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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 as-sociated with high absorption and large *fmin.*

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

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

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

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

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

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

B. SOLAR RADIO EMISSION

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

B1. Daily Data at Hiraiso

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

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

* Measurement impossible because of interference.

B Measurement impossible because of bursts.

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

B2. Outstanding Occurrences at Hiraiso

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

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

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

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

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

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

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

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

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

B3. Summary Plots of F10.7 at Hiraiso

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

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

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

HOURLY VALUES OF foF2 AT Wakkanai

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

COMMUNICATIONS RESEARCH LABORATORY, JAPAN

HOURLY VALUES OF fEs AT Wakkanai

FEB. 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	41	31	G	G	33	33	41	29	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
2	G	G	G	G	G	30	28	G	G	42	G	G	G	G	G	G	34	34	29	G	30	26	27	G
3	G	G	34	G	G	G	G	G	33	G	G	38				G	G	G	G	G	G	27	G	G
4	28	G	G	G	G	G	G	G	30	40	G	G	39	G	37	40		29	36	59	G	G	30	27
5	39	40	33	30	26	G	43	30	G	38	G	G	45	G	48	G	G	11	G	G	G	33	G	G
6	G	28	G	G	G	G	G	G	48	G	G	G	G	G	G	40	G	32	29	40	G	48	G	G
7	G	G	G	G	G	G	31	30	G	40	G	49	G	G	G	G	G	29	G	33	29	29	G	G
8	G	G	G	G	G	G	G	29	G	G	G	G	G	G	G	G	G	G	28	32	30	30	43	28
9	G	G	G	G	G	G	30	50	G		G	G	G	G	G	G	G	G	32	44	28	29	32	24
10	G	27	G	G	G	25	38	38	G		G	G	G	G	G	G	G	26	38	30	28	G	34	G
11	32	G	G	G	G	G	G	G	G	G	53	G	G	G	G	G	33	29	43	34	29	39	27	G
12	G	G	G	G	G	G	G	38	39	G	41	G	38	G	G	G	G	G	27	43	28	29	32	G
13	G	G	G	G	G	G	G	32	40	39	G		43	48	G	G	33	31	27	41	36	36	26	G
14	29	G	29	28	26	28	G	32	34	42	41	G	G	45	41	G	42	28	39	32	G	32	G	G
15	G	G	G	G	G	28	G	31	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
16	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	19	G	G	30	32	29	27
17	34	28	26	33	26	G	G	G	G	G	G		G	G	G	G	G	G	G	G	G	G	G	G
18	G	G	G	G	G	G	G	30	G	G	G	G	G	G	G	G	G	G	G	G	32	G	G	G
19	23	G	G	G	G	G	G	29	G	G	G	G	G	G	G	G	G	G	G	27		G	38	31
20	30	G	G	G	27	26	G	G	G	36	53	G	G	G	G	G	G	28	G	G	G	G	33	G
21	G	G	26	G	G	G	33	35	65	49	G	40	G	G	G	G	G	G	G	31	26	39	28	26
22	27	29	G	30	25	G	28	28	42	G	G	39	G	G	68	45	G	G	31	50		56	40	33
23	33	G	G	G	G	G	G	G	G	G	G		G	G	G	G	G	G	G	G	G	G	G	29
24	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
25	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
26	G	G	G	G	G	G	G	G	G	G	C	C	C	C	C	C	G	G	G	G	G		G	G
27	33	G	33	G	G	G	G	G	G	50	G	G	G	G	G	G	G	G	G	G	G	G	G	G
28	G	G	G	29	G	G	G		G	38	G	G	41	45	G	G	G	G	29	35	28	30	G	G
29	G	26	G	G	G	G	G	G	40	G	G	G	G	G		G	32	36	33	G	28	G	G	G
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	29	29	29	29	29	29	29	28	29	27	28	25	27	27	26	28	28	29	29	29	27	28	29	29
MED	G	G	G	G	G	G	G	14	G	G	G	G	G	G	G	G	G	G	G	G	G	26	G	G
U Q	29	13	G	G	G	G	28	30	33	39	G	G	G	G	G	G	G	28	30	34	29	32	31	25
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 Wakkanai

FEB. 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	16	16	18	15	15	17	15	16	21	24	27	18	28	20	18	24	20	14	14	16	18	18	17	18
2	14	15	15	15	15	15	15	20	15	18	18	18	22	21	21	17	18	15	16	16	15	17	15	20
3	17	16	14	15	15	15	20	20	15	18	18	21		21	18	20	15	17	16	18	18	16	16	15
4	15	14	18	14	15	14	15	20	14	15	18	18	17	16	17	22		18	15	15	14	17	17	16
5	14	14	15	15	16	14	15	14	20	17	17	21	18	17	18	15	22	15	14	15	15	15	15	14
6	15	15	15	17	20	16	15	18	24	15	17	18	21	33	20	23	21	15	17	15	17	15	18	16
7	14	15	17	17	16	16	17	14	15	22	20	22	32	20	29	26	17	15	17	16	15	16	17	17
8	17	17	15	21	18	17	15	14	22	27	21	33	22	23	18	15	21	15	15	15	15	15	14	18
9	17	14	14	14	15	14	15	15	18		37	34	35	38	32	28	22	17	15	15	17	15	15	16
10	15	15	15	14	15	17	15	14	24	27	21	22	22	21	21	20	23	16	15	14	15	18	17	15
11	15	18	14	15	15	20	17	15	27	26	21	34	22	21	21	17	18	14	14	14	14	15	16	18
12	15	16	18	15	15	14	14	14	14	14	17	17	14	20	29	15	14	18	15	15	14	16	14	15
13	14	14	15	15	15	15	18	14	15	17	16	20	20	17	17	15	14	16	15	14	14	15	15	14
14	15	15	15	14	15	15	14	15	14	14	16	17	21	20	16	20	14	18	15	14	16	14	15	14
15	15	14	15	20	15	15	15	16	23	18	20	18	23	22	30	28	23	18	15	15	15	18	16	14
16	16	14	18	16	15	15	15	18	23	29	33	36	33	37	21	16	22	18	15	20	15	15	16	15
17	14	15	15	15	15	20	17	20	18	15	18	20	33	20	20	17	21	20	15	20	16	17	17	14
18	16	14	14	15	14	14	18	15	22	29			36	36	34	28	22	18	16	15	17	15	15	21
19	16	16	21	20	18	16	15	18	27	29	35		36		33	30	23	18	15	14	16	15	15	18
20	16	14	16	15	14	15	17	20	14	16	18	18	20	20	20	17	15	20	15	15	15	15	15	16
21	17	18	14	14	14	15	14	14	17	21	23	21	21	20	20	20	22	18	17	14	18	15	15	17
22	15	15	15	14	14	18	17	14	18	27	21	22	21	18	18	18	22	17	14	15	14	15	15	15
23	14	15	14	15	15	18	15	20	15	17	20		21	16	18	18	23	20	16	16	15	15	20	20
24	15	18	18	20	16	20	15	18	27	21	34	34	22	32	21	26	22	18	20	16	15	17	14	24
25	16	15	14	15	17	15	15	22	18	18	22	21	23	23	22	33	23	18	16	14	21	15	15	23
26	20	16	14	16	20	18	18	22	26	20	C	C	C	C	C	C	24	20	20	20	15		15	15
27	14	15	15	14	15	14	14	21	20	18	21	22	20	22	21	27	24	20	14	17	15	15	15	15
28	14	14	14	14	15	17	15		15	17	20	21	18	20	17	15	23	14	14	15	16	15	16	20
29	15	15	15	14	17	15	16	14	15	18	20	20	21	21	20	28	17	15	14	20	20	18	20	16
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	29	29	29	29	29	29	29	28	29	28	27	25	27	27	28	28	28	29	29	29	29	28	29	29
MED	15	15	15	15	15	15	15	16	18	18	20	21	22	21	20	20	22	18	15	15	15	15	15	16
U Q	16	16	16	16	16	17	17	20	23	25	22	22	28	23	21	26	23	18	16	16	17	17	17	18
L Q	14	14	14	14	15	15	15	14	15	17	18	18	20	20	18	17	17	15	14	14	15	15	15	15

HOURLY VALUES OF foF2 AT Kokubunji

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

HOURLY VALUES OF fEs AT Kokubunji

FEB. 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	45	51	G	36	36	47	33	34	26	26		
2	G	G	G	G	G	G	G	G	G	37	43	52	48	G	42	40	G	25	33	37	G	G	G	G
3			G	G	G	G		G	G	G	G	G	G	G	39	G	36	37	34	23	G	23	39	32
4	G		G	G	G	G	G	G	G	G	40	46	47	45	G	G	G	28	59	G				
5	G	26	25	27	23	25	G	29	G	G	G	G	G	G	G	G	39	48	40	G	G	G	G	G
6	G	24	G	G	G	53	G	G	G	G	G	G	46	47	53	49	44	40	30	27	G	G	G	G
7	G	G	29	G	G	29	G	G	G	G	G	49	51	47	43	G	G	31	G	37	52	71	33	71
8	37	G	32	G	26	28	G	G	34	G	G	53	43	G	G	G	G	39	43	80	34	40	34	35
9		G	30	29	G	G	23	G	G	48	G	G	G	G	G	G	43	57	28	25	40	50	30	26
10	G	G	G	26	33	23	G	G	G	G	G	G	G	G	G	G	G	32	G	G	G	G	34	28
11	34		G	26	G	23	G	G	48	G	G	G	G	G	G	G	G	G	11	G	G	G	34	G
12	G	G	G	G	G	G	G		48	48	G	G	G	G	G	41	66	31	26	G		G	G	G
13	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	42	40	33	34	39	30	G	35	24
14	G	G	25	24	31	G	26	G	G	50	G	G	G	G	G	G	G	G	G	G	60	28	G	33
15	28	G	G	G	G	G	G	31	G	G	G	G	G	G	G	42	38	G	27	G	G	G	29	G
16	G	G	G		G		G	G	G	G	G	G	G	G	G	G	35	42	68	G	G	G	29	33
17	G	G	G	G	24	G	G	28	G	G	G	G	G	G	44	39	G	32	27	G	G	G	G	31
18	G	G	G	G	G	G	G	G	45	G	G	48	G	G	G	40	G	39	27	G	G	G	27	G
19	G			G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	40	37	42	G	26
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	G	G	G	G	G	40	40	G	G		33	G
22	30	26	26	G	G	G	G	29	G	G	G	G	G	G	G	39	37	G	31	29	34	27	32	27
23				G	G	35	32	G	G	G	G	G	G	G	G	G	G	29	40		G	24	33	30
24		G	G	G	G	G	G	G	G	G	C	C	C	C	C	G	G	G	G	G	G		31	G
25	G	G	G	G		G	G	G	G	G	G	G	G	G	G	G	G	32	27	29	26	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	24	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
28	G	G	G	G	G	G	G	G	G	G	G	G	G	G	46	57	G	G	G	G	G		G	26
29	29	G	G	G	G		G	G	G	G	G	G	G	G	48	G	G	G	G	G	G	G	G	G
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	25	24	27	28	28	27	28	28	28	29	28	27	28	28	28	29	29	29	29	28	27	25	26	27
MED	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	31	27	G	G	G	28	G
U Q	12	G	G	G	G	23	G	G	G	G	G	G	G	G	20	39	36	39	34	29	30	26	33	30
L Q	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G

COMMUNICATIONS RESEARCH LABORATORY, JAPAN

HOURLY VALUES OF fmin AT Kokubunji

FEB. 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	14	17	17	21	20	17	15	15	28	18	20	39	37	31	18	15	13	14	15	13	14	14		
2	18	21	18	18	15	14	17	18	24	17	18	22	23	36	20	15	15	17	14	14	17	17	20	17
3			18	23	20	20		18	25	17	18	41	37	18	15	13	13	15	14	15	14	15	20	17
4	15		15	15	15	20	17	14	29	18	21	23	18	21	34	17	14	14	13	14				
5	21	15	14	13	13	13	18	18	13	17	20	40	35	21	17	17	14	15	14	20	20	18	15	15
6	17	14	13	17	14	14	13	21	18	34	36	36	34	33	33	28	20	13	14	14	15	17	13	18
7	17	17	13	20	18	13	18	20	33	34	20	34	34	37	36	18	30	14	14	13	14	13	14	13
8	13	22	15	17	14	14	18	21	14	18	18	18	20	35	37	17	17	15	14	13	14	15	13	17
9		13	14	14	13	15	17	21	14	20	20	35	40	40	37	36	15	14	14	14	20	17	15	15
10	14	14	13	15	13	17	18	21	35	33	30	43	45	40	35	34	15	14	21	15	14	18	13	17
11	15		17	14	21	17	17	20	14	17	40	43	45	39	39	20	17	20	15	15	14	14	14	17
12	17	17	14	18	18	15	14		14	17	20	36	42	34	35	18	14	14	14	17		20	13	13
13	15	14	15	17	13	13	14	21	13	15	18	44	43	40	34	17	15	14	14	14	14	20	13	15
14	18	14	15	14	13	17	15	23	15	18	18	40	40	21	36	18	15	21	13	17	26	13	17	17
15	15	17	18	15	15	17	17	13	14	17	18	17	40	39	39	18	20	14	13	17	18	15	18	15
16	15	21	17		14		14	22	18	33	38	36	42	37	35	18	14	13	15	14	18	17	14	13
17	15	14	15	13	14	21	14	17	13	33	34	40	20	39	18	15	13	14	13	13	14	15	14	13
18	17	18	17	14	17	13	15	23	14	33	38	35	20	44	35	18	14	14	13	15	15	14	13	17
19	14			13	15	17	15	23	30	39	43	43	49	42	35	40	18	21	21	13	14	14	18	13
20	17	15	14	18	15	14	13	22	28	14	35	37	41	37	21	18	14	18	15	15	14	15	14	14
21	15	14	14	14	17	14	14	21		34	34	42	40	39	20	34	22	18	14	26	14		15	15
22	13	17	14	13	20	18	14	21	28	17	39	37	44	41	21	18	14	21	13	13	13	17	14	18
23				15	18	14	14	22	33	21	37	42	20	20	17	17	14	14	14		15	14	14	13
24		21	20	15	17	18	15	22	29	34	C	C	C	C	C	20	13	20	14	14	14		13	17
25	17	18	26	14		17	14	23	14	34	35	42	42	18	20	14	17	13	13	13	17	23	23	14
26	18	14	14	15	14	13	17	13	15	37	21		44	43	21	22	18	15	14	14	17	18		15
27	13	13	26	17	17	17	13	21	22	38	36	36	41	42	34	20	18	18	15	14	15	14	14	17
28	17	17	14	14	14	14	14	22	17	20	39	42	23	44	21	15	15	21	15	15	18		20	15
29	14	18	20	20	14		15	13	15	20	36	40	40	42	39	15	30	22	18	21	15	22	20	18
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	25	24	27	28	28	27	28	28	28	29	28	27	28	28	28	29	29	29	29	28	27	25	26	27
MED	15	17	15	15	15	15	15	21	18	20	32	39	40	38	34	18	15	15	14	14	15	15	14	15
U Q	17	18	18	17	17	17	17	22	28	34	36	42	42	40	35	20	18	19	15	15	17	18	18	17
L Q	14	14	14	14	14	14	14	18	14	17	20	35	28	32	20	16	14	14	13	13	14	14	13	14

HOURLY VALUES OF foF2 AT Yamakawa

FEB. 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	34	A	28				29		64	74	77	78	85	82	81	71	76	67	62	A	A			30
2	30	32	36	29	34			34	64	82	86	84	64	79	85	86	84	71	62	36	51	38		29
3	30	34	34	34	34	36	37	42	67	88	111	98	81	91	97	82	74	72	78	50	47	36	36	
4	34	36	34	37				38	66	82	81	87	80		84	89	78	67	55	36	34	32	31	30
5	28	32	34	34	37	30		34	76	78	80		76	77	78	84	84	74	54	A	37	34	36	34
6	28	30		34	34	34	32	37	64	81	78	113		80	80	81	92	82	73	A	A	34	A	
7	34	42	A			28		32	62	81	90	112		86	80	75	70	66	66	54	47	37	34	31
8	34	34	34		34	28		A	80	83	76	82	87	82	86	73	87	81	74	52	32	32		36
9	32	32	32		32			47	68	80	78	87	80	77	82	87	75		74	42	36	37		
10	34	A	34	36	36	32	36	46	89	81	78		84	86	114	130	111			66	52		44	37
11			32	32	34	32	32	44	77	80	81		82		77	88	84	80	74	51	54	73	54	42
12	A	A	A	34	34	36	52	36	76	87	128	112	88	112	88	89	87	78	74	54	52	52	54	36
13	36	37	36	34	32	32	32	48	78	82	114	84	87	114	90	86	84	67	72		A		A	36
14	37	38	37	36	36	34	34	51	73	80	107	80	86	113	89	85	85	84	78	64	51	43	36	42
15	42	36	32		30	28	30	54		92	85	86	113	90	100	106		76	65	54	78	73	36	32
16	47	37			29	28	30	42	74	85	105		78	84	88	82	82	81	81	51	52	53	33	36
17	32	28		29	31	31	32	52	83	86	76	68	80	88	103	86	81	78	72	75	37	43	42	29
18	30	30	30	32	34	34	34	53	76	71	76	78	78	85	86		86	85	80	51	47	46	34	34
19			34	34	36	34	30	50	88	78	C	C	C	C	C	C	85	83	78	52	52		36	
20	34		34	32	34	32	27	46	84	80	81	84	87	95	87	90	87	99	81	51	47	50	40	37
21	34	34			34	34	34	59	82	73	74	84	86		106	84	82	81		50	44	37	36	35
22	32	31	34	36	34	34	32	58	67	72	90	86	72		88	87	86	82	67	50	34	42	38	37
23	32	32	36	36	34			48	79	87	84	91	110	128	129	114	87	86	80	54	51	51	43	43
24	37	37		34	30		28	53	67	68	72	102	87	106	90	82	82	76	81	66	48	34	34	37
25	34	36	37	36	37	32	34	54	67	82	85	114	90	114	128	115	122	111	82	67	54	44		32
26	36	38	36	37	41	28		47	63	62	78		88	88	102	110	88	81	82	51	38	34	32	34
27	36		36	34	37		28	50	66	75	82	103		112	87		86	76	61	48	41	38	37	36
28	A	32	34	36	37	31	31	54	83	85	81	84		111	112	102	90	88	76	74	47	41	34	30
29	37		37	36	45	28		50	67	98	87	90	108	81	87	90	84	82	72	47	36	43	43	40
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	25	21	22	22	26	22	20	27	28	29	28	23	24	24	28	26	28	27	27	25	26	25	22	25
MED	34	34	34	34	34	32	32	48	74	81	81	86	86	88	88	86	84	81	74	51	47	41	36	36
U Q	36	37	36	36	36	34	34	53	79	85	88	102	87	111	101	90	87	83	80	59	52	48	42	37
L Q	32	32	34	34	34	28	30	42	66	76	78	84	80	82	84	82	82	74	66	50	37	35	34	31

HOURLY VALUES OF fEs AT Yamakawa

FEB. 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	24	28	28	32	33	26	G		G	35	42	44	43	G	G	40	41	43	50	39	33		41	G
2	G	G	G	G	G	G	G	G	G	G	G	G	47	48	49	62	63	44	34	G	G	G		G
3	G	G	G	G	G	29	G	G	G	G	G	G	G	G	G	G	G	50	49	42	G	G	G	
4	G	G	G	G	G		G	G		G	G	45	41		G	G	36	33	33	29	G	G	G	G
5	G	G	29	24	G	G		26	G	G	G		G	G	44	G	G	38	33	44	G	G	G	G
6	G	G	G	G	G	24	G	G	G	G	44	G		51	G	51	43	60	63	42	41	34	46	33
7	30	27	39	24	28	24		31	G	G	G	G	G	G	G	N	G	49	G	44	G	26	G	G
8	G	G	27		G	G	G	43	G	G	93	48	G	G	G	46	43	52	32	11	G	G	27	G
9	G	G	G		G	28	28	G	G	G	G	G	G	G	G	G	G		50	G	29	27	28	32
10		40	30	G	G	G	G	G	30	79	40		46	G	G	G	G	43	34	30	29	G	G	G
11	G	26	G	G	G	G	25	23	G	G	G		G		G	45	51	38	G	24	G	G	G	G
12	49	34	36	G	G	G	G	G	G	G	51	42	G	G	48	50	49	70	24	G	24	33	G	G
13	G	G	28	25	G	G	G	G	G	G	G	G	G	G	52	48	46	40	35	33	58	43	41	28
14	24	34	33	28	23	G	G	25	G	49	G	50	64	43	G	G	37	33	38	44	27	G	G	G
15	37	30	26	26	G	G	G	G	42	45	G	G	G	G	G	46		43	39	39	28	28	G	G
16	G	G		G	G	G	G	G	G	38	G	G	G	G	G	G	44	33	40	40	G	G	G	G
17	G	G	30	G	G	G	G	G	G	G	G	55	G	G	G	G	41	44	G	38	33	28	G	G
18	G	G	G	G	G	24	G	G	G	G	G	G	44	G	G	G	G	G	G	G	G	23	G	G
19	30	33	24	G	G	G	G	G	G	G	C	C	C	C	C	C	40	33	G	G	G	G	G	40
20	34	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	32	G	G	G	G	G	G
21	G	G	28	31	27	28	G	31	G	G	G	42	G	G	G	G	43	42	G	G	G	G	G	G
22	G	G	26	24	G	G	G	G	32	G	G	G	G	G	G	G	G	33	G	25	27	26	G	G
23	G	G	G	G	27	28	26	G	34	G	G	G	58	G	G	G	G	G	G	G	G	G	G	G
24	G	40	28	G	G	G	G	G	G	G	G	G	G	G	G	40	38	G	26	G	G	G	G	G
25	G	30	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	32	G	G	G	G		G
26	G	25	G	G	G	G		G	G	37	40		48	G	60	44	39	33	G	G	G	24	29	G
27	G	26	G	G	G	G	G	G	G	42	G	G	G	G	48	43	38	38	28	G	G	23	24	G
28	40	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	36	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	29	28	27	29	28	26	28	28	29	28	24	27	26	28	27	28	28	29	29	29	28	27	28
MED	G	G	12	G	G	G	G	G	G	G	G	G	G	G	G	G	38	38	26	11	G	G	G	G
U Q	24	30	28	24	G	24	G	G	G	18	G	42	43	G	G	45	43	43	36	39	27	26	24	G
L Q	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	32	G	G	G	G	G	G

HOURLY VALUES OF fmin AT Yamakawa

FEB. 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	14	14	14	15	16	15		15	20	17	20	23	21	20	18	16	15	16	15	15		14	17
2	14	15	17	18	16	17	16	15	15	15	21	18	20	21	18	20	15	15	14	15	15	15		17
3	15	16	16	15	14	15	15	15	23	17	18	21	18	20	16	18	15	16	15	15	15	15	15	
4	15	15	17	17	18		18	16	14	16	21	18	21		20	16	14	14	15	15	15	16	16	21
5	20	20	15	20	15	15		15	18	16	20		20	18	20	18	15	15	14	16	15	16	15	16
6	16	15	20	15	15	17	15	15	22	29	18			24	22	17	17	14	15	15	14	14	14	14
7	16	15	15	21	14	16		14	15	15	18		21	21	20	20	17	15	17	15	16	15	15	17
8	17	16	17		15	17	20	15	15	18	18	21		21		21	18	21	14	14	15	16	15	14
9	16	15	15		15	15	15	15	23	29	34	32			21		17		15	15	16	16	16	15
10	15	14	14	16	16	16	16	15	15	18	22		23	22	20	17	18	16	15	16	15	15	16	17
11	17	22	17	17	15	17	16	15	15	17	33		23		35	21	16	15	16	15	15	20	16	15
12	15	15	14	17	16	17	15	18	20	16	18	18	18	26	18	20	16	17	17	15	16	15	15	17
13	15	17	14	17	17	17	17	16	17	17	18	21		20	32	20	21	15	14	14	15	14	15	15
14	16	14	14	14	18	16	16	16	14	18	20	22		23	23	20	16	15	14	16	15	15	16	17
15	14	15	15	15	15	16	16	16	15	18	20	21	21		24	20		15	15	15	15	16	17	18
16	15	15		17	17	17	15	16	16	16	22	21	26	20	20	16	17	15	14	15	15	15	16	15
17	15	15	15	16	16	17	15	16	24	21	20		18	20	21	18	16	15	17	14	14	17	15	17
18	15	17	16	14	15	15	15	16	16	15	22	21	20		20	18	21	16	18	14	17	15	15	15
19	15	15	17	16	16	16	20	16	24	18	C	C	C	C	C	C	18	15	17	15	16	15	16	16
20	15	22	15	16	20	15	18	17	17	15	17	17	17	28	18	26	16	15	17	14	15	15	15	15
21	15	15	14	14	15	17	18	14	16	16	18	18	18		24		17	15	17	15	15	16	17	16
22	15	15	16	16	15	16	15	16	14	17	20	21	24	28	29	18	17	15	18	16	16	15	16	17
23	15	15	15	14	15	16	17	17	15	16		21	22	20	20	18	17	16	18	15	15	15	14	17
24	15	14	15	15	15	15	17	17	14	18	21	20	21	28	21	20	18	15	18	15	15	15	16	15
25	16	17	18	14	17	17	17	18	15	16	17	21	20	34	21	21	17	15	16	15	15	15		15
26	15	15	15	15	15	17		18	15	17	21		28	27	26	21	17	15	18	15	15	14	15	17
27	15	15	16	16	17	17	18	18	15	17	23	20	22	24	22	27	21	14	18	15	15	15	14	18
28	14	17	16	16	15	16	17	17	15	16	18	20	20	24		23	18	15	17	15	15	15	16	17
29	15	15	15	15	15	16	18	18	15	17	21	34			20	18	15	15	18	15	16	15	15	16
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	29	29	28	27	29	28	26	28	29	29	27	21	22	21	26	26	28	28	29	29	29	28	27	28
MED	15	15	15	16	15	16	16	16	15	17	20	21	21	22	20	20	17	15	16	15	15	15	15	16
U Q	16	16	16	17	16	17	18	17	17	18	21	21	23	26	23	21	18	15	17	15	15	16	16	17
L Q	15	15	15	15	15	16	15	15	15	16	18	19	20	20	20	18	16	15	15	15	15	15	15	15

HOURLY VALUES OF foF2 AT Okinawa

FEB. 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	38					28	28	32	70	86	91	97	88	118	130	108	98	88	98	77	53	52	52	37
2	32	34	34	32	34			32	65	88	93	80		80	110	117	117	106	87	64	87	66	50	43
3	42	52	50	46	42	44	44	40	73	97	118	103	100	121	144	148	121	106	123	126	78	66	64	53
4	48	55		28	41			42	68	74	101	110	116	101	118	121	103	98	87	66	66	48	37	29
5		32	30	34	37	A		30	87	82	80	92	85	76	95	112	110	113	81	66	72	52	48	48
6	30		29	32	34	30	31	37	65	88	97	114	105	102	102	114	111	117	102	86	76	87	50	
7	64	62	30	28		28		A	80	86	106	122	122	118	101	98	86	73	79	78	66		52	40
8	48	50	41	A	29			36	86	100	97	85		108	106	108	110	111	98	64	52	64	66	54
9	52	41	32	32	30		A	42	66	80	90	96	87	84	97	111	110	85	80	54	48	52	52	61
10	50	43	A	A	39			42	89	95	82	88	107	124	147	172		157	146	131	108	100	83	54
11	51	43	38	37	31	29	30	42	76	88	90	106	100	114	124	121	124	108	107	101	104	134	111	88
12	77	86	66	44	32	45	65	61	75	117	124	116	86	112	116	110	102	84	84	64	63	72	62	
13	A	36	34		30			46	88	104	104	97	102	121	118	107	102	98	75	66	66	53	64	51
14	40	42	41	38	37	30	30	48		86	112	97	88	120	124	117	102	106	110	86	77	66	63	66
15	60	41	41		31		29	45	86	90	96	111	C	132	124	150	128	122	110	107	145	143	86	52
16	48	54	28		28			42	73	98	110	110	86	93	106	107	88	C	C	C	C	C	C	C
17	C	C	C	C	C	C	C	C	C	C	C	C	86	110	C	C	111	110	109	108	102	82	70	46
18		28	30	29	29	32	35	47	70	72	78	78	86	88	101	106	107	104	104	85	64	63	47	34
19	31	30	30	32		31	26	45	78	93	81	86	91	106	120	118	124	108	110	87	87	87	66	42
20	38	34	36	37	40	26		42	94	88	80	101	118	108	111	122	122	151	121	108	88	88	65	42
21	37	34	34	32	28	34		51	76	71	86	86	106	120	126	118	111	108	87	66	66	65	43	38
22	31	36	40	37	34	32	30	51	66	81	95	114	107	107	136	130	131	107	87	72	54	54	66	53
23	43	42	40	34	30		29	45	73	104	101	108	135	146	158	157	136	126	131	108	87	88	81	48
24	38	37	34	29	31			47		74	80	96	110	101	120	107	105	105	104	87	88	51	52	48
25	51	40	36	34	34	32	32	52	63	82	108			144	152	151	147	145	142	110	87	85	88	72
26	52	50	48	44	44			44	62	65	75	B	96	110	121	122	124	116	107	87	74	52	50	37
27	30	34	34	34	44			45	77	78	90	111	127	144	152	157	147	127	104	87	78	54	51	
28	45	50	42	40	38	26	30	48	86	88	78	98	111	125	144	130	124	110	107	110	87	76		43
29	43	42	40	36	41			51	66	90	106	108	116	111	136	134	128	110	86	66	73	88	76	54
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	25	26	25	22	25	14	13	27	26	28	28	26	25	29	28	28	28	28	28	28	28	27	27	25
MED	43	42	36	34	34	30	30	45	74	88	94	100	102	111	120	118	111	108	104	86	76	66	63	48
U Q	51	50	41	37	39	32	33	48	86	94	105	110	113	121	136	132	124	116	110	107	87	87	70	54
L Q	37	34	31	32	30	28	29	42	66	80	81	92	87	101	108	109	104	104	87	66	66	53	50	41

HOURLY VALUES OF fEs AT Okinawa

FEB. 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	27	31	G	B	49	29	26	G	G	G	G	G	G	G	G	G	G	N	G	26	G	29	28	G
2	24	G	G	G	G	G	G	G	G	38	G	G	B	G	51	46	45	38	31	25	81	31	40	G
3	G	G	G	G	G	G	30	G	G	G	G	G	G	G	G	G	G		38	70	43	34	29	G
4	G	G	B	G	G	B	G	33	34	G	G	G	G	G	G	G	55	35	G	G	G	G	G	G
5	B	G	G	G	G	33	27	G	32	G	G	G	G	G	G	47	50	55	27	24	G	G	G	G
6	G	G	G	G	G	G	G	27	G	G	43	G	G	49	G	57	56	43	46	28	G	28	26	37
7	26	20	G	25	28	24	32	40	G	G	G	G	G	55	50	55	57	48	G	G	G		G	30
8	G	G	G	33	28	B	B	G	G	36	G	G	G	G	G	G	G	35	27		G	G	G	33
9	G	G	G	G	G	28	36	28	G	G	G	G	G	G	G	G	53	66	34	36	25	39	27	G
10	G	26	40	58	28	B	G	G	30	55	63	80	102	G	G	G	G	36	29	28	11	G	26	34
11	G	G	G	G	G	25	23	G	G	G	G	G	G	44	G	46	42	42	34	25	G	G	G	G
12	G	G	G	G	G	G	G		35	G	G	47	43	G	54	54	60	49	38	G	89	58	29	36
13	39	33	24	26	28	30	30	27	G	G	G		49	52	53	49	46	40	32	27	25	24	G	G
14	G	G	G	G	40	24	G	G	G	G	G	51	52	51	52	49	48	40		G	55	G	28	G
15	G	G	G	24	G	26	26	24	G	G	G	G	C	48	54	70	62	67	89	44	G	G	G	G
16	G	G	G	B	G	G	G	G	G	G	42	46	47	G	G	57	41	C	C	C	C	C	C	C
17	C	C	C	C	C	C	C	C	C	C	C	C	G	44	C	C	38	40	29	G	19	G	G	G
18	G	G	G	G	G	26	G	31	G	G	G	G	G	G	G	48	G	G	G	24	G	G	G	G
19	G	G	G	G	27	G	G	G	G	G	G	G	G	G	G	49	44	34	G	G	G	G	G	G
20	G	G	30	G	G	G	B	G	G	G	G	G	G	48	48	G	G	G	30	11	G	G	23	G
21	G	G	G	G	G	G	28	28	G	G	G	G		G	42	48	G	45	32	G	27	27	G	G
22	G	G	G	G	G	G	G	G	G	G	G	G	46	G	G	G	G	49	47	46	29	G	G	G
23	G	G	G	G	G	G	26	G	G	G	G	G	G	G	G	G	G	G	G		G	G	G	G
24	G	G	G	G	G	B	B	G	G	G	G	G	G	G	G	G	49	41	G	24	11	G	28	G
25	G	G	G	G	G	G	G	25	G	G	G	G	G	G	G	G	41	G	G	G	G	35	G	G
26	G	G	36	26	G	G	B	G		G	G	B	G	G	48	G	40	34	G	25	G	G	33	G
27	G	G	G	G	G	B	G	G	G	G	G	G	55	54	G	G	43	36	G	24	26	28	G	33
28	29	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G		G		G
29	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	27	28	27	26	28	23	24	27	27	28	28	26	26	29	28	28	29	26	27	26	27	27	27	28
MED	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	41	39	27	24	G	G	G	G
U Q	G	G	G	G	14	26	26	27	G	G	G	G	43	46	48	49	49	45	34	27	26	28	28	G
L Q	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	34	G	G	G	G	G	G

