ISSN 0021－0382

F－661

IONOSPHERIC DATA IN JAPAN

FOR JANUARY 2004

VOL.56 NO.1

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 Communications Research Laboratory, Independent Administrative Institution in Japan.

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

A. IONOSPHERE

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

A1. Automatic Scaling

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

The published data consist of tabulations of hourly values of three factors (*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 iono-spheric 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 as-sociated 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
SGD Code	Letter Symbol	Morphological Classification
45	C	Complex
46	C	Complex F
47	GB	Great Burst
48	C	Major
49	GB	Major+

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

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

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

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

B3. Summary Plots of F10.7 at Hiraiso

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

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

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

HOURLY VALUES OF foF2 AT Wakkanai

JAN. 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	37	29		28	29		29	44	62	65	81	94	84	82	75	72	64	47	42	20	32	36	38	40
2	42	35	42	40	30	32	36	42	70	71		82	83	80	81	72	61	41	38	A		34	32	34
3	37	37	38	34	34	31			66	83	69	84	73	76	76	66	60	53	31	28	A	36	32	
4	32	34	28	38	40	36	34	44	54	87	109	93	76	70	68	65	58	54	44		28	34	34	37
5	39	34	32	32	31	31		28		A	81		76	76	70	66	54	43	37			30		35
6	36	37	35	34	32			35	55	76	78	79	74	74	64	58	48	53		33	34	37	37	36
7	38	40	40	40	44	44	41	41	66	82	72	84	80	66	65	66	61	60	48	42	89	29		
8	29		36	A	A	A	A	A	68	82	88	85		77	68	57	52	36		A	29	32	32	34
9	35	34	34		35	24	A	36	51	76	76	74	71	75	65	63	A	46	43	A	23			31
10	30	32	34	32	30	29		36		66		79	83	80	75	65	60	45	A			40	45	37
11		30	34	34	40	34		36	60	81	82	88	87	82	78	72	50	41	34	29	A	A	A	
12		29	30	29	32			45	52	76	78	80	78	77	70	58	54	41	40	34		29	32	32
13	32	32	34	34	34			37	60	62	68	80	66	75	68	57	56			35	A	A	38	
14	A	A	36	40	40	36	A	A	82	A		99	77	80	82	75	60	42	40	34		34	36	37
15	40	41	40	38	40	32		45	62	81			79	82	75	71	58	42	38	31	32	37	40	41
16	40	34	40	34	36	32	A	40	60	82	84	91	88	83	84	76	74	62	45	36	28			36
17	38	41	37	31	34		A	25	64	79	94	79	82	82		82	66	54	44				31	34
18	34	34	34	34	34	40	A	42	66	80	81	88	86	74	84	83	66	57	45	38	31	31	36	40
19	42	42	43	43	43	40	30	46	54	75	82	80	84	77	73	81	72	53	44	41	42	38	41	40
20	41	41	40	36	34	32	37	47	64	66	80		91	82	76	71	72	54	40	34	25	32	36	37
21	36	37	37	34	40	32	28	45	77	82		84			77	68	65	46	48	44	40	42	37	40
22	40	40	40	40	41	36	29	51	73	78	81		88	70	71	80	78	67	60	A	44	32		34
23	40	38	28	A	34	31		38	54	60	71	68	70	75	74	70	64	41	29			30	37	42
24	43	40	34	28	32	28	A	34	55	73	63	84	82	77	82	76	61	54	47		26	29	38	40
25	40	42	34	34	32	37	32	36	57	73	59	82	78	84	82	84	72	A	36	36	38	40	40	
26	41	44	35	32	30	A	A	49	62	77	75	88	74	76	75	71	68	49	43	42	40	38	38	41
27	38	37	38	37	37	29	26	42	61	71	73	79	74	84	80	82	65	43	25		42	44	39	37
28	42	40	38	37	36	34	29	47	62	74	84	82	78			77	67	58	46	46	41	34	36	38
29	37	34	40	38	40	32	35	43	62	59	74	81	76		71	72	61	45	36	38	38	A	45	48
30	48	45	44	42	42	39	36	41	65	63	81	82	62	72	57	71	71	50	41	40	37	31	38	A
31	A	A	41	38		A	35	50	62	72	81	70	71	80	76	71	57	54	28	30	31	34	34	
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	27	28	30	28	29	23	14	28	29	29	26	27	29	28	29	31	30	29	27	20	21	25	25	24
MED	38	37	36	34	34	32	33	42	62	76	80	82	78	77	75	71	61	49	41	36	34	34	37	37
U Q	41	40	40	38	40	36	36	45	66	81	82	88	83	82	79	76	67	54	45	40	40	37	38	40
L Q	36	34	34	33	32	31	29	36	56	68	73	79	74	75	69	66	58	42	36	32	28	31	34	34

HOURLY VALUES OF fEs AT Wakkanai

JAN. 2004

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

HD	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	G	G	G	G	G		G	G	G	G	G	G	G	G	G	G	G	G	G	33	33	31	33	40
2	G	G	G	G	G	G	G	36	60	G	G	G	G	G	G	G	G	G	G	29	32	32	28	24
3	26	G	G	G	G	G	G	28	G	G	52	G	G	G	G	G	G	G	G	29	60	39	37	35
4	26	G	G	26	G	G	G	G	G	52	G	G	G	G	G	G	G	G	G		26	G	G	G
5	G	G	31	G	G	G		34	46	78	62		G	G	G	30	38	G	G			G	34	30
6	G	G	27	28	29	34	43	32	G	G	G	G	45	G	G	38	32	40	42	39	G	38	28	27
7	38	31	G	G	G	G	30	44	G	G	G	G	G	G	G	35	34	32	40	G	G	G	26	
8	G	28	27	52	40	65	41	47		G	G	G		G	G	G	G	29	32	34	G	33	25	G
9	G	26	27	34	G	28	33	30	G	G	G	G	G	G	G	49	84	36	34	43	33	33	34	G
10	G	G	G	G	G	G	28	26	G	G		G	G	38	34	45	G	G	51	39	39	33	G	G
11	G	G	G	G	G	G		26	34	38	G	G	G	G	40	49	G	G	G	G	34	46	49	44
12	29	28	26	26	G	39	33	39	32	G	G	G	G		G	G	G	28	G	45	34	22	29	G
13	G	G	G	G	G	31	37	28	40	G	G	G	40	G	G	G	G	40	59	38	46	39	38	34
14	69	45	38	G	G	40	47	58	72	88	G	G	G	G	G	G	G	G	G	G	26	G	30	27
15	G	G	G	G	G	G	27	33	32	52			G	G	G	G	G	G	G	G	G	G	G	G
16	G	G	G	G	G	25	34	26	46	34	G	G	G	G	46	G	G	G	G	28	G	39	30	G
17	29	G	G	G	G	40	54	40	G			G	G	G		G	G	49	30	31	36	36	G	G
18	G	G	G	G	G	G	33	32	G	G	42	39	G	G	G	G	34	34	28	G	G	G	G	G
19	G	G	G	G	G	29	G	28	G	48	G	G	G	G	G	32	G	G	G	G	G	G	G	G
20	G	G	G	G	G	G	G	G	G	G	G	G	G	G	40	G	G	G	29	G	25	G	29	G
21	G	G	G	G	G	G	G	26		G	G	G	40	G	G	G	G	G	27	32	28	G	G	G
22	G	G	G	G	G	G	G	G	G	G	G	G	50	G	G	35	32	30	29	78	38	G		G
23	G	G	G	33	27	G		25	G	G	G	G	G	G	G	G	G	G	G		G	G	G	G
24	G	G	G	G	G	30	37	33	G	G	G	G	G	G	G	G	G	33		35	26	G	29	G
25	G	G	G	G	G	G	G	G	41	34	G	G	G	G	G	G	G	70		34	27	G	G	G
26	G	G	G	G	31	72	70	39	39	41	G	G	43	39	49	32	27	G	G	31	33	28	G	G
27	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	39	G	11	43	59	31	30	33	G
28	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	11	G	G	G	G	33	33
29	38	29	G	G	G	G	G	G	G	G	G	G	G		G	G	G	G	G	30	G	43	39	30
30	26	32	G	G	G	G	G	G	G	G	G	G	G	G	G	G	32	11	G	26	26	30	G	44
31	48	44	35	43	40	43	G	29	G	G	G	G	G	38	38	41	47	39	G	G	G	G	G	47
	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	28	31	29	30	28	29	30	29	30	31	31	31	29	28	30	31	30	30
MED	G	G	G	G	G	G	14	28	G	G	G	G	G	G	G	G	G	G	G	30	26	22	28	G
U Q	26	26	G	G	G	31	35	34	36	34	G	G	G	G	G	35	32	33	31	36	33	33	33	30
L Q	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G

HOURLY VALUES OF fmin AT Wakkanai

JAN. 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	15	15	20	15	20		18	16	21	21	21	21	30	28	26	22	20	14	15	14	14	15	15	15
2	15	18	15	16	20	17	17	15	15	16	20	28	29	28	26	22	17	15	15	15	15	15	14	14
3	15	20	15	15	15	16	14	16	15	24	23	32	38	34	26	22	18	18	14	20	14	15	15	15
4	15	18	15	15	18	15	15	14	21	21	30	30	32	35	26	22	18	20	15		22	16	14	14
5	14	14	14	14	14	18		15	14	15	18		22	49	28	17	16	16	20			20	15	14
6	15	21	17	14	14	15	14	16	21	24	20	18	18	20	23	14	16	15	20	16	15	17	14	15
7	14	14	14	15	15	15	15	14	14	24	20	20	29	34	18	15	14	15	15	17	21	20	20	
8	20	20	15	16	15	16	14	15	14	22	18	33		28	29	18	16	15	15	15	15	14	15	16
9	15	15	16	15	14	17	15	15	22	26	22	49	33	29	22	18	17	14	17	14	15	15	17	18
10	14	14	14	14	14	18	18	15	21	30		27	34	27	22	20	20	15	15	14	15	14	17	18
11	21	15	14	15	15	16		16	15	17	27	28	33	28	20	17	15	14	15	15	15	15	14	15
12	15	16	15	17	15	15	15	14	16	16	18	18	18	20	26	16	18	15	14	15	14	16	18	15
13	15	15	14	14	16	15	14	15	17	28		30	48	35	34	29	20	14	14	14	14	14	15	15
14	14	14	14	15	18	15	15	14	15	18	18	20	20	20	28	20	20	15	14	15	22	16	15	15
15	15	15	15	17	15	18	17	15	14	14			15	21	18	23	20	15	15	17	20	15	18	16
16	14	15	15	17	15	15	18	15	14	15	18	17	29	18	20	21	20	17	15	15	20	15	16	21
17	18	15	14	18	14	15	16	14	18	28	20	20	21	21		15	20	14	15	18	15	17	15	17
18	20	15	15	14	14	15	15	14	22	17	16	18	18	18	28	20	18	14	15	16	16	15	18	14
19	17	15	15	15	15	15	18	16	22	18	30	18	21	20	18	20	21	14	15	15	15	21	15	20
20	18	16	14	15	14	20	16	18	22	28	33	33	21	21	22	17	20	15	14	15	17	18	15	17
21	15	15	15	15	15	14	20	15	22	27	21	22	22	27	21	20	20	18	15	15	15	15	16	14
22	14	14	15	14	14	15	15	15	22	17	20	20	21	20	18	14	14	14	15	14	15	16		18
23	15	15	15	15	17	20		17	15	24	18	20	18	28	26	23	14	16	15		18	15	15	15
24	14	14	15	16	15	15	15	14	22	34	36	37	34	30	34	28	21	16	22	15	16	15	18	15
25	15	14	15	15	15	15	15	18	17	23	32	34	35	46	33	24	20	15	15	15	23	17	20	20
26	16	14	15	15	14	15	15	14	18	21	29	36	30	21	20	15	18	18	16	15	15	16	15	15
27	14	15	14	16	15	20	20	15	21	27	22	30	21	30	18	16	21	18	15	14	15	16	16	16
28	14	14	17	14	18	16	20	16	22	22	35	33	49	54	36	33	23	15	20	15	15	16	16	20
29	16	15	18	18	16	15	16	15	24	33	35	40			38	29	23	14	16	15	16	15	15	14
30	15	15	15	15	14	15	20	16	21	24	30	33		34	28	23	18	15	17	15	15	15	16	15
31	14	14	14	15	15	15	17	17	20	20	20	20	20	16	18	18	17	14	14	21	21	16	18	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	31	31	31	31	31	30	28	31	31	31	28	29	28	30	30	31	31	31	31	28	30	31	30	30
MED	15	15	15	15	15	15	16	15	20	22	21	28	26	28	26	20	18	15	15	15	15	15	15	15
U Q	16	15	15	16	16	17	18	16	22	27	30	33	33	34	28	23	20	16	16	15	18	16	17	17
L Q	14	14	14	15	14	15	15	14	15	17	19	20	20	20	20	17	17	14	15	15	15	15	15	15

HOURLY VALUES OF foF2 AT Kokubunji

JAN. 2004

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

DAY \ HOUR	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	34	30					27	51	92	98	91	104	97	80	82	77	63	52	43	42	30		A	A
2	38	44	34			28	28	58	75	88	98	97	88	87	77	75	64	47		35	A	A	A	A
3	A	A	34	34				46	66	89	91	91	82	87	81	75	60	51	39	32				
4	26	26			34			43	77	82	88	86	78	77	78	69	53	52			28	34	36	38
5		30	A	31	28		27	47	72	86	120	90	114		68	67	58	44	48					
6	32	40	39				28	38	77	81	92	80	80	73	69	59	54	43	45	46				28
7	32		32	34	30			48	59	72	93	94	94		62	66	74	54	45	34	38		27	
8	30	32		A		A	A		66	111	120	81	75	77	67	59	57	42	38	35	33		A	
9		35	30					44	64	63	81	91	100	77	81	71	66	A	A	32	32			
10	30	30	31	30	34		28	41	63	80	124	96	82	86	90	82	58	46	A	39	38	45	52	
11			26	28				47	54	64	78	102	125	102	86	82	70	A	A	A	A			A
12				31	A	A		52	80	82	105	90	75	69	68	66	59	41	37				A	A
13	A		32	32	34			A	50	68	69	86	81	72	78	72	65	A	31	39	37			31
14	34	34	36	27	27	30	27	53	69	82	97	101	96	91	75	72	72	53	39	37		30		32
15		36	30	32	26			49	93	78	81	92	90	76	68	72	59	46	41	36	30	27	31	34
16	32	34	32	32	32	25	32	47	62	99	106	127	112	95	80	76	78	64	52	53			28	30
17	34	34	36	32	30			51	80	78	C	C	C	C	C	C	C	56	A		34	32	34	
18					28	28	30	54	62	80	104	120	96	83	81	91	97	63	44	34	39			27
19	32	34	32	34	32	A	27	51	76	72	75	84	78	80	91	84	69	64	47	43	34	37	35	32
20	36	39	34	34			33	61	72	90	101	101	104	76	80	77	71	66	44		27	34	34	34
21	36	36	34	34	34	34		54	78	101	100	112	97	85	78	78	66	A	41	48	48	39	34	
22	34	36	34	34	36	32	32	53	84	90	90	102	96	100	107	90	68	A	62	48	35		32	43
23		30	28	A	A	46	71	85	88	111	95	82	96	97	90	82	68	52	44	34	39	42	38	36
24	37	34	28	30				54	65	85	111	105	105	112	116	81	68	51	51	49	28	34	34	A
25	39	37	34	34	34	32	34	54	65	72	80	91	100	96	97	95	86	61	36	A	45	A		44
26	42	34	27	27	A		29	51	78	68	83	80	94	94	82	77	74	59	55	43	37			36
27	38			35	36	A	A	54	85	90	78	85	96	88	92	85	74	44	38	A	A	38	A	A
28	34	32	32	28	32	31	34	52	66	74	88	87	101	91	77	69	86	59	57	33	45		27	31
29	32	34	34	34	27	28	30	57	70	86	69	80	89	91	62	75	65	54	36	30	34	34	32	37
30	A	34	31	28	30		30	53		75	72	69	80	77	65	69	73	62	48		27	32	34	34
31	34	36	37	36	32	30		54	77	86	75	88	77	77	85	88	94	69	38	36		41	30	34
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	21	24	24	23	19	11	17	29	30	31	30	30	30	28	30	30	30	26	25	22	21	14	16	17
MED	34	34	32	32	32	30	30	52	72	82	91	91	95	86	80	76	68	52	44	36	34	34	34	34
U Q	36	36	34	34	34	32	32	54	78	90	101	101	100	92	86	82	74	61	48	43	38	39	34	36
L Q	32	32	30	30	28	28	27	47	65	74	80	85	81	77	69	69	60	46	38	34	30	32	30	31

HOURLY VALUES OF fEs AT Kokubunji

JAN. 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	G	G					G	32	47	G	G	G	G	G	G	G	G	G	G	G	30		72	32
2	G	G	G			G	G	G	G	G	56	45	49	G	G	G	G	G		27	40	51	60	41
3	40	35	G	G	30			G	33	49	39	G	G	G	G	G	G	G	G	G	G			
4	G	G		G	G	G		G	G	45	G	G	G	G		49	45	41	35	G	G	G	G	G
5	34	30	33	25	G	27	G	G	G	40	61	49	52		49	37	46	35	35	23				
6	G	26	G				G	G	G	G	46	42	45	48	39	35	G	G	G	30				29
7	G		26	G	G			G	G	G	40	G	47		55	47	41	G	30	27	29		G	
8	G	G	29	32		27	36		40	G	G	G	G	G	49	49	60	34	G	30	G		49	33
9		G	G	G	G			G	G	G	G	G	49	70	58	59	39	51	71	31	G		G	
10	G	G	G	G	G	G	G	G	G	G	40	G	62	51	43	44	52	40	60	34	24	G	G	
11		G	G	G	G			G	G	G	G	G	G	G	48	70		96	71	41	31		40	45
12	26	27	22	23	30	39	34	39	55	65	40	G	G	G	38	G	34	28	G		27		35	30
13	35		G	G	G			60	55	47	G	G	G	40	50	50	59	51	32	G	30	28		G
14	G	G	G	G	G	G	G	G	33	G	49	50	G	43	G	G	35	G	G	G		G	G	G
15		23	26	32	G			G	G	G	G	G	G	40	40	47	G	G	G	G	G	G	G	G
16	G	G	G	G	G	G	G	G	G	40	42	G	G	G	G	G	G	G	G	G		G	G	G
17	G	G	G	G	G			29	47	G	C	C	C	C	C	C	C	47	53		G	G	G	
18			26	29	30	G	G	G	G	G	53	G	G	53	G	52	35	40	33	G	G	G		G
19	G	G	G	G	G	29	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
20	G	G	G	G	G		G	G	G	G	G	G	G	48	69	39	G	G	G		G	G	G	G
21	G	G	G	G	G	G	G	G	34	G	G	47	60	48	38	38	36		73	G	G	G	G	G
22	G	G	G	G	G	G	G	G	G	G	G	G	47	46	G	39	35	60	G	G	G		G	G
23		G	25	51	43	29	26	G	G	55	45	48	46	56	45	39	31	11	G	G	G	G	G	G
24	G	G	G	G				G	44	G	G	G	G	G	G	G	33	G	G	G	G	30	30	35
25	27	G	G	G	G	G	G	G	G	G	G	G	G	50	50	G	G	60	61	84		33	34	G
26	G	G	G	G	34	G	G	G	G	G	G	G	G	G	45	G	31	G	G	34	34	35	33	29
27	26	31	28	G	G	31	30	G	G	G	G	40	G	G	G	G	34	41	48	35	40	33	48	39
28	24	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	48	G	G	G	G		G	G
29	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	32
30	32	G	G	G	31	26	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	27	G	G
31	G	G	G	G	26	G	26	G	G	45	G	G	G	G	G	G	33	G	26	24	40	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	26	28	29	28	26	20	22	30	31	31	30	30	30	28	29	30	29	30	30	28	26	20	26	25
MED	G	G	G	G	G	G	G	G	G	G	G	G	G	G	38	18	33	G	G	G	G	G	G	G
U Q	26	G	23	G	26	27	G	G	33	40	40	G	46	48	48	47	40	41	35	30	30	29	34	32
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

JAN. 2004

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

HD	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	18					14	13	20	35				43	37			17	20	14	15		13	13
2	14	13	14			23	18	17	29	30	28	28	30	42	34	30	28	22		18	13	15	14	13
3	13	13	14	13	13			17	15	15	17	18	33	37	34	37	26	14	14	13	20			
4	17	14		20	13	20		18	25	28	23	28		39	22	21	17	15	15	18	18	20	20	21
5	15	14	13	17	18	14	17	18	23	15	29	28	31		36	26	18	17	14	15				
6	14	15	13				18	26	26	29	28	29	28	29	21	18	23	17	21	15				15
7	14		13	14	14			15	14	30	21	21	28		33	25	15	26	18	18	13		20	
8	20	14	15	17		13	13		13	30	17			37	29	14	13	17	15	13	14		14	13
9		18	13	13	13			18	14	20			31	29	23	17	13	13	14	13	15		20	
10	15	14	15	18	15	15	15	18	28	33	25	20	18	17	23	15	14	14	14	14	13	15	15	
11		14	15	13	14			17	15	20					23	17		14	15	13	13		14	13
12	14	13	13	14	13	15	13	13	14	18	14	17		33	17	17	15	13	18		14		13	14
13	17		13	14	14			13	13	14	31	28		33	42	26	18	13	14	15	14	14		15
14	14	15	14	14	17	14	15	20	14	15	21	21	21	17	17	15	13	21	13	17		20	21	13
15		14	14	14	13			20	28	18	31	18	18	14	26	13	18	20	15	14	20	20	14	17
16	18	14	14	17	14	14	13	18	13	14	20	26	21	18	18	17	14	17	14	17		20	21	15
17	18	14	13	13	14			17	26		C	C	C	C	C	C	C	21	14		15	17	17	
18			18	15	13	18	14	18	14	14	26	26	23	21	21	18	14	14	13	15	14	18		24
19	14	14	14	13	13	13	17	20	26	15	18	26			18	17	25	17	14	14	14	14	23	18
20	15	15	14	21	17		14	18	14	20	34		35	24	29	20	28	13	18		20	15	20	20
21	18	14	14	15	14	17	15	18	14	34	42	34	33	31	25	18	15	15	14	20	14	15	13	21
22	14	14	15	14	14	14	14	20	28	33	21	20	33	31	21	20	13	14	20	13	15		21	20
23		18	14	13	13	14	13	18	14	13	18		18	20	29	17	26	18	14	15	17	17	17	14
24	14	20	15	18				20	17		37	39	42		20	33	17	17	14	13	17	15	15	14
25	18	14	18	15	17	14	17	20		34	34			33	31		17	18	13	14	14	14	18	24
26	18	15	14	17	13	17	17	18	28	14	15	20			33	20	18	18	15	17	14	14	13	22
27	17	14	17	14	15	13	14	18	14	31	36	23	34	22	36	33	18	14	14	14	17	18	13	13
28	14	13	17	24	17	15	18	18		20	20		34		34	33	15	18	15	18	17		21	18
29	14	18	14	14	18	17	17	18		35	44	52	53	45	39	34	34	20	14	14	18	17	14	14
30	15	14	14	15	14	14	14	17	29	36	37	39	35	37	36			20	15	15	14	14	15	15
31	20	14	15	15	13	17	13	23	14	17	20	37		35	17	17	15	18	13	15	13	13	15	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	26	28	29	28	26	20	22	30	28	29	27	22	20	23	30	27	27	31	30	28	27	20	26	25
MED	15	14	14	14	14	14	14	18	15	20	25	26	31	31	28	18	17	17	14	15	14	15	15	15
U Q	18	15	15	17	15	17	17	20	26	32	34	29	34	37	34	26	23	18	15	17	17	18	20	20
L Q	14	14	13	14	13	14	14	17	14	15	20	20	22	21	21	17	14	14	14	14	14	14	14	13

HOURLY VALUES OF foF2 AT Yamakawa

JAN. 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	53	44	32					37	67	88	84	114		87	99		84	65	54	47	44	34	37	38
2	32	32	34	A		26	26	45	66	67	96	88	89	82	82	90	81	60	49	30	34		32	37
3	42	32	37					34	64	65	101	99	88	86	89	88	80	62	48	44	36	42	53	A
4					31			36	76	78	82	80	84	80		92	68	55	50	A		A		
5	32	A			A			37	76	83	88	113	79			78	77	A	A	53	37	A		
6	29	34	34		26			31	70	73	81	86	86	77	67	70	60	47	50	50	47			
7	32	29	32	32		29		42	64	64	92	107	88		68	83	81	73	A		50	42	36	36
8	34	43							63	90	112	87	74	78	74	66	60	52	36	42	42	34		
9	29	32	36					32	63	66	75	83	110	117	90	88	81	75	43	43	43	43		
10	30	30	30	34	34		26	32		71	83	84	84	83	94	84	66	55	48	37	50	47	37	
11	28	29	34	37				32	51	64	66		130	130	108	90	88	77	A		36	35	32	
12	33	30	30	34	29			A	64	84	90	88	88	75	70	71	68	61	A	51	34	36		26
13	30	32	36	32	32			35	58	68	56	78	98	88	77	72	70	66	47	A	37	38	30	34
14	32		36			30	28	35	64	78	84	110	87	86	81	77	73	71	57		48	42	34	
15	34	36	34	28		28		34	66	71	81	113	108	86		78	67	54	50	36	36	34	30	34
16	34	32	31	37			29	37	65	84	89	120	111	87	89	86	82	76	60	52	32	34	34	34
17	34	37	29	28		31	32	36	76	81	81	114	100	86	101	86	76	74	52	35	44	43	34	
18	28		32	34	29		30	34	63	73	88		99	84	85	80	87	83	52	41		34	28	28
19	32	34	34	34	34	28		36	77	71	76	75	78	81	88	82	76	76	73	A	36	43	36	36
20	37	36	38	32	32	32	28	44	78	85	C	C	C	C	C	C	C	75	57	43	32	37	38	36
21	36	36	44	34	34	28	32	36	77	111	87	107	87	82	87	83	84	80	57	47	50	51	36	34
22	32	35	34	34	32	36	30	37	76	106	90	92	88	90		110	77	62	86	66	50	53	37	52
23	50	34	36	37	36	A	80	88	139	86	86		106	88		75	80	A	52	38	52	46	42	
24	34	29		29	29			36	66	83		114	112	117	111	88	80	71	71	70	48	34		37
25	30	29	26	32	34	30	25		66	66	76	86		88	88		86	80	A	A	36	52	43	34
26	43	29		26	28		25	32	72	71	77	84	82	90	88	81	72	77	70	52	42	A	A	36
27	32	29	34	34	36	29		A	76	92	80	83	101	114	88	81	80	77	A		34	37	34	26
28	37			28		26	34	34	73	77	102	92	86	86	81	77	79	85	77	54	36	37	34	29
29	32	32	34	32	30	34	32	40		82	81	76	78	86	80	75	72	55	47	37	36	36	32	34
30	34	34	34	29	29	29	29	36	68	76	C	C	C	C	C	84	90	80	78	49	34	36	32	
31	36	34	34	36	34	31	32	37	81	82	84	80	80	78	86	83	88		55	54	54	53	36	34
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	26	25	22	18	15	16	27	29	31	28	26	27	27	24	28	30	28	25	23	29	26	23	19
MED	32	32	34	33	32	29	30	36	67	78	84	88	88	86	88	82	80	72	52	47	37	38	34	34
U Q	36	35	36	34	34	31	32	37	76	84	89	110	101	88	89	87	82	77	65	52	48	43	37	36
L Q	32	30	32	29	29	28	27	34	64	71	80	83	84	82	80	77	72	60	48	38	36	35	32	34

COMMUNICATIONS RESEARCH LABORATORY, JAPAN

HOURLY VALUES OF fEs AT Yamakawa

JAN. 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	G	24	27					G	48	58	58	G		G	G		G	G	26	30	27	G	G	G
2	G	28	36	34	24	23	G	G	G	40	38	G	G	G	40	G	39	G	32	34	G	28	27	G
3	26	28	29					G	43	54	59	44	G	G	G	G	G	33	G	G	G	G	G	28
4	25	24	32	27	G	G	G	G	G	37	61	57	69	55		62	56	42	26	84	28	47	34	40
5	39	40	40	28	37	24	G	G	G	G	46	60	50		G	76	53	115	62	36	30	27		
6	G	G	G		G			G	G	G	G	G	G	G	44	43		35	50	39	31	28		
7	G	G	G	G	34	G	29	G	G	G	G	G	43		42	G	34	39	49	38	26	G	G	G
8	G	G	G	G				G	G	G	G	G	52	G	62	38	34	35	44	53	30	G		G
9	G	G	G					G	G	G	42	G	53	53	48	38	38	G	36	28	G	G	G	30
10	G	25	29	G	32		G	G		38	44	45	43	56	43	56	40	38	44	34	25	G	G	
11	G	G	G	G	G			G	G	34	G		G	G	44	41	43	30	43	32	29	G	G	26
12	G	G	G	G	G	30	36	46	28	49	50	G	G	G	G	41	G	39	58	33	G	G	G	G
13	G	G	G	G	G	G		G	G	G	G	G	G	G	48	82	39	48	42	33	28	G	G	G
14	G	G	35	33	28	24	G	G		G	G	42	61	60	61	44	39	32	40	33	G	G	28	34
15	G	G	G	G	G	24		G		50	G	G	G	G	G	42	44	44	39	25	30	26	G	G
16	G	G	G	G	G		G	G	G	G	G	G	43	50	49	48	G	34	30	30	G	G	G	G
17	G	24	G	G	G	G	25	29	G	G	39	46	G	G	43	42	45	G	27	23	G	G	G	
18	G	G	G	G	G	G	G	G	G	G	G		G	G	52	G	G	G	22	G	G	G	G	G
19	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	42	G	31	G	39	28	28	24	G
20	G	27	25	G	G	G	G	G	G		C	C	C	C	C	C	C	G	G	G	G	G	G	G
21	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	35	G	G	G	G	G	G	G
22	G	G	29	G	G	G	G	G	G	G	G	G	G	G	G	G	G	39	31	39	30	G	G	G
23	G	G	G	G	27	60	49	43	30	G	61	62	53	59		88	84	105	40	28	24	G	G	
24	G	G	G	G	30	28		G	29	60	42	G	G	G	G	G	51	57	61	38	G	G		26
25	G	G	24	G	G	G	26		30	37	44	G		G	G		37	29	84	59	27	G	G	G
26	G	G		G	G	G	G	G	G	G	G	G	G	G	G	52	42	38	34	28	G	46	38	33
27	G	G	G	G	G	G		33	39	68	75	41	G	G	G	G	48	60	78	45	G	G	G	G
28	28	32	28	G		G	G	G	G	G	G	G	G	G	G	G	G	G	27	39	26	G	G	G
29	G	G	G	G	G	G	22	G		G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
30	24	G	G	G	G	G	G	G	G	G	C	C	C	C	C	40	36	N	G	11	30	32	G	28
31	G	G	G	G	G	G	G	22		G	G		42	G	G	G	37	48	32	42	35	27	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	31	31	30	27	26	23	21	30	26	30	29	26	27	27	27	28	29	30	31	31	31	31	27	26
MED	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	40	37	34	34	33	25	G	G	G
U Q	G	24	28	G	24	24	23	G	28	38	45	42	43	G	44	46	43	42	44	39	29	27	G	26
L Q	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	26	25	G	G	G	G

COMMUNICATIONS RESEARCH LABORATORY, JAPAN

HOURLY VALUES OF fmin AT Yamakawa

JAN. 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	17	15	16					14	16	21	26	28			37		27	21	15	15	14	18	15	15
2	15	15	14	14	16	16	16	15	22	20	26	29	42		22	21	20	22	15	14	23	14	15	15
3	15	15	15					15	16	17	17	17	20	18	17	17	18	15	16	15	15	16	15	15
4	16	15	14	15	18	16	18	15	22	17	20	21	24	24		18	18	17	15	14	14	15	14	15
5	15	15	15	14	15	16	18	14	22	15	21	22	33			28	20	17	15	15	15	16		
6	16	21	15		18			20	24	20	18	23	24	21	22	21	17	14	14	15	15	15		
7	17	18	15	15	15	16	16	16	16	17	20	21	22		22	18	16	15	15	15	17	15	15	15
8	18	15	16	16				15	21	16	20	16	21	18	18	14	14	15	15	14	14	17		20
9	15	17	15					14	15	18	20	52	24	21	18	20	15	20	14	16	16	15	20	15
10	16	15	15	16	15		17	14		17	20	20	18	21	18	15	14	15	15	15	15	15	15	
11	17	15	17	14	15			15	22	14	16		20	20	20	16	15	14	15	15	14	15	16	16
12	16	17	15	16	17	16	20	15	17	15	15	15	22	16	16	17	14	14	14	15	15	16	15	14
13	14	14	14	14	14	15		15	22	30	20		28	30	21	22	18	14	14	14	14	15	18	16
14	15	18	15	14	15	15	15	15	17	17	17	18	22	21	18	17	14	14	15	15	18	15	16	14
15	17	16	15	15	17	15		15	17	15	18	17	18	21	18	17	14	14	17	16	15	14	15	15
16	15	15	15	15	14		15	15	23	15	18	18	21	21	20	17	15	15	16	15	16	15	18	15
17	16	16	17	17	17	15	17	16	23	18	21	29	22	24	21	20	16	15	14	15	17	15	17	
18	16	15	15	14	15	18	15	15	15	18	17		21	21	20	20	15	21	15	15		15	17	18
19	14	15	15	14	16	15	17	16	23	16	18	21	21	35	21	18	17	15	15	14	20	16	14	15
20	16	15	15	16	18	16	15	14	15	18	C	C	C	C	C	C	C	23	16	16	20	14	14	15
21	15	15	15	16	15	17	17	15	24	18	24	38	22	22	22	18	16	22	15	14	15	15	15	15
22	20	17	16	18	21	15	17	15	17	14	17	21		21	22	20	16	15	15	16	15	17	15	15
23	15	17	15	15	15	15	14	14	14	16	17	16	22	18		15	15	14	16	16	15	17	17	
24	17	17	17	15	16	14		16	14	16	17			27	36	18	17	15	14	15	16	21		18
25	16	16	17	16	15	17	15		15	17	20			21	22		22	15	20	17	15	17	15	20
26	15	18		15	17	18	17	15	26	28	18		20	21	20	18	18	18	14	14	18	14	15	15
27	21	20	17	17	15	15		15	15	16	16	18		24	20	21	17	16	18	15	16	15	18	16
28	16	15	14	17		18	20	15	24	18	22	20	22	23	23	20	27	17	15	15	15	16	15	17
29	17	14	18	17	16	15	20	15		28		55	43	45	40	38	28	22	17	15	15	15	15	16
30	15	16	15	14	20	15	18	15	20	14	C	C	C	C	C	23	18	21	15	15	15	15	17	15
31	15	17	15	15	15	18	14	15	14	15	17	20	20	18	20	15	16	15	15	14	14	15	17	16
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	30	27	26	23	21	30	29	31	28	23	24	25	26	28	30	31	31	31	30	31	27	26
MED	16	15	15	15	16	16	17	15	17	17	18	21	22	21	20	18	16	15	15	15	15	15	15	15
U Q	17	17	16	16	17	17	18	15	22	18	20	28	24	24	22	20	18	20	16	15	16	16	17	16
L Q	15	15	15	14	15	15	15	15	15	15	17	18	20	20	18	17	15	15	15	14	15	15	15	15

