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IONOSPHERIC DATA IN JAPAN

FOR MAY 2004

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NiCT
NATIONAL INSTITUTE OF INFORMATION
AND COMMUNICATIONS TECHNOLOGY
TOKYO, JAPAN

INTRODUCTION

This Series contains data on ionosphere (I) and solar radio emission (S) obtained at the following stations under the National Institute of Information and Communications Technology, Independent Administrative Institution in Japan.

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

A. IONOSPHERE

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

A1. Automatic Scaling

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

The published data consist of tabulations of hourly values of three factors (*foF2, fEs, fmin*) and monthly medians of two factors (*h'Es ,h'F*), daily Summary Plots and monthly medians plot of *foF2*.

a. Characteristics of Ionosphere

foF2	Ordinary wave critical frequency for the ***F2*** layer
fEs	Highest frequency of the ***Es*** layer whether it may be ordinary or extraordinary
fmin	Lowest frequency which shows vertical ionospheric reflections
h'Es ***h'F***	Minimum virtual height on the ordinary wave for the ***Es*** and ***F*** layers, respectively

b. Descriptive Letters

The following descriptive letters are used in the tables.

A Impossible measurement because of the presence of a lower thin layer, for example *Es* (for *foF2*).

C Impossible measurement because of any failure in observation.

G Impossible automatic scaling because of too small ionization density of the layer (for *fEs*).

N Impossible automatic scaling because of complex echoes.

Blank No digital record because of trouble in the automatic data processing system, but existence of film record.

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

Median count (**CNT**) is the number of numerical values from which the median has been computed. In addition to numerical values, the count may include a descriptive letter G.

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

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

If CNT is less than 10, there are blank spaces left.

d. Reliability of Automatic Scaling

The results of the comparison between automatically-scaled values and manually-scaled ones showed that hourly values of *foF2* , *fEs* and *fmin* were scaled within a difference of 1 MHz from about 90, 90 and 99%, respectively of the test ionograms.

e. Summary Plot

Daily Summary Plots which are made from quarter-hourly digital ionograms are published to present general ionosphere conditions. The upper and middle parts of a Summary Plot show the diurnal variation of the frequency range of the echoes reflected from the *F* and *E* regions, respectively. The two solid arcing lines indicate the predicted values of *fxE* and *foE* calculated by the method described in the CCIR report 340. The lower part shows the diurnal variation of the virtual height where the echo traces become horizontal.

A2. Manual Scaling

The published data consist of tabulations of hourly values of the ionospheric characteristics and figures of daily *f*-plot.

All symbols and terminology in the tables or figures of ionospheric data are used in accordance with the "URSI Hand-book of Ionogram Interpretation and Reduction (Second Edition) 1972 " and its revision of chapters I-4, published in July 1978.

a. Characteristics of Ionosphere

fxI	Top frequency of spred ***F*** trace
foF2 ***foF1*** ***foE*** ***foEs***	Ordinary wave critical frequency for the ***F2, F1***, ***E*** and ***Es*** including particle ***E*** layers, respectively
fbEs	Blanketing frequency of the ***Es*** layer, e.g. the lowest ordinary wave frequency visible through ***Es***
fmin	Lowest frequency which shows vertical ionospheric reflections
M(3000)F2 ***M(3000)F1***	Maximum usable frequency factor for a path of 3000 km for transmission by ***F2*** and ***F1*** layers, respectively
h'F2 ***h'F*** ***h'E*** ***h'Es***	Minimum virtual height on the ordinary wave for the ***F2***, whole ***F***, ***E*** and ***Es*** layers, respectively
Types of ***Es***	See below b. (iii)

b. Symbols

(i) Descriptive Letters

The following letters are entered after, or used to replaced a numerical value on the monthly tabulation sheets, if necessary.

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

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

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

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

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

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

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

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

K Presence of particle *E* layer.

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

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

N Conditions are such that the measurement cannot be interpreted.

O Measurement refers to the ordinary component.

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

Q Range spread present.

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

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

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

V Forked trace which may influence the measurement.

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

X Measurement refers to the extraordinary component.

Y Lacuna phenomena, severe layer tilt.

Z Third magneto-electronic component present.

(ii) Qualifying Letters

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

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

D Greater than.

E Less than.

I Missing value has been replaced by an interpolated value.

J Ordinary component characteristic deduced from the extraordinary component.

M Mode interpretation uncertain.

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

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

U Uncertain or doubtful numerical value.

X Measurement deduced from the third magneto-electronic component.

(iii) Description of Types of *Es*

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

The types are:

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

B. SOLAR RADIO EMISSION

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

B1. Daily Data at Hiraiso

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

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

* Measurement impossible because of interference.

B Measurement impossible because of bursts.

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

B2. Outstanding Occurrences at Hiraiso

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

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

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

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

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

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

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

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

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

B3. Summary Plots of F10.7 at Hiraiso

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

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

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

HOURLY VALUES OF foF2 AT Wakkanai

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

HOURLY VALUES OF fEs AT Wakkanai

MAY 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	28	24	G	G	26	29	G	G	G	G	53	50	G	G	60	51	47	50	G	49	34	49	32	G
2	G	G	G	G	G		G	G	G	G	G	G	46	G	G	G	G	32	36	31		G	G	G
3	24	27	G	G	G	G	G	40	G	G	G	48	G	47	44	G	G	38	32	28	46	34	25	G
4	G	G	G	29	G	G	G	G		G	48	46	G	42	G	G	G	39	43	31	G	G	25	26
5	G	23	28	G	G	32	36	G	G	41	50	G	G	G	63	53	50	53	44	34	33	27	28	32
6	G	G	G	G	G	31	46	53	49	55	49	50	46	G	G	G	G	36	G	G	25	26	35	30
7	G		G	G	G	G	G	52	60	69	60	52	G	48	48	44	G	52	32	34	35	33	G	G
8	G	G	G	G	G	G	39	42	44	46	G	G	G	44	G	68	48	99	48	43	37	32	34	27
9	G	G	G	G	G	29	38	52	41	51	48	G	47	58	45	48	70	59	36	40	32	34	35	34
10	G	G	G	27	G	G	G	G	50	G	42	G	G	G	G	G	G	G	46	36	G	52	G	G
11	G	G	G	28	G	33	G	G	G	G	G	75	42	59	G	39	G	G	44	52	64	36	38	G
12	G	27	G	G	G	33	G	45	52		G	G	G	G	41	49	39	G	34	26	28	70	52	25
13	45	36	45	24	28	38	33	43	47	40	G	61	70	G	G	38	40	G	G	32	25	G	25	26
14	33	G	G	G	G	34	50	60	64	74	44	G	51	51	G	G	G	34	30	27	36	30	54	26
15	G	G	G	G	G	G	G	46	76	52	55	G	51	54	50	76	38	58	42	30	60	39	29	G
16	G	G	G	G	25	G	40	39	G	46	45	G	G	49		G	40	33	40	43	38	37	26	40
17	G	G	G	G	G	G	G	48	68	51	68	G	G	61	43	61	71	54	38	46	44	43	29	28
18	26	28	24	24	G	G	40	52	47	G	75	G	46	G	G	42	47	46	39	92		94	82	48
19	40	39	39	39	72		44	66	61	69	58	78	G	49	50	46	G	39	56	68	60	58	59	41
20	39	34	27	G	G	33	49	60	72	62	59	67	60	G	G	G	43	69	39	39	G	25	44	34
21	26	38	40	36	30	53	78	59	50	G	G	G	G	G	G		G	40	G	35	G	30	G	G
22	30	26	G	G	26	G	G	G	G		47	44	G	48	G	59	82	55	60	42	32	33	G	G
23	29	27	G	G	G	G	G	G	48	55	G	58	G	G	G	G	46	46	95	54	35	39	40	30
24	G	G	G	G	G	31	56	60	62	84	80	64	76	G	G	62	58	85	96	38	39	44	24	25
25	39	27	26	G	G	36	50	62	62	68	66	96	63	46	G	G	G	42	70	67	49	38	34	37
26	24	33	G	G	G	G	40	48	67	71	51	55	64	G	40	G	41	41		143		39	G	G
27	G	G	G	G	G	30	39	47	62	44	G	60	66	64	52	46	81	42	41	79	144	71	72	G
28	26	45	32	40	33	48	54	48	59	54	100		100	61	66	60	40	34	75	41	31	30	28	33
29	G	G	35	30	G	32	40	51	58	51	59	66	46		G	48	G	54	39	42	29	G	33	G
30	G	29	G	G	G	G		48	52	51	59	51	90	50	40	77	55	52		60	59	93	41	G
31	G	32	27	30	33	36	42	48	51	42		G	G	G	G	48	41	77	59	G	G	36	40	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	31	30	31	31	31	29	30	31	30	29	30	30	31	30	30	30	31	31	29	31	28	31	31	31
MED	G	24	G	G	G	29	38	48	50	51	48	47	42	43	G	45	40	42	40	40	34	36	32	26
U Q	28	29	27	27	25	33	44	52	62	58	59	60	60	50	45	53	48	54	52	52	45	44	40	32
L Q	G	G	G	G	G	G	G	G	41	G	G	G	G	G	G	G	G	34	33	31	26	30	25	G

HOURLY VALUES OF fmin AT Wakkanai

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

HOURLY VALUES OF foF2 AT Kokubunji

MAY 2004

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

H / D	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	48	47	A	A	41	46	54	57	68	72	69	77		72	83	102	100	86	76	64	64	54	A	
2	54	54	53	47	46	50	66	66	65	71	69	78	76	79	86	80	75	68	72	78	66	54		73
3	65	66	72	67	46	46	59	67	76	75	73	81	83	88	82	75	72	66	A	84	78	77	63	54
4	54	54	53	52	53	55	69	68		61	61		71	72	69	75	81	78	80	54	52	54	43	53
5	53	53	54	41		39	51	61	57	59	58		67	66	76	78	76	76	71	76	73	72	73	66
6	A	61	62	43	46	61	88	86	A		A	69		72	77	75	74	78	77	76	72	54	61	52
7	61	54	54	44	A	43	55	55		74		A	77	84	81	91	88	84	82	80	64	54	54	66
8	A	54	54	55	54	52	66	64	A		75	74	84	81	80	81	72		A	81	76	65	66	53
9	61	54	54	53	52	52	66	60	63		A	74	82	86	97	92	75	72	71	72	64	54	A	54
10	54		55	39	41	47	67	66	67	77	72	66	74	80	80	80	86	84	74	76	72	54		45
11	52	52	55	42	44	62	75		65	69	65	63		69	81	88	82	85	81	78	64	53	54	54
12	61	54	54	56	51	62	74	60	57	61	68	58	62	75	78	81	83	87	84	80	73	72	66	52
13	54	55	58	55	54	54	65	61	62	59	A		67	74	72	80	82	86	92	87	78	52	54	54
14	59	54	52	48	52	58	67	61	68	66	78	81	73	75	81	84	75	76	73	71	66	54	65	54
15	61	62	63	55	54	48	51	56	63			74	76	77	96	106	84	76	76	82	85	72	54	
16	66	54	52	54	55	69	78	65	66	63	64	70	76	80	83	81	84	78	85	90	90	80	63	53
17	55	53	52	53	55	60	62	72	62	54			71	72	70	81	83	92		90	90	A		A
18		A	A		59	65	A	88	77	A	A		81	91	86	80	82	82	A	86	84	52	A	54
19	A	52	A	A	49	51	69	66	64	64	56	69		75	74	84	A	91	90	77	78	61	66	A
20					54	69	81	64		A			80	76	75	85	90	87	81	87	76	A	A	66
21	76	62	54	52	53	53	62	80	80	A	A		72	71	76	74	73	76	80	90	64	55	54	52
22	54	54	54	49			54	65	72				71		65	67	71	78	A	76	66	54	62	54
23	55	54	51	52	47	54	66	57	A	A	A			A	71	76	80	73	77	62	A	53	52	52
24	A	A	54	52	44	49	68	69	A	A					66	66	59	60	59	62	73	66	53	
25	61	54	60	52	42	44	A	57	60	A		A	72	A	84	83	78	69	69	72	63	A	66	64
26	65	66	65	54	52	53	52	66	69	66	A		A	A	A	A	72	64	61	77	74	66	54	A
27	60			52	51	57	68		A	A	A	A	A	62		65		A	72	80	55	62	54	55
28	62		60	44	47	56	53	59	69	A	59		62		A	82	76		A	68		76	73	66
29	64	54	A	54	48	48	59					A	A	A	A	64	63		59	64	A	54	54	64
30	61	54	52	45		58	56	66	59			64	66	A	74	76	77	81	78	81	72	76	74	75
31	73	65	66	55	49	51	69	92	61			A	A	64		78	91	81	82	78	76	71	66	54
	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	25	25	27	27	30	29	28	22	15	13	14	21	23	26	30	29	27	25	31	28	28	24	25
MED	61	54	54	52	51	53	66	65	65	66	68	72	73	75	79	80	78	78	77	78	72	54	62	54
U Q	63	58	60	54	54	58	69	67	69	72	72	77	78	80	83	84	83	85	81	82	77	71	66	65
L Q	54	54	53	45	46	48	55	60	62	61	60	66	69	72	74	75	73	73	71	72	64	54	54	53

HOURLY VALUES OF fEs AT Kokubunji

MAY 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	30	31	60	58	36	35	G	45	51	51	60	G	66	48	59	G	G	G	G	G	50	57	92	53
2	34	32	G	G	28	G	G	G	G	G	G	G	G	G	G	G	G	39	34	G	28	G	28	G
3	G	G	G	G	G	G	37	44	47	50	52	49	G	G	58	80	81	71	85	36	26	G	44	32
4	G	G	25	G	G	G	G	39		G	G		G	G	G	G	G	38	42	31	24	23	26	39
5	G	G	G			29	G	G	G	46	G	53	G	50	51	52	51	76	42	45	38	59	59	58
6	71	51	47	G	G	29	47	52	71	58	66	53	75	45	G	G	49	43	40	47	40	46	33	31
7	G	G	24	60	59	26	G	44	68	73	65	92	66	56	51	G	G	55	34	45	40	G	45	59
8	72	33	G	49	32	G	42	46	109	121	61	56	G	43	G	G	53	85	95	47	51	45	54	58
9	35	G	41	30	G	29	47	41	51	53	89	G	G	58	51	G	G	G	34	29	36	57	54	31
10	48	59	34	29	31	30	G	G	45	G	G	48	G	G	63	51	60	G	34	34	57	G	49	39
11	25	31	29	30	G	G	G		G	G	G	G	G	G	G	49	52	46	42	31	G	G	G	G
12	28	40	26	G	29	28	G	G	45	G	60	44	G	G	64	48	70	87	135	70	52	40	G	26
13	35	G	26	G	G	G	37	G	53	50	76	54	G	G	G	G	45	G	40	40	43	53	46	G
14	28	33	G	33	G	G	41	43	50	60	46	G	G	G	G	51	45	41	43	26	26	33	G	32
15	30	28	33	26	G	G	G	40	57	65	60	59	51	52	G	G	G	35	40	G	39	42	42	36
16	40	29	G	G	G	G	33	41	47	51	G	G	G	G	60	53	68	G	82	73	26	25	G	48
17	31	29	28	G	29	31	40	45	60	G		62	63	73	53	G	49	51	50	57	55	103	71	82
18	69	90	104	86	60	43	81	63	64	109	91	90	64	49	G	G	47	63	102	116	60	72		91
19	80	60	59	60	30	28	36	G	G	G	60	45	104	G	G	62	118	74	93	68	60	39	42	72
20	57	35	51	G	33	40	51	94	68	79	77	50	G	G	G	42	G	42	54	55	33	72	70	47
21	48	40	26	34	27	51	33	G	76	111	83		94	57	G	G	G	G	47	41	39	35	G	29
22	37	29	35	41	48	42	37	40	G	G	65		G		G	47	G	G	87	37	36	40	44	54
23	25	G	G	G	G	34	G	52	74	85	61	43	63	68	58	43	G	40	40	50	94	60	49	29
24	60	106	78	G	27	G	34	49	68	61	56		50	52	G	G	G	G	32	26	60	58	51	60
25	50	G	G	29	32	30	60	42	58	82	63	86	65	83	91	64	49	41	34	37	39	67	42	33
26	48	50	50	35	G	G	G	G	61	57	76	62	109			136	G	G	32	G	G	59	60	69
27	40	58	25	42	G	G	42	61	77	71	91	89	109	50	G	G	53	108		47	40	33	42	32
28	43		40	34	33	32	36	46	69	86	77	50	53	75	107	61	45		94	53	81	49	82	29
29	69	39	87	60	G	G	43	50	55	53	53	79	61	72	62	56	47	60	52	47	47	40	49	29
30	29	29	29	36	28	G	G	46	G	51	50	60	50	76	G	G	44	48	61	67	34	91	59	71
31	70	79	33	G	G	G	34	G	64	42	52	81	68	49		40	G	48	50	55	84	59	41	43
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	30	31	30	30	31	31	30	30	31	30	27	31	29	29	31	31	30	30	31	31	31	30	31
MED	37	32	29	30	27	26	34	42	56	53	60	53	50	49	G	40	45	42	42	45	40	45	44	39
U Q	57	50	47	41	32	31	42	46	68	73	76	62	66	57	58	52	52	60	82	55	55	59	54	58
L Q	28	G	G	G	G	G	G	G	45	G	50	43	G	G	G	G	G	G	34	31	33	33	33	29

HOURLY VALUES OF fmin AT Kokubunji

MAY 2004

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	17	14	14	14	13	13	13	17	20	34	35	50	34	52	34	25	18	14	25	14	13	14	15	14
2	14	13	15	14	15	20	28	15	18	49	46	52	53	57	53	43	34	18	15	14	14	18	14	42
3	18	34	13	14	13	18	20	15	20	34	35	34	33	47	34	33	18	18	13	13	17	14	14	14
4	18	20	14	21	33	17	17	15		44	50		50	52	48	43	20	17	17	15	17	15	14	14
5	18	18	18	20		15	18	18	42	33	50	33	50	39	34	33	29	15	14	17	14	15	15	14
6	15	13	14	14	15	14	14	17	21	34	34	34	35	36	49	46	33	15	14	14	15	15	14	14
7	15	14	14	13	13	25	21	18	21	30	35	34	35	37	30	48	39	14	13	20	13	23	14	17
8	14	13	14	15	15	14	22	20	18	26	34	36	50	50	46	42	20	20	13	14	15	15	15	15
9	15	18	14	14	15	14	14	18	18	34	34	53	52	39	35	42	40	18	13	13	15	14	14	14
10	13	14	13	15	13	14	28	17	18	31	33	52	52	54	35	34	20	17	14	13	17	17	18	14
11	14	15	14	13	15	21	18		42	49	44	50	53	53	34	34	31	14	17	14	21	14	18	17
12	13	13	13	14	14	22	13	18	22	44	37	37	52	52	34	44	29	18	14	15	13	18	14	13
13	14	20	14	14	17	17	14	15	31	34	35	35	53	52	53	23	25	14	14	13	20	13	13	14
14	13	14	17	14	20	18	22	26	33	36	37	52	54	52	51	34	21	20	13	15	15	13	14	13
15	13	13	13	14	14	17	15	18	33	33	36	36	37	35	30	25	34	15	14	15	14	13	14	13
16	13	13	14	14	15	18	13	25	29	29	46	54	53	53	37	23	20	14	17	20	15	17	23	14
17	15	14	13	13	13	14	13	15	34	40		37	38	37	35	50	24	13	14	14	14	13	13	14
18	13	14	13	14	13	13	14	25	22	28	33	31	34	34	45	44	21	22	14	15	14	13	13	13
19	13	14	13	14	14	13	13	20	23	20	39	37	37	54	51	24	22	15	14	21	13	14	13	13
20	14	13	13	14	13	13	13	21	31	33	34	37	54	54	52	34	22	17	14	14	14	15	13	14
21	14	15	14	17	15	13	13	20	28	35	33		34	34	52	50	42	18	14	13	14	14	37	13
22	13	14	13	13	15	13	14	21	23	62	34		54		53	48	43	14	14	13	13	14	13	14
23	14	15	17	14	14	14	22	28	31	34	34	37	36	33	29	25	22	14	14	13	13	13	13	14
24	13	15	14	14	13	22	17	26	30	33	36		36	37	50	46	42	15	14	14	14	13	13	13
25	14	15	14	13	13	14	13	18	33	34	40	36	37	35	34	34	21	15	13	13	13	14	15	13
26	14	13	15	15	15	21	14	18	33	34	35	36	39	33	29	26	45	15	14	17	17	13	13	14
27	13	13	14	13	14	14	13	18	31	35	34	33	36	37	53	41	30	15	13	21	13	13	13	14
28	13		13	14	13	13	21	17	28	31	33	37	35	34	30	26	15	20	15	17	15	14	14	15
29	13	14	15	14	17	18	13	15	24	34	37	36	36	39	34	34	23	25	13	13	15	13	14	13
30	14	17	13	13	13	24	13	14	41	34	40	38	38	38	50	49	23	14	14	17	14	13	14	14
31	13	13	13	17	14	15	17	20	28	33	34	35	34	31		33	44	14	14	20	17	13	15	15
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	30	31	31	30	31	31	30	30	31	30	27	31	30	30	31	31	31	31	31	31	31	31	31
MED	14	14	14	14	14	15	14	18	28	34	35	37	38	39	36	34	24	15	14	14	14	14	14	14
U Q	15	15	14	14	15	18	20	20	33	35	39	50	52	52	51	44	34	18	14	17	15	15	15	14
L Q	13	13	13	14	13	14	13	17	21	33	34	35	35	35	34	26	21	14	13	13	13	13	13	13

HOURLY VALUES OF foF2 AT Yamagawa

MAY 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	51	52	54	43	44	42	51	51	66	78	82	80	77	85	90			99	86	80	77	77	54	66
2	54	62	66	54	50	50	64	69	62	70	74	79	79	84	86		80	70	75	80	78	77	77	78
3	76	78	77	66	54	47	54	69	72	72	71	77	89	89	85	82	85	78	A	78	80	77	52	54
4	55	64	62	61	53	50	66	66	66	67	66	76	81	87		84	A	A	85	78	66		54	66
5	62	64	66	54			56	62	66	A	63	73	74	80	86		85	85	77	77	80	77	66	73
6	66	66	66	50	50	45	75	83	64	63	78	80	82	90	107	99		108	88	80	72	78	66	66
7	65	66	65	36	42	37	52	65	70			70	78	81	86	103	98	86	82	77	73	51	54	54
8	52	62	52	60	47	44	62	66	67	71	72	A	78	92	85		86		96	86	78	66	61	A
9	A	54	51	54	57	54	78	65	56	A	68	80	86		100	90	86	A	78	74	67	66	63	66
10	62	54	51	44	31	32	58	60	75	72	A	A	74	81	A	84	90	88	85	81	81	68	61	54
11	55	54	51	52	52	54	74		71	69		67	70	73	88			86	87	A	77	52	54	52
12	65	54	52	50	54	54	66	65		57	A			77	80	84	87		88	77	78	76	66	66
13	66	66	54	A	62	64	78	67	67	A	A	66	72	A	77	80	86	85	92	86	75	64	A	63
14	62	54	54	50	47	43	62	66	54	68	76	82	83	86	90	103	86	80	80	77	64	66	54	55
15	54	54	52	66	48	37	48	54	64	65		78	81	85	90	115	112	92	86	86	78	A	58	76
16	66		66	52	52	59	71	71	67	65	72	74	80	83	88	84	87	88	92	86	84	76	72	66
17	64	66	54	61	61	59	69	46	65	61		76	84	78	78	78	84	78	78	82	81		66	66
18	A	65	72	66	A	65	66	79	A	66		72	80	86	A	88	86	89	86	85	77	54	52	54
19	A	52	A	A	50	50	63	64	65	67	64	67	76	81	82	87	88	88	103	85	A	A	52	75
20	73	70	68	63	66	73	80	82		67	A			A	81	88	110	89	86	87	84	76	77	73
21	66	65	53	54	50	46	66	75	72	63		74	78	80	A	86		88	92	87	77		54	66
22	67		66	66	36	38	54	63	75	67	63	68	69	75	73	77	80	82	87	81	76	64	52	62
23	66	64	52	50	50	52	60	66	63		A	63		74	81	84	85	A	84	A	A	52	A	A
24	54	54	54	52	46	36	A	A	66	62	A	A	A	77	84	80	76	80	78	77	77	66	A	54
25	A	A	66	36	31	37	52	63	75	39			75	80	A	A	83	82	68	65	A	72	76	76
26	66	66	71	53	48	48	55	62	A	A	A	A	A	A	79	A	84	84	80	A	80	74		66
27	77	66	62	A		52	51	66	A		74	A	A	A	66	81	A	81	80	A	76	66	A	65
28	73	66	72	64	43	40	58	60	64	A	A	A		80	81	86	78	93	68	72		66	54	66
29	66	66	62	55	50	55	58		A	A		A	A	A	A	66	66	A	63	55	A	53	A	61
30	53	54	65		41	46	61	66		58	A	74	A	77	80	80	78	80	79	81	81	78	54	A
31	54	A	66	54	44	45	54	82	A	A	A	A	70		74	86	97	80	78	78	81	78	66	78
	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	27	30	27	28	30	30	28	23	21	13	20	22	24	25	24	25	25	30	27	26	26	25	28
MED	65	64	62	54	50	48	62	66	66	67	72	74	78	81	84	84	86	85	84	80	78	67	58	66
U Q	66	66	66	61	52	54	66	69	71	69	75	78	81	85	88	88	87	88	87	85	80	77	66	69
L Q	54	54	53	50	44	42	54	62	64	62	65	69	74	77	79	80	81	80	78	77	76	64	54	58

HOURLY VALUES OF fEs AT Yamagawa

MAY 2004

LAT.31°12.1'N LON.130°37.1'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	40	39	30	26	34	37	35	43	53	58	63	G	60	G	56	70		45	G	G	34	28	36	G
2	49	56	57	39	G	G	G	G	G	G	G	G	G	G	G	G	G	G	38	30	G	G	G	G
3	26	G	G	G	G	G	32	39	48	46	52	68	G	58	G	57	76	71	104	38	60	G	30	37
4	40	30	26	G	G	G	28	40	43	G	59	G	50	G	51	56	95	112	79	70	68	56	40	30
5	29	G	G	39		G	34	45	60	84	54	61	55	68	62	95	48	47	62	43	48	48	56	67
6	60	41	58	54	41	G	39	51	65	61	68	78	62	G	56	52		G	41	56	26	72	58	48
7	40	30	28	28	37	29	35	41	48	59	62	56	60	62	67	70	85	53	60	58	49	27	29	39
8	41	54	34	27	G	G	G	42	G	45	57	86	68	50	G	G	52	42	35	28	23	34	51	58
9	70	40	27	G	G	G	29	41	44	64	56	G	G	56	59	62	76	103	52	40	39	34	60	43
10	49	41	G	G	26	G		42	56	71	117	96	63	66	110	74	40	54	54	35	44	42	43	40
11	44	43		44	42	28	G		40	40	G	G	G	58	59	57	73	79	65	104	50	24	26	G
12	G	G	32	24	27	29	28	42		54	75	68	65	G	57	42	55		60	47	29	24	26	40
13	36	28	G	60	28	30	27	38	56	83	63	57	66	91	60	52	73	58	74	60	51	68	72	32
14	29	G	G	G	34	29	G	40	56	58	57	76	72	73	74	56	59	45	52	58	43	59	32	35
15	33	28	G	G	G	G		38	52	60	56	49	44	63	58	56	70	74	87	41	G	70	36	36
16	56		34	G	G	G	30	35	42	52	58	54	G	59	58	48	G	G	35	40	39	46	44	28
17	26	25	G	G	G	G	G	G	48	56	68	G	G	44	67	63	60	44	55	77	82	53	43	93
18		57	69	72	71	60	60	65	82	148	66	51	43	73	98		G	G	80	41	54	29	39	48
19	88	38	84	58	32	25	27	34	G	42	53	58	56	65	53	G	G	61	86	60	60	58	40	59
20	43	40	33	33	25	G	G	46	66	65	115	78	53	89	75	G	64	G	G	G	G	G	30	57
21	38	G	G	G	G	29	32	G	42	52	G	56	G	75	93	66	81	49	53	58	36	25	G	30
22	29	25	34	G	G	G	G	38	41	G	G	G	57	G	50	43	G	36	50	58	34	72	39	58
23	71	59	G	39	34	28	G	40	44	59	63	56	66	61		60	60	79	68	93			82	58
24		39	39	32	30	G	78	69	58	56	67	81	152	58	G	G	G	39	G	55	72	59	80	153
25	86	84	40	G	34	G	28	40	50	60	54	57	43	77	102	101	82	74	60	31	57	34	57	43
26	38	G	43	G	29	31	G	48	74	72	86	85	92	92	60	88	73	52	46	110	32	40		59
27	43	79	51	57	38	24	35	52	80	61	68	105	184	86	52	50	90	47	62	145	27	29	39	53
28	32	33	36	31	31	24	32	39	56	76	86	84	74	64	60	55	G	G	36	46	44	34	58	56
29	32	34	36	31	26	G	39	50	62	76	44	65	92	78	81	53	G	86	54	32	58	58	59	60
30	37	G	G	43	40	27	34	43	49	50	66	74	86	G	G	G	49	61	38	34	32	G	G	78
31	58	84	50	59	36	33	43	57	68	77	96	111	G	G	G	G	42	54	57	43	47	40	81	46
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	29	30	30	31	30	31	29	30	30	31	31	31	31	31	30	30	29	30	31	31	30	30	30	31
MED	40	36	32	28	28	G	29	41	51	59	62	58	57	61	58	56	59	50	54	46	44	37	40	46
U Q	52	43	40	43	34	29	35	46	60	71	68	78	68	73	67	63	74	71	65	60	54	58	58	58
L Q	32	25	G	G	G	G	G	38	43	50	54	49	G	G	51	42	G	39	38	35	32	27	30	35

HOURLY VALUES OF fmin AT Yamagawa

MAY 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	14	15	15	16	16	15	15	15	16	21	35	47	42	36	35	32		20	15	16	15	15	14	17
2	14	14	16	15	14	15	21	15	17	22	22	54	49	52	52	46	34	18	15	15	17	15	16	17
3	16	15	15	15	15	15	16	15	18	22	24	33	50	39	48	23	22	17	14	15	15	15	15	15
4	15	15	15	15	16	15	14	15	17	22	22	30	35	34	37	18	18	17	14	14	14	15	14	15
5	14	15	16	15		17	14	16	18	23	23	34	24	38	35	20	18	16	15	14	15	15	16	14
6	15	14	15	15	16	14	16	21	18	22	26	24	32	30	28	23		16	14	14	16	14	15	14
7	15	15	16	15	15	18	16	16	18	21	26	30	39	38	34	20	20	17	18	15	16	15	14	15
8	15	14	15	16	14	14	22	16	17	21	30	26	32	32	51	49	21	18	15	15	15	15	15	14
9	15	14	15	14	14	15	15	14	16	22	22	50	52	39	23	21	20	15	15	14	15	15	15	15
10	14	14	15	15	15	15	15	15	18	20	22	34	36	38	34	21	20	16	15	14	15	14	15	15
11	15	15	15	15	14	14	20		17	20	33	51	48	36	38	21	18	18	14	15	14	15	15	15
12	15	18	15	15	14	15	14	15		18	27	29	29	27	36	34	20		15	15	15	15	16	15
13	15	15	15	15	16	15	14	15	18	20	34	34	27	32	32	20	18	17	14	14	15	15	14	15
14	14	15	17	16	15	15	15	16	17	21	35	35	28	37	28	23	23	18	14	14	16	15	14	15
15	14	14	16	14	15	15	14	15	21	18	20	26	28	33	29	22	18	18	15	15	15	14	15	16
16	15		14	14	15	15	15	14	18	18	20	48	56	26	26	24	20	16	14	14	15	14	14	15
17	15	15	17	16	17	15	17	14	17	17	23	26	53	63	36	34	20	17	16	15	14	15	15	15
18	14	14	15	15	15	14	14	15	16	18	21	33	33	30	26	22	21	16	16	15	15	14	15	14
19	15	15	14	14	15	15	14	16	20	21	30	38	39	38	20	52	18	16	15	14	14	15	14	15
20	14	14	15	15	14	14	16	16	21	24	32	35	36	46	38	23	18	16	16	16	15	17	15	15
21	15	17	17	15	15	14	18	16	16	20	26	29	33	30	29	27	20	15	14	15	14	16	17	14
22	14	17	16	15	15	16	21	17	18	52	47	27	35	30	30	24	18	20	15	15	14	14	15	14
23	15	14	15	15	14	15	15	15	18	20	23	34	34	34	32	21	20	17	15	14	15	14	14	15
24	15	14	15	15	15	18	15	16	18	20	27	33	34	23	54	22	21	16	15	14	15	14	15	15
25	15	15	14	15	15	15	14	14	18	20	23	35	24	39	21	21	21	17	15	15	17	15	15	15
26	15	15	15	17	14	15	16	16	17	22	27	29	36	38	23	33	18	17	16	17	14	17		15
27	14	14	15	14	15	15	15	16	20	22	22	27	33	27	27	21	18	20	16	15	15	14	15	15
28	15	15	15	14	15	15	15	15	17	21	28	29	32	29	27	21	21	16	14	14	15	15	15	14
29	14	15	14	14	15	16	16	15	20	21	28	28	36	38	29	34	18	17	15	15	15	15	14	14
30	14	15	15	15	15	15	16	15	17	18	22	32	26	54	50	24	18	22	15	14	16	15	15	14
31	14	14	14	14	14	14	14	14	16	20	34	33	51	29	29	27	17	15	14	14	14	14	14	15
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	30	31	31	30	31	31	30	30	31	31	31	31	31	31	31	29	30	31	31	31	31	30	31
MED	15	15	15	15	15	15	15	15	18	21	26	33	35	36	32	23	20	17	15	15	15	15	15	15
U Q	15	15	16	15	15	15	16	16	18	22	30	35	42	38	37	32	21	18	15	15	15	15	15	15
L Q	14	14	15	14	14	15	14	15	17	20	22	29	32	30	27	21	18	16	14	14	14	14	14	14

HOURLY VALUES OF foF2 AT Okinawa

MAY 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	54	66	74	57	45	44	50	61	67	112	102	78	87	106	124	140	144	131	136	128	108	89	54	73
2	82	76	79	75	51	54	60	66	63	67	83	97	108	101	108	111	92	76	75	80	77	80	84	86
3	86	86	84	66	52	45	52	74	72	76	68	82	107	121	122	116	110	105	88	87	A	74	66	66
4	65	66	66	57	58	58	66	66	76	66	80	90	108	124	127	124	123	125	107	102	81	A	76	77
5	72	73	78	62	B	B	48	77	61	65	A	80	90	102	102	105	105	98	98	102	88	74	76	66
6	76	76		54	50	52	65	70	60		78	85	A	A	123	132	136	128	109	87	88	84	85	85
7	76	78	75	40	48	52	50	71	A	A	A	A	85	98	106	111	122	107	100	98	72	54	61	62
8	65	66	65	62	61	61	61	66	71	74	65	68	87	98	98	102	110	115	115	104	82	75	66	62
9	54	64	58	54	57	63	82	66	A	64	80	99	118	131	145	146	142	131	123	106	88	84	76	66
10	75	73	66	A	A	A	47	71	76	72	68	66	82	87	88	104	108	107	102	98	87	66	64	64
11	54	60	58	52	54	50	65	72	67	65	67	71	75	85	102	108	105	105	110	105	82	74	78	78
12	80	76	66	52	64	54	74	77	72	64		71	77	78	86	101	108	111	108	90	78	66	78	77
13	74	73	66	66	64	66	75	71	63	68		70	76	80	88	98	110	110	109	110	78	76	72	65
14	72	73	72	50	41	42	53	65	65	67	73	83	101	102	112	121	107	102	110	90	78	77	75	78
15	72	72	73	71	51	B	47	60	62	A	72	76	97	108	115	131	150	130	127	110	103	82	79	82
16	81	72	66	65	72	60	66	72	67	71	77	76	87	105	102	107	106	110	110	110	108	A	82	83
17	76	75	70	74	74	64	60	66	66	A	75	87	102	108	107	105	106	104	A	105	87	66	66	66
18	76	76	77	71	66	61	66	64	66	A	A		88	102	105	111	125	126	116	105	78	54	54	52
19	52	A	54	54	A	50	51	65	66	67	66	67	78	94	105	105	107	111	111	110	87	77	83	83
20	86	86	88	84	77	85	90	82	72	A	75	A		A	108	120	121	113	106	120	124	88	78	78
21	77	75	64	52	52	52	62	79	71	67	63	73	87	102	112	116	124	108	104	107	82	74	76	65
22	66	66	76	68	52	44	52	64	76	72	72	71	71	85	90	91	90	88	102	98	74	A	51	65
23	65	62	61	60	46	45	58	63	63	A	66	A	A	85	107	108	101	117	88	84	A	A	65	65
24	64	65	66	65	52	44	52	81	58	62		A	81	94	93	92	90	96	101	100	82	66	66	62
25	A	52	59	A	A	32	48	71	66	A	64	64	A	A	85	100	90	91	81	77	71	78	76	75
26	76	72	66	62	52	47	55	63	61	A	65	63	A	80	91	91	102	106	102	90	A	86	85	86
27	84	85	80	72	71	61	65	60	A	A	72	70	A	A		86	88	95	98	87	66	66	66	73
28	65	71	85	57	32	31	48	65	62		A	A	94	104	107	107	101	A	82	87	87	73	71	54
29	65	65	63	62	62	47	56	A	A	A	A	65	64	80	82	78	77	A	77	A	A	A	62	A
30	65	86		A	30	37	54	39		A		78	80	79	89	88	114	88	90	100	107	66	65	65
31	53	74	71	54	50	50	65	68	65	65	A		84		84	100	97	87	85	106	104	76	66	74
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	30	29	28	27	28	31	30	26	18	21	24	25	26	30	31	31	29	30	30	27	26	31	30
MED	72	73	66	62	52	51	58	66	66	67	72	74	87	100	105	107	107	107	103	101	82	74	72	70
U Q	76	76	76	67	64	60	65	72	71	72	77	82	99	105	112	116	122	116	110	106	88	80	78	78
L Q	65	66	64	54	50	44	51	64	63	65	66	69	79	85	90	100	101	97	90	90	78	66	65	65

