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Index and Bulk Parameters For Frequency-Direction Spectra Measured at CERC Field Research Facility, September 1988 To August 1989

by *Charles E. Long, Wendy L. Smith*
Coastal Engineering Research Center

Prepared for Headquarters, U.S. Army Corps of Engineers

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Waterways Experiment Station
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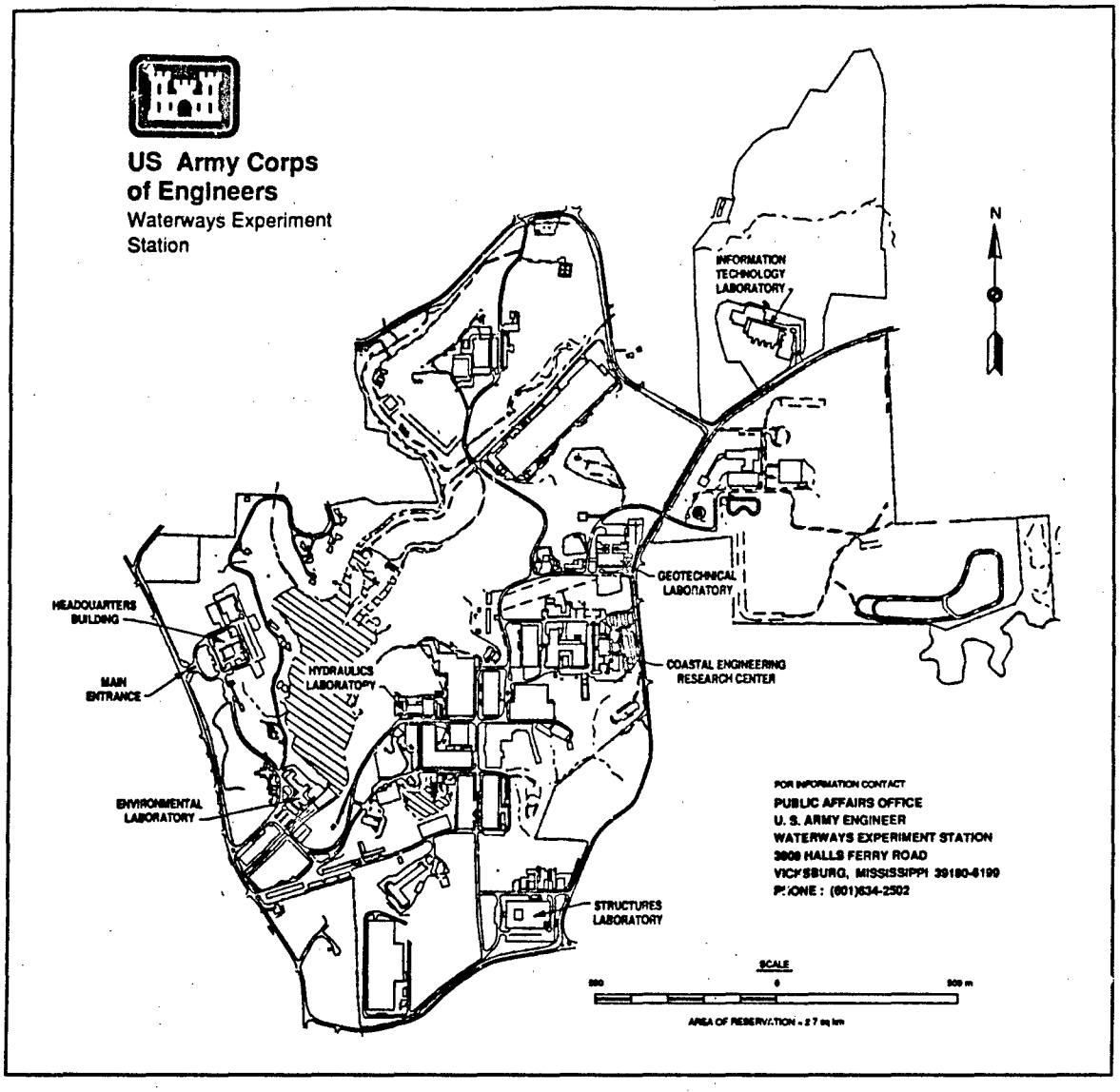

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Preface

This report indexes and describes means of access to a series of wind-wave frequency-direction spectral observations made with a special, high-resolution directional wave gage. The work was motivated by a paucity of observations of directionally distributed wave energy, which has hindered understanding and modeling of the nearshore processes that affect coastal engineering projects. This effort was authorized by Headquarters, US Army Corps of Engineers (HQUSACE), under Civil Works Coastal Flooding Program Research Work Unit 32484, "Directionality of Waves in Shallow Water." Funds were provided through the Coastal Engineering Research Center (CERC), US Army Engineer Waterways Experiment Station (WES), under the program management of Dr. C. Linwood Vincent and Mr. Charles C. Calhoun, Jr. (formerly) and Ms. Carolyn M. Holmes (currently), CERC. Messrs. John H. Lockhart, Jr., John G. Housley, Robert H. Campbell, and James E. Crews were HQUSACE Technical Monitors.

This summary report was prepared by Dr. Charles E. Long from data processed and archived by Ms. Wendy L. Smith, a student contracted through the Cooperative Education Program at Old Dominion University, at CERC's Field Research Facility (FRF) in Duck, NC. Work was performed under the direct supervision of Mr. William A. Birkemeier, Chief, FRF, and Mr. Thomas W. Richardson, Chief, Engineering Development Division, CERC; and under the general supervision of Dr. James R. Houston and Mr. Calhoun, Director and Assistant Director, CERC, respectively.

The directional wave gage and its data processing software were designed by Dr. Joan M. Oltman-Shay while at Oregon State University working through an Intergovernmental Personnel Agreement. This work would not be possible without continued physical maintenance of the directional wave gage. This was done by the FRF dive team consisting of Messrs. Birkemeier, Michael W. Leffler, H. Carl Miller, Eugene W. Bichner, and Brian L. Scarborough. Gage calibration was maintained by Mr. Kent K. Hathaway of the FRF. Acquisition, monitoring, and storage of raw data were done by Mr. Clifford F. Baron of the FRF. This document was edited by Ms. Janean Shirley, Information Technology Laboratory, WES.

At the time of publication of this report, Director of WES was Dr. Robert W. Whalin. Commander was COL Leonard G. Hassell, EN.

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INDEX AND BULK PARAMETERS FOR FREQUENCY-DIRECTION SPECTRA MEASURED AT CERC FIELD RESEARCH FACILITY, SEPTEMBER 1988 TO AUGUST 1989

Introduction

1. The range and magnitude of forces due to ocean waves in the so-called wind-wave frequency band (roughly 0.04 to 0.3 Hz) are of importance to an engineer estimating the durability of a natural boundary or designing a modification to such a boundary. Such waves are among the dominant forcing mechanisms in all coastal processes. Estimation of wave forces requires knowledge of the sea state in the region of interest. Description of a sea state requires, at a minimum, an amplitude, a frequency, and a direction for each component of the wave field. Historically, there have been many observations of wave amplitude and frequency but very few detailed observations of wave direction, due primarily to additional technical requirements in making such measurements. This represents a distinct and very important void in the knowledge required for comprehensive engineering design.

2. In September 1986, to begin to alleviate this dearth of knowledge, the Field Research Facility (FRF) of the Coastal Engineering Research Center, US Army Engineer Waterways Experiment Station, installed a high-resolution, directional wave gage consisting of a linear array of pressure gages for long-term observations of nearshore directional wave climate at its site near Duck, NC (Figure 1). Data thus obtained, which take the form of wave frequency-direction spectra, are intended for use by the broadest possible group of researchers and application engineers, and have been archived in a simple form of database. This report is intended to simplify dissemination of these data by indexing and describing means of access to the set of observations collected during the third year of deployment.

3. The beginning text of this document is intended to describe and clarify the substantial information contained in the appendixes. Brief overviews are given of the measurement site, instrumentation, data collection, and method of directional spectral estimation. These subjects are described in greater detail in other publications, to which the reader is referred. Following the overviews is a description of the archived frequency-direction

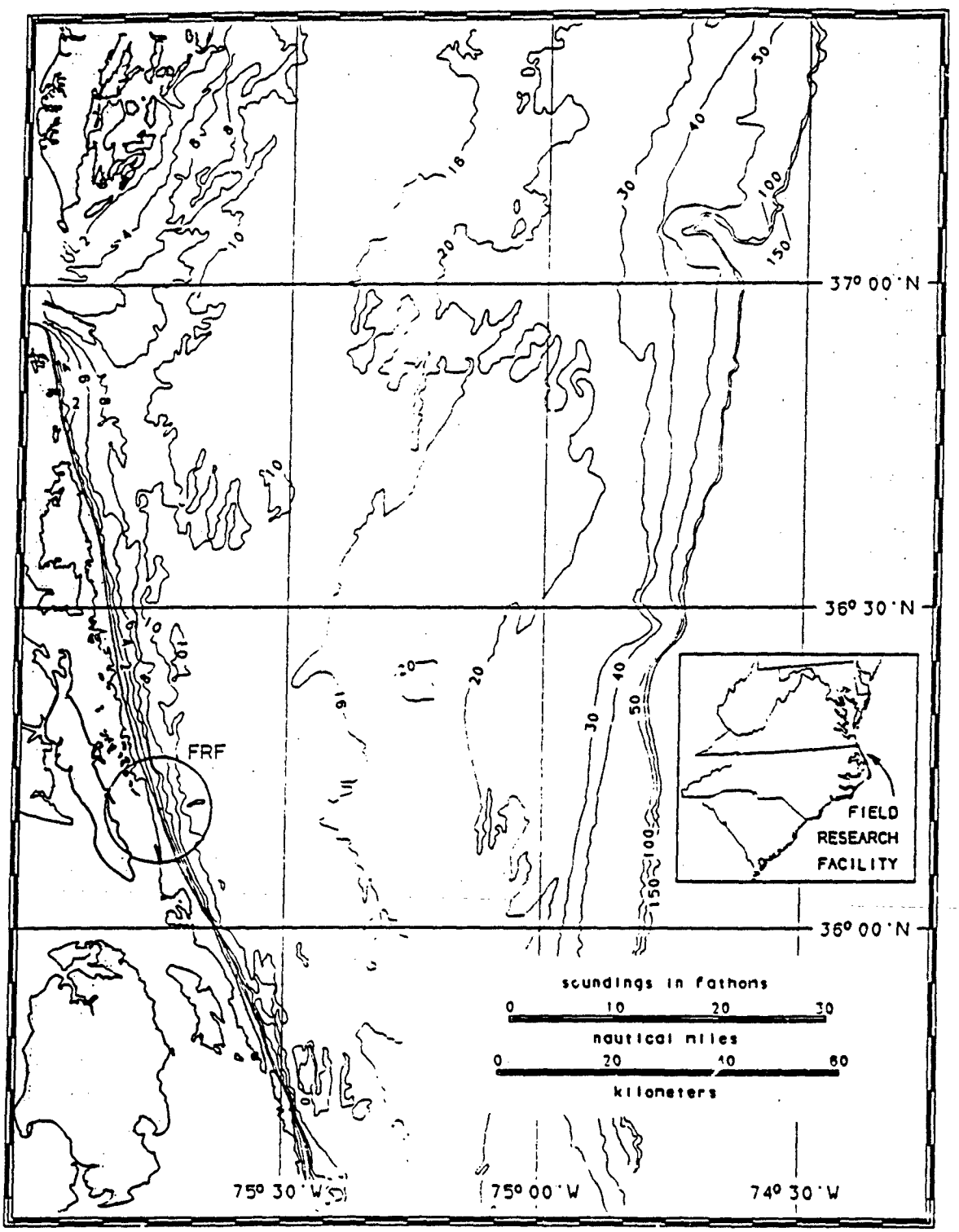

Figure 1. Location and offshore bathymetry of the FRF

spectra and some characterizing bulk parameters that can be derived from them. Appendix A is a listing of these characterizing parameters and is intended to be used as a kind of catalog of the set of spectra. Appendix B contains graphs of time series of some of these parameters as a pictorial augmentation of the information in Appendix A. Appendix C illustrates a FORTRAN computer program that can be used to read archived data, of which a sample listing is given in Appendix D.

Field Research Facility

4. As shown in Figure 1, the FRF is located on the barrier island chain of coastal North Carolina. A detailed description of the layout, function, and capabilities of the FRF is given by Birkemeier et al. (1985). Of particular relevance to directional wave studies are the wave-steering bathymetry and wave-generating winds.

Bathymetry

5. As regards bathymetry, the coastline in the vicinity of the FRF is nearly straight for several tens of kilometers north and south (Figure 1). It is oriented such that a shore-normal line (directed seaward) is very nearly 70 deg from true north. Waves and onshore winds can approach this site along an easterly 180-deg arc from 340 to 160 deg true. The adjacent continental shelf is wide, relatively shallow, and of somewhat complex bathymetry. The direction of nearest approach of the 100-m isobath, which indicates the shelf break, is 10 to 15 deg south of east and is about 80 km distant. A typical bottom slope for the shelf is 1 m/km, but this is interrupted by numerous features of 1- to 10-km horizontal scales and 10-m vertical scales scattered irregularly across the shelf.

6. Within a few kilometers of the FRF, the offshore bathymetry is more regular, with isobaths nearly shore-parallel and a bottom slope of about 2 m/km (Figure 2). Some irregularities exist. Within about 300 m of the shore, there exists a complex and mobile bar system (Birkemeier 1984). Waves and currents have created some irregular bathymetry in the vicinity of the FRF research pier, which extends about 600 m offshore (Miller, Birkemeier, and DeWall 1983).

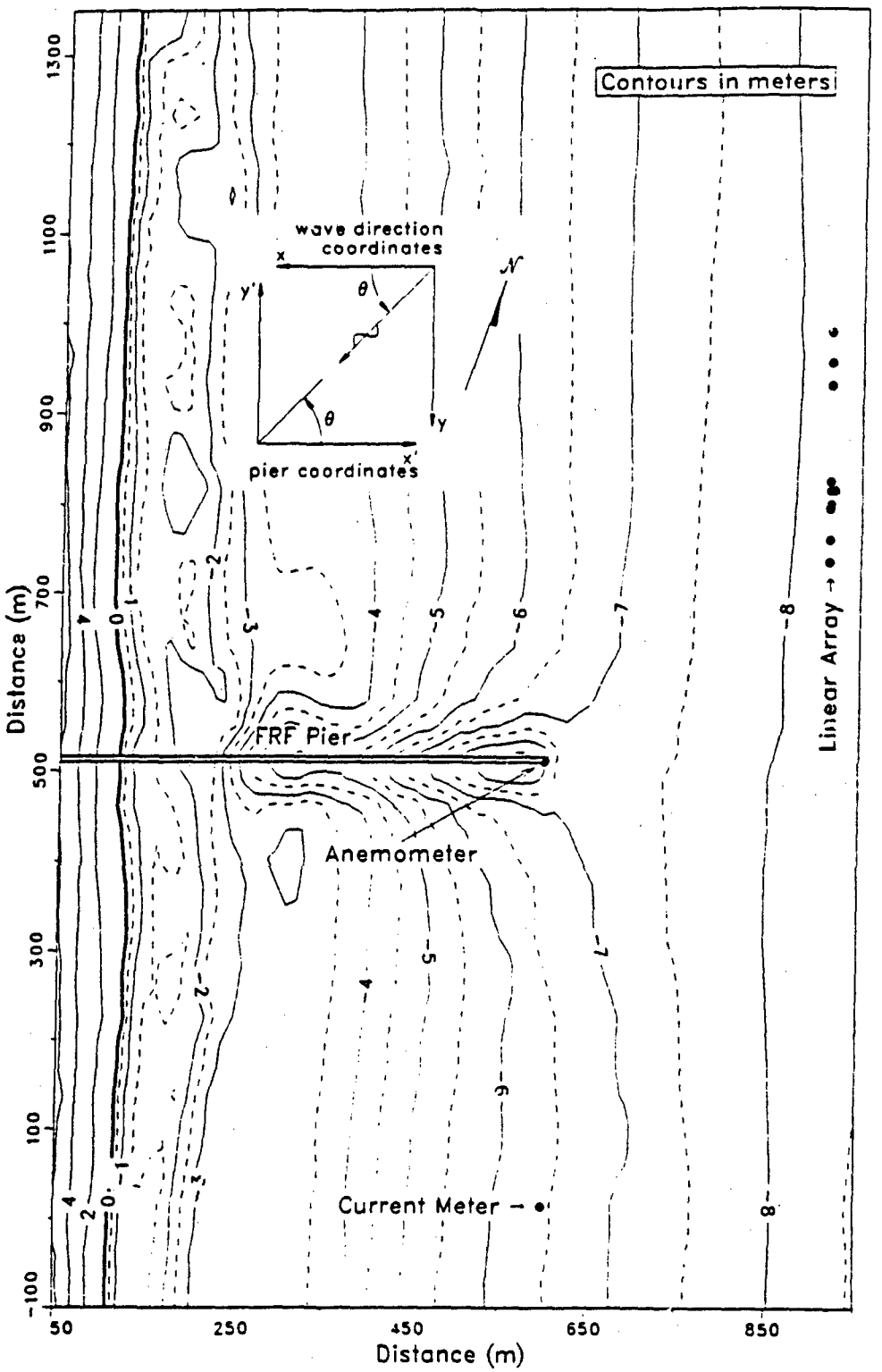

Figure 2. FRF nearshore bathymetry and coordinate system

Wave-generating winds

7. The site is subject to a variety of climates, which gives rise to a diverse set of directional wave conditions. Primary sources of high-energy waves are winds associated with hurricanes and frontal passages. Though several hurricanes have passed over or near the FRF since its founding in 1979, none did so in the period covered by this report. Low-pressure weather fronts, of which several crossed the FRF site during this reporting year, were typically oriented northeast-southwest, with strong wave-generating winds coming from the northeast. Detailed, quantitative descriptions of the climate at the FRF, as determined from its arsenal of instrumentation, during the period covered by this report are given by Leffler et al. (1990, 1991).

Instrumentation

8. The primary instrument in this study is a high-resolution directional wave gage. It consists of two parts. The first is a linear array of sensors that sample sea-surface displacement at several points in (horizontal) space. The second, described in the following section on data processing, is the mathematical treatment of these data to obtain estimates of wave directionality.

9. The FRF array consists of nine pressure gages mounted approximately 0.5 m off the bottom along the 8-m isobath about 900 m offshore and to the north of the research pier (Figure 2). Its location satisfies three constraints. First, it is generally outside the surf zone so that linear wave theory is applicable in data processing. Second, it is in water shallow enough that signals from 3-sec waves, the shortest periods of interest here, are detectable above background noise at the bottom-mounted gages. Third, it is located away from the irregular isobaths around the pier and in the nearshore bar system, which helps minimize bathymetrically induced inhomogeneities in the wave field.

10. Spacing between the gages along the linear array appears irregular in Figure 2 but, for the most part, corresponds to the array-design criterion posed by Davis and Regier (1977) that every gage pair have a unique separation. Figure 3 is an enlarged view of the array layout and shows gage spacing as well as the gage numbering scheme. Gage 10 is not used in linear array

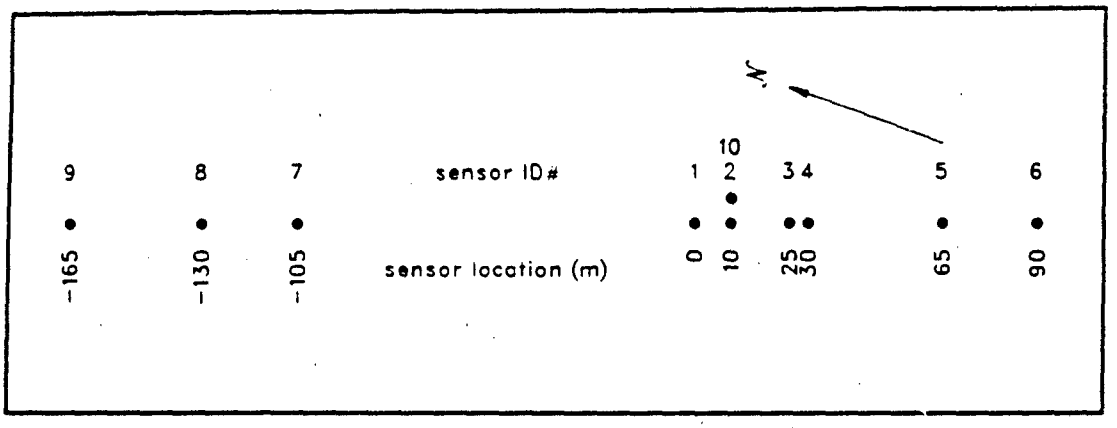

Figure 3. Spacing and numbering of linear array gages

analysis but is used in error checking. Minimum gage spacing is 5 m, maximum spacing (the length of the array) is 255 m, and intermediate gage spacings are in multiples of 5 m. With nine gages, there are 36 possible unique spacings. In the FRF array, eight redundant spacings are intentionally left for ancillary examination of spatial homogeneity of the wave field. Twenty-eight unique spacings remain.

11. Each pressure gage is a Senso-Metric Model SP973(C), in which a piezo-electric strain gage detects displacement of a pressure-sensitive diaphragm referenced to an evacuated cavity. Site calibrations indicate an accuracy of the pressure equivalent of ±0.006 m of water for wave-induced fluctuations about a static water column height of 8 m. Voltage analogs of pressure signals are hard-wired through a 10-Hz, fourth-order, Butterworth filter (primarily to eliminate 60-Hz noise) to an analog-to-digital signal converter and then to a Digital Equipment Corporation VAX 11/750 computer for data acquisition. Discretization of the full-scale signal to 11-bit binary form results in a digitization step of the equivalent of 0.007 m of water, which is nearly the same as gage accuracy.

Data Collection

12. Signals from each of the nine pressure gages were sampled at 2 Hz and stored digitally as records of 4,096 points (34 min 8 sec). A normal collection consisted of four such records or 16,384 points (2 hr 16 min

32 sec) for each gage. Hence, a total of 147,456 data points were collected to produce one frequency-direction spectrum. Starting times for normal collections are the same as those for routine FRF observations (Birkemeier et al. 1985), which occur daily at 0100, 0700, 1300, and 1900 hr Eastern Standard Time (EST). At times of high energy or when specifically requested by an investigator, additional daily collections occur at 0400, 1000, 1600, and 2200 hr EST.

13. During the period covered by this report, a total of 1,444 frequency-direction spectra were obtained. A list of data collection start times for these observations is given in Appendix A. Appendix B contains time-series plots of spectral parameters with winds and currents as auxiliary environmental variables.

Data Processing

14. Conversion of measured time series to estimates of frequency-direction spectra requires products of frequency spectral estimates from the nine gages in the array. For final results to be accurate, raw input data must be of exceptionally high quality so that spiky or drifty data from one gage do not contaminate products of results from the other eight gages. Hence, the procedure for data processing is to check raw data for errors, estimate a frequency-direction spectrum, and then compute some bulk parameters with which to characterize results.

Error checking

15. Because multiple gages were deployed in what was assumed to be a uniform sea, certain statistical properties of raw data from the nine gages should be identical. Hence, properties of data from these gages can be intercompared to isolate bad gages. Two types of properties were used: integral, requiring summing of data, and extremal, derived from maximal and minimal characteristics of a time series. Integral properties used were mean value, standard deviation, skewness, (excess) kurtosis, and trend. Extremal properties were maximum and minimum values, first derivatives, and second derivatives of pressure time series. Reference values were then established for each property. Except for skewness and kurtosis, which have expected values of zero, reference values were the medians of each property determined

from the nine gages of the linear array plus the tenth gage shown in Figure 3. If a property of any gage deviated from the reference value by more than a preset, empirically determined amount, it was flagged as being suspect, and the data were then further examined by hand to ensure that the flagging procedure had indeed identified a malfunctioning gage. A more detailed description of the error-checking procedure is given by Long and Oltman-Shay (1991).

16. If a gage malfunctioned, it was not used in further analysis. The analysis programs were written so that data from a subset of gages could be analyzed. Using fewer gages results in reduced directional resolution, with some gages being more critical than others. If either of the two gages with the smallest spacing is lost, results are invalid at high frequencies due to aliasing. In these cases, directional analysis was truncated at a lower high-frequency limit (generally 0.24 Hz instead of the normal 0.32 Hz). If either of these two were not lost, a full analysis was done. For the data set described here, there were never fewer than six functioning gages in the linear array.

17. To keep track of the set of functioning gages, a parameter called the gage pattern was created and stored with the results for each collection. The gage pattern is a nine-place character string that represents the linear array gages in order of placement. Each place in the string contains the gage number if the gage was functioning properly or a minus sign (-) if the gage was not used in analysis. This parameter can be of use in later analysis for assessing the directional resolving ability of a reduced array.

Frequency-direction spectra

18. Estimation of the frequency-direction spectrum is done in four parts. First, time series of pressure data from each gage are Fourier transformed to the frequency domain. Second, these transforms are converted to sea-surface displacement transforms. Third, cross spectra of sea-surface displacement are computed between all unique gage pairs for each frequency. Finally, an estimate is made of a directional distribution of wave energy that corresponds to the computed spatial variation in cross-spectral density for each frequency.

19. The Fourier transform is conventional. A 16,384-point time series is divided into 15 half-overlapping segments of 2,048 points. Segments are tapered with a Kaiser-Bessel window (a modified Bessel function of the first

kind, compensated uniformly for loss of variance due to windowing) and fast Fourier transformed. An intermediate-resolution transform is found by averaging the 15 transformed segments, frequency by frequency. Final transforms are found by then averaging results over 10 adjacent frequency bands. Final resolution bandwidth is 0.00976 Hz, and degrees of freedom are at least 150 (assuming eight contiguous segments and ignoring any gain from lapped segments). Transform estimates are retained for 28 frequency bands with band-center frequency ranging from 0.054 to 0.318 Hz.

20. Conversion of pressure signals at depth to water-surface displacement is done through the linear wave theory pressure response factor as described in the Shore Protection Manual (1984). After this conversion, complex cross spectra in the form of coincident and quadrature spectra are computed in the conventional way (Bendat and Piersol 1971; Jenkins and Watts 1968) between all unique gage pairs. Cross-spectral estimates at a given frequency are then ordered in terms of gage separation distance, or lag space, in preparation for directional spectral estimation at that frequency.

21. Conversion of cross-spectral patterns in lag space to directional spectra is done with the Iterative Maximum Likelihood Estimation algorithm derived and described by Pawka (1982, 1983). The algorithm is also described in application to data from heave-pitch-roll buoys by Oltman-Shay and Guza (1984). Accuracy of directional estimates depends on frequency, with high-frequency waves (short wavelengths) being better resolved by an array of finite length. Tests with artificial data indicate that the FRF array generally can resolve the direction of a unidirectional wave train to within 5 deg and can distinguish two wave trains at the same frequency if their directions differ by at least 15 deg.

22. The algorithm used here yields discrete direction "bandwidths" or arcs of about 0.5 deg for 0.318-Hz waves to about 3.5 deg for 0.054-Hz waves. It is convenient to have direction increments the same for all frequencies so that a regular array can be used to represent the full frequency-direction spectrum. As a trade-off between the two discrete arc-width extremes, directional results were integrated over 2-deg arcs and renormalized with this arc width to create evenly spaced directional spectra at all frequencies. By nature, linear array results have a 180-deg ambiguity in directional detection. It is assumed here that most wind-wave energy propagates onshore and that an insignificant amount of energy propagates offshore. Directions of

interest are then in the 180-deg arc representing seaward approach directions. Dividing this range into 2-deg arcs results in 91 arc center directions with which to characterize discretely the directional distribution of wave energy at a given frequency.

23. The primary result of data processing is an estimate of the discrete frequency-direction spectrum $S(f_n,\theta_m)$, which represents the variance of sea-surface displacement per frequency resolution bandwidth df (= 0.00976 Hz) per direction resolution arc $d\theta$ (= 2 deg), where f_n is the n^{th} of $N = 28$ discrete frequencies and θ_m is the m^{th} of $M = 91$ discrete directions.* In this work, direction is considered to be the angle from which wave energy is coming, measured counterclockwise from shore normal (Figure 3).

24. Numerical values of $S(f_n,\theta_m)$ can range over many orders of magnitude, depending on the amount of energy in a given frequency band and direction arc, and this can require space-consuming formats for archiving data. To simplify this problem, frequency-direction spectra can be saved in the form of directional distribution functions $D(f_n,\theta_m)$ defined by

$$D(f_n,\theta_m) = \frac{S(f_n,\theta_m)}{S(f_n)} \tag{1}$$

where $S(f_n)$ is the frequency spectral density at frequency f_n. The directional distribution function has units of deg^{-1}, and its integral with respect to direction over all directions is unity.

25. The frequency spectrum in Equation 1 represents the sum over all directions of sea-surface variance per frequency bandwidth and is defined in terms of the frequency-direction spectrum by

$$S(f_n) = \sum_{m=1}^{M} S(f_n,\theta_m)\, d\theta \tag{2}$$

where the variables on the right hand-side are defined in paragraph 23. Note

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* For convenience, symbols and abbreviations are listed in the Notation (Appendix E).

that this is identical to a conventional frequency spectrum that would result from a time series of sea-surface displacements at a single point in space. Because it is an integral of the frequency-direction spectrum, it is called the integrated frequency spectrum.

26. A directional analog of the frequency spectrum is the integrated direction spectrum, found by summing the frequency-direction spectrum over all frequencies for a fixed-direction arc. Using terms defined in paragraph 23, it is computed from

$$S(\theta_m) = \sum_{n=1}^{N} S(f_n, \theta_m)\, df \tag{3}$$

Figure 4 shows one way to display the frequency-direction spectrum and the corresponding integrated frequency and integrated direction spectra.

Bulk parameters

27. Several parameters have been computed to characterize the observed spectra. There are four basic types of parameters: (a) characteristic wave height, (b) peak frequency (or its inverse, peak period), (c) peak direction, and (d) directional spread. There is more than one way to define some of these parameters, so several alternate forms are presented here.

28. Characteristic wave height. Characteristic wave heights from spectral observations are most frequently given as H_{mo}, which is four times the standard deviation of sea-surface displacement. It can be determined from the volume under the frequency-direction spectrum by the equation

$$H_{mo}^2 = 16 \sum_{n=1}^{N} \sum_{m=1}^{M} S(f_n, \theta_m)\, df\, d\theta \tag{4}$$

It can also be found from the integrated frequency spectrum by

$$H_{mo}^2 = 16 \sum_{n=1}^{N} S(f_n)\, df \tag{5}$$

which is its more conventional definition, or from the integrated direction

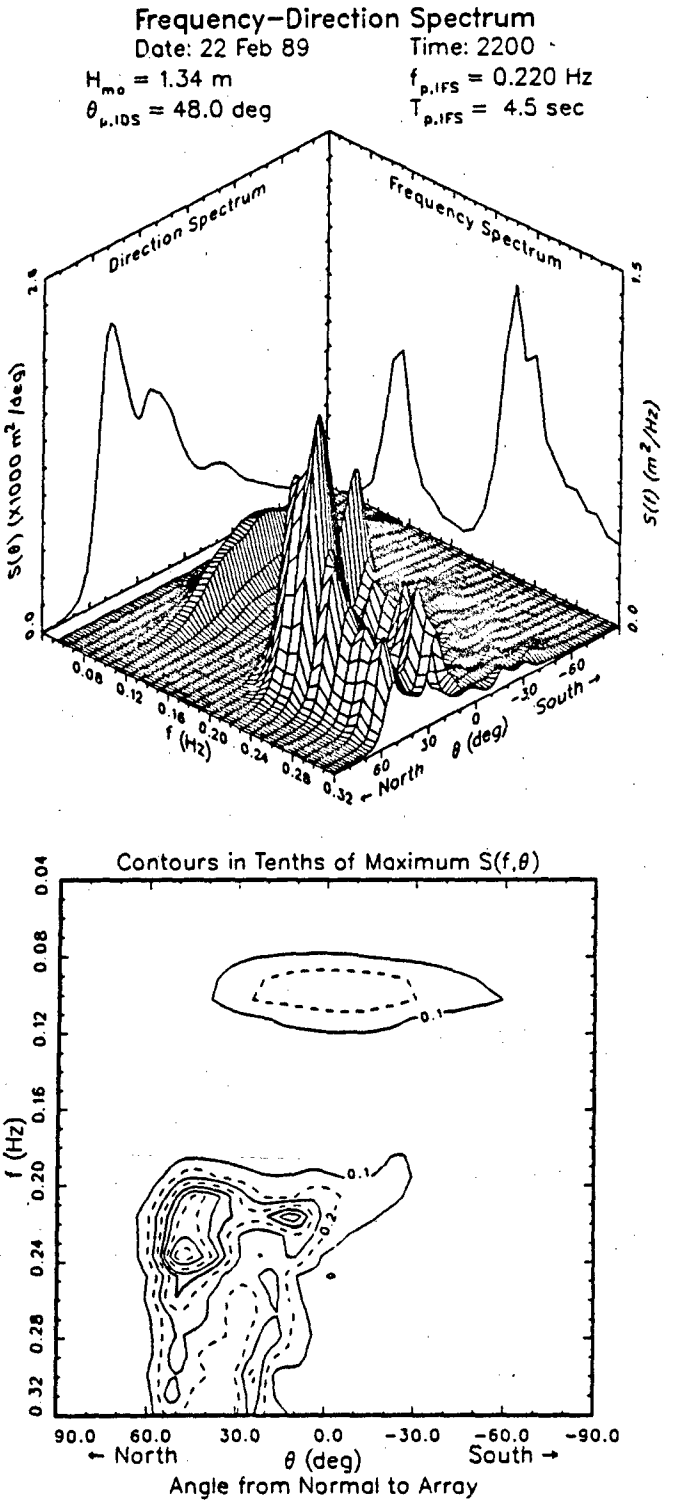


Figure 4. Sample frequency-direction spectrum

spectrum by

$$H_{mo}^2 = 16 \sum_{m=1}^{M} S(\theta_m)\, d\theta \qquad (6)$$

29. Peak frequency. Peak frequency, which has the generic notation f_p, can be defined in at least two ways. One way is to find the frequency (and direction) at which the frequency-direction spectrum is maximum. This peak frequency is denoted $f_{p,FD}$. Another way is to find the frequency at which the integrated frequency spectrum is maximum. This is the more conventional definition, because of the plethora of measured frequency spectra, and it is denoted $f_{p,IFS}$. The two peak frequencies may not be the same. If the directional distribution is broad at the frequency for which the integrated frequency spectrum is maximum, it is possible that another frequency, at which the frequency-direction spectrum has a narrow directional distribution, will denote the maximum of the frequency-direction spectrum.

30. Peak period. Peak period is the characteristic wave period associated with spectral peak frequency. Denoted generically by T_p, it is related to peak frequency by $T_p = 1/f_p$. Peak period from the frequency-direction spectrum is given by $T_{p,FD} = 1/f_{p,FD}$. Conventional peak period, derived from the integrated frequency spectrum, is given by $T_{p,IFS} = 1/f_{p,IFS}$.

31. Peak direction. Peak direction is the direction representing the most energy. Given the generic symbol θ_p, it, too, can be defined in several ways. One peak direction can be defined from the maximum of the frequency-direction spectrum. It is denoted by $\theta_{p,FD}$. Another peak direction can be associated with the maximum of the integrated direction spectrum, defined above. This peak direction is denoted $\theta_{p,IDS}$. It can differ from $\theta_{p,FD}$ if energy in the frequency-direction spectrum is centered at different directions for different frequencies. This condition tends to smear energy along the direction axis in the integrated direction spectrum, thereby shifting the peak relative to the peak of the frequency-direction spectrum. A third measure of peak direction is a weighted average peak direction defined by

$$\theta_{p,SW} = \frac{1}{\left(\frac{1}{4}H_{mo}\right)^2} \sum_{n=1}^{N} S(f_n)\ \theta_{p,n} \tag{7}$$

where $\theta_{p,n}$ is peak direction of the directional distribution at the n^{th} frequency of the frequency-direction spectrum, $S(f_n)$ is the integrated frequency spectrum from Equation 2, and H_{mo} is defined by Equation 4. This definition gives higher weights to the more energetic peak directions but does not rely on the single distribution with the most energy.