HOURLY VALUES OF foF2 AT Okinawa

JAN. 2004

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

HD	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	55	48	37				29	40	66	84	111	122	137	137	151	169	153	131	103	76	80	66	61	54
2	38	43	A	A				43	62	78	97	102	108	96	117	142	146	110	87	78	52	62	61	A
3	A	36	A	A			A		66	71	91	117	115	118	132	146	145	111	73		78	79	87	
4			30	34	A	A		37	73	78	90	85	86	106	127	127	98	A	51	52	54	A	51	44
5	30	A	36	34				32	83	97	111	92	102		97	98	100	90	78	75	82	64	A	
6	32	A		29		A		35	77	86	88	68	94	85	75	74	66	57	50	50	62	61	26	
7		30	29	32	31			34	61	62	101	112	106		92	101	102	102	61	51	66	66	63	66
8	53	68		28				30	75	88	125	124	100	98	88	76	A	61	52	42	51	40		30
9		32	34					30	66	76	93	107	146	157		126	116	110	82	53	66	60	31	34
10	32	34	32	41	30			36	62	82	75	88	87	105	101	101	78	66	50	A	54		30	
11		31	40	34				34	67	71	83	118	146	171	131	130	137	108	52	34	42	53	A	40
12	47	49	36	47			A	A	68	104	112	111	114	123	118	106	85	86	A	A	61	66	54	52
13	38	A	42	A				34	66	81	76	77	101	111	123	100	80	72	60	29	40	51	53	42
14	48	55	50	34	A			36	60	80	90	126	107	108	112	101	87	90	84	52	77	88	88	64
15	52	50	40	28				36	68	80	94	121	125	108	102	100	87	70	55	45	50	48	41	28
16	34	36	32	38			26	40	77	93	110	111	111	112	108	126	127	103	87	76	72	73	54	53
17	49	44					28	34	72	96	90	106	118	112	111	122	102	88	92	64	54	72	52	
18		29	30	34			28	41	68	79	106	106	88	90	97	95	107	116	85	46	52	50	32	
19	30		32	34	30			34	68	90	74	80	82	91	94	91	88	87	90	80	52	66	54	53
20	47	A		42			30	48	80	108	110	100	90	88	105	88	95	80	71	52	51	58	60	52
21	53	54	54	32	30	C	C		C	110	121	115	100	107	112	113	107	106	87	66	66	66	61	53
22	43	40	37	36	35	40		36	88	101	114	116	130	124	131	146	91	82	100	87	80	87		86
23	88	42	52	61	51	66	88	78	141	81	84	108	118	128	105	90	81	88	A	A	66	50	51	47
24	40	26						42	79	93	120	126	117	128	116	122	104	86	75	72	54	52	53	41
25	28			30	34			35	66	72	73	92	108	115	110	104	98	102	87	74	54	54	54	48
26	42	38						48	61	78	88	90	94	110	120	107	90	84	86	51	50	41	42	32
27		A	A	A	A			34	77	97	78	C	108	134	131	111	113	110	101	65	43	47	52	50
28	34		26	28		31	30	36	65	88	94	97	75	94	100	101	90	97	120	88	53	53	54	54
29	40	41	31		31	32	30	34	66	97	97	70	76	94	107	100	95	87	58	52	54	54	44	36
30	36	41	41	29	29	26	30	38	66	81	85	81	86	88	91	108	118	120	131	103	88	66	51	
31	36	36	38	34	34	29	30	34	78	86	98	82	87	95	111	104	120	131	148	109	74	78	54	40
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	24	22	21	21	10	6	10	28	30	31	31	30	31	29	30	31	30	30	29	27	31	29	27	23
MED	40	40	36	34	31	32	30	36	68	84	94	106	106	108	110	104	99	90	84	64	54	61	53	48
U Q	48	48	40	37	34	40	30	40	77	96	110	116	117	123	120	126	116	110	91	76	72	66	60	53
L Q	34	34	31	29	30	29	28	34	66	78	85	88	88	94	100	100	88	84	59	51	52	51	44	40

COMMUNICATIONS RESEARCH LABORATORY, JAPAN

HOURLY VALUES OF fEs AT Okinawa

JAN. 2004

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

HD	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	30	66	32		30	28	27	24	38	81	73	G	G	64	G	G	G	G	28	G	G	G	34	26
2	24	G	70	37	27		25	26	G	46	73	68	48	62	42	58	37	50	50	40	34	54	59	50
3	69	38	56	56			27	26	34	58	65	63	56	49	G	G	G	G	41	54	G	G	34	29
4	28		26	32	36	28	26	24	G	G	51	66	98	90	98	59	35	95	70	38	40	46	27	G
5	G	40	34	35	33	27	28	G	G	G	G	56	65	76	89	76	53	60	71	34	38	44	68	
6	G	38	30	28	35	34		G	G	G	G	52	48	42	G	41	40	50	59	G	28	36	G	
7	G	G	G	G	G	G	32	G	G	G	G	43	47		G	60	36	50	35	27	G	G	G	G
8	G	24	G	G				G	32	G	49	G	G	77	74	71	82	36	28	28	26	25	G	G
9	G	G	G	G			G	G	G	34	G	50	47	59	82	49	55	38	26	30	G	11	G	G
10	26	G	23	G	27		G	24	38	45	50	55	46	49	46	52	54	54	60	41	G		11	
11	G	G	G	G				G	G	G	40	42	47	53	51	64	52	110	38	30	G	G	38	G
12	G	G	G	G		28	31	40	52	38	G	G	G	53	G	47	44	48	94	113	58	G	34	58
13	28	73	40	51	45			G	G	35	44	49	52	60	66	68	57	82	40	26	34	25	G	G
14	G	G	G	32	36	G	G	G	G	G	G	46	50	46	G	G	36	60	35	21	G	G	40	24
15	G	G	G	G			G	G	G	G	G	46	50	G	G	G	40	36	40	42	41	36	28	G
16	G	G	24	G	11	G	G	G	G	G	G	G	G	G	G	G	G	36	23	G	G	G	26	G
17	G	G				G	G	G	G	35	G	46	G	G	G	G	G	G	G	G	31	30	26	G
18	G	G	G	G	G	G	G	G	G	G	G	G	G	G	48	G	G	34	25	G	G	G	G	
19	24	30	G	G	G	G		G	G	G	G	G	G	G	48	50	45	36	G	G	24	27	G	G
20	G	40	28	G		G	G	G	G	G	G	G	G	G	56	70	55	34	G	G	G	G	G	G
21	G	G	G	G	G	C	C		C	G	G	46	50	49	60	51	49	35	30	G	35	G	G	G
22	G	G	G	G	G	G	26	G	G	G	G	G	G	G	G	G	G	36	G	G	G	G	G	26
23	G	25	26	23	G	27	66	59	41	41	40	53	54	55	66	69	76	65	104	68	90	33	G	G
24	G	G	G	G	G	G		G	G	G	G	64	57	G	G	G	G	G	90	80	34	24	24	G
25	G	30	25	G	G	G	G	27		G	G	G	G	G	G	G	G	40	27	26	G	G	G	G
26	G	G		G			G	G	G	35	G	G	G	G	G	G	46	37	G	G	G	24	26	34
27	44	38	50	36	38	28	G	G	G	G	G	C	G	G	G	G	42	62	G	54	G	G	G	G
28	G	48	G	G	34	G	G	G	G	G	G	44	G	G	G	44	38	35		22	27	30	G	G
29	G	G	G	G	G	G	G	G	G	G	G	G	46	49	G	G	G	38	32	G	G	G	G	G
30	G	26	25	24	G	G	G	G	G	G	G	G	49	46	43	41	G	G	G	11	11	26	G	
31	G	G	25	G	G	G	G	G	G	58	G	G	G	G	G	G	G	G	G	39		11	25	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	31	30	29	29	22	21	24	30	29	31	31	30	31	30	31	31	31	31	30	31	30	30	31	26
MED	G	G	23	G	6	G	G	G	G	G	G	44	46	46	G	41	38	37	31	26	6	11	G	G
U Q	24	38	29	30	34	27	26	24	G	35	40	52	50	55	56	59	52	54	50	40	34	30	28	24
L Q	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	34	G	G	G	G	G	G

COMMUNICATIONS RESEARCH LABORATORY, JAPAN

HOURLY VALUES OF fmin AT Okinawa

JAN. 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	14	16	20	22	29	29	30	24	22	22	14	14	14	15	14	14	14
2	14	15	14	14	14		15	14	14	14	14	20	26	22	20	16	14	14	14	15	14	14	14	14
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9	17	17	15	15			17	14	15	16	17	43	24	21	18	16	14	14	14	14	14	15	18	14
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12	14	14	14	14		14	15	14	14	14	18	20	20	22	20	14	14	14	14	14	14	14	14	15
13	14	14	15	14	14			15	14	15	20	17	18	21	20	18	15	14	14	14	14	14	15	14
14	14	14	14	14	14	14	15	14	18	15	20	21	20	20	20	15	15	14	14	14	14	15	14	14
15	15	15	14	14			17	15	14	14	15	20	18	22	22	20	14	14	14	14	14	14	14	15
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17	15	14				15	15	14	15	15	18	26	22	26	21	18	15	14	14	14	15	14	14	15
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21	14	14	15	14	14	C	C		C	15	18	21	22	23	23	21	18	14	14	14	14	15	14	18
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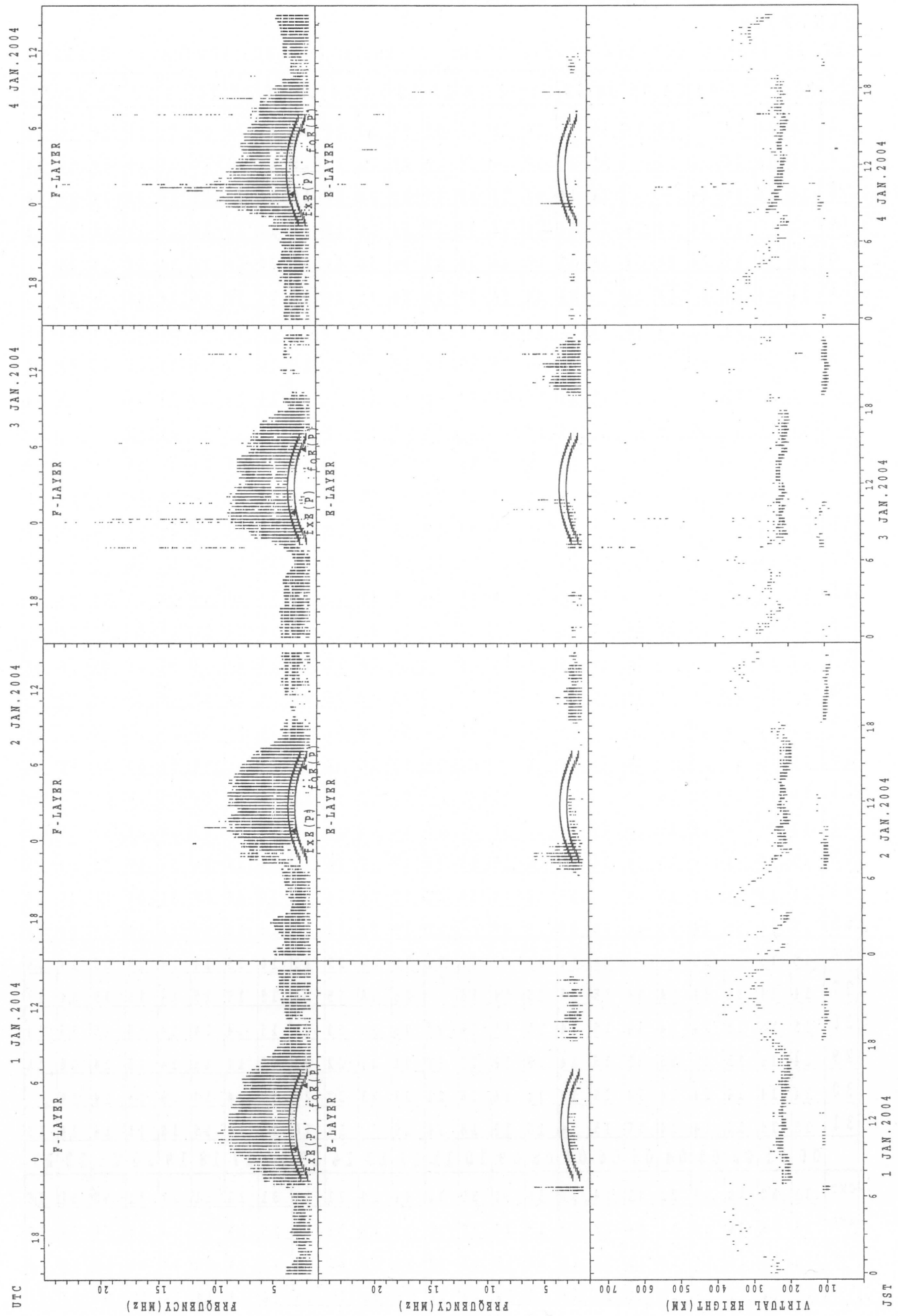
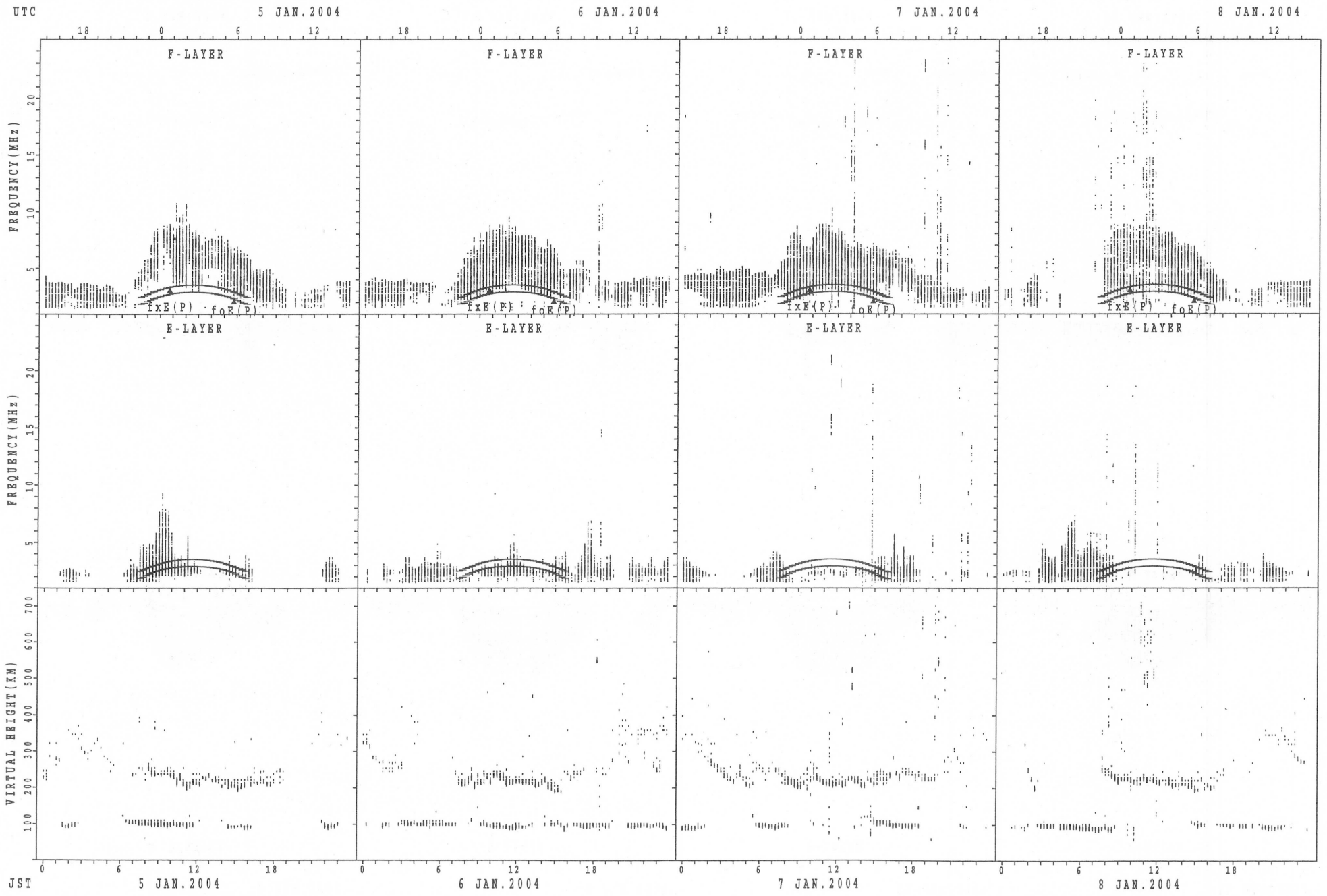
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	30	29	29	22	21	24	30	30	31	30	30	31	29	31	31	31	31	31	31	31	30	31	26
MED	15	14	14	14	14	14	15	14	15	15	17	20	21	21	21	18	15	14	14	14	15	14	14	15
U Q	15	15	15	14	14	15	15	15	15	16	18	22	23	23	22	20	17	14	15	14	15	15	15	15
L Q	14	14	14	14	14	14	14	14	14	14	16	18	18	20	20	15	14	14	14	14	14	14	14	14

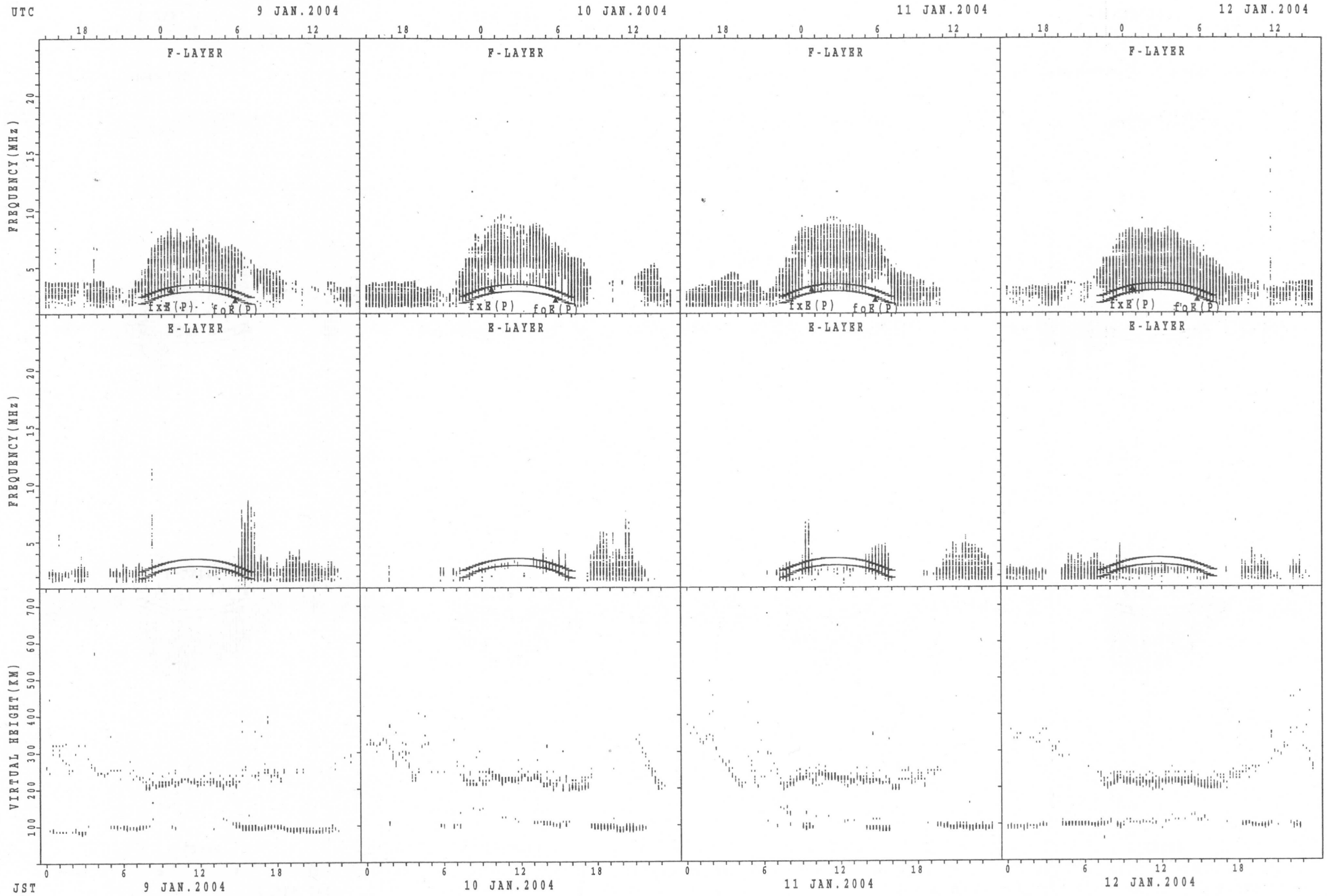

SUMMARY PLOTS AT Wakkanai
UTC
JST
1 JAN.2004
2 JAN.2004
3 JAN.2004
4 JAN.2004
F-LAYER
E-LAYER
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
fxE(P)
foF(P)
fxE(P) : PREDICTED VALUE FOR fxE
foF(P) : PREDICTED VALUE FOR foF

SUMMARY PLOTS AT Wakkanai



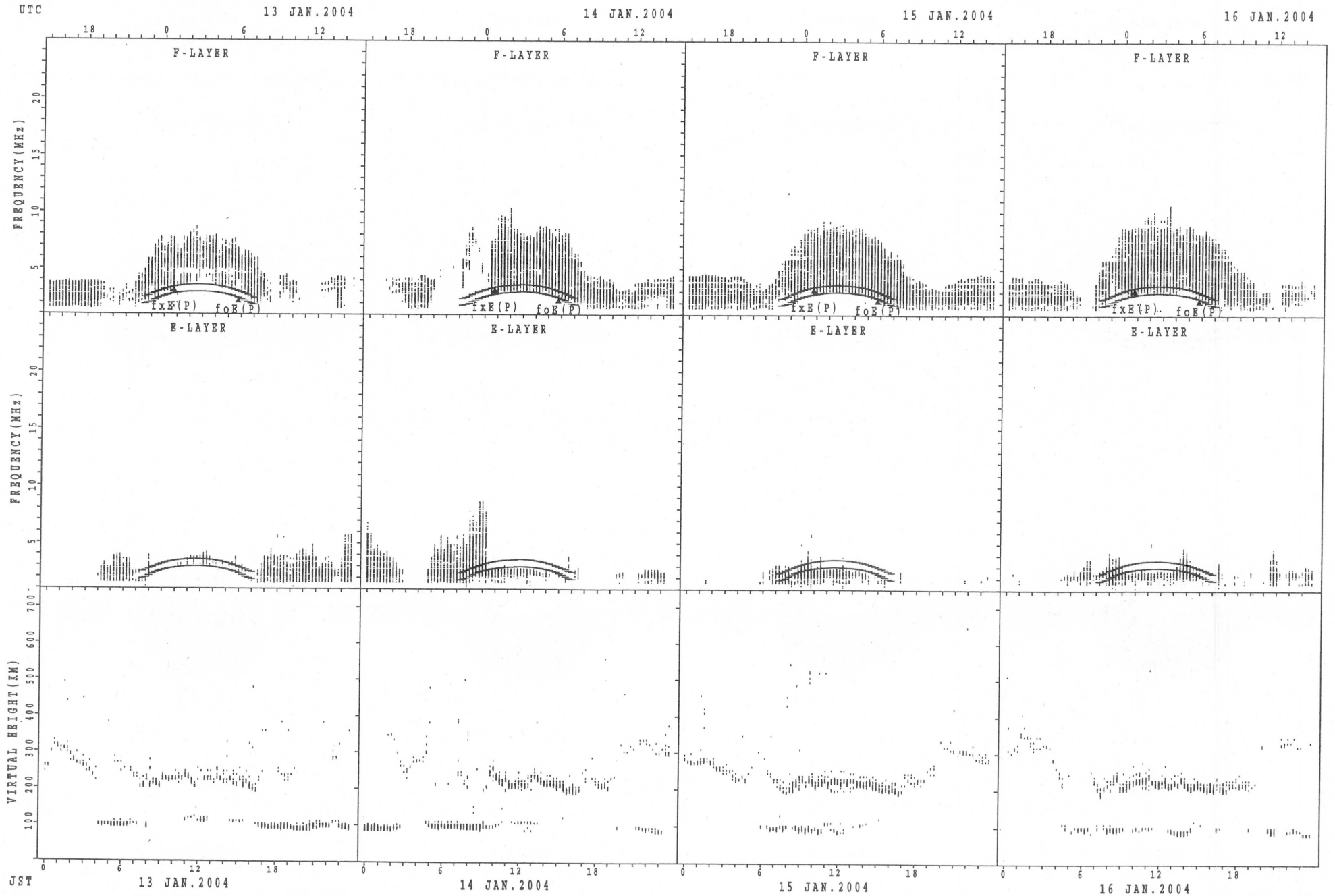
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



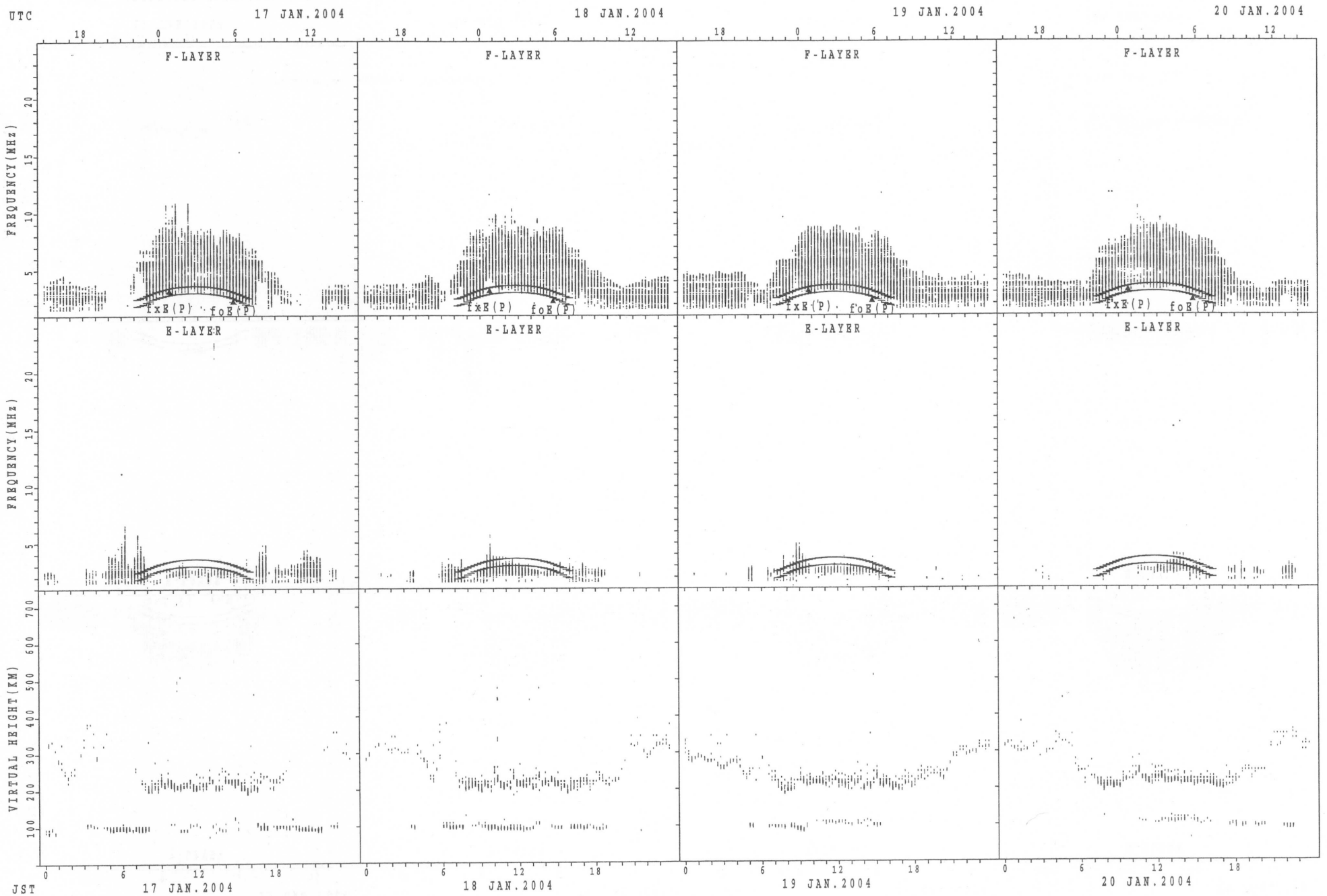
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



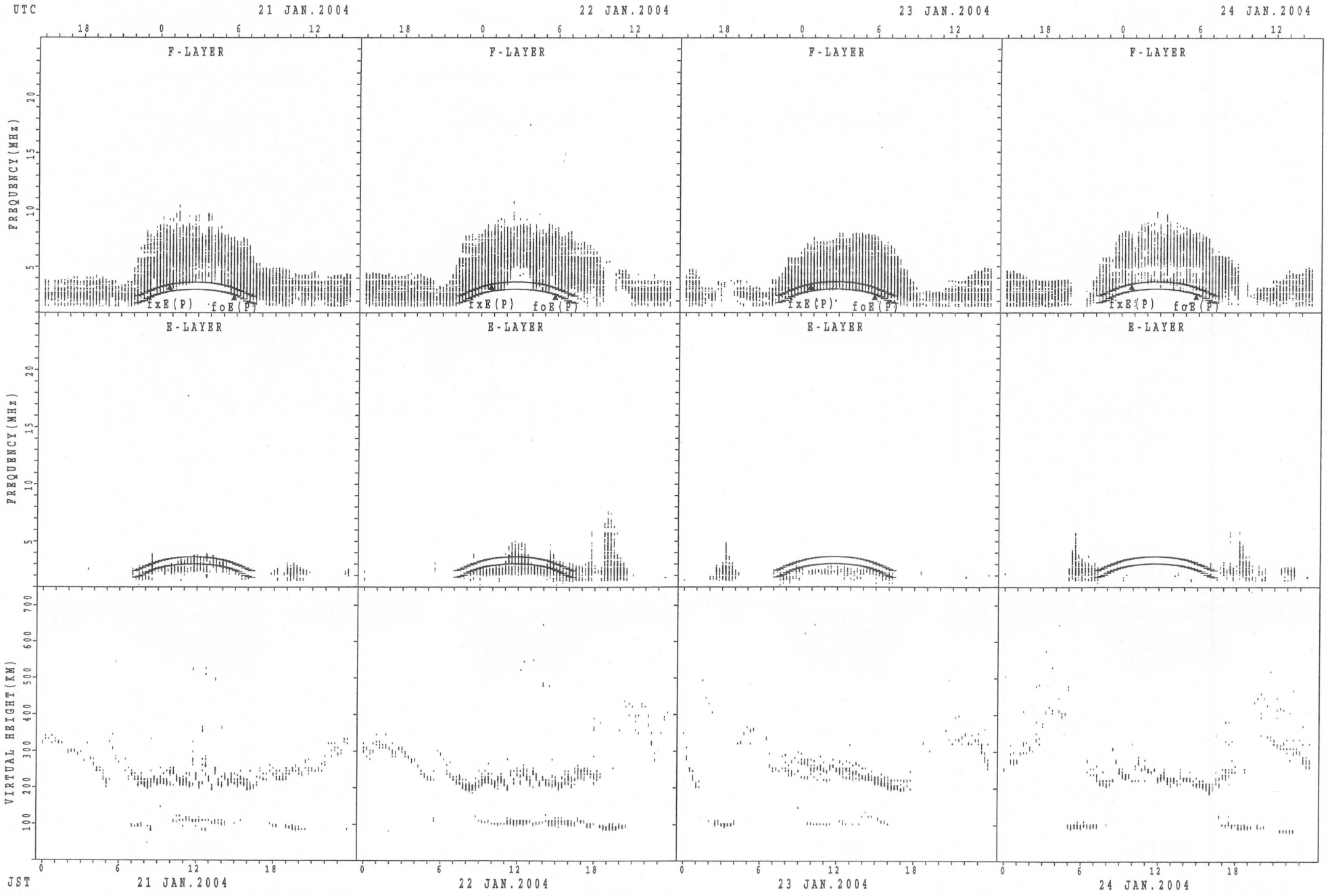
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



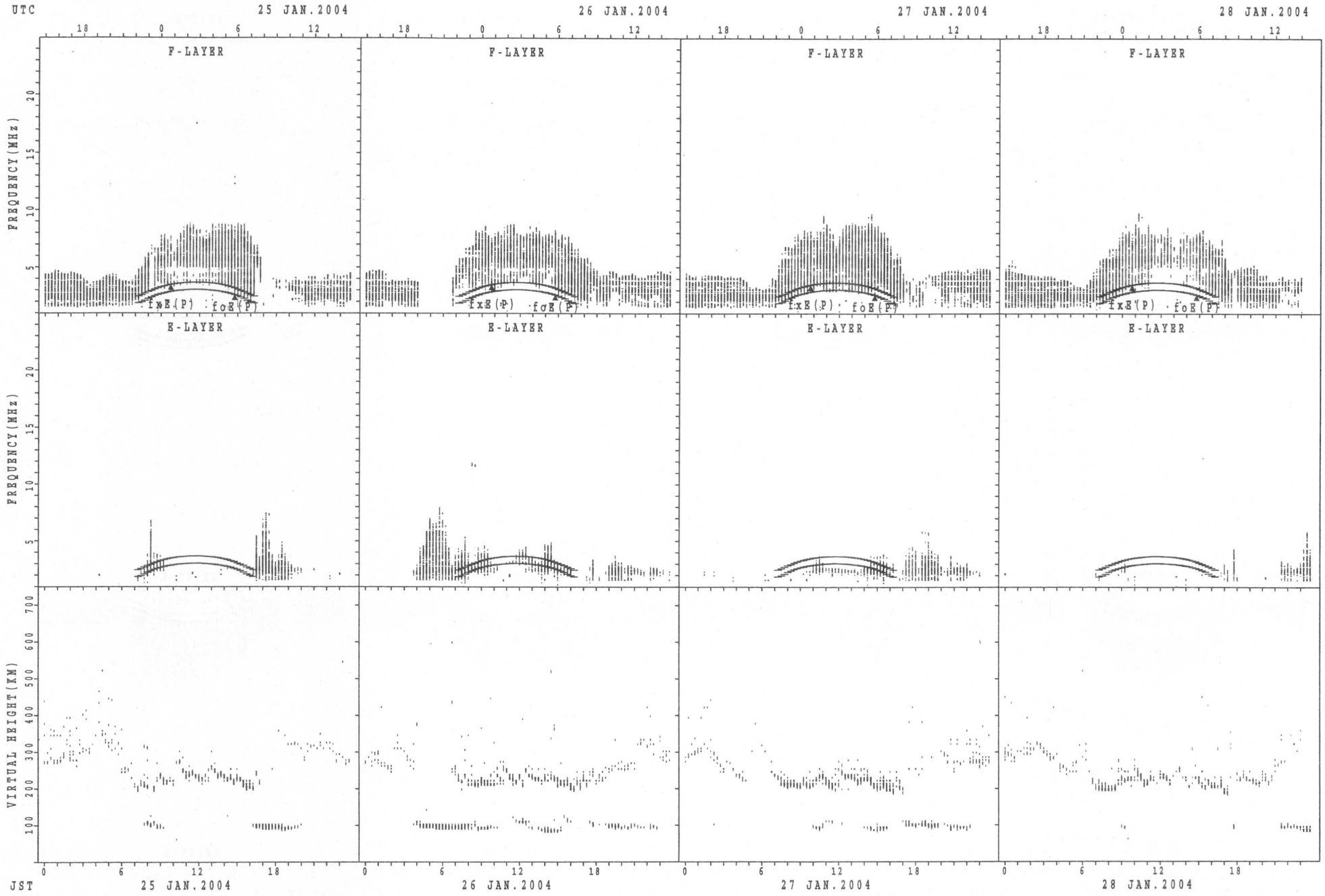
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