HOURLY VALUES OF fEs AT Okinawa

MAY 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	55	45	36	25	G	G	G	G	46	55	G	71	58	50	G	G	G	G	G	G	G	40	41	84
2	26	48	36	34	G	24	28	G	G	G	G	G	G	G	46	49	48	47	42	42	G	G	G	G
3	G	G	25	28	G	G	29	39	43	52	72	78	52	52	46	G	48	66	60	68	82	78	43	31
4	G	G	28	56	37	28	49	42	46	50	46	62	G	G	53	63	57	G	37	43	33	91	59	57
5	58	47	28		B	B		37	46	62	94	G	65	G	56	70	64	39	49	58	60	72	40	36
6	49	55	49	39	31	26	37	41	50	66	80	82	104	116	116	90	53	59	56	56	40	33	35	69
7	55	58	34	32	G	36	29	36	82	72	85	70	75	65	57	68	71	61	66	45	35	46	51	34
8	40	53	40	28	26	26	G	39	G	G	55	55	G	G	G	G	64	60	52	56	94	45	32	50
9	47	43	37	36	G	G	33	44	56	59	G	72	79	58	G	42	G	47	58	60	60	58	58	38
10	56	60	70	30	38	32	34	49	56	68	60	65	63	62	87	86	G	45	74	91	57	25	33	45
11	44	G	34	34	37	24	50	44	39	G	46	54	47	52	55	52	58	60	44	38	40	58	59	G
12	G	G	G	G	G	G	27	40	45	60	54	58	54	65	76	59	50	60	50	42	32	29	33	G
13	26	27	G	G	G	G	G	G	44	53	60	G	52	G	G	50	G	55	53	30	24	32	50	57
14	68	39	27	G	G	G	26	36	44	61	49	50	56	62	66	59	58	60	54	40	50	40	49	30
15	24	26	35	28	G	B	G	G	49	74	61	58	74	G	52	51	53	46	32	28	G	G	G	71
16	40	29	26	35	83	28	36	36	G	48	54	64	65	62	64	G	42	36	45	66	92		56	69
17	49	28	G	G	G	25	28	34	43	116	46	70	71	49	G	73	80	108	147	59	26	23	28	24
18	46	54	24	27	28	G	G	37	60	68	111	78	G	114	94	50	G	G	49	73	38	43	57	56
19	54	88	48	34	68	42	39	35	44	41	G	G	G	70	75	52	78	52	48	45	52	57	49	55
20	40	37	G	29	33	G	34	45	67	88	65	114	116	106	96	73	57	58	50	44	30	G	24	G
21	29	G	G	G	G	G	27	37	G	47	57	51	58	50	50	97	79	95	79	53	40	G	26	G
22	30	37	27	34	28	30	40	39	39	59	48	46	67	G	G	56	46	45	44	54			54	71
23	25	57	52	34	39	37	34	44	56	78	86	94	114	102	65	145	133	69	60	41	72	71	70	78
24	78	54	40	79	G	G	30	39	51	79	76	66	44	58	57	58	44	58	53	36	30	58	59	72
25	70	113	72	91	103	34	38	45	45	58	79	G	74	99	86	77	78	58	66	45	39	34	54	40
26	G	44	29	31	G	37	26	40	50	112	89	49	103	72	49	G	57	50	53	47	116	85	92	44
27	50	59	55	54	52	39	28	57	76	88	72	G	82	76	82	46	49	G	58	39	G	G	G	35
28	26	30	36	29	27	G	28	36	46	59	74	94	66	64	59	51	73	96	65	30	32	26	31	34
29	70	46	48	54	45	28	36	73	68	83	71	46	57	54	51	67	71	82	90	94	72	69	50	60
30	92	69	81	46	30	28	G	52	68	66	80	50	51	G	G	G	G	40	50	35	25	39	G	G
31	24	59	35	34	25	47	60	52	55	60	83		80	86	50	G	G	G	36	29	35	G	G	32
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	30	30	29	30	31	31	31	31	30	31	31	31	31	31	31	31	31	30	29	31	31
MED	44	45	35	33	26	26	29	39	46	60	61	58	63	58	55	52	53	55	53	45	38	40	43	40
U Q	55	57	48	36	37	33	36	44	56	74	80	71	75	72	75	70	71	60	60	58	60	58	56	60
L Q	26	28	26	28	G	G	26	36	43	52	48	46	51	G	46	42	42	40	45	38	30	24	28	30

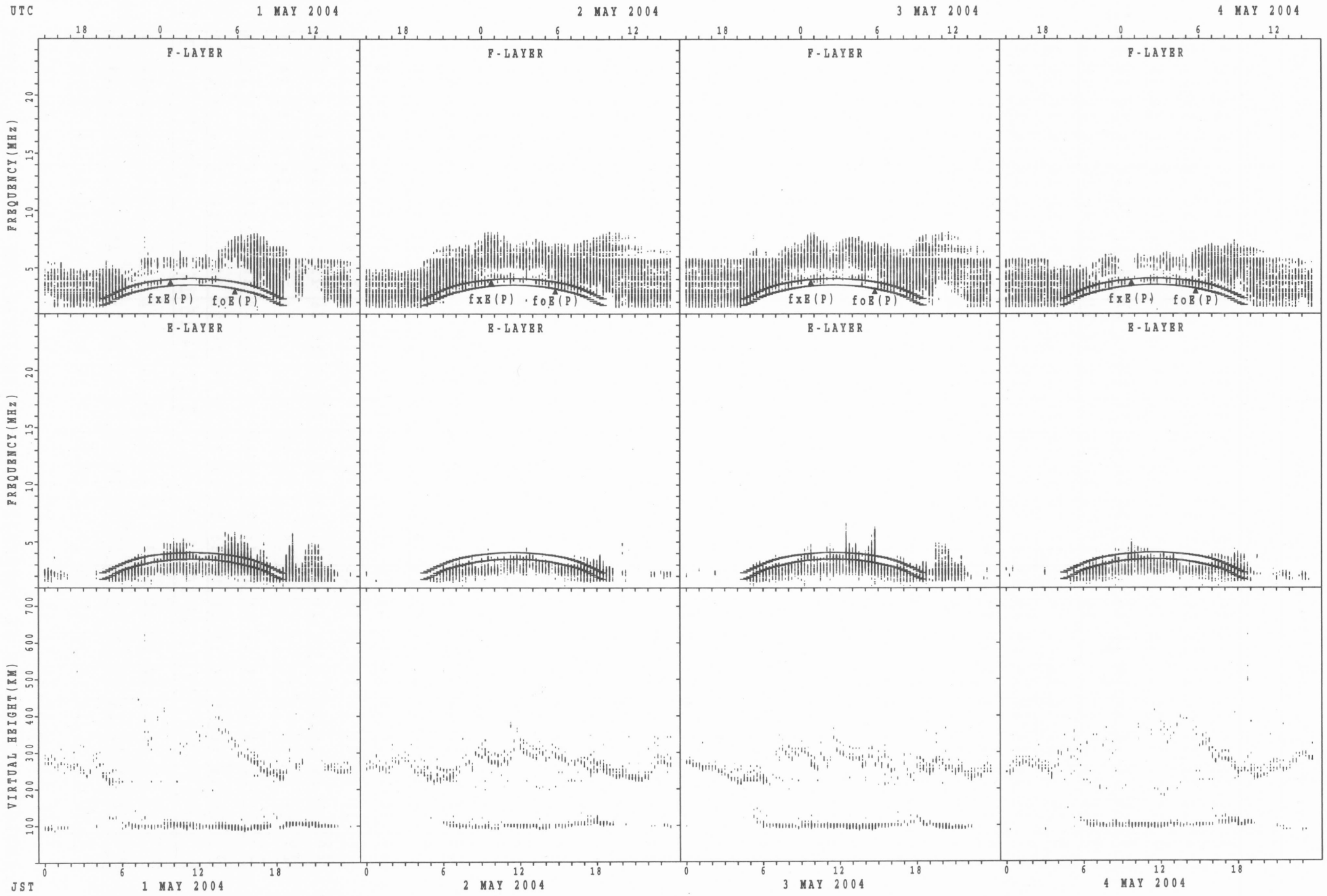
HOURLY VALUES OF fmin AT Okinawa

MAY 2004

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

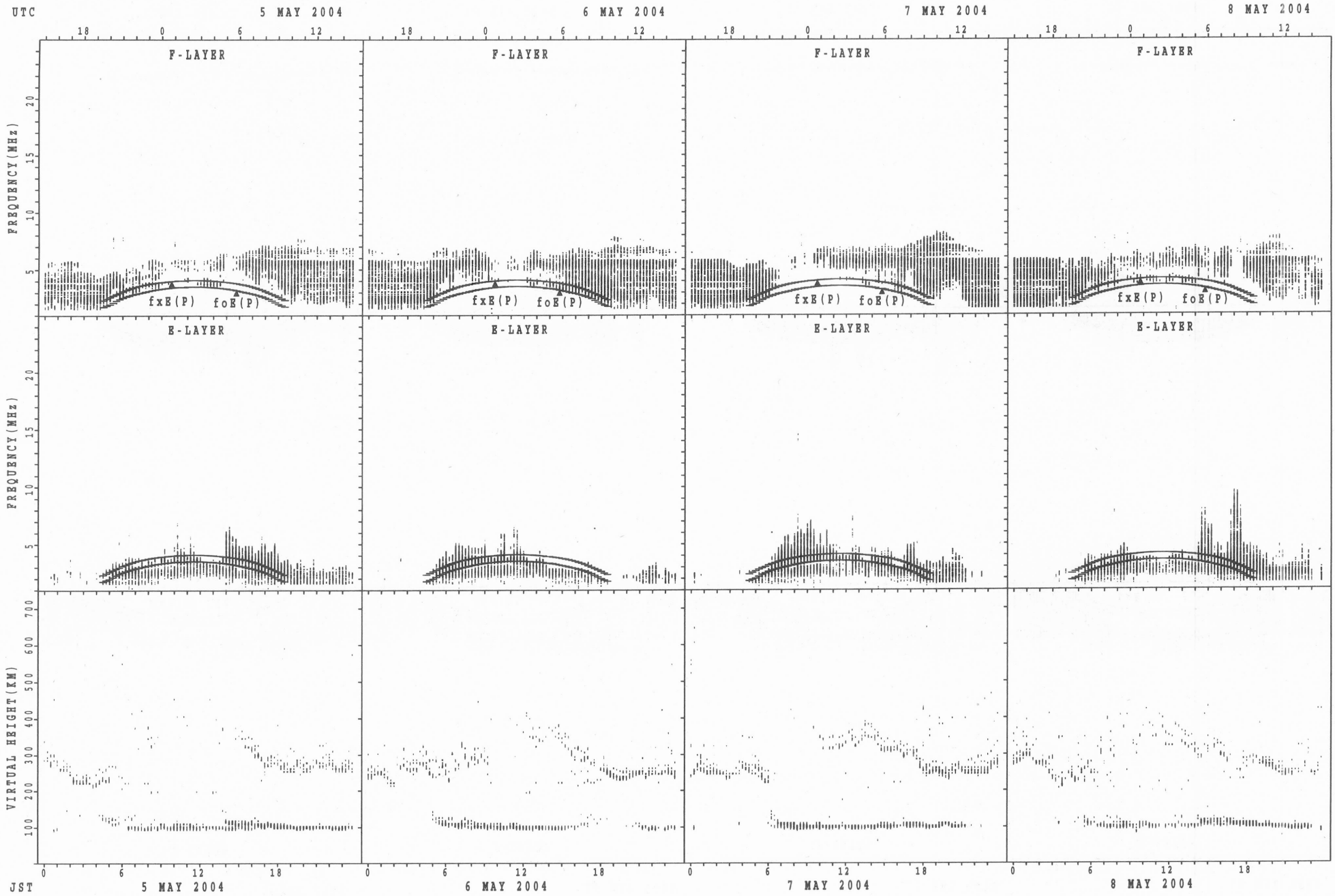
D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	14	14	14	14	14	14	14	15	16	20	21	35	40	29	27	22	17	14	16	14	15	14	14	15
2	14	14	15	14	14	15	14	14	14	22	36	46	53	54	26	36	21	14	14	14	15	15	15	14
3	15	18	14	14	14	14	14	14	17	18	26	36	40	38	39	23	20	14	14	14	14	14	15	14
4	15	14	14	14	14	14	14	14	15	20	24	32	50	28	23	21	18	14	14	14	14	14	14	14
5	14	14	15	17	B	B	14	14	15	22	22	22	39	38	38	24	20	15	14	14	14	14	14	14
6	15	14	14	14	14	15	14	15	17	22	28	29	30	29	23	23	18	14	14	14	14	14	14	14
7	14	14	14	15	14	14	14	14	17	21	24	30	39	37	35	23	22	15	14	14	14	14	14	14
8	14	14	14	14	14	14	18	14	21	20	23	38	30	52	47	47	21	17	14	14	14	14	14	14
9	14	14	14	14	14	14	14	14	15	21	24	23	38	39	27	23	21	15	15	14	14	14	14	14
10	14	14	14	14	14	14	14	14	15	20	22	35	28	39	37	22	20	14	14	14	14	14	14	14
11	14	14	14	14	14	14	14	14	15	20	22	39	40	39	26	22	17	15	14	14	14	14	14	14
12	14	16	15	14	14	14	14	14	15	20	22	26	29	23	24	22	17	16	14	14	14	14	15	20
13	14	14	16	17	14	15	15	14	15	20	24	34	33	30	23	21	18	17	14	14	14	14	14	14
14	14	14	15	15	20	14	15	14	17	21	23	24	29	29	27	24	20	20	14	14	14	14	14	14
15	15	14	14	14	16	B	14	14	15	18	22	24	29	40	32	23	18	17	14	14	15	16	15	14
16	15	14	14	14	14	14	14	14	14	16	21	36	28	29	38	24	18	15	14	14	14	14	14	14
17	14	14	14	14	14	14	14	14	16	18	26	21	28	38	28	22	21	16	14	16	14	15	14	14
18	14	15	17	14	14	16	14	15	17	18	21	27	52	39	29	21	18	17	14	14	14	14	14	14
19	14	14	14	14	14	14	14	14	15	20	22	34	24	39	30	22	18	15	15	14	14	14	14	14
20	14	14	14	14	14	14	14	15	20	22	28	29	35	34	29	30	21	17	14	14	14	15	15	14
21	15	15	15	17	14	15	14	15	14	17	20	29	32	30	27	26	20	15	14	14	15	20	15	15
22	14	14	15	14	14	14	14	14	15	40	24	28	36	52	52	23	21	18	14	14	14	14	14	14
23	15	14	14	14	14	14	14	15	18	20	32	23	38	39	27	23	20	20	14	14	14	14	14	14
24	14	14	14	14	15	14	15	14	15	22	22	28	29	28	39	26	21	17	14	14	14	14	15	14
25	14	14	14	14	14	14	14	14	18	21	21	23	33	33	22	22	20	14	14	14	14	14	14	14
26	14	14	14	14	14	14	14	14	14	20	21	29	36	38	28	27	20	15	14	14	14	14	14	14
27	14	14	14	14	14	14	14	14	17	20	24	29	36	29	28	27	22	17	14	14	15	15	15	14
28	15	14	14	15	15	15	14	14	14	20	32	23	28	30	28	26	21	18	14	14	14	14	15	14
29	14	14	15	14	14	14	14	14	15	22	28	32	30	38	28	22	21	16	14	14	14	14	14	14
30	14	15	14	14	14	14	15	14	16	21	24	30	30	26	22	20	20	15	14	14	15	14	16	14
31	14	14	14	14	14	14	14	14	15	21	30	32	29	26	26	21	18	14	14	14	14	15	14	14
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	30	29	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31
MED	14	14	14	14	14	14	14	14	15	20	24	29	33	37	28	23	20	15	14	14	14	14	14	14
U Q	15	14	15	14	14	14	14	14	17	21	26	34	39	39	35	26	21	17	14	14	14	14	15	14
L Q	14	14	14	14	14	14	14	14	15	20	22	24	29	29	26	22	18	14	14	14	14	14	14	14

SUMMARY PLOTS AT Wakkanai

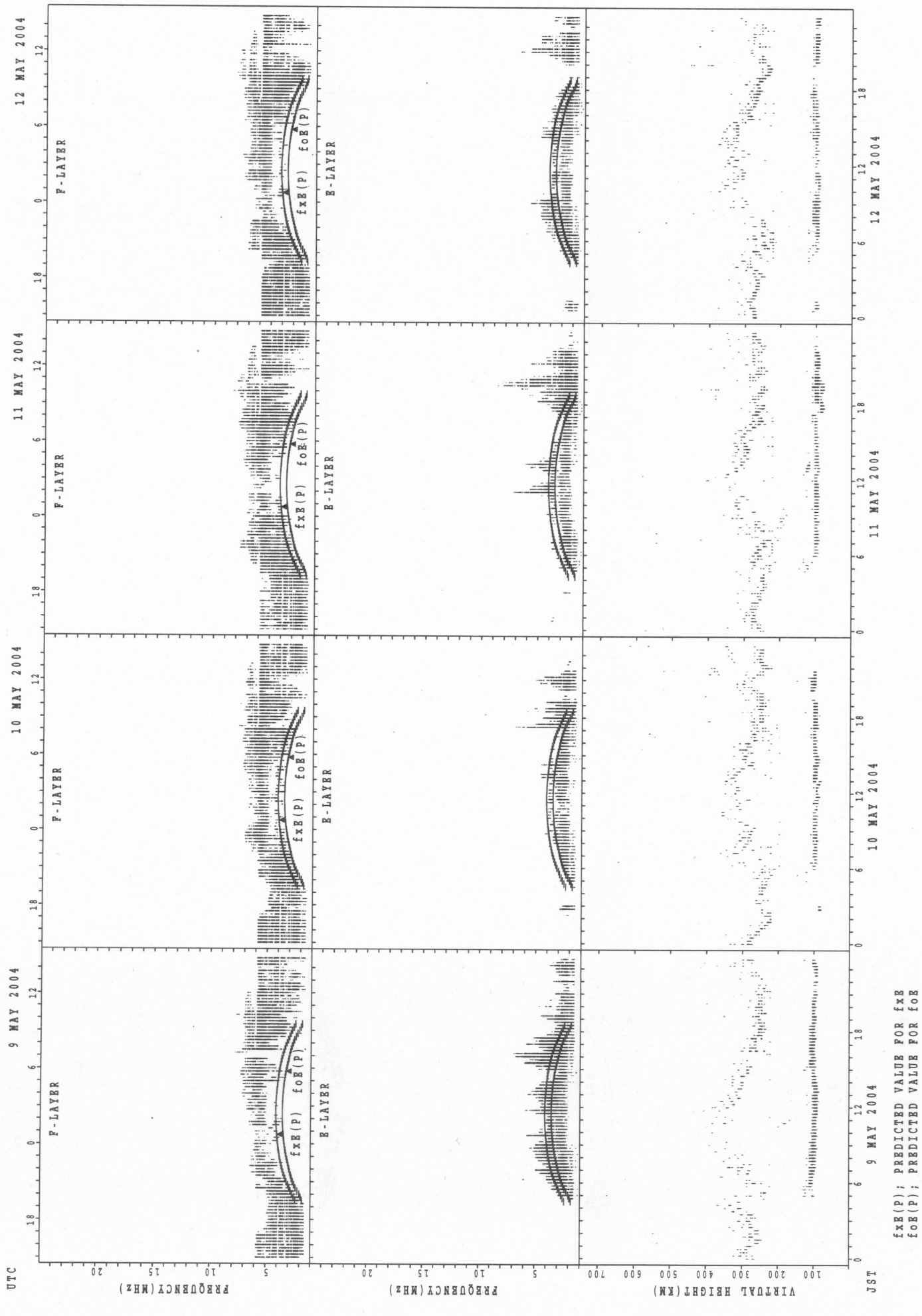


fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

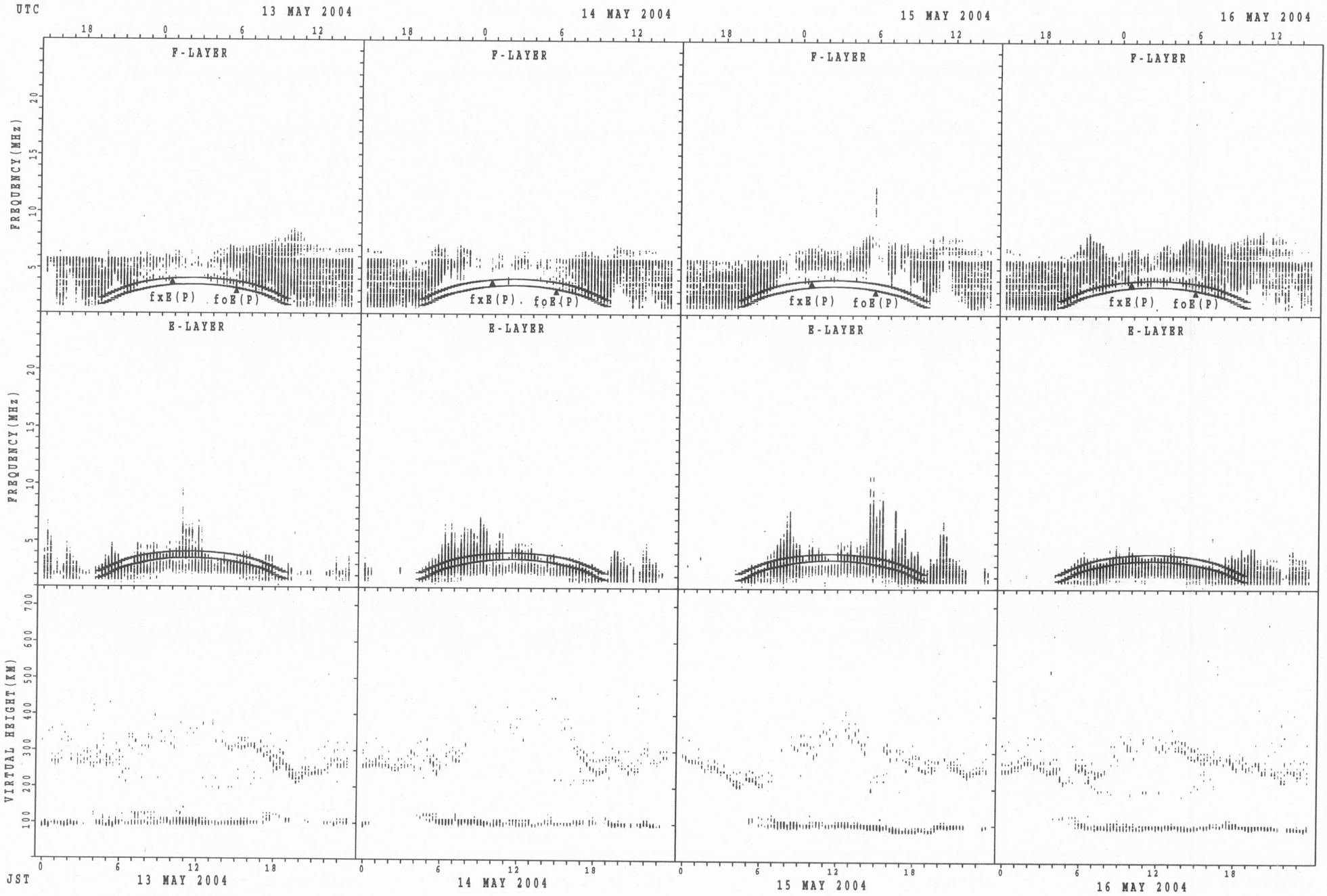
SUMMARY PLOTS AT Wakkanai



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

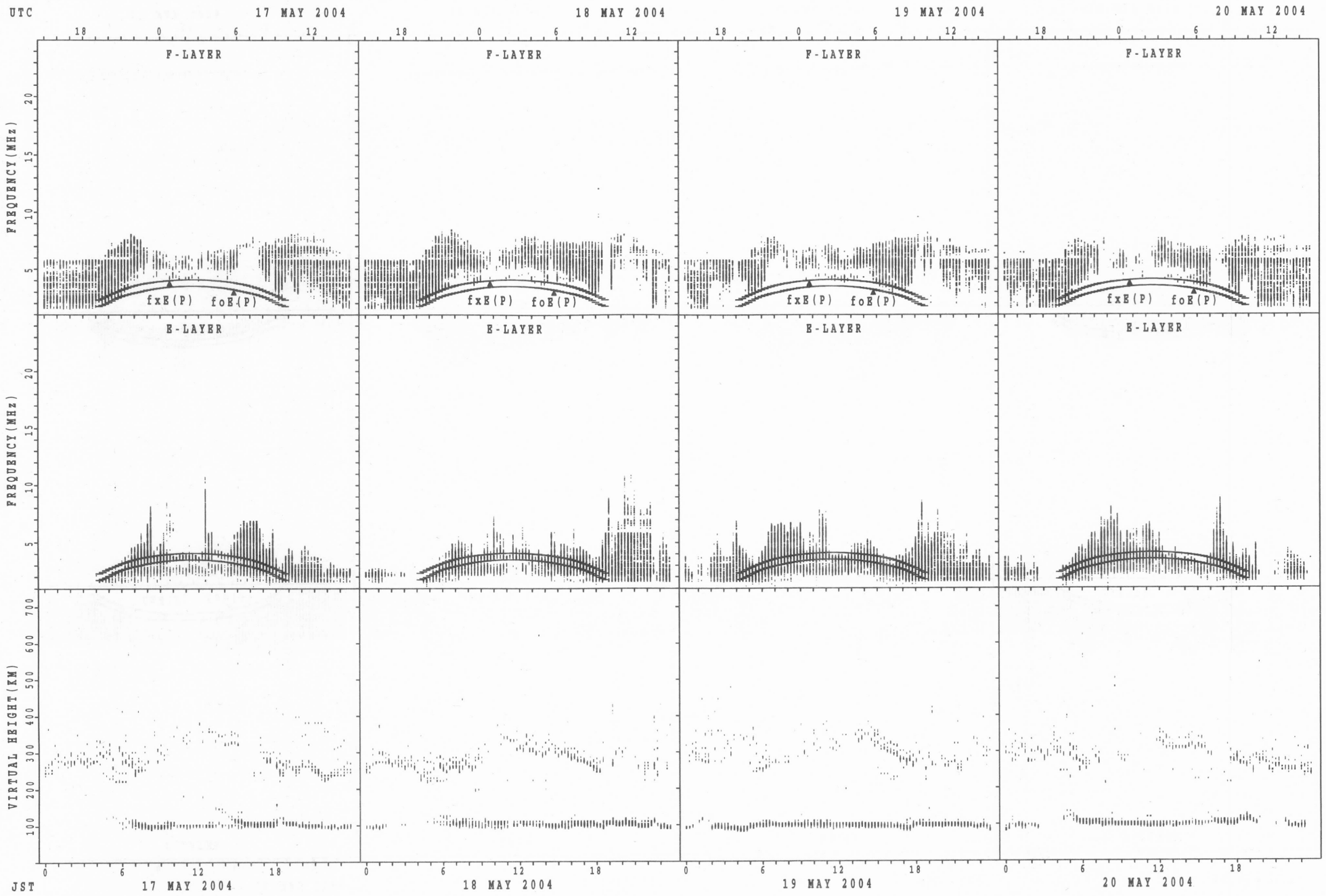

SUMMARY PLOTS AT Wakkanai
9 MAY 2004
10 MAY 2004
11 MAY 2004
12 MAY 2004
F-LAYER
E-LAYER
fxE(P)
foE(P)
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
UTC
JST
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



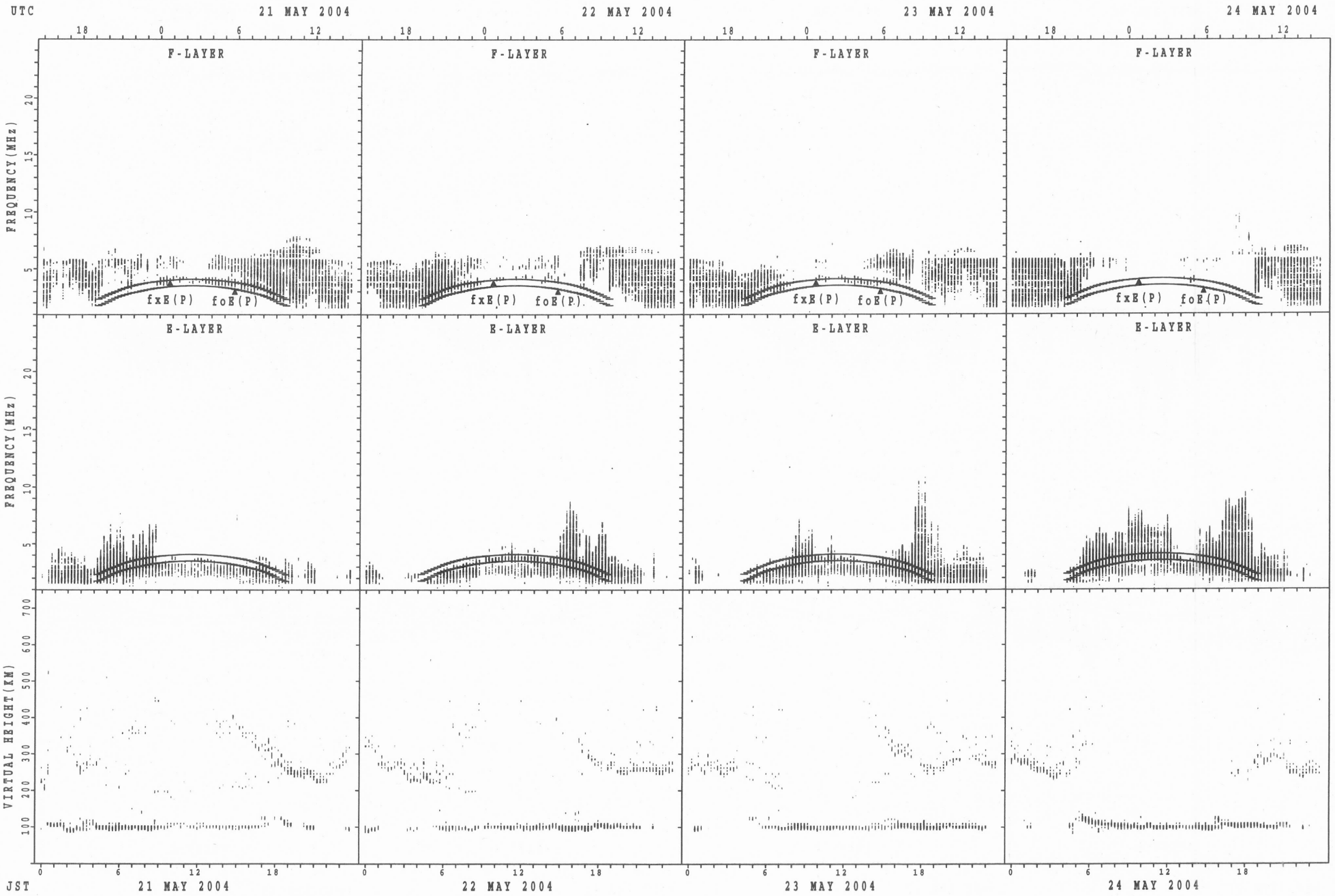
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



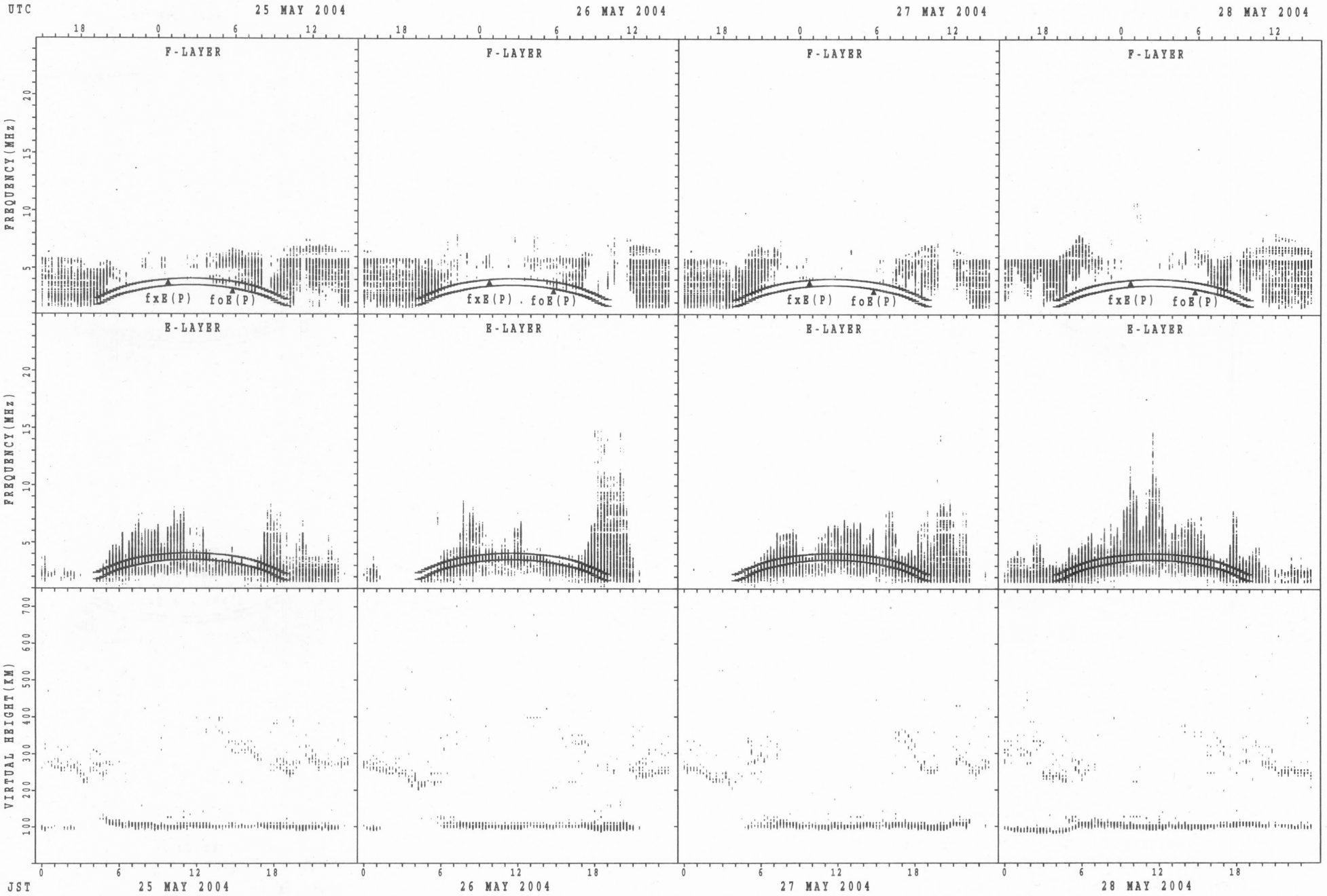
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



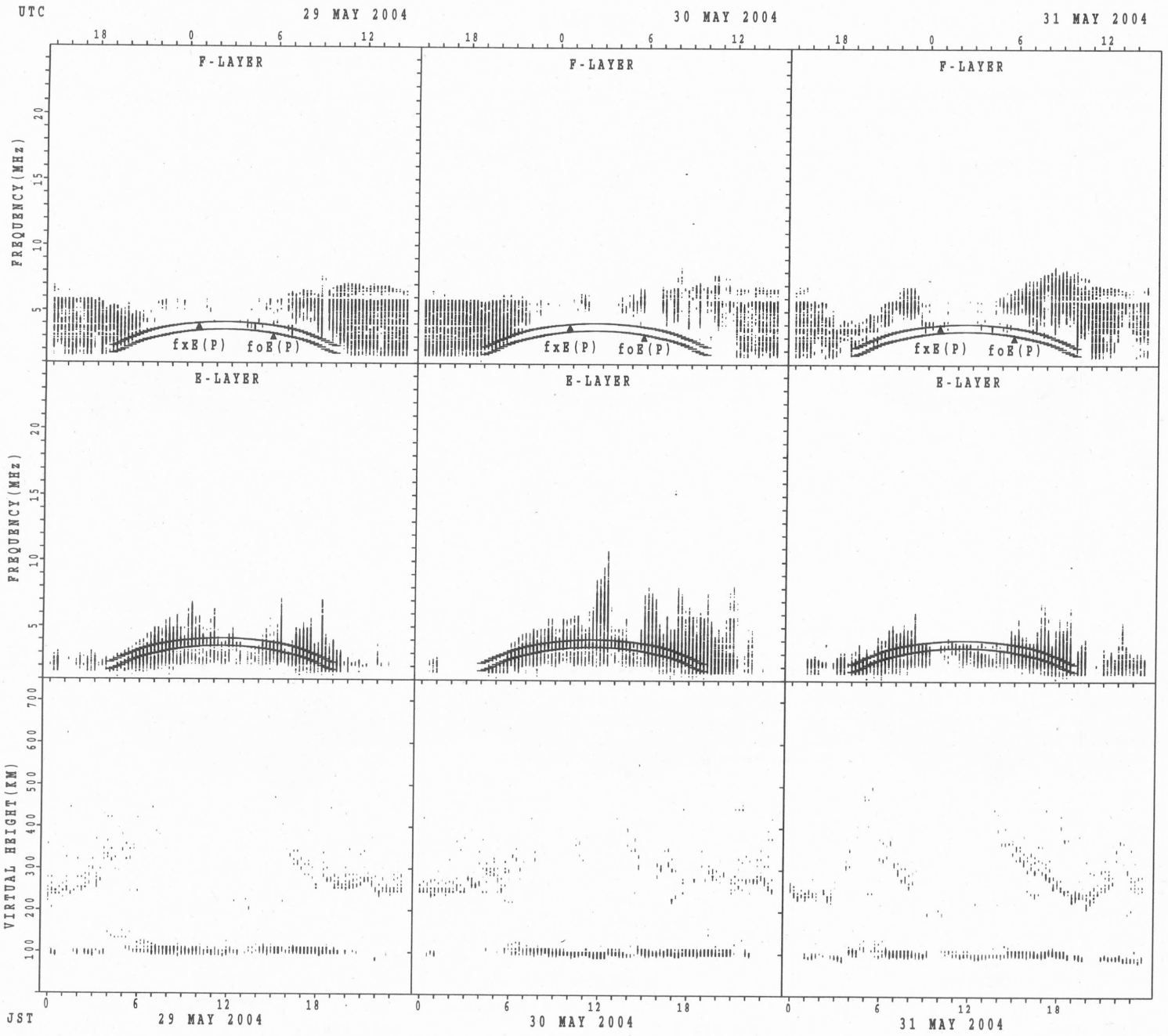
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



