ISSN 0021-0382

F−672

IONOSPHERIC DATA IN JAPAN

FOR DECEMBER 2004

VOL.56 NO.12

CONTENTS

NiCT

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

A Measurement influenced by, or impossible because of, the presence of a lower thin layer, for example *Es*.

B Measurement influenced by, or impossible because of, absorption in the vicinity of *fmin*.

C Measurement influenced by, or impossible because of, any non-ionospheric reason.

D Measurement influenced by, or impossible because of, the upper limit of the normal frequency range in use.

E Measurement influenced by, or impossible because of, the lower limit of the normal frequency range in use.

F Measurement influenced by, or impossible because of, the presence of spread echoes.

G Measurement influenced by, or impossible because the ionization density of the layer is too small to enable it to be made accurately.

H Measurement influenced by, or impossible because of, the presence of a stratification.

K Presence of particle *E* layer.

L Measurement influenced or impossible because the trace has no sufficiently definite cusp between layers.

M Interpretation of measurement questionable because the ordinary and extraordinary components are not distinguishable.

N Conditions are such that the measurement cannot be interpreted.

O Measurement refers to the ordinary component.

P Man-made perturbations of the observed parameter; or spur type spread *F* present.

Q Range spread present.

R Measurement influenced by, or impossible because of, attenuation in the vicinity of a critical frequency.

S Measurement influenced by, or impossible because of, interference or atmospherics.

T Value determined by a sequence of observations, the actual observation being inconsistent or doubtful.

V Forked trace which may influence the measurement.

W Measurement influenced or impossible because the echo lies outside the height range recorded.

X Measurement refers to the extraordinary component.

Y Lacuna phenomena, severe layer tilt.

Z Third magneto-electronic component present.

(ii) Qualifying Letters

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

A Less than. Used only when *fbEs* is deduced from *foEs* because total blanketing of higher layer is present.

D Greater than.

E Less than.

I Missing value has been replaced by an interpolated value.

J Ordinary component characteristic deduced from the extraordinary component.

M Mode interpretation uncertain.

O Extraordinary component characteristic deduced from the ordinary component. (Used for x-characteristics only.)

T Value determined by a sequence of observations, the actual observation being inconsistent or doubtful.

U Uncertain or doubtful numerical value.

X Measurement deduced from the third magneto-electronic component.

(iii) Description of Types of *Es*

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

The types are:

f An *Es* trace which shows no appreciable increase of height with frequency.

l A flat *Es* trace at or below the normal *E* layer minimum virtual height or below the part *E* layer minimum virtual height.

c An *Es* trace showing a relatively symmetrical cusp at or below *foE*. (Usually a daytime type.)

h An *Es* trace showing a discontinuity in height with the normal *E* layer trace at or above *foE*. The cusp is not symmetrical, the low frequency end of the *Es* trace lying clearly above the high frequency end of the normal *E* trace. (Usually a daytime type.)

q An *Es* trace which is diffuse and non-blanketing over a wide frequency range.

r An *Es* trace showing an increase in virtual height at the high frequency end similar to group retardation.

a An *Es* trace having a well-defined flat or gradually rising lower edge with stratified and diffuse traces present above it.

s A diffuse *Es* trace which rises steadily with frequency and usually emerges from another type *Es* trace.

d A weak diffuse trace at heights below 95 km associated with high absorption and large *fmin.*

n The designation 'n' is used to denote an *Es* trace which cannot be classified into one of the standard types.

k The designation 'k' is used to show the presence of particle *E*. When *foEs* > *foE* (particle *E*) the *Es* type precedes k.

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

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

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

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

B. SOLAR RADIO EMISSION

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

B1. Daily Data at Hiraiso

The three-hourly mean and daily mean values of the solar radio emission intensities are tabulated for 500 MHz measurements. The intensities are expressed by the flux density in 10^{-22} Wm^{-2} 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
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 F10.7 at Hiraiso

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

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

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

HOURLY VALUES OF foF2 AT Wakkanai

DEC. 2004

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	54	53	52	51	44	34	32	54	81	82	81	70	89	70	82	67	58	40	36	34	34	34	34	44
2	41	42	40	41	41	41	28	49	71	65	82	77	80		68	68	52	38		A	34	34	30	31
3	32	34	34	34	31	34		46	66	70	78	74	78	71	42	62	54	34			34	30	36	34
4	34	41	41	38	38	38	31			58	79		67	70	70	61	54	34		17		32	36	40
5	38	34	34	32	32	32	30	44		72	66	71	74	62	60	65	61	32	26		A	A	A	
6	32	32	34	34	34	34	36	46	61	72	69	72	77	71	69	60	40	46	37	38	24		34	36
7	40	37	41	37	36	32	32	43		81		76	78	77	70	67	58	38	40	37	34	32	35	
8	34	34	37	40	37	36	37	45	62	71	75	82	76	72	81	76	55	A	A	35	34	34	37	36
9	42	39	40	38	37	37	35	45	61	61	66	67	69	68	69	60	40	31	30	29	34	A		A
10	32		34	34	34	30	34	47	58	70	78	73	74	70	63	62	48	34	28	34	32	26		34
11		30		30	29	30		A	64	65	69	71	73	71	66	71	44	32		36	40	38	40	41
12	42	42	42	37	32	32	34	46	62	80	92	77	76	81	76	71	63	41	31	42	44	34	43	40
13	40	41	35	40	35	32	30	34	64	76	102	76	78	81	76	62	47		26	A	40	36	35	34
14	36	37	34	36	35	36	32	45	58	68	77	76	71	72	67	58	40	38	29	32	37	30	31	34
15	32	34	32	34	30	28		32	62	71		79	73	75	74	48	47	34	29	28			A	
16	35	30	34	36	32	34	30	40	62	66	66	83	74	60	71	58	54	54	40		28	34	40	38
17		41	41	40	38	40	26	36	57	62	65	64	61	78	81	55	70	41			32		28	34
18	32	32	32	30	30	A	28		55	61	66	77	76	69	72	58	55		29	32	36	36	38	42
19	42	42	45	44	41	38	34	43		78	70	76	71	76	64	71	46	32	32		32	34	34	36
20	34	37	37	40	37	37	32	41	60	60	76	74	71	63	71	46	51	32		32			29	36
21	36	34	40	41	34	34		36	55	55	67	64	65	58	57	60	40	37					32	34
22	36	34	34	32	34	32	28	45	53	68	62	65	76	74	66	63	55	46	34	38	34	32	32	36
23	36	35	37	34			A	39	58	61	79	70	66	73	73	67	64	A	A	A	A	28	30	30
24	34	34	32	35	36	35		37	46	72	67	72	61	65	66	61	65	41	30				28	32
25	34	35	37	38	36	39		34	41	72	70	75	65	70	57	64	54	44		35			31	
26	36	36	37	36	36	38	23	37	43	66	67	65	71	65	72	67	A	A	34	A		29	35	37
27	32	34	41	36	37	38		20	56	56	64	70	67	63	63	60	58	A	30	34		28	26	32
28	32	32	32	34	35	32		40	52	66	61	72	70	73	70	67	63	41		28	31	30	32	34
29	37	36	34	34	34	35	32	35	54	63	59	74	75	70	74	83	67	33	34	29	26	34	38	34
30	31	35	36	39	38	35	30	38	62	68	78	76	76	66	67	61	47	47	34	A	36	32	36	36
31	32	34	36	39		32	28	32	60	73	61	72	61	66	63	58	55	38	30	A			20	29
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	29	30	30	31	29	29	22	28	27	31	29	30	31	30	31	31	30	25	20	18	20	21	27	27
MED	35	35	36	36	35	34	32	40	60	68	69	74	73	70	69	62	54	38	30	34	34	32	34	34
U Q	39	39	40	40	37	37	34	45	62	72	78	76	76	73	73	67	58	41	34	36	36	34	36	37
L Q	32	34	34	34	33	32	28	36	55	62	66	70	67	66	64	60	47	33	29	29	32	30	30	34

HOURLY VALUES OF fEs AT Wakkanai

DEC. 2004

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	G	27	G	26	G	G	G	28	34	41	47	G	50	48	40	29	34	G	G	G	26	G	30	27
2	G	G	G	G	G	G	G	G	G	36	36	41	G	G		32	28	G	G	65	37	G	G	G
3	G	G	G	G	32	29	31	29			G	45	41	G	48	37	G	28	30	30	G	26	27	G
4	G	G	G	G	G	28	G	G		G	G	40	G	45	G	G	34	G	27	G	29	36	G	G
5	G	G	G	G	G	G	30			42	G	41		33	40	41	30	32	G	36	35	59	59	31
6	28	G	G	G	G	G	G	G	G	G	36	G		63	53	G	G	G	G	30	25		G	G
7	G	G	G	G	G	G	G	G	44	35	34	G	G	G	G	G	G	29	26	G	26	27	26	30
8	G	G	25	G	G	G	G	G	G	49	39	35	42	G	32	40	30	51	43	28	G	32	G	G
9	32	49	39	29	39	G	G	31	G	G	G	G	35	40	G	G	G	28	G	G	32	40	28	46
10	34	34	32	24	G	G	G	39		G	G	35	40	G	G	G	G	G	G	G	G	29	39	27
11	27	G	28	G	G	G	24	48	G	G	G	G	G	G	35	34	26	30	28	G	G	G	G	G
12	G	G	G	G	G	G	24		33	40	G	G	G	G	G	G	G	G	G	G	26	G	G	G
13	G	G	G	G	G	G	G	G	G	32	44	58	38	39	36	32	28		27	33	29	G	G	28
14	26	G	G	G	G	G	G	G	G	G		G	G	35	G	G	27	G	28	28	G	G	G	G
15	G	G	G	G	G	G	G	G	48	50	48	50	G	G	G	G	26	G	G	29	32	G	58	34
16	G	G	G	G	G	G	G	G			47	G	G	39	G	G	G	G	G	G	G	G	G	G
17		25	G	G	27	G	G	G	G		33	G	35	G	G	G	28	32	28	26	G		G	G
18	G	G	G	G	26	32	G	G	G	31	45	36	34	59	G	G	26	39	25	G	G	27	29	29
19	G	G	G	G	G	G	G	G	33	50	82	43	34	G	G	G	G	G	G	32	29	33	G	32
20	G	G	G	G	G	G	G	G	29	31	G	41	46	52	G	39	30	30	30	G			G	25
21	G	G	G	G	G	G		G	G	G	G	G	G	G	G	G	G	G				G	G	G
22	G	G	27	38	36	32	G	29	G	G	G	G	G	G	G	34	G	32	G	G	G	G	G	G
23	G	28	G	G	28	32	33	G	34	G	G	49	G	G	40	43	41		77	70	54	G	G	G
24	G	G	G	G	G	G		25	G	48	G	G	G	G	G	30	G	G	G				G	26
25	27	G	G	G	G	G		G	G	G	G	G	G	G	G	G	G	G		G			G	44
26	28	G	G	G	G	G	G	G		44	35	41	G	G	G	G	40	71	G	59	32	33	G	G
27	34	G	G	G	G	G	G	G	48	34	34	38	39	36	32	42	52	58	G	G		G	G	G
28	G	G	G	26	23	G	G	G	G	33	41	G	79	44	48	42	G	G	33	G	G	G	G	G
29	G	G	G	G	G	G	G	32	44	G	G	G	G	G	G	30	54	68	36	29	26	G	G	G
30	G	G	G	G	G	G	G	G	33	33	47	G	G	G	G	G	G	G	G	75	G	G	G	26
31	G	G	G	G		G	G	G	33	36	42	G	G	G	G	G	G	31	G	51	30	32	27	35
	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	31	31	31	30	31	28	29	25	28	30	31	29	31	30	31	31	29	29	29	26	26	31	31
MED	G	G	G	G	G	G	G	G	G	32	34	G	G	G	G	G	26	G	G	26	26	G	G	G
U Q	26	G	G	G	G	G	G	26	33	40	42	41	38	39	35	34	30	32	28	32	30	32	27	29
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

DEC. 2004

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	21	14	15	15	15	17	18	17	20	16	14	15	15	17	18	14	14	15	16	18	18	15	15	16
2	15	15	14	14	14	15	14	17	18	14	15	18	14	18	15	14	15	15	18	14	15	15	15	16
3	16	15	15	18	15	15	15	16	21	18	18	20	18	16	17	17	15	15	14	15	15	18	14	15
4	14	16	15	15	14	15	17	20	18	22	20	20	20	22	18	20	20	20	21	20	15	16	15	14
5	15	14	15	14	15	16	18	18		18	30	23	20	21	20	17	20	14	15	17	17	14	15	15
6	16	20	15	15	18	16	15	14	22	17	20	22	20	20	20	16	20	20	14	15	15		18	15
7	18	15	16	14	17	16	15	15	14	17	17	18	20	21	17	22	15	15	16	18	14	17	16	16
8	14	17	16	18	15	16	15	16	23	15	18	17	15	29	14	15	14	14	15	17	18	15	15	16
9	15	15	15	15	15	15	17	15	21	18	20	30	23	17	21	14	16	17	16	18	15	14	17	15
10	15	14	14	15	18	15	14	15	21	23	14	14	14	14	16	15	17	14	15	18	18	17	15	15
11	15	15	20	15	16	16	21	14	21	14	15	16	14	14	20	15	18	18	18	15	15	15	17	15
12	15	15	18	15	16	17	17	14	17	15	18	18	20	18	22	21	16	18	18	16	15	17	15	20
13	15	15	16	17	15	17	16	16	21	14	14	15	18	21	14	14	14		15	15	15	15	21	16
14	15	15	16	14	20	18	15	14	18	15	15	18	17	15	15	21	14	17	20	20	18	18	20	15
15	15	14	17	17	14	15	15	14	14	14	15	16	15	18	16	14	17	17	17	15	15	18	14	14
16	15	14	15	15	20	15	15	14	15	14	14	15	16	17	16	20	17	16	14	20	18	15	14	14
17		14	14	17	16	15	17	15	18	16	18	18	18	17	15	15	14	14	16	15	15		16	14
18	17	22	15	17	17	14	15	14	22	20	20	18	18	18	18	21	15	16	16	16	17	14	15	15
19	14	14	14	15	15	15	15	15	14	14	15	20	17	15	21	14	15	14	14	15	15	15	15	15
20	16	14	15	14	14	14	15	15	14	15	17	16	17	17	20	15	14	15	16	15			21	16
21	14	14	14	16	17	14		14	18	27	30	35	34	28	27	23	20	15				21	16	18
22	15	15	15	14	14	15	17	16	20	26	21	20	20	22	17	14	15	17	15	18	14	18	18	18
23	15	15	18	17	15	15	15	15	15	22	29	20	21	21	20	17	14	14	14	14	14	22	18	17
24	14	15	14	14	14	14		15	24	27	33	33	38	34	34	20	17	14	18				16	15
25	14	14	15	14	14	17		16	26	34	35	34	34	53	30	24	17	21		16			15	14
26	15	14	15	14	15	15	15	15	15	22	26	28	34	33	28	22	15	15	15	16	15	15	17	15
27	15	14	15	14	14	15	15	15	21	18	20	23	20	21	18	14	14	14	21	15		16	17	14
28	14	14	14	14	15	15	20	14	14	15	16	18	17	17	18	15	14	18	15	18	20	18	15	14
29	14	14	15	14	15	16	18	15	14	18	20	20	21	29	20	15	15	15	15	17	15	16	16	17
30	21	20	18	15	14	18	15	14	18	14	14	20	18	18	18	16	17	15	17	15	20	18	18	15
31	14	14	15	15		16	18	18	18	22	26	54	35	30	32	23	20	14	20	18	14	14	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	30	31	31	31	30	31	28	31	30	31	31	31	31	31	31	31	31	30	29	29	26	26	31	31
MED	15	15	15	15	15	15	15	15	18	17	18	20	18	18	18	16	15	15	16	16	15	16	16	15
U Q	15	15	16	16	16	16	17	16	21	22	21	23	21	22	21	21	17	17	18	18	18	18	17	16
L Q	14	14	15	14	14	15	15	14	15	15	15	17	17	17	16	14	14	14	15	15	15	15	15	14

HOURLY VALUES OF foF2 AT Kokubunji

DEC. 2004

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	37		39	41	43	34	36	54	75	80	85	90	90	90	77	69	61	42	36	37	32	36		37
2	A	A	39	41	39	41	41	62	73	85	86	80	78	78	86		66	42	35	39				27
3		28	32	34	34		32	45	76	78	71	69	71	76	82	62	53	A		A				30
4	36	37	38	36	42	28		54	66	71	76	77	81	74	80	76	58				36		26	37
5		36	36		39	37		59	64	66	77	72	70	61	68	71	74		32					
6			27		26	28	30	54	68	71	72	94	76	61	76	65	55		36	38	42	26	A	
7	30			32		30	36	53	65	88	107	112	83	75	74	65	64		45	43	30			28
8	30	32		28	39			62	58	67	80	76	86	68	75	72	66	38	25	A				
9	34	34	32	31	32	27		55	63	72	77	74	61	67	69	71	55	42		30	36	28	31	
10	30	31		A	28		30	59	64	59	72	69	72	80	67	66	61	38	34		32		27	28
11	27		27	26	26	27	30	51	71	67	78	90	65	74	77	61				28				31
12		32	32	34		28	30	59	70	66	87	105	97	74	75	74	63	57	42		36	28		30
13		31	31		30			52	68	90	92	110	84	84	74	65	57				26	41		A
14	A	26		30	36	27		49	62	76	77	73	81	91	75	66	58	32		36	34	27		
15			26	27				51	64	68	72	67	88	76	81	63	55		34	38				
16			31	31	34	27	27	51	59	65	77	74	82	75	76	69	62	36	47	38	30			
17	36	39	42	39	28	A	A	45	62	66	65	78	78	67	81	80	52	48		32	32	26		
18	27	32	36	30	30	28	30	49	59	67	73	70			76	67	53	38	A	A	34	38	32	A
19	35	34	36	37	34	27	35	51	58	65	72	85	88	74	69	69	62	38		31		26		
20	27	27		28	32			54	54	62	59	62	86	81	59	66	64	44	37	28		28		
21		27		28	30			49	64	59	57	76	84	77	59	61	59	42	34			27		28
22	34	34	28	32	35			48	62		77	76	78	84	82	77	59	41	44	43			34	34
23		32	34	41			27	49	59	58	62	99	75	67	74	72	61	47		35	28			30
24	31			34	46			47		60	71	78	74	72	74	78	87	45						
25			30	30	32	28		44	57	63	66	91	81	78	81	71	55	40	44	42			27	
26		32	35	32	35	36		46	55	56	69	85	71	75	62	72	61	49	28		28	28	30	
27		35	35	34	32	27		45	66		66	65	77	80	68	76	64	48	37		28		26	
28	27			32	27			45	68	71	72	60	77	77	86	71	51	45	47	36				
29		30	32	34	32		32	54	59	77	66	92	72	72	78	76	81	43	38	44				
30	39			36	27			49	62	64	84	98	77	72	67	72	69	43			35			30
31		32	30	36				55	53	67	73	101	81	72	75	71	58	61	43	38		22		
	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	15	20	22	27	26	16	13	31	30	29	31	31	30	30	31	30	30	23	19	18	16	13	8	12
MED	31	32	32	32	32	28	30	51	64	67	73	78	78	75	75	71	61	42	37	38	32	28	28	30
U Q	36	34	36	36	36	32	35	54	68	74	78	92	84	78	80	72	64	47	44	39	35	32	31	32
L Q	27	30	30	30	30	27	30	48	59	63	69	72	74	72	69	66	55	38	34	32	29	26	26	28

HOURLY VALUES OF fEs AT Kokubunji

DEC. 2004

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	29	33	54	G	23	G	G	G	G	G	G	G	47	55	60	35	G	G	G	G	G	G	23	G
2	60	40	34	27	22	26	G	G	G	G	G	G	G	38	53		40	G	G	G				G
3	28	G	G	G	33		G	G	53	43	48	G	38	42	G	40	48	40	30	40				G
4	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	40	G				G	G	G	G
5		26	G	G	G	G	G	G	G	G	G	G	G	G	G	31	28	34	G					
6	G		G		G	G	G	G	G	G	G	43	49	G	43	G	G	G	G	G	G	G	31	
7	25		23	G		G	G	G	G	G	G	G	G	G	G	G	31	45	32	G	G			G
8	G	G		G	G		G	G	33	G	G	G	G	G	G	33	G	11	G	42	31	24	29	29
9	G	G	G	G	29	29	G	G	G	G	G	G	G	G	42	G	G	G		G	G	G	G	32
10	G	24		32	24		G	G	G	G	G	G	G	G	60	G	G	G	G		G		29	G
11	G		G	G	G	G	G	G	G	G	G	G	G	G	45	35		40	28	G	G	G		G
12	26	G	G	G	G	G	G	G	G	G	G	40	G	G	G	G	G	G	G		27	G	27	G
13		G	G		G	G		G	G	G	G	G	G	G	G	32	G			G	24	40		26
14	32	G	G	G	G	G	30	36	32	G	G	39	G	G	40	41	31	26	23	G	G	G	G	
15			G	G	G		G	G	G	G	G	G	40	40	G	G	G	34	G	G		29		
16		G	23	25	G	G	G	G	47	G	G	G	G	G	G	G	G	G	G	G	G			G
17	24	G	G	G	G	37	51	G		G	G	43	51	G	G	40	34	33	G	G	25	G	24	
18	27	G	G	G	G	G	G	G	G	G	45	64	90	56	G	G	G	G	60	51	29	36	33	59
19	27	G	G	G	G	G	G	G	G	35	41	46	40	43	36	40	G	G		G	G	G		
20	G	G		G	G			G	G	35	36	40	42	G	G	41	31	26	G	G		G		
21		G		G	G		G	26	29	G	G	G	G	G	G	35	G	G	G			G		G
22	G	G	G	G	G	G		G	G	G	41	G	G	37	61	48	G	G	G	G	G		G	G
23	26	G	33	G			G	G	G	G	G	G	51	G	G	G	G	G		G	G			G
24	G		G	G	G			33	G	G	G	G	G	G	G	G	G	G	28	28				
25			G	G	39	G		G	G	G	G	51	38	G	G	G	G	31	26	G			G	
26	31	G	26	G	G	G		G	44	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
27		G	G	G	G	G		G	G		G	G	G	G	G	G	G	50	27		G		G	
28	G		G	G	G		24	27	29	G	G	44	N	G	G	G	G	G	G	G				
29		G	G	G	G	G	G	G	G	G	G	G	G	G	G	47	46	G	G	26	G			
30	G			G	G			G	G	G	45	G	G	G	G	G	30	G			G			G
31		G	G	29	31		G	30	G	G	39	50	59	49	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	22	23	26	29	29	20	23	31	30	30	31	31	30	31	31	30	30	29	25	24	22	17	14	18
MED	12	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	12	G
U Q	27	G	G	G	11	G	G	G	G	G	G	40	40	37	40	40	30	32	26	G	G	12	29	G
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 Kokubunji

DEC. 2004

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

HOURLY VALUES OF foF2 AT Yamakawa

DEC. 2004

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	A	34	38	A	29	32	30	47	76	84	74	82	99		A	78	72	58		38	36	37	34	28
2	32	32		A	A	34	36	48	76	82		74	79	81	77	78	76	64	34	36	42	36	29	
3		26	28	30	32	28	28	51	68	75	76	71	70	77	77	71	67	58	A	A		30	28	28
4			30	25	34	29		36	63	66	71	70	77	81	A	80	82	53		29	29	32		31
5		29	28	34	38	34	28	42	61	61	71	78	77	76	74	78	76	66	32	42	37	37	38	
6		26		31	32	34	30	36	69	80	81	74	68	80	79	80	75	80	50	36	45	36		29
7		29	30	32	29	29	32	50	63	78	101	109	82	80	75	70	74	62	54	37	36	34	32	32
8		30		32	36	30		43	52	62	81	80	82	82	67	77	78	67	43	34	28	32	31	
9			25	30	32	32		43	56	71	76	75	67	50	66	76	78	60	44	37	69	36	32	28
10	29	32	36	28			29	40	71	71	74	78	71	83	83	72	70	66	53	37	37	51	A	
11		28			26	28	26	34	71	76	82	84	72	78	68	77	61		A			32	32	29
12	28	29	32	40				44	58	54	77		96	77	81	72	72	72	54	37	34	36		
13		28	30	29	34			34	68	99	107	102	92	80	72	82	64	51	A		36	37	34	A
14			28	26	36	34		34	67	75	67	73	80	92	81	77	66	52	32	34	37	30	28	
15		29	31	32	27			35	64	92	63	62	81	92	84	82	67	48	37	37	28	A	A	A
16		30		31	34	28	A	34	55	66	65	66	78	77	82	75	77	52	42	51	31		28	25
17	30	32	38	42	28			36	66	66	66	66	78	80	85	84	68	63	51	45	42		28	28
18	28	32	34	31	32		29	37	59	66	72	80	84	75	77	74	65	59	37		38	23		
19	A	A		37	37	29		36	61	59	70	81	85	110	68	72	67	51	44		36	29		
20				28	36			36	43	72	66	72	72	86	82	72		66	55	37	37	32	32	
21		26	24	31	32			34	59	61	57	62	75	86	80	70	63	47	36	37	36	37	36	36
22	36	36	28	28	41	26		32	66	80	74	76	82	110	86	78	63	61	43	40	37	28	32	32
23		31	30	41	30			37	72	64	65	76	101	71	78	74	75	69	52		29	28		28
24		30			34			34	53	66	72	68	80	81	76	87	96	71	46	34	30	36		28
25			30	32	37			34	55	68	72	85	85	80	84	70	72	71	54	43	36	32	26	29
26			32	34	36	36		35	62	62	75	75	83	81	80	93	72	66			32	32		
27	28	36	37	32	32	26		30	54	70	72	71	76	99	83	104	70	60	51			32		
28		28	29	26	34			32	59	75	77	64	78	92	81	84	65	60	67	51	34			
29				28		29		36	54	65	67	75	76	81	87	78	81	61		50	32		28	
30	30	30	32	38	29			34	65	71	68	98	77	78	77	71	84	63	37			34	28	
31		28	26		34			33	62	67	82	86	82	100	77	68	80	82	67	36	37	29	26	
	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	23	22	26	27	17	9	31	31	31	30	30	31	30	29	31	30	30	24	22	27	26	19	14
MED	30	30	30	31	34	29	29	36	62	70	72	75	79	81	79	77	72	62	45	37	36	32	31	28
U Q	31	32	32	34	36	34	31	42	68	76	77	81	83	86	82	80	77	66	53	42	37	36	32	31
L Q	28	28	28	28	30	28	28	34	56	65	67	71	76	78	75	72	67	58	37	36	32	30	28	28

HOURLY VALUES OF fEs AT Yamakawa

DEC. 2004

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	41	26	30	34	G	G	26	G	G	49	G	46	49		93	85	78	G	G	G	G	G	G	25
2	G	G		46	56	29	27	G	G		G	G	G	G	38	44	52	G	G	G	G	G	G	
3	G	G	G	G	G	G	G	G	32	42	G	G	42	38	66	41	41	36	48	49	28	G	30	26
4	G	G	G	G	G	24	32	G	G	G	G	G	G	40	90	71	45	G	G	G	G	G	G	G
5		G	G	G	G	G	G	G		G	G	G	G	41	G	G	40	G	G	27	29	G	G	
6		G	G	G	G	G	G	G	G		G	39	39	G	G	39	59	G	G	G	G	G		G
7	29	24	G	G	G	G	G	G	G	39	G	43	43	49	41	G	G	G	G	24	G	G	G	G
8	G	G	G	G	G	G		35	34	42	39	G	G	G	G	G	G	G	11	G	G	26	G	G
9	28		G	G	G	G	G	G	G	G	G	G	40	44	39	38	48	G	G	33	G	G	G	G
10	28	26	G	G	G		G	G	G	G	40	G	G	G	G	38	G	G	28	24	27	G	33	
11	G	27	28	G	G	G	G	G	G	G	G	G	39	38	63	51	42	28	44			G	G	G
12	G	G	G	G	G	G		G		G	42		45	45	42	35	G	32	29	G	G	G		G
13		28	G	G	G			G	G	G	G	G	42	42	38	35	34	29	39	37	40	23	31	33
14			G	G	G	11		27	G	G	G	G	G	G	G	G	G	G	26	G	24	G	G	
15	G	G	G	G	G	G		G	G	G	N	G	41	G	38	37	G	G	31	G	G	30	40	60
16	G	29	28	G	G	G	26	G	44	48	41	39	39	G	G	38	G	32	G	G	G	G	G	G
17	G	G	G	G	G			24	G	34	36	G	46	44	42	44	44	29	30	42	G	G	G	G
18	G	G	G	G	G	G	G	24	G	G	40	43	46	44	38	55	45	G	G		27	28	30	G
19	41	36	31	27	26	22	G	G	31	34	41	44	48	41	46	G	G	G	11		G	G		
20			G	G	G			G		36	G	G	40	41	41	40		30	28	G	G	G	G	
21	G	G	G	24	G			G	G	G	G	39	G	G	G	G	G	42	G	G	G	G	G	G
22	G	G	G	G	G	35		G	G	G	G	G	G	G	G	36	31	G	G	G	G	G	G	G
23	37	G	28	G	G			G	G	G	G	41	G	43	48	G	G	G	G	G	G	G		G
24		G			G	32		G	G	33	36	G	45	40	44	39	G	G	11	G	G	G		G
25			G	G	25	29		G	G	G	G	G	41	G	G	G	G	G	G	G	G	G	G	G
26		G	28	G	G	G		G	G	G	G	G	G	44	38	G	38	31	30	G	G	G		G
27	G	29	G	G	G	G		G	G	G	38	38	41	57	G	G	40	27	G		G	G		
28		G	G	G	G			G	G	G	G	39	46	41	41	38	G	G	34	30	28			
29	G			G	29	26		G	G	N	G	39	G	G	G	43	34	G	G	G	G		G	G
30	G	G	G	37	G			G	G	G	39	38	G	G	G	G	G	G	G			G	G	G
31		G	G		G	G		G	48	G	G	G	44	40	G	G	G	27	11	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	21	26	28	29	31	23	13	31	28	28	30	30	31	30	31	31	30	31	31	26	29	29	23	22
MED	G	G	G	G	G	G	G	G	G	G	G	G	40	40	38	37	16	G	G	G	G	G	G	G
U Q	28	26	G	G	G	24	26	G	G	34	38	39	44	43	42	41	42	29	29	24	12	G	G	G
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 Yamakawa

DEC. 2004

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	15	16	15	14	17	17	15	16	20	15	15	17	18		17	16	15	20	15	15	17	15	15	15
2	16	18		14	14	15	15	17	15	16	16	18	18	18	15	22	17	20	22	15	14	15	20	
3	17	16	15	16	17	15	15	16	15	22	23	22	20	20	17	14	17	16	15	15	17	18	14	15
4	16	20	16	15	15	16	15	16	20	17	18	18	21	21	21	23	18	20	17	16	20	16	17	16
5		14	15	16	15	15	15	16	21	29	42	47	50	32	35	33	24	20	16	15	14	21	18	
6		15	16	17	17	17	18	16	22	17	22	26	21	21	18	17	14	16	16	17	15	18		17
7	16	16	16	15	18	18	15	16	14	18	21	21	21	22	20	32	17	18	20	17	14	16	15	16
8	21	15	20	21	15	15		14	14	16	18	20	21	18	18	17	16	20	16	14	15	17	16	15
9	15		15	14	15	16	20	15	22	21	16	17	20	20	18	15	14	20	22	15	17	15	15	16
10	16	16	14	16	16		17	15	22	15	20	21	17	22	20	16	15	18	16	15	15	14	14	
11	17	14	16	18	15	18	15	16	15	17	18	15	17	18	17	16	14	14	16			18	14	15
12	15	15	15	15	17	18		15	14	14	16		20	17	18	15	15	16	16	15	20	15		17
13		14	15	17	15			15	15	14	17	16	20	15	21	18	15	15	14	15	15	16	14	15
14			15	15	14	16		15	23	14	32	18	15	17	16	16	15	18	15	17	18	16	17	
15	18	15	16	16	16	15		15	18	15	15	16	18	18	17	16	15	18	16	15	17	15	14	14
16	18	15	16	16	16	20	16	15	24	15	16	21	17	17	16	15	14	14	15	17	15	17	15	15
17	14	16	15	15	15			16	23	15	15	17	20	16	21	14	14	14	14	15	15	16	16	17
18	15	16	16	15	15	17	15	15	20	15	17	20	20	18	17	14	14	18	15		14	15	15	20
19	15	15	15	15	15	15	20	15	14	14	15	17	16	18	17	15	15	18	15		16	15		
20			21	16	15			15	14	15	15	17	18	18	18	15		14	16	16	16	17	18	
21	18	15	17	16	14			18	23	15	15	20	17	17	15	17	15	20	17	18	20	15	16	17
22	21	17	21	16	17	17		15	22	15	15	18	20	20	20	17	15	20	15	18	18	18	18	17
23	16	20	15	16	18			15	23	15	15	22	16	18	21	17	23	18	16	21	15	17		18
24		18			15	18		18	22	17	20	21	21	22	21	18	18	20	16	18	17	17		15
25			16	16	14	16		16	22	17	20	16	15	16	18	15	16	21	15	18	17	17	18	18
26		18	15	14	14	15		16	24	28	22	20	18	20	20	18	14	14	15	18	18	14		18
27	18	14	15	20	15	17		16	22	20	17	18	20	20	18	15	17	15	17		18	15		
28		16	16	20	15			17	18	15	18	21	21	21	20	18	16	22	15	15	15			
29	21			17	18	17		15	23	16	20	20	44	21	17	16	14	21	20	15	18		18	16
30	17	14	17	15	18			15	17	17	20	18	18	22	21	20	26	21	21			17	15	17
31		15	17		15	16		20	26	30	23	36	28	32	49	24	29	17	15	18	15	16	18	
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	21	26	28	29	31	23	13	31	31	31	31	30	31	30	31	31	30	31	31	26	29	29	23	22
MED	16	16	16	16	15	16	15	16	21	16	18	19	20	19	18	16	15	18	16	16	16	16	16	16
U Q	18	16	16	16	17	17	17	16	23	17	20	21	21	21	21	18	17	20	17	18	18	17	18	17
L Q	15	15	15	15	15	15	15	15	15	15	15	17	17	18	17	15	14	16	15	15	15	15	15	15

HOURLY VALUES OF foF2 AT Okinawa

DEC. 2004

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	A	A	38		34		26		85	85	92	91	111	107	104	86	82	75	58	51	60	68	47	30
2	28	28	29	32	32	A	A	45	80	106	84	77	76	92	77	82	85	76	70	52	64	34	37	34
3	31	29	30	30	32	30	30	44	77	81	80	78	86	88	90	96	82	82	62	36	40	46	40	34
4		28	29	26	31	31		41	60	72	74	74	86	92	91	85	86	67	55	38	38		30	
5				30	40	40	37	45	66	70	72	88	77	81	96	100	82	95	81	51	60	34	52	34
6	31	31	34	38	41	43	35	44	56	81	85	87	77	72	96	106	102	92	98	52	54	60	50	42
7	26	28	34	34	34	30	31	51	62	76	106	108	95	82	75	75	86	80	77	52	54	62	53	47
8	40	32	41		41	34		42	62	70	84	91	98	91	72	76		85	72	50	47	42	42	
9		A	30	34	44	34	34	47	62	67	90	84	70	74	86	84	90	82	65	52	46	52	54	42
10	31	32	30	32		29	28	38	59	80	90	107	102	110	127	127	108	108	102	76	73	66	52	41
11	36	34	36	31			28	36	64	97	95	76	88	67	70	84	70	60	48	43	37	30	34	31
12		32	32	41				42	62	62	74	111	106	106	78	90	88	70	72	51	45	50	48	37
13	30		28	23	44			32	71	110	127	92	86	104	78	81	72	62	54	45	37	43	43	36
14				32	44			34	62	92	88	77	90	117	114	101	80	72		38		42	41	36
15			31	34	36	30		34	62	82	78	69	82	111	118	108	91	62	44	41	36	30	30	29
16	A		32	34	40	28		32	51	66	80	72	74	93	98	101	91	64		45	42	31	30	
17	29	30	40	50	40	26	26	34	66	88	74	68	78	118	111	94	86	88	63	51	59	31	34	28
18	28	30	30	31	34	31		37	61	72	88	76	77	80	87	87	74	60	62	40	A	53	42	
19			A	34	36			36	61	76	71	85	112	127	137	132	92	87	80		38	52	53	34
20	28	28	28	30	41			34	54	75	86	84	89	94	116	110	90	108	98	80	53	53	48	34
21			32	35	29			34	54	74	68	66	66	90	108	106	67	61	58	45	54	52	38	36
22	28	32	30	34	42			30	62	81	93	90	102	122	123	121	85	86	74	52	60	51	51	42
23	28	29	29	36				38	75	76	89	76	97	98	87	90	91	86	76	51	44	38	38	31
24	30	30	30	32	46			32	61	67	97	82	77	84	107	115	122	88	83	54	41	43	38	35
25		31	36	36	50		A	36	61	70	91	91	88	111	124	107	90	81	76	53	54	42	43	32
26	30		32	38	38	30		36	62	72	86	84	77	97	111	126	111	90	76	41	36	40	32	31
27	30	36	40	31	29	29		30	52	84	82	80	88	126	129	137	130	108	85	64	44	51	36	28
28		26	29	36	31			32	59	78	91	78	87	98	104	111	96	88	88	78	53	53	51	31
29	29	30	32			28		32	62	74	114	68	86	104	110	102	100	85	78	54	45	48	37	
30			28	36	30	A		31	65	76	80	88	88	90	102	112	110	112	71	44	38	37	41	30
31			30	28	29			32	66	75	88	90	96	104	115	110	111	141	139	74	80	78	58	
	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	19	28	28	26	15	9	30	31	31	31	31	31	31	31	31	30	31	29	30	29	30	31	25
MED	30	30	30	34	37	30	30	36	62	76	86	84	87	97	104	101	90	85	74	51	46	47	42	34
U Q	31	32	34	36	41	34	34	42	66	82	91	90	96	110	115	111	100	90	82	53	56	53	51	36
L Q	28	28	29	31	32	29	27	32	60	72	80	76	77	88	87	86	82	70	62	44	39	38	37	31