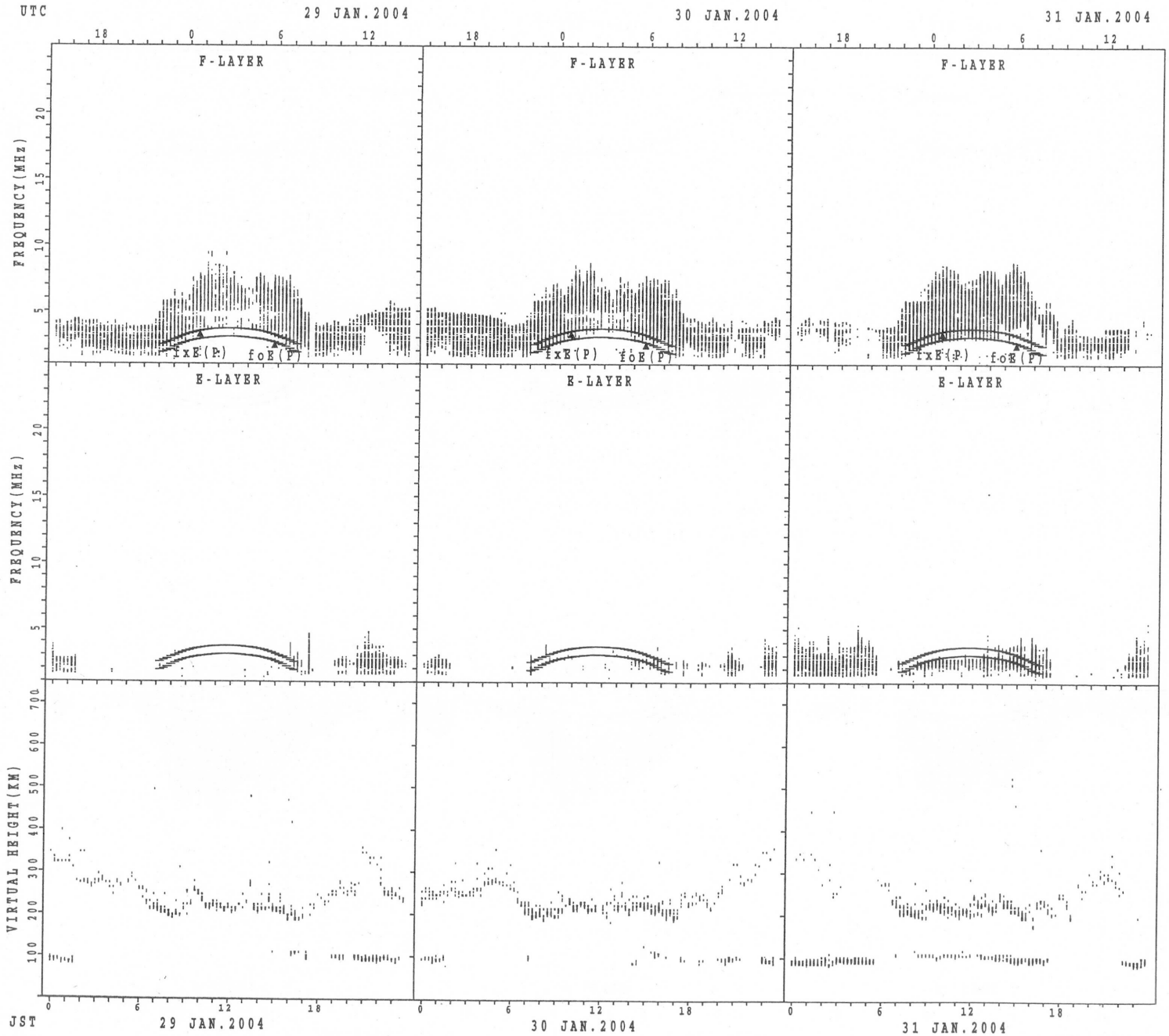
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



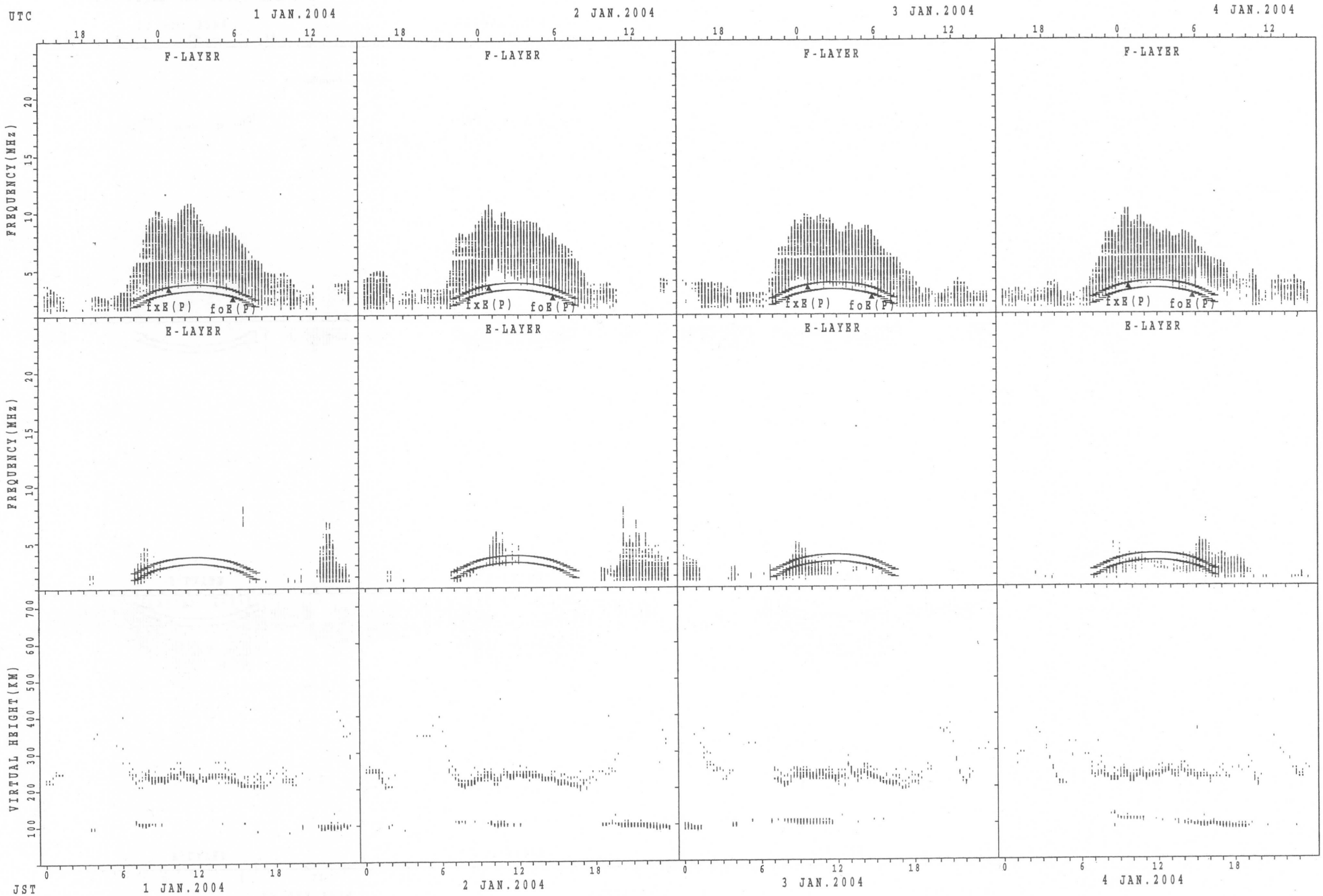
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



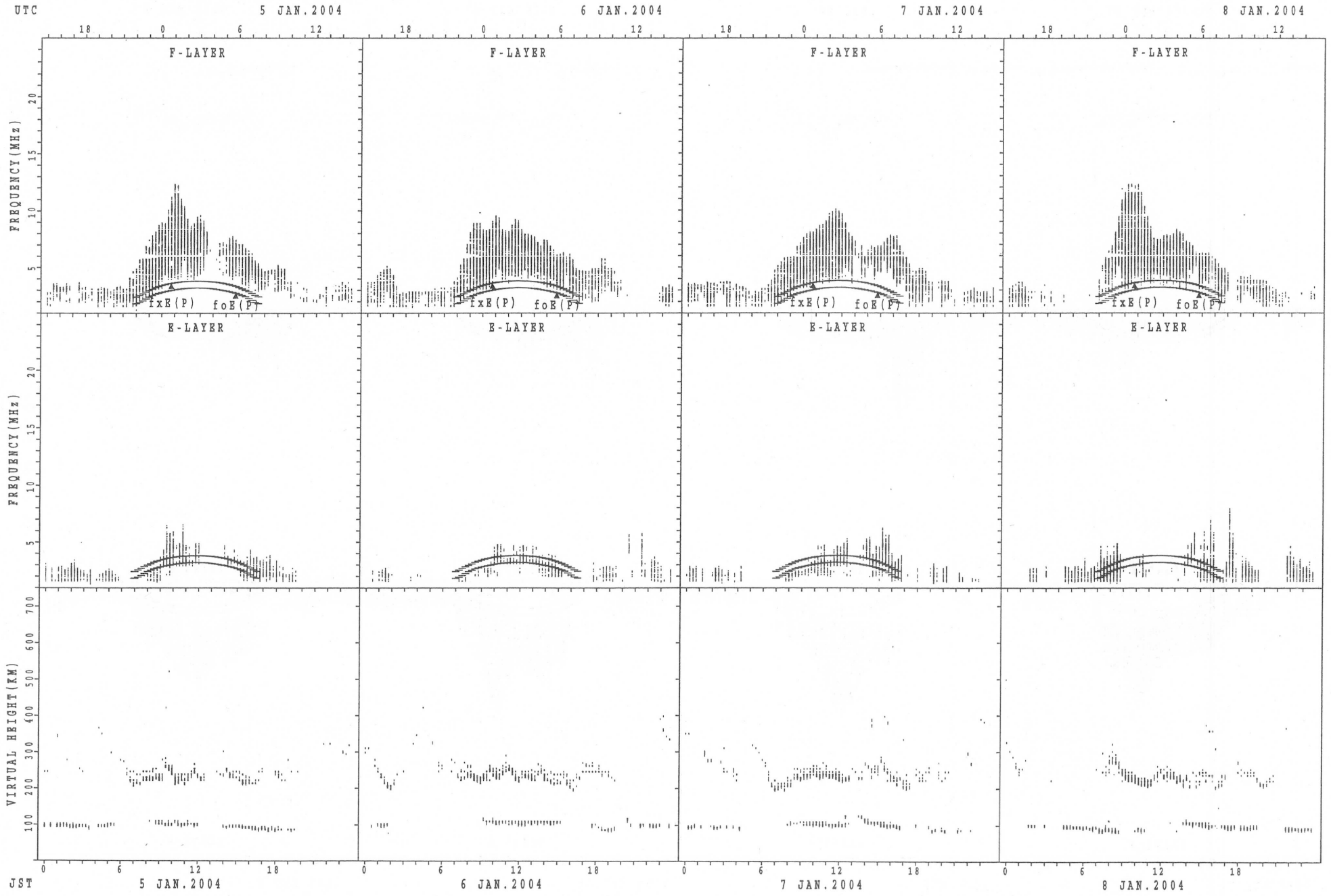
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



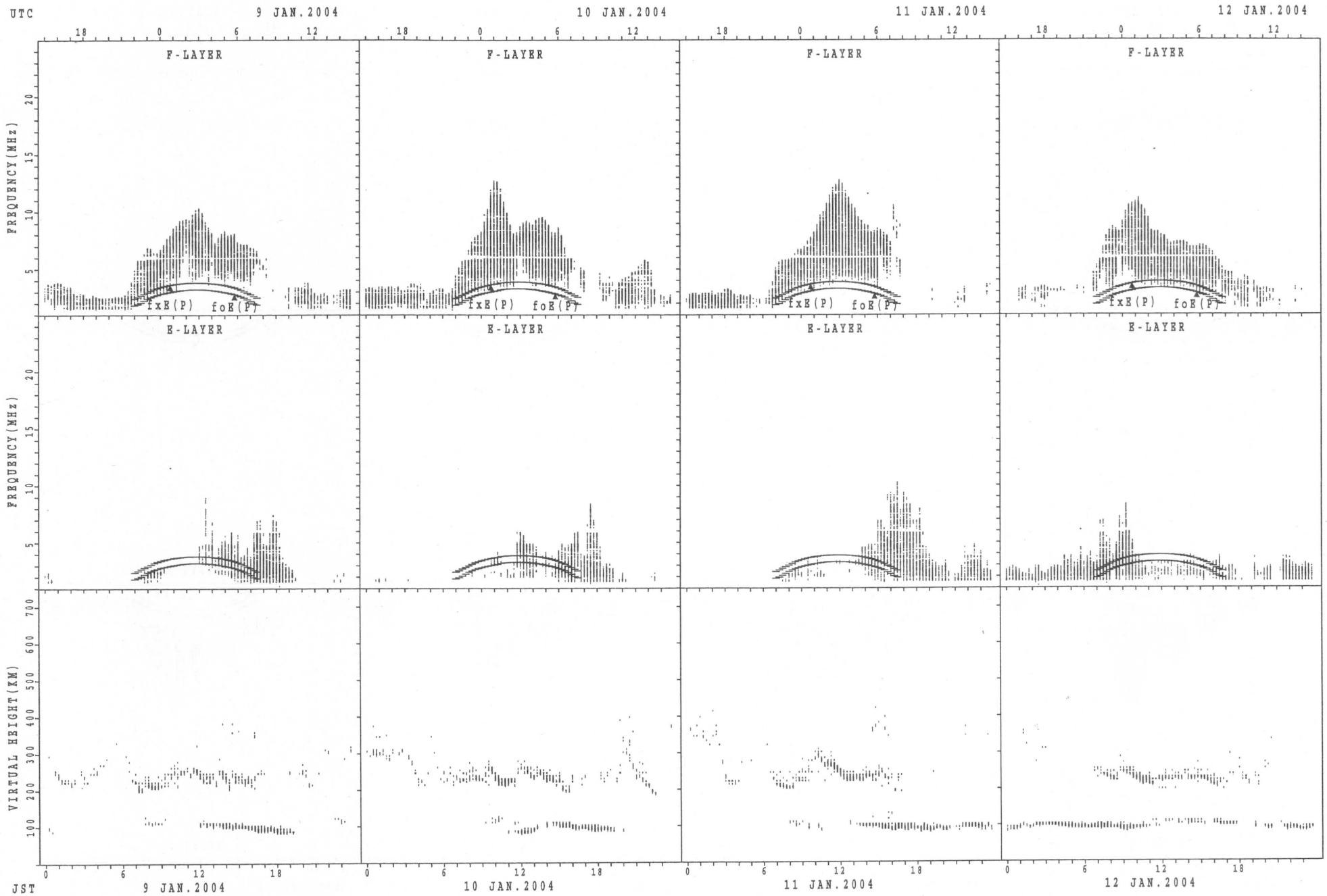
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



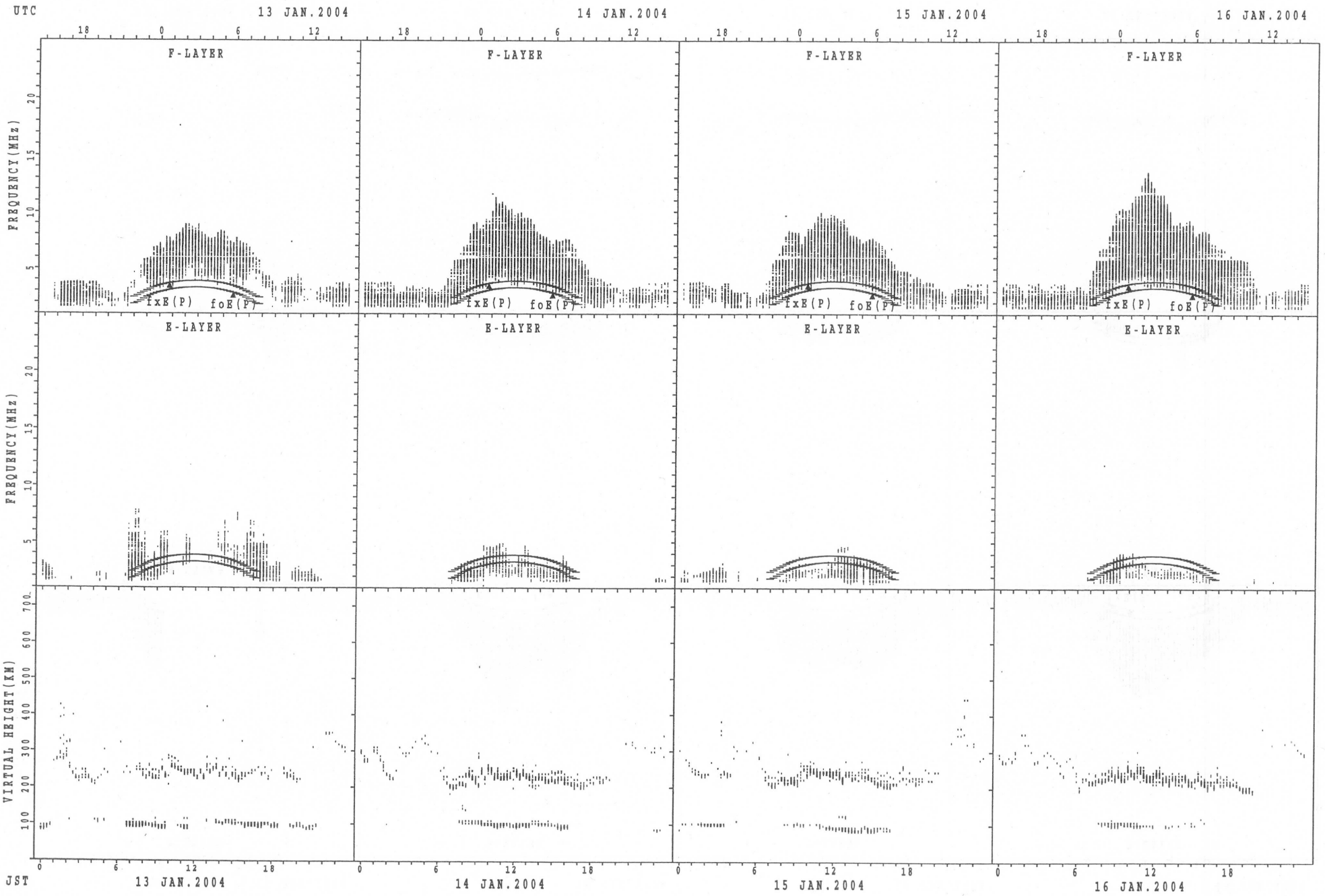
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



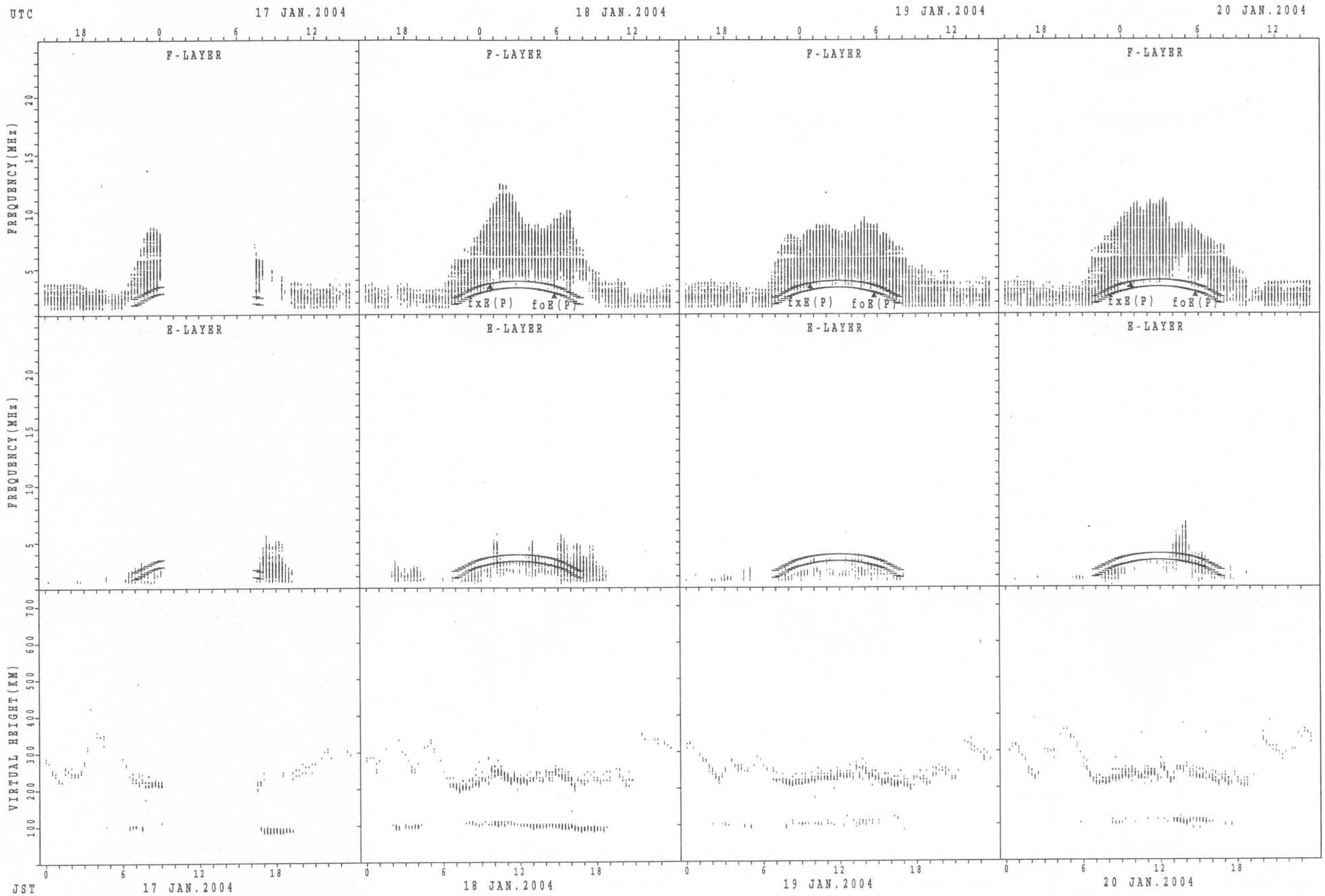
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



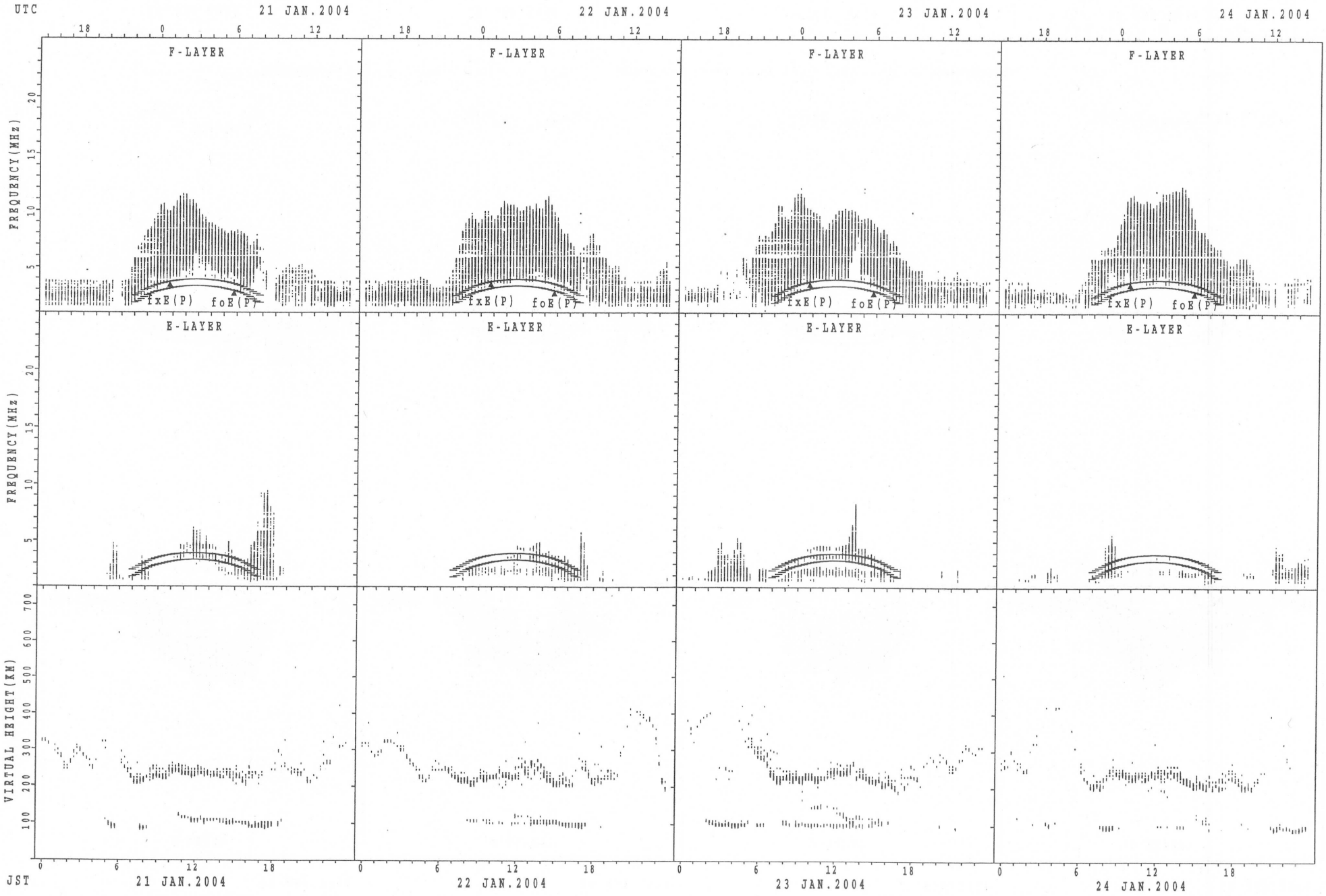
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



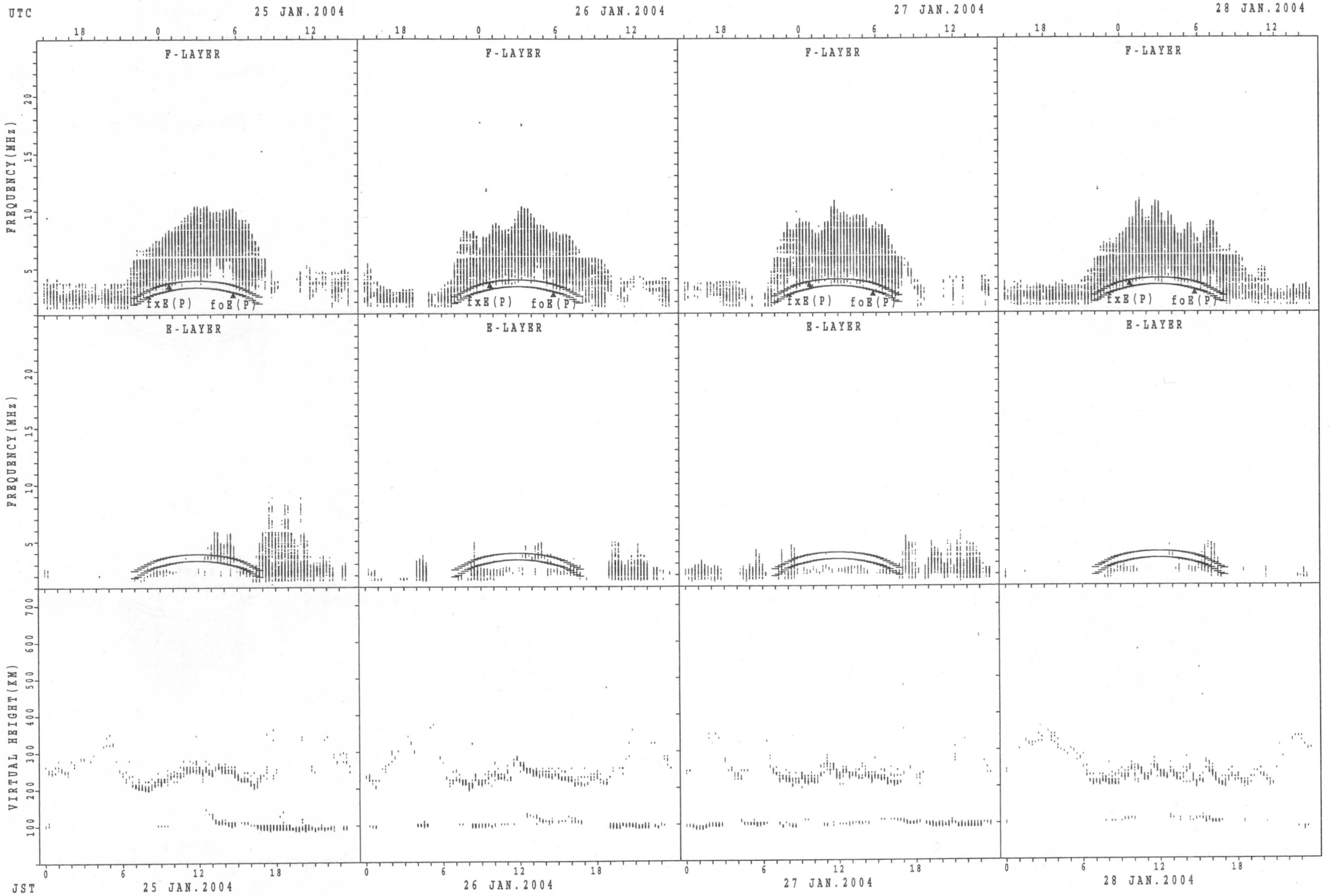
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



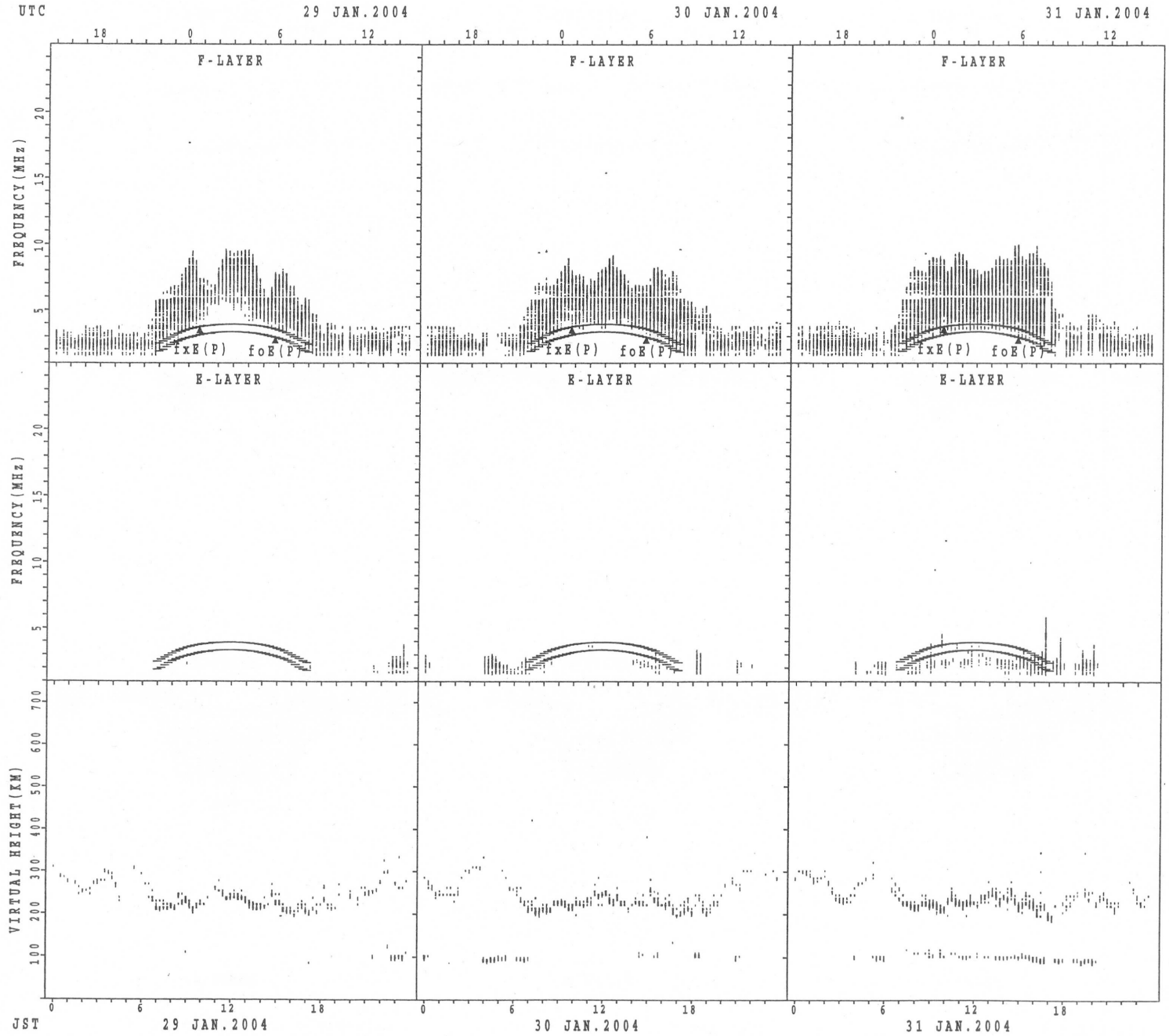
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



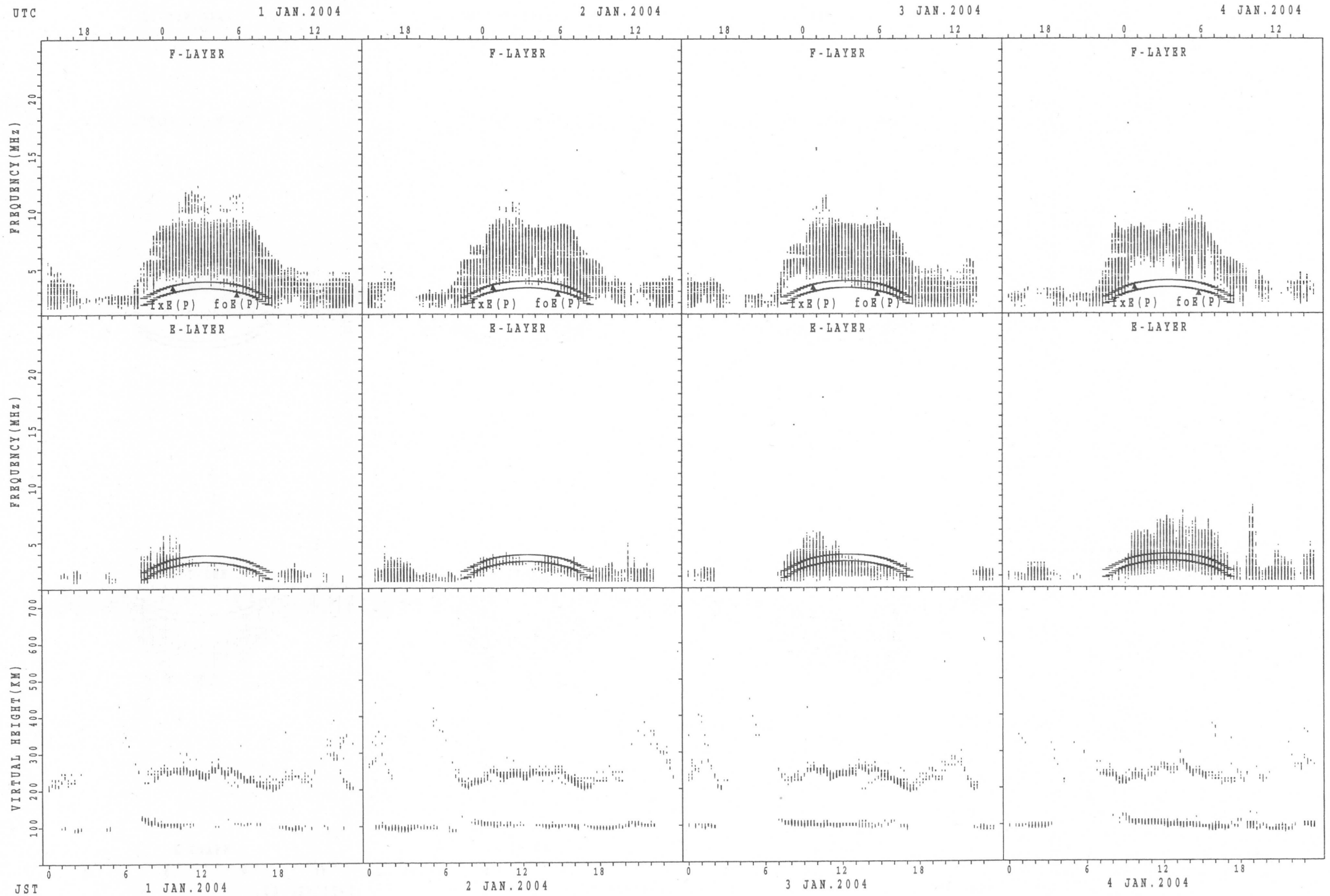
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