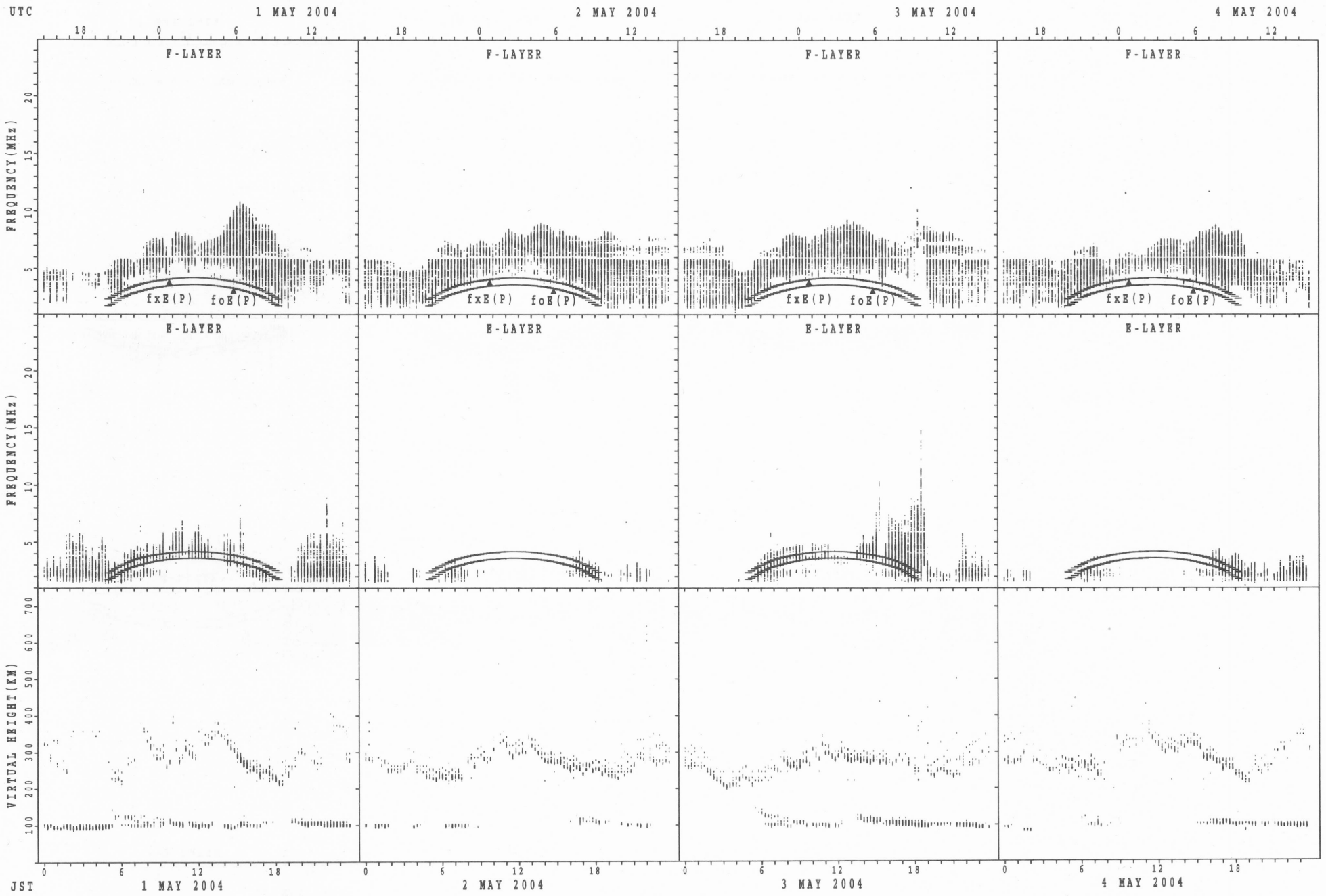
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



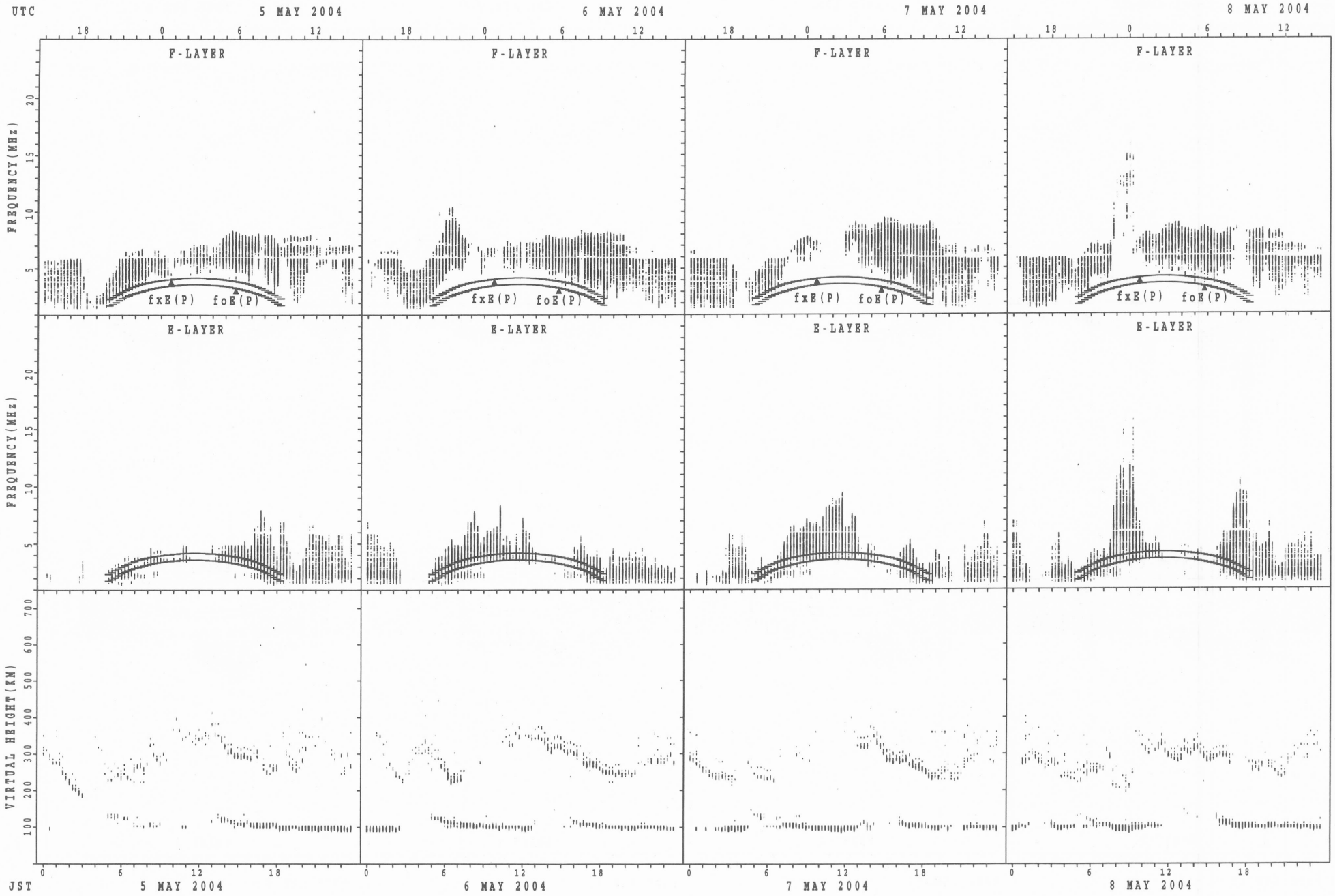
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



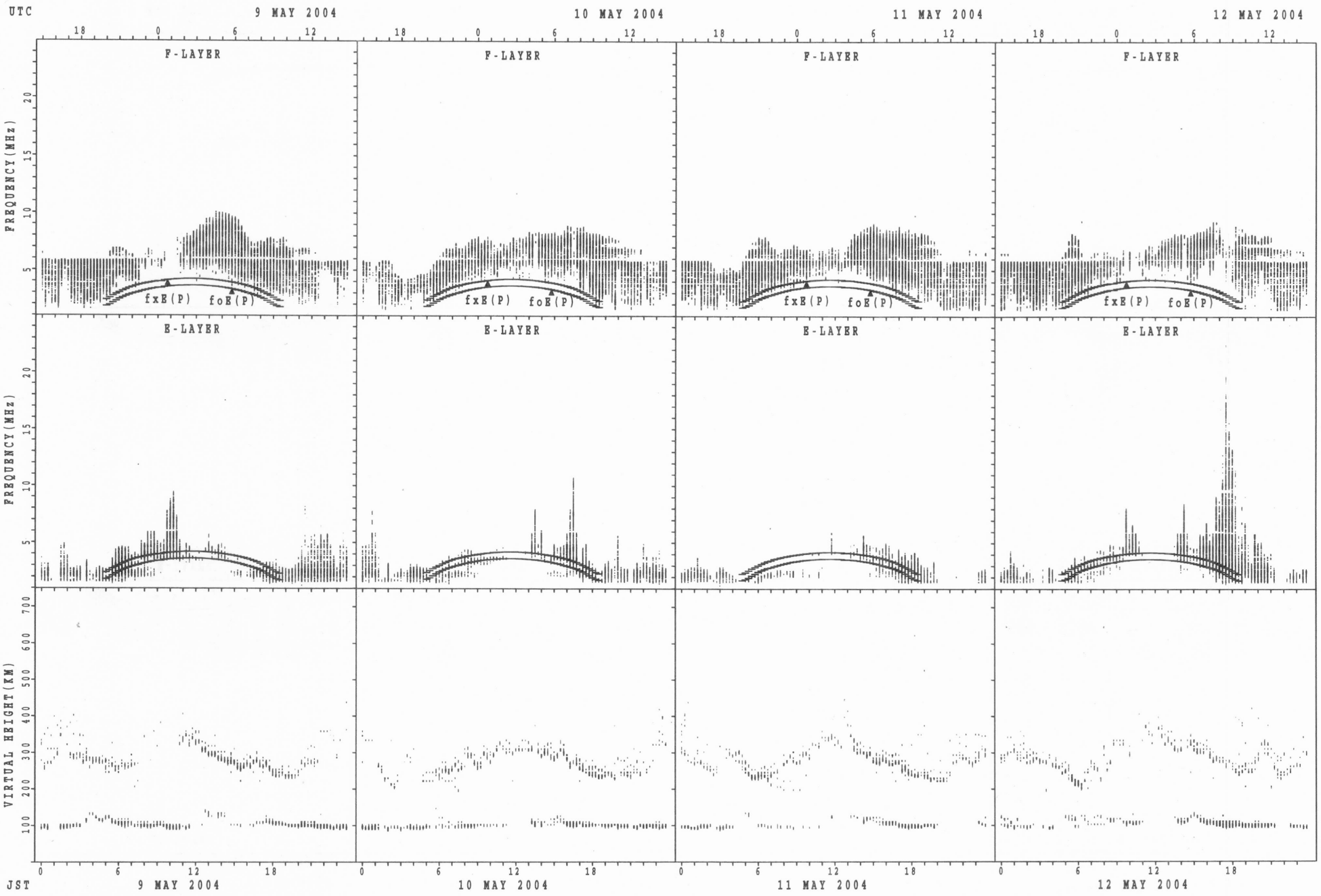
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



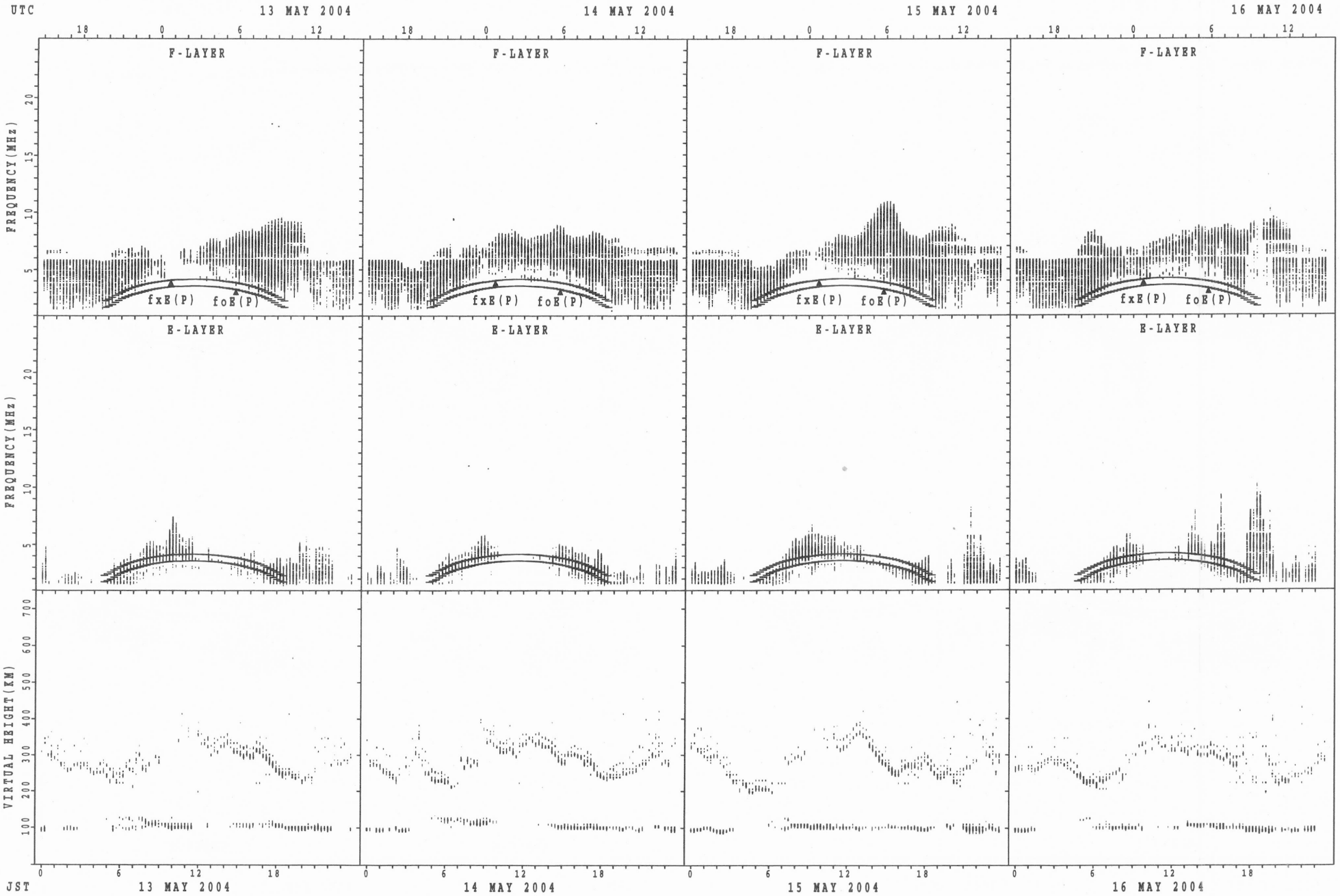
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



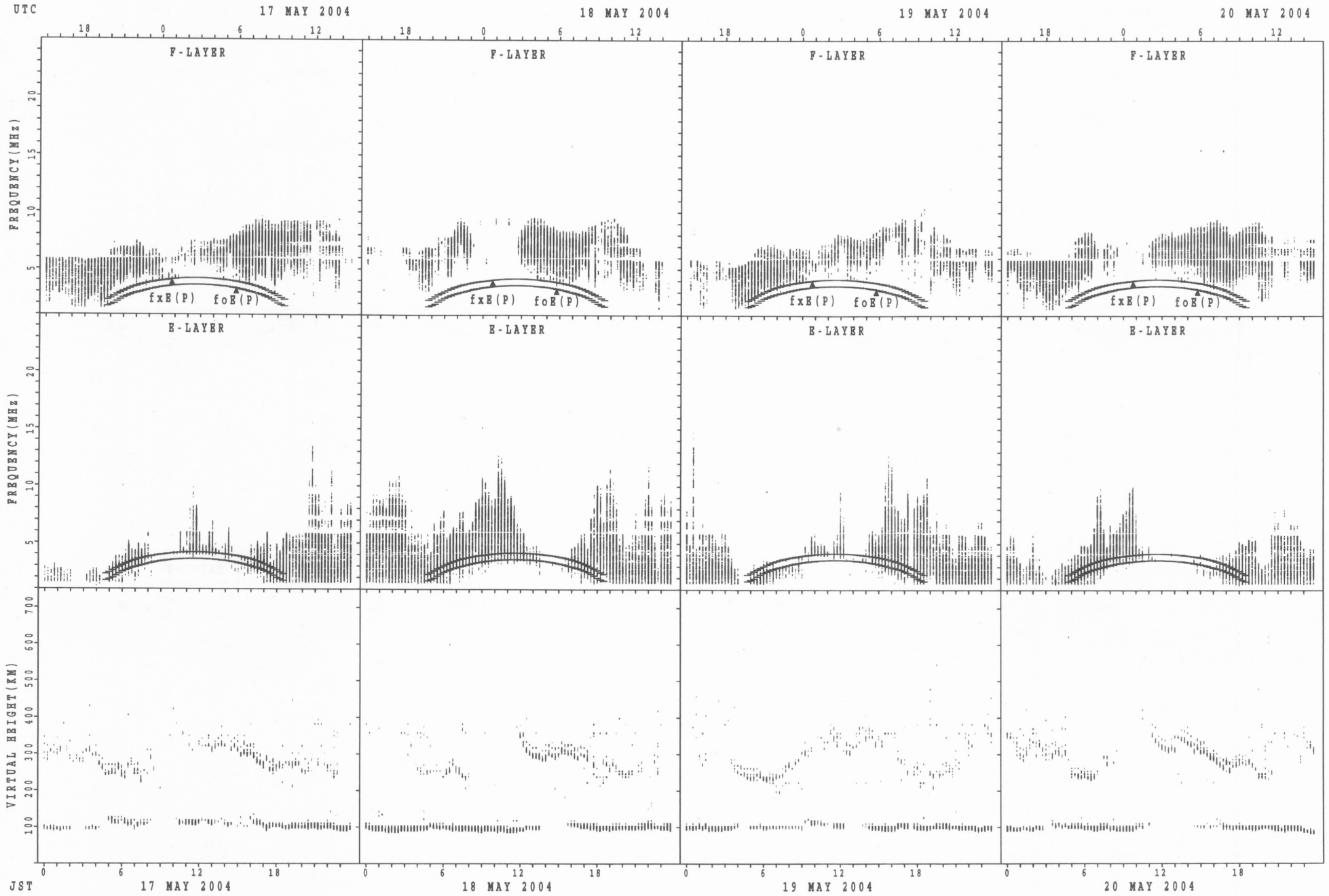
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



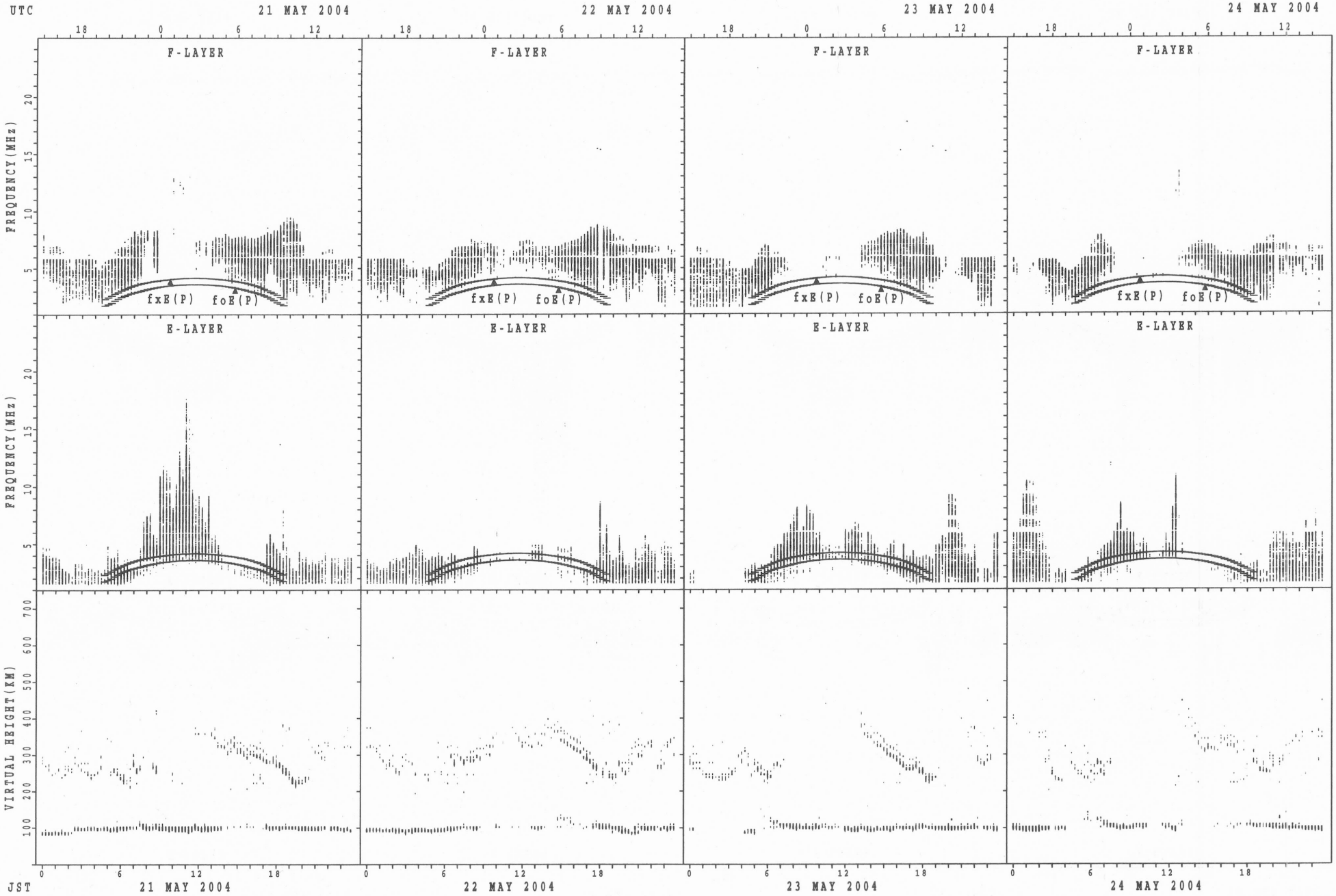
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



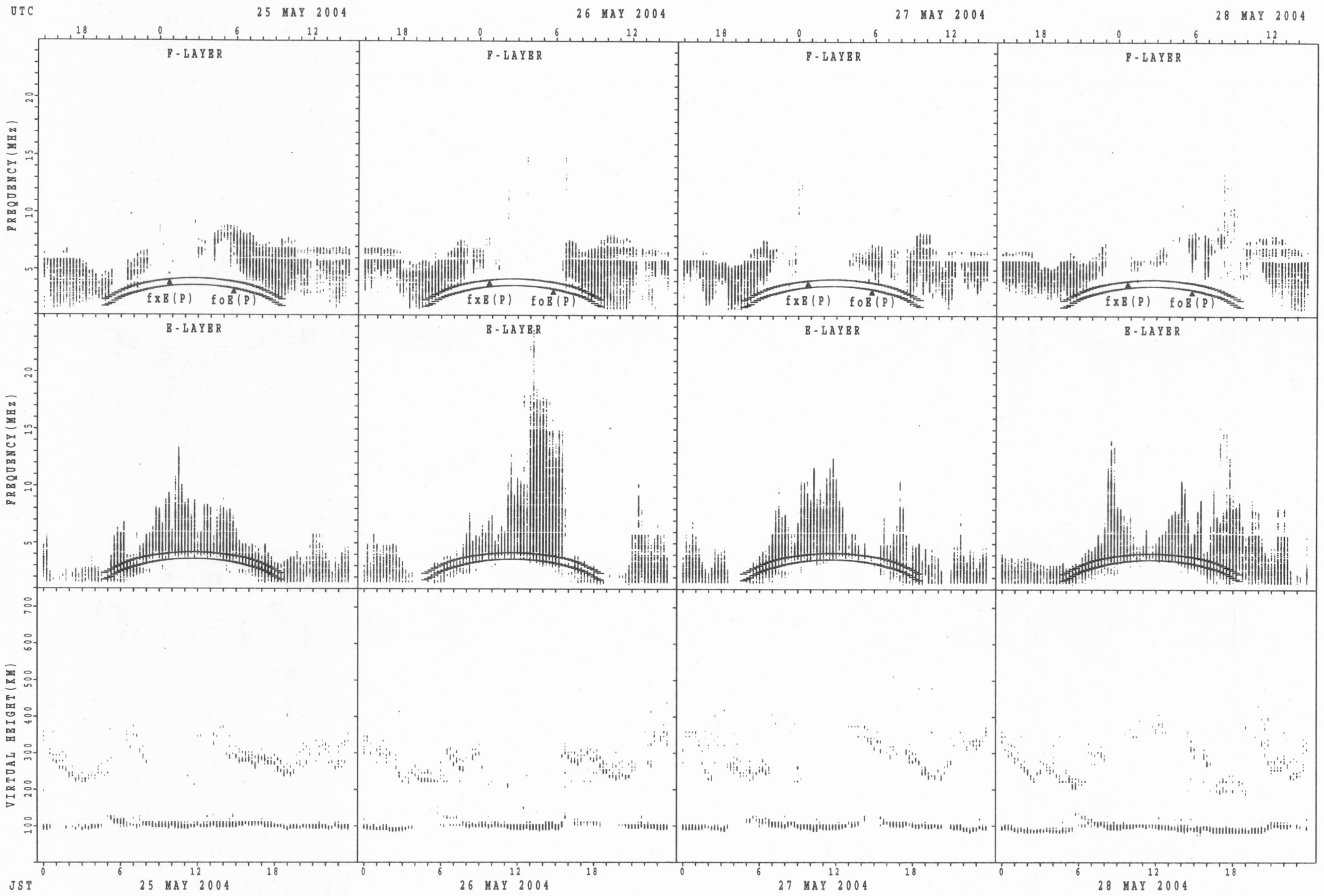
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



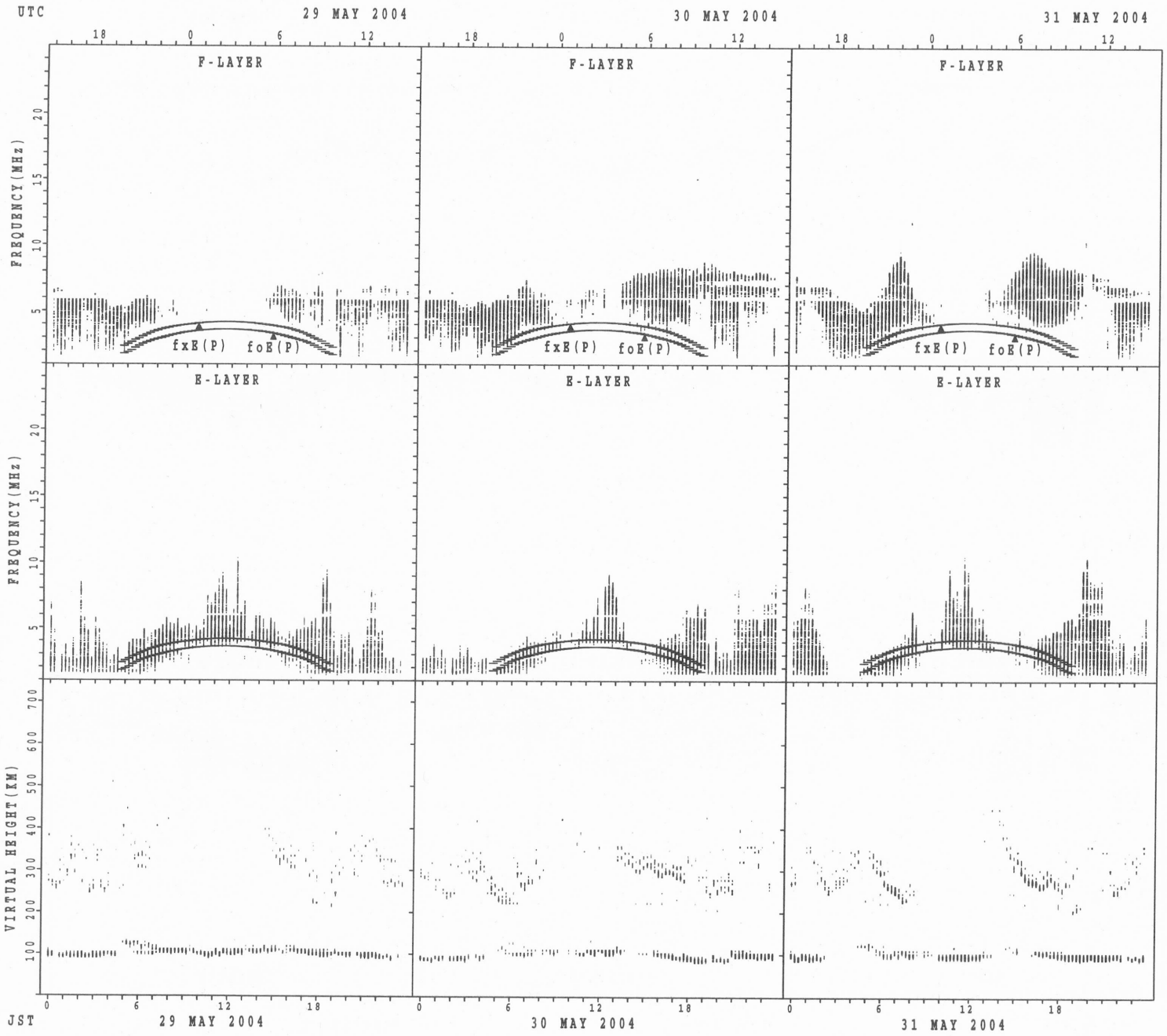
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji

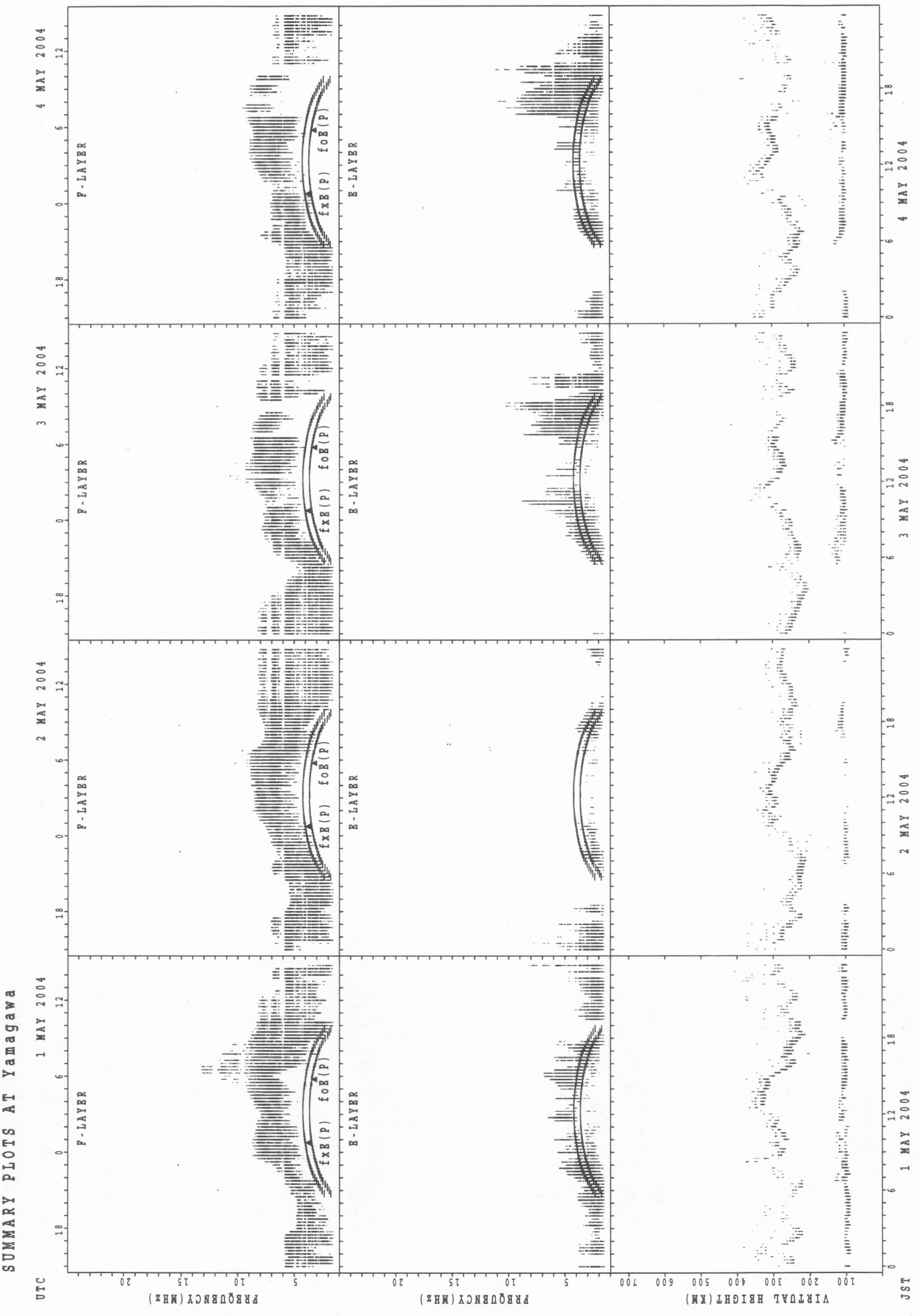


fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

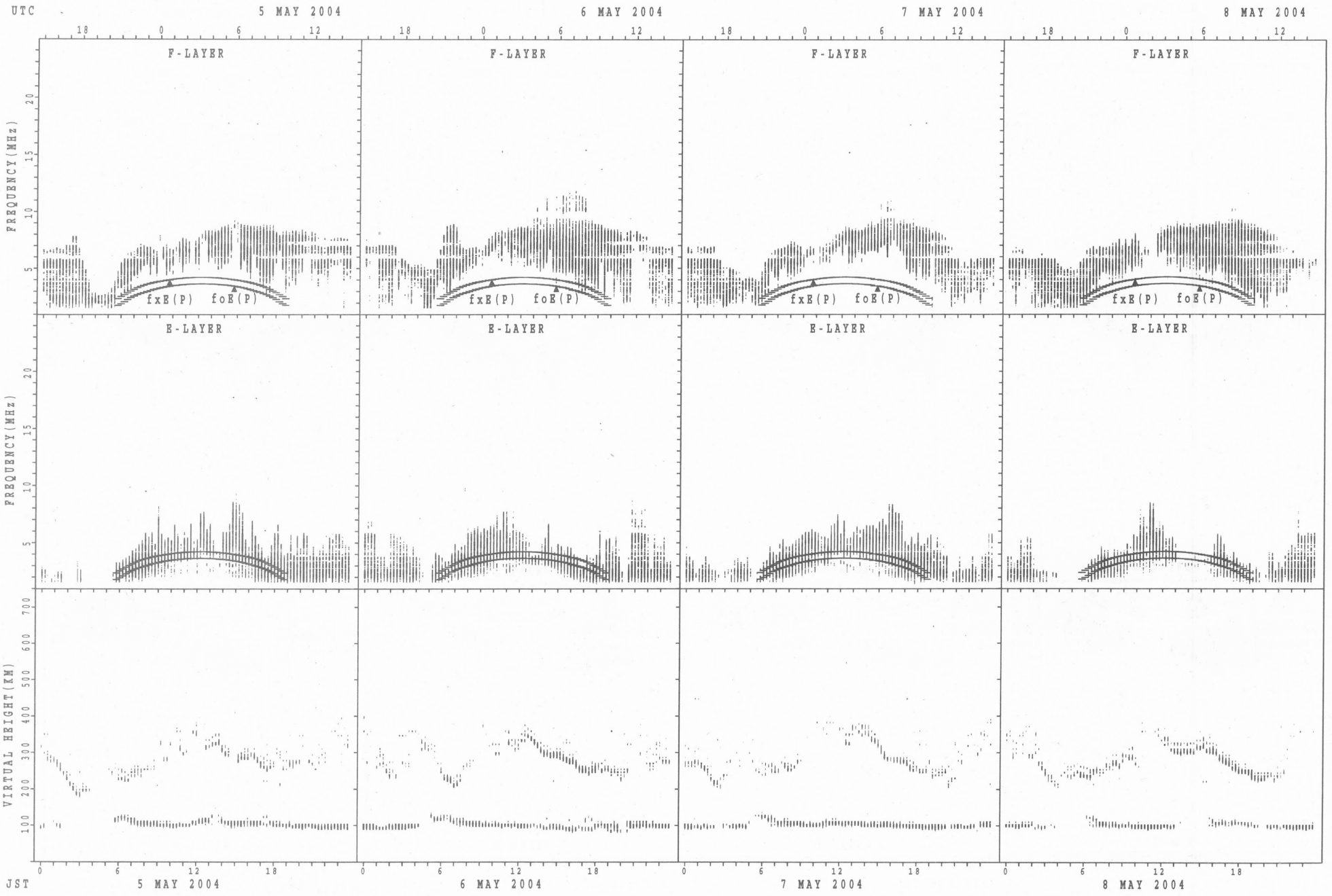
SUMMARY PLOTS AT Kokubunji



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

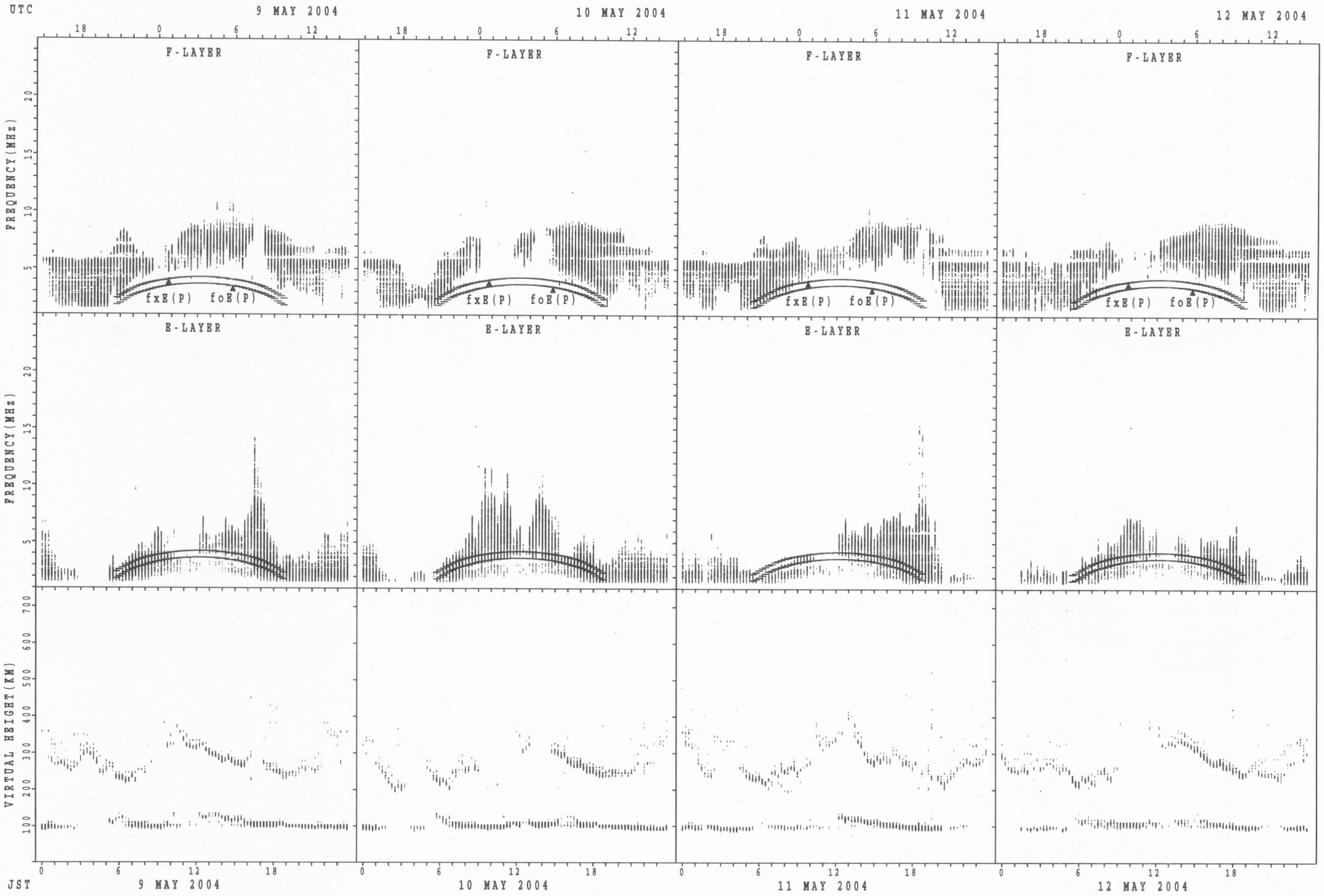

SUMMARY PLOTS AT Yamagawa
UTC
JST
1 MAY 2004
2 MAY 2004
3 MAY 2004
4 MAY 2004
F-LAYER
E-LAYER
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
fxE(P)
foE(P)
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