32. Directional spread. A fourth type of characteristic parameter is directional spread. This parameter, denoted generically as $\Delta\theta$, gives a measure of the range of directions from which some significant fraction of energy is propagating. The basic definition used here is the arc subtended by the middle two quartiles of a directional distribution. As illustrated in Figure 5, the directional distribution function $D(f_n,\theta_m)$ for a particular frequency f_n can be integrated from one bounding direction (here the shore-parallel direction at +90 deg) to some arbitrary direction θ_j to make a kind of cumulative distribution function $I(f_n,\theta_j)$. The formal definition is

$$I(f_n,\theta_j) = \sum_{m=1}^{j} D(f_n,\theta_m)\ d\theta \tag{8}$$

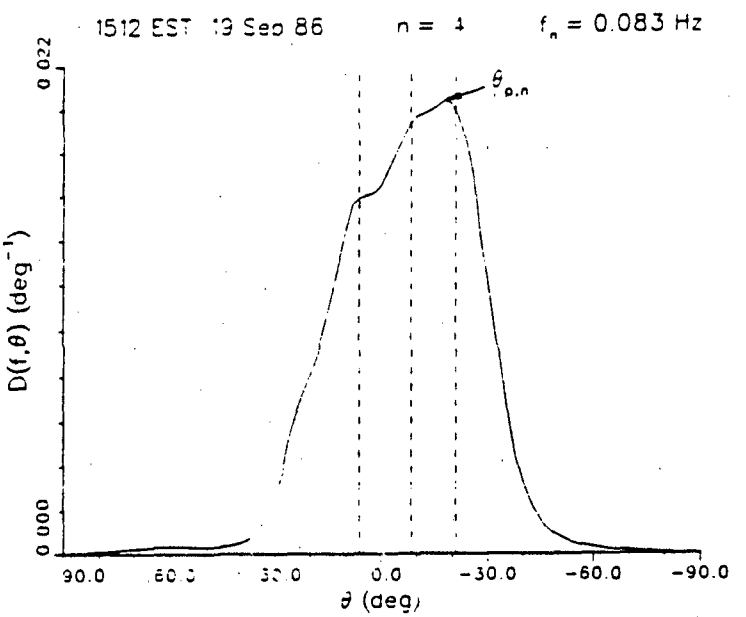
where j is the index of a discrete angle bin. The three quartile directions, called $\theta_{25\%,n}$, $\theta_{50\%,n}$ and $\theta_{75\%,n}$, respectively, satisfy the equations

$$I(f_n,\theta_{25\%,n}) = 0.25 \tag{9}$$

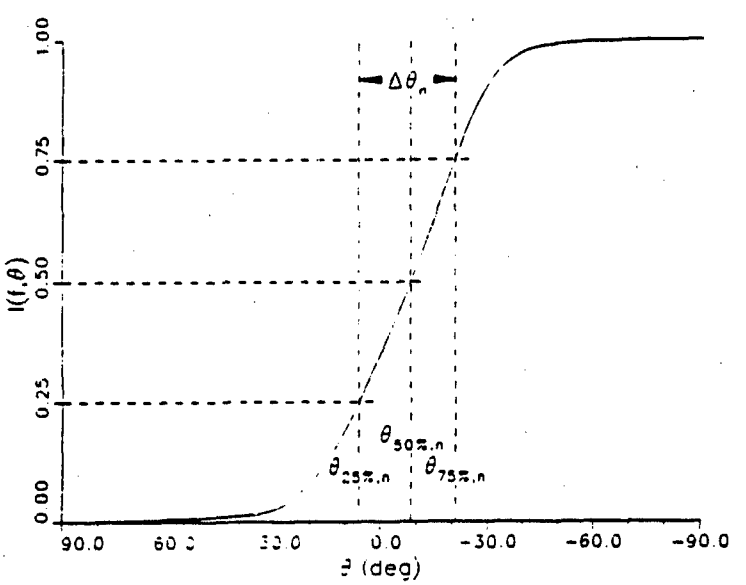
$$I(f_n,\theta_{50\%,n}) = 0.50 \tag{10}$$

$$I(f_n,\theta_{75\%,n}) = 0.75 \tag{11}$$

A directional spread parameter for the n^{th} frequency is defined by the expression



a. Directional distribution



b. Cumulative distribution

Figure 5. Directional spread computation

$$\Delta\theta_n \approx \theta_{25\%,n} - \theta_{75\%,n} \tag{12}$$

33. If Equation 12 is applied at the frequency where the frequency-direction spectrum is maximum, a measure of directional spread at the peak of the frequency-direction spectrum is obtained. This parameter is denoted $\Delta\theta_{FDP}$. If, instead of a directional distribution function at a single frequency, the normalized integrated direction spectrum is used in the set of Equations 8 to 12 , a measure of bulk directional spread is obtained. This parameter is given the symbol $\Delta\theta_{IDS}$. A third measure of directional spread is found from a spectrally weighted average of the spreads at each frequency. Denoted as $\Delta\theta_{SW}$, this parameter is found from

$$\Delta\theta_{SW} = \frac{1}{\left(\frac{1}{4}H_{mo}\right)^2} \sum_{n=1}^{N} S(f_n)\, \Delta\theta_n \tag{13}$$

Equation 13 is like Equation 7 for the spectrally weighted peak direction.

34. Together, these 11 parameters give a bulk characterization of some properties of a frequency-direction spectrum. There are, of course, many other parameters that can be defined, but the present set is simple and is rather easier to use than the 2,548 discrete spectral densities (28 frequencies times 91 directions) required for a full description of any given spectrum discussed here.

Archived Results

35. A magnetic tape containing the set of observed frequency-direction spectra from the first year of collection has been prepared for copying and distribution (upon request). Appendix A contains a listing of the date, starting time, and the characterizing parameters defined previously for each case. It is intended to be used as a kind of index or catalog of the set of available cases. For reasons explained below, dates are given in the form yymmdd where yy is a two-digit year indicator (e.g., 88 means 1988), mm is the numeric index of the calendar month (i.e, 01 is January, 12 is

December, etc.), and dd is day of the month. All times are Eastern Standard Time. A 24-hr clock is used.

36. Graphic representations of data collection times, some bulk parameters, and some auxiliary environmental variables are contained in Appendix B. One graph is shown for each month of the collection year. The upper part of each graph has time series plots of the bulk parameters H_{mo} , $T_{p,1FS}$, $\theta_{p,1DS}$, and $\Delta\theta_{1DS}$. The lower part of each graph has stick figure plots of three environmental variables. First is a kind of crude wave vector in which the stick vector has a length proportional to H_{mo} and a direction given by $\theta_{p,1DS}$ + 180 deg . The 180 deg is added to provide a physical frame of reference consistent with a vector pointing in the direction of energy propagation. The assumption that all waves propagate onshore means that all stick vectors in this part of the graph will have a component directed upward on the page.

37. The second stick figure plot is the wind vector as measured with the FRF environmental anemometer. Mounted at the seaward end of the FRF pier (Figure 2) at an elevation of 19.5 m above mean sea level, this instrument gives a reasonable estimate of the wind climate in the vicinity of the linear array. The third stick figure plot is the current vector as measured with a current meter located offshore about even with the end of the pier and alongshore about 500 m south of the pier (Figure 2). This instrument was approximately 1.5 m off the bottom in water about 6 m deep and, therefore, sensed currents near the bottom. All available current data are plotted. Two large storms in February and March 1989 caused damage to the current meter that was not repaired until September 1989, so that data are not available for the last few months covered by this report. Of the existing data, the reader may note a significant anticorrelation between cross-shore winds and cross-shore currents. This is consistent with the behavior of wall-bounded, shallow-water, wind-generated currents. Additional details about the anemometer and current meter are given by Birkemeier et al. (1985).

Retrieving Processed Data

38. The magnetic medium containing directional-spectral data is 9-track, ASCII-formatted tape written at 6,250 bytes/in. with a 2,048-byte

blocksize. This is a rather standard set of tape format parameters, which should make copies fairly transportable. It may be possible to write the data in other formats, and specific requests can be coordinated with the FRF.

39. The tape archive contains 1,444 files, one for each observed frequency-direction spectrum. Each file has a length of about 30,000 bytes, so the complete archive contains roughly 43.3 megabytes of information. The user may wish to consider whether this quantity of information will take too much system space before trying to copy the whole archive. Subsets of data can be created by reading the tape archive one file at a time. Each file has the generic name FDyymmddhhmm.DAT , where FD stands for frequency-direction spectrum, the character grouping yymmdd represents the data collection date (as listed in Appendix A), and the character grouping hhmm represents the data collection start time (also from Appendix A).

40. Once a file is on equipment and in a position to be read, it can be input to a computer program through any ASCII-formatted read statement. Appendix C contains a listing of a FORTRAN program that can read the data files. The variables contained in a data file are listed in the header of the program in Appendix C. A listing of a sample data file is given in Appendix D. The read statements in the program in Appendix C can be visually aligned with the data fields of the listing in Appendix D if the user wishes to edit or visually read a data file. Program variable names, especially those that have parallel symbols in this text, are also listed in the Notation (Appendix E).

41. It is intended that the magnetic tape archive will be maintained for its approximate life of 3 years from the publication date of this report. By that time the data will have been archived in more permanent, and likely different, form. Until then, a user can obtain data by directing a request to:

Chief, Field Research Facility
1261 Duck Road
Kitty Hawk, NC 27949-4472
Phone: (919) 261-3511
Fax: (919) 261-4432

Summary of Results

42. Data from the third collection year of high-resolution, directional-spectral observations at the FRF have been put in a form that is highly accessible to researchers interested in nearshore processes. Directional gages, directional analysis algorithms, and definitions of characterizing parameters are described in the body of this report, as are the location and form of archived data. Both a listing and a graphic presentation of data collection times and characteristic parameters are given in the appendixes. The appendixes also contain a sample data file and a listing of a FORTRAN program that can be used to read a data file.

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Appendix A: Table of Collection Times and Bulk Parameters

Bulk Parameters of Observed Frequency-Direction Spectra*

Date	Time EST	H_{mo} m	Peak Frequency $f_{p,FD}$ Hz	Peak Frequency $f_{p,IFS}$ Hz	Peak Period $T_{p,FD}$ sec	Peak Period $T_{p,IFS}$ sec	Peak Direction $\theta_{p,FD}$ deg	Peak Direction $\theta_{p,IDS}$ deg	Peak Direction $\theta_{p,SW}$ deg	Directional Spread $\Delta\theta_{IDS}$ deg	Directional Spread $\Delta\theta_{SW}$ deg	Directional Spread $\Delta\theta_{FDP}$ deg
880914	1900	0.75	0.181	0.191	5.52	5.24	20.0	20.0	8.8	46.5	33.6	20.2
880915	0100	0.63	0.083	0.113	11.98	8.87	-10.0	18.0	6.2	48.7	33.5	21.9
880915	0700	0.69	0.083	0.083	11.98	11.98	-14.0	22.0	8.9	47.6	32.8	29.2
880915	1300	0.99	0.220	0.210	4.54	4.75	16.0	14.0	18.9	37.1	32.5	27.0
880915	1900	1.07	0.181	0.162	5.52	6.19	10.0	10.0	13.7	38.0	35.1	28.4
880916	0100	0.95	0.152	0.152	6.58	6.58	24.0	12.0	19.5	41.8	38.3	30.3
880916	0700	0.92	0.171	0.171	5.83	5.83	28.0	14.0	23.4	39.9	37.0	29.3
880916	1300	0.78	0.162	0.162	6.19	6.19	20.0	24.0	17.8	41.9	39.6	39.0
880916	1900	0.74	0.201	0.181	4.98	5.52	28.0	-8.0	11.9	41.4	40.4	49.4
880917	0100	0.69	0.171	0.171	5.83	5.83	24.0	-6.0	16.3	44.2	43.2	38.7
880917	0700	0.71	0.181	0.181	5.52	5.52	26.0	0.0	-0.1	41.9	42.0	40.4
880917	1300	0.61	0.162	0.152	6.19	6.58	20.0	-8.0	7.0	42.2	43.5	37.5
880917	1900	0.56	0.132	0.142	7.56	7.04	10.0	-10.0	-3.3	41.2	40.9	30.8
880918	0100	0.53	0.142	0.142	7.04	7.04	-4.0	-12.0	-11.6	41.4	41.9	30.0
880918	0700	0.48	0.162	0.152	6.19	6.58	-12.0	-16.0	-23.0	38.6	37.2	29.2
880918	1300	0.53	0.191	0.191	5.24	5.24	-28.0	-26.0	-30.1	38.4	35.3	30.0
880921	1300	0.52	0.142	0.142	7.04	7.04	-20.0	-22.0	-20.1	33.1	32.5	27.8
880921	1900	0.39	0.142	0.142	7.04	7.04	-20.0	-22.0	-20.5	35.6	35.5	32.9
880922	0100	0.54	0.298	0.289	3.35	3.47	56.0	56.0	22.8	66.4	35.5	27.9
880922	0700	0.70	0.240	0.240	4.17	4.17	48.0	50.0	34.2	43.8	27.8	21.8
880922	1300	0.85	0.181	0.191	5.52	5.24	14.0	12.0	10.4	34.1	33.0	23.0
880922	1900	0.53	0.181	0.191	5.52	5.24	34.0	38.0	23.3	52.5	34.9	25.1
880923	0100	0.50	0.162	0.171	6.19	5.83	22.0	28.0	15.6	48.4	40.5	39.1
880923	0700	0.35	0.103	0.103	9.71	9.71	-14.0	-14.0	3.0	43.9	41.2	35.5
880923	1300	0.33	0.113	0.113	8.87	8.87	-14.0	-12.0	-13.7	36.1	36.8	33.5
880923	1900	0.30	0.113	0.103	8.87	9.71	-16.0	-64.0	-37.5	48.1	39.0	31.6
880924	0100	0.27	0.113	0.113	8.87	8.87	-18.0	-20.0	-21.9	37.1	36.6	32.1
880924	0700	0.26	0.103	0.103	9.71	9.71	-10.0	-14.0	-20.6	42.0	42.0	29.0
880924	1300	0.95	0.210	0.201	4.75	4.98	44.0	42.0	32.4	35.6	35.4	24.2
880924	1900	0.91	0.162	0.162	6.19	6.19	18.0	28.0	29.0	36.8	36.7	26.1
880925	0100	0.80	0.162	0.162	6.19	6.19	10.0	6.0	11.6	34.6	34.2	25.6
880925	0700	1.02	0.162	0.152	6.19	6.58	14.0	38.0	29.8	32.7	30.2	25.5
880925	1300	1.27	0.152	0.152	6.58	6.58	0.0	6.0	9.6	32.1	31.3	31.6
880925	1900	1.13	0.132	0.132	7.56	7.56	0.0	22.0	14.0	36.3	35.4	33.5
880926	0100	1.18	0.142	0.142	7.04	7.04	8.0	10.0	14.9	32.1	30.0	29.2
880926	0700	1.33	0.171	0.181	5.83	5.52	10.0	16.0	14.3	32.6	31.2	22.2
880926	1300	1.34	0.162	0.162	6.19	6.19	4.0	8.0	13.1	32.8	30.5	27.1
880926	1900	1.29	0.162	0.162	6.19	6.19	2.0	12.0	10.0	33.7	32.5	27.7
880927	0100	1.24	0.162	0.162	6.19	6.19	0.0	2.0	1.7	34.6	31.9	29.8
880927	0700	1.34	0.074	0.074	13.57	13.57	-20.0	4.0	-2.3	38.0	34.0	34.8
880927	1300	1.34	0.074	0.074	13.57	13.57	-12.0	-8.0	-5.8	34.3	34.0	31.8
880927	1900	1.27	0.074	0.074	13.57	13.57	-24.0	-18.0	-13.1	36.3	36.3	37.1
880928	0100	1.21	0.074	0.074	13.57	13.57	-8.0	-16.0	-9.1	33.8	33.9	34.2
880928	0700	1.21	0.074	0.074	13.57	13.57	-22.0	-18.0	-11.3	37.2	36.9	40.5
880928	1300	1.20	0.064	0.074	15.62	13.57	-4.0	-20.0	-12.0	33.0	32.9	29.7
880928	1900	1.14	0.074	0.064	13.57	15.62	-12.0	-20.0	-17.2	36.1	35.5	33.4
880929	0100	0.99	0.083	0.083	11.98	11.98	-24.0	-20.0	-13.4	33.3	33.1	28.9
880929	0700	1.18	0.074	0.074	13.57	13.57	-16.0	-16.0	-5.2	43.0	37.3	38.1

(Continued)

*See Notation (Appendix E) for definitions of terms.

(Continued)

Date	Time EST	H_{mo} m	Peak Frequency $f_{p.FD}$ Hz	Peak Frequency $f_{p.IFS}$ Hz	Peak Period $T_{p.FD}$ sec	Peak Period $T_{p.IFS}$ sec	Peak Direction $\theta_{p.FD}$ deg	Peak Direction $\theta_{p.IDS}$ deg	Peak Direction $\theta_{p.SW}$ deg	Directional Spread $\Delta\theta_{IDS}$ deg	Directional Spread $\Delta\theta_{SW}$ deg	Directional Spread $\Delta\theta_{FDP}$ deg
880929	1300	1.13	0.074	0.074	13.57	13.57	-6.0	0.0	-1.7	38.5	36.7	39.4
880929	1900	1.68	0.142	0.132	7.04	7.56	24.0	-4.0	0.2	40.7	39.7	36.8
880930	0100	1.68	0.201	0.123	4.98	8.16	30.0	-4.0	5.0	39.5	38.3	42.5
880930	0700	1.55	0.123	0.123	8.16	8.16	-8.0	-6.0	3.7	41.0	40.8	41.1
880930	1300	1.16	0.123	0.123	8.16	8.16	-8.0	-12.0	-5.6	40.0	39.6	38.9
880930	1900	1.04	0.123	0.123	8.16	8.16	-8.0	-10.0	-6.1	38.2	37.8	37.6
881001	0100	0.95	0.123	0.113	8.16	8.87	4.0	-6.0	-4.2	37.8	38.0	35.7
881001	0700	0.83	0.093	0.093	10.72	10.72	-2.0	-16.0	-10.9	36.5	36.3	37.6
881001	1300	0.74	0.093	0.093	10.72	10.72	-12.0	-12.0	-11.2	36.5	37.1	36.0
881001	1900	0.68	0.083	0.093	11.98	10.72	-16.0	-14.0	-12.3	36.7	35.9	31.7
881002	0100	0.66	0.093	0.093	10.72	10.72	12.0	-22.0	-12.2	40.8	38.4	37.4
881002	0700	0.70	0.103	0.103	9.71	9.71	-8.0	-20.0	-15.6	39.5	36.1	38.1
881002	1300	0.72	0.308	0.103	3.25	9.71	-56.0	-56.0	-27.3	43.6	32.2	15.4
881002	1900	0.71	0.113	0.113	8.87	8.87	-16.0	-18.0	-18.9	36.4	31.2	35.6
881003	0100	0.71	0.113	0.113	8.87	8.87	-14.0	-16.0	-20.4	38.1	35.4	40.5
881003	0700	0.76	0.113	0.113	8.87	8.87	-10.0	-16.0	-18.7	33.8	32.9	33.9
881003	1000	0.79	0.113	0.113	8.87	8.87	-8.0	-12.0	-17.9	35.6	33.6	36.1
881003	1300	0.77	0.113	0.113	8.87	8.87	-18.0	-28.0	-20.6	36.4	35.0	39.9
881003	1600	0.75	0.113	0.113	8.87	8.87	-16.0	-20.0	-17.7	39.2	37.0	33.1
881003	1900	1.17	0.210	0.210	4.75	4.75	42.0	44.0	21.9	60.3	39.7	40.8
881003	2200	1.39	0.162	0.171	6.19	5.83	34.0	40.0	27.5	54.9	45.6	49.5
881011	1900	0.36	0.250	0.318	4.01	3.15	-62.0	-62.0	-41.8	51.2	37.4	32.9
881012	0100	0.63	0.240	0.269	4.17	3.72	58.0	58.0	44.4	41.8	32.3	20.5
881012	0700	1.12	0.210	0.210	4.75	4.75	38.0	52.0	42.9	36.0	34.0	27.0
881012	1300	1.08	0.181	0.181	5.52	5.52	14.0	12.0	22.1	36.0	32.8	27.2
881012	1900	1.07	0.201	0.201	4.98	4.98	12.0	22.0	31.9	34.9	32.4	32.2
881013	0100	1.18	0.181	0.171	5.52	5.83	20.0	24.0	32.1	32.2	28.3	22.9
881013	0700	1.19	0.162	0.162	6.19	6.19	10.0	52.0	28.0	35.2	30.8	29.4
881013	1300	1.00	0.171	0.171	5.83	5.83	18.0	26.0	28.0	30.2	26.1	21.1
881013	1900	0.99	0.162	0.152	6.19	6.58	14.0	34.0	28.3	30.3	27.9	24.3
881014	0100	0.84	0.171	0.152	5.83	6.58	26.0	28.0	23.0	30.7	27.1	23.6
881014	0700	0.72	0.171	0.171	5.83	5.83	18.0	24.0	23.0	33.7	28.0	20.4
881014	1900	0.53	0.181	0.162	5.52	6.19	28.0	8.0	18.4	37.5	35.1	23.9
881015	0100	0.34	0.181	0.181	5.52	5.52	28.0	-10.0	4.4	37.8	34.1	28.7
881015	0700	0.30	0.142	0.113	7.04	8.87	-4.0	-10.0	-17.0	36.8	37.0	24.3
881015	1300	0.27	0.103	0.113	9.71	8.87	-6.0	-12.0	-12.1	34.0	34.3	29.7
881015	1900	0.30	0.308	0.113	3.25	8.87	-48.0	-48.0	-23.7	37.4	29.9	25.5
881016	0100	0.28	0.113	0.113	8.87	8.87	-16.0	-16.0	-16.5	32.1	32.5	29.1
881016	0700	0.33	0.123	0.123	8.16	8.16	-16.0	-20.0	-18.6	30.8	31.3	30.2
881016	1300	0.32	0.083	0.113	11.98	8.87	-32.0	-18.0	-19 9	30.9	32.0	24.3
881016	1900	0.37	0.093	0.093	10.72	10.72	-20.0	-16.0	-20.7	31.2	32.1	27.9
881017	0100	0.42	0.093	0.093	10.72	10.72	-18.0	-22.0	-27.2	36.1	35.9	36.4
881017	0700	0.56	0.103	0.103	9.71	9.71	-20.0	-22.0	-24.8	36.1	34.9	37.3
881017	1300	0.68	0.103	0.103	9.71	9.71	-16.0	-20.0	-23.1	36.7	35.2	37.1
881017	1900	0.75	0.113	0.113	8.87	8.87	-14.0	-20.0	-18.5	31.7	31.7	31.0
881018	0100	0.85	0.113	0.113	8.87	8.87	-12.0	-20.0	-16.7	34.5	34.0	35.3
881018	0700	0.90	0.103	0.103	9.71	9.71	-6.0	-22.0	-16.3	34.5	34.4	38.4
881018	1300	0.83	0.103	0.103	9.71	9.71	-14.0	-16.0	-12.3	38.7	38.0	39.3
881018	1900	0.85	0.093	0.093	10.72	10.72	-4.0	-14.0	-11.8	38.6	36.5	40.8

(Continued)

(Continued)

Date	Time	H_{mo}	Peak Frequency		Peak Period		Peak Direction			Directional Spread		
			$f_{p,FD}$	$f_{p,IFS}$	$T_{p,FD}$	$T_{p,IFS}$	$\theta_{p,FD}$	$\theta_{p,IDS}$	$\theta_{p,SW}$	$\Delta\theta_{IDS}$	$\Delta\theta_{SW}$	$\Delta\theta_{FDP}$
	EST	m	Hz	Hz	sec	sec	deg	deg	deg	deg	deg	deg
881019	0100	1.06	0.093	0.093	10.72	10.72	-6.0	-10.0	-5.7	39.7	39.8	42.0
881019	0700	1.87	0.201	0.191	4.98	5.24	32.0	10.0	14.7	38.7	34.0	30.3
881019	1300	1.42	0.083	0.083	11.98	11.98	-2.0	6.0	11.7	44.4	40.1	44.2
881019	1900	1.26	0.083	0.083	11.98	11.98	4.0	10.0	5.2	42.0	37.1	38.8
881020	0100	1.28	0.083	0.083	11.98	11.98	-8.0	12.0	9.7	42.0	36.8	42.7
881020	0700	1.20	0.083	0.083	11.98	11.98	-8.0	0.0	4.9	37.6	34.8	41.4
881020	1300	1.16	0.083	0.083	11.98	11.98	-10.0	6.0	-0.6	39.6	37.6	41.2
881020	1900	0.95	0.083	0.083	11.98	11.98	-6.0	0.0	5.1	38.4	36.0	34.9
881021	0100	1.04	0.083	0.083	11.98	11.98	2.0	0.0	2.0	39.6	38.7	39.5
881021	1300	1.10	0.171	0.083	5.83	11.98	-6.0	-4.0	-2.3	37.0	34.9	31.5
881021	1900	1.18	0.162	0.142	6.19	7.04	-20.0	-22.0	-20.4	41.7	36.9	42.1
881022	0100	0.98	0.123	0.123	8.16	8.16	-14.0	-10.0	-3.9	41.3	41.8	41.0
881022	0700	0.83	0.103	0.103	9.71	9.71	4.0	0.0	-0.2	40.8	41.0	38.4
881022	1300	0.80	0.103	0.103	9.71	9.71	-10.0	12.0	4.8	39.6	40.0	41.5
881022	1900	0.74	0.074	0.074	13.57	13.57	8.0	6.0	2.0	39.4	39.5	37.9
881023	0100	0.68	0.083	0.083	11.98	11.98	4.0	0.0	16.6	48.0	36.1	33.9
881023	0700	0.55	0.093	0.093	10.72	10.72	-8.0	-8.0	9.9	47.5	38.4	34.9
881023	1300	0.47	0.093	0.093	10.72	10.72	-2.0	-2.0	-2.7	35.8	37.4	36.2
881023	1900	0.50	0.083	0.083	11.98	11.98	-10.0	-8.0	-8.0	35.6	36.7	35.7
881024	0100	0.51	0.074	0.093	13.57	10.72	0.0	-2.0	-7.3	34.6	33.6	29.6
881024	0700	0.48	0.074	0.074	13.57	13.57	-12.0	-8.0	-14.5	39.9	34.4	33.0
881024	1300	0.45	0.074	0.074	13.57	13.57	2.0	-2.0	-12.1	36.2	32.2	29.6
881024	1900	0.52	0.083	0.083	11.98	11.98	-10.0	-14.0	-25.9	47.3	33.5	30.6
881025	0100	0.44	0.083	0.083	11.98	11.98	-6.0	-12.0	-5.6	41.0	39.3	32.7
881025	0700	0.59	0.054	0.083	18.45	11.98	-8.0	48.0	18.6	59.4	34.3	23.8
881025	1300	0.56	0.064	0.064	15.62	15.62	0.0	40.0	10.5	47.3	32.8	32.0
881025	1900	0.56	0.064	0.064	15.62	15.62	-4.0	-4.0	-2.3	38.7	39.7	33.7
881026	0100	0.50	0.064	0.064	15.62	15.62	-16.0	-16.0	-19.8	38.8	33.3	34.3
881026	0700	0.49	0.074	0.074	13.57	13.57	18.0	-10.0	-3.1	37.6	37.3	37.7
881026	1300	0.48	0.074	0.074	13.57	13.57	-14.0	-14.0	-16.3	31.4	32.1	25.5
881026	1900	0.49	0.074	0.074	13.57	13.57	-16.0	14.0	-13.7	33.4	34.4	30.7
881027	0100	0.44	0.074	0.074	13.57	13.57	-8.0	-8.0	-7.0	30.1	30.4	26.9
881027	0700	0.51	0.083	0.083	11.98	11.98	-6.0	-8.0	-2.0	40.0	36.6	34.3
881027	1300	0.71	0.220	0.083	4.54	11.98	40.0	42.0	20.6	46.6	28.8	18.7
881027	1900	0.60	0.083	0.083	11.98	11.98	-14.0	18.0	8.7	44.3	35.9	30.4
881028	0100	0.58	0.083	0.083	11.98	11.98	-6.0	2.0	-1.1	40.7	34.6	27.6
881028	0700	0.52	0.093	0.093	10.72	10.72	-8.0	-8.0	-1.1	35.8	36.6	29.4
881028	1900	0.54	0.093	0.093	10.72	10.72	-14.0	-32.0	-31.6	41.4	30.9	36.9
881029	0100	0.62	0.289	0.298	3.47	3.35	58.0	56.0	27.0	72.1	25.0	12.5
881029	0700	1.49	0.171	0.171	5.83	5.83	10.0	20.0	23.6	36.0	34.3	31.5
881029	1300	1.17	0.162	0.152	6.19	6.58	4.0	20.0	23.9	40.9	37.9	34.3
881029	1900	0.82	0.181	0.181	5.52	5.52	36.0	8.0	23.1	45.7	41.9	36.6
881030	0100	0.75	0.171	0.162	5.83	6.19	28.0	26.0	18.6	45.9	39.2	37.0
881030	0700	1.09	0.230	0.210	4.35	4.75	48.0	40.0	26.2	48.2	39.0	32.5
881030	1300	1.04	0.191	0.201	5.24	4.98	38.0	22.0	24.9	47.7	37.4	39.2
881030	1900	1.07	0.210	0.201	4.75	4.98	38.0	40.0	22.4	43.7	34.0	34.0
881031	0100	1.22	0.191	0.191	5.24	5.24	14.0	1[illegible].0	15.2	39.3	36.1	32.2
881031	0700	1.18	0.162	0.181	6.19	5.52	28.0	-2.0	7.7	38.9	37.9	38.3
881031	1300	1.04	0.171	0.181	5.83	5.52	-6.0	-8.0	3.2	42.0	41.0	38.7

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Date	Time EST	H_{mo} m	Peak Frequency $f_{p,FD}$ Hz	Peak Frequency $f_{p,IFS}$ Hz	Peak Period $T_{p,FD}$ sec	Peak Period $T_{p,IFS}$ sec	Peak Direction $\theta_{p,FD}$ deg	Peak Direction $\theta_{p,IDS}$ deg	Peak Direction $\theta_{p,SW}$ deg	Directional Spread $\Delta\theta_{IDS}$ deg	Directional Spread $\Delta\theta_{SW}$ deg	Directional Spread $\Delta\theta_{FDP}$ deg
881031	1900	1.12	0.171	0.171	5.83	5.83	-10.0	-4.0	-5.8	37.6	37.2	35.7
881101	0100	1.23	0.210	0.201	4.75	4.98	-10.0	-8.0	4.5	40.3	39.0	39.7
881101	0700	1.33	0.191	0.181	5.24	5.52	-4.0	-6.0	-8.7	41.9	42.2	41.7
881101	1000	1.83	0.123	0.123	8.16	8.16	0.0	-18.0	6.0	46.4	44.4	39.9
881101	1300	2.36	0.152	0.123	6.58	8.16	-10.0	-8.0	7.3	46.4	42.9	42.0
881101	1600	2.14	0.142	0.142	7.04	7.04	-8.0	-8.0	8.2	44.7	41.2	39.1
881101	1900	1.60	0.142	0.142	7.04	7.04	-10.0	-8.0	2.8	41.4	38.3	40.3
881102	0100	1.17	0.113	0.113	8.87	8.87	4.0	12.0	14.1	41.2	37.6	41.4
881102	0700	0.92	0.113	0.113	8.87	8.87	-16.0	0.0	-1.4	36.2	31.1	36.8
881102	1300	0.74	0.103	0.103	9.71	9.71	-16.0	-10.0	6.9	42.9	37.5	37.2
881102	1900	0.87	0.074	0.074	13.57	13.57	-2.0	-4.0	4.9	36.2	32.3	30.5
881103	0100	0.60	0.083	0.083	11.98	11.98	12.0	-6.0	4.1	40.3	39.2	31.4
881103	0700	0.62	0.083	0.083	11.98	11.98	2.0	0.0	1.9	35.7	34.8	31.5
881104	0100	0.45	0.083	0.083	11.98	11.98	16.0	-14.0	-2.3	35.8	35.4	35.2
881104	0700	0.39	0.083	0.083	11.98	11.98	-4.0	-8.0	-17.9	39.4	33.6	28.5
881104	1300	0.43	0.083	0.083	11.98	11.98	-16.0	-10.0	-26.2	45.4	32.7	30.9
881104	1900	0.89	0.171	0.162	5.83	6.19	-32.0	-34.0	-32.9	31.0	26.5	28.7
881105	0100	1.34	0.132	0.132	7.56	7.55	-28.0	-28.0	-27.5	30.6	29.5	27.2
881105	0700	1.15	0.113	0.123	8.87	8.16	-16.0	-16.0	-20.1	32.9	32.5	35.7
881105	1300	1.34	0.113	0.113	8.87	8.87	-16.0	-24.0	-25.8	32.5	30.2	28.2
881105	1900	1.27	0.103	0.103	9.71	9.71	-26.0	-24.0	-23.3	37.7	35.8	36.3
881106	0100	1.00	0.103	0.103	9.71	9.71	-22.0	-26.0	-29.9	37.6	34.2	33.2
881106	0700	0.77	0.103	0.103	9.71	9.71	-20.0	-22.0	-28.2	42.1	36.9	37.1
881106	1300	0.75	0.113	0.113	8.87	8.87	-22.0	-24.0	-26.2	37.6	33.4	37.4
881106	1900	0.68	0.113	0.113	8.87	8.87	-24.0	-56.0	-33.0	42.9	29.5	36.5
881107	0100	0.48	0.142	0.123	7.04	8.16	-36.0	-34.0	-31.0	44.8	33.5	30.9
881107	0700	0.41	0.132	0.093	7.56	10.72	-42.0	-42.0	-23.0	43.5	35.2	30.8
881107	1300	0.38	0.123	0.123	8.16	8.16	-22.0	-22.0	-29.0	39.7	32.1	32.1
881107	1900	0.38	0.132	0.123	7.56	8.16	-28.0	-26.0	-29.6	42.7	35.3	20.9
881108	0100	0.37	0.132	0.132	7.56	7.56	-24.0	-26.0	-30.9	36.9	35.1	26.9
881108	0700	0.36	0.132	0.113	7.56	8.87	-26.0	-26.0	-29.8	41.6	36.0	27.2
881108	1900	0.38	0.083	0.083	11.98	11.98	-22.0	-58.0	-33.7	45.4	31.7	32.4
881109	0100	0.31	0.083	0.083	11.98	11.98	-18.0	-22.0	-30.1	42.2	36.1	28.4
881109	0700	1.08	0.210	0.201	4.75	4.98	50.0	50.0	44.1	34.7	32.1	27.3
881109	1300	0.92	0.181	0.181	5.52	5.52	22.0	10.0	23.9	38.7	35.5	30.2
881109	1900	0.69	0.201	0.191	4.98	5.24	40.0	48.0	29.7	50.4	41.0	37.5
881110	0100	0.56	0.210	0.210	4.75	4.75	36.0	-6.0	15.2	53.1	39.1	42.6
881110	1000	0.42	0.132	0.083	7.56	11.98	-30.0	-22.0	-9.2	41.3	40.0	25.8
881110	1300	0.41	0.123	0.123	8.16	8.16	-24.0	-26.0	-18.5	37.8	37.6	28.3
881110	1900	0.48	0.279	0.113	3.59	8.87	-66.0	-66.0	-41.0	43.5	27.8	17.0
881111	0100	0.37	0.113	0.123	8.87	8.16	-24.0	-26.0	-39.8	38.7	29.1	24.1
881111	0700	1.15	0.240	0.210	4.17	4.75	46.0	46.0	34.6	44.4	38.9	26.7
881111	1300	1.13	0.191	0.181	5.24	5.52	26.0	42.0	34.6	38.9	34.2	29.8
881111	1900	1.47	0.171	0.171	5.83	5.83	12.0	16.0	23.5	33.2	31.1	28.6
881112	0100	1.37	0.171	0.162	5.83	6.19	10.0	16.0	15.8	35.5	32.8	28.2
881112	0700	1.20	0.171	0.162	5.83	6.19	36.0	6.0	14.0	39.3	39.1	37.1
881112	1300	0.95	0.171	0.171	5.83	5.83	34.0	38.0	23.3	44.2	41.9	44.1
881112	1900	1.24	0.230	0.201	4.35	4.98	2.0	-2.0	1.7	38.6	37.8	36.9

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Date	Time EST	H_{mo} m	Peak Frequency $f_{p,FD}$ Hz	Peak Frequency $f_{p,IFS}$ Hz	Peak Period $T_{p,FD}$ sec	Peak Period $T_{p,IFS}$ sec	Peak Direction $\theta_{p,FD}$ deg	Peak Direction $\theta_{p,IDS}$ deg	Peak Direction $\theta_{p,SW}$ deg	Directional Spread $\Delta\theta_{IDS}$ deg	Directional Spread $\Delta\theta_{SW}$ deg	Directional Spread $\Delta\theta_{FDP}$ deg
881113	0100	1.05	0.181	0.171	5.52	5.83	0.0	-[illegible]0	-2.4	37.6	38.1	31.0
881113	0700	1.28	0.162	0.152	6.19	6.58	-16.0	-14.0	-9.0	43.6	41.4	43.6
881113	1300	1.14	0.142	0.142	7.04	7.04	-8.0	-16.0	-14.1	41.1	39.8	40.3
881113	1600	1.08	0.142	0.142	7.04	7.04	-8.0	-18.0	-12.7	40.8	38.3	39.9
881113	1900	0.96	0.152	0.152	6.58	6.58	-18.0	-22.0	-17.3	39.4	38.5	35.4
881114	0100	0.74	0.142	0.142	7.04	7.04	-8.0	-24.0	-13.3	41.4	39.7	36.4
881114	0700	0.72	0.142	0.142	7.04	7.04	-18.0	-20.0	-6.5	45.4	42.2	42.8
881114	1300	0.80	0.132	0.132	7.56	7.56	0.0	-22.0	-8.2	39.2	37.4	37.0
881114	1900	0.97	0.142	0.142	7.04	7.04	-8.0	-18.0	-12.2	36.4	35.7	34.6
881115	0100	0.82	0.132	0.132	7.56	7.56	-22.0	-20.0	-16.2	36.4	35.0	39.3
881115	1300	0.62	0.142	0.142	7.04	7.04	-2.0	-18.0	-16.7	37.8	34.9	33.5
881115	1900	0.70	0.132	0.123	7.56	8.16	-2.0	-16.0	-11.6	35.2	34.9	36.6
881116	0100	0.70	0.123	0.123	8.16	8.16	6.0	-20.0	-12.9	43.5	41.7	42.8
881116	0700	0.72	0.210	0.210	4.75	4.75	-28.0	-24.0	-22.0	46.0	47.5	69.6
881116	1300	0.72	0.201	0.201	4.98	4.98	-26.0	-24.0	-26.1	47.0	41.1	52.9
881116	1600	0.69	0.201	0.171	4.98	5.83	-20.0	-22.0	-22.7	43.4	36.4	36.4
881116	1900	0.67	0.181	0.191	5.52	5.24	-20.0	-26.0	-22.0	42.0	35.1	36.6
881117	0100	0.72	0.181	0.181	5.52	5.52	-28.0	-30.0	-29.3	41.9	35.6	36.5
881117	0700	0.70	0.152	0.152	6.58	6.58	-22.0	-28.0	-24.2	38.4	33.8	38.2
881117	1000	0.70	0.162	0.162	6.19	6.19	-26.0	-30.0	-31.0	34.8	31.6	33.0
881117	1300	0.94	0.220	0.220	4.54	4.54	54.0	56.0	37.0	83.1	39.6	12.8
881117	1900	0.83	0.181	0.181	5.52	5.52	34.0	38.0	26.8	54.3	43.6	55.3
881118	0100	0.79	0.181	0.171	5.52	5.83	32.0	26.0	21.8	51.9	45.3	43.4
881118	0700	1.49	0.181	0.171	5.52	5.83	12.0	12.0	12.8	35.7	33.7	33.4
881118	1900	0.80	0.171	0.171	5.83	5.83	-8.0	2.0	10.8	45.4	43.0	44.1
881119	0100	0.75	0.210	0.132	4.75	7.56	36.0	2.0	10.3	47.8	44.7	48.5
881119	0700	0.83	0.250	0.250	4.01	4.01	2.0	0.0	-3.1	39.0	37.0	35.3
881119	1300	0.91	0.210	0.210	4.75	4.75	-6.0	-6.0	-3.3	36.5	36.5	30.2
881119	1900	0.68	0.230	0.220	4.35	4.54	-64.0	14.0	-24.6	57.4	58.4	76.7
881120	0100	0.83	0.191	0.191	5.24	5.24	-32.0	-30.0	-35.1	42.9	34.3	28.2
881120	0700	0.80	0.171	0.162	5.83	6.19	-24.0	-28.0	-28.2	39.6	34.9	34.1
881120	1300	0.89	0.142	0.142	7.04	7.04	-16.0	-32.0	-27.4	36.7	33.5	32.3
881120	1900	0.84	0.132	0.142	7.56	7.04	-24.0	-44.0	-35.4	29.0	25.0	26.6
881121	0100	0.57	0.132	0.132	7.56	7.56	-32.0	-30.0	-34.2	41.1	33.5	38.1
881121	0700	0.63	0.240	0.240	4.17	4.17	54.0	50.0	35.0	54.8	27.1	14.6
881121	1300	1.29	0.191	0.191	5.24	5.24	36.0	36.0	22.4	39.7	36.1	43.2
881121	1900	1.71	0.162	0.152	6.19	6.58	6.0	20.0	16.8	35.6	33.2	31.9
881122	0100	1.18	0.171	0.162	5.83	6.19	6.0	24.0	15.7	39.4	35.3	32.2
881122	0700	1.21	0.181	0.162	5.52	6.19	10.0	12.0	15.6	39.0	36.5	31.1
881122	1300	1.05	0.152	0.142	6.58	7.04	-4.0	6.0	6.1	39.6	38.8	37.3
881122	1900	0.96	0.142	0.142	7.04	7.04	-8.0	-6.0	4.2	41.8	40.9	44.2
881123	0100	0.86	0.201	0.230	4.98	4.35	-10.0	-8.0	5.7	44.2	43.3	45.3
881123	0700	0.93	0.220	0.259	4.54	3.86	24.0	36.0	27.0	52.2	46.6	69.3
881123	1300	0.94	0.220	0.220	4.54	4.54	44.0	40.0	24.4	48.6	41.9	43.6
881123	1600	1.31	0.210	0.201	4.75	4.98	40.0	40.0	29.6	48.4	40.6	43.2
881123	1900	1.61	0.181	0.191	5.52	5.24	28.0	32.0	17.8	48.1	43.9	42.5
881123	2200	1.67	0.162	0.171	6.19	5.83	-12.0	16.0	7.4	44.7	40.3	37.9
881124	0100	1.99	0.171	0.162	5.83	6.19	0.0	0.0	6.0	41.8	39.4	35.3
881124	0400	2.16	0.162	0.162	6.19	6.19	-2.0	2.0	8.2	44.1	40.8	42.4
881124	0700	2.26	0.152	0.152	6.58	6.58	-4.0	4.0	7.8	41.3	38.6	37.5

