ISSN 0021-0382

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IONOSPHERIC DATA IN JAPAN

FOR JUNE 2004

VOL.56 NO.6

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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

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

HOURLY VALUES OF fEs AT Wakkanai

JUN. 2004

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

HD	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	33	26	28	28	G	G	G	41	68	62	G	G	G	G		41	55	89	64	48	60	44	39	G
2	G	G	G	G	32	34	42	44	52	C	64	72	50	44	74	75	88	82	83	32	33	56	40	G
3	28	28	G	G	G	G	42	49	90	51	86	75	62	59	61	46	G	34	G	31	49	32	34	34
4	G	24	G	G	G	40	38	42	52	47	G	G	G	52	46	39	46	38	36	35	45	25	G	28
5	26	G	G	G	G	35	44	52	66	52	70	70	43	G	G	G	41	39	52	31	30	43	G	27
6	G	G	G	G	40	G	39	55	53	97	110	68	50	46	G	G	51	60	71	108	60	50	40	33
7	38	26	G	G	G	34	46	65	58	51	61	G	42	G	45	G	50	40	70	74		36	103	89
8	89	51	87	76	96	52	68	91	97	85	130	69	87	52	107	55	50	68	46	50	40	60	77	G
9	26	26	G	G	G	32	41	51	68	76	59	70	45	46	78	63	45	46	46	92	33	38	46	45
10	38	G	28	G	27	37	48	76	89	79	59	61	G	64	76	72	77	79	53	65	80	86	52	58
11	59	60	60	46	43	43	57	90	112	180	169		141	124	67	62	63	41	90	33	35	51	55	
12	70	39	50	52	G	G	50	56	98	89	76	110		168	78	48	52	41	52	38	60	54	44	
13	79	49	44	43	70	40	45	39	65	72	120			108	91	112	82	90	32	38	27	G	31	54
14	53	54	38	40	72	36	G	38	63	89	88	64	65	51	78	96	92	60	38	39	26	39	34	39
15	43	34	30	26	31	85	46	64	114	80	84	82	61	63	71	G		47	61	50	40	72	29	
16	39	32	28	29	30	29	41	47	64	84	83	62	G	58	60	55	41	35	40	72	60	60	45	32
17	G	G	G	G	G	38	49	58	70	71	59	61	48	59		39	G	G	34	G	G	27	40	38
18	33	38	34	G	G	39	44	66	87	69	41	43	G	G	G	G	52	46	60	70	44	45	G	32
19	60	G	28	G		33	48	70	67	79	66	52	46	G	50	47	40	35	34	34	40	24	26	29
20	25	G	60	49	48	42	56	60	78	96	67	G	42	66	77	45	76	34	G	33	60	60	46	39
21	29	G	32	25	G	G	42	46	72	51	76	72	53	G	43	41	41	39	33	29	43	46	33	29
22	31	28	29	G	27	40	48	51	53	61	G	44	51	47	46	44	52	47	35	30	46	37	38	45
23	30	25	32	33		34	46	59	72	50	42	52	60	G	65	G	106	88	82	68	82	59	40	32
24	30	47	31	29	28	40	59	74	62	79	59	76		78	50	69	61	50	90	70	82	43		106
25	80	56	44	33	38	60	51	52	68	72	148	110	106	87	76	76	78	80	80	78	30	26	38	59
26	45	31	39	G	G	33	62	51	44	48	48	58	60	G	G	59	51	72	77	60	26	48	39	G
27	G	59	33	26	G	G	52	59	50	51	44	48	52	72	84	106	97	63	38	86	59	71	26	27
28	26	G	G	26	G	33	42	45	45	G	G	44		G	69	50	G	42	68	43	58	59	59	33
29	36	69	39	28	G	41	44	60	71	79	48	G	G	50	G	G	G	G	45	G	26	38	50	51
30	36	35	69	60	44	53	58	86	86	72	88	80	87	63	62	46	46	40	53	77	60	57	59	59
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	30	30	30	30	28	30	30	30	30	29	30	28	26	30	28	30	29	30	30	30	29	30	29	27
MED	33	28	30	26	14	36	46	56	68	72	65	62	50	52	64	46	51	46	52	46	44	46	40	33
U Q	45	47	39	33	39	40	51	65	86	82	86	72	61	64	76	63	76	68	70	70	60	59	48	51
L Q	26	G	G	G	G	32	42	47	58	51	48	44	42	G	45	39	41	39	36	33	31	37	32	28

