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IONOSPHERIC DATA IN JAPAN

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CONTENTS

NiCT NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY
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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 associated with high absorption and large *fmin*.

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

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

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

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

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

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

B. SOLAR RADIO EMISSION

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

B1. Daily Data at Hiraiso

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

The following symbols are used in the tables, when interference or radio bursts prevented measuring the base-level flux densities or determining the variability indices:

* Measurement impossible because of interference.

B Measurement impossible because of bursts.

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

B2. Outstanding Occurrences at Hiraiso

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

Listed in the table are the date, frequencies, the type of event, the start time and the time of maximum, both in U.T.

expressed in hours, minutes and tenths of a minute, the duration in minutes, the peak and mean flux densities in 10^{-22} Wm^{-2} Hz^{-1} unit, and the polarization.

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

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

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

HOURLY VALUES OF fEs AT Wakkanai

MAR. 2004

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	G	G	G	27	26	28	30	G	G	G	G	G	G	G	G	48	33	G	33	29	G	32	39	G
2	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	26	31	34	30	38
3	25	G	G	G	G	G	G	G	G	G	41	G	G	G	44	51	39	G	G	38	G	G	G	G
4	G	G	G	G	G	G	G	G	G	G	65	G	46	42	40	G	44	34	G	G	29	25	39	28
5	29	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
6	G	G	G	G	G	G	G		G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
7	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
8	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	24	G
9	11	G	G	G	G	G	G	G	G	G	C	G	40	G	G	G	G	G	G	G	27	G	G	G
10	G	G	G	G	G	G		G	G	G	G	G	G	G	G	G	G	G	G	G	29	26	28	G
11	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
12	34	24	G	G	G	G	G	G	40	42	G	G	G	G	40	G	G	G	28	G	G	G	G	G
13	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
14	G	G	G	26	G	G	26	33	G	G	40	G	G	G	G	G	G	G	27	G	G	G	G	G
15	G	G	25	27	26	G	G	G	G	G	46	49	56	57	59	G	G	G	G	G	G	G	G	33
16	26	G	G	G	G	G	G	G	G	G	G	G	49	46	40	G	G	G	G	G	28	G	24	G
17	25	G	G	G	G	G	G	G		G	G	40	41	G	G	G	G	G	29	39	31	G	G	G
18	G	26	G	G	G	G	G	G	G	G	G	G	G	G	40	G	G	G	G	G	G	G	G	G
19	G	G	G	G	G	G		G	G	G	G		G	G	G	G	G	G	G	G	G	29	G	G
20	G	G	G	G	G	G	G	G	39	38	G	G	G	G	G	G	G	28	G	G	G	G	G	G
21	33	33	G	G	G	G			G	G	44	G	G	G	G	G	G	G	G	G	24	G	G	G
22	29	G	30	29	27	G	G	G	42	52	47	G	42	G	G	G	33	39	G	G	G	G	G	G
23	G	39	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
24	G	G	G	G	G	32	G	46	G	G	G	40	G	G	G	G	G	G	29	29	G	G	G	G
25	G	G	G	G	G	G	G	34	G	G	G			48	G	G	G	G	G	G	G	G	G	G
26	G	G	G	G	G	G	G	G	G	39	G	G	G	G	G	G	34	G	G	G	G	28	G	G
27	G	G	G	G	G	24	G	G	G	G	G	G	G	G	G	38	G	G	G	G	32	G	G	G
28	G	28	G	G	G	G	G	G	39	41	46		G		G	G		G	G	G	G	G	29	G
29	33	G	26	28	G	G	G		G	G	G	41	46	46	G	43	38	34	30	G	G	G	G	G
30	28	G	G	G	G	G	G	G	G	39	46	G	G	G	G	G	G	G	G	G		G	G	G
31	G	G	G	G	G	G	G	33	42	53	41	50	G	G	G	G	G	G	G	G	G	G	G	G
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	31	28	28	30	31	30	28	30	30	31	31	30	31	31	31	30	31	31	31
MED	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
U Q	25	G	G	G	G	G	G	G	G	G	41	G	G	G	G	G	G	G	G	G	24	G	G	G
L Q	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G

HOURLY VALUES OF fmin AT Wakkanai

MAR. 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	15	17	15	21	14	16	16	18	21	20	21	15	14	18	14	15	15	18	15	20
2	18	15	15	15	16	15	16	18	24	18	21	20	21	21	22	15	15	18	17	16	16	15	15	15
3	18	14	15	14	16	16	14	16	14	18	18	20	21	18	14	14	14	20	15	15	15	14	15	16
4	16	15	15	15	14	15	18	15	16	17	17	20	18	20	20	15	14	15	14	15	17	16	14	16
5	15	14	15	15	15	18	14	21	15	15	15	16	18	22	18	15	14	21	15	15	15	18	17	17
6	15	16	15	29	15	17	16		20	18	18	20	22	23	22	20	24	18	14	15	14	14	17	15
7	16	16	14	15	15	15	15	23	16	17	20	21	21	20	18	18	26	18	15	16	15	16	14	15
8	20	18	17	15	14	15	16	20	18	20	34	23	21	22	21	15	23	18	14	16	14	16	17	16
9	15	15	14	14	14	15	16	14	17	20	C	20	21	20	23	20	15	20	14	15	14	15	14	15
10	15	16	17	17	21	17	18	22	18	18	22	22	21	20	18	18	17	20	14	14	14	14	17	15
11	15	14	14	14	15	18	18	21	17	18	17	20	21	21	20	17	15	18	15	15	16	14	15	22
12	14	15	14	15	15	16	17	15	15	16	18	18	18	20	15	16	15	18	15	17	14	18	15	14
13	18	17	16	15	17	18	18	14	15	20	21	18	20	20	18	16	18	20	15	15	15	15	15	15
14	15	14	17	15	14	15	18	15	15	16	20	20	21	18	21	20	24	20	17	15	15	17	20	20
15	15	15	15	15	14	17	20	18	17	18	20	22	21	20	16	17	15	22	15	15	15	15	16	15
16	14	15	15	17	15	14	18	22	20	18	21	20	20	20	18	20	15	20	14	15	15	15	15	15
17	15	20	16	15	15	18	15	14	16	17	18	20	20	20	20	20	18	20	14	14	15	15	15	16
18	17	18	17	20	15	18	17	26	14	18	18	22	22	21	16	15	14	21	14	15	14	14	17	18
19	15	15	17	16	14	16	14	15	18	18	20		22	21	21	18	18	22	16	14	16	14	14	18
20	15	18	15	18	15	16	20	15	16	18	20	20	21	22	18	20	18	14	14	14	16	15	16	20
21	15	15	18	15	15	17	14	15	15	18	20	21	20	20	21	20	18	22	15	15	15	14	15	15
22	15	15	16	15	14	14	18	16	15	18	20	20	18	17	18	18	17	14	18	15	16	15	15	15
23	15	15	15	15	15	15	20	15	15	17	18	20	20	21	20	18	16	22	15	15	15	15	15	16
24	15	14	15	15	15	16	20	15	14	18	20	17	20	21	20	15	15	14	14	17	16	17	14	15
25	15	15	15	15	15	15	20	16	14	21	20			20	36	14	18	21	15	14	16	15	14	15
26	16	15	15	15	15	15	21	14	16	17	21	22	22	21	20	16	14	21	15	15	15	14	15	16
27	17	15	17	20	14	15	20	14	15	20	18	22	18	18	20	18	20	21	16	15	15	15	15	18
28	17	15	14	15	15	14	15	16	20	20	18		21	21	20	18	18	22	15	15	14	14	15	17
29	16	14	16	16	15	14	21	15	14	18	20	21	21	20	18	14	14	14	15	17	15	15	15	16
30	17	14	18	14	14	14	21	15	15	18	23	26	22	22	18	20	16	16	20	15	15	15	14	14
31	15	15	15	15	14	15	16	14	14	18	20	20	22	20	20	16	15	14	16	15	16	15	14	15
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	31	31	30	31	31	30	28	30	31	31	31	31	31	31	31	31	31	31	31
MED	15	15	15	15	15	15	18	15	15	18	20	20	21	20	20	17	16	20	15	15	15	15	15	16
U Q	17	16	17	16	15	17	20	20	17	18	20	21	21	21	21	20	18	21	15	15	16	16	16	17
L Q	15	15	15	15	14	15	15	15	15	17	18	20	20	20	18	15	15	18	14	15	15	14	14	15

COMMUNICATIONS RESEARCH LABORATORY, JAPAN

HOURLY VALUES OF foF2 AT Kokubunji

MAR. 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	34		N	34	N	28	36	59	72	84	81	95	73	96	87	67	67	68	66	42	36	38	39	36
2	36	34	34	34	34	27	36	54	72	92	78	85	96	91	77	76	77	71	67	51	45	53	A	34
3	A	42	A	43	34	N	35	61	66	84	88	98	104	86	76	80	83	59	55	51	47	42	43	A
4	45	42	38	28		A	36	66	72	81	75	71	95	100	94	77	68	72	57	44	47	43	44	42
5	A	A	42	41	35	35	42	61	66	72	80	79	86	82	82	78	75	73	57	42	43	38	32	
6	38	37	34	39	42	32	38	64	67	66	69	82	83	78	85	74	75	95	75	51	36	34	34	37
7	36	38	36	36	34	34	42	59	63	72	68	92	88	81	77	68	72	90	78	49	38	37	32	38
8	42	34	38	41	31	27	42	66	78	72	78	88	96	87	74	76		74	72	48	51	45	37	38
9	37	41	34	32	38	36	52	64	72	74	82	82	90	88	88	95	76	76	75	48	42	42	43	39
10	34	A	36	36		38	46	58	66	74	79	97	100	87	80	76	75	78	59	46	44	37	45	53
11	53	54	52	49	44	37	42	66	66	76	81	100	96	78	70	80	82	74	58	43	43	37	38	37
12	39	38	38	39	45	41	44	66	73	73	104	86	100	105	112	88	74	69	66	50	44	46	43	37
13	42	43	41	36	41	37	45	66	78	80	96	100	94	101	100	91	82	71	66	64	54	54		N
14	34	34	27	34	34	32	41	63	90	87	91	90	92	96	98	91	80	72	82	54	53	51	48	44
15	44			44	37	36	48	54	75	74	72	87	104	102	97	96	88	85	66	43	34	N	39	34
16	42	41	41	38		27	43	54	60	69	84	100	98	112	98	80	76	74	77	54	47	44	39	42
17	37	42	44	43	42	38	51	64	76	86	87	N	87	101	98	85	81	80	76	58	44	43	A	47
18	47	48	51	47	34	41	48	72	78	81	87	88	94	104	94	86	91	81	71	66	54	53		52
19	53	43	46	44	42	42	63	75	86	82	69	85	100	102	104	92	86	87	85	65	51	53	51	52
20	49	48	49	49	44	44	54	72	80	78	79	101	103	106	112	115	106	94	78	62	53	53	53	53
21	52	52	48	43	36	42	51	72	78	84	87	100	112	117	111	97	95	N	90	81	54	54	53	53
22	53	54	49	48	48	49	65	80	91	94	88	93	117	118	112	100	85	78	69	66	54	52	53	53
23	53	49	52	49	44	43	52	74	84	85	90	100	106	112	107	92	82	82	80	64	54	53	52	53
24	53	50	49	47	46	46	66	71	78	77	82	101	112	115	113	104	92	82	74	59	46	50	49	51
25	51			48	43	41	52	69	80	81	87	101	107	110	107	104	104	101	90	73	66	54	51	43
26	43	42	43	43	A	36	58	78	77	90	95	94	108	109	112	103	90	90	84	73	53	53	53	52
27	47	36	48	46	47	47	41	71	71	93	107	117	120	111	109	106	86	79	80	74	54	62	54	54
28	54	53	54	47	44	49	72	82	91	95	112	118	123	112	111	105	116	108	91	62	54	54	54	54
29	53	54	54	54	43	43	64	76	82	92	96	111	112	118	108	100	88	84	88	77	61	54	51	54
30	54	54	53	54	44	48	71	83	88	88	88	104	112	110	101	94	87	87	90	87	76	54	54	54
31	44	54	54	54	36	32	55	74	90	111	117	106	101	104	100	97	87	81	81	66	54	54	54	52
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	29	26	27	31	26	29	31	31	31	31	31	30	31	31	31	31	30	30	31	31	31	30	27	28
MED	44	42	44	43	42	38	48	66	77	81	87	96	100	102	98	91	82	80	75	58	51	52	48	49
U Q	53	52	51	48	44	43	55	74	82	88	91	101	108	111	109	100	88	87	82	66	54	54	53	53
L Q	37	38	38	36	35	33	42	61	71	74	79	87	94	88	85	78	76	73	66	48	44	42	39	38

HOURLY VALUES OF fEs AT Kokubunji

MAR. 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	G	G	G	G	G	G	G	G	G	G	G	G	38	40	28	27	G	G	G	G
2	G	G	G	G	G	G	G	G	G	G	G	47	52	51	G	G	G	G	G	G	G	G	37	G
3	27	G	33	G	G	G	24	G	G	G	G	49	G	G	G	G	40	G	G	G	G	G	25	46
4	G	29	24	23		25	G	34	G	G	48	G	G	G	G	G	G	G	G	G	G	G	G	G
5	46	46	27	34	G	G	G	G	G	39	42	G	G	G	G	G	48	35	28	G	26	G	G	G
6	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	40	42	G	G	G	G	G	G
7	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	24	G	G	G	G	G
8	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
9	G	G	G	G	G	24	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	34
10	23	26	G	G		G	G	37	G	G	G	44	G	G	G	G	G	G	G	G	G	G	G	G
11	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
12	G	G	G	G	G	G	G	G	G	G	45	49	51	G	42	G	G	32	G	G	G	G	G	G
13	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G		G
14	G	G	G	G	G	G	G	G	G	G	45	47	47	G	G	G	G	G	G	G	G	G	G	G
15	G		G	G	31	G	25	G	G	G	47	47	47	G	G	G	G	G	G	G	G	G	G	G
16	G	G	G	G		G	G	G	G	46	52	G	G	G	53	G	37	G	G	G	G	G	G	G
17	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	49	34
18	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	59	G	40	G	G	G	G		G
19	G	G	G	G	G	G	G	G	G	G	G	G	G	G	50	G	G	G	G	G	G	G	G	G
20	G	G	G	G	G	G	G	47	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
21	G	G	G	G	G	G	G	49	G	G	G	G	G	G	G	G	35	G	G	G	23	G	G	G
22	G	G	G	G	G	G	G	34	40	45	49	45	G	G	G	G	G	G	G	G	G	G	G	G
23	G	G	G	G	G	24	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
24	G	G	G	G	G	G	G	G	G	G	G	G	G	43	G	G	G	G	29	G	G	G	G	G
25	G			G	G	G	G	G	G	G	G	42	G	G	G	G	G	G	G	G	G	G	G	G
26	G	G	G	G	31	26	G	G	G	G	46	G	G	48	42	G	57	51	48	G	G	G	G	G
27	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	31	G	G	G	G	G	G
28	G	G	G	G	G	G	G	35	G	G	45	G	G	G	43	G	G	G	G	G	G	35	40	G
29	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	57	G	G	26	G	G	G	G	G
30	G	G	G	G	G	G	29	G	G	G	G	G	G	G	G	G	G	34	G	G	G	G	26	34
31	24	G	G	G	G	25	G	G	G	45	47	G	G	51	56	G	G	42	40	31	G	G	G	G
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	28	30	31	28	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	29	31
MED	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
U Q	G	G	G	G	G	G	G	G	G	G	45	42	G	G	G	G	G	32	G	G	G	G	G	G
L Q	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G

HOURLY VALUES OF fmin AT Kokubunji

MAR. 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	15		15	15	17	17	14	24	14	17	41	42	43	43	43	33	17	13	13	14	14	17	14	17
2	17	18	20	14	14	17	14	30	30	17	17	43	34	34	35	20	14	23	15	15	17	17	15	14
3	14	14	13	15	14	17	14	21	18	18	40	46	43	43	41	20	18	14	13	14	14	14	14	13
4	17	14	15	14		13	14	18	18	21	20	35	43	40	39	31	15	24	15	14	15	15	14	15
5	13	13	14	14	15	13	14	13	15	17	21	40	44	44	35	20	17	26	14	14	14	14	20	18
6	13	14	15	17	15	15	13	26	13	17	40	44	43	42	42	20	18	26	26	17	17	15	18	15
7	14	20	14	14	14	14	15	13	17	22	44	44	44	35	39	18	13	28	14	15	15	20	21	17
8	15	17	15	13	15	18	15	13	17	37	20	45	44	44	44	36	53	29	14	17	15	21	17	18
9	18	14	17	17	18	15	15	15	33	17	35	41	45	43	45	34	28	25	15	15	15	18	26	14
10	14	18	20	18		17	15	18	18	21	41	29	44	43	40	33	20	22	17	15	17	15	20	14
11	17	18	17	14	14	18	17	13	33	39	42	44	42	43	17	40	18	30	20	14	15	15	14	20
12	14	14	17	18	14	17	18	24	17	20	31	28	25	42	17	34	18	14	15	14	14	14	15	14
13	15	17	15	17	17	15	18	14	17	17	21	34	36	43	21	18	31	22	15	14	14	14		18
14	17	14	17	14	14	13	18	25	18	34	39	31	30	43	22	17	13	28	15	17	17	14	17	17
15	21		20	17	14	23	17	13	18	18	21	33	41	42	43	36	20	13	14	14	18	21	21	14
16	14	17	13	18		15	18	13	33	30	22	29	44	21	17	15	14	22	15	13	15	15	15	20
17	20	20	15	15	21	15	29	30	33	42	21	53	44	44	39	40	20	17	15	20	18	15	13	13
18	14	21	14	18	13	18	20	28	20	18	43	26	43	45	38	31	18	26	24	15	18	15		15
19	13	20	14	15	14	18	18	14	34	20	37	42	48	38	18	18	14	13	15	14	14	14	14	14
20	14	17	25	14	15	14	20	14	13	20	23	43	39	38	40	24	20	21	14	14	14	21	14	14
21	14	14	14	15	13	17	20	18	13	13	18	40	29	26	22	18	14	13	15	14	14	14	13	14
22	14	14	14	15	21	14	20	14	13	14	24	26	24	42	25	21	17	13	17	14	17	17	20	14
23	14	14	14	18	23	14	20	13	18	21	37	43	45	42	24	36	18	13	17	14	14	14	14	17
24	14	14	14	18	14	18	14	14	14	20	42	24	48	42	22	39	14	13	13	13	22	20	15	13
25	41			21	13	14	21	14	14	39	24	42	47	39	44	23	21	14	18	13	13	14	17	14
26	15	15	14	14	13	13	21	13	17	22	33	43	23	24	23	17	20	13	14	25	15	14	14	14
27	17	18	15	17	14	13	22	13	20	22	42	44	42	38	25	22	18	14	18	14	14	13	14	14
28	13	13	14	13	14	18	22	14	14	22	24	42	28	23	22	14	15	14	22	13	13	17	14	13
29	14	17	15	14	18	14	26	13	15	18	39	44	22	18	36	24	20	13	17	13	14	14	14	14
30	14	13	14	14	13	14	15	14	14	21	40	49	44	29	24	23	15	13	21	14	13	17	14	13
31	14	14	13	14	13	15	21	13	20	22	35	33	24	22	23	21	15	13	13	14	18	15	14	14
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	28	30	31	28	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	29	31
MED	14	14	15	15	14	15	18	14	17	20	35	42	43	42	35	23	18	14	15	14	15	15	14	14
U Q	17	18	17	17	16	17	20	21	20	22	40	44	44	43	40	34	20	25	17	15	17	17	17	17
L Q	14	14	14	14	14	14	15	13	14	17	21	33	30	34	22	18	15	13	14	14	14	14	14	14

HOURLY VALUES OF foF2 AT Yamakawa

MAR. 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	43	42	36	38	34	28	32	54	65	76	90	81	91	82	97	88	78	80	77	66	52	44	42	37
2	37	32	36	34	36			51	73	81	82	77	90	90	86	74	82	76	73	64	53	53	37	36
3	37	36	34	37	37			51	66	81		99	88		111	89		81	61	67	67	53	53	50
4	54	54	51					51	73	76	75	76	88	90	87	100	80	73	71	51	50	50	42	42
5	42	42	36	37	36	35	34	52	66	68	80	83	81	89	88	84	81	77	73	49	41		36	34
6	34	32	34	34	41	24		47	56	66	72	77	86	90	81	84	83	82	87	66	37	34	34	30
7	32	34	38	37	36	29	28	51	60	66	72	75	85	90	84	81	82	82	82	66	48	48	42	42
8	36	37	37	36	41	29	29	51	71	67	77	78	86		C	110	102		77	52	49	49	43	34
9	36	34	36	34	34	35	36	54	67	75	73	80	85		97	111	C	C	C	75	43	C	C	36
10	34	34	34	34	32	34	36	54	70	84	88	90	113	88	88	105	85	80	78	47	51	54	42	36
11	41	48	42	43	41	35	34	60	76	74	78	88	100	90	86	80	87	84	71	63	50	47	36	37
12	38	38	34	37	37	32		67	72	61	90		101		114	86	90	77	75	74	50	54	34	36
13	37	36	36	36	36	36	28	52	70	84	90	91	100	114	125	123	104	78	80	81	66	37		26
14	29	30	30	34	30	29	26	52	91	82	82	80	84	87	105	104	90	81	87	78	74	58	34	42
15	36	42	36	41	37	34	36	58	75	73	67	87	69	111	90		100	88	78	59	43	37	36	37
16	34	34	40	37	38	30	32	61	70	71	77	106	110			87	82	78	82	78	45	37	36	36
17	36	32	37	40	32	30	30	58	78	84	81	86	106	113	111	86	86	84	80	66	47	37	42	
18	47	47	42	36	36	34	32	64	81	82	81	89	86	116	112	86	98	98	84	76	76	54	50	52
19	42	51	44	44	36	41	43	70	82	81	76	81	98	115	112	99	88	99	99	80	54	53	53	42
20	47	42	47	48	37	41	43	64	76	84	82	84	89	120	128	128	123	119	99	87	70	53	52	52
21	53	52	36	47	41	42	44	66	76	82	81	102	111	131	129	111	112	111		109	75	51	62	52
22	52	54	37	50	49	36	53	78	82	84	81	90	113	114	130	126	113	87	86	81	72	54	52	51
23	52	51	52	55	50	36	36	68	84	86	84	86	110		113	111	87	88	86		66	52	44	54
24	53	53	53	53	52	42	52	66	72	75	80	87	111	128	129	130	127		86	80	64	52	53	52
25	42	53	51	48	43	34	36	63	81	81	78	84	111	113		111	124	128	110			80	75	52
26	53	48	47	46	37	37	38	76	78	81	84	88	112	112	111	111	104	90	84	80	65	53	37	49
27	48	42	42	35	36	44	44	65	73		113	111	128	131	128	127	113	88	86	81	78	77	66	52
28	52	42	52	48	37	36	52	66	88	81	109	114	114	112		128	130	113	110	85	55	54	52	54
29	42	54	52	54	36	36	41	66	78	79	87	111	128	128	128	110	112	98	90	86	66	54	42	53
30	36	42	53	52	52	36	52	72	82	81	87	86	112	109	91	90	98	87	86	86	80	54	54	63
31	54	52	49	67	41	30	37	72	86	98	90	108	103	108	113	102	85	82	81	77	77	66	52	38
	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	30	28	26	31	31	30	30	30	31	25	27	30	29	28	29	29	30	29	29	30
MED	42	42	38	39	37	35	36	61	75	81	81	86	100	112	111	103	90	84	82	76	54	53	42	42
U Q	52	51	49	48	41	36	43	66	81	82	87	91	111	115	125	111	112	94	86	81	70	54	52	52
L Q	36	34	36	36	36	30	32	52	70	74	77	81	86	90	88	86	84	80	77	65	49	47	36	36

HOURLY VALUES OF fEs AT Yamakawa

MAR. 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	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	43	39	35	G	G	29	34	G
2	G	G	G	G	G	G	G	G	G	41	45	G	G	G	G	G	G	G	G	G	G	22	G	G
3	G	G	G	G	G	G	G	G	G	G	G	54	63		50	G	40	34	G	G	G	26	G	G
4	G	G	29	28	28	27	28	29	33	44	53	53	54	50	49	46	41	42	32	25	25	24	G	G
5	G	G	G	25	G	24	G	27	35	39	G	G	G	G	G	49	40	40	28	G	G	28	G	G
6	G	G	G	G	G	G		G	G	G	G	G	G	G	G	40	G	36	G	29	26	G	G	G
7	G	G	G	G	G	G	G		G	G	G	G	G	G	43	40	G	42	55	29	24	G	G	G
8	G	G	G	G	G	G	G	G	G	G	G	G	G	G	C	G	G		G	G	G	G	G	G
9	G	G	G	G	G	G	G	G	G	G	G	G	G		G	G	C	C	C	G	G	C	C	G
10	G	G	G	G	G	G	G	29	36	41	G	52	G	G	G	G	G	G	26	G	G	G	G	G
11	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	32	24	G	G	G
12	G	G	G	G	G	G		G	G	G	44	G	G	G	G	G	G	G	G	G	G	G	G	G
13	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	38	44	33	G	G	G	G
14	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	40	41	31	35	36	G	G
15	G	G	G	G	G	G	24	30	G	G	G	G	G	52	49		G	G	G	G	G	G	G	26
16	G	G	G	G	G	G	G	G	G	G	G	G	G			G	43	40	28	30	G	G	G	G
17	G	G	G	G	G	G	G	G	G	G	G		G	G	G	G	G	34	30	G	G	G	G	38
18	35	32	G	G	G	G	G	G	G	G	G	42	G	G	G	42	G	34	G	G	G	G	27	G
19	G	G	G	G	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	G	G	G	G		G	G	G	G	G	G
21	G	G	G	G	G	G	G		G	G	G	G	48	43	G	G	40	35		G	G	G	G	G
22	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	42	G	G	38	G	G	G	G	G
23	G	G	G	G	G	G	G		35	G	G	G	G	G	G	G	G	38	32		G	G	G	G
24	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G		29	42	31	24	G	G
25	G	G	G	G	G	G	G		G	G	41	G	G	G		G	41	37	28		28	G	G	G
26	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G		G	G	G	G	G	G
27	G	27	26	28	G	G	G	G	G	G	G	G	G	G	G	G	40	41	31	G	29	33	G	G
28	G	G	G	G	G	G	G	30	G	G	G	G	G	G	G	G	40	39	30	G	G	G	G	G
29	G	G	G	G	G	G	G	34	G	G	G	G	G	G	G	51	38	35	G	G	G	G	G	G
30	G	G	G	G	G	G	G	G	38	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
31	G	G	29	27		G	G	G	G	G	G	G	G	G	G	43	59	48	42	40	35	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	31	31	31	31	30	31	29	25	31	31	31	30	31	28	28	30	30	25	29	29	31	30	30	31
MED	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	36	28	G	G	G	G	G
U Q	G	G	G	G	G	G	G	14	G	G	G	G	G	G	G	40	40	40	32	29	24	22	G	G
L Q	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G

HOURLY VALUES OF fmin AT Yamakawa

MAR. 2004

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	15	15	15	16	15	16	15	18	14	15	18	17	21	18	17	16	15	15	14	15	16	15	14	15
2	15	15	15	16	15	16	17	15	27	17	15	33	34	21	21	20	16	15	18	15	15	15	15	16
3	15	15	15	15	15	15	17	20	26	16	20	22	34		29	22	17	15	18	15	15	15	15	16
4	15	15	14	15	16	15	15	14	24	16	20	21	22	23	32	21	16	15	14	15	15	16	15	15
5	15	15	16	17	18	17	15	15	15	16	21	21	21	44	46	20	15	14	15	15	15	15	15	15
6	20	17	17	15	15	15		17	15	14	17	21	22	26	45	21	17	15	14	16	15	18	15	15
7	15	16	15	15	15	15	16	15	15	18	20	21	45	23	20	17	14	15	14	16	15	15	15	16
8	17	15	20	14	15	17	17	15	16	18	20	21	53	47	C	20	18	15	18	15	15	14	15	17
9	17	15	15	15	18	15	15	21	15	16	17	20	22		22	20	C	C	C	15	15	C	C	15
10	15	15	15	15	17	15	14	14	16	18	21	20	29	22	36	21	18	15	14	15	15	15	15	15
11	16	15	15	15	15	15	15	21	15	16	20	21	45	46	23	20	18	16	21	14	15	15	16	18
12	16	15	15	15	15	21		21	14	16	18	20	22	18	44	17	18	16	20	15	15	15	15	16
13	16	15	16	14	15	15	16	21	14	17	20	18	45	45	52	23	20	15	15	14	15	15	18	17
14	16	17	16	15	15	15	17	16	15	17	18	20	20	27	21	16	16	15	15	15	15	14	16	15
15	16	15	15	14	15	15	15	14	15	18	18	20	27	22	34		18	16	20	15	15	15	14	17
16	15	15	15	15	15	18	14	22	15	18	18	18	22			15	21	15	15	16	17	16	14	16
17	17	15	15	14	15	16	18	23	15	18	22	48	21	45	28	35	17	17	16	15	16	15	16	15
18	14	14	15	21	15	15	15	23	18	18	22	21	22	51	47	26	18	18	21	15	15	15	17	15
19	15	15	15	15	15	14	15	16	16	18	20	23	48	20	44	21	18	15	20	15	15	15	15	15
20	15	15	15	15	15	15	16	15	14	17	20	18	26	46	27	22	20	15	21	14	14	15	15	16
21	15	15	15	15	16	16	15	16	15	15	21	22	22	23	24	18	18	15		14	15	15	15	15
22	15	15	15	15	15	15	15	22	14	17	18	22	24	23	23	21	18	15	14	15	15	15	15	15
23	15	15	15	14	15	15	15	17	15	16	20	21	27	52	24	18	17	14	14		15	15	17	17
24	18	16	16	15	15	15	15	26	14	18	20	21	48	47	39	45	17		15	17	16	15	17	16
25	15	15	15	15	14	15	15	15	15	17	17	30	46	48		27	18	16	15		15	14	15	15
26	15	15	16	15	15	16	16	15	16	18	22	22	26	24	45	24	18	17	21	15	15	15	16	15
27	15	15	15	15	17	15	14	16	15	17	20	23	27	48	28	22	18	15	14	15	15	15	15	15
28	15	15	15	15	18	16	15	15	17	18	23	24	30	30	45	28	15	17	15	15	21	20	15	15
29	16	15	20	14	15	15	15	18	15	17	22	48	52	50	18	18	15	16	22	17	15	15	15	15
30	15	16	15	18	15	15	15	20	15	18	26	50	50	45	45	43	18	16	20	22	16	15	15	16
31	15	15	16	16	15	17	15	15	17	22	46	22	57	23	50	26	17	15	14	15	15	16	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	31	31	31	31	29	31	31	31	31	31	31	28	28	30	30	29	29	29	31	30	30	31
MED	15	15	15	15	15	15	15	16	15	17	20	21	27	28	30	21	18	15	15	15	15	15	15	15
U Q	16	15	16	15	15	16	16	21	16	18	21	23	45	46	45	24	18	16	20	15	15	15	16	16
L Q	15	15	15	15	15	15	15	15	15	16	18	20	22	23	23	18	16	15	14	15	15	15	15	15

HOURLY VALUES OF foF2 AT Okinawa

MAR. 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	64	73	44	47	32		30	51	64	80	94	126	90	106	103	132	131	118	110	106	82	52	50	42
2	48	38	37	41	36	30		48	74	90	90	82	100	117	105	100	92	101	85	76	72	52	50	50
3	42	43	42	45	34			45	70	84	101	102	117	131	148	148	146	147	126	107	116	107	84	75
4	75	88	66	47	42		34	51	78	84	85	97	110	125	118	112	116	104	88	81	74	73	66	54
5	54	52	53	42	32	32			65	72	76	104	102	102	117	123	112	97	88	90	83	53	52	A
6	37	38	36	41	48			48	51	66	80	86	105	112	111	111	112	104	93	87	70	53	73	74
7	54	50	47	45	44			51	62	69	77	76	94		102	105	97	90	90	75	54	54	43	38
8	37	38	36	37	38			52	66	72	70	98	118	146	147	149	148	131	108	87	54	77	52	44
9	30	41	38	34	30	29	31	54	65	71	87	91	105	114	121	124	126	128	101	90	86	52	53	31
10	30	32	34	34	34	32	36	51	66	87	104	110	106	102	110	135	122	117	102	62	64	54	44	34
11	34	32	41	45	34	30	30	54	72	80	94	100	127	131	131	128	127	124	107	87	86	66	53	
12	50	47	34	37	34	34	30	58	72	68	105	106	107	131	121	124	121	107	90	83	88	54	32	32
13	34	34	34	34	34	32		52	82	98	102	112	130	152	170		146	142	136	134	106	52		
14		35	31	34				52	87	94	77	87	101	111	127	134	131	130	126	140	141	108	88	86
15	73	54	54	43	31		30	59	70	75	73	90	122	125	127	128	126	110	106	84	72	52	34	34
16	37	38	40	41	41			52	70	73	98	111	131	138	140	152	130	118	121	109	76	52	51	43
17	53	53	48	54	48			50	76	88	102	103	123	125	131	132		109	108	86	64			43
18	47	43	46	40	36	30	30	65	77	84	90	98	114	134	136	126	123	125	118	90	102	103	54	54
19	54	54	54	50	53	46	43	66	77	77	84	96	111	128	128	113	117	121	122	110	88	88	77	66
20	54	48	47	46	37	40	36	58	77	90	90	100	117	136	147	147	147	152	150	142	131	103	84	80
21	54	52	47	42	40	36	38	64	76	80	91	106	120	131	140	140	138	144	146	146	121	86	74	73
22	66	63	62	53	51	53	50	76	82	88	97	107	124	134	148	148	148	140	131	123	104	76	51	48
23	49	50	52	57	41	30	34	66	82	100	90	100	120	130	140	144	135	129	134	131	110	108	87	106
24	105	88	87	88	66	52	48	66	72	82	88	97	117	142	146	166	148	149	148	125	110	105	88	87
25	74		72	66	50	26	29	60	77	88	96	93	106	130	140	145	172	173	174	169	146	131	129	108
26	88	82	74	62	54	47	43	76	85	88	90	102	112	127	135	136	130	110	106	100	88	73	53	48
27	52	42	48	46	45	43	38	64	76	102	109	112	131	144	150	145	147	134	126	121	130	130	87	76
28	66	66	52	47	37	37	54	68	92	106	112	128	130	128	150	152	152	174		140	90	86	80	86
29	73	66	65	66	47	35	38	66	80	88	107	125	140	142	144	149	146	145	145	142	107	88	88	86
30	76	74	72	80	72	53	54	70	84	97	114	123	128	126	127	126	123	117	110	110	110	107	87	77
31	82	86	87	88	41	30	34	64	88		106	111	111	125	131	117	107	106	105	102	87	74	62	55
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	30	31	31	30	21	21	30	31	30	31	31	31	30	31	30	30	31	30	31	31	30	29	28
MED	54	50	47	45	40	34	36	58	76	84	91	102	117	129	131	133	130	124	110	106	88	75	62	54
U Q	73	66	62	54	48	44	43	66	82	90	102	111	124	134	146	147	146	142	131	131	110	103	85	78
L Q	42	38	38	41	34	30	30	51	70	75	85	96	106	125	121	124	121	109	102	87	74	53	51	43

