37.2 | 86.5 | 9.9 | 6.4 | 9.3 | 6.0 | 17.9 | 15.3 | 28.1 | 5.0 | 2.3 |
| 28 | 1200 | 45.8 | 131.2 | 3.6 | 15.5 | 42.4 | 4.8 | 12.6 | 6.7 | 6.6 | 3.9 | 3.9 |
| 28 | 1316 | 40.3 | 101.3 | 5.8 | 3.5 | 32.4 | 33.1 | 6.2 | 3.5 | 8.7 | 5.2 | 1.6 |
| 28 | 2200 | 40.5 | 102.5 | 4.9 | 1.8 | 17.3 | 36.8 | 21.5 | 7.6 | 4.0 | 4.2 | 1.7 |
| 29 | 0800 | 41.8 | 109.0 | 6.3 | 1.7 | 10.9 | 36.6 | 29.7 | 6.1 | 3.0 | 4.2 | 1.6 |
| 29 | 1801 | 41.1 | 105.3 | 8.7 | 1.1 | 2.3 | 39.6 | 28.2 | 11.6 | 2.8 | 2.9 | 2.6 |
| 30 | 0400 | 33.5 | 70.3 | 5.2 | 3.6 | 5.2 | 12.4 | 37.6 | 24.0 | 5.7 | 4.2 | 2.1 |
| 30 | 1400 | 33.8 | 71.4 | 15.8 | 5.4 | 13.8 | 10.9 | 13.7 | 32.7 | 5.1 | 1.0 | 1.7 |

# P E R S I S T E N C E

(CONSECUTIVE DAYS (3 OR MORE) SIGNIFICANT WAVE HEIGHT IS 'N' FEET OR LESS)

30 DAYS OF OBSERVATION
NOV. 1-30, 1976

| FEET | DAYS |
|---|---|
| 1 | 0, |
| 2 | 13, 10, |
| 3 | 15, 11, |
| 4 | 30, |
| 5 | 30, |
| 6 | 30, |
| 8 | 30, |
| 10 | 30, |
| 12 | 30, |

MAXIMUM DAILY SIGNIFICANT WAVE HEIGHT FOR NOV. 1976

| DATE (NOV.) | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|
| SIG.HT (FT.) | 2 | 2 | 2 | 2 | 1 | 2 | 2 |

| DATE (NOV.) | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
|---|---|---|---|---|---|---|---|
| SIG.HT (FT.) | 2 | 2 | 2 | 3 | 4 | 4 | 4 |

| DATE (NOV.) | 15 | 16 | 17 | 18 | 19 | 20 | 21 |
|---|---|---|---|---|---|---|---|
| SIG.HT (FT.) | 4 | 3 | 3 | 2 | 2 | 2 | 2 |

| DATE (NOV.) | 22 | 23 | 24 | 25 | 26 | 27 | 28 |
|---|---|---|---|---|---|---|---|
| SIG.HT (FT.) | 2 | 2 | 2 | 1 | 2 | 2 | 2 |

| DATE (NOV.) | 29 | 30 |
|---|---|---|
| SIG.HT (FT.) | 1 | 1 |

OCEAN BEACH
NOV. 1976

| LOCAL DAY/TIME | SIG.HT (CM) | TOT.EN (CM.SQ) | PERCENT ENERGY IN BAND (TOTAL ENERGY INCLUDES RANGE 2048-4 SECS) BAND PERIOD LIMITS (IN SECS) 22+ | 22-18 | 18-16 | 16-14 | 14-12 | 12-10 | 10-8 | 8-6 | 6-4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 1019 | 72.6 | 329.3 | 2.3 | 3.5 | 22.4 | 5.8 | 12.7 | 27.8 | 12.3 | 6.7 | 6.6 |
| 1 2019 | 68.3 | 291.5 | 2.9 | 0.9 | 7.2 | 27.9 | 9.8 | 29.4 | 8.9 | 7.0 | 6.0 |
| 2 0619 | 107.0 | 715.8 | 1.8 | 0.3 | 3.0 | 17.3 | 42.1 | 12.7 | 6.1 | 9.0 | 7.7 |
| 2 1619 | 92.6 | 535.3 | 2.9 | 0.5 | 1.6 | 7.6 | 29.3 | 34.8 | 15.6 | 4.0 | 3.7 |
| 3 0219 | 81.2 | 412.0 | 2.6 | 1.2 | 5.3 | 6.3 | 25.3 | 26.1 | 17.1 | 11.2 | 4.9 |
| 3 1219 | 72.9 | 332.4 | 1.6 | 1.1 | 3.9 | 2.9 | 6.9 | 50.0 | 14.0 | 11.0 | 8.5 |
| 3 2219 | 63.3 | 250.7 | 2.8 | 2.3 | 10.1 | 6.1 | 13.0 | 29.7 | 21.4 | 9.9 | 4.8 |
| 4 0819 | 54.4 | 185.0 | 3.8 | 0.7 | 6.8 | 21.3 | 12.2 | 15.0 | 15.7 | 11.6 | 12.8 |
| 4 1900 | 56.2 | 197.5 | 2.2 | 0.6 | 8.2 | 4.6 | 18.7 | 25.8 | 19.6 | 8.3 | 12.0 |
| 5 0419 | 54.6 | 186.5 | 3.3 | 0.3 | 15.1 | 13.2 | 21.4 | 17.6 | 15.4 | 5.8 | 7.8 |
| 5 1419 | 74.2 | 344.2 | 1.1 | 0.2 | 6.5 | 9.6 | 25.8 | 36.0 | 9.5 | 5.6 | 5.7 |
| 6 0019 | 68.4 | 292.4 | 2.5 | 0.5 | 4.5 | 7.6 | 28.9 | 34.8 | 12.2 | 3.4 | 5.6 |
| 6 1019 | 88.9 | 493.8 | 3.7 | 0.6 | 1.6 | 10.9 | 21.3 | 50.3 | 5.9 | 3.0 | 2.8 |
| 6 2019 | 90.3 | 509.3 | 1.7 | 0.9 | 0.4 | 16.8 | 36.4 | 31.8 | 6.3 | 3.7 | 2.1 |
| 7 0619 | 77.1 | 371.7 | 2.7 | 2.2 | 0.6 | 16.6 | 23.8 | 36.3 | 11.4 | 3.5 | 2.7 |
| 7 1620 | 75.2 | 353.5 | 2.0 | 4.5 | 1.0 | 8.7 | 34.6 | 27.0 | 14.4 | 5.5 | 2.4 |
| 8 0219 | 57.3 | 205.0 | 1.4 | 14.7 | 6.1 | 1.7 | 17.4 | 28.4 | 23.4 | 5.6 | 1.4 |
| 8 1219 | 68.8 | 296.1 | 5.7 | 7.5 | 28.6 | 2.5 | 17.8 | 17.7 | 14.4 | 4.6 | 1.3 |
| 8 2219 | 81.8 | 417.7 | 1.8 | 6.6 | 33.6 | 25.9 | 4.1 | 10.3 | 12.3 | 4.2 | 1.2 |
| 9 0819 | 97.3 | 591.8 | 2.6 | 1.5 | 21.3 | 33.6 | 17.7 | 7.8 | 6.7 | 6.9 | 2.1 |
| 9 1819 | 119.6 | 894.3 | 2.1 | 0.2 | 15.1 | 29.7 | 29.9 | 4.3 | 3.6 | 12.4 | 2.7 |
| 10 0419 | 75.3 | 354.6 | 2.2 | 0.5 | 5.0 | 35.1 | 25.7 | 16.2 | 5.9 | 6.7 | 2.7 |
| 10 1419 | 101.4 | 642.8 | 3.4 | 1.2 | 1.7 | 7.6 | 34.3 | 23.0 | 10.4 | 9.2 | 9.2 |
| 11 0019 | 128.1 | 1026.2 | 2.0 | 9.0 | 12.8 | 1.9 | 12.3 | 13.3 | 12.4 | 15.0 | 21.3 |
| 11 1019 | 121.8 | 926.5 | 2.6 | 4.5 | 11.8 | 15.9 | 7.0 | 12.8 | 9.5 | 20.9 | 15.1 |
| 13 1220 | 108.3 | 732.6 | 6.0 | 0.7 | 3.8 | 16.4 | 15.5 | 25.5 | 14.4 | 10.4 | 7.4 |
| 13 2219 | 225.1 | 3167.5 | 37.5 | 12.8 | 1.3 | 2.3 | 2.6 | 20.6 | 3.8 | 10.9 | 8.1 |
| 14 0820 | 198.2 | 2454.1 | 5.5 | 30.1 | 15.8 | 3.9 | 2.5 | 8.9 | 18.2 | 9.3 | 5.8 |
| 14 1819 | 249.7 | 3897.3 | 37.3 | 13.8 | 15.7 | 2.8 | 3.2 | 1.5 | 12.5 | 4.9 | 8.3 |
| 15 0419 | 252.1 | 3971.8 | 2.5 | 7.0 | 29.5 | 10.4 | 2.8 | 1.3 | 21.5 | 4.5 | 20.4 |
| 15 1431 | 244.8 | 3746.5 | 4.4 | 3.8 | 20.2 | 16.5 | 15.4 | 2.9 | 8.7 | 14.9 | 13.3 |

OCEAN BEACH
NOV. 1976

| LOCAL DAY/TIME | | SIG.HT (CM) | TOT.EN (CM.SQ) | PERCENT ENERGY IN BAND (TOTAL ENERGY INCLUDES RANGE 2048-4 SECS) BAND PERIOD LIMITS (IN SECS) 22+ | 22-18 | 18-16 | 16-14 | 14-12 | 12-10 | 10-8 | 8-6 | 6-4 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 16 | 0018 | 224.3 | 3144.8 | 3.8 | 1.9 | 17.7 | 22.0 | 10.7 | 3.3 | 9.2 | 15.3 | 16.1 |
| 16 | 1019 | 203.4 | 2584.5 | 2.8 | 1.4 | 7.1 | 27.9 | 19.8 | 6.2 | 5.6 | 16.9 | 12.4 |
| 16 | 2019 | 178.2 | 1985.6 | 2.9 | 1.3 | 6.2 | 32.0 | 16.2 | 3.9 | 5.3 | 21.6 | 10.6 |
| 17 | 0620 | 174.6 | 1905.8 | 2.5 | 0.6 | 7.2 | 25.2 | 34.5 | 7.2 | 3.0 | 13.1 | 6.7 |
| 17 | 1619 | 128.9 | 1038.7 | 2.5 | 0.2 | 1.7 | 26.2 | 24.1 | 16.6 | 9.2 | 10.3 | 9.1 |
| 18 | 0219 | 105.6 | 696.9 | 3.0 | 0.3 | 2.0 | 14.2 | 45.1 | 9.8 | 6.6 | 11.6 | 7.2 |
| 18 | 1219 | 121.8 | 927.0 | 1.8 | 0.6 | 3.7 | 20.8 | 33.1 | 5.6 | 12.4 | 12.8 | 9.0 |
| 18 | 2219 | 94.9 | 562.3 | 1.8 | 0.2 | 0.8 | 20.1 | 37.0 | 9.3 | 6.9 | 14.3 | 9.7 |
| 19 | 0803 | 118.3 | 874.9 | 2.7 | 0.4 | 3.5 | 14.1 | 32.6 | 14.6 | 13.1 | 12.5 | 6.6 |
| 19 | 0919 | 106.2 | 705.0 | 4.5 | 0.5 | 3.5 | 12.6 | 23.2 | 20.5 | 15.2 | 11.2 | 8.9 |
| 19 | 1819 | 101.3 | 641.4 | 1.8 | 0.4 | 0.9 | 13.1 | 27.4 | 20.8 | 15.8 | 10.5 | 9.2 |
| 20 | 0419 | 100.8 | 634.9 | 4.0 | 0.8 | 2.3 | 17.4 | 33.3 | 17.7 | 8.9 | 9.6 | 6.0 |
| 20 | 1420 | 103.3 | 666.9 | 1.4 | 3.6 | 0.4 | 11.1 | 33.4 | 19.2 | 7.9 | 15.4 | 7.6 |
| 21 | 0020 | 109.6 | 750.6 | 2.3 | 16.1 | 2.1 | 8.2 | 39.5 | 9.4 | 6.6 | 11.3 | 4.4 |
| 21 | 1019 | 110.4 | 761.3 | 6.4 | 22.4 | 20.0 | 4.1 | 16.8 | 12.9 | 9.1 | 5.0 | 3.4 |
| 21 | 2019 | 93.7 | 549.0 | 3.4 | 6.4 | 24.8 | 15.1 | 9.8 | 23.1 | 9.3 | 5.3 | 2.8 |
| 22 | 0620 | 129.5 | 1048.0 | 2.7 | 2.3 | 25.5 | 32.4 | 8.7 | 9.2 | 7.1 | 7.1 | 5.0 |
| 22 | 1619 | 114.4 | 818.6 | 2.0 | 0.5 | 9.6 | 28.1 | 16.6 | 9.5 | 3.9 | 18.7 | 11.0 |
| 23 | 0219 | 108.3 | 733.2 | 2.0 | 0.9 | 17.4 | 29.8 | 15.4 | 8.3 | 3.3 | 16.2 | 6.7 |
| 23 | 1220 | 111.1 | 771.4 | 4.8 | 0.8 | 4.7 | 39.5 | 18.7 | 9.0 | 6.5 | 10.7 | 5.3 |
| 23 | 2219 | 130.5 | 1064.1 | 1.9 | 0.3 | 2.1 | 8.8 | 43.8 | 24.7 | 4.9 | 8.8 | 4.9 |
| 24 | 0820 | 116.8 | 852.5 | 2.8 | 0.3 | 0.3 | 23.5 | 38.9 | 16.0 | 5.9 | 8.0 | 4.4 |
| 24 | 1819 | 82.9 | 429.8 | 2.0 | 6.6 | 0.7 | 11.6 | 29.6 | 18.7 | 10.2 | 11.9 | 8.6 |
| 25 | 0420 | 116.0 | 840.8 | 2.7 | 20.7 | 0.4 | 4.4 | 36.8 | 10.7 | 5.1 | 9.7 | 9.4 |
| 25 | 1419 | 136.4 | 1162.6 | 3.2 | 3.7 | 17.3 | 1.1 | 25.0 | 18.7 | 9.2 | 9.1 | 12.7 |
| 25 | 1516 | 161.6 | 1631.6 | 3.7 | 8.1 | 31.4 | 4.3 | 12.5 | 8.1 | 10.0 | 8.2 | 13.7 |
| 26 | 0019 | 156.2 | 1525.1 | 2.6 | 1.0 | 19.4 | 13.8 | 14.7 | 12.8 | 9.2 | 14.8 | 11.8 |
| 26 | 1019 | 150.3 | 1411.2 | 1.6 | 0.4 | 26.4 | 14.9 | 9.7 | 6.2 | 10.9 | 17.8 | 12.2 |
| 26 | 2019 | 139.8 | 1221.7 | 1.5 | 0.3 | 1.7 | 17.5 | 21.0 | 12.5 | 8.8 | 15.8 | 21.1 |
| 27 | 0620 | 99.4 | 617.0 | 1.5 | 0.5 | 1.5 | 13.8 | 30.5 | 9.6 | 8.8 | 11.3 | 22.4 |
| 27 | 1619 | 85.0 | 451.6 | 2.8 | 1.8 | 2.1 | 7.2 | 30.5 | 21.2 | 19.5 | 10.2 | 4.8 |
| 28 | 0219 | 67.2 | 281.9 | 2.6 | 3.8 | 30.3 | 6.4 | 10.3 | 18.4 | 18.9 | 4.5 | 4.7 |
| 28 | 1220 | 85.7 | 458.6 | 1.9 | 3.1 | 35.2 | 33.6 | 5.5 | 4.7 | 6.2 | 7.7 | 2.3 |

OCEAN BEACH
NOV. 1976

| LOCAL DAY/TIME | | SIG.HT (CM) | TOT.EN (CM.SQ) | PERCENT ENERGY IN BAND (TOTAL ENERGY INCLUDES RANGE 2048-4 SECS) BAND PERIOD LIMITS (IN SECS) 22+ | 22-18 | 18-16 | 16-14 | 14-12 | 12-10 | 10-8 | 8-6 | 6-4 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 28 | 2219 | 77.8 | 377.9 | 0.9 | 1.6 | 24.5 | 30.7 | 21.1 | 2.7 | 4.3 | 10.7 | 3.5 |
| 29 | 0819 | 101.7 | 646.4 | 1.7 | 0.4 | 5.5 | 23.6 | 50.0 | 4.1 | 1.8 | 10.0 | 2.9 |
| 29 | 1820 | 85.0 | 451.3 | 2.6 | 0.6 | 1.8 | 16.9 | 46.5 | 18.0 | 1.9 | 8.4 | 3.3 |
| 30 | 0419 | 69.3 | 300.2 | 1.8 | 4.1 | 3.0 | 8.5 | 46.5 | 24.2 | 3.4 | 4.6 | 3.8 |
| 30 | 1419 | 72.7 | 330.5 | 1.8 | 2.1 | 9.0 | 3.2 | 31.2 | 38.6 | 6.7 | 3.6 | 3.8 |

