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1995 Annual Index of Wind Wave Directional Spectra Measured at Harvest Platform

by Charles E. Long

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

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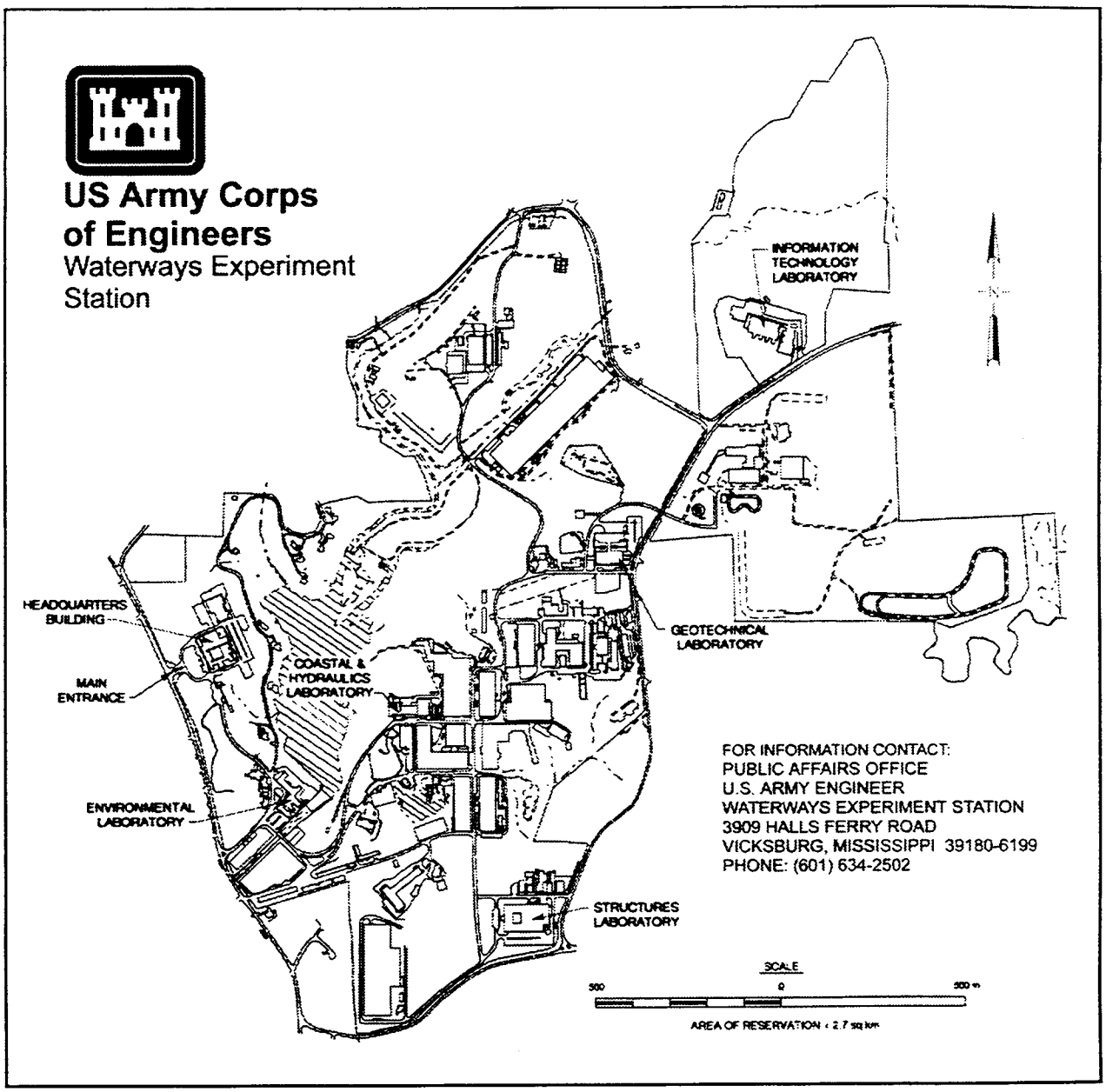

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Contents

Preface

This report indexes parameters of and describes means of access to a series of wind wave frequency-direction spectral observations made with a six-element, high-resolution directional wave gauge at Texaco Oil Company's Harvest Platform. The work was motivated by a need to publicize these results so they can be used by all investigators interested in natural wind wave energy distributions at a deepwater site near the exposed California coast. This effort was authorized by Headquarters, U.S. Army Corps of Engineers (HQUSACE), under Civil Works Coastal Navigation Hydrodynamics Program Research Work Unit 32484, "Directionality of Waves in Shallow Water." Funds were provided through the Coastal and Hydraulics Laboratory (CHL), U.S. Army Engineer Waterways Experiment Station (WES), under the program management of Ms. Carolyn M. Holmes, CHL. Messrs. John H. Lockhart, Jr., Charles Chesnutt, and Barry W. Holliday were HQUSACE Technical Monitors.

This report was prepared by Dr. Charles E. Long, under the direct supervision of Mr. William A. Birkemeier, Chief, Field Research Facility (FRF), CHL, and Mr. Thomas W. Richardson, Chief, Engineering Development Division (EDD), CHL. General supervision was provided by Dr. James R. Houston and Mr. Charles C. Calhoun, Jr., Director and Assistant Director, CHL, respectively.

Mr. David D. McGehee, Prototype Measurement and Analysis Branch, EDD, CHL, was instrumental in coordinating the efforts of CHL and the State of California in data archiving and gauge maintenance by the Coastal Data Information Program (CDIP) at Scripps Institution of Oceanography (SIO). Data transfer between SIO and the FRF was coordinated under the direction of Dr. Richard J. Seymour, CDIP, with particularly helpful assistance from Ms. Julianna Thomas, CDIP.

At the time of publication of this report, Director of WES was Dr. Robert W. Whalin. Commander was COL Robin R. Cababa, EN.

1 Introduction

In late December 1992, a high-resolution directional wave measuring system became fully operational on Texaco Oil Company's Harvest Platform to make long-term observations of the deep-ocean wind wave climate in the vicinity of the Southern California Bight (Figure 1). Such observations are necessary to

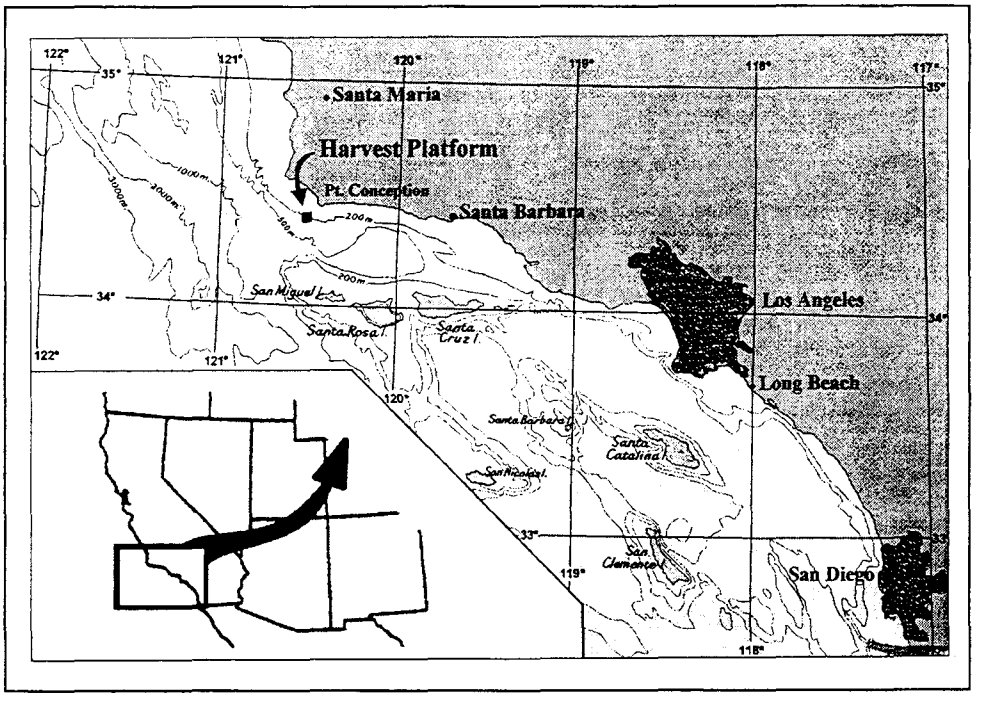

Figure 1. Southern California Bight and location of Harvest Platform

provide ground truth for interpreting satellite imagery of the ocean surface, test evolution and propagation models of open-ocean wind waves, and establish seaward boundary conditions for models of wave propagation and transformation from deep water to coastal regions. The purpose of this report is to encourage broad use of these observations by parametrically describing 2,433 wind wave frequency-direction spectral estimates obtained in calendar year 1995, and identifying a means whereby an investigator can access these spectra. These results are from the third year of collection. Results from the first and second years are described by Long (1995a) and Long (1996), respectively.

For completeness, this report briefly describes the directional gauge geometry and data collection scheme (Chapter 2), error checking procedures and basic directional estimation algorithm (Chapter 3), and definitions of parameters used to characterize the observations (Chapter 4). Appendix A contains a table of these characterizing parameters, and acts as an index for the 1995 database. Time series graphs of these parameters are presented in Appendix B. Chapter 5 describes how data can be obtained as well as the data format and file-naming scheme. Data format is illustrated in Appendix C, which lists a FORTRAN program that can read a data file, and Appendix D, which shows a sample data file.

2 Directional Gauge

Gauge Location and Array Geometry

As indicated in Figure 1, Harvest Platform is located about 20 km (10.8 n.m.) west of Point Conception, California, in water with a mean depth of 202 m (663 ft). Waves originating in the greater Pacific Ocean can reach the platform via relatively unobstructed paths from the north, west, and south. The mean water depth ensures deepwater wave conditions for waves with lengths shorter than about 400 m (1,312 ft), or frequencies higher than about 0.06 Hz. Spectra reported herein are processed at frequencies between 0.04 and 0.16 Hz, so it is likely that directional spectra for frequencies between 0.04 and 0.06 Hz are affected somewhat by refraction.

Directional wave detection is achieved with a spatial array of six subsurface pressure gauges mounted on the Harvest Platform framework. Figure 2 shows a plan view of relative gauge positions, and the array orientation in a geophysical reference frame. Gauge spacing takes advantage of the maximum horizontal dimensions of Harvest Platform, and allows directional estimation for waves in the frequency band noted in the previous paragraph. All gauges are mounted at a depth of 15.72 m (51.57 ft) below mean sea level, which ensures they will not protrude through the sea surface under extreme wave conditions that have been observed at this site.[1] To avoid aliasing in directional estimation, the lower resolution wavelength limit is two times the shortest lag spacing of the array. In the Harvest Platform array, this limit is 45.4 m (149.0 ft), which corresponds to a wave frequency of about 0.18 Hz. Signal analysis used in this report was limited further to 0.16 Hz to be conservatively clear of aliasing effects.

Pressure Gauges and Data Path

Individual sensors were Model TJE absolute pressure sensors manufactured by Sensotec Transducer Company with operating ranges of 0 to 100 psia (0 to 689.5 kPa), and a manufacturer's stated accuracy of ±0.1 percent of full scale. The six gauges on Harvest Platform were sampled simultaneously at 1 Hz,

[1] Personal communication, 1991, Dr. R. J. Seymour, Coastal Data Information Program (CDIP), Scripps Institution of Oceanography (SIO).

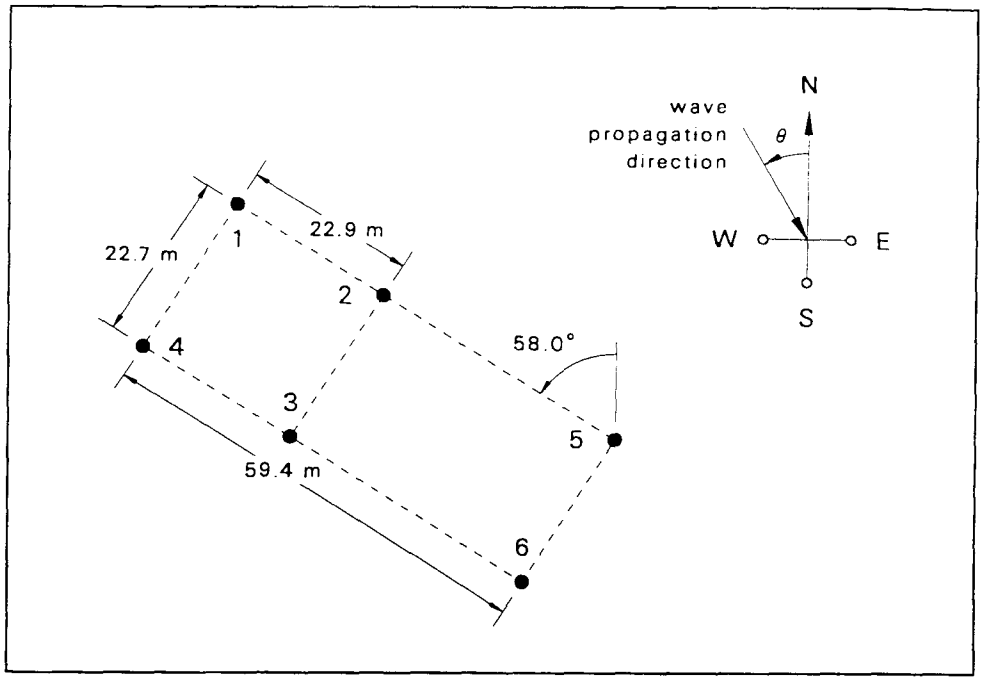

Figure 2. Dimensions and orientation of the Harvest Platform array

digitized, and then fed to a concentrator where the set of samples was buffered. Buffered signals were periodically transmitted to shore through a telephone connection, and ultimately stored as collection files on the main computer of the Coastal Data Information Program (CDIP), Ocean Engineering Research Group, Scripps Institution of Oceanography, La Jolla, CA. Each collection time series is 8,192 sec (2 hr 16 min 32 sec) in length.

Data processing for results presented in this report was not performed at the CDIP site, and so is independent of the processing done and published by that group (Scripps Institution of Oceanography, *Monthly reports*). Data collections were transferred to the Field Research Facility (FRF) of the U.S. Army Engineer Waterways Experiment Station's Coastal and Hydraulics Laboratory for processing by high-resolution techniques that are different from those used by CDIP. Data transfer was accomplished over an electronic network.

Collection Schedule and Data Set Size

Collections were made eight times daily, at approximately 3-hr intervals. Nominal collection start times were 0200, 0500, 0800, 1100, 1400, 1700, 2000, and 2300 Greenwich Mean Time (GMT). Actual collection start times varied by several minutes on either side of these nominal start times because the amount of time required to establish a phone link varied from collection to collection. There are several periods of several days duration where collections are virtually continuous. These occur when CDIP shifts to a collection mode intended to

detect tsunami waves, and result in up to 12 directional spectral estimates daily instead of the normal eight.

Of the possible 2,920 collections during calendar year 1995 (assuming eight collections per day), a total of 2,433 collections were acquired and processed as frequency-direction spectra. A number of collections were lost because of the inability to establish or maintain electrically clean phone links to the concentrator on Harvest Platform. An additional number of collections were not processed because data did not satisfy error-checking constraints described in Chapter 3 of this report.

3 Primary Data Analysis

Primary data processing was done by checking data quality through a series of spectral intercomparisons, and, for data of sufficient quality, computing frequency-direction spectra. All steps rely on Fourier analysis of pressure gauge time series data, and subsequent computation of cross-spectral densities. A discussion of error-checking procedures then leads logically to the subsequent steps involved in frequency-direction spectral computation.

Error Checking

The first step in data processing is computation of discrete estimates of frequency autospectra of pressure signals, and surface-corrected cross-spectral densities of signals from all pairs of gauges. Cross spectra are denoted in complex form as $C_{ij}(f_n) - iQ_{ij}(f_n)$, where $C_{ij}(f_n)$ is the coincident spectrum, $Q_{ij}(f_n)$ is the quadrature spectrum, i and j (as subscripts) are indices ranging in value from 1 to 6 that refer to the gauge numbers shown in Figure 2, and f_n is the nth of a set of N discrete frequencies.[1] Frequency autospectra are denoted $S(f_n)$, and, if surface corrected with the linear wave pressure response function (Dean and Dalrymple 1984), are identically equal to $C_{ii}(f_n)$. All spectra are computed using Welch's method (Welch 1967) with standard Fourier analysis techniques (Bendat and Piersol 1971).

In a collection, the 8,192-sec time series from each gauge is analyzed in 15 half-lapped segments of 1,024 sec duration. Each segment is demeaned, tapered with a variance-preserving window, and converted to the frequency domain with a discrete Fourier transform. At this point, the analysis is split into two parts: estimates of pressure autospectra from each gauge at depth, and estimates of surface-corrected cross spectra of sea surface displacement. Raw cross-spectral estimates are formed for all gauge pairs using temporally corresponding transformed segments of pressure data corrected to represent sea surface displacement. Raw autospectral estimates are formed for each of the 15 transform segments for each individual gauge. At the error-checking stage, autospectral estimates are not surface corrected.

[1] For convenience, symbols and abbreviations are listed in the notation (Appendix E).

For both autospectra and cross spectra, smooth estimates are formed by averaging raw estimates over all 15 segments, and averaging results over 10 adjacent frequency bands. Final resolution frequency bandwidth is $df = 0.00977$ Hz, and the pass band of frequencies ranges from 0.044 to 0.162 Hz, which corresponds to (N =) 13 discrete frequency bands. Degrees of freedom for spectral estimates range from 160 to about 200, depending on the extent to which the second halves of time series segments are correlated with the first halves (Welch 1967).

Autospectral intercomparisons

One part of error checking is a graphic intercomparison of signal means and autospectra, an example of which is shown in the lower left graph of Figure 3. Frequency autospectral estimates of data from all six pressure gauges are plotted on the same set of axes from the first resolvable frequency band out to the temporal Nyquist frequency. If a pressure gauge is malfunctioning, its autospectrum will deviate obviously from the main group of curves.

The small inset graph in the lower left graph of Figure 3 is an analysis of signal means. The closely packed group of symbols of nearly constant value represents the deviations of the segment means from the median of the set of segment means for each of the 15 segments. If a gauge develops signal drift problems, it will be obvious as a symbol that deviates from the main group of symbols. Triangle symbols in the small inset graph show the deviation of the indicated water surface from mean sea level (gauge height off the bottom plus median of gauge mean depths for each segment minus the total long-term mean ocean depth of 202 m), and is therefore an indication of tide stage at Harvest Platform for each of the 15 segments in a collection.

Coherence and phase comparisons

The next step in error checking is computation of a dimensionless cross spectrum $M_{ij}(f_n)$, defined by

$$M_{ij}(f_n) = \frac{C_{ij}(f_n) - iQ_{ij}(f_n)}{\sqrt{C_{ii}(f_n)}\,\sqrt{C_{jj}(f_n)}} \tag{1}$$

Equation 1 is used in error checking in the form of coherence and phase estimates. Coherence of signals from gauges i and j at discrete frequency f_n is

$$\Gamma^2_{ij}(f_n) = |\,M_{ij}(f_n)\,|^2 \tag{2}$$

Signal phase difference of gauge i relative to gauge j at frequency f_n is

$$\phi_{ij}(f_n) = \tan^{-1}\left(\frac{\mathrm{Im}[M_{ij}(f_n)]}{\mathrm{Re}[M_{ij}(f_n)]}\right) \tag{3}$$

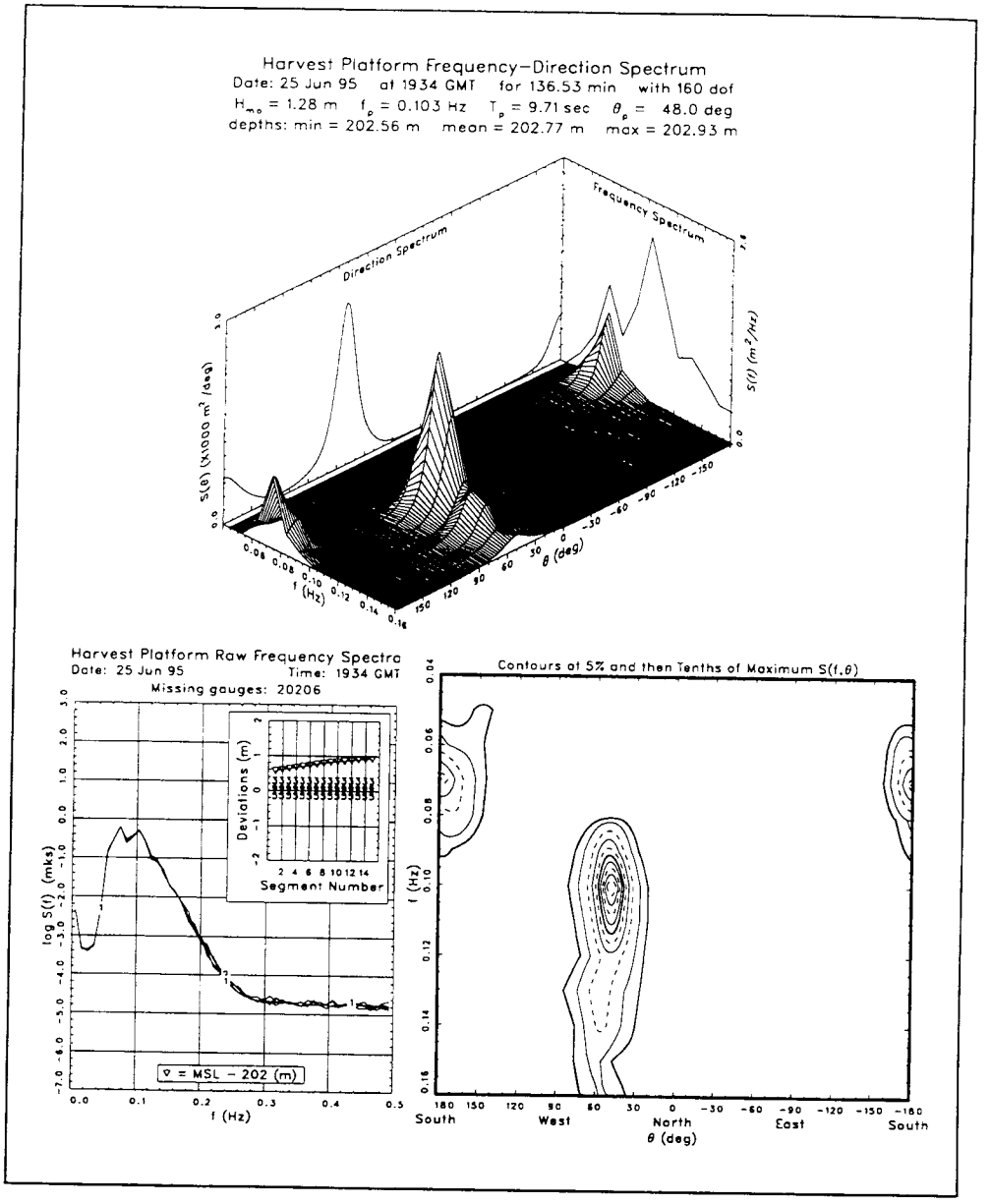

Figure 3. Autospectral intercomparison and frequency-direction spectral estimate

where Re[ ] and Im[ ] are the real and imaginary parts, respectively, of the entity contained in square brackets.

Signals from multiple pairs of gauges having redundant lag (or spatial separation) vectors in a uniform wave field are expected to have identical cross spectra. In the Harvest Platform array there are several such sets of pairs as can be seen in Figure 2. In terms of coherences and phases, one would expect

$$\Gamma_{14}(f_n) = \Gamma_{23}(f_n) = \Gamma_{56}(f_n) \qquad \phi_{14}(f_n) = \phi_{23}(f_n) = \phi_{56}(f_n) \tag{4}$$

as well as

$$\Gamma_{12}(f_n) = \Gamma_{43}(f_n) \qquad \phi_{12}(f_n) = \phi_{43}(f_n) \tag{5}$$

and

$$\Gamma_{15}(f_n) = \Gamma_{46}(f_n) \qquad \phi_{15}(f_n) = \phi_{46}(f_n) \tag{6}$$

Figure 4 is an example of coherence and phase comparisons, showing graphs of the functions named in Equations 4, 5, and 6 (upper, middle, and lower sets of graphs in Figure 4, respectively). This type of error checking is useful for isolating cases where a data point is dropped during telephone transmission from the data buffer, resulting in an apparent temporal shift of data from one gauge relative to data from the other gauges. Such a shift causes a significant phase error in cross spectra, and is readily apparent in a graphic display like Figure 4.

The combined effects of intercomparing frequency autospectra and coherence and phase functions for the pressure gauge array on Harvest Platform provide clear indications of faulty or suspect data. When such conditions are detected in a collection, frequency-direction spectra are not computed. Such rigorous examination of the data ensures that only high-quality time series are used in directional estimation.

Frequency-Direction Spectra

Estimates of frequency-direction spectra are made using the iterative maximum likelihood estimator (IMLE) developed by Pawka (1983). Estimates are made by iterative approximations of directional distribution functions $D(f_n, \theta_m)$, which are related to corresponding frequency-direction spectra $S(f_n, \theta_m)$ by

$$D(f_n, \theta_m) = \frac{S(f_n, \theta_m)}{S(f_n)} \tag{7}$$

where θ_m is a discrete angle indicating the direction from which wave energy arrives, measured counterclockwise from true north (Figure 2), and $S(f_n)$ is the (surface-corrected) frequency spectrum. The direction index m ranges from $m = 1$ to $m = M = 181$, while direction ranges from $\theta_1 = -180$ deg to $\theta_{181} = 180$ deg in steps of $d\theta = 2$ deg. The directional distribution function has the property

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

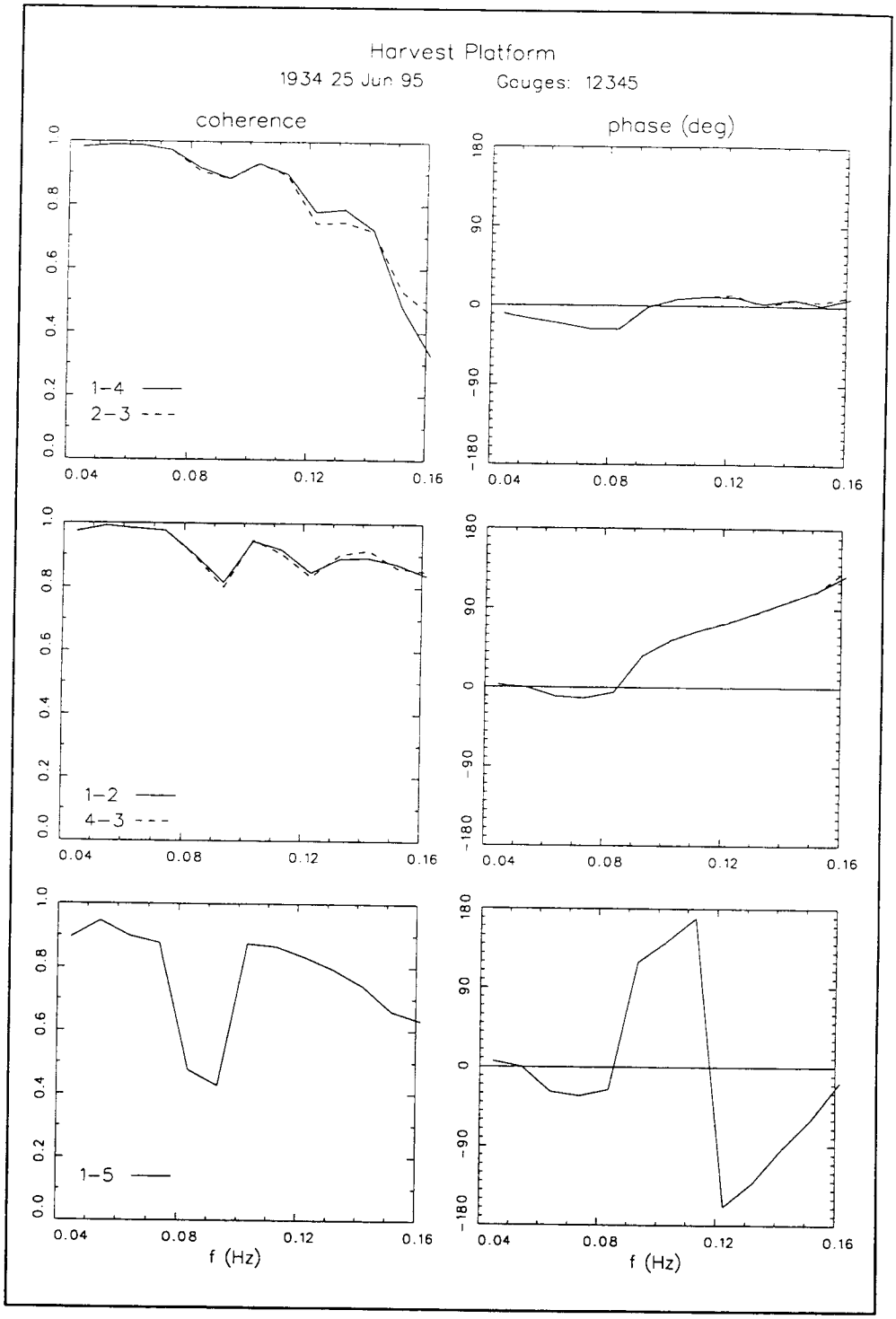

Figure 4. Sample coherence and phase function comparisons

which must be satisfied in all estimates.

The lowest order estimate is the maximum likelihood estimate described by Davis and Regier (1977), which takes the form

$$D_0(f_n, \theta_m) = \frac{a_0}{d\theta \sum_{i=1}^{I} \sum_{j=1}^{I} M_{ij}^{-1}(f_n)\, e^{i\vec{k}_n(\theta_m)\cdot(\vec{x}_i - \vec{x}_j)}} \tag{9}$$

where a_0 is a factor of order 1 that is used to satisfy Equation 8, I is the number of gauges, the $M_{ij}^{-1}(f_n)$ are elements of the inverse of the dimensionless cross-spectral matrix defined by Equation 1, $\vec{k}_n(\theta_m)$ is wave number vector, and $\vec{x}_i$ and $\vec{x}_j$ are coordinate position vectors of gauges i and j, respectively. The wave number vector $\vec{k}_n(\theta_m)$ is

$$\vec{k}_n(\theta_m) = k_n \cos\theta_m \hat{e}_x + k_n \sin\theta_m \hat{e}_y \tag{10}$$

where $\hat{e}_x$ and $\hat{e}_y$ are spatial coordinate unit vectors in the x- and y-directions, respectively, and k_n is wave number vector magnitude, which is related with gravitational acceleration g to frequency f_n and water depth d through the linear wave dispersion relation

$$4\pi^2 f_n^2 = g\, k_n \tanh k_n d \tag{11}$$

As used in this report, horizontal coordinates are such that x increases to the north, and y increases to the west.

An IMLE result is achieved by iterating through several computational steps. At the rth iteration, an estimate ${}^rM_{ij}(f_n)$ of the observed cross-spectral matrix $M_{ij}(f_n)$ is computed from the previous directional distribution function estimate $D_{r-1}(f_n, \theta_m)$ by

$${}^rM_{ij}(f_n) = \sum_{m=1}^{M} D_{r-1}(f_n, \theta_m)\, e^{i\vec{k}_n(\theta_m)\cdot(\vec{x}_i - \vec{x}_j)}\, d\theta \tag{12}$$

A new intermediate directional distribution function estimate $D_r'(f_n, \theta_m)$ is computed using the cross-spectral matrix of Equation 12 in the expression

$$D_r'(f_n, \theta_m) = \frac{a_r}{d\theta \sum_{i=1}^{I} \sum_{j=1}^{I} {}^rM_{ij}^{-1}(f_n)\, e^{i\vec{k}_n(\theta_m)\cdot(\vec{x}_i - \vec{x}_j)}} \tag{13}$$

where a_r is adjusted so that Equation 8 is satisfied for $D_r'(f_n, \theta_m)$. A correction is found for $D_r'(f_n, \theta_m)$ by first computing

$$\lambda_r(f_n,\theta_m) = 1 - \frac{D_r'(f_n,\theta_m)}{D_0(f_n,\theta_m)} \tag{14}$$

and then finding a new directional distribution function estimate $D_r(f_n,\theta_m)$ from

$$D_r(f_n,\theta_m) = D_r'(f_n,\theta_m)\left[1 + \frac{|\lambda_r(f_n,\theta_m)|^{\beta+1}}{\gamma\,\lambda_r(f_n,\theta_m)}\right] \tag{15}$$

The parameters β and γ in Equation 15 control the rate of convergence of the estimator. As used by Pawka (1983), the values $\beta = 1$ and $\gamma = 5$ were used for all estimates discussed in this report.

In each iterative loop, a convergence check ϵ_r is computed as the sum of the squares of the magnitudes of the differences of elements of the estimated cross spectrum of Equation 12 and the measured cross spectrum of Equation 1. This takes the form

$$\epsilon_r = \sum_{i=1}^{I}\sum_{j=1}^{I} |{}^rM_{ij}(f_n) - M_{ij}(f_n)|^2 \tag{16}$$

Iteration continues as long as ϵ_r decreases between successive iterations, or until an upper limit R of iterations has been completed. In computations reported herein, $R = 30$.

Equations 9 to 16 form the basis of the IMLE technique. For the iteration r that satisfies the convergence check, the frequency-direction spectrum at frequency f_n is formed from

$$S(f_n,\theta_m) = S(f_n)\,D_r(f_n,\theta_m) \tag{17}$$

The complete frequency-direction spectrum is formed when Equations 9 through 17 are evaluated for all frequencies.

An example of such a spectrum is illustrated in Figure 3. The upper graph is a three-dimensional plot of $S(f_n,\theta_m)$, and the lower right graph is a contour plot of the spectrum. The right panel in the three-dimensional plot is a linear graph of the discrete frequency spectrum $S(f_n)$, which is related to the frequency-direction spectrum through Equations 7 and 8 by

$$S(f_n) = \sum_{m=1}^{M} S(f_n,\theta_m)\,d\theta \tag{18}$$

The left panel in the three-dimension plot is a linear graph of the direction spectrum $S(\theta_m)$, which is the directional analog of the frequency spectrum. The direction spectrum is defined by

$$S(\theta_m) = \sum_{n=1}^{N} S(f_n, \theta_m)\, df \tag{19}$$

Because $S(\theta_m)$ represents total wave energy in each direction bin, it is a particularly useful function from which to derive direction-sensitive characterizing parameters for a given frequency-direction spectrum as a whole. A set of such characterizing parameters is defined in Chapter 4.

Special Notes for 1995

It should be noted that array gauge 6 (Figure 2) failed in early January 1995, and was not repaired until late in 1996. Consequently, most of the 1995 results reported herein are based on a five-element array consisting of gauges 1 through 5. Loss of gauge 6 results in some loss of detailed resolution in directional estimation. Bulk parameters, like mean direction and directional spread, are relatively unaffected, but details of directional modes at the same frequency (e.g., two separate wave trains propagating in directions that differ by a small angle) tend to be less clear.

The quality of error checking is also affected by the loss of gauge 6 because there are no cross-spectral estimates between gauges 2 and 6 to compare with those between gauges 1 and 5 (as displayed in Figure 4) to determine if the timing of gauge 5 is correct. In results presented here, it is assumed that gauge 5 is operating properly unless its frequency spectrum disagrees with frequency spectra from the other four gauges (in intercomparisons like that illustrated in Figure 3), or frequency-direction spectral estimates show unusually large directional spreads.

Additionally, a large storm along the U.S. west coast in December 1995 disrupted communications with Harvest Platform, and repairs were not effected until January 1996. The intensity of this storm is indicated by the rapid and large increase in characteristic wave height shown in Figure B12 for December 12, 1995. Consequently, there are no results for the period 13-31 December, 1995.

4 Characterizing Parameters

To effect a summary description of the Harvest Platform database, frequency-direction spectra are characterized with a set of parameters. These descriptors are called bulk parameters because they are derived from extremal or integral properties of spectra, and so represent only part of the frequently more complicated directional structure of the wind wave field. A more exhaustive treatment of directional spectral structure at Harvest Platform is given by Long (1995b). For the purposes of the present report, nine parameters are used. These parameters are: characteristic wave height, peak frequency, two measures of characteristic direction, two measures of directional spread, two measures of asymmetry of directionally distributed wave energy, and a measure of kurtosis of directional distributions. This chapter contains the mathematical definitions of these parameters.

Wave Height, Peak Frequency, and Peak Direction

Characteristic wave height H_{mo} is defined using the conventional definition of four times the standard deviation of sea surface displacement. H_{mo} can be defined in terms of the full frequency-direction spectrum, the frequency spectrum defined by Equation 18, or the direction spectrum defined by Equation 19. A definition that relates all of these entities is

$$\frac{H_{mo}^2}{16} = \sum_{m=1}^{M} \sum_{n=1}^{N} S(f_n, \theta_m)\, df\, d\theta = \sum_{n=1}^{N} S(f_n)\, df = \sum_{m=1}^{M} S(\theta_m)\, d\theta \qquad (20)$$

It should be noted that H_{mo} reported herein is lower than what would be found in conventional analysis because directional computations were truncated at 0.16 Hz instead of the nominal 0.3-Hz limit for wind waves. Consequently, contributions to H_{mo} from high-frequency parts of wind wave spectra are not represented.

Peak frequency f_p is defined as the discrete frequency at which the frequency spectrum $S(f_n)$ is maximum. This definition is conventional, in that it is the usual characteristic frequency defined for nondirectional gauges. For convenience, Appendix A lists both f_p and its inverse, peak period T_p ($= 1/f_p$).

Peak direction θ_p is defined as the direction of maximum variance density in the directional distribution associated with the peak frequency. In symbols, θ_p is the discrete direction at which $S(f_p, \theta_m)$ is a maximum. It is interpreted as the direction of the most energetic waves at the frequency containing the greatest overall energy.

Circular Moment Parameters

Kuik, van Vledder, and Holthuijsen (1988) proposed a useful set of parameters that define mean wave direction, directional spread, skewness, and kurtosis based on circular moments of directional distribution functions. Though derived for directional distributions at individual frequencies, the definitions can be applied to any directional distribution function. For the purposes of characterizing a frequency-direction spectrum as a whole, the direction spectrum $S(\theta_m)$, as defined by Equation 19, is used herein because it represents total wave energy in any given direction arc.

To define a directional distribution function (one that integrates to unit area) from the direction spectrum, $S(\theta_m)$ must be normalized by its own area. By Equation 20, this area is identically $\frac{1}{16} H_{mo}^2$, so the appropriate directional distribution function is

$$D(\theta_m) = \frac{16}{H_{mo}^2} S(\theta_m) \qquad m = 1, 2, \ldots, M \tag{21}$$

Circular moments in terms of $D(\theta_m)$ adapted from definitions by Kuik, van Vledder, and Holthuijsen (1988) are

$$m_1 = \sum_{m=1}^{M} \cos(\theta_m - \theta_0) D(\theta_m) d\theta \tag{22}$$

$$n_1 = \sum_{m=1}^{M} \sin(\theta_m - \theta_0) D(\theta_m) d\theta \tag{23}$$

$$m_2 = \sum_{m=1}^{M} \cos(2\theta_m - 2\theta_0) D(\theta_m) d\theta \tag{24}$$

$$n_2 = \sum_{m=1}^{M} \sin(2\theta_m - 2\theta_0) D(\theta_m) d\theta \tag{25}$$

where θ_0 is the mean direction defined by requiring $n_1 = 0$. With this constraint, Equation 23 can be solved to find

$$\theta_0 = \tan^{-1}\left[\frac{\sum_{m=1}^{M} D(\theta_m)\sin\theta_m \, d\theta}{\sum_{m=1}^{M} D(\theta_m)\cos\theta_m \, d\theta}\right] \tag{26}$$

With θ_0 determined by Equation 26, moments m_1, m_2, and n_2 can be computed from Equations 22, 24, and 25, respectively.

Kuik, van Vledder, and Holthuijsen (1988) define a measure of directional spread (herein called *circular width*) σ as

$$\sigma = (2 - 2m_1)^{1/2} \tag{27}$$

a measure of asymmetry of a directional distribution (*circular skewness*) γ as

$$\gamma = \frac{-n_2}{\left(\frac{1}{2} - \frac{1}{2}m_2\right)^{3/2}} \tag{28}$$

and a measure of the flatness of a directional distribution (*circular kurtosis*) δ as

$$\delta = \frac{6 - 8m_1 + 2m_2}{(2 - 2m_1)^2} \tag{29}$$

Quartile Parameters

Two parameters that are modestly more intuitive than the corresponding circular parameters, and are also useful for characterizing spread and asymmetry in a directional distribution function are the *quartile spread* $\Delta\theta$ and *quartile asymmetry* A used by Long and Oltman-Shay (1991). The concept is based on the fact that any directional distribution function integrates to unity such that an integral from the direction of minimum energy $\theta_{m_{min}}$ (where m_{min} is the discrete direction index at which minimum energy occurs) to any arbitrary angle creates a function $I(\theta_m - \theta_{m_{min}})$ that increases monotonically from zero to an upper limit of unity. The directions at which this integral (interpolated as necessary from discrete data) has the values $\frac{1}{4}$, $\frac{1}{2}$, and $\frac{3}{4}$ are the first quartile, median, and third

quartile directions of the directional distribution, respectively. Differences among these directions then provide information about the spread and asymmetry of the distribution.

Using $D(\theta_m)$ as a representative directional distribution function, the integral function is

$$I(\theta_m - \theta_{m_{min}}) = \sum_{l=m_{min}}^{m} D(\theta_l)\, d\theta \tag{30}$$

where θ_l is the dummy discrete independent variable of summation, and the cyclic nature of the distribution function is employed if necessary. Quartile directions satisfy

$$I(\theta_{25\%} - \theta_{m_{min}}) = 0.25 \tag{31}$$

$$I(\theta_{50\%} - \theta_{m_{min}}) = 0.50 \tag{32}$$

and

$$I(\theta_{75\%} - \theta_{m_{min}}) = 0.75 \tag{33}$$

A measure of directional spread $\Delta\theta$ is the span of the two middle quartiles

$$\Delta\theta = \theta_{75\%} - \theta_{25\%} \tag{34}$$

and has the specific interpretation that it is the arc subtending the central 50 percent of the energy distribution.

A measure of asymmetry of a distribution is the ratio of the directional width of the third quartile to that of the second quartile. By taking the natural logarithm of this ratio, a symmetric distribution has an asymmetry parameter A near zero, and that for a skewed distribution acquires a positive or negative sign if the skewness is toward larger or smaller angles, respectively. The asymmetry parameter is thus defined as

$$A = \ln\left[\frac{\theta_{75\%} - \theta_{50\%}}{\theta_{50\%} - \theta_{25\%}}\right] \tag{35}$$

Summary of Parameters

The nine bulk parameters (H_{mo}, f_p, θ_p, θ_0, σ, γ, δ, $\Delta\theta$, and A) defined here are useful for classifying general wind wave energy distributions. For reference as an index of processed data from the 1995 collection year, these parameters are listed in Appendix A, and plotted as time series in Appendix B. Graphs in Appendix B provide an overview of the directional wave climate at Harvest Platform, and specific parametric values can be determined from the listing in Appendix A. An evaluation of the accuracy of these parameters, relationships among these parameters, and examples of frequency-direction spectra classified by ranges of these parameters are given by Long (1995b).

5 Accessing Spectra

Frequency-direction spectra computed from Harvest Platform data are currently stored on electro-optical media in binary, unformatted form, and so are not "on line" in the sense of common data networks. Nonetheless, an individual interested in obtaining these spectra can readily do so by communicating with the FRF via:

Surface mail	Chief, Field Research Facility 1261 Duck Road Kitty Hawk, NC 27949-4472
Telephone	(919) 261-3511
FAX	(919) 261-4432

or any of the following internet addresses:

c.long@cerc.wes.army.mil
c.baron@cerc.wes.army.mil
w.birkemeier@cerc.wes.army.mil

On request, all or part of the spectral database can be converted to 80-column ASCII format and copied either to portable magnetic tape media or to an anonymous file transfer protocol (ftp) account that is accessible through common computer networks. Data will be in the form of a set of files with one spectral estimate per file. Files will be named HP*yymmddhhmm*.ASC, where *yymmdd* represents year, month, and day, and *hhmm* represents hour and minute (GMT) of a collection start time from which a spectrum is estimated. For convenience, dates and times of parameter listings in Appendix A are in the *yymmdd* and *hhmm* mnemonic forms.

On receipt by a user, spectral data files can be read using the format statements shown in the sample FORTRAN program listed in Appendix C. The header of the FORTRAN program listing identifies all the variables contained in a data file. For reference, Appendix D is a listing of a sample data file, and shows locations of variables within the file.

6 Summary

This is the third of a series of four reports describing results from a high-resolution directional wave gauge installed on the Texaco Oil Company Harvest Platform. The purpose of this gauge is long-term monitoring of the directional wind wave climate at a deepwater site that can be used to represent open ocean conditions for waves approaching the coast of southern California. This report indexes parameters of and describes a means of access to 2,433 frequency-direction spectral observations made during calendar year 1995.

The primary intent of this report is to publicize these observations so that they can be used by researchers interested in seaward boundary conditions in coastal wave propagation models, studies of ocean wave evolution, comparison studies with locally deployed low-resolution directional wave gauges, and ground truth in remote sensing research. Improved knowledge resulting from such studies will enhance abilities to model the physics of open ocean wave processes, and the consequent nearshore wave climate required in coastal engineering computations as such waves propagate landward.