COMMUNICATIONS RESEARCH LABORATORY, JAPAN

HOURLY VALUES OF fEs AT Okinawa

MAR. 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	G	G	G	G	G		G	G	G	G	G	G	48	G	G	G	46	35	33	43	33	43	28	G
2	G	G	G	25	26	G	G	28	35	43	51	64	55	58	52	47	G	G	28	26	25	G	G	G
3	G	G	G	G	G	G		G	G	G	G	50	54	58	52	46	41	35	G	G	G	G	28	G
4	G		30	28	36	36	G	G	36	45	56	52	57	56	G	48	G	39	29	30	34	36	30	27
5	39	36	G	G	G	33	32		36	G	G	G	G	G	G	50	51	41	G	40	44	32	28	57
6	G	G	G	G	G		G	G	G	G	46	G	G	45	50	G	43	44	31	30	28	G	G	G
7	G	G	G	G	G		G	29	48	G	G	G	G	G	G	G	53	42	35	28	50	29	G	G
8	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	26	G
9	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
10	G	G	G	G	G	G	G	G	G	G	G	G	52	G	G	G	G	G	G	G	G	G	G	G
11	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	34	28	G	25	28	G
12	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	11	G	G
13	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G		G	G	58	42	26	11	28	26
14	G	G	G	G		G		G	G	G	G	G	G	44	G	G	44	38	30	G	G		G	G
15	G	G	30	G	G	G	G	26	G	G	G	N	44	G	G	46	G	G	G	G	G	G	G	G
16	G	G	G	G	G		G	G	G	G	G	G	G	G	G	G	58	44	40	38		G	G	G
17	G	G	G	G	G	G		G	35	G	G	45	G	G	47	G		35	33	G	11	49	28	G
18	G	33	25	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	29	G	G	G	G	G
19	G	G	G	G	G	G	G	28		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	G	G	G	G	G	G	G	G	G	G	G	G
21	G	G	G	G	G	G	G	G	G	G	G	49	N	50	50	47	42	37	G	26	28	26	G	G
22	G	G	G	G	G	G	G	G	G	G	G	43	44	47	G	G	G	G	G	27	G	G	G	G
23	G	G	G	G	11	G	G	G	36	G	G	G	58	G	G	G	G	41	37	35	40	G	G	G
24	G	G	G	G	G	G	G		G	G	G	G	G	G	G	G	G	G	31	G	G	G	G	G
25	G	G	G	G	G	G	G	32	G	G	G	G	G	G	G	G	52	39	38	40	G	G	G	G
26	G	G	G	G	G	G	G	G	G	G	G	G		G	G	G	G		G	G	G	G	G	G
27	G	G	G	G	G	27	G	G	G	G	G	G	G	G	G	G	G	40	32	G	G	G	G	G
28	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G		G	G	G	G	G
29	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	44	35	29	G	G	G	G
30	28	G	G	G	G	G	G	G	G	G	G		G	G	G	G	G	G	G	G	G	G	G	G
31	G	26	G	G	G	G	G	G	39		G	G	56	51	48	G	G	38	37	32	29	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	30	31	31	30	27	28	29	30	30	31	29	29	31	31	30	30	30	30	31	30	30	31	31
MED	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	18	29	G	G	G	G	G
U Q	G	G	G	G	G	G	G	G	G	G	G	G	46	44	G	G	42	39	34	30	28	25	26	G
L Q	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G

COMMUNICATIONS RESEARCH LABORATORY, JAPAN

HOURLY VALUES OF fmin AT Okinawa

MAR. 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	15	14	14		15	15	14	16	16	21	21	34	20	16	14	14	15	14	14	14	14	15
2	15	14	15	14	17	14	15	14	14	14	15	23	38	36	29	22	18	14	15	14	15	14	15	15
3	15	14	15	14	15	17		18	14	15	18	23	22	22	34	21	16	14	14	14	15	14	14	18
4	15	15	14	14	14	14	15	17	14	17	17	21	22	23	28	20	18	17	14	14	14	14	14	14
5	14	14	15	14	18	14	14		14	15	20	22	24	46	22	21	17	15	14	14	14	14	14	14
6	15	15	14	15	14		15	15	14	14	16	22	23	23	34	22	18	14	14	14	14	14	15	14
7	14	14	14	14	14		15	14	14	15	18	23	21	23	29	17	18	14	14	14	14	14	15	15
8	15	15	15	14	14	14	14	14	14	17	18	21	48	23	20	20	14	14	14	14	15	15	15	15
9	14	14	14	15	15	15	15	20	14	17	20	20	21	22	27	45	35	15	20	14	15	15	14	15
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17	14	15	15	14	14	15		14	15	14	22	23	23	46	38	31		17	17	14	14	14	14	18
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19	14	16	15	14	14	15	14	15	15	16	22	20	23	22	17	15	14	14	14	14	14	14	14	15
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24	14	15	14	14	14	14	14	14	14	16	21	21	28	49	23	44	20	15	14	14	16	14	14	16
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26	15	14	15	14	14	14	15	14	14	18	21	22	23	23	46	21	20	17	14	14	15	15	15	15
27	15	14	14	14	15	14	14	14	16	18	21	26	44	43	18	14	22	17	14	16	15	15	15	15
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29	14	14	15	15	14	15	14	15	14	16	18	22	43	43	29	21	22	14	14	14	15	15	14	15
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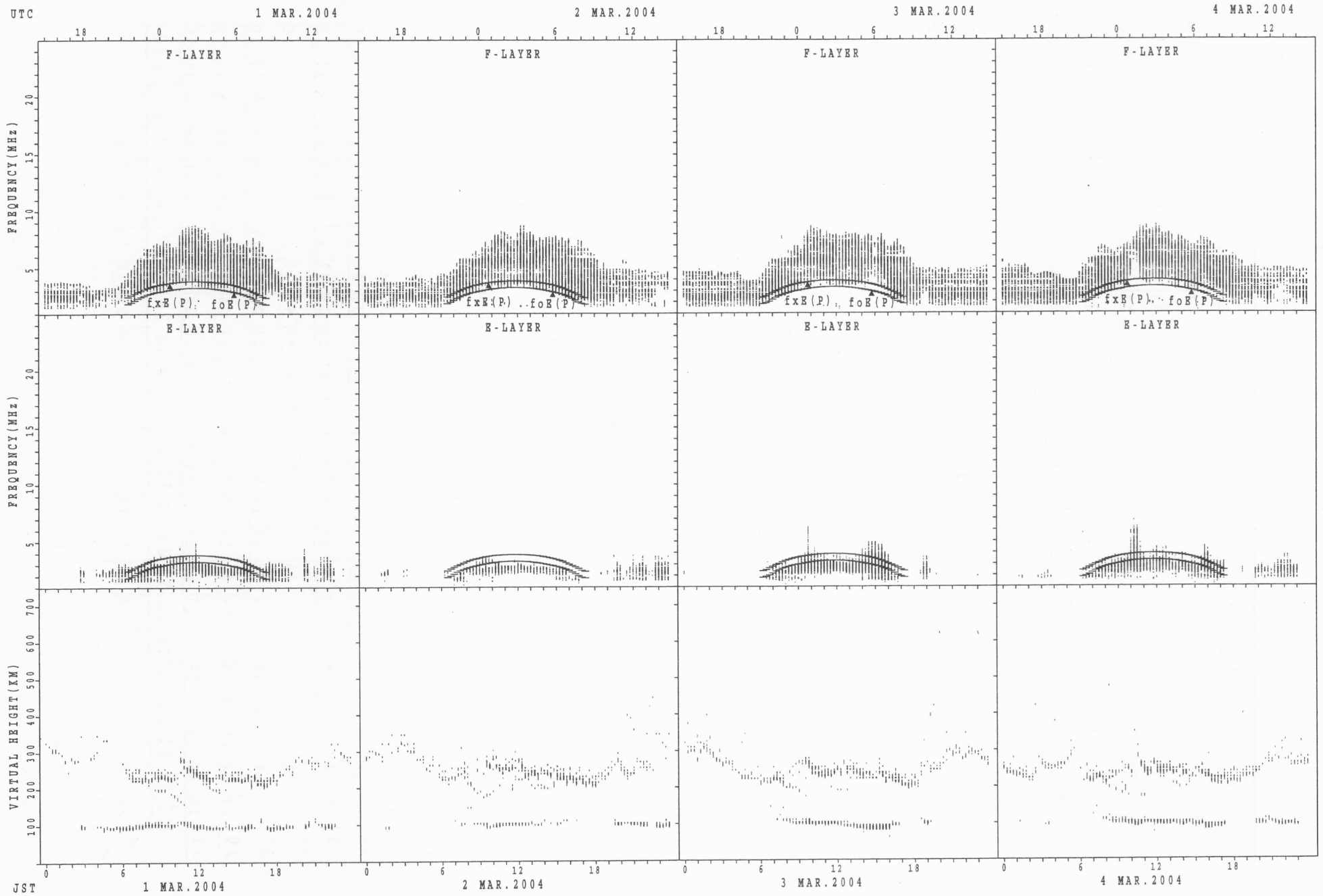
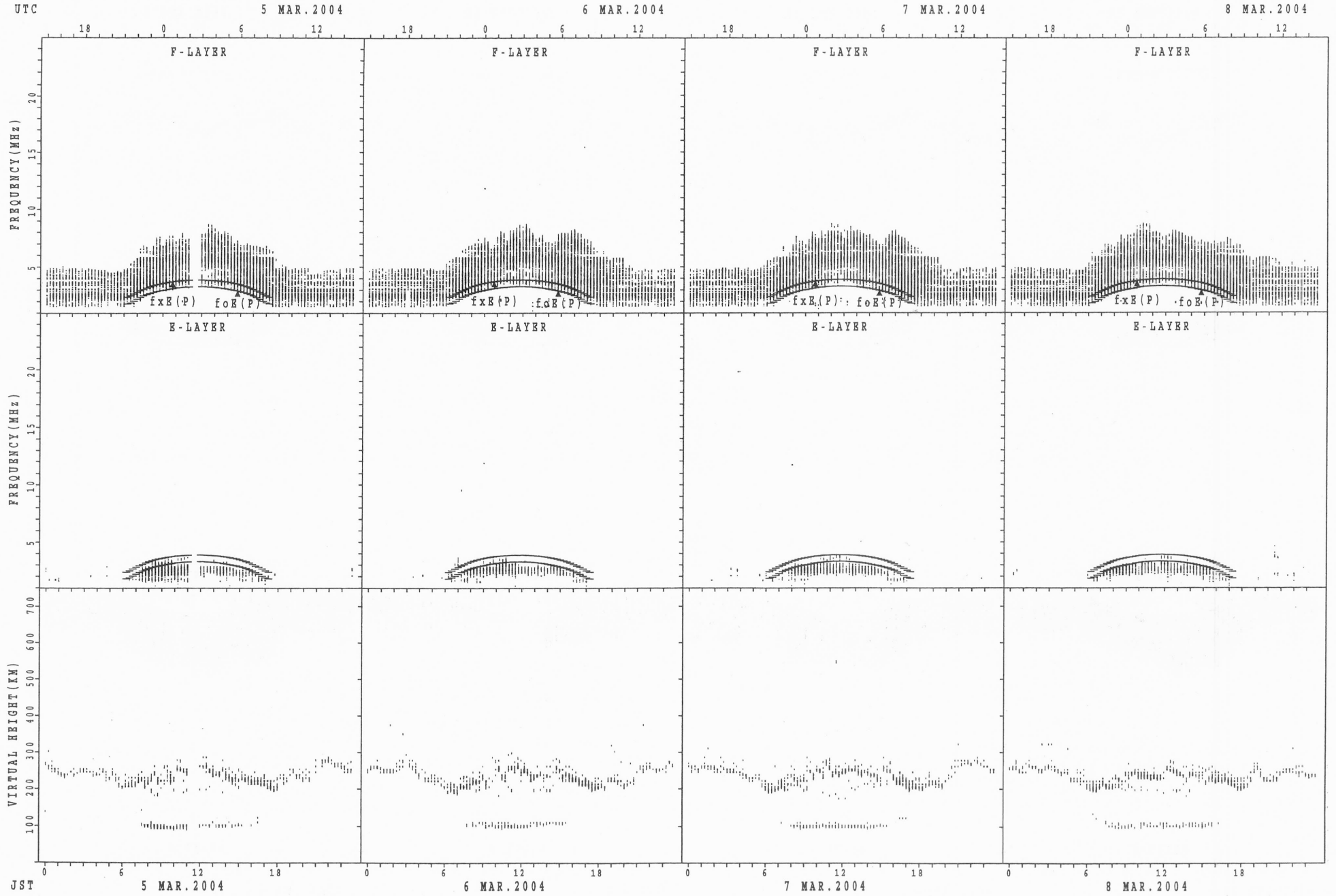
31	15	14	15	14	14	15	17	14	16		44	46	27	33	30	21	18	14	14	14	14	14	15	15
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	30	27	28	30	31	30	31	31	31	31	31	30	30	31	30	31	31	31	31	31
MED	15	15	15	14	14	15	15	15	14	16	21	22	23	29	29	21	18	15	14	14	15	14	14	15
U Q	15	15	15	15	15	15	15	18	15	17	21	24	28	43	41	23	21	16	14	14	15	15	15	15
L Q	14	14	14	14	14	14	14	14	14	14	18	21	22	23	22	20	16	14	14	14	14	14	14	14

SUMMARY PLOTS AT Wakkanai



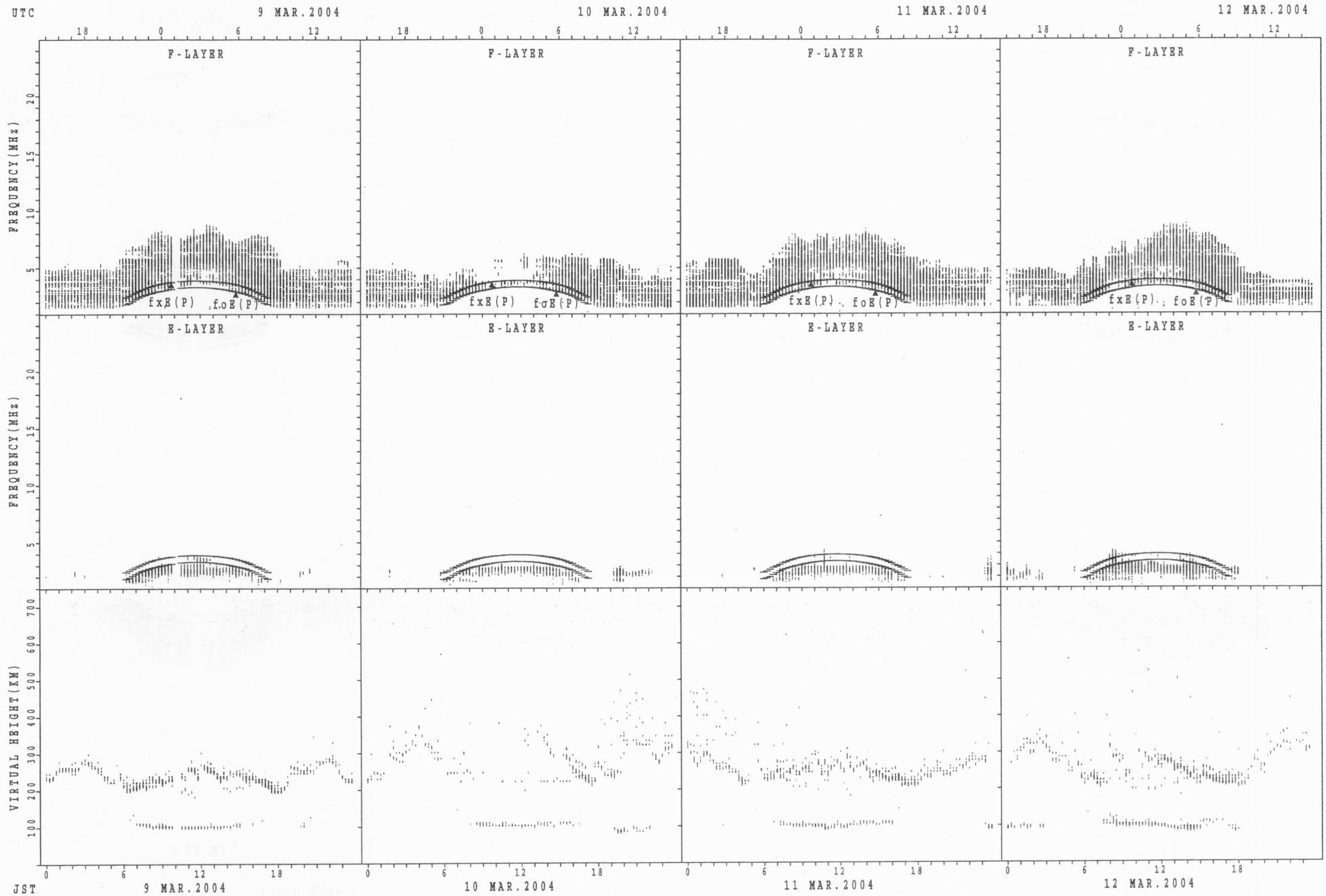
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



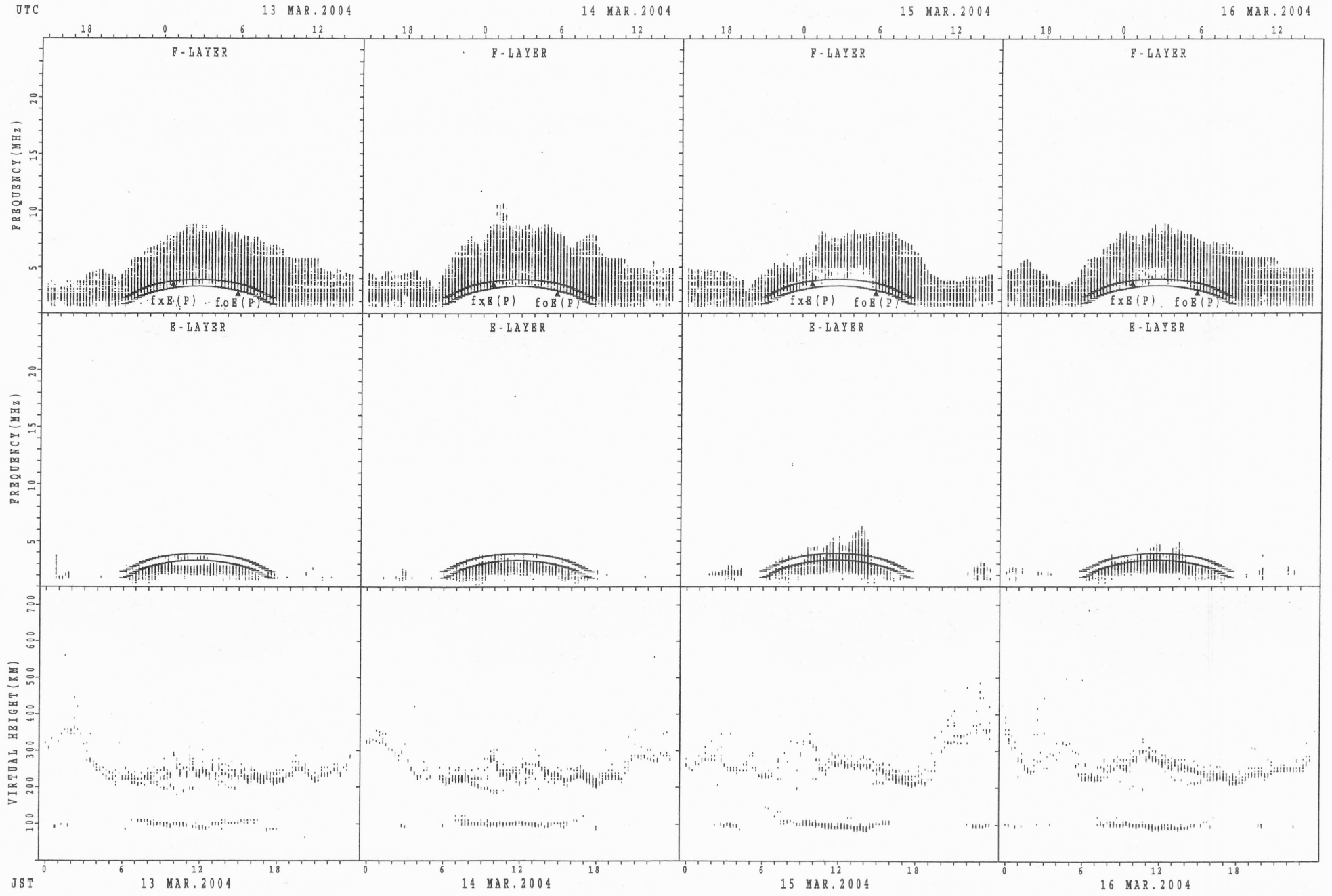
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



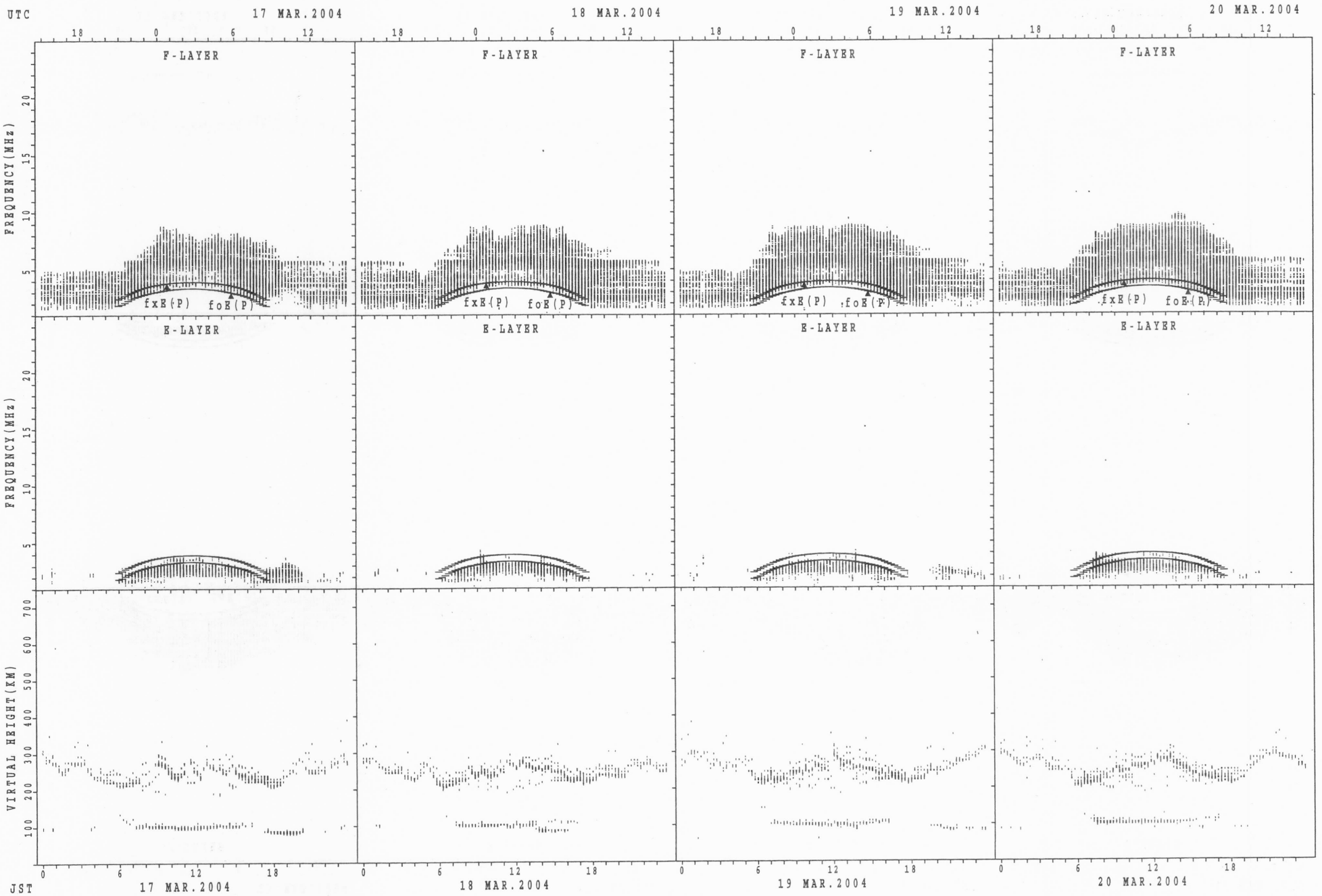
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



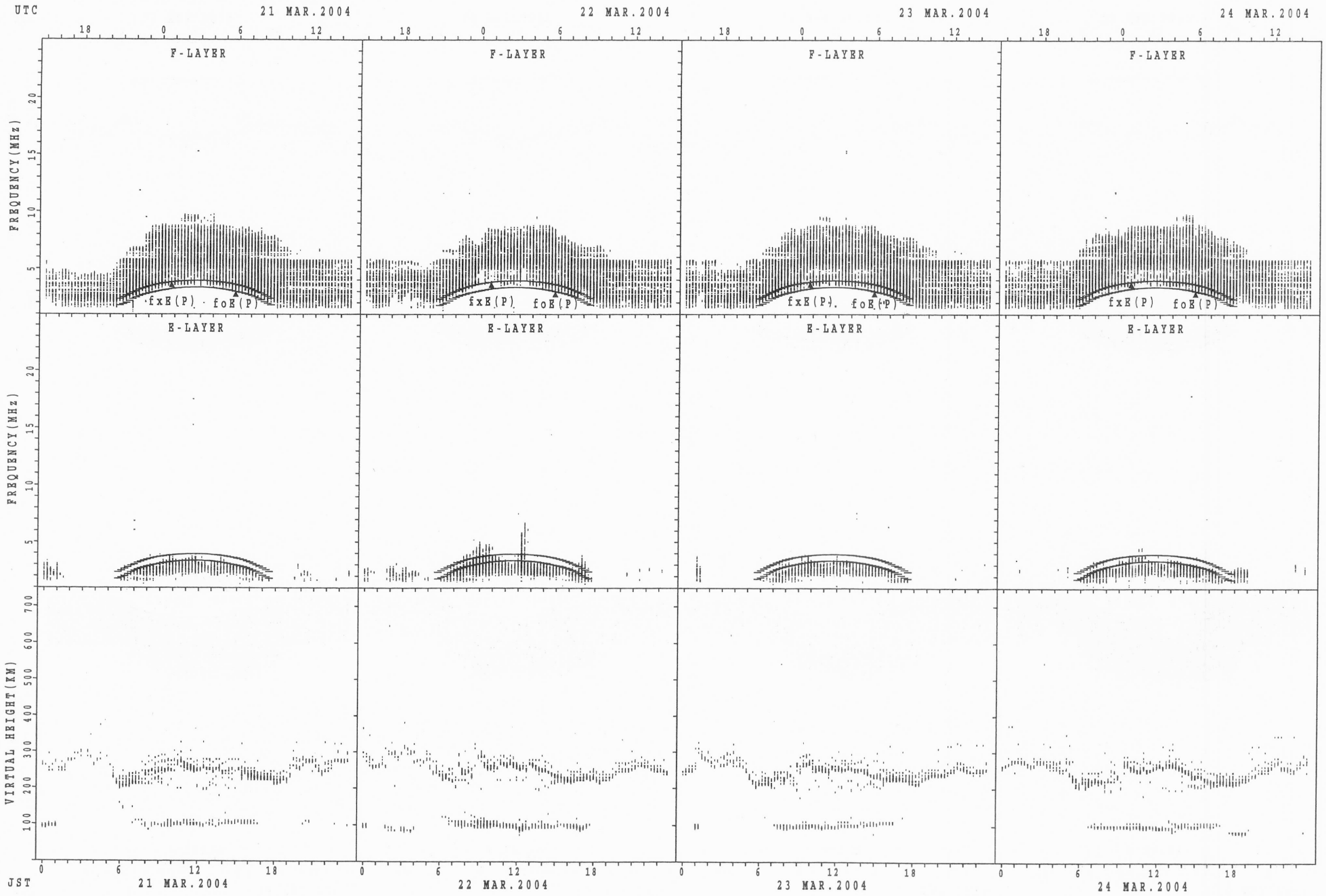
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



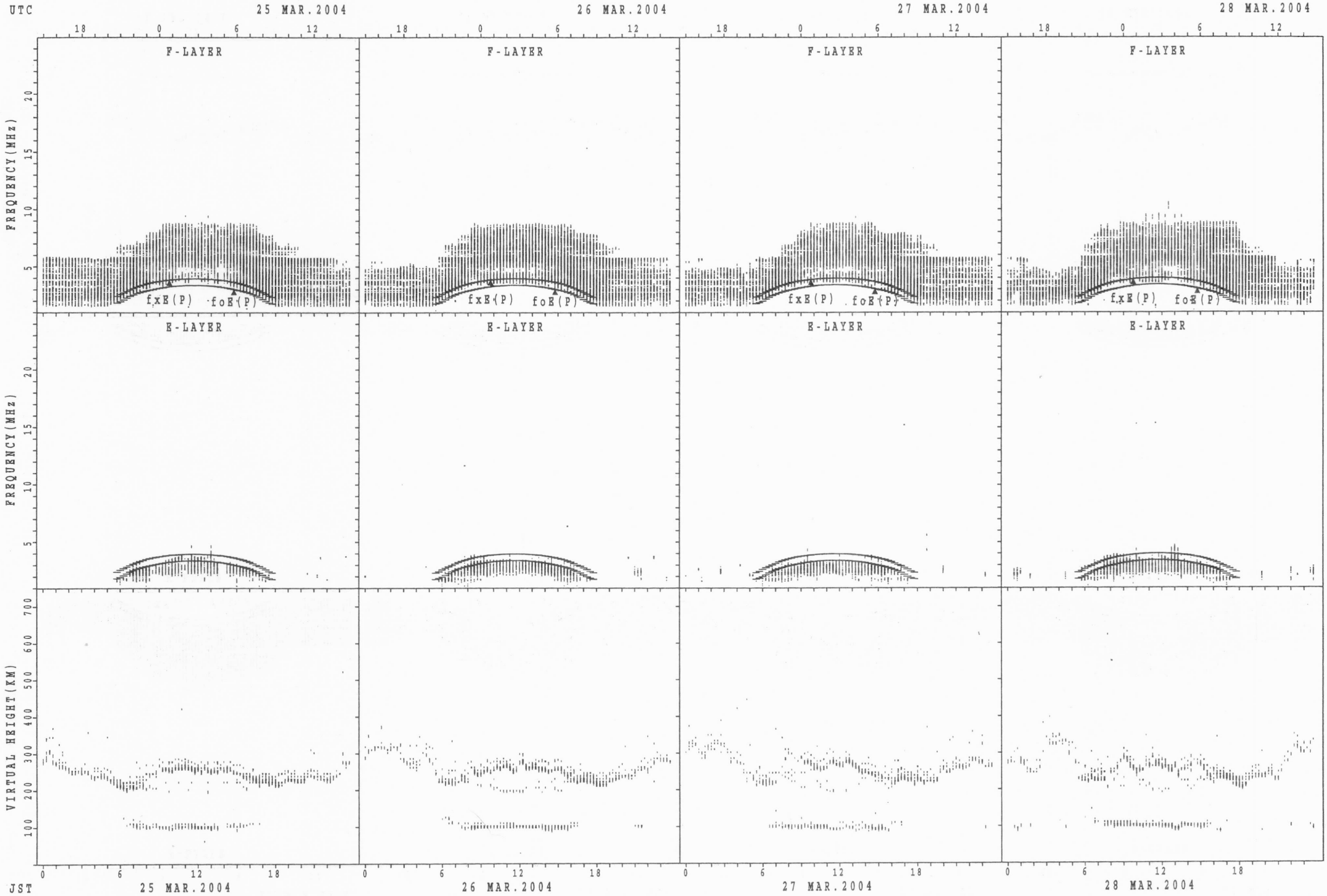
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



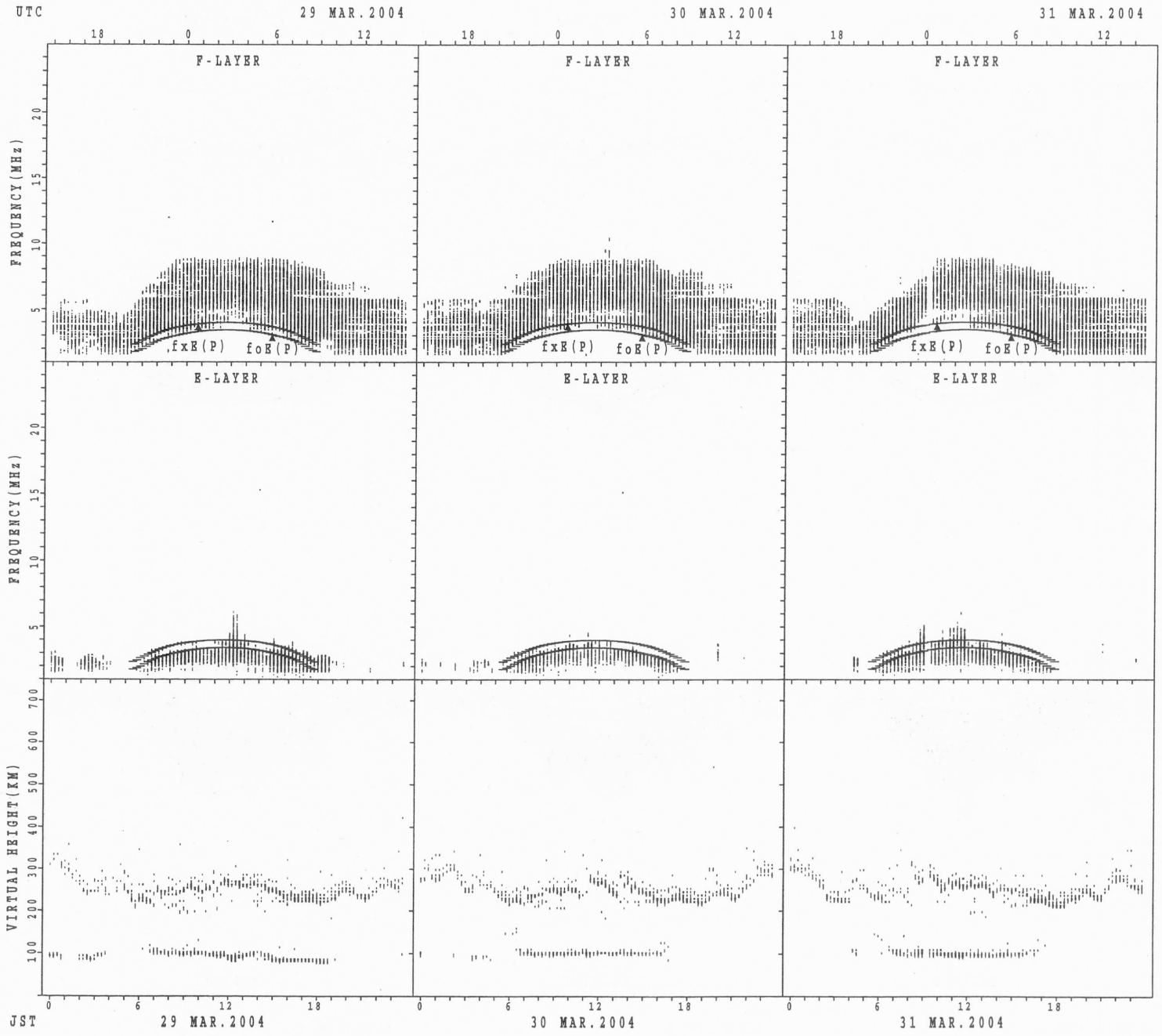
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



