

# IONOSPHERIC DATA IN JAPAN

## FOR JANUARY 2005

### VOL.57 NO.1

### CONTENTS

#### Preface

Introduction ..... 1

#### A. Ionosphere

##### A1. Automatic Scaling

Hourly Values at Wakkanai ( $f_oF2$ ,  $fEs$  and  $fmin$ ) ..... 4

Hourly Values at Kokubunji ( $f_oF2$ ,  $fEs$  and  $fmin$ ) ..... 7

Hourly Values at Yamagawa ( $f_oF2$ ,  $fEs$  and  $fmin$ ) ..... 10

Hourly Values at Okinawa ( $f_oF2$ ,  $fEs$  and  $fmin$ ) ..... 13

Summary Plots at Wakkanai ..... 16

Summary Plots at Kokubunji ..... 24

Summary Plots at Yamagawa ..... 32

Summary Plots at Okinawa ..... 40

Monthly Medians  $h'F$  and  $h'Es$  ..... 48

Monthly Medians Plot of  $f_oF2$  ..... 50

##### A2. Manual Scaling

Hourly Values at Kokubunji ..... 51

$f$ -plot at Kokubunji ..... 65

#### B. Solar Radio Emission

B1. Daily Data at Hiraiso ..... 74

B2. Outstanding Occurrences at Hiraiso ..... 75

B3. Summary Plots of  $F_{10.7}$  at Hiraiso ..... 76

《 Real time Ionograms on the Web ..... <http://wdc.nict.go.jp/index.eng.html> 》



NATIONAL INSTITUTE OF INFORMATION  
AND COMMUNICATIONS TECHNOLOGY

TOKYO, JAPAN

# INTRODUCTION

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

National Institute of Information and Communications Technology, 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 ( $foF2$ ,  $fEs$ ,  $fmin$ ) and monthly medians of two factors ( $h'Es$ ,  $h'F$ ), daily Summary Plots and monthly medians plot of  $foF2$ .

#### a. Characteristics of Ionosphere

$foF2$	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  $foF2$  ).
- 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  $foF2$ ,  $fEs$  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  $fxE$  and  $foE$  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

$fxI$	Top frequency of spread $F$ trace
$foF2$ $foF1$ $foE$ $foEs$	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 replace 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 *f<sub>min</sub>*.  
**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 *f<sub>min</sub>*.  
**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 ( CNT )** 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  $10^{-22}$   $Wm^{-2} Hz^{-1}$  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

SGD Code	Letter Symbol	Morphological Classification
43	NS	Onset of Noise Storm
44	NS	Noise Storm in progress
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 F<sub>10.7</sub> 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

JAN. 2005

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		31	34	32	32	34	28	A	51	63	72	68	67	56	58	63	52	40	34	36	32		30	A		
2		34	34		37	39	35	52	58		70	57	70	75	83	66	61	40	41	47	45	47	43	42		
3	38	38	32	38	40	44	35	35	49	62	66	80	67		58	60	57	A		45	33		34	26		
4	34	34	32	34	34	35	34	38	56	58	66	76	62	67	72	62	54	36	38	43	38	34	40	36		
5	32	32	40	39	37	37	32	39	54	68	66	78	74	65	62	61	46	42	41	34	34	35	34	35		
6	38	37	36	35	34	32	30	44	54	67	61		69	60	58	68	52	38	44		A			32		
7	32	34	32		32	31	28	38	A	45	58	54	61	61	67	63	60	47	42	37		A	A	35	34	
8	37	42	42	44	46	40	40	40		66	81	90	82	71		54	57	64	62	31	36	37	40	44		
9	40	41	40	36	40	34		40	53	82	81	73	67	71	67	55	56	52	34	37	44	42	48	44		
10	45	38	29	29	32	26		A	40	61	70	72	60	62	66	66	53	55	43	36	32	29		32		
11	34	32	32	32	36	26		34	50	78	71	75	65	64	70	64	62	52	34			A	34	32	36	
12	36	32	30	32	36	34		37	42		84	80	71	67	69	62	80	38			38	41	37			
13	40	42		29	A	36		A	45	82	74	76	71	74	70	67	67	A		A	26	40	34	32	34	
14	34	34	37	41	51	44	34	41	58	66	71	73	71	75	76	71	54	54	44	47	40	43	41	44		
15	40	47	47	46	49	50		A	41	64	74		77	73	71	71	72	77	61	45	40	34	40	36	34	
16	44	44	42	41	44	47	37	54	62	67		A	A	A		70	73	68	60			32	39	34	37	40
17	40	40	40	37	37	32	36	40	51	62	72	82	66		76	70	63	42	35	35	41	36	37	32		
18	40	32	31					A	59	63	82	77	84	88	85	62	55	35	36	35	36	43	34	42		
19		A	A	A	26			A	82	82	84	76	81	62		82	56	51	46	48	42	38	40	37		
20	37	38	32	37	32	31	26	46	71	73	82		77	67	65	70	59	61	37	34		A	A			
21	29		28		29			38	60	68	72		76	72	68	66	56		A	A	44	A	A	A		
22		32	34	32	26			A			66	74	79	73	81	82	76		A	A	34		32	29	34	
23	32	35	38	26	24			A	40	54	66	77	76	71	65	72	68	74		A	38	37	29		32	
24	32	34	32	32		26		43	62	68	77	76	76	75	77	82	56	45	34			37	36	40	38	
25	41	44	42	40	37	37	36	41	58	58	72	80	83		74	62	54	40		41	37	32	34	37		
26	38	40	41	37	40	34		38	62	65	73	71	71		72		60	36	38	29			37	38		
27	40	41	42	41	40	40	34	39	55	57	65	64	68	53	66	56	49	35	39	38	31	34	34	36		
28	34	40	41	41	38	32	31	41	43	57		68	67	64	66	70	53	37		32	36	34	40	42		
29	42	44	42	41	41	36	34	42	58	63	66	67	69			62	57	43	34	34	33	38	37	34		
30	44	40	40	38	41	41	32	51	54	72	81	67	81	65	71	72	62	42	38	40	34	34	34	37		
31	34	40	38	38	35	26	29	42	54	57	75	71	81	61	61	61	56	41	38	40	40	41	37	40		
	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	29	26	28	26	18	26	29	28	28	27	30	26	28	30	31	25	25	25	23	23	26	26		
MED	38	38	37	37	37	34	34	40	55	66	72	75	71	67	70	65	56	42	38	36	37	36	37	36		
U Q	40	41	41	41	40	40	35	42	60	71	79	77	77	72	73	70	62	51	42	40	40	41	40	40		
L Q	34	34	32	32	32	32	30	38	51	62	66	68	67	64	65	61	54	38	34	33	34	34	34	34		



HOURLY VALUES OF fEs AT Wakkanai

JAN. 2005

LAT.45°23.5'N LON.141°41.2'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	32	27	G	28	G	G	G	41	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	32
2	28	G	G	G	G	29	39	G	G	31	G	43	G	G	G	G	G	G	G	G	33	28	G	40
3	32	36	G	G	G	G	G	27	G	G	G	G	G	G	G	G	42	52	34	G	32	G	28	
4	G	G	G	G	G	25	30	26	G	44	35	39	G	G	G	G	G	G	G	G	G	G	G	G
5	G	G	G	G	G	11	G	G	G	G	G	G	39	G	G	G	53	41	33	29	35	32	28	G
6	26	G	G	27	29	30	G	G	G	93	40	G	49	G	G	G	G	39	30	47	39	32	G	G
7	G	G	G	G	G	G	G	33	29	45	36	38	G	G	G	G	G	G	G	40	40	39	26	G
8	37	G	G	G	G	G	G	40	69	60	G	G	G	G	G	G	G	G	G	G	G	G	29	33
9	28	G	G	G	G	30	G	44	G	G	G	G	G	G	G	G	44	11	G	G	G	28	G	G
10	G	G	G	G	40	58	44	65	G	G	G	G	G	G	G	G	31	G	G	G	G	G	G	G
11	G	G	G	G	G	G	G	30	G	32	G	G	G	G	G	G	41	32	58	41	44	32	25	G
12	G	G	G	G	40	G	33	G	G	G	G	G	G	G	G	30	G	30	G	G	G	G	36	G
13	G	G	G	G	52	32	45	96	G	G	G	G	G	G	G	G	84	G	60	39	G	27	27	G
14	28	G	G	29	31	34	G	G	G	32	G	G	G	G	G	G	G	25	39	G	29	29	30	28
15	29	26	G	G	G	36	38	33	32	G	G	G	G	G	G	33	G	48	30	G	G	G	G	G
16	35	G	G	G	G	G	G	G	G	G	77	106	74	G	G	32	40	34	32	G	G	G	G	G
17	G	G	G	G	G	G	G	11	43	G	G	37	G	G	35	39	G	41	G	G	G	G	G	G
18	G	G	G	G	G	28	39	56	61	58	G	G	37	37	34	71	57	G	G	G	G	G	32	G
19	G	36	G	54	25	29	30	48	35	G	G	G	G	34	G	G	G	G	G	34	30	G	G	G
20	G	29	25	G	G	G	G	G	32	G	G	G	G	G	G	G	G	27	G	G	44	46	27	29
21	G	G	G	28	G	32	G	G	G	G	G	G	G	37	34	G	40	G	64	39	47	39	34	30
22	G	G	G	G	29	29	G	83	65	33	35	G	47	40	36	G	52	72	64	38	53	26	G	G
23	32	29	26	32	28	28	G	G	G	G	G	G	G	G	G	46	62	79	33	36	30	38	30	G
24	G	G	G	G	G	G	G	G	G	61	G	G	G	G	G	46	G	G	G	G	G	G	28	28
25	26	G	23	G	G	G	G	G	31	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
26	27	G	G	29	G	G	G	G	G	G	G	35	G	G	G	G	G	G	G	G	G	G	G	G
27	30	G	28	G	G	G	G	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	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	G	G	G	G	G	G	G
30	G	G	G	G	G	G	G	G	G	G	40	G	G	G	G	G	G	G	G	G	G	G	G	G
31	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
	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	26	31	30	31	31	31	31	28	29	30	31	29	29	29	30	28	29	30
WED	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
U Q	28	G	G	14	28	29	30	39	31	32	35	G	G	G	G	G	41	36	33	35	33	30	27	28
L Q	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G

## HOURLY VALUES OF fmin AT Wakkanai

JAN. 2005

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

$\frac{H}{D}$	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	14	15	16	14	17	16	15	14	16	26	38	34	30	35	34	27	21	14	17	17	16		18	15
2	18	15	15	16	17	15	14	15	22	29	30	33	49	35	29	22	18	14	21	18	15	15	15	14
3	16	14	14	14	14	15	17	14	23	28	33	49	49		28	20	14	14	15	20	15	20	15	
4	15	14	14	16	15	17	16	14	21	24	21	33	35	30	26	22	18	15	17	16	15	16	15	14
5	14	15	14	14	15	15	20	18	20	27	28	28	23	33	28	27	15	15	15	15	14	16	18	15
6	15	14	14	14	14	14	18	14	15	17	17	20	20	18	22	18	18	15	15	14	14	15		20
7	17	14	15		14	15	17	14	14	20	21	20	29	27	24	21	20	18	16	15	14	14	14	15
8	14	15	15	15	14	16	14	14	15	20	24	29	30	36		24	20	17	18	15	15	18	18	15
9	18	20	14	15	15	15		15	20	21	30	35	34	38	33	24	20	14	17	16	17	16	17	15
10	14	14	14	14	14	16	15	14	20	27	28	30	33	32	28	26	20	20	15	15	16			17
11	14	15	15	14	15	16	20	14	23	21	29	29	28	28	27	16	15	15	16	15	15	17	15	14
12	14	15	16	15	14	15	15	18	22	27	33	34	32	38	35	21	20	20			22	18	21	18
13	18	15		16	14	15	15	20	23	30	50	54	48	34	34	27	16	18	14	14	14	18	18	17
14	15	14	16	14	20	15	15	16	23	23	33	32	50	35	30	24	23	15	14	15	15	18	16	18
15	15	15	15	15	14	14	15	14	17	21	62	23	21	32	29	18	23	15	18	18	16	17	16	17
16	15	14	14	15	15	16	15	15	48	38	32	32	30	34	46	22	16	16	18	20	14	16	14	15
17	14	15	14	14	14	15	15	14	22	33	34	29	36		18	23	21	15	20	18	15	20	14	15
18	15	17	15				17	15	20	20	20	20	21	24	22	18	15	18	16	17	20	15	16	14
19	15	15	14	14	20	15	15	14	18	21	28	33	27	24	28	23	20	15	17	14	14	17	17	20
20	14	15	14	16	17	18	18	16	18	29	28	18	21	30	28	26	53	18	15	18	14	17	18	14
21	18		16	14	14	17		17	16	27	30	34	32	28	24	21	15	15	14	15	14	15	14	20
22		14	18	18	15	21		14	21	21	21	29	22	23	23	24	17	15	15	15	15	15	14	16
23	15	15	14	15	17	17		18	18	15	20	21	18	20	27	22	15	15	15	15	17	15	18	18
24	15	20	14	15	18	15	18	16	22	18	21	30	35	22	20	18	20	16	22		18	16	18	17
25	16	14	15	18	15	15	15	17	16	27	18	20	21	32	27	16	21	18	15	14	18	18	17	22
26	21	15	15	15	16	18		16	22	22	23	33	48	39	37		24	17	17	21			20	18
27	16	17	14	16	20	14	14	18	24	30	39	35	34	34	34	29	21	16	20	15	20	20	15	16
28	20	17	15	17	15	15	16	17	26	33	35	33	49	48	49	35	23	20		18	15	17	18	15
29	15	15	14	15	15	17	18	17	34	29	47	50	50			34	22	15	15	17	21	15	16	17
30	15	15	16	14	14	18	21	17	23	18	20	22	21	28	26	23	18	15	15	15	15	20	18	17
31	21	15	18	15	15	20	16	16	21	28	33	40	48	34	34	28	21	14	15	15	15	15	17	16
	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	30	26	31	31	31	31	31	31	28	29	30	31	31	29	29	30	28	29	30
MED	15	15	15	15	15	15	16	15	21	26	29	32	32	32	28	23	20	15	16	15	15	16	17	16
U Q	17	15	15	16	17	17	18	17	23	29	33	34	48	35	34	26	21	18	17	18	17	18	18	18
L Q	14	14	14	14	14	15	15	14	18	21	21	23	22	27	25	21	16	15	15	15	14	15	15	15

HOURLY VALUES OF foF2 AT Kokubunji

JAN. 2005

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			27	30	32	30		51	59	57	69	81	72	66	74	69	62	45	41	42				
2		26		39			27	52	59	62	94	92	87	71	75	84	61	44	42	42	44	36	32	
3			26	31	27	34		44	55	90	85	75	72	73	69	60	62	59		34	27		28	27
4		27	30		27		A	48	61	71	78	83	72	72	65	72	58	51	48	39		27	28	
5	28		30	36		27		43	59	61	78	94	91	69	58	51	59	47		34	30			32
6			30	28	30	28	27	54	72	66	84	67	77	71	65	59	75	41	30	43	34		27	
7	27	28	30	28			34	45	40	58	57	59	71	64	72	74	58	41	36	34		26		28
8	28	27	28	27	30			51	79	77	107	104	81	62	67	72	63	65	66	36	A	31	41	
9	26	28	28	30	32	36		49	59	71	84	108	75	65	71	67	56	48	48	28		27		
10			37		32	28	30	47	66	63	72	77	67	64	71	72	52	54	42	A	A	A	A	A
11			30	36	27		26	48	59	58	88	90	71	67	72	76	58	55		A	A	34		
12			30	30	32		27	44	63	63	85	75	72	65	67	69	62	52	28	34	51	A	A	
13		26	28		28	27	34	48	58	58	87	91	71	71	87	83	A	55	51	49		34		
14			39	37				45	62	A	82	87	92	62	76	76	64	38	47	54	A		23	30
15	36	36	35	39	42		36	49	65	75		76	72	75	75	68	74	67	55	45	43			A
16	34	34	36	38	35	37	37	51		77	87	86	74	74	71	68	64	49	38	35				
17		32		26		30		50	62	72	62	81	77	68	82	75	61	55	45	42	36	38	37	36
18	38	51	A			28		59	81	100	111	116	98	111	102	80	62	55	36	42	37	46	A	
19					A			52	82	92	86	78	A	71	92	81	59	52	59	66	45			38
20	37	37	28					45	84	107	84	89	81	68	78	76		68	45	38	38		A	
21					38			45	66	76	80	86	77	71	67	69	58	51	47	53	A		A	
22					27			54	54	57	C	C	C	C	C	C	C	C		43			39	38
23	42	47	44	A	A			45	62	C	C	C	C	C	C	C	68	65		43	38	32		
24		30		34	36			52	64	77	81	95	97	62	64	68	81	C			34	34	31	32
25	34	30	39	38	32			51	65	69	74	78	84	74	59	59	61	52	41	34	36	30		
26		30		34				41	64	63	73	87	86	84	62	74	74	51	A	A		36		A
27		31	34	36	36			45	59	63	62	72	74	70	61	67	58	47		36	44	27	28	
28				38	35		28	47	59	58	64	87	81	72	68	78	65	42	34	32	32	32	32	34
29	34		34	36	41			46	61	65	66	74	82	81	69	61	61	55	39	28	36	31	32	34
30	34	34	34	37	49			51	59	66	82	97	94	87	62	65	66	52	46	35	34			
31	32		36	36	37			46	59	68	68	82	82	76	63	61	58	45	28	37	41	42		34
	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	13	17	22	22	21	10	10	31	30	29	28	29	28	29	29	29	28	29	24	28	19	17	11	10
MED	34	30	30	36	32	29	29	48	62	66	82	86	77	71	69	69	62	52	42	36	36	32	32	33
U Q	36	35	36	37	36	34	34	51	65	76	85	91	85	74	75	76	64	55	47	42	43	37	37	34
L Q	28	27	28	30	29	28	27	45	59	61	70	76	72	65	64	66	58	46	37	34	34	28	28	30



HOURLY VALUES OF fEs AT Kokubunji

JAN. 2005

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	G	G	G	G	G	G	G	G	G	G	G			G		
2		G		G		G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G			
3			G	G	G	G	G	G	G	G	G	G	G	G	G	40	G	29	40	29		G		G	G	
4		G	G		G		40	25	44	33	G	G	G	G	G	G	G	G	G	G	G	G	G			
5	G		G	G	G	G	G	26	G	G	G	G	G	G	G	G	G	G	G	G	G	G		27	G	
6		40	G	G	G	G	G	G	29	35	49	G	G	G	G	G	G	29	G	G	G		G			
7	G	G	G	G		G	31	46	G	47	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	26	49		G	G	29	
9	G	G	G	G	G	G	G		33	G	G	G	G	G	G		46	G	G	G	G		G	G	G	
10	G	G	G		G	G	G	G	G	G	G	G		45	43	41	35	26	93	44	45	34	33	29		
11	24		G	G	G		G	G	G	G	G	G	G	G	G	39	79	73	102	65	41					
12			G	G	G		G		28	80	60	51	G	G	G	G	33	G	G	G	G		50	48	32	
13	27	G	G		G	G	G	36	G	38	51	G	G		49	48	43	71	36		G	29		G	G	
14			G	G	G	G		G	G	72	40	81	93	G	G	G	G	G		29	34	33	29			
15	G	G	G	G	G	G	G	30	G	G		38	G	G	G	G	50	G	G	G	G				40	
16	G	G	G	34	G	27	G	G		G	G	48	G	G	G	G	G	G	G	G	G	G	G	G	35	
17	31	26	G	G		G	G	G	47	34	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	
18	G	11	27			G		G	G	G	68	60	82	G	G		49	G	G	G	G	G	G	48	34	
19		30			27			32	G	G	54	89	101	49	45	G	G		29	37	G	G			G	
20	G	29	G					G	G	G	G	68	G	G	G	G		G	G	G	G			34		
21				G	G			G	G	G	G	G	G	G	47	G	G		29	G	G	59		27		
22					G			G	G	G	C	C	C	C	C	C	C	C	C	G			G	G	G	
23	G	G		39	40	35	27		G	G	C	C	C	C	C	C	G		34		26	29			G	
24		G		G	G			G	G	G	G	G	G	G	G	G	G	C		G	G	G			G	
25	G	G	G	G	G			G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	
26		G	G	G	G			G	G		41	53	48	44	G	G	G	G	G		34	53	32	29	39	31
27		G	G	G	G			G	G	G		G	G	G	G	G	G	G	G	G	G	G	27		G	
28				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	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	
30	G	G	G	G	G			G	G	G	39	G	G	G	39	G	G	G		27	G	G		G		
31	G		G	G	G	G	G		35	42	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	
	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	21	25	25	26	18	18	31	30	30	27	29	29	29	29	29	29	29	28	30	27	24	21	21		
MBD	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	
U Q	G	6	G	G	G	G	G	G	G	35	40	19	G	G	G	17	G	28	G	G	29	G	30	30		
L Q	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	

HOURLY VALUES OF fmin AT Kokubunji

JAN. 2005

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			20	13	17	13	18	18	30	34	42	40	42	39	34	37	34	41	23	18	14			14	
2		13		13		18	15	18	30	34	40	42	40	39	35	33	23	14	14	13	13	13	15		
3			18	15	14	13	17	20	29	33	40	40	42	40	34	23	23	15	13	14	18		14	14	
4		14	21		14		14	21	13	14	34	34	36	37	34	29	29	13	14	15	25	18	18		
5	17		17	17	14	14	17	15	25	34	36	38	39	34	35	25	23	15	24	14	13	17	15	15	
6		13	14	13	17	14	14	15	13	13	13	18	20	21	28	25	26	13	14	14	14		13		
7	17	21	14	15		21	14	13	22	15	18	34	37	33	30	26	23	14	15	14		14		13	
8	14	13	13	15	13	18		15	14	17	20	22	33	15	21	15	25	14	14	15	14	13	15	13	
9	18	14	13	14	15	17	15	18	13	17	33	33	36	36	39	21	24	18	15	14		21	13	13	
10	13	15	13	13	14	13	15	18	22	33	34	33	36	26	28	23	13	13	14	14	13	14	14	17	
11	14		17	14	13		17	17	13	21	22	38	34	21	21	17	13	17	15	14	13	14			
12			14	13	14		14	13	14	18	18	36	21	18	33	13	22	15	14	14	14	13	15	15	
13	14	13	18		20	14	14	14	28	30	33	40	41	33	33	25	18	14	13	18	13	17		18	
14			14	13	18	18		17	33	26	31	35	28	40	34	36	26	14	15	14	14	13	21	14	
15	17	15	15	23	13	14	17	13	13	17		25	39	39	36	31	25	18	20	20	23			15	
16	15	15	14	13	14	13	21	17		58	52	42	40	45	35	29	17	22	18	21		14		13	
17	14	15	14	18		13	17	20	14	14	35	17	42	37	38	23	24	15	13	18	15	13	14	15	
18	14	13	14		14		13	15	22	24	23	24	24	33	23	20	23	20	17	15	15	14	13	18	
19		13			14		13	21	29	33	30	24	29	29	21	13	14	14	15	14				17	
20	14	13	14				20	25	21	35	28	35	36	38	30		22	14	14	14		14		14	
21				13	13			14	15	30	33	37	39	39	28	22	15	13	17	18	14		17		
22				15			20	28	30		C	C	C	C	C	C	C	C		15			13	17	18
23	14	13	13	13	13	14		21	17	C	C	C	C	C	C	C	15	14		14	14	17			
24		15		15	18			21	23	34	42	39	37	40	35	36	33	C			21	15	15	21	
25	17	15	13	14	13			18	26	31	23	35	39	25	24	34	25	18	14	14	14	14	14		
26		14	21	13	13			18	15	21	20	29	25	36	31	30	28	18	15	13	14	14	14	14	
27		13	14	14	13			15	29	31	35	36	39	38	35	35	28	22		14	13	14	20		
28				13	13	20	14	18	28	33	39	42	35	39	42	36	30	17	14	14	14	15	14	13	
29	14	20	18	14	14			23	34	36	38	40	40	40	34	31	26	20	14	20	17	17	17	13	
30	15	14	18	14	13		17	20	15	15	17	22	23	17	17	13	13	13	15	18	14	14			
31	21		17	14	14	18	17	18	14	20	23	40	39	24	31	15	13	18	20	14	14	13	13	13	
	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	21	25	25	26	18	18	31	30	30	28	29	29	29	29	29	29	29	28	30	27	24	21	21	
WED	14	14	14	14	14	14	16	18	22	28	33	35	37	36	34	25	23	15	14	14	14	14	14	14	
U Q	17	15	18	15	15	18	17	20	28	33	37	40	39	39	35	32	26	18	16	18	15	16	17	17	
L Q	14	13	14	13	13	13	14	15	14	17	22	28	30	25	28	21	16	14	14	14	14	13	14	13	

HOURLY VALUES OF foF2 AT Yamakawa

JAN. 2005

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				28	31	34		31	61	63	66	78	75	66	78	81	82	73	A	63	37	34			
2			28		30	29		37	56	56	82	116	98	80	75	78	68	60	51	54	50	36		30	
3	A		32	32	23	32	30	36	54	101	85	88	78	80	84	64	74	80	54	37	36	34	34		
4	28	34	25	37	36		34	37	54	76	73	80		84	66	71	78	56	53	34	32			26	
5	28	26	31	34	43			31	62	68	60	85	106	70	67	65	64	62	48	30	34	32	A	28	
6		29	30	32	30	26	32	32	74	65	77	85	95	94	77	65	82	71	37	36	50	36			
7	29	28	28	30	35		29	37	55	54	58	70	81	72	72	70	74	48	38	38	34	28			
8	30		29	30	32	29		37	65		81	123	75	66	69	75	77	74	48	62	34	30			
9								34	54	71	71	100	97	79	74	76	65	54	42	42				34	
10		32	34	37	36	29	26	34	55	64	67	82	86	74	66	80	67	52	49	43	34		30	28	
11		29	34	43	34			35	55	66	77	86	86	78	82	82	73	51	58	52	42	A	A	26	
12	28		30	31	29			37	59	67	70	74	77	84	60	74	74	61	A	A	73	A		31	
13			30	32			26	37	55	56	72	94	97	82	73	81	72	66	67	54	A	A		28	
14		28	26	34	32		28	31	52	68	66	74	98	78	75	81	71	67	46	50	36		A	24	
15	30	28	32	32	36	28	29	37	54	77		75	80	92	81	67		80	74	59	46	34		28	
16	32	34		37	A		36	38	37	68		82	102	82	100	84	85	85	66	49	36	36	35	28	28
17	30						31	37	63	67	72	75	84	77	98	80	68	65	73	44		33	43	36	
18	36	48				28		32	94	100	117	138	85	126		78	76	88	66	36	63	36	149		
19	A	A	A		A			32	78	93	82	82	78	A	98	A		62	64	74	78	64	38		42
20	36	42	A	A				30	74	96	101	100	100	83	100	117				81	54	53	34		
21		35	30		39			29	61	77	96	97	76	81	68	72	65	60	55	A	66	A	A		
22		28	28	32			30	40	54	71	101	124	85	79	71	82	86	88	55		36			36	38
23	36	37	37						61	71	74	68	82	78	81	70	77	73	54	50	53	52	32		
24		32	30	34	37			31	59	68	82	97	103	77	68	84	72	71	42		37	29	28	30	
25		34	35	30	32			31	67	72		81	84	80	74	69	60	67	50	37	A				
26			26	28	36			34	54	76	72	82	98	94	83	78	80	72	46		38	28			
27	28		32		37			34	59	67	67	68	81	76	64	66	74	59	43	29	36	35	32	26	
28	29	31	32	32	35	37	25		53	61	66	80		84	85	80	75	75	55	37	34	34			
29		31	31	36				32	55	71	67	66	82	87	80	65	65	70	46	37	32	34	34	34	
30	36	32	34	34	54			32	58	62	78	103	110	84	65	63	68	77	55	37	36	34		32	
31		30	34	34	34			34	55	64	78	72	82	74	74	63	65	54	42	29	37	36	36	28	
	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	14	20	24	23	21	10	12	29	31	29	29	31	29	30	30	30	29	30	28	26	28	22	13	18	
MED	30	32	30	32	35	29	30	34	58	68	74	82	84	80	74	76	73	66	50	40	36	34	34	29	
U Q	36	34	33	34	36	34	31	37	63	76	82	100	97	84	82	81	77	73	55	54	50	36	36	34	
L Q	28	28	28	30	31	28	27	31	54	64	67	75	80	77	68	67	66	60	46	36	34	33	29	28	



HOURLY VALUES OF fEs AT Yamakawa

JAN. 2005

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			G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	41	30	G	G			
2			G	G		G	G		G	G	G	G	38	G	G	G	38	38	G	G	G	G	G		G	
3		40		G	G	G	G	G	G	G	G	G	62	G	38	44	40	39	34	40		G	G	G		
4		G	G	27	G	G		G	G	G	G	G	G		G	G	G		28	G	G	G	34		G	
5		G	G	G	32	G			G		G	G	41	G	G	G	G	G	G	11	G	G	G	39	G	
6		G	G	G	G	24	G	G	G	G	G	G	G	44	G	G	G	G	G	G	G	G	29	23		
7		G	G	G	G	G		G	G	G	G		40	48		40		35	26	G	G	G	G		26	
8		G	29	G	G	G	G	G	G	G	G	G	41	G	G	G	G	39	44	35	34	G	G	G	G	
9						G		G	G		34	38	G	G	G	G	G	G	28	28	25	G			G	
10		G	G	G	G	G	G	G	G	G	G	G	G		44	42	42	35	28	G	G	G	G	G	G	
11		G	G	G	G	G		G	G		35	39	38	G	41	G	G	34	G	G	G		26	38	41	28
12		G	G	G	G	G		G			36		37	48	44	47	49	40	36	56	33	24	32	31	G	
13		G	G	G	G			G	G		G	38	G	G	42		50	33	G	G	G	49	30	G	G	
14		G	G	G	G	G		G	G	G		36	43	42	39	44		43	G		28	27	26		G	G
15		G	G	G	G	G	G	G	G	G	G		G	G	G	G	38		28	28	24	27	G	34	G	
16		G	G	34	24	28	G	G	G	G		G	G	G		41	38	45	44	67	33	G	G	G	G	
17		G			32	33	30	G	G	G	G	G	G	G	G	G	G	G	G	G	G		G	G	G	
18		G	G			G	G	G	G	G	G		39	44	78		G	G	G		11	G	G	G	G	
19		55	31	59	26	30			G	G	G	37	56	39	115	54	86	34		G	G	G	G		G	
20		29	32	43	32	G			G	G	G	G	G		44	57	60	72		33	G		G	G		
21			G	G		G			G	G	G	G	G		40	54	42	44	32	G	G	46	29	40	28	G
22		G	G	G	G			G		26	G	G	G	G	G	G		46	40	28	11		G		G	G
23		G	G	G		G			27	G	G	G	G	G	G	G	38	G	G	G	G	G	G	G	G	G
24			25	G	G	G			G	G	G	42	G	G	G	G	G	G	G		11		G	G	G	G
25			G	G	G	G			G	44	G		G	G	G		44		37	G	G	G	G	G	G	
26				G	G	G	G			28	34	36	42	82	G	41	57	G	G	G		G	G		G	
27		G			29	30	26	33	G	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		36	55	43	G	G	G	G	G	G	G	G	G	G	G	G
29		G	G	G	G	G			G	G	G		39	42	39					26	27	G	G	G	G	G
30		G	G	G	G	G			G	G		G	G		41	40	74		41	G	G	G	G	G	G	G
31			G	G	G	G			24	G		35	40	57		52	45		57	37	26	26	G	G	G	G
		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		22	26	28	26	27	15	17	31	27	30	27	31	29	31	29	30	28	30	31	29	30	28	23	25	
MEQ		G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	20	16	G	G	G	G	G	G	G	G
UQ		G	G	G	G	G	G	G	G	G	G	38	41	41	44	42	44	37	28	28	26	24	12	G	G	
LQ		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

HOURLY VALUES OF fmin AT Yamakawa

JAN. 2005

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		17	18	16	16	15	17	16	24	21	46	36	45	53	35	46	44	21	16	15	17	15		
2		17	14		17	16		15	15	18	22	21	22	20	21	21	16	20	18	18	16	22		16
3	16		15	16	16	16	15	15	22	20	22	28	35	22	21	20	15	20	14	15	16	15	15	
4	20	18	17	14	18		20	16	21	15	21	20		20	23	18	27	14	17	16	18	18		16
5	17	15	20	16	14			17	16	15	18	18	22	16	21	21	15	20	16	16	18	15	20	18
6	15	15	15	16	16	18	16	15	21	15	17	18	22	20	20	18	18	17	15	17	15	16		
7	15	16	14	15	15		15	15	20	18	18	18	18	18	16	15	15	21	18	17	15	14		15
8	20	15	15	15	15	18	17	15	22	17	17	20	20	18	20	18	15	15	15	15	15	18	18	17
9						16		15	22	15	18	18	20	18	20	20	23	14	15	16	20			16
10		14	14	20	15	15	15	16	20	26	22	21	26	28	20	18	14	22	21	15	15	21	15	20
11	18	16	17	16	17			15	15	15	18	20	22	21	22	18	16	20	17	15	16	14	14	17
12	16	17	20	16	16			15	18	14	17	18	20	18	20	17	16	14	15	15	17	15	14	18
13	20	18	18	14			18	15	16	17	20	21	22	18	18	18	17	22	15	17	15	15	15	18
14	18	17	16	16	14		17	15	15	21	23	27	27	28	26	20	16	23	16	15	16		15	21
15	15	16	21	20	15	16	17	15	26	18		40	36	26	21	20		16	17	17	15	16	16	15
16	18	15	15	16	16	17	16	15	53		61	53	46	33	50	21	20	15	15	17	18	21	14	18
17	16			15	15	16	15	16	23	18	18	22	42	42	48	21	17	22	16	20		18	18	17
18	18	15				17	17	16	22	16	21	21	27	24		22	27	22	15	17	17	17	18	
19	17	14	16	15	15			15	23	18	22	23	34	24	22	27	21	27	17	15	17	21		18
20	17	14	18	15	21			17	22	20	32	24	32	23	23	21			18	17	17	17	18	
21		17	18		17			15	20	17	22	34	33	33	33	23	21	21	18	18	18	16	17	21
22	18	15	18	18			21	18	18	20	21	23	22	23	23	21	20	17	16		21		18	16
23	18	17	16		17			15	23	18	18	53	22	20	47	18	18	21	17	16	14	15	16	18
24		15	15	15	17			17	14	15	17	20	21	22	21	21	30	22	15		23	15	16	15
25		16	15	17	15			16	24	18		20	22	22	20	20	18	21	15	15	18	15	15	
26			16	17	18	16		15	17	14	17	17	21	22	18	18	17	22	17	17	15	15		15
27	17		15	16	15	16	22	16	22	17	16	20	20	18	22	20	18	22	15	18	15	16	14	16
28	14	16	17	17	17	16	16	15	21	17	18	20	24	22	18	18	22	21	20	16	18	15	18	20
29	16	20	18	17	15	15		15	24	18	21	21	23	22	22	20	17	21	15	15	15	15	27	15
30	18	20	16	17	17		18	15	15	15	18	18	17	22	28	21	15	15	15	17	17	17	18	15
31		17	18	16	15			16	15	16	20	18	21	21	18	20	15	17	17	16	15	15	17	15
	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	22	26	28	26	27	15	17	31	31	30	29	31	30	31	30	31	29	30	31	29	30	28	23	25
MED	17	16	16	16	16	16	17	15	21	17	20	21	22	22	21	20	17	21	16	16	16	16	16	17
U Q	18	17	18	17	17	17	18	16	23	18	22	24	32	24	23	21	21	22	17	17	18	17	18	18
L Q	16	15	15	15	15	16	15	15	16	15	18	18	21	20	20	18	15	17	15	15	15	15	15	15

