

IONOSPHERIC DATA IN JAPAN

FOR SEPTEMBER 2003

VOL. 55 NO. 9

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COMMUNICATIONS RESEARCH LABORATORY
 INDEPENDENT ADMINISTRATIVE INSTITUTION
 TOKYO, JAPAN

INTRODUCTION

This Series contains data on ionosphere (I) and solar radio emission (S) obtained at the following stations under the

Communications Research Laboratory, Independent Administrative Institution in Japan.

| Station | Geographic | | Geomagnetic (IGRF2000) | | Technical Method |
|-----------|------------|------------|------------------------|-----------|--------------------------|
| | Latitude | Longitude | Latitude | Longitude | |
| Wakkanai | 45°23.6'N | 141°41.1'E | 36.4°N | 208.6° | Vertical Sounding (I) |
| Kokubunji | 35°42.4'N | 139°29.3'E | 26.6°N | 207.9° | Vertical Sounding (I) |
| Yamagawa | 31°12.1'N | 130°37.1'E | 21.4°N | 199.8° | Vertical Sounding (I) |
| Okinawa | 26°40.5'N | 128°09.2'E | 16.8°N | 198.4° | Vertical Sounding (I) |
| Hiraiso | 36°22.0'N | 140°37.5'E | 27.4°N | 209.2° | Solar Radio Emission (S) |

A. IONOSPHERE

Ionospheric observations are carried out at the above four stations in Japan by means of vertical sounding using ionosondes. The ionosonde produces ionograms, which are recorded digitally on computer storage medium. The digitally-recorded ionograms are collected from each station by the central computer and reduced to numerical values and Summary Plots by the automatic processing system. The ionograms obtained at Kokubunji are manually scaled as well by experienced specialists to supplement automatically-scaled parameters.

A1. Automatic Scaling

Digital ionograms are automatically scaled by the pattern recognition method. The following five factors of ionospheric characteristics are published for the present. The reliability of these factors has been ascertained by comparison of the automatically-scaled parameters with the manually-scaled values of large amounts of test ionograms.

The published data consist of tabulations of hourly values of three factors (f_oF2 , fEs , $fmin$) and monthly medians of two factors ($h'Es$, $h'F$), daily Summary Plots and monthly medians plot of f_oF2 .

a. Characteristics of Ionosphere

| | |
|---|---|
| f_oF2 | Ordinary wave critical frequency for the F2 layer |
| fEs | Highest frequency of the Es layer whether it may be ordinary or extraordinary |
| $fmin$ | Lowest frequency which shows vertical ionospheric reflections |
| $h'Es$ $h'F$ | Minimum virtual height on the ordinary wave for the Es and F layers, respectively |

b. Descriptive Letters

The following descriptive letters are used in the tables.

- A Impossible measurement because of the presence of a lower thin layer, for example **Es** (for f_oF2).
- C Impossible measurement because of any failure in observation.
- G Impossible automatic scaling because of too small ionization density of the layer (for fEs).
- N Impossible automatic scaling because of complex echoes.
- Blank No digital record because of trouble in the automatic data processing system, but existence of film record.

c. Definitions of the CNT, MED, UQ and LQ

Median count (CNT) is the number of numerical values from which the median has been computed. In addition to numerical values, the count may include a descriptive letter G.

Median (MED) is defined as the middle value when the numerical values are arranged in order of magnitude, or the average of the two middle values if there is an even number of values.

Upper quartile (UQ) is the median value of the upper half

of the values when they are ranked according to magnitude; the **lower quartile** (LQ) is the median value of the lower half.

If CNT is less than 10, there are blank spaces left.

d. Reliability of Automatic Scaling

The results of the comparison between automatically-scaled values and manually-scaled ones showed that hourly values of f_oF2 , fEs and $fmin$ were scaled within a difference of 1 MHz from about 90, 90 and 99%, respectively of the test ionograms.

e. Summary Plot

Daily Summary Plots which are made from quarter-hourly digital ionograms are published to present general ionosphere conditions. The upper and middle parts of a Summary Plot show the diurnal variation of the frequency range of the echoes reflected from the **F** and **E** regions, respectively. The two solid arcing lines indicate the predicted values of f_xE and f_oE calculated by the method described in the CCIR report 340. The lower part shows the diurnal variation of the virtual height where the echo traces become horizontal.

A2. Manual Scaling

The published data consist of tabulations of hourly values of the ionospheric characteristics and figures of daily f -plot.

All symbols and terminology in the tables or figures of ionospheric data are used in accordance with the "URSI Hand-book of Ionogram Interpretation and Reduction (Second Edition) 1972" and its revision of chapters I-4, published in July 1978.

a. Characteristics of Ionosphere

| | |
|---|--|
| fxl | Top frequency of spread F trace |
| f_oF2 f_oF1 f_oE f_oEs | Ordinary wave critical frequency for the F2 , F1 , E and Es including particle E layers, respectively |
| $fbEs$ | Blanketing frequency of the Es layer, e.g. the lowest ordinary wave frequency visible through Es |
| $fmin$ | Lowest frequency which shows vertical ionospheric reflections |
| $M(3000)F2$ $M(3000)F1$ | Maximum usable frequency factor for a path of 3000 km for transmission by F2 and F1 layers, respectively |
| $h'F2$ $h'F$ $h'E$ $h'Es$ | Minimum virtual height on the ordinary wave for the F2 , whole F , E and Es layers, respectively |
| Types of Es | See below b. (iii) |

b. Symbols

(i) Descriptive Letters

The following letters are entered after, or used to

replaced a numerical value on the monthly tabulation sheets, if necessary.

- A Measurement influenced by, or impossible because of, the presence of a lower thin layer, for example *Es*.
- B Measurement influenced by, or impossible because of, absorption in the vicinity of *fmin*.
- C Measurement influenced by, or impossible because of, any non-ionospheric reason.
- D Measurement influenced by, or impossible because of, the upper limit of the normal frequency range in use.
- E Measurement influenced by, or impossible because of, the lower limit of the normal frequency range in use.
- F Measurement influenced by, or impossible because of, the presence of spread echoes.
- G Measurement influenced by, or impossible because the ionization density of the layer is too small to enable it to be made accurately.
- H Measurement influenced by, or impossible because of, the presence of a stratification.
- K Presence of particle *E* layer.
- L Measurement influenced or impossible because the trace has no sufficiently definite cusp between layers.
- M Interpretation of measurement questionable because the ordinary and extraordinary components are not distinguishable.
- N Conditions are such that the measurement cannot be interpreted.
- O Measurement refers to the ordinary component.
- P Man-made perturbations of the observed parameter; or spur type spread *F* present.
- Q Range spread present.
- R Measurement influenced by, or impossible because of, attenuation in the vicinity of a critical frequency.
- S Measurement influenced by, or impossible because of, interference or atmospheric.
- T Value determined by a sequence of observations, the actual observation being inconsistent or doubtful.
- V Forked trace which may influence the measurement.
- W Measurement influenced or impossible because the echo lies outside the height range recorded.
- X Measurement refers to the extraordinary component.
- Y Lacuna phenomena, severe layer tilt.
- Z Third magneto-electronic component present.

(ii) Qualifying Letters

The following letters are entered in the first column before a numerical value on the monthly tabulation sheets, if necessary.

- A Less than. Used only when *fbEs* is deduced from *foEs* because total blanketing of higher layer is present.
- D Greater than.
- E Less than.
- I Missing value has been replaced by an interpolated value.
- J Ordinary component characteristic deduced from the extraordinary component.

- M Mode interpretation uncertain.
- O Extraordinary component characteristic deduced from the ordinary component. (Used for x-characteristics only.)
- T Value determined by a sequence of observations, the actual observation being inconsistent or doubtful.
- U Uncertain or doubtful numerical value.
- X Measurement deduced from the third magneto-electronic component.

(iii) Description of Types of *Es*

When more than one type of *Es* trace are present on the ionogram, the type for the trace used to determine *foEs* must be written first. The number of multiple trace is indicated after the type letter.

The types are:

- f An *Es* trace which shows no appreciable increase of height with frequency.
- l A flat *Es* trace at or below the normal *E* layer minimum virtual height or below the part *E* layer minimum virtual height.
- c An *Es* trace showing a relatively symmetrical cusp at or below *foE*. (Usually a daytime type.)
- h An *Es* trace showing a discontinuity in height with the normal *E* layer trace at or above *foE*. The cusp is not symmetrical, the low frequency end of the *Es* trace lying clearly above the high frequency end of the normal *E* trace. (Usually a daytime type.)
- q An *Es* trace which is diffuse and non-blanketing over a wide frequency range.
- r An *Es* trace showing an increase in virtual height at the high frequency end similar to group retardation.
- a An *Es* trace having a well-defined flat or gradually rising lower edge with stratified and diffuse traces present above it.
- s A diffuse *Es* trace which rises steadily with frequency and usually emerges from another type *Es* trace.
- d A weak diffuse trace at heights below 95 km associated with high absorption and large *fmin*.
- n The designation 'n' is used to denote an *Es* trace which cannot be classified into one of the standard types.
- k The designation 'k' is used to show the presence of particle *E*. When *foEs* > *foE* (particle *E*) the *Es* type precedes k.

c. Definitions of the CNT, MED, UQ and LQ

Median count (CND) is the number of values from which the median has been computed. In addition to numerical values, the count may include certain descriptive letters.

Median (MED) is the middle value when the numerical values are arranged in order of magnitude, or the average of the two middle values if there is an even number of values.

Upper quartile (UQ) is the median value of the upper half of the values when they are ranked according to magnitude; the **lower quartile (LQ)** is the median value of the lower half.

B. SOLAR RADIO EMISSION

Solar radio observations at 200, 500 and 2800 MHz are carried out at Hiraiso. The observation equipment consists of three parabolic antennas, one with 10-meter diameter for 200 MHz Measurement, one with 6-meter diameter for 500 MHz measurements and one with 2-meter diameter for 2800 MHz measurements, each being equipped with a pair of crossed doublet antennas as a primary radiator, and three appropriate receivers. Each pair of the crossed doublet antennas is used as a polarimeter. Observations are continuously carried out almost from sunrise to sunset.

B1. Daily Data at Hiraiso

The three-hourly mean and daily mean values of the solar radio emission intensities are tabulated for 500 MHz measurements. The intensities are expressed by the flux density in $10^{-22} \text{ Wm}^{-2} \text{ Hz}^{-1}$ unit.

The following symbols are used in the tables, when

interference or radio bursts prevented measuring the base-level flux densities or determining the variability indices:

- * Measurement impossible because of interference.
- B Measurement impossible because of bursts.

Daily data within parentheses mean that the observation time does not exceed one third of the period.

B2. Outstanding Occurrences at Hiraiso

The table is a list of outstanding occurrences of solar radio emission bursts observed at 200, 500 and 2800 MHz during a month.

Listed in the table are the date, frequencies, the type of event, the start time and the time of maximum, both in U.T. expressed in hours, minutes and tenths of a minute, the duration in minutes, the peak and mean flux densities in $10^{-22} \text{ Wm}^{-2} \text{ Hz}^{-1}$ unit, and the polarization.

The type of event is expressed by a combination of a

numerical code and a letter symbol in accordance with the "Descriptive Text of Solar Geophysical Data, NOAA" as defined by H. Tanaka in the "Instruction Manual for Monthly Report of Solar Radio Emission, WDC-C2" in January 1975:

| SGD Code | Letter Symbol | Morphological Classification |
|----------|---------------|------------------------------|
| 1 | S | Simple 1 |
| 2 | S/F | Simple 1F |
| 3 | S | Simple 2 |
| 4 | S/F | Simple 2F |
| 5 | S | Simple |
| 6 | S | Minor |
| 7 | C | Minor+ |
| 8 | S | Spike |
| 20 | GRF | Simple 3 |
| 21 | GRF | Simple 3A |
| 22 | GRF | Simple 3F |
| 23 | GRF | Simple 3AF |
| 24 | R | Rise |
| 25 | R | Rise A |
| 26 | FAL | Fall |
| 27 | RF | Rise and Fall |
| 28 | PRE | Precursor |
| 29 | PBI | Post Burst Increase |
| 30 | PBI | Post Burst Increase A |
| 31 | ABS | Post Burst Decrease |
| 32 | ABS | Absorption |
| 40 | F | Fluctuations |
| 41 | F | Group of Bursts |
| 42 | SER | Series of Bursts |
| 43 | NS | Onset of Noise Storm |
| 44 | NS | Noise Storm in progress |

| SGD Code | Letter Symbol | Morphological Classification |
|----------|---------------|------------------------------|
| 45 | C | Complex |
| 46 | C | Complex F |
| 47 | GB | Great Burst |
| 48 | C | Major |
| 49 | GB | Major+ |

The polarization is expressed by the polarization degree and sense as follows:

| | |
|-----------|---|
| R or L | right or left-handed polarization, |
| W, M or S | weak, moderate or strong polarization, |
| 0 | almost zero or unable to detect polarization due to small increase of flux, |
| 00 | polarization degree of less than 1 |

One of the following symbols may be attached after numerical values, if necessary.

| | |
|---|------------------------------|
| D | greater than, or later than, |
| E | less than or earlier than, |
| U | approximate, or uncertain. |

B3. Summary Plots of F10.7 at Hiraiso

The 10.7 cm solar radio flux at Hiraiso is plotted over a one month period. The 10.7 cm flux ($F_{10.7}$) is determined by adjusting the 10.7 cm radio flux measured at Hiraiso to the Pentincton 10.7 cm radio flux. The figure on the right-hand side shows the $F_{10.7}$ index estimated at Hiraiso.

The following symbols are used in the $F_{10.7}$ index:

| | |
|---|----------------------------------|
| * | Measurement made not at 3h U.T.. |
| B | Measurement affected by bursts. |

HOURLY VALUES OF fof2 AT Wakkanai

SEP. 2003

LAT. 45° 23.5' N LON. 141° 41.2' E SWEEP 1.0 MHz TO 30.0 MHz AUTOMATIC SCALING

| D \ H | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | | | | | | | |
|-------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|--|
| 1 | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | | | | | | | |
| 2 | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | | | | | | | |
| 3 | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | | | | | | | |
| 4 | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | | 67 | 76 | 77 | 77 | | 77 | # | 51 | 60 | | | | | | |
| 5 | # | 44 | 48 | 39 | 48 | A | A | | | A | | | | | | | 63 | 65 | 61 | 61 | 55 | 63 | 53 | 45 | 53 | | | | | | |
| 6 | 54 | 53 | 44 | 53 | # | 41 | 46 | # | 65 | 64 | 73 | 75 | 71 | 63 | 66 | 71 | | 81 | 77 | 72 | 76 | 78 | 73 | # | 54 | 50 | # | 61 | | | |
| 7 | 51 | 54 | 53 | 53 | 48 | 45 | 51 | # | 72 | # | 67 | 73 | 71 | 67 | 68 | 72 | 70 | 72 | 72 | 73 | 74 | 74 | 72 | 64 | # | 52 | # | 53 | | | |
| 8 | 54 | 54 | 52 | 51 | 45 | 52 | 67 | # | 82 | # | 72 | 77 | 77 | 74 | 75 | 73 | 73 | 76 | 70 | 75 | 74 | A | | 74 | # | 67 | # | 48 | 53 | | |
| 9 | 50 | 48 | 45 | 40 | 45 | 44 | 62 | # | 82 | # | | | | | 81 | 76 | 76 | 73 | 75 | 74 | 67 | 70 | 76 | | 80 | 66 | # | 53 | 44 | | |
| 10 | 44 | 42 | 45 | 47 | 42 | A | | # | 54 | # | 67 | | | | | | | | | | | | | | # | 71 | # | 66 | # | 48 | |
| 11 | 47 | 53 | 47 | C | 46 | 54 | 54 | 60 | 67 | | | 67 | | 68 | 62 | 72 | 66 | 67 | 66 | 54 | # | 66 | # | 54 | # | 66 | 53 | | 54 | | |
| 12 | 52 | 44 | 40 | 44 | 45 | 52 | 66 | # | 69 | # | 77 | 52 | # | 73 | 72 | 64 | 72 | 74 | 75 | 66 | 68 | 53 | # | 65 | # | 73 | # | 55 | 52 | 53 | |
| 13 | # | 42 | 51 | 45 | 44 | 44 | 44 | 62 | # | 70 | 71 | 78 | 77 | 70 | 71 | 74 | 70 | 71 | 68 | 72 | 77 | | | | 72 | # | 53 | # | 53 | 44 | |
| 14 | 40 | 44 | 38 | 45 | 45 | 53 | 60 | 66 | 66 | 70 | 63 | 70 | 73 | 74 | 75 | 72 | 68 | 68 | 72 | 64 | 72 | 64 | 72 | 64 | 72 | 64 | 61 | 53 | | | |
| 15 | 48 | 54 | 47 | 40 | 44 | 45 | 61 | # | 72 | # | 77 | 76 | 66 | 73 | 68 | 72 | 72 | 72 | 72 | 67 | 73 | 64 | 71 | 62 | 53 | 48 | | | | | |
| 16 | 52 | 51 | 43 | 53 | 44 | 50 | 63 | # | 62 | # | 61 | 78 | # | 77 | 76 | 74 | 74 | 83 | 80 | 76 | 74 | 72 | 66 | 73 | 58 | # | 64 | 66 | | | |
| 17 | # | 51 | # | 40 | 41 | 32 | | | | A | | | | 49 | | 57 | 56 | 56 | 53 | 53 | | | | | 47 | 42 | 32 | 38 | | | |
| 18 | 32 | 32 | A | | 31 | 28 | A | | | | | | | 56 | 56 | 61 | 61 | 60 | 67 | 60 | 48 | # | 53 | 46 | 44 | 37 | | | | | |
| 19 | 43 | 42 | 40 | 34 | 34 | 32 | 41 | # | A | 50 | | | | | A | A | | 55 | 63 | 67 | 60 | 54 | # | 54 | 54 | 50 | 59 | 44 | | | |
| 20 | 44 | 42 | 39 | 37 | | 31 | 62 | # | 58 | 63 | 64 | 67 | 66 | 67 | 70 | 69 | 60 | 67 | 71 | 72 | 61 | # | 51 | 50 | | 52 | | | | | |
| 21 | 45 | 44 | 42 | A | 34 | 36 | 43 | 50 | | 59 | | 62 | 62 | 60 | 62 | 67 | 68 | 81 | # | 70 | # | 58 | A | 44 | 40 | 42 | | | | | |
| 22 | 42 | A | 34 | 40 | 36 | | 53 | A | A | | 85 | 80 | 76 | 68 | 79 | # | 73 | 73 | 68 | 62 | 64 | 63 | 54 | A | 52 | 51 | | | | | |
| 23 | 44 | 51 | 41 | 41 | 40 | 40 | 48 | 52 | | 57 | | | | 68 | A | | 73 | 70 | 70 | 71 | 64 | 58 | 51 | 52 | 53 | 48 | | | | | |
| 24 | 45 | 41 | A | A | | A | A | | | # | 68 | 82 | 84 | 82 | 75 | 82 | 83 | 79 | 77 | 82 | 79 | # | 68 | # | 72 | 66 | 53 | 44 | 46 | | |
| 25 | 43 | 44 | 40 | 44 | | 39 | 54 | # | | 69 | 70 | 75 | 71 | 81 | 82 | 75 | 67 | 77 | 82 | 70 | # | 55 | # | 63 | 54 | | | | | 48 | |
| 26 | 44 | 43 | 42 | 43 | # | 26 | 34 | # | 45 | # | 40 | 56 | A | A | | 68 | 68 | 73 | 71 | 70 | 66 | 71 | 62 | 63 | # | 51 | 47 | 54 | 49 | | |
| 27 | 42 | 38 | 41 | 38 | 40 | 41 | 57 | # | 62 | 63 | 75 | 78 | 84 | 83 | 83 | 77 | 72 | 76 | 70 | 64 | A | | 54 | 51 | 44 | 52 | | | | | |
| 28 | 45 | 45 | 42 | 52 | # | 37 | 38 | # | 57 | # | 66 | 75 | 86 | | 84 | 81 | | 81 | 76 | 81 | 72 | 66 | 63 | 61 | 53 | 52 | 45 | | | | |
| 29 | 53 | 51 | 48 | 44 | 44 | 43 | 61 | # | 66 | # | 81 | 84 | 81 | 83 | 81 | 79 | 82 | 78 | 76 | 72 | 68 | 64 | | 63 | 63 | 52 | | | | | |
| 30 | 53 | 44 | 45 | 53 | 53 | 55 | 61 | # | 78 | # | 92 | 85 | 83 | 73 | 78 | 74 | 82 | 78 | 81 | 78 | # | 64 | 62 | 63 | 61 | 61 | 54 | | | | |
| 31 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | | | | | | | |
| CNT | 26 | 25 | 24 | 23 | 22 | 20 | 23 | 21 | 18 | 19 | 17 | 21 | 23 | 22 | 24 | 27 | 27 | 27 | 26 | 22 | 25 | 26 | 24 | 27 | | | | | | | |
| MED | 45 | 44 | 42 | 44 | 43 | 44 | 57 | 66 | 70 | 76 | 76 | 72 | 68 | 73 | 73 | 72 | 70 | 71 | 68 | 63 | 66 | 54 | 52 | 51 | | | | | | | |
| U Q | 51 | 51 | 45 | 51 | 45 | 51 | 62 | 71 | 77 | 84 | 79 | 76 | 78 | 75 | 78 | 76 | 76 | 75 | 72 | 65 | 72 | 62 | 54 | 53 | | | | | | | |
| L Q | 43 | 42 | 40 | 40 | 36 | 38 | 52 | 59 | 63 | 70 | 69 | 67 | 66 | 70 | 69 | 67 | 66 | 67 | 64 | 58 | 54 | 51 | 46 | 45 | | | | | | | |

HOURLY VALUES OF fEs AT Wakkanai
 SEP. 2003
 LAT. 45°23.5'N LON. 141°41.2'E SWEEP 1.0MHz TO 30.0MHz AUTOMATIC SCALING

| D \ H | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | |
|-------|----|----|----|----|----|----|----|-----|-----|-----|-----|----|----|----|----|----|----|----|----|----|----|----|----|----|---|
| 1 | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | |
| 2 | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | |
| 3 | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | |
| 4 | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | G | # | G# | # | # | # | # | # | # | G |
| 5 | # | # | G# | # | # | # | # | # | # | # | G | G | G | G | G | * | # | # | # | # | # | # | # | G | |
| 6 | G | G | G | G | G | G | *G | | *G | G | G | G | G | * | # | G | *G | G | # | | G | G | G | G | |
| 7 | G | G | G | G | G | G | *G | *G | *G | G | G | | N | G | G | G | *G | G | # | G# | G | # | G# | G | |
| 8 | G | G | G | G | # | 29 | 26 | 35 | 38 | 43 | G# | G | G | G | G | G | # | # | # | G# | G | G | G | G | |
| 9 | G | G | G | # | G# | # | 28 | 38 | 46 | 56 | * | * | * | G | * | # | # | # | # | | | * | | * | |
| 10 | * | G | # | # | G | # | 41 | 38 | 40 | 44 | G | * | # | G | G | G | *G | | * | # | # | * | * | * | |
| 11 | 24 | G# | G | C | 27 | 44 | 44 | | *G | | G | G | | G | | * | 52 | *G | 32 | G | * | # | * | * | |
| 12 | * | 32 | 50 | G | G | G | 50 | 44 | 34 | *G# | G | G | G | G | G | G | *G | G | G | G | G | G | * | # | |
| 13 | 29 | G# | G | G | G | G | *G | | 33 | *G# | G | G | G | G | G | G | *G | | 35 | 28 | 48 | 33 | 33 | G | |
| 14 | G | G | G | G | # | 25 | 35 | 34 | 50 | 41 | G# | G | G | G | G | G | # | 40 | 36 | 30 | 26 | # | # | G | |
| 15 | # | G# | # | G# | # | 32 | 25 | | *G | G | | * | 47 | G | G | G | * | # | *G | * | 54 | 29 | 32 | G# | |
| 16 | # | G# | G | G | G | G | # | 35 | 44 | 40 | * | G | G | G | G | G | * | # | | G | G | G | G | G | |
| 17 | G | G | # | * | 32 | 32 | 39 | 39 | 40 | 52 | # | G# | G | G | G | G | G | # | 41 | 35 | G# | G | * | # | |
| 18 | G | 11 | 38 | 30 | 26 | 32 | 35 | *G# | *G | G | G | G | G | G | G | G | *G | G | # | 28 | 32 | G# | G | G | |
| 19 | G | G | G | G | G | # | 26 | 29 | 52 | *G# | * | G | G | G | * | # | * | *G | G | G | | G | G | G | |
| 20 | G | G | # | # | # | 28 | 29 | 40 | 32 | 32 | *G# | 54 | G# | G | * | # | * | G | G | * | # | # | G# | G | |
| 21 | G | G | * | # | * | 32 | 34 | 30 | 32 | 33 | *G# | 47 | 50 | 58 | * | 50 | * | * | 52 | 46 | G | *G | 38 | 45 | |
| 22 | 28 | * | G | G | # | 29 | 34 | *G# | * | 65 | 67 | 46 | 44 | 46 | 48 | 52 | 59 | 58 | 42 | | 34 | 30 | 52 | 72 | |
| 23 | 28 | G# | # | G# | # | G# | *G | *G | | 50 | 40 | 78 | 76 | 62 | 69 | * | 41 | 58 | 54 | 42 | 38 | 35 | | G | |
| 24 | * | # | * | * | * | # | # | # | *G# | * | 47 | 59 | G | * | # | G | G | G | # | G# | G | G | G | * | # |
| 25 | G | G | G | # | # | 32 | 39 | 34 | | 38 | 41 | G | * | # | * | * | * | 33 | G# | # | 32 | 35 | G# | G | |
| 26 | G | G | G | # | G# | G | *G | *G | *G | * | 77 | 90 | G | G | * | # | G | G | # | G# | # | G# | # | G# | |
| 27 | # | G# | # | G# | G | G | # | 34 | 38 | *G# | * | 58 | G | G | G | G | G | *G | | 27 | 59 | # | G | # | |
| 28 | G# | G | G | G | # | G# | *G | *G | | G | G | | G | | G | G | # | G# | # | G# | * | # | G | G | |
| 29 | G | G | G | G | G | G | | 32 | *G# | G | * | # | G | G | G | G | G | G | G | G | # | 32 | | G | |
| 30 | G | G | G | G | G | G | *G | *G | * | 92 | G | * | # | G | * | # | * | G | * | # | *G | * | 53 | 35 | |
| 31 | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | |
| CNT | 26 | 26 | 26 | 25 | 26 | 26 | 24 | 22 | 25 | 24 | 25 | 24 | 23 | 25 | 25 | 26 | 25 | 24 | 25 | 24 | 24 | 27 | 24 | 27 | |
| MED | G | G | G | G | 24 | 27 | 34 | 34 | 38 | G | G | G | G | G | G | G | 32 | 16 | 29 | 27 | G | G | G | G | |
| U Q | 28 | G | 27 | 29 | 30 | 39 | 38 | 40 | 50 | 48 | 44 | 46 | 40 | 47 | 20 | 40 | 42 | 39 | 33 | 35 | 43 | 33 | 29 | G | |
| L Q | G | G | G | G | G | G | G | G | G | G | G | G | G | G | G | G | G | G | 14 | G | G | G | G | G | |

HOURLY VALUES OF fmin AT Wakkanai

SEP. 2003

LAT. 45° 23.5' N LON. 141° 41.2' E SWEEP 1.0 MHz TO 30.0 MHz AUTOMATIC SCALING

| D \ H | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | |
|-------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| 1 | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | |
| 2 | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | |
| 3 | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | |
| 4 | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | | 16 | 14 | 21 | 14 | 15 | 14 | 15 | 14 | 15 |
| 5 | 14 | 16 | 14 | 17 | 14 | 14 | 15 | 16 | 18 | 21 | 18 | 16 | 21 | 20 | 21 | 17 | 17 | 14 | 14 | 14 | 14 | 15 | 15 | 17 | |
| 6 | 15 | 15 | 15 | 15 | 15 | 17 | 23 | 14 | 17 | 39 | 23 | | 23 | 17 | 21 | 20 | 18 | 23 | 14 | 16 | 16 | 17 | 17 | 15 | |
| 7 | 16 | 15 | 15 | 15 | 17 | 16 | 14 | 16 | 16 | 21 | 20 | 22 | 21 | 20 | 20 | 14 | 17 | 21 | 14 | 14 | 15 | 16 | 14 | 16 | |
| 8 | 15 | 15 | 15 | 14 | 14 | 15 | 14 | 14 | 15 | 20 | 21 | 20 | 21 | 21 | 20 | 16 | 17 | 15 | 17 | 15 | 15 | 14 | 14 | 16 | |
| 9 | 14 | 17 | 17 | 17 | 15 | 16 | 14 | 17 | 20 | 21 | 21 | 22 | 23 | 21 | 22 | 18 | 14 | 15 | 15 | | 14 | 14 | 14 | 15 | |
| 10 | 14 | 15 | 14 | 14 | 14 | 14 | 14 | 21 | 17 | 20 | 18 | 22 | 22 | 22 | 21 | 17 | 16 | 14 | 15 | 14 | 15 | 14 | 15 | 16 | |
| 11 | 15 | 15 | 16 | C | 15 | 14 | 14 | 16 | 18 | | 23 | 22 | | 20 | 20 | 17 | 18 | 14 | 14 | 15 | 14 | 14 | | 18 | |
| 12 | 15 | 17 | 15 | 15 | 16 | 14 | 14 | 14 | 18 | 16 | 24 | | 24 | 18 | 18 | 15 | 15 | 14 | 15 | 15 | 16 | 14 | 14 | 14 | |
| 13 | 18 | 16 | 14 | 14 | 14 | 17 | 14 | 15 | 20 | 18 | 22 | 20 | 20 | 21 | 16 | 15 | 14 | 14 | 14 | 17 | 14 | 15 | 15 | 14 | |
| 14 | 18 | 14 | 15 | 16 | 14 | 15 | 15 | 15 | 20 | 18 | 22 | 21 | 23 | 20 | 21 | 15 | 14 | 14 | 14 | 17 | 15 | 14 | 15 | 20 | |
| 15 | 15 | 18 | 16 | 14 | 14 | 15 | 14 | 18 | 21 | 20 | 34 | 24 | 23 | 23 | 21 | 18 | 16 | 14 | 17 | 15 | 14 | 14 | 18 | 20 | |
| 16 | 20 | 14 | 15 | 16 | 17 | 15 | 16 | 17 | 21 | 21 | 22 | 22 | 22 | 24 | 21 | 15 | 15 | 15 | 14 | 17 | 14 | 15 | 15 | 14 | |
| 17 | 15 | 15 | 15 | 14 | 14 | 14 | 14 | 20 | 27 | 26 | 22 | 23 | 22 | 22 | 23 | 16 | 17 | 14 | 16 | 15 | 14 | 16 | 16 | 18 | |
| 18 | 20 | 15 | 14 | 15 | 17 | 14 | 14 | 17 | 21 | 18 | 21 | 20 | 22 | 21 | 20 | 15 | 15 | 15 | 14 | 14 | 15 | 14 | 21 | 20 | |
| 19 | 15 | 18 | 15 | 15 | 20 | 18 | 14 | 15 | 18 | 20 | 21 | 20 | 24 | 22 | 18 | 15 | 14 | 20 | 15 | 15 | 14 | 18 | 14 | 20 | |
| 20 | 17 | 15 | 16 | 14 | 14 | 15 | 14 | 16 | 18 | 23 | 17 | 21 | 30 | 22 | | 18 | 14 | 14 | 14 | 16 | 17 | 16 | | 15 | |
| 21 | 16 | 15 | 14 | 14 | 15 | 15 | 15 | 23 | 20 | 22 | 22 | 32 | 20 | 22 | 20 | 18 | 15 | 18 | 14 | 14 | 15 | 15 | 15 | 15 | |
| 22 | 18 | 14 | 15 | 14 | 16 | 14 | 23 | 23 | 22 | 27 | 23 | 23 | 24 | 21 | 17 | 14 | 14 | 15 | 14 | 17 | 14 | 15 | 14 | 15 | |
| 23 | 15 | 15 | 15 | 14 | 18 | 22 | 20 | 24 | 24 | 24 | 22 | 23 | 22 | 22 | 22 | 20 | 15 | 16 | 15 | 16 | 14 | 20 | 15 | 15 | |
| 24 | 14 | 14 | 14 | 14 | 14 | 15 | 18 | 18 | 20 | 22 | 22 | 22 | 23 | 22 | 20 | 14 | 14 | 16 | 15 | 14 | 16 | 15 | 16 | 15 | |
| 25 | 14 | 14 | 15 | 17 | 14 | 14 | 15 | | 21 | 22 | 22 | 28 | 21 | 22 | 20 | 18 | 15 | 20 | 14 | 14 | 15 | 15 | 14 | 16 | |
| 26 | 15 | 15 | 14 | 14 | 14 | 14 | 15 | 15 | 18 | 20 | 21 | 30 | 21 | 20 | 21 | 17 | 14 | 20 | 14 | 14 | 15 | 15 | 15 | 16 | |
| 27 | 18 | 15 | 15 | 15 | 14 | 16 | 15 | 18 | 20 | 20 | 22 | 21 | 22 | 22 | 21 | 18 | 14 | 14 | 16 | 15 | 15 | 14 | 17 | 15 | |
| 28 | 14 | 14 | 14 | 14 | 17 | 15 | 22 | 17 | 18 | 22 | 21 | 21 | 22 | | 22 | 17 | 15 | 14 | 16 | 14 | 15 | 18 | 14 | 15 | |
| 29 | 15 | 15 | 15 | 14 | 14 | 14 | 15 | 15 | 15 | 18 | 20 | 20 | 20 | 20 | 20 | 17 | 15 | 20 | 14 | 14 | | 16 | 15 | 15 | |
| 30 | 15 | 16 | 14 | 14 | 15 | 15 | 15 | 14 | 17 | 20 | 22 | 18 | 21 | 23 | 21 | 16 | 14 | 15 | 14 | 15 | 14 | 14 | 15 | 15 | |
| 31 | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | |
| CNT | 26 | 26 | 26 | 25 | 26 | 26 | 26 | 25 | 26 | 25 | 26 | 24 | 25 | 25 | 25 | 27 | 27 | 27 | 27 | 26 | 26 | 27 | 25 | 27 | |
| MED | 15 | 15 | 15 | 14 | 14 | 15 | 15 | 16 | 19 | 21 | 22 | 22 | 22 | 21 | 21 | 17 | 15 | 15 | 14 | 15 | 15 | 15 | 15 | 15 | |
| U Q | 17 | 16 | 15 | 15 | 16 | 16 | 15 | 18 | 21 | 22 | 22 | 23 | 23 | 22 | 21 | 18 | 16 | 20 | 15 | 16 | 15 | 16 | 15 | 17 | |
| L Q | 15 | 15 | 14 | 14 | 14 | 14 | 14 | 15 | 18 | 20 | 21 | 20 | 21 | 20 | 20 | 15 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 15 | |

HOURLY VALUES OF f_oF₂ AT Kokubunji

SEP. 2003

LAT. 35°42.4'N LON. 139°29.3'E SWEEP 1.0MHz TO 30.0MHz AUTOMATIC SCALING

| D | H | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | |
|-----|---|----|----|----|----|----|----|----|-----|----|-----|-----|-----|-----|-----|-----|-----|----|-----|----|----|----|----|----|----|----|
| 1 | | 52 | 54 | | 53 | 46 | 45 | 54 | 71 | 82 | 82 | 82 | A | 75 | 76 | 72 | 71 | C | 76 | 78 | 74 | 73 | 70 | 54 | 66 | |
| 2 | | 66 | 55 | 54 | 54 | 51 | 50 | 88 | 70 | 74 | 64 | 80 | 75 | 80 | 91 | 101 | 97 | 80 | 82 | 88 | 78 | 59 | 66 | 66 | 65 | |
| 3 | | 64 | 54 | 54 | 66 | 45 | A | 55 | 71 | 80 | 81 | 91 | 91 | 87 | 91 | 87 | 78 | 82 | 82 | 87 | 77 | 61 | 67 | 54 | 66 | |
| 4 | | 54 | 61 | 61 | 54 | 45 | 44 | 71 | 77 | 78 | 77 | 72 | 81 | 83 | 86 | 82 | 77 | 84 | 101 | 94 | 74 | 72 | 54 | 54 | 54 | |
| 5 | | 66 | 61 | 54 | 54 | 44 | 54 | 54 | 61 | 58 | | 76 | 78 | 77 | 75 | 85 | 85 | 81 | 85 | 82 | 77 | 54 | 54 | 54 | 63 | |
| 6 | | 55 | 51 | 54 | 49 | 44 | 42 | 58 | 62 | 67 | 67 | 69 | 75 | 77 | 74 | 84 | 80 | 82 | 91 | 85 | 77 | 64 | 54 | 53 | 54 | |
| 7 | | 52 | 52 | 48 | 43 | 47 | 49 | 70 | 82 | 84 | 73 | 73 | 72 | 81 | 94 | 82 | 84 | 86 | 84 | 88 | 80 | 52 | 54 | 54 | 53 | |
| 8 | | 49 | 51 | 47 | 42 | 47 | 47 | 71 | 76 | 78 | 82 | 93 | 91 | 92 | 92 | 76 | 80 | 76 | 81 | 97 | 87 | 54 | 54 | 53 | 51 | |
| 9 | | 51 | 46 | 47 | 44 | 43 | 44 | 63 | 101 | 99 | 74 | 66 | 74 | 86 | 86 | 77 | 82 | 81 | 91 | 98 | 89 | 73 | 51 | A | | |
| 10 | | 44 | 46 | 53 | 42 | 41 | | 51 | 75 | 86 | 72 | 82 | 72 | 84 | 97 | 75 | 67 | 74 | 84 | 97 | 64 | 54 | 54 | 54 | 54 | |
| 11 | | 48 | 46 | 47 | 43 | 43 | 49 | 62 | 62 | 65 | | 66 | 74 | 81 | 67 | 74 | 74 | 72 | 71 | 78 | 76 | 54 | 55 | 54 | 66 | |
| 12 | | 48 | 44 | 42 | 41 | 44 | 44 | 64 | 71 | 80 | 83 | 74 | 67 | 85 | 78 | 76 | 75 | 78 | 73 | 81 | 91 | 61 | 43 | 43 | 46 | |
| 13 | | 43 | 43 | 43 | 42 | 36 | 39 | 66 | 77 | 83 | 74 | 64 | 75 | 87 | 88 | 82 | 71 | 73 | 84 | 97 | 79 | 54 | 51 | 54 | A | |
| 14 | | 43 | 46 | 44 | 44 | 45 | 45 | 72 | 69 | 73 | 69 | 71 | | 74 | 85 | 88 | 78 | 73 | 77 | 77 | 81 | 66 | 54 | 54 | 52 | |
| 15 | | | 52 | 51 | 48 | 47 | 43 | 66 | 84 | 81 | 80 | 75 | 75 | 80 | 78 | 74 | 69 | 72 | 75 | 80 | 81 | 74 | 54 | | 54 | |
| 16 | | 54 | | | 44 | 43 | 44 | 63 | 83 | 81 | 81 | 88 | 97 | 84 | 86 | 74 | 97 | 84 | 80 | 73 | 65 | 54 | 67 | 54 | 61 | |
| 17 | | 54 | 61 | 54 | 47 | 47 | 46 | 52 | 76 | 74 | 74 | 77 | 92 | 87 | 88 | 81 | 75 | 66 | 63 | 64 | 55 | 52 | 54 | 53 | 48 | |
| 18 | | | 47 | 47 | 52 | 47 | | 48 | 63 | 86 | 87 | 81 | 84 | 76 | 68 | 68 | 75 | 72 | 82 | 73 | 51 | 46 | 49 | 48 | 44 | |
| 19 | | 44 | 46 | 48 | 36 | | | 55 | 59 | 64 | 54 | | 54 | 63 | A | 62 | 61 | 71 | 71 | 66 | 54 | | | | 52 | |
| 20 | | 46 | 47 | 45 | | 44 | 44 | 52 | 63 | 65 | 65 | 66 | 75 | 78 | 72 | 71 | 74 | 78 | 86 | 90 | 54 | 43 | 47 | 36 | 42 | |
| 21 | | | 44 | 47 | A | 36 | 36 | 61 | 73 | 74 | 72 | 77 | 80 | 81 | 73 | 75 | 83 | 81 | 82 | 91 | 66 | A | A | | 46 | 44 |
| 22 | | 44 | | 41 | A | 41 | | 55 | 74 | 80 | 90 | 90 | 76 | 88 | 90 | 90 | 86 | 82 | 82 | 90 | 80 | 53 | 54 | 54 | 53 | |
| 23 | | 54 | 51 | 52 | 49 | 44 | 42 | 59 | 66 | 78 | 80 | 69 | 82 | 96 | 94 | 85 | 82 | 84 | 81 | 78 | 64 | 52 | 52 | 53 | 53 | |
| 24 | | 54 | 49 | 47 | 46 | 42 | 42 | | 87 | 82 | 96 | 101 | 101 | 94 | 101 | 108 | 100 | 97 | 100 | 87 | 72 | 62 | 53 | 52 | 53 | |
| 25 | | 48 | 52 | | 43 | 46 | 44 | 71 | 89 | 77 | 87 | 104 | 113 | 101 | 97 | 91 | 82 | 83 | 93 | 87 | 64 | 54 | 53 | | 54 | |
| 26 | | 52 | 48 | 46 | 46 | 46 | 42 | 63 | 81 | 76 | 82 | 77 | 85 | 90 | 85 | 82 | 76 | 76 | 84 | 87 | 61 | 54 | 54 | 47 | 44 | |
| 27 | | 39 | 38 | 38 | 38 | 36 | 41 | 63 | 78 | 76 | 78 | 98 | 93 | 100 | 102 | 93 | 86 | 78 | 90 | 82 | 66 | 53 | 54 | 54 | 53 | |
| 28 | | 53 | 46 | 45 | 38 | | 28 | 55 | 75 | 96 | 101 | 90 | 98 | 100 | 95 | 93 | 85 | 84 | 88 | 84 | 65 | 54 | 52 | 51 | 51 | |
| 29 | | 48 | 48 | 48 | 48 | 44 | 37 | 58 | 75 | 91 | 85 | 82 | 87 | 88 | 88 | 91 | 95 | 90 | 81 | 69 | 66 | 54 | 53 | 61 | 53 | |
| 30 | | 54 | 53 | 53 | 52 | 55 | 54 | 78 | 82 | 86 | 90 | 85 | 88 | 94 | 94 | 101 | 95 | 92 | 85 | 78 | 59 | 54 | A | | 53 | 53 |
| 31 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | |
| CNT | | 27 | 28 | 27 | 27 | 28 | 25 | 29 | 30 | 30 | 28 | 29 | 28 | 30 | 29 | 30 | 30 | 29 | 30 | 30 | 30 | 28 | 27 | 26 | 28 | |
| MED | | 52 | 48 | 47 | 46 | 44 | 44 | 62 | 75 | 79 | 80 | 77 | 80 | 84 | 88 | 82 | 80 | 81 | 82 | 84 | 73 | 54 | 54 | 54 | 53 | |
| U Q | | 54 | 52 | 53 | 52 | 46 | 46 | 68 | 81 | 83 | 84 | 89 | 91 | 90 | 94 | 90 | 85 | 84 | 86 | 90 | 79 | 61 | 54 | 54 | 54 | |
| L Q | | 46 | 46 | 45 | 42 | 43 | 42 | 55 | 69 | 74 | 72 | 71 | 75 | 80 | 77 | 75 | 75 | 73 | 80 | 78 | 64 | 53 | 52 | 52 | 51 | |

HOURLY VALUES OF fEs AT Kokubunji

SEP. 2003

LAT. 35°42.4'N LON. 139°29.3'E SWEEP 1.0MHZ TO 30.0MHZ AUTOMATIC SCALING

| D | H | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
|-----|---|-----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| 1 | | G | G | G | G | G | G | G | G | *# | *# | *# | *# | *# | *# | *# | C | | *# | *# | *# | | | G# | *# |
| 2 | | 26 | G# | G | G | G | G | G | *# | *# | *# | *# | *# | G | *# | *# | *# | G | *# | *# | *# | | | | G# |
| 3 | | G | G | G | G | # | *# | *# | *# | *# | *# | *# | G | *# | *# | *# | *# | G | *# | *# | *# | | | | G# |
| 4 | | *44 | G | *# | G | G | G | *# | *# | *# | *# | *# | *# | *# | *# | *# | *# | G | | # | *# | *# | *# | *# | *# |
| 5 | | 30 | G# | # | 27 | 32 | G | *# | *# | *# | *# | *# | *# | *# | *# | *# | *# | 40 | 31 | 31 | 25 | G# | G | G | G |
| 6 | | G | G | G | G | # | G# | G | G | G | G | G | G | G | G | G | G | *# | # | G# | # | G# | # | | |
| 7 | | G# | G | G | G | G | G | G | G | G | G | G | G | G | G | G | G | G | *G | G | G | G | G | G | G# |
| 8 | | G | G | G | G | G | G | G | G | G | *# | G | G | G | G | G | G | *# | | G# | G | G | G | # | G# |
| 9 | | G | G | G | G | G | G | *# | *# | *# | *# | *# | *# | *# | *# | *# | *# | G | | # | *# | # | G# | *# | *# |
| 10 | | *35 | 27 | G# | # | G# | | *# | *# | *# | *# | *# | *# | *# | *# | *# | *# | G | | # | *# | # | G# | *# | *# |
| 11 | | 30 | G# | G | G | G | G | # | G# | *# | *# | *# | *# | *# | *# | *# | *# | G | *G | G | G | G | # | G# | G# |
| 12 | | G | G | # | G# | G | G | *# | *# | *# | *# | *# | *# | *# | *# | *# | *# | G | *# | *G | G | # | G# | G | G |
| 13 | | G | G | G | G | G | G | G | G | G | G | G | G | G | G | G | G | *# | # | G# | # | G# | # | | |
| 14 | | *33 | 37 | 24 | G# | G | G | # | *# | *# | *# | *# | *# | *# | *# | *# | *# | G | | # | *# | # | G# | *# | *# |
| 15 | | G | G | G | G | G | G | *# | *# | *# | *# | *# | *# | *# | *# | *# | *# | G | | # | *# | # | G# | | 31 |
| 16 | | G# | | G | G | G | G | G | G | G | *# | *# | *# | G | G | G | G | *# | G | *G | G | # | # | G# | G |
| 17 | | # | G# | # | G# | G | G | *# | *# | *# | *# | *# | *# | *# | *# | *# | *# | G | | # | G# | # | G# | G | G |
| 18 | | G | G | # | G# | G | G | # | *# | *# | *# | *# | *# | *# | *# | *# | *# | G | | # | G# | # | G# | G | G |
| 19 | | G | G | G | G | G | G | G | G | G | *# | *# | *# | *# | *# | *# | *# | G | | # | G# | # | G# | | G |
| 20 | | G | # | G# | G | G | G | G | G | G | G | *# | *# | *# | *# | *# | *# | G | *G | G | G | G | G | G | G |
| 21 | | G | G | *# | *# | G | G | *# | *# | *# | *# | *# | *# | *# | *# | *# | *# | G | | # | *# | *# | *# | *# | *# |
| 22 | | *32 | 32 | 33 | 51 | 30 | 28 | G# | G | *# | *# | *# | *# | *# | *# | *# | *# | G | | # | *# | *# | *# | *# | *# |
| 23 | | G# | G | G | G | G | G | # | G# | G | G | G | G | G | G | G | G | G | | # | *# | *# | *# | *# | *# |
| 24 | | G | G | G | G | G | G | G | G | G | G | G | G | G | G | G | G | G | | # | *# | *# | *# | *# | *# |
| 25 | | # | 27 | 35 | 24 | G# | # | G# | *# | *# | *# | *# | *# | *# | *# | *# | *# | G | | # | *# | *# | *# | *# | *# |
| 26 | | 26 | G# | G | G | G | G | G | G | G | G | G | G | G | G | G | G | G | | # | *# | *# | *# | *# | *# |
| 27 | | G | G | G | G | G | G | G | G | G | G | G | G | G | G | G | G | G | | # | *# | *# | *# | *# | *# |
| 28 | | G | G | G | G | G | G | G | G | G | G | G | G | G | G | G | G | G | | # | *# | *# | *# | *# | *# |
| 29 | | G | G | G | G | G | G | G | G | G | G | G | G | G | G | G | G | G | | # | *# | *# | *# | *# | *# |
| 30 | | G | G | G | G | G | G | *# | *# | *# | *# | *# | *# | *# | *# | *# | *# | G | | # | *# | *# | *# | *# | *# |
| 31 | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
| CNT | | 28 | 29 | 29 | 30 | 28 | 28 | 29 | 30 | 30 | 29 | 30 | 30 | 30 | 30 | 30 | 30 | 29 | 30 | 30 | 30 | 30 | 29 | 28 | 30 |
| MED | | G | G | G | G | G | G | G | G | G | G | G | G | G | G | G | G | G | | 32 | 29 | 29 | 28 | 25 | 14 |
| U Q | | 26 | G | 24 | G | G | G | 33 | 42 | 47 | 50 | 50 | 50 | 50 | 51 | G | 41 | 40 | 37 | 42 | 46 | 34 | 37 | 35 | 32 |
| L Q | | G | G | G | G | G | G | G | G | G | G | G | G | G | G | G | G | G | | G | G | 11 | G | G | G |