COMMUNICATIONS RESEARCH LABORATORY, JAPAN

HOURLY VALUES OF fmin AT Okinawa

FEB. 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	14	14	16		14	14	14	15	15	18	18	28	32	20	21	18	17	14	17	15	15	14	14	14
2	14	15	15	14	14	17	17	14	14	14	17	21		22	22	22	16	16	14	14	14	14	14	14
3	15	14	15	15	15	15	14	15	18	15	18	33	22	21	17	17	15	14	15	14	15	14	15	15
4	15	17		15	14		14	14	14	15	18	20	23	23	18	18	14	14	18	14	15	14	15	15
5		15	15	14	14	14	15	15	14	16	20	14	20	32	22	20	15	14	15	15	14	14	15	14
6	15	15	14	14	14	15	14	14	14	16	17	18	20	17	33	20	16	14	14	14	14	14	14	14
7	14	14	14	14	14	14	14	14	14	15	20	17	21	20	23	20	18	14	18	15	14		15	14
8	15	15	14	14	14			14	15	14	20	20	22	22	21	15	14	14	14	15	16	14	14	15
9	14	15	15	15	14	14	14	14	14	18	33		24		21		15	14	14	14	14	14	15	15
10	14	15	14	14	14		16	14	14	15	18	20	21	21	20	15	15	14	14	14	14	15	15	14
11	15	14	15	14	14	15	14	14	15	16	20	22	21	21	20	17	15	14	14	15	14	15	14	14
12	14	14	14	14	20	14	14	15	14	14	15	17	20	20	15	21	15	14	14	14	14	14	14	14
13	14	14	14	14	14	14	14	14	14	17	18	21	24		18	16	14	15	15	14	14	15	15	14
14	15	15	15	15	14	14	15	15	14	14	21	24	35	34	23	21	15	14	14	14	14	15	14	15
15	15	14	14	14	14	14	14	14	16	15	17	27	C	22	21	20	21	16	15	14	14	15	15	15
16	15	14	15		15	15	16	15	14	15	14	21	26	22	21	17	14	C	C	C	C	C	C	C
17	C	C	C	C	C	C	C	C	C	C	C	C	22	22	C	C	14	14	14	14	15	15	15	14
18	15	15	14	15	14	14	14	14	14	15	20	20	26	22	22	22	14	14	16	14	15	17	15	15
19	15	15	16	15	14	15	15	15	14	18	22	23	20	22	20	20	21	14	14	15	15	15	15	15
20	15	15	14	14	14	14		15	14	14	17	17	17	23	21	18	18	15	14	14	14	15	15	14
21	15	15	15	15	14	15	14	14	14	14	15	20	37	18	26	21	17	14	14	14	14	14	15	15
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24	15	15	15	14	15			16	14	16	21	26	23	22	31	32	18	17	14	14	14	15	14	21
25	15	15	15	15	14	15	14	14	14	14	20					22	21	15	20	15	14	14	14	15
26	15	14	14	14	14	14		14	14	15	21	B		34	32	29	18	14	18	15	14	15	14	15
27	15	16	14	14	14		14	17	14	14	16	20	22	20	26		17	14	14	14	14	14	14	14
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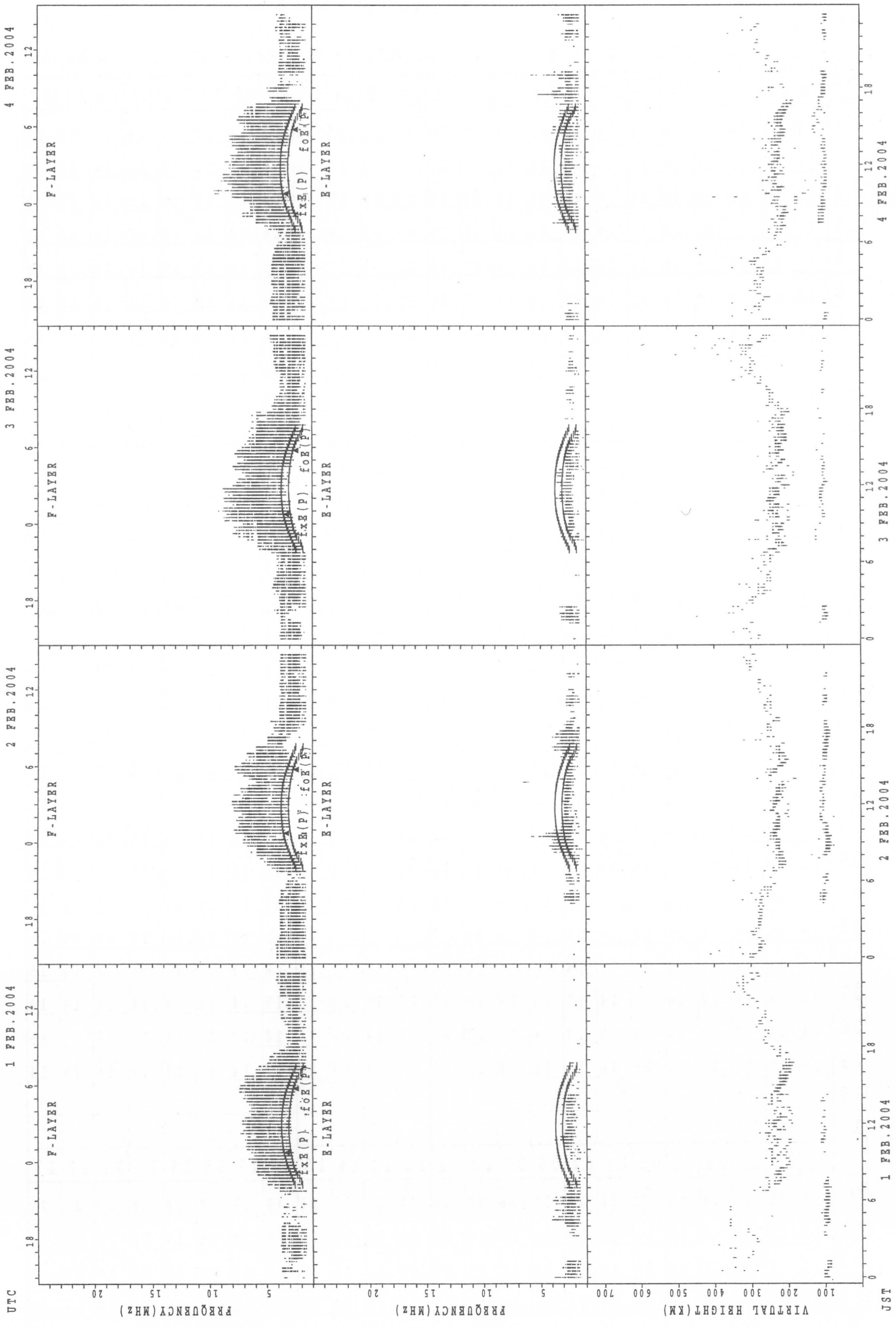
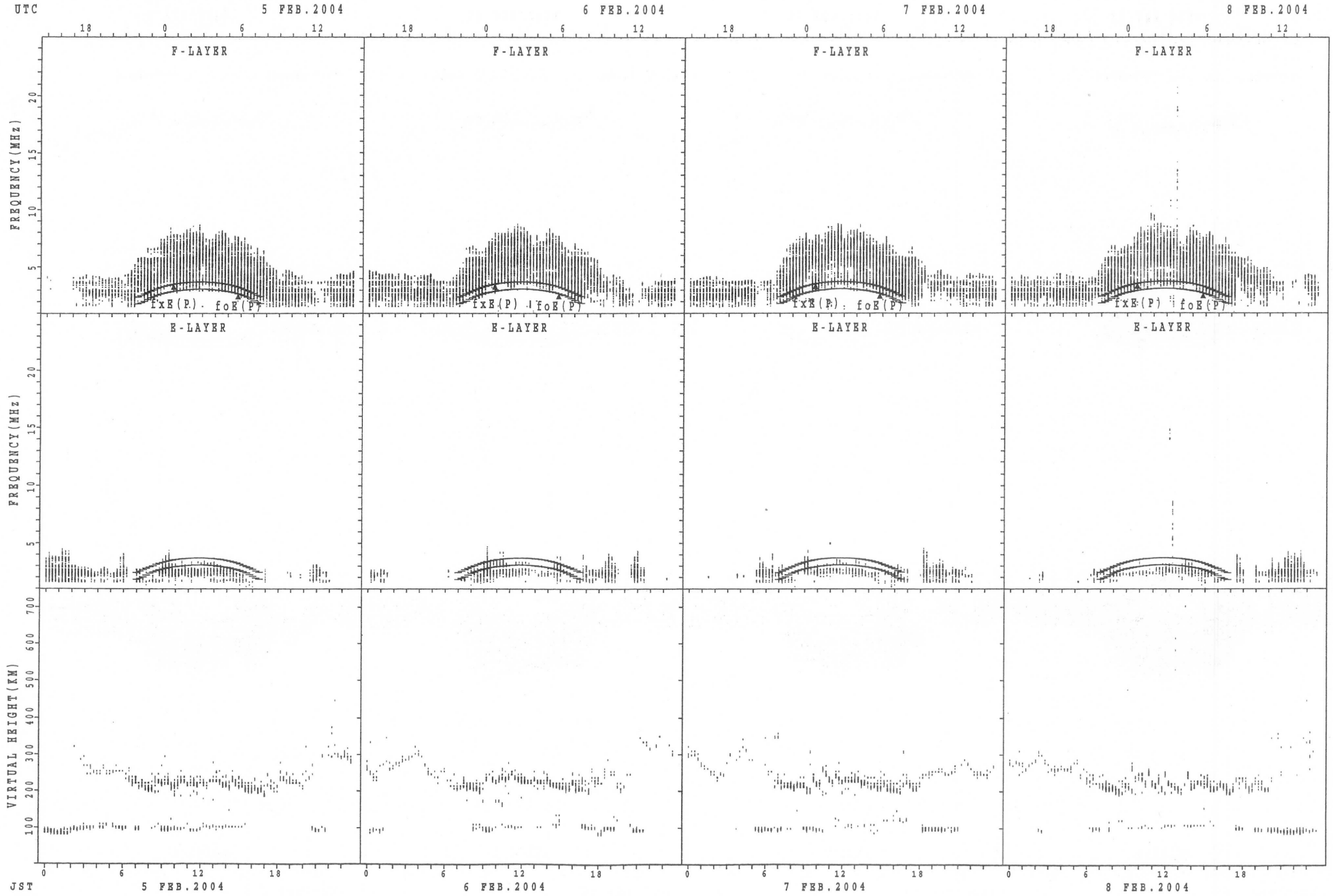
29	16	15	14	15	14	16	14	17	15	18	21			23	38	22	17	14	20	14	14	15	15	14
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	27	28	27	26	28	23	24	28	28	28	28	24	24	25	27	26	29	28	28	28	28	27	27	28
MED	15	15	14	14	14	14	14	14	14	15	18	21	22	22	21	20	16	14	14	14	14	15	15	14
U Q	15	15	15	15	14	15	15	15	14	16	20	23	24	23	26	22	18	15	16	15	15	15	15	15
L Q	14	14	14	14	14	14	14	14	14	14	17	20	21	20	20	18	15	14	14	14	14	14	14	14

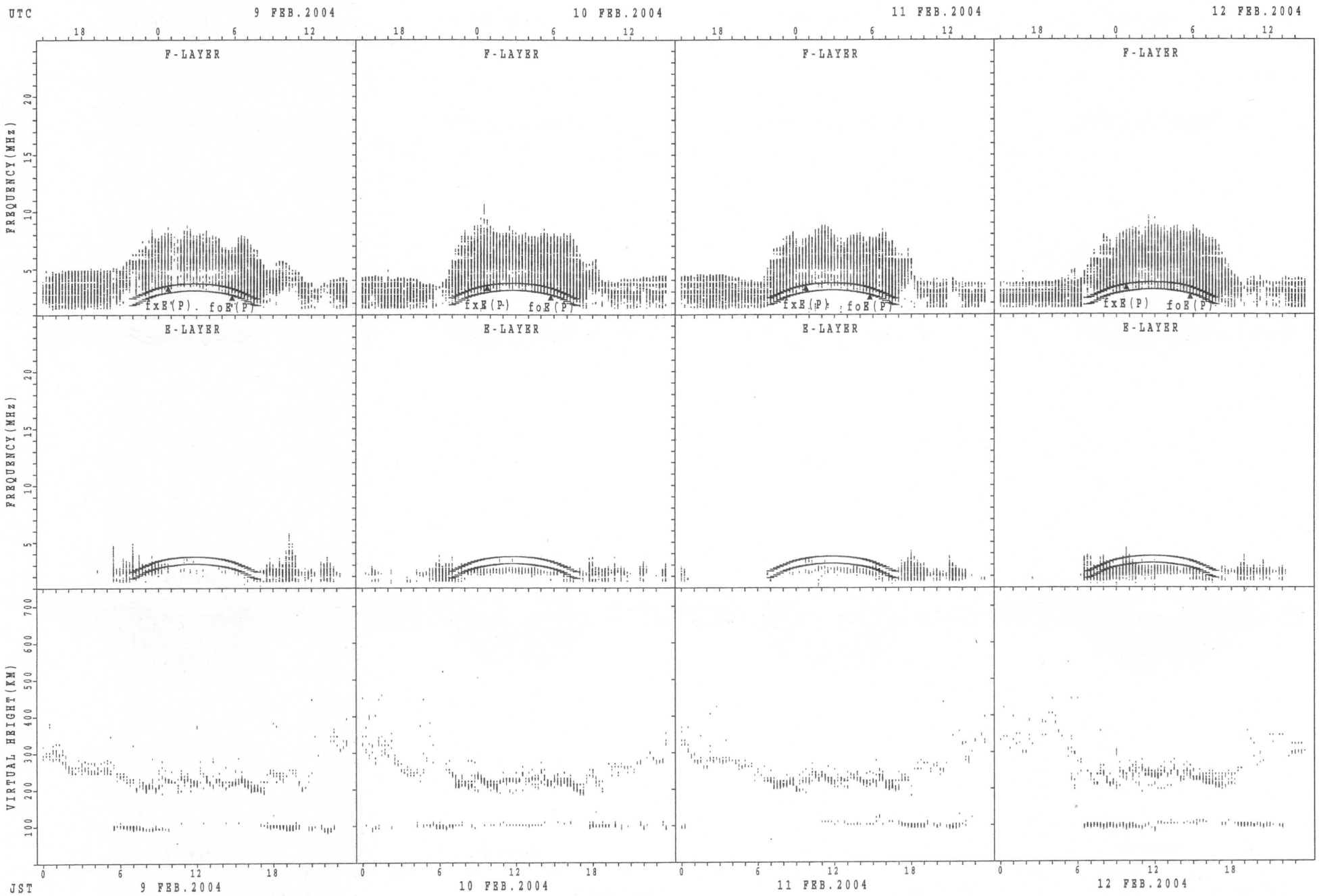

SUMMARY PLOTS AT Wakkanai
UTC
JST
1 FEB.2004
2 FEB.2004
3 FEB.2004
4 FEB.2004
F-LAYER
E-LAYER
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
fxE(P) foE(P)
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai

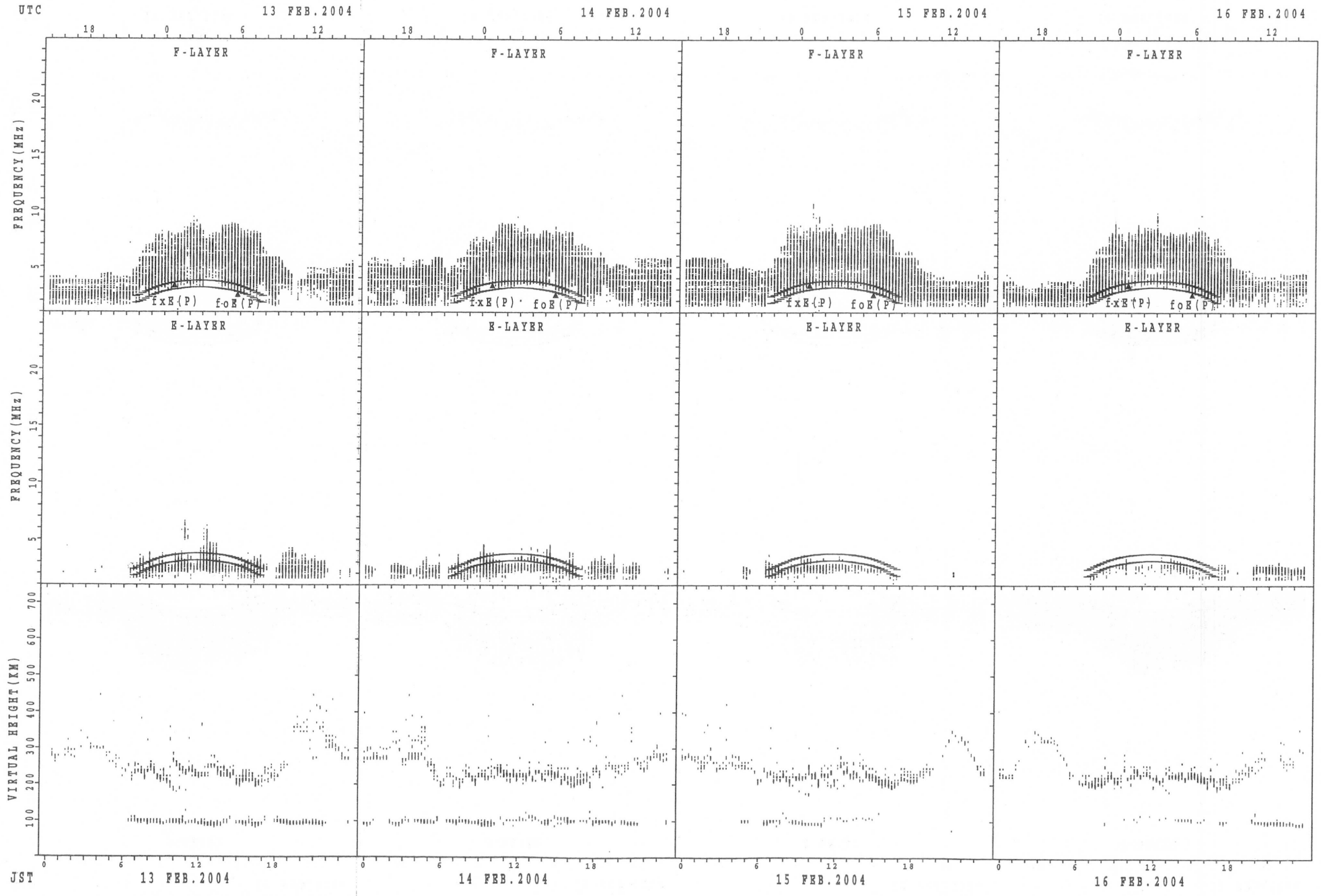


fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

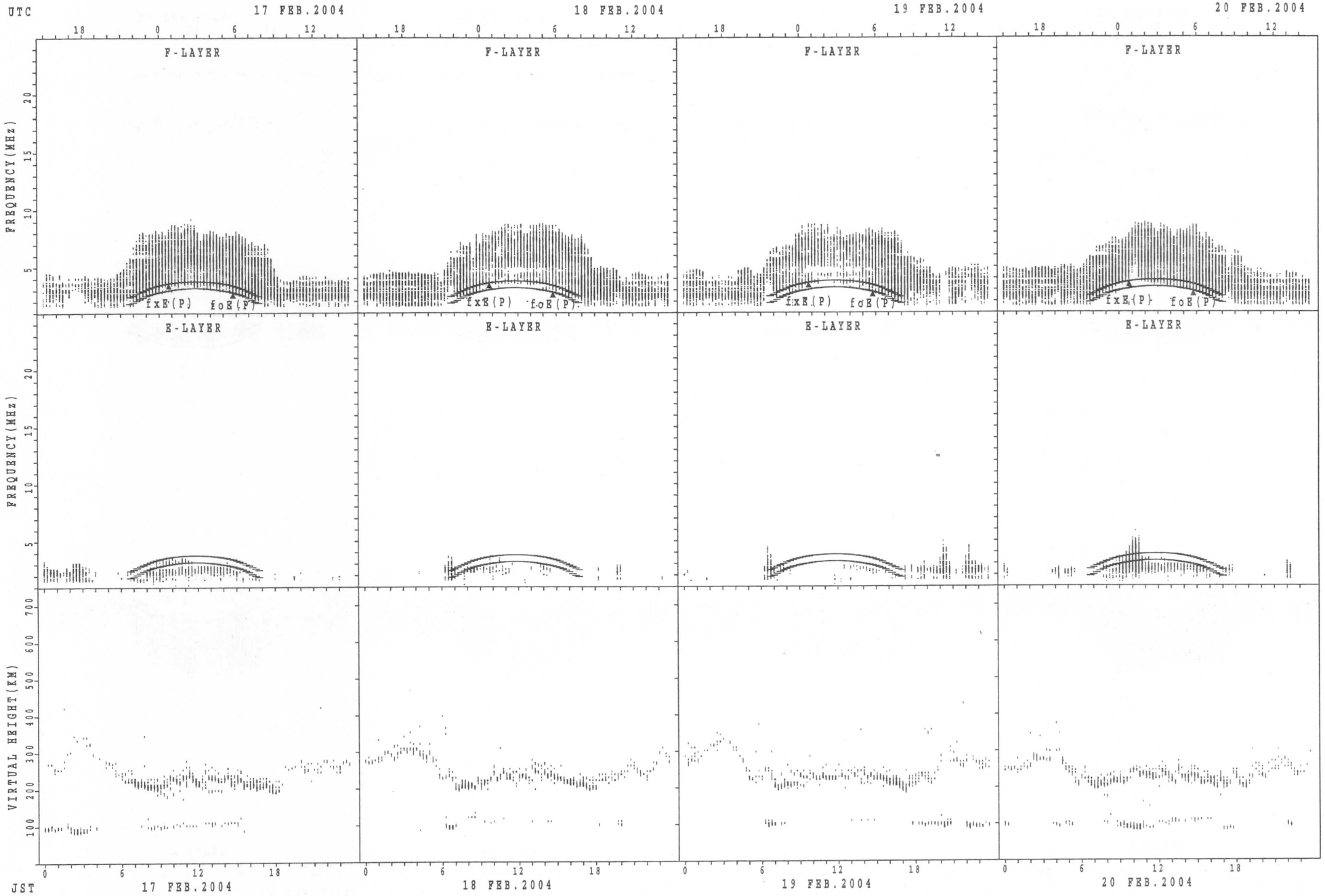
SUMMARY PLOTS AT Wakkanai



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

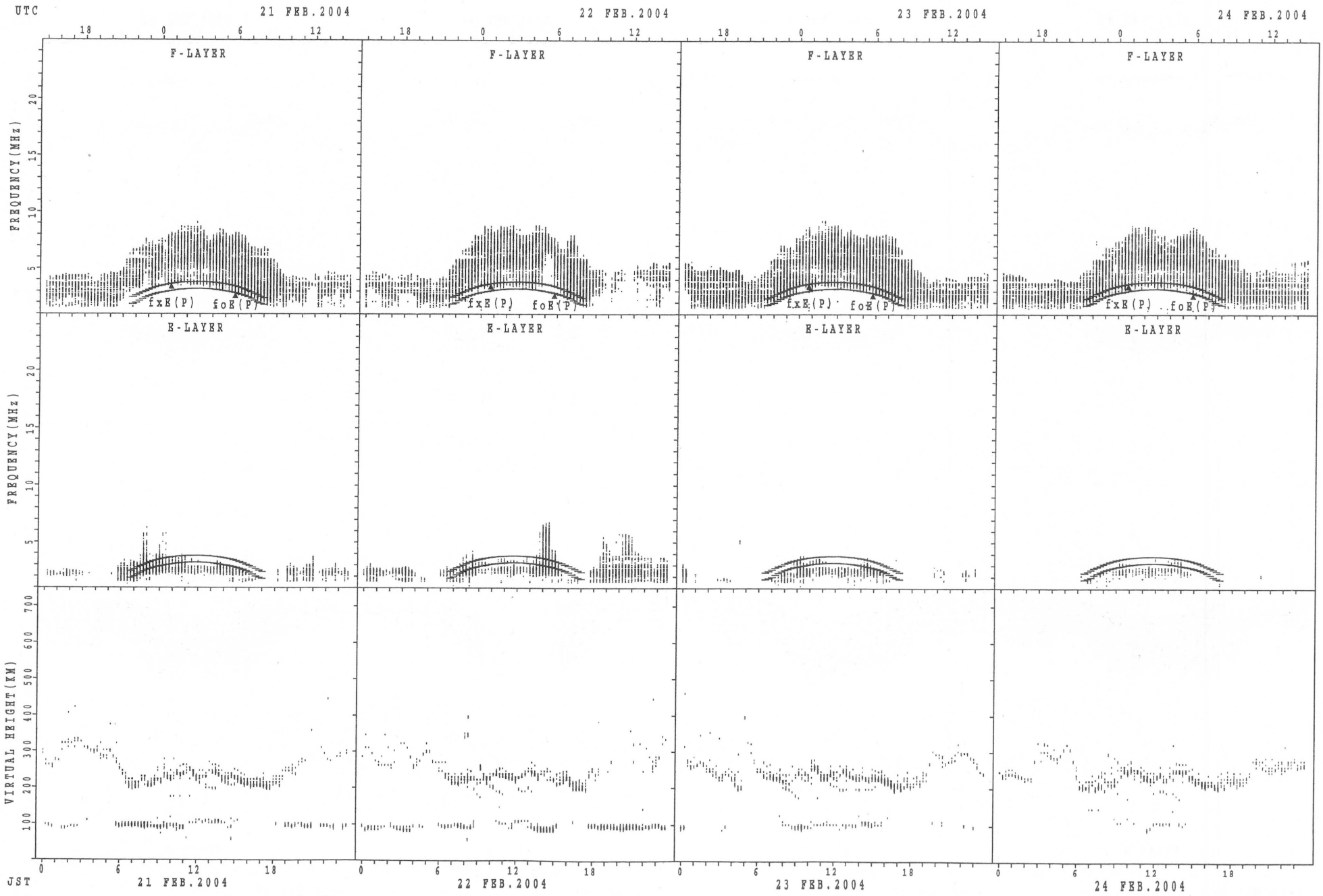

SUMMARY PLOTS AT Wakkanai
UTC
13 FEB.2004
14 FEB.2004
15 FEB.2004
16 FEB.2004
F-LAYER
fxE(P)
foE(P)
FREQUENCY(MHz)
E-LAYER
VIRTUAL HEIGHT(KM)
JST
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



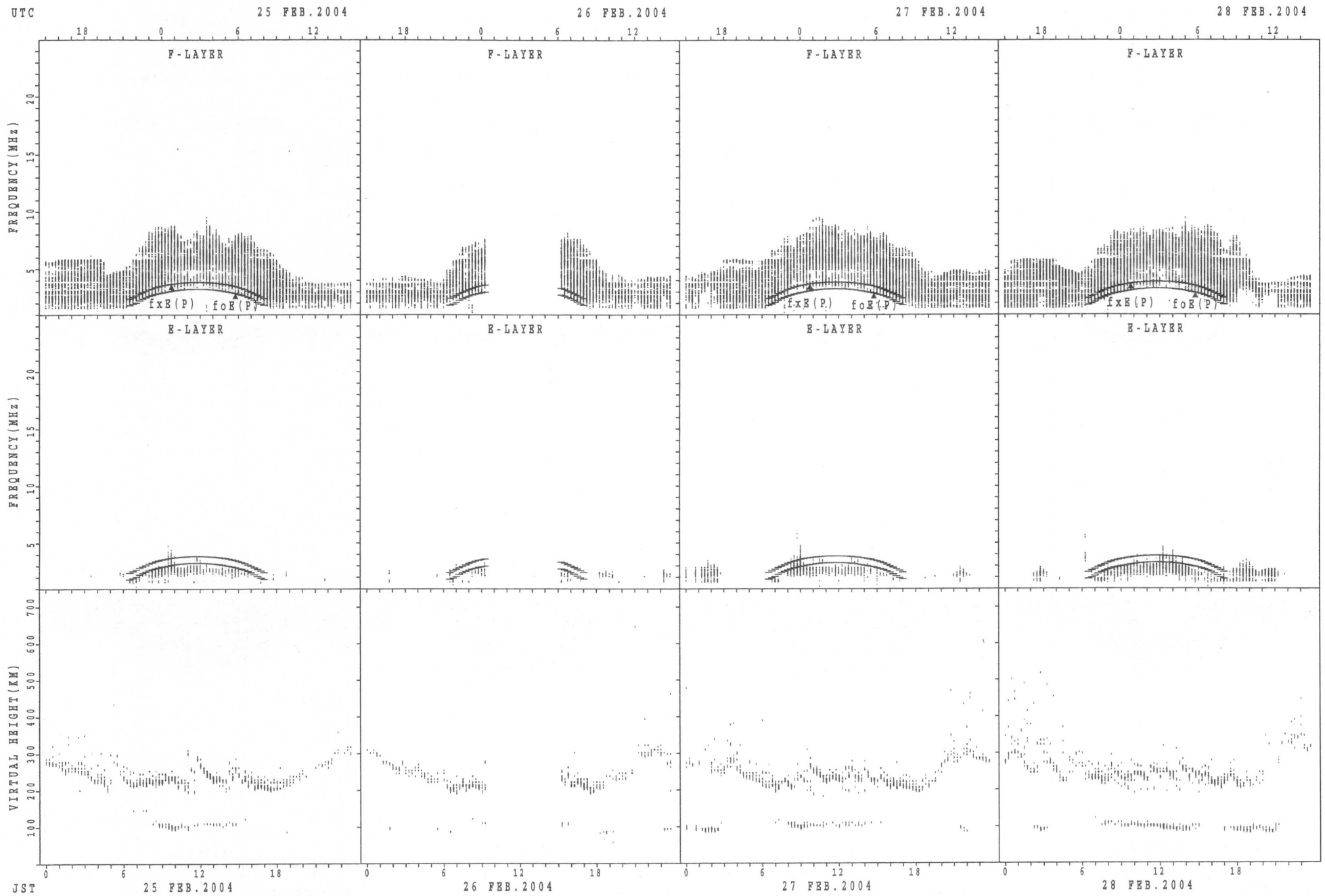
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



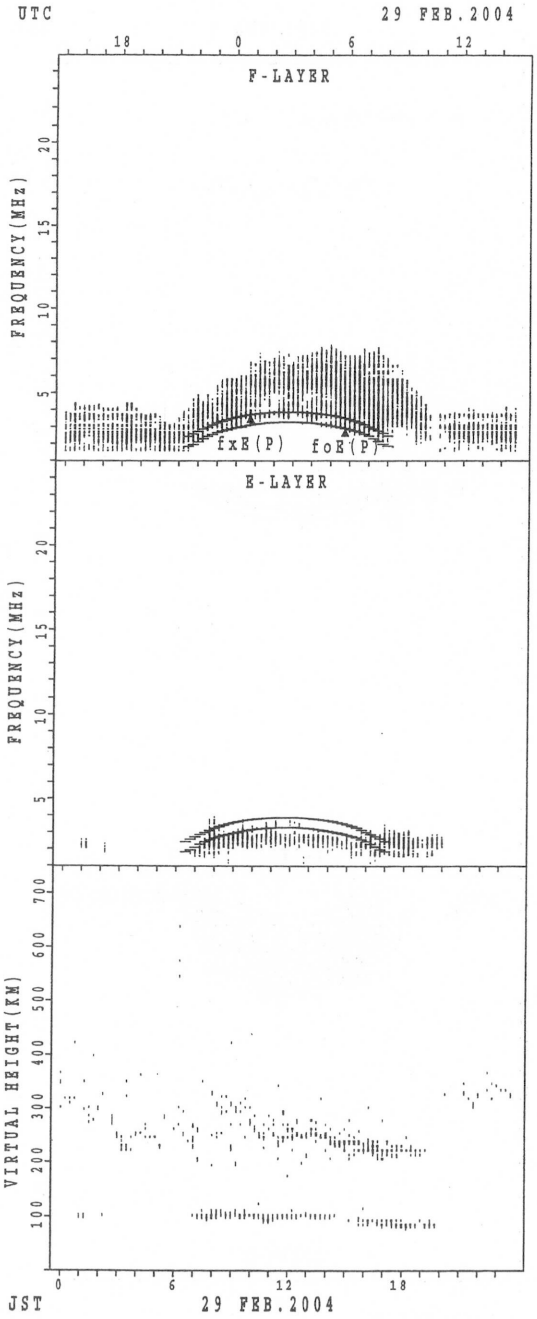
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