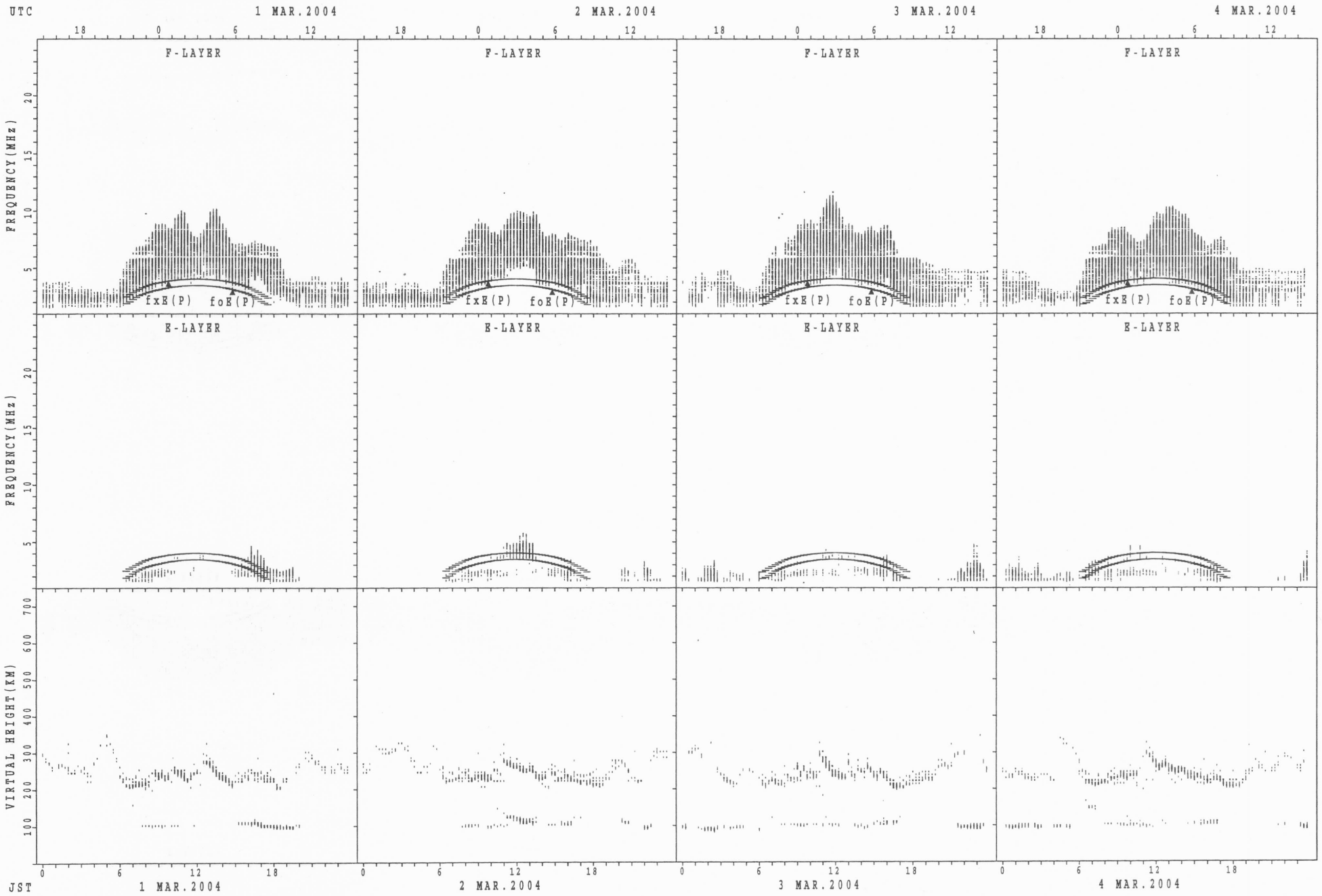
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



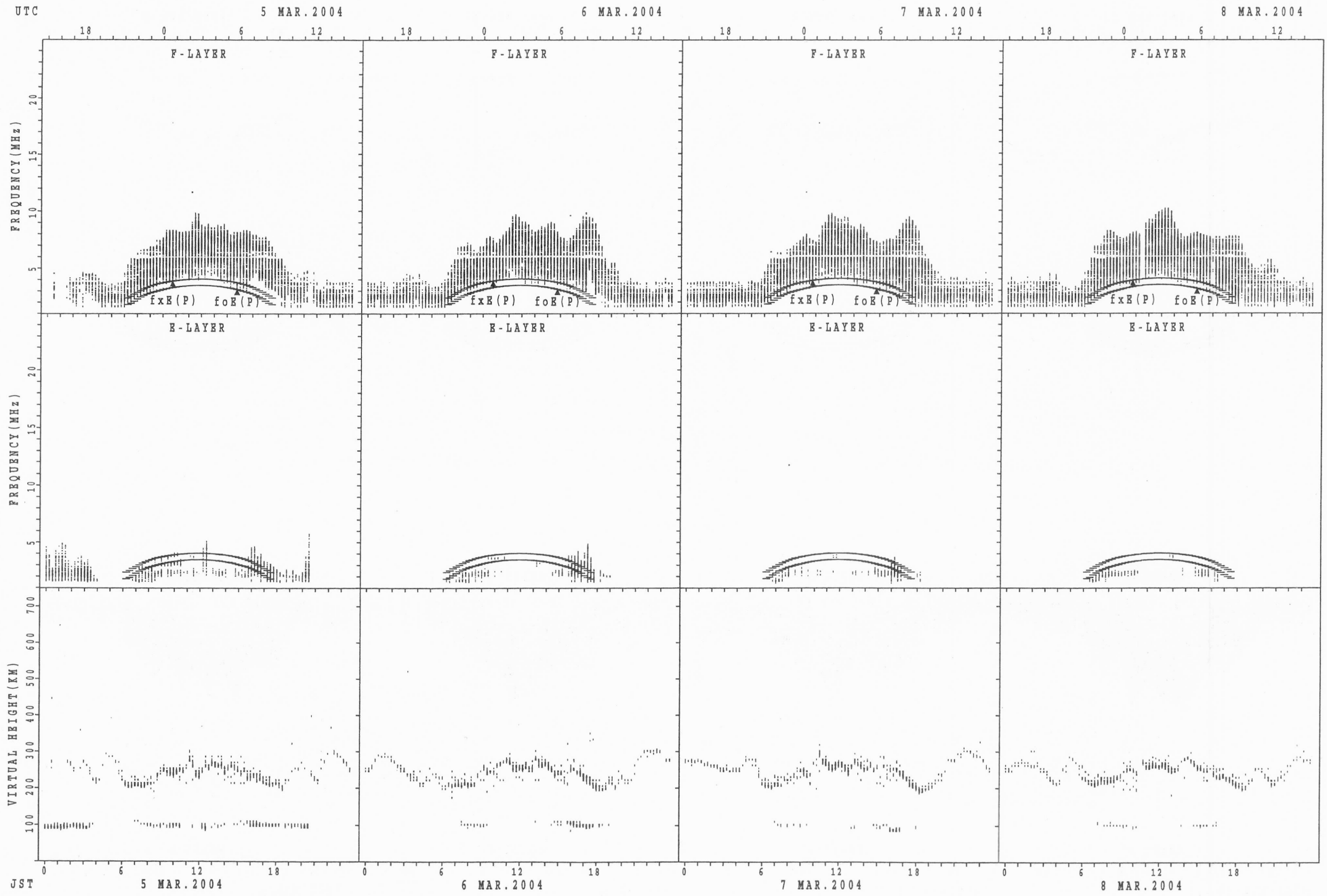
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



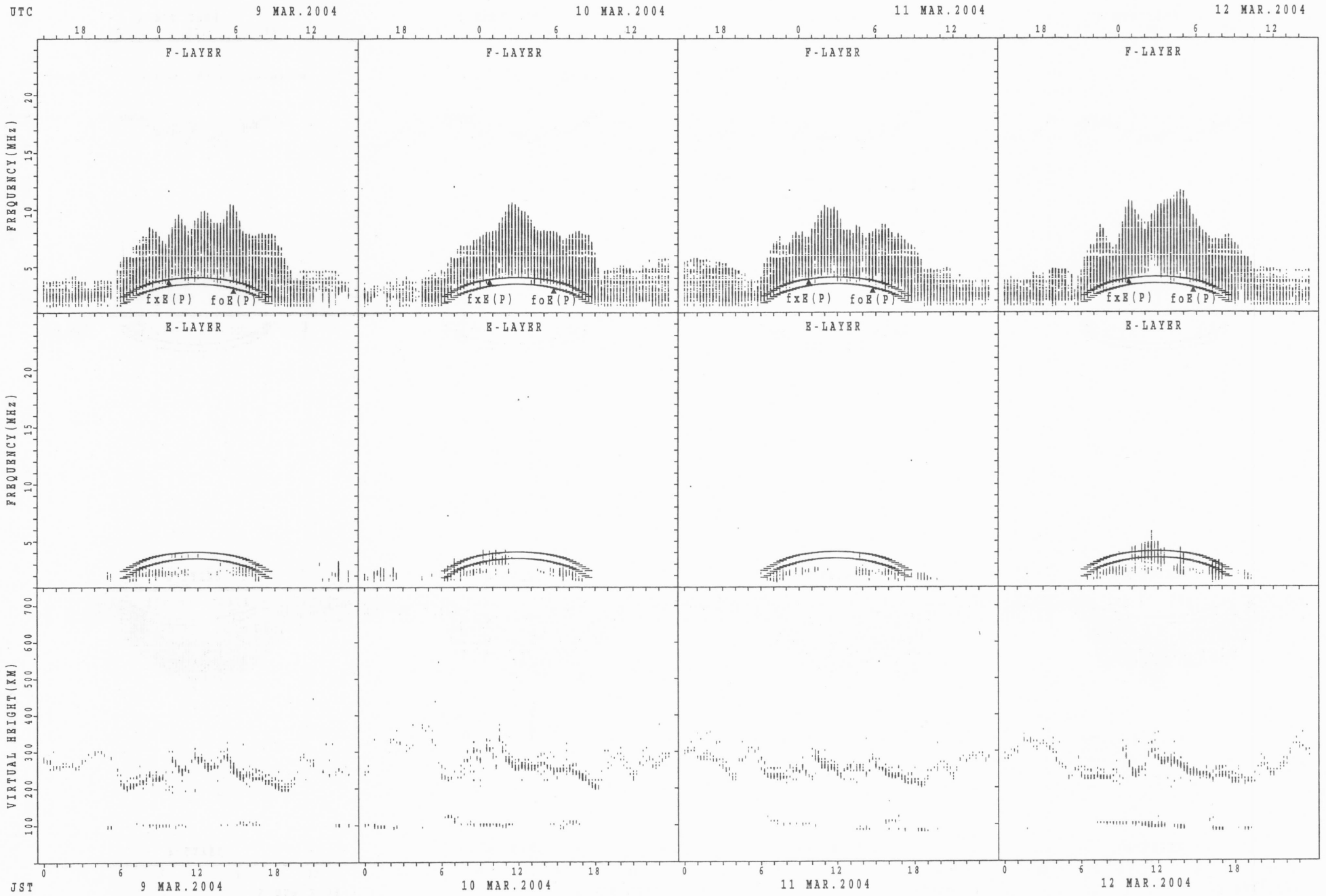
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



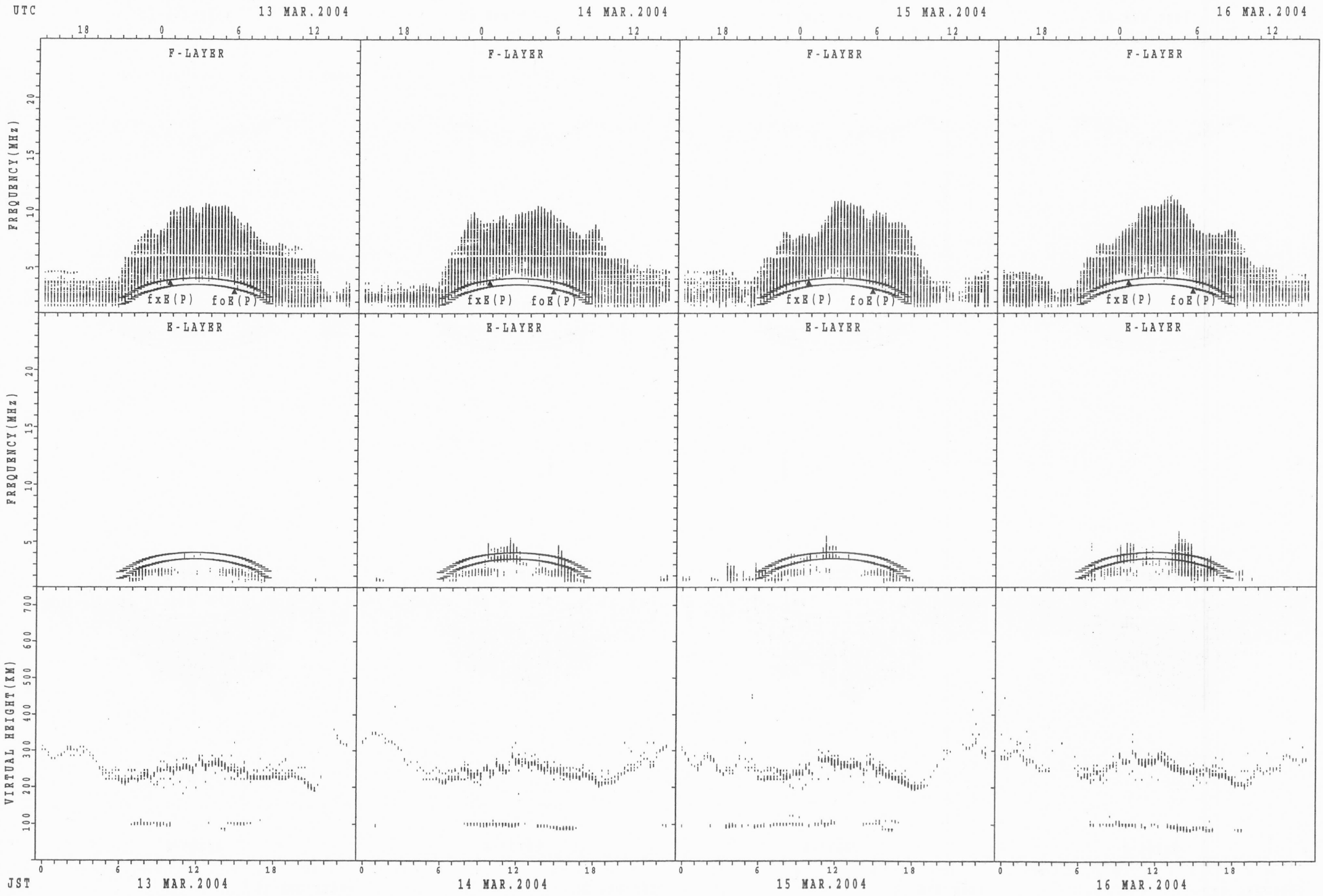
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



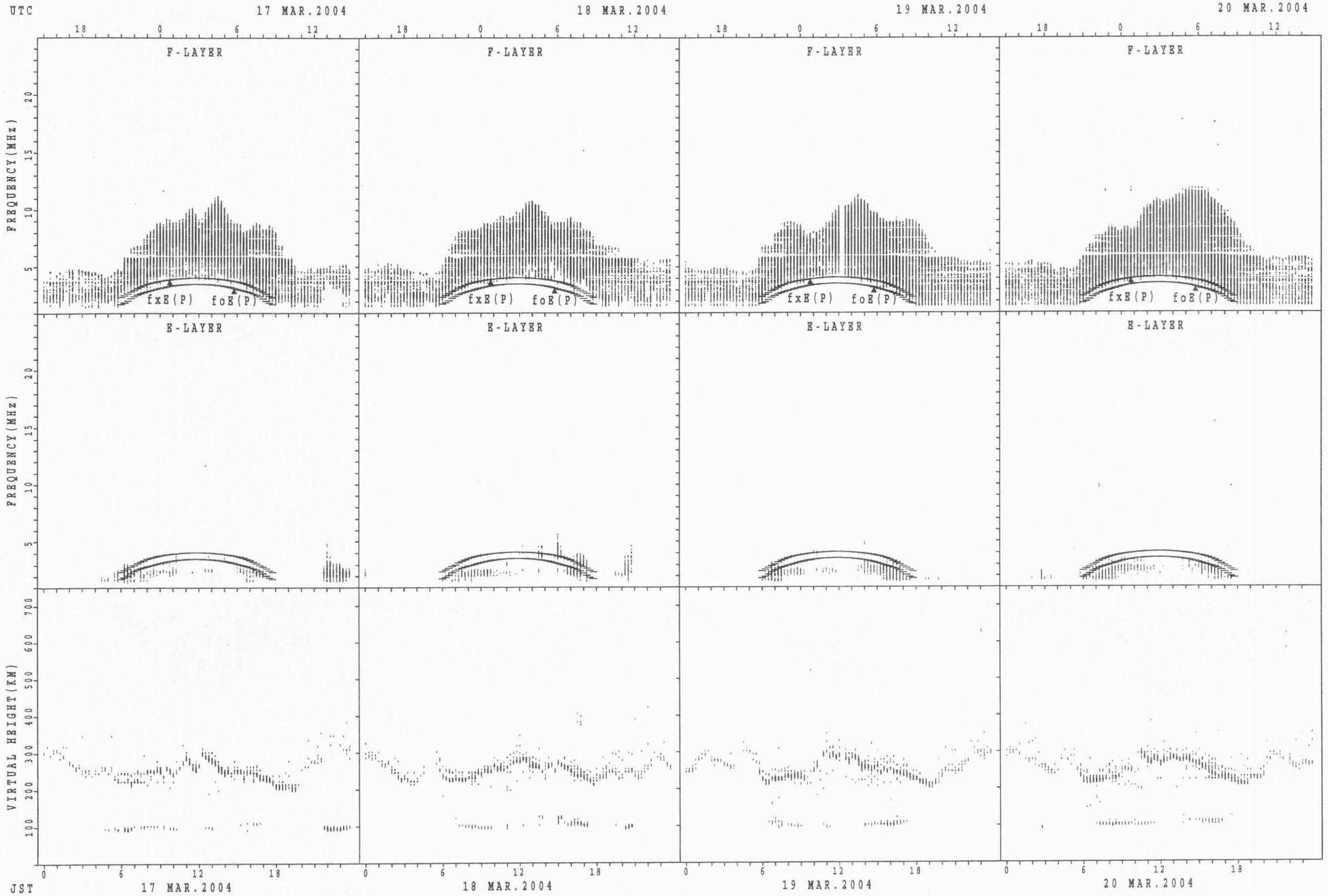
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



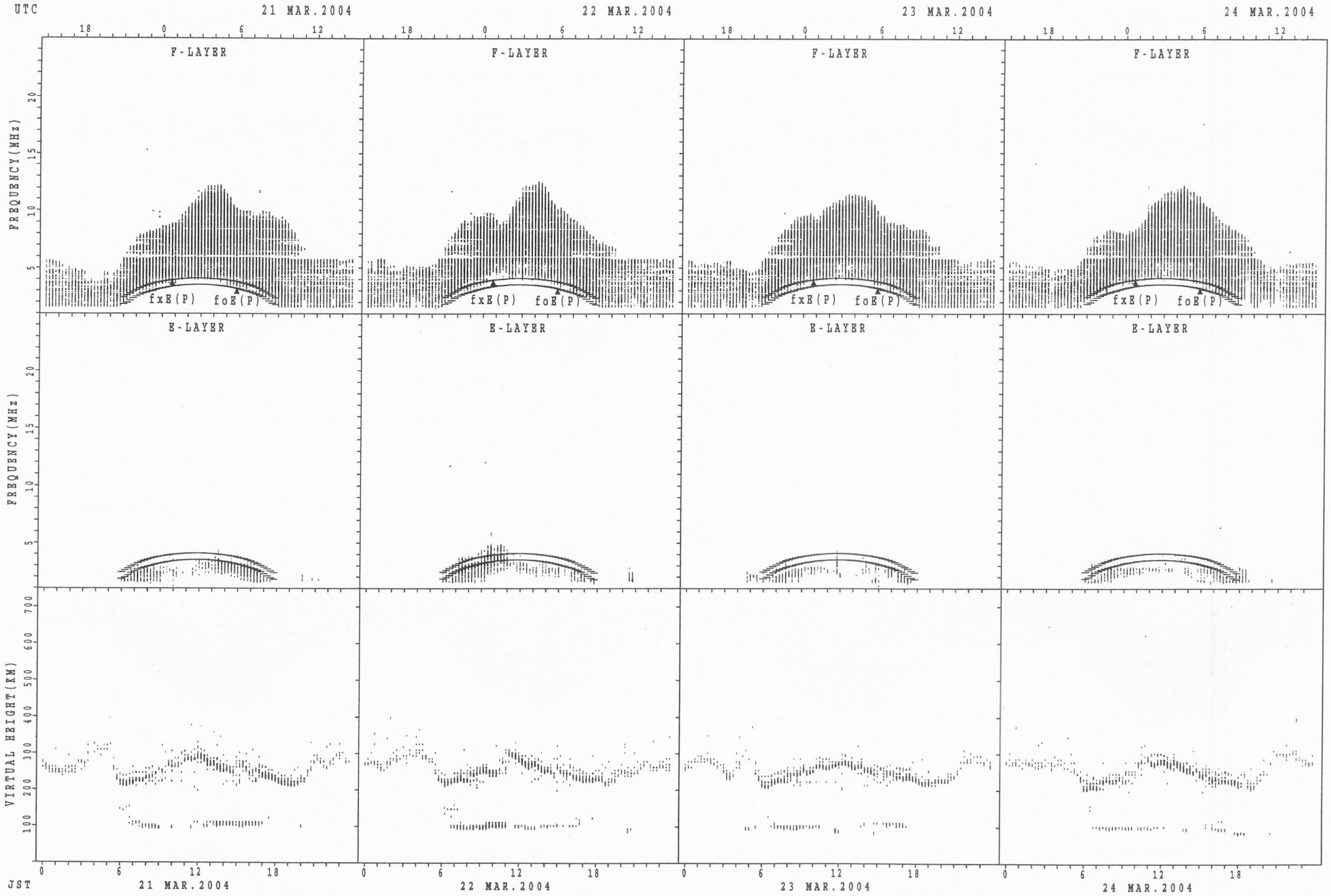
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



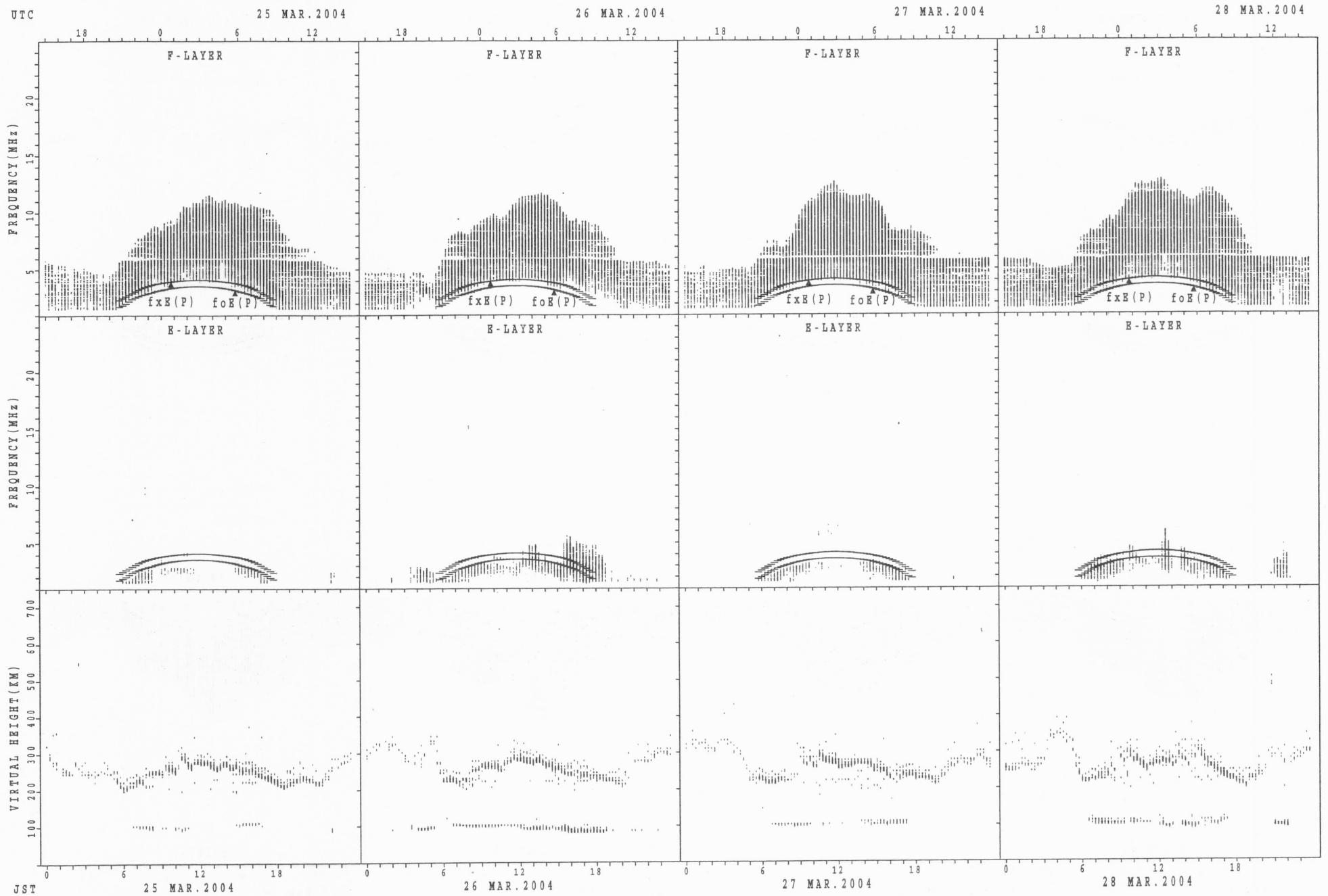
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



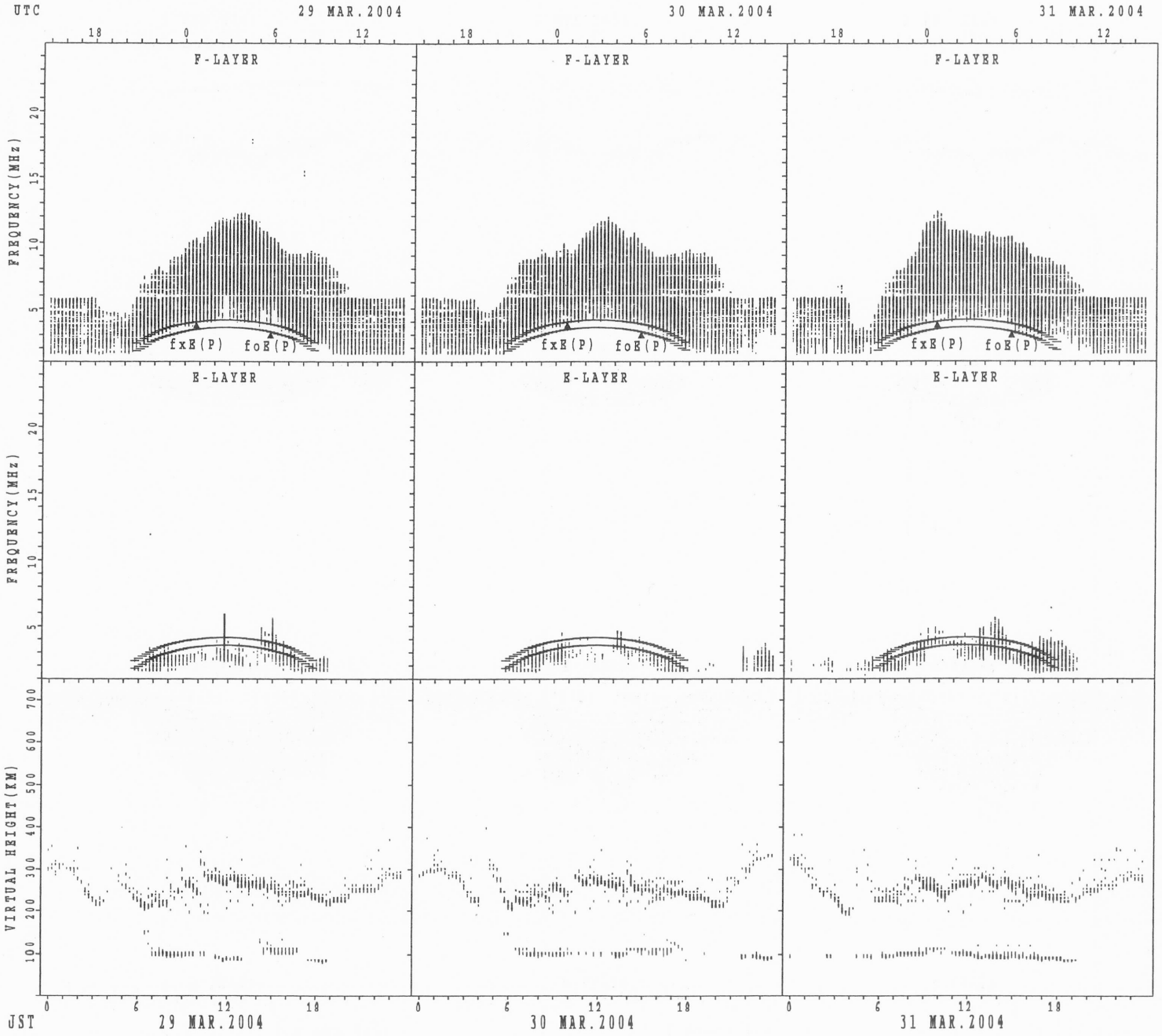
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



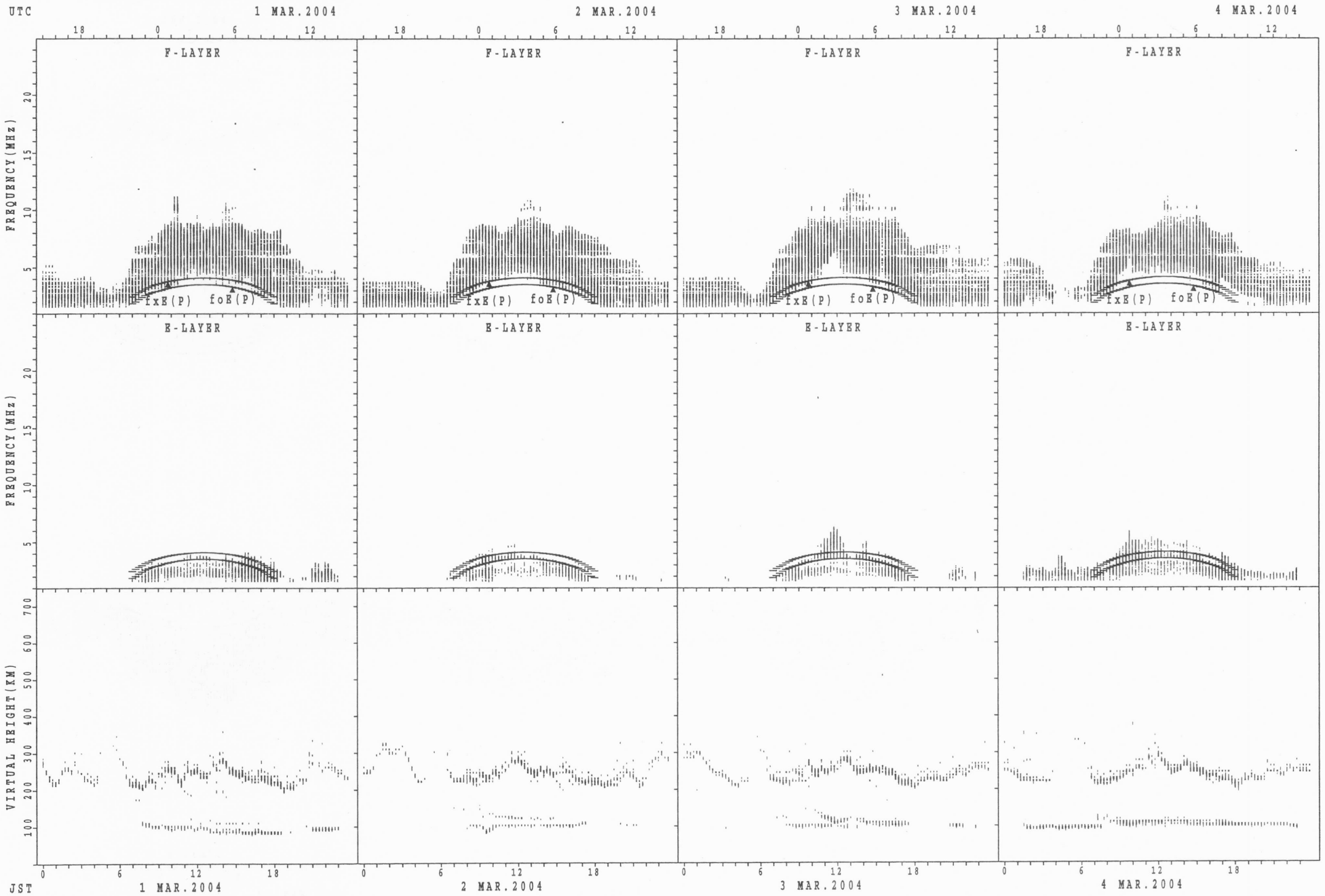
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



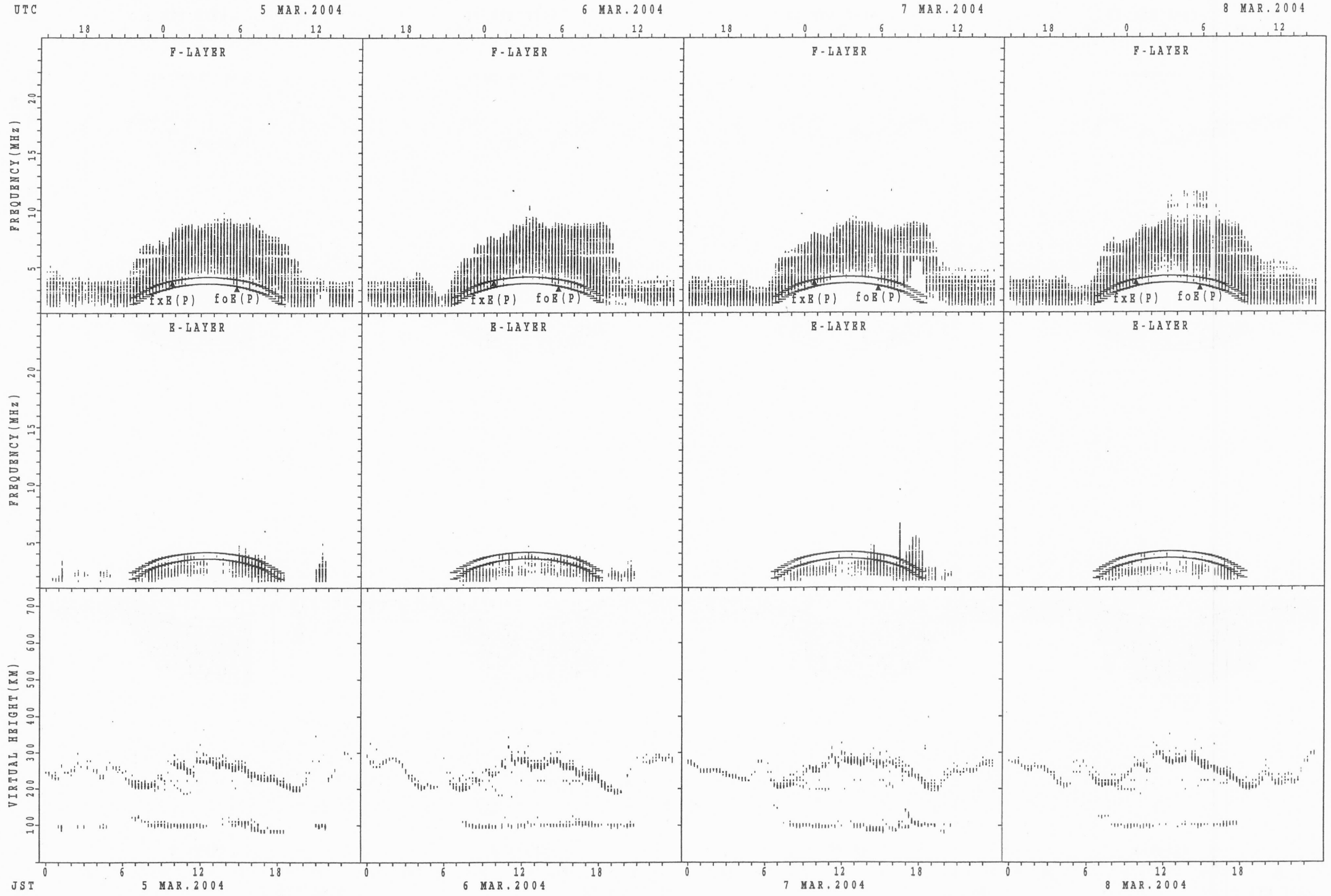
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