HOURLY VALUES OF fmin AT Kokubunji
 SEP. 2003
 LAT. 35°42.4'N LON. 139°29.3'E SWEEP 1.0MHz TO 30.0MHz AUTOMATIC SCALING

| D ^H | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
|----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|----|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| 1 | 18 | 14 | 18 | 18 | 17 | 28 [#] | 17 [#] | 18 | 20 | 34 [#] | 35 [#] | 38 | 38 | 39 | 34 | 28 | C | 18 | 14 | 15 | 15 | 18 | 22 | 15 |
| 2 | 14 | 21 | 17 | 15 | 20 | 15 | 17 | 18 | 21 | | 35 [#] | 35 | | 36 | 34 | 33 | 18 [#] | 15 | 18 | 17 | 17 | 14 | 17 | 29 [#] |
| 3 | 22 | 30 | 20 | 17 | 17 | 15 | 18 | 34 [#] | 33 | 34 | 45 [#] | 43 | | 34 | | 28 | 20 | 14 | 21 | 17 | 22 | 17 | 15 | 14 |
| 4 | 13 | 28 [#] | 14 [#] | 20 | 28 | 28 | 18 | 20 | 29 | 34 | 46 [#] | 38 | 35 | 37 | 34 | 31 | 18 [#] | 15 | 18 | 17 | 18 | 13 | 14 | 15 |
| 5 | 14 | 18 | 13 | 17 | 15 | 18 | 18 | 26 | 31 | 35 | 35 | 34 | 37 | 34 | 34 | 21 [#] | 20 | 17 | 14 | 17 | 17 | 21 | 18 | 26 |
| 6 | 15 [#] | 15 | 14 | 17 | 14 | 14 | 26 [#] | 28 | 20 | | | | | | | | 28 | 14 [#] | 18 | 18 | 20 | 14 | 14 | 14 |
| 7 | 15 | 14 | 18 | 17 | 23 | 22 | 22 | 15 | | | 24 | | | | | | | 26 | 17 | 20 | 17 | 14 | 15 | 15 |
| 8 | 15 | 13 | 14 | 13 | 13 | 15 | 15 | 31 [#] | 33 | 28 | | | | | | 33 | 17 [#] | 15 | 15 | 17 | 13 | 13 | 26 [#] | 15 [#] |
| 9 | 26 [#] | 17 | 26 | 20 | 20 | 18 | 14 | 26 [#] | 28 | 40 [#] | 43 | | 33 | 37 | | | 18 | 13 | 13 | 13 | 15 | 13 | 14 | 13 |
| 10 | 13 | 13 | 15 | 14 | 28 [#] | | 15 | 22 | 28 | 30 | 33 | | | | | 20 | 17 | 13 | 18 | 13 | 14 | 14 | 13 | 14 |
| 11 | 15 | 18 | 17 | 15 | 17 | 14 | 14 | 15 | 29 [#] | | | | | 44 | | | 30 | 24 | 14 | 25 [#] | 21 | 14 | 18 | 18 |
| 12 | 14 | 20 | 13 | 20 | 17 | 14 | 18 | | 28 | | | 50 | | | | | 25 | 17 | 17 | 15 | 15 | 17 | 14 | 18 |
| 13 | 25 | 18 | 14 | 22 | 18 | 17 | 22 | 28 | 17 [#] | | | | | 42 | | 23 | 15 | 13 | 14 | 14 | 23 | 24 | 14 | 14 |
| 14 | 13 | 14 | 13 | 14 | 18 | 17 | 13 | 21 | 28 | 28 | 29 | 28 | 28 | 20 | 22 | 17 | | 15 | 13 | 13 | 26 [#] | 17 | 15 | 17 |
| 15 | | 17 | 15 | 20 | 15 | 13 | 13 | 18 | 20 | 17 | | | | | 30 | 20 | 17 | 17 | 14 | 13 | 15 | 26 [#] | | 13 |
| 16 | 13 | | | 15 | 18 | 14 | 14 | 17 | 20 | 31 [#] | 33 | | 33 | 44 [#] | 30 [#] | 26 | 30 | 24 | 17 | 14 | 17 | 13 | | 14 |
| 17 | 14 | 26 [#] | 15 [#] | 14 | 20 | 18 | 14 | | 43 | 38 | | 40 | 30 | 44 [#] | | | 29 | 13 [#] | 26 [#] | 13 [#] | 18 | 21 | 17 | 25 |
| 18 | | 20 | 15 | 25 | 17 | 13 | 15 | 22 | | | | | 45 | | | | 33 | 28 | 21 | 17 | 28 [#] | 15 [#] | 20 | 26 |
| 19 | 22 | 14 | 17 | 15 | | | 29 | 30 | | 33 | 35 | 35 | 33 | 34 | 24 | 17 | 13 | 18 | 15 | 18 | 23 | | | 29 |
| 20 | 13 [#] | 17 | 18 | 22 | 15 | 26 [#] | 26 | 18 | | | 36 | | | | | 33 | 30 | 28 | 20 | 14 | 13 | 14 | 18 | 23 |
| 21 | 22 | 17 | 13 | 14 | 13 | 14 | 33 [#] | 20 [#] | | | 36 | 38 | 39 | 40 | | 31 | 28 | 15 [#] | 17 | 13 | 14 | 15 | 17 | 15 |
| 22 | 13 | 13 | 14 | 13 | 14 | 13 | 28 [#] | 29 | 29 | 33 | 35 | 35 | 35 | | | | 18 | 14 | 13 | 14 | 18 | 14 | 15 | 17 |
| 23 | 26 | 14 [#] | 22 | 18 | 17 | 17 | 13 | 30 [#] | | | | 45 | | 44 | 42 | | 18 | 17 | 17 | 13 | 28 [#] | 17 [#] | 20 | 21 |
| 24 | 17 | 15 | 20 | 17 | 18 | 17 | | 18 | 41 [#] | | | | 26 | | | | 29 | 26 | 17 | 15 | 14 | 18 | 14 | 14 |
| 25 | 13 | 13 | 13 | 18 | 17 | 13 | 31 [#] | 24 [#] | 39 [#] | | | 47 | 34 [#] | 33 | | | 17 | 28 [#] | 15 [#] | 14 | 13 | 15 | 17 | 15 |
| 26 | 14 | 15 | 26 [#] | 18 | 15 | 15 | 21 | 30 | | | 45 | 44 | | | | 33 | 30 | 15 [#] | 17 | 14 | 15 | 15 | 18 | 18 |
| 27 | 18 | 15 | 15 | 17 | 17 | 17 | 21 | 18 | | | | | | | 40 | 20 [#] | 13 | 13 | 14 | 14 | 18 | 18 | 15 | 18 |
| 28 | 14 | 25 [#] | 14 [#] | 14 | | 17 | 26 | 18 | 39 [#] | | | | | | | 34 | 20 [#] | 22 | 17 | 15 | 18 | 14 | 17 | 15 |
| 29 | 17 | 14 | 15 | 15 | 14 | 14 | 15 | 30 [#] | 37 | | | | | | | 35 | 31 | 24 | 13 [#] | 28 [#] | 22 | 17 | 14 | 18 |
| 30 | 14 | 14 | 15 | 30 [#] | 13 [#] | 13 | 14 | 29 [#] | 21 | | | | 36 | 41 | | | 30 | 18 [#] | 17 | 14 | 13 | 15 | 15 | 14 |
| 31 | | | | | | | | | | | | | | | | | | | | | | | | |
| | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
| CNT | 28 | 29 | 29 | 30 | 28 | 28 | 29 | 28 | 22 | 13 | 15 | 14 | 14 | 16 | 10 | 18 | 27 | 30 | 30 | 30 | 30 | 29 | 27 | 30 |
| MED | 14 | 15 | 15 | 17 | 17 | 15 | 18 | 22 | 28 | 33 | 35 | 38 | 34 | 38 | 34 | 28 | 20 | 17 | 17 | 14 | 17 | 15 | 15 | 15 |
| U Q | 18 | 19 | 18 | 20 | 18 | 17 | 24 | 29 | 33 | 34 | 43 | 44 | 37 | 43 | 34 | 33 | 30 | 24 | 18 | 17 | 21 | 17 | 18 | 18 |
| L Q | 13 | 14 | 14 | 15 | 15 | 14 | 14 | 18 | 21 | 29 | 33 | 35 | 33 | 34 | 30 | 20 | 17 | 14 | 14 | 14 | 15 | 14 | 14 | 14 |

HOURLY VALUES OF fof2 AT Yamakawa

SEP. 2003

LAT. 31°12.1'N LON. 130°37.1'E SWEEP 1.0MHZ TO 30.0MHZ AUTOMATIC SCALING

| D \ H | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | |
|-------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|----|------------------|-----------------|-----------------|------------------|------------------|------------------|------------------|------------------|------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| 1 | 43 | 47 | 59 [#] | 50 | 43 | 39 | 43 | 65 [#] | 82 [#] | 77 | 72 | 76 | 80 | 78 | 81 | 86 | A | 78 | 84 | 80 | 66 [#] | 66 | 69 | 52 [#] | |
| 2 | 51 | 54 | 52 | 58 | 56 | 52 | 59 | 68 | 70 | 64 | 77 [#] | 74 | 76 | 86 | 90 | | 87 | 98 [#] | 77 [#] | 82 | 74 | 63 [#] | 65 | | |
| 3 | 55 | 50 | 60 | 65 | 46 [#] | 31 [#] | 43 [#] | 70 [#] | 75 | 78 | 76 | 84 | 81 | 86 | 89 | 88 | 88 | 108 [#] | 86 [#] | 77 | 71 | 66 [#] | 42 [#] | | |
| 4 | | 63 | 55 | 53 | 51 | 43 | 53 | 73 [#] | 72 | 76 | 76 | 80 | 85 | 85 | 89 | 86 | 86 | 110 [#] | | A | | 76 [#] | 55 [#] | 54 [#] | 66 [#] |
| 5 | 66 | 62 | 61 | 53 | | 36 | 51 [#] | 68 [#] | | 81 | 88 | 86 | 78 | 86 | 90 | 106 [#] | 90 [#] | 88 | 86 | 78 | 66 [#] | 66 | 54 [#] | 66 [#] | |
| 6 | 64 | 54 | 51 | 53 | 48 | 29 | 43 [#] | 72 [#] | 80 | 67 | 75 | 81 | 80 | 81 | 84 | 82 | 79 | 88 | 82 | 80 | 74 | 66 | 53 [#] | 53 | |
| 7 | 54 | 52 | 52 | 46 | 44 | 47 | 55 | 76 [#] | 76 | 78 | 71 | 73 | 88 [#] | 86 | 88 | 85 | 82 | | 88 | 78 | 77 | | 52 | 53 | |
| 8 | 54 | 52 | 54 | 41 [#] | 36 | 41 | 46 | 77 [#] | 78 | 81 | 91 | 84 | 86 | 81 | 89 | 80 | 84 | 104 [#] | 111 [#] | 86 [#] | 69 [#] | 54 [#] | 52 | 50 | |
| 9 | 34 [#] | 47 [#] | 47 | 42 | 47 | 42 | 54 [#] | 84 [#] | 79 | 69 | 62 | 74 [#] | | 79 | 90 [#] | 86 | 84 | 87 | | 87 | 78 | A | A | | |
| 10 | 51 | 50 | 54 | 52 | 36 [#] | 34 | 42 | 80 [#] | 72 | 73 | 81 | 78 | 82 | | 85 | 78 | 81 | 88 | | 80 | 59 [#] | 52 | | A | |
| 11 | A | | | 47 | 49 | 42 | 56 [#] | 51 [#] | 65 [#] | 63 | 63 | 80 [#] | 79 | 82 | 84 | 78 | 80 | 81 | 84 | 81 | 65 [#] | 54 [#] | 54 | 54 | |
| 12 | 53 | 52 | 51 | 47 | 37 | 42 | 53 [#] | 73 [#] | 81 | 78 | 62 [#] | | 82 | 84 | 84 | 88 | 85 | 86 | 86 | 80 | 80 | | 36 | 43 | |
| 13 | 42 | 35 | 47 [#] | 48 | 37 [#] | 37 | 48 [#] | 80 [#] | 75 | 70 | 71 | 84 [#] | | 112 | 90 [#] | 87 | 86 | 88 | 84 | 76 | 51 [#] | A | 54 | 52 | |
| 14 | 52 | 55 | 53 | 52 | 51 | 44 | 52 | 61 [#] | 73 [#] | 70 | 66 | 65 | 76 [#] | 78 | 88 | 85 | 86 | 84 | 86 | 75 [#] | 55 [#] | 53 | 53 | 51 | |
| 15 | 52 | 50 | 47 | 52 | 34 [#] | 35 | 52 [#] | 76 [#] | 78 | 75 | 73 | 76 | 84 | 80 | 80 | 76 | 74 | 80 | 83 | 77 | 77 | 54 [#] | 54 | 53 | |
| 16 | 60 | 52 | 52 | 46 | 46 | 38 | 51 [#] | 72 [#] | 78 | 79 | 81 | 86 | | 128 [#] | 144 [#] | 130 [#] | 112 | 86 [#] | 85 | 80 | 77 | 78 | 77 | 76 | |
| 17 | 54 [#] | 54 | 53 | 54 | 53 | 37 [#] | 53 [#] | 64 [#] | 70 | 64 | 83 [#] | 90 | | 86 | 88 | 85 | 78 | 76 | 76 | 71 | 54 [#] | 42 [#] | 51 | 44 | |
| 18 | 36 | 50 [#] | 49 | 49 | 47 | 43 | 41 | 71 [#] | 86 | 80 | 76 | 85 | 76 | 72 | 81 | 81 | 84 | | 81 | 52 [#] | 50 | 50 | 52 | | |
| 19 | | 54 | 61 | 46 [#] | 32 [#] | | 44 | 64 [#] | 63 | 67 | 58 | 76 [#] | 71 | A | 79 | 84 | 78 | 85 | 84 | 63 | 48 [#] | 37 [#] | 52 | 53 | |
| 20 | 53 | 38 [#] | 50 [#] | 46 | 47 | 45 | 53 | 58 | 78 | 70 | 80 | 85 | 85 | 85 | 86 | 88 | 86 | 103 [#] | 91 [#] | 77 [#] | 43 [#] | 52 | 52 | 54 | |
| 21 | 52 | 61 | 54 | 42 [#] | 34 | 32 | 45 | 66 [#] | 73 | 81 | 81 | 81 | 81 | 82 | | 84 | 81 | 81 | A | 85 | 52 | 51 | 51 | 52 | |
| 22 | 32 [#] | 47 [#] | A | | 46 | 36 | 44 | 66 [#] | 70 | 84 | 83 | | | A | 106 | 90 | 87 | 110 | 86 | 83 | 66 | 50 | | 42 | |
| 23 | 63 [#] | 54 | 60 | 58 | 36 [#] | 31 | 43 [#] | 73 [#] | 86 | 77 | 71 | 82 | 89 | | 88 | 86 | 91 | 90 | 84 | 80 | 64 | 54 | 38 | 38 | |
| 24 | 53 [#] | 54 | 47 | 46 | 30 | | 38 | 81 | 82 | 87 | 115 [#] | 86 | 88 | | 129 [#] | 127 [#] | 123 [#] | 114 | | 87 | 62 | 51 | 52 | 63 | |
| 25 | 52 [#] | 52 | 53 | 46 | 48 | 47 | 52 | 71 [#] | 82 | 86 | 88 | | | | 112 | 110 | | 108 | | 79 | 66 | 65 | 53 | 54 | |
| 26 | 53 | 55 | 49 | 46 | 47 | 37 | 50 | 84 [#] | 85 | 85 | 83 | 84 | 91 | 86 | 88 | 86 | 82 | 87 | 86 | 82 | 66 | 52 | 43 | 36 | |
| 27 | 43 | 42 | 37 | 42 | 36 | 36 | 53 | 75 [#] | 83 | 86 | 81 | 84 | 89 | 128 [#] | 128 | | 111 | 125 | | | 81 | 76 | 54 | 54 | |
| 28 | 52 | 52 | 37 [#] | 37 | 30 | 26 | 36 | 67 [#] | 89 | | 88 | 86 | 87 | | 111 | 110 | | | 86 | 78 | 54 | 52 | 52 | 46 | |
| 29 | 48 | 48 | 51 | 45 | 41 | 29 | 41 | 76 [#] | 78 | 80 | 78 | 86 | 86 | 90 | | 109 | 88 [#] | 85 | 78 | 66 [#] | 61 | 54 | 51 | | |
| 30 | 53 | 52 | 51 | 53 | 52 | 51 | 53 | 80 [#] | 81 | 82 | 82 | 84 | 90 | | 109 | 92 | | 88 | 77 | 42 | | A | | | |
| 31 | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | |
| CNT | 27 | 29 | 28 | 29 | 29 | 28 | 30 | 30 | 29 | 29 | 30 | 27 | 24 | 22 | 27 | 28 | 27 | 26 | 23 | 28 | 30 | 25 | 26 | 23 | |
| MED | 52 | 52 | 52 | 47 | 46 | 38 | 50 | 72 | 78 | 78 | 78 | 84 | 83 | 85 | 88 | 86 | 86 | 88 | 85 | 80 | 66 | 54 | 52 | 53 | |
| U Q | 54 | 54 | 54 | 53 | 48 | 43 | 53 | 76 | 82 | 81 | 83 | 85 | 87 | 86 | 90 | 98 | 88 | 104 | 86 | 81 | 74 | 65 | 54 | 54 | |
| L Q | 48 | 49 | 49 | 46 | 36 | 34 | 43 | 66 | 72 | 70 | 71 | 76 | 79 | 81 | 84 | 84 | 81 | 85 | 83 | 77 | 54 | 51 | 51 | 46 | |

HOURLY VALUES OF fEs AT Yamakawa
 SEP. 2003
 LAT. 31°12.1'N LON. 130°37.1'E SWEEP 1.0MHz TO 30.0MHz AUTOMATIC SCALING

| H D | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | | |
|--------|-----|-----|-----|----|----|----|----|-----|----|-----|-----|-----|-----|-----|-----|-----|-----|----|-----|-----|-----|-----|----|----|----|----|
| 1 | G | # | | G# | G | G | G | *G | *G | G | *G | G | G | G | G | G | *# | | *G# | | # | | | | | |
| 2 | *40 | *40 | 28 | 28 | G# | G | G | # | 42 | 50 | *G# | G | G | G | *#* | * | 115 | 37 | *#* | *#* | *G | # | 34 | 25 | 43 | |
| 3 | G | *# | G | G | | | | *G# | 49 | 55 | 66 | 54 | G | *# | G | *#* | * | 78 | 59 | *#* | *#* | # | 32 | 25 | G# | |
| 4 | | 29 | G# | G | G | G | G | # | 46 | 50 | 49 | *# | G | G | G | *#* | * | 61 | 43 | 43 | *G# | # | 35 | 32 | 39 | |
| 5 | *# | G | G | # | *G | G | G | # | 44 | 52 | 39 | 44 | *#* | * | * | * | 61 | 53 | 59 | *#* | # | 36 | 35 | 28 | 26 | |
| 6 | G | G | G | G | G | G | G | *G# | 34 | | 44 | G# | G | G | G | G | *# | 40 | 50 | 43 | 28 | 33 | 32 | 40 | 28 | |
| 7 | 26 | G# | G | # | G# | G | G | # | 35 | 40 | 50 | 42 | G# | G | G | G | G | *G | | 35 | 34 | 24 | | G | G | |
| 8 | G | G | G | G | G | G | G | # | 33 | 39 | 43 | # | G# | G | G | G | G | *G | | 32 | 32 | 29 | G# | # | 33 | |
| 9 | 25 | 26 | 25 | 30 | G# | G | G | # | 35 | 36 | 43 | 54 | 81 | 84 | 80 | 54 | G | G | *G | | | 34 | 40 | 51 | 82 | |
| 10 | G | # | * | G | G | G | G | # | 39 | 45 | 66 | 48 | G# | G | *#* | * | * | *G | *G | | | 41 | 41 | 24 | 28 | 59 |
| 11 | *72 | G | | G | G | G | G | # | 34 | 51 | 48 | # | G | G | G | G | G | # | # | # | # | G# | # | # | # | |
| 12 | 26 | 28 | G# | G | G | G | # | # | 35 | 42 | # | 44 | | G | G | G | G | *# | # | # | | 60 | 41 | # | G# | |
| 13 | G | G | G | G | G | G | G | # | 32 | 40 | G# | 42 | G# | G | G | G | G | 44 | 62 | 48 | 47 | 40 | 58 | 58 | 41 | 34 |
| 14 | *32 | 27 | G# | G | G | G | G | # | 34 | 38 | 42 | *G# | G | G | G | G | G | # | *G# | *G | *G | | 30 | G# | G | |
| 15 | G | G | G | G | G | G | G | # | 34 | *G# | G | *G | G | G | G | G | G | *G | *G | | | 30 | 28 | 26 | 27 | G# |
| 16 | G | G | # | G# | # | G# | G | # | 40 | 42 | *G# | G | G | G | G | *#* | 48 | 43 | 35 | *G# | | 26 | 33 | 28 | 27 | 41 |
| 17 | # | G# | # | G# | G | G | *G | # | 39 | 39 | *G# | G | *#* | * | * | * | G | G | # | # | # | # | G# | G | G | |
| 18 | G | G | G | G | G | G | # | # | 40 | 45 | 42 | G# | G | G | G | G | G | # | # | # | | 30 | 33 | G# | G | G |
| 19 | G | G | G | G | G | G | G | # | 31 | *G# | G | *#* | * | G | G | G | G | *# | *G# | | | 28 | 28 | 27 | G# | # |
| 20 | G# | G | G | G | G | G | G | *G | *G | G | 44 | 53 | G | *# | G | G | G | # | # | # | | *G# | G | G | G | |
| 21 | G | G | # | G# | G | G | G | # | # | # | # | G# | *# | G | G | G | N | * | * | * | * | G# | G | # | # | |
| 22 | *36 | *39 | *40 | 28 | 30 | 33 | 39 | 42 | 83 | 81 | 78 | 86 | 83 | 121 | 55 | 71 | 47 | 52 | 64 | 49 | 24 | # | G# | # | G | |
| 23 | G | G | G | G | G | G | G | *G | *G | G | *G | G | G | G | G | G | G | *G | *G | *G | *G | *G | G | G | G | |
| 24 | G | G | G | G | G | G | G | *G | 44 | G# | # | G# | G | G | G | G | G | *G | *G | *G | *G | *G | G | G | G | |
| 25 | G | G | G | G | G | G | G | # | 34 | *G# | 48 | 42 | | G | G | *#* | 40 | 41 | 34 | 31 | *G# | *G | 24 | 29 | 34 | |
| 26 | 28 | 28 | G# | G | G | G | G | *G | 40 | G# | *G | G | G | G | G | G | G | # | # | # | * | # | # | G# | G# | |
| 27 | # | G# | G | G | G | G | G | *G | 41 | G# | *G | G | G | G | G | | * | 40 | 32 | 40 | | 43 | 34 | 29 | 26 | |
| 28 | G# | G | G | G | G | G | G | *G | *G | G | *G | G | G | | G | G | G | *G | *G | *G | *G | *G | G | G | G | |
| 29 | G | G | G | G | G | G | G | # | 36 | *G# | G | *G | G | G | G | G | G | *G | | 29 | 32 | 30 | G# | # | # | |
| 30 | # | 24 | G# | G | G | G | G | *G | *G | G | *G | G | *# | G | G | G | G | *G | *G | *G | | 33 | # | # | 39 | |
| 31 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | | |
| CNT | 29 | 30 | 29 | 30 | 29 | 30 | 30 | 30 | 30 | 30 | 30 | 28 | 29 | 29 | 29 | 29 | 29 | 30 | 29 | 28 | 30 | 29 | 30 | 29 | | |
| MED | G | G | G | G | G | G | G | 34 | 40 | 20 | 42 | G | G | G | G | G | G | 36 | 32 | 32 | 32 | 27 | 27 | 24 | | |
| U Q | 26 | 28 | 26 | G | G | G | G | 35 | 44 | 48 | 48 | 23 | 25 | 46 | G | 46 | 48 | 46 | 45 | 42 | 40 | 34 | 29 | 34 | | |
| L Q | G | G | G | G | G | G | G | G | G | G | G | G | G | G | G | G | G | G | G | G | 26 | 24 | G | G | G | |

HOURLY VALUES of fmin AT Yamakawa
 SEP. 2003
 LAT. 31°12.1'N LON. 130°37.1'E SWEEP 1.0MHz to 30.0MHz AUTOMATIC SCALING

| ^H D | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
|-------------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| 1 | 15 | 14 | 15 | 15 | 16 | 17 | 17 | 15 | 20 | 22 | 26 | 33 | | | | 28 | 20 | 18 | 15 | 17 | 15 | 15 | 15 | 15 |
| 2 | 14 | 15 | 15 | 14 | 15 | 15 | 17 | 17 | 21 | 32 | | | | | 27 | 24 | 21 | 16 | 15 | 14 | 15 | 15 | 17 | |
| 3 | 20 | 15 | 17 | 15 | 15 | 17 | 18 | 14 | 16 | 20 | 28 | 33 | 24 | 22 | 33 | 27 | 20 | 17 | 24 | 14 | 15 | 15 | 15 | 15 |
| 4 | | 15 | 16 | 15 | 16 | 15 | 17 | 16 | 21 | 23 | 27 | 30 | | | | 22 | 17 | 14 | 15 | 14 | 14 | 14 | 16 | 20 |
| 5 | 14 | 20 | 17 | 15 | 15 | 16 | 16 | 15 | 16 | 22 | 24 | 27 | 27 | 28 | 32 | 21 | 20 | 15 | 16 | 15 | 15 | 15 | 16 | 20 |
| 6 | 15 | 15 | 15 | 20 | 15 | 15 | 18 | 26 | 18 | 27 | 26 | 28 | | 28 | 26 | 21 | 18 | 16 | 15 | 15 | 15 | 14 | 14 | 15 |
| 7 | 15 | 15 | 15 | 15 | 15 | 16 | 16 | 15 | 22 | 20 | 29 | | | 22 | | | 18 | 16 | 17 | 15 | 20 | | 16 | 16 |
| 8 | 16 | 15 | 15 | 15 | 15 | 15 | 14 | 14 | 21 | 20 | 23 | 22 | 21 | | 26 | 21 | 18 | 15 | 15 | 15 | 15 | 15 | 16 | 15 |
| 9 | 16 | 15 | 14 | 22 | 14 | 15 | 16 | 15 | 20 | 21 | 29 | 30 | 32 | 34 | 32 | 22 | 18 | 16 | 16 | 15 | 14 | 15 | 15 | |
| 10 | 15 | 14 | 14 | 16 | 15 | 16 | 15 | 15 | 18 | 24 | 27 | 27 | 28 | 28 | 28 | 26 | 22 | 17 | 15 | 15 | 14 | 15 | 15 | 15 |
| 11 | 15 | 18 | | 15 | 15 | 16 | 20 | 15 | 16 | 22 | 21 | 28 | | 21 | | 18 | 21 | 15 | 15 | 15 | 14 | 15 | 15 | 15 |
| 12 | 15 | 15 | 17 | 16 | 15 | 17 | 15 | 14 | 16 | 20 | 29 | | | 45 | | 21 | 18 | 17 | 14 | 14 | 14 | 14 | 15 | 16 |
| 13 | 15 | 27 | 22 | 15 | 15 | 15 | 15 | 16 | 20 | 21 | 20 | | | 52 | | 21 | 20 | 16 | 15 | 15 | 15 | 15 | 14 | 14 |
| 14 | 15 | 16 | 16 | 17 | 15 | 18 | 15 | 15 | 17 | 18 | 28 | 44 | 29 | 21 | 27 | | 16 | 15 | 18 | 15 | 15 | 15 | 16 | 15 |
| 15 | 17 | 15 | 15 | 15 | 15 | 15 | 17 | 17 | 18 | 20 | | 45 | 58 | 20 | | 22 | 18 | 15 | 18 | 14 | 17 | 15 | 16 | 16 |
| 16 | 15 | 15 | 14 | 16 | 15 | 15 | 15 | 16 | 17 | 20 | 26 | 34 | 34 | 33 | 32 | 23 | 21 | 15 | 20 | 15 | 15 | 15 | 16 | 15 |
| 17 | 15 | 16 | 14 | 14 | 16 | 17 | 16 | 17 | 30 | 27 | | 34 | 30 | 35 | 27 | 22 | 22 | 14 | 15 | 15 | 15 | 24 | 15 | 15 |
| 18 | 20 | 17 | 16 | 15 | 15 | 15 | 18 | 15 | 18 | 21 | 32 | | | | | 42 | 20 | 15 | 18 | 14 | 15 | 16 | 16 | 18 |
| 19 | 22 | 16 | 18 | 15 | 17 | 18 | 16 | 16 | 18 | 32 | 32 | 35 | 27 | 37 | 33 | 27 | 20 | 16 | 23 | 14 | 15 | 15 | 15 | 18 |
| 20 | 15 | 17 | 16 | 14 | 14 | 18 | 16 | 15 | 18 | | 17 | 20 | | | | | 34 | 15 | 15 | 14 | 20 | 16 | 16 | 16 |
| 21 | 16 | 15 | 15 | 18 | 17 | 15 | 16 | 16 | 18 | 23 | 27 | | 27 | 53 | | 21 | 21 | 16 | 15 | 14 | 14 | 17 | 15 | 15 |
| 22 | 15 | 15 | 15 | 16 | 15 | 14 | 14 | 17 | 18 | 30 | 33 | 34 | 35 | | 27 | 21 | 20 | 16 | 14 | 15 | 15 | 16 | 14 | 17 |
| 23 | 17 | 17 | 15 | 15 | 15 | 17 | 16 | 18 | 15 | 16 | 18 | | | | | 23 | 35 | 15 | 20 | 15 | 15 | 15 | 18 | 17 |
| 24 | 15 | 20 | 15 | 16 | 15 | 20 | 14 | 18 | 18 | 22 | 29 | | 24 | | 20 | 35 | 17 | 27 | 18 | 15 | 15 | 15 | 15 | 15 |
| 25 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 17 | 18 | 32 | 34 | | | 46 | 30 | 27 | 18 | 17 | 15 | 15 | 17 | 16 | 15 | 14 |
| 26 | 15 | 14 | 16 | 18 | 15 | 15 | 15 | 18 | 20 | 23 | 26 | 54 | | | | 22 | 18 | 15 | 14 | 14 | 15 | 14 | 15 | 17 |
| 27 | 17 | 17 | 15 | 15 | 15 | 15 | 17 | 16 | 17 | 21 | 27 | | 29 | | 28 | | 18 | 14 | 14 | | 15 | 14 | 16 | 15 |
| 28 | 18 | 15 | 15 | 16 | 17 | 18 | 16 | 26 | 20 | 24 | 23 | | | | 44 | 22 | 18 | 17 | 17 | 15 | 16 | 15 | 14 | 16 |
| 29 | 15 | 16 | 15 | 15 | 15 | 15 | 15 | 20 | 17 | 35 | | | | | | 23 | 33 | 16 | 15 | 14 | 15 | 15 | 16 | 15 |
| 30 | 17 | 17 | 18 | 15 | 14 | 15 | 16 | 15 | 16 | 21 | 33 | 26 | 32 | 52 | 21 | 35 | 21 | 23 | 18 | 21 | 15 | 15 | 14 | 16 |
| 31 | | | | | | | | | | | | | | | | | | | | | | | | |
| | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
| CNT | 29 | 30 | 29 | 30 | 30 | 30 | 30 | 30 | 30 | 29 | 26 | 18 | 15 | 17 | 17 | 26 | 30 | 30 | 30 | 29 | 30 | 29 | 30 | 28 |
| MED | 15 | 15 | 15 | 15 | 15 | 15 | 16 | 16 | 18 | 22 | 27 | 32 | 29 | 33 | 28 | 22 | 20 | 16 | 15 | 15 | 15 | 15 | 15 | 15 |
| U Q | 17 | 17 | 16 | 16 | 15 | 17 | 17 | 17 | 20 | 25 | 29 | 34 | 32 | 45 | 32 | 27 | 21 | 17 | 18 | 15 | 15 | 15 | 16 | 16 |
| L Q | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 17 | 20 | 24 | 27 | 27 | 22 | 26 | 21 | 18 | 15 | 15 | 14 | 15 | 15 | 15 | 15 |

HOURLY VALUES OF foF2 AT Okinawa
 SEP. 2003
 LAT. 26°40.5'N LON. 128°09.2'E SWEEP 1.0MHz TO 30.0MHz AUTOMATIC SCALING

| ^H D | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | |
|-------------------|-----|-----------------|-----------------|-----------------|-----------------|-----------------|----|-----------------|-----------------|-----|-----|------------------|------------------|------------------|-----|------------------|-----|------------------|------------------|------------------|------------------|------------------|-----------------|-----------------|--|
| 1 | 83 | 83 | 81 | 55 [#] | 48 | 43 | 42 | 66 [#] | 89 [#] | 85 | 73 | 76 | 102 [#] | 102 | 101 | 116 [#] | 118 | 107 [#] | 109 | 108 | 66 [#] | 64 | 53 [#] | 52 | |
| 2 | 54 | 54 | 52 | 51 | 52 | | 51 | 66 [#] | 71 | 68 | 75 | 80 | 100 [#] | 106 | 106 | 113 | 108 | 111 | 110 | 106 | 88 [#] | 80 | 66 [#] | 65 | |
| 3 | 66 | 54 [#] | 58 | 66 | 40 [#] | 30 | 40 | 73 [#] | 77 | 78 | 78 | 93 [#] | 108 [#] | 108 | 114 | 128 [#] | 130 | 141 [#] | 130 [#] | 131 | 107 [#] | 83 [#] | 72 [#] | 74 | |
| 4 | 80 | 70 | 68 | 66 | 54 [#] | 43 [#] | 46 | 67 [#] | 70 | 76 | 77 | 93 [#] | 102 | 110 | 118 | 121 | 117 | 127 | 122 | 88 [#] | 82 | 74 | 80 | 80 | |
| 5 | 78 | 72 | 54 [#] | 52 | 50 | 46 | 51 | 78 [#] | 87 | 97 | 90 | 101 [#] | 104 | 117 [#] | 133 | 141 | 146 | 144 [#] | 147 [#] | 108 [#] | 110 | 108 [#] | 104 | 88 | |
| 6 | 88 | 88 | 87 | 73 | 51 [#] | 32 [#] | 38 | 72 [#] | 82 | 75 | 75 | 87 [#] | 97 | 97 | 97 | 102 | 108 | 94 [#] | 90 | 104 | 76 [#] | 73 | 72 | 66 | |
| 7 | 66 | 66 | 61 | 53 | 53 | 53 | 51 | 74 [#] | 94 | 78 | 76 | 88 [#] | 116 [#] | 125 | 121 | 110 | 110 | 110 | 108 | 107 | 87 [#] | 76 [#] | 66 | 54 [#] | |
| 8 | 66 | 66 | 73 | 50 | 43 | 41 | 50 | 76 [#] | 92 | 100 | 108 | 120 | 116 | 111 | 116 | 117 | 127 | 145 | 136 | 89 | 86 | 54 | 51 | 50 | |
| 9 | 48 | 47 | 44 | 47 | 37 | 42 | 51 | 76 [#] | 76 | 62 | 65 | 81 | 101 [#] | 116 | 122 | 119 | 118 | 122 | 121 | 103 | 87 | 66 | 61 | 52 | |
| 10 | 64 | 54 | 54 | 54 | 45 | 34 | 40 | 95 [#] | 72 | 67 | 94 | 115 | 114 | | 144 | 141 | 148 | 157 | 146 | 140 | 103 | 81 | 74 | 83 | |
| 11 | 83 | 73 | 54 | 50 | 54 | 38 | 40 | | 65 | 68 | 72 | 105 | 124 | 122 | 128 | 108 | 100 | 107 | 101 | 97 | 82 | 54 | 51 | 52 | |
| 12 | 55 | 61 | 66 | 44 | 40 | 37 | 45 | 70 [#] | 82 | 86 | 83 | 102 | 125 | 131 | 131 | 131 | 116 | 110 | 121 | 86 | 66 | | 48 | 48 | |
| 13 | 54 | 51 | 51 | 48 | 34 | 29 | 41 | 71 [#] | 80 | 76 | 94 | 131 | 144 | 145 | | 145 | 140 | 124 | 105 | 81 | 70 | 64 | 64 | 66 | |
| 14 | 66 | 66 | 64 | 54 | 55 | 43 | 35 | 70 [#] | 75 | 68 | 68 | 76 | 88 | 98 | 102 | 115 | 110 | 110 | 105 | 80 | 66 | 50 | 31 | 51 | |
| 15 | 51 | 48 | 50 | 47 | 30 | 28 | 42 | 75 [#] | 71 | 81 | 78 | 98 | 126 | 126 | 118 | 108 | 105 | 107 | 110 | 99 | 81 | 64 | 54 | 52 | |
| 16 | 52 | 54 | 49 | 41 | 41 | 37 | 43 | 72 [#] | 70 | 85 | 78 | 104 | 126 | 146 | 146 | 157 | 157 | 136 | 131 | 110 | 106 | 87 | 86 | 88 | |
| 17 | 84 | 83 | 76 | 66 | 64 | 49 | 49 | 72 [#] | 70 | 70 | 88 | 105 | 117 | 112 | 108 | 115 | 100 | 90 | 96 | 66 | 51 | 43 | 52 | 52 | |
| 18 | 51 | 42 | 51 | 46 | 46 | 42 | 42 | 72 [#] | 76 | 76 | 87 | 85 | 85 | 84 | 98 | 118 | 116 | 118 | 127 | 87 | 64 | 54 | 53 | 55 | |
| 19 | 66 | 55 | 54 | 50 | 34 | 34 | 42 | 65 [#] | 62 | 76 | 82 | 75 | 76 | 83 | 101 | 112 | 107 | 112 | 110 | 87 | 53 | | 51 | 54 | |
| 20 | 54 | 54 | 50 | 43 | 44 | 48 | 38 | 64 | 71 | 79 | 88 | 100 | 100 | 115 | 121 | 125 | 121 | 126 | 126 | 110 | 99 | 88 | 88 | 94 | |
| 21 | 89 | 102 | 86 | 66 | 34 | 36 | 45 | 65 [#] | 72 | 82 | 96 | 94 | 104 | 108 | 120 | 102 | 91 | 100 | 102 | 89 | 73 | 53 | 51 | 47 | |
| 22 | 54 | 47 | | 45 | 46 | 37 | 38 | 70 [#] | 77 | 96 | 88 | 106 | 127 | 141 | 140 | 145 | 149 | 157 | 148 | 131 | 110 | 89 | 98 | 88 | |
| 23 | 88 | 101 | 102 | 88 | 51 | 42 | 51 | 88 | 94 | 82 | 76 | 90 | 116 | 131 | 120 | 112 | 122 | 127 | 110 | 87 | 72 | 66 | 54 | 64 | |
| 24 | 54 | 72 | 54 | 47 | 30 | | 31 | 80 | 88 | 87 | 100 | 112 | 132 | 146 | 160 | 172 | 171 | 172 | 147 | 132 | 87 | 81 | 87 | 87 | |
| 25 | 87 | 76 | 73 | 52 | 51 | 54 | 47 | 84 | 91 | 100 | 101 | 111 | 121 | 123 | 142 | 147 | 146 | 142 | 144 | 143 | | 87 | 76 | 64 | |
| 26 | 66 | 61 | 53 | 46 | 48 | 41 | 47 | 94 | 102 | 90 | 84 | 107 | 130 | 142 | 142 | 134 | 131 | 136 | 130 | 126 | 86 | | | 53 | |
| 27 | 49 | 44 | 40 | 40 | 41 | 36 | 44 | 82 | 91 | 84 | 96 | 110 | 145 | 160 | 157 | 157 | 166 | 172 | 159 | 146 | 131 | 106 | 90 | 102 | |
| 28 | 101 | 87 | 76 | 67 | 37 | 29 | 34 | 68 | 102 | 115 | 101 | 105 | 131 | 154 | 170 | 169 | 172 | 169 | 144 | 127 | 106 | 84 | 86 | 77 | |
| 29 | 72 | 63 | 63 | 54 | 30 | | 32 | 72 | 81 | 78 | 87 | 102 | 116 | 144 | 145 | 144 | 131 | 121 | 108 | 86 | 76 | 54 | 55 | 51 | |
| 30 | 55 | 50 | 48 | 48 | 48 | 44 | 47 | 77 | 86 | 91 | 91 | 101 | 114 | 140 | 153 | 151 | 146 | 143 | 142 | 110 | 86 | 73 | 66 | 65 | |
| 31 | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | |
| CNT | 30 | 30 | 29 | 30 | 30 | 27 | 30 | 29 | 30 | 30 | 30 | 30 | 30 | 29 | 29 | 30 | 30 | 30 | 30 | 30 | 29 | 27 | 29 | 30 | |
| MED | 66 | 62 | 54 | 50 | 46 | 41 | 42 | 72 | 78 | 80 | 86 | 101 | 116 | 122 | 121 | 123 | 122 | 125 | 122 | 105 | 86 | 73 | 66 | 64 | |
| U Q | 83 | 73 | 73 | 55 | 51 | 43 | 47 | 77 | 89 | 87 | 94 | 106 | 126 | 141 | 143 | 145 | 146 | 143 | 142 | 126 | 101 | 84 | 83 | 80 | |
| L Q | 54 | 54 | 51 | 47 | 37 | 34 | 40 | 69 | 71 | 76 | 76 | 88 | 102 | 108 | 111 | 113 | 110 | 110 | 108 | 87 | 71 | 54 | 52 | 52 | |

HOURLY VALUES OF fEs AT Okinawa

SEP. 2003

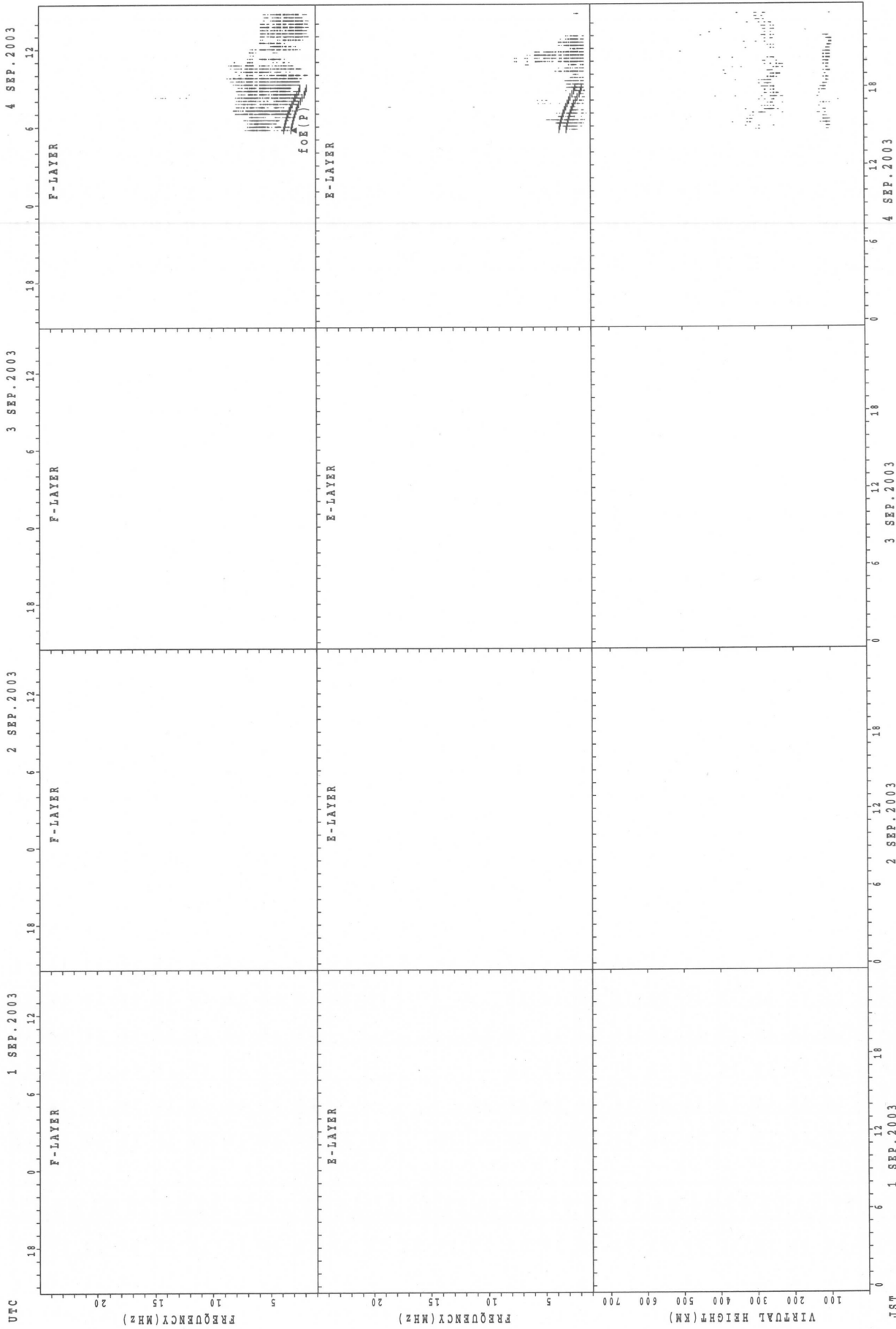
LAT. 26°40.5'N LON. 128°09.2'E SWEEP 1.0MHz TO 30.0MHz AUTOMATIC SCALING

| H D | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
|--------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| 1 | G | G | G | G | G | G | G | | | *G | *G | G | # | G# | *# | # | 55 | 38 | 36 | 29 | # | # | # | G# |
| 2 | *# | *# | *# | *# | *# | *# | *# | # | | | | | | | | | | | | | | | | |
| 3 | G | G | G | G | G | G | G | | | | | | | | | | | | | | | | | |
| 4 | G | # | | G# | G | G | G | *G | | | | | | | | | | | | | | | | |
| 5 | G | G | | G# | G | G | G | # | | | | | | | | | | | | | | | | |
| 6 | G | G | G | G | | | | | | | | | | | | | | | | | | | | |
| 7 | G | *# | *# | *# | *# | *# | *# | # | | | | | | | | | | | | | | | | |
| 8 | G# | G | G | G | G | G | *# | *G | *G | *G | G | G | G | G | G | G | *G | *G | | | | | | |
| 9 | *# | *# | G# | # | | | | | | | | | | | | | | | | | | | | |
| 10 | *# | *# | G# | # | | | | | | | | | | | | | | | | | | | | |
| 11 | G# | *# | G | G | G | G | G | | | | | | | | | | | | | | | | | |
| 12 | 27 | G# | G | G | G | G | G | # | | | | | | | | | | | | | | | | |
| 13 | 26 | G# | G | G | G | G | G | # | | | | | | | | | | | | | | | | |
| 14 | 24 | *# | *# | *# | G# | G | G | | | | | | | | | | | | | | | | | |
| 15 | G | G | G | G | G | G | G | # | | | | | | | | | | | | | | | | |
| 16 | G# | G | G | G | G | G | G | *G | | | | | | | | | | | | | | | | |
| 17 | G# | *# | # | G# | G | G | G | # | | | | | | | | | | | | | | | | |
| 18 | G | G | G | G | G | G | G | # | | | | | | | | | | | | | | | | |
| 19 | G# | G | G | G | G | G | G | *G | *G | *G | *G | | | | | | | | | | | | | |
| 20 | # | G# | G | G | G | G | G | *G | *G | *G | *G | | | | | | | | | | | | | |
| 21 | G | G | | G# | G | G | G | *G | | | | | | | | | | | | | | | | |
| 22 | *# | *# | *# | *# | G | G | G | # | | | | | | | | | | | | | | | | |
| 23 | G# | G | G | G | G | G | G | # | | | | | | | | | | | | | | | | |
| 24 | G | G | G | G | G | G | G | *G | | | | | | | | | | | | | | | | |
| 25 | G | G | G | G | G | G | G | # | | | | | | | | | | | | | | | | |
| 26 | G# | G | G | G | G | G | G | *G | | | | | | | | | | | | | | | | |
| 27 | G# | # | G# | G | G | G | G | *G | *G | *G | *G | | | | | | | | | | | | | |
| 28 | G# | G | G | G | G | G | G | *G | *G | *G | *G | | | | | | | | | | | | | |
| 29 | # | G# | G | G | G | G | G | # | | | | | | | | | | | | | | | | |
| 30 | G | G | G | G | G | G | G | # | | | | | | | | | | | | | | | | |
| 31 | | | | | | | | | | | | | | | | | | | | | | | | |
| | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
| CNT | 30 | 30 | 30 | 30 | 30 | 29 | 30 | 27 | 29 | 30 | 30 | 30 | 30 | 29 | 30 | 30 | 29 | 29 | 29 | 29 | 30 | 30 | 30 | 30 |
| MED | G | G | G | G | G | G | G | 32 | 36 | 40 | 42 | 22 | 22 | G | G | G | 45 | 40 | 39 | 39 | 34 | 32 | 32 | 13 |
| UQ | 23 | 30 | 24 | G | G | G | 24 | 35 | 42 | 49 | 49 | 52 | 53 | 57 | 56 | 48 | 54 | 56 | 54 | 45 | 52 | 45 | 36 | 30 |
| LQ | G | G | G | G | G | G | G | G | G | G | G | G | G | G | G | G | G | 35 | 32 | 14 | G | G | 27 | G |