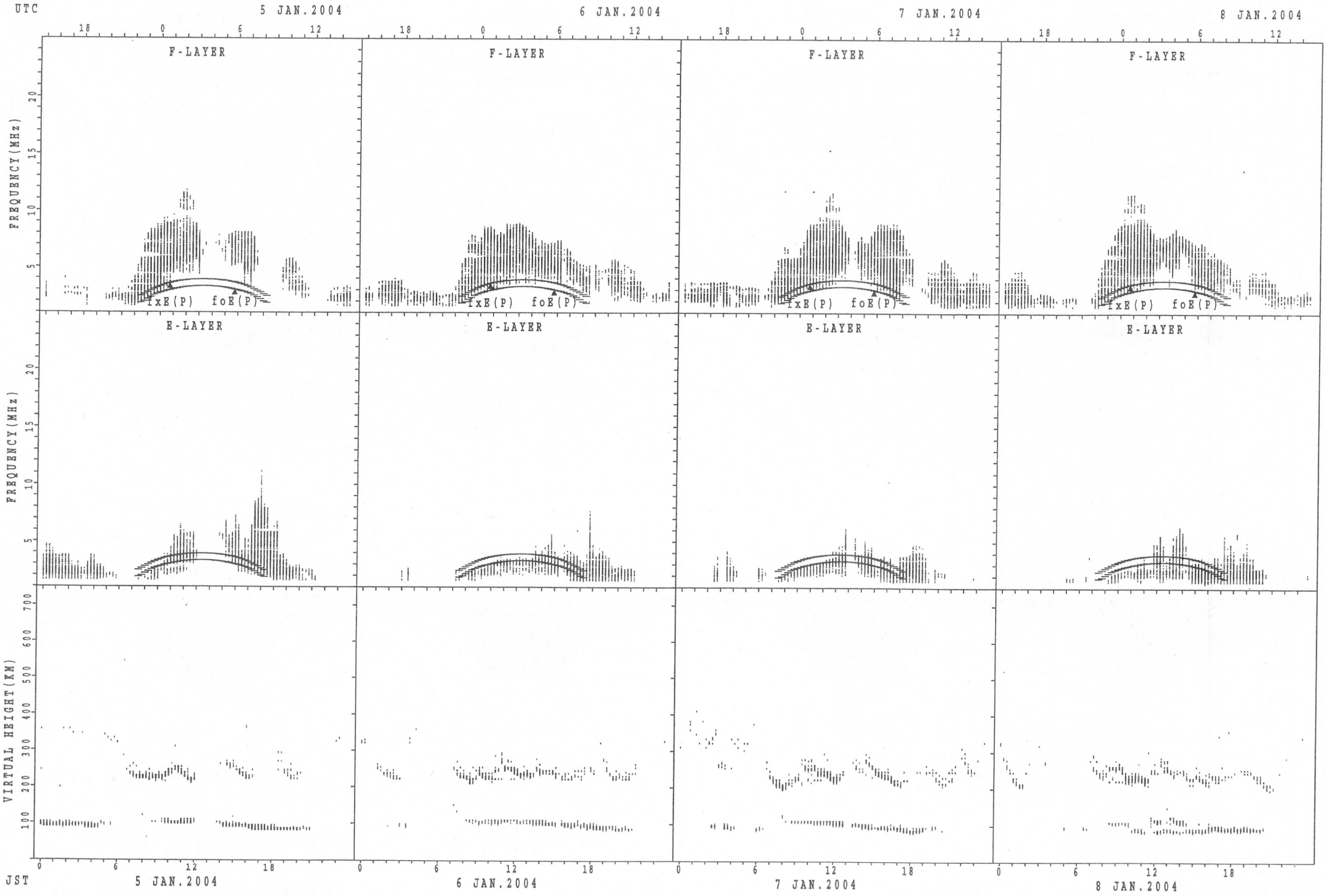
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



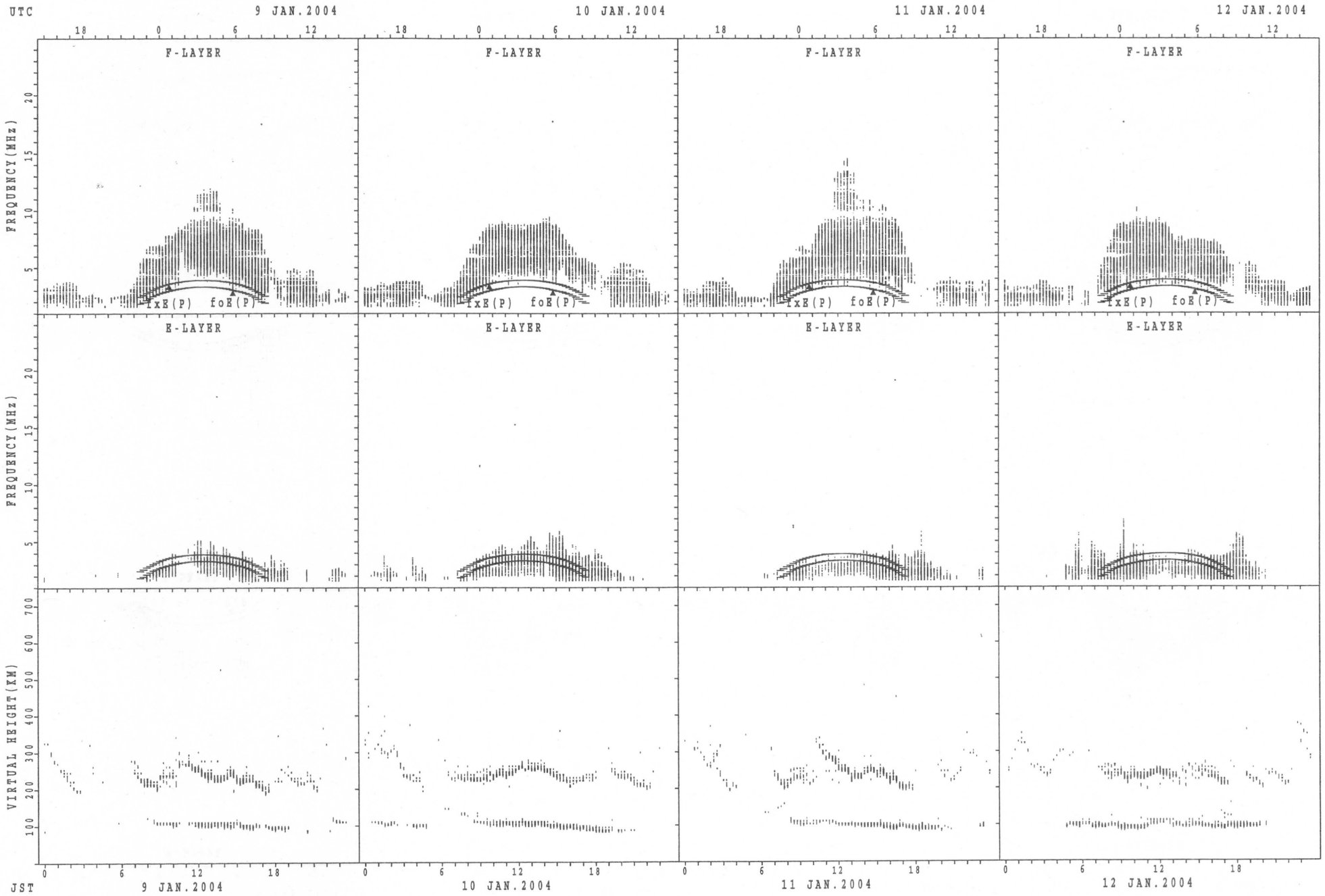
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



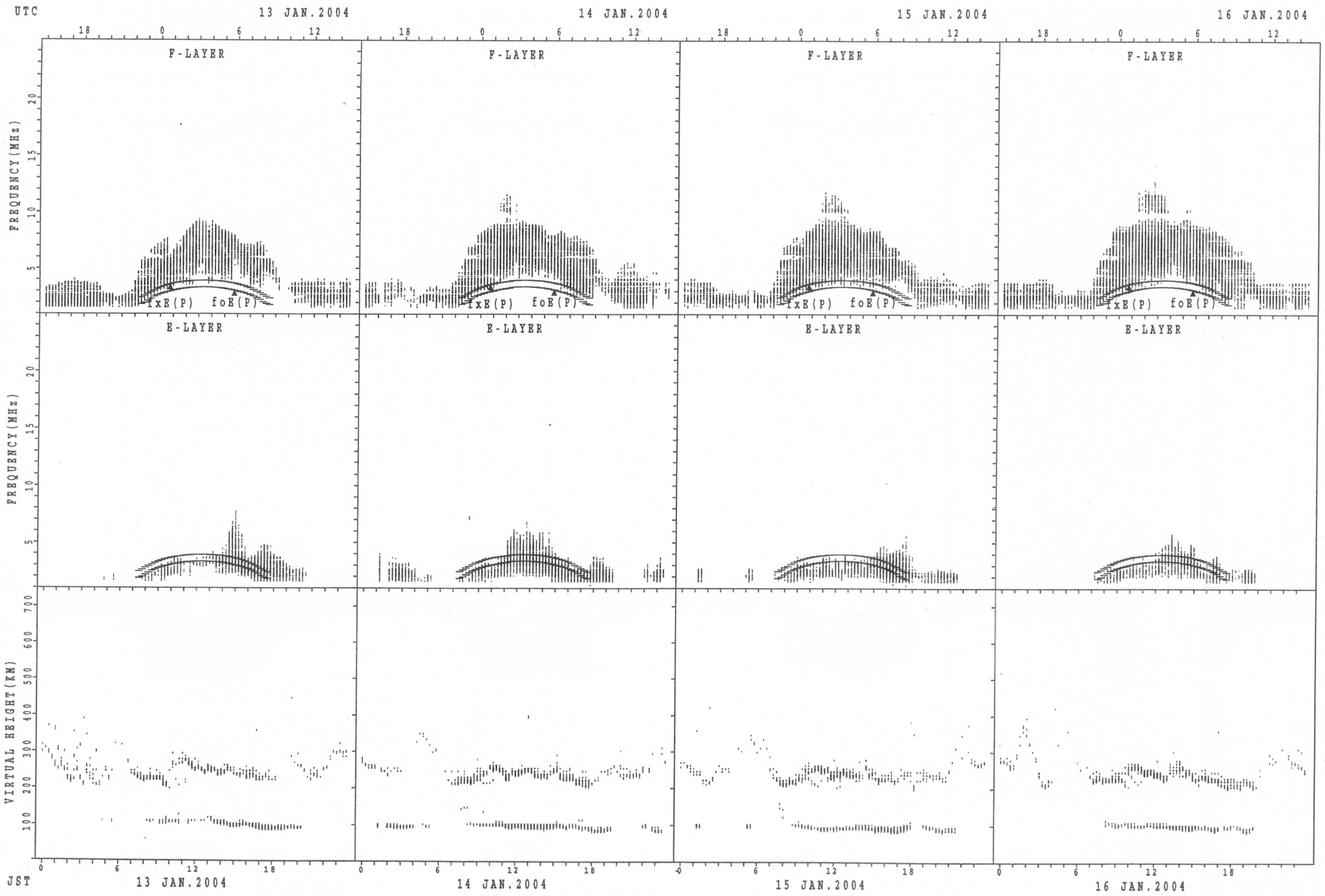
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



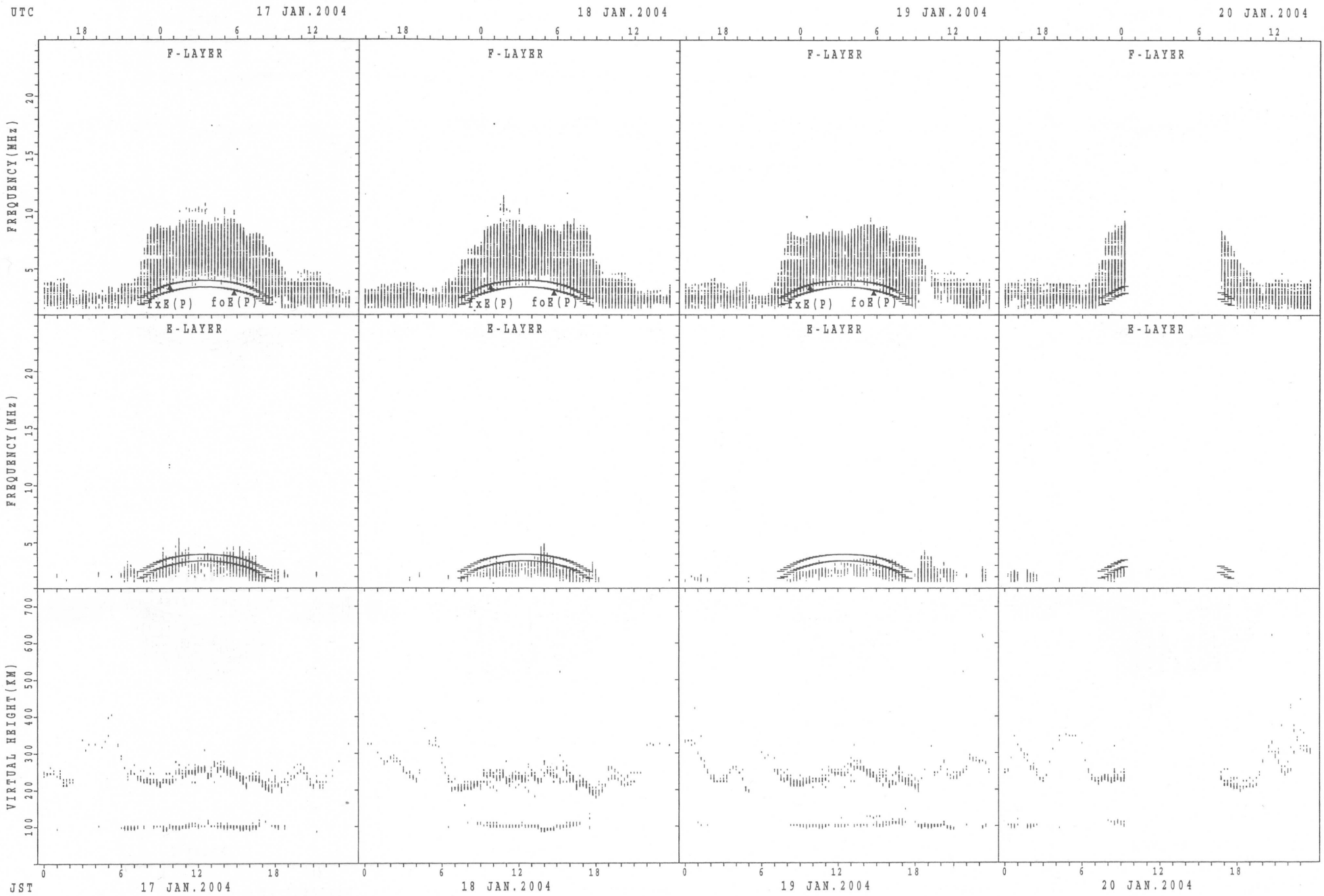
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



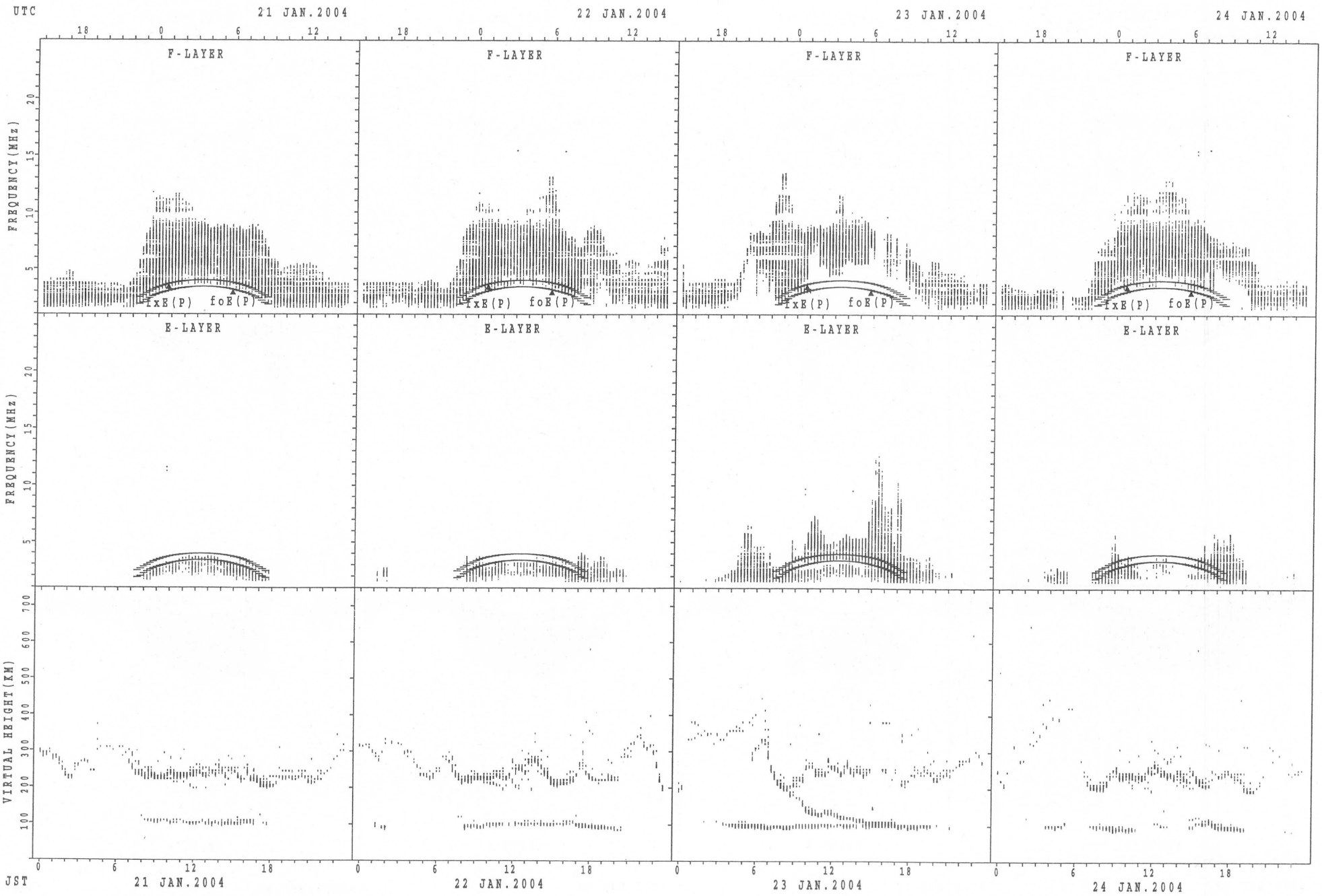
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



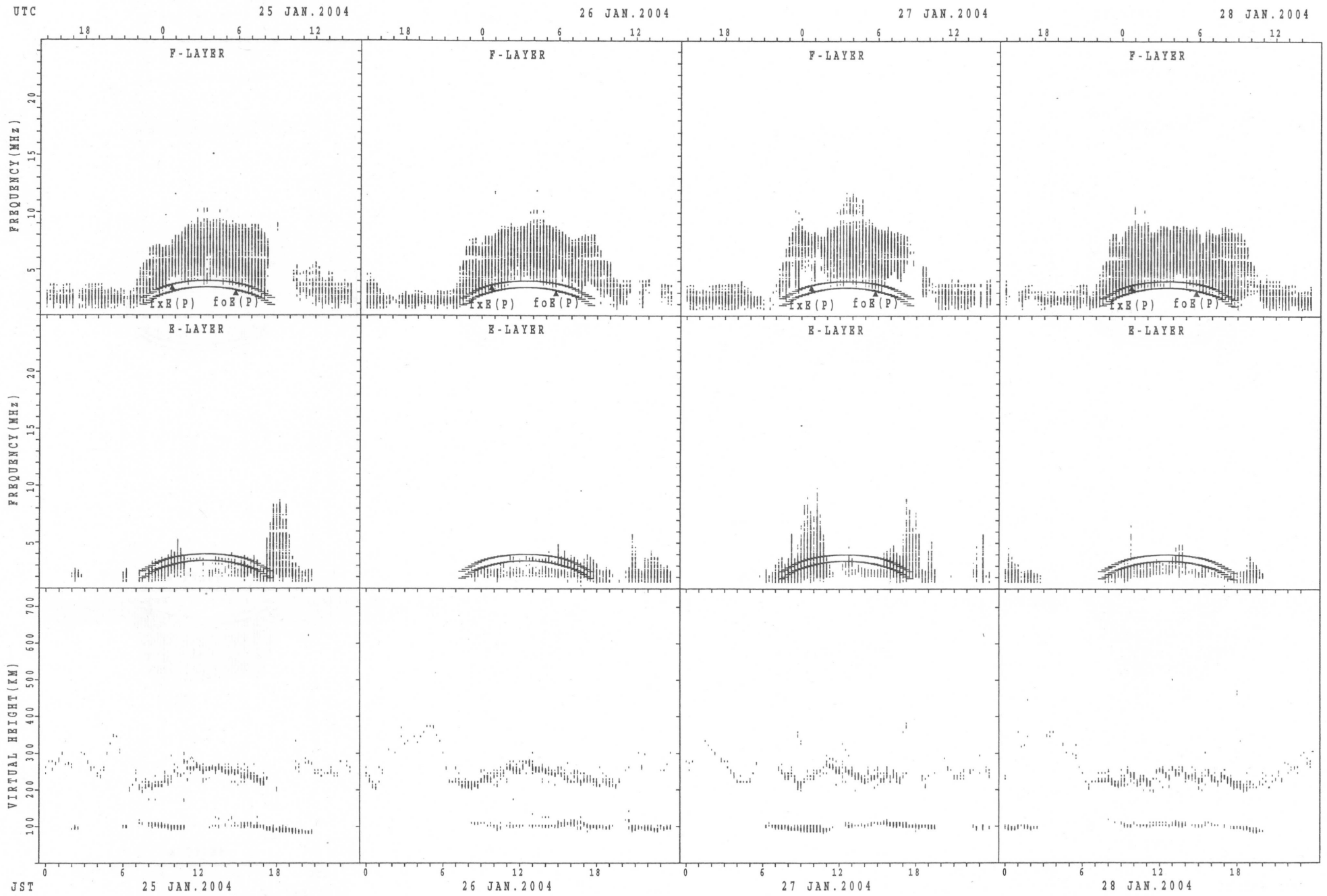
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



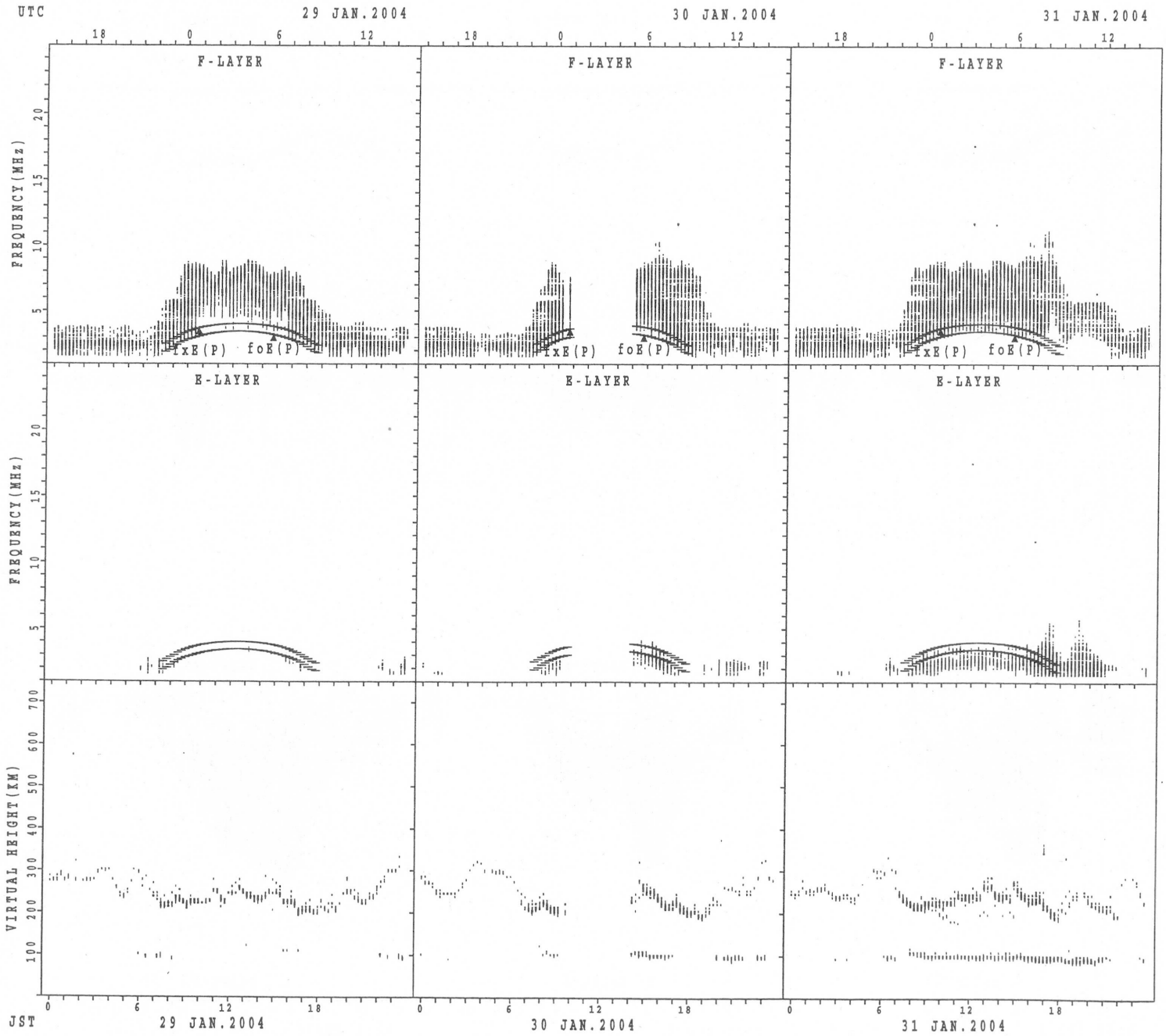
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



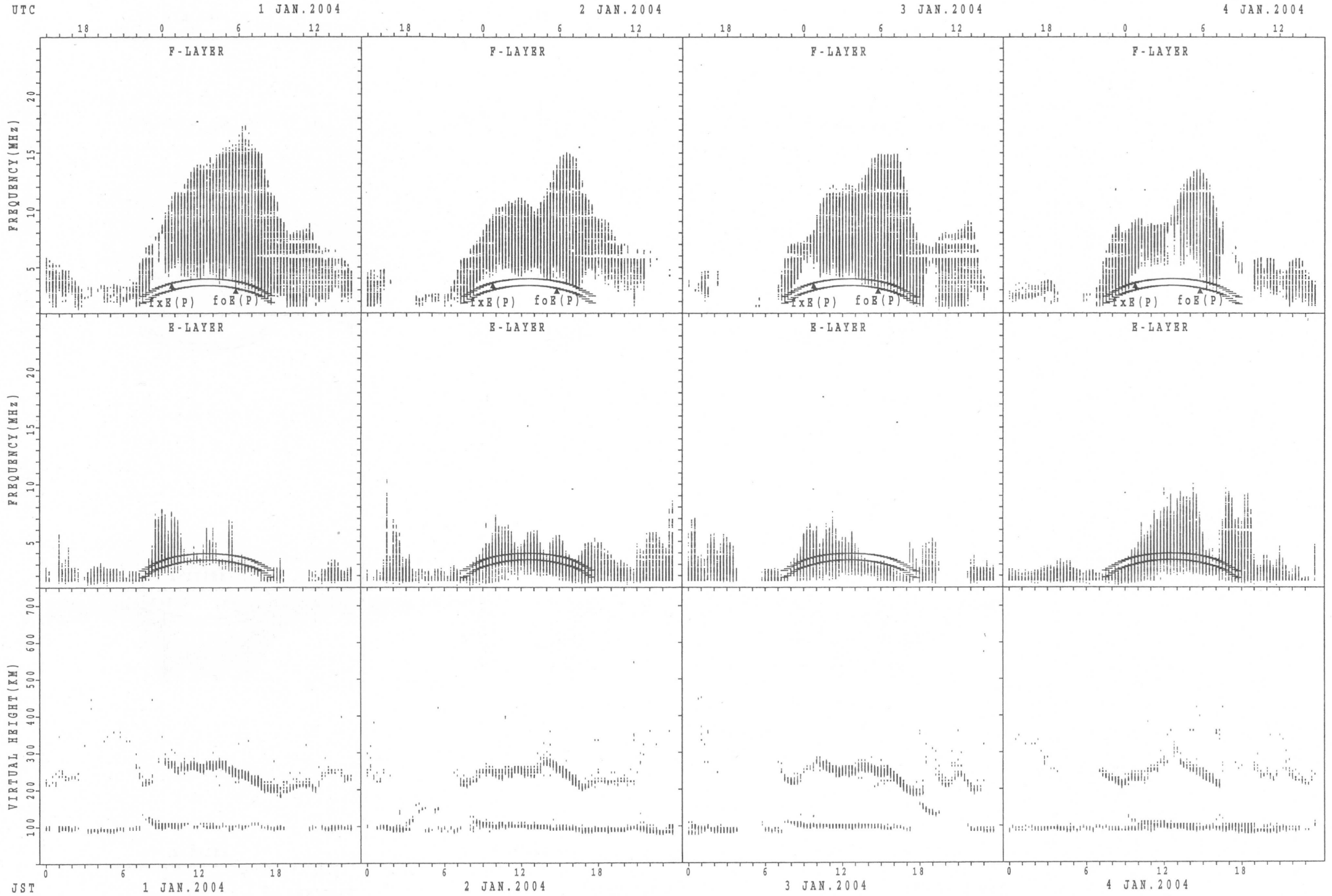
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



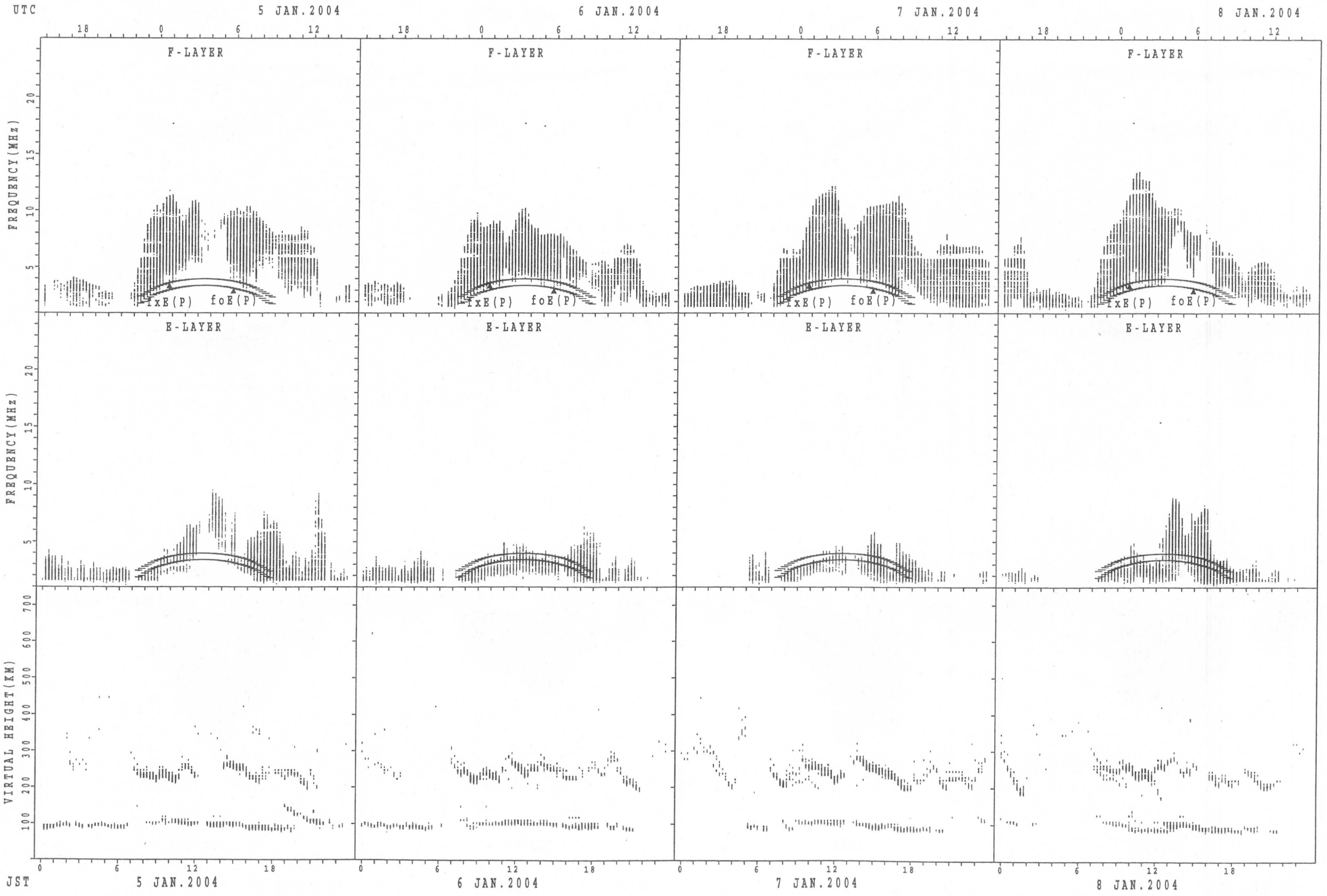
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



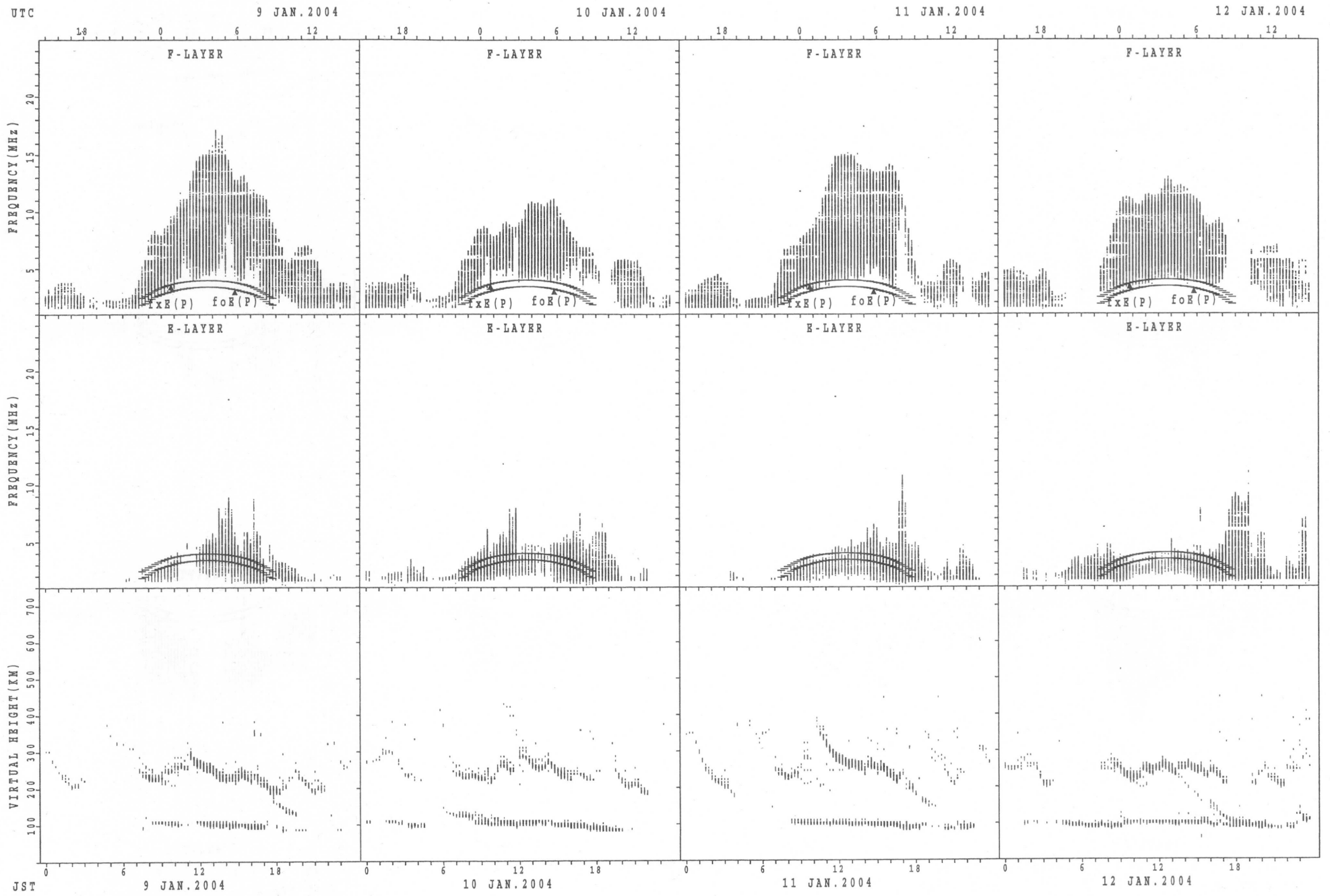
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