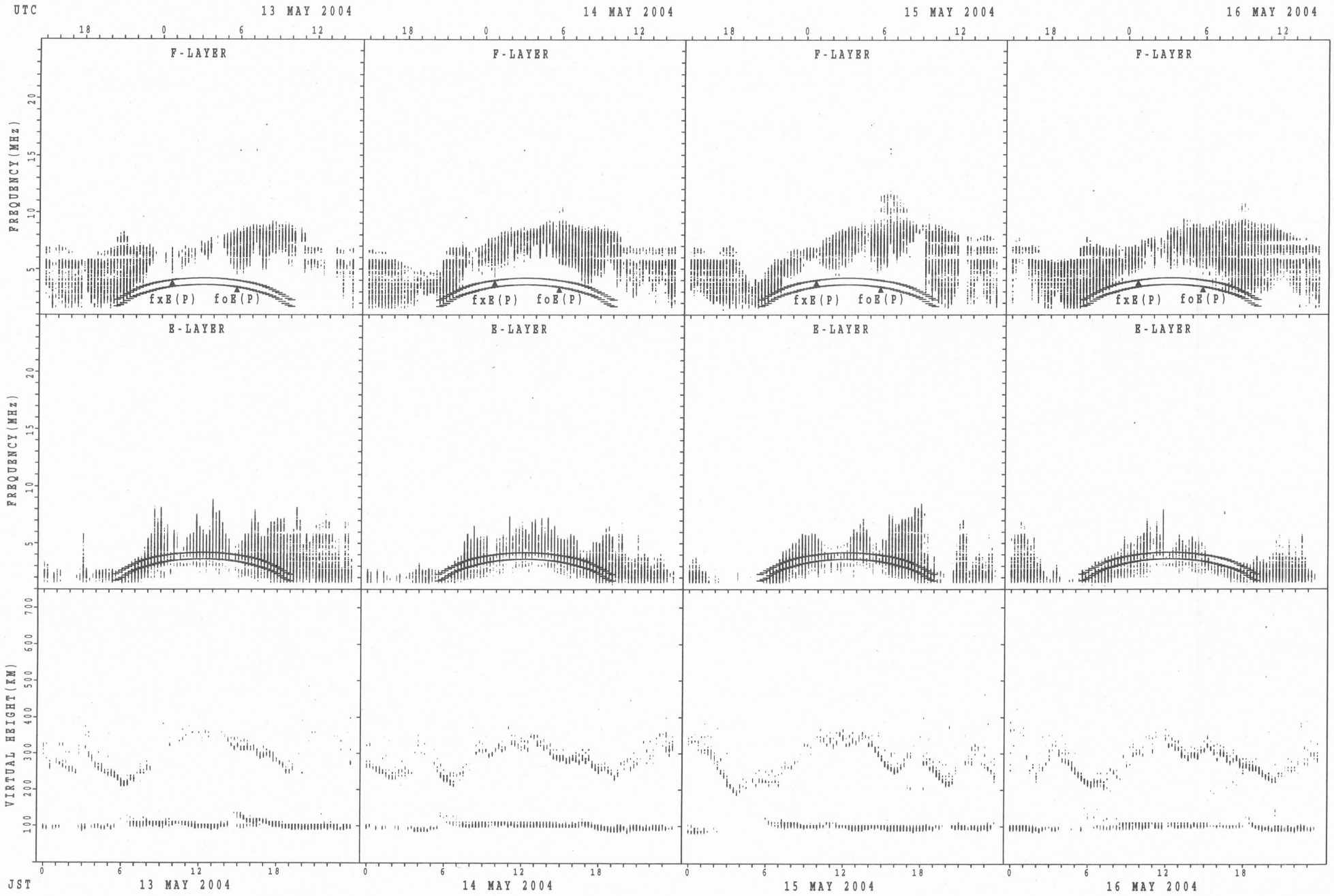
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



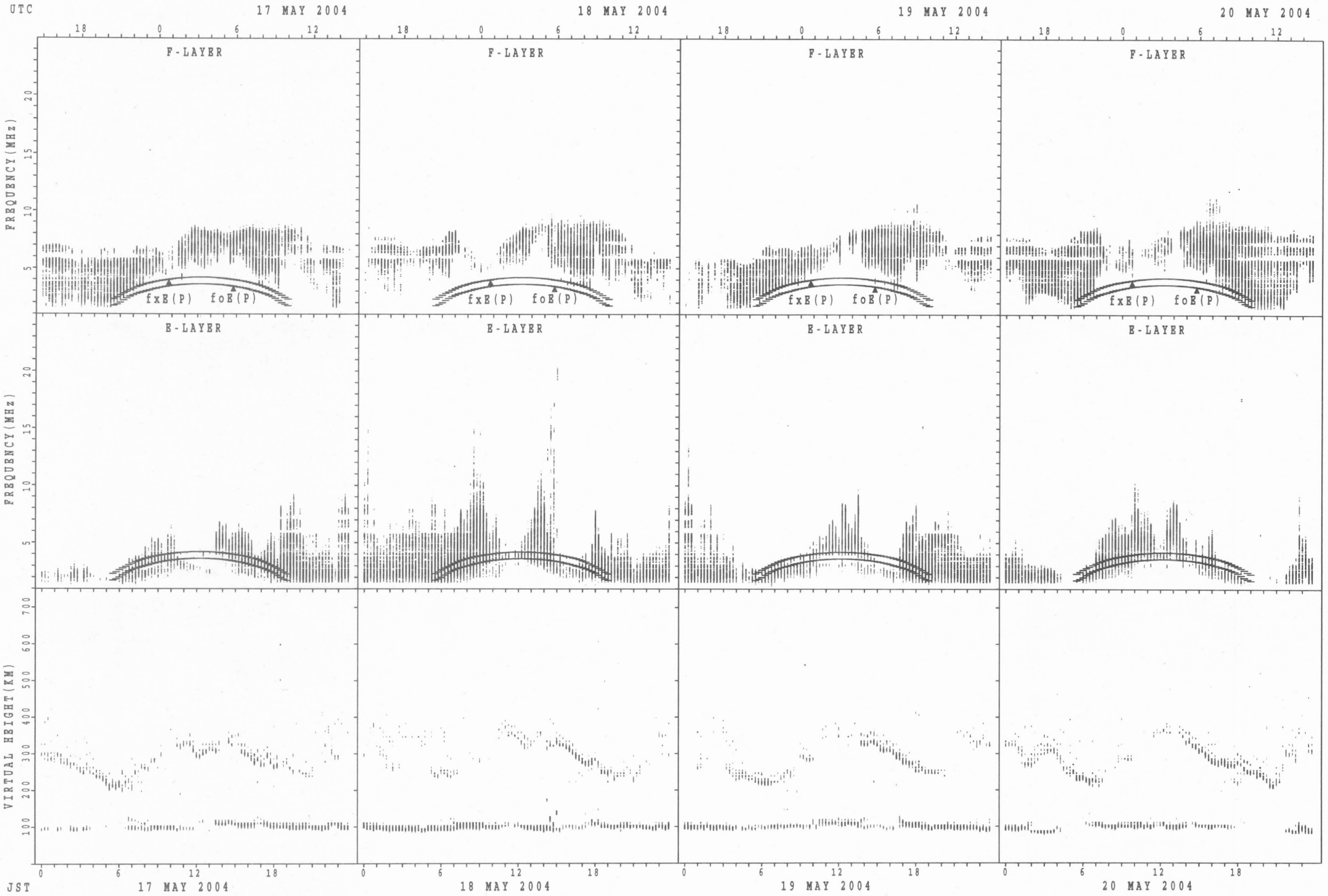
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



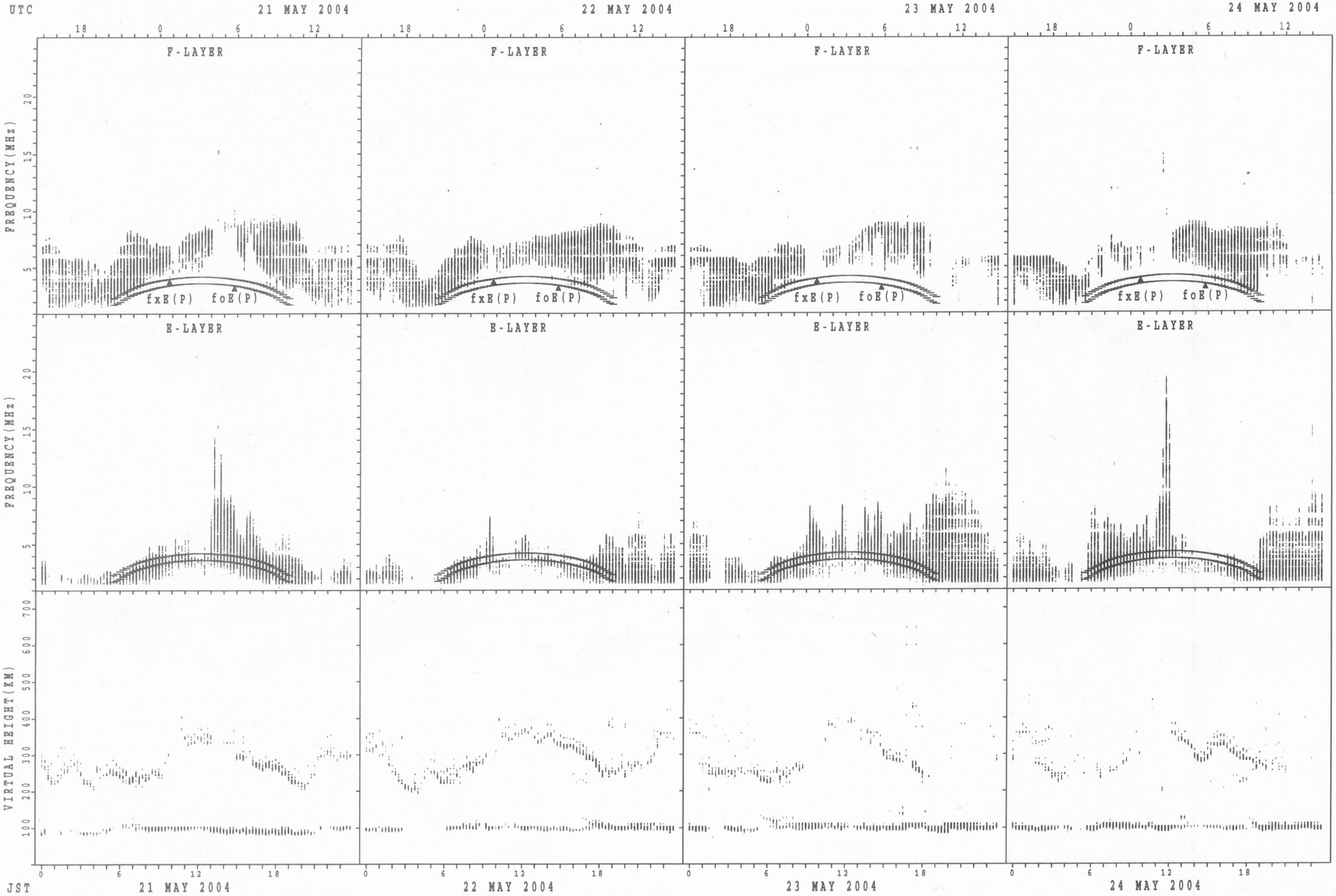
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



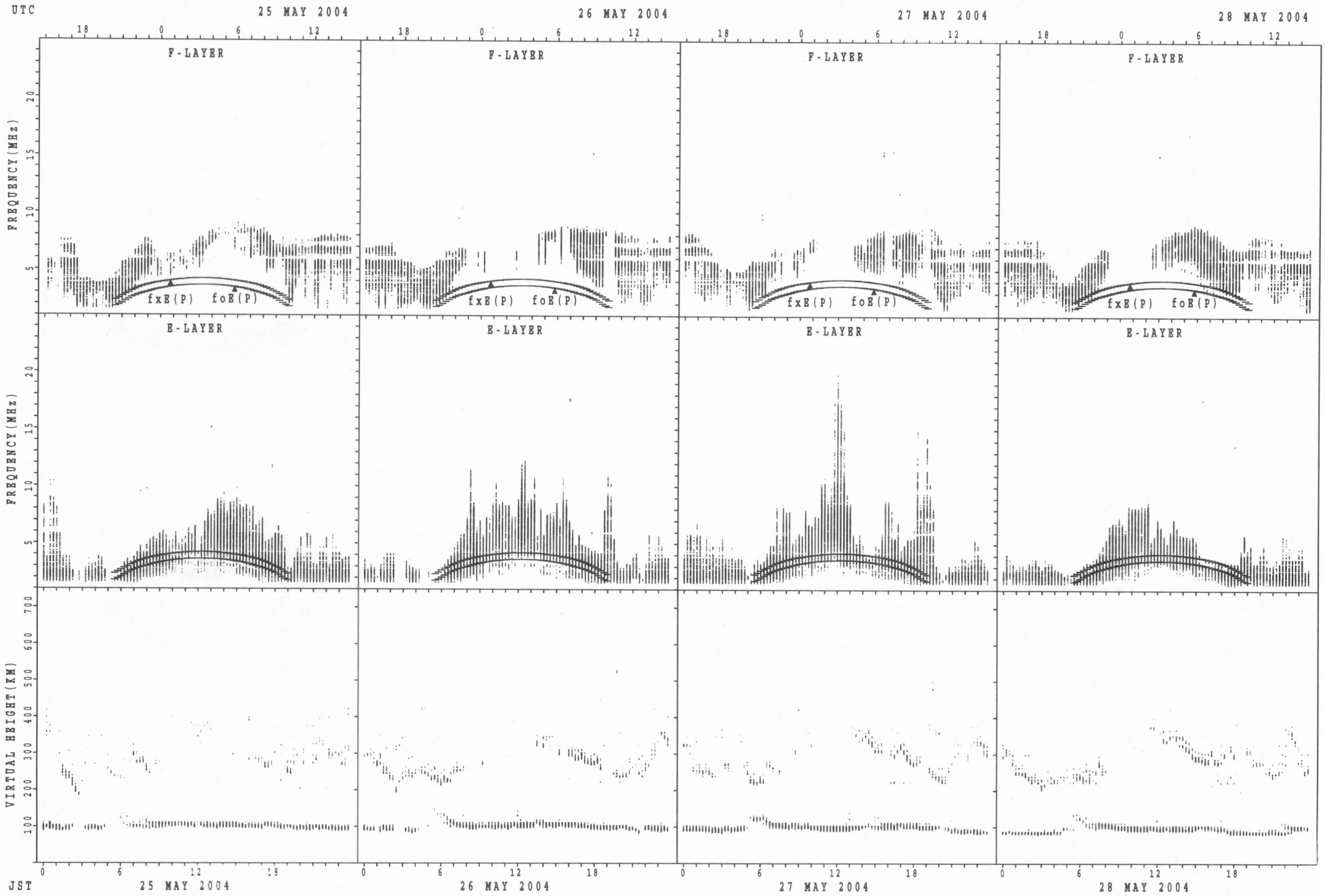
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



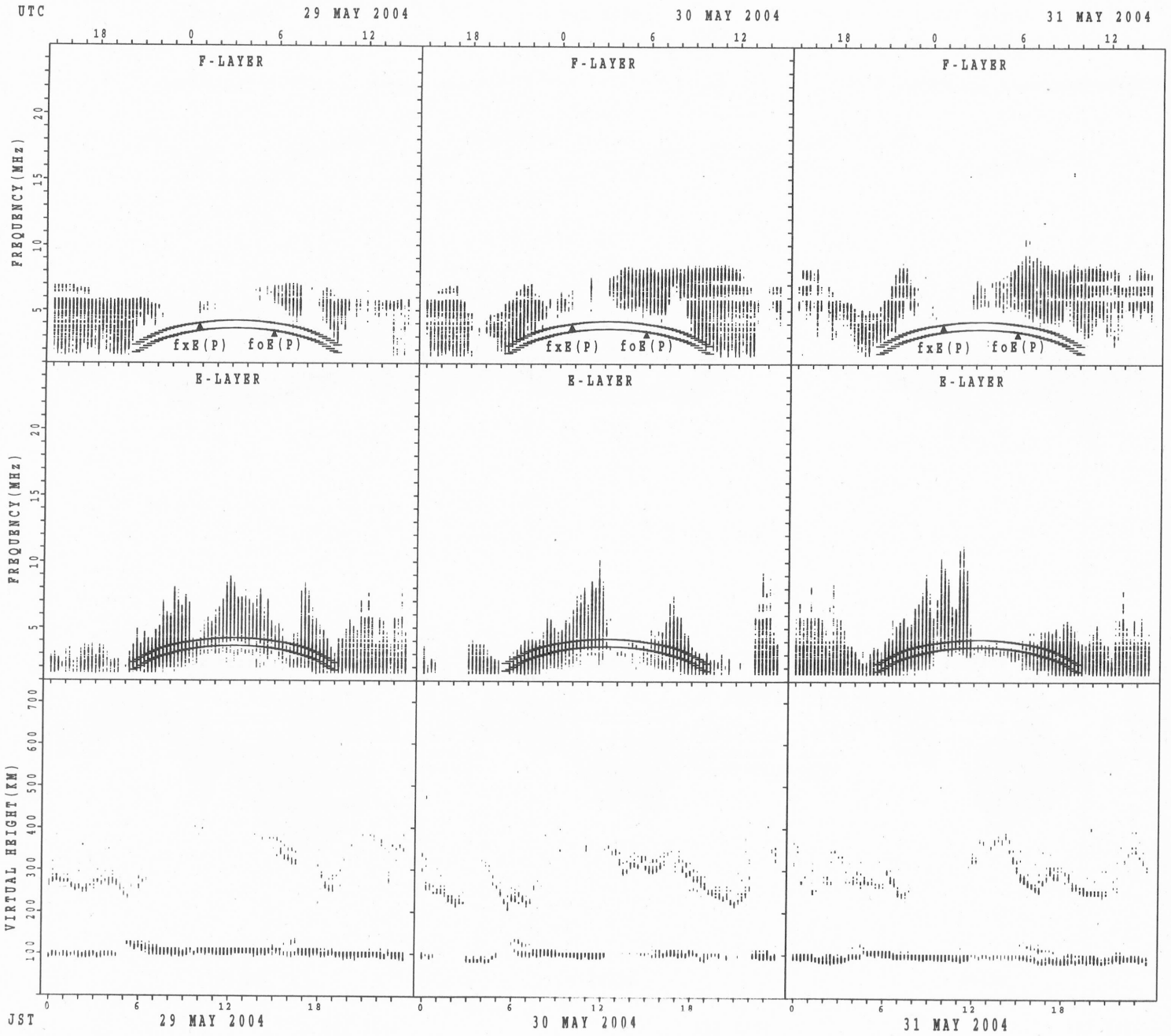
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



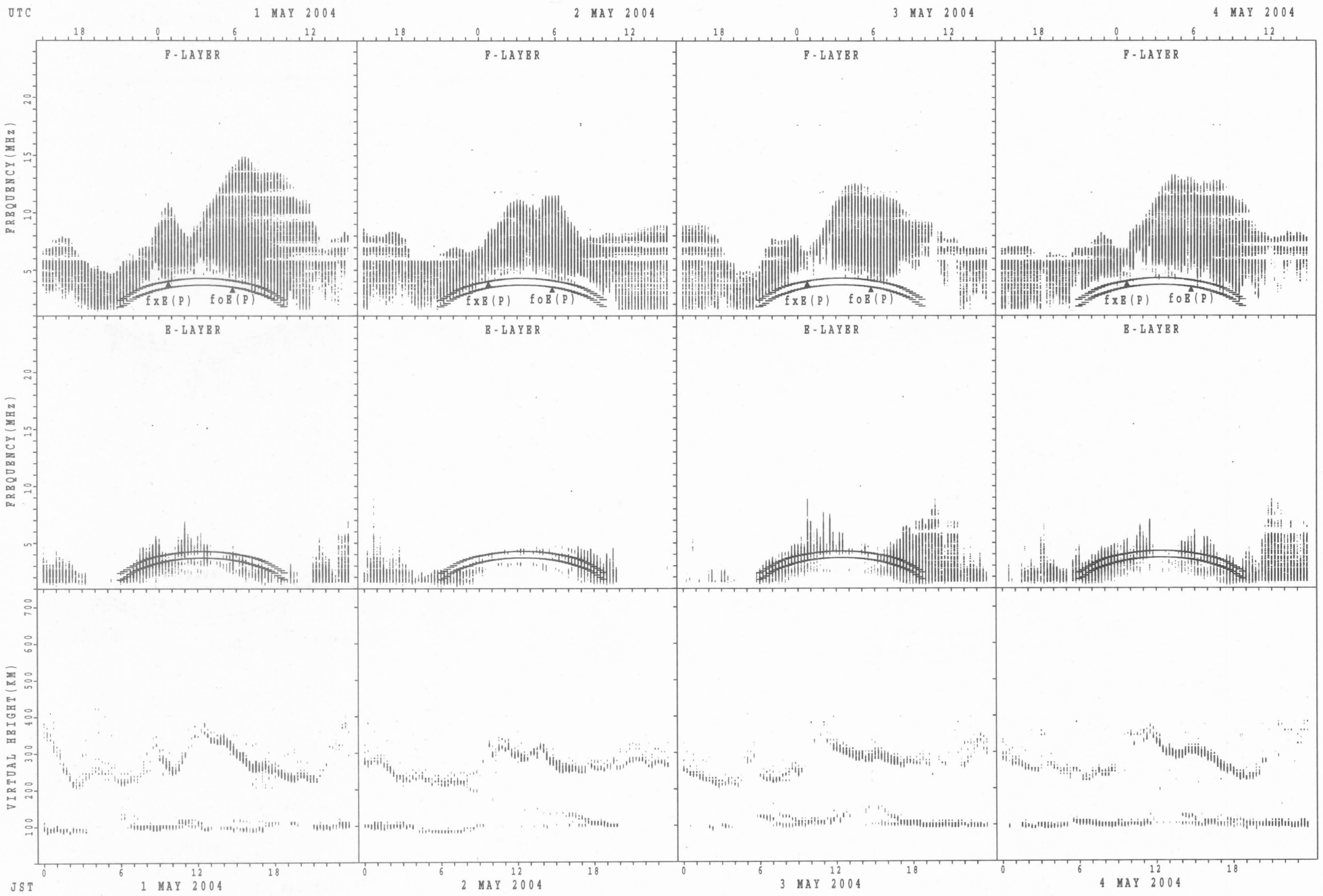
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



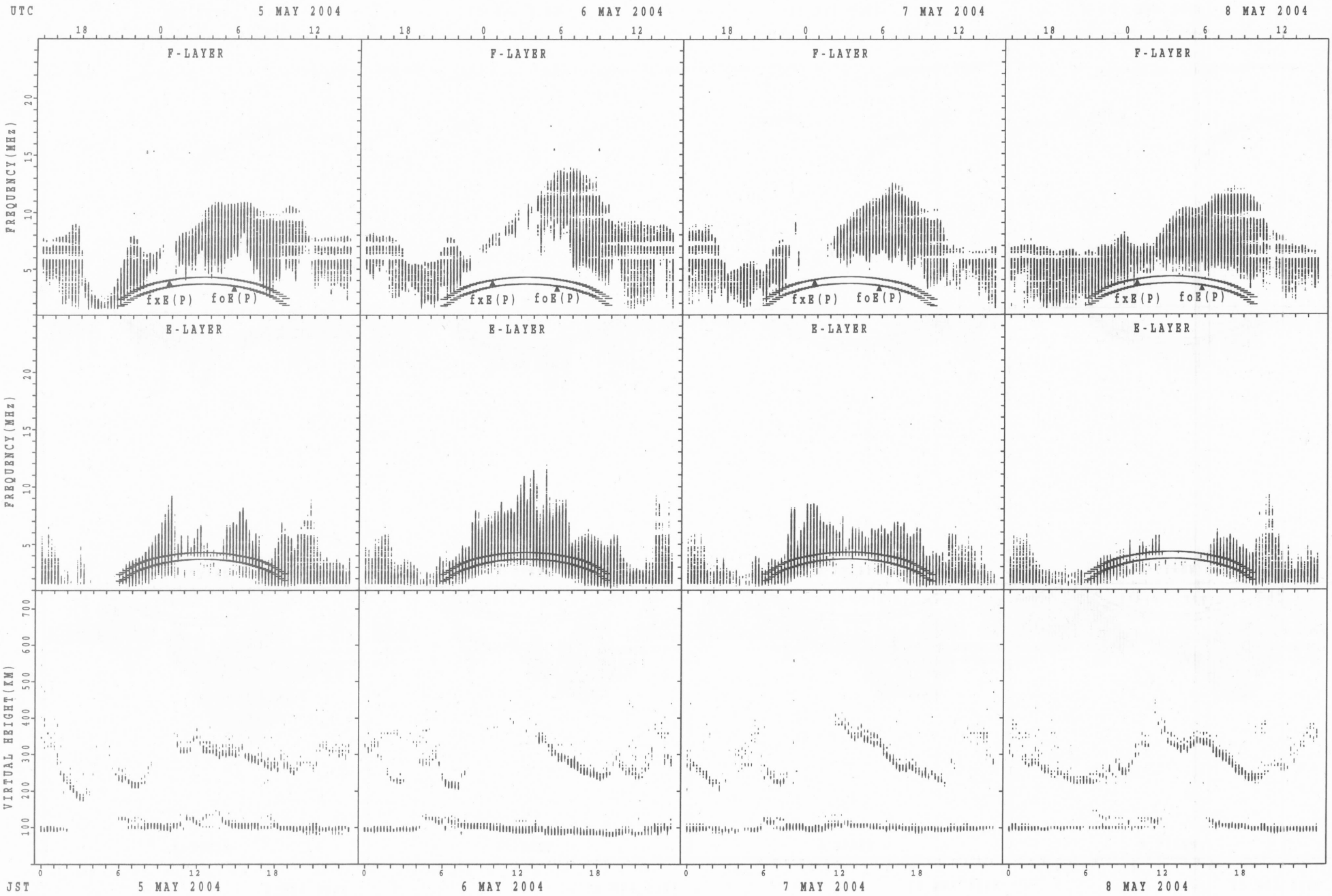
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



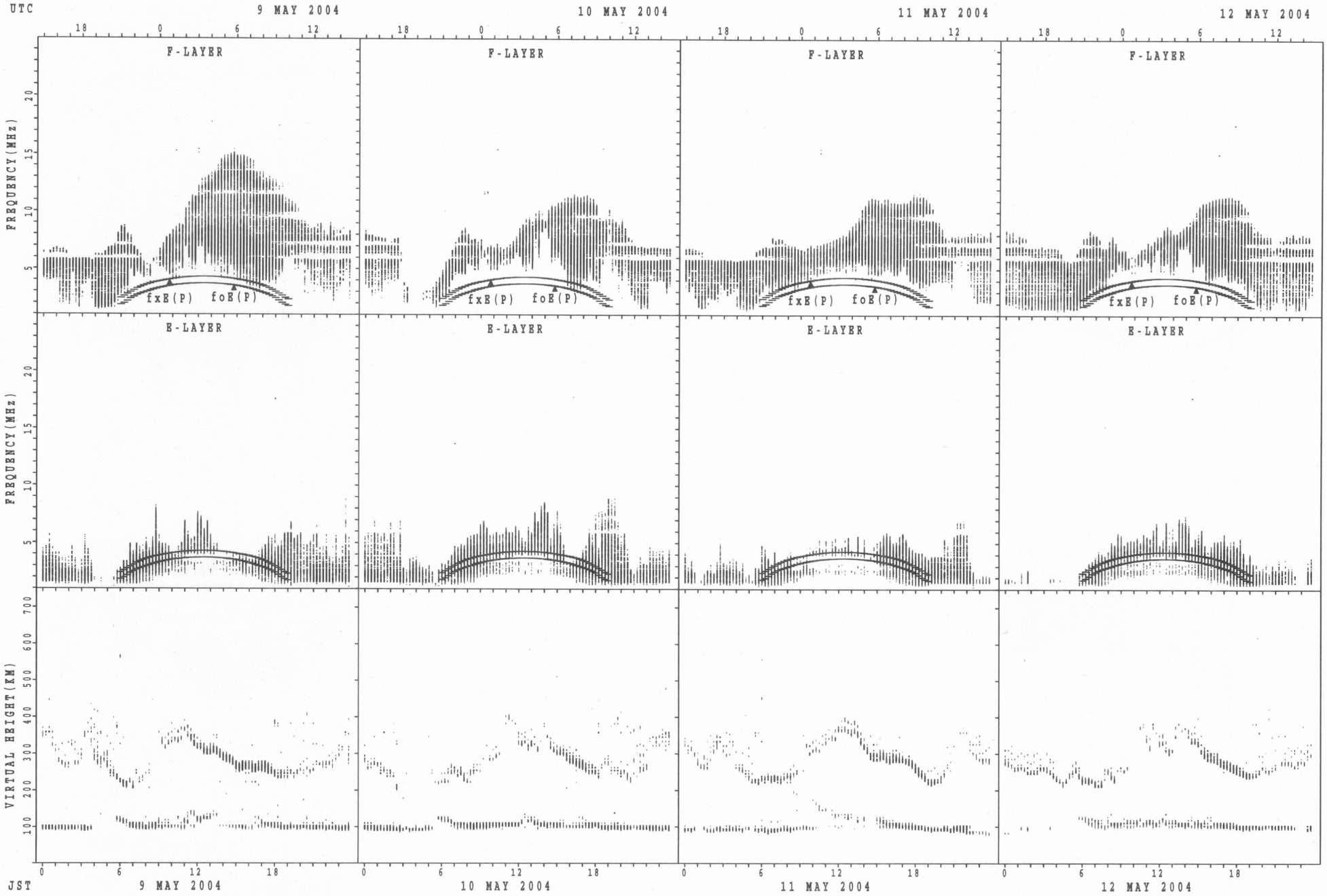
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



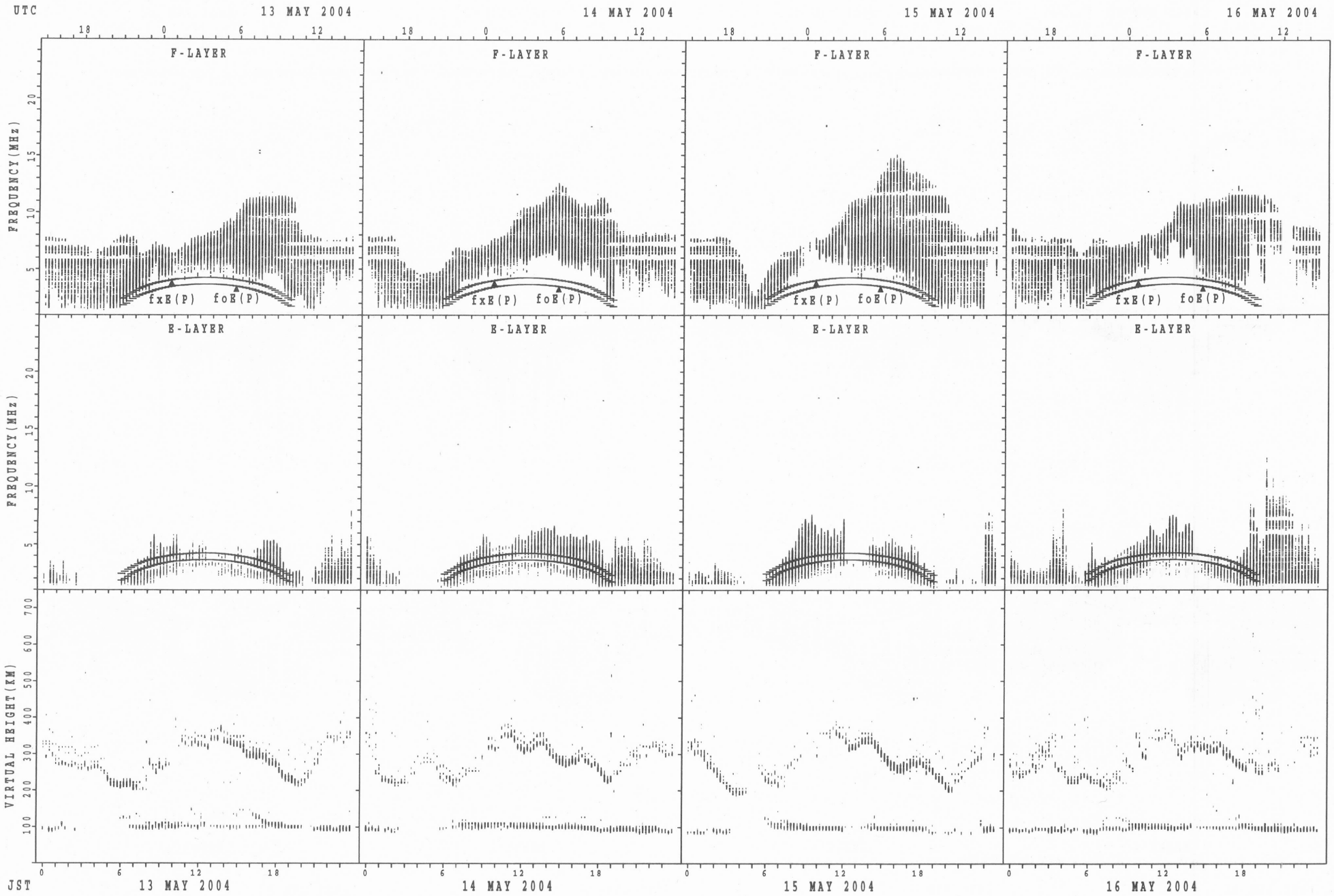
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