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Date	Time	H_{mo}	Peak Frequency $f_{p.FD}$	Peak Frequency $f_{p.IFS}$	Peak Period $T_{p.FD}$	Peak Period $T_{p.IFS}$	Peak Direction $\theta_{p.FD}$	Peak Direction $\theta_{p.IDS}$	Peak Direction $\theta_{p.SW}$	Directional Spread $\Delta\theta_{IDS}$	Directional Spread $\Delta\theta_{SW}$	Directional Spread $\Delta\theta_{FDP}$
	EST	m	Hz	Hz	sec	sec	deg	deg	deg	deg	deg	deg
881124	1000	2.17	0.142	0.142	7.04	7.04	10.0	8.0	9.1	46.3	50.4	61.3
881124	1300	1.92	0.132	0.132	7.56	7.56	4.0	0.0	3.3	47.9	49.6	57.9
881124	1600	1.74	0.142	0.132	7.04	7.56	6.0	0.0	16.9	47.3	49.0	58.2
881124	1900	1.47	0.132	0.132	7.56	7.56	4.0	14.0	7.4	47.6	47.9	57.3
881124	2200	1.34	0.132	0.132	7.56	7.56	0.0	18.0	7.0	45.7	46.7	54.6
881125	0100	1.20	0.103	0.103	9.71	9.71	2.0	2.0	8.2	44.8	45.8	47.2
881125	0400	1.17	0.103	0.103	9.71	9.71	2.0	2.0	4.0	38.3	37.5	42.7
881125	0700	1.15	0.132	0.103	7.56	9.71	-8.0	4.0	2.0	39.6	38.9	38.4
881125	1000	1.17	0.113	0.103	8.87	9.71	0.0	4.0	6.5	39.4	37.9	45.4
881125	1300	1.13	0.142	0.142	7.04	7.04	8.0	6.0	7.0	37.4	36.5	35.6
881125	1600	1.03	0.132	0.132	7.56	7.56	0.0	2.0	5.0	37.5	37.2	36.4
881125	1900	0.93	0.103	0.103	9.71	9.71	-2.0	0.0	4.2	39.6	39.2	44.1
881125	2200	0.82	0.103	0.103	9.71	9.71	-6.0	-6.0	1.4	39.7	38.9	41.3
881126	0100	0.79	0.103	0.103	9.71	9.71	10.0	-6.0	6.4	37.9	38.1	36.7
881126	0400	0.68	0.103	0.103	9.71	9.71	2.0	-6.0	0.7	39.3	39.3	42.5
881126	0700	0.60	0.103	0.103	9.71	9.71	-2.0	-6.0	1.0	39.5	39.2	39.0
881126	1000	0.53	0.113	0.113	8.87	8.87	18.0	-6.0	0.7	39.4	39.0	34.7
881126	1300	0.50	0.123	0.113	8.16	8.87	4.0	4.0	-1.8	37.8	36.5	32.8
881126	1900	0.44	0.123	0.123	8.16	8.16	-4.0	-8.0	-13.4	43.6	36.1	37.1
881127	0100	0.34	0.103	0.093	9.71	10.72	-8.0	-8.0	-13.0	44.5	34.0	37.2
881127	0700	0.44	0.318	0.064	3.15	15.62	-56.0	-44.0	-28.4	41.6	28.9	14.4
881127	1300	0.51	0.289	0.064	3.47	15.62	-42.0	-40.0	-29.0	36.9	30.2	18.0
881127	1900	0.56	0.142	0.142	7.04	7.04	-32.0	-36.0	-26.9	36.9	30.2	31.3
881128	0100	0.70	0.298	0.132	3.35	7.56	-48.0	-46.0	-33.5	32.5	27.4	17.0
881128	0700	0.78	0.142	0.132	7.04	7.56	-22.0	-32.0	-26.7	34.0	28.9	25.4
881128	1300	0.57	0.113	0.123	8.87	8.16	-14.0	-16.0	-15.4	42.9	39.8	36.6
881128	1900	0.78	0.171	0.171	5.83	5.83	32.0	36.0	17.6	55.3	42.3	50.0
881129	0100	0.74	0.318	0.083	3.15	11.98	58.0	48.0	28.7	53.7	30.4	20.2
881129	0700	0.75	0.250	0.103	4.01	9.71	50.0	48.0	30.8	51.4	32.7	20.6
881129	1300	0.73	0.220	0.181	4.54	5.52	50.0	30.0	27.0	51.0	40.0	39.3
881129	1900	0.59	0.201	0.201	4.98	4.98	40.0	12.0	17.4	47.8	37.1	31.2
881130	0100	0.46	0.074	0.074	13.57	13.57	-18.0	-8.0	-0.7	42.3	40.4	37.0
881130	0700	0.46	0.074	0.074	13.57	13.57	-22.0	-10.0	-12.9	38.3	38.7	38.1
881130	1300	0.38	0.074	0.074	13.57	13.57	-6.0	-12.0	-8.6	38.1	37.3	41.0
881130	1900	0.35	0.074	0.074	13.57	13.57	-14.0	-18.0	-13.5	34.2	33.6	35.4
881201	0100	0.30	0.074	0.074	13.57	13.57	-22.0	-18.0	-19.1	35.9	35.5	36.2
881201	0700	0.49	0.269	0.259	3.72	3.86	56.0	56.0	40.1	49.8	29.4	23.8
881201	1300	0.52	0.240	0.240	4.17	4.17	54.0	56.0	37.9	52.0	34.9	22.2
881201	1900	0.52	0.210	0.210	4.75	4.75	36.0	36.0	23.6	47.5	38.0	42.1
881202	0100	0.41	0.220	0.083	4.54	11.98	38.0	36.0	23.9	42.7	32.5	24.6
881202	0700	1.31	0.171	0.171	5.83	5.83	12.0	16.0	16.8	33.5	31.2	30.7
881202	1300	0.98	0.171	0.171	5.83	5.83	18.0	16.0	17.1	37.7	39.1	41.6
881202	1900	0.60	0.162	0.162	6.19	6.19	26.0	26.0	25.0	42.5	39.2	44.6
881203	0100	0.23	0.201	0.083	4.98	11.98	38.0	20.0	16.0	45.4	38.4	32.1
881203	0700	0.17	0.083	0.083	11.98	11.98	-8.0	-2.0	7.4	41.2	39.5	29.3
881203	1300	0.16	0.083	0.083	11.98	11.98	-8.0	-16.0	-15.8	41.0	41.7	28.1
881203	1900	0.17	0.318	0.064	3.15	15.62	-60.0	-60.0	-34.6	48.8	27.6	14.4
881204	0100	0.17	0.269	0.064	3.72	15.62	-64.0	-64.0	-47.6	48.5	29.6	12.6
881204	0700	1.04	0.181	0.181	5.52	5.52	30.0	48.0	39.6	32.7	34.7	26.1
881204	1000	2.24	0.142	0.142	7.04	7.04	18.0	20.0	19.1	35.3	35.1	26.0
881204	1300	2.04	0.142	0.142	7.04	7.04	16.0	10.0	20.4	38.6	39.3	31.0

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Date	Time	H_{m0}	Peak Frequency		Peak Period		Peak Direction			Directional Spread		
			$f_{p,FD}$	$f_{p,IFS}$	$T_{p,FD}$	$T_{p,IFS}$	$\theta_{p,FD}$	$\theta_{p,IDS}$	$\theta_{p,SW}$	$\Delta\theta_{IDS}$	$\Delta\theta_{SW}$	$\Delta\theta_{FDP}$
	EST	m	Hz	Hz	sec	sec	deg	deg	deg	deg	deg	deg
881204	1600	1.77	0.142	0.142	7.04	7.04	8.0	14.0	14.0	36.5	34.8	32.0
881204	1900	1.35	0.162	0.162	6.19	6.19	4.0	6.0	6.1	35.2	35.0	33.6
881204	2200	1.20	0.171	0.113	5.83	8.87	8.0	8.0	11.6	35.4	35.5	29.2
881205	0100	0.98	0.123	0.123	8.16	8.16	10.0	8.0	7.5	37.6	37.0	39.7
881205	0400	0.80	0.152	0.152	6.58	6.58	-4.0	12.0	13.4	38.6	36.0	35.1
881205	0700	0.76	0.132	0.132	7.56	7.56	-4.0	12.0	13.8	38.3	34.4	37.4
881205	1300	0.57	0.152	0.152	6.58	6.58	2.0	4.0	6.3	38.7	37.7	38.4
881205	1900	0.26	0.171	0.171	5.83	5.83	-14.0	-10.0	-0.4	38.9	41.1	39.1
881206	0100	0.18	0.123	0.123	8.16	8.16	4.0	-16.0	-15.2	37.5	38.7	33.3
881206	0700	0.20	0.298	0.113	3.35	8.87	48.0	62.0	20.0	66.3	33.1	14.1
881206	1300	0.24	0.250	0.113	4.01	8.87	-72.0	-10.0	-19.1	48.7	38.5	25.5
881206	1900	0.31	0.259	0.269	3.86	3.72	-48.0	-52.0	-40.3	42.1	25.4	20.9
881207	0100	0.23	0.308	0.308	3.25	3.25	-62.0	-62.0	-43.7	42.9	22.2	10.0
881207	0700	0.21	0.318	0.318	3.15	3.15	-62.0	-60.0	-48.3	38.1	20.7	13.6
881207	1300	0.17	0.318	0.074	3.15	13.57	-58.0	-58.0	-40.1	42.9	26.2	51.1
881207	1900	0.18	0.259	0.064	3.86	15.62	-66.0	-64.0	-44.9	49.7	35.2	21.4
881208	0100	0.18	0.279	0.171	3.59	5.83	-64.0	-64.0	-46.5	45.2	26.4	13.3
881208	0700	0.20	0.142	0.162	7.04	6.19	-40.0	-60.0	-41.6	48.5	42.2	29.9
881208	1300	0.97	0.240	0.210	4.17	4.75	20.0	22.0	19.8	31.5	29.6	28.6
881208	1900	0.95	0.181	0.181	5.52	5.52	0.0	16.0	8.3	37.9	34.0	32.3
881209	0100	0.86	0.191	0.181	5.24	5.52	-2.0	2.0	4.2	37.0	35.3	31.4
881209	0700	0.82	0.171	0.171	5.83	5.83	-12.0	0.0	8.7	43.1	40.2	36.2
881209	1300	1.82	0.162	0.162	6.19	6.19	-4.0	6.0	6.4	34.1	32.5	33.1
881209	1900	1.28	0.171	0.162	5.83	6.19	-4.0	8.0	6.2	35.4	32.1	34.0
881210	0100	0.98	0.181	0.162	5.52	6.19	-2.0	6.0	4.4	33.8	30.2	30.5
881210	0700	0.85	0.171	0.171	5.83	5.83	-6.0	10.0	5.2	34.8	32.2	31.1
881210	1300	0.64	0.191	0.191	5.24	5.24	2.0	6.0	2.0	36.2	31.9	32.3
881210	1900	0.60	0.191	0.064	5.24	15.62	0.0	-2.0	-1.8	42.8	36.5	36.4
881211	0100	0.60	0.074	0.074	13.57	13.57	0.0	-2.0	-0.3	35.6	35.5	38.1
881211	0700	0.63	0.074	0.074	13.57	13.57	-22.0	2.0	-1.1	44.0	37.1	43.3
881211	1300	1.58	0.171	0.171	5.83	5.83	36.0	38.0	16.3	38.4	37.2	35.1
881211	1900	1.62	0.181	0.162	5.52	6.19	2.0	18.0	8.6	35.0	32.3	30.6
881212	0100	1.70	0.162	0.162	6.19	6.19	-4.0	16.0	9.6	30.9	30.0	30.3
881212	0700	1.95	0.142	0.142	7.04	7.04	2.0	10.0	8.1	34.6	33.6	32.7
881212	1300	1.65	0.132	0.132	7.56	7.56	8.0	10.0	13.4	35.0	33.1	29.3
881212	1900	1.32	0.142	0.142	7.04	7.04	10.0	8.0	11.3	36.4	35.6	34.1
881213	0100	1.21	0.093	0.093	10.72	10.72	-10.0	-4.0	7.2	37.1	35.7	31.0
881213	0700	1.06	0.113	0.103	8.87	9.71	-10.0	-6.0	7.4	40.0	39.3	30.8
881213	1300	0.91	0.103	0.103	9.71	9.71	2.0	12.0	22.0	41.7	33.1	32.4
881213	1900	0.75	0.191	0.113	5.24	8.87	34.0	20.0	22.2	40.5	28.3	20.8
881214	0100	0.65	0.093	0.093	10.72	10.72	6.0	12.0	19.7	36.0	25.5	28.5
881214	0700	0.90	0.171	0.103	5.83	9.71	20.0	18.0	22.0	31.4	26.2	21.0
881214	1300	1.17	0.142	0.142	7.04	7.04	16.0	12.0	14.9	31.1	29.7	26.2
881214	1900	0.97	0.103	0.103	9.71	9.71	-8.0	8.0	2.6	33.9	33.1	30.9
881215	0100	0.77	0.093	0.093	10.72	10.72	-12.0	-6.0	-12.6	34.6	31.4	32.7
881215	0700	2.09	0.064	0.064	15.62	15.62	-10.0	-6.0	-4.6	33.8	34.7	40.7
881215	1300	1.70	0.064	0.064	15.62	15.62	-4.0	-4.0	-7.5	38.1	38.7	40.6
881215	1900	1.72	0.064	0.064	15.62	15.62	-18.0	-4.0	-8.9	37.4	38.6	41.9
881215	2200	2.19	0.064	0.064	15.62	15.62	-8.0	22.0	15.6	43.7	36.5	42.1

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Date	Time EST	H_{m0} m	Peak Frequency $f_{L.FD}$ Hz	Peak Frequency $f_{p.IFS}$ Hz	Peak Period $T_{p.FD}$ sec	Peak Period $T_{p.IFS}$ sec	Peak Direction $\theta_{p.FD}$ deg	Peak Direction $\theta_{p.IDS}$ deg	Peak Direction $\theta_{p.SW}$ deg	Directional Spread $\Delta\theta_{IDS}$ deg	Directional Spread $\Delta\theta_{SW}$ deg	Directional Spread $\Delta\theta_{FDP}$ deg
881216	0100	2.13	0.064	0.064	15.62	15.62	-12.0	16.0	13.5	41.2	35.8	40.7
881216	0400	2.31	0.064	0.064	15.62	15.62	-8.0	10.0	11.0	36.4	34.2	41.0
881216	0700	2.22	0.152	0.074	6.58	13.57	6.0	10.0	9.6	36.7	35.0	32.0
881216	1300	1.77	0.074	0.074	13.57	13.57	2.0	14.0	14.6	38.6	35.3	39.2
881216	1900	1.39	0.074	0.074	13.57	13.57	4.0	8.0	5.6	33.8	32.9	34.5
881217	0100	1.15	0.074	0.074	13.57	13.57	6.0	14.0	18.5	38.2	36.1	39.0
881217	0700	0.89	0.074	0.074	13.57	13.57	-12.0	10.0	11.3	36.3	32.0	33.0
881217	1300	0.83	0.074	0.074	13.57	13.57	6.0	10.0	17.5	36.7	30.1	31.1
881217	1900	0.83	0.162	0.191	6.19	5.24	8.0	12.0	19.0	33.7	25.5	21.3
881218	0100	0.83	0.142	0.142	7.04	7.04	8.0	14.0	15.5	30.6	26.6	21.9
881218	0700	1.16	0.132	0.132	7.56	7.56	4.0	16.0	14.4	29.5	27.2	25.9
881218	1300	1.03	0.103	0.103	9.71	9.71	2.0	12.0	16.9	35.2	30.7	29.6
881218	1900	0.83	0.093	0.093	10.72	10.72	-2.0	0.0	5.4	36.2	33.7	34.9
881219	0100	0.74	0.103	0.093	9.71	10.72	-14.0	-8.0	-12.2	40.0	38.9	35.7
881219	0700	0.62	0.093	0.093	10.72	10.72	-8.0	-10.0	-7.1	32.9	33.4	34.9
881219	1300	0.56	0.093	0.093	10.72	10.72	16.0	-8.0	3.3	35.8	35.6	34.3
881219	1900	0.51	0.093	0.093	10.72	10.72	-12.0	-14.0	-19.0	33.9	30.4	31.3
881220	0100	0.40	0.103	0.103	9.71	9.71	-4.0	-6.0	-10.2	36.2	32.6	31.0
881220	0700	0.34	0.093	0.093	10.72	10.72	-12.0	-8.0	-20.0	37.9	33.8	30.7
881220	1300	0.30	0.103	0.103	9.71	9.71	-8.0	-10.0	-15.4	37.4	34.3	31.4
881220	1900	0.29	0.103	0.103	9.71	9.71	2.0	-12.0	-28.1	37.8	30.9	32.8
881221	0100	0.28	0.064	0.113	15.62	8.87	-10.0	-28.0	-33.1	35.2	31.7	25.0
881221	1300	0.31	0.123	0.113	8.16	8.87	-22.0	-26.0	-32.7	30.3	25.7	20.1
881221	1900	0.34	0.103	0.093	9.71	10.72	-18.0	-22.0	-31.3	31.0	29.2	22.5
881222	0100	0.36	0.103	0.093	9.71	10.72	-22.0	-26.0	-26.4	29.8	28.0	23.6
881222	0700	1.15	0.210	0.220	4.75	4.54	8.0	50.0	32.6	40.4	35.4	35.7
881222	1900	1.10	0.162	0.162	6.19	6.19	-2.0	8.0	12.7	44.6	39.7	37.0
881223	0100	0.99	0.152	0.162	6.58	6.19	22.0	-4.0	12.2	42.5	39.9	36.0
881223	0700	0.95	0.191	0.093	5.24	10.72	-12.0	-10.0	-8.7	42.6	41.5	38.7
881223	1300	0.86	0.103	0.103	9.71	9.71	-22.0	-18.0	-11.2	44.7	44.8	43.0
881223	1900	0.87	0.103	0.103	9.71	9.71	-20.0	-22.0	-9.9	44.6	44.0	34.9
881224	0100	0.81	0.103	0.103	9.71	9.71	-24.0	-24.0	-20.6	43.2	41.4	39.0
881224	0700	0.75	0.103	0.103	9.71	9.71	-24.0	-26.0	-11.0	46.3	42.7	39.3
881224	1300	0.62	0.103	0.113	9.71	8.87	-24.0	-24.0	-25.0	42.3	37.4	33.4
881224	1900	0.71	0.103	0.103	9.71	9.71	-20.0	-28.0	-35.3	41.2	31.8	32.0
881225	0100	0.57	0.113	0.113	8.87	8.87	-24.0	-28.0	-35.3	34.8	28.8	29.5
881225	0700	0.56	0.142	0.113	7.04	8.87	-36.0	-36.0	-39.3	33.1	30.4	23.0
881225	1300	0.46	0.113	0.113	8.87	8.87	-20.0	-16.0	-32.0	33.1	30.7	30.7
881225	1900	0.61	0.132	0.132	7.56	7.56	-16.0	2.0	-16.7	35.9	32.6	29.5
881226	0100	0.53	0.113	0.123	8.87	8.16	-24.0	-22.0	-11.6	38.0	29.0	27.9
881226	1300	1.39	0.152	0.152	6.58	6.58	4.0	12.0	23.4	37.5	35.7	38.4
881226	1900	1.10	0.181	0.142	5.52	7.04	14.0	18.0	19.2	38.9	35.0	33.8
881227	0100	0.90	0.201	0.201	4.98	4.98	40.0	18.0	24.4	41.0	34.5	35.1
881227	0700	0.77	0.201	0.201	4.98	4.98	38.0	20.0	11.5	43.2	38.3	35.0
881227	1300	0.61	0.113	0.123	8.87	8.16	-6.0	-12.0	12.8	43.9	43.9	34.4
881227	1900	0.63	0.123	0.123	8.16	8.16	-6.0	-8.0	1.6	41.1	41.7	34.8
881228	0100	0.60	0.093	0.093	10.72	10.72	-22.0	-22.0	-17.0	43.9	40.0	29.9
881228	0700	0.71	0.083	0.083	11.98	11.98	-18.0	-20.0	-30.6	41.3	35.7	29.0
881228	1300	0.80	0.318	0.142	3.15	7.04	-58.0	-58.0	-38.8	31.5	21.7	11.8

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Date	Time EST	H_{mo} m	Peak Frequency $f_{p.FD}$ Hz	Peak Frequency $f_{p.IFS}$ Hz	Peak Period $T_{p.FD}$ sec	Peak Period $T_{p.IFS}$ sec	Peak Direction $\theta_{p.FD}$ deg	Peak Direction $\theta_{p.IDS}$ deg	Peak Direction $\theta_{p.SW}$ deg	Directional Spread $\Delta\theta_{IDS}$ deg	Directional Spread $\Delta\theta_{SW}$ deg	Directional Spread $\Delta\theta_{FDP}$ deg
881228	1900	0.65	0.132	0.132	7.56	7.56	-34.0	-34.0	-37.4	33.3	24.4	24.2
881229	0100	0.91	0.220	0.220	4.54	4.54	52.0	54.0	34.1	59.7	27.1	17.4
881229	0700	1.60	0.162	0.162	6.19	6.19	6.0	14.0	22.7	37.5	35.1	35.2
881229	1300	1.14	0.162	0.162	6.19	6.19	32.0	8.0	27.9	43.1	39.4	38.0
881229	1900	0.83	0.142	0.132	7.04	7.56	18.0	10.0	12.2	42.8	40.2	36.7
881230	0100	0.77	0.142	0.142	7.04	7.04	-10.0	-14.0	9.7	45.1	42.1	40.3
881230	0700	0.82	0.259	0.162	3.86	6.19	14.0	18.0	13.4	41.3	36.3	25.9
881230	1300	0.68	0.230	0.064	4.35	15.62	36.0	8.0	12.8	45.1	37.6	27.9
881230	1900	0.59	0.064	0.064	15.62	15.62	-4.0	-16.0	2.1	39.5	36.7	29.3
881231	0100	0.48	0.064	0.103	15.62	9.71	-10.0	-12.0	-5.4	35.1	35.9	24.7
881231	0700	0.39	0.103	0.113	9.71	8.87	-16.0	-12.0	-14.3	32.9	33.7	29.0
881231	1300	0.41	0.074	0.074	13.57	13.57	-10.0	58.0	16.8	62.0	34.9	21.8
881231	1900	0.38	0.113	0.113	8.87	8.87	-22.0	-18.0	-14.4	34.0	36.2	25.3
890101	0100	0.47	0.113	0.103	8.87	9.71	-22.0	12.0	-1.4	40.3	34.7	31.6
890101	0700	1.40	0.191	0.181	5.24	5.52	-4.0	-6.0	-5.5	31.7	31.4	27.4
890101	1300	1.40	0.162	0.162	6.19	6.19	14.0	-14.0	2.5	45.1	44.7	38.8
890101	1900	1.87	0.142	0.132	7.04	7.56	-10.0	2.0	9.7	43.3	39.3	39.8
890102	0100	1.78	0.123	0.123	8.16	8.16	-2.0	2.0	7.7	37.3	37.1	37.9
890102	0700	1.54	0.093	0.093	10.72	10.72	4.0	2.0	6.5	34.1	33.9	32.5
890102	1300	1.23	0.093	0.093	10.72	10.72	-2.0	2.0	6.2	33.2	33.2	33.7
890102	1900	0.82	0.103	0.113	9.71	8.87	8.0	8.0	4.1	33.0	32.6	30.0
890103	0100	0.69	0.093	0.103	10.72	9.71	6.0	8.0	5.6	34.0	34.5	26.5
890103	0700	0.55	0.113	0.103	8.87	9.71	4.0	2.0	1.5	31.9	32.6	29.2
890103	1300	0.51	0.103	0.103	9.71	9.71	8.0	0.0	2.2	31.2	33.2	28.9
890103	1600	0.57	0.103	0.103	9.71	9.71	-10.0	-10.0	10.5	41.0	33.9	31.1
890103	1900	0.57	0.113	0.113	8.87	8.87	-8.0	2.0	12.8	39.4	34.7	32.4
890103	2200	0.55	0.113	0.113	8.87	8.87	-6.0	18.0	15.6	37.3	27.7	31.7
890104	0100	1.30	0.318	0.210	3.15	4.75	54.0	54.0	45.4	31.7	25.2	20.3
890104	0400	1.52	0.318	0.162	3.15	6.19	52.0	52.0	38.4	30.7	25.5	27.1
890104	0700	2.05	0.142	0.142	7.04	7.04	20.0	20.0	20.9	30.7	28.4	26.6
890104	1000	2.19	0.142	0.142	7.04	7.04	22.0	18.0	22.4	31.7	29.3	29.0
890104	1300	2.08	0.132	0.132	7.56	7.56	10.0	14.0	16.5	34.0	32.4	30.1
890104	1600	1.98	0.132	0.113	7.56	8.87	18.0	14.0	16.8	35.1	32.5	29.8
890104	1900	1.92	0.123	0.123	8.16	8.16	2.0	12.0	17.7	35.0	32.1	30.8
890104	2200	1.98	0.093	0.093	10.72	10.72	10.0	14.0	10.2	34.6	33.2	36.6
890105	0100	1.88	0.103	0.103	9.71	9.71	16.0	12.0	21.1	36.7	32.8	32.3
890105	0400	1.57	0.103	0.103	9.71	9.71	14.0	10.0	18.3	37.2	34.0	32.8
890105	0700	1.47	0.093	0.093	10.72	10.72	-2.0	8.0	8.5	35.6	34.2	40.2
890105	1300	1.61	0.074	0.074	13.57	13.57	-12.0	0.0	3.5	38.7	38.0	41.0
890105	1900	1.32	0.074	0.074	13.57	13.57	-6.0	-6.0	2.0	37.4	36.8	35.5
890106	0100	1.13	0.074	0.074	13.57	13.57	-10.0	-8.0	-0.1	33.9	33.9	34.2
890106	0700	1.00	0.074	0.074	13.57	13.57	-10.0	-12.0	-14.1	38.4	34.0	36.4
890106	1300	0.90	0.074	0.074	13.57	13.57	-8.0	-14.0	-11.5	32.2	32.5	35.5
890106	1900	0.77	0.074	0.074	13.57	13.57	-10.0	-6.0	-14.3	40.2	38.5	31.6
890107	0100	0.70	0.083	0.083	11.98	11.98	-10.0	-14.0	-15.2	41.8	41.1	33.2
890107	0700	0.93	0.298	0.083	3.35	11.98	52.0	18.0	11.5	52.4	43.6	36.3
890107	1300	1.03	0.123	0.113	8.16	8.87	14.0	20.0	9.0	43.4	38.8	35.2
890107	1900	1.04	0.103	0.113	9.71	8.87	12.0	12.0	10.8	43.9	42.5	40.5
890108	0100	1.03	0.103	0.103	9.71	9.71	14.0	-2.0	7.6	39.6	38.4	37.5
890108	0700	0.96	0.113	0.103	8.87	9.71	6.0	8.0	5.3	43.4	42.7	36.9

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Date	Time EST	H_{mo} m	Peak Frequency $f_{p,FD}$ Hz	Peak Frequency $f_{p,IFS}$ Hz	Peak Period $T_{p,FD}$ sec	Peak Period $T_{p,IFS}$ sec	Peak Direction $\theta_{p,FD}$ deg	Peak Direction $\theta_{p,IDS}$ deg	Peak Direction $\theta_{p,SW}$ deg	Directional Spread $\Delta\theta_{IDS}$ deg	Directional Spread $\Delta\theta_{SW}$ deg	Directional Spread $\Delta\theta_{FDP}$ deg
890108	1300	0.86	0.103	0.103	9.71	9.71	0.0	-6.0	-9.0	37.8	36.0	38.9
890108	1900	0.77	0.093	0.093	10.72	10.72	0.0	-4.0	-9.5	43.5	37.7	34.4
890109	0100	0.64	0.093	0.093	10.72	10.72	-8.0	10.0	-8.0	40.0	34.7	29.4
890109	0700	0.64	0.093	0.093	10.72	10.72	2.0	-6.0	6.0	49.8	48.5	32.1
890109	1900	0.87	0.201	0.201	4.98	4.98	12.0	6.0	5.8	34.2	33.6	27.3
890110	0100	1.05	0.181	0.171	5.52	5.83	2.0	6.0	7.4	33.0	32.2	27.7
890110	0700	1.19	0.210	0.201	4.75	4.98	2.0	-2.0	-1.5	34.0	32.6	22.9
890110	1300	1.19	0.171	0.171	5.83	5.83	-8.0	-8.0	-9.7	38.6	38.9	35.1
890110	1900	1.00	0.191	0.191	5.24	5.24	-10.0	-8.0	-9.1	37.3	37.7	31.3
890111	0100	0.85	0.123	0.123	8.16	8.16	-26.0	-22.0	-10.9	39.0	38.7	29.7
890111	1900	0.94	0.123	0.123	8.16	8.16	-8.0	-16.0	-7.9	35.8	36.3	33.2
890112	0100	1.26	0.171	0.171	5.83	5.83	-12.0	-14.0	-9.9	35.7	35.5	32.6
890112	0700	1.35	0.162	0.162	6.19	6.19	-20.0	-18.0	-17.6	40.2	41.2	42.1
890112	1300	1.69	0.113	0.113	8.87	8.87	-20.0	-18.0	-14.3	36.7	36.9	35.5
890112	1900	1.20	0.123	0.123	8.16	8.16	-18.0	-22.0	-20.2	38.2	38.3	36.6
890113	0100	0.85	0.123	0.123	8.16	8.16	-28.0	-26.0	-18.2	41.9	38.9	38.6
890113	0700	0.70	0.113	0.113	8.87	8.87	-22.0	-26.0	-14.1	39.9	36.1	33.8
890113	1300	1.78	0.171	0.191	5.83	5.24	12.0	22.0	24.8	36.8	32.5	29.6
890113	1600	1.95	0.162	0.162	6.19	6.19	8.0	14.0	17.2	33.4	30.9	29.0
890113	1900	2.05	0.152	0.142	6.58	7.04	2.0	12.0	12.5	35.4	33.1	33.5
890114	0100	1.52	0.152	0.152	6.58	6.58	4.0	16.0	11.1	36.6	35.5	33.9
890114	0700	1.19	0.132	0.132	7.56	7.56	8.0	-2.0	4.3	39.9	39.3	34.0
890114	1300	0.97	0.142	0.132	7.04	7.56	16.0	-8.0	-6.8	41.2	40.3	35.3
890114	1900	1.02	0.113	0.162	8.87	6.19	-16.0	-12.0	-12.6	40.7	40.1	34.6
890115	0100	1.03	0.181	0.171	5.52	5.83	-28.0	-24.0	-25.4	42.1	39.0	36.5
890115	0700	1.00	0.142	0.142	7.04	7.04	-12.0	-22.0	-21.0	35.7	34.8	35.0
890115	1300	0.85	0.142	0.142	7.04	7.04	-14.0	-24.0	-21.8	36.8	35.5	36.6
890115	1900	0.70	0.142	0.103	7.04	9.71	-32.0	-28.0	-26.4	36.3	32.5	36.0
890116	0100	0.63	0.103	0.103	9.71	9.71	-22.0	-26.0	-25.0	43.0	39.6	37.8
890116	0700	0.54	0.103	0.103	9.71	9.71	-22.0	-26.0	-23.2	40.1	40.8	37.2
890116	1300	1.19	0.230	0.230	4.35	4.35	40.0	40.0	33.3	37.8	28.6	18.6
890116	1900	0.89	0.171	0.171	5.83	5.83	10.0	14.0	22.5	36.9	33.0	26.7
890117	0100	0.75	0.191	0.191	5.24	5.24	8.0	10.0	14.7	39.1	35.6	29.0
890117	0700	0.76	0.113	0.113	8.87	8.87	-18.0	6.0	4.2	37.5	33.1	30.9
890117	1900	0.49	0.113	0.113	8.87	8.87	-20.0	-14.0	-15.0	34.4	34.8	32.4
890118	0100	0.43	0.113	0.103	8.87	9.71	-26.0	-18.0	-19.9	34.2	33.9	33.4
890118	1300	0.43	0.103	0.103	9.71	9.71	-18.0	-18.0	-19.2	31.3	32.3	34.8
890118	1900	0.39	0.103	0.103	9.71	9.71	-20.0	-22.0	-21.1	32.7	32.5	31.1
890119	0100	0.35	0.103	0.103	9.71	9.71	-18.0	-24.0	-15.8	35.5	35.3	35.3
890119	0700	0.27	0.103	0.103	9.71	9.71	-34.0	-18.0	-19.8	45.8	39.3	34.8
890119	1300	0.28	0.103	0.103	9.71	9.71	-34.0	-22.0	-12.2	44.2	46.9	34.3
890119	1900	0.30	0.103	0.103	9.71	9.71	-38.0	-14.0	-19.4	38.4	39.4	30.7
890120	0100	0.30	0.113	0.113	8.87	8.87	-24.0	-32.0	-18.2	35.7	36.3	33.0
890120	0700	0.30	0.132	0.113	7.56	8.87	-24.0	-14.0	-23.9	35.7	37.0	22.8
890120	1300	0.25	0.113	0.103	8.87	9.71	-38.0	-14.0	-23.4	33.5	34.5	32.1
890120	1900	0.36	0.318	0.318	3.15	3.15	54.0	54.0	11.4	86.7	34.4	59.7
890121	0100	1.14	0.181	0.181	5.52	5.52	22.0	26.0	30.3	27.5	27.0	25.0
890121	0700	2.05	0.142	0.142	7.04	7.04	14.0	20.0	21.8	30.8	28.9	25.9