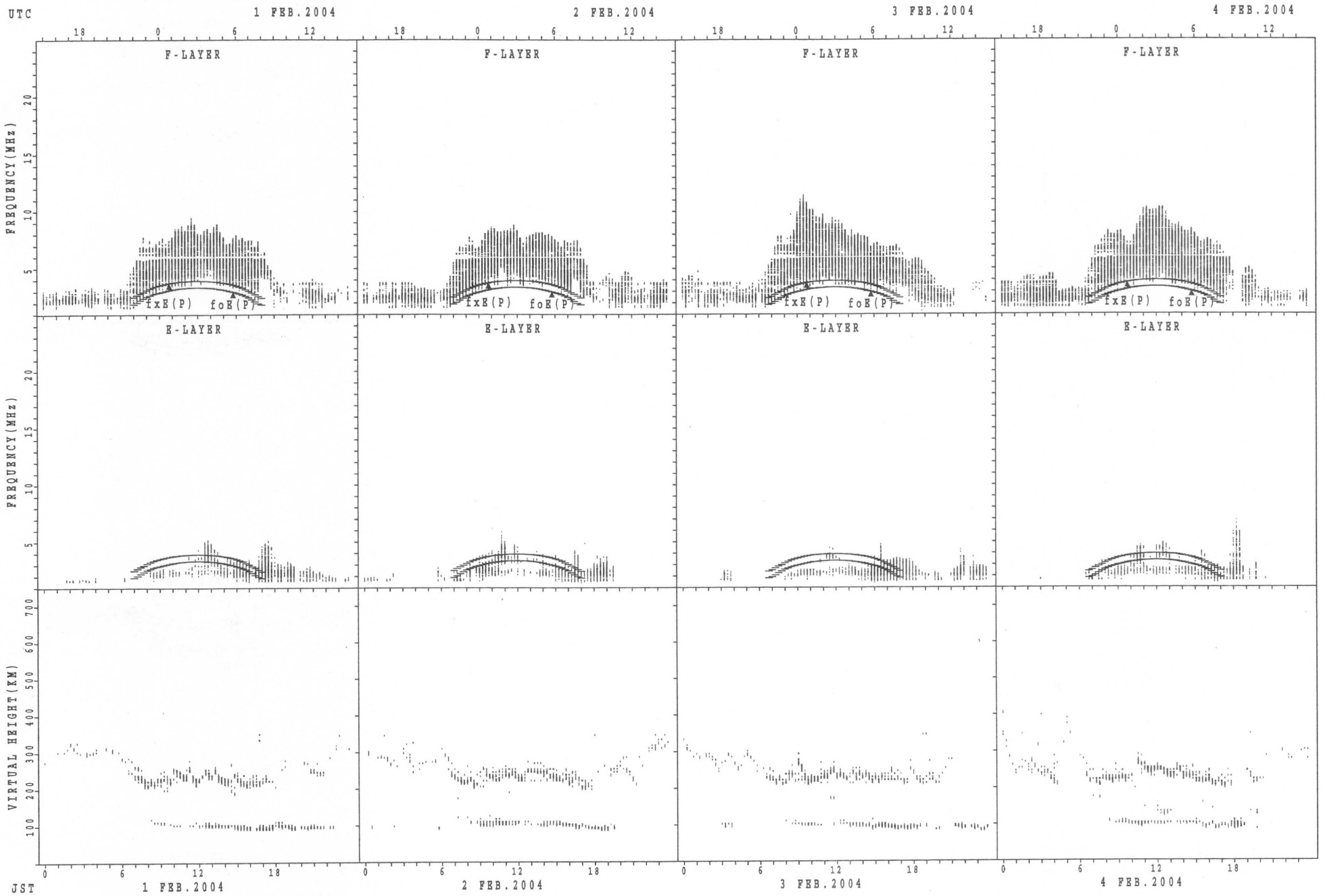
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



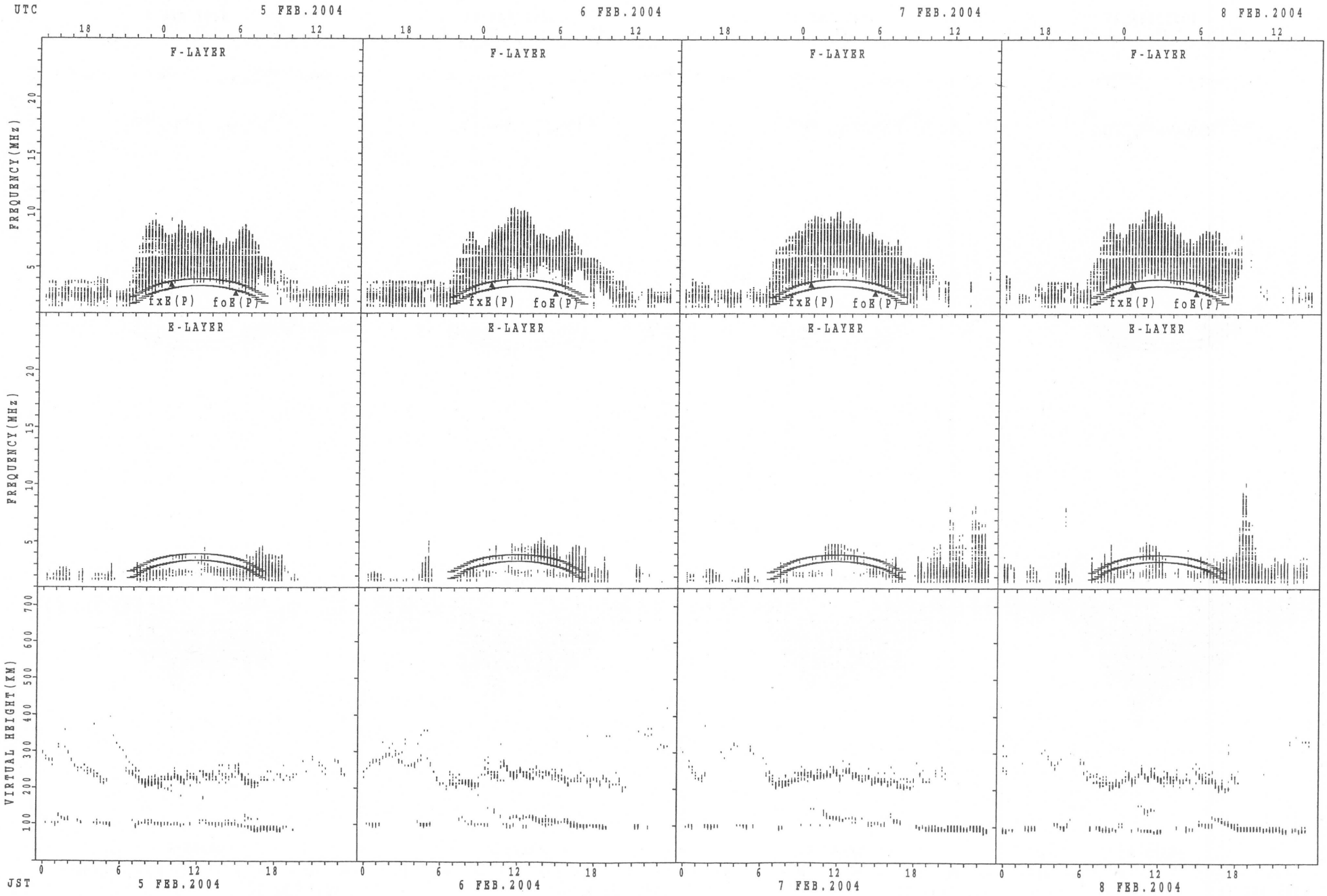
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



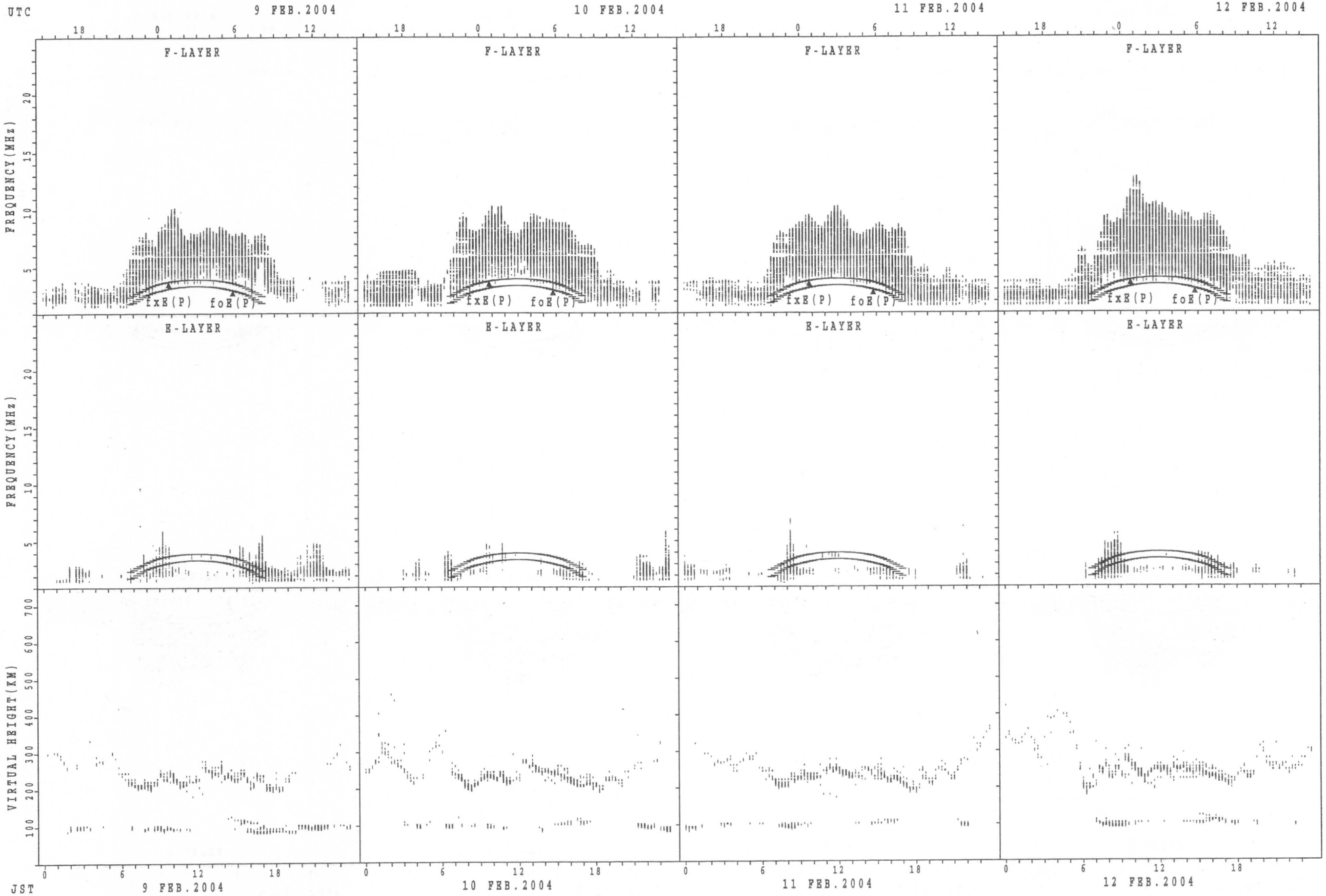
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



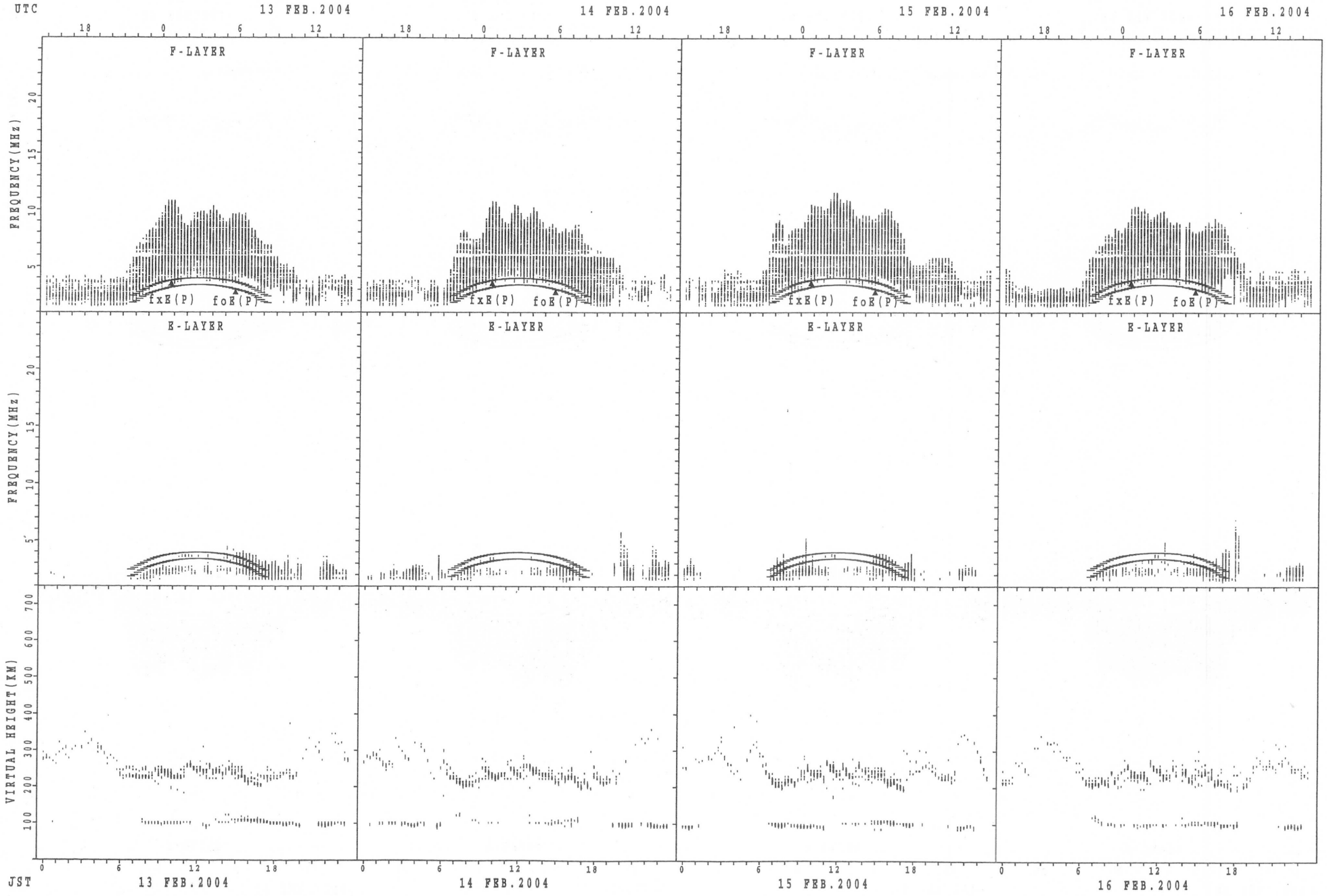
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



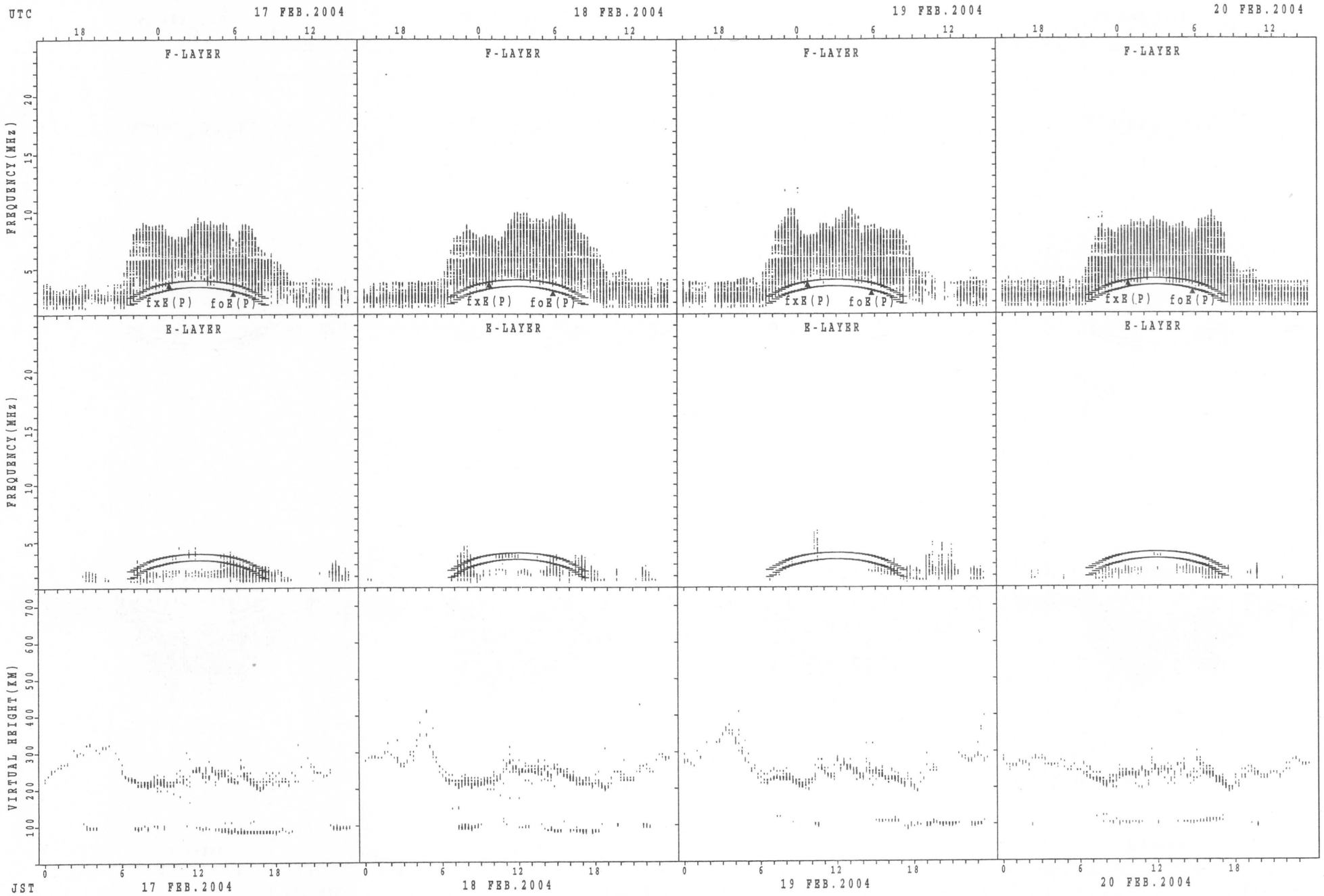
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



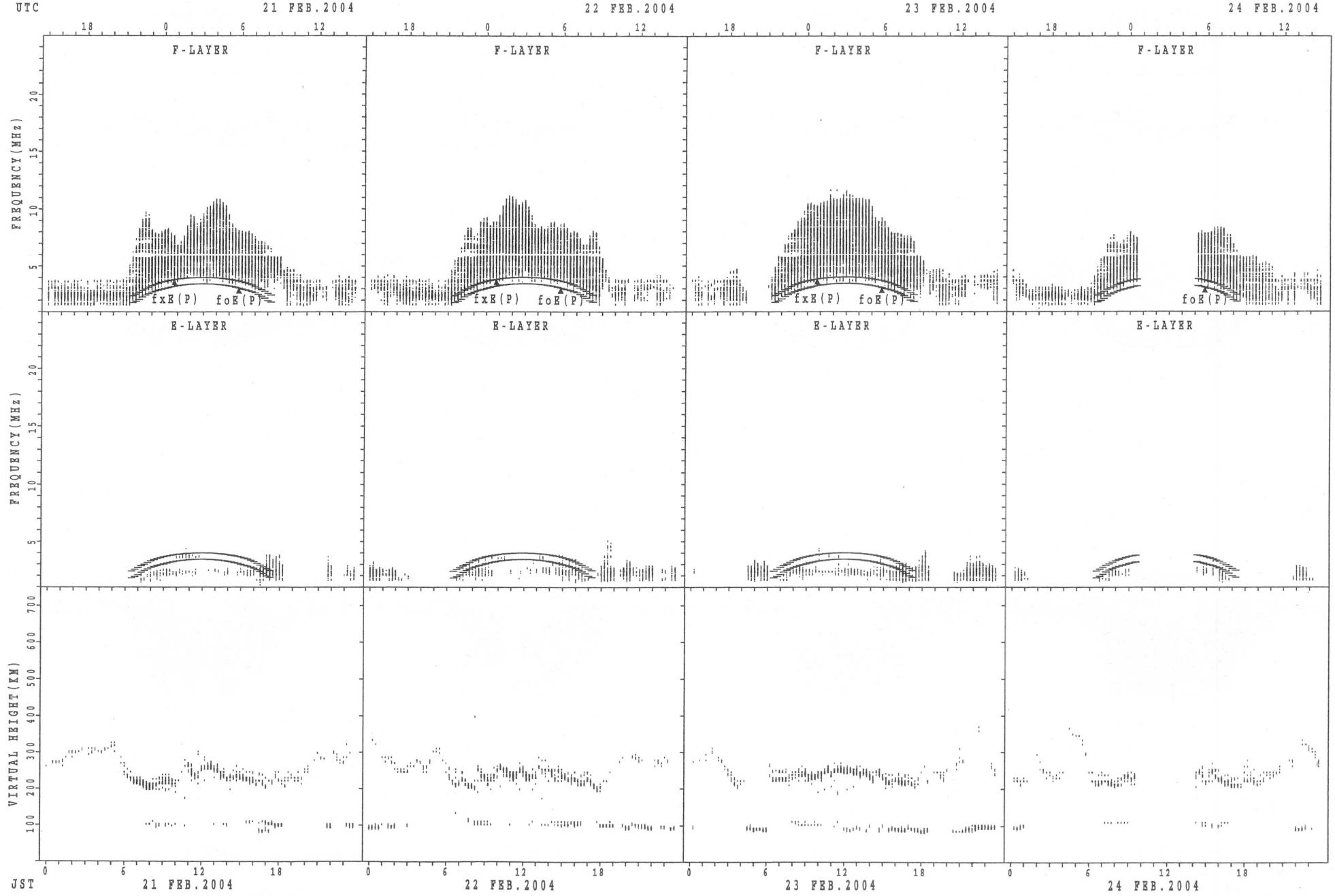
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



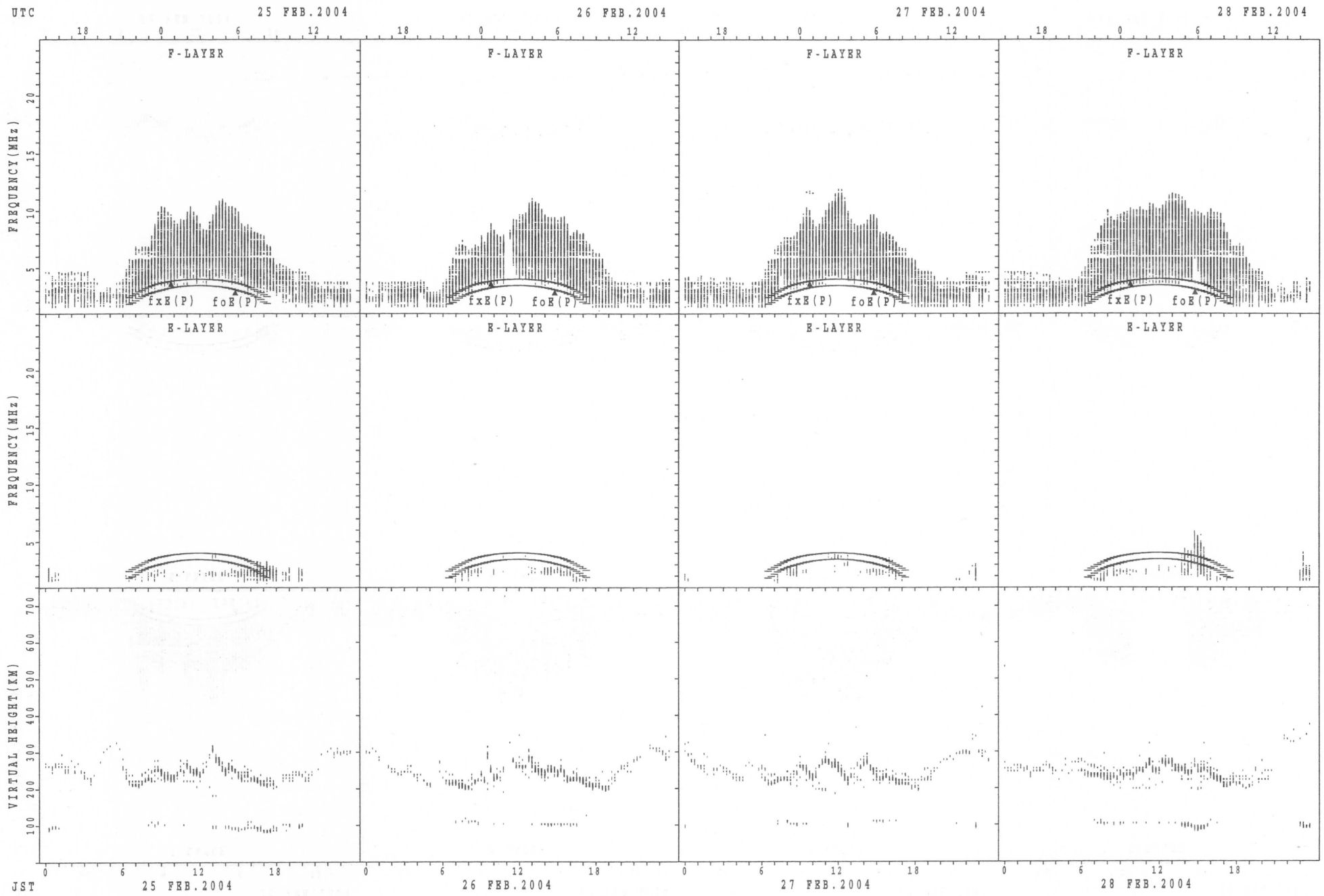
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



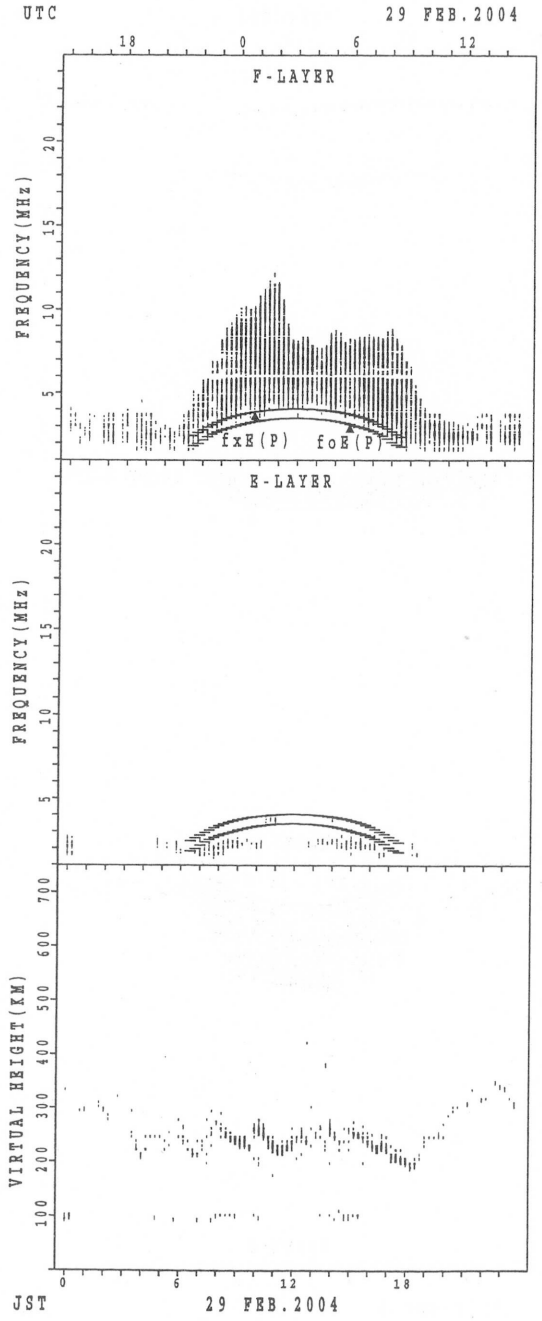
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



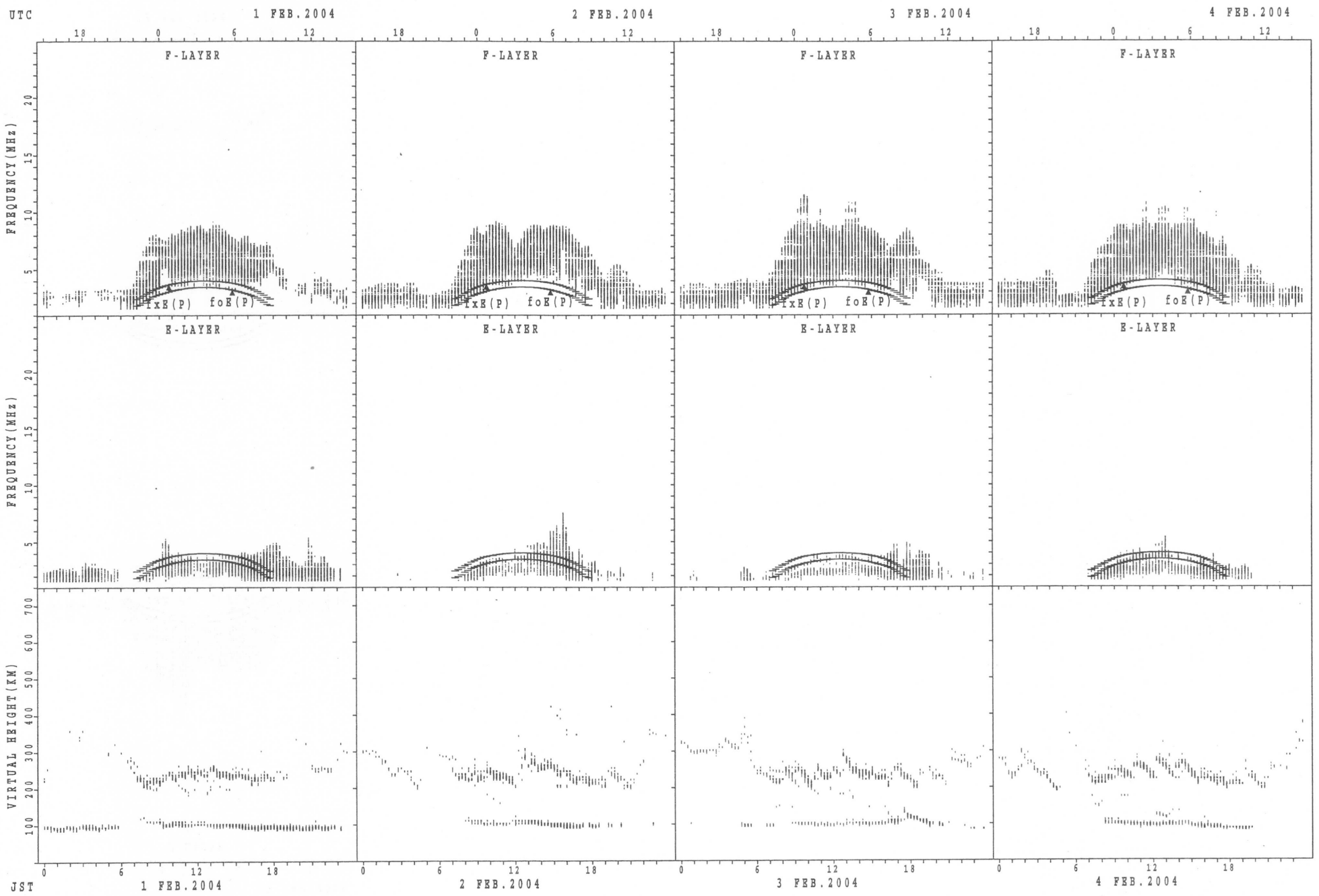
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



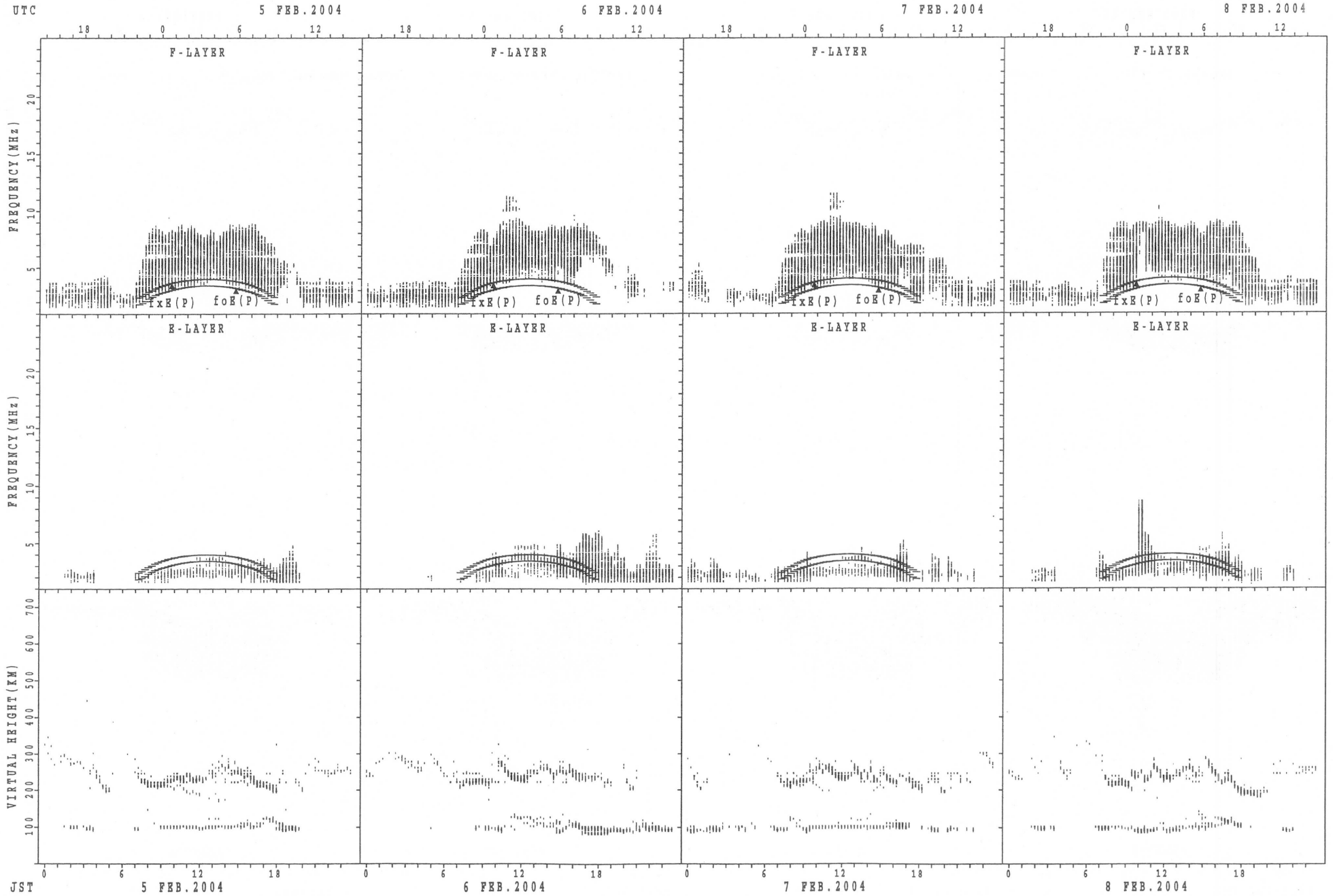
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