HOURLY VALUES OF fof2 AT Okinawa

JAN. 2005

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	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														
5		30	30	32	40	A	A																	
6		26	31	31	32	29																		
7			26	30	38																			
8	28	29		30	34	28	29	42	76	67	72	136	77	66	75	84	87	82	66	62	66			A
9	A			30	25																			A
10			29	28	26																			
11			29	42	30																			
12	A	30	34	34	41																			
13	30	29	32	36																				
14	36	A		36	30																			
15	30	31		30																				
16	A	30	34	41	34																			
17	29	32	32	32	30																			
18	40	31																						
19			A																					
20	64	54	34																					
21	40	35	29	34	46																			
22	A	A		32																				
23		37	38																					
24		32	32	36	32																			
25	30	30	38	34																				
26		26	29	31	41																			
27	26	28	29		34	28																		
28	28	26		31	34	32																		
29		26	30	34	36																			
30		30	31	29	60																			
31	32		30	31	36	A																		
	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	19	19	23	19	5	4	26	27	27	28	27	28	28	28	27	27	28	27	27	26	25	22	16
MED	30	30	31	32	34	29	32	31	65	76	81	87	91	106	104	88	88	87	72	52	51	50	37	34
U Q	38	32	34	36	40	31	32	34	66	78	94	105	106	117	115	110	101	98	88	66	66	53	43	41
L Q	28	28	29	30	30	28	30	29	55	66	74	72	82	91	87	82	80	73	61	47	44	39	31	28



HOURLY VALUES OF fEs AT Okinawa

JAN. 2005

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

D <sup>H</sup>	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	G	39	42	G	G	41	43	37	32	32	28	G	G			
5	G	G	G	G	G	34	26	G		G	G	45	53	G	G	G	33	G	G	G	G	G	G	G		
6	G		34	G	G	G	26	26	G	G	G	43	44	40	G	G	G	G	34	30	29	32	26			
7	25	G	G	G	G			G	G		35	40	38	G	43	58	G	G	28	G	23	G	G	G		
8	G	G	G		26	G	G	G	G		34	37	G	41	44	45	75	48	52	G	G	37	52	32	40	
9	44		G	G	26	G		G	G		37	36	40	G	G	G	G	G	G	G		G	G	G		
10		G	G	G	G		G	G	G		44	50	42	48	49		35	G	G	G		G	G	G		
11		G	G	G	34		G	G	G		37	42	44	46	42	48	45	37	39	26	45	34	G	G	44	
12	41	28		G	G			G		28	36	40	47	G	G	46	49	35	35	34	G	G	G	G		
13	G	G	G	G				G	G		37	43	39	G	41	43	41	G	38	39	28	49		G	33	
14	25	45	31		G		G	G	G		34	42	47	53	50	67	52	77	79	85	44	34				
15	G	G		G	G			G		33	35		48	43		G	G	G		42	44	36	46	33	32	30
16	29	G	G	G	28	G		G	G	G	G	G	G	G	69	45	65	69	G	58	49	52	39	34	25	
17	G	G	G	G	G	38	28		G	G		G	G	G	G	G			G	31	28					
18	G	G	G			G	G		G	G	G	44	55	43	60	39		G	33	70	49	32	33	G		
19		24	51	34		27		G	G	G	G	53	65	80	50	74	64	73	50	39	30		25	G		
20	G	G		36	33	40		G		28		36	44	G	G	43	37		G	55	50	29	28	58		
21	G	G	G	G	G			G	G	G	G	38	47	46	40	44	38	G	G	43	30	G	G	39	36	
22	36	34	24		G			G	24		G	G	G	G	44	50	40	G	G	G	G	G	G	G	G	
23		G	G	G				G			37	39		G	54		37	34	G	G	G	G	G	G	G	
24	G	G	G	G	G			G			33	42	41	G	G	G	G		G	G	G	G	G	G	G	
25	G	G		G	G			G		32	34	43		42	51	42			30		22					
26		G	G	G	G			G		30	37	40	42	56	41	39	35	35	G	G	G	G	G	G	G	
27	G	G	G		G	G		G		39		41	45	G	G	G	G	G		26		G	G	G	G	
28	G	G	G	G	G	G		G		33		46	50	48	42	G	41	34		25	44		G	G	26	
29	28	G	G	G	G			G		32	33		46	55		59	G	G	42	35		G	G	G	G	
30	G	G	G	G	G			G	G			43	52	46	48		G	G	G	32		25	G	26	24	G
31	G	G	G	G	G	41		29	34	35		45	43	54	52		G	G	32	G	G	G	G	G	G	
	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	22	26	26	25	22	11	9	26	24	26	28	28	28	28	28	27	24	28	28	27	27	26	27	23		
MED	G	G	G	G	G	G	G	G	G	33	18	42	42	43	42	37	34	16	27	25	20	G	G	G		
U Q	25	G	G	G	G	34	26	G	28	35	41	45	49	48	49	44	39	37	41	36	34	26	25	26		
L Q	G	G	G	G	G	G	G	G	G	G	G	38	G	G	G	G	G	G	G	G	G	G	G	G		

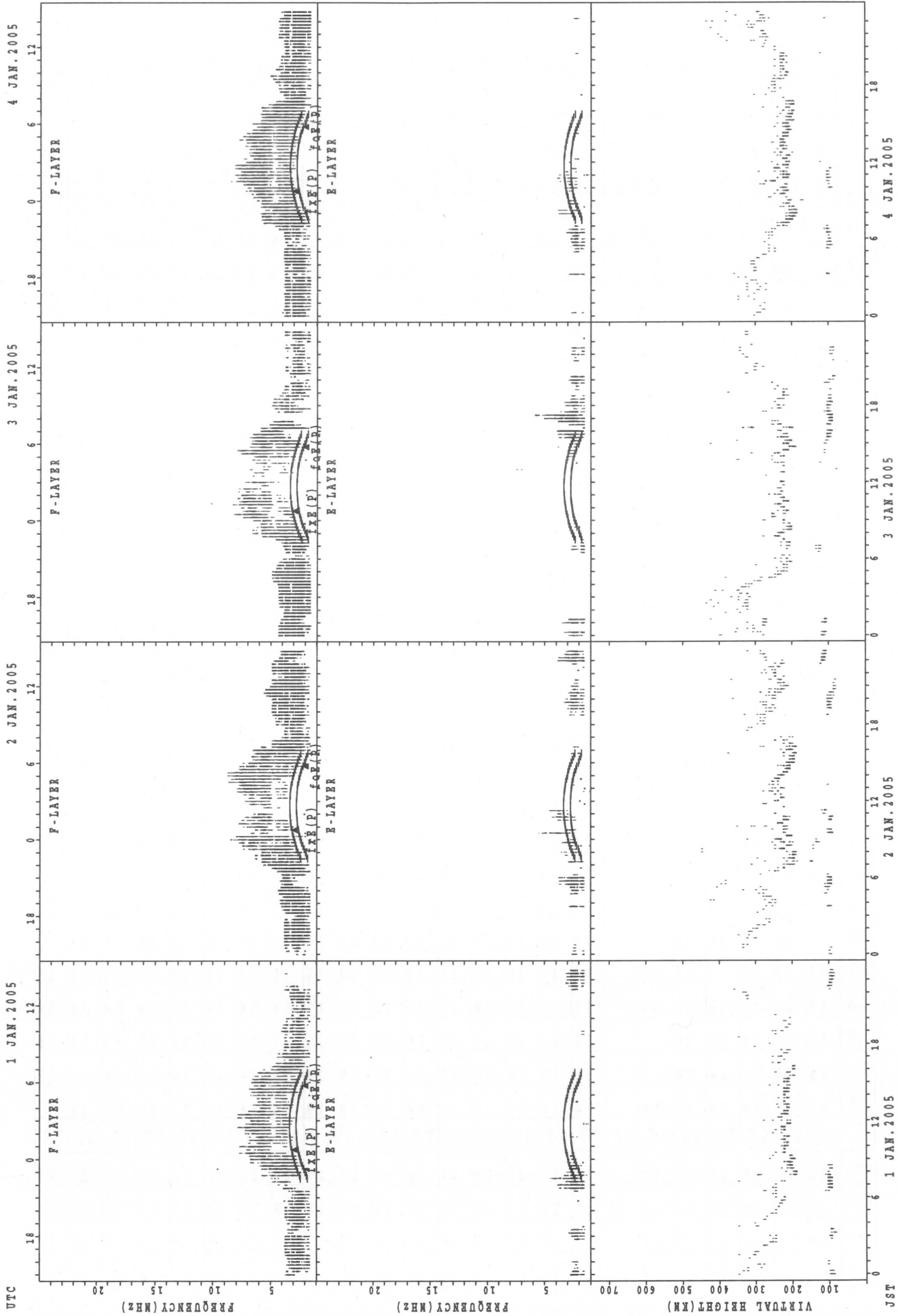
HOURLY VALUES OF fmin AT Okinawa

JAN. 2005

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

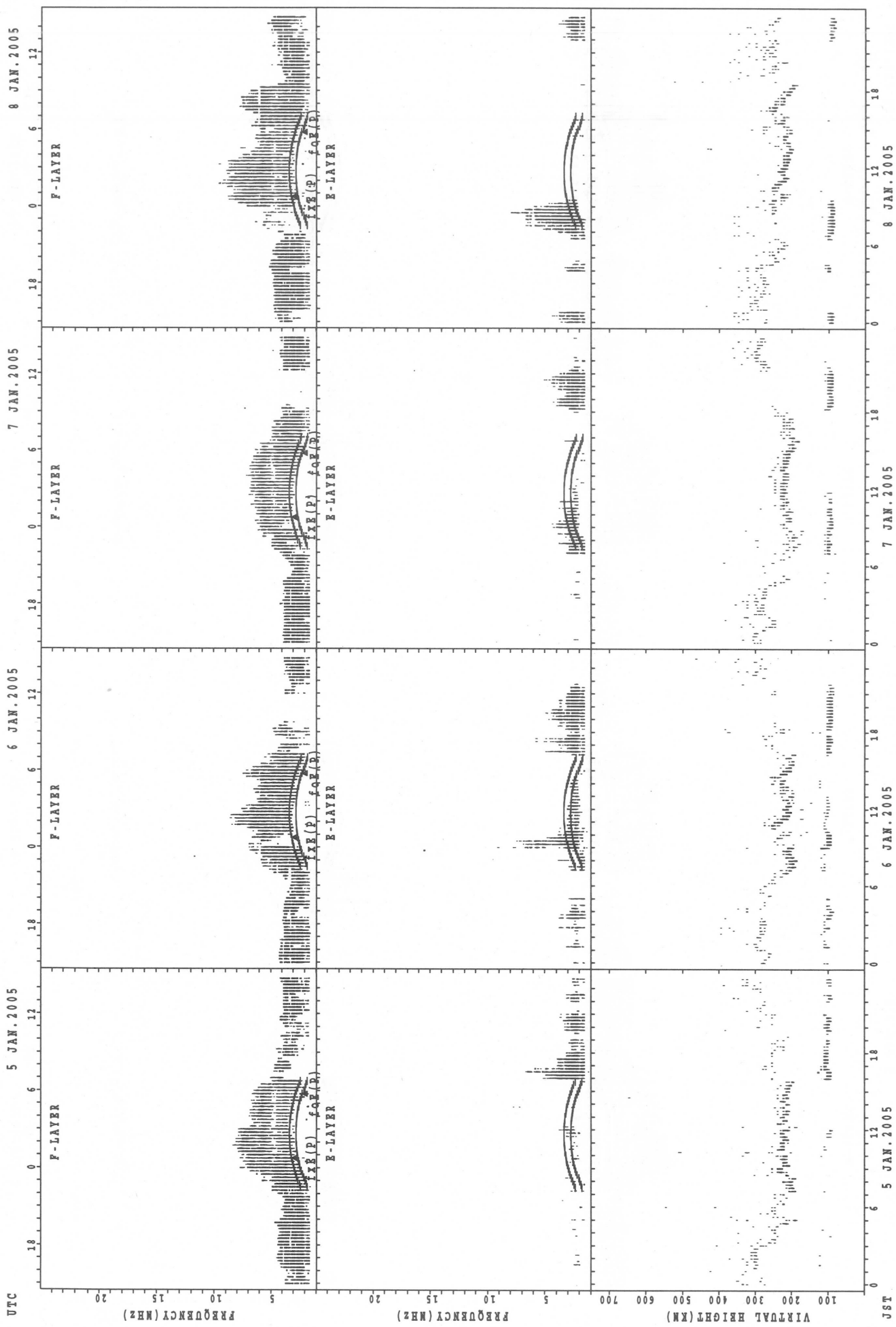
$\begin{matrix} H \\ D \end{matrix}$	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
2	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
3	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
4	C	C	C	C	C	C	C	C	C	C		14	17	17	20	15	14	14	14	14	14	14	15	15	
5	15	14	14	14	14	14	14	15	14	14	14	14	14	20	21	21	14	14	15	14	15	15	15	17	
6	15	14	14	14	14	14	14	15	21	14	14	15	18	20	17	15	15	15	14	14	14	14	14		
7	14	15	14	14	15			14	15	14	15	20	20	17	16	14	16	15	15	15	14	16	15	14	
8	14	14	16	14	14	15	14	15	14	14	14	15	18	17	18	15	14	14	15	15	14	14	14	14	
9	14		16	14	14			15	14	14	14	15	18	16	15	14	14	14	15	14		14	16	14	
10		21	14	14	14		14	15	14	14	20	18	20	18	17		14	14	15	14	14	14	14	14	
11		22	14	14	15		17	15	14	14	15	20	21	21	18	16	15	14	14	14	14	14	16	14	14
12	14	14	15	14	15			15	15	14	15	14	18	20	15	16	14	14	14	14	14	15	15	14	15
13	17	16	14	14				14	14	14	15	18	17	18	18	17	14	14	14	14	14		15	14	
14	15	14	14	14	14		17	14	14	14	15	20	21	32	21	20	14	14	14	14	14			14	
15	15	14		15	14			14	14	14	60	21	22	26	27	29	50	16	14	14	14	14	14	14	14
16	14	14	14	16	14	15		14	44	45	44	52	46	38	32	26	21	15	14	14	14	14	14	14	14
17	15	14	15	15	14	14	14	15	14	14	17	16	28	44	22	34	17	15	14	14	18	15	15	15	
18	14	14	20		15	14		14	16	20	21	23	21	21	22	17	14	14	14	14	14	15	15		
19		15	14	14		15		14	15	16	21	18	21	22	28	28	18	22	15	15	14	15	14	15	
20	15	15	14	14	14			15	14	17	23	21	26	26	23	18		43	14	14	14	14	14	15	
21	15	14	14	15	14			15	15	15	33	22	23	24	28	21	16	17	14	14	15	15	14	14	
22	14	14	15	14			16	16	18	15	20	20	23	26	22	20	18	15	15	15	16	15	14	14	
23		15	14	15				14	16	14	16	32	23	24	27	17	14	14	16	14	14	15	15	15	
24	16	15	15	14	14			15	14	14	15	20	21	21	20	18	16	14	17	15	15	15	15	15	
25	15	15	14	15	15			14	14	15	16	18	17	20	18	18	15	14	17	15	14	15	15	14	
26		15	14	14	14			15	14	14	14	14	22	22	20	16	15	15	16	15	22	15	14		
27	14	14	15		14	15		14	14	16	15	16	15	17	18	16	15	14	14	14	17	14	14	15	
28	17	15	15	15	14	14		15	14	14	14	20	22	21	18	17	14	14	14	14	14	14	14	14	
29	15	15	14	15	15			15	14	14	16	16	20	20	21	21	17	14	14	14	15	14	15	15	
30	15	15	15	15	14			15	15	14	15	17	20	18	15	14	14	14	17	14	15	14	16	15	
31	15	15	14	14	15	14		14	14	14	14	17	20	20	20	18	14	14	17	15	14	14	15		
	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	22	26	26	25	22	10	9	26	27	27	28	28	28	28	28	27	27	28	28	28	27	26	27	23	
MED	15	15	14	14	14	14	14	15	14	14	15	18	20	20	20	18	15	14	14	14	14	15	14	14	
U Q	15	15	15	15	15	15	16	15	15	15	20	20	22	24	22	21	17	15	15	15	15	15	15	15	
L Q	14	14	14	14	14	14	14	14	14	14	14	16	18	19	17	16	14	14	14	14	14	14	14	14	

SUMMARY PLOTS AT Wakkanai



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

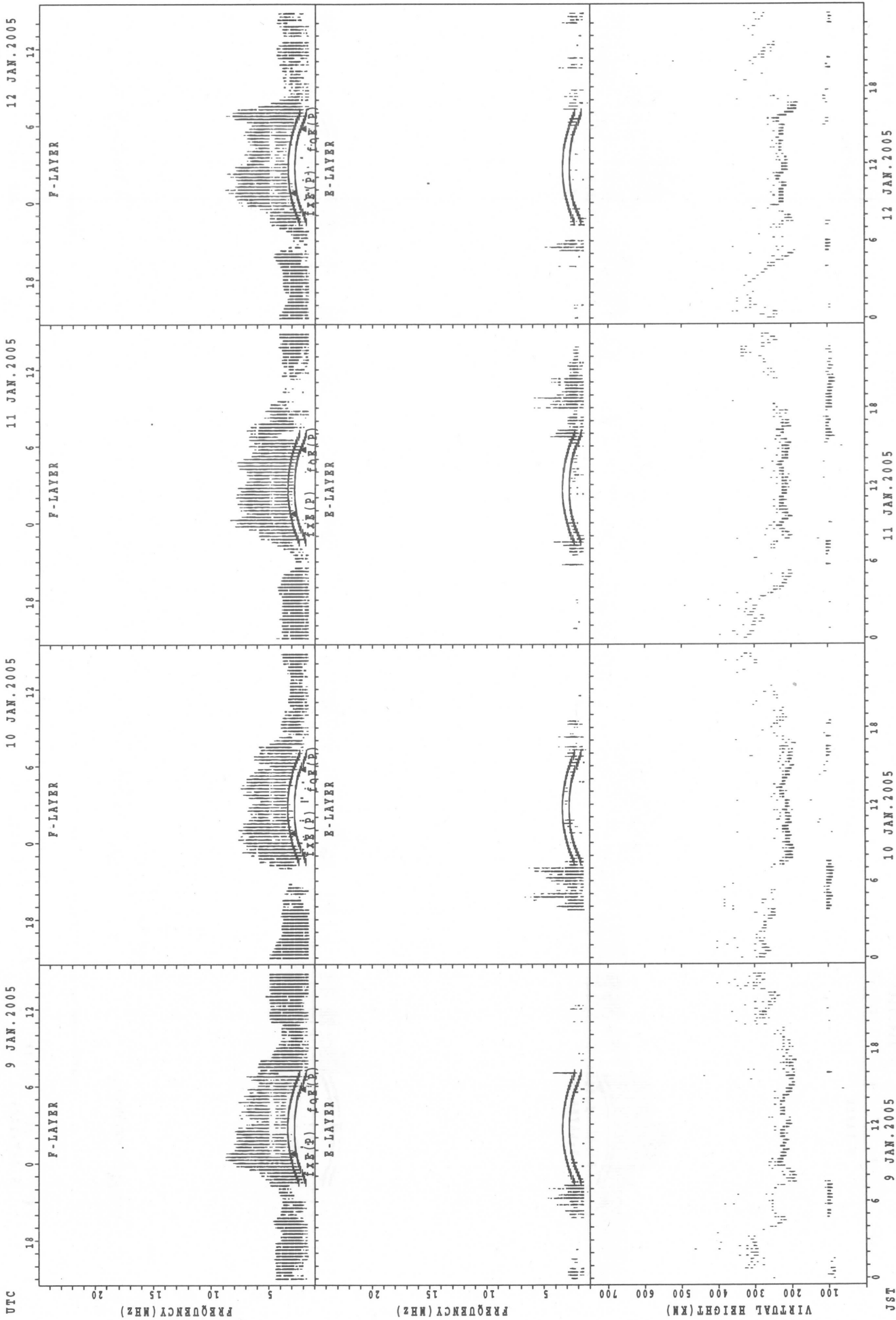
# SUMMARY PLOTS AT Wakkanai



f<sub>x</sub>E(P); PREDICTED VALUE FOR f<sub>x</sub>E  
 f<sub>o</sub>E(P); PREDICTED VALUE FOR f<sub>o</sub>E

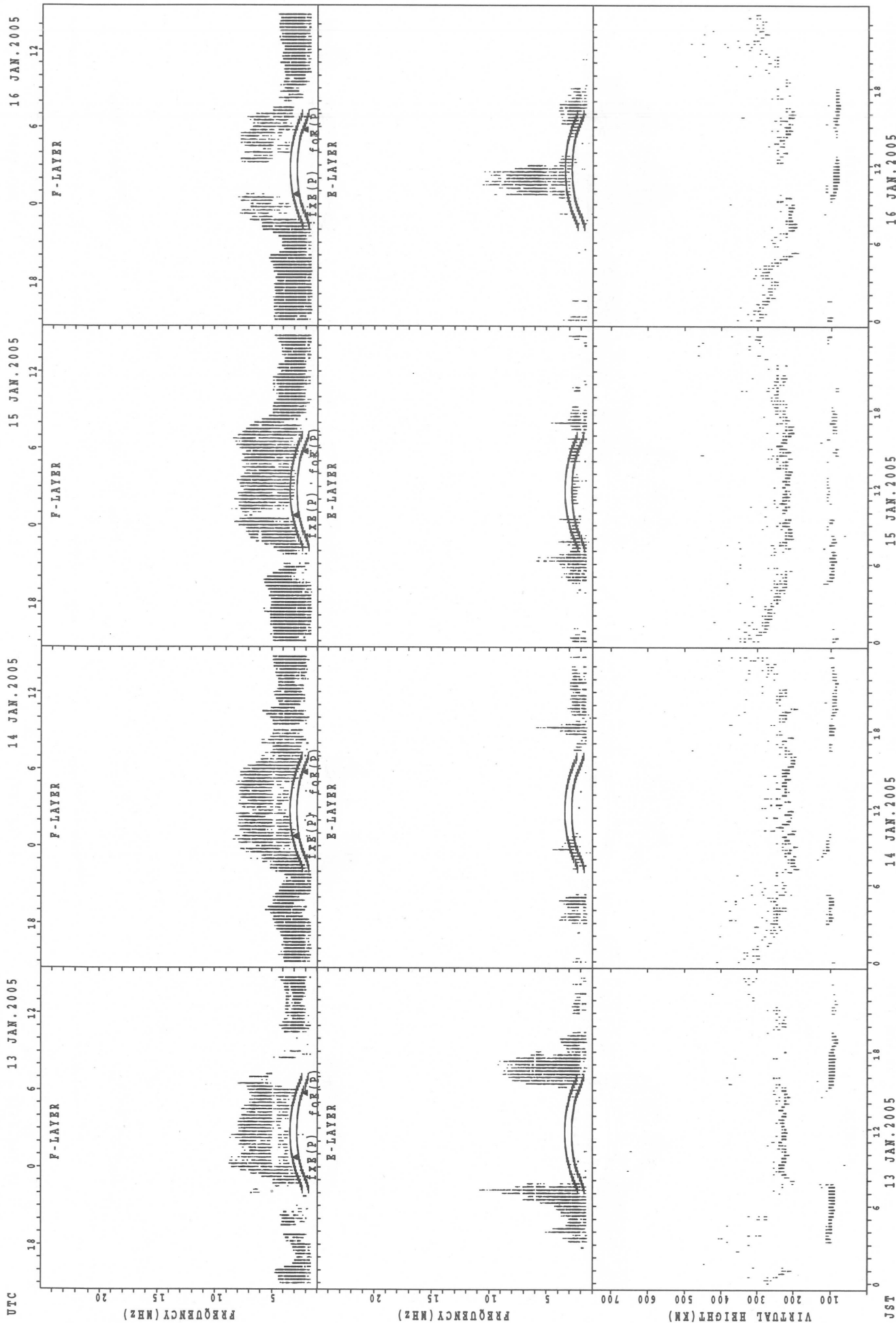


SUMMARY PLOTS AT Wakkanai



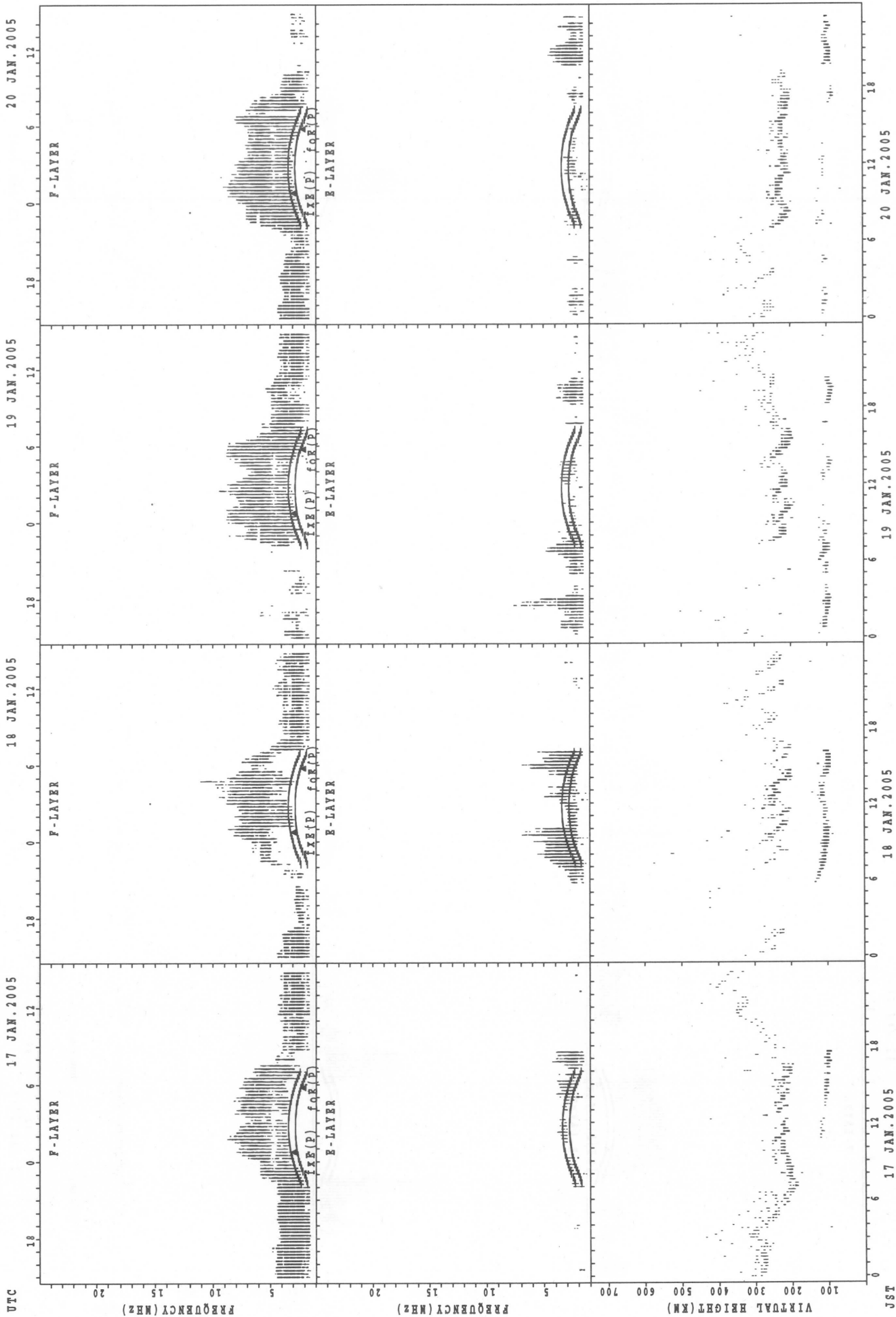
foF2(P); PREDICTED VALUE FOR foF2  
foE1(P); PREDICTED VALUE FOR foE1

SUMMARY PLOTS AT Wakkanai



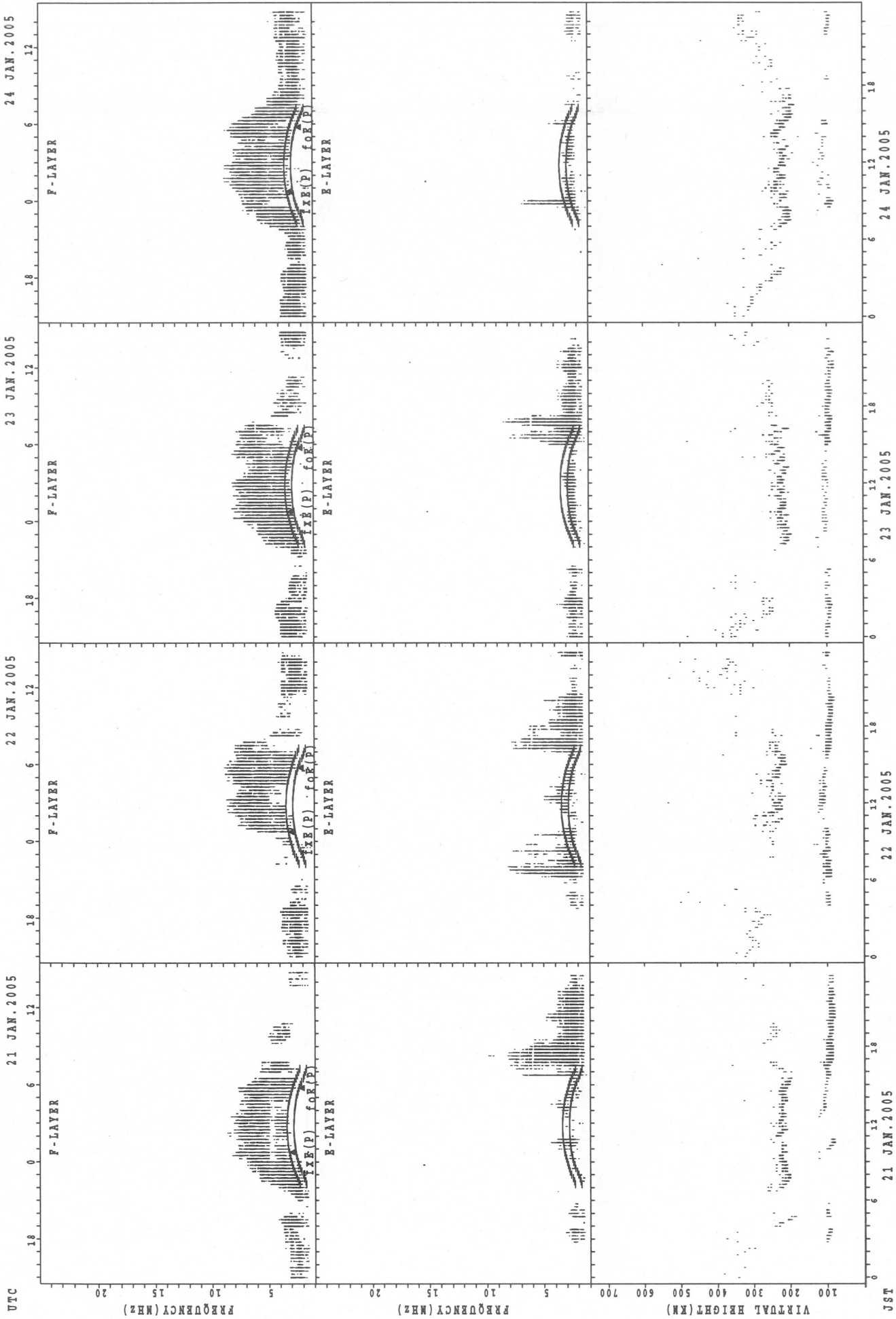
f<sub>xe</sub>(P); PREDICTED VALUE FOR f<sub>xe</sub>  
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