HOURLY VALUES OF fmin AT Okinawa
 SEP. 2003
 LAT. 26°40.5'N LON. 128°09.2'E SWEEP 1.0MHZ TO 30.0MHZ AUTOMATIC SCALING

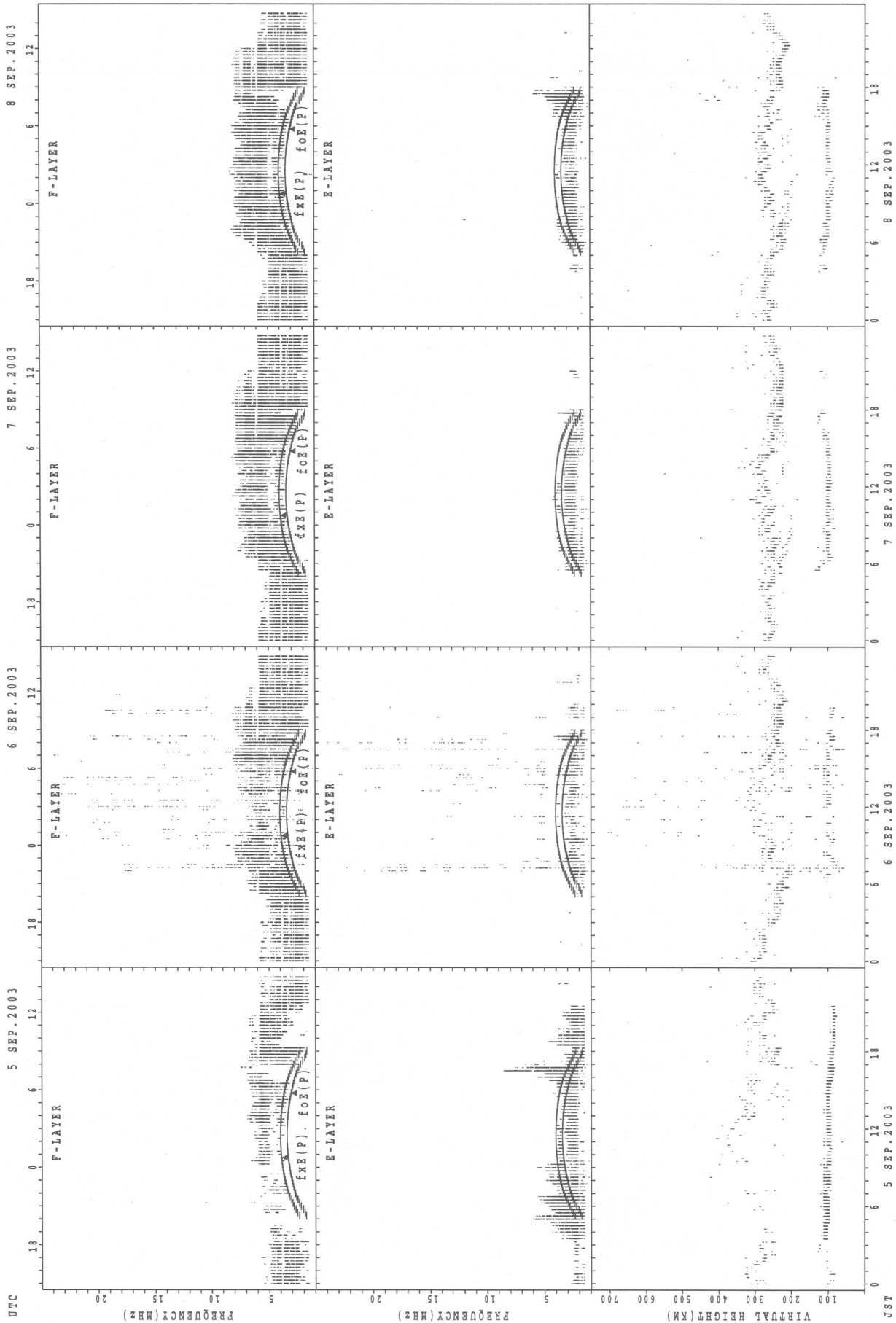
| D \ H | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
|-------|-----------------|----|----|----|----|----|----|----|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|----|----|----|----|----|-----------------|
| 1 | 14 | 14 | 14 | 14 | 15 | 14 | 14 | 14 | 15 | 24 | 28 | 33 | 36 | | 32 | 24 | 16 | 14 | 14 | 14 | 14 | 14 | 14 | 27 [#] |
| 2 | 14 [#] | 14 | 14 | 14 | 14 | 14 | 14 | 18 | 17 | 22 | 30 | 38 | | | 39 | | 21 | 15 | 14 | 14 | 14 | 14 | 14 | 15 |
| 3 | 17 | 15 | 15 | 15 | 14 | 15 | 15 | 14 | 14 | 20 | 30 | 34 | 27 | 27 | 30 | 22 | 17 | 15 | 14 | 14 | 14 | 16 | 14 | 14 |
| 4 | 14 | 14 | 15 | 15 | 14 | 15 | 14 | 14 | 17 | 21 | 29 | 34 | 34 | 36 | 28 | 20 | 20 | 15 | 14 | 14 | 14 | 14 | 14 | 15 |
| 5 | 16 | 16 | 14 | 15 | 14 | 14 | 14 | 14 | 14 | 20 | 21 | | 26 | 29 | 24 | 30 | 14 [#] | 14 | 14 | 14 | 14 | 14 | 14 | 15 |
| 6 | 15 | 14 | 15 | 14 | 14 | 14 | 14 | 15 | 14 | 22 | 29 | 27 | 27 | 29 | 22 | 22 | 20 | 14 | 14 | 14 | 14 | 14 | 15 | 14 |
| 7 | 15 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 15 | 20 | 29 | 28 | | | 26 | | 16 | 14 | 14 | 14 | 14 | 14 | 14 | 15 |
| 8 | 15 | 15 | 15 | 14 | 15 | 15 | 14 | 14 | 14 | 18 | 21 | 22 | 23 | 21 | 21 | 16 | 14 | 15 | 14 | 14 | 14 | 18 | 15 | 14 |
| 9 | 14 | 15 | 17 | 14 | 14 | 14 | 14 | 14 | 14 | 20 | 24 | 34 | 30 | 33 | 34 | | 15 | 16 | 15 | 14 | 15 | 14 | 14 | 14 |
| 10 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 15 | 18 | 29 [#] | 28 | 29 | 30 | 29 | 24 | 20 | 14 | 14 | 14 | 15 | 14 | 14 | 14 |
| 11 | 21 | 14 | 18 | 14 | 14 | 14 | 15 | | 15 | 28 [#] | 23 | 22 | 36 [#] | 22 [#] | 36 [#] | 22 [#] | 16 | 14 | 16 | 14 | 14 | 14 | 16 | 18 |
| 12 | 21 | 18 | 15 | 16 | 15 | 15 | 14 | 15 | 14 | 20 | 17 | | 38 | 35 | 26 | | 21 | 15 | 14 | 14 | 14 | 14 | 14 | 14 |
| 13 | 15 | 14 | 15 | 14 | 15 | 15 | 14 | 14 | 14 | 16 | 24 | | | | 35 | 27 | 20 | 15 | 14 | 14 | 14 | 14 | 14 | 14 |
| 14 | 14 | 14 | 14 | 14 | 14 | 15 | 14 | 14 | 14 | 15 | 29 [#] | | 21 | 20 | | 22 | 22 | 14 | 20 | 15 | 14 | 15 | 14 | 15 |
| 15 | 15 | 15 | 15 | 14 | 15 | 14 | 14 | 14 | 14 | 21 | | | | | 46 | 29 [#] | 22 | 15 | 15 | 14 | 14 | 14 | 14 | 14 |
| 16 | 15 | 15 | 15 | 14 | 15 | 15 | 14 | 14 | 16 | 16 | 23 | 27 | 34 | 34 | 29 | 29 | 20 | 14 | 14 | 14 | 14 | 14 | 14 | 14 |
| 17 | 15 | 14 | 14 | 15 | 14 | 15 | 14 | 15 | 34 [#] | 21 [#] | 22 | 34 [#] | | 53 | 28 [#] | | 24 | 15 | 14 | 14 | 14 | 15 | 14 | 15 |
| 18 | 15 | 15 | 14 | 14 | 14 | 15 | 18 | 14 | 14 | 18 | 21 | 26 | 33 | 34 | 30 | 26 | 20 | 15 | 14 | 14 | 14 | 15 | 14 | 14 |
| 19 | 15 | 14 | 15 | 14 | 23 | 15 | 15 | 14 | 14 | 17 | 27 | | 34 | 29 | 27 | 21 | 16 | 16 | 20 | 14 | 15 | 14 | 14 | 15 |
| 20 | 14 | 15 | 15 | 14 | 15 | 14 | 15 | 15 | 14 | 21 | | 23 | 22 | 20 | | 23 | 21 | 16 | 14 | 14 | 14 | 15 | 15 | 14 |
| 21 | 15 | 14 | 15 | 14 | 17 | 15 | 14 | 15 | 16 | 22 | 22 | 35 [#] | 50 [#] | | | 23 | 18 | 14 | 15 | 14 | 14 | 14 | 15 | 14 |
| 22 | 14 | 14 | 14 | 14 | 14 | 15 | 15 | 14 | 17 | 18 | 33 [#] | 33 | 32 | 35 | 27 | 22 | 20 | 15 | 14 | 16 | 14 | 15 | 14 | 14 |
| 23 | 15 | 14 | 14 | 16 | 15 | 15 | 15 | 14 | 14 | 23 | | 20 | 22 | 20 | | 22 | 14 | 14 | 14 | 14 | 14 | 14 | 15 | 15 |
| 24 | 15 | 15 | 15 | 14 | 14 | | 15 | 16 | 15 | 21 | 27 | | 39 | 21 [#] | 21 | 38 [#] | 20 [#] | 16 | 15 | 14 | 14 | 14 | 16 | 14 |
| 25 | 14 | 15 | 15 | 14 | 15 | 14 | 14 | 14 | 16 | 21 | 33 [#] | 44 [#] | 36 | 36 | 45 | 23 [#] | 21 | 16 | 14 | 14 | 14 | 15 | 14 | 14 |
| 26 | 15 | 14 | 15 | 18 | 16 | 14 | 14 | 15 | 18 | 20 | | | 45 | 30 [#] | 38 | 22 [#] | 15 | 14 | 14 | 14 | 14 | 14 | 14 | 14 |
| 27 | 16 | 15 | 14 | 15 | 15 | 15 | 14 | 14 | 14 | 21 | 23 | | | | | 23 | 18 | 14 | 14 | 14 | 14 | 14 | 14 | 14 |
| 28 | 14 | 14 | 14 | 14 | 14 | 14 | 17 | 14 | 15 | 21 | | | | | | 21 | 15 | 14 | 14 | 15 | 14 | 16 | 15 | 15 |
| 29 | 14 | 15 | 14 | 14 | 14 | 15 | 14 | 14 | 16 | 22 | 26 | | | | | 21 | 33 [#] | 15 [#] | 14 | 14 | 14 | 15 | 14 | 15 |
| 30 | 15 | 14 | 15 | 15 | 14 | 14 | 14 | 14 | 16 | 20 | 21 | 28 | | 54 | 22 [#] | 40 [#] | 20 [#] | 14 | 14 | 14 | 16 | 18 | 14 | 15 |
| 31 | | | | | | | | | | | | | | | | | | | | | | | | |
| | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
| CNT | 30 | 30 | 30 | 30 | 30 | 29 | 30 | 29 | 30 | 30 | 25 | 19 | 20 | 21 | 23 | 25 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 |
| MED | 15 | 14 | 15 | 14 | 14 | 15 | 14 | 14 | 15 | 20 | 26 | 28 | 32 | 30 | 29 | 23 | 20 | 15 | 14 | 14 | 14 | 14 | 14 | 14 |
| U Q | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 16 | 21 | 29 | 34 | 36 | 35 | 34 | 28 | 21 | 15 | 14 | 14 | 14 | 15 | 15 | 15 |
| L Q | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 18 | 22 | 26 | 26 | 21 | 26 | 22 | 16 | 14 | 14 | 14 | 14 | 14 | 14 | 14 |

SUMMARY PLOTS AT Wakkanai



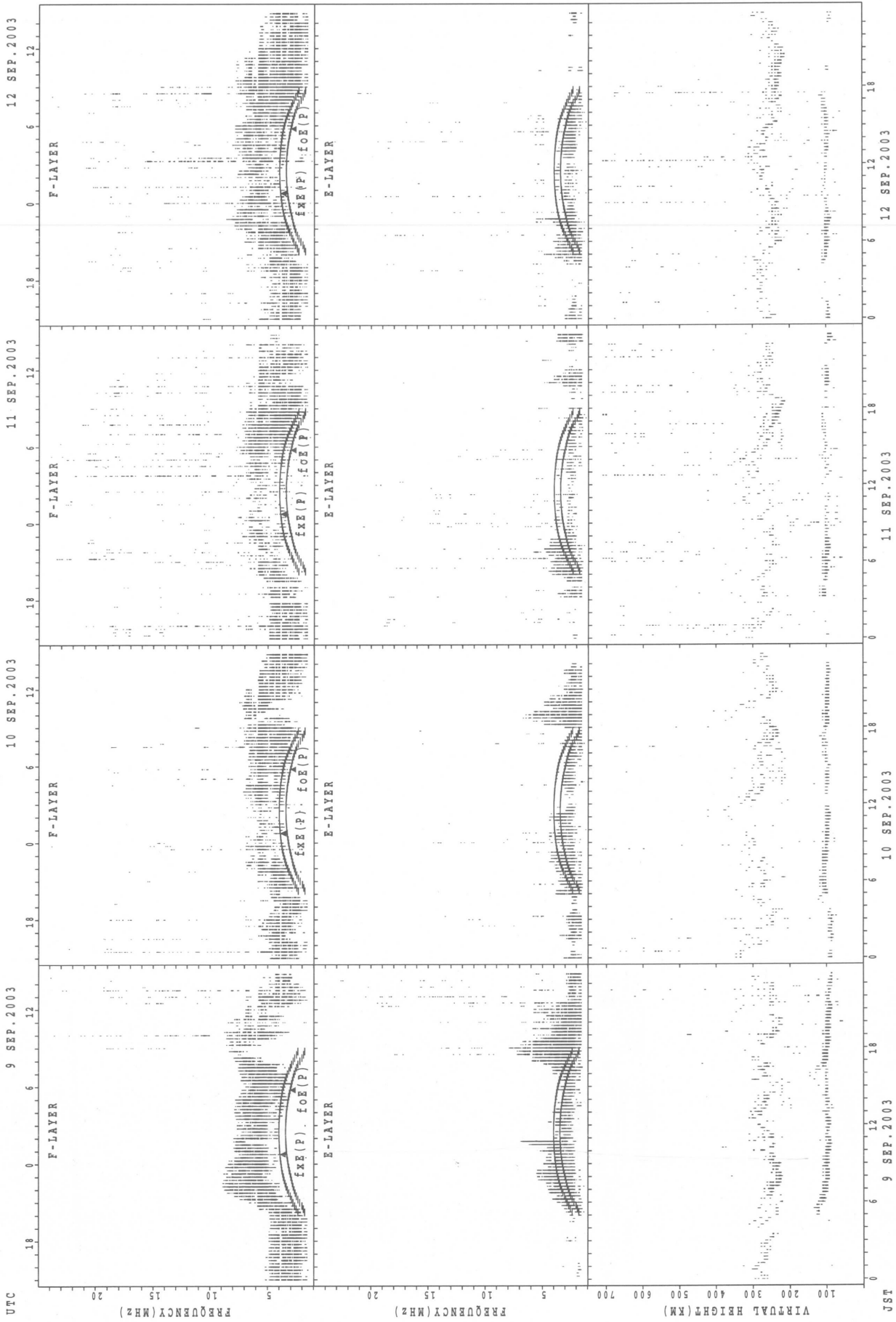
foe(P); PREDICTED VALUE FOR foe
foe(P); PREDICTED VALUE FOR foe

SUMMARY PLOTS AT Wakkanai



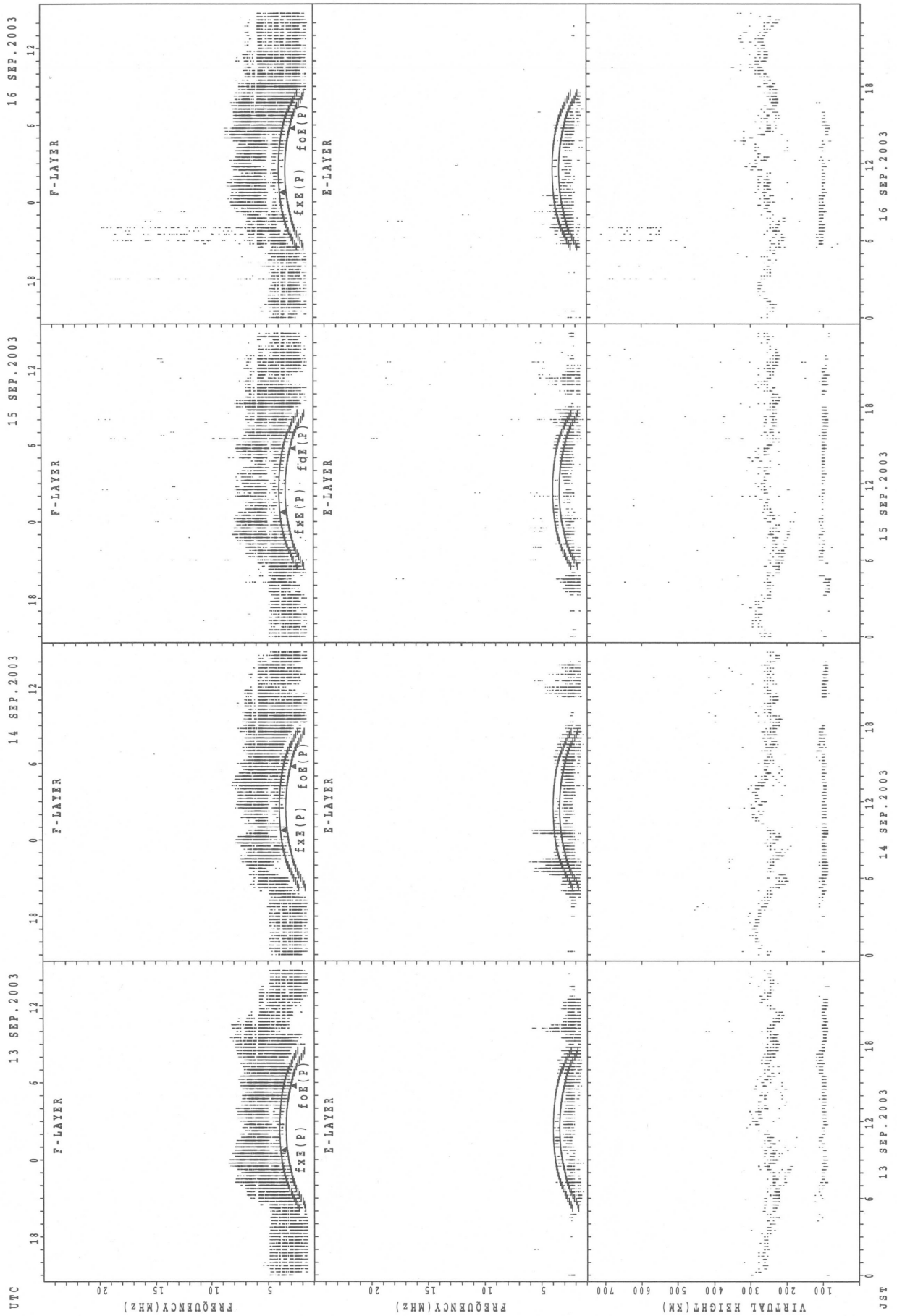
fxe(P); PREDICTED VALUE FOR fxe
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



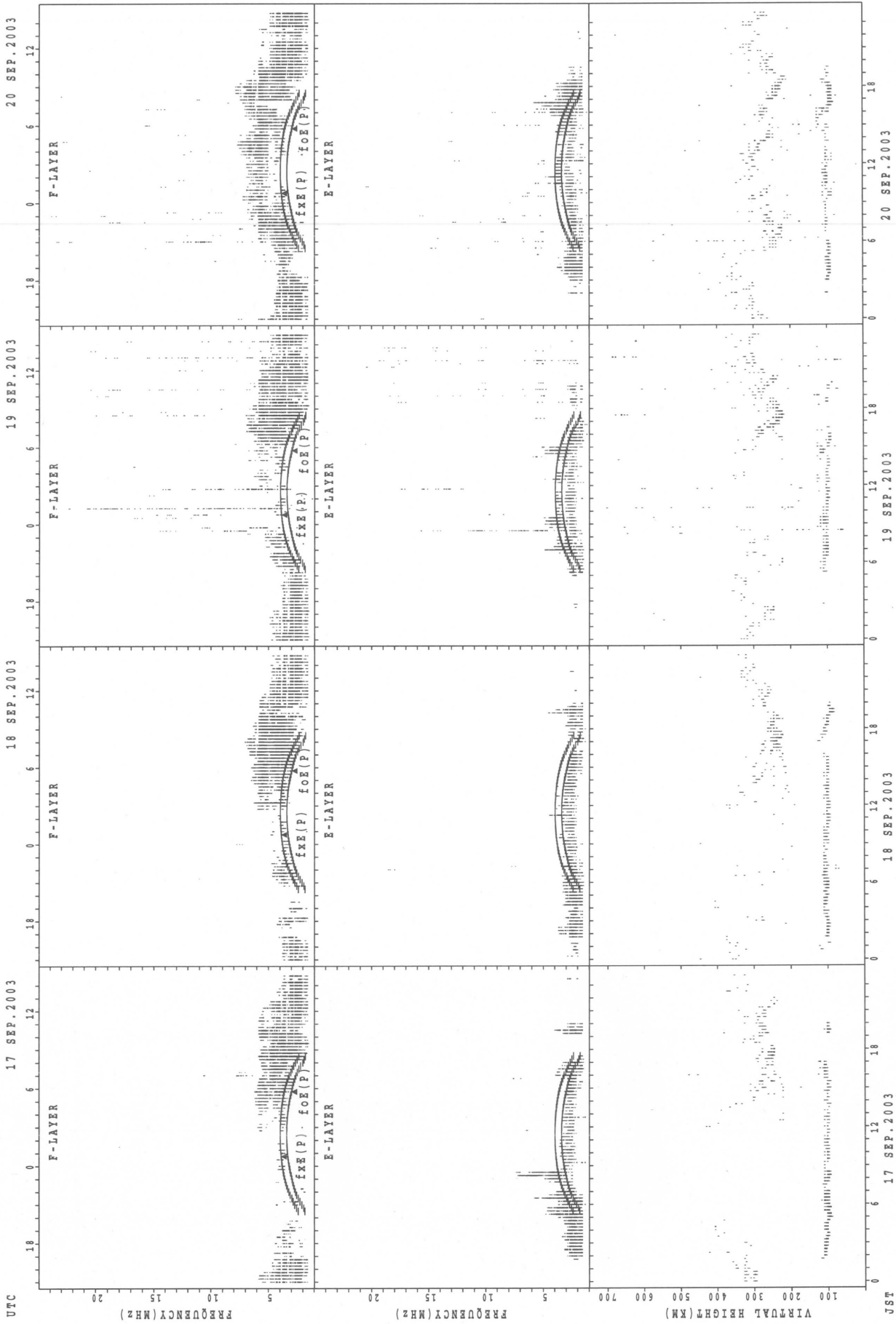
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fofe(P); PREDICTED VALUE FOR fofe

SUMMARY PLOTS AT Wakkanai



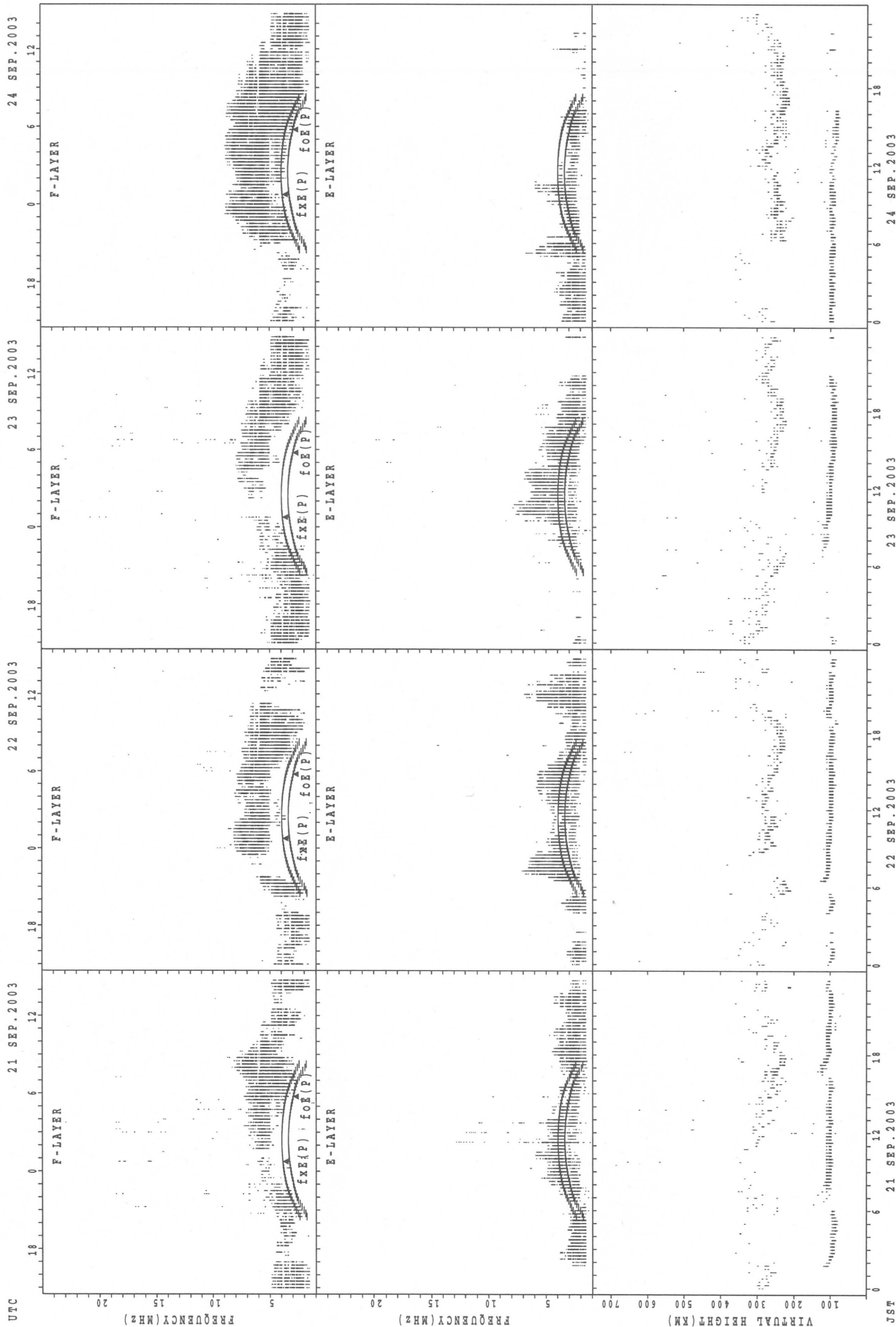
fxe(p); PREDICTED VALUE FOR fxe
foE(p); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



f_xE(P); PREDICTED VALUE FOR f_xE
foE(P); PREDICTED VALUE FOR foE

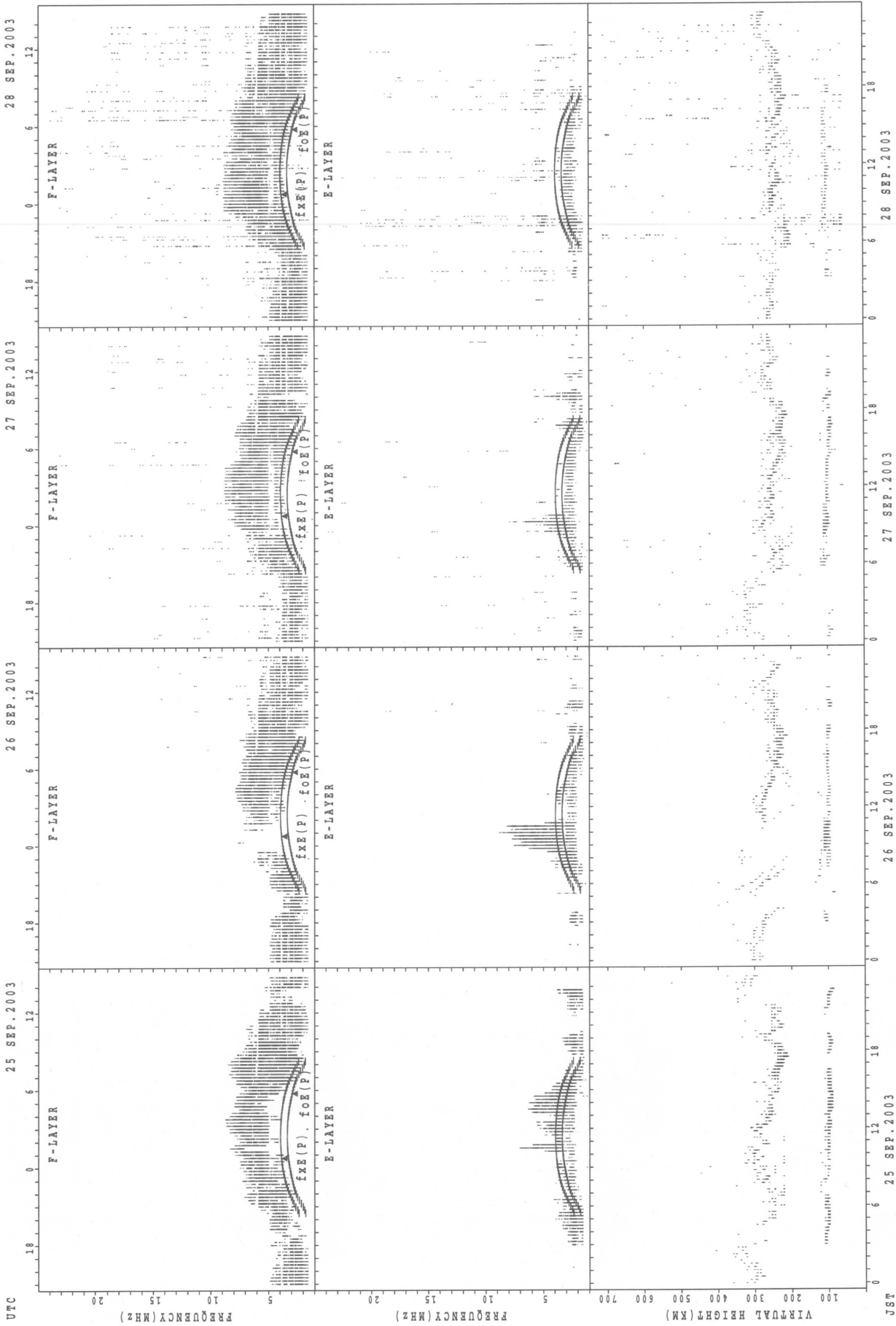
SUMMARY PLOTS AT Wakkanai



JST
 21 SEP.2003
 22 SEP.2003
 23 SEP.2003
 24 SEP.2003

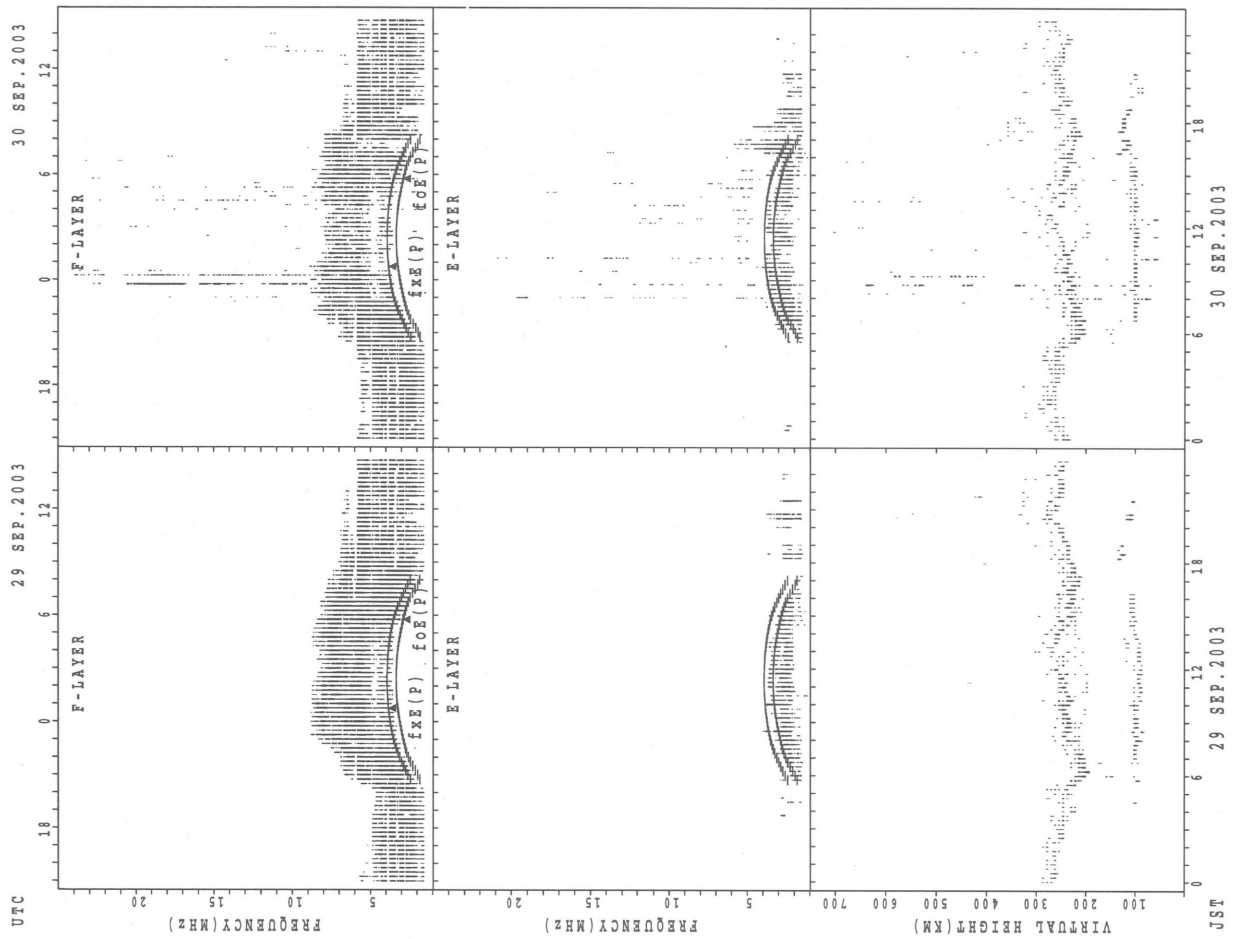
fxe(P); PREDICTED VALUE FOR fxe
 foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



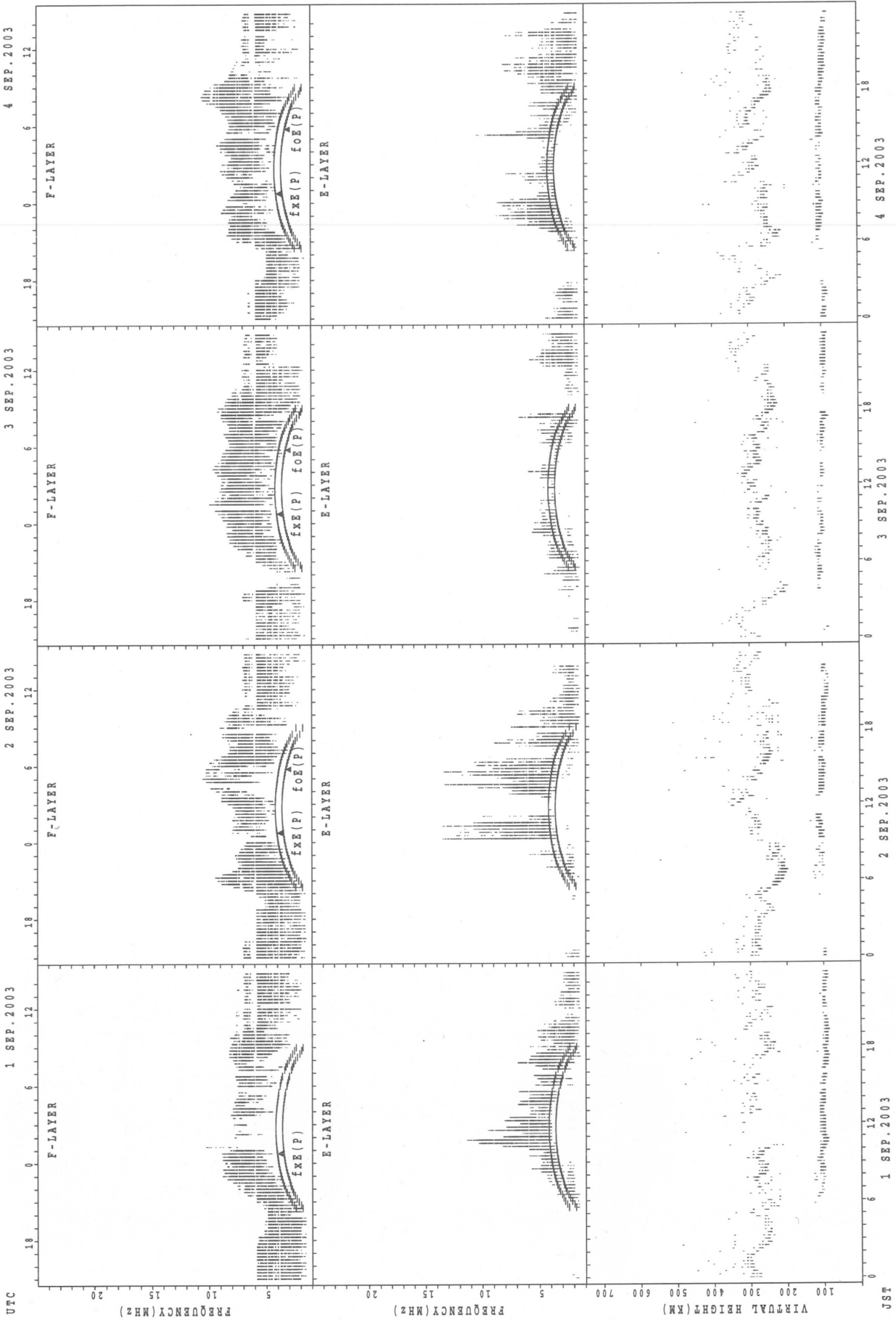
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foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



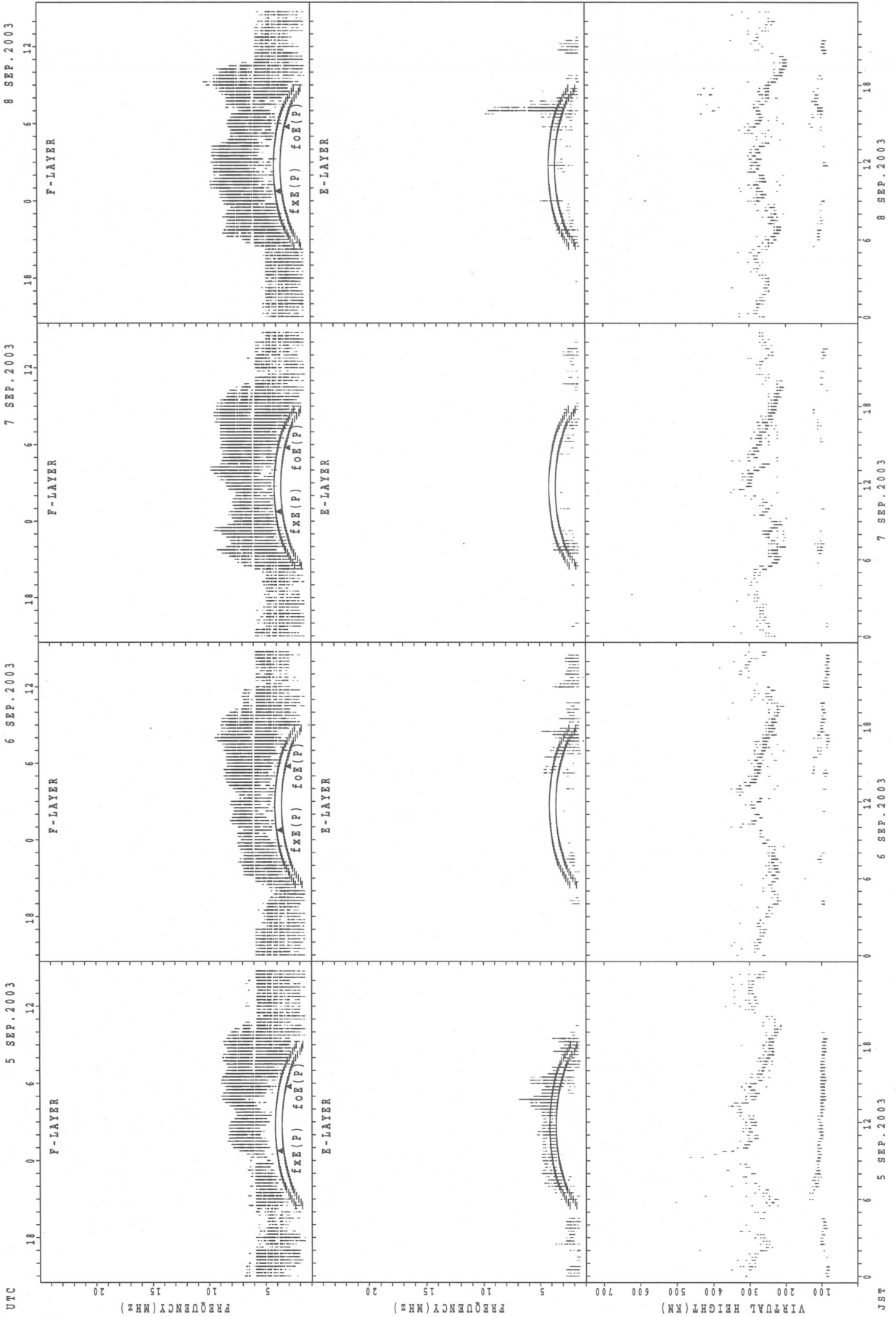
fxe(P); PREDICTED VALUE FOR fxe
foe(P); PREDICTED VALUE FOR foe

SUMMARY PLOTS AT Kokubunji



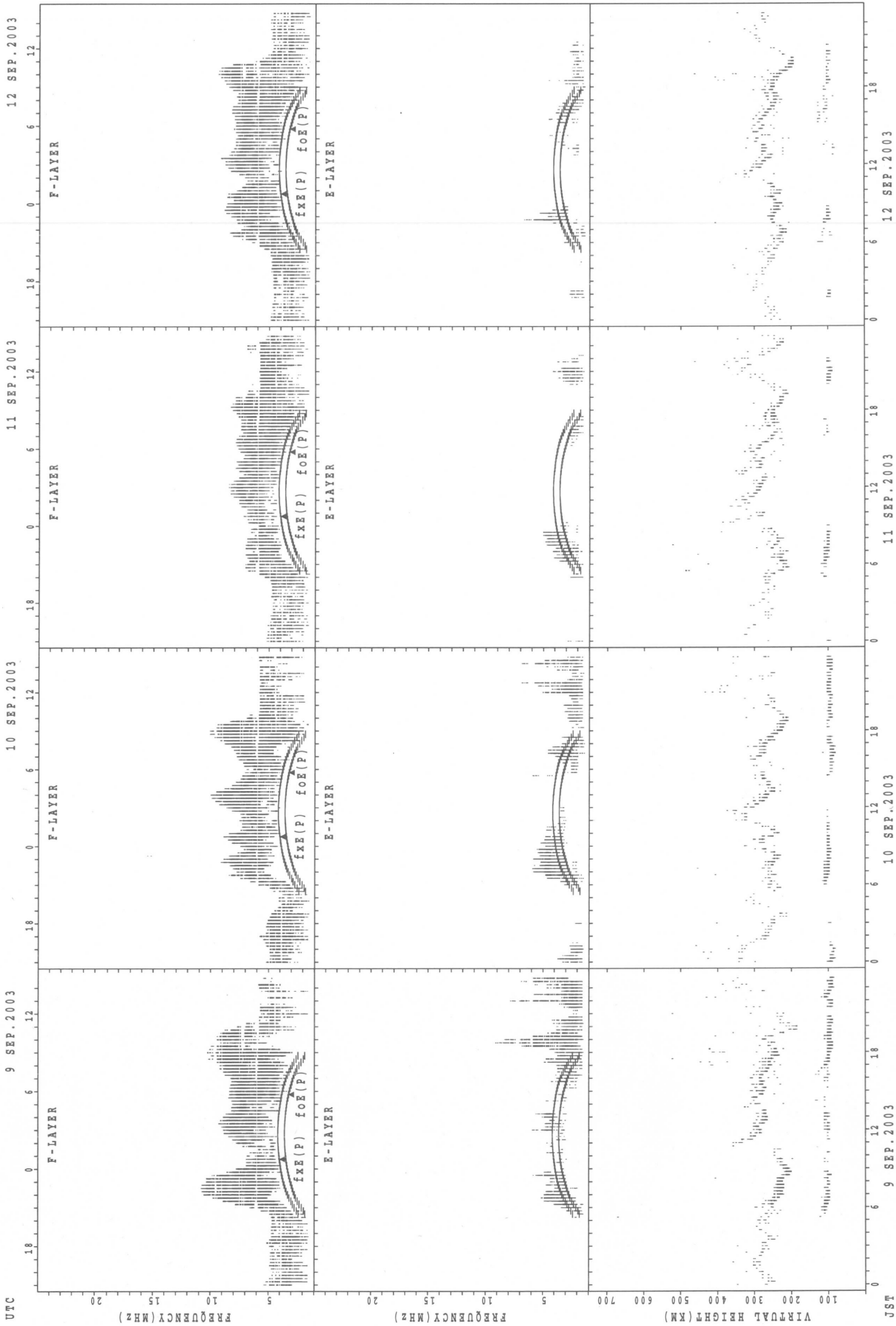
fxe(P); PREDICTED VALUE FOR fxe
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