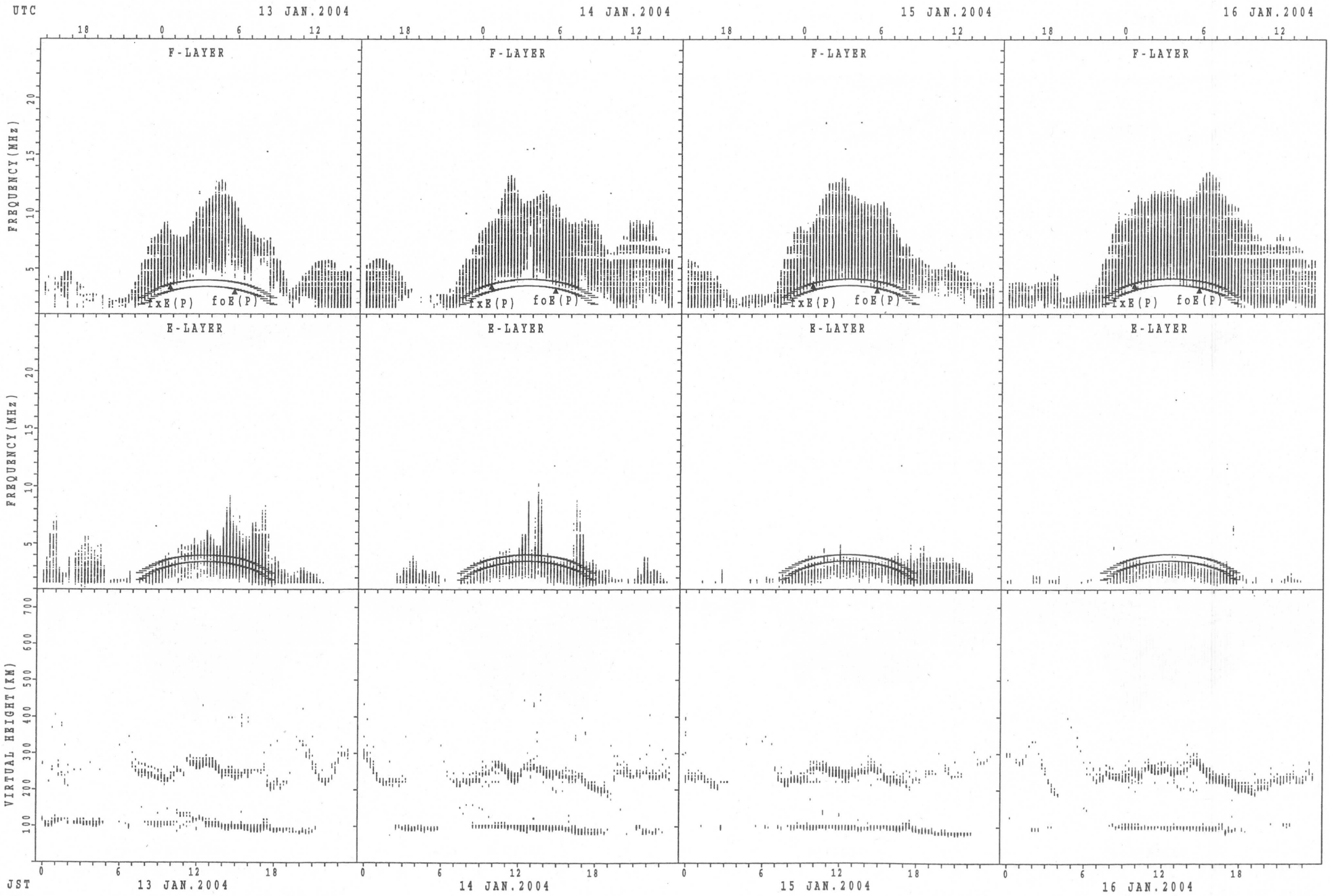
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



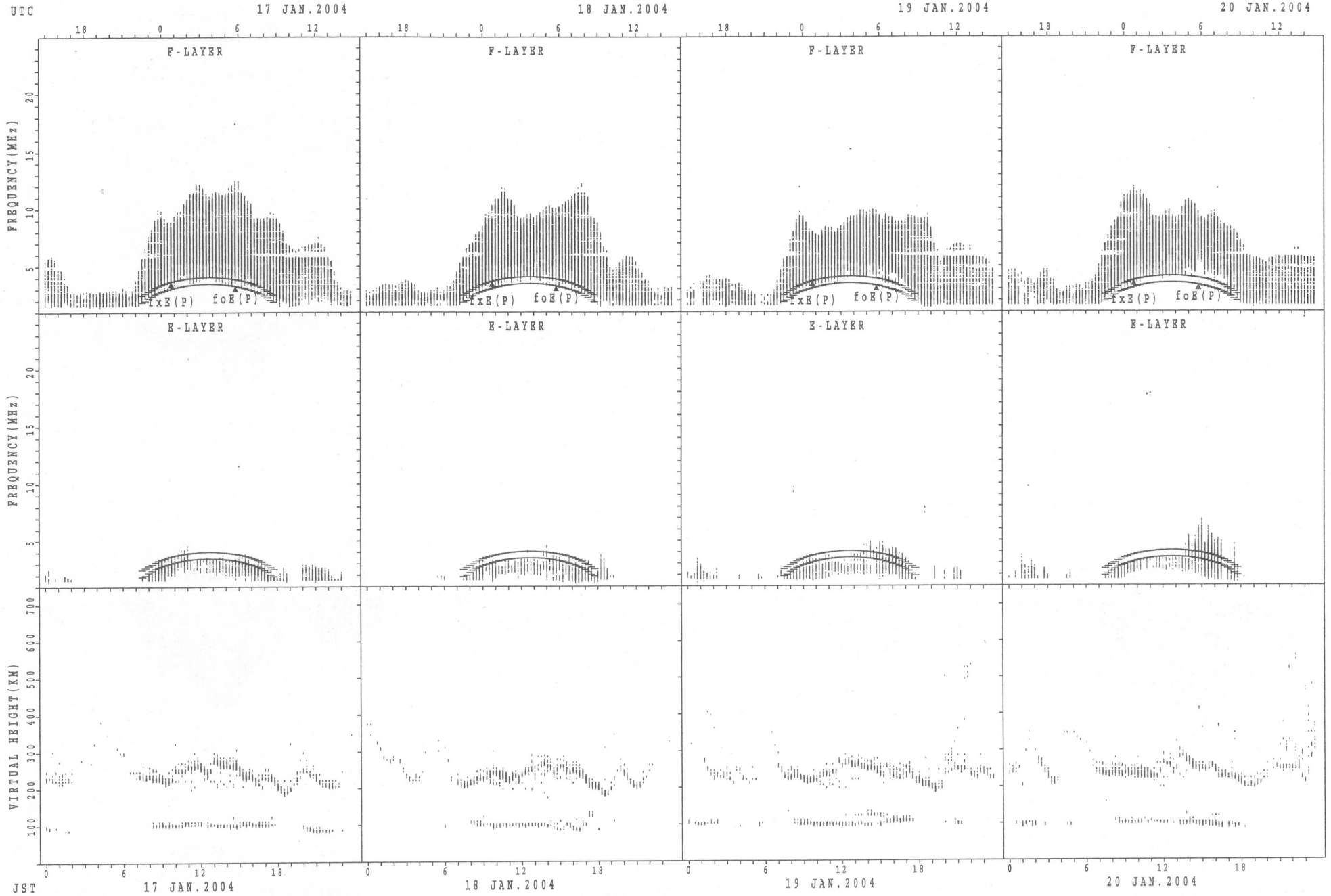
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



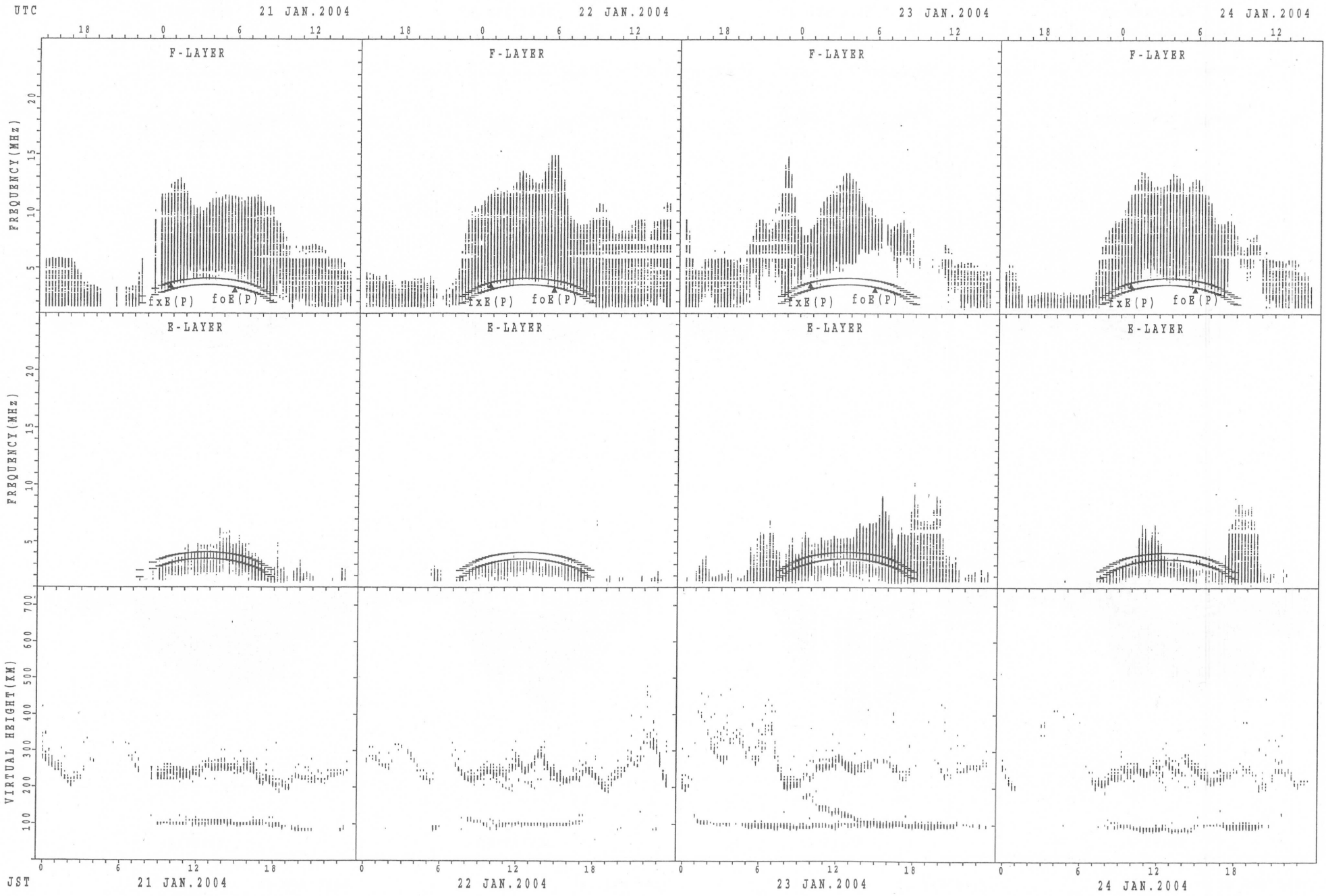
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



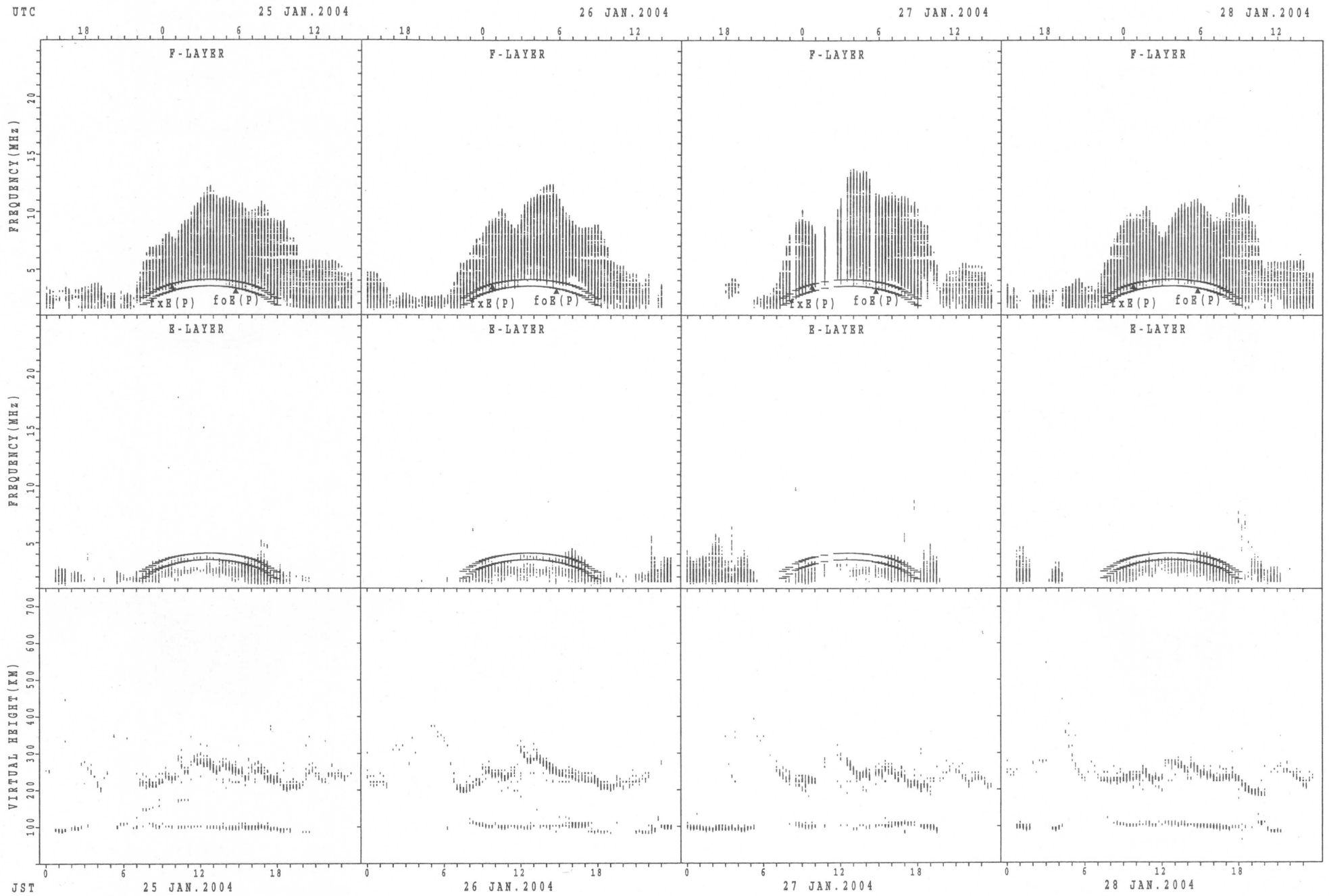
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



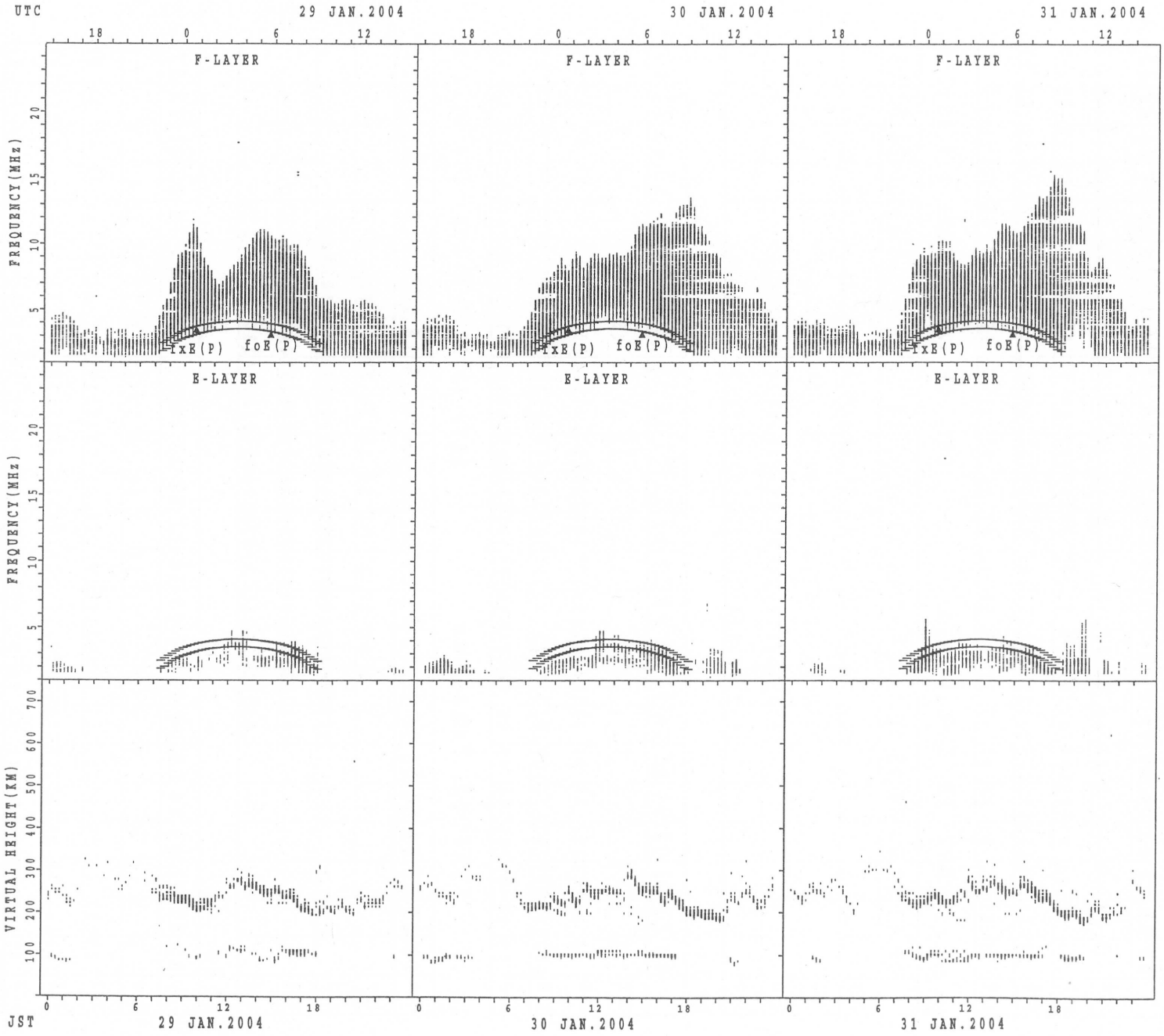
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

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

JAN.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									11	26	27	29	29	29	29	27	14	1						
MED									220	230	230	222	226	232	230	230	229	250						
U Q									230	238	246	231	234	238	237	238	236	125						
L Q									214	224	218	214	221	224	222	222	226	125						

h'Es

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	9	8	7	7	5	12	14	22	10	9	3	1	5	3	6	11	9	12	12	19	19	16	18	12
MED	93	92	93	97	105	103	101	101	104	95	105	95	103	107	100	99	101	97	98	97	97	95	95	95
U Q	96	94	101	103	106	105	103	107	107	101	145	47	114	111	107	103	110	104	102	105	103	97	99	97
L Q	91	90	91	89	97	99	99	97	95	93	97	47	96	97	89	89	96	95	97	95	93	93	91	91

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

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT							1	2	23	30	30	30	24	27	30	27	18	3	1					
MED							338	247	230	230	236	234	238	238	243	234	230	242	238					
U Q							169	256	246	240	246	246	243	246	248	246	234	266	119					
L Q							169	238	224	226	224	222	230	230	234	224	224	206	119					

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	6	8	6	7	7	5	4	9	8	11	7	9	12	15	15	18	13	13	12	10	7	9	10
MED	98	96	103	103	99	99	97	104	101	110	105	103	105	110	107	105	101	97	95	96	97	97	97	96
U Q	102	103	105	103	101	103	103	110	128	112	111	119	114	115	113	107	107	98	102	97	99	99	97	97
L Q	90	91	97	101	97	97	95	99	94	100	103	103	104	103	103	103	97	91	91	90	91	91	94	93

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							1	1	18	27	27	27	16	15	26	28	27	18	6	1				
MED							336	304	242	240	238	240	240	246	248	243	232	238	242	230				
U Q							168	152	256	256	248	256	254	254	258	256	240	240	254	115				
L Q							168	152	228	226	230	232	234	234	238	234	230	226	234	115				

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	9	11	4	7	7	6	5	7	11	13	8	10	6	12	17	20	21	25	25	17	9	5	8
MED	97	101	97	96	97	103	103	99	103	107	105	103	105	103	103	101	97	95	97	95	91	93	99	97
U Q	105	105	99	99	103	105	105	101	105	113	109	108	119	105	105	106	105	103	101	101	98	97	105	100
L Q	95	97	95	94	91	97	99	94	97	97	100	103	103	101	99	96	95	94	93	91	89	89	93	91

MONTHLY MEDIANS OF h'F AND h'Es

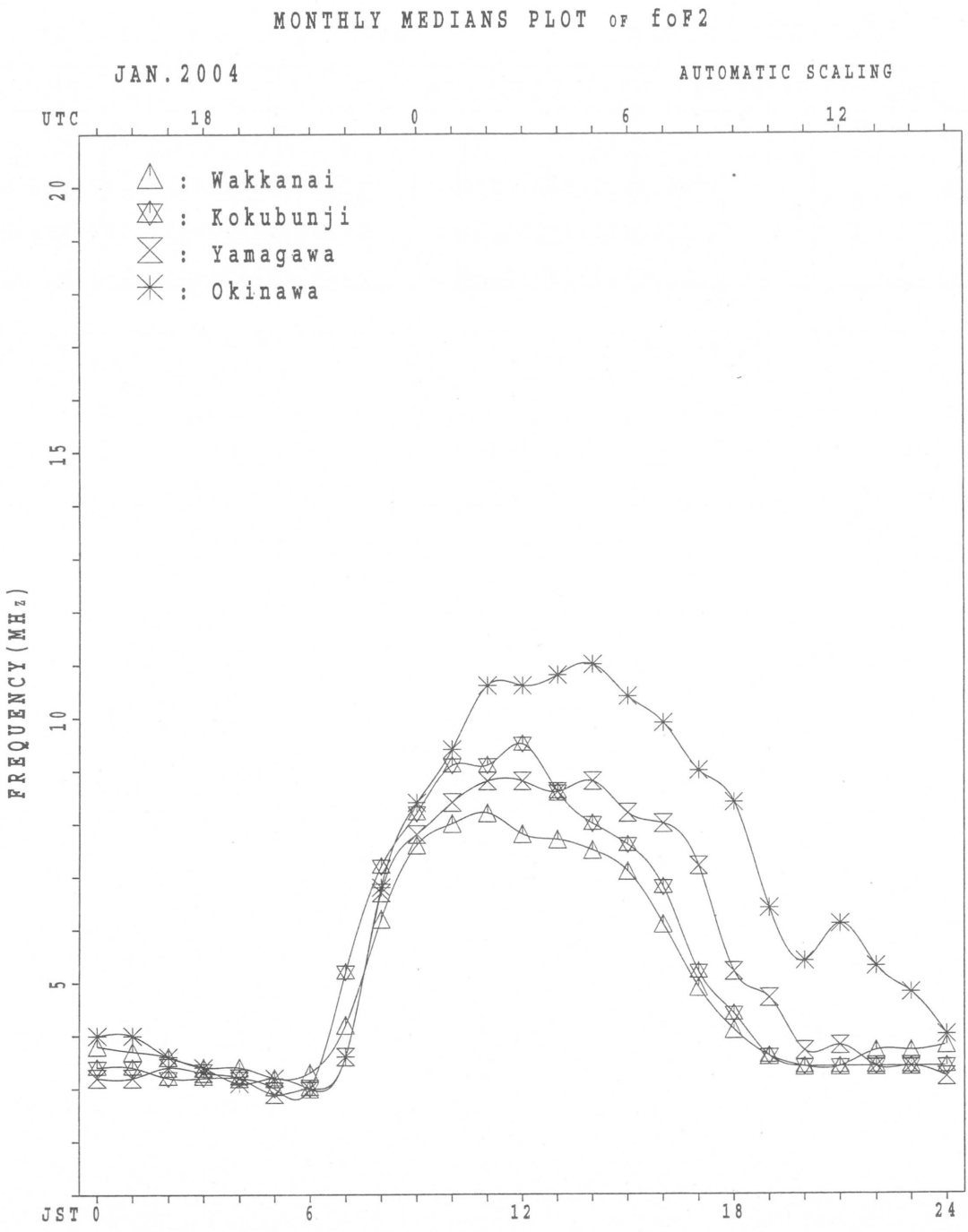
JAN.2004 135E MEAN TIME(UTC+9H) AUTOMATIC SCALING

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

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	1						1	1	20	30	31	30			20	31	30	27	18	6	5	3	2	1
MED	228						304	412	240	234	240	243			253	242	237	230	215	209	246	256	240	320
U Q	114						152	206	254	246	254	254			262	248	246	244	232	228	263	264	264	160
L Q	114						152	206	230	222	230	234			246	238	226	214	212	200	230	216	216	160

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	13	15	10	10	7	9	8	6	11	9	17	17	17	14	17	20	25	22	19	14	14	14	7
MED	106	95	97	95	95	97	95	99	117	105	105	105	107	103	105	101	95	97	95	95	96	92	90	91
U Q	115	107	97	97	97	101	96	102	123	107	116	111	116	110	111	105	104	103	99	109	103	101	103	103
L Q	101	93	93	93	93	93	92	93	95	93	99	103	103	99	101	97	95	91	91	93	87	87	89	89


MONTHLY MEDIANS PLOT OF foF2
JAN. 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

JAN. 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 40	X 35	X 26	X 27	X 30	X 28	X 32											X 58	X 49	X 47	X 36	X 40	A	49
2	X 45	X 48	X 40	X 33	X 34	X 36	X 35											X 54	X 40	X 40	O X 43	A	A	X 43
3	X 42	X 42	X 41	X 38	X 31	X 31	X 29											X 57	X 46	X 38	X 34	X 38	X 44	X 35
4	X 34	X 36	X 34	X 35	X 41	X 32	X 32											X 58	X 47	X 46	X 35	X 39	X 43	X 45
5	X 37	X 37	X 37	X 36	X 34	X 34	X 36											X 50	X 56	X 42	X 36	X 35	X 36	X 40
6	X 42	X 49	X 46	X 32	X 32	X 32	X 33											X 50	X 58	X 52	X 38	O X 38	X 34	38
7	X 37	X 37	X 38	X 39	X 36	X 33	X 35											X 63	X 52	X 40	X 45	X 30	X 35	X 32
8	X 36	X 40	X 34	X 38	X 28	X 29	S 41											X 47	X 44	X 42	X 42	X 32	A	X 34
9	X 38	X 40	X 36	X 30	X 27	X 26	X 28										X 72	X 56	A	X 38	X 39	X 32	X 31	X 33
10	X 35	X 36	X 37	X 36	X 40	X 29	X 34											X 52	X 53	X 46	X 44	X 51	X 57	X 29
11	X 30	X 31	X 30	X 34	X 27	X 28	X 26											A	A	X 37	X 33	X 35	X 37	X 36
12	X 35	X 34	X 38	X 36	X 35	X 36	X 35											X 50	X 46	C	X 36	X 30	X 32	X 35
13	X 35	X 38	X 38	X 39	X 39	X 31	C											X 52	X 37	X 46	X 44	X 35	X 36	X 40
14	X 42	X 40	X 42	X 36	X 37	X 36	X 36											X 60	X 45	X 42	X 34	X 36	X 38	X 39
15	X 40	X 43	X 39	X 38	X 34	X 30	X 30												X 47	X 42	X 36	X 33	X 37	X 39
16	X 40	X 40	X 39	X 40	X 39	X 35	X 38											X 70	X 65	X 60	X 31	X 35	X 37	X 40
17	X 42	X 40	X 42	X 38	X 36	X 34	X 34				C	C	C	C	C	C	C		X 50	X 46	X 42	X 39	X 38	X 38
18	X 40	X 38	X 39	X 39	X 36	X 35	X 37											X 68	X 51	X 41	X 45	X 32	X 36	X 37
19	X 39	X 41	X 45	X 40	X 40	X 36	X 36												X 53	X 49	X 49	X 46	X 42	X 44
20	X 43	X 44	X 47	X 40	X 40	X 39	X 41												X 56	X 40	X 36	X 40	X 40	X 42
21	X 42	X 43	X 44	X 42	X 41	X 40	X 39												X 47	X 55	X 56	X 47	X 39	X 38
22	X 39	X 42	X 41	X 42	X 43	X 39	X 37												X 76	X 57	X 47	X 43	X 46	X 49
23	X 38	X 39	X 37	A	X 50	X 57	80	91										X 60	X 51	X 41	X 46	X 48	X 43	X 45
24	X 44	X 43	X 36	X 37	X 35	X 28	X 39											X 64	X 58	X 56	X 37	X 39	X 45	X 46
25	X 45	X 42	X 39	X 40	X 42	X 38	X 40												X 47	A	X 50	O X 53	X 48	X 50
26	X 54	X 41	X 34	X 33	X 36	X 32	X 36											X 67	X 61	X 50	X 42	X 44	X 41	X 42
27	X 44	X 38	X 39	X 40	X 42	X 32	A											X 63	X 45	A	X 43	X 42	X 42	X 43
28	X 39	X 38	X 38	X 36	X 38	X 36	X 38											X 68	X 66	X 45	X 52	X 33	X 34	X 37
29	X 38	X 40	X 41	X 40	X 41	X 37	X 37											X 60	X 44	X 38	X 40	X 41	X 40	X 42
30	X 41	X 41	X 40	X 37	X 37	X 37	X 38												X 56	X 50	X 39	X 41	X 41	X 42
31	X 42	X 43	X 42	X 43	X 38	X 39	X 38												X 45	X 44	X 50	X 45	X 36	X 41
	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	31	29	1									1	21	29	28	31	30	28	31
MED	X 40	X 40	X 39	X 38	X 37	X 34	X 36	91									X 72	X 58	X 50	X 44	X 42	X 39	X 38	X 40
U Q	X 42	X 42	X 41	X 40	X 40	X 37	X 38											X 64	X 56	X 50	X 45	X 43	X 42	X 43
L Q	X 37	X 38	X 37	X 36	X 34	X 31	X 34											X 52	X 46	X 40	X 36	X 35	X 36	X 37

IONOSPHERIC DATA STATION Kokubunji

JAN. 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	34	29	20	21	24	22	26	50	86	98	94	104	98	81	82	77	64	52	43	41	30	34	A	F
2	39	42	34	27	28	30	28	62	74	88	98	97	90	87	78	74	66	48	34	34	37	A	A	37
3	36	36	35	32	25	25	23	46	64	88	90	90	81	88	82	75	62	51	40	32	28	32	38	29
4	28	30	28	29	35	26	26	44	76	82	88	86	78	76	78	68	55	52	41	40	28	33	37	38
5	31	31	31	30	28	28	30	48	70	85	122	89	92	68	69	67	60	44	50	36	30	29	30	34
6	36	43	40	26	26	26	27	42	78	80	92	79	80	74	70	59	53	44	52	46	32	32	28	F 28
7	31	31	32	33	30	27	29	49	59	71	81	94	93	70	62	67	74	57	46	34	39	24	29	26
8	30	34	28	32	22	23	S	40	68	112	120	84	75	79	68	59	53	41	38	36	35	26	A	28
9	32	34	30	24	21	20	22	49	64	64	82	91	99	76	80	69	66	50	A	32	33	26	25	27
10	29	30	30	30	34	23	28	40	62	80	124	96	83	87	89	82	60	46	47	40	38	45	51	23
11	24	25	24	28	21	22	20	47	56	64	79	105	125	104	86	82		A	A	31	27	28	31	S 30
12	29	28	32	30	29	30	29	50	80	89	104	91	75	69	68	66	60	44	40	C	30	24	26	29
13	S 29	32	32	33	33	25	C	42	56	69	69	86	86	72	79	73	66	46	31	40	38	29	30	34
14	36	34	36	30	31	30	30	54	70	82	99	102	94	91	74	72	71	54	39	36	28	30	32	33
15	34	37	33	32	28	24	24	51	76	78	82	91	90	R 78	68	72	57	46	41	36	30	27	31	33
16	34	34	33	34	33	29	32	47	68	95	106	126	112	97	85	76	78	64	58	54	V 25	29	31	34
17	36	34	36	32	30	28	28	50	79	79	C	C	C	C	C	C	C	54	44	40	36	33	32	32
18	34	32	32	33	30	29	31	55	62	80	104	119	96	81	82	90	97	61	45	35	39	26	30	31
19	33	35	38	34	34	30	29	50	76	70	80	84	79	80	91	84	H 75	63	47	43	43	40	36	38
20	37	38	41	34	34	33	35	62	72	90	102	102	106	82	80	78	71	67	50	33	30	34	34	36
21	36	37	38	36	35	34	33	60	78	101	100	110	96	86	78	V 79	65	A	41	49	50	41	33	32
22	33	36	35	36	37	33	31	59	89	90	89	102	96	99	107	91	68	64	70	51	41	37	40	45
23	32	33	31	A	44	51	F	F	84	111	94	80	96	98	90	83	69	54	45	35	40	42	37	39
24	38	36	29	31	29	22	33	55	64	85	110	105	106	114	116	80	68	58	52	50	31	32	39	40
25	39	36	33	34	36	32	33	57	64	71	80	91	101	96	97	96	87	62	41	A	44	47	42	44
26	48	35	28	27	30	26	30	51	78	68	84	79	95	93	82	77	74	61	55	44	36	38	35	36
27	38	32	32	34	36	26	A	55	86	90	79	84	96	89	92	87	73	57	39	A	37	36	36	37
28	33	32	32	30	32	30	32	52	65	73	89	88	102	91	V 78	70	86	62	60	38	46	27	28	31
29	32	34	35	34	35	31	31	58	64	86	71	83	90	92	63	75	64	53	38	32	34	35	34	36
30	35	35	33	31	31	31	32	56	69	76	72	69	80	75	65	V 69	70	61	50	44	33	35	35	36
31	36	37	36	37	32	33	32	54	77	86	75	88	77	78	85	88	94	68	39	37	44	39	30	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	31	31	31	30	31	31	27	30	31	31	30	30	30	30	30	30	29	29	29	28	31	30	28	30
MED	34	34	32	32	31	28	30	50	70	82	90	91	94	84	80	76	68	54	44	38	35	32	32	34
U Q	36	36	35	34	34	31	32	55	78	90	102	102	98	92	86	82	74	62	50	44	39	37	36	37
L Q	31	32	30	30	28	25	27	47	64	73	80	84	81	76	70	69	61	47	40	34	30	28	30	30