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

SUMMARY PLOTS AT Wakkanai

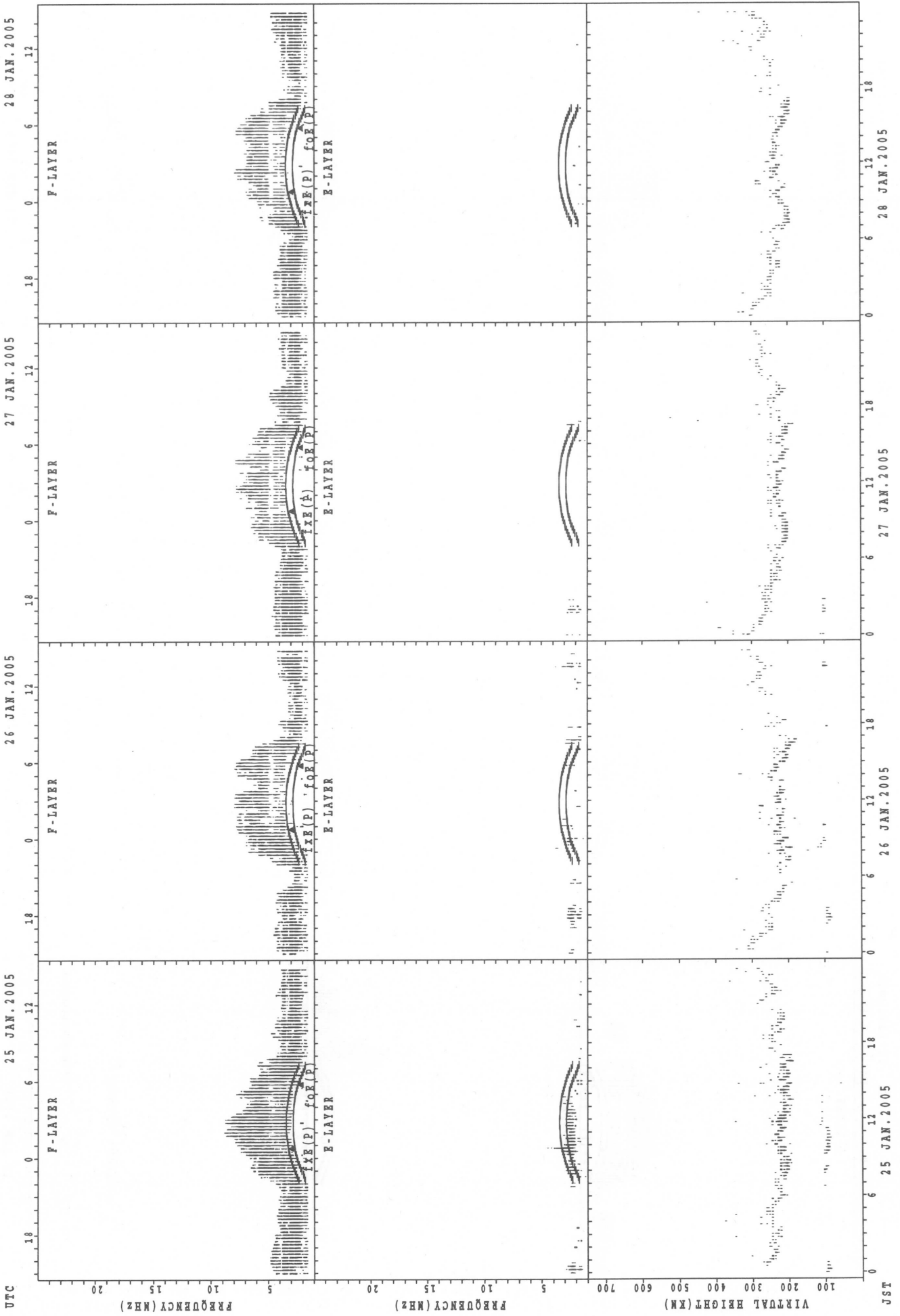


fxe(P); PREDICTED VALUE FOR fxe  
foE(P); PREDICTED VALUE FOR foE

JST

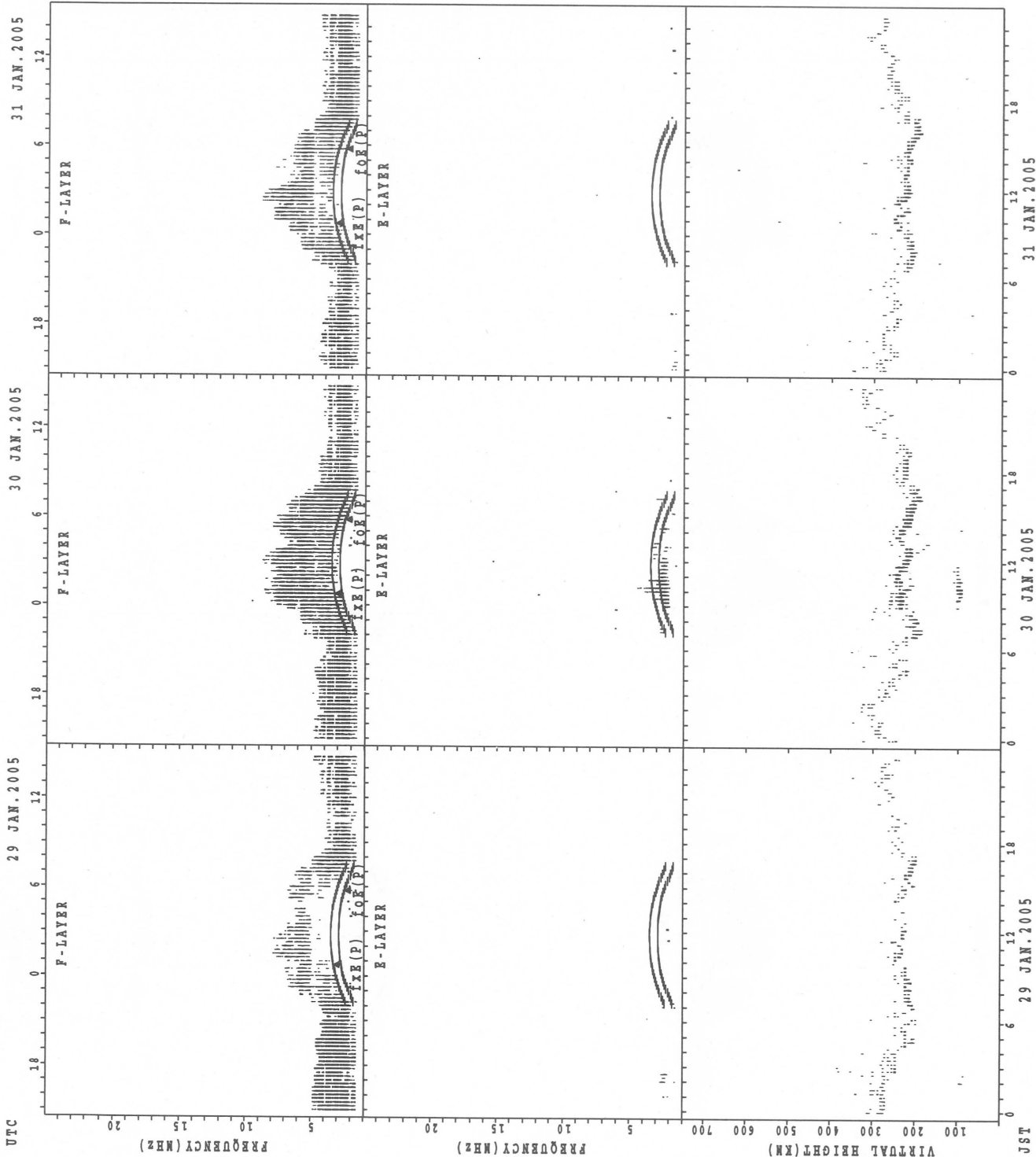


SUMMARY PLOTS AT Wakkanai



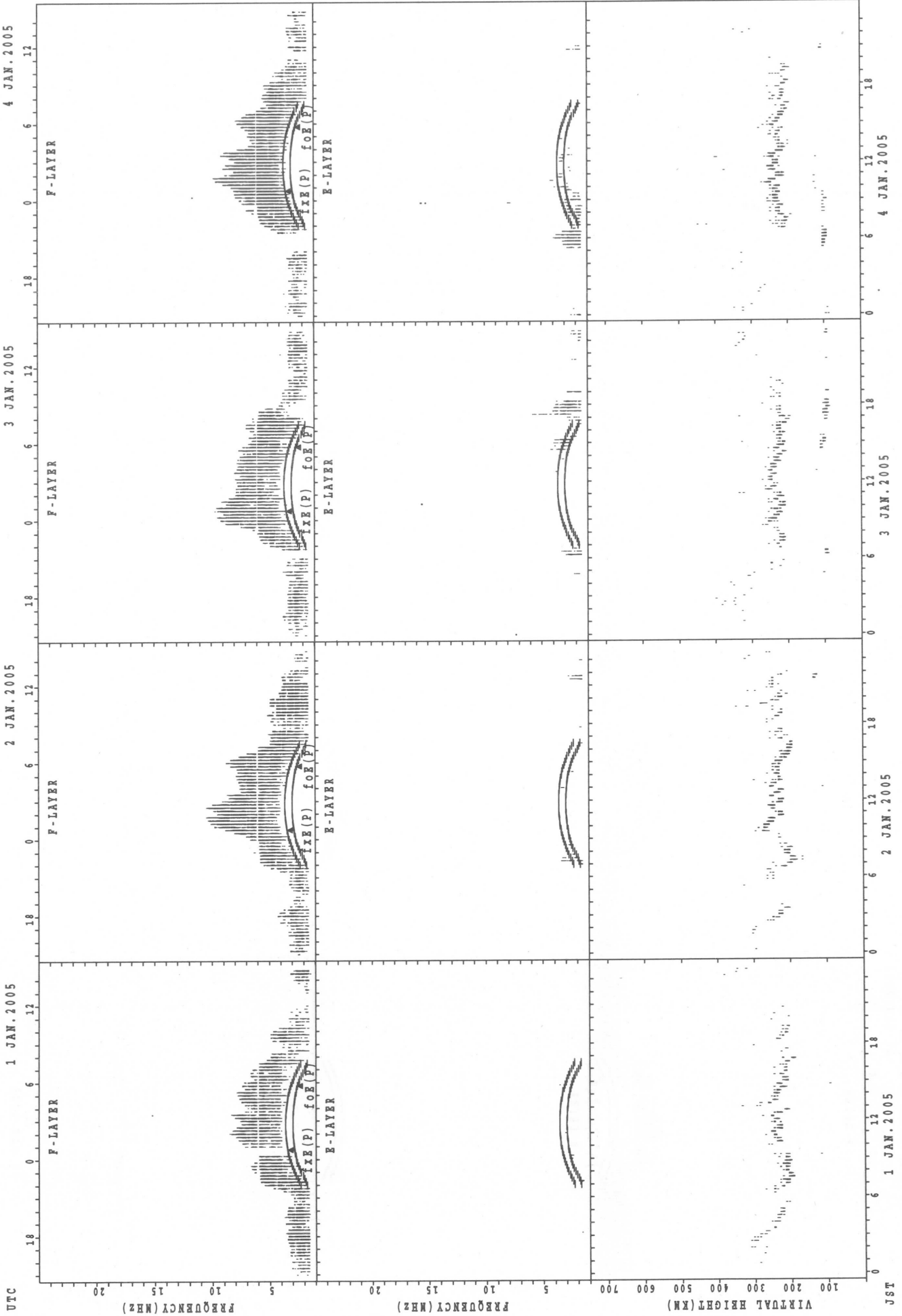
$f_{x E}(P)$ ; PREDICTED VALUE FOR  $f_{x E}$   
 $f_{o F_2}(P)$ ; PREDICTED VALUE FOR  $f_{o F_2}$

SUMMARY PLOTS AT Wakkanai



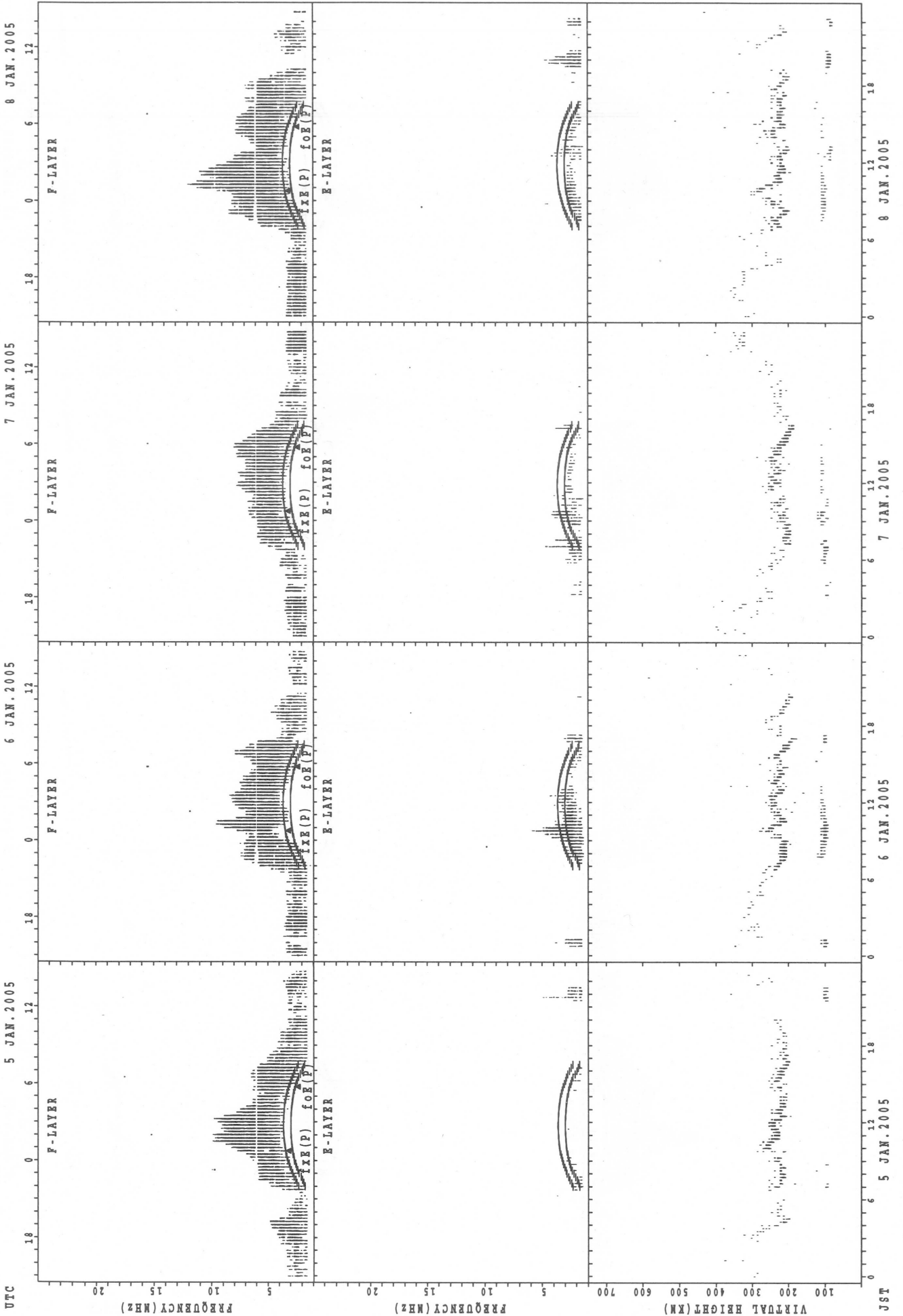
f\_xE(P); PREDICTED VALUE FOR f\_xE  
f\_oE(P); PREDICTED VALUE FOR f\_oE

SUMMARY PLOTS AT Kokubunji



f\_xE(P); PREDICTED VALUE FOR f\_xE  
f\_oE(P); PREDICTED VALUE FOR f\_oE

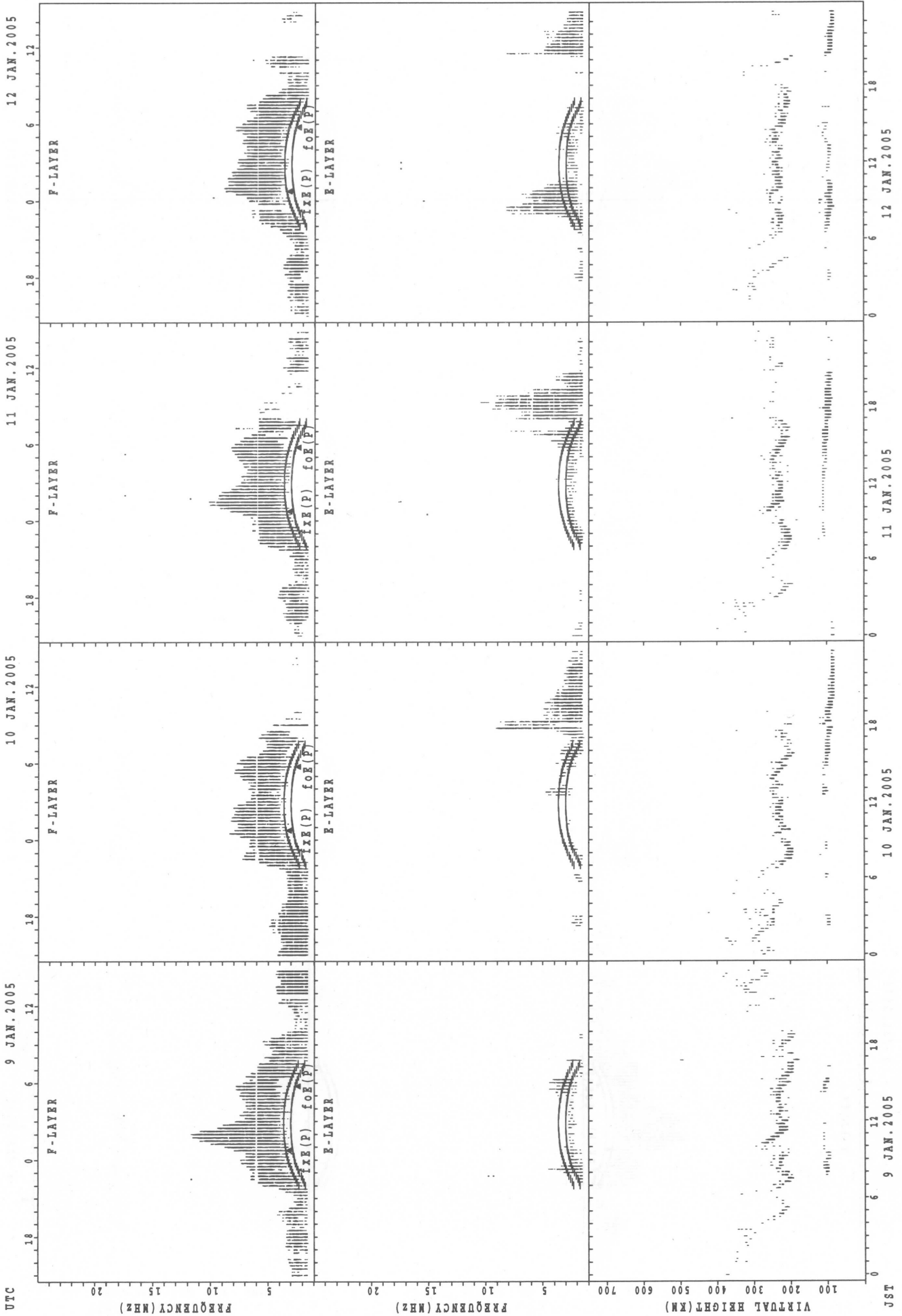
SUMMARY PLOTS AT Kokubunji



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



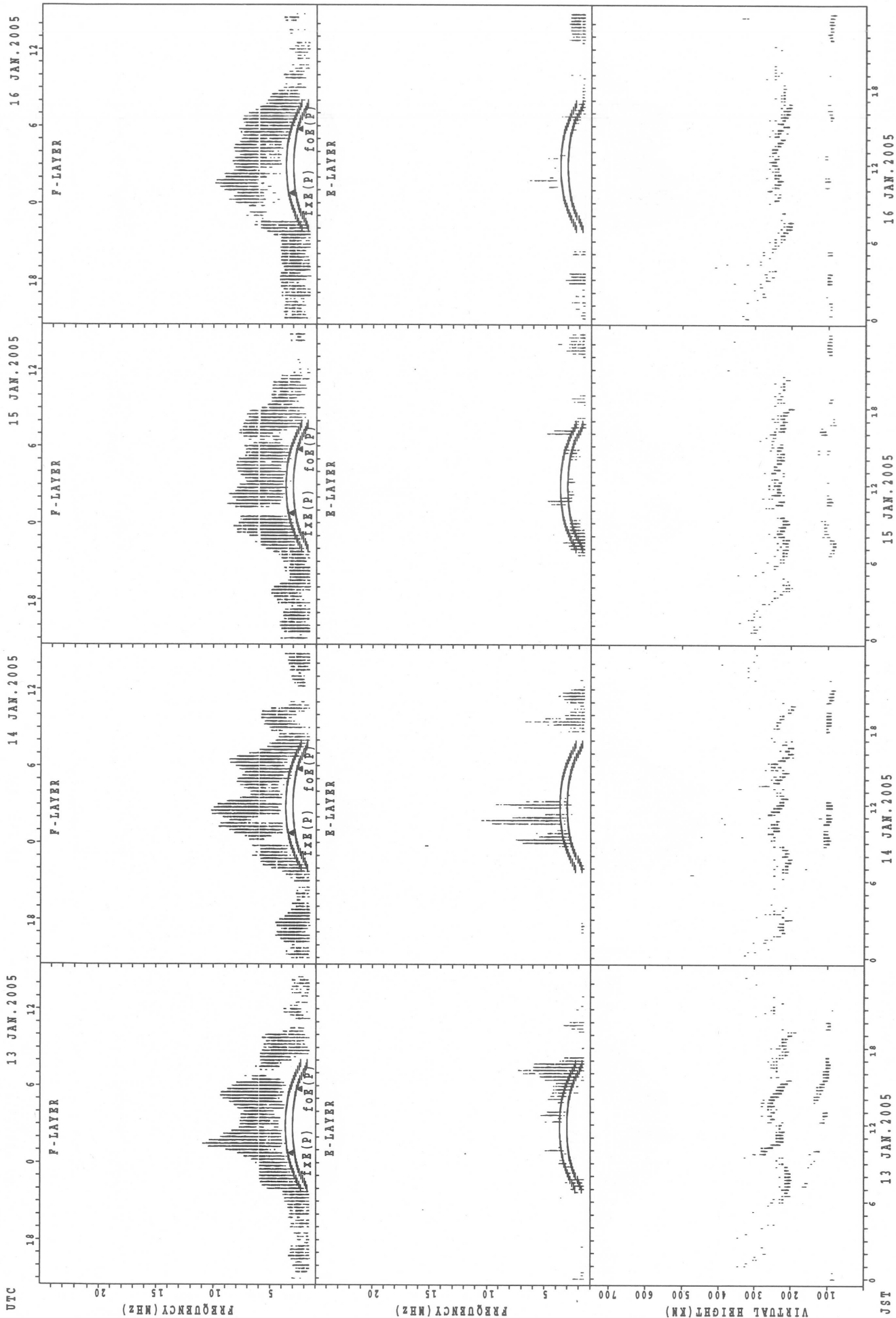
SUMMARY PLOTS AT Kokubunji



f<sub>o</sub>F(P); PREDICTED VALUE FOR f<sub>o</sub>F  
f<sub>o</sub>E(P); PREDICTED VALUE FOR f<sub>o</sub>E

JST

# SUMMARY PLOTS AT Kokubunji



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

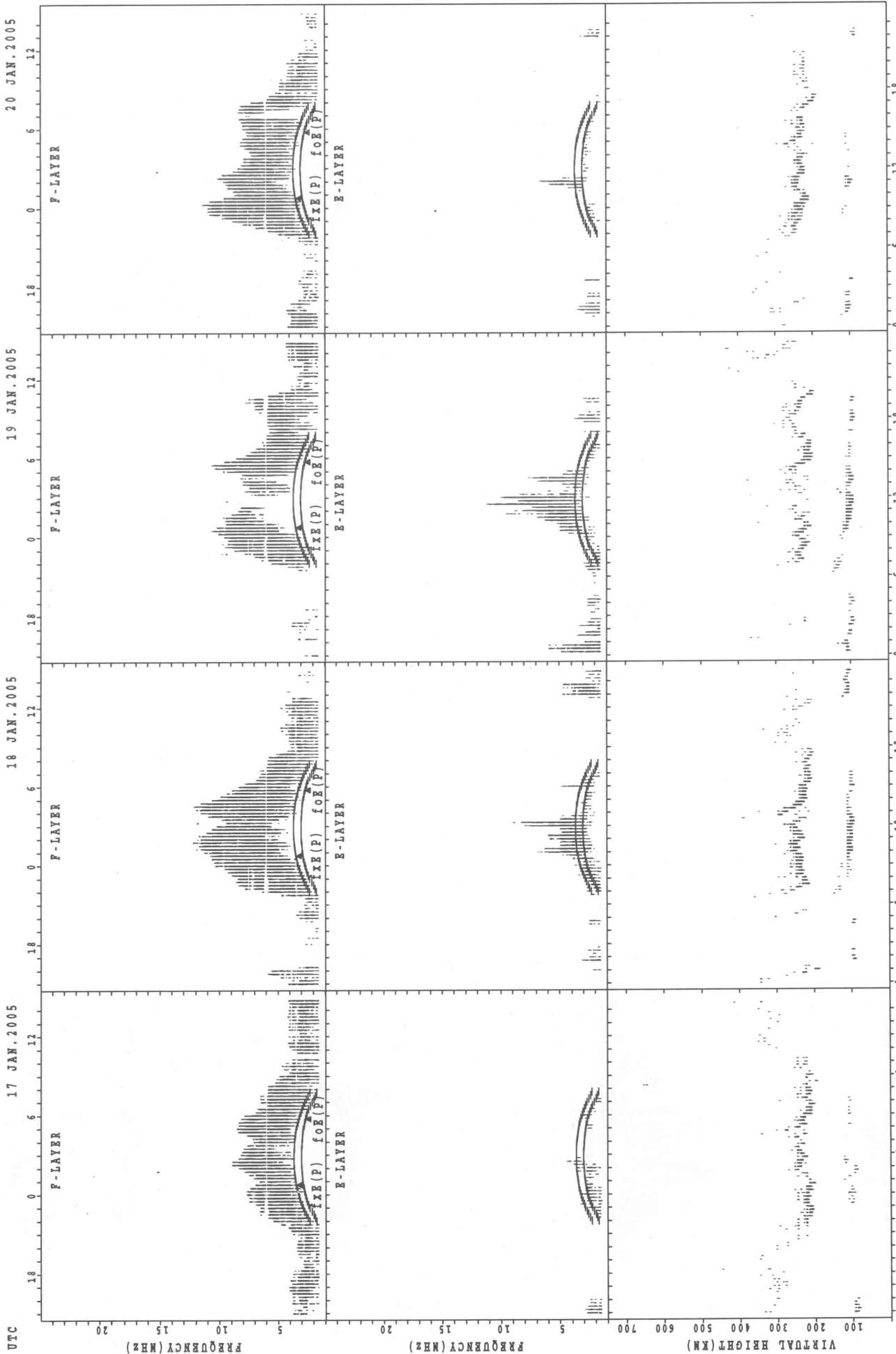
SUMMARY PLOTS AT Kokubunji

UTC 17 JAN. 2005

18 JAN. 2005

19 JAN. 2005

20 JAN. 2005



JST 17 JAN. 2005  
 18 JAN. 2005  
 19 JAN. 2005  
 20 JAN. 2005

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

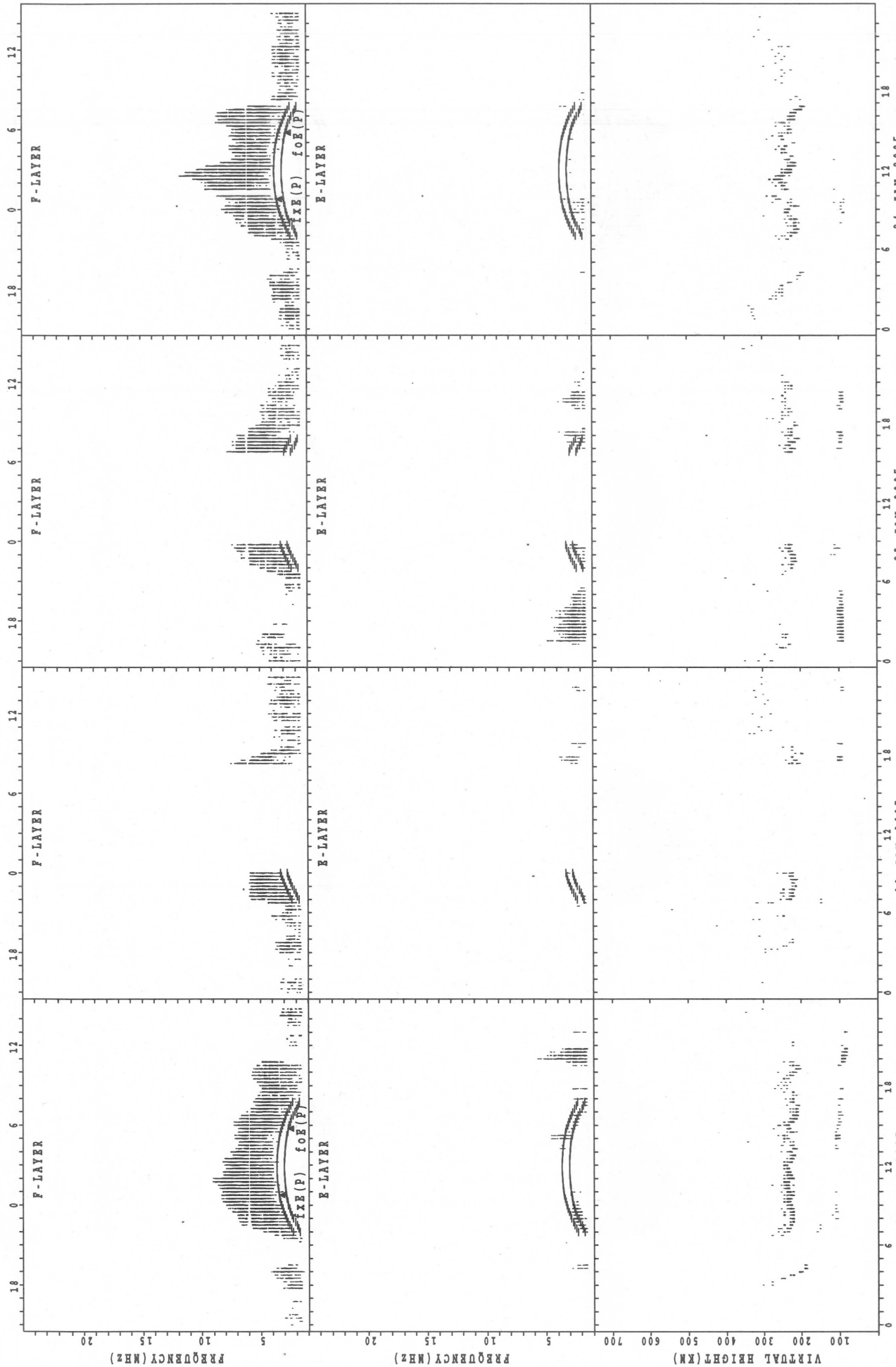
SUMMARY PLOTS AT Kokubunji

UTC 21 JAN. 2005

22 JAN. 2005

23 JAN. 2005

24 JAN. 2005



JST 21 JAN. 2005

22 JAN. 2005

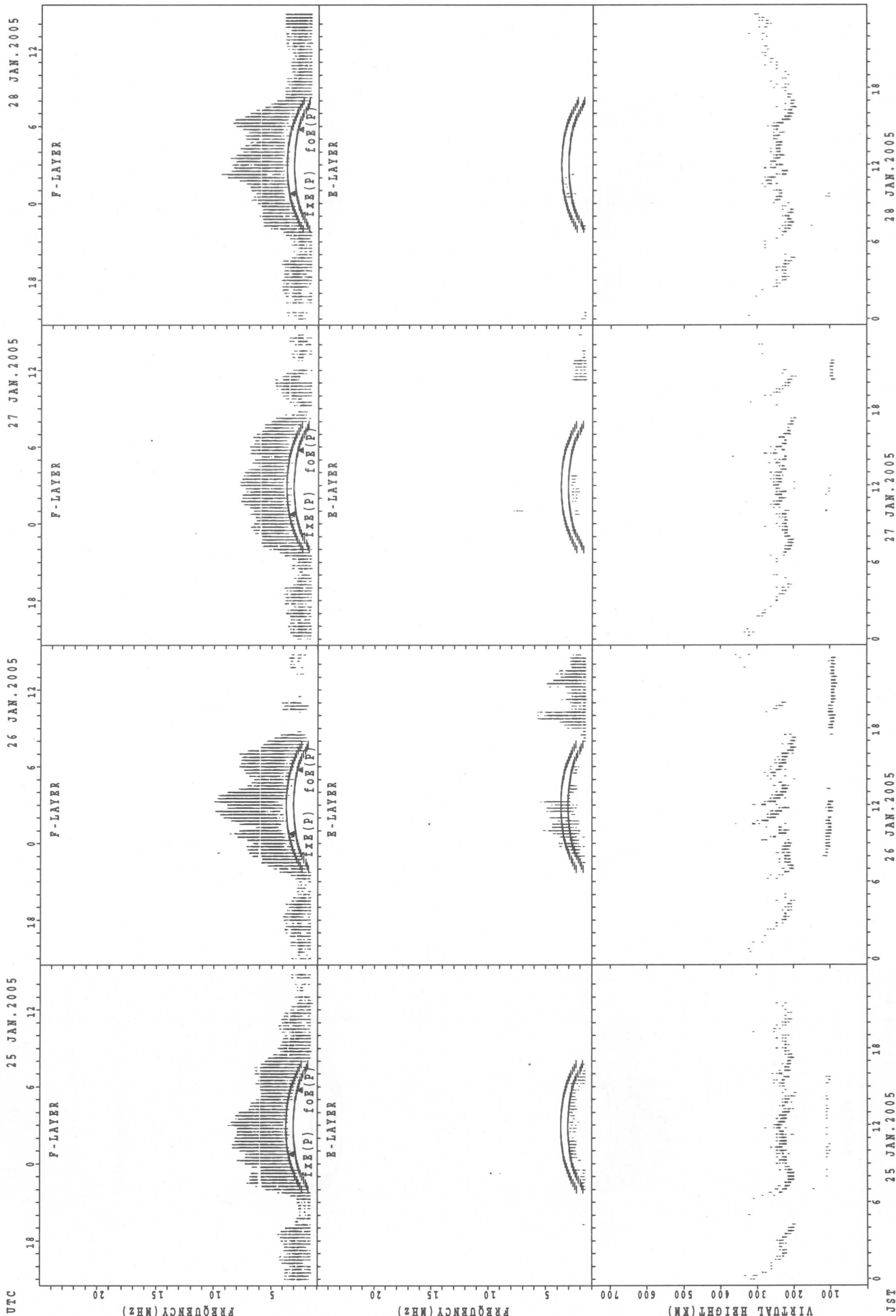
23 JAN. 2005

24 JAN. 2005

f\_xF2(P); PREDICTED VALUE FOR f\_xF2  
f\_oE(P); PREDICTED VALUE FOR f\_oE

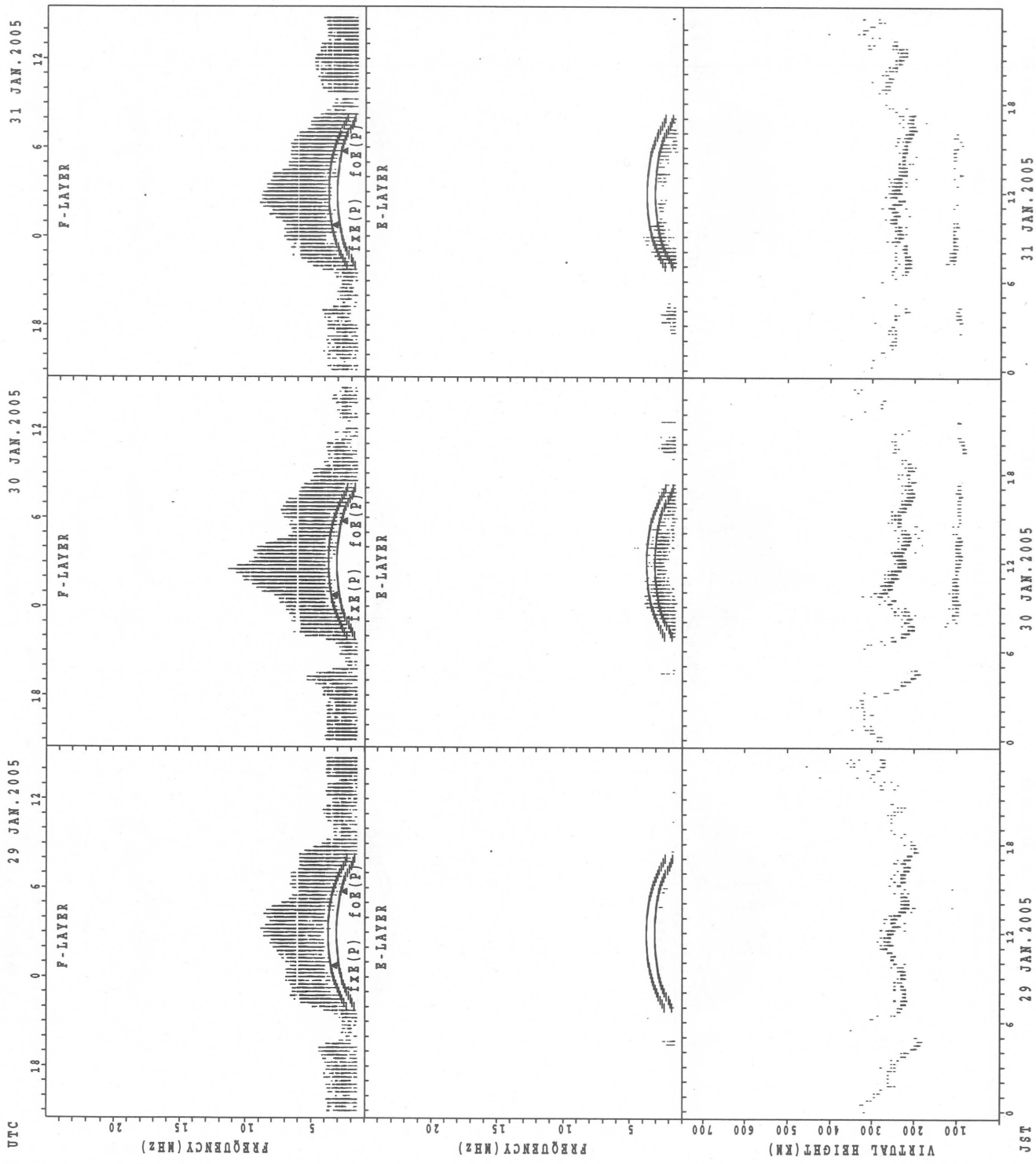


SUMMARY PLOTS AT Kokubunji



foF2(P); PREDICTED VALUE FOR foF2  
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