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Date	Time EST	H_{mo} m	Peak Frequency $f_{p,FD}$ Hz	Peak Frequency $f_{p,IFS}$ Hz	Peak Period $T_{p,FD}$ sec	Peak Period $T_{p,IFS}$ sec	Peak Direction $\theta_{p,FD}$ deg	Peak Direction $\theta_{p,IDS}$ deg	Peak Direction $\theta_{p,SW}$ deg	Directional Spread $\Delta\theta_{IDS}$ deg	Directional Spread $\Delta\theta_{SW}$ deg	Directional Spread $\Delta\theta_{FDP}$ deg
890121	1300	1.77	0.171	0.171	5.83	5.83	16.0	14.0	17.4	30.9	29.4	27.5
890121	1900	1.40	0.152	0.162	6.58	6.19	2.0	12.0	18.5	35.6	33.1	32.4
890122	0100	1.13	0.132	0.132	7.56	7.56	12.0	6.0	8.8	33.9	35.3	29.0
890122	0700	1.02	0.259	0.132	3.86	7.56	10.0	8.0	6.4	36.1	35.6	33.5
890122	1300	0.99	0.201	0.142	4.98	7.04	-10.0	-6.0	0.1	33.8	33.9	28.7
890122	1900	1.05	0.191	0.201	5.24	4.98	-10.0	-10.0	-2.4	38.0	37.6	33.4
890123	0100	1.36	0.191	0.181	5.24	5.52	-6.0	-8.0	-2.1	38.3	37.6	26.4
890123	0700	2.14	0.113	0.113	8.87	8.87	-22.0	-14.0	-10.8	40.3	39.9	38.1
890123	1000	2.53	0.103	0.103	9.71	9.71	-2.0	-12.0	-4.3	38.4	39.4	39.4
890123	1300	2.87	0.093	0.093	10.72	10.72	-20.0	-16.0	-8.3	37.7	40.3	37.9
890123	1600	3.00	0.093	0.093	10.72	10.72	-18.0	-16.0	-9.7	37.2	38.9	37.8
890123	1900	2.96	0.093	0.093	10.72	10.72	-4.0	-6.0	-5.3	37.9	39.3	37.7
890123	2200	2.81	0.083	0.083	11.98	11.98	4.0	-10.0	-1.1	38.9	40.1	39.5
890124	0100	2.74	0.083	0.083	11.98	11.98	-2.0	-10.0	-1.8	38.0	39.1	37.0
890124	0400	2.78	0.083	0.083	11.98	11.98	14.0	-8.0	1.0	36.6	37.1	37.3
890124	0700	2.43	0.093	0.093	10.72	10.72	4.0	-8.0	-1.5	37.9	38.1	37.6
890124	1300	2.01	0.093	0.093	10.72	10.72	-12.0	-10.0	-10.4	37.4	37.7	41.1
890124	1900	1.85	0.093	0.093	10.72	10.72	-12.0	-12.0	-7.2	39.3	39.5	44.6
890125	0100	1.46	0.093	0.093	10.72	10.72	14.0	10.0	1.9	37.5	37.8	38.1
890125	0700	1.23	0.103	0.103	9.71	9.71	-2.0	-14.0	-5.8	38.9	39.2	39.3
890125	1300	1.10	0.103	0.103	9.71	9.71	-2.0	-14.0	-8.0	35.1	35.4	38.7
890125	1900	1.22	0.103	0.103	9.71	9.71	-10.0	-14.0	-7.4	37.8	37.6	41.8
890126	0100	1.31	0.162	0.103	6.19	9.71	28.0	-6.0	1.3	39.6	38.8	37.4
890126	0700	1.26	0.152	0.152	6.58	6.58	28.0	-8.0	3.8	39.7	39.6	36.7
890126	1300	1.13	0.113	0.113	8.87	8.87	12.0	-10.0	2.8	40.1	40.6	40.7
890126	1900	1.01	0.113	0.113	8.87	8.87	20.0	-14.0	5.2	42.5	42.6	46.8
890127	0100	0.80	0.103	0.103	9.71	9.71	10.0	-18.0	-8.8	44.9	37.3	39.3
890127	0700	0.62	0.064	0.064	15.62	15.62	4.0	-30.0	-29.5	47.2	35.6	31.5
890127	1300	0.47	0.064	0.064	15.62	15.62	0.0	-18.0	-27.3	46.8	32.8	28.6
890127	1900	0.51	0.064	0.064	15.62	15.62	-10.0	-14.0	-27.5	40.7	41.3	25.1
890128	0100	0.55	0.064	0.064	15.62	15.62	-18.0	12.0	0.5	42.3	33.5	27.9
890128	0700	1.09	0.171	0.171	5.83	5.83	4.0	2.0	9.5	36.6	35.8	30.9
890128	1300	0.95	0.162	0.171	6.19	5.83	-14.0	-8.0	-4.1	37.2	37.6	34.8
890128	1900	0.71	0.171	0.162	5.83	6.19	22.0	16.0	8.1	42.9	40.0	39.0
890129	0100	0.58	0.103	0.103	9.71	9.71	-10.0	-12.0	-0.2	41.7	43.3	31.6
890129	0700	0.46	0.113	0.103	8.87	9.71	-16.0	-16.0	-16.7	34.3	34.0	26.5
890129	1300	0.39	0.103	0.093	9.71	10.72	-22.0	-22.0	-23.2	34.2	32.3	28.1
890129	1900	0.36	0.103	0.103	9.71	9.71	-24.0	-22.0	-20.9	34.1	32.0	31.2
890130	0100	0.35	0.103	0.103	9.71	9.71	-26.0	-26.0	-23.4	36.4	34.3	26.9
890130	0700	0.32	0.103	0.103	9.71	9.71	-24.0	-26.0	-29.3	33.4	30.1	30.6
890130	1900	0.37	0.123	0.103	8.16	9.71	-42.0	-42.0	-34.2	30.5	26.0	20.8
890131	0100	0.52	0.308	0.308	3.25	3.25	62.0	60.0	5.8	86.6	33.7	40.0
890131	0700	0.82	0.230	0.230	4.35	4.35	50.0	52.0	36.3	39.8	32.4	26.4
890131	1300	0.52	0.210	0.210	4.75	4.75	44.0	18.0	10.8	52.3	39.1	37.5
890201	1900	0.29	0.142	0.142	7.04	7.04	-28.0	-30.0	-32.1	42.5	33.3	32.7
890201	2200	0.30	0.142	0.142	7.04	7.04	-24.0	-30.0	-35.6	40.5	30.4	29.7
890202	0100	0.33	0.240	0.132	4.17	7.56	-66.0	-66.0	-42.3	44.2	31.4	21.8
890202	0400	0.29	0.142	0.142	7.04	7.04	-32.0	-32.0	-35.3	44 .	34.8	39.3
890202	0700	0.29	0.132	0.142	7.56	7.04	-40.0	-62.0	-36.7	43.9	32.0	33.4

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Date	Time EST	H_{mo} m	Peak Frequency $f_{p,FD}$ Hz	Peak Frequency $f_{p,IFS}$ Hz	Peak Period $T_{p,FD}$ sec	Peak Period $T_{p,IFS}$ sec	Peak Direction $\theta_{p,FD}$ deg	Peak Direction $\theta_{p,IDS}$ deg	Peak Direction $\theta_{p,SW}$ deg	Directional Spread $\Delta\theta_{IDS}$ deg	Directional Spread $\Delta\theta_{SW}$ deg	Directional Spread $\Delta\theta_{FDP}$ deg
890202	1300	0.28	0.142	0.142	7.04	7.04	-42.0	-42.0	-32.8	41.6	35.4	19.1
890202	1900	0.27	0.103	0.103	9.71	9.71	-26.0	-26.0	-31.5	46.4	40.0	35.2
890203	0100	0.31	0.103	0.103	9.71	9.71	-22.0	-26.0	-32.0	48.7	41.8	38.3
890203	0700	0.31	0.123	0.113	8.16	8.87	8.0	-30.0	-32.8	54.8	42.5	43.6
890203	1300	0.60	0.142	0.132	7.04	7.56	22.0	24.0	16.8	50.9	48.6	42.5
890203	1900	1.14	0.308	0.298	3.25	3.35	46.0	44.0	33.4	25.7	21.2	15.3
890204	0100	2.00	0.162	0.152	6.19	6.58	2.0	4.0	13.0	33.9	32.5	33.0
890204	0700	1.94	0.142	0.142	7.04	7.04	0.0	8.0	13.1	35.9	34.0	30.5
890204	1300	1.65	0.132	0.132	7.56	7.56	8.0	6.0	13.9	34.3	33.4	34.7
890204	1900	1.41	0.132	0.132	7.56	7.56	6.0	4.0	11.3	36.8	34.4	36.3
890205	0100	1.12	0.132	0.132	7.56	7.56	2.0	2.0	12.7	36.3	35.1	33.1
890205	0700	1.03	0.123	0.123	8.16	8.16	-10.0	-4.0	12.5	39.5	35.8	32.5
890205	1300	1.12	0.113	0.113	8.87	8.87	2.0	16.0	15.2	38.6	32.4	32.5
890205	1900	0.99	0.113	0.113	8.87	8.87	6.0	6.0	15.2	41.5	36.7	36.9
890206	0100	0.88	0.191	0.113	5.24	8.87	8.0	4.0	10.5	39.2	34.6	29.3
890206	0700	0.79	0.162	0.162	6.19	6.19	0.0	10.0	10.1	38.8	34.6	32.3
890206	1300	0.57	0.152	0.152	6.58	6.58	24.0	2.0	9.0	36.7	36.0	31.0
890206	1900	0.52	0.142	0.142	7.04	7.04	10.0	14.0	11.5	40.6	39.4	31.1
890207	0100	0.43	0.142	0.123	7.04	8.16	10.0	8.0	5.6	38.4	38.1	29.6
890207	0700	0.42	0.064	0.064	15.62	15.62	-8.0	-14.0	-17.6	46.1	46.2	30.1
890207	1000	0.45	0.318	0.318	3.15	3.15	52.0	-8.0	-0.1	52.1	39.5	27.8
890207	1300	1.02	0.230	0.240	4.35	4.17	46.0	44.0	35.9	27.4	24.4	18.2
890207	1900	1.28	0.162	0.171	6.19	5.83	26.0	16.0	29.6	36.1	33.6	29.7
890208	0100	1.15	0.162	0.162	6.19	6.19	2.0	8.0	12.6	32.6	31.9	29.7
890208	0700	1.02	0.181	0.171	5.52	5.83	12.0	10.0	18.3	38.3	37.2	37.0
890208	1300	0.84	0.181	0.191	5.52	5.24	4.0	4.0	14.0	37.1	33.9	32.4
890208	1900	0.65	0.191	0.191	5.24	5.24	12.0	12.0	16.0	40.5	36.0	28.3
890209	0100	0.44	0.308	0.308	3.25	3.25	54.0	50.0	29.9	47.4	20.7	17.1
890209	0700	0.70	0.279	0.279	3.59	3.59	52.0	52.0	45.3	31.2	27.2	13.1
890209	1300	1.13	0.142	0.142	7.04	7.04	20.0	26.0	29.0	33.6	26.4	26.8
890209	1900	0.83	0.152	0.142	6.58	7.04	24.0	24.0	30.3	34.6	31.9	24.4
890210	0100	0.57	0.181	0.171	5.52	5.83	38.0	36.0	30.2	34.9	27.5	23.7
890210	0700	0.40	0.142	0.142	7.04	7.04	6.0	22.0	12.2	43.7	37.3	31.7
890210	1900	0.41	0.240	0.318	4.17	3.15	66.0	66.0	41.3	63.1	31.6	29.0
890211	0100	0.28	0.103	0.103	9.71	9.71	-36.0	-20.0	-4.4	50.7	51.4	31.3
890211	0700	0.27	0.113	0.103	8.87	9.71	-34.0	-16.0	-24.0	36.7	36.6	24.2
890211	1300	0.25	0.093	0.103	10.72	9.71	-32.0	-32.0	-29.7	34.1	36.3	22.5
890211	1900	0.25	0.103	0.103	9.71	9.71	-24.0	-22.0	-35.2	38.3	40.1	29.2
890212	0100	0.25	0.103	0.103	9.71	9.71	-28.0	-34.0	-25.3	36.8	35.6	17.5
890212	0700	0.22	0.103	0.103	9.71	9.71	-28.0	-28.0	-24.8	38.7	42.5	16.0
890212	1300	0.25	0.318	0.318	3.15	3.15	58.0	-28.0	-0.2	55.2	45.6	70.6
890212	1900	0.75	0.230	0.250	4.35	4.01	44.0	50.0	25.7	37.9	34.6	33.0
890213	0100	1.09	0.191	0.191	5.24	5.24	20.0	20.0	20.8	35.1	33.4	29.2
890213	0700	1.01	0.171	0.171	5.83	5.83	8.0	10.0	11.1	34.8	34.6	27.2
890213	1300	0.74	0.191	0.191	5.24	5.24	34.0	14.0	7.2	45.0	41.5	38.8
890214	0700	0.75	0.142	0.142	7.04	7.04	-16.0	-26.0	-26.0	39.2	34.9	38.4
890214	1300	0.67	0.152	0.162	6.58	6.19	-22.0	-26.0	-29.1	39.5	34.9	42.2
890214	1900	0.58	0.142	0.142	7.04	7.04	-28.0	-30.0	-34.9	34.8	29.1	30.6

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Date	Time	H_{mo}	Peak Frequency		Peak Period		Peak Direction			Directional Spread		
			$f_{p,FD}$	$f_{p,IFS}$	$T_{p,FD}$	$T_{p,IFS}$	$\theta_{p,FD}$	$\theta_{p,IDS}$	$\theta_{p,SW}$	$\Delta\theta_{IDS}$	$\Delta\theta_{SW}$	$\Delta\theta_{FDP}$
	EST	m	Hz	Hz	sec	sec	deg	deg	deg	deg	deg	deg
890215	0100	0.60	0.152	0.152	6.58	6.58	-26.0	-28.0	-33.1	34.6	31.2	30.5
890215	0700	0.52	0.152	0.152	6.58	6.58	-24.0	-26.0	-29.2	31.1	30.0	26.8
890215	1300	0.46	0.162	0.103	6.19	9.71	-26.0	-26.0	-29.7	33.5	29.9	25.9
890215	1900	0.50	0.103	0.103	9.71	9.71	-20.0	-40.0	-37.3	35.0	25.6	30.8
890216	0100	0.50	0.103	0.103	9.71	9.71	-20.0	-26.0	-36.3	36.4	29.1	27.5
890216	0700	0.61	0.308	0.308	3.25	3.25	22.0	-26.0	5.1	71.0	42.1	35.5
890216	1000	1.06	0.220	0.250	4.54	4.01	4.0	6.0	8.7	34.0	31.0	28.6
890216	1300	1.45	0.201	0.191	4.98	5.24	0.0	6.0	6.5	34.1	32.2	28.4
890216	1600	1.68	0.181	0.181	5.52	5.52	10.0	10.0	12.9	35.3	32.3	28.7
890216	1900	1.79	0.171	0.162	5.83	6.19	4.0	8.0	11.6	35.1	33.3	30.3
890216	2200	1.55	0.162	0.162	6.19	6.19	0.0	10.0	10.0	34.9	33.0	30.9
890217	0100	1.59	0.191	0.181	5.24	5.52	10.0	6.0	12.4	36.5	34.0	28.8
890217	0400	1.84	0.171	0.162	5.83	6.19	8.0	6.0	11.5	37.4	35.6	29.4
890217	0700	2.07	0.152	0.152	6.58	6.58	-2.0	4.0	8.3	38.2	36.6	41.7
890217	1000	2.25	0.142	0.132	7.04	7.56	-4.0	0.0	4.2	37.4	37.2	33.8
890217	1300	2.25	0.132	0.132	7.56	7.56	12.0	4.0	6.8	38.3	38.2	40.6
890217	1600	1.99	0.181	0.132	5.52	7.56	4.0	8.0	13.3	41.4	39.3	33.3
890217	1900	1.82	0.162	0.152	6.19	6.58	-2.0	6.0	10.0	42.9	37.9	37.5
890217	2200	1.72	0.181	0.171	5.52	5.83	4.0	2.0	7.9	40.9	37.3	31.6
890218	0100	2.10	0.171	0.171	5.83	5.83	4.0	8.0	3.8	38.9	37.2	31.7
890218	0400	2.55	0.152	0.152	6.58	6.58	4.0	4.0	8.4	41.5	40.0	40.1
890218	0700	2.59	0.152	0.142	6.58	7.04	-2.0	0.0	2.8	38.8	37.0	34.2
890218	1000	2.74	0.142	0.132	7.04	7.56	-6.0	-6.0	-3.6	38.7	37.4	32.9
890218	1300	2.88	0.132	0.132	7.56	7.56	-8.0	-4.0	-2.3	37.5	37.4	39.2
890218	1600	3.06	0.132	0.132	7.56	7.56	-4.0	-4.0	-4.0	40.6	40.0	46.5
890218	1900	3.19	0.123	0.123	8.16	8.16	-4.0	-4.0	-1.7	39.7	39.5	40.7
890218	2200	3.05	0.113	0.113	8.87	8.87	2.0	-8.0	-1.9	39.6	39.4	41.1
890219	0100	2.93	0.113	0.103	8.87	9.71	10.0	-6.0	0.2	40.3	40.2	38.6
890219	0400	2.88	0.103	0.103	9.71	9.71	4.0	2.0	3.9	43.2	42.0	42.6
890219	0700	2.53	0.103	0.103	9.71	9.71	6.0	2.0	5.8	41.8	39.8	41.7
890219	1000	2.21	0.103	0.103	9.71	9.71	10.0	-6.0	4.2	39.3	39.5	41.6
890219	1300	1.96	0.113	0.103	8.87	9.71	0.0	-2.0	0.2	37.2	37.3	36.6
890219	1600	1.82	0.093	0.093	10.72	10.72	8.0	2.0	3.5	39.1	38.8	40.0
890219	1900	1.67	0.093	0.093	10.72	10.72	-8.0	-4.0	-1.9	39.9	39.5	38.9
890219	2200	1.55	0.093	0.093	10.72	10.72	10.0	-10.0	-0.7	38.1	38.3	41.1
890220	0100	1.53	0.103	0.103	9.71	9.71	-8.0	-12.0	-3.3	38.0	38.0	40.0
890220	0400	1.39	0.103	0.103	9.71	9.71	-14.0	-10.0	-3.3	37.3	37.4	37.8
890220	0700	1.23	0.103	0.103	9.71	9.71	-4.0	-10.0	-3.5	39.2	39.3	42.5
890220	1000	1.13	0.103	0.103	9.71	9.71	-4.0	4.0	-0.6	40.0	39.8	40.1
890220	1300	1.05	0.103	0.103	9.71	9.71	-10.0	-12.0	-7.8	37.8	37.8	37.9
890220	1900	0.90	0.103	0.103	9.71	9.71	12.0	-14.0	-2.7	39.3	39.6	41.4
890221	0100	0.76	0.103	0.103	9.71	9.71	-14.0	-14.0	-6.5	36.8	35.5	38.6
890221	1300	1.12	0.318	0.113	3.15	8.87	-46.0	-44.0	-23.2	41.4	32.0	18.5
890221	1600	0.91	0.123	0.123	8.16	8.16	-4.0	-24.0	-14.3	44.2	37.8	41.7
890221	1900	0.85	0.113	0.123	8.87	8.16	-16.0	-24.0	-15.7	43.7	38.8	43.8
890221	2200	0.81	0.113	0.113	8.87	8.87	16.0	-26.0	-16.1	44.3	38.5	43.5
890222	0100	0.84	0.113	0.113	8.87	8.87	-14.0	-24.0	-14.0	43.1	38.9	41.9
890222	0400	0.92	0.113	0.113	8.87	8.87	-12.0	-24.0	-14.6	42.6	38.7	44.2
890222	0700	0.89	0.123	0.113	8.16	8.87	-20.0	-24.0	-21.0	43.3	39.6	44.0
890222	1300	0.69	0.103	0.113	9.71	8.87	-16.0	-22.0	-10.3	43.5	41.4	43.7
890222	1600	0.95	0.250	0.113	4.01	8.87	56.0	54.0	23.8	66.6	35.8	17.9
890222	1900	1.21	0.230	0.230	4.35	4.35	48.0	50.0	29.5	57.0	37.0	25.9
890222	2200	1.34	0.240	0.220	4.17	4.54	48.0	48.0	29.3	44.6	36.0	25.0

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Date	Time	H_{mo}	Peak Frequency		Peak Period		Peak Direction			Directional Spread		
			$f_{p,FD}$	$f_{p,IFS}$	$T_{p,FD}$	$T_{p,IFS}$	$\theta_{p,FD}$	$\theta_{p,IDS}$	$\theta_{p,SW}$	$\Delta\theta_{IDS}$	$\Delta\theta_{SW}$	$\Delta\theta_{FDP}$
	EST	m	Hz	Hz	sec	sec	deg	deg	deg	deg	deg	deg
890223	0400	1.85	0.181	0.171	5.52	5.83	6.0	6.0	6.6	39.2	37.3	31.3
890223	0700	1.95	0.162	0.162	6.19	6.19	2.0	8.0	5.6	38.4	36.7	33.6
890223	1000	2.18	0.162	0.152	6.19	6.58	2.0	8.0	7.5	39.1	37.0	34.4
890223	1300	2.33	0.142	0.142	7.04	7.04	-2.0	8.0	6.5	38.2	36.7	36.1
890223	1600	2.92	0.132	0.132	7.56	7.56	6.0	10.0	7.4	39.7	39.8	44.4
890223	1900	3.22	0.123	0.123	8.16	8.16	0.0	6.0	5.9	39.8	39.4	46.4
890223	2200	3.22	0.113	0.113	8.87	8.87	0.0	6.0	1.8	41.3	40.7	49.3
890224	0100	3.47	0.113	0.113	8.87	8.87	10.0	6.0	6.0	40.6	40.3	50.3
890224	0400	3.98	0.103	0.103	9.71	9.71	6.0	8.0	4.7	38.6	38.7	47.1
890224	0700	4.27	0.093	0.093	10.72	10.72	0.0	8.0	4.2	39.2	39.0	47.4
890224	1000	4.32	0.083	0.083	11.98	11.98	-6.0	6.0	3.7	37.0	37.5	42.5
890224	1300	4.05	0.083	0.083	11.98	11.98	-4.0	4.0	1.3	35.4	35.4	39.9
890224	1600	4.00	0.083	0.074	11.98	13.57	6.0	4.0	-0.3	36.5	36.8	43.6
890224	1900	3.85	0.074	0.074	13.57	13.57	-16.0	2.0	-0.7	39.4	39.6	47.7
890224	2200	3.62	0.074	0.074	13.57	13.57	-4.0	6.0	2.5	39.1	39.4	46.2
890225	0100	3.21	0.074	0.074	13.57	13.57	12.0	0.0	6.1	37.5	38.1	42.6
890225	0400	2.82	0.074	0.074	13.57	13.57	0.0	4.0	2.6	38.5	38.8	41.8
890225	0700	2.51	0.083	0.074	11.98	13.57	-2.0	2.0	4.5	39.0	38.8	42.9
890225	1000	2.23	0.083	0.083	11.98	11.98	-2.0	2.0	3.0	38.7	38.4	41.4
890225	1300	1.88	0.083	0.083	11.98	11.98	-14.0	2.0	1.3	38.0	36.9	39.6
890225	1600	1.67	0.083	0.083	11.98	11.98	16.0	0.0	7.9	37.7	37.1	39.8
890225	1900	1.48	0.083	0.083	11.98	11.98	-10.0	2.0	2.3	39.1	38.3	39.6
890225	2200	1.24	0.083	0.083	11.98	11.98	-6.0	0.0	2.6	39.6	38.9	39.4
890226	0100	1.08	0.083	0.083	11.98	11.98	14.0	14.0	10.1	38.2	37.8	40.5
890226	0400	0.95	0.093	0.093	10.72	10.72	-12.0	-10.0	-7.4	37.7	37.7	38.7
890226	0700	0.86	0.093	0.093	10.72	10.72	4.0	10.0	0.9	38.8	38.0	41.5
890226	1000	0.77	0.093	0.093	10.72	10.72	10.0	-8.0	-6.1	43.4	37.8	42.7
890226	1300	0.77	0.093	0.093	10.72	10.72	8.0	-12.0	-10.7	46.2	33.2	37.7
890226	1600	0.61	0.093	0.093	10.72	10.72	16.0	-10.0	-4.5	43.4	36.1	39.5
890226	1900	0.52	0.093	0.093	10.72	10.72	-10.0	-12.0	-15.2	46.0	38.3	42.1
890226	2200	0.50	0.093	0.093	10.72	10.72	14.0	-40.0	-19.0	47.5	35.9	40.9
890227	0100	0.47	0.093	0.093	10.72	10.72	10.0	-38.0	-23.7	49.3	37.3	39.9
890227	0400	0.42	0.093	0.093	10.72	10.72	-26.0	-30.0	-26.1	48.6	42.6	42.3
890227	0700	0.42	0.093	0.093	10.72	10.72	14.0	12.0	-5.7	44.3	43.9	40.5
890227	1300	0.45	0.093	0.093	10.72	10.72	-16.0	10.0	-11.1	40.4	41.2	41.1
890227	1900	0.49	0.093	0.093	10.72	10.72	-18.0	-18.0	-9.2	37.6	37.3	35.2
890228	0100	0.83	0.220	0.220	4.54	4.54	2.0	-12.0	-8.0	34.5	33.6	30.0
890228	0700	0.99	0.201	0.191	4.98	5.24	-10.0	-10.0	-2.9	32.3	32.2	23.8
890228	1300	1.18	0.162	0.162	6.19	6.19	-6.0	-6.0	5.8	40.2	35.6	31.2
890228	1900	1.32	0.162	0.162	6.19	6.19	0.0	-2.0	10.3	38.7	35.0	29.4
890301	0100	1.10	0.152	0.152	6.58	6.58	-4.0	6.0	8.4	37.8	34.5	37.9
890301	0700	0.94	0.132	0.132	7.56	7.56	6.0	4.0	6.1	36.9	34.8	32.1
890301	1300	0.78	0.123	0.123	8.16	8.16	-12.0	8.0	-1.1	42.9	40.7	43.4
890301	1900	0.71	0.123	0.123	8.16	8.16	6.0	10.0	2.7	39.9	38.8	39.2
890302	0100	0.63	0.113	0.113	8.87	8.87	10.0	8.0	1.0	39.0	38.5	34.1
890302	0700	0.60	0.093	0.093	10.72	10.72	-22.0	-18.0	-11.4	36.1	36.0	34.8
890302	1000	1.00	0.201	0.220	4.98	4.54	42.0	44.0	17.8	45.5	35.4	38.5
890302	1300	0.97	0.191	0.191	5.24	5.24	18.0	18.0	19.7	44.7	36.6	31.5
890302	1900	0.94	0.201	0.191	4.98	5.24	-16.0	-8.0	-5.8	38.1	38.2	39.1
890303	0100	1.08	0.171	0.171	5.83	5.83	-10.0	-14.0	-10.0	36.0	36.6	29.7
890303	0700	1.16	0.142	0.152	7.04	6.58	-14.0	-20.0	-15.4	39.4	40.7	34.5
890303	1300	1.76	0.123	0.123	8.16	8.16	-20.0	-16.0	-11.1	39.0	38.6	34.7
890303	1600	2.01	0.123	0.123	8.16	8.16	-18.0	-18.0	-12.1	38.6	38.2	35.4

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(Continued)

Date	Time EST	H_{mo} m	Peak Frequency $f_{p,FD}$ Hz	Peak Frequency $f_{p,IFS}$ Hz	Peak Period $T_{p,FD}$ sec	Peak Period $T_{p,IFS}$ sec	Peak Direction $\theta_{p,FD}$ deg	Peak Direction $\theta_{p,IDS}$ deg	Peak Direction $\theta_{p,SW}$ deg	Directional Spread $\Delta\theta_{IDS}$ deg	Directional Spread $\Delta\theta_{SW}$ deg	Directional Spread $\Delta\theta_{FDP}$ deg
890303	1900	2.10	0.113	0.113	8.87	8.87	-12.0	-14.0	-9.4	35.9	36.5	34.9
890304	0100	1.89	0.103	0.103	9.71	9.71	-16.0	-12.0	-11.0	37.9	38.8	34.7
890304	0700	1.74	0.103	0.103	9.71	9.71	2.0	-12.0	2.0	39.7	38.7	37.5
890304	1300	2.11	0.093	0.093	10.72	10.72	0.0	-2.0	0.1	38.8	39.0	43.1
890304	1600	2.02	0.074	0.074	13.57	13.57	-4.0	-2.0	1.6	39.7	39.6	39.8
890304	1900	1.84	0.093	0.093	10.72	10.72	10.0	10.0	7.9	39.1	38.6	38.3
890305	0100	1.73	0.074	0.074	13.57	13.57	-8.0	2.0	4.0	39.5	38.6	41.6
890305	0700	1.39	0.093	0.093	10.72	10.72	-12.0	10.0	5.7	42.7	40.2	41.8
890305	1300	1.51	0.083	0.083	11.98	11.98	10.0	-6.0	0.6	39.9	39.4	41.1
890305	1900	1.21	0.083	0.083	11.98	11.98	-12.0	12.0	1.0	39.3	39.5	36.4
890306	0100	0.91	0.083	0.083	11.98	11.98	-8.0	-8.0	2.0	37.7	37.8	34.3
890306	0700	0.70	0.093	0.093	10.72	10.72	-12.0	-12.0	-7.9	43.7	41.2	37.9
890306	1300	0.82	0.230	0.103	4.35	9.71	44.0	42.0	22.5	50.6	31.7	15.7
890306	1900	1.78	0.152	0.152	6.58	6.58	0.0	4.0	13.7	42.4	43.7	48.8
890307	0100	2.16	0.123	0.123	8.16	8.16	0.0	2.0	7.6	39.2	38.7	38.6
890307	0400	2.49	0.103	0.103	9.71	9.71	6.0	8.0	10.2	39.9	37.6	37.9
890307	0700	3.16	0.103	0.103	9.71	9.71	-6.0	10.0	7.5	38.7	37.2	42.5
890307	1000	3.43	0.093	0.093	10.72	10.72	4.0	8.0	4.5	37.1	36.7	44.2
890307	1300	3.64	0.093	0.093	10.72	10.72	4.0	4.0	3.7	36.8	37.2	40.1
890307	1600	3.98	0.083	0.083	11.98	11.98	-2.0	2.0	0.4	37.3	37.3	41.3
890307	1900	4.22	0.083	0.083	11.98	11.98	-2.0	4.0	0.9	38.6	38.4	40.3
890307	2200	4.10	0.083	0.083	11.98	11.98	-2.0	0.0	-2.0	36.2	36.4	42.5
890308	0100	3.91	0.083	0.083	11.98	11.98	-8.0	0.0	-2.2	34.7	34.8	41.7
890308	0400	4.13	0.093	0.093	10.72	10.72	-2.0	-2.0	-1.0	37.4	37.5	40.1
890308	0700	4.23	0.083	0.083	11.98	11.98	-6.0	0.0	1.8	39.9	39.8	41.8
890308	1000	3.95	0.083	0.083	11.98	11.98	2.0	0.0	-2.6	37.7	37.9	41.8
890308	1300	3.75	0.093	0.093	10.72	10.72	-18.0	-6.0	-6.4	38.0	37.9	44.3
890308	1600	4.11	0.093	0.093	10.72	10.72	-2.0	0.0	0.7	39.5	39.3	42.2
890308	1900	4.22	0.093	0.093	10.72	10.72	2.0	-2.0	-0.1	40.8	40.9	47.0
890308	2200	4.02	0.083	0.083	11.98	11.98	-2.0	-4.0	0.2	38.7	38.8	43.5
890309	0100	3.87	0.083	0.083	11.98	11.98	-14.0	0.0	0.7	37.6	37.5	44.0
890309	0400	4.11	0.093	0.083	10.72	11.98	8.0	-6.0	-2.3	38.5	38.7	38.7
890309	0700	4.17	0.083	0.083	11.98	11.98	2.0	2.0	2.3	41.9	42.0	45.4
890309	1000	3.99	0.083	0.083	11.98	11.98	0.0	-2.0	3.9	39.3	39.2	41.5
890309	1300	3.64	0.083	0.083	11.98	11.98	0.0	2.0	2.5	38.7	38.9	43.4
890309	1600	3.70	0.083	0.083	11.98	11.98	2.0	0.0	1.8	39.1	38.9	42.8
890309	1900	3.54	0.103	0.074	9.71	13.57	8.0	0.0	4.5	41.1	40.3	41.4
890309	2200	3.24	0.093	0.083	10.72	11.98	-10.0	-2.0	1.7	39.9	39.2	39.9
890310	0100	3.05	0.083	0.083	11.98	11.98	16.0	0.0	6.8	39.1	39.0	41.6
890310	0400	3.07	0.093	0.083	10.72	11.98	-14.0	-2.0	-1.6	37.8	38.3	36.1
890310	0700	3.05	0.083	0.083	11.98	11.98	12.0	0.0	7.4	40.6	40.3	42.1
890310	1000	3.21	0.132	0.083	7.56	11.98	-2.0	4.0	4.8	40.2	40.1	32.3
890310	1300	3.08	0.103	0.093	9.71	10.72	0.0	0.0	2.5	38.8	39.4	43.3
890310	1600	3.21	0.103	0.093	9.71	10.72	2.0	8.0	2.6	38.3	38.1	39.9
890310	1900	3.09	0.123	0.103	8.16	9.71	6.0	0.0	1.7	40.9	41.1	39.0
890310	2200	2.83	0.083	0.083	11.98	11.98	-12.0	-2.0	3.9	41.8	40.2	41.6
890311	0100	2.65	0.083	0.083	11.98	11.98	10.0	-2.0	5.0	39.2	38.8	41.0
890311	0400	2.50	0.083	0.083	11.98	11.98	10.0	-2.0	1.7	38.3	38.5	41.6
890311	0700	2.34	0.083	0.083	11.98	11.98	10.0	-4.0	3.1	40.3	40.2	41.9
890311	1000	2.08	0.083	0.083	11.98	11.98	12.0	-4.0	3.7	40.9	40.9	42.2
890311	1300	1.86	0.083	0.083	11.98	11.98	10.0	-4.0	1.6	39.3	39.1	40.1
890311	1600	1.74	0.093	0.093	10.72	10.72	2.0	-8.0	0.8	38.5	38.3	40.8
890311	1900	1.64	0.083	0.093	11.98	10.72	4.0	-10.0	-0.9	40.9	40.8	40.8

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Date	Time EST	H_{mo} m	Peak Frequency $f_{p,FD}$ Hz	Peak Frequency $f_{p,IFS}$ Hz	Peak Period $T_{p,FD}$ sec	Peak Period $T_{p,IFS}$ sec	Peak Direction $\theta_{p,FD}$ deg	Peak Direction $\theta_{p,IDS}$ deg	Peak Direction $\theta_{p,SW}$ deg	Directional Spread $\Delta\theta_{IDS}$ deg	Directional Spread $\Delta\theta_{SW}$ deg	Directional Spread $\Delta\theta_{FDP}$ deg
890311	2200	1.60	0.093	0.093	10.72	10.72	8.0	-12.0	1.6	42.0	41.9	39.7
890312	0100	1.45	0.093	0.093	10.72	10.72	8.0	6.0	3.6	39.9	39.9	37.5
890312	0400	1.43	0.093	0.093	10.72	10.72	18.0	-10.0	-0.1	39.5	39.1	42.1
890312	0700	1.32	0.093	0.093	10.72	10.72	-14.0	-12.0	-7.2	38.0	37.7	35.9
890312	1000	1.19	0.093	0.093	10.72	10.72	-6.0	-8.0	-1.4	40.2	39.4	38.0
890312	1300	1.08	0.093	0.083	10.72	11.98	6.0	8.0	1.4	39.5	39.1	37.4
890312	1600	1.06	0.093	0.093	10.72	10.72	-14.0	-12.0	-1.7	38.8	37.6	38.0
890312	1900	1.23	0.093	0.093	10.72	10.72	14.0	20.0	10.2	43.5	37.0	42.3
890312	2200	1.72	0.181	0.181	5.52	5.52	0.0	2.0	4.5	35.9	35.5	29.8
890313	0100	1.66	0.152	0.152	6.58	6.58	-4.0	2.0	2.5	37.2	37.5	38.5
890313	0400	1.46	0.162	0.093	6.19	10.72	-2.0	0.0	3.2	35.9	36.1	31.2
890313	0700	1.34	0.142	0.093	7.04	10.72	-4.0	2.0	3.9	36.8	36.8	31.2
890313	1300	1.13	0.093	0.093	10.72	10.72	-14.0	0.0	7.9	40.1	38.2	38.6
890313	1900	1.27	0.103	0.103	9.71	9.71	-12.0	-8.0	-0.7	35.6	35.3	36.3
890314	0100	1.22	0.201	0.201	4.98	4.98	28.0	-10.0	7.2	43.2	42.5	42.3
890314	0700	1.36	0.132	0.132	7.56	7.56	-14.0	-16.0	-8.2	42.0	40.1	37.5
890314	1300	1.04	0.113	0.132	8.87	7.56	8.0	-6.0	-0.6	38.7	37.4	38.9
890314	1900	0.97	0.123	0.123	8.16	8.16	2.0	-6.0	-0.3	37.7	36.9	39.2
890315	0100	0.78	0.132	0.123	7.56	8.16	-18.0	-14.0	-5.1	40.8	41.6	37.4
890315	0700	0.65	0.113	0.123	8.87	8.16	-8.0	-14.0	-9.1	42.0	40.0	36.8
890315	1300	0.68	0.113	0.113	8.87	8.87	4.0	-32.0	-21.8	43.7	36.5	38.8
890316	0100	0.60	0.132	0.113	7.56	8.87	4.0	-34.0	-16.2	46.9	35.3	47.9
890316	0700	0.55	0.113	0.113	8.87	8.87	-28.0	-42.0	-7.8	64.1	44.8	42.6
890316	1300	0.88	0.201	0.201	4.98	4.98	26.0	28.0	15.1	38.0	34.1	33.5
890316	1900	0.81	0.171	0.171	5.83	5.83	-4.0	2.0	8.6	35.1	33.1	28.0
890317	0100	0.67	0.191	0.191	5.24	5.24	20.0	2.0	7.4	40.6	37.8	40.7
890317	0700	0.55	0.142	0.132	7.04	7.56	-6.0	-8.0	-7.7	35.4	36.6	25.6
890317	1300	0.53	0.123	0.123	8.16	8.16	-16.0	-18.0	-21.3	37.5	36.4	33.8
890317	1600	0.52	0.123	0.113	8.16	8.87	-2.0	-6.0	-20.4	38.4	36.4	37.5
890317	1900	0.48	0.162	0.113	6.19	8.87	-14.0	-12.0	-17.1	38.5	36.0	24.8
890317	2200	0.46	0.123	0.123	8.16	8.16	4.0	-20.0	-20.1	35.6	33.5	35.9
890318	0100	0.51	0.132	0.123	7.56	8.16	-26.0	-24.0	-17.9	37.0	33.7	29.0
890318	0400	0.61	0.201	0.201	4.98	4.98	-26.0	-28.0	-23.3	35.4	33.3	35.0
890318	0700	0.60	0.191	0.191	5.24	5.24	-30.0	-28.0	-21.6	35.7	31.6	30.0
890318	1000	0.55	0.191	0.191	5.24	5.24	-28.0	-26.0	-26.7	32.6	30.3	27.5
890318	1300	0.48	0.191	0.191	5.24	5.24	-24.0	-24.0	-29.4	31.9	29.4	24.2
890318	1600	0.44	0.123	0.113	8.16	8.87	-24.0	-56.0	-35.4	36.2	30.7	34.2
890318	1900	0.38	0.123	0.113	8.16	8.87	-26.0	-28.0	-34.5	38.7	28.3	30.1
890318	2200	0.37	0.123	0.123	8.16	8.16	-22.0	-26.0	-35.6	38.8	27.6	24.4
890319	0100	0.39	0.123	0.123	8.16	8.16	-22.0	-20.0	-31.3	39.2	36.0	30.4
890319	0400	1.63	0.191	0.191	5.24	5.24	26.0	40.0	35.9	34.2	38.5	33.8
890319	0700	1.91	0.162	0.162	6.19	6.19	8.0	16.0	24.6	34.8	33.0	29.2
890319	1000	1.73	0.152	0.152	6.58	6.58	4.0	16.0	20.5	34.6	31.4	32.9
890319	1300	1.50	0.162	0.142	6.19	7.04	4.0	14.0	18.4	36.6	32.1	30.5
890319	1600	1.41	0.132	0.132	7.56	7.56	12.0	12.0	18.0	38.5	35.7	38.9
890319	1900	1.24	0.123	0.123	8.16	8.16	6.0	6.0	11.9	38.9	37.4	44.1
890319	2200	1.09	0.132	0.132	7.56	7.56	12.0	8.0	18.3	40.0	36.4	38.9
890320	0100	1.03	0.132	0.142	7.56	7.04	8.0	8.0	14.6	44.2	41.4	37.0
890320	0400	1.02	0.132	0.132	7.56	7.56	-12.0	6.0	10.0	44.6	42.5	40.7
890320	0700	0.91	0.142	0.142	7.04	7.04	10.0	4.0	13.0	42.9	40.4	36.8
890320	1000	0.78	0.142	0.142	7.04	7.04	2.0	28.0	14.2	41.0	37.9	35.6
890320	1300	0.78	0.123	0.123	8.16	8.16	0.0	18.0	6.9	38.2	36.7	32.2