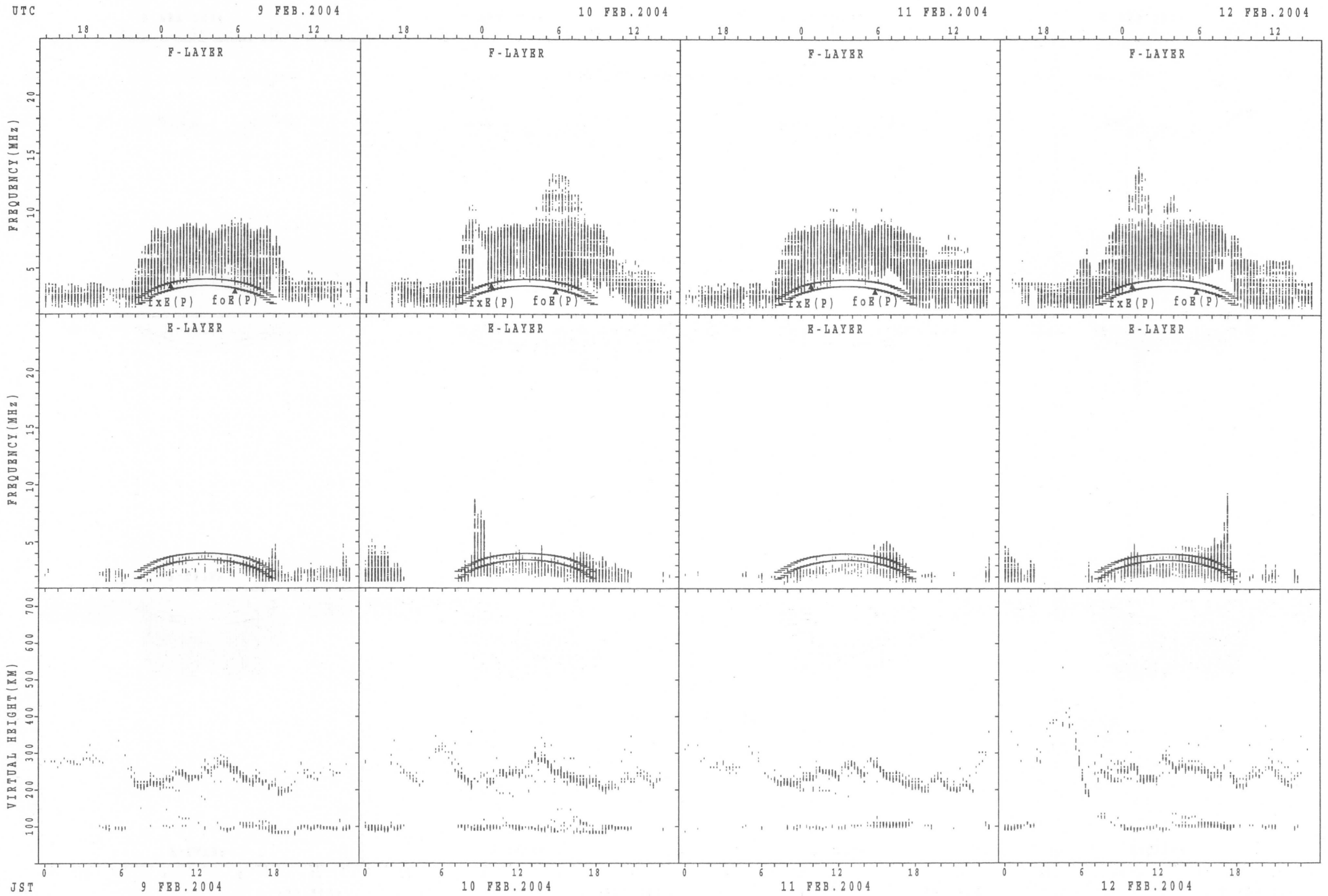
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



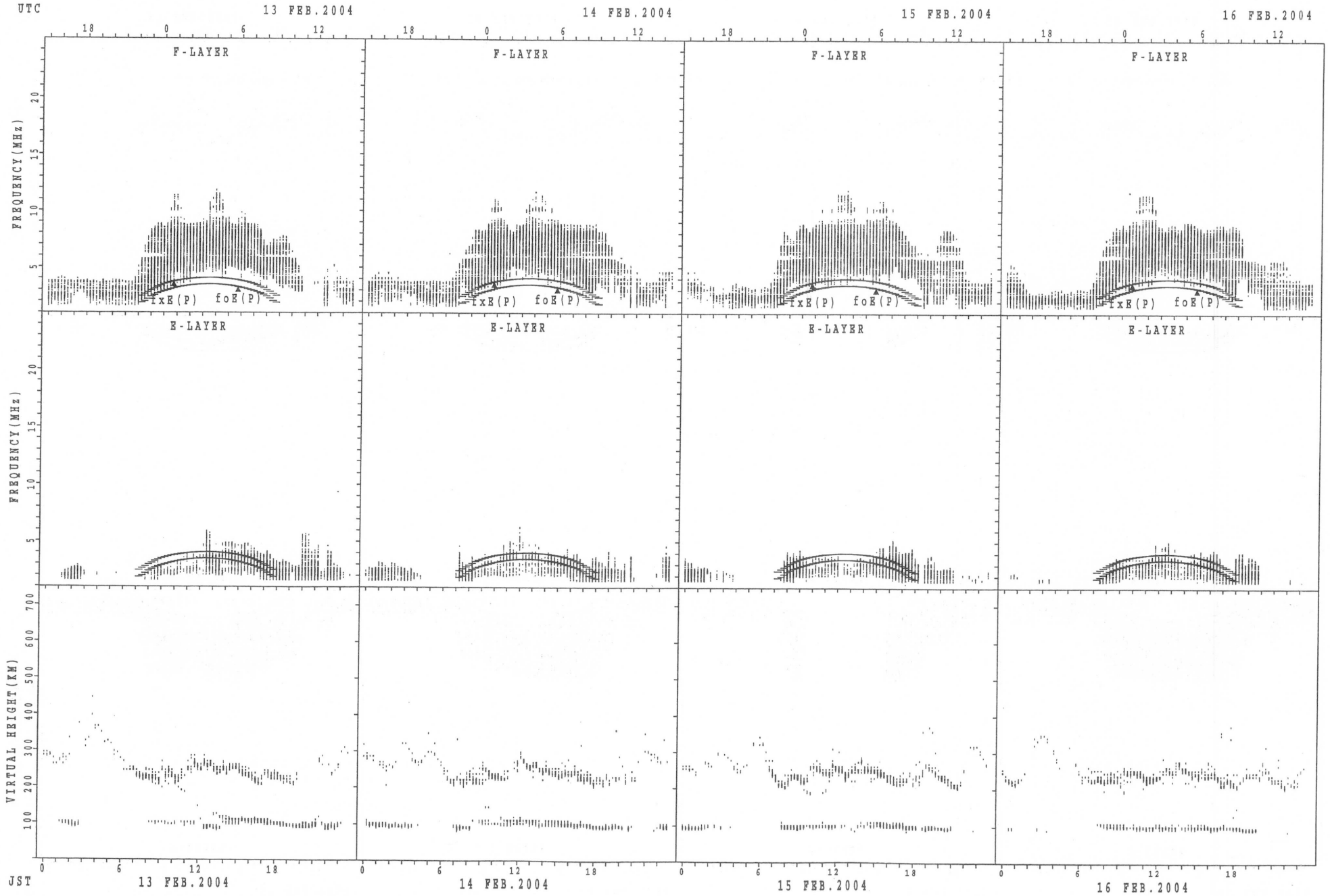
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



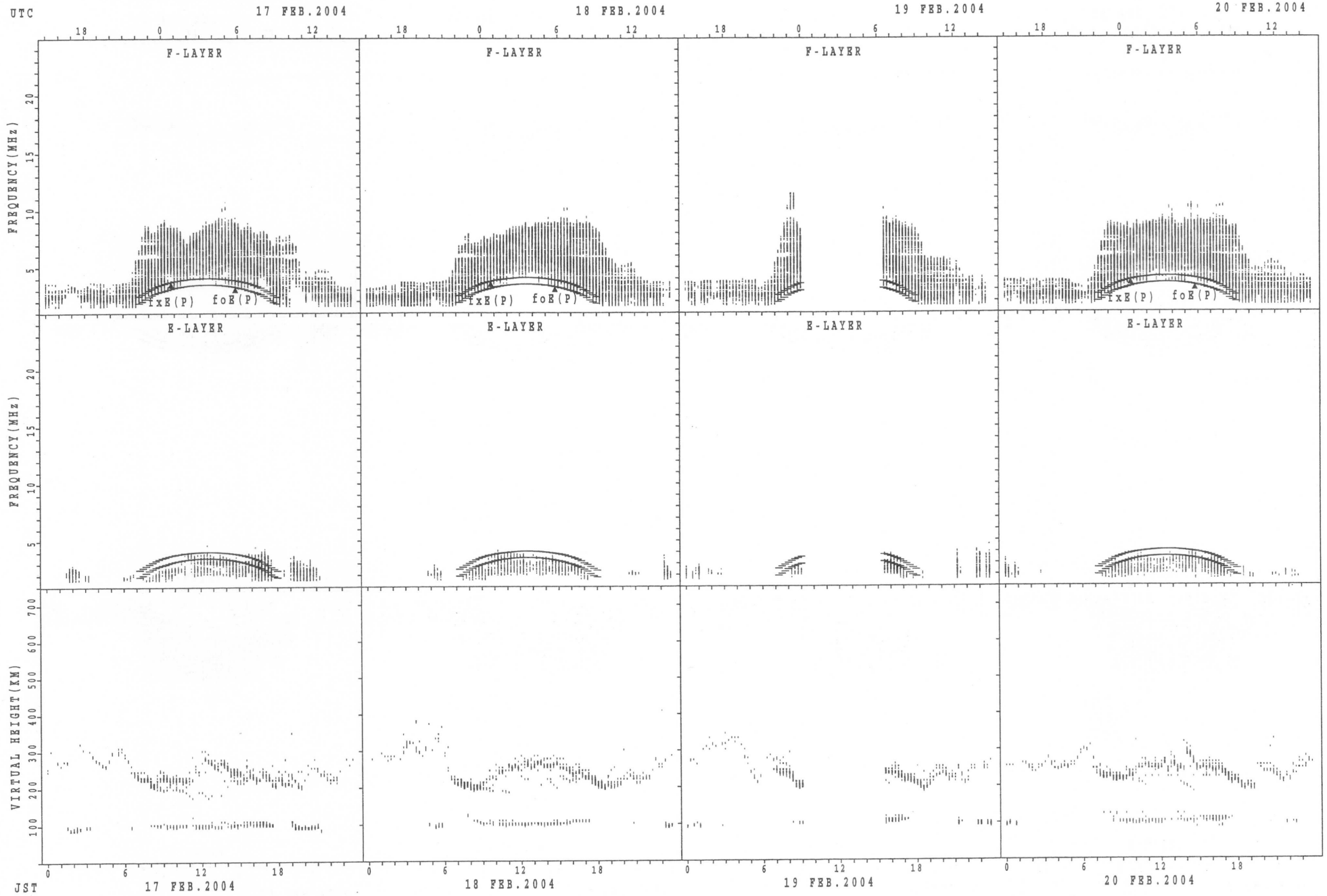
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



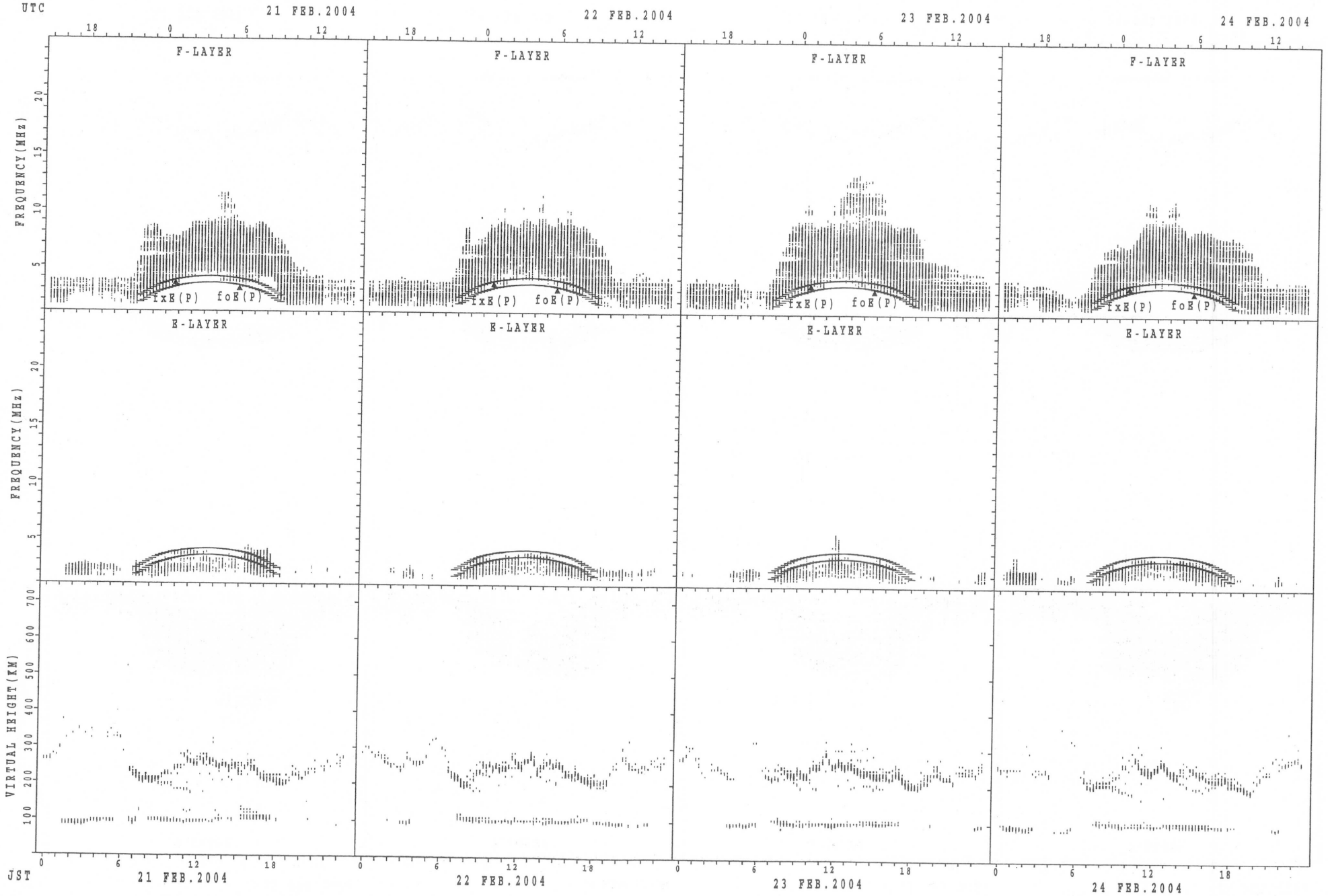
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



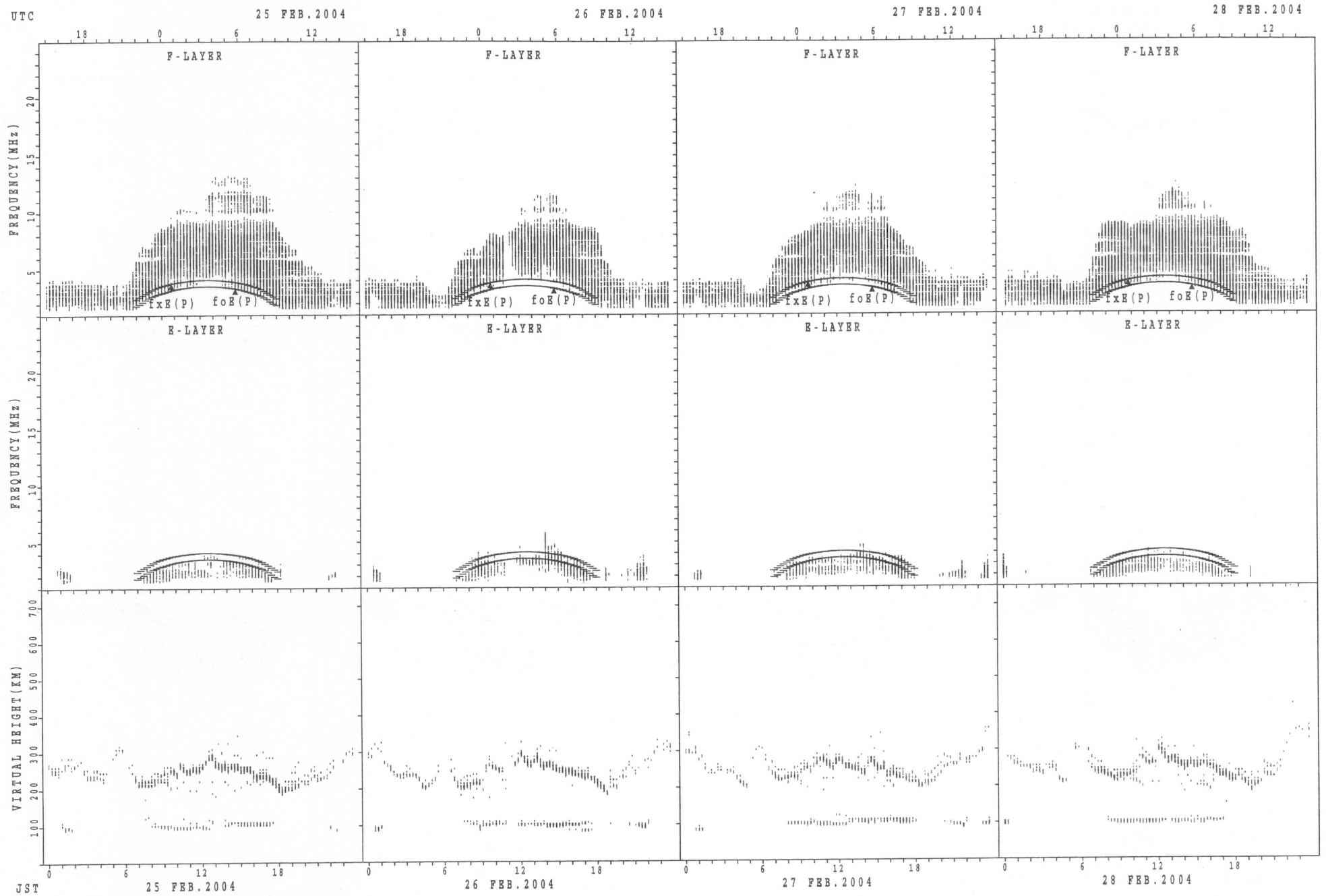
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



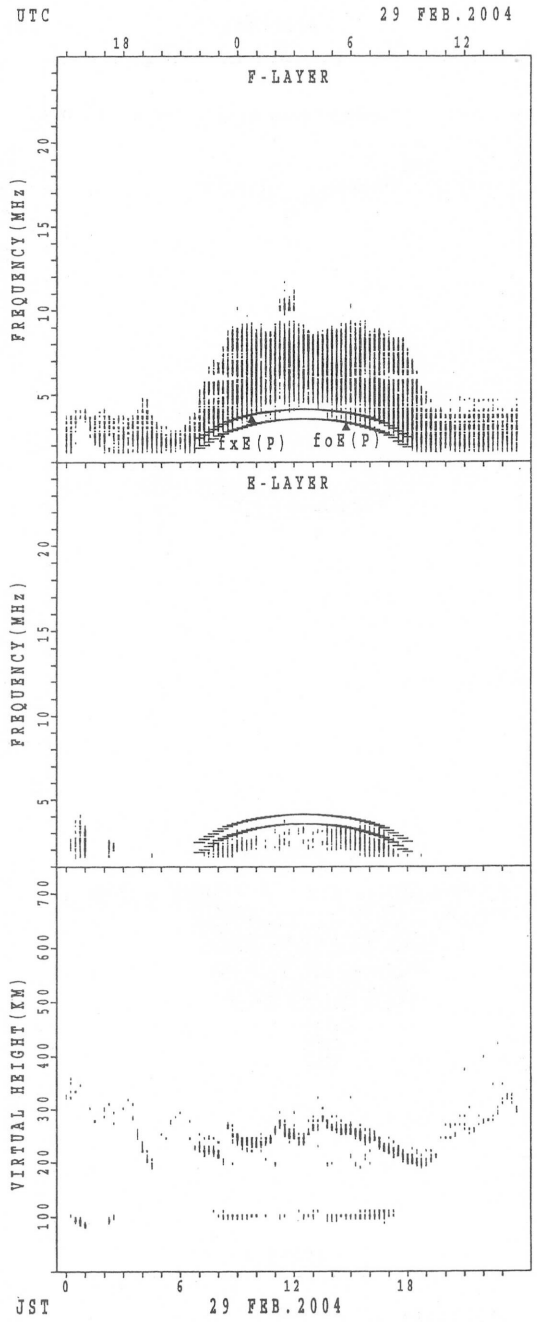
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa

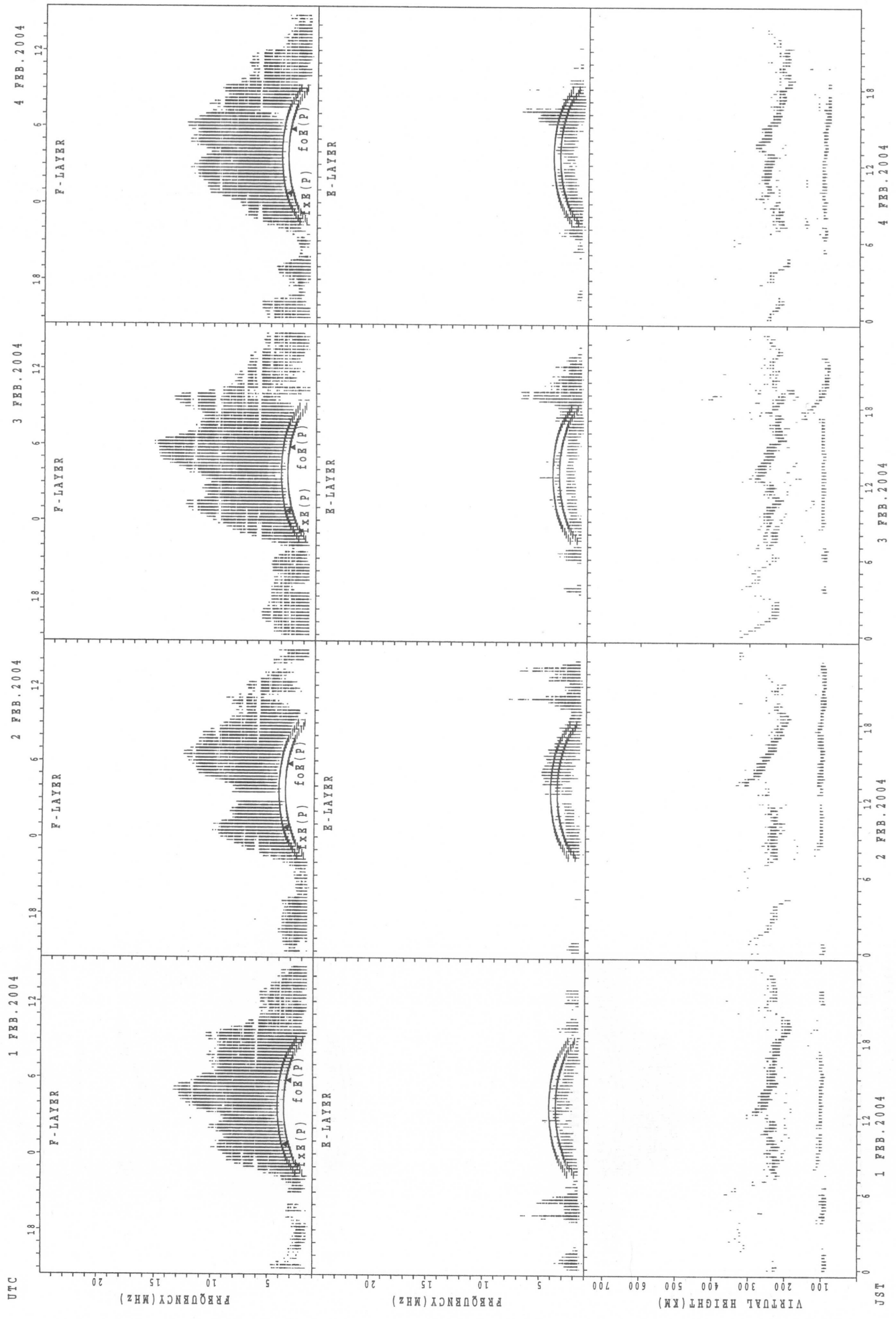


fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

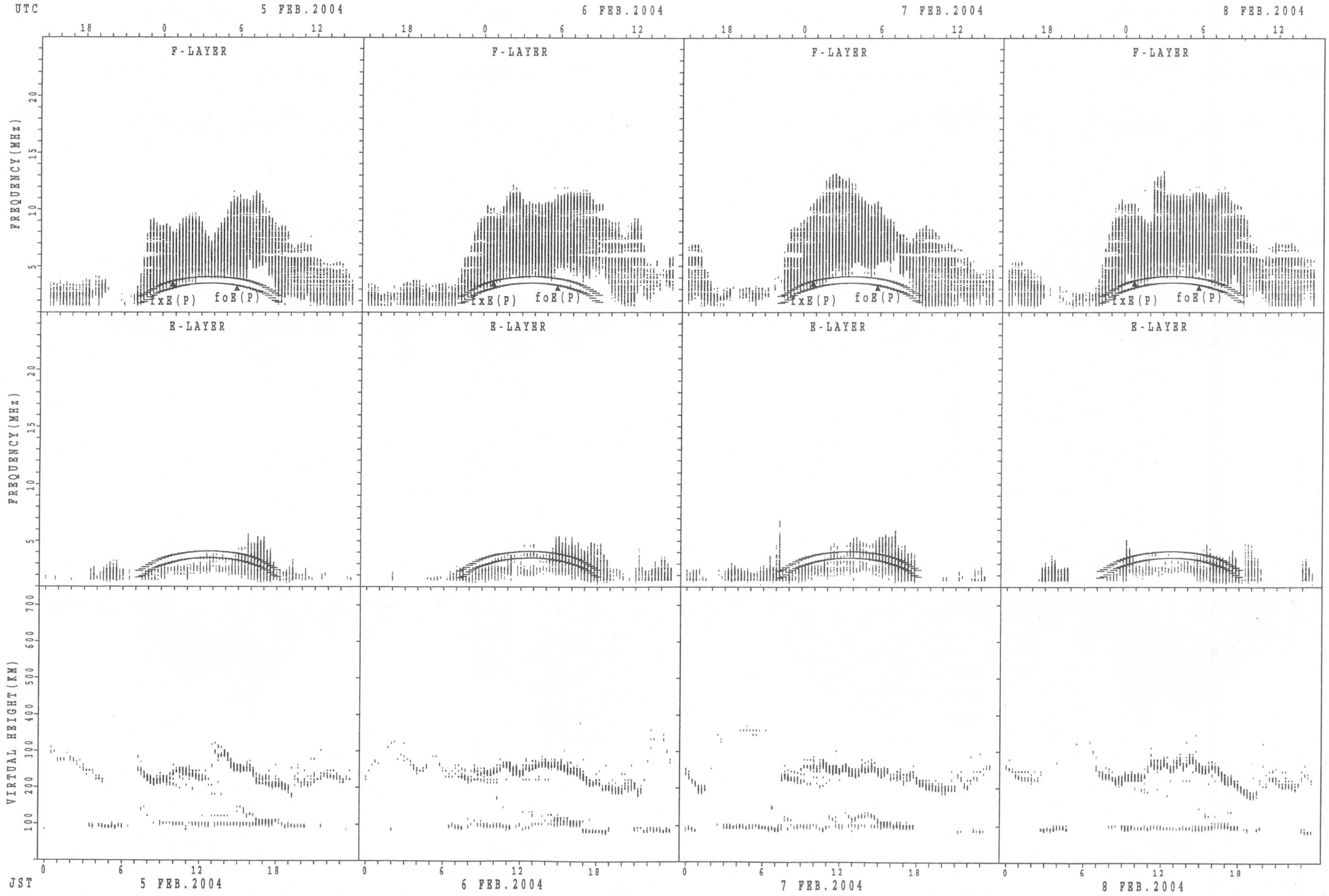
SUMMARY PLOTS AT Yamagawa



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

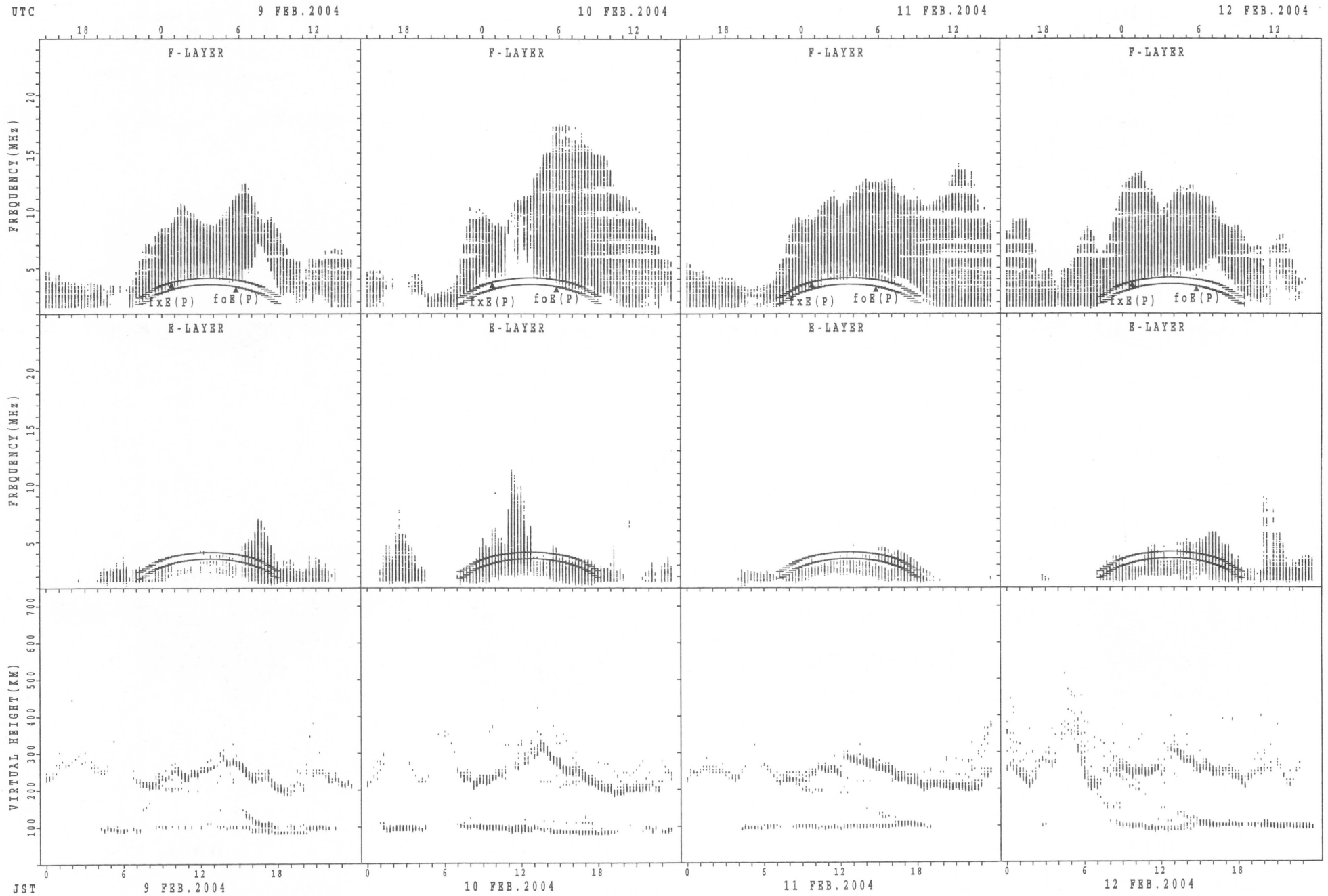

SUMMARY PLOTS AT Okinawa
UTC
JST
1 FEB.2004
2 FEB.2004
3 FEB.2004
4 FEB.2004
F-LAYER
E-LAYER
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
fxE(P)
foE(P)
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