# P E R S I S T E N C E

(CONSECUTIVE DAYS (3 OR MORE) SIGNIFICANT WAVE HEIGHT IS 'N' FEET OR LESS)

29 DAYS OF OBSERVATION
NOV. 1-30, 1976

| FEET | DAYS |
|---|---|
| 1 | 0, |
| 2 | 0, |
| 3 | 6, 4, |
| 4 | 11, 7, 4, |
| 5 | 13, 11, |
| 6 | 14, 11, |
| 9 | 29, |
| 10 | 29, |
| 12 | 29, |

MAXIMUM DAILY SIGNIFICANT WAVE HEIGHT FOR NOV. 1976

| DATE (NOV.) | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|
| SIG.HT (FT.) | 2 | 4 | 3 | 2 | 2 | 3 | 3 |

| DATE (NOV.) | 8 | 9 | 10 | 11 | 13 | 14 | 15 |
|---|---|---|---|---|---|---|---|
| SIG.HT (FT.) | 3 | 4 | 3 | 4 | 7 | 8 | 8 |

| DATE (NOV.) | 16 | 17 | 18 | 19 | 20 | 21 | 22 |
|---|---|---|---|---|---|---|---|
| SIG.HT (FT.) | 7 | 6 | 4 | 4 | 3 | 4 | 4 |

| DATE (NOV.) | 23 | 24 | 25 | 26 | 27 | 28 | 29 |
|---|---|---|---|---|---|---|---|
| SIG.HT (FT.) | 4 | 4 | 5 | 5 | 3 | 3 | 3 |

| | |
|---|---|
| DATE (NOV.) | 30 |
| SIG.HT (FT.) | 2 |

SCRIPPS PIER
NOV. 1976

| LOCAL DAY/TIME | SIG.HT (CM) | TOT.EN (CM.SQ) | PERCENT ENERGY IN BAND (TOTAL ENERGY INCLUDES RANGE 2048-4 SECS) BAND PERIOD LIMITS (IN SECS) 22+ | 22-18 | 18-16 | 16-14 | 14-12 | 12-10 | 10-8 | 8-6 | 6-4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 1038 | 45.9 | 131.5 | 3.0 | 0.5 | 11.0 | 1.5 | 2.8 | 20.9 | 25.7 | 17.3 | 17.2 |
| 1 2038 | 39.3 | 96.6 | 5.2 | 0.3 | 2.7 | 16.4 | 7.4 | 19.3 | 16.5 | 15.3 | 16.9 |
| 2 0638 | 52.2 | 170.1 | 2.7 | 0.4 | 1.3 | 22.1 | 28.0 | 15.7 | 8.3 | 6.9 | 14.6 |
| 2 1638 | 50.0 | 156.3 | 4.7 | 0.4 | 1.0 | 2.2 | 27.5 | 35.2 | 14.5 | 6.3 | 8.3 |
| 3 0238 | 55.1 | 189.9 | 4.1 | 0.3 | 0.7 | 0.9 | 13.4 | 31.0 | 26.9 | 11.8 | 10.8 |
| 3 1238 | 51.1 | 163.4 | 1.2 | 0.2 | 0.7 | 1.4 | 7.3 | 39.3 | 22.4 | 15.0 | 12.4 |
| 3 2238 | 44.2 | 122.1 | 4.6 | 0.4 | 0.9 | 1.1 | 2.4 | 17.8 | 35.7 | 25.9 | 11.3 |
| 4 0838 | 47.9 | 143.2 | 4.9 | 0.4 | 1.4 | 1.0 | 4.1 | 17.4 | 26.7 | 20.4 | 23.7 |
| 4 1822 | 46.0 | 131.9 | 3.9 | 0.2 | 2.1 | 2.4 | 2.2 | 20.1 | 27.3 | 16.5 | 25.4 |
| 5 0438 | 44.2 | 122.0 | 7.3 | 0.1 | 1.4 | 2.1 | 11.4 | 17.3 | 19.1 | 12.9 | 28.4 |
| 5 1438 | 46.3 | 133.8 | 1.8 | 0.0 | 2.0 | 3.1 | 19.8 | 35.5 | 16.4 | 9.6 | 11.7 |
| 6 0038 | 48.2 | 145.3 | 3.0 | 0.2 | 0.8 | 3.8 | 12.6 | 48.3 | 16.1 | 5.0 | 10.3 |
| 6 1038 | 59.0 | 217.3 | 7.7 | 0.1 | 0.8 | 4.5 | 21.7 | 30.0 | 23.7 | 3.3 | 8.2 |
| 6 2038 | 60.6 | 229.5 | 2.7 | 0.1 | 0.2 | 5.2 | 29.9 | 39.2 | 16.9 | 2.3 | 3.3 |
| 7 0638 | 45.4 | 129.0 | 6.6 | 1.1 | 0.2 | 6.1 | 16.4 | 43.5 | 19.5 | 3.9 | 2.7 |
| 7 1639 | 53.4 | 178.0 | 3.5 | 0.4 | 0.2 | 3.7 | 36.7 | 34.5 | 13.8 | 4.5 | 2.8 |
| 8 0238 | 43.3 | 117.4 | 0.9 | 1.7 | 0.8 | 0.8 | 16.7 | 26.4 | 41.4 | 8.8 | 2.6 |
| 8 0316 | 39.0 | 94.8 | 2.1 | 1.3 | 3.0 | 0.9 | 10.7 | 34.6 | 31.5 | 12.6 | 3.3 |
| 8 1238 | 43.8 | 119.6 | 10.7 | 1.0 | 7.1 | 0.7 | 13.5 | 28.1 | 24.8 | 11.9 | 2.1 |
| 8 2238 | 42.3 | 111.9 | 2.2 | 0.7 | 9.5 | 11.0 | 9.5 | 22.3 | 30.7 | 11.2 | 2.9 |
| 9 0838 | 46.9 | 137.5 | 2.5 | 0.3 | 3.3 | 42.6 | 14.3 | 15.6 | 12.5 | 7.1 | 1.8 |
| 9 0916 | 44.3 | 122.7 | 4.0 | 0.8 | 5.6 | 34.5 | 9.6 | 19.8 | 14.5 | 8.7 | 2.6 |
| 9 1838 | 52.5 | 172.1 | 3.9 | 0.2 | 7.4 | 31.1 | 20.5 | 17.7 | 10.7 | 5.7 | 2.9 |
| 10 0438 | 54.8 | 187.8 | 2.5 | 0.1 | 1.0 | 13.3 | 28.9 | 29.4 | 10.4 | 6.5 | 7.8 |
| 10 1438 | 63.7 | 253.2 | 3.9 | 0.3 | 0.5 | 3.5 | 18.4 | 27.8 | 22.8 | 9.2 | 13.7 |
| 11 0038 | 79.7 | 397.2 | 1.2 | 0.5 | 1.0 | 1.4 | 8.8 | 13.6 | 15.3 | 15.2 | 42.9 |
| 11 1038 | 77.4 | 374.8 | 2.0 | 0.5 | 1.1 | 1.2 | 3.4 | 13.4 | 16.5 | 32.0 | 30.0 |
| 11 2022 | 74.6 | 347.7 | 1.5 | 0.7 | 1.6 | 4.2 | 7.0 | 9.7 | 17.2 | 14.2 | 44.0 |
| 12 0622 | 83.7 | 437.9 | 1.2 | 0.4 | 1.1 | 2.1 | 4.8 | 6.6 | 8.5 | 14.4 | 60.8 |
| 12 1622 | 118.0 | 870.8 | 1.5 | 0.2 | 0.3 | 8.2 | 23.0 | 16.1 | 6.3 | 19.1 | 25.2 |
| 13 0222 | 100.9 | 636.2 | 2.2 | 0.1 | 1.3 | 3.3 | 17.5 | 18.3 | 16.1 | 23.7 | 17.5 |
| 13 1239 | 80.0 | 399.8 | 3.1 | 0.3 | 1.2 | 1.6 | 12.3 | 34.9 | 17.1 | 16.4 | 13.1 |
| 13 2238 | 86.8 | 470.9 | 5.3 | 7.2 | 0.6 | 3.1 | 3.0 | 31.5 | 18.2 | 17.4 | 13.7 |

SCRIPPS PIER
NOV. 1976

| LOCAL DAY/TIME | | SIG.HT (CM) | TOT.EN (CM.SQ) | PERCENT ENERGY IN BAND (TOTAL ENERGY INCLUDES RANGE 2048-4 SECS) BAND PERIOD LIMITS (IN SECS) 22+ | 22-18 | 18-16 | 16-14 | 14-12 | 12-10 | 10-8 | 8-6 | 6-4 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 14 | 0839 | 64.8 | 262.5 | 4.7 | 19.0 | 5.4 | 7.6 | 1.8 | 11.3 | 22.6 | 16.0 | 11.7 |
| 14 | 1838 | 76.2 | 363.2 | 4.4 | 10.4 | 23.2 | 8.1 | 6.2 | 10.8 | 10.1 | 12.1 | 14.6 |
| 15 | 0438 | 81.1 | 411.0 | 4.3 | 3.3 | 10.0 | 19.6 | 7.1 | 14.4 | 7.3 | 12.8 | 21.2 |
| 16 | 0037 | 119.9 | 898.7 | 3.4 | 0.6 | 3.4 | 15.9 | 22.1 | 17.7 | 8.5 | 14.5 | 13.9 |
| 16 | 0115 | 119.7 | 895.2 | 3.4 | 0.4 | 6.1 | 17.1 | 25.9 | 13.5 | 10.4 | 13.2 | 10.0 |
| 16 | 1038 | 112.3 | 788.2 | 3.0 | 0.3 | 6.5 | 17.5 | 20.7 | 19.2 | 7.7 | 14.5 | 10.6 |
| 16 | 2038 | 92.3 | 532.6 | 2.8 | 0.3 | 4.5 | 26.1 | 8.5 | 17.6 | 11.2 | 18.9 | 10.0 |
| 17 | 0639 | 93.4 | 545.6 | 6.2 | 0.3 | 0.7 | 15.6 | 23.5 | 34.0 | 7.0 | 7.1 | 5.7 |
| 17 | 1638 | 73.0 | 333.2 | 4.3 | 0.2 | 1.1 | 11.1 | 24.0 | 20.8 | 15.0 | 12.0 | 11.5 |
| 18 | 0238 | 75.8 | 359.3 | 5.8 | 0.2 | 0.6 | 9.7 | 20.1 | 33.6 | 13.7 | 9.5 | 6.9 |
| 18 | 1238 | 68.9 | 296.6 | 1.5 | 0.1 | 1.0 | 8.3 | 36.6 | 24.7 | 7.7 | 10.7 | 9.5 |
| 18 | 2238 | 62.2 | 242.1 | 3.5 | 0.2 | 0.6 | 12.3 | 11.8 | 34.5 | 8.0 | 15.3 | 13.9 |
| 19 | 0822 | 63.9 | 255.4 | 9.3 | 0.2 | 1.6 | 3.7 | 23.2 | 23.0 | 14.9 | 14.9 | 9.4 |
| 19 | 1838 | 63.5 | 252.0 | 4.7 | 0.2 | 0.2 | 6.2 | 31.8 | 17.8 | 18.5 | 11.5 | 9.2 |
| 19 | 1916 | 58.6 | 214.5 | 3.6 | 0.4 | 0.3 | 5.5 | 14.9 | 28.9 | 16.6 | 15.1 | 14.7 |
| 20 | 0438 | 61.6 | 237.4 | 9.4 | 0.5 | 0.8 | 7.0 | 25.4 | 17.7 | 13.8 | 12.9 | 12.6 |
| 20 | 0516 | 62.5 | 243.7 | 6.8 | 0.6 | 0.6 | 5.2 | 27.9 | 19.6 | 18.1 | 9.7 | 11.4 |
| 20 | 1439 | 53.6 | 179.4 | 3.5 | 0.5 | 0.5 | 5.7 | 32.4 | 24.1 | 16.0 | 9.9 | 7.3 |
| 21 | 0039 | 54.5 | 185.7 | 2.6 | 1.8 | 1.4 | 9.5 | 33.3 | 25.0 | 11.2 | 9.2 | 6.0 |
| 21 | 1038 | 53.3 | 177.5 | 14.7 | 3.9 | 2.3 | 2.7 | 21.8 | 31.6 | 13.5 | 4.8 | 4.6 |
| 21 | 2038 | 39.9 | 99.4 | 6.3 | 1.1 | 6.4 | 5.6 | 13.8 | 30.0 | 24.4 | 7.6 | 4.9 |
| 22 | 0639 | 46.4 | 134.5 | 11.0 | 0.9 | 16.1 | 11.7 | 10.2 | 22.5 | 9.5 | 4.9 | 13.2 |
| 22 | 1638 | 63.2 | 249.5 | 2.4 | 0.2 | 3.4 | 9.4 | 10.2 | 12.7 | 5.3 | 18.2 | 38.2 |
| 23 | 0238 | 68.6 | 293.7 | 1.4 | 0.2 | 4.5 | 11.5 | 14.3 | 17.4 | 8.3 | 28.7 | 13.7 |
| 23 | 1239 | 57.3 | 205.0 | 12.0 | 0.2 | 0.5 | 16.3 | 18.4 | 19.8 | 9.3 | 12.5 | 11.0 |
| 23 | 2238 | 58.0 | 210.1 | 2.7 | 0.1 | 0.7 | 8.5 | 19.6 | 40.6 | 13.4 | 7.1 | 7.2 |
| 24 | 0839 | 59.4 | 220.7 | 4.3 | 0.3 | 0.2 | 2.9 | 12.7 | 37.9 | 25.9 | 9.0 | 7.0 |
| 24 | 1838 | 56.6 | 200.3 | 3.1 | 0.3 | 0.3 | 9.3 | 25.6 | 28.6 | 12.4 | 10.5 | 10.0 |
| 25 | 0439 | 53.8 | 180.8 | 1.8 | 1.2 | 0.3 | 1.9 | 23.5 | 25.2 | 21.2 | 7.0 | 18.0 |
| 25 | 1439 | 63.5 | 252.1 | 4.8 | 1.2 | 4.8 | 2.5 | 23.8 | 14.1 | 11.1 | 14.6 | 23.0 |
| 26 | 0038 | 70.6 | 311.5 | 2.1 | 0.6 | 9.3 | 7.9 | 20.1 | 14.2 | 9.3 | 22.6 | 13.9 |
| 26 | 1038 | 97.5 | 594.3 | 2.6 | 0.2 | 2.4 | 11.1 | 13.7 | 11.5 | 17.5 | 26.1 | 14.9 |
| 26 | 2038 | 76.9 | 369.9 | 1.6 | 0.2 | 2.0 | 5.6 | 12.6 | 12.0 | 17.1 | 17.8 | 30.9 |

SCRIPPS PIER
NOV. 1976

| LOCAL DAY/TIME | | SIG.HT (CM) | TOT.EN (CM.SQ) | PERCENT ENERGY IN BAND (TOTAL ENERGY INCLUDES RANGE 2048-4 SECS) BAND PERIOD LIMITS (IN SECS) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 22+ | 22-18 | 18-16 | 16-14 | 14-12 | 12-10 | 10-8 | 8-6 | 6-4 |
| 27 | 0639 | 52.6 | 172.7 | 2.3 | 0.2 | 0.7 | 7.9 | 14.4 | 37.9 | 11.8 | 9.2 | 15.7 |
| 27 | 1638 | 44.0 | 121.2 | 5.1 | 0.6 | 0.6 | 2.2 | 13.5 | 27.6 | 23.7 | 18.8 | 8.0 |
| 28 | 0238 | 34.3 | 73.5 | 3.3 | 4.4 | 14.0 | 3.6 | 8.1 | 21.5 | 25.6 | 13.6 | 6.1 |
| 28 | 1239 | 45.7 | 130.3 | 2.9 | 0.5 | 15.5 | 22.2 | 6.9 | 11.3 | 24.0 | 12.8 | 4.0 |
| 28 | 2238 | 43.5 | 118.3 | 4.6 | 0.5 | 9.1 | 33.5 | 28.2 | 5.1 | 6.1 | 8.8 | 4.2 |
| 29 | 0838 | 44.2 | 122.1 | 4.4 | 0.5 | 1.9 | 12.6 | 40.8 | 12.3 | 7.3 | 13.4 | 6.9 |
| 29 | 1839 | 46.8 | 136.8 | 4.0 | 0.3 | 0.5 | 7.1 | 35.3 | 33.0 | 6.9 | 8.2 | 4.8 |
| 30 | 0438 | 42.0 | 110.4 | 3.7 | 0.6 | 0.9 | 4.4 | 35.1 | 36.2 | 8.9 | 5.2 | 5.0 |
| 30 | 1438 | 33.6 | 70.6 | 5.6 | 0.5 | 3.2 | 1.1 | 23.5 | 35.7 | 18.9 | 4.4 | 7.1 |