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Date	Time EST	H_{mo} m	Peak Frequency $f_{p,FD}$ Hz	Peak Frequency $f_{p,IFS}$ Hz	Peak Period $T_{p,FD}$ sec	Peak Period $T_{p,IFS}$ sec	Peak Direction $\theta_{p,FD}$ deg	Peak Direction $\theta_{p,IDS}$ deg	Peak Direction $\theta_{p,SW}$ deg	Directional Spread $\Delta\theta_{IDS}$ deg	Directional Spread $\Delta\theta_{SW}$ deg	Directional Spread $\Delta\theta_{FDP}$ deg
890320	1900	0.74	0.123	0.123	8.16	8.16	-2.0	-12.0	-1.8	42.2	42.0	38.3
890321	0100	0.74	0.220	0.113	4.54	8.87	-30.0	-18.0	-19.6	44.5	34.4	26.3
890321	0700	0.92	0.142	0.142	7.04	7.04	-36.0	-32.0	-28.7	38.2	34.0	36.3
890321	1300	0.74	0.142	0.142	7.04	7.04	-18.0	-26.0	-0.3	51.0	42.9	33.8
890321	1900	0.98	0.230	0.230	4.35	4.35	50.0	52.0	32.2	66.6	39.7	38.6
890322	0100	1.33	0.240	0.171	4.17	5.83	50.0	8.0	10.3	40.5	37.8	40.8
890322	0700	1.76	0.162	0.171	6.19	5.83	-2.0	6.0	10.7	37.3	35.7	30.5
890322	1000	1.94	0.162	0.162	6.19	6.19	-2.0	8.0	8.3	37.8	36.1	36.6
890322	1300	1.93	0.152	0.152	6.58	6.58	-2.0	6.0	5.8	36.8	35.6	33.7
890322	1600	1.94	0.152	0.142	6.58	7.04	6.0	2.0	3.7	43.6	46.5	54.7
890322	1900	1.85	0.162	0.152	6.19	6.58	-4.0	-4.0	6.3	37.9	37.6	35.7
890323	0100	1.91	0.142	0.142	7.04	7.04	-10.0	2.0	6.1	37.0	36.1	35.8
890323	0400	2.10	0.152	0.152	6.58	6.58	0.0	0.0	8.1	37.9	37.6	36.5
890323	0700	2.24	0.142	0.142	7.04	7.04	-6.0	2.0	4.5	39.3	38.9	38.3
890323	1000	2.11	0.142	0.142	7.04	7.04	-8.0	2.0	5.6	38.7	37.5	35.0
890323	1300	2.32	0.142	0.142	7.04	7.04	-8.0	-4.0	1.1	39.1	38.3	34.2
890323	1600	2.52	0.142	0.142	7.04	7.04	-12.0	-4.0	-2.2	39.3	38.9	39.4
890323	1900	2.53	0.113	0.123	8.87	8.16	2.0	-6.0	-1.9	42.5	42.3	40.9
890323	2200	2.37	0.103	0.103	9.71	9.71	0.0	-14.0	-10.1	42.0	41.8	40.6
890324	0100	2.31	0.103	0.103	9.71	9.71	2.0	-14.0	-2.2	38.3	38.4	37.5
890324	0400	2.21	0.103	0.103	9.71	9.71	10.0	-14.0	-2.5	40.8	40.6	40.6
890324	0700	2.10	0.103	0.103	9.71	9.71	10.0	-14.0	-4.0	41.3	40.9	42.3
890324	1000	1.90	0.103	0.103	9.71	9.71	-4.0	-8.0	-4.7	46.0	45.5	43.6
890324	1300	1.87	0.103	0.103	9.71	9.71	-6.0	-14.0	-5.7	42.4	41.5	43.1
890324	1900	1.45	0.113	0.113	8.87	8.87	-4.0	-12.0	1.0	43.4	43.0	42.9
890325	0100	1.04	0.103	0.113	9.71	8.87	12.0	12.0	7.9	46.5	43.9	40.0
890325	0700	0.92	0.103	0.103	9.71	9.71	10.0	10.0	12.7	45.6	41.8	40.8
890325	1000	0.95	0.093	0.093	10.72	10.72	2.0	16.0	7.3	44.0	41.7	39.2
890325	1300	0.92	0.093	0.093	10.72	10.72	14.0	14.0	16.4	40.6	38.2	36.4
890325	1900	0.70	0.103	0.103	9.71	9.71	4.0	22.0	13.9	46.3	44.5	38.1
890326	0100	0.58	0.103	0.113	9.71	8.87	-6.0	22.0	11.8	41.6	41.1	32.8
890326	0700	0.57	0.113	0.113	8.87	8.87	6.0	18.0	6.2	42.0	42.2	35.6
890326	1300	0.50	0.103	0.113	9.71	8.87	-4.0	18.0	3.7	43.1	43.3	33.0
890326	1900	0.55	0.132	0.093	7.56	10.72	8.0	4.0	-2.8	40.9	40.9	34.5
890327	0100	0.59	0.093	0.093	10.72	10.72	-8.0	-10.0	-1.2	40.9	40.6	38.2
890327	0700	0.63	0.103	0.103	9.71	9.71	-18.0	6.0	3.3	41.9	38.2	37.4
890327	1300	0.61	0.113	0.103	8.87	9.71	6.0	6.0	2.8	39.1	37.6	37.8
890327	1600	0.58	0.103	0.103	9.71	9.71	-18.0	-14.0	-6.2	39.1	40.8	33.8
890327	1900	0.55	0.113	0.113	8.87	8.87	-22.0	2.0	-11.8	40.8	40.3	37.2
890328	0100	0.48	0.113	0.113	8.87	8.87	2.0	10.0	-0.2	42.2	41.1	39.4
890328	0700	0.44	0.113	0.113	8.87	8.87	-18.0	-18.0	-21.2	44.2	37.8	34.0
890328	1000	0.44	0.113	0.113	8.87	8.87	-22.0	-42.0	-30.6	44.7	35.3	30.7
890328	1300	0.42	0.191	0.113	5.24	8.87	-40.0	-40.0	-22.7	47.6	34.1	27.0
890328	1900	0.39	0.318	0.113	3.15	8.87	-62.0	-60.0	-31.0	43.6	26.2	10.4
890329	0100	0.33	0.113	0.113	8.87	8.87	-20.0	-28.0	-25.7	37.7	31.1	36.4
890329	0700	0.37	0.113	0.113	8.87	8.87	-20.0	-24.0	-26.4	34.6	28.8	30.4
890329	1300	0.39	0.113	0.083	8.87	11.98	-18.0	-60.0	-33.6	39.9	28.5	22.8
890329	1600	0.40	0.103	0.113	9.71	8.87	-18.0	-56.0	-36.5	37.8	22.6	25.1
890329	1900	0.42	0.308	0.074	3.25	13.57	-50.0	-50.0	-35.0	36.5	20.2	11.7
890330	0100	0.42	0.318	0.074	3.15	13.57	-56.0	-58.0	-37.5	37.7	24.4	26.7
890330	0700	0.37	0.123	0.123	8.16	8.16	-26.0	-26.0	-33.9	37.3	30.2	24.1

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Date	Time	H_{mo}	Peak Frequency $f_{p,FD}$	Peak Frequency $f_{p,IFS}$	Peak Period $T_{p,FD}$	Peak Period $T_{p,IFS}$	Peak Direction $\theta_{p,FD}$	Peak Direction $\theta_{p,IDS}$	Peak Direction $\theta_{p,SW}$	Directional Spread $\Delta\theta_{IDS}$	Directional Spread $\Delta\theta_{SW}$	Directional Spread $\Delta\theta_{FDP}$
	EST	m	Hz	Hz	sec	sec	deg	deg	deg	deg	deg	deg
890330	1300	0.56	0.308	0.318	3.25	3.15	-50.0	-48.0	-35.2	32.7	26.9	17.0
890330	1600	0.59	0.269	0.123	3.72	8.16	-50.0	-50.0	-35.4	31.9	26.8	16.3
890330	1900	0.64	0.142	0.142	7.04	7.04	-38.0	-48.0	-34.2	33.9	28.5	27.2
890330	2200	0.64	0.132	0.132	7.56	7.56	-14.0	-44.0	-25.4	44.1	34.9	44.7
890331	0100	0.67	0.132	0.132	7.56	7.56	-14.0	-34.0	-19.1	47.9	38.9	46.3
890331	0400	0.68	0.123	0.123	8.16	8.16	-20.0	-26.0	-23.4	45.2	40.5	44.0
890331	0700	0.70	0.123	0.123	8.16	8.16	-24.0	-30.0	-25.0	45.7	39.5	43.6
890331	1000	0.76	0.113	0.132	8.87	7.56	-22.0	-30.0	-15.0	47.8	40.5	44.7
890331	1300	0.84	0.308	0.113	3.25	8.87	-64.0	-36.0	-25.7	44.2	35.8	21.6
890331	1600	1.02	0.318	0.113	3.15	8.87	-62.0	-44.0	-33.5	36.5	30.1	16.5
890331	1900	0.77	0.123	0.123	8.16	8.16	22.0	-32.0	-20.5	45.9	38.4	45.7
890401	0100	1.07	0.210	0.210	4.75	4.75	46.0	44.0	33.6	53.8	34.5	21.0
890401	0400	1.06	0.171	0.171	5.83	5.83	38.0	42.0	37.9	49.9	39.3	52.1
890401	0700	0.82	0.181	0.171	5.52	5.83	38.0	42.0	27.3	50.7	39.6	49.6
890401	1000	0.76	0.191	0.171	5.24	5.83	40.0	40.0	28.9	49.0	39.3	48.8
890401	1300	0.76	0.191	0.123	5.24	8.16	38.0	40.0	29.2	47.0	38.7	31.8
890401	1600	0.77	0.191	0.181	5.24	5.52	38.0	40.0	30.9	45.4	35.0	37.1
890401	1900	0.65	0.210	0.210	4.75	4.75	38.0	38.0	28.7	47.7	31.0	17.5
890401	2200	0.55	0.210	0.123	4.75	8.16	42.0	40.0	24.4	58.0	34.7	18.2
890402	0100	0.45	0.220	0.132	4.54	7.56	42.0	40.0	17.6	57.7	41.0	20.9
890402	0400	0.62	0.240	0.318	4.17	3.15	46.0	42.0	33.8	43.1	30.8	18.6
890402	0700	0.60	0.220	0.220	4.54	4.54	36.0	40.0	37.2	44.2	31.6	25.3
890402	1000	0.64	0.210	0.201	4.75	4.98	36.0	34.0	28.3	39.8	34.3	27.3
890402	1300	0.59	0.210	0.191	4.75	5.24	46.0	14.0	23.3	44.8	35.9	36.0
890402	1600	0.52	0.201	0.201	4.98	4.98	38.0	36.0	10.8	56.4	36.4	24.6
890402	1900	0.45	0.142	0.132	7.04	7.56	-6.0	-14.0	0.6	53.3	40.0	33.4
890402	2200	0.44	0.142	0.152	7.04	6.58	-12.0	-14.0	-9.9	44.9	43.1	31.8
890403	0100	0.47	0.181	0.171	5.52	5.83	10.0	-12.0	-9.4	43.4	41.1	30.6
890403	0400	0.46	0.064	0.191	15.62	5.24	-14.0	-10.0	-24.5	55.6	48.4	23.3
890403	0700	0.39	0.181	0.123	5.52	8.16	-52.0	-14.0	-32.4	51.9	41.8	61.2
890403	1300	0.54	0.318	0.181	3.15	5.52	-58.0	-60.0	-39.8	41.9	26.2	11.8
890403	1900	0.66	0.142	0.142	7.04	7.04	-34.0	-42.0	-34.5	33.4	26.7	28.8
890404	0100	0.68	0.113	0.113	8.87	8.87	-26.0	-32.0	-32.5	36.5	31.2	35.5
890404	0700	0.70	0.142	0.142	7.04	7.04	-36.0	-34.0	-32.7	32.8	28.5	24.6
890404	1300	0.80	0.142	0.142	7.04	7.04	-30.0	-36.0	-34.6	31.5	26.4	24.4
890404	1900	0.76	0.318	0.103	3.15	9.71	-62.0	-30.0	-35.9	34.1	26.4	16.8
890405	0100	0.74	0.113	0.113	8.87	8.87	-20.0	-28.0	-31.0	33.7	27.8	30.4
890405	1300	0.77	0.113	0.113	8.87	8.87	-20.0	-28.0	-28.8	34.3	29.5	32.7
890405	1900	0.80	0.103	0.103	9.71	9.71	-20.0	-32.0	-30.7	37.5	33.8	43.3
890406	0100	0.88	0.250	0.132	4.01	7.56	56.0	-26.0	0.9	64.3	44.5	21.0
890406	0700	1.52	0.191	0.191	5.24	5.24	36.0	46.0	21.6	61.5	43.5	55.1
890406	1300	1.09	0.113	0.113	8.87	8.87	-18.0	8.0	3.6	45.3	36.8	37.4
890406	1900	0.79	0.103	0.103	9.71	9.71	-20.0	-22.0	3.8	51.4	41.2	41.8
890407	0100	0.57	0.103	0.103	9.71	9.71	-20.0	-22.0	-19.4	40.2	40.3	39.9
890407	0700	0.54	0.113	0.103	8.87	9.71	-24.0	-22.0	-16.9	41.7	40.4	39.0
890407	1300	0.60	0.113	0.113	8.87	8.87	-20.0	-40.0	-27.0	39.4	30.6	37.6
890407	1900	1.33	0.308	0.113	3.25	8.87	46.0	46.0	16.7	68.8	44.5	24.8
890407	2200	1.72	0.152	0.152	6.58	6.58	2.0	18.0	12.2	40.4	35.2	37.8
890408	0100	1.38	0.142	0.142	7.04	7.04	-2.0	10.0	8.9	36.7	33.1	31.7
890408	0700	0.93	0.142	0.132	7.04	7.56	-10.0	-10.0	-0.4	44.3	41.9	38.2
890408	1300	0.70	0.123	0.123	8.16	8.16	6.0	8.0	11.3	42.3	40.6	35.2
890408	1900	0.73	0.123	0.123	8.16	8.16	6.0	12.0	7.0	52.7	48.5	46.0

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Date	Time EST	H_{mo} m	Peak Frequency $f_{p.FD}$ Hz	Peak Frequency $f_{p.IFS}$ Hz	Peak Period $T_{p.FD}$ sec	Peak Period $T_{p.IFS}$ sec	Peak Direction $\theta_{p.FD}$ deg	Peak Direction $\theta_{p.IDS}$ deg	Peak Direction $\theta_{p.SW}$ deg	Directional Spread $\Delta\theta_{IDS}$ deg	Directional Spread $\Delta\theta_{SW}$ deg	Directional Spread $\Delta\theta_{FDP}$ deg
890409	0100	0.61	0.123	0.113	8.16	8.87	6.0	6.0	-6.3	56.3	42.9	45.5
890409	0700	0.44	0.318	0.132	3.15	7.56	54.0	14.0	11.1	50.7	44.3	43.2
890409	1300	0.45	0.123	0.113	8.16	8.87	-26.0	-28.0	-16.2	46.7	45.5	46.5
890409	1900	0.51	0.113	0.113	8.87	8.87	-20.0	-24.0	-27.9	40.5	37.8	36.4
890410	0100	0.45	0.103	0.103	9.71	9.71	-18.0	-22.0	-20.0	40.4	39.3	38.3
890410	0700	0.52	0.113	0.113	8.87	8.87	-8.0	-14.0	-14.2	38.4	36.8	36.6
890410	1300	0.49	0.113	0.103	8.87	9.71	-22.0	-22.0	-16.6	39.1	37.5	38.2
890410	1900	0.72	0.308	0.103	3.25	9.71	58.0	58.0	17.5	65.0	32.5	30.1
890411	0100	1.79	0.191	0.201	5.24	4.98	12.0	12.0	16.9	37.8	35.5	36.8
890411	0400	2.26	0.152	0.152	6.58	6.58	2.0	6.0	11.5	35.4	34.7	34.2
890411	0700	2.19	0.162	0.152	6.19	6.58	4.0	10.0	9.2	35.7	34.3	33.6
890411	1000	2.06	0.162	0.162	6.19	6.19	4.0	6.0	8.6	37.0	36.1	35.2
890411	1300	1.90	0.152	0.152	6.58	6.58	0.0	10.0	12.2	36.9	34.1	32.8
890411	1300	1.52	0.113	0.113	8.87	8.87	8.0	0.0	2.7	35.6	35.6	36.5
890412	0100	1.35	0.103	0.103	9.71	9.71	2.0	-2.0	3.2	35.9	34.9	37.0
890412	0700	1.61	0.113	0.113	8.87	8.87	4.0	0.0	1.9	34.5	33.7	37.3
890412	1300	1.54	0.113	0.113	8.87	8.87	4.0	-4.0	2.5	37.4	35.9	37.6
890412	1600	1.53	0.113	0.113	8.87	8.87	-20.0	0.0	-3.1	35.7	34.1	36.0
890412	1900	1.51	0.113	0.103	8.87	9.71	-4.0	-6.0	-1.8	38.2	37.4	39.7
890413	0100	1.71	0.113	0.113	8.87	8.87	2.0	-10.0	-1.0	40.5	38.8	40.6
890413	0700	1.83	0.123	0.123	8.16	8.16	0.0	-2.0	-3.0	36.4	36.8	37.1
890413	1300	1.52	0.113	0.113	8.87	8.87	6.0	-10.0	-1.3	40.1	40.2	41.4
890413	1900	1.42	0.103	0.103	9.71	9.71	-14.0	2.0	-2.7	33.0	33.1	33.4
890414	0100	1.28	0.123	0.113	8.16	8.87	10.0	-10.0	0.4	35.4	36.1	32.4
890414	0700	1.19	0.103	0.103	9.71	9.71	-14.0	-12.0	-3.9	33.7	34.5	30.7
890414	1300	1.06	0.093	0.093	10.72	10.72	4.0	-12.0	-5.3	43.9	43.5	44.5
890414	1900	0.92	0.093	0.093	10.72	10.72	2.0	2.0	1.0	41.4	41.2	41.3
890415	0100	0.90	0.103	0.103	9.71	9.71	14.0	-16.0	-8.1	40.8	40.5	42.9
890415	0700	0.93	0.103	0.103	9.71	9.71	6.0	-36.0	-19.9	42.4	33.0	41.1
890415	1300	1.78	0.123	0.123	8.16	8.16	-24.0	-26.0	-19.0	39.8	37.5	41.1
890415	1600	1.72	0.103	0.103	9.71	9.71	-18.0	-22.0	-12.2	40.2	39.1	43.5
890415	1900	1.70	0.093	0.093	10.72	10.72	-12.0	-20.0	-14.0	38.7	38.1	39.8
890416	0100	1.54	0.093	0.093	10.72	10.72	-12.0	-20.0	-8.1	43.9	41.1	42.6
890416	0700	1.24	0.093	0.093	10.72	10.72	-4.0	-16.0	-3.9	46.6	41.9	46.1
890416	1300	1.18	0.103	0.103	9.71	9.71	6.0	-16.0	3.2	44.4	43.5	44.4
890416	1900	1.02	0.103	0.103	9.71	9.71	-14.0	-12.0	-1.4	46.7	43.0	43.5
890417	0100	1.05	0.113	0.113	8.87	8.87	2.0	-14.0	8.0	43.1	42.2	41.1
890417	0700	0.94	0.113	0.113	8.87	8.87	-14.0	16.0	3.0	43.3	42.6	41.2
890417	1300	0.93	0.093	0.103	10.72	9.71	-10.0	18.0	-1.8	44.0	43.3	37.0
890417	1900	0.81	0.093	0.103	10.72	9.71	2.0	-14.0	-5.8	42.9	40.2	39.4
890418	0100	0.63	0.093	0.093	10.72	10.72	-8.0	-14.0	-12.1	41.0	37.6	38.5
890418	0700	0.51	0.093	0.093	10.72	10.72	-4.0	-16.0	-12.4	44.4	41.6	47.8
890418	1300	0.51	0.103	0.103	9.71	9.71	-12.0	-18.0	-12.7	42.8	37.8	39.8
890418	1900	0.53	0.103	0.103	9.71	9.71	12.0	-44.0	-12.2	52.6	35.6	40.9
890419	0100	0.48	0.103	0.103	9.71	9.71	-10.0	-20.0	-21.5	47.8	34.5	38.9
890419	0700	0.50	0.093	0.093	10.72	10.72	0.0	-44.0	-16.6	52.5	37.6	37.9
890419	1300	1.30	0.220	0.220	4.54	4.54	40.0	40.0	28.8	33.0	31.7	24.8
890419	1600	1.41	0.201	0.191	4.98	5.24	-4.0	40.0	25.2	39.4	38.2	39.1
890419	1900	1.15	0.171	0.171	5.83	5.83	0.0	10.0	13.8	40.5	39.3	32.7
890419	2200	1.06	0.162	0.162	6.19	6.19	-2.0	10.0	11.1	39.5	38.4	34.9

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Date	Time EST	H_{mo} m	Peak Frequency $f_{p,FD}$ Hz	Peak Frequency $f_{p,IFS}$ Hz	Peak Period $T_{p,FD}$ sec	Peak Period $T_{p,IFS}$ sec	Peak Direction $\theta_{p,FD}$ deg	Peak Direction $\theta_{p,IDS}$ deg	Peak Direction $\theta_{p,SW}$ deg	Directional Spread $\Delta\theta_{IDS}$ deg	Directional Spread $\Delta\theta_{SW}$ deg	Directional Spread $\Delta\theta_{FDP}$ deg
890420	0100	1.00	0.171	0.093	5.83	10.72	26.0	12.0	8.8	39.1	38.0	30.3
890420	0400	0.96	0.083	0.083	11.98	11.98	-6.0	0.0	5.6	39.4	40.2	37.0
890420	0700	1.00	0.083	0.083	11.98	11.98	12.0	18.0	4.5	39.0	37.4	36.4
890420	1000	1.05	0.083	0.083	11.98	11.98	16.0	20.0	4.2	38.9	35.5	37.1
890420	1300	1.12	0.259	0.083	3.86	11.98	14.0	14.0	5.0	40.0	36.5	34.0
890420	1600	1.20	0.259	0.083	3.86	11.98	8.0	8.0	5.5	40.8	36.8	32.2
890420	1900	1.14	0.142	0.083	7.04	11.98	0.0	8.0	-0.8	37.6	36.4	36.7
890420	2200	1.06	0.074	0.074	13.57	13.57	2.0	6.0	-1.5	37.1	36.9	39.4
890421	0100	1.06	0.074	0.074	13.57	13.57	18.0	-12.0	-4.4	36.7	36.3	40.6
890421	0400	1.11	0.074	0.074	13.57	13.57	2.0	-18.0	-5.1	38.1	37.7	41.5
890421	1300	1.13	0.074	0.083	13.57	11.98	-12.0	-16.0	-8.5	34.9	34.4	33.3
890421	1900	1.05	0.074	0.074	13.57	13.57	-12.0	-14.0	-8.6	37.6	36.8	38.8
890422	0100	0.96	0.074	0.074	13.57	13.57	-4.0	-10.0	-5.1	35.9	35.7	38.0
890422	0700	0.92	0.083	0.083	11.98	11.98	-14.0	-12.0	-7.5	36.4	36.4	37.1
890422	1300	0.75	0.083	0.083	11.98	11.98	10.0	2.0	-0.8	39.6	38.0	39.0
890422	1900	0.78	0.308	0.083	3.25	11.98	4.0	4.0	1.6	38.0	36.9	20.7
890423	0100	0.77	0.132	0.132	7.56	7.56	-12.0	-6.0	0.9	40.0	37.9	34.4
890423	0700	1.26	0.279	0.220	3.59	4.54	10.0	10.0	10.8	37.8	34.1	32.1
890423	1300	1.19	0.181	0.181	5.52	5.52	34.0	2.0	11.3	37.3	36.1	33.4
890423	1900	0.88	0.113	0.113	8.87	8.87	-14.0	4.0	3.5	39.8	39.2	37.1
890424	0100	0.69	0.113	0.103	8.87	9.71	6.0	-14.0	-2.8	37.3	37.8	34.8
890424	0700	0.60	0.113	0.113	8.87	8.87	-12.0	-16.0	-6.3	40.3	40.4	38.1
890425	0100	0.37	0.103	0.103	9.71	9.71	-18.0	-20.0	-27.1	36.8	37.7	32.2
890425	0700	0.45	0.123	0.103	8.16	9.71	-26.0	14.0	-15.6	45.7	45.2	21.7
890425	1300	0.39	0.083	0.083	11.98	11.98	-16.0	-26.0	-23.1	35.4	34.1	25.1
890425	1600	0.39	0.132	0.083	7.56	11.98	-26.0	-26.0	-24.1	32.7	30.2	19.1
890425	1900	0.38	0.083	0.083	11.98	11.98	-8.0	-26.0	-27.3	35.5	29.1	27.0
890426	0100	0.34	0.093	0.083	10.72	11.98	-10.0	-24.0	-26.3	36.9	30.1	28.8
890426	0700	0.34	0.083	0.083	11.98	11.98	-8.0	-10.0	-18.0	32.5	31.0	26.5
890426	1000	0.32	0.083	0.083	11.98	11.98	-14.0	-18.0	-16.5	32.1	31.0	28.6
890426	1300	0.30	0.171	0.093	5.83	10.72	-2.0	-2.0	-11.8	34.0	34.7	26.5
890426	1900	0.31	0.181	0.093	5.52	10.72	-2.0	-2.0	-9.7	29.4	29.7	23.8
890427	0100	0.30	0.093	0.093	10.72	10.72	-4	0.0	-7.8	32.1	31.5	28.4
890427	0700	0.32	0.093	0.093	10.72	10.72	-12.0	0.0	-8.7	32.5	31.4	29.0
890427	1300	0.34	0.181	0.181	5.52	5.52	-10.0	-4.0	-11.0	34.4	32.8	22.2
890428	0100	0.32	0.123	0.103	8.16	9.71	-24.0	-22.0	-4.2	34.9	34.7	25.2
890428	0700	1.11	0.210	0.210	4.75	4.75	42.0	42.0	37.4	24.9	25.3	23.4
890428	1000	1.33	0.171	0.171	5.83	5.83	28.0	28.0	31.3	21.5	19.9	12.4
890428	1300	1.33	0.142	0.142	7.04	7.04	20.0	22.0	21.1	21.5	20.1	17.3
890428	1900	0.89	0.132	0.132	7.56	7.56	10.0	20.0	20.6	22.4	20.5	15.2
890429	0100	0.79	0.142	0.142	7.04	7.04	10.0	16.0	12.1	24.2	21.8	14.2
890429	0700	0.61	0.162	0.162	6.19	6.19	20.0	20.0	14.1	26.1	23.3	16.2
890430	0100	0.85	0.162	0.162	6.19	6.19	-32.0	-54.0	-42.6	37.0	33.7	30.3
890430	0700	0.59	0.162	0.162	6.19	6.19	-54.0	-52.0	-48.9	34.7	27.4	27.0
890430	1300	0.57	0.181	0.171	5.52	5.83	-54.0	-54.0	-35.4	40.6	27.3	18.4
890430	1900	0.43	0.171	0.171	5.83	5.83	-46.0	-48.0	-30.6	44.6	28.5	17.1
890501	0100	0.42	0.201	0.201	4.98	4.98	-56.0	-56.0	-36.2	43.7	31.7	22.3
890501	1300	0.34	0.113	0.123	8.87	8.16	-16.0	-20.0	-32.2	38.0	27.9	30.0
890501	1900	0.51	0.162	0.162	6.19	6.19	-52.0	-52.0	-42.9	31.5	29.0	22.9
890501	2200	0.42	0.171	0.162	5.83	6.19	-46.0	-46.0	-41.6	29.8	24.6	19.1

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Date	Time EST	H_{mo} m	Peak Frequency $f_{p.FD}$ Hz	Peak Frequency $f_{p.IFS}$ Hz	Peak Period $T_{p.FD}$ sec	Peak Period $T_{p.IFS}$ sec	Peak Direction $\theta_{p.FD}$ deg	Peak Direction $\theta_{p.IDS}$ deg	Peak Direction $\theta_{p.SW}$ deg	Directional Spread $\Delta\theta_{IDS}$ deg	Directional Spread $\Delta\theta_{SW}$ deg	Directional Spread $\Delta\theta_{FDP}$ deg
890502	0100	0.50	0.250	0.250	4.01	4.01	-58.0	-50.0	-46.8	25.1	20.2	16.9
890502	1300	0.54	0.142	0.132	7.04	7.56	-42.0	-38.0	-44.1	28.9	23.6	18.3
890502	1900	0.56	0.162	0.132	6.19	7.56	-48.0	-46.0	-37.3	27.8	25.2	14.3
890503	0100	0.49	0.132	0.132	7.56	7.56	-44.0	-46.0	-35.8	30.0	26.6	20.8
890503	0700	0.36	0.123	0.132	8.16	7.56	-28.0	-46.0	-28.4	35.1	27.7	22.6
890503	1300	0.43	0.132	0.132	7.56	7.56	-30.0	-30.0	-23.5	34.7	31.8	23.9
890503	1900	0.39	0.132	0.132	7.56	7.56	-30.0	-42.0	-23.8	37.4	30.9	28.7
890504	0100	0.41	0.074	0.074	13.57	13.57	-22.0	-18.0	-17.7	26.5	27.0	25.1
890504	0700	0.42	0.132	0.074	7.56	13.57	-30.0	-28.0	-22.2	28.0	26.2	17.1
890504	1900	0.40	0.074	0.074	13.57	13.57	-18.0	-18.0	-26.7	28.5	27.0	27.5
890505	0100	0.39	0.083	0.074	11.98	13.57	-14.0	-18.0	-18.6	25.4	24.9	21.8
890505	0700	0.43	0.083	0.074	11.98	13.57	-18.0	-18.0	-30.5	30.3	27.2	24.1
890505	1300	0.73	0.250	0.210	4.01	4.75	-60.0	-34.0	-43.2	26.6	21.7	21.2
890505	1600	0.78	0.201	0.191	4.98	5.24	-54.0	-54.0	-46.5	27.2	21.6	21.2
890505	1900	0.81	0.181	0.171	5.52	5.83	-54.0	-54.0	-43.9	25.6	20.3	20.3
890505	2200	0.90	0.171	0.152	5.83	6.58	-48.0	-48.0	-45.8	19.6	15.9	11.8
890506	0100	1.01	0.152	0.152	6.58	6.58	-46.0	-36.0	-41.7	19.9	17.0	16.2
890506	0400	0.98	0.152	0.142	6.58	7.04	-44.0	-44.0	-36.7	22.3	19.0	15.3
890506	0700	0.82	0.142	0.142	7.04	7.04	-44.0	-46.0	-39.1	30.2	24.5	20.8
890506	1300	0.76	0.142	0.123	7.04	8.16	-26.0	-26.0	-33.0	29.5	25.3	23.2
890506	1900	0.78	0.142	0.123	7.04	8.16	-32.0	-32.0	-32.6	31.5	22.6	14.8
890507	0100	0.52	0.142	0.123	7.04	8.16	-30.0	-30.0	-20.4	40.2	30.5	26.6
890507	0700	0.51	0.132	0.132	7.56	7.56	-28.0	-28.0	-13.5	38.1	34.5	24.9
890507	1300	0.50	0.123	0.123	8.16	8.16	-18.0	-18.0	-21.0	33.2	30.2	23.4
890507	1900	0.44	0.132	0.123	7.56	8.16	-24.0	-14.0	-16.8	34.5	30.6	23.8
890508	0100	0.41	0.093	0.093	10.72	10.72	-2.0	-14.0	-13.5	33.2	30.2	26.3
890508	0700	0.44	0.093	0.093	10.72	10.72	-10.0	-12.0	-14.5	32.3	30.1	27.9
890508	1300	0.43	0.093	0.093	10.72	10.72	10.0	-8.0	-7.4	27.6	22.1	19.4
890508	1900	0.46	0.103	0.103	9.71	9.71	6.0	0.0	-16.1	33.6	23.3	20.0
890509	0100	0.43	0.103	0.103	9.71	9.71	2.0	-2.0	-16.3	30.5	23.2	22.6
890509	0700	0.44	0.123	0.103	8.16	9.71	-16.0	-14.0	-10.9	31.2	28.0	27.2
890509	1900	0.49	0.142	0.142	7.04	7.04	-22.0	-22.0	-16.9	28.3	26.3	24.9
890510	0100	0.76	0.162	0.162	6.19	6.19	-42.0	-44.0	-39.0	20.9	16.3	9.8
890510	0700	0.87	0.123	0.123	8.16	8.16	-38.0	-38.0	-40.5	18.3	16.8	15.5
890510	1600	0.81	0.123	0.123	8.16	8.16	-38.0	-40.0	-39.1	26.1	23.1	23.1
890513	0100	0.45	0.103	0.103	9.71	9.71	-2.0	-2.0	-4.8	30.6	33.2	22.8
890513	0700	0.54	0.103	0.093	9.71	10.72	2.0	0.0	-5.0	24.0	25.7	18.4
890513	1900	0.56	0.093	0.093	10.72	10.72	6.0	0.0	-7.6	27.0	27.2	23.1
890514	0100	0.58	0.093	0.093	10.72	10.72	-10.0	-4.0	-8.7	25.7	26.1	23.7
890514	0700	0.62	0.103	0.093	9.71	10.72	2.0	2.0	-6.1	25.9	25.6	18.1
890514	1300	0.57	0.093	0.093	10.72	10.72	0.0	0.0	-16.1	39.1	24.9	21.0
890514	1900	0.44	0.093	0.093	10.72	10.72	0.0	2.0	-12.4	39.0	25.5	26.1
890515	0100	0.44	0.103	0.103	9.71	9.71	12.0	12.0	-14.4	37.1	26.9	24.7
890515	0700	0.46	0.191	0.113	5.24	8.87	-44.0	-48.0	-23.3	48.0	22.8	10.6
890515	1300	0.50	0.191	0.191	5.24	5.24	-50.0	-50.0	-32.7	39.9	21.7	14.6
890515	1900	0.44	0.142	0.103	7.04	9.71	-30.0	-28.0	-26.5	37.4	28.8	31.2
890516	0100	0.48	0.181	0.181	5.52	5.52	-50.0	-48.0	-32.0	40.4	26.1	19.6
890516	0700	0.42	0.181	0.181	5.52	5.52	-50.0	-50.0	-27.6	48.5	36.2	30.3
890516	1300	0.37	0.064	0.064	15.62	15.62	-8.0	-48.0	-21.6	46.8	37.8	18.8