HOURLY VALUES OF fEs AT Okinawa

DEC. 2004

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

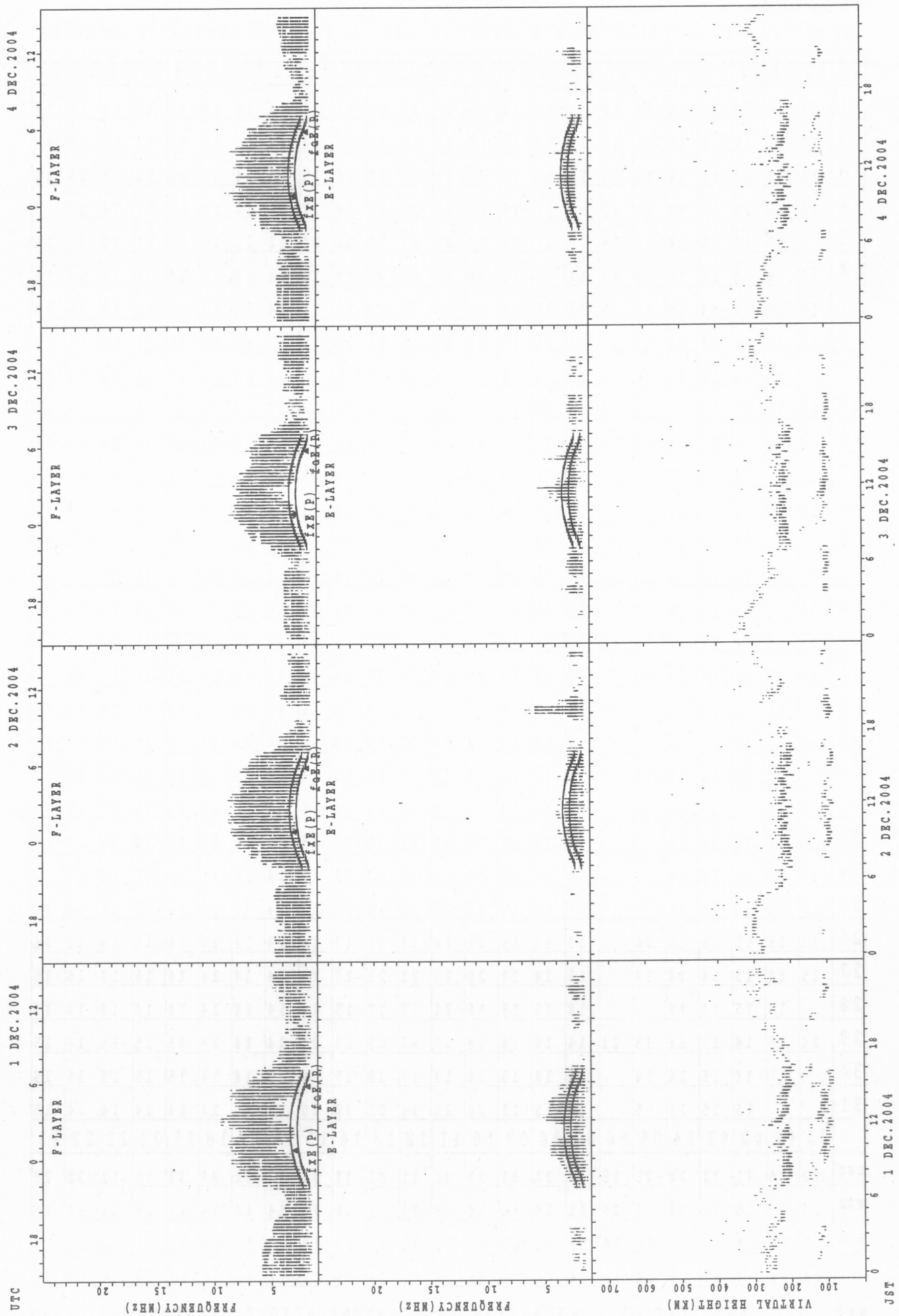
D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	37	47	28	32	G	27	24		29	34	46	G	60	56	92	58	36	G	11	G	34	G	G	G
2	G	G	G	G	G	40	49	44	30	35	G	48	G	G	39	G	79	52	27	G	G	G	G	G
3	G	G	G	G	28	G	G	33	41	G	38	51	56	41	43	37	47	58	56	25	G	G	G	G
4	G	G	27	G	G	G	G	G	G	G	44	G	G	49	44	45	47	G	11	20	G	28	G	
5		G	G	G	G	G	G	G		G	37	42	58	52	G	G	G	G	11		24	32	G	G
6	G	G	G	G	G	G	G	G	G	G	G	50	45	60	50	G	G	G	34		G	G	G	G
7	G	G	G	G	G	G	G	G		G	G	G	48	56	50	42	51	27	G	11	G	G	G	G
8	26	26	30	30	G	G		G	G	G	39	G	41	G	G	39		G	25		G	28	28	G
9		34	G	G	G	G	G	G	G	G	G	G	41	G	G	G	52	50	29	20	G	G	G	G
10	G	G	24	G		G	G	G		G	G	G	44	G	G	G	G	G	28	35	38	G	25	26
11	G	G	G	26	35	G	G	G	G	G	G	G	47	G	49	66	G	49		56	G	G	G	G
12	37	G	G	G	G			G	48	36	40	38	G	45	39	G	G	G	27	G	G	G	G	G
13	G	G	G	G	G			G	G	G	42	43	44	43	G	49	40	36	41	G	G	24	G	G
14			G	G	26			G	G	40	44	G	G	G	G	37	44	44		G	G	G	G	G
15		G	G	G	G	G	G	G	G	G	G	44	G	G	G	G	G	G	32	G	G	G	G	23
16	30		31	G	G	23		G	43	N	G	G	44	46	44	40	G	G		G	G	25	26	G
17	G	32	G	25	32	G	G	23	33		36	G	40	G	G	G	36	30	24	G	G	G	G	G
18	G	G	G	G	G	G		24	G	G	42	49	65	42	G	G	34	G	26	32	39	G	G	
19		44	51	54	25		G	G	G	G	36	44	50	54	42	64	42	G	26	36	26	G	G	G
20	G	G	G	G	G			G	G	36	42	45	52	67	51	38	G	34				G	G	G
21			G	G	G	G		G	28	33	G	G	G	G	G	G	G	G	G	11	G	G	G	G
22	G	G	G	G	G	G		G	G	33	37	G	41	42	G	52	38	33	36	34	G	G	28	G
23	G	G	G	28	27			G	32	36	39	G	G	G	G	G	G	G	G		G	G	G	G
24	G	G	G	G	G	25		G	G	G	41	G	40	G	42	61	50	34	26	24	G	G	G	G
25	G	G	G	G	G		35	24	G	38	37	G	G	42	G	46	G	40	24	G	G	G	G	G
26	G	G	G	30	G	G		G	G	G	G	G	G	56	G	36	35	G	30	G	G	G	G	G
27	G	G	G	G	G	G		G	G	34	40	40	39	42	G	41	45	66	39	28	28	G	G	G
28		G	G	G	G			G	G	G	G	G	G	43	G	45	37	32	G		24	G	G	G
29	28	24	G	G	G	G	G	G	G	G	G	G	G	46	G	G	G	G	35	G	G	G	G	G
30			G	G	28	34		G	G	G	41	G	G	G	42	G	35	G	28	G	G	G	G	G
31			G	G	G	G		G	G	G	36	G	44	50	G	36	44	41	32	30	G	24	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	31	31	30	23	15	30	28	29	31	31	31	31	31	31	30	31	27	25	30	31	31	28
MED	G	G	G	G	G	G	G	G	G	G	37	G	41	42	G	37	36	G	27	11	G	G	G	G
U Q	G	G	G	G	G	G	G	G	28	34	41	43	47	50	43	45	44	40	32	29	G	G	G	G
L Q	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	11	G	G	G	G	G

HOURLY VALUES OF fmin AT Okinawa

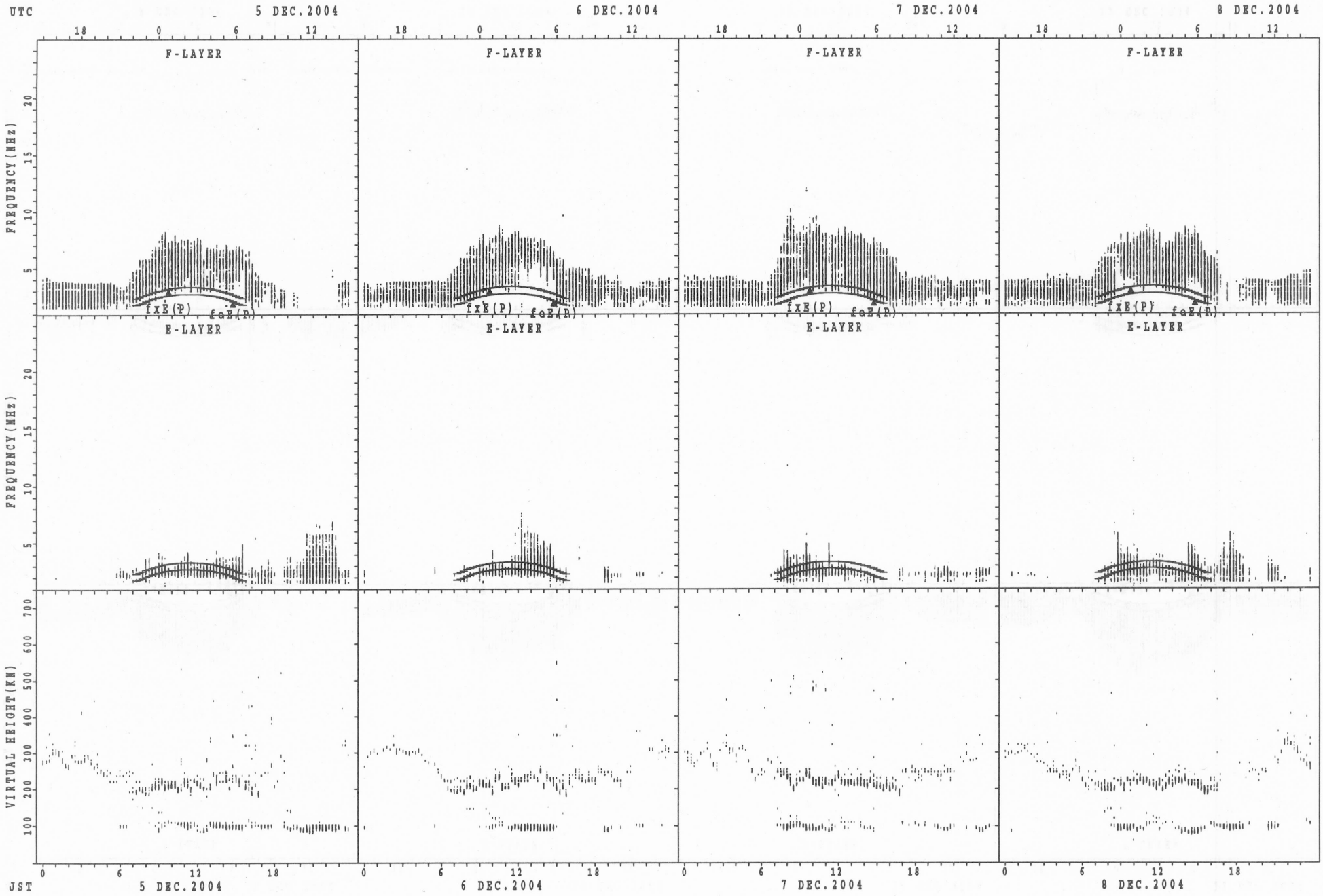
DEC. 2004

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	14	14	14	14	14	14	15		14	15	15	18	17	21	15	14	14	16	14	15	14	14	15	14
2	15	15	15	15	15	14	14	14	14	15	18	20	21	22	21	14	14	14	14	14	14	14	14	15
3	15	15	14	15	14	15	14	15	14	23	23	20	22	18	16	15	14	14	14	14	15	15	15	16
4	15	15	14	14	14	14	17	15	15	16	21	21	23	22	20	17	16	14	14	14	17	14	15	
5		15	20	15	14	14	14	16	14	21	24	23	33	22	18	20	20	21	14	14	14	15	15	15
6	15	14	18	14	15	14	14	14	14	16	20	20	22	21	17	14	14	16	14	14	20	15	14	14
7	15	17	15	14	14	15	15	15	15	14	17	20	21	23	15	14	14	14	14	14	14	14	14	14
8	15	15	14	14	15	15		15	14	18	14	20	18	18	14	14		14	14	15	15	14	14	15
9		14	14	14	14	14	15	15	14	15	17	15	20	20	16	14	14	14	14	15	16	14	14	15
10	14	15	15	14		14	15	14	15	15	16	21	20	16	14	14	14	14	14	14	14	15	14	14
11	14	14	15	14	14	15	14	14	14	14	14	16	14	20	18	14	14	14	14	14	14	14	15	14
12	14	14	14	14	17			15	14	14	14	14	21	16	20	15	15	14	14	14	15	14	15	15
13	15	15	15	17	15			14	14	15	14	15	17	18	14	14	14	14	15	14	15	14	14	14
14			15	14	14			15	14	14	15	16	20	15	16	14	14	14		15	14	14	14	15
15		15	15	14	14	15	16	15	17	14	14	14	16	17	16	14	14	14	14	15	15	17	15	14
16	14		14	14	15	15		14	14	14	14	14	17	15	16	14	14	14		14	14	15	14	15
17	14	14	14	14	14	14	15	15	14	14	14	15	15	14	14	15	14	14	16	16	15	14	14	14
18	15	15	15	14	14	15		15	17	14	16	14	18	21	14	14	14	14	14	14	14	14	16	
19		14	14	14	14		16	14	14	14	14	15	15	15	15	16	15	14	14	14	15	14	14	14
20	20	15	17	14	14			14	14	14	14	15	16	18	14	18	14	14	14	15	15	15	15	15
21			15	14	14	15		14	14	14	15	16	14	16	17	14	14	20	16	14	15	14	15	15
22	14	14	15	14	14	15		15	16	14	15	18	18	15	14	16	14	14	14	14	14	15	14	15
23	15	15	15	14	14			14	14	15	15	16	21	20	17	15	14	16	14	15	15	14	15	16
24	15	20	15	15	14	14		14	14	14	15	20	21	22	21	16	14	14	14	14	15	14	14	15
25	16	18	14	14	15		14	15	14	14	15	21	17	18	16	14	14	14	14	14	15	16	14	15
26	15	15	15	15	14	16		14	18	14	16	18	20	18	17	14	14	14	14	16	15	15	15	16
27	15	14	15	14	14	14		15	14	17	20	21	21	21	17	14	14	14	14	14	15	17	15	15
28		15	15	14	14			15	15	15	16	21	30	17	15	14	14	14	14	14	14	14	14	15
29	14	15	14	15	14	15	21	14	18	14	14	17	42	18	17	20	14	14	14	15	15	15	14	15
30			14	15	14	14		15	18	15	14	14	17	18	17	14	14	14	14	15	15	15	15	15
31			15	15	15	15		14	15	15	20	21	30	22	30	20	14	14	14	14	14	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	31	31	30	23	15	30	31	31	31	31	31	31	31	31	30	31	29	31	31	31	31	29
MED	15	15	15	14	14	15	15	15	14	14	15	18	20	18	16	14	14	14	14	14	15	14	14	15
U Q	15	15	15	15	15	15	16	15	15	15	17	20	21	21	17	16	14	14	14	15	15	15	15	15
L Q	14	14	14	14	14	14	14	14	14	14	14	15	17	16	15	14	14	14	14	14	14	14	14	14

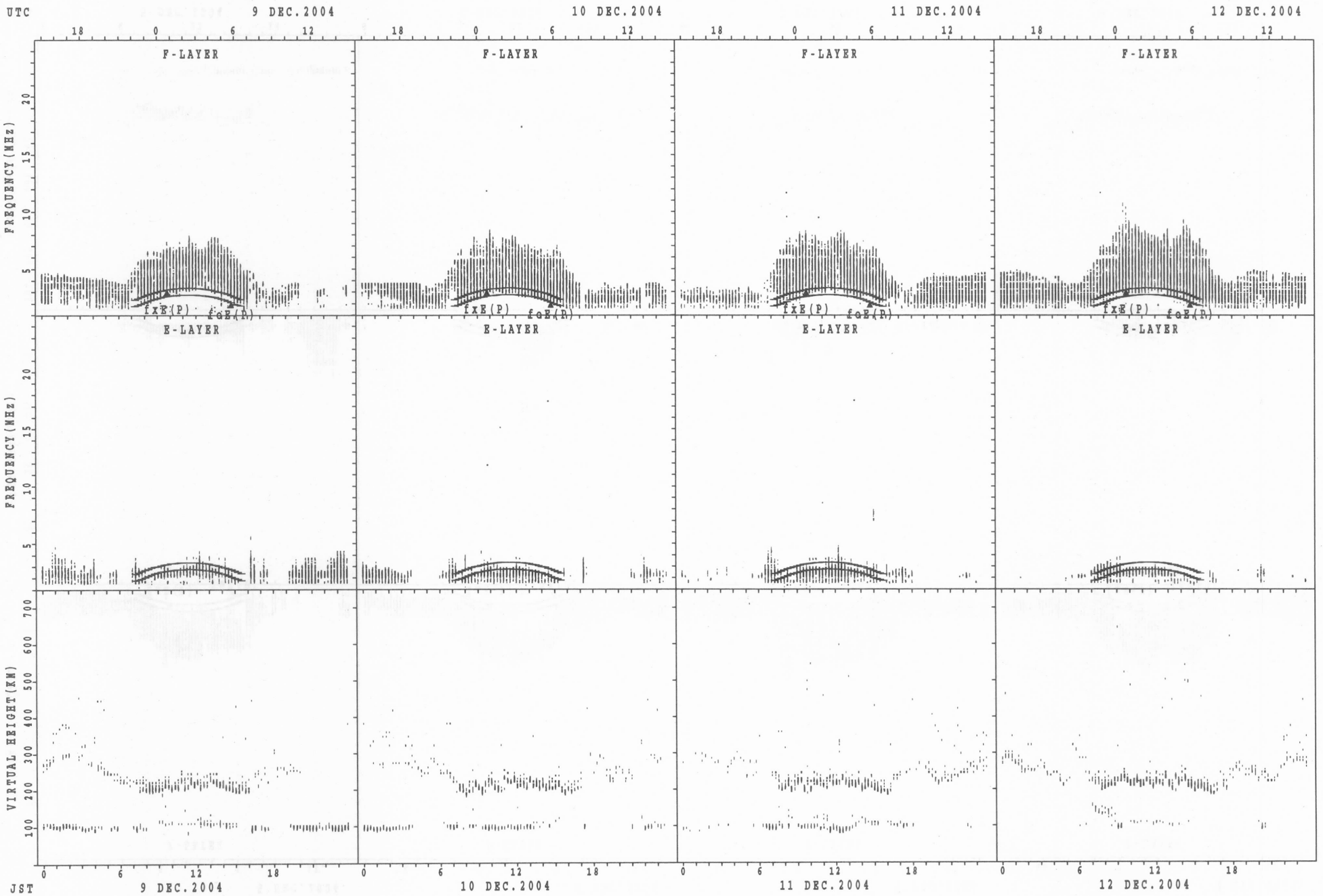

SUMMARY PLOTS AT Wakkanai
UTC
JST
1 DEC.2004
2 DEC.2004
3 DEC.2004
4 DEC.2004
F-LAYER
E-LAYER
fxE(P)
foE(P)
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



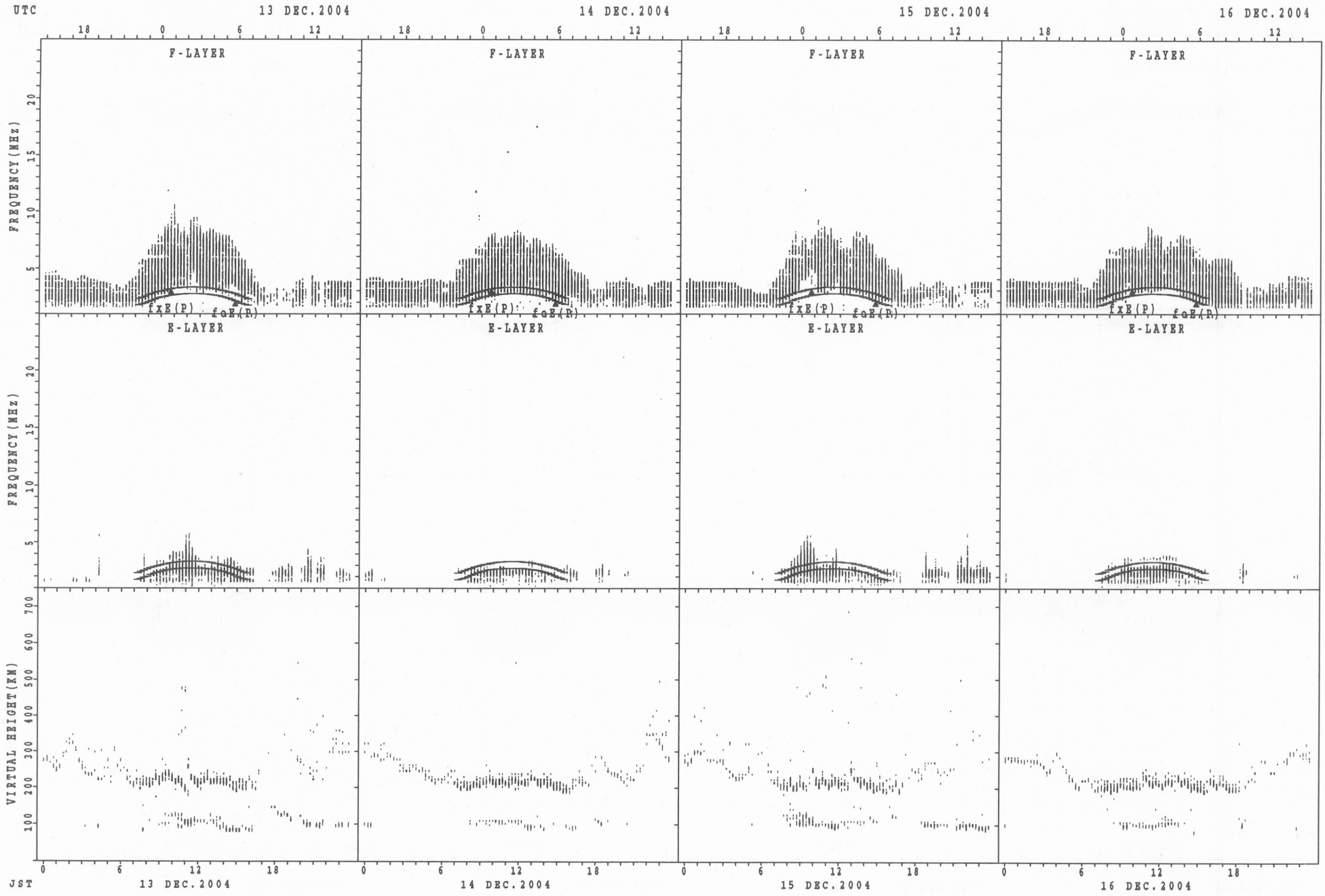
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai

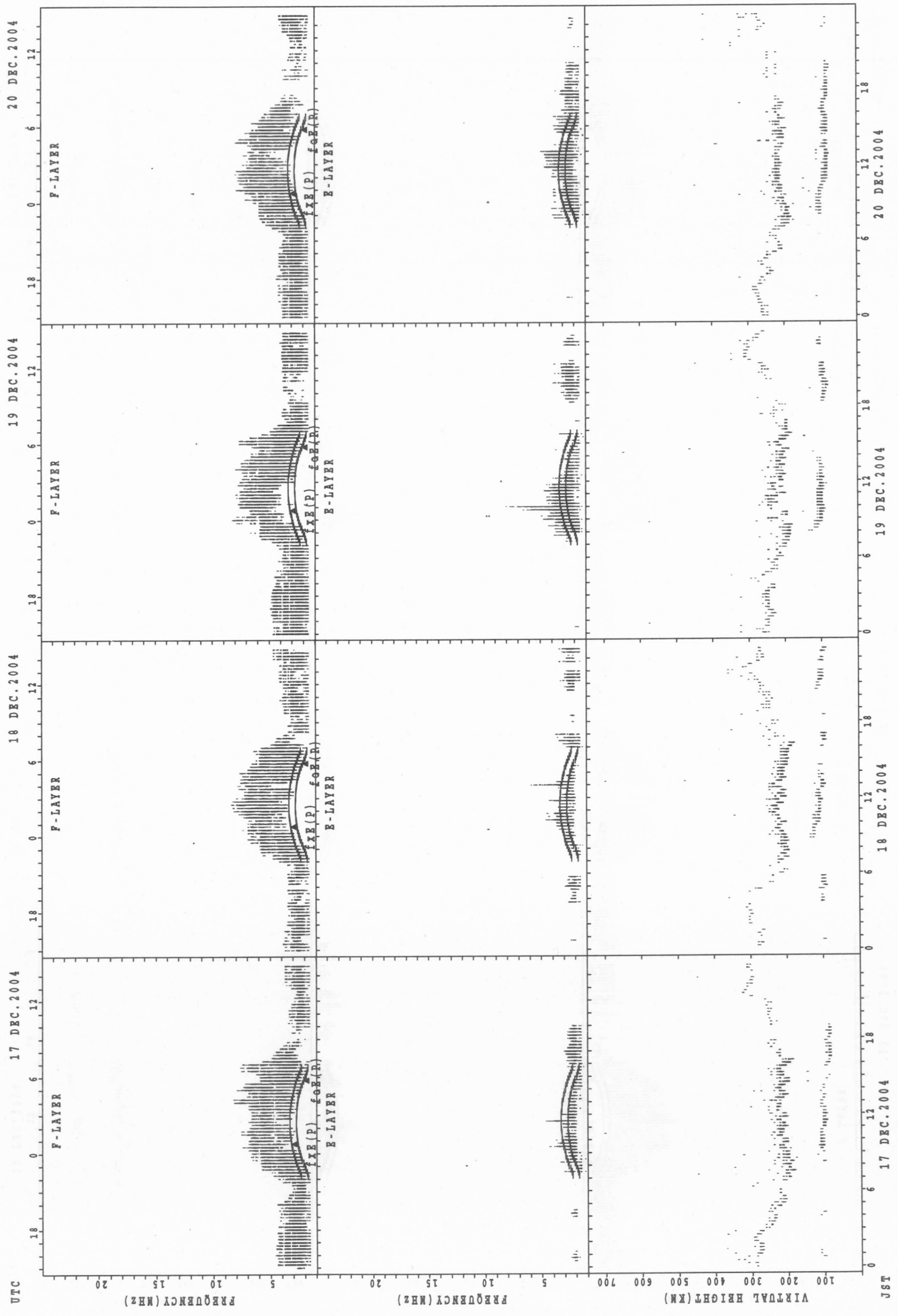


fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

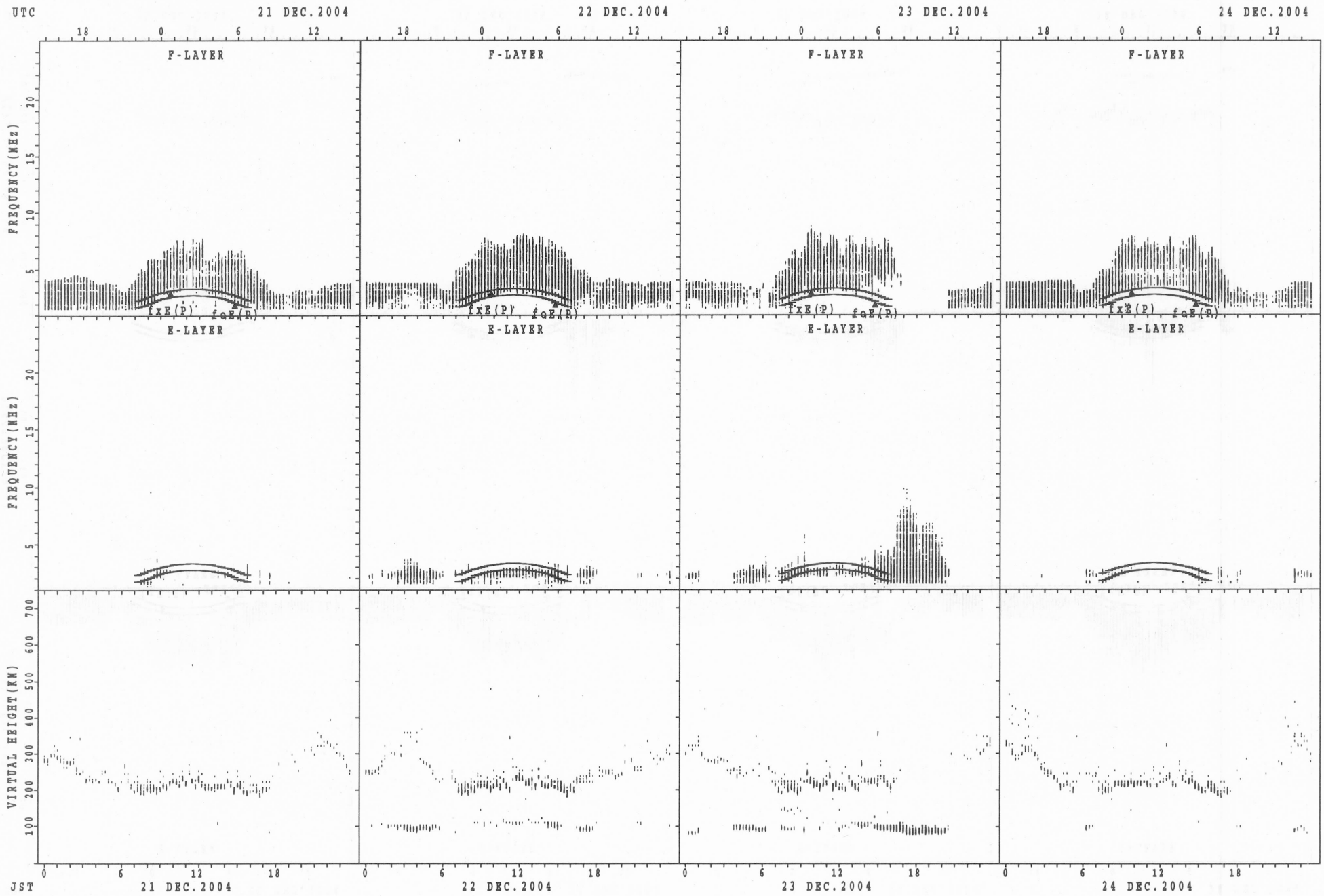
SUMMARY PLOTS AT Wakkanai



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

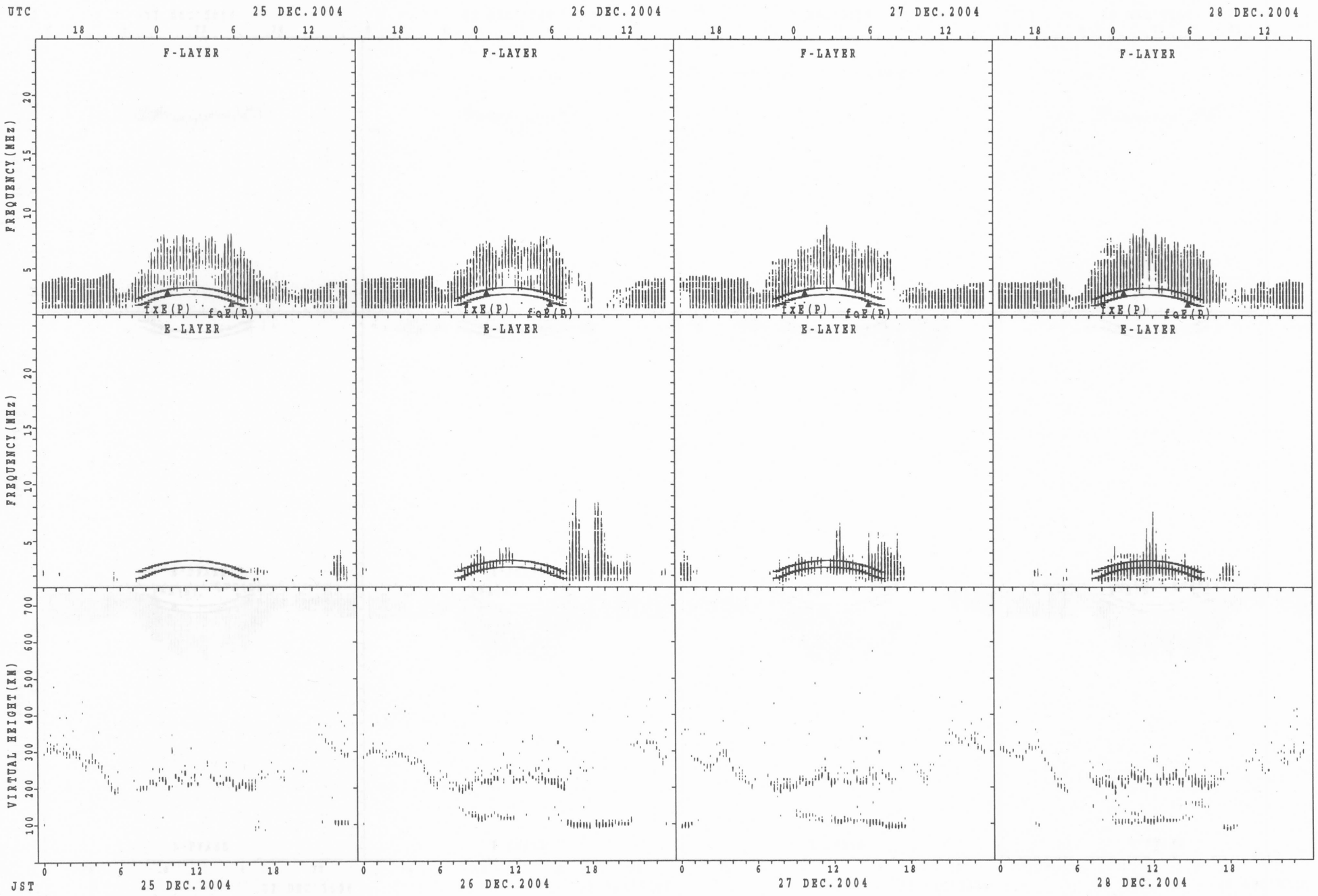

SUMMARY PLOTS AT Wakkanai
UTC
JST
17 DEC.2004
18 DEC.2004
19 DEC.2004
20 DEC.2004
F-LAYER
E-LAYER
fxE(P)
foE(P)
foE(R)
FREQUENCY (MHz)
VIRTUAL HEIGHT (KM)
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