# P E R S I S T E N C E

(CONSECUTIVE DAYS (3 OR MORE) SIGNIFICANT WAVE HEIGHT IS 'N' FEET OR LESS)

30 DAYS OF OBSERVATION
NOV. 1-30, 1976

| FEET | DAYS |
|---|---|
| 1 | 0, |
| 2 | 10, 8, 4, |
| 3 | 14, 11, 3, |
| 4 | 30, |
| 5 | 30, |
| 6 | 30, |
| 8 | 30, |
| 10 | 30, |
| 12 | 30. |

MAXIMUM DAILY SIGNIFICANT WAVE HEIGHT FOR NOV. 1976

| DATE (NOV.) | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|
| SIG.HT (FT.) | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| DATE (NOV.) | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
| SIG.HT (FT.) | 1 | 2 | 2 | 3 | 4 | 3 | 3 |
| DATE (NOV.) | 15 | 16 | 17 | 18 | 19 | 20 | 21 |
| SIG.HT (FT.) | 3 | 4 | 3 | 2 | 2 | 2 | 2 |
| DATE (NOV.) | 22 | 23 | 24 | 25 | 26 | 27 | 28 |
| SIG.HT (FT.) | 2 | 2 | 2 | 2 | 3 | 2 | 1 |

| DATE (NOV.) | 29 | 30 |
|---|---|---|
| SIG.HT (FT.) | 2 | 1 |

OCEANSIDE
NOV. 1976

| LOCAL DAY | LOCAL TIME | SIG.HT (CM) | TOT.EN (CM.SQ) | PERCENT ENERGY IN BAND (TOTAL ENERGY INCLUDES RANGE 2048-4 SECS) BAND PERIOD LIMITS (IN SECS) 22+ | 22-18 | 18-16 | 16-14 | 14-12 | 12-10 | 10-8 | 8-6 | 6-4 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1057 | 38.7 | 93.7 | 2.3 | 1.2 | 7.5 | 26.3 | 24.3 | 24.5 | 8.0 | 4.5 | 1.3 |
| 1 | 2057 | 41.7 | 108.6 | 9.1 | 2.2 | 8.5 | 18.8 | 28.8 | 19.8 | 7.8 | 3.3 | 1.7 |
| 2 | 0657 | 46.5 | 135.2 | 3.9 | 2.0 | 9.8 | 12.3 | 42.5 | 18.3 | 6.6 | 2.9 | 1.6 |
| 2 | 1657 | 44.2 | 121.9 | 6.0 | 5.5 | 8.0 | 9.2 | 27.0 | 24.5 | 14.5 | 4.1 | 1.2 |
| 3 | 0257 | 44.2 | 121.8 | 6.8 | 2.9 | 11.5 | 10.9 | 33.1 | 18.7 | 9.6 | 4.8 | 1.6 |
| 3 | 1257 | 34.6 | 74.7 | 2.0 | 2.9 | 13.0 | 16.7 | 27.6 | 20.4 | 11.3 | 4.2 | 1.9 |
| 3 | 2257 | 31.6 | 62.2 | 7.0 | 3.0 | 17.5 | 17.1 | 13.2 | 21.5 | 13.1 | 5.6 | 1.8 |
| 4 | 0857 | 38.0 | 90.0 | 14.2 | 2.8 | 18.6 | 21.7 | 12.6 | 15.0 | 8.7 | 4.2 | 2.3 |
| 4 | 1841 | 39.0 | 94.8 | 5.3 | 0.9 | 21.1 | 48.5 | 5.5 | 8.6 | 6.0 | 2.5 | 1.6 |
| 5 | 0457 | 42.3 | 112.0 | 9.3 | 0.5 | 15.8 | 13.7 | 42.9 | 8.6 | 5.6 | 2.6 | 1.1 |
| 5 | 1457 | 51.4 | 165.0 | 1.5 | 0.2 | 9.2 | 7.9 | 52.2 | 14.4 | 8.2 | 3.1 | 3.2 |
| 6 | 0057 | 59.8 | 223.3 | 2.2 | 0.6 | 7.6 | 22.6 | 27.1 | 19.1 | 9.6 | 3.5 | 7.6 |
| 6 | 1057 | 48.3 | 145.6 | 7.3 | 0.6 | 2.9 | 20.9 | 23.3 | 28.1 | 10.7 | 2.6 | 3.6 |
| 6 | 2057 | 62.4 | 243.0 | 2.6 | 2.0 | 0.9 | 27.9 | 26.8 | 24.4 | 11.0 | 2.8 | 1.7 |
| 7 | 0657 | 49.6 | 153.8 | 5.5 | 11.3 | 1.0 | 19.6 | 24.5 | 21.8 | 11.5 | 2.3 | 2.4 |
| 7 | 1657 | 54.6 | 186.3 | 2.0 | 8.9 | 2.9 | 4.6 | 37.3 | 20.5 | 18.9 | 3.3 | 1.7 |
| 8 | 0257 | 44.4 | 123.1 | 2.3 | 9.7 | 12.9 | 7.9 | 22.8 | 24.0 | 14.0 | 4.9 | 1.6 |
| 8 | 1257 | 48.1 | 144.5 | 9.9 | 3.3 | 18.8 | 1.7 | 33.7 | 11.5 | 14.0 | 4.5 | 2.6 |
| 8 | 2257 | 41.6 | 108.2 | 2.7 | 3.9 | 13.0 | 4.9 | 32.9 | 14.0 | 16.1 | 10.6 | 1.9 |
| 9 | 0857 | 45.8 | 131.1 | 4.2 | 1.7 | 14.5 | 15.1 | 20.9 | 16.9 | 17.5 | 6.6 | 2.7 |
| 9 | 1857 | 52.1 | 169.7 | 2.8 | 0.5 | 17.6 | 34.1 | 22.5 | 6.5 | 10.0 | 4.4 | 1.7 |
| 10 | 0457 | 46.7 | 136.3 | 4.7 | 0.6 | 3.7 | 32.3 | 11.2 | 26.5 | 12.4 | 4.6 | 3.9 |
| 10 | 1457 | 59.4 | 220.1 | 3.8 | 0.8 | 1.4 | 22.5 | 15.2 | 34.3 | 9.7 | 7.4 | 4.8 |
| 11 | 0058 | 77.1 | 371.5 | 1.6 | 0.9 | 1.2 | 6.0 | 3.4 | 8.9 | 15.2 | 32.6 | 30.3 |
| 11 | 1057 | 73.7 | 339.2 | 3.1 | 8.7 | 3.9 | 4.4 | 8.7 | 20.5 | 8.7 | 22.2 | 19.7 |
| 11 | 2041 | 76.3 | 363.3 | 1.9 | 6.8 | 4.6 | 7.1 | 4.8 | 11.3 | 13.0 | 8.6 | 41.8 |
| 12 | 0641 | 90.9 | 515.9 | 1.5 | 3.6 | 13.4 | 10.1 | 7.6 | 2.8 | 5.0 | 16.9 | 39.0 |
| 12 | 1641 | 108.5 | 736.0 | 1.2 | 0.4 | 14.7 | 10.0 | 15.3 | 14.4 | 8.0 | 18.5 | 17.5 |
| 13 | 0241 | 93.9 | 551.2 | 2.3 | 0.8 | 14.4 | 19.2 | 16.1 | 16.0 | 9.8 | 12.3 | 9.1 |
| 13 | 1257 | 91.7 | 525.7 | 7.9 | 0.9 | 6.8 | 35.0 | 22.1 | 9.7 | 5.2 | 6.3 | 6.0 |
| 13 | 2257 | 117.8 | 867.0 | 19.0 | 7.2 | 5.5 | 25.3 | 8.3 | 14.4 | 8.6 | 8.2 | 3.6 |
| 14 | 0857 | 75.8 | 359.1 | 7.3 | 25.4 | 3.4 | 16.8 | 11.5 | 8.8 | 13.1 | 6.8 | 6.8 |

OCEANSIDE
NOV. 1976

| LOCAL DAY | LOCAL TIME | SIG.HT (CM) | TOT.EN (CM.SQ) | PERCENT ENERGY IN BAND (TOTAL ENERGY INCLUDES RANGE 2048-4 SECS) BAND PERIOD LIMITS (IN SECS) 22+ | 22-18 | 18-16 | 16-14 | 14-12 | 12-10 | 10-8 | 8-6 | 6-4 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 14 | 1857 | 78.8 | 388.5 | 9.3 | 14.9 | 12.0 | 13.3 | 20.2 | 8.9 | 8.3 | 6.1 | 7.1 |
| 15 | 0457 | 108.6 | 736.4 | 4.6 | 32.4 | 8.5 | 12.3 | 13.8 | 6.5 | 6.1 | 4.9 | 10.9 |
| 15 | 1509 | 110.0 | 755.7 | 4.6 | 4.2 | 25.7 | 12.0 | 10.4 | 8.7 | 10.5 | 13.1 | 10.8 |
| 16 | 0056 | 106.6 | 709.6 | 3.6 | 2.7 | 21.1 | 13.7 | 17.1 | 9.4 | 8.3 | 16.2 | 7.8 |
| 16 | 1056 | 93.1 | 541.2 | 3.2 | 0.8 | 13.2 | 7.4 | 30.1 | 15.2 | 12.6 | 10.4 | 7.1 |
| 16 | 2058 | 108.7 | 738.6 | 2.7 | 0.6 | 9.4 | 20.3 | 17.5 | 20.9 | 12.9 | 9.7 | 6.1 |
| 17 | 0657 | 92.8 | 538.5 | 4.5 | 0.8 | 6.9 | 32.0 | 16.1 | 16.7 | 11.9 | 5.8 | 5.4 |
| 17 | 1657 | 97.7 | 596.6 | 2.7 | 0.3 | 1.0 | 45.4 | 21.5 | 9.4 | 7.9 | 7.2 | 4.8 |
| 18 | 0257 | 57.7 | 208.1 | 7.2 | 0.4 | 1.8 | 13.6 | 34.0 | 17.4 | 10.6 | 7.7 | 7.3 |
| 18 | 1257 | 53.4 | 178.2 | 1.5 | 0.5 | 1.3 | 18.2 | 21.0 | 15.2 | 8.6 | 17.8 | 15.8 |
| 18 | 2257 | 64.2 | 257.4 | 1.6 | 0.3 | 0.9 | 11.2 | 34.4 | 21.4 | 7.1 | 10.9 | 12.0 |
| 19 | 0841 | 78.0 | 379.7 | 6.3 | 0.5 | 1.3 | 6.8 | 11.4 | 29.4 | 26.8 | 11.2 | 6.3 |
| 19 | 1857 | 78.2 | 381.8 | 4.4 | 1.0 | 1.0 | 9.5 | 28.6 | 32.9 | 8.5 | 6.4 | 7.7 |
| 20 | 0457 | 67.0 | 280.6 | 5.6 | 1.5 | 1.9 | 7.8 | 35.4 | 20.1 | 12.5 | 8.5 | 6.6 |
| 20 | 1457 | 52.9 | 174.8 | 3.3 | 2.1 | 1.3 | 10.2 | 33.9 | 23.7 | 11.2 | 9.6 | 4.8 |
| 21 | 0057 | 48.2 | 144.9 | 3.5 | 3.7 | 6.8 | 11.0 | 33.9 | 22.8 | 8.0 | 4.0 | 6.2 |
| 21 | 1057 | 52.0 | 169.2 | 19.3 | 10.3 | 19.6 | 6.9 | 9.1 | 21.2 | 6.0 | 3.6 | 4.0 |
| 21 | 2057 | 52.2 | 170.3 | 3.2 | 3.6 | 22.6 | 13.6 | 26.1 | 18.0 | 7.5 | 2.8 | 2.5 |
| 22 | 0657 | 51.7 | 166.9 | 9.7 | 1.8 | 18.4 | 21.2 | 16.0 | 13.4 | 7.4 | 3.3 | 8.8 |
| 22 | 1657 | 54.5 | 185.9 | 3.5 | 1.0 | 6.7 | 39.6 | 6.5 | 15.8 | 6.7 | 10.0 | 10.2 |
| 23 | 0257 | 50.1 | 157.1 | 2.1 | 0.7 | 5.1 | 21.0 | 29.3 | 14.7 | 5.4 | 9.6 | 12.2 |
| 23 | 1257 | 49.6 | 153.6 | 13.9 | 1.0 | 2.4 | 15.8 | 31.0 | 19.2 | 6.6 | 5.7 | 4.5 |
| 23 | 2257 | 45.7 | 130.5 | 4.0 | 0.7 | 4.5 | 4.1 | 30.1 | 21.8 | 17.9 | 11.0 | 5.9 |
| 24 | 0857 | 51.6 | 166.4 | 8.4 | 0.7 | 1.2 | 10.4 | 17.0 | 32.5 | 16.0 | 8.8 | 5.0 |
| 24 | 1857 | 38.8 | 93.8 | 6.3 | 1.2 | 1.5 | 10.7 | 20.1 | 25.3 | 21.7 | 7.0 | 6.2 |
| 25 | 0457 | 38.4 | 92.3 | 2.9 | 2.6 | 3.3 | 7.1 | 24.5 | 19.3 | 16.5 | 7.7 | 16.1 |
| 25 | 1457 | 60.1 | 225.6 | 6.5 | 4.8 | 6.8 | 3.7 | 13.6 | 14.3 | 8.7 | 18.6 | 23.0 |
| 26 | 0057 | 71.1 | 315.5 | 3.9 | 1.4 | 12.1 | 13.9 | 15.7 | 19.9 | 9.1 | 12.9 | 11.2 |
| 26 | 1057 | 82.8 | 428.9 | 5.2 | 0.8 | 4.7 | 12.0 | 14.6 | 16.7 | 16.4 | 18.9 | 10.5 |
| 26 | 2057 | 69.1 | 298.6 | 1.6 | 0.6 | 4.3 | 6.7 | 17.3 | 14.7 | 11.8 | 13.4 | 29.6 |
| 27 | 0657 | 45.9 | 131.4 | 3.8 | 1.5 | 3.3 | 13.6 | 22.9 | 17.3 | 18.9 | 13.4 | 5.2 |
| 27 | 1657 | 39.9 | 99.7 | 4.8 | 7.0 | 2.3 | 5.7 | 24.3 | 16.5 | 15.9 | 15.6 | 7.9 |

OCEANSIDE
NOV. 1976

| LOCAL DAY/TIME | | SIG.HT (CM) | TOT.EN (CM.SQ) | PERCENT ENERGY IN BAND (TOTAL ENERGY INCLUDES RANGE 2048-4 SECS) BAND PERIOD LIMITS (IN SECS) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 22+ | 22-18 | 18-16 | 16-14 | 14-12 | 12-10 | 10-8 | 8-6 | 6-4 |
| 28 | 0257 | 46.3 | 133.9 | 3.6 | 15.3 | 41.9 | 4.8 | 12.5 | 6.7 | 6.7 | 4.0 | 4.5 |
| 28 | 1257 | 46.3 | 133.7 | 4.1 | 3.5 | 29.8 | 29.1 | 9.6 | 7.1 | 6.3 | 6.6 | 3.9 |
| 28 | 2257 | 51.3 | 164.6 | 2.8 | 1.3 | 9.5 | 36.3 | 30.8 | 3.2 | 6.3 | 6.3 | 3.6 |
| 29 | 0857 | 52.7 | 173.9 | 4.2 | 1.3 | 2.9 | 24.6 | 46.1 | 10.3 | 3.2 | 3.8 | 3.6 |
| 29 | 1858 | 44.3 | 122.7 | 7.0 | 1.3 | 1.1 | 20.4 | 33.5 | 24.2 | 4.3 | 4.3 | 3.9 |
| 30 | 0457 | 38.5 | 92.4 | 5.2 | 2.0 | 3.1 | 14.1 | 27.0 | 28.8 | 7.3 | 4.3 | 8.1 |
| 30 | 1457 | 37.7 | 88.7 | 4.5 | 1.8 | 1.6 | 13.3 | 17.9 | 41.6 | 10.7 | 3.8 | 4.9 |

# P E R S I S T E N C E

(CONSECUTIVE DAYS (3 OR MORE) SIGNIFICANT WAVE HEIGHT IS 'N' FEET OR LESS)

30 DAYS OF OBSERVATION
NOV. 1-30, 1976

| FEET | DAYS |
|---|---|
| 1 | 0, |
| 2 | 10, 6, 4, |
| 3 | 14, 11, |
| 4 | 30, |
| 5 | 30, |
| 6 | 30, |
| 8 | 30, |
| 10 | 30, |
| 12 | 30, |

MAXIMUM DAILY SIGNIFICANT WAVE HEIGHT FOR NOV. 1976

| DATE (NOV.) | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|
| SIG.HT (FT.) | 1 | 2 | 1 | 1 | 2 | 2 | 2 |

| DATE (NOV.) | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
|---|---|---|---|---|---|---|---|
| SIG.HT (FT.) | 2 | 2 | 2 | 3 | 4 | 4 | 3 |

| DATE (NOV.) | 15 | 16 | 17 | 18 | 19 | 20 | 21 |
|---|---|---|---|---|---|---|---|
| SIG.HT (FT.) | 4 | 4 | 3 | 2 | 3 | 2 | 2 |

| DATE (NOV.) | 22 | 23 | 24 | 25 | 26 | 27 | 28 |
|---|---|---|---|---|---|---|---|
| SIG.HT (FT.) | 2 | 2 | 2 | 2 | 3 | 2 | 2 |

| DATE (NOV.) | 29 | 30 |
|---|---|---|
| STG.HT (FT.) | 2 | 1 |

A-109

# CALIFORNIA COASTAL ENGINEERING DATA NETWORK

## MONTHLY SUMMARY REPORT NO. 13

DECEMBER 1976

INSTITUTE OF MARINE RESOURCES
SCRIPPS INSTITUTION OF OCEANOGRAPHY
LA JOLLA, CA

THIS PROJECT IS SPONSORED JOINTLY BY THE CALIFORNIA SEA GRANT COLLEGE PROGRAM AND THE DEPARTMENT OF NAVIGATION AND OCEAN DEVELOPMENT.