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Date	Time EST	H_{mo} m	Peak Frequency $f_{p.FD}$ Hz	Peak Frequency $f_{p.IFS}$ Hz	Peak Period $T_{p.FD}$ sec	Peak Period $T_{p.IFS}$ sec	Peak Direction $\theta_{p.FD}$ deg	Peak Direction $\theta_{p.IDS}$ deg	Peak Direction $\theta_{p.SW}$ deg	Directional Spread $\Delta\theta_{IDS}$ deg	Directional Spread $\Delta\theta_{SW}$ deg	Directional Spread $\Delta\theta_{FDP}$ deg
890516	1900	0.37	0.250	0.064	4.01	15.62	50.0	50.0	-13.8	51.6	30.6	6.4
890517	0100	0.30	0.064	0.064	15.62	15.62	-8.0	-8.0	-7.8	38.5	31.0	20.7
890517	0700	0.30	0.064	0.064	15.62	15.62	-10.0	-10.0	1.9	43.2	31.5	22.2
890517	1300	0.71	0.220	0.210	4.54	4.75	46.0	44.0	33.1	18.1	13.8	9.7
890517	1900	0.99	0.181	0.181	5.52	5.52	30.0	32.0	26.6	12.9	10.7	8.3
890518	0100	0.79	0.171	0.162	5.83	6.19	32.0	32.0	22.8	20.9	15.5	12.5
890518	0700	0.87	0.103	0.132	9.71	7.56	2.0	20.0	12.1	22.5	15.1	13.1
890518	1300	1.26	0.093	0.093	10.72	10.72	0.0	4.0	4.3	19.2	17.5	16.8
890518	1900	1.43	0.093	0.093	10.72	10.72	-4.0	-2.0	4.1	18.8	18.5	17.2
890519	0100	1.50	0.083	0.093	11.98	10.72	0.0	0.0	1.4	17.5	17.8	15.0
890519	0700	1.54	0.083	0.083	11.98	11.98	4.0	4.0	6.8	21.2	20.8	14.3
890519	1300	1.47	0.093	0.093	10.72	10.72	4.0	-2.0	1.8	23.5	22.3	15.5
890519	1900	1.48	0.103	0.103	9.71	9.71	-16.0	-16.0	-9.7	25.2	25.1	20.6
890520	0100	1.57	0.103	0.103	9.71	9.71	-12.0	-12.0	-9.9	20.4	20.4	16.5
890520	0700	1.25	0.093	0.093	10.72	10.72	-8.0	-8.0	-1.8	22.3	21.5	18.9
890520	1300	1.20	0.093	0.093	10.72	10.72	-8.0	-10.0	-4.2	21.1	19.8	19.1
890521	1900	0.69	0.103	0.103	9.71	9.71	-2.0	-6.0	-8.1	21.7	22.1	16.9
890522	0100	0.61	0.093	0.103	10.72	9.71	-10.0	-6.0	-7.3	22.6	22.8	19.8
890522	0700	0.55	0.093	0.103	10.72	9.71	-8.0	-8.0	-6.0	23.8	24.2	15.7
890522	1300	0.52	0.113	0.113	8.87	8.87	-2.0	-12.0	-8.2	23.6	24.4	19.3
890522	1900	0.52	0.113	0.113	8.87	8.87	-2.0	-10.0	-13.7	25.5	26.5	19.5
890523	0100	0.47	0.064	0.113	15.62	8.87	-10.0	-8.0	-16.4	24.8	26.1	18.0
890523	0700	0.49	0.064	0.064	15.62	15.62	-14.0	-12.0	-12.0	23.3	24.1	17.4
890523	1300	0.55	0.064	0.064	15.62	15.62	-24.0	-24.0	-31.4	35.7	20.7	15.3
890523	1900	0.52	0.064	0.064	15.62	15.62	-8.0	-22.0	-26.6	27.7	22.9	16.2
890524	0100	0.48	0.064	0.064	15.62	15.62	-10.0	-32.0	-28.3	30.8	25.5	20.4
890524	0700	0.49	0.064	0.064	15.62	15.62	-14.0	-40.0	-28.7	29.7	22.3	17.3
890524	1300	0.46	0.064	0.064	15.62	15.62	-14.0	-42.0	-30.3	30.7	24.0	17.6
890524	1900	0.49	0.064	0.064	15.62	15.62	-10.0	-22.0	-31.6	29.2	20.0	18.5
890525	0100	0.42	0.064	0.064	15.62	15.62	-8.0	-34.0	-26.6	28.4	19.1	20.4
890525	0700	0.46	0.074	0.074	13.57	13.57	-16.0	-16.0	-25.8	24.7	22.1	14.8
890525	1900	0.46	0.074	0.074	13.57	13.57	-12.0	-14.0	-27.4	27.1	19.4	14.9
890526	1900	0.41	0.074	0.074	13.57	13.57	-12.0	-52.0	-28.8	32.7	16.9	19.2
890527	0100	0.39	0.074	0.074	13.57	13.57	-12.0	-24.0	-26.1	26.3	22.1	25.7
890527	0700	0.38	0.074	0.074	13.57	13.57	-12.0	-16.0	-31.7	28.6	20.9	18.7
890527	1300	0.39	0.074	0.074	13.57	13.57	-12.0	-44.0	-33.5	34.4	17.5	17.7
890527	1900	0.59	0.230	0.230	4.35	4.35	50.0	12.0	10.2	65.3	33.6	34.7
890528	0100	0.49	0.230	0.230	4.35	4.35	44.0	44.0	14.4	73.7	42.7	31.7
890528	0700	1.43	0.171	0.171	5.83	5.83	40.0	40.0	35.6	16.5	15.8	14.2
890528	1300	0.86	0.162	0.162	6.19	6.19	32.0	32.0	30.8	19.9	17.1	11.6
890528	1900	0.62	0.171	0.171	5.83	5.83	26.0	24.0	20.6	31.1	22.5	11.4
890529	0100	0.58	0.181	0.162	5.52	6.19	28.0	26.0	17.2	31.2	19.0	10.3
890529	0700	0.46	0.142	0.152	7.04	6.58	4.0	2.0	8.5	35.7	30.1	25.3
890529	1300	0.41	0.142	0.152	7.04	6.58	-4.0	-32.0	-14.5	30.1	32.4	26.3
890529	1900	0.35	0.074	0.074	13.57	13.57	-12.0	-12.0	-27.4	30.7	27.0	20.1
890530	0100	0.37	0.083	0.083	11.98	11.98	-16.0	-40.0	-34.5	31.1	26.3	19.0
890530	0700	0.41	0.220	0.220	4.54	4.54	-50.0	-40.0	-40.0	28.2	22.3	18.8

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Date	Time EST	H_{m0} m	Peak Frequency $f_{p,FD}$ Hz	Peak Frequency $f_{p,IFS}$ Hz	Peak Period $T_{p,FD}$ sec	Peak Period $T_{p,IFS}$ sec	Peak Direction $\theta_{p,FD}$ deg	Peak Direction $\theta_{p,IDS}$ deg	Peak Direction $\theta_{p,SW}$ deg	Directional Spread $\Delta\theta_{IDS}$ deg	Directional Spread $\Delta\theta_{SW}$ deg	Directional Spread $\Delta\theta_{FDP}$ deg
890530	1300	0.46	0.123	0.250	8.16	4.01	-38.0	-48.0	-42.6	22.6	18.6	17.1
890530	1900	0.37	0.132	0.132	7.56	7.56	-40.0	-40.0	-38.3	22.0	14.7	10.7
890531	0100	0.36	0.132	0.142	7.56	7.04	-38.0	-40.0	-36.4	21.6	15.5	11.2
890531	0700	0.36	0.132	0.132	7.56	7.56	-38.0	-38.0	-36.9	17.4	15.9	9.7
890531	1300	0.36	0.142	0.142	7.04	7.04	-40.0	-40.0	-37.3	19.4	15.9	7.9
890531	1900	0.34	0.132	0.132	7.56	7.56	-38.0	-42.0	-36.2	19.6	12.5	8.1
890601	0700	0.38	0.191	0.191	5.24	5.24	-50.0	-50.0	-43.0	19.9	11.8	5.3
890601	1300	0.35	0.142	0.113	7.04	8.87	-42.0	-42.0	-39.5	17.8	11.7	7.7
890601	1900	0.33	0.142	0.123	7.04	8.16	-44.0	-44.0	-41.3	23.1	12.7	12.9
890602	0100	0.33	0.113	0.123	8.87	8.16	-32.0	-34.0	-39.2	21.4	14.6	9.7
890602	0700	0.30	0.142	0.132	7.04	7.56	-44.0	-42.0	-40.7	26.2	16.9	12.7
890602	1300	0.31	0.142	0.123	7.04	8.16	-42.0	-40.0	-38.4	22.7	15.8	13.2
890603	0100	0.33	0.142	0.113	7.04	8.87	-38.0	-40.0	-27.1	25.7	27.0	9.6
890603	1300	0.29	0.132	0.123	7.56	8.16	-40.0	-38.0	-37.8	23.3	20.9	11.0
890603	1900	0.29	0.113	0.113	8.87	8.87	-26.0	-26.0	-39.5	30.9	19.2	16.2
890604	0100	0.29	0.250	0.113	4.01	8.87	-60.0	-54.0	-40.7	30.2	16.5	6.8
890604	0700	0.29	0.181	0.083	5.52	11.98	-50.0	-50.0	-41.0	26.9	14.6	6.2
890604	1000	0.34	0.162	0.162	6.19	6.19	-46.0	-46.0	-41.3	19.7	11.2	4.7
890604	1300	0.33	0.142	0.142	7.04	7.04	-40.0	-42.0	-39.7	23.6	11.2	6.7
890605	0100	0.32	0.132	0.113	7.56	8.87	-40.0	-40.0	-40.8	19.3	11.3	8.3
890605	0700	0.36	0.142	0.113	7.04	8.87	-42.0	-42.0	-42.6	23.0	23.1	6.7
890605	1300	0.34	0.162	0.123	6.19	8.16	-44.0	-42.0	-41.8	19.8	13.2	7.3
890605	1900	0.50	0.181	0.181	5.52	5.52	-48.0	-42.0	-45.3	15.9	12.4	10.2
890606	0100	0.37	0.171	0.171	5.83	5.83	-48.0	-48.0	-45.1	16.8	10.6	4.9
890606	0700	0.43	0.152	0.142	6.58	7.04	-46.0	-44.0	-44.5	18.6	13.1	8.1
890606	1000	0.48	0.152	0.152	6.58	6.58	-44.0	-44.0	-47.1	18.9	11.2	5.6
890606	1300	0.40	0.142	0.142	7.04	7.04	-40.0	-42.0	-42.3	18.6	12.5	6.4
890606	1600	0.43	0.171	0.113	5.83	8.87	-48.0	-50.0	-43.0	22.2	13.5	5.4
890606	1900	0.47	0.171	0.123	5.83	8.16	-48.0	-50.0	-44.5	22.6	12.3	5.8
890607	0100	0.40	0.162	0.113	6.19	8.87	-46.0	-46.0	-38.9	25.2	16.6	23.0
890607	0700	0.60	0.162	0.162	6.19	6.19	-46.0	-46.0	-43.7	20.5	13.7	10.2
890607	1300	0.64	0.152	0.152	6.58	6.58	-44.0	-46.0	-43.6	14.9	11.0	5.8
890607	1900	0.68	0.162	0.162	6.19	6.19	-46.0	-44.0	-43.2	19.3	14.1	9.2
890608	0100	0.64	0.162	0.162	6.19	6.19	-44.0	-44.0	-41.9	17.1	14.2	7.2
890608	0700	0.64	0.171	0.162	5.83	6.19	-48.0	-44.0	-44.9	18.3	15.7	12.2
890608	1300	0.49	0.152	0.152	6.58	6.58	-46.0	-46.0	-44.1	23.7	19.5	14.4
890608	1900	0.55	0.152	0.152	6.58	6.58	-44.0	-44.0	-40.5	20.3	15.7	12.6
890609	0100	0.55	0.162	0.113	6.19	8.87	-46.0	-46.0	-40.2	24.7	16.4	12.0
890609	0700	0.56	0.162	0.113	6.19	8.87	-44.0	-42.0	-38.9	23.2	18.7	16.3
890609	1300	0.55	0.142	0.113	7.04	8.87	-40.0	-40.0	-40.0	22.6	18.1	10.4
890609	1900	0.63	0.142	0.142	7.04	7.04	-40.0	-40.0	-40.5	17.1	13.6	8.4
890610	0100	0.48	0.132	0.132	7.56	7.56	-40.0	-40.0	-40.4	14.9	13.4	4.8
890610	0700	0.46	0.142	0.113	7.04	8.87	-40.0	-40.0	-39.9	16.4	14.0	7.8
890610	1300	0.51	0.132	0.113	7.56	8.87	-42.0	-40.0	-40.1	18.0	16.0	11.7
890610	1900	0.45	0.142	0.113	7.04	8.87	-42.0	-40.0	-36.7	17.1	15.7	8.5
890611	0100	0.39	0.162	0.113	6.19	8.87	-48.0	-40.0	-37.2	28.2	19.3	9.3
890611	0700	0.89	0.230	0.230	4.35	4.35	56.0	28.0	29.1	31.6	26.0	26.1
890611	1300	0.75	0.191	0.191	5.24	5.24	34.0	44.0	27.0	26.3	18.2	11.8
890611	1900	0.58	0.181	0.191	5.52	5.24	34.0	32.0	21.4	40.5	19.1	10.1

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Date	Time EST	H_{mo} m	Peak Frequency $f_{p.FD}$ Hz	Peak Frequency $f_{p.IFS}$ Hz	Peak Period $T_{p.FD}$ sec	Peak Period $T_{p.IFS}$ sec	Peak Direction $\theta_{p.FD}$ deg	Peak Direction $\theta_{p.IDS}$ deg	Peak Direction $\theta_{p.SW}$ deg	Directional Spread $\Delta\theta_{IDS}$ deg	Directional Spread $\Delta\theta_{SW}$ deg	Directional Spread $\Delta\theta_{FDP}$ deg
890612	0100	0.45	0.113	0.123	8.87	8.16	-34.0	-40.0	-8.8	59.9	36.0	26.8
890612	0700	0.42	0.113	0.103	8.87	9.71	-24.0	4.0	-18.2	41.4	37.5	35.8
890612	1300	0.43	0.103	0.103	9.71	9.71	10.0	6.0	-14.0	39.5	34.4	33.1
890612	1900	0.49	0.103	0.103	9.71	9.71	-2.0	-2.0	-14.1	30.2	25.1	20.9
890612	2200	0.48	0.093	0.113	10.72	8.87	4.0	-8.0	-17.2	33.4	26.8	20.9
890613	0100	0.43	0.123	0.113	8.16	8.87	-22.0	-22.0	-16.1	36.3	30.5	33.2
890613	0700	0.42	0.210	0.103	4.75	9.71	-48.0	-48.0	-28.7	38.1	19.0	6.1
890613	1300	0.38	0.103	0.103	9.71	9.71	-4.0	-26.0	-25.3	33.1	24.2	29.7
890614	0100	0.38	0.142	0.113	7.04	8.87	-44.0	-42.0	-30.5	30.7	23.3	5.6
890614	0700	0.37	0.132	0.113	7.56	8.87	-40.0	-40.0	-36.8	28.1	19.5	9.9
890614	1300	0.39	0.113	0.113	8.87	8.87	-38.0	-40.0	-38.0	30.8	22.9	15.2
890614	1900	0.35	0.113	0.113	8.87	8.87	-38.0	-38.0	-36.8	30.7	25.4	15.0
890615	0100	0.43	0.123	0.113	8.16	8.87	-40.0	-42.0	-7.9	65.2	28.1	15.0
890615	0700	0.40	0.103	0.113	9.71	8.87	-32.0	-32.0	-20.2	57.0	44.5	18.4
890615	1300	0.43	0.162	0.171	6.19	5.83	16.0	14.0	-16.0	52.2	35.2	17.7
890615	1900	0.36	0.113	0.113	8.87	8.87	-38.0	-38.0	-37.0	46.5	34.4	16.6
890616	0100	0.34	0.113	0.113	8.87	8.87	-36.0	-34.0	-38.0	41.2	29.4	16.6
890616	0700	0.37	0.142	0.113	7.04	8.87	-42.0	-40.0	-39.6	37.0	30.8	40.2
890616	1300	0.48	0.220	0.103	4.54	9.71	-52.0	-50.0	-35.3	36.4	19.1	6.7
890616	1900	0.54	0.210	0.113	4.75	8.87	-50.0	-50.0	-31.3	39.9	21.5	6.7
890617	0100	0.56	0.103	0.113	9.71	8.87	-14.0	-14.0	-24.2	32.1	23.8	23.1
890617	0700	0.57	0.171	0.113	5.83	8.87	-46.0	-46.0	-33.4	39.4	24.8	10.3
890617	1300	0.59	0.181	0.123	5.52	8.16	-42.0	-40.0	-32.5	34.2	20.1	8.4
890617	1900	0.49	0.113	0.113	8.87	8.87	-28.0	-38.0	-29.0	39.9	24.7	31.1
890618	0700	0.46	0.123	0.103	8.16	9.71	-30.0	-30.0	-32.5	32.8	25.2	27.0
890618	1300	0.46	0.103	0.103	9.71	9.71	-16.0	-36.0	-33.2	33.7	25.3	25.4
890618	1900	0.41	0.103	0.103	9.71	9.71	-22.0	-22.0	-28.0	34.7	29.6	27.6
890619	0100	0.38	0.113	0.113	8.87	8.87	-32.0	-32.0	-31.5	26.4	23.4	22.9
890619	0700	0.41	0.103	0.103	9.71	9.71	-30.0	-30.0	-27.1	30.4	26.0	22.1
890619	1300	0.39	0.123	0.123	8.16	8.16	-32.0	-32.0	-32.4	28.0	26.9	23.6
890619	1900	0.42	0.123	0.123	8.16	8.16	-36.0	-36.0	-34.6	31.3	25.9	20.5
890620	0100	0.40	0.132	0.103	7.56	9.71	-38.0	-36.0	-32.4	25.6	20.0	15.9
890620	0700	0.40	0.113	0.113	8.87	8.87	-30.0	-40.0	-35.0	33.1	28.0	27.4
890620	1300	0.38	0.113	0.113	8.87	8.87	-32.0	-32.0	-32.6	23.1	21.9	19.3
890620	1900	0.43	0.123	0.123	8.16	8.16	-36.0	-32.0	-35.3	24.9	21.9	16.0
890621	0100	0.40	0.132	0.123	7.56	8.16	-40.0	-40.0	-35.6	22.4	19.0	16.6
890621	0700	0.42	0.132	0.132	7.56	7.56	-30.0	-34.0	-35.5	25.4	22.8	16.1
890621	1000	0.41	0.142	0.132	7.04	7.56	-40.0	-24.0	-31.5	22.8	22.2	16.5
890621	1300	0.39	0.132	0.132	7.56	7.56	-40.0	-26.0	-34.3	21.3	20.4	15.5
890621	1600	0.43	0.142	0.142	7.04	7.04	-38.0	-38.0	-31.0	21.5	19.9	15.9
890621	1900	0.43	0.152	0.132	6.58	7.56	-38.0	-32.0	-35.9	24.5	22.7	15.9
890621	2200	0.39	0.132	0.123	7.56	8.16	-26.0	-22.0	-33.2	27.9	24.6	19.4
890622	0100	0.35	0.142	0.132	7.04	7.56	-28.0	-28.0	-31.1	23.8	23.4	17.9
890622	0400	0.36	0.103	0.123	9.71	8.16	-14.0	-26.0	-29.0	25.5	25.0	18.8
890622	0700	0.38	0.123	0.123	8.16	8.16	-32.0	-26.0	-30.6	30.2	27.4	24.7
890622	1000	0.38	0.132	0.113	7.56	8.87	-22.0	-22.0	-31.8	32.2	31.3	23.6
890622	1300	0.36	0.123	0.113	8.16	8.87	-38.0	-28.0	-35.6	32.5	28.1	31.5
890622	1600	0.38	0.113	0.113	8.87	8.87	-4.0	-28.0	-27.7	29.7	24.8	25.1
890622	1900	0.41	0.113	0.113	8.87	8.87	-14.0	-14.0	-24.4	33.8	28.4	24.5
890622	2200	0.39	0.074	0.113	13.57	8.87	-12.0	-12.0	-24.2	34.5	30.5	21.7

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Date	Time EST	d_{wo} m	Peak Frequency $f_{p,FD}$ Hz	Peak Frequency $f_{p,IFS}$ Hz	Peak Period $T_{p,FD}$ sec	Peak Period $T_{p,IFS}$ sec	Peak Direction $\theta_{p,FD}$ deg	Peak Direction $\theta_{p,IDS}$ deg	Peak Direction $\theta_{p,SW}$ deg	Directional Spread $\Delta\theta_{IDS}$ deg	Directional Spread $\Delta\theta_{SW}$ deg	Directional Spread $\Delta\theta_{FDP}$ deg
890623	0100	0.38	0.074	0.074	13.57	13.57	-10.0	-26.0	-24.2	30.4	28.4	25.7
890623	0400	0.41	0.074	0.074	13.57	13.57	-12.0	-16.0	-20.5	27.6	24.9	18.9
890623	0700	0.47	0.074	0.074	13.57	13.57	-12.0	-12.0	-17.8	28.8	27.7	23.5
890623	1300	0.49	0.083	0.083	11.98	11.98	-14.0	-14.0	-16.0	26.8	27.3	21.9
890623	1600	0.48	0.083	0.083	11.98	11.98	-10.0	-10.0	-16.0	24.1	27.8	21.0
890623	1900	0.52	0.083	0.083	11.98	11.98	2.0	-16.0	-10.4	28.3	27.7	27.6
890623	2200	0.52	0.083	0.083	11.98	11.98	2.0	-8.0	-11.0	27.9	25.5	18.7
890624	0100	0.47	0.093	0.083	10.72	11.98	-8.0	-8.0	-15.3	24.8	24.8	20.2
890624	0400	0.46	0.093	0.093	10.72	10.72	-12.0	-12.0	-15.6	23.7	23.7	19.6
890624	0700	0.44	0.093	0.093	10.72	10.72	-10.0	-10.0	-10.4	27.6	28.2	25.6
890624	1000	0.44	0.093	0.093	10.72	10.72	-12.0	-12.0	-12.3	29.3	28.9	25.7
890624	1300	0.41	0.093	0.093	10.72	10.72	-10.0	-8.0	-7.2	29.1	27.4	23.6
890624	1600	0.38	0.093	0.093	10.72	10.72	-10.0	-10.0	-10.8	28.6	26.3	19.7
890624	1900	0.41	0.093	0.093	10.72	10.72	-8.0	-10.0	-14.3	26.0	25.4	21.1
890624	2200	0.48	0.093	0.093	10.72	10.72	-8.0	-4.0	-7.1	26.2	27.2	24.8
890625	0100	0.47	0.093	0.093	10.72	10.72	-14.0	-12.0	-13.6	25.9	26.9	22.4
890625	0400	0.49	0.103	0.103	9.71	9.71	-16.0	-4.0	-10.3	30.5	29.8	28.3
890625	0700	0.60	0.210	0.201	4.75	4.98	8.0	6.0	-4.3	32.3	30.1	32.1
890625	1000	0.59	0.103	0.103	9.71	9.71	4.0	0.0	-16.2	34.0	32.9	24.2
890625	1300	0.52	0.103	0.103	9.71	9.71	-14.0	-14.0	-9.3	32.8	32.9	23.8
890625	1600	0.52	0.103	0.103	9.71	9.71	2.0	-18.0	-8.2	30.0	32.4	22.2
890625	1900	0.61	0.103	0.103	9.71	9.71	-14.0	-12.0	-16.0	25.9	28.0	25.2
890625	2200	0.73	0.093	0.103	10.72	9.71	-10.0	-12.0	-12.9	22.7	25.7	17.6
890626	0100	0.78	0.103	0.103	9.71	9.71	-12.0	-12.0	-14.4	20.4	22.4	17.4
890626	0400	0.75	0.093	0.103	10.72	9.71	-10.0	-12.0	-14.5	21.1	22.5	17.4
890626	0700	0.77	0.103	0.103	9.71	9.71	-12.0	-12.0	-10.6	19.6	20.5	12.3
890627	0100	0.68	0.113	0.113	8.87	8.87	-12.0	-10.0	-11.6	22.3	23.3	20.0
890627	0700	0.65	0.123	0.123	8.16	8.16	-8.0	-8.0	-18.0	22.5	19.2	15.6
890627	1300	0.62	0.113	0.123	8.87	8.16	-12.0	-10.0	-20.4	20.1	22.3	14.7
890628	0100	0.57	0.103	0.103	9.71	9.71	-14.0	-14.0	-15.8	17.3	17.3	8.9
890628	0700	0.47	0.103	0.103	9.71	9.71	-16.0	-14.0	-16.2	15.6	16.0	10.7
890628	1900	0.33	0.113	0.113	8.87	8.87	-10.0	-12.0	-25.6	37.7	31.0	17.8
890629	0100	0.29	0.123	0.123	8.16	8.16	-16.0	-16.0	-24.5	31.9	28.3	24.7
890629	0700	0.25	0.123	0.123	8.16	8.16	-36.0	-36.0	-37.5	35.1	27.1	26.9
890629	1000	0.29	0.123	0.250	8.16	4.01	-34.0	-40.0	-33.4	52.9	45.5	27.8
890629	1300	0.92	0.250	0.250	4.01	4.01	54.0	52.0	47.1	25.1	23.7	20.3
890629	1600	0.95	0.181	0.181	5.52	5.52	48.0	48.0	44.6	21.4	21.5	16.7
890629	1900	0.78	0.171	0.171	5.83	5.83	34.0	40.0	35.8	16.6	17.0	10.8
890629	2200	0.71	0.162	0.162	6.19	6.19	30.0	32.0	30.0	19.3	18.5	10.9
890630	0100	0.71	0.162	0.162	6.19	6.19	36.0	36.0	28.9	21.2	20.9	16.3
890630	0400	0.84	0.162	0.162	6.19	6.19	22.0	36.0	27.6	20.3	20.5	13.6
890630	0700	0.84	0.181	0.181	5.52	5.52	38.0	24.0	28.6	24.1	21.9	16.0
890630	1300	0.88	0.162	0.171	6.19	5.83	22.0	0.0	8.5	30.6	29.7	26.0
890630	1900	0.64	0.132	0.181	7.56	5.52	0.0	0.0	16.3	32.8	30.9	15.3
890705	0100	0.84	0.142	0.142	7.04	7.04	-42.0	-32.0	-37.3	17.3	16.2	13.8
890705	0700	0.84	0.142	0.142	7.04	7.04	-40.0	-32.0	-38.3	21.3	19.9	13.5
890705	1000	0.79	0.162	0.142	6.19	7.04	-44.0	-40.0	-40.7	21.2	19.8	17.2
890705	1300	0.78	0.132	0.152	7.56	6.58	-28.0	-30.0	-37.2	19.9	17.6	15.6
890705	1900	0.74	0.152	0.152	6.58	6.58	-42.0	-42.0	-36.2	21.8	17.4	19.6
890706	0100	0.62	0.152	0.152	6.58	6.58	-42.0	-42.0	-37.9	28.8	16.5	9.9
890706	0700	0.59	0.152	0.103	6.58	9.71	-44.0	-28.0	-35.3	35.9	22.3	18.1
890706	1900	0.53	0.083	0.093	11.98	10.72	-12.0	-40.0	-28.0	36.5	22.9	24.2

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Date	Time EST	R_{eo} m	Peak Frequency $f_{p\,FD}$ Hz	Peak Frequency $f_{p\,IFS}$ Hz	Peak Period $T_{p\,FD}$ sec	Peak Period $T_{p\,IFS}$ sec	Peak Direction $\theta_{p\,FD}$ deg	Peak Direction $\theta_{p\,IDS}$ deg	Peak Direction $\theta_{p\,SW}$ deg	Directional Spread $\Delta\theta_{IDS}$ deg	Directional Spread $\Delta\theta_{SW}$ deg	Directional Spread $\Delta\theta_{FDP}$ deg
890707	0100	0.52	0.142	0.083	7.04	11.98	-44.0	-44.0	-33.2	40.0	18.4	14.6
890707	1300	0.48	0.162	0.093	6.19	10.72	-50.0	-48.0	-34.3	43.5	16.9	5.5
890708	0100	0.32	0.152	0.093	6.58	10.72	-46.0	-46.0	-29.3	41.1	23.7	7.6
890708	0700	0.28	0.103	0.103	9.71	9.71	-4.0	-16.0	-25.1	41.0	27.6	30.8
890708	1900	0.28	0.142	0.113	7.04	8.87	-46.0	-12.0	-35.6	38.3	31.5	32.4
890709	0100	0.29	0.142	0.142	7.04	7.04	-44.0	-20.0	-35.9	34.8	32.7	24.2
890709	0700	0.35	0.250	0.250	4.01	4.01	46.0	36.0	-4.3	65.4	27.5	16.4
890709	1300	0.33	0.074	0.132	13.57	7.56	-12.0	-16.0	-16.2	46.7	31.2	16.0
890709	1900	0.31	0.152	0.113	6.58	8.87	-38.0	-34.0	-23.1	31.5	32.3	23.5
890710	0100	0.31	0.132	0.103	7.56	9.71	-40.0	-40.0	-30.5	26.6	22.9	21.8
890710	0700	0.29	0.113	0.113	8.87	8.87	-36.0	-34.0	-30.9	23.2	17.5	15.0
890710	1300	0.32	0.123	0.113	8.16	8.87	-34.0	-34.0	-29.5	24.9	20.7	11.5
890710	1900	0.36	0.123	0.123	8.16	8.16	-34.0	-36.0	-32.8	22.8	18.2	17.3
890711	0100	0.35	0.113	0.113	8.87	8.87	-36.0	-36.0	-34.2	22.9	18.5	15.9
890711	0700	0.35	0.103	0.103	9.71	9.71	-34.0	-36.0	-32.1	24.8	19.6	19.1
890711	1300	0.36	0.103	0.103	9.71	9.71	-32.0	-34.0	-31.1	26.5	24.3	22.9
890711	1900	0.36	0.123	0.103	8.16	9.71	-30.0	-30.0	-31.0	22.4	19.8	18.8
890712	0700	0.43	0.103	0.103	9.71	9.71	-36.0	-36.0	-13.2	36.4	20.7	20.4
890712	1900	0.41	0.113	0.113	8.87	8.87	-36.0	-36.0	-9.4	64.8	17.9	18.4
890713	0100	0.50	0.210	0.113	4.75	8.87	40.0	38.0	3.9	62.3	18.6	13.3
890713	0700	0.39	0.103	0.113	9.71	8.87	-32.0	-26.0	-3.1	49.5	25.3	19.6
890713	1300	0.37	0.103	0.103	9.71	9.71	-32.0	-36.0	-38.5	38.9	35.3	21.0
890713	1900	0.37	0.113	0.103	8.87	9.71	-34.0	-34.0	-39.2	34.6	34.2	18.8
890714	0100	0.38	0.113	0.113	8.87	8.87	-36.0	-44.0	-40.5	36.7	30.7	20.2
890714	0700	0.74	0.162	0.171	6.19	5.83	28.0	30.0	20.8	27.6	17.7	9.7
890714	1300	0.96	0.074	0.074	13.57	13.57	-18.0	30.0	18.4	55.9	18.6	15.0
890714	1900	0.81	0.083	0.083	11.98	11.98	-22.0	-22.0	-1.4	54.9	22.4	16.4
890715	0100	0.83	0.083	0.083	11.98	11.98	-22.0	-22.0	-13.6	35.4	21.2	13.2
890715	0700	0.78	0.083	0.083	11.98	11.98	-24.0	-24.0	-14.7	28.5	15.7	11.2
890715	1300	0.82	0.093	0.093	10.72	10.72	-28.0	-28.0	-21.0	23.4	21.0	13.8
890715	1900	0.82	0.093	0.093	10.72	10.72	-28.0	-26.0	-26.7	21.8	22.7	19.3
890716	0100	0.84	0.093	0.093	10.72	10.72	-20.0	-22.0	-29.1	22.7	23.0	19.0
890716	0700	0.84	0.093	0.093	10.72	10.72	-20.0	-32.0	-30.9	26.4	22.9	20.0
890719	1300	0.68	0.152	0.152	6.58	6.58	12.0	12.0	9.8	41.5	29.8	27.1
890719	1900	0.62	0.162	0.162	6.19	6.19	20.0	20.0	-6.7	51.3	42.8	23.6
890720	0100	0.54	0.113	0.113	8.87	8.87	-36.0	-36.0	-39.8	46.9	43.9	25.8
890720	0700	0.55	0.103	0.113	9.71	8.87	-34.0	-38.0	-41.7	44.7	36.5	19.1
890720	1300	0.56	0.162	0.113	6.19	8.87	-50.0	-44.0	-43.1	33.5	22.1	21.2
890720	1900	0.59	0.152	0.123	6.58	8.16	-46.0	-48.0	-43.1	27.5	16.4	13.0
890721	0100	0.51	0.132	0.113	7.56	8.87	-40.0	-42.0	-39.2	22.5	14.7	10.0
890721	0700	0.55	0.123	0.123	8.16	8.16	-38.0	-38.0	-40.8	24.0	15.2	11.1
890721	1300	0.52	0.123	0.123	8.16	8.16	-32.0	-38.0	-40.0	21.0	16.7	12.7
890721	1900	0.54	0.123	0.123	8.16	8.16	-26.0	-30.0	-38.5	28.6	18.6	16.0
890722	0100	0.45	0.123	0.123	8.16	8.16	-42.0	-42.0	-36.0	26.2	19.5	21.3
890722	0700	0.57	0.123	0.123	8.16	8.16	-38.0	-38.0	-38.0	28.5	21.7	19.8
890722	1300	0.54	0.113	0.054	8.87	18.45	-36.0	-36.0	-24.9	37.0	30.3	11.5
890722	1900	0.54	0.113	0.064	8.87	15.62	-34.0	-36.0	-30.3	30.3	27.1	19.2

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Date	Time EST	H_{mo} m	Peak Frequency $f_{p,FD}$ Hz	Peak Frequency $f_{p,IFS}$ Hz	Peak Period $T_{p,FD}$ sec	Peak Period $T_{p,IFS}$ sec	Peak Direction $\theta_{p,FD}$ deg	Peak Direction $\theta_{p,IDS}$ deg	Peak Direction $\theta_{p,SW}$ deg	Directional Spread $\Delta\theta_{IDS}$ deg	Directional Spread $\Delta\theta_{SW}$ deg	Directional Spread $\Delta\theta_{FDP}$ deg
890723	0100	0.52	0.064	0.064	15.62	15.62	-20.0	-36.0	-28.6	26.0	21.3	19.6
890723	0700	0.56	0.064	0.064	15.62	15.62	-10.0	-12.0	-26.5	28.2	22.9	21.2
890723	1300	0.51	0.064	0.064	15.62	15.62	-8.0	-18.0	-22.8	27.4	23.1	22.0
890723	1900	0.60	0.064	0.064	15.62	15.62	-18.0	-18.0	-23.5	19.9	20.2	16.1
890724	0100	0.58	0.064	0.064	15.62	15.62	-10.0	-10.0	-22.3	27.2	21.2	15.2
890724	0700	0.56	0.064	0.064	15.62	15.62	-18.0	-34.0	-23.9	32.2	26.9	27.3
890724	1300	0.53	0.064	0.064	15.62	15.62	-14.0	-10.0	-18.8	32.1	27.3	21.5
890724	1900	0.59	0.074	0.064	13.57	15.62	-12.0	-14.0	-21.8	30.5	25.0	20.1
890725	0100	0.55	0.064	0.064	15.62	15.62	-14.0	-12.0	-18.7	27.5	25.7	22.7
890725	0700	0.57	0.074	0.074	13.57	13.57	-16.0	-16.0	-18.1	26.7	24.8	23.1
890725	1300	0.59	0.074	0.074	13.57	13.57	-12.0	-8.0	-20.3	30.1	29.1	21.9
890725	1900	0.62	0.074	0.074	13.57	13.57	-12.0	-14.0	-24.7	26.1	24.5	21.5
890726	0100	0.72	0.142	0.142	7.04	7.04	-28.0	-28.0	-26.2	24.3	23.6	19.2
890726	0700	0.78	0.123	0.123	8.16	8.16	-30.0	-14.0	-18.3	26.1	24.1	23.7
890726	1300	0.83	0.132	0.123	7.56	8.16	-16.0	-14.0	-13.6	22.0	21.9	16.4
890726	1900	0.79	0.123	0.113	8.16	8.87	-14.0	-16.0	-17.7	21.2	20.9	18.7
890727	0100	0.70	0.123	0.123	8.16	8.16	-20.0	-20.0	-20.8	23.9	23.4	20.8
890727	0700	0.61	0.123	0.123	8.16	8.16	-30.0	-14.0	-20.3	23.6	22.2	21.3
890727	1300	0.58	0.132	0.132	7.56	7.56	-24.0	-25.0	-23.9	26.3	25.1	22.0
890727	1900	0.47	0.113	0.123	8.87	8.16	-34.0	-14.0	-25.9	24.8	22.2	21.0
890728	0100	0.45	0.123	0.113	8.16	8.87	-34.0	-16.0	-27.1	26.6	23.4	22.5
890728	0700	0.41	0.123	0.074	8.16	13.57	-34.0	-34.0	-23.4	25.7	24.1	19.5
890728	1300	0.41	0.123	0.074	8.16	13.57	-32.0	-28.0	-24.5	27.5	22.7	19.0
890728	1900	0.38	0.113	0.074	8.87	13.57	-36.0	-36.0	-28.8	28.0	22.4	23.8
890729	0100	0.35	0.113	0.074	8.87	13.57	-32.0	-26.0	-24.2	28.2	28.3	18.5
890729	1300	1.00	0.162	0.162	6.19	6.19	34.0	30.0	33.6	20.7	20.0	13.2
890729	1900	0.79	0.152	0.152	6.58	6.58	32.0	30.0	32.1	26.9	24.2	14.3
890730	0100	0.72	0.152	0.152	6.58	6.58	18.0	20.0	20.3	22.7	20.3	16.4
890730	0700	0.52	0.162	0.171	6.19	5.83	32.0	32.0	15.3	48.4	25.8	24.4
890730	1300	0.49	0.171	0.171	5.83	5.83	34.0	-22.0	6.4	46.4	32.9	41.7
890730	1900	0.43	0.123	0.132	8.16	7.56	-32.0	-30.0	-6.7	43.7	36.3	34.5
890731	1900	0.39	0.132	0.132	7.56	7.56	-38.0	-38.0	-32.1	41.0	38.6	34.3
890801	0100	0.48	0.162	0.123	6.19	8.16	10.0	10.0	-5.9	37.5	29.3	21.8
890801	0700	0.65	0.240	0.250	4.17	4.01	42.0	32.0	19.5	41.5	20.5	15.7
890801	1300	0.68	0.201	0.201	4.98	4.98	12.0	14.0	10.3	32.1	21.9	16.8
890801	1900	0.74	0.171	0.113	5.83	8.87	20.0	22.0	11.2	32.6	24.1	10.6
890802	0100	0.86	0.152	0.152	6.58	6.58	14.0	14.0	13.8	19.9	21.7	11.1
890802	0700	0.86	0.132	0.123	7.56	8.16	16.0	16.0	14.4	18.7	17.3	14.8
890802	1300	0.82	0.113	0.113	8.87	8.87	0.0	12.0	7.5	18.8	15.9	15.2
890802	1900	0.88	0.103	0.093	9.71	10.72	2.0	2.0	7.5	21.7	20.7	12.7
890803	0100	0.79	0.113	0.113	8.87	8.87	2.0	10.0	9.8	24.1	21.1	15.6
890803	0700	0.69	0.123	0.113	8.16	8.87	12.0	10.0	6.8	22.9	23.0	19.2
890803	1300	0.52	0.123	0.123	8.16	8.16	-2.0	-2.0	0.7	28.0	25.5	20.9
890803	1900	0.46	0.113	0.113	8.87	8.87	-8.0	-10.0	-8.4	29.8	30.0	30.1
890804	0100	0.43	0.113	0.113	8.87	8.87	-16.0	-16.0	-9.8	27.0	27.7	25.3
890804	0700	0.43	0.113	0.113	8.87	8.87	6.0	4.0	-4.2	29.6	30.0	25.5
890804	1300	0.39	0.113	0.113	8.87	8.87	-36.0	2.0	-10.1	32.3	33.3	36.8
890804	1900	0.48	0.093	0.103	10.72	9.71	-10.0	-10.0	-15.5	31.7	30.3	21.6