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Appendix A
Table of Collection Times and Bulk Parameters

Table A1
Collection Times and Bulk Parameters

Date	Time GMT	H_{mo} m	f_p Hz	T_p sec	θ_p deg	θ_0 deg	σ	γ	δ	$\Delta\theta$ deg	A
950101	0158	3.20	0.074	13.6	82	87	0.41	0.65	7.13	22	0.24
950101	0458	2.73	0.064	15.6	78	87	0.45	0.67	5.66	28	0.40
950101	0758	2.51	0.074	13.6	82	89	0.49	0.60	5.43	29	0.47
950101	1057	2.55	0.064	15.6	82	89	0.47	0.50	5.69	29	0.37
950101	1357	2.61	0.064	15.6	80	87	0.47	0.84	5.86	27	0.49
950101	1657	2.63	0.064	15.6	80	85	0.45	1.13	6.57	20	0.33
950101	2014	2.73	0.074	13.6	78	85	0.46	0.90	5.77	26	0.37
950101	2257	2.85	0.074	13.6	70	85	0.46	0.54	5.25	31	0.17
950102	0157	3.16	0.074	13.6	74	83	0.45	0.58	6.30	26	0.16
950102	0458	3.48	0.054	18.5	74	82	0.42	0.69	7.41	23	0.15
950102	1358	3.26	0.054	18.5	74	81	0.44	0.73	6.99	23	0.47
950102	1657	2.81	0.054	18.5	82	85	0.43	0.77	7.41	20	0.16
950102	1958	2.66	0.054	18.5	80	87	0.46	0.96	6.35	25	0.49
950102	2258	3.11	0.064	15.6	84	91	0.50	0.94	5.50	25	0.43
950103	0458	3.71	0.064	15.6	88	102	0.66	1.29	3.98	39	1.01
950103	1358	3.49	0.064	15.6	80	90	0.58	1.33	5.16	32	0.69
950103	1658	3.69	0.074	13.6	84	91	0.54	1.34	5.23	27	0.42
950103	1957	3.75	0.074	13.6	86	94	0.53	1.42	5.34	23	0.62
950103	2257	3.73	0.074	13.6	82	91	0.54	1.21	4.95	31	0.69
950104	0158	3.72	0.074	13.6	82	90	0.55	1.08	4.91	31	0.47
950104	0457	3.54	0.074	13.6	84	91	0.57	1.06	5.17	28	0.55
950104	0758	2.87	0.064	15.6	86	102	0.75	1.69	3.75	44	1.15
950104	1151	4.14	0.142	7.0	86	154	1.06	0.18	1.69	118	-0.45
950104	1658	4.39	0.113	8.9	82	122	0.75	0.64	3.10	64	-0.17
950104	1958	4.26	0.103	9.7	88	116	0.66	0.42	2.85	52	-0.02
950104	2257	4.13	0.093	10.7	88	111	0.60	0.52	3.29	46	0.14
950105	0158	4.02	0.093	10.7	90	106	0.56	0.47	3.87	40	0.31
950105	0458	3.91	0.093	10.7	88	99	0.56	0.32	3.98	39	0.41
950105	0757	4.16	0.074	13.6	84	93	0.55	0.18	4.12	35	0.60
950105	1731	4.19	0.083	12.0	86	87	0.47	0.38	5.86	25	0.01

(Sheet 1 of 47)

Table A1 (Continued)

Date	Time GMT	H_{mo} m	f_p Hz	T_p sec	θ_p deg	θ_0 deg	σ	γ	δ	$\Delta\theta$ deg	A
950105	1958	3.99	0.083	12.0	86	86	0.46	0.45	6.02	24	0.05
950105	2257	3.80	0.083	12.0	88	86	0.45	0.49	6.24	25	-0.05
950106	0758	3.95	0.083	12.0	74	74	0.47	0.39	5.46	26	-0.09
950106	1058	3.94	0.083	12.0	76	74	0.46	0.44	6.34	23	-0.18
950106	1657	3.09	0.054	18.5	84	82	0.45	0.37	6.97	23	-0.04
950106	1957	2.46	0.054	18.5	84	88	0.61	1.96	6.60	20	0.31
950106	2257	2.77	0.054	18.5	80	111	1.08	1.92	2.24	124	1.84
950107	0148	3.45	0.064	15.6	84	124	1.05	1.09	2.04	106	0.79
950107	0458	3.67	0.064	15.6	80	113	0.80	0.62	2.69	70	0.36
950107	0751	3.58	0.064	15.6	80	114	0.76	0.54	2.44	73	0.51
950107	1057	3.36	0.054	18.5	82	114	0.76	0.63	2.76	67	0.30
950107	1356	3.32	0.054	18.5	78	108	0.64	0.48	2.98	53	0.23
950107	1957	4.28	0.064	15.6	86	93	0.46	0.76	5.75	24	0.65
950107	2258	5.54	0.064	15.6	86	89	0.45	0.30	6.03	22	0.24
950108	1058	3.83	0.064	15.6	82	89	0.43	1.11	7.70	21	0.46
950108	1358	3.49	0.074	13.6	84	90	0.43	0.98	7.39	21	0.49
950108	1658	3.58	0.074	13.6	80	87	0.41	0.72	7.81	21	0.35
950108	1957	3.85	0.074	13.6	76	82	0.41	0.82	7.17	22	0.39
950108	2258	4.06	0.074	13.6	78	82	0.40	0.86	8.15	20	0.32
950109	0158	3.63	0.074	13.6	78	85	0.42	1.02	7.77	22	0.44
950109	0451	3.26	0.083	12.0	80	88	0.44	0.98	7.37	24	0.38
950109	0756	2.66	0.074	13.6	84	92	0.47	0.86	6.59	26	0.33
950109	1107	2.63	0.083	12.0	88	93	0.44	0.84	7.26	22	0.20
950109	1354	2.97	0.083	12.0	82	91	0.42	0.78	6.91	22	0.38
950109	1651	3.70	0.074	13.6	80	87	0.39	0.66	7.67	21	0.53
950109	1958	4.09	0.054	18.5	80	89	0.43	1.27	7.84	21	0.46
950109	2258	4.26	0.064	15.6	82	98	0.64	1.92	4.53	30	0.68
950110	0158	4.48	0.064	15.6	88	107	0.73	1.32	3.18	51	0.99
950110	1052	4.76	0.064	15.6	72	93	0.68	1.50	3.52	45	1.15
950110	1401	4.61	0.064	15.6	76	91	0.60	1.61	4.24	33	0.87
950110	1658	4.64	0.074	13.6	76	91	0.57	1.27	3.96	34	0.69
950110	1958	4.14	0.064	15.6	80	95	0.55	0.87	4.02	35	0.54
950110	2258	4.01	0.064	15.6	82	93	0.54	1.01	4.48	30	0.37
950111	0158	4.00	0.074	13.6	76	91	0.52	1.02	4.74	31	0.40
950111	0458	4.24	0.074	13.6	78	87	0.50	0.94	5.63	25	0.37
950111	1358	4.62	0.054	18.5	82	85	0.43	1.10	7.84	17	0.14
950111	2251	4.44	0.064	15.6	78	83	0.41	0.96	8.49	19	0.16
950112	0158	4.19	0.064	15.6	80	84	0.42	0.71	7.94	19	0.32
950112	0458	3.90	0.064	15.6	80	86	0.43	0.90	8.64	19	0.33
950112	1058	3.86	0.064	15.6	80	85	0.40	0.78	8.74	19	0.28
950112	1358	3.57	0.064	15.6	78	85	0.42	1.16	7.75	20	0.37
950112	1657	3.41	0.064	15.6	76	83	0.42	1.21	7.60	20	0.44
950112	1957	3.75	0.074	13.6	74	83	0.42	0.75	7.01	25	0.67
950112	2256	3.53	0.064	15.6	76	83	0.42	0.66	7.89	22	0.50
950113	0158	2.94	0.064	15.6	78	84	0.41	0.82	8.71	19	0.34
950113	0458	2.78	0.074	13.6	78	85	0.45	0.63	7.25	22	0.31
950113	0758	2.65	0.083	12.0	80	86	0.45	0.49	6.55	25	0.17
950113	1058	2.68	0.074	13.6	74	82	0.46	0.96	6.36	24	0.43
950113	1148	2.65	0.074	13.6	72	81	0.47	0.88	6.27	25	0.43
950113	1400	2.22	0.074	13.6	72	82	0.48	1.08	6.29	26	0.59
950113	1718	2.12	0.083	12.0	76	83	0.48	1.02	5.92	26	0.40
950113	1959	2.13	0.083	12.0	80	86	0.46	1.04	6.69	24	0.25

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Table A1 (Continued)

Date	Time GMT	H_{mo} m	f_p Hz	T_p sec	θ_p deg	θ_0 deg	σ	γ	δ	$\Delta\theta$ deg	A
950113	2259	1.88	0.093	10.7	78	87	0.49	0.85	5.83	28	0.56
950114	0159	2.00	0.083	12.0	84	89	0.45	0.82	7.09	21	0.28
950114	0459	2.00	0.093	10.7	86	89	0.48	0.62	6.36	22	0.11
950114	0759	2.14	0.064	15.6	86	87	0.44	0.50	6.93	23	0.03
950114	1059	2.29	0.064	15.6	76	87	0.43	0.70	7.17	24	0.37
950114	1359	2.38	0.064	15.6	82	88	0.41	0.68	8.17	20	0.34
950114	1658	2.39	0.064	15.6	86	89	0.40	0.71	8.96	17	0.24
950114	2001	2.39	0.064	15.6	84	89	0.43	0.43	7.97	20	0.28
950114	2302	2.83	0.064	15.6	82	87	0.38	0.40	9.30	18	0.24
950115	0200	2.87	0.064	15.6	88	86	0.38	0.05	9.37	19	0.00
950115	0500	3.06	0.074	13.6	84	87	0.36	0.16	10.71	16	0.24
950115	0800	3.22	0.074	13.6	86	90	0.36	-0.21	9.46	19	0.26
950115	1102	3.19	0.074	13.6	86	89	0.36	-0.23	9.83	16	0.25
950115	1409	3.32	0.074	13.6	86	90	0.35	-0.13	9.97	17	0.23
950115	2000	3.79	0.064	15.6	88	90	0.39	-0.91	7.68	19	0.16
950115	2300	4.14	0.074	13.6	86	89	0.39	-0.75	6.94	24	0.12
950116	0153	4.19	0.074	13.6	82	82	0.41	-0.41	6.19	25	0.05
950116	0500	4.12	0.074	13.6	80	80	0.43	-0.67	5.92	22	0.05
950116	0753	4.07	0.074	13.6	78	77	0.45	-0.36	5.16	27	0.05
950116	1100	3.90	0.074	13.6	80	75	0.49	-0.22	4.48	33	-0.10
950116	1400	3.66	0.074	13.6	64	69	0.49	0.05	3.77	39	0.02
950116	1700	3.90	0.074	13.6	74	69	0.47	-0.12	4.26	33	-0.30
950116	2000	4.00	0.083	12.0	84	68	0.51	-0.22	3.29	44	-0.47
950116	2300	3.52	0.093	10.7	68	66	0.53	0.01	3.30	44	-0.15
950117	0200	3.29	0.083	12.0	60	66	0.50	0.10	3.80	40	0.09
950117	0500	2.92	0.083	12.0	72	68	0.48	-0.07	4.39	35	-0.27
950117	0800	2.74	0.083	12.0	70	70	0.50	-0.05	4.35	33	0.01
950117	1105	2.63	0.083	12.0	62	68	0.52	0.14	3.71	41	0.14
950117	1413	2.28	0.093	10.7	66	64	0.53	0.18	3.63	46	-0.04
950117	1704	2.13	0.093	10.7	88	65	0.53	0.05	3.69	47	-0.31
950117	2002	2.03	0.093	10.7	84	64	0.54	0.02	3.70	48	-0.45
950117	2301	1.96	0.093	10.7	80	65	0.53	0.26	4.20	43	-0.17
950118	0200	2.07	0.093	10.7	60	67	0.51	0.33	4.71	38	0.09
950118	0453	2.08	0.093	10.7	64	61	0.51	0.43	4.72	37	-0.18
950118	0757	2.06	0.093	10.7	62	59	0.51	0.61	4.92	36	-0.16
950118	1101	2.01	0.093	10.7	64	58	0.52	0.55	5.23	36	-0.11
950118	1358	1.91	0.093	10.7	72	62	0.53	0.41	4.77	38	-0.04
950118	1701	1.90	0.093	10.7	70	64	0.51	0.50	5.31	35	-0.15
950118	1957	1.75	0.093	10.7	68	64	0.55	0.77	5.30	34	-0.16
950118	2258	1.86	0.054	18.5	68	62	0.53	0.69	5.40	33	-0.30
950119	0159	2.07	0.054	18.5	66	62	0.46	0.95	7.30	20	-0.49
950119	0500	2.23	0.054	18.5	66	62	0.52	0.76	5.99	27	-0.34
950119	0759	2.08	0.083	12.0	68	62	0.54	0.62	5.49	33	-0.58
950119	1058	2.25	0.074	13.6	64	65	0.49	0.84	6.69	22	-0.01
950119	1400	2.54	0.083	12.0	66	67	0.47	0.64	7.14	21	0.00
950119	1702	2.79	0.064	15.6	66	67	0.44	0.62	8.12	17	0.05
950119	2002	2.87	0.064	15.6	68	68	0.47	0.41	7.45	16	0.07
950119	2302	2.55	0.064	15.6	66	67	0.50	1.03	7.53	19	0.11
950120	0202	2.67	0.064	15.6	64	66	0.48	0.98	7.48	20	0.26
950120	0502	2.27	0.064	15.6	66	70	0.51	0.88	6.24	27	0.33
950120	0756	2.02	0.064	15.6	68	73	0.55	1.08	5.92	29	0.15
950120	1055	2.01	0.064	15.6	66	77	0.69	2.24	5.46	26	0.72
950120	1401	2.50	0.064	15.6	70	94	0.95	2.18	3.15	72	1.10

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Table A1 (Continued)

Date	Time GMT	H_{mo} m	f_p Hz	T_p sec	θ_p deg	θ_0 deg	σ	γ	δ	$\Delta\theta$ deg	A
950120	1727	2.57	0.064	15.6	70	99	0.74	0.88	3.41	57	0.33
950120	2002	2.79	0.064	15.6	72	99	0.78	1.36	3.48	57	0.67
950120	2302	2.81	0.064	15.6	70	91	0.63	1.07	3.83	46	1.00
950121	0203	3.08	0.064	15.6	72	87	0.53	1.04	4.79	34	0.85
950121	0502	3.05	0.064	15.6	76	91	0.54	0.89	4.87	33	0.27
950121	0801	3.66	0.064	15.6	78	88	0.53	1.08	5.32	28	0.30
950121	1102	4.14	0.064	15.6	80	88	0.48	0.56	5.80	24	0.27
950121	1702	3.83	0.064	15.6	74	82	0.46	0.99	7.03	23	0.37
950121	2001	3.38	0.064	15.6	74	81	0.48	1.02	6.77	24	0.44
950121	2302	3.01	0.074	13.6	76	84	0.47	1.08	6.83	25	0.48
950122	0202	2.57	0.074	13.6	80	87	0.50	0.98	6.71	26	0.37
950122	0502	2.14	0.074	13.6	84	91	0.50	0.80	6.51	26	0.18
950122	0801	1.99	0.074	13.6	84	93	0.53	1.19	6.07	24	0.34
950122	1055	2.30	0.074	13.6	80	91	0.52	1.64	6.58	25	0.47
950123	1101	4.19	0.064	15.6	82	90	0.74	4.19	5.64	22	0.63
950123	1415	4.43	0.064	15.6	84	92	0.77	5.11	5.44	24	0.74
950123	2004	4.04	0.074	13.6	84	88	0.46	1.05	10.58	19	0.22
950123	2303	4.17	0.074	13.6	80	83	0.43	0.56	9.73	20	0.21
950124	0203	3.82	0.074	13.6	80	84	0.43	0.79	9.66	22	0.20
950124	0502	3.40	0.074	13.6	78	85	0.43	0.79	8.55	23	0.29
950124	0802	3.15	0.074	13.6	82	87	0.41	1.03	8.53	20	0.26
950124	1109	2.73	0.074	13.6	78	90	0.63	1.92	5.46	29	0.46
950124	1401	2.70	0.074	13.6	78	92	0.70	2.06	4.85	33	0.65
950124	1659	2.75	0.074	13.6	80	94	0.63	1.79	4.91	30	0.65
950125	1051	2.06	0.083	12.0	82	100	0.88	2.15	3.35	63	1.23
950125	1404	1.87	0.083	12.0	80	97	0.79	1.65	3.54	46	0.43
950125	1709	1.88	0.103	9.7	84	96	0.73	1.57	3.58	43	0.61
950125	2006	1.78	0.093	10.7	78	92	0.63	1.28	3.79	37	0.34
950125	2304	1.70	0.103	9.7	76	94	0.64	1.08	3.69	41	0.37
950126	0203	1.74	0.103	9.7	82	92	0.67	1.06	3.61	40	0.36
950126	0505	1.67	0.103	9.7	82	97	0.73	1.07	3.16	48	0.58
950126	0759	1.66	0.103	9.7	84	101	0.74	0.80	2.63	57	0.67
950126	1110	1.60	0.113	8.9	92	107	0.71	0.54	2.62	55	0.68
950126	1400	1.52	0.113	8.9	88	106	0.72	0.54	2.54	61	0.62
950126	1704	1.50	0.113	8.9	90	101	0.70	0.69	2.71	53	0.44
950126	2004	1.46	0.113	8.9	84	97	0.67	0.54	2.81	52	0.24
950127	0204	1.43	0.123	8.2	74	94	0.67	0.82	3.23	45	0.29
950127	0504	1.38	0.064	15.6	78	93	0.64	1.01	3.70	38	0.45
950127	0804	1.30	0.064	15.6	78	91	0.64	1.16	3.87	35	0.51
950127	1109	1.21	0.064	15.6	82	93	0.68	0.94	3.39	42	0.45
950127	1409	1.19	0.074	13.6	70	85	0.69	1.24	3.58	43	0.51
950127	1715	1.23	0.064	15.6	70	85	0.64	1.02	3.57	44	0.26
950127	2318	1.38	0.074	13.6	82	79	0.59	1.07	4.35	36	-0.10
950128	0203	1.42	0.074	13.6	80	78	0.58	0.92	4.54	36	-0.14
950128	0503	1.47	0.074	13.6	78	77	0.55	1.14	4.91	34	0.02
950128	0802	1.47	0.074	13.6	76	77	0.54	0.93	5.07	34	0.04
950128	1055	1.55	0.083	12.0	86	75	0.54	0.67	4.88	36	-0.19
950128	1402	1.47	0.083	12.0	84	76	0.54	0.80	4.80	37	-0.15
950128	1702	1.39	0.074	13.6	68	78	0.53	0.99	5.07	33	0.19
950128	2002	1.36	0.074	13.6	86	82	0.54	0.64	4.69	33	-0.18
950128	2302	1.36	0.074	13.6	84	82	0.52	0.59	5.09	32	-0.08

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Table A1 (Continued)

Date	Time GMT	H_{mo} m	f_p Hz	T_p sec	θ_p deg	θ_0 deg	σ	γ	δ	$\Delta\theta$ deg	A
950129	0201	1.47	0.093	10.7	84	79	0.49	0.71	5.48	32	-0.07
950129	0503	1.47	0.093	10.7	70	77	0.50	0.89	5.75	32	0.12
950129	0803	1.70	0.093	10.7	70	77	0.47	0.94	7.14	25	0.22
950129	1102	2.08	0.103	9.7	74	78	0.46	0.76	7.50	23	0.13
950129	1401	2.38	0.064	15.6	72	77	0.41	0.88	8.28	21	0.37
950129	1703	2.95	0.064	15.6	72	77	0.39	0.44	8.53	18	0.41
950129	2003	2.91	0.074	13.6	76	80	0.37	0.34	9.14	18	0.21
950129	2303	3.10	0.074	13.6	76	79	0.41	0.22	7.79	22	0.13
950130	0203	3.48	0.074	13.6	76	79	0.36	0.37	10.60	17	0.25
950130	0503	3.17	0.074	13.6	78	79	0.38	0.35	10.34	17	0.13
950130	0803	2.90	0.074	13.6	76	81	0.40	0.40	8.78	21	0.23
950130	1119	2.84	0.074	13.6	76	83	0.42	0.33	8.30	24	0.16
950130	1415	2.55	0.074	13.6	76	81	0.42	0.51	8.57	21	0.14
950130	1722	2.48	0.083	12.0	76	81	0.42	0.65	8.03	21	0.24
950130	2004	2.17	0.083	12.0	86	85	0.47	0.78	6.63	25	-0.01
950130	2304	2.26	0.083	12.0	78	84	0.43	0.59	7.26	25	0.31
950131	0205	2.25	0.083	12.0	78	82	0.41	1.20	9.18	19	0.29
950131	0504	2.00	0.083	12.0	74	82	0.48	1.28	6.87	25	0.38
950131	0805	1.91	0.083	12.0	84	86	0.50	0.97	6.25	27	0.04
950131	1109	1.88	0.083	12.0	78	87	0.51	1.06	5.88	27	0.26
950131	1405	1.79	0.093	10.7	82	87	0.50	1.03	6.11	23	0.14
950131	1753	1.87	0.093	10.7	80	88	0.53	1.11	5.48	27	0.23
950131	2004	1.85	0.093	10.7	90	90	0.51	0.72	5.56	23	-0.05
950131	2304	1.81	0.093	10.7	88	90	0.50	1.22	6.07	23	0.06
950201	0205	1.79	0.083	12.0	84	88	0.51	1.18	6.06	23	0.10
950201	0503	1.67	0.083	12.0	88	91	0.53	1.11	5.63	25	0.06
950201	0805	1.81	0.083	12.0	82	90	0.53	1.18	5.51	26	0.30
950201	1104	2.21	0.083	12.0	80	88	0.51	1.23	5.81	25	0.34
950201	1404	2.71	0.083	12.0	86	87	0.44	0.94	7.36	20	0.02
950201	1834	2.87	0.074	13.6	92	89	0.42	0.47	8.29	16	-0.24
950201	2304	3.01	0.074	13.6	90	89	0.42	0.58	7.79	18	-0.14
950202	0203	3.14	0.074	13.6	88	89	0.44	0.84	7.12	18	0.09
950202	0504	2.91	0.074	13.6	84	86	0.43	1.20	8.03	17	0.10
950202	0803	3.17	0.074	13.6	82	84	0.48	1.18	6.92	20	0.13
950202	1059	3.38	0.074	13.6	80	85	0.47	1.08	6.47	21	0.31
950202	1403	3.54	0.064	15.6	84	85	0.47	0.94	6.51	20	0.06
950202	1702	3.53	0.064	15.6	82	86	0.44	1.03	7.81	18	0.21
950202	2003	3.77	0.064	15.6	80	84	0.45	0.98	7.12	21	0.17
950203	0500	3.73	0.064	15.6	80	84	0.45	1.19	7.09	18	0.20
950203	0754	3.35	0.064	15.6	80	87	0.50	1.27	6.16	22	0.34
950203	1100	2.91	0.064	15.6	78	87	0.53	1.26	5.24	28	0.32
950203	1401	2.98	0.064	15.6	80	88	0.52	1.09	5.22	28	0.24
950203	1707	3.00	0.064	15.6	78	84	0.50	1.35	5.98	22	0.40
950203	2004	3.05	0.064	15.6	74	81	0.51	1.49	6.11	23	0.38
950203	2304	3.10	0.064	15.6	84	82	0.51	1.30	5.73	25	0.02
950204	0203	2.94	0.064	15.6	80	86	0.54	1.21	4.90	29	0.35
950204	0503	2.60	0.074	13.6	80	89	0.56	1.27	4.77	28	0.42
950204	0803	2.21	0.074	13.6	82	94	0.67	0.99	3.50	39	0.47
950204	1103	2.32	0.074	13.6	82	87	0.62	1.20	3.98	35	0.11
950204	1404	2.45	0.074	13.6	70	83	0.57	1.29	4.41	33	0.49
950204	1703	2.30	0.074	13.6	78	83	0.53	1.44	5.57	24	0.25
950204	2003	2.33	0.074	13.6	76	81	0.54	1.48	5.73	23	0.24
950204	2303	2.15	0.074	13.6	78	85	0.59	1.41	4.62	28	0.28

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Table A1 (Continued)

Date	Time GMT	H_{mo} m	f_p Hz	T_p sec	θ_p deg	θ_0 deg	σ	γ	δ	$\Delta\theta$ deg	A
950205	0203	1.90	0.074	13.6	74	89	0.60	0.83	4.36	35	0.10
950205	0504	1.69	0.074	13.6	76	88	0.61	1.14	4.24	32	0.47
950205	0803	1.51	0.083	12.0	84	90	0.65	0.87	3.60	36	0.19
950205	1104	1.49	0.074	13.6	92	93	0.67	0.67	3.03	45	0.07
950205	1404	1.43	0.083	12.0	88	89	0.66	0.74	3.31	43	0.12
950205	1704	1.43	0.083	12.0	84	91	0.68	0.62	3.19	44	0.24
950205	2003	1.28	0.083	12.0	86	90	0.70	0.88	3.29	42	0.18
950205	2304	1.33	0.083	12.0	72	90	0.66	0.72	3.29	43	0.27
950206	0204	1.56	0.064	15.6	68	87	0.63	1.03	3.60	39	0.47
950206	0528	1.81	0.074	13.6	72	84	0.58	1.13	4.40	32	0.53
950206	0804	2.01	0.074	13.6	74	82	0.54	1.43	5.56	22	0.45
950206	1058	1.97	0.074	13.6	74	85	0.59	1.34	4.61	31	0.38
950206	1416	2.22	0.074	13.6	76	84	0.52	1.02	5.43	28	0.18
950206	1656	2.64	0.074	13.6	86	86	0.46	0.58	6.48	21	-0.02
950206	2003	3.46	0.064	15.6	82	82	0.38	0.38	8.63	17	-0.01
950206	2302	3.60	0.074	13.6	80	82	0.40	0.62	8.42	18	0.12
950207	0204	3.55	0.064	15.6	78	82	0.40	0.68	8.99	20	0.14
950207	0504	3.30	0.064	15.6	82	84	0.41	0.56	8.89	19	0.11
950207	0803	3.23	0.064	15.6	84	85	0.39	0.59	9.66	17	0.09
950207	1220	3.21	0.064	15.6	80	84	0.41	0.61	8.90	20	0.15
950207	1356	3.54	0.064	15.6	80	83	0.39	0.63	8.74	19	0.19
950207	1708	3.71	0.074	13.6	82	84	0.40	0.46	7.78	22	0.14
950207	2003	3.25	0.074	13.6	84	87	0.40	0.64	8.72	19	0.22
950207	2304	3.04	0.074	13.6	84	88	0.45	0.84	7.82	21	0.23
950208	0153	2.89	0.074	13.6	84	87	0.46	0.69	6.50	24	0.13
950208	0453	2.89	0.074	13.6	74	84	0.44	0.85	6.55	26	0.34
950208	0749	2.46	0.083	12.0	94	89	0.49	0.56	5.55	31	-0.09
950208	1051	2.31	0.083	12.0	82	86	0.53	0.78	5.10	32	0.12
950208	1357	2.23	0.083	12.0	84	85	0.53	0.64	4.93	29	0.00
950208	1704	2.14	0.083	12.0	78	86	0.56	0.73	4.38	36	0.02
950208	2003	2.01	0.074	13.6	78	83	0.59	0.73	3.96	37	0.08
950208	2303	1.77	0.064	15.6	76	87	0.65	0.87	3.58	40	0.41
950209	0203	1.80	0.064	15.6	76	86	0.63	1.21	3.92	33	0.55
950209	0503	1.99	0.064	15.6	78	82	0.55	1.05	5.08	24	0.16
950209	0804	1.89	0.064	15.6	78	82	0.57	1.23	4.84	26	0.18
950209	1103	1.87	0.074	13.6	74	80	0.58	0.86	4.18	34	0.35
950209	1401	1.73	0.064	15.6	74	85	0.66	0.92	3.33	43	0.49
950209	1701	1.60	0.064	15.6	78	84	0.64	1.01	3.72	35	0.30
950209	2003	1.62	0.074	13.6	88	85	0.66	0.83	3.33	43	0.00
950209	2303	1.50	0.074	13.6	74	82	0.67	0.86	3.52	40	0.27
950210	0203	1.56	0.074	13.6	82	83	0.67	0.62	3.27	42	0.03
950210	0504	1.55	0.074	13.6	76	84	0.60	0.72	4.15	34	0.23
950210	0803	1.49	0.074	13.6	82	86	0.59	0.67	4.12	35	0.07
950210	1113	1.39	0.074	13.6	86	88	0.60	0.51	4.04	34	0.01
950210	1412	1.29	0.074	13.6	80	89	0.63	0.71	3.67	40	0.35
950210	1712	1.27	0.074	13.6	76	91	0.65	0.73	3.31	43	0.57
950210	2002	1.42	0.083	12.0	74	86	0.65	0.81	3.64	40	0.58
950210	2303	1.50	0.044	22.5	78	82	0.61	0.97	4.45	31	0.32
950211	0202	1.49	0.044	22.5	80	84	0.63	1.05	4.52	28	0.32
950211	0502	1.59	0.054	18.5	72	80	0.62	1.14	4.83	28	0.57
950211	0802	1.71	0.054	18.5	70	77	0.55	1.88	6.38	18	0.53
950211	1102	1.81	0.054	18.5	70	75	0.49	2.28	7.88	12	0.33
950211	1402	2.01	0.054	18.5	72	76	0.48	2.68	7.93	11	0.24
950211	1702	2.13	0.054	18.5	70	74	0.50	2.00	7.13	17	0.11

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Table A1 (Continued)

Date	Time GMT	H_{mo} m	f_p Hz	T_p sec	θ_p deg	θ_0 deg	σ	γ	δ	$\Delta\theta$ deg	A
950211	2002	2.31	0.064	15.6	72	74	0.56	1.24	5.50	29	0.19
950211	2303	2.12	0.064	15.6	72	74	0.52	1.66	6.54	23	0.18
950212	0202	2.00	0.064	15.6	68	74	0.54	1.76	6.08	19	0.52
950212	0503	1.90	0.064	15.6	70	75	0.58	1.72	5.52	19	0.42
950212	0802	1.90	0.064	15.6	70	73	0.56	1.59	5.98	19	0.16
950212	1101	1.82	0.064	15.6	70	75	0.61	1.18	4.32	30	0.21
950212	1403	1.73	0.064	15.6	64	72	0.61	1.94	4.97	23	0.46
950212	1724	1.61	0.074	13.6	62	71	0.63	2.23	4.76	24	0.73
950212	2003	1.58	0.074	13.6	64	75	0.67	1.54	3.95	36	0.61
950212	2302	1.51	0.074	13.6	66	77	0.65	1.39	4.06	37	0.44
950213	0203	1.40	0.074	13.6	68	78	0.69	1.47	3.64	38	0.54
950213	0456	1.36	0.074	13.6	64	80	0.76	1.48	3.15	53	1.18
950213	0803	1.24	0.074	13.6	66	93	0.85	0.83	2.15	86	1.38
950213	1055	1.19	0.074	13.6	64	93	0.84	0.81	2.12	86	1.39
950213	1403	1.23	0.074	13.6	56	88	0.86	1.06	2.16	90	1.48
950213	1651	1.10	0.074	13.6	58	106	0.92	0.37	1.75	100	0.61
950213	2003	1.07	0.064	15.6	174	119	0.92	-0.20	1.64	104	-0.47
950213	2303	1.13	0.064	15.6	176	114	0.93	0.09	1.66	103	0.23
950214	0203	1.12	0.064	15.6	44	108	0.93	0.22	1.62	105	0.48
950214	0502	1.15	0.074	13.6	42	93	0.93	0.56	1.73	108	0.55
950214	0944	1.45	0.074	13.6	44	73	0.89	1.91	2.68	78	1.67
950214	1123	1.54	0.074	13.6	48	71	0.85	2.16	3.02	62	1.50
950214	1356	1.76	0.083	12.0	44	61	0.72	2.62	4.23	35	0.95
950214	1707	1.72	0.074	13.6	42	61	0.73	2.29	4.09	45	0.95
950214	2002	1.70	0.074	13.6	40	65	0.76	2.04	3.64	48	0.72
950214	2302	1.65	0.074	13.6	44	73	0.77	1.73	3.31	53	0.47
950215	0205	1.94	0.123	8.2	48	68	0.65	2.17	4.73	37	0.45
950215	0502	1.79	0.123	8.2	46	66	0.72	2.19	4.00	46	1.13
950215	0802	1.74	0.083	12.0	50	71	0.72	1.81	3.78	52	1.27
950215	1102	1.81	0.132	7.6	50	69	0.71	1.73	3.89	48	0.98
950215	1402	1.74	0.123	8.2	42	69	0.70	1.43	3.69	48	0.28
950215	1702	1.79	0.132	7.6	48	70	0.69	1.21	3.47	52	0.68
950215	2002	1.50	0.074	13.6	50	76	0.79	1.13	2.95	60	0.44
950215	2301	1.60	0.132	7.6	26	75	0.78	0.68	2.61	69	0.08
950216	0203	1.57	0.132	7.6	48	69	0.70	1.42	3.56	53	0.93
950216	0452	1.49	0.132	7.6	48	72	0.75	1.15	2.93	63	0.82
950216	0803	1.41	0.132	7.6	46	71	0.82	0.74	2.40	76	0.64
950216	1103	1.16	0.083	12.0	50	85	0.84	0.69	2.39	73	0.34
950216	1403	1.19	0.083	12.0	40	91	0.85	0.41	2.17	79	-0.11
950216	1702	1.19	0.093	10.7	106	91	0.81	0.29	2.21	71	-0.47
950216	2002	1.10	0.083	12.0	114	97	0.86	0.12	2.14	78	-0.16
950216	2302	0.96	0.083	12.0	110	104	0.80	0.31	2.47	66	-0.06
950217	0202	0.93	0.083	12.0	108	97	0.81	0.41	2.41	67	-0.30
950217	0503	0.96	0.093	10.7	46	88	0.80	0.67	2.38	70	0.01
950217	0803	1.02	0.103	9.7	40	87	0.86	0.64	2.18	80	0.09
950217	1102	1.08	0.093	10.7	44	76	0.80	1.34	2.87	68	0.84
950217	1404	1.15	0.093	10.7	44	76	0.77	1.23	2.92	64	0.78
950217	1704	1.22	0.162	6.2	42	67	0.68	1.25	3.57	49	0.33
950217	2003	1.20	0.162	6.2	48	68	0.72	1.06	3.36	52	0.33
950217	2252	1.08	0.162	6.2	54	72	0.72	1.29	3.48	48	0.57
950218	0152	1.05	0.074	13.6	56	72	0.70	1.85	4.26	37	0.35
950218	0455	1.10	0.083	12.0	68	71	0.68	1.52	4.26	37	0.13
950218	0803	1.06	0.083	12.0	66	68	0.64	1.40	4.64	38	0.11

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Table A1 (Continued)

Date	Time GMT	H_{mo} m	f_p Hz	T_p sec	θ_p deg	θ_0 deg	σ	γ	δ	$\Delta\theta$ deg	A
950218	1102	1.09	0.074	13.6	72	76	0.59	1.47	5.40	27	0.16
950218	1402	1.32	0.083	12.0	70	74	0.55	1.57	6.02	26	0.13
950218	1702	1.34	0.162	6.2	70	71	0.52	1.36	6.52	25	0.05
950218	2002	1.47	0.083	12.0	68	72	0.48	1.13	7.04	23	0.20
950218	2303	1.59	0.074	13.6	68	71	0.45	1.40	8.22	20	0.23
950219	0203	1.80	0.083	12.0	68	72	0.43	1.25	8.97	21	0.22
950219	0503	2.08	0.083	12.0	72	73	0.39	1.11	10.33	18	0.07
950219	0803	2.26	0.083	12.0	68	71	0.38	1.06	9.76	19	0.20
950219	1102	2.11	0.083	12.0	68	73	0.41	0.88	8.52	23	0.35
950219	1403	2.10	0.083	12.0	68	75	0.45	1.05	6.97	26	0.29
950219	1703	1.93	0.083	12.0	70	73	0.44	0.89	7.87	23	0.12
950219	2002	1.79	0.083	12.0	74	77	0.42	0.67	7.74	23	0.12
950219	2303	1.78	0.083	12.0	72	78	0.43	0.81	7.55	25	0.20
950220	0201	1.89	0.083	12.0	72	79	0.44	0.80	7.70	25	0.28
950220	0503	1.98	0.083	12.0	74	78	0.41	0.79	8.17	22	0.20
950220	0803	2.00	0.083	12.0	72	76	0.39	0.98	9.47	21	0.19
950220	1103	1.98	0.083	12.0	70	76	0.43	1.28	8.96	21	0.36
950220	1356	2.02	0.083	12.0	68	75	0.43	0.56	6.67	28	0.33
950220	1702	2.26	0.083	12.0	70	76	0.40	0.56	7.55	24	0.35
950221	0812	2.05	0.083	12.0	76	77	0.42	0.66	8.07	22	0.04
950221	1054	1.91	0.083	12.0	76	80	0.44	0.80	7.84	23	0.20
950221	1403	2.14	0.083	12.0	74	81	0.42	0.57	7.01	26	0.24
950221	1634	2.31	0.083	12.0	70	79	0.44	0.23	6.10	31	0.11
950221	2003	2.16	0.083	12.0	80	78	0.42	0.31	7.24	25	-0.04
950221	2303	2.01	0.083	12.0	74	78	0.42	0.62	7.37	24	0.20
950222	0203	1.89	0.083	12.0	72	78	0.44	0.67	6.99	27	0.14
950222	0502	1.91	0.083	12.0	76	78	0.49	0.54	5.59	31	0.10
950222	0802	1.81	0.083	12.0	80	78	0.48	0.52	5.51	30	-0.06
950222	1413	1.81	0.093	10.7	74	76	0.51	0.57	5.43	29	0.05
950222	1704	1.71	0.093	10.7	76	75	0.51	0.64	5.69	28	-0.09
950222	2002	1.68	0.083	12.0	78	77	0.51	0.63	5.79	27	-0.06
950222	2302	1.69	0.083	12.0	76	77	0.52	0.98	5.39	29	0.08
950223	0202	1.80	0.083	12.0	72	76	0.50	0.87	5.45	29	0.14
950223	0503	1.70	0.083	12.0	70	78	0.52	0.60	5.30	33	0.08
950223	0802	1.69	0.083	12.0	72	76	0.51	0.79	5.72	28	0.17
950223	1100	1.60	0.083	12.0	68	75	0.53	1.13	5.40	29	0.32
950223	1403	1.69	0.093	10.7	72	74	0.52	0.71	5.14	31	0.02
950223	1703	1.47	0.093	10.7	70	75	0.57	0.81	4.56	36	0.11
950223	2003	1.48	0.093	10.7	72	75	0.57	0.81	4.46	37	0.08
950223	2303	1.32	0.093	10.7	68	75	0.57	0.93	4.52	35	0.12
950224	0203	1.23	0.093	10.7	78	75	0.62	0.84	3.95	41	-0.05
950224	0503	1.18	0.093	10.7	64	75	0.63	1.09	3.94	41	0.20
950224	0803	1.08	0.093	10.7	56	76	0.68	1.09	3.59	46	0.32
950224	1056	1.05	0.093	10.7	56	78	0.69	1.19	3.49	49	0.43
950224	1402	0.98	0.103	9.7	54	80	0.71	1.14	3.23	51	0.32
950224	1705	0.90	0.103	9.7	58	84	0.74	0.82	2.73	58	0.28
950224	2302	0.92	0.103	9.7	92	87	0.74	0.79	2.79	53	-0.06
950225	0202	0.96	0.074	13.6	74	83	0.70	1.29	3.41	42	0.40
950225	0502	1.22	0.074	13.6	68	78	0.65	1.68	4.16	32	0.33
950225	0802	1.46	0.083	12.0	96	84	0.56	0.87	4.76	35	-0.13
950225	1102	1.55	0.083	12.0	86	82	0.55	1.17	4.96	31	-0.06
950225	1402	1.37	0.083	12.0	70	85	0.64	1.36	3.78	37	0.33
950225	1701	1.35	0.083	12.0	68	87	0.70	1.20	3.08	43	0.37

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Table A1 (Continued)

Date	Time GMT	H_{mo} m	f_p Hz	T_p sec	θ_p deg	θ_0 deg	σ	γ	δ	$\Delta\theta$ deg	A
950225	2002	1.30	0.093	10.7	68	93	0.76	0.98	2.63	57	0.55
950225	2302	1.39	0.093	10.7	72	97	0.79	0.77	2.22	84	1.13
950226	0202	1.34	0.093	10.7	64	103	0.84	0.57	1.85	94	1.11
950226	0502	1.24	0.064	15.6	160	107	0.86	0.29	1.67	95	0.96
950226	0801	1.25	0.064	15.6	170	115	0.88	0.01	1.67	96	0.52
950226	1102	1.26	0.064	15.6	168	121	0.86	-0.18	1.69	93	-0.23
950226	2024	1.29	0.064	15.6	176	116	0.88	0.06	1.67	98	0.53
950226	2302	1.40	0.064	15.6	174	126	0.84	-0.38	1.87	86	-0.65
950227	0202	1.35	0.064	15.6	174	126	0.88	-0.40	1.73	94	-0.56
950227	0501	1.29	0.074	13.6	172	123	0.88	-0.44	1.82	94	-0.64
950227	0827	1.34	0.064	15.6	172	126	0.90	-0.58	1.82	97	-0.86
950227	1103	1.41	0.064	15.6	174	118	0.92	-0.31	1.65	107	-0.31
950227	1403	1.41	0.074	13.6	42	108	0.94	-0.01	1.48	112	0.00
950227	1709	1.36	0.074	13.6	42	110	0.94	-0.01	1.52	114	0.18
950227	2002	1.35	0.074	13.6	172	109	0.92	0.03	1.62	110	0.23
950227	2302	1.33	0.074	13.6	42	108	0.92	-0.02	1.58	109	-0.11
950228	0503	1.17	0.074	13.6	164	126	0.87	-0.54	1.98	86	-0.59
950228	0802	1.16	0.074	13.6	170	112	0.89	-0.02	1.70	99	0.13
950228	1402	1.15	0.074	13.6	44	102	0.91	0.19	1.72	104	0.05
950228	1703	1.18	0.074	13.6	46	109	0.92	0.03	1.58	110	0.04
950228	2000	1.10	0.074	13.6	170	119	0.88	-0.17	1.81	92	0.12
950228	2301	1.12	0.074	13.6	164	119	0.84	-0.29	1.91	86	-0.27
950301	0202	1.06	0.074	13.6	168	116	0.88	-0.24	1.82	93	0.00
950301	0502	1.08	0.074	13.6	156	121	0.85	-0.47	2.03	82	-0.53
950301	0802	1.03	0.074	13.6	166	118	0.86	-0.18	1.91	88	0.00
950301	1102	1.11	0.064	15.6	164	114	0.83	-0.13	2.03	83	0.19
950301	1458	1.05	0.064	15.6	76	112	0.82	0.18	1.93	86	0.63
950301	1702	1.04	0.064	15.6	74	112	0.80	0.19	2.02	81	0.46
950301	2002	1.10	0.064	15.6	74	110	0.78	0.23	2.04	80	0.55
950301	2302	1.22	0.064	15.6	74	104	0.76	0.53	2.32	73	0.88
950302	0202	1.27	0.074	13.6	84	103	0.72	0.70	2.66	60	1.19
950302	0502	1.46	0.074	13.6	80	99	0.68	0.88	2.87	53	1.10
950302	0759	1.37	0.074	13.6	84	98	0.68	0.86	3.07	51	0.79
950302	1100	1.64	0.074	13.6	80	98	0.69	1.43	4.00	41	0.70
950302	1402	1.66	0.074	13.6	78	95	0.61	1.32	4.72	36	0.60
950302	1703	1.60	0.074	13.6	82	97	0.59	1.01	4.04	34	0.46
950302	2000	1.62	0.074	13.6	80	97	0.62	0.71	3.58	42	0.35
950302	2258	1.73	0.074	13.6	80	94	0.57	0.75	4.01	38	0.45
950303	0200	1.54	0.074	13.6	82	96	0.57	0.75	4.01	37	0.38
950303	0500	1.48	0.074	13.6	80	100	0.63	0.71	3.28	45	0.48
950303	0753	1.43	0.083	12.0	78	97	0.65	0.75	3.18	46	0.47
950303	1049	1.49	0.083	12.0	74	97	0.64	0.76	3.17	47	0.50
950303	1349	1.44	0.064	15.6	78	92	0.64	0.98	3.50	41	0.52
950303	1701	1.45	0.074	13.6	76	89	0.59	0.93	3.88	36	0.55
950303	1948	1.38	0.074	13.6	68	91	0.67	0.85	3.10	50	0.56
950303	2249	1.31	0.074	13.6	74	94	0.65	0.73	3.23	49	0.68
950304	0149	1.33	0.074	13.6	80	89	0.64	0.77	3.52	39	0.40
950304	0449	1.34	0.074	13.6	74	86	0.67	0.77	3.17	47	0.51
950304	0749	1.35	0.074	13.6	74	85	0.69	0.76	2.91	52	0.60
950304	1049	1.24	0.054	18.5	78	87	0.74	0.48	2.60	62	0.18
950304	1349	1.24	0.054	18.5	78	84	0.70	0.95	3.17	46	0.45
950304	1659	1.25	0.054	18.5	76	84	0.68	0.85	3.11	50	0.51
950304	1959	1.15	0.054	18.5	78	85	0.70	0.87	3.15	49	0.48

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Table A1 (Continued)

Date	Time GMT	H_{mo} m	f_p Hz	T_p sec	θ_p deg	θ_0 deg	σ	γ	δ	$\Delta\theta$ deg	A
950304	2259	1.15	0.054	18.5	74	88	0.75	0.82	2.91	60	0.83
950305	0159	1.21	0.064	15.6	70	82	0.63	1.28	4.50	32	0.77
950305	0459	1.30	0.064	15.6	76	82	0.61	0.92	4.12	33	0.27
950305	0759	1.08	0.064	15.6	72	83	0.70	1.30	3.36	43	0.83
950305	1059	1.07	0.064	15.6	74	92	0.76	0.77	2.59	62	1.13
950305	1359	1.12	0.064	15.6	74	106	0.78	0.01	1.99	78	0.14
950305	1659	1.15	0.064	15.6	134	112	0.77	-0.20	2.05	74	-0.54
950305	1959	1.16	0.142	7.0	130	114	0.74	-0.53	2.43	62	-1.13
950305	2259	1.15	0.162	6.2	126	107	0.77	-0.48	2.45	65	-1.04
950306	0159	1.97	0.142	7.0	66	68	0.68	0.64	3.01	51	0.17
950306	0459	2.34	0.132	7.6	36	54	0.61	1.18	3.66	41	0.23
950306	0759	2.07	0.132	7.6	24	51	0.63	1.52	3.73	39	0.29
950306	1101	1.77	0.132	7.6	34	55	0.67	1.43	3.19	50	1.11
950306	1359	1.58	0.142	7.0	34	59	0.71	1.21	2.80	64	1.41
950306	1659	1.74	0.123	8.2	34	53	0.66	1.46	3.33	49	1.21
950306	1959	2.08	0.142	7.0	26	52	0.61	1.46	3.84	40	0.41
950306	2300	1.91	0.132	7.6	38	62	0.64	0.81	2.85	59	0.95
950307	0159	1.80	0.074	13.6	40	71	0.62	0.46	2.85	59	0.35
950307	0453	1.89	0.074	13.6	40	65	0.60	0.62	2.94	56	0.95
950307	0759	1.97	0.074	13.6	40	68	0.62	0.50	2.85	56	0.34
950307	1057	1.96	0.083	12.0	38	73	0.65	0.19	2.45	63	-0.41
950307	1401	2.03	0.074	13.6	94	81	0.61	-0.08	2.89	55	-0.75
950307	1723	2.04	0.074	13.6	90	81	0.59	-0.11	3.13	49	-0.69
950307	1959	2.08	0.074	13.6	92	83	0.60	-0.12	3.18	48	-0.69
950307	2259	1.85	0.074	13.6	92	86	0.62	-0.10	3.09	50	-0.51
950308	0159	1.84	0.074	13.6	92	87	0.59	0.03	3.54	40	-0.24
950308	0459	1.63	0.083	12.0	84	89	0.60	0.22	3.85	39	0.11
950308	0756	1.49	0.054	18.5	80	91	0.64	0.23	3.17	46	0.33
950308	1100	1.51	0.054	18.5	80	93	0.60	0.18	3.74	38	0.24
950308	1357	1.54	0.054	18.5	80	97	0.62	0.50	3.77	41	0.42
950308	1706	1.49	0.054	18.5	82	95	0.58	0.79	4.62	33	0.54
950308	1955	1.36	0.054	18.5	80	99	0.62	0.70	4.09	41	0.35
950308	2255	1.37	0.064	15.6	78	99	0.62	0.50	3.70	43	0.24
950309	0155	1.45	0.064	15.6	80	101	0.57	0.77	4.42	35	-0.08
950309	0755	1.58	0.064	15.6	114	104	0.49	0.58	5.42	31	-0.35
950309	1055	1.63	0.064	15.6	112	104	0.51	0.39	4.97	34	-0.75
950309	1348	1.87	0.064	15.6	108	105	0.46	0.33	5.89	26	-0.32
950309	1655	1.87	0.064	15.6	110	108	0.50	0.24	4.79	30	-0.34
950309	1952	2.15	0.074	13.6	112	106	0.49	0.42	5.41	29	-0.39
950309	2255	2.23	0.093	10.7	106	106	0.51	0.57	5.69	29	-0.16
950310	0155	2.68	0.074	13.6	108	105	0.54	0.75	6.14	31	-0.23
950310	0455	3.52	0.074	13.6	82	94	0.63	1.89	6.42	32	0.83
950310	0755	3.95	0.074	13.6	84	97	0.70	2.41	5.57	33	0.87
950310	1044	3.85	0.074	13.6	86	112	0.92	2.39	3.19	71	0.93
950310	1354	4.18	0.074	13.6	88	116	0.90	1.83	3.06	73	0.87
950310	1955	3.97	0.074	13.6	82	114	0.73	0.99	3.10	60	0.69
950310	2254	3.64	0.074	13.6	84	110	0.73	0.91	2.90	62	0.95
950311	0155	3.73	0.074	13.6	80	103	0.67	1.14	3.60	48	0.77
950311	0455	3.91	0.074	13.6	78	98	0.64	1.09	3.63	47	0.99
950311	0754	4.18	0.074	13.6	80	95	0.55	1.27	4.68	31	0.78
950311	1055	4.00	0.074	13.6	80	94	0.59	1.35	4.24	34	0.78
950311	1354	4.06	0.064	15.6	78	93	0.60	1.36	4.18	37	1.06
950311	1654	4.10	0.074	13.6	80	92	0.55	1.42	4.78	29	0.96

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Table A1 (Continued)

Date	Time GMT	H_{mo} m	f_p Hz	T_p sec	θ_p deg	θ_0 deg	σ	γ	δ	$\Delta\theta$ deg	A
950311	1954	4.09	0.074	13.6	82	95	0.58	1.48	4.64	29	0.93
950311	2255	3.96	0.064	15.6	78	97	0.60	1.22	4.02	39	0.91
950312	0155	4.02	0.074	13.6	80	93	0.56	1.40	4.71	32	0.73
950312	0455	4.10	0.074	13.6	80	91	0.50	1.54	5.80	25	0.65
950312	0754	4.20	0.074	13.6	82	93	0.51	1.06	5.49	29	0.47
950312	1048	3.87	0.074	13.6	84	93	0.47	0.89	5.70	27	0.38
950312	1355	3.78	0.074	13.6	82	94	0.48	1.06	5.67	28	0.57
950312	1648	3.63	0.074	13.6	80	90	0.50	1.21	5.45	28	0.65
950312	1955	3.69	0.074	13.6	86	93	0.47	0.73	5.87	26	0.34
950312	2255	3.65	0.074	13.6	86	92	0.47	0.61	5.67	27	0.38
950313	0155	3.29	0.074	13.6	80	90	0.51	0.83	5.07	31	0.42
950313	0455	3.27	0.074	13.6	78	89	0.53	0.71	4.64	35	0.18
950313	0748	3.34	0.074	13.6	82	88	0.47	0.71	5.50	28	0.44
950313	1115	2.93	0.074	13.6	84	92	0.49	0.71	5.52	28	0.32
950313	1355	2.36	0.074	13.6	84	93	0.54	1.09	5.19	27	0.62
950313	1655	2.40	0.083	12.0	76	88	0.54	0.99	4.84	35	0.55
950313	1954	2.82	0.083	12.0	74	84	0.50	1.08	5.38	28	0.49
950313	2255	3.33	0.083	12.0	72	79	0.43	1.31	7.22	20	0.54
950314	0155	2.92	0.083	12.0	78	83	0.46	0.83	6.14	24	0.12
950314	0455	2.82	0.083	12.0	78	82	0.47	0.76	6.15	25	0.21
950314	0755	2.89	0.083	12.0	76	82	0.45	0.97	6.93	23	0.34
950314	1054	3.65	0.064	15.6	78	82	0.38	0.62	8.53	18	0.24
950314	1354	3.80	0.074	13.6	78	82	0.39	0.70	8.77	18	0.31
950314	1655	4.10	0.064	15.6	76	79	0.39	0.57	8.67	16	0.26
950314	1955	4.04	0.074	13.6	74	79	0.41	0.37	7.08	20	0.28
950314	2254	3.96	0.064	15.6	72	79	0.42	0.46	6.64	21	0.38
950315	0155	3.76	0.074	13.6	80	82	0.38	0.37	8.57	17	0.23
950315	0455	3.54	0.074	13.6	80	81	0.40	0.24	7.82	17	0.11
950315	0755	3.18	0.074	13.6	76	80	0.45	0.33	6.35	24	0.25
950315	1055	3.42	0.074	13.6	74	78	0.43	0.42	6.91	21	0.35
950315	1354	3.20	0.074	13.6	78	76	0.46	-0.12	5.81	23	-0.01
950315	1655	2.91	0.083	12.0	74	71	0.51	-0.04	4.67	30	-0.19
950315	1956	3.17	0.074	13.6	74	70	0.55	-0.16	3.82	37	-0.30
950315	2255	3.25	0.113	8.9	78	70	0.53	-0.14	3.77	38	-0.41
950316	0155	2.96	0.083	12.0	84	73	0.55	-0.08	3.87	37	-0.51
950316	0455	2.90	0.123	8.2	80	66	0.57	0.07	3.63	45	-0.48
950316	0755	2.99	0.123	8.2	72	62	0.56	0.18	3.75	44	-0.39
950316	1059	2.93	0.093	10.7	74	65	0.55	0.18	3.80	43	-0.35
950316	1355	2.87	0.113	8.9	76	67	0.56	0.15	3.80	44	-0.46
950316	1645	2.80	0.113	8.9	84	68	0.60	0.07	3.47	47	-0.65
950316	1956	2.86	0.113	8.9	86	64	0.61	0.11	3.03	56	-0.56
950316	2256	2.89	0.123	8.2	78	62	0.58	0.15	3.23	52	-0.61
950317	0156	2.79	0.113	8.9	86	65	0.59	0.20	3.15	52	-0.47
950317	0456	2.62	0.123	8.2	74	65	0.56	0.31	3.84	46	-0.35
950317	0756	2.33	0.123	8.2	84	63	0.60	0.39	3.63	51	-0.36
950317	1105	2.46	0.093	10.7	86	66	0.58	0.31	3.75	48	-0.35
950317	1352	2.24	0.113	8.9	88	70	0.61	0.45	3.42	50	-0.49
950317	1652	2.07	0.132	7.6	24	65	0.66	0.54	3.21	57	-0.48
950317	1952	1.89	0.083	12.0	86	66	0.67	0.51	3.20	56	-0.52
950317	2252	1.81	0.083	12.0	78	70	0.64	0.71	3.51	47	-0.22
950318	0152	1.72	0.083	12.0	86	74	0.61	0.78	3.86	44	-0.18
950318	0452	1.58	0.162	6.2	86	73	0.64	0.74	3.60	46	-0.27
950318	0752	1.50	0.162	6.2	82	77	0.70	0.77	3.19	50	-0.15