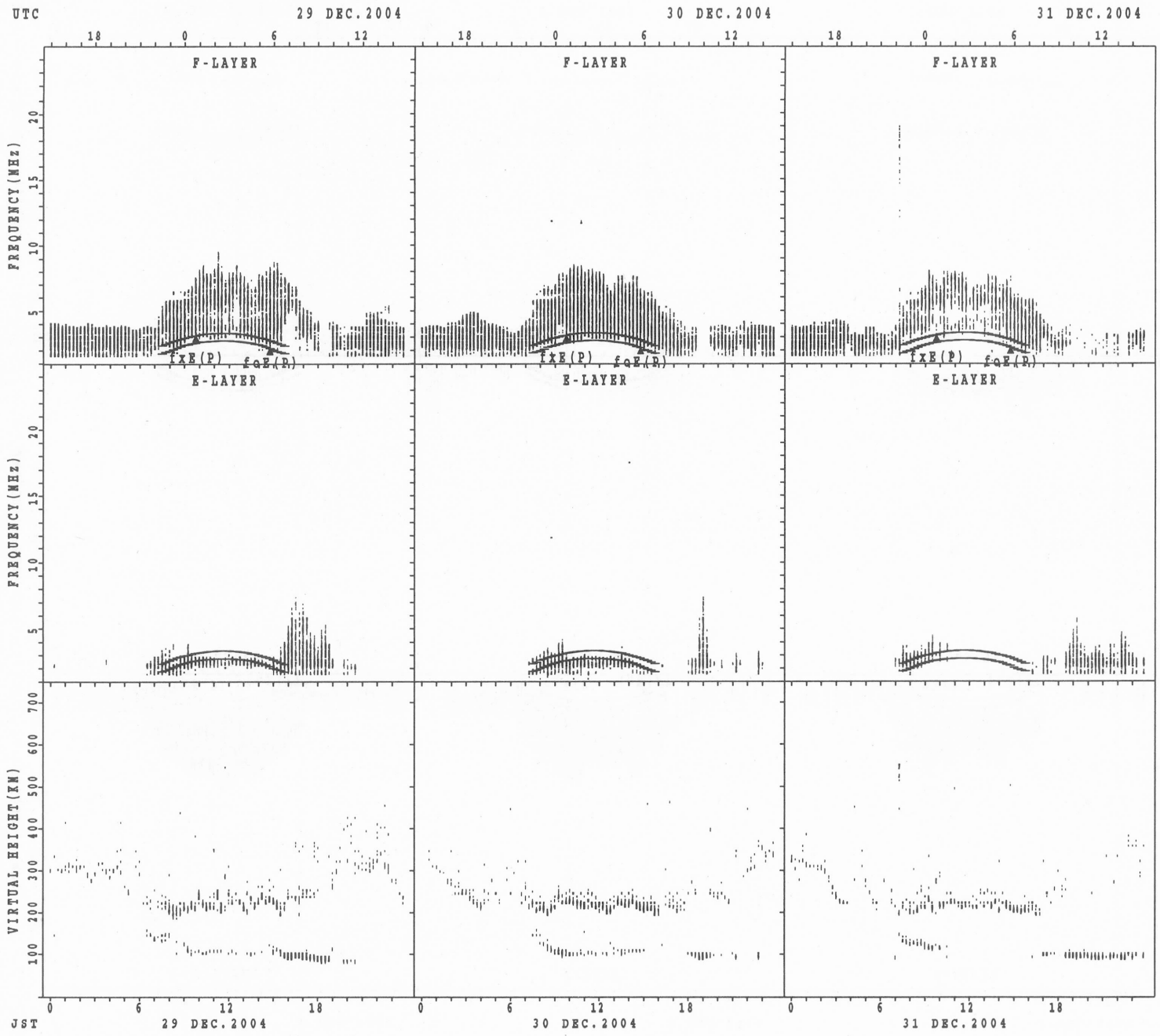
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



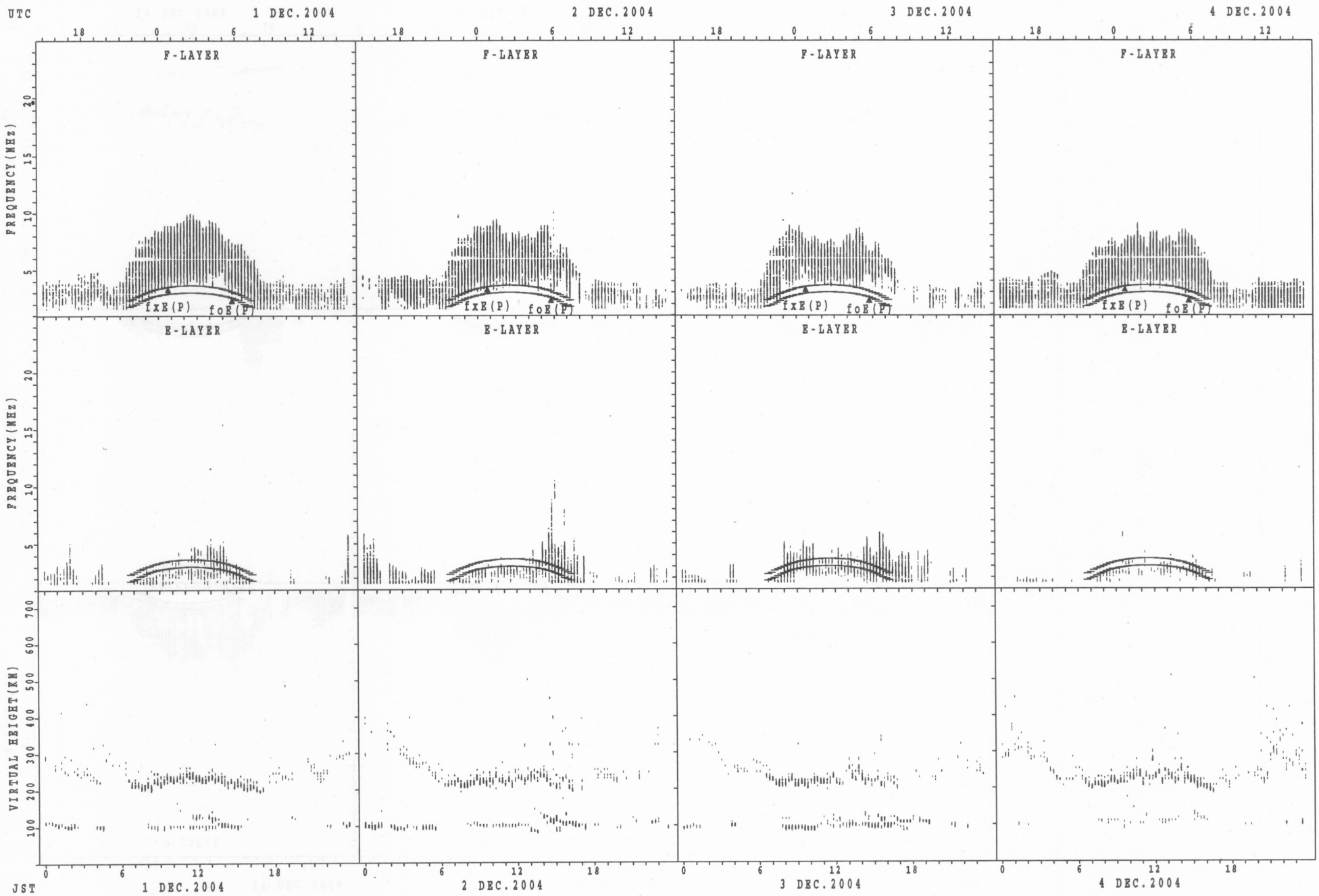
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



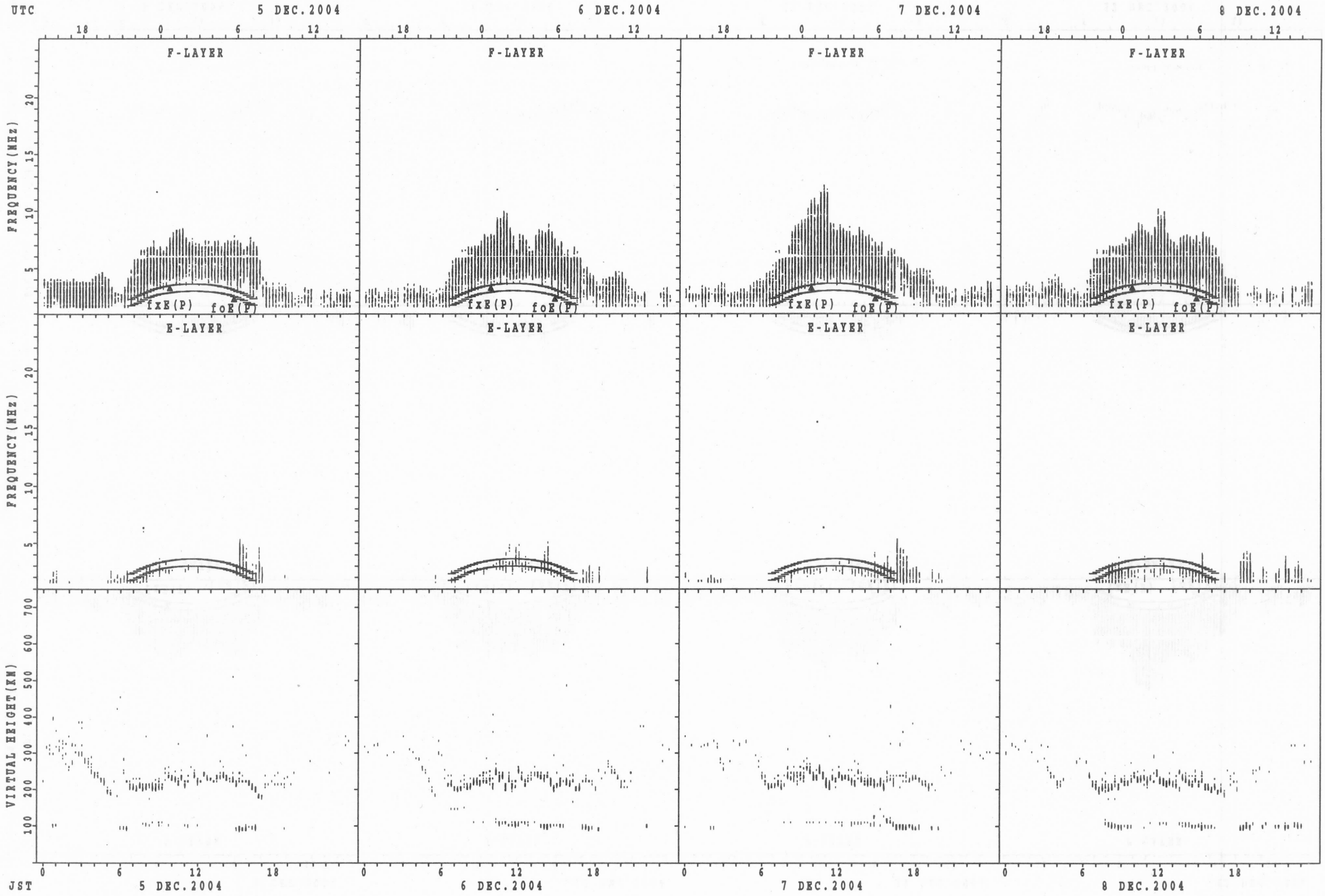
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji

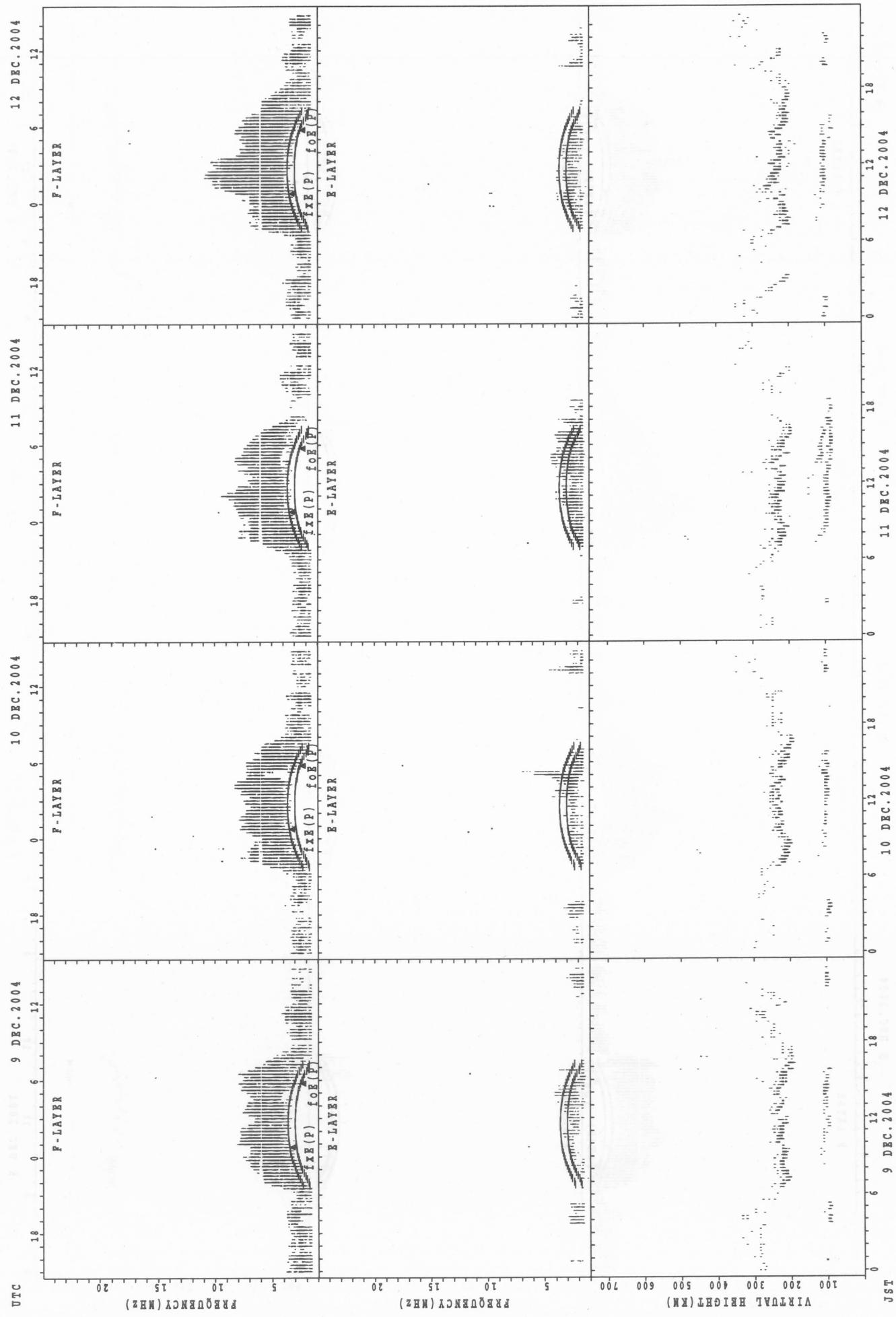


fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

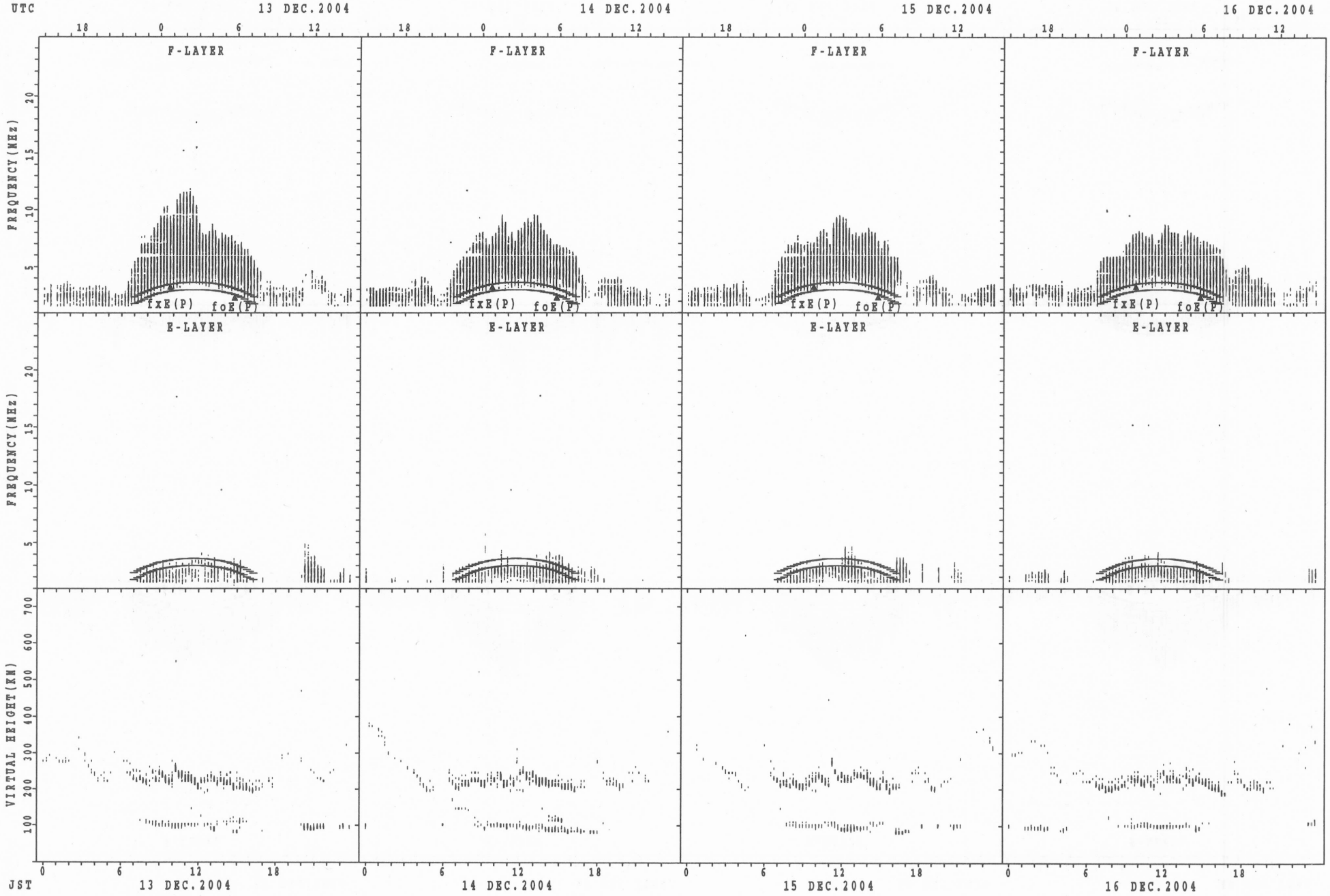
SUMMARY PLOTS AT Kokubunji



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

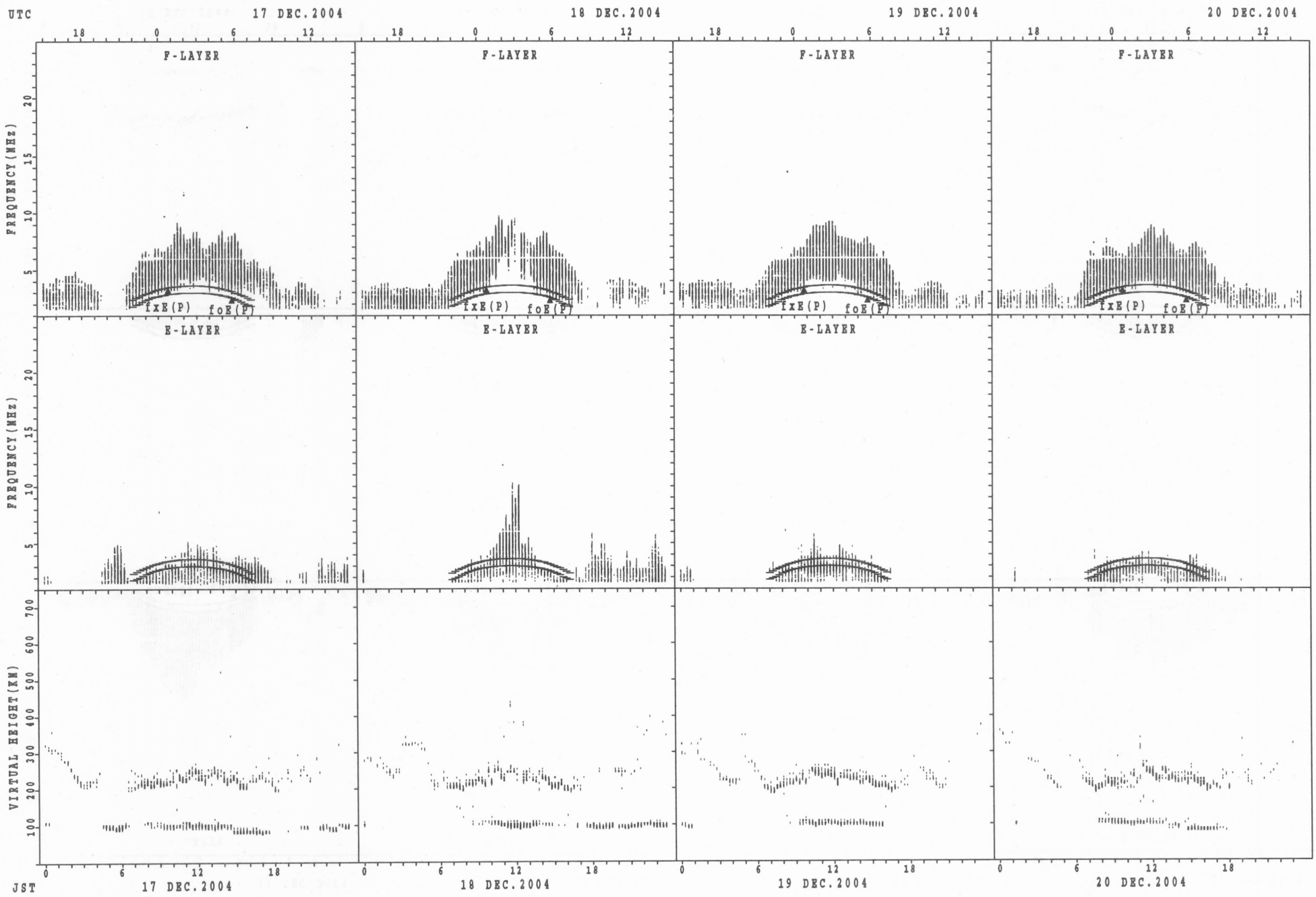

SUMMARY PLOTS AT Kokubunji
UTC
JST
9 DEC.2004
10 DEC.2004
11 DEC.2004
12 DEC.2004
F-LAYER
E-LAYER
fxE(P)
foE(P)
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



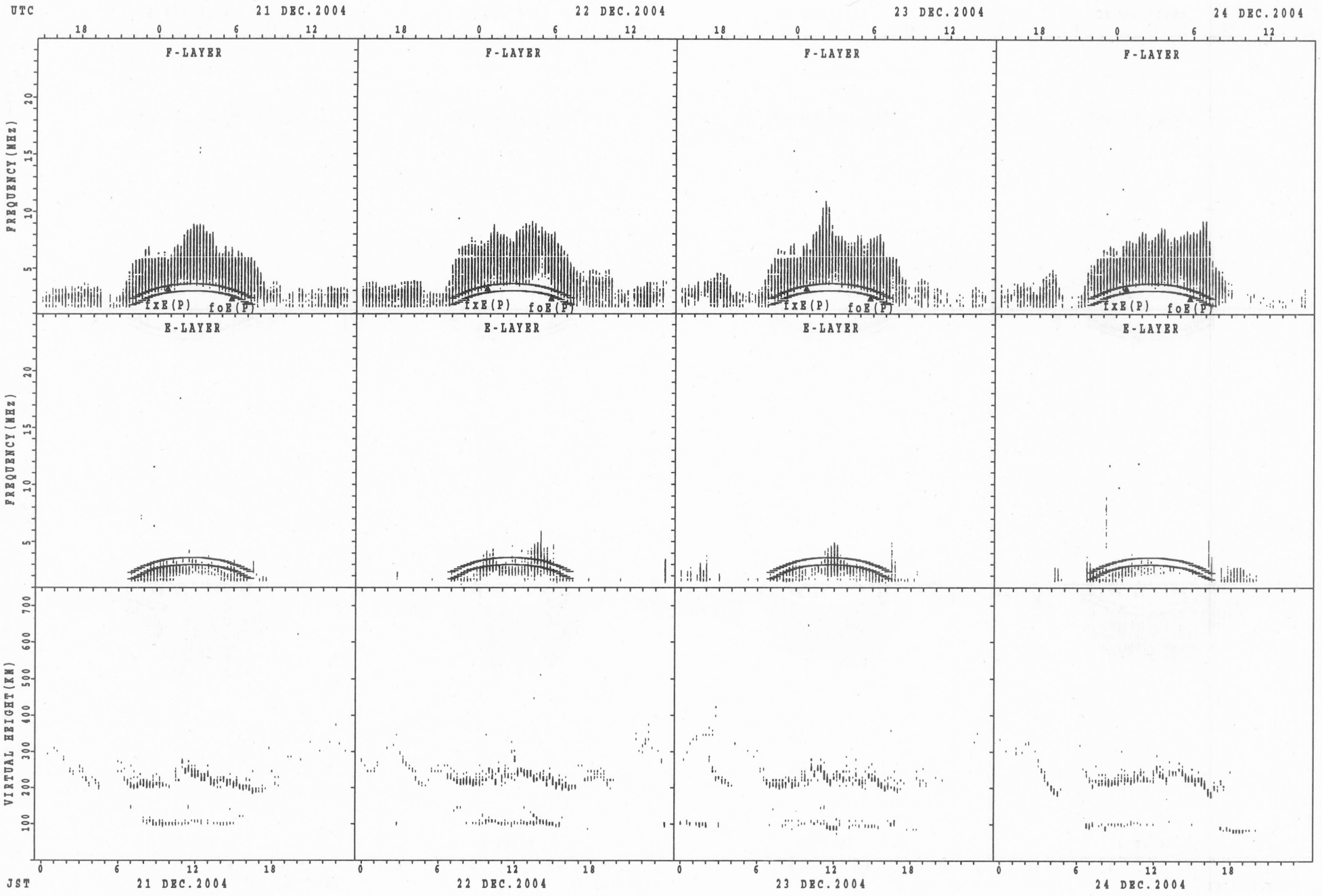
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



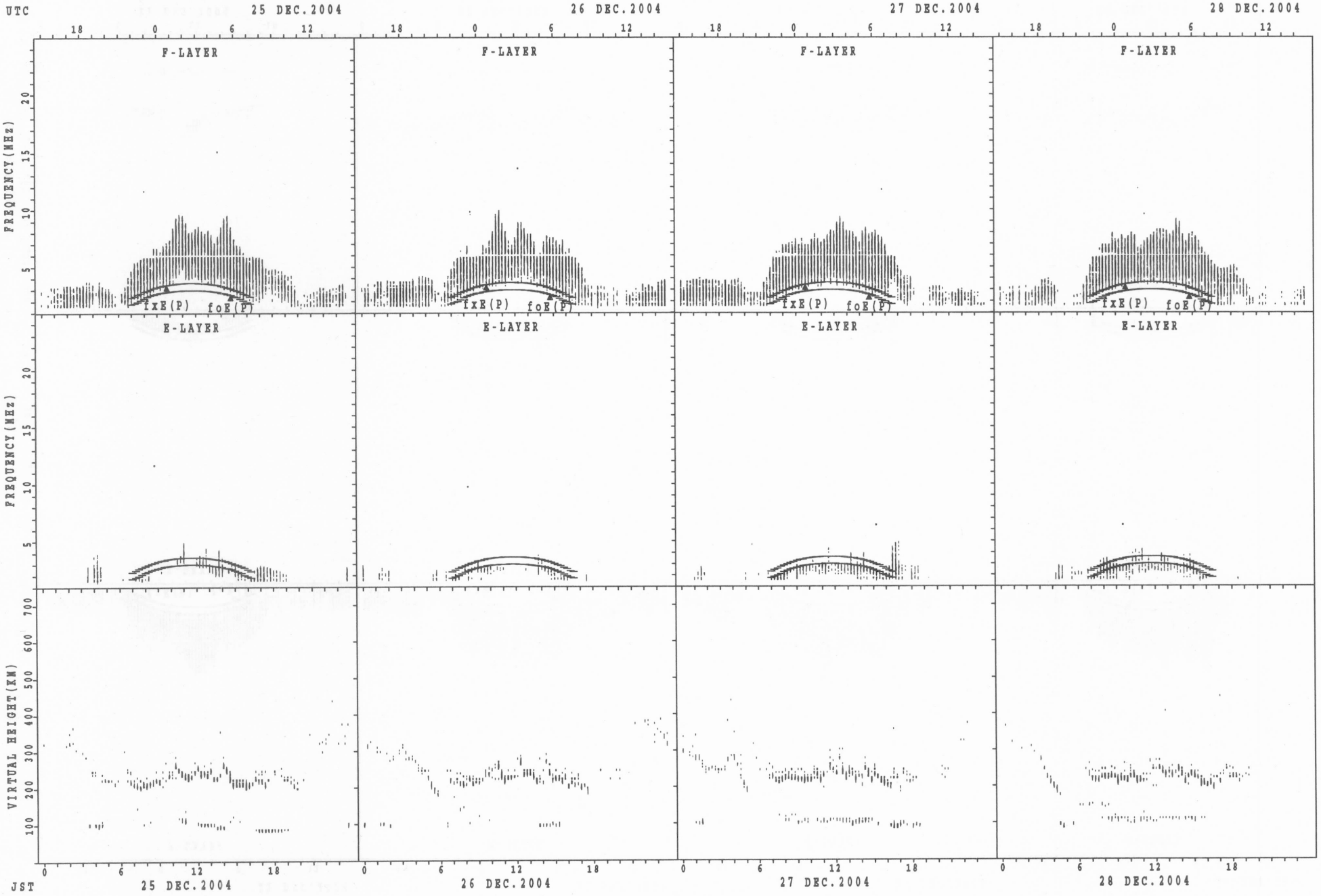
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



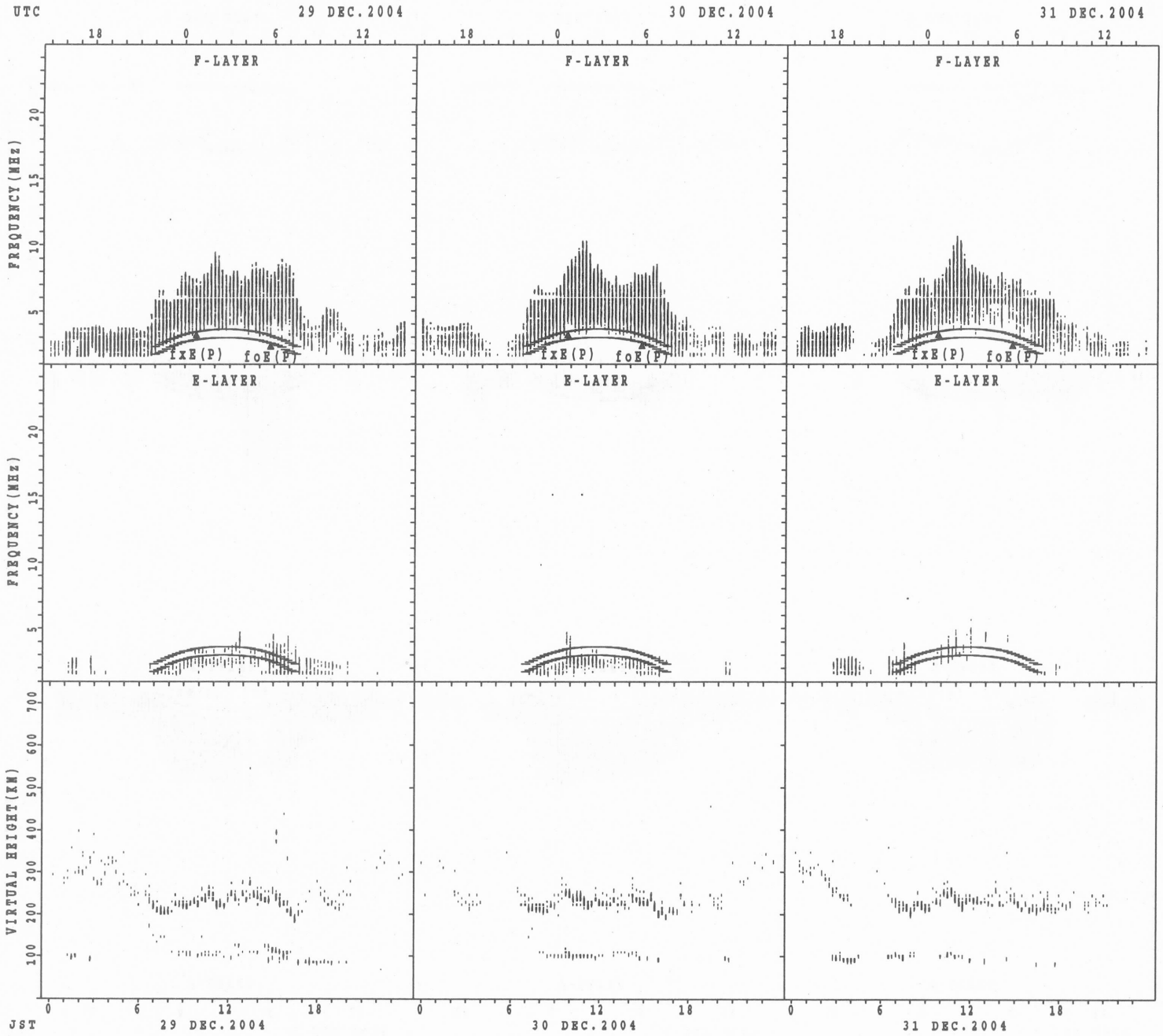
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



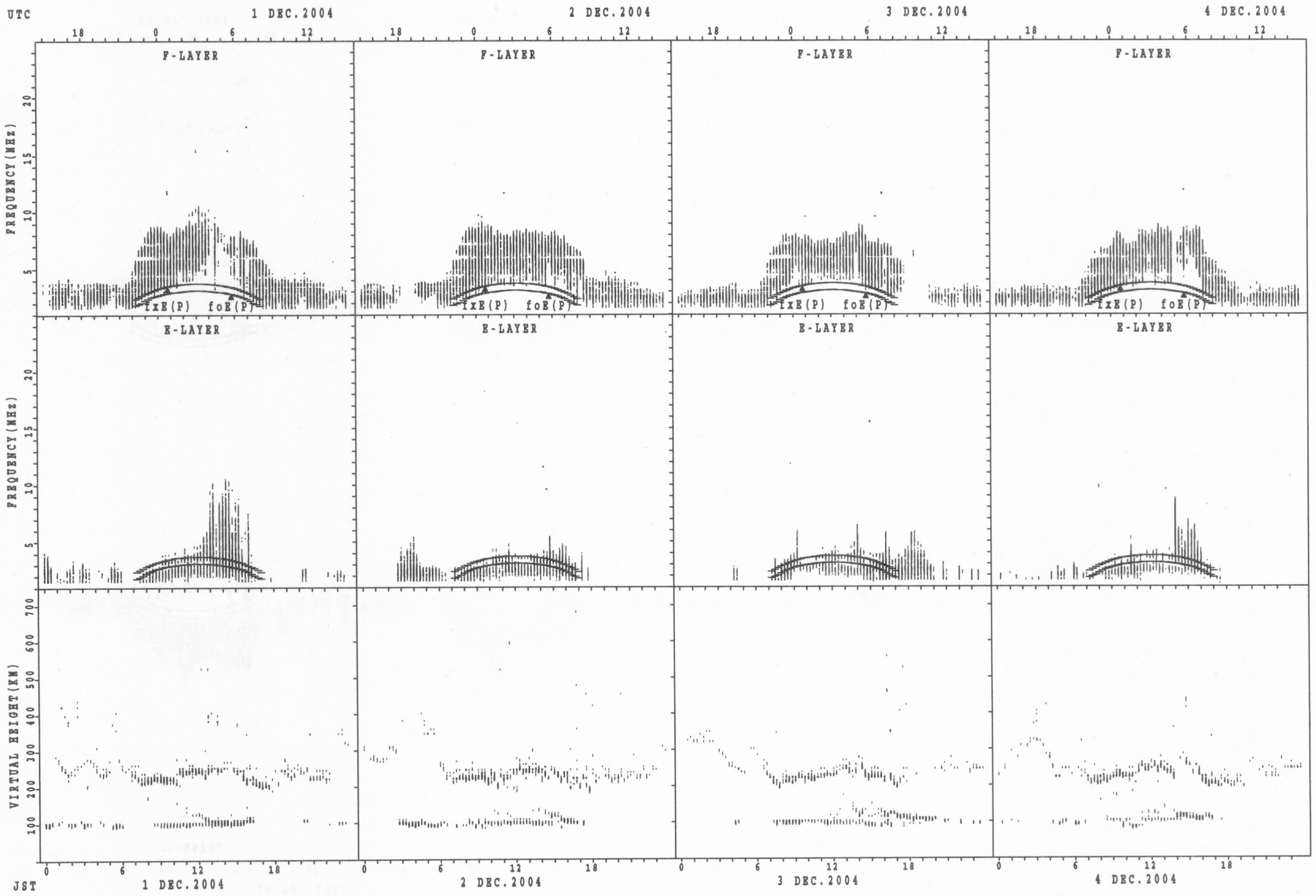
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