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

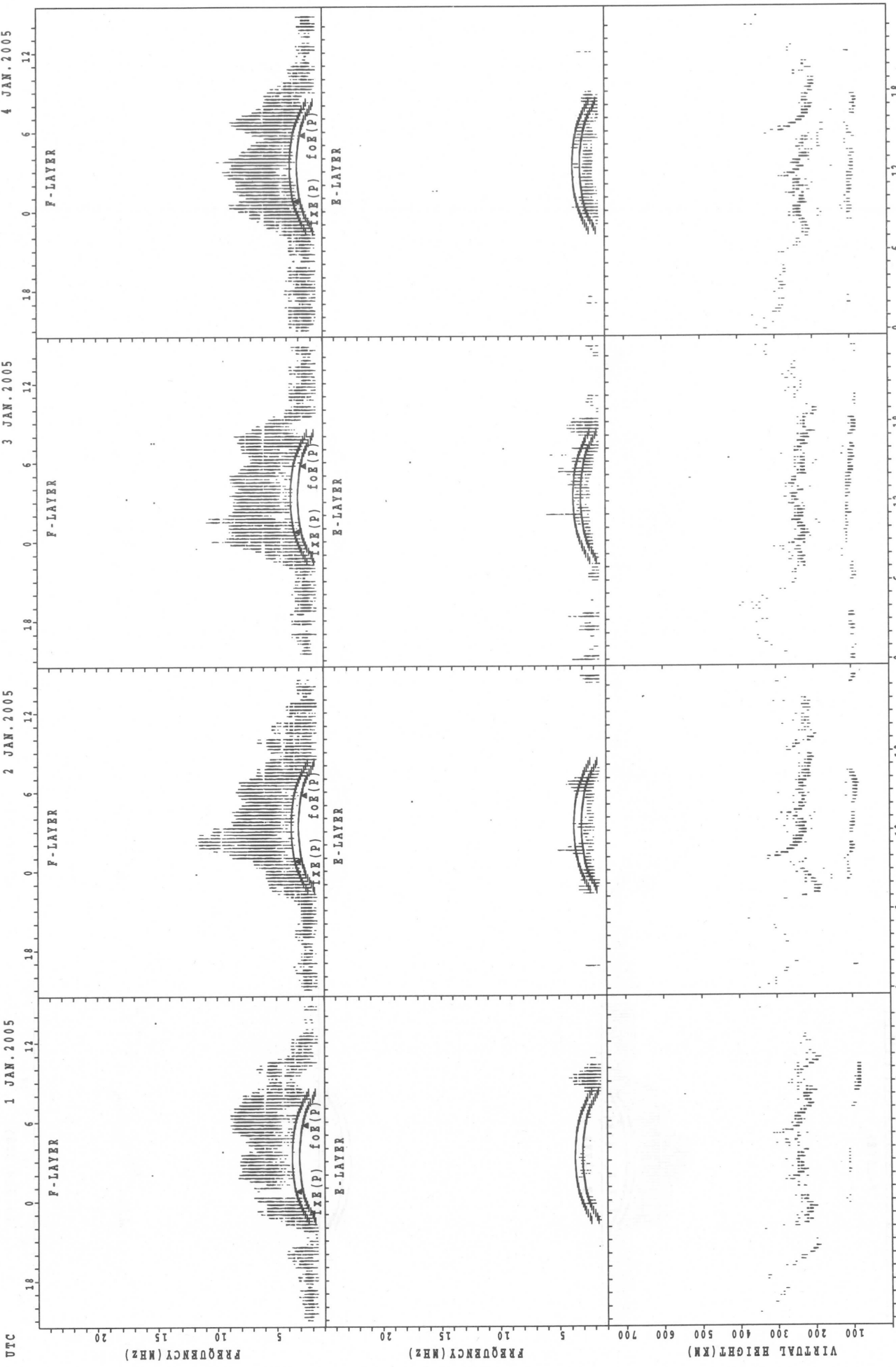
SUMMARY PLOTS AT Yamagawa

UTC 1 JAN. 2005

2 JAN. 2005

3 JAN. 2005

4 JAN. 2005



JST 1 JAN. 2005

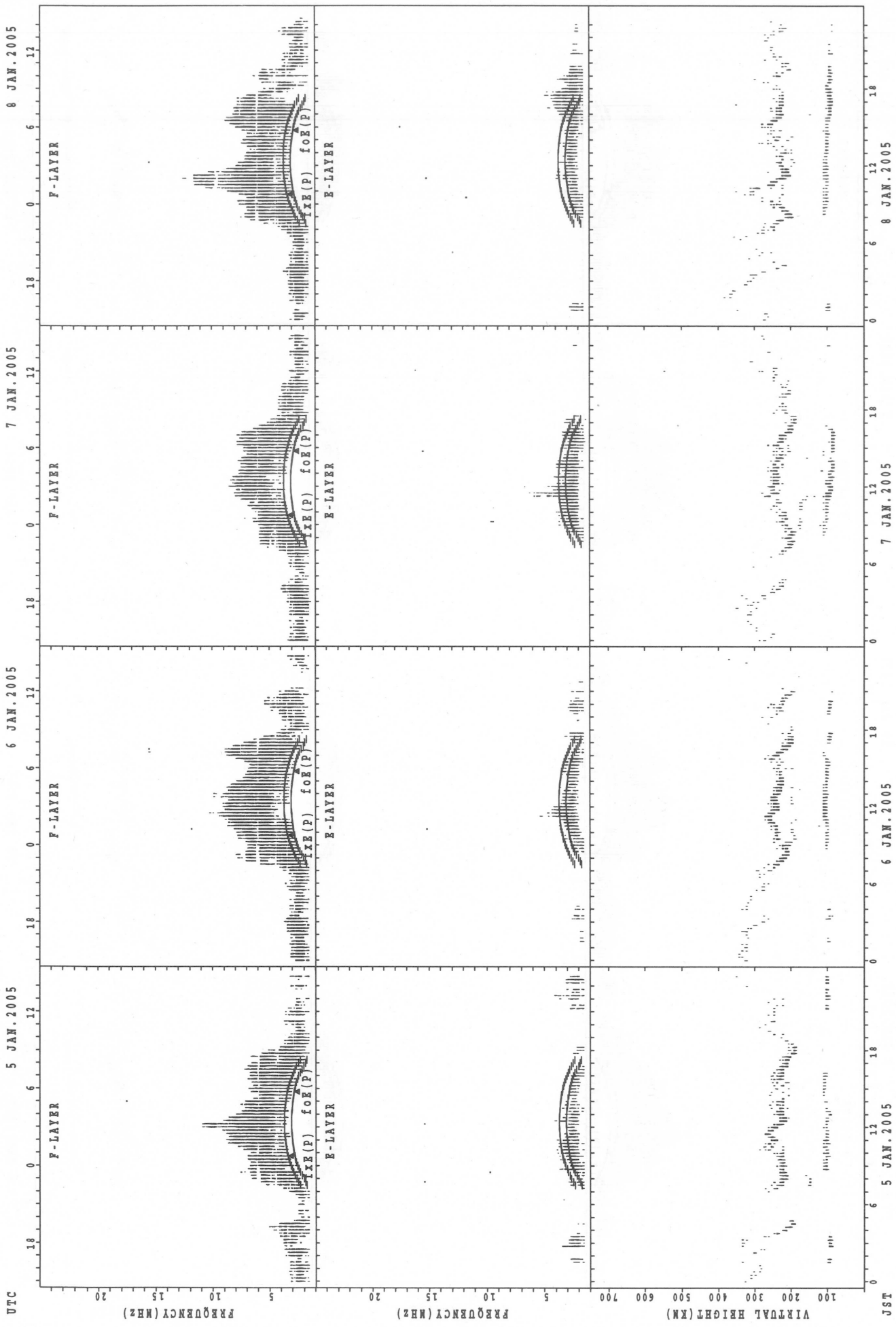
2 JAN. 2005

3 JAN. 2005

4 JAN. 2005

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

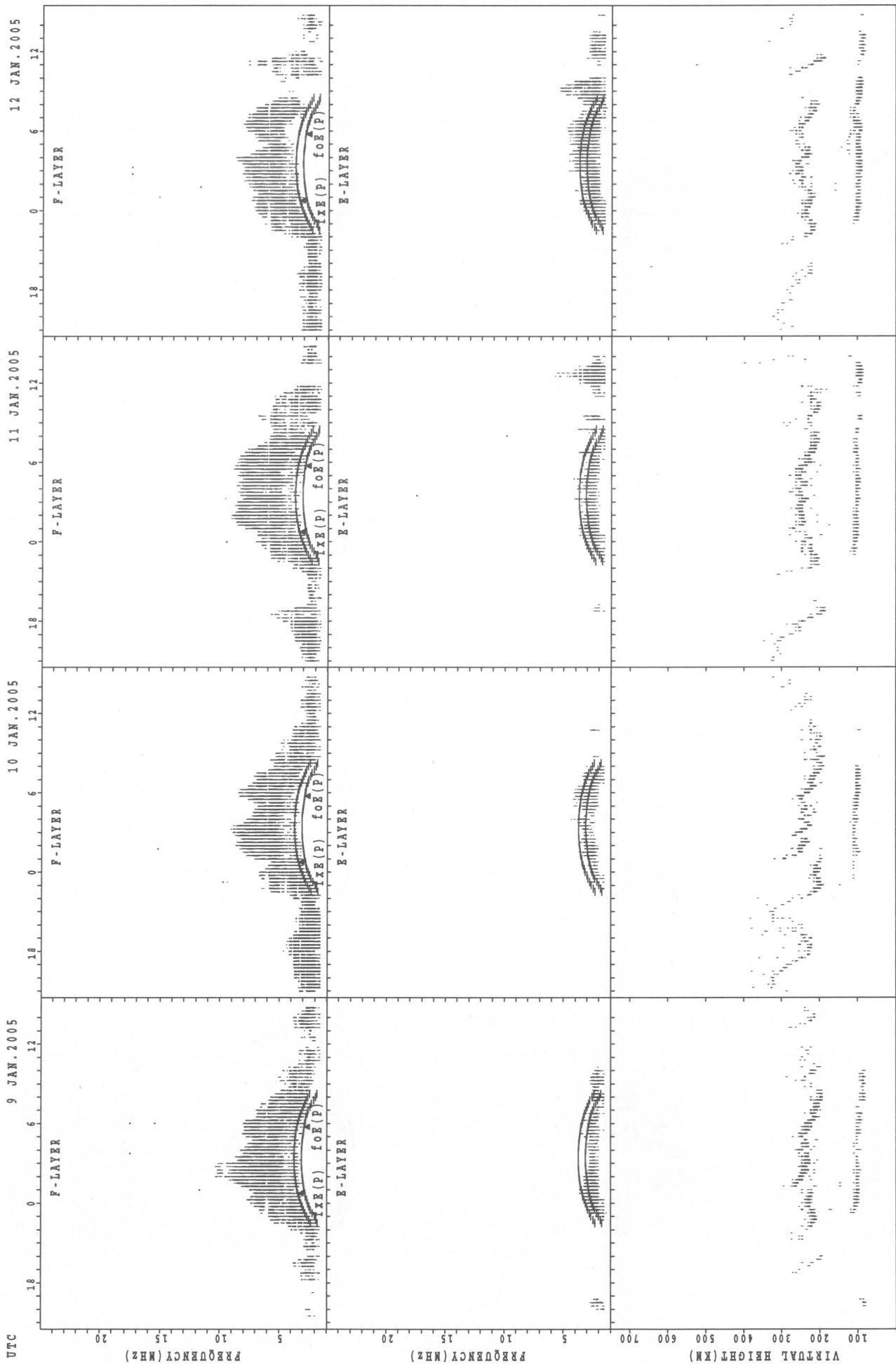
SUMMARY PLOTS AT Yamagawa

UTC 9 JAN. 2005

10 JAN. 2005

11 JAN. 2005

12 JAN. 2005



JST 9 JAN. 2005

10 JAN. 2005

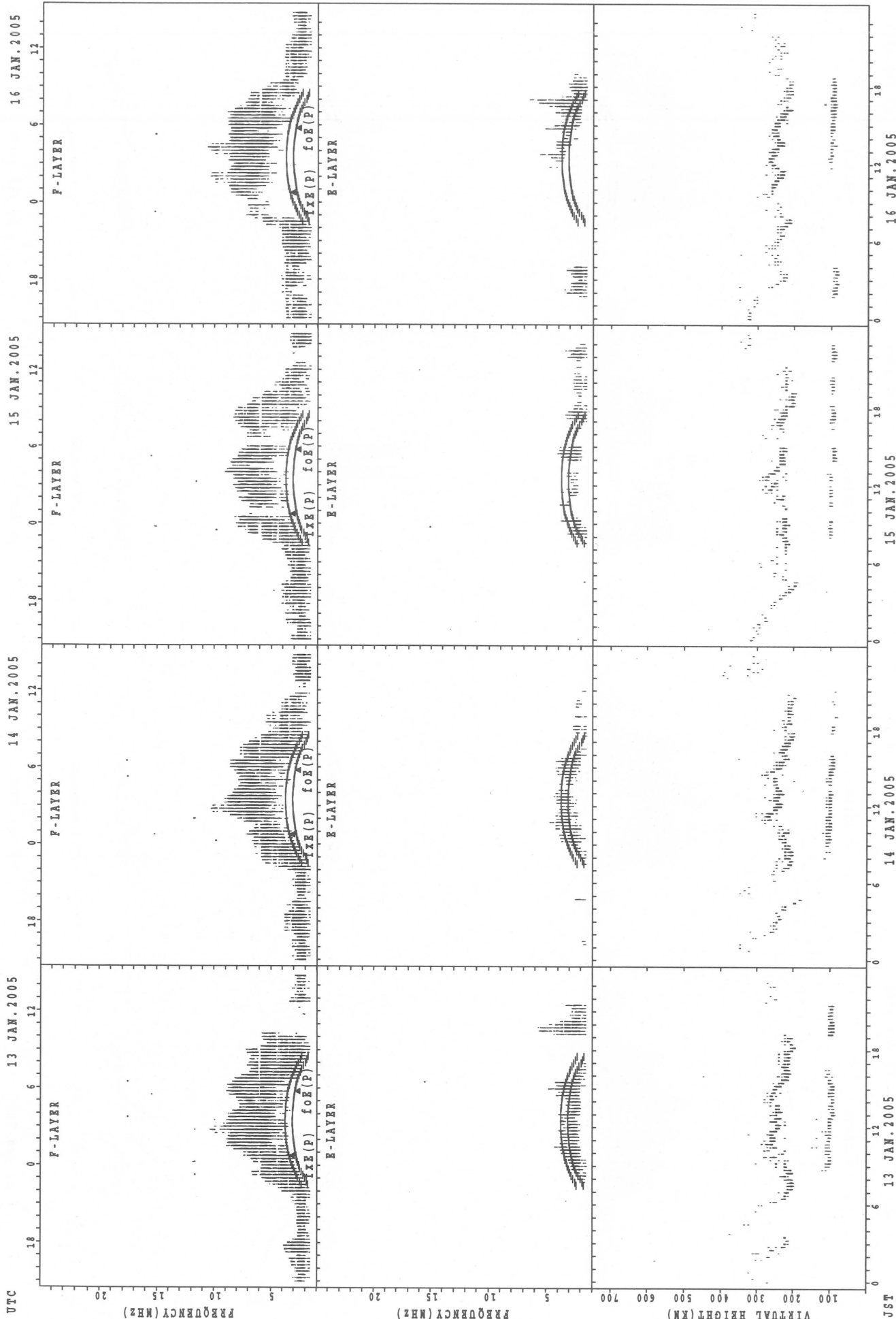
11 JAN. 2005

12 JAN. 2005

f<sub>x E</sub>(P); PREDICTED VALUE FOR f<sub>x E</sub>  
f<sub>o E</sub>(P); PREDICTED VALUE FOR f<sub>o E</sub>



SUMMARY PLOTS AT Yamagawa



$f_{x E}(P)$ ; PREDICTED VALUE FOR  $f_{x E}$   
 $f_{o E}(P)$ ; PREDICTED VALUE FOR  $f_{o E}$

UTC

13 JAN. 2005

14 JAN. 2005

15 JAN. 2005

16 JAN. 2005

13 JAN. 2005

14 JAN. 2005

15 JAN. 2005

16 JAN. 2005

13 JAN. 2005

14 JAN. 2005

15 JAN. 2005

16 JAN. 2005

13 JAN. 2005

14 JAN. 2005

15 JAN. 2005

16 JAN. 2005

13 JAN. 2005

14 JAN. 2005

15 JAN. 2005

16 JAN. 2005

13 JAN. 2005

14 JAN. 2005

15 JAN. 2005

16 JAN. 2005

13 JAN. 2005

14 JAN. 2005

15 JAN. 2005

16 JAN. 2005

13 JAN. 2005

14 JAN. 2005

15 JAN. 2005

16 JAN. 2005

13 JAN. 2005

14 JAN. 2005

15 JAN. 2005

16 JAN. 2005

13 JAN. 2005

14 JAN. 2005

15 JAN. 2005

16 JAN. 2005

13 JAN. 2005

14 JAN. 2005

15 JAN. 2005

16 JAN. 2005

13 JAN. 2005

14 JAN. 2005

15 JAN. 2005

16 JAN. 2005

13 JAN. 2005

14 JAN. 2005

15 JAN. 2005

16 JAN. 2005

13 JAN. 2005

14 JAN. 2005

15 JAN. 2005

16 JAN. 2005

13 JAN. 2005

14 JAN. 2005

15 JAN. 2005

16 JAN. 2005

13 JAN. 2005

14 JAN. 2005

15 JAN. 2005

16 JAN. 2005

13 JAN. 2005

14 JAN. 2005

15 JAN. 2005

16 JAN. 2005

13 JAN. 2005

14 JAN. 2005

15 JAN. 2005

16 JAN. 2005

13 JAN. 2005

14 JAN. 2005

15 JAN. 2005

16 JAN. 2005

13 JAN. 2005

14 JAN. 2005

15 JAN. 2005

16 JAN. 2005

13 JAN. 2005

14 JAN. 2005

15 JAN. 2005

16 JAN. 2005

13 JAN. 2005

14 JAN. 2005

15 JAN. 2005

16 JAN. 2005

13 JAN. 2005

14 JAN. 2005

15 JAN. 2005

16 JAN. 2005

13 JAN. 2005

14 JAN. 2005

15 JAN. 2005

16 JAN. 2005

13 JAN. 2005

14 JAN. 2005

15 JAN. 2005

16 JAN. 2005

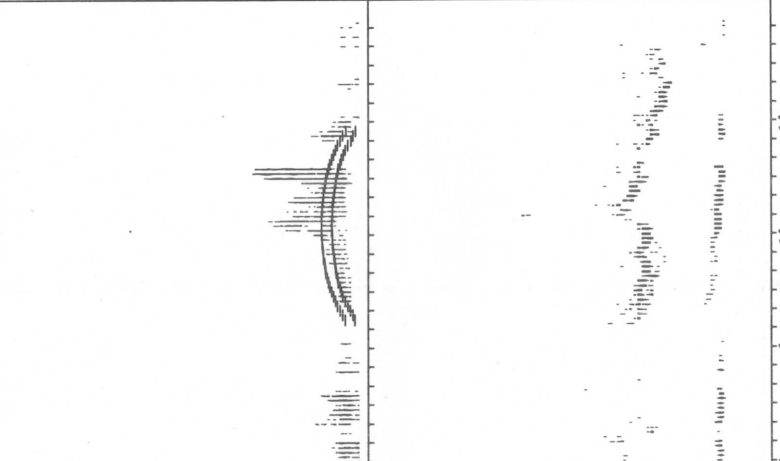
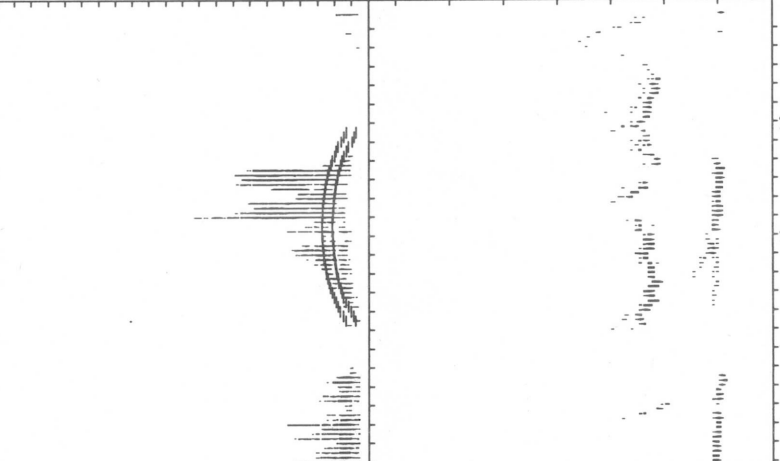
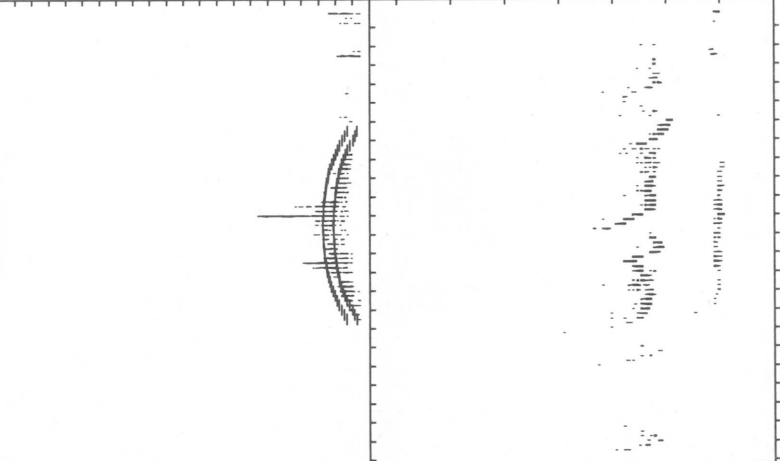
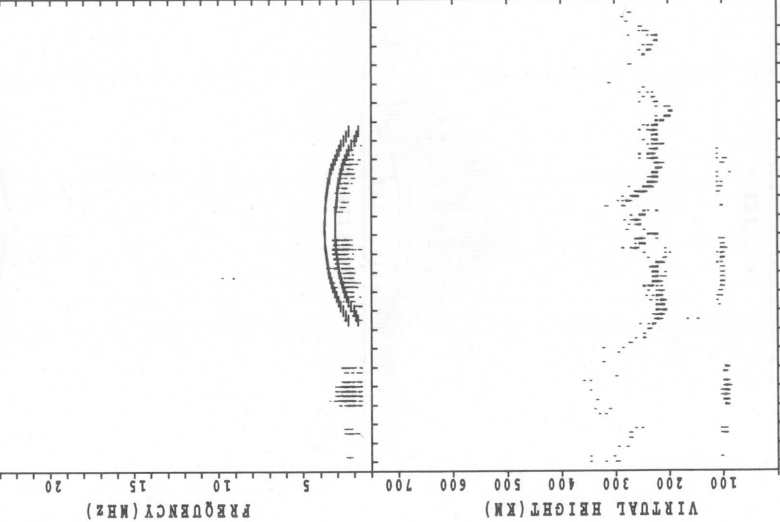
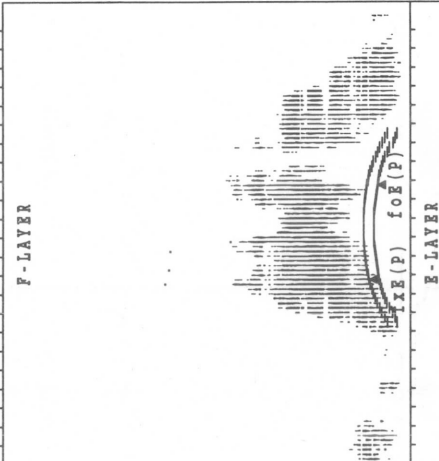
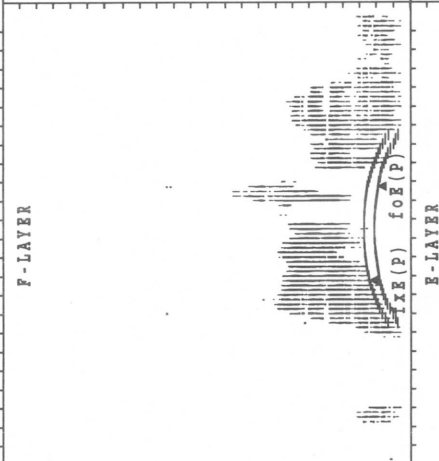
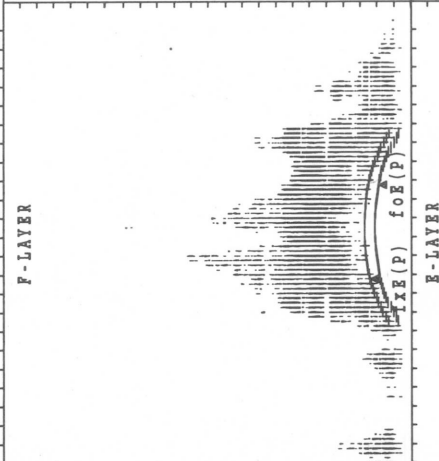
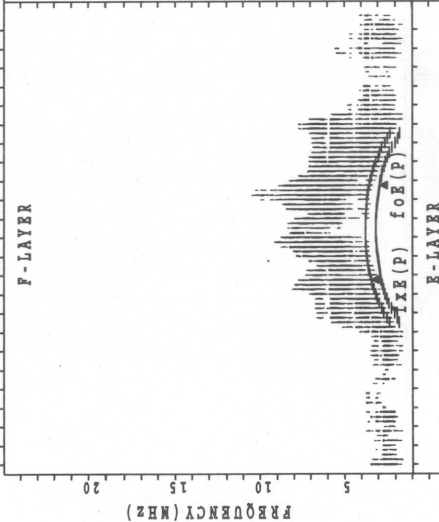
SUMMARY PLOTS AT Yamagawa

UTC 17 JAN. 2005

18 JAN. 2005

19 JAN. 2005

20 JAN. 2005



JST 17 JAN. 2005

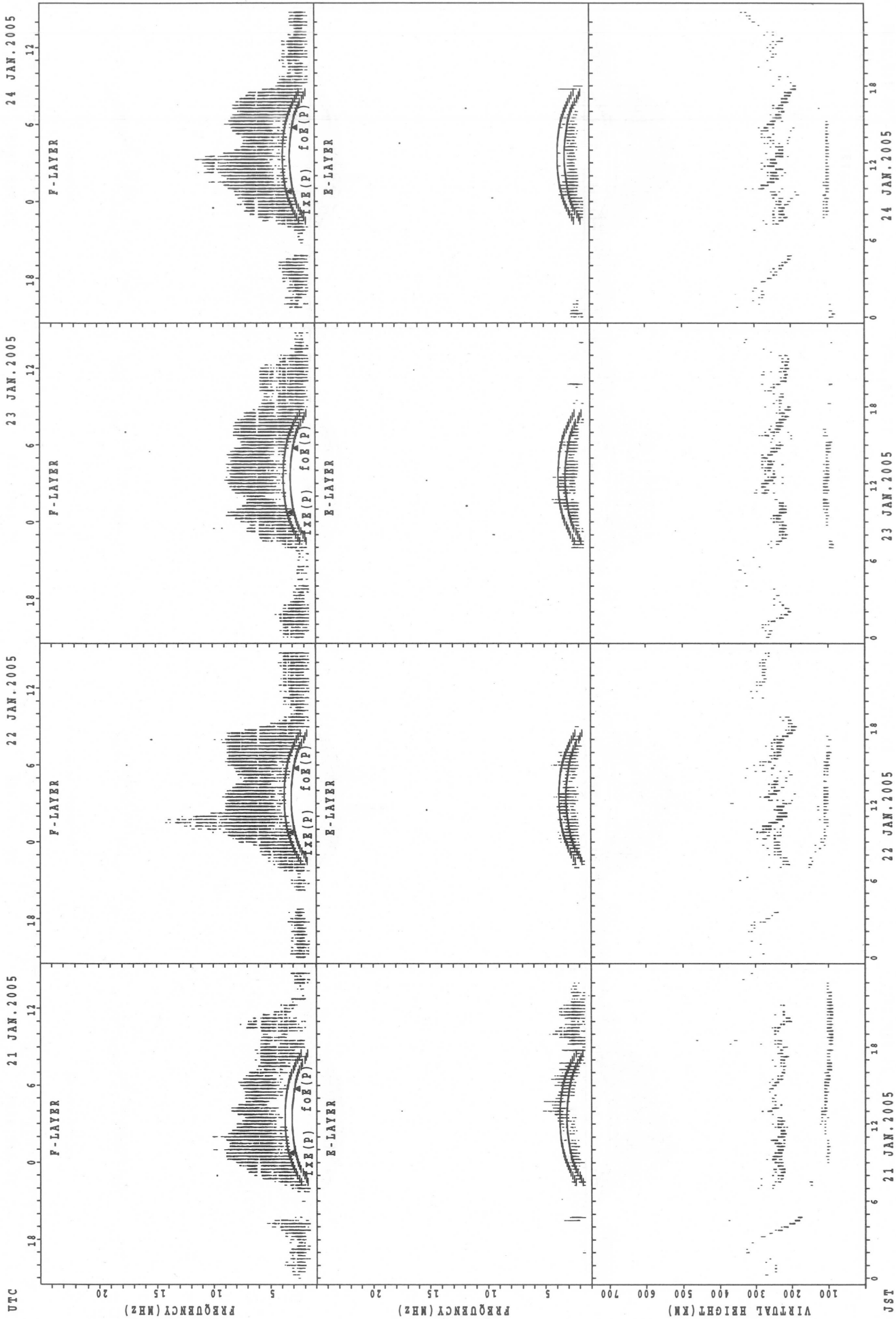
18 JAN. 2005

19 JAN. 2005

20 JAN. 2005

f<sub>x</sub>E(P); PREDICTED VALUE FOR f<sub>x</sub>E  
f<sub>o</sub>E(P); PREDICTED VALUE FOR f<sub>o</sub>E

SUMMARY PLOTS AT Yamagawa



f<sub>x E</sub>(P); PREDICTED VALUE FOR f<sub>x E</sub>  
f<sub>o E</sub>(P); PREDICTED VALUE FOR f<sub>o E</sub>

UTC

UTC

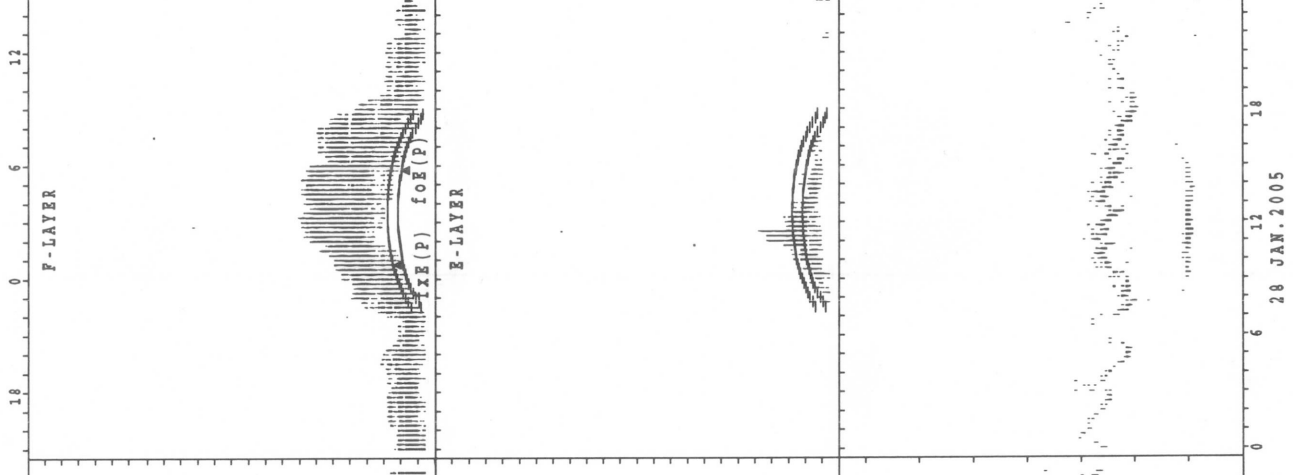
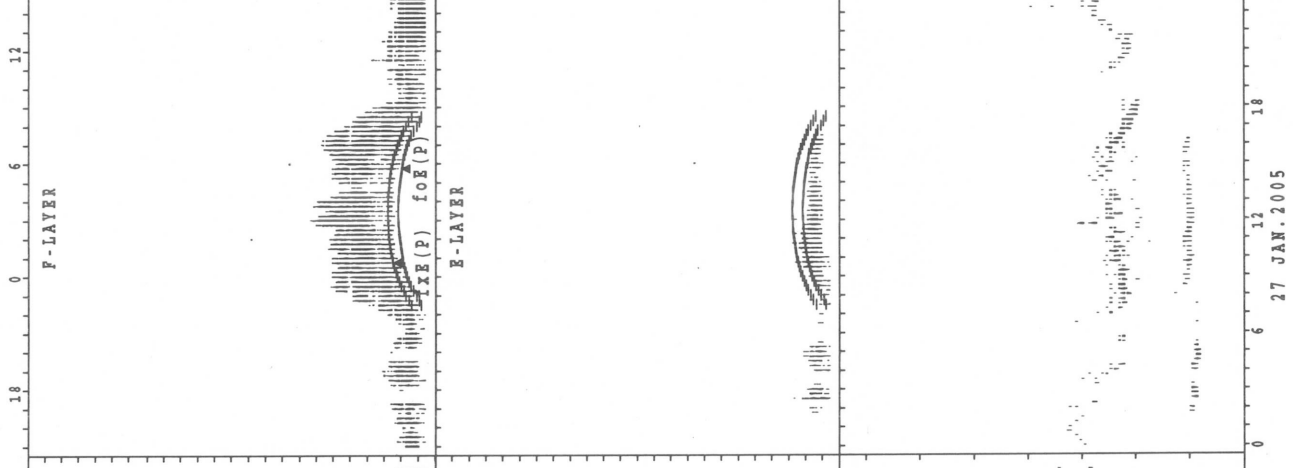
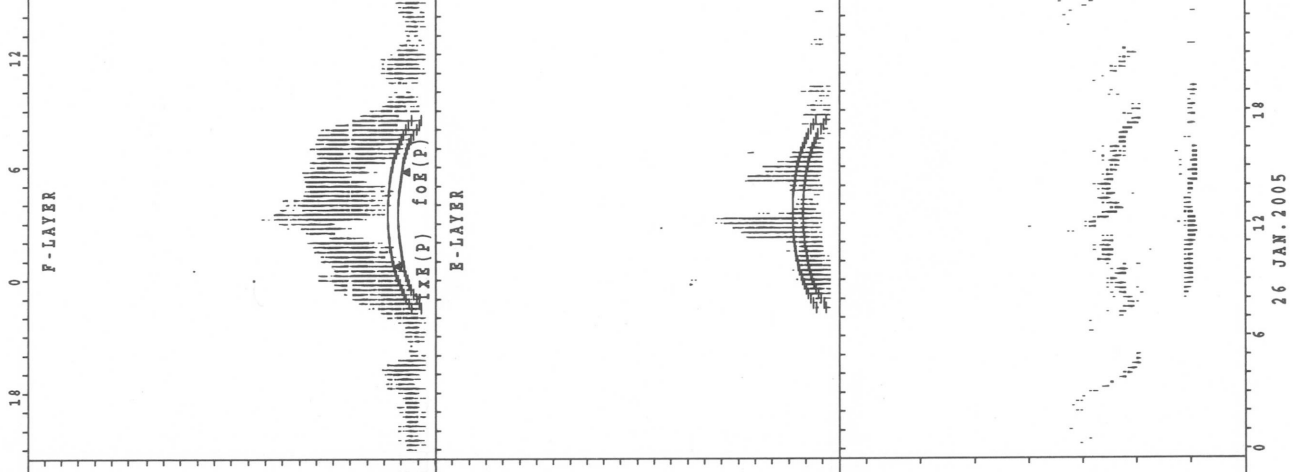
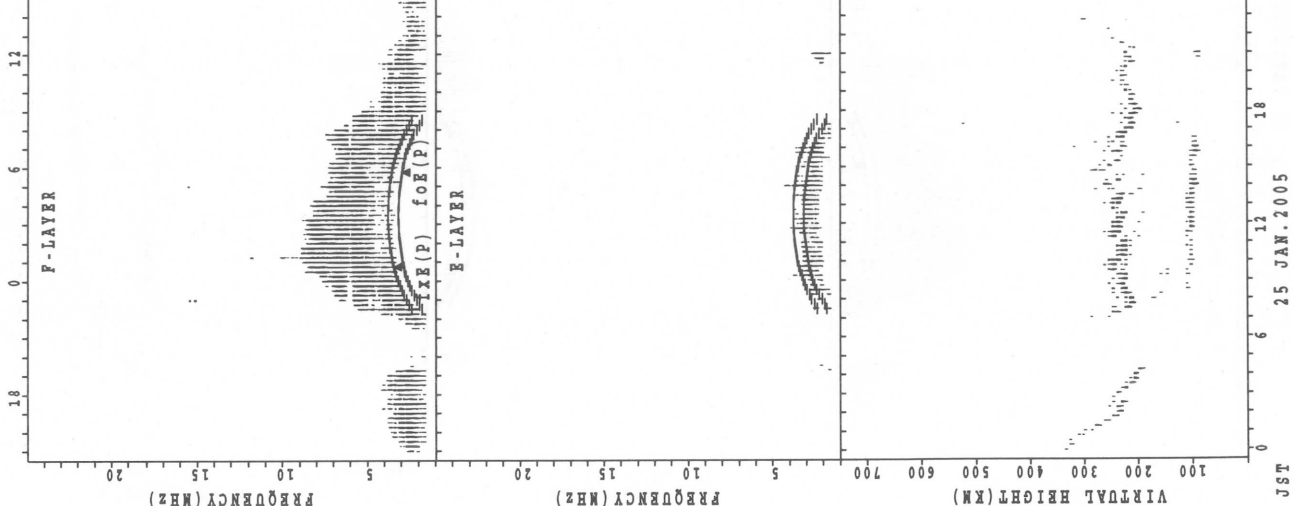
SUMMARY PLOTS AT Yamagawa