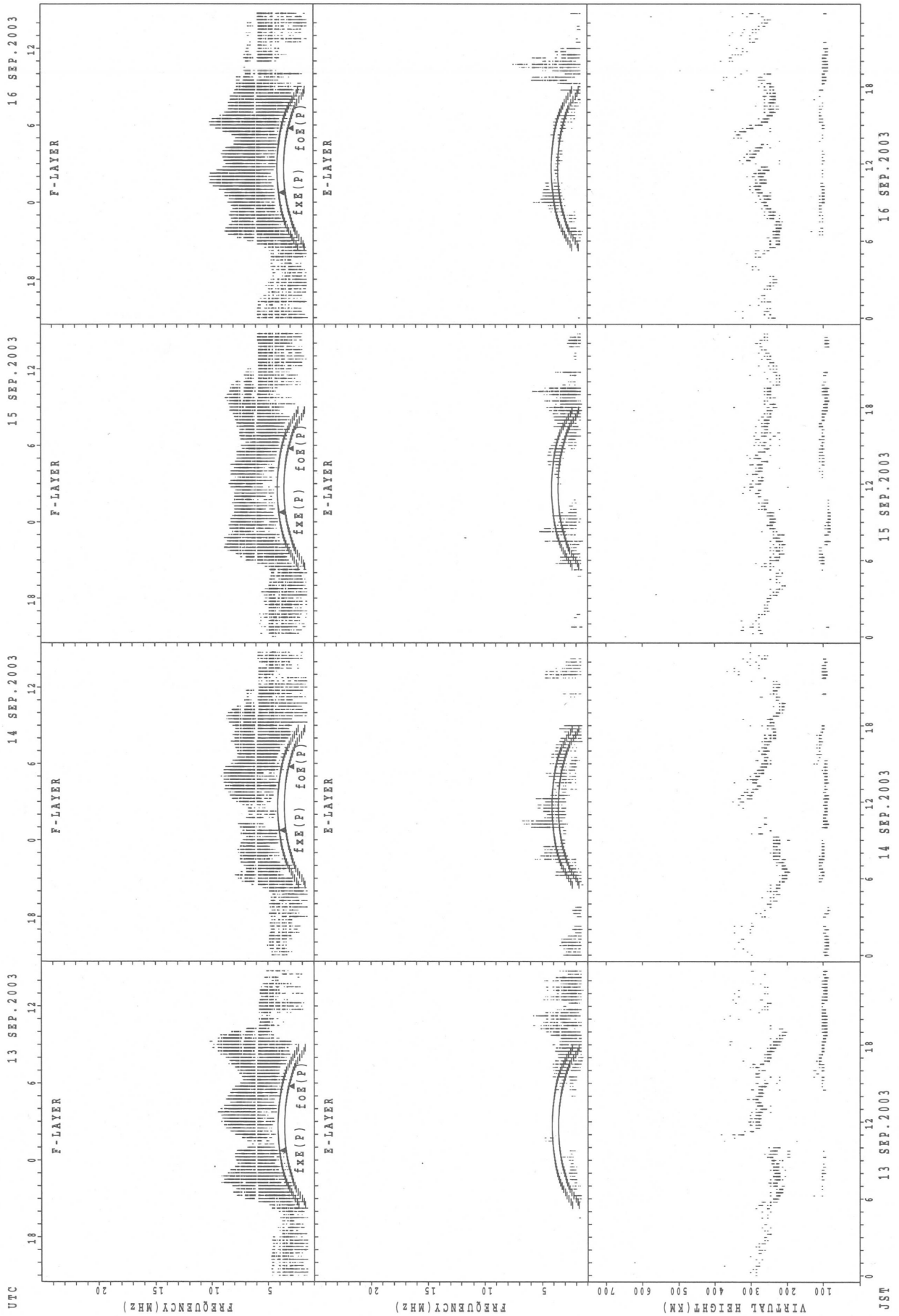
fxe(P); PREDICTED VALUE FOR fxe
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



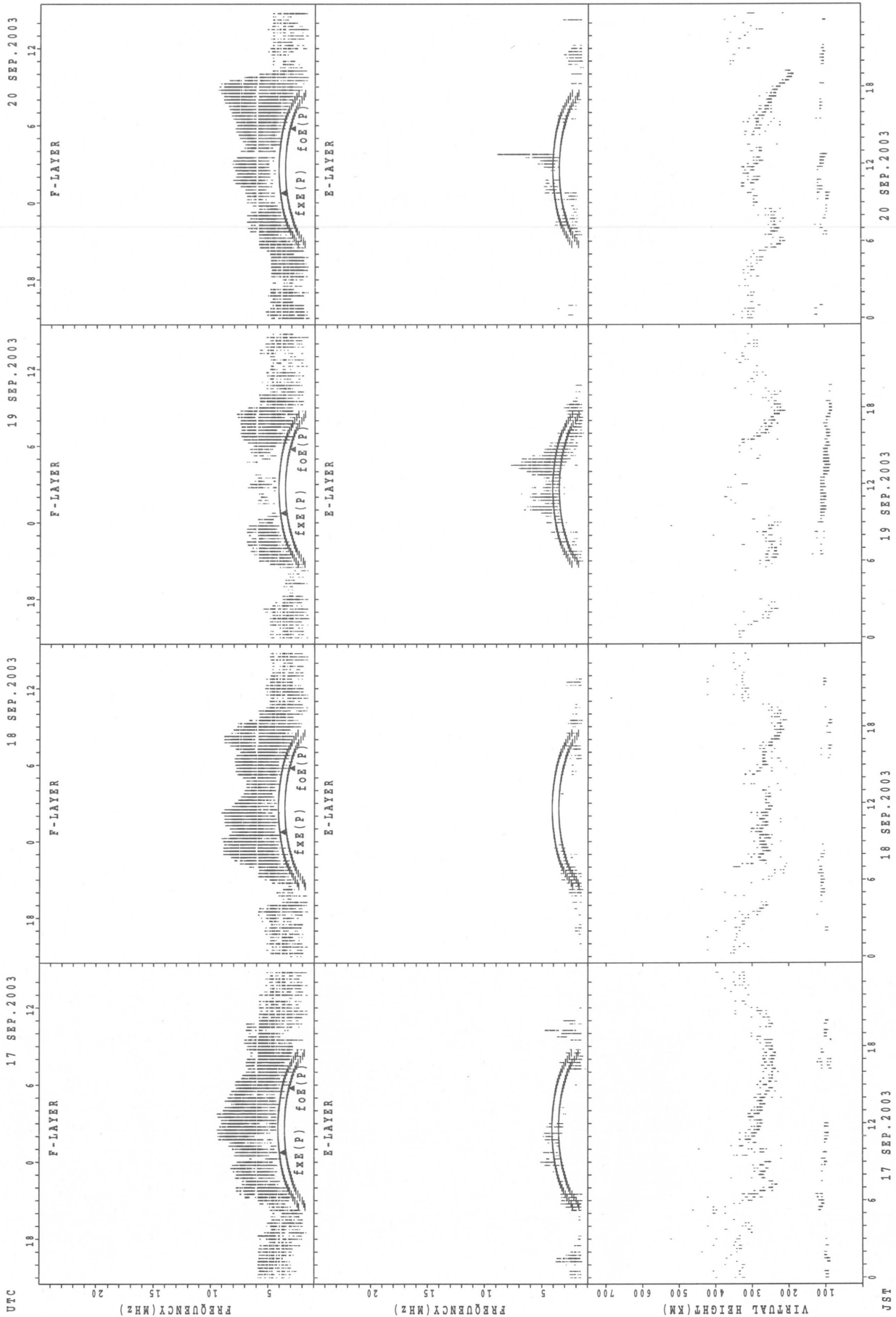
fxe(P); PREDICTED VALUE FOR fxe
foe(P); PREDICTED VALUE FOR foe

SUMMARY PLOTS AT Kokubunji



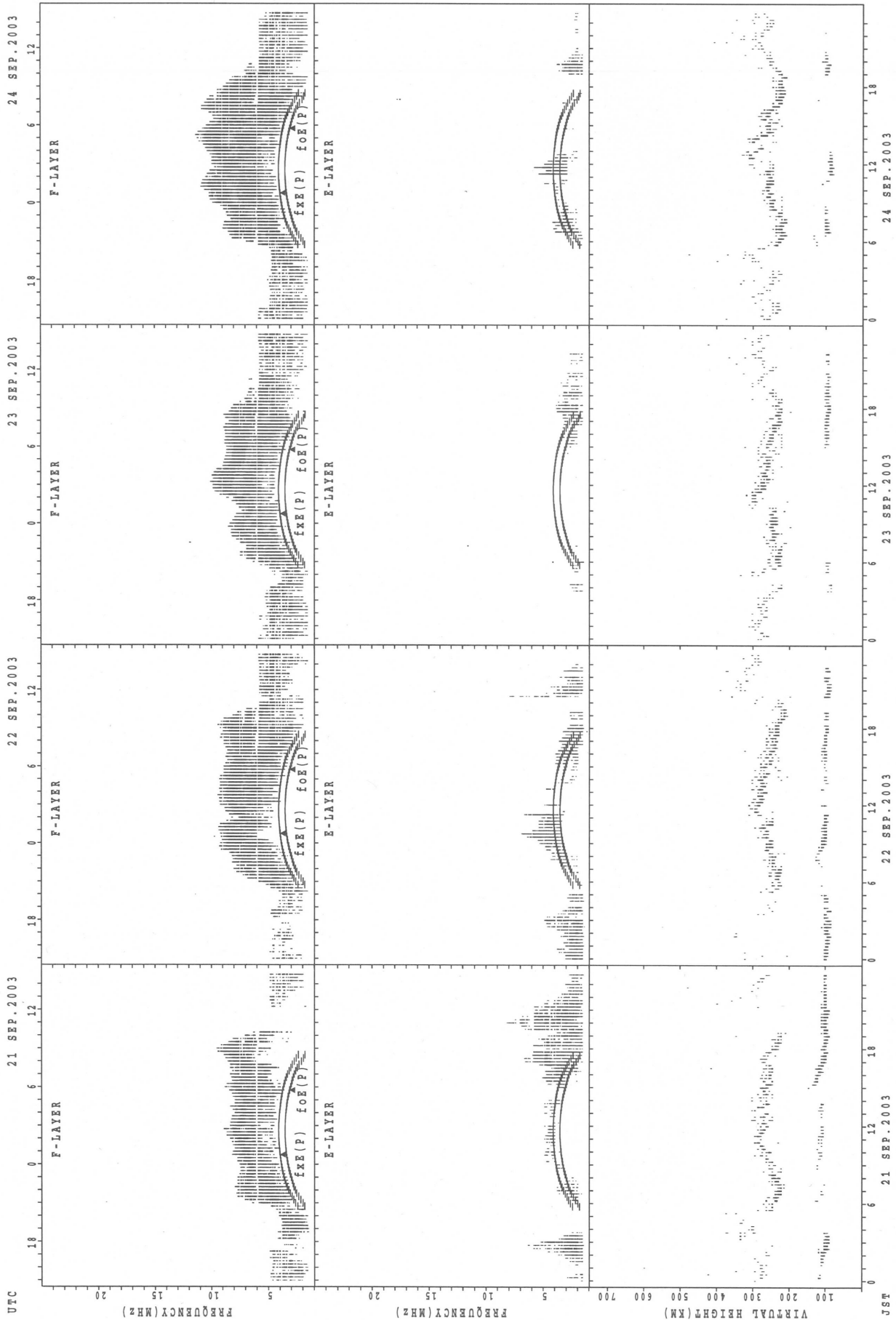
fxe(p); PREDICTED VALUE FOR fxe
foE(p); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



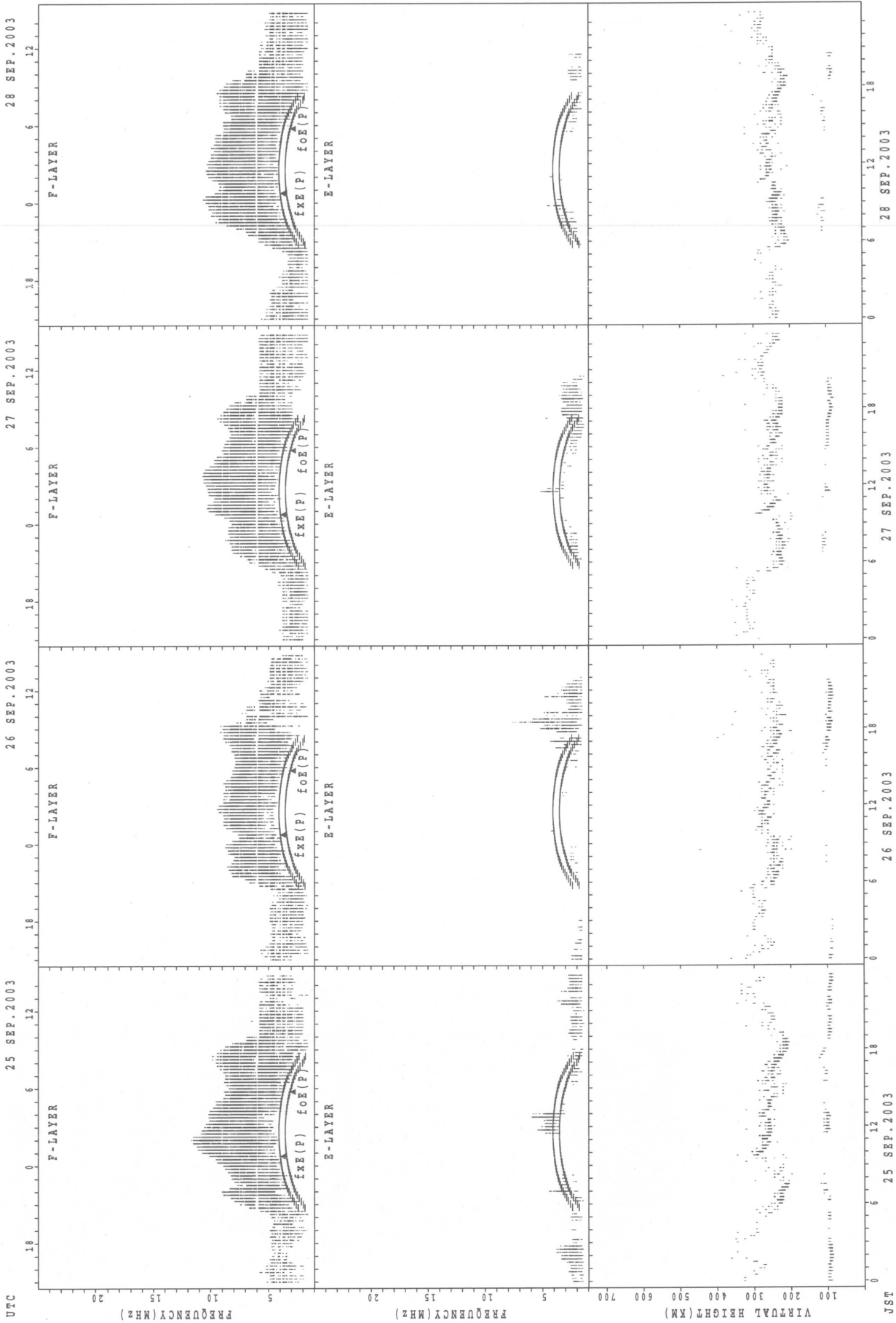
fXE(P); PREDICTED VALUE FOR fXE
fOE(P); PREDICTED VALUE FOR fOE

SUMMARY PLOTS AT Kokubunji



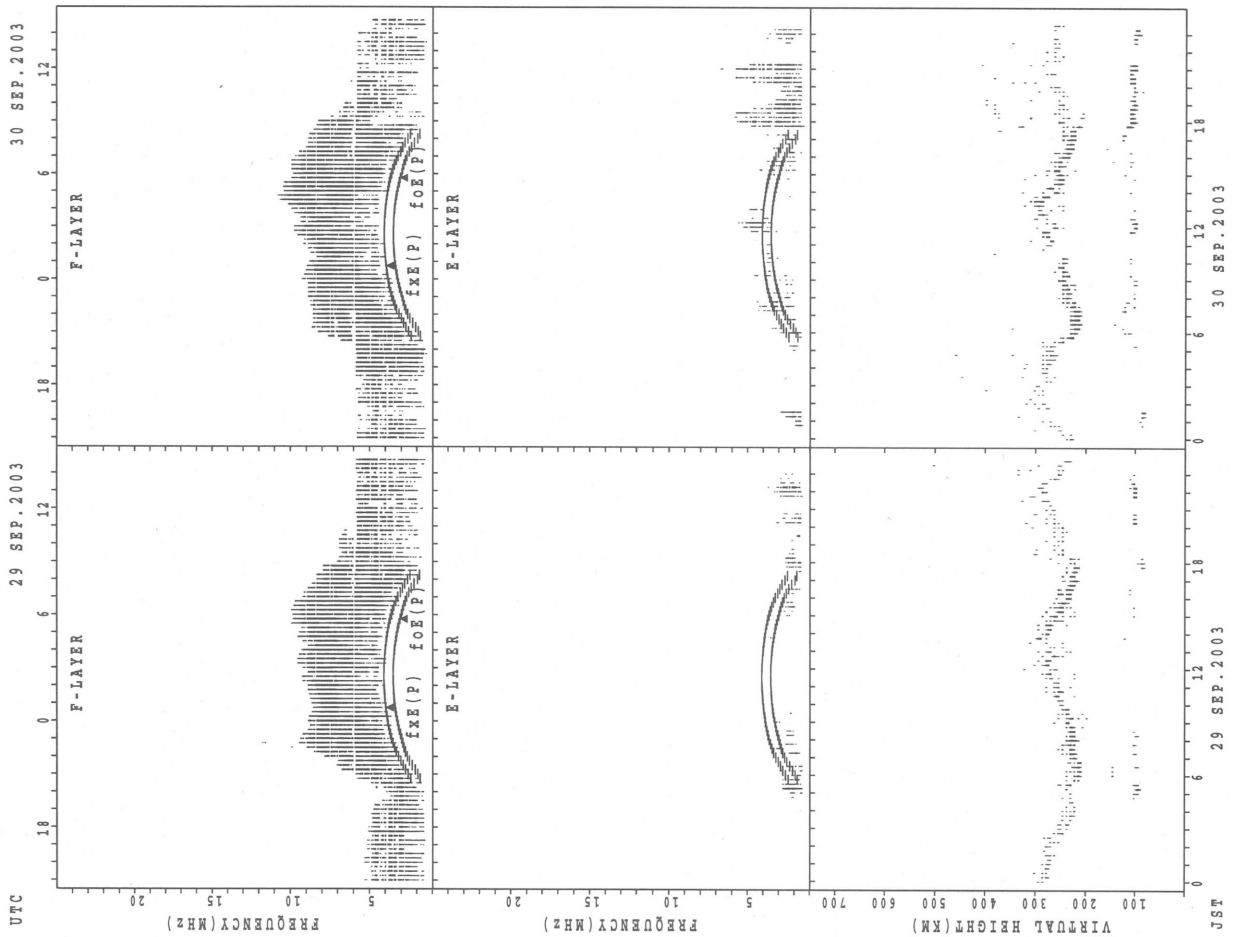
fxe(P); PREDICTED VALUE FOR fxe
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



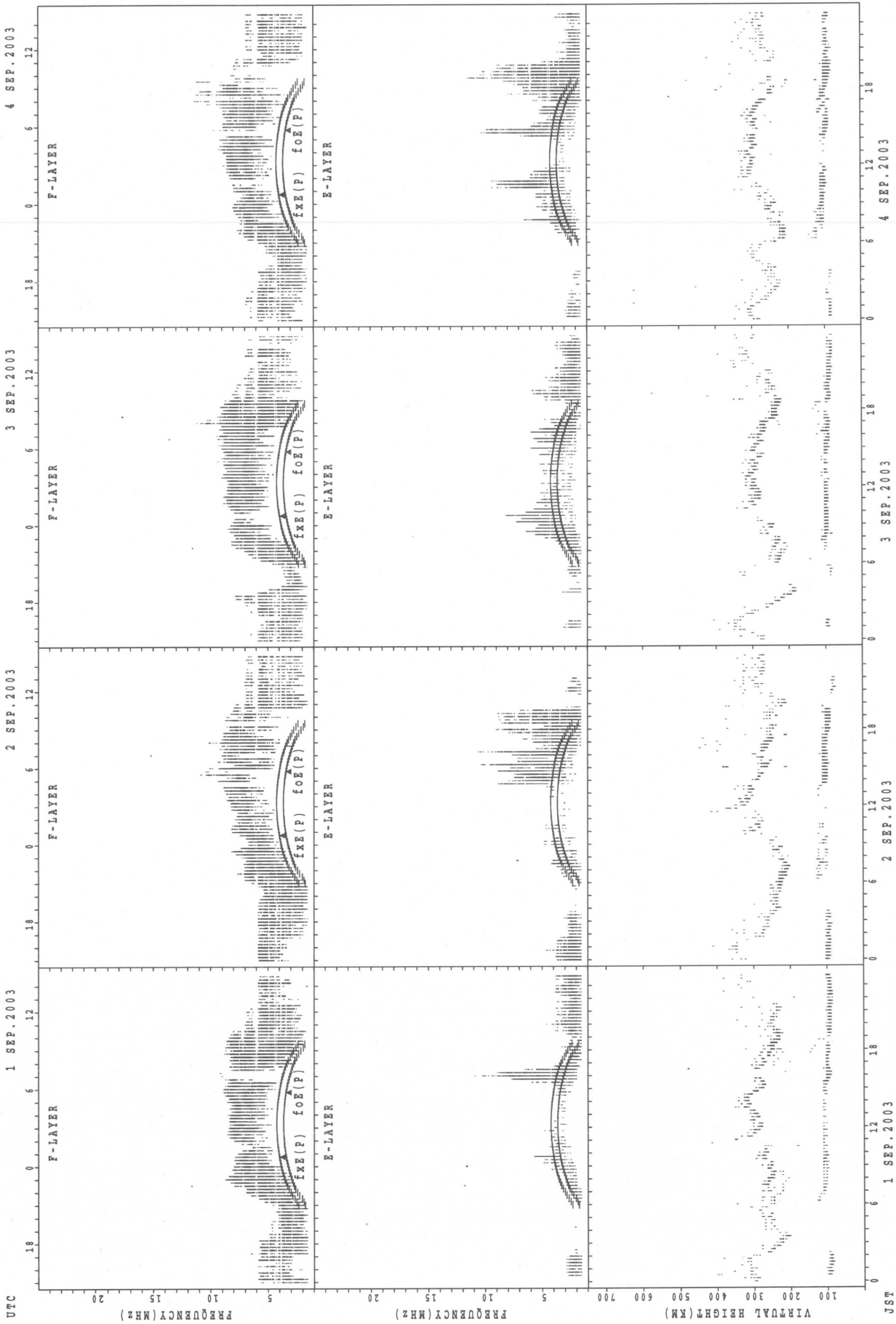
fxE(P); PREDICED VALUE FOR fxe
foE(P); PREDICED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



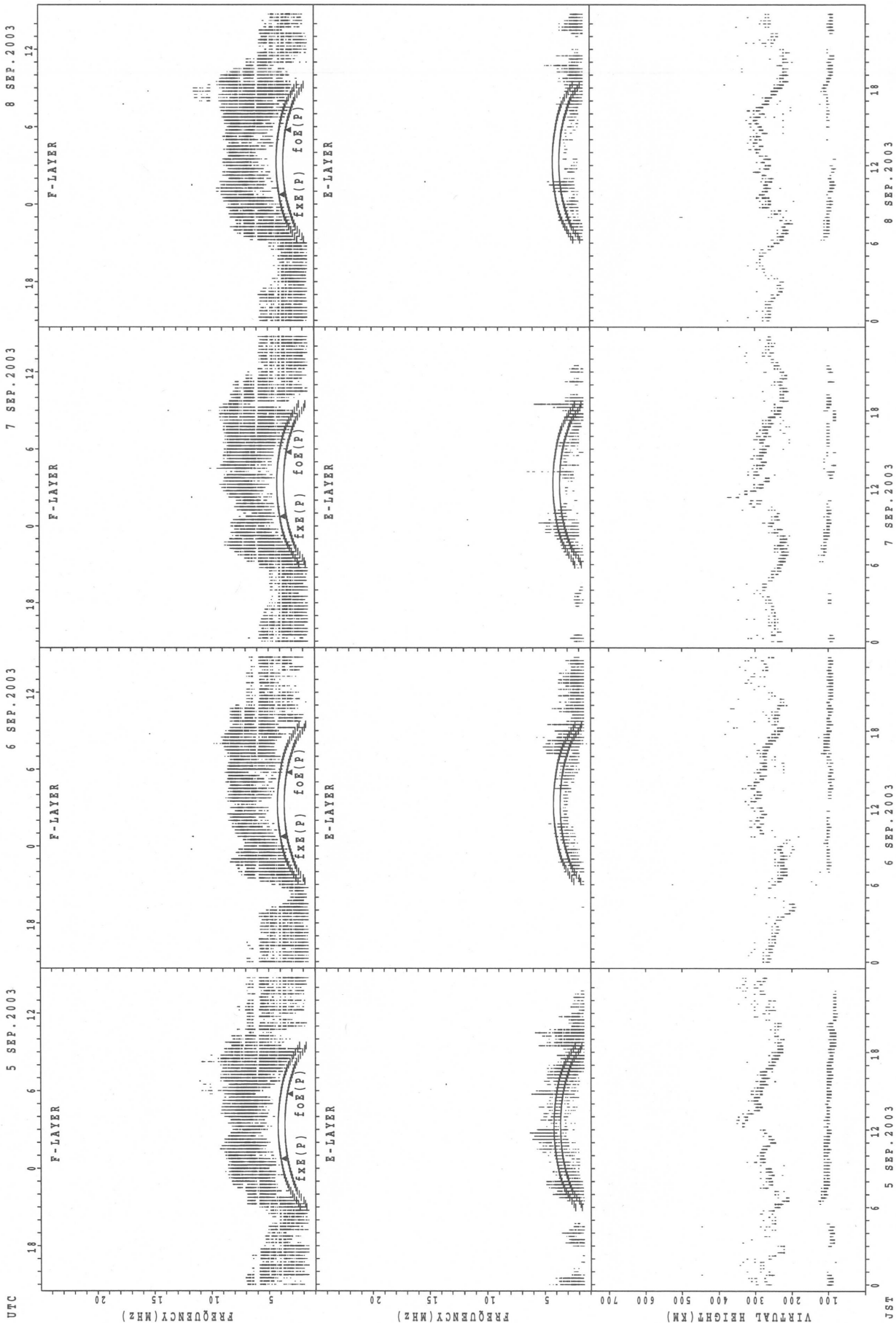
$f_xE(P)$; PREDICTED VALUE FOR f_xE
 $f_oE(P)$; PREDICTED VALUE FOR f_oE

SUMMARY PLOTS AT Yamagawa



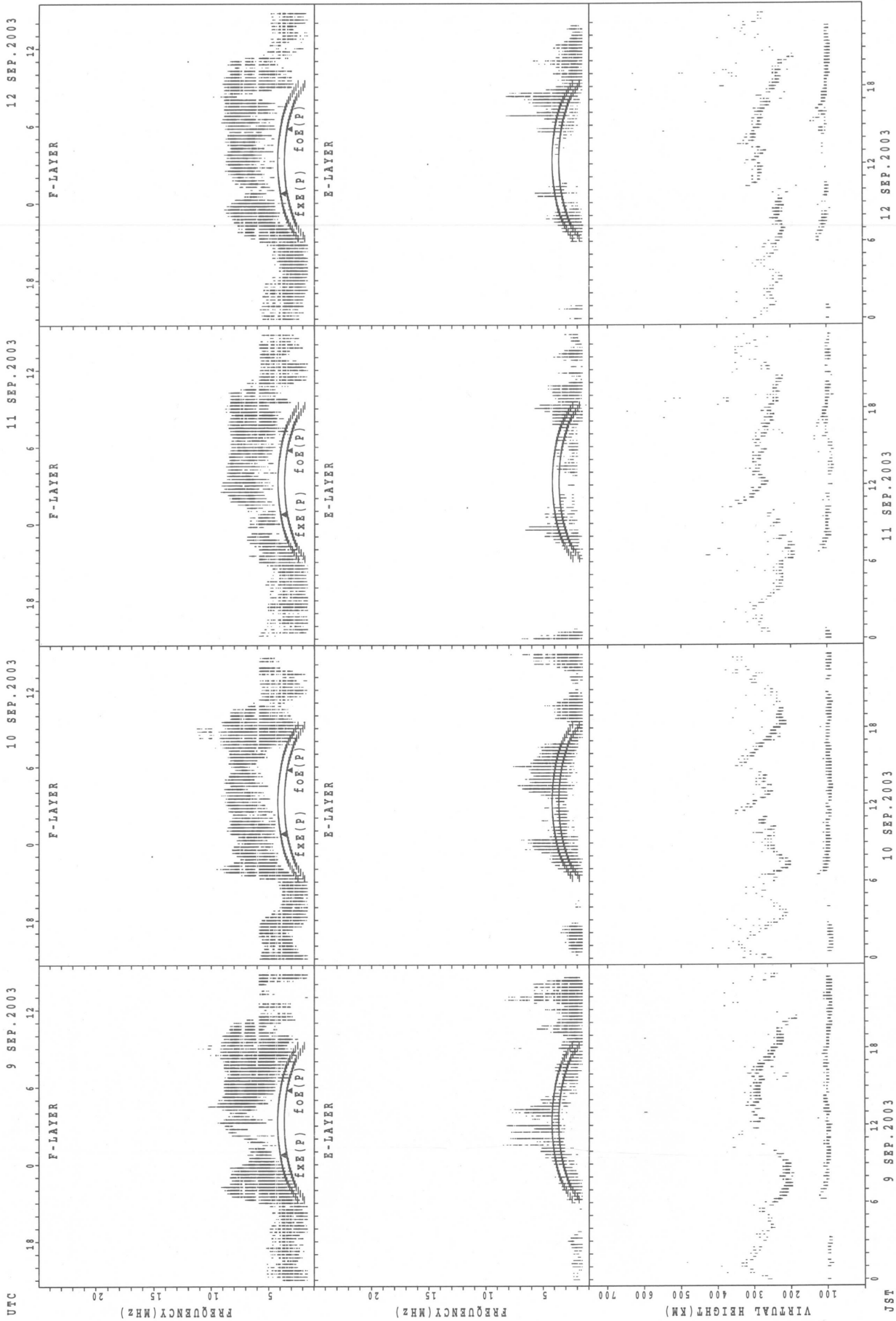
fxe(p); PREDICTED VALUE FOR fxe
foE(p); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



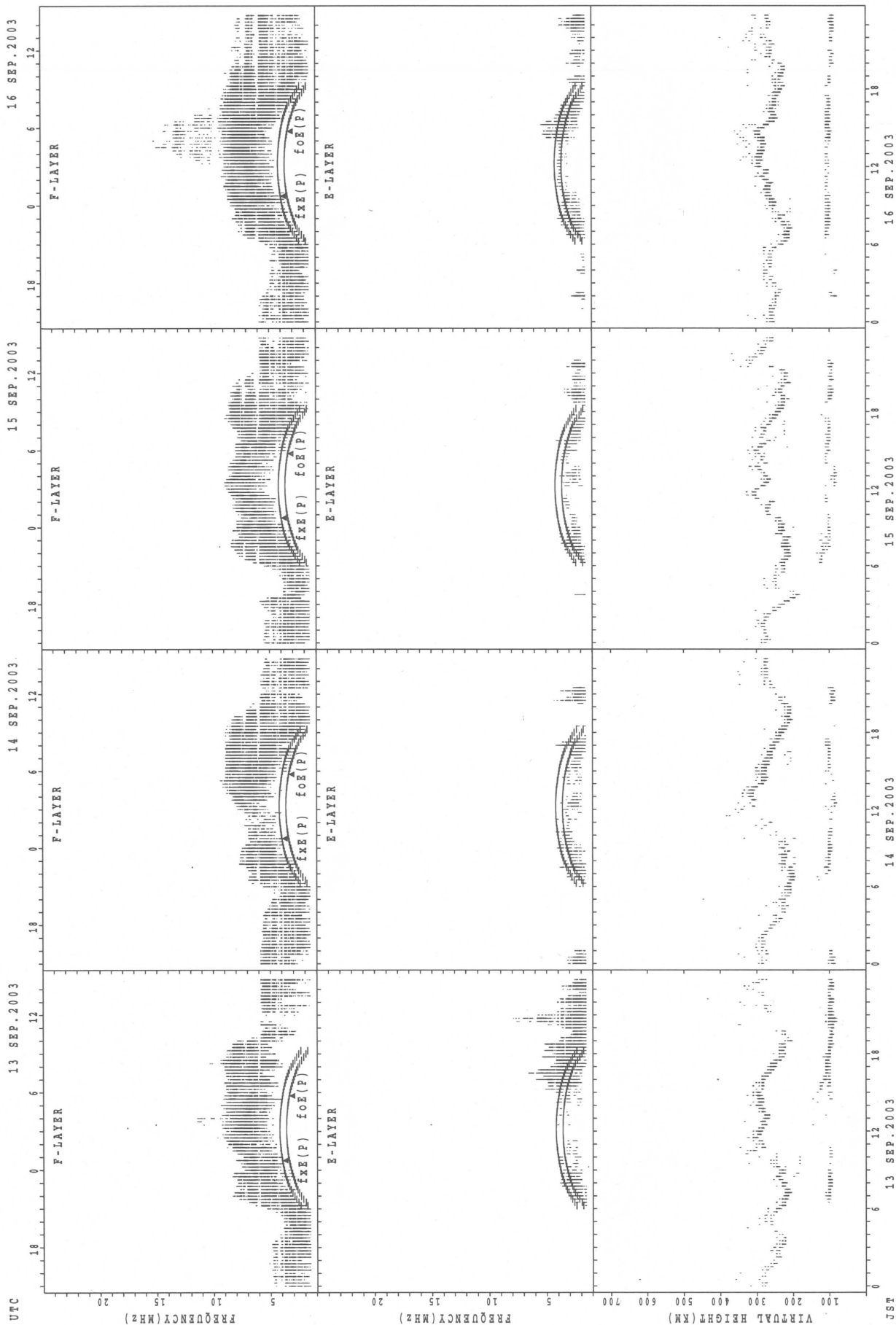
fxE(P); PREDICTED VALUE FOR fxe
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



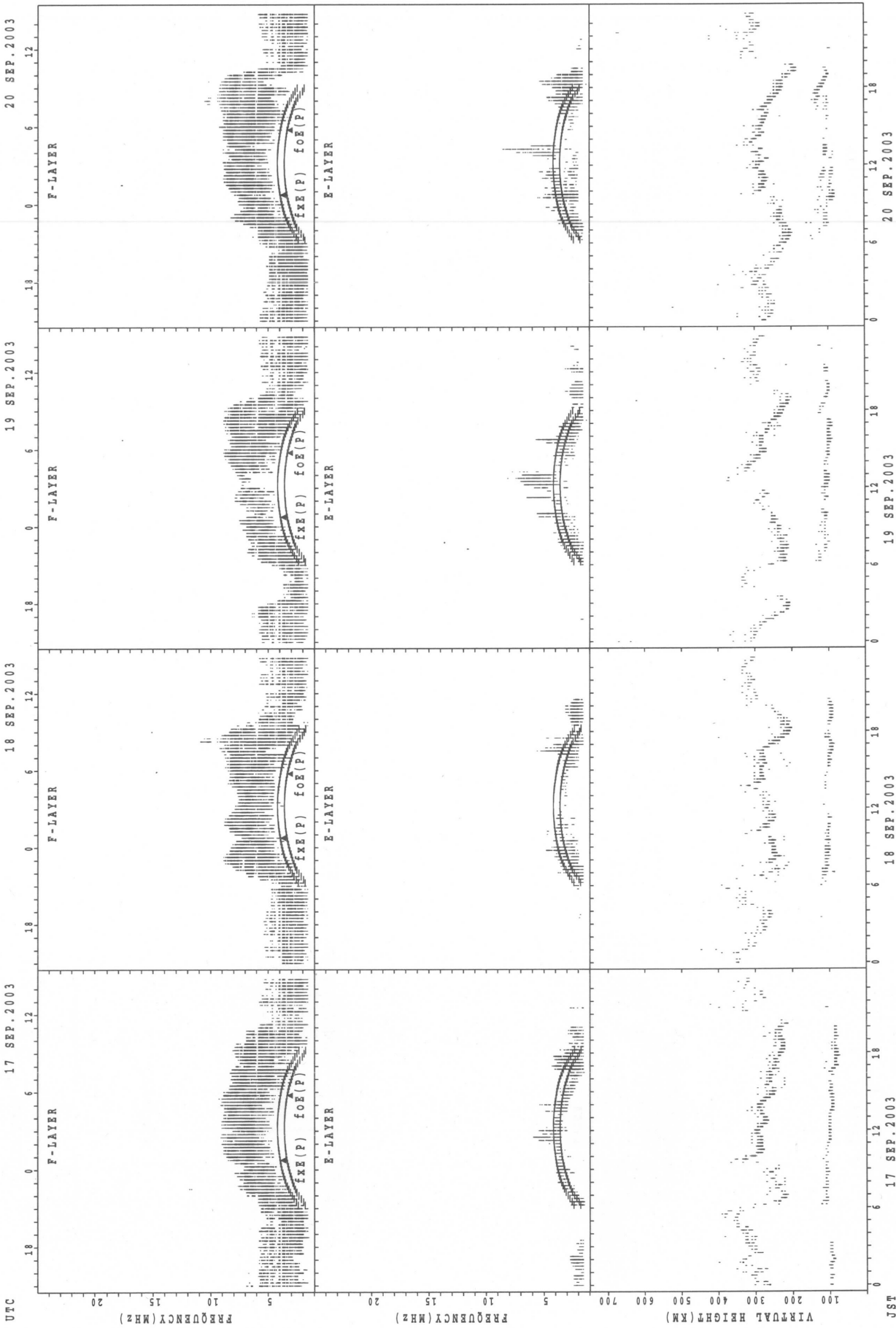
fxe(P); PREDICTED VALUE FOR fxe
fofe(P); PREDICTED VALUE FOR fofe

SUMMARY PLOTS AT Yamagawa



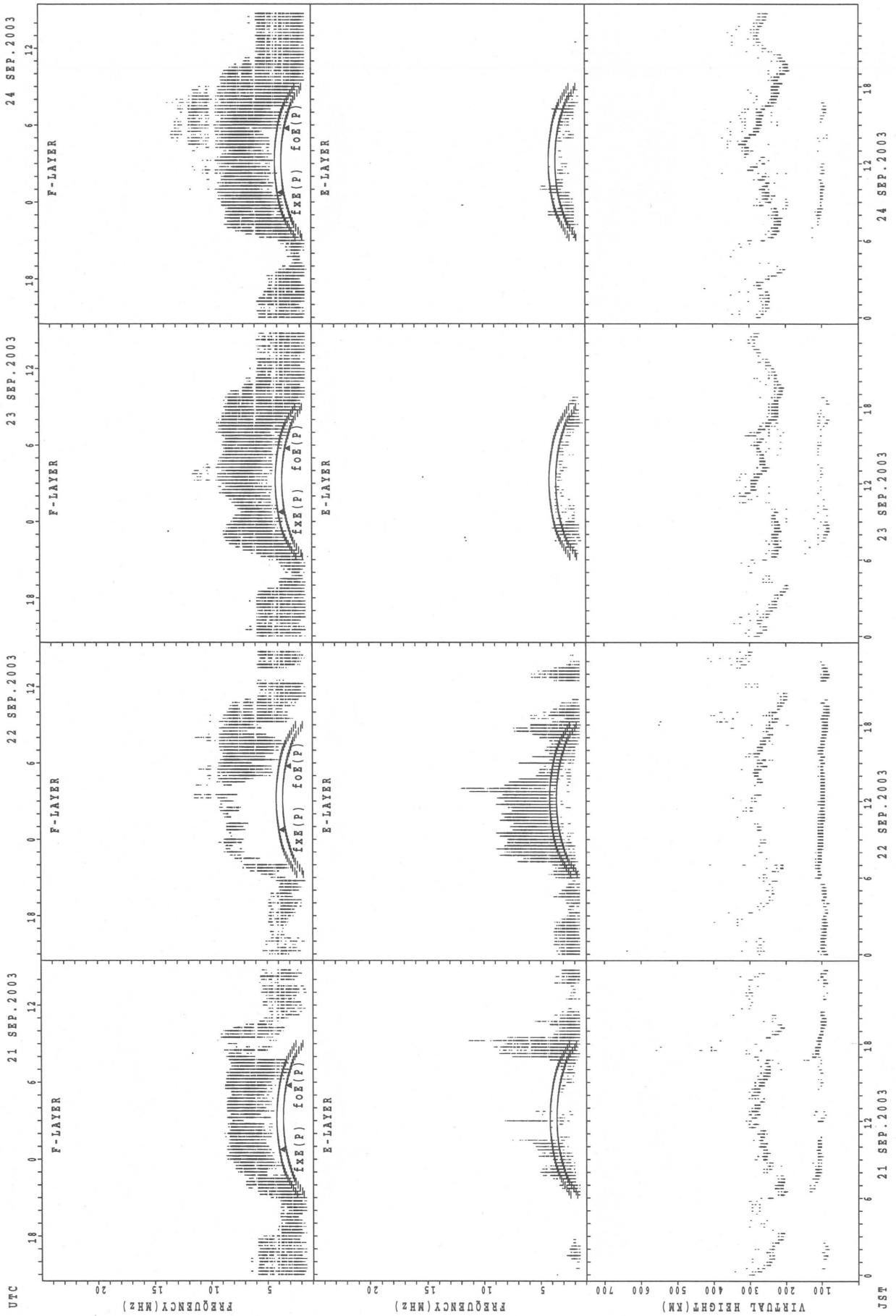
f_xE(P); PREDICTED VALUE FOR f_xE
 f_oE(P); PREDICTED VALUE FOR f_oE

SUMMARY PLOTS AT Yamagawa



fxe(p); PREDICTED VALUE FOR fxe
foE(p); PREDICTED VALUE FOR foE

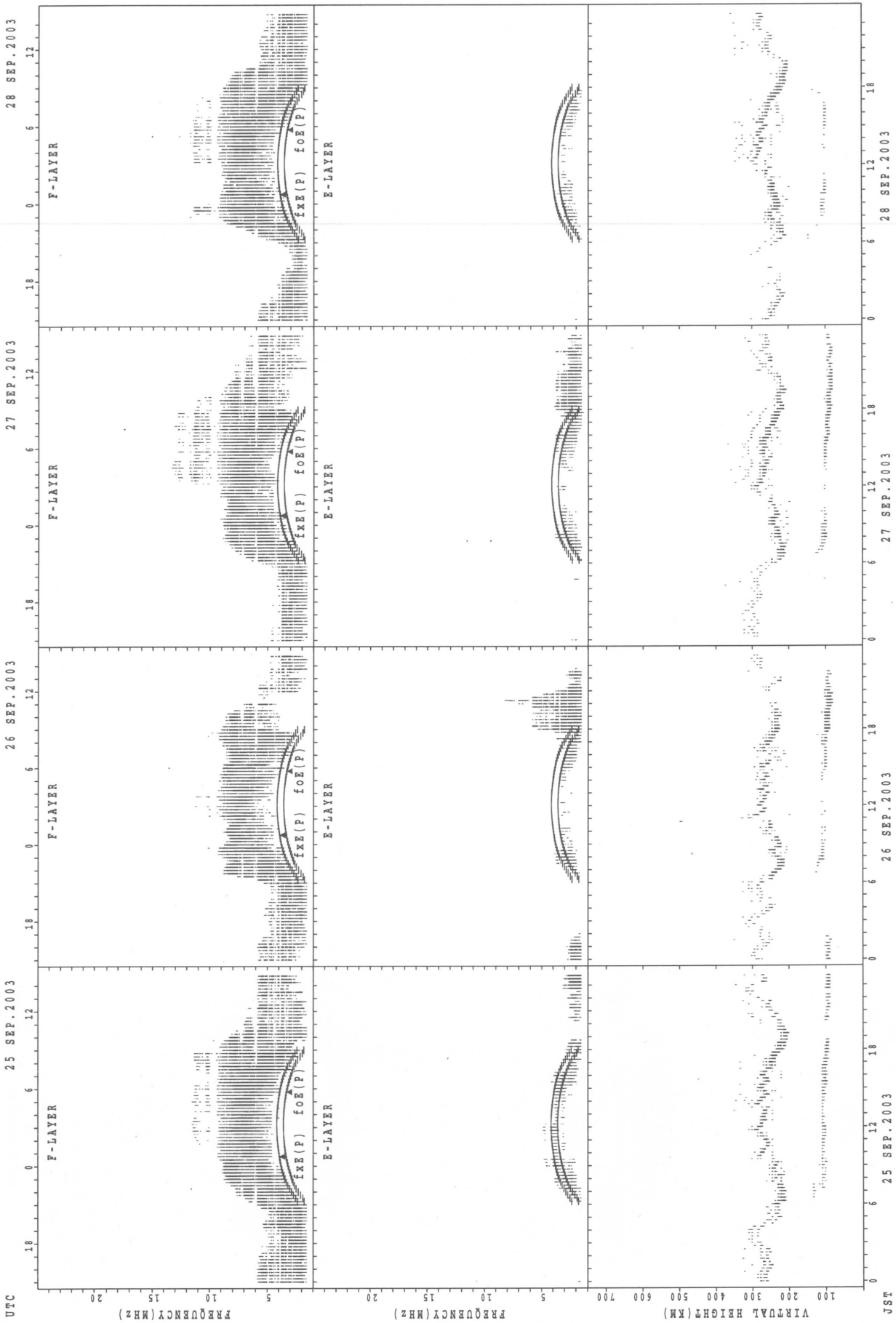
SUMMARY PLOTS AT Yamagawa



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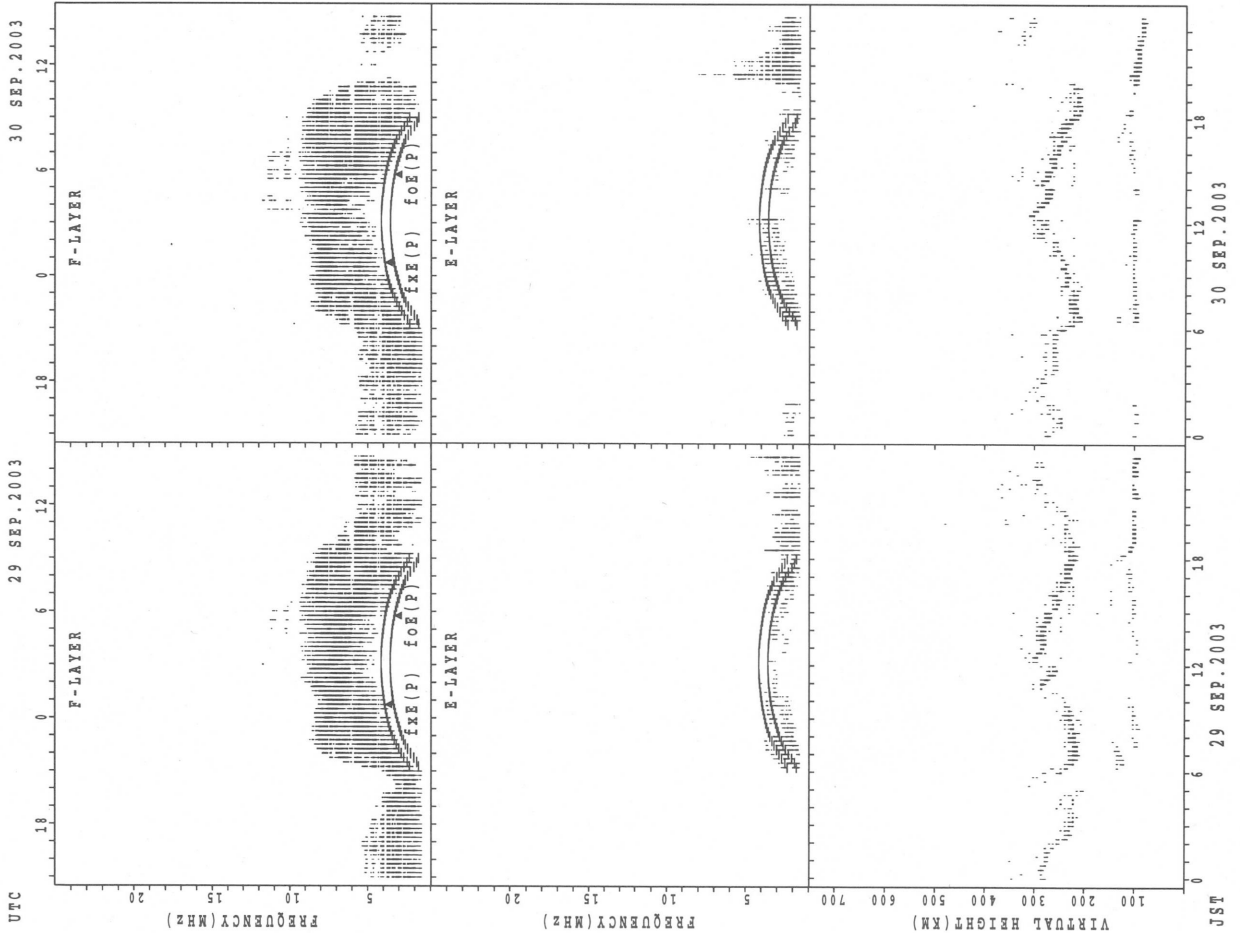
fxE(P); PREDICTED VALUE FOR fxe
 foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