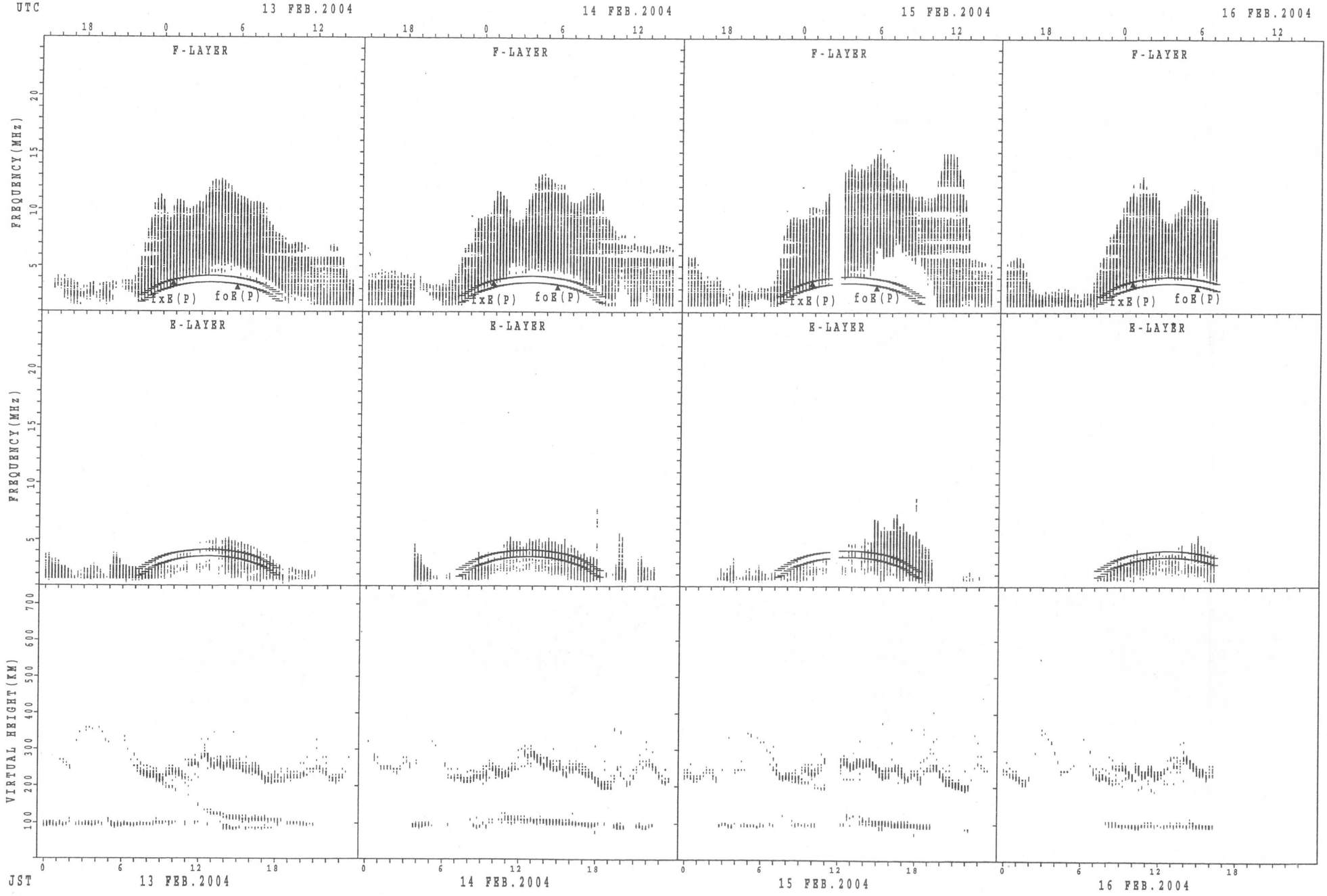
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



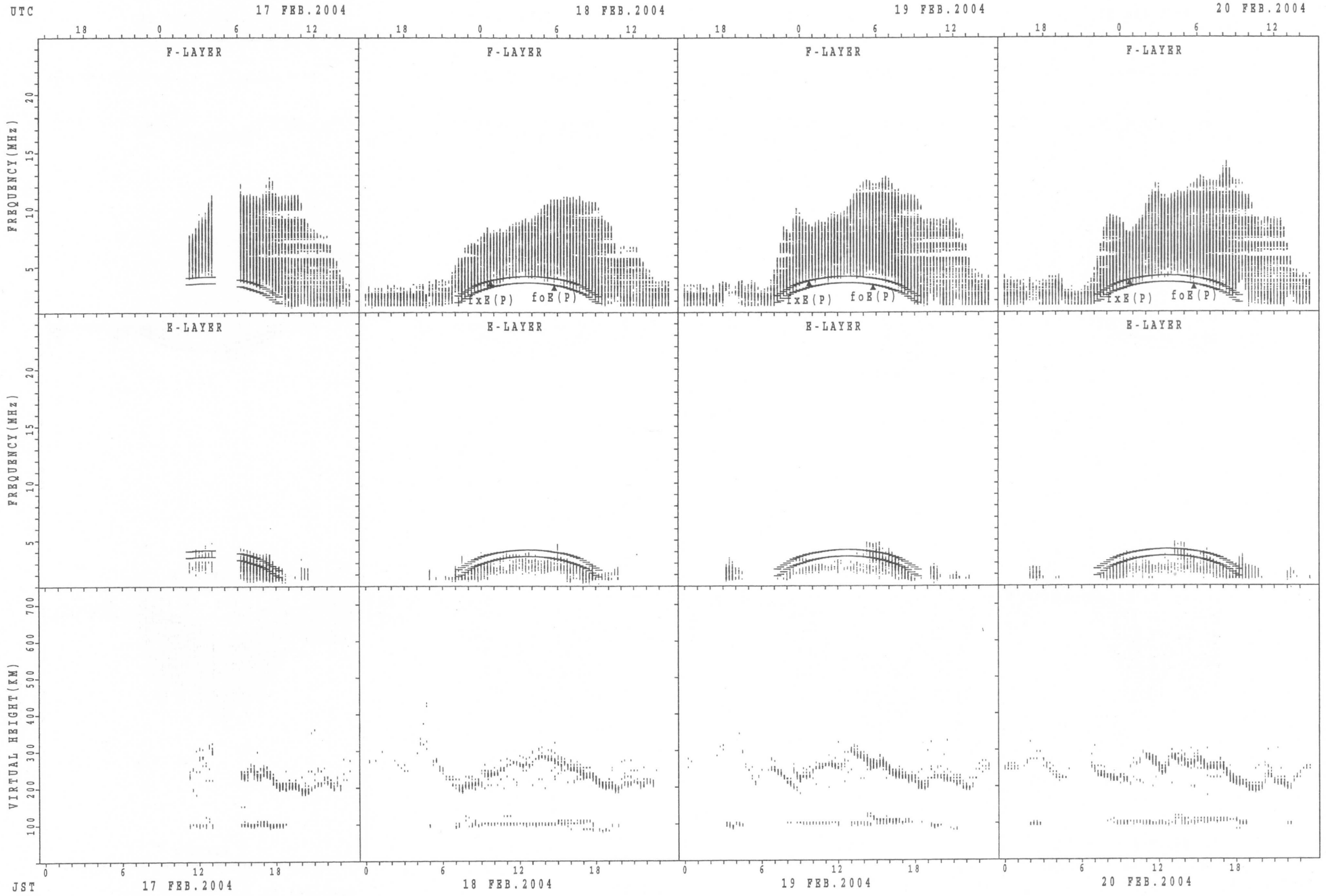
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



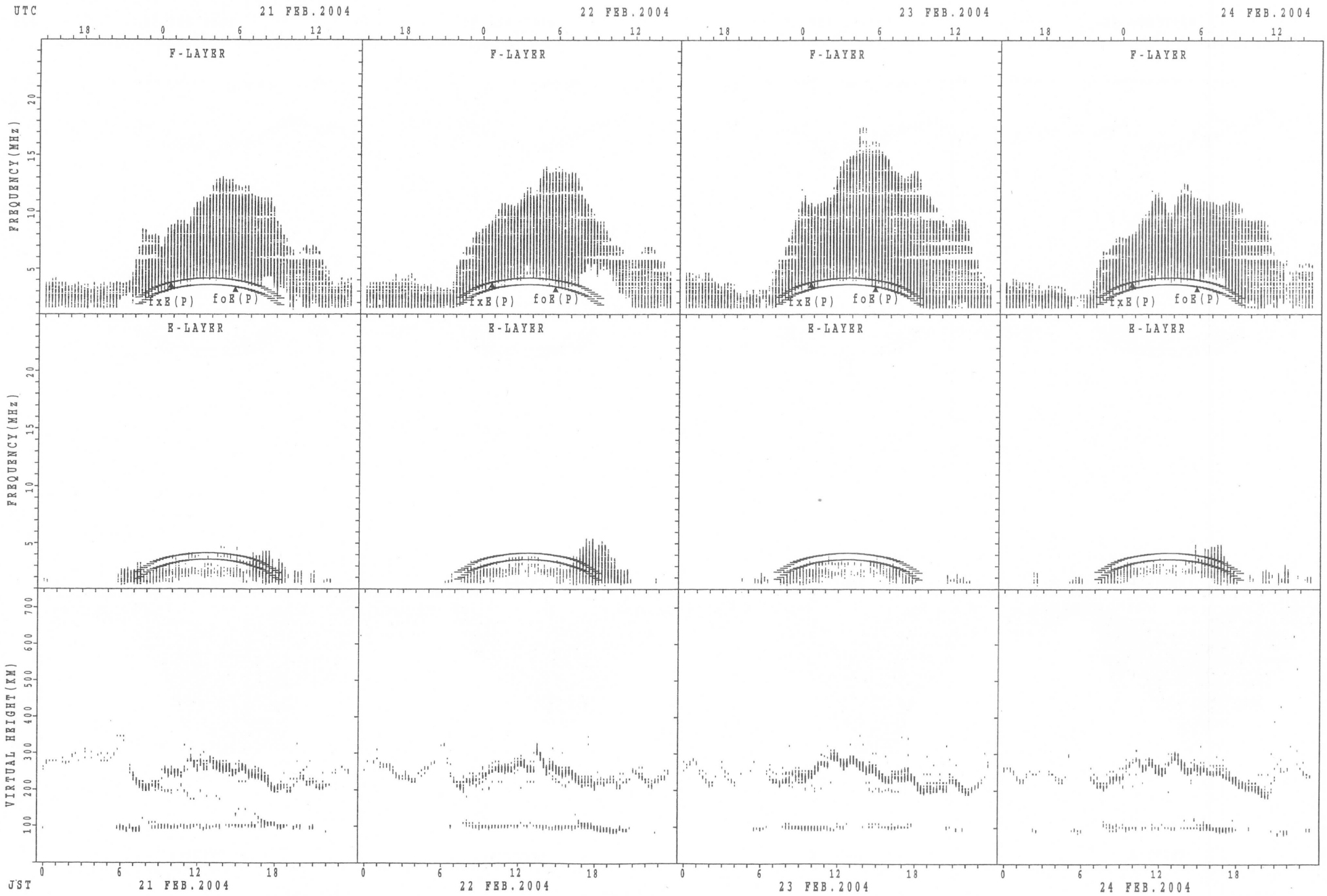
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



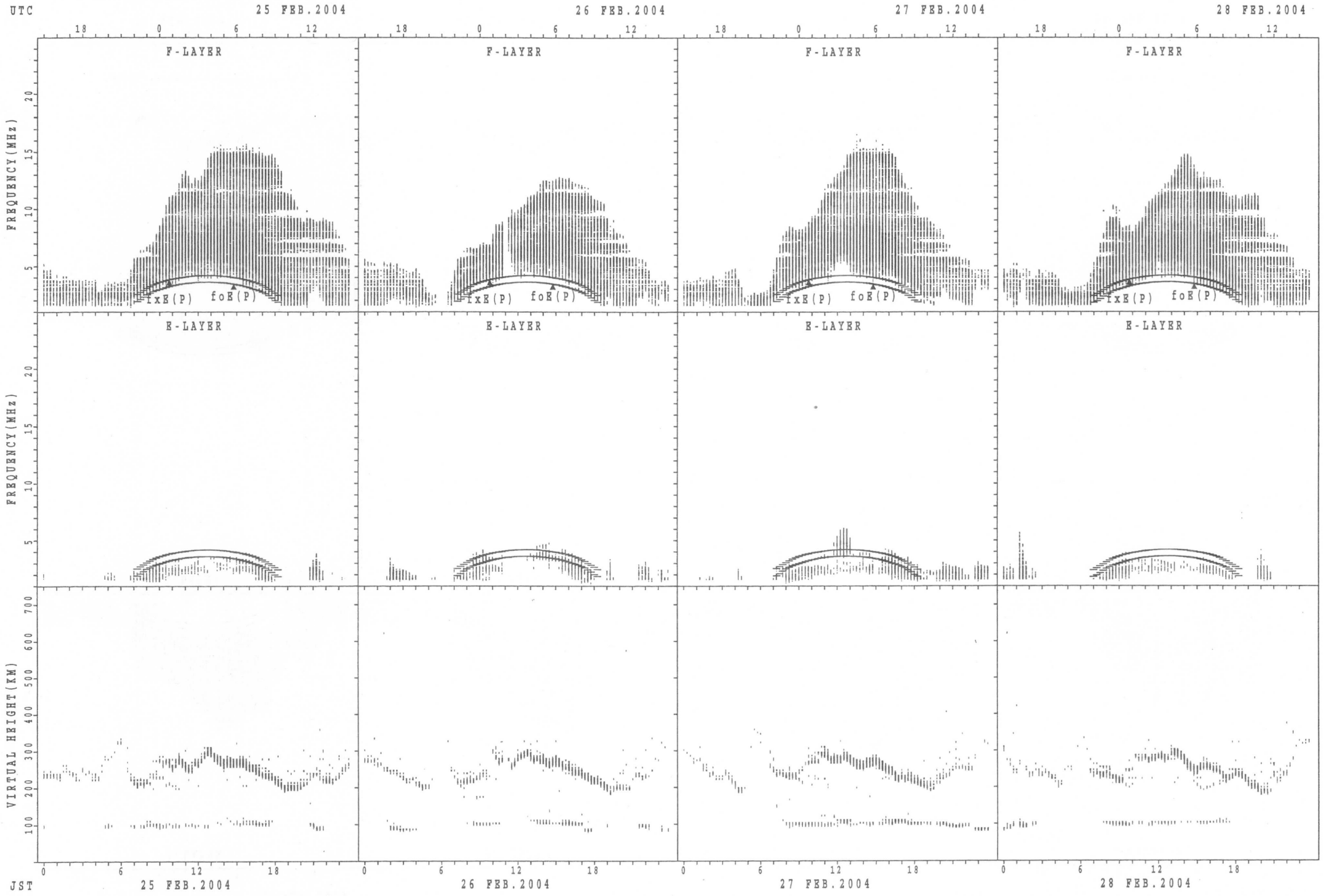
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



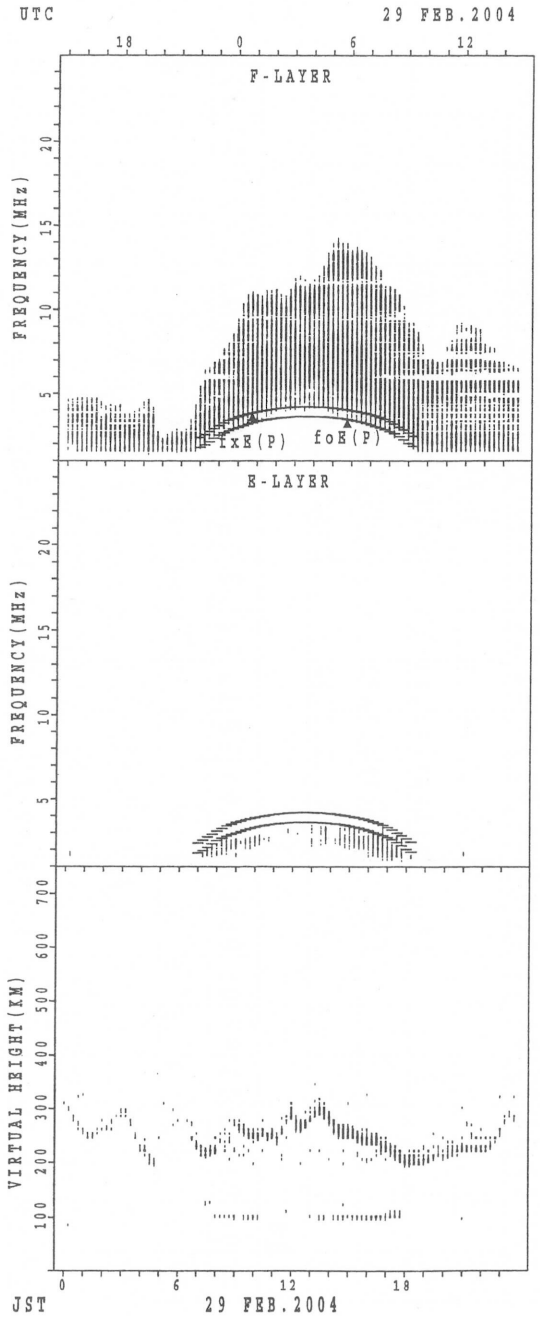
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

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

FEB.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								6	26	25	24	15	11	18	27	28	22	8	1					
MED								229	231	232	230	230	234	241	240	238	230	236	230					
U Q								232	254	243	245	240	240	246	250	244	238	253	115					
L Q								224	222	224	223	222	226	238	230	230	224	233	115					

h'Es

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	11	7	6	5	6	6	8	14	9	10	4	4	5	3	4	3	5	11	13	14	13	15	13	8
MED	95	91	94	95	100	99	99	99	99	95	93	112	97	95	146	115	99	105	97	99	99	95	95	99
U Q	99	97	95	100	105	103	102	103	112	99	140	151	184	115	185	119	108	113	105	101	105	99	98	103
L Q	95	91	93	89	97	99	97	97	95	95	89	101	91	91	98	89	95	93	93	97	96	95	95	98

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

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								13	28	27	18			1	21	28	27	20	1					
MED								232	223	238	230			238	240	243	234	230	228					
U Q								249	239	246	240			119	250	249	238	231	114					
L Q								224	216	226	226			119	237	234	224	225	114					

h'Es

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	6	3	6	5	5	7	3	4	4	4	2	5	6	4	7	10	9	18	18	11	9	9	14	13
MED	96	99	101	99	101	103	97	107	95	103	105	143	118	123	105	105	107	99	100	97	97	99	95	99
U Q	97	103	103	106	109	107	105	129	96	146	105	167	121	128	123	113	109	103	103	101	103	102	97	101
L Q	93	99	97	99	95	97	91	100	95	99	105	121	111	113	95	89	95	95	89	95	96	97	95	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							1		20	28	28	3			2	28	28	24	20	2				
MED							278		231	232	241	234			246	249	240	230	226	237				
U Q							139		240	246	255	236			254	255	246	243	240	250				
L Q							139		216	222	230	230			238	244	231	225	222	224				

h'Es

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	8	13	14	8	5	8	3	6	4	7	6	7	8	3	6	11	16	23	16	14	10	11	7	4
MED	97	95	99	97	97	97	97	97	105	105	101	107	111	111	111	111	105	103	101	96	97	97	95	99
U Q	97	98	103	104	101	103	99	101	107	181	105	183	150	119	115	113	111	107	106	103	99	99	107	102
L Q	95	93	95	96	95	97	97	95	102	95	95	95	101	105	103	101	103	99	96	95	95	97	93	97

MONTHLY MEDIANS OF h'F AND h'Es

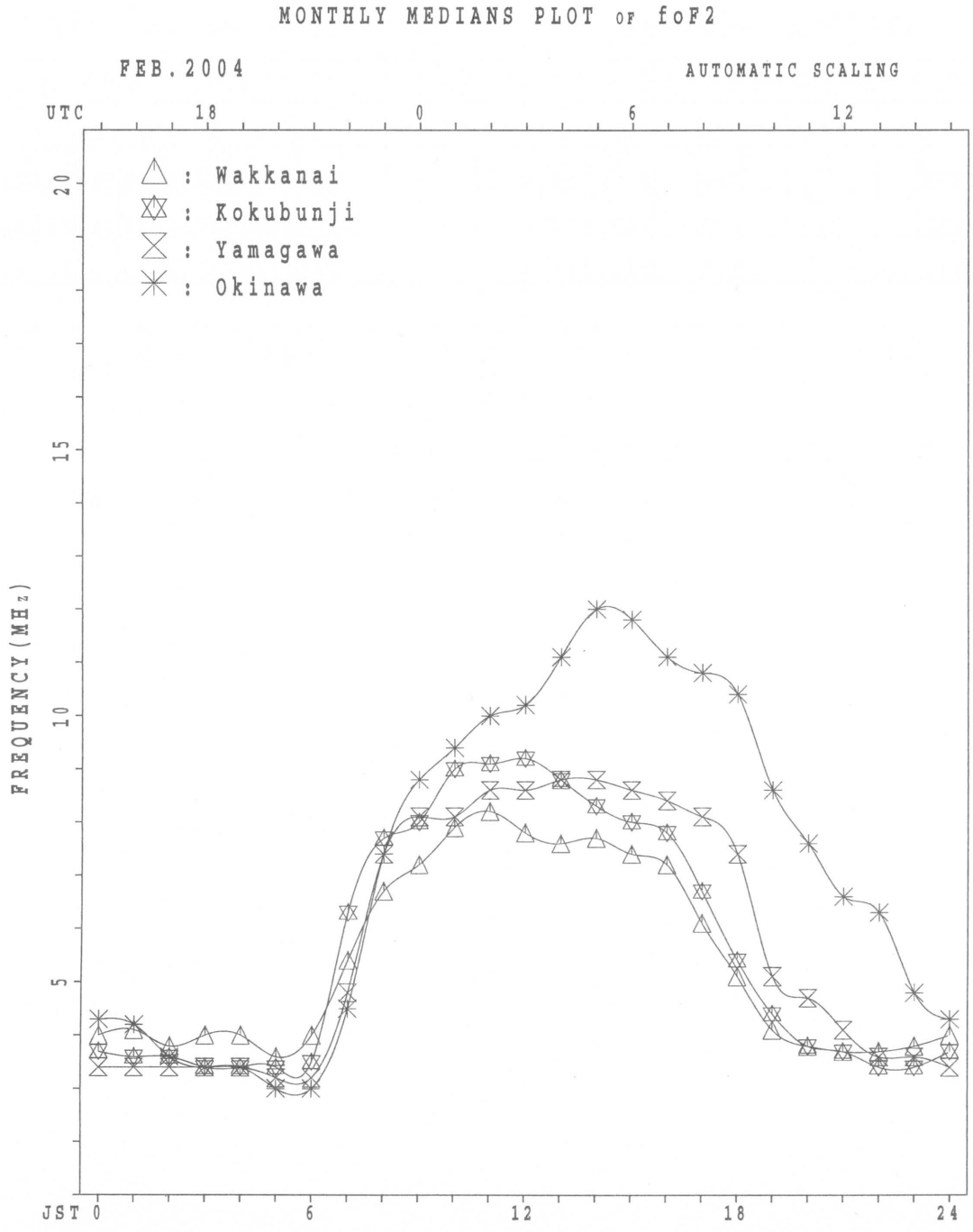
FEB.2004 135E MEAN TIME(UTC+9H) AUTOMATIC SCALING

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

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	1	1					1		21	28	28					19	29	28	28	19	12	10	7	1
MED	386	274					266		234	237	243					250	244	226	220	224	241	242	220	320
U Q	193	137					133		243	252	254					256	250	232	226	230	251	260	246	160
L Q	193	137					133		223	223	238					246	232	222	214	214	217	222	214	160

h'Es

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	5	4	4	6	7	9	10	9	4	3	3	4	7	8	9	13	18	20	15	15	10	10	11	6
MED	95	97	96	97	97	97	95	95	122	99	107	98	111	116	109	111	105	105	101	99	98	95	97	89
U Q	96	106	101	97	103	98	97	96	149	179	179	113	147	129	123	121	113	110	107	105	101	97	97	91
L Q	89	95	94	93	95	94	95	93	98	97	97	90	107	111	106	107	103	99	89	91	95	95	93	89


MONTHLY MEDIANS PLOT OF foF2
FEB. 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

FEB. 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 34	X 35	X 35	X 37	X 37	X 37	X 36												X 44	X 37	X 41	X 44	X 37	X 40
2	X 40	X 40	X 41	X 40	X 39	X 36	X 34												X 43	X 46	X 46	X 45	X 41	X 41
3	X 43	X 43	X 41	X 41	X 42	X 40	X 39												X 60	X 53	X 40	X 36	A	X 40
4	X 40	X 41	X 44	X 43	X 44	X 32	X 34												X 52	X 50	X 36	X 34	X 36	X 35
5	X 39	X 38	X 40	X 41	X 43	X 36	X 35												X 45	X 45	X 38	X 39	X 38	X 41
6	X 40	X 41	X 41	X 42	X 40	X 41	X 38												X 59	X 52	X 42	X 30	X 34	X 38
7	X 39	X 44	X 35	X 35	X 35	X 35	X 34												X 56	X 62	X 43	X 40	X 40	O X 36
8	X 45	X 38	X 38	X 37	X 38	X 40	X 39												X 69	X 58	X 35	O X 32	X 34	X 37
9	X 37	X 37	X 40	X 38	X 37	X 36	X 41												X 60	X 44	X 43	X 42	X 40	X 41
10	X 46	X 46	51	X 45	X 46	X 37	X 38												X 69	X 48	X 41	X 39	X 40	X 40
11	X 40	X 40	X 42	X 41	X 40	X 40	X 39												X 53	X 51	X 45	X 49	X 42	X 41
12	X 40	X 40	X 40	X 37	X 40	X 42	69												X 59	X 56	X 54	X 56	X 52	X 46
13	X 47	X 44	X 45	X 45	X 44	X 44	X 44												X 60	X 53	X 43	X 42	X 44	X 44
14	X 45	X 44	X 45	X 42	X 42	X 42	X 36												X 67	X 63	X 47	X 40	X 43	X 45
15	X 46	X 42	X 42	X 44	X 45	45	49												X 55	X 59	X 63	X 55	X 43	X 46
16	X 52	X 36	X 34	X 34	X 34	X 35	X 42												X 61	X 48	X 48	X 50	X 47	X 48
17	X 42	X 37	X 36	X 38	X 40	X 38	X 42												X 61	X 50	X 42	X 46	X 41	X 39
18	X 38	X 38	X 40	X 41	X 40	X 39	X 46												X 70	X 50	X 52	X 42	X 44	X 41
19	X 41	X 40	X 41	X 41	X 39	X 43	X 45												X 63	X 50	X 45	X 40	X 43	X 42
20	X 43	X 42	X 42	X 42	X 43	X 42	X 41												X 56	X 50	X 48	X 45	X 41	X 42
21	X 40	X 40	X 40	X 40	X 40	X 40	X 45												X 61	X 49	X 42	X 42	X 43	X 43
22	X 43	X 44	X 45	X 43	X 42	X 40	X 43												X 59	X 42	X 42	X 45	X 45	X 46
23	X 45	X 44	X 44	X 47	X 38	A	X 36												X 58	X 49	X 46	X 44	X 44	X 45
24	X 48	X 37	X 35	X 38	X 32	X 34	X 39				C	C	C	C	C				X 60	X 56	X 52	X 47	X 46	X 47
25	X 49	X 49	X 49	X 50	X 40	X 40	X 45												X 58	X 52	X 50	X 43	X 41	X 41
26	X 42	X 42	X 43	X 40	X 42	X 33	X 39												X 68	X 48	X 43	X 41	X 41	X 42
27	X 42	X 44	X 44	X 44	X 42	X 39	X 43												X 59	X 50	X 44	X 43	X 47	X 48
28	X 50	X 49	X 49	X 46	X 44	X 44	X 50												X 73	X 58	X 49	X 38	X 39	X 41
29	X 44	X 42	X 44	X 42	X 43	X 37	X 40												X 69	X 42	X 39	X 40	X 40	X 41
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	29	29	29	29	29	28	29												29	29	29	29	28	29
MED	X 42	X 41	X 41	X 41	X 40	X 40	X 40												X 60	X 50	X 43	X 42	X 41	X 41
U Q	X 46	X 44	X 44	X 44	X 43	X 42	X 44												X 65	X 54	X 48	X 45	X 44	X 45
L Q	X 40	X 38	X 40	X 38	X 38	X 36	X 37												X 56	X 48	X 42	X 40	X 40	X 40

FEB. 2004 fxI (0.1MHz) COMMUNICATIONS RESEARCH LABORATORY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

FEB. 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	28	29	29	31	30	31	30	50	68	70	73	80	76	78	74	75	70	62	38	31	35	38	31	34
2	34	34	35	34	33	30	28	51	66	66	82	79	79	74	78	73	69	64	37	40	40	39	35	35
3	37	37	35	35	36	34	33	59	68	98	98	93	89	76	75	68	64	65	54	47	33	30	A	34
4	34	35	38	37	38	26	28	56	74	78	69	99	98	88	82	78	72	66	46	44	30	28	30	29
5	33	32	34	35	37	30	29	54	84	81	77	75	76	71	70	76	75	56	39	39	32	33	32	35
6	34	35	35	36	34	35	32	55	77	64	80	91	96	83	74	74	74	58	53	46	36	24	28	32
7	33	38	29	29	29	29	28	62	72	78	92	88	95	88	74	70	66	60	50	56	37	34	34	R 30
8	39	32	32	31	32	34	33	58	84	72	86	98	94	85	68	74	74	66	63	52	29	26	28	31
9	31	31	34	32	31	30	35	65	76	78	97	76	74	81	82	74	71	75	54	38	37	36	34	35
10	40	40	F	39	40	31	32	62	89	80	99	89	76	90	87	88	82	66	63	42	35	33	34	34
11	34	34	36	35	34	34	33	70	73	85	87	86	100	79	76	82	77	81	47	45	39	43	36	35
12	34	34	34	31	34	36	F	48	91	Z 86	122	101	100	94	92	83	90	76	53	50	48	50	46	40
13	41	38	39	39	38	38	38	63	79	93	104	83	94	99	86	93	79	66	54	47	37	36	38	38
14	39	38	38	36	36	36	30	66	72	79	102	84	94	99	80	76	79	68	61	57	40	34	37	39
15	40	36	36	38	39	F	F	83	74	80	100	99	106	98	91	92	95	71	49	53	57	49	37	40
16	46	30	28	28	28	29	36	60	74	76	99	93	93	83	81	77	83	81	54	42	42	44	41	42
17	36	31	30	32	34	32	36	76	86	86	76	74	92	88	87	70	84	65	55	44	36	40	35	33
18	32	S 32	34	35	34	33	40	72	83	74	75	79	96	90	90	90	90	78	64	44	46	36	38	35
19	35	34	35	35	33	37	39	66	92	89	76	87	90	99	V 82	84	78	79	57	44	39	34	37	36
20	37	36	36	36	37	36	35	65	77	79	86	86	88	81	86	80	91	85	50	44	42	38	35	36
21	34	34	34	34	34	34	39	80	80	78	66	92	90	107	91	76	72	66	55	43	36	36	37	37
22	37	38	39	37	36	34	37	64	72	89	91	107	103	80	84	84	75	73	53	36	36	39	39	40
23	39	38	38	41	32	A	30	61	79	101	101 C	105 C	110 C	108 C	98 C	87	74	72	52	43	40	38	38	39
24	42	31	29	32	26	28	33	60	68	76						73	82	67	54	50	46	41	40	41
25	43	43	43	44	34	34	39	65	69	100	88	96	86	94	105	96	82	74	52	46	44	37	35	35
26	36	36	37	34	35	27	33	64	62	75	81	R 79	92	107	93	89	78	76	62	42	36	35	35	36
27	36	38	38	38	36	33	37	62	73	86	90	98	114	90	85	90	77	64	53	44	38	37	41	42
28	44	43	43	40	38	38	44	69	95	92	97	97	98	112	106	95	97	86	67	52	43	32	33	35
29	38	36	38	36	36	31	34	54	78	97	106	114	78	75	84	79	81	85	63	36	33	34	34	35
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	29	29	28	29	29	27	27	29	29	29	28	28	28	28	28	29	29	29	29	29	29	29	28	29
MED	36	35	35	35	34	33	33	62	76	80	89	90	94	88	84	79	78	68	54	44	37	36	35	35
U Q	40	38	38	38	36	35	37	66	84	89	99	98	98	98	90	88	82	77	59	48	42	39	38	39
L Q	34	32	34	32	32	30	30	57	72	76	78	82	87	80	77	74	73	65	50	42	36	34	34	34

IONOSPHERIC DATA STATION Kokubunji

FEB.2004 foF1 (0.01MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1									L	L	L	L 456	L	A	L	L								
2										L	L	L	L	L										
3										L	L	L	L 440	L	A	L								
4												L	L	L										
5										L	L	L	L	L	L									
6										L		L	L	A	A	A								
7											L	A	L	L	L									
8									L	L	L		A			L								
9										L	L	L	L	L										
10										L	L	L	L	L	L	L								
11											L	L	L 476	L	L									
12											L	L	L	L	L	L								
13										L	L	L	L	L	L	L								
14													L	L										
15											L	L	L		L									
16											L	L	L		L	L	L							
17										L	L	L 468	L	L 460	L									
18											L	L 484	L	L	L	L								
19											L	L	L	L 492		L								
20										L	L	L	L	L	L	L								
21										L	L	L 500	L 452	L										
22										L	L	L	L 472	L	L	L								
23									L	L	L	L	L	L	L	L								
24										L	C	C	C	C	C									
25										L	L	L	L	L 520	L 452	L								
26										L	L	E B	L	L 488	L	L								
27										L	L	L 504	L 480	L	L 476	L	L							
28									L	L	L	L 488	L	L 500	L 448	A								
29									L	L	L	L 464	L	L	L 420	L	L							
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT												7	5	5	4									
MED												L 484	L 472	L 492	L 450									
U Q												L 500	L 478	L 510	L 464									
L Q												L 464	L 446	L 474	L 434									