UTC 25 JAN. 2005

26 JAN. 2005

27 JAN. 2005

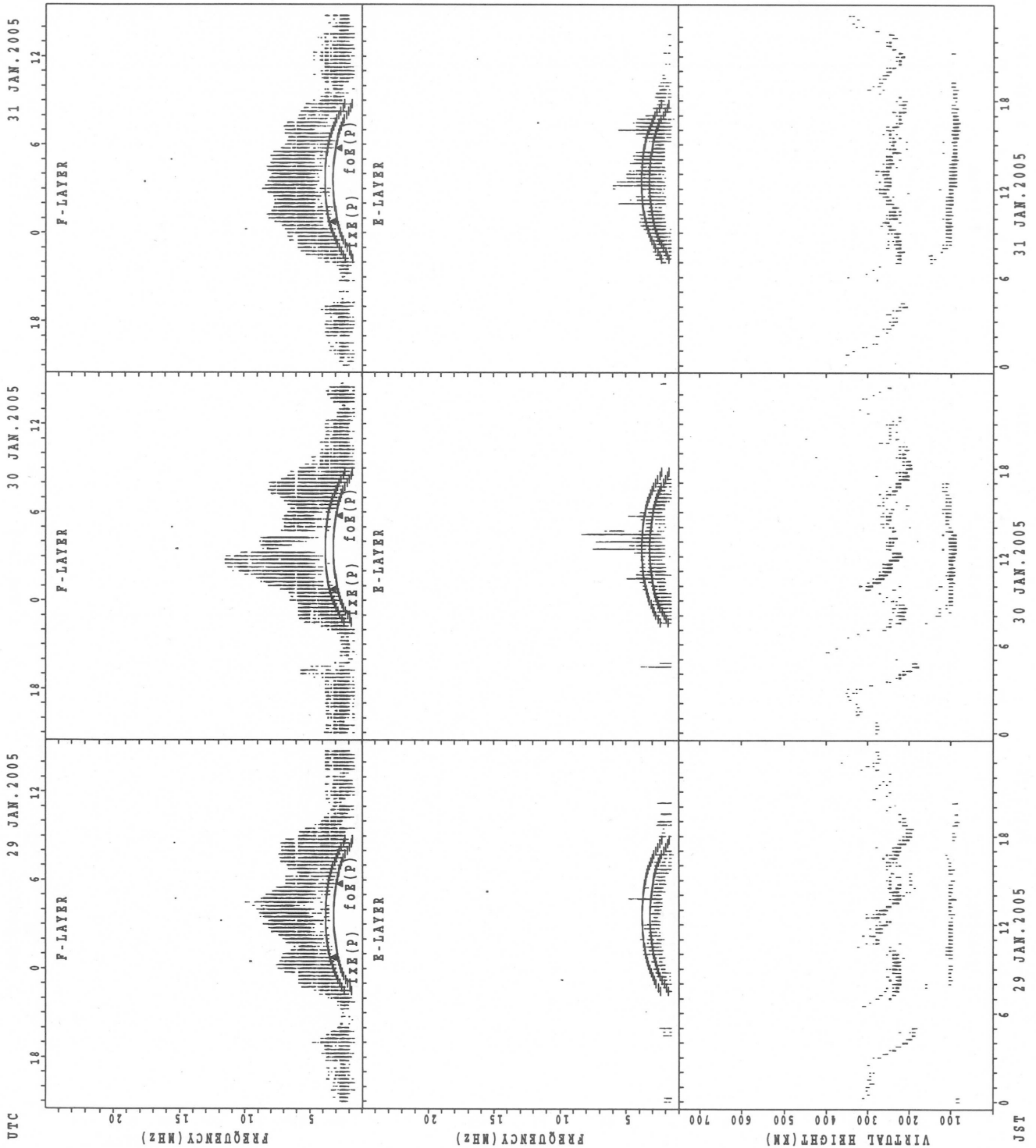
28 JAN. 2005



JST 25 JAN. 2005  
 JST 26 JAN. 2005  
 JST 27 JAN. 2005  
 JST 28 JAN. 2005

$f_x F E(P)$ ; PREDICTED VALUE FOR  $f_x F E$   
 $f_o F E(P)$ ; PREDICTED VALUE FOR  $f_o F E$

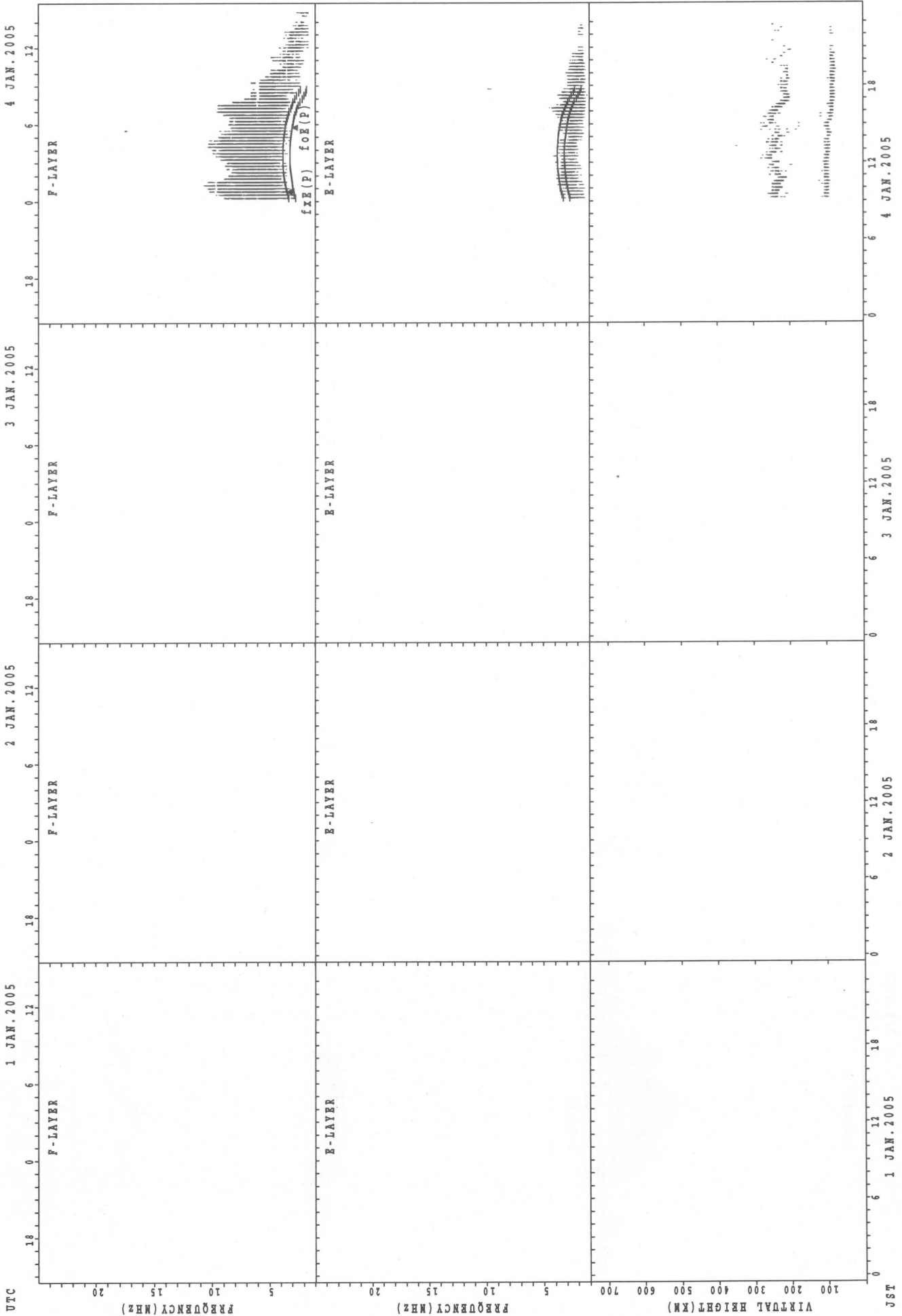
SUMMARY PLOTS AT Yamagawa



f\_xe(P); PREDICTED VALUE FOR f\_xe  
foE(P); PREDICTED VALUE FOR foE



SUMMARY PLOTS AT Okinawa



UTC  
 1 JAN. 2005  
 2 JAN. 2005  
 3 JAN. 2005  
 4 JAN. 2005

F-LAYER  
 F-LAYER  
 F-LAYER  
 F-LAYER

E-LAYER  
 E-LAYER  
 E-LAYER  
 E-LAYER

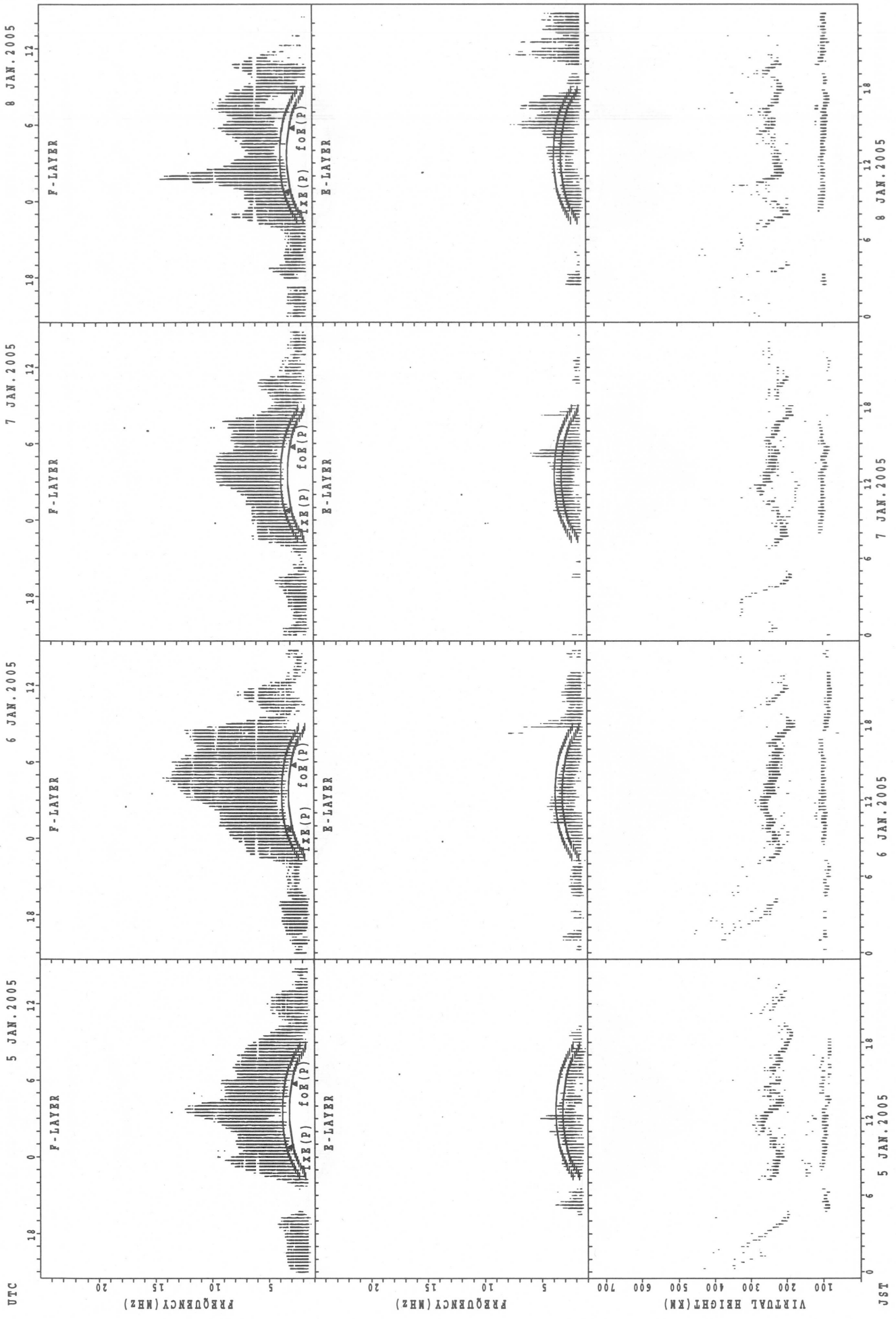
fXE(P)  
 foE(P)

VIRTUAL HEIGHT(KM)  
 FREQUENCY(MHZ)  
 FREQUENCY(MHZ)  
 FREQUENCY(MHZ)

JST  
 1 JAN. 2005  
 2 JAN. 2005  
 3 JAN. 2005  
 4 JAN. 2005

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

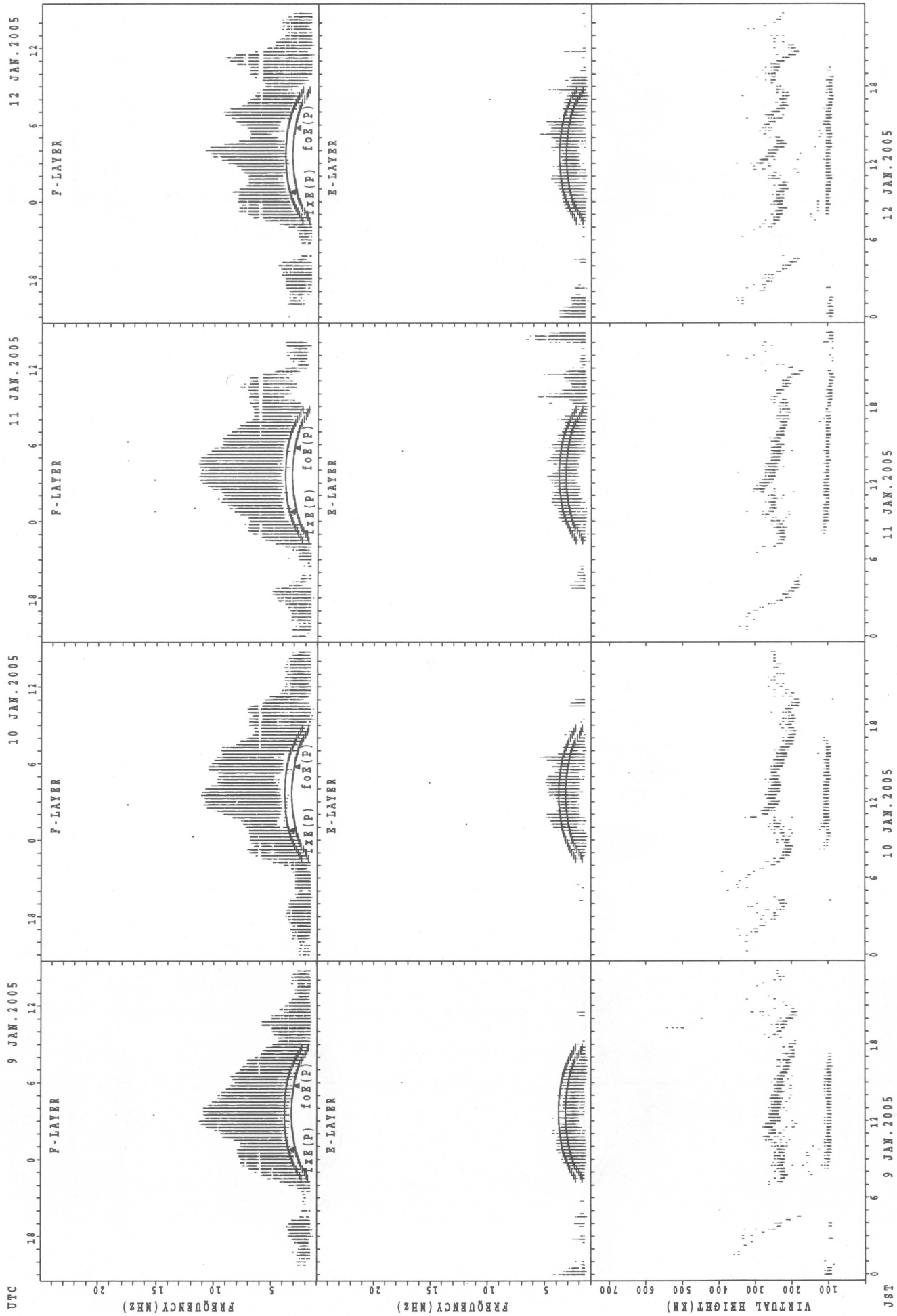
SUMMARY PLOTS AT Okinawa



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

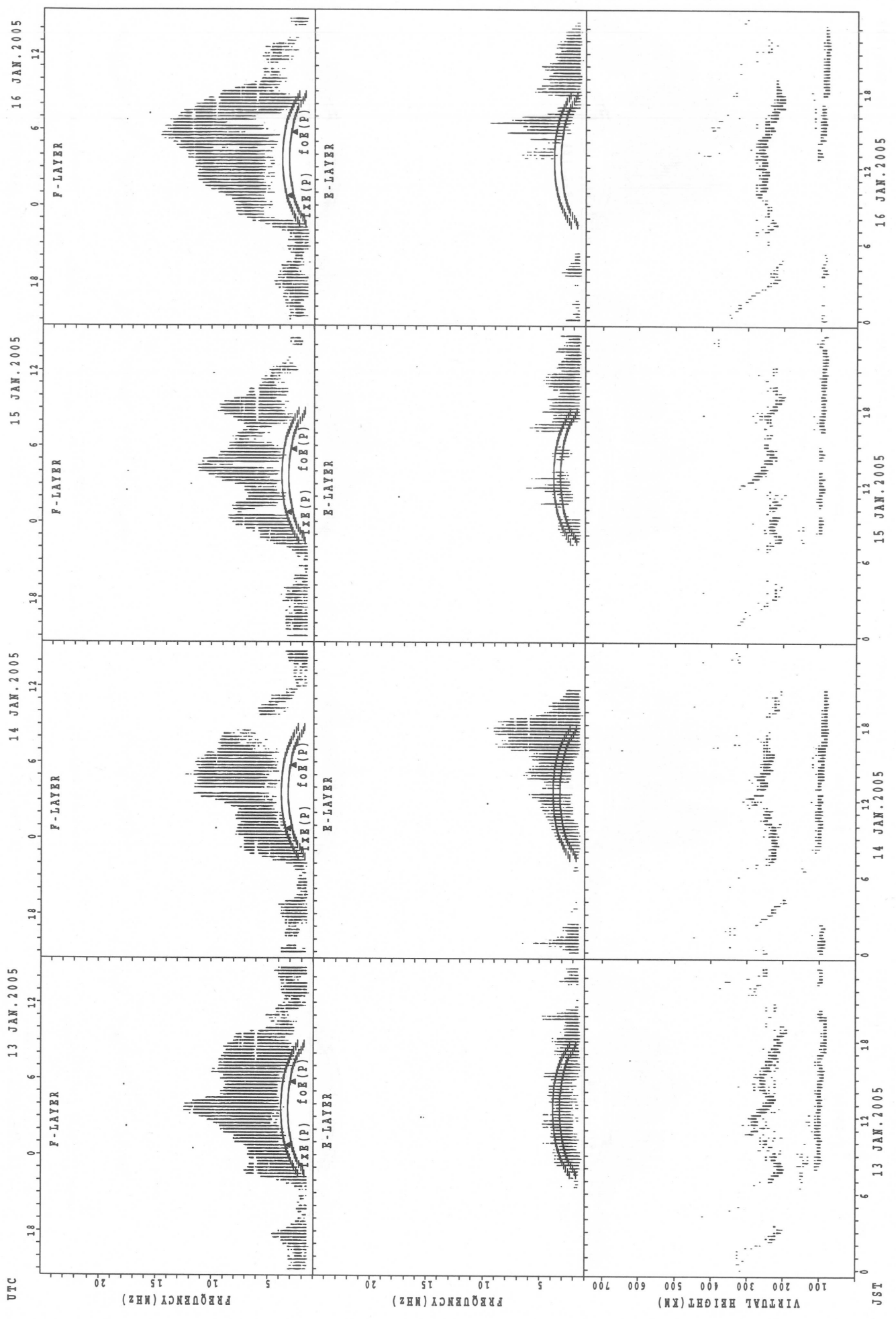
JST

SUMMARY PLOTS AT Okinawa



f<sub>x</sub>E(P); PREDICTED VALUE FOR f<sub>x</sub>E  
foE(P); PREDICTED VALUE FOR foE

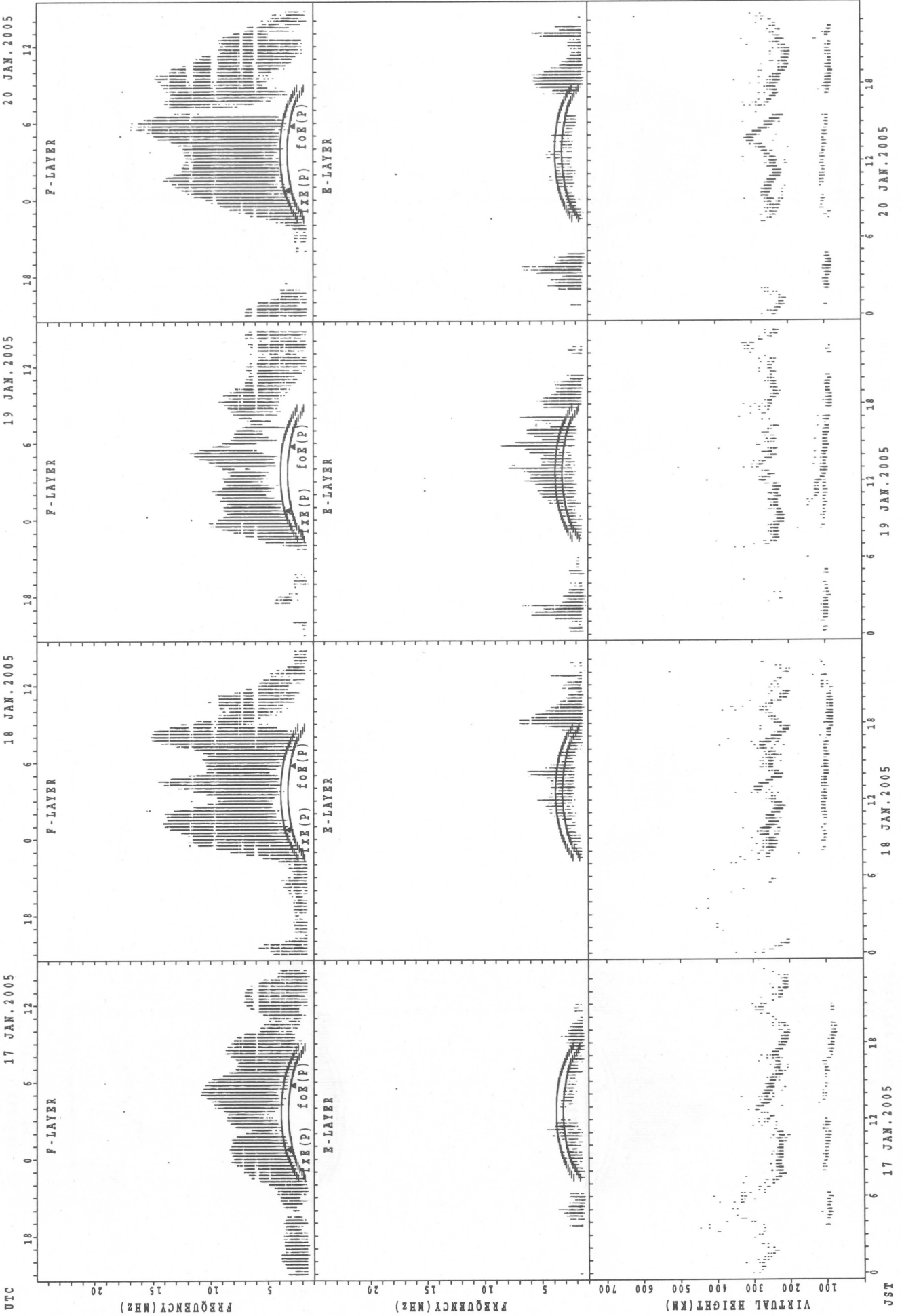
SUMMARY PLOTS AT Okinawa



f<sub>xE</sub>(P); PREDICTED VALUE FOR f<sub>xE</sub>  
f<sub>oE</sub>(P); PREDICTED VALUE FOR f<sub>oE</sub>

JST

SUMMARY PLOTS AT Okinawa



foF2(P); PREDICTED VALUE FOR foF2  
foE(P); PREDICTED VALUE FOR foE

UTC 17 JAN. 2005 18 JAN. 2005 19 JAN. 2005 20 JAN. 2005  
JST



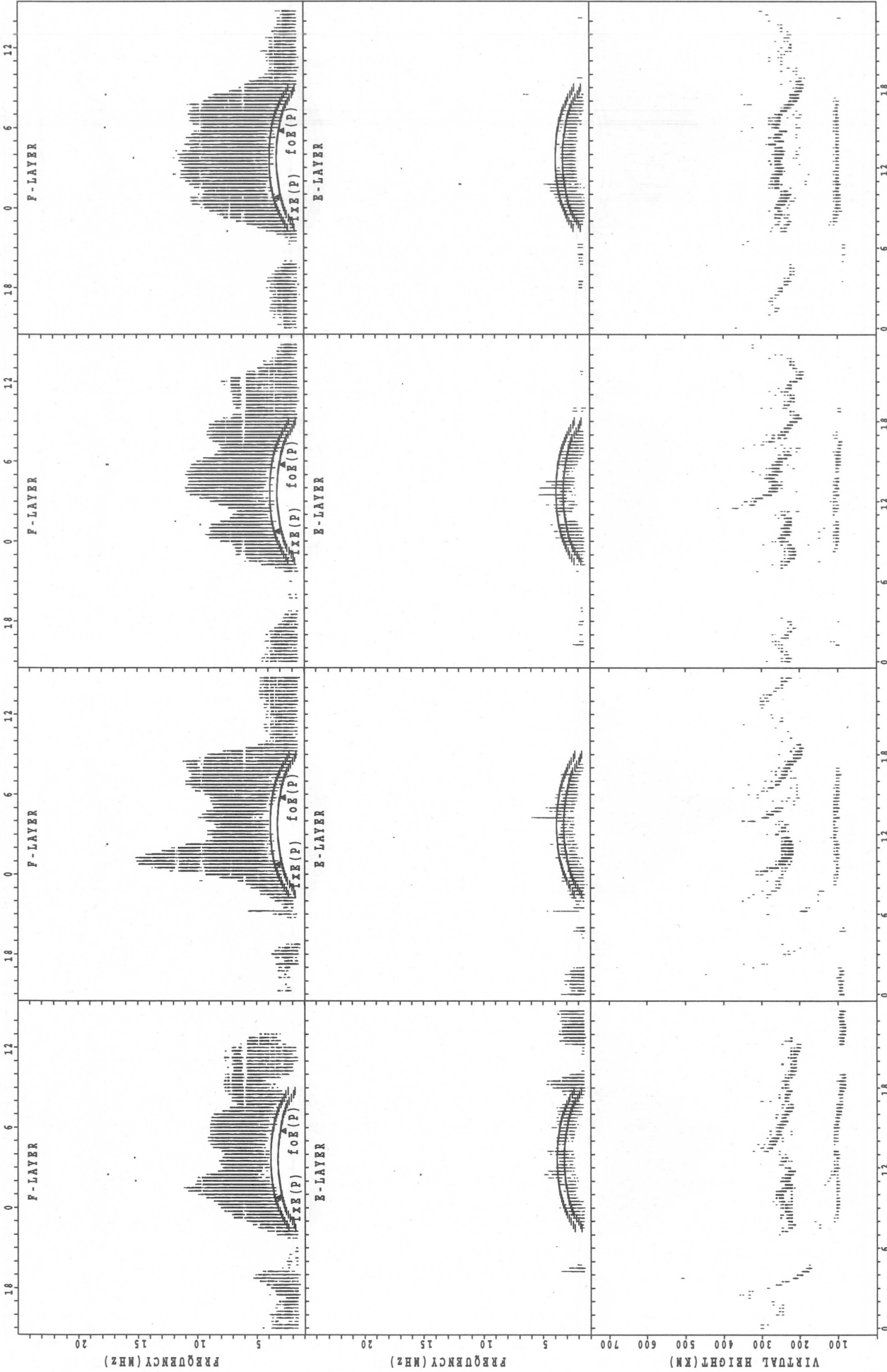
SUMMARY PLOTS AT Okinawa

UTC 21 JAN. 2005

22 JAN. 2005

23 JAN. 2005

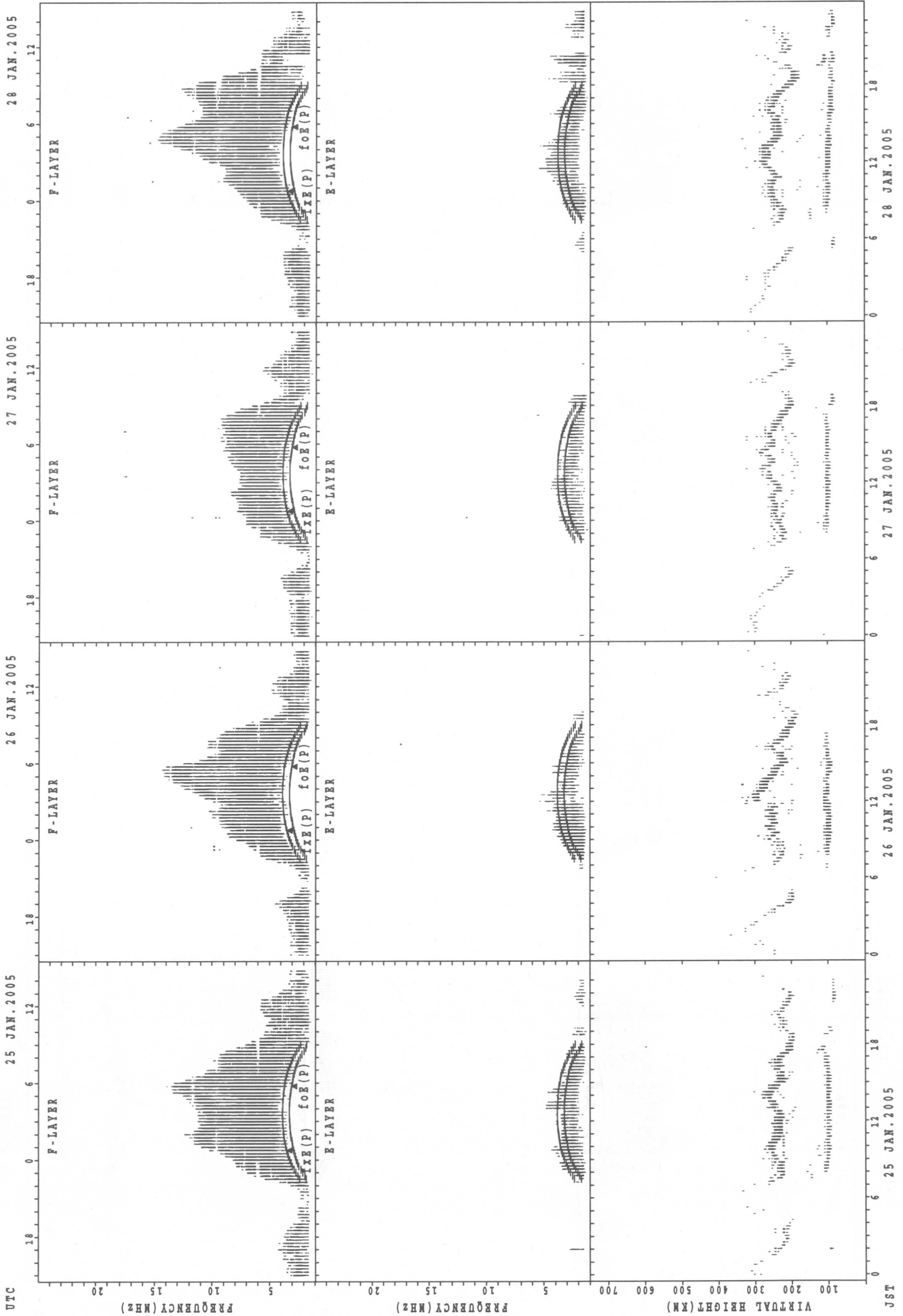
24 JAN. 2005



JST 21 JAN. 2005  
JST 22 JAN. 2005  
JST 23 JAN. 2005  
JST 24 JAN. 2005

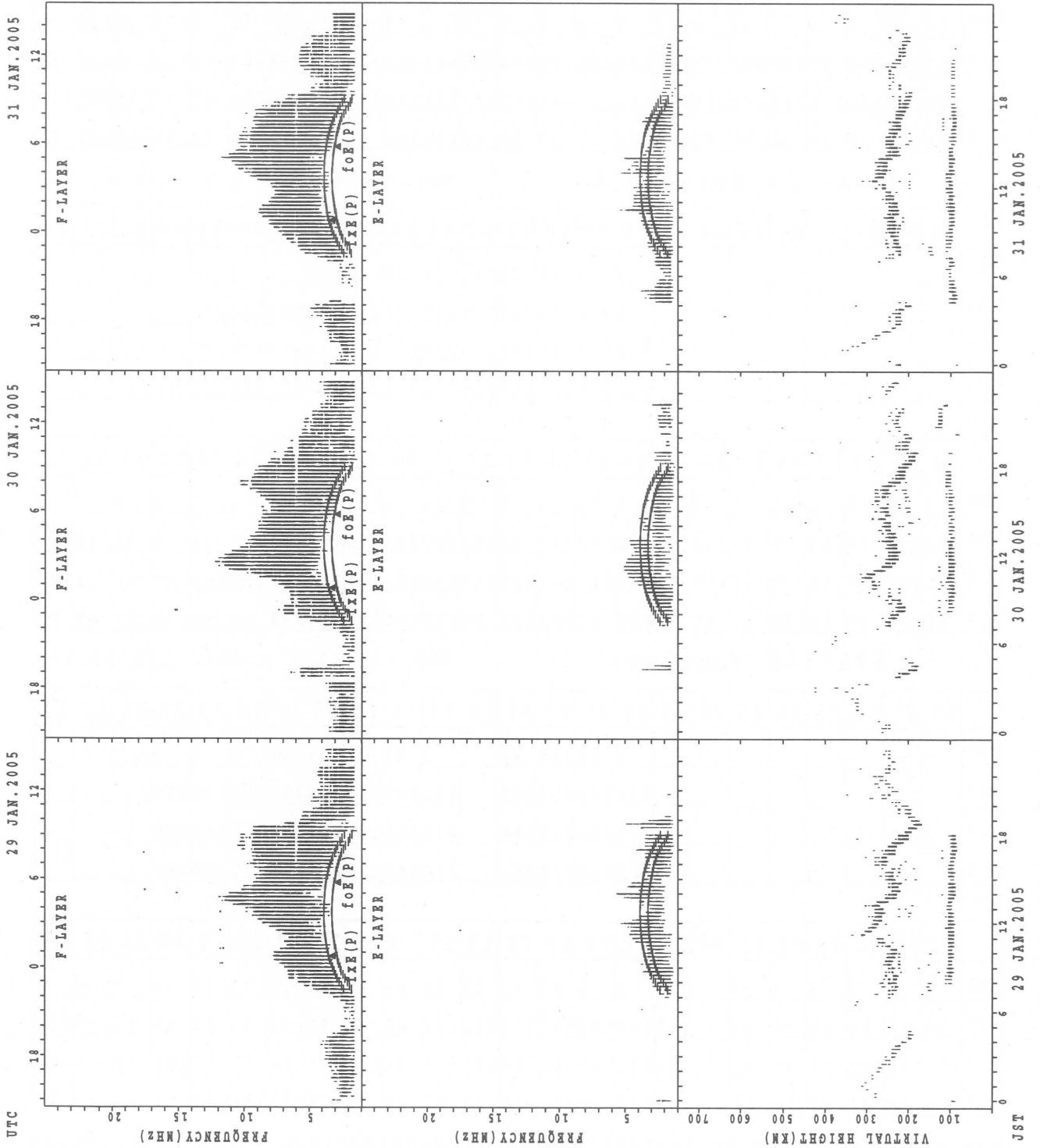
f<sub>x E</sub>(P); PREDICTED VALUE FOR f<sub>x E</sub>  
f<sub>o E</sub>(P); PREDICTED VALUE FOR f<sub>o E</sub>