JAN. 2004 foF2 (0.1MHz) COMMUNICATIONS RESEARCH LABORATORY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

JAN. 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	L	L									
2											A	L	L	L										
3											L	L	L	L										
4													L	L	L									
5											L	L	A	E	B	A	A							
6											L	L		L										
7											L	L	L	E	B	A	A	A						
8									L	L		L	L	L	A									
9											L	E	B	L	A	A	A							
10											L	L	A	L	L									
11											L	L	L											
12											L		L	L							C			
13											L		L	L	A									
14											L	L	L	L	L									
15											L		L	L	L									
16											L	L												
17											C	C	C	C	C	C	C							
18											L		L		L									
19											L	L	L											
20												L	L											
21											L	L		L					A					
22											L	L			L									
23													L											
24										L	L	L		L										
25										L	L	L	L		A									
26											L	L	L	L										
27										L	L	L	L	L	L									
28											L				L									
29															L	L								
30										L		L	L	L										
31										L		L	L	L	L									
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT																								
MED																								
U Q																								
L Q																								

JAN. 2004 foF1 (0.01MHz) COMMUNICATIONS RESEARCH LABORATORY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

JAN. 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	A	A	R	U R 348	U R 360	R	B	R	U R 224							
2								B	A	U A 256	A	A	A	U R 316	R	B	B							
3								B	A	A	A	A	U R 332	U R 304	R	R	B							
4								B	220	A	A	A	U R 332	U R 320	A	A	A							
5								B	232	A	A	A	A	B	B	A	A							
6								E C	220	E C	A	A	A	A	U A 316	A	212							
7								B	228	284	A	A	A	B	A	U A 248	B							
8								B	A	U R 276	R	U R 316	R	U R 304	A	A	A							
9								B	U A 224	U R 272	A	B	A	A	A	A								
10								B	248	U R 280	U A 296	A	A	A	A	A	A							
11								B	U R 236	R	U R 300	U R 332	A	A	A	A								
12								B	A	A	A	U R 340	A	A	U A 300	U R 276	A			C				
13								B	A	276	A	A	A	B	A	A	A							
14								B	264	U R 284	A	A	R	A	A	U R 256	A							
15								B	R	U R 284	U R 320	U R 332	U R 340	A	A	A	224	B						
16								B	240	A	A	A	U R 332	R	U R 304	U R 268	U R 224							
17								B	220	U R 284	C	C	C	C	C	C	C	B						
18								B	U R 232	U R 284	320	A	A	A	A	A	U A 240							
19								U R 176	224	R	U R 300	A	A	U A 320	A	U R 284	U R 236	B						
20								B	U R 244	R	U R 332	R	R	A	A	A	A	B						
21								B	A	R	A	U A 332	A	A	A	A	A	B						
22								B	U R 244	U R 296	R	A	A	A	A	A	A	B						
23								B	U R 228	280	A	U R 340	U R 348	316	296	U A 268	U A 208							
24								U R 192	A	R	R	R	R	U R 312	U R 288	U R 260	U A 224							
25								B	U R 236	R	R	U R 328	R	U A 320	A	U A 260	A	B						
26								B	236	R	R	R	A	A	A	276	A							
27								B	232	R	R	A	R	A	U R 296	R	212							
28								B	U R 236	U R 284	U R 316	R	R	U A 312	R	A	U A 252							
29								B	U R 208	U R 272	B	B	B	B	B	R	U R 236							
30								B	236	R	R	A	U R 336	U R 316	U R 304	U R 284	228	B						
31								B	232	A	R	A	U R 332	A	R	A	A	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	22	14	7	8	8	10	7	10	12							
MED								U R 184	232	U R 282	U R 316	U R 332	U R 334	U R 316	U R 300	U R 268	U 224							
U Q									236	U R 284	U R 320	U R 340	U R 344	U A 320	U 304	U R 276	U R 236							
L Q									224	U 276	U 300	U R 330	U R 332	U R 312	296	U A 260	218							

JAN. 2004 foE (0.01MHz) COMMUNICATIONS RESEARCH LABORATORY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

JAN. 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	E B 14	E B 13	E B 14	E B 15	E B 14	E B 13	E B 15	J A 27	J A 46	J A 41	G 28	G 28	G 29	G	E B 30	G	G 20	J A 19	J A 19	21	J A 24	20	J A 73	J A 34
2	E B 15	E B 14	J A 23	J A 18	18	E B 15	E B 15	J A 22	27	31	J A 52	J A 43	J A 44	G	G 25	E B 30	E B 22	E B 15	J A 19	J A 21	J A 36	J A 64	J A 54	J A 45
3	J A 45	J A 31	J A 24	E B 14	J A 25	E B 15	J A 16	20	J A 29	J A 44	J A 34	34	G 28	G 28	G	G	E B 20	E B 14	E B 15	E B 15	E B 15	E B 15	19	E B 16
4	E B 15	E B 15	20	J A 20	18	E B 14	18	18	25	J A 42	35	36	J A 37	G	J A 72	J A 69	J A 43	J A 42	J A 29	J A 25	J A 19	23	J A 19	J A 20
5	J A 31	J A 24	J A 32	J A 22	J A 20	J A 24	20	E B 16	G	32	J A 54	J A 56	J A 47	J A 61	J A 44	J A 39	J A 45	J A 40	J A 31	J A 24	E B 14	E B 15	E B 15	E B 16
6	E B 16	J A 22	J A 20	20	J A 18	J A 17	E B 15	E C 28	25	E C 30	J A 43	38	J A 43	J A 44	J A 45	J A 41	24	E B 15	J A 22	J A 27	22	E C 28	J A 22	J A 26
7	J A 22	E C 28	J A 22	J A 20	20	E B 15	E B 15	E B 15	G	G 24	J A 38	J A 34	J A 42	E B 43	J A 49	J A 42	J A 38	E C 28	J A 24	J A 29	J A 24	J A 23	20	E B 15
8	19	E B 15	J A 22	J A 26	E B 15	J A 21	J A 44	J A 30	J A 34	G 23	G 27	G 26	G 23	G	J A 44	J A 54	J A 65	J A 28	J A 24	J A 28	J A 18	20	J A 53	J A 27
9	J A 19	19	E B 15	E B 15	E B 15	E B 14	E B 15	E B 16	28	G	33	E B 44	J A 44	J A 64	J A 54	J A 53	J A 32	J A 56	J A 64	J A 31	18	21	20	J A 20
10	E B 15	19	18	E B 15	E B 16	E B 15	E B 16	E B 17	G	G	38	33	J A 57	J A 48	J A 38	J A 40	J A 48	J A 46	J A 69	J A 30	J A 19	18	J A 17	E B 14
11	E B 15	E B 15	E B 15	E B 15	E B 16	E B 14	E B 16	E B 15	G	G 24	G 25	G 25	36	34	J A 43	J A 64		J A 97	J A 78	J A 39	J A 27	J A 24	J A 34	J A 44
12	J A 26	J A 26	J A 23	J A 18	J A 28	J A 36	J A 30	J A 39	J A 52	J A 62	J A 40	G 26	35	34	34	G 22	J A 29	22	J A 17	C	J A 22	J A 17	J A 38	J A 29
13	J A 31	J A 21	E B 16	E B 16	J A 16	J A 16	C	J A 64	J A 57	32	J A 56	J A 54	42	40	J A 54	J A 58	J A 54	J A 56	E B 28	E B 16	J A 26	J A 24	20	18
14	E B 16	18	E B 15	E B 15	E B 16	E B 15	E B 15	22	G 22	32	J A 43	J A 45	J G 28	J A 43	J A 31	G 21	J A 46	J A 18	E B 14	E B 15	E B 15	E B 14	19	J A 19
15	J A 18	J A 18	J A 20	J A 30	18	E B 14	J A 18	20	G	G 25	G 28	39	39	40	J A 41	J A 42	J A 29	J A 22	19	E B 16	E B 15	E B 15	E B 15	E B 15
16	18	E B 16	18	E B 14	E B 15	E B 16	E B 15	E B 16	G	J A 34	35	35	G 27	G 28	G 27	G 26	G	E B 15	E B 14	E B 15	E B 16	J A 20	21	E B 15
17	J A 17	19	E B 16	E B 15	E B 15	19	E B 15	J A 24	G 20	G 21	C	C	C	C	C	C	C	J A 44	J A 50	J A 26	20	J A 20	E B 16	E B 16
18	E B 15	E B 15	J A 25	J A 23	J A 27	18	19	20	G	G 24	J A 49	37	34	J A 46	36	J A 48	J A 34	J A 37	J A 34	E B 20	E B 15	14	17	E B 14
19	19	18	19	J A 17	E B 16	J A 27	E B 15	E B 16	26	G 22	G J A 22	37	37	37	34	G	G 19	J A 18	E B 13	E B 15	E B 14	E B 16	E B 15	E B 14
20	E B 15	E B 15	19	E B 15	E B 15	E B 16	19	E B 15	G 19	G	G 26	G 28	G 30	J A 43	J A 62	J A 34	J A 26	21	20	J A 18	E B 15	B J A 18	E B 15	E B 16
21	E B 15	E B 16	E B 15	E B 14	E B 14	J A 23	J A 24	19	J A 28	G	37	J A 45	J A 59	J A 42	38	J A 32	J A 32	J A 56	J A 70	16	E B 14	E B 16	E B 15	E B 14
22	E B 15	E B 15	E B 16	E B E B 15	18	E B E B 14	16	19	G	G	G	37	40	39	36	34	J A 30	J A 61	J A 20	20	J A E B 19	E B 16	E B 15	E B 14
23	E B 17	20	J A 19	J A 47	J A 39	J A 25	J A 22	E B 16	G	37	38	43	40	J A 50	39	34	24	J A 20	E B 15	E B 15	E B 15	J A 19	J A 20	19
24	E B 15	E B 15	J A 17	20	J A 20	E B 16	E B 14	G	J A 42	G 25	G	G 28	G	G 29	G 25	G 20	26	E B 16	E B 16	J A 19	20	J A 42	J A 25	J A 30
25	J A 25	E B 15	J A 18	E B 16	E B 15	E B 15	E B 15	19	G 22	G 26	G 26	G 25	G 29	J A 46	J A 53	30	J A 28	J A 55	J A 78	J A 86	J A 32	J A 28	J A 35	J A 24
26	J A 18	J A 18	J A 19	J A 19	J A 28	J A E B 14	E B 16	E B 15	G 20	G 28	G 23	G 20	38	38	J A 43	31	31	23	J A 19	J A 32	J A 45	J A 31	J A 31	J A 25
27	J A 20	J A 26	J A 24	J A 19	19	J A 25	J A 32	J A 22	G 22	G	G	39	G 26	G 38	G 26	G	27	J A 33	J A 44	J A 35	J A 34	J A 28	J A 43	J A 41
28	J A 19	J A 17	E B 16	E B 14	E B 15	E B 15	E B 15	E B 19	G 22	G 22	G 29	G	G	J A 40	G	32	J A 45	18	J A 19	J A 20	E B 16	E B 15	18	J A 21
29	E B 15	E B 14	E B 14	18	E B 15	E B 15	19	E B 16	G	G 25	E B 35	E B 43	E B 46	E B 40	E B 35	G	G	J A 20	E B 15	E B 16	E B 15	E B 15	B J 17	J A 32
30	J A 32	E B 15	E B 15	E B 15	J A 24	J A 24	J A 16	J A 19	G	G	G	35	38	G 28	G 28	32	27	18	E B 15	E B 15	E B 16	B J 21	J A 18	E B 15
31	E B 15	E B 16	E B 15	E B 15	J A 22	20	J A 22	24	G 19	J A 40	G 23	34	G	34	G 20	29	J A 26	J A 18	J A 20	J A 18	A E B 36	E B 15	E B 15	E B 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	31	31	31	31	31	31	30	31	31	31	30	30	30	30	30	30	29	31	31	30	31	31	31	31
MED	17	E 17	18	E B 16	18	E B 16	E B 16	19	G	G	E G 34	35	36	39	37	32	J A 29	22	J A 20	J A 20	19	20	19	19
U Q	J A 20	J A 20	J A 22	J A 20	J A 20	J A 21	J A 19	J A 22	J A 28	J A 32	J A 38	J A 43	J A 42	J A 43	J A 44	J A 42	J A 40	J A 44	J A 34	J A 28	J A 24	J A 24	J A 31	J A 27
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 22	G 25	G 28	G 28	G 30	G	G	G	24	E B 18	E B 16	E B 16	E B 15	E B 15	E B 16	E B 15

JAN. 2004 foEs (0.1MHz) COMMUNICATIONS RESEARCH LABORATORY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

JAN. 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 14	E B 13	E B 14	E B 15	E B 14	E B 13	E B 15	20	27	30	G 24	U Y 28	U Y 29	G	E B 30	G	G 19	E B 14	15	18	16	18	A A 73	21
2	E B 15	E B 14	16	15	E B 15	E B 15	E B 15	19	24	29	42	37	39	G	G 25	E B 30	E B 22	E B 15	E B 16	18	23	A A 64	A A 54	16
3	20	22	E B 16	E B 14	17	E B 15	E B 15	18	26	30	31	32	G 28	G 27	G	G	E B 20	E B 14	E B 15	E B 15	E B 15	E B 15	E B 15	E B 16
4	E B 15	E B 15	E B 15	16	E B 14	E B 14	16	18	24	30	32	35	G 30	G	31	29	24	23	24	20	E B 14	20	E B 16	E B 16
5	E B 16	16	21	16	E B 15	E B 15	E B 15	E B 16	G	30	39	34	43	55	42	33	24	26	28	22	E B 14	E B 15	E B 15	E B 16
6	E B 16	E B 15	E B 14	E B 15	E B 15	E B 16	E B 15	E C 28	24	E C 30	32	34	31	30	G 28	28	22	E B 15	19	22	20	E C 28	18	18
7	16	E C 28	E B 15	E B 14	E B 14	E B 15	E B 15	E B 15	G	G 24	32	31	38	E B 43	38	38	31	E C 28	18	18	20	E B 15	E B 15	E B 15
8	E B 15	E B 15	21	24	E B 15	19	34	21	29	G 22	G 25	G 21	G 22	G	37	30	23	20	16	20	E B 16	E B 15	A A 53	18
9	17	E B 15	E B 15	E B 15	E B 14	E B 15	E B 14	E B 16	24	G	31	E B 44	34	36	36	31	29	30	A A 64	17	16	E B 16	E B 16	17
10	E B 15	E B 15	E B 15	E B 15	E B 16	E B 15	E B 16	E B 17	G	G	36	32	47	35	30	30	37	23	22	19	E B 14	E B 15	E B 15	E B 14
11	E B 15	E B 15	E B 15	E B 15	E B 16	E B 14	E B 16	E B 15	G	G 24	G 22	G 25	34	34	34	31		A A 97	A A 78	21	22	18	20	23
12	20	16	18	16	19	24	19	19	24	42	31	G 21	33	33	33	G 22	26	20	E B 15	C	18	16	20	18
13	24	E B E 15	E B 16	E B 16	E B 14	E B 16	C	21	24	31	33	38	38	36	37	31	38	20	16	E B 16	E B 16	E B 16	E B 16	E B 15	16
14	E B 16	E B 15	E B 15	E B 15	E B 16	E B 15	E B 15	19	G 21	30	34	36	28	33	30	G 18	21	E B 14	E B 14	E B 15	E B 15	E B 14	16	E B 15
15	16	E B 15	17	16	E B 16	E B 14	E B 16	E B 18	G	G 24	G 27	36	37	38	33	29	G 18	17	E B 15	E B 16	E B 15	E B 15	E B 15	E B 15
16	E B 14	E B 16	E B 15	E B 14	E B 15	E B 16	E B 15	E B 16	G	29	34	34	G 26	G 27	G 26	G 26	G	E B 15	E B 14	E B 15	E B 16	E B 15	E B 16	E B 15
17	16	E B 15	E B 16	E B 15	E B 15	E B 16	E B 15	21	G 19	G 20	C	C	C	C	C	C	C	36	27	21	E B 15	16	E B 16	E B 16
18	E B 15	E B 15	16	17	E B 15	E B 15	E B 15	18	G	G 24	G 30	34	34	44	34	31	G 18	25	19	16	E B 15	E B 14	E B 15	E B 14
19	E B 15	E B 15	E B 15	E B 16	E B 16	23	E B 15	E B 16	24	G 20	G 22	35	36	35	34	G	G 19	16	E B 13	E B 15	E B 14	E B 16	E B 15	E B 14
20	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 18	G	G 26	G 27	G 30	40	56	29	22	19	E B 16	E B 16	E B 15	E B 15	E B 15	E B 16
21	E B 15	E B 16	E B 15	E B 14	E B 14	16	E B 15	19	28	G	35	40	44	36	34	30	24	A A 56	18	E B 15	E B 15	E B 16	E B 15	E B 14
22	E B 15	E B 15	E B 16	E B 15	E B 15	E B 14	E B 16	18	G	G	G	36	38	37	33	34	26	36	E B 15	E B 15	E B 16	E B 16	E B 15	E B 14
23	E B 17	E B 15	17	A A 47	34	20	18	E B 16	G	35	35	40	38	35	38	33	24	E B 16	E B 15	E B 15	E B 15	E B 16	E B 16	E B 15
24	E B 15	E B 15	E B 15	E B 15	E B 15	E B 16	E B 14	G	31	G 22	G	G 26	G	G 28	G 25	G 20	25	E B 16	E B 16	E B 15	E B 15	E B 15	E B 16	23
25	16	E B 15	E B 15	E B 16	E B 15	E B 15	E B 15	18	G 21	G 26	G 25	G 25	G 27	44	40	30	24	30	20	A A 86	25	25	29	18
26	E B 15	E B 15	E B 16	E B 16	19	E B 14	E B 16	E B 15	G 19	G 27	G 20	G 19	36	37	37	30	28	20	E B 15	20	17	22	20	19
27	17	22	17	16	E B 15	22	A A 32	17	G 20	G	G	36	G 23	35	G 22	G	24	22	18	A A 35	30	E B 16	22	25
28	16	16	E B 16	E B 14	E B 15	E B 15	E B 15	E B 19	G 20	G 21	G 28	G	G	40	G	30	G 22	18	E B 15	16	E B 16	E B 15	16	E B 15
29	E B 15	E B 14	E B 14	E B 15	E B 15	E B 15	E B 15	E B 16	G	G 25	E B 35	E B 43	E B 46	E B 40	E B 35	G	G	18	E B 15	E B 16	E B 15	E B 15	E B 16	16
30	E B 15	E B 15	E B 15	E B 15	16	E B 16	E B 16	17	G	G	G	34	36	G 28	G 27	31	26	17	E B 15	E B 15	E B 16	E B 15	16	E B 15
31	E B 15	E B 16	E B 15	E B 15	E B 14	E B 15	16	E B 18	G 19	28	G 22	32	G	32	G 20	29	24	17	E B 15	16	27	E B 15	E B 15	E B 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	31	31	31	31	31	31	30	31	31	31	30	30	30	30	30	30	29	31	31	30	31	31	31	31
MED	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	18	G	G	G	34	34	34	33	30	24	20	E B 16	16	E B 16	E B 16	E B 16	E B 16
U Q	16	16	16	16	16	16	16	19	24	30	34	36	38	38	37	31	26	26	19	20	18	16	20	18
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 21	G 24	G 26	G	G 30	G	G	G	G 22	E B 16	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15

JAN. 2004 fbEs (0.1MHz) COMMUNICATIONS RESEARCH LABORATORY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

JAN. 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	14	13	14	15	14	13	15	13	14	19	18	22	21	28	30	20	13	14	13	16	15	14	14	14
2	15	14	14	13	15	15	15	14	17	18	20	20	28	28	23	30	22	15	16	12	14	15	15	13
3	15	14	16	14	14	15	15	15	14	14	16	15	18	20	19	18	20	14	15	15	15	15	15	16
4	15	15	15	14	14	14	13	15	14	21	18	23	19	28	17	18	16	13	16	14	14	17	16	16
5	16	14	15	14	15	15	15	16	14	15	20	17	28	46	32	21	15	14	14	14	14	15	15	16
6	16	15	14	15	15	16	15	E C 28	16	E C 30	18	20	19	20	17	16	14	15	15	15	15	E C 28	15	14
7	13	E C 28	15	14	14	15	15	15	14	17	17	18	18	43	25	14	16	E C 28	14	15	15	15	15	15
8	15	15	16	16	15	14	15	14	13	15	13	15	12	22	19	15	14	13	13	14	16	15	14	15
9	14	15	15	15	14	15	14	16	14	17	20	44	21	17	16	13	14	15	14	15	13	16	16	14
10	15	15	15	15	16	15	16	17	18	19	12	18	14	14	17	14	14	16	15	14	14	15	15	14
11	15	15	15	15	16	14	16	15	15	18	17	16	20	18	15	16		14	15	15	14	14	16	15
12	15	13	14	14	14	14	14	16	15	14	15	14	16	22	14	16	16	14	15	C	16	14	16	16
13	15	16	16	16	14	16	C	15	15	14	19	18	23	32	27	18	14	14	14	16	16	16	15	14
14	16	15	15	15	16	15	15	15	14	16	20	18	20	16	14	14	14	14	14	15	15	14	16	15
15	14	15	14	14	14	14	16	18	16	16	14	14	16	14	E C 28	14	14	14	15	16	15	15	15	15
16	14	16	15	14	15	16	15	16	15	15	15	16	16	18	16	15	14	15	14	15	16	15	16	15
17	14	15	16	15	15	16	15	16	15	15	C	C	C	C	C	C	C	14	15	14	15	16	16	16
18	15	15	14	14	15	15	15	14	13	14	21	24	17	16	19	17	12	14	15	15	15	14	15	14
19	15	15	15	16	16	14	15	16	13	14	16	16	18	17	18	15	14	14	13	15	14	16	15	14
20	15	15	15	15	15	16	15	15	16	18	19	22	22	20	16	17	14	15	16	16	15	15	15	16
21	15	16	15	14	14	15	15	15	16	21	27	21	20	18	18	17	14	15	15	15	14	16	15	14
22	15	15	16	15	15	14	16	15	14	18	18	21	20	23	19	14	14	14	15	15	16	16	15	14
23	17	15	14	14	14	15	14	16	15	16	13	15	14	15	14	16	13	16	15	15	15	16	16	15
24	15	15	15	15	15	16	14	14	14	16	22	25	25	22	19	16	16	16	16	15	15	15	16	15
25	12	15	15	16	15	15	15	13	15	20	22	20	16	20	18	16	14	14	16	14	14	14	15	13
26	15	15	16	16	14	14	16	15	15	13	16	15	16	18	18	17	16	16	15	16	14	14	14	14
27	15	14	14	14	15	12	15	13	14	16	22	19	18	17	20	18	16	15	14	14	15	16	15	15
28	14	14	16	14	15	15	15	19	15	15	19	18	23	19	21	20	16	16	15	16	16	15	15	15
29	15	14	14	15	15	15	15	16	14	18	35	43	46	40	35	21	19	16	15	16	15	15	16	14
30	15	15	15	15	14	16	16	14	16	22	26	25	26	22	21	16	14	16	15	15	16	15	14	15
31	15	16	15	15	14	15	14	18	15	14	19	21	20	20	16	15	16	13	15	14	14	15	15	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	31	31	31	31	31	31	30	31	31	31	30	30	30	30	30	30	29	31	31	30	31	31	31	31
MED	15	15	15	15	15	15	15	15	15	16	18	18	20	20	18	16	14	14	15	15	15	15	15	15
U Q	15	15	15	15	15	15	15	16	15	18	20	22	22	23	21	18	16	16	15	15	15	16	16	15
L Q	14	14	14	14	14	14	15	14	14	15	16	16	16	17	16	15	14	14	14	14	14	15	15	14

JAN. 2004 fmin (0.1MHz) COMMUNICATIONS RESEARCH LABORATORY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

JAN.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	336	350	331	269	290	270	310	338	354	353	334	335	355	332	344	354	349	345	330	364	327	295	A	F
2	318	332	396	332	277	277	275	352	363	353	364	359	351	355	357	363	359	363	319	342	307	A	A	314
3	323	302	306	336	324	296	306	337	357	358	361	359	356	356	345	358	360	348	359	331	278	300	368	302
4	309	311	293	302	368	302	311	337	361	348	367	370	351	362	351	361	361	340	332	328	352	307	314	365
5	322	285	316	347	282	300	309	349	365	359	353	364	361	353	338	351	381	325	343	330	330	310	291	294
6	291	343	382	306	281	283	345	322	344	368	360	338	358	361	372	350	377	321	325	353	333	316	277	F 271
7	285	286	322	338	342	305	325	374	370	344	339	327	358	357	345	344	347	369	325	319	341	304	306	283
8	299	331	300	355	273	298	S	314	318	346	369	374	356	361	367	354	374	354	337	341	376	339	A	272
9	302	357	364	364	352	312	312	362	360	334	339	342	352	354	371	365	369	379	A	331	326	326	307	321
10	303	300	314	291	362	303	367	346	335	329	360	358	344	330	359	381	368	343	355	332	282	326	357	298
11	283	269	278	353	322	327	301	362	350	349	311	317	343	337	338	349		A	A	367	327	268	305	S 322
12	310	284	314	306	313	317	318	342	357	337	359	381	373	340	351	361	369	350	327	C	335	364	280	279
13	S 312	318	301	366	371	345	C	368	359	362	322	338	359	345	350	347	366	345	324	330	370	308	297	280
14	301	297	348	305	294	283	313	370	357	363	335	348	355	360	350	346	357	351	350	360	314	292	291	300
15	299	330	355	329	313	296	317	356	360	358	340	355	348	R 339	344	359	376	345	341	357	334	300	266	300
16	296	313	281	302	308	335	356	346	338	347	338	341	339	366	338	343	364	345	346	359	V 298	282	293	281
17	295	335	337	310	270	283	315	345	360	354	C	C	C	C	C	C	C	349	345	331	309	310	306	291
18	307	296	294	303	299	295	341	387	372	359	336	357	364	336	337	344	372	370	344	335	360	293	288	298
19	283	308	328	317	310	324	321	356	371	359	355	360	353	326	346	361	H 343	355	325	313	314	325	288	296
20	303	294	333	297	275	290	313	363	350	354	348	336	333	325	339	348	352	342	345	375	276	288	294	272
21	286	296	316	297	300	286	306	350	351	350	333	349	345	344	349	V 314	349	A	319	319	332	324	312	297
22	291	300	280	286	330	346	335	341	354	345	348	338	327	316	330	363	358	309	346	329	316	254	259	280
23	256	274	264	A	260	268	F	F	332	365	362	337	340	345	350	362	353	325	327	309	308	316	291	280
24	305	311	332	271	254	246	334	390	372	343	349	333	316	320	351	356	342	346	327	366	350	266	298	312
25	323	315	310	294	297	266	319	361	365	366	342	328	333	334	324	328	351	328	321	A	283	321	290	293
26	326	318	312	276	322	282	324	350	388	371	346	347	335	351	343	354	349	340	351	352	313	310	311	300
27	342	282	304	305	335	345	A	343	377	369	365	340	337	338	344	338	358	354	356	A	316	314	306	313
28	337	289	293	274	292	293	329	353	370	354	344	347	365	372	V 336	364	358	323	355	363	357	302	288	294
29	283	303	328	316	295	299	313	366	365	358	360	328	354	366	375	350	374	370	312	337	338	333	294	311
30	310	317	325	306	288	297	318	372	386	361	372	362	336	362	353	V 306	356	353	353	372	323	313	302	297
31	293	300	294	335	310	305	315	333	371	369	365	373	362	337	345	364	369	385	316	317	348	335	301	339
	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	31	27	30	31	31	30	30	30	30	30	30	29	29	29	28	31	30	28	30
MED	303	303	314	306	300	297	317	351	360	354	348	347	352	345	346	354	359	346	337	336	327	310	296	297
U Q	318	318	332	335	324	312	329	363	370	362	361	359	358	360	351	361	369	354	348	360	341	324	306	311
L Q	291	294	294	297	282	283	311	342	351	347	339	337	339	336	339	346	352	340	325	330	309	295	289	281

JAN.2004 M(3000)F2 (0.01) COMMUNICATIONS RESEARCH LABORATORY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

JAN. 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	L	L									
2											A	L	L	L										
3											L	L	L	L										
4													L	L	L									
5											L	L	A	E	B	A	A							
6											L	L		L										
7											L	L	L	E	B	A	A	A						
8									L	L		L	L	L	A									
9											L	E	B	L	A	A	A							
10											L	L	A	L	L									
11											L	L	L											
12											L		L	L						C				
13											L		L	L	A									
14											L	L	L	L	L									
15											L		L	L	L									
16											L	L												
17											C	C	C	C	C	C	C							
18											L		L		L									
19											L	L	L											
20												L	L											
21											L	L		L				A						
22											L	L			L									
23													L											
24										L	L	L		L										
25										L	L	L	L		A									
26											L	L	L	L										
27										L	L	L	L	L	L									
28											L				L									
29															L	L								
30										L		L	L	L										
31										L		L	L	L	L									
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT																								
MED																								
U Q																								
L Q																								

JAN. 2004 M(3000)F1 (0.01) COMMUNICATIONS RESEARCH LABORATORY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

JAN. 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		240	246	248									
2											224	240	238	240										
3											236	236	230	244										
4													234	236	248									
5											250	218	238	E B 250	234	232								
6											240	250		228										
7											256	248	232	230	236	236	230							
8									278	246		222	250	240	230									
9											260	246	240	224	226	218								
10											232	224	252	240	228									
11											286	272	242											
12											234		226	240						C				
13											272		238	262	238									
14											254	234	246	234	232									
15											242		244	246	236									
16											254	250												
17												C	C	C	C	C	C							
18											244		228		254									
19											226	236	246											
20												246	260											
21											256	244		244					A					
22											238	246			262									
23													252											
24										246	240	244		252										
25										230	242	260	254		254									
26											250	248	270	242										
27										234	222	264	240	238	240									
28											246				254									
29															220	242								
30										238		240	252	242										
31										232		232	232	254	254									
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT									1	6	23	21	23	20	17	4	1							
MED									278	236	242	244	240	240	238	234	230							
U Q										246	254	249	252	246	254	239								
L Q										232	236	235	234	237	231	225								

JAN. 2004 h'F2 (KM) COMMUNICATIONS RESEARCH LABORATORY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

JAN. 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	222	224	E B 258	E B 384	E B 310	E B 368	E B 242	226	230	230	220	224	202	212	212	220	212	206	220	214	214	E A 294	A	E A 346
2	E B 238	234	194	E A 240	E B 302	E B 320	E B 298	232	212	218	A	210	212	210	212	214	208	202	210	236	E A 334	A	A	E A 262
3	E A 266	E A 320	E B 248	224	244	E B 296	E B 286	222	208	228	214	210	206	204	218	224	210	194	210	230	E B 302	E B 298	212	E B 254
4	E B 272	E B 258	E B 276	E A 304	218	E B 274	E A 276	222	222	218	214	214	204	212	218	218	206	224	E A 246	E A 244	204	E A 304	E B 262	218
5	E B 234	E A 302	E A 274	E A 228	E B 304	E B 302	E B 256	210	220	228	A	A	A	B	A	A	212	E A 232	E A 242	E A 242	230	E B 250	E B 296	E B 284
6	E B 292	244	200	E B 248	E B 312	E B 328	224	E C 256	232	220	222	216	216	208	224	214	204	236	242	226	228	E C 344	E A 354	E A 364
7	E A 334	E C 346	E B 252	E B 238	224	E B 266	E B 266	198	204	226	220	212	A	B	A	A	A	208	234	E A 242	224	E B 268	E B 262	E B 340
8	E B 304	E B 232	E A 316	E A 254	E B 358	E A 366	E A 304	E A 246	E A 242	220	222	200	204	212	A	H 200	208	216	E A 244	234	204	218	A	E A 350
9	E A 292	228	210	218	230	E B 282	E B 278	222	H 188	210	214	B	208	A	A	A	212	208	A	226	E A 242	220	E B 266	E A 276
10	E B 280	E B 282	E B 278	E B 286	216	E B 310	216	230	226	226	A	202	A	200	210	222	208	220	220	238	E B 258	222	208	E B 270
11	E B 316	E B 334	E B 334	226	218	E B 256	E B 282	216	204	216	200	204	216	224	222	214		A	A	228	E A 294	E A 338	E A 318	E A 302
12	E A 282	E A 338	E A 268	E A 286	E A 286	E A 316	E A 282	224	222	E A 246	208	210	200	198	218	224	214	202	E B 242	C	E A 244	210	E A 376	E A 312
13	E A 330	E B 252	E B 268	214	210	212	C	216	222	222	208	E A 240	A	208	A	236	218	206	214	234	208	E B 268	E B 302	E A 312
14	E B 282	E B 284	232	E B 270	E B 280	E B 318	E B 258	202	208	214	206	212	200	200	198	214	216	206	212	208	220	E B 290	E A 298	E B 276
15	E A 272	244	216	228	222	E B 306	E B 268	212	220	218	206	232	E A 226	212	206	218	208	210	218	212	218	E B 286	E B 328	E B 294
16	E B 268	E B 270	E B 320	E B 254	E B 260	E B 228	218	H 190	218	214	220	212	218	222	218	216	218	220	212	200	E B 262	E B 314	E B 314	E B 300
17	E A 268	218	230	254	E B 334	E B 312	E B 256	218	H 180	214	C	C	C	C	C	C	C	218	232	242	236	E A 246	E B 270	E B 290
18	E B 264	E B 246	E A 300	E A 280	234	E B 300	222	206	202	H 204	H 186	224	198	212	200	228	214	206	214	220	220	E B 276	E B 302	E B 320
19	E B 304	E B 280	236	E B 236	238	E A 272	234	220	214	202	H 180	208	206	206	H 202	214	208	210	210	208	228	216	E B 290	E B 272
20	E B 272	E B 292	230	E B 270	E B 274	E B 310	248	214	216	218	220	206	210	216	242	218	220	212	204	196	E B 294	E B 268	E B 272	E B 304
21	E B 310	E B 292	E B 244	E B 280	E B 244	E A 294	E B 276	224	214	218	216	224	226	212	218	220	206	A	E A 246	E B 248	232	212	E B 258	E B 280
22	E B 298	E B 270	E B 320	E B 294	E B 252	212	240	228	218	208	202	200	218	222	216	208	210	E A 264	212	214	226	E B 364	E B 358	E B 308
23	H 180	E B 312	E A 362	A	E A 410	E A 304	E A 282	236	218	224	226	220	220	238	230	222	204	190	226	226	E B 256	E B 244	E B 278	E B 282
24	E B 250	246	222	E B 326	E B 382	E B 434	E B 250	206	206	220	210	206	H 192	H 184	H 202	206	202	202	222	200	204	E B 304	E B 294	E A 258
25	240	E B 246	E B 254	E B 272	E B 264	E B 310	212	210	202	204	200	198	H 192	236	A	224	218	218	220	A	E A 320	E A 244	E A 328	E A 272
26	234	210	E B 264	E B 322	E B 246	E A 332	E B 250	220	204	214	204	206	E A 232	E A 224	212	228	220	212	226	224	230	E A 276	E A 272	E A 290
27	238	E A 346	E A 298	E A 268	224	E A 264	A	232	218	200	194	218	208	208	204	226	212	218	212	A	E A 310	E B 256	E A 274	E A 280
28	222	E A 284	E B 290	E B 332	E B 296	E B 270	238	208	206	H 196	212	212	222	220	206	214	230	202	218	196	224	220	E A 298	E B 302
29	E B 292	E B 262	236	E B 260	E B 274	E B 248	E B 268	214	216	218	214	238	236	228	204	204	206	208	212	204	230	240	E B 264	E A 268
30	E B 268	238	E B 234	E B 278	E A 302	E B 290	E B 248	208	206	204	214	H 188	220	H 200	H 200	216	226	196	202	202	230	E B 248	E A 272	E B 274
31	E B 268	E B 284	E B 274	234	238	E B 268	E A 270	236	216	210	204	204	198	186	206	216	222	196	208	E A 240	236	224	E B 246	232
	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	31	29	31	31	31	27	28	26	27	24	27	28	29	29	28	31	30	28	31
MED	E B 272	E B 270	E B 258	E B 264	E B 260	E B 300	E B 256	218	215	218	212	210	208	212	212	218	212	208	215	220	222	E 262	E B 284	E B 284
U Q	E B 292	E 292	E 290	E B 286	E B 302	E B 316	E B 277	228	220	222	220	219	220	222	218	224	218	218	E 233	E 237	E 258	E 294	E 308	E A 308
L Q	240	244	232	236	230	E 268	239	210	206	210	204	205	202	204	204	214	208	202	212	208	220	224	E B 265	E 272