REPORT NO. 13 DECEMBER 1976

REPORTING STATIONS

| NO. | LOCATION | | |
|---|---|---|---|
| 1 | IMPERIAL BEACH PIER | 32-35N | 117-08W |
| 2 | OCEAN BEACH PIER | 32-45N | 117-15W |
| 3 | SCRIPPS PIER | 32-52N | 117-15W |
| 4 | OCEANSIDE PIER | 33-11N | 117-23W |
| 5 | PORT HUENEME | 34-10N | 119-14W |

DATA REPORTED

| STA.NO. | DATA TYPE |
|---|---|
| 1 | WAVE SPECTRUM FROM ONE PRESSURE SENSOR |
| 2 | WAVE SPECTRUM FROM ONE PRESSURE SENSOR |
| 3 | WAVE SPECTRUM FROM ONE PRESSURE SENSOR |
| 4 | WAVE SPECTRUM FROM ONE PRESSURE SENSOR |
| 5 | WAVE SPECTRUM FROM ONE PRESSURE SENSOR |

NOTES -

1. THE SUM OF THE ENERGIES (TOT.EN) IN A WAVE SPECTRUM IS EQUAL TO THE VARIANCE OF THE SURFACE ELEVATION.

2. THE SIGNIFICANT WAVE HEIGHT (SIG.HT) IS EQUAL TO FOUR TIMES THE STANDARD DEVIATION.

3. PACIFIC STANDARD TIME IS THE STARTING TIME FOR THE DATA SAMPLING PERIOD.

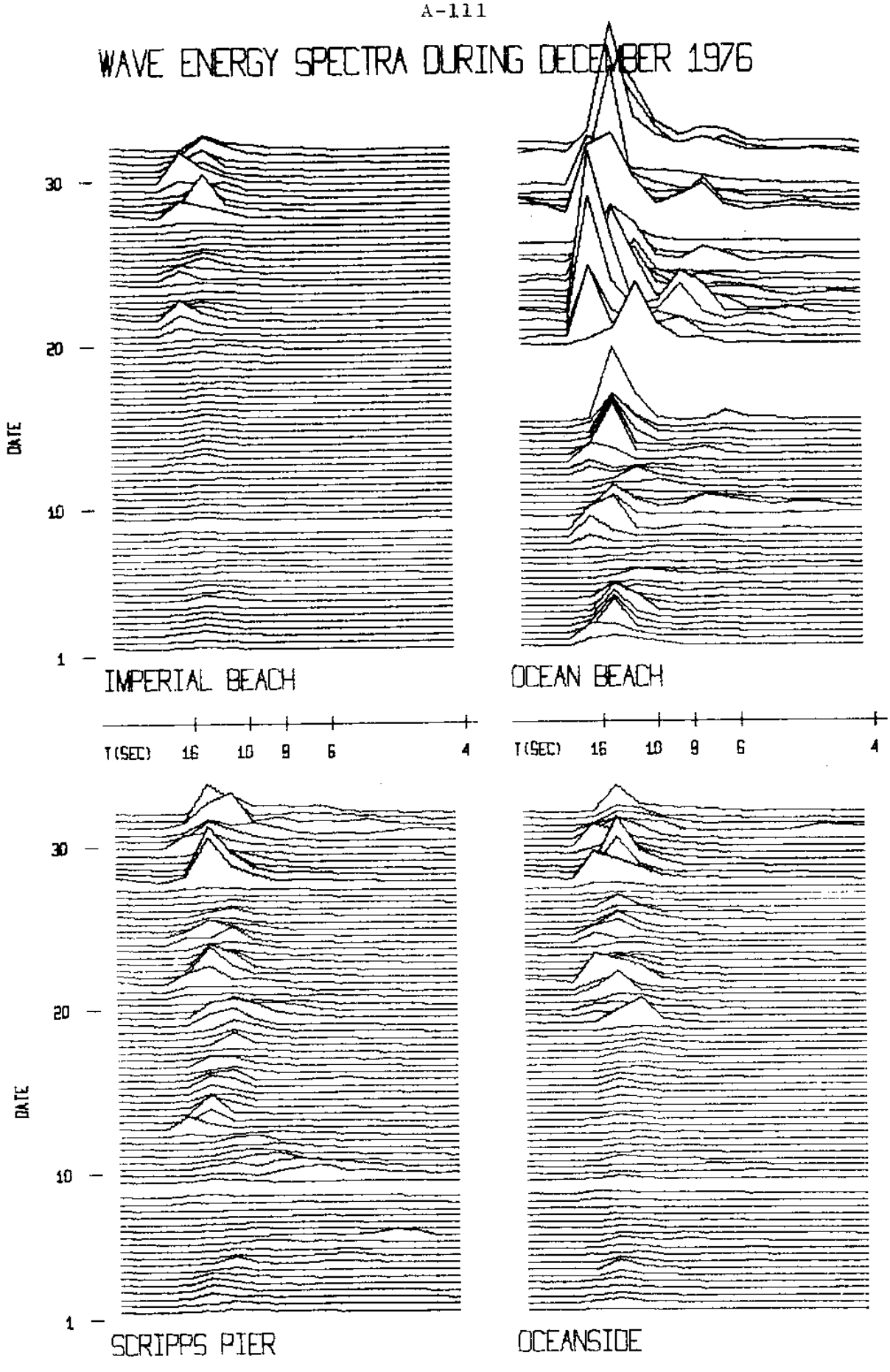
4. PERIOD BANDS INCLUDE THE LOWER LIMIT , BUT NOT THE UPPER LIMIT.

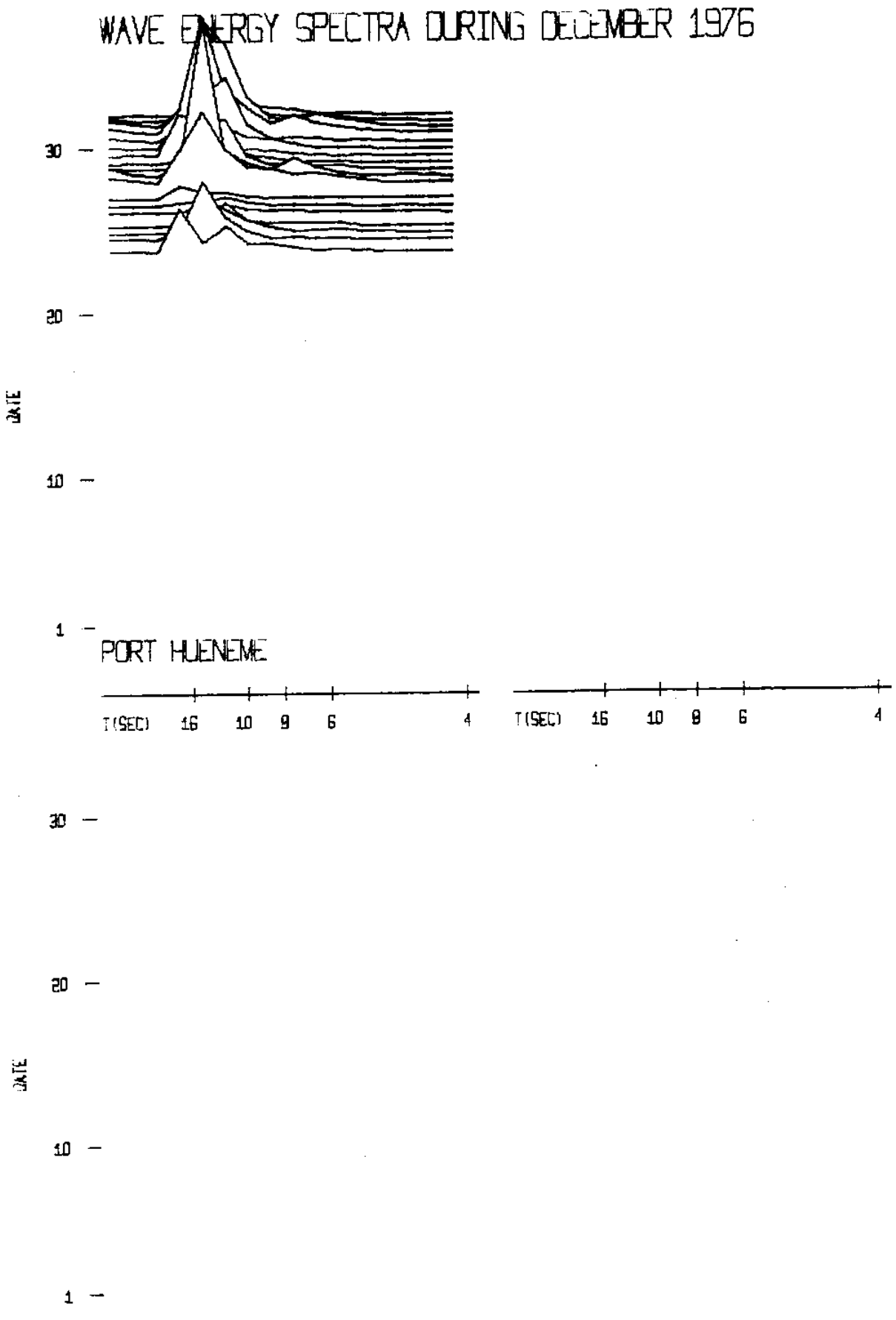
5. WAVE ENERGY IS TRUNCATED AT 4 SECOND PERIOD BECAUSE OF DEPTH EXTINCTION CHARACTERISTICS OF THE PRESSURE SENSOR.

6. ROUNDOFF ERRORS MAY PREVENT ENERGIES FROM SUMMING TO 100.0 PERCENT

7. WAVE SPECTRA ARE CALCULATED FROM 1024 SAMPLES AT ONE HZ.

8. SIGNIFICANT WAVE HEIGHTS HAVE BEEN ROUNDED UP TO THE NEAREST FOOT IN THE PERSISTENCE AND MAXIMUM DAILY HEIGHT TABLES.


WAVE ENERGY SPECTRA DURING DECEMBER 1976
DATE
30
20
10
1
IMPERIAL BEACH
OCEAN BEACH
T(SEC) 16 10 8 6 4
T(SEC) 16 10 8 6 4
DATE
30
20
10
1
SCRIPPS PIER
OCEANSIDE


WAVE ENERGY SPECTRA DURING DECEMBER 1976
30
20
10
1
DATE
PORT HUENEME
T(SEC) 16 10 9 6 4
T(SEC) 16 10 9 6 4
30
20
10
1
DATE

IMPERIAL BEACH
DEC. 1976

| LOCAL DAY/TIME | SIG.HT (CM) | TOT.EN (CM.SQ) | PERCENT ENERGY IN BAND (TOTAL ENERGY INCLUDES RANGE 2048-4 SECS) BAND PERIOD LIMITS (IN SECS) 22+ | 22-18 | 18-16 | 16-14 | 14-12 | 12-10 | 10-8 | 8-6 | 6-4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 0000 | 31.5 | 62.0 | 8.5 | 4.4 | 6.4 | 12.8 | 29.5 | 27.3 | 7.0 | 1.9 | 2.3 |
| 1 1000 | 32.3 | 65.3 | 13.4 | 4.2 | 15.7 | 28.8 | 17.1 | 10.8 | 7.2 | 1.0 | 1.9 |
| 1 2000 | 35.2 | 77.5 | 6.9 | 4.2 | 16.3 | 16.5 | 28.9 | 13.5 | 6.4 | 1.9 | 5.6 |
| 2 0600 | 44.0 | 120.7 | 3.1 | 3.0 | 14.5 | 24.9 | 25.1 | 14.1 | 6.4 | 2.2 | 6.7 |
| 2 0716 | 39.9 | 99.7 | 8.5 | 3.3 | 20.4 | 33.3 | 17.8 | 9.8 | 2.4 | 1.4 | 3.1 |
| 2 1607 | 37.8 | 89.2 | 14.8 | 1.9 | 7.9 | 37.2 | 24.3 | 7.9 | 2.9 | 1.2 | 1.9 |
| 3 0206 | 37.0 | 85.4 | 4.4 | 0.4 | 11.4 | 34.1 | 35.2 | 8.2 | 2.1 | 1.7 | 2.6 |
| 3 1200 | 33.9 | 71.9 | 3.7 | 0.6 | 13.7 | 22.2 | 43.2 | 10.7 | 2.7 | 1.6 | 1.5 |
| 3 2200 | 30.7 | 58.8 | 9.3 | 1.3 | 5.4 | 29.9 | 31.6 | 11.4 | 3.9 | 2.6 | 4.7 |
| 4 0900 | 39.7 | 98.3 | 3.6 | 0.7 | 3.7 | 41.6 | 29.6 | 11.8 | 2.6 | 3.3 | 3.0 |
| 4 1800 | 40.9 | 104.4 | 10.7 | 0.5 | 3.4 | 7.5 | 24.7 | 30.1 | 5.5 | 10.0 | 7.6 |
| 4 1916 | 38.4 | 92.0 | 3.6 | 0.6 | 4.2 | 21.8 | 37.5 | 12.3 | 2.6 | 12.8 | 4.6 |
| 5 0400 | 38.4 | 92.0 | 3.6 | 0.6 | 4.2 | 21.8 | 37.5 | 12.3 | 2.6 | 12.8 | 4.6 |
| 5 0516 | 31.0 | 60.2 | 11.6 | 0.6 | 5.7 | 16.0 | 17.5 | 18.7 | 10.6 | 10.7 | 8.5 |
| 5 1400 | 31.0 | 60.2 | 11.6 | 0.6 | 5.7 | 16.0 | 17.5 | 18.7 | 10.6 | 10.7 | 8.5 |
| 6 0100 | 41.1 | 105.7 | 2.7 | 0.2 | 0.9 | 5.0 | 8.7 | 27.3 | 21.9 | 17.3 | 16.0 |
| 6 1000 | 41.1 | 105.7 | 2.7 | 0.2 | 0.9 | 5.0 | 8.7 | 27.3 | 21.9 | 17.3 | 16.0 |
| 6 2000 | 30.9 | 59.6 | 9.1 | 0.7 | 2.3 | 5.6 | 14.8 | 26.2 | 17.4 | 16.7 | 7.2 |
| 7 0600 | 36.2 | 81.9 | 3.6 | 0.6 | 0.7 | 10.9 | 19.9 | 9.4 | 12.8 | 29.0 | 13.0 |
| 7 1600 | 24.4 | 37.3 | 5.9 | 7.5 | 15.0 | 5.7 | 25.2 | 18.2 | 10.4 | 8.1 | 4.0 |
| 8 0200 | 28.7 | 51.6 | 2.7 | 3.0 | 43.2 | 7.4 | 11.5 | 7.0 | 13.5 | 8.5 | 3.2 |
| 8 1200 | 30.9 | 59.6 | 14.7 | 3.3 | 35.9 | 24.2 | 6.6 | 2.5 | 4.6 | 5.0 | 3.2 |
| 9 0922 | 27.1 | 45.8 | 6.5 | 0.6 | 13.7 | 36.8 | 17.2 | 6.3 | 2.3 | 2.7 | 13.9 |
| 9 1840 | 31.1 | 60.4 | 15.0 | 0.3 | 6.2 | 16.8 | 16.7 | 4.7 | 2.7 | 23.6 | 14.0 |
| 10 0440 | 31.6 | 62.4 | 3.4 | 0.2 | 5.2 | 23.1 | 20.1 | 5.9 | 6.1 | 25.9 | 10.0 |
| 10 1400 | 33.0 | 68.0 | 15.1 | 0.3 | 0.7 | 6.0 | 19.3 | 16.0 | 26.5 | 12.5 | 3.6 |
| 11 0000 | 26.6 | 44.0 | 8.1 | 1.1 | 1.0 | 8.4 | 26.8 | 24.7 | 14.3 | 8.8 | 6.7 |
| 11 1000 | 24.8 | 38.3 | 6.1 | 2.6 | 0.7 | 2.6 | 47.7 | 18.1 | 6.0 | 11.8 | 4.6 |
| 11 2000 | 23.7 | 35.0 | 19.2 | 4.8 | 1.8 | 3.1 | 31.8 | 21.3 | 8.2 | 6.3 | 3.4 |
| 12 0600 | 23.3 | 33.8 | 2.7 | 18.2 | 11.3 | 2.0 | 17.1 | 16.4 | 14.2 | 14.4 | 3.6 |
| 12 1600 | 29.4 | 54.1 | 9.6 | 3.7 | 38.2 | 18.6 | 5.5 | 9.5 | 8.3 | 4.2 | 2.3 |
| 13 0200 | 34.8 | 75.7 | 4.8 | 1.3 | 15.7 | 51.1 | 11.8 | 5.0 | 5.4 | 3.2 | 1.7 |
| 13 1200 | 30.8 | 59.2 | 6.3 | 2.0 | 4.6 | 52.8 | 18.2 | 6.3 | 4.8 | 2.9 | 2.1 |