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Table A1 (Continued)

Date	Time GMT	H_{mo} m	f_p Hz	T_p sec	θ_p deg	θ_0 deg	σ	γ	δ	Δθ deg	*A*
950318	1052	1.51	0.074	13.6	88	81	0.70	0.75	3.37	46	-0.17
950318	1349	1.59	0.074	13.6	78	81	0.62	0.96	3.99	38	0.15
950318	1653	1.88	0.083	12.0	74	80	0.56	1.24	4.81	29	0.20
950318	1952	2.01	0.083	12.0	80	78	0.56	1.11	5.09	27	-0.12
950318	2252	2.09	0.083	12.0	76	78	0.51	0.83	6.16	25	0.08
950319	0145	2.30	0.083	12.0	80	78	0.52	0.84	5.26	29	-0.06
950319	0452	2.35	0.083	12.0	76	77	0.53	1.16	5.52	26	-0.05
950319	0752	2.30	0.083	12.0	78	76	0.53	0.78	5.46	28	-0.13
950319	1052	2.35	0.064	15.6	78	76	0.54	0.87	5.22	30	-0.12
950319	1352	2.72	0.064	15.6	76	77	0.50	0.88	5.90	24	0.06
950319	1652	3.08	0.074	13.6	78	77	0.49	0.54	5.49	27	-0.04
950319	1952	2.98	0.074	13.6	78	79	0.53	0.91	5.45	25	0.00
950319	2252	3.20	0.074	13.6	76	77	0.48	0.96	6.77	20	-0.01
950320	0152	3.59	0.074	13.6	78	78	0.46	0.90	6.78	21	0.01
950320	0453	3.22	0.074	13.6	78	78	0.51	0.78	5.48	26	-0.08
950320	0752	2.94	0.074	13.6	78	76	0.56	0.74	4.73	30	-0.16
950320	1119	2.65	0.083	12.0	78	73	0.59	0.87	4.45	37	-0.22
950320	1353	2.56	0.074	13.6	80	79	0.59	1.06	4.56	31	-0.06
950320	1642	2.35	0.074	13.6	82	87	0.62	1.11	4.11	27	0.12
950321	0753	3.28	0.074	13.6	62	74	0.55	1.53	4.94	31	0.41
950321	1053	3.82	0.074	13.6	54	70	0.55	0.88	4.57	38	0.25
950321	1352	4.18	0.074	13.6	64	67	0.61	1.17	4.30	33	0.17
950321	1653	4.21	0.074	13.6	72	68	0.53	0.65	4.67	34	-0.27
950321	1950	4.13	0.074	13.6	70	67	0.55	0.82	4.56	36	-0.04
950321	2252	4.44	0.064	15.6	68	70	0.53	0.78	4.84	31	-0.02
950322	0452	3.95	0.074	13.6	72	71	0.57	0.91	4.21	39	-0.11
950322	0752	3.58	0.074	13.6	62	70	0.59	1.01	4.34	39	0.18
950322	1053	3.25	0.074	13.6	52	70	0.62	1.25	4.17	41	0.33
950322	1416	3.11	0.074	13.6	64	74	0.61	1.19	4.36	38	0.18
950322	1653	3.31	0.074	13.6	72	76	0.66	0.97	3.41	47	0.07
950322	1953	3.53	0.074	13.6	84	85	0.73	0.71	2.72	58	0.05
950322	2246	3.47	0.074	13.6	80	88	0.73	0.77	2.77	56	0.30
950323	0152	3.63	0.074	13.6	74	80	0.67	0.90	3.26	45	0.26
950323	0452	3.98	0.074	13.6	74	76	0.62	0.86	3.88	34	0.00
950323	0752	4.69	0.074	13.6	72	71	0.54	0.69	4.47	33	-0.24
950323	1056	4.58	0.064	15.6	66	70	0.58	0.96	4.44	34	0.06
950323	1403	4.78	0.074	13.6	64	69	0.52	0.86	5.18	28	0.10
950323	1653	4.54	0.064	15.6	60	64	0.53	0.99	5.18	30	0.26
950323	1952	4.29	0.064	15.6	62	63	0.53	0.90	4.97	33	0.11
950323	2252	4.09	0.074	13.6	60	63	0.53	1.03	5.13	33	0.21
950324	0152	3.89	0.074	13.6	58	64	0.56	1.05	4.84	35	0.18
950324	0452	3.76	0.074	13.6	54	63	0.55	1.00	4.84	37	0.14
950324	0745	3.85	0.074	13.6	52	61	0.55	1.04	4.79	37	0.40
950324	1056	3.44	0.074	13.6	56	62	0.54	0.99	4.81	39	0.36
950324	1351	3.30	0.083	12.0	52	60	0.52	1.29	5.42	33	0.54
950324	1652	3.08	0.074	13.6	50	60	0.58	1.00	4.34	45	0.47
950324	1952	3.36	0.074	13.6	44	57	0.53	0.88	4.50	42	0.61
950324	2244	3.46	0.074	13.6	46	55	0.56	0.83	4.34	42	0.40
950325	0152	2.74	0.083	12.0	48	59	0.56	0.84	4.45	43	0.37
950325	0453	2.43	0.074	13.6	38	59	0.58	1.04	4.68	43	0.31
950325	0745	2.45	0.074	13.6	34	58	0.58	1.02	4.28	46	0.55
950325	1052	2.38	0.083	12.0	42	59	0.55	1.10	4.70	44	0.92
950325	1352	2.23	0.093	10.7	36	55	0.55	1.11	4.90	42	0.67

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Table A1 (Continued)

Date	Time GMT	H_{mo} m	f_p Hz	T_p sec	θ_p deg	θ_0 deg	σ	γ	δ	$\Delta\theta$ deg	A
950325	1652	2.14	0.103	9.7	30	57	0.61	0.99	4.28	47	0.37
950325	1952	2.49	0.093	10.7	50	54	0.53	1.13	5.36	35	0.20
950325	2252	2.19	0.093	10.7	34	55	0.56	1.18	4.96	41	0.57
950326	0152	2.06	0.093	10.7	40	52	0.54	1.44	5.62	36	0.62
950326	0452	1.99	0.103	9.7	32	52	0.55	1.41	5.23	39	0.71
950326	0752	2.04	0.103	9.7	44	54	0.53	1.26	5.50	35	0.61
950326	1052	2.23	0.103	9.7	34	48	0.50	1.43	5.96	31	0.54
950326	1352	2.36	0.103	9.7	36	47	0.49	1.48	6.63	29	0.35
950326	1652	1.93	0.093	10.7	46	51	0.53	1.45	5.89	32	0.36
950326	1946	1.63	0.093	10.7	42	50	0.56	2.14	6.45	27	0.60
950326	2249	1.50	0.103	9.7	40	51	0.60	2.25	5.64	30	1.05
950327	0152	1.42	0.103	9.7	36	52	0.62	1.64	4.88	43	1.09
950327	0452	1.53	0.103	9.7	40	50	0.61	1.70	5.30	36	0.53
950327	0752	1.46	0.113	8.9	28	50	0.62	1.51	4.84	43	0.73
950327	1106	1.42	0.103	9.7	36	52	0.60	1.61	5.17	40	0.70
950327	1352	1.34	0.132	7.6	26	52	0.66	1.43	4.15	52	0.85
950327	1652	1.26	0.123	8.2	24	53	0.66	1.63	4.44	45	0.33
950327	1952	1.08	0.113	8.9	46	59	0.69	2.06	4.52	40	0.54
950327	2253	1.06	0.123	8.2	46	65	0.69	2.08	4.19	40	0.87
950328	0153	1.20	0.083	12.0	44	66	0.69	1.74	4.01	45	0.46
950328	0453	1.22	0.083	12.0	36	64	0.67	1.82	4.30	43	0.04
950328	0753	1.20	0.152	6.6	44	63	0.64	1.70	4.82	38	0.19
950328	1052	1.24	0.064	15.6	72	68	0.72	1.68	3.88	45	0.00
950328	1353	1.29	0.064	15.6	74	74	0.71	1.38	3.75	43	0.01
950328	1652	1.15	0.064	15.6	66	71	0.74	2.26	3.88	38	0.20
950328	1952	1.03	0.074	13.6	74	81	0.79	1.63	3.18	46	0.25
950328	2252	1.11	0.074	13.6	64	74	0.73	1.79	3.76	39	0.33
950329	0152	1.17	0.074	13.6	66	74	0.69	2.00	4.31	33	0.25
950329	0453	1.15	0.074	13.6	76	79	0.71	1.51	3.74	37	0.03
950329	0752	1.13	0.074	13.6	74	82	0.75	1.55	3.50	38	0.28
950329	1052	1.20	0.074	13.6	76	78	0.71	1.67	4.03	35	-0.13
950329	1349	1.12	0.083	12.0	76	77	0.74	1.63	3.61	41	-0.08
950329	1649	1.07	0.083	12.0	72	76	0.75	1.65	3.56	42	0.15
950329	1952	1.04	0.083	12.0	84	84	0.77	1.38	3.23	43	0.01
950329	2252	0.93	0.083	12.0	78	86	0.80	1.49	3.00	44	0.43
950330	0152	0.94	0.083	12.0	78	83	0.75	1.56	3.35	39	0.12
950330	0453	0.86	0.083	12.0	72	86	0.81	1.45	2.83	57	0.78
950330	0752	0.85	0.093	10.7	72	81	0.80	1.79	3.26	44	0.43
950330	1052	0.86	0.093	10.7	82	88	0.82	1.39	2.89	49	0.33
950330	1352	0.88	0.093	10.7	82	87	0.78	1.36	3.09	42	0.11
950330	1653	0.81	0.093	10.7	78	86	0.82	1.46	3.03	47	0.38
950330	1952	0.85	0.093	10.7	76	89	0.86	1.41	2.59	71	1.10
950330	2252	0.84	0.093	10.7	78	90	0.90	1.05	2.33	84	0.84
950331	0152	0.86	0.103	9.7	84	89	0.86	1.16	2.51	70	0.54
950331	0452	0.87	0.103	9.7	82	88	0.78	1.15	2.90	45	0.43
950331	0752	0.81	0.103	9.7	86	88	0.88	0.78	2.32	79	0.37
950331	1052	0.74	0.103	9.7	80	89	0.87	1.06	2.48	74	0.77
950331	1352	0.75	0.103	9.7	86	94	0.81	0.88	2.58	63	0.71
950331	1658	0.78	0.113	8.9	86	88	0.79	0.87	2.85	53	0.27
950331	1952	0.75	0.113	8.9	86	92	0.83	0.95	2.61	63	0.73
950331	2252	0.77	0.113	8.9	86	92	0.82	0.75	2.52	69	0.60
950401	0153	0.73	0.113	8.9	90	94	0.77	0.69	2.84	56	0.27
950401	0453	0.79	0.083	12.0	88	91	0.76	0.65	2.67	58	0.31

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Table A1 (Continued)

Date	Time GMT	H_{mo} m	f_p Hz	T_p sec	θ_p deg	θ_0 deg	σ	γ	δ	$\Delta\theta$ deg	A
950401	0752	1.03	0.162	6.2	84	69	0.73	0.58	3.05	58	-0.53
950401	1052	1.38	0.162	6.2	18	55	0.68	0.73	3.40	57	0.17
950401	1353	1.59	0.162	6.2	76	63	0.58	0.52	4.07	45	-0.41
950401	1652	2.68	0.142	7.0	20	53	0.52	0.31	3.41	49	-0.28
950401	1952	3.43	0.123	8.2	72	52	0.50	0.23	3.56	46	-0.48
950401	2253	3.99	0.113	8.9	70	52	0.50	0.19	3.52	45	-0.40
950402	0153	3.86	0.074	13.6	54	62	0.44	0.23	4.74	32	0.03
950402	0452	3.75	0.103	9.7	-6	34	1.21	1.39	1.85	143	1.64
950402	0753	3.70	0.074	13.6	70	66	0.42	0.10	5.88	26	-0.15
950402	1052	3.23	0.093	10.7	62	63	0.45	0.34	5.54	30	0.05
950402	1353	3.45	0.074	13.6	62	59	0.48	0.39	4.90	37	-0.31
950402	1653	3.33	0.074	13.6	70	61	0.51	-0.02	4.40	38	-0.40
950402	1953	3.00	0.074	13.6	74	63	0.55	-0.09	4.21	42	-0.70
950402	2252	2.79	0.074	13.6	66	61	0.51	0.08	5.20	29	-0.39
950403	0152	2.68	0.074	13.6	70	65	0.49	0.58	5.88	29	-0.31
950403	0453	2.69	0.074	13.6	64	68	0.49	0.77	5.50	33	0.28
950403	0752	2.65	0.074	13.6	58	64	0.46	1.03	6.55	28	0.27
950403	1121	2.30	0.074	13.6	60	64	0.53	1.27	6.29	30	0.23
950403	1356	2.38	0.083	12.0	56	63	0.59	1.56	5.30	38	0.25
950403	1653	2.25	0.083	12.0	64	65	0.58	1.03	4.79	41	0.04
950403	1952	1.98	0.083	12.0	62	67	0.65	1.55	4.50	38	0.09
950403	2249	1.83	0.083	12.0	54	67	0.71	2.03	4.12	39	0.31
950404	0153	1.71	0.083	12.0	52	69	0.70	1.91	4.05	40	0.25
950404	0452	1.65	0.083	12.0	50	75	0.74	1.58	3.41	47	0.22
950404	0752	1.64	0.064	15.6	56	75	0.81	1.59	3.01	50	0.18
950405	1047	1.82	0.083	12.0	70	72	0.57	1.55	5.60	27	0.01
950405	1347	1.97	0.083	12.0	76	72	0.57	1.21	5.41	30	-0.31
950405	1704	2.07	0.083	12.0	76	72	0.52	1.30	6.17	27	-0.25
950405	1955	1.84	0.083	12.0	80	78	0.54	1.22	5.81	26	-0.25
950405	2255	1.78	0.083	12.0	74	75	0.54	1.44	5.68	28	0.00
950406	0155	1.84	0.083	12.0	78	74	0.56	1.50	5.66	29	-0.27
950406	0455	1.86	0.083	12.0	60	70	0.53	1.47	5.83	31	0.16
950406	0755	1.89	0.093	10.7	64	71	0.52	1.45	5.99	29	0.22
950406	1053	1.70	0.093	10.7	62	73	0.58	1.58	5.15	33	0.14
950406	1353	1.80	0.093	10.7	76	72	0.55	1.27	5.53	32	-0.11
950406	1652	1.73	0.093	10.7	80	71	0.58	1.29	5.08	36	-0.09
950406	1952	1.63	0.083	12.0	62	74	0.57	1.50	5.10	32	0.23
950406	2252	1.55	0.083	12.0	68	76	0.63	1.68	4.67	33	0.14
950407	0153	1.51	0.093	10.7	58	73	0.61	1.73	4.86	33	0.11
950407	0752	1.56	0.093	10.7	60	71	0.60	1.92	4.94	30	0.53
950407	1057	1.70	0.083	12.0	62	71	0.58	2.06	5.60	28	0.36
950407	1352	1.78	0.083	12.0	60	74	0.62	1.30	4.33	37	0.23
950407	1652	1.91	0.064	15.6	60	70	0.59	1.70	5.03	34	0.44
950407	1952	1.91	0.074	13.6	54	67	0.59	2.05	5.53	32	0.56
950407	2252	1.96	0.074	13.6	62	71	0.58	1.91	5.47	30	0.33
950408	0152	1.89	0.083	12.0	68	73	0.63	1.65	4.78	33	0.07
950408	0452	2.12	0.093	10.7	68	68	0.59	1.37	4.85	35	-0.13
950408	0752	2.21	0.074	13.6	62	69	0.52	1.18	5.66	29	0.18
950408	1052	2.69	0.083	12.0	66	68	0.49	0.96	6.08	26	0.05
950408	1352	3.72	0.074	13.6	66	66	0.48	0.57	5.90	25	0.06
950408	1652	4.77	0.074	13.6	70	66	0.65	0.22	3.93	43	-0.15
950408	2252	4.74	0.074	13.6	-8	37	1.28	1.43	1.68	167	1.26

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Table A1 (Continued)

Date	Time GMT	H_{mo} m	f_p Hz	T_p sec	θ_p deg	θ_0 deg	σ	γ	δ	$\Delta\theta$ deg	A
950409	0152	4.45	0.074	13.6	-6	47	1.26	1.06	1.59	163	0.81
950409	0452	4.20	0.074	13.6	66	67	0.68	0.43	3.84	46	0.03
950409	0752	4.16	0.074	13.6	68	65	0.48	0.10	4.89	31	-0.18
950409	1045	4.02	0.064	15.6	72	65	0.46	0.08	5.04	32	-0.20
950409	1352	3.92	0.074	13.6	70	63	0.53	-0.04	4.01	42	-0.43
950409	1652	4.10	0.074	13.6	66	61	0.51	0.13	4.03	42	-0.21
950409	1952	4.28	0.074	13.6	66	62	0.50	0.12	4.49	38	-0.15
950409	2252	4.09	0.103	9.7	66	63	0.49	0.26	5.39	32	-0.21
950410	0152	3.63	0.083	12.0	72	64	0.47	0.18	5.32	34	-0.37
950410	0452	3.38	0.074	13.6	66	67	0.50	0.24	5.05	36	-0.05
950410	0747	3.29	0.083	12.0	68	64	0.51	0.18	4.49	38	-0.14
950410	1054	3.09	0.093	10.7	68	61	0.52	0.20	4.86	39	-0.54
950410	1652	2.69	0.083	12.0	70	62	0.57	0.43	4.86	41	-0.22
950410	1952	2.69	0.083	12.0	64	62	0.54	0.62	5.11	36	-0.12
950410	2245	2.50	0.083	12.0	68	67	0.51	0.54	5.22	34	-0.15
950411	0152	2.46	0.083	12.0	62	69	0.63	0.80	4.34	40	0.38
950411	0452	2.32	0.083	12.0	68	69	0.57	0.93	4.86	38	0.00
950411	0752	2.37	0.132	7.6	46	64	0.54	1.32	5.60	36	0.26
950411	1050	2.19	0.083	12.0	62	65	0.52	1.42	6.29	31	0.07
950411	1348	2.06	0.083	12.0	62	65	0.61	1.42	5.25	37	0.04
950411	1652	2.00	0.142	7.0	68	66	0.64	1.55	4.89	39	-0.18
950411	1952	1.73	0.083	12.0	68	67	0.65	1.65	4.92	36	-0.14
950411	2252	1.64	0.083	12.0	66	69	0.69	1.69	4.21	42	0.09
950412	0152	1.56	0.083	12.0	66	74	0.75	1.95	3.73	41	0.35
950412	0452	1.57	0.083	12.0	74	74	0.76	1.84	3.55	45	0.10
950412	0752	1.44	0.083	12.0	58	77	0.78	1.81	3.48	45	0.34
950412	1051	1.35	0.083	12.0	54	76	0.76	2.15	3.75	43	0.62
950412	1412	1.61	0.074	13.6	50	71	0.78	2.44	3.60	42	0.69
950412	1645	1.52	0.074	13.6	52	71	0.76	2.65	3.90	38	0.87
950412	1952	1.70	0.074	13.6	52	67	0.71	3.12	4.67	30	1.05
950412	2252	1.70	0.074	13.6	48	69	0.80	2.75	3.66	45	1.28
950413	0145	1.77	0.074	13.6	46	66	0.80	2.46	3.54	47	1.35
950413	0452	1.60	0.074	13.6	48	68	0.76	2.43	3.83	42	1.33
950413	0752	1.67	0.083	12.0	48	65	0.76	3.02	4.06	36	1.11
950413	1054	1.96	0.083	12.0	48	60	0.66	3.22	5.43	29	1.01
950413	1345	1.89	0.083	12.0	48	63	0.71	2.56	4.60	39	0.69
950413	1652	1.76	0.083	12.0	72	75	0.70	1.55	3.88	42	0.07
950413	1952	1.63	0.083	12.0	76	77	0.69	1.56	4.13	41	0.06
950413	2252	2.00	0.162	6.2	52	71	0.64	1.08	4.16	43	0.05
950414	0149	2.64	0.142	7.0	24	54	0.59	0.90	4.03	49	0.26
950414	0452	2.54	0.132	7.6	24	56	0.56	0.74	4.29	47	-0.12
950414	0752	2.38	0.132	7.6	30	59	0.55	0.66	4.33	46	0.08
950414	1052	2.24	0.123	8.2	40	61	0.56	0.78	4.20	44	0.18
950414	1352	2.42	0.123	8.2	30	62	0.57	0.53	3.85	50	0.06
950414	1652	2.37	0.113	8.9	50	55	0.57	0.60	3.99	48	0.25
950414	1952	3.36	0.132	7.6	24	49	0.54	0.37	3.76	45	-0.03
950414	2245	3.95	0.103	9.7	50	46	0.47	0.46	4.97	34	-0.17
950415	0152	3.87	0.113	8.9	54	52	0.47	0.38	4.87	35	-0.18
950415	0745	3.19	0.103	9.7	30	57	0.51	0.52	4.14	43	0.21
950415	1045	3.17	0.093	10.7	58	56	0.51	0.76	4.66	36	0.08
950415	1345	2.99	0.093	10.7	28	53	0.51	0.66	4.64	43	0.17
950416	0152	1.84	0.103	9.7	88	73	0.60	0.48	4.18	43	-0.25
950416	0452	1.85	0.162	6.2	88	76	0.58	0.35	4.32	38	-0.28

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Table A1 (Continued)

Date	Time GMT	H_{mo} m	f_p Hz	T_p sec	θ_p deg	θ_0 deg	σ	γ	δ	Δθ deg	*A*
950416	0745	1.82	0.132	7.6	78	74	0.61	0.33	3.98	40	-0.18
950416	1045	2.13	0.093	10.7	74	74	0.58	0.54	4.12	37	-0.03
950416	1352	3.04	0.093	10.7	74	75	0.48	0.28	5.24	30	0.04
950416	1652	3.12	0.093	10.7	72	69	0.50	0.04	4.73	35	-0.17
950416	2245	3.72	0.083	12.0	62	64	0.52	0.31	4.51	33	0.12
950417	0152	3.47	0.083	12.0	60	63	0.53	0.52	4.30	36	0.15
950417	0445	3.39	0.083	12.0	58	60	0.51	0.63	4.84	32	0.04
950417	0752	3.03	0.083	12.0	58	59	0.53	0.65	5.09	31	0.01
950417	1052	2.75	0.083	12.0	52	58	0.55	1.01	5.24	34	0.30
950417	1352	2.85	0.093	10.7	50	58	0.54	1.08	5.45	33	0.32
950417	1652	2.84	0.093	10.7	56	58	0.52	1.18	6.20	28	0.06
950417	1945	2.35	0.103	9.7	62	58	0.59	1.16	5.35	32	-0.18
950418	0152	2.06	0.103	9.7	64	63	0.76	1.28	3.59	50	-0.15
950418	0445	1.81	0.064	15.6	68	74	0.78	1.71	3.45	44	0.28
950418	0750	1.76	0.074	13.6	64	73	0.73	1.92	3.79	39	0.56
950418	1050	2.87	0.142	7.0	80	66	0.69	0.95	3.65	51	-0.24
950418	1348	4.24	0.103	9.7	60	52	0.60	0.59	4.03	45	-0.33
950418	1642	5.10	0.103	9.7	58	55	0.50	0.49	5.46	31	-0.22
950418	2249	5.38	0.093	10.7	58	51	0.47	0.28	5.54	32	-0.39
950420	1549	1.83	0.074	13.6	58	79	0.83	1.06	2.78	62	0.52
950420	1646	2.01	0.074	13.6	64	74	0.76	1.11	3.23	50	0.38
950420	1952	3.22	0.132	7.6	64	54	0.63	0.66	3.74	50	-0.32
950420	2252	3.99	0.123	8.2	60	49	0.58	0.46	4.10	47	-0.40
950421	0145	3.42	0.113	8.9	54	52	0.56	0.71	4.66	42	-0.14
950421	0746	2.99	0.103	9.7	68	59	0.53	0.93	5.48	38	-0.29
950421	1047	3.09	0.103	9.7	64	61	0.52	0.87	5.83	34	-0.16
950421	1352	2.95	0.093	10.7	54	56	0.57	0.93	4.96	41	0.06
950421	1652	2.68	0.083	12.0	60	61	0.61	0.79	4.48	41	0.05
950421	1952	2.79	0.083	12.0	48	58	0.58	0.89	4.89	41	0.26
950421	2252	2.46	0.083	12.0	62	60	0.56	0.94	5.00	35	-0.10
950422	0152	2.44	0.083	12.0	60	54	0.61	1.05	4.43	42	-0.24
950422	0452	2.41	0.083	12.0	56	62	0.59	1.20	4.80	32	0.15
950422	0752	2.27	0.083	12.0	56	60	0.60	1.56	4.93	34	0.18
950422	0827	2.18	0.083	12.0	50	59	0.60	1.68	5.24	33	0.30
950422	1052	2.27	0.093	10.7	48	55	0.58	1.60	5.21	34	0.28
950422	1352	2.12	0.074	13.6	66	62	0.63	1.44	4.81	36	-0.25
950422	1652	1.75	0.074	13.6	60	62	0.60	1.68	5.53	28	0.06
950422	1952	1.69	0.083	12.0	64	61	0.63	1.59	4.91	35	-0.15
950422	2252	1.52	0.083	12.0	58	63	0.58	2.39	6.51	23	0.29
950423	0152	1.60	0.083	12.0	58	60	0.60	2.23	5.84	29	0.04
950423	0452	1.60	0.093	10.7	56	59	0.58	2.21	6.13	27	-0.01
950423	0752	1.42	0.103	9.7	60	67	0.64	2.27	5.12	28	0.26
950423	1052	1.17	0.064	15.6	68	79	0.74	1.41	3.36	45	0.45
950423	1352	1.12	0.064	15.6	66	77	0.73	1.82	3.69	37	0.71
950423	1653	1.07	0.064	15.6	64	76	0.74	2.27	3.94	34	0.67
950423	1952	0.97	0.074	13.6	66	79	0.79	1.90	3.41	37	0.79
950423	2252	1.08	0.074	13.6	74	84	0.75	1.30	3.39	41	0.67
950424	0152	0.95	0.074	13.6	66	81	0.74	1.52	3.34	46	1.13
950424	0452	0.96	0.074	13.6	72	86	0.75	1.36	3.09	45	0.80
950424	0752	0.98	0.074	13.6	68	87	0.79	1.17	2.79	59	0.91
950424	1052	0.97	0.083	12.0	78	96	0.80	0.69	2.40	69	0.78
950424	1652	0.98	0.083	12.0	90	97	0.84	0.42	2.19	78	0.39
950424	1953	1.02	0.083	12.0	70	88	0.86	0.76	2.47	72	0.44

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Table A1 (Continued)

Date	Time GMT	H_{mo} m	f_p Hz	T_p sec	θ_p deg	θ_0 deg	σ	γ	δ	$\Delta\theta$ deg	A
950424	2252	1.17	0.083	12.0	76	78	0.78	1.10	2.94	57	0.19
950425	0152	1.10	0.162	6.2	84	82	0.76	1.03	2.97	54	0.18
950425	0452	1.22	0.162	6.2	52	77	0.81	0.79	2.51	70	0.31
950425	0752	1.29	0.152	6.6	26	65	0.78	1.03	2.83	66	0.33
950425	1352	1.47	0.152	6.6	26	65	0.75	1.06	2.90	61	0.30
950425	1653	1.57	0.152	6.6	26	57	0.73	1.29	3.21	61	0.81
950425	1952	1.64	0.152	6.6	24	54	0.72	1.24	3.23	60	0.83
950425	2252	1.52	0.152	6.6	28	63	0.72	1.02	2.94	62	0.70
950426	0152	1.50	0.152	6.6	66	68	0.75	0.79	3.17	58	0.07
950426	0452	1.46	0.152	6.6	26	61	0.74	1.09	2.93	66	0.64
950426	0752	1.52	0.142	7.0	28	61	0.74	1.15	2.93	66	0.59
950426	1052	1.47	0.152	6.6	26	63	0.76	1.09	2.83	66	0.55
950426	1353	1.38	0.162	6.2	28	66	0.76	1.22	2.91	64	0.65
950426	1653	1.28	0.152	6.6	30	73	0.85	0.92	2.27	85	0.69
950426	2252	1.13	0.064	15.6	60	79	0.82	1.03	2.57	70	1.06
950427	0152	1.19	0.064	15.6	62	87	0.80	0.98	2.44	72	1.57
950427	0452	1.21	0.064	15.6	64	92	0.82	0.67	2.27	78	1.24
950427	0752	1.14	0.064	15.6	66	93	0.78	0.71	2.43	68	0.86
950427	1053	1.22	0.064	15.6	60	88	0.78	0.69	2.38	71	0.83
950427	1352	1.19	0.064	15.6	64	86	0.77	1.13	2.69	65	1.64
950427	1652	1.12	0.064	15.6	64	96	0.86	0.68	1.99	87	1.16
950427	1952	1.08	0.064	15.6	66	94	0.81	0.79	2.22	78	1.12
950427	2252	1.12	0.074	13.6	60	93	0.84	0.88	2.27	81	1.15
950428	0152	1.23	0.074	13.6	62	90	0.80	1.19	2.49	70	1.34
950428	0452	1.24	0.074	13.6	58	89	0.82	1.12	2.44	74	1.11
950428	0752	1.18	0.074	13.6	60	92	0.83	0.99	2.40	73	0.80
950428	1052	1.29	0.074	13.6	60	92	0.80	1.00	2.39	73	0.94
950428	1352	1.23	0.074	13.6	58	91	0.86	0.93	2.12	86	0.98
950428	1652	1.22	0.074	13.6	58	88	0.82	1.11	2.46	71	0.92
950428	1953	1.26	0.074	13.6	70	98	0.82	0.79	2.25	77	0.97
950429	0151	1.37	0.083	12.0	62	97	0.80	0.61	2.29	71	0.29
950429	0452	1.18	0.074	13.6	70	106	0.91	0.45	1.72	104	0.96
950429	0752	1.18	0.074	13.6	60	106	0.93	0.40	1.63	110	0.74
950429	1052	1.28	0.074	13.6	62	108	0.89	0.34	1.67	103	0.68
950429	1352	1.26	0.074	13.6	62	107	0.93	0.46	1.73	108	0.73
950429	1652	1.27	0.074	13.6	60	99	0.90	0.68	1.96	98	0.76
950429	1952	1.39	0.074	13.6	62	98	0.88	0.58	1.96	95	0.73
950429	2252	1.54	0.074	13.6	52	99	0.86	0.43	1.94	91	0.43
950430	0153	1.54	0.074	13.6	58	88	0.78	0.89	2.46	68	0.61
950430	0453	1.59	0.074	13.6	56	84	0.80	1.18	2.57	67	0.74
950430	0752	1.49	0.074	13.6	60	88	0.83	1.03	2.38	72	0.92
950430	1052	1.48	0.074	13.6	58	89	0.86	1.01	2.21	80	1.06
950430	1352	1.58	0.074	13.6	64	89	0.81	0.89	2.40	68	0.91
950430	1652	1.36	0.074	13.6	56	92	0.87	0.75	2.18	80	0.53
950430	2028	1.42	0.074	13.6	62	89	0.84	0.93	2.24	78	1.07
950430	2252	1.37	0.074	13.6	54	91	0.86	0.76	2.11	88	0.82
950501	0452	1.18	0.074	13.6	56	105	0.90	0.43	1.80	104	0.53
950501	0752	1.11	0.074	13.6	-178	110	0.94	0.36	1.74	110	0.53
950501	1052	1.09	0.074	13.6	60	110	0.93	0.26	1.70	107	0.38
950501	1352	1.10	0.074	13.6	62	109	0.88	0.28	1.86	97	0.33
950501	1652	1.04	0.083	12.0	58	106	0.90	0.43	1.94	96	0.39
950501	1952	1.05	0.074	13.6	62	100	0.87	0.68	2.16	86	0.67

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Table A1 (Continued)

Date	Time GMT	H_{mo} m	f_p Hz	T_p sec	θ_p deg	θ_0 deg	σ	γ	δ	$\Delta\theta$ deg	A
950502	0152	1.10	0.074	13.6	70	99	0.83	0.76	2.27	79	0.84
950502	0452	1.02	0.074	13.6	72	101	0.80	0.76	2.23	81	1.00
950502	0752	0.98	0.083	12.0	62	100	0.84	0.64	2.13	83	0.63
950502	1051	0.95	0.083	12.0	58	101	0.83	0.47	2.02	85	0.46
950502	1352	0.93	0.074	13.6	62	108	0.83	0.28	2.07	84	0.29
950502	1659	0.91	0.074	13.6	62	105	0.83	0.32	2.02	85	0.46
950502	1952	0.90	0.083	12.0	80	99	0.79	0.63	2.43	66	0.56
950503	0232	1.06	0.162	6.2	100	89	0.71	0.64	2.97	52	-0.04
950503	0531	1.32	0.152	6.6	58	80	0.63	0.79	3.50	45	0.12
950503	0752	1.38	0.162	6.2	60	77	0.65	0.79	3.42	45	0.15
950503	1050	1.33	0.162	6.2	64	77	0.66	0.86	3.45	46	0.22
950503	1351	1.25	0.152	6.6	56	72	0.69	0.98	3.60	51	0.66
950503	1650	1.26	0.162	6.2	54	72	0.68	0.77	3.45	49	0.29
950503	1951	1.19	0.162	6.2	58	72	0.71	1.20	3.53	48	0.44
950503	2250	1.14	0.162	6.2	62	73	0.71	1.15	3.47	48	0.35
950504	0450	1.32	0.162	6.2	58	59	0.62	1.41	4.56	38	0.01
950504	0750	1.23	0.162	6.2	58	64	0.68	1.23	3.79	44	0.23
950504	1050	1.29	0.152	6.6	60	64	0.63	1.55	4.48	37	0.15
950504	1350	1.17	0.162	6.2	60	67	0.71	1.31	3.43	51	0.38
950504	1654	1.17	0.152	6.6	56	64	0.70	1.67	3.94	42	0.48
950504	1950	1.60	0.142	7.0	60	57	0.61	1.30	4.78	40	-0.22
950504	2250	2.02	0.142	7.0	28	49	0.55	1.22	5.22	38	0.23
950505	0150	2.12	0.132	7.6	28	48	0.49	1.44	6.57	32	0.06
950505	0450	2.15	0.113	8.9	46	49	0.47	1.55	7.66	25	0.11
950505	0744	2.39	0.103	9.7	40	48	0.44	1.52	7.96	25	0.21
950505	1051	2.60	0.103	9.7	38	46	0.45	1.61	7.91	26	0.40
950505	1351	2.71	0.093	10.7	38	46	0.42	1.87	8.78	22	0.42
950505	1650	2.53	0.103	9.7	38	48	0.46	1.63	7.44	26	0.36
950505	1951	2.26	0.103	9.7	42	50	0.49	1.67	6.82	26	0.30
950505	2250	2.07	0.103	9.7	36	51	0.54	1.58	5.95	33	0.27
950506	0151	2.03	0.103	9.7	36	52	0.53	1.52	5.94	33	0.21
950506	0451	1.84	0.113	8.9	44	55	0.51	1.85	6.79	28	0.49
950506	0751	1.85	0.113	8.9	48	57	0.52	1.28	5.82	31	0.34
950506	1050	2.25	0.113	8.9	56	56	0.48	1.26	6.81	27	-0.07
950506	1350	2.55	0.103	9.7	50	52	0.42	1.28	7.73	23	0.01
950506	1650	2.33	0.103	9.7	46	51	0.45	1.17	7.13	26	0.20
950506	1950	2.47	0.103	9.7	48	52	0.49	0.97	5.71	34	0.16
950506	2251	2.88	0.103	9.7	30	47	0.44	1.20	6.76	29	0.16
950506	2337	2.76	0.093	10.7	28	45	0.46	1.22	6.71	32	0.42
950507	0151	2.74	0.093	10.7	46	47	0.45	1.20	7.33	29	0.10
950507	0451	2.56	0.093	10.7	42	47	0.43	1.48	8.23	25	0.20
950507	0751	2.59	0.093	10.7	44	48	0.43	1.55	8.63	23	0.23
950507	1050	2.13	0.103	9.7	36	47	0.49	1.48	7.13	29	0.31
950507	1350	2.05	0.103	9.7	38	46	0.48	2.11	8.00	23	0.52
950507	1651	2.07	0.103	9.7	40	45	0.46	2.40	8.93	19	0.33
950507	1951	1.92	0.103	9.7	46	49	0.58	1.46	6.04	28	0.16
950507	2251	1.65	0.113	8.9	32	48	0.58	2.09	5.95	36	0.76
950508	0151	1.37	0.113	8.9	38	45	0.64	2.93	6.04	26	0.33
950508	0451	1.24	0.113	8.9	38	55	0.73	2.53	4.40	39	0.79
950508	0751	1.16	0.123	8.2	38	68	0.93	1.88	2.59	89	1.43
950508	1051	1.11	0.113	8.9	36	64	0.89	2.12	2.84	65	1.08
950508	1351	1.15	0.064	15.6	30	78	0.96	1.00	1.98	114	0.92
950508	1651	1.16	0.064	15.6	68	73	0.87	1.44	2.56	71	0.58
950508	1738	1.21	0.064	15.6	72	79	0.88	1.17	2.36	83	0.71

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Table A1 (Continued)

Date	Time GMT	H_{mo} m	f_p Hz	T_p sec	θ_p deg	θ_0 deg	σ	γ	δ	$\Delta\theta$ deg	A
950508	1951	1.27	0.064	15.6	74	83	0.86	1.21	2.56	62	0.79
950508	2251	1.24	0.064	15.6	74	97	0.91	0.63	1.85	103	1.28
950509	0151	1.17	0.064	15.6	176	106	0.94	0.36	1.70	104	1.27
950509	0451	1.25	0.074	13.6	172	112	0.92	0.00	1.68	102	0.45
950509	0751	1.20	0.074	13.6	172	111	0.93	0.21	1.66	101	1.04
950509	1051	1.27	0.074	13.6	80	108	0.89	0.58	1.84	97	1.70
950509	1351	1.29	0.074	13.6	72	110	0.91	0.39	1.67	102	1.20
950509	1651	1.39	0.074	13.6	78	116	0.89	0.23	1.69	98	1.07
950509	1951	1.30	0.074	13.6	178	120	0.89	0.05	1.59	101	0.46
950509	2330	1.29	0.083	12.0	72	118	0.91	0.20	1.48	104	0.94
950510	0151	1.34	0.083	12.0	78	114	0.90	0.38	1.59	102	1.36
950510	0451	1.48	0.083	12.0	176	112	0.87	0.38	1.69	98	1.44
950510	0751	1.74	0.054	18.5	68	91	0.75	1.40	2.94	48	1.00
950510	1050	2.18	0.054	18.5	72	83	0.64	1.65	4.53	31	0.32
950510	1350	2.47	0.064	15.6	72	76	0.69	1.77	4.22	31	0.27
950510	1650	2.57	0.064	15.6	66	75	0.65	1.82	4.66	27	0.65
950510	1950	3.04	0.064	15.6	68	72	0.61	1.23	4.71	29	0.19
950510	2251	3.11	0.074	13.6	72	70	0.57	0.59	4.49	31	-0.25
950511	0150	3.08	0.064	15.6	70	67	0.56	0.59	4.53	34	-0.44
950511	0450	3.13	0.074	13.6	70	65	0.55	0.76	4.69	36	-0.26
950511	0750	3.03	0.074	13.6	64	65	0.53	0.68	4.68	32	-0.07
950511	1053	2.83	0.074	13.6	72	71	0.54	0.54	4.95	31	-0.15
950511	1351	2.43	0.074	13.6	76	72	0.56	0.61	4.63	35	-0.15
950511	1650	2.39	0.074	13.6	68	71	0.57	0.80	4.56	34	0.05
950511	1950	2.32	0.074	13.6	66	69	0.56	0.82	4.74	32	0.15
950511	2251	2.59	0.152	6.6	62	63	0.58	0.59	3.96	43	-0.07
950512	0151	2.90	0.132	7.6	66	56	0.54	0.64	4.02	43	-0.09
950512	0451	2.91	0.123	8.2	24	54	0.56	0.67	3.86	48	0.08
950512	0750	2.51	0.132	7.6	64	58	0.55	0.83	4.64	41	-0.22
950512	1050	2.32	0.132	7.6	70	65	0.53	0.51	4.64	37	-0.35
950512	1351	2.39	0.083	12.0	80	67	0.54	0.37	4.44	39	-0.27
950512	1650	2.63	0.083	12.0	62	63	0.50	0.66	5.44	31	-0.02
950512	1950	2.50	0.074	13.6	62	64	0.51	1.16	6.24	27	0.03
950512	2251	2.48	0.083	12.0	60	65	0.52	1.16	6.19	29	0.21
950513	0150	2.38	0.074	13.6	66	69	0.54	0.78	5.12	36	0.17
950513	0451	2.03	0.083	12.0	66	70	0.58	1.12	4.95	34	0.02
950513	0751	2.22	0.083	12.0	62	69	0.56	1.09	5.25	32	0.18
950513	1051	2.49	0.083	12.0	64	70	0.55	1.35	5.55	31	0.25
950513	1350	3.21	0.083	12.0	60	64	0.51	0.66	5.04	35	0.05
950513	1650	3.53	0.083	12.0	66	63	0.51	0.79	5.22	34	-0.21
950513	1950	3.22	0.083	12.0	64	65	0.52	0.89	5.79	32	0.02
950513	2251	3.09	0.083	12.0	66	69	0.52	1.01	5.93	30	0.10
950514	0151	3.25	0.083	12.0	60	66	0.49	0.78	5.97	30	0.29
950514	0833	2.77	0.083	12.0	70	67	0.57	1.10	4.99	36	-0.16
950514	1040	2.57	0.083	12.0	66	68	0.56	1.34	5.40	31	0.00
950514	1352	2.62	0.093	10.7	74	69	0.57	1.05	4.99	38	-0.11
950514	1652	2.56	0.083	12.0	58	64	0.58	1.52	5.48	33	0.29
950514	1952	2.32	0.083	12.0	58	65	0.68	1.88	4.34	38	0.24
950514	2252	2.37	0.083	12.0	44	64	0.68	1.87	4.36	41	0.36
950515	0152	2.26	0.093	10.7	58	64	0.65	1.73	4.50	37	0.20
950515	0452	2.08	0.093	10.7	62	69	0.69	1.97	4.07	36	0.25
950515	0752	2.08	0.093	10.7	66	71	0.73	1.71	3.58	40	0.05
950515	1052	1.91	0.093	10.7	64	76	0.76	1.31	3.14	48	0.17

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Table A1 (Continued)

Date	Time GMT	H_{mo} m	f_p Hz	T_p sec	θ_p deg	θ_0 deg	σ	γ	δ	$\Delta\theta$ deg	A
950515	1351	1.78	0.093	10.7	50	75	0.79	1.65	3.05	50	0.53
950515	1651	1.97	0.093	10.7	72	73	0.78	1.46	3.08	50	-0.05
950515	1951	1.80	0.093	10.7	50	76	0.81	1.30	2.76	59	0.66
950515	2251	1.74	0.093	10.7	50	82	0.83	1.08	2.49	69	0.51
950516	0451	1.55	0.093	10.7	62	80	0.87	1.20	2.32	87	1.01
950516	0751	1.45	0.093	10.7	76	92	0.87	0.87	2.12	93	1.13
950516	1051	1.32	0.093	10.7	82	89	0.91	0.76	2.04	97	0.68
950516	1351	1.34	0.103	9.7	36	85	0.92	0.79	1.92	106	0.77
950516	1651	1.36	0.103	9.7	34	77	0.93	1.08	2.05	106	0.93
950516	1951	1.43	0.113	8.9	36	75	0.89	1.29	2.37	90	0.89
950516	2251	1.40	0.103	9.7	44	81	0.87	1.06	2.34	85	0.78
950517	0151	1.38	0.103	9.7	56	71	0.83	1.27	2.73	61	0.75
950517	0451	1.31	0.103	9.7	48	77	0.84	1.27	2.48	74	0.93
950517	0751	1.30	0.113	8.9	50	74	0.88	1.21	2.33	92	1.02
950517	1050	1.30	0.064	15.6	40	82	0.94	0.85	1.84	113	1.11
950517	1351	1.30	0.103	9.7	42	75	0.92	1.06	2.12	98	1.00
950517	1651	1.44	0.103	9.7	44	69	0.81	1.65	3.04	55	0.65
950517	1951	1.82	0.103	9.7	38	57	0.69	1.97	4.12	43	0.70
950517	2251	1.59	0.103	9.7	40	63	0.78	1.87	3.37	50	0.63
950518	0151	1.46	0.103	9.7	44	67	0.79	1.63	3.16	55	0.82
950518	0451	1.89	0.103	9.7	36	59	0.63	1.77	4.61	41	0.31
950518	0751	2.22	0.103	9.7	38	50	0.57	2.05	5.67	33	0.66
950518	1051	2.22	0.103	9.7	42	46	0.60	2.25	5.65	32	0.24
950518	1351	2.16	0.103	9.7	46	54	0.69	2.16	4.65	30	0.40
950518	1644	2.11	0.093	10.7	38	47	0.60	2.60	5.99	25	0.64
950518	1951	2.17	0.103	9.7	36	48	0.59	2.62	6.04	28	0.61
950518	2251	1.71	0.093	10.7	42	54	0.74	2.60	4.14	32	0.81
950519	0151	1.73	0.103	9.7	38	54	0.72	2.27	4.07	43	0.99
950519	0451	1.78	0.093	10.7	40	50	0.68	3.01	4.88	28	0.67
950519	0751	1.76	0.103	9.7	32	50	0.72	2.71	4.28	39	1.01
950519	1032	1.89	0.103	9.7	28	48	0.71	2.89	4.49	34	0.66
950519	1332	1.84	0.103	9.7	40	51	0.72	2.77	4.29	30	0.81
950519	1632	1.68	0.093	10.7	38	55	0.80	2.54	3.51	49	1.47
950519	1932	1.77	0.093	10.7	44	55	0.74	2.78	4.19	31	0.85
950519	2232	1.49	0.103	9.7	44	68	0.91	1.63	2.49	89	1.63
950520	0132	1.57	0.064	15.6	38	76	0.97	1.15	1.91	113	1.80
950520	0432	1.35	0.064	15.6	44	80	0.94	1.13	2.04	101	1.61
950520	0732	1.58	0.093	10.7	38	64	0.88	2.17	2.84	79	1.83
950520	1033	1.67	0.103	9.7	38	67	0.95	1.78	2.32	105	2.09
950520	1332	1.55	0.064	15.6	36	83	1.05	0.77	1.54	130	1.43
950520	1632	1.53	0.064	15.6	40	89	1.04	0.66	1.50	127	1.49
950520	1932	1.49	0.064	15.6	40	86	1.02	0.74	1.64	122	1.11
950521	0132	1.41	0.064	15.6	-180	131	1.01	-0.68	1.63	123	-1.04
950521	0432	1.29	0.064	15.6	46	121	1.03	-0.35	1.49	124	-0.79
950521	0732	1.34	0.064	15.6	-180	114	1.07	-0.21	1.32	135	-0.57
950521	1032	1.29	0.064	15.6	-178	131	1.04	-1.04	1.76	131	-1.16
950521	1332	1.12	0.064	15.6	-174	129	1.06	-0.80	1.66	136	-0.80
950521	1632	1.21	0.064	15.6	180	126	1.08	-0.74	1.55	135	-0.94
950521	1932	1.08	0.064	15.6	-176	131	1.08	-0.91	1.68	137	-0.98
950521	2232	1.04	0.064	15.6	180	126	1.05	-0.76	1.72	129	-0.87
950522	0132	0.98	0.064	15.6	-180	130	1.02	-0.92	1.86	126	-0.87
950522	0432	1.03	0.074	13.6	178	136	0.98	-1.10	1.94	117	-1.14
950522	0732	1.07	0.064	15.6	-178	127	1.01	-0.68	1.70	119	-0.74

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Table A1 (Continued)