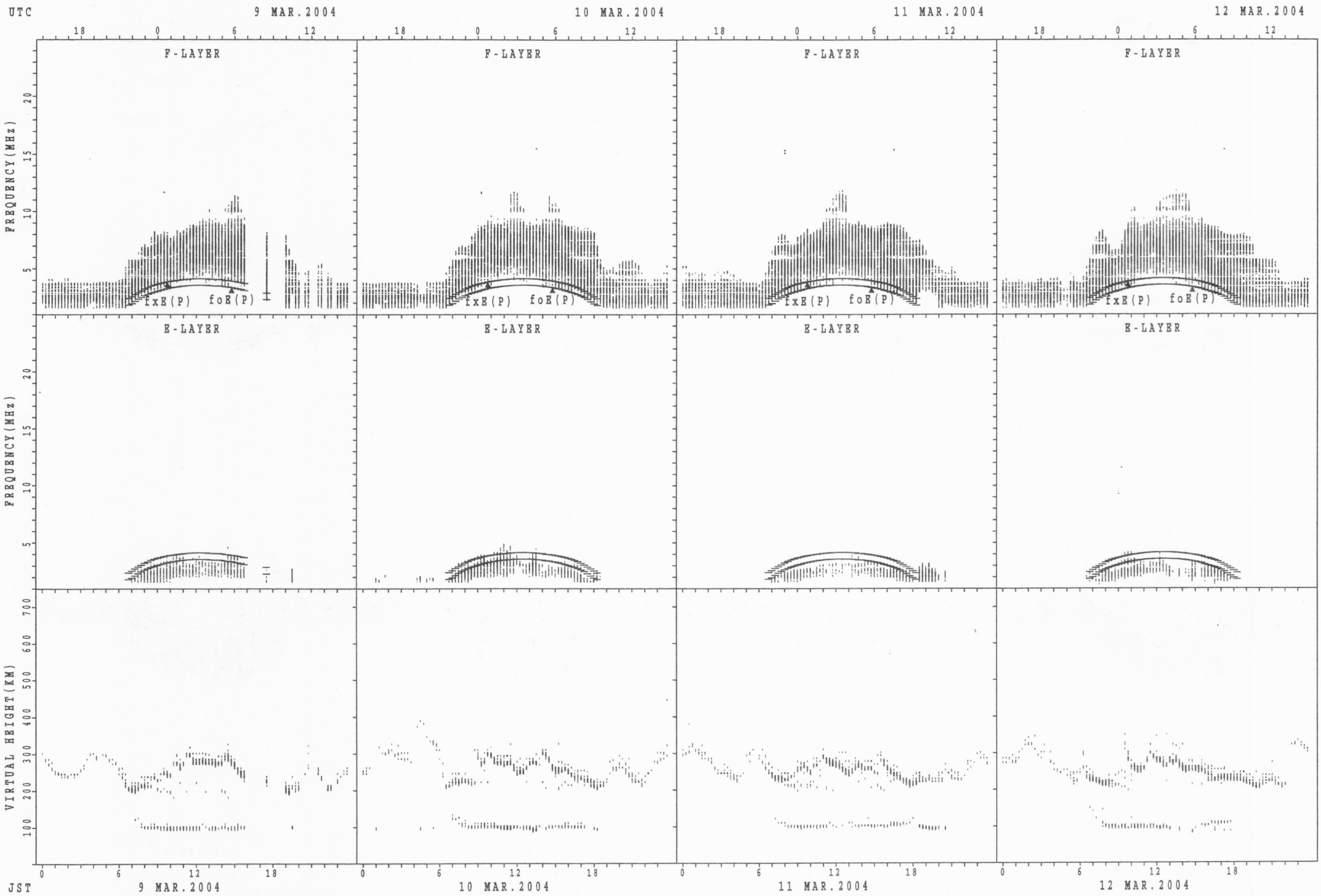
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



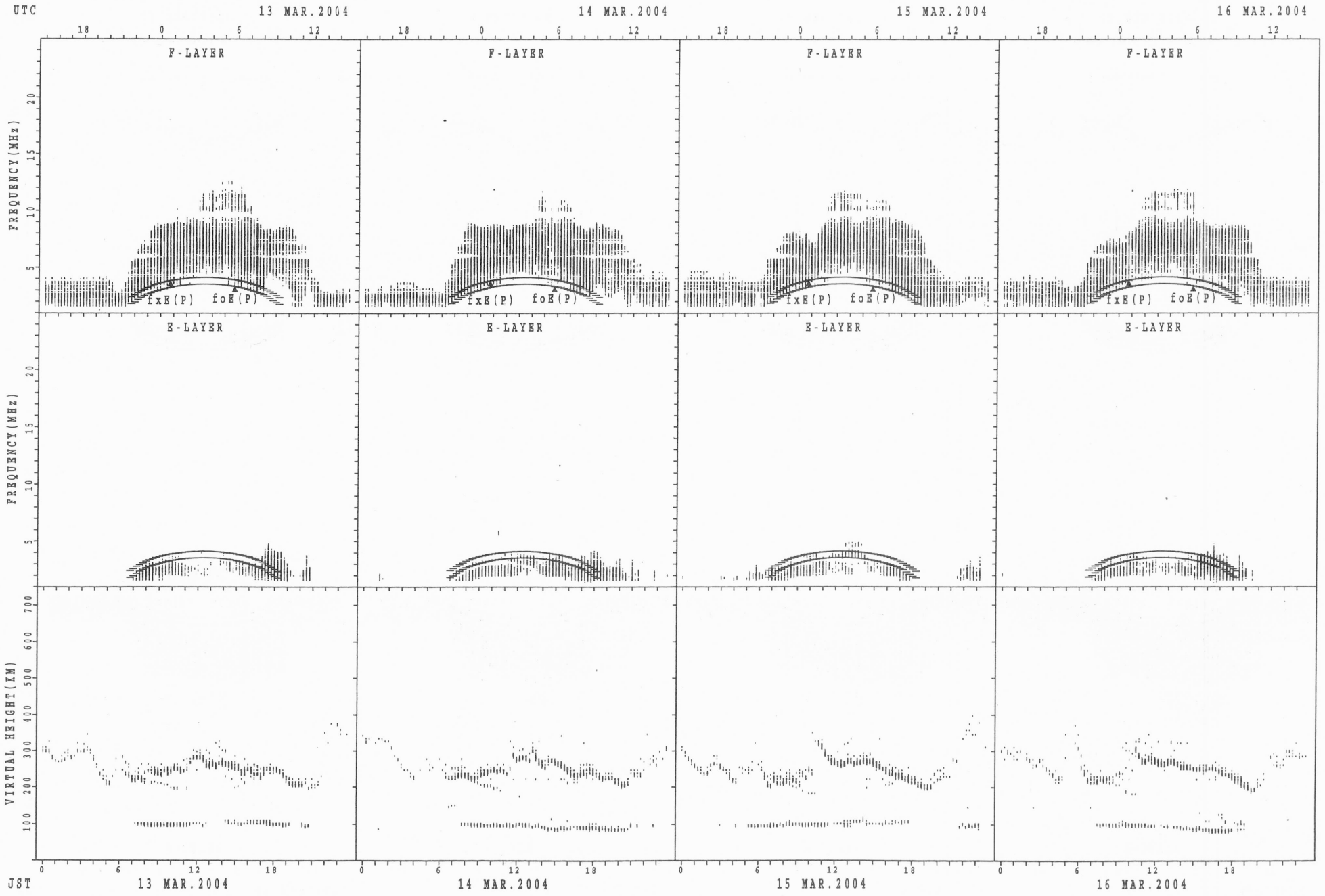
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



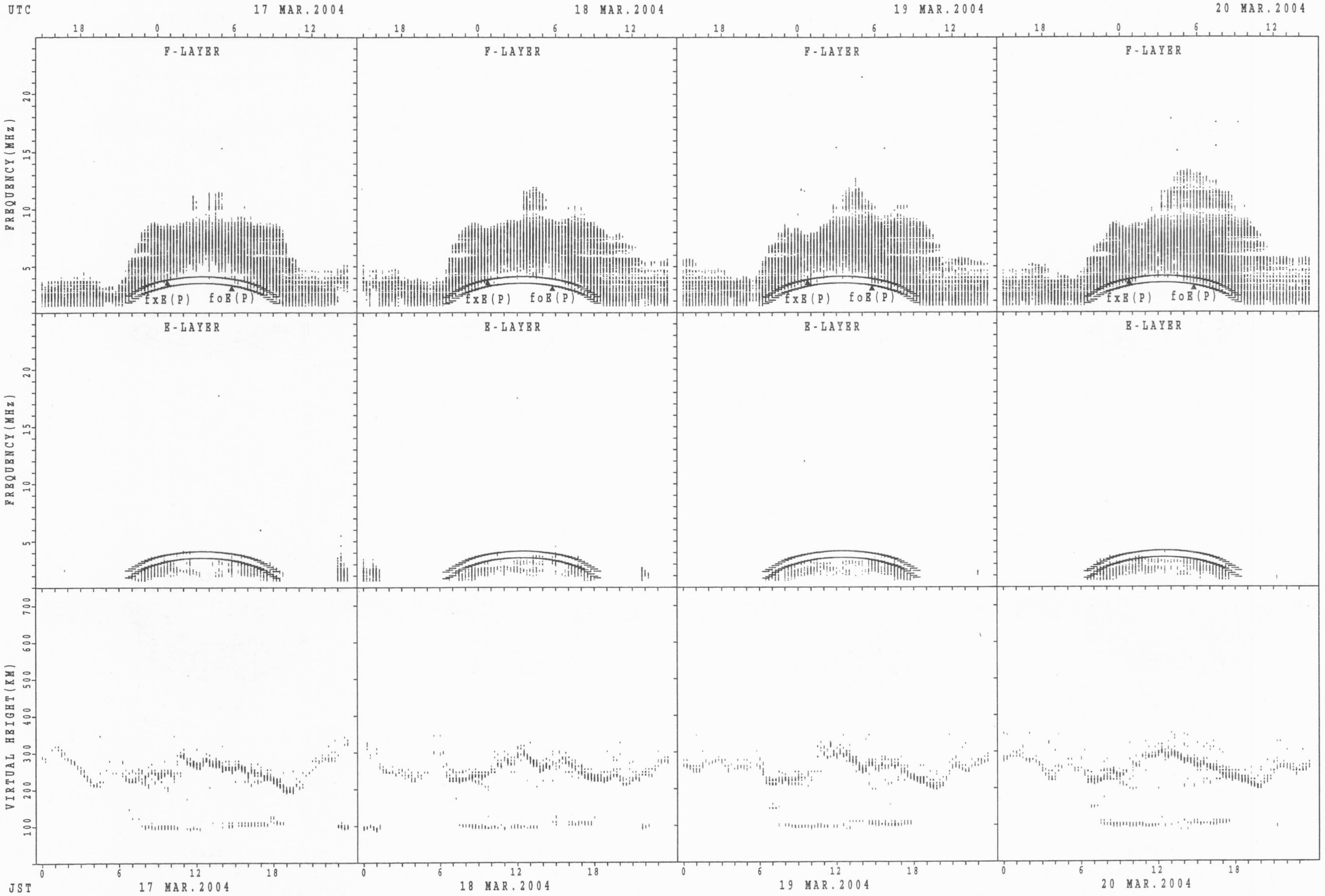
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



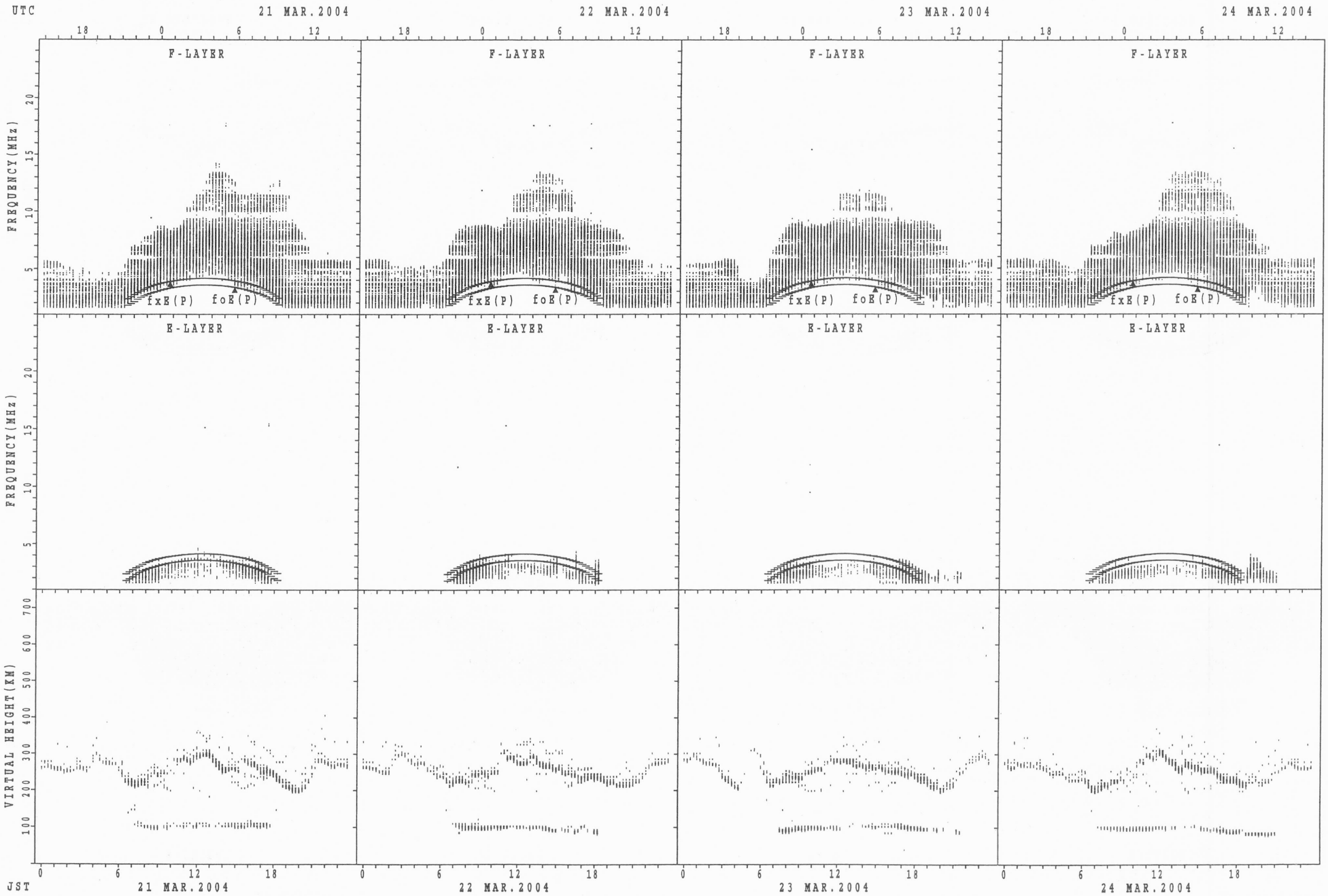
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



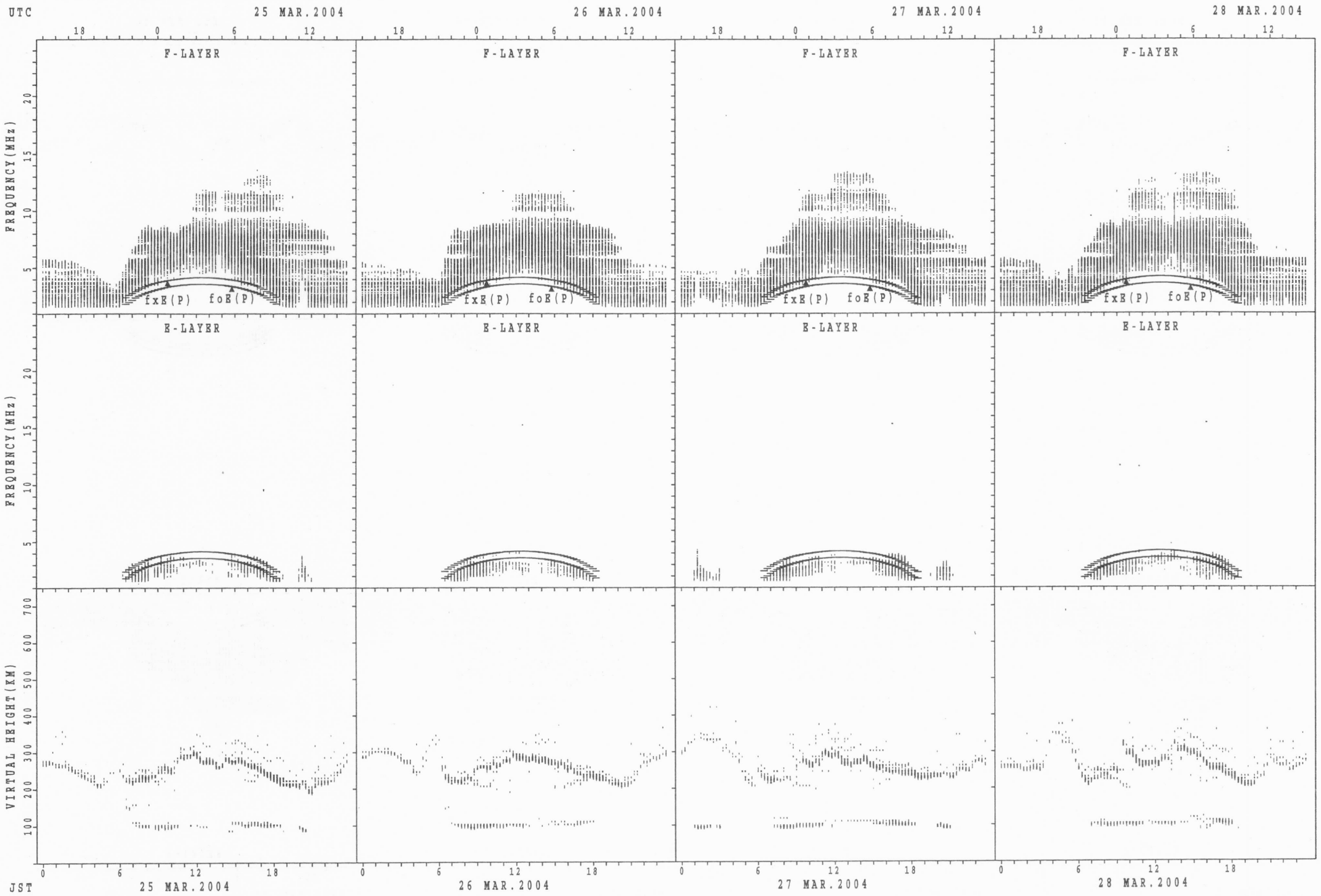
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



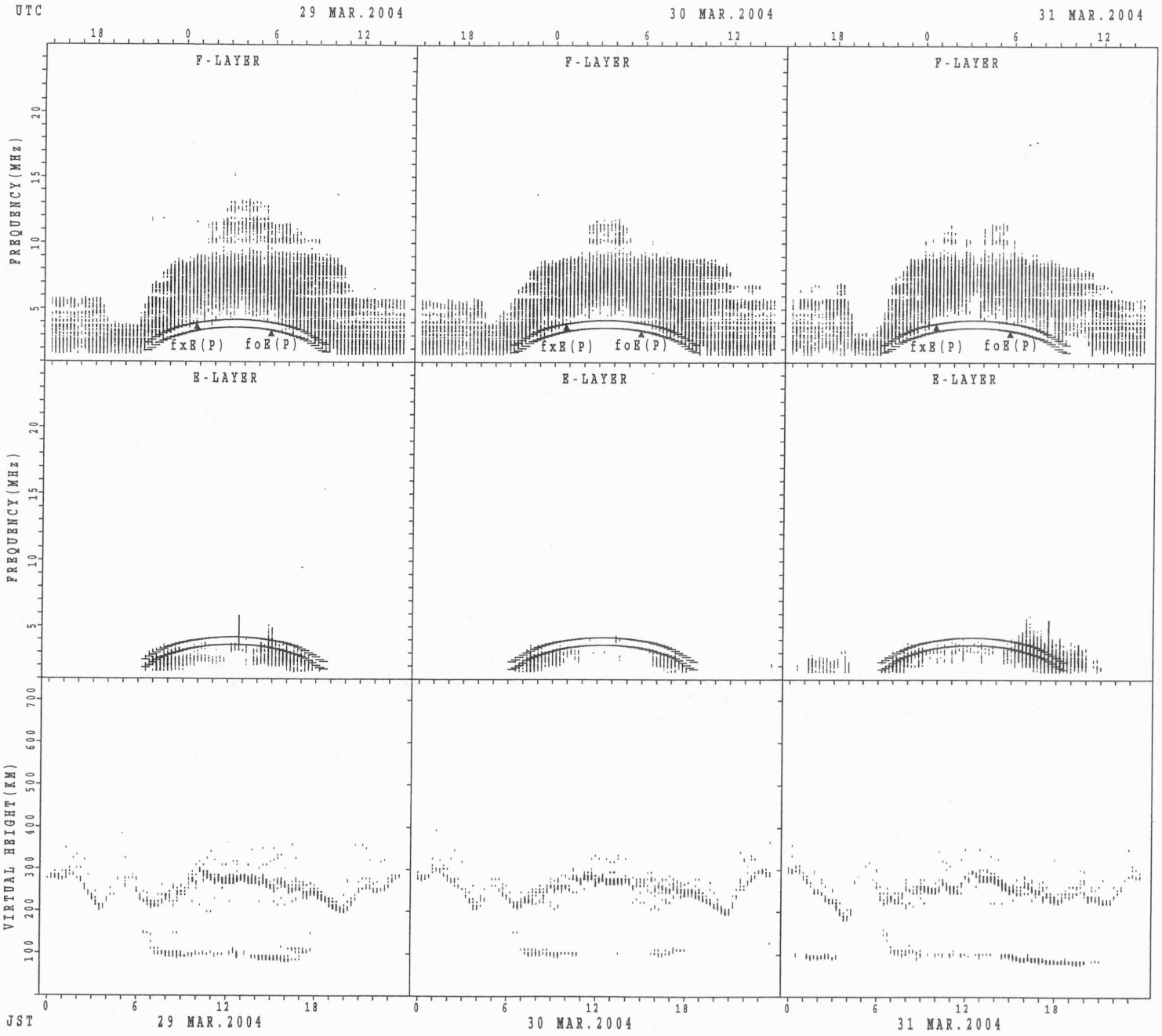
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



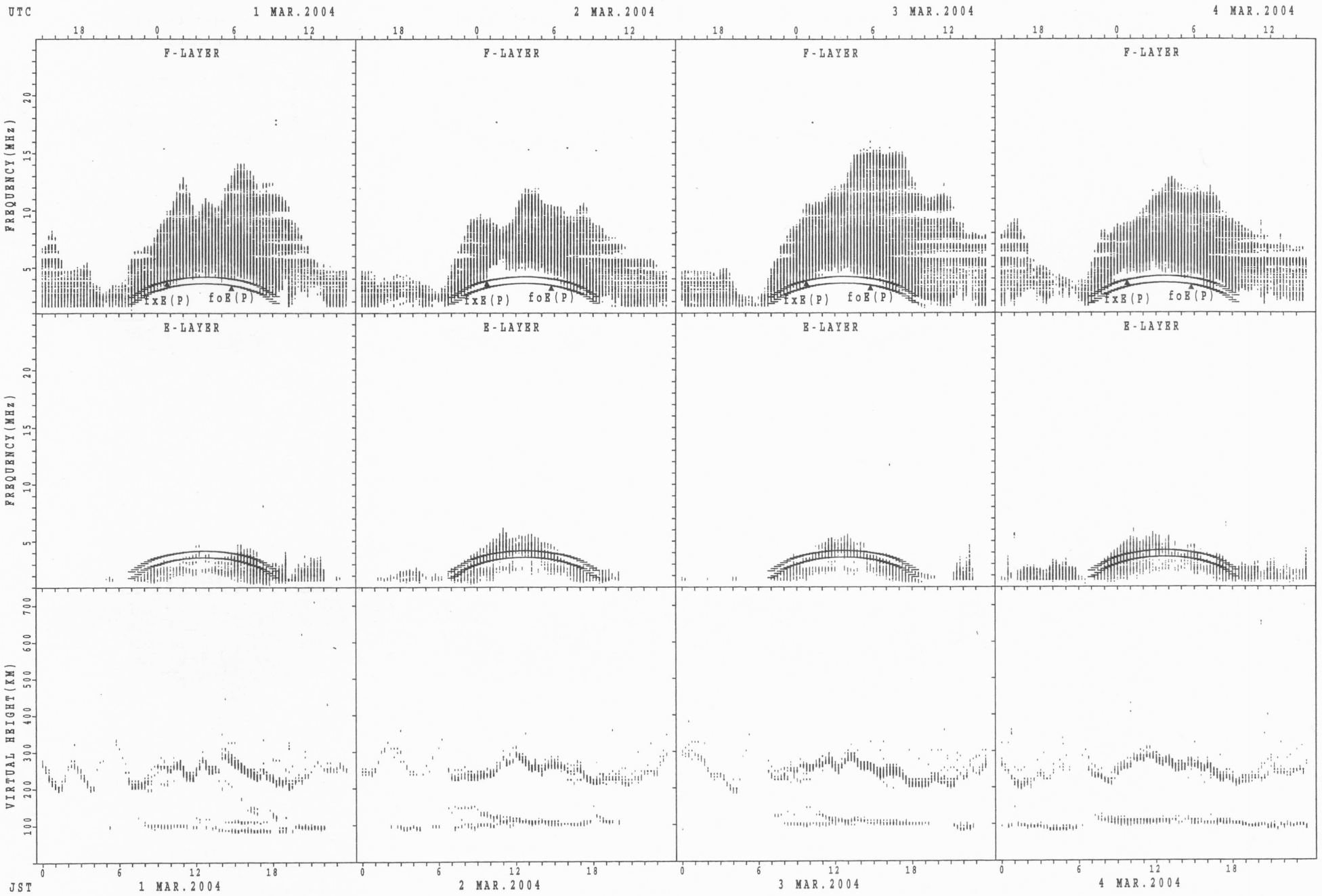
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



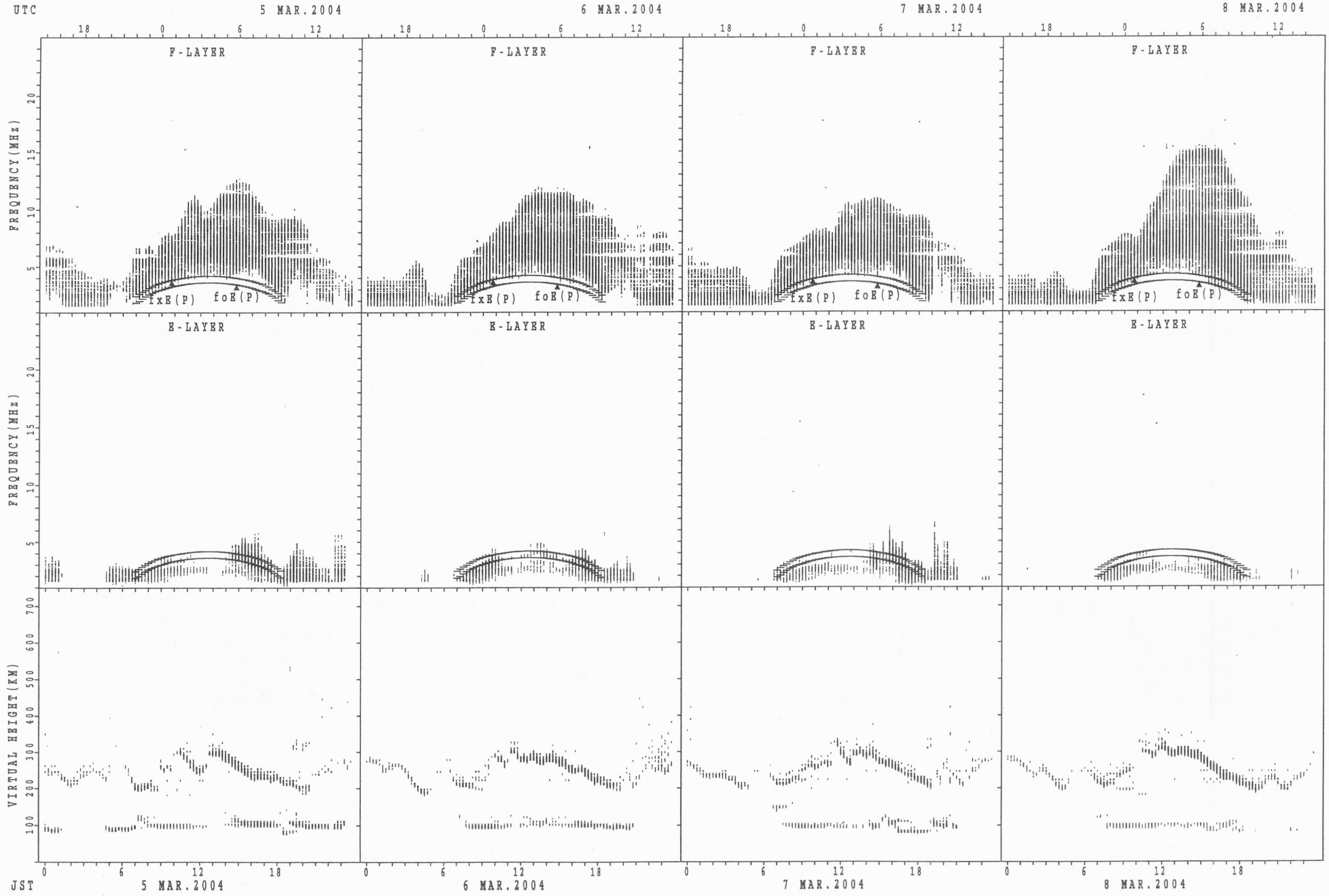
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



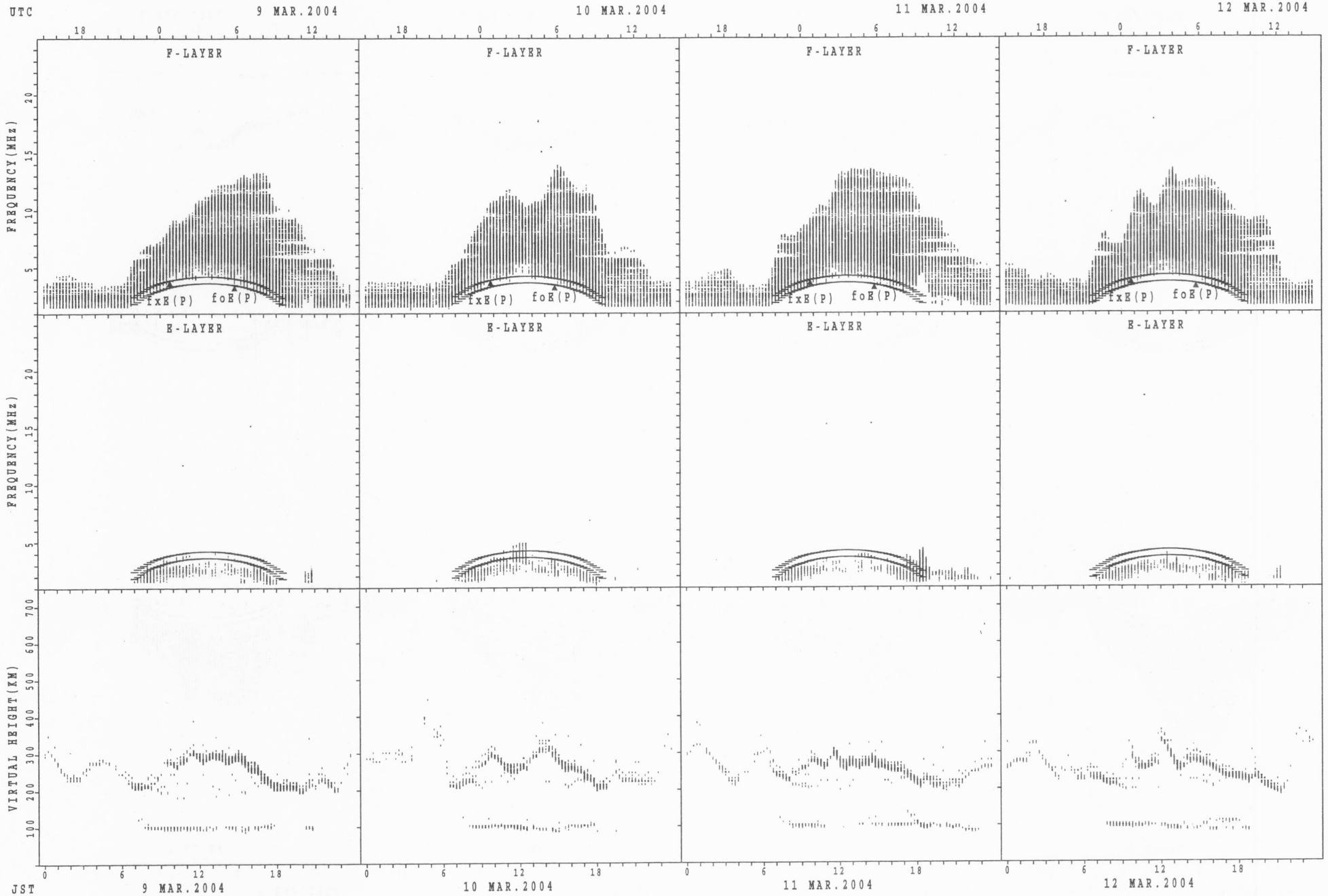
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