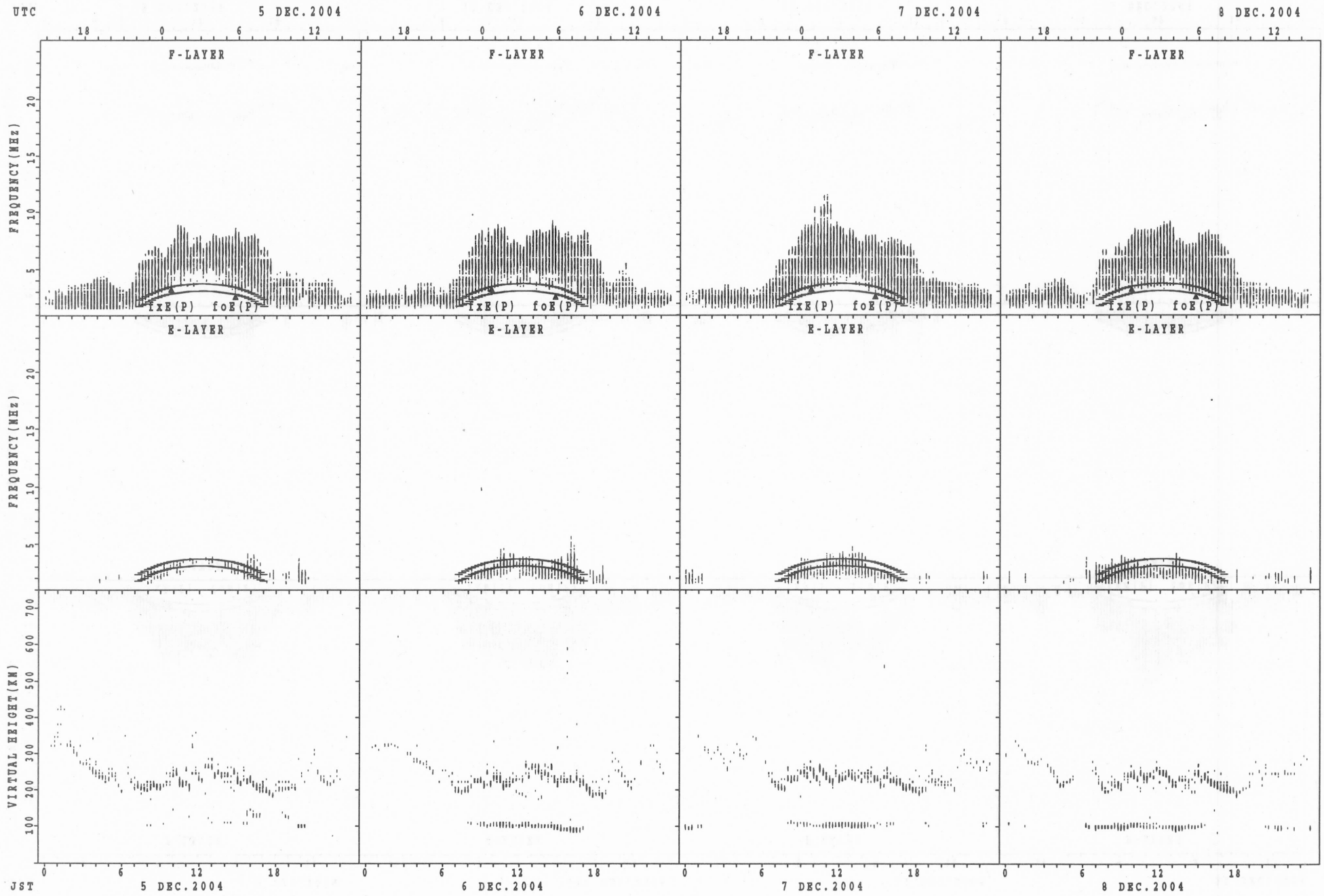
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



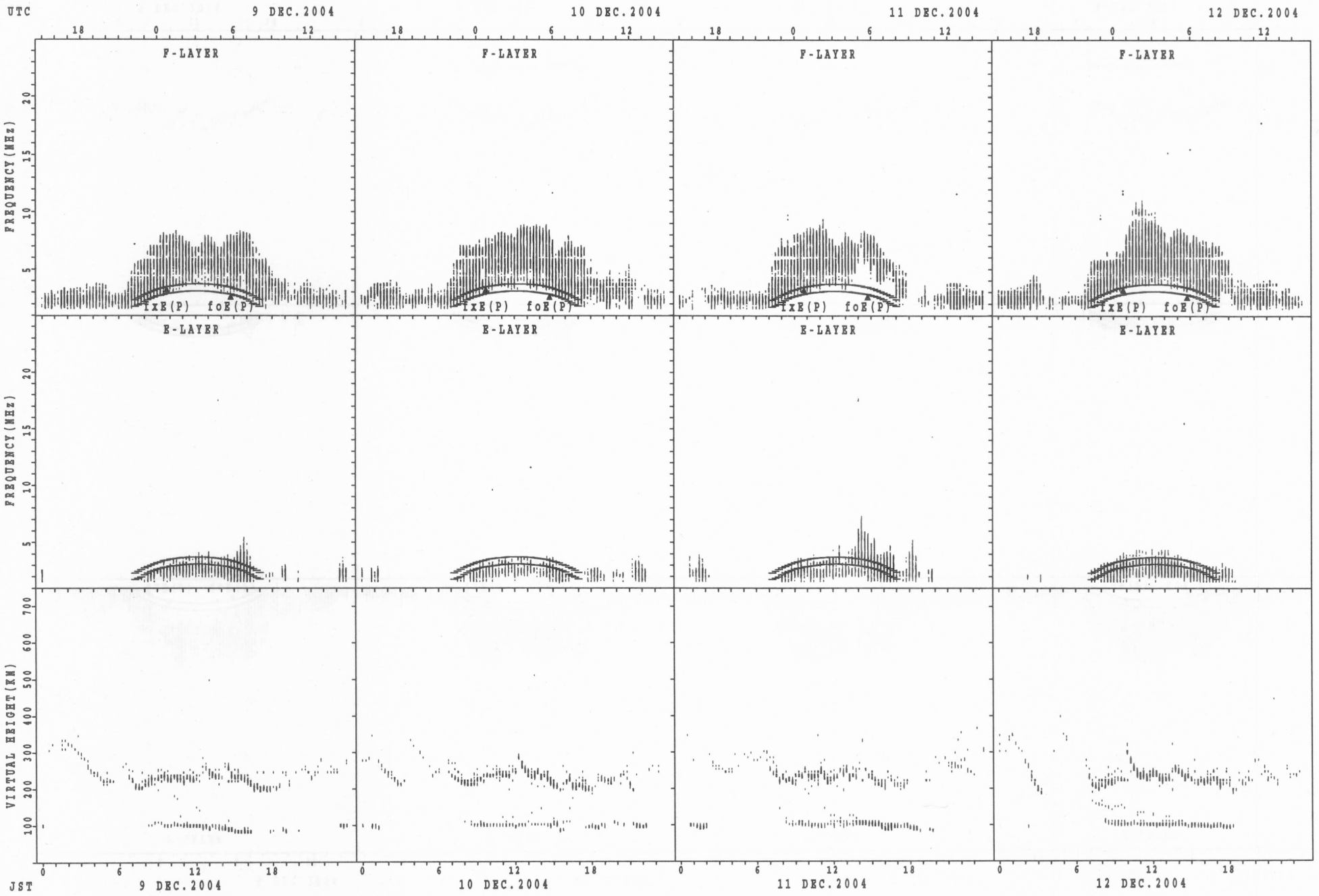
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



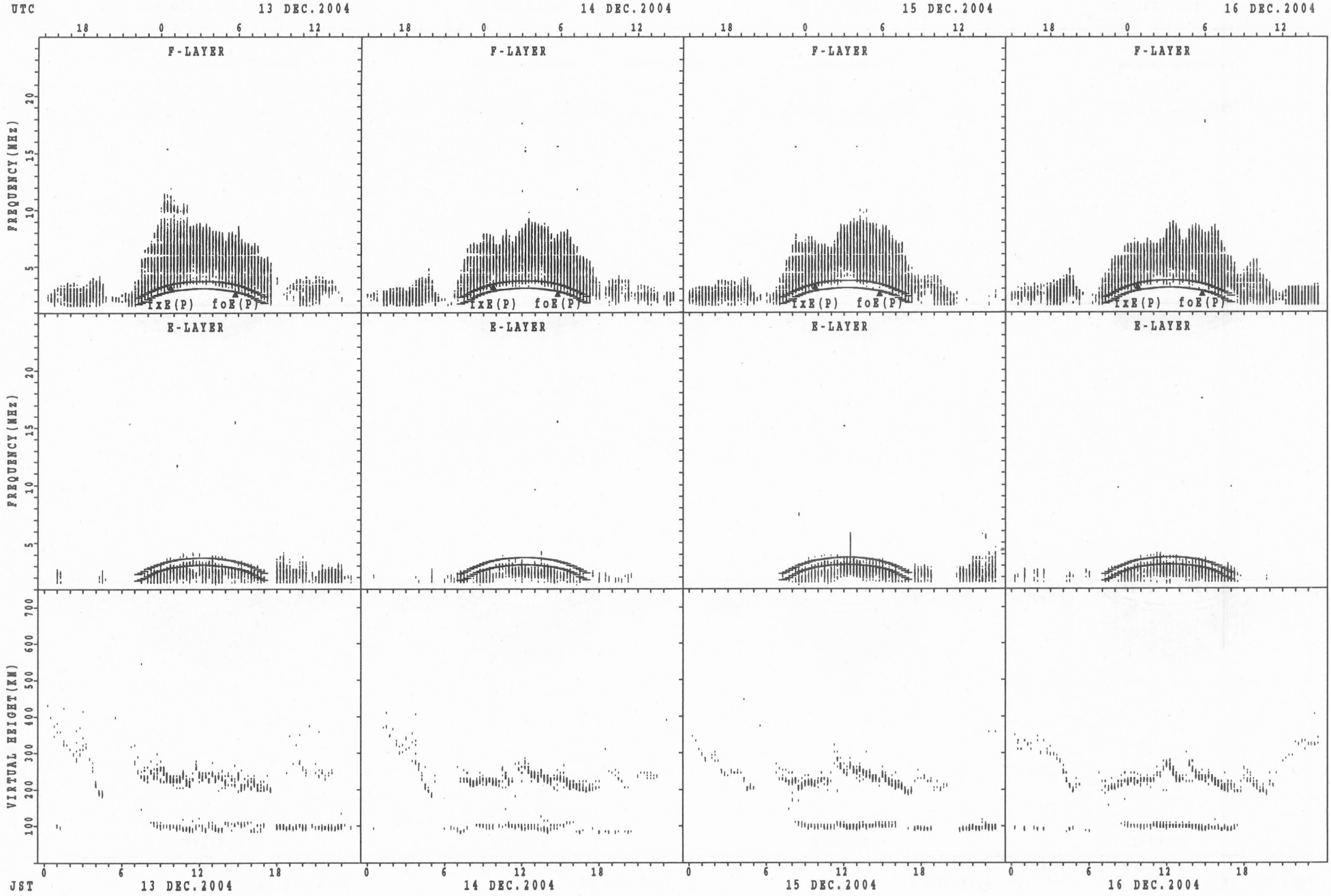
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



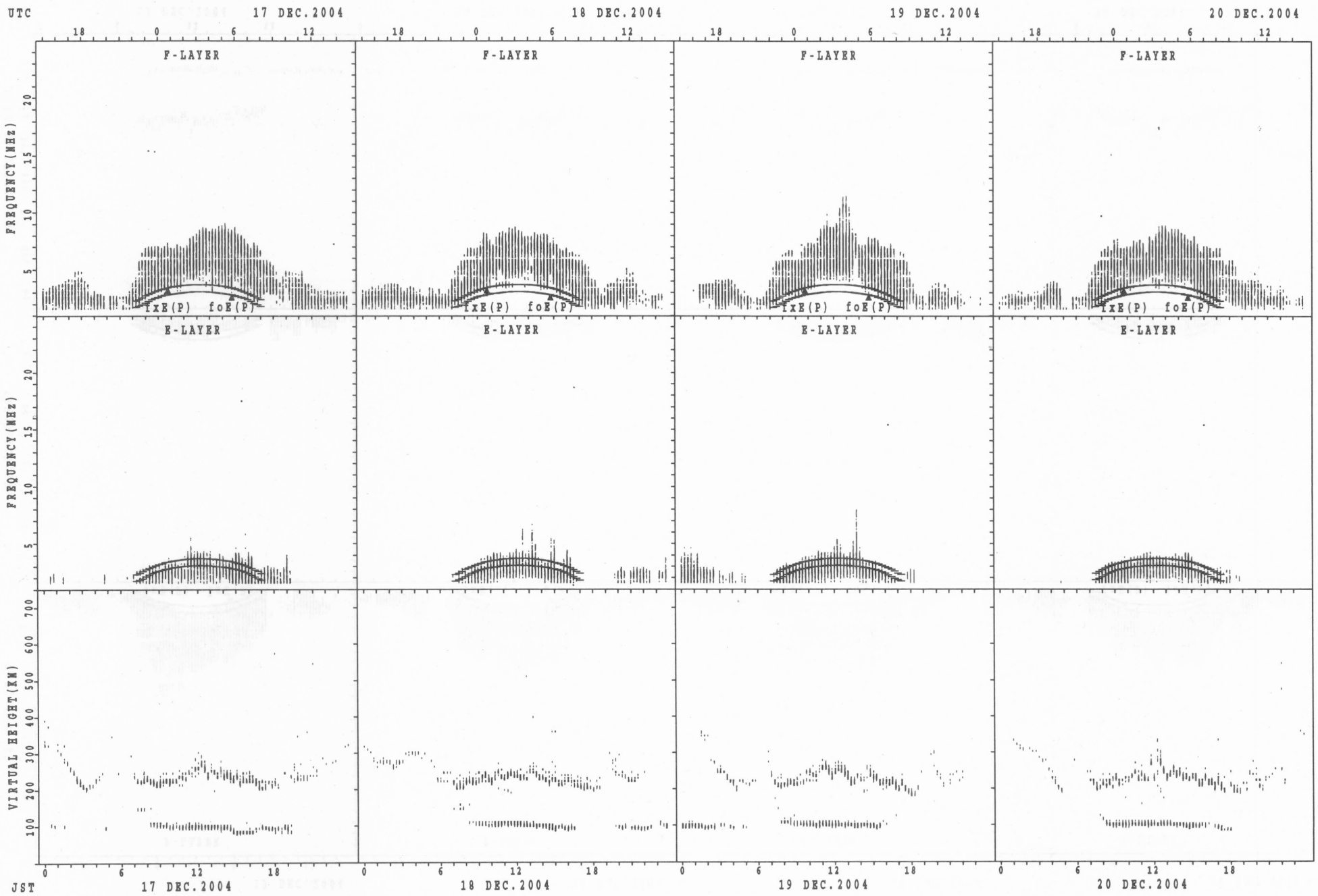
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



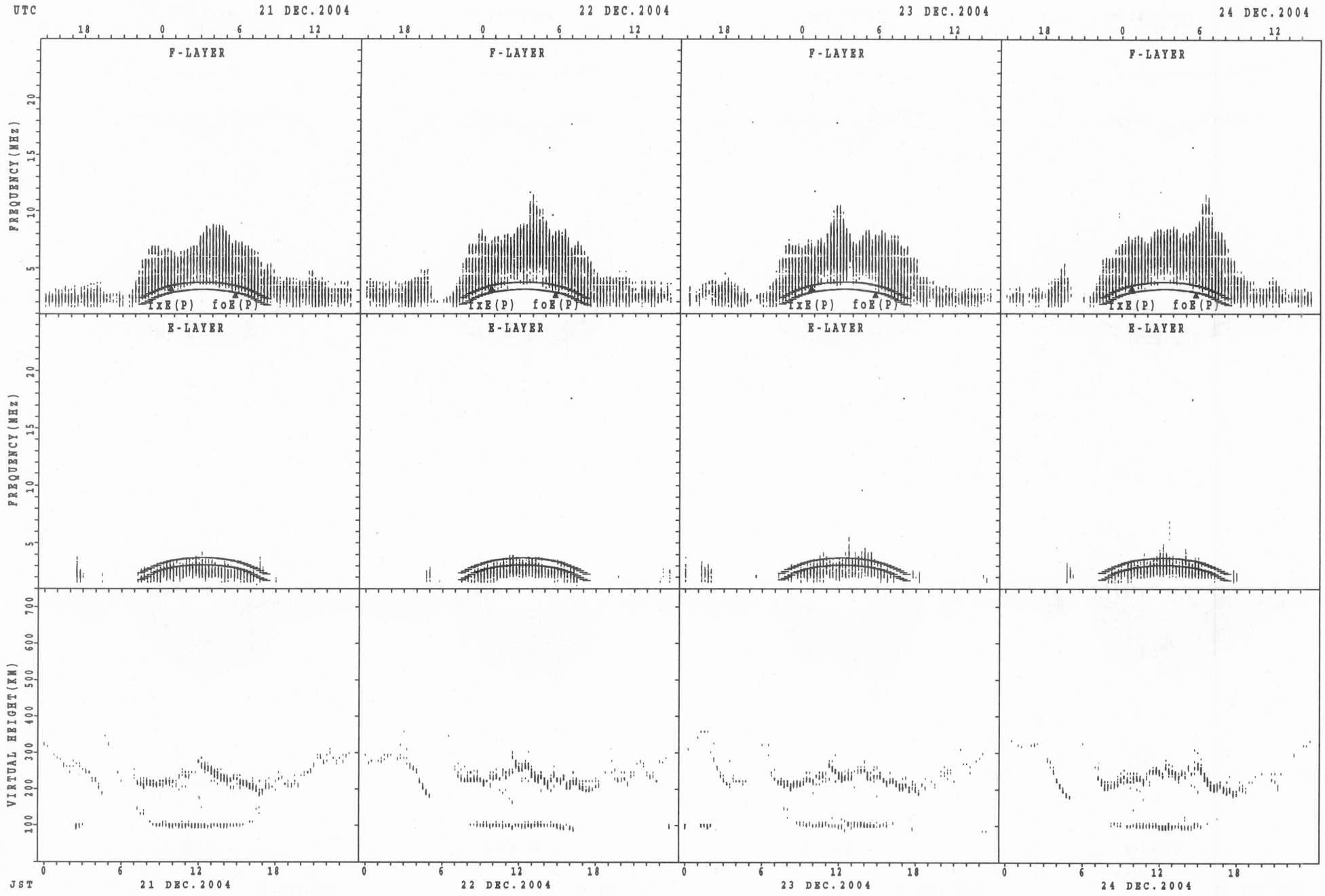
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



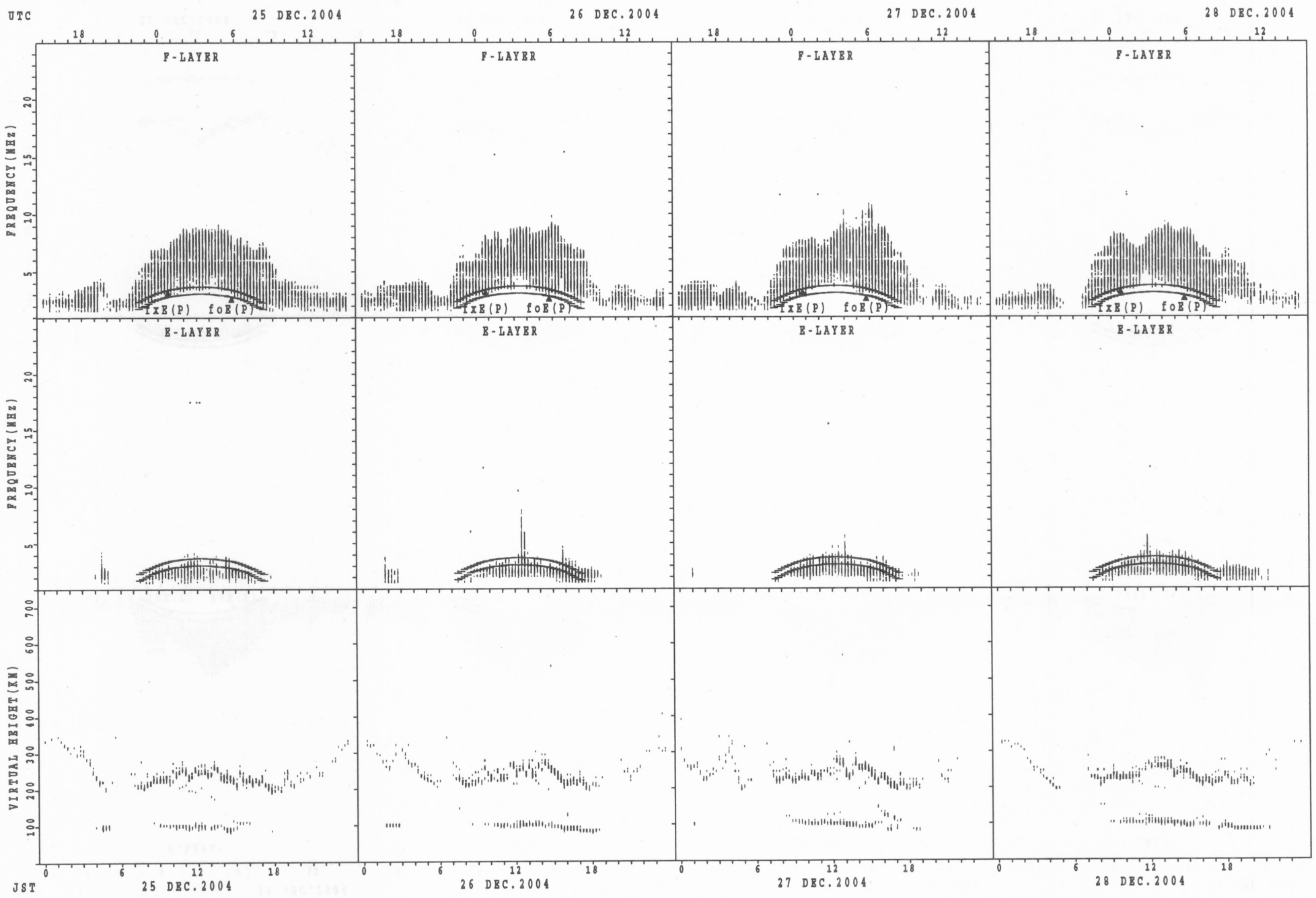
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



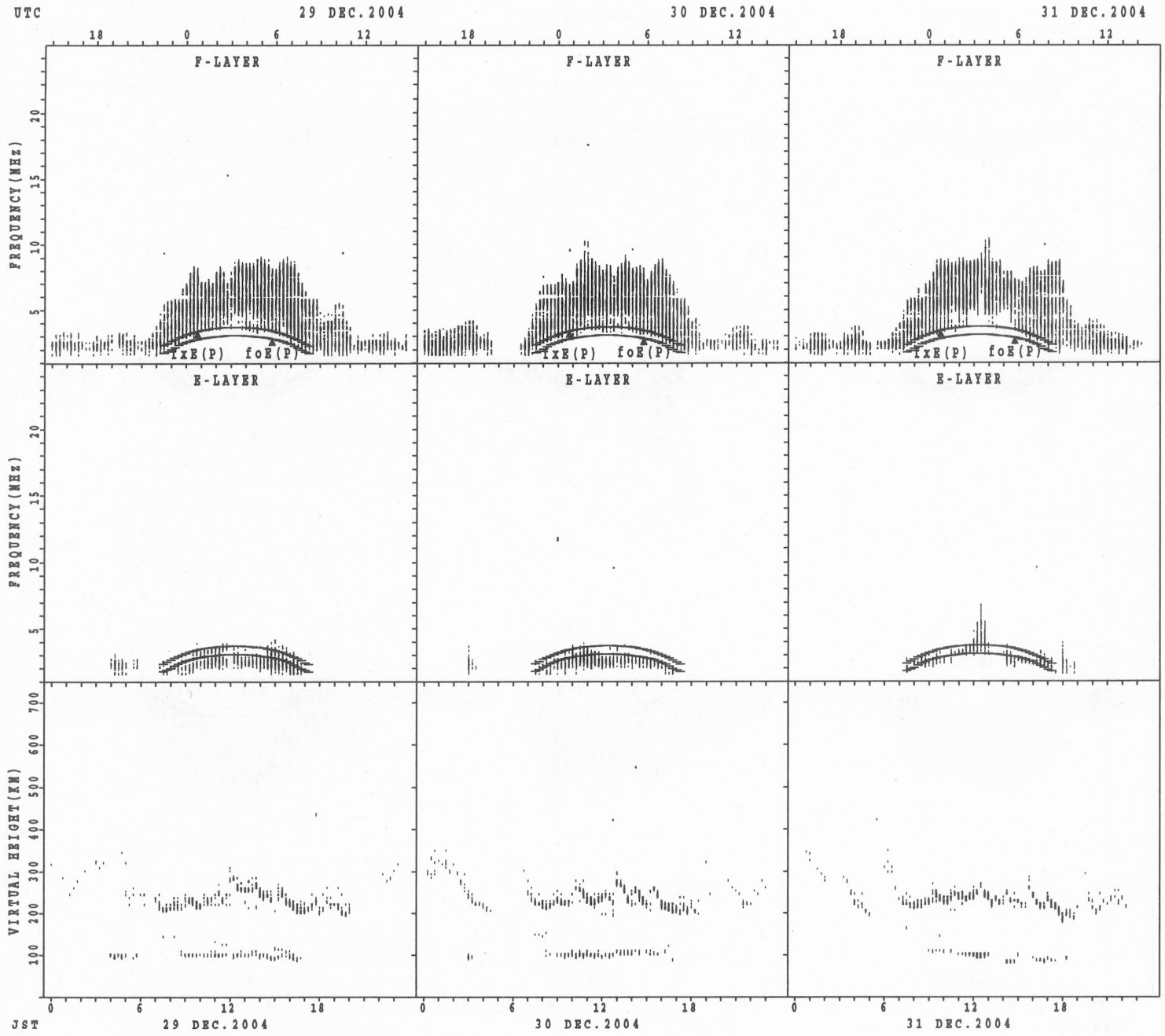
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



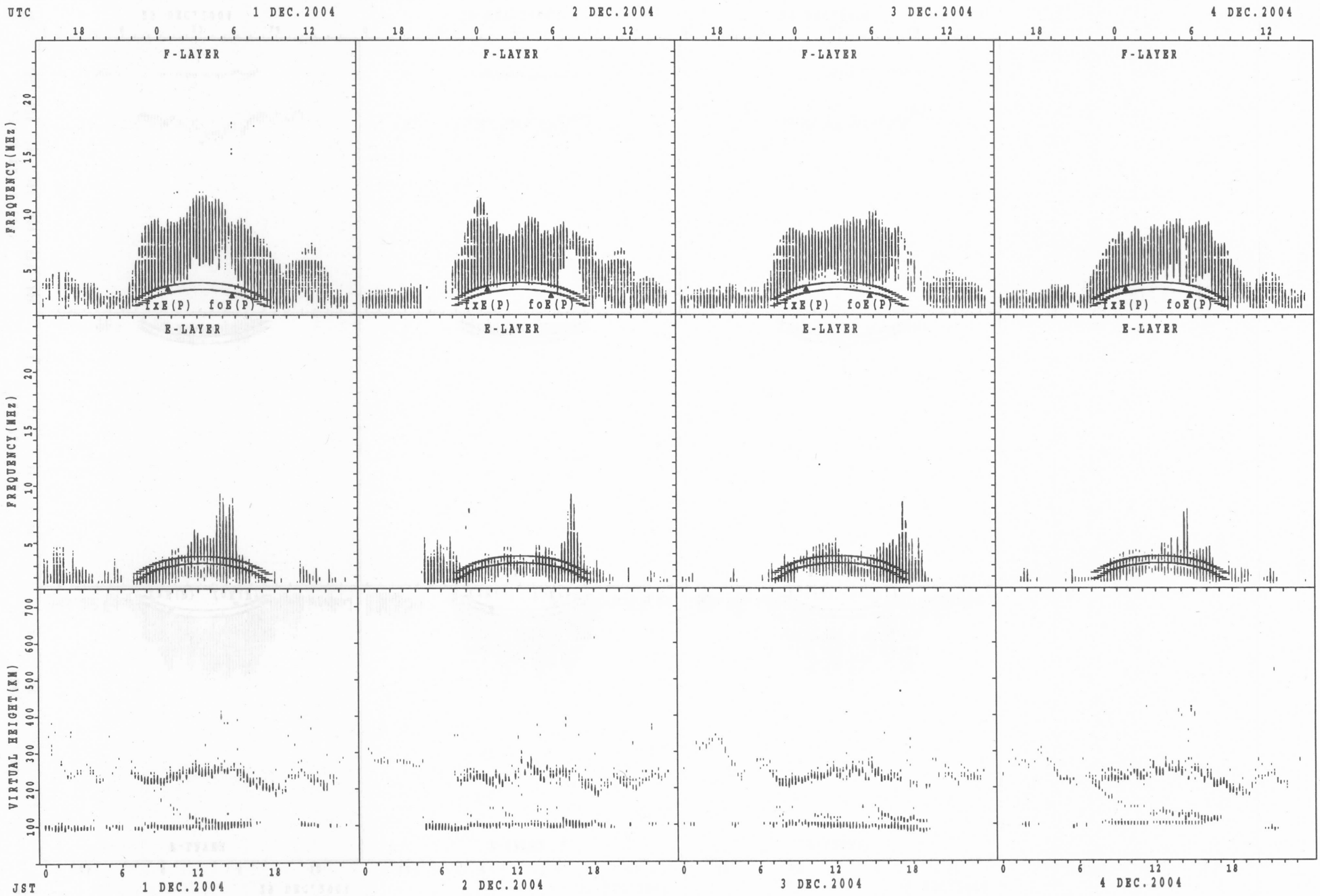
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



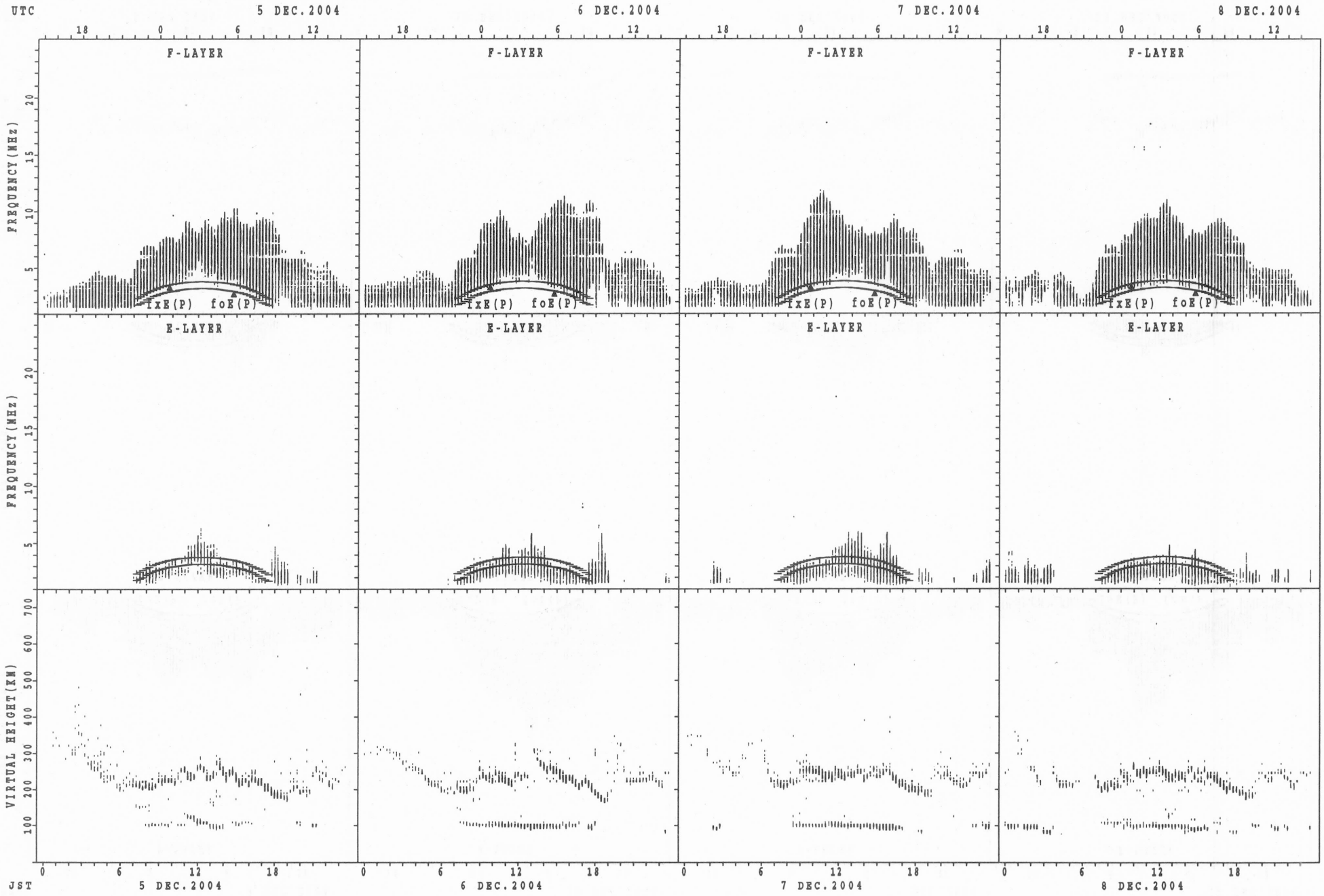
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



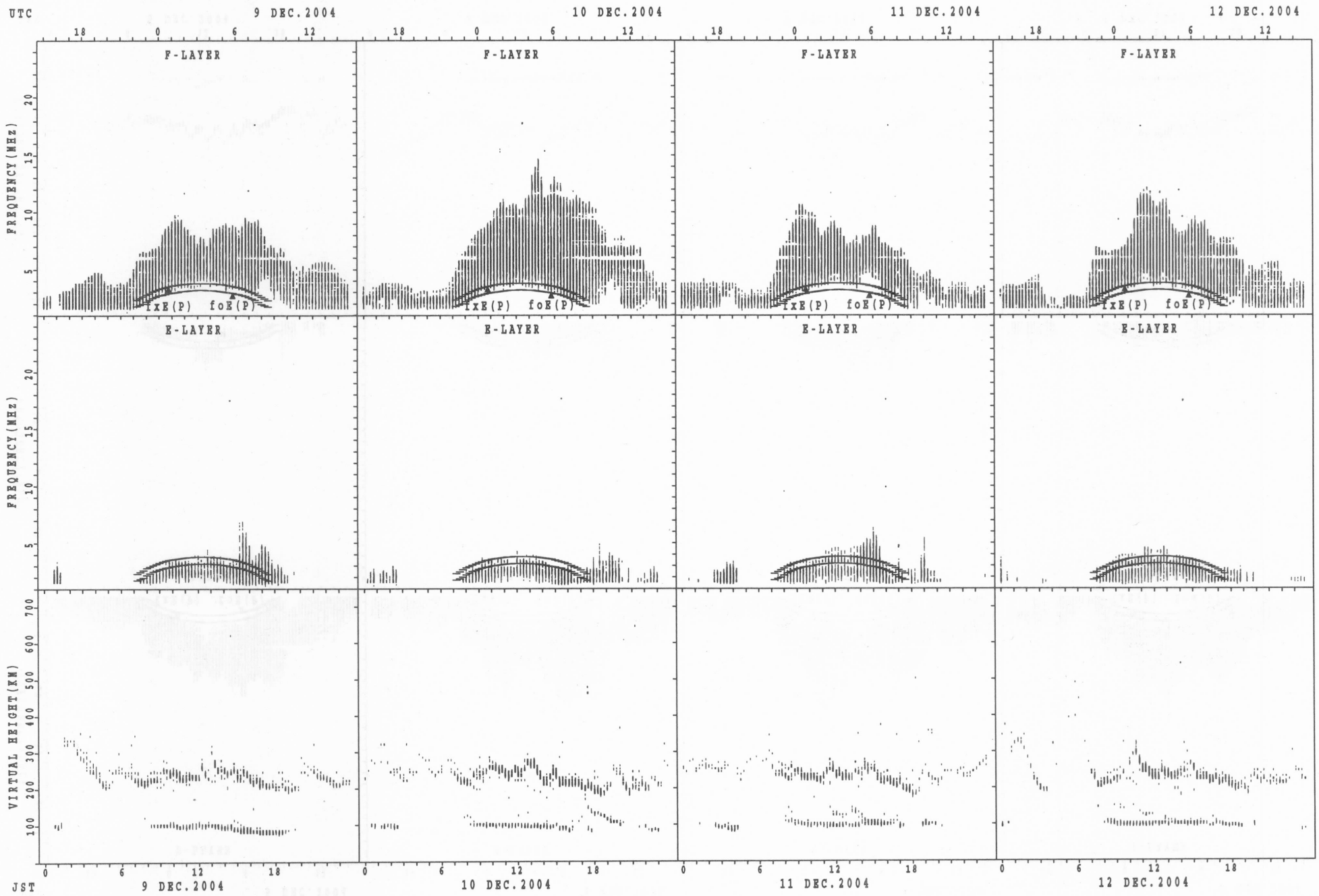
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