Date	Time GMT	H_{mo} m	f_p Hz	T_p sec	θ_p deg	θ_0 deg	σ	γ	δ	$\Delta\theta$ deg	A
950522	1032	1.12	0.074	13.6	20	93	1.04	0.33	1.55	128	0.38
950522	1333	1.09	0.162	6.2	22	99	1.06	0.08	1.42	131	0.18
950522	1932	1.12	0.162	6.2	82	96	0.96	0.45	1.80	109	0.72
950522	2232	1.19	0.152	6.6	78	74	0.86	1.08	2.61	68	0.08
950523	0432	1.64	0.123	8.2	40	59	0.73	1.92	3.87	45	0.44
950523	0831	1.64	0.113	8.9	32	55	0.70	1.98	4.11	46	0.73
950523	1032	1.74	0.113	8.9	28	52	0.68	2.10	4.43	44	0.70
950523	1333	1.67	0.113	8.9	22	50	0.69	2.11	4.47	44	0.52
950523	1554	1.95	0.103	9.7	24	51	0.69	1.83	4.31	46	0.32
950523	1647	2.05	0.103	9.7	26	48	0.63	2.12	5.28	37	0.30
950523	1932	2.22	0.103	9.7	28	46	0.58	2.35	6.25	31	0.33
950523	2232	2.17	0.103	9.7	28	44	0.61	2.46	6.00	34	0.86
950524	0132	2.19	0.103	9.7	36	47	0.62	2.28	5.64	34	0.52
950524	0432	2.05	0.103	9.7	38	52	0.69	2.80	4.93	35	0.48
950524	0732	2.26	0.103	9.7	38	53	0.68	2.66	4.86	36	0.52
950524	1047	2.49	0.103	9.7	36	48	0.69	3.62	5.32	29	0.60
950524	1332	2.56	0.093	10.7	38	46	0.72	3.49	4.93	32	0.48
950524	1515	2.38	0.093	10.7	34	50	0.80	3.71	4.18	37	0.83
950524	1633	2.45	0.093	10.7	28	48	0.76	3.44	4.60	36	0.44
950524	1932	2.80	0.093	10.7	40	48	0.82	3.60	4.07	39	0.57
950524	2226	2.43	0.093	10.7	40	51	0.81	3.39	4.01	39	0.92
950525	0132	2.48	0.093	10.7	38	47	0.76	4.12	4.78	29	0.69
950525	0432	2.30	0.093	10.7	40	53	0.83	3.70	3.82	39	1.12
950525	0732	2.13	0.093	10.7	38	56	0.87	3.30	3.42	46	1.21
950525	1032	2.04	0.103	9.7	28	51	0.88	3.36	3.45	53	1.29
950525	1332	1.79	0.103	9.7	36	59	0.94	2.59	2.88	76	1.38
950525	1632	1.72	0.064	15.6	36	70	1.05	1.69	2.02	134	1.88
950525	1932	1.66	0.064	15.6	32	74	1.03	1.30	1.90	128	1.46
950525	2232	1.66	0.064	15.6	32	79	1.04	1.24	1.86	131	1.36
950526	0432	1.54	0.074	13.6	36	76	0.97	1.38	2.05	120	1.46
950526	0732	1.50	0.064	15.6	36	82	1.01	0.98	1.76	123	1.12
950526	1032	1.49	0.074	13.6	36	90	1.02	0.65	1.55	124	1.04
950526	1333	1.42	0.074	13.6	30	81	1.01	0.95	1.82	120	0.96
950526	1632	1.35	0.064	15.6	38	89	1.01	0.63	1.63	119	0.99
950526	1932	1.26	0.074	13.6	40	95	1.01	0.52	1.59	119	0.97
950526	2232	1.26	0.074	13.6	38	89	1.00	0.76	1.71	118	1.08
950527	0432	1.51	0.162	6.2	34	69	0.90	1.67	2.55	91	1.14
950527	0732	1.47	0.074	13.6	36	72	0.90	1.36	2.28	99	1.15
950527	1033	1.47	0.142	7.0	32	69	0.88	1.68	2.62	85	0.95
950527	1333	1.53	0.152	6.6	28	65	0.86	1.46	2.61	76	0.63
950527	1632	1.58	0.152	6.6	30	63	0.83	1.66	2.95	58	0.36
950527	1932	1.69	0.142	7.0	32	63	0.79	1.68	3.03	52	0.41
950527	2232	1.74	0.142	7.0	40	59	0.74	1.91	3.66	44	0.40
950528	0132	1.59	0.142	7.0	46	65	0.76	1.63	3.29	48	0.52
950528	0432	1.74	0.132	7.6	38	63	0.72	1.95	3.66	43	0.43
950528	0732	1.74	0.132	7.6	38	64	0.73	1.66	3.28	45	0.53
950528	1447	1.72	0.132	7.6	38	62	0.72	1.97	3.64	41	0.47
950528	1633	1.83	0.132	7.6	36	60	0.74	1.98	3.61	42	0.42
950530	0733	2.18	0.074	13.6	60	69	0.68	2.59	4.51	20	0.51
950530	1033	2.02	0.074	13.6	58	70	0.74	2.49	3.91	30	0.68
950530	1335	1.86	0.074	13.6	56	69	0.79	2.71	3.68	32	1.00
950530	1625	2.01	0.074	13.6	60	69	0.70	2.63	4.36	23	0.43
950530	1932	1.93	0.074	13.6	58	71	0.74	2.74	4.06	27	0.79

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Table A1 (Continued)

Date	Time GMT	H_{mo} m	f_p Hz	T_p sec	θ_p deg	θ_0 deg	σ	γ	δ	$\Delta\theta$ deg	A
950530	2232	1.71	0.074	13.6	56	68	0.75	2.41	3.92	31	0.57
950531	0132	1.82	0.074	13.6	56	68	0.75	2.36	3.80	31	0.62
950531	0433	1.96	0.074	13.6	56	68	0.72	2.61	4.17	28	0.68
950531	1027	1.78	0.074	13.6	58	68	0.72	2.43	4.02	30	0.71
950531	1415	1.56	0.083	12.0	56	72	0.79	1.67	3.13	54	0.93
950531	1633	1.57	0.083	12.0	58	74	0.80	1.84	3.12	51	0.92
950531	1719	1.56	0.083	12.0	60	75	0.80	1.68	3.08	51	0.68
950531	1932	1.40	0.083	12.0	56	70	0.77	1.87	3.37	45	0.74
950531	2232	1.38	0.083	12.0	58	72	0.79	1.93	3.24	44	0.99
950601	0133	1.38	0.083	12.0	56	72	0.78	1.77	3.06	52	1.09
950601	0433	1.35	0.083	12.0	56	76	0.78	1.60	2.90	60	1.30
950601	0732	1.51	0.083	12.0	54	65	0.73	2.20	3.93	35	0.54
950601	1033	1.35	0.093	10.7	54	69	0.74	1.93	3.55	41	0.57
950601	1333	1.51	0.093	10.7	48	61	0.73	2.28	3.94	38	0.66
950601	1632	1.59	0.123	8.2	42	59	0.72	2.48	4.17	37	0.59
950601	1932	1.63	0.113	8.9	56	60	0.70	2.32	4.30	35	0.18
950601	2233	1.67	0.113	8.9	40	54	0.68	2.95	4.79	27	0.62
950602	0133	1.58	0.113	8.9	44	55	0.67	2.92	4.96	25	0.59
950602	0433	1.67	0.103	9.7	44	56	0.63	2.72	5.16	27	0.50
950602	1032	1.67	0.162	6.2	48	56	0.65	2.21	4.57	34	0.21
950602	1633	1.45	0.113	8.9	44	57	0.67	2.06	4.13	37	0.53
950602	1932	1.70	0.142	7.0	30	55	0.64	2.05	4.40	36	0.37
950602	2233	1.80	0.132	7.6	32	54	0.61	2.00	4.86	35	0.21
950603	0133	1.91	0.142	7.0	28	52	0.60	1.98	5.09	37	0.29
950603	0433	1.98	0.132	7.6	26	54	0.58	1.72	4.97	37	-0.07
950603	0732	1.77	0.132	7.6	38	55	0.59	1.96	5.09	33	0.29
950603	1033	1.79	0.132	7.6	36	57	0.58	2.07	5.37	32	0.23
950603	1332	1.88	0.123	8.2	34	56	0.63	2.12	4.69	35	0.40
950603	2232	2.37	0.132	7.6	32	52	0.56	1.81	5.73	35	0.21
950604	0200	2.37	0.123	8.2	48	49	0.53	1.90	6.65	30	0.03
950604	0433	2.30	0.113	8.9	34	51	0.54	1.83	6.08	33	0.29
950604	0732	2.27	0.123	8.2	40	53	0.57	1.86	5.54	35	0.35
950604	1033	2.31	0.123	8.2	32	51	0.55	1.94	6.02	35	0.37
950604	1332	2.26	0.132	7.6	28	48	0.56	2.03	6.12	32	0.22
950604	1632	2.36	0.132	7.6	34	51	0.57	1.84	5.54	36	0.19
950604	1933	2.31	0.132	7.6	28	48	0.59	1.75	5.50	37	0.24
950604	2232	2.05	0.132	7.6	30	49	0.58	1.80	5.41	37	0.37
950605	0132	2.38	0.123	8.2	32	48	0.54	1.89	6.22	31	0.19
950605	0500	2.39	0.123	8.2	38	47	0.53	1.85	6.39	30	0.32
950605	0732	2.44	0.132	7.6	42	48	0.50	1.80	6.66	28	0.19
950605	1032	3.24	0.123	8.2	46	48	0.45	1.22	7.24	26	0.04
950605	1333	3.65	0.113	8.9	46	46	0.43	1.09	6.99	29	-0.01
950605	1632	4.13	0.103	9.7	52	48	0.42	0.76	6.66	29	-0.27
950605	1932	4.60	0.103	9.7	54	50	0.41	0.74	6.60	28	-0.32
950605	2232	4.46	0.103	9.7	52	49	0.41	0.82	6.31	28	-0.14
950606	0133	4.45	0.093	10.7	54	53	0.41	0.55	6.04	29	-0.12
950606	0432	4.24	0.093	10.7	58	55	0.41	0.65	6.60	27	-0.18
950606	0732	4.44	0.093	10.7	60	57	0.42	0.43	5.62	28	-0.14
950606	1032	4.04	0.093	10.7	58	55	0.44	0.46	5.19	34	-0.04
950606	1332	4.07	0.083	12.0	58	54	0.42	0.62	6.06	29	-0.26
950606	1632	4.14	0.093	10.7	52	53	0.42	0.90	6.87	24	-0.01
950606	1932	4.60	0.093	10.7	48	52	0.40	0.92	6.83	25	0.08
950606	2233	4.92	0.093	10.7	50	52	0.40	0.67	5.90	26	0.05

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Table A1 (Continued)

Date	Time GMT	H_{mo} m	f_p Hz	T_p sec	θ_p deg	θ_0 deg	σ	γ	δ	$\Delta\theta$ deg	A
950607	0133	4.17	0.083	12.0	52	54	0.41	0.77	6.57	26	0.09
950607	0433	3.77	0.093	10.7	54	54	0.41	0.84	7.12	26	-0.06
950607	0732	3.81	0.093	10.7	50	55	0.42	0.92	7.00	25	0.20
950607	1032	3.92	0.093	10.7	48	55	0.41	0.78	6.57	26	0.41
950607	1338	3.95	0.093	10.7	52	56	0.40	0.95	7.43	23	0.18
950607	1633	3.44	0.083	12.0	50	54	0.41	1.71	9.10	20	0.29
950607	1932	3.27	0.093	10.7	48	54	0.43	1.62	8.12	22	0.43
950607	2233	3.21	0.093	10.7	50	55	0.43	1.39	7.44	23	0.31
950608	0133	3.03	0.093	10.7	48	54	0.44	1.42	7.21	26	0.31
950608	0432	2.90	0.093	10.7	48	54	0.48	1.74	7.33	26	0.48
950608	0734	2.62	0.093	10.7	44	52	0.50	2.11	7.29	25	0.45
950608	1029	2.55	0.093	10.7	42	54	0.51	1.76	6.59	30	0.62
950608	1332	2.32	0.103	9.7	44	54	0.51	2.08	7.04	26	0.52
950608	1635	1.96	0.093	10.7	46	55	0.57	2.62	6.71	25	0.53
950608	1933	1.87	0.103	9.7	46	54	0.54	2.23	6.67	26	0.45
950608	2232	2.04	0.103	9.7	50	55	0.54	2.44	6.86	27	0.17
950609	0133	1.81	0.103	9.7	44	53	0.58	2.81	6.35	28	0.42
950609	0432	1.72	0.103	9.7	44	53	0.58	2.83	6.48	28	0.38
950609	0732	1.37	0.103	9.7	46	57	0.68	3.00	5.11	31	0.54
950609	1032	1.21	0.103	9.7	42	59	0.73	2.76	4.34	36	0.64
950609	1337	1.24	0.103	9.7	32	59	0.75	2.06	3.71	47	0.54
950609	1633	1.14	0.103	9.7	30	59	0.74	2.12	3.94	43	0.11
950609	1933	1.11	0.103	9.7	36	60	0.77	2.36	3.82	42	0.34
950609	2232	1.14	0.113	8.9	38	60	0.79	2.53	3.67	44	0.62
950610	0433	1.11	0.103	9.7	66	64	0.73	1.80	3.77	43	-0.18
950610	0732	1.00	0.093	10.7	64	63	0.77	1.84	3.55	46	-0.03
950610	1032	0.94	0.103	9.7	32	70	0.79	1.32	2.98	58	0.28
950610	1332	1.04	0.162	6.2	56	64	0.75	1.67	3.53	48	0.25
950610	1632	1.11	0.162	6.2	24	57	0.74	1.58	3.64	52	0.05
950610	1932	1.16	0.162	6.2	66	59	0.68	1.56	4.33	41	-0.49
950610	2232	1.46	0.054	18.5	68	61	0.64	1.47	5.02	31	-0.96
950611	0133	2.11	0.064	15.6	70	69	0.50	0.98	7.19	16	-0.06
950611	0433	2.25	0.064	15.6	70	66	0.49	0.68	6.45	19	-0.40
950611	0803	2.30	0.074	13.6	66	62	0.52	1.19	7.51	20	-0.35
950611	1032	2.30	0.074	13.6	62	60	0.57	1.64	6.42	28	-0.18
950611	1332	2.69	0.074	13.6	62	58	0.47	0.82	6.77	27	-0.37
950611	1632	2.85	0.074	13.6	60	59	0.50	0.86	6.31	30	-0.04
950612	0732	3.02	0.074	13.6	58	57	0.46	1.08	7.07	27	-0.14
950612	1032	3.12	0.074	13.6	60	60	0.44	1.04	7.10	24	-0.11
950612	1334	2.91	0.074	13.6	58	60	0.47	1.12	6.68	26	0.01
950612	1633	2.98	0.074	13.6	58	58	0.47	0.98	6.19	27	-0.14
950612	1932	2.90	0.074	13.6	58	57	0.43	1.33	8.42	21	-0.46
950612	2232	2.76	0.083	12.0	58	59	0.45	1.15	7.59	23	0.06
950613	0132	2.73	0.074	13.6	60	61	0.47	0.89	6.04	30	-0.02
950613	0430	2.72	0.074	13.6	62	63	0.46	1.09	7.42	25	0.01
950613	1054	2.54	0.083	12.0	62	64	0.48	1.42	7.30	20	0.17
950613	1338	2.33	0.083	12.0	58	62	0.53	1.13	5.48	30	0.31
950613	1634	2.62	0.074	13.6	66	65	0.48	0.70	6.07	27	-0.01
950613	1933	2.79	0.083	12.0	68	67	0.48	0.94	6.10	26	-0.08
950613	2233	2.33	0.083	12.0	64	67	0.48	1.37	6.93	25	0.11
950614	0133	2.30	0.083	12.0	62	68	0.49	1.48	6.45	26	0.26
950614	0433	2.17	0.083	12.0	64	73	0.53	1.28	5.06	32	0.23
950614	0511	2.15	0.083	12.0	68	71	0.54	1.45	5.43	28	0.17

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Table A1 (Continued)

Date	Time GMT	H_{mo} m	f_p Hz	T_p sec	θ_p deg	θ_0 deg	σ	γ	δ	$\Delta\theta$ deg	A
950614	0733	1.89	0.093	10.7	64	75	0.63	1.16	3.62	39	0.24
950614	1041	1.67	0.103	9.7	58	80	0.69	0.93	3.03	49	0.44
950614	1329	1.69	0.054	18.5	62	87	0.74	0.72	2.45	76	1.00
950614	1634	1.88	0.054	18.5	142	96	0.77	0.26	1.83	83	0.80
950615	0134	1.87	0.054	18.5	142	117	0.83	-0.47	2.39	76	-1.13
950615	0434	1.92	0.054	18.5	140	122	0.69	-0.96	2.71	60	-1.63
950615	0734	1.92	0.054	18.5	142	127	0.66	-1.18	3.14	51	-1.53
950615	1034	1.75	0.054	18.5	140	130	0.68	-1.10	3.23	46	-1.16
950615	1327	1.85	0.054	18.5	142	131	0.67	-1.14	3.31	44	-0.97
950615	1634	1.95	0.054	18.5	136	121	0.75	-0.65	2.26	73	-1.04
950615	1934	1.87	0.054	18.5	164	122	0.77	-0.52	2.15	79	-0.73
950615	2234	1.74	0.054	18.5	154	121	0.76	-0.31	2.10	76	-0.67
950616	0134	1.86	0.054	18.5	78	108	0.72	0.35	2.20	71	0.92
950616	0434	2.23	0.113	8.9	70	96	0.69	0.67	2.47	66	0.93
950616	0734	2.41	0.113	8.9	74	91	0.68	0.99	2.72	58	1.19
950616	1034	2.67	0.103	9.7	74	88	0.66	1.11	3.09	41	0.87
950616	1334	2.71	0.103	9.7	70	84	0.65	1.22	3.30	38	0.70
950616	1634	2.87	0.103	9.7	72	82	0.63	1.23	3.61	35	0.38
950616	1931	2.86	0.103	9.7	70	78	0.60	1.43	4.20	31	0.36
950617	0747	2.44	0.103	9.7	54	75	0.68	1.31	3.28	45	0.59
950617	1033	2.25	0.103	9.7	54	71	0.71	1.95	3.71	37	0.55
950617	1333	1.84	0.064	15.6	60	85	0.79	1.06	2.41	77	1.26
950617	1633	1.88	0.103	9.7	50	78	0.80	1.22	2.50	79	1.39
950617	1933	1.63	0.064	15.6	54	96	0.89	0.48	1.78	97	0.84
950618	0833	1.24	0.064	15.6	60	90	0.83	0.63	2.17	79	1.03
950619	1333	2.34	0.123	8.2	52	57	0.51	1.75	6.43	27	0.25
950619	1633	2.66	0.132	7.6	52	57	0.51	1.57	6.29	28	0.14
950619	1933	2.72	0.123	8.2	54	56	0.46	1.06	6.74	26	0.03
950619	2233	3.00	0.123	8.2	48	55	0.45	1.35	6.96	26	0.31
950620	0133	2.98	0.123	8.2	50	53	0.42	1.10	7.77	25	0.07
950620	0433	2.96	0.113	8.9	54	54	0.41	1.03	7.59	23	-0.02
950620	0733	2.48	0.123	8.2	50	56	0.45	1.30	7.54	25	0.20
950620	1033	2.32	0.093	10.7	56	58	0.43	1.21	8.33	22	0.11
950620	1333	2.41	0.113	8.9	50	55	0.44	1.41	8.47	23	0.27
950620	1633	2.42	0.093	10.7	50	56	0.44	1.50	8.04	22	0.32
950620	1932	2.57	0.093	10.7	52	56	0.43	1.57	8.33	22	0.25
950620	2233	2.38	0.103	9.7	50	56	0.44	1.20	7.67	26	0.27
950621	0133	2.21	0.103	9.7	50	56	0.45	1.32	7.67	26	0.18
950621	0433	2.08	0.103	9.7	54	59	0.45	1.59	8.21	25	0.18
950621	0733	2.02	0.103	9.7	50	56	0.47	2.07	8.43	24	0.28
950621	1033	2.27	0.103	9.7	54	59	0.44	1.73	8.39	25	0.18
950621	1331	2.29	0.103	9.7	48	54	0.41	2.03	10.09	21	0.28
950621	1634	2.06	0.103	9.7	52	55	0.45	2.49	9.60	19	0.19
950621	1933	1.76	0.103	9.7	50	56	0.49	2.76	8.86	19	0.31
950621	2233	1.85	0.103	9.7	48	56	0.49	2.39	8.08	22	0.39
950622	0133	1.77	0.103	9.7	44	55	0.49	1.79	7.08	29	0.69
950622	0433	1.74	0.113	8.9	46	56	0.50	2.08	7.25	27	0.33
950623	0134	1.93	0.113	8.9	38	48	0.48	2.04	7.67	26	0.61
950623	0434	1.77	0.113	8.9	36	49	0.51	2.53	7.52	28	0.58
950623	1033	1.50	0.113	8.9	48	58	0.61	2.86	5.83	27	0.47
950623	1940	1.51	0.123	8.2	48	59	0.66	2.95	5.16	26	0.61

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Table A1 (Continued)

Date	Time GMT	H_{mo} m	f_p Hz	T_p sec	θ_p deg	θ_0 deg	σ	γ	δ	$\Delta\theta$ deg	A
950623	2234	1.47	0.113	8.9	34	53	0.69	2.76	4.87	35	0.44
950624	0134	1.42	0.103	9.7	46	57	0.69	2.75	4.67	30	0.47
950624	0434	1.41	0.113	8.9	48	59	0.70	3.31	4.71	25	0.48
950624	0734	1.22	0.113	8.9	46	62	0.74	3.19	4.24	28	0.81
950624	1034	1.31	0.113	8.9	46	59	0.74	3.14	4.20	28	0.87
950624	1334	1.37	0.113	8.9	42	59	0.79	3.03	3.83	35	1.00
950624	1634	1.48	0.113	8.9	44	55	0.70	3.44	5.08	28	0.63
950624	1934	1.53	0.113	8.9	42	61	0.77	2.73	3.82	38	0.78
950624	2234	1.36	0.103	9.7	38	71	0.91	1.72	2.50	90	1.24
950625	0134	1.38	0.113	8.9	46	70	0.87	2.00	2.78	69	1.09
950625	0434	1.45	0.113	8.9	60	72	0.86	1.99	2.83	67	1.09
950625	0735	1.37	0.113	8.9	48	67	0.88	2.16	2.77	86	1.58
950625	1034	1.27	0.113	8.9	44	72	0.95	1.75	2.28	112	1.98
950625	1401	1.25	0.074	13.6	44	76	0.99	1.41	2.01	118	1.85
950625	1631	1.22	0.074	13.6	50	77	0.97	1.48	2.07	117	1.91
950625	1934	1.28	0.103	9.7	50	73	0.90	2.08	2.63	99	2.02
950625	2234	1.34	0.103	9.7	48	73	0.91	2.12	2.63	97	2.06
950626	0134	1.33	0.113	8.9	48	71	0.84	2.41	3.11	54	1.28
950626	0434	1.16	0.103	9.7	50	69	0.86	2.33	2.93	79	2.00
950626	0734	1.09	0.113	8.9	50	69	0.90	2.06	2.66	92	1.88
950626	1033	1.00	0.113	8.9	50	86	0.96	0.98	1.82	107	1.85
950626	1333	1.05	0.113	8.9	50	73	0.91	1.77	2.44	97	1.92
950627	1315	0.76	0.064	15.6	52	101	0.96	0.30	1.76	105	0.53
950627	1632	0.85	0.103	9.7	50	91	0.92	0.64	1.74	102	1.34
950627	1933	0.64	0.064	15.6	48	110	0.93	-0.11	1.74	104	-0.45
950627	2232	0.53	0.064	15.6	48	119	0.95	-0.48	1.69	111	-1.05
950628	0202	0.76	0.103	9.7	48	102	0.94	0.09	1.57	109	0.06
950628	0433	0.85	0.103	9.7	48	93	0.90	0.42	1.63	100	0.87
950630	1341	0.75	0.074	13.6	166	121	0.92	-0.47	1.81	101	-0.88
950701	0938	0.77	0.074	13.6	168	135	0.85	-1.12	2.37	87	-1.09
950701	1032	0.79	0.074	13.6	164	136	0.84	-1.40	2.60	77	-1.46
950701	1333	0.73	0.074	13.6	164	136	0.86	-1.46	2.51	83	-1.58
950701	1933	0.77	0.074	13.6	166	130	0.92	-1.10	2.10	98	-1.35
950702	0133	0.73	0.074	13.6	170	140	0.82	-1.48	2.81	66	-0.96
950702	0433	0.71	0.074	13.6	170	137	0.90	-1.22	2.47	88	-1.08
950702	0733	0.69	0.083	12.0	160	136	0.82	-1.51	2.78	69	-1.18
950702	1033	0.70	0.083	12.0	172	130	0.89	-0.94	2.07	97	-0.93
950702	1404	0.68	0.083	12.0	174	128	0.92	-0.87	2.02	103	-1.06
950702	1933	0.71	0.083	12.0	164	127	0.90	-0.93	2.09	94	-1.00
950702	2233	0.74	0.083	12.0	164	131	0.87	-1.17	2.28	89	-1.33
950703	0133	0.66	0.064	15.6	168	121	0.90	-0.57	1.94	95	-0.63
950703	0433	0.70	0.064	15.6	160	109	0.92	-0.28	1.75	99	-0.43
950703	0733	0.73	0.064	15.6	172	109	0.95	-0.04	1.75	101	0.21
950703	1033	0.81	0.064	15.6	62	95	0.87	0.48	1.97	90	0.90
950703	1333	0.91	0.064	15.6	62	84	0.82	1.11	2.37	79	1.92
950703	1633	0.96	0.064	15.6	70	84	0.76	1.12	2.95	52	1.38
950703	1933	1.07	0.064	15.6	72	88	0.77	0.81	2.65	62	1.19
950703	2233	1.26	0.064	15.6	66	79	0.71	1.13	3.01	55	1.55
950704	0733	1.27	0.074	13.6	62	74	0.71	1.24	3.28	47	0.49
950704	1033	1.41	0.074	13.6	68	72	0.65	1.40	4.05	34	0.15

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Table A1 (Continued)

Date	Time GMT	H_{mo} m	f_p Hz	T_p sec	θ_p deg	θ_0 deg	σ	γ	δ	$\Delta\theta$ deg	A
950704	1333	1.43	0.074	13.6	66	71	0.72	1.35	3.36	44	0.19
950704	1633	1.57	0.074	13.6	66	70	0.64	1.62	4.31	31	0.16
950704	1933	1.68	0.074	13.6	62	63	0.67	1.48	3.87	42	-0.03
950704	2233	1.66	0.074	13.6	28	65	0.71	1.18	3.27	52	-0.08
950705	0133	1.68	0.074	13.6	66	64	0.69	1.62	3.71	41	-0.06
950705	0433	1.60	0.074	13.6	62	67	0.69	1.57	3.71	39	0.15
950705	0733	1.67	0.083	12.0	68	71	0.61	1.57	4.61	30	0.00
950705	1029	1.76	0.083	12.0	68	69	0.60	1.58	4.53	31	-0.06
950705	1333	1.81	0.132	7.6	64	64	0.64	1.78	4.25	37	-0.12
950705	1706	1.54	0.083	12.0	58	66	0.65	1.94	4.29	34	0.33
950705	2004	1.50	0.083	12.0	58	67	0.71	1.59	3.53	44	0.43
950705	2233	1.52	0.083	12.0	60	67	0.69	1.80	3.80	39	0.31
950706	0133	1.52	0.132	7.6	32	61	0.65	1.77	4.28	39	0.04
950706	0433	1.61	0.142	7.0	62	60	0.64	1.75	4.49	37	-0.10
950706	0730	1.38	0.132	7.6	58	64	0.67	1.94	4.31	36	0.17
950706	0750	1.31	0.132	7.6	60	72	0.73	1.51	3.25	44	0.45
950706	1033	1.41	0.142	7.0	60	69	0.70	1.30	3.53	42	0.25
950706	1333	1.34	0.093	10.7	62	70	0.71	1.24	3.35	45	0.34
950706	1633	1.17	0.093	10.7	58	76	0.78	1.29	2.86	58	0.86
950706	1958	1.35	0.162	6.2	68	68	0.71	1.30	3.48	44	-0.21
950706	2233	1.22	0.152	6.6	66	73	0.72	1.69	3.51	41	0.26
950707	0433	0.97	0.162	6.2	54	64	0.78	1.71	3.31	51	0.50
950707	0733	1.04	0.152	6.6	54	63	0.79	1.58	3.10	54	0.53
950707	1333	0.89	0.162	6.2	58	79	0.86	1.32	2.58	78	1.24
950707	1633	0.81	0.162	6.2	58	82	0.84	1.30	2.61	74	1.43
950707	1933	0.76	0.074	13.6	60	98	0.91	0.56	1.99	92	0.93
950707	2233	0.74	0.074	13.6	56	90	0.88	0.93	2.11	93	1.05
950708	0133	0.72	0.162	6.2	54	86	0.88	0.98	2.16	93	1.22
950708	0433	0.72	0.103	9.7	50	82	0.87	1.15	2.22	89	1.40
950708	0733	0.72	0.162	6.2	44	74	0.89	1.47	2.41	89	1.51
950708	1033	0.72	0.113	8.9	48	76	0.91	1.40	2.35	89	1.61
950708	1333	0.73	0.162	6.2	50	70	0.89	1.68	2.62	82	1.43
950708	1633	0.65	0.074	13.6	50	93	0.96	0.68	1.70	108	1.35
950708	2233	0.61	0.074	13.6	48	99	0.98	0.53	1.61	116	0.99
950709	0131	0.63	0.074	13.6	54	94	0.97	0.84	1.80	112	1.39
950709	0433	0.60	0.074	13.6	46	90	1.01	0.80	1.73	117	1.35
950709	0733	0.58	0.162	6.2	46	83	0.96	1.01	1.86	110	1.61
950709	1033	0.66	0.162	6.2	48	79	0.96	1.26	2.03	111	1.70
950709	1333	0.66	0.162	6.2	50	78	0.92	1.33	2.16	105	1.54
950709	1633	0.62	0.162	6.2	52	88	0.97	0.83	1.75	113	1.48
950709	1933	0.88	0.162	6.2	52	59	0.76	2.23	3.93	35	0.24
950709	2233	1.12	0.162	6.2	30	48	0.65	2.30	5.18	38	0.55
950710	0133	1.08	0.152	6.6	28	47	0.62	2.29	5.59	36	0.42
950710	0433	1.14	0.152	6.6	24	47	0.61	2.56	5.78	33	0.01
950710	0733	1.10	0.152	6.6	28	47	0.60	2.42	6.13	31	0.18
950710	1032	1.13	0.152	6.6	30	49	0.60	1.94	5.29	36	0.56
950710	1332	1.31	0.152	6.6	30	49	0.58	1.32	4.70	44	0.83
950710	1632	1.38	0.152	6.6	28	50	0.53	1.31	5.71	39	0.23
950710	1933	1.29	0.152	6.6	38	50	0.55	1.72	6.35	31	0.08
950710	2233	1.09	0.152	6.6	52	54	0.63	1.87	4.92	36	0.05
950711	0133	1.01	0.162	6.2	28	56	0.65	1.35	4.28	45	0.14
950711	0433	1.09	0.162	6.2	34	55	0.59	1.33	4.71	41	0.27
950711	0733	1.15	0.142	7.0	62	58	0.54	1.35	5.30	34	-0.15

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Table A1 (Continued)

Date	Time GMT	H_{mo} m	f_p Hz	T_p sec	θ_p deg	θ_0 deg	σ	γ	δ	$\Delta\theta$ deg	A
950711	1033	1.19	0.152	6.6	56	57	0.54	1.70	5.99	31	0.03
950711	1333	1.17	0.152	6.6	32	57	0.59	1.41	4.72	40	0.29
950711	1633	1.12	0.162	6.2	32	57	0.63	1.48	4.54	42	0.25
950711	1933	1.14	0.162	6.2	58	56	0.60	1.55	5.48	30	-0.16
950711	2233	1.14	0.152	6.6	54	57	0.62	1.74	5.14	34	0.17
950712	0133	1.30	0.152	6.6	26	56	0.68	1.07	3.57	57	0.52
950712	0433	1.37	0.152	6.6	22	49	0.61	1.32	4.42	45	0.18
950712	0827	0.99	0.162	6.2	26	60	0.70	1.59	3.90	47	0.26
950712	1031	0.94	0.162	6.2	54	66	0.74	1.58	3.68	44	0.51
950712	1358	1.13	0.162	6.2	48	61	0.67	1.48	4.28	42	0.59
950712	1633	1.72	0.162	6.2	48	52	0.57	1.17	4.82	39	0.27
950712	1933	2.01	0.142	7.0	28	49	0.51	1.15	5.67	36	0.10
950712	2233	2.18	0.132	7.6	52	50	0.47	1.48	7.63	27	-0.14
950713	0133	2.16	0.132	7.6	34	49	0.47	1.46	6.35	29	0.19
950713	0433	2.04	0.123	8.2	48	55	0.52	1.21	5.01	37	0.49
950713	0730	1.90	0.123	8.2	50	58	0.52	1.33	5.72	34	0.65
950713	1033	1.58	0.132	7.6	46	57	0.56	1.71	6.04	33	0.45
950713	1333	1.52	0.132	7.6	50	59	0.59	1.85	5.66	33	0.26
950713	2022	1.62	0.132	7.6	78	62	0.55	1.10	5.23	39	-0.07
950713	2235	1.55	0.123	8.2	64	62	0.53	1.92	6.92	26	-0.08
950714	0135	1.63	0.132	7.6	54	57	0.53	1.73	6.66	28	0.05
950714	0435	1.60	0.123	8.2	66	59	0.57	1.47	5.69	34	-0.24
950714	0940	1.47	0.123	8.2	58	59	0.56	2.50	6.59	25	-0.02
950714	1328	1.48	0.132	7.6	48	62	0.60	2.04	5.93	32	0.35
950714	1541	1.52	0.123	8.2	42	56	0.64	2.07	5.50	37	0.67
950714	1933	1.63	0.103	9.7	32	47	0.59	2.65	6.42	32	0.71
950714	2152	1.38	0.103	9.7	40	49	0.65	3.29	5.87	26	0.51
950715	0144	1.25	0.103	9.7	46	60	0.69	2.91	4.79	30	0.78
950715	0444	1.41	0.103	9.7	48	65	0.66	2.06	4.65	36	0.41
950715	0744	1.93	0.113	8.9	48	55	0.52	2.60	7.62	22	0.25
950715	1044	1.87	0.113	8.9	46	51	0.54	3.18	7.70	20	0.28
950715	1344	1.75	0.103	9.7	42	52	0.59	3.05	6.52	25	0.62
950715	1706	1.79	0.103	9.7	44	60	0.65	2.52	5.03	35	0.72
950715	2013	1.83	0.093	10.7	50	59	0.60	2.63	5.79	28	0.27
950716	0146	1.55	0.103	9.7	50	66	0.77	2.65	3.79	33	0.61
950716	0440	2.01	0.103	9.7	52	59	0.57	3.83	7.06	18	0.32
950716	0742	2.12	0.103	9.7	48	53	0.55	3.84	7.69	19	0.12
950716	1042	1.92	0.103	9.7	48	56	0.64	3.56	5.74	23	0.33
950716	1342	1.60	0.103	9.7	42	56	0.75	2.87	4.29	31	0.49
950716	1642	1.48	0.093	10.7	50	67	0.82	2.47	3.33	42	0.85
950716	1943	1.47	0.103	9.7	50	66	0.84	2.23	3.04	52	0.92
950716	2242	1.34	0.103	9.7	46	74	0.92	1.58	2.23	108	1.90
950717	0144	1.33	0.103	9.7	48	68	0.87	2.25	2.83	86	2.11
950717	0442	1.40	0.103	9.7	46	66	0.84	2.47	3.13	55	1.61
950717	0745	1.38	0.103	9.7	44	61	0.84	2.51	3.17	52	1.35
950717	1043	1.16	0.103	9.7	42	66	0.94	2.04	2.44	110	2.08
950717	1341	1.07	0.093	10.7	44	75	0.97	1.63	2.12	114	2.58
950717	1643	1.11	0.093	10.7	44	71	0.93	1.77	2.37	106	2.15
950717	1942	1.18	0.103	9.7	40	61	0.91	2.50	2.81	93	2.05
950717	2247	1.11	0.103	9.7	38	61	0.92	2.27	2.66	101	1.89
950718	0146	0.97	0.103	9.7	44	69	0.93	1.58	2.29	104	1.76
950718	0447	0.93	0.113	8.9	46	78	0.97	1.22	1.92	112	2.06
950718	0744	1.04	0.113	8.9	46	69	0.89	1.75	2.48	94	1.84

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Table A1 (Continued)

Date	Time GMT	H_{mo} m	f_p Hz	T_p sec	θ_p deg	θ_0 deg	σ	γ	δ	$\Delta\theta$ deg	A
950718	1036	0.91	0.113	8.9	38	75	0.93	1.32	2.11	108	1.46
950718	1336	0.88	0.103	9.7	44	76	0.95	1.36	2.10	107	1.95
950718	1636	0.92	0.113	8.9	42	70	0.93	1.50	2.26	101	1.97
950718	1936	1.00	0.113	8.9	42	68	0.94	1.46	2.18	107	1.68
950718	2232	0.87	0.113	8.9	38	68	0.93	1.38	2.24	99	1.32
950719	0433	0.81	0.113	8.9	40	78	0.95	1.08	1.97	103	1.52
950719	0733	0.82	0.113	8.9	36	82	1.01	0.74	1.63	117	1.34
950719	1033	0.77	0.113	8.9	38	82	0.98	0.71	1.63	113	1.36
950719	1333	0.74	0.074	13.6	42	101	0.99	0.12	1.53	113	-0.08
950719	1633	0.68	0.074	13.6	40	107	1.03	-0.04	1.49	122	-0.43
950719	1933	0.77	0.074	13.6	40	88	1.00	0.50	1.62	109	0.82
950719	2233	0.74	0.074	13.6	40	83	1.00	0.77	1.68	111	1.36
950720	0133	0.50	0.074	13.6	42	116	0.95	-0.49	1.61	114	-0.93
950720	0432	0.69	0.074	13.6	40	95	0.97	0.24	1.50	109	0.26
950720	0733	0.72	0.074	13.6	34	88	1.01	0.47	1.53	116	0.66
950720	1033	0.75	0.074	13.6	40	76	0.93	1.00	1.89	103	1.74
950720	1140	0.78	0.113	8.9	38	74	0.92	1.10	2.03	98	1.74
950720	1230	0.78	0.103	9.7	38	71	0.92	1.36	2.16	100	1.81
950720	1333	0.76	0.103	9.7	36	73	0.94	1.16	2.01	103	1.70
950720	1413	0.76	0.113	8.9	38	73	0.95	1.24	2.05	104	1.72
950720	1509	0.74	0.074	13.6	40	77	0.96	1.08	1.96	105	1.54
950720	1933	0.72	0.113	8.9	38	65	0.93	1.74	2.51	92	1.89
950720	2229	0.72	0.113	8.9	42	85	0.89	0.59	2.24	87	0.60
950721	0433	0.62	0.074	13.6	46	85	0.92	0.70	1.75	102	1.36
950721	0733	0.65	0.074	13.6	40	72	0.87	1.30	2.34	90	1.57
950721	1033	0.74	0.103	9.7	34	62	0.85	1.91	2.89	72	1.55
950721	1933	0.58	0.103	9.7	42	77	0.94	1.07	2.12	99	1.47
950722	0133	0.53	0.074	13.6	50	98	0.93	0.28	1.50	107	0.66
950722	0732	0.54	0.113	8.9	46	85	0.95	0.85	1.77	111	1.63
950722	1033	0.57	0.113	8.9	46	81	0.91	1.08	2.07	101	1.37
950722	1333	0.58	0.162	6.2	54	89	0.94	0.64	1.75	108	1.23
950722	1633	0.59	0.162	6.2	64	90	0.93	0.68	1.84	106	1.13
950722	1933	0.77	0.162	6.2	60	68	0.75	1.51	3.35	46	0.31
950722	2233	0.91	0.162	6.2	62	73	0.69	1.57	3.79	38	0.52
950723	0133	1.13	0.162	6.2	62	62	0.62	1.45	4.92	32	-0.07
950723	0433	1.15	0.152	6.6	64	63	0.63	1.53	4.59	34	-0.28
950723	0733	1.25	0.152	6.6	68	64	0.60	1.63	5.21	34	-0.16
950723	1033	1.33	0.152	6.6	46	62	0.58	1.31	5.22	38	0.19
950723	1406	1.43	0.162	6.2	28	55	0.60	1.26	4.79	43	0.03
950723	1633	1.64	0.152	6.6	28	54	0.56	0.87	4.79	43	0.07
950723	1933	1.64	0.152	6.6	48	51	0.52	1.09	6.17	33	0.12
950723	2233	1.61	0.152	6.6	42	52	0.56	0.94	5.03	39	0.14
950724	0133	1.68	0.142	7.0	36	50	0.53	1.02	5.04	40	0.53
950724	0733	1.70	0.142	7.0	52	58	0.49	0.72	6.90	31	0.12
950724	1033	1.79	0.142	7.0	64	56	0.45	0.80	7.26	30	-0.01
950724	1331	1.97	0.132	7.6	42	54	0.45	0.82	6.81	32	0.26
950724	1632	2.00	0.132	7.6	42	53	0.48	0.52	5.71	35	0.13
950724	1931	1.96	0.132	7.6	62	55	0.49	0.44	5.86	33	-0.16
950724	2233	1.74	0.132	7.6	50	53	0.50	0.57	5.40	35	0.05
950725	0133	1.67	0.142	7.0	34	51	0.52	0.66	5.37	39	0.25
950725	0433	1.53	0.142	7.0	36	54	0.49	0.82	6.18	35	0.14
950725	0733	1.67	0.142	7.0	66	58	0.46	0.73	6.90	31	-0.23
950725	1033	1.59	0.132	7.6	70	59	0.45	0.70	7.15	31	-0.22

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Table A1 (Continued)

Date	Time GMT	H_{mo} m	f_p Hz	T_p sec	θ_p deg	θ_0 deg	σ	γ	δ	Δθ deg	*A*
950726	0733	1.22	0.142	7.0	56	59	0.51	2.16	7.45	24	0.10
950726	1033	1.19	0.132	7.6	56	61	0.52	2.36	7.68	18	0.25
950726	1333	1.21	0.132	7.6	50	56	0.51	2.11	8.09	21	0.31
950726	1633	1.11	0.132	7.6	56	58	0.58	2.19	5.95	25	0.04
950726	1933	1.12	0.132	7.6	54	57	0.57	2.36	6.50	24	-0.02
950726	2233	1.25	0.123	8.2	56	59	0.50	3.02	8.83	13	0.10
950727	0433	1.00	0.123	8.2	56	65	0.64	2.80	4.98	18	0.36
950727	0733	0.90	0.132	7.6	52	71	0.79	2.07	3.18	57	1.75
950727	1033	0.85	0.132	7.6	54	81	0.83	1.14	2.26	87	1.77
950727	1330	0.88	0.132	7.6	54	84	0.90	0.99	2.05	93	1.84
950727	1703	0.87	0.064	15.6	56	94	0.92	0.41	1.59	100	1.37
950727	2230	0.76	0.064	15.6	52	108	0.95	-0.12	1.63	103	-0.89
950728	0130	0.81	0.064	15.6	52	107	0.91	-0.01	1.50	104	-0.56
950728	0430	0.78	0.064	15.6	48	108	0.93	-0.03	1.51	109	-0.54
950728	0730	0.89	0.064	15.6	46	114	0.91	-0.45	1.58	106	-1.20
950728	1315	0.93	0.103	9.7	44	89	0.95	0.53	1.57	107	1.47
950728	1630	0.97	0.074	13.6	42	88	0.94	0.58	1.64	108	1.24
950728	2230	0.90	0.074	13.6	52	90	0.91	0.70	1.85	97	1.34
950729	0130	0.98	0.162	6.2	56	75	0.83	1.51	2.73	73	1.24
950729	0430	1.24	0.162	6.2	66	67	0.68	1.77	4.04	34	-0.15
950729	0730	1.74	0.152	6.6	66	61	0.54	1.69	6.07	30	-0.34
950729	1029	1.89	0.132	7.6	62	60	0.53	2.03	6.53	27	-0.12
950729	1928	2.46	0.123	8.2	56	54	0.54	1.81	6.58	29	-0.17
950730	0130	2.14	0.113	8.9	58	61	0.55	2.33	7.25	23	0.13
950730	0429	1.94	0.113	8.9	52	59	0.57	3.94	7.46	18	0.34
950730	0730	1.84	0.113	8.9	50	59	0.62	3.86	6.75	20	0.59
950730	2229	1.74	0.093	10.7	52	59	0.71	5.42	5.79	18	0.50
950731	0129	1.75	0.093	10.7	52	64	0.76	4.22	4.76	23	0.80
950731	0429	1.96	0.093	10.7	50	61	0.73	4.48	5.29	21	0.61
950731	0729	1.94	0.093	10.7	52	60	0.65	4.29	6.37	21	0.58
950731	1629	1.70	0.093	10.7	52	63	0.73	4.08	4.95	22	0.60
950731	1929	1.69	0.093	10.7	50	62	0.74	4.23	5.00	25	0.76
950731	2229	1.86	0.093	10.7	54	62	0.71	4.65	5.47	18	0.49
950801	0129	1.82	0.093	10.7	54	66	0.75	3.79	4.58	24	0.74
950801	0429	1.81	0.093	10.7	52	68	0.80	3.12	3.83	39	1.04
950801	0729	1.81	0.093	10.7	46	65	0.83	2.77	3.63	44	0.79
950801	1029	1.73	0.103	9.7	54	69	0.84	3.16	3.64	38	0.82
950801	1328	1.68	0.093	10.7	56	73	0.82	2.73	3.33	41	1.34
950801	1953	1.77	0.093	10.7	54	65	0.75	3.03	4.28	32	0.53
950801	2228	1.55	0.103	9.7	64	71	0.87	2.27	3.06	51	0.55
950802	0429	1.38	0.103	9.7	44	70	0.89	2.15	2.82	78	1.45
950802	0729	1.47	0.103	9.7	52	72	0.83	2.20	3.04	54	1.07
950802	1029	1.47	0.103	9.7	54	74	0.85	2.10	2.99	53	0.94
950802	1329	1.30	0.103	9.7	54	77	0.90	1.79	2.46	97	2.07
950802	1629	1.28	0.103	9.7	54	73	0.87	2.09	2.76	84	1.85
950802	1929	1.21	0.103	9.7	54	74	0.85	1.82	2.70	80	1.72
950802	2229	1.19	0.103	9.7	52	76	0.88	1.74	2.48	94	1.98
950803	0129	1.15	0.103	9.7	50	69	0.85	2.26	2.96	66	1.68
950803	0429	1.24	0.103	9.7	48	64	0.78	2.65	3.64	35	0.88
950803	1029	1.49	0.103	9.7	48	56	0.66	3.74	5.47	19	0.37
950803	1329	1.43	0.103	9.7	50	61	0.69	3.21	4.84	22	0.73
950803	1629	1.46	0.103	9.7	48	59	0.68	2.89	4.85	28	0.84

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Table A1 (Continued)

Date	Time GMT	H_{mo} m	f_p Hz	T_p sec	θ_p deg	θ_0 deg	σ	γ	δ	$\Delta\theta$ deg	A
950803	1929	1.48	0.113	8.9	48	58	0.66	3.44	5.45	21	0.70
950803	2229	1.29	0.113	8.9	48	64	0.77	2.34	3.75	41	1.00
950804	0129	1.19	0.103	9.7	48	65	0.76	2.48	3.79	36	1.22
950804	0429	1.22	0.103	9.7	50	62	0.71	2.64	4.49	29	0.70
950804	0729	1.33	0.103	9.7	44	60	0.67	2.50	4.58	37	1.21
950804	1329	1.45	0.113	8.9	46	63	0.66	2.36	4.77	37	0.66
950804	1629	1.42	0.103	9.7	48	60	0.66	2.95	5.26	29	0.67
950804	1929	1.39	0.103	9.7	48	59	0.66	2.78	5.24	29	0.73
950804	2258	1.04	0.103	9.7	56	68	0.76	2.29	3.77	36	0.61
950805	0429	0.97	0.103	9.7	48	73	0.80	1.82	3.14	52	1.10
950805	0729	0.95	0.113	8.9	46	71	0.81	1.94	3.23	52	0.99
950805	1029	1.07	0.113	8.9	46	65	0.75	2.22	3.94	43	1.05
950805	1629	1.14	0.093	10.7	52	62	0.67	3.26	5.07	23	0.73
950805	1929	1.22	0.103	9.7	54	64	0.65	2.92	5.18	26	0.71
950805	2225	1.01	0.103	9.7	50	66	0.71	2.38	4.22	36	0.87
950806	0129	1.11	0.103	9.7	50	61	0.66	2.97	5.30	27	0.83
950806	0429	1.09	0.103	9.7	46	60	0.71	3.17	4.72	31	1.23
950806	0729	1.17	0.103	9.7	48	61	0.64	2.75	5.44	29	1.03
950806	1029	1.15	0.103	9.7	46	61	0.73	2.76	4.57	38	1.00
950806	1329	1.13	0.103	9.7	44	61	0.74	2.80	4.51	37	0.69
950806	1629	1.13	0.103	9.7	52	63	0.75	2.99	4.44	33	0.49
950806	1929	1.27	0.103	9.7	48	61	0.68	3.10	5.38	31	0.61
950806	2229	1.19	0.103	9.7	48	60	0.74	2.96	4.58	38	0.71
950807	0153	1.20	0.113	8.9	46	60	0.74	3.48	4.63	34	0.98
950807	0429	1.12	0.113	8.9	48	62	0.78	3.16	4.16	37	0.73
950807	0729	1.02	0.113	8.9	42	68	0.87	2.41	3.21	53	0.63
950807	1329	1.54	0.142	7.0	42	62	0.68	2.02	4.82	42	0.40
950807	1629	1.63	0.142	7.0	76	62	0.61	1.42	5.30	38	-0.06
950807	1929	1.88	0.132	7.6	54	57	0.59	1.78	5.88	33	0.07
950807	2229	1.87	0.132	7.6	36	55	0.61	1.41	4.81	45	0.37
950808	0129	1.95	0.132	7.6	32	58	0.56	1.25	5.46	41	0.04
950808	0429	1.98	0.123	8.2	62	57	0.53	1.44	6.13	36	-0.10
950808	0729	2.22	0.113	8.9	50	57	0.51	1.47	6.47	30	0.41
950808	1028	2.25	0.103	9.7	48	60	0.57	1.66	5.96	35	0.65
950808	1328	2.54	0.093	10.7	38	53	0.56	1.83	6.25	36	0.81
950808	1628	2.52	0.093	10.7	46	55	0.57	2.65	6.94	28	0.63
950808	1928	2.31	0.093	10.7	46	58	0.59	2.46	6.30	29	0.52
950808	2228	2.37	0.093	10.7	44	61	0.62	2.00	5.34	38	0.51
950809	0129	2.21	0.093	10.7	44	63	0.66	2.01	4.84	43	0.74
950809	0429	2.37	0.093	10.7	46	60	0.62	2.14	5.36	37	0.41
950809	0727	2.21	0.093	10.7	46	62	0.64	1.94	4.94	38	0.55
950809	1027	2.01	0.103	9.7	48	68	0.66	1.80	4.57	41	0.28
950809	1329	2.18	0.093	10.7	40	60	0.65	1.76	4.70	44	0.69
950809	1629	2.27	0.093	10.7	34	55	0.61	1.74	5.20	42	0.53
950809	1929	2.03	0.103	9.7	48	59	0.59	2.35	6.20	30	0.53
950809	2229	1.95	0.103	9.7	46	59	0.63	2.40	5.48	35	0.78
950810	0129	1.84	0.103	9.7	32	57	0.64	1.71	4.63	44	0.50
950810	0729	1.86	0.103	9.7	32	57	0.61	1.20	4.51	46	0.33
950810	1029	1.97	0.132	7.6	40	62	0.60	1.45	4.66	41	0.25
950810	1629	2.30	0.132	7.6	40	55	0.55	1.47	5.21	39	0.64
950810	1929	2.30	0.123	8.2	28	49	0.57	1.94	5.65	35	0.42
950810	2229	2.20	0.123	8.2	38	52	0.55	1.57	5.60	35	0.45

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Table A1 (Continued)