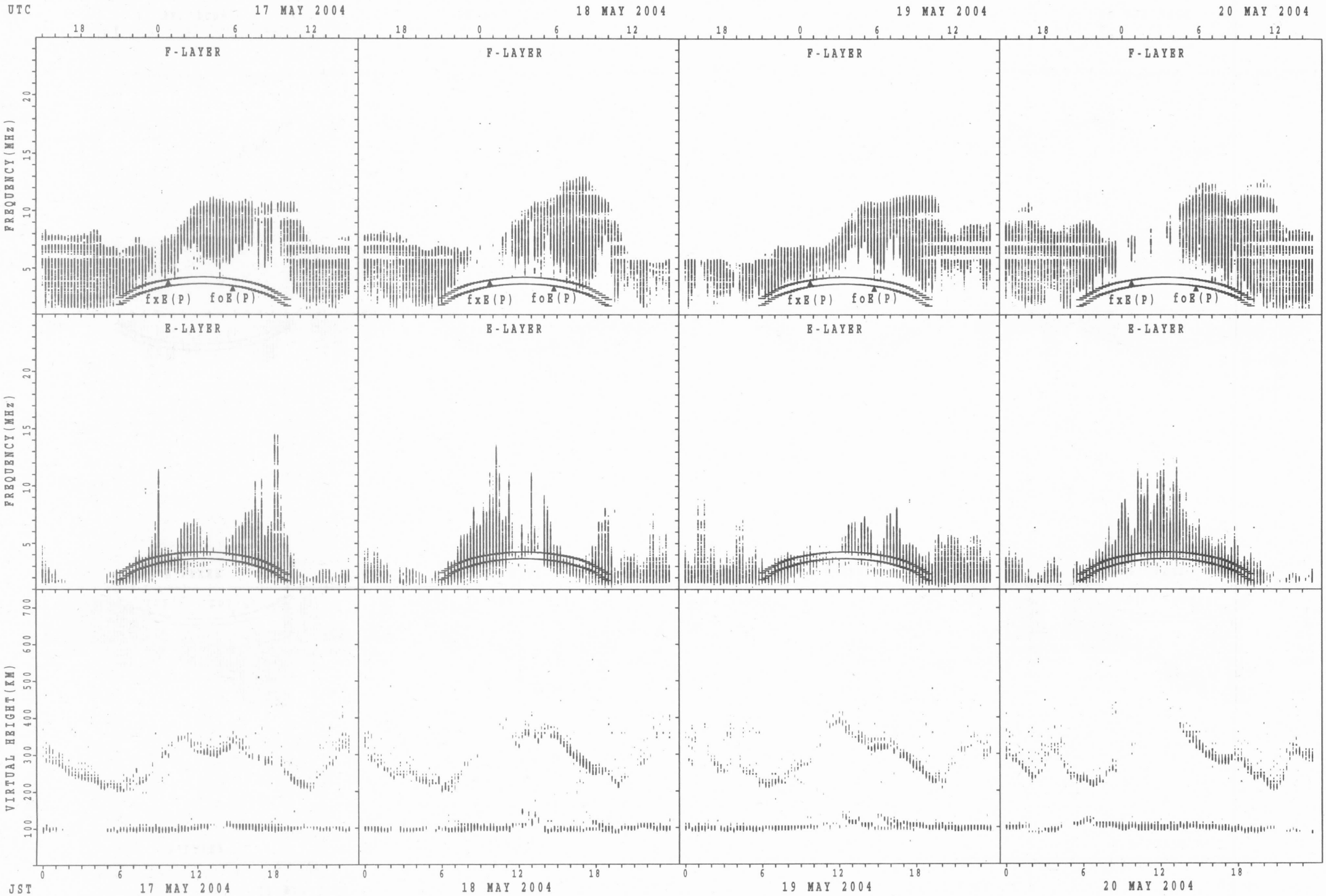
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



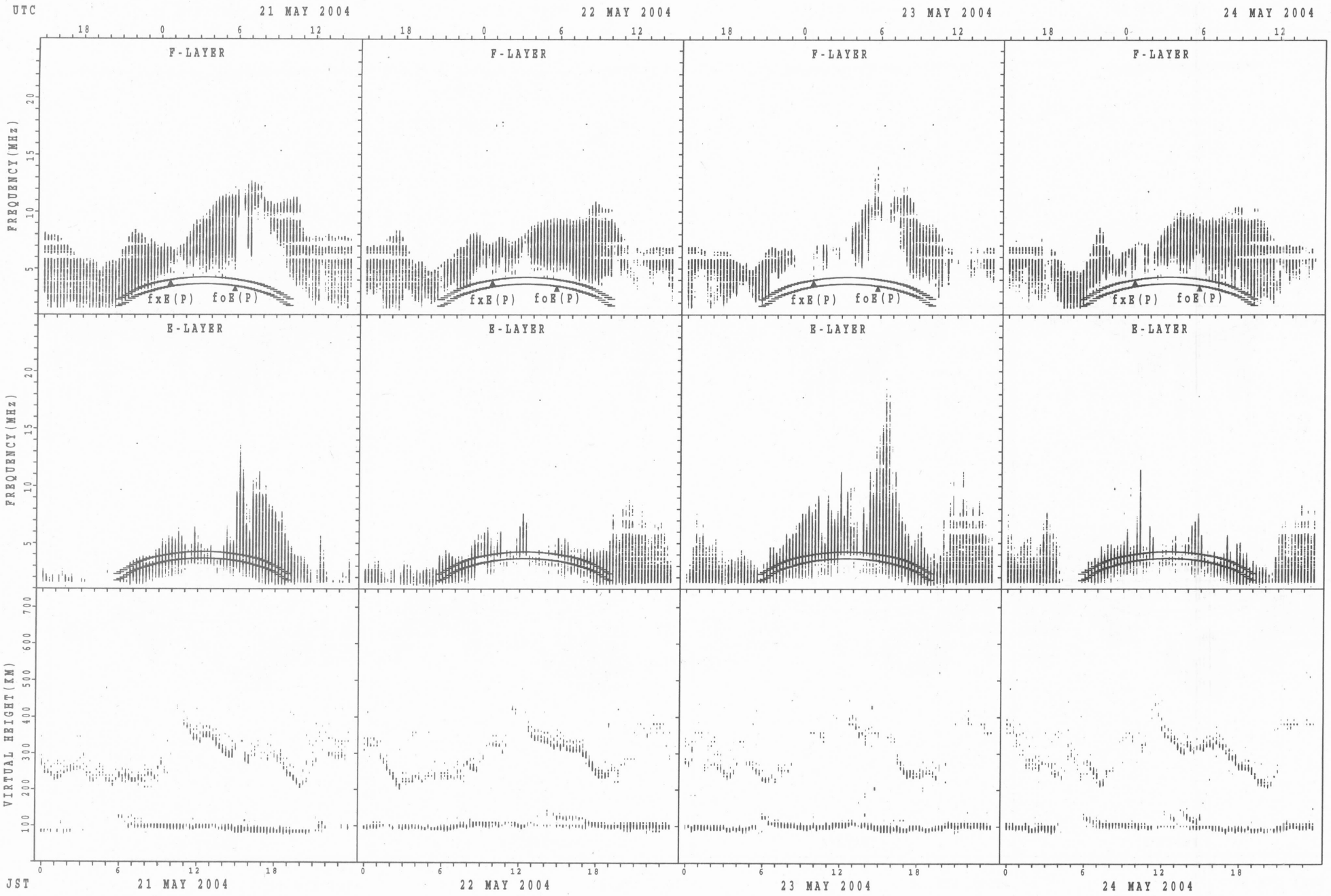
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



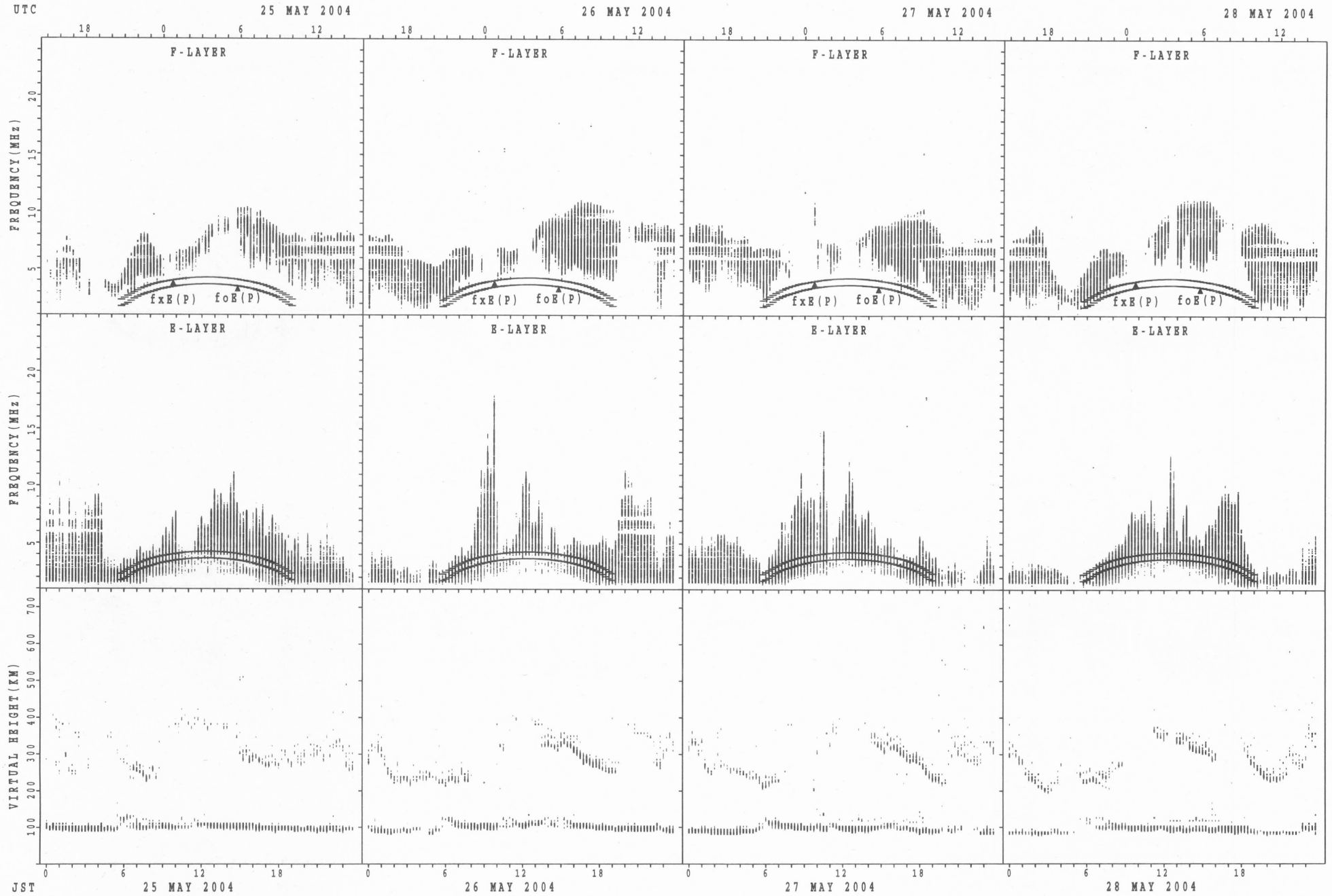
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



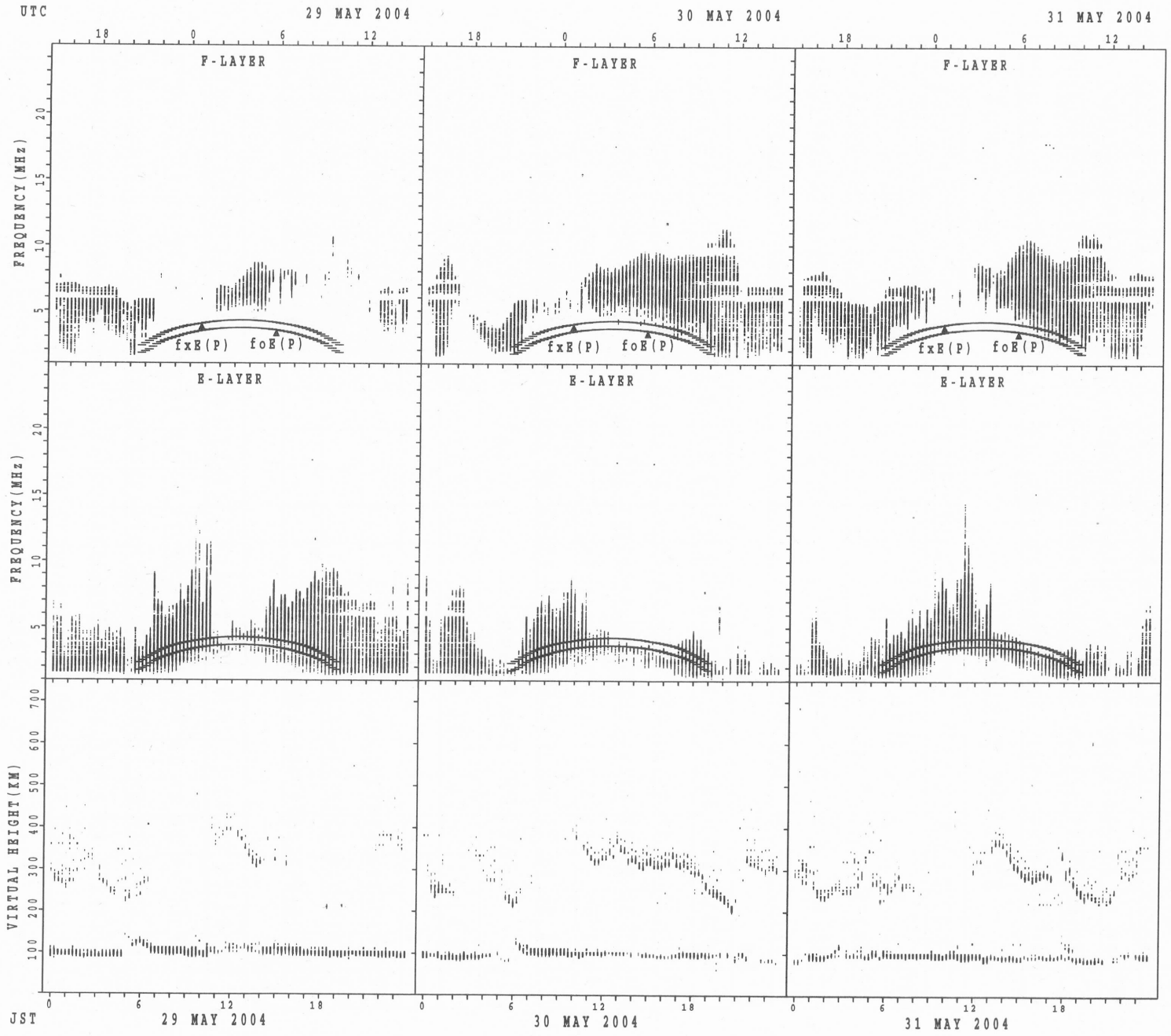
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



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

SUMMARY PLOTS AT Okinawa



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

MONTHLY MEDIANS OF h'F AND h'Es

MAY 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	2					1	10	10									12	14	15	12	10	10	4	2
MED	279					304	262	285									315	292	282	278	286	295	321	315
U Q	294					152	272	312									330	320	298	288	296	304	340	330
L Q	264					152	256	262									301	280	272	272	280	284	311	300

h'Es

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	13	16	10	10	8	16	18	23	23	21	21	17	16	16	13	19	19	27	25	29	23	27	25	18
MED	97	98	98	95	105	118	112	109	109	103	103	103	103	103	103	105	103	107	103	103	103	101	101	97
U Q	100	102	103	105	116	124	119	115	111	105	107	103	107	103	107	111	111	113	107	107	107	105	104	101
L Q	95	97	93	95	96	109	107	107	105	102	102	99	100	99	96	97	103	103	103	102	103	99	95	95

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

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	1	1		2		1	16	16									27	23	22	23	17	3	5	1
MED	294	330		271		254	258	256									288	278	272	270	278	262	342	330
U Q	147	165		292		127	272	286									304	298	288	276	293	280	348	165
L Q	147	165		250		127	242	248									278	266	262	254	259	248	295	165

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	27	22	23	18	16	16	19	21	24	23	24	21	17	18	13	16	18	21	29	27	29	26	25	28
MED	97	97	97	95	98	104	115	111	105	103	103	103	99	106	105	109	107	105	103	101	103	103	101	99
U Q	103	99	97	99	102	126	121	113	111	105	105	108	107	113	113	113	111	108	105	103	105	105	103	102
L Q	95	95	93	91	96	97	103	107	103	101	99	101	97	99	100	103	103	103	101	97	98	99	99	97

h'F STATION Yamagawa LAT. 31°12.1'N LON. 130°37.1'E

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	8	2	5	1	1	2	9	17	15								2	26	28	24	12	7	2	3
MED	335	307	280	386	414	312	242	246	264								241	277	269	268	257	284	401	346
U Q	355	310	318	193	207	326	259	258	266								246	294	287	278	276	312	418	352
L Q	326	304	268	193	207	298	232	232	256								236	266	254	255	247	258	384	320

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	28	23	20	19	20	15	20	27	27	28	27	24	23	23	24	23	21	24	28	29	27	26	27	28
MED	97	97	97	97	95	97	119	111	107	105	103	105	105	103	105	107	107	105	103	101	101	100	99	99
U Q	101	101	100	99	97	101	125	115	107	108	105	105	107	113	112	115	111	109	107	103	103	103	103	104
L Q	95	95	95	95	93	95	109	107	103	103	99	102	99	99	100	103	103	102	98	97	97	97	97	97

MONTHLY MEDIANS OF h'F AND h'Es

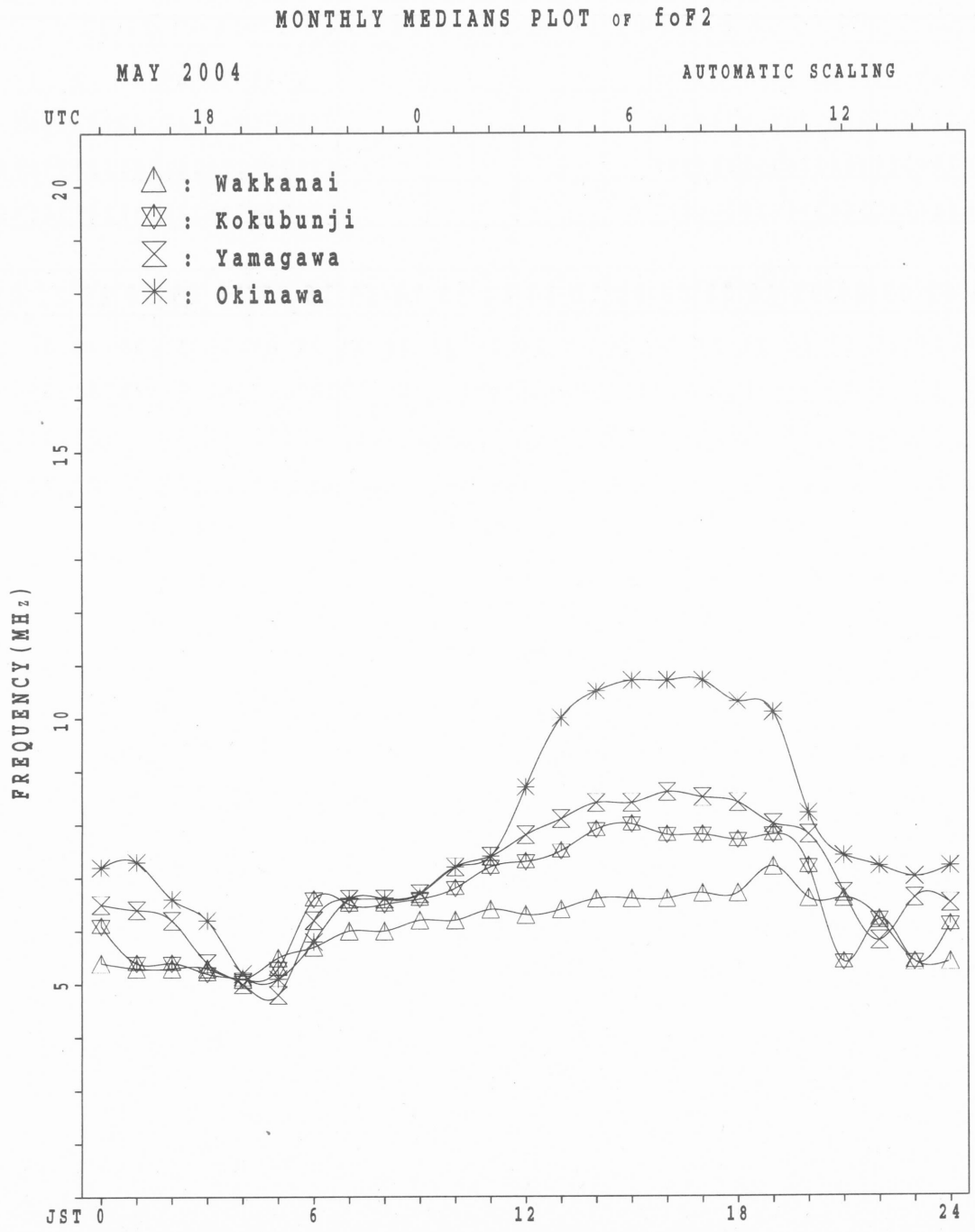
MAY 2004 135E MEAN TIME(UTC+9H) AUTOMATIC SCALING

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	14	14	12	4	1	1	7	25	13								1	29	29	28	18	8	7	8
MED	333	306	256	281	288	272	238	238	256								258	270	262	247	248	284	326	369
U Q	338	330	299	366	144	136	252	254	270								129	288	279	262	262	313	358	393
L Q	312	296	247	231	144	136	226	224	243								129	256	246	239	236	247	312	345

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	27	26	26	25	17	18	24	27	27	28	27	24	26	23	24	24	24	26	30	30	26	23	26	25
MED	99	98	95	95	97	95	116	111	107	103	103	105	105	113	105	107	107	103	101	97	98	101	101	99
U Q	103	101	97	97	97	99	122	113	111	106	111	107	111	119	116	113	112	111	107	99	103	103	103	102
L Q	95	95	93	92	95	95	98	105	103	99	99	101	101	103	102	100	103	99	97	93	95	95	97	95


MONTHLY MEDIANS PLOT OF foF2
MAY 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

MAY 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 54	X 54	X 48	X 49	X 46															X 70	X 70	X 68	X 60	67
2	X 62	X 60	X 58	X 53	X 52															X 86	X 80	X O 76	X 77	X 81
3	X 77	X 75	X 79	X 73	X 55															X 90	X 85	X 83	X 75	X 72
4	X 70	X 68	X 64	X 63	X 59															X 66	X 65	X 61	X 63	X 60
5	X 60	X 60	X 66	X 48	X 30															X 82	X 80	X 77	X 78	X 74
6	X 70	X 68	X 67	X 54	X 54															X 84	X 78	X 67	X 65	X 64
7	X 67	X 66	X 61	X 57	X 44															X 86	X 77	X 68	X 68	X 70
8	X 63	X 64	X 62	X 62	X 60															X 87	X 84	X 77	X 72	X 66
9	X 66	X 61	X 61	X 64	X 64															X 78	X 70	X 68	X 65	X 63
10	X 60	X 58	X 61	X 44	X 46															X 82	X 81	X 71	X 65	X 62
11	X 65	X 63	X 61	X 55	X 54															X 86	X 76	X 66	X 67	X 69
12	X 68	X 65	X 64	X 62	X 62															X 87	X 80	X O 83	X 78	X 72
13	X 69	X 70	X 66	X 62	X 60															X 96	X 86	X 65	X 67	X 66
14	X 66	X 64	X 64	X 54	X 56															X 81	X 74	X 72	X 71	X 74
15	X 68	X 68	X 69	X 69	X 61															X 88	X 92	X 77	X 71	76
16	X 72	X 65	X 60	X 60	X 60															X 97	X 97	X 88	X 76	X 67
17	X 65	X 64	X 63	X 60	X 61															X 97	X 100	98	94	82
18	76	82	X 75	74	X 65															X 98	X 89	X 73	X 66	X 59
19	X 57	X 57	60	X 55	X 54															X 94	X 85	X 73	74	75
20	74	74	70	68	X 59															X 94	X 90	X 83	X 84	X 76
21	X 83	X 74	X 65	X 64	X 59															X 101	X 76	X 67	X 69	X 68
22	X 65	X 65	X 66	X 60	X 53	X 51														X 83	X 78	X 75	X 75	X 72
23	X 72	X 68	X 65	X 58	X 52															X 67	X 59	X 62	X 62	X 61
24	64	X 60	X 58	X 58	X 49															X 74	X 78	X O 72	X 72	76
25	X 66	X 66	X 66	X 58	X 48															X 81	X 75	X 75	X 76	X 75
26	X 70	X 70	X 70	X 61	X 57															X 84	X 82	X 76	X 72	X 69
27	X 68	67	66	X 55	X 56	X 63														X 86	X 71	X 70	X 69	X 68
28	X 68	X 68	X 67	X 56	X 54															X 75	X 82	X 83	X 78	X 71
29	X 70	X 65	X 63	X 65	X 55															X 68	X 67	X 70	X 72	X 69
30	X 66	X 66	X 58	X 58	59															X 88	X 84	X 81	X 81	X 81
31	X 77	X 73	X 71	X 63	X 55															X 84	X 82	X 77	X 73	X 68
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	2														31	31	31	31	31
MED	X 68	X 66	X 64	X 60	X 55	X 57														X 86	X 80	X 73	X 72	X 69
U Q	X 70	X 68	X 67	X 63	X 60															X 90	X 85	X 77	X 76	75
L Q	X 65	X 63	X 61	X 55	X 52															X 81	X 75	X 68	X 67	X 66

MAY 2004 fxI (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

MAY 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	48	48	42	43	40	46	56	52	68	72	71	76	66	72	83	102	101	87	78	64	64	62	54	F
2	56	54	52	47	46	56	66	68	66	70	69	78	76	81	87	80	75	69	71	80	74	70	71	75
3	71	69	73	67	49	47	57	65	76	75	72	81	83	88	83	76	71	67	72	84	79	77	69	66
4	64	62	58	57	53	55	64	69	54	62	61	61	71	72	69	75	80	78	79	60	59	55	57	54
5	54	54	60	42	24	40	57	59	58	61	59	64	66	66	76	78	76	76	70	76	74	71	72	68
6	64	62	61	49	48	61	90	85	69	62	65	70	71	72	77	74	74	77	77	78	72	61	59	58
7	61	60	55	51	38	43	54	55	67	73	68	A	81	86	82	90	89	84	82	80	71	62	62	64
8	57	58	56	56	54	52	66	V 62	A	A	74	75	83	82	79	81	75	79	77	81	78	71	66	60
9	60	55	55	58	57	57	64	61	59	58	64	75	82	92	97	93	74	71	75	72	64	62	59	57
10	54	52	54	38	40	46	60	66	68	75	73	69	74	79	80	80	86	84	80	76	75	65	S 59	56
11	59	57	55	49	48	61	74	67	65	68	65	64	68	70	81	88	82	85	81	80	70	60	61	63
12	62	59	58	56	56	62	74	61	64	59	68	65	68	76	79	80	83	89	87	80	74	77	72	66
13	63	64	60	56	54	56	64	62	62	60	A	64	68	74	73	80	82	87	92	90	80	59	61	60
14	59	58	57	48	50	58	68	61	67	68	78	81	74	76	80	82	75	77	77	75	68	66	65	68
15	62	62	63	63	54	49	50	56	63	63	66	75	76	80	96	106	88	76	76	82	86	71	65	F
16	66	59	54	54	54	69	79	65	67	64	66	71	76	80	83	82	82	79	86	91	91	82	70	61
17	59	58	57	54	55	62	68	70	62	57	60	68	70	72	73	81	86	90	87	91	94	F	F	F
18	F	F	69	F	59	61	72	87	78	A	A	A	82	92	87	81	81	81	A	92	83	67	59	53
19	51	51	F	48	48	56	68	65	65	65	64	69	80	76	75	83	88	91	92	88	79	66	F	F
20	F	F	F	F	53	61	79	R 69	69	A	66	69	80	78	81	86	90	87	82	88	84	77	78	70
21	77	68	59	58	53	53	67	78	81	A	A	A	72	71	77	74	74	76	80	95	70	61	63	62
22	59	59	60	54	47	45	55	65	72	70	67	62	72	69	65	67	71	78	84	77	72	69	69	66
23	66	62	59	52	46	53	65	59	A	S 58	52	56	58	61	70	76	79	73	76	61	53	56	56	55
24	F	S 54	52	52	43	49	67	70	A	A	54	54	58	60	66	66	60	59	58	68	72	66	S 66	F
25	60	60	60	52	42	44	A	54	63	A	61	A	72	A	84	83	77	69	69	75	69	69	70	69
26	64	64	64	54	51	52	57	66	68	65	A	59	A	A	A	A	72	64	66	78	76	69	66	63
27	62	F	F	49	50	57	68	62	61	A	A	66	A	62	65	67	66	59	69	80	65	64	63	62
28	62	61	61	50	48	56	52	58	69	A	61	61	65	73	A	81	77	A	A	69	76	77	72	65
29	64	59	57	59	49	49	58	52	54	56	53	A	54	52	52	65	62	60	61	61	61	64	66	63
30	60	60	52	52	F	57	56	65	59	52	59	64	65	69	74	75	80	79	78	82	78	74	75	75
31	V 71	V 67	65	57	49	50	68	86	60	51	54	57	A	64	64	80	92	82	82	78	76	71	67	62
	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	28	28	29	30	31	30	31	28	23	26	26	28	29	29	30	31	30	29	31	31	30	29	26
MED	62	59	58	52	49	55	66	65	66	63	65	67	72	73	79	80	79	78	78	80	74	66	66	63
U Q	64	62	60	56	54	58	68	69	68	70	68	75	78	80	83	83	86	84	82	84	79	71	70	66
L Q	59	56	55	49	46	49	57	59	62	58	60	62	67	69	72	75	74	71	72	75	69	62	60	60

MAY 2004 foF2 (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

MAY 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 452	L 464		A	L 480	A	L 480	468	L 460	L 428	L						
2								L	L 476	L 492	L 496	L 484	L 488	464	L 460	L 412	L							
3									L	L 504	L 484	L 500	L 492	A	A	A	A	A	A					
4							L	L 404	L 456	L 472	L 472	L 520	476	480	464	L 468	L 436	L						
5								L	L	L 452	L 484	U L 480	L 484	L 500	L 460	A	A	A						
6							A		A	A	A	L 484	A	L 480	L 464	L 440	L 436	A						
7									A	A	A	A	A	A	L 472	448	L 436	A	L					
8								A	A	A	L 484	A	L 460	L 480	L 492	L 448	A	A						
9							A	L 420	A	L	A	484	488	A	L 464	L 448	L	L						
10							L	L	L	L 464	480	492	480	L 492	A	A	A	L						
11							L	L	L 464	L 476	L 476	L 504	L 488	L 500	472	L 456	A	A						
12								L	L 472	L 500	A	L 492	L 492	484	480	L 468	A	A						
13							L	L	A	L	A	A	492	468	476	468	L 444	L						
14								L	L 460	A	L 488	492	504	484	472	A	L 436	L						
15								L	A	A	L 512	A	L 504	492	480	L 460	L	L						
16								L	L	L 512	L 504	L 508	L 496	504	A	L	L	L						
17							L	L 428	L 492	L 484	L 524	A	A	A	L 476	460	440	A	A					
18							A	A	A	A	A	A	504	L 488	484	L 480	L 468	A	A					
19							L	L	L 460	L 508	A	L 504	L 520	L 500	L 480	464	A	A	A					
20								A	A	A	L 484	500	L 496	L 492	480	472	L 452	L	A					
21							L	L 444	A	A	A	A	A	A	480	L 468	L 444	L 404	A					
22								L	L 448	U L 488	L 488	L 508	L 504	484	L 496	L 452	L 436	L 412	A					
23						L	L	A	A	A	L 480	L 480	A	L 488	464	L 440	L 436	L	L					
24							L	A	A	A	L 472	L 476	A	L 500	464	444	L 440	L 404	L					
25							A	L 428	A	A	A	A	476	A	A	A	L 448	L	L					
26								L 424	A	A	A	A	A	A	A	A	L 440	L	L					
27							L	A	A	A	A	U L 520	A	L 484	476	448	L 428	L	L					
28								L	A	A	L 480	492	A	A	A	A	L 432	A	A					
29						L 336	364	A	A	U 456	L	A	U L 480	A	U L 492	A	L 428	A	A					
30								L	L 460	L 468	U L 484	A	492	A	468	456	432	L						
31						L	L 380	L 416	A	L 464	A	L 488	A	L 464	U L 464	448	420	A	A					
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT						1	2	7	9	14	17	20	20	22	25	22	21	3						
MED						L 336	372	L 424	L 460	L 474	L 484	L 492	L 492	L 488	472	L 458	L 436	L 404						
U Q								L 428	L 468	L 488	L 498	L 504	L 502	L 492	L 480	L 468	L 442	L 412						
L Q								L 416	L 454	L 464	L 480	L 484	L 482	L 480	464	448	430	L 404						

MAY 2004 foF1 (0.01MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

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

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1						B	232	U A 284	A	A	A	A	A	B	A	U R 340	A	U R 248	U R 172					
2						B	224	A	R	R	R	U R 400	R	B	R	R	U R 300	A	U A 192					
3						B	236	A	A	A	A	A	A	R	A	U A 328	A	A	A					
4						B	U R 256	A	A	A	R	B	R	R	R	A	A	A	A					
5						B	U A 236	A	A	A	A	A	U A 356	A	A	A	U A 288	A	B					
6						B	U A 228	A	A	A	A	A	A	A	U R 344	U A 320	U A 288	A	A					
7						196	U A 248	U A 296	A	A	A	A	A	A	A	U R 316	U A 300	248	A					
8						B	U A 216	U A 292	A	A	A	A	R	U R 356	A	U R 324	U A 292	A	A					
9						B	U A 232	A	A	A	A	A	A	U A 352	A	R	R	248	B					
10						B	232	A	A	A	A	A	R	A	A	A	A	U A 256	B					
11						B	240	A	A	A	R	R	A	U A 368	A	U A 328	A	A	B					
12						B	U A 240	A	U A 320	A	A	A	R	R	A	U A 324	A	A	B					
13						B	U A 240	U A 292	A	A	A	A	A	A	A	A	A	U A 260	U A 180					
14						B	244	292	A	A	A	A	U A 360	A	A	A	A	A	A					
15						U R 180	240	300	A	A	A	A	A	A	A	U R 336	A	A	A					
16						192	A	A	A	A	A	A	A	R	A	A	A	U A 248	B					
17						B	U A 240	288	A	R	U A 364	A	A	A	A	U A 344	A	U A 276	U A 204					
18						B	A	A	A	A	A	A	A	A	R	R	U A 304	A	B					
19						B	U A 272	R	328	A	A	A	A	A	A	A	A	A	A					
20						A	A	A	A	A	A	A	R	A	R	A	R	U A 248	A					
21						B	U A 264	R	A	A	A	A	A	A	R	R	R	256	A					
22							A	A	A	R	A	A	R	A	A	A	A	U A 256	A					
23						B	U A 236	U A 292	U A 332	A	A	A	A	A	A	A	U A 304	A	A					
24						U R 172	A	U A 292	A	A	A	U A 364	A	A	R	U R 332	R	U R 256	U A 192					
25						180	U A 252	A	A	A	A	A	A	A	A	A	A	A	A					
26						180	U A 252	U A 292	A	A	A	A	A	A	A	A	U A 308	U R 280	A					
27							U A 252	A	A	A	A	A	A	A	U R 372	A	U A 292	A	A					
28						B	U A 256	U A 300	A	A	A	A	A	A	A	A	A	A	A					
29						U A 208	A	U A 296	A	A	A	A	A	A	A	A	A	A	A					
30						U R 184	252	A	A	A	A	A	A	A	A	A	A	A	A					
31						180	A	A	A	A	A	A	A	A	U A 356	A	A	U A 256	A					
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT						9	24	12	3		1	2	2	3	3	10	9	13	5					
MED						180	U A 240	U A 292	U A 328		U A 364	U 382	U A 358	U A 356	U R 356	U 328	U A 300	U A 256	U A 192					
U Q						194	U A 252	U A 296	U A 332					U A 368	U R 372	U R 336	U A 304	U 258	U A 198					
L Q						180	234	292	U A 320					U A 352	U R 344	U A 324	U A 290	248	U 176					