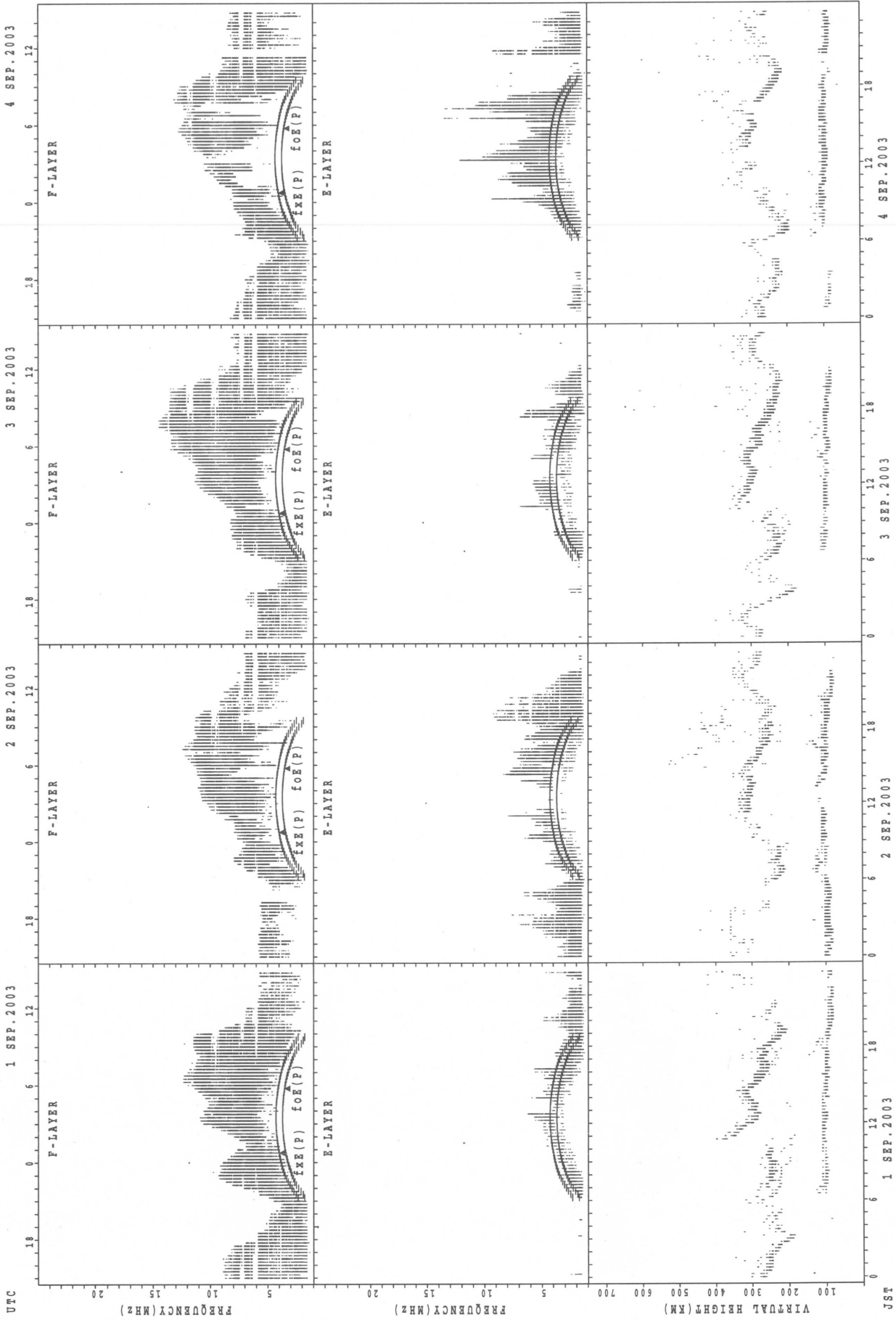
fxe(p); PREDICTED VALUE FOR fxe
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



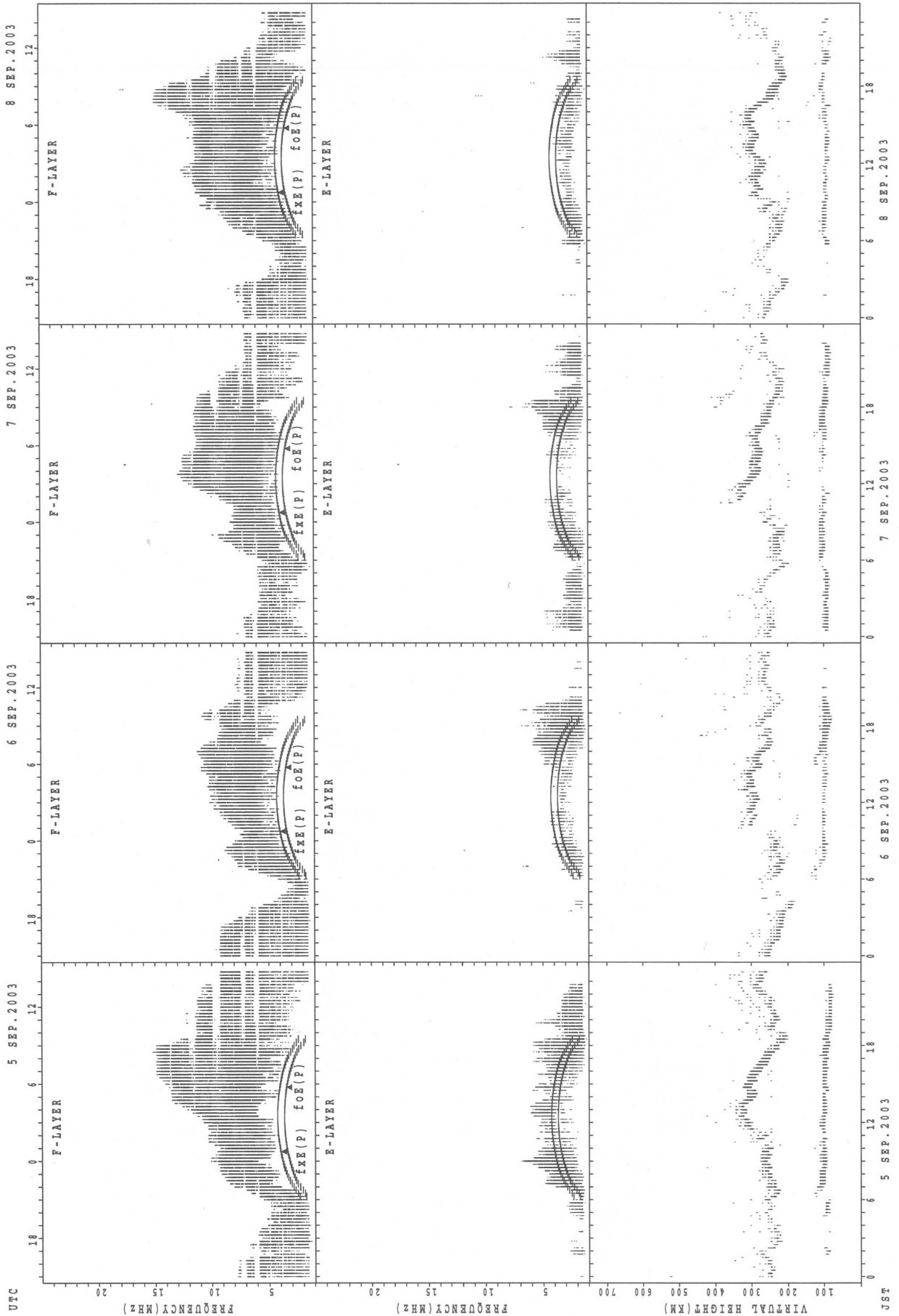
fxe(P); PREDICTED VALUE FOR fxe
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



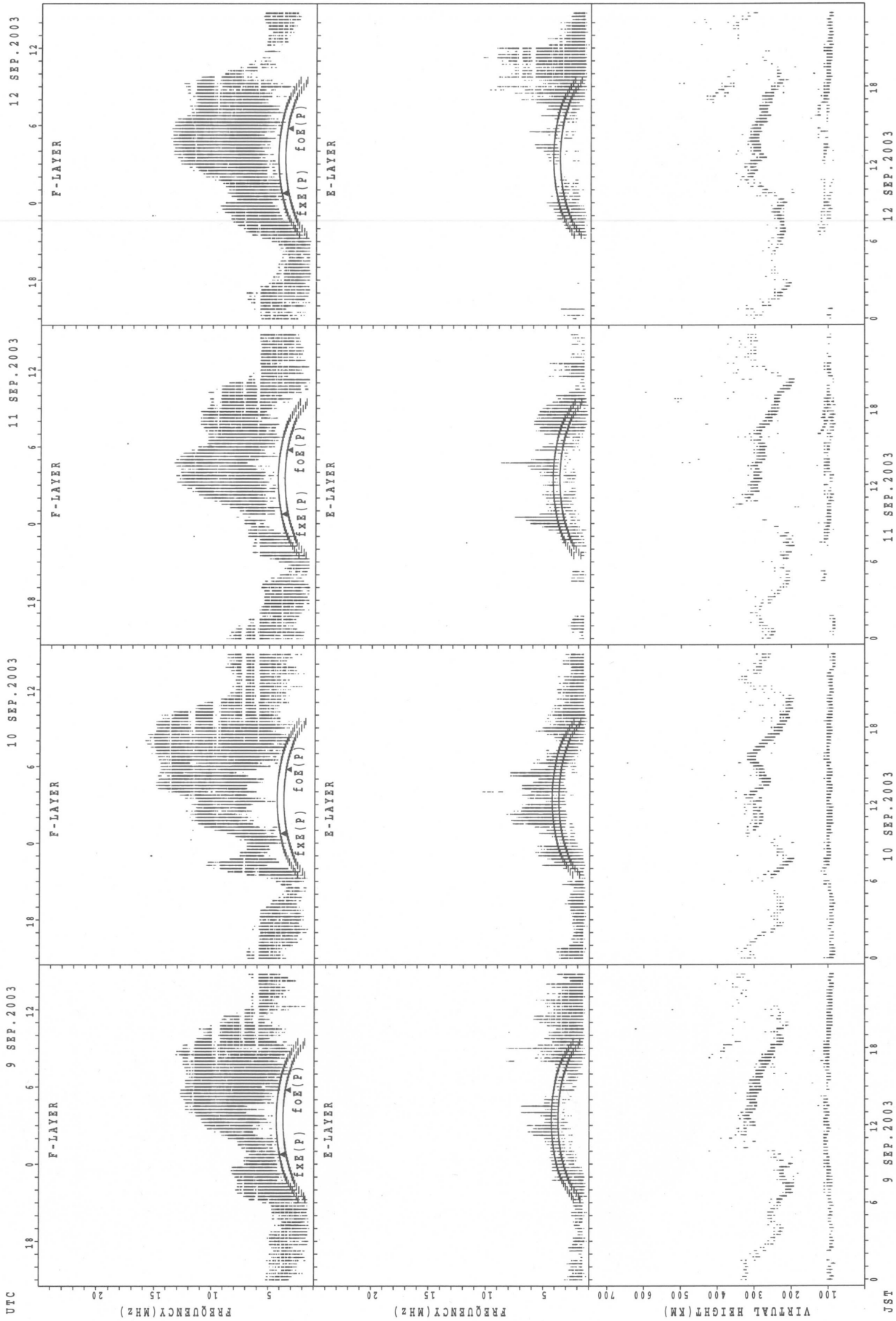
fxe(P); PREDICTED VALUE FOR fxe
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa

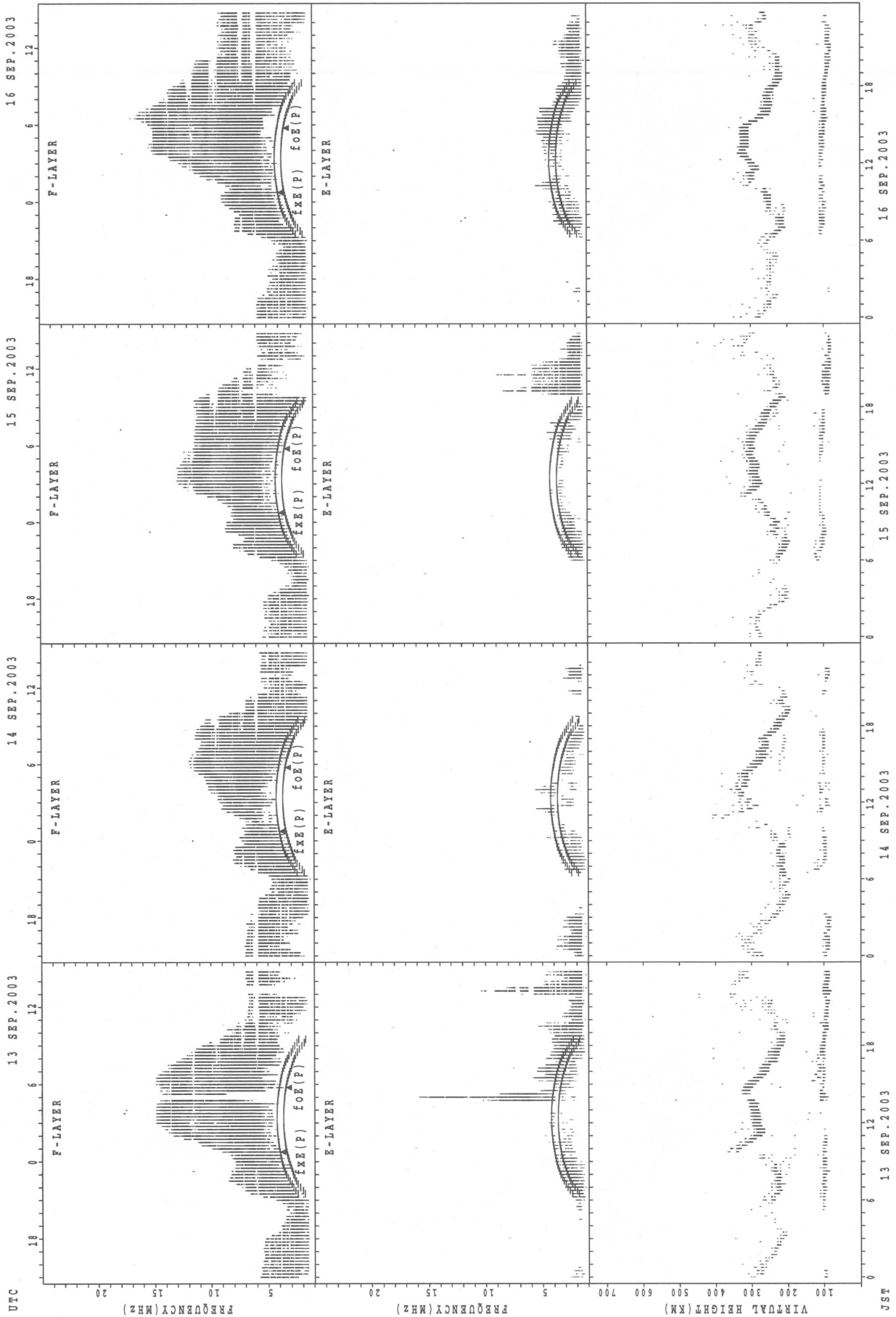


fxe(p); PREDICTED VALUE FOR fxe
foE(p); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa

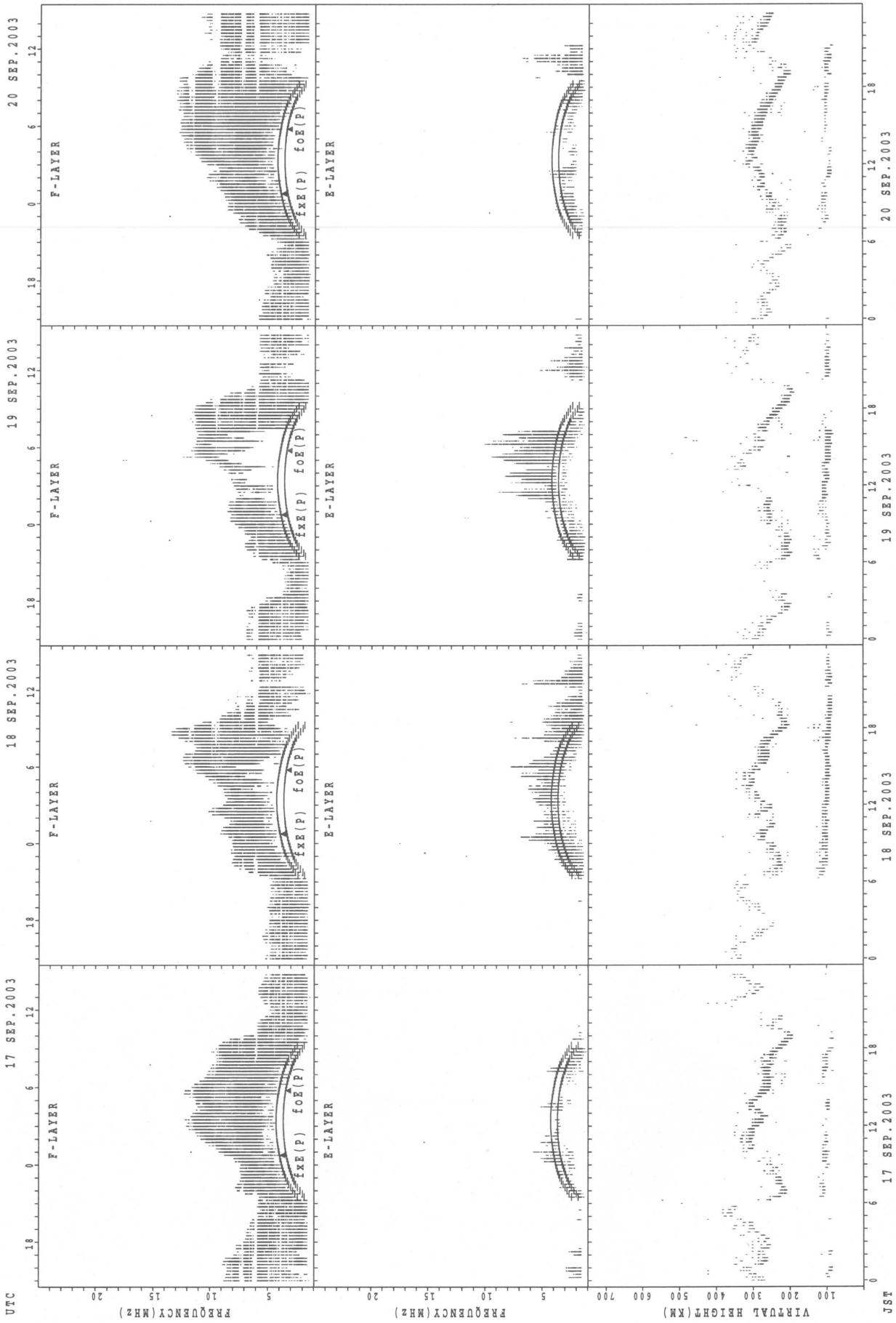


SUMMARY PLOTS AT Okinawa



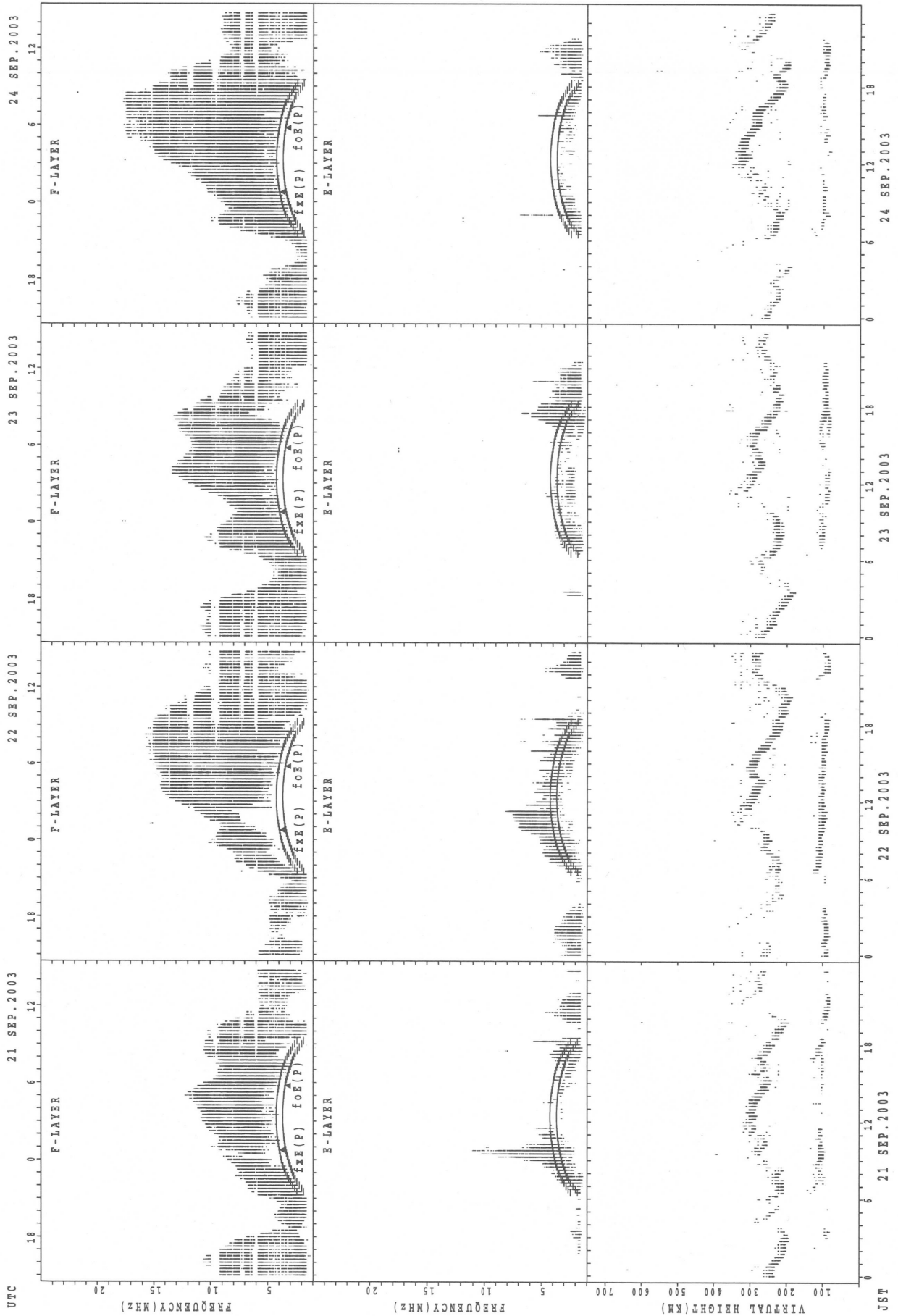
f_{xe}(P); PREDICTED VALUE FOR f_{xe}
 foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



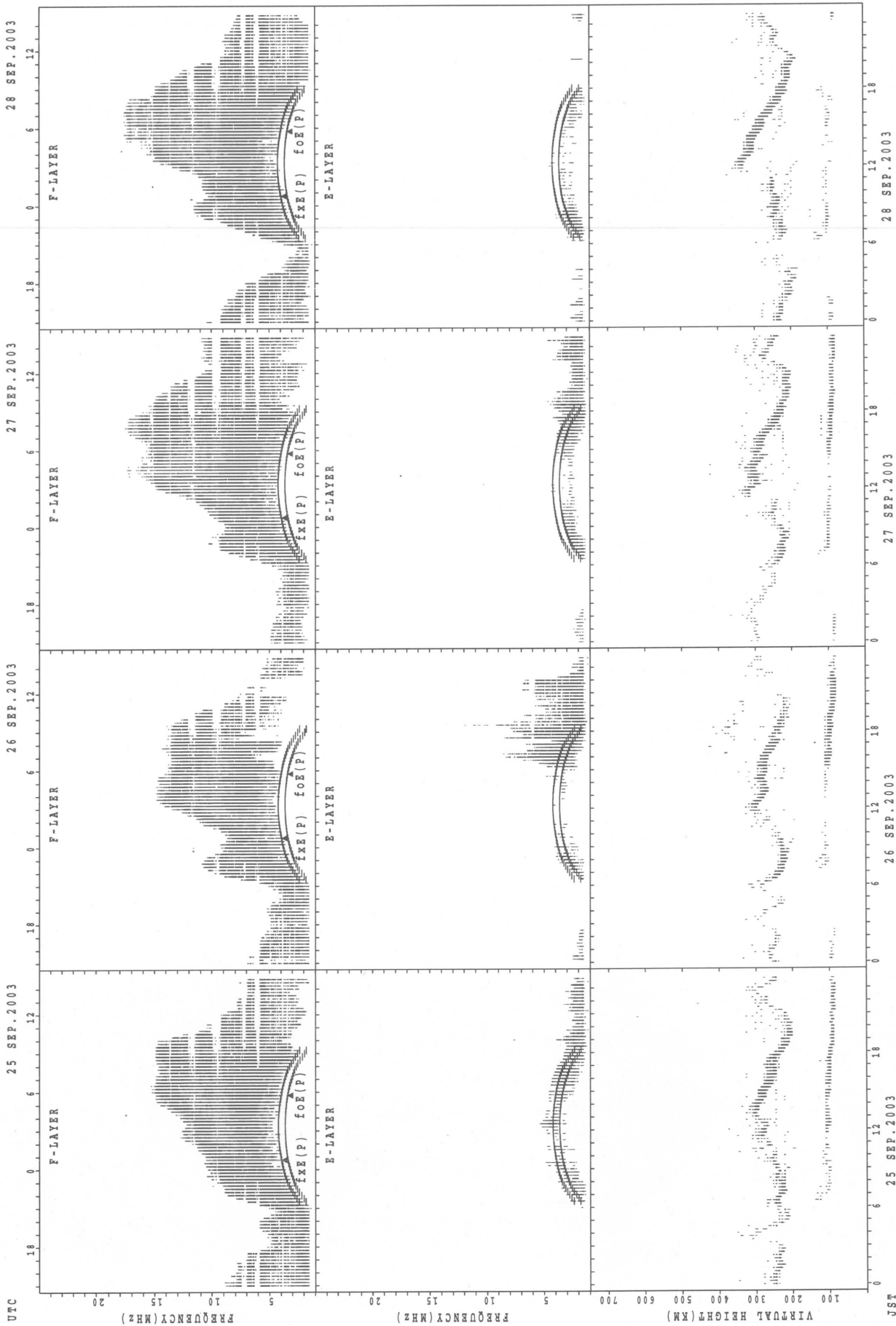
$f_xE(P)$; PREDICTED VALUE FOR f_xE
 $f_oE(P)$; PREDICTED VALUE FOR f_oE

SUMMARY PLOTS AT Okinawa



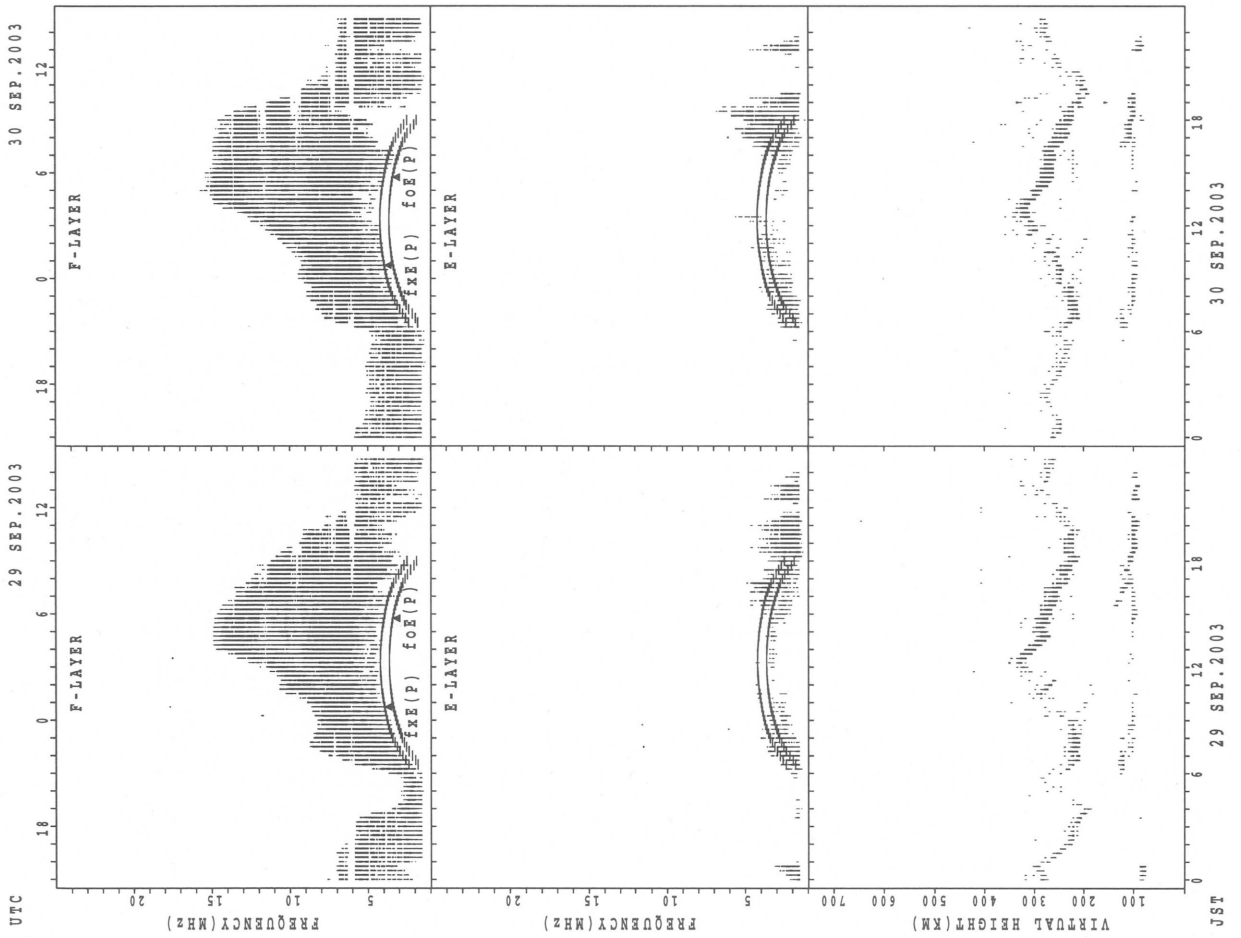
fxe(P); PREDICTED VALUE FOR fxe
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



f_xE(P); PREDICTED VALUE FOR f_xE
f_oE(P); PREDICTED VALUE FOR f_oE

SUMMARY PLOTS AT Okinawa



$f_xE(P)$; PREDICTED VALUE FOR f_xE
 $f_oE(P)$; PREDICTED VALUE FOR f_oE

MONTHLY MEDIANS OF h'F AND h'Es
 SEP. 2003 135E MEAN TIME (UTC+9H) AUTOMATIC SCALING

h'F STATION Wakkanai LAT. 45'23.5'N LON. 141'41.2'E

| | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
|-----|-----|----|----|----|----|----|-----|-----|-----|----|----|----|----|----|----|-----|-----|-----|-----|-----|-----|-----|----|----|
| CNT | | 1 | | | | | 9 | 13 | 16 | | | | | | | 22 | 25 | 22 | 15 | 8 | 9 | 3 | | |
| MED | 392 | | | | | | 248 | 248 | 254 | | | | | | | 264 | 274 | 263 | 264 | 269 | 264 | 286 | | |
| U Q | 196 | | | | | | 261 | 264 | 266 | | | | | | | 288 | 287 | 270 | 272 | 279 | 276 | 328 | | |
| L Q | 196 | | | | | | 237 | 238 | 236 | | | | | | | 258 | 261 | 256 | 256 | 263 | 254 | 246 | | |

h'Es

| | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|-----|-----|
| CNT | 11 | 4 | 9 | 10 | 14 | 16 | 16 | 14 | 13 | 11 | 8 | 8 | 6 | 9 | 6 | 10 | 13 | 12 | 19 | 14 | 11 | 12 | 8 | 5 |
| MED | 97 | 98 | 103 | 105 | 107 | 103 | 103 | 103 | 105 | 109 | 103 | 103 | 103 | 103 | 99 | 99 | 103 | 108 | 101 | 98 | 101 | 99 | 101 | 97 |
| U Q | 101 | 101 | 112 | 113 | 111 | 104 | 107 | 109 | 112 | 113 | 105 | 105 | 105 | 107 | 103 | 101 | 113 | 114 | 107 | 107 | 107 | 99 | 103 | 103 |
| L Q | 91 | 96 | 95 | 97 | 101 | 97 | 97 | 103 | 103 | 103 | 100 | 99 | 101 | 100 | 97 | 95 | 94 | 105 | 95 | 95 | 97 | 96 | 97 | 94 |

h'F STATION Kokubunji LAT. 35'42.4'N LON. 139'29.3'E

| | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
|-----|-----|----|----|----|----|----|-----|-----|-----|----|----|----|----|----|----|-----|-----|-----|-----|-----|-----|----|----|----|
| CNT | 1 | | | | | | 13 | 26 | 27 | | | | | | | 20 | 27 | 29 | 28 | 17 | 2 | | | |
| MED | 346 | | | | | | 248 | 232 | 242 | | | | | | | 268 | 266 | 256 | 253 | 250 | 231 | | | |
| U Q | 173 | | | | | | 257 | 250 | 254 | | | | | | | 276 | 278 | 264 | 262 | 273 | 248 | | | |
| L Q | 173 | | | | | | 233 | 224 | 230 | | | | | | | 263 | 262 | 248 | 241 | 241 | 214 | | | |

h'Es

| | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
|-----|----|-----|----|-----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|----|
| CNT | 10 | 5 | 9 | 5 | 5 | 6 | 13 | 12 | 12 | 10 | 11 | 9 | 13 | 10 | 6 | 9 | 12 | 19 | 16 | 22 | 18 | 15 | 14 | 13 |
| MED | 96 | 95 | 95 | 97 | 95 | 104 | 111 | 110 | 105 | 103 | 109 | 103 | 103 | 104 | 103 | 103 | 105 | 105 | 99 | 98 | 97 | 97 | 97 | 95 |
| U Q | 97 | 106 | 99 | 101 | 96 | 105 | 116 | 117 | 110 | 113 | 113 | 109 | 106 | 107 | 103 | 106 | 112 | 113 | 103 | 103 | 101 | 101 | 97 | 98 |
| L Q | 91 | 89 | 91 | 95 | 92 | 101 | 107 | 104 | 102 | 103 | 103 | 101 | 101 | 99 | 97 | 101 | 97 | 99 | 94 | 97 | 95 | 95 | 95 | 94 |

h'F STATION Yamakawa LAT. 31'12.1'N LON. 130'37.1'E

| | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
|-----|----|----|----|----|----|----|----|-----|-----|-----|----|----|----|----|----|-----|-----|-----|-----|-----|-----|-----|----|----|
| CNT | | | | | | | | 23 | 29 | 19 | | | | | | 3 | 29 | 30 | 29 | 23 | 6 | 1 | | |
| MED | | | | | | | | 230 | 238 | 238 | | | | | | 270 | 278 | 254 | 238 | 242 | 250 | 306 | | |
| U Q | | | | | | | | 242 | 256 | 252 | | | | | | 270 | 288 | 262 | 247 | 256 | 286 | 153 | | |
| L Q | | | | | | | | 224 | 224 | 228 | | | | | | 262 | 266 | 252 | 230 | 232 | 230 | 153 | | |

h'Es

| | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
|-----|----|----|----|----|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|-----|----|----|
| CNT | 12 | 11 | 8 | 5 | 3 | 2 | 4 | 20 | 20 | 15 | 17 | 7 | 7 | 8 | 6 | 9 | 14 | 20 | 18 | 22 | 23 | 18 | 20 | 15 |
| MED | 97 | 97 | 93 | 97 | 89 | 93 | 121 | 112 | 106 | 105 | 103 | 105 | 103 | 103 | 105 | 99 | 104 | 103 | 101 | 99 | 95 | 96 | 95 | 95 |
| U Q | 98 | 97 | 95 | 99 | 89 | 95 | 130 | 120 | 110 | 111 | 110 | 113 | 109 | 104 | 107 | 109 | 111 | 109 | 105 | 103 | 99 | 101 | 99 | 97 |
| L Q | 95 | 95 | 90 | 95 | 87 | 91 | 116 | 107 | 103 | 103 | 99 | 99 | 99 | 100 | 97 | 95 | 99 | 96 | 95 | 95 | 95 | 91 | 92 | 93 |

MONTHLY MEDIANS OF h'F AND h'Es
 SEP. 2003 135E MEAN TIME (UTC+9H) AUTOMATIC SCALING

h'F STATION Okinawa LAT. 26'40.5'N LON. 128'09.2'E

| | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
|-----|-----|-----|-----|-----|----|----|----|-----|-----|-----|----|----|----|----|----|----|-----|-----|-----|-----|-----|-----|-----|-----|
| CNT | 7 | 9 | 7 | 3 | | | | 25 | 29 | 27 | | | | | | | 30 | 30 | 30 | 29 | 17 | 8 | 7 | 6 |
| MED | 294 | 280 | 272 | 222 | | | | 232 | 232 | 246 | | | | | | | 266 | 253 | 230 | 230 | 232 | 273 | 302 | 298 |
| U Q | 304 | 319 | 280 | 264 | | | | 238 | 243 | 258 | | | | | | | 278 | 258 | 238 | 238 | 246 | 322 | 332 | 304 |
| L Q | 272 | 263 | 248 | 214 | | | | 225 | 222 | 234 | | | | | | | 258 | 242 | 222 | 221 | 219 | 251 | 278 | 278 |

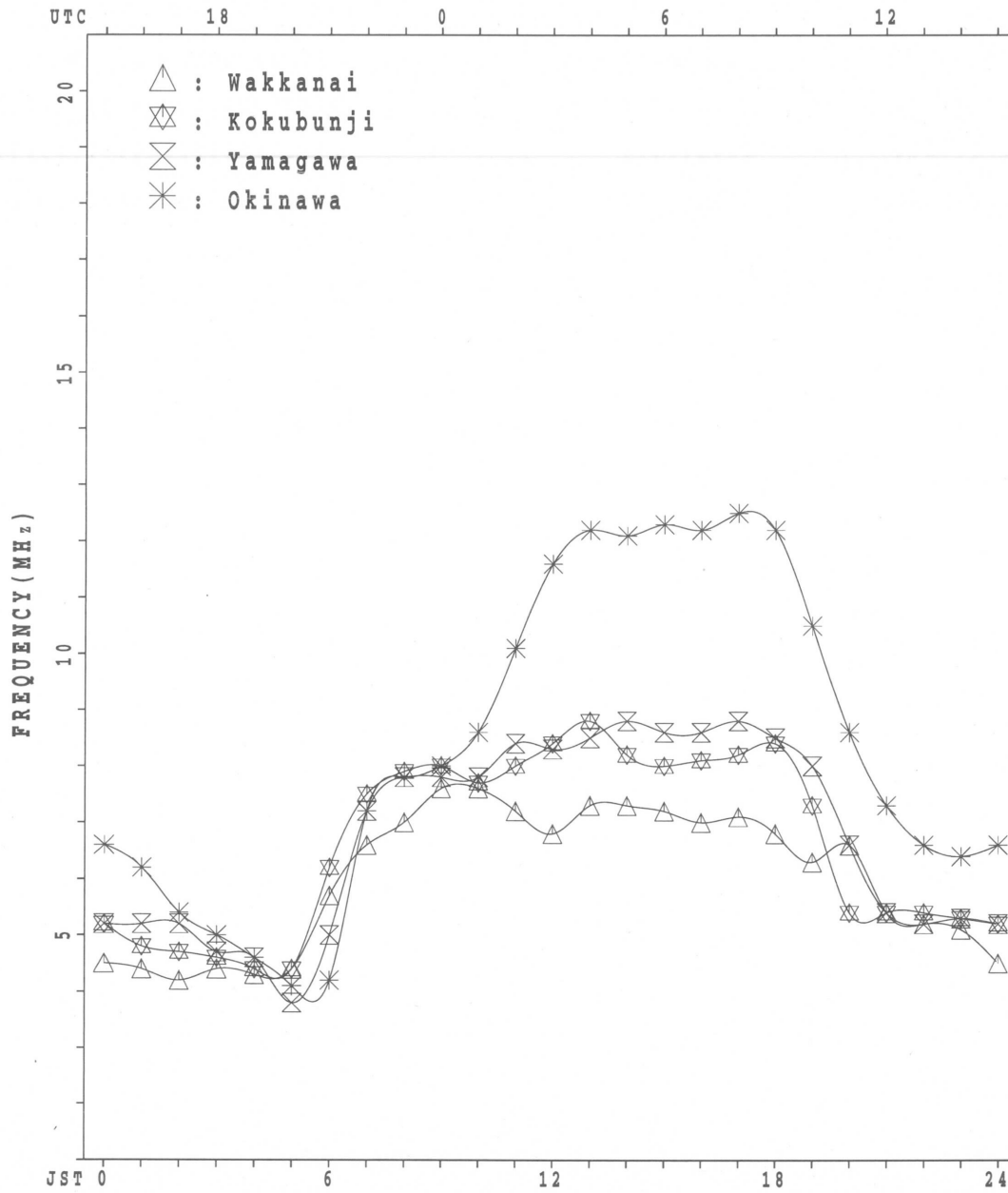
h'Es

| | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
|-----|----|----|----|----|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|----|----|----|
| CNT | 9 | 10 | 8 | 7 | 4 | 6 | 10 | 17 | 19 | 16 | 17 | 15 | 14 | 12 | 13 | 13 | 18 | 23 | 23 | 22 | 21 | 21 | 23 | 15 |
| MED | 97 | 91 | 91 | 93 | 93 | 95 | 108 | 113 | 107 | 106 | 109 | 105 | 105 | 106 | 103 | 103 | 104 | 103 | 99 | 97 | 95 | 95 | 93 | 93 |
| U Q | 97 | 95 | 95 | 97 | 94 | 97 | 117 | 119 | 113 | 111 | 115 | 111 | 109 | 108 | 107 | 108 | 111 | 111 | 105 | 101 | 99 | 97 | 97 | 97 |
| L Q | 93 | 89 | 90 | 91 | 92 | 95 | 99 | 108 | 103 | 101 | 102 | 99 | 101 | 99 | 99 | 100 | 99 | 101 | 97 | 93 | 91 | 89 | 91 | 89 |

MONTHLY MEDIANS PLOT OF foF2

SEP. 2003

AUTOMATIC SCALING



IONOSPHERIC DATA STATION Kokubunji

SEP. 2003 f_{XI} (0.1MHz)

135°E MEAN TIME (G.M.T. + 9 H)

LAT. 35°42.4'N LON. 139°29.3'E SWEEP 1.0MHz TO 30.0MHz IN 15.0SEC IN MANUAL SCALING

| H D | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | | |
|--------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|-----|-----|----|----|----|----|
| 1 | X | 62 | 65 | 65 | 59 | 54 | | | | | | | | | | | | C | | X | 80 | 79 | 76 | 74 | 75 | |
| 2 | X | 73 | 73 | 66 | 64 | 58 | | | | | | | | | | | | | | X | 85 | 72 | 72 | 73 | 74 | |
| 3 | X | 72 | 66 | 65 | 71 | 54 | | | | | | | | | | | | | | X | 85 | 76 | 73 | 72 | 74 | |
| 4 | X | 66 | 66 | 66 | 63 | 52 | | | | | | | | | | | | | | X | 84 | 77 | 72 | 70 | 70 | |
| 5 | X | 70 | 66 | 68 | 62 | 59 | | | | | | | | | | | | | | X | 83 | 66 | 71 | 70 | 70 | |
| 6 | X | 65 | 64 | 62 | 58 | 56 | | | | | | | | | | | | | | X | 84 | 75 | 66 | 66 | 66 | |
| 7 | X | 64 | 59 | 58 | 55 | 55 | | | | | | | | | | | | | | X | 86 | 65 | 67 | 68 | 60 | |
| 8 | X | 57 | 57 | 58 | 54 | 53 | 55 | | | | | | | | | | | | | X | 93 | 68 | 64 | 64 | 60 | |
| 9 | X | 58 | 54 | 53 | 52 | 49 | 50 | | | | | | | | | | | | | X | 104 | 100 | 78 | 57 | 59 | 67 |
| 10 | X | 56 | 52 | 58 | 53 | 45 | 44 | | | | | | | | | | | | | X | 102 | 77 | 66 | 62 | 65 | 62 |
| 11 | X | 57 | 53 | 54 | 50 | 50 | 55 | | | | | | | | | | | | | X | 85 | 82 | 66 | 65 | 66 | 72 |
| 12 | X | 56 | 50 | 47 | 47 | 47 | 50 | | | | | | | | | | | | | X | 88 | 98 | 68 | 51 | 51 | 52 |
| 13 | X | 52 | 50 | 49 | 49 | 46 | 45 | | | | | | | | | | | | | X | 102 | 85 | 64 | 63 | 59 | 56 |
| 14 | X | 52 | 51 | 51 | 50 | 52 | 52 | | | | | | | | | | | | | X | 83 | 88 | 74 | 68 | 65 | 64 |
| 15 | X | 58 | 59 | 58 | 57 | 53 | 48 | | | | | | | | | | | | | X | 85 | 90 | 81 | 69 | 65 | 66 |
| 16 | X | 62 | 60 | 56 | 51 | 49 | 49 | | | | | | | | | | | | | X | 80 | 77 | 72 | 73 | 72 | 72 |
| 17 | X | 66 | 67 | 63 | 60 | 57 | 52 | | | | | | | | | | | | | X | 71 | 69 | 67 | 62 | 62 | 56 |
| 18 | X | 55 | 56 | 56 | 59 | 53 | 42 | | | | | | | | | | | | | X | 80 | 64 | 55 | 56 | 56 | 56 |
| 19 | X | 54 | 55 | 58 | 43 | 40 | 38 | | | | | | | | | | | | | X | 71 | 63 | 60 | 58 | 59 | 59 |
| 20 | X | 56 | 55 | 51 | 50 | 49 | 50 | | | | | | | | | | | | | X | 98 | 61 | 49 | 52 | 54 | 51 |
| 21 | X | 52 | 51 | 54 | 44 | 41 | 42 | | | | | | | | | | | | | X | 99 | 74 | A | X | X | X |
| 22 | X | 51 | 49 | 46 | | 48 | 41 | | | | | | | | | | | | | X | 96 | 84 | 65 | 62 | 63 | 62 |
| 23 | X | 63 | 58 | 58 | 58 | 52 | 49 | | | | | | | | | | | | | X | 85 | 74 | 67 | 65 | 62 | 61 |
| 24 | X | 62 | 58 | 55 | 55 | 48 | 48 | | | | | | | | | | | | | X | 92 | 79 | 68 | 63 | 65 | 62 |
| 25 | X | 57 | 58 | 54 | 51 | 52 | 50 | | | | | | | | | | | | | X | 95 | 72 | 69 | 63 | 60 | 63 |
| 26 | X | 59 | 58 | 53 | 52 | 52 | 49 | | | | | | | | | | | | | X | 96 | 74 | 71 | 61 | 52 | 51 |
| 27 | X | 46 | 46 | 45 | 46 | 44 | 46 | | | | | | | | | | | | | X | 88 | 72 | 63 | 64 | 66 | 66 |
| 28 | X | 58 | 54 | 51 | 44 | 38 | 37 | | | | | | | | | | | | | X | 90 | 74 | 65 | 60 | 58 | 58 |
| 29 | X | 57 | 56 | 56 | 54 | 50 | 45 | | | | | | | | | | | | | X | 77 | 73 | 68 | 66 | 67 | 67 |
| 30 | X | 62 | 60 | 59 | 62 | 61 | 60 | | | | | | | | | | | | | X | 86 | 67 | 64 | 62 | 60 | 60 |
| 31 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | | |
| CNT | 30 | 30 | 30 | 29 | 30 | 23 | | | | | | | | | | | | | | 22 | 30 | 29 | 30 | 30 | 30 | |
| MED | X | X | X | X | X | X | | | | | | | | | | | | | | X | 88 | 80 | 68 | 64 | 64 | 62 |
| U Q | X | X | X | X | X | X | | | | | | | | | | | | | | X | 96 | 85 | 73 | 68 | 67 | 67 |
| L Q | X | X | X | X | X | X | | | | | | | | | | | | | | X | 83 | 73 | 65 | 61 | 59 | 58 |

SEP. 2003 f_{XI} (0.1MHz)

COMMUNICATIONS RESEARCH LABORATORY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