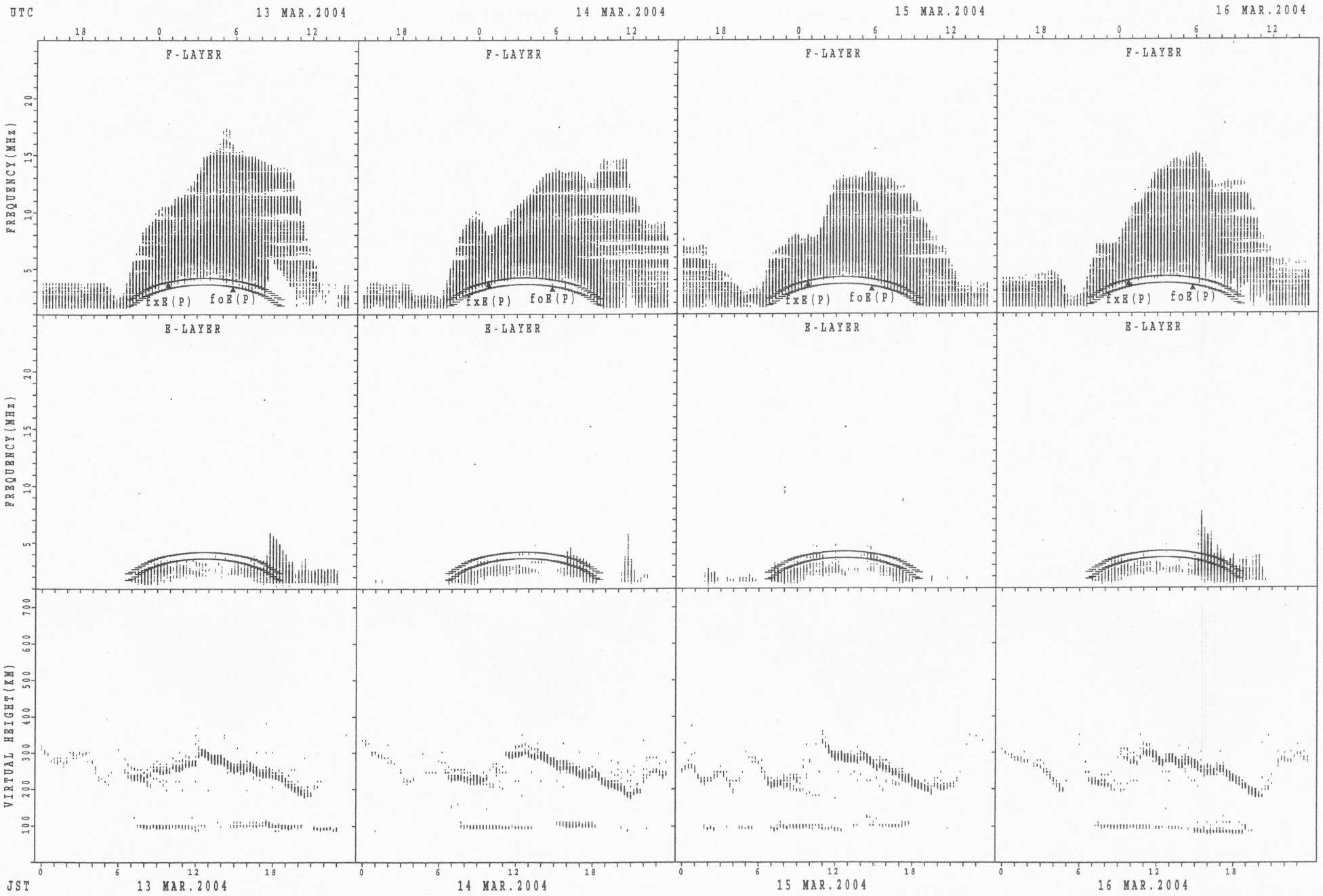
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



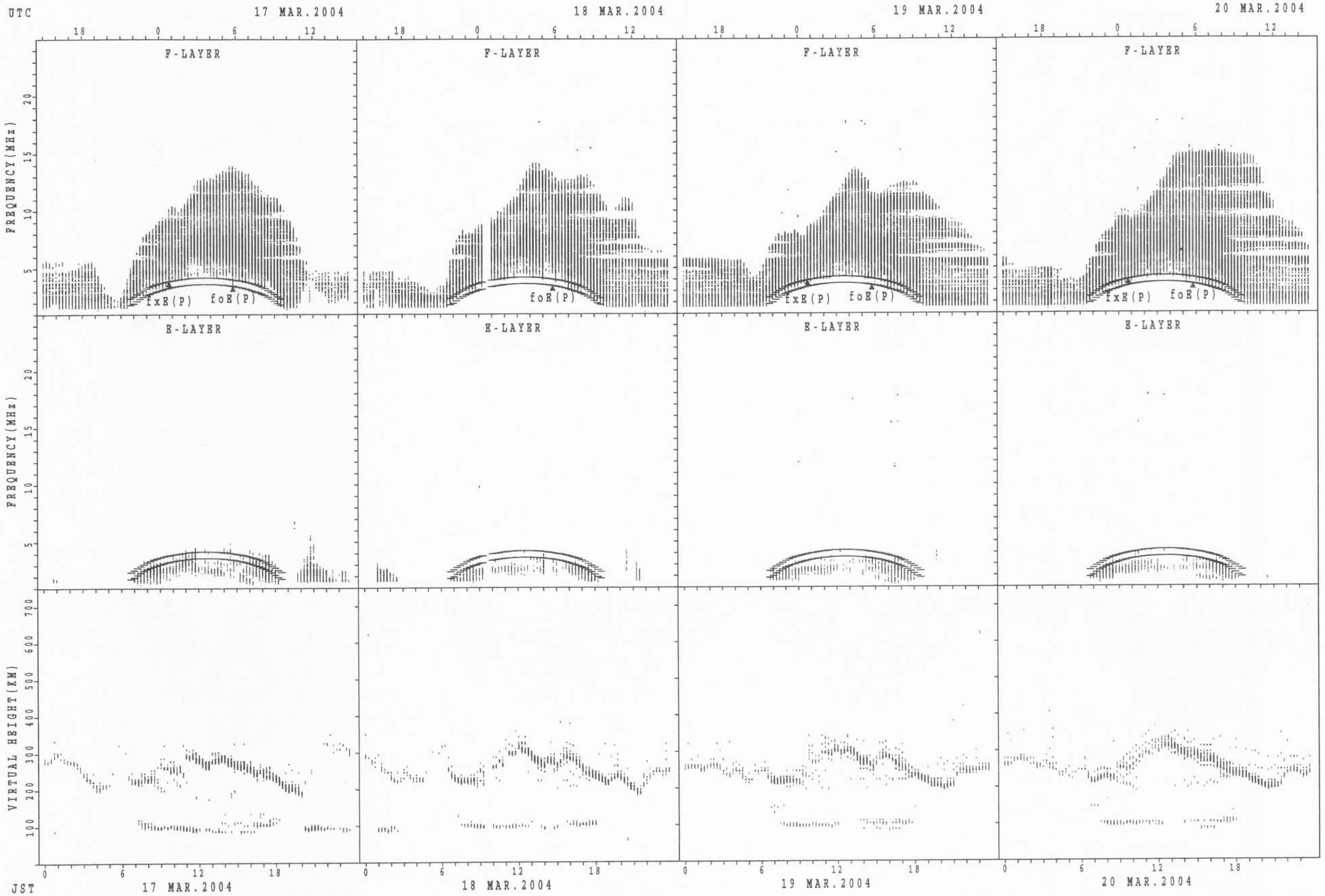
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



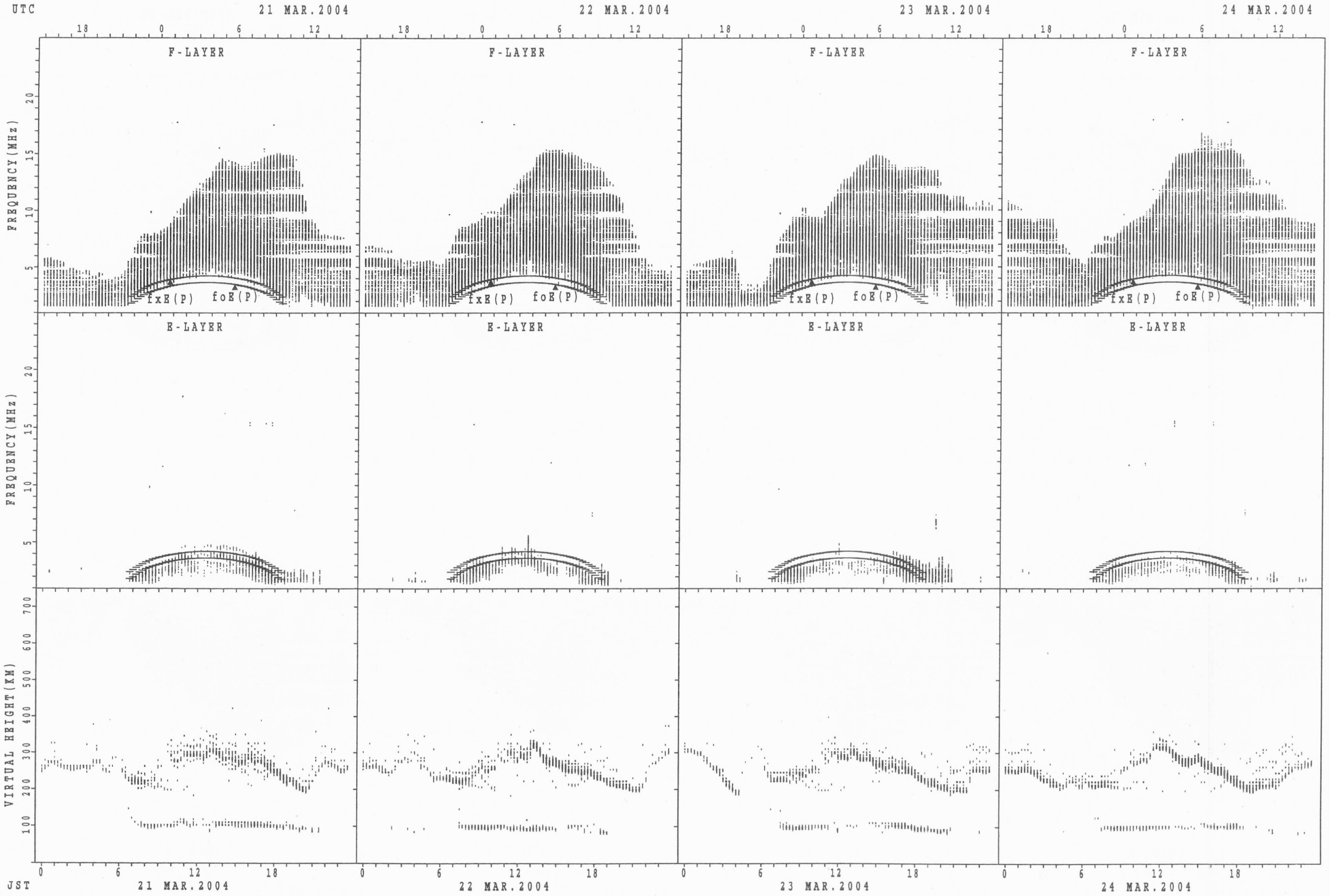
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



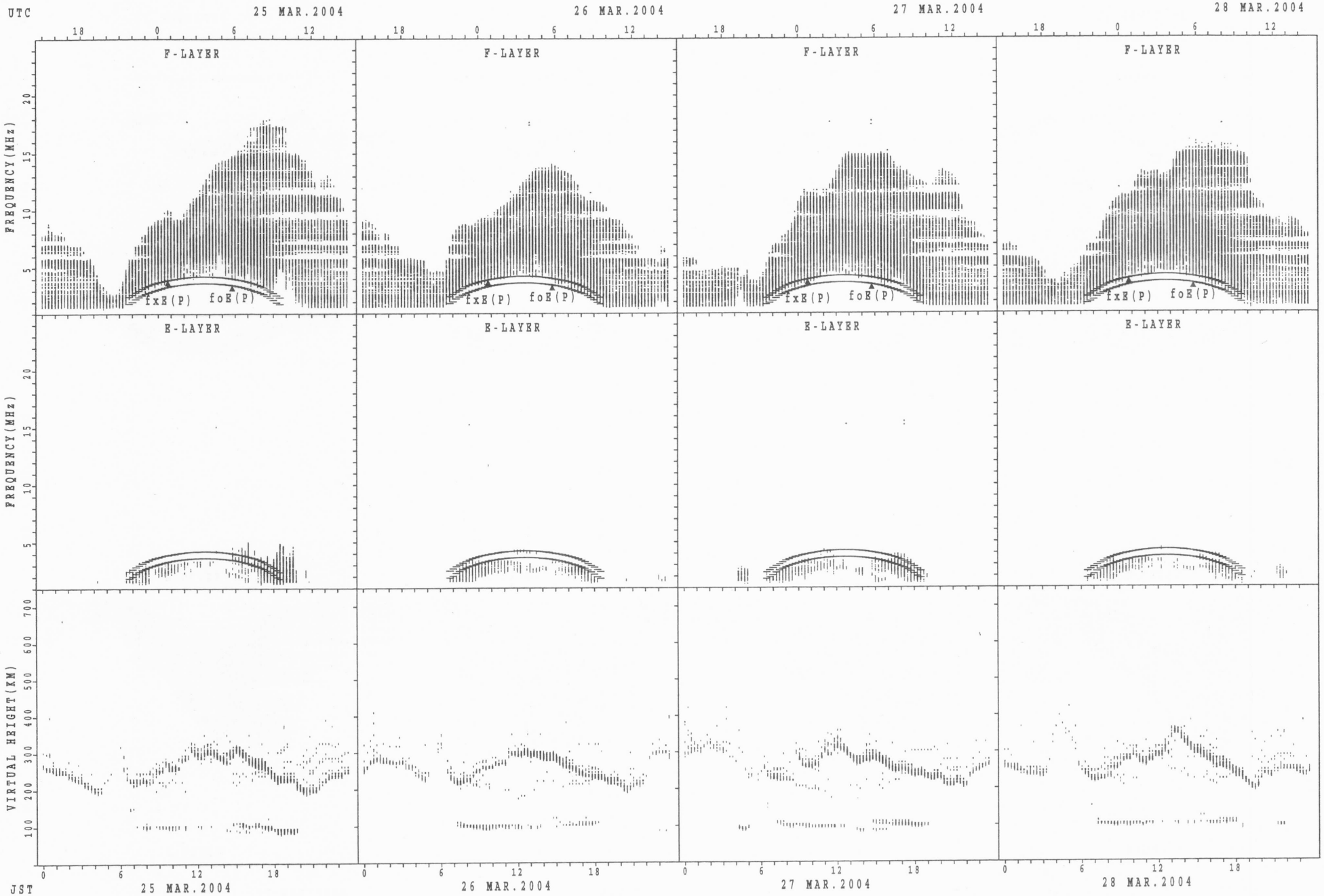
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



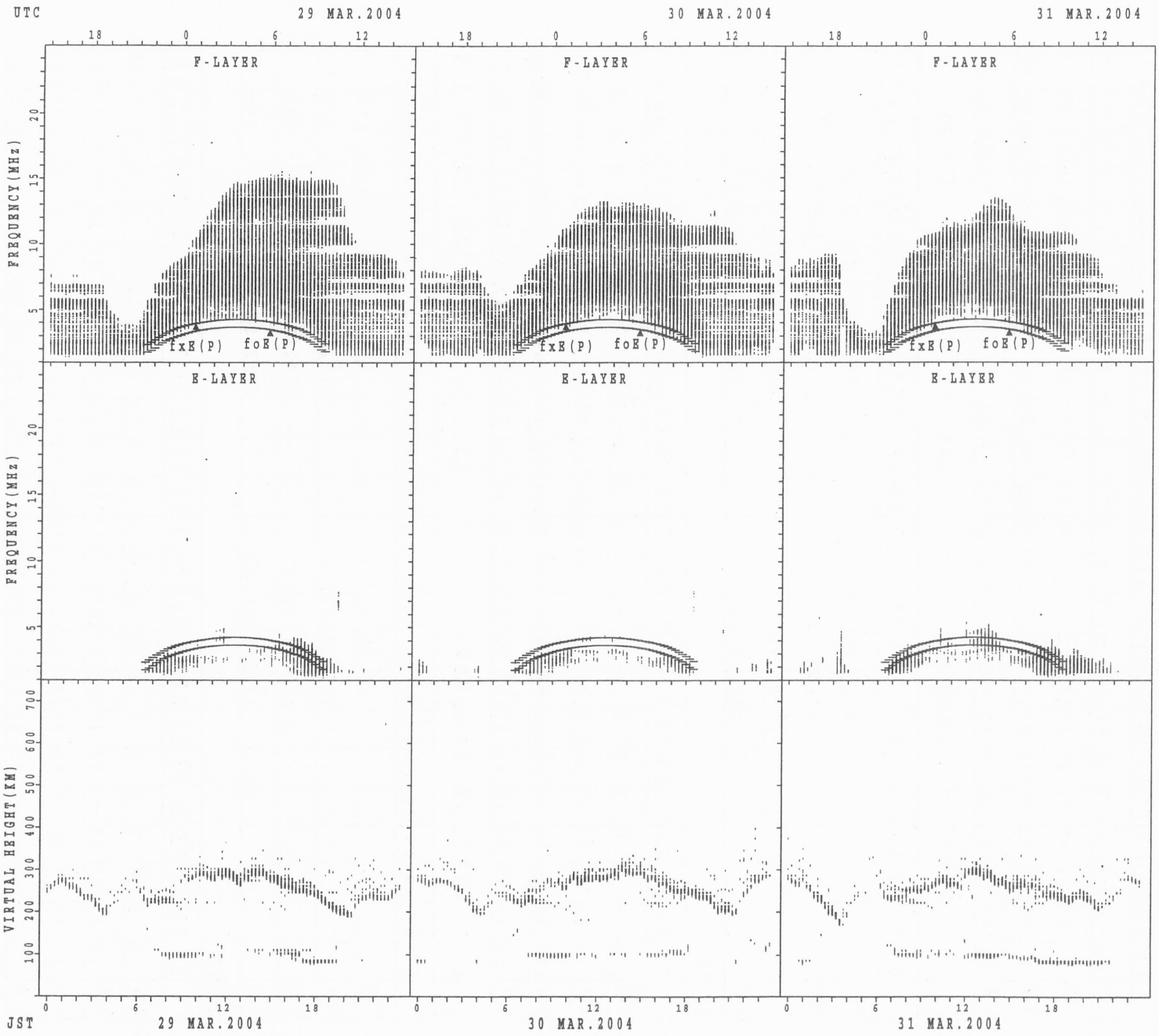
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

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

MAR. 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							4	10	22	11					6	28	26	26	11					
MED							267	256	247	252					246	252	246	246	248					
U Q							275	278	262	272					260	256	258	248	256					
L Q							251	240	238	238					238	244	246	240	246					

h'Es

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	9	5	3	5	3	2	2	4	5	7	9	5	7	5	6	4	6	4	6	5	8	6	7	3
MED	97	99	95	95	97	100	97	132	107	105	105	97	95	95	89	97	93	91	89	97	103	105	97	95
U Q	106	105	103	97	99	105	97	156	128	107	106	174	181	98	93	140	97	103	93	106	107	107	103	99
L Q	97	97	89	89	95	95	97	109	105	103	103	96	93	94	89	90	89	89	87	86	95	91	95	95

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

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT							5	21	28	13						27	27	29	23	7	1			
MED							248	240	243	248						256	246	244	240	260	238			
U Q							257	246	254	256						262	254	254	246	264	119			
L Q							234	231	235	235						246	238	238	230	252	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	4	3	3	2	2	5	3	6	1	4	10	8	4	4	6	2	7	9	7	2	2	1	5	4
MED	97	97	97	95	97	95	101	146	131	106	106	104	104	104	95	111	105	103	91	94	100	99	97	96
U Q	100	99	99	95	99	99	149	165	65	107	113	121	114	150	95	113	109	107	101	99	101	49	98	100
L Q	96	95	93	95	95	95	93	113	65	103	105	100	97	95	93	109	87	89	89	89	99	49	96	95

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								6	26	30	1					1	30	29	26	17	9		1	
MED								247	246	246	254					240	254	248	245	248	250		292	
U Q								256	248	262	127					120	262	253	248	255	270		146	
L Q								232	238	234	127					120	246	239	230	229	238		146	

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	1	2	3	4	1	2	2	6	5	4	4	4	3	3	4	8	11	18	16	9	9	8	2	2
MED	95	95	97	96	95	96	96	110	107	109	106	115	109	113	111	100	103	104	94	99	97	98	97	100
U Q	47	97	97	97	47	97	97	123	124	129	113	152	111	189	112	112	107	107	103	105	99	102	99	103
L Q	47	93	95	95	47	95	95	97	97	104	103	105	109	109	101	93	91	95	88	89	88	93	95	97

MONTHLY MEDIANS OF h'F AND h'Es

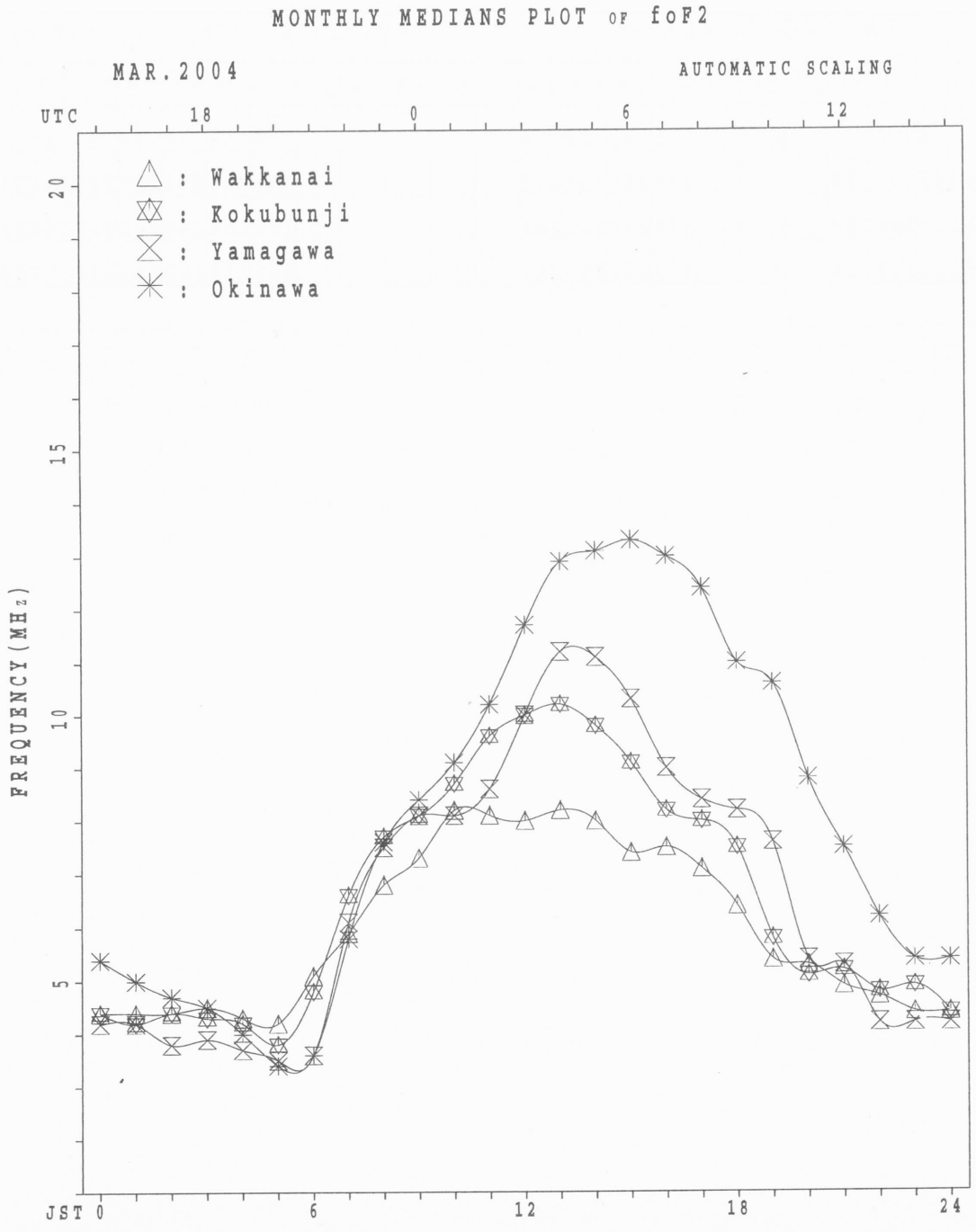
MAR.2004 135E MEAN TIME(UTC+9H) AUTOMATIC SCALING

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	3	6	2	3				6	25	26	4						30	31	30	30	22	15	6	5
MED	304	289	271	254				244	240	254	248						254	244	230	229	229	244	276	294
U Q	322	312	288	282				248	249	264	253						266	254	240	242	238	266	286	302
L Q	288	230	254	214				240	229	246	240						254	234	222	222	214	224	262	276

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	2	3	3	2	2	3	1	5	7	2	3	6	9	8	6	6	9	15	17	15	10	8	8	3
MED	91	89	93	95	92	91	93	137	113	118	111	111	111	103	111	112	105	103	103	97	98	95	93	97
U Q	93	89	93	95	97	97	46	149	151	125	121	113	125	105	111	113	108	105	106	99	105	97	96	103
L Q	89	87	91	95	87	87	46	117	103	111	103	101	97	97	109	111	102	95	92	95	93	91	91	91


MONTHLY MEDIANS PLOT OF foF2
MAR. 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

MAR. 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 42	X 44	X 42	X 40	X 35	X 34	X 43												X 75	X 47	X 44	X 46	X 46	X 45
2	X 42	X 39	X 41	X 40	X 41	X 36	X 42												X 74	X 57	X 56	X 61	X 47	X 48
3	X 44	X 48	X 46	X 51	X 41	X 38	X 45												X 63	X 57	X 52	X 52	X 51	X 50
4	X 51	X 48	X 46	X 40	X 33	X 34													X 64	X 52	X 54	X 51	X 48	X 51
5	X 50	X 46	X 46	X 46	X 42	X 38	X 48												X 65	X 48	X 50	X 47	X 43	X 45
6	X 45	X 43	X 45	X 47	X 47	X 38	X 45												X 80	X 57	X 46	X 41	X 40	X 42
7	X 42	X 43	X 43	X 42	X 42	X 40	X 50												X 84	X 57	X 46	X 46	X 45	X 47
8	X 47	X 46	X 46	X 47	X 42	X 37	X 47												X 79	X 56	X 58	X 50	X 44	X 45
9	X 46	X 47	X 47	X 46	X 44	X 45	X 58												X 80	X 55	X 48	X 50	X 52	X 47
10	X 40	X 40	X 42	X 46	X 44	X 45	X 50												X 66	X 52	X 55	X 53	X 57	X 60
11	X 60	X 61	X 58	X 58	X 49	X 44													X 69	X 51	X 51	X 48	X 46	X 46
12	X 46	X 45	X 45	X 45	X 50	X 46													X 75	X 62	X 52	X 52	X 49	X 49
13	X 50	X 49	X 48	X 46	X 47	X 44													X 74	X 71	X 69	X 60	X 35	X 38
14	X 40	X 39	X 39	X 40	X 39	X 38													X 90	X 67	X 62	X 57	X 54	X 51
15	X 52	X 52	X 50	X 51	X 44	X 42													X 72	X 50	X 42	X 43	X 45	50
16	X 48	X 46	X 45	X 42	X 34	X 33													X 82	X 61	X 54	X 52	X 47	X 47
17	X 46	X 47	X 50	X 48	X 46	X 44													X 82	X 66	X 51	X 52	X 54	X 54
18	X 54	X 55	X 58	X 53	X 47	X 45													X 76	X 71	X 70	X 65	X 58	X 58
19	X 59	X 51	X 52	X 51	X 49	X 48													X 92	X 72	X 64	X 61	X 58	X 58
20	X 56	X 56	X 58	X 56	X 51	X 50													X 84	X 69	X 59	X 60	X 62	X 61
21	X 58	X 58	X 54	X 49	X 46	X 48													X 98	X 87	X 70	X 62	X 64	X 60
22	X 60	X 61	X 56	X 55	X 54	X 56													X 75	X 71	X 67	X 64	X 62	X 61
23	X 60	X 57	X 57	X 59	X 51	X 48													X 86	X 75	X 67	X 60	X 58	X 59
24	X 59	X 57	X 57	X 54	X 52	X 52														X 68	X 55	X 56	X 56	X 57
25	X 57	X 58	X 52	X 53	X 49	X 48													X 97	X 79	X 75	X 68	X 57	X 55
26	X 51	X 50	X 50	X 49	X 50	X 46													X 92	X 80	X 61	X 60	X 60	X 59
27	X 58	X 54	X 55	X 52	X 54	X 54													X 86	X 80	X 69	X 68	X 68	X 65
28	X 66	X 59	X 59	X 54	X 53	X 56													X 99	X 74	X 64	X 66	X 62	X 59
29	X 59	X 60	X 62	X 62	X 49	X 48													X 94	X 83	X 70	X 68	X 64	X 63
30	X 62	X 60	X 60	X 60	X 51	X 55													X 97	X 95	X 83	X 68	X 66	X 66
31	X 65	X 66	X 68	X 69	X 43	X 39													X 86	X 74	X 67	X 66	X 64	X 63
	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	9												30	31	31	31	31	31
MED	X 51	X 50	X 50	X 49	X 47	X 45	X 47												X 81	X 67	X 58	X 57	X 54	X 54
U Q	X 59	X 58	X 57	X 54	X 50	X 48	X 50												X 90	X 74	X 67	X 64	X 62	X 60
L Q	X 46	X 46	X 45	X 46	X 42	X 38	X 44												X 74	X 56	X 51	X 50	X 46	X 47

IONOSPHERIC DATA STATION Kokubunji

MAR. 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	36	38	36	34	29	28	37	60	71	85	81	95	74	96	88	68	68	69	69	41	38	40	40	38
2	36	33	35	34	35	30	36	55	74	90	79	85	96	92	78	76	76	72	68	51	50	55	41	42
3	38	42	40	45	35	31	39	61	68	85	87	100	105	86	76	79	84	60	57	51	46	46	44	44
4	45	42	40	33	27	28	37	66	71	81	74	70	94	101	93	77	67	73	57	46	48	45	42	45
5	44	40	40	40	36	32	42	60	65	73	80	81	85	82	82	79	74	75	59	42	44	41	37	39
6	39	37	39	41	40	32	39	63	66	66	69	84	89	78	85	74	76	94	74	51	40	35	34	36
7	36	37	37	36	36	34	44	60	64	73	68	92	88	82	76	67	70	90	78	51	40	40	39	41
8	41	40	40	41	36	31	41	64	78	72	79	88	96	88	73	76	73	73	72	50	52	44	38	39
9	40	41	41	40	38	39	52	64	73	74	83	81	90	89	89	94	76	76	74	49	42	44	45	41
10	34	34	36	40	38	39	44	60	66	74	80	96	101	88	78	77	74	78	60	45	49	47	51	54
11	54	55	52	52	43	38	41	67	65	76	81	100	96	78	76	80	82	74	63	45	45	42	40	40
12	40	39	39	39	44	40	46	69	74	78	105	84	100	106	111	88	72	71	69	56	46	46	43	43
13	44	43	42	40	40	37	47	66	78	79	96	100	94	101	101	89	83	70	68	65	63	54	29	32
14	34	33	33	33	33	32	43	62	90	88	88	90	93	97	98	90	80	71	84	61	56	51	48	45
15	46	46	44	45	38	36	48	59	77	74	72	87	104	103	97	95	88	86	66	44	36	37	39	F 38
16	42	40	39	36	27	27	43	59	67	70	85	100	99	108	97	78	75	74	76	55	48	46	41	41
17	40	41	44	42	40	38	51	64	76	85	85	95	89	103	98	84	80	81	76	60	45	46	48	48
18	48	49	52	47	41	39	50	71	80	81	87	88	94	103	93	86	89	81	70	65	64	59	52	52
19	53	45	46	45	43	42	63	73	86	82	76	85	99	103	104	93	86	87	86	66	58	55	52	52
20	50	50	52	50	45	44	57	71	81	78	79	100	103	107	113	114	105	93	78	63	53	54	55	55
21	52	52	48	43	40	41	57	72	78	82	86	99	111	117	111	98	93	95	92	81	64	56	58	54
22	54	55	50	49	48	50	65	80	87	93	88	94	116	120	113	98	89	79	69	65	60	57	56	55
23	54	50	51	53	45	42	58	73	84	91	90	100	107	110	107	92	84	82	80	69	61	54	52	53
24	53	51	51	48	46	46	66	71	79	77	81	101	110	114	113	104	91	82		62	49	50	50	51
25	51	52	46	47	43	42	55	69	79	82	87	102	107	110	108	104	104	101	91	73	69	62	51	49
26	45	44	44	43	44	40	57	78	78	89	95	94	108	110	112	104	90	89	86	74	55	54	54	53
27	52	48	49	46	48	48	61	71	71	93	108	117	120	111	111	106	86	80	80	74	63	62	62	59
28	60	53	53	48	47	50	71	80	90	97	115	120	124	114	110	108	116	108	93	68	58	60	56	52
29	53	54	55	56	43	42	65	76	84	92	96	111	113	118	108	99	88	86	88	77	64	62	58	57
30	56	54	54	54	45	49	71	83	87	89	89	103	112	110	100	93	87	87	91	89	77	62	60	60
31	59	60	62	63	36	33	56	74	85	110	118	107	102	102	99	96	88	84	80	68	60	60	58	57
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	30	31	31	31	31	31
MED	45	44	44	43	40	39	50	67	78	82	85	95	100	103	98	90	84	81	75	61	52	51	48	48
U Q	53	52	51	48	44	42	58	73	84	89	90	100	108	110	110	98	89	87	84	68	61	57	55	54
L Q	40	40	39	40	36	32	42	61	71	74	79	87	94	89	85	78	75	73	68	50	45	44	40	41

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

IONOSPHERIC DATA STATION Kokubunji

MAR. 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 472	L 468	L 464	L 484										
2											L	L	L	L	L	L								
3									L	L	L	L 508	L 472	L	L									
4										L	L	L	L 480	L	L									
5										L	L 468	L	L	L 476	L	L								
6										L	L 448	L	L	L	L									
7										L	L	L 460	L 480	L	L	L	L							
8									L	L	L	L	L	L 464	L	L								
9										L	L 508	L	L 480	L	L	L								
10									L	L 440	L 452	L 468	L	L 460	L	L	L							
11										L	L	L 488	L 452	L	L 468	L								
12											L	L	L	L 444	L	L								
13									L	L	L	L	L	L	L	L	L							
14									L	L	L	L	L	L	L	L	L							
15									L	L	L 424	L	L 516	L 432	L	L 444								
16											L	L	L 504	L 500	L	L	L							
17									L	L	L	L	L	L 520	L	L	L							
18									L	L	L 492	L	L 496	L		L								
19										L	L	L	L	L	L	L	L							
20										L	L	L 508	L	L	L	L								
21									L	L	L 500	L 532	L 556	L 520	L	L								
22										L	L	L 516	L 516	L	L	L	L							
23										L	L	L	L	L 500	L	L								
24									L	L	L	L	L 476	L 536	L	L								
25									L	L	L	L 480	L 512	L 524	L 512	L	L							
26										L	L	L	L	L	L	L	A	A						
27										L	L 508	L 520	L	L	L	L	L							
28										L	L 504	L 504	L 540	L	L	L	L							
29									L	L	L	L	L	L 500	L	A								
30									L	L	L	L 512	L 512	L	L									
31									L	L	L	L	L	L	L	L	L							
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT										1	10	12	15	13	2	1								
MED										L 440	L 482	L 506	L 496	L 500	L 490	L 444								
U Q											L 504	L 514	L 516	L 520										
L Q											L 452	L 474	L 476	L 462										