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Date	Time EST	H_{m0} m	Peak Frequency $f_{p,FD}$ Hz	Peak Frequency $f_{p,IFS}$ Hz	Peak Period $T_{p,FD}$ sec	Peak Period $T_{p,IFS}$ sec	Peak Direction $\theta_{p,FD}$ deg	Peak Direction $\theta_{p,IDS}$ deg	Peak Direction $\theta_{p,SW}$ deg	Directional Spread $\Delta\theta_{IDS}$ deg	Directional Spread $\Delta\theta_{SW}$ deg	Directional Spread $\Delta\theta_{FDP}$ deg
890805	0100	0.48	0.103	0.103	9.71	9.71	-2.[illegible]	-8.0	-21.5	34.0	30.0	25.1
890805	0700	0.48	0.074	0.074	13.57	13.57	-34.0	-4.0	-24.8	36.2	31.4	24.7
890805	1300	0.53	0.083	0.083	11.98	11.98	-28.0	-28.0	-28.0	29.1	23.5	15.4
890805	1900	0.60	0.093	0.093	10.72	10.72	-34.0	-34.0	-33.7	29.9	27.0	20.5
890806	0100	[illegible].58	0.093	0.093	10.72	10.72	-32.0	-32.0	-33.7	26.5	24.6	22.7
890806	0700	0.[illegible]9	0.093	0.093	10.72	10.72	-34.0	-34.0	-28.4	27.6	22.4	16.2
890806	1300	[illegible].68	0.083	0.083	11.98	11.98	-30.0	-32.0	-32.0	17.5	18.4	8.2
890806	1900	0.79	0.083	0.083	11.98	11.98	-38.0	-36.0	-36.0	20.8	21.6	14.9
890807	0100	0.88	0.064	0.064	15.62	15.62	-22.0	-22.0	-28.8	16.8	17.2	10.6
890807	0700	1.27	0.064	0.064	15.62	15.62	-18.0	-22.0	-22.6	14.6	16.5	10.0
890807	1900	1.05	0.083	0.083	11.98	11.98	-22.0	-22.0	-21.7	16.7	16.4	11.3
890808	0100	1.87	0.171	0.181	5.83	5.52	38.0	48.0	27.1	29.5	16.6	12.2
890808	0400	1.91	0.171	0.171	5.83	5.83	36.0	38.0	25.5	29.2	16.8	10.8
890808	0700	1.82	0.152	0.162	6.58	6.19	28.0	34.0	26.4	28.8	17.9	13.9
890808	1900	1.04	0.152	0.113	6.58	8.87	32.0	32.0	13.6	35.9	21.7	18.1
890809	0100	0.85	0.162	0.113	6.19	8.87	30.0	28.0	11.5	36.7	23.9	18.7
890809	0700	0.82	0.123	0.123	8.16	8.16	-14.0	18.0	6.6	38.5	28.3	18.5
890809	1300	0.85	0.113	0.220	8.87	4.54	-14.0	-18.0	-17.5	36.1	37.7	19.5
890809	1900	1.27	0.220	0.201	4.54	4.98	42.0	20.0	15.0	48.2	28.0	26.2
890810	0100	1.69	0.171	0.171	5.83	5.83	-6.0	-12.0	0.0	31.7	24.7	21.7
890810	0400	1.78	0.152	0.152	6.58	6.58	-12.0	-10.0	-0.5	32.5	28.0	18.3
890810	0700	1.74	0.142	0.152	7.04	6.58	-20.0	-10.0	15.7	38.8	32.2	17.2
890810	1300	1.41	0.132	0.162	7.56	6.19	-14.0	-14.0	17.2	42.6	38.4	18.8
890810	1900	1.26	0.152	0.152	6.58	6.58	32.0	30.0	23.8	34.4	31.6	33.6
890811	0100	1.07	0.152	0.152	6.58	6.58	28.0	14.0	17.1	41.5	38.8	43.9
890811	0700	0.84	0.123	0.152	8.16	6.58	0.0	0.0	14.2	43.0	41.3	13.3
890811	1300	0.82	0.132	0.142	7.56	7.04	4.0	2.0	-17.9	40.9	40.4	23.5
890811	1900	0.76	0.152	0.152	6.58	6.58	-44.0	-20.0	-30.0	44.7	39.4	39.8
890812	0100	0.68	0.113	0.132	8.87	7.56	-4.0	-4.0	-24.8	36.6	36.1	8.1
890812	0700	0.67	0.132	0.152	7.56	6.58	0.0	-4.0	-28.6	38.3	32.4	18.9
890812	1300	0.84	0.152	0.152	6.58	6.58	-20.0	-30.0	-35.8	29.9	24.4	17.9
890812	1900	0.74	0.162	0.142	6.19	7.04	-48.0	-48.0	-35.9	34.3	22.7	25.5
890813	0100	0.74	0.152	0.152	6.58	6.58	-14.0	-16.0	-32.9	32.1	28.9	16.9
890813	1300	0.58	0.152	0.142	6.58	7.04	-46.0	-48.0	-31.6	44.5	35.3	41.0
890813	1900	0.54	0.142	0.142	7.04	7.04	-16.0	-14.0	-29.4	35.8	34.0	32.6
890814	0100	0.63	0.142	0.142	7.04	7.04	-16.0	-10.0	-18.6	30.9	32.3	28.5
890814	0700	0.54	0.132	0.132	7.56	7.56	-40.0	-42.0	-34.4	35.1	33.7	31.3
890814	1300	0.60	0.142	0.132	7.04	7.56	-12.0	-10.0	-28.5	31.8	31.8	32.4
890814	1900	0.61	0.142	0.142	7.04	7.04	-46.0	-44.0	-32.5	34.9	33.1	26.9
890815	0100	0.65	0.142	0.132	7.04	7.56	-46.0	-36.0	-39.1	31.5	29.0	23.2
890815	1300	0.76	0.113	0.152	8.87	6.58	-20.0	-32.0	-35.1	27.8	27.5	19.7
890815	1900	0.67	0.142	0.142	7.04	7.04	-34.0	-34.0	-38.0	28.7	27.1	21.6
890816	0100	0.60	0.142	0.142	7.04	7.04	-38.0	-38.0	-35.3	29.0	27.1	24.8
890816	0700	0.57	0.142	0.142	7.04	7.04	-40.0	-24.0	-29.9	33.1	32.5	27.2
890816	1300	0.58	0.132	0.142	7.56	7.04	-10.0	-8.0	-20.0	27.0	26.5	23.2
890816	1900	0.57	0.132	0.142	7.56	7.04	-20.0	-20.0	-29.3	28.9	27.1	21.2
890817	0100	0.63	0.132	0.132	7.56	7.56	-28.0	-18.0	-33.7	25.3	25.9	16.4
890817	0700	0.72	0.132	0.132	7.56	7.56	-34.0	-14.0	-25.4	29.6	28.7	27.1
890817	1300	0.59	0.142	0.142	7.04	7.04	-36.0	-36.0	-27.8	27.3	24.6	23.5

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Date	Time EST	H_{mo} m	Peak Frequency $f_{p,FD}$ Hz	Peak Frequency $f_{p,IFS}$ Hz	Peak Period $T_{p,FD}$ sec	Peak Period $T_{p,IFS}$ sec	Peak Direction $\theta_{p,FD}$ deg	Peak Direction $\theta_{p,IDS}$ deg	Peak Direction $\theta_{p,SW}$ deg	Directional Spread $\Delta\theta_{IDS}$ deg	Directional Spread $\Delta\theta_{SW}$ deg	Directional Spread $\Delta\theta_{FDP}$ deg
890817	1900	0.59	0.132	0.132	7.56	7.56	-10.0	-8.0	-24.1	33.5	29.9	28.0
890818	0700	0.64	0.103	0.103	9.71	9.71	-4.0	-2.0	-2.3	38.2	38.1	17.3
890818	1900	0.68	0.191	0.074	5.24	13.57	40.0	40.0	4.4	56.6	30.4	8.2
890819	0700	0.73	0.152	0.171	6.58	5.83	-46.0	-46.0	-27.4	58.3	54.4	36.5
890819	1000	0.65	0.162	0.152	6.19	6.58	34.0	32.0	16.5	57.3	44.8	15.0
890820	0700	0.56	0.142	0.083	7.04	11.98	14.0	14.0	-15.9	45.3	30.9	14.0
890820	1300	0.55	0.093	0.083	10.72	11.98	-30.0	-30.0	-32.7	37.7	35.3	21.1
890820	1900	0.65	0.103	0.093	9.71	10.72	-34.0	-34.0	-35.7	22.0	20.8	14.4
890821	0100	0.60	0.093	0.093	10.72	10.72	-32.0	-32.0	-34.6	19.0	17.8	12.8
890821	0700	0.62	0.103	0.103	9.71	9.71	-34.0	-34.0	-34.9	19.5	18.5	9.3
890821	1300	0.55	0.103	0.103	9.71	9.71	-36.0	-36.0	-35.3	19.3	17.8	17.0
890821	1900	0.56	0.113	0.113	8.87	8.87	-34.0	-34.0	-34.2	17.6	15.1	12.8
890822	0100	0.46	0.113	0.113	8.87	8.87	-30.0	-38.0	-33.4	17.5	15.6	12.1
890822	0700	0.44	0.113	0.113	8.87	8.87	-32.0	-32.0	-31.1	17.7	15.8	11.8
890822	1300	0.39	0.113	0.113	8.87	8.87	-34.0	-36.0	-35.2	21.5	19.1	12.2
890822	1900	0.36	0.123	0.123	8.16	8.16	-30.0	-32.0	-33.5	18.6	18.3	11.6
890823	0100	0.33	0.113	0.113	8.87	8.87	-36.0	-34.0	-34.0	22.4	20.5	13.0
890823	0700	0.34	0.123	0.123	8.16	8.16	-38.0	-38.0	-37.5	20.8	20.2	14.4
890823	1300	0.32	0.123	0.113	8.16	8.87	-38.0	-38.0	-36.5	23.9	20.2	10.9
890823	1900	0.36	0.113	0.113	8.87	8.87	-36.0	-36.0	-35.3	21.7	21.5	11.5
890824	0100	0.40	0.113	0.113	8.87	8.87	-36.0	-36.0	-32.8	23.4	20.4	13.5
890824	0700	0.41	0.103	0.103	9.71	9.71	-36.0	-36.0	-30.6	27.5	21.3	21.0
890824	1300	0.54	0.074	0.074	13.57	13.57	-10.0	48.0	0.6	74.0	20.4	16.2
890824	1900	0.70	0.074	0.074	13.57	13.57	-14.0	32.0	15.6	50.6	18.5	13.2
890825	0100	0.77	0.181	0.083	5.52	11.98	30.0	32.0	7.8	47.1	16.7	7.5
890825	0700	0.81	0.064	0.083	15.62	11.98	-6.0	34.0	11.9	41.4	19.1	9.4
890825	1300	0.98	0.083	0.191	11.98	5.24	-16.0	16.0	6.5	31.6	23.5	14.2
890826	0100	0.85	0.083	0.083	11.98	11.98	-10.0	-4.0	-6.6	28.7	23.5	21.7
890826	1300	0.82	0.083	0.083	11.98	11.98	-22.0	-4.0	-8.8	32.9	29.3	25.0
890826	1900	0.76	0.083	0.083	11.98	11.98	-22.0	-22.0	-8.3	32.6	29.3	26.5
890827	0100	0.72	0.083	0.083	11.98	11.98	-20.0	-4.0	-5.6	28.9	28.2	21.8
890827	0700	0.64	0.083	0.083	11.98	11.98	-20.0	-18.0	-16.6	25.3	25.1	21.7
890827	1300	0.59	0.083	0.083	11.98	11.98	-22.0	-18.0	-19.6	23.5	24.9	21.4
890827	1900	0.55	0.093	0.093	10.72	10.72	-14.0	-14.0	-16.9	22.6	21.4	12.7
890828	0100	0.55	0.093	0.093	10.72	10.72	-14.0	-14.0	-17.7	25.5	21.9	16.0
890828	0700	0.50	0.093	0.093	10.72	10.72	-12.0	-12.0	-17.5	28.6	23.2	15.4
890828	1300	0.49	0.113	0.113	8.87	8.87	-34.0	-18.0	-18.4	26.4	24.8	19.7
890828	1900	0.50	0.171	0.083	5.83	11.98	-40.0	-24.0	-25.5	25.5	23.2	21.1
890829	0100	0.48	0.162	0.083	6.19	11.98	-38.0	-22.0	-22.3	25.3	23.3	18.3
890829	0700	0.44	0.083	0.083	11.98	11.98	-18.0	-18.0	-19.5	25.7	26.1	24.5
890829	1900	0.42	0.093	0.093	10.72	10.72	-16.0	-16.0	-28.2	28.4	22.8	20.5
890830	0100	0.36	0.093	0.093	10.72	10.72	-30.0	-18.0	-29.4	24.9	20.8	22.1
890830	0700	0.35	0.093	0.093	10.72	10.72	-32.0	-32.0	-32.2	26.9	25.9	23.4
890830	1300	0.36	0.103	0.093	9.71	10.72	-24.0	-18.0	-28.6	22.0	22.1	15.8
890830	1900	0.36	0.093	0.093	10.72	10.72	-18.0	-16.0	-22.4	23.8	24.4	17.5
890830	2200	0.36	0.093	0.093	10.72	10.72	-30.0	-30.0	-28.5	24.1	24.6	22.4
890831	0100	0.36	0.093	0.093	10.72	10.72	-32.0	-32.0	-25.1	22.9	23.7	21.1

(Continued)

(Concluded)

Date	Time EST	H_{m0} m	Peak Frequency $f_{p,FD}$ Hz	Peak Frequency $f_{p,IFS}$ Hz	Peak Period $T_{p,FD}$ sec	Peak Period $T_{p,IFS}$ sec	Peak Direction $\theta_{p,FD}$ deg	Peak Direction $\theta_{p,IDS}$ deg	Peak Direction $\theta_{p,SW}$ deg	Directional Spread $\Delta\theta_{IDS}$ deg	Directional Spread $\Delta\theta_{SW}$ deg	Directional Spread $\Delta\theta_{FDP}$ deg
890831	0400	0.37	0.093	0.093	10.72	10.72	-28.0	-28.0	-25.7	21.8	22.6	16.7
890831	0700	0.66	0.240	0.240	4.17	4.17	54.0	60.0	33.7	64.4	19.5	15.4
890831	1300	0.75	0.201	0.201	4.98	4.98	44.0	38.0	30.1	46.1	20.6	16.8
890831	1900	0.61	0.191	0.093	5.24	10.72	44.0	42.0	10.1	56.3	21.2	13.9

Appendix B: Time Series Graphs of Bulk Spectral Parameters, Wind Vector, and Current Vector