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

IONOSPHERIC DATA STATION Kokubunji

FEB.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								U R 196	U R 240	U R 288	U R 304	R	A	A	A	A	A	B						
2								180	U R 240	A	A	A	A	A	A	A	A	B						
3								B	224	276	U R 304	A	U A 340	U A 308	A	A	A	B						
4								180	236	A	A	A	336	U A 320	U A 312	A	232	B						
5								B	232	272	R	R	A	A	304	276	232	B						
6								180	248	R	U A 312	U A 336	328	A	A	A	U A 232	B						
7								B	U R 240	U R 300	320	U R 340	U A 344	A	308	U R 280	236	B						
8								U R 184	A	292	R	356	A	U R 320	R	288	252	B						
9								B	240	A	R	R	B	336	A	A	U A 244	B						
10								U R 164	U R 260	R	A	A	R	U R 336	R	U R 292	U A 232	B						
11								U R 180	A	U R 304	U R 332	R	U R 348	R	R	U A 288	U A 256	B						
12								U A 192	A	A	U R 320	R	U R 340	U R 328	U A 312	284	U A 236	B						
13								U R 184	240	U R 292	R	U R 328	344	R	A	U A 292	U A 244	B						
14								184	U R 264	R	324	A	A	U A 340	R	U R 292	A	B						
15								U A 188	U R 264	A	A	R	R	R	U R 316	U A 296	U A 244	B						
16								176	U A 244	U R 296	U R 324	A	A	A	A	A	A	B						
17								A	U R 256	R	R	R	U A 352	R	U A 316	U A 296	252	B						
18								168	U A 260	U R 300	320	U R 340	356	R	A	296	U A 248	B						
19								176	R	A	R	R	U R 344	R	R	U R 304	U A 248	B						
20								196	U R 268	U R 304	R	R	U A 348	U R 336	U R 324	U R 288	252	B						
21								U R 192	244	U R 280	R	R	R	R	U R 312	U A 292	256	B						
22								216	U R 276	R	R	R	A	A	A	A	A	U R 184						
23								U R 200	264	U R 296	328	R	R	R	324	U R 288	R	B						
24								208	U R 264	R	C	C	C	C	C	A	U R 260	U R 192						
25								196	256	R	R	R	R	R	R	R	U R 268	A						
26								192	A	A	A	B	348	U R 340	U R 324	U R 304	260	192						
27								196	R	B	R	R	R	U R 336	324	R	260	176						
28								196	U R 264	A	A	R	R	R	A	A	U R 252	180						
29								188	U R 276	R	R	R	U R 352	U R 344	U R 328	U R 296	U R 256	U R 200						
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								24	23	12	10	5	13	11	12	17	22	6						
MED								188	U R 256	U R 294	U 320	U R 340	U 344	U R 336	U 316	U 292	U 250	188						
U Q								196	U R 264	U R 300	U R 324	348	U 350	U R 340	U R 324	U R 296	U 256	U R 192						
L Q								180	240	284	U R 312	U 332	340	U A 320	312	288	236	180						

IONOSPHERIC DATA STATION Kokubunji

FEB. 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 15	E B 16	18	J A 20	J A 18	18	E B 15	G	G	G	G 26	G 28	J A 41	J A 45	J A 34	J A 30	J A 30	J A 47	J A 34	J A 34	J A 23	J A 24	J A 19	E C 28
2	20	18	21	E B 15	E B 14	E B 16	J A 21	G	G	32	J A 40	J A 56	J A 46	37	35	33	J A 26	J A 19	J A 27	J A 32	E B 16	E B 16	E B 15	E B 16
3	E B 15	E B 15	E B 16	J A 16	19	19	E C 28	E B 18	25	33	G 26	38	40	J A 35	J A 37	J A 42	J A 31	J A 32	J A 28	J A 24	J A 20	J A 18	J A 38	J A 28
4	J A 19	E B 15	E B 16	19	E B 16	E B 14	E B 14	G	29	29	33	40	42	39	36	31	30	J A 24	J A 55	22	J A 20	18	E B 16	22
5	J A 19	J A 20	J A 21	J A 21	J A 20	J A 22	E B 15	J A 27	26	31	G 25	G 26	J A 41	J A 36	34	G 20	32	J A 46	J A 36	J A 22	19	E B 14	E B 15	E B 16
6	20	J A 19	19	19	20	J A 50	E B 15	G	G	G 22	40	40	42	43	J A 48	J A 42	J A 38	J A 36	J A 24	J A 23	E B 15	J A 27	J A 18	E B 15
7	J A 18	J A 17	J A 24	19	19	J A 23	J A 18	E B 16	G 20	36	39	42	45	41	38	31	31	J A 26	J A 23	J A 34	J A 48	J A 75	J A 29	J A 76
8	J A 34	J A 19	J A 33	E B 16	J A 21	J A 22	E B 15	J A 22	J A 28	G 22	G 26	46	J A 39	G 25	G 26	33	32	J A 36	J A 40	J A 78	J A 30	J A 35	J A 29	J A 32
9	18	19	J A 28	J A 25	E B 15	20	J A 17	J A 24	G 22	J A 45	G 31	G 30	E B 37	40	39	38	J A 40	J A 52	J A 24	J A 22	J A 36	52	J A 33	J A 24
10	J A 20	E B 15	18	J A 24	J A 31	J A 23	J A 20	20	G 22	J A 39	J A 42	J A 46	G 27	G 26	G 29	G 26	26	J A 26	E B 14	22	E B 15	21	J A 34	J A 22
11	J A 38	J A 23	J A 20	J A 20	E B 15	J A 18	J A 16	J A 19	J A 43	G 25	G 28	G 29	G 30	G 28	G 26	32	29	E B 16	E B 15	E B 14	E B 15	E B 15	J A 32	J A 20
12	E B 15	E B 15	E B 15	E B 16	E B 15	E B 15	E B 16	22	J A 43	J A 43	G 27	G 29	G 28	36	36	34	30	J A 26	J A 20	20	J A 18	E B 15	J A 20	E B 15
13	J A 19	19	E B 15	20	19	E B 14	E B 15	G	27	G 26	G 27	G 31	39	G 26	38	35	34	J A 27	J A 28	J A 32	J A 26	E B 14	J A 35	J A 23
14	18	19	J A 19	J A 18	J A 27	J A 17	J A 26	22	G 19	G 23	37	38	37	38	G 26	G	29	J A 22	19	E B 15	J A 60	26	J A 22	33
15	J A 26	J A 20	E B 16	E B 15	E B 15	E B 16	19	J A 24	G 22	J A 33	J A 35	J G 28	G 22	G 28	35	35	32	J A 24	J A 21	E B 16	19	J A 19	J A 25	19
16	E B 16	E B 16	E B 14	E B 15	E B 15	E B 16	E B 15	22	27	G 27	G 29	J A 38	35	37	J A 37	35	J A 30	J A 36	J A 66	E B 15	J A 22	E B 15	J A 27	J A 28
17	E B 15	18	E B 15	J A 23	J A 21	J A 20	19	J A 23	J A 30	G 24	G 25	G 26	J A 43	G 26	38	J A 39	28	J A 30	J A 23	J A 20	19	E B 16	J A 22	J A 25
18	J A 21	18	E B 15	E B 14	E B 16	E B 15	E B 15	23	J A 45	G 24	35	G 27	43	G 24	37	J A 35	30	J A 44	J A 24	19	E B 14	18	J A 24	19
19	E B 16	E B 14	E B 18	E B 14	E B 14	E B 15	E B 14	22	G	J A 44	G 34	G 25	G	G 30	G 28	G	28	22	J A 23	J A 36	J A 33	J A 43	18	J A 20
20	J A 17	E B 15	J A 19	E B 14	E B 14	E B 15	E B 15	G	G 20	G 26	G 26	G 26	39	G 27	G 28	32	28	20	E B 15	J A 18	E B 14	E B 15	E B 14	E B 15
21	E B 16	E B 15	E B 15	E B 16	E B 15	E B 14	E B 15	G	28	G 20	G 26	G 25	G 27	G 29	G 28	34	30	J A 35	J A 34	E B 15	E B 15	E C 28	J A 27	J A 24
22	J A 32	J A 24	J A 24	J A 19	19	E B 15	E B 15	G 19	G 25	J G 23	G 22	G 29	35	J A 38	35	35	30	G	J A J 25	A 23	J A 29	J A 24	J A 27	J A 23
23	E C 28	E B 20	E B 20	E B 15	E B 14	J A 31	J A 27	G	G	G 23	38	26	G 28	J G 27	G 28	G 23	J A 27	J A 27	J A 36	J A 18	J A 17	J A 18	J A 34	J A 27
24	E C 28	J A 22	E B 15	E B 15	E B 15	E B 15	E B 16	24	G 18	G 22	C	C	C	C	C	J A 36	G 24	G	E B 14	E B 14	E B 16	E C 28	J A 26	J A 21
25	J A 22	J A 19	E B 14	E B 15	E B 20	E B 15	E B 15	24	29	G 20	G	G	G 26	G 27	G 28	J G 24	G 20	J A 28	J A 24	J A 23	J A 22	E B 17	E B 15	E B 15
26	E B 14	J A 19	E B 14	E B 15	E B 16	E B 16	E B 16	24	28	34	35	E B 58	40	G 29	G 28	G 28	28	23	E B 15	E B 15	E B 15	E B 16	E B 15	E B 15
27	J A 24	E B 16	E B 16	E B 15	E B 14	E B 16	E B 15	G	G 28	E B 35	G	G 31	G 30	G	36	G 25	31	20	E B 15	E B 15	E B 15	19	J A 17	J A 20
28	E B 16	E B 16	E B 14	E B 15	E B 15	E B 14	E B 15	G	G 22	32	34	G 29	G 31	G 30	J A 45	J A 50	G 19	21	E B 14	E B 15	19	E B 14	E B 15	J A 21
29	J A 25	J A 20	E B 15	E B 16	E B 14	E B 13	J A 19	21	G 20	G 26	G 26	G 25	G 27	G 25	G 27	G 25	G 20	G	E B 16	E B 15	E B 14	E B 15	E B 14	E B 15
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	29	29	29	29	29	29	29	29	29	29	28	28	28	28	28	29	29	29	29	29	29	29	29	29
MED	18	18	E B 16	E B 16	E B 16	E B 16	E B 15	20	G 28	G 26	G 32	G 30	37	G 30	35	33	30	J A 26	J A 24	J A 20	19	18	J A 22	21
U Q	J A 24	J A 20	J A 20	J A 20	J A 20	J A 20	J A 19	23	J A 28	J A 34	35	39	41	38	37	J A 35	31	J A 36	J A 31	J A 24	J A 24	J A 26	J A 29	J A 26
L Q	E B 16	E B 16	E B 15	E B 15	E B 15	E B 15	E B 15	G	G 22	G 23	G 26	G 26	G 29	G 27	G 28	G	28	20	E B 16	E B 15	E B 15	E B 15	E B 16	E B 16

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

IONOSPHERIC DATA STATION Kokubunji

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

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E B 15	E B 16	16	16	E B 16	E B 16	E B 15	G	G	G	G 24	U Y 28	37	43	30	28	26	36	E B 15	20	18	17	E B 15	E C 28
2	17	17	E B 16	E B 15	E B 14	E B 16	E B 15	G	G	30	36	36	35	36	33	31	22	18	24	20	E B 16	E B 16	E B 15	E B 16
3	E B 15	E B 15	E B 16	E B 16	17	E B 15	E C 28	E B 18	24	31	G 22	35	36	G 29	34	29	27	28	21	E B 16	E B 16	16	A A 38	21
4	16	E B 15	E B 16	E B 14	E B 16	E B 14	E B 14	G	28	28	32	38	39	38	35	30	28	21	16	E B 15	18	E B 16	E B 16	E B 17
5	E B 16	E B 14	18	16	E B 16	E B 15	E B 15	E B 16	26	29	G 25	G 24	33	33	32	G 19	28	25	21	16	E B 15	E B 14	E B 15	E B 16
6	E B 14	E B 14	E B 15	E B 15	E B 15	17	E B 15	G	G	G 22	37	35	38	40	41	36	34	33	20	20	E B 15	E B 15	E B 15	E B 15
7	E B 15	E B 16	19	16	16	E B 14	E B 15	E B 16	G 19	34	37	40	42	39	35	31	30	22	E B 16	20	23	21	20	21
8	E B 15	17	22	E B 16	18	19	E B 15	G 17	25	G 21	G 23	44	38	G 25	G 24	32	29	25	34	37	22	21	20	21
9	E B 15	E B 16	16	19	E B 15	E B 15	16	19	G 20	30	U Y 31	G 29	E B 37	38	36	35	32	31	18	19	21	19	18	16
10	E B 15	E B 15	15	E B 14	15	16	E B 15	20	G 20	25	35	39	G 25	G 24	G 28	G 26	26	23	E B 14	E B 15	E B 15	E B 15	20	20
11	19	16	E B 15	17	E B 15	E B 15	E B 15	G 16	35	G 22	U Y 28	G 29	G 29	G 28	G 26	32	27	E B 16	E B 15	E B 14	E B 15	E B 15	E B 14	16
12	E B 15	E B 15	E B 15	E B 16	E B 15	E B 15	E B 16	G 16	33	35	G 27	G 29	G 27	35	34	33	29	22	16	E B 15	E B 15	E B 15	E B 15	E B 15
13	E B 15	E B 15	E B 15	E B 16	E B 15	E B 14	E B 15	G	26	G 26	G 26	G 27	37	G 26	35	34	31	23	20	29	18	E B 14	17	E B 16
14	E B 16	E B 15	16	16	21	E B 15	17	22	G 19	G 23	36	37	36	36	G 20	G	29	20	E B 15	E B 15	E C 28	E B 15	E B 15	20
15	18	E B 14	E B 16	E B 15	E B 15	E B 16	E B 16	22	G 20	31	34	G 27	G 21	G 26	34	34	30	20	18	E B 16	E B 16	E B 16	E B 16	E B 15
16	E B 16	E B 16	E B 14	E B 15	E B 15	E B 16	E B 15	21	26	G 26	G 29	36	35	36	35	33	27	27	36	E B 15	E B 16	E B 15	16	20
17	E B 15	E B 15	E B 15	E B 15	E B 15	17	E B 15	21	G 19	G 23	G 24	G 26	41	G 23	36	30	28	21	20	E B 15	E B 16	E B 16	E B 16	22
18	E B 15	E B 15	E B 15	14	E B 16	E B 15	E B 15	22	G 20	G 22	34	U Y 27	41	G 23	34	G 26	29	28	20	E B 15	E B 14	E B 15	E B 15	E B 15
19	E B 16	E B 14	E B 18	E B 14	E B 14	E B 15	E B 14	20	G	35	U Y 34	G 25	G	G 30	G 28	G	U Y 28	20	20	20	30	20	E B 15	E B 15
20	E B 16	E B 15	E B 15	E B 14	E B 14	E B 15	E B 15	G	G 20	G 26	G 26	G 24	38	G 26	G 28	31	27	19	E B 15	E B 15	E B 14	E B 15	E B 14	E B 15
21	E B 16	E B 15	E B 15	E B 16	E B 15	E B 14	E B 15	G	26	G 20	G 22	U Y 25	G 27	G 29	G 28	33	29	31	30	E B 15	E B 15	E C 28	E B 15	E B 15
22	18	E B 16	E B 15	E B 15	E B 15	E B 15	E B 15	G 19	G 24	G 20	G 22	G 27	34	34	34	32	29	G	22	18	21	18	23	18
23	E C 28	E B 20	E B 20	E B 15	E B 14	A A 31	21	G	G	G 23	37	U Y 26	G 24	G 24	G 28	G 21	23	20	30	E B 16	E B 15	E B 16	20	19
24	E C 28	E B 16	E B 15	E B 15	E B 15	E B 15	E B 16	23	U Y 18	G 22	C	C	C	C	C	31	G 22	G	E B 14	E B 14	E B 16	E C 28	22	E B 16
25	16	E B 15	E B 14	E B 15	E B 20	E B 15	E B 15	22	29	G 19	G	G	G 26	G 27	G 24	G 20	G 20	22	19	21	18	E B 17	E B 15	E B 15
26	E B 14	E B 16	E B 14	E B 15	E B 16	E B 16	E B 16	23	26	32	34	E B 58	40	G 29	G 28	G 27	28	21	E B 15	E B 15	E B 15	E B 16	E B 15	E B 15
27	E B 14	E B 16	E B 16	E B 15	E B 14	E B 16	E B 15	G	U Y 28	E B 35	G	U Y 31	G 30	G	35	G 25	30	20	E B 15	E B 15	E B 15	E B 16	E B 15	E B 15
28	E B 16	E B 16	E B 14	E B 15	E B 15	E B 14	E B 15	G	G 22	30	33	G 29	G 30	G 30	36	46	G 19	20	E B 14	E B 15	E B 15	E B 14	E B 15	15
29	18	19	E B 15	E B 16	E B 14	E B 13	15	20	G 19	G 26	U Y 26	G 25	G 27	G 23	G 23	G 20	G 19	G	E B 16	E B 15	E B 14	E B 15	E B 14	E B 15
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	29	29	29	29	29	29	29	29	29	29	28	28	28	28	28	29	29	29	29	29	29	29	29	29
MED	E B 16	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	G	G	26	G	29	34	G 30	34	31	28	21	18	E B 15	E B 16	E B 16	E B 15	E B 16
U Q	16	16	16	16	16	16	E 16	21	26	30	34	36	38	36	35	33	29	26	21	20	18	18	19	20
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 20	G 22	G 26	G 26	G 28	G 26	G 28	G 26	26	20	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15

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

IONOSPHERIC DATA STATION Kokubunji

FEB. 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	15	16	15	14	16	16	15	16	16	16	18	18	19	16	15	15	12	14	15	15	16	14	15	E C 28
2	16	13	16	15	14	16	15	14	15	16	18	20	20	16	17	14	14	13	14	15	16	16	15	16
3	15	15	16	16	14	15	E C 28	18	16	15	16	14	18	15	15	14	15	15	15	16	16	15	14	14
4	14	15	16	14	16	14	14	15	16	15	15	18	17	19	16	16	15	15	15	15	15	16	16	17
5	16	14	14	13	16	15	15	16	14	13	16	16	16	16	16	14	15	15	15	14	15	14	15	16
6	14	14	15	15	15	15	15	14	15	16	16	20	19	17	19	16	14	16	15	15	15	15	15	15
7	15	16	14	14	15	14	15	16	14	20	20	26	18	19	14	18	14	15	16	14	15	15	15	15
8	15	16	16	16	13	15	15	14	14	14	14	15	17	17	20	15	13	16	15	15	14	14	14	15
9	15	16	15	13	15	15	15	14	15	20	20	18	37	18	17	18	14	14	15	15	16	15	15	13
10	15	15	14	14	14	12	15	14	15	18	20	20	18	18	20	17	14	14	14	15	15	15	16	15
11	14	14	15	14	15	15	15	12	14	14	14	22	19	20	18	18	15	16	15	14	15	15	14	14
12	15	15	15	16	15	15	16	14	16	16	16	20	15	20	16	15	14	14	14	15	15	15	15	15
13	15	15	15	16	15	14	15	15	14	14	14	18	18	18	20	13	15	14	14	14	16	14	15	15
14	16	15	14	14	13	15	14	15	15	16	18	21	17	16	17	19	15	16	15	15	E C 28	15	15	16
15	14	14	16	15	15	16	16	12	14	15	16	16	16	14	20	12	14	13	15	16	16	16	16	15
16	16	16	14	15	15	16	15	15	15	16	18	18	19	17	14	14	13	15	14	15	16	15	14	14
17	15	15	15	15	15	15	15	14	13	15	16	20	19	18	14	13	15	15	14	15	16	16	16	15
18	15	15	15	14	16	15	15	14	14	14	17	19	18	16	18	16	14	14	14	15	14	15	15	15
19	16	14	18	14	14	15	14	14	18	20	21	24	29	24	19	18	16	14	16	14	15	15	15	15
20	16	15	15	14	14	15	15	15	14	14	17	17	18	20	17	16	14	15	15	15	14	15	14	15
21	16	15	15	16	15	14	15	14	14	15	17	20	19	20	18	18	16	16	16	15	15	E C 28	15	15
22	14	16	15	15	15	15	15	14	16	15	16	18	18	16	18	16	13	15	15	14	14	15	15	15
23	E C 28	20	20	15	14	14	15	14	18	16	20	21	20	14	18	14	13	13	15	16	15	16	15	14
24	E C 28	16	15	15	15	15	16	14	13	16	C	C	C	C	C	14	13	15	14	14	16	E C 28	15	16
25	14	15	14	15	20	15	15	14	15	17	28	24	20	18	15	16	13	14	13	15	14	17	15	15
26	14	16	14	15	16	16	16	12	16	18	18	58	23	21	18	19	15	14	15	15	15	16	15	15
27	14	16	16	15	14	16	15	15	19	35	18	21	19	22	22	17	16	15	15	15	15	16	15	15
28	16	16	14	15	15	14	15	13	15	17	20	20	19	19	19	14	13	14	14	15	15	14	15	14
29	15	15	15	16	14	13	14	13	16	18	20	15	18	17	16	13	16	15	16	15	14	15	14	15
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	29	29	29	29	29	29	29	29	29	29	28	28	28	28	28	29	29	29	29	29	29	29	29	29
MED	15	15	15	15	15	15	15	14	15	16	18	20	18	18	18	16	14	15	15	15	15	15	15	15
U Q	16	16	16	15	15	15	15	15	16	18	20	21	19	20	19	18	15	15	15	15	16	16	15	15
L Q	14	15	14	14	14	14	15	14	14	15	16	18	18	16	16	14	13	14	14	14	15	15	15	15

IONOSPHERIC DATA STATION Kokubunji

FEB. 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	311	317	293	310	310	303	303	348	369	359	340	342	349	343	373	369	343	359	340	320	327	334	315	289
2	303	317	320	301	314	313	311	353	363	349	360	353	366	344	348	358	347	364	334	330	302	351	294	276
3	286	293	305	313	325	296	312	361	343	326	350	355	352	337	356	351	333	351	327	346	349	316	A	298
4	279	326	332	328	365	291	318	359	364	367	337	349	337	341	352	357	364	365	354	335	354	314	313	317
5	298	294	309	322	341	365	292	341	378	386	355	354	343	355	341	334	355	358	314	331	316	308	306	307
6	324	319	291	297	300	301	358	374	368	338	340	323	341	366	358	339	365	348	347	357	353	277	272	288
7	293	341	336	315	296	305	308	367	371	341	356	338	353	352	334	348	350	361	322	368	334	308	296	R 284
8	321	312	312	296	327	304	316	353	374	370	358	357	353	354	349	340	346	367	358	393	356	298	294	280
9	287	293	320	318	302	308	326	359	374	353	366	349	324	352	334	342	336	363	375	336	328	318	319	295
10	322	279	F	317	362	305	292	345	381	358	371	378	323	337	332	327	356	350	371	330	327	321	309	298
11	301	307	306	317	324	312	328	374	375	340	360	325	354	348	343	339	336	351	348	356	319	339	322	290
12	282	282	297	277	259	278	F	323	369	Z 304	347	332	328	333	334	333	339	345	320	344	290	305	320	296
13	301	295	294	287	282	294	331	352	357	337	353	329	338	341	328	343	354	345	347	345	305	294	292	288
14	303	311	314	301	293	307	313	360	364	314	357	328	340	340	342	339	338	335	333	347	364	293	288	296
15	315	314	298	305	306	F	F	371	365	342	344	304	344	338	328	326	338	361	301	305	329	322	280	293
16	357	324	331	289	289	300	320	369	366	318	349	359	345	334	345	335	330	360	367	335	312	312	304	332
17	325	319	307	282	292	296	318	376	377	373	365	328	340	347	351	327	360	356	336	357	306	317	327	307
18	304	S 300	308	315	287	294	326	372	378	368	356	317	337	333	334	328	340	351	342	331	326	332	320	302
19	305	296	294	264	278	317	336	346	357	387	338	338	331	333	V 328	356	341	361	367	325	315	304	311	293
20	311	314	312	307	315	320	320	358	355	357	356	340	341	344	345	321	343	367	345	314	331	324	322	318
21	307	306	304	291	300	293	327	376	383	377	373	336	323	337	362	355	361	352	357	345	318	318	287	300
22	290	300	310	314	320	288	322	351	368	366	334	348	353	321	337	350	357	351	361	316	301	302	304	315
23	304	305	306	333	354	A	328	363	330	343	339	330	340	342	355	359	343	348	336	318	321	306	297	294
24	339	343	318	339	322	285	325	360	382	365	C	C	C	C	C	323	349	364	330	329	336	311	305	290
25	303	307	320	325	313	289	317	368	352	351	343	334	336	301	329	345	346	357	330	336	328	303	296	301
26	298	300	329	344	351	365	340	362	373	361	377	R 322	319	337	332	334	335	360	353	341	315	304	293	300
27	290	315	311	322	343	319	328	361	353	328	352	317	345	326	329	356	348	351	347	336	303	304	281	286
28	310	317	323	318	307	305	313	334	349	334	337	324	316	331	339	331	341	356	322	340	340	274	295	282
29	290	301	301	293	353	350	333	342	324	336	331	365	347	334	350	331	345	356	374	339	302	284	292	274
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	29	29	28	29	29	27	27	29	29	29	28	28	28	28	28	29	29	29	29	29	29	29	28	29
MED	303	307	310	313	313	304	320	360	368	351	352	337	340	339	342	339	345	356	345	336	326	308	300	295
U Q	313	317	320	320	334	313	328	368	374	366	359	351	348	346	350	353	354	361	358	346	335	320	314	302
L Q	292	298	302	294	294	294	313	350	356	336	340	326	334	334	333	331	338	351	330	330	309	302	292	288

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

IONOSPHERIC DATA STATION Kokubunji

FEB.2004 M(3000)F1 (0.01) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1									L	L	L	L 379	L	A	L	L								
2										L	L	L	L	L										
3										L	L	L	L 410	L	A	L								
4												L	L	L										
5										L	L	L	L	L	L									
6										L		L	L	A	A	A								
7											L	A	L	L	L									
8									L	L	L		A			L								
9										L	L	L	L	L										
10										L	L	L	L	L	L	L								
11											L	L	L 379	L	L									
12											L	L	L	L	L	L								
13										L	L	L	L	L	L	L								
14													L	L										
15											L	L	L		L									
16											L	L	L		L	L	L							
17										L	L	L 412		L	L 376	L								
18											L	L 397	L	L	L	L								
19											L	L	L	L 356		L								
20										L	L	L	L	L	L	L								
21										L	L	L 370	L 399	L										
22										L	L	L	L 381	L	L	L								
23									L	L	L	L	L	L	L	L								
24										L	C	C	C	C	C									
25										L	L	L	L	L 355	L 389	L								
26										L	L	E B	L	L 356	L	L								
27										L	L	L 374	L 386	L	L 386	L	L							
28									L	L	L	L 377	L	L 358	L 386	A								
29									L	L	L	L 393	L	L	L 439	L	L							
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT												7	5	5	4									
MED												L 379	L 386	L 356	L 388									
U Q												L 397	L 404	L 367	L 414									
L Q												L 374	L 380	L 356	L 386									

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

IONOSPHERIC DATA STATION Kokubunji

FEB. 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									222	230	256	232	228	234	222	228								
2										244	238	242	228	254										
3										270	224	230	232	240	236	234								
4												258	256	240										
5										220	230	218	226	236	246									
6										216		268	238	236	236	234								
7											240	242	244	248	234									
8									230	222	224		230			252								
9										248	234	222	248	242										
10										232	232	216	238	266	250	250								
11											238	252	246	232	264									
12											242	236	252	256	254	256								
13										242	232	232	248	258	246	250								
14													242	260										
15											242	238	240		254									
16											240	236	250		246	256	236							
17										222	220	236	252	252	242									
18											228	266	266	248	256	252								
19											226	25.6	282	258		246								
20										232	238	234	236	252	252	276								
21										226	222	264	252	254										
22										232	252	240	240	238	256	236								
23									250	240	240	240	252	246	234	230								
24										236	C	C	C	C	C									
25										250	230	262	240	310	246	242								
26										242	228	E 288	B 268	264	244	242								
27										260	230	274	250	234	268	240	234							
28									244	242	238	260	248	260	242	250								
29									272	238	266	228	242	250	256	260	238							
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT									5	20	25	26	28	25	21	18	3							
MED									244	237	234	240	245	250	246	248	236							
U Q									261	243	240	260	252	258	255	252	238							
L Q									226	228	228	232	238	239	239	236	234							

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

IONOSPHERIC DATA STATION Kokubunji

FEB. 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 252	E B 268	E A 304	E A 290	E B 292	E B 290	E B 272	232	200	H 196	H 178	196	206	A	A	H 190	204	210	202	E A 248	E A 272	E A 246	E B 254	E C 330
2	E A 284	E A 278	E B 262	E B 270	E B 240	E B 250	E B 262	230	220	206	210	202	204	206	218	220	212	206	E A 252	E A 242	E B 254	218	E B 274	E B 308
3	E B 312	E B 276	E B 270	E B 254	E A 264	E B 274	E C 284	220	214	218	196	H 192	H 176	196	A	H 198	214	218	226	208	210	E A 256	A	E A 302
4	E A 324	236	E B 248	228	210	E B 328	E B 258	224	222	H 202	H 198	228	230	216	224	212	216	206	192	238	212	E B 260	E B 268	E B 266
5	E B 274	E B 270	E A 288	E A 240	222	204	E B 282	238	210	204	H 188	H 184	H 182	H 178	206	222	216	206	210	222	218	E B 256	E B 240	E B 258
6	220	E B 250	E B 282	E B 262	E B 256	E A 272	206	212	H 190	188	230	200	208	A	A	A	214	214	208	214	210	E B 304	E B 324	E B 294
7	E B 286	226	E A 242	E A 260	E A 298	E B 294	E B 262	H 190	214	220	222	A	A	212	208	220	216	212	208	216	E A 238	E A 272	E A 284	E A 368
8	240	E A 250	E A 292	E B 282	E A 256	E A 290	E B 250	220	210	194	H 174	232	A	222	212	214	224	210	224	214	220	E A 344	E A 342	E A 332
9	E B 294	E B 278	E B 248	E A 262	E A 252	E B 284	228	216	H 198	H 184	H 182	192	200	214	228	218	208	212	198	214	230	E A 256	E A 246	E A 272
10	236	E B 264	E B 266	E B 234	212	E A 278	E B 276	236	206	202	200	A	H 182	H 190	218	208	216	206	206	212	206	238	E A 264	E A 284
11	E A 282	E A 268	E B 268	E A 254	244	E B 264	220	212	206	216	206	190	H 176	204	200	212	218	210	190	212	238	220	E B 250	E A 296
12	E B 330	E B 296	E B 310	E B 290	E B 362	E B 346	Q 200	200	226	220	208	202	202	208	214	218	226	216	206	222	E B 274	244	236	250
13	E B 270	E B 258	E B 274	E B 292	E B 304	E B 268	230	228	222	206	192	H 184	196	212	212	220	214	206	212	E A 240	216	E B 304	E A E 266	E B 294
14	E B 256	E B 268	E A 254	E A 284	E A 286	E B 260	230	226	206	H 186	220	214	208	202	212	216	218	200	228	212	214	E B 260	E B 302	E A 294
15	E A 248	E B 252	E B 270	E B 276	224	E B 256	E B 266	216	210	204	204	190	220	222	210	226	210	204	228	252	222	212	E B 316	E B 282
16	210	230	234	E B 298	E B 298	E B 264	E B 242	206	212	202	212	198	H 178	210	208	210	204	210	218	204	E B 254	E B 254	E A 268	238
17	218	232	E B 262	E B 280	E B 280	E A 290	E B 246	222	210	200	194	H 184	222	198	206	216	220	210	212	210	236	E B 246	226	E A 282
18	E B 254	E B 274	E B 276	E B 252	E B 284	E B 306	230	212	214	208	196	H 192	232	206	208	204	222	214	212	198	226	214	E B 242	E B 262
19	E B 266	E B 250	E B 294	E B 324	E B 318	E B 252	214	226	224	206	198	202	H 188	192	218	208	218	214	198	228	E A 284	E A 276	E B 268	E B 278
20	E B 262	E B 252	E B 252	E B 268	E B 250	E B 248	230	222	206	H 184	212	200	208	H 192	202	H 196	226	208	204	224	214	224	230	E B 252
21	E B 254	E B 252	E B 278	E B 294	E B 288	E B 296	E B 242	220	202	198	192	E B 178	H 176	206	212	218	222	210	222	208	224	E C 286	E B 292	E B 264
22	E A 300	E B 278	E B 256	E B 242	E B 260	E B 278	E B 240	210	208	H 186	186	H 188	192	194	214	214	222	222	200	E A 246	E A 288	E A 270	E A E 280	E A 266
23	E C 284	E B 276	E B 278	E B 236	204	A	E A 284	228	200	H 186	A	208	220	200	204	196	H 196	218	222	232	232	E B 246	E A E 280	E A 308
24	E C 242	206	E B 266	226	230	E B 316	E B 240	220	214	218	C	C	C	C	C	214	220	212	220	210	224	E C 274	E A E 280	E B 296
25	E A 260	E B 250	E B 246	224	238	E B 280	E B 250	212	228	224	208	202	200	H 186	H 176	214	220	214	200	218	228	228	E B 280	E B 282
26	E B 284	E B 274	E B 244	232	224	206	232	218	202	198	204	E B 288	208	H 186	222	204	220	218	208	198	232	E B 250	E B E 288	E B 292
27	E B 284	E B 252	230	236	220	E B 248	226	216	222	202	206	H 196	H 184	H 180	202	216	210	216	204	220	E B 242	E B 264	E B E 284	E B 294
28	E B 254	244	232	240	230	230	240	234	218	198	198	194	200	202	200	A	224	212	210	202	210	226	E B 306	E A 314
29	E A 302	E A 288	E B 282	E B 292	208	218	E A 242	214	208	H 198	208	H 180	H 192	H 192	H 186	208	H 190	222	198	210	230	E B 282	E B E 298	E B 326
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	29	29	29	29	29	28	29	29	29	29	27	26	26	26	25	27	29	29	29	29	29	29	28	29
MED	E B 266	E B 258	E B 266	E B 262	E 252	E B 273	E 242	220	210	202	200	196	200	202	210	214	216	212	208	213	221	E 256	E B 277	E B 292
U Q	E 285	E B 275	E B 280	E B 287	E B 287	E B 290	E B 262	227	219	207	208	202	208	210	216	218	221	215	221	230	E 240	E 273	E B E 290	E B A 305
L Q	250	250	E 248	238	224	251	230	212	206	H 195	H 192	H 190	H 184	H 192	203	208	211	207	201	210	215	233	E 252	E B 266