IMPERIAL BEACH
DEC. 1976

| LOCAL DAY/TIME | | SIG.HT (CM) | TOT.EN (CM.SQ) | PERCENT ENERGY IN BAND (TOTAL ENERGY INCLUDES RANGE 2048-4 SECS) BAND PERIOD LIMITS (IN SECS) 22+ | 22-18 | 18-16 | 16-14 | 14-12 | 12-10 | 10-8 | 8-6 | 6-4 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13 | 2200 | 34.2 | 73.2 | 8.7 | 0.5 | 6.8 | 35.1 | 35.8 | 6.2 | 3.7 | 1.8 | 1.4 |
| 14 | 0800 | 28.4 | 50.5 | 5.5 | 0.9 | 4.2 | 26.2 | 45.9 | 8.7 | 2.9 | 2.5 | 3.2 |
| 14 | 1800 | 31.2 | 60.6 | 6.8 | 0.5 | 3.7 | 24.5 | 43.3 | 12.3 | 1.8 | 2.4 | 4.6 |
| 15 | 0400 | 29.4 | 54.1 | 7.4 | 2.0 | 2.4 | 38.9 | 30.9 | 7.0 | 3.8 | 2.0 | 5.6 |
| 15 | 1400 | 31.1 | 60.3 | 11.4 | 0.8 | 1.5 | 30.6 | 36.0 | 10.9 | 1.6 | 2.3 | 4.9 |
| 16 | 0000 | 35.1 | 76.9 | 11.9 | 1.0 | 8.8 | 19.8 | 26.6 | 20.0 | 2.6 | 5.6 | 3.7 |
| 16 | 1000 | 33.4 | 69.9 | 14.0 | 0.4 | 6.7 | 17.8 | 37.7 | 15.2 | 3.8 | 2.6 | 1.7 |
| 16 | 2000 | 32.1 | 64.3 | 10.9 | 0.6 | 2.4 | 4.0 | 48.8 | 15.4 | 11.8 | 3.8 | 2.4 |
| 17 | 0600 | 32.3 | 65.3 | 9.6 | 1.6 | 4.9 | 9.7 | 37.7 | 22.4 | 9.5 | 2.3 | 2.2 |
| 17 | 1600 | 31.5 | 61.8 | 14.2 | 0.8 | 2.4 | 14.8 | 18.1 | 35.8 | 8.6 | 3.5 | 1.7 |
| 18 | 0200 | 29.2 | 53.1 | 21.7 | 1.7 | 1.5 | 15.3 | 17.1 | 25.0 | 11.9 | 3.8 | 1.8 |
| 18 | 1200 | 28.1 | 49.4 | 10.2 | 5.0 | 4.7 | 10.1 | 16.0 | 38.7 | 10.6 | 2.5 | 2.2 |
| 18 | 2200 | 39.3 | 96.6 | 11.9 | 1.9 | 14.9 | 16.2 | 22.1 | 25.2 | 5.6 | 1.4 | 0.9 |
| 19 | 0800 | 48.7 | 147.9 | 13.6 | 1.5 | 15.5 | 17.6 | 21.9 | 16.1 | 9.1 | 3.2 | 1.5 |
| 19 | 1800 | 53.0 | 175.6 | 12.2 | 9.9 | 2.9 | 13.4 | 17.3 | 25.6 | 12.5 | 4.7 | 1.4 |
| 20 | 0400 | 49.6 | 153.6 | 18.5 | 4.3 | 14.8 | 15.8 | 14.2 | 15.4 | 10.7 | 4.4 | 1.9 |
| 20 | 1434 | 50.4 | 158.8 | 7.5 | 32.0 | 13.4 | 13.4 | 10.3 | 11.9 | 6.5 | 3.4 | 1.6 |
| 21 | 0000 | 63.4 | 251.5 | 10.6 | 7.4 | 44.5 | 16.3 | 7.7 | 6.7 | 4.3 | 1.8 | 0.7 |
| 21 | 1000 | 79.6 | 396.0 | 17.1 | 5.0 | 46.6 | 10.8 | 12.0 | 3.5 | 3.1 | 0.9 | 0.8 |
| 21 | 2100 | 66.0 | 272.4 | 13.6 | 2.3 | 27.1 | 25.5 | 12.2 | 9.2 | 6.1 | 2.7 | 1.3 |
| 22 | 0600 | 56.8 | 201.9 | 14.6 | 1.6 | 20.0 | 20.2 | 23.5 | 10.0 | 4.6 | 3.8 | 1.7 |
| 22 | 1623 | 39.2 | 96.0 | 6.2 | 0.8 | 7.3 | 21.5 | 25.1 | 15.5 | 13.2 | 8.2 | 2.2 |
| 23 | 0222 | 41.2 | 106.2 | 8.4 | 2.6 | 6.0 | 23.6 | 20.9 | 17.0 | 14.2 | 4.4 | 2.9 |
| 23 | 1415 | 46.0 | 132.1 | 18.9 | 13.0 | 3.4 | 8.8 | 28.9 | 12.4 | 9.6 | 2.8 | 2.2 |
| 23 | 2200 | 53.8 | 180.6 | 8.5 | 15.4 | 32.6 | 3.9 | 9.7 | 11.5 | 12.9 | 3.1 | 2.3 |
| 24 | 0800 | 57.7 | 208.0 | 8.3 | 2.5 | 34.2 | 20.4 | 8.0 | 17.3 | 5.1 | 2.6 | 1.6 |
| 24 | 1800 | 53.5 | 178.5 | 6.0 | 0.8 | 17.0 | 42.6 | 15.9 | 6.2 | 4.5 | 4.3 | 2.7 |
| 25 | 0400 | 50.4 | 158.6 | 8.6 | 0.4 | 9.2 | 27.4 | 30.9 | 12.9 | 5.7 | 2.8 | 2.2 |
| 25 | 1400 | 44.5 | 123.8 | 10.8 | 0.5 | 4.4 | 18.6 | 29.2 | 16.2 | 7.8 | 8.0 | 4.4 |
| 26 | 0000 | 36.5 | 83.4 | 5.7 | 4.4 | 2.8 | 17.7 | 25.8 | 21.1 | 8.8 | 9.5 | 4.2 |
| 26 | 1000 | 35.8 | 79.9 | 5.4 | 2.7 | 5.5 | 10.2 | 45.9 | 14.2 | 9.4 | 3.5 | 3.2 |
| 26 | 2000 | 34.6 | 74.6 | 3.5 | 3.1 | 17.1 | 4.2 | 42.5 | 18.0 | 6.4 | 3.3 | 2.0 |

IMPERIAL BEACH
DEC. 1976

| LOCAL DAY/TIME | | SIG.HT (CM) | TOT.EN (CM.SQ) | PERCENT ENERGY IN BAND (TOTAL ENERGY INCLUDES RANGE 2048-4 SECS) BAND PERIOD LIMITS (IN SECS) 22+ | 22-18 | 18-16 | 16-14 | 14-12 | 12-10 | 10-8 | 8-6 | 6-4 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 27 | 0600 | 34.2 | 73.2 | 7.5 | 10.6 | 17.7 | 16.5 | 18.9 | 16.4 | 8.6 | 2.1 | 1.8 |
| 27 | 1619 | 84.5 | 445.9 | 15.0 | 3.7 | 34.1 | 14.3 | 17.7 | 8.4 | 3.7 | 2.0 | 1.1 |
| 28 | 0219 | 98.3 | 604.1 | 6.4 | 1.7 | 9.9 | 29.3 | 32.3 | 9.3 | 5.7 | 4.1 | 1.4 |
| 28 | 1201 | 74.2 | 344.3 | 7.5 | 2.1 | 8.1 | 29.8 | 29.2 | 10.6 | 6.0 | 4.2 | 2.5 |
| 28 | 2201 | 71.7 | 321.5 | 6.8 | 6.5 | 2.0 | 26.9 | 26.7 | 17.9 | 6.5 | 5.2 | 1.5 |
| 29 | 0801 | 74.2 | 344.4 | 6.8 | 25.4 | 5.0 | 7.8 | 20.4 | 21.4 | 7.5 | 4.2 | 1.6 |
| 29 | 1801 | 102.0 | 650.7 | 7.5 | 19.3 | 27.9 | 14.2 | 14.0 | 8.4 | 5.2 | 2.6 | 0.9 |
| 30 | 0401 | 81.5 | 414.9 | 9.1 | 3.8 | 24.0 | 19.2 | 21.1 | 11.3 | 6.4 | 3.2 | 2.0 |
| 30 | 1413 | 81.0 | 410.0 | 5.5 | 2.5 | 18.7 | 42.5 | 9.2 | 9.5 | 5.1 | 4.3 | 2.7 |
| 31 | 0001 | 76.0 | 360.8 | 9.8 | 2.1 | 16.1 | 22.1 | 14.8 | 11.1 | 7.9 | 7.4 | 8.7 |
| 31 | 1001 | 85.8 | 459.6 | 8.3 | 0.6 | 4.5 | 33.0 | 12.2 | 20.0 | 9.7 | 8.2 | 3.4 |
| 31 | 2001 | 76.8 | 368.8 | 10.3 | 0.2 | 1.3 | 27.0 | 16.3 | 16.8 | 14.0 | 9.3 | 4.9 |

IMPERIAL BEACH

## P E R S I S T E N C E

(CONSECUTIVE DAYS (3 OR MORE) SIGNIFICANT WAVE HEIGHT IS 'N' FEET OR LESS)

31 DAYS OF OBSERVATION
DEC. 1-31, 1976

| FEET | DAYS |
|---|---|
| 1 | 18, |
| 2 | 20, 5, |
| 3 | 31, |
| 4 | 31, |
| 5 | 31, |
| 6 | 31, |
| 8 | 31, |
| 10 | 31, |
| 12 | 31, |

MAXIMUM DAILY SIGNIFICANT WAVE HEIGHT FOR DEC. 1976

| DATE (DEC.) | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|
| SIG.HT (FT.) | 1 | 1 | 1 | 1 | 1 | 1 | 1 |

| DATE (DEC.) | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
|---|---|---|---|---|---|---|---|
| SIG.HT (FT.) | 1 | 1 | 1 | 1 | 1 | 1 | 1 |

| DATE (DEC.) | 15 | 16 | 17 | 18 | 19 | 20 | 21 |
|---|---|---|---|---|---|---|---|
| SIG.HT (FT.) | 1 | 1 | 1 | 1 | 2 | 2 | 3 |

| DATE (DEC.) | 22 | 23 | 24 | 25 | 26 | 27 | 28 |
|---|---|---|---|---|---|---|---|
| SIG.HT (FT.) | 2 | 2 | 2 | 2 | 1 | 3 | 3 |