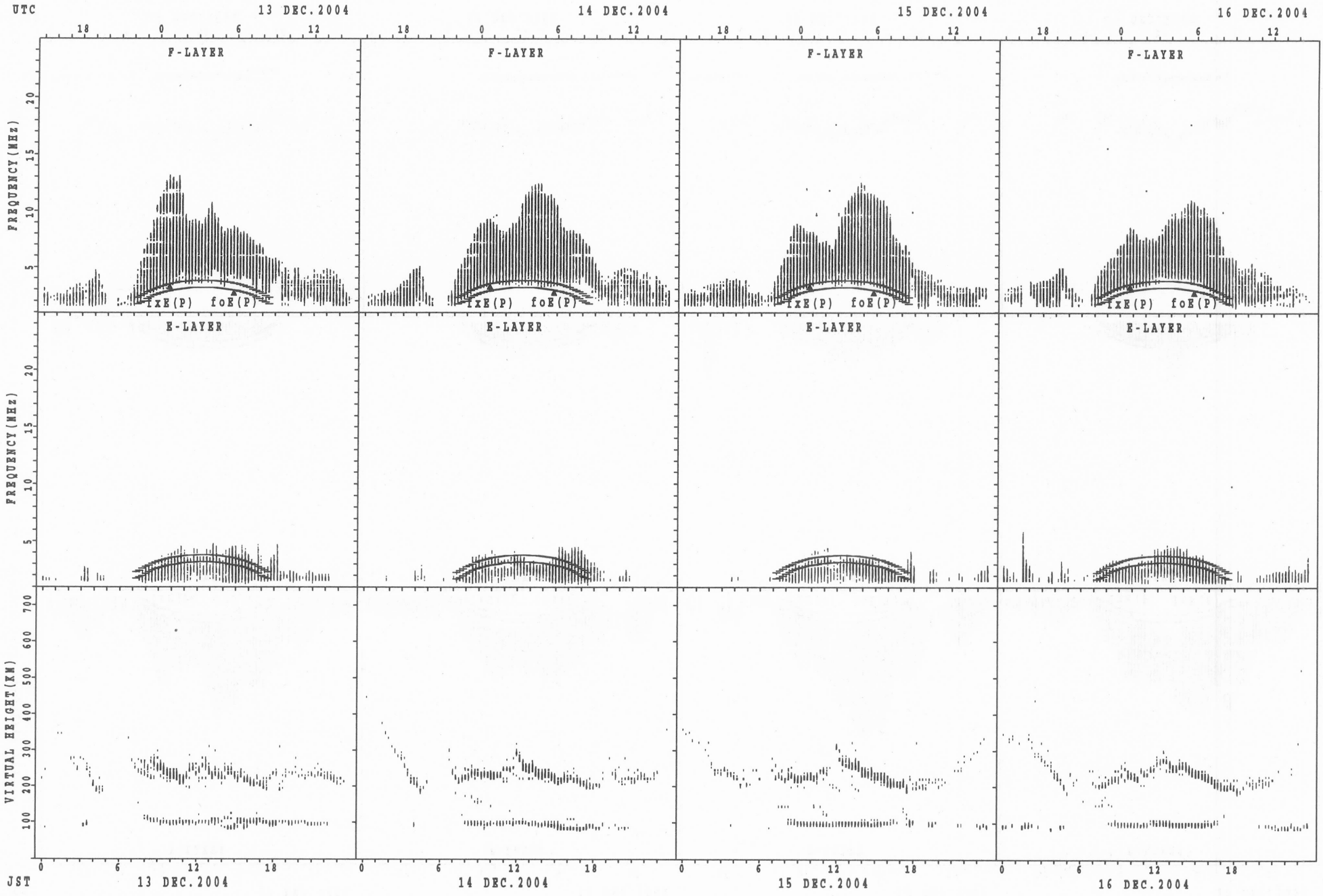
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



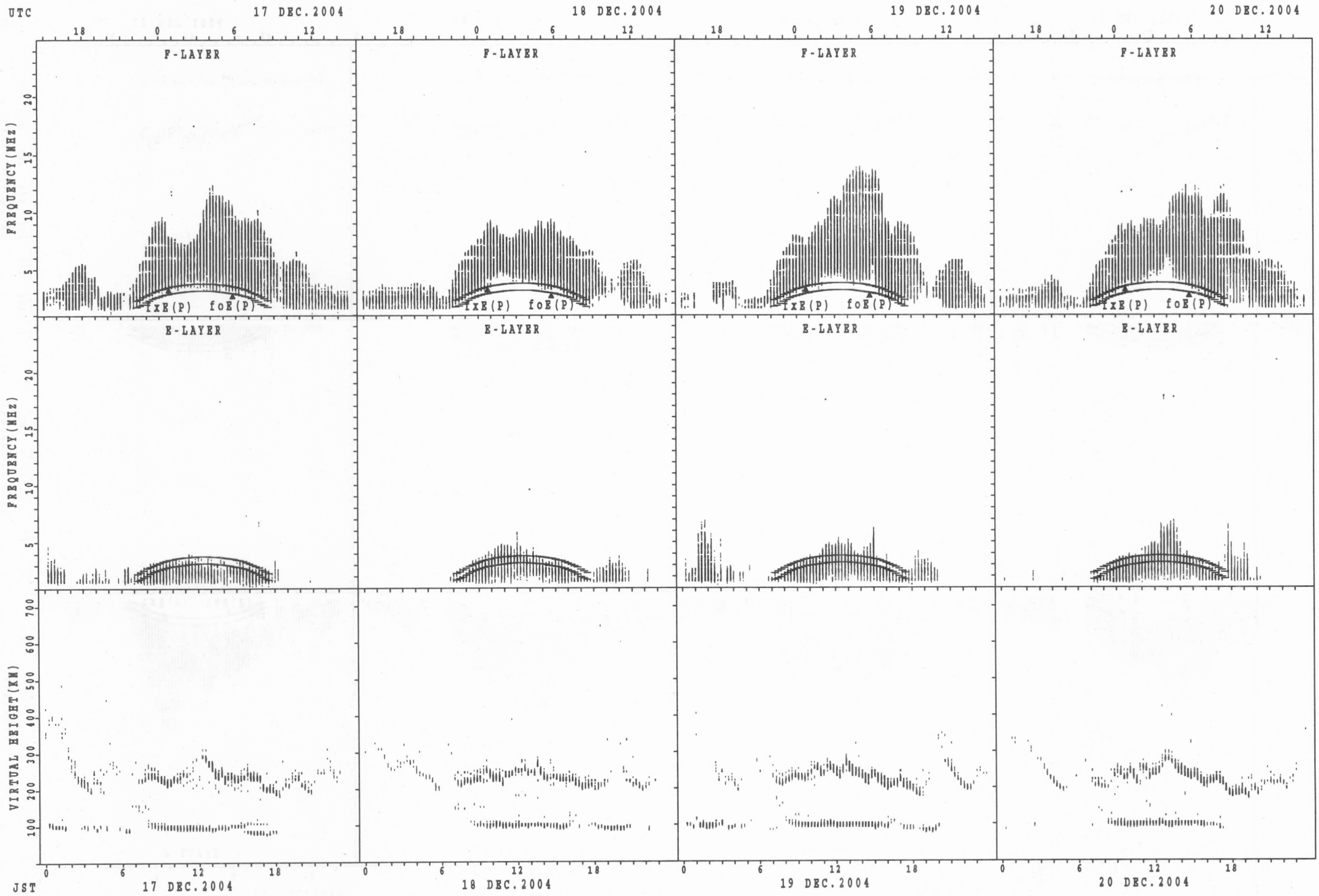
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



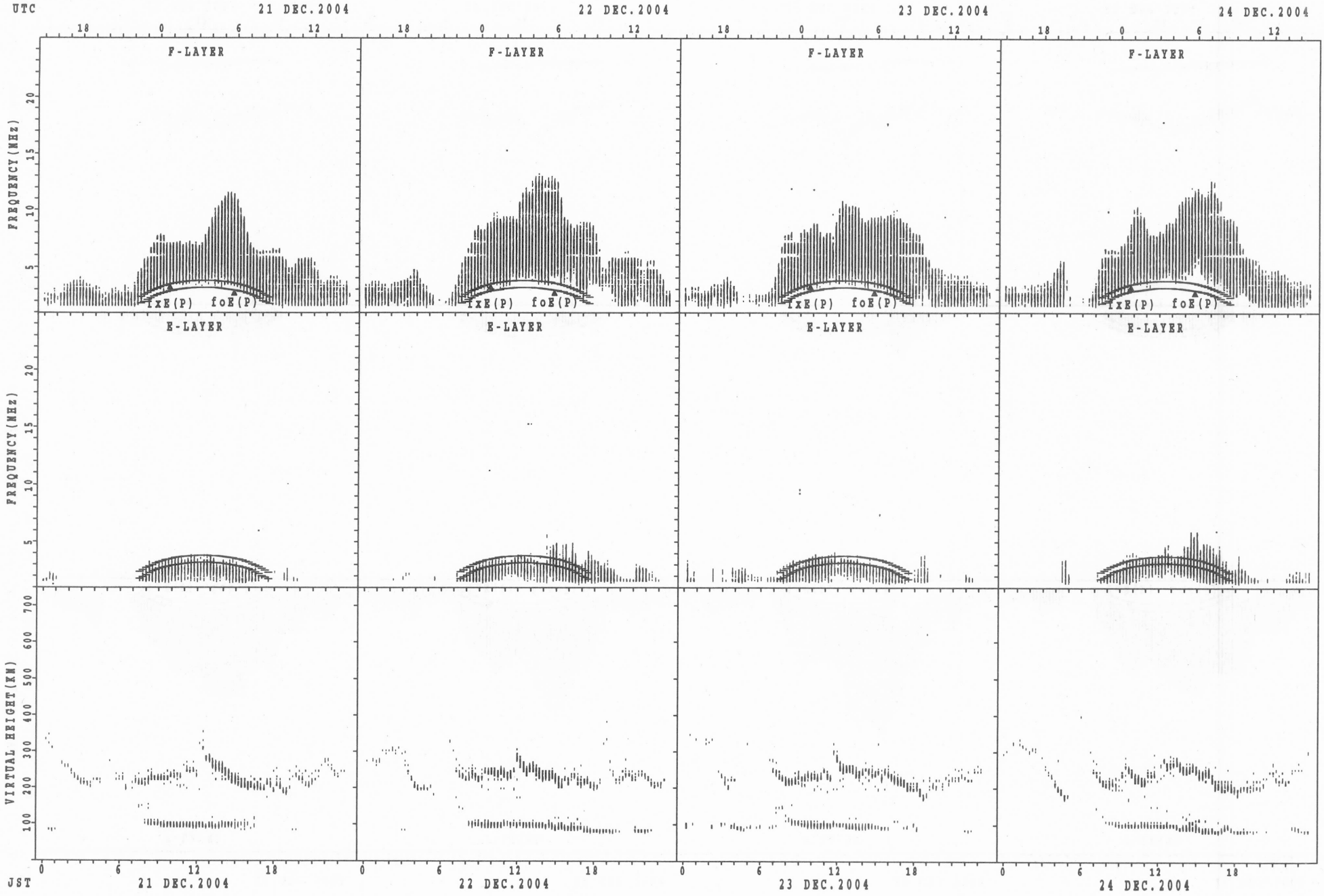
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



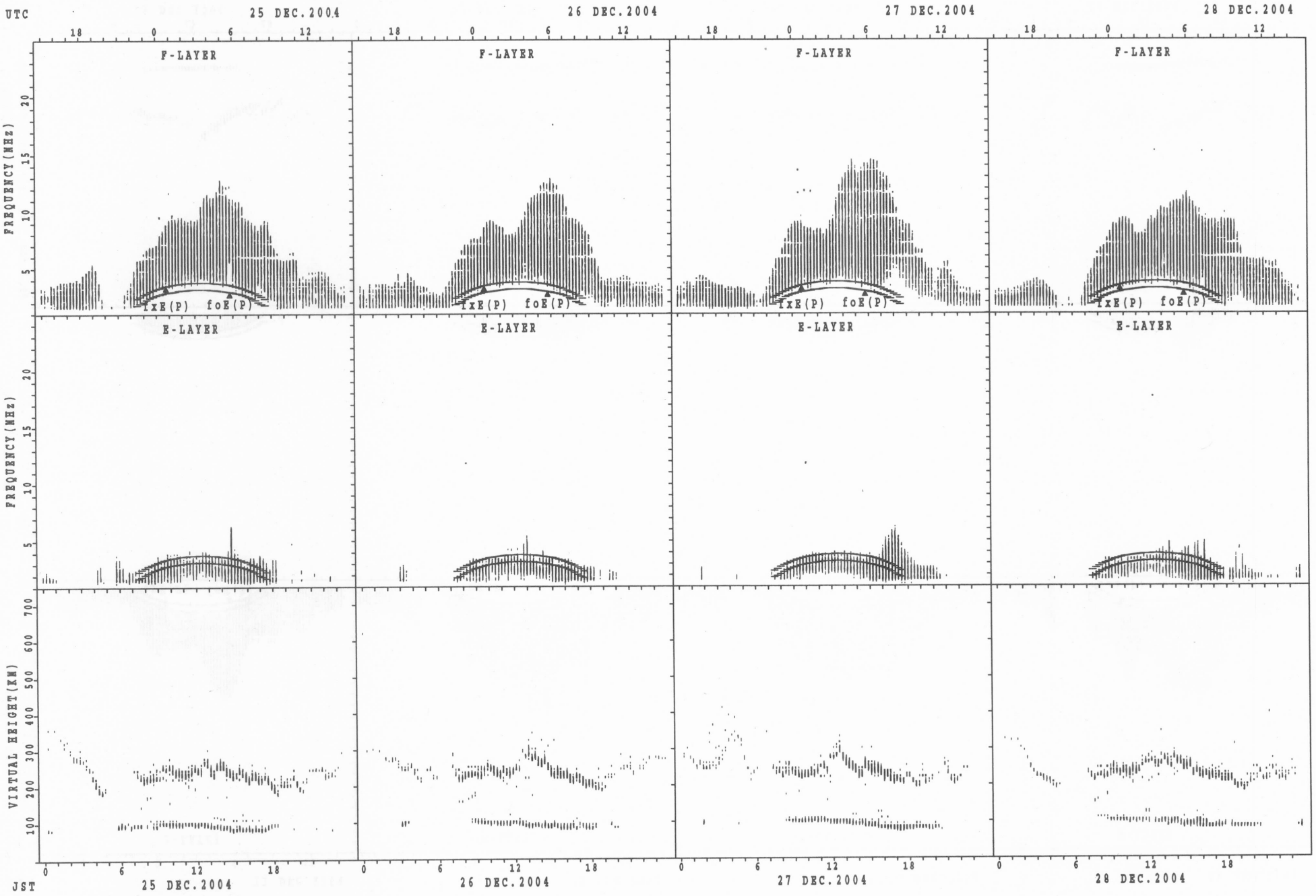
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



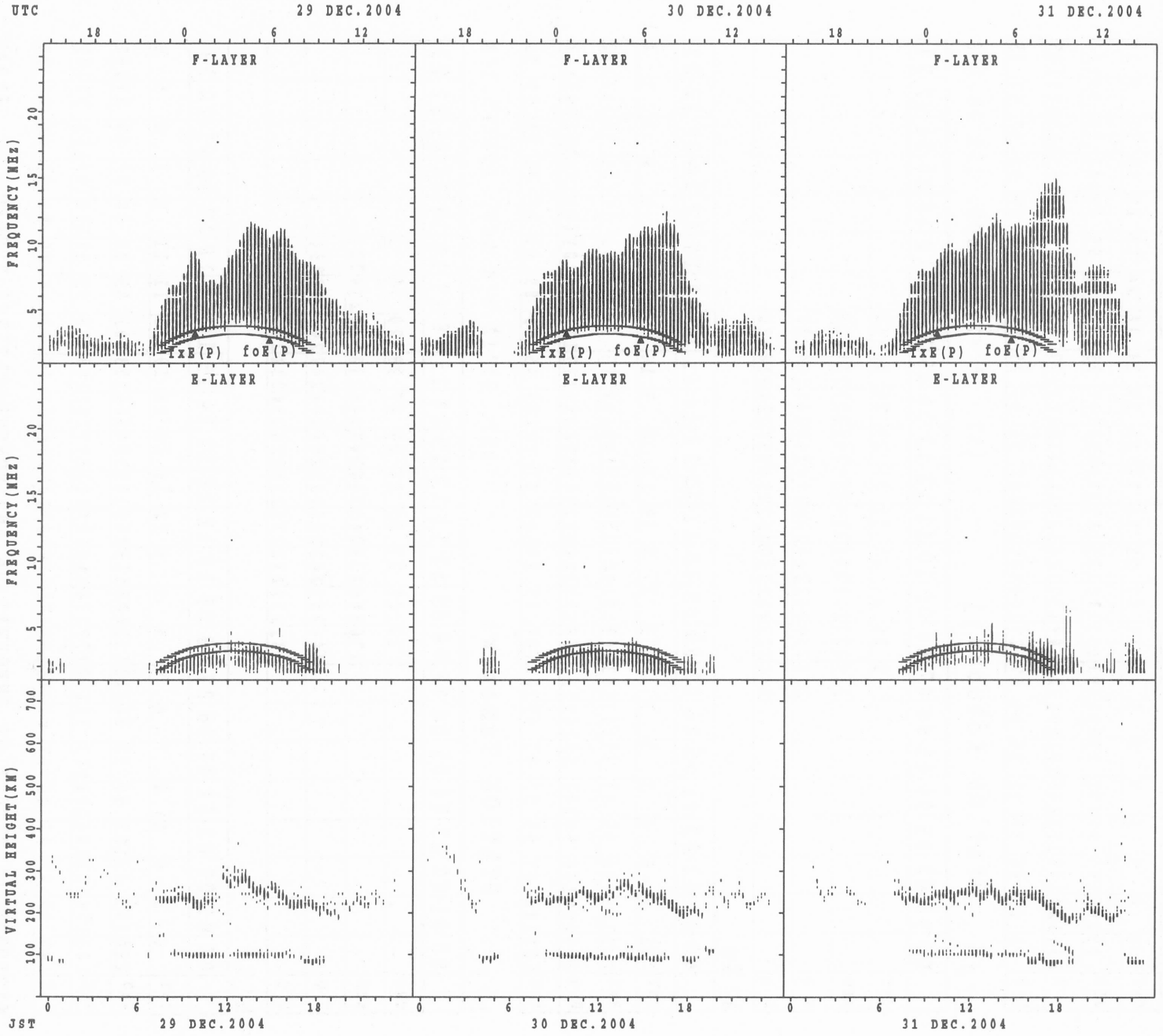
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



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

SUMMARY PLOTS AT Okinawa



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

MONTHLY MEDIANS OF h'F AND h'Es

DEC. 2004 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									13	27	27	30	28	28	27	17	5							
MED									230	232	222	224	228	230	232	232	232							
U Q									236	244	238	232	234	240	246	243	244							
L Q									222	224	214	218	219	224	226	221	221							

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	8	5	5	5	7	5	5	8	11	17	16	14	12	12	10	14	16	14	13	15	15	11	9	14
MED	99	105	101	97	101	97	101	101	137	119	115	111	110	111	107	99	100	100	99	99	103	99	99	100
U Q	104	122	107	113	105	101	106	123	149	137	124	125	117	112	113	107	111	103	114	111	113	111	106	105
L Q	95	93	96	97	95	95	96	97	127	104	106	103	102	99	95	89	94	97	91	95	93	97	97	95

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								2	16	24	27	30	29	29	26	26	10							
MED								247	227	230	236	230	234	242	233	231	224							
U Q								250	236	242	246	240	246	248	248	244	230							
L Q								244	223	222	230	222	230	237	228	226	220							

h'Es

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	11	4	6	4	7	3	3	5	7	3	7	10	11	8	9	14	9	10	8	5	5	4	7	4
MED	105	105	98	95	97	97	107	143	149	101	105	105	107	103	109	103	99	93	91	97	105	98	103	102
U Q	109	108	105	96	103	99	149	150	173	113	111	111	109	138	118	117	111	101	101	107	105	101	105	104
L Q	101	100	97	95	97	93	97	102	107	95	99	103	97	97	105	95	89	89	89	88	98	96	99	99

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									13	25	27	27	15	30	27	29	20	9	2					
MED									236	240	238	242	246	243	246	238	230	234	228					
U Q									244	251	242	246	262	254	254	247	243	248	256					
L Q									231	229	230	230	236	238	234	231	223	226	200					

h'Es

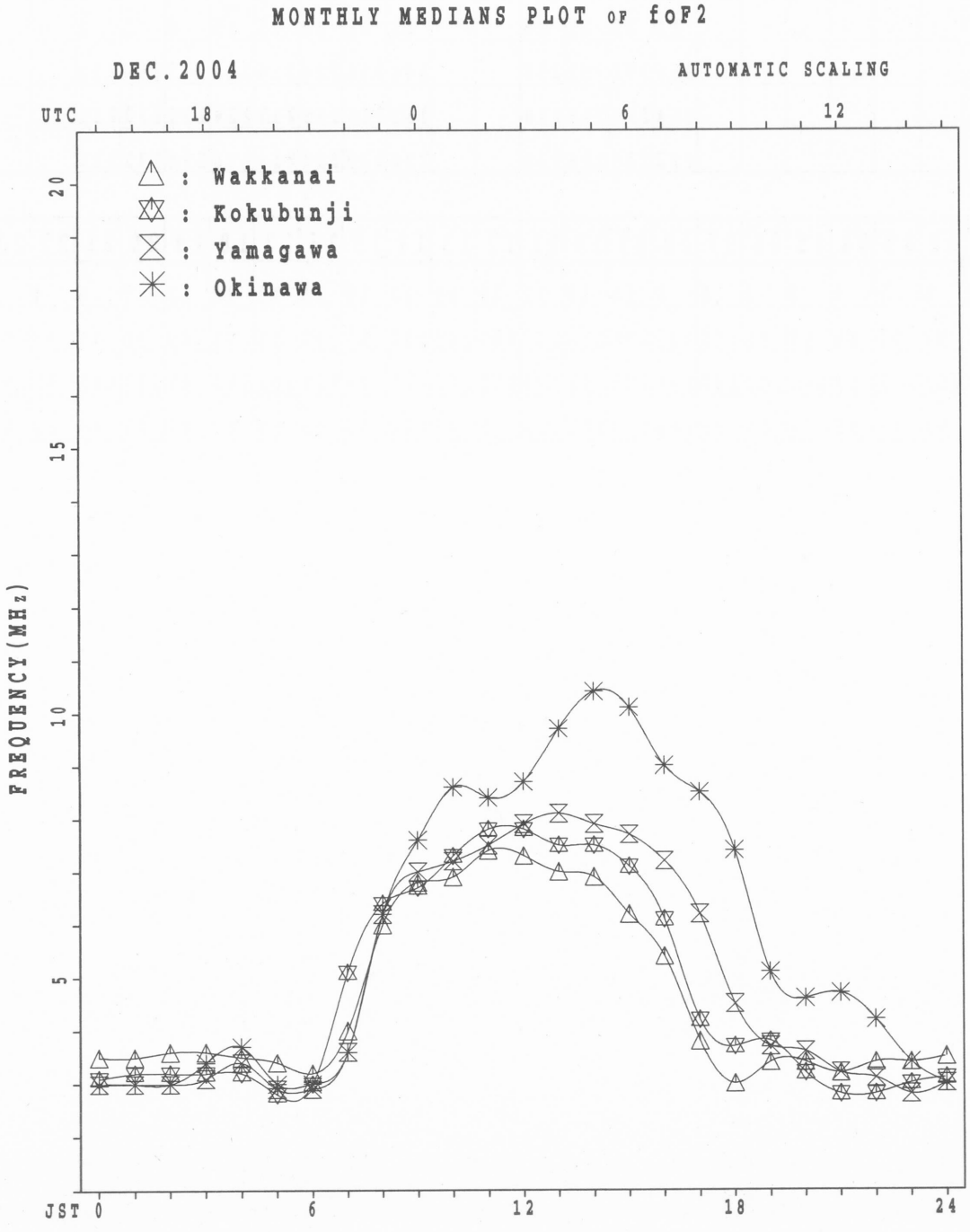
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	6	8	6	5	4	7	4	4	5	9	9	12	19	18	18	19	15	11	11	8	7	4	5	4
MED	100	103	99	101	99	99	96	123	111	105	113	105	105	104	104	103	101	95	95	98	97	98	97	101
U Q	103	104	103	104	103	183	98	153	177	178	148	107	113	107	107	109	119	99	99	108	109	101	97	105
L Q	99	98	97	96	96	97	93	95	102	101	106	103	101	101	103	95	95	95	89	92	89	94	94	99

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									11	29	31	26			31	31	30	25	15	4	1	1		
MED									256	238	232	238			240	236	224	224	214	217	264	222		
U Q									264	254	244	246			252	246	238	232	224	222	132	111		
L Q									222	230	226	230			228	230	222	214	206	206	132	111		

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	5	6	6	7	7	5	3	5	8	10	19	11	19	19	13	18	18	15	20	11	7	6	4	2
MED	97	100	98	97	95	97	95	99	127	105	119	107	105	103	103	97	93	91	91	89	95	97	94	92
U Q	105	103	101	105	97	141	101	157	158	155	145	133	111	115	117	105	111	101	103	97	107	103	97	95
L Q	92	97	97	95	95	94	95	93	100	103	105	103	103	97	102	93	89	83	87	87	87	95	88	89


MONTHLY MEDIANS PLOT OF foF2
DEC. 2004
AUTOMATIC SCALING
UTC
18
0
6
12
△ : Wakkanai
✡ : Kokubunji
⧖ : Yamagawa
✳ : Okinawa
FREQUENCY(MHz)
20
15
10
5
JST 0
6
12
18
24

IONOSPHERIC DATA STATION Kokubunji

DEC. 2004 fxI (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 46	X 46	X 47	X 46	X 51	X 39	X 42											X 48	X 44	X 43	X 40	X 46	X 41	X 44
2	X 46	X 45	X 46	X 46	X 44	X 45	X 46											X 48	X 42	X 46	X 42	X 38	X 34	X 32
3	X 36	X 38	X 38	X 40	X 39	X 37	X 39											X 44	X 36	A	X 37	X 36	X 38	X 41
4	X 42	X 45	X 45	X 44	X 48	X 40	X 41											X 43	X 35	X 36	X 42	42	X 40	X 42
5	X 42	X 42	X 42	44	X 44	X 42	X 34											X 45	X 40	X 34	X 33	X 34	X 37	X 34
6	X 35	X 35	X 36	X 38	X 38	X 37	X 38											X 52	X 46	X 45	X 48	X 32	X 33	X 36
7	X 37	X 38	X 37	X 41	X 36	X 39	X 45											X 60	X 51	X 48	X 36	X 35	X 34	X 39
8	X 38	X 39	X 39	X 42	X 45	X 35	X 35											X 45	X 40	X 38	X 36	X 33	X 35	X 36
9	X 39	X 40	X 38	X 38	X 38	X 38	X 37											X 49	X 36	X 38	X 42	X 41	X 36	X 34
10	X 36	X 37	X 35	X 36	X 36	X 36	X 35											X 45	X 40	X 38	X 38	X 34	X 34	X 35
11	X 35	X 35	X 34	X 34	X 33	X 33	X 36											X 39	X 38	X 39	X 45	X 39	X 33	X 37
12	X 39	X 39	X 40	X 40	X 33	X 36	X 38											X 64	X 48	X 36	X 42	X 36	X 35	X 36
13	X 37	X 38	X 38	X 36	X 38	X 32	X 29											X 45	X 34	X 36	X 43	X 46	X 33	X 31
14	X 33	X 33	X 35	X 35	X 39	X 35	X 29											X 39	X 40	X 42	X 36	X 34	X 30	X 31
15	X 33	X 35	X 36	X 38	X 39	X 26	X 26											X 42	X 40	X 46	X 34	X 30	X 31	X 35
16	X 37	X 37	X 36	X 37	X 39	X 32	X 34											X 44	X 53	X 44	X 38	X 30	X 36	X 40
17	X 41	X 44	X 46	X 45	X 36	A	O X 34											X 55	X 50	X 37	X 40	X 36	X 33	X 35
18	X 38	X 39	X 42	X 36	X 36	X 34	X 36											X 44	X 36	X 40	X 45	X 43	X 38	A
19	X 40	X 40	X 42	X 42	X 40	X 34	X 39											X 45	X 32	X 39	X 42	X 32	X 30	X 32
20	X 33	X 33	X 34	X 35	X 40	X 29	X 30											X 55	X 44	X 36	X 33	X 35	X 27	X 33
21	X 35	X 34	X 37	X 37	X 36	X 28	X 32											X 48	X 40	X 33	X 36	X 34	X 34	X 36
22	X 39	X 40	X 37	X 38	X 41	X 34	X 30											X 47	X 50	X 50	X 34	X 31	X 38	X 40
23	X 39	X 39	X 40	X 46	X 31	X 31	X 33											X 54	X 37	X 42	X 35	X 31	X 34	X 36
24	X 38	X 39	X 39	X 39	X 51	O X 33	X 28											X 50	X 39	X 35	X 36	X 31	X 32	O X 34
25	X 35	X 36	X 35	X 36	X 38	X 36	X 28											X 65	X 50	X 48	X 33	X 31	X 34	X 35
26	X 38	X 38	X 40	X 38	X 40	X 43	X 29											X 56	X 36	X 37	X 37	X 35	X 36	X 37
27	X 40	X 40	X 40	X 40	X 40	X 34	X 29											X 54	X 43	X 30	X 36	X 31	X 31	X 32
28	X 34	X 36	X 37	X 38	X 40	X 26	X 27											X 52	X 53	X 43	X 33	O X 34	X 31	X 34
29	X 34	X 35	X 35	X 39	X 38	40	X 38											X 49	X 46	X 55	X 34	X 35	X 38	X 38
30	X 45	X 41	X 40	X 42	X 33	X 27	X 30										X 74	X 48	X 42	X 38	X 41	X 34	X 36	X 38
31	X 38	X 38	X 36	X 41	X 37	X 26	X 32											X 66	X 50	X 45	X 35	X 33	X 29	X 29
	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	30	31										1	31	31	30	31	31	31	30
MED	X 38	X 38	X 38	X 39	X 39	X 34	X 34										X 74	X 48	X 40	X 39	X 37	X 34	X 34	X 36
U Q	X 40	X 40	X 40	X 42	X 40	X 38	X 38											X 54	X 48	X 45	X 42	X 36	X 36	X 38
L Q	X 35	X 36	X 36	X 37	X 36	X 32	X 29											X 45	X 37	X 36	X 35	X 32	X 32	X 34

DEC. 2004 fxI (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

DEC. 2004 foF2 (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	40	40	41	40	45	33	36	60	75	80	86	92	92	89	78	69	61	42	38	37	34	40	35	38
2	40	39	40	40	38	39	40	63	74	84	86	81	79	78	86	62	66	42	36	40	36	32	28	25
3	30	32	32	34	33	31	33	61	76	80	71	70	71	76	82	V 62	57	38	30	A	31	30	32	35
4	36	39	39	38	42	34	35	55	66	70	76	78	81	74	81	76	60	37	29	30	36	F	33	36
5	36	36	36	F	38	36	V 28	54	62	66	78	73	69	66	68	73	73	V 38	33	28	26	28	31	28
6	29	29	30	32	32	31	32	55	66	70	V 76	94	76	67	80	66	60	46	40	39	42	26	27	30
7	31	32	30	35	30	33	39	52	70	88	106	114	84	74	74	V 67	64	54	45	42	30	29	28	33
8	32	33	33	36	39	28	29	62	62	67	78	79	94	69	75	69	66	38	34	32	30	27	29	30
9	33	34	32	32	32	32	30	53	62	72	77	73	62	69	69	71	61	42	30	32	36	34	30	28
10	30	31	29	30	30	30	29	57	71	60	73	69	70	80	69	68	60	39	34	32	32	28	28	28
11	29	29	28	28	27	27	30	50	73	68	77	85	66	76	78	67	58	33	32	33	39	33	26	31
12	33	33	33	34	27	30	32	62	63	68	88	105	97	74	75	75	63	58	42	30	36	30	29	30
13	31	32	32	30	32	26	23	51	68	90	94	114	84	84	74	65	58	39	28	30	37	41	27	25
14	27	27	29	29	33	29	23	48	62	75	V 77	75	81	91	74	65	58	33	34	36	30	28	24	25
15	27	29	30	32	33	20	20	50	65	64	72	66	88	75	79	63	55	36	34	40	28	24	25	29
16	31	30	30	31	33	26	28	51	58	65	76	73	81	74	75	68	62	38	47	38	32	24	30	33
17	35	38	40	39	30	A	28	44	62	65	69	78	80	67	80	79	52	49	43	31	34	30	27	29
18	32	33	36	30	30	28	30	48	60	69	73	89	A	73	76	68	56	37	29	34	39	37	32	A
19	34	34	36	36	34	28	33	48	56	64	72	83	87	74	68	70	62	39	25	33	35	26	24	25
20	27	27	28	29	34	23	24	54	58	64	58	68	85	80	62	64	64	49	38	30	27	29	21	27
21	29	28	31	30	30	22	26	49	63	58	58	76	84	78	60	60	59	41	34	27	30	28	28	30
22	33	33	31	32	35	28	24	48	67	65	77	76	78	84	81	76	58	41	44	44	28	25	32	34
23	33	33	34	40	25	25	27	49	59	57	V 67	100	74	69	74	72	60	48	31	36	29	25	28	30
24	32	33	33	33	45	27	22	47	62	62	69	78	73	74	75	78	88	44	33	28	29	25	25	28
25	29	30	29	30	32	30	22	43	54	62	70	91	80	78	82	70	56	59	44	42	27	25	28	29
26	32	32	34	32	34	37	V 23	44	58	56	69	85	72	75	59	71	60	50	30	30	30	29	29	31
27	34	34	34	34	34	28	23	48	65	70	65	68	77	76	67	76	66	48	37	24	30	25	25	26
28	28	30	31	32	34	20	21	48	68	70	72	62	78	78	87	72	56	46	47	37	27	28	25	28
29	28	29	29	33	32	F	32	57	52	76	69	91	74	74	79	76	82	43	40	49	28	29	32	32
30	39	33	34	35	27	20	24	49	62	63	84	99	77	72	68	74	68	42	36	32	35	28	30	32
31	32	32	30	35	31	20	26	54	58	67	71	102	81	72	74	70	59	60	43	38	29	27	23	S 23
	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	30	31	29	31	31	31	31	31	31	30	31	31	31	31	31	31	30	31	30	31	30
MED	32	32	32	32	33	28	28	51	62	67	73	79	80	74	75	70	60	42	34	33	30	28	28	30
U Q	34	34	34	35	34	32	32	55	68	72	78	92	84	78	80	74	64	48	42	38	36	30	30	32
L Q	29	30	30	30	30	26	23	48	59	64	69	73	74	72	69	66	58	38	31	30	29	26	25	28