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

IONOSPHERIC DATA STATION Kokubunji

FEB. 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								120	122	112	114	118	A	A	A	A	A	B						
2								E B 134	120	120	120	A	A	A	A	A	A	B						
3								B	122	118	120	118	124	118	116	A	A	B						
4								E B 150	114	A	A	A	118	116	120	A	114	B						
5								B	120	116	116	116	A	A 114	114	114	114	B						
6								116	114	112	116	116	116	114	116	116	116	B						
7								B	112	118	116	116	120	112	118	120	114	B						
8								E B 130	A	114	112	112	A	110	114	114	120	B						
9								B	110	A	A	112	B	116	114	114	110	B						
10								114	118	120	A	A	114	116	116	118	116	B						
11								120	A	116	120	116	118	116	114	116	116	B						
12								128	A	A	118	120	118	116	116	114	116	B						
13								114	110	114	116	118	118	120	118	114	112	B						
14								126	120	114	118	116	120	118	118	112	114	B						
15								118	118	A	A	112	112	114	120	110	112	B						
16								118	118	118	114	A	A	A	A	120	116	B						
17								A	112	118	118	116	120	114	114	114	112	B						
18								110	126	118	112	116	116	116	114	114	114	B						
19								122	118	A	120	120	112	120	120	112	114	B						
20								122	122	122	114	122	118	116	116	114	112	B						
21								E B 130	112	114	118	118	114	116	114	114	110	B						
22								124	126	114	114	114	A	118	116	118	A	118						
23								120	114	112	114	116	112	112	114	108	116	B						
24								118	116	116	C	C	C	C	C	A	122	118						
25								122	118	116	118	118	116	118	116	112	114	A						
26								112	116	114	114	B	116	116	114	118	116	128						
27								116	118	B	118	114	110	110	118	114	114	114						
28								116	116	116	A	118	116	114	A	A	116	120						
29								120	112	116	116	116	116	116	114	112	112	120						
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								24	26	23	23	23	21	24	24	23	25	6						
MED								119	118	116	116	116	116	116	116	114	114	119						
U Q								E B 125	120	118	118	118	118	117	118	116	116	120						
L Q								116	114	114	114	116	114	114	114	112	112	118						

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

IONOSPHERIC DATA STATION Kokubunji

FEB. 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

H / D	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	B	B	104	104	98	96	B	G	G	G	106	104	106	104	104	96	94	98	102	102	98	96	96	C
2	92	96	96	B	B	B	96	G	G	124	120	108	106	110	104	100	102	98	96	94	B	B	B	B
3	B	B	B	102	100	100	C	B	156	162	100	120	128	100	114	94	96	94	90	94	90	92	96	94
4	94	B	B	128	B	B	B	G	162	102	102	138	136	130	170	104	154	92	96	96	136	88	B	104
5	102	100	116	108	106	102	B	104	166	172	102	98	108	100	148	100	120	92	92	92	92	B	B	B
6	104	98	100	102	114	102	B	G	G	104	146	124	120	124	114	116	114	102	100	98	B	110	100	B
7	100	100	102	102	104	102	102	B	98	174	144	134	118	120	118	166	140	122	108	96	96	98	96	96
8	92	96	100	B	104	106	B	102	98	100	96	140	90	98	102	150	118	120	104	100	100	98	94	92
9	84	84	94	98	B	106	104	100	96	98	96	94	B	142	124	120	108	104	90	92	92	100	104	102
10	102	B	100	104	100	108	112	136	104	100	98	94	96	94	104	104	134	110	B	100	B	100	94	96
11	92	98	100	100	B	102	102	104	94	98	102	104	104	100	104	118	116	B	B	B	B	B	98	102
12	B	B	B	B	B	B	B	106	98	96	98	100	102	144	124	118	112	108	102	102	102	B	100	B
13	110	100	B	100	102	B	B	G	164	104	100	102	144	96	126	114	108	106	106	100	98	B	94	102
14	96	102	104	100	98	100	98	160	102	102	142	132	118	118	106	G	112	110	92	B	98	100	102	94
15	96	96	B	B	B	B	108	112	98	96	96	94	90	100	124	114	110	106	102	B	88	100	96	100
16	B	B	B	B	B	B	B	116	126	104	104	104	104	104	102	116	114	102	98	B	108	B	96	96
17	B	92	B	108	96	94	100	100	98	100	102	104	160	96	160	92	150	90	86	88	90	B	106	98
18	102	104	B	B	B	B	B	148	96	102	140	108	172	94	114	90	116	86	86	84	B	102	100	100
19	B	B	B	B	B	B	B	122	G	106	106	104	G	106	106	G	126	112	102	100	102	102	104	102
20	102	B	100	B	B	B	B	G	102	100	102	100	170	104	104	116	126	114	B	100	B	B	B	B
21	B	B	B	B	B	B	B	G	144	100	100	100	100	102	102	124	126	112	102	B	B	C	96	118
22	94	102	98	100	100	B	B	106	110	96	102	104	106	116	116	116	102	G	106	102	96	102	96	96
23	C	B	B	B	B	92	94	G	G	106	168	100	94	94	96	92	90	94	90	90	92	90	98	98
24	C	98	B	B	B	B	B	162	104	100	C	C	C	C	C	106	104	G	B	B	B	C	92	94
25	96	96	B	B	B	B	B	160	174	98	G	G	104	98	98	94	96	88	106	102	100	B	B	B
26	B	94	B	B	B	B	B	162	122	118	114	B	166	104	102	102	166	132	B	B	B	B	B	B
27	98	B	B	B	B	B	B	G	106	B	G	100	100	G	150	104	120	118	B	B	B	110	104	112
28	B	B	B	B	B	B	B	G	102	112	106	102	102	100	96	90	98	136	B	B	90	B	B	96
29	96	104	B	B	B	B	94	166	94	102	100	98	96	98	98	98	106	G	B	B	B	B	B	B
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	18	17	12	13	11	12	10	17	24	27	26	26	26	27	28	27	29	25	21	19	18	15	21	20
MED	96	98	100	102	100	102	101	116	103	102	102	104	106	102	106	104	114	106	100	98	97	100	96	98
U Q	102	101	103	106	104	104	104	160	135	106	114	108	128	116	124	116	126	113	103	100	100	102	101	102
L Q	94	96	99	100	98	98	96	104	98	100	100	100	100	98	102	96	103	94	91	92	92	96	96	96

IONOSPHERIC DATA STATION Kokubunji

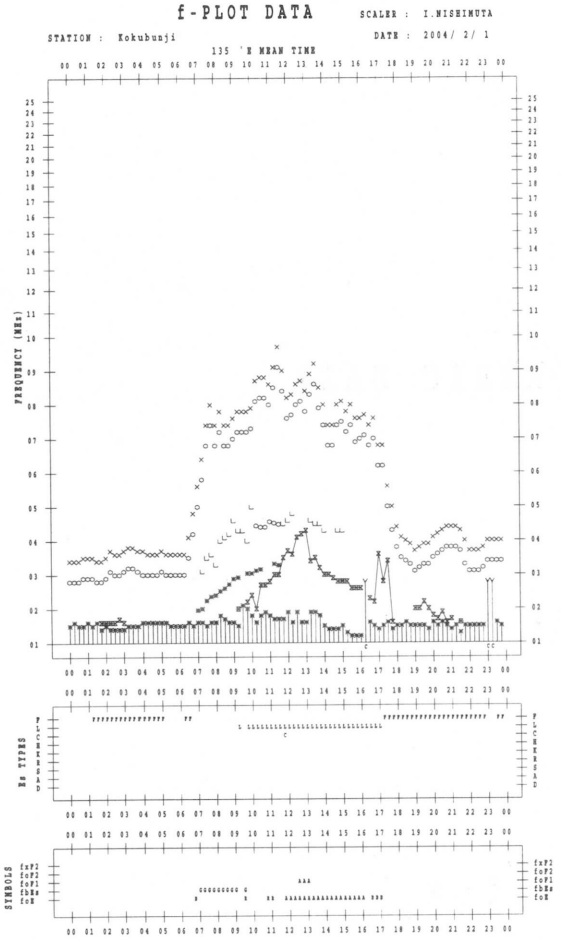
FEB. 2004 TYPES OF Es 135°E MEAN TIME (G.M.T. + 9 H)

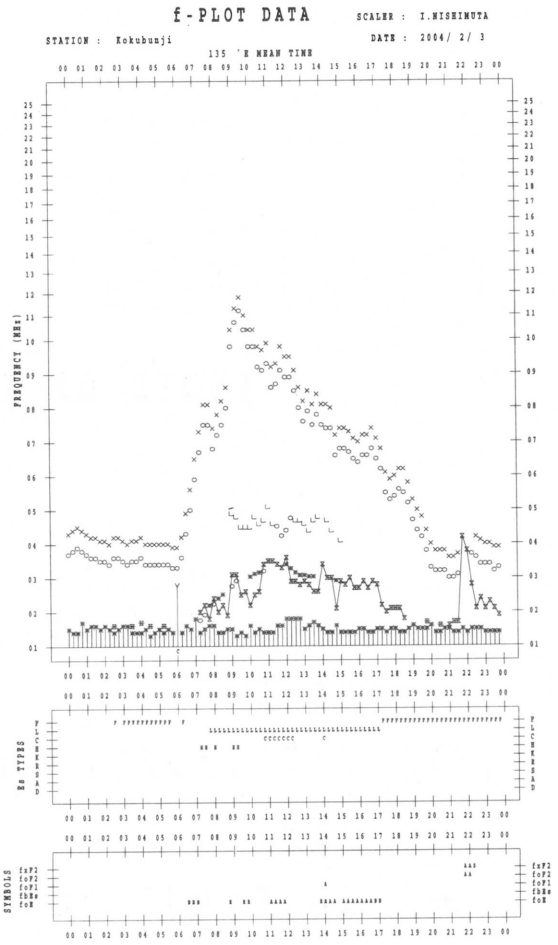
LAT. 35°42.4'N LON. 139°29.3'E SWEEP 1.0MHz TO 30.0MHz IN 15.0SEC IN MANUAL SCALING

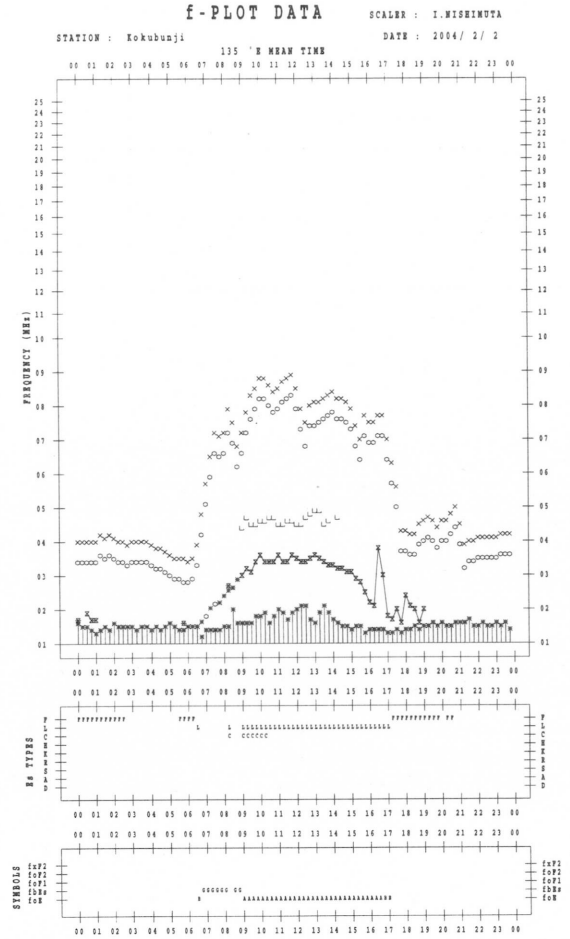
D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1			F1	F1	F2	F1					L1	L1	L1	L1	L1	L3	L4	L3	F2	F2	F2	F2	F2	
2	F2	F1	F1				F2			CL11	CL11	L1	L1	L1	L1	L1	L2	L3	F3	F3				
3				F2	F1	F1			HL11	HL11	L1	CL11	CL11	L1	CL12	L1	L2	L3	F3	F3	F2	F1	F3	F2
4	F1			F1					H1	L1	L1	HL11	HL11	CL11	HL11	L3	HL11	L3	F2	F2	FF21	F1		F1
5	F1	F1	F4	F3	F1	F1		L1	HL11	HL11	L1	L1	L1	L1	HL11	L1	CL22	L2	F3	F2	F1			
6	F1	F2	F2	F1	F1	F3				L1	HL11	CL11	CL11	CL11	CL11	CL21	CL21	L5	F3	F2		F1	F1	
7	F1	F1	F3	F2	F2	F2	F1		L1	HL11	HL11	HL11	CL11	CL21	CL11	HL11	HL21	C2	F2	F3	F4	F3	F3	F4
8	F2	F1	F2		F2	F2		L2	L2	L1	L2	HL22	LH21	L1	L1	HL11	CL11	C3	F5	F3	F3	F2	F3	F3
9	F1	F1	F1	F2		F1	F1	L2	L2	L1	L1	L1		HL11	CL11	CL11	CL21	LL33	F3	F2	F1	F3	F1	F1
10	F1		F1	F1	F1	F2	F2	C1	L1	L1	L1	L1	L1	L1	L1	L1	HL11	C3		F1		F1	F3	F2
11	F2	F1	F1	F2		F1	F1	L1	L2	L1	L1	L1	L1	L1	L1	CL11	CL11						F2	F1
12								L1	L3	L1	L1	L1	L2	HL11	CL11	CL11	CL21	L3	F2	F1	F1		F1	
13	F1	F1		F1	F2				HL11	L2	L1	L2	HL11	L1	CL11	CL11	C2	L3	F4	F3	F3		F3	F1
14	F1	F1	F3	F2	F4	F2	F3	H1	L1	L1	HL11	CL11	CL11	CL11	L1		CL21	C2	F1		F2	F3	F2	F3
15	F2	F1					F1	CL12	L1	L1	L1	L2	L1	L1	CL11	CL12	CL21	L2	F5		F1	F1	F2	F1
16								C1	C1	L1	L1	L1	L2	L1	L1	CL11	CL21	L3	F3		F1		F2	F2
17		F1		F1	F2	F1	F1	L1	L1	L1	L1	L1	HL11	L1	HL12	L2	HL13	L3	F2	F2	F1		F1	F4
18	F2	F1						HL11	L2	L1	HL11	L1	HL11	L1	CL11	L2	CL11	L3	F2	F1		F1	F2	F1
19								C1		L1	L1	L2		L1	L1		C1	CL11	FF22	F3	F3	F3	F1	F2
20	F1		F1						L1	L2	L1	L1	HL11	L1	L1	CL11	C1	CL21		F1				
21									HL11	L1	L1	L1	L1	L1	L1	CL11	CL11	CL32	F4				F2	F1
22	F2	F2	F1	F1	F1			L1	L1	L1	L1	L1	L1	CL11	CL11	CL11	L2		F2	F2	F3	F3	F4	F2
23						F4	F3			L2	HL11	L1	L1	L1	L1	L2	L3	L2	F3	F2	F2	F2	F3	F2
24		F1						H1	L1	L1						L2	L2						F3	F2
25	F1	F1						H2	HL11	L1			L1	L1	L1	L2	L1	L2	FF11	FF31	F2			
26		F1						H1	CL11	CL11	CL11		HL11	L1	L1	L1	HL11	HL22						
27	F1								L1			L1	L1		HL11	L1	C1	C2				F1	F1	F1
28									L1	CL11	L1	L1	L1	L1	L2	L3	L1	H1			F1			F2
29	F2	F1					F1	HL11	L1	L1	L1	L1	L1	L1	L1	L1	L1							
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT																								
MED																								
U Q																								
L Q																								

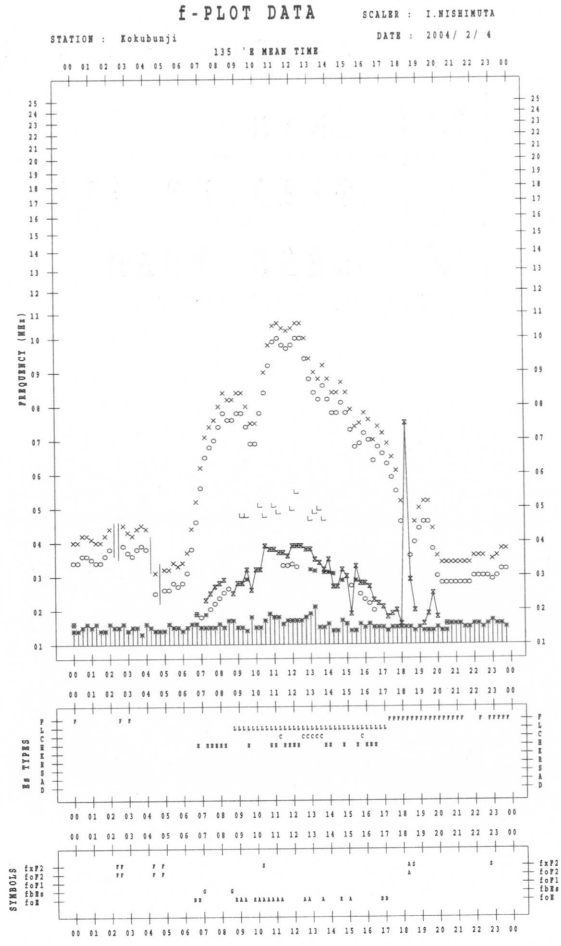
f-PLOTS OF IONOSPHERIC DATA

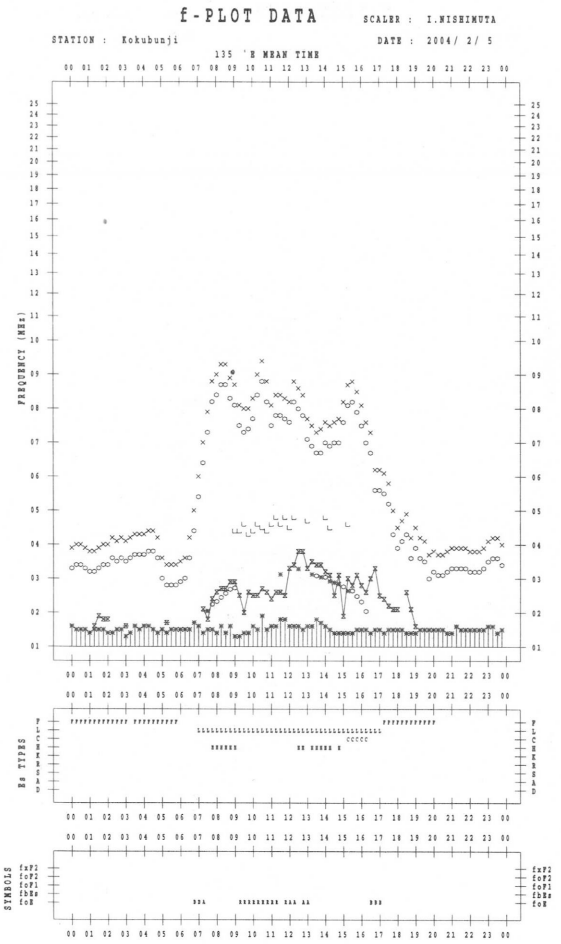
KEY OF f-PLOT	
	SPREAD
	foF2, foF1, foE
	fxF2
	DOUBTFUL foF2, foF1, foE
	fbEs
	ESTIMATED foF1
	fmin
	GREATER THAN
	LESS THAN

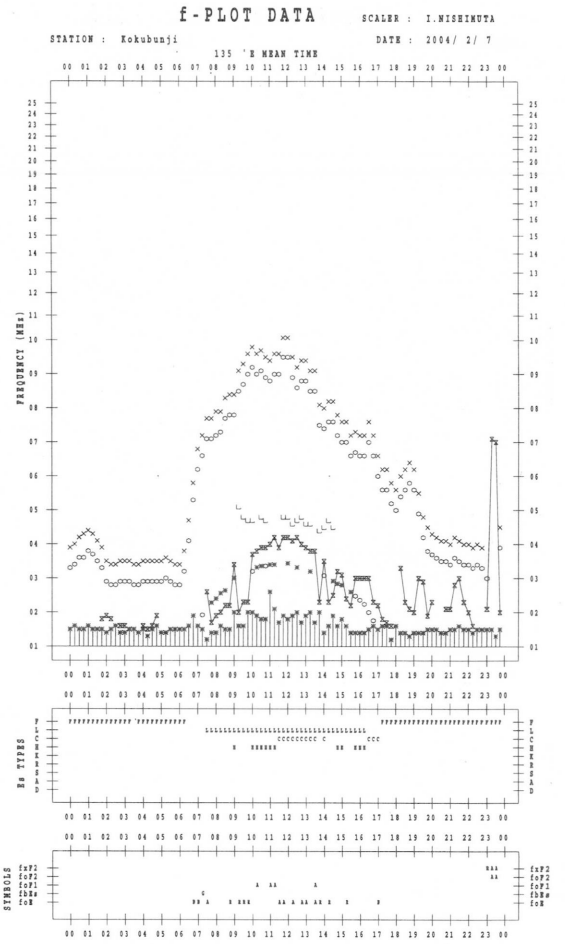

f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/ 2/ 1
135 'E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS

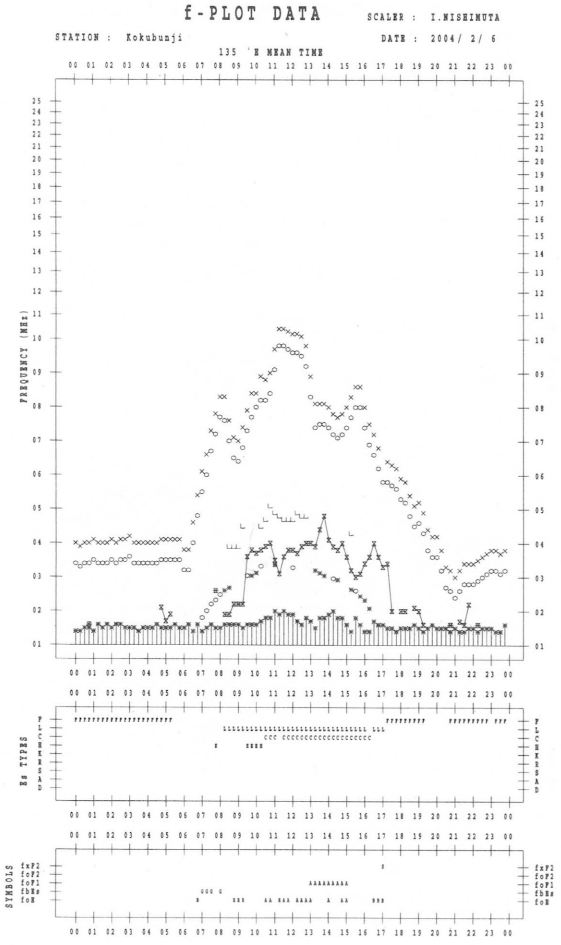

f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/ 2/ 3
135 'E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS

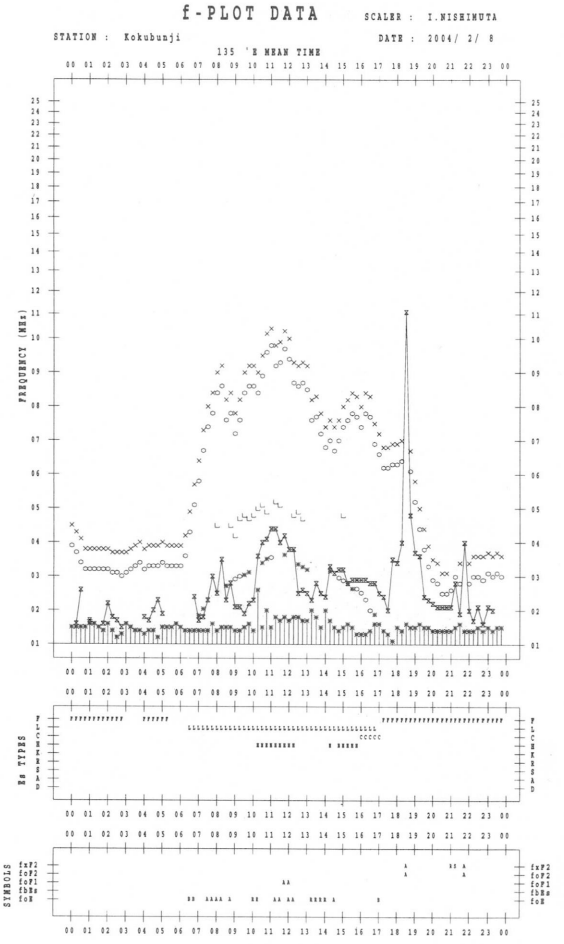

f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/ 2/ 2
135 'E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS

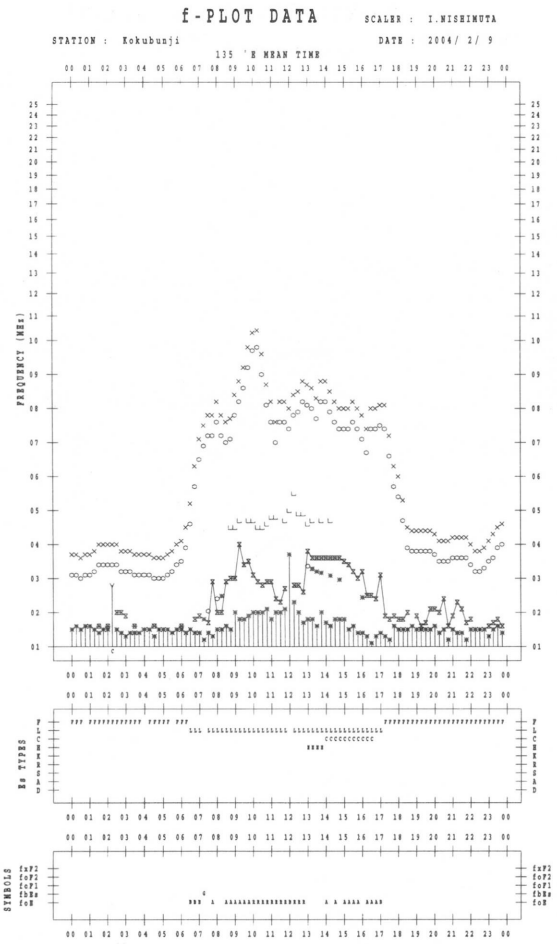

f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/ 2/ 4
135 'E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS

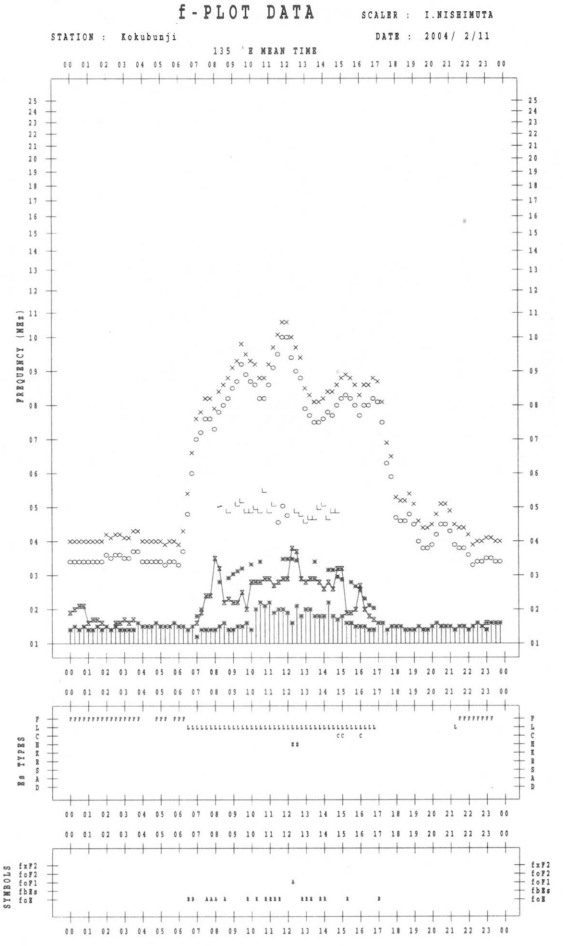

f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/ 2/ 5
135 'E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS

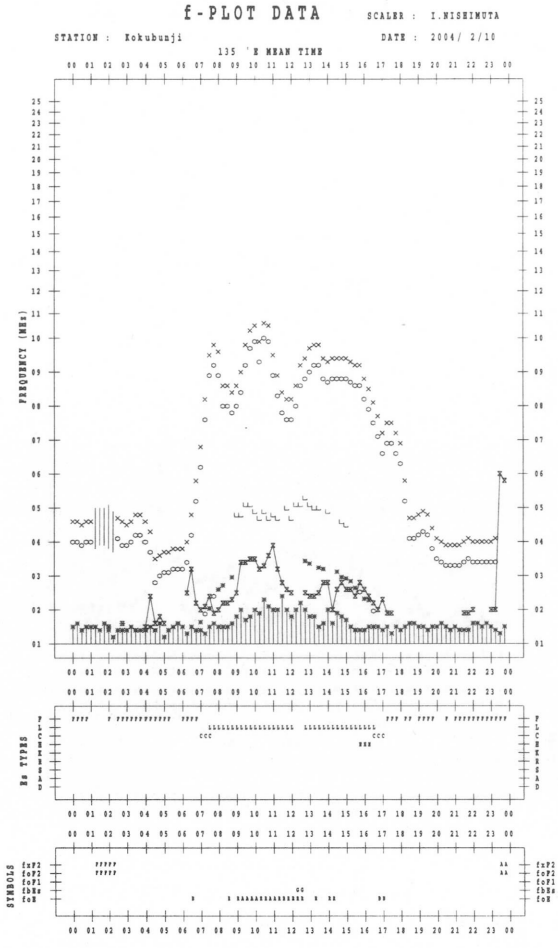

f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/ 2/ 7
135 'E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS

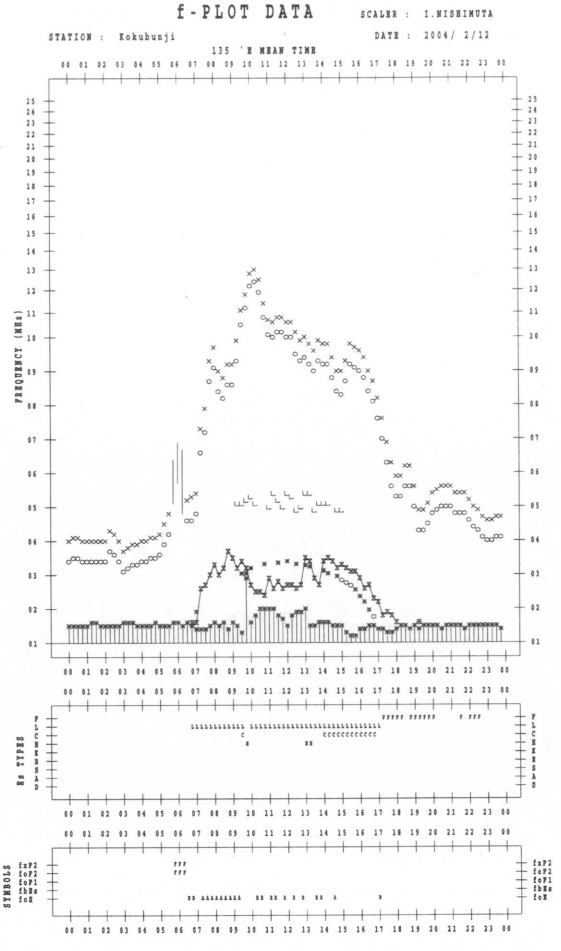

f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/ 2/ 6
135 'E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS

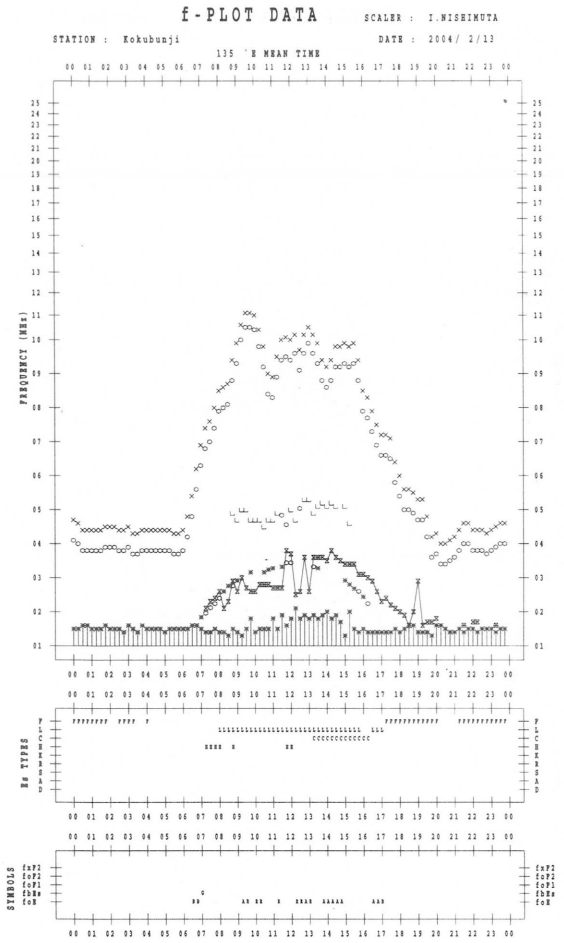

f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/ 2/ 8
135 'E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS

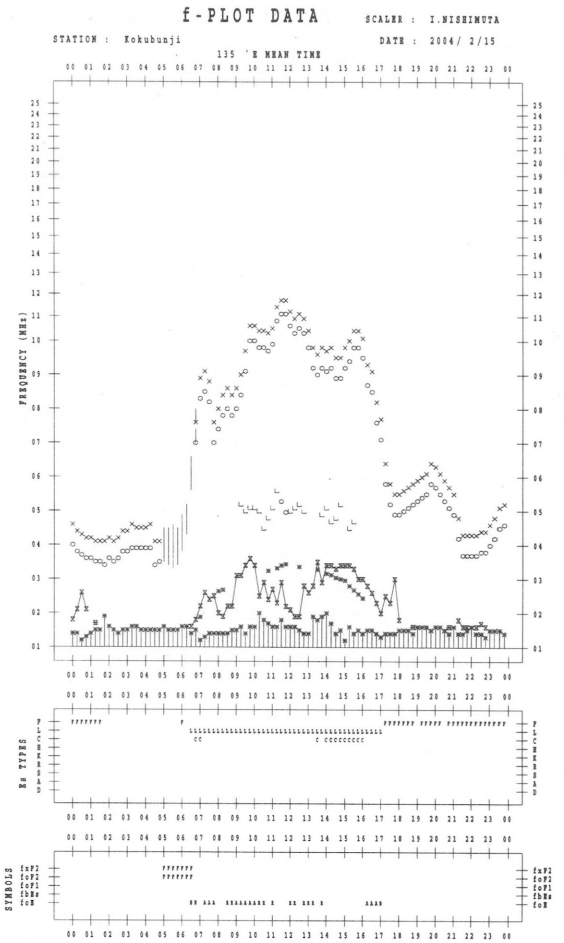

f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/ 2/ 9
135 'E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS

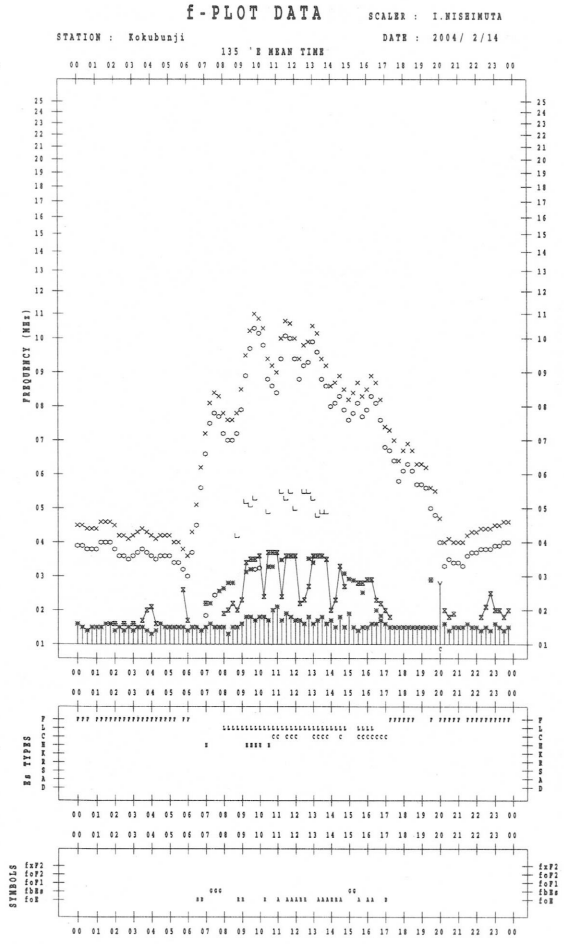

f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/ 2/11
135 'E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS

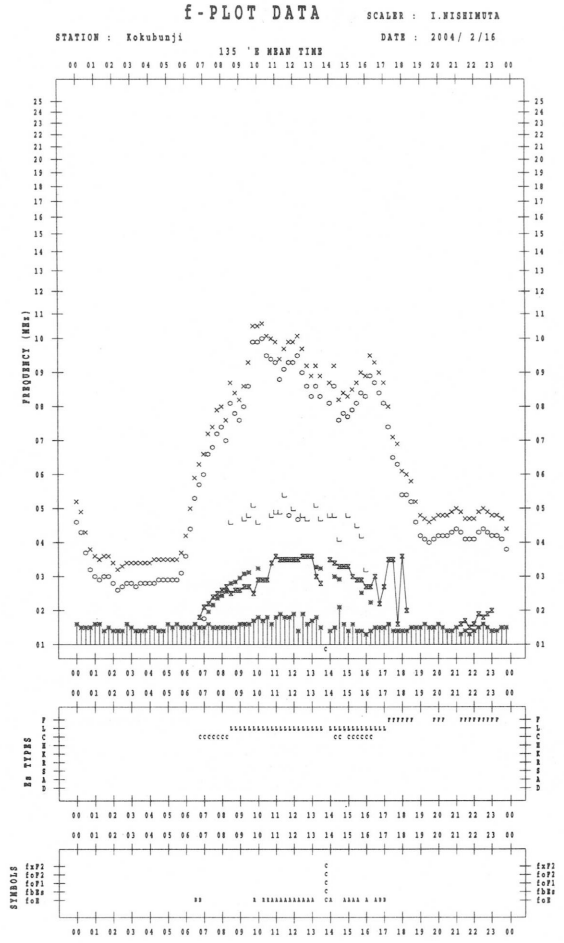

f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/ 2/10
135 'E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS

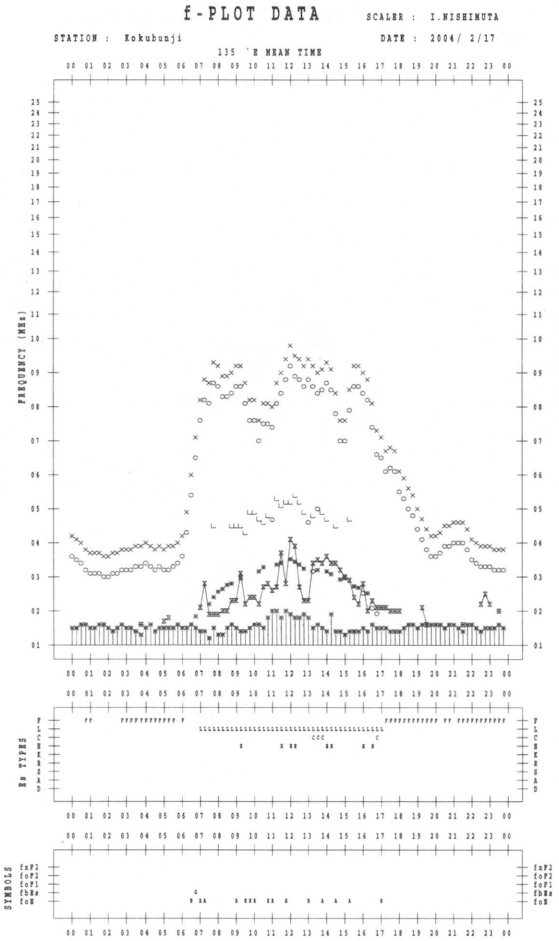

f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/ 2/12
135 'E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS

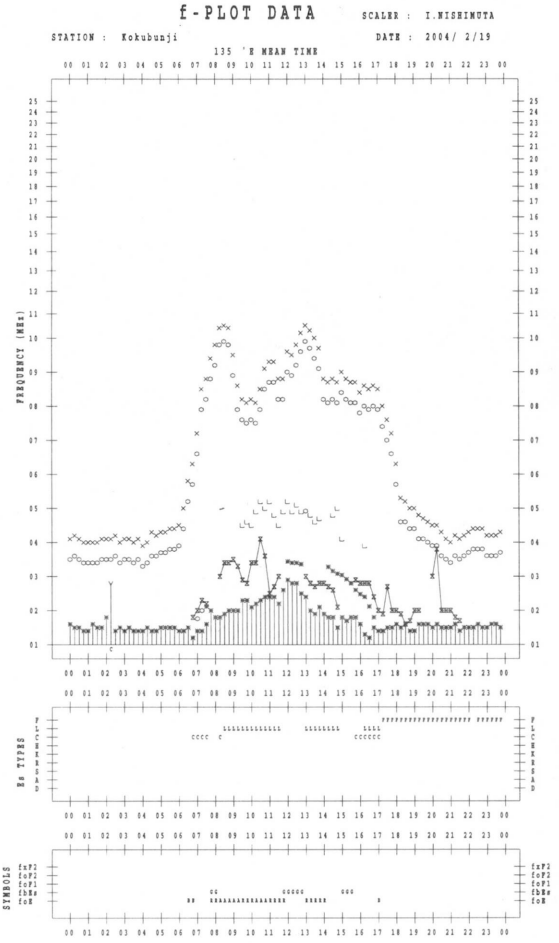

f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/ 2/13
135 'E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS

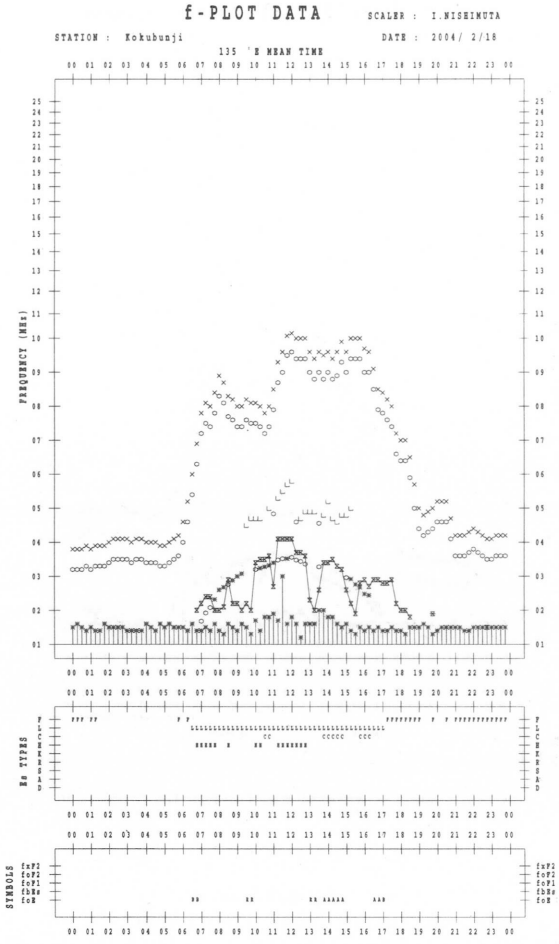

f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/ 2/15
135 'E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS

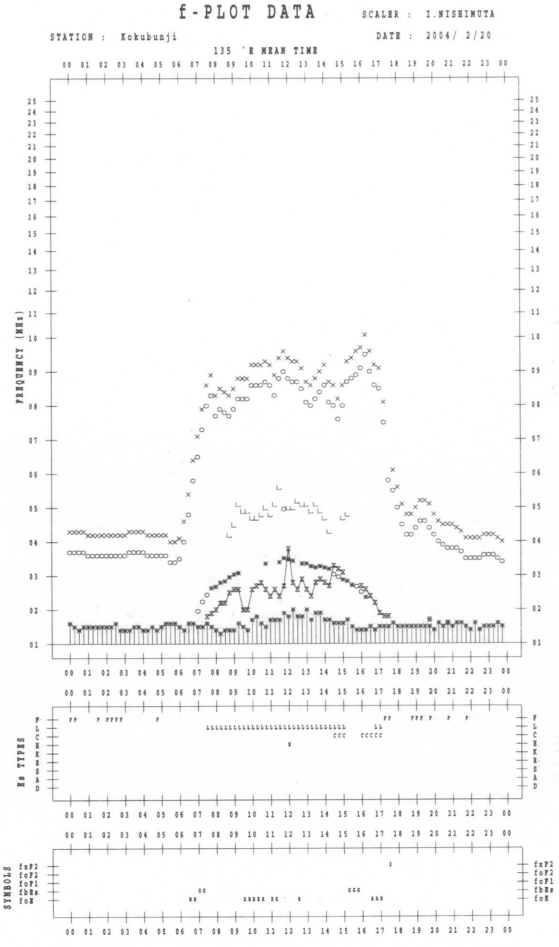

f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/ 2/14
135 'E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS

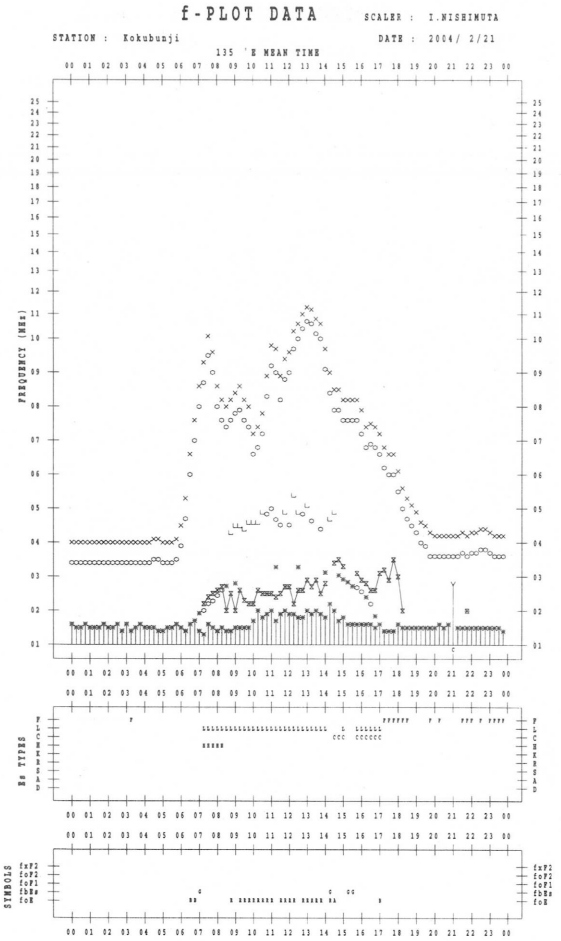

f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/ 2/16
135 'E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS

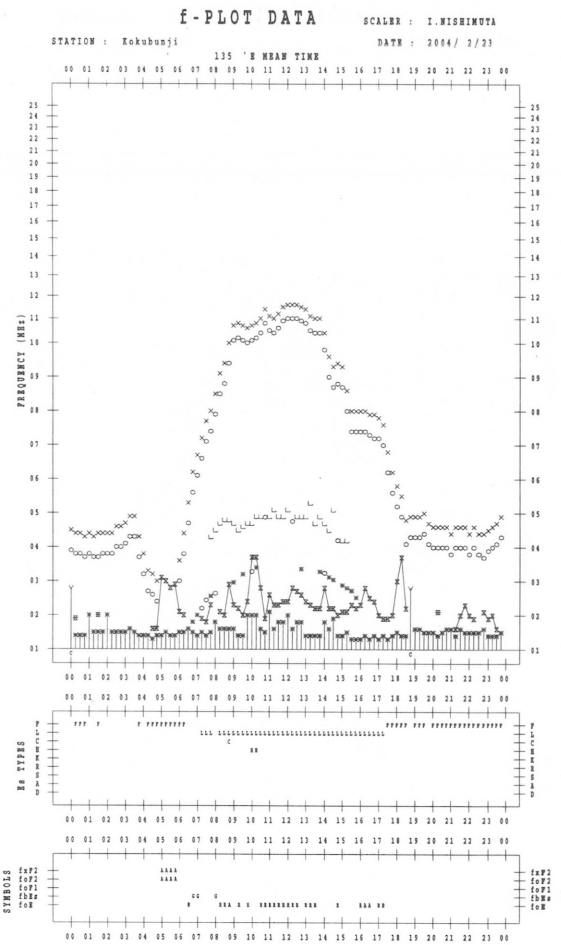

f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/ 2/17
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS

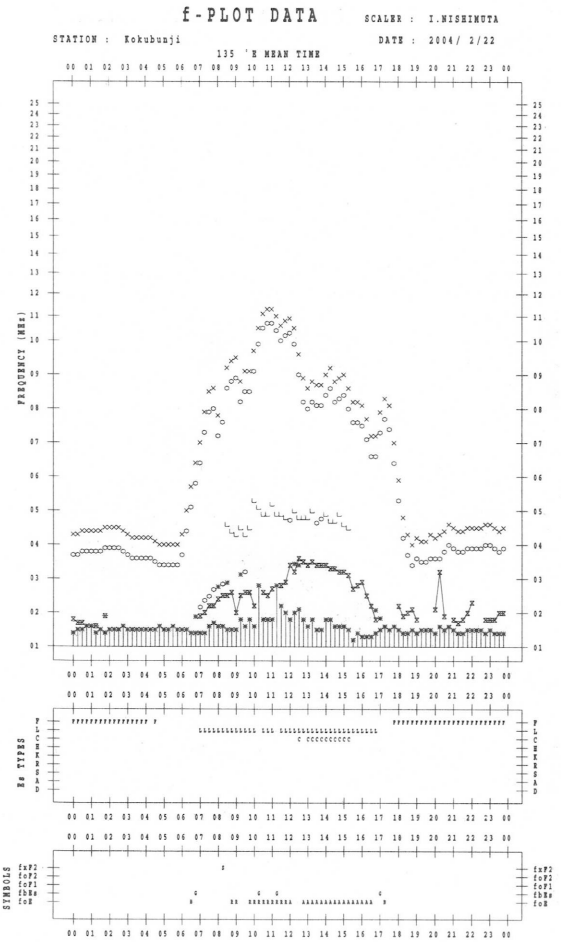

f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/ 2/19
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS

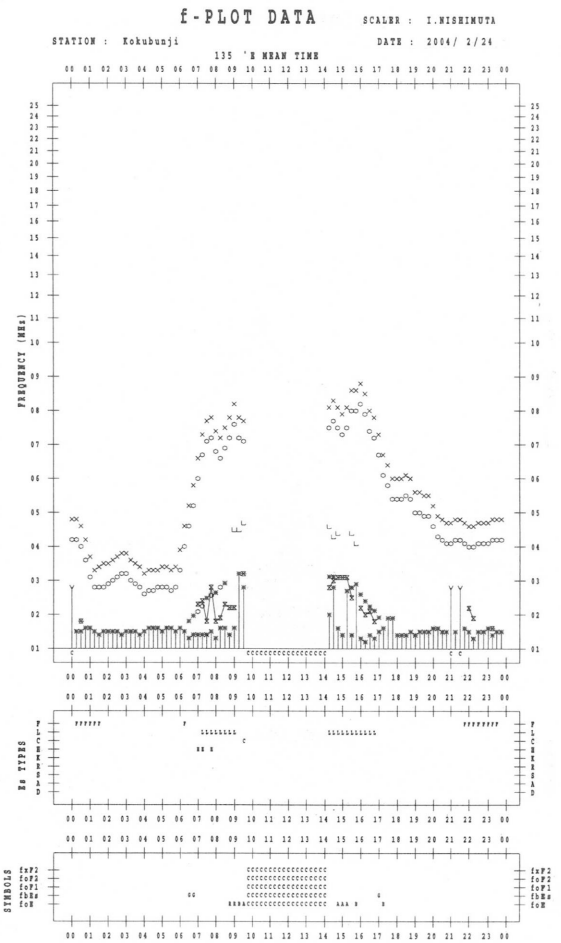

f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/ 2/18
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS

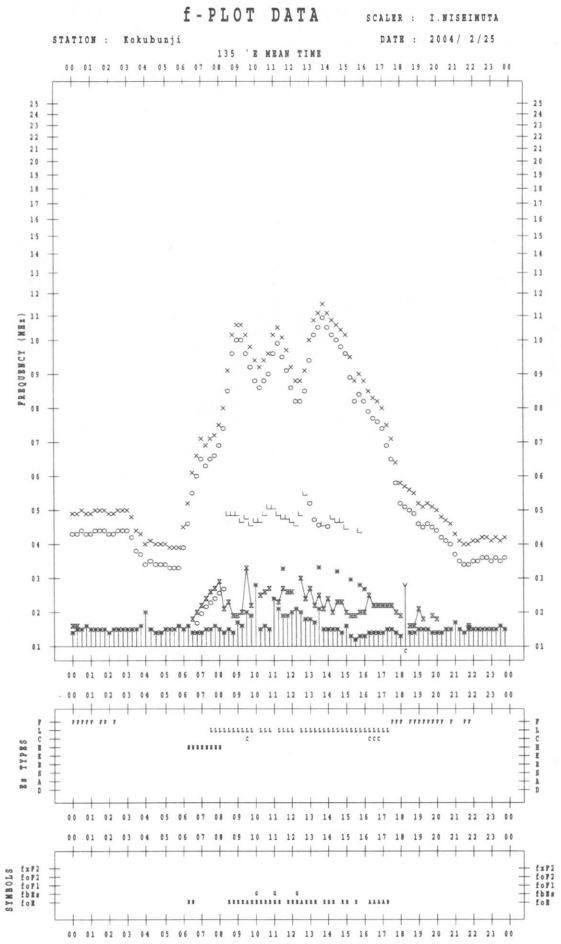

f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/ 2/20
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS

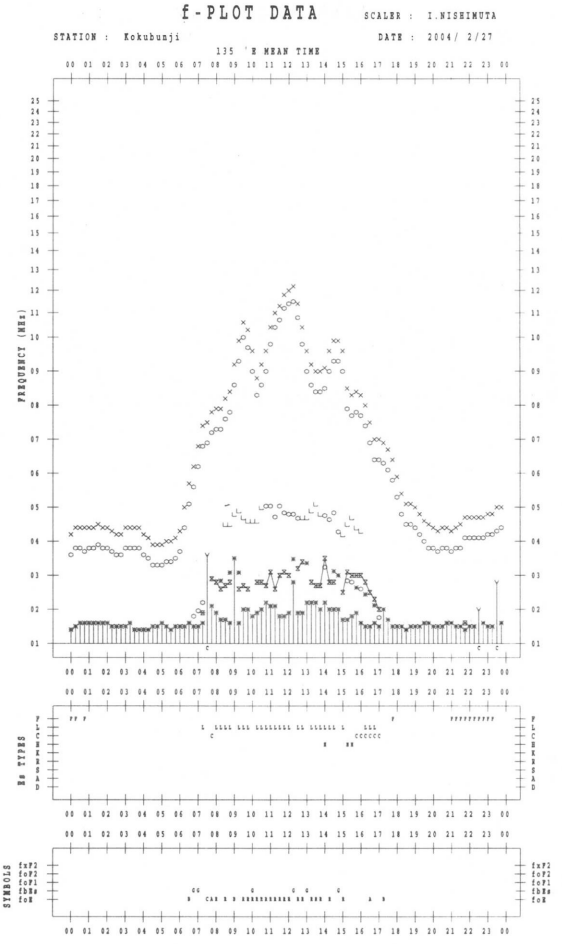

f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/ 2/21
135 'E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS

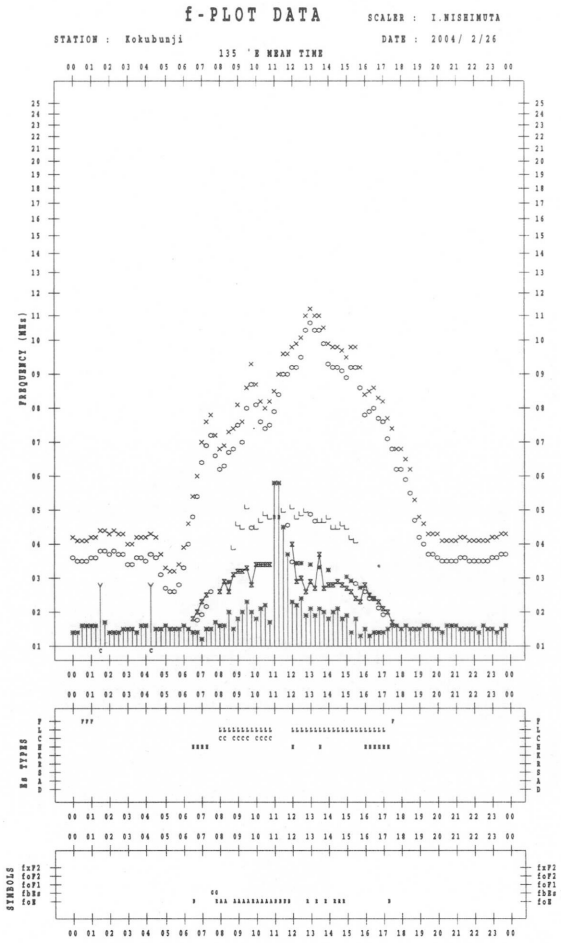

f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/ 2/23
135 'E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS

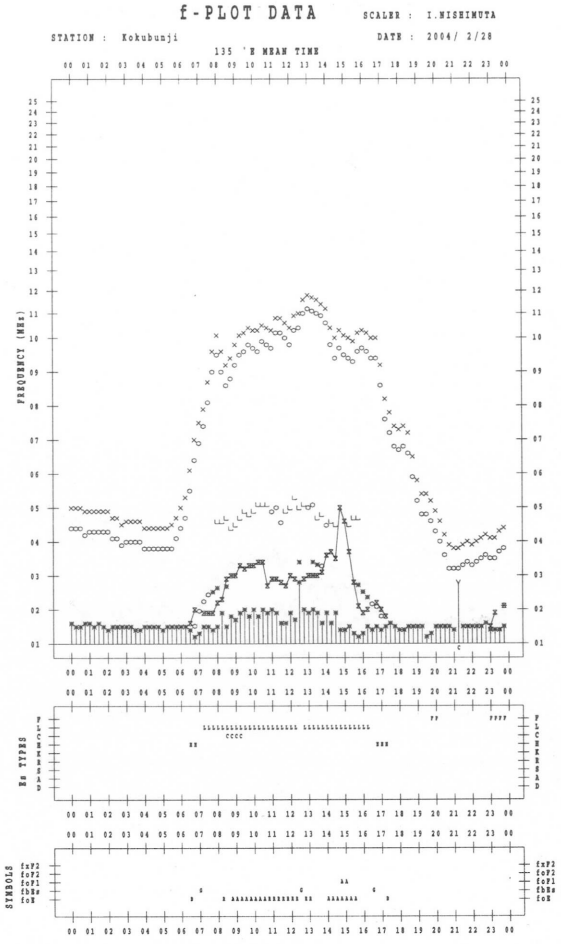

f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/ 2/22
135 'E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS

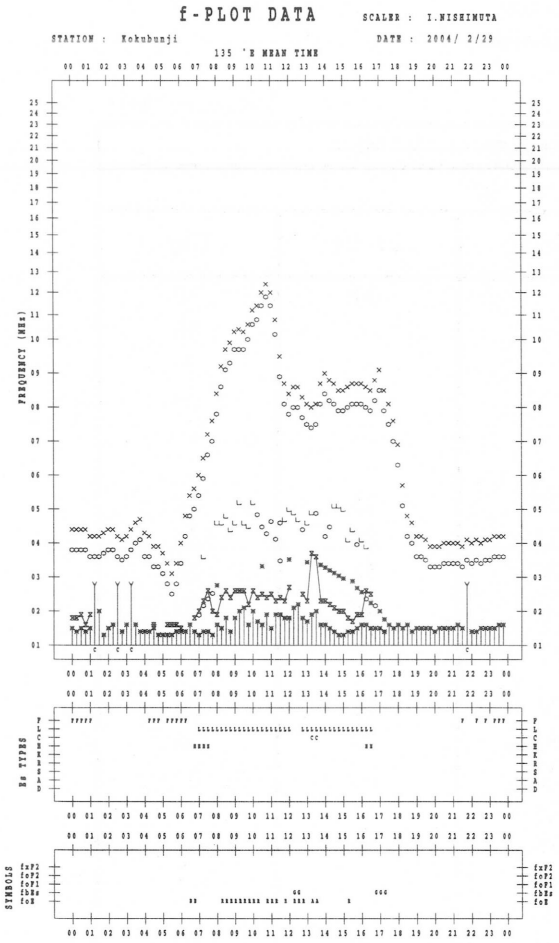

f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/ 2/24
135 'E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS


f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/ 2/25
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS


f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/ 2/27
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS


f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/ 2/26
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS


f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/ 2/28
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS


f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/ 2/29
135 °E MEAN TIME
FREQUENCY (MHz)
Re TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE

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

Hiraiso February 2004

Single-frequency total flux observations at 500 MHz

Flux density: 10^{-22} W m^{-2} Hz^{-1}

Date \ UT	00-03	03-06	06-09	21-24	Day
1	–	–	–	30	30
2	30	30	–	–	30
3	–	–	–	–	–
4	–	–	–	–	–
5	–	–	–	–	–
6	32	30	30	35	32
7	32	31	32	38	33
8	34	31	30	37	33
9	33	31	32	37	33
10	34	32	31	40	34
11	36	32	31	42	36
12	36	32	32	39	35
13	35	34	33	38	35
14	35	32	31	41	35
15	37	35	35	39	37
16	35	32	32	39	35
17	36	31	31	38	34
18	35	32	32	38	34
19	34	31	31	34	33
20	33	32	32	36	34
21	32	30	30	36	32
22	33	29	28	34	32
23	34	35	35	36	35
24	34	35	39	38	37
25	35	32	31	38	34
26	39	30	32	40	34
27	37	36	36	39	38
28	34	31	31	36	33
29	33	30	29	38	32
30					
31					

Note: No data is available during the following periods.
1st 0000 – 1st 0630 2nd 0405 – 6th 0130

A superscript * stands for being superposed on a burst.

B. Solar Radio Emission

B2. Outstanding Occurrences at Hiraiso

Hiraiso February 2004

Single-frequency observations

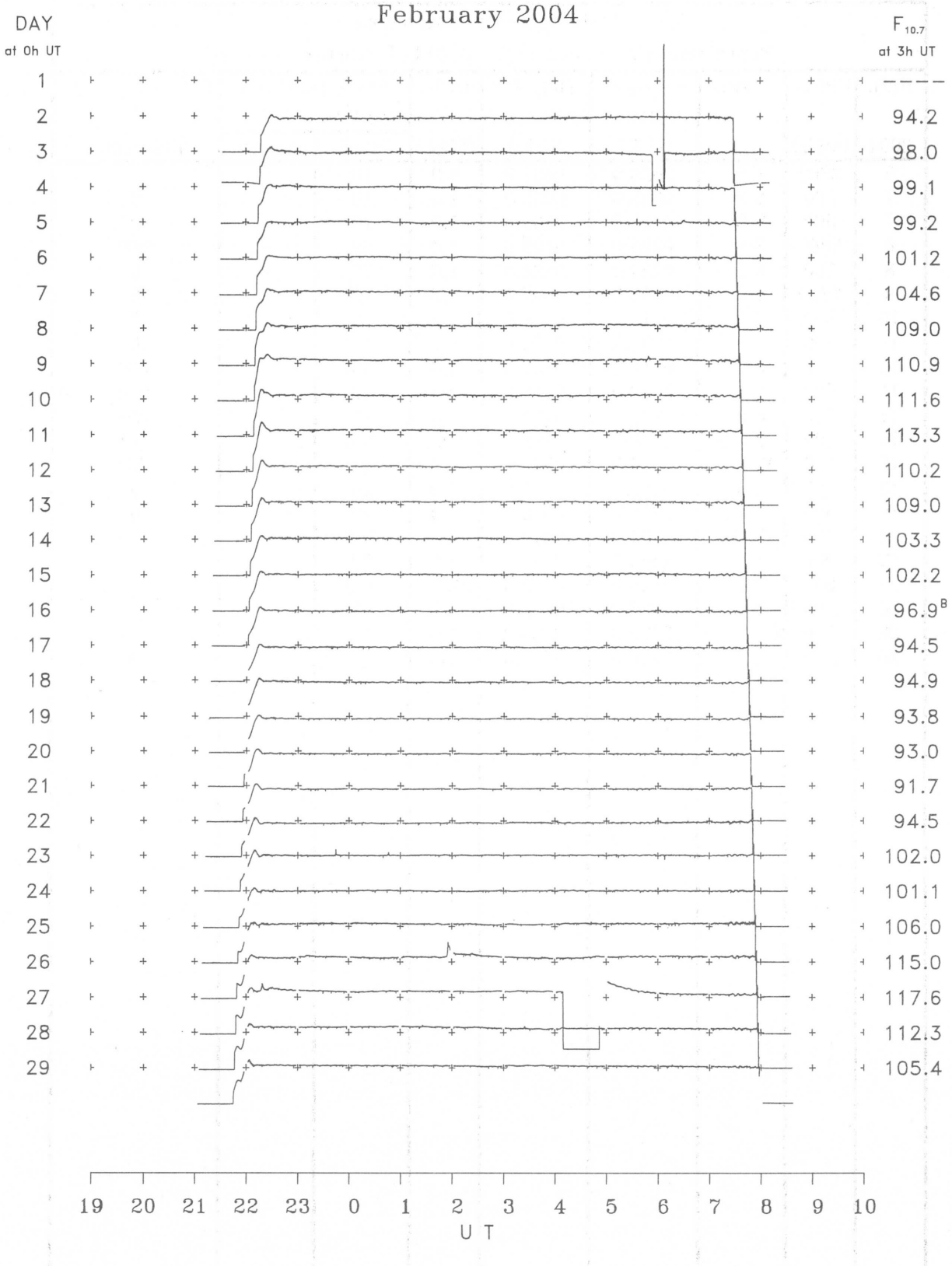
Normal observing period: 2120 - 0820 U.T. (sunrise to sunset)

FEB.	FREQ.	TYPE	START TIME	TIME OF MAXIMUM	DUR.	FLUX DENSITY (10^{-22} W m^{-2} Hz^{-1})		POLARIZATION
2004	(MHz)		(U.T.)	(U.T.)	(MIN.)	PEAK	MEAN	REMARKS
5	2800	1 S	0629.0	0631.0	5.0	10	-	
7	500	8 S	0055.0	0055.0	1.0	10	-	0
7	500	8 S	2331.0	2331.0	1.0	10	-	0
8	2800	8 S	0223.0	0223.0	1.0	20	-	WR
8	500	8 S	0224.0	0224.0	1.0	25	-	0
9	2800	1 S	0548.0	0549.0	4.0	10	-	0
10	500	8 S	0114.0	0114.0	1.0	10	-	0
11	500	8 S	0001.0	0002.0	1.0	10	-	0
11	500	8 S	0557.0	0557.0	1.0	20	-	WR
11	500	7 C	0602.0	0606.0	9.0	10	-	WR
11	500	8 S	0737.0	0737.0	1.0	15	-	WR
11	500	42 SER	2228.0	2325.0	60.0	105	-	MR
12	500	42 SER	0533.0	0550.0	51.0	10	-	WR
13	500	8 S	0555.0	0555.0	1.0	20	-	0
16	500	8 S	0502.0	0502.0	1.0	20	-	0
22	500	47 GB	2304.0	2310.0	48.0	730	-	
22	2800	1 S	2345.0	2345.0	2.0	20	-	
23	500	7 C	0045.0	0045.0	8.0	150	-	
26	2800	3 S	0155.0	0156.0	9.0	40	-	
26	500	8 S	0200.0	0200.0	1.0	10	-	
26	2800	3 S	2218.0	2219.0	4.0	20	-	0

B. Solar Radio Emission

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

February 2004



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

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