| DATE (DEC.) | 29 | 30 | 31 |
|---|---|---|---|
| SIG.HT (FT.) | 3 | 3 | 3 |

OCEAN BEACH
DEC. 1976

| LOCAL DAY/TIME | SIG.HT (CM) | TOT.EN (CM.SQ) | PERCENT ENERGY IN BAND (TOTAL ENERGY INCLUDES RANGE 2048-4 SECS) BAND PERIOD LIMITS (IN SECS) 22+ | 22-18 | 18-16 | 16-14 | 14-12 | 12-10 | 10-8 | 8-6 | 6-4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 0019 | 73.6 | 338.2 | 2.4 | 2.7 | 19.4 | 13.1 | 10.7 | 27.9 | 13.7 | 4.4 | 5.7 |
| 1 1019 | 73.3 | 335.6 | 3.8 | 6.0 | 17.5 | 9.3 | 30.0 | 14.0 | 10.6 | 4.1 | 4.7 |
| 1 1116 | 78.2 | 382.5 | 1.7 | 8.0 | 17.3 | 23.9 | 12.3 | 15.4 | 12.2 | 5.1 | 4.1 |
| 1 2019 | 89.2 | 497.4 | 1.9 | 1.8 | 28.8 | 24.5 | 7.8 | 13.7 | 6.3 | 7.6 | 7.5 |
| 2 0620 | 88.6 | 490.4 | 1.7 | 1.1 | 9.7 | 49.5 | 19.1 | 6.5 | 3.4 | 4.4 | 4.6 |
| 2 1626 | 88.7 | 491.2 | 2.8 | 0.6 | 10.5 | 30.6 | 31.0 | 6.7 | 2.4 | 10.0 | 5.4 |
| 3 0225 | 84.9 | 450.6 | 1.7 | 0.2 | 5.3 | 31.2 | 38.5 | 4.7 | 2.4 | 6.9 | 9.0 |
| 3 1219 | 91.8 | 526.4 | 1.8 | 0.3 | 2.5 | 25.9 | 37.3 | 19.3 | 1.6 | 7.0 | 4.2 |
| 3 2219 | 70.0 | 306.2 | 2.3 | 0.3 | 1.0 | 22.1 | 28.5 | 16.9 | 5.0 | 10.8 | 13.0 |
| 4 0803 | 68.2 | 290.6 | 2.2 | 0.6 | 2.7 | 30.6 | 24.1 | 10.8 | 4.8 | 8.3 | 16.1 |
| 4 0919 | 54.5 | 185.4 | 9.3 | 0.4 | 3.1 | 6.9 | 23.0 | 28.5 | 5.5 | 11.3 | 12.0 |
| 4 1820 | 58.4 | 213.1 | 3.0 | 0.2 | 3.1 | 7.4 | 13.2 | 29.2 | 4.8 | 22.5 | 16.6 |
| 5 0420 | 50.1 | 156.8 | 6.4 | 0.5 | 3.1 | 6.2 | 17.9 | 25.9 | 4.5 | 9.7 | 25.7 |
| 5 1420 | 75.8 | 359.3 | 0.6 | 0.1 | 0.3 | 5.0 | 10.9 | 23.0 | 22.6 | 20.3 | 17.2 |
| 6 0003 | 62.2 | 241.7 | 1.4 | 0.3 | 0.4 | 3.3 | 4.5 | 14.1 | 10.0 | 14.5 | 51.4 |
| 6 1020 | 55.7 | 194.0 | 5.1 | 0.7 | 0.9 | 7.9 | 13.7 | 14.6 | 14.5 | 12.8 | 29.8 |
| 6 2019 | 59.5 | 220.9 | 3.1 | 1.5 | 1.2 | 2.4 | 3.1 | 14.5 | 30.1 | 30.1 | 13.9 |
| 7 0620 | 55.1 | 190.0 | 5.2 | 8.0 | 6.7 | 3.5 | 6.7 | 13.3 | 26.1 | 16.5 | 14.1 |
| 7 1619 | 52.8 | 174.3 | 1.8 | 5.6 | 36.8 | 4.7 | 7.0 | 8.7 | 11.0 | 12.2 | 12.3 |
| 8 0219 | 68.4 | 292.7 | 1.1 | 5.7 | 57.2 | 13.2 | 3.8 | 2.8 | 4.3 | 6.4 | 5.4 |
| 8 1219 | 105.3 | 693.0 | 2.6 | 0.5 | 31.7 | 44.6 | 2.7 | 1.4 | 5.6 | 7.2 | 3.7 |
| 9 0941 | 80.9 | 409.2 | 1.5 | 0.2 | 8.7 | 21.9 | 28.1 | 3.8 | 1.6 | 7.0 | 27.3 |
| 9 1959 | 121.2 | 917.8 | 1.0 | 0.5 | 1.3 | 14.2 | 14.6 | 6.2 | 6.4 | 31.9 | 24.0 |
| 10 0459 | 81.2 | 412.3 | 1.1 | 0.1 | 1.0 | 7.8 | 11.0 | 6.2 | 8.0 | 37.5 | 27.1 |
| 10 1516 | 59.3 | 219.9 | 4.2 | 0.1 | 0.4 | 7.8 | 25.3 | 12.7 | 13.7 | 19.1 | 16.7 |
| 11 0019 | 70.8 | 312.9 | 1.5 | 0.7 | 0.2 | 2.5 | 27.3 | 21.3 | 30.3 | 8.9 | 7.4 |
| 11 1019 | 71.0 | 314.7 | 1.7 | 0.9 | 0.2 | 1.7 | 25.3 | 36.2 | 20.0 | 7.6 | 6.4 |
| 11 1116 | 70.2 | 307.7 | 2.0 | 1.3 | 0.4 | 1.0 | 23.8 | 41.4 | 15.4 | 8.4 | 6.2 |
| 11 2116 | 69.8 | 304.6 | 3.8 | 7.0 | 14.5 | 0.9 | 7.7 | 28.7 | 20.4 | 10.0 | 7.1 |
| 12 0619 | 58.1 | 211.0 | 1.8 | 18.3 | 18.6 | 0.8 | 3.4 | 16.6 | 21.6 | 11.5 | 7.3 |
| 12 1619 | 80.1 | 400.6 | 0.9 | 0.4 | 43.4 | 29.7 | 2.4 | 4.1 | 9.9 | 4.9 | 4.3 |
| 13 0219 | 114.4 | 817.7 | 1.5 | 0.7 | 12.7 | 49.4 | 12.6 | 3.1 | 6.4 | 10.7 | 3.0 |
| 13 1219 | 104.1 | 677.6 | 1.1 | 0.7 | 2.5 | 47.0 | 27.5 | 3.8 | 3.5 | 10.9 | 3.0 |

OCEAN BEACH
DEC. 1976

| LOCAL DAY/TIME | SIG.HT (CM) | TOT.EN (CM.SQ) | PERCENT ENERGY IN BAND (TOTAL ENERGY INCLUDES RANGE 2048-4 SECS) BAND PERIOD LIMITS (IN SECS) 22+ | 22-18 | 18-16 | 16-14 | 14-12 | 12-10 | 10-8 | 8-6 | 6-4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 13 2219 | 102.2 | 653.3 | 1.9 | 0.1 | 4.9 | 11.9 | 58.4 | 9.2 | 1.7 | 8.6 | 3.2 |
| 14 0916 | 104.3 | 679.8 | 1.4 | 0.6 | 2.0 | 20.1 | 50.3 | 8.7 | 1.5 | 9.5 | 5.9 |
| 14 1819 | 104.1 | 677.0 | 1.9 | 0.2 | 7.3 | 28.3 | 25.8 | 11.0 | 1.8 | 10.2 | 13.5 |
| 15 0419 | 137.9 | 1188.4 | 1.3 | 0.3 | 1.7 | 16.4 | 52.6 | 9.3 | 1.7 | 9.8 | 7.0 |
| 15 0516 | 136.3 | 1161.3 | 1.5 | 0.1 | 1.8 | 27.4 | 42.7 | 4.7 | 1.6 | 12.6 | 7.6 |
| 19 1819 | 146.6 | 1344.0 | 3.4 | 4.4 | 1.3 | 6.1 | 15.5 | 40.2 | 14.8 | 8.3 | 6.0 |
| 19 1916 | 151.7 | 1439.1 | 3.3 | 8.7 | 3.2 | 4.1 | 18.8 | 30.3 | 17.9 | 7.8 | 6.0 |
| 20 0419 | 164.1 | 1682.4 | 4.4 | 8.2 | 32.3 | 5.0 | 7.5 | 12.1 | 16.7 | 7.7 | 6.1 |
| 20 1453 | 160.6 | 1612.7 | 4.6 | 30.5 | 6.6 | 7.7 | 6.7 | 5.7 | 18.3 | 9.4 | 10.4 |
| 21 0019 | 214.4 | 2872.3 | 4.9 | 12.9 | 28.1 | 8.8 | 7.4 | 3.3 | 18.0 | 8.2 | 8.4 |
| 21 1019 | 251.1 | 3941.0 | 5.0 | 7.4 | 31.7 | 13.6 | 7.0 | 3.6 | 13.5 | 10.2 | 8.0 |
| 21 2116 | 197.4 | 2436.3 | 3.2 | 1.6 | 8.9 | 25.5 | 25.6 | 12.6 | 4.5 | 12.2 | 6.0 |
| 22 0716 | 157.8 | 1556.9 | 4.3 | 0.4 | 3.7 | 31.9 | 29.5 | 8.4 | 5.9 | 11.1 | 4.9 |
| 22 1642 | 166.4 | 1729.6 | 3.7 | 0.4 | 1.6 | 13.1 | 22.9 | 23.8 | 8.6 | 15.0 | 10.8 |
| 23 0241 | 134.2 | 1125.6 | 2.2 | 1.3 | 0.9 | 11.6 | 32.0 | 23.7 | 9.8 | 13.3 | 5.3 |
| 23 1434 | 135.6 | 1148.3 | 5.9 | 23.2 | 4.6 | 2.2 | 25.8 | 8.4 | 10.9 | 10.6 | 8.5 |
| 23 2219 | 140.2 | 1229.0 | 3.2 | 8.5 | 31.2 | 2.4 | 11.2 | 22.2 | 6.7 | 7.5 | 7.1 |
| 24 1819 | 166.3 | 1728.4 | 4.6 | 0.7 | 14.0 | 22.0 | 17.2 | 13.6 | 4.2 | 14.8 | 8.9 |
| 25 0419 | 120.4 | 905.7 | 3.7 | 0.5 | 6.6 | 18.5 | 33.3 | 14.8 | 5.4 | 9.9 | 7.3 |
| 26 0019 | 81.7 | 417.4 | 1.7 | 5.3 | 1.0 | 19.1 | 29.1 | 22.6 | 6.7 | 7.5 | 7.1 |
| 27 1754 | 213.6 | 2851.7 | 7.9 | 2.6 | 20.1 | 17.7 | 12.8 | 8.8 | 8.1 | 13.3 | 8.7 |
| 28 0238 | 206.5 | 2665.9 | 6.0 | 1.3 | 13.6 | 33.2 | 17.9 | 4.3 | 4.3 | 13.8 | 5.7 |
| 28 1220 | 164.7 | 1694.5 | 4.6 | 1.0 | 3.4 | 39.0 | 17.9 | 7.5 | 8.2 | 12.2 | 6.3 |
| 28 1336 | 133.8 | 1118.2 | 5.1 | 0.8 | 6.4 | 17.1 | 34.2 | 11.4 | 7.4 | 12.0 | 5.5 |
| 28 2220 | 123.5 | 953.8 | 4.6 | 4.8 | 1.0 | 32.3 | 13.9 | 17.6 | 10.8 | 9.6 | 5.2 |
| 28 2336 | 128.3 | 1029.0 | 3.5 | 3.4 | 2.3 | 19.5 | 28.4 | 21.1 | 9.5 | 8.2 | 4.1 |
| 29 0936 | 159.9 | 1598.5 | 6.8 | 24.1 | 5.5 | 10.1 | 15.5 | 6.4 | 14.5 | 10.6 | 6.5 |
| 31 0136 | 230.6 | 3323.0 | 7.0 | 1.9 | 6.6 | 25.3 | 19.9 | 6.9 | 8.3 | 12.5 | 11.7 |
| 31 1020 | 191.8 | 2300.0 | 4.5 | 0.4 | 2.4 | 11.0 | 41.5 | 13.6 | 6.2 | 12.4 | 8.0 |
| 31 2136 | 200.6 | 2516.0 | 4.5 | 0.5 | 1.4 | 14.8 | 35.2 | 14.1 | 8.3 | 13.2 | 8.0 |

OCEAN BEACH

## P E R S I S T E N C E

(CONSECUTIVE DAYS (3 OR MORE) SIGNIFICANT WAVE HEIGHT IS 'N' FEET OR LESS)

27 DAYS OF OBSERVATION
DEC. 1-31, 1976

| FEET | DAYS |
|---|---|
| 1 | 0, |
| 2 | 4, |
| 3 | 8, 3, |
| 4 | 14, |
| 5 | 15, 5, |
| 6 | 15, 5, |
| 8 | 15, 11, |
| 10 | 15, 11, |
| 12 | 15, 11, |

MAXIMUM DAILY SIGNIFICANT WAVE HEIGHT FOR DEC. 1976

| DATE (DEC.) | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|
| SIG.HT (FT.) | 3 | 3 | 3 | 2 | 2 | 2 | 2 |
| DATE (DEC.) | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
| SIG.HT (FT.) | 3 | 4 | 3 | 2 | 3 | 4 | 3 |
| DATE (DEC.) | 15 | 19 | 20 | 21 | 22 | 23 | 24 |
| SIG.HT (FT.) | 5 | 5 | 5 | 8 | 5 | 5 | 5 |
| DATE (DEC.) | 25 | 26 | 27 | 28 | 29 | 31 | |
| SIG.HT (FT.) | 4 | 3 | 7 | 7 | 5 | 8 | |

SCRIPPS PIER
DEC. 1976

| LOCAL DAY/TIME | | SIG.HT (CM) | TOT.EN (CM.SQ) | PERCENT ENERGY IN BAND (TOTAL ENERGY INCLUDES RANGE 2048-4 SECS) BAND PERIOD LIMITS (IN SECS) 22+ | 22-18 | 18-16 | 16-14 | 14-12 | 12-10 | 10-8 | 8-6 | 6-4 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0038 | 33.1 | 68.6 | 6.1 | 0.5 | 5.1 | 6.3 | 11.3 | 34.4 | 18.1 | 4.9 | 13.2 |
| 1 | 1039 | 37.7 | 88.9 | 5.1 | 0.6 | 5.5 | 8.8 | 23.4 | 26.7 | 15.0 | 5.7 | 9.2 |
| 1 | 2038 | 46.9 | 137.2 | 3.7 | 0.2 | 5.7 | 10.8 | 6.2 | 39.0 | 15.6 | 6.1 | 12.5 |
| 2 | 0639 | 48.1 | 144.6 | 2.0 | 0.2 | 3.7 | 18.6 | 29.7 | 19.3 | 8.3 | 5.3 | 12.9 |
| 2 | 1645 | 49.7 | 154.4 | 5.2 | 0.7 | 7.0 | 24.5 | 24.8 | 16.3 | 4.7 | 6.4 | 10.4 |
| 3 | 0244 | 49.7 | 154.1 | 5.7 | 0.2 | 1.4 | 7.3 | 49.8 | 9.9 | 3.6 | 3.5 | 18.6 |
| 3 | 1238 | 46.2 | 133.2 | 2.7 | 0.1 | 2.9 | 28.3 | 18.4 | 24.8 | 10.0 | 3.0 | 9.9 |
| 3 | 2238 | 41.2 | 106.2 | 3.6 | 0.2 | 0.7 | 5.5 | 33.3 | 18.3 | 11.8 | 8.8 | 17.8 |
| 4 | 0823 | 59.2 | 218.8 | 2.9 | 0.2 | 0.9 | 0.9 | 20.7 | 22.4 | 7.0 | 29.1 | 15.8 |
| 4 | 1839 | 54.7 | 186.8 | 2.7 | 0.1 | 0.2 | 2.2 | 13.7 | 11.3 | 7.3 | 38.5 | 24.0 |
| 5 | 0439 | 43.9 | 120.3 | 7.7 | 0.1 | 0.5 | 1.4 | 10.4 | 24.1 | 8.4 | 21.3 | 26.1 |
| 5 | 1439 | 61.5 | 236.2 | 1.6 | 0.2 | 0.2 | 0.8 | 2.4 | 13.8 | 27.8 | 30.6 | 22.6 |
| 6 | 0022 | 75.2 | 353.1 | 0.8 | 0.1 | 0.1 | 0.7 | 0.9 | 7.5 | 13.2 | 23.4 | 53.4 |
| 6 | 1039 | 54.9 | 188.1 | 7.4 | 0.1 | 0.1 | 0.6 | 1.5 | 11.8 | 22.1 | 24.2 | 32.3 |
| 6 | 2038 | 46.6 | 135.9 | 1.4 | 0.1 | 0.1 | 0.5 | 2.2 | 9.5 | 20.6 | 37.7 | 27.9 |
| 7 | 0639 | 41.9 | 109.8 | 4.9 | 0.6 | 0.4 | 0.8 | 2.0 | 10.2 | 13.1 | 42.1 | 25.8 |
| 7 | 1638 | 33.5 | 70.1 | 2.8 | 1.0 | 1.2 | 1.0 | 2.0 | 12.7 | 24.8 | 36.3 | 18.1 |
| 8 | 0238 | 40.0 | 99.7 | 1.1 | 1.3 | 18.8 | 2.8 | 3.1 | 6.4 | 13.8 | 35.4 | 17.3 |
| 8 | 1238 | 44.0 | 120.9 | 10.2 | 0.4 | 18.4 | 25.6 | 6.5 | 3.2 | 13.2 | 14.7 | 7.7 |
| 9 | 1000 | 42.1 | 110.6 | 2.8 | 0.2 | 2.0 | 18.5 | 18.9 | 11.5 | 2.1 | 4.1 | 40.0 |
| 9 | 1918 | 88.1 | 485.3 | 2.4 | 0.1 | 0.4 | 2.0 | 4.2 | 3.8 | 11.7 | 43.2 | 32.3 |
| 10 | 0518 | 94.2 | 554.0 | 1.7 | 0.2 | 0.1 | 1.7 | 14.4 | 4.1 | 18.6 | 39.3 | 19.9 |
| 10 | 1439 | 78.7 | 386.9 | 2.8 | 0.2 | 0.2 | 1.5 | 8.4 | 15.8 | 36.9 | 19.6 | 14.6 |
| 11 | 0039 | 66.6 | 277.4 | 2.8 | 0.2 | 0.1 | 0.4 | 6.4 | 28.0 | 31.6 | 19.8 | 10.7 |
| 11 | 1038 | 62.3 | 242.4 | 3.0 | 0.2 | 0.1 | 0.2 | 14.3 | 19.8 | 30.7 | 24.1 | 7.6 |
| 11 | 2039 | 58.3 | 212.1 | 2.0 | 0.5 | 0.2 | 0.2 | 9.7 | 41.3 | 21.7 | 16.5 | 7.8 |
| 12 | 0638 | 54.6 | 186.4 | 1.7 | 0.6 | 8.1 | 0.5 | 3.1 | 20.0 | 35.4 | 24.0 | 6.6 |
| 12 | 1638 | 56.6 | 277.1 | 3.7 | 0.9 | 42.1 | 17.1 | 1.3 | 5.4 | 13.4 | 11.2 | 4.8 |
| 13 | 0238 | 59.2 | 219.2 | 4.0 | 0.2 | 4.6 | 49.8 | 7.8 | 7.2 | 10.8 | 11.9 | 3.9 |
| 13 | 1238 | 68.0 | 289.0 | 3.4 | 0.4 | 0.9 | 48.2 | 24.4 | 6.4 | 6.7 | 6.3 | 3.2 |
| 13 | 2238 | 58.5 | 214.2 | 4.4 | 0.2 | 1.2 | 14.4 | 43.2 | 18.9 | 7.1 | 6.3 | 4.4 |
| 14 | 0839 | 55.6 | 193.5 | 2.1 | 0.1 | 1.0 | 17.0 | 45.0 | 16.3 | 4.2 | 5.9 | 8.4 |