SEP. 2003 foF2 (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

LAT. 35°42.4'N LON. 139°29.3'E SWEEP 1.0MHz TO 30.0MHz IN 15.0SEC IN MANUAL SCALING

| D ^H | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
|----------------|-----------------|-----------------|----|--------------|-----------------|----|-----------------|-----------------|----|-----|-----------------|-----------------|-----|-----|-----|-----|--------------|-----|----|----|--------------|----|----|--------------|
| 1 | 56 | 52 ^F | | 53 | 47 | 45 | 57 | 72 | 84 | 80 | 81 | 75 | 75 | 77 | 72 | 71 | ^C | 76 | 79 | 74 | 73 | 70 | 68 | 68 |
| 2 | 67 | 67 | 60 | 58 | 52 | 56 | 88 | 72 | 72 | 63 | 79 | 75 | 80 | 90 | 102 | 98 | 80 | 81 | 88 | 79 | 66 | 66 | 67 | 68 |
| 3 | 66 | 60 | 59 | 65 | 48 | 40 | 54 | 69 | 80 | 82 | 92 | 91 ^R | 88 | 90 | 87 | 80 | 82 | 82 | 88 | 79 | 70 | 67 | 66 | 68 |
| 4 | 60 | 60 | 60 | 57 | 46 | 44 | 72 | 76 | 78 | 77 | 71 | 81 | 85 | 86 | 82 | 77 | 84 | 103 | 96 | 78 | 71 | 66 | 64 | 64 |
| 5 | 64 | 60 | 62 | 56 | 53 | 56 | 61 | 61 | 60 | 56 | 75 | 80 | 77 | 75 | 85 | 84 | 82 | 85 | 84 | 77 | 60 | 65 | 64 | 64 |
| 6 | 59 | 58 | 56 | 52 | 50 | 41 | 60 | 69 | 68 | 68 | 70 | 75 | 76 | 75 | 83 | 80 | 82 | 91 | 85 | 78 | 69 | 60 | 60 | 60 |
| 7 | 58 | 53 | 52 | 49 | 49 | 49 | 74 | 81 | 83 | 74 | 74 | 72 | 81 | 94 | 82 | 84 | 86 | 89 | 88 | 80 | 59 | 61 | 62 | 54 |
| 8 | 51 | 51 | 52 | 48 | 47 | 49 | 70 | 82 ^H | 79 | 83 | 92 ^H | 87 | 93 | 91 | 75 | 79 | 75 | 79 | 97 | 87 | 62 | 58 | 58 | 54 |
| 9 | 52 | 48 | 47 | 46 | 43 | 44 | 63 | 102 | 99 | 75 | 66 | 74 | 86 | 84 | 78 | 81 | 80 | 90 | 98 | 94 | 72 | 50 | 53 | ^F |
| 10 | 50 | 46 | 52 | 47 | 39 ^S | 38 | 56 | 76 | 86 | 72 | 81 | 71 | 84 | 96 | 74 | 66 | 74 | 84 | 96 | 71 | 60 | 56 | 59 | 55 |
| 11 | 51 | 47 | 48 | 44 | 44 | 49 | 66 ^Z | 62 | 65 | 61 | 65 | 74 | 81 | 69 | 74 | 71 | 73 | 72 | 79 | 76 | 60 | 59 | 60 | 65 |
| 12 | 50 | 44 | 41 | 41 | 41 | 44 | 62 | 71 | 81 | 82 | 74 | 68 | 84 | 79 | 76 | 75 | 78 | 74 | 82 | 91 | 62 | 45 | 45 | 46 |
| 13 | 46 | 44 | 43 | 43 | 40 | 39 | 68 | 78 | 82 | 74 | 65 | 75 | 87 | 88 | 82 | 70 | 72 | 83 | 96 | 79 | 58 | 57 | 53 | 50 |
| 14 | 46 | 45 | 45 | 44 | 46 | 46 | 73 | 69 | 71 | 69 | 70 | 64 | 74 | 84 | 87 | 80 | 74 | 78 | 77 | 82 | 68 | 62 | 59 | 58 |
| 15 | 55 | 53 | 52 | 51 | 47 | 42 | 64 | 85 ^Z | 81 | 79 | 75 | 75 | 80 | 78 | 74 | 69 | 72 | 76 | 79 | 84 | 75 | 63 | 59 | 60 |
| 16 | 56 | 54 | 50 | 45 | 43 | 43 | 63 | 82 | 79 | 81 | 88 | 98 | 84 | 87 | 75 | 96 | 83 | 81 | 74 | 71 | 66 | 67 | 66 | 66 |
| 17 | 60 | 61 | 57 | 54 | 51 | 46 | 58 | 75 | 74 | 76 | 76 | 91 | 88 | 86 | 82 | 75 | 66 | 64 | 65 | 63 | 61 | 56 | 55 | 50 |
| 18 | 49 | 50 | 50 | 53 | 47 | 36 | 51 | 63 | 86 | 88 | 80 | 85 | 75 | 67 | 68 | 75 | 72 | 84 | 74 | 58 | 49 | 50 | 50 | 50 |
| 19 | 48 | 49 | 52 | 37 | 34 | 32 | 54 | 60 | 63 | 56 | 54 | 59 | 63 | 64 | 63 | 62 | 71 | 71 | 65 | 56 | 54 | 52 | 53 | 53 |
| 20 | 50 ^Z | 49 | 45 | 44 | 43 | 44 | 58 | 63 | 65 | 66 | 66 | 74 | 79 | 72 | 71 | 74 | 78 | 88 | 92 | 55 | 43 | 46 | 47 | 45 |
| 21 | 46 | 45 | 48 | 38 | 36 | 36 | 61 | 73 | 73 | 71 | 76 | 79 | 81 | 76 | 75 | 84 | 79 | 82 | 93 | 68 | ^A | 46 | 46 | 45 |
| 22 | 45 | 43 | 40 | ^A | 42 | 35 | 57 | 77 | 79 | 89 | 89 | 81 | 89 | 89 | 89 | 86 | 82 | 85 | 90 | 78 | 58 | 56 | 57 | 56 |
| 23 | 57 | 52 | 52 | 52 | 45 | 43 | 60 | 67 | 77 | 80 | 70 | 82 | 95 | 93 | 86 | 82 | 84 | 82 | 79 | 68 | 61 | 59 | 56 | 55 |
| 24 | 56 | 52 | 49 | 49 | 42 | 42 | 68 | 87 | 82 | 97 | 102 | 102 | 94 | 101 | 109 | 101 | 98 | 100 | 86 | 73 | 62 | 57 | 59 | 56 |
| 25 | 51 | 52 | 48 | 45 | 46 | 44 | 70 | 86 | 78 | 87 | 104 | 114 | 104 | 98 | 92 | 82 | 83 | 94 | 88 | 65 | 62 | 56 | 54 | 57 |
| 26 | 53 | 52 | 47 | 46 | 46 | 42 | 64 | 80 | 77 | 82 | 78 | 86 | 89 | 86 | 83 | 76 | 75 | 84 | 90 | 68 | 65 | 54 | 46 | 45 |
| 27 | 40 | 40 | 39 | 40 | 38 | 40 | 63 | 78 | 82 | 79 | 98 | 94 | 100 | 103 | 94 | 87 | 80 | 90 | 82 | 66 | 57 | 58 | 60 | 60 |
| 28 | 52 | 48 | 45 | 38 | 32 | 31 | 54 | 74 | 95 | 100 | 90 | 98 | 101 | 94 | 93 | 86 | 83 | 89 | 84 | 68 | 59 | 54 | 52 | 52 |
| 29 | 51 | 50 | 50 | 48 | 44 | 39 | 58 | 75 | 90 | 85 | 83 | 87 | 89 | 90 | 92 | 96 | 90 | 81 | 71 | 67 | 61 | 60 | 61 | 60 |
| 30 | 56 | 54 | 53 | 56 | 55 | 54 | 78 | 81 | 87 | 89 | 85 | 88 | 94 | 95 | 102 | 96 | 93 | 86 | 80 | 61 | 58 | 56 | 54 | 54 |
| 31 | | | | | | | | | | | | | | | | | | | | | | | | |
| | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
| CNT | 30 | 30 | 29 | 29 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 29 | 30 | 30 | 30 | 29 | 30 | 30 | 29 |
| MED | 52 | 52 | 50 | 48 | 46 | 43 | 62 | 75 | 79 | 79 | 77 | 80 | 84 | 86 | 82 | 80 | 80 | 84 | 84 | 74 | 61 | 58 | 58 | 56 |
| U Q | 57 | 54 | 52 | 53 | 47 | 46 | 68 | 81 | 83 | 83 | 88 | 88 | 89 | 93 | 89 | 86 | 83 | 89 | 90 | 79 | 67 | 62 | 61 | 62 |
| L Q | 50 | 47 | 46 | 44 | 42 | 39 | 58 | 69 | 73 | 71 | 70 | 74 | 80 | 77 | 75 | 75 | 74 | 79 | 79 | 67 | 58 | 54 | 53 | 51 |

IONOSPHERIC DATA STATION Kokubunji

SEP. 2003 foF1 (0.01MHz) 135°E MEAN TIME (G.M.T. + 9 H)

LAT. 35°42.4'N LON. 139°29.3'E SWEEP 1.0MHz TO 30.0MHz IN 15.0SEC IN MANUAL SCALING

| H D | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
|--------|----|----|----|----|----|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|----|----|----|----|----|----|
| 1 | | | | | | | | L | L | L | A | A | A | L | A | A | C | A | | | | | | |
| 2 | | | | | | | | | L | L | L | L | L | A | A | A | L | A | | | | | | |
| 3 | | | | | | A | | L | L | L | A | U | L | A | L | L | A | L | | | | | | |
| 4 | | | | | | | | A | A | A | L | A | L | L | A | L | L | L | | | | | | |
| 5 | | | | | | | | | A | L | | A | L | A | A | L | L | L | | | | | | |
| 6 | | | | | | | | | L | L | L | L | L | L | L | L | L | L | | | | | | |
| 7 | | | | | | | | | L | L | L | L | L | L | L | L | L | L | | | | | | |
| 8 | | | | | | | | | L | L | L | L | L | L | L | L | L | A | L | | | | | |
| 9 | | | | | | | | L | A | L | L | L | L | A | A | L | L | L | L | | | | | |
| 10 | | | | | | | | | A | A | L | L | L | L | L | L | L | L | L | | | | | |
| 11 | | | | | | | | | L | U | L | L | L | U | L | L | L | L | | | | | | |
| 12 | | | | | | | | | L | L | L | L | L | L | L | L | L | L | | | | | | |
| 13 | | | | | | | | | L | L | L | L | L | L | L | L | L | L | L | | | | | |
| 14 | | | | | | | | | L | L | L | L | L | L | L | L | L | L | L | | | | | |
| 15 | | | | | | | | | L | L | L | L | L | L | L | L | L | L | L | | | | | |
| 16 | | | | | | | | | L | L | L | L | L | L | L | L | L | L | | | | | | |
| 17 | | | | | | | | L | L | A | A | L | L | L | L | L | L | L | | | | | | |
| 18 | | | | | | | | | L | L | L | L | L | L | L | L | L | L | L | | | | | |
| 19 | | | | | | | | | L | L | L | L | L | L | L | L | L | L | L | | | | | |
| 20 | | | | | | | | | L | L | A | L | L | L | L | L | L | L | L | | | | | |
| 21 | | | | | | | | | L | L | L | L | L | L | L | L | L | L | A | | | | | |
| 22 | | | | | | | | | L | A | A | L | L | L | L | L | L | L | L | | | | | |
| 23 | | | | | | | | | L | L | L | L | L | L | L | L | L | L | L | | | | | |
| 24 | | | | | | | | | L | L | L | L | L | L | L | L | L | L | L | | | | | |
| 25 | | | | | | | | | A | L | L | L | L | L | L | L | L | L | L | | | | | |
| 26 | | | | | | | | | L | L | L | L | L | L | L | L | L | L | L | | | | | |
| 27 | | | | | | | | | L | L | L | L | L | L | L | L | L | L | L | | | | | |
| 28 | | | | | | | | | L | L | L | L | L | L | L | L | L | L | L | | | | | |
| 29 | | | | | | | | | L | L | L | L | L | L | L | L | L | L | L | | | | | |
| 30 | | | | | | | | | L | L | L | L | L | L | L | L | L | L | L | | | | | |
| 31 | | | | | | | | | | | | | | | | | | | | | | | | |
| | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
| CNT | | | | | | | | 1 | 3 | 10 | 14 | 18 | 20 | 13 | 10 | 5 | 1 | | | | | | | |
| MED | | | | | | | | L | L | L | L | L | L | L | L | L | L | L | L | | | | | |
| U Q | | | | | | | | 472 | 472 | 476 | 484 | 502 | 496 | 488 | 486 | 452 | 464 | | | | | | | |
| L Q | | | | | | | | L | L | L | L | L | L | L | L | L | L | L | L | | | | | |

IONOSPHERIC DATA STATION Kokubunji

SEP. 2003 foE (0.01MHz) 135°E MEAN TIME (G.M.T. + 9 H)

LAT. 35°42.4'N LON. 139°29.3'E SWEEP 1.0MHz TO 30.0MHz IN 15.0SEC IN MANUAL SCALING

| H D | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
|--------|----|----|----|----|----|-------|---------|-------|-------|-------|-------|-------|-------|---------|---------|-------|---------|-----|----|----|----|----|----|----|
| 1 | | | | | | E C | | A U A | A A | A A | A A | A A | A A | A A | A A | A A | C | A | B | | | | | |
| 2 | | | | | | B U A | 232 | A A | A A | A A | A A | A A | R U A | A A | A A | A U A | A A | A B | | | | | | |
| 3 | | | | | | B U A | 196 | B A | A A | A A | A A | A A | A A | A A | A A | A A | A A | A B | | | | | | |
| 4 | | | | | | B | 204 | A A | A A | A A | A A | A A | A A | A A | A A | A A | A A | A A | | | | | | |
| 5 | | | | | | B | 212 | A A | A B | A A | A A | A A | A A | A A | A A | A A | A A | A A | | | | | | |
| 6 | | | | | | B | 208 276 | U R | A U R | R | R U R | R U R | A U A | A A | A A | A A | A A | A B | | | | | | |
| 7 | | | | | | B U A | 184 | A A | R U R | R R | R R | R R | R U R | A U A | A A | A A | A A | A B | | | | | | |
| 8 | | | | | | U R | 220 | A U R | A R | R R | A R | A R | R U A | A U A | A A | A A | A A | A B | | | | | | |
| 9 | | | | | | | | A A | A A | A R | R R | A A | A A | A U R | R U A | A U A | A A | | | | | | | |
| 10 | | | | | | U A | 184 | A A | A A | A A | A A | A A | A R U | R U R | R R | A A | A A | | | | | | | |
| 11 | | | | | | | | A A | A A | A R | R R | R R | R R | R U R | R U R | R U A | A A | | | | | | | |
| 12 | | | | | | U A U | 204 252 | A A | A R | R B | R B | R B | R U R | R U R | R U R | R U R | U A | | | | | | | |
| 13 | | | | | | U A | 180 252 | A R | A R U | R R | R R | R R | R U A | A U A | A U A | A U A | A A | | | | | | | |
| 14 | | | | | | | | A A | A A | A A | A A | A A | A A | A A | A A | A A | U A U | A A | | | | | | |
| 15 | | | | | | A U R | 276 | A A | A A | A R | A A | A A | A A | A A | A A | A A | U A U | A A | | | | | | |
| 16 | | | | | | U A U | 164 284 | A A | A A | A A | A A | A A | A A | A A | A A | A A | A A | A A | | | | | | |
| 17 | | | | | | | | A A | A A | A A | A A | A A | A B | R U R | R R | R U A | A A | | | | | | | |
| 18 | | | | | | A U A | 252 | A A | A A | A A | A A | A A | A R U | R R | U R | A A | | | | | | | | |
| 19 | | | | | | 212 | | E C | A A | A A | A A | A A | A A | A A | A A | A A | A U R | A A | | | | | | |
| 20 | | | | | | B U R | 284 | A A | A A | A A | A A | A A | A A | A U R | R R | A U R | A A | | | | | | | |
| 21 | | | | | | U R | 208 | A A | A A | A A | A A | A A | A A | A A | A A | A A | A U A | A A | | | | | | |
| 22 | | | | | | U A U | 188 244 | A U A | A A | A A | A A | A A | A A | A A | A A | A A | A A | A A | | | | | | |
| 23 | | | | | | A | | R U A | R R | R R | R R | R R | R R | R U R | R R | A A | A A | | | | | | | |
| 24 | | | | | | B | | A U A | A A | A A | A A | A U R | R R | R R | R R | B | 192 | | | | | | | |
| 25 | | | | | | B U A | 252 | A A | A R | R R | R R | A A | A A | A R | A U R | A U R | 272 188 | | | | | | | |
| 26 | | | | | | U R | 192 | R R | R B | B R | R R | R R | R U R | R U R | R U R | R A | | | | | | | | |
| 27 | | | | | | U R U | 196 276 | R R | A R | R R | R R | R R | A R | R U R | R U R | R A | | | | | | | | |
| 28 | | | | | | U A U | 168 260 | A A | A R | R U R | R R | R R | R U R | R U R | R U A | A A | | | | | | | | |
| 29 | | | | | | B | | R A | R A | A A | A U R | R U A | A U R | A U R | R R | B | | | | | | | | |
| 30 | | | | | | B | | A U A | A A | A A | A A | A A | A A | A U R | R U A | A U A | A U A | | | | | | | |
| 31 | | | | | | | | 316 | | | | | | 344 320 | 264 196 | | | | | | | | | |
| | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
| CNT | | | | | | | 17 | 11 | 9 | 1 | 2 | 1 | 2 | 6 | 10 | 18 | 14 | 15 | | | | | | |
| MED | | | | | | | U | U A U | A U R | R U R | R U R | R U R | R U R | R U R | U R U | R U R | U | 208 | | | | | | |
| U Q | | | | | | | 210 | U R U | A A | | | | | U | U R U | R U R | U | 212 | | | | | | |
| L Q | | | | | | | 184 | U A U | A A | | | | | U | U R U | U A | 192 | | | | | | | |

IONOSPHERIC DATA STATION Kokubunji

SEP. 2003 foEs (0.1MHz)

135°E MEAN TIME (G.M.T. + 9 H)

LAT. 35°42.4'N LON. 139°29.3'E SWEEP 1.0MHz TO 30.0MHz IN 15.0SEC IN MANUAL SCALING

| H D | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
|--------|-----|-----|-----|-----|-----|---------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 1 | 19 | 19 | E B | 14 | 19 | E B E C | 29 | G | 34 | 39 | J A | J A | J A | J A | J A | J A | J A | C J | J A | J A | J A | J A | J A | J A |
| 2 | J A | E B | E B | E B | E B | E B | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | E B |
| 3 | J A | E B | E B | E B | E B | E B | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A |
| 4 | J A | J A | J A | J A | J A | E B | E B | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A |
| 5 | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | E B |
| 6 | E B | E B | E B | E B | E B | E B | J A | E B | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A |
| 7 | 19 | 20 | E B | 15 | 15 | E B | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A |
| 8 | E B | E B | E B | E B | E B | E B | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A |
| 9 | E C | E B | E B | E B | E B | E B | E B | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A |
| 10 | J A | J A | E B | E B | J A | E C | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A |
| 11 | J A | E B | E B | E B | E B | E B | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | E B |
| 12 | E B | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | E B |
| 13 | E B | E B | E B | E B | E B | E B | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A |
| 14 | J A | J A | J A | J A | J A | E B | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A |
| 15 | 24 | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A |
| 16 | J A | J A | E B | E B | E B | E B | E B | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A |
| 17 | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A |
| 18 | 22 | 19 | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | E B |
| 19 | E B | 20 | E B | 15 | 19 | 19 | 16 | E C | 29 | 35 | 41 | 72 | 59 | 48 | 61 | 68 | 41 | J A | J A | J A | J A | J A | J A | E B |
| 20 | J A | J A | E B | E B | E B | E C | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | E B |
| 21 | 19 | 19 | J A | J A | E B | E B | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A |
| 22 | J A | 36 | 32 | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A |
| 23 | E B | 15 | 19 | 19 | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A |
| 24 | J A | E B | E B | E B | E B | E B | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | E B |
| 25 | J A | J A | J A | J A | J A | J A | E B | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A |
| 26 | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | E B |
| 27 | 19 | 16 | E B | E B | E B | E B | E B | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | E B |
| 28 | E B | E B | E B | E B | E B | E B | E B | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | E B |
| 29 | E B | E B | E B | E B | E B | E B | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A |
| 30 | J A | 19 | 16 | 19 | 18 | 14 | 20 | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A |
| 31 | | | | | | | | | | | | | | | | | | | | | | | | |
| | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
| CNT | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 29 | 30 | 30 | 30 | 30 | 30 | 30 | 30 |
| MED | 19 | 19 | E B | 18 | 16 | 18 | 24 | 31 | 36 | 38 | 40 | 38 | 42 | 40 | 36 | 34 | 32 | 28 | J A | J A | J A | J A | J A | J A |
| U Q | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A |
| L Q | E B | E B | E B | E B | E B | E B | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | J A | E B |

IONOSPHERIC DATA STATION Kokubunji

SEP. 2003 fbEs (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

LAT. 35°42.4'N LON. 139°29.3'E SWEEP 1.0MHz TO 30.0MHz IN 15.0SEC IN MANUAL SCALING

| H D | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | | |
|--------|------|------|------|------|------|------|----|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|--|
| 1 | E 15 | E 16 | E 14 | E 15 | E 14 | E 29 | G | | 31 | 36 | 40 | 48 | 58 | 57 | 44 | 52 | 46 | C | 41 | 32 | 29 | 28 | 18 | E 16 | B 21 | |
| 2 | E 17 | E 16 | E 15 | E 16 | E 16 | E 16 | | 23 | 31 | 37 | 38 | 44 | 45 | U 27 | Y 62 | 64 | 50 | 33 | 41 | 52 | 51 | 20 | 22 | E 20 | B 20 | |
| 3 | E 16 | E 20 | E 16 | E 15 | E 18 | E 37 | | 25 | 32 | 39 | 43 | 46 | 38 | 40 | 48 | 36 | 34 | 40 | E 31 | B 20 | 18 | 18 | 16 | E 38 | B 29 | |
| 4 | E 35 | E 23 | E 24 | E 17 | E 15 | E 29 | | 28 | 38 | 52 | 54 | 39 | 52 | 42 | 39 | 47 | 37 | 32 | 31 | 33 | 24 | 35 | E 19 | B 14 | B 22 | |
| 5 | E 20 | E 15 | E 17 | E 15 | E 20 | E 18 | | 24 | 34 | 41 | 42 | 40 | 53 | 43 | 47 | 49 | 36 | 32 | 23 | 21 | 18 | E 14 | E 15 | E 15 | B 28 | |
| 6 | E 15 | E 15 | E 14 | E 16 | E 18 | E 15 | | 23 | 29 | 26 | 36 | 30 | 27 | 29 | 30 | 38 | 35 | 32 | 28 | 18 | 21 | E 14 | 26 | 27 | 19 | |
| 7 | E 15 | E 16 | E 15 | E 15 | E 16 | E 16 | | 22 | 28 | G 24 | 29 | 34 | 26 | 27 | 26 | 33 | 31 | 25 | 18 | 15 | E 15 | E 16 | 20 | E 16 | B 16 | |
| 8 | E 16 | E 15 | E 15 | E 15 | E 16 | E 15 | | 20 | 29 | U 24 | Y 42 | U 33 | U 33 | U 42 | U 29 | 40 | 35 | 41 | 26 | 24 | E 16 | E 14 | E 18 | E 16 | B 15 | |
| 9 | E 28 | E 15 | E 20 | E 15 | E 14 | E 16 | | 27 | 41 | 36 | 37 | G 35 | 45 | 49 | 38 | 27 | 32 | 31 | 29 | 46 | 19 | E 15 | 20 | E 28 | | |
| 10 | E 20 | E 18 | E 15 | E 15 | E 28 | E 15 | | 24 | 54 | 49 | 40 | 40 | 37 | 37 | 32 | 27 | 28 | 31 | E 26 | B 19 | 21 | E 25 | E 15 | 17 | 30 | |
| 11 | E 16 | E 15 | E 16 | E 14 | E 15 | E 17 | | 24 | 34 | 37 | 38 | 27 | 23 | G 21 | 27 | | G 24 | E 14 | E 15 | 17 | 28 | 22 | E 16 | B 16 | | |
| 12 | E 15 | E 18 | E 19 | E 15 | E 16 | E 16 | | 27 | 30 | U 40 | Y 32 | U 32 | U 40 | U 26 | 24 | | 36 | 33 | 26 | 16 | 19 | E 15 | E 15 | E 15 | B 15 | |
| 13 | E 16 | E 15 | E 15 | E 15 | E 14 | E 15 | | 21 | 28 | U 28 | 35 | G 26 | 32 | 42 | 38 | 34 | 32 | 28 | 28 | 32 | 34 | 18 | 17 | E 29 | | |
| 14 | E 23 | E 28 | E 17 | E 14 | E 15 | E 15 | | 22 | 29 | 36 | 35 | 43 | 40 | 41 | 38 | 35 | 35 | 32 | 28 | 25 | E 15 | E 28 | E 14 | E 20 | B 21 | |
| 15 | E 23 | E 17 | E 15 | E 16 | E 15 | E 15 | | 24 | 18 | G 36 | 36 | 38 | 36 | 38 | 38 | 40 | 34 | | 31 | 32 | 28 | 18 | E 28 | E 16 | B 20 | |
| 16 | E 14 | E 19 | E 16 | E 15 | E 16 | E 16 | | 20 | | G 33 | 41 | 42 | 40 | 40 | 38 | 35 | 32 | 28 | 23 | 16 | 17 | E 16 | E 28 | E 15 | B 15 | |
| 17 | E 17 | E 23 | E 21 | E 15 | E 16 | E 17 | | U 27 | 30 | 38 | 45 | 39 | 44 | 42 | 41 | 28 | 22 | 22 | 24 | 28 | 30 | 23 | 17 | E 16 | B 15 | |
| 18 | E 16 | E 17 | E 16 | E 21 | E 16 | E 20 | | 26 | 30 | 32 | 34 | 36 | 38 | 39 | 28 | 26 | 22 | 20 | 27 | 20 | 16 | E 16 | E 15 | E 16 | B 17 | |
| 19 | E 15 | E 16 | E 15 | E 15 | E 18 | E 16 | | G 29 | 33 | 41 | 48 | 44 | 38 | 56 | 44 | 34 | 30 | 16 | 21 | 18 | 15 | E 28 | 14 | E 15 | B 15 | |
| 20 | E 15 | E 16 | E 15 | E 15 | E 14 | E 28 | | G 20 | | 34 | 37 | 43 | 38 | 47 | 38 | 27 | | 30 | 20 | 16 | 15 | E 20 | E 15 | E 15 | B 20 | |
| 21 | E 15 | E 15 | E 19 | E 19 | E 14 | E 14 | | G 30 | 32 | 39 | 41 | 44 | 45 | 40 | 39 | 37 | 38 | 57 | 44 | 33 | A 80 | A 34 | 20 | E 20 | B 20 | |
| 22 | E 19 | E 31 | E 20 | A 45 | E 20 | E 19 | | 22 | 29 | 34 | 46 | 54 | 44 | 46 | 38 | 35 | 33 | 30 | 29 | 20 | 20 | E 15 | E 23 | E 22 | B 15 | |
| 23 | E 15 | E 15 | E 15 | E 18 | E 18 | E 15 | | G 22 | | G 33 | 27 | | G 28 | | G 28 | | G 30 | 29 | 24 | 29 | 23 | 28 | E 15 | E 18 | B 15 | |
| 24 | E 17 | E 15 | E 15 | E 15 | E 15 | E 15 | | 24 | 31 | 34 | 38 | 40 | 38 | 44 | 26 | 21 | G 28 | E 25 | E 16 | 19 | 17 | E 16 | E 15 | B 15 | | |
| 25 | E 16 | E 18 | E 25 | E 18 | E 15 | E 16 | | 22 | 39 | 33 | 24 | 28 | | 44 | 42 | 26 | 32 | | 22 | 17 | 18 | 17 | 16 | 20 | 26 | |
| 26 | E 19 | E 16 | E 15 | E 15 | E 16 | E 15 | | G 26 | U 29 | Y 38 | 38 | 38 | 24 | 29 | | 27 | G 32 | G 42 | E 15 | E 14 | E 24 | E 16 | E 16 | B 15 | | |
| 27 | E 14 | E 16 | E 15 | E 16 | E 16 | E 15 | | G 28 | G 35 | G 30 | U 29 | 32 | 37 | 29 | 24 | | G 20 | 21 | 21 | 22 | 20 | 16 | E 16 | B 15 | | |
| 28 | E 15 | E 15 | E 16 | E 15 | E 15 | E 15 | | 22 | 29 | 35 | 36 | 33 | 33 | 28 | 26 | 28 | 25 | 29 | 22 | 16 | 20 | E 15 | E 15 | E 15 | B 16 | |
| 29 | E 15 | E 14 | E 15 | E 16 | E 15 | E 16 | | G 22 | | G 34 | 28 | 37 | 38 | U 26 | 40 | 37 | 27 | 18 | 16 | 18 | E 28 | E 15 | E 14 | E 18 | B 19 | |
| 30 | E 15 | E 16 | E 15 | E 18 | E 14 | E 15 | | 24 | 30 | 35 | 35 | 38 | 38 | 38 | 41 | 29 | 34 | 32 | 24 | 45 | 20 | 18 | E 28 | E 14 | B 24 | |
| 31 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | | |
| CNT | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 29 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | |
| MED | E 16 | E 16 | E 15 | E 15 | E 16 | E 16 | | 22 | 30 | 34 | 37 | 38 | 38 | 38 | 38 | 35 | 33 | 30 | 26 | 20 | 20 | 18 | 16 | E 16 | B 19 | |
| U Q | 19 | 18 | 17 | 16 | 16 | 17 | | 24 | 31 | 37 | 41 | 42 | 44 | 43 | 42 | 39 | 35 | 32 | 31 | 29 | 28 | 23 | 24 | 20 | 22 | |
| L Q | E 15 | E 15 | E 15 | E 15 | E 15 | E 15 | | G 20 | G 28 | G 32 | G 35 | G 35 | U 32 | U 32 | U 30 | U 28 | G 27 | G 23 | G 18 | G 17 | E 15 | E 15 | E 15 | E 15 | B 15 | |

IONOSPHERIC DATA STATION Kokubunji

SEP. 2003 fmin (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

LAT. 35°42.4'N LON. 139°29.3'E SWEEP 1.0MHz TO 30.0MHz IN 15.0SEC IN MANUAL SCALING

| D \ H | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | |
|-------|----------------|----|----|----|-------------------|----|----|----------------|----|----|----|----|----|----|----|----|--------------|----|----------------|----------------|----------------|----------------|-------------------|----|----|
| 1 | 15 | 16 | 14 | 15 | 14 ^{E C} | 29 | 16 | 14 | 20 | 20 | 18 | 28 | 34 | 23 | 20 | 20 | ^C | 15 | 15 | 16 | 14 | 15 | 16 | 16 | |
| 2 | 14 | 16 | 15 | 16 | 16 | 16 | 12 | 16 | 20 | 20 | 24 | 24 | 24 | 21 | 20 | 20 | 14 | 16 | 16 | 15 | 14 | 14 | 16 | 20 | |
| 3 | 16 | 16 | 16 | 15 | 15 | 15 | 14 | 29 | 21 | 21 | 30 | 31 | 30 | 35 | 21 | 20 | 16 | 15 | 20 | 14 | 13 | 14 | 15 | 16 | |
| 4 | 14 | 19 | 14 | 13 | 15 | 29 | 14 | 16 | 29 | 22 | 29 | 30 | 32 | 30 | 28 | 21 | 16 | 16 | 14 | 16 | 14 | 15 | 14 | 14 | |
| 5 | 15 | 15 | 14 | 15 | 13 | 14 | 15 | 19 | 16 | 36 | 36 | 35 | 29 | 30 | 30 | 16 | 15 | 16 | 14 | 14 | 14 | 15 | 15 ^{E C} | 28 | |
| 6 | 15 | 15 | 14 | 16 | 13 | 15 | 14 | 17 | 19 | 20 | 23 | 23 | 23 | 20 | 20 | 16 | 14 | 16 | 14 | 15 | 14 | 15 | 15 | 14 | |
| 7 | 15 | 16 | 15 | 15 | 16 | 16 | 14 | 14 | 18 | 18 | 24 | 27 | 23 | 17 | 16 | 15 | 18 | 15 | 15 | 15 | 15 | 16 | 15 | 16 | |
| 8 | 16 | 15 | 15 | 15 | 16 | 15 | 15 | 16 | 19 | 22 | 20 | 28 | 20 | 23 | 20 | 18 | 14 | 15 | 16 | 16 | 14 | 15 | 16 | 15 | |
| 9 | ^{E C} | 28 | 15 | 20 | 15 | 14 | 16 | 15 | 28 | 18 | 23 | 30 | 29 | 28 | 29 | 26 | 18 | 16 | 16 | 15 | 14 | 14 | 15 | 15 | |
| 10 | 16 | 14 | 15 | 15 | ^{E C} | 28 | 15 | 15 | 19 | 20 | 25 | 28 | 28 | 24 | 20 | 19 | 16 | 16 | 15 | 19 | 14 | 15 | 15 | 14 | 16 |
| 11 | 16 | 15 | 16 | 14 | 15 | 14 | 15 | 14 | 17 | 20 | 22 | 19 | 32 | 29 | 17 | 15 | 15 | 13 | 14 | 15 | 14 | 15 | 15 | 16 | |
| 12 | 15 | 14 | 14 | 15 | 16 | 16 | 14 | 15 | 17 | 19 | 19 | 40 | 17 | 16 | 20 | 20 | 17 | 14 | 14 | 14 | 15 | 14 | 15 | 15 | |
| 13 | 16 | 15 | 15 | 15 | 14 | 15 | 14 | 16 | 16 | 18 | 23 | 21 | 23 | 29 | 19 | 18 | 15 | 15 | 16 | 15 | 16 | 14 | 13 | 15 | |
| 14 | 15 | 15 | 14 | 14 | 15 | 15 | 15 | 15 | 17 | 19 | 19 | 25 | 22 | 16 | 18 | 14 | 13 | 15 | 14 | 15 | ^{E C} | 28 | 14 | 16 | 15 |
| 15 | 13 | 14 | 15 | 16 | 14 | 15 | 14 | 13 | 14 | 16 | 18 | 19 | 28 | 24 | 24 | 19 | 16 | 15 | 16 | 16 | 14 | ^{E C} | 28 | 16 | 13 |
| 16 | 14 | 14 | 16 | 15 | 16 | 16 | 14 | 13 | 16 | 27 | 33 | 24 | 27 | 28 | 18 | 18 | 16 | 14 | 14 | 14 | 16 | 15 | 15 | 15 | |
| 17 | 15 | 13 | 15 | 15 | 16 | 15 | 15 | 18 | 29 | 28 | 20 | 32 | 20 | 41 | 24 | 16 | 16 | 15 | ^{E C} | 28 | 14 | 14 | 14 | 16 | 15 |
| 18 | 16 | 15 | 16 | 16 | 13 | 14 | 16 | 16 | 20 | 22 | 20 | 21 | 31 | 21 | 18 | 20 | 16 | 15 | 16 | 14 | 16 | 15 | 16 | 17 | |
| 19 | 15 | 16 | 15 | 15 | 13 | 16 | 13 | ^{E C} | 29 | 20 | 18 | 17 | 20 | 28 | 22 | 19 | 17 | 15 | 13 | 15 | 16 | ^{E C} | 28 | 14 | 15 |
| 20 | 15 | 16 | 15 | 15 | ^{E C} | 28 | 15 | 18 | 18 | 20 | 20 | 18 | 18 | 18 | 22 | 22 | 20 | 16 | 15 | 15 | 14 | 15 | 15 | 20 | |
| 21 | 15 | 15 | 14 | 15 | 14 | 14 | 16 | 18 | 20 | 20 | 23 | 30 | 24 | 28 | 16 | 15 | 17 | 14 | 16 | 15 | 13 | 14 | 14 | 15 | |
| 22 | 15 | 13 | 14 | 14 | 15 | 14 | 15 | 17 | 18 | 19 | 22 | 20 | 23 | 22 | 19 | 18 | 14 | 15 | 13 | 14 | 15 | 15 | 15 | 15 | |
| 23 | 15 | 15 | 15 | 15 | 14 | 15 | 14 | 19 | 16 | 20 | 25 | 30 | 27 | 28 | 29 | 19 | 18 | 15 | 15 | 15 | 14 | 15 | 15 | 15 | |
| 24 | 17 | 15 | 15 | 15 | 15 | 15 | 15 | 16 | 27 | 23 | 20 | 22 | 20 | 18 | 18 | 20 | 28 | 15 | 16 | 14 | 14 | 16 | 15 | 15 | |
| 25 | 12 | 14 | 14 | 14 | 15 | 16 | 22 | 17 | 22 | 18 | 20 | 32 | 18 | 27 | 18 | 19 | 15 | 15 | 13 | 14 | 13 | 13 | 16 | 14 | |
| 26 | 14 | 15 | 15 | 15 | 13 | 15 | 15 | 14 | 18 | 24 | 38 | 38 | 20 | 21 | 22 | 18 | 20 | 15 | 15 | 15 | 14 | 14 | 16 | 15 | |
| 27 | 14 | 16 | 15 | 16 | 16 | 15 | 15 | 15 | 20 | 20 | 25 | 21 | 26 | 24 | 23 | 18 | 14 | 14 | 15 | 15 | 16 | 15 | 16 | 15 | |
| 28 | 15 | 15 | 16 | 15 | 15 | 15 | 14 | 15 | 24 | 19 | 23 | 20 | 22 | 19 | 20 | 21 | 17 | 16 | 16 | 14 | 15 | 15 | 15 | 16 | |
| 29 | 15 | 14 | 15 | 16 | 15 | 14 | 16 | 16 | 20 | 20 | 17 | 23 | 20 | 22 | 28 | 18 | 15 | 16 | 13 | ^{E C} | 28 | 15 | 14 | 15 | 15 |
| 30 | 15 | 16 | 15 | 18 | 14 | 15 | 16 | 17 | 17 | 20 | 22 | 21 | 21 | 28 | 19 | 18 | 15 | 15 | 14 | 14 | 15 | 14 | 14 | 14 | |
| 31 | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | |
| CNT | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 29 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 |
| MED | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 16 | 19 | 20 | 22 | 24 | 24 | 23 | 20 | 18 | 16 | 15 | 15 | 15 | 14 | 15 | 15 | 15 | 15 |
| U Q | 16 | 16 | 15 | 15 | 16 | 16 | 15 | 18 | 20 | 22 | 25 | 30 | 28 | 28 | 23 | 20 | 17 | 16 | 16 | 15 | 15 | 15 | 16 | 16 | |
| L Q | 15 | 14 | 14 | 15 | 14 | 15 | 14 | 15 | 17 | 19 | 20 | 21 | 20 | 20 | 18 | 16 | 15 | 15 | 14 | 14 | 14 | 14 | 15 | 15 | |

IONOSPHERIC DATA STATION Kokubunji

SEP. 2003 M(3000)F2 (0.01) 135°E MEAN TIME (G.M.T. + 9 H)

LAT.35°42.4'N LON.139°29.3'E SWEEP 1.0MHz TO 30.0MHz IN 15.0SEC IN MANUAL SCALING

| D ^H | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | |
|----------------|------------------|------------------|-----|-----|------------------|-----|------------------|------------------|-----|-----|-----|------------------|-----|-----|-----|-----|-----|--------------|-----|-----|-----|--------------|-----|--------------|-----|
| 1 | 284 | 274 ^F | | 295 | 307 | 303 | 307 | 320 | 338 | 307 | 340 | 312 | 320 | 325 | 318 | 308 | | ^C | 324 | 321 | 304 | 295 | 301 | 283 | 283 |
| 2 | 283 | 280 | 286 | 294 | 309 | 312 | 367 | 379 | 375 | 327 | 336 | 312 | 298 | 299 | 315 | 335 | 322 | 323 | 333 | 321 | 297 | 276 | 280 | 292 | |
| 3 | 287 | 278 | 281 | 315 | 365 | 305 | 322 | 331 | 337 | 326 | 313 | 298 ^R | 312 | 308 | 315 | 318 | 332 | 324 | 333 | 312 | 295 | 285 | 283 | 290 | |
| 4 | 286 | 285 | 301 | 314 | 280 | 274 | 338 | 360 | 346 | 333 | 351 | 309 | 314 | 305 | 308 | 311 | 308 | 310 | 334 | 296 | 308 | 281 | 281 | 284 | |
| 5 | 283 | 286 | 304 | 298 | 304 | 309 | 340 | 308 | 328 | 323 | 314 | 311 | 328 | 299 | 317 | 324 | 320 | 325 | 315 | 319 | 307 | 284 | 281 | 287 | |
| 6 | 295 | 296 | 293 | 304 | 323 | 326 | 340 | 336 | 355 | 342 | 310 | 327 | 341 | 305 | 333 | 319 | 323 | 335 | 324 | 327 | 309 | 306 | 286 | 294 | |
| 7 | 304 | 295 | 299 | 295 | 294 | 305 | 352 | 374 | 348 | 337 | 343 | 323 | 302 | 331 | 326 | 324 | 335 | 333 | 337 | 340 | 313 | 295 | 318 | 306 | |
| 8 | 294 | 298 | 323 | 297 | 296 | 300 | 347 | 345 ^H | 346 | 336 | 311 | 317 | 312 | 329 | 315 | 317 | 321 | 319 | 320 | 345 | 343 | 298 | 295 | 302 | |
| 9 | 306 | 304 | 294 | 305 | 304 | 308 | 318 | 353 | 366 | 384 | 339 | 303 | 313 | 334 | 318 | 323 | 308 | 319 | 321 | 316 | 355 | 279 | 244 | ^F | |
| 10 | 292 | 286 | 308 | 314 | 310 ^S | 296 | 310 | 335 | 359 | 305 | 355 | 312 | 313 | 324 | 326 | 306 | 313 | 311 | 338 | 335 | 304 | 261 | 298 | 296 | |
| 11 | 299 | 280 | 298 | 296 | 308 | 317 | 336 ^Z | 370 | 366 | 281 | 348 | 301 | 326 | 298 | 331 | 320 | 332 | 334 | 322 | 341 | 298 | 278 | 285 | 325 | |
| 12 | 307 | 308 | 301 | 298 | 311 | 302 | 347 | 362 | 343 | 368 | 366 | 301 | 317 | 324 | 320 | 318 | 326 | 325 | 320 | 338 | 378 | 283 | 286 | 312 | |
| 13 | 284 | 301 | 296 | 315 | 311 | 316 | 362 | 356 | 364 | 343 | 371 | 310 | 322 | 329 | 338 | 338 | 319 | 324 | 341 | 357 | 264 | 311 | 298 | 306 | |
| 14 | 293 | 296 | 285 | 298 | 333 | 340 | 380 | 389 | 370 | 381 | 328 | 323 | 303 | 323 | 329 | 340 | 330 | 333 | 312 | 343 | 311 | 323 | 285 | 299 | |
| 15 | 310 | 291 | 309 | 317 | 333 | 335 | 357 | 366 ^Z | 375 | 361 | 333 | 317 | 331 | 327 | 330 | 328 | 325 | 326 | 317 | 330 | 340 | 319 | 317 | 298 | |
| 16 | 306 | 302 | 310 | 319 | 296 | 306 | 343 | 369 | 358 | 338 | 315 | 324 | 304 | 317 | 283 | 318 | 329 | 328 | 309 | 307 | 264 | 285 | 278 | 293 | |
| 17 | 275 | 277 | 269 | 261 | 275 | 253 | 299 | 346 | 327 | 329 | 309 | 313 | 304 | 321 | 329 | 334 | 340 | 329 | 315 | 294 | 306 | 278 | 284 | 272 | |
| 18 | 259 | 262 | 267 | 280 | 300 | 258 | 313 | 300 | 335 | 328 | 326 | 337 | 344 | 343 | 305 | 327 | 321 | 341 | 325 | 316 | 268 | 271 | 268 | 270 | |
| 19 | 268 | 283 | 317 | 304 | 270 | 277 | 343 | 359 | 330 | 397 | 336 | 305 | 321 | 316 | 330 | 300 | 336 | 333 | 338 | 324 | 273 | 279 | 276 | 281 | |
| 20 | 275 ^Z | 280 | 290 | 286 | 283 | 290 | 361 | 361 | 352 | 331 | 318 | 325 | 326 | 322 | 309 | 313 | 330 | 330 | 345 | 373 | 279 | 274 | 290 | 273 | |
| 21 | 285 | 302 | 324 | 304 | 288 | 280 | 343 | 367 | 362 | 340 | 340 | 324 | 336 | 332 | 320 | 346 | 340 | 333 | 347 | 363 | | ^A | 283 | 285 | 299 |
| 22 | 299 | 289 | 282 | | ^A | 306 | 301 | 342 | 360 | 331 | 336 | 327 | 308 | 314 | 321 | 319 | 323 | 335 | 327 | 331 | 338 | 312 | 272 | 284 | 288 |
| 23 | 296 | 280 | 291 | 303 | 352 | 292 | 333 | 360 | 348 | 362 | 359 | 311 | 326 | 329 | 317 | 324 | 326 | 332 | 335 | 321 | 300 | 303 | 289 | 281 | |
| 24 | 295 | 308 | 303 | 308 | 294 | 285 | 359 | 366 | 354 | 332 | 331 | 318 | 300 | 297 | 308 | 319 | 313 | 343 | 332 | 329 | 296 | 282 | 285 | 296 | |
| 25 | 279 | 300 | 285 | 273 | 292 | 293 | 350 | 374 | 336 | 308 | 313 | 318 | 315 | 318 | 323 | 318 | 320 | 328 | 335 | 327 | 299 | 302 | 276 | 290 | |
| 26 | 277 | 301 | 283 | 285 | 287 | 279 | 337 | 353 | 333 | 353 | 316 | 323 | 334 | 325 | 333 | 331 | 333 | 329 | 329 | 322 | 330 | 312 | 282 | 305 | |
| 27 | 268 | 284 | 283 | 285 | 283 | 295 | 357 | 362 | 357 | 339 | 332 | 308 | 310 | 314 | 324 | 326 | 320 | 336 | 342 | 319 | 296 | 288 | 295 | 321 | |
| 28 | 316 | 312 | 319 | 320 | 321 | 306 | 365 | 348 | 350 | 346 | 331 | 320 | 320 | 310 | 317 | 321 | 325 | 329 | 341 | 322 | 307 | 292 | 285 | 289 | |
| 29 | 290 | 290 | 291 | 305 | 327 | 316 | 358 | 343 | 366 | 344 | 334 | 316 | 313 | 313 | 312 | 318 | 332 | 339 | 330 | 304 | 305 | 291 | 292 | 300 | |
| 30 | 309 | 293 | 286 | 289 | 284 | 285 | 354 | 364 | 343 | 341 | 339 | 320 | 319 | 303 | 318 | 313 | 334 | 337 | 335 | 316 | 294 | 288 | 299 | 291 | |
| 31 | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | |
| CNT | 30 | 30 | 29 | 29 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 29 | 30 | 30 | 30 | 29 | 30 | 30 | 29 | |
| MED | 291 | 290 | 294 | 298 | 304 | 302 | 343 | 360 | 349 | 338 | 332 | 314 | 316 | 321 | 318 | 320 | 326 | 329 | 332 | 323 | 304 | 285 | 285 | 293 | |
| U Q | 299 | 301 | 306 | 311 | 311 | 309 | 357 | 366 | 362 | 346 | 340 | 323 | 326 | 327 | 329 | 327 | 332 | 333 | 337 | 338 | 312 | 301 | 292 | 301 | |
| L Q | 283 | 280 | 285 | 292 | 288 | 285 | 336 | 345 | 337 | 328 | 316 | 309 | 312 | 308 | 315 | 318 | 320 | 324 | 321 | 316 | 295 | 279 | 281 | 286 | |

IONOSPHERIC DATA STATION Kokubunji

SEP. 2003 M(3000)F1 (0.01) 135°E MEAN TIME (G.M.T. + 9 H)

LAT. 35°42.4'N LON. 139°29.3'E SWEEP 1.0MHz TO 30.0MHz IN 15.0SEC IN MANUAL SCALING

| H D | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
|--------|----|----|----|----|----|----|----|-----|-----|-----|-----|-----|-----|-----|----|-----|----|----|----|----|----|----|----|----|
| 1 | | | | | | | | L | L | L | A | A | A | L | A | A | C | A | | | | | | |
| 2 | | | | | | | | | L | L | L | L | L | A | A | A | L | A | | | | | | |
| 3 | | | | | | A | | L | L | L | A | L | L | A | L | L | A | L | | | | | | |
| 4 | | | | | | | | A | A | A | L | A | L | L | A | L | L | L | | | | | | |
| 5 | | | | | | | | | A | L | | A | L | A | A | L | L | L | | | | | | |
| 6 | | | | | | | | | L | L | L | L | L | L | L | L | L | L | L | | | | | |
| 7 | | | | | | | | | L | L | L | L | L | L | L | L | L | L | L | | | | | |
| 8 | | | | | | | | L | L | L | L | L | L | L | L | L | L | A | L | | | | | |
| 9 | | | | | | | L | A | L | L | L | L | A | A | L | L | L | L | L | | | | | |
| 10 | | | | | | | | A | A | L | L | L | L | L | L | L | L | L | L | | | | | |
| 11 | | | | | | | | | L | L | L | L | L | L | L | L | L | L | L | | | | | |
| 12 | | | | | | | | | L | L | L | L | L | L | L | L | L | L | L | | | | | |
| 13 | | | | | | | | L | L | L | L | L | L | L | L | L | L | L | L | | | | | |
| 14 | | | | | | | | | L | L | L | L | L | L | L | L | L | L | L | | | | | |
| 15 | | | | | | | L | | L | L | L | L | L | L | L | L | L | L | L | | | | | |
| 16 | | | | | | | | | L | L | L | L | L | L | L | L | L | L | L | | | | | |
| 17 | | | | | | | L | L | A | A | L | L | L | L | L | L | L | L | L | | | | | |
| 18 | | | | | | | | L | L | L | L | L | L | L | L | L | L | L | L | | | | | |
| 19 | | | | | | | | | L | L | A | L | A | L | L | L | L | L | L | | | | | |
| 20 | | | | | | | | | L | L | A | L | A | L | L | L | L | L | L | | | | | |
| 21 | | | | | | | | | L | L | L | L | L | L | L | L | L | L | L | | | | | |
| 22 | | | | | | | | | L | A | A | L | L | L | L | L | L | L | L | | | | | |
| 23 | | | | | | | | | L | L | L | L | L | L | L | L | L | L | L | | | | | |
| 24 | | | | | | | | | L | L | L | L | L | L | L | L | L | L | L | | | | | |
| 25 | | | | | | | | A | L | L | L | L | L | L | L | L | L | L | L | | | | | |
| 26 | | | | | | | | L | L | L | L | L | L | L | L | L | L | L | L | | | | | |
| 27 | | | | | | | | | L | L | L | L | L | L | L | L | L | L | L | | | | | |
| 28 | | | | | | | | | L | L | L | L | L | L | L | L | L | L | L | | | | | |
| 29 | | | | | | | | | L | L | L | L | L | L | L | L | L | L | L | | | | | |
| 30 | | | | | | | | | L | L | L | L | L | L | L | L | L | L | L | | | | | |
| 31 | | | | | | | | | | | | | | | | | | | | | | | | |
| | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
| CNT | | | | | | | | 1 | 3 | 10 | 14 | 18 | 20 | 13 | 10 | 5 | 1 | | | | | | | |
| MED | | | | | | | | L | L | L | L | L | L | L | L | L | L | L | | | | | | |
| U Q | | | | | | | | 360 | 372 | 377 | 363 | 365 | 393 | 386 | | 363 | | | | | | | | |
| L Q | | | | | | | | L | L | L | L | L | L | L | L | L | L | L | | | | | | |