MAY 2004 foE (0.01MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

MAY 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	JA 28	JA 25	JA 53	JA 61	JA 40	JA 33	28	38	JA 46	JA 47	JA 60	43	JA 61	JA 43	JA 54	JA 38	JA 36	G 18	G	EB 15	JA 47	JA 62	JA 88	JA 54
2	JA 28	JA 28	20	19	JA 23	18	26	31	G 27	G 31	G	G 37	GEB 31	40	G 26	G 25	G 20	32	JA 28	JA 19	JA 22	21	JAE 23	B 15
3	JAE 16	BE 15	BE 15	BE 14	18	18	32	38	40	JA 45	JA 46	JA 45	JA 44	G 33	JA 52	JA 80	JA 78	JA 76	JA 87	35	JA 20	JA 18	JA 42	JA 26
4	21	22	25	19	EB 16	19	G	32	35	36	GE 26	B 40	G	G 24	G 28	36	33	32	JA 37	JA 26	JA 17	JA 17	JA 21	JA 42
5	20	EB 16	BE 16	BE 14	BE 15	22	29	33	38	40	39	JA 51	42	47	45	JA 46	JA 45	JA 70	JA 40	JA 40	JA 32	JA 54	JA 56	JA 60
6	JA 66	JA 53	JA 42	AE 15	BE 14	22	JA 41	JA 46	JA 66	JA 52	JA 60	JA 52	JA 70	44	40	36	JA 42	JA 38	JA 34	JA 44	JA 38	JA 40	JA 29	JA 32
7	EB 16	18	JA 18	JA 55	JA 61	26	29	38	JA 64	JA 68	JA 63	JA 92	JA 62	JA 53	45	G 29	33	JA 48	JA 27	JA 40	JA 34	JAE 16	BJA 39	54
8	JA 66	JA 28	JA 32	JA 58	JA 35	22	JA 37	38	JA 103	JA 116	JA 60	JA 50	G 32	44	38	G 28	JA 47	JA 77	JA 96	JA 44	JA 55	JA 42	JA 53	JA 54
9	JA 32	18	JA 37	JA 24	JA 22	23	JA 41	35	JA 46	54	JA 90	JA 43	40	51	46	G 27	G 23	31	28	JA 23	JA 42	JA 66	JA 72	29
10	JA 54	JA 62	JA 30	JA 24	JA 29	JA 24	26	32	40	JA 40	JA 42	JA 46	G 28	42	JA 59	JA 46	JA 57	30	JA 36	JA 29	JA 52	JA 17	JA 45	JA 44
11	JA 20	JA 24	JA 24	JA 24	JA 19	20	26	30	35	36	G 26	42	44	42	41	JA 46	JA 46	JA 41	JA 38	JA 25	JA 25	AE 15	B 20	JA 19
12	JA 24	JA 36	JA 21	AE 16	BJA 22	22	30	34	40	41	JA 56	JA 46	G 30	G 31	JA 63	JA 43	JA 64	JA 97	JA 133	JA 66	JA 57	JA 39	AE 14	BJA 20
13	JAE 39	BJA 16	JA 22	JA 18	20	20	30	34	45	44	JA 70	JA 49	40	43	37	38	JA 41	34	JA 37	JA 34	44	JA 61	JAE 42	B 16
14	JA 22	JA 28	JA 16	JA 26	20	20	34	36	JA 46	JA 57	45	40	42	42	41	JA 47	JA 41	JA 36	JA 41	JA 26	JA 21	JA 28	JA 17	JA 27
15	JA 28	JA 22	JA 26	JA 25	JA 18	G	27	34	JA 51	JA 62	JA 61	JA 55	JA 54	JA 47	39	G	32	34	JA 34	AE 14	BJA 33	JA 42	JA 43	JA 34
16	JA 42	JA 32	20	EB 14	19	G	27	34	JA 42	JA 54	JA 43	38	JA 42	GJA 36	JA 61	JA 47	JA 62	32	JA 76	JA 70	JA 22	JA 22	JA 18	JA 46
17	JA 30	JA 25	JA 25	JA 17	JA 23	24	33	38	JA 44	G	40	JA 56	JA 60	JA 68	JA 47	38	JA 44	JA 45	JA 43	JA 52	JA 53	118	70	80
18	JA 79	JA 88	JA 101	JA 87	JA 66	JA 38	JA 74	63	JA 58	JA 108	JA 85	JA 84	JA 70	JA 43	G 27	G 22	JA 42	JA 72	JA 96	JA 113	JA 66	JA 75	JA 156	JA 97
19	JA 83	JA 62	JA 76	JA 56	JA 28	JA 22	JA 32	G 28	36	41	JA 56	JA 47	JA 98	40	JA 56	JA 59	JA 130	JA 68	JA 87	JA 62	JA 62	JA 35	JA 44	JA 74
20	JA 54	JA 32	JA 54	JA 18	JA 27	JA 36	JA 45	JA 89	JA 62	JA 73	JA 74	JA 56	G	41	G 30	36	GJA 23	JA 37	JA 48	JA 49	JA 30	JA 78	JA 70	JA 42
21	JA 42	JA 36	JA 22	JA 28	JA 25	JA 46	30	G 27	JA 75	JA 107	JA 83	JA 173	JA 92	JA 56	G 34	G 28	G 23	30	JA 42	JA 37	JA 38	JA 32	25	JA 24
22	JA 34	JA 26	JA 33	JA 35	JA 42	JA 36	JA 32	35	37	G	JA 67	43	G 35	45	39	JA 41	34	30	JA 80	JA 32	JA 32	JA 38	JA 42	JA 48
23	JA 19	JA 18	AE 15	BE 15	JA 23	JA 29	31	JA 46	JA 70	JA 79	JA 55	JA 40	JA 57	JA 62	JA 53	JA 42	35	J 36	AJA 36	JA 43	JA 99	JA 57	JA 44	JA 24
24	JA 62	JA 99	JA 78	JA 31	JA 22	G	29	JA 43	JA 62	JA 54	JA 52	42	JA 54	46	G 26	G 29	G 23	G 24	26	JA 20	JA 54	JA 53	JA 46	JA 54
25	JA 55	J 21	JA 17	JA 24	JA 28	23	JA 55	36	JA 52	JA 76	JA 67	JA 84	JA 70	JA 80	JA 90	59	JA 45	JA 37	28	32	32	53	40	34
26	JA 29	JA 52	JA 45	JA 29	JA 17	22	28	35	JA 60	JA 52	JA 72	JA 60	JA 106	JA 232	JA 190	JA 142	34	G 24	26	JA 17	JA 17	JA 65	JA 58	JA 73
27	JA 38	JA 53	JA 19	JA 40	AE 15	BJA 25	35	JA 56	JA 71	JA 72	JA 88	JA 84	JA 107	45	G	40	JA 49	JA 104	JA 74	JA 41	JA 36	JA 30	JA 42	JA 26
28	JA 40	JA 32	JA 36	JA 29	JA 28	JA 28	30	40	JA 66	JA 81	JA 75	JA 46	52	JA 68	JA 101	JA 57	JA 41	JA 67	JA 88	JA 48	JA 82	JA 48	JA 84	JA 35
29	JA 72	JA 33	JA 89	JA 66	JA 21	24	35	JA 43	JA 50	JA 47	JA 51	JA 78	JA 56	JA 66	JA 60	JA 50	JA 42	JA 60	JA 49	JA 42	JA 43	JA 36	JA 45	JA 24
30	JA 24	JA 24	JA 23	JA 32	JA 25	G	29	38	37	JA 45	JA 44	JA 54	JA 70	JA 69	42	38	JA 39	JA 43	JA 57	JA 62	JA 28	JA 86	JA 64	JA 72
31	JA 54	JA 76	JA 44	JA 19	AE 15	24	30	33	JA 58	JA 43	JA 53	JA 77	JA 66	JA 50	40	40	34	J 42	AJA 44	JA 48	JA 88	JA 66	JA 44	JA 41
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31
MED	JA 34	JA 28	JA 25	JA 24	JA 22	22	30	36	JA 46	JA 52	JA 56	JA 49	JA 54	45	42	40	JA 41	JA 37	JA 41	JA 40	JA 38	JA 42	JA 44	JA 41
U Q	JA 54	JA 52	JA 44	JA 35	JA 28	JA 26	JA 35	JA 40	JA 62	JA 72	JA 70	JA 60	JA 70	JA 56	JA 56	JA 47	JA 46	JA 67	JA 76	JA 48	JA 54	JA 62	JA 58	JA 54
L Q	JA 24	22	20	EB 18	BE 18	20	28	33	40	41	44	43	G 40	42	G 37	G	G 33	32	34	JA 26	JA 28	JA 28	JA 29	JA 26

MAY 2004 foEs (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

MAY 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	19	18	18	24	22	30	26	35	37	40	54	42	56	42	36	G 28	32	G 17	G	E B 15	24	21	35	21
2	E B 15	20	E B 14	E B 15	E B 15	17	26	30	U Y 27	G 31	G	G 36	U Y 31	E B 40	G 24	G 25	G 19	30	23	E B 15	19	E B 15	19	E B 15
3	E B 14	E B 15	E B 15	E B 14	15	18	30	35	37	39	42	40	40	G 33	46	53	45	47	40	30	18	E B 16	32	18
4	19	19	19	E B 16	E B 16	18	G	30	33	35	U Y 26	E B 40	G	U Y 24	G 28	36	31	30	32	21	E B 16	E B 15	19	20
5	E B 16	E B 16	E B 16	E B 14	E B 15	21	27	32	37	38	38	44	40	46	42	44	42	42	35	34	28	43	32	20
6	45	30	34	E B 15	E B 14	21	39	45	58	50	54	45	57	42	38	36	36	35	33	35	32	21	E B 16	20
7	E B 16	E B 16	E B 16	16	28	25	28	36	58	58	56	A A 92	58	48	42	G 27	32	46	25	34	24	E B 16	19	42
8	53	E B 14	E B 16	16	21	21	35	35	A A 103	A A 116	43	47	U Y 32	43	37	U Y 28	44	42	62	29	24	23	35	34
9	23	E B 15	28	16	E B 14	20	34	34	43	42	50	40	40	48	44	G 27	G 23	28	24	20	20	21	34	21
10	16	30	24	17	19	21	25	U Y 32	37	36	39	40	G 28	40	54	44	48	29	28	21	48	E B 16	21	17
11	E B 15	18	E B 15	19	E B 15	19	U Y 26	30	34	35	G 26	42	43	40	39	39	44	38	32	20	20	E B 15	E B 15	E B 16
12	E B 15	22	17	E B 16	16	20	28	33	38	40	48	42	G U Y 30	31	43	38	59	46	35	30	24	26	E B 14	19
13	E B 15	E B 16	E B 14	16	E B 16	18	28	33	44	43	A A 70	46	39	38	37	35	36	29	34	29	40	E B 15	21	E B 16
14	18	24	E B 15	19	E B 16	19	33	34	40	48	42	40	40	41	39	43	36	33	34	18	17	24	E B 15	24
15	20	18	20	17	E B 15	G	26	33	49	45	44	50	43	43	38	G	32	32	32	E B 14	20	20	28	25
16	20	16	E B 15	E B 14	E B 15	G	26	32	38	40	39	38	40	G 36	50	42	34	29	47	66	16	17	E B 15	24
17	18	20	E B 15	E B 15	19	23	32	37	38	G	38	55	54	53	44	37	38	41	40	44	26	25	22	25
18	34	43	53	38	31	35	59	59	54	A A 108	A A 85	A A 84	47	40	G U Y 27	22	38	43	A A 96	46	23	31	23	28
19	34	E B 16	33	24	E B 15	20	G 23	G 27	35	40	46	41	43	39	38	40	61	59	63	55	E B 16	26	27	39
20	28	22	E B 15	E B 14	18	27	40	53	48	A A 73	40	42	G	40	G 30	35	G 23	31	43	46	24	42	48	37
21	28	25	18	20	19	28	28	G 25	66	A A 107	A A 83	A A 173	49	50	G U Y 32	28	G 23	28	36	20	30	23	22	21
22	26	19	27	25	34	34	30	33	36	G	38	42	G 35	43	38	38	32	29	76	28	19	24	35	E B 15
23	17	E B 15	E B 15	E B 15	E B 15	24	30	43	A A 70	45	43	40	46	44	43	35	32	29	28	32	39	30	32	E B 15
24	26	34	24	E B 16	19	G	28	41	A A 62	A A 54	41	40	48	42	G 26	G 29	G 22	G 24	24	18	20	22	36	39
25	28	E B 16	E B 15	18	17	21	A A 55	34	50	A A 76	54	A A 84	44	A A 80	52	53	39	31	25	28	29	32	33	E B 15
26	21	23	38	23	E B 15	21	27	34	53	48	A A 72	52	A A 106	A A 232	A A 190	A A 142	34	G 23	23	E B 15	E B 15	26	25	40
27	E B 15	36	E B 15	25	E B 15	21	32	51	55	A A 72	A A 88	44	A A 107	42	G	39	36	37	25	37	22	17	30	23
28	30	26	29	26	24	22	29	38	54	A A 81	38	44	49	66	A A 101	49	37	A A 67	A A 88	47	40	E B 15	22	E B 15
29	E B 15	E B 16	25	21	19	23	35	41	46	43	48	A A 78	45	48	44	47	38	40	36	33	42	28	34	19
30	19	22	18	24	19	G	29	35	34	40	41	50	42	66	41	37	38	36	32	59	26	E B 15	25	36
31	16	40	23	E B 16	E B 15	22	28	32	44	40	49	45	A A 66	40	39	39	32	39	40	36	45	23	E B 15	25
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31
MED	19	19	18	16	16	21	28	34	44	43	43	44	43	42	39	37	36	33	34	30	24	22	25	21
U Q	28	25	25	23	19	23	33	38	54	A A 58	A A 54	A A 50	49	48	44	43	39	42	40	37	30	26	33	28
L Q	E B 16	E B 16	E B 15	E B 15	E B 15	18	26	32	37	39	39	40	G 39	40	G 36	G 29	G 32	29	25	20	19	E B 16	E B 19	E B 17

MAY 2004 fbEs (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

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

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	16	15	15	14	14	14	13	14	15	19	21	30	18	36	20	20	14	13	14	15	13	14	16	13
2	15	16	14	15	15	14	15	13	16	18	26	20	25	40	18	18	14	15	14	15	14	15	14	15
3	14	15	15	14	14	15	13	15	15	21	23	22	18	21	22	18	14	13	13	16	14	16	15	16
4	15	15	15	16	16	13	15	15	16	18	20	40	30	19	18	14	16	14	16	14	16	15	14	14
5	16	16	16	14	15	15	13	19	19	19	20	19	21	21	23	18	16	14	14	15	15	14	15	14
6	16	15	15	15	14	14	14	14	16	20	21	21	24	21	22	16	16	13	15	14	16	15	16	15
7	16	16	16	14	15	14	16	15	18	21	22	18	22	21	17	18	19	14	14	14	14	16	16	15
8	15	14	16	13	15	13	14	18	20	19	20	34	28	21	20	19	17	15	15	15	15	14	15	15
9	14	15	14	15	14	15	14	15	15	15	20	20	20	21	19	16	14	14	15	15	16	14	15	14
10	14	15	15	15	14	13	13	15	17	20	23	21	18	18	22	20	16	17	15	15	15	16	16	15
11	16	15	15	14	15	15	13	15	16	19	15	20	19	20	18	15	16	14	12	16	14	15	15	16
12	15	14	15	16	14	14	14	16	22	21	25	20	21	24	21	18	14	16	15	14	16	14	14	14
13	15	16	14	14	16	13	13	13	22	23	20	23	23	20	22	16	14	16	15	14	15	15	15	16
14	15	16	15	15	16	15	13	16	19	22	24	25	25	24	23	19	14	13	14	15	14	15	15	14
15	15	14	15	14	15	14	13	15	18	16	20	24	21	20	20	21	15	12	14	14	15	14	14	14
16	16	13	15	14	15	14	13	16	16	20	20	27	24	24	21	17	13	14	16	16	15	14	15	15
17	16	14	15	15	14	16	14	16	21	26	22	27	20	22	21	20	16	14	14	14	16	15	15	15
18	14	15	15	15	15	14	14	16	18	20	20	22	24	25	20	16	15	16	14	15	15	16	15	15
19	15	16	16	14	16	14	14	14	16	18	22	23	23	24	20	18	16	14	16	16	16	16	15	16
20	14	14	15	14	14	14	14	17	19	22	20	35	32	26	24	20	15	12	15	14	14	15	15	13
21	15	14	14	14	14	14	14	14	21	22	27	30	26	26	22	21	16	15	16	15	15	14	16	14
22	15	15	15	14	16	14	16	17	20	28	21	30	25	22	23	17	22	15	15	15	14	14	14	15
23	15	15	15	15	15	14	13	16	15	22	21	23	29	30	24	22	19	14	16	14	14	14	15	15
24	14	14	16	16	14	15	16	16	16	20	20	24	28	22	23	19	16	18	12	14	14	16	14	16
25	16	16	16	14	14	14	14	16	22	21	23	26	24	24	20	18	15	14	14	14	14	15	14	15
26	15	15	15	14	15	15	14	15	16	19	20	24	35	22	24	15	17	15	15	16	15	15	15	16
27	15	15	15	15	15	16	14	16	20	24	23	23	27	16	23	18	14	17	16	13	13	13	15	16
28	15	15	16	14	14	14	15	16	22	17	21	24	21	23	19	18	14	14	16	14	15	15	16	15
29	15	16	15	15	14	14	14	15	20	17	23	26	23	18	24	20	15	16	15	15	15	15	15	15
30	14	14	14	14	14	13	14	15	18	20	22	25	28	23	22	19	17	15	13	14	15	15	14	16
31	14	16	15	16	15	14	14	16	17	22	34	35	20	30	24	22	21	15	15	15	15	15	15	16
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31
MED	15	15	15	14	15	14	14	15	18	20	21	24	24	22	22	18	16	14	15	15	15	15	15	15
U Q	16	16	15	15	15	15	14	16	20	22	23	27	27	24	23	20	16	15	15	15	15	15	15	16
L Q	14	14	15	14	14	14	13	15	16	19	20	21	21	21	20	17	14	14	14	14	14	14	14	14

MAY 2004 fmin (0.1MHz)

IONOSPHERIC DATA STATION Kokubunji

MAY 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	286	302	304	309	298	339	348	324	308	322	292	320	296	290	281	307	316	316	339	309	289	301	284	F
2	284	294	308	302	309	334	359	338	323	325	315	307	309	309	324	318	336	323	316	310	307	289	293	290
3	294	301	318	345	333	339	329	334	337	340	312	314	307	321	325	323	325	324	291	316	293	317	292	291
4	290	292	292	306	305	319	319	338	341	328	312	272	311	311	313	301	312	317	330	318	309	288	292	274
5	281	301	352	398	294	341	348	348	320	337	301	299	301	283	309	308	316	325	300	300	290	291	293	300
6	289	283	320	291	274	287	332	362	331	314	303	310	284	284	303	297	303	320	311	314	320	291	295	294
7	280	302	310	324	285	335	343	308	324	324	307	A	282	289	280	299	309	316	313	329	301	294	289	298
8	278	285	287	287	331	324	331	V 313	A	A	308	303	317	316	299	321	310	314	322	311	310	331	303	290
9	296	282	273	284	296	322	348	344	324	329	264	294	289	309	314	330	324	329	327	324	294	292	296	294
10	295	297	346	303	314	349	350	344	318	351	335	313	305	309	320	321	322	324	321	317	305	306	S 316	278
11	289	299	304	291	295	329	356	364	340	340	340	304	311	290	305	325	323	319	329	323	317	283	288	286
12	284	288	290	287	308	318	377	339	338	316	329	298	286	294	309	300	299	315	322	311	286	290	293	293
13	278	281	301	301	311	311	340	336	362	346	A	309	297	318	301	299	307	290	306	312	338	277	289	285
14	290	303	321	298	285	328	349	326	339	290	300	291	289	298	299	325	303	304	318	307	297	291	274	288
15	273	290	283	315	331	364	364	327	336	312	298	289	291	279	290	320	324	312	297	303	317	309	301	F
16	300	303	289	291	301	347	370	347	341	315	318	314	308	303	315	300	301	305	284	303	322	323	299	285
17	292	283	288	281	289	324	355	353	323	315	290	305	308	323	301	303	297	314	299	308	318	F	F	F
18	F	F	291	F	305	329	336	340	358	A	A	A	287	305	308	300	302	300	A	314	320	304	305	297
19	271	293	F	283	307	335	358	354	348	318	296	297	309	305	288	290	298	308	323	336	320	296	F	F
20	F	F	F	F	285	343	346	R 369	358	A	320	294	305	296	287	298	309	317	303	304	302	C 278	292	275
21	303	308	299	315	307	304	338	337	326	A	A	A	307	296	307	309	301	311	307	334	339	282	288	284
22	278	293	314	318	320	359	325	315	334	322	304	284	310	302	288	304	300	306	322	331	303	278	278	289
23	289	302	316	319	304	316	365	351	A	S 312	277	290	282	285	296	305	322	326	343	330	281	274	279	288
24	F	S 272	308	311	308	306	324	356	A	A	271	278	281	280	296	315	304	306	297	299	298	287	S 255	F
25	285	303	325	335	329	314	A	308	338	A	303	A	299	A	301	315	323	315	311	312	296	290	288	290
26	285	298	311	359	316	349	340	340	348	328	A	288	A	A	A	A	319	309	303	311	307	315	281	279
27	290	F	F	306	301	321	331	307	A 312	A	A	307	A	300	297	312	319	314	302	328	311	277	282	286
28	283	307	336	327	330	345	360	329	338	A	301	295	298	A 281	A	319	335	A	A	288	286	300	296	310
29	295	294	286	318	279	273	315	294	288	342	A 272	A	262	251	282	305	312	311	319	317	290	273	281	298
30	293	317	320	298	F	336	334	342	332	308	272	321	305	A 298	303	308	313	302	291	313	301	297	275	278
31	V 298	V 294	306	309	283	292	315	341	356	356	290	282	A	306	271	299	320	308	311	308	304	293	290	285
	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	28	28	29	30	31	30	31	28	23	26	26	28	29	29	30	31	30	29	31	31	30	29	26
MED	289	296	307	306	305	329	344	339	336	324	302	298	300	298	301	308	312	314	311	312	304	291	290	288
U Q	294	302	319	318	314	341	356	348	341	340	312	309	308	309	309	319	322	319	322	323	317	301	296	294
L Q	282	289	290	291	294	316	331	326	324	315	290	290	288	287	289	300	303	308	301	308	294	283	282	285

MAY 2004 M(3000)F2 (0.01)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

MAY 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

H / D	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1								L	L 350	L 370	A	L 404	A	L 378	380	L 366	L 362	L						
2								L	L	L 378	L 378	L 376	L 390	377	377	L 362	L 372	L						
3									L	L	L 362	392	L 365	L 369	A	A	A	A	A					
4							L	L 385	L 388	L 381	L 395	L 359	393	373	381	L 342	L 357	L						
5								L	L	L 393	L 390	U L 345	L 378	L 336	L 344	A	A	A						
6							A		A	A	A	L 346	A	L 355	L 368	L 368	L 362	A						
7									A	A	A	A	A	A	L 347	L 359	L 352	A	L					
8								A	A	A	L 358	A	L 411	L 371	L 358	L 368	A	A						
9							A	L 374	A	L	A	385	377	A	L 356	L 371	L	L						
10							L	L	L	L 394	399	394	409	L 379	A	A	A	L						
11							L	L	L 380	L 390	L 400	L 387	L 387	L 372	372	L 363	A	A						
12								L	L 383	L 376	A	L 387	L 390	382	L 335	L 360	A	A						
13							L	L	A	L	A	A	389	408	387	L 357	L 343	L						
14								L	L 382	A	L 357	370	379	394	386	A	L 370	L						
15								L	A	A	L 355	A	L 367	363	363	L 368	L	L						
16								L	L	L 367	L 380	L 395	L 375	358	A	L	L	L						
17							L	L 382	L 374	L 387	L 374	A	A	A	L 353	388	374	A	A					
18							A	A	A	A	A	A	330	L 376	376	L 366	L 349	A	A					
19							L	L	L 385	L 392	A	L 400	L 356	L 372	L 382	363	A	A	A					
20								A	A	A	L 411	389	L 381	L 384	377	363	L 362	L	A					
21							L	L 372	A	A	A	A	A	A	376	L 366	L 362	L 355	A					
22								L	L 397	U L 378	L 385	L 377	L 374	385	L 360	L 393	L 369	L 348	A					
23						L	L	A	A	A	L 389	L 393	A	L 328	344	L 383	L 359	L	L					
24							L	A	A	A	L 311	L 406	A	L 331	373	389	L 353	L 354	L					
25							A	L 378	A	A	A	A	361	A	A	A	L 377	L	L					
26								L 366	A	A	A	A	A	A	A	A	L 359	L	L					
27							L	A	A	A	A	U L 350	A	L 378	359	L 369	374	L	L					
28								L	A	A	L 407	365	A	A	A	A	L 367	A	A					
29						L 315	A	A	A	U L 422	A	A	U L 333	A	R 302	A	L 351	A	A					
30								L	L 366	L 368	U L 366	A	377	A	375	380	A 368	L						
31						L	L 364	L 369	A	L 398	A	L 357	A	L 387	U L 397	383	374	A	A					
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT						1	1	7	9	14	17	20	20	22	25	22	21	3						
MED						L 315	L 364	L 374	L 382	L 384	L 380	L 386	L 378	L 374	372	L 367	L 362	L 354						
U Q								L 382	L 386	L 393	L 397	L 394	390	382	378	380	371	L 355						
L Q								L 369	L 370	L 376	L 360	L 362	L 366	L 363	L 354	L 363	L 355	L 348						

MAY 2004 M(3000)F1 (0.01)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

MAY 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								272	332	286	358	308	EA 350	338	340	288	256	254						
2								238	274	294	308	318	300	318	276	272	258	244						
3									270	258	306	294	292	272	278	272	260	274	282					
4							270	254	276	304	332	426	316	310	312	316	286	258						
5								254	274	272	364	346	342	376	316	294	290	262						
6							260		EA 262	EA 308	EA 330	322	EA 362	344	314	320	300	268						
7									EA 318	EA 298	EA 318	A	EA 338	318	336	304	284	274	258					
8								240	A	A	314	308	294	286	310	282	302	262						
9							252	272	322	296	EA 370	336	328	296	282	274	266	266						
10							244	260	294	264	276	312	308	304	288	284	286	260						
11							246	240	270	272	286	340	320	378	306	280	278	274						
12								266	292	318	294	342	346	334	306	308	EA 302	270						
13							256	258	260	280	A	326	358	304	324	306	290	300						
14								284	270	358	320	316	332	326	322	278	306	294						
15								282	292	306	342	346	326	358	316	272	248	276						
16								246	264	308	308	332	316	312	300	304	294	270						
17							242	254	308	282	416	342	328	312	320	314	304	270	264					
18							EA 280	254	234	A	A	A	350	300	288	298	302	292	A					
19							248	242	266	304	320	332	314	316	340	326	308	278	268					
20								224	260	A	308	366	318	314	330	306	288	276	276					
21							248	276	EA 300	A	A	A	324	352	318	306	304	288	270					
22								292	288	296	328	408	328	336	372	342	320	294	EA 328					
23						282	244	254	A	EA 338	430	400	EA 430	402	344	316	288	260	254					
24							258	244	A	A	450	486	412	404	348	318	328	322	312					
25							A	350	270	A	EA 362	A	332	A	312	288	282	286	278					
26								272	264	290	A	EA 390	A	A	A	A	290	290	292					
27							272	EA 306	EA 352	A	A	338	A	368	356	312	300	310	286					
28								286	280	A	364	370	364	EA 404	A	288	268	A	A					
29						378	306	354	382	396	EA 474	A	496	522	402	342	324	324	274					
30								262	292	346	382	326	356	EA 404	322	310	290	296						
31						316	296	252	246	274	EA 394	406	A	348	418	304	272	264	260					
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT						3	15	28	28	23	26	26	28	29	29	30	31	30	14					
MED						316	254	258	272	293	325	338	328	326	318	304	290	274	274					
U Q						378	272	279	297	308	370	370	353	372	340	314	302	292	286					
L Q						282	246	249	265	280	308	322	317	311	306	284	278	264	264					

MAY 2004 h'F2 (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

MAY 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 A 302	E A 262	E A 258	E A 282	E A 320	E A 246	214	E A 240	234	228		A 216		A	E A 230	202	200	H	224	224	224	236	E A 288	E A 252	E A 304	E A 302
2	E B 272	E A 284	E B 244	E B 254	242	228	232	204	H 196	208	206	204	200	220	216	208	H 192	218	E A 238	236	E A 240	E A 256	E A 284	E B 264
3	E B 262	E B 256	242	210	206	220	218	230	226	210	212	206	216	200	A	A	A	A	A E 248	E A 248		E A 280	E A 262	
4	E A 272	E A 268	E A 276	E A B 256	E B 236	234	228	218	198	194	204	198	H 192	212	200	212	216	A E 238	A 206	230	E B 266	E A 274	E A 314	
5	E B 298	E B 262	218	184	E B 286	226	230	218	210	210	200	E A 268	220	E A 252	234	A	A	A	E A 254	E A 268	E A 276	E A 310	E A 284	232
6	E A 306	E A 302	E A 260	E A B 222	E B 296	E A 256	A	228	A	A	A	E A 292	A	E A 250	226	232	240	A	E A 258	248	238	230	E B 272	E A 272
7	E B 278	E B 252	E B A 234	232	E A E A 322	244	230	234	A	A	A	A	A	A E 274	208	218		A	A	E A 234	E A 248	E B 224	E A 278	E A 304
8	E A 380	E B 266	E B 276	E B A 268	224	214	E A 244	A	A	A	E A 258	A	202	214	204	226		A	A E 284	E A 250	E A 248	232	E A 282	E A 310
9	E A 272	E B 264	E A 300	E A 286	E B 264	244	A	228	A	E A 232	A	H 194	222	A	E A 258	218	220	220	236	224	232	E A 256	E A 300	E A 272
10	E A 266	E A 292	230	E A 254	E A 262	222	224	216	206	196	212	202	210	H 204	A	A	A	220	238	228	E A 262	224	E A 234	E A 288
11	E B 288	E B 268	E A 254	E B A 284	E B 280	244	226	210	202	194	H 170	218	216	202	208	E A 242	A	A	E A 240	230	216	E B 238	E B 270	E B 266
12	E B 280	E A 300	E A 266	E B 270	E A 264	248	214	H 204	204	198	A	202	198	214	E A 290	220		A	A	248	E A 264	E A 278	226	E A 262
13	E B 274	E B 280	E B 250	E B A 264	240	240	216	212	A	A	A	A	198	198	210	212	E A 242	222	E A 254	244	224	E B 234	E B 284	E A B 268
14	E A 274	E A 266	232	E A 258	E B 278	232	224	208	214	A E 246	E A 246	212	202	198	200	A	E A 232	230	E A 238	236	236	E A 272	E B 284	E A 276
15	E A 308	E A 296	E A 284	E A 238	206	210	204	196	A	A	E A 252	A	218	E A 236	208	206	218	E A 242	E A 274	242	242	236	E A 258	E A 290
16	E A 256	E A 260	E B 262	E B 272	E B 264	238	218	206	212	206	192	H 178	H 192	206	A	E A 250	222	220	E A 292	E A 298	218	220	228	E A 268
17	E A 278	E A 292	E A 276	E B 280	E B 282	E A 238	A	222	204	196	188	A	A	A	E A 282	216	224		A	A E 264	E A 248	E A 232	214	E A 304
18	E A 330	E A 326	E A 326	E A 290	E A 256	E A 250	A	A	A	A	A	A	E A 288	210	208	H 192	E A 230	A	A	E A 256	232	E A 262	E A 256	E A 262
19	E A 372	E B 272	E A 310	E A 312	E B 244	226	218	198	202	204	A	H 188	E A 224	202	214	238		A	A	A E 248	216	E A 250	E A 290	E A 360
20	E A 304	E A 274	E A 292	E B 282	E B A 298	238	236	A	A	A	H 186	H 204	200	206	210	202	214	220		A E 264	232	E A 292	E A 322	E A 294
21	E A 266	E A 254	240	E A 260	236	E A 258	218	206	A	A	A	A	A	A	H 202	206	208	222		A 234	218	E A 288	E A 290	E A 290
22	E A 304	E A 284	E A 262	232	E A 246	E A 230	226	220	198	206	206	218	200	210	216	212	212	216	A	232	242	E A 286	E A 314	E B 258
23	E A 276	E B 248	228	E B 240	E B 274	E B A 250	218	A	A	A	226	204	A	E A 302	E A 294	214	218	210	A	220	E A 340	E A 330	E A 312	E A B 274
24	E A 320	E A 338	E A 256	E A B 240	226	248	222	A	A	A	E A 314	206	A	E A 234	214	210	214	214	232	E A 256	E A 258	E A 272	E A 312	E A 334
25	E A 298	E B 276	E B 236	220	220	238	A	208	A	A	A	A	E A 246	A	A	A	E A 230	220	E A 248	E A 242	E A 262	E A 278	E A 300	E A B 252
26	E A 290	E A 278	E A 280	214	226	222	222	214	A	A	A	A	A	A	A	A	216	218	220	246	224	226	E A 282	E A 338
27	E B 270	E A 314	226	E A 276	E B 246	236	232	A	A	A	A	E A 248	A	220	224	E A 232	218	A	E A 254	240	218	E A 252	E A 290	E A 304
28	E A 320	E A 272	E A 242	218	E A 240	216	210	E A 234	A	A	A 190	E A 252	A	A	A	A	224	A	A	E A 310	E A 300	230	E A 256	226
29	E B 272	E B 266	E B 310	E A 248	E A 252	256	A	A	A	A 216	A	A	E A 260	A	E A 352	A	E A 256	A	A	E A 266	E A 326	E A 306	E A 314	E A 270
30	E A 268	E A 252	234	E A 284	E A 290	234	224	218	204	218	214	A	A 216	A	234	220	E A 242	E A 266	E A 278	E A 276	E A 246	242	E A 308	E A 320
31	E A 262	E A 294	E A 272	E A B 258	E B 280	228	218	210	A	206	A E 270		A	216	210	E A 236	214	A	A	238	E A 280	E A 260	E B 244	E A 286
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	31	25	24	14	16	17	20	20	22	25	23	24	16	19	31	31	31	31	31
MED	E A 278	E A 272	E A 258	E 258	E 256	233	222	213	204	206	199	204	206	208	211	212	217	220	E A 248	236	E A 242	E A 252	E A 284	E A 276
U Q	E A 304	E A 292	E A 276	E A 280	E A 280	E A 246	229	225	212	213	E A 236	E A 233	E A 221	E A 230	E A 246	E A 232	E A 230	223	E A 258	E A 256	E A 262	E A 278	E A 300	E A 304
L Q	E A 272	E A 262	236	232	236	226	218	207	202	197	191	202	200	204	208	208	215	218	238	234	230	232	E 258	E 264

MAY 2004 h'F (KM)

IONOSPHERIC DATA STATION Kokubunji

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

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1						B	122	116	116	114	114	A	A	B	A	116	A	120	118					
2						B	114	118	116	114	110	112	R	B	108	114	112	118	126					
3						B	116	118	110	A	A	A	A	114	114	114	A	A	A					
4						B	116	114	112	110	114	B	110	112	112	108	110	A	A					
5						B	118	118	116	A	A	A	120	116	114	116	116	A	B					
6						B	118	120	A	A	A	A	A	116	112	112	114	114	A					
7						112	122	116	A	A	A	A	A	A	A	120	126	110	A					
8						B	120	118	A	A	A	A	120	118	116	118	118	A	A					
9						B	116	116	A	A	A	A	A	116	116	116	116	120	B					
10						B	116	114	A	A	A	A	116	114	A	122	A	110	B					
11						B	118	114	112	112	110	112	112	114	112	118	A	A	B					
12						B	116	116	118	112	112	A	118	118	116	122	A	A	B					
13						B	116	114	116	108	A	A	A	A	A	A	A	124	112					
14						B	120	118	114	116	116	116	118	116	114	A	A	A	A					
15						116	124	118	116	A	A	A	A	A	A	118	A	A	A					
16						124	120	114	A	A	A	A	A	118	A	A	A	116	B					
17						B	118	116	116	116	118	112	114	112	114	118	118	118	118					
18						B	A	A	A	A	A	A	A	A	112	112	112	A	B					
19						B	126	120	116	114	114	112	A	116	A	A	A	A	A					
20						A	A	A	A	A	A	A	114	A	116	A	114	118	A					
21						B	124	122	A	A	A	A	A	A	116	112	108	114	A					
22							A	A	A	116	A	A	116	A	114	114	118	114	A					
23						B	118	118	118	A	A	A	A	A	A	A	120	A	A					
24						120	116	114	A	A	A	114	A	A	118	118	116	120	114					
25						122	120	116	A	A	A	A	A	A	A	A	A	118	A					
26						118	126	116	A	A	A	A	A	A	A	A	118	122	A					
27							120	A	A	A	A	A	A	A	114	114	114	A	A					
28						B	120	118	A	A	A	A	A	A	A	A	A	A	A					
29						126	116	116	A	A	A	A	A	A	A	A	112	A	A					
30						116	116	118	116	A	A	A	A	A	114	114	A	A	A					
31						116	120	118	A	A	A	A	A	A	114	116	116	114	A					
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT						9	28	27	14	10	8	6	10	13	19	21	18	16	5					
MED						118	118	116	116	114	114	112	116	116	114	116	116	118	118					
U Q						123	120	118	116	116	115	114	118	117	116	118	118	120	122					
L Q						116	116	116	114	112	111	112	114	114	112	114	112	114	113					