SCRIPPS PIER
DEC. 1976

| LOCAL DAY/TIME | | SIG.HT (CM) | TOT.EN (CM.SQ) | PERCENT ENERGY IN BAND (TOTAL ENERGY INCLUDES RANGE 2048-4 SECS) BAND PERIOD LIMITS (IN SECS) 22+ | 22-18 | 18-16 | 16-14 | 14-12 | 12-10 | 10-8 | 8-6 | 6-4 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 14 | 1838 | 65.4 | 267.5 | 2.3 | 0.1 | 0.7 | 15.7 | 22.6 | 16.7 | 3.5 | 7.8 | 30.6 |
| 15 | 0438 | 65.4 | 267.4 | 2.8 | 0.1 | 0.6 | 24.6 | 33.7 | 16.8 | 2.4 | 6.6 | 12.5 |
| 15 | 1422 | 73.8 | 340.6 | 3.4 | 0.1 | 0.5 | 9.1 | 29.6 | 19.2 | 3.0 | 17.0 | 18.1 |
| 16 | 0022 | 59.6 | 222.1 | 4.5 | 0.1 | 4.5 | 8.4 | 21.8 | 30.6 | 6.7 | 10.5 | 12.9 |
| 16 | 1022 | 67.3 | 283.3 | 2.6 | 0.1 | 0.8 | 22.4 | 35.0 | 18.0 | 10.8 | 5.6 | 4.6 |
| 16 | 2022 | 53.3 | 177.6 | 6.3 | 0.5 | 2.6 | 6.7 | 28.4 | 27.0 | 17.1 | 7.4 | 4.0 |
| 17 | 0622 | 50.0 | 156.2 | 5.2 | 0.2 | 1.0 | 8.4 | 29.8 | 20.5 | 24.3 | 5.2 | 5.5 |
| 17 | 1622 | 63.1 | 248.9 | 5.4 | 0.1 | 0.2 | 3.2 | 23.7 | 38.3 | 18.6 | 5.8 | 4.5 |
| 18 | 0222 | 58.4 | 213.4 | 6.8 | 0.2 | 0.5 | 3.4 | 19.3 | 39.2 | 22.2 | 5.7 | 2.7 |
| 18 | 1222 | 68.7 | 294.8 | 2.3 | 0.4 | 1.5 | 3.4 | 26.3 | 37.0 | 18.9 | 5.4 | 4.9 |
| 18 | 2222 | 82.9 | 429.5 | 6.0 | 0.2 | 1.0 | 15.4 | 21.5 | 36.5 | 11.7 | 4.5 | 3.2 |
| 19 | 0822 | 104.7 | 685.7 | 5.0 | 0.2 | 0.9 | 14.2 | 22.2 | 31.0 | 13.8 | 8.4 | 4.4 |
| 19 | 1839 | 87.6 | 480.1 | 3.2 | 0.9 | 0.7 | 1.5 | 18.5 | 21.5 | 28.8 | 16.5 | 8.4 |
| 20 | 0438 | 64.4 | 258.8 | 6.4 | 0.6 | 4.6 | 2.6 | 9.2 | 16.2 | 24.5 | 28.7 | 7.0 |
| 20 | 1512 | 66.2 | 273.8 | 2.3 | 5.6 | 8.4 | 9.9 | 10.2 | 17.4 | 15.2 | 18.1 | 12.9 |
| 21 | 0038 | 71.6 | 320.0 | 3.6 | 4.7 | 13.4 | 8.1 | 16.8 | 15.8 | 19.7 | 11.7 | 6.2 |
| 21 | 1038 | 98.2 | 602.4 | 10.2 | 5.1 | 15.7 | 21.2 | 11.3 | 13.0 | 10.9 | 7.2 | 5.5 |
| 21 | 2038 | 106.6 | 709.7 | 5.1 | 0.3 | 5.8 | 32.7 | 16.7 | 14.8 | 8.8 | 9.6 | 6.2 |
| 22 | 0638 | 102.2 | 652.8 | 4.4 | 0.3 | 3.2 | 21.0 | 32.5 | 15.2 | 7.2 | 10.1 | 6.1 |
| 22 | 1701 | 87.0 | 473.2 | 2.8 | 0.4 | 0.7 | 4.7 | 26.8 | 27.2 | 13.5 | 14.9 | 9.1 |
| 23 | 0300 | 70.1 | 306.8 | 1.7 | 0.3 | 0.4 | 9.6 | 23.0 | 23.4 | 12.4 | 17.5 | 11.7 |
| 23 | 1338 | 76.6 | 366.3 | 5.2 | 2.5 | 2.4 | 5.3 | 25.7 | 22.1 | 19.4 | 8.9 | 8.5 |
| 23 | 2238 | 86.2 | 464.2 | 3.2 | 3.1 | 11.2 | 2.3 | 27.4 | 23.8 | 11.4 | 8.7 | 8.9 |
| 24 | 0822 | 91.6 | 524.0 | 4.6 | 0.9 | 13.6 | 28.4 | 12.7 | 17.8 | 8.0 | 7.3 | 6.7 |
| 24 | 1838 | 73.9 | 341.5 | 3.7 | 0.3 | 5.3 | 14.8 | 23.0 | 18.2 | 17.7 | 7.2 | 9.9 |
| 25 | 0438 | 57.3 | 205.0 | 3.0 | 0.2 | 1.5 | 14.6 | 30.4 | 16.6 | 9.5 | 11.5 | 12.9 |
| 25 | 0535 | 62.1 | 241.0 | 2.0 | 0.1 | 1.2 | 16.5 | 16.3 | 22.5 | 12.0 | 15.1 | 14.4 |
| 25 | 1438 | 68.6 | 293.8 | 5.2 | 0.3 | 0.9 | 5.7 | 22.7 | 23.3 | 16.6 | 14.7 | 10.6 |
| 26 | 0038 | 52.6 | 172.7 | 3.2 | 0.5 | 0.5 | 6.8 | 22.5 | 17.2 | 17.4 | 17.4 | 14.6 |
| 26 | 1022 | 47.9 | 143.5 | 2.1 | 0.3 | 2.7 | 4.5 | 29.1 | 15.6 | 21.7 | 15.1 | 8.8 |
| 26 | 2022 | 34.4 | 74.0 | 5.5 | 1.8 | 10.3 | 16.7 | 11.5 | 25.4 | 15.1 | 8.0 | 5.7 |
| 27 | 0622 | 38.5 | 92.5 | 4.5 | 1.6 | 14.9 | 17.1 | 24.7 | 16.3 | 11.5 | 5.2 | 4.2 |

SCRIPPS PIER
DEC. 1976

| LOCAL DAY/TIME | | SIG.HT (CM) | TOT.EN (CM.SQ) | PERCENT ENERGY IN BAND (TOTAL ENERGY INCLUDES RANGE 2048-4 SECS) BAND PERIOD LIMITS (IN SECS) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 22+ | 22-18 | 18-16 | 16-14 | 14-12 | 12-10 | 10-8 | 8-6 | 6-4 |
| 27 | 1657 | 125.1 | 977.7 | 7.7 | 0.8 | 6.6 | 26.7 | 23.8 | 13.8 | 6.3 | 8.8 | 5.6 |
| 28 | 0257 | 127.0 | 1007.9 | 5.3 | 0.3 | 1.9 | 31.2 | 24.5 | 13.5 | 9.2 | 8.9 | 5.1 |
| 28 | 1239 | 87.5 | 478.7 | 5.9 | 0.2 | 1.5 | 21.5 | 12.9 | 30.6 | 12.8 | 9.8 | 4.8 |
| 28 | 2239 | 77.4 | 374.2 | 3.9 | 0.5 | 0.9 | 7.0 | 22.9 | 36.1 | 16.1 | 7.8 | 4.8 |
| 29 | 0839 | 58.2 | 211.8 | 5.3 | 2.0 | 4.1 | 8.7 | 15.4 | 18.5 | 29.1 | 10.6 | 6.3 |
| 29 | 1839 | 93.0 | 540.1 | 5.0 | 3.5 | 21.6 | 19.1 | 18.8 | 9.6 | 11.4 | 7.3 | 3.8 |
| 30 | 0439 | 93.9 | 551.5 | 7.5 | 0.4 | 8.9 | 18.5 | 25.7 | 18.1 | 9.2 | 8.2 | 3.5 |
| 30 | 1452 | 106.7 | 712.0 | 2.3 | 0.5 | 3.4 | 15.2 | 7.7 | 19.7 | 18.3 | 7.1 | 25.9 |
| 31 | 0039 | 139.6 | 1218.0 | 2.6 | 0.2 | 4.7 | 12.8 | 14.3 | 22.4 | 12.2 | 13.1 | 17.7 |
| 31 | 1039 | 130.8 | 1068.7 | 3.3 | 0.2 | 0.9 | 20.5 | 15.9 | 15.7 | 10.8 | 18.7 | 13.9 |
| 31 | 2039 | 110.6 | 763.8 | 2.9 | 0.2 | 0.6 | 4.9 | 19.6 | 23.2 | 16.0 | 22.3 | 10.4 |

SCRIPPS PIER



# P E R S I S T E N C E

(CONSECUTIVE DAYS (3 OR MORE) SIGNIFICANT WAVE HEIGHT IS 'N' FEET OR LESS)

31 DAYS OF OBSERVATION
DEC. 1-31, 1976

| FEET | DAYS |
|---|---|
| 1 | 0, |
| 2 | 8, 7, |
| 3 | 26, |
| 4 | 30, |
| 5 | 31, |
| 6 | 31, |
| 8 | 31, |
| 10 | 31, |
| 12 | 31, |

MAXIMUM DAILY SIGNIFICANT WAVE HEIGHT FOR DEC. 1976

| DATE (DEC.) | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|
| SIG.HT (FT.) | 2 | 2 | 2 | 2 | 2 | 2 | 1 |

| DATE (DEC.) | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
|---|---|---|---|---|---|---|---|
| SIG.HT (FT.) | 1 | 3 | 3 | 2 | 2 | 2 | 2 |

| DATE (DEC.) | 15 | 16 | 17 | 18 | 19 | 20 | 21 |
|---|---|---|---|---|---|---|---|
| SIG.HT (FT.) | 2 | 2 | 2 | 3 | 3 | 2 | 3 |

| DATE (DEC.) | 22 | 23 | 24 | 25 | 26 | 27 | 28 |
|---|---|---|---|---|---|---|---|
| SIG.HT (FT.) | 3 | 3 | 3 | 2 | 2 | 4 | 4 |

| DATE (DEC.) | 29 | 30 | 31 |
|---|---|---|---|
| SIG.HT (FT.) | 3 | 4 | 5 |

OCEANSIDE
DEC. 1976

| LOCAL DAY/TIME | SIG.HT (CM) | TOT.EN (CM.SQ) | PERCENT ENERGY IN BAND (TOTAL ENERGY INCLUDES RANGE 2048-4 SECS) BAND PERIOD LIMITS (IN SECS) 22+ | 22-18 | 18-16 | 16-14 | 14-12 | 12-10 | 10-8 | 8-6 | 6-4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 0057 | 43.2 | 116.7 | 4.6 | 4.8 | 6.7 | 11.4 | 15.4 | 39.9 | 9.6 | 2.1 | 5.4 |
| 1 1057 | 29.0 | 52.5 | 11.4 | 4.1 | 14.8 | 11.2 | 15.4 | 26.5 | 9.3 | 2.3 | 5.0 |
| 1 2057 | 44.2 | 121.8 | 3.0 | 3.0 | 14.4 | 24.6 | 25.0 | 14.0 | 6.4 | 2.2 | 7.4 |
| 2 0657 | 39.8 | 98.7 | 5.6 | 3.6 | 11.5 | 21.1 | 26.5 | 6.6 | 11.6 | 3.0 | 10.5 |
| 2 1703 | 40.2 | 100.9 | 5.3 | 1.4 | 20.5 | 24.7 | 17.8 | 14.3 | 4.7 | 2.4 | 8.9 |
| 3 0303 | 41.0 | 105.2 | 7.3 | 0.6 | 14.1 | 22.0 | 29.7 | 10.4 | 4.7 | 2.0 | 9.2 |
| 3 1257 | 39.2 | 95.9 | 2.3 | 1.6 | 5.4 | 23.8 | 32.1 | 18.4 | 6.9 | 2.2 | 7.3 |
| 3 2257 | 51.0 | 162.3 | 2.6 | 0.7 | 3.0 | 34.1 | 26.4 | 11.6 | 4.8 | 7.2 | 9.6 |
| 4 0841 | 44.6 | 124.1 | 6.2 | 1.4 | 2.7 | 20.3 | 23.2 | 18.3 | 5.6 | 13.7 | 8.5 |
| 4 1857 | 49.5 | 152.9 | 1.8 | 0.7 | 6.3 | 8.2 | 26.8 | 12.6 | 4.2 | 24.5 | 14.8 |
| 5 0457 | 44.2 | 122.1 | 4.7 | 0.7 | 8.5 | 10.5 | 29.1 | 14.1 | 3.9 | 14.4 | 14.1 |
| 5 1457 | 56.4 | 198.7 | 0.9 | 0.1 | 2.1 | 18.3 | 10.1 | 14.6 | 22.4 | 20.8 | 10.7 |
| 6 0041 | 52.7 | 173.6 | 2.2 | 0.2 | 1.0 | 12.7 | 6.1 | 9.9 | 17.6 | 17.5 | 32.8 |
| 6 1057 | 40.6 | 102.9 | 12.6 | 0.5 | 0.7 | 7.4 | 21.5 | 18.8 | 9.4 | 11.6 | 17.5 |
| 6 2057 | 37.7 | 89.0 | 3.5 | 0.6 | 0.7 | 10.5 | 19.4 | 9.3 | 12.5 | 29.4 | 14.2 |
| 7 0657 | 31.9 | 63.5 | 7.6 | 1.2 | 1.9 | 11.5 | 23.3 | 9.5 | 11.2 | 14.0 | 19.9 |
| 7 1657 | 27.8 | 48.2 | 6.0 | 4.9 | 9.4 | 5.5 | 21.6 | 8.7 | 12.2 | 20.0 | 11.7 |
| 8 0257 | 32.4 | 65.4 | 1.5 | 6.3 | 28.7 | 4.2 | 16.5 | 12.5 | 8.5 | 11.3 | 10.6 |
| 8 1317 | 37.7 | 88.9 | 13.7 | 1.8 | 31.2 | 15.0 | 17.3 | 7.1 | 3.2 | 5.4 | 5.3 |
| 9 0918 | 40.3 | 101.5 | 4.5 | 0.5 | 8.5 | 14.1 | 23.2 | 9.2 | 4.8 | 7.9 | 27.3 |
| 9 1039 | 44.6 | 124.4 | 2.4 | 0.4 | 3.8 | 20.3 | 21.1 | 6.7 | 3.5 | 8.4 | 33.5 |
| 9 1937 | 54.9 | 188.2 | 3.0 | 0.1 | 0.9 | 7.5 | 4.4 | 5.7 | 12.5 | 31.7 | 34.3 |
| 10 0537 | 51.6 | 166.4 | 3.5 | 0.2 | 0.6 | 3.5 | 13.0 | 6.4 | 8.1 | 38.4 | 26.3 |
| 10 1457 | 48.2 | 145.3 | 3.6 | 0.2 | 0.8 | 15.2 | 31.4 | 13.8 | 12.9 | 10.9 | 11.2 |
| 11 0057 | 37.6 | 88.5 | 1.9 | 0.5 | 0.5 | 4.9 | 27.5 | 18.1 | 18.1 | 14.9 | 13.7 |
| 11 1057 | 34.8 | 75.6 | 3.5 | 1.1 | 0.7 | 3.7 | 33.9 | 19.7 | 15.1 | 13.9 | 8.4 |
| 11 2057 | 30.7 | 58.7 | 9.8 | 2.0 | 1.9 | 3.1 | 15.6 | 28.7 | 19.4 | 11.9 | 7.8 |
| 12 0657 | 33.3 | 69.3 | 2.0 | 0.6 | 5.9 | 1.7 | 36.9 | 18.0 | 16.4 | 11.0 | 7.6 |
| 12 1657 | 36.6 | 83.6 | 5.2 | 0.4 | 18.7 | 22.4 | 17.8 | 17.6 | 7.3 | 7.2 | 3.4 |
| 13 0257 | 38.7 | 93.5 | 2.3 | 1.3 | 10.2 | 47.1 | 9.1 | 12.7 | 7.2 | 5.0 | 5.2 |
| 13 1257 | 30.2 | 57.0 | 4.2 | 0.7 | 7.3 | 21.6 | 17.4 | 21.1 | 11.6 | 11.5 | 4.7 |
| 13 2257 | 34.0 | 72.2 | 7.4 | 0.9 | 4.0 | 17.1 | 23.1 | 22.0 | 10.6 | 6.4 | 8.5 |