SUMMARY PLOTS AT Okinawa



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

SUMMARY PLOTS AT Okinawa



f<sub>x</sub>E(P); PREDICTED VALUE FOR f<sub>x</sub>E  
foE(P); PREDICTED VALUE FOR foE

MONTHLY MEDIANS OF h'F AND h'Es

JAN. 2005

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									6	18	26	27	29	22	23	23	9	1	1					
MED									234	238	233	232	230	245	240	232	244	262	248					
U Q									244	242	244	238	241	254	254	246	249	131	124					
L Q									228	228	226	228	221	230	230	228	228	131	124					

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	13	6	5	7	9	12	8	13	9	10	9	5	5	4	4	7	11	12	11	9	12	12	11	9
MED	97	106	101	97	103	103	99	101	107	106	99	103	113	113	113	103	101	99	101	93	95	95	97	95
U Q	109	111	142	111	106	103	106	106	113	119	104	119	143	115	113	107	105	104	111	95	98	97	105	110
L Q	94	99	98	95	97	101	97	98	98	97	97	95	93	104	104	95	95	95	95	91	93	89	91	93

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									13	20	25	20	16	19	25	25	10	4	1	1				
MED									238	240	252	232	237	244	246	238	233	246	260	270				
U Q									240	255	266	242	249	260	252	247	250	252	130	135				
L Q									218	236	232	226	227	228	234	226	230	229	130	135				

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	3	4	2	3	2	2	2	7	6	10	7	7	4	4	4	7	4	9	6	7	9	5	7	7
MED	89	104	97	101	95	97	103	103	109	104	107	105	103	107	109	103	109	99	99	99	95	91	89	93
U Q	91	110	97	103	95	97	107	133	171	111	111	107	105	111	121	109	114	101	107	101	97	96	105	99
L Q	89	96	97	95	95	97	99	97	105	97	103	101	98	106	106	103	101	98	95	93	91	89	89	89

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									8	25	26	24		3	22	27	24	16	4	2	2			
MED									250	246	250	239		252	255	248	240	231	235	256	243			
U Q									264	256	272	246		276	266	258	254	239	255	284	258			
L Q									226	240	230	232		248	240	230	234	228	232	228	228			

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	3	4	5	6	5	2		3	2	6	10	15	12	13	11	15	14	10	11	10	8	7	5	2
MED	99	99	97	95	93	91		151	142	107	107	105	103	99	99	97	98	98	93	95	96	95	93	109
U Q	111	103	103	95	97	95		155	171	107	131	107	107	105	105	101	105	103	95	97	100	99	99	121
L Q	95	98	94	93	92	87		93	113	99	103	103	97	97	95	95	95	91	91	89	94	91	91	97

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									14	23	27	17			4	27	27	24	14	3	6	2	1	
MED									246	244	242	246			228	242	242	226	222	248	238	247	260	
U Q									254	256	252	267			230	254	254	238	230	282	254	264	130	
L Q									230	232	232	230			224	230	230	218	222	214	228	230	130	

h'Es

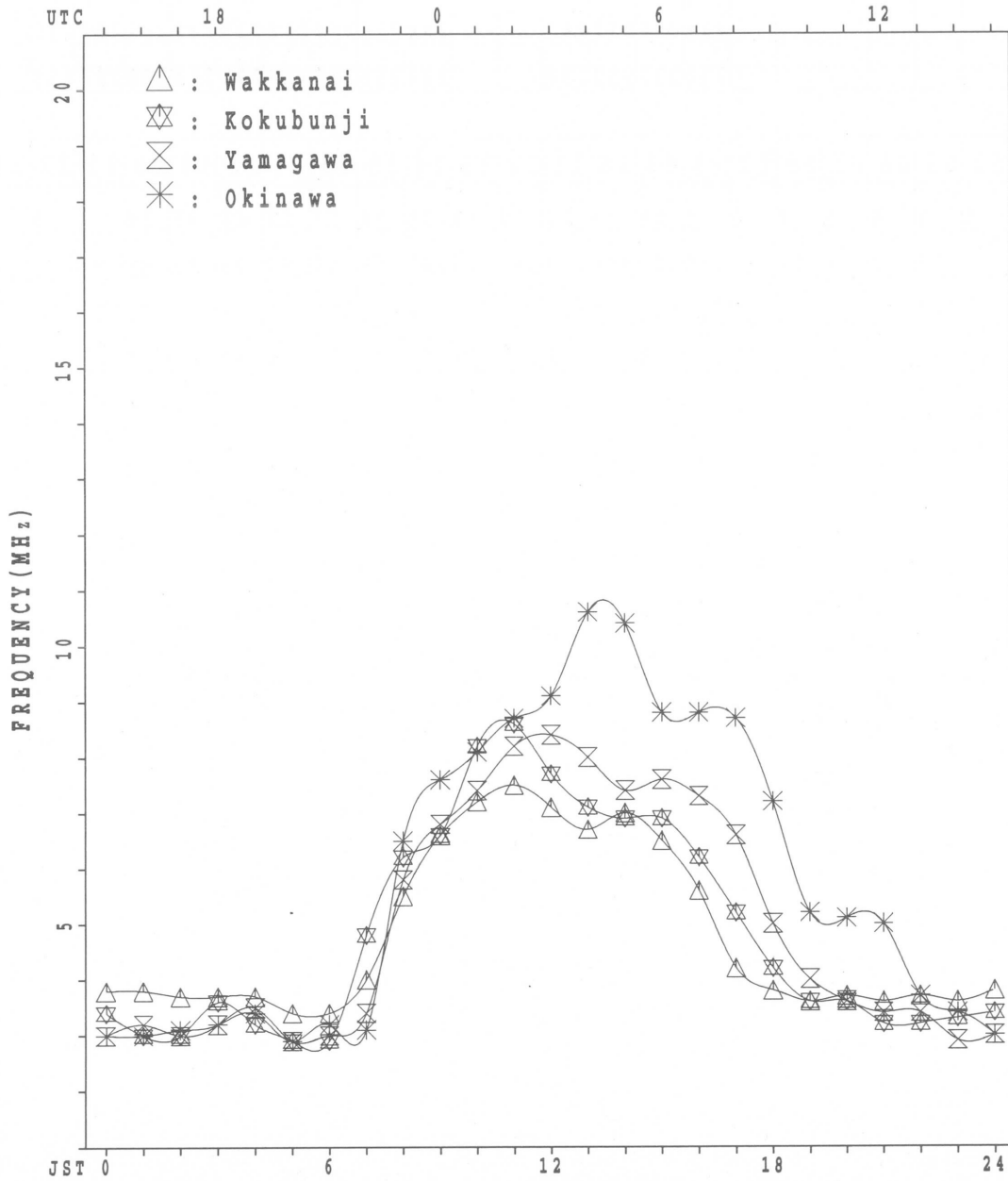
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	7	5	5	3	4	5	3	2	7	15	14	22	18	19	17	14	13	14	16	15	14	7	8	7
MED	95	97	97	93	93	95	91	128	149	103	106	105	103	103	103	97	99	93	93	89	89	93	89	95
U Q	97	111	103	97	139	97	95	155	153	113	119	107	105	107	106	103	101	99	95	95	93	109	94	97
L Q	91	92	93	89	89	91	89	101	103	101	103	103	101	99	97	95	95	91	89	87	87	87	88	89



## MONTHLY MEDIANS PLOT OF foF2

JAN. 2005

AUTOMATIC SCALING



# IONOSPHERIC DATA STATION Kokubunji

JAN. 2005 f<sub>XI</sub> (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	X	X	X	X	X	X	X												X	X	X	X	X	X	X
2	X	X	X	X	X	X	X												X	X	X	X	X	X	X
3	X	X	X	X	X	X	X											X	X	X	X	X	X	X	X
4	X	X	X	X	X	X	X											X	X	X	X	X	X	X	X
5	X	X	X	X	X	X	X											X	X	X	X	X	X	X	X
6	X	X	X	X	X	X	X											X	X	X	X	X	X	X	X
7	X	X	X	X	X	X	X											X	X	X	X	X	X	X	X
8	X	X	X	X	X	X	X											X	X	X	X	X	X	X	X
9	X	X	X	X	X	X	X											X	X	X	X	X	X	X	X
10	X	X	X	X	X	X	X											X	X	X	X	X	X	X	X
11	X	X	X	X	X	X	X											X	X	X	X	X	X	X	X
12	X	X	X	X	X	X	X											X	X	X	X	X	X	X	X
13	X	X	X	X	X	X	X											X	X	X	X	X	X	X	X
14	X	X	X	X	X	X	X											X	X	X	X	X	X	X	X
15	X	X	X	X	X	X	X											X	X	X	X	X	X	X	X
16	X	X	X	X	X	X	X											X	X	X	X	X	X	X	X
17	X	X	X	X	X	X	X											X	X	X	X	X	X	X	X
18	X	X	X	X	X	X	X											X	X	X	X	X	X	X	X
19	X	X	X	X	X	X	X											X	X	X	X	X	X	X	X
20	X	X	X	X	X	X	X											X	X	X	X	X	X	X	X
21	X	X	X	X	X	X	X											X	X	X	X	X	X	X	X
22	X	X	X	X	X	X	X											X	X	X	X	X	X	X	X
23	X	X	X	X	X	X	X											X	X	X	X	X	X	X	X
24	X	X	X	X	X	X	X											X	X	X	X	X	X	X	X
25	X	X	X	X	X	X	X											X	X	X	X	X	X	X	X
26	X	X	X	X	X	X	X											X	X	X	X	X	X	X	X
27	X	X	X	X	X	X	X											X	X	X	X	X	X	X	X
28	X	X	X	X	X	X	X											X	X	X	X	X	X	X	X
29	X	X	X	X	X	X	X											X	X	X	X	X	X	X	X
30	X	X	X	X	X	X	X											X	X	X	X	X	X	X	X
31	X	X	X	X	X	X	X											X	X	X	X	X	X	X	X
	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	31	31	31	31	31	31	31	3										27	31	30	29	30	28	31	
MED	X	X	X	X	X	X	X	X										X	X	X	X	X	X	X	X
U Q	40	40	41	42	41	36	35	58										63	54	48	46	40	38	40	
L Q	X	X	X	X	X	X	X	X										X	X	X	X	X	X	X	X
	34	35	35	35	34	31	29	50										54	42	40	35	33	34	34	

JAN. 2005 f<sub>XI</sub> (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

JAN. 2005 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

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	24	27	28	31	31	30	26	50	60	58	69	81	72	60	74	69	62	46	41	42	31	22	23	26
2	28	29	32	39	27	26	30	52	58	61	94	92	89	72	74	83	58	45	41	40	42	33	32	27
3	28	30	32	32	29	33	24	46	56	88	93	76	V 74	73	71	64	61	60	36	34	27	27	29	30
4	30	32	32	28	27	27	28	48	61	70	78	82	V 78	72	64	73	57	51	48	41	29	27	29	29
5	30	30	32	34	F	28	22	42	59	60	80	95	91	71	58	56	60	47	35	35	29	30	27	31
6	28	30	32	29	30	30	28	52	71	65	84	66	80	70	66	58	75	40	33	42	34	20	27	25
7	26	28	30	29	28	29	32	44	58	57	62	60	72	64	72	75	57	41	36	33	A 26	28	28	29
8	29	28	28	28	30	28	24	51	80	77	108	105	82	60	68	V 74	63	65	65	36		35	41	24
9	S 26	F 28	29	30	32	36	23	50	60	69	84	115	75	65	71	67	54	48	50	31	A 26	32	F F	F
10	F	F	33	F	32	28	28	46	66	63	72	76	66	64	71	74	52	55	40	29		29	28	28
11	32	29	31	34	28	23	25	47	57	58	88	89	70	65	74	76	57	60	S 55	37	25	33	31	28
12	25	28	29	29	31	24	25	43	62	62	84	80	72	66	67	68	61	52	32	36	50	A A		34
13	27	26	28	25	30	29	33	48	57	58	88	91	72	69	88	80	A A	56	52	50	27	34	28	25
14	29	32	38	35	23	25	26	44	62	A	82	S 88	92	64	75	77	65	42	48	52	30	22	28	30
15	35	38	34	40	41	F	34	47	65	73	70	80	74	74	74	68	74	68	56	44	43	30	29	29
16	33	34	35	36	34	36	36	55	70	78	89	86	78	78	72	68	66	49	37	34	29	32	28	32
17	33	33	F	33	29	31	F	49	61	70	63	81	79	69	82	74	61	56	45	41	36	38	38	37
18	38	51	S 30	25	25	30	22	59	80	98	109	114	97	112	103	79	62	56	37	42	37	44	32	30
19	27	28	31	23	24	18	18	51	82	92	91	80	V A 80	76	89	82	58	53	58	68	45	28	A 32	39
20	36	34	28	27	28	26	23	46	85	106	84	93	80	69	77	76	81	69	46	40	38	25	A 27	
21	30	30	28	29	38	18	20	44	65	75	79	86	78	72	69	68	58	52	48	54	43	30	24	29
22	29	30	29	32	29	25	22	53	54	56	C	C	C	C	C	C	C	C	45	30	36	41	40	38
23	42	46	42	31	23	25	20	44	62	C	C	C	C	C	C	C	67	64	45	44	40	34	28	29
24	31	30	32	33	34	22	25	51	64	76	81	95	98	67	65	69	82	C	31	34	35	36	32	34
25	34	35	37	37	33	24	23	50	66	70	74	77	84	72	59	58	60	50	40	35	40	30	28	28
26	30	30	33	37	32	26	24	44	62	61	V 74	88	92	84	61	74	74	50	27	A A	36	26	A 31	
27	30	31	33	34	35	29	28	49	59	63	62	72	74	70	62	66	61	48	30	38	43	28	30	30
28	33	33	35	38	38	29	31	46	58	59	62	86	81	72	68	78	65	42	35	32	32	33	33	34
29	34	34	36	36	42	24	25	47	62	66	66	75	82	81	68	60	62	57	40	30	36	32	32	34
30	35	34	34	36	49	27	26	51	60	65	83	98	94	87	60	67	66	53	45	35	35	26	30	31
31	33	36	36	34	38	28	26	46	59	66	68	83	82	76	63	62	56	44	32	39	40	42	F 34	
	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	31	31	29	29	29	28	29	29	29	29	29	31	30	29	30	26	30
MED	30	30	32	32	30	28	25	48	62	66	81	86	80	71	71	69	61	52	41	38	36	30	29	30
U Q	33	34	34	36	34	29	28	51	66	76	88	92	86	75	74	76	66	56	48	42	40	34	32	34
L Q	28	29	29	29	28	25	23	46	59	60	70	78	74	66	64	66	58	46	35	34	29	27	28	28

JAN. 2005 foF2 (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

# IONOSPHERIC DATA STATION Kokubunji

JAN. 2005 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

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											L	L	L		L									
2											L	L	L	L	L									
3										L		L	LE	B										
4											L	L	L	L	L	L								
5											L	L	L											
6											392	L	L	L		L								
7										L	L	L	L	L	L									
8										L	L	L	L		L	380								
9										L	L				L									
10												L		A	L	A								
11											L	L		L	L									
12											L	L	L	L		L								
13											L	L	A	A	A	A	A							
14										A	L	A	A	L	L	L								
15										E	B	L	L	L	L		A							
16											L	A	L	L										
17												L	L	L	L									
18												L	L	L										
19										L	A	A	A	L	L									
20										L	L	A			L	LE	B							
21											L	L	L	L	A	L								
22											C	C	C	C	C	C	C							
23											C	C	C	C	C	C								
24											L	L	L											
25											L	L	L		L	L								
26										L	L	L	L	L	L									
27											452	L	L	L	L	L								
28										L	L	L	L	L	L	L	L							
29										L	L	L	L	L	L	L	L							
30											L	L	L	L	L	L	L							
31										L	L	L	L	L	L	L	L							
	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											2	2		4	3	2								
MED											L	L		L	L	L								
U Q											406	444		422	380	362								
L Q														L	L	L								
														414	368									

JAN. 2005 foF1 (0.01MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

JAN. 2005 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									BUR		B	B	R	B	R	A	B	B						
2									B			B	B	B	A	A	R	B	B					
3									B	B	B	B	B	B	A	A	UR							
4									B	A		UA	A	A	UR	B								
5									BURURUR			B	R	R	URURUR	UA								
6									UR	A	A	A	AUR	UR	URUR	UR								
7									UR	A	A		UR	UR	UR	UR	UR							
8									BURURUR			RURUR	UR	URUR	URUR	URUR	URUR							
9									B	A	A		URUR	URUR	A	A	A							
10									B	R		A	A	A	A	A	A							
11									B		URURURURURUR		URURURURURUR	URURURURURUR	URURURURURUR	URURURURURUR								
12									B	A	A	AUR	R	URURURURURUR	URURURURURUR	URURURURURUR								
13											A	A	A	AURURURURURUR	URURURURURUR	URURURURURUR								
14									B	B	A	A	A	A	R	R	A	B						
15									BUR	A	B	A	RURURURURURUR	URURURURURUR	URURURURURUR	URURURURURUR	URURURURURUR							
16									B	B	B	B	B	A	A	R	A							
17									B		AUR		A	AUR	AUR	AUR	AUR							
18									B		A	A	A	A	AUR	A	A							
19									BURURURURURUR		A	A	A	A	AURURURURURUR	URURURURURUR	URURURURURUR							
20									BURURURURURUR		A	R	AURURURURURUR	URURURURURUR	URURURURURUR	URURURURURUR								
21											UR		A	A	A	A								
22											UR	C	C	C	C	C	C							
23									B	A	C	C	C	C	C	C	C	A						
24									BURURURURURUR		R		R	R	R	R	B							
25									B		URURURURURUR		R	R	R	URURURURURUR	URURURURURUR							
26									B		A	A	A	A	URURURURURUR	URURURURURUR	URURURURURUR							
27									B		URURURURURUR		R	R	R	B	B							
28									B		URURURURURUR		URURURURURUR	URURURURURUR	URURURURURUR	URURURURURUR	URURURURURUR							
29									UR	B	B	R	R	R	URURURURURUR	URURURURURUR	URURURURURUR							
30									B		A	A	A	A	URURURURURUR	URURURURURUR	URURURURURUR							
31									B		A	A	A	RURURURURURUR	URURURURURUR	URURURURURUR	URURURURURUR							
	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								3	19	16	12	9	4	11	13	13	14							
MED								188	232	280	312	320	324	308	288	264	216							
UQ								UR	URURURURURURUR	URURURURURURUR	URURURURURURUR	URURURURURURUR	URURURURURURUR	URURURURURURUR	URURURURURURUR	URURURURURURUR	URURURURURURUR							
LQ								168	UR	URURURURURURUR	URURURURURURUR	URURURURURURUR	URURURURURURUR	URURURURURURUR	URURURURURURUR	URURURURURURUR	URURURURURURUR							



IONOSPHERIC DATA STATION Kokubunji

JAN. 2005 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	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B
2	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B
3	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B
4	J	A	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B
5	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B
6	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B
7	J	A	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B
8	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B
9	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B
10	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B
11	J	A	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B
12	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B
13	J	A	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B
14	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B
15	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B
16	J	A	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B
17	J	A	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B
18	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B
19	J	A	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B
20	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B
21	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B
22	J	A	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B
23	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B
24	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B
25	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B
26	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B
27	J	A	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B
28	J	A	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B
29	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B
30	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B
31	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B
	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	31	31	31	31	31	31	31	31	31	30	29	29	29	29	29	29	30	29	31	31	31	31	31	31
MED	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B
UQ	J	A	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B
LQ	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B	E	B



IONOSPHERIC DATA STATION Kokubunji

JAN. 2005 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 B	E B	E B	E B	E B	E B	E B	E B	G	G	E B	U Y	E B	E B	G	E B	E B	E B	E B	E B	E B	E B	E B	E B
2	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B
3	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B
4	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B
5	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B
6	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B
7	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B
8	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B
9	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B
10	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B
11	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B
12	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B
13	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B
14	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B
15	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B
16	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B
17	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B
18	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B
19	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B
20	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B
21	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B
22	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B
23	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B
24	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B
25	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B
26	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B
27	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B
28	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B
29	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B
30	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B
31	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B
	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	31	31	31	31	31	31	31	31	31	30	29	29	29	29	29	29	30	29	31	31	31	31	31	31
MED	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B
UQ	16	16	16	16	16	16	16	19	27	31	36	36	37	35	32	30	25	20	16	17	17	16	16	17
LQ	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B	E B

IONOSPHERIC DATA STATION Kokubunji

JAN. 2005 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

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	16	16	16	15	18	15	14	17	19	18	<sup>E</sup> 37 <sup>B</sup> 30	23	<sup>E</sup> 36 <sup>B</sup> 24	27	26	17	15	15	14	16	15	15			
2	15	15	15	15	16	15	15	16	18	18	34	32	38	25	22	20	22	16	15	15	15	15	15	16	
3	16	15	15	15	15	15	16	16	28	33	41	34	37	42	20	17	16	16	16	14	15	15	16	15	
4	15	16	15	15	14	15	14	15	14	13	13	18	20	22	23	25	15	16	15	15	15	14	16	15	
5	15	15	16	16	14	15	15	14	15	21	20	34	24	24	20	16	14	15	16	15	15	16	15	16	
6	15	15	15	15	15	15	16	16	14	14	14	14	15	16	19	17	17	15	14	15	16	15	16	16	
7	16	16	16	15	14	15	16	15	14	16	16	14	18	18	18	15	15	16	16	15	15	16	15	15	
8	16	15	15	15	14	15	15	16	15	14	14	17	16	14	17	13	15	14	15	15	15	15	16	15	
9	14	16	15	15	15	15	15	17	14	15	14	15	17	17	17	16	16	16	15	16	16	15	14	15	
10	15	16	15	15	15	15	16	15	12	21	18	18	24	19	22	18	15	13	15	14	15	15	15	15	
11	16	14	16	16	15	15	16	15	14	16	15	19	18	15	15	16	14	15	14	15	14	15	15	15	
12	15	16	16	14	15	14	15	14	15	15	15	17	15	15	13	15	12	16	16	16	16	16	15	15	
13	15	16	16	15	16	15	15	15	15	17	19	25	22	20	21	15	15	15	15	15	14	15	15	16	
14	16	15	16	15	14	15	14	14	26	22	23	26	23	24	22	18	25	16	15	14	16	15	15	15	
15	15	15	15	15	14	14	15	15	15	16	56	19	22	19	24	19	21	14	14	16	16	15	15	15	
16	16	14	15	15	15	14	15	17	41	45	43	35	34	27	22	16	15	12	16	14	15	16	16	15	
17	16	14	15	15	16	15	15	15	14	14	15	15	18	25	18	18	16	16	15	15	15	15	16	16	
18	16	15	15	15	16	15	15	14	16	16	19	22	24	19	19	18	14	16	15	16	16	16	15	15	
19	14	15	14	16	14	16	14	14	15	16	22	20	21	21	18	16	15	16	15	15	15	14	15	15	
20	16	15	15	15	14	15	15	17	15	16	18	20	18	22	17	16	66	18	15	15	14	16	14	16	
21	16	15	15	14	14	14	15	14	14	15	21	25	24	24	22	18	16	15	15	15	14	15	14	14	
22	15	16	15	15	16	14	15	15	17	17	C	C	C	C	C	C	C	C		15	16	15	15	16	15
23	15	14	14	15	14	14	14	14	15	C	C	C	C	C	C	C		14	15	15	15	14	15	15	15
24	15	15	15	15	16	16	15	16	15	15	16	17	20	20	22	18	24	C		15	15	14	16	15	15
25	14	15	15	15	16	16	15	14	16	16	18	17	22	16	18	16	14	17	15	16	15	15	14	15	
26	15	15	16	15	15	16	16	15	16	15	15	18	15	18	15	20	18	14	15	16	14	14	15	15	
27	16	16	15	15	15	15	15	17	20	16	19	18	21	22	22	30	25	16	15	15	16	14	16	15	
28	15	16	16	15	15	16	15	14	20	20	25	22	23	18	20	28	27	16	16	15	15	16	15	15	
29	15	15	15	16	14	15	15	16	27	30	21	26	22	23	21	17	15	16	16	16	15	15	15	16	
30	16	16	15	16	15	16	16	15	15	13	17	16	22	16	15	14	15	14	16	14	14	16	15	15	
31	16	16	15	14	15	15	15	15	16	16	18	23	17	23	15	16	16	16	15	16	15	15	15	14	
	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	31	31	31	31	31	31	31	31	31	30	29	29	29	29	29	29	30	29	31	31	31	31	31	31	
MED	15	15	15	15	15	15	15	15	15	16	18	19	22	20	20	17	16	16	15	15	15	15	15	15	
U Q	16	16	16	15	16	15	15	16	18	18	22	26	24	24	22	18	21	16	16	16	15	16	16	15	
L Q	15	15	15	15	14	15	15	14	14	15	15	17	18	18	17	16	15	15	15	15	14	15	15	15	

IONOSPHERIC DATA STATION Kokubunji

JAN. 2005 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

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	287	308	297	314	359	347	319	362	365	379	348	360	350	326	352	362	353	331	321	355	360	343	291	277		
2	298	307	310	362	296	286	330	361	393	340	341	337	343	345	349	365	386	332	315	318	336	320	373	286		
3	284	294	276	281	273	337	329	329	336	348	364	321	V 354	352	360	364	345	356	347	346	320	301	313	293		
4	280	305	314	297	302	296	308	359	354	373	354	354	V 349	381	352	345	359	344	369	374	354	299	294	298		
5	314	294	293	302	F 335	389	357	376	355	342	358	355	376	379	342	363	362	344	366	339	326	301	332			
6	286	292	307	298	302	313	327	362	379	377	361	365	328	357	379	343	378	369	334	368	396	305	333	307		
7	295	310	312	321	320	327	373	369	387	373	356	346	366	349	358	384	396	344	346	360	328	332	291	282		
8	294	299	283	292	325	313	291	355	369	341	322	324	360	382	332	347	V 351	352	347	365	A 311	359	F 369			
9	S 296	F 279	302	289	314	372	330	358	369	371	319	368	365	371	360	403	389	351	354	367	311	A 307	F 369			
10	F 314	F 294	311	F 302	356	315	313	350	396	357	366	366	377	361	355	368	377	357	368	332	A 351	331	291			
11	293	291	291	347	378	332	345	367	387	349	344	359	361	355	345	371	379	349	S 346	367	325	355	365	327		
12	304	298	308	328	327	332	344	345	368	345	362	352	359	360	341	368	345	A 362	320	296	360	A 306				
13	349	287	320	300	320	303	353	377	388	337	326	367	338	339	346	366	A 345	340	378	283	351	322	320			
14	291	317	367	370	385	316	325	363	380	A 344	S 315	374	335	364	334	351	357	335	363	398	353	304	298			
15	298	294	306	328	365	F 322	373	333	362	333	332	352	355	353	358	356	345	354	340	358	342	334	273			
16	289	300	308	317	293	310	339	374	349	343	344	341	338	352	340	354	356	341	355	356	293	327	282	280		
17	305	309	F 290	303	303	F 354	381	372	345	355	350	334	339	372	337	339	353	357	298	282	292	272				
18	270	389	S 364	250	262	307	252	324	332	344	335	339	342	323	354	365	348	336	287	307	312	335	324	311		
19	280	278	309	380	324	292	287	344	352	351	V 334	A 369	328	324	352	372	307	314	333	380	310	A 254	298			
20	308	307	347	300	323	290	298	318	333	354	327	344	366	357	366	352	355	375	335	328	363	364	A 281			
21	301	294	288	310	392	305	316	339	367	360	349	365	355	354	341	360	366	C 342	C 320	C 347	350	374	280	313		
22	296	299	301	305	348	263	318	349	349	C 349	C 349	C 349	C 349	C 349	C 349	C 349	C 349	C 349	C 349	C 349	375	294	292	299	288	298
23	301	338	361	355	311	297	326	346	366	C 341	C 364	C 313	C 339	C 327	C 351	C 318	C 288									
24	290	291	321	338	401	294	325	363	348	359	336	342	377	348	348	342	355	C 306	334	316	323	288	300			
25	286	327	350	346	390	271	305	355	385	354	359	371	361	384	388	350	357	364	350	340	365	361	311	298		
26	300	293	315	351	357	341	323	358	377	360	V 348	349	304	371	337	350	364	382	325	A 361	338	A 298				
27	306	292	306	337	352	321	321	350	366	368	357	363	360	365	369	380	380	365	321	325	366	362	305	306		
28	302	305	306	348	346	324	323	364	382	344	356	352	359	352	353	349	372	355	347	337	322	326	314	306		
29	285	303	311	324	364	345	311	344	369	368	344	337	349	347	374	348	356	362	358	323	342	292	356	298		
30	307	290	286	309	357	268	308	344	367	336	332	342	349	373	374	352	366	354	360	330	320	358	291	297		
31	291	305	313	324	358	301	328	368	369	363	347	341	357	367	360	359	387	370	322	318	304	337	F 280			
	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	31	31	29	29	29	28	29	29	29	29	29	31	30	29	30	26	30		
MED	296	299	308	319	336	312	323	357	369	355	344	352	355	355	353	358	359	354	344	340	336	334	308	298		
U Q	302	307	315	346	359	332	330	363	381	368	356	364	361	369	365	367	378	363	354	363	360	351	331	306		
L Q	287	292	301	300	311	296	311	345	352	344	334	340	349	346	343	348	352	343	321	328	314	310	291	286		

JAN. 2005 M(3000)F2 (0.01)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

JAN. 2005 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		L									
2											L	L	L	L	L									
3										L		L	LE	B										
4											L	L	L	L	L	L								
5											L	L	L											
											392													
6											L	L	L		L									
7										L	L	L	L	L	L									
8										L	L	L	L		L									
															407									
9										L	L			L										
10												L		A	L	A								
11											L	L		L	L									
12											L	L	L	L		L								
13											L	L	A	A	A	A	A							
14										A	L	A	A	L	L	L								
															396									
15											E	B	L	L	L	L		A						
16											L	A	L	L										
17												L	L	L	L									
18												L	L	L										
19										L	A	A	A	L	L									
20										L	L	A			L	L	LE	B						
															409									
21											L	L	L	L	A	L								
22											C	C	C	C	C	C	C							
23										C	C	C	C	C	C	C								
24										L	L	L												
25											L	L	L		L	L								
26										L	L	L	L	L	L									
												370												
27											L	L	L	L	L									
														402										
28										L	L	L	L	L	L	L								
											397	368		406		372								
29										L	L	L	L	L	L	L								
30											L	L	L	L	L	L								
														388		403								
31										L	L	L	L	L	L	L								
														385										
	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											2	2		4	3	2								
MED											L	L		L	L	L								
											394	369		395	407	388								
U Q														L	L	L								
														404	409									
L Q														L	L	L								
														386	396									

JAN. 2005 M(3000)F1 (0.01)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN



IONOSPHERIC DATA STATION Kokubunji

JAN. 2005 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											250	246	240		240									
2											268	230	222	254	238									
3										246		228	256	244										
4											232	220	232	216	236	234								
5											256	236	240											
6											248	232	248		230									
7										222	214	242	234	236	246									
8										248	282	230	226		240									
9										226	258			230										
10												242		242	250	226								
11											252	234		252	252									
12											226	236	244	240		220								
13											274	228	232	244	256	224								
14										A	E A	240	248	228	236	232	238							
15										E B	260	262	240	254	236		240							
16											262	242	252	252										
17												244	238	254	246									
18												238	258	274										
19													A	270	268									
20											244	228	240		246	238	E B	252						
21											236	228	244	234	240	240								
22											C	C	C	C	C	C	C							
23											C	C	C	C	C	C								
24											236	264	254											
25											232	230	246		226	234								
26											218	224	260	280	224	254								
27												232	244	240	224	242								
28											254	238	258	238	240	254	252							
29											236	250	268	252	242	222	236							
30											276	244	226	224	222	244								
31											238	248	252	244	240	236	226							
	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	24	28	23	22	22	13	2							
MED										238	248	238	240	241	240	236	246							
U Q										248	261	247	248	252	250	241								
L Q										226	232	230	232	236	232	226								