IONOSPHERIC DATA STATION Kokubunji

SEP. 2003 h'F2 (KM)

135'E MEAN TIME (G.M.T. + 9 H)

LAT. 35'42.4'N LON. 139'29.3'E SWEEP 1.0MHZ TO 30.0MHZ IN 15.0SEC IN MANUAL SCALING

| H D | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
|--------|----|----|----|----|------------|-----|-----|-----|-----|-----|-----|------------|-----|------------|------------|-----|-----|-----|-----|----|----|----|----|----|
| 1 | | | | | | | | 288 | 268 | 284 | 254 | 306 | 300 | 280 | 286 | 288 | C | 278 | | | | | | |
| 2 | | | | | | | | | 232 | 276 | 276 | 288 | 332 | E A 308 | 288 | 262 | 252 | 254 | | | | | | |
| 3 | | | | | E A 354 | | | 272 | 256 | 268 | 282 | 254 | 290 | 304 | 290 | 274 | 264 | 276 | | | | | | |
| 4 | | | | | | | | 244 | 244 | 264 | 260 | 316 | 286 | 308 | 262 | 296 | 294 | 266 | | | | | | |
| 5 | | | | | | | | | 292 | 328 | 310 | 280 | 290 | 328 | 286 | 292 | 272 | 264 | | | | | | |
| 6 | | | | | | | | | 244 | 254 | 328 | 276 | 268 | 326 | 284 | 274 | 270 | 256 | | | | | | |
| 7 | | | | | | | | | 252 | 232 | 250 | 284 | 308 | 278 | 284 | 270 | 262 | 256 | | | | | | |
| 8 | | | | | | | | | 232 | 240 | 276 | 278 | 268 | 282 | 280 | 274 | 280 | 272 | 264 | | | | | |
| 9 | | | | | | | | 290 | 234 | 232 | 218 | 252 | 340 | 288 | 268 | 292 | 282 | 288 | 262 | | | | | |
| 10 | | | | | | | | | 250 | 242 | 310 | 238 | 328 | 308 | 268 | 270 | 290 | 290 | 278 | | | | | |
| 11 | | | | | | | | | | 228 | 282 | 272 | 328 | 286 | 328 | 286 | 294 | 260 | | | | | | |
| 12 | | | | | | | | | | 250 | 230 | 234 | 308 | 284 | 274 | 296 | 286 | 272 | | | | | | |
| 13 | | | | | | | | | 246 | 226 | 242 | 230 | 324 | 282 | 266 | 274 | 268 | 288 | 260 | | | | | |
| 14 | | | | | | | | | | 230 | 230 | 276 | 264 | 332 | 286 | 284 | 260 | 268 | | | | | | |
| 15 | | | | | | | | | 234 | 224 | 246 | 270 | 274 | 282 | 278 | 276 | 272 | 272 | | | | | | |
| 16 | | | | | | | | | | 244 | 268 | 282 | 268 | 284 | 280 | 326 | 272 | | | | | | | |
| 17 | | | | | | | | 310 | 254 | 274 | 260 | 278 | 294 | 280 | 280 | 272 | 274 | | | | | | | |
| 18 | | | | | | | | | 340 | 274 | 274 | 280 | 264 | 260 | 268 | 292 | 272 | 274 | | | | | | |
| 19 | | | | | | | | | | 262 | 230 | E A 304 | 354 | 316 | E A 330 | 286 | 314 | 266 | | | | | | |
| 20 | | | | | | | | | | 258 | 294 | 292 | 286 | 292 | 276 | 314 | 288 | 276 | | | | | | |
| 21 | | | | | | | | | | 238 | 258 | 264 | 284 | 262 | 266 | 272 | 268 | 260 | | | | | | |
| 22 | | | | | | | | | | 248 | 252 | 266 | 258 | 290 | 266 | 278 | 272 | 262 | | | | | | |
| 23 | | | | | | | | | | 250 | 240 | 246 | 294 | 270 | 272 | 272 | 270 | 262 | | | | | | |
| 24 | | | | | | | | | | 236 | 262 | 262 | 254 | 310 | 294 | 292 | 262 | 270 | | | | | | |
| 25 | | | | | | | | | 226 | 256 | 282 | 286 | 272 | 270 | 278 | 268 | | | | | | | | |
| 26 | | | | | | | | | 256 | 260 | 246 | 272 | 260 | 260 | 272 | 256 | 266 | | | | | | | |
| 27 | | | | | | | | | | 236 | 248 | 266 | 250 | 268 | 266 | 266 | 274 | | | | | | | |
| 28 | | | | | | | | | | 242 | 246 | 246 | 264 | 260 | 272 | 270 | 272 | 270 | | | | | | |
| 29 | | | | | | | | | | 242 | 244 | 254 | 260 | 274 | 274 | 284 | 270 | | | | | | | |
| 30 | | | | | | | | | | 242 | 248 | 250 | 274 | 266 | 294 | 264 | | | | | | | | |
| 31 | | | | | | | | | | | | | | | | | | | | | | | | |
| | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
| CNT | | | | | | 1 | 2 | 12 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 28 | 21 | 12 | | | | | | |
| MED | | | | | E A 354 | 300 | 248 | 244 | 256 | 267 | 278 | 284 | 278 | 284 | 273 | 270 | 263 | | | | | | | |
| U Q | | | | | | | | 264 | 256 | 276 | 280 | 306 | 292 | 294 | 288 | 287 | 275 | 271 | | | | | | |
| L Q | | | | | | | | 234 | 236 | 244 | 252 | 264 | 270 | 272 | 272 | 270 | 263 | 258 | | | | | | |

IONOSPHERIC DATA STATION Kokubunji

SEP. 2003 h'F (KM)

135°E MEAN TIME (G.M.T. + 9 H)

LAT. 35°42.4'N LON. 139°29.3'E SWEEP 1.0MHz TO 30.0MHz IN 15.0SEC IN MANUAL SCALING

| D | H | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
|-----|---------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-------|-----|---------|-----|-----|-----|-----|-----|-----------|-----|---------|---------|---------|---------|
| 1 | E B E B | 270 | 290 | 274 | 244 | 234 | 288 | 226 | 220 | 218 | 216 | A | A | A E A | A | A | A | C | A | E A E A | 242 | 256 | 264 | 242 | E B E A |
| 2 | E A E B | 284 | 278 | 268 | 260 | 234 | 260 | 214 | 210 | 202 | 202 | 220 | E A | 240 | 198 | A | A | A | 212 | A E A E A | 246 | 262 | 230 | 288 | E A E B |
| 3 | E A E B | 264 | 312 | 296 | 238 | 198 | A | 232 | 226 | 210 | 208 | A | H | 176 | 214 | A | 206 | 202 | A | 222 | 236 | 232 | 240 | 244 | E A E A |
| 4 | E A E A | 296 | 292 | 276 | 234 | 256 | E A | 354 | 244 | A | A | A | A | A | H | H | A | 216 | 234 | A | 232 | 234 | 242 | E A | E A |
| 5 | E A E B | 300 | 280 | 256 | 248 | 260 | 260 | 226 | 230 | A | A | A | A | 216 | 210 | A | A | 218 | 222 | 222 | 240 | 218 | 224 | 274 | E B E C |
| 6 | E B | 250 | 266 | 256 | 244 | 224 | 222 | 218 | 214 | 204 | 196 | 186 | H | 218 | 218 | 220 | E A | 242 | 218 | 210 | 232 | 234 | 212 | 226 | E A E A |
| 7 | E B | 224 | 244 | 246 | 256 | 260 | 260 | 220 | 210 | 202 | 202 | 186 | H | 200 | 200 | 200 | 212 | 218 | 212 | 228 | 230 | 216 | 212 | 266 | E B |
| 8 | E C | 254 | 258 | 242 | 240 | 254 | 266 | 230 | 202 | 202 | 214 | 226 | H | 208 | 214 | 196 | H | 204 | 204 | A | 222 | 242 | 208 | 200 | E A |
| 9 | E B | 266 | 256 | 288 | 252 | 240 | 256 | 228 | A | 208 | 204 | 188 | H | 178 | A | A | 216 | 212 | 234 | A | 238 | 260 | 196 | 212 | E A E A |
| 10 | E A E A | 270 | 320 | 256 | 234 | 252 | 258 | 228 | A | A | A | E A | H | 226 | 224 | 202 | 200 | 200 | 212 | 214 | 214 | 236 | 232 | 212 | E A E A |
| 11 | E B | 240 | 292 | 250 | 262 | 244 | 258 | 218 | 216 | 214 | 202 | 188 | H | 178 | 194 | 224 | 216 | 220 | 224 | 232 | 242 | 220 | 226 | 304 | E A E A |
| 12 | E B | 230 | 234 | 264 | 272 | 250 | 242 | 224 | 222 | E A | 234 | 202 | 204 | H | 194 | 202 | 204 | 208 | 228 | 232 | 226 | 248 | 230 | 198 | E B E B |
| 13 | E B E B | 282 | 268 | 258 | 244 | 234 | 242 | 232 | 212 | 202 | 198 | 188 | H | 176 | 176 | A | 218 | 224 | 222 | 224 | 226 | 206 | 314 | 248 | E A E A |
| 14 | E A E A | 276 | 312 | 292 | 264 | 238 | 224 | 210 | 204 | 210 | 196 | 218 | E A | 206 | 210 | E A | 234 | 214 | 220 | 218 | 228 | 236 | 224 | 228 | E A E A |
| 15 | E A | 270 | 276 | 248 | 236 | 204 | 210 | 232 | 210 | 202 | 196 | 204 | H | 200 | 202 | 200 | 222 | 222 | 224 | E A | 256 | 230 | 234 | 218 | E A |
| 16 | E B | 234 | 256 | 252 | 226 | 276 | 256 | 222 | 224 | 214 | 226 | 230 | 192 | H | 218 | 212 | 208 | 212 | 230 | 234 | 240 | 248 | E B E A | 300 | E B E A |
| 17 | E A E A | 294 | 316 | 324 | 314 | 290 | 368 | 286 | 224 | A | A | A | A | E A E B | 232 | 238 | 214 | 212 | 226 | 242 | 246 | 276 | 252 | 274 | E B E B |
| 18 | E B E B | 332 | 310 | 312 | 308 | 258 | 338 | 244 | 210 | 208 | 210 | 202 | 214 | 196 | 196 | 214 | 200 | 242 | 234 | 222 | 220 | E B E B | 270 | 298 | E B E B |
| 19 | E B E B | 308 | 282 | 244 | 252 | 320 | 310 | 256 | 234 | 210 | A | A E A | 240 | 210 | A | E A | 268 | 210 | 232 | 230 | 216 | 234 | 276 | 292 | E B E B |
| 20 | E B E B | 290 | 274 | 272 | 294 | 284 | 284 | 214 | 226 | 212 | 198 | A | A | 198 | 224 | 202 | 218 | 234 | 246 | 224 | 192 | E A E B | 334 | 304 | E B E B |
| 21 | E B | 282 | 256 | 254 | 264 | 282 | 306 | 246 | 222 | 210 | 202 | 210 | E A | 240 | A | 214 | 210 | 220 | 250 | A | 234 | 214 | A | 350 | E A E A |
| 22 | E A E A | 252 | 322 | 306 | A | 246 | 248 | 228 | 222 | 220 | A | A | A | A | A | 210 | 212 | 210 | 222 | 234 | 236 | 210 | 212 | 292 | E A E B |
| 23 | E B | 264 | 280 | 256 | 256 | 222 | 274 | 224 | 216 | 206 | 196 | 200 | 206 | 208 | 212 | 212 | 214 | 216 | 222 | 218 | 226 | 282 | 242 | E B E B | |
| 24 | E B E B | 250 | 226 | 256 | 228 | 250 | 282 | 226 | 218 | 204 | 210 | 222 | 188 | H | 216 | 192 | 230 | 218 | 236 | 226 | 218 | 216 | 242 | 262 | E B E B |
| 25 | E A E A | 276 | 272 | 304 | 318 | 268 | 252 | 230 | A | 204 | 202 | 202 | 208 | E A E A | 232 | 228 | 220 | 216 | 232 | 234 | 214 | 214 | 246 | 258 | E A E A |
| 26 | E A | 290 | 250 | 266 | 272 | 258 | 292 | 250 | 218 | 212 | 194 | 184 | H | 188 | 180 | 214 | 210 | 214 | 230 | 244 | 234 | 218 | 224 | 240 | E A E B |
| 27 | E B E B | 260 | 286 | 296 | 302 | 300 | 278 | 224 | 222 | 204 | 204 | 192 | H | 200 | 190 | 194 | 204 | 222 | 224 | 240 | 216 | 218 | 250 | 270 | E A E B |
| 28 | E B | 234 | 232 | 234 | 222 | 218 | 252 | 208 | 214 | 216 | 206 | 208 | H | 188 | 200 | 194 | 218 | 222 | 234 | 214 | 212 | 240 | 234 | 268 | E B E B |
| 29 | E B | 274 | 264 | 268 | 236 | 222 | 226 | 212 | 218 | 212 | 204 | 194 | H | 188 | 192 | 204 | 220 | 220 | 238 | 222 | 216 | E C | 234 | 260 | E A |
| 30 | E A | 226 | 248 | 274 | 270 | 256 | 258 | 224 | 220 | 208 | 206 | 192 | 198 | 202 | 226 | 214 | 232 | 236 | 228 | E A | 242 | 230 | E A E A | 254 | E A |
| 31 | | | | | | | | | | | | | | | | | | | | | | | | | |
| CNT | | 30 | 30 | 30 | 29 | 30 | 29 | 30 | 26 | 26 | 26 | 25 | 26 | 25 | 24 | 26 | 28 | 27 | 25 | 30 | 30 | 29 | 30 | 30 | 30 |
| MED | | 270 | 275 | 255 | 244 | 237 | 243 | 226 | 218 | 208 | 202 | 201 | 198 | 201 | 206 | 212 | 218 | 225 | 231 | 232 | 218 | U | 226 | E | E |
| U Q | | 284 | 292 | 288 | 271 | 260 | 286 | 232 | 222 | 212 | 210 | 219 | 208 | 215 | E | 224 | 218 | 220 | 234 | 235 | 240 | E | 262 | 292 | E |
| L Q | | 250 | 256 | 254 | 237 | 234 | 250 | 220 | 212 | 204 | 198 | 190 | H | H | H | 200 | 208 | 212 | 222 | 225 | 222 | 214 | 224 | 242 | 260 |

IONOSPHERIC DATA STATION Kokubunji

SEP. 2003 h'E (KM)

135'E MEAN TIME (G.M.T. + 9 H)

LAT. 35'42.4'N LON. 139'29.3'E SWEEP 1.0MHz TO 30.0MHz IN 15.0SEC IN MANUAL SCALING

| H D | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | |
|--------|----|----|----|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|----|----|--|
| 1 | | | | | | E C | | | | A | A | A | A | A | A | A | C | A | B | | | | | | |
| 2 | | | | | | B | 118 | 112 | 110 | | | | | | | A | A | | A | B | | | | | |
| 3 | | | | | | B | 116 | 118 | | A | A | A | 118 | 114 | | A | A | 110 | | | | | | | |
| 4 | | | | | | B | 114 | | B | A | A | A | A | A | A | A | A | A | A | B | | | | | |
| 5 | | | | | | B | A | A | A | A | A | A | A | A | A | A | A | A | A | A | | | | | |
| 6 | | | | | | B | 124 | 114 | 114 | | B | A | A | A | A | A | A | A | A | A | | | | | |
| 7 | | | | | | B | 118 | 118 | 116 | 112 | 110 | 112 | 110 | 112 | 110 | 110 | 112 | 112 | | | B | | | | |
| 8 | | | | | | B | 114 | | A | 114 | 114 | 114 | A | 114 | 112 | 108 | 116 | 118 | 120 | | B | | | | |
| 9 | | | | | | | 124 | | A | | R | A | A | | | | | | | | B | | | | |
| 10 | | | | | | | 116 | | A | A | | | 112 | 116 | | A | 110 | 118 | 116 | 120 | 118 | | | | |
| 11 | | | | | | | 118 | | A | A | A | A | A | | | | 114 | 116 | 118 | 122 | A | | | | |
| 12 | | | | | | | A | A | A | A | | | | | | | 118 | 114 | 116 | | A | | | | |
| 13 | | | | | | | 120 | 114 | | R | A | | | | | | | | | | | | | | |
| 14 | | | | | | | 120 | 118 | | A | | | 110 | 118 | 116 | 116 | 112 | 110 | 116 | 116 | | | | | |
| 15 | | | | | | | A | A | A | A | A | A | A | A | A | A | | | | | | | | | |
| 16 | | | | | | | A | | A | A | A | A | | | | | 116 | 112 | 108 | | | | | | |
| 17 | | | | | | | 112 | | A | A | A | A | 110 | | | | | | | | | | | | |
| 18 | | | | | | | 114 | 114 | | A | A | A | A | A | A | A | A | A | A | | | | | | |
| 19 | | | | | | | A | | A | A | A | A | | | | | | | | | | | | | |
| 20 | | | | | | | 112 | | A | A | A | A | 110 | | | | | | | | | | | | |
| 21 | | | | | | | 114 | 114 | | A | A | A | A | A | A | A | A | A | A | | | | | | |
| 22 | | | | | | | A | | A | A | A | A | A | B | | | 116 | 114 | 110 | 108 | | | | | |
| 23 | | | | | | | 116 | | A | A | A | A | | | | | | | | | | | | | |
| 24 | | | | | | | 114 | 118 | | A | A | A | A | A | A | A | 112 | 118 | 120 | 116 | | | | | |
| 25 | | | | | | | E C | | | | | | | | | | | | | | | | | | |
| 26 | | | | | | | 118 | | 108 | 114 | | A | A | A | A | A | | | | | 110 | | | | |
| 27 | | | | | | | B | | A | | | | | | | | | | | | | | | | |
| 28 | | | | | | | 116 | 112 | | 112 | 112 | 110 | 108 | 114 | 114 | 114 | 120 | 130 | | | | | | | |
| 29 | | | | | | | 130 | 118 | 118 | 118 | 116 | 114 | | | | | 110 | 116 | 118 | | | | | | |
| 30 | | | | | | | 116 | 124 | 112 | | | | | | | | 114 | 110 | 114 | | A | | | | |
| 31 | | | | | | | A | | A | A | A | A | | | | | | | | | A | | | | |
| | | | | | | | 114 | 116 | 116 | 110 | 112 | 108 | 112 | 116 | 120 | | | | | | | | | | |
| | | | | | | | B | A | A | | | A | A | | | | | | | B | | | | | |
| | | | | | | | B | | A | 112 | 112 | | | 110 | 112 | 110 | | | | 122 | | | | | |
| | | | | | | | B | | A | | | | A | A | | | | | | | | | | | |
| | | | | | | | 112 | | 110 | 112 | 116 | | | | 118 | | 110 | 124 | | | | | | | |
| | | | | | | | 118 | 112 | | A | B | B | 114 | 110 | 110 | 116 | 114 | | | | A | | | | |
| | | | | | | | 122 | 116 | 118 | 114 | 114 | 112 | 116 | | A | | 112 | 116 | 110 | | A | | | | |
| | | | | | | | 122 | 116 | 112 | 118 | 120 | | A | | | | | | | | | | | | |
| | | | | | | | B | | A | 116 | 116 | 112 | 114 | 112 | 114 | 114 | 122 | 114 | | | B | | | | |
| | | | | | | | B | | A | 116 | 114 | 116 | 112 | 114 | 114 | 122 | 114 | | | | E B | | | | |
| | | | | | | | 124 | 114 | 114 | 116 | | | A | A | A | | 114 | 118 | 126 | 132 | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | |
| CNT | | | | | | | 19 | 20 | 14 | 12 | 14 | 10 | 13 | 16 | 20 | 21 | 20 | 18 | | | | | | | |
| MED | | | | | | | 118 | 116 | 114 | 114 | 112 | 113 | 112 | 112 | 114 | 116 | 114 | 118 | | | | | | | |
| U Q | | | | | | | 122 | 118 | 116 | 116 | 114 | 116 | 115 | 114 | 115 | 117 | 118 | 122 | | | | | | | |
| L Q | | | | | | | 116 | 114 | 112 | 113 | 112 | 112 | 110 | 110 | 111 | 113 | 112 | 112 | | | | | | | |

SEP. 2003 h'E (KM)

COMMUNICATIONS RESEARCH LABORATORY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

SEP. 2003 h'Es (KM)

135°E MEAN TIME (G.M.T. + 9 H)

LAT. 35°42.4'N LON. 139°29.3'E SWEEP 1.0MHz TO 30.0MHz IN 15.0SEC IN MANUAL SCALING

| D \ H | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | |
|-------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|
| 1 | 96 | 96 | B | 96 | B | C | G | 120 | 120 | 106 | 104 | 100 | 102 | 104 | 104 | 104 | C | 96 | 96 | 96 | 94 | 98 | 104 | 100 | |
| 2 | 98 | B | B | B | B | 116 | 124 | 122 | 102 | 114 | 110 | 108 | 98 | 112 | 104 | 104 | 118 | 104 | 102 | 100 | 98 | 92 | 90 | B | |
| 3 | 92 | 92 | B | B | 110 | 108 | 116 | 114 | 104 | 102 | 102 | 106 | 106 | 104 | 104 | 100 | 100 | 98 | B | 98 | 98 | 96 | 96 | 98 | |
| 4 | 92 | 94 | 90 | 96 | B | B | 110 | 108 | 102 | 98 | 106 | 102 | 106 | 108 | 102 | 104 | 104 | 106 | 102 | 102 | 96 | 98 | 94 | 92 | |
| 5 | 90 | 86 | 92 | 100 | 94 | 94 | 128 | 120 | 116 | 112 | 108 | 106 | 106 | 104 | 102 | 100 | 102 | 98 | 96 | 94 | 94 | B | B | C | |
| 6 | B | B | B | B | 96 | B | 138 | 132 | 100 | 118 | 102 | 96 | 92 | 96 | 120 | 122 | 120 | 110 | 100 | 96 | B | 92 | 90 | 86 | |
| 7 | 92 | 90 | B | B | 102 | B | 112 | 104 | G | 96 | 96 | 100 | 96 | 96 | 96 | 136 | 128 | 132 | 112 | 108 | B | 100 | 96 | 94 | |
| 8 | B | B | B | 112 | B | 114 | 106 | 106 | 104 | 100 | 102 | 98 | 94 | 96 | 140 | 126 | 112 | 118 | 112 | B | B | 96 | B | B | |
| 9 | C | B | B | B | B | B | 112 | 104 | 104 | 110 | G | 104 | 104 | 106 | 118 | 108 | 114 | 112 | 102 | 100 | 100 | 102 | 94 | 96 | |
| 10 | 94 | 92 | B | 94 | C | 96 | 110 | 106 | 102 | 102 | 102 | 100 | 102 | 104 | 98 | 96 | 92 | 94 | 100 | 98 | 94 | 100 | 98 | 96 | |
| 11 | 100 | B | B | B | B | 112 | 106 | 104 | 102 | 102 | 102 | 98 | G | G | 96 | 92 | G | 124 | B | B | 104 | 100 | 104 | B | |
| 12 | B | 98 | 98 | 98 | 92 | 96 | 122 | 120 | 102 | 104 | 104 | B | 96 | 90 | G | 144 | 116 | 120 | 114 | 100 | 100 | 102 | 100 | B | |
| 13 | B | B | B | B | B | 112 | 130 | 116 | 102 | 100 | G | 98 | 102 | 156 | 128 | 128 | 120 | 112 | 102 | 98 | 96 | 98 | 96 | 96 | |
| 14 | 94 | 92 | 92 | 92 | 92 | B | 106 | 106 | 104 | 102 | 100 | 96 | 96 | 138 | 94 | 124 | 116 | 112 | 106 | 104 | C | B | 96 | 96 | |
| 15 | 94 | 92 | 92 | 94 | 94 | 106 | 106 | 96 | 92 | 92 | 98 | 108 | 112 | 104 | 104 | 102 | G | 112 | 94 | 92 | 98 | 98 | 94 | 94 | |
| 16 | 96 | 94 | B | B | B | B | 120 | G | 106 | 104 | 100 | 104 | 102 | 102 | 108 | 102 | 106 | 122 | 110 | 98 | 98 | 96 | 98 | 98 | |
| 17 | 98 | 98 | 100 | 98 | 132 | 128 | 108 | 116 | 108 | 106 | 106 | 100 | 100 | B | 94 | 98 | 94 | 114 | C | 102 | 102 | 90 | 90 | 90 | |
| 18 | 96 | 92 | 96 | 118 | 114 | 110 | 112 | 114 | 108 | 106 | 108 | 108 | 110 | 102 | 98 | 102 | 94 | 92 | 92 | 96 | 94 | 96 | 98 | B | |
| 19 | B | 90 | B | 90 | 90 | B | G | C | 120 | 114 | 104 | 104 | 100 | 100 | 96 | 94 | 94 | 96 | 86 | 90 | 88 | C | B | B | |
| 20 | 122 | 110 | B | 116 | B | C | G | 132 | 122 | 122 | 116 | 120 | 114 | 120 | 102 | G | 124 | 108 | 106 | 106 | 104 | 106 | B | B | |
| 21 | 92 | 94 | 108 | 98 | B | B | G | 122 | 122 | 122 | 118 | 118 | 106 | 108 | 108 | 140 | 124 | 110 | 106 | 98 | 104 | 96 | 102 | 102 | |
| 22 | 102 | 100 | 98 | 98 | 92 | 98 | 110 | 132 | 120 | 104 | 104 | 104 | 104 | 120 | 116 | 116 | 102 | 102 | 100 | 100 | B | 96 | 96 | 96 | |
| 23 | B | 98 | 96 | 94 | 88 | 92 | 90 | G | 126 | 104 | G | G | G | G | G | 102 | 98 | 96 | 94 | 96 | 92 | 96 | 96 | 96 | |
| 24 | 96 | B | 90 | B | B | B | 126 | 102 | 118 | 118 | 116 | 116 | 92 | 92 | 98 | G | B | B | 100 | 102 | 102 | B | B | | |
| 25 | 94 | 96 | 94 | 96 | 98 | 96 | B | 110 | 106 | 100 | 106 | B | B | 102 | 100 | 104 | 104 | G | 132 | 114 | 96 | 96 | 98 | 96 | 94 |
| 26 | 92 | 92 | 90 | 90 | 92 | B | G | G | 106 | 108 | B | B | 98 | 100 | G | 104 | G | 100 | 96 | 96 | 92 | 92 | 92 | B | |
| 27 | 92 | B | B | B | B | B | G | G | 106 | 112 | 104 | 102 | 102 | 102 | 98 | 100 | 98 | 96 | 90 | 92 | 94 | 90 | B | B | |
| 28 | B | B | B | B | B | B | 146 | 142 | 120 | 120 | 108 | 104 | 102 | 100 | 102 | 102 | 116 | 144 | B | 88 | 92 | B | B | B | |
| 29 | B | B | B | B | B | 98 | 140 | G | 114 | 102 | 126 | 126 | 96 | 122 | 122 | 106 | 98 | B | 90 | C | B | B | 102 | 104 | |
| 30 | 104 | 90 | 92 | B | B | 108 | 118 | 130 | 116 | 120 | 112 | 106 | 106 | 104 | 100 | 142 | 138 | 130 | 110 | 108 | 106 | 106 | B | 96 | |
| 31 | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | |
| CNT | 21 | 20 | 14 | 17 | 14 | 16 | 24 | 23 | 29 | 30 | 26 | 26 | 28 | 27 | 27 | 28 | 24 | 29 | 25 | 27 | 24 | 25 | 22 | 18 | |
| MED | 94 | 93 | 93 | 96 | 94 | 107 | 114 | 114 | 106 | 105 | 104 | 104 | 102 | 104 | 102 | 104 | 109 | 110 | 102 | 98 | 97 | 98 | 96 | 96 | |
| U Q | 98 | 97 | 98 | 99 | 102 | 112 | 127 | 122 | 119 | 114 | 108 | 108 | 106 | 108 | 108 | 123 | 119 | 121 | 108 | 100 | 101 | 100 | 98 | 98 | |
| L Q | 92 | 92 | 92 | 94 | 92 | 96 | 109 | 106 | 102 | 102 | 102 | 100 | 97 | 100 | 98 | 101 | 98 | 98 | 95 | 96 | 94 | 96 | 94 | 94 | |

SEP. 2003 h'Es (KM)

COMMUNICATIONS RESEARCH LABORATORY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

SEP. 2003 TYPES OF Es 135°E MEAN TIME (G.M.T. + 9 H)

LAT.35°42.4'N LON.139°29.3'E SWEEP 1.0MHz TO 30.0MHz IN 15.0SEC IN MANUAL SCALING

| H | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | |
|-----|----|----|------|------|------|------|------|------|------|------|------|------|----|------|------|------|------|------|------|------|----|----|----|----|--|
| 1 | F1 | F1 | | F1 | | | | C1 | C1 | L2 | L2 | L3 | L2 | L2 | L3 | L3 | | L3 | L2 | F3 | F3 | F3 | F2 | F3 | |
| 2 | F2 | | | | | C1 | C1 | C1 | L1 | CL11 | L1 | L1 | L1 | CL21 | L3 | L3 | C2 | L3 | L4 | F4 | F2 | F3 | F1 | | |
| 3 | F1 | F2 | | | FF31 | F3 | C2 | C1 | L2 | L2 | L1 | L1 | L1 | L1 | L1 | L1 | L2 | L3 | | F2 | F2 | F1 | F3 | F4 | |
| 4 | F4 | F2 | F3 | F1 | | | L1 | L2 | L2 | L3 | L2 | L2 | L1 | L1 | L3 | L2 | L1 | L2 | L3 | F3 | F3 | F2 | F2 | F2 | |
| 5 | F3 | F2 | FF22 | F2 | F2 | L1 | C3 | C2 | CL21 | C2 | L1 | L2 | L1 | L2 | L2 | L2 | L2 | L3 | L1 | F2 | | | | | |
| 6 | | | | F2 | | H1 | CL11 | L1 | CL11 | L1 | L1 | L2 | L1 | L1 | CL11 | CL11 | CL22 | CL11 | L2 | F2 | | F3 | F4 | F2 | |
| 7 | F1 | F1 | | F1 | | | C1 | L1 | | L1 | L1 | L1 | L1 | L1 | L1 | L1 | CL11 | CL11 | CL21 | F1 | | F1 | F3 | F1 | |
| 8 | | | F1 | | F1 | L2 | L1 | L1 | L2 | L1 | L1 | L1 | L1 | L1 | HL11 | CL11 | CL21 | CL21 | C2 | | | F2 | | | |
| 9 | | | | | | C1 | L2 | L2 | L1 | | L1 | L2 | L2 | C1 | L1 | L1 | CL11 | CL31 | F2 | F3 | F3 | F1 | F3 | F3 | |
| 10 | F2 | F2 | | F2 | | F1 | C2 | L3 | L3 | L2 | L1 | L1 | L1 | L1 | L1 | L1 | L2 | L2 | L1 | F3 | F5 | F2 | F3 | F3 | |
| 11 | F2 | | | | F3 | L3 | L3 | L2 | L2 | L1 | L1 | L1 | | | L1 | L1 | | CL11 | | | F1 | F2 | F1 | | |
| 12 | | F2 | F3 | F1 | F1 | F1 | C2 | CL11 | L2 | L1 | L1 | | L1 | L1 | HL11 | C2 | C3 | F2 | F2 | F1 | F1 | F1 | F1 | | |
| 13 | | | | | F1 | C1 | CL11 | L1 | L1 | L1 | | L1 | L1 | H1 | C1 | CL11 | CL31 | C3 | F5 | F3 | F3 | F1 | F2 | F3 | |
| 14 | F4 | F5 | F2 | F2 | F2 | | L2 | L1 | L2 | L2 | L2 | L2 | L2 | CL11 | L2 | L2 | CL22 | CL3 | C2 | F1 | | | F2 | F3 | |
| 15 | F1 | F2 | F2 | F2 | F2 | F1 | L3 | L1 | L1 | L1 | L2 | CL11 | C1 | L1 | L1 | L1 | | C3 | F4 | F3 | F1 | F1 | F1 | F2 | |
| 16 | F1 | F1 | | | | C1 | | L1 | L1 | L1 | L1 | L1 | L1 | L1 | L1 | L1 | L1 | CL11 | F2 | F3 | F4 | F2 | F1 | F1 | |
| 17 | F2 | F2 | F2 | F2 | F1 | L2 | C1 | L1 | L1 | L2 | L1 | L1 | | L1 | L1 | L1 | L1 | CL22 | | F3 | F3 | F1 | F1 | F1 | |
| 18 | F1 | F2 | F2 | F1 | F2 | C2 | C1 | L1 | L1 | L1 | L1 | L1 | L1 | L1 | L1 | L1 | L2 | L2 | F2 | F1 | F1 | F2 | F2 | | |
| 19 | | F1 | | F1 | F1 | | | C1 | CL11 | L2 | L1 | L1 | L1 | L3 | L2 | L2 | L2 | L1 | F2 | F2 | F1 | | | | |
| 20 | F1 | F2 | | F2 | | C1 | | CL11 | CL11 | CL11 | CL11 | CL21 | C1 | L1 | | | CL21 | L2 | FF12 | F1 | F4 | F2 | | | |
| 21 | F2 | F2 | F3 | F3 | | | CL11 | CL11 | CL11 | CL11 | CL11 | L1 | L1 | L1 | HL11 | C3 | C5 | F3 | F4 | F3 | F3 | F3 | F3 | F3 | |
| 22 | F3 | F4 | F3 | FF32 | F3 | F3 | C2 | CL11 | C1 | L2 | L2 | L2 | L2 | CL11 | CL11 | CL11 | L3 | L3 | F3 | F3 | F2 | F3 | F1 | | |
| 23 | | F1 | F1 | F1 | F3 | F1 | L2 | | CL11 | L1 | | | | | L1 | L1 | L1 | L2 | F2 | F2 | F3 | F2 | F1 | F1 | |
| 24 | F1 | | F1 | | | CL11 | LC11 | CL11 | CL11 | CL11 | CL11 | L2 | L1 | L1 | | | | C1 | | F2 | F2 | F1 | | | |
| 25 | F2 | F4 | F4 | F2 | F1 | F2 | | CL21 | L1 | L1 | L1 | | L2 | L2 | L1 | | | CL21 | F3 | F2 | F2 | F2 | F2 | F2 | |
| 26 | F2 | F2 | F2 | F2 | F2 | | | L1 | CL11 | | | | L1 | L1 | L1 | L1 | L1 | L2 | F2 | F1 | F2 | F3 | F1 | | |
| 27 | F1 | | | | | | | L1 | CL11 | L1 | L1 | L1 | L1 | L1 | L1 | L1 | L2 | L2 | F3 | F3 | F1 | F1 | | | |
| 28 | | | | | | H1 | H1 | C1 | C1 | L1 | L1 | L1 | L1 | L1 | L1 | L1 | CL11 | H2 | | F2 | F1 | | | | |
| 29 | | | | | F3 | H1 | | CL11 | L1 | CL11 | CL11 | L1 | L1 | CL11 | C1 | L1 | L1 | | F2 | | | | F3 | F2 | |
| 30 | F1 | F2 | F1 | | F1 | C1 | CL11 | CL11 | CL11 | CL11 | L1 | L1 | L1 | L1 | HL11 | HL21 | H2 | F3 | F2 | FF21 | F3 | | F2 | | |
| 31 | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | |
| CNT | | | | | | | | | | | | | | | | | | | | | | | | | |
| MED | | | | | | | | | | | | | | | | | | | | | | | | | |
| U Q | | | | | | | | | | | | | | | | | | | | | | | | | |
| L Q | | | | | | | | | | | | | | | | | | | | | | | | | |

f-PLOTS OF IONOSPHERIC DATA

| KEY OF f-PLOT | |
|---------------|---|
| | SPREAD |
| ◇ | f _o F ₂ , f _o F ₁ , f _o E |
| × | f _x F ₂ |
| ✱ | DOUBTFUL f _o F ₂ , f _o F ₁ , f _o E |
| ⊗ | f _b E _s |
| └ | ESTIMATED f _o F ₁ |
| †, ‡ | f _{min} |
| ^ | GREATER THAN |
| v | LESS THAN |

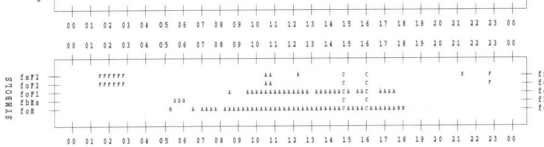
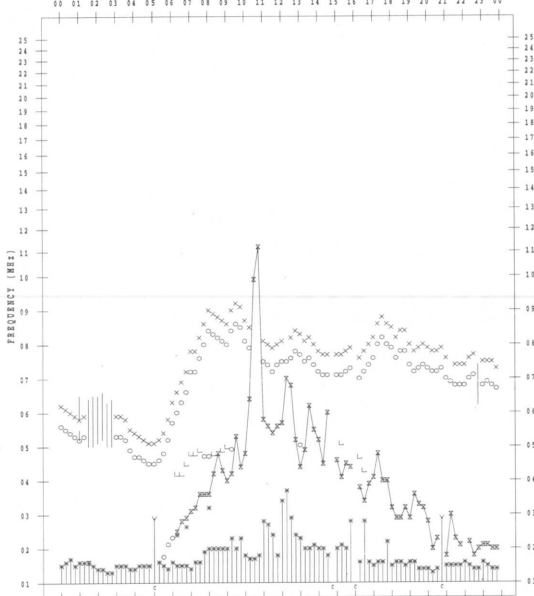
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2003 / 9 / 1

135 °E MEAN TIME



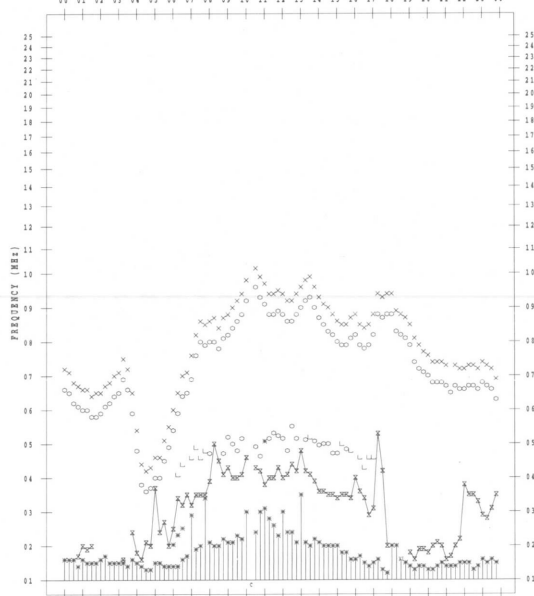
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2003 / 9 / 3

135 °E MEAN TIME



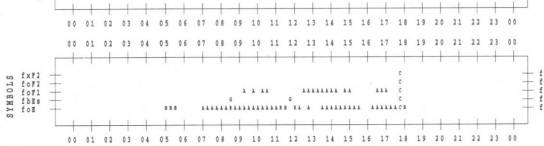
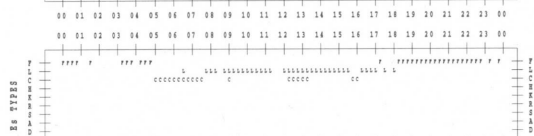
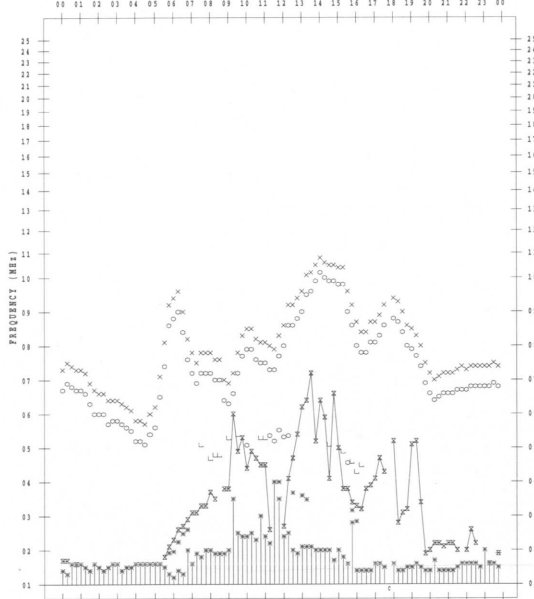
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SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2003 / 9 / 2

135 °E MEAN TIME



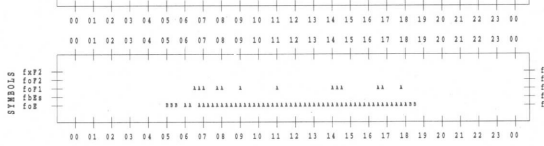
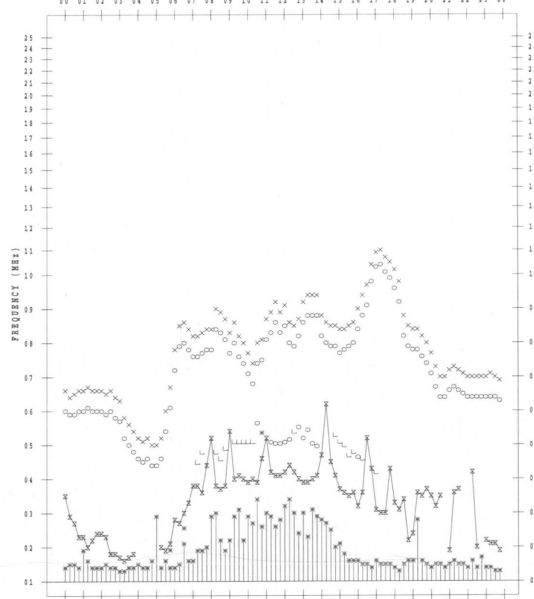
f-PLOT DATA

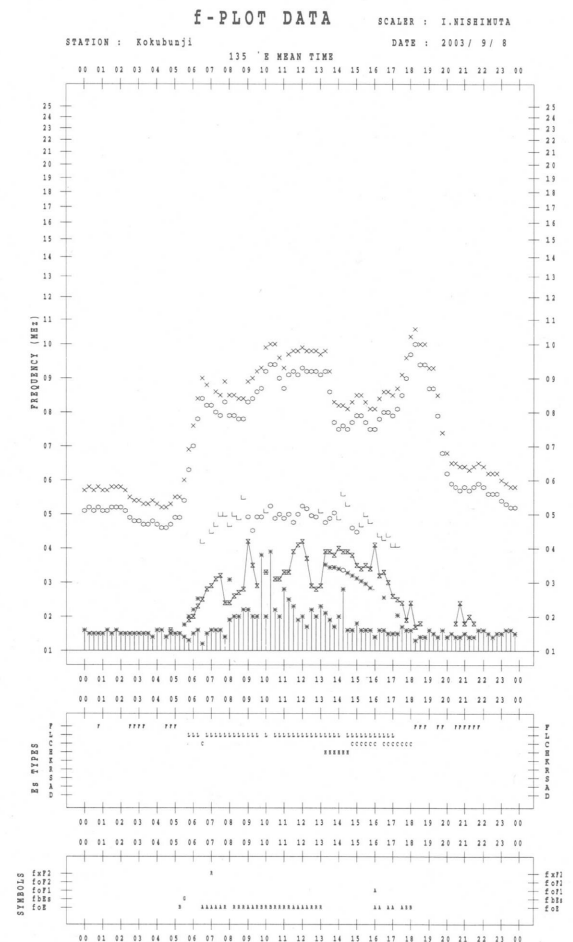
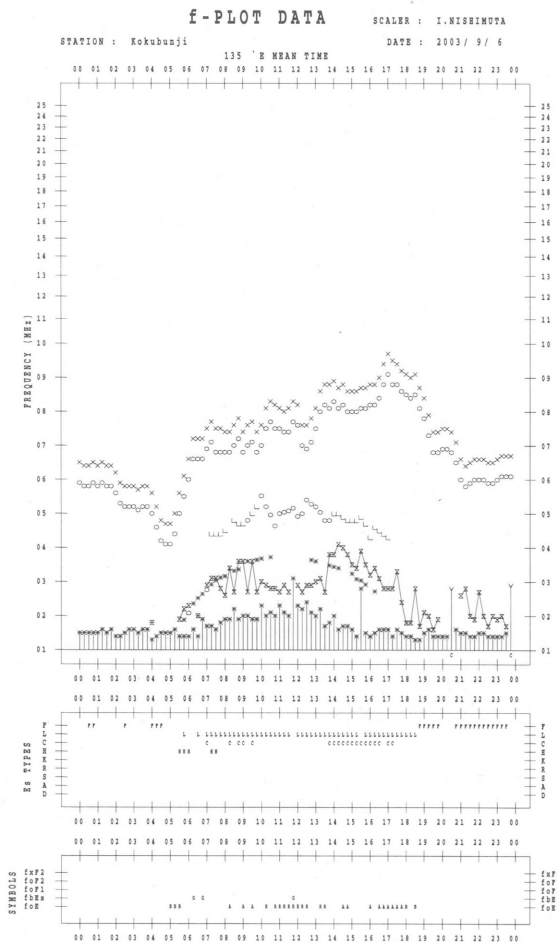
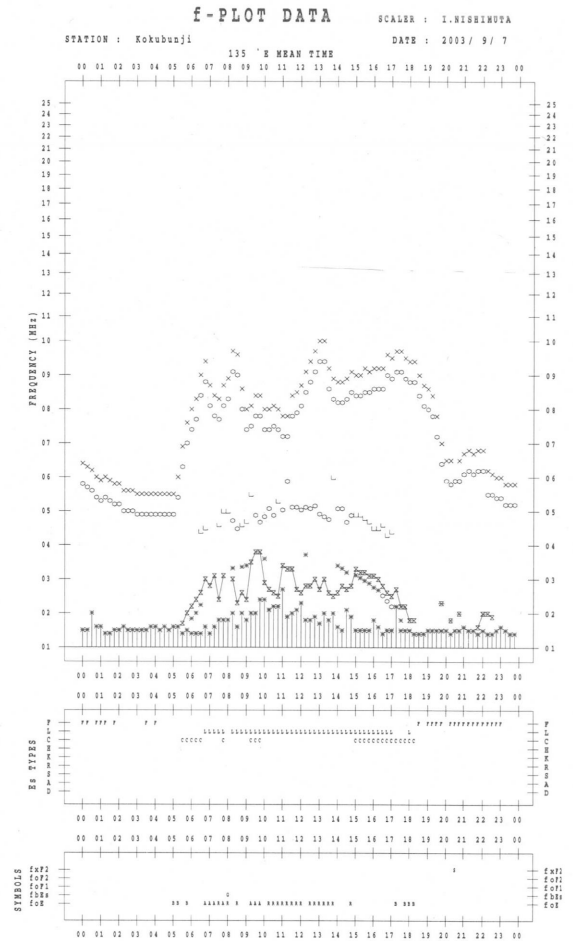
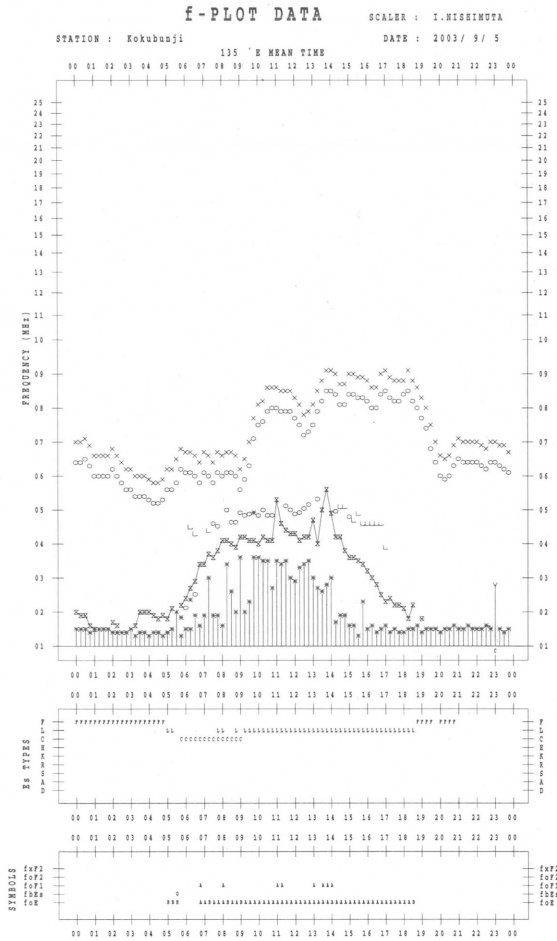
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STATION : Kokubunji