JAN. 2004 h'F (KM) COMMUNICATIONS RESEARCH LABORATORY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

JAN. 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	A	A	118	122	120	118	B	116	112							
2								B	116	118	A	A	A	122	120	B	B							
3								B	118	A	A	A	118	116	116	116	B							
4								B	124	A	A	A	122	120	A	A	A							
5								B	114	116	A	A	A	B	B	A	A							
6								E C	116	E C	A	A	A	A	128	A	116							
7								B	112		A	120	A	B	118	114	B							
8								B	A	112	112	114	114	114	114	A	A							
9								B	116	118	116	B	A	A	A	A								
10								B	128	116	114	110	A	114	A	A	A							
11								B	112	118	120	118	A	A	A	A								
12								B	A	A	A	112	116	114	112	112	114			C				
13								B	A	112	A	A	A	B	A	A	A							
14								B	128	120	A	A	118	A	A	112	A							
15								B	114	118	118	116	112	112	A	A	114	B						
16								B	114	116	116	A	124	122	124	128	118							
17								B	118	116	C	C	C	C	C	C	C	B						
18								B	114	114	120	A	A	A	A	A	120							
19								E B 138	112	112	108	110	116	114	114	110	116	B						
20								B	118	114	112	116	118	A	A	A	A	B						
21								B	A	118	114	114	116	114	A	A	A	B						
22								B	114	116	108	114	118	110	A	A	A	B						
23								B	110	108	110	114	118	116	116	116	116							
24								116	A	114	118	114	114	116	110	110	120							
25								B	116	120	120	120	118	118	116	116	A	B						
26								B	118	122	116	114	110	112	114	112	112							
27								B	118	116	114	A	112	A	116	114	112							
28								B	122	122	126	114	114	116	114	114	118							
29								B	114	118	B	B	B	B	B	118	120							
30								B	116	120	118	114	120	118	120	120	122	B						
31								B	116	A	116	110	114	A	110	A	A	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	25	24	20	18	20	18	16	15	14							
MED								127	116	116	116	114	117	116	116	114	116							
U Q									118	118	118	116	118	118	119	116	120							
L Q									114	114	113	114	114	114	114	112	114							

JAN. 2004 h'E (KM) COMMUNICATIONS RESEARCH LABORATORY, JAPAN

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JAN. 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	B	B	B	B	B	B	B	116	108	106	102	108	110	G	B	G	90	92	88	88	100	100	98	98
2	B	B	96	92	92	B	B	116	118	118	102	104	104	G	104	B	B	B	96	104	100	100	98	92
3	94	90	102	B	100	B	110	114	114	108	106	104	102	108	G	G	B	B	B	B	B	B	90	B
4	B	B	104	98	98	B	98	156	152	106	106	106	108	G	98	96	94	94	90	90	92	90	90	90
5	98	98	96	96	94	98	104	B	G	112	104	102	102	102	100	98	94	90	90	90	B	B	B	B
6	B	100	100	100	100	98	B	C	166	C	106	108	108	104	108	106	160	B	102	90	88	C	92	102
7	98	C	100	98	96	B	B	B	G	106	106	106	102	B	116	114	104	C	100	96	90	92	88	B
8	88	B	102	104	B	98	96	94	90	94	90	98	96	G	116	108	100	100	104	96	98	92	92	92
9	94	90	B	B	B	B	B	B	122	G	118	B	106	102	104	102	100	94	92	90	90	128	92	116
10	B	112	106	B	B	B	B	B	G	G	116	120	88	94	104	104	100	98	94	94	92	94	92	B
11	B	B	B	B	B	B	B	B	G	106	100	98	106	108	100	100		94	94	92	92	92	96	96
12	90	92	94	100	100	98	94	96	96	94	96	94	120	116	114	104	110	102	100	C	94	94	90	88
13	88	94	B	B	114	108	C	100	102	154	116	94	114	116	108	106	98	94	98	B	94	92	98	98
14	B	118	B	B	B	B	B	114	108	166	104	100	102	100	100	94	96	94	B	B	B	B	104	92
15	86	104	104	102	108	B	102	102	G	102	100	154	130	120	92	92	96	94	94	B	B	B	B	B
16	130	B	102	B	B	B	B	B	G	118	112	104	100	102	104	106	G	B	B	B	B	94	92	B
17	92	88	B	B	B	104	B	102	102	102	C	C	C	C	C	C	C	92	92	90	96	98	B	B
18	B	B	100	98	98	102	100	102	G	104	104	104	104	98	98	98	98	90	92	98	B	B	112	B
19	108	106	106	100	B	98	B	B	150	102	100	114	132	120	110	G	96	94	B	B	B	B	B	B
20	B	B	108	B	B	B	102	B	102	G	102	102	106	110	100	104	106	96	90	96	B	96	B	B
21	B	B	B	B	B	108	94	148	92	G	138	120	112	112	106	102	100	98	98	102	B	B	B	B
22	B	B	B	B	102	B	B	102	G	G	G	128	120	118	108	106	102	98	100	94	92	B	B	B
23	B	130	114	104	102	104	104	B	G	166	146	142	142	122	114	118	116	114	B	B	B	92	94	94
24	B	B	108	116	114	B	B	G	100	100	G	100	G	102	98	98	120	B	B	104	100	100	100	92
25	102	B	96	B	B	B	B	108	102	106	100	100	100	130	112	118	108	98	96	96	94	94	96	102
26	94	98	102	102	104	B	B	B	106	100	98	94	134	124	116	118	112	108	108	100	100	100	98	98
27	96	92	96	98	116	102	102	102	98	G	G	98	100	100	102	G	118	106	104	102	98	104	96	96
28	102	98	B	B	B	B	B	B	104	104	108	G	G	118	G	116	100	132	102	104	B	B	94	88
29	B	B	B	106	B	B	106	B	G	108	B	B	B	B	B	G	G	90	B	B	B	B	106	98
30	102	B	B	B	96	96	98	100	G	G	G	114	154	110	104	158	148	128	B	B	B	100	102	B
31	B	B	B	B	102	94	96	98	102	106	104	118	G	106	100	102	102	100	98	96	92	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	16	15	19	15	17	13	14	17	20	23	25	27	26	24	26	24	25	25	23	21	18	19	23	17
MED	95	98	102	100	100	98	101	102	103	106	104	104	106	109	104	104	100	96	96	96	94	94	96	96
U Q	102	106	106	104	106	104	104	115	116	112	110	114	120	118	110	111	111	101	100	101	98	100	98	98
L Q	91	92	96	98	97	98	96	100	101	102	100	100	102	102	100	99	97	94	92	90	92	92	92	92

IONOSPHERIC DATA STATION Kokubunji

JAN. 2004 TYPES OF Es 135°E MEAN TIME (G.M.T. + 9 H)

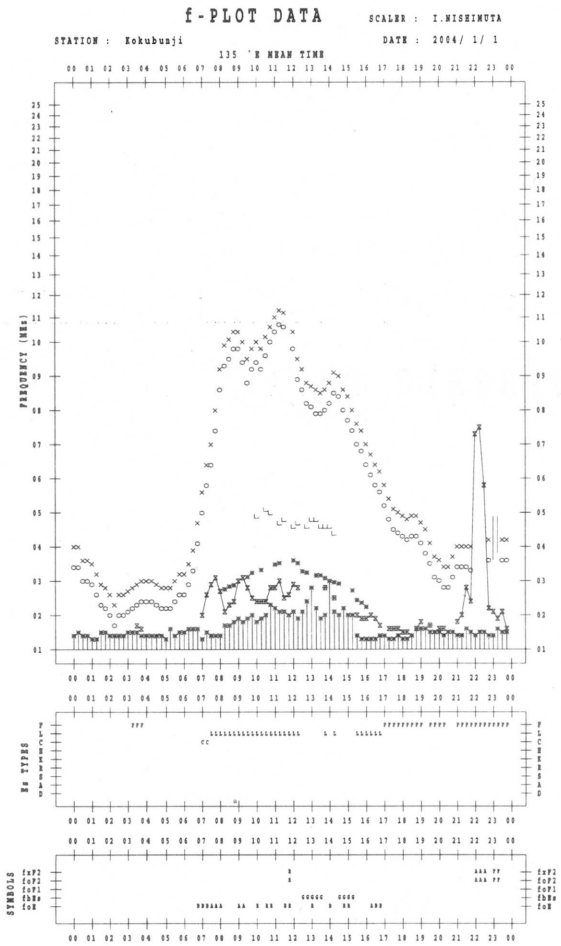
LAT. 35°42.4'N LON. 139°29.3'E SWEEP 1.0MHz TO 30.0MHz IN 15.0SEC IN MANUAL SCALING

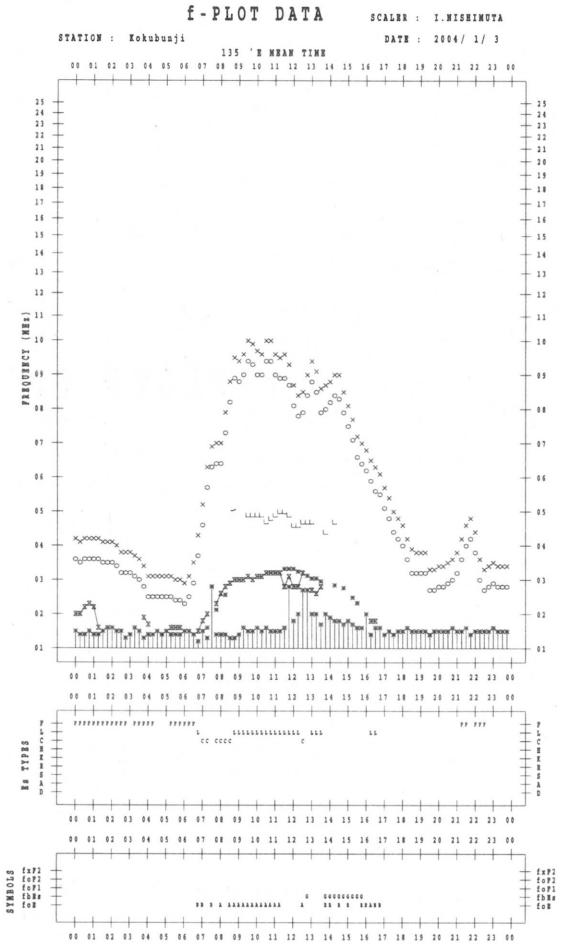
D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1								C 3	L 2	L 1	L 1	L 1	L 1				L 1	F 1	F 1	F 2	F 2	F 1	F 3	F 2
2			F 1	F 1	F 1			C 2	C 1	CL 11	L 2	L 1	L 1		L 1				F 1	F 3	F 4	F 4	F 5	F 4
3	F 3	F 3	F 1		F 2		F 1	C 1	C 1	L 1	L 1	L 1	L 1	L 1									F 2	
4			F 1	F 1	F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

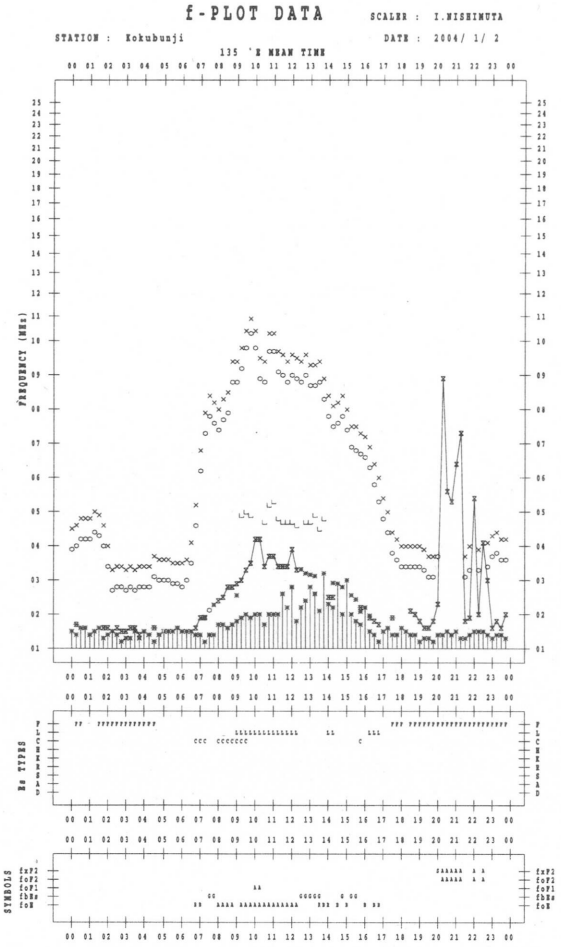
JAN. 2004 TYPES OF Es COMMUNICATIONS RESEARCH LABORATORY, JAPAN

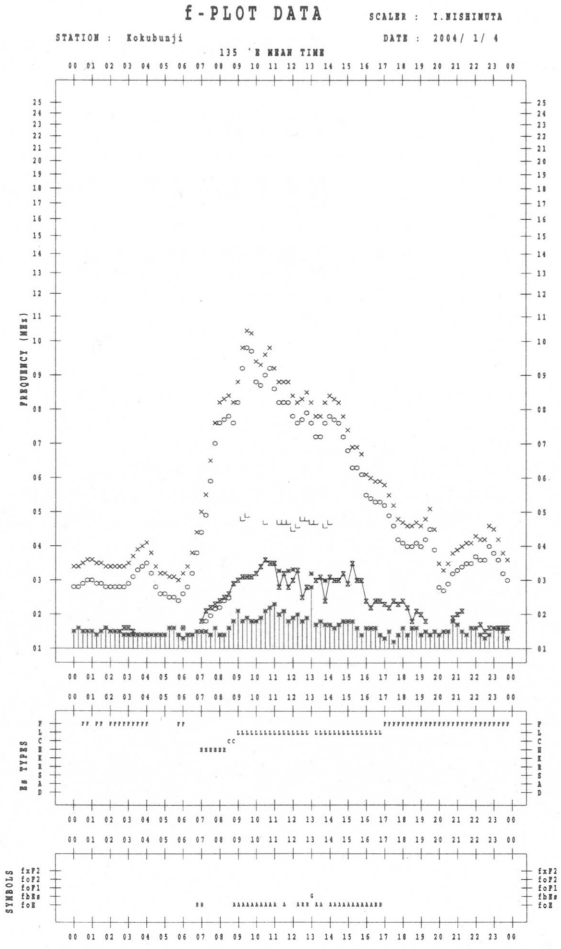
f-PLOTS OF IONOSPHERIC DATA

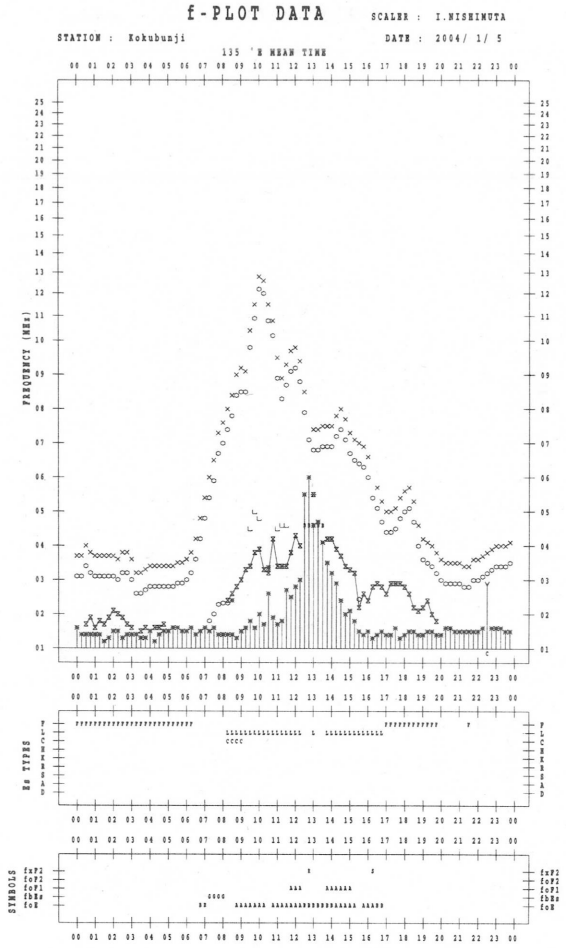
KEY OF f-PLOT	
|	SPREAD
⬡	foF2, foF1, foE
×	fxF2
✳	DOUBTFUL foF2, foF1, foE
⧖	fbEs
⌊	ESTIMATED foF1
⫯, ⫰	fmin
∧	GREATER THAN
∨	LESS THAN

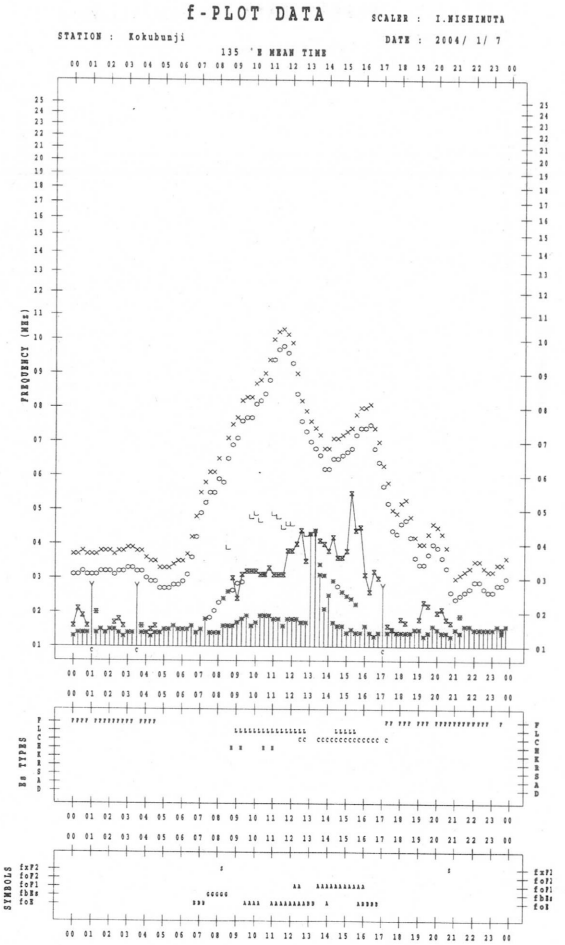

f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/ 1/ 1
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS

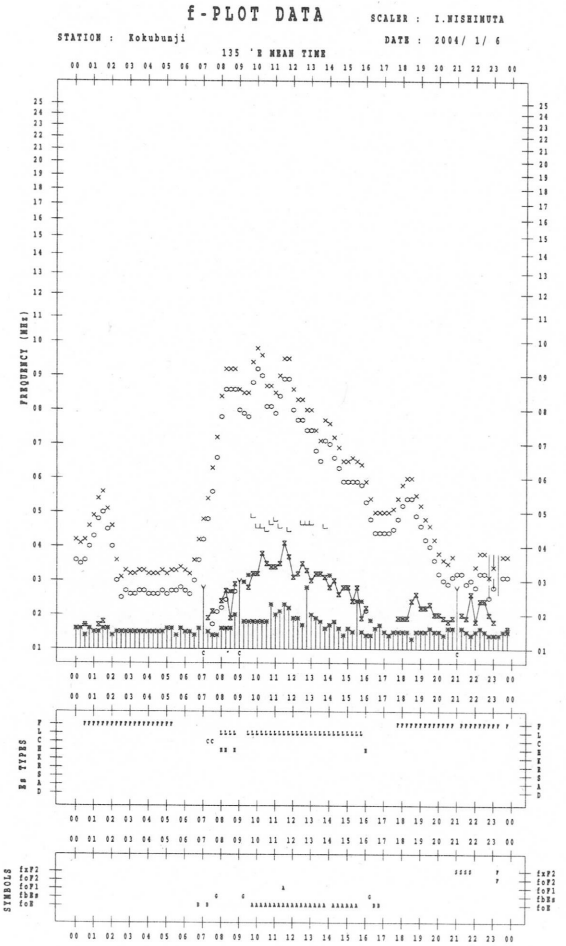

f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/ 1/ 3
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS

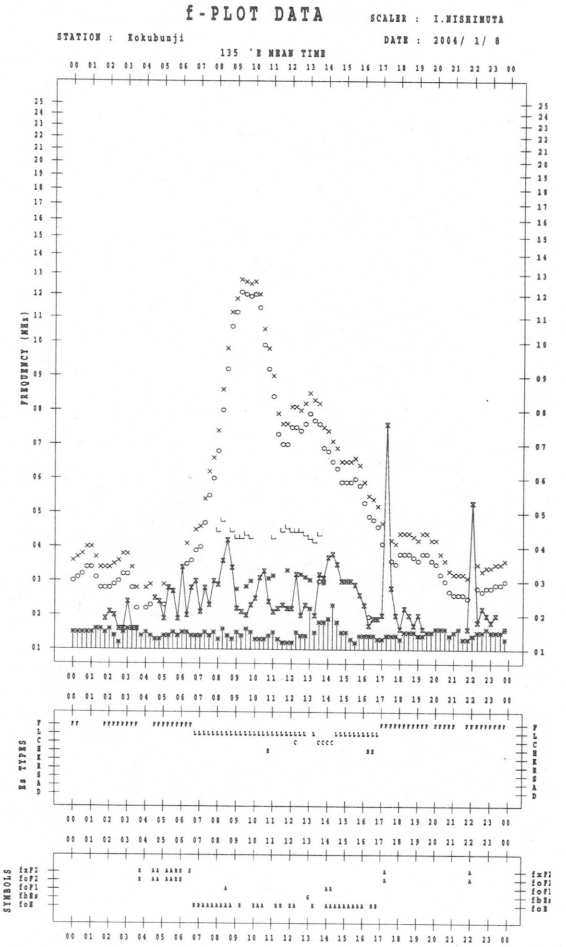

f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/ 1/ 2
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS

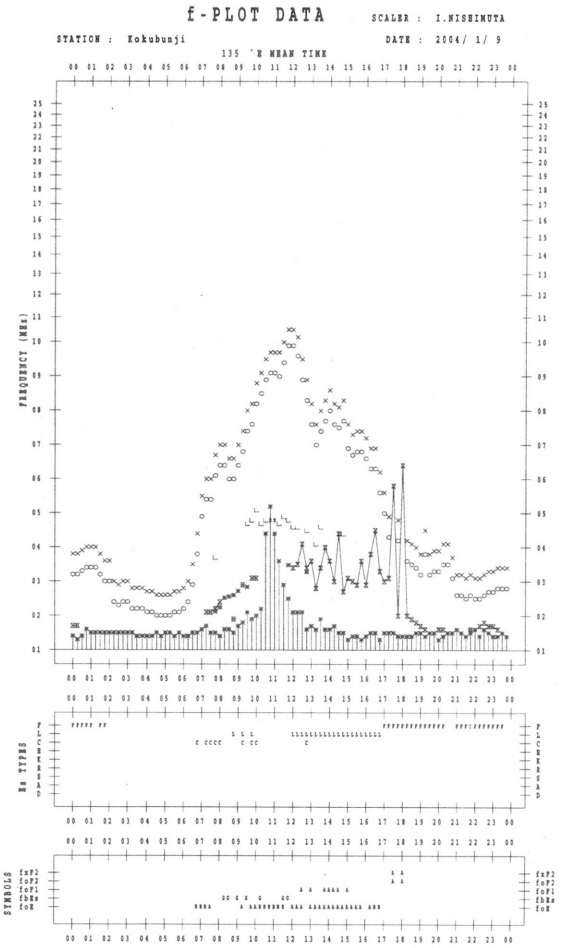

f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/ 1/ 4
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS

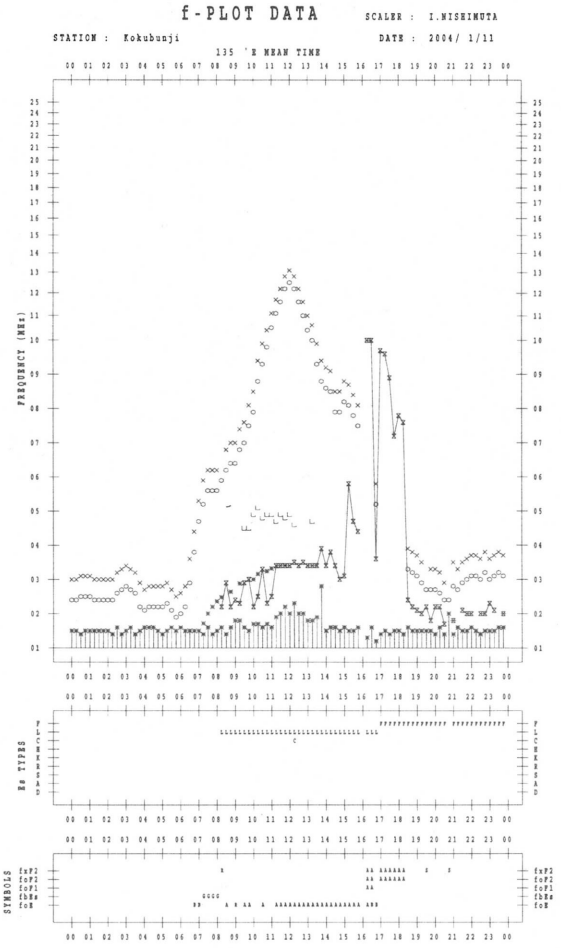

f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/ 1/ 5
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS

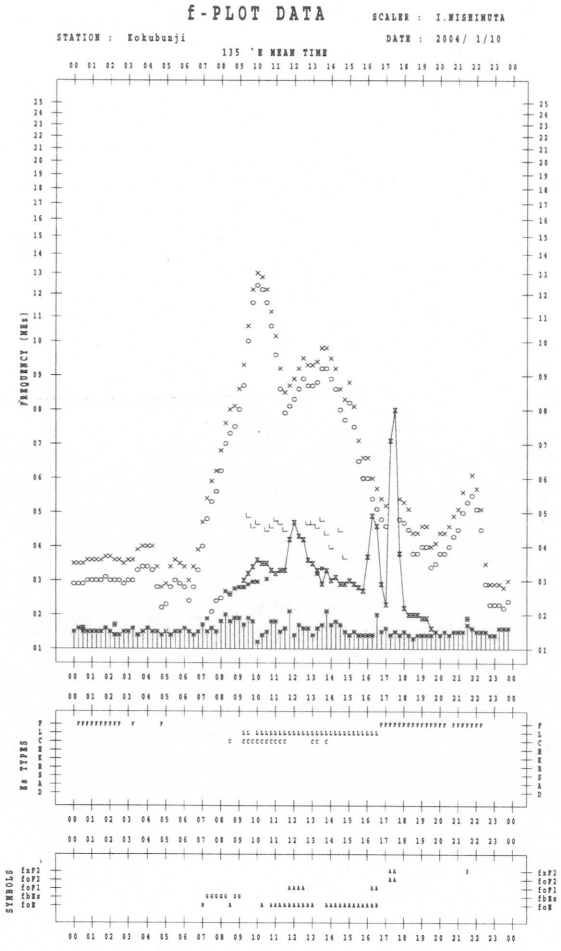

f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/ 1/ 7
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS

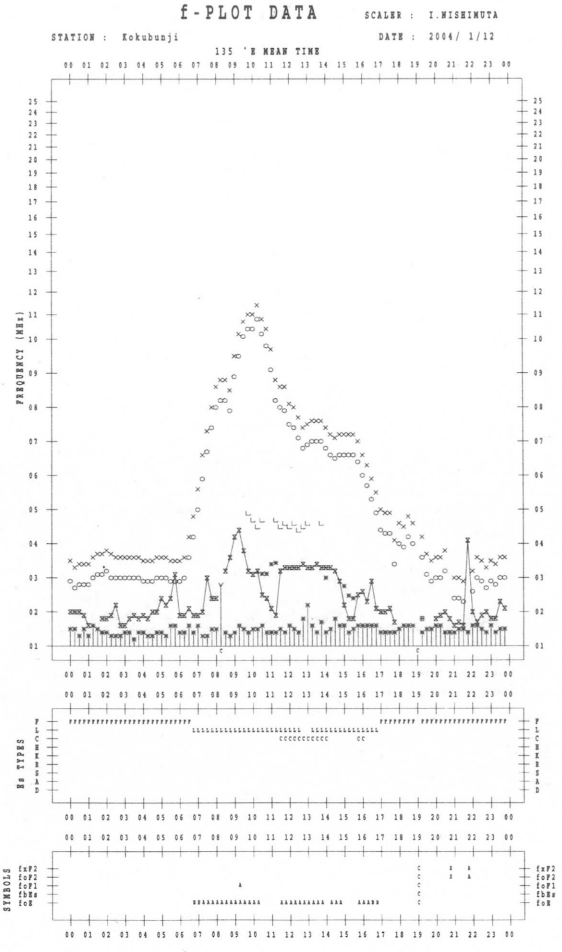

f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/ 1/ 6
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS

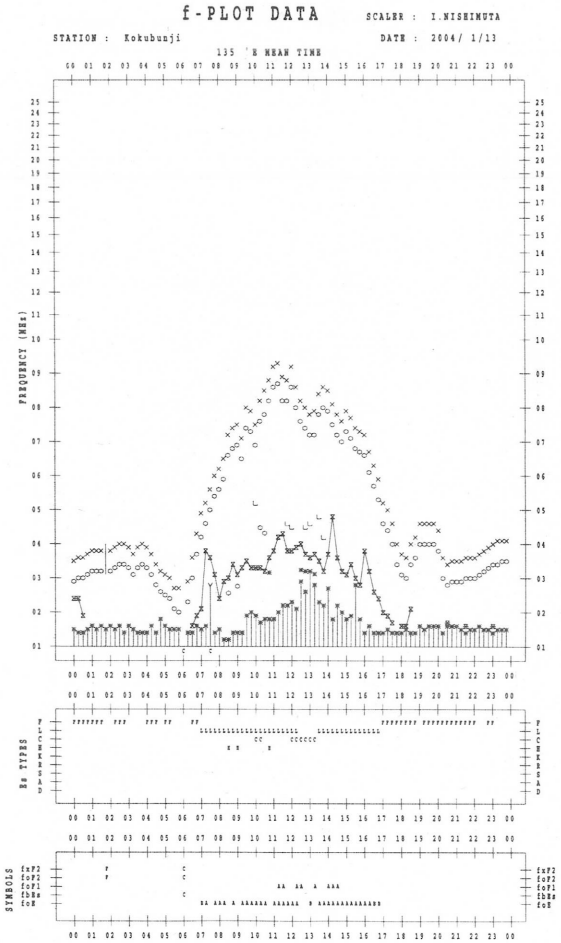

f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/ 1/ 8
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS

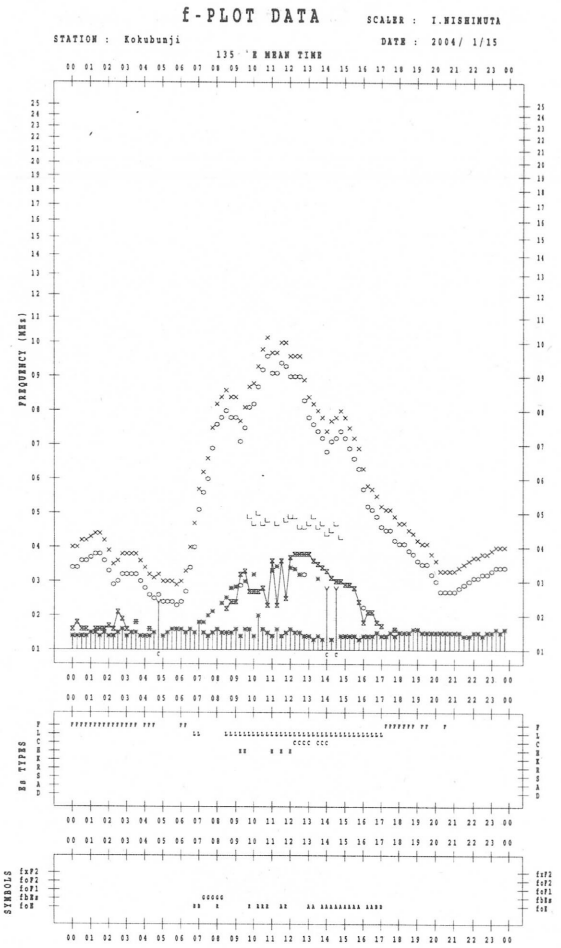

f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/ 1/ 9
135 °E MEAN TIME
FREQUENCY (MHz)
Ra TYPES
SYMBOLS
foF2
foF1
foE

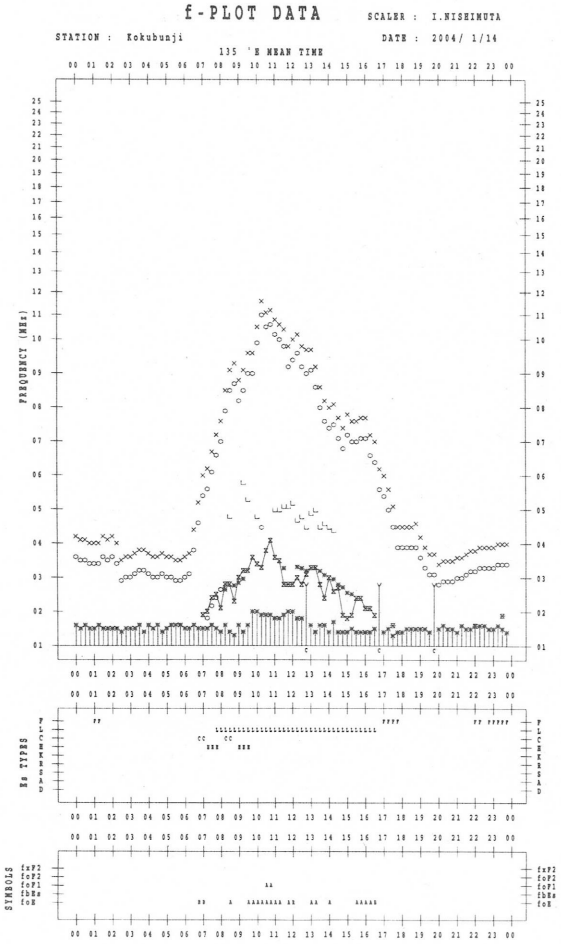

f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/ 1/11
135 °E MEAN TIME
FREQUENCY (MHz)
Ra TYPES
SYMBOLS
foF2
foF1
foE

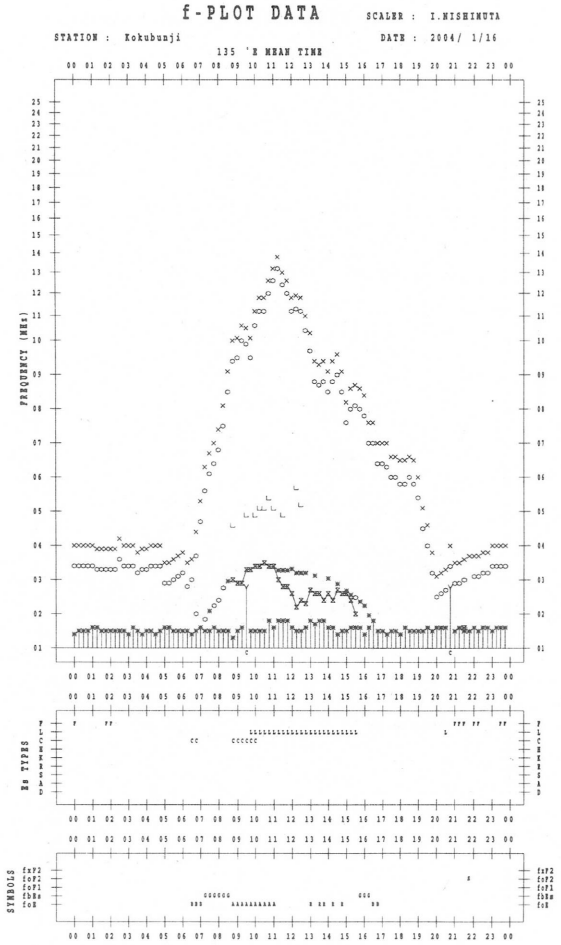

f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/ 1/10
135 °E MEAN TIME
FREQUENCY (MHz)
Ra TYPES
SYMBOLS
foF2
foF1
foE