JAN. 2005 h'F2 (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

# IONOSPHERIC DATA STATION Kokubunji

JAN. 2005 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	E	B	E	B			E	B										E	B	E	B
2	E	B	E	B	E	B	E	B																	
3	E	B	E	B	E	B	E	B																	
4	E	A	E	B	E	B	E	A																	
5	E	B	E	B	E	B	E	B																	
6	E	B	E	B	E	B	E	B																	
7	E	B	E	B	E	B	E	B																	
8	E	B	E	B	E	B	E	B																	
9	E	B	E	B	E	B	E	B																	
10	E	B	E	B	E	B	E	B																	
11	E	A	E	B	E	B	E	B																	
12	E	B	E	B	E	B	E	B																	
13	E	B	E	B	E	B	E	B																	
14	E	B	E	B	E	B	E	B																	
15	E	B	E	B	E	B	E	B																	
16	E	A	E	B	E	B	E	A																	
17	E	A	E	B	E	B	E	B																	
18	E	B	E	B	E	B	E	B																	
19	E	A	E	B	E	B	E	A																	
20	E	B	E	B	E	B	E	B																	
21	E	B	E	B	E	B	E	B																	
22	E	B	E	B	E	B	E	B																	
23	E	B	E	B	E	B	E	B																	
24	E	B	E	B	E	B	E	B																	
25	E	B	E	B	E	B	E	B																	
26	E	B	E	B	E	B	E	B																	
27	E	B	E	B	E	B	E	B																	
28	E	B	E	B	E	B	E	B																	
29	E	B	E	B	E	B	E	B																	
30	E	B	E	B	E	B	E	B																	
31	E	B	E	B	E	B	E	B																	
	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	31	31	31	31	31	31	31	31	31	29	23	23	23	25	26	26	27	29	31	30	29	30	28	31	
MED	E	B	E	B	E	B	E	B																	
UQ	E	B	E	B	E	B	E	B																	
LQ	E	B	E	B	E	B	E	B																	

JAN. 2005 h'F (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN



IONOSPHERIC DATA STATION Kokubunji

JAN. 2005 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								B	122	122		B	B		B	A	B	B							
2								B	132	122		B	B	B	118	116	114	B	B						
3								B	B	B	B	B	B			A									
4								B	128	112	118	116	120	120	120		B								
5								B	114	124	120		B	112	124	118	116	120							
6									124	116		A	116	116	118	122	124	122							
7									118	120	116	116	114	116	116	118	112								
8								B	120	122	118	120	114	112	118	110	118								
9								B	A	A						A	A								
10								B			120	118	118	120	116										
11								B	114	114	118	118	128	120	122	116		A							
12								B	A	A	A		116	112	110	124	120	112							
13								B	120	116	120	124	118		A	118	120		A						
14								B	B	A	A	A	A		116	116	120							B	
15								B	120	122		B	A	118	114	112	112	120							
16								B	B	B	B	B	B	A	A		A								
17								B	116	112	118	116	116	118	120		A	120							
18								B	122	122		A	A	A	A		A	A							
19								B	118	120	116		A	A	A	A	118	120							
20								B	118	124	120		A		A	114	116								
21									120	114	122	116	116	116		A	A	114							
22								E B 132	120	120		C	C	C	C	C	C	C							
23								B	114		C	C	C	C	C	C	C	A							
24								B	118	118	114	114	116	112	114	118								B	
25								B	116	116	118	114	118	120	118	118	120								
26								B	120		A	A	A	A	116	116	120	122							
27								B	130	124	124	122	120	116	118		B	B							
28								B	120	122		A	120	116	118	118		B	B						
29								E B 138	B	B		A	114	114	118	116	116	118							
30								B	120	122	118		A	A	114	114	116	112							
31								A	114		A	A		118	122	112	114	112							
	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								2	25	22	16	15	20	21	25	19	16								
MED								E B 135	120	120	118	116	117	118	118	116	119								
U Q									121	122	120	120	118	120	120	120	120								
L Q									117	116	118	116	115	115	116	114	113								

JAN. 2005 h'E (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

JAN. 2005 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	B	B	B	B	B	B	B	B	G	G	B		G	B	G		B	B	B	B	B	B	B	B			
2	B	B	B	B	B	B	B	B	164	148		B	B	B	114	118	G	B	B	102	B	B	B	126	116		
3	B	B	B	B		B	104	B	B	B	B	B	B	B		124	106	G	96	92	92	92		92	100		
4	92	B	B	B	110	110	102	100	132	162	138	124	124	122		G	B	168	B	B	90	90	108	B	90		
5	B	B	B	B	B	B	B	98	96	168	104		B	G	G	162	144	122		B	B	B	B	B	100		
6	B	100	B	B	B	B	B	B	108	112	102	124	124	152	106	104	106	100		B	B	B	B	B	B		
7	92	94	B	B		B	102	104	G	124	116	158	156		156	150	152		B		B	B	B	B			
8	B	B	100	B	B	B	B	B	106	104	108	108	106	94	92	106	148	136	124		100	96	96	96	90		
9	B	B	B	B	B	B	B	B	104	106	148	146	106	128	124	100	106		B	B	B	B	B	B			
10	B	B	B		B	B		102	94	G	158	108	144	106	106	106	104	100	100	106	98	92	90	88	88		
11	88	88	94	96	96		B	B	B	G	168		G	108	106	102	110	104	98	98	98	92	B	92	90		
12	96	B	B	92	92	106	108	98	96	90	94	100	96	146	122	112	112		B	B	102		92	92	88		
13	90	B	120	110		B	B	B	158	154	140	124	124	128	106	128	122	102	102	96	94	96	92	94	B		
14	B	100	100		B	B	B	B	154		104	108	100	98		G	G	150		B	B	104	100	100	92	96	
15	B	90	B	B	B	B	B	B	92	102	114		102	100	104	136	126	116	90	92	96		B	B	96	100	
16	98	98	104	100	102	98		B	B	B	B		104	108	108	106	96	96	98	96	96		B	98	96	94	
17	92	92	94		B	B		104	B	162	110	162	122	118	120	106	106	106		B		B	B	B	B		
18	B	B	96	98		B		B	134	140	128	106	106	104	106	106	102	100		B	B	B		98	96	114	116
19	112	112	104	98	98	116	132	128	130	130	114	104	102	108	104	108	102	96	96	96		B	B	B	B	B	
20	B	114	108		B	B		B	96		102	106	104	104	104	104		G	B	B	B	B			90	92	
21	B	92	92	B	B	B	B	B	156	156	156	104	138	122	118	104	106	162	102	100	102	92	90	90	B		
22	98	B	94	B		B	B	B	158	G	128	C	C	C	C	C	C	C	C		100	104		B	B	92	
23	B	B	96	96	96	96		B	150	116		C	C	C	C	C	C		98	96		B	96	94	96	96	
24	B	B	B	B	B	B	B	B	98	92	96	92		G		G	G	G	B	C	B	B	B	B	B	B	
25	B	B	B		B	B		B	148	166	168	108	104	106	106	106	104	104		B	B	B	B	B	B	B	
26	B	B	B	B	B	B	B	B	B	G		104	102	104	102	148	128	126		102	96	94	98	94	92	94	
27	94	B	B	B	B	B	B	B	170	154	148	150	106	98		G	B	B	B	B	B	B	104	96	96	96	
28	88	88	B	B	88	B	B	B	160	G	G	102	146	104	106	106		B	B	B	B	B	B	B	B	B	
29	B	B	B	B	B	B	B	B	G	B	B		G	G	G		B	B	B	B	B	B	B	B	B	B	
30	B	B	B	B	B	B	B	B	158	100	116	114	106	102	100	104	98	96	98	98	94	88	94	94	94		
31	B	B	96	96	96	94	100	140	114	106	106	104	104	108	96	100		G	B	B	B	B	B	B	B	B	
	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	11	13	10	12	7	9	19	20	25	23	23	24	22	24	23	20	13	15	17	14	15	19	15			
MED	92	94	96	98	97	98	102	134	115	124	108	106	106	107	106	106	105	98	96	96	94	96	94	94			
U Q	98	100	104	100	105	110	106	156	155	155	116	138	120	120	124	126	119	102	100	100	98	96	96	100			
L Q	90	90	94	96	94	96	101	98	102	106	104	104	102	106	105	102	101	96	96	94	92	92	92	90			

JAN. 2005 h'Es (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

JAN. 2005 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

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											L				L										
2									H	H				C	C				F				F	F	
3				F			F								C	L		F	F	F	F		F	F	
4	F			F	F	F	L	CL	HL	HL	CL	CL	CL	CL			H		F	F	F		F	F	
5							L	L	H	L					H	HL	C							F	
6		F						L	CL	L	CL	CL	HL	L	L	L	L	F							
7	F	F			F		F		CL	CL	HL	HL		H	HL	HL			F						
8			F				C	L	L	L	L	L	L	L	HL	HL	F		F	F	F	F	F	F	
9								1	L	HL	HL	L	CL	CL	L	L					F				
10				F			F	L		HL	L	HL	L	L	L	L	L	F	F	F	F	F	F	F	
11	F	F	F	F	F				H				L	L	L	CL	L	F	F	F	F	F	F	F	
12	F			F	F	F	L	L	L	L	L	L	HL	CL	CL	CL				F		F	F	F	
13	F		F	F			H	HL	H	C	C	C	L	CL	CL	L	F	F	F	F	F	F	F	F	
14		F	F				H		L	L	L	L			HL				F	F	F	F	F	F	
15		F					L	CL	L	L	L	L	HL	CL	CL	C	F	F	F	F			F	F	
16	F	F	F	F	F	F					L	L	L	L	L	L	L	F	F	F		F	F	F	
17	F	F	F			F		H	CL	HL	CL	CL	C	L	L	L			F						
18			F	F		F	H	HL	CL	L	L	L	L	L	L	L					F	F	F	F	
19	F	F	F	F	F	F	C	H	CL	CL	L	L	L	L	L	L	F	F	F						
20		F	F				F	L	L	L	L	L	L	L	L								F	F	
21		F	F				H	H	H	L	HL	C	C	L	L	HL	F	F	F	F	F	F	F	F	
22	F		F		F		H		CL										F	F				F	
23			F	F	F	F	H	C									L	F		F	F	F	F	F	
24							L	L	L	L		H											F		
25			F	F			H	H	HL	L	L	L	L	L	L	L									
26									L	L	L	L	HL	CL	CL			F	F	F	F	F	F	F	
27	F							H	HL	HL	HL	L	L								F	F	F	F	
28	F	F			F		H		L	HL	L	L	L	L	L										
29									L					L	L	L				F		F	F	F	
30							H	L	CL	CL	L	L	L	L	L	L	F	F	F	F	F	F	F	F	
31		F	F	F	F	F	H	C	L	L	L	L	L	L	L	L									
	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																									
MEG																									
U Q																									
L Q																									

JAN. 2005 TYPES OF Es

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

## f - PLOTS OF IONOSPHERIC DATA

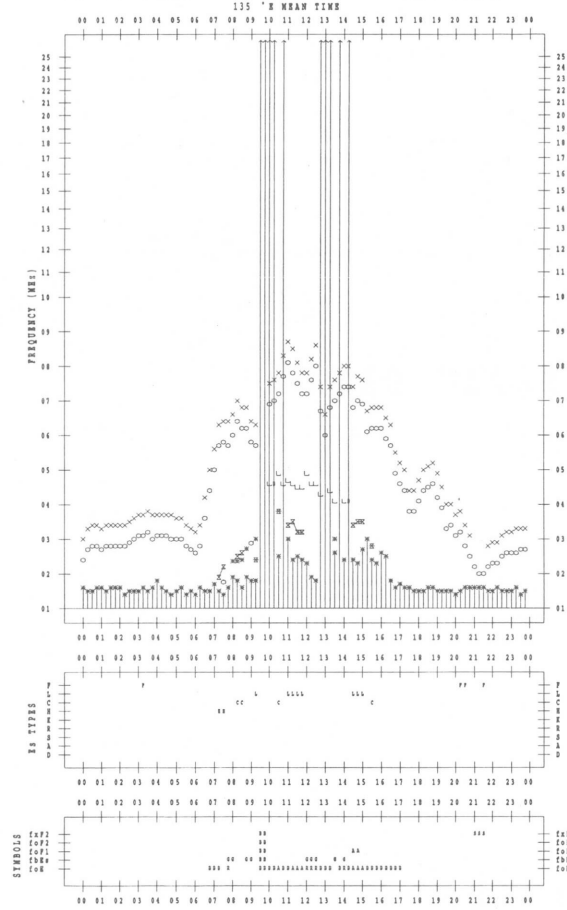
KEY OF f - PLOT	
	SPREAD
◇	foF2, foF1, foE
×	fxF2
*	DOUBTFUL foF2, foF1, foE
⊗	fbEs
└	ESTIMATED foF1
†, ‡	fmin
^	GREATER THAN
v	LESS THAN

f - PLOT DATA

SCALER : I.WISHIMUTA

STATION : Kokubunji

DATE : 2005/ 1/ 1

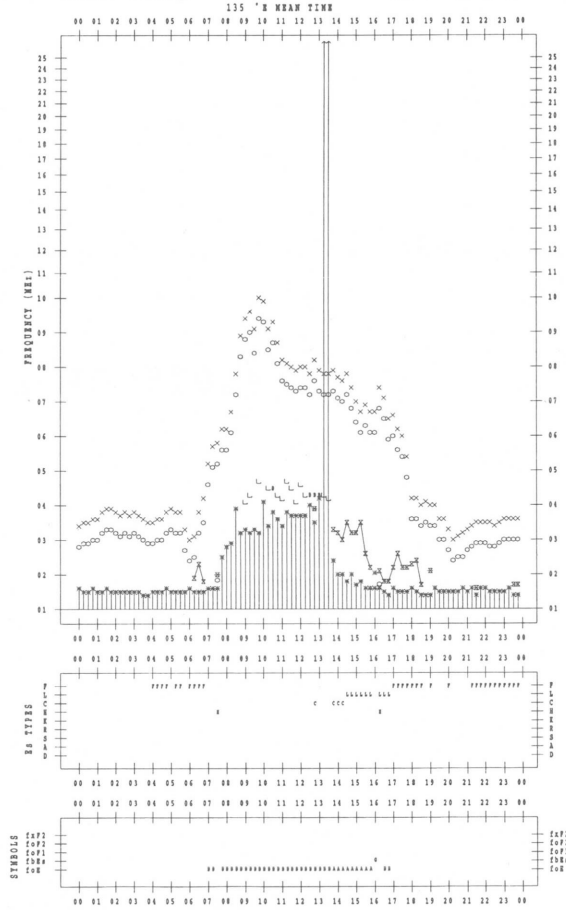


f - PLOT DATA

SCALER : I.WISHIMUTA

STATION : Kokubunji

DATE : 2005/ 1/ 3

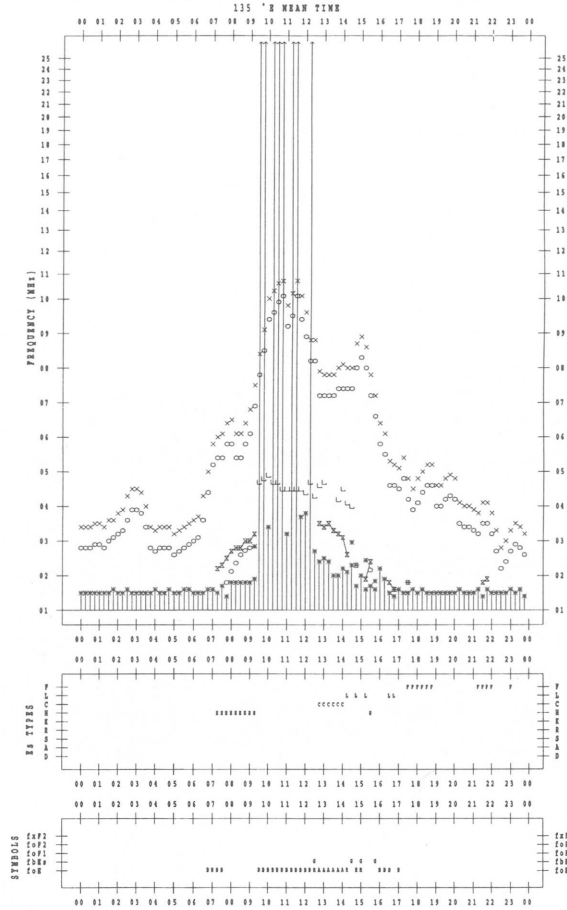


f - PLOT DATA

SCALER : I.WISHIMUTA

STATION : Kokubunji

DATE : 2005/ 1/ 2

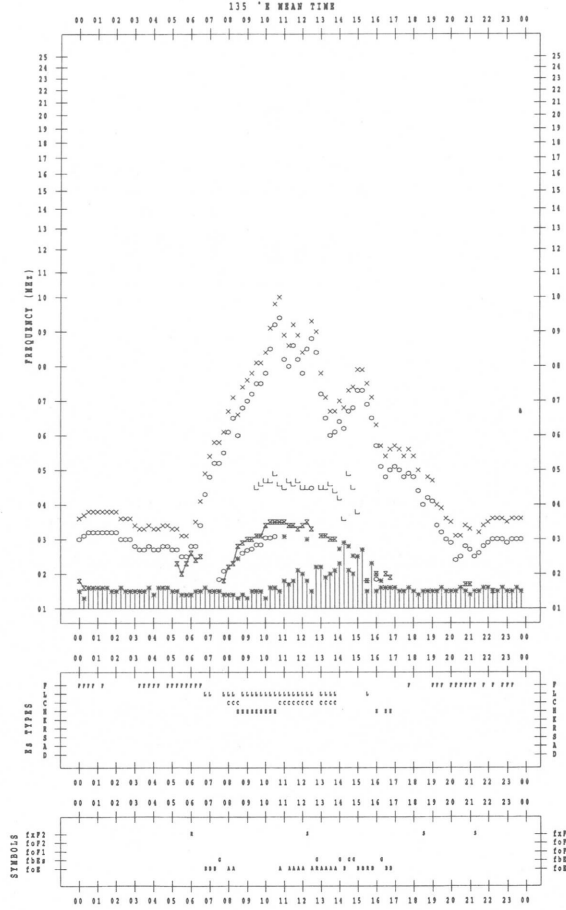


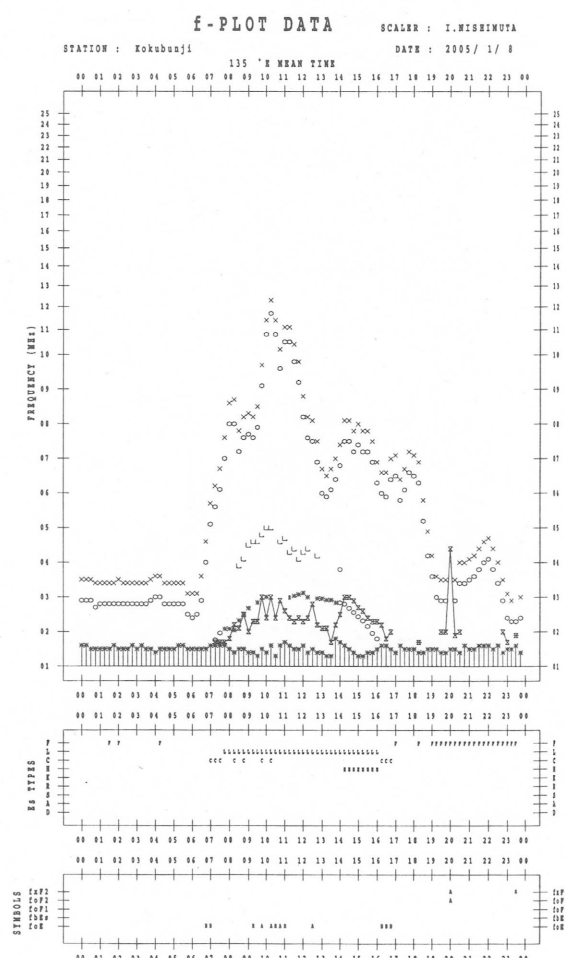
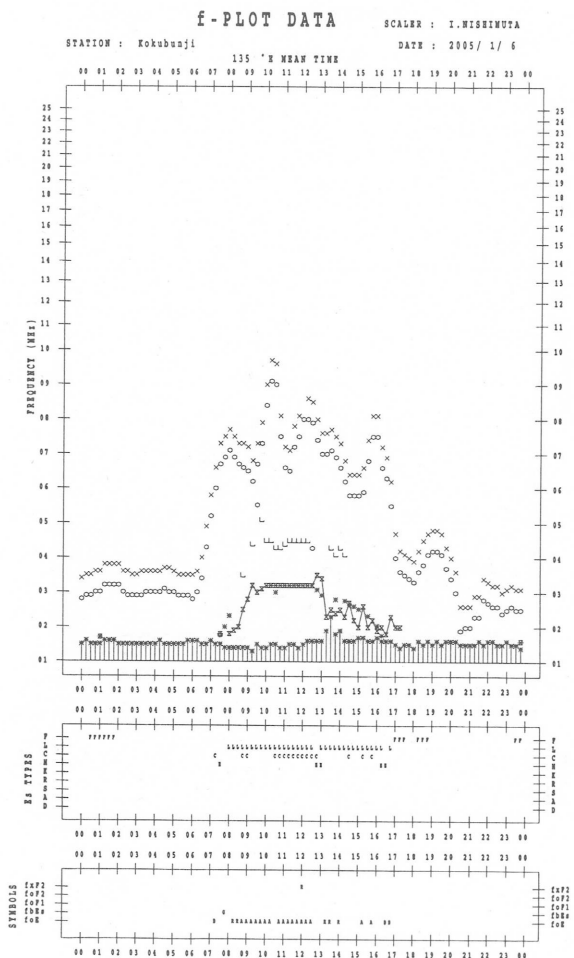
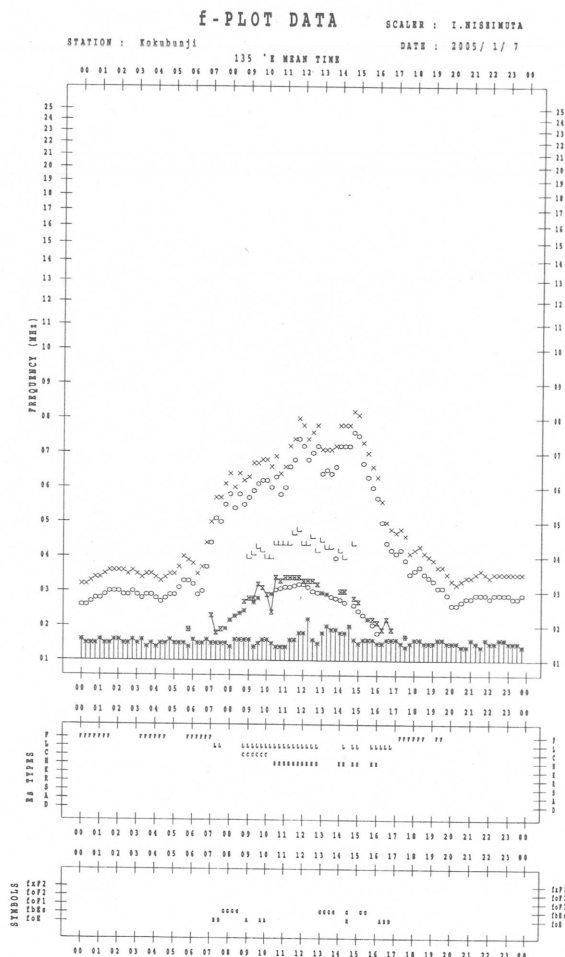
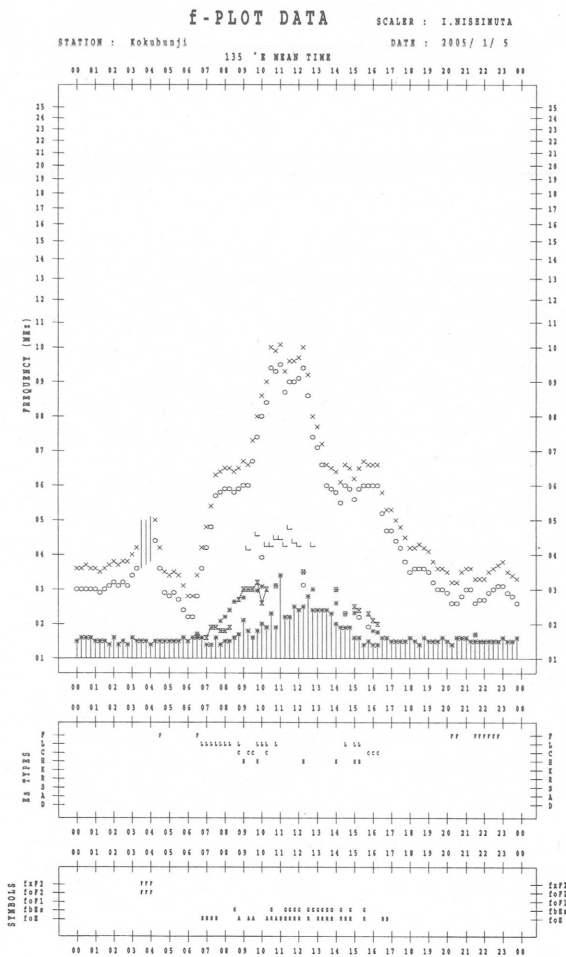
f - PLOT DATA

SCALER : I.WISHIMUTA

STATION : Kokubunji

DATE : 2005/ 1/ 4







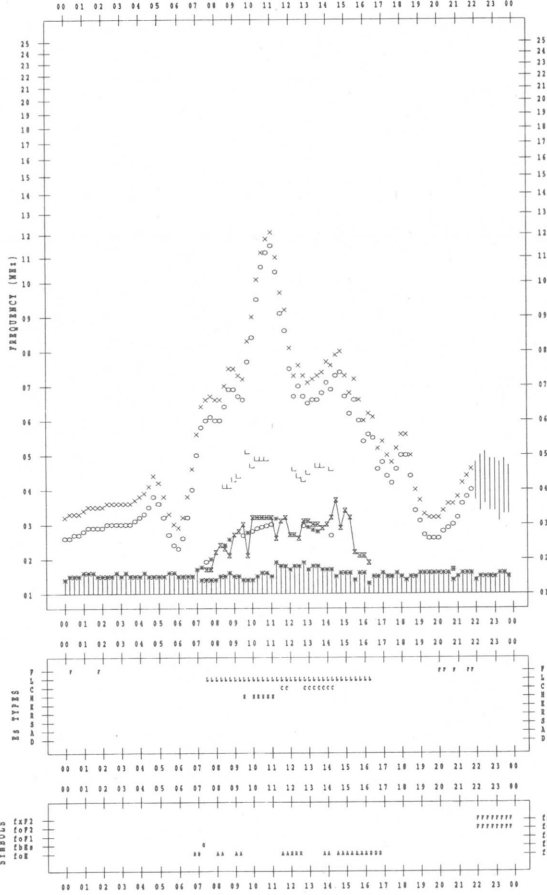
f-PLOT DATA

SCALER : I.WISHIMUTA

STATION : Kokubunji

DATE : 2005/ 1/ 9

135 °E MEAN TIME



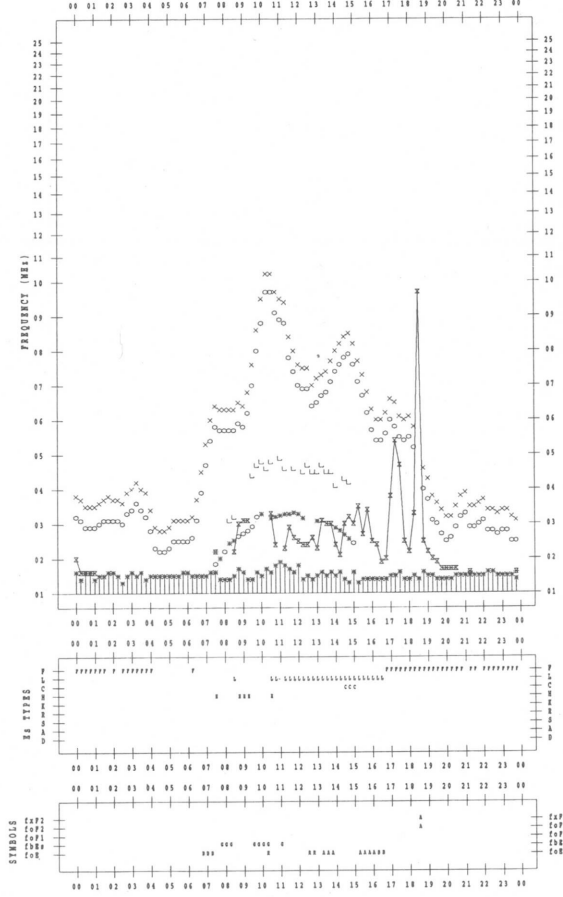
f-PLOT DATA

SCALER : I.WISHIMUTA

STATION : Kokubunji

DATE : 2005/ 1/11

135 °E MEAN TIME



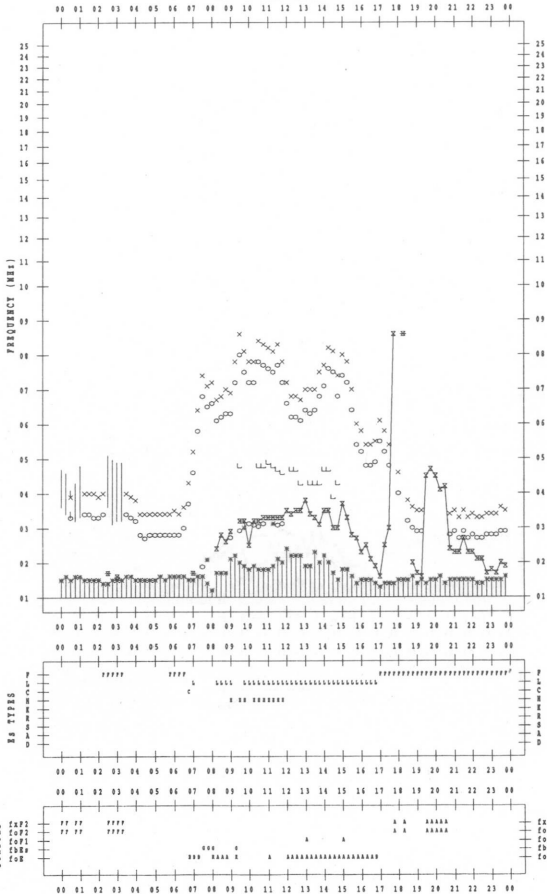
f-PLOT DATA

SCALER : I.WISHIMUTA

STATION : Kokubunji

DATE : 2005/ 1/10

135 °E MEAN TIME



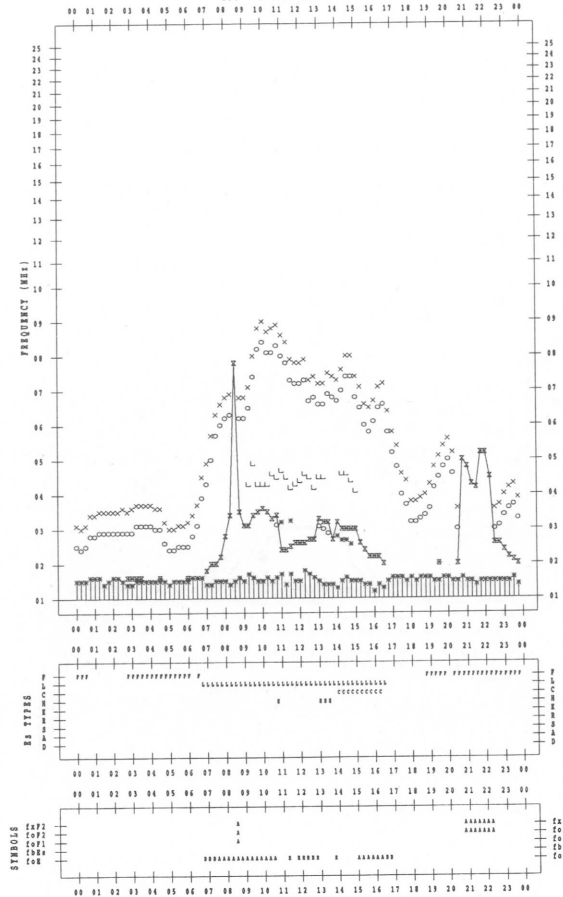
f-PLOT DATA

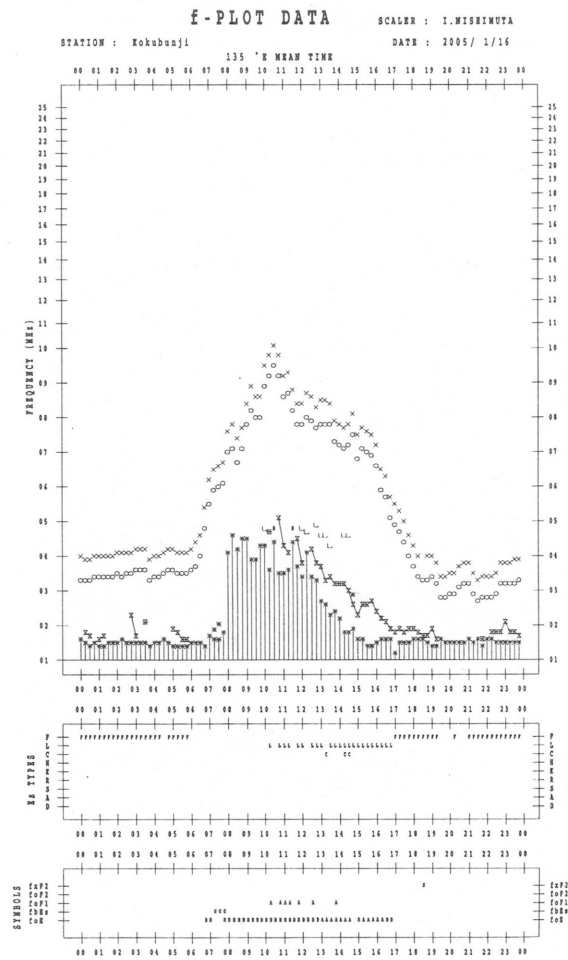
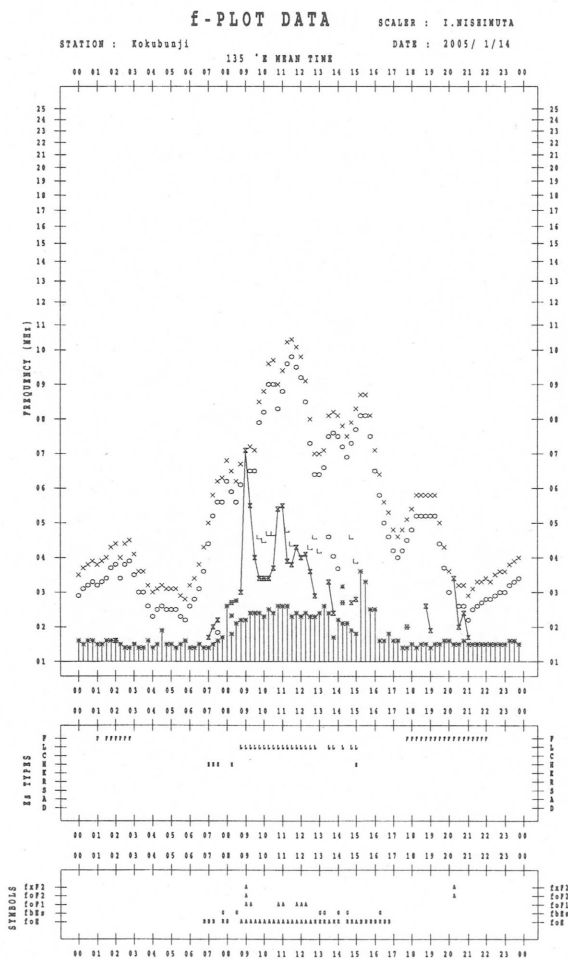
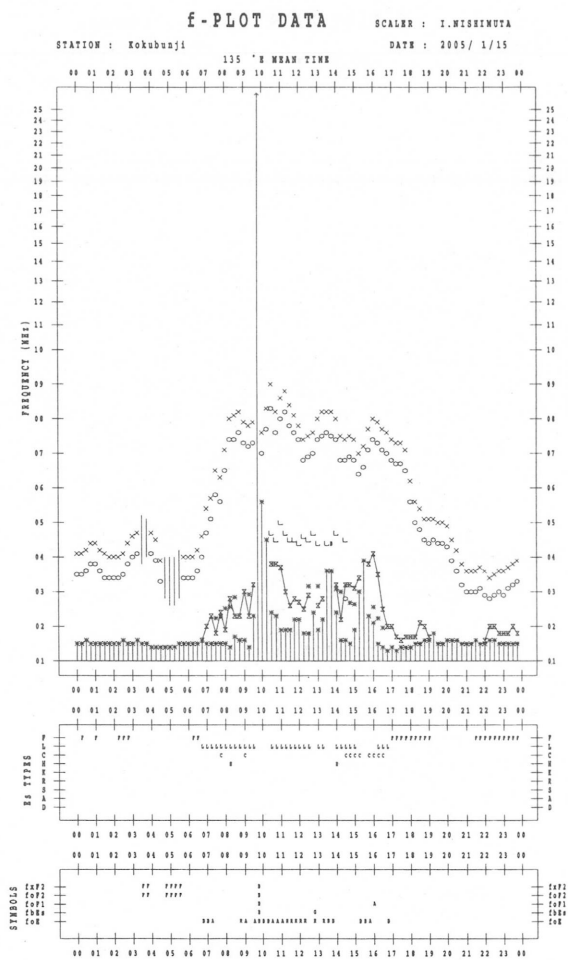
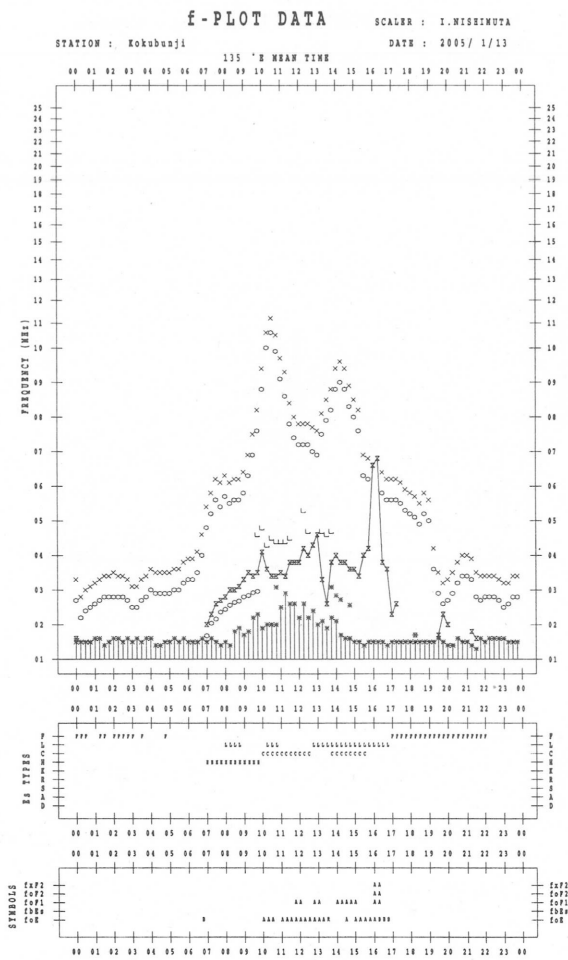
SCALER : I.WISHIMUTA