OCEANSIDE
DEC. 1976

| LOCAL DAY/TIME | | SIG.HT (CM) | TOT.EN (CM.SQ) | PERCENT ENERGY IN BAND (TOTAL ENERGY INCLUDES RANGE 2048-4 SECS) BAND PERIOD LIMITS (IN SECS) 22+ | 22-18 | 18-16 | 16-14 | 14-12 | 12-10 | 10-8 | 8-6 | 6-4 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 14 | 0857 | 37.4 | 87.2 | 2.4 | 0.5 | 4.7 | 16.8 | 39.2 | 11.5 | 8.5 | 5.0 | 11.4 |
| 14 | 1857 | 41.0 | 105.1 | 3.1 | 0.9 | 3.3 | 34.7 | 22.3 | 10.3 | 7.0 | 5.6 | 12.8 |
| 15 | 0457 | 43.4 | 117.9 | 2.9 | 0.4 | 2.9 | 36.8 | 25.7 | 9.5 | 3.4 | 4.1 | 14.4 |
| 15 | 1442 | 47.8 | 142.9 | 2.6 | 0.8 | 2.3 | 9.5 | 34.7 | 19.6 | 4.8 | 11.5 | 14.2 |
| 16 | 0041 | 46.0 | 132.5 | 5.1 | 0.5 | 2.6 | 11.4 | 40.7 | 20.6 | 4.5 | 4.5 | 10.1 |
| 16 | 1041 | 37.9 | 89.8 | 3.0 | 0.3 | 2.0 | 12.1 | 29.0 | 23.1 | 19.9 | 5.7 | 4.9 |
| 16 | 2041 | 46.9 | 137.5 | 4.1 | 0.3 | 1.8 | 10.5 | 44.5 | 22.7 | 9.6 | 3.2 | 3.2 |
| 17 | 0641 | 49.8 | 154.8 | 5.8 | 0.4 | 3.9 | 11.2 | 30.0 | 29.2 | 11.8 | 5.1 | 2.5 |
| 17 | 1641 | 42.9 | 115.2 | 6.1 | 0.6 | 2.2 | 11.6 | 18.5 | 39.3 | 14.0 | 4.7 | 3.0 |
| 18 | 0241 | 41.2 | 106.2 | 12.9 | 1.1 | 2.8 | 4.9 | 26.2 | 32.9 | 12.4 | 4.0 | 2.9 |
| 18 | 1241 | 41.2 | 105.9 | 1.8 | 2.6 | 4.5 | 9.9 | 21.4 | 32.6 | 19.6 | 3.6 | 4.1 |
| 18 | 2241 | 87.9 | 482.9 | 3.4 | 1.3 | 2.6 | 12.2 | 43.6 | 27.6 | 4.5 | 3.0 | 1.8 |
| 18 | 2302 | 79.6 | 396.0 | 3.0 | 0.7 | 3.5 | 7.7 | 43.8 | 28.9 | 6.5 | 3.0 | 2.8 |
| 19 | 0841 | 59.8 | 223.2 | 14.1 | 1.4 | 22.4 | 5.5 | 18.7 | 19.0 | 9.8 | 4.9 | 4.2 |
| 19 | 1857 | 68.9 | 297.1 | 2.9 | 2.7 | 17.2 | 12.2 | 24.3 | 14.4 | 12.1 | 6.5 | 7.6 |
| 20 | 0457 | 64.8 | 262.7 | 7.0 | 4.0 | 4.2 | 21.9 | 14.5 | 29.1 | 7.6 | 6.6 | 5.1 |
| 20 | 1552 | 85.8 | 459.5 | 1.8 | 9.9 | 9.6 | 45.4 | 6.9 | 11.3 | 7.8 | 4.8 | 2.6 |
| 21 | 0057 | 71.0 | 315.3 | 2.3 | 14.8 | 9.1 | 28.5 | 23.7 | 7.4 | 4.4 | 6.2 | 3.6 |
| 21 | 1057 | 114.7 | 822.5 | 7.2 | 14.0 | 19.8 | 16.0 | 24.6 | 9.1 | 4.7 | 2.8 | 1.8 |
| 21 | 2057 | 71.2 | 316.4 | 8.3 | 1.5 | 23.0 | 13.0 | 18.1 | 15.3 | 10.7 | 5.6 | 4.5 |
| 22 | 0657 | 74.6 | 347.8 | 6.7 | 0.4 | 4.8 | 25.3 | 25.9 | 18.2 | 6.7 | 6.2 | 5.7 |
| 22 | 1719 | 56.9 | 202.1 | 2.9 | 0.4 | 2.4 | 17.4 | 24.0 | 29.2 | 9.2 | 9.3 | 5.1 |
| 23 | 0319 | 42.9 | 114.7 | 4.3 | 3.0 | 3.6 | 9.5 | 19.8 | 20.0 | 17.6 | 10.0 | 12.2 |
| 23 | 1356 | 59.7 | 222.5 | 8.0 | 5.1 | 3.6 | 14.1 | 15.2 | 27.4 | 12.1 | 7.2 | 7.4 |
| 23 | 2257 | 62.4 | 243.3 | 4.2 | 16.9 | 17.8 | 4.3 | 19.9 | 16.8 | 7.7 | 5.7 | 6.6 |
| 24 | 0841 | 78.7 | 387.2 | 4.1 | 3.0 | 24.4 | 31.1 | 12.5 | 11.8 | 6.4 | 2.8 | 3.8 |
| 24 | 1857 | 70.3 | 308.6 | 1.9 | 0.5 | 11.6 | 33.3 | 21.0 | 15.8 | 6.3 | 4.7 | 4.9 |
| 25 | 0457 | 71.3 | 317.7 | 2.5 | 0.3 | 4.7 | 19.4 | 19.9 | 29.6 | 9.9 | 7.4 | 6.4 |
| 25 | 1457 | 71.5 | 319.4 | 4.3 | 0.6 | 2.4 | 15.6 | 25.3 | 19.1 | 11.7 | 14.9 | 6.1 |
| 26 | 0057 | 60.2 | 226.6 | 2.3 | 3.0 | 1.5 | 36.7 | 24.5 | 13.4 | 6.2 | 5.3 | 7.0 |
| 26 | 1041 | 48.1 | 144.3 | 3.3 | 3.3 | 6.0 | 9.5 | 34.7 | 19.5 | 12.5 | 5.2 | 6.0 |
| 26 | 2041 | 38.7 | 93.7 | 2.8 | 1.5 | 6.5 | 7.7 | 31.6 | 26.2 | 12.3 | 6.3 | 5.1 |

OCEANSIDE
DEC. 1976

| LOCAL DAY/TIME | | SIG.HT (CM) | TOT.EN (CM.SQ) | PERCENT ENERGY IN BAND (TOTAL ENERGY INCLUDES RANGE 2048-4 SECS) BAND PERIOD LIMITS (IN SECS) 22+ | 22-18 | 18-16 | 16-14 | 14-12 | 12-10 | 10-8 | 8-6 | 6-4 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 27 | 0641 | 49.1 | 150.4 | 3.4 | 12.9 | 20.3 | 19.7 | 20.7 | 12.6 | 4.5 | 3.5 | 2.4 |
| 27 | 1716 | 109.8 | 753.9 | 8.3 | 3.4 | 32.0 | 15.6 | 17.6 | 9.7 | 7.1 | 3.9 | 2.5 |
| 28 | 0316 | 98.4 | 604.8 | 9.6 | 0.7 | 10.0 | 40.6 | 19.2 | 11.0 | 2.8 | 4.9 | 1.2 |
| 28 | 1258 | 115.2 | 829.7 | 4.5 | 0.6 | 5.0 | 31.8 | 33.6 | 12.5 | 5.1 | 5.4 | 1.5 |
| 28 | 2258 | 95.6 | 571.4 | 4.3 | 2.3 | 1.7 | 12.7 | 53.5 | 8.8 | 9.6 | 4.8 | 2.3 |
| 29 | 0858 | 80.1 | 401.4 | 5.6 | 8.2 | 7.8 | 13.5 | 30.9 | 13.5 | 10.9 | 6.5 | 3.0 |
| 29 | 1858 | 95.6 | 571.3 | 5.4 | 6.7 | 31.0 | 7.1 | 20.6 | 12.0 | 10.5 | 4.4 | 2.2 |
| 30 | 0458 | 93.9 | 551.3 | 7.3 | 4.0 | 15.1 | 17.1 | 28.1 | 16.7 | 6.4 | 3.2 | 2.1 |
| 30 | 1510 | 105.4 | 694.8 | 3.4 | 1.5 | 10.0 | 14.6 | 9.5 | 17.9 | 9.3 | 2.9 | 30.9 |
| 31 | 0058 | 94.6 | 558.9 | 3.2 | 0.7 | 4.2 | 12.4 | 22.5 | 15.8 | 13.9 | 9.0 | 18.2 |
| 31 | 1058 | 80.4 | 403.8 | 7.7 | 0.2 | 5.5 | 15.7 | 25.2 | 18.3 | 10.5 | 8.3 | 8.6 |
| 31 | 2058 | 93.4 | 545.3 | 4.7 | 0.5 | 1.3 | 23.5 | 30.7 | 11.2 | 12.1 | 7.5 | 8.4 |

OCEANSIDE

## P E R S I S T E N C E

(CONSECUTIVE DAYS (3 OR MORE) SIGNIFICANT WAVE HEIGHT IS 'N' FEET OR LESS)

31 DAYS OF OBSERVATION
DEC. 1-31, 1976

| FEET | DAYS |
|---|---|
| 1 | 4, |
| 2 | 17, |
| 3 | 20, 5, 3, |
| 4 | 31, |
| 5 | 31, |
| 6 | 31, |
| 8 | 31, |
| 10 | 31, |
| 12 | 31, |

MAXIMUM DAILY SIGNIFICANT WAVE HEIGHT FOR DEC. 1976

| DATE (DEC.) | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|
| SIG.HT (FT.) | 1 | 1 | 2 | 2 | 2 | 2 | 1 |

| DATE (DEC.) | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
|---|---|---|---|---|---|---|---|
| SIG.HT (FT.) | 1 | 2 | 2 | 1 | 1 | 1 | 1 |

| DATE (DEC.) | 15 | 16 | 17 | 18 | 19 | 20 | 21 |
|---|---|---|---|---|---|---|---|
| SIG.HT (FT.) | 2 | 2 | 2 | 3 | 2 | 3 | 4 |

| DATE (DEC.) | 22 | 23 | 24 | 25 | 26 | 27 | 28 |
|---|---|---|---|---|---|---|---|
| SIG.HT (FT.) | 2 | 2 | 3 | 2 | 2 | 4 | 4 |

| DATE (DEC.) | 29 | 30 | 31 |
|---|---|---|---|
| SIG.HT (FT.) | 3 | 3 | 3 |

PORT HUENEME
DEC. 1976

| LOCAL DAY/TIME | | SIG.HT (CM) | TOT.EN (CM.SQ) | PERCENT ENERGY IN BAND (TOTAL ENERGY INCLUDES RANGE 2048-4 SECS) BAND PERIOD LIMITS (IN SECS) 22+ | 22-18 | 18-16 | 16-14 | 14-12 | 12-10 | 10-8 | 8-6 | 6-4 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 23 | 1517 | 132.7 | 1100.0 | 4.2 | 9.5 | 27.1 | 3.9 | 17.3 | 12.3 | 12.3 | 7.3 | 6.2 |
| 23 | 2316 | 131.7 | 1083.5 | 6.0 | 2.1 | 30.7 | 8.6 | 15.6 | 19.3 | 8.5 | 5.2 | 3.9 |
| 24 | 0900 | 132.5 | 1097.4 | 4.6 | 0.8 | 8.8 | 27.9 | 28.5 | 14.3 | 5.9 | 6.2 | 3.0 |
| 24 | 1916 | 119.1 | 886.4 | 3.1 | 0.2 | 1.2 | 16.8 | 22.7 | 26.9 | 12.2 | 10.8 | 6.1 |
| 25 | 0516 | 92.1 | 529.7 | 2.7 | 0.5 | 1.3 | 7.5 | 11.4 | 42.5 | 9.2 | 14.7 | 10.2 |
| 26 | 0116 | 62.7 | 245.3 | 8.0 | 2.2 | 2.9 | 3.7 | 33.4 | 16.3 | 18.1 | 9.9 | 5.5 |
| 26 | 1100 | 63.1 | 248.8 | 5.3 | 1.8 | 8.9 | 7.8 | 30.8 | 23.4 | 12.7 | 6.4 | 2.9 |
| 26 | 2100 | 70.7 | 312.0 | 3.6 | 3.1 | 36.1 | 9.9 | 15.4 | 15.2 | 6.0 | 6.5 | 4.2 |
| 27 | 1735 | 184.8 | 2135.4 | 6.0 | 1.3 | 13.9 | 23.6 | 13.1 | 11.6 | 12.2 | 11.4 | 6.9 |
| 28 | 0335 | 202.2 | 2556.4 | 5.7 | 0.6 | 3.8 | 43.3 | 15.9 | 7.5 | 6.8 | 12.1 | 4.3 |
| 28 | 1317 | 153.0 | 1462.7 | 5.2 | 0.5 | 1.6 | 7.5 | 38.7 | 23.9 | 8.5 | 9.1 | 4.9 |
| 28 | 2317 | 97.0 | 588.1 | 6.3 | 3.6 | 2.6 | 8.4 | 21.4 | 26.4 | 17.4 | 7.4 | 6.5 |
| 29 | 0917 | 133.9 | 1121.3 | 5.9 | 13.0 | 23.4 | 18.9 | 13.1 | 8.3 | 9.5 | 5.0 | 2.9 |
| 29 | 1917 | 142.6 | 1270.5 | 5.4 | 3.7 | 17.4 | 11.2 | 21.3 | 17.9 | 11.7 | 7.5 | 3.9 |
| 30 | 0517 | 164.2 | 1684.6 | 6.2 | 0.8 | 7.9 | 11.6 | 19.3 | 35.2 | 7.3 | 7.7 | 4.0 |
| 30 | 1530 | 216.0 | 2916.0 | 5.4 | 0.5 | 8.3 | 28.3 | 16.0 | 11.4 | 9.3 | 12.5 | 8.3 |
| 31 | 0117 | 217.3 | 2950.5 | 5.9 | 0.5 | 3.0 | 16.8 | 27.0 | 21.4 | 8.6 | 9.6 | 7.3 |
| 31 | 1117 | 157.5 | 1551.2 | 5.6 | 0.6 | 3.4 | 16.1 | 28.1 | 19.2 | 9.8 | 11.2 | 5.9 |
| 31 | 2117 | 108.1 | 730.7 | 4.1 | 0.5 | 0.4 | 6.7 | 17.6 | 28.4 | 23.0 | 12.1 | 7.2 |

PORT HUENEME

## P E R S I S T E N C E

(CONSECUTIVE DAYS (3 OR MORE) SIGNIFICANT
WAVE HEIGHT IS 'N' FEET OR LESS)

9 DAYS OF OBSERVATION
DEC. 23-31, 1976

| FEET | DAYS |
|---|---|
| 1 | 0. |
| 2 | 0. |
| 3 | 0. |
| 4 | 4. |
| 5 | 4. |
| 6 | 5. |
| 8 | 9. |
| 10 | 9. |
| 12 | 9. |

MAXIMUM DAILY SIGNIFICANT WAVE HEIGHT FOR DEC. 1976

| DATE (DEC.) | 23 | 24 | 25 | 26 | 27 | 28 | 29 |
|---|---|---|---|---|---|---|---|
| SIG.HT (FT.) | 4 | 4 | 3 | 2 | 6 | 7 | 5 |

| DATE (DEC.) | 30 | 31 |
|---|---|---|
| SIG.HT (FT.) | 7 | 7 |