DEC. 2004 foF2 (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

DEC. 2004 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	A	L									
2										L		L	L	L	A									
3										L	A	L	A	L	A									
4										L	A	L	L	L	L									
5											L	L	L		L									
6													L	L 428										
7										L														
8											L	L	L		L	L								
9										L	L	L												
10										L		L	L	L										
11									L	L	L	L	L	L	A									
12										L	L	L	L	L	L									
13										L	L	L		L 428										
14											L	L	L	L										
15											L		L	L	L									
16											L		L	L										
17											L	L	L	L	L									
18											L	A	A	A	L									
19									L			L	L	L	L									
20											L	L 516	L	L		L								
21												L 464		L										
22											L	L	L	L										
23											L	L	L	L										
24										L	L	L	L		L									
25												A	L	L	L									
26														L										
27												L	L											
28													L											
29												L		L	L									
30										L	L	L	L											
31												L	L	A	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												2		2										
MED												L 490		L 428										
U Q																								
L Q																								

DEC. 2004 foF1 (0.01MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

DEC. 2004 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

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	U R 232	280	316	328	324	300	A	A	U R 180							
2								B	U R 256	U R 288	U R 312	U R 328	U R 324	308	292	U A 240	B							
3								B	U A 264	A	A	A	A	A	296	A	A							
4								B	U R 244	U R 292	308	332	U R 332	A	U A 288	240	B							
5								B	244	U A 288	316	336	A	R	B	244	B							
6								B	240	U R 288	U A 320	A	A	A	A	A	U R 184							
7								B	236	U R 300	308	R	324	U A 308	U R 272	240	B							
8								B	U A 240	296	U A 316	312	A	R	A	A	A							
9								B	224	U R 272	U R 304	320	328	U A 296	A	U A 220	A							
10								B	232	U R 276	A	320	316	296	A	U A 240	U R 180							
11								B	U A 216	U A 264	U R 304	U A 312	U A 308	A	U A 272	U A 236	A							
12								B	232	288	A	A	A	A	U R 276	U R 232	U R 192							
13								U R 180	U R 244	R	U R 300	312	308	292	A	A	B							
14								B	224	A	A	A	U R 316	300	268	A	A							
15								B	U R 236	A	U R 300	308	U R 328	A	U R 272	240	A							
16								B	236	272	A	U R 312	R	R	U R 272	U R 240	B							
17								B	U A 232	U R 276	296	A	A	U R 308	A	A	A							
18								B	236	264	A	A	A	A	U R 284	R	B							
19								B	204	A	A	A	A	A	A	A	B							
20								B	U R 232	A	U R 304	A	320	292	U R 276	A	A							
21								B	236	A	U R 300	324	A	U A 292	U A 268	U A 240	U R 188							
22								B	216	264	A	R	332	296	A	236	176							
23								B	232	A	U R 308	A	A	A	A	U R 256	176							
24								B	224	U R 264	U R 308	320	A	U R 304	U A 284	U R 252	U R 188							
25								B	R	R	300	A	A	A	A	U A 244	U R 200							
26								168	232	280	300	A	320	292	U A 284	240	U A 172							
27								B	U R 228	276	308	A	332	U R 304	U A 284	U R 260	U A 184							
28								B	216	268	U A 300	U A 320	R	A	A	R	180							
29								B	212	U R 284	304	320	332	U A 308	A	A	A							
30								B	220	264	A	R	316	R	U R 284	248								
31								B	U R 240	284	A	A	A	A	B	B	U R 220							
	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	30	22	21	15	16	15	16	18	13							
MED								174	232	278	U 304	320	324	300	U 280	U 240	U R 184							
U Q									U 240	U R 288	U 310	328	330	U 308	U 284	U R 244	U R 190							
L Q									224	268	300	312	316	292	U 272	U 240	178							

DEC. 2004 foE (0.01MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

DEC. 2004 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

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	J A 22	J A 26	J A 53	E B 16	J A 23	20	19	E B 15	G 21	33	37	37	40	J A 50	J A 55	J A 32	G	E B 16	E B 15	J A 16	E B 15	E B 15	J A 18	J A 27
2	J A 61	J A 41	J A 28	J A 21	J A 17	J A 24	19	21	G 20	G 22	G 28	G 23	G 23	38	J A 47	J A 106	J A 40	J A 41	J A 20	E B 16	J A 20	J A 17	E B 14	J A 24
3	J A 25	J A 19	20	19	J A 35	E B 16	19	E B 14	J A 46	J A 37	J A 43	38	38	J A 44	34	J A 34	J A 43	J A 35	J A 26	J A 37	E B 15	J A 22	E B 16	15
4	E B 15	E B 15	J A 16	19	19	E B 16	E B 15	E B 15	G 20	34	37	36	G 27	35	33	34	24	E B 16	E B 15	J A 18	J A 17	E B 14	J A 31	E B 16
5	E B 15	J A 21	19	E B 15	E B 15	E B 15	E B J A 16	J A 21	29	J A 38	34	G 29	36	G E B 28	35	29	29	E B 16	E B 14	E B 15	E B 15	E B 15	E B 16	19
6	E B 15	E B 16	E B 15	E B 15	E B 14	E B 15	E B 15	22	27	G 26	35	37	J A 54	34	J A 40	28	G	J A 22	J A 16	E B 15	E B 15	E B 15	J A 28	E B 15
7	J A 20	J A 19	J A 20	17	E B 14	E B 16	E B 15	18	28	G	34	G 29	36	36	G 26	28	J A 34	J A 39	J A 26	J A 20	E 19	E B 16	E B 16	E B 15
8	E B 15	E B 16	E B 15	E B 15	E B 15	E B 15	E B J A 19	E B 15	29	33	34	35	37	G 23	J A J A 32	J A 27	J A 24	E B 15	J A J A 16	J A 43	J A J A 30	J A 22	J A 26	J A 27
9	E B 16	E B 16	E B 16	E B 15	J A 24	J A 26	E B 16	E B 16	26	G 22	G 21	36	35	35	J A 38	27	J A 25	E B 16	E B 16	E B 15	E B 15	E B 15	18	J A 28
10	J A 20	J A 22	J A 18	J A 26	J A 23	E B 15	E B 16	E B 16	26	G 23	33	35	35	32	J A 55	27	J A 20	E B 16	19	J A 17	E B 15	E B 15	J A 27	J A 22
11	19	E B 15	E B 15	B J A 20	E B 15	E B 16	19	19	25	30	G 26	35	34	34	J A 40	30	J A 34	J A J A 33	J A 22	J A 17	18	E B 15	E B 15	E B 16
12	J A 22	19	J A 20	E B 15	E B 15	E B 15	E B 15	18	26	32	33	J A 36	35	32	J G 23	G	J A 23	19	E B 16	E B 16	J A 23	19	J A 23	E B 15
13	E B 15	19	E B 15	E B 14	E B 15	E B 14	E B 16	G	G 21	G 19	G 23	36	37	33	30	30	21	20	E B 15	J A 18	J A 24	J A 41	J A 20	J A 23
14	J A 25	E B 16	19	19	E B 15	19	E B 16	21	26	33	30	J A 34	G 26	33	34	J A 36	J A 28	J A J A 23	J A 21	19	E B 16	E B 15	18	E B 16
15	E B 16	E B 15	E B 15	E B 16	E B 15	E B 15	E B 14	18	G 20	28	G 23	34	J A J A 37	36	32	26	J A 23	J A 28	20	E B 16	E B 14	J A 24	18	E B 15
16	J A 19	J A J A 18	22	J A 21	18	19	E B 16	E B 17	26	32	33	G 28	G 27	G 25	G 24	G 19	21	E B 15	E B 15	E B 15	E B 15	E B 16	E B 15	21
17	J A 20	18	J A 17	E B 14	E B 15	J A 34	J A 49	E B 16	G	G 20	33	J A 38	J A 46	G 26	34	J A 36	J A 33	J A 28	19	19	J A 19	19	J A 20	J A 25
18	J A 23	E B 16	E B 15	E B 15	E B 14	19	E B 16	19	26	32	38	J A 59	J A 84	J A 50	28	G 20	20	19	J A 69	J A 45	J A 22	J A 38	J A 30	J A 53
19	J A 24	J A 17	18	E B 15	E B 16	E B 15	E B 15	E B 16	23	31	J A 36	J A 41	35	33	J A 35	J A 38	22	E B 15	E B 15	E B 15	E B 15	E B 16	E B 15	20
20	E B 15	J A 17	19	E B 15	19	E B 15	E B 16	19	G 21	30	G 28	36	36	34	J G 26	J A 35	J A 24	J A 21	E B 14	20	E B 17	E B 16	E B 15	E B 16
21	E B 15	E B 15	E B 16	E B 15	E B 16	E B 15	E B 15	19	28	31	G 26	36	36	33	30	28	G	E B 15	E B 15	E B 15	E B 15	E B 16	E B 15	E B 15
22	E B 16	E B 15	20	J A 17	J A 18	E B 16	J A 20	19	25	30	36	G 28	37	37	J A 58	28	21	J A 22	J A 22	E B 15	20	18	E B 15	E B 15
23	J A 20	J A 23	J A 35	J A 22	18	18	J A 23	J A 24	26	34	33	38	J A 47	34	31	G 24	19	20	J A 19	E B 15	E B 15	E B 16	E B 16	E B 15
24	E B 15	19	E B 15	E B 15	E B 14	E B J A 19	E B 15	J A 31	27	30	G 23	36	33	G 26	32	G 25	G	J A 20	J A J A 27	J A 24	22	J A 19	E B 16	E B 15
25	E B 15	E B 16	E B 16	E B 15	J A 36	20	E B 15	E B 16	G	G	J A 34	46	37	32	34	29	G J A 20	J A 28	J A J A 23	J A 18	E B 16	E B 15	E B 16	E B 16
26	J A 26	J A 23	J A 20	E B 15	E B 15	E B 14	E B 15	20	27	32	34	33	38	35	J A 38	28	22	19	20	19	19	E 15	E B 16	E B 15
27	E B 14	20	20	20	E B 15	E B 16	E B 15	19	G	30	34	35	36	G 26	32	G 24	22	J A 45	J A J A 27	J A 23	E B 16	E B 15	E B 15	E B 14
28	E B 15	E B 15	E B 15	E B 14	E B 14	B J A J A 18	19	20	28	30	34	J A 44	G 29	36	33	G 25	20	E B 15	19	21	E B 16	E B 16	E B 16	E B 15
29	E B 15	J A 18	19	J A 18	E B 15	E B 15	E B 15	20	24	G 23	36	36	39	36	32	J A 42	J A 44	J A J A 25	J A 21	J A J A 20	J A 20	18	18	19
30	E B 15	18	E B 16	E B 14	E B 19	E B 15	E B 15	E B 16	25	G J A 23	J A 40	G 28	36	G 24	G 22	27	J A 32	E B 15	E B 15	E B 15	E B 15	E B J A 19	E B 16	E B 16
31	E B 15	E B 16	E B 15	B J A 27	J A 26	22	20	J A 25	J A G 22	31	J A 39	J A 46	J A 46	J A 51	A E B 34	E B 32	G	22	J A 20	E B 17	E B 16	E B 15	E B 15	E B 17
	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	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31
MED	E B 16	18	18	E B 15	E B 15	E B 16	E B 16	19	26	30	34	36	36	34	32	28	22	20	19	17	E B 16	E B 16	E B 16	E B 16
U Q	J A 22	J A J A 19	20	J A J A 19	J A 19	19	J A 19	20	27	32	36	J A 38	J A 38	J A 36	J A 38	J A 34	J A 29	J A 28	J A 22	J A 20	J A 20	J A 19	J A 20	J A 22
L Q	E B 15	E B 16	E B 15	E B 15	E B 15	E B 15	E B 15	E B 16	G	G 26	G 28	G 34	G 35	G 32	G 30	G 26	G E 20	B E 16	B E 15	B E 15	E B 15	E B 15	E B 15	E B 15

DEC. 2004 foEs (0.1MHz)

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DEC. 2004 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

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 19	19	20	E B 16	20	E B 16	E B 16	E B 15	U Y 21	32	36	36	38	47	33	30	G	E B 16	E B 15	E B 15	E B 15	E B 15	E B 15	E B 16
2	19	16	E B 15	E B 15	E B 16	16	E B 14	20	G 20	G 21	G 21	G 22	G 22	34	40	30	23	E B 16	17	E B 16	17	E B 16	E B 14	16
3	19	E B 15	E B 16	E B 15	E B 15	E B 16	E B 16	E B 14	G 21	34	40	37	37	35	32	32	37	30	21	A A 37	E B 15	15	E B 15	E B 15
4	E B 15	E B 15	E B 15	E B 15	E B 15	E B 16	E B 15	E B 15	G 19	32	35	34	G 27	32	32	32	21	E B 16	E B 15	E B 15	E B 16	E B 14	E B 15	E B 16
5	E B 15	E B 15	E B 16	E B 15	E B 15	E B 15	E B 15	20	29	29	34	G 28	34	U Y 28	E B 35	27	24	E B 16	E B 14	E B 15	E B 15	E B 15	E B 16	E B 15
6	E B 15	E B 16	E B 15	E B 15	E B 14	E B 15	E B 15	22	26	G 26	33	35	35	33	34	25	G	20	E B 15	E B 15	E B 15	E B 15	22	E B 15
7	E B 15	E B 15	E B 16	16	E B 14	E B 16	E B 15	17	27	G 32	G 29	35	35	35	G 25	28	30	26	22	E B 16	E B 15	E B 16	E B 16	E B 15
8	E B 15	E B 16	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	29	32	34	34	34	G 23	28	25	21	E B 15	E B 15	20	E B 15	17	E B 15	17
9	E B 16	E B 16	E B 16	E B 15	18	E B 15	E B 16	E B 16	26	G 21	U Y 21	34	34	33	34	26	21	E B 16	E B 16	E B 15	E B 15	E B 15	E B 14	E B 16
10	E B 16	16	E B 15	16	E B 15	E B 15	E B 16	E B 16	26	G 23	31	34	33	32	39	25	G 16	E B 16	E B 16	E B 15	E B 15	E B 15	E B 15	E B 14
11	E B 15	E B 15	E B 15	E B 15	E B 15	E B 16	E B 16	17	24	28	G 23	34	33	33	35	26	28	18	19	16	E B 15	E B 15	E B 15	E B 16
12	E B 16	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	18	26	30	31	32	31	31	G 21	G	G 17	E B 16	E B 16	E B 16	16	E B 15	17	E B 15
13	E B 15	E B 16	E B 15	E B 14	E B 15	E B 14	E B 16	G	G 20	G 19	G 22	34	34	32	30	28	21	19	E B 15	E B 16	16	26	E B 16	E B 16
14	E B 15	E B 16	E B 15	E B 15	E B 15	E B 15	E B 16	20	25	30	30	31	G 25	32	32	32	22	20	18	E B 15	E B 16	E B 15	E B 16	E B 16
15	E B 16	E B 15	E B 15	E B 16	E B 15	E B 15	E B 14	18	G 19	27	G 23	32	G 26	26	30	26	19	23	E B 16	E B 16	E B 14	16	E B 16	E B 15
16	16	E B 16	17	16	E B 15	16	E B 16	E B 17	26	31	32	G 28	G 27	G 25	G 24	G 18	19	E B 15	E B 15	E B 15	E B 15	E B 16	E B 15	16
17	16	E B 16	E B 16	E B 14	E B 15	A A 34	21	E B 16	G	G 20	32	36	33	G 26	28	28	24	23	E B 15	16	E B 16	E B 15	E B 14	E B 15
18	E B 16	E B 16	E B 15	E B 15	E B 14	E B 16	E B 16	18	25	30	36	54	A A 84	47	G 24	G 19	19	16	23	21	17	24	17	A A 53
19	16	E B 14	E B 15	E B 15	E B 16	E B 15	E B 15	E B 16	22	30	32	34	33	31	29	24	20	E B 15	E B 15	E B 15	E B 15	E B 16	E B 15	E B 16
20	E B 15	E B 15	E B 16	E B 15	E B 16	E B 15	E B 16	19	G 18	26	G 26	32	35	33	G 22	26	23	17	E B 14	17	E B 17	E B 16	E B 15	E B 16
21	E B 15	E B 15	E B 16	E B 15	E B 16	E B 15	E B 15	18	26	28	G 24	35	34	32	28	27	G	E B 15	E B 15	E B 15	E B 15	E B 16	E B 15	E B 15
22	E B 16	E B 15	E B 15	E B 15	E B 15	E B 16	E B 16	18	25	29	33	G 25	36	36	54	27	20	17	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15
23	16	16	20	E B 15	16	E B 16	16	20	26	31	33	35	36	32	30	G 23	19	16	17	E B 15	E B 15	E B 16	E B 16	E B 15
24	E B 15	E B 16	E B 15	E B 15	E B 14	17	E B 15	20	26	29	G 22	35	32	G 26	31	G 24	G	E B 15	22	20	19	16	E B 16	E B 15
25	E B 15	E B 16	E B 16	E B 15	16	E B 15	E B 15	E B 16	G	G	34	42	35	31	31	27	G 18	18	19	17	E B 16	E B 15	E B 16	E B 16
26	E B 15	16	E B 15	E B 15	E B 15	E B 14	E B 15	19	26	31	32	32	36	34	G 24	26	21	E B 16	E B 16	E B 15	E B 16	E B 15	E B 16	E B 15
27	E B 14	E B 16	E B 15	E B 14	E B 15	E B 16	E B 15	18	G	30	32	32	35	G 26	30	G 23	22	16	17	16	E B 16	E B 15	E B 15	E B 14
28	E B 15	E B 15	E B 15	E B 14	E B 14	E B 15	E B 16	20	27	29	33	34	G 28	35	33	G 23	20	E B 15	E B 16	E B 16	E B 16	E B 16	E B 16	E B 15
29	E B 15	E B 16	E B 15	E B 15	E B 15	E B 15	E B 15	19	23	G 23	34	35	38	35	30	34	23	20	19	18	E B 15	E B 16	E B 15	E B 16
30	E B 15	E B 16	E B 16	E B 14	E B 19	E B 15	E B 15	E B 16	24	G 23	34	G 23	33	G 23	G 22	26	20	E B 15	E B 15	E B 15	E B 15	E B 16	E B 16	E B 16
31	E B 15	E B 16	E B 15	E B 16	16	16	E B 15	18	G 20	30	35	38	36	47	E B 34	E B 32	G	16	16	E B 17	E B 16	E B 15	E B 15	E B 17
	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	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31
MED	E B 15	E B 16	E B 15	E B 15	E B 15	E B 15	E B 15	18	25	29	32	34	34	32	30	26	20	16	E B 16	E B 16	E B 15	E B 15	E B 15	E B 16
U Q	16	16	E B 16	E B 15	16	16	E B 16	19	26	30	34	35	36	35	34	28	23	19	18	17	16	16	E B 16	16
L Q	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	E B 16	G	G 26	G 26	G 32	G 32	G 28	G 28	G 24	G	E B 16	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15

DEC. 2004 fbEs (0.1MHz)

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IONOSPHERIC DATA STATION Kokubunji

DEC. 2004 fmin (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	19	15	15	16	15	16	16	15	15	18	16	15	15	14	13	16	15	16	15	15	15	15	15	16
2	16	15	15	15	16	15	14	14	14	15	12	15	14	14	15	14	15	16	15	16	15	16	14	14
3	15	15	16	15	15	16	16	14	16	18	16	16	17	15	14	15	15	16	16	14	15	14	15	15
4	15	15	15	15	15	16	15	15	17	16	15	23	20	17	14	15	16	16	15	15	16	14	15	16
5	15	15	16	15	15	15	15	15	14	20	20	20	22	22	35	14	16	16	14	15	15	15	16	15
6	15	16	15	15	14	15	15	15	14	20	19	22	20	22	19	16	15	14	15	15	15	15	15	15
7	15	15	16	15	14	16	15	14	16	22	17	20	18	20	15	14	16	14	14	16	15	16	16	15
8	15	16	15	15	15	15	15	15	14	15	14	16	15	15	17	14	14	15	15	14	15	16	15	15
9	16	16	16	15	16	15	16	16	14	14	16	15	14	16	16	15	15	16	16	15	15	15	14	16
10	16	15	15	13	15	15	16	16	15	15	15	16	14	15	16	15	14	16	16	15	15	15	15	14
11	15	15	15	15	15	16	16	15	14	14	14	15	16	13	13	13	14	15	16	14	15	15	15	16
12	16	15	15	15	15	15	15	15	14	18	14	16	16	16	16	15	15	16	16	16	16	15	15	15
13	15	16	15	14	15	14	16	14	14	14	14	13	15	15	17	14	16	14	15	16	14	15	16	16
14	15	16	15	15	15	15	16	15	14	15	15	15	15	14	15	12	15	14	15	15	16	15	16	16
15	16	15	15	16	15	15	14	15	15	15	14	13	15	14	12	14	14	14	16	16	14	15	16	15
16	15	16	16	15	15	14	16	17	14	14	15	15	16	14	15	14	15	15	15	15	15	16	15	15
17	15	16	16	14	15	14	15	16	15	12	14	14	14	14	14	15	15	15	15	15	16	15	14	15
18	16	16	15	15	14	16	16	15	14	15	16	15	14	15	16	16	16	15	14	16	15	16	14	15
19	15	14	15	15	16	15	15	16	14	15	14	15	14	16	15	15	17	15	15	15	15	16	15	16
20	15	15	16	15	16	15	16	15	14	15	14	14	23	14	15	14	14	15	14	16	17	16	15	16
21	15	15	16	15	16	15	15	15	15	16	15	16	16	15	15	14	14	15	15	15	15	16	15	15
22	16	15	15	15	15	16	16	16	15	15	16	15	16	14	14	13	14	13	15	15	15	15	15	15
23	15	14	15	15	15	16	15	15	14	15	16	16	15	17	16	14	14	15	16	15	15	16	16	15
24	15	16	15	15	14	14	15	15	14	14	14	17	16	21	18	16	14	15	14	15	14	15	16	15
25	15	16	16	15	14	15	15	16	14	17	23	21	22	21	16	16	15	16	14	14	16	15	16	16
26	15	14	15	15	15	14	15	14	15	16	16	18	22	22	15	16	14	16	16	15	16	15	16	15
27	14	16	15	14	15	16	15	14	15	14	19	16	15	16	15	16	15	12	15	16	16	15	15	14
28	15	15	15	14	14	15	14	16	14	15	14	15	17	16	16	15	14	15	16	16	16	16	16	15
29	15	16	15	15	15	15	15	14	14	14	16	16	18	14	14	15	16	15	15	15	15	16	15	16
30	15	16	16	14	19	15	15	16	15	14	15	15	16	16	16	14	13	15	15	15	15	15	16	16
31	15	16	15	16	15	15	15	14	14	19	17	24	21	20	34	32	18	15	14	17	16	15	15	17
	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	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31
MED	15	15	15	15	15	15	15	15	14	15	15	16	16	15	15	15	15	15	15	15	15	15	15	15
U Q	16	16	16	15	15	16	16	16	15	17	16	17	18	17	16	16	16	16	16	16	16	16	16	16
L Q	15	15	15	15	15	15	15	14	14	14	14	15	15	14	14	14	14	15	15	15	15	15	15	15

DEC. 2004 fmin (0.1MHz)

IONOSPHERIC DATA STATION Kokubunji

DEC. 2004 M(3000)F2 (0.01) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	298	314	313	319	336	311	320	369	362	350	351	353	350	351	367	356	377	343	314	349	294	327	297	301
2	298	295	282	301	303	310	330	356	366	369	358	360	352	350	357	377	385	359	332	343	337	329	338	285
3	291	282	280	319	330	305	324	373	372	379	364	378	371	348	374	346	365	357	335		323	345	310	315
4	307	284	288	298	343	330	330	360	353	369	353	361	349	359	346	370	363	325	318	329	346		286	306
5	302	292	316		330	391	299	374	384	366	357	374	366	348	362	343	378	348	340	339	317	313	344	281
6	298	298	296	290	303	330	309	362	370	369	326	388	348	327	329	337	334	307	310	310	354	313	268	303
7	281	288	288	313	294	291	337	341	324	341	356	383	360	350	364	324	353	346	348	367	345	303	294	300
8	289	290	293	310	364	317	310	368	386	366	357	335	350	349	364	359	373	376	344	336	329	289	298	303
9	304	292	304	302	299	318	333	371	362	372	365	377	341	341	345	363	367	345	308	323	302	364	301	297
10	301	320	324	313	310	318	318	355	371	367	364	356	363	349	346	380	372	346	352	349	323	293	305	306
11	318	329	319	314	312	307	337	335	354	359	363	363	356	361	366	369	387	341	317	323	351	375	303	300
12	297	291	329	379	315	305	298	364	356	338	323	342	355	370	356	359	356	355	364	326	316	356	303	284
13	312	303	314	295	325	372	320	350	337	343	317	345	361	359	356	353	359	316	324	306	310	348	327	265
14	272	271	301	315	343	368	307	369	365	386	348	347	348	364	373	369	382	358	327	356	359	330	366	275
15	273	310	322	331	354	327	330	371	356	370	354	349	353	353	362	362	369	348	332	384	378	315	286	286
16	292	307	313	315	364	334	348	356	388	354	370	382	360	374	370	364	390	330	351	370	372	280	304	292
17	288	302	323	348	361		353	361	381	377	352	363	365	342	362	370	342	338	381	337	335	322	296	295
18	297	310	340	307	281	335	342	387	356	359	349	371		367	354	359	374	374	300	316	327	347	298	
19	305	305	317	336	368	312	342	380	387	365	329	361	361	357	365	374	374	345	325	331	371	341	318	286
20	276	289	311	325	361	308	325	360	365	398	360	330	365	363	362	359	380	374	382	322	302	340	373	293
21	313	311	334	343	348	310	328	370	380	377	323	332	356	357	339	382	365	376	337	316	305	299	301	282
22	319	328	301	307	318	334	334	350	374	377	351	358	338	353	375	389	378	323	329	338	368	305	298	309
23	308	287	304	351	354	310	321	366	384	386	318	342	358	346	367	353	378	361	312	364	333	283	301	296
24	295	294	294	318	390	277	312	385	367	368	364	355	350	346	340	360	386	349	350	320	351	314	323	287
25	293	295	303	298	336	357	328	360	373	369	336	366	345	360	346	371	348	359	336	356	338	313	286	284
26	285	294	310	295	332	346	294	346	343	365	334	367	315	357	318	360	375	377	356	357	361	292	279	276
27	272	310	328	341	303	400	351	350	370	372	369	349	328	348	346	345	363	350	387	316	335	302	293	276
28	283	298	299	317	390	327	312	360	370	380	361	353	325	328	365	357	355	335	351	355	326	305	301	307
29	315	313	300	303	285		320	374	390	355	354	361	340	329	349	335	361	342	313	370	310	286	284	267
30	315	303	309	353	370	311	310	359	376	356	345	376	364	365	329	351	366	357	328	301	350	296	314	293
31	282	297	300	339	391	286	322	362	383	385	335	369	358	340	378	360	356	357	328	350	360	350	304	318
	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	30	31	29	31	31	31	31	31	31	30	31	31	31	31	31	31	30	31	30	31	30
MED	297	298	309	315	336	318	324	362	370	369	353	361	354	351	362	360	369	348	332	338	335	314	301	293
U Q	307	310	319	336	361	334	334	371	381	377	361	371	361	360	366	370	378	359	351	356	354	341	314	303
L Q	285	291	299	303	310	309	312	356	356	359	335	349	348	346	346	353	359	341	318	322	317	299	294	284

DEC. 2004 M(3000)F2 (0.01)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

DEC. 2004 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

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	A	L									
2										L		L	L	L	A									
3										L	A	L	A	L	A									
4										L	A	L	L	L	L									
5											L	L	L		L									
6													L	L 398										
7										L														
8											L	L	L		L	L								
9										L	L	L												
10										L		L	L	L										
11									L	L	L	L	L	L	A									
12										L	L	L	L	L	L									
13										L	L	L		L 378										
14											L	L	L	L										
15											L		L	L	L									
16											L		L	L										
17											L	L	L	L	L									
18											L	A	A	A	L									
19									L			L	L	L	L									
20											L	L 365	L	L		L								
21												L 364		L										
22											L	L	L	L										
23											L	L	L	L										
24										L	L	L	L		L									
25												A	L	L	L									
26														L										
27												L	L											
28													L											
29												L		L	L									
30										L	L	L	L											
31												L	L	A	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												2		2										
MED												L 364		L 388										
U Q																								
L Q																								

DEC. 2004 M(3000)F1 (0.01)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

DEC. 2004 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

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												240	234	236	220									
2										224		222	232	244	238									
3										216	214	224	218	258	234									
4										224	234	216	228	240	262									
5											232	218	226		242									
6													258	232										
7										254														
8											246	234	226		232	218								
9										220	240	234												
10										226		236	238	246										
11									220	224	232	240	226	246	230									
12										276	264	242	238	224	244									
13										250	234	236		236										
14											232	216	248	238										
15											234		238	244	238									
16											232		250	228										
17											236	228	238	250	234									
18											226	228	A	224	234									
19									210			240	238	232	232									
20											222	304	240	246		244								
21												276		240										
22											260	238	280	238										
23											214	256	234	254										
24										226	230	248	244		254									
25												238	254	244	258									
26														238										
27												242	252											
28													258											
29												244		248	246									
30										230	252	232	234											
31												240	238	230	224									
	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	11	18	25	24	23	16	2								
MED									215	226	233	238	238	240	236	231								
U Q										250	240	242	249	246	245									
L Q										224	230	228	233	232	232									

DEC. 2004 h'F2 (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

DEC. 2004 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 274	E A 258	E A 266	234	220	E B 264	240	210	H 178	210	222	218	A	A	A	210	206	200	218	210	234	E B 238	224	E B 272
2	E A 288	E A 286	E B 310	E B 274	E B 266	E A 252	218	214	208	H 186	204	196	H 174	216	A	210	204	198	E A 246	224	210	218	206	E A 312
3	E A 332	E B 298	E B 310	E B 262	238	234	E B 244	222	202	A	A	206	A	H 200	A	210	210	E A 246	E A 248	A	236	224	E B 250	E B 244
4	E B 244	E B 288	E B 286	E B 276	238	206	220	198	202	200	A	200	202	196	216	216	200	192	202	218	224	E B 258	E B 252	E B 248
5	214	E B 292	E B 250	E B 284	E B 238	198	232	206	206	200	192	200	206	222	218	212	214	178	204	204	222	E B 250	E B 240	E B 272
6	E B 288	E B 290	E B 290	E B 294	E B 276	216	E B 254	204	202	214	212	202	186	H 184	224	206	214	202	200	E B 248	208	E B 242	E A 394	E B 280
7	E B 294	E B 298	E B 306	E A 252	E B 294	E B 294	228	210	238	220	228	212	218	216	210	208	220	226	220	206	226	242	E B 280	E B 270
8	E B 288	E B 294	E B 288	E B 266	212	E B 242	E B 262	208	198	208	202	206	206	202	202	198	198	190	202	E A 252	234	E A 282	E B 282	E A 282
9	E B 262	E B 274	E B 268	E B 278	E B 292	E A 246	E B 222	208	H 218	H 200	H 188	214	204	220	224	214	200	196	E B 238	E B 226	E B 264	E B 210	E B 248	E B 292
10	E B 276	E B 264	E A 236	E A 262	E B 272	234	E B 256	220	H 190	198	214	212	214	214	222	214	204	194	218	214	230	220	E B 266	E B 270
11	E B 258	E B 242	E B 252	E B 260	E B 266	E B 282	E B 228	224	204	H 184	H 184	A	208	212	A	218	198	202	E A 256	222	230	200	E B 252	E B 278
12	E B 268	E B 298	E B 250	208	E B 248	E B 280	E B 264	222	204	218	204	212	198	198	192	H 186	204	208	200	208	E A 260	212	E A 294	E B 302
13	E B 270	E B 266	E B 260	E B 300	226	204	E B 260	226	218	220	204	208	206	H 186	216	206	202	204	222	E B 250	E B 264	238	208	E B 330
14	E B 362	E B 344	E B 282	E B 256	226	194	E B 292	208	212	214	H 200	198	196	218	216	212	200	202	E A 252	212	198	E B 234	212	E B 350
15	E B 332	E B 292	E B 258	E B 240	214	206	E B 272	222	214	206	200	212	214	204	216	206	204	220	E B 236	204	206	E A 238	E B 312	E B 312
16	E A 292	E B 280	E B 284	E A 262	218	E A 240	210	208	200	214	212	216	190	198	218	220	206	182	220	206	212	E B 302	E B 286	E B 296
17	E A 304	E B 284	E B 248	212	210	A	E A 260	206	216	210	206	A	216	212	210	218	206	218	198	226	226	228	E B 260	E B 292
18	E B 272	E B 256	E B 236	E B 258	E B 312	E B 258	222	206	206	220	A	A	A	A	H 186	206	198	194	E A 274	E A 284	E A 236	E A 238	E A 260	A
19	E A 280	E B 274	E B 258	226	210	E B 262	228	194	186	216	210	216	220	206	208	214	208	190	E B 260	E B 232	210	232	E B 244	E B 308
20	E B 342	E B 316	E B 284	E B 256	222	E B 284	E B 258	208	198	208	190	H 176	A	216	212	208	210	200	196	214	E B 252	222	222	E B 312
21	E B 278	E B 280	E B 256	E B 246	218	210	E B 244	206	212	202	H 170	208	234	216	202	210	H 188	188	E B 242	E B 234	E B 262	E B 276	E B 288	E B 304
22	E B 266	E B 246	E B 284	E B 280	E B 240	206	E B 240	228	216	214	212	204	216	A	226	210	202	194	218	222	208	E B 264	E B 286	E B 276
23	E A 236	E A 302	E A 310	218	202	E B 276	E A 268	206	208	206	H 188	222	214	208	214	208	198	192	224	208	204	E B 282	E B 274	E B 298
24	E B 284	E B 284	E B 294	E B 266	200	196	E B 286	210	214	208	H 192	210	H 194	212	226	216	204	196	E A 238	E A 274	226	E A 284	E B 254	E B 312
25	E B 314	E B 306	E B 300	E B 292	232	210	214	210	202	216	228	A	216	220	210	206	206	212	228	214	194	E B 266	E B 284	E B 314
26	E B 308	E A 296	E B 270	E B 280	E B 260	226	186	212	208	212	224	214	218	218	206	218	200	202	208	218	224	E B 272	E B 326	E B 314
27	E B 284	E B 266	E B 236	226	E B 264	188	236	222	H 196	218	214	198	220	220	204	204	200	194	208	E A 272	228	E B 246	E B 300	E B 324
28	E B 320	E B 298	E B 282	E B 262	198	E B 282	E A 304	218	222	210	218	206	180	218	230	226	202	208	220	208	E B 252	216	E B 274	E B 262
29	E B 258	E B 268	E B 288	E B 272	E B 270	E B 258	218	220	204	212	216	230	222	208	218	226	214	200	E A 252	216	E B 236	E B 304	E B 292	E B 324
30	E B 256	E B 266	E B 264	224	220	E B 298	E B 276	222	212	H 188	222	210	204	224	212	216	200	204	200	E B 248	216	E A 274	E B 266	E B 276
31	E B 298	E B 276	E B 284	244	210	E A 364	E B 258	216	H 192	214	212	A	210	A	B	E B 234	210	220	210	204	208	212	E B 276	E B 294
	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	30	31	31	31	30	28	26	27	27	26	31	31	31	31	30	31	31	31	30
MED	E B 284	E B 284	E B 282	E B 262	U 217	E 241	E 244	210	206	210	208	209	208	212	215	210	204	200	210	213	218	E 238	E B 266	E B 295
U Q	E B 304	E B 298	E B 288	E B 276	E B 266	E B 276	E B 262	222	214	214	215	214	216	218	218	216	208	208	E A 242	E 234	E B 236	E B 272	E B 286	E B 312
L Q	E B 266	E B 266	E B 256	240	214	206	222	206	200	202	H 196	202	198	202	208	206	200	194	204	208	210	222	248	E B 276

DEC. 2004 h'F (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

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DEC. 2004 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