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

IONOSPHERIC DATA STATION Kokubunji

MAR. 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								192	260	R	R	R	R	A	A	R	A	A						
2								208	U R 260	U R 312	R	352	A	A	U A 320	U R 292	256	192						
3								224	272	304	R	U A 336	U R 348	R	U R 324	U R 288	U A 256	196						
4							B	232	272	U R 304	A	R	A	A	A	A	U R 268	188						
5								212	276	A	A	A	A	A	R	U R 300	A	C						
6								212	U R 272	R	U R 332	R	U R 348	U R 336	A	U R 312	A	A						
7								220	R	R	R	R	U R 348	U R 340	U R 328	R	A	B						
8								236	U R 284	U R 316	R	B	R	U R 344	R	U R 312	C	U R 204						
9								228	A	U R 324	U R 344	R	R	R	R	R	U R 268	U R 180						
10								208	A	A	A	A	R	U R 336	R	R	U R 264	188						
11							B	228	R	R	R	R	R	R	U R 336	U R 316	U R 272	U A 196						
12							B	236	U R 272	A	A	A	A	R	A	R	U R 272	A						
13							B	U R 228	U R 288	U R 312	R	U R 336	U R 344	R	U R 328	U R 300	U R 268	204						
14							B	236	R	R	A	A	A	R	R	A	U R 272	212						
15							B	U R 220	R	A	A	A	A	A	U A 320	U R 300	U R 264	U R 216						
16							B	U A 216	A	A	A	A	A	U R 340	A	A	A	U A 204						
17							C	236	R	A	A	A	U R 360	R	U R 340	R	A	A						
18							B	244	288	U R 324	R	R	R	R	U R 336	A	U R 292	A						
19							B	228	R	R	R	U R 356	360	R	R	U R 328	U R 288	U R 224						
20							B	232	296	328	A	R	R	R	R	U R 320	288	U R 208						
21							B	232	284	U R 320	A	A	A	A	U R 340	R	288	220						
22							B	224	U A 296	A	A	A	R	R	U R 332	R	U R 280	U R 228						
23							B	U R 248	U R 300	R	R	R	R	R	U R 348	R	R	U R 224						
24							B	240	U R 316	U A 328	R	A	R	R	U R 340	U R 320	U R 292	U R 232						
25							B	252	U R 292	A	A	R	R	R	B	U R 324	U R 292	216						
26							192	U R 256	U R 308	R	A	A	R	A	A	U R 324	A	A						
27							200	248	R	332	R	R	R	R	U R 340	A	A	A						
28							B	268	A	A	A	R	R	R	A	R	U R 288	U R 228						
29							B	256	U R 312	R	R	R	R	R	U R 352	A	U R 284	U R 236						
30							B	256	304	A	A	B	R	A	R	A	U R 288	220						
31							188	256	R	A	A	A	U A 368	A	A	U R 324	U R 288	A						
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT							3	31	19	11	2	4	7	5	14	14	21	21						
MED							192	232	U R 288	U R 320	U R 338	U 344	U R 348	U R 340	U R 336	U R 314	U R 280	U 212						
U Q							200	248	U R 300	328		354	U 360	U R 342	U R 340	U R 324	U R 288	U R 224						
L Q							188	220	272	U R 312		U 336	U R 348	U R 336	U 328	U R 300	U R 268	196						

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

IONOSPHERIC DATA STATION Kokubunji

MAR. 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 16	E B 17	E B 16	E B 15	E B 15	E B 15	E B 15	23	G 19	G 23	G 26	G 28	27	36	39	G 21	32	J A 38	J A 23	J A 21	21	E B 14	E B 15	E B 16
2	E B 16	E B 15	E B 16	E B 16	E B 15	E B 14	18	24	G 23	34	G 26	41	46	J A 46	38	33	29	22	E B 15	E B 15	E B 15	J A 17	J A 36	20
3	J A 26	E B 15	J A 29	19	J A 20	19	J A 20	G	G 22	35	G 25	38	J A 44	G 28	G 29	34	34		G E B 16	18	19	19	J A 21	J A 42
4	J A 16	J A 31	J A 20	A J A 23	20	J A 20	22	28	32	33	J A 46	G 28	36	36	35	34	G 19	22	E B 16	E B 14	E B 16	E B 16	21	J A 17
5	J A 42	J A 42	A J A 25	J A 33	20	E B 14	E B 15	24	G 23	33	35	J A 42	J A 38	38	G 24	G 27	J A 42	A J A 31	J A 22	A J A 16	A J A 20	E B 16	E B 16	E B 15
6	E B 15	E B 15	E B 16	E B 16	E B 15	E B 15	E B 15	26	G 19	G 19	G 20	G 26	G 24	G 29	36	G 28	34	J A 45	E C 29	J A 18	E B 15	18	E B 15	E B 15
7	E B 15	E B E 15	E B 15	E B 15	E B 15	E B 15	E B 15	25	G 24	G 29	G 29	G 31	G 27	G 26	G 30	G 26	J A 32	30	J A 18	E B 16	E B 15	E B 16	E B 16	E B 15
8	E B 15	17	E B 15	E B 15	E B 15	E B 14	E B 15	G	G 20	G 26	G E B 28	37	G	G	G 29	G 20	E C 36	G	E B E 14	B E 15	B E 15	E B 14	E B 14	E B 15
9	E B 15	E B 15	E B 15	B J A 16	E B 16	J A 18	E B 14	G 19	29	G 26	G 28	G 28	G 28	G 28	G 26	G 26	G 20	G	E B 15	E B 16	B E 15	E B 16	E B 28	C J A 29
10	J A 18	J A 20	A J A 20	E B 15	E B 14	18	E B 16	30	30	34	J A 37	J A 40	G 31	G 30	G 26	G 20	G	23	E B 15	E B 14	B E 14	E B 16	E B 14	E B 15
11	E B 15	E B E 15	E B 15	E B 14	E B 15	E B 16	J A 18	G	G 24	G 27	G 28	G 26	G 26	G 27	G J G 30	G 22	G 20	22	22	J A 17	E B 16	E B 14	E B 15	E B 15
12	E B 16	E B E 15	E B 15	E B 15	E B 15	E B 15	G	26	31	34	38	J A 45	J A 44	G J A 29	38	G 26	G	J A 27	A J A 20	E B 20	E B 15	E B 15	E B 15	18
13	E B 16	E B E 15	E B 15	E B 15	E B 16	E B 14	19	G 18	G 25	G 27	G 26	G 28	G 27	G 23	G J G 28	G 28	30	25	E B 15	E B 14	E B 16	E B 15	E B 14	E B 16
14	E B 16	J A E 17	E B 15	E B 15	E B 15	E B 14	E B 16	G 20	G 20	G 27	J A 40	A J A 42	J A 43	G 31	G 30	35	G 24	G 19	G E 14	B E 14	E B 14	E B 14	E B 13	E B 16
15	20	20	E B 17	E B 16	B J A 34	A J A 20	J A 19	G 19	G 20	35	38	J A 43	40	38	35	G 20	G 21	G	18	E B 15	E B 16	E B 15	19	E B 15
16	E B 16	E B E 16	E B 14	E B 14	E B 15	E B 15	B J A 17	25	32	J A 40	J A 46	A J A 40	41	J A 42	J A 57	J A 37	J A 33	25	J A 18	J A 16	E B 14	E B 15	E B 15	E B 15
17	E B 16	E B E 15	E B 14	E B 15	E B 16	E B 16	C 28	28	G 24	33	37	40	G 30	G 28	G	G 20	J A 33	26	J A E 20	B E 16	E B 15	19	J A 52	J A 30
18	J A 22	E B E 15	E B 16	E B 15	E B 15	E B 15	20	G 20	32	G 27	G 28	G 33	G 23	G 32	40	J A 52	G 27	J A 38	E B E 20	B E 16	B J A 17	J A 29	E B 15	E B 16
19	E B 15	E B E 16	E B 15	E B 16	E B 15	E B 16	19	27	G 25	G 26	G 27	42	42	G	G 26	G 26	G 26	G 19	G E B 15	20	19	E B 15	E B 16	E B 15
20	E B 16	E B E 16	B J A 18	A J A 19	E B 14	E B 16	20	29	32	36	36	G 28	G 23	G	G	G	G	G	E B E 16	B E 15	B E 16	E B 16	E B 16	E B 16
21	E B 16	E B E 15	E B 15	E B 15	E B 15	E B 16	19	26	32	35	38	38	38	36	G 31	G 23	G 20	24	E B 16	J A 20	J A 19	20	E B 16	E B 16
22	E B 16	E B E 16	E B 16	E B 14	E B 16	E B 16	19	28	33	40	J A 44	A J A 45	G 34	G 28	G 30	G 26	G 21	G	J A E 17	B 16	19	J A 18	E B 14	E B 16
23	E B 15	E B E 15	E B 16	E B 15	E B 15	B J A 18	19	G 22	G 26	G 26	G 30	G 27	G 24	G 24	G 31	G 19	G 22	G 21	G E B 16	E B 15	B E 16	E B 15	E B 14	E B 15
24	E B 16	E B E 16	E B 15	E B 15	E B 19	E B 15	22	27	G 26	G 36	G 30	38	G 30	G 27	G 39	G 22	G 23	G 22	J A 17	18	J A E 17	B 15	18	
25	E B 16	E B E 16	E B 15	E B 16	E B 15	E B 15	20	G	G J A 26	38	36	G 30	G 29	G E B 40	G	G	G	25	E B 15	E B 14	E B 15	E B 15	J A 18	19
26	E B 16	J A E 16	A J A 16	E B 15	J A 26	A J A 20	G	G	G 23	G 26	40	40	G 33	J A 43	42	G 28	J A 51	A J A 47	A J A 45	A J A 26	A J A 18	A J A 17	A J A 16	E B 15
27	E B 15	E B E 15	E B 16	E B 16	E B 15	E B 15	22	28	G 24	36	G 31	G 30	G 27	G 30	G 30	34	30	24	E B 16	E B 15	B E 16	20	E B 16	E B 15
28	E B 16	E B E 15	E B 15	18	E B 15	E B 16	21	J A 30	33	37	J A 44	G 30	G 34	G 32	G J A 39	G 25	G 25	G 21	G E B 16	E B 14	B E 15	J A 31	J A 37	E B 15
29	E B 15	E B E 15	E B 15	18	E B 15	E B 16	22	29	G 27	G 29	G 31	G 28	G 33	G 28	G J A 26	J A 51	G 24	G J 21	A J A 26	A E 19	B E 16	B E 15	E B 15	E B 16
30	E B 16	E B E 16	E B 16	E B 15	E B 15	E B 16	23	29	32	37	40	E B 41	G 33	G 38	G 23	G 35	G 26	G 28	J A 19	J A 18	J A 17	J A 19	J A 23	J A 32
31	J A 22	21	J A 17	A J A 16	A E 16	B J A 20	22	29	G 28	39	J A 41	A J A 42	42	J A 45	A J A 49	G 29	G J 25	A 38	A J A 40	A J A 28	A E B 16	18	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	31	31	31	31	31	31	31	31	31	31	31	31	30	31	31	31	31	31
MED	E B 16	E B 16	E B 16	E B 15	E B 15	E B 16	19	25	G 26	33	35	38	G 33	G 32	31	G 27	G	23	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16
U Q	J A 16	17	J A 16	A J A 16	16	J A 18	21	28	32	36	J A 40	A J A 41	40	36	39	34	J A 32	A J 28	A J A 20	A J A 18	18	18	J A 19	18
L Q	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	E B 16	G	G 23	G 27	G 28	G 28	G 27	G 28	G 29	G 22	G 23	G	E B 15	E B 15	B E 15	E B 15	E B 15	E B 15

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

IONOSPHERIC DATA STATION Kokubunji

MAR. 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

H / D	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E B 16	E B 17	E B 16	E B 15	E B 15	E B 15	E B 15	22	G 19	G 21	G 26	G 28	G 25	34	37	G 19	31	33	20	18	E B 15	E B 14	E B 15	E B 16
2	E B 16	E B 15	E B 16	E B 16	E B 15	E B 14	E B 15	23	G 22	34	G 24	38	44	42	35	32	28	22	E B 15	E B 15	E B 15	E B 16	20	E B 15
3	20	E B 15	19	E B 15	16	E B 15	16	G	G 22	34	U Y 25	36	36	G 28	G 26	32	33	G	E B 16	16	E B E B 15	16	17	29
4	E B 15	16	E B 15	16	16	E B E B 15	15	26	30	32	35	G 28	35	34	34	32	G 18	19	E B 16	E B 14	E B E B 16	16	E B E B 16	E B 15
5	36	29	17	21	E B E B 15	E B 14	E B 15	22	G 22	32	34	36	37	36	G 24	G 26	35	E C 28	18	E B 15	20	E B 16	E B 16	E B 15
6	E B 15	E B 15	E B 16	E B 16	E B 15	E B 15	E B 15	26	G 19	G 19	G 20	G 25	U Y 24	G 28	35	G 28	32	25	E C 29	E B 16	E B 15	E B 15	E B 15	E B 15
7	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	24	G 24	G 27	G 29	G 30	G 25	G 26	G 30	G 24	28	28	E B 15	E B 16	E B 15	E B 16	E B 16	E B 15
8	E B 15	E B 16	E B 15	E B 15	E B 15	E B 14	E B 15	G	G 19	G 25	G E B 28 37		G	G	G 29	G 19	E C 36	G	E B 14	E B 15	E B 15	E B 14	E B 14	E B 15
9	E B 15	E B 15	E B 15	E B 15	E B 16	16	E B 14	G 19	29	G 24	G 28	U Y 28	G 28	G 26	G 26	G 25	G 20	G	E B 15	E B 16	E B 15	E B 16	E C 28	18
10	E B 15	18	E B 15	E B 15	E B 14	E B 16	E B 16	28	30	33	33	36	G 28	G 27	G 25	G 20	G	22	E B 15	E B 14	E B 14	E B 16	E B 14	E B 15
11	E B 15	E B 15	E B 15	E B 14	E B 15	E B 16	E B 16	G	G U Y 24	U Y 27	U Y 28	U Y 26	G 26	G 27	G 23	G 21	G 19	21	19	E B 15	E B 16	E B 14	E B 15	E B 15
12	E B 16	E B 15	E B 15	E B 15	E B 15	E B 15	G	25	29	32	38	40	41	G 29	35	G 26	G	22	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15
13	E B 16	E B 15	E B 15	E B 15	E B 16	E B 14	16	G 18	G 23	G 26	G 25	G 28	U Y 27	G 23	G 26	G 27	29	23	E B 15	E B 14	E B 16	E B 15	E B 14	E B 16
14	E B 16	16	E B 15	E B 15	E B 15	E B 14	E B 16	G 20	G U Y 20 27		36	38	38	G 30	G 29	33	G 23	G 18	E B 14	E B 14	E B 14	E B 13	E B 16	E B 16
15	E B 15	E B 15	E B 17	E B 16	E B 15	17	17	G 18	G 20	34	36	40	39	35	34	G 19	G 20	G	16	E B 15	E B 16	E B 15	E B 16	E B 15
16	E B 16	E B 16	E B 14	E B 14	E B 15	E B 15	E B 16	24	30	39	41	38	38	G 31	36	33	29	22	E B 15	E B 15	E B 14	E B 15	E B 15	E B 15
17	E B 16	E B 15	E B 14	E B 15	E B 16	E B 15	E C 28	26	G 24	32	35	38	G U Y 30	28	G	G 20	30	24	E B 16	E B 16	E B 15	E B 15	E B 34	19
18	E B 15	E B 15	E B 16	E B 15	E B 15	E B 15	20	G 20	30	G 27	G 28	U Y 33	U Y 23	G 32	39	37	G 27	30	E B 20	E B 16	E B 15	E B 16	E B 15	E B 16
19	E B 15	E B 16	E B 15	E B 16	E B 15	E B 16	18	26	G 25	G 26	G 27	39	40	G	G 26	G 26	G 26	G 19	E B 15	E B 15	15	E B 15	E B 16	E B 15
20	E B 16	E B 16	16	E B 16	E B 14	E B 16	20	28	31	34	36	G 28	U Y 23	G	G	G	G	G	E B 16	E B 15	E B 16	E B 16	E B 16	E B 16
21	E B 16	E B 15	E B 15	E B 15	E B 15	E B 16	19	26	30	34	35	U Y 38	37	U Y 36	G 28	G 23	G 20	23	E B 16	E B 16	E B 16	E B 15	E B 16	E B 16
22	E B 16	E B 16	E B 16	E B 14	E B 16	E B 16	19	27	32	38	40	38	G 32	G 27	G 30	G 25	G 21	G	E B 16	E B 16	16	16	E B 14	E B 16
23	E B 15	E B 15	E B 16	E B 15	E B 15	E B 15	18	G 22	G 26	G 26	G 30	G 27	U Y 24	U Y 24	G 31	G 19	G 22	G 20	E B 16	E B 15	E B 16	E B 14	E B 15	E B 16
24	E B 16	E B 16	E B 15	E B 15	16	E B 15	21	27	G 23	35	U Y 30	36	G U Y 30	27	38	G 22	G 23	G 18		E B 15	E B 15	E B 15	E B 15	E B 15
25	E B 16	E B 16	E B 15	E B 16	E B 15	E B 15	20	G	G 26	35	35	G 30	U Y 29	G	E B 40	G	G	24	E B 15	E B 14	E B 15	E B 15	E B 15	E B 15
26	E B 16	E B 15	E B 16	E B 15	21	17	G	G	G 23	G 26	38	38	G 33	40	39	G 26	43	32	27	22	E B 15	E B 15	E B 16	E B 15
27	E B 15	E B 15	E B 16	E B 16	E B 15	E B 15	22	27	G 23	36	U Y 31	U Y 30	G 27	G 30	G 27	34	30	23	E B 16	E B 15	E B 16	E B 16	E B 16	E B 15
28	E B 16	E B 15	E B 15	E B 16	E B 15	E B 16	20	28	32	36	38	G 30	G 34	G 32	G 36	G 23	G 25	G 19	E B 16	E B 14	E B 15	20	27	E B 15
29	E B 15	E B 15	E B 15	E B 14	E B 15	E B 16	21	29	G U Y 27 29		U Y 31	G 28	G 32	G 26	G 25	G 48	G 21	G 20	22	E B 15	E B 16	E B 15	E B 15	E B 16
30	E B 16	E B 16	E B 16	E B 15	E B 15	E B 16	22	28	32	36	38	E B 41	U Y 33	U Y 38	U Y 23	35	G 25	27	19	17	E B 15	E B 16	17	24
31	17	16	E B 16	E B 15	E B 16	16	21	28	G 27	38	38	38	41	41	38	G 27	G 22	32	28	26	E B 16	E B 16	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	31	31	31	31	31	31	31	31	31	31	31	31	30	31	31	31	31	31
MED	E B 16	E B 15	E B 15	E B 15	E B 15	E B 15	16	24	G 25	32	33	34	32	G 31	G 30	G 26	G	22	E B 16	E B 15	E B 15	E B 15	E B 16	E B 15
U Q	E B 16	16	E B 16	E B 16	16	16	20	27	30	35	36	38	37	34	36	32	30	25	19	16	E B 16	E B 16	16	16
L Q	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	G	G 22	G 26	G 28	G 28	27	G 27	G 26	G 22	G 22	G	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15

IONOSPHERIC DATA STATION Kokubunji

MAR. 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	16	17	16	15	15	15	15	14	14	15	16	18	22	20	26	15	16	16	14	15	15	14	15	16
2	16	15	16	16	15	14	15	14	16	14	14	14	14	18	17	19	15	15	15	15	15	16	14	15
3	15	15	14	15	13	15	14	13	14	14	17	18	18	19	14	14	15	15	16	16	15	16	14	14
4	15	14	15	14	14	15	15	15	15	14	16	15	18	20	18	14	14	15	16	14	16	16	16	15
5	15	14	14	16	15	14	15	14	15	17	18	20	20	18	16	18	15	E C 28	15	15	14	16	16	15
6	15	15	16	16	15	15	15	15	14	14	14	18	14	18	18	16	15	19	E C 29	16	15	15	15	15
7	15	15	15	15	15	15	15	14	14	19	18	20	20	20	21	16	12	13	14	16	15	16	16	15
8	15	16	15	15	15	14	15	15	16	17	20	37	22	23	20	15	E C 36	15	14	15	15	14	14	15
9	15	15	15	15	16	14	14	15	16	14	14	18	18	18	18	15	14	13	15	16	15	16	E C 28	15
10	15	14	15	15	14	16	16	14	16	18	18	18	20	17	20	16	14	14	15	14	14	16	14	15
11	15	15	15	14	15	16	16	14	15	20	23	20	18	18	14	14	14	15	16	15	16	14	15	15
12	16	15	15	15	15	15	16	16	15	14	19	16	18	17	17	15	15	13	16	15	15	15	15	15
13	16	15	15	15	16	14	15	14	14	15	18	20	22	18	16	18	14	15	15	14	16	15	14	16
14	16	15	15	15	15	14	16	14	15	20	18	16	18	20	20	16	14	14	14	14	14	13	16	16
15	15	15	17	16	15	16	15	13	16	16	21	18	22	19	18	15	14	14	13	15	16	15	16	15
16	16	16	14	14	15	15	16	16	14	18	17	17	18	18	14	15	14	16	15	15	14	15	15	15
17	16	15	14	15	16	15	E C 28	15	14	18	18	18	20	18	24	16	13	14	16	16	15	15	14	15
18	15	15	16	15	15	15	14	13	14	15	18	19	19	20	23	16	19	20	20	16	15	16	15	16
19	15	16	15	16	15	16	14	15	15	16	20	18	19	28	18	17	16	14	15	15	15	15	16	15
20	16	16	15	16	14	16	16	16	16	16	20	20	20	30	23	23	17	16	16	15	16	16	16	16
21	16	15	15	15	15	16	14	15	14	15	16	22	17	21	22	15	15	15	16	16	16	15	16	16
22	16	16	16	14	16	16	14	16	13	16	22	20	23	21	17	15	15	14	16	16	15	15	14	16
23	15	15	16	15	15	15	15	14	14	16	18	24	18	17	22	13	14	16	16	15	16	14	15	16
24	16	16	15	15	13	15	16	15	16	18	23	18	22	22	20	16	13	15		15	15	15	15	15
25	16	16	15	16	15	15	14	16	15	18	22	23	25	25	40	21	17	14	15	14	15	15	15	15
26	16	15	16	15	14	14	14	15	15	19	18	18	21	25	18	17	14	14	14	16	15	15	16	15
27	15	15	16	16	15	15	16	16	14	17	21	24	19	25	23	15	14	14	16	15	16	16	16	15
28	16	15	15	16	15	16	16	15	15	21	21	21	24	20	18	14	16	16	16	14	15	15	16	15
29	15	15	15	14	15	16	15	14	15	16	22	18	20	18	17	20	17	16	15	15	16	15	15	16
30	16	16	16	15	15	16	16	15	14	17	24	41	28	26	20	17	16	15	15	15	15	16	14	15
31	15	16	16	15	16	14	15	14	16	20	26	26	20	17	22	19	14	14	14	14	16	16	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	31	31	31	31	31	31	31	31	31	31	31	31	30	31	31	31	31	31
MED	15	15	15	15	15	15	15	15	15	16	18	18	20	20	18	16	14	15	15	15	15	15	15	15
U Q	16	16	16	16	15	16	16	15	16	18	21	21	22	22	22	17	16	16	16	16	16	16	16	16
L Q	15	15	15	15	15	14	14	14	14	15	17	18	18	18	17	15	14	14	15	15	15	15	14	15

IONOSPHERIC DATA STATION Kokubunji

MAR. 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	297	310	316	308	311	303	331	381	363	358	331	368	334	342	360	345	351	345	348	329	306	308	306	313
2	321	291	306	282	318	307	313	345	344	356	330	322	335	333	347	350	345	341	331	316	296	332	292	297
3	328	288	292	330	350	316	337	365	333	347	340	322	345	347	335	352	374	356	333	326	302	298	300	299
4	311	328	346	334	326	302	329	372	352	353	358	325	338	340	347	353	362	356	354	321	305	306	307	303
5	315	316	318	323	361	302	347	376	363	337	355	318	337	332	345	342	352	353	360	332	304	335	294	302
6	312	303	304	324	354	330	348	387	380	343	340	326	339	325	339	330	323	355	373	342	337	313	294	303
7	310	314	305	322	321	310	365	375	358	351	324	337	329	314	341	335	336	353	362	353	313	296	298	294
8	316	304	310	327	356	327	354	373	374	351	345	330	322	340	322	338	335	340	358	335	324	342	305	307
9	308	311	309	304	291	304	355	371	350	360	325	338	318	325	311	350	343	348	355	350	305	306	319	343
10	318	289	286	282	267	275	338	328	328	313	291	303	306	338	324	337	323	336	365	303	288	315	282	286
11	280	289	278	290	280	278	328	337	348	333	313	332	350	340	360	338	352	347	348	309	300	324	298	297
12	290	285	281	283	297	325	337	352	356	272	343	313	314	318	335	341	358	335	338	339	300	318	293	279
13	277	295	282	279	299	347	353	359	359	332	340	324	317	320	326	336	357	346	329	315	335	356	296	295
14	275	276	283	302	315	344	348	356	346	344	341	340	325	317	330	333	340	336	341	330	314	308	293	286
15	287	308	294	322	314	318	347	347	363	349	353	317	327	327	339	331	331	351	359	344	306	286	285	F 270
16	284	285	300	315	303	289	338	342	338	322	301	317	315	328	333	346	344	341	356	362	306	319	302	307
17	281	290	292	312	307	312	349	357	340	341	327	317	309	318	334	332	339	343	351	336	291	300	291	285
18	285	297	307	320	318	291	339	357	351	343	328	321	311	325	316	321	329	345	330	300	305	316	298	292
19	313	295	296	302	292	295	351	348	351	357	324	304	313	305	325	328	323	326	329	337	307	299	285	286
20	283	285	294	310	289	295	343	361	342	331	312	319	312	297	301	314	316	324	334	315	294	292	290	298
21	298	305	307	298	286	290	347	348	356	332	316	299	298	308	309	306	314	323	330	328	318	283	295	282
22	288	298	287	287	285	290	341	353	342	339	339	292	309	313	317	319	330	333	326	316	310	299	300	296
23	295	292	295	317	304	294	351	347	339	339	318	308	309	313	318	324	329	334	336	329	315	300	290	290
24	296	295	296	292	295	302	355	362	360	325	313	305	309	313	320	322	326	337		330	294	285	290	294
25	293	310	311	313	302	314	350	351	337	333	316	317	308	315	316	312	318	327	336	323	321	323	295	287
26	293	278	275	299	301	287	336	344	331	332	328	307	305	310	312	320	319	330	329	330	308	283	288	283
27	288	271	279	275	283	312	345	341	310	302	312	313	317	312	309	322	329	332	329	324	301	298	291	286
28	304	291	305	284	265	275	347	335	315	311	312	310	307	308	301	289	320	327	331	323	301	289	289	286
29	277	270	296	340	289	297	346	337	321	318	301	308	309	318	318	325	314	320	332	321	313	299	291	283
30	289	279	286	298	279	287	350	348	347	327	307	304	310	319	311	322	319	318	330	328	338	291	274	281
31	274	284	319	324	377	293	331	340	312	328	335	316	312	311	315	327	334	331	333	323	309	302	292	290
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	30	31	31	31	31	31
MED	293	292	296	308	302	302	347	352	347	337	327	317	314	318	324	331	331	337	336	328	306	302	293	292
U Q	311	305	307	322	318	314	350	365	358	349	340	325	329	332	339	341	345	347	355	336	314	318	298	299
L Q	284	285	286	290	289	290	337	344	337	327	313	308	309	313	315	322	323	330	330	321	301	296	290	286

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

IONOSPHERIC DATA STATION Kokubunji

MAR.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 378	L 380	L 410	L 371										
2											L	L	L	L	L	L								
3									L	L	L	L 373	L 380	L	L									
4										L	L	L	L 374	L	L									
5										L	L 386	L	L	L 394	L	L								
6										L	L 396	L	L	L	L									
7										L	L	L 405	L 387	L	L	L	L							
8									L	L	L	L	L	L 397	L	L								
9										L	L 375	L	L 395	L	L	L								
10									L	L 377	L 392	L 392	L	L 381	L	L	L							
11										L	L	L 375	L 391	L	L 382	L								
12											L	L	L	L 408	L	L								
13									L	L	L	L	L	L	L	L	L							
14									L	L	L	L	L	L	L	L	L							
15									L	L	L 436	L	L 368	L 431	L	L 368								
16											L	L	L 365	L 369	L	L	L							
17									L	L	L	L	L	L 351	L	L	L							
18									L	L	L 378	L	L 394	L		L								
19										L	L	L	L	L	L	L	L							
20										L	L	L 369	L	L	L	L								
21									L	L	L 370	L 358	L 345	L 360	L	L								
22										L	L	L 373	L 365	L	L	L	L							
23										L	L	L	L	L 363	L	L								
24									L	L	L	L	L 416	L 371	L	L								
25									L	L	L	L 411	L 386	L 364	L 363	L	L							
26										L	L	L	L	L	L	L	A	A						
27										L	L 361	L 355	L	L	L	L	L							
28										L	L 367	L 370	L 347	L	L	L	L							
29									L	L	L	L	L	L 372	L	A								
30									L	L	L	L 382	L 376	L	L									
31									L	L	L	L	L	L	L	L	L							
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT										1	10	12	15	13	2	1								
MED										L 377	L 378	L 374	L 380	L 371	L 372	L 368								
U Q											L 392	L 387	L 394	L 396										
L Q											L 370	L 370	L 365	L 364										

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

IONOSPHERIC DATA STATION Kokubunji

MAR. 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										236	250	230	250	268										
2											236	276	262	252	238	246								
3									250	262	248	280	236	270	254									
4										236	242	268	260	248	248									
5										248	242	266	234	268	250	252								
6										242	250	274	252	258	268									
7										252	264	270	260	258	250	258	264							
8									228	242	246	264	262	248	282	258								
9										234	282	258	274	256	288	240								
10									276	278	290	278	256	254	272	256	262							
11										248	292	256	238	262	248	266								
12											240	268	280	264	250	238								
13									238	256	242	256	258	262	262	250	232							
14									254	238	234	248	270	262	258	254	246							
15									226	240	240	280	264	258	256	256								
16											272	268	272	260	248	246	254							
17									254	250	244	284	268	278	240	258	254							
18									236	246	264	260	276	264		270								
19										236	258	300	290	288	258	262	260							
20										252	262	272	266	282	282	266								
21									242	262	266	288	292	270	256	266								
22										248	244	272	284	268	250	264	256							
23										248	256	264	276	270	258	250								
24									226	240	264	288	282	274	260	246								
25									254	254	256	274	276	264	272	262	266							
26										266	266	276	286	272	268	258	244	244						
27										286	264	280	258	264	274	258	240							
28										284	274	252	266	268	276	300	264							
29									268	274	244	282	268	266	264	258								
30									244	264	246	268	270	264	292									
31									264	264	244	260	264	284	264	258	246							
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT									14	28	31	31	31	31	29	26	13	1						
MED									247	249	250	270	266	264	258	258	254	244						
U Q									254	263	264	280	276	270	272	262	263							
L Q									236	241	244	260	258	258	250	250	245							

IONOSPHERIC DATA STATION Kokubunji

MAR. 2004 h'F (KM) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E B 284	E B 248	E B 244	E B 238	E B 248	E B 312	236	210	H 202	H 186	H 176	206	H 190	H 198	H 200	198	206	228	216	216	E B 248	E B 270	E B 246	E B 252
2	E B 246	E B 290	E B 286	E B 304	E B 254	230	E B 254	224	218	216	H 186	210	E B 244	E A 238	208	210	214	218	210	208	E B 258	230	E A 252	E B 278
3	E A 302	E B 288	E A 288	234	206	230	228	218	H 188	220	206	H 188	H 184	H 190	198	230	224	204	216	224	E B 252	E B 244	E A 280	E A 320
4	232	228	220	216	216	E B 284	240	216	212	210	210	204	198	H 196	208	222	210	216	206	212	E B 256	E B 240	E B 274	E B 250
5	E A 282	E A 280	E A 258	E A 252	210	E B 264	220	208	H 194	H 190	H 174	202	204	194	214	208	216	216	206	204	E A 258	222	E B 262	E B 272
6	E B 238	E B 268	E B 272	E B 244	218	218	198	208	210	198	186	H 182	204	206	204	218	214	226	202	204	214	234	E B 282	E B 286
7	E B 262	E B 264	E B 252	E B 240	E B 240	E B 266	214	208	204	198	208	H 194	H 176	208	204	214	216	230	202	198	E B 216	E B 252	E B 288	E B 278
8	E B 246	E B 252	E B 248	238	208	E B 264	230	212	208	198	200	198	208	188	204	218	E C 242	230	208	204	238	206	228	E B 266
9	E B 268	E B 248	E B 250	E B 252	E B 278	E B A 276	216	206	214	204	196	194	H 188	198	206	200	210	H 200	208	196	E B 260	E B 256	E C 252	E A 238
10	218	E A 298	E A 298	E B 304	E B 328	E B 324	230	E A 240	214	206	H 182	H 180	216	198	210	224	218	222	204	E B 254	E B 266	224	E B 262	E B 258
11	E B 276	E B 276	E B 272	E B 252	216	E B 270	250	228	214	204	212	H 182	204	200	H 190	206	228	222	214	216	246	220	E B 262	E B 272
12	E B 272	E B 286	E B 312	E B 292	E B 268	218	228	222	222	208	206	202	E A 238	196	198	210	212	226	214	204	E B 254	E B 230	E B 256	E B 298
13	E B 284	E B 264	E B 286	E B 282	E B 264	218	220	220	214	204	190	H 184	H 190	204	H 178	214	212	222	228	218	220	198	E B 242	E B 318
14	E B 306	E A 328	E B 310	E B 274	E B 244	218	218	220	222	216	208	198	194	196	208	214	216	228	222	210	216	238	E B 268	E B 268
15	E B 286	E B 246	E B 274	E B 236	228	E A 256	222	222	212	200	H 184	220	198	H 180	208	194	216	220	200	204	236	E B 278	E B 296	E B 308
16	E B 272	E B 276	E B 256	E B 236	E B 248	E B 292	236	218	212	E A 232	E A 238	216	194	H 194	200	202	212	224	214	200	228	230	E B 252	E B 262
17	E B 280	E B 286	E B 264	E B 246	226	230	222	220	212	198	202	194	H 176	H 194	H 186	222	220	228	204	204	226	E B 260	E A 326	E A 294
18	E B 284	E B 270	E B 244	220	210	E B 266	236	H 202	212	198	H 188	204	H 176	H 194	228	206	232	226	218	240	222	232	E B 254	E B 278
19	240	E B 268	E B 268	E B 258	E B 242	E B 278	224	222	230	214	H 192	218	212	222	216	210	216	240	220	202	222	232	E B 268	E B 282
20	E B 288	E B 286	E B 268	E A 250	E B 240	E B 264	218	216	224	208	202	194	214	204	196	200	218	222	212	218	230	E B 276	E B 266	E B 254
21	E B 254	E B 246	E B 244	E B 252	E B 300	E B 284	218	220	214	210	H 190	202	190	H 188	212	214	230	238	224	214	214	E B 270	E B 256	E B 280
22	E B 262	E B 258	E B 264	E B 270	E B 286	E B 264	222	226	222	202	204	194	H 186	216	218	202	214	224	230	212	E A 242	E A 238	256	E B 258
23	E B 250	E B 270	E B 274	E B 246	236	E B 262	214	210	H 190	212	212	212	202	198	200	198	216	228	230	216	218	228	E B 272	E B 276
24	E B 262	E B 268	E B 268	E B 258	E A 268	E B 256	210	208	194	194	H 192	208	H 192	H 190	212	196	214	220		204	218	E B 282	E B 280	E B 268
25	E B 272	E B 254	E B 246	242	226	234	198	H 198	206	210	200	H 186	204	212	208	196	212	236	220	212	222	214	226	E B 264
26	E B 284	E B 304	E B 304	E B 276	E A 268	E A 294	224	224	200	212	204	202	200	208	208	208	A	A	226	222	206	E B 258	E B 258	E B 284
27	E B 288	E B 308	E B 298	E B 310	E B 280	224	224	216	214	H 192	198	206	214	212	202	206	204	226	230	224	218	E B 254	E B 256	E B 280
28	E B 246	E B 252	E B 244	E B 264	E B 334	E B 304	218	222	220	208	200	200	H 194	212	206	216	214	234	218	214	226	E A 278	E A 276	E B 274
29	E B 286	E B 294	E B 268	222	234	244	226	210	H 196	202	H 186	190	198	200	212	A	220	H 206	228	216	216	E B 246	E B 240	E B 276
30	E B 272	E B 292	E B 280	E B 256	216	E B 278	208	222	214	198	H 192	202	200	220	214	222	226	226	236	224	212	236	E A 276	E A 308
31	E A 300	E B 290	244	224	192	E A 282	224	218	210	218	212	198	204	210	214	202	214	234	226	232	234	246	E B 260	E B 272
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	30	30	30	30	31	31	31	31	31
MED	E B 272	270	E B 268	252	E B 240	E B 264	222	218	212	204	199	200	198	198	208	209	216	226	216	212	221	E 238	E B 262	E B 276
U Q	E B 284	E B 290	E B 286	270	E B 268	E B 282	230	222	214	212	206	206	204	210	212	216	220	228	226	218	E B 248	E B 258	E 276	E B 284
L Q	E B 250	E B 254	E B 248	238	216	230	218	210	H 204	198	H 188	H 194	H 190	H 194	200	202	212	220	208	204	218	230	E 252	E B 264