DATE : 2003 / 9 / 4

135 °E MEAN TIME

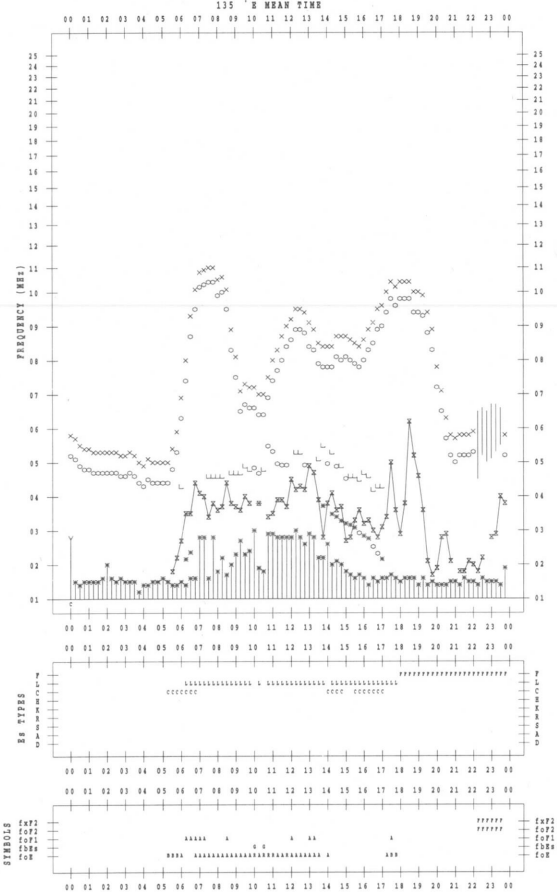




f-PLOT DATA

SCALER : I.NISHIMOTO

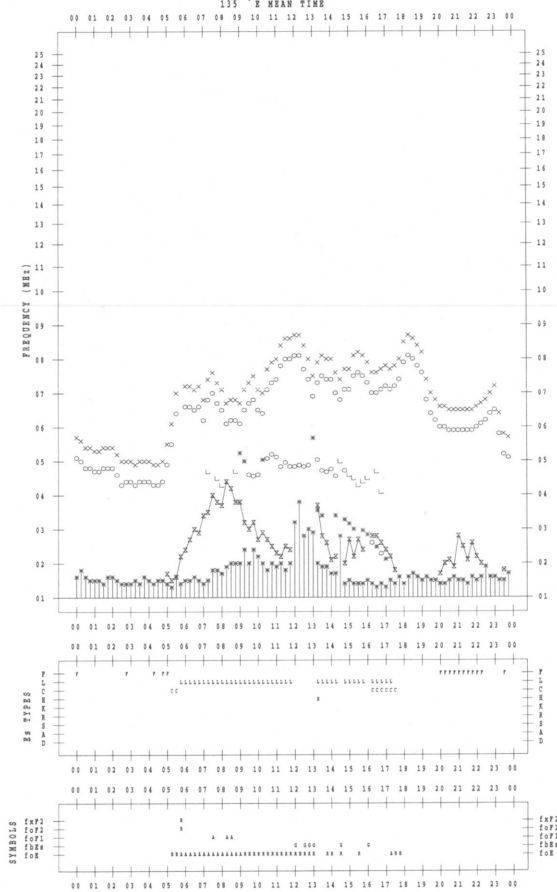
STATION : Kokubunji DATE : 2003/ 9/ 9



f-PLOT DATA

SCALER : I.NISHIMOTO

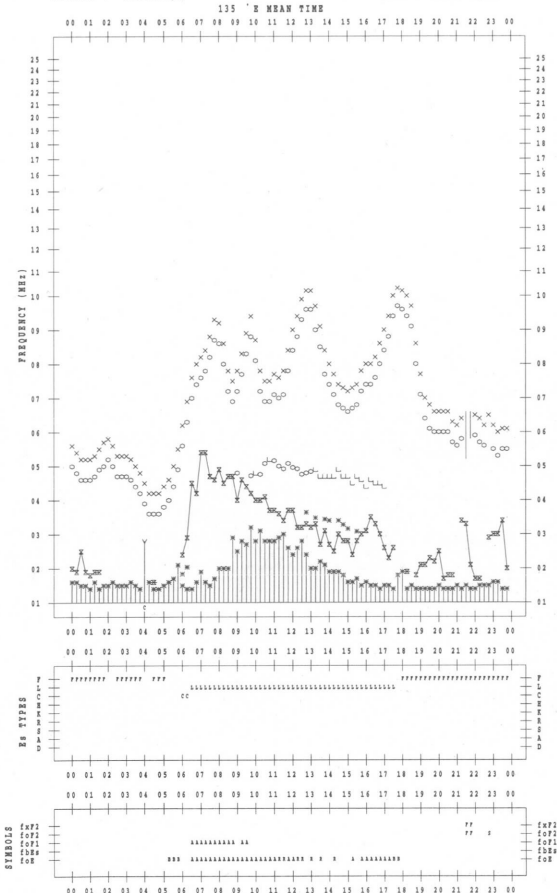
STATION : Kokubunji DATE : 2003/ 9/11



f-PLOT DATA

SCALER : I.NISHIMOTO

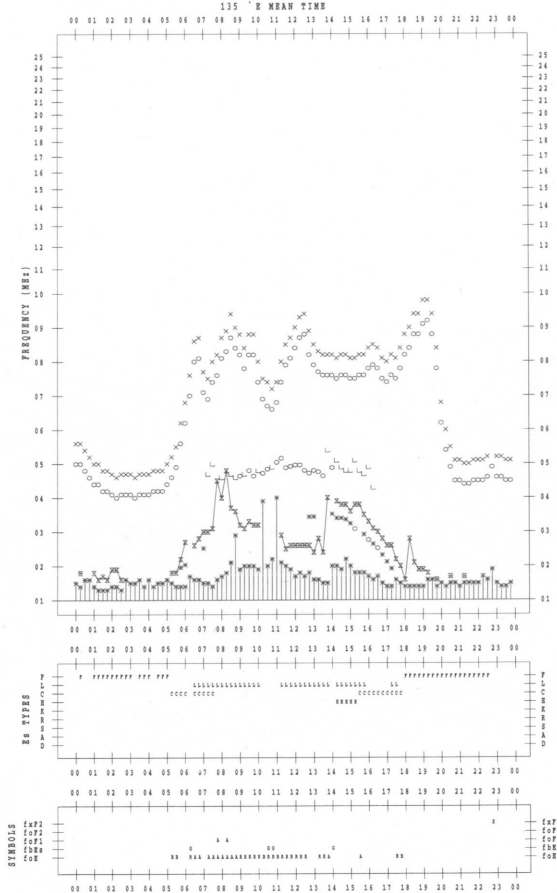
STATION : Kokubunji DATE : 2003/ 9/10

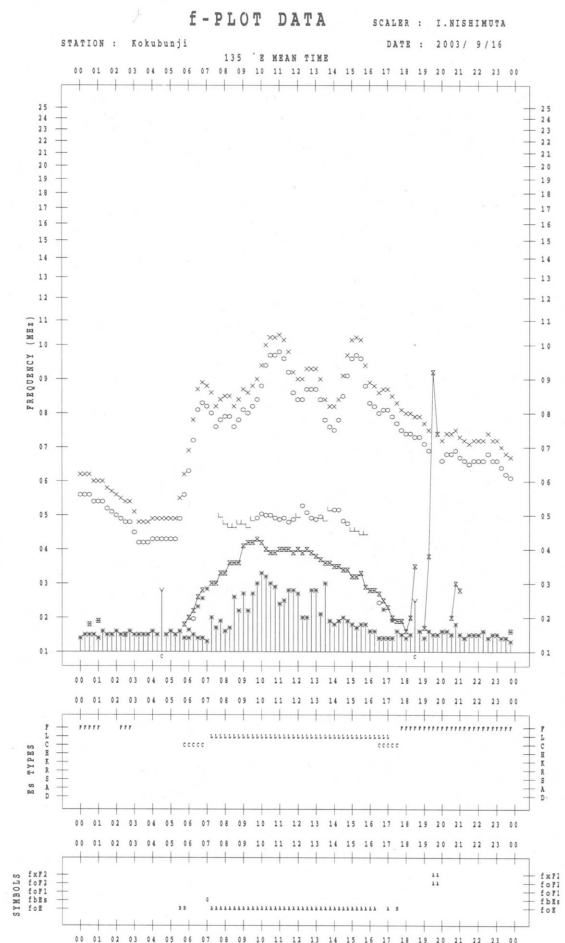
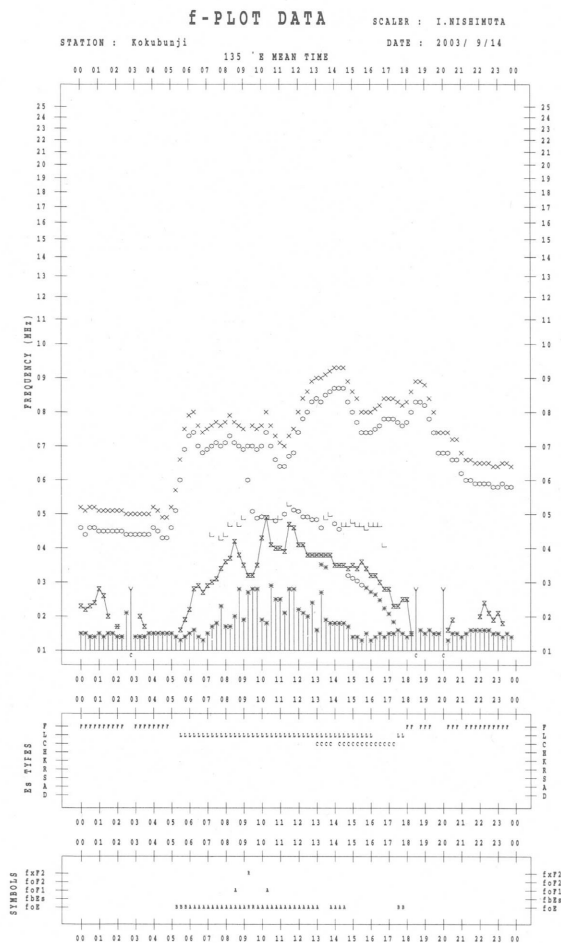
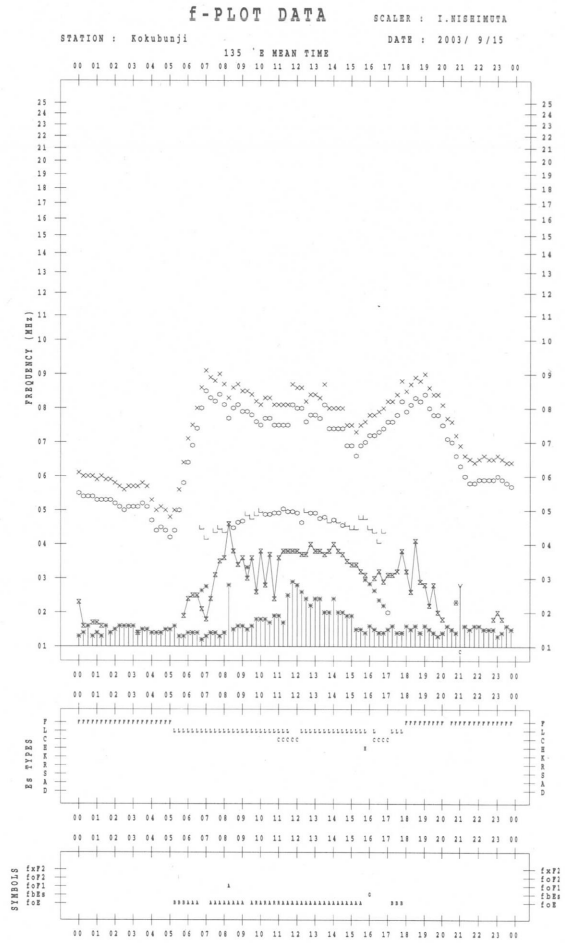
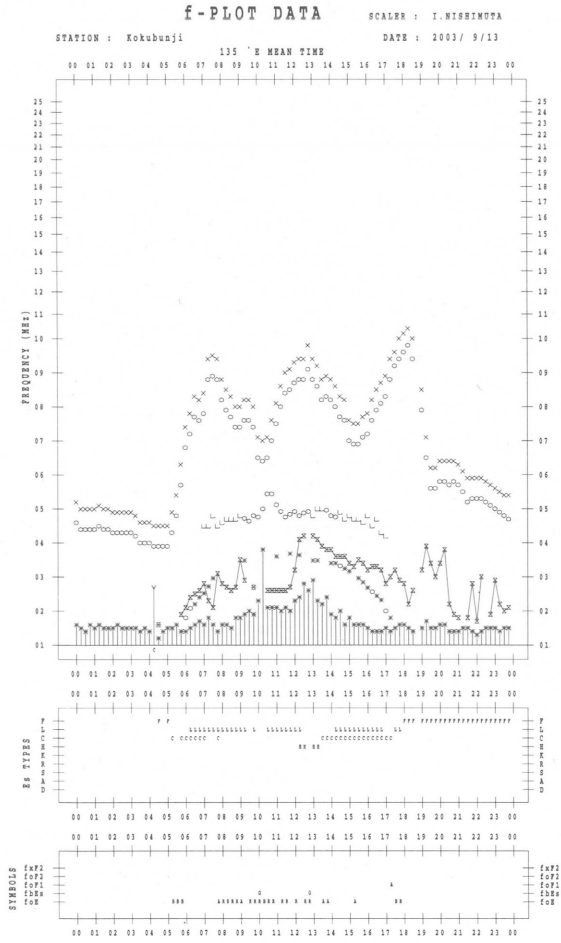


f-PLOT DATA

SCALER : I.NISHIMOTO

STATION : Kokubunji DATE : 2003/ 9/12





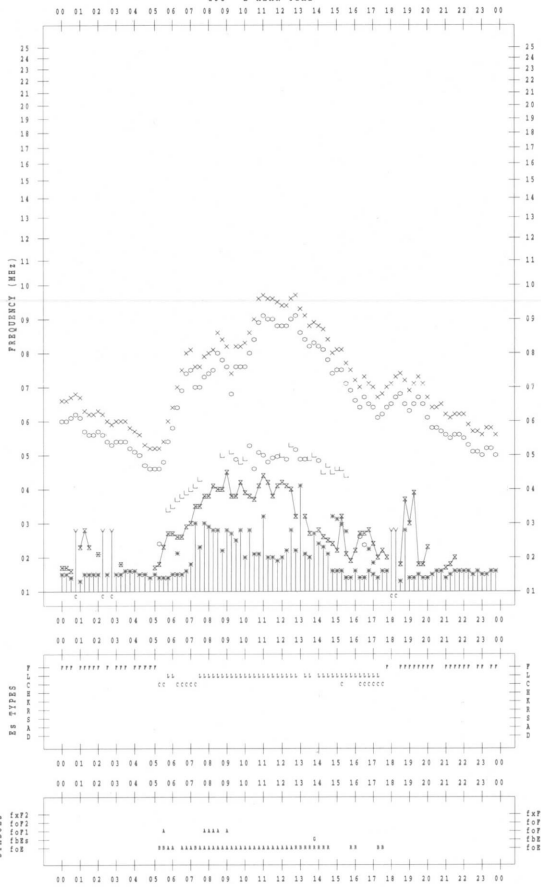
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2003/ 9/17

135 °E MEAN TIME



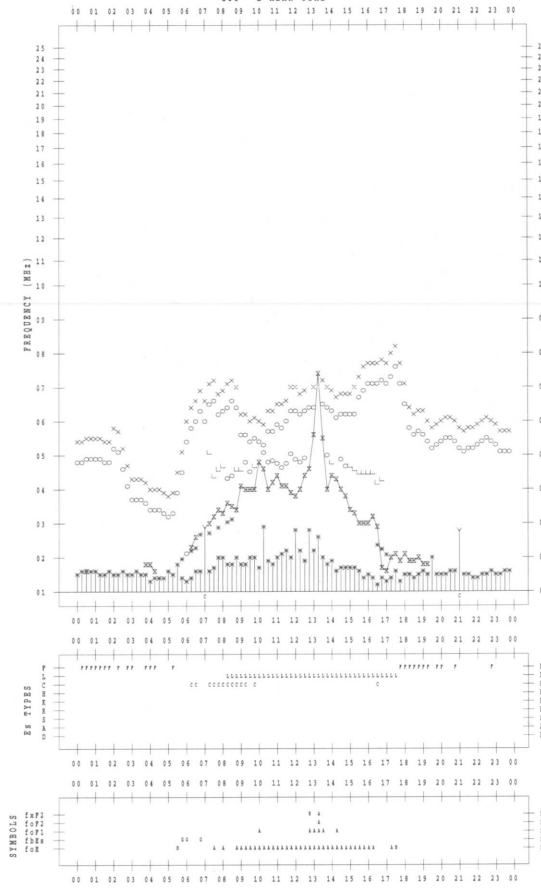
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2003/ 9/19

135 °E MEAN TIME



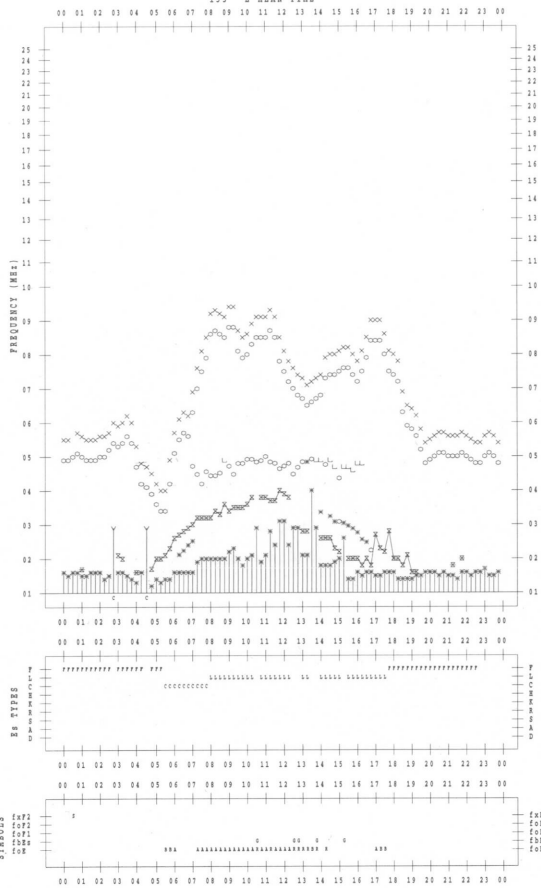
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2003/ 9/18

135 °E MEAN TIME



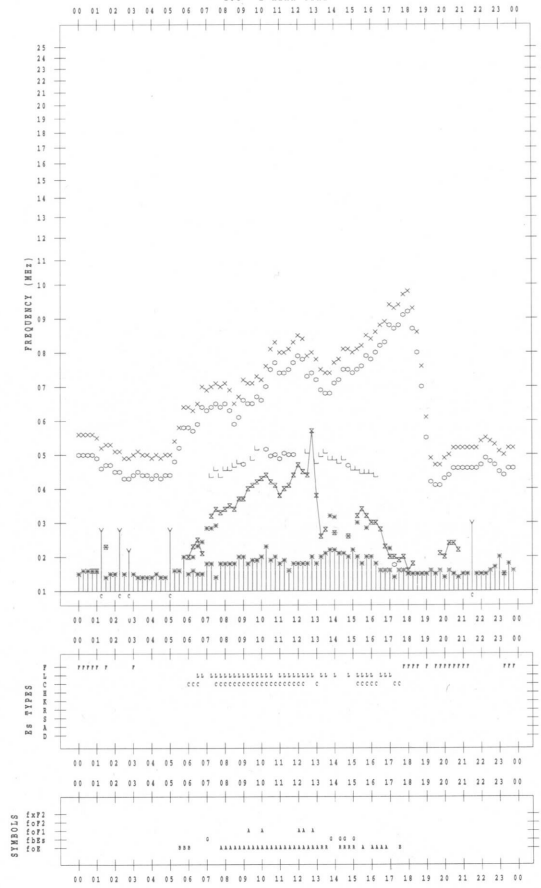
f-PLOT DATA

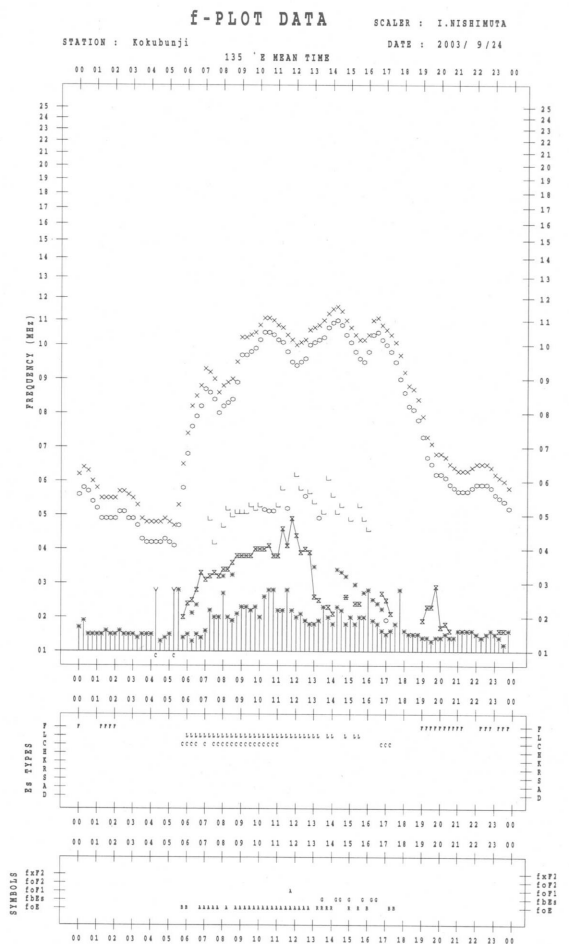
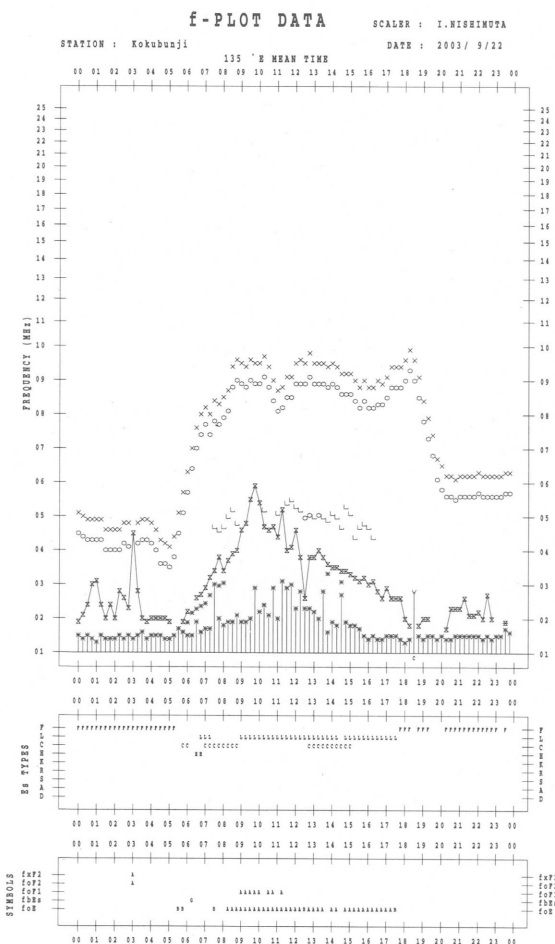
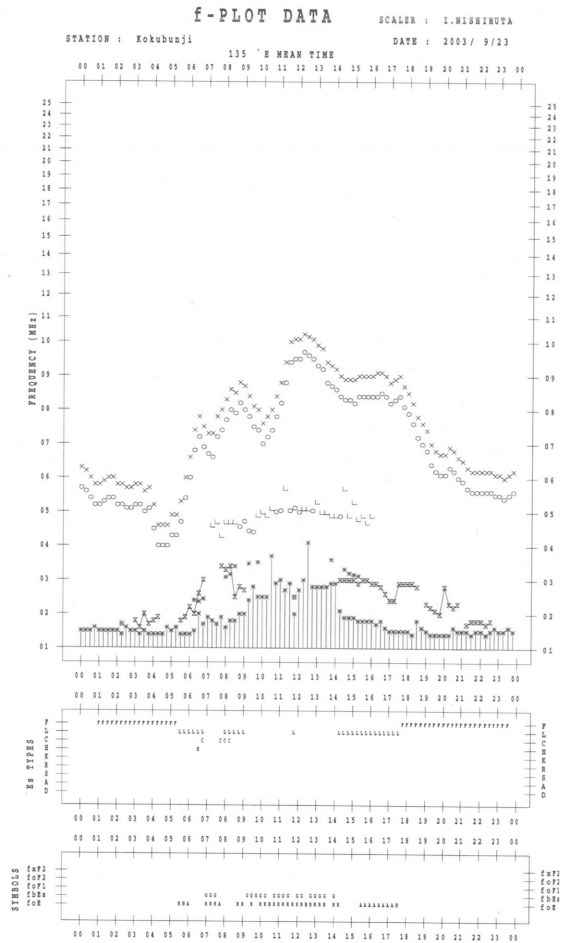
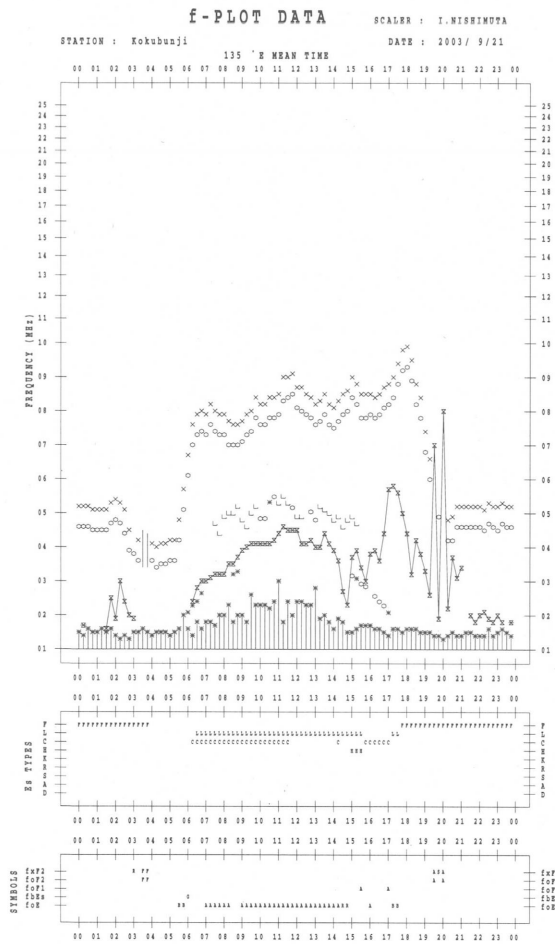
SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2003/ 9/20

135 °E MEAN TIME





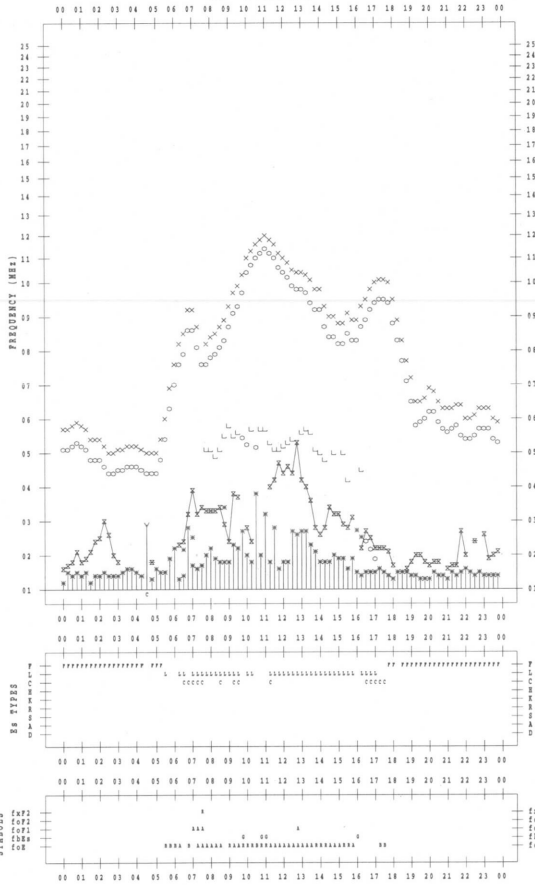
f-PLOT DATA

SCALER : I.NISHIMOTO

STATION : Kokubunji

DATE : 2003/ 9/25

135 °E MEAN TIME



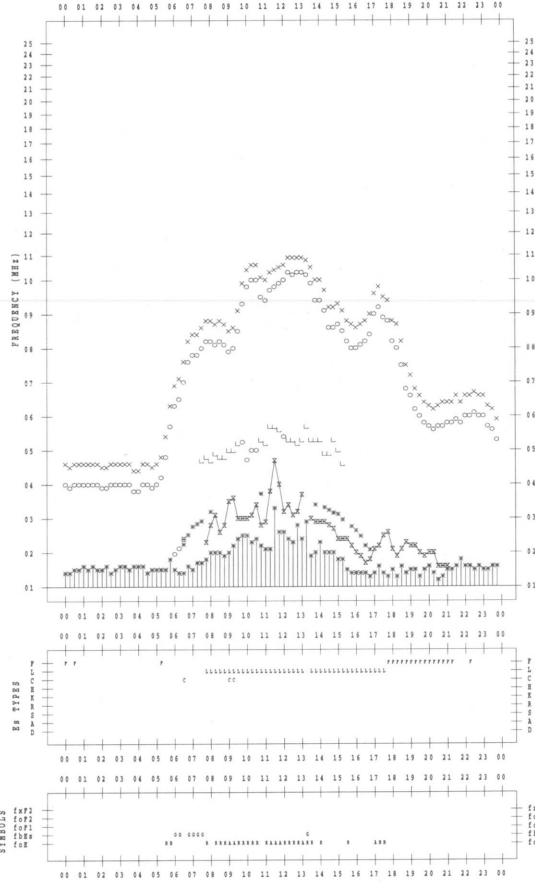
f-PLOT DATA

SCALER : I.NISHIMOTO

STATION : Kokubunji

DATE : 2003/ 9/27

135 °E MEAN TIME



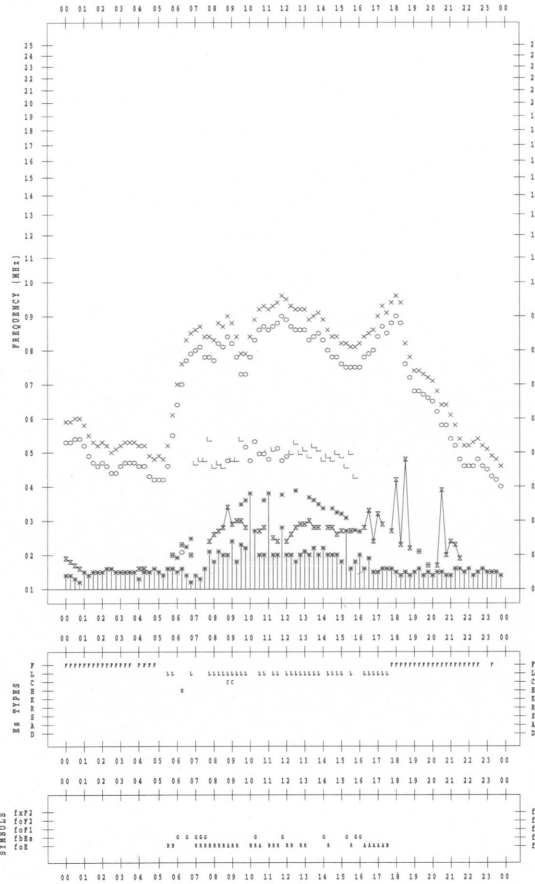
f-PLOT DATA

SCALER : I.NISHIMOTO

STATION : Kokubunji

DATE : 2003/ 9/26

135 °E MEAN TIME



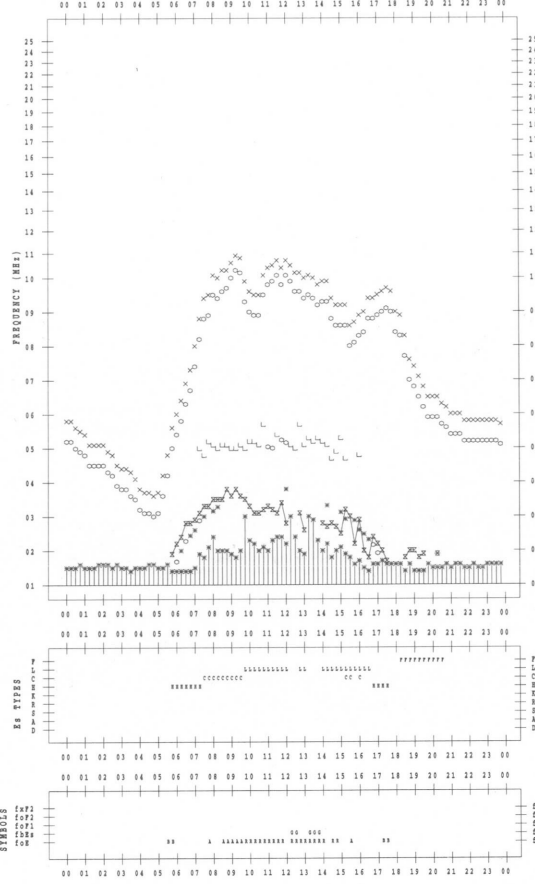
f-PLOT DATA

SCALER : I.NISHIMOTO

STATION : Kokubunji

DATE : 2003/ 9/28

135 °E MEAN TIME



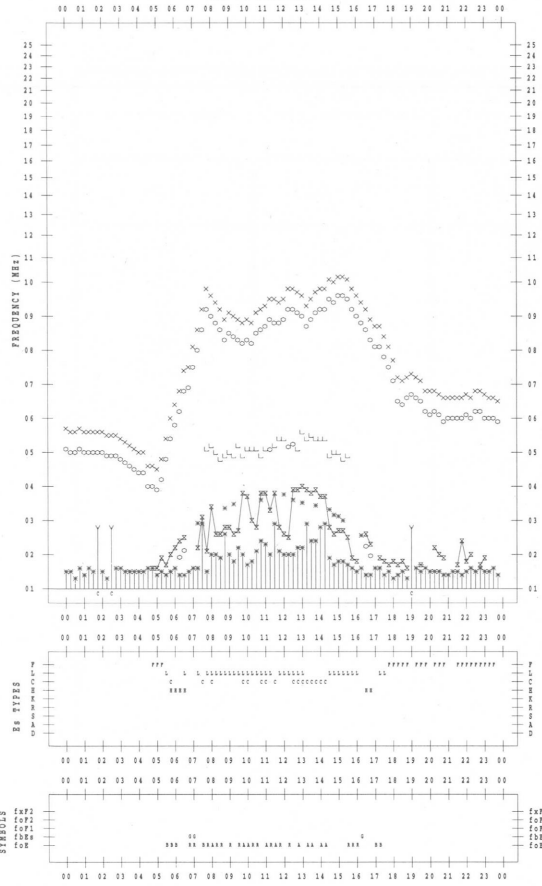
f-PLOT DATA

SCALER : I.NISHIMURA

STATION : Kokubunji

DATE : 2003 / 9 / 29

135 °E MEAN TIME



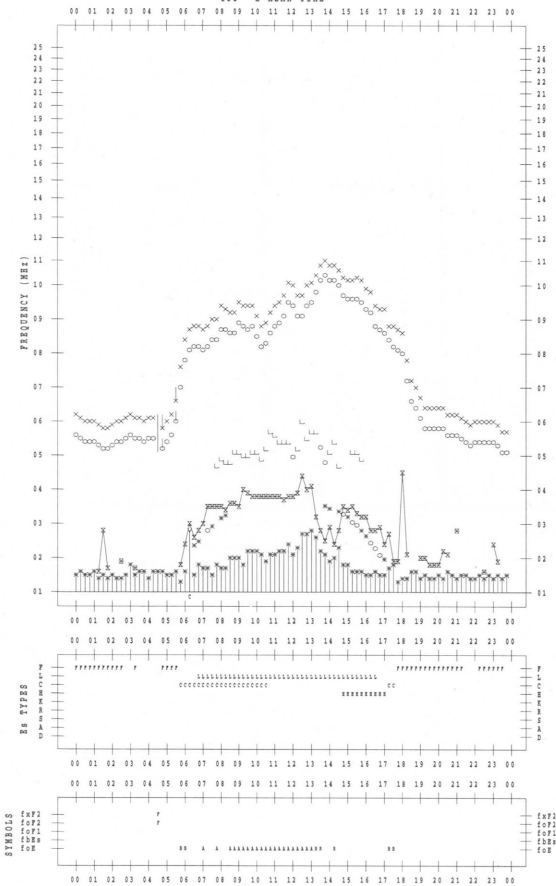
f-PLOT DATA

SCALER : I.NISHIMURA

STATION : Kokubunji

DATE : 2003 / 9 / 30

135 °E MEAN TIME



B. Solar Radio Emission
 B1. Daily Data at Hiraiso
 500 MHz

Hiraiso

September 2003

| Single-frequency total flux observations at 500 MHz | | | | | |
|---|-------|-------|-------|-------|-----|
| Flux density: $10^{-22} \text{ W m}^{-2} \text{ Hz}^{-1}$ | | | | | |
| UT Date | 00-03 | 03-06 | 06-09 | 21-24 | Day |
| 1 | 25 | 25 | 25 | 27 | 25 |
| 2 | 25 | 25 | 25 | 27 | 26 |
| 3 | 25 | 25 | 25 | 28 | 26 |
| 4 | 27 | 25 | 25 | 29 | 26 |
| 5 | 27 | 26 | 26 | 28 | 27 |
| 6 | 26 | 24 | 24 | 26 | 25 |
| 7 | 26 | 25 | 25 | 27 | 26 |
| 8 | 26 | 24 | 24 | 27 | 25 |
| 9 | 25 | 23 | 23 | 26 | 25 |
| 10 | 25 | 24 | 24 | 26 | 25 |
| 11 | 25 | 25 | 25 | 25 | 25 |
| 12 | 25 | 24 | 25 | 25 | 25 |
| 13 | 24 | 23 | 22 | - | 23 |
| 14 | - | - | - | - | - |
| 15 | - | - | - | - | - |
| 16 | 24 | 24 | 24 | 27 | 25 |
| 17 | 26 | 25 | 25 | 28 | 26 |
| 18 | 27 | 25 | 25 | 28 | 26 |
| 19 | 26 | 25 | 26 | 27 | 26 |
| 20 | 27 | 29 | 29 | 26 | 28 |
| 21 | 28 | 27 | 27 | 36 | 29 |
| 22 | 36 | 36 | 37 | 29 | 34 |
| 23 | 29 | 28 | 28 | 30 | 29 |
| 24 | 30 | 29 | 29 | 30 | 30 |
| 25 | 30 | 29 | 28 | 31 | 30 |
| 26 | 28 | 28 | 29 | 30 | 29 |
| 27 | 28 | 27 | 28 | 29 | 28 |
| 28 | 28 | 27 | 28 | 32 | 29 |
| 29 | 30 | 29 | 30 | 32 | 30 |
| 30 | 29 | 27 | 27 | 32 | 29 |
| 31 | | | | | |

Note: No data is available during the following periods.
 13rd 2015 - 16th 0100

A superscript * stands for being superposed on a burst.

B. Solar Radio Emission
B2.Outstanding Occurrences at Hiraiso

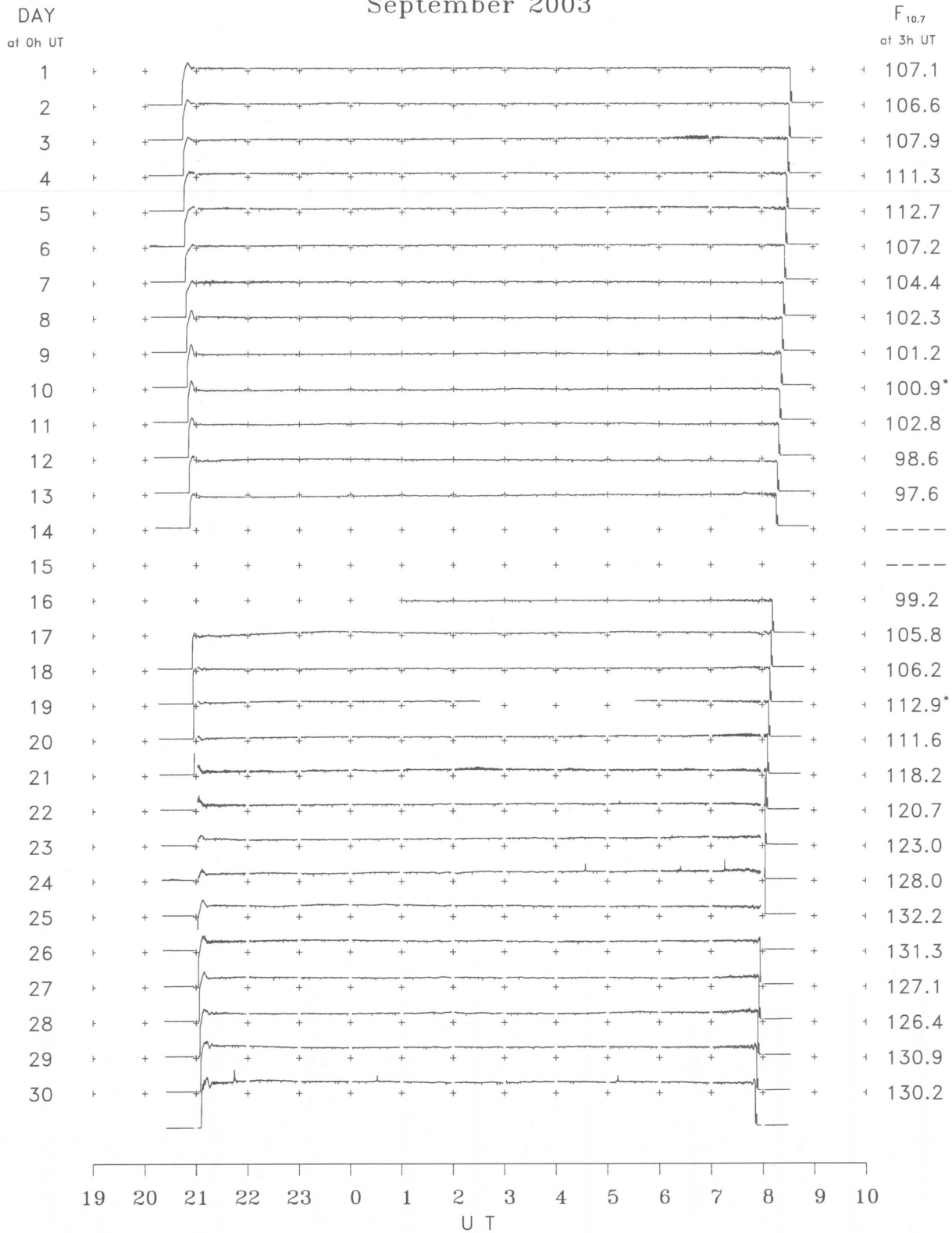
Hiraiso

September 2003

| Single-frequency observations | | | | | | | | |
|---|----------------|--------|-------------------------|------------------------------|----------------|---|------|--------------|
| Normal observing period: 2015 - 0850 U.T. (sunrise to sunset) | | | | | | | | |
| SEP. 2003 | FREQ. (MHz) | TYPE | START TIME (U.T.) | TIME OF MAXIMUM (U.T.) | DUR. (MIN.) | FLUX DENSITY ($10^{-22} \text{ W m}^{-2} \text{ Hz}^{-1}$) | | POLARIZATION |
| | | | | | | PEAK | MEAN | REMARKS |
| 11 | 500 | 8 S | 0716.0 | 0716.0 | 1.0 | 100 | - | 0 |
| 17 | 500 | 8 S | 0410.0 | 0410.0 | 1.0 | 10 | - | 0 |
| 17 | 500 | 7 C | 0502.0 | 0512.0 | 17.0 | 10 | - | 0 |
| 18 | 500 | 8 S | 0036.0 | 0036.0 | 1.0 | 10 | - | 0 |
| 20 | 500 | 7 C | 0058.0 | 0059.0 | 3.0 | 10 | - | 0 |
| 20 | 500 | 8 S | 0319.0 | 0319.0 | 1.0 | 10 | - | 0 |
| 20 | 500 | 8 S | 2207.0 | 2207.0 | 1.0 | 15 | - | 0 |
| 21 | 500 | 8 S | 0807.0 | 0807.0 | 1.0 | 30 | - | 0 |
| 24 | 500 | 8 S | 0228.0 | 0228.0 | 1.0 | 15 | - | 0 |
| 24 | 500 | 7 C | 0433.0 | 0434.0 | 2.0 | 105 | - | 0 |
| 24 | 2800 | 8 S | 0434.0 | 0434.0 | 1.0 | 20 | - | 0 |
| 24 | 500 | 8 S | 0531.0 | 0531.0 | 1.0 | 10 | - | 0 |
| 24 | 500 | 8 S | 0624.0 | 0625.0 | 1.0 | 75 | - | 0 |
| 24 | 2800 | 1 S | 0625.0 | 0625.0 | 1.0 | 15 | - | 0 |
| 24 | 500 | 8 S | 0631.0 | 0632.0 | 2.0 | 40 | - | 0 |
| 24 | 500 | 47 GB | 0714.0 | 0718.0 | 4.0 | 580 | - | WR |
| 24 | 2800 | 8 S | 0716.0 | 0716.0 | 1.0 | 35 | - | 0 |
| 24 | 500 | 8 S | 0759.0 | 0759.0 | 1.0 | 305 | - | 0 |
| 25 | 500 | 8 S | 0234.0 | 0234.0 | 1.0 | 10 | - | 0 |
| 27 | 500 | 8 S | 0626.0 | 0626.0 | 1.0 | 10 | - | 0 |
| 27 | 500 | 8 S | 2306.0 | 2306.0 | 1.0 | 10 | - | WR |
| 28 | 500 | 8 S | 0522.0 | 0522.0 | 1.0 | 10 | - | 0 |
| 29 | 2800 | 1 S | 2144.0 | 2145.0 | 3.0 | 35 | - | 0 |
| 29 | 500 | 8 S | 2149.0 | 2149.0 | 1.0 | 10 | - | 0 |
| 30 | 500 | 42 SER | 0029.0 | 0031.0 | 17.0 | 40 | - | WR |
| 30 | 2800 | 1 S | 0031.0 | 0031.0 | 1.0 | 15 | - | 0 |
| 30 | 2800 | 1 S | 0512.0 | 0512.0 | 1.0 | 15 | - | 0 |
| 30 | 2800 | 1 S | 2318.0 | 2320.0 | 3.0 | 15 | - | 0 |

B. Solar Radio Emission
 B3.Summary Plots of $F_{10.7}$ at Hiraio

September 2003



Note: A vertical grid space corresponds to a 100 sfu.
 Elevation angle range $\geq 6^\circ$.

IONOSPHERIC DATA IN JAPAN FOR SEPTEMBER 2003

F-657 Vol.55 No.9 (Not for Sale)

電離層月報 (2003年9月)

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☎ (042) (327) 7 4 7 8 (直通)

Queries about "Ionospheric Data in Japan" should be forwarded to :
Communications Research Laboratory, Independent Administrative Institution, 2-1
Nukui-Kitamachi 4-chome, Koganei-shi, Tokyo 184-8795 JAPAN