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 120	116	118	118	112	118		A	A 126								
2								B 124	122	118	116	118	108	118	114	B								
3								B 116	A	A	116	112	A	118		A	A							
4								B 118	122	120	120	122	A	122	124	B								
5								B 120	124	124	120	A	122	B	124	B								
6								B 120	122	122	A	A	A	A	A	A 124								
7								B 120	128	128	124	120	128	120	120	B								
8								B 124	116	116	116	112	116	A	A	A								
9								B 120	122	118	116	118	114	A	132	A								
10								B 116	120	114	120	116	120	120	120	116								
11								B 116	118	116	116	116	114	116	116	A								
12								B 120	124	120	A	A	A	112	112	124								
13								E B 156	128	118	118	118	118	114	120	A	B							
14								B 120	120	116	A	116	116	110	116	A								
15								B 120	110	118	122	116	120	114	120	A								
16								B 122	122	118	118	118	118	118	116	B								
17								B 114	116	116	116	A	116	A	A	A								
18								B 122	120	114	A	A	A	124	118	B								
19								B 116	120	A	A	A	A	A	A	B								
20								B 122	122	122	A	120	116	118	A	A								
21								B 120	118	122	122	120	122	120	124	118								
22								B 116	120	120	118	118	120	120	120	120								
23								B 116	114	118	110	A	112	114	112	112								
24								B 118	122	124	116	118	118	118	124	118								
25								B 118	114	122	116	A	A	A	118	116								
26								E B 154	114	122	118	118	124	124	116	116	116							
27								B 120	118	118	120	126	126	126	124	118								
28								B 114	118	118	120	120	124	116	120	116								
29								B 116	116	120	116	116	114	118	114	112								
30								B 116	120	A	118	120	116	116	114									
31								B 116	118	A	A	A	A	B	B 114									
	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	31	30	27	24	22	23	22	22	14							
MED								E B 155	120	120	118	118	118	118	118	119	117							
U Q									120	122	122	120	120	122	120	124	120							
L Q									116	118	118	116	116	114	116	116	116							

DEC. 2004 h'E (KM)

IONOSPHERIC DATA STATION Kokubunji

DEC. 2004 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	114	108	104	B	102	102	102	B	102	162	146	144	130	122	106	102	G	B	B	140	B	B	106	104
2	108	102	110	98	98	100	100	160	106	102	104	102	100	146	126	118	112	104	102	B	96	110	B	112
3	96	98	98	98	102	B	104	B	96	96	94	122	118	106	150	98	98	114	116	112	B	100	100	B
4	B	B	102	102	102	B	B	B	106	170	152	142	108	104	138	126	118	B	B	98	98	B	110	B
5	B	104	102	B	B	B	98	96	172	104	142	102	132	104	B	152	100	B	B	B	B	B	B	104
6	B	B	B	B	B	B	B	140	156	106	116	106	104	100	100	102	G	100	96	B	B	B	102	B
7	104	104	102	100	B	B	B	150	176	G	178	108	168	158	102	140	114	98	102	104	98	B	B	B
8	B	B	B	B	B	B	100	B	160	152	154	132	120	100	104	104	100	B	104	100	102	100	100	104
9	B	B	B	B	98	94	B	B	152	106	104	156	150	142	106	156	106	B	B	B	B	B	102	100
10	104	100	100	98	94	B	B	B	146	102	120	152	154	140	112	142	98	B	104	94	B	B	102	106
11	104	B	B	98	B	B	100	120	122	130	98	140	130	128	116	116	106	94	90	94	90	B	B	B
12	106	102	104	B	B	B	B	E B 144	166	142	126	104	106	106	94	G	94	82	B	B	100	100	96	B
13	B	140	B	B	B	B	B	G	110	102	98	136	126	122	124	114	124	90	B	124	106	98	100	96
14	102	B	94	94	B	98	B	148	144	126	126	100	100	150	132	120	90	92	90	92	B	B	102	B
15	B	B	B	B	B	B	B	132	104	110	104	160	98	98	154	152	92	90	90	B	B	100	94	B
16	100	100	98	98	96	100	B	B	166	144	122	106	104	102	104	94	132	B	B	B	B	B	B	118
17	112	110	114	B	B	102	98	B	G	100	148	116	104	102	102	92	90	86	86	90	100	102	96	96
18	104	B	B	B	B	92	B	144	158	140	120	102	102	100	104	104	130	100	100	98	98	96	104	100
19	100	100	100	B	B	B	B	B	132	122	104	104	108	108	102	100	100	B	B	B	B	B	B	94
20	B	104	106	B	100	B	B	156	104	112	106	104	154	138	98	94	90	88	B	96	B	B	B	B
21	B	B	B	B	B	B	B	140	160	118	102	144	130	138	132	134	G	B	B	B	B	B	B	B
22	B	B	118	98	102	B	100	146	144	138	116	108	164	146	110	136	156	94	94	B	92	90	B	B
23	104	104	98	100	94	92	104	102	144	124	158	134	94	120	114	98	146	104	90	B	B	B	B	B
24	B	98	B	B	B	104	B	98	152	168	100	144	116	106	130	106	G	96	90	90	88	84	B	B
25	B	B	B	B	104	104	B	B	G	G	158	116	104	102	94	128	92	86	86	86	B	B	B	B
26	100	110	100	B	B	B	B	170	168	156	138	124	142	136	98	162	140	100	94	90	90	B	B	B
27	B	100	106	106	B	B	B	154	G	170	160	112	160	106	124	102	142	94	94	100	B	B	B	B
28	B	B	B	B	B	96	142	142	146	150	152	120	106	128	140	106	126	B	94	96	B	B	B	B
29	B	104	104	98	B	B	B	148	158	104	150	146	132	124	132	120	110	90	90	90	90	90	86	90
30	B	98	B	B	B	B	B	B	160	102	106	102	162	102	100	154	94	B	B	B	B	98	B	B
31	B	B	B	100	96	96	100	104	106	148	104	108	94	94	B	B	G	94	88	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	14	18	18	13	12	12	11	19	28	29	31	31	31	31	29	29	26	20	20	18	13	12	14	12
MED	104	103	102	98	99	99	100	144	146	124	120	116	118	108	110	116	106	94	94	96	98	99	101	102
U Q	106	104	106	100	102	102	104	150	160	149	150	142	142	138	131	138	126	100	101	100	100	100	102	105
L Q	100	100	100	98	96	95	100	120	108	104	104	104	104	102	102	102	94	90	90	90	90	93	96	96

IONOSPHERIC DATA STATION Kokubunji

DEC. 2004 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

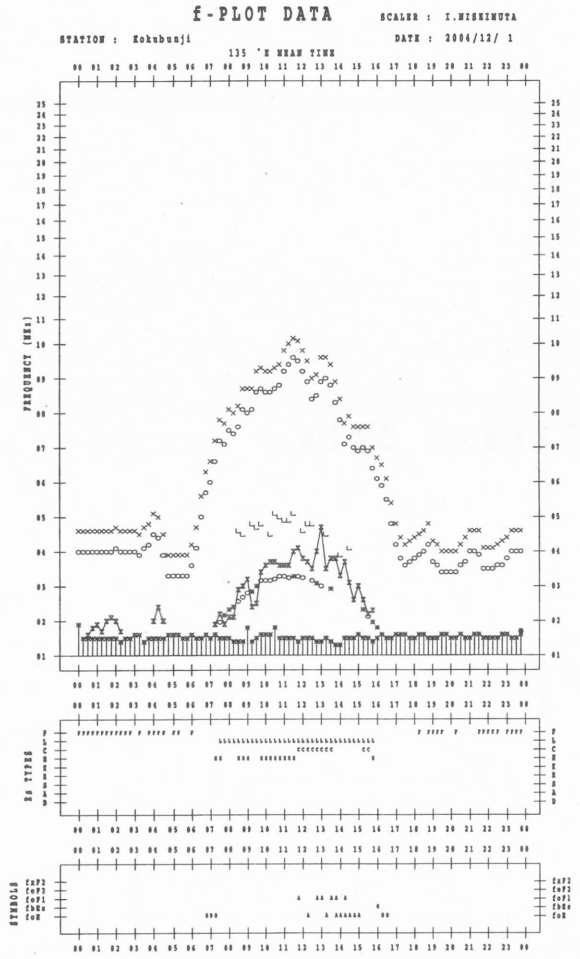
D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	F 3	F 4	F 3		F 4	F 1	F 1		L 1	HL 11	HL 11	HL 11	CL 21	CL 32	L 2	L 2				F 1			F 1	F 2
2	F 3	F 3	F 2	F 2	F 2	F 2	F 1	HL 21	L 1	L 1	L 1	L 1	L 2	HL 11	CL 22	CL 42	CL 22	F 2	F 2		F 2	F 1		F 1
3	F 3	F 2	F 1	F 1	F 2		F 1		L 3	L 2	L 2	CL 11	CL 11	L 2	HL 21	L 4	L 3	FF 42	FF 23	FF 51		F 2	F 1	
4			F 2	F 2	F 1				L 1	HL 11	HL 11	HL 11	L 1	L 1	HL 11	CL 31	C 2			F 1	F 1		F 1	
5		F 2	F 1				F 1	L 2	HL 11	LH 11	HL 11	L 1	HL 11	L 1		HL 11	L 2							F 1
6								H 2	HL 11	L 1	CL 11	L 1	L 2	L 1	L 2	L 1		F 3	F 3				F 4	
7	F 2	F 1	F 2	F 1				H 1	HL 11		HL 11	L 1	HL 11	HL 11	L 1	HL 21	C 2	F 5	F 5	F 2	F 2			
8							F 1		HL 21	HL 11	HL 11	HL 11	CL 11	L 1	L 1	L 2	L 2		F 1	F 3	F 2	F 2	F 2	F 2
9					F 2	F 2			H 1	L 1	L 1	HL 11	HL 11	HL 11	L 2	HL 11	L 2						F 1	F 1
10	F 1	F 2	F 1	F 3	F 2				HL 11	L 1	CL 11	HL 11	HL 11	HL 12	CL 32	HL 12	L 1		F 1	F 2			F 1	F 1
11	F 1			F 2			F 1	C 2	C 2	CL 21	L 2	HL 11	CL 12	CL 11	CL 21	CL 22	LL 32	F 2	F 2	F 1	F 1			
12	F 2	F 2	F 1					H 1	HL 11	HL 11	CL 11	L 2	L 1	L 1	L 2		L 1	F 1			F 1	F 1	F 2	
13		F 1							L 2	L 1	L 2	HL 11	CL 11	CL 21	CL 21	CL 22	CL 22	F 2		F 1	F 2	F 3	F 2	F 3
14	F 1		F 2	F 2		F 1		H 4	HL 21	CL 11	CL 21	L 2	L 2	HL 11	HL 11	CL 32	L 2	F 3	F 2	F 1			F 1	
15								H 1	L 2	CL 11	L 1	HL 11	L 2	LC 21	HL 11	HL 11	L 2	F 3	F 2			F 2	F 1	
16	F 2	F 2	F 2	F 2	F 2	F 1			HL 22	HL 11	CL 11	L 1	L 1	L 1	L 1	L 1	H 1							F 2
17	F 2	F 1	F 1			F 4	F 2			L 2	HL 11	CL 11	L 1	L 2	L 2	L 3	L 2	F 3	F 1	F 1	F 2	F 1	F 2	F 2
18	F 2					F 2		H 2	H 2	HL 11	CL 21	L 2	L 3	L 3	L 1	L 2	HL 11	F 1	F 2	F 3	F 2	F 3	F 2	F 4
19	F 3	F 1	F 1						H 1	CL 11	L 1	L 1	L 1	L 2	L 2	L 2	L 2							F 1
20		F 1	F 1		F 2			HL 11	L 2	CL 11	L 1	L 1	HL 11	HL 11	L 3	L 3	L 3	F 2		F 1				
21								H 2	H 2	CL 11	L 1	HL 11	CL 11	HL 11	CL 11	HL 21								
22			F 1	F 1	F 1		F 1	H 1	H 1	HL 11	CL 11	L 1	HL 11	HL 11	CL 21	CL 12	H 2	F 1	F 2		F 1	F 1		
23	F 2	F 2	F 3	F 3	F 1	F 1	F 1	L 1	HL 11	CL 11	HL 11	CL 11	L 2	CL 11	CL 11	L 2	HL 11	F 3	F 1					
24		F 1				F 1		L 3	HL 11	HL 21	L 1	HL 11	CL 11	L 1	CL 11	L 2		F 3	F 3	F 3	F 2	F 1		
25					F 3	F 1					H 1	CL 21	L 1	L 2	L 2	CL 11	L 1	F 2	F 2	F 1				
26	F 2	F 1	F 2					H 2	H 1	HL 11	HL 11	CL 11	HL 11	HL 11	L 2	HL 11	HL 21	F 1	F 1	F 1	F 1			
27		F 1	F 1	F 1				H 1		HL 11	HL 11	CL 11	HL 11	L 1	CL 12	L 2	HL 11	F 3	F 2	F 1				
28						F 2	F 1	H 2	H 2	HL 11	HL 11	CL 11	L 1	CL 11	HL 11	L 2	CL 11		F 1	F 1				
29		F 1	F 1	F 2				H 2	HL 11	L 1	HL 11	HL 11	HL 11	CL 11	CL 11	CL 22	CL 22	F 3	F 2	F 2	F 1	F 1	F 1	F 1
30		F 1							HL 11	L 1	L 1	L 1	HL 11	L 1	L 1	HL 11	L 2					L 1		
31				F 2	F 2	F 1	F 1	L 1	L 1	HL 11	L 1	L 1	L 1	L 1				F 1	F 2					
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT																								
MED																								
U Q																								
L Q																								

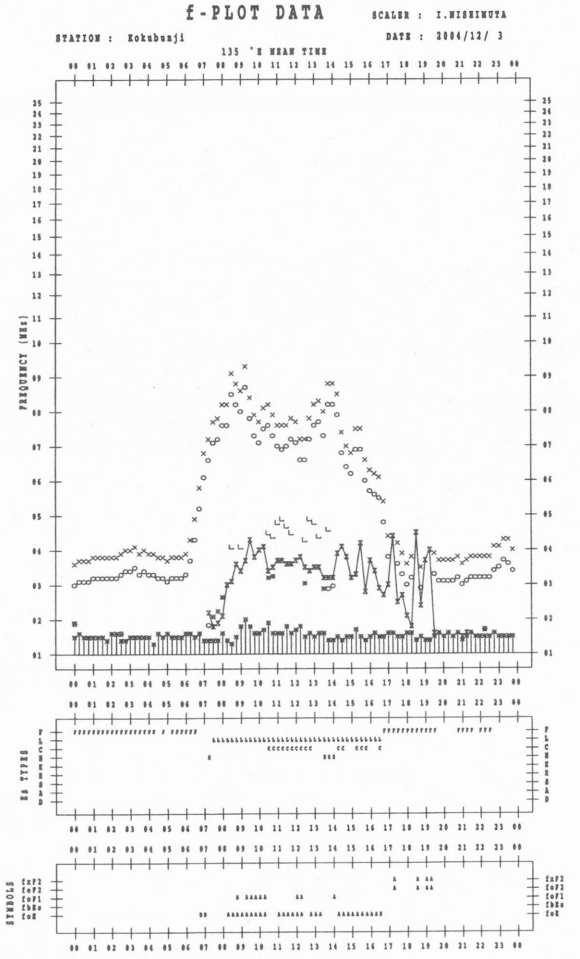
DEC. 2004 TYPES OF Es

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
	LESS THAN


f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/12/ 1
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS


f-PLOT DATA
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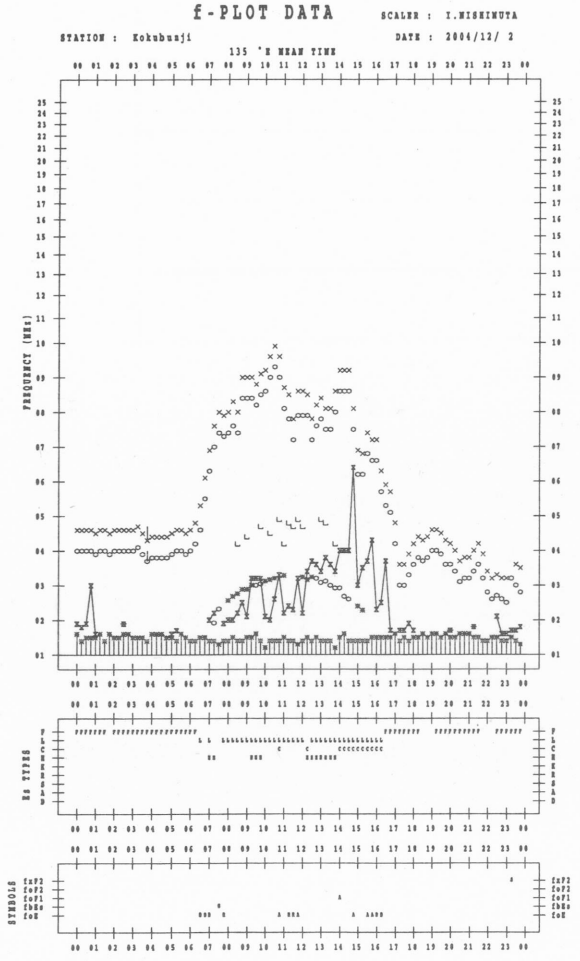
STATION : Kokubunji
DATE : 2004/12/ 3
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS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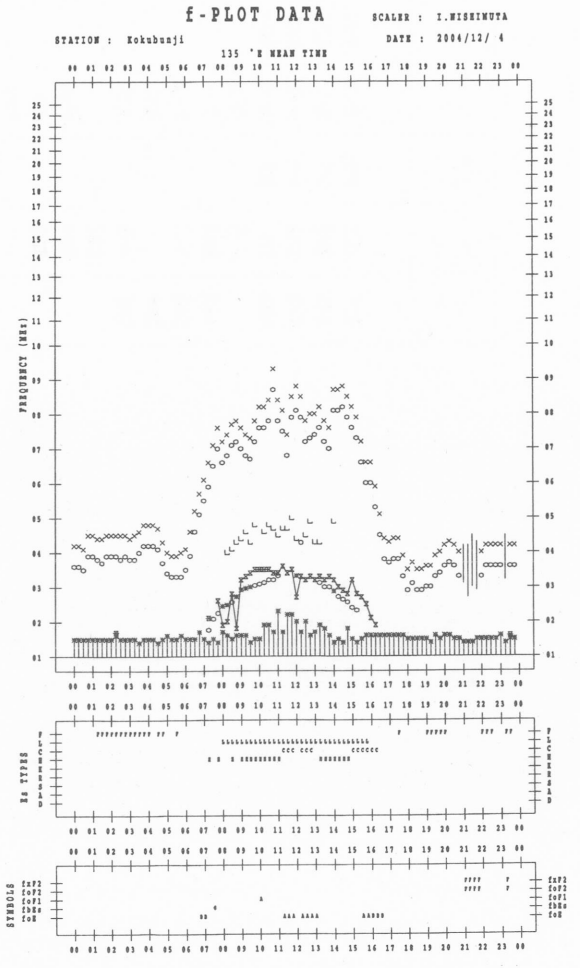
STATION : Kokubunji
DATE : 2004/12/ 2
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS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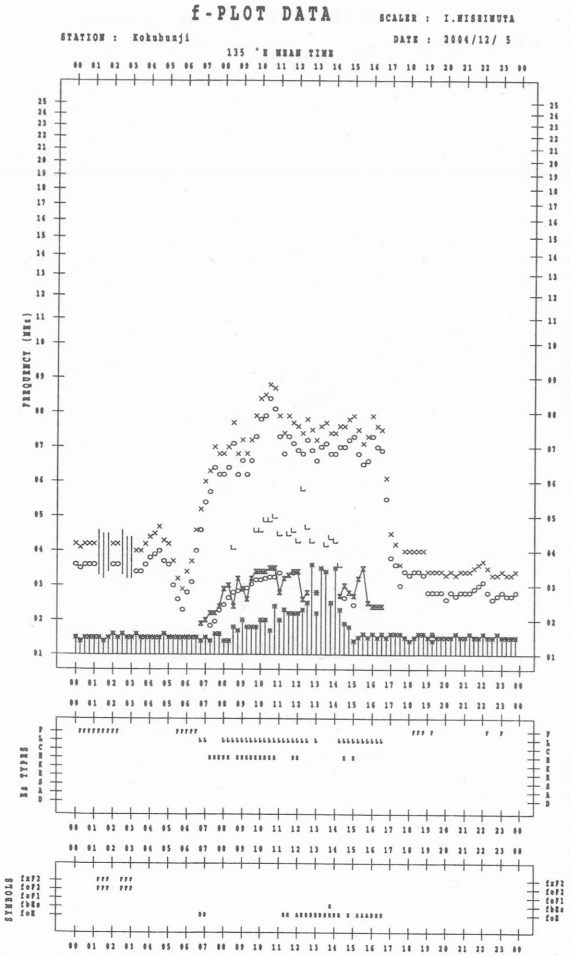
STATION : Kokubunji
DATE : 2004/12/ 4
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS


f-PLOT DATA
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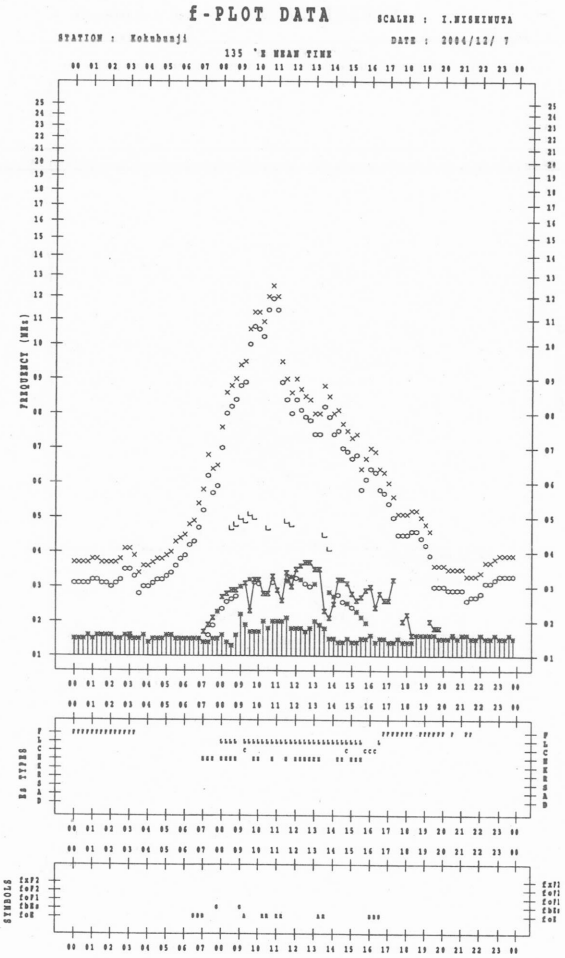
STATION : Kokubunji
DATE : 2004/12/ 5
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS


f-PLOT DATA
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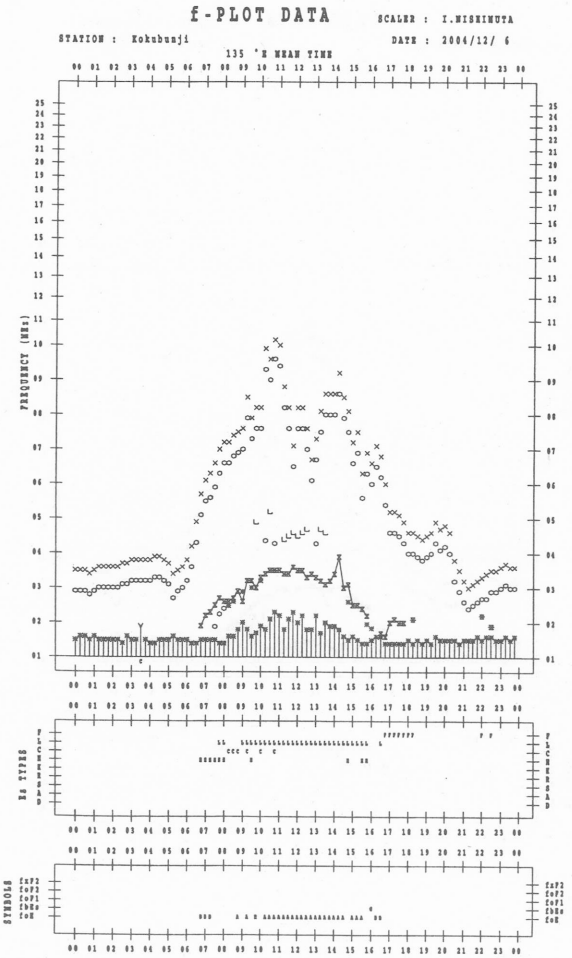
STATION : Kokubunji
DATE : 2004/12/ 7
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS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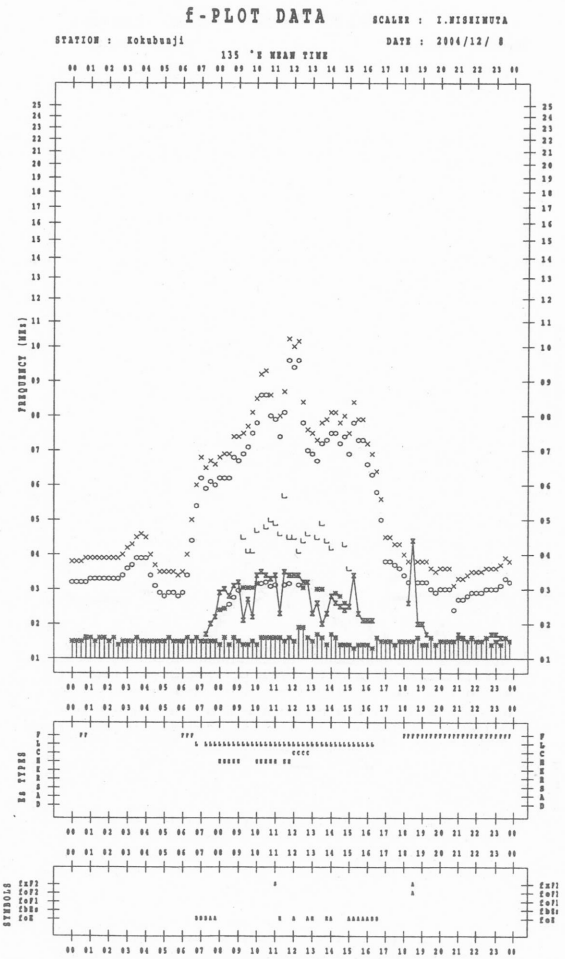
STATION : Kokubunji
DATE : 2004/12/ 6
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS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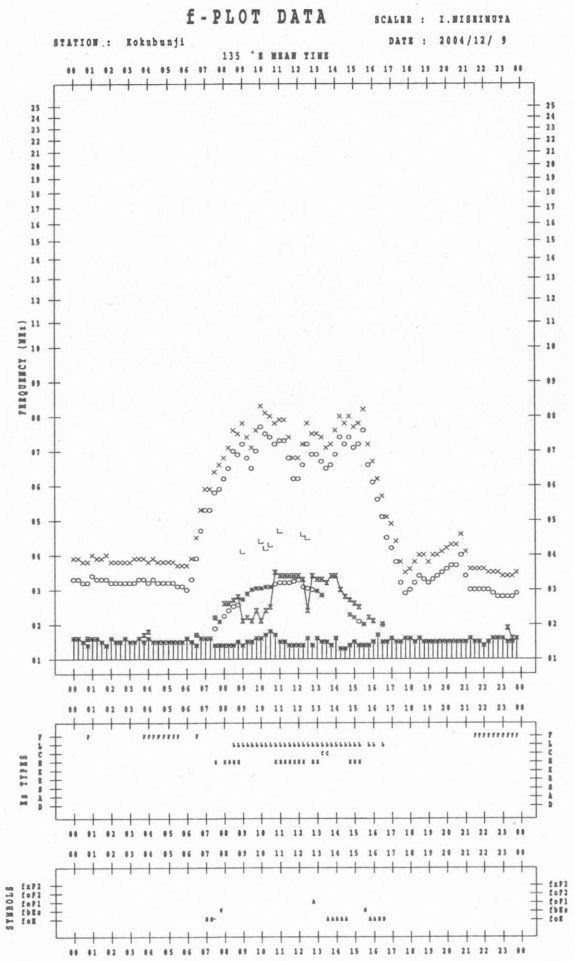
STATION : Kokubunji
DATE : 2004/12/ 8
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS


f-PLOT DATA
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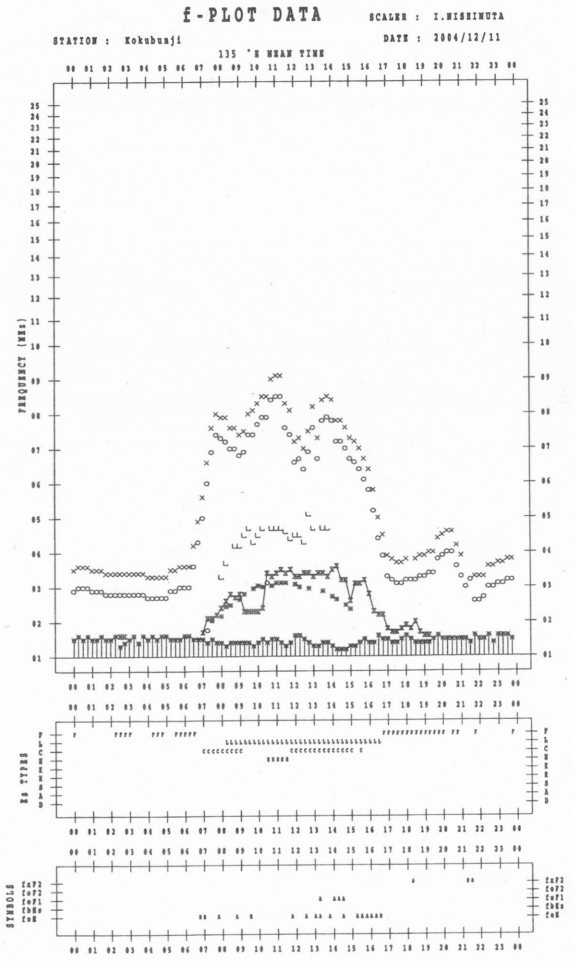
STATION : Kokubunji
DATE : 2004/12/ 9
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS


f-PLOT DATA
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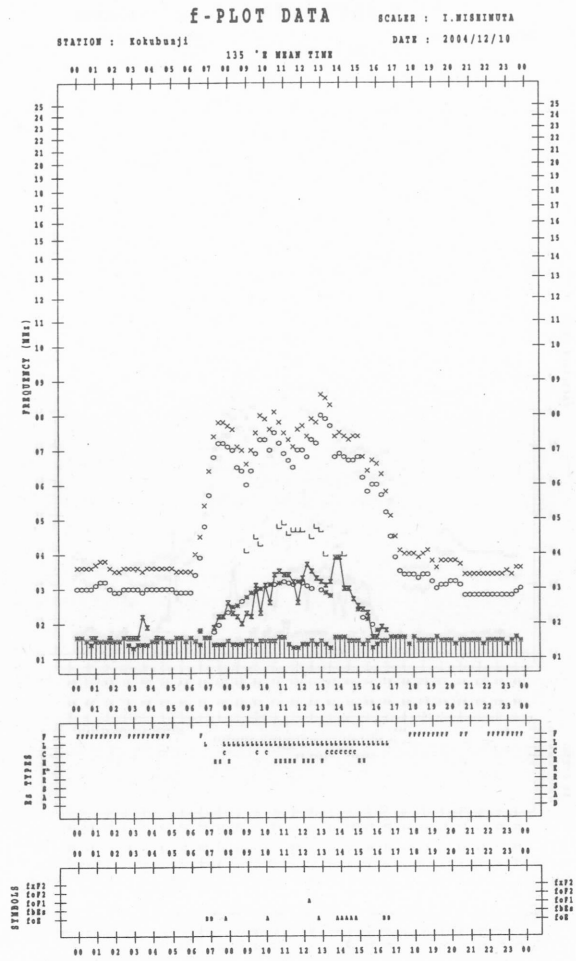
STATION : Kokubunji
DATE : 2004/12/11
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS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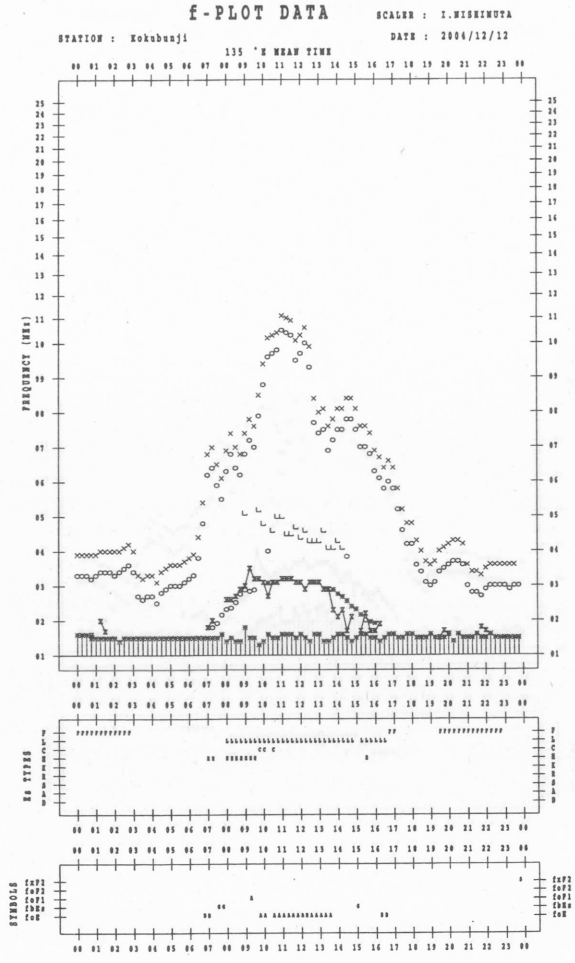
STATION : Kokubunji
DATE : 2004/12/10
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS


f-PLOT DATA
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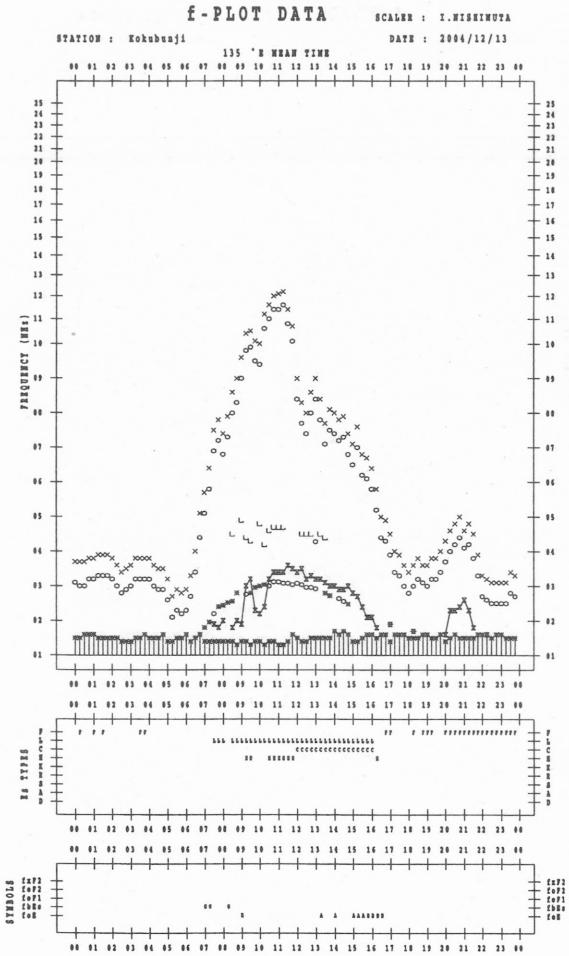
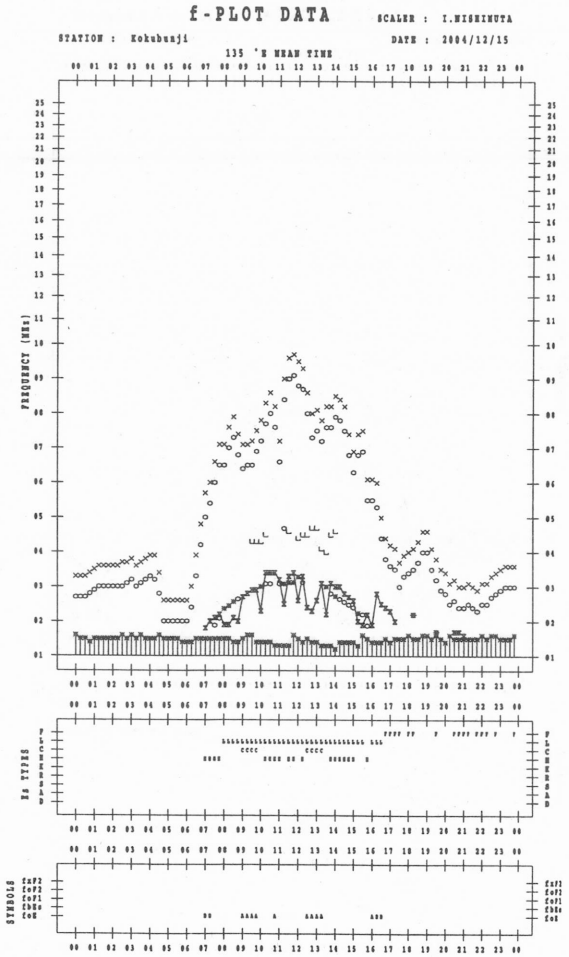
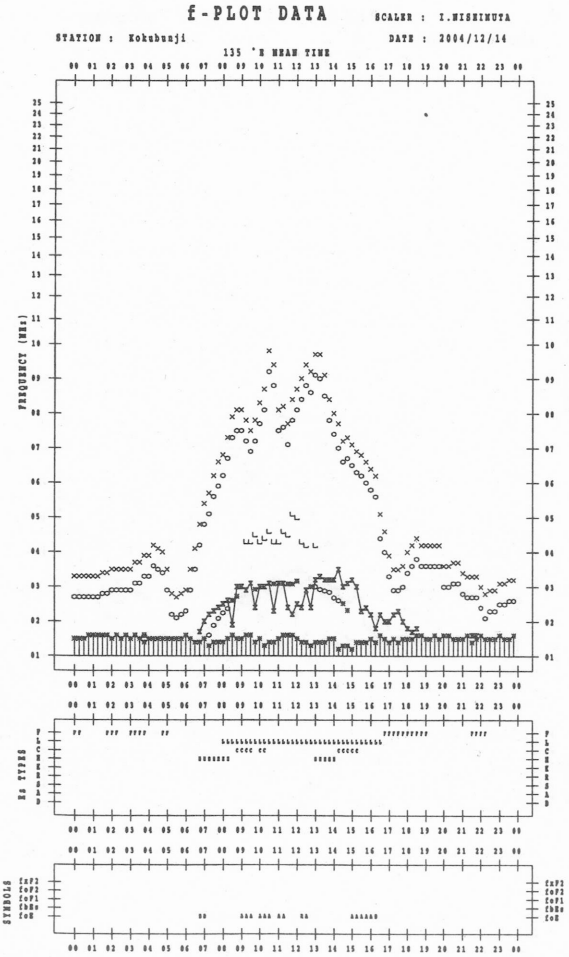
STATION : Kokubunji
DATE : 2004/12/12
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS