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

IONOSPHERIC DATA STATION Kokubunji

MAR. 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								114	112	114	114	118	116	118	114	120	120	A						
2								114	118	118	118	118	116	116	114	116	114	126						
3								120	120	118	118	116	116	116	118	110	110	120						
4							B	116	114	118	118	114	112	116	118	114	116	112						
5								114	116	A	A	A	A	A	118	118	A	C						
6								114	114	112	108	114	116	116	114	118	110	A						
7								124	116	116	116	114	112	114	116	110	A	B						
8								112	114	114	116	B	114	114	116	112	C	112						
9								118	118	118	118	114	116	112	112	116	114	110						
10								116	112	A	A	A	112	112	118	110	114	112						
11							B	112	120	118	118	116	116	118	112	110	110	112						
12							B	116	116	114	A	A	A	112	A	118	110	A						
13							B	120	120	116	116	114	114	114	108	122	128	114						
14							B	116	114	114	A	A	A	118	112	A	112	112						
15							B	116	112	118	A	A	A	114	112	110	110	112						
16							B	118	110	A	A	A	A	112	A	A	A	112						
17							C	116	116	110	A	A	120	112	116	114	110	116						
18							B	116	118	112	118	112	112	116	116	122	126	A						
19							B	118	116	114	116	114	114	120	112	114	118	120						
20							B	110	118	114	116	116	116	116	114	116	112	114						
21							B	112	114	116	114	110	112	A	118	118	116	112						
22							B	108	124	118	A	A	118	114	114	116	120	118						
23							B	118	118	110	114	112	110	116	114	112	116	122						
24							B	114	120	118	118	114	114	118	120	118	116	114						
25							B	110	118	112	112	112	114	114	B	112	114	114						
26							124	112	112	110	112	114	114	A	A	114	A	A						
27							E B 140	108	112	112	116	116	112	114	112	110	118	112						
28							B	116	114	118	A	118	116	114	A	112	116	120						
29							B	118	122	118	114	114	112	112	112	116	116	124						
30							B	116	118	112	114	B	114	A	114	A	120	120						
31							118	118	118	118	A	A	118	A	A	114	114	A						
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT							3	31	31	28	21	20	26	26	25	28	26	23						
MED							121	116	116	115	116	114	114	114	114	114	115	114						
U Q							E B 140	118	118	118	118	116	116	116	117	118	118	120						
L Q							118	112	114	112	114	114	112	114	112	112	112	112						

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IONOSPHERIC DATA STATION Kokubunji

MAR. 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	156	100	96	104	104	104	112	116	104	122	104	102	100	100	B	B	B
2	B	B	B	B	B	B	100	160	102	168	98	132	120	114	120	162	140	168	B	B	B	108	98	102
3	100	B	92	92	96	94	94	G	100	164	102	120	106	100	98	170	108	G	B	114	104	104	98	96
4	102	98	98	106	96	96	160	134	134	132	116	100	120	118	116	114	102	134	B	B	B	B	100	102
5	96	98	98	98	100	B	B	180	100	102	100	102	104	100	96	102	102	104	100	102	98	B	B	B
6	B	B	B	B	B	B	B	164	98	100	96	98	96	102	120	104	106	102	C	102	B	100	B	B
7	B	B	B	B	B	B	B	150	104	102	100	100	100	92	98	98	92	92	94	B	B	B	B	B
8	B	92	B	B	B	B	B	G	102	100	98	B	G	G	106	98	C	G	B	B	B	B	B	B
9	B	B	B	98	B	96	B	102	118	100	98	102	102	102	100	102	100	G	B	B	B	B	C	104
10	102	100	98	B	B	96	B	118	122	104	102	100	102	102	100	98	G	142	B	B	B	B	B	B
11	B	B	B	B	B	B	156	G	104	104	104	100	98	98	94	94	92	114	90	82	B	B	B	B
12	B	B	B	B	B	B	G	154	156	124	104	98	94	98	92	104	G	94	94	88	B	B	B	100
13	B	B	B	B	B	B	110	102	102	100	98	98	102	94	90	104	150	118	B	B	B	B	B	B
14	B	94	B	B	B	B	B	104	100	100	104	102	102	104	98	94	92	94	B	B	B	B	B	100
15	98	104	B	B	98	96	96	98	102	118	106	104	104	116	116	98	88	G	84	B	B	B	100	B
16	B	B	B	B	B	B	156	138	114	104	100	100	102	98	94	86	88	120	92	88	B	B	B	B
17	B	B	B	B	B	94	C	144	102	112	98	104	98	96	G	96	114	124	98	B	B	96	98	94
18	102	B	B	B	B	B	154	102	166	96	98	98	100	104	158	118	108	104	B	B	102	118	B	B
19	B	B	B	B	B	B	148	164	100	98	100	144	144	G	100	104	106	110	B	88	90	B	B	B
20	B	B	98	98	B	B	140	160	170	122	118	102	100	G	G	G	G	G	B	B	B	B	B	B
21	B	B	B	B	B	B	142	156	164	142	118	114	114	108	106	102	100	140	B	108	102	98	B	B
22	B	B	B	B	B	B	138	150	130	114	106	106	102	98	102	102	104	G	122	B	92	92	B	B
23	B	B	B	B	B	100	152	102	102	100	102	100	94	94	110	90	104	106	B	B	B	B	B	B
24	B	B	B	B	102	B	156	162	102	144	104	118	100	98	150	98	102	98		90	90	94	B	94
25	B	B	B	B	B	B	146	G	102	114	114	98	106	G	B	G	G	146	B	B	B	B	92	96
26	B	94	94	B	94	94	G	G	100	98	116	114	102	96	96	92	90	90	92	90	90	86	88	B
27	B	B	B	B	B	B	176	152	104	132	106	104	104	108	104	118	124	112	B	B	B	98	B	B
28	B	B	B	98	B	B	148	118	116	112	106	102	102	94	96	94	98	110	B	B	B	100	98	B
29	B	B	B	92	B	B	150	144	104	102	102	100	92	90	96	114	106	102	90	86	B	B	B	B
30	B	B	B	B	B	B	142	154	154	118	114	B	104	104	102	106	104	118	92	100	88	90	96	96
31	92	94	98	98	B	96	170	164	104	110	106	106	164	96	98	98	98	94	94	90	B	92	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	7	8	7	8	6	9	20	26	31	31	31	29	30	27	28	29	26	25	13	14	10	13	9	10
MED	100	96	98	98	97	96	148	150	104	104	104	102	102	100	100	102	103	110	94	90	95	98	98	98
U Q	102	99	98	98	100	96	156	160	122	122	106	106	104	104	113	105	108	122	99	102	102	102	99	102
L Q	96	94	94	95	96	94	139	118	102	100	100	100	100	96	96	97	98	100	91	88	90	92	94	96

IONOSPHERIC DATA STATION Kokubunji

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

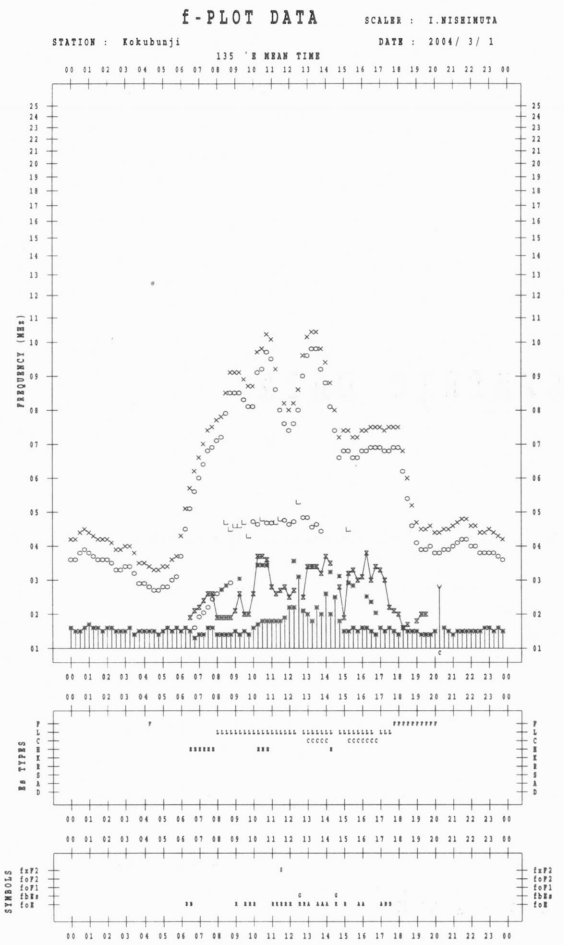
LAT.35°42.4'N LON.139°29.3'E SWEEP 1.0MHz TO 30.0MHz IN 15.0SEC IN MANUAL SCALING

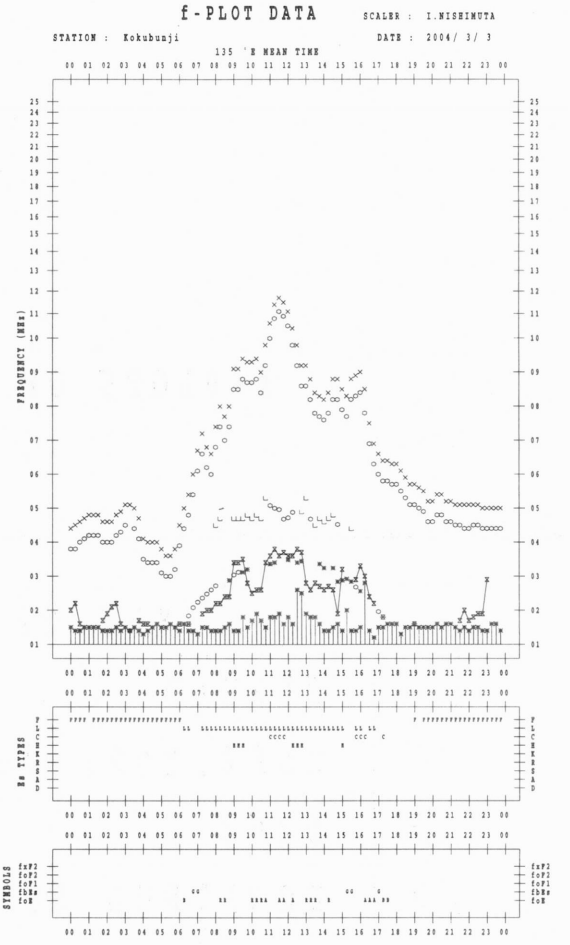
D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1								H 1	L 1	L 1	L 1	L 1	L 1	CL 11	CL 11	L 1	CL 21	L 4	F 3	F 3	F 1			
2							F 2	H 2	L 2	HL 11	L 2	HL 11	CL 11	CL 21	CL 11	HL 11	H 2	HL 22				F 1	F 3	F 2
3	F 2		F 3	F 3	F 2	F 1	F 2		L 1	HL 11	L 1	CL 11	LL 11	L 1	L 1	HL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

MAR.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/ 3/ 1
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS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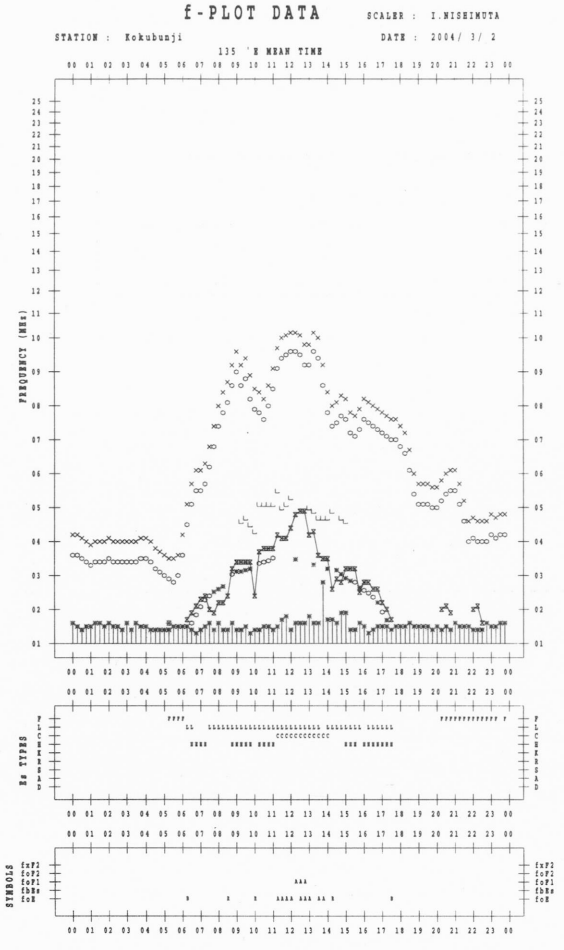
STATION : Kokubunji
DATE : 2004/ 3/ 3
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS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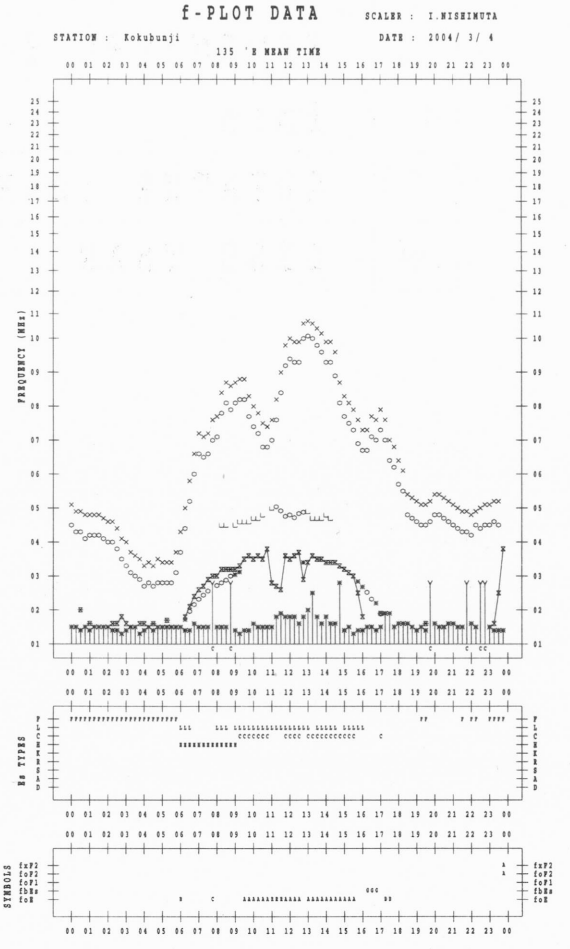
STATION : Kokubunji
DATE : 2004/ 3/ 2
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS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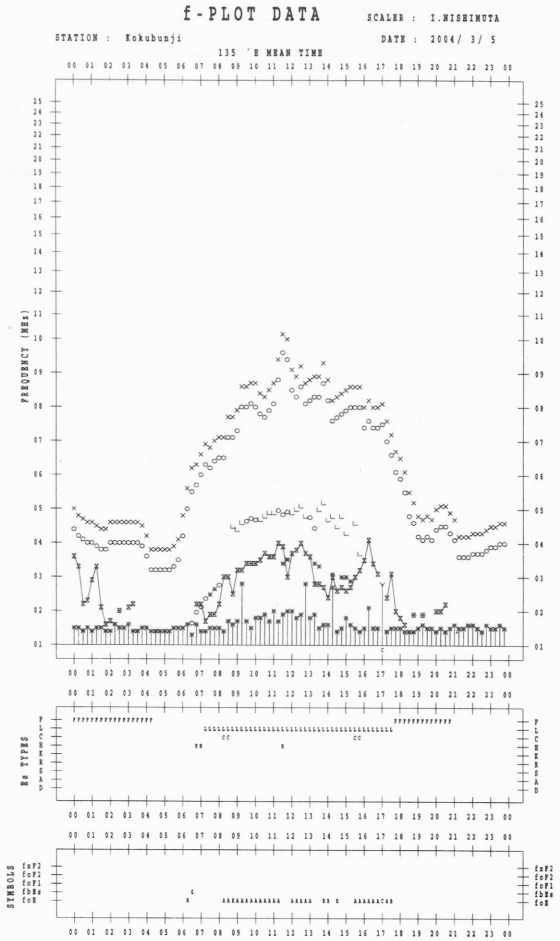
STATION : Kokubunji
DATE : 2004/ 3/ 4
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS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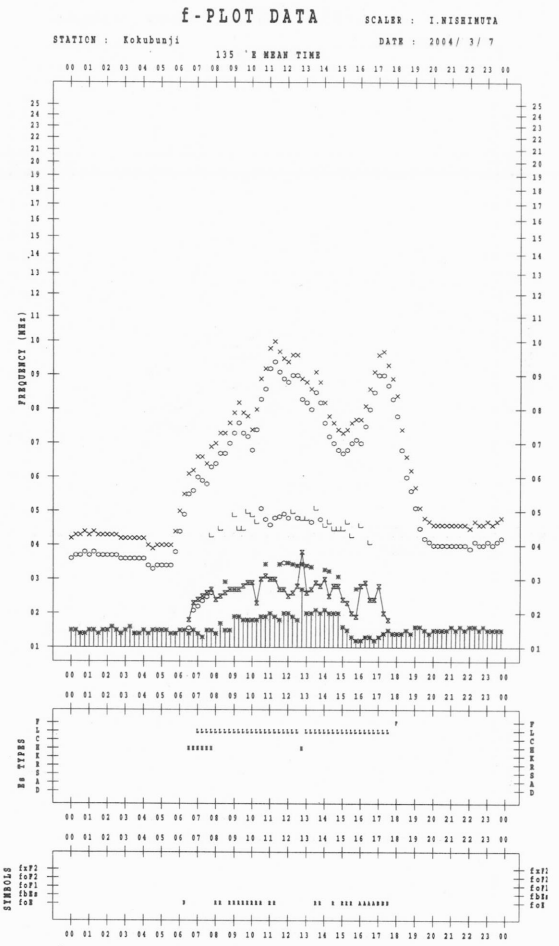
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/ 3/ 5
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS


f-PLOT DATA
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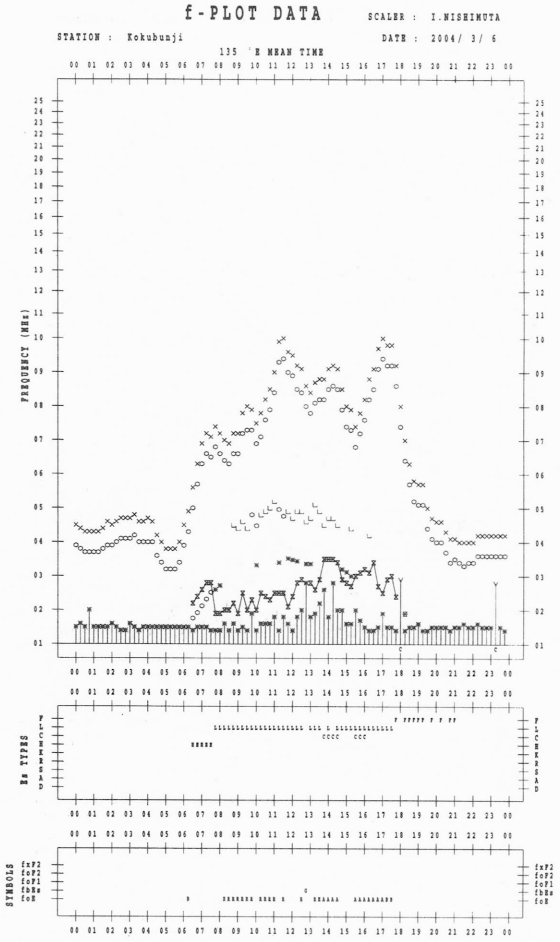
STATION : Kokubunji
DATE : 2004/ 3/ 7
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS


f-PLOT DATA
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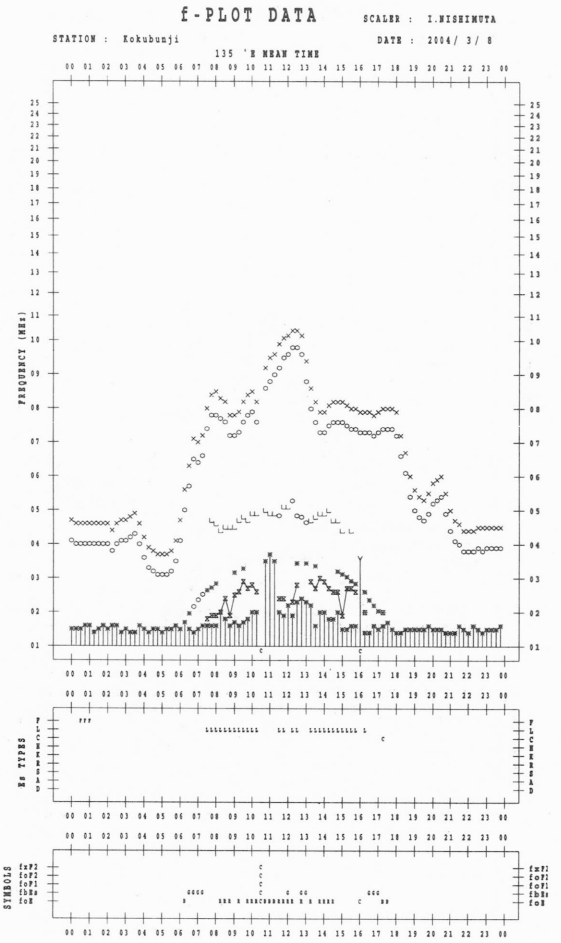
STATION : Kokubunji
DATE : 2004/ 3/ 6
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS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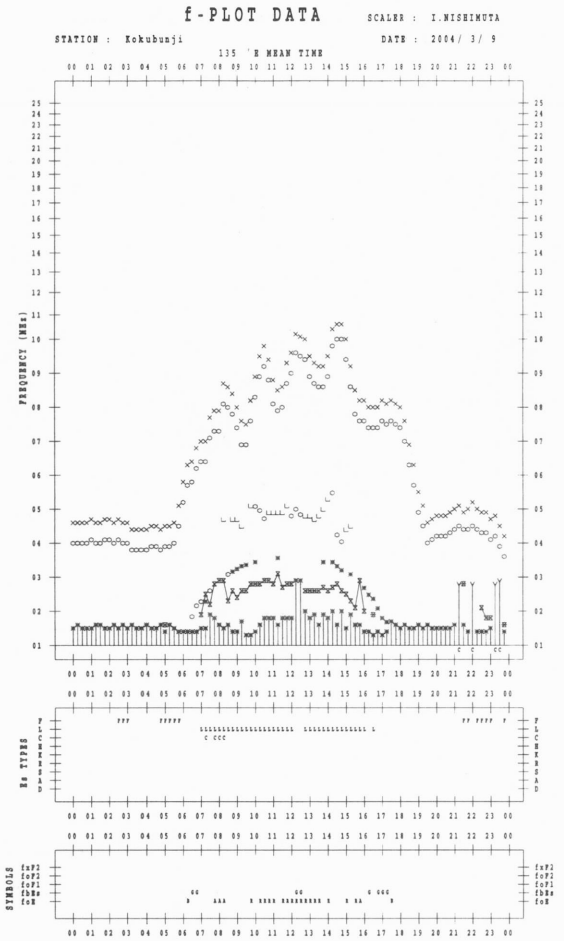
STATION : Kokubunji
DATE : 2004/ 3/ 8
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS


f-PLOT DATA
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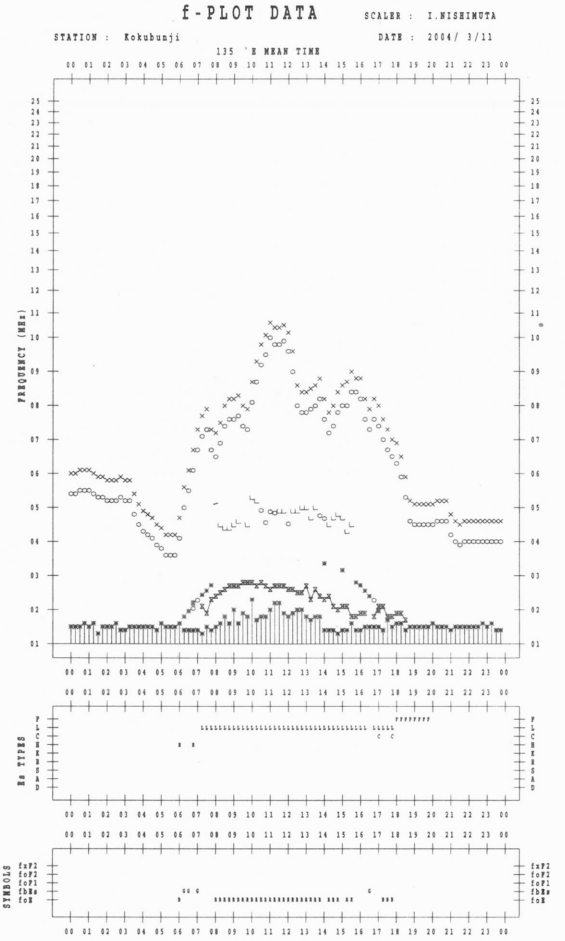
STATION : Kokubunji
DATE : 2004/ 3/ 9
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS


f-PLOT DATA
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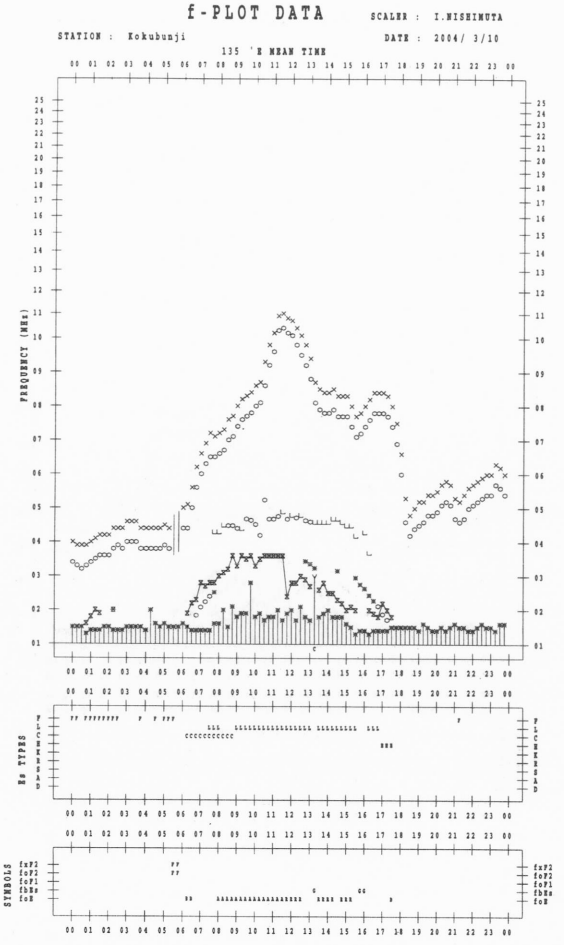
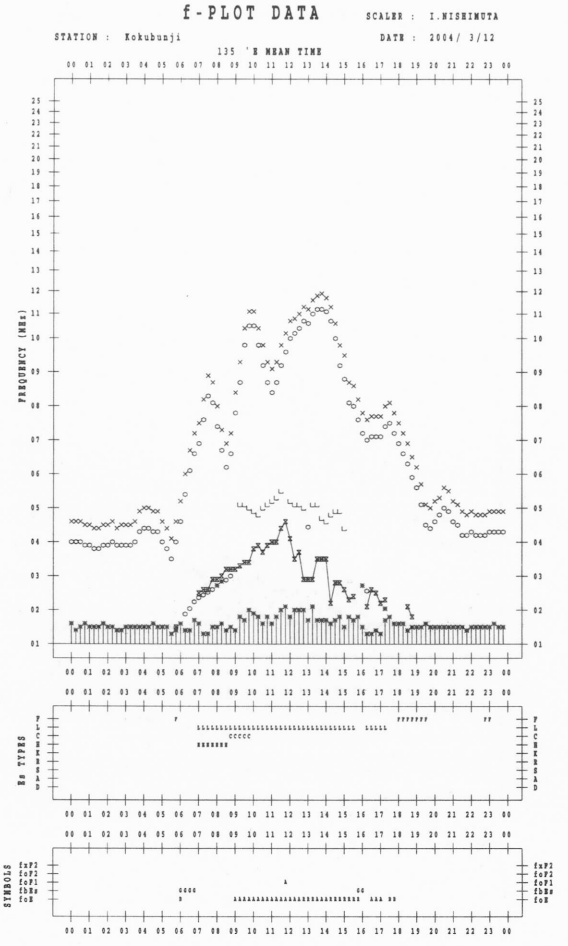
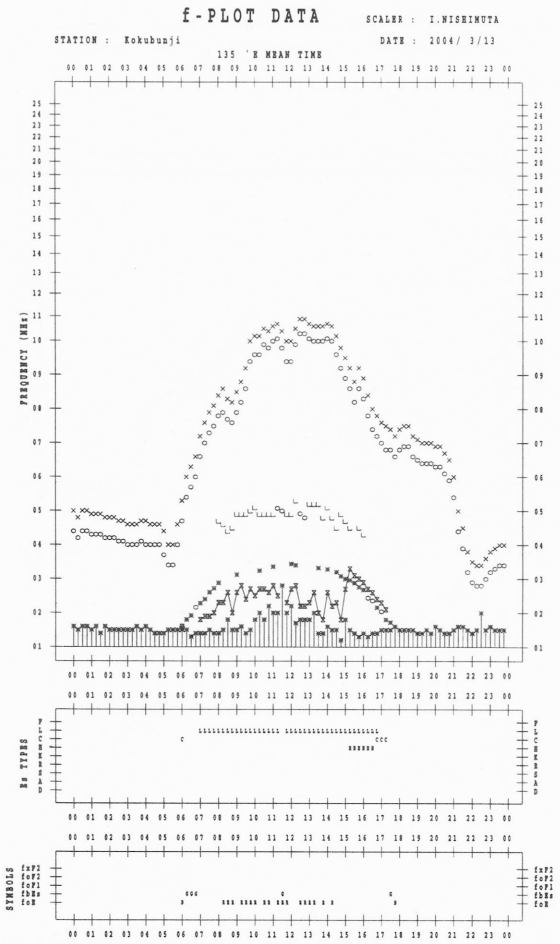
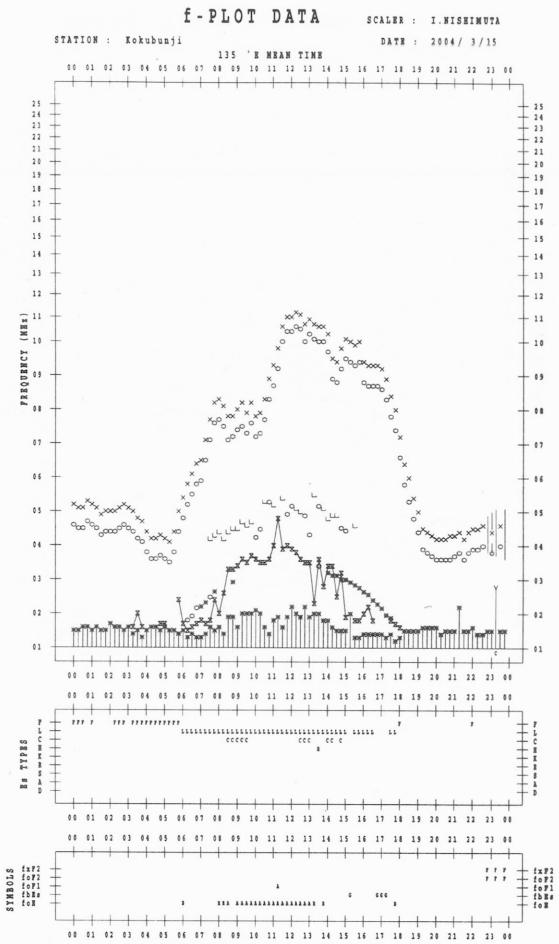
STATION : Kokubunji
DATE : 2004/ 3/11
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS


f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/ 3/10
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS


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


f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/ 3/13
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS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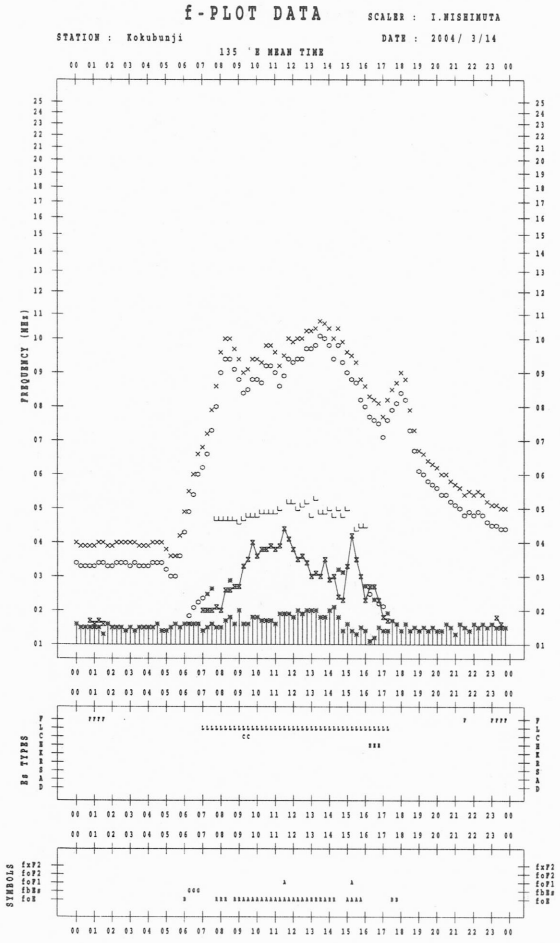
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/ 3/15
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS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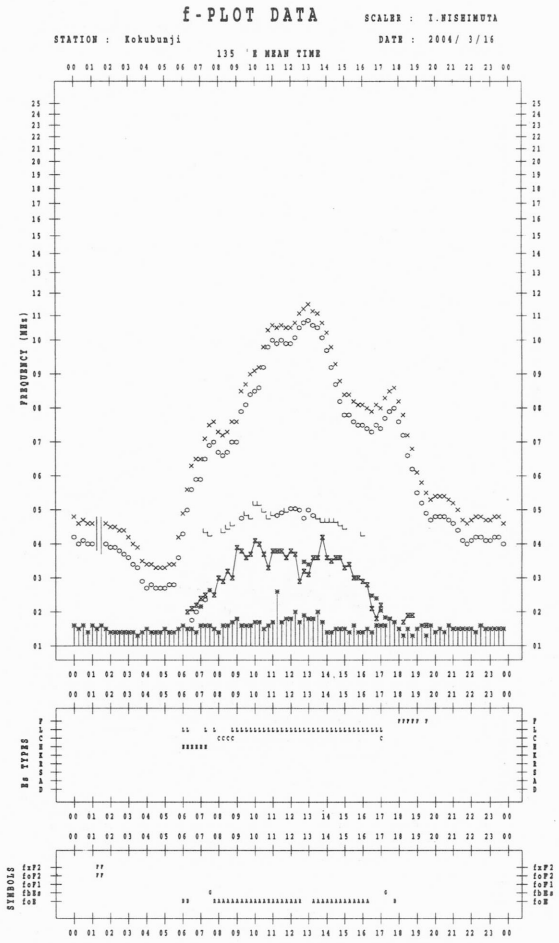
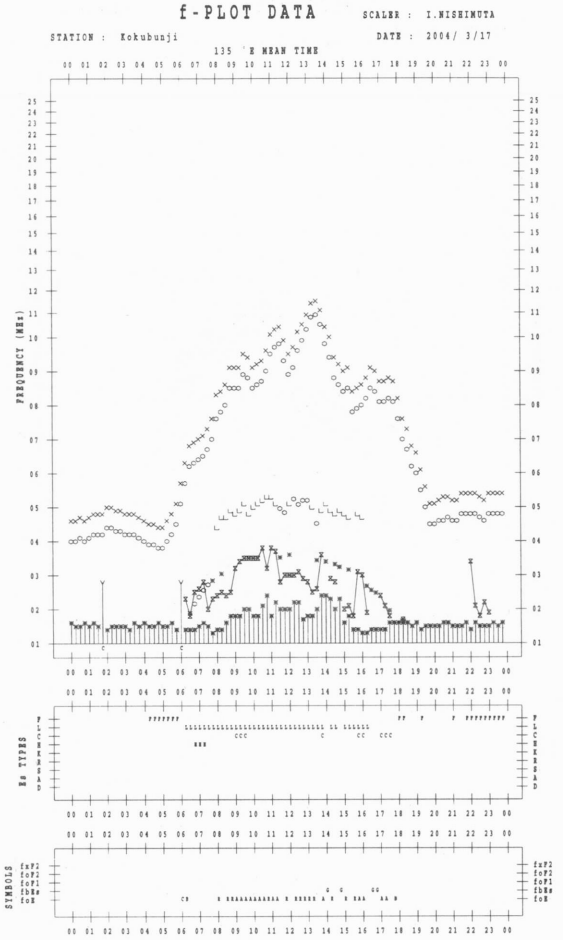
STATION : Kokubunji
DATE : 2004/ 3/14
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS


f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/ 3/16
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS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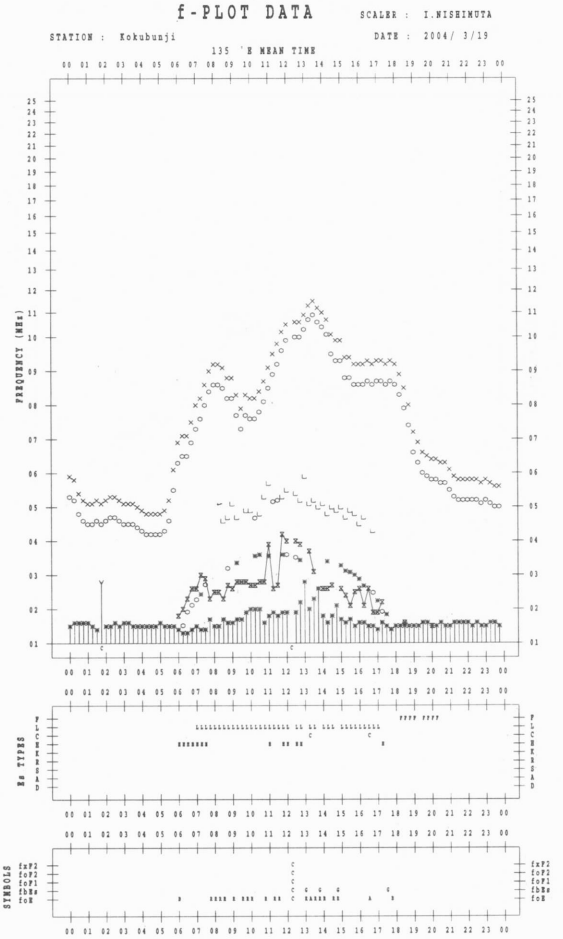
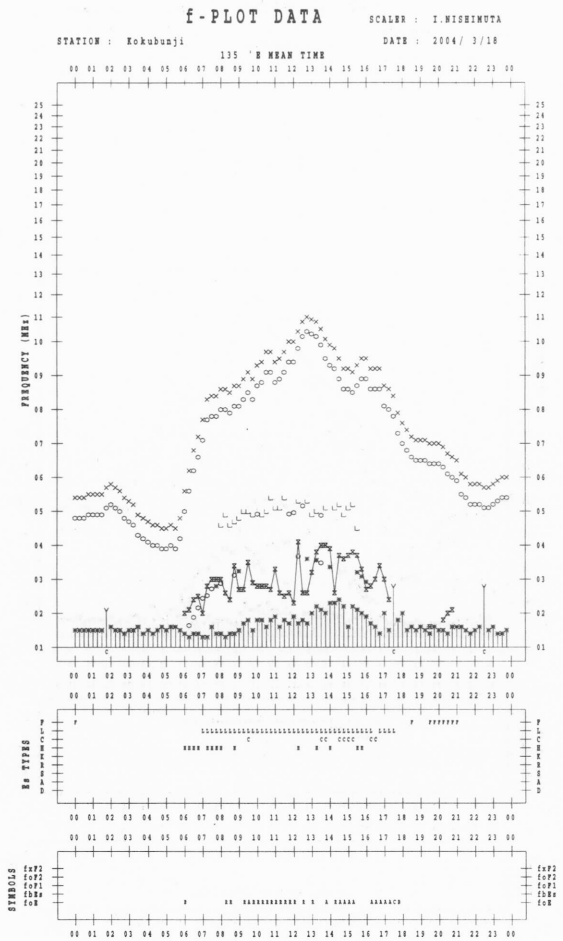
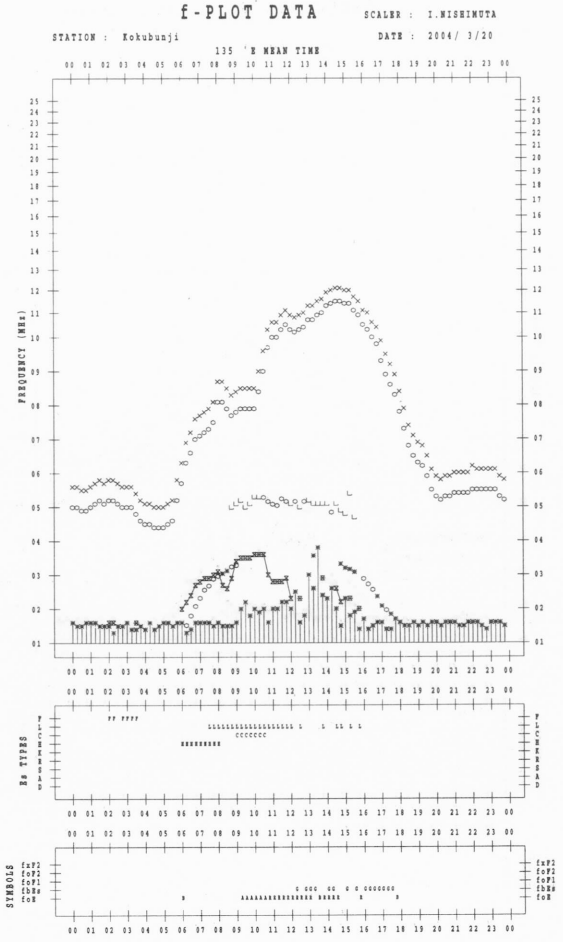
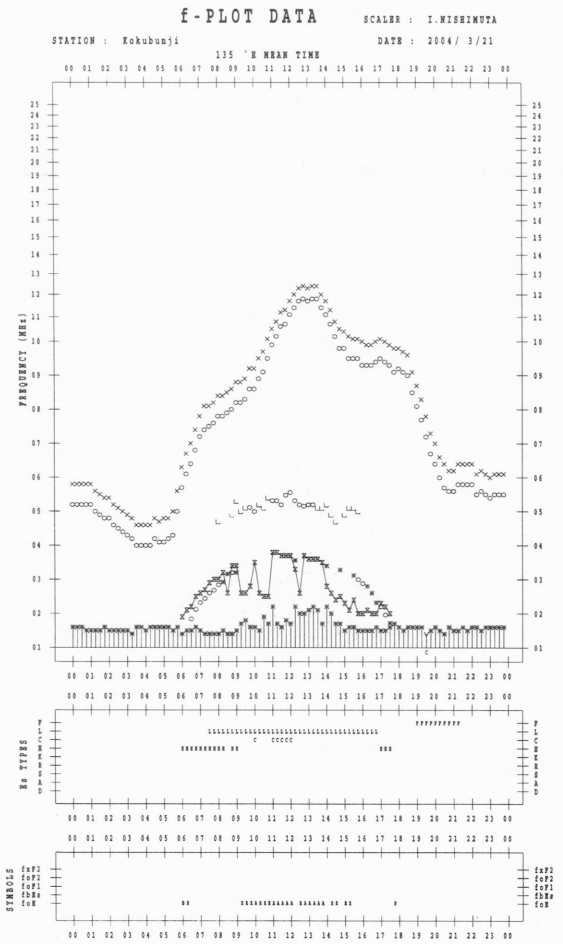
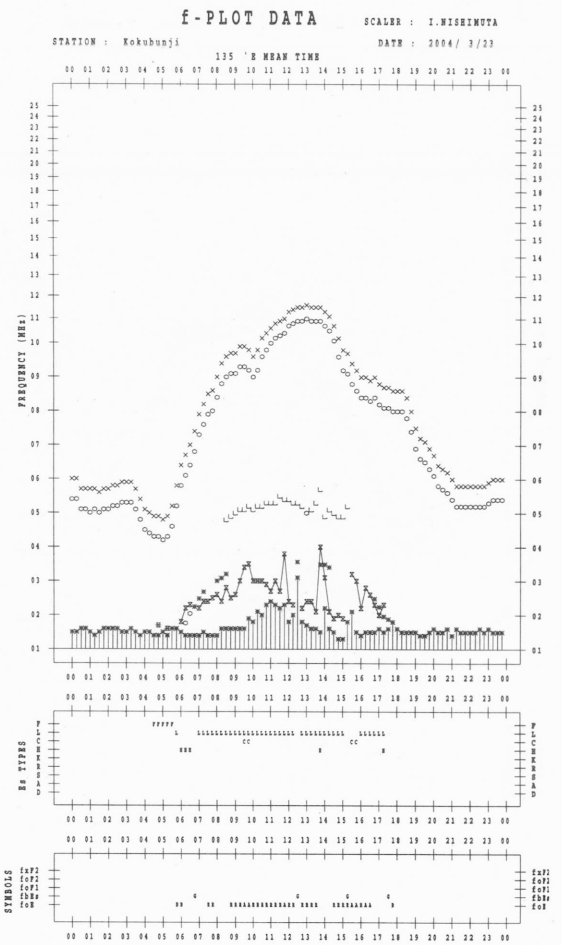
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/ 3/17
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS

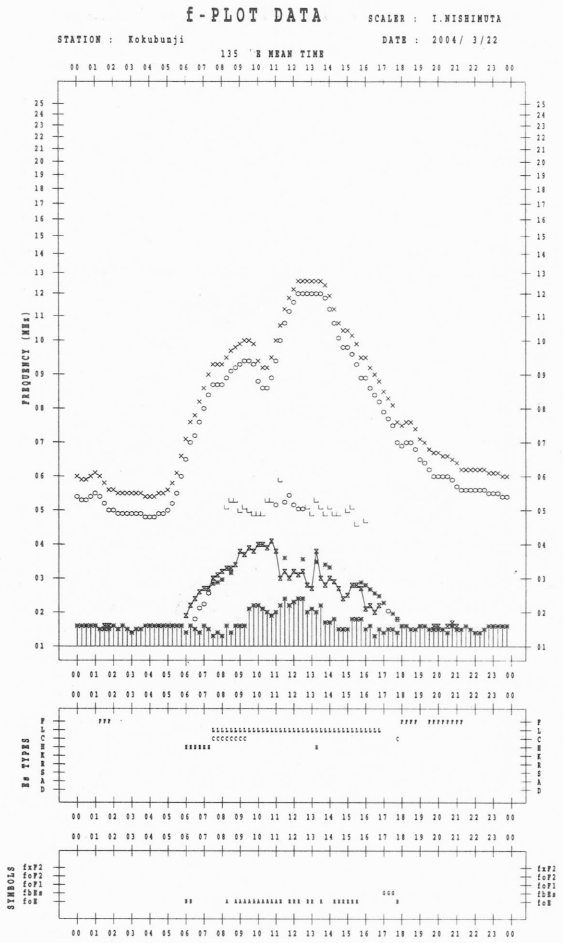

f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/ 3/19
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS

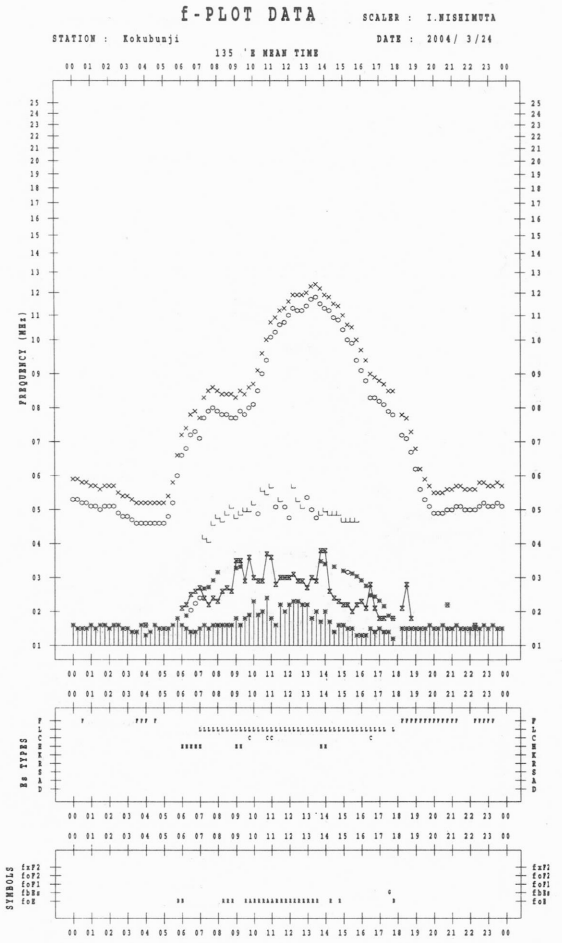

f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/ 3/18
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS

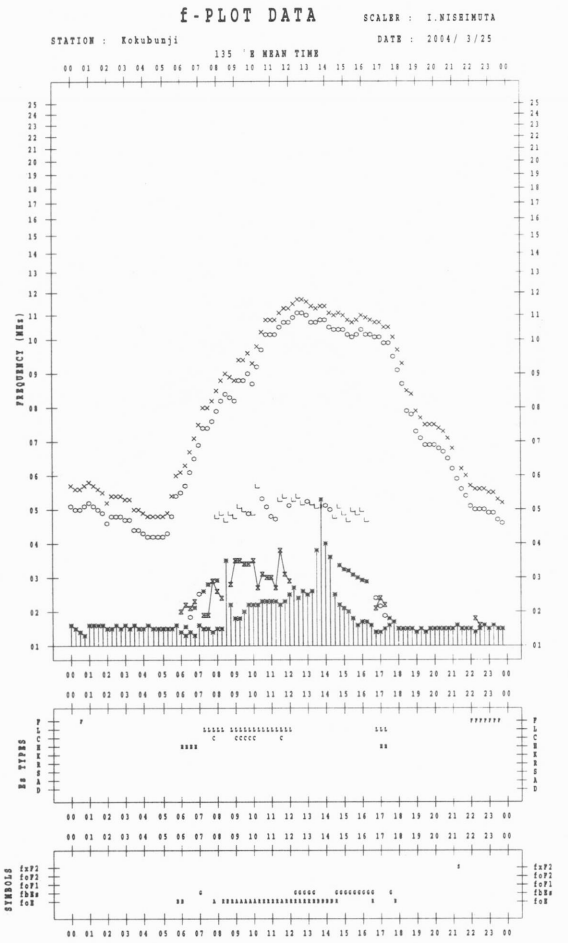

f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/ 3/20
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS


f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/ 3/21
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS


f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/ 3/23
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS


f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/ 3/22
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS


f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/ 3/24
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS


f-PLOT DATA
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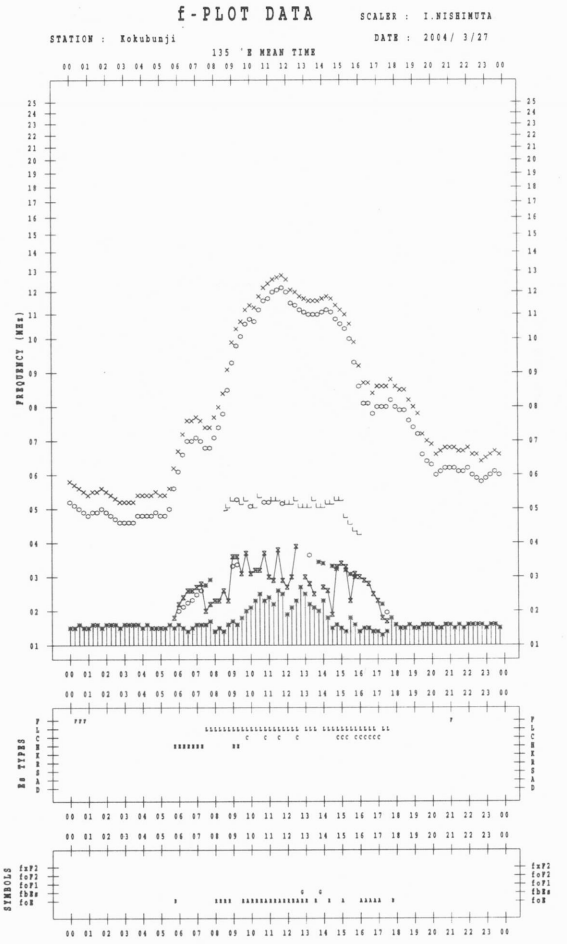
STATION : Kokubunji
DATE : 2004/ 3/25
135 'E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS


f-PLOT DATA
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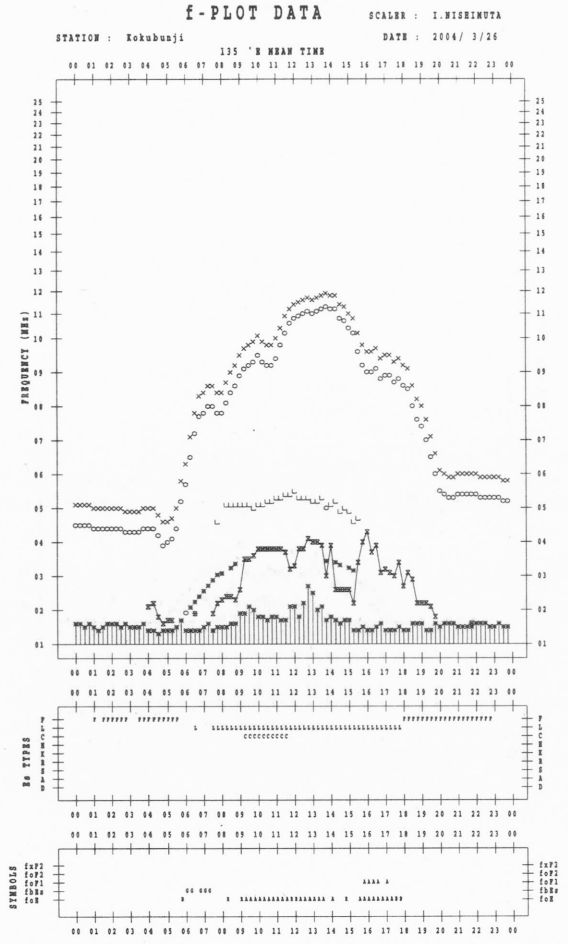
STATION : Kokubunji
DATE : 2004/ 3/27
135 'E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS


f-PLOT DATA
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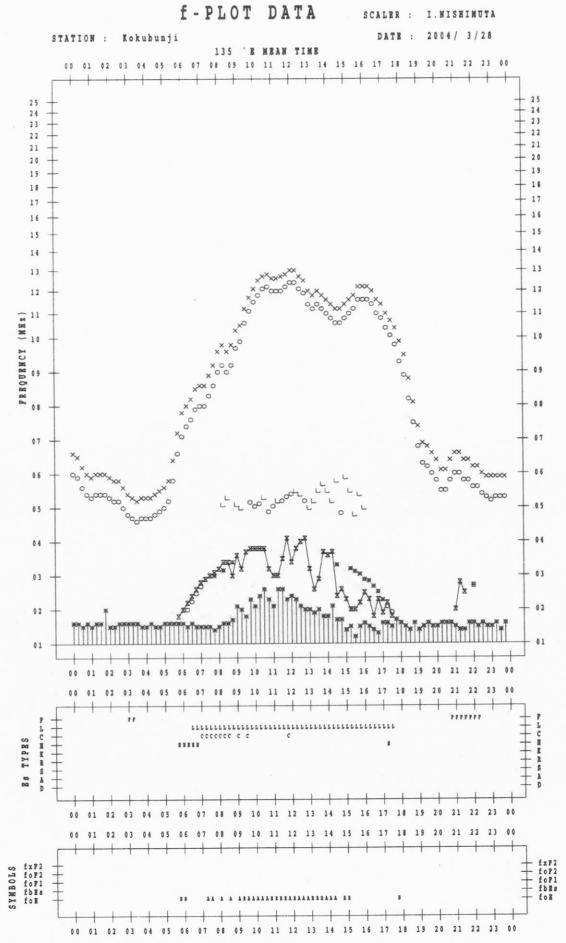
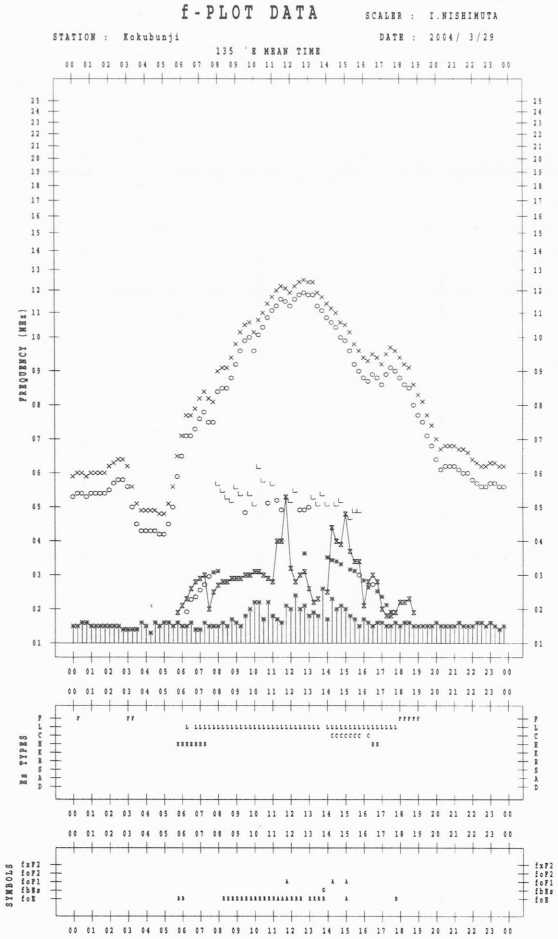
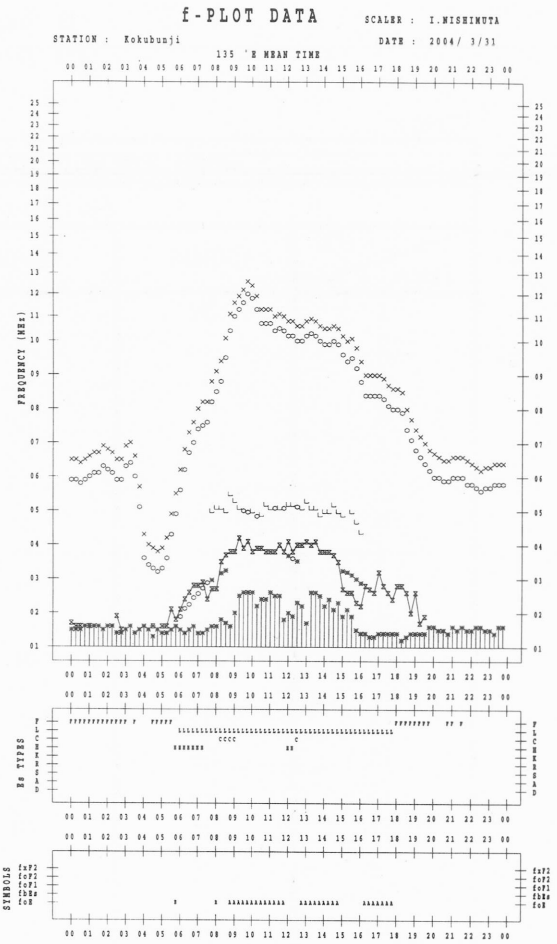
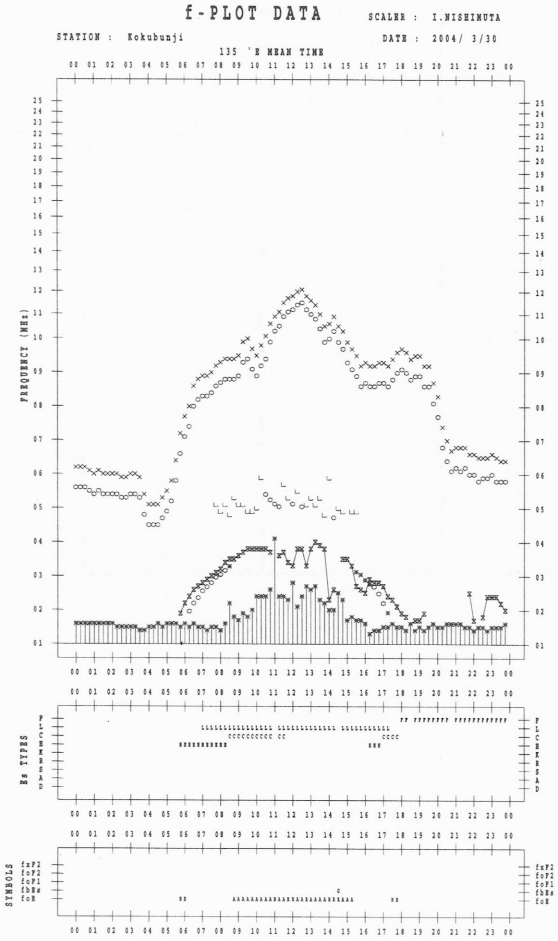
STATION : Kokubunji
DATE : 2004/ 3/26
135 'E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS


f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/ 3/28
135 'E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS


f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/ 3/29
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS


f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/ 3/31
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS


f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/ 3/30
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS

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

Hiraiso March 2004

Single-frequency total flux observations at 500 MHz					
Flux density: 10^{-22} W m^{-2} Hz^{-1}					
UT / Date	00-03	03-06	06-09	21-24	Day
1	38	–	–	–	38
2	–	–	–	–	–
3	–	–	–	–	–
4	–	–	–	–	–
5	–	–	–	–	–
6	–	–	–	–	–
7	–	–	–	–	–
8	–	–	–	–	–
9	–	–	–	46	46
10	36	34	35	44	37
11	39	35	35	36	36
12	36	36	35	38	36
13	34	32	31	38	34
14	34	33	32	37	34
15	35	33	32	37	34
16	34	32	32	39	34
17	34	31	30	30	31
18	32	33	34	39	34
19	36	34	34	34	35
20	34	34	32	36	34
21	33	32	32	34	33
22	33	33	33	34	33
23	34	33	32	35	33
24	33	31	32	35	33
25	34	33	33	35	34
26	33	31	30	34	32
27	33	30	30	37	32
28	34	32	32	37	33
29	33	30	29	39	33
30	37	35	35	47	39
31	45	37	35	37	39

Note: No data is available during the following periods.
1st 0140 - 9th 0740

A superscript * stands for being superposed on a burst..

B. Solar Radio Emission

B2. Outstanding Occurrences at Hiraiso

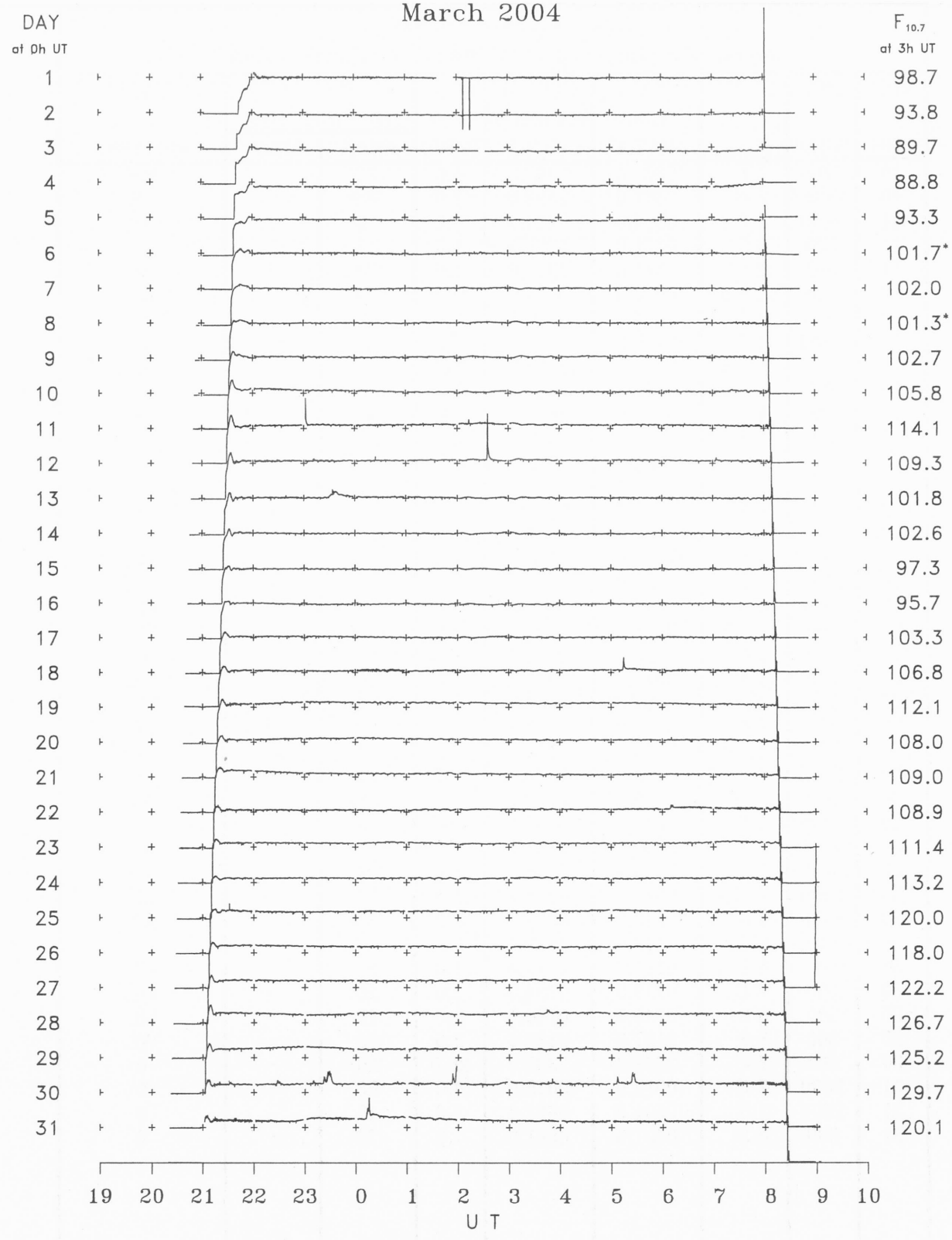
Hiraiso March 2004

Single-frequency observations

Normal observing period: 2045 – 0850 U.T. (sunrise to sunset)

MAR. 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
10	2800	7 C	2301.0	2303.0	4.0	75	–	MR
10	500	7 C	2301.0	2302.0	4.0	305	–	SR
11	2800	1 S	0214.0	0214.0	1.0	10	–	0
11	500	8 S	0721.0	0721.0	1.0	45	–	
11	500	8 S	2311.0	2311.0	1.0	20	–	0
12	500	42 SER	0028.0	0040.0	14.0	30	–	WR
12	500	4 S/F	0234.0	0236.0	7.0	130	–	0
12	2800	3 S	0235.0	0236.0	6.0	130	–	0
12	2800	23 GRF	2329.0	2334.0	19.0	25	–	0
17	500	7 C	2322.0	2329.0	7.0	10	–	0
18	2800	1 S	0514.0	0515.0	4.0	35	–	0
21	500	8 S	0648.0	0649.0	1.0	30	–	0
28	500	7 C	0345.0	0349.0	17.0	205	–	0
29	500	8 S	0157.0	0157.0	1.0	10	–	0
29	500	8 S	0757.0	0758.0	1.0	15	–	0
29	500	8 S	2146.0	2146.0	1.0	50	–	ML
29	500	4 S/F	2226.0	2228.0	7.0	205	–	ML
29	2800	1 S	2227.0	2228.0	5.0	10	–	0
29	500	8 S	2309.0	2310.0	3.0	225	–	ML
29	500	47 GB	2321.0	2333.0	9.0	1285	–	ML
29	2800	7 C	2322.0	2329.0	11.0	35	–	0
30	500	1 S	0032.0	0034.0	3.0	15	–	WL
30	500	8 S	0047.0	0049.0	3.0	100	–	WL
30	500	7 C	0127.0	0128.0	6.0	80	–	WL
30	500	8 S	0138.0	0138.0	1.0	20	–	0
30	2800	7 C	0153.0	0158.0	5.0	50	–	0
30	500	47 GB	//////	0159.0	///	////	–	WL
30	2800	1 S	0506.0	0507.0	3.0	20	–	0
30	500	8 S	0506.0	0506.0	1.0	85	–	0
30	500	47 GB	0519.0	0526.0	8.0	590	–	ML
30	2800	7 C	0522.0	0525.0	7.0	30	–	0
30	500	8 S	0543.0	0543.0	2.0	70	–	ML
30	500	8 S	0548.0	0548.0	1.0	345	–	SL
30	500	8 S	0711.0	0711.0	1.0	25	–	WL
30	500	7 C	0733.0	0734.0	3.0	20	–	WL
30	500	8 S	0746.0	0746.0	3.0	45	–	ML
30	500	8 S	2137.0	2138.0	2.0	85	–	WL
30	500	7 C	2249.0	2305.0	26.0	280	–	0
31	2800	7 C	0012.0	0015.0	4.0	55	–	0
31	2800	1 S	0601.0	0601.0	3.0	15	–	0
31	500	8 S	0601.0	0601.0	1.0	70	–	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 MARCH 2004

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