Date	Time GMT	H_{mo} m	f_p Hz	T_p sec	θ_p deg	θ_0 deg	σ	γ	δ	$\Delta\theta$ deg	A
950811	0129	2.16	0.123	8.2	32	51	0.56	1.42	5.00	38	0.46
950811	0729	1.80	0.132	7.6	34	56	0.60	1.72	5.09	40	0.38
950811	1029	1.64	0.142	7.0	36	59	0.66	1.82	4.41	41	0.32
950811	1329	1.63	0.142	7.0	34	59	0.67	1.66	4.17	48	0.60
950811	1629	1.65	0.142	7.0	40	65	0.68	1.29	3.84	49	0.33
950811	1926	1.60	0.152	6.6	34	59	0.64	1.57	4.52	42	0.33
950811	2226	1.80	0.142	7.0	48	64	0.61	1.11	4.51	43	0.32
950812	0126	1.84	0.142	7.0	46	62	0.63	1.31	4.53	41	0.52
950812	0426	1.92	0.142	7.0	46	58	0.56	1.71	5.59	35	0.60
950812	0726	1.68	0.123	8.2	50	64	0.58	1.68	5.22	36	0.36
950812	1026	1.69	0.113	8.9	48	63	0.58	2.02	5.78	33	0.59
950812	1326	1.75	0.123	8.2	46	62	0.59	2.05	5.74	36	0.74
950812	1626	1.99	0.103	9.7	42	60	0.55	1.32	4.86	43	0.92
950812	1659	1.93	0.113	8.9	40	60	0.57	1.24	4.69	45	0.71
950812	1926	1.97	0.103	9.7	44	56	0.54	1.48	5.76	36	0.64
950812	2226	1.80	0.103	9.7	50	60	0.55	2.04	6.37	28	0.49
950813	0126	1.66	0.113	8.9	48	60	0.59	2.45	6.11	30	0.56
950813	0426	1.85	0.113	8.9	42	58	0.61	1.69	5.08	41	0.73
950813	0726	1.84	0.103	9.7	46	56	0.53	1.95	6.49	31	0.51
950813	1240	1.94	0.103	9.7	48	54	0.54	3.17	7.90	22	0.29
950813	1626	2.08	0.103	9.7	42	53	0.51	2.06	7.15	28	0.76
950813	1926	2.17	0.103	9.7	42	49	0.47	2.20	8.39	22	0.44
950813	2226	1.84	0.103	9.7	46	54	0.53	2.03	7.01	27	0.52
950814	0126	1.98	0.103	9.7	46	56	0.50	1.99	7.85	25	0.71
950814	0426	2.05	0.103	9.7	44	56	0.50	1.59	7.02	30	0.51
950814	0708	2.17	0.103	9.7	42	57	0.50	1.32	6.32	34	0.55
950814	1008	2.16	0.103	9.7	46	54	0.47	1.72	7.99	27	0.38
950814	1308	2.19	0.103	9.7	46	53	0.48	1.65	7.96	25	0.34
950814	1608	2.06	0.103	9.7	42	55	0.52	1.96	7.18	31	0.62
950814	1908	1.97	0.103	9.7	38	53	0.56	1.83	6.29	35	0.87
950814	2234	1.87	0.103	9.7	42	52	0.57	2.50	6.97	30	0.70
950815	0108	1.59	0.103	9.7	52	62	0.78	1.73	3.88	41	0.32
950815	0408	1.82	0.113	8.9	46	58	0.54	2.29	7.11	28	0.42
950815	0734	2.05	0.113	8.9	50	55	0.46	2.33	8.99	21	0.27
950815	1008	1.88	0.113	8.9	48	52	0.53	2.33	7.74	24	0.17
950815	1308	1.44	0.113	8.9	50	58	0.72	3.27	4.95	28	0.39
950815	1633	1.62	0.113	8.9	38	51	0.63	2.71	6.08	30	0.46
950815	1908	1.69	0.113	8.9	38	55	0.62	2.48	5.89	35	0.44
950815	2208	1.60	0.113	8.9	38	55	0.67	2.96	5.46	35	0.52
950816	0129	1.47	0.113	8.9	48	58	0.69	2.78	4.92	35	0.33
950816	0408	1.33	0.123	8.2	44	61	0.71	2.69	4.56	36	0.59
950816	0708	1.38	0.123	8.2	38	56	0.67	2.74	5.18	36	0.45
950816	1026	1.33	0.132	7.6	38	58	0.72	2.65	4.46	39	0.57
950816	1327	1.33	0.103	9.7	44	61	0.77	2.60	4.01	41	0.59
950816	1626	1.37	0.093	10.7	40	60	0.78	2.69	4.02	41	0.46
950816	1927	1.23	0.123	8.2	34	61	0.79	2.24	3.79	47	0.34
950816	2226	1.27	0.103	9.7	32	61	0.77	2.17	3.94	48	0.21
950817	0426	1.88	0.132	7.6	36	55	0.57	1.90	6.08	36	0.29
950817	1026	1.58	0.142	7.0	30	55	0.63	1.78	5.16	40	0.15
950817	1327	1.49	0.142	7.0	32	57	0.62	1.96	5.35	36	0.07
950817	1626	1.68	0.152	6.6	66	59	0.61	1.64	5.24	38	-0.14
950817	1926	1.74	0.152	6.6	28	55	0.60	1.40	4.99	41	0.00
950817	2226	1.79	0.142	7.0	30	54	0.60	1.41	4.79	43	0.23

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Table A1 (Continued)

Date	Time GMT	H_{mo} m	f_p Hz	T_p sec	θ_p deg	θ_0 deg	σ	γ	δ	$\Delta\theta$ deg	A
950818	0126	2.08	0.132	7.6	34	53	0.55	1.14	5.18	40	0.24
950818	0426	1.95	0.132	7.6	36	53	0.55	1.67	5.71	35	0.26
950818	0726	1.90	0.132	7.6	36	58	0.57	1.41	5.31	37	-0.01
950818	1026	1.87	0.132	7.6	68	60	0.56	1.69	5.83	33	-0.03
950818	1338	1.73	0.132	7.6	50	59	0.61	2.03	5.56	32	0.06
950818	1626	1.74	0.123	8.2	52	59	0.57	2.28	6.15	28	0.13
950818	1926	1.83	0.123	8.2	62	60	0.59	2.08	5.52	32	-0.01
950818	2226	1.95	0.123	8.2	50	60	0.57	1.86	5.72	35	0.09
950819	0126	1.84	0.123	8.2	54	61	0.56	2.26	6.23	29	0.18
950819	0726	1.74	0.113	8.9	48	59	0.59	2.75	6.09	27	0.48
950819	1026	1.81	0.113	8.9	48	57	0.61	2.80	5.77	28	0.35
950819	1356	1.88	0.113	8.9	50	56	0.63	2.56	5.62	29	0.21
950819	1626	2.02	0.113	8.9	44	53	0.60	3.30	6.35	24	0.38
950819	1926	1.85	0.113	8.9	44	53	0.62	3.36	6.20	24	0.40
950819	2000	1.84	0.113	8.9	44	53	0.64	3.36	5.84	24	0.42
950819	2226	1.70	0.113	8.9	44	55	0.70	2.81	4.70	32	0.44
950820	0154	1.55	0.113	8.9	46	56	0.76	3.34	4.37	32	0.44
950820	0426	1.62	0.113	8.9	46	52	0.71	3.64	5.16	27	0.22
950820	0723	1.62	0.113	8.9	48	53	0.72	3.18	4.82	31	0.15
950820	1025	1.33	0.113	8.9	46	60	0.83	3.40	3.69	31	1.03
950820	1626	1.19	0.123	8.2	54	73	0.90	2.49	2.87	86	2.13
950820	1926	1.10	0.123	8.2	54	75	0.90	2.32	2.77	89	2.05
950820	2226	1.12	0.113	8.9	48	69	0.90	2.78	2.96	80	2.00
950820	2303	1.09	0.113	8.9	48	69	0.91	2.83	2.99	80	2.00
950821	0426	1.14	0.113	8.9	46	66	0.91	2.96	3.06	79	2.10
950821	0726	1.21	0.113	8.9	46	64	0.87	3.55	3.45	40	1.61
950821	1026	1.27	0.113	8.9	48	62	0.83	3.42	3.67	33	1.10
950821	1326	1.20	0.103	9.7	44	62	0.87	3.31	3.38	47	1.53
950821	1626	1.16	0.113	8.9	48	66	0.89	3.08	3.15	63	1.80
950821	1926	1.13	0.113	8.9	52	68	0.89	2.64	3.05	63	1.48
950821	2226	1.06	0.113	8.9	50	73	0.92	2.24	2.67	100	2.22
950822	0726	0.85	0.074	13.6	46	93	1.05	0.68	1.48	127	1.46
950822	1325	0.81	0.132	7.6	38	90	1.06	0.78	1.58	130	1.28
950822	1625	0.79	0.074	13.6	28	99	1.08	0.41	1.40	132	0.81
950822	1925	0.74	0.074	13.6	180	110	1.08	-0.01	1.30	129	0.11
950822	2225	0.75	0.074	13.6	180	113	1.05	-0.11	1.32	126	-0.14
950823	0125	0.74	0.074	13.6	176	98	1.05	0.40	1.41	128	0.88
950823	1025	0.93	0.142	7.0	42	75	0.88	1.40	2.48	77	0.84
950824	0636	1.49	0.132	7.6	30	63	0.62	0.84	3.69	54	0.26
950824	1025	1.61	0.123	8.2	38	57	0.60	1.41	4.20	47	0.95
950824	1325	1.82	0.123	8.2	28	54	0.60	0.98	3.65	53	0.70
950824	1625	1.62	0.132	7.6	30	51	0.62	1.14	3.89	53	0.93
950824	1925	1.78	0.123	8.2	28	54	0.59	1.05	4.11	47	0.49
950824	2225	1.74	0.132	7.6	36	55	0.56	1.11	5.07	39	0.42
950825	0125	1.67	0.132	7.6	36	54	0.56	1.08	4.24	44	0.77
950825	0425	1.51	0.132	7.6	36	58	0.59	0.91	3.90	52	0.78
950825	0725	1.43	0.132	7.6	32	56	0.60	1.14	4.39	48	0.80
950825	1025	1.45	0.132	7.6	30	54	0.58	1.30	4.61	44	0.64
950825	1325	1.58	0.132	7.6	30	53	0.56	1.14	4.95	40	0.33
950825	1625	1.56	0.132	7.6	30	53	0.58	0.97	4.27	49	0.75
950825	1925	1.53	0.132	7.6	30	51	0.58	1.06	4.48	46	0.61
950825	2225	1.67	0.132	7.6	34	53	0.55	1.18	5.13	39	0.40

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Table A1 (Continued)

Date	Time GMT	H_{mo} m	f_p Hz	T_p sec	θ_p deg	θ_0 deg	σ	γ	δ	$\Delta\theta$ deg	A
950826	0125	1.74	0.132	7.6	34	57	0.57	0.98	4.93	40	0.20
950826	0425	1.65	0.132	7.6	32	56	0.57	0.95	4.99	42	0.01
950826	0725	1.64	0.132	7.6	32	58	0.61	0.93	4.61	46	0.14
950826	1024	1.91	0.132	7.6	36	57	0.55	1.34	5.35	39	0.25
950826	1325	1.85	0.132	7.6	42	56	0.58	1.07	4.66	45	0.44
950826	1625	1.83	0.142	7.0	30	56	0.63	1.02	4.26	49	0.34
950826	1957	1.71	0.132	7.6	24	56	0.63	1.16	4.31	46	0.03
950826	2257	1.68	0.132	7.6	64	62	0.61	1.29	4.72	40	-0.02
950827	0154	1.79	0.132	7.6	82	64	0.58	0.62	4.27	44	-0.37
950827	0425	1.62	0.132	7.6	86	62	0.66	1.16	4.13	47	0.03
950827	0725	1.49	0.132	7.6	78	67	0.67	1.46	4.03	43	-0.24
950827	1025	1.64	0.132	7.6	78	64	0.65	1.66	4.35	42	-0.31
950827	1325	1.64	0.142	7.0	26	63	0.68	1.19	3.74	51	-0.36
950827	1625	1.56	0.142	7.0	24	59	0.72	1.35	3.59	55	0.16
950827	1925	1.40	0.142	7.0	32	61	0.75	1.76	3.61	51	0.44
950827	2225	1.41	0.132	7.6	34	65	0.71	1.66	3.79	45	-0.13
950828	0125	1.47	0.132	7.6	82	68	0.71	1.30	3.58	49	-0.41
950828	0425	1.71	0.132	7.6	80	64	0.66	1.44	4.08	45	-0.19
950828	0725	1.68	0.123	8.2	34	61	0.65	1.64	4.34	44	0.16
950828	1025	1.58	0.132	7.6	28	64	0.69	1.39	3.79	48	-0.29
950828	1325	1.53	0.132	7.6	74	65	0.65	1.27	4.11	44	-0.74
950828	1625	1.50	0.132	7.6	28	63	0.71	1.45	3.67	49	-0.24
950828	1925	1.58	0.142	7.0	28	60	0.71	1.34	3.70	52	-0.01
950828	2225	1.44	0.142	7.0	28	65	0.72	1.39	3.56	48	-0.29
950829	0125	1.53	0.142	7.0	80	66	0.70	1.28	3.67	49	-0.46
950829	0425	1.66	0.142	7.0	28	58	0.65	1.14	3.98	51	-0.10
950829	0725	1.71	0.132	7.6	32	57	0.65	1.64	4.51	44	0.27
950829	1027	1.60	0.132	7.6	70	62	0.63	1.37	4.58	42	-0.65
950829	1327	1.61	0.132	7.6	70	63	0.60	1.20	4.71	38	-0.60
950829	1627	1.71	0.132	7.6	28	58	0.60	0.83	4.30	47	-0.15
950829	1927	1.59	0.142	7.0	28	54	0.65	1.37	4.33	47	0.31
950829	2228	1.47	0.132	7.6	74	60	0.63	1.26	4.49	43	-0.16
950830	0127	1.64	0.132	7.6	76	60	0.62	1.05	4.24	45	-0.41
950830	0427	1.69	0.132	7.6	28	57	0.62	1.09	4.19	49	0.03
950830	0727	1.63	0.132	7.6	34	61	0.62	1.30	4.32	45	-0.11
950830	1027	1.59	0.132	7.6	80	65	0.60	1.05	4.44	43	-0.31
950830	1327	1.84	0.132	7.6	34	60	0.56	1.06	4.77	42	-0.09
950830	1627	2.10	0.123	8.2	76	58	0.52	0.74	4.87	40	-0.17
950830	1927	2.22	0.123	8.2	72	57	0.54	0.76	4.72	42	-0.42
950830	2227	2.13	0.123	8.2	72	59	0.54	0.91	5.04	38	-0.23
950831	0127	1.99	0.123	8.2	66	60	0.52	1.41	5.70	34	-0.18
950831	0427	1.98	0.123	8.2	72	60	0.54	0.96	4.80	40	-0.66
950831	0727	1.95	0.123	8.2	30	58	0.56	1.04	4.57	43	-0.17
950831	1027	1.95	0.123	8.2	32	59	0.56	0.93	4.45	44	-0.21
950831	1325	1.84	0.123	8.2	68	60	0.55	1.46	5.41	34	-0.14
950831	1627	1.58	0.123	8.2	70	64	0.56	1.10	4.91	34	-0.41
950831	1927	1.55	0.132	7.6	72	63	0.64	0.97	4.02	43	-0.41
950831	2224	1.52	0.132	7.6	66	63	0.65	1.22	3.99	40	-0.19
950901	0127	1.39	0.132	7.6	70	63	0.67	1.15	3.65	45	-0.20
950901	0427	1.39	0.132	7.6	30	61	0.65	1.35	4.02	44	-0.19
950901	0727	1.35	0.142	7.0	76	68	0.66	1.00	3.63	42	-0.61
950901	1327	1.45	0.142	7.0	68	66	0.63	1.50	4.37	36	-0.14
950901	1546	1.40	0.142	7.0	62	65	0.63	1.46	4.44	35	-0.03
950901	1928	1.40	0.142	7.0	38	61	0.63	1.23	4.28	42	0.06

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Table A1 (Continued)

Date	Time GMT	H_{mo} m	f_p Hz	T_p sec	θ_p deg	θ_0 deg	σ	γ	δ	$\Delta\theta$ deg	A
950902	0127	1.15	0.142	7.0	70	65	0.66	1.57	4.05	38	-0.30
950902	0427	1.27	0.142	7.0	60	65	0.71	1.27	4.03	39	0.15
950902	0727	1.52	0.162	6.2	60	63	0.55	1.26	5.35	31	0.02
950902	1028	1.65	0.142	7.0	64	61	0.55	1.16	5.49	33	-0.03
950902	1327	1.61	0.132	7.6	64	62	0.55	1.42	5.51	31	-0.11
950902	1627	1.64	0.152	6.6	60	58	0.54	1.25	5.46	34	-0.27
950902	2227	1.31	0.142	7.0	66	61	0.59	1.47	5.15	34	-0.24
950903	0127	1.32	0.152	6.6	64	61	0.56	1.58	5.71	32	-0.15
950903	0427	1.35	0.162	6.2	64	62	0.57	1.30	5.22	33	-0.13
950903	0727	1.28	0.152	6.6	62	60	0.60	1.44	4.88	34	-0.22
950903	1027	1.20	0.152	6.6	68	67	0.69	1.40	3.79	39	-0.17
950903	1351	1.15	0.162	6.2	68	67	0.66	1.35	4.14	40	-0.13
950903	1627	1.25	0.162	6.2	60	67	0.65	1.22	3.86	42	0.21
950903	2227	1.10	0.162	6.2	64	64	0.75	1.14	3.20	48	-0.01
950904	0127	1.19	0.162	6.2	56	58	0.67	1.40	3.92	42	0.13
950904	0427	1.74	0.152	6.6	62	54	0.58	0.99	4.67	42	-0.43
950904	0727	1.68	0.132	7.6	62	56	0.59	1.39	4.96	38	-0.59
950904	1028	1.65	0.132	7.6	30	57	0.62	1.41	4.55	41	-0.16
950904	1328	1.43	0.142	7.0	52	60	0.62	1.41	4.65	40	0.13
950904	1628	1.75	0.142	7.0	62	56	0.58	1.20	4.71	40	-0.22
950904	1928	1.94	0.142	7.0	24	52	0.54	1.04	4.91	40	-0.10
950904	2227	1.93	0.142	7.0	24	51	0.57	1.20	4.72	41	0.14
950905	0127	1.93	0.132	7.6	32	55	0.54	1.16	4.95	37	-0.03
950905	0427	1.81	0.132	7.6	64	56	0.52	1.47	5.60	34	-0.27
950905	0728	1.47	0.142	7.0	62	63	0.62	1.51	4.60	36	-0.10
950905	1027	1.36	0.152	6.6	62	63	0.64	1.24	4.46	35	-0.10
950905	1627	1.32	0.142	7.0	66	65	0.59	1.36	4.73	33	-0.15
950905	1921	1.37	0.132	7.6	62	68	0.55	1.89	5.67	24	0.24
950905	2227	1.36	0.132	7.6	66	70	0.58	1.82	5.62	23	0.16
950906	0127	1.35	0.132	7.6	66	69	0.55	1.86	5.81	26	0.09
950906	0427	1.54	0.123	8.2	58	62	0.56	1.57	5.60	32	0.06
950906	0727	1.45	0.123	8.2	52	63	0.55	1.85	5.82	29	0.15
950906	1027	1.40	0.123	8.2	62	63	0.59	2.13	5.58	29	0.02
950906	1357	1.32	0.132	7.6	60	62	0.62	2.00	5.31	31	0.00
950906	1927	1.33	0.123	8.2	60	67	0.62	2.96	5.95	21	0.28
950906	2227	1.32	0.113	8.9	68	75	0.62	3.16	6.35	14	0.25
950907	0127	1.26	0.113	8.9	66	73	0.72	2.53	4.74	23	0.27
950907	0427	1.30	0.113	8.9	64	69	0.80	2.29	4.13	31	0.26
950907	0728	1.19	0.123	8.2	64	71	0.81	2.29	3.68	30	0.33
950907	1028	1.46	0.123	8.2	62	70	0.73	2.92	4.55	25	0.35
950907	1331	1.47	0.113	8.9	64	70	0.72	2.68	4.70	27	0.17
950907	1627	1.52	0.113	8.9	58	68	0.75	2.98	4.31	30	0.39
950907	1927	1.52	0.123	8.2	60	70	0.75	2.58	3.99	32	0.42
950907	2227	1.42	0.113	8.9	60	67	0.73	3.00	4.53	28	0.31
950908	0127	1.36	0.093	10.7	62	73	0.75	2.63	4.01	29	0.63
950908	0427	1.40	0.123	8.2	62	65	0.75	2.15	3.93	37	0.01
950908	0727	1.37	0.123	8.2	58	62	0.75	1.99	3.89	38	0.02
950908	1027	1.28	0.123	8.2	54	64	0.77	1.95	3.60	44	0.34
950908	1327	1.37	0.123	8.2	62	69	0.73	1.95	3.91	28	0.36
950908	1627	1.23	0.103	9.7	58	72	0.75	2.22	3.81	36	0.45
950908	1927	1.29	0.113	8.9	60	68	0.76	1.90	3.56	40	0.31
950908	2227	1.31	0.113	8.9	56	67	0.77	2.18	3.64	38	0.38
950909	0203	1.32	0.123	8.2	58	70	0.77	2.03	3.51	41	0.53

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Table A1 (Continued)

Date	Time GMT	H_{mo} m	f_p Hz	T_p sec	θ_p deg	θ_0 deg	σ	γ	δ	$\Delta\theta$ deg	A
950909	0427	1.23	0.123	8.2	58	71	0.77	2.13	3.57	39	0.49
950909	0727	1.15	0.123	8.2	54	71	0.86	1.92	2.88	62	1.13
950909	1102	1.18	0.113	8.9	62	76	0.83	1.63	2.83	56	0.91
950909	1327	1.22	0.123	8.2	58	75	0.79	1.91	3.20	46	0.82
950909	1627	1.13	0.103	9.7	66	77	0.83	1.37	2.78	58	0.46
950909	2227	1.07	0.113	8.9	64	79	0.90	1.20	2.35	88	1.18
950910	0427	1.13	0.123	8.2	72	78	0.79	1.35	2.97	48	0.33
950910	0727	0.99	0.074	13.6	64	84	0.88	1.12	2.30	86	1.27
950910	1027	1.05	0.083	12.0	60	82	0.84	1.16	2.34	83	1.35
950910	1104	1.05	0.113	8.9	58	78	0.83	1.27	2.66	71	1.07
950910	1327	1.13	0.083	12.0	66	79	0.83	1.37	2.63	69	1.00
950910	1927	1.07	0.093	10.7	72	86	0.84	0.92	2.37	76	0.72
950910	2227	1.05	0.093	10.7	60	80	0.81	1.32	2.71	61	0.93
950911	0124	1.10	0.093	10.7	66	84	0.80	1.33	2.82	63	0.99
950911	0428	1.07	0.093	10.7	68	82	0.77	1.44	2.92	51	0.67
950911	0728	0.96	0.093	10.7	72	85	0.82	1.23	2.63	69	0.90
950911	1027	0.96	0.103	9.7	56	83	0.80	1.21	2.65	66	0.83
950911	1628	1.03	0.103	9.7	68	84	0.74	1.07	2.88	54	0.77
950911	1927	1.01	0.103	9.7	78	84	0.77	1.13	2.94	50	0.35
950911	2227	1.01	0.083	12.0	68	84	0.76	1.12	2.85	55	0.76
950912	0128	1.06	0.083	12.0	58	80	0.69	1.36	3.36	46	0.79
950912	0427	1.35	0.083	12.0	66	75	0.62	1.36	4.11	35	0.17
950912	0727	1.25	0.083	12.0	58	70	0.66	1.88	4.22	35	0.76
950912	0806	1.23	0.083	12.0	56	70	0.67	1.87	4.09	35	0.85
950912	1027	1.22	0.093	10.7	56	69	0.69	1.77	4.01	37	0.77
950912	1327	1.39	0.093	10.7	62	70	0.63	1.70	4.44	32	0.43
950912	1627	1.62	0.093	10.7	60	68	0.61	1.40	4.23	34	0.32
950912	1927	1.74	0.162	6.2	62	62	0.65	1.26	3.90	41	-0.13
950912	2227	1.60	0.162	6.2	60	65	0.66	1.34	3.77	40	0.15
950913	0127	1.60	0.162	6.2	26	64	0.70	1.26	3.48	47	0.02
950913	0427	1.89	0.152	6.6	68	63	0.62	1.08	4.04	43	-0.22
950913	0728	2.07	0.152	6.6	68	61	0.62	1.04	4.09	42	-0.45
950913	1028	1.87	0.152	6.6	24	56	0.66	1.38	4.17	44	-0.13
950913	1327	1.98	0.064	15.6	58	57	0.65	1.64	4.64	38	-0.31
950913	1627	2.40	0.142	7.0	62	56	0.59	1.33	4.72	38	-0.34
950913	1928	2.36	0.142	7.0	64	59	0.56	1.13	5.03	37	-0.42
950913	2227	2.34	0.132	7.6	64	58	0.57	1.30	4.86	37	-0.28
950914	0128	2.21	0.142	7.0	56	56	0.62	1.42	4.61	39	-0.06
950914	0427	2.28	0.142	7.0	58	59	0.57	1.18	5.12	32	-0.15
950914	0727	2.37	0.132	7.6	58	58	0.52	1.21	6.12	29	-0.10
950914	1101	2.49	0.132	7.6	58	57	0.53	1.22	5.79	28	-0.14
950914	1327	2.37	0.074	13.6	54	55	0.51	1.71	6.95	24	0.02
950914	1627	2.36	0.074	13.6	54	60	0.53	1.53	6.05	30	0.20
950914	1927	2.61	0.074	13.6	58	57	0.50	1.14	6.07	29	-0.26
950914	2227	2.49	0.132	7.6	60	55	0.47	1.10	6.71	30	-0.33
950915	0127	2.42	0.123	8.2	60	57	0.46	1.02	7.04	27	-0.33
950915	0428	2.41	0.123	8.2	62	59	0.46	1.25	7.26	27	-0.15
950915	0727	2.43	0.123	8.2	60	56	0.46	1.37	7.61	27	-0.21
950915	0852	2.54	0.123	8.2	56	55	0.44	1.43	8.06	27	-0.01
950915	1028	2.39	0.123	8.2	60	58	0.44	1.16	7.70	27	-0.07
950915	1327	2.25	0.123	8.2	60	58	0.45	1.30	7.73	27	-0.12
950915	1627	2.25	0.123	8.2	58	59	0.44	1.43	8.28	24	-0.02
950915	1927	2.16	0.132	7.6	62	55	0.50	1.16	6.42	34	-0.32
950915	2227	2.04	0.132	7.6	60	52	0.50	1.35	6.94	32	-0.31

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Table A1 (Continued)

Date	Time GMT	H_{mo} m	f_p Hz	T_p sec	θ_p deg	θ_0 deg	σ	γ	δ	Δθ deg	*A*
950916	0128	1.59	0.132	7.6	62	57	0.58	1.61	5.52	35	-0.18
950916	0427	1.42	0.142	7.0	54	59	0.63	1.76	5.17	36	0.06
950916	0727	1.43	0.142	7.0	66	60	0.64	1.50	4.88	40	-0.21
950916	1028	1.31	0.162	6.2	32	58	0.69	2.12	4.68	39	0.02
950916	1327	1.05	0.093	10.7	64	66	0.73	2.36	4.27	37	0.11
950916	1627	0.94	0.093	10.7	66	78	0.82	1.74	3.09	54	0.73
950916	1927	0.91	0.093	10.7	58	75	0.82	2.03	3.16	52	0.88
950916	2227	0.81	0.093	10.7	56	75	0.88	2.19	3.02	64	1.19
950917	0127	0.74	0.093	10.7	60	85	0.90	1.75	2.49	93	1.76
950917	0427	0.73	0.093	10.7	58	98	0.98	0.77	1.79	113	1.26
950917	0504	0.71	0.093	10.7	54	93	1.00	1.18	1.97	120	1.49
950917	0727	0.69	0.093	10.7	50	92	1.02	1.09	1.94	119	1.33
950917	1027	0.72	0.093	10.7	52	93	1.00	0.94	1.77	121	1.42
950917	1327	0.71	0.093	10.7	64	90	1.00	1.28	2.00	120	1.56
950917	1627	0.96	0.162	6.2	64	72	0.72	2.84	4.34	26	0.35
950917	1927	1.23	0.162	6.2	62	64	0.63	2.18	5.42	31	0.04
950917	2227	1.31	0.152	6.6	66	68	0.62	2.30	5.55	29	0.02
950918	0127	1.33	0.152	6.6	70	68	0.61	2.43	5.62	27	-0.07
950918	0427	1.37	0.142	7.0	74	71	0.62	2.07	5.23	29	-0.35
950918	0727	1.50	0.132	7.6	64	64	0.62	2.10	5.58	31	-0.01
950918	1027	1.50	0.142	7.0	56	61	0.66	2.45	5.01	34	0.11
950918	1328	1.50	0.142	7.0	56	67	0.64	2.14	5.05	32	0.20
950918	1926	1.49	0.083	12.0	76	73	0.67	1.73	4.26	37	-0.17
950918	2227	1.61	0.093	10.7	74	70	0.63	1.66	4.51	38	-0.16
950919	1027	1.75	0.103	9.7	70	79	0.65	1.49	4.46	33	0.23
950919	1327	1.68	0.113	8.9	60	79	0.71	1.63	3.76	39	0.54
950919	1627	1.50	0.113	8.9	58	81	0.72	1.34	3.40	46	0.31
950919	2227	1.45	0.103	9.7	50	82	0.81	1.17	2.61	67	0.73
950920	0127	1.55	0.113	8.9	52	79	0.82	1.53	2.78	75	1.33
950920	0427	1.44	0.113	8.9	46	81	0.81	1.22	2.62	71	0.80
950920	0727	1.40	0.113	8.9	60	80	0.92	0.98	2.18	97	0.78
950920	1028	1.40	0.123	8.2	66	84	0.94	0.93	2.03	104	1.00
950920	1327	1.34	0.054	18.5	60	98	0.94	0.54	1.65	108	1.14
950920	1627	1.30	0.054	18.5	64	98	0.91	0.60	1.77	101	1.26
950920	2227	1.24	0.054	18.5	170	113	0.95	-0.01	1.51	109	0.13
950921	0127	1.23	0.054	18.5	64	105	0.92	0.25	1.60	104	0.73
950921	0427	1.31	0.103	9.7	58	95	0.89	0.64	1.79	98	1.25
950921	0727	1.23	0.054	18.5	62	97	0.88	0.50	1.87	97	1.10
950921	1028	1.29	0.064	15.6	62	93	0.87	0.69	1.98	95	1.31
950921	1327	1.31	0.064	15.6	80	86	0.84	0.81	2.33	82	0.89
950921	1627	1.34	0.064	15.6	80	92	0.84	0.83	2.29	85	1.26
950921	1927	1.33	0.064	15.6	78	93	0.84	0.72	2.17	87	1.24
950921	2227	1.57	0.074	13.6	78	87	0.74	1.27	3.17	31	0.73
950922	0127	1.59	0.074	13.6	80	90	0.74	1.11	2.85	46	1.30
950922	0427	1.68	0.074	13.6	80	92	0.72	1.28	3.08	35	1.31
950922	0800	1.65	0.083	12.0	78	88	0.69	1.29	3.58	34	0.77
950922	1028	1.84	0.083	12.0	76	90	0.71	1.06	3.11	39	0.60
950922	1326	1.78	0.083	12.0	76	92	0.71	1.22	3.10	41	0.74
950922	1627	1.74	0.083	12.0	80	93	0.73	1.30	3.07	43	0.93
950922	1928	1.71	0.083	12.0	82	94	0.73	1.12	3.09	44	0.86
950922	2227	1.90	0.093	10.7	74	86	0.68	1.58	3.86	30	0.49
950923	0427	2.16	0.054	18.5	64	78	0.64	2.30	4.87	22	1.00
950923	0727	2.28	0.054	18.5	64	78	0.65	2.24	4.72	25	0.89

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Table A1 (Continued)

Date	Time GMT	H_{mo} m	f_p Hz	T_p sec	θ_p deg	θ_0 deg	σ	γ	δ	$\Delta\theta$ deg	A
950923	1027	2.50	0.054	18.5	66	75	0.60	2.33	5.37	20	0.75
950923	1327	2.63	0.054	18.5	66	76	0.61	2.31	5.23	20	0.80
950923	1657	2.82	0.064	15.6	66	74	0.61	2.36	5.53	21	0.52
950923	1928	2.79	0.064	15.6	70	81	0.68	1.73	4.06	30	0.69
950923	2227	2.79	0.064	15.6	68	78	0.65	2.38	4.70	23	0.57
950924	0128	3.05	0.064	15.6	70	78	0.60	2.11	5.21	24	0.37
950924	0427	2.99	0.064	15.6	66	77	0.64	2.17	4.82	27	0.53
950924	0727	2.91	0.064	15.6	64	73	0.59	2.96	6.09	20	0.49
950924	1027	2.81	0.064	15.6	64	74	0.62	2.31	5.20	24	0.57
950924	1327	2.85	0.074	13.6	66	76	0.62	2.52	5.29	24	0.56
950924	1627	2.68	0.064	15.6	66	76	0.64	2.43	4.89	26	0.71
950924	1952	2.56	0.074	13.6	64	77	0.73	2.27	3.83	32	0.88
950924	2227	2.30	0.074	13.6	66	77	0.77	1.86	3.38	41	0.53
950925	0127	2.33	0.074	13.6	62	76	0.70	2.02	4.11	35	0.34
950925	0727	2.27	0.074	13.6	62	71	0.69	2.60	4.65	25	0.41
950925	1043	2.66	0.064	15.6	62	70	0.64	2.14	4.89	29	0.52
950925	1327	2.82	0.064	15.6	58	65	0.57	2.76	6.62	20	0.53
950925	1627	2.76	0.064	15.6	58	62	0.56	2.55	6.89	19	0.37
950925	1927	2.95	0.064	15.6	56	58	0.51	2.78	8.12	15	0.14
950925	2225	3.06	0.064	15.6	60	60	0.52	1.61	6.44	25	-0.05
950926	0125	3.21	0.074	13.6	58	58	0.48	1.79	7.60	23	-0.07
950926	0427	3.06	0.074	13.6	58	61	0.46	1.72	7.72	22	0.19
950926	0727	3.07	0.074	13.6	56	61	0.47	2.05	7.89	22	0.21
950926	1327	2.69	0.074	13.6	58	62	0.49	2.10	7.63	23	0.11
950926	1627	2.92	0.074	13.6	54	59	0.46	2.34	8.69	20	0.17
950926	1927	2.89	0.074	13.6	58	61	0.47	2.24	8.51	20	0.08
950926	2227	2.78	0.083	12.0	60	64	0.48	2.33	7.76	19	0.09
950927	0127	2.42	0.083	12.0	60	65	0.55	2.21	6.27	20	0.17
950927	0427	2.28	0.083	12.0	62	67	0.52	2.77	7.21	17	0.19
950927	0727	2.30	0.083	12.0	60	66	0.58	2.54	5.98	21	0.29
950927	1335	2.12	0.083	12.0	54	64	0.64	2.29	5.00	31	0.24
950927	1930	1.94	0.083	12.0	56	73	0.70	1.94	3.80	38	0.59
950928	0130	1.84	0.093	10.7	58	74	0.69	2.04	3.85	34	0.84
950928	0430	2.05	0.064	15.6	58	72	0.67	1.98	4.09	33	0.64
950928	0730	2.04	0.064	15.6	54	72	0.68	2.36	4.18	29	0.50
950928	1037	1.93	0.064	15.6	60	75	0.74	1.85	3.37	40	0.61
950928	1339	2.05	0.064	15.6	50	75	0.72	1.52	3.29	46	0.52
950928	1637	2.21	0.064	15.6	50	74	0.71	1.34	3.20	51	0.69
950928	1937	2.16	0.103	9.7	50	68	0.72	1.77	3.46	45	0.65
950928	2238	2.22	0.064	15.6	60	69	0.71	1.60	3.47	45	0.36
950929	0138	2.43	0.093	10.7	58	64	0.66	2.03	4.46	34	0.18
950929	0438	2.39	0.093	10.7	58	67	0.60	1.78	4.79	33	0.31
950929	0738	2.44	0.074	13.6	56	66	0.58	1.99	5.31	30	0.27
950929	1028	2.55	0.074	13.6	60	67	0.54	1.68	5.68	30	0.18
950929	1927	2.77	0.123	8.2	60	64	0.51	1.05	5.96	30	0.06
950930	0427	2.66	0.093	10.7	56	61	0.48	1.68	7.44	23	0.20
950930	0727	2.48	0.083	12.0	54	60	0.48	1.83	7.93	23	0.26
950930	1027	2.31	0.093	10.7	58	61	0.52	2.19	7.12	23	0.11
950930	1327	2.13	0.083	12.0	58	64	0.52	2.12	7.01	23	0.23
950930	1627	2.25	0.083	12.0	58	62	0.54	1.81	6.67	25	0.15
950930	1927	2.35	0.113	8.9	56	60	0.50	1.45	6.79	28	0.07
950930	2227	2.18	0.093	10.7	54	59	0.51	1.69	6.83	26	0.16

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Table A1 (Continued)

Date	Time GMT	H_{mo} m	f_p Hz	T_p sec	θ_p deg	θ_0 deg	σ	γ	δ	$\Delta\theta$ deg	A
951001	0127	2.04	0.093	10.7	58	61	0.51	1.44	6.55	24	0.15
951001	0427	2.21	0.113	8.9	58	59	0.50	1.23	6.57	25	0.04
951001	0724	2.25	0.103	9.7	58	59	0.49	1.45	7.32	24	0.06
951001	1627	2.16	0.103	9.7	54	57	0.49	1.77	7.78	20	0.16
951001	1927	2.35	0.103	9.7	54	56	0.47	1.63	7.83	22	0.02
951001	2227	2.23	0.103	9.7	56	58	0.47	1.82	8.25	20	0.08
951002	0127	2.01	0.103	9.7	54	56	0.50	1.89	7.40	22	0.05
951002	0427	2.02	0.103	9.7	54	55	0.52	1.95	6.94	25	0.03
951002	1337	2.07	0.103	9.7	50	51	0.54	1.93	6.94	24	-0.02
951002	1627	2.05	0.103	9.7	46	50	0.55	2.73	7.05	23	0.19
951002	1927	2.01	0.103	9.7	50	52	0.59	2.47	6.32	23	0.07
951002	2227	1.90	0.093	10.7	52	55	0.59	2.47	6.13	26	0.04
951003	0128	1.87	0.074	13.6	56	57	0.62	2.46	5.62	25	-0.22
951003	0421	1.75	0.103	9.7	52	57	0.63	2.94	5.58	22	0.13
951003	0727	1.83	0.103	9.7	52	56	0.59	3.09	6.43	20	0.00
951003	1033	1.99	0.113	8.9	54	57	0.59	3.07	6.32	23	0.10
951003	1627	1.77	0.074	13.6	52	58	0.68	2.89	4.92	23	0.20
951003	1927	1.94	0.083	12.0	54	59	0.67	2.70	4.91	24	0.20
951003	2228	2.20	0.103	9.7	54	56	0.59	2.42	5.92	26	0.04
951004	0127	2.49	0.113	8.9	56	55	0.54	2.06	6.50	25	-0.10
951004	0427	2.60	0.103	9.7	54	52	0.56	2.28	6.60	28	-0.18
951004	0725	2.60	0.103	9.7	54	53	0.57	2.51	6.62	27	-0.23
951004	1021	2.91	0.103	9.7	54	54	0.53	3.17	7.92	19	-0.19
951004	1327	2.97	0.103	9.7	54	54	0.49	3.41	9.46	16	-0.13
951004	1628	2.93	0.093	10.7	48	49	0.53	3.38	8.42	19	-0.07
951004	1922	2.77	0.093	10.7	54	53	0.57	3.22	7.27	18	-0.24
951004	2228	2.66	0.074	13.6	54	56	0.59	3.60	7.03	17	-0.10
951005	0127	2.32	0.083	12.0	56	61	0.66	3.25	5.43	20	0.20
951005	0727	2.23	0.074	13.6	50	59	0.69	3.74	5.15	19	0.38
951005	1027	2.42	0.074	13.6	52	58	0.63	3.89	6.06	16	0.25
951005	1327	2.57	0.083	12.0	48	53	0.61	3.86	6.51	18	0.18
951005	1627	2.20	0.083	12.0	52	58	0.73	3.43	4.61	21	0.26
951005	1927	1.85	0.083	12.0	50	62	0.79	3.01	3.80	28	0.76
951005	2228	1.92	0.083	12.0	50	63	0.80	2.77	3.58	31	0.99
951006	0127	1.86	0.093	10.7	52	64	0.79	3.06	3.74	27	0.75
951006	0427	1.69	0.093	10.7	46	61	0.83	3.02	3.41	35	0.99
951006	1016	1.66	0.093	10.7	46	64	0.87	2.51	3.01	61	1.57
951006	1328	1.62	0.093	10.7	48	58	0.81	3.04	3.65	34	0.69
951006	1627	1.33	0.064	15.6	50	70	0.92	1.90	2.49	103	1.91
951006	1928	1.32	0.093	10.7	50	78	0.94	1.55	2.18	109	2.09
951006	2227	1.34	0.103	9.7	48	73	0.88	1.76	2.59	89	1.65
951007	0428	1.74	0.113	8.9	48	60	0.76	2.63	3.85	37	0.52
951007	0727	1.67	0.113	8.9	58	69	0.83	1.74	2.85	53	0.61
951007	1027	1.59	0.113	8.9	50	62	0.76	2.73	3.90	34	0.61
951007	1327	1.79	0.074	13.6	48	57	0.69	3.40	5.06	26	0.45
951007	1628	1.88	0.083	12.0	48	53	0.66	3.27	5.60	26	0.11
951007	1927	1.90	0.113	8.9	48	51	0.67	3.62	5.54	24	-0.05
951007	2228	1.92	0.083	12.0	50	54	0.63	3.40	5.95	22	0.10
951008	0128	2.14	0.093	10.7	48	53	0.58	3.62	7.12	19	0.25
951008	0427	2.06	0.103	9.7	42	52	0.60	3.23	6.12	23	0.46
951008	0725	2.01	0.083	12.0	44	52	0.63	3.54	5.98	21	0.43
951008	1027	1.71	0.093	10.7	44	53	0.64	3.61	6.03	21	0.51
951008	1327	2.01	0.103	9.7	48	55	0.60	3.39	6.36	21	0.33

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Table A1 (Continued)

Date	Time GMT	H_{mo} m	f_p Hz	T_p sec	θ_p deg	θ_0 deg	σ	γ	δ	$\Delta\theta$ deg	A
951008	1627	1.84	0.103	9.7	44	54	0.60	3.05	6.33	26	0.41
951008	1927	1.78	0.093	10.7	48	57	0.66	3.08	5.25	25	0.39
951009	0128	1.64	0.113	8.9	48	62	0.68	2.50	4.64	32	0.49
951009	0428	1.67	0.113	8.9	52	63	0.67	2.27	4.42	34	0.30
951009	0727	1.63	0.113	8.9	50	60	0.65	2.58	4.95	30	0.40
951009	1028	1.72	0.123	8.2	50	61	0.65	2.60	4.94	28	0.38
951009	1332	1.85	0.123	8.2	52	60	0.67	2.09	4.51	34	0.22
951009	1629	2.04	0.132	7.6	60	59	0.62	2.03	4.92	35	-0.06
951009	2229	1.93	0.132	7.6	56	62	0.69	2.24	4.28	35	0.27
951010	0129	1.88	0.132	7.6	52	68	0.74	1.95	3.64	40	0.65
951010	0433	1.90	0.132	7.6	56	67	0.69	2.21	4.06	30	0.51
951010	0730	2.02	0.074	13.6	52	64	0.71	2.57	4.17	29	0.56
951010	1031	1.98	0.083	12.0	52	62	0.72	2.68	4.24	29	0.48
951010	1330	2.02	0.083	12.0	52	63	0.72	2.92	4.31	24	0.57
951010	1630	1.95	0.074	13.6	50	60	0.76	2.81	3.96	32	0.46
951010	1933	1.91	0.074	13.6	52	65	0.83	2.58	3.31	43	0.93
951010	2231	1.95	0.074	13.6	52	65	0.83	2.33	3.17	49	1.17
951011	0131	1.80	0.083	12.0	52	76	0.86	1.80	2.61	91	1.90
951011	0733	1.63	0.064	15.6	46	80	0.96	1.15	1.87	114	1.83
951011	1329	1.63	0.083	12.0	48	84	0.96	1.06	1.86	113	1.67
951011	1631	1.68	0.083	12.0	48	72	0.90	1.82	2.54	92	1.56
951011	1931	1.71	0.083	12.0	44	74	0.92	1.64	2.29	111	1.77
951011	2231	1.77	0.083	12.0	48	63	0.82	2.25	3.20	46	0.81
951012	0131	1.77	0.064	15.6	48	65	0.81	2.26	3.39	44	0.71
951012	0433	2.47	0.074	13.6	52	63	0.69	2.55	4.48	29	0.17
951012	0731	3.07	0.064	15.6	56	57	0.57	3.07	6.81	23	-0.05
951012	1031	2.93	0.064	15.6	52	55	0.58	3.44	7.03	21	0.10
951012	1332	2.97	0.113	8.9	50	56	0.57	3.94	7.48	17	0.30
951012	1658	3.23	0.074	13.6	54	56	0.52	2.70	7.77	23	-0.01
951012	1938	3.00	0.074	13.6	54	62	0.78	1.81	3.66	41	0.48
951012	2238	2.98	0.093	10.7	52	56	0.55	2.53	6.91	26	0.06
951013	0138	2.84	0.074	13.6	50	59	0.56	2.91	6.75	24	0.43
951013	0440	3.08	0.093	10.7	54	59	0.48	2.78	8.89	19	0.22
951013	0738	3.48	0.083	12.0	54	58	0.44	3.10	10.69	16	0.14
951013	1037	3.04	0.074	13.6	52	56	0.49	3.23	9.18	17	0.25
951013	1339	3.32	0.083	12.0	52	55	0.46	2.96	9.45	17	0.19
951013	1638	3.34	0.083	12.0	56	58	0.47	2.16	8.42	21	0.06
951013	1936	2.95	0.083	12.0	52	56	0.52	2.57	7.71	24	0.11
951013	2238	2.70	0.083	12.0	50	56	0.58	3.41	7.07	21	0.29
951014	0139	2.36	0.093	10.7	50	60	0.63	3.48	5.96	24	0.44
951014	0440	2.52	0.083	12.0	50	59	0.58	3.50	6.67	21	0.38
951014	0738	2.47	0.083	12.0	52	57	0.58	3.35	6.81	22	0.21
951014	1038	2.29	0.093	10.7	48	57	0.62	3.62	6.17	20	0.38
951014	1336	2.03	0.093	10.7	46	62	0.78	3.12	3.93	32	0.74
951014	1640	2.05	0.093	10.7	48	61	0.72	3.10	4.37	27	0.49
951014	2240	2.17	0.083	12.0	52	66	0.73	2.89	4.19	28	0.38
951015	0139	2.07	0.083	12.0	50	66	0.79	2.79	3.60	30	0.50
951015	0737	2.00	0.064	15.6	62	74	0.87	1.97	2.74	78	1.48
951015	1038	1.97	0.064	15.6	58	69	0.83	2.40	3.21	39	0.83
951015	1340	2.08	0.064	15.6	58	72	0.84	2.25	3.08	49	1.31
951015	1638	2.06	0.064	15.6	56	68	0.78	2.73	3.69	28	0.73
951015	1938	2.09	0.064	15.6	60	75	0.81	2.00	3.01	47	1.08
951015	2239	1.86	0.074	13.6	56	71	0.80	2.26	3.32	42	0.91

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Table A1 (Continued)

Date	Time GMT	H_{mo} m	f_p Hz	T_p sec	θ_p deg	θ_0 deg	σ	γ	δ	$\Delta\theta$ deg	A
951016	0138	1.86	0.074	13.6	60	82	0.88	1.03	2.34	83	0.97
951016	0436	1.78	0.074	13.6	62	74	0.78	1.84	3.19	39	0.56
951016	0736	1.79	0.074	13.6	62	72	0.76	2.08	3.56	32	0.41
951016	1036	1.69	0.074	13.6	56	74	0.84	1.83	2.90	53	0.92
951016	1336	1.72	0.083	12.0	62	75	0.83	1.80	2.95	48	0.63
951016	1637	1.80	0.074	13.6	58	61	0.70	2.66	4.63	27	0.03
951016	1937	2.14	0.162	6.2	60	55	0.63	1.97	5.31	35	-0.27
951016	2236	2.45	0.142	7.0	62	52	0.59	1.32	5.13	41	-0.23
951017	0137	2.04	0.142	7.0	64	57	0.62	1.84	5.34	37	-0.45
951017	0437	1.82	0.083	12.0	60	61	0.63	2.20	5.43	33	0.01
951017	0737	1.77	0.142	7.0	54	62	0.60	2.16	5.45	32	0.29
951017	0815	1.78	0.083	12.0	58	62	0.59	2.14	5.72	30	0.17
951017	1036	1.81	0.142	7.0	56	56	0.57	2.35	6.65	28	0.02
951017	1339	1.65	0.152	6.6	58	62	0.63	2.02	5.26	31	0.16
951017	1637	1.59	0.152	6.6	62	63	0.59	2.24	5.99	27	-0.02
951017	1938	1.30	0.152	6.6	64	70	0.63	2.35	5.23	26	0.23
951017	2238	1.28	0.142	7.0	64	68	0.64	2.16	4.97	27	0.13
951018	0138	1.41	0.142	7.0	58	66	0.56	2.25	6.31	26	0.24
951018	0440	1.55	0.123	8.2	56	63	0.56	2.58	6.55	23	0.24
951018	0738	1.75	0.123	8.2	54	59	0.54	2.07	6.51	25	0.26
951018	1301	1.54	0.132	7.6	62	62	0.54	1.99	7.10	28	-0.01
951018	1455	1.55	0.132	7.6	56	58	0.57	2.39	6.57	28	0.07
951018	1640	1.50	0.132	7.6	56	61	0.58	2.02	5.87	27	0.20
951018	1938	1.42	0.132	7.6	52	65	0.58	1.60	5.07	34	0.60
951018	2240	1.31	0.142	7.0	54	64	0.65	1.55	4.71	37	0.47
951019	0140	1.21	0.142	7.0	52	63	0.60	1.78	5.12	32	0.52
951019	0439	1.34	0.142	7.0	50	59	0.58	2.26	5.96	28	0.55
951019	0738	1.42	0.142	7.0	50	56	0.58	2.45	6.37	25	0.42
951019	1340	1.72	0.083	12.0	50	58	0.52	2.16	7.00	25	0.41
951019	1640	1.86	0.083	12.0	48	53	0.47	2.79	9.51	18	0.31
951019	1939	1.73	0.093	10.7	52	58	0.49	2.47	8.49	20	0.39
951019	2238	1.66	0.083	12.0	44	56	0.55	2.01	6.44	28	0.45
951020	0138	1.63	0.093	10.7	48	59	0.55	1.80	6.48	32	0.23
951020	0740	1.72	0.083	12.0	48	60	0.53	1.52	5.84	33	0.47
951020	1040	1.74	0.093	10.7	40	60	0.57	1.34	5.17	39	0.56
951020	1340	1.66	0.083	12.0	42	61	0.57	1.46	5.15	39	0.42
951020	1940	1.54	0.083	12.0	72	66	0.53	1.09	5.28	35	-0.10
951020	2238	1.36	0.083	12.0	54	67	0.57	1.26	5.04	36	0.09
951021	0440	1.20	0.093	10.7	42	69	0.62	1.00	4.09	45	-0.11
951021	0739	1.14	0.093	10.7	66	73	0.62	1.20	4.35	38	0.16
951021	1038	1.04	0.054	18.5	66	74	0.64	1.44	4.45	36	0.46
951021	1339	1.39	0.064	15.6	66	70	0.57	1.33	5.26	30	0.33
951021	1638	1.97	0.064	15.6	62	62	0.51	0.53	5.26	33	-0.12
951021	1938	2.94	0.064	15.6	62	58	0.41	0.42	6.09	27	-0.33
951021	2238	2.99	0.074	13.6	56	55	0.42	0.89	7.10	25	-0.08
951022	1038	3.76	0.074	13.6	56	55	0.37	0.91	10.26	17	-0.16
951022	1338	3.76	0.064	15.6	58	53	0.39	0.60	8.59	23	-0.47
951022	1711	3.70	0.074	13.6	58	54	0.39	0.67	8.93	19	-0.39
951022	1938	3.36	0.074	13.6	56	53	0.39	0.89	10.06	18	-0.44
951022	2238	3.03	0.074	13.6	56	55	0.42	1.36	9.60	16	-0.23
951023	0138	2.91	0.074	13.6	56	56	0.46	1.10	7.93	22	-0.16
951023	0439	2.78	0.074	13.6	54	55	0.43	1.22	8.80	22	-0.06
951023	0740	2.63	0.074	13.6	58	58	0.42	1.16	9.62	17	-0.05