MAY 2004 h'E (KM)

IONOSPHERIC DATA STATION Kokubunji

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

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	102	98	96	96	96	100	132	120	114	112	110	106	100	104	100	100	102	102	G	B	108	106	104	104
2	102	102	100	102	100	154	142	128	102	100	G	100	104	B	96	100	94	116	110	110	106	102	102	B
3	92	B	B	B	92	136	134	120	110	106	102	100	98	106	116	114	104	104	104	100	102	104	100	100
4	94	94	88	90	B	128	G	112	110	110	102	B	G	98	100	118	112	104	104	104	102	102	100	98
5	100	B	B	B	B	130	122	118	114	108	108	102	120	118	120	114	112	102	106	100	100	98	98	96
6	96	98	98	B	B	126	118	114	106	104	104	100	98	116	162	128	118	114	106	102	100	102	100	100
7	B	102	96	96	98	140	130	118	106	104	102	98	100	100	104	106	144	108	104	102	98	B	102	102
8	100	106	110	106	102	128	122	112	100	94	102	106	106	142	134	102	122	106	102	104	106	104	102	102
9	100	100	100	102	130	118	114	114	104	102	98	94	98	134	130	104	104	120	108	106	104	104	100	96
10	98	96	92	92	94	98	126	114	104	102	102	102	100	122	104	118	104	112	102	100	98	100	100	100
11	100	94	98	94	96	136	132	126	120	122	96	148	124	124	120	120	106	100	98	102	100	B	106	116
12	122	118	96	B	94	122	122	122	120	116	112	108	106	104	116	126	108	102	102	102	100	102	B	98
13	96	B	98	100	102	120	122	122	116	114	104	102	104	106	108	108	106	120	108	102	98	104	98	B
14	98	94	96	96	98	122	120	118	118	116	120	120	120	116	116	106	104	100	102	102	100	96	112	102
15	96	102	96	94	98	G	144	122	112	104	104	104	104	102	102	G	106	104	100	B	104	102	100	106
16	96	98	98	B	98	G	122	112	102	104	102	102	102	104	104	104	104	110	98	96	96	96	94	96
17	100	94	96	98	98	116	118	112	116	G	128	116	120	116	116	130	126	120	110	102	104	104	104	96
18	104	98	94	96	98	104	104	98	98	96	98	94	96	100	96	102	116	102	102	100	102	100	102	102
19	100	104	98	98	106	102	102	104	134	124	116	112	102	116	104	98	98	106	102	102	104	102	102	94
20	94	96	98	96	110	104	102	100	100	100	100	106	G	106	102	102	102	112	102	100	102	94	98	96
21	88	88	88	96	98	98	122	100	104	102	100	98	100	94	100	100	98	122	102	102	100	100	102	98
22	96	94	94	90	96	94	98	98	102	G	102	102	102	104	118	120	122	120	104	104	94	106	100	102
23	96	94	B	B	96	92	122	118	108	104	106	106	100	100	98	100	122	102	104	102	102	102	104	102
24	100	100	100	104	102	G	116	120	104	102	102	130	102	104	102	106	102	98	112	106	104	104	104	98
25	96	98	98	96	98	124	118	118	104	104	104	104	104	104	104	102	108	116	102	100	100	100	100	100
26	96	96	94	94	94	154	136	116	102	106	104	104	100	100	96	102	124	102	106	106	104	98	100	96
27	98	96	100	94	B	116	118	106	104	104	96	98	98	104	G	124	114	102	104	102	100	98	94	92
28	94	92	90	90	90	92	126	114	100	100	102	102	102	98	94	94	94	94	90	90	88	98	102	102
29	100	98	96	94	100	132	120	116	106	104	104	100	104	106	104	108	120	106	102	102	100	100	98	94
30	92	92	92	92	92	G	136	114	116	106	106	104	102	106	114	114	104	96	92	88	88	106	100	98
31	96	94	92	98	B	122	116	114	100	104	100	98	98	102	126	116	120	110	100	100	98	96	98	94
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	28	28	25	26	27	30	31	31	29	30	30	29	30	30	30	31	31	30	29	31	29	30	29
MED	97	97	96	96	98	122	122	114	106	104	102	102	102	104	104	106	106	106	102	102	100	102	100	98
U Q	100	100	98	98	100	130	130	120	114	109	106	106	104	116	116	118	120	114	106	103	104	104	102	102
L Q	96	94	94	94	96	102	118	112	102	102	102	100	100	102	100	102	104	102	102	100	98	98	100	96

MAY 2004 h'Es (KM)

IONOSPHERIC DATA STATION Kokubunji

MAY 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

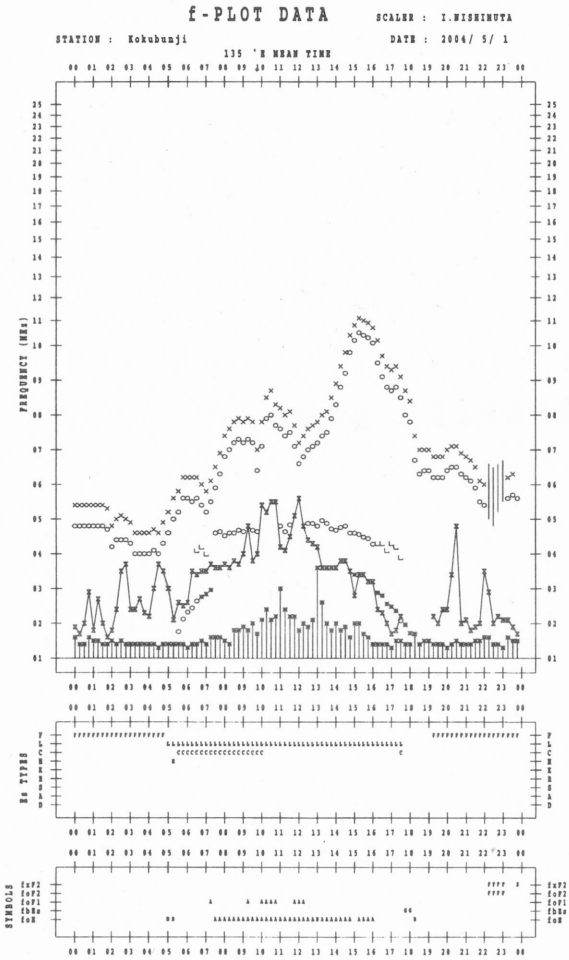
D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	F2	F4	F3	F3	F4	L4	CL21	CL21	CL11	CL21	CL21	L1	L3	L2	L2	L2	L1	L1			F3	F2	F3	F3
2	F3	F3	F2	F1	F2	H1	HL11	CL12	L1	L1		L1	L1		L1	L1	L1	CL21	C3	F1	F2	F1	F2	
3	F1				F2	H1	H2	CL11	CL11	L2	L1	L1	L1	L1	CL21	CL21	L3	L3	L4	F4	F2	F2	F3	F2
4	F2	F2	F2	F1		C1		CL11	CL11	CL11	L1			L1	L1	CL11	CL11	L2	L4	FF31	F1	F1	F3	F2
5	F1					H2	CL31	CL11	CL11	L1	L1	L2	CL11	C1	CL11	CL21	CL21	L3	L4	F3	F5	F4	F3	F4
6	F3	F3	F4			C2	CL21	CL21	L3	L2	L2	L2	L2	CL21	HL11	CL11	CL21	CL21	L3	F3	F3	F3	F2	F3
7		F1	F2	F4	F3	H2	CL21	CL11	L3	L3	L3	L3	L2	L2	L1	L1	HL11	C3	L2	F2	F4		F3	F5
8	F5	F2	F1	F2	F4	C2	CL11	CL21	L3	L3	L2	L2	L1	HL11	CL11	L1	CL21	L3	L3	F4	F3	F3	F4	F3
9	F5	F1	F5	F2	F1	C2	CL31	CL11	L3	L2	L2	L2	L2	HL21	CL11	L1	L2	CL12	C3	F2	F4	F4	F3	F5
10	F2	F4	F5	F3	F2	L3	CL11	CL11	L1	L1	L1	L1	L1	CL11	L3	CL21	L3	C1	L2	F4	F3	F1	F2	F3
11	F2	F3	F2	F3	F2	H1	CL11	CL11	CL11	CL11	L1	HL11	CL11	CL11	CL11	CL11	L2	L3	L3	F3	F3		F1	F1
12	FF13	FF14	F2		F3	C2	CL12	CL21	CL11	CL11	CL21	L1	L1	L1	CL21	CL11	L3	L4	L2	F4	F3	F4		F3
13	F3		F2	F2	F1	C2	CL11	CL11	CL21	C1	L3	L2	L1	L1	L1	L1	L2	CL11	C4	F4	F5	F1	F3	
14	F4	F3	F2	F3	F1	C2	CL11	CL11	CL11	CL21	CL11	CL11	CL11	CL11	CL11	L2	L2	L3	L3	F3	F2	F3	F1	F4
15	F3	F3	F4	F2	F2		HL11	CL11	CL21	L2	L2	L2	L2	L2	L1		L1	L2	L3		F3	F2	F3	F4
16	F3	F3	F1		F1		CL11	CL11	L2	L1	L1	L1	L1	L1	L2	L2	L2	CL11	L2	F4	F2	F2	F2	F3
17	F2	F3	F2	F1	F2	C2	CL21	CL21	CL11		CL11	CL21	CL21	CL21	CL11	CL11	CL11	CL31	CL52	F5	F3	F3	F2	F3
18	F5	F4	F4	F4	F4	L4	L4	L3	L3	L3	L3	L3	L2	L1	L1	L1	CL21	L3	L4	F4	F2	F3	F2	F3
19	F4	F2	F3	F3	F2	L1	L2	L1	HL11	CL11	CL21	CL21	L2	CL11	L2	L2	L4	L4	L4	F3	F2	F2	F3	F3
20	F3	F5	F2	F1	F3	L2	L3	L3	L3	L3	L2	L2		L1	L1	L1	L1	CL11	L3	F6	F3	F3	F3	F3
21	F4	F4	F2	F3	F3	L3	CL11	L1	L3	L3	L3	L3	L2	L2	L1	L1	L1	CL12	L4	F3	F4	F2	F2	F3
22	F4	F2	F4	F4	F4	L2	L3	L1	L1		L1	L1	L1	L2	CL11	CL11	CL11	CL21	L3	F3	F2	FF23	F4	F2
23	F2	F2			F1	L2	CL11	CL21	CL21	L2	L2	L1	L2	L2	L2	L1	CL11	L3	L3	F4	F6	F3	F3	F2
24	F2	F4	F4	F2	F3		CL11	CL21	L3	L3	L2	CL11	L1	L1	L1	L1	L1	L1	C2	F3	F3	F3	F4	F5
25	F4	F1	F2	F2	F2	H2	CL31	CL11	L2	L3	L2	L3	L2	L2	L2	L3	L2	CL11	L3	F5	F4	F3	F3	F2
26	F2	F3	F4	F3	F1	H1	HL21	CL11	L2	L2	L2	L2	L3	L3	L3	L3	CL11	L1	L2	F1	F1	F3	F3	F3
27	F3	F3	F3	F3		C1	CL21	L2	L2	L2	L2	L2	L3	L1		CL11	CL21	L2	L3	F4	F3	F2	F3	F5
28	F3	F4	F4	F3	F3	L2	CL11	CL21	L2	L3	L2	L1	L2	L2	L3	L3	L2	L4	L4	F5	F4	F2	F3	F2
29	F3	F3	F4	F3	F2	C1	CL21	CL21	L3	L2	L2	L2	L2	L2	L2	L2	CL21	L3	L3	F3	F4	F5	F3	F2
30	F4	F3	F3	F3	F2		HL11	CL11	CL11	L1	L1	L2	L2	L2	CL11	CL11	L1	L3	L3	F5	F3	FF21	F2	F4
31	F3	F3	F2	F1		C2	CL21	CL11	L2	L2	L3	L2	L2	L1	CL11	CL11	CL11	CL31	L4	F4	F4	F4	F2	F2
	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																								

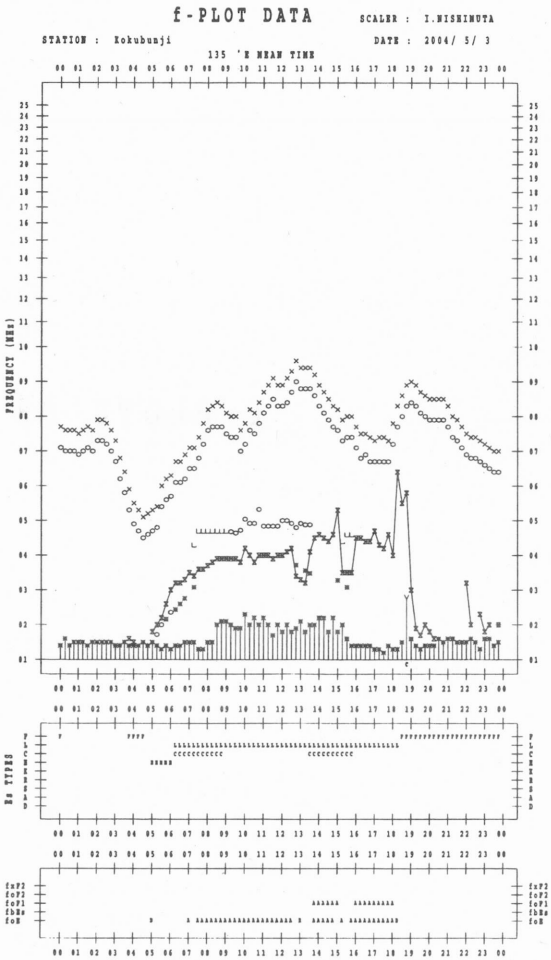
MAY 2004 TYPES OF Es

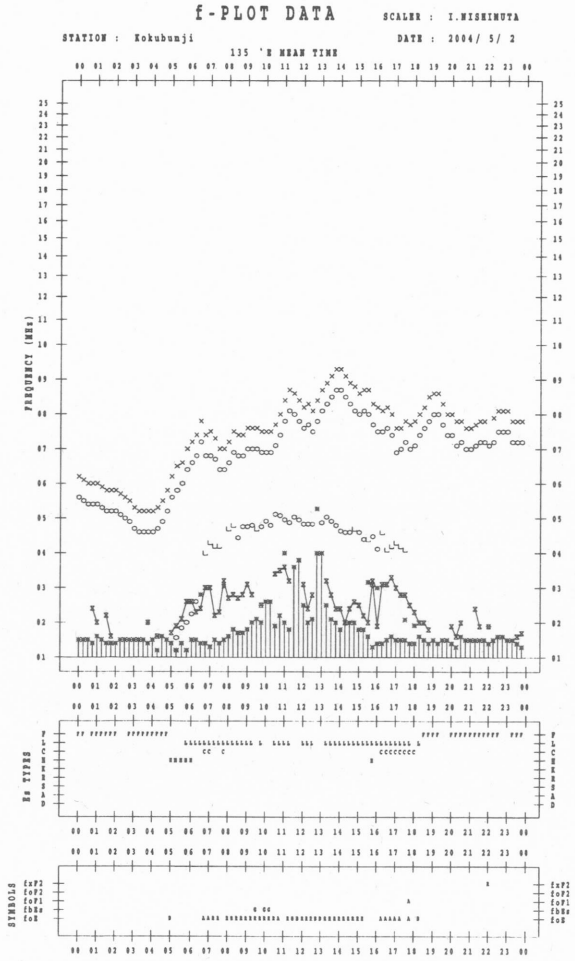
NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

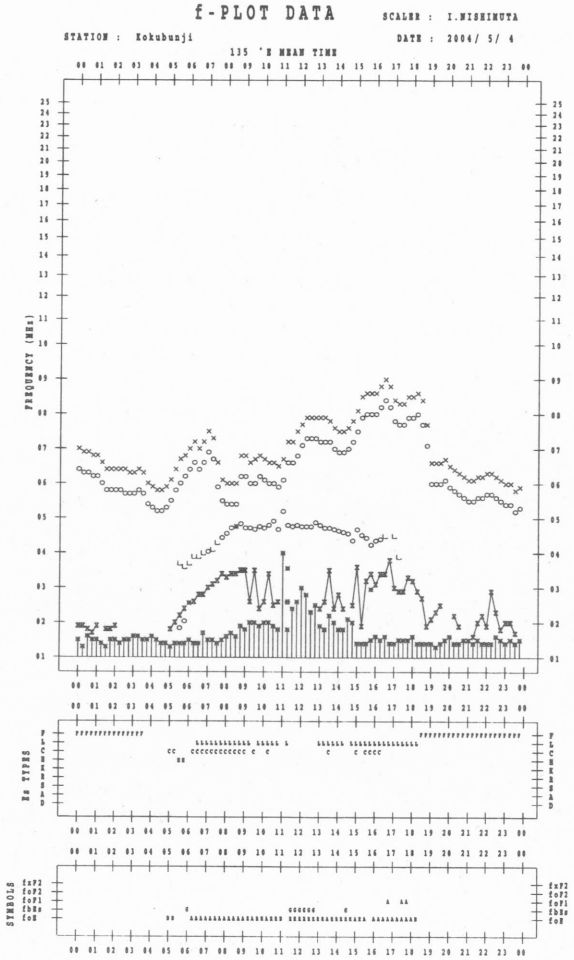
f-PLOTS OF IONOSPHERIC DATA

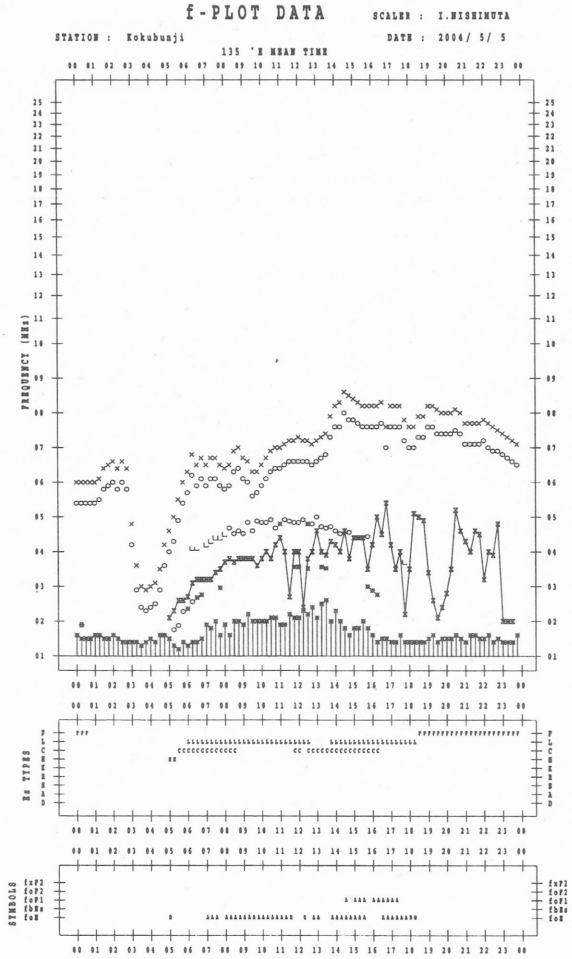
KEY OF f-PLOT	
	SPREAD
	foF2,foF1,foE
	fxF2
	DOUBTFUL foF2,foF1,foE
	fbEs
	ESTIMATED foF1
	fmin
	GREATER THAN
	LESS THAN

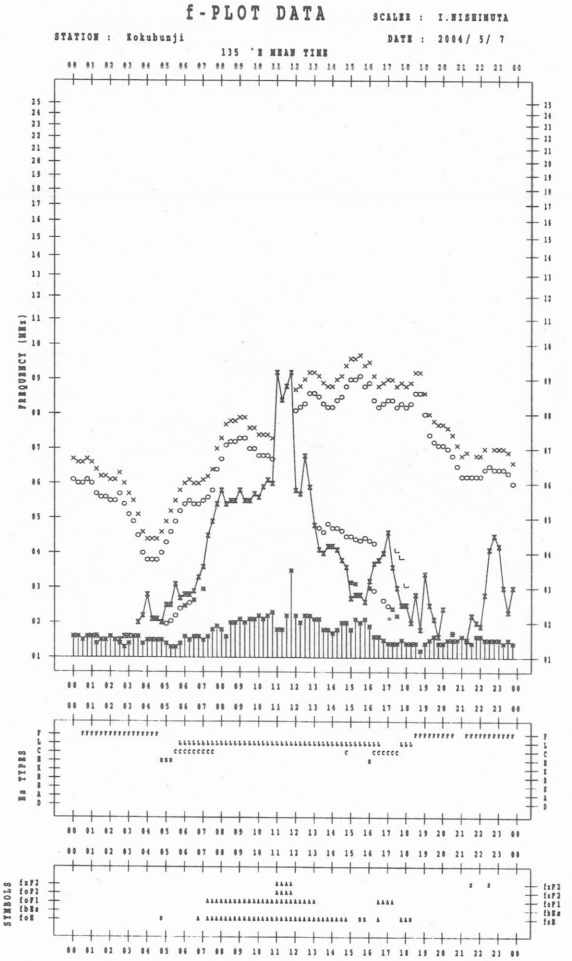

f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/ 5/ 1
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS

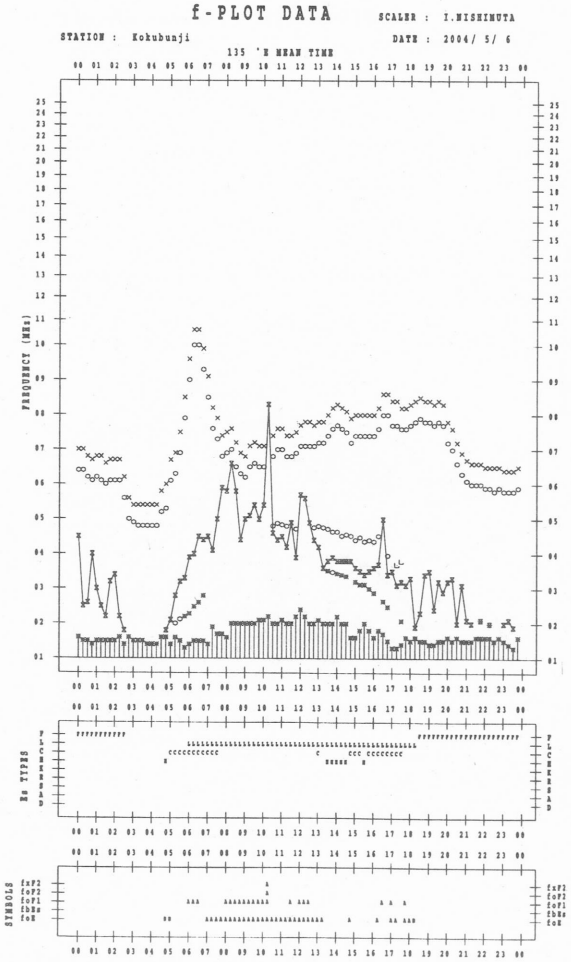

f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/ 5/ 3
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS

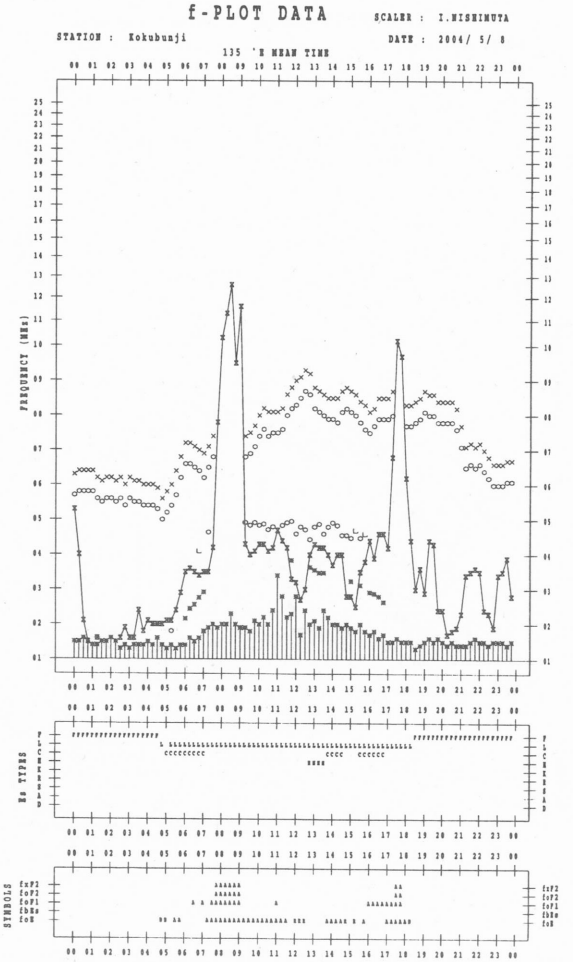

f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/ 5/ 2
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS

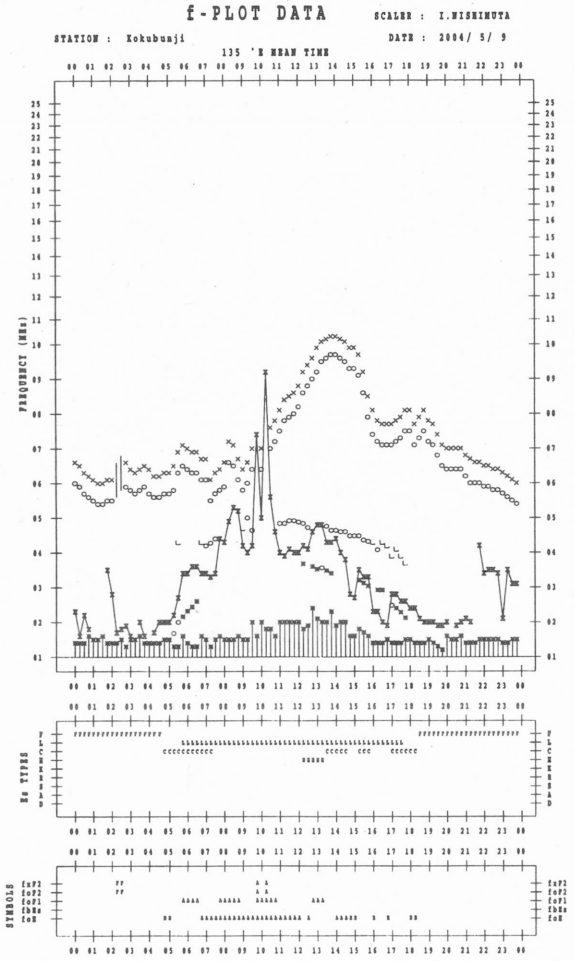

f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/ 5/ 4
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS

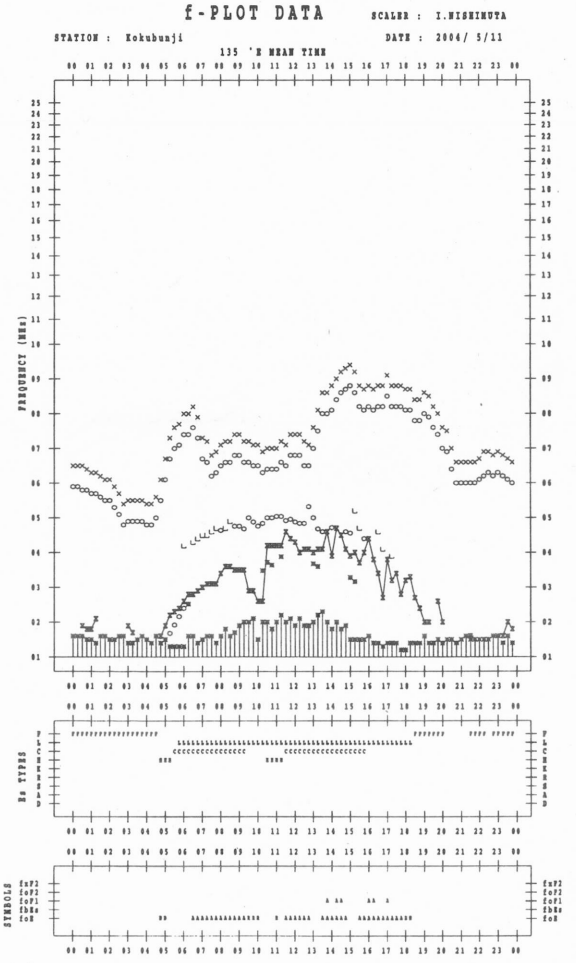

f-PLOT DATA
SCALER : I.NISHINUTA
STATION : Kokubunji
DATE : 2004/ 5/ 5
135 'E MEAN TIME
FREQUENCY (MHz)
Re TYPES
SYMBOLS

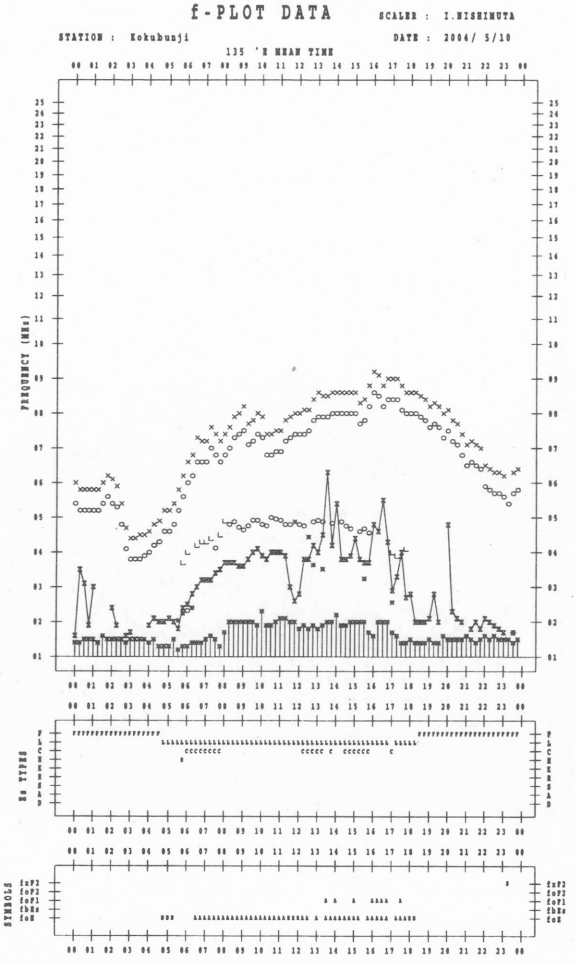

f-PLOT DATA
SCALER : I.NISHINUTA
STATION : Kokubunji
DATE : 2004/ 5/ 7
135 'E MEAN TIME
FREQUENCY (MHz)
Re TYPES
SYMBOLS

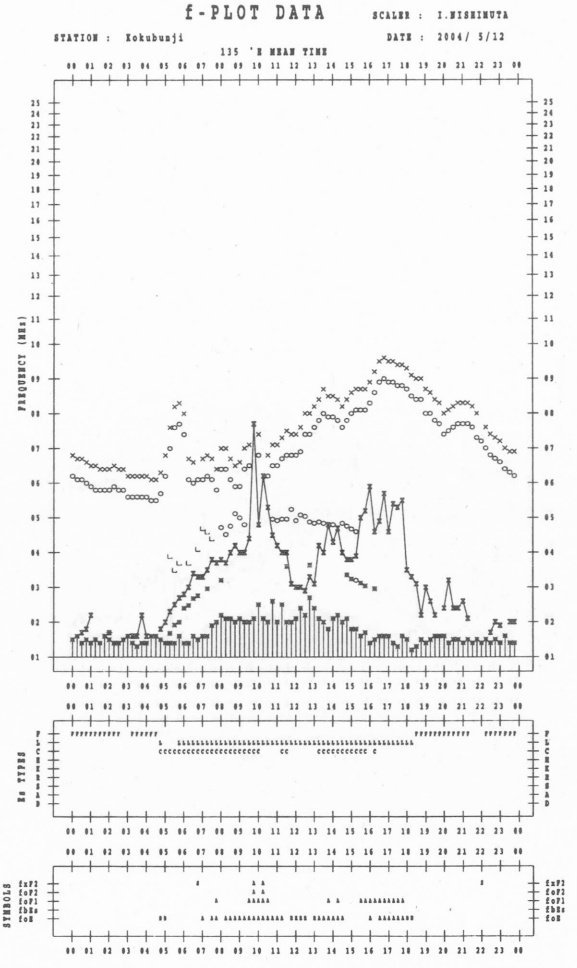

f-PLOT DATA
SCALER : I.NISHINUTA
STATION : Kokubunji
DATE : 2004/ 5/ 6
135 'E MEAN TIME
FREQUENCY (MHz)
Re TYPES
SYMBOLS

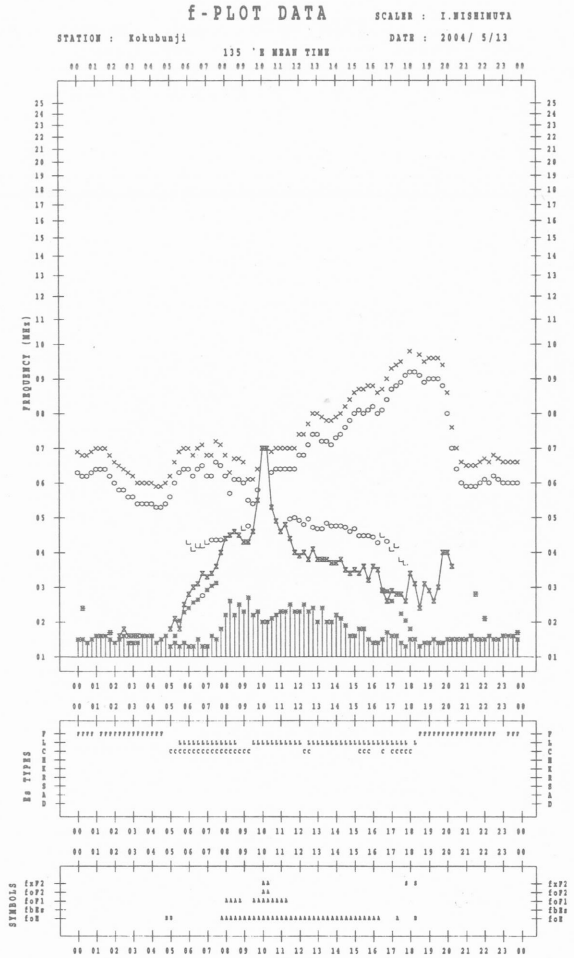

f-PLOT DATA
SCALER : I.NISHINUTA
STATION : Kokubunji
DATE : 2004/ 5/ 8
135 'E MEAN TIME
FREQUENCY (MHz)
Re TYPES
SYMBOLS

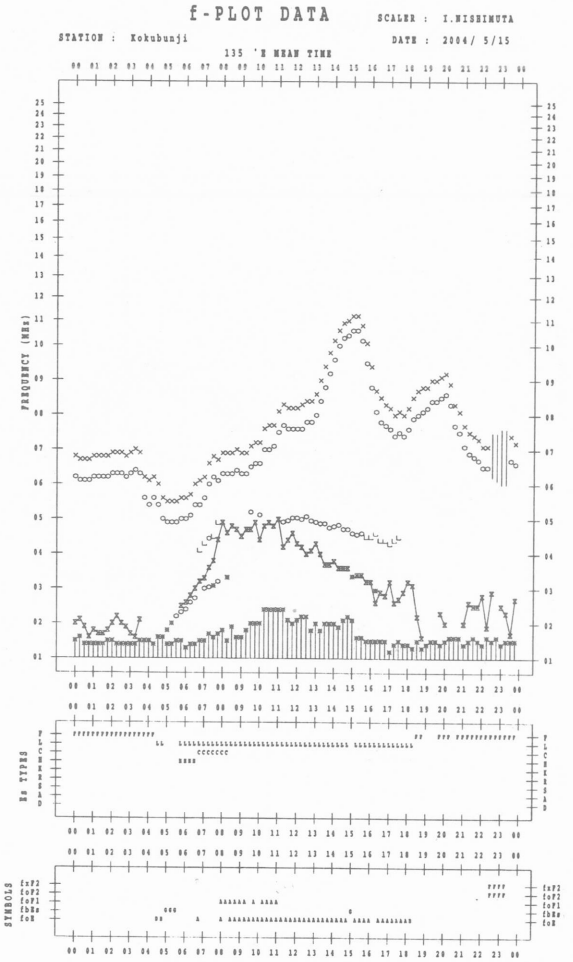

f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/ 5/ 9
135 'E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS

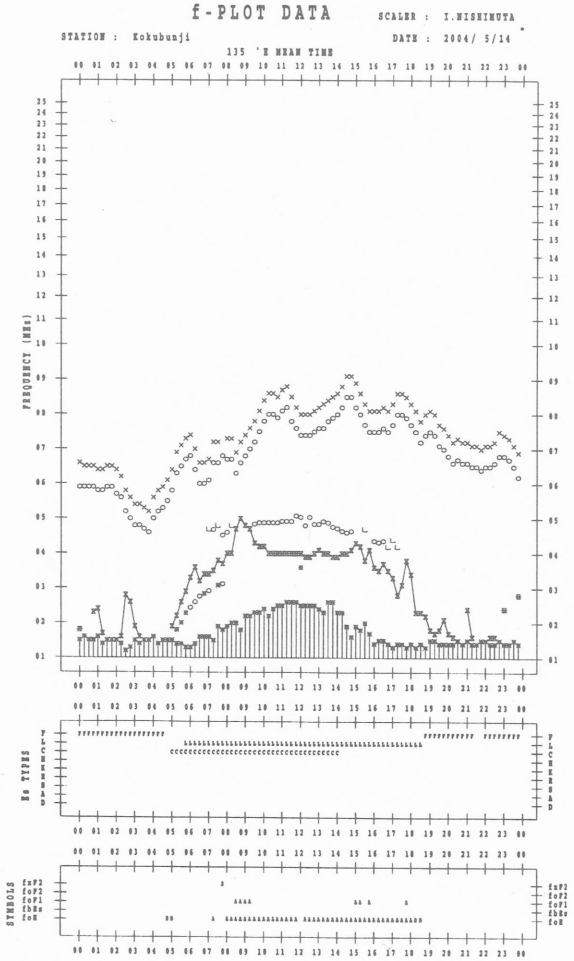

f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/ 5/11
135 'E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS

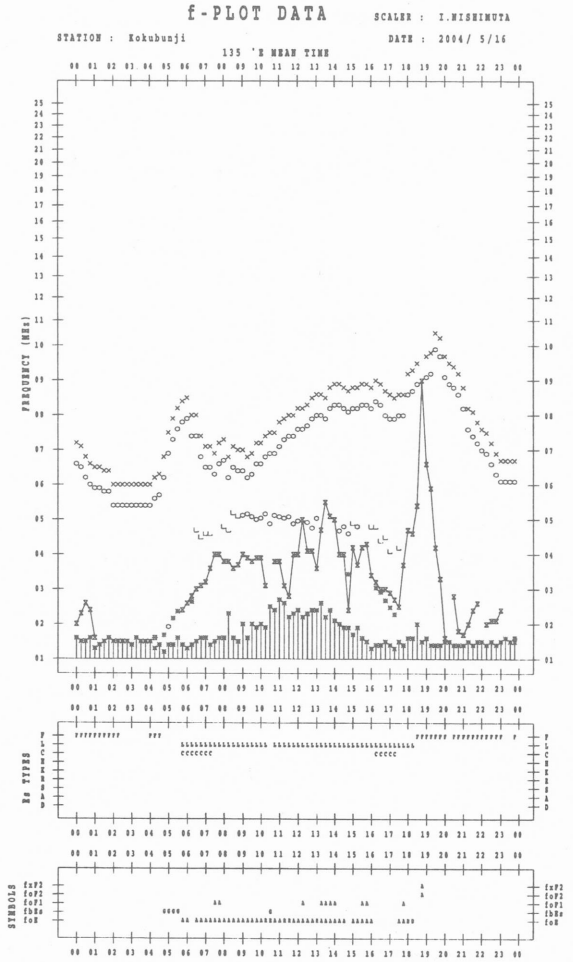

f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/ 5/10
135 'E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS

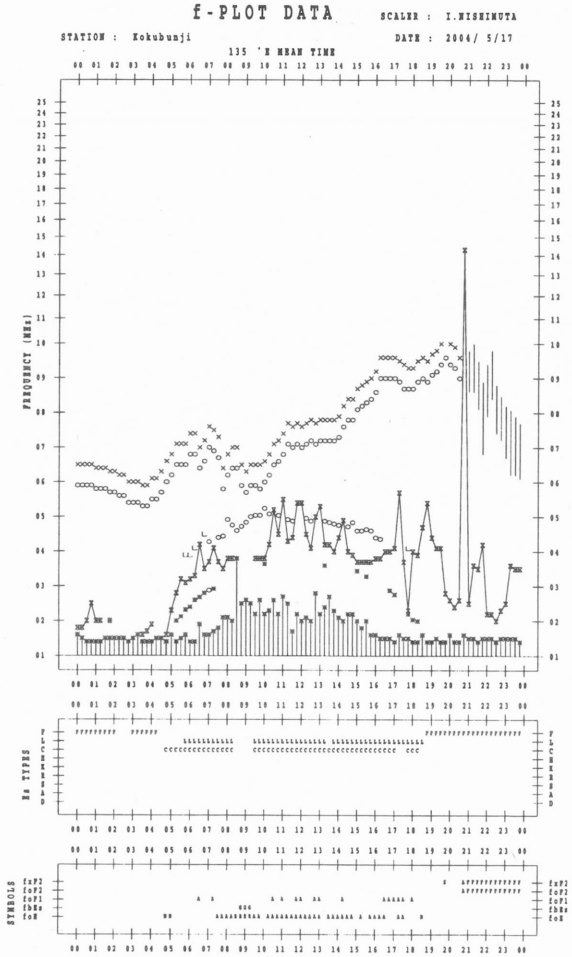

f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/ 5/12
135 'E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS

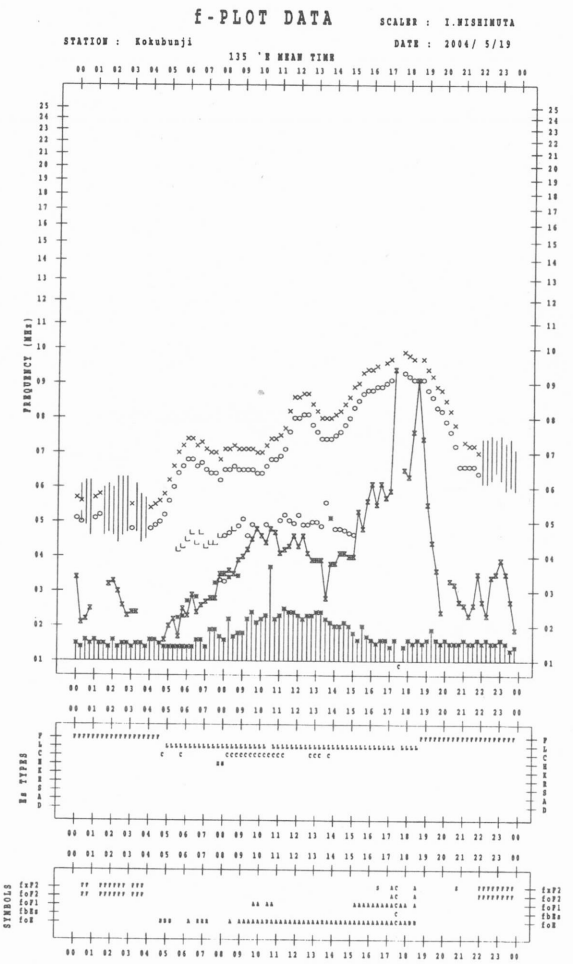

f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/ 5/13
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS

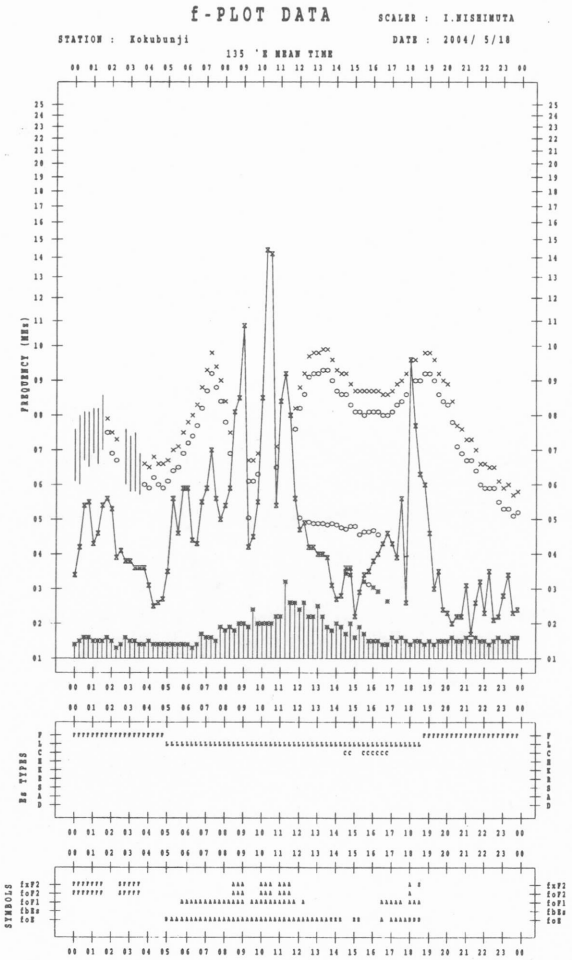

f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/ 5/15
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS


f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/ 5/14
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS


f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/ 5/16
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS


f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/ 5/17
135 'E MEAN TIME
FREQUENCY (MHz)
Ro TYPES
SYMBOLS


f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/ 5/19
135 'E MEAN TIME
FREQUENCY (MHz)
Ro TYPES
SYMBOLS


f-PLOT DATA
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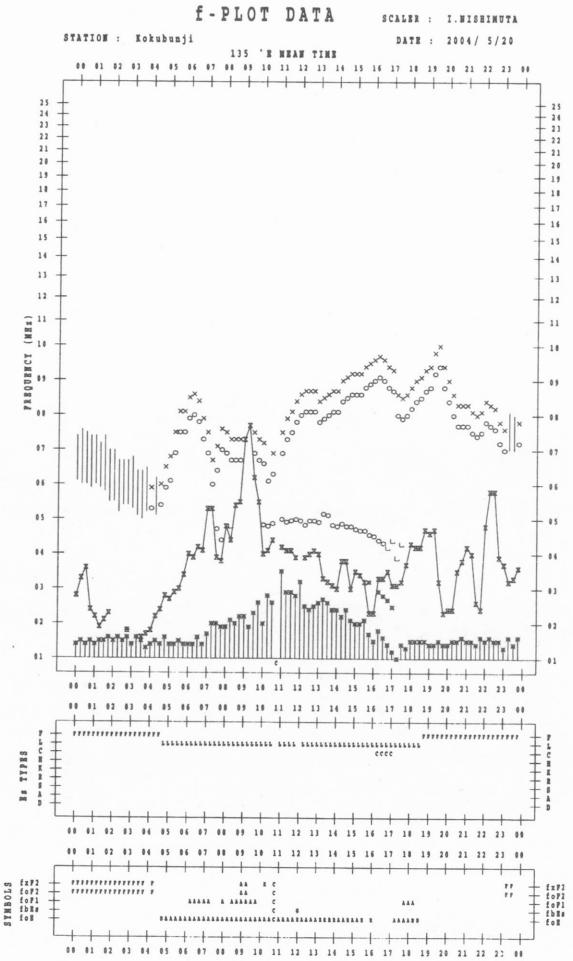
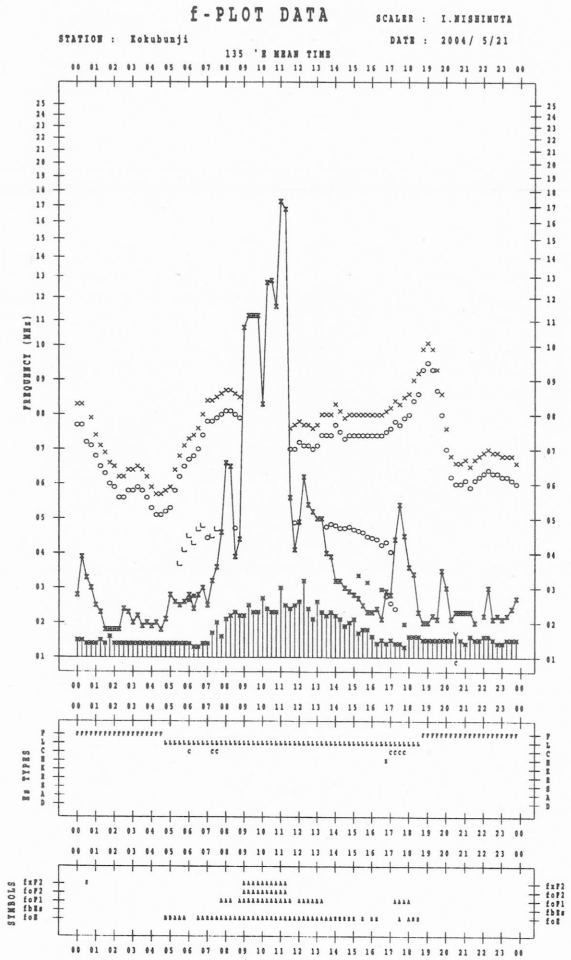
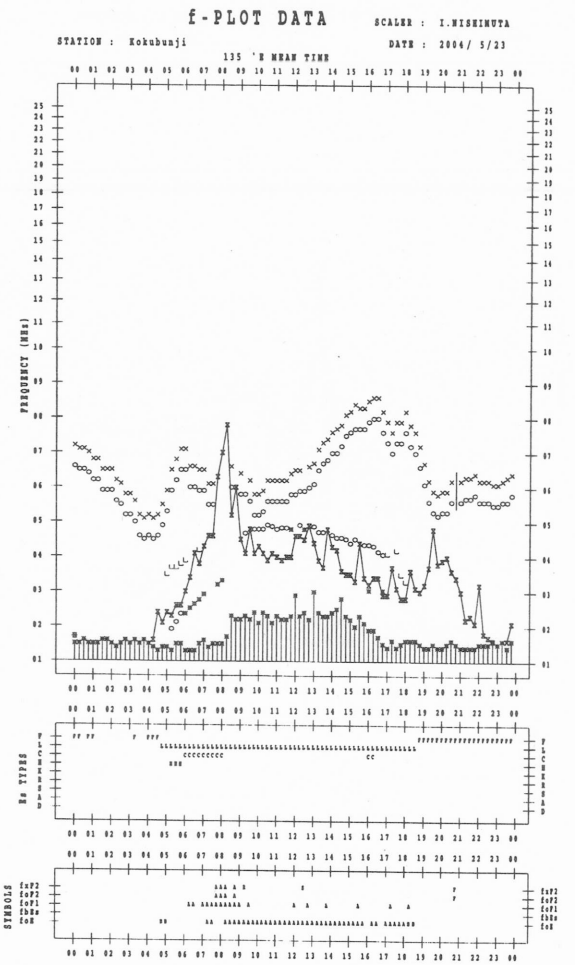
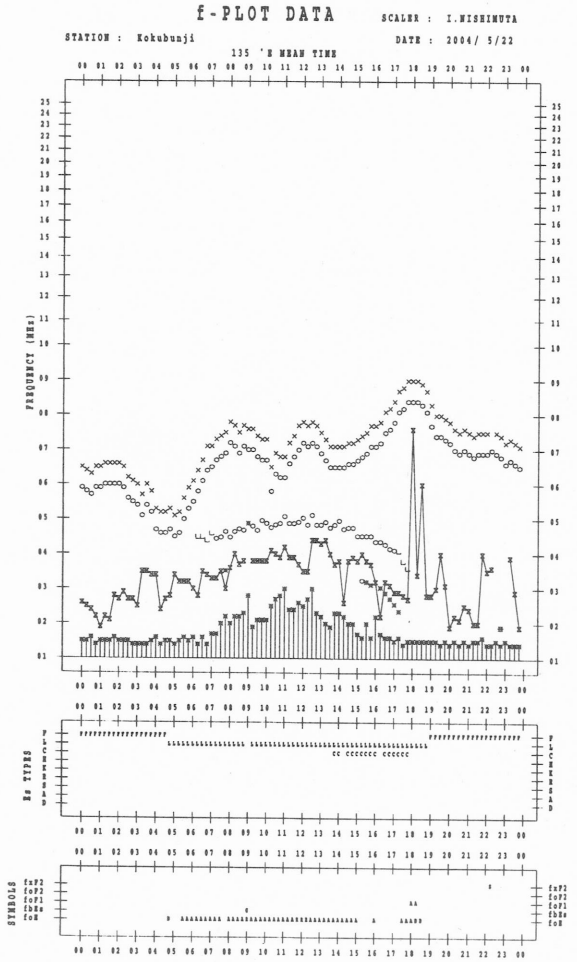
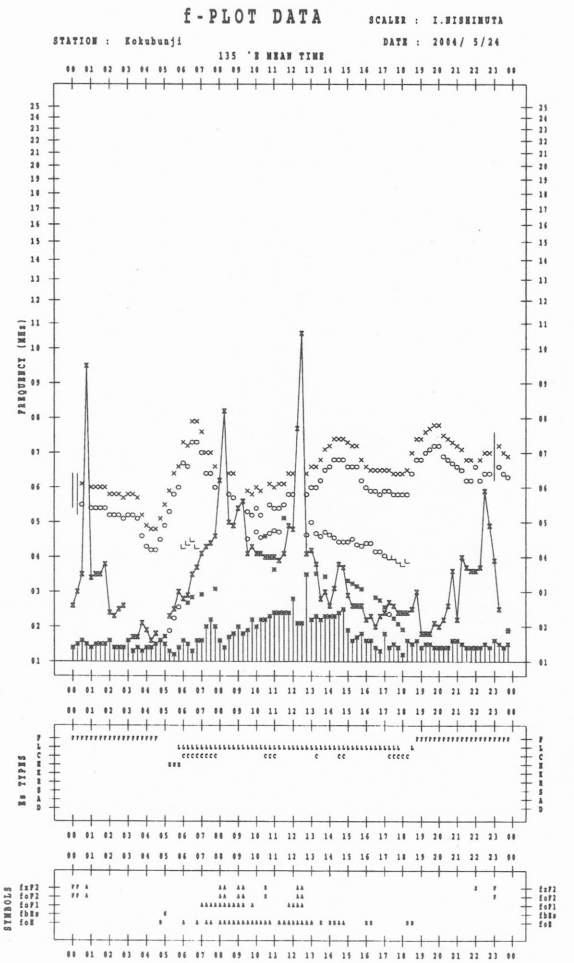
STATION : Kokubunji
DATE : 2004/ 5/18
135 'E MEAN TIME
FREQUENCY (MHz)
Ro TYPES
SYMBOLS

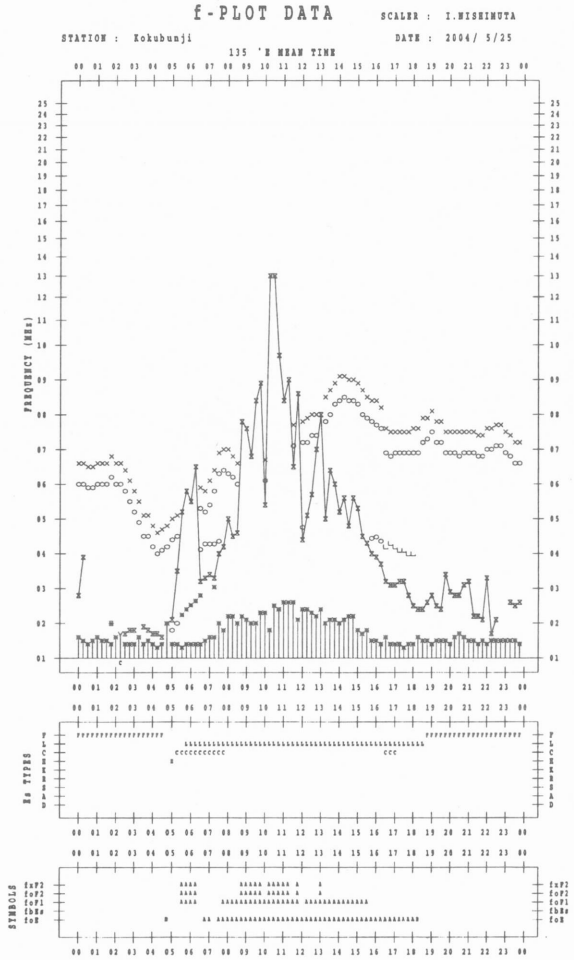

f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/ 5/20
135 'E MEAN TIME
FREQUENCY (MHz)
Ro TYPES
SYMBOLS

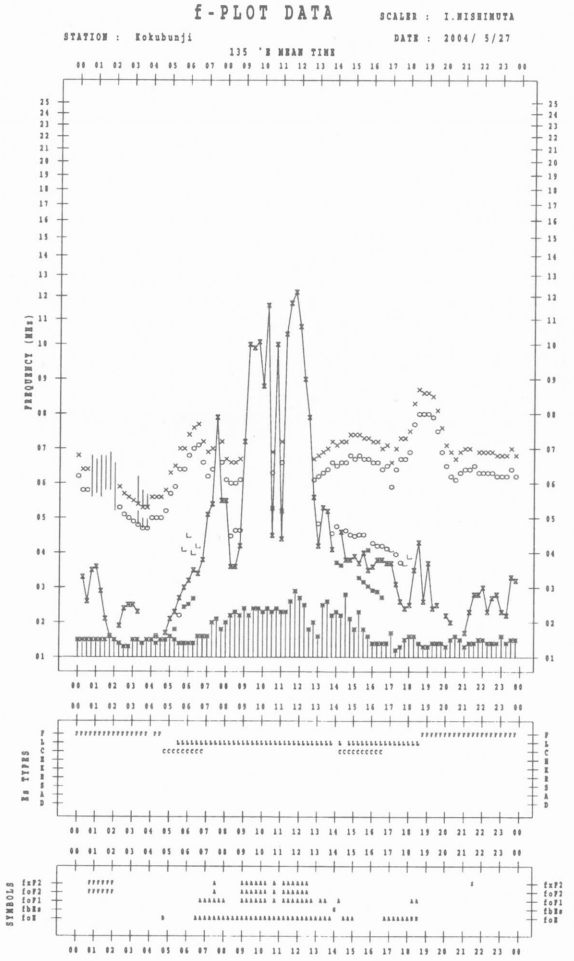

f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/ 5/21
135 'E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS

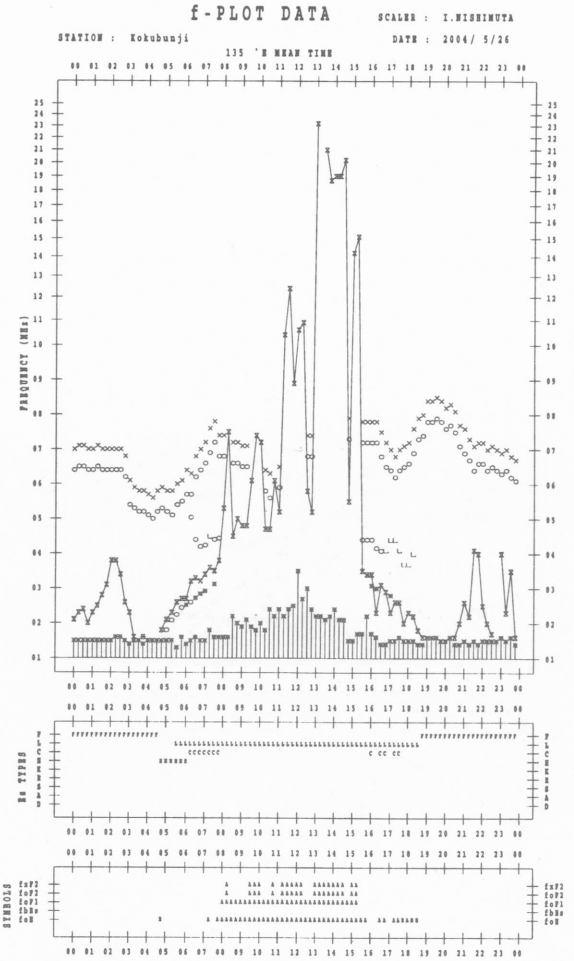

f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/ 5/23
135 'E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS

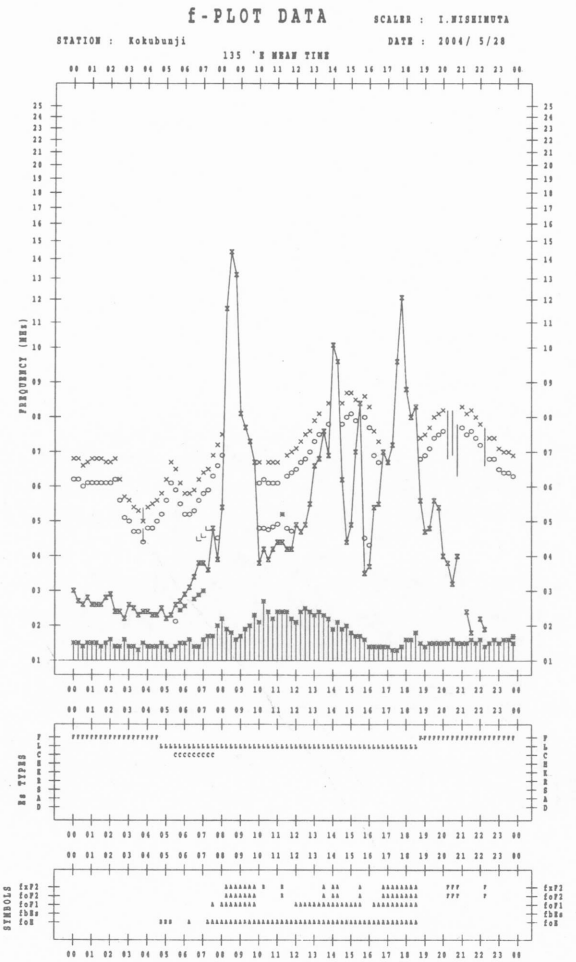

f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/ 5/22
135 'E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS

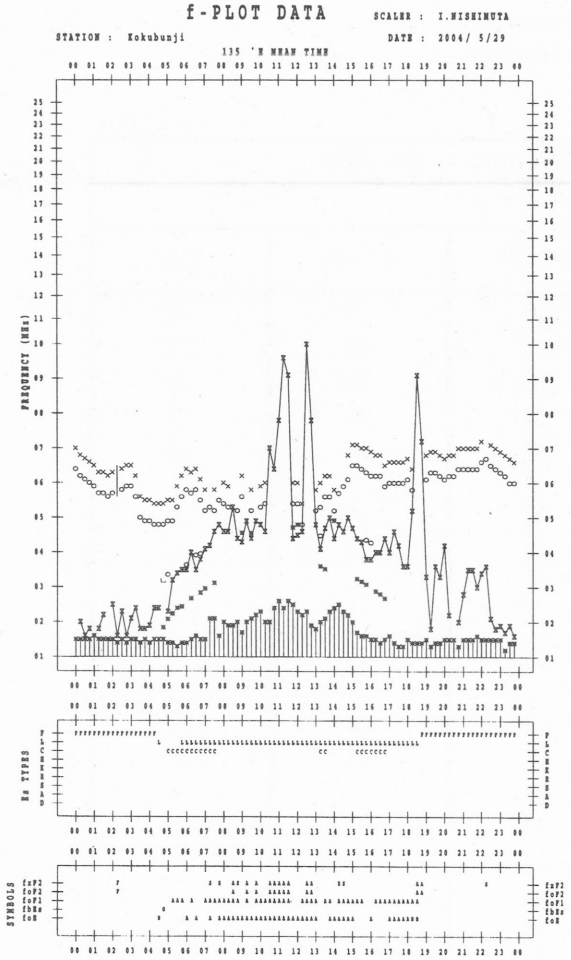

f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/ 5/24
135 'E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS

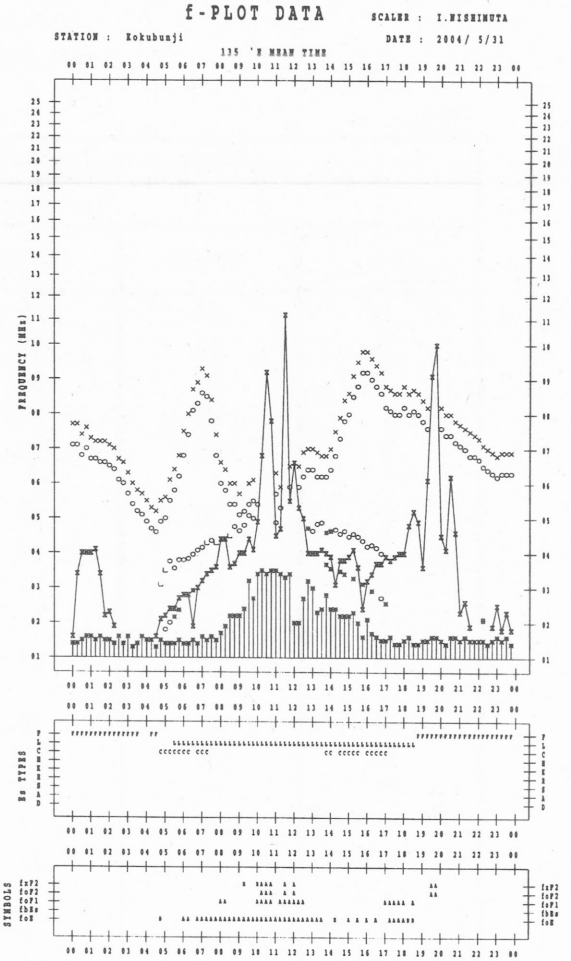

f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/ 5/25
135 'E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS

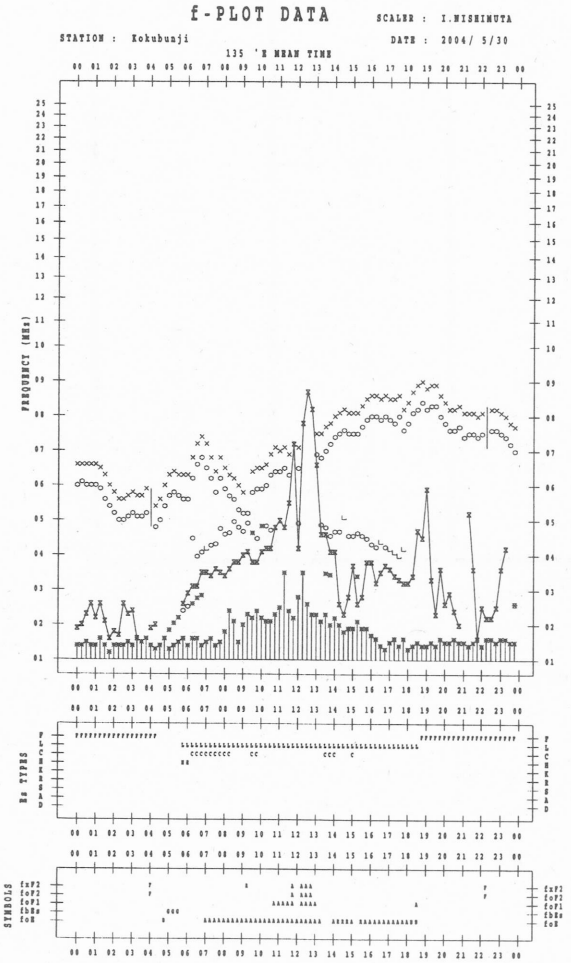

f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/ 5/27
135 'E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS


f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/ 5/26
135 'E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS


f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/ 5/28
135 'E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS


f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/ 5/29
135 'E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
foF2
foF1
foE


f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/ 5/31
135 'E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
foF2
foF1
foE


f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/ 5/30
135 'E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
foF2
foF1
foE

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

Hiraiso May 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	29	29	30	33	30
2	32	32	31	30	31
3	29	29	28	29	29
4	28	26	25	28	27
5	29	29	29	30	29
6	30	28	28	30	29
7	28	27	27	29	28
8	29	27	27	-	28
9	-	-	-	-	-
10	28	28	28	31	29
11	27	26	25	29	27
12	28	27	27	31	28
13	29	26	28	31	29
14	29	28	30	32	30
15	29	29	29	27	29
16	29	29	28	28	28
17	28	29	28	30	29
18	28	27	28	29	28
19	28	28	28	28	28
20	28	28	27	26	27
21	27	26	27	27	27
22	28	27	27	28	28
23	28	28	28	29	28
24	27	26	26	27	27
25	26	25	24	28	26
26	25	24	23	27	25
27	25	24	23	27	25
28	25	23	23	27	24
29	25	23	23	25	24
30	22	22	22	25	23
31	23	21	21	22	22

Note: No data is available during the following periods.
8th 2100 - 10th 0030

A superscript * stands for being superposed on a burst.

B. Solar Radio Emission

B2. Outstanding Occurrences at Hiraiso

Hiraiso May 2004

Single-frequency observations

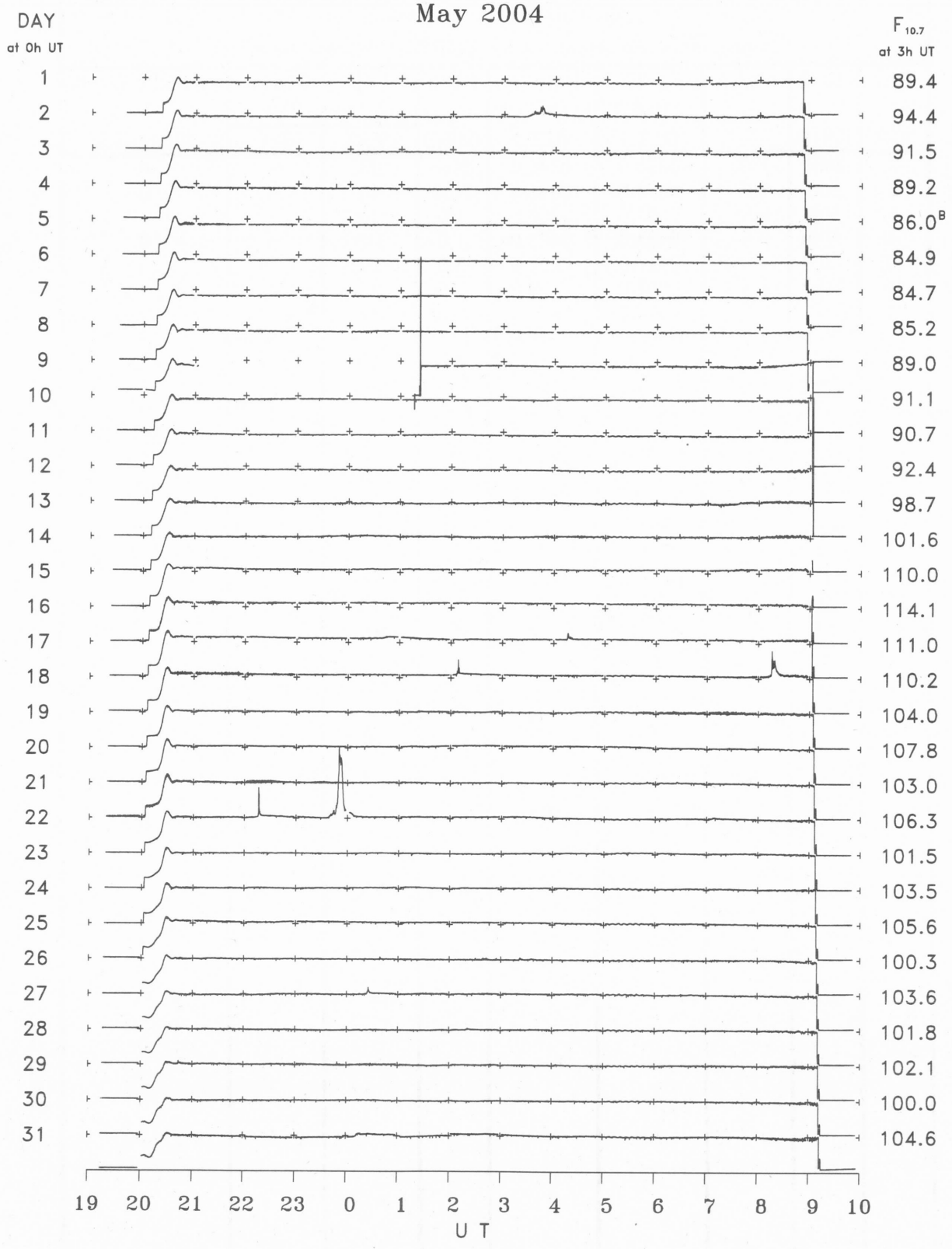
Normal observing period: 1925 - 0940 U.T. (sunrise to sunset)

MAY 2004	FREQ. (MHz)	TYPE	START TIME (U.T.)	TIME OF MAXIMUM (U.T.)	DUR. (MIN.)	FLUX DENSITY (10^{-22} W m^{-2} Hz^{-1}) PEAK	FLUX DENSITY (10^{-22} W m^{-2} Hz^{-1}) MEAN	POLARIZATION REMARKS
2	2800	7 C	0332.0	0345.0	20.0	25	-	0
2	500	7 C	0332.0	0345.0	25.0	15	-	0
5	500	8 S	0350.0	0350.0	1.0	10	-	
10	500	8 S	0423.0	0423.0	1.0	115	-	0
17	2800	4 S/F	0417.0	0417.0	5.0	20	-	
18	2800	4 S/F	0207.0	0209.0	3.0	45	-	0
18	500	7 C	0814.0	0830.0	34.0	10	-	WL
18	2800	7 C	0815.0	0816.0	11.0	70	-	SL
21	2800	8 S	2215.0	2216.0	4.0	80	-	0
21	2800	7 C	2338.0	2350.0	29.0	195	-	0
21	500	7 C	2344.0	2351.0	19.0	20	-	0
26	500	42 SER	0041.0	0238.0	240.0	80	-	MR
27	2800	1 S	0023.0	0025.0	6.0	20	-	0
27	500	8 S	0050.0	0050.0	1.0	45	-	0
28	500	8 S	2122.0	2122.0	1.0	35	-	
28	500	42 SER	2300.0	2305.0	8.0	25	-	
28	2800	1 S	2349.0	2349.0	1.0	10	-	
28	500	8 S	2349.0	2349.0	1.0	495	-	
29	500	8 S	2339.0	2339.0	1.0	10	-	
31	500	8 S	2315.0	2315.0	1.0	10	-	0

B. Solar Radio Emission

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

May 2004



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

IONOSPHERIC DATA IN JAPAN FOR MAY 2004
F－665 Vol.56 No.5 (Not for Sale)

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☎ (042) (327) 7 4 7 8 (直通)

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