f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/12/13
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS


f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/12/15
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS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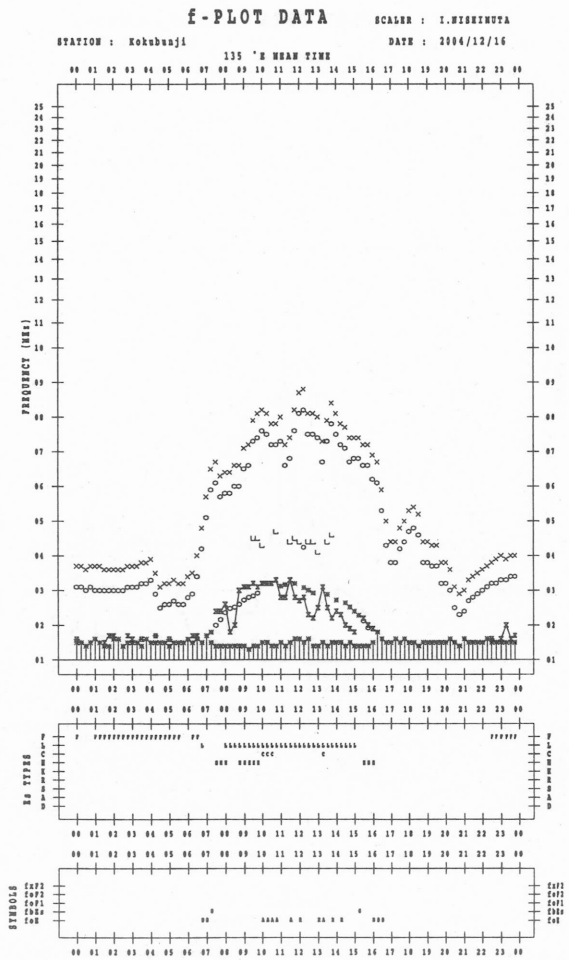
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/12/14
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS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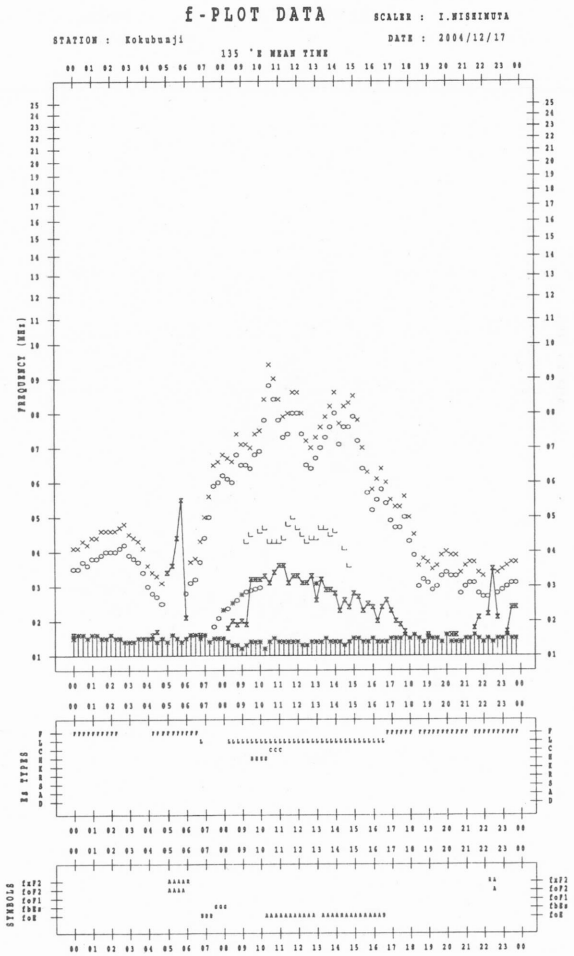
STATION : Kokubunji
DATE : 2004/12/16
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS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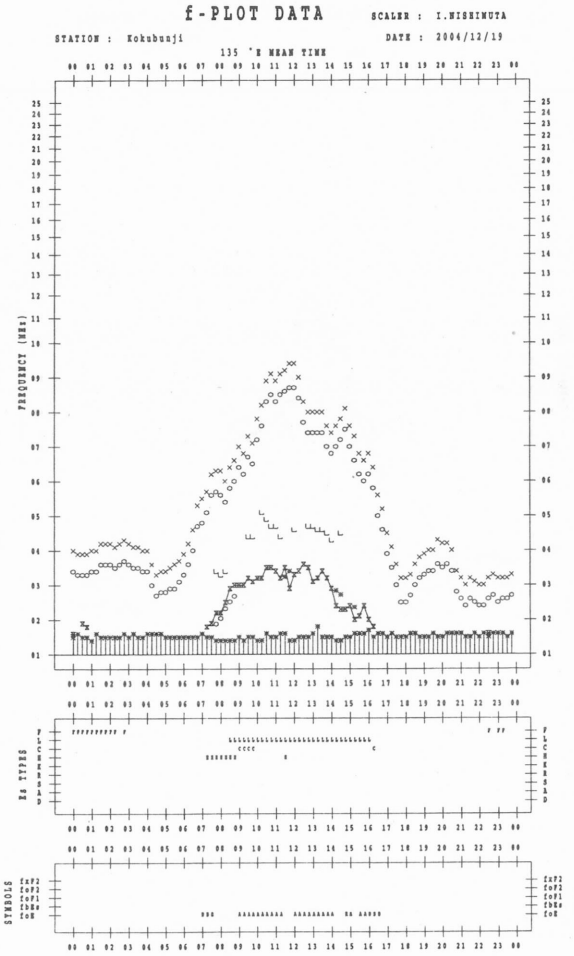
STATION : Kokubunji
DATE : 2004/12/17
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS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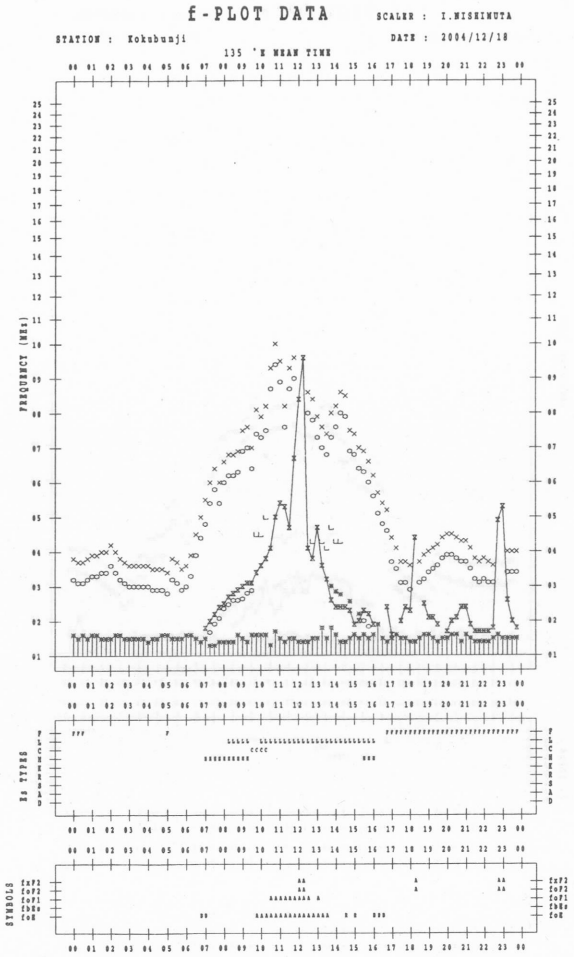
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/12/19
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS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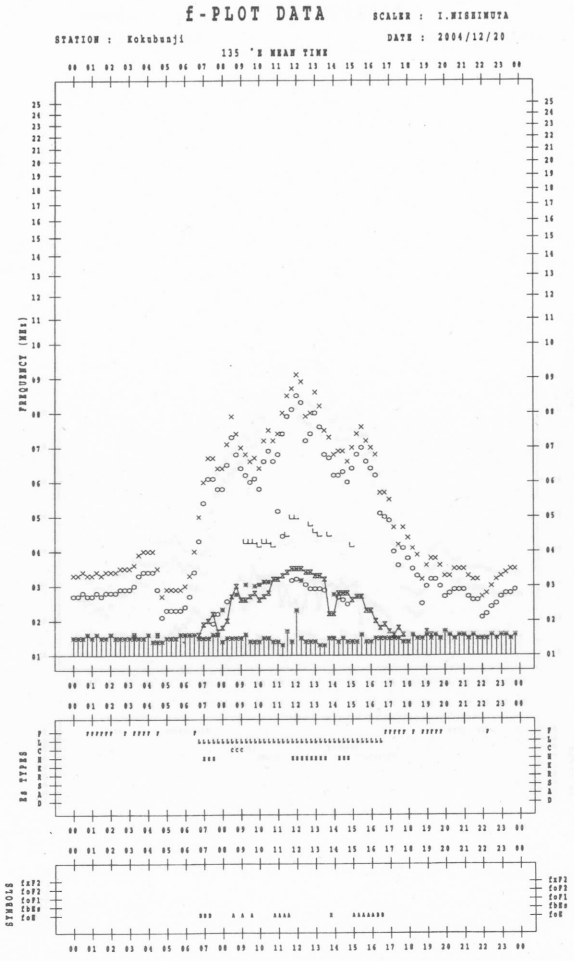
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/12/18
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS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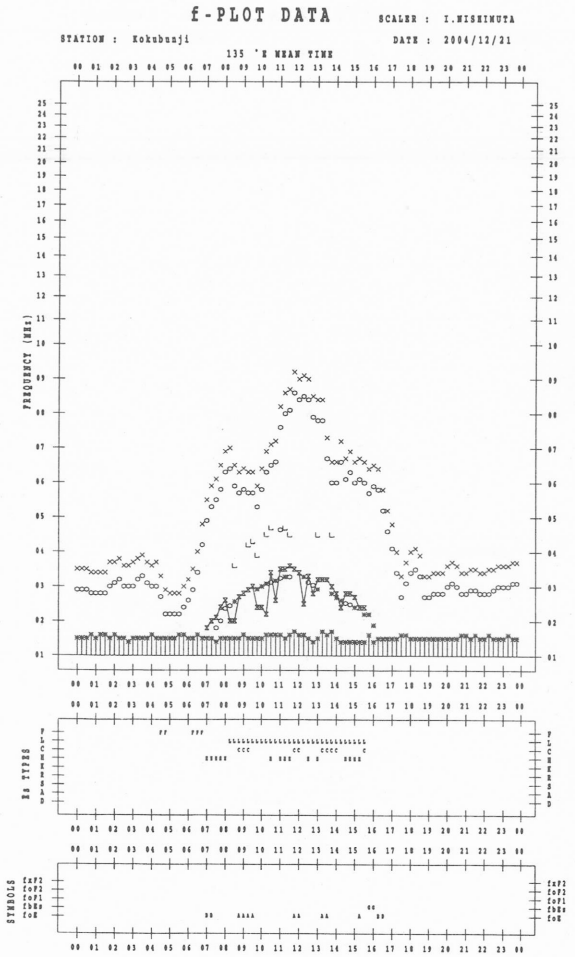
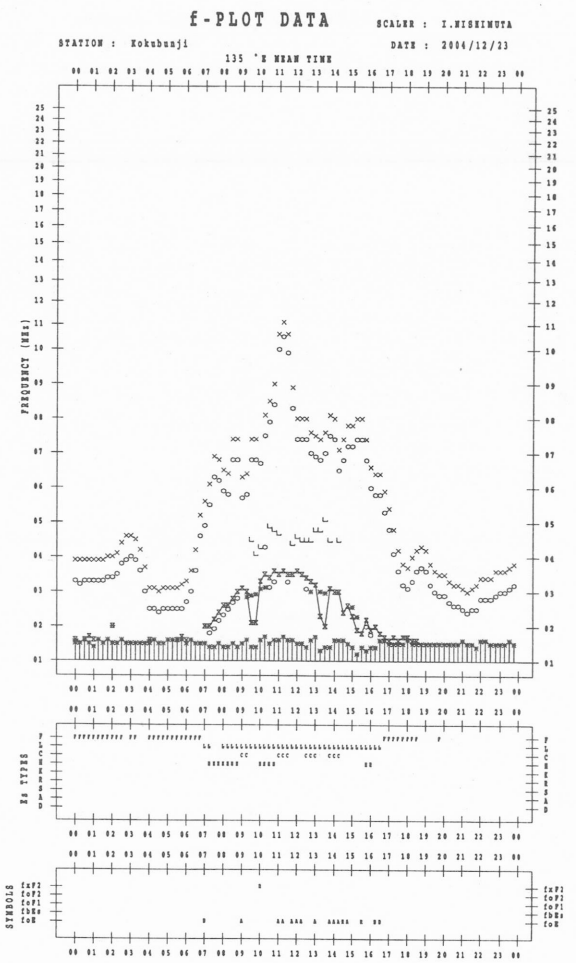
STATION : Kokubunji
DATE : 2004/12/20
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS


f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/12/21
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS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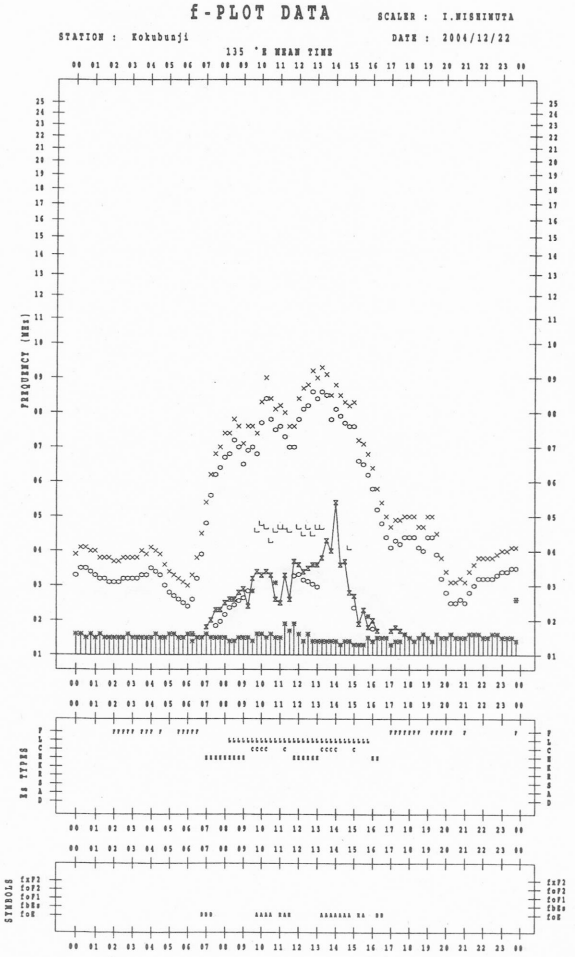
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/12/23
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS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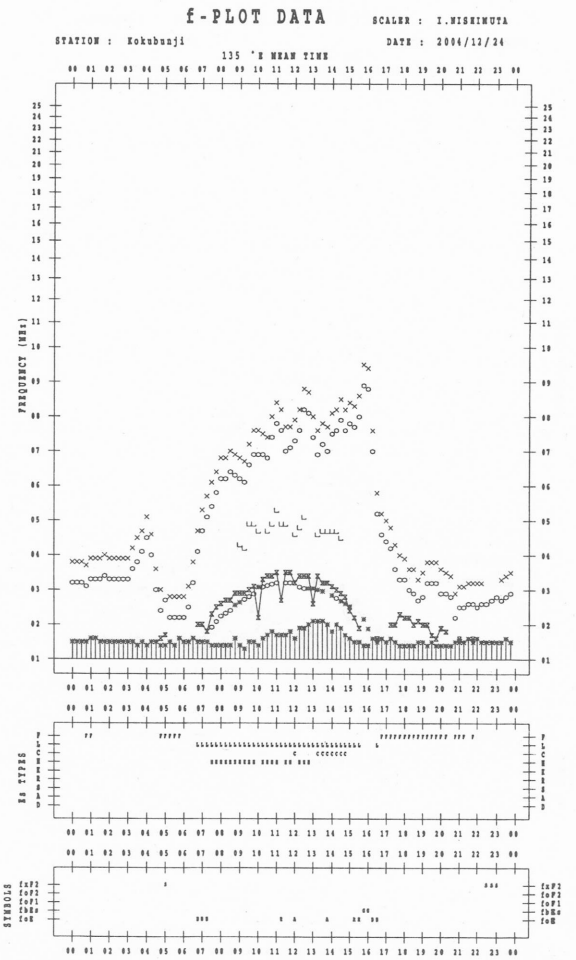
STATION : Kokubunji
DATE : 2004/12/22
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS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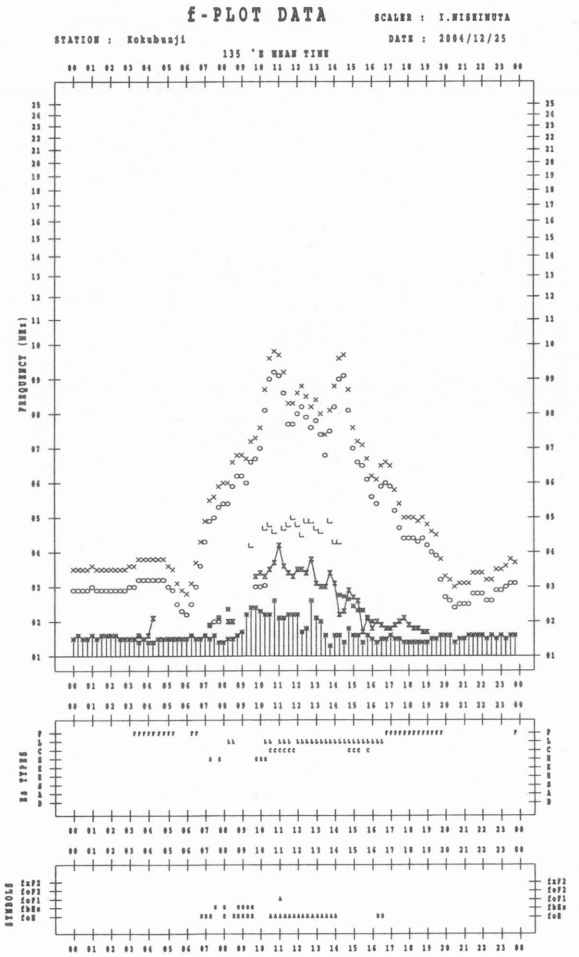
STATION : Kokubunji
DATE : 2004/12/24
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS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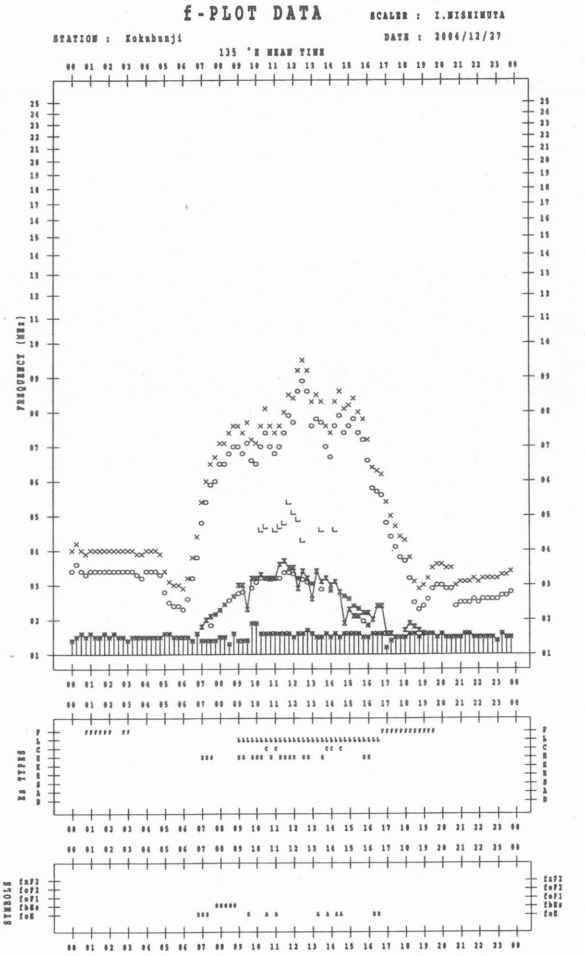
STATION : Kokubunji
DATE : 2004/12/25
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS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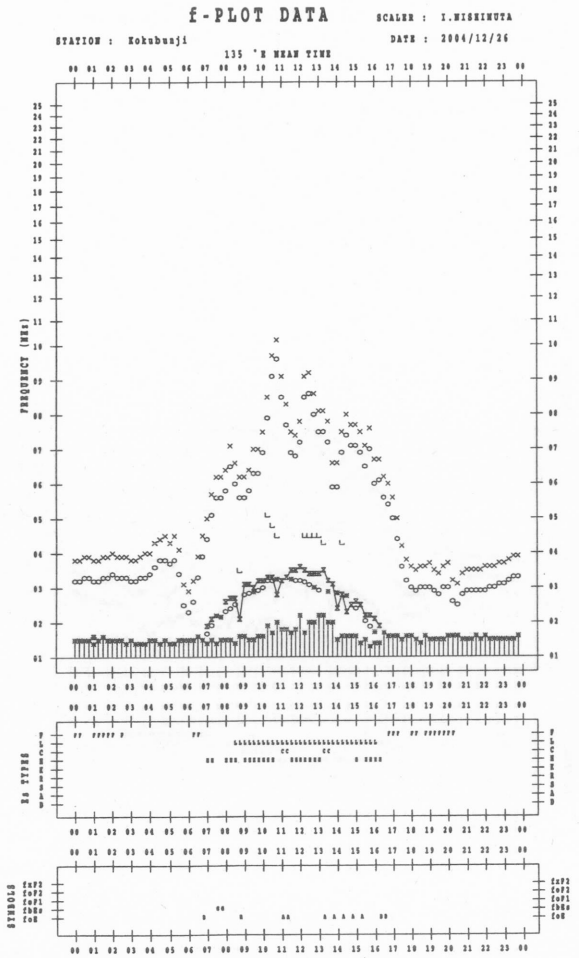
STATION : Kokubunji
DATE : 2004/12/27
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS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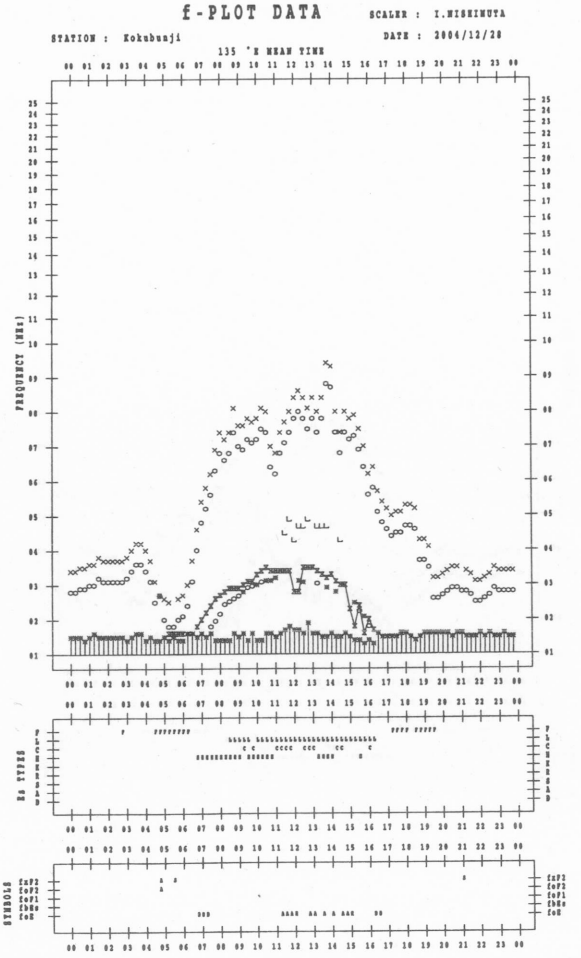
STATION : Kokubunji
DATE : 2004/12/26
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS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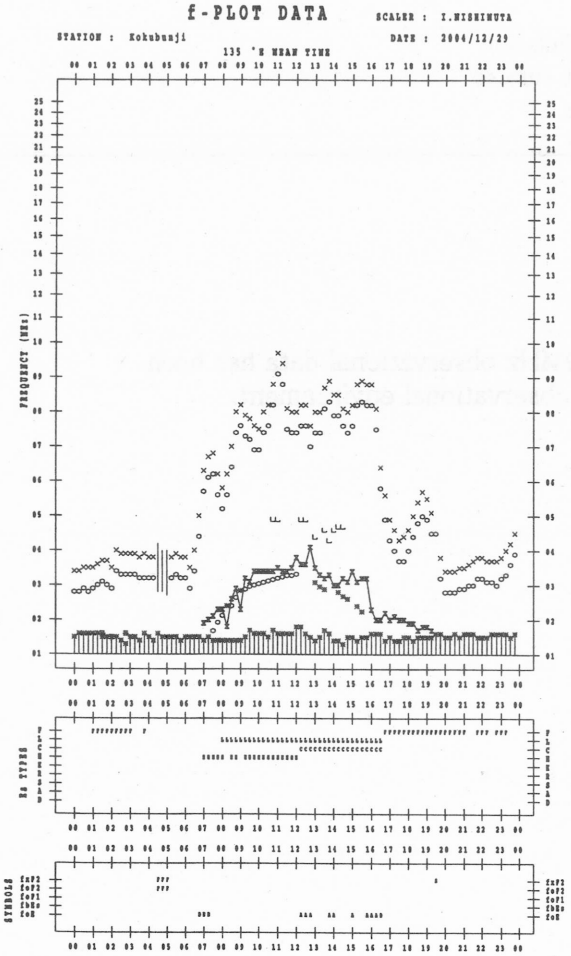
STATION : Kokubunji
DATE : 2004/12/28
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS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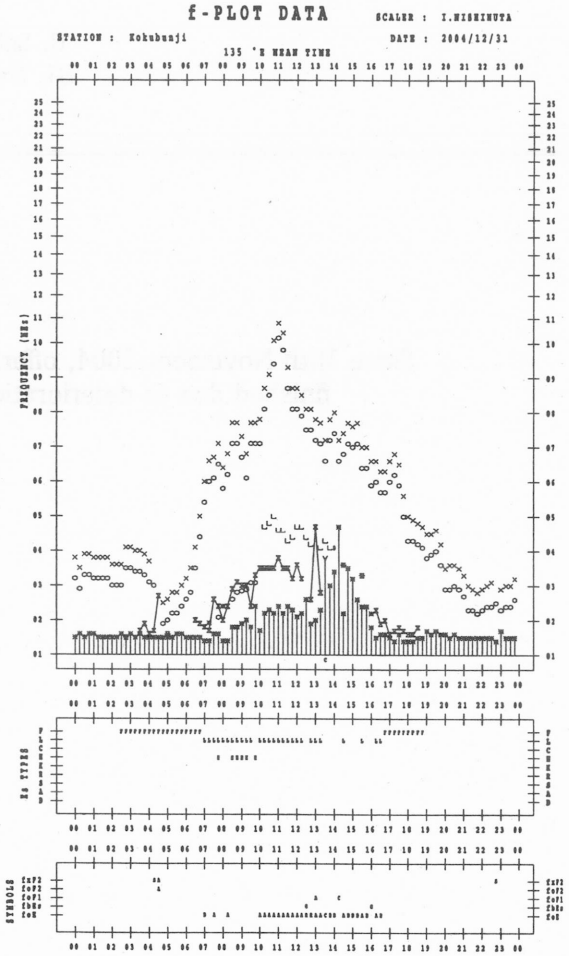
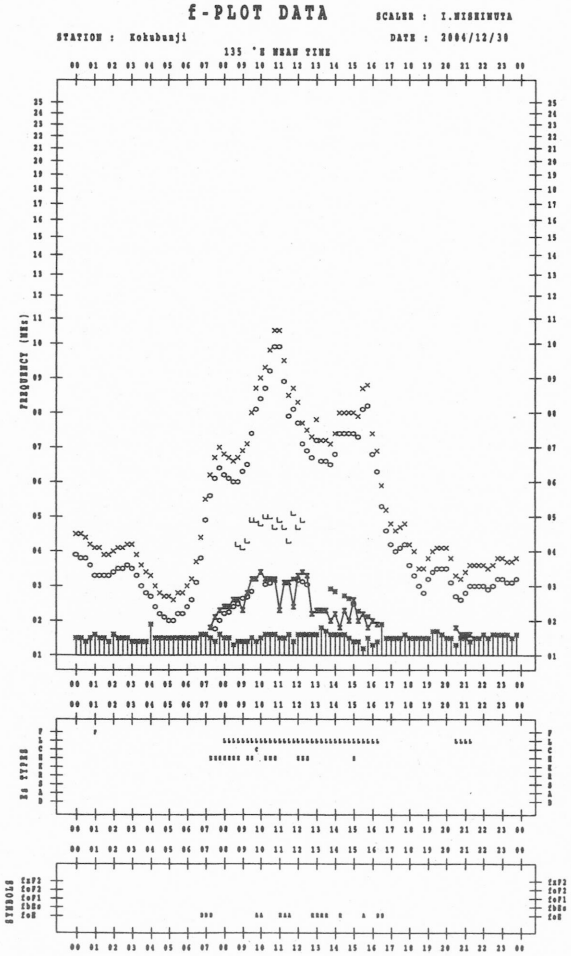
STATION : Kokubunji
DATE : 2004/12/29
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS


f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/12/31
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS


f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/12/30
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS

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.

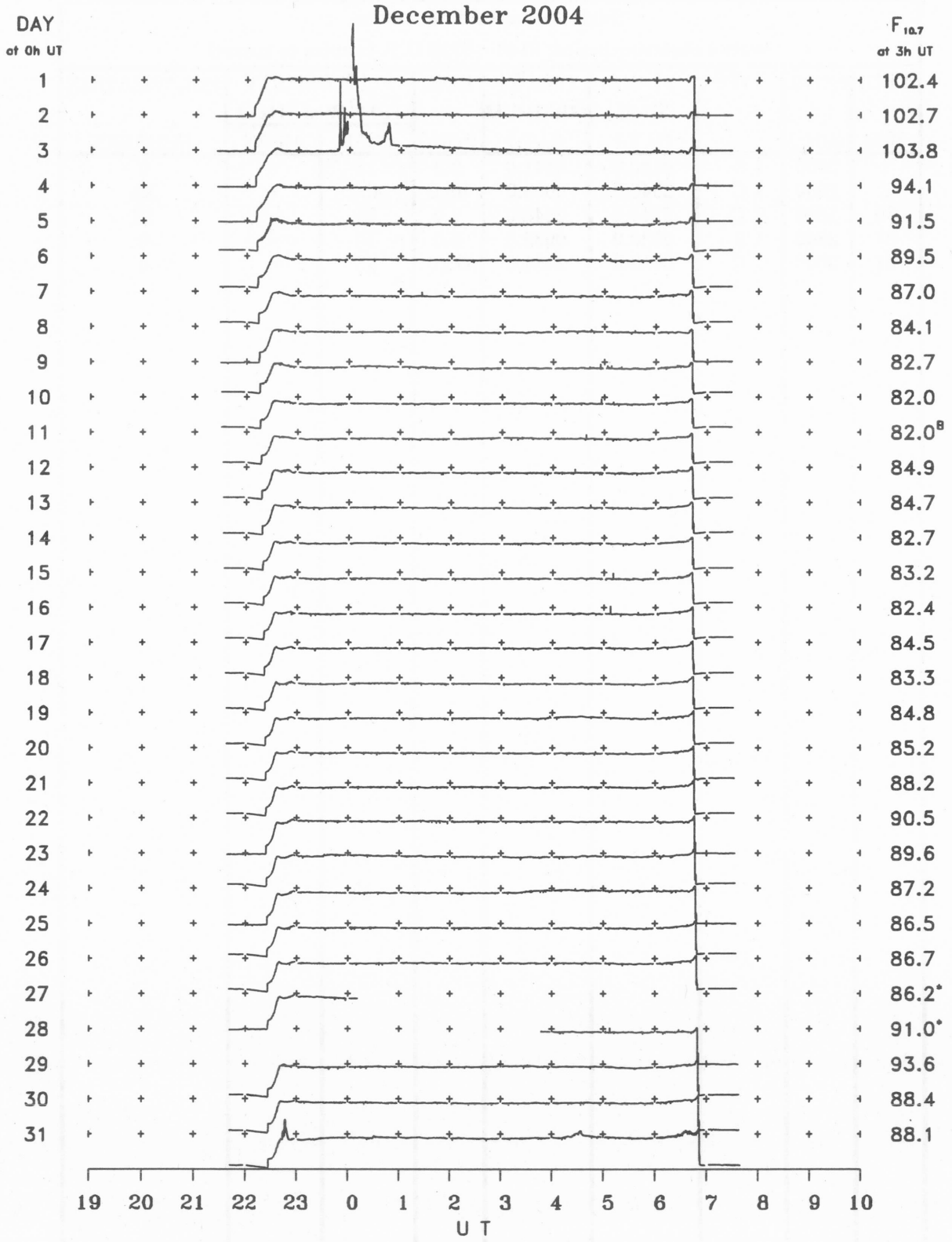
B. Solar Radio Emission
B2.Outstanding Occurrences at Hiraiso

Hiraiso December 2004

Single-frequency observations
Normal observing period: 2140 - 0725 U.T. (sunrise to sunset)

DEC.	FREQ.	TYPE	START TIME	TIME OF MAXIMUM	DUR.	FLUX DENSITY (10^{-22} W m^{-2} Hz^{-1})		POLARIZATION
2004	(MHz)		(U.T.)	(U.T.)	(MIN.)	PEAK	MEAN	REMARKS
1	2800	1 S	0140.0	0141.0	3.0	15	-	0
2	2800	7 C	2346.0	0000.0	63.0	450	-	SR
30	2800	7 C	2244.0	2248.0	7.0	55	-	SR
31	2800	1 S	0030.0	0032.0	3.0	10	-	0
31	2800	7 C	0413.0	0434.0	33.0	25	-	0

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



Note: A vertical grid space corresponds to a 100 sfu.
Elevation angle range ≧ 6°.

IONOSPHERIC DATA IN JAPAN FOR DECEMBER 2004
F－672　Vol.56　No.12（Not for Sale）

電離層月報（2004年12月）
第56巻　第12号（非売品）
2005年　2月14日　印刷
2005年　2月18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

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