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Table A1 (Continued)

Date	Time GMT	H_{mo} m	f_p Hz	T_p sec	θ_p deg	θ_0 deg	σ	γ	δ	$\Delta\theta$ deg	A
951023	1037	2.36	0.074	13.6	54	58	0.46	1.70	8.75	18	0.25
951023	1338	2.21	0.074	13.6	52	56	0.43	1.62	9.63	19	0.19
951023	1638	2.32	0.083	12.0	50	56	0.50	1.21	6.24	31	0.30
951023	1939	2.10	0.083	12.0	54	57	0.50	1.45	7.02	24	0.14
951023	2241	1.60	0.083	12.0	60	66	0.52	2.52	8.17	18	0.46
951024	0139	1.60	0.083	12.0	58	66	0.53	2.13	7.01	23	0.48
951024	0439	1.73	0.093	10.7	50	59	0.54	1.98	6.39	28	0.44
951024	0741	1.55	0.103	9.7	56	63	0.55	2.20	6.77	27	0.37
951024	1029	1.05	0.113	8.9	68	80	0.72	1.94	4.28	32	0.67
951024	1330	1.04	0.093	10.7	66	83	0.72	1.58	3.86	42	0.95
951024	1629	1.25	0.054	18.5	60	74	0.67	2.49	4.71	24	0.85
951024	1929	1.24	0.054	18.5	60	71	0.68	3.03	5.00	20	1.17
951024	2229	1.33	0.054	18.5	62	76	0.76	2.50	3.79	31	1.49
951025	0129	1.50	0.064	15.6	56	71	0.74	2.88	4.23	26	1.21
951025	0431	1.61	0.064	15.6	56	65	0.67	3.15	5.20	22	0.63
951025	0751	2.03	0.064	15.6	58	63	0.62	3.26	6.14	21	0.35
951025	1036	1.99	0.064	15.6	56	61	0.64	3.62	6.00	16	0.37
951025	1252	2.25	0.074	13.6	54	57	0.59	3.71	7.20	14	0.05
951025	1533	2.60	0.074	13.6	50	52	0.52	2.84	8.18	19	0.01
951025	1929	2.76	0.074	13.6	56	56	0.63	2.03	5.37	28	-0.24
951026	0730	1.96	0.083	12.0	56	61	0.65	3.18	5.55	22	0.13
951026	1026	1.82	0.093	10.7	52	63	0.71	3.18	4.67	25	0.41
951026	1327	1.61	0.083	12.0	52	66	0.79	2.76	3.72	35	0.80
951026	1700	1.52	0.083	12.0	54	64	0.75	2.44	3.98	39	0.42
951026	1927	1.69	0.162	6.2	64	65	0.75	2.23	3.91	38	0.08
951026	2227	1.59	0.162	6.2	62	70	0.78	2.02	3.45	39	0.26
951027	0127	1.38	0.093	10.7	62	80	0.82	1.88	2.96	61	1.42
951027	0427	1.42	0.093	10.7	58	76	0.77	2.06	3.32	49	1.30
951027	0727	1.50	0.142	7.0	52	72	0.78	1.96	3.32	48	0.66
951027	1327	1.24	0.093	10.7	60	82	0.84	1.54	2.79	67	1.31
951027	1627	1.35	0.132	7.6	60	77	0.79	1.95	3.18	51	1.09
951027	1928	1.52	0.103	9.7	66	73	0.69	2.15	4.27	32	0.29
951027	2227	1.48	0.132	7.6	68	73	0.68	2.38	4.49	26	0.29
951028	0127	1.54	0.064	15.6	60	79	0.76	1.80	3.19	47	1.23
951028	0427	1.77	0.064	15.6	54	69	0.68	2.19	4.27	32	0.78
951028	1028	1.89	0.064	15.6	62	68	0.60	2.21	5.39	23	0.26
951028	1327	1.89	0.074	13.6	58	68	0.59	2.69	5.96	19	0.47
951028	1627	1.96	0.074	13.6	58	65	0.54	2.83	7.08	19	0.34
951028	1927	2.06	0.074	13.6	60	65	0.51	2.46	7.46	20	0.15
951028	2227	1.87	0.074	13.6	58	65	0.55	2.47	6.51	21	0.30
951029	0127	1.71	0.074	13.6	60	71	0.64	2.18	4.71	26	0.63
951029	0427	1.93	0.074	13.6	56	64	0.54	2.31	6.41	22	0.49
951029	0727	1.95	0.074	13.6	54	64	0.61	2.00	5.28	31	0.40
951029	1027	1.86	0.074	13.6	58	63	0.55	2.47	6.79	20	0.31
951029	1328	1.65	0.083	12.0	62	70	0.58	2.55	6.23	19	0.52
951029	1628	1.63	0.083	12.0	64	72	0.58	2.13	5.61	24	0.39
951029	1927	1.46	0.083	12.0	60	71	0.64	2.12	4.80	29	0.75
951029	2227	1.38	0.083	12.0	60	71	0.63	1.96	4.72	27	0.63
951030	0127	1.41	0.083	12.0	60	73	0.64	1.89	4.51	34	0.85
951030	0427	1.47	0.083	12.0	56	71	0.63	1.79	4.47	37	0.94
951030	0727	1.50	0.083	12.0	56	70	0.61	1.82	4.75	33	0.86
951030	1028	1.39	0.083	12.0	60	74	0.64	1.68	4.43	34	0.70
951030	1334	1.28	0.093	10.7	58	74	0.67	1.64	4.03	39	0.91

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Table A1 (Continued)

Date	Time GMT	H_{mo} m	f_p Hz	T_p sec	θ_p deg	θ_0 deg	σ	γ	δ	$\Delta\theta$ deg	A
951030	1627	1.27	0.083	12.0	60	77	0.68	1.63	3.88	40	0.91
951030	1928	1.25	0.074	13.6	56	78	0.70	1.43	3.67	45	0.58
951030	2224	1.13	0.083	12.0	60	77	0.70	1.64	3.76	42	0.87
951031	0128	1.15	0.083	12.0	54	81	0.72	1.15	3.14	53	0.55
951031	0428	1.07	0.083	12.0	56	82	0.73	1.32	3.11	53	0.70
951031	0727	1.16	0.083	12.0	54	81	0.67	1.21	3.50	46	0.30
951031	1627	1.03	0.093	10.7	74	92	0.73	0.97	2.85	55	0.59
951031	1927	1.11	0.093	10.7	72	90	0.73	0.87	2.80	55	0.53
951031	2221	1.05	0.093	10.7	86	92	0.75	1.00	2.78	54	0.47
951101	0121	1.08	0.103	9.7	94	98	0.78	0.57	2.31	71	0.38
951101	0421	1.08	0.083	12.0	82	96	0.74	0.70	2.51	61	0.41
951101	0721	0.96	0.083	12.0	78	105	0.77	0.43	2.22	77	0.88
951101	1021	1.09	0.083	12.0	82	95	0.75	0.86	2.64	62	0.85
951101	1321	1.08	0.093	10.7	64	91	0.77	1.00	2.72	58	0.53
951101	1927	1.11	0.064	15.6	60	93	0.75	0.79	2.68	66	0.55
951102	0127	1.15	0.064	15.6	58	91	0.73	0.74	2.66	66	0.71
951102	0427	1.27	0.064	15.6	60	84	0.71	1.34	3.05	50	1.11
951102	0728	1.41	0.064	15.6	56	83	0.75	1.29	2.85	58	1.06
951102	1027	1.42	0.064	15.6	58	77	0.68	1.79	3.88	38	0.77
951102	1328	1.53	0.074	13.6	58	75	0.65	1.65	4.08	37	0.73
951102	1629	1.67	0.074	13.6	54	74	0.66	1.47	3.76	42	0.62
951102	1929	1.69	0.074	13.6	56	74	0.62	1.61	4.36	39	1.09
951103	0729	1.79	0.074	13.6	54	65	0.59	1.95	5.44	30	0.71
951103	1032	1.96	0.074	13.6	54	66	0.55	1.62	5.52	31	0.32
951103	1630	1.83	0.083	12.0	56	60	0.58	1.73	5.13	35	0.28
951103	1930	1.95	0.113	8.9	48	56	0.54	1.64	5.64	30	0.33
951103	2230	2.12	0.083	12.0	46	55	0.50	2.03	7.09	25	0.33
951104	0130	2.22	0.093	10.7	54	58	0.44	2.31	9.11	20	0.23
951104	0430	2.07	0.083	12.0	52	57	0.46	2.24	8.72	22	0.17
951104	0730	1.84	0.083	12.0	54	60	0.50	2.77	8.07	18	0.40
951104	1030	1.68	0.083	12.0	56	64	0.52	2.10	6.96	22	0.32
951104	1630	1.65	0.093	10.7	52	58	0.49	2.64	8.50	20	0.39
951104	1930	1.52	0.093	10.7	48	57	0.55	2.54	6.84	23	0.61
951104	2231	1.41	0.103	9.7	46	58	0.56	2.31	6.45	26	0.73
951105	0130	1.37	0.103	9.7	50	60	0.58	2.36	6.16	27	0.53
951105	0431	1.32	0.103	9.7	54	61	0.60	2.71	6.23	26	0.30
951105	0731	1.31	0.103	9.7	48	57	0.60	2.89	6.38	25	0.45
951105	1031	1.28	0.093	10.7	50	61	0.60	2.69	5.99	27	0.46
951105	1330	1.29	0.113	8.9	48	59	0.62	2.30	5.63	30	0.53
951105	1630	1.27	0.162	6.2	50	59	0.60	2.18	5.81	32	0.31
951105	1929	1.27	0.162	6.2	58	60	0.61	1.97	5.67	31	0.10
951105	2230	1.11	0.162	6.2	52	62	0.66	2.19	5.11	31	0.33
951106	0131	1.27	0.162	6.2	58	65	0.63	1.68	5.16	34	0.16
951106	0731	1.89	0.064	15.6	50	58	0.54	2.48	7.69	23	0.30
951106	1031	1.92	0.064	15.6	50	56	0.54	3.59	8.53	15	0.77
951106	1331	2.08	0.064	15.6	52	56	0.48	3.17	9.80	17	0.27
951106	1716	2.44	0.064	15.6	46	55	0.47	2.07	8.55	22	0.43
951106	1930	2.40	0.074	13.6	52	57	0.45	1.42	8.42	26	0.25
951107	0131	2.10	0.074	13.6	52	66	0.79	1.02	3.37	53	0.42
951107	0431	2.38	0.074	13.6	50	60	0.46	1.26	7.92	26	0.52
951107	0731	2.20	0.074	13.6	56	62	0.47	1.63	8.69	23	0.28
951107	1029	2.03	0.083	12.0	58	64	0.47	1.74	9.13	21	0.26

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Table A1 (Continued)

Date	Time GMT	H_{mo} m	f_p Hz	T_p sec	θ_p deg	θ_0 deg	σ	γ	δ	$\Delta\theta$ deg	A
951107	1330	2.20	0.074	13.6	54	62	0.44	1.18	8.16	26	0.20
951107	1631	2.13	0.074	13.6	44	58	0.47	1.02	6.86	33	0.20
951107	2231	1.69	0.074	13.6	60	65	0.50	2.22	7.77	21	0.22
951108	0131	1.55	0.083	12.0	60	65	0.49	2.39	8.01	20	0.25
951108	0431	1.74	0.083	12.0	50	58	0.47	2.24	8.54	21	0.35
951108	0731	1.46	0.083	12.0	54	62	0.54	2.44	7.22	23	0.32
951108	1031	1.39	0.093	10.7	56	63	0.54	2.56	7.35	22	0.29
951108	1331	1.37	0.083	12.0	56	63	0.52	2.34	7.36	23	0.34
951108	1631	1.33	0.093	10.7	52	62	0.54	2.11	6.56	28	0.26
951108	1931	1.13	0.093	10.7	52	63	0.63	2.51	5.54	28	0.41
951108	2231	1.00	0.083	12.0	60	73	0.66	2.27	4.57	27	0.72
951109	0130	1.05	0.093	10.7	62	70	0.59	2.03	5.53	25	0.39
951109	0431	1.20	0.162	6.2	60	62	0.59	1.93	5.52	28	0.09
951109	0730	1.26	0.152	6.6	58	57	0.60	2.36	5.97	29	-0.11
951109	1028	1.20	0.152	6.6	56	63	0.65	2.46	5.16	24	0.29
951109	1330	1.44	0.142	7.0	60	61	0.52	2.69	8.02	21	0.02
951109	1631	1.34	0.162	6.2	60	62	0.54	2.12	6.97	23	-0.04
951109	2231	1.47	0.162	6.2	50	51	0.60	1.74	5.60	33	-0.09
951110	0130	2.18	0.142	7.0	58	49	0.51	0.82	5.77	34	-0.33
951110	0431	2.28	0.132	7.6	58	53	0.47	1.16	7.53	27	-0.31
951110	0731	2.22	0.123	8.2	56	55	0.42	1.79	10.41	20	-0.08
951110	1048	2.02	0.113	8.9	56	58	0.45	2.45	10.18	18	0.04
951110	1333	1.97	0.103	9.7	58	59	0.46	2.74	9.66	16	0.08
951110	1631	2.07	0.103	9.7	54	59	0.48	2.16	8.43	21	0.32
951110	1931	1.98	0.103	9.7	56	60	0.51	2.31	7.93	22	0.18
951110	2230	1.74	0.103	9.7	56	63	0.55	3.11	7.29	20	0.28
951111	0130	1.51	0.103	9.7	56	67	0.61	2.71	5.77	26	0.68
951111	0731	1.43	0.103	9.7	54	67	0.64	2.56	5.39	31	0.56
951111	1031	1.16	0.103	9.7	60	74	0.74	2.40	4.00	34	0.72
951111	1331	1.19	0.103	9.7	60	76	0.75	2.16	3.72	40	0.80
951111	1631	1.23	0.103	9.7	62	72	0.66	2.28	4.90	29	0.41
951111	1931	1.20	0.103	9.7	56	69	0.71	2.51	4.49	34	0.55
951111	2231	0.98	0.113	8.9	58	76	0.78	2.20	3.45	41	0.83
951112	0131	0.92	0.113	8.9	54	81	0.83	1.56	2.75	66	1.23
951112	0431	0.98	0.103	9.7	58	83	0.87	1.57	2.57	83	1.59
951112	0731	0.90	0.113	8.9	60	81	0.84	1.82	2.87	60	1.08
951112	1031	0.89	0.103	9.7	60	83	0.84	1.77	2.80	65	1.48
951112	1331	1.02	0.054	18.5	58	76	0.81	2.24	3.26	46	1.50
951112	1631	1.32	0.064	15.6	52	63	0.63	3.48	6.04	17	0.64
951112	1930	1.89	0.064	15.6	56	60	0.56	3.74	7.87	14	0.24
951112	2230	2.44	0.064	15.6	60	61	0.45	3.91	11.64	10	-0.05
951113	0130	2.49	0.064	15.6	56	59	0.43	3.48	12.21	11	0.14
951113	0431	2.61	0.064	15.6	58	58	0.40	3.34	13.89	12	0.01
951113	0731	2.72	0.074	13.6	56	58	0.42	3.12	12.42	12	0.15
951113	1031	2.60	0.074	13.6	56	59	0.43	2.47	11.39	16	0.08
951113	1331	2.26	0.074	13.6	58	61	0.46	3.01	10.66	13	0.14
951113	1631	2.34	0.074	13.6	56	60	0.46	3.14	10.61	14	0.19
951113	1931	2.26	0.074	13.6	56	59	0.46	2.71	10.19	17	0.17
951113	2231	2.18	0.074	13.6	58	60	0.47	2.61	9.50	18	0.05
951114	0130	1.91	0.083	12.0	60	63	0.47	2.46	9.37	17	0.15
951114	0430	1.92	0.083	12.0	58	63	0.48	2.13	8.05	20	0.27
951114	0730	1.69	0.083	12.0	64	66	0.52	2.04	7.41	24	0.05
951114	1031	1.65	0.083	12.0	58	64	0.51	2.25	7.55	24	0.16

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Table A1 (Continued)

Date	Time GMT	H_{mo} m	f_p Hz	T_p sec	θ_p deg	θ_0 deg	σ	γ	δ	$\Delta\theta$ deg	A
951114	1330	1.40	0.083	12.0	62	68	0.57	2.34	6.61	24	0.21
951114	1631	1.36	0.083	12.0	64	70	0.55	2.00	6.31	25	0.22
951114	1930	1.40	0.093	10.7	68	66	0.54	1.46	6.37	29	-0.08
951114	2231	1.38	0.093	10.7	54	63	0.55	1.64	5.90	32	0.20
951115	0130	1.22	0.093	10.7	60	62	0.53	1.65	6.53	27	0.10
951115	0431	1.25	0.093	10.7	60	65	0.56	1.46	6.30	27	0.22
951115	0731	1.37	0.093	10.7	58	63	0.50	1.32	6.89	26	0.19
951115	1032	1.52	0.162	6.2	60	61	0.50	1.13	6.50	29	0.09
951115	1332	1.46	0.162	6.2	62	63	0.51	1.07	7.02	27	0.01
951115	1632	1.42	0.162	6.2	60	58	0.54	0.95	5.70	31	-0.24
951115	1932	1.79	0.162	6.2	60	52	0.50	0.47	5.45	35	-0.45
951115	2232	1.69	0.162	6.2	60	56	0.51	0.52	5.16	34	-0.29
951116	0132	1.56	0.152	6.6	62	63	0.50	0.64	6.20	29	-0.08
951116	0432	1.62	0.074	13.6	72	66	0.48	0.79	6.35	28	-0.19
951116	0732	1.72	0.074	13.6	78	73	0.46	0.62	6.65	26	-0.14
951116	1032	1.76	0.083	12.0	78	75	0.48	0.42	6.00	29	-0.09
951116	1332	1.79	0.083	12.0	66	74	0.45	0.70	6.81	26	0.06
951116	1632	1.72	0.083	12.0	70	75	0.45	0.91	7.05	24	0.15
951116	1931	1.93	0.083	12.0	72	75	0.44	0.48	6.95	25	0.08
951116	2232	2.05	0.074	13.6	70	75	0.45	0.63	6.48	27	0.13
951117	0132	2.07	0.083	12.0	66	72	0.43	1.00	7.49	24	0.17
951117	0432	1.96	0.083	12.0	64	75	0.47	1.31	6.88	26	0.41
951117	0732	2.14	0.083	12.0	60	71	0.51	1.29	6.09	31	0.67
951117	1035	1.89	0.083	12.0	56	72	0.53	1.14	5.34	35	0.36
951117	1356	1.81	0.083	12.0	64	73	0.54	1.36	5.26	31	0.40
951117	1634	1.75	0.093	10.7	64	76	0.57	1.52	4.95	32	0.50
951117	1933	1.63	0.093	10.7	72	79	0.58	1.06	4.35	38	0.14
951117	2233	1.60	0.093	10.7	62	78	0.61	1.37	4.15	37	0.25
951118	0433	1.36	0.103	9.7	66	81	0.65	1.70	4.12	36	0.89
951118	0732	1.53	0.054	18.5	66	78	0.62	1.85	4.71	30	1.10
951118	1033	1.85	0.054	18.5	66	75	0.58	1.83	5.07	25	0.70
951118	1333	2.17	0.064	15.6	70	75	0.52	1.68	6.07	21	0.38
951118	1633	2.46	0.064	15.6	66	71	0.48	2.00	7.00	19	0.32
951118	1933	2.79	0.064	15.6	70	72	0.46	1.13	7.03	23	0.10
951118	2258	3.12	0.064	15.6	68	71	0.45	0.83	7.02	23	0.20
951119	0132	3.00	0.074	13.6	68	71	0.48	0.81	6.20	28	0.07
951119	0429	2.72	0.074	13.6	74	70	0.49	0.67	6.14	28	-0.15
951119	0732	2.84	0.074	13.6	66	68	0.45	0.77	6.85	25	0.14
951119	1032	2.84	0.074	13.6	68	69	0.46	0.82	6.81	27	0.01
951119	1332	2.79	0.074	13.6	64	68	0.46	1.05	7.03	25	0.21
951119	1632	2.47	0.074	13.6	66	71	0.48	1.06	6.47	28	0.23
951119	1932	2.29	0.074	13.6	72	72	0.52	0.82	5.50	35	-0.03
951119	2254	2.39	0.074	13.6	56	69	0.52	0.76	4.84	39	0.47
951120	0132	2.19	0.074	13.6	66	72	0.50	0.92	5.76	31	0.15
951120	0732	1.99	0.083	12.0	60	69	0.53	1.60	5.98	28	0.46
951120	1033	2.22	0.083	12.0	60	69	0.50	0.94	5.54	33	0.18
951120	1325	1.98	0.083	12.0	60	71	0.54	1.15	5.22	34	0.15
951120	1633	1.80	0.083	12.0	60	70	0.55	1.55	5.65	33	0.39
951120	1932	1.45	0.083	12.0	50	73	0.67	1.47	3.91	45	0.45
951120	2232	1.40	0.083	12.0	50	72	0.65	1.43	4.16	44	0.34
951121	0132	1.18	0.083	12.0	56	79	0.72	1.45	3.37	47	0.36
951121	0432	1.03	0.093	10.7	56	84	0.76	1.07	2.78	57	0.40
951121	0732	0.89	0.083	12.0	58	89	0.80	0.94	2.65	64	0.52

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Table A1 (Continued)

Date	Time GMT	H_{mo} m	f_p Hz	T_p sec	θ_p deg	θ_0 deg	σ	γ	δ	Δθ deg	*A*
951121	1056	0.87	0.083	12.0	78	100	0.80	0.81	2.33	79	0.97
951121	1332	0.95	0.083	12.0	74	99	0.78	0.78	2.26	78	1.05
951121	1633	1.12	0.064	15.6	64	89	0.71	1.44	3.16	45	0.66
951121	1933	1.27	0.064	15.6	64	87	0.67	1.33	3.55	41	0.31
951122	0134	2.00	0.074	13.6	80	81	0.49	1.13	5.97	27	0.05
951122	0433	2.43	0.083	12.0	76	79	0.46	1.11	6.82	23	0.18
951122	0733	2.34	0.083	12.0	64	76	0.48	1.19	6.35	27	0.30
951122	1033	2.41	0.074	13.6	58	73	0.49	0.94	5.62	31	0.23
951122	1333	2.42	0.074	13.6	56	71	0.50	1.03	5.57	32	0.37
951122	1632	2.44	0.083	12.0	60	70	0.48	1.08	6.04	31	0.40
951122	1956	2.13	0.083	12.0	60	73	0.55	1.00	5.21	34	0.34
951122	2234	1.97	0.083	12.0	56	75	0.56	0.83	4.43	40	0.02
951123	0133	1.92	0.093	10.7	84	74	0.58	0.78	4.30	41	-0.16
951123	0434	1.70	0.083	12.0	48	69	0.58	1.17	4.64	38	0.02
951123	0734	1.69	0.093	10.7	70	70	0.56	1.19	5.07	34	-0.01
951123	1034	1.61	0.093	10.7	58	68	0.57	1.21	5.09	36	0.23
951123	1334	1.82	0.093	10.7	68	66	0.55	1.01	4.96	36	-0.03
951123	1701	1.72	0.103	9.7	66	70	0.56	1.21	5.18	32	0.03
951123	1933	1.78	0.103	9.7	70	74	0.55	1.16	5.13	30	0.11
951123	2235	2.21	0.054	18.5	68	71	0.49	1.20	6.49	23	0.18
951124	0135	2.57	0.054	18.5	66	67	0.45	1.09	7.40	19	0.15
951124	0434	2.89	0.064	15.6	64	67	0.45	0.98	7.36	21	0.11
951124	0734	2.75	0.064	15.6	64	66	0.45	1.23	8.16	20	0.09
951124	1033	2.81	0.064	15.6	68	69	0.45	1.18	8.32	19	0.03
951124	1635	2.74	0.074	13.6	60	67	0.48	1.23	6.55	27	0.27
951124	1933	2.79	0.074	13.6	70	71	0.50	1.09	6.05	27	-0.02
951124	2233	2.53	0.074	13.6	66	71	0.55	1.24	5.35	30	0.15
951125	0133	2.58	0.074	13.6	64	69	0.50	1.31	6.47	25	0.21
951125	0435	2.66	0.074	13.6	70	70	0.47	1.25	6.92	25	-0.01
951125	0734	2.91	0.074	13.6	72	72	0.46	0.86	6.43	24	0.05
951125	1334	2.98	0.074	13.6	70	71	0.43	1.10	7.55	23	0.02
951125	1635	2.55	0.083	12.0	58	70	0.47	1.13	6.43	30	0.11
951125	1933	2.44	0.074	13.6	70	72	0.50	1.28	6.17	27	0.06
951125	2233	2.57	0.074	13.6	68	71	0.46	0.94	6.48	25	0.09
951126	0133	2.89	0.074	13.6	66	68	0.44	1.03	7.05	25	0.09
951126	0734	3.20	0.074	13.6	64	67	0.45	0.84	6.36	26	0.08
951126	1034	3.03	0.074	13.6	66	65	0.44	0.90	6.81	26	-0.06
951126	1333	3.00	0.074	13.6	62	63	0.48	0.89	5.77	30	0.01
951126	1634	3.09	0.074	13.6	62	62	0.48	0.81	5.87	30	-0.06
951126	1933	3.16	0.074	13.6	60	59	0.46	0.62	5.66	29	0.00
951126	2233	3.35	0.074	13.6	60	61	0.43	0.81	7.36	24	0.03
951127	0134	3.30	0.083	12.0	62	63	0.41	0.87	7.77	22	0.07
951127	0434	3.14	0.103	9.7	56	59	0.38	1.34	10.06	18	0.13
951127	0734	2.97	0.093	10.7	54	60	0.41	1.06	8.26	24	0.25
951127	1033	2.82	0.103	9.7	56	59	0.44	1.07	8.39	24	0.04
951127	1334	3.06	0.103	9.7	58	60	0.39	1.10	9.25	21	0.06
951127	1634	2.87	0.083	12.0	56	58	0.41	1.38	8.92	21	0.14
951127	2231	2.50	0.083	12.0	56	59	0.43	2.03	9.66	20	0.15
951128	0432	2.29	0.103	9.7	52	54	0.41	1.80	10.18	17	0.11
951128	0733	2.11	0.093	10.7	52	57	0.45	1.67	8.81	20	0.21
951128	1334	2.00	0.093	10.7	56	59	0.44	2.53	10.42	16	0.16
951128	1635	1.78	0.103	9.7	46	60	0.48	1.60	7.83	32	0.54
951128	1935	1.59	0.123	8.2	48	62	0.53	1.49	6.44	32	0.38

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Table A1 (Continued)

Date	Time GMT	H_{mo} m	f_p Hz	T_p sec	θ_p deg	θ_0 deg	σ	γ	δ	Δθ deg	*A*
951128	2235	1.68	0.123	8.2	46	58	0.50	1.71	7.49	29	0.43
951129	0435	1.26	0.123	8.2	60	68	0.59	1.76	5.90	28	0.24
951129	0736	1.27	0.103	9.7	58	68	0.58	1.82	6.13	29	0.49
951129	1056	1.22	0.103	9.7	56	67	0.59	2.07	6.14	29	0.39
951129	1334	1.19	0.103	9.7	54	64	0.60	2.19	6.04	27	0.35
951129	1928	1.07	0.103	9.7	54	65	0.62	1.79	5.37	31	0.38
951129	2236	1.11	0.113	8.9	54	66	0.63	1.98	5.12	31	0.47
951130	0136	1.05	0.103	9.7	56	67	0.67	1.99	4.72	32	0.43
951130	0437	1.11	0.113	8.9	50	61	0.66	2.15	5.00	32	0.50
951130	0736	1.23	0.162	6.2	52	62	0.61	1.57	5.22	33	0.32
951130	1036	1.52	0.103	9.7	54	57	0.55	1.55	6.29	32	0.08
951130	1334	1.65	0.152	6.6	56	55	0.54	1.45	6.59	31	-0.02
951130	1632	1.82	0.142	7.0	54	54	0.52	0.97	6.29	31	0.00
951130	1935	1.90	0.142	7.0	48	52	0.51	0.97	6.44	31	0.05
951130	2233	1.90	0.142	7.0	58	53	0.51	1.27	6.97	30	-0.09
951201	0136	1.84	0.093	10.7	56	54	0.48	1.49	7.81	28	-0.05
951201	0437	1.85	0.093	10.7	62	58	0.53	1.20	6.57	28	-0.22
951201	0737	1.96	0.064	15.6	62	60	0.50	1.07	7.60	23	-0.27
951201	1036	2.25	0.064	15.6	62	61	0.46	1.28	7.96	17	-0.27
951201	1335	2.45	0.064	15.6	64	62	0.43	0.78	8.86	17	-0.24
951201	1636	2.61	0.074	13.6	64	63	0.45	0.78	8.24	20	-0.18
951201	1936	2.54	0.074	13.6	64	63	0.47	0.76	7.08	20	-0.05
951201	2235	2.58	0.074	13.6	66	63	0.45	0.60	7.52	24	-0.13
951202	0136	2.21	0.083	12.0	62	62	0.46	1.14	7.90	20	-0.10
951202	0435	2.08	0.083	12.0	64	64	0.45	0.99	8.14	20	-0.09
951202	0734	2.03	0.083	12.0	66	65	0.44	1.19	8.47	20	-0.05
951202	1036	1.96	0.083	12.0	68	67	0.46	1.14	7.83	24	-0.05
951202	1335	2.24	0.083	12.0	68	63	0.48	0.70	6.68	29	-0.25
951202	1639	2.23	0.083	12.0	68	58	0.47	0.43	5.50	33	-0.48
951202	1937	2.18	0.093	10.7	58	57	0.46	0.83	6.60	27	-0.15
951202	2237	2.46	0.093	10.7	64	60	0.44	0.46	6.77	27	-0.17
951203	0137	2.41	0.093	10.7	64	58	0.47	0.43	5.90	32	-0.30
951203	0438	2.00	0.093	10.7	64	60	0.48	0.91	6.96	29	-0.18
951203	0737	1.77	0.093	10.7	52	62	0.54	1.05	5.32	38	0.16
951203	1037	1.65	0.093	10.7	60	67	0.52	1.15	5.84	31	0.29
951203	1343	1.54	0.103	9.7	64	65	0.53	0.90	5.94	31	0.02
951203	1528	1.49	0.103	9.7	66	64	0.52	0.91	5.90	31	-0.08
951207	1032	1.32	0.162	6.2	46	58	0.58	1.31	5.48	35	0.28
951207	1335	1.45	0.162	6.2	46	57	0.55	0.87	5.30	37	0.26
951207	1635	1.24	0.162	6.2	76	59	0.59	0.83	4.58	43	-0.05
951207	1937	1.08	0.162	6.2	60	59	0.60	1.07	4.49	41	0.01
951207	2235	0.99	0.162	6.2	74	61	0.63	0.98	4.23	45	-0.25
951208	0135	0.95	0.162	6.2	58	64	0.65	0.77	3.85	47	0.14
951208	0435	0.98	0.162	6.2	58	60	0.61	0.96	4.75	39	0.02
951208	0735	1.02	0.162	6.2	24	55	0.61	0.91	4.16	48	0.03
951208	1036	1.04	0.162	6.2	60	56	0.59	1.12	4.99	39	-0.07
951208	1438	1.13	0.162	6.2	62	60	0.58	0.82	4.50	42	-0.09
951208	1635	1.20	0.162	6.2	32	59	0.57	0.71	4.20	45	-0.06
951208	1935	1.26	0.162	6.2	24	56	0.59	0.53	3.77	49	-0.25
951208	2235	1.31	0.162	6.2	60	60	0.55	0.54	4.90	38	0.02
951209	0134	1.25	0.162	6.2	60	61	0.49	0.61	5.91	29	-0.13
951209	0435	1.23	0.083	12.0	36	57	0.54	0.88	5.17	40	0.12

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Table A1 (Concluded)

Date	Time GMT	H_{mo} m	f_p Hz	T_p sec	θ_p deg	θ_0 deg	σ	γ	δ	$\Delta\theta$ deg	A
951209	0737	1.16	0.083	12.0	70	60	0.55	0.75	4.95	40	-0.24
951209	1036	1.12	0.083	12.0	60	66	0.53	0.91	5.40	33	0.27
951209	1331	1.10	0.083	12.0	66	68	0.55	0.60	5.02	35	0.07
951209	1637	1.06	0.083	12.0	76	71	0.53	0.42	4.92	34	-0.15
951209	1936	1.04	0.083	12.0	74	73	0.49	0.69	6.11	26	-0.09
951209	2237	1.00	0.093	10.7	70	72	0.49	0.89	6.09	26	0.07
951210	0137	1.02	0.093	10.7	74	75	0.48	0.78	5.99	29	0.01
951210	0437	1.03	0.093	10.7	82	79	0.53	1.04	6.45	28	-0.09
951210	0736	1.00	0.093	10.7	80	76	0.51	0.81	5.69	31	-0.08
951210	1036	0.98	0.103	9.7	66	73	0.55	0.89	6.14	30	0.16
951210	1336	0.96	0.093	10.7	68	77	0.52	0.82	5.79	31	0.13
951210	1636	0.99	0.093	10.7	84	77	0.54	0.89	5.47	34	-0.03
951210	1935	1.03	0.103	9.7	74	76	0.50	1.01	6.04	27	0.03
951210	2237	1.03	0.074	13.6	68	74	0.47	1.63	7.60	22	0.20
951211	0136	1.45	0.083	12.0	66	72	0.40	1.70	10.02	17	0.26
951211	0437	2.01	0.083	12.0	68	72	0.36	0.82	10.05	19	0.21
951211	0734	2.61	0.083	12.0	74	75	0.34	0.27	10.29	17	0.06
951211	1034	3.24	0.074	13.6	76	76	0.35	0.00	9.63	17	0.02
951211	1333	3.05	0.074	13.6	80	79	0.37	-0.08	8.19	21	-0.05
951211	1634	2.55	0.083	12.0	82	81	0.38	-0.02	9.25	19	-0.01
951211	1934	2.32	0.083	12.0	84	84	0.37	0.40	10.84	16	0.02
951211	2234	2.33	0.074	13.6	78	82	0.39	0.62	8.56	20	0.23
951212	0150	3.21	0.074	13.6	72	79	0.37	0.22	7.39	23	0.38
951212	0434	3.40	0.074	13.6	72	80	0.38	0.19	6.92	25	0.19
951212	0734	3.39	0.074	13.6	80	83	0.37	0.25	7.82	20	0.21
951212	1035	3.39	0.074	13.6	80	86	0.39	0.38	7.39	21	0.34
951212	1335	3.66	0.074	13.6	76	86	0.41	0.41	6.62	25	0.41
951212	1635	5.17	0.074	13.6	76	81	0.40	0.49	6.92	23	0.30
951212	1935	5.75	0.074	13.6	74	82	0.41	0.54	7.43	22	0.42

(Sheet 47 of 47)

Appendix B
Time Series Graphs of Bulk Parameters

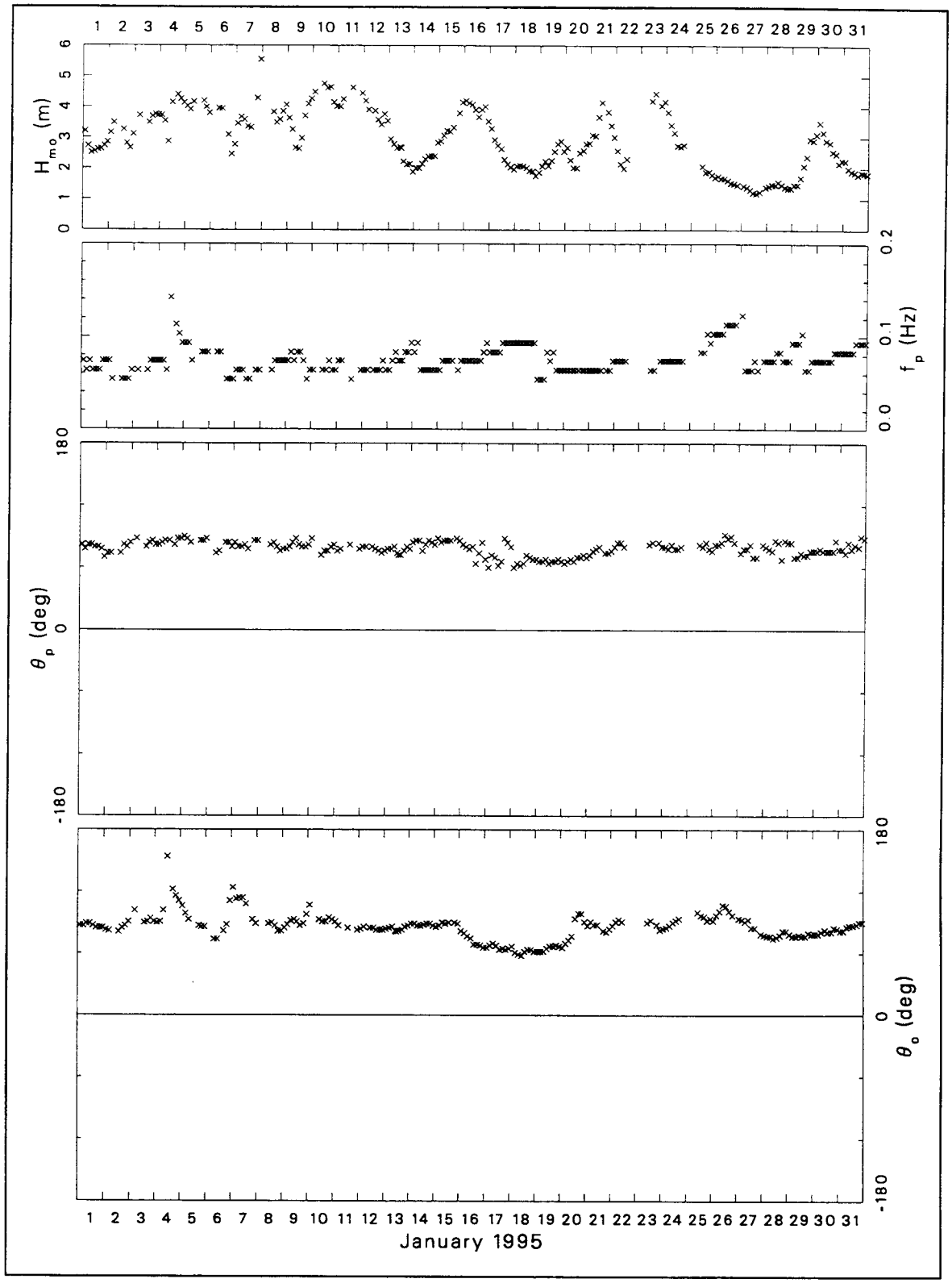

Figure B1. Bulk data for January 1995 (Continued)

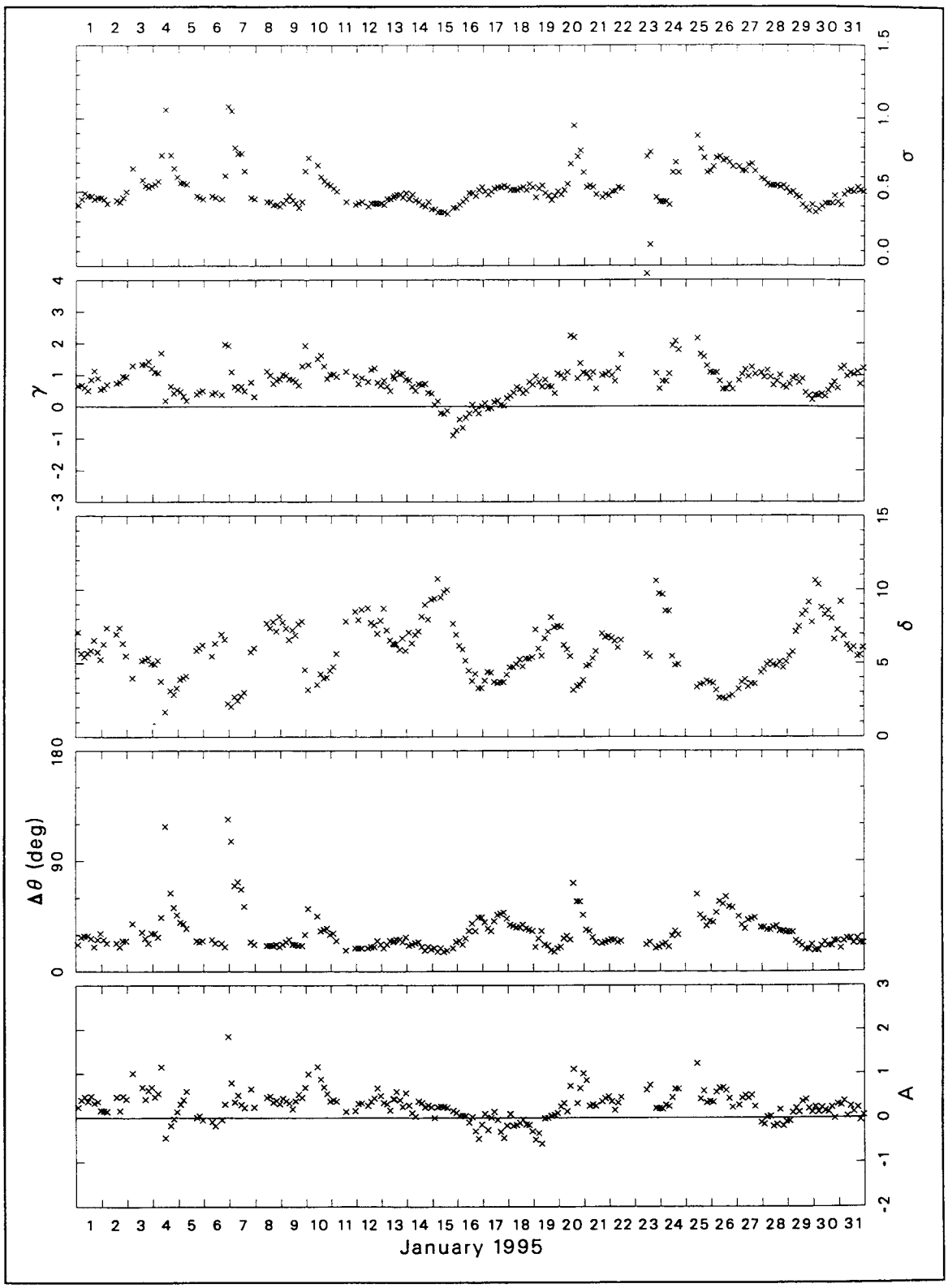

Figure B1. (Concluded)

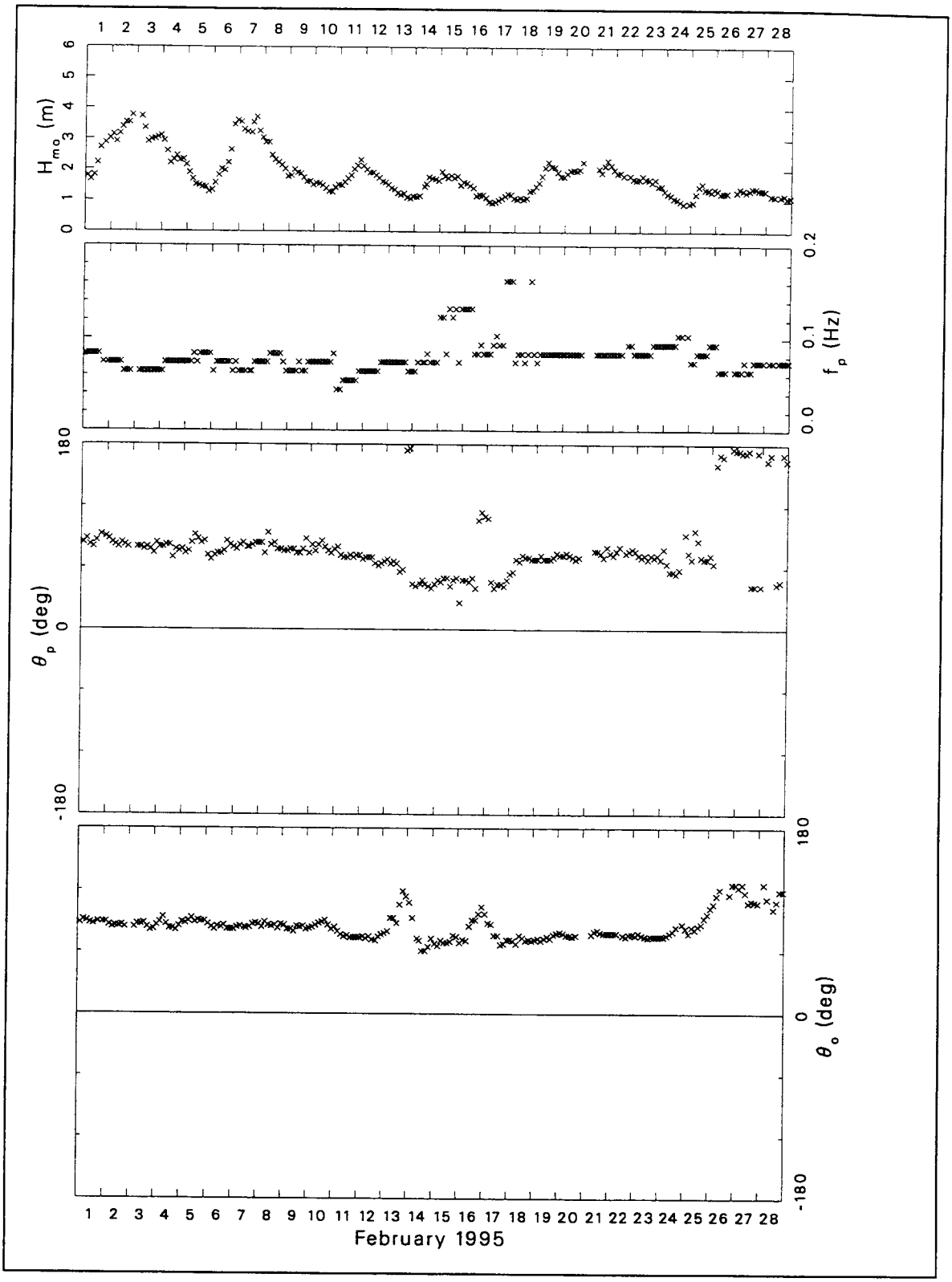

Figure B2. Bulk data for February 1995 (Continued)

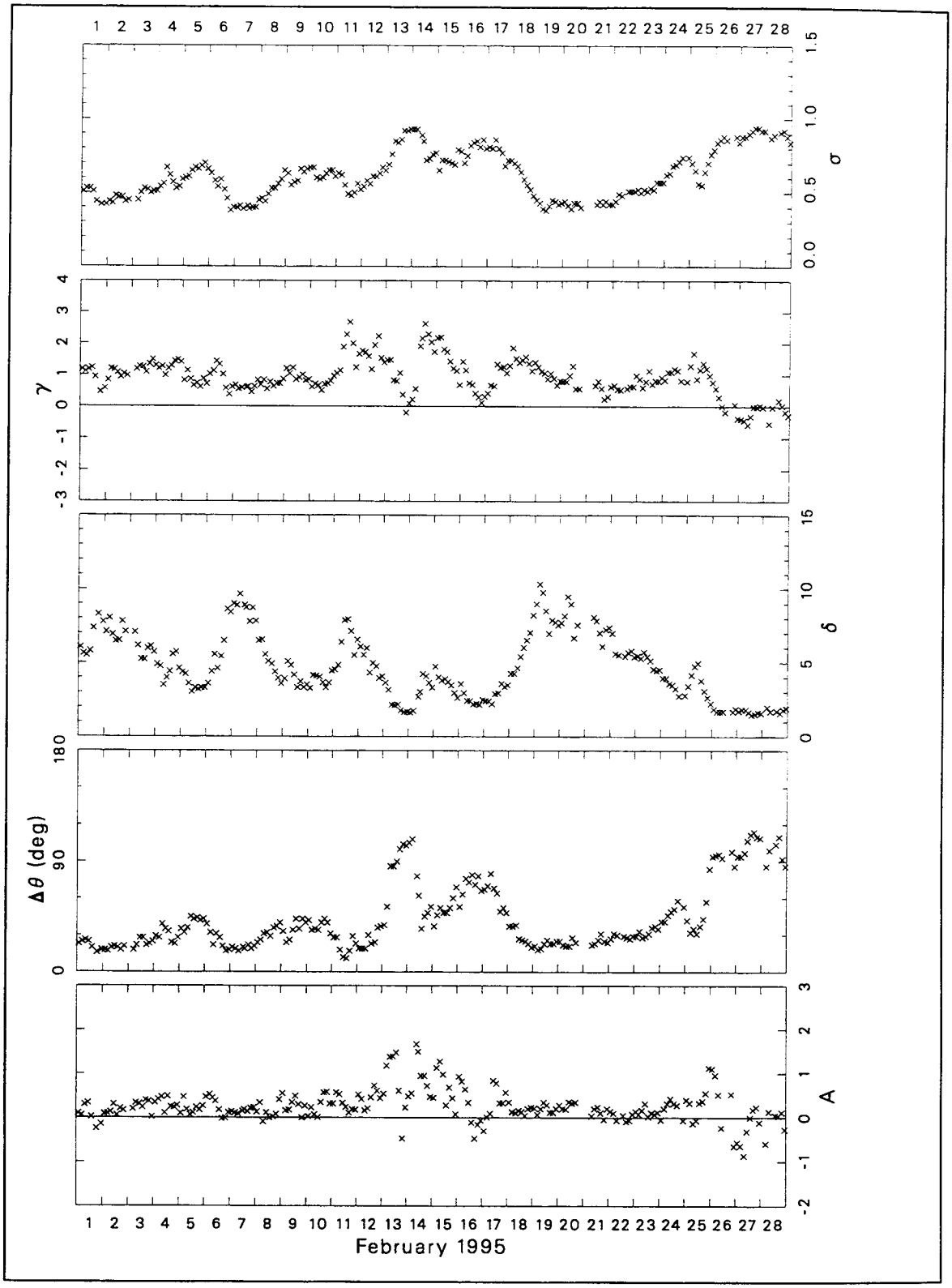

Figure B2. (Concluded)