STATION : Kokubunji

DATE : 2005/ 1/12

135 °E MEAN TIME





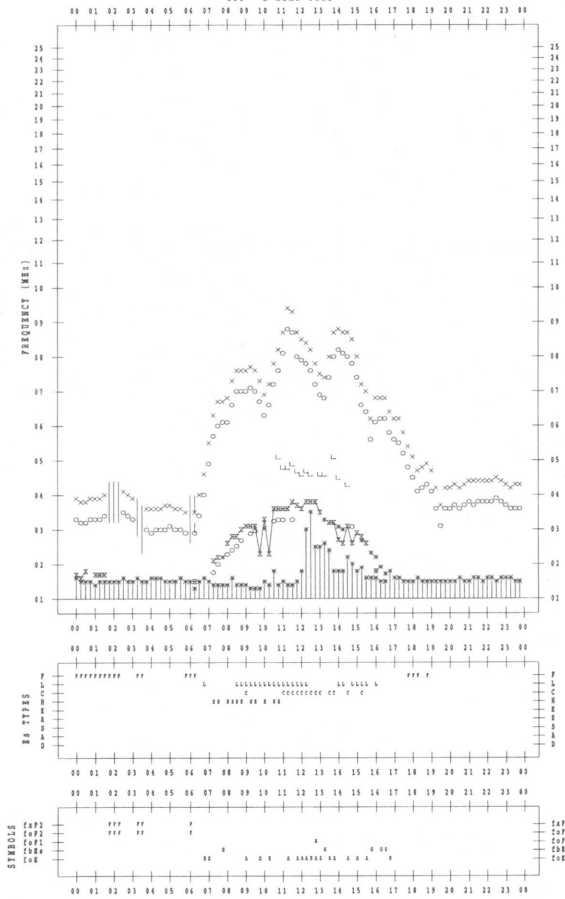
f-PLOT DATA

SCALER : I.WISHIMUTA

STATION : Kokubunji

DATE : 2005/ 1/17

135 °E MEAN TIME



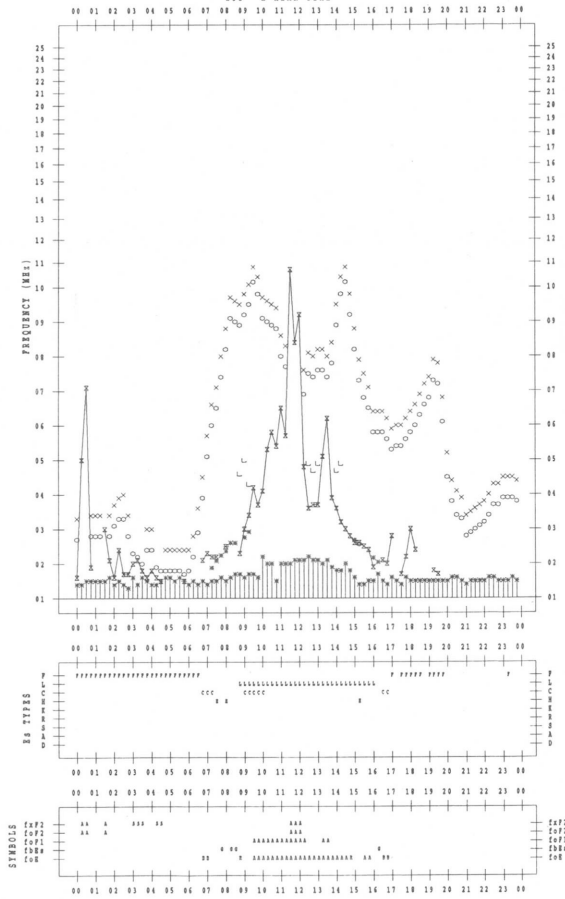
f-PLOT DATA

SCALER : I.WISHIMUTA

STATION : Kokubunji

DATE : 2005/ 1/19

135 °E MEAN TIME



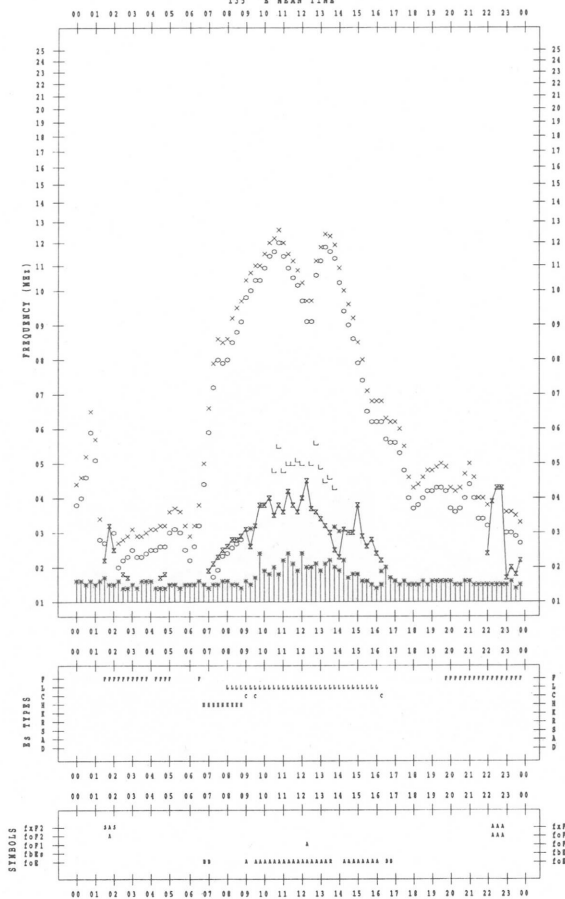
f-PLOT DATA

SCALER : I.WISHIMUTA

STATION : Kokubunji

DATE : 2005/ 1/18

135 °E MEAN TIME



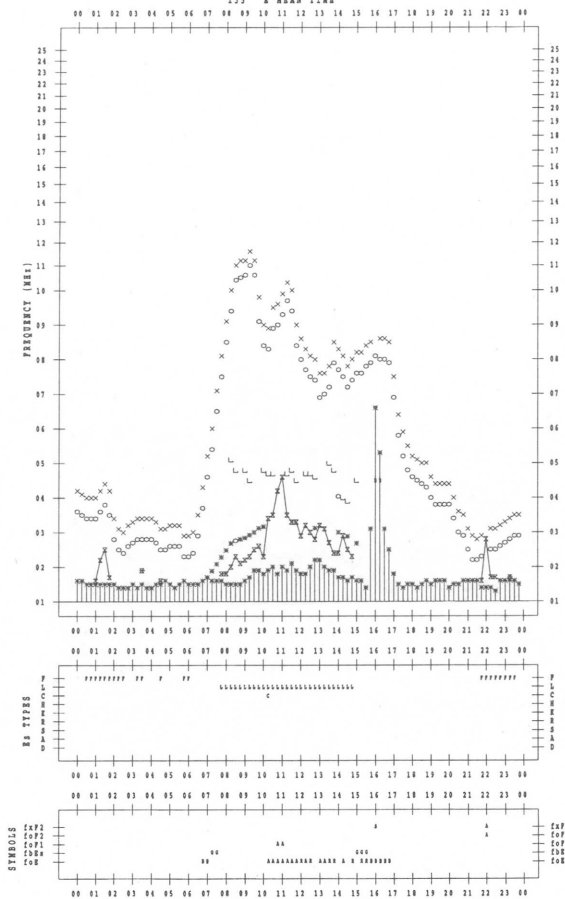
f-PLOT DATA

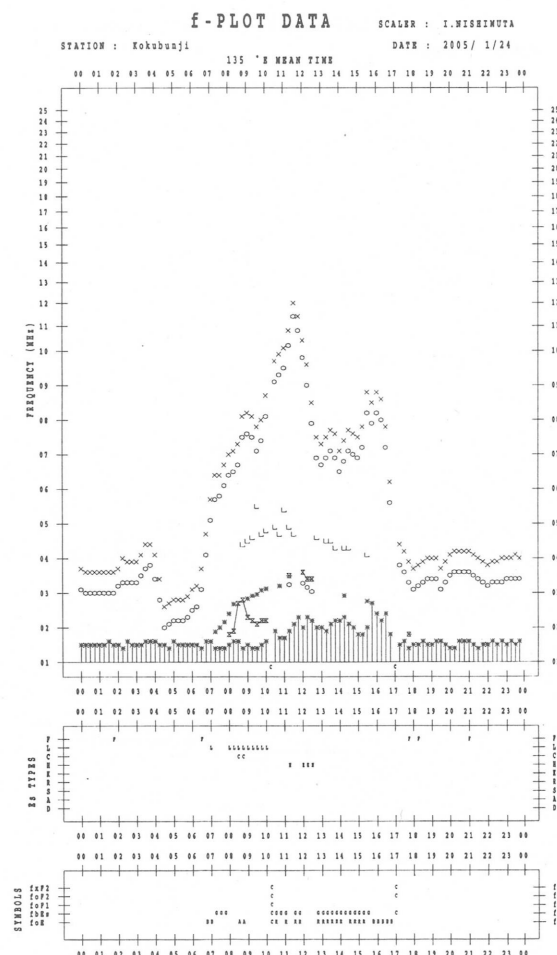
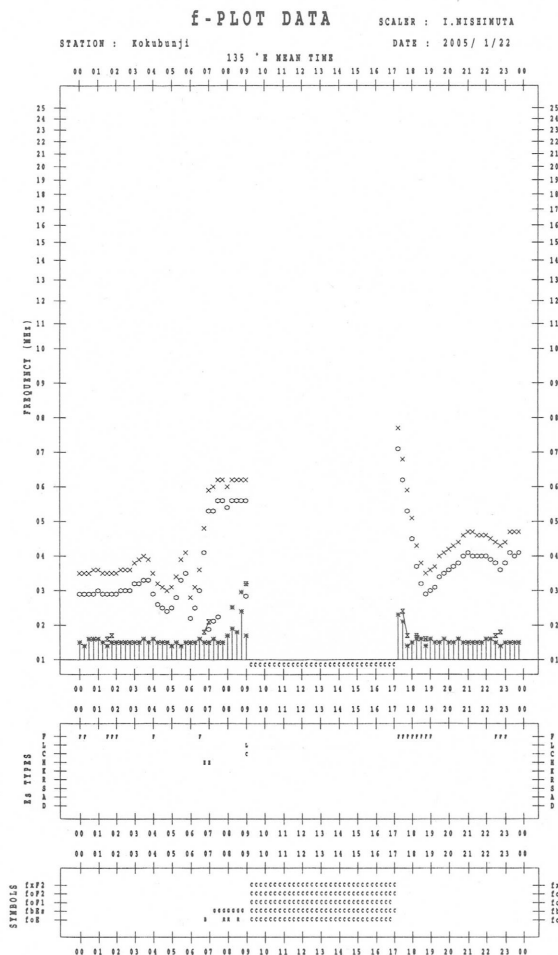
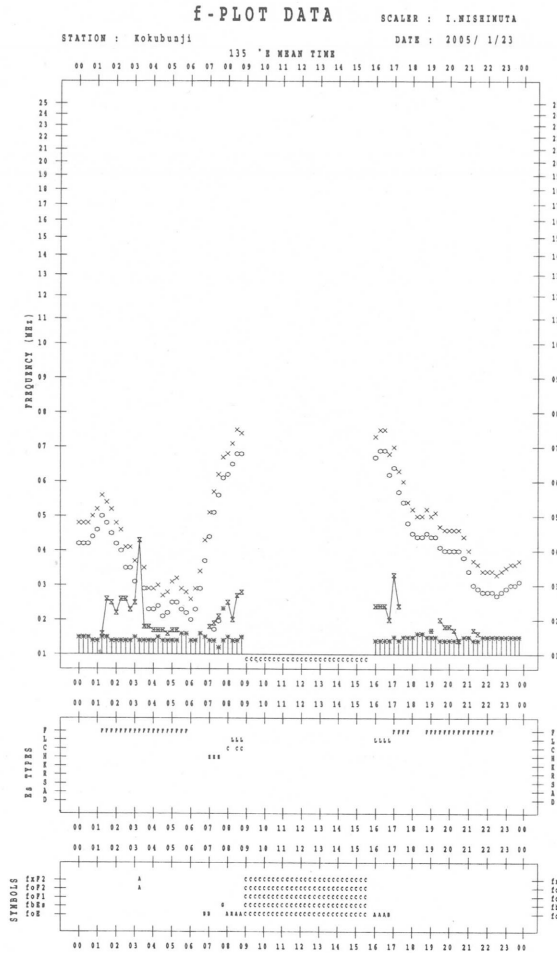
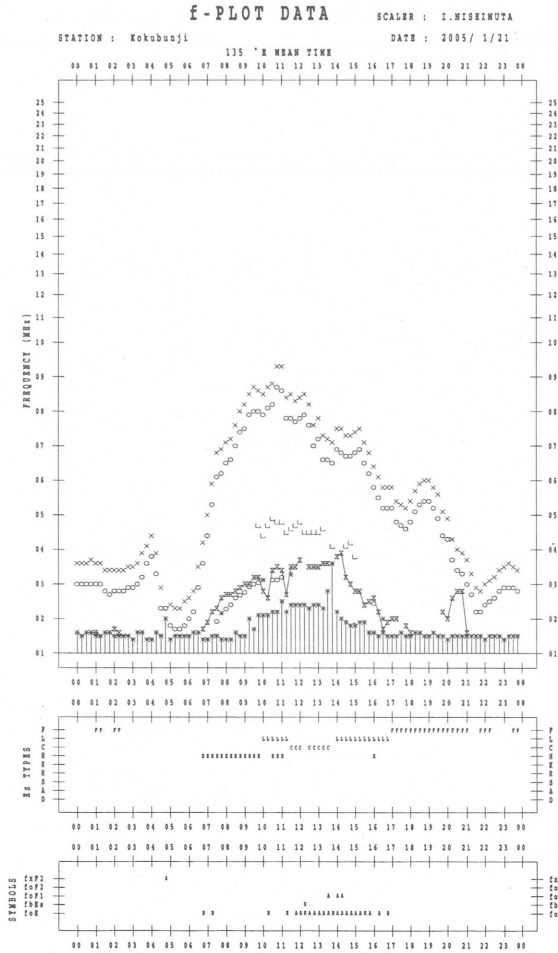
SCALER : I.WISHIMUTA

STATION : Kokubunji

DATE : 2005/ 1/20

135 °E MEAN TIME





f-PLOT DATA

SCALER : I.WISHIMUTA

STATION : Kokubunji

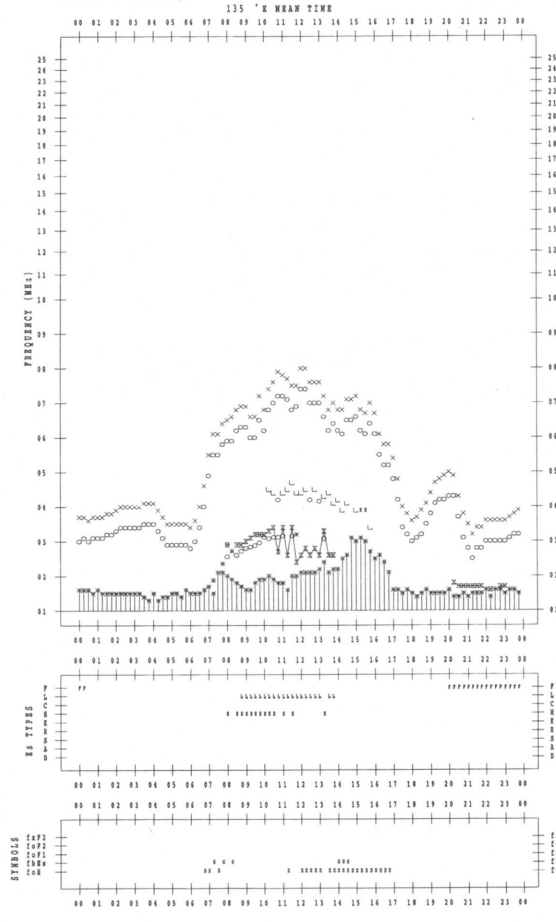
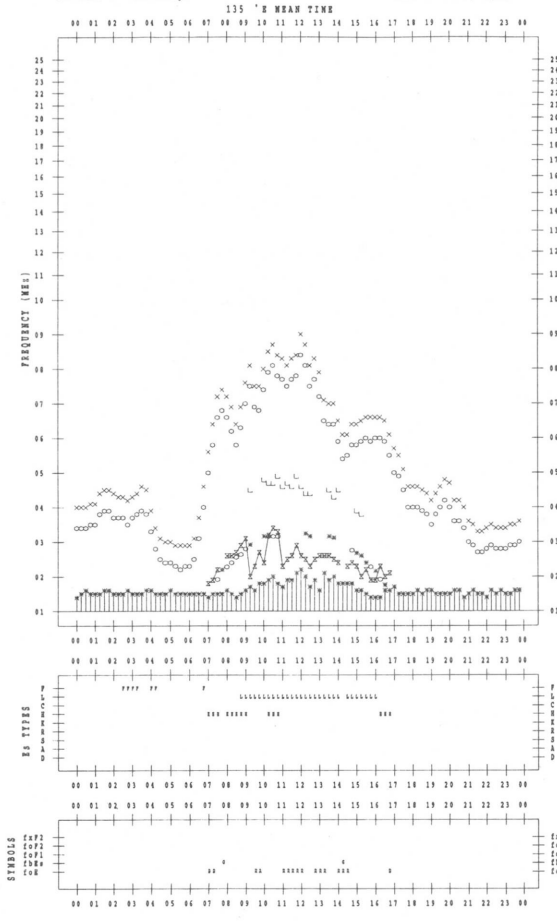
DATE : 2005/ 1/25

f-PLOT DATA

SCALER : I.WISHIMUTA

STATION : Kokubunji

DATE : 2005/ 1/27



f-PLOT DATA

SCALER : I.WISHIMUTA

STATION : Kokubunji

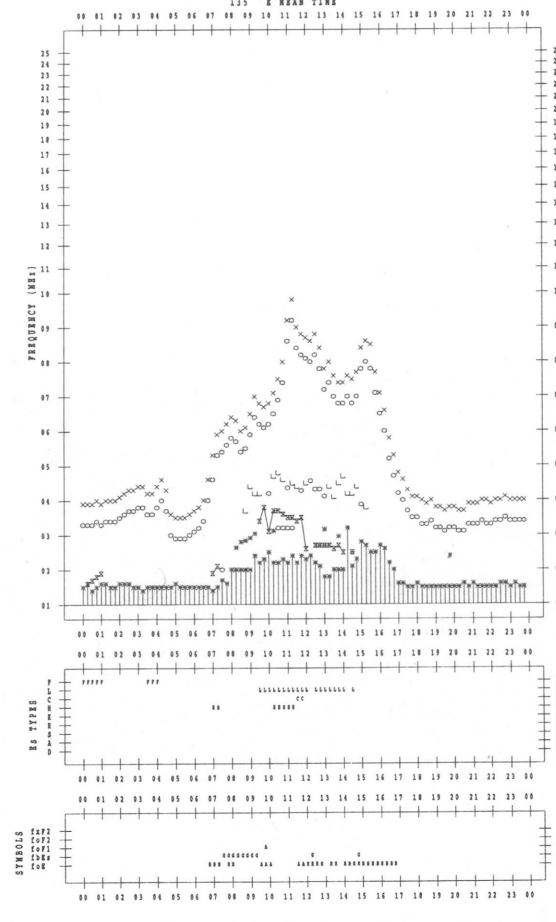
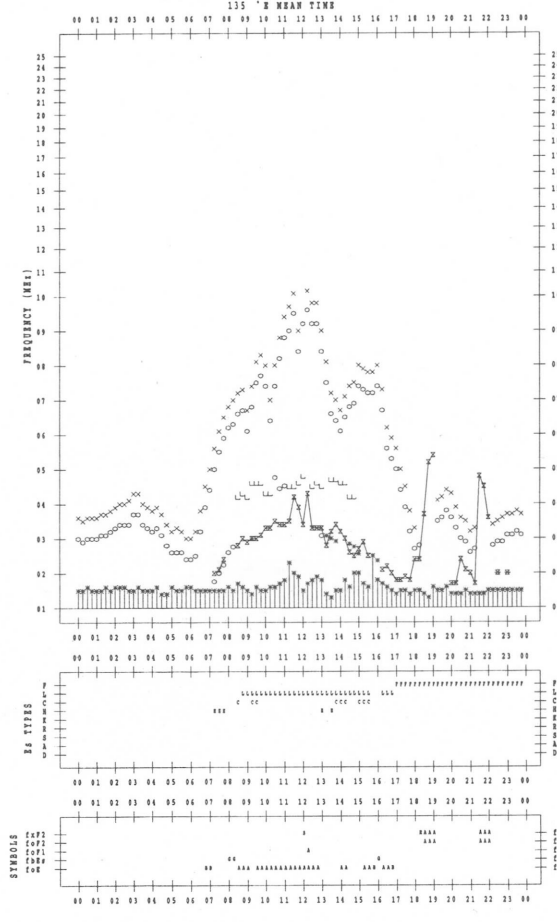
DATE : 2005/ 1/26

f-PLOT DATA

SCALER : I.WISHIMUTA

STATION : Kokubunji

DATE : 2005/ 1/28

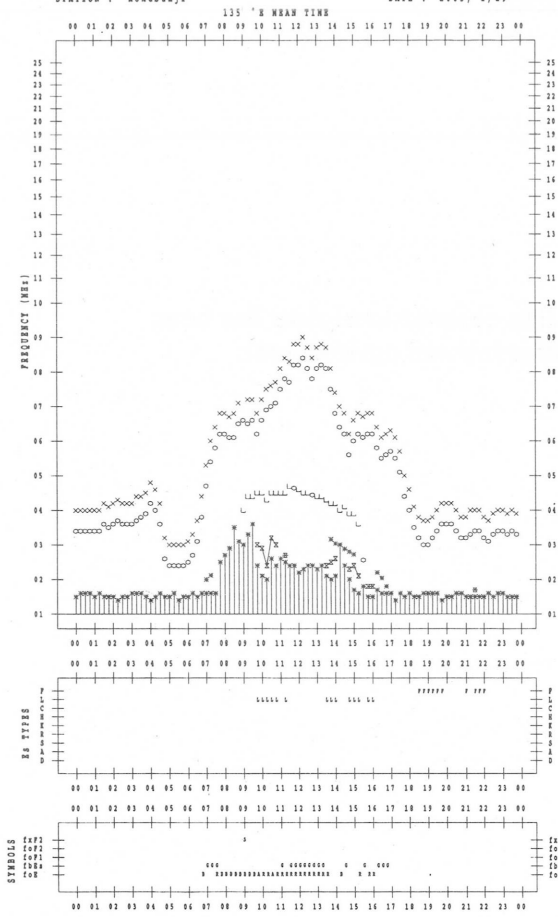


f-PLOT DATA

SCALER : I.WISHIMUTA

STATION : Kokubunji

DATE : 2005/ 1/29

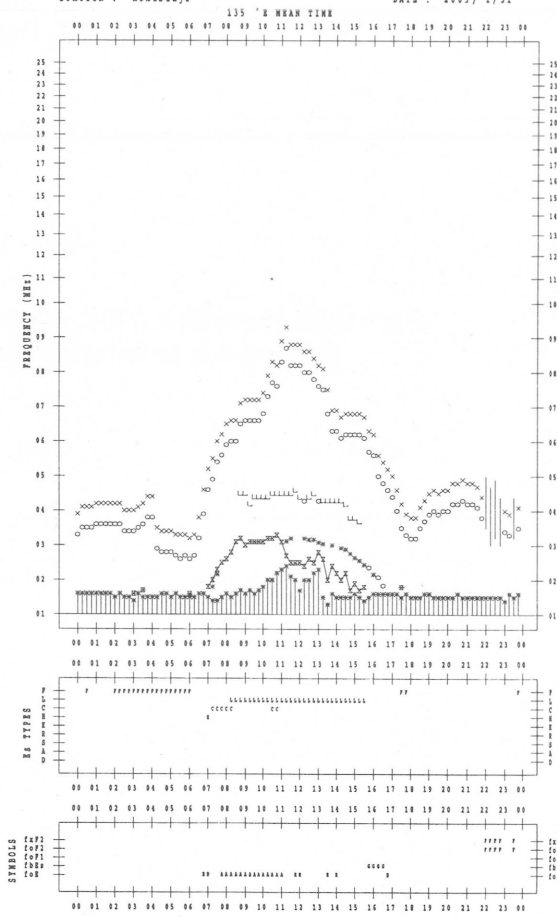


f-PLOT DATA

SCALER : I.WISHIMUTA

STATION : Kokubunji

DATE : 2005/ 1/31

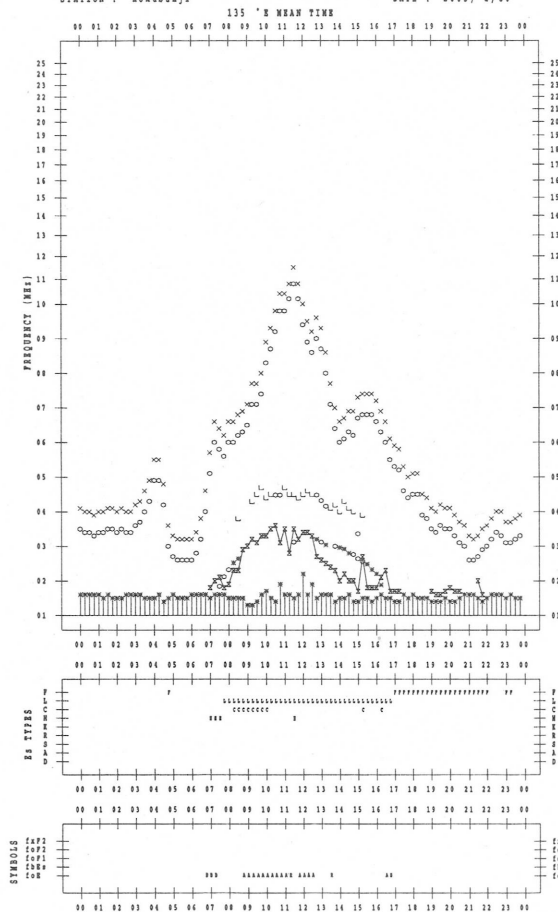


f-PLOT DATA

SCALER : I.WISHIMUTA

STATION : Kokubunji

DATE : 2005/ 1/30





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

Since 10th November 2004, offering of 500MHz observational data has been finished due to deterioration of the observational environment.

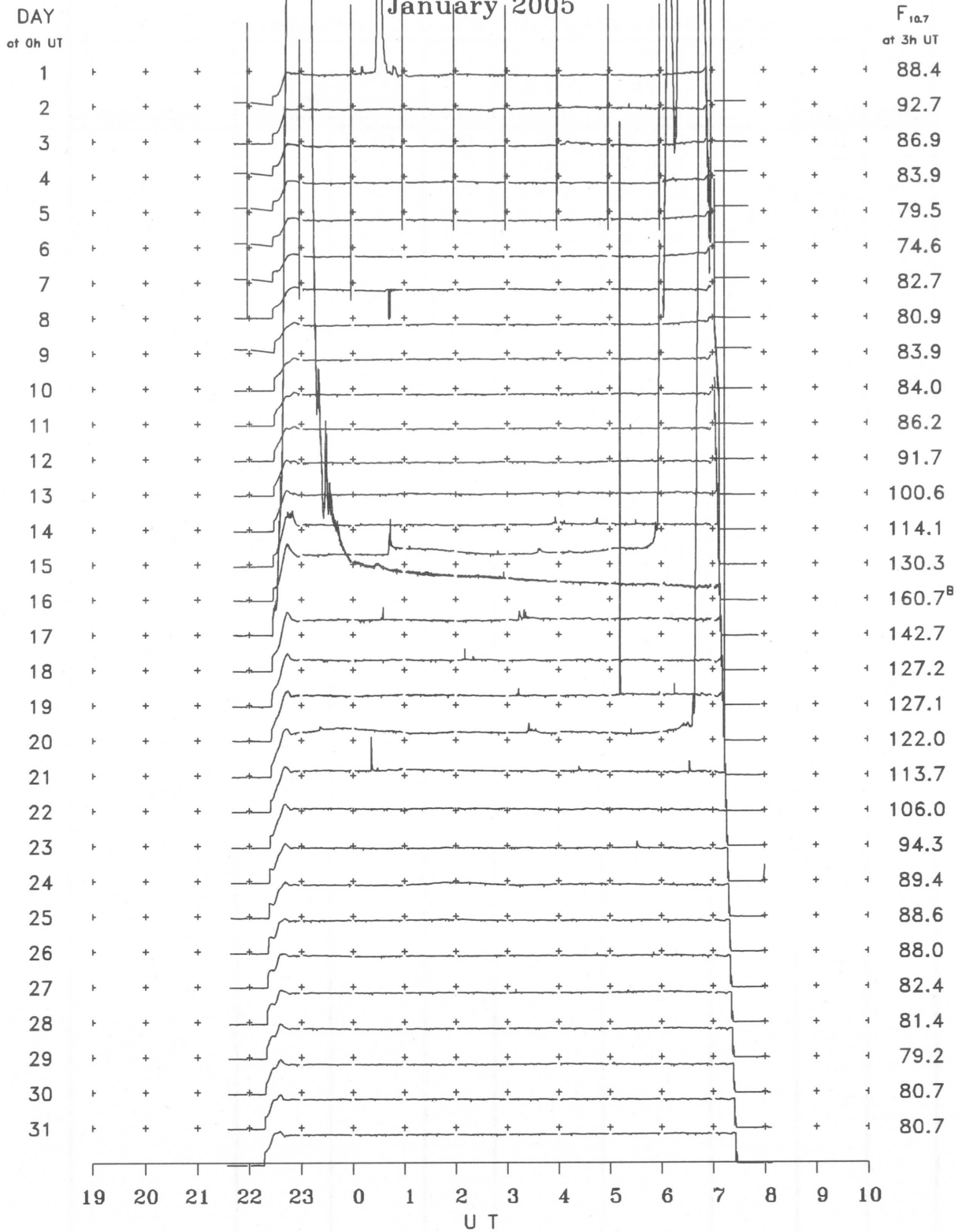
B. Solar Radio Emission  
B2.Outstanding Occurrences at Hiraiso

Hiraiso

January 2005

Single-frequency observations								
Normal observing period: 2140 - 0750 U.T. (sunrise to sunset)								
JAN. 2005	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  REMARKS
						PEAK	MEAN	
1	2800	47 GB	0010.0	0030.0	42.0	835	-	0
1	2800	1 S	0405.0	0411.0	11.0	10	-	0
14	2800	7 C	0348.0	0356.0	20.0	25	-	
14	2800	1 S	0444.0	0445.0	2.0	20	-	
15	2800	4 S/F	0041.0	0044.0	7.0	105	-	
15	2800	1 S	0336.0	0338.0	5.0	10	-	
15	2800	47 GB	0551.0	////./	///.	2680	-	
15	2800	47 GB	////./	2307.0	///.	4570	-	
17	2800	8 S	0035.0	0038.0	3.0	35	-	
17	2800	7 C	0314.0	0320.0	9.0	30	-	
18	2800	8 S	0210.0	0210.0	1.0	30	-	0
19	2800	7 C	0311.0	0313.0	3.0	25	-	WR
19	2800	47 GB	0511.0	0512.0	2.0	1615	-	SR
19	2800	8 S	0616.0	0616.0	1.0	35	-	0
19	2800	1 S	2321.0	2323.0	4.0	15	-	0
20	2800	4 S/F	0325.0	0326.0	2.0	35	-	0
20	2800	47 GB	0636.0	0657.0	///.	8545	-	0
21	2800	7 C	0021.0	0022.0	9.0	95	-	0
21	2800	1 S	0424.0	0424.0	3.0	10	-	0
21	2800	3 S	0632.0	0633.0	3.0	30	-	0
23	2800	3 S	0531.0	0532.0	4.0	20	-	0
27	2800	8 S	0310.0	0310.0	1.0	10	-	0

B. Solar Radio Emission  
 B3.Summary Plots of  $F_{10.7}$  at Hiraïso  
 January 2005



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

---

IONOSPHERIC DATA IN JAPAN FOR JANUARY 2005  
F-673 Vol.57 No.1 (Not for Sale)

---

電離層月報(2005年1月)  
第57卷 第1号(非売品)  
2005年 5月25日 印刷  
2005年 5月30日 発行

編集兼 独立行政法人情報通信研究機構  
発行所 〒184-8795 東京都小金井市貫井北町4丁目2-1

☎ (042) (327) 7 4 7 8 (直通)

---

Queries about "Ionospheric Data in Japan" should be forwarded to :  
National Institute of Information and Communications Technology, 2-1  
Nukui-Kitamachi 4-chome, Koganei-shi, Tokyo 184-8795 JAPAN