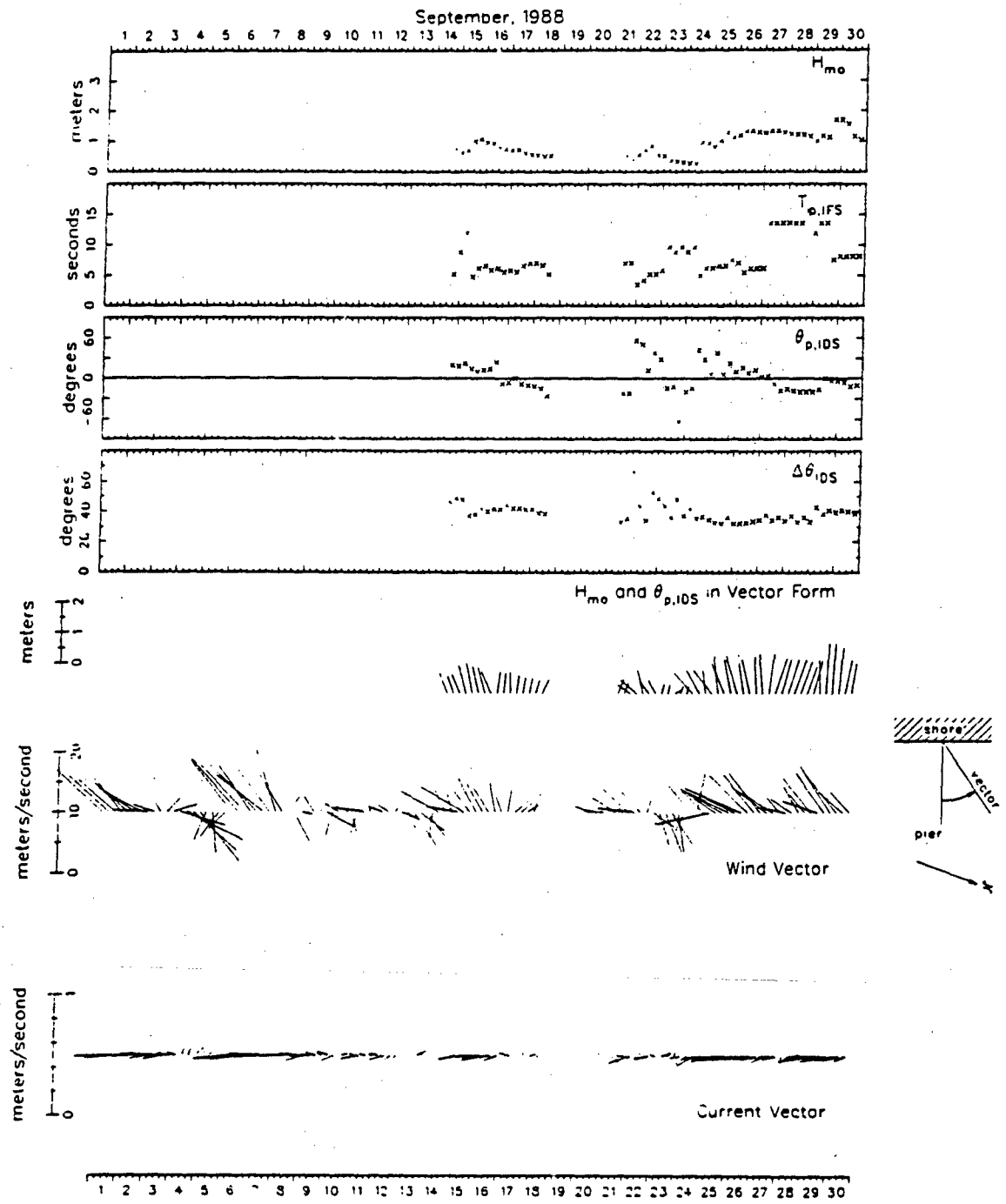

Figure B1. Bulk data for September 1988

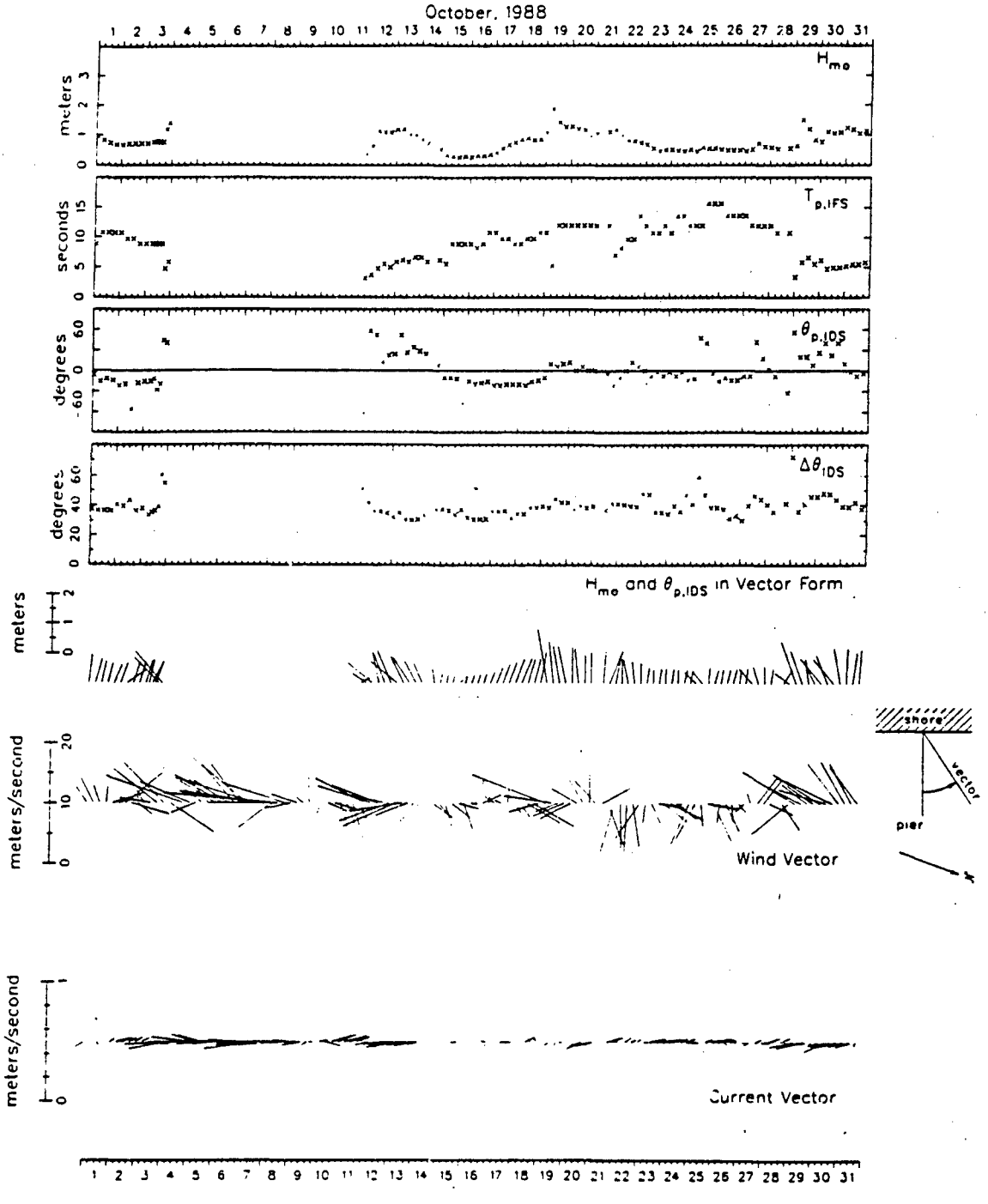

Figure B2. Bulk data for October 1988

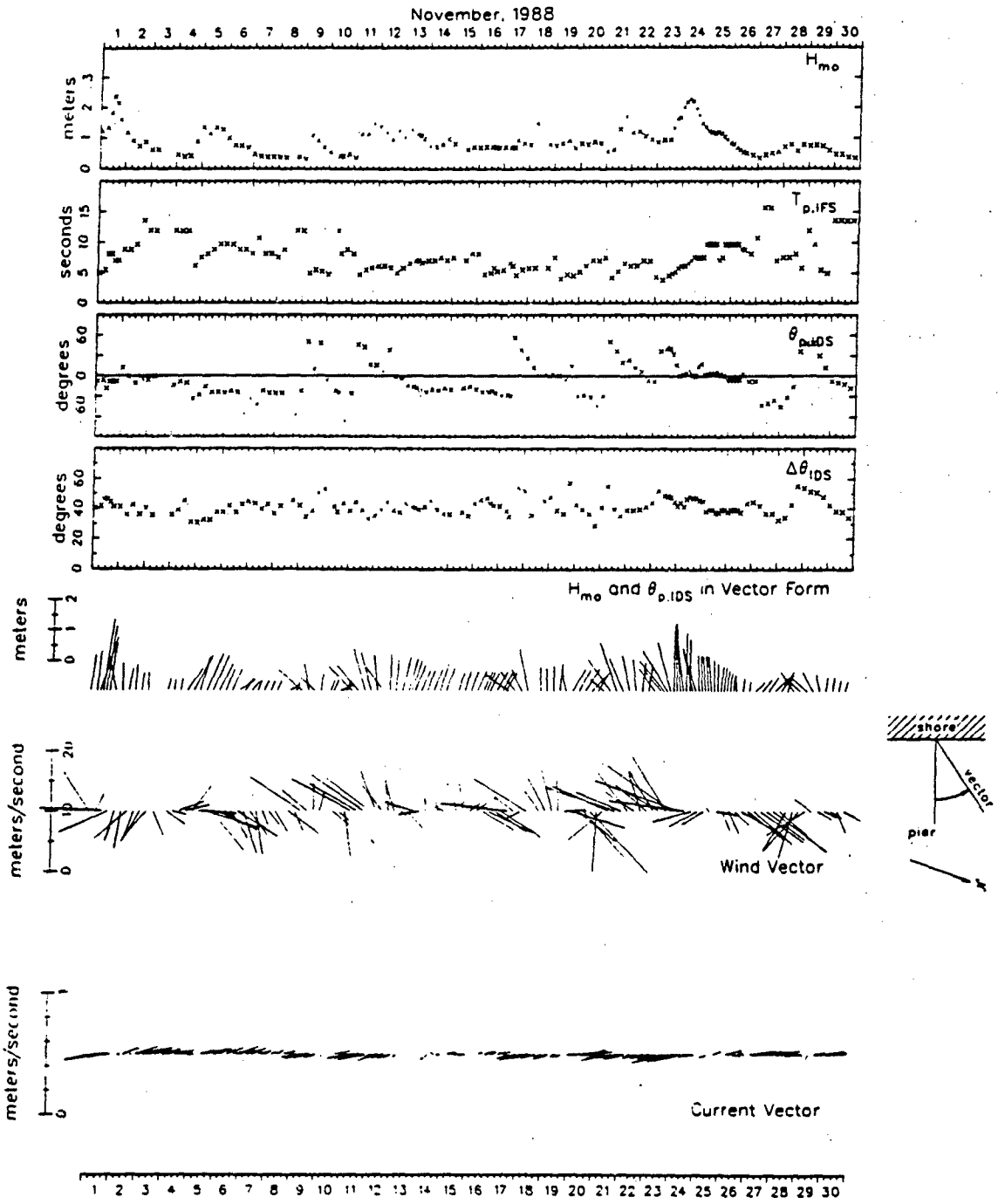

Figure B3. Bulk data for November 1988

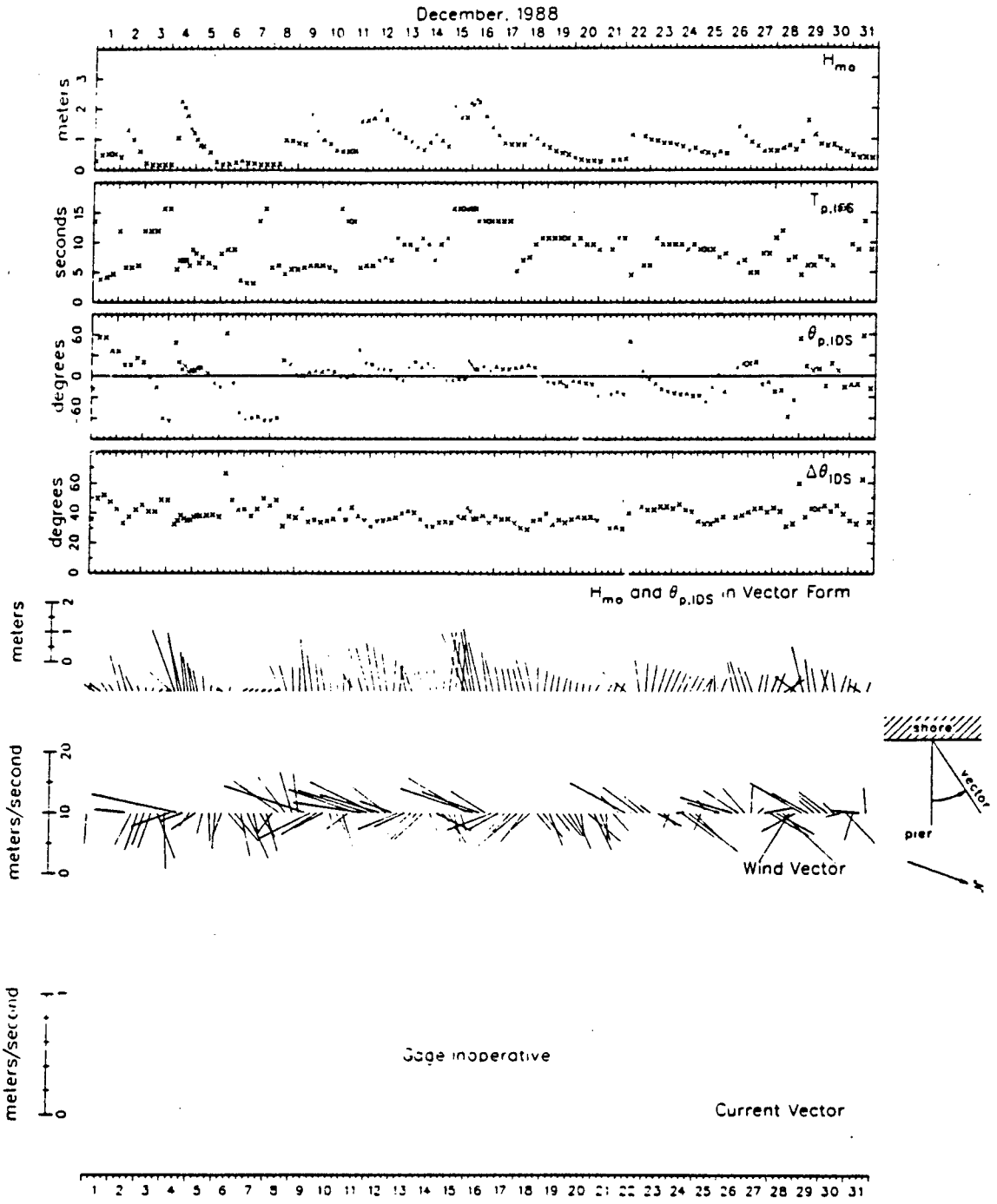

Figure B4. Bulk data for December 1988

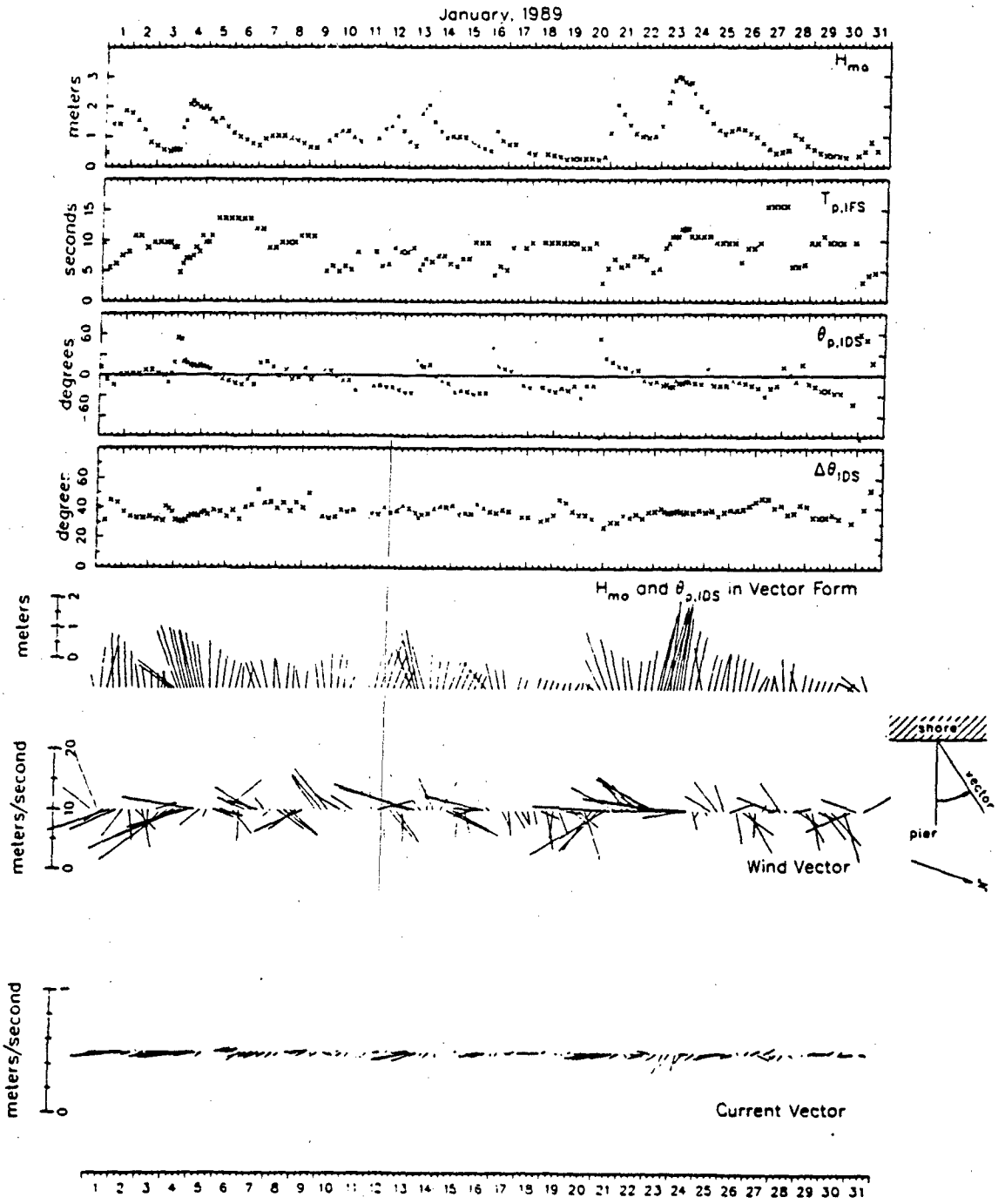

Figure B5. Bulk data for January 1989

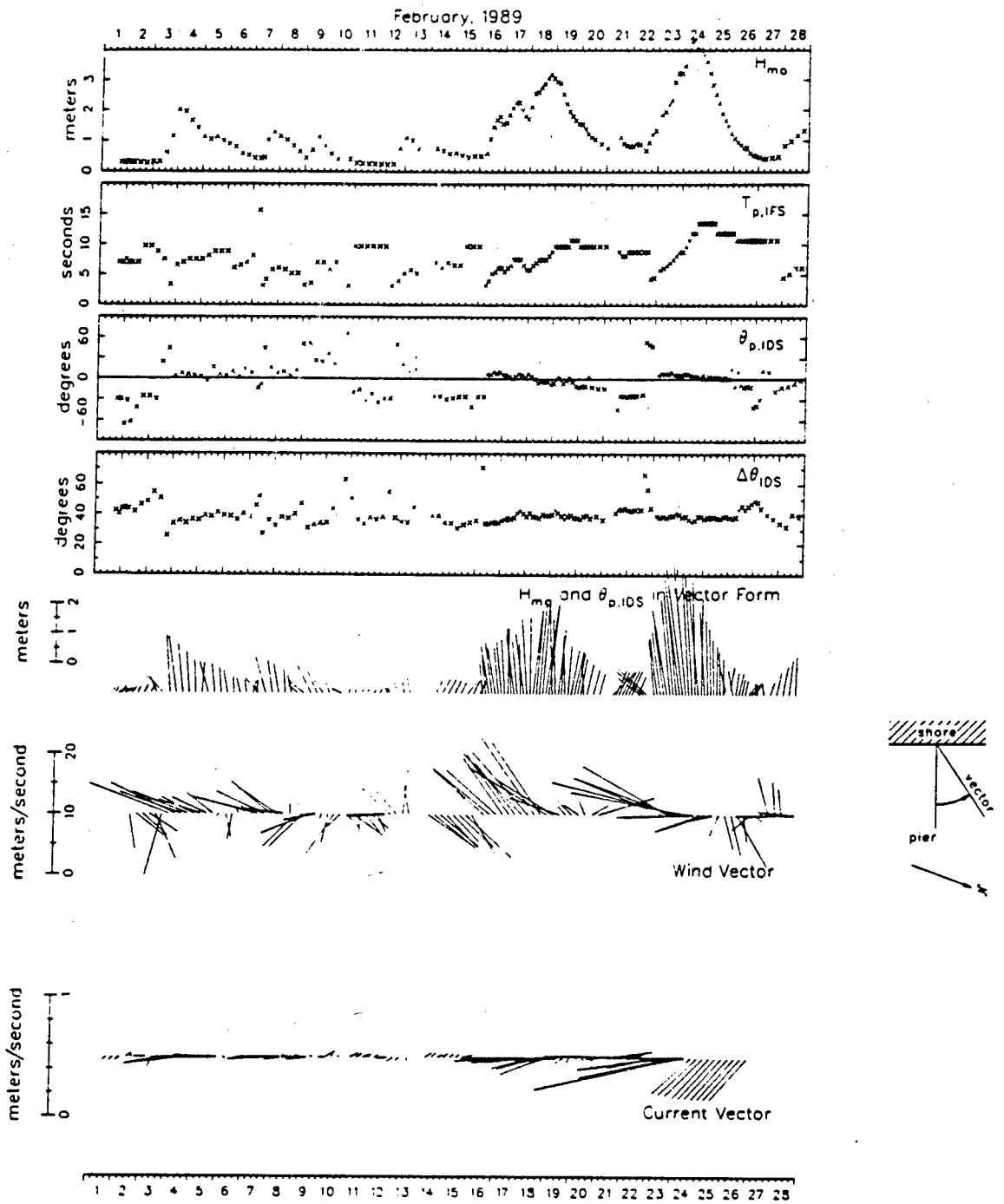

Figure B6. Bulk data for February 1989

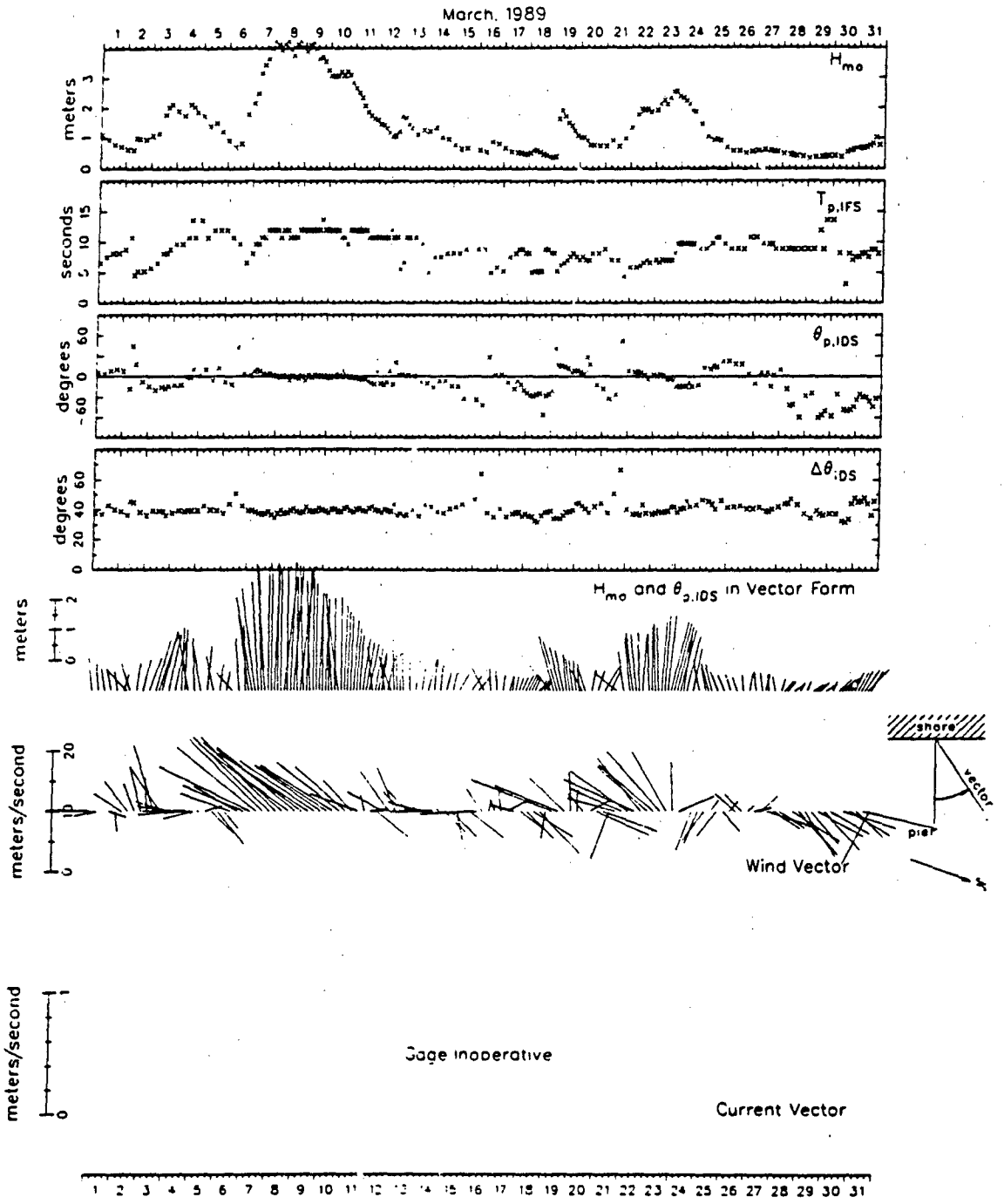

Figure B7. Bulk data for March 1989

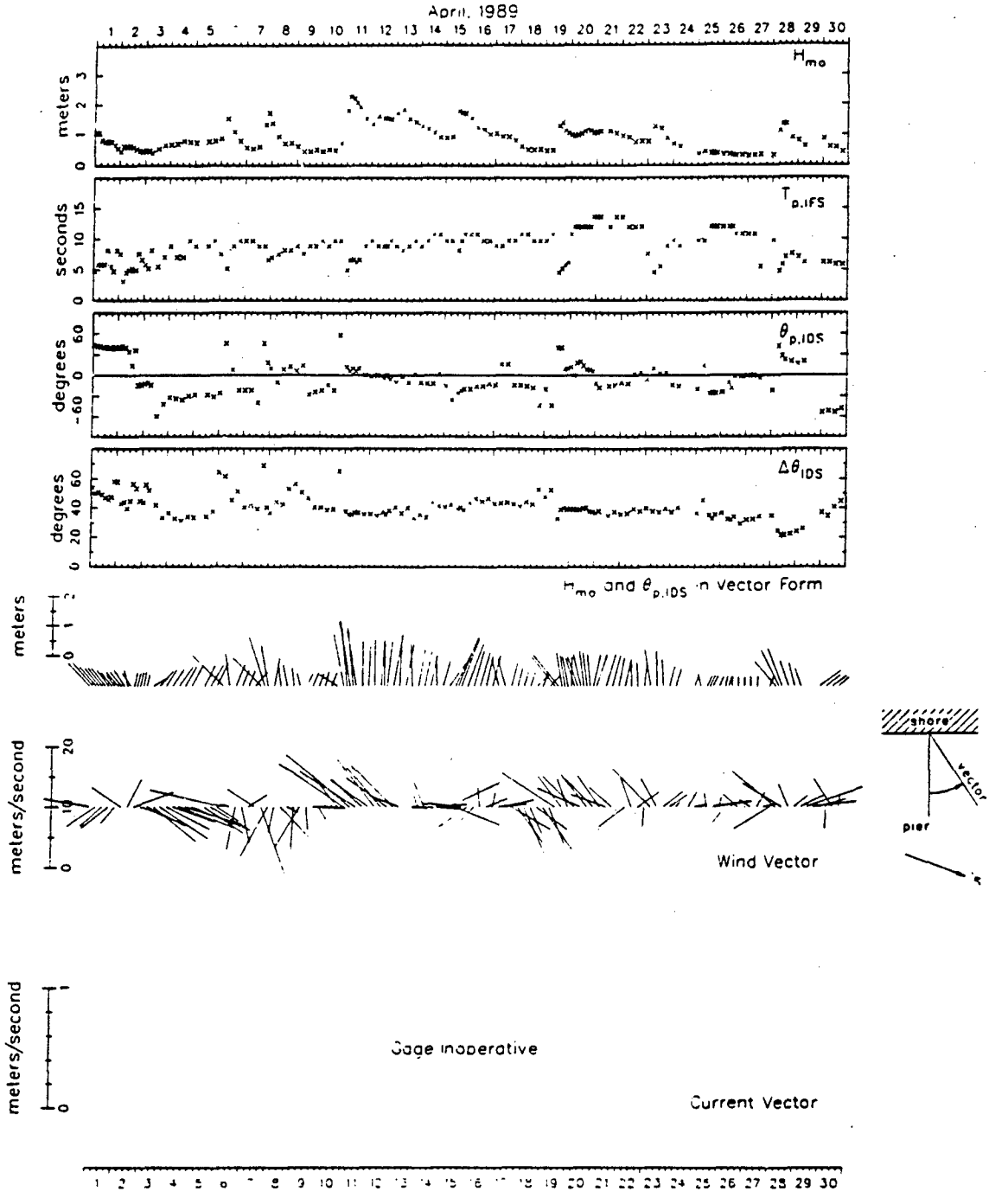

Figure B8. Bulk data for April 1989

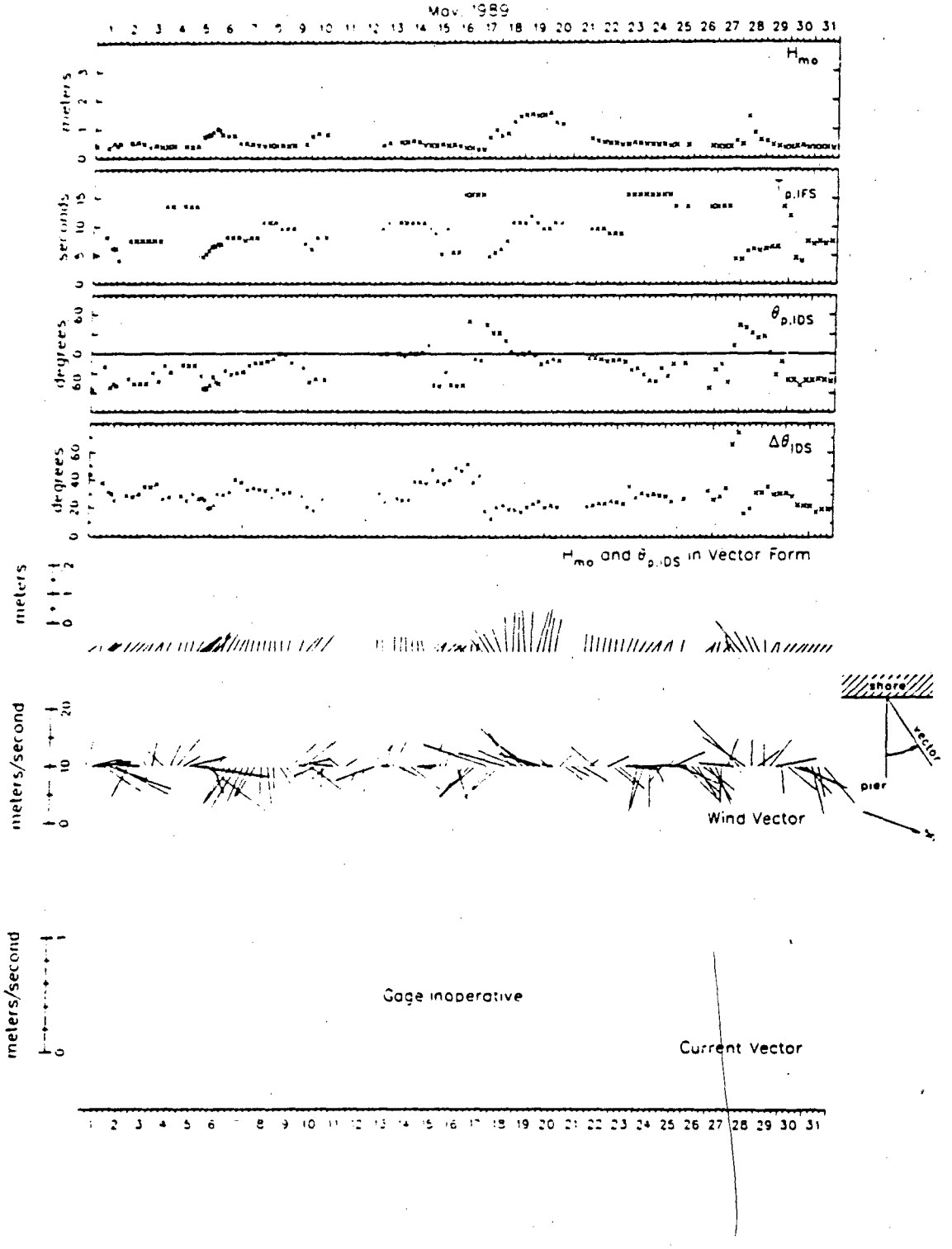

Figure B9. Bulk data for May 1989

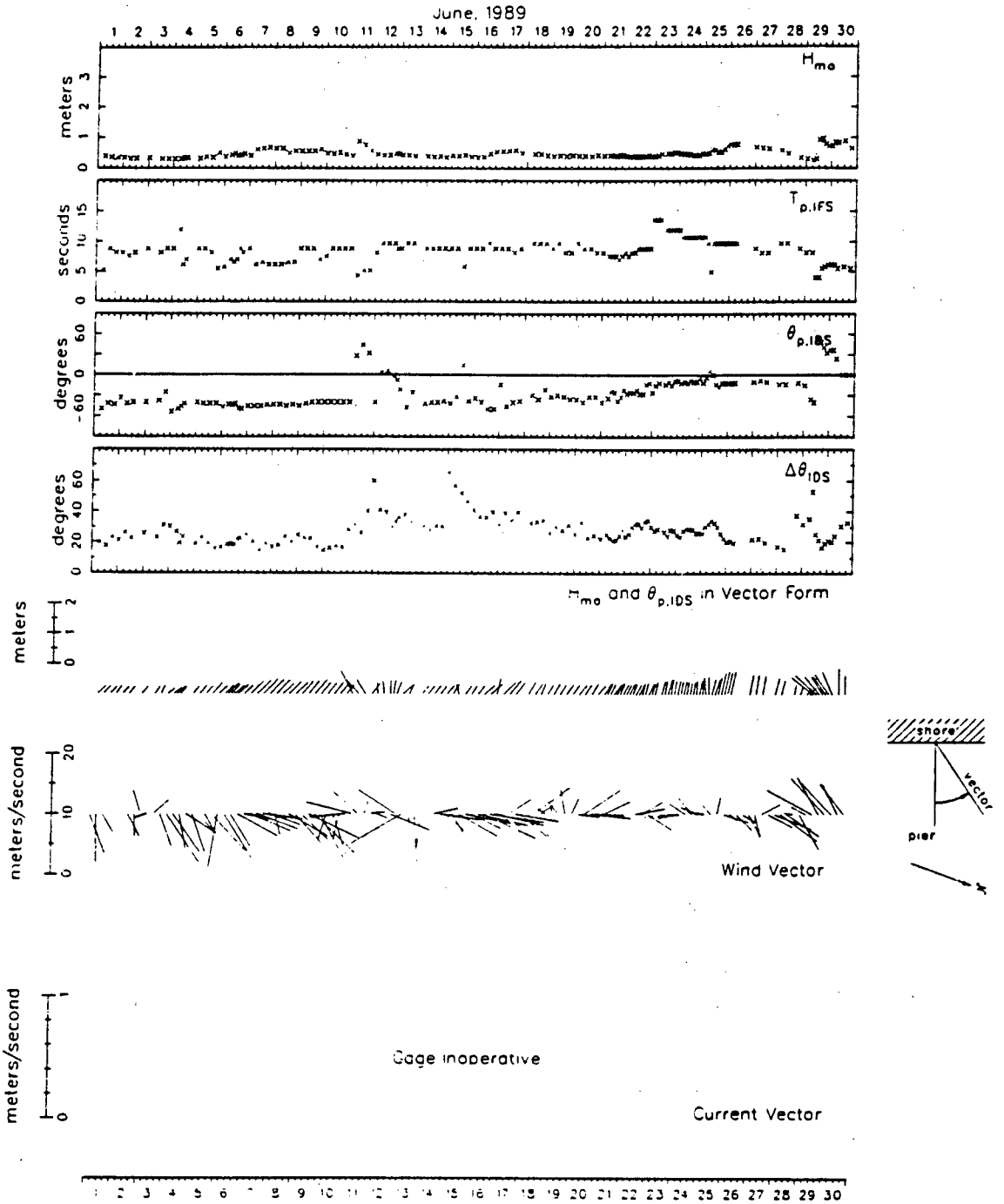

Figure B10. Bulk data for June 1989

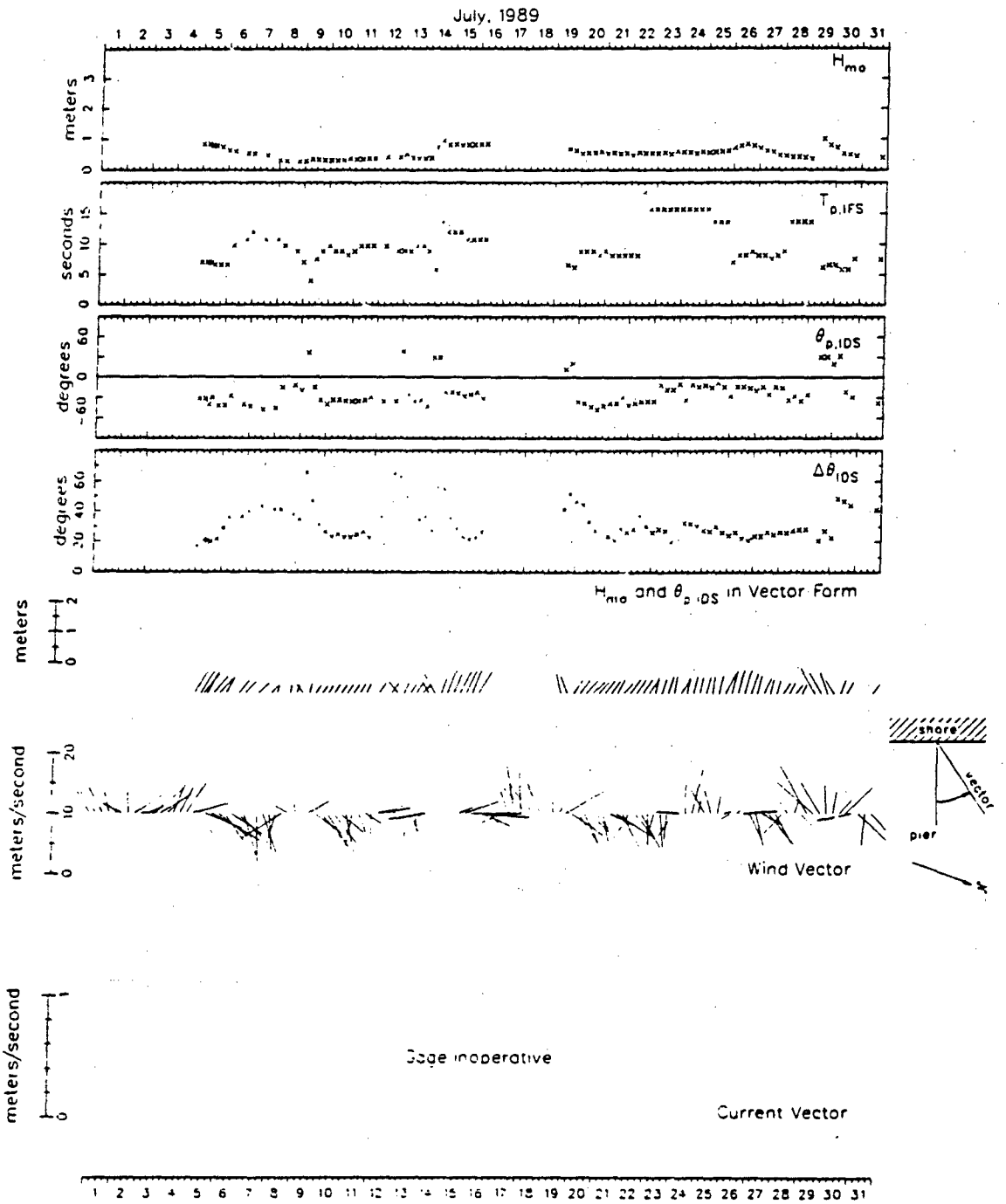

Figure B11. Bulk data for July 1989

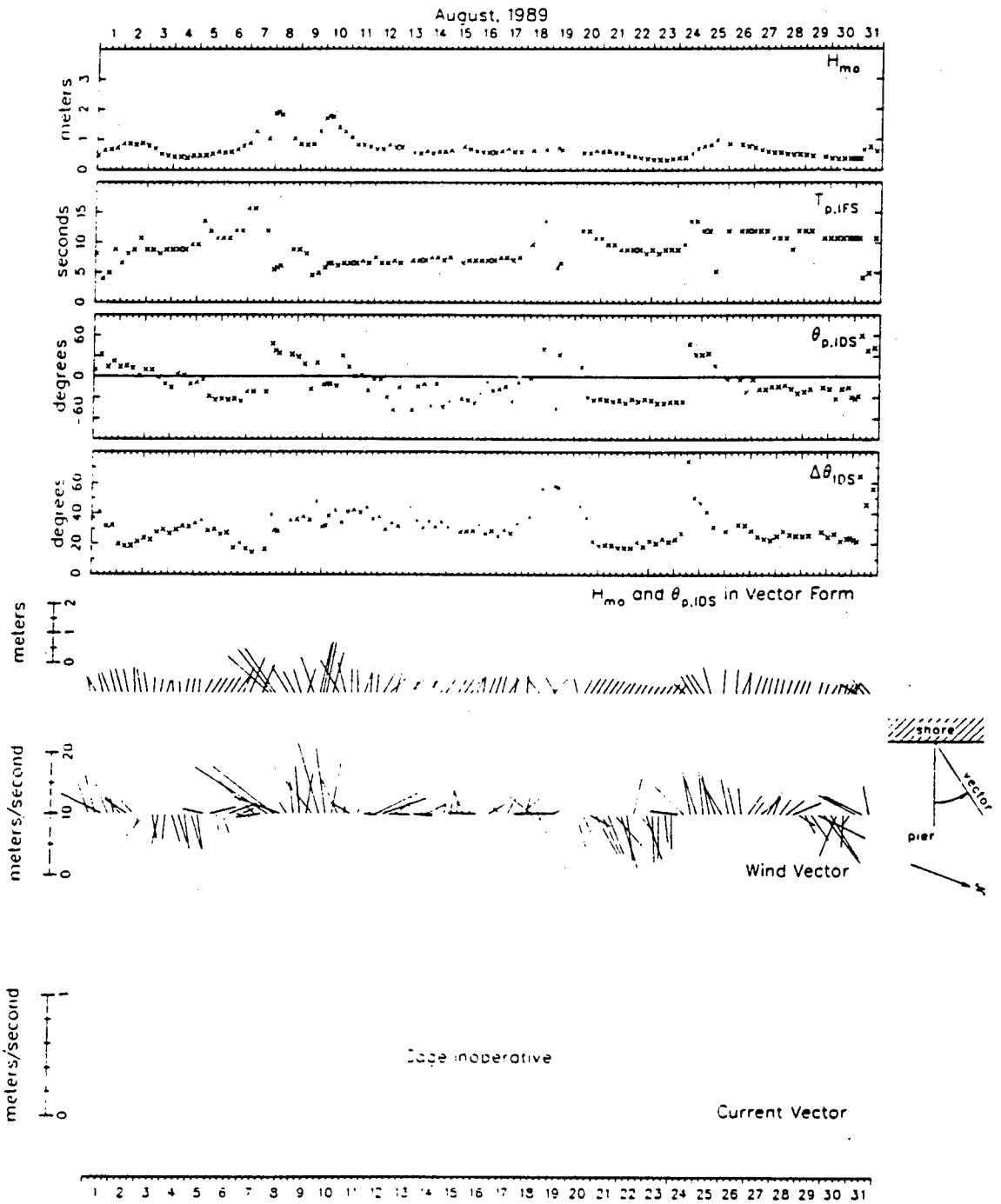

Figure B12. Bulk data for August 1989

Appendix C: Listing of FORTRAN Computer Program

```
0001          PROGRAM READUM
0002     C*************************************************************************
0003     C    This program illustrates DIMENSION and FORMAT definitions nec-      *
0004     C  essary to read wave energy frequency-direction spectral data          *
0005     C  files representing measurements made with a high resolution lin-      *
0006     C  ear array directional wave gage at the USAE/WES/CERC Field            *
0007     C  Research Facility in Duck, NC.                                        *
0008     C    The program is written in FORTRAN-77 and should be universal in     *
0009     C  that sense.  However, it uses VAX 11/750 file access statements      *
0010     C  ('OPEN' and 'CLOSE') to open data files for reading.  It is like-     *
0011     C  ly that some changes will be necessary to read data files which       *
0012     C  have been transferred to another system.                              *
0013     C    The data files themselves are ASCII formatted with 80-column        *
0014     C  records.                                                              *
0015     C    Variables are listed and defined below.  A distinction is made      *
0016     C  between 'universal' and 'system-dependent' variables to help          *
0017     C  in adapting this code to another system.                              *
0018     C                                                                        *
0019     C ========================================================================*
0020     C                          VARIABLE LIST                                 *
0021     C ........................................................................*
0022     C                        --------------------------                      *
0023     C                     .oO(   UNIVERSAL VARIABLES   )Oo.                  *
0024     C                        --------------------------                      *
0025     C                                                                        *
0026     C   NAME                              MEANING                            *
0027     C --------                            -------                           *
0028     C                                                                        *
0029     C       IHM.....[CHARACTER*4] Start time of a 2 hr 16 min collec-        *
0030     C               tion.  It has the form hhmm where hh is hour             *
0031     C               (24-hour clock) and mm is minute.  Time base is          *
0032     C               Eastern Standard Time.                                   *
0033     C                                                                        *
0034     C      IYMD.....[CHARACTER*6] Start year, month and day of a collec-     *
0035     C               tion.  It has the form yymmdd where yy is year,          *
0036     C               mm is month and dd is day.  For example, 861012          *
0037     C               is 12 October 1986.                                      *
0038     C                                                                        *
0039     C      GPAT.....[CHARACTER*9] Nine-character string representing the     *
0040     C               pattern of operating gages by showing gage identifi-     *
0041     C               cation numbers in sequence from north to south and       *
0042     C               indicating malfunctioning gages by a minus sign.  If     *
0043     C               all nine gages are working, the pattern is 987123456.    *
0044     C               If, for example, gage 7 was malfunctioning, the pat-     *
0045     C               tern becomes 98-123456 and data will have been pro-      *
0046     C               cessed as if gage 7 did not exist.  Accuracy is de-      *
0047     C               graded slightly but results are still valid.             *
0048     C                                                                        *
0049     C     DEPTH.....[REAL, in meters] Mean total water depth at the lin-     *
0050     C               ear array during a 2 hr 16 min collection.               *
0051     C                                                                        *
0052     C        NF... .[INTEGER] Number of frequency bands in the discrete      *
0053     C               spectral representations.                                *
0054     C                                                                        *
0055     C        ND.....[INTEGER] Number of direction bands in the discrete      *
0056     C               spectral representations.                                *
0057     C                                                                        *
0058     C      D(J).....[REAL, in degrees] J'th element of array representa-     *
0059     C               ing wave direction, which is the direction from          *
0060     C               which waves are coming counterclockwise from shore       *
0061     C               normal:  0.0 degrees is shore normal, positive           *
0062     C               angles are for waves from the northeast quadrant,        *
0063     C               negative angles are for southeast quadrant.  Direc-      *
0064     C               tions are considered to reside in the centers of         *
0065     C               discrete direction bands (or bins or arcs).              *
0066     C                                                                        *
```

```
0067    C     DS(J).....[REAL, in meters squared per degree] J'th element    *
0068    C                of array representing direction spectrum.  This is  *
0069    C                the directional analogy of the frequency spectrum,  *
0070    C                being the integral of the frequency-direction spec- *
0071    C                trum over all frequencies (in the analysis pass     *
0072    C                band) of sea surface displacement variance in each  *
0073    C                direction band.                                     *
0074    C                                                                    *
0075    C      F(N).....[REAL, in Hertz] N'th element of array representing  *
0076    C                frequency.  Considered the center frequency of a    *
0077    C                discrete frequency band.                            *
0078    C                                                                    *
0079    C     FS(N).....[REAL, in meters squared per Hertz] N'th element of  *
0080    C                array representing the frequency spectrum.  Here, it*
0081    C                is the integral of the frequency-direction spectrum *
0082    C                over all directions in each frequency band.  It is  *
0083    C                the same as the conventional frequency spectrum that*
0084    C                one would get with a single time series.            *
0085    C                                                                    *
0086    C   DD(N,J).....[REAL, in 1/degrees] Element at N'th frequency and   *
0087    C                J'th direction of an entity known as the directional*
0088    C                distribution function.  It is defined as the ratio  *
0089    C                of the frequency-direction spectrum to the frequency*
0090    C                spectrum at each frequency for all directions, i.e.,*
0091    C                                                                    *
0092    C                              DD(N,J) = FDS(N,J)/FS(N)              *
0093    C                                                                    *
0094    C                The directional distribution is convenient in sever-*
0095    C                al ways for normalizing the frequency-direction     *
0096    C                spectrum, but note that it is physically meaningful *
0097    C                only for a fixed frequency (N = constant) since a   *
0098    C                different normalizing factor is used at each fre-   *
0099    C                quency.                                             *
0100    C                                                                    *
0101    C  FDS(N,J).....[REAL, in meters squared per Hertz per degree] Fre-  *
0102    C                quency-direction spectral density of sea surface    *
0103    C                displacement at frequency F(N) and direction D(J).  *
0104    C                It is determined from the input data by the compu-   *
0105    C                tation of                                           *
0106    C                                                                    *
0107    C                              FDS(N,J) = FS(N)*DD(J,J)              *
0108    C                                                                    *
0109    C ==================================================================*
0110    C                                                                    *
0111    C                  ---------------------------------                 *
0112    C               .oO(    SYSTEM-DEPENDENT VARIABLES    )Oo.           *
0113    C                  ---------------------------------                 *
0114    C                                                                    *
0115    C  DATETIME.....[CHARACTER*10] Ten-character string requested of     *
0116    C                default input device.  It contains year, month, day, *
0117    C                hour and minute in the form  yymmddhhmm  and is used *
0118    C                to form the name of an input file.                  *
0119    C                                                                    *
0120    C  DATAFILE.....[CHARACTER*16] String representing input file name   *
0121    C                in an 'OPEN' statement.                             *
0122    C                                                                    *
0123    C*********************************************RIDES FAST HORSES, JAN92******
0124          CHARACTER*4          IHM
0125          CHARACTER*6          IYMD
0126          CHARACTER*9          GPAT
0127          CHARACTER*10    DATETIME
0128          CHARACTER*16    DATAFILE
0129          DIMENSION          F(28),      FS(28),    D(91),    DS(91)
0130          DIMENSION      DD(28,91),  FDS(28,91)
0131    C*****************************************************************************
0132    C  SET GENERIC DATAFILE NAME, GET SPECIFIC DATE AND TIME FROM USER   *
0133    C  AND SET SPECIFIC DATAFILE NAME.                                   *
0134    C*****************************************************************************
```

```
0135          DATAFILE='FDyymmddhhmm.DAT'                !GENERIC FILE NAME
0136          WRITE(*,'(1X,
0137         1   ''Enter Date/Time Code (yymmddhhmm)....: '',
0138         2   $)')                                     !PROMPT USER
0139          READ(*,'(A)') DATETIME                     !GET USER RESPONSE
0140          DATAFILE(3:12)=DATETIME                    !SET FILE NAME
0141    C*************************************************************************
0142    C  OPEN DATA FILE, READ FORMATTED DATA AND CLOSE DATA FILE.  NOTE:    *
0143    C  THE VARIABLE 'NN' IS THE FREQUENCY INDEX WHICH HAS BEEN WRITTEN    *
0144    C  TO THE DATA FILE TO MAKE IT EASY TO READ THE FILE BY HAND.  HERE   *
0145    C  IT IS NOT NEEDED SO IT IS READ TO A DUMMY VARIABLE.                *
0146    C*************************************************************************
0147          OPEN(10,FILE=DATAFILE,STATUS='OLD',
0148         1   FORM='FORMATTED',RECL=80)                !VAX 'OPEN' STATEMENT
0149          READ(10,101) IYMD,IHM,GPAT,DEPTH,NF,ND     !AUX. PARAMETERS
0150          READ(10,102) (D(J),J=1,ND)                 !DIRECTIONS
0151          READ(10,103) (DS(J),J=1,ND)                !DIRECTIONAL SPECTRUM
0152          DO 1 N=1,NF                                !FOR ALL FREQ.'S
0153            READ(10,104) NN,F(N),FS(N)               !FREQ. & FREQ. SPECT.
0154            READ(10,105) (DD(N,J),J=1,ND)            !DIR. DISTRIBUTION
0155        1 CONTINUE                                   !END FREQ. LOOP
0156          CLOSE(10)                                  !VAX 'CLOSE'
0157    C*************************************************************************
0158    C  FORMAT STATEMENTS:                                                 *
0159    C*************************************************************************
0160      101 FORMAT(1X,A6,A4,1X,A9,1X,F6.2,1X,I2,1X,I2)
0161      102 FORMAT(13(1X,F5.1))
0162      103 FORMAT(5(1X,E14.7))
0163      104 FORMAT(1X,I2,1X,F9.6,1X,E14.7)
0164      105 FORMAT(8(1X,F9.6))
0165    C*************************************************************************
0166    C  BUILD FREQUENCY-DIRECTION SPECTRUM FROM DIRECTIONAL DISTRIBUTION  *
0167    C  ARRAY AND FREQUENCY SPECTRUM.                                      *
0168    C*************************************************************************
0169          DO 2 N=1,NF                                !FOR ALL FREQ.'S
0170            DO 3 J=1,ND                              !FOR ALL DIR.'S
0171              FDS(N,J)=FS(N)*DD(N,J)                 !SET F-D SPECTRUM
0172        3   CONTINUE                                 !END DIR. LOOP
0173        2 CONTINUE                                   !END FREQ. LOOP
0174    C*************************************************************************
0175    C  AT THIS POINT YOU SHOULD HAVE ALL THE DATA THERE IS.  INSERT YOUR *
0176    C  OWN CODE HERE...                                                   *
0177    C*************************************************************************
0178    C*************************************************************************
0179    C  END PROGRAM.                                                       *
0180    C*************************************************************************
0181          END                                        !BAG IT
```

Appendix D: Listing of Sample Data File

```
8902240700 987123456    8.52 28 91
 90.0  88.0  86.0  84.0  82.0  80.0  78.0  76.0  74.0  72.0  70.0  68.0  66.0
 64.0  62.0  60.0  58.0  56.0  54.0  52.0  50.0  48.0  46.0  44.0  42.0  40.0
 38.0  36.0  34.0  32.0  30.0  28.0  26.0  24.0  22.0  20.0  18.0  16.0  14.0
 12.0  10.0   8.0   6.0   4.0   2.0   0.0  -2.0  -4.0  -6.0  -8.0 -10.0 -12.0
-14.0 -16.0 -18.0 -20.0 -22.0 -24.0 -26.0 -28.0 -30.0 -32.0 -34.0 -36.0 -38.0
-40.0 -42.0 -44.0 -46.0 -48.0 -50.0 -52.0 -54.0 -56.0 -58.0 -60.0 -62.0 -64.0
-66.0 -68.0 -70.0 -72.0 -74.0 -76.0 -78.0 -80.0 -82.0 -84.0 -86.0 -88.0 -90.0
 0.2057247E-05  0.5342481E-04  0.1018638E-03  0.1558477E-03  0.2125525E-03
 0.2717177E-03  0.3413832E-03  0.4161796E-03  0.4964087E-03  0.5907945E-03
 0.7031927E-03  0.8367718E-03  0.9774255E-03  0.1144109E-02  0.1343735E-02
 0.1584032E-02  0.1870549E-02  0.2209278E-02  0.2620744E-02  0.3112426E-02
 0.3730591E-02  0.4488491E-02  0.5434267E-02  0.6624940E-02  0.8173139E-02
 0.1014456E-01  0.1223048E-01  0.1342075E-01  0.1308285E-01  0.1217896E-01
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Appendix E: Notation

Text	Appendix C	
dd		Two-digit code for day
	DEPTH	Water depth
df		Frequency increment
$d\theta$		Direction increment
$D(f_n, \theta_m)$		Directional distribution function at frequency f_n and direction θ_m
	D(J)	J^{th} direction of a set of ND discrete directions
	DD(N,J)	Directional distribution function at frequency F(N) and direction D(J)
	DS(J)	Integrated direction spectral density at direction D(J)
	F(N)	N^{th} frequency of a set of NF discrete directions
FD		Frequency-direction
	FDS(N,J)	Frequency-direction spectral density at frequency F(N) and direction D(J)
f_n		n^{th} frequency of a set of N discrete frequencies
f_p		Peak frequency
$f_{p,FD}$		Frequency at peak of frequency-direction spectrum
$f_{p,IFS}$		Frequency at peak of integrated frequency spectrum
	FS(N)	Integrated frequency spectral density at frequency F(N)
	GPAT	Nine-digit code for pattern of operating gages
hh		Two-digit code for hour
hhmm		Four-digit code for time of day using hh for hour and mm for minute
H_{mo}		Characteristic wave height

Text	Appendix C	
$I(f_n, \theta_j)$		Cumulative distribution function at frequency f_n and direction θ_m
	IHM	Four-digit code for time of day
	IYMD	Six-digit code for date
j		Index associated with discrete direction
	J	Index associated with discrete direction
m		Index associated with discrete direction
M		Integer number of discrete directions
mm		Two-digit code for month or minute as dictated by context
n		Index associated with discrete frequency
	N	Index associated with discrete frequency
N		Integer number of discrete frequencies
	ND	Integer number of discrete directions
	NF	Integer number of discrete frequencies
$S(f_n)$		Integrated frequency spectral density at frequency f_n
$S(\theta_m)$		Integrated direction spectral density at direction θ_m
$S(f_n, \theta_m)$		Frequency-direction spectral density at frequency f_n and direction θ_m
T_p		Spectral peak period
$T_{p,FD}$		Spectral peak period from the frequency at which the frequency-direction spectrum is a maximum
$T_{p,IFS}$		Peak period from the integrated frequency spectrum
yy		Two-digit code for year
yymmdd		Six-digit code for date using yy for year, mm for month, and dd for day

Text	Appendix C	
$\Delta\theta$		Directional spread parameter
$\Delta\theta_n$		Directional spread parameter of a 180-deg directional distribution at frequency f_n
$\Delta\theta_{FDP}$		Directional spread parameter of the directional distribution at the peak frequency of a frequency-direction spectrum
$\Delta\theta_{IDS}$		Directional spread parameter of integrated direction spectrum
$\Delta\theta_{SW}$		Spectrally weighted directional spread parameter
θ_j		j^{th} direction of a set of M discrete directions
θ_m		m^{th} direction of a set of M discrete directions
θ_p		Peak direction
$\theta_{p,n}$		Direction of peak in directional distribution function at frequency f_n
$\theta_{p,FD}$		Direction at peak of frequency-direction spectrum
$\theta_{p,IDS}$		Direction at peak of integrated direction spectrum
$\theta_{p,SW}$		Spectrally weighted peak direction
$\theta_{25\%,n}$		Direction at which cumulative distribution function equals 0.25 at frequency f_n
$\theta_{50\%,n}$		Direction at which cumulative distribution function equals 0.50 at frequency f_n
$\theta_{75\%,n}$		Direction at which cumulative distribution function equals 0.75 at frequency f_n

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13. ABSTRACT *(Maximum 200 words)*

The directional distribution of wind-wave energy is an intuitively and demonstrably important aspect of sea state definition in coastal engineering design. Historically, there has been a shortage of high-resolution observations upon which to base engineering guidance. To remedy this, a multiyear series of measurements has been undertaken at the Field Research Facility of the Coastal Engineering Research Center, US Army Engineer Waterways Experiment Station. Cross-spectra of surface-corrected signals from a linear array of nine bottom-mounted pressure sensors have been used in conjunction with an iterative maximum likelihood algorithm to estimate frequency-direction spectra. The array was located in about 8 m of water, approximately 900 m offshore.

This report indexes and describes means of access to 1,444 frequency-direction spectral observations obtained from September 1988 to August 1989. This period represents the third year of data collection. In addition to a list of data collection start times, a set of bulk parameters that can be used to

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characterize the observations is provided. These parameters include characteristic wave height, spectral peak frequency and corresponding peak period, peak wave direction, and directional spread. Time series graphs of these parameters, as well as local winds and currents, illustrate some of the salient climatology.

Observed spectra have been archived on magnetic tape and can be provided to a user on request. This report describes the structure, format, and naming scheme of the data files and lists a FORTRAN program that can be used to read them.