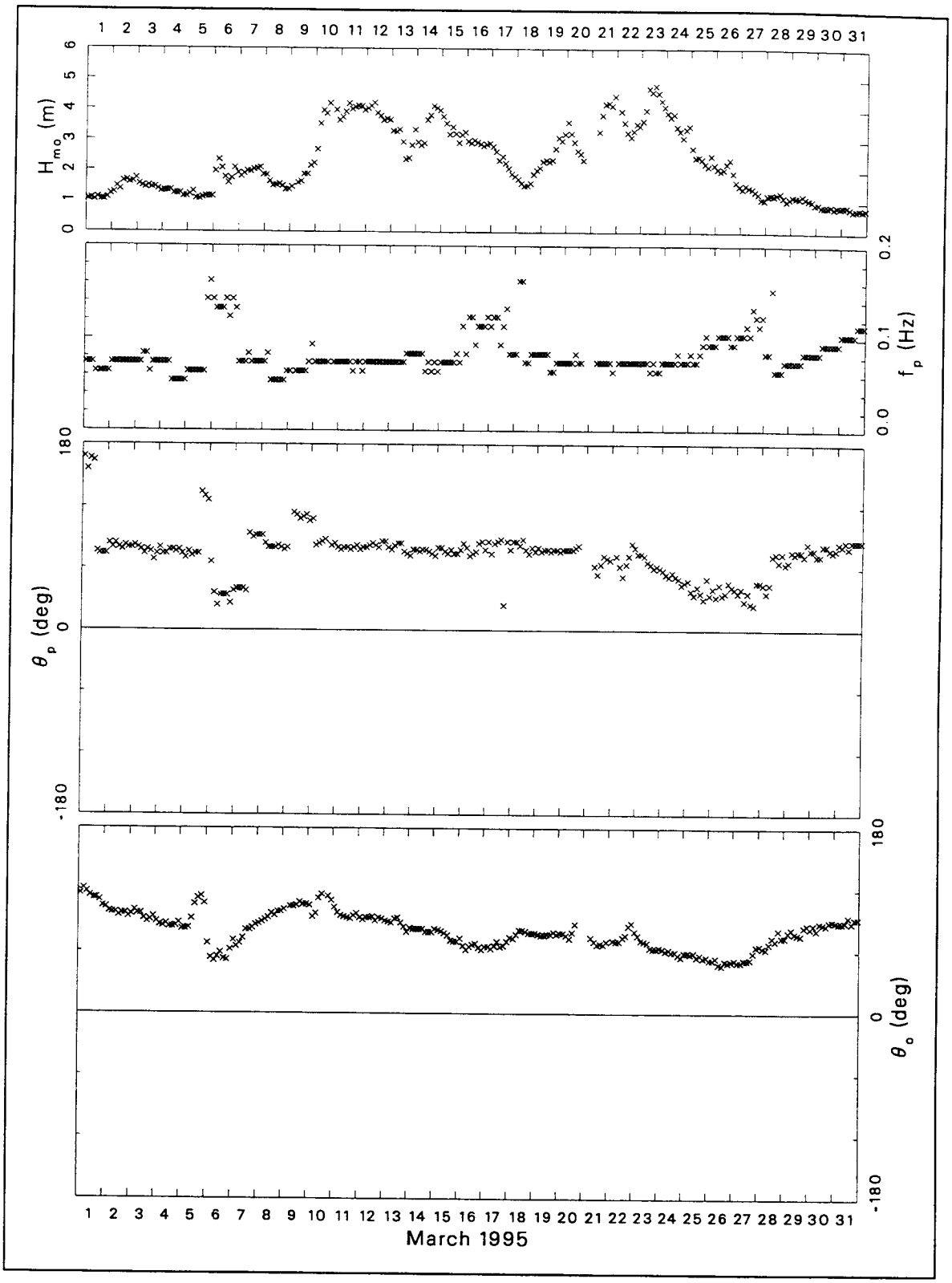

Figure B3. Bulk data for March 1995 (Continued)

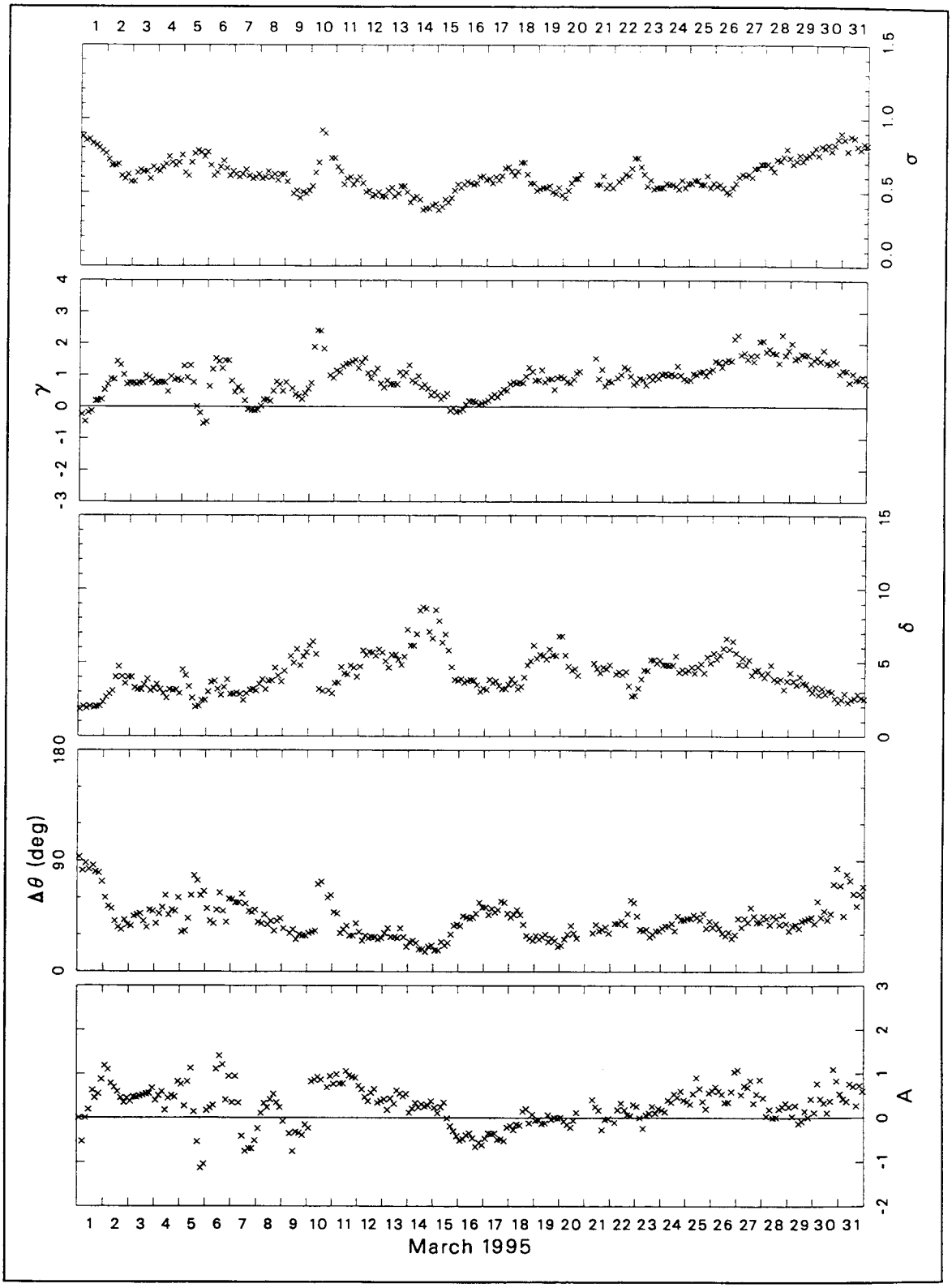

Figure B3. (Concluded)

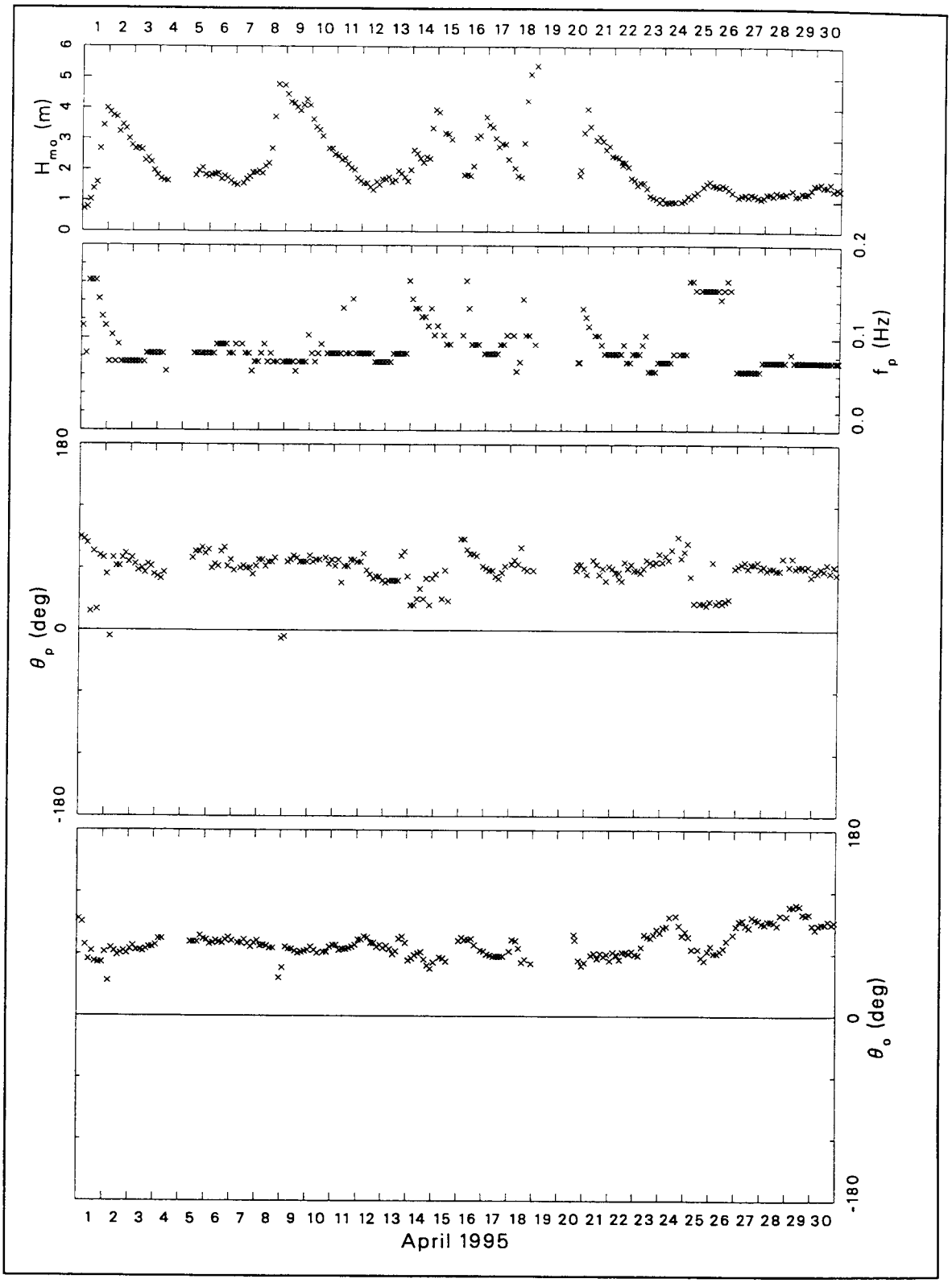

Figure B4. Bulk data for April 1995 (Continued)

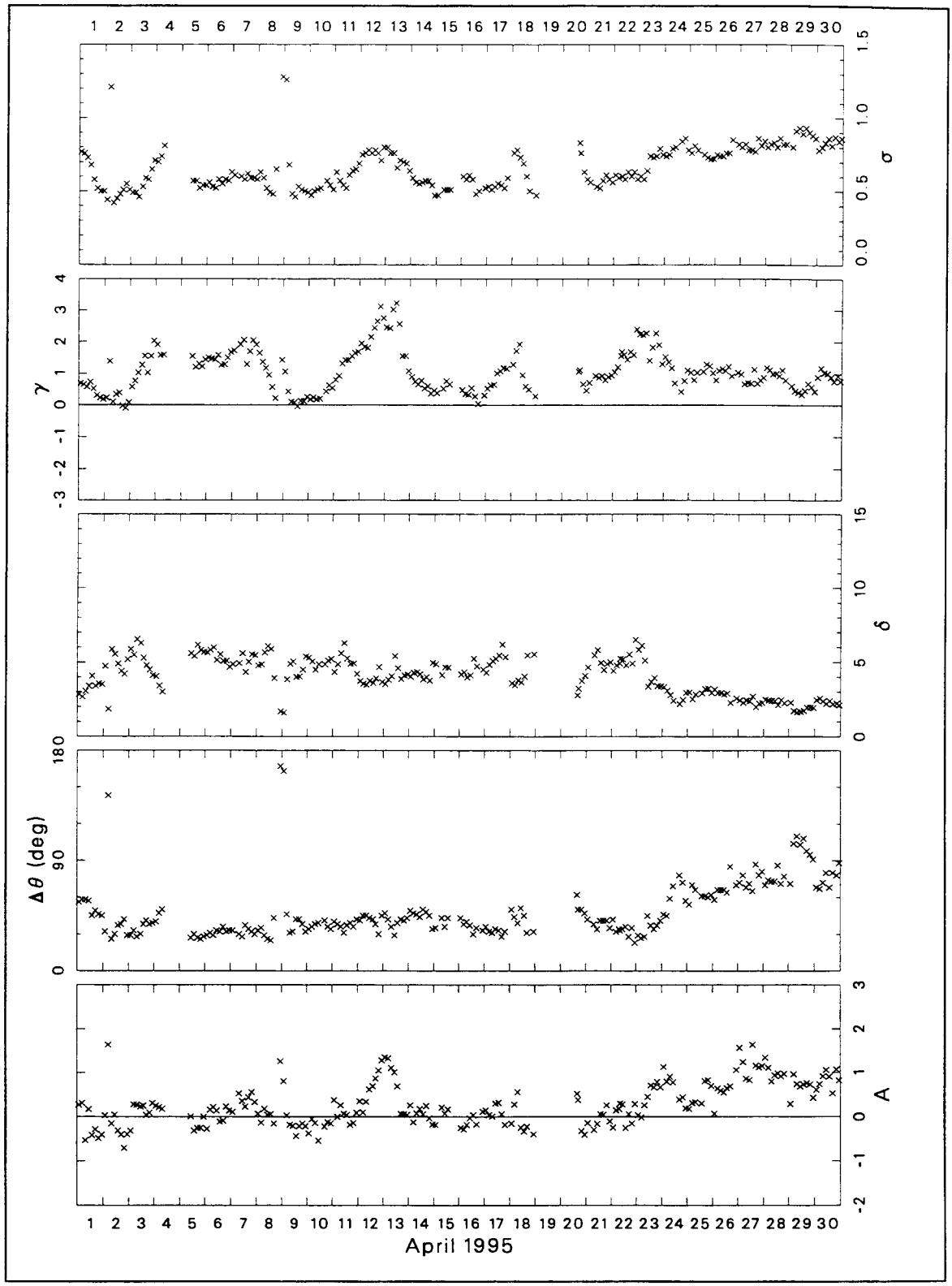

Figure B4. (Concluded)

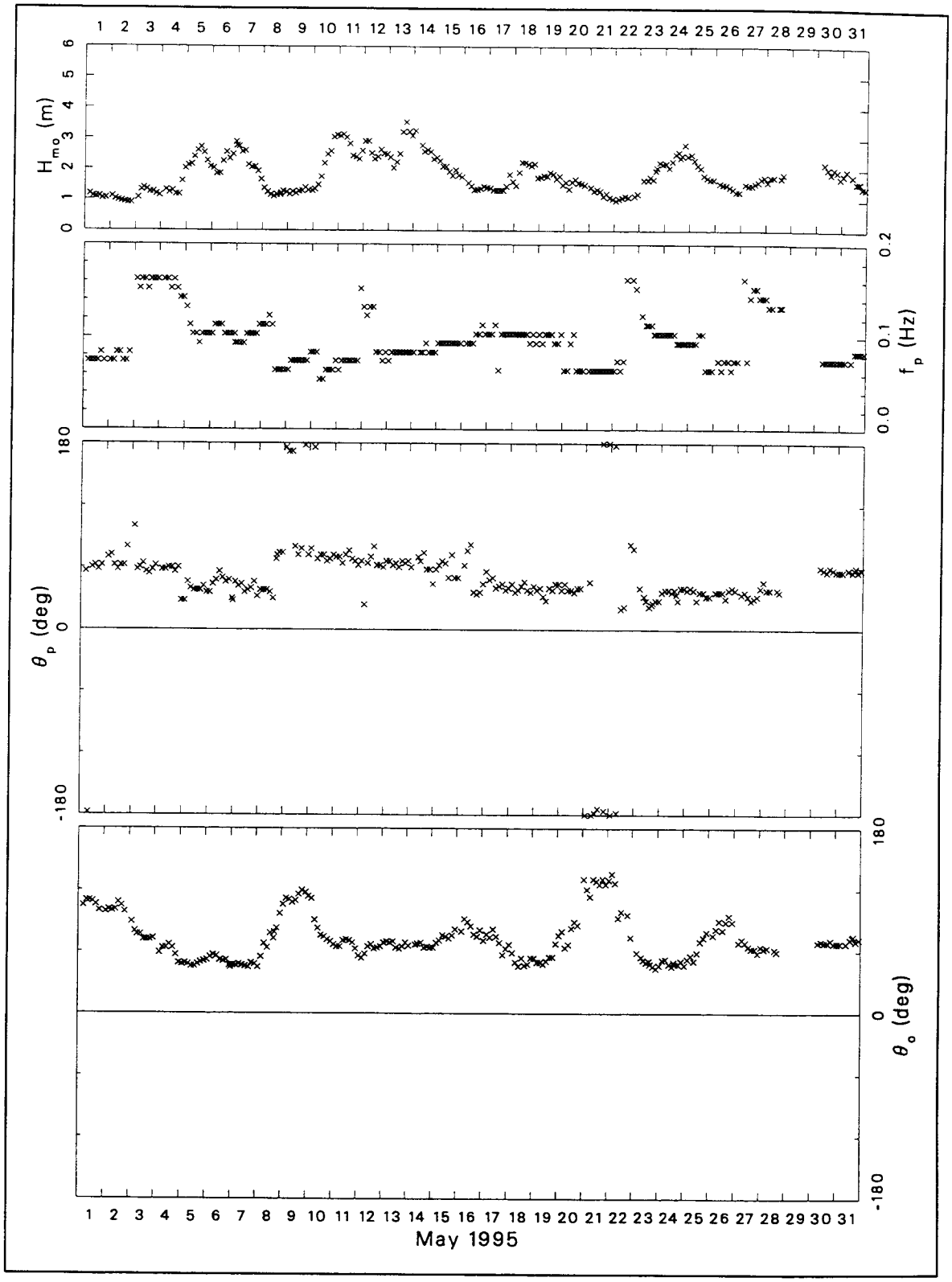

Figure B5. Bulk data for May 1995 (Continued)

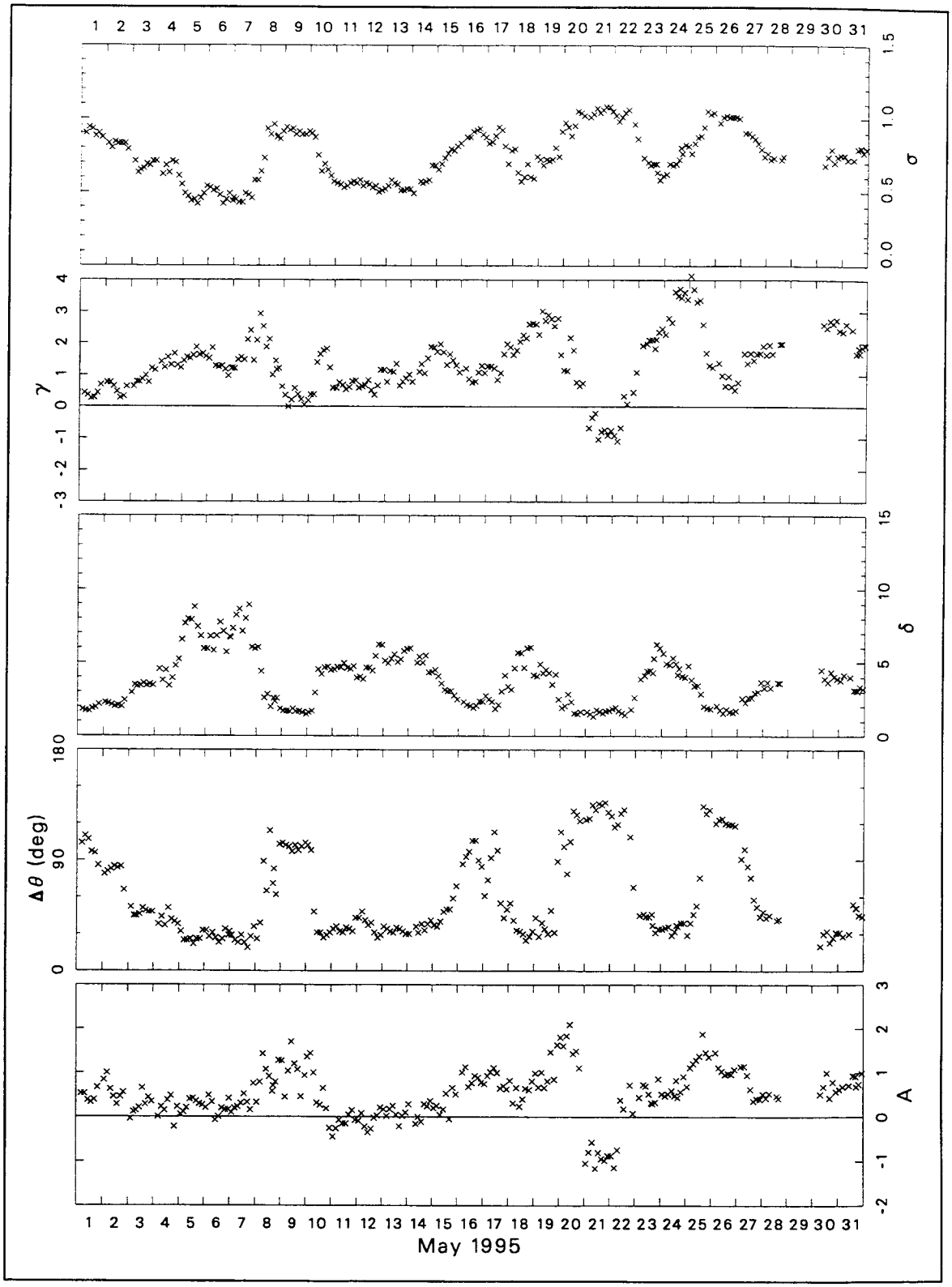

Figure B5. (Concluded)

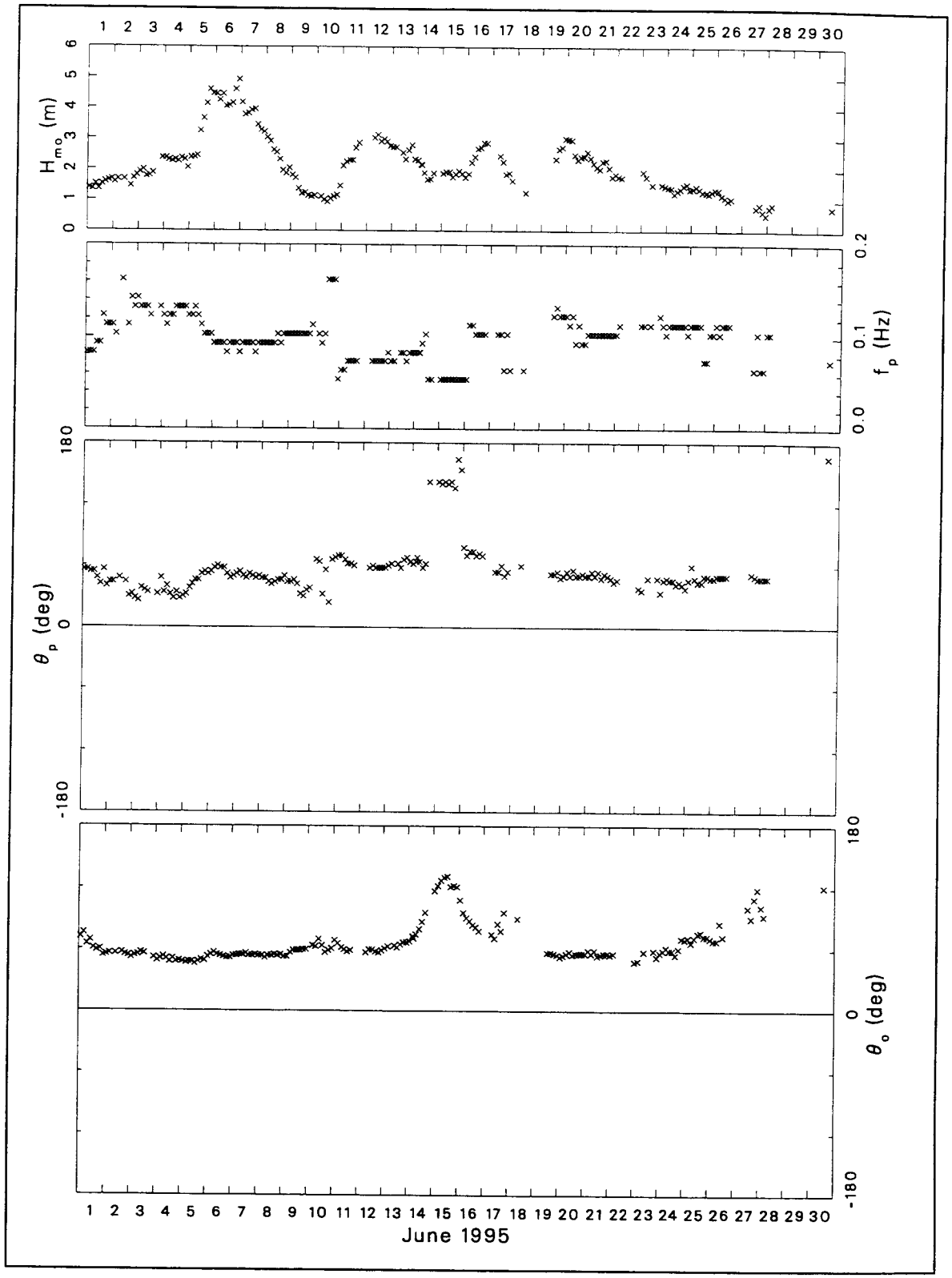

Figure B6. Bulk data for June 1995 (Continued)

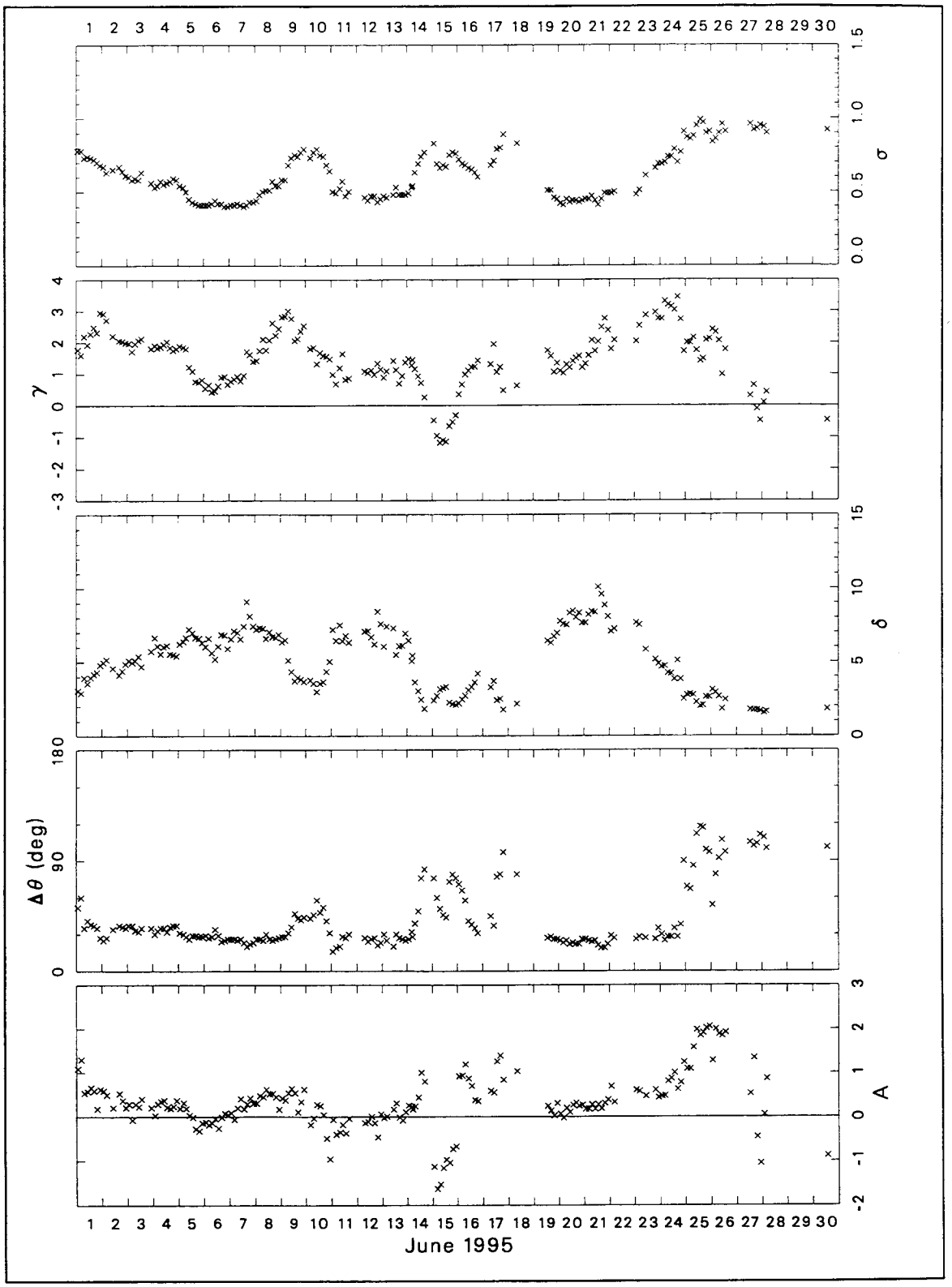

Figure B6. (Concluded)

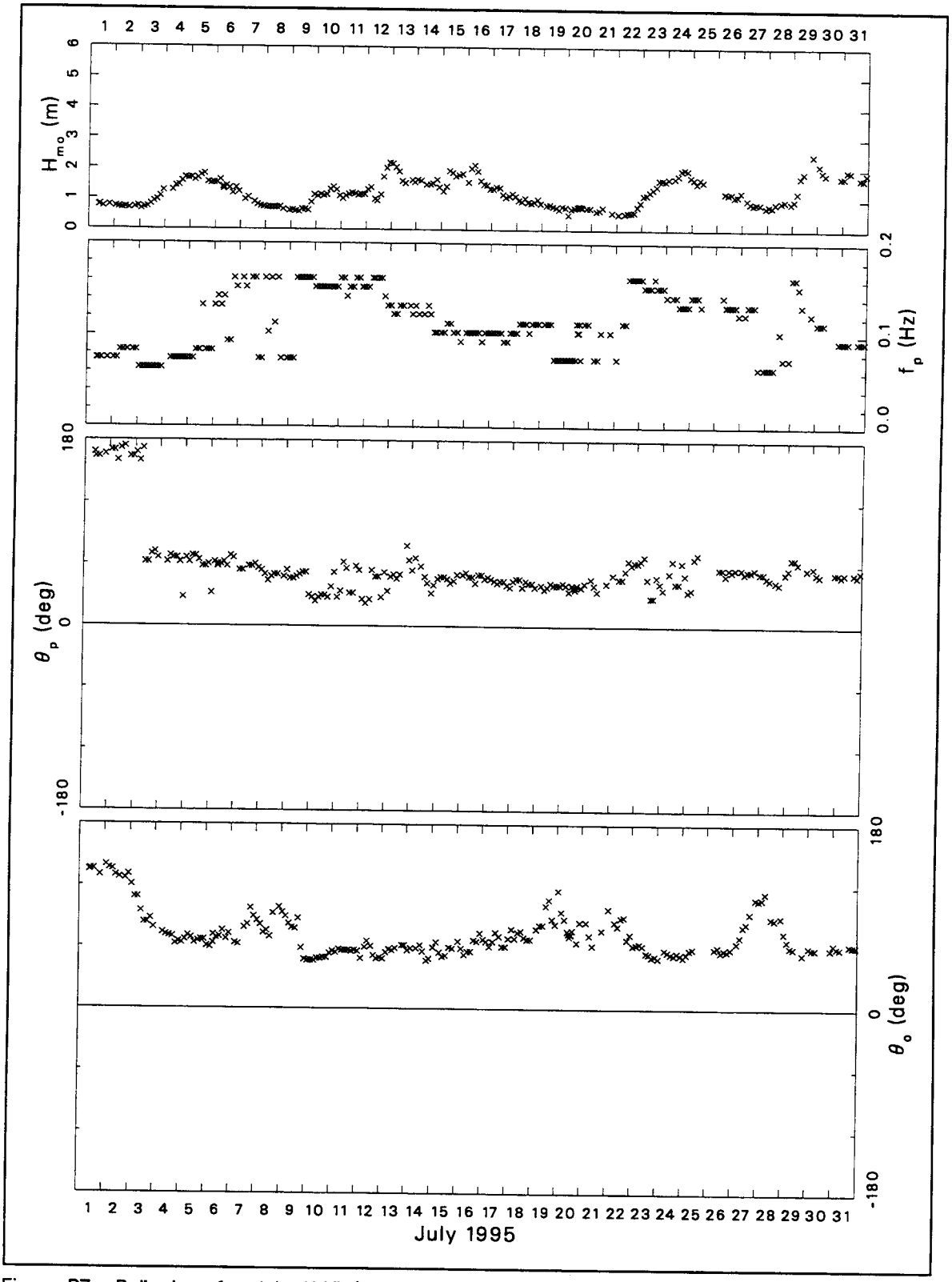

Figure B7. Bulk data for July 1995 (Continued)

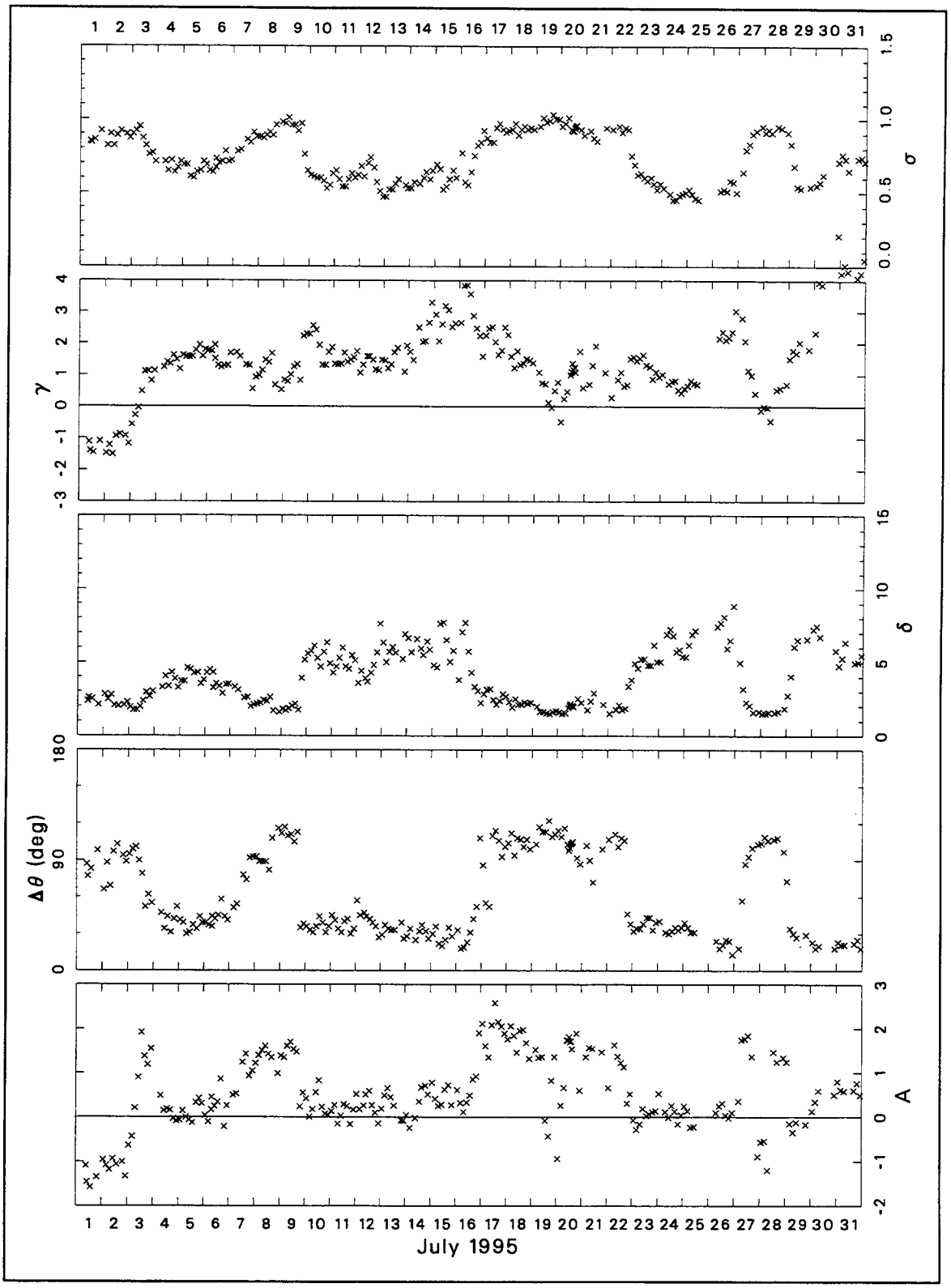

Figure B7. (Concluded)

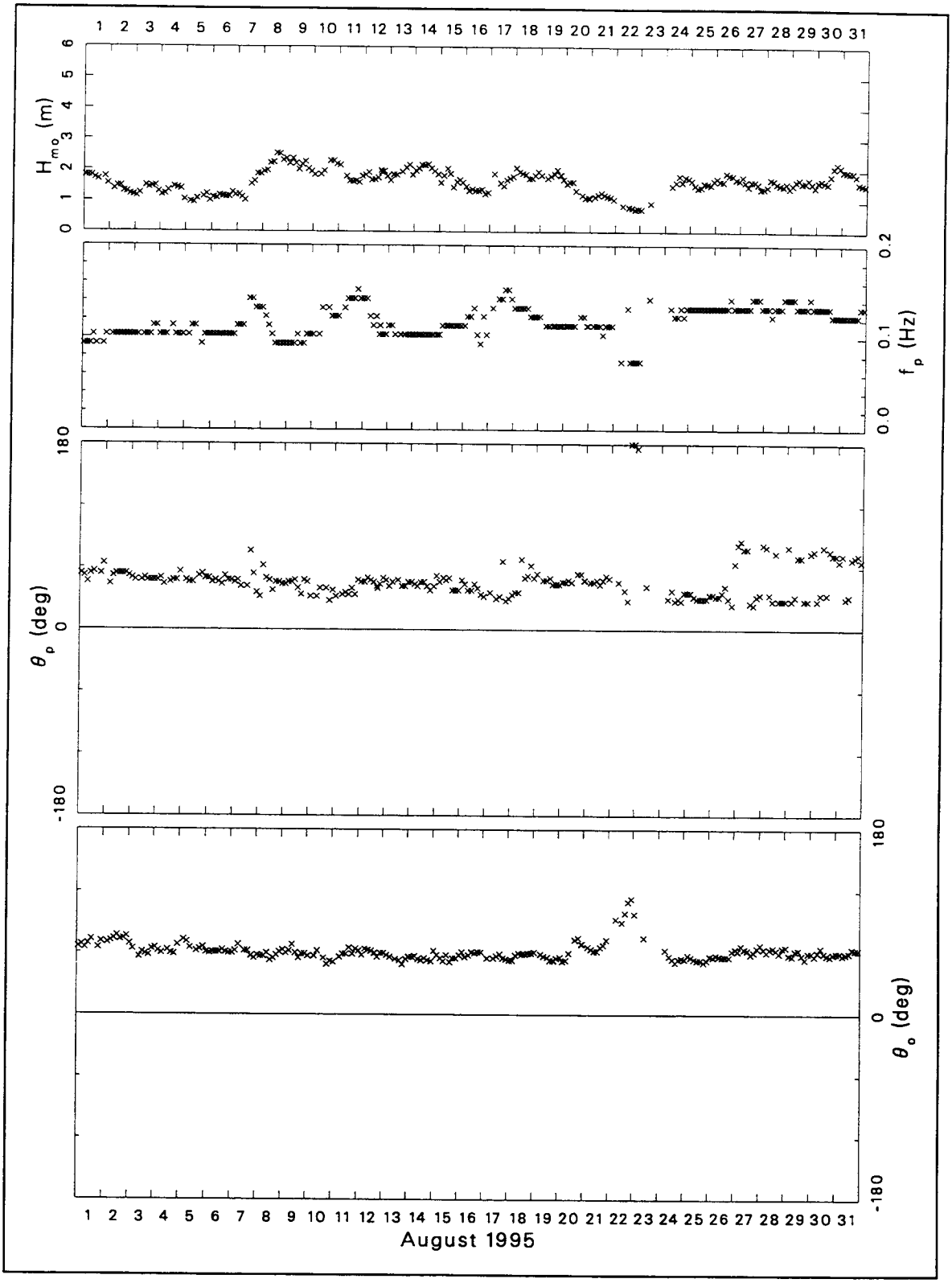

Figure B8. Bulk data for August 1995 (Continued)

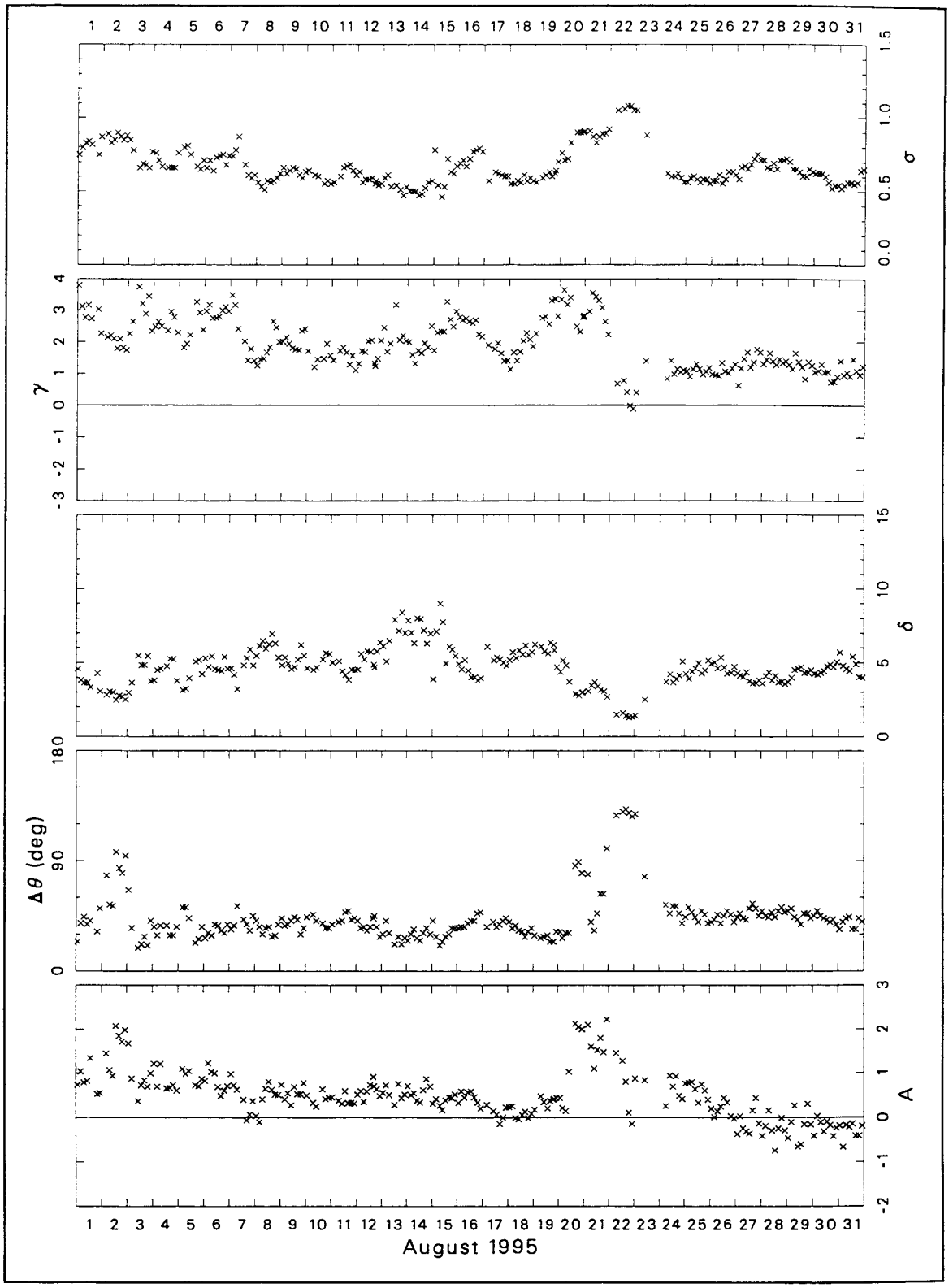

Figure B8. (Concluded)

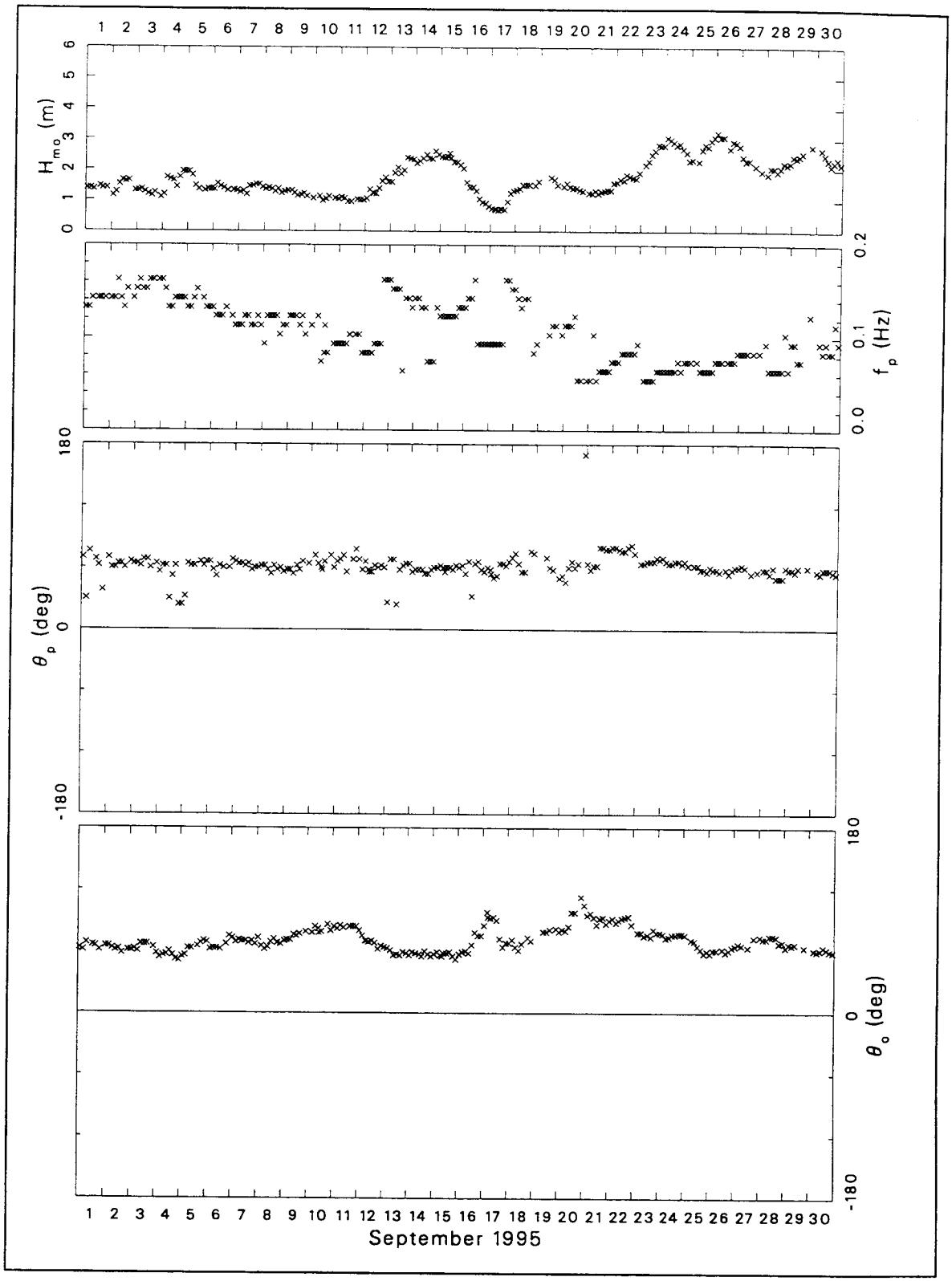

Figure B9. Bulk data for September 1995 (Continued)