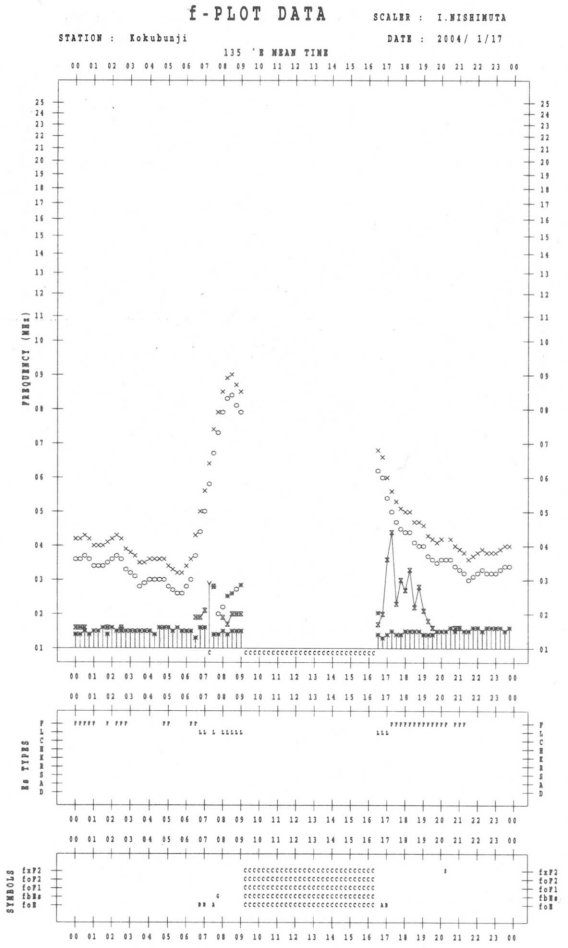

f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/ 1/12
135 °E MEAN TIME
FREQUENCY (MHz)
Ra TYPES
SYMBOLS
foF2
foF1
foE

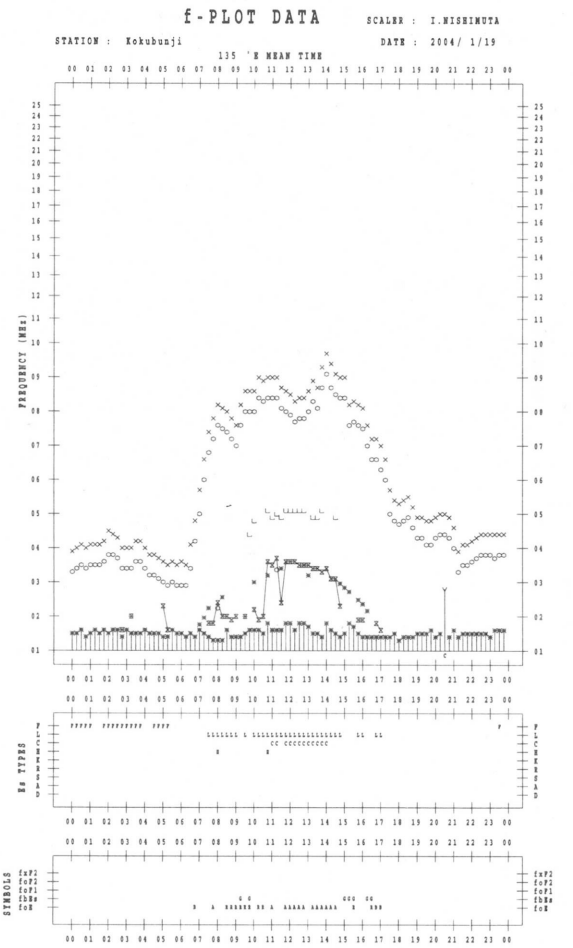

f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/ 1/13
135 'E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS

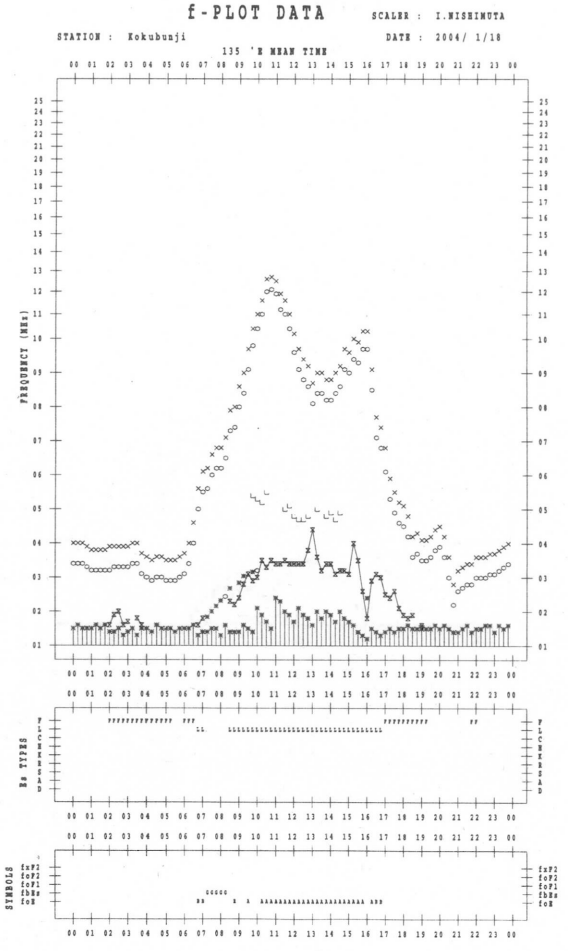

f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/ 1/15
135 'E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS

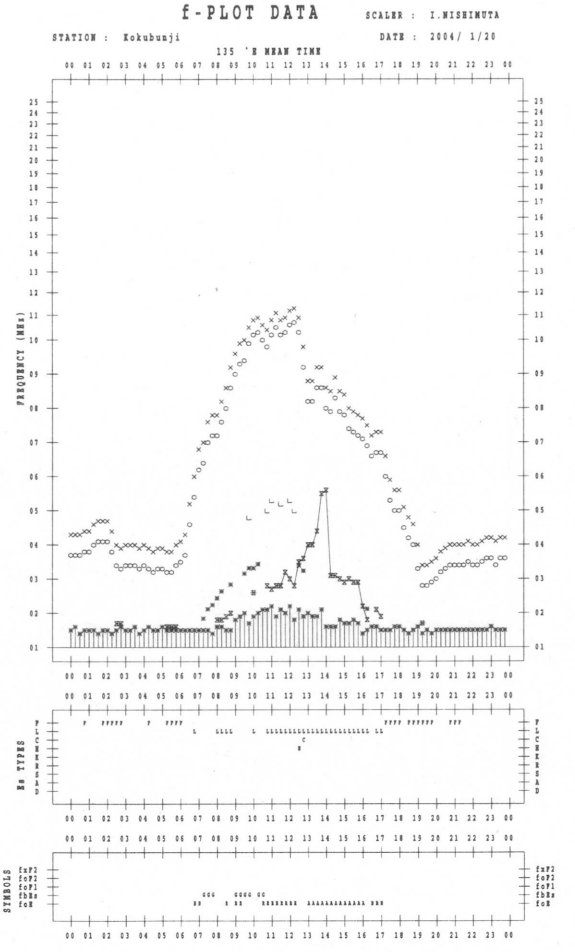

f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/ 1/14
135 'E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS

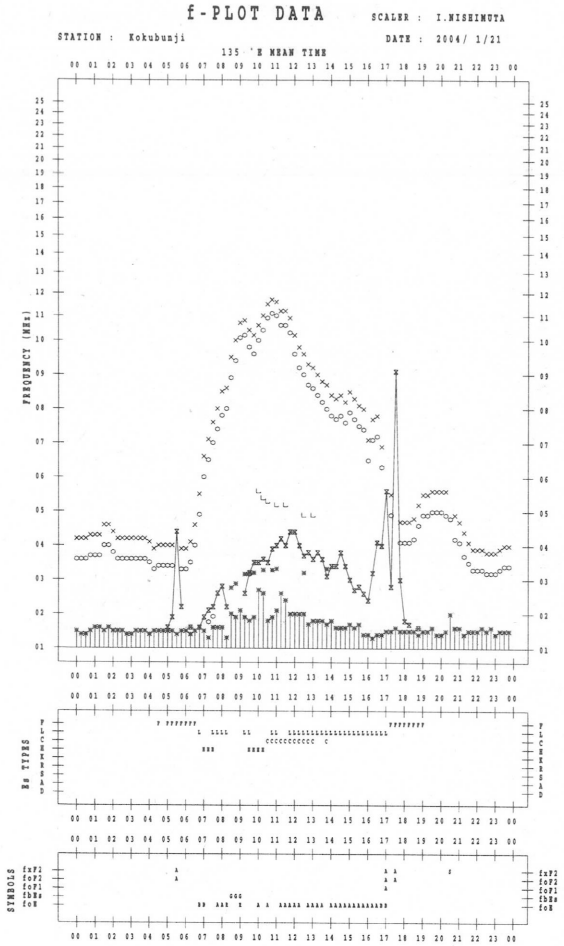

f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/ 1/16
135 'E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS

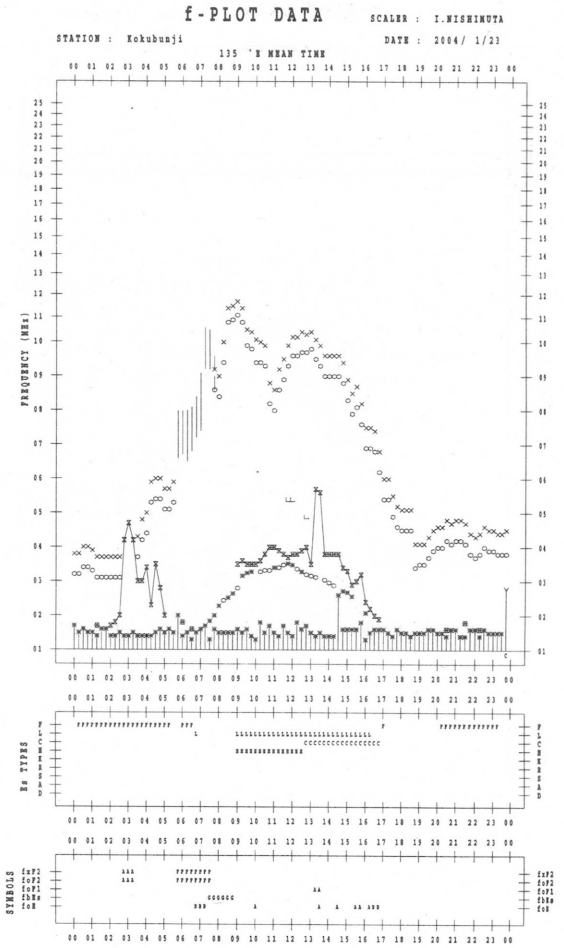

f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/ 1/17
135 'E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS

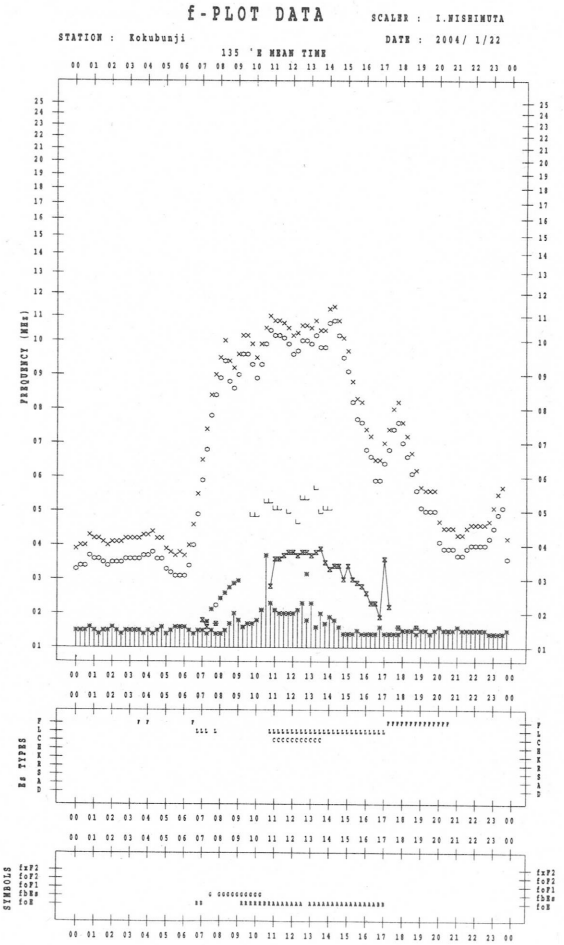

f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/ 1/19
135 'E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS

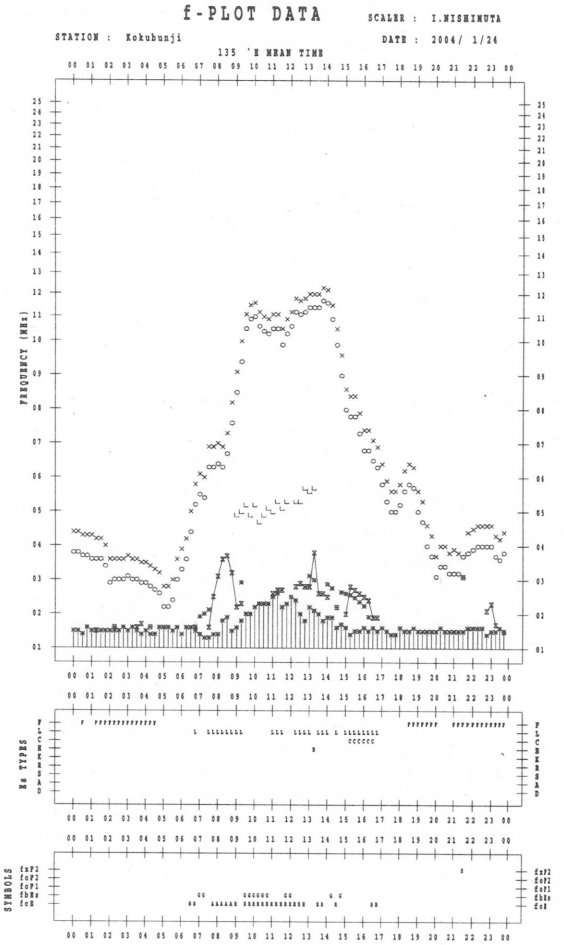

f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/ 1/18
135 'E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS

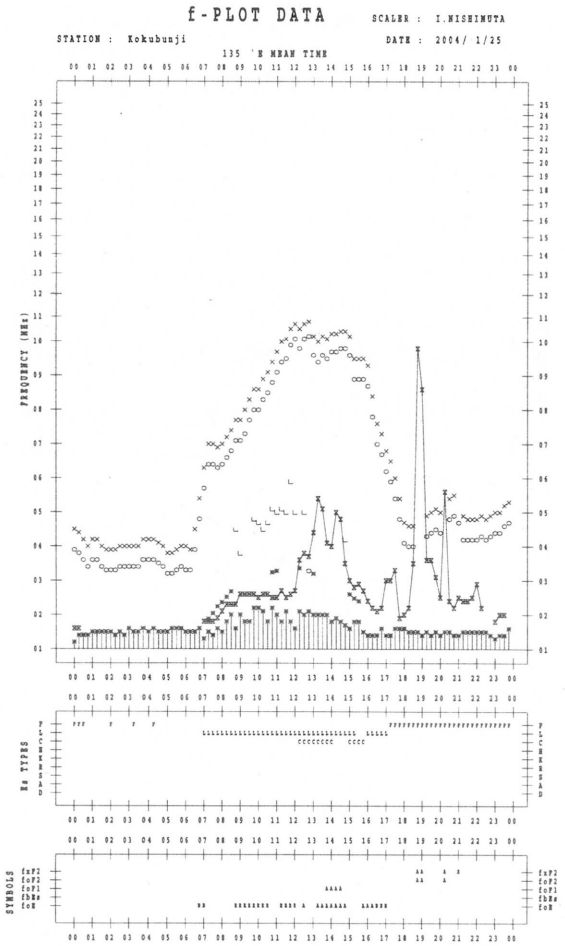

f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/ 1/20
135 'E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS

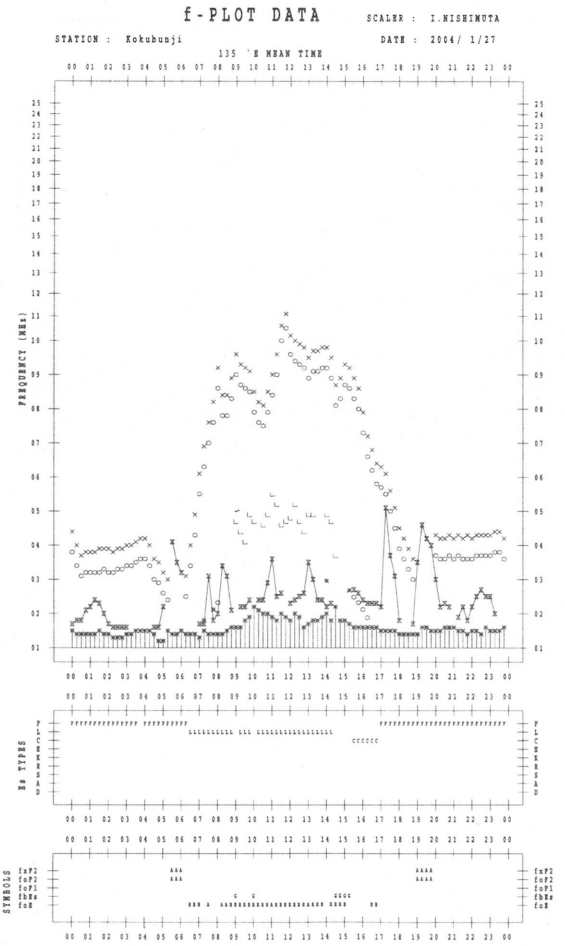

f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/ 1/21
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS


f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/ 1/23
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS


f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/ 1/22
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS


f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/ 1/24
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS


f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/ 1/25
135 'E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
foF2
foF1
foE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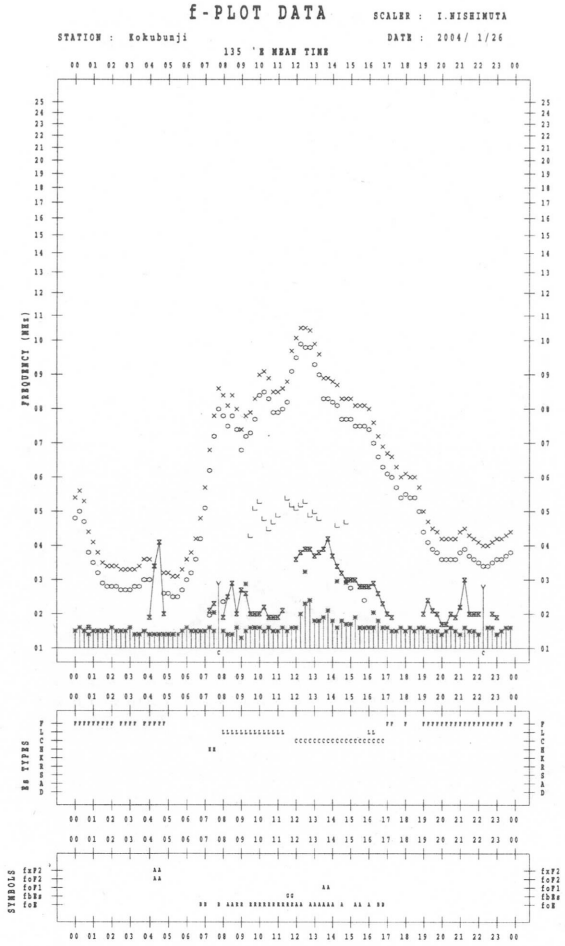
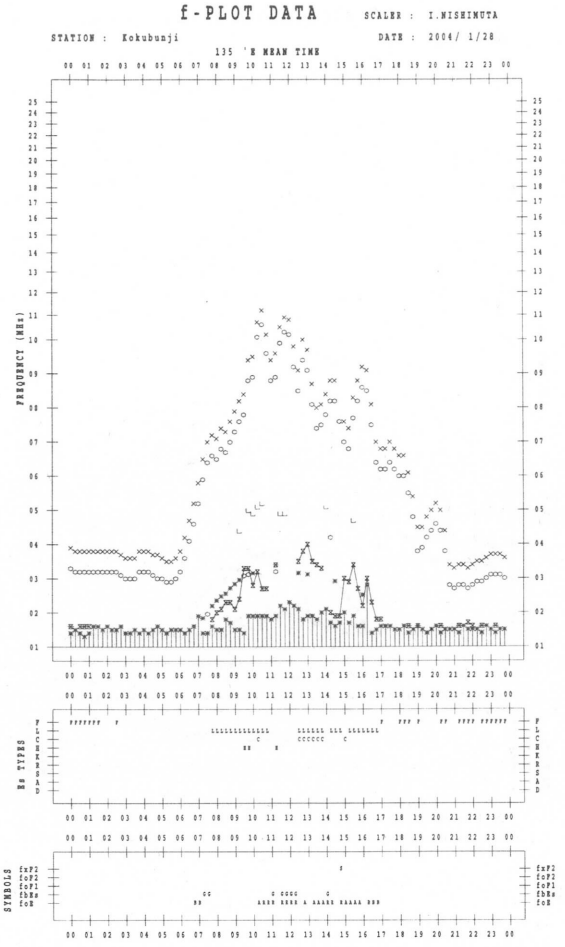
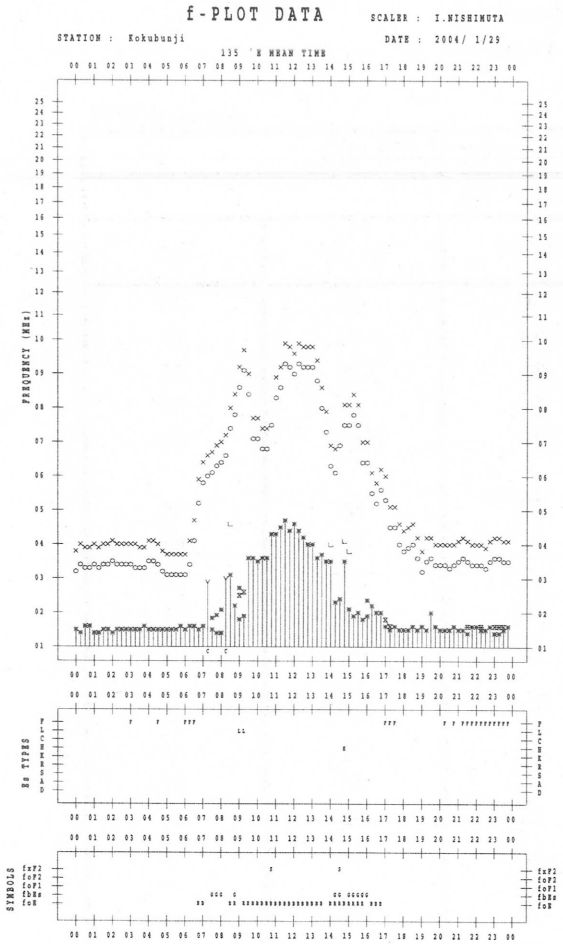
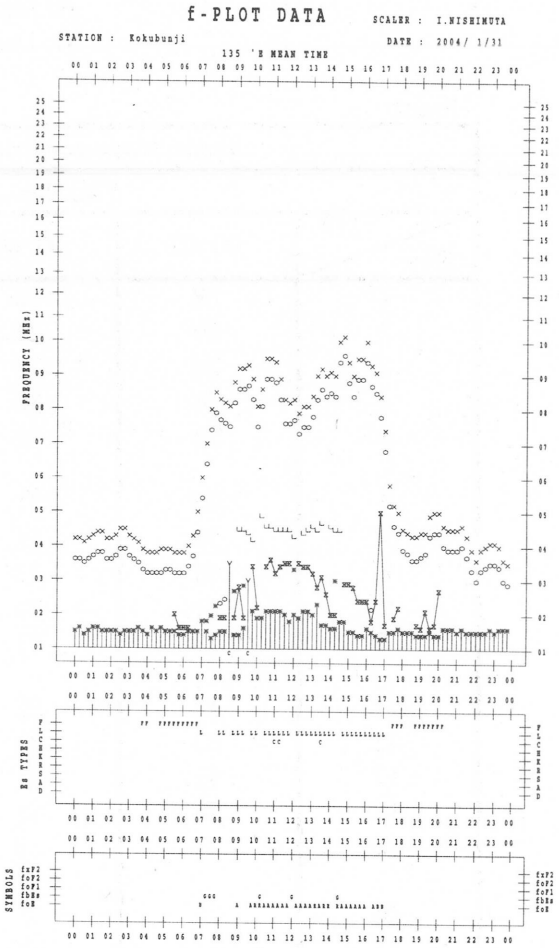
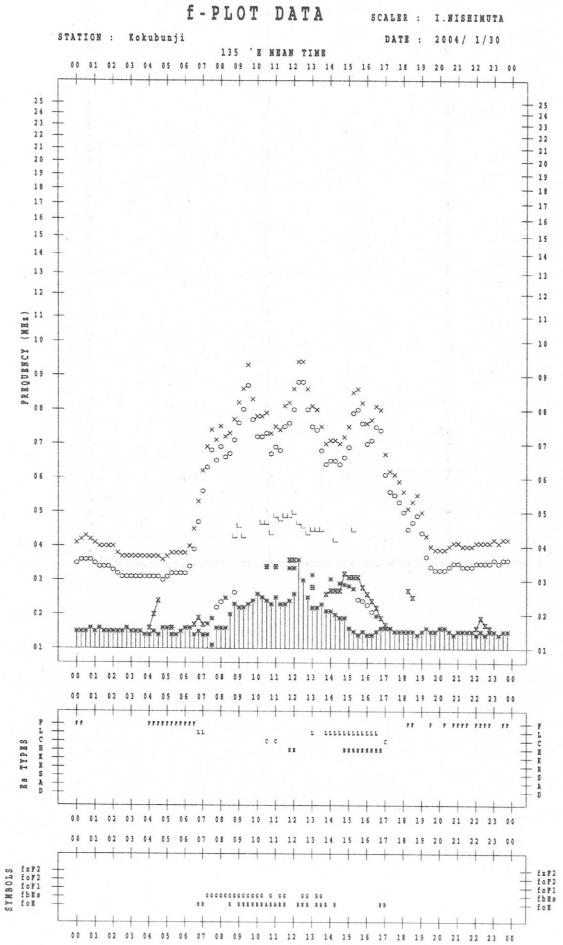
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/ 1/27
135 'E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
foF2
foF1
foE


f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/ 1/26
135 'E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
foF2
foF1
foE


f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/ 1/28
135 'E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
foF2
foF1
foE


f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/ 1/29
135 'E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS


f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/ 1/31
135 'E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS


f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/ 1/30
135 'E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS

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

Hiraiso January 2004

Single-frequency total flux observations at 500 MHz					
Flux density: 10^{-22} W m^{-2} Hz^{-1}					
Date \ UT	00-03	03-06	06-09	21-24	Day
1	38	36	36	43	38
2	39	34	34	40	37
3	36	32	32	38	34
4	36	36	35	42	37
5	38	39	38	39	39
6	35	31	32	38	34
7	34	31	31	35	33
8	33	33	37	36	34
9	31	30	30	37	31
10	33	31	30	36	32
11	34	32	33	37	33
12	33	30	30	31	31
13	31	31	30	35	31
14	34	33	33	37	34
15	35	33	33	38	35
16	35	35	34	38	35
17	37	36	36	44	37
18	40	39	39	35	34
19	35	38	38	47	38
20	42	37	36	39	39
21	38	36	37	42	38
22	39	36	36	41	38
23	38	35	34	38	36
24	37	34	33	39	36
25	35	32	32	37	34
26	34	31	30	35	32
27	33	31	31	34	32
28	32	30	29	33	31
29	30	28	28	34	30
30	31	28	28	33	30
31	30	29	28	-	29

Note: No data is available during the following periods.
31th 2130 - 31th 2400

A superscript * stands for being superposed on a burst.

B. Solar Radio Emission

B2. Outstanding Occurrences at Hiraiso

Hiraiso January 2004

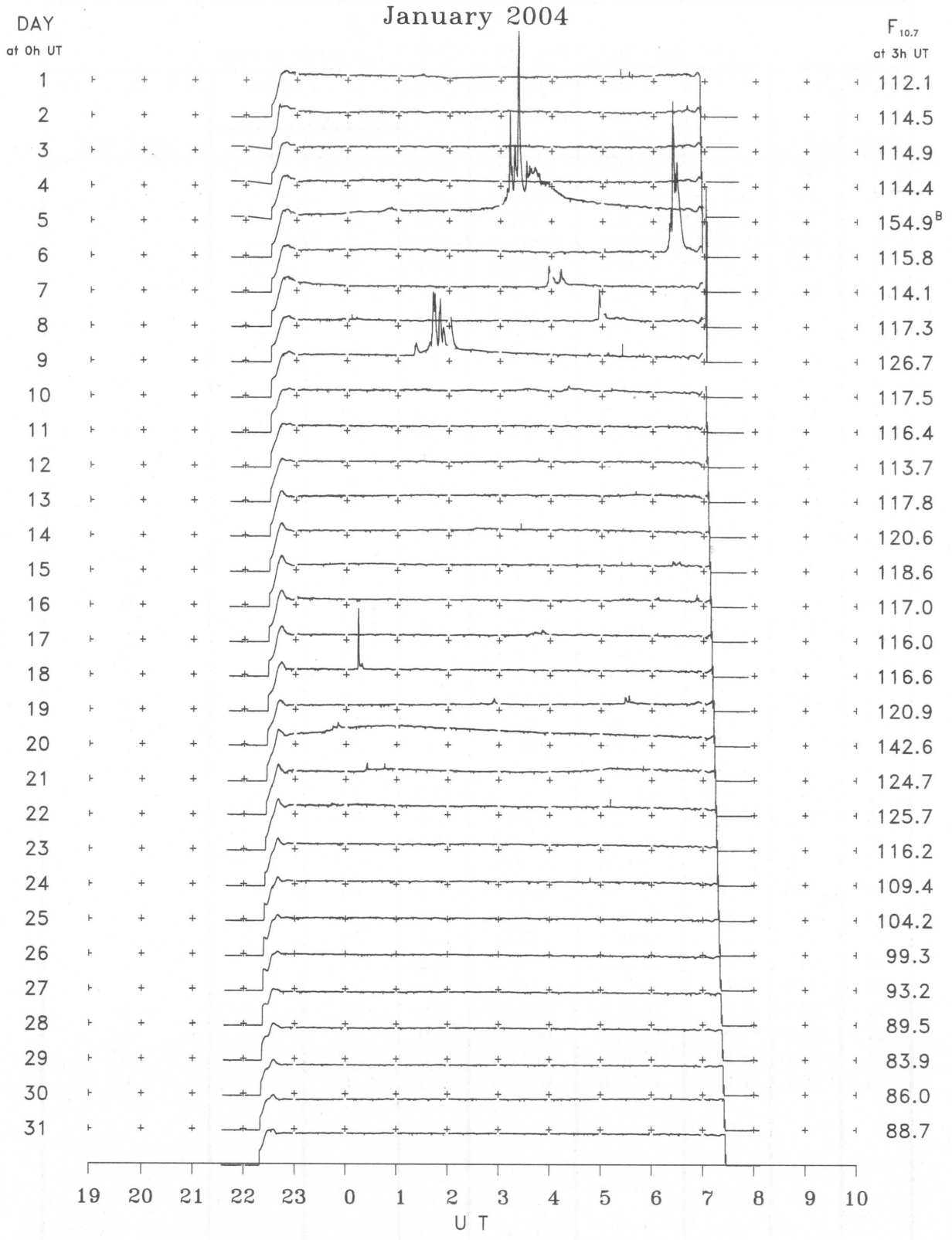
Single-frequency observations

Normal observing period: 2145 - 0750 U.T. (sunrise to sunset)

JAN. 2004	FREQ. (MHz)	TYPE	START TIME (U.T.)	TIME OF MAXIMUM (U.T.)	DUR. (MIN.)	FLUX DENSITY (10^{-22} W m^{-2} Hz^{-1}) PEAK	FLUX DENSITY (10^{-22} W m^{-2} Hz^{-1}) MEAN	POLARIZATION REMARKS
1	500	7 C	0120.0	0143.0	45.0	20	-	
1	500	3 S	0319.0	0319.0	3.0	15	-	
1	500	7 C	2236.0	2241.0	26.0	65	-	
2	500	42 SER	0308.0	0348.0	40.0	15	-	
2	500	7 C	0537.0	0543.0	22.0	10	-	
2	500	8 S	0632.0	0632.0	1.0	40	-	
5	2800	7 C	0303.0	0321.0	73.0	480	-	
5	500	47 GB	0307.0	0322.0	83.0	740	-	
6	2800	7 C	0617.0	0623.0	21.0	425	-	0
6	500	7 C	0618.0	0623.0	10.0	160	-	0
7	2800	7 C	0354.0	0357.0	24.0	60	-	0
7	500	47 GB	0354.0	0356.0	19.0	1260	-	0
8	2800	7 C	0456.0	0456.0	9.0	85	-	0
8	500	3 S	0456.0	0456.0	2.0	50	-	0
8	500	1 S	0547.0	0547.0	2.0	10	-	0
9	2800	7 C	0119.0	0200.0	51.0	215	-	0
9	500	7 C	0136.0	0155.0	52.0	105	-	WR
10	500	7 C	0414.0	0419.0	7.0	50	-	ML
10	500	8 S	2357.0	2357.0	1.0	20	-	0
12	2800	1 S	0346.0	0346.0	1.0	10	-	0
12	500	8 S	0346.0	0346.0	1.0	20	-	0
14	500	8 S	2340.0	2340.0	1.0	20	-	0
15	500	7 C	0623.0	0523.0	15.0	120	-	0
15	2800	7 C	0624.0	0624.0	9.0	15	-	0
15	2800	1 S	2259.0	2301.0	2.0	15	-	0
15	500	4 S/F	2259.0	2259.0	4.0	10	-	
16	500	4 S/F	0504.0	0515.0	33.0	15	-	
18	500	47 GB	0013.0	0014.0	7.0	1265	-	
18	2800	7 C	0014.0	0014.0	7.0	170	-	
18	500	8 S	0558.0	0559.0	1.0	50	-	
19	2800	1 S	0252.0	0254.0	5.0	15	-	
19	2800	7 C	0528.0	0533.0	7.0	20	-	
19	500	7 C	0529.0	0529.0	6.0	10	-	
19	500	7 C	2326.0	2347.0	42.0	70	-	
19	2800	7 C	2343.0	2351.0	12.0	25	-	
21	2800	3 S	0022.0	0025.0	4.0	25	-	0
21	2800	1 S	0045.0	0045.0	1.0	15	-	0
21	500	8 S	0046.0	0047.0	1.0	15	-	0
24	500	7 C	0454.0	0456.0	4.0	10	-	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 JANUARY 2004
F-661 Vol.56 No.1 (Not for Sale)

電離層月報（2004年１月）
第56巻 第１号（非売品）
2004年６月４日 印刷
2004年６月10日 発行
編 集 兼 独立行政法人情報通信研究機構
発 行 所 〒184-8795 東京都小金井市貫井北町4丁目2－1
☎（042）（327）７４７８（直通）

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Nukui-Kitamachi 4-chome, Koganei-shi, Tokyo 184-8795 JAPAN