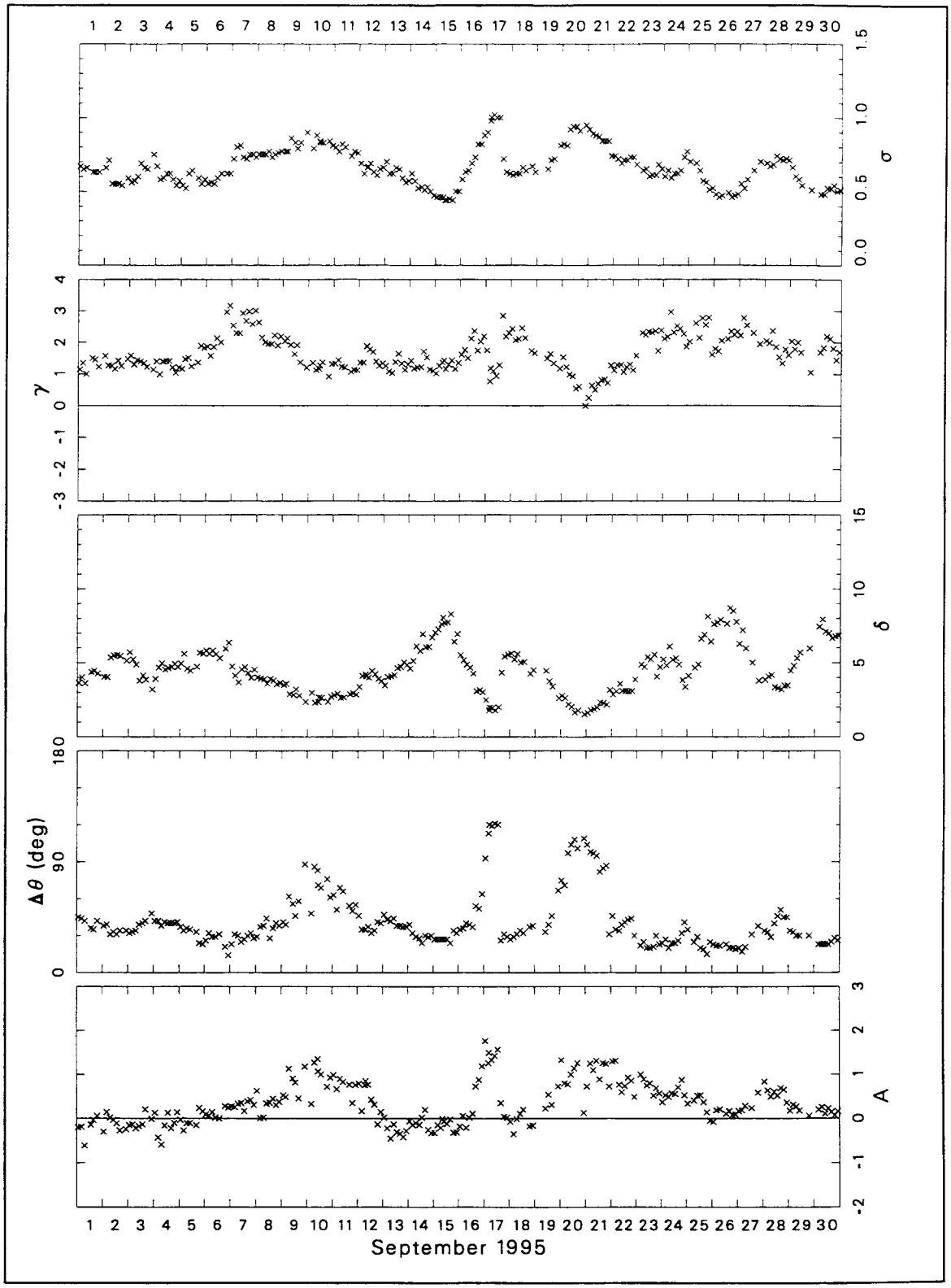

Figure B9. (Concluded)

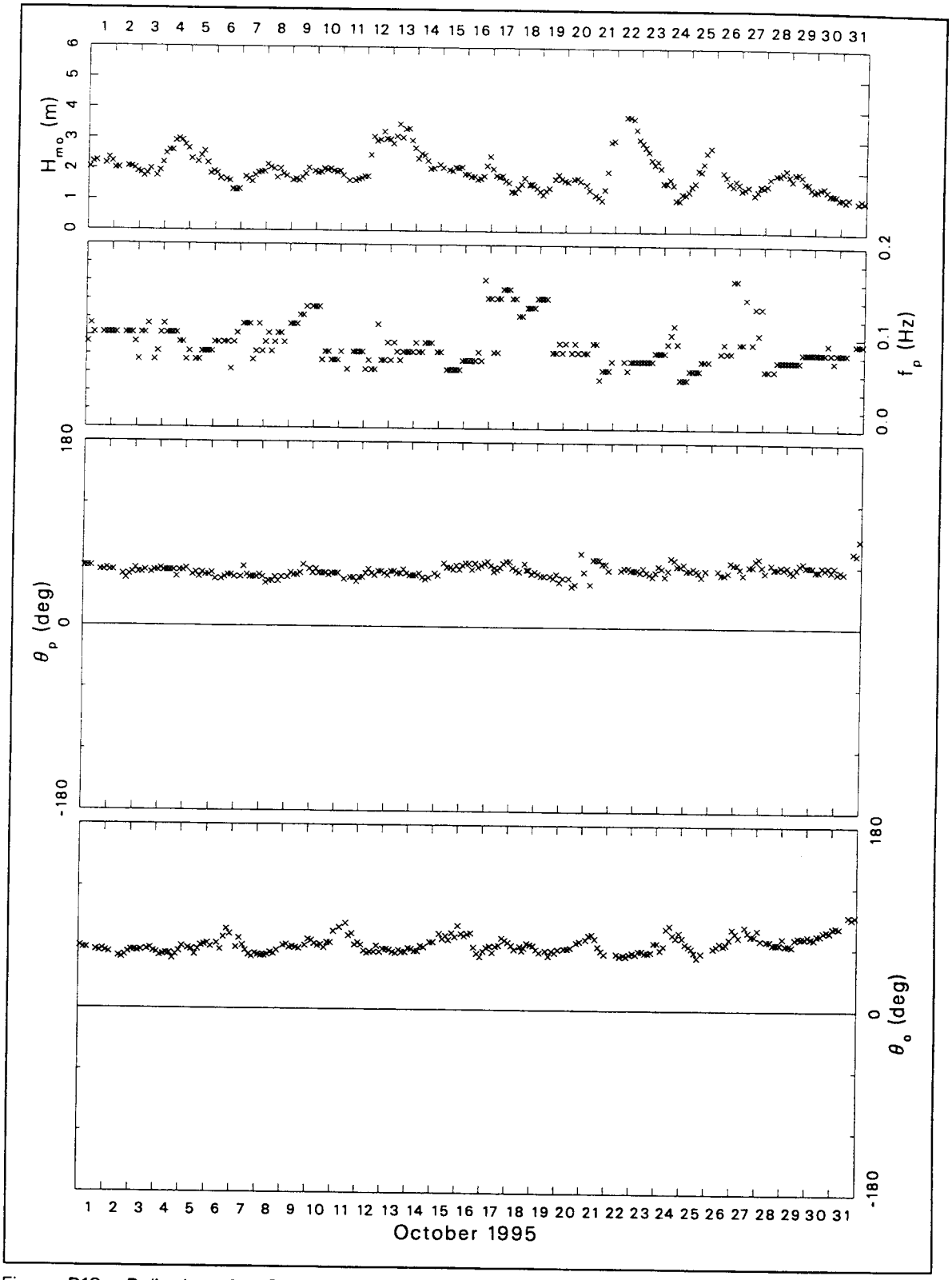

Figure B10. Bulk data for October 1995 (Continued)

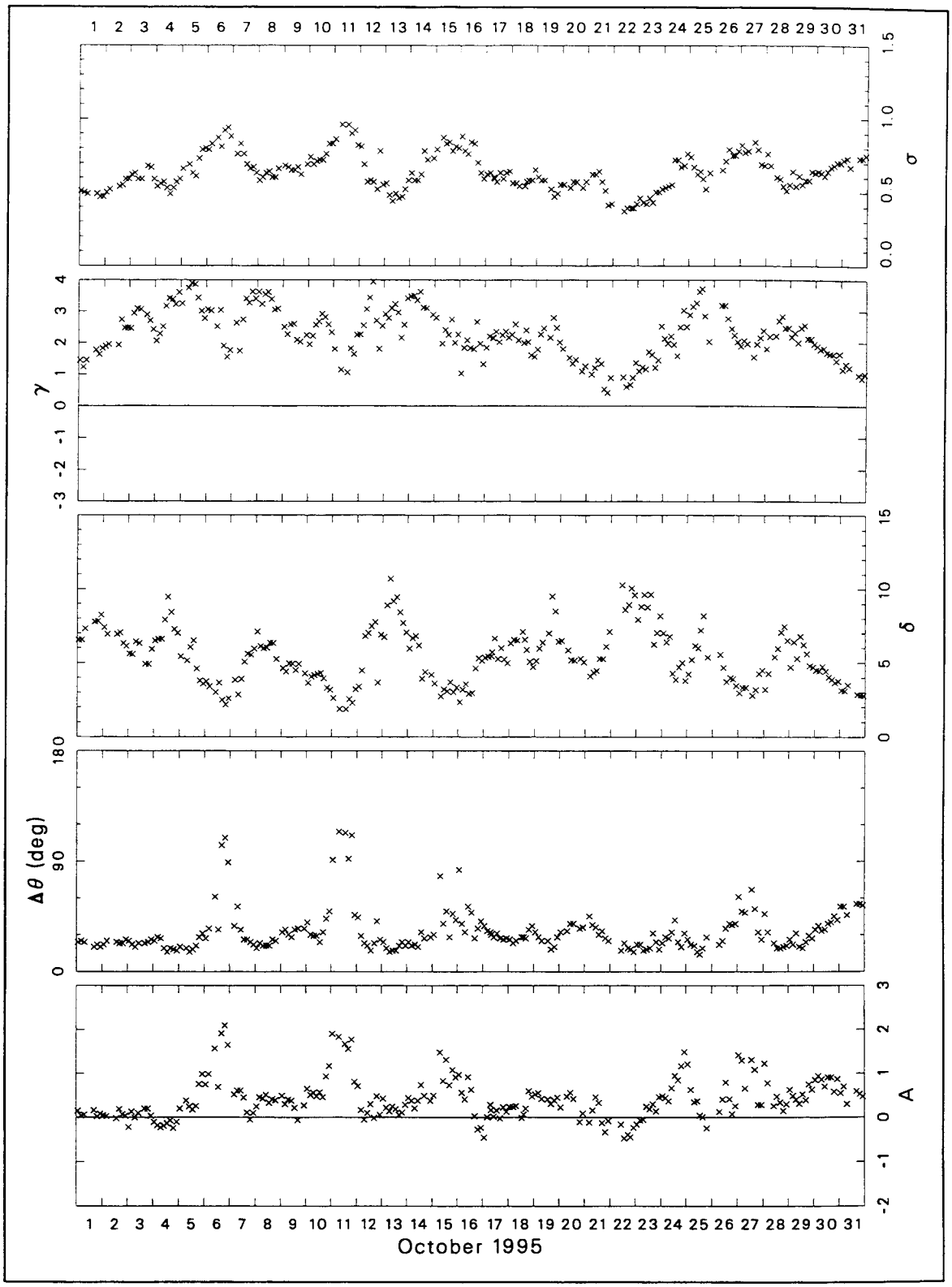

Figure B10. (Concluded)

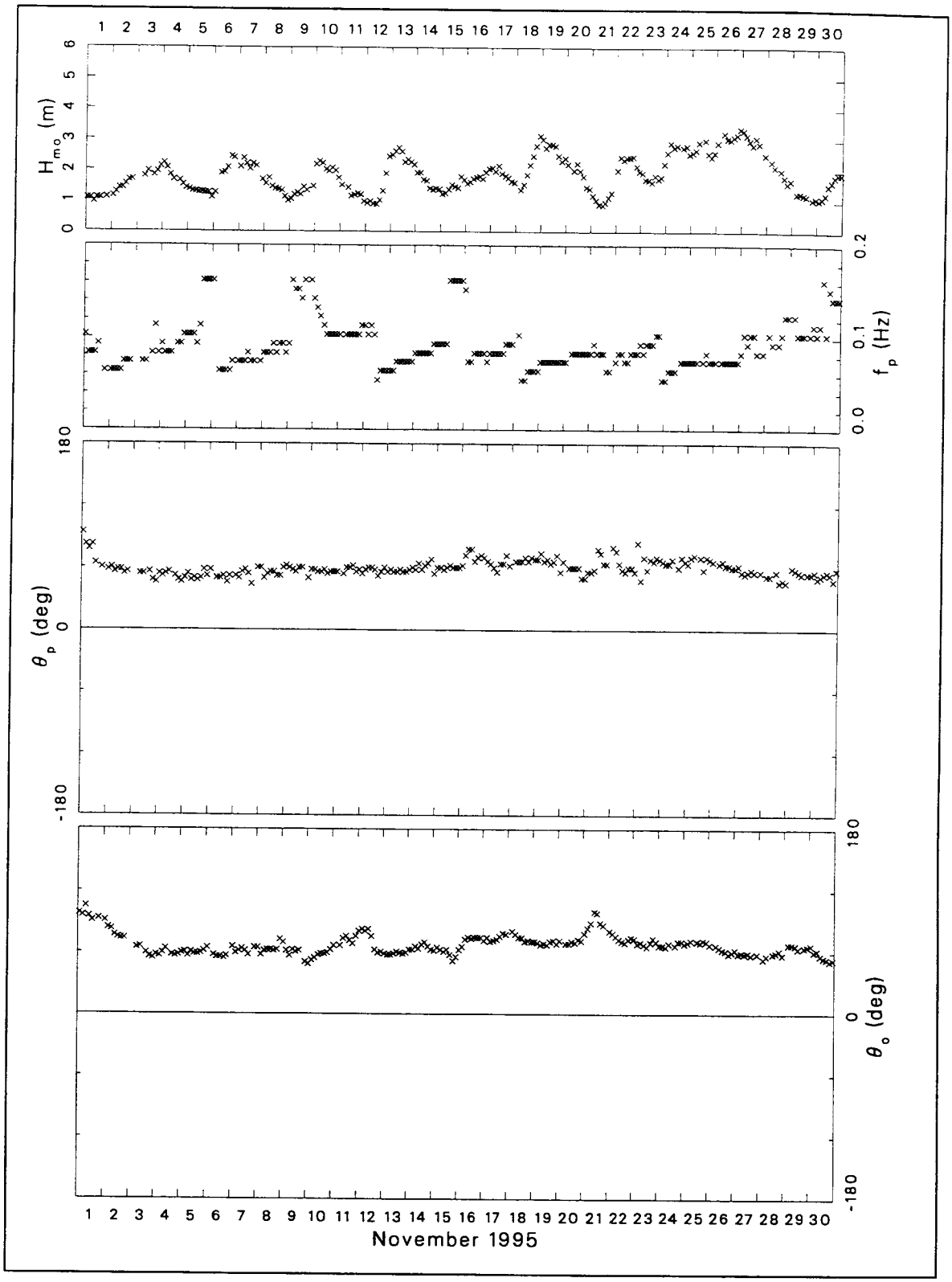

Figure B11. Bulk data for November 1995 (Continued)

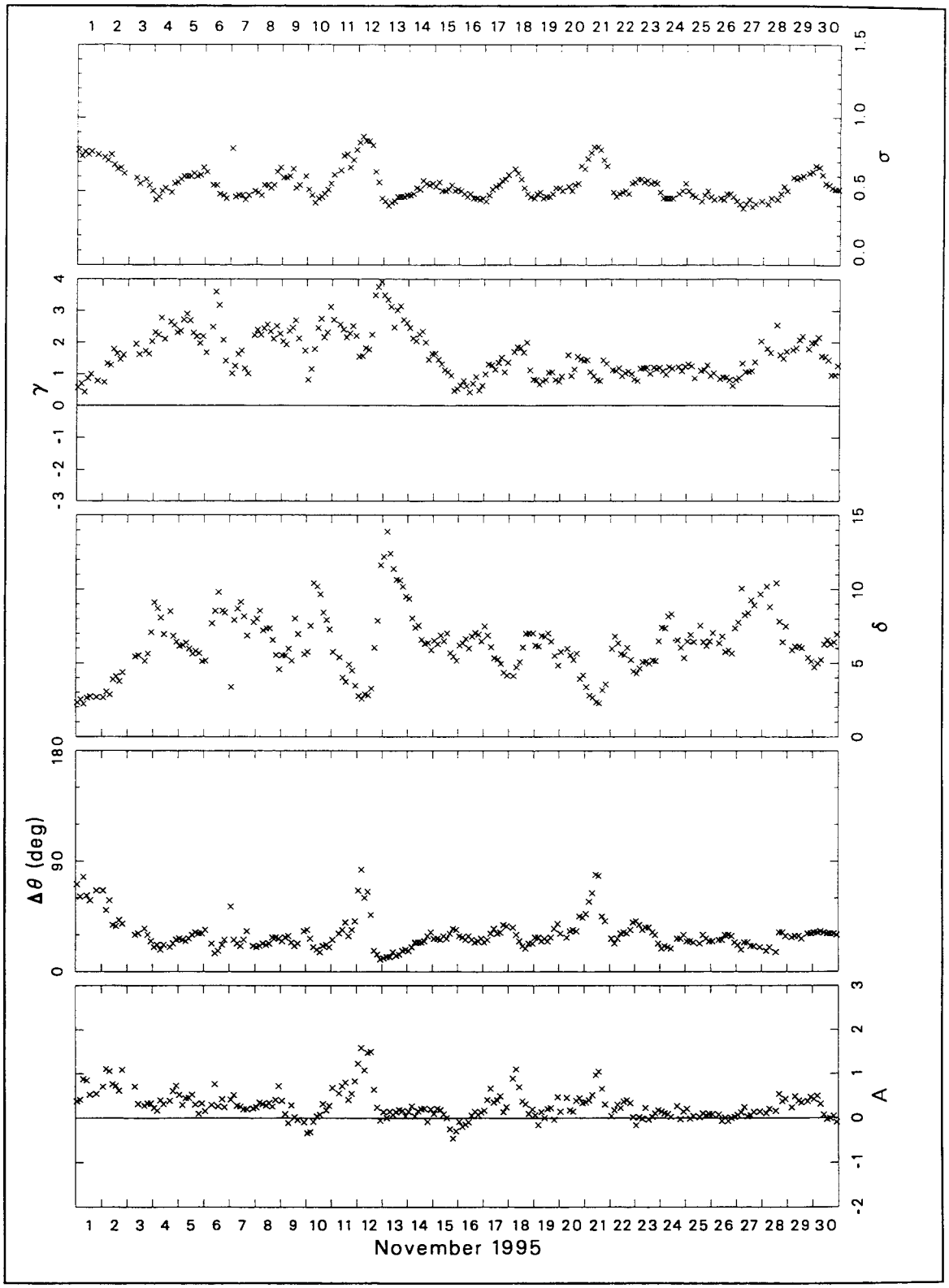

Figure B11. (Concluded)

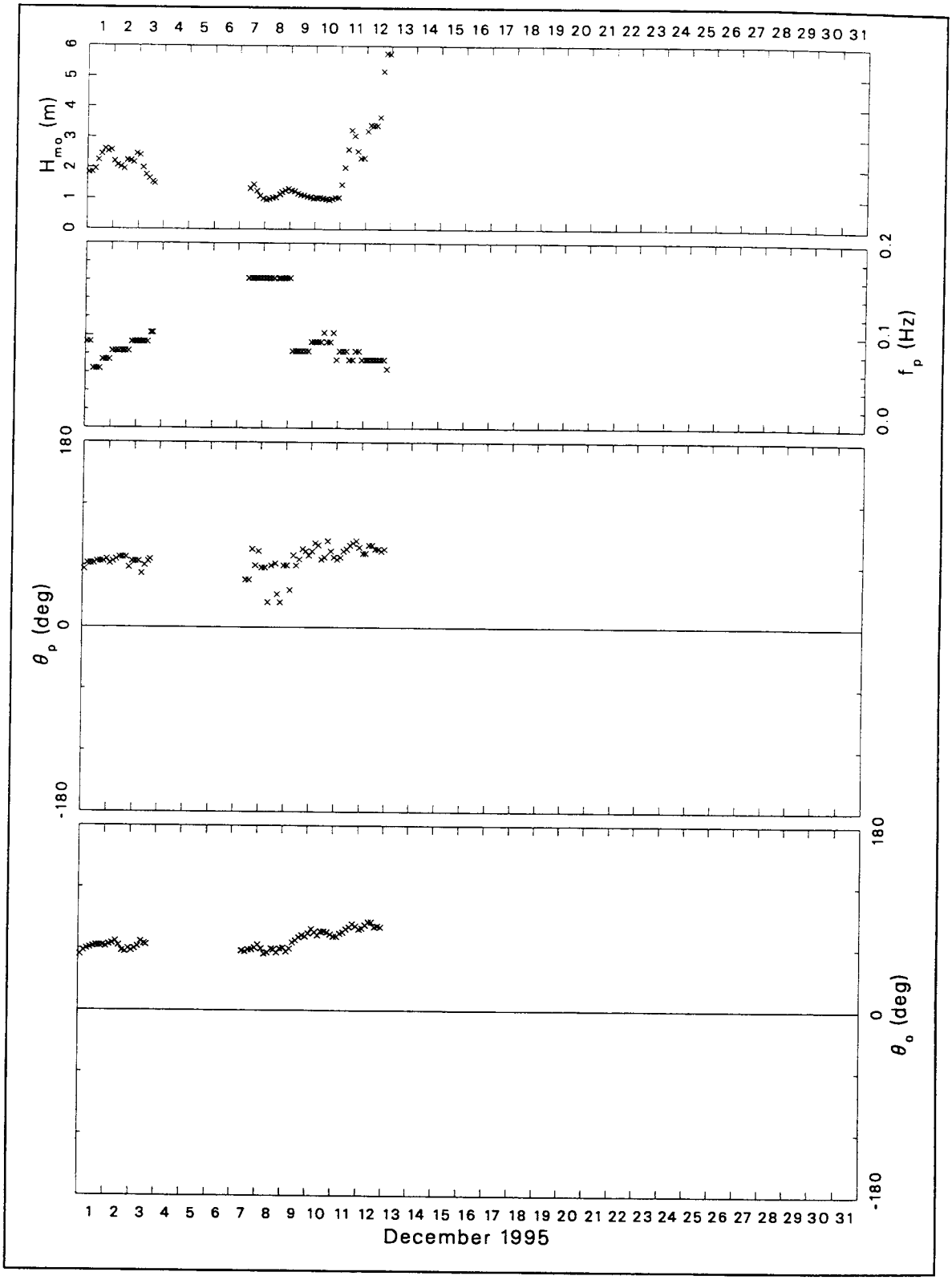

Figure B12. Bulk data for December 1995 (Continued)

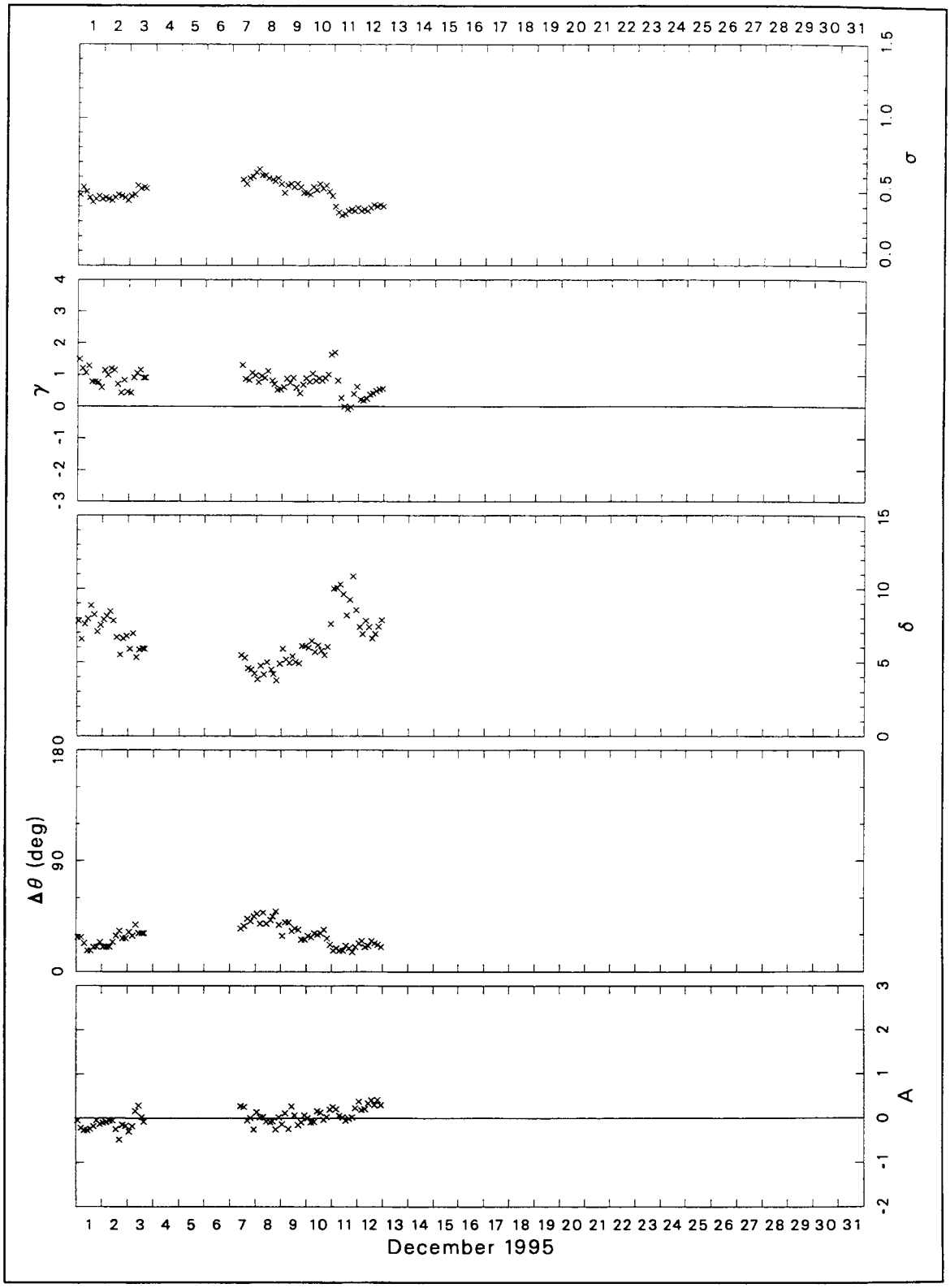

Figure B12. (Concluded)

Appendix C
Listing of FORTRAN Computer Program

```
      program readascii
c
c  Sample FORTRAN program containing statements necessary to read
c  ASCII files of Harvest Platform frequency-direction spectra.
c  This example reads a file called HPyymmddhhmm.ASC, where the
c  string yymmddhhmm is a date/time group entered by the user.
c  In other applications, the I/O statements may need modification
c  to suit a user's system.
c
c  Variable names, units and meanings are:
c
c=====================================================================
c
c      f(nf)..[Hz] frequency at index nf
c  angle(na)..[degrees CCW from true north] direction at index na from
c             which wave energy is arriving
c     sf(nf)..[m^2/Hz] frequency spectral density at f(nf)
c
c ddf(nf,na)..[deg^(-1)] directional distribution function at f(nf)
c             and angle(na), which is the frequency-direction
c             spectral density at f(nf) and angle(na) normalized by
c             sf(nf)
c fds(nf,na)..[m^2/(Hz*deg)] frequency-direction spectrum at f(nf)
c             and angle(na), computed from ddf(nf,na) and sf(nf)
c
c   gpat(nf)..gauge pattern used at f(nf)
c   iter(nf)..# of IMLE iterations for convergence at f(nf)
c   datetime..[character*10] Date and Greenwich Mean Time of
c             beginning of data collection in the order year,
c             month, day, hour, minute, and in the form
c             yymmddhhmm (2-digit year, no blanks in any field)
c
c        Hmo..[m] Energy-based characteristic wave height equal
c             to 4*sigma, where sigma^2 is the variance of sea
c             surface displacement
c         fp..[Hz] frequency at peak of frequency spectrum
c        thp..[deg] direction at peak of directional distribution
c              at f(nf) = fp
c
c     ifimle..algorithm flag: [1]=IMLE estimate, [0]=MLE estimate
c      istot..[sec] duration of data collection
c       sfrq..[Hz] data sampling frequency
```

Figure C1. Listing of FORTRAN Computer Program (Sheet 1 of 3)

```
c     ifwindo..windowing flag: [0]=no windowing of data segments,
c              [1]=segments windowed (Kaiser-Bessel window)
c     ifdtrnd..detrending flag: [0]=no detrending, [1]=linear trend
c              removed from data segments
c        nfft..# of points in each data ensemble
c       nensb..# of half-lapped segments of cross-spectral computations
c       nband..# of raw frequency bands averaged in frequency smoothing
c       idgfr..degrees of freedom in cross-spectral computations
c              (based on contiguous segments only)
c
c        nfrq..number of output frequency bands, equals range of index
c              nf
c       delfs..[Hz] output frequency bandwidth
c        nang..number of output angle bins, equals range of index na
c      delang..[deg] output angle bin width
c
c        dmin..[m] minimum ensemble segment water depth at reference
c              gauge 'rname' during collection
c        dbar..[m] mean water depth at gauge 'rname' during collection
c        dmax..[m] maximum ensemble segment water depth at reference
c              gauge 'rname' during collection
c       rname..[character*5] reference gauge id for depth computations
c
c=====================================================================
c
      character*5          rname
      character*6       gpat(13)
      character*10      indattim,      datetime
      character*80        infile
      dimension           f(13),         sf(13),      iter(13)
      dimension      angle(181),    ddf(13,181),   fds(13,181)
c
c  get file-naming date/time group from user
c
      write(*,'(2x,''Enter date/time group (yymmddhhmm)...'')')
      read(*,'(a10)') indattim                        !date/time string
c
c  define input data file
c
      infile='HP'//indattim(1:10)//'.ASC'
c
c  open, read, and close data file
c
      open(10,file=infile,status='old',form='formatted')
c
      read(10,
     &  '(   a10,    f10.2,    f10.5,   f10.1,      i10,     i10,
     &     f10.5,      i10,/,    i10,     i10,      i10,     i10,
     &       i10,      i10,    f10.5,     i10,/, f10.1,   f10.2,
     &     f10.2,    f10.2,    5x,a5)')
     &  datetime,      Hmo,       fp,     thp,  ifimle,   istot,
     &      sfrq, ifwindo, ifdtrnd,    nfft,   nensb,   nband,
     &     idgfr,     nfrq,    delfs,    nang,  delang,    dmin,
     &      dbar,     dmax,    rname
c
      read(10,'(10f8.1)') (angle(na),na=1,nang)
c
      do 10 nf=1,nfrq
        read(10,
     &    '( i10,    f10.5,    f10.6,     4x,a6,      i10)')
     &        if,    f(nf),   sf(nf), gpat(nf), iter(nf)
        read(10,'(8f10.7)') (ddf(nf,na),na=1,nang)
10    continue
c
      close(10)
```

Figure C1. (Sheet 2 of 3)

```
c
c  compute frequency-direction spectrum fds(nf,na) from ddf(nf,na)
c  and sf(nf)
c
      do 20 nf=1,nfrq
        do 25 na=1,nang
          fds(nf,na)=sf(nf)*ddf(nf,na)
25      continue
20    continue
c
c  at this point, all relevant variables are defined and arrays
c  are loaded;  subsequent computations or operations can be done
c  at the user's discretion...
c
      end
```

Figure C1. (Sheet 3 of 3)

Appendix D
Listing of Sample Data File

```
9506251934      1.28   0.10303      48.0         1      8192   1.00000         1
         0      1024        15        10       160        13   0.00977       181
       2.0    202.56    202.77    202.93     20201
  -180.0  -178.0  -176.0  -174.0  -172.0  -170.0  -168.0  -166.0  -164.0  -162.0
  -160.0  -158.0  -156.0  -154.0  -152.0  -150.0  -148.0  -146.0  -144.0  -142.0
  -140.0  -138.0  -136.0  -134.0  -132.0  -130.0  -128.0  -126.0  -124.0  -122.0
  -120.0  -118.0  -116.0  -114.0  -112.0  -110.0  -108.0  -106.0  -104.0  -102.0
  -100.0   -98.0   -96.0   -94.0   -92.0   -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    92.0    94.0    96.0    98.0
   100.0   102.0   104.0   106.0   108.0   110.0   112.0   114.0   116.0   118.0
   120.0   122.0   124.0   126.0   128.0   130.0   132.0   134.0   136.0   138.0
   140.0   142.0   144.0   146.0   148.0   150.0   152.0   154.0   156.0   158.0
   160.0   162.0   164.0   166.0   168.0   170.0   172.0   174.0   176.0   178.0
   180.0
         1   0.04443  0.006535     12345        30
 0.0034494 0.0032592 0.0030229 0.0028054 0.0026057 0.0024223 0.0022539 0.0020996
 0.0019581 0.0018285 0.0017098 0.0016009 0.0015014 0.0014102 0.0013267 0.0012502
 0.0011803 0.0011162 0.0010575 0.0010039 0.0009548 0.0009099 0.0008689 0.0008313
 0.0007971 0.0007658 0.0007371 0.0007110 0.0006872 0.0006654 0.0006456 0.0006275
 0.0006111 0.0005962 0.0005826 0.0005703 0.0005591 0.0005490 0.0005399 0.0005317
 0.0005244 0.0005178 0.0005120 0.0005068 0.0005022 0.0004983 0.0004950 0.0004921
 0.0004898 0.0004879 0.0004865 0.0004856 0.0004851 0.0004850 0.0004853 0.0004860
 0.0004871 0.0004886 0.0004905 0.0004928 0.0004954 0.0004984 0.0005018 0.0005055
 0.0005096 0.0005140 0.0005188 0.0005240 0.0005295 0.0005354 0.0005416 0.0005482
 0.0005551 0.0005625 0.0005702 0.0005783 0.0005869 0.0005958 0.0006052 0.0006151
 0.0006255 0.0006364 0.0006479 0.0006599 0.0006726 0.0006860 0.0007000 0.0007148
 0.0007304 0.0007469 0.0007643 0.0007826 0.0008019 0.0008222 0.0008437 0.0008663
 0.0008900 0.0009150 0.0009413 0.0009689 0.0009980 0.0010284 0.0010605 0.0010940
 0.0011292 0.0011661 0.0012048 0.0012455 0.0012879 0.0013326 0.0013795 0.0014287
 0.0014805 0.0015349 0.0015924 0.0016530 0.0017168 0.0017845 0.0018562 0.0019322
 0.0020128 0.0020985 0.0021897 0.0022867 0.0023900 0.0025002 0.0026175 0.0027428
 0.0028760 0.0030185 0.0031700 0.0033317 0.0035039 0.0036866 0.0038811 0.0040880
 0.0043074 0.0045397 0.0047861 0.0050456 0.0053196 0.0056093 0.0059118 0.0062290
 0.0065625 0.0069071 0.0072625 0.0076293 0.0080010 0.0083770 0.0087505 0.0091171
 0.0094701 0.0097992 0.0100995 0.0103592 0.0105720 0.0107287 0.0108214 0.0108454
 0.0107968 0.0106776 0.0104858 0.0102302 0.0099140 0.0095481 0.0091417 0.0087042
 0.0082467 0.0077790 0.0073088 0.0068442 0.0063904 0.0059525 0.0055352 0.0051398
 0.0047679 0.0044193 0.0040954 0.0037947 0.0035832
```

Figure D1. Listing of sample data file (Sheet 1 of 6)

```
         2   0.05420  0.213055     12345         30
0.0047393 0.0042891 0.0037429 0.0032575 0.0028293 0.0024531 0.0021248 0.0018397
0.0015933 0.0013811 0.0011989 0.0010428 0.0009095 0.0007956 0.0006986 0.0006158
0.0005453 0.0004851 0.0004338 0.0003900 0.0003526 0.0003206 0.0002933 0.0002700
0.0002501 0.0002332 0.0002188 0.0002067 0.0001965 0.0001880 0.0001811 0.0001756
0.0001714 0.0001683 0.0001664 0.0001655 0.0001656 0.0001667 0.0001688 0.0001718
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Figure D1. (Sheet 2 of 6)

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Figure D1. (Sheet 3 of 6)

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Figure D1. (Sheet 4 of 6)

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0.0001540 0.0001532 0.0001533 0.0001543 0.0001560 0.0001584 0.0001613 0.0001648
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0.0001287 0.0001505 0.0001764 0.0002070 0.0002431 0.0002857 0.0003359 0.0003949
0.0004642 0.0005457 0.0006415 0.0007542 0.0008868 0.0010429 0.0012267 0.0014429
0.0016970 0.0019948 0.0023425 0.0027463 0.0032125 0.0037466 0.0043541 0.0050403
0.0058116 0.0066762 0.0076462 0.0087393 0.0099800 0.0114008 0.0130400 0.0149368
0.0171178 0.0195737 0.0222217 0.0248636 0.0271650 0.0286986 0.0290793 0.0281375
0.0260155 0.0231058 0.0198798 0.0167286 0.0138935 0.0114761 0.0094836 0.0078742
0.0065882 0.0055651 0.0047511 0.0041013 0.0035798 0.0031578 0.0028125 0.0025257
0.0022828 0.0020723 0.0018851 0.0017141 0.0015544 0.0014029 0.0012581 0.0011196
0.0009881 0.0008646 0.0007502 0.0006458 0.0005522 0.0004693 0.0003971 0.0003348
0.0002818 0.0002371 0.0001997 0.0001686 0.0001429 0.0001218 0.0001045 0.0000904
0.0000789 0.0000696 0.0000620 0.0000560 0.0000512 0.0000474 0.0000444 0.0000422
0.0000407 0.0000396 0.0000391 0.0000391 0.0000394 0.0000402 0.0000414 0.0000430
0.0000451 0.0000475 0.0000504 0.0000538 0.0000567
        12   0.15186  0.404460     12345        30
0.0000676 0.0000677 0.0000683 0.0000695 0.0000713 0.0000739 0.0000773 0.0000817
0.0000872 0.0000941 0.0001025 0.0001128 0.0001253 0.0001403 0.0001582 0.0001793
0.0002036 0.0002313 0.0002619 0.0002947 0.0003286 0.0003617 0.0003921 0.0004175
0.0004360 0.0004461 0.0004470 0.0004390 0.0004228 0.0004002 0.0003730 0.0003430
0.0003120 0.0002814 0.0002523 0.0002254 0.0002009 0.0001792 0.0001601 0.0001435
0.0001292 0.0001169 0.0001064 0.0000975 0.0000900 0.0000836 0.0000783 0.0000738
0.0000700 0.0000668 0.0000641 0.0000619 0.0000599 0.0000583 0.0000569 0.0000557
0.0000546 0.0000536 0.0000526 0.0000517 0.0000508 0.0000499 0.0000490 0.0000481
0.0000471 0.0000462 0.0000453 0.0000445 0.0000437 0.0000431 0.0000426 0.0000423
0.0000422 0.0000424 0.0000430 0.0000441 0.0000456 0.0000478 0.0000508 0.0000548
0.0000601 0.0000671 0.0000764 0.0000887 0.0001053 0.0001277 0.0001585 0.0002015
0.0002622 0.0003491 0.0004748 0.0006580 0.0009252 0.0013116 0.0018592 0.0026070
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0.0077890 0.0073226 0.0069159 0.0066335 0.0065160 0.0065939 0.0068992 0.0074731
0.0083700 0.0096536 0.0113818 0.0135711 0.0161415 0.0188591 0.0213262 0.0230717
0.0237315 0.0232141 0.0217270 0.0196550 0.0173921 0.0152299 0.0133298 0.0117482
0.0104763 0.0094718 0.0086792 0.0080396 0.0074963 0.0069974 0.0065002 0.0059749
0.0054087 0.0048066 0.0041875 0.0035778 0.0030038 0.0024855 0.0020344 0.0016537
0.0013398 0.0010858 0.0008828 0.0007220 0.0005950 0.0004950 0.0004162 0.0003539
0.0003045 0.0002652 0.0002337 0.0002084 0.0001879 0.0001712 0.0001576 0.0001463
0.0001368 0.0001288 0.0001220 0.0001161 0.0001108 0.0001061 0.0001018 0.0000977
0.0000940 0.0000904 0.0000871 0.0000839 0.0000810 0.0000782 0.0000758 0.0000736
0.0000717 0.0000701 0.0000689 0.0000680 0.0000677
        13   0.16162  0.401444     12345         7
0.0001467 0.0001523 0.0001606 0.0001698 0.0001800 0.0001911 0.0002029 0.0002152
0.0002280 0.0002408 0.0002534 0.0002656 0.0002770 0.0002876 0.0002971 0.0003055
0.0003128 0.0003190 0.0003242 0.0003286 0.0003323 0.0003353 0.0003378 0.0003398
```

Figure D1. (Sheet 5 of 6)

```
0.0003414 0.0003425 0.0003431 0.0003432 0.0003428 0.0003418 0.0003401 0.0003377
0.0003346 0.0003308 0.0003261 0.0003208 0.0003148 0.0003081 0.0003009 0.0002932
0.0002851 0.0002767 0.0002682 0.0002596 0.0002509 0.0002423 0.0002339 0.0002256
0.0002175 0.0002097 0.0002021 0.0001948 0.0001878 0.0001812 0.0001749 0.0001689
0.0001633 0.0001582 0.0001535 0.0001493 0.0001456 0.0001425 0.0001399 0.0001380
0.0001366 0.0001360 0.0001361 0.0001370 0.0001388 0.0001414 0.0001451 0.0001499
0.0001560 0.0001635 0.0001725 0.0001834 0.0001963 0.0002115 0.0002293 0.0002503
0.0002748 0.0003036 0.0003374 0.0003772 0.0004243 0.0004801 0.0005467 0.0006264
0.0007220 0.0008370 0.0009753 0.0011416 0.0013405 0.0015772 0.0018561 0.0021810
0.0025542 0.0029759 0.0034444 0.0039560 0.0045062 0.0050908 0.0057080 0.0063597
0.0070525 0.0077988 0.0086166 0.0095288 0.0105612 0.0117399 0.0130844 0.0145972
0.0162482 0.0179570 0.0195808 0.0209248 0.0217831 0.0220054 0.0215531 0.0205115
0.0190507 0.0173641 0.0156187 0.0139324 0.0123736 0.0109726 0.0097348 0.0086516
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0.0033911 0.0030936 0.0028269 0.0025866 0.0023692 0.0021718 0.0019918 0.0018268
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0.0007721 0.0006884 0.0006111 0.0005403 0.0004763 0.0004192 0.0003688 0.0003249
0.0002870 0.0002548 0.0002276 0.0002049 0.0001860 0.0001705 0.0001579 0.0001477
0.0001396 0.0001333 0.0001287 0.0001254 0.0001234 0.0001225 0.0001227 0.0001239
0.0001262 0.0001294 0.0001336 0.0001388 0.0001434
```

Figure D1. (Sheet 6 of 6)

Appendix E
Notation

Text	Appendix C	
a_0		Normalizing coefficient in maximum likelihood estimate (MLE)
a_r		Normalizing coefficient for r^{th} iteration in iterative maximum likelihood estimator (IMLE)
A		Quartile asymmetry parameter
	`angle(na)`	Element `na` of an array that represents direction coordinates
$C_{ij}(f_n)$		Coincident spectral density between gauges i and j at frequency f_n
d		Water depth
	`datetime`	Ten-character string that contains date and time
	`dbar`	Mean water depth
	`ddf(nf,na)`	Array element representing the directional distribution function at frequency `f(nf)` and direction `angle(na)`
$d\theta$	`delang`	Direction increment
df	`delfs`	Frequency increment
	`dmax`	Maximum segment-averaged water depth in a collection

Text	Appendix C	
	dmin	Minimum segment-averaged water depth in a collection
$D(\theta_m)$		Directional distribution function based on $S(\theta_m)$
$D(f_n, \theta_m)$		Directional distribution function at frequency f_n and direction θ_m
$D_0(f_n, \theta_m)$		MLE estimate of directional distribution function at frequency f_n
$D_r(f_n, \theta_m)$		IMLE estimate of directional distribution function at frequency f_n after r^{th} iteration
$D_r^{'}(f_n, \theta_m)$		Intermediate, uncorrected IMLE estimate of directional distribution function at frequency f_n during r^{th} iteration
$\hat{e}_x$		Unit vector in the x-direction
$\hat{e}_y$		Unit vector in the y-direction
	fds(nf,na)	Array element representing the frequency-direction spectrum at frequency f(nf) and direction angle(na)
f_n		n^{th} frequency of a set of N discrete frequencies
	f(nf)	Element nf of an array that represents frequency
f_p	fp	Peak frequency
g		Gravitational acceleration
	gpat(nf)	Element nf of an array of six-character strings that represent working gauge patterns
hhmm		Mnemonic for time of day
H_{mo}	Hmo	Characteristic wave height

Text	Appendix C	
i		Complex notation $\sqrt{-1}$ [in exponent or on main equation line]
		Gauge index [as subscript]
	idgfr	Degrees of freedom in cross-spectral estimation
	ifdtrnd	Flag indicating whether or not data have been detrended
	ifimle	Flag indicating if maximum likelihood or iterative maximum likelihood estimation is used
	ifwindo	Flag indicating whether or not data segments have been windowed
	istot	Total number of seconds duration of a time series
	iter(nf)	Number of iterative maximum likelihood iterations used to compute directional distribution at frequency f(nf)
I		Number of gauges in an array
$I(\theta_m - \theta_{m_{min}})$		Cumulative distribution function
Im[ ]		Imaginary part of complex entity contained in brackets
j		Gauge index [as subscript]
k_n		Magnitude of wave number vector associated with n^{th} discrete frequency
$\vec{k}_n(\theta_m)$		Wave number vector for wave direction θ_m at n^{th} discrete frequency
l		Summation index
m	na	Index associated with discrete direction
m_1		First cosine moment of $D(\theta_m)$
m_2		Second cosine moment of $D(\theta_m)$

Text	Appendix C	
m_{min}		Index of discrete direction at which wave energy is minimum
M	nang	Integer number of discrete directions
$M_{ij}(f_n)$		Element of dimensionless matrix of cross spectra between gauges i and j at frequency f_n
$M_{ij}^{-1}(f_n)$		Element of inverse of $M_{ij}(f_n)$
${}^rM_{ij}(f_n)$		Estimate of element of dimensionless matrix of cross spectra between gauges i and j at frequency f_n during r^{th} IMLE iteration
${}^rM_{ij}^{-1}(f_n)$		Element of inverse of ${}^rM_{ij}(f_n)$
n	nf	Index associated with discrete frequency
n_1		First sine moment of $D(\theta_m)$
n_2		Second sine moment of $D(\theta_m)$
	nband	Number of frequency bands averaged in spectral estimation
	nensb	Number of segments into which a data record is divided during spectral estimation
	nfft	Number of data points in a data segment
N	nfrq	Integer number of discrete frequencies
$Q_{ij}(f_n)$		Quadrature spectral density between gauges i and j at frequency f_n
r		Iteration count for IMLE
	rname	Five-character string denoting reference gauge
R		Upper limit of IMLE iterations
Re[ ]		Real part of complex entity contained in brackets

Text	Appendix C	
	`sf(nf)`	Element `nf` of an array that represents the frequency spectrum
	`sfrq`	Sampling frequency
$S(f_n)$		Frequency spectral density at frequency f_n
$S(\theta_m)$		Direction spectral density at direction θ_m
$S(f_n, \theta_m)$		Frequency-direction spectral density at frequency f_n and direction θ_m
	`thp`	Peak direction of directional distribution at frequency `fp`
T_p		Peak period
x		Horizontal coordinate increasing northward
$\vec{x}_i$		Horizontal position vector of gauge i
$\vec{x}_j$		Horizontal position vector of gauge j
y		Horizontal coordinate increasing westward
yymmdd		Mnemonic for date
β		Exponential convergence rate parameter in IMLE
γ		Convergence rate coefficient in IMLE
		Circular skewness
$\Gamma_{ij}^2(f_n)$		Coherence of signals from gauges i and j at frequency f_n
δ		Circular kurtosis
$\Delta\theta$		Quartile directional spread parameter
ϵ_r		Convergence check parameter at r^{th} IMLE iteration

Text	Appendix C	
θ_0		Mean direction
$\theta_{25\%}$		First quartile direction of cumulative distribution function
$\theta_{50\%}$		Median direction of cumulative distribution function
$\theta_{75\%}$		Third quartile direction of cumulative distribution function
θ_l		l^{th} discrete direction
θ_m		m^{th} direction of a set of M discrete directions
$\theta_{m_{min}}$		Direction of minimum energy
θ_p		Peak direction
$\lambda_r(f_n, \theta_m)$		IMLE correction factor at the rth iteration
σ		Circular width parameter
$\phi_{ij}(f_n)$		Cross-spectral phase between gauges i and j at frequency f_n

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13. ABSTRACT *(Maximum 200 words)*

This report indexes characteristic parameters of and describes a means of access to 2,433 wind wave frequency-direction spectra observed at the Texaco Oil Company Harvest Platform during calendar year 1995. Located at about the 200-m depth contour approximately 20 km west of Point Conception, California, the platform supports a spatial array of six pressure gauges, data from which are processed with an iterative maximum likelihood directional estimator. Nine parameters are defined, listed, and graphed in time series form: characteristic wave height, peak frequency, peak direction, four circular moments (mean direction, width, skewness, and kurtosis), and two parameters (directional spread and asymmetry) derived from quartile points of directional spectra. This report is the third in a series.

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