HOURLY VALUES OF fmin AT Wakkanai

JUN. 2004

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	16	14	14	15	18	14	17	15	17	21	23	22	22	21		15	15	17	16	14	14	14	14	15
2	15	14	14	14	15	15	14	14	16	C	21	22	26	27	21	17	18	15	14	15	15	14	14	16
3	15	14	16	14	15	17	15	14	21	20	21	22	29	20	18	18	15	14	14	15	15	14	14	14
4	15	14	14	14	20	14	15	18	17	18	21	24	21	21	23	20	15	14	14	14	14	15	15	15
5	14	14	15	14	18	20	15	15	20	20	20	22	20	22	22	16	20	16	17	15	14	14	16	16
6	20	15	15	14	14	14	14	14	15	18	20	22	21	20	21	20	18	14	14	14	15	15	15	15
7	15	14	14	15	17	14	15	14	17	20	24	24	22	23	21	17	20	15	15	14	14	14	14	14
8	14	14	15	14	14	14	15	15	18	21	22	21	22	27	22	22	15	15	14	14	14	15	15	14
9	14	14	14	14	16	22	14	15	17	21	20	33	20	20	21	20	17	21	14	15	14	14	15	14
10	14	14	14	14	18	14	14	15	14	17	18	21	23	18	18	15	15	16	14	14	14	15	14	15
11	14	14	14	14	14	14	15	14	20	20	18		20	27	21	17	16	15	15	14	14	14	14	15
12	14	15	15	14	15	15	14	18	18	17	21	21	21	21	20	20	20	17	14	14	14	14	15	
13	15	14	14	14	14	14	15	15	18	21	22		23	21	21	20	18	18	14	14	15	15	14	14
14	15	15	14	14	14	14	14	17	18	18	22	21	21	23	20	18	15	16	15	14	15	15	14	14
15	14	15	15	15	14	15	14	16	16	20	20	22	22	20	20	17		14	14	14	14	14	15	14
16	14	14	14	14	14	14	14	14	18	18	21	22	23	22	23	22	20	14	14	14	14	14	14	15
17	14	15	15	14	16	14	14	15	18	20	24	20	21	20		20	17	15	14	20	15	15	14	14
18	14	14	15	15	16	14	14	17	17	18	22	20	21	20	21	20	18	15	15	14	15	14	15	15
19	14	14	14	18	16	14	14	14	17	23	21	23	20	23	21	20	16	15	14	14	15	15	16	16
20	14	15	14	14	14	14	14	15	20	22	23	20	22	23	22	21	21	14	14	14	14	14	15	14
21	14	15	14	14	17	14	15	17	18	16	18	21	21	22	23	17	15	14	14	14	14	14	15	15
22	14	15	14	14	17	18	14	15	20	20	20	20	22	21	18	20	18	14	14	14	14	15	14	15
23	15	14	14	14		15	14	18	17	20	21	23	30	22	20	20	17	14	14	14	14	14	14	15
24	15	15	14	14	14	14	14	15	16	18	20	20	20	23	21	21	15	17	15	15	14	14	14	14
25	14	14	14	14	14	15	15	15	20	20	20	20	21	29	20	21	15	15	14	14	14	14	15	14
26	14	15	14	14	15	14	14	15	15	16	22	21	22	18	15	21	18	18	14	14	15	15	15	15
27	15	14	14	14	15	15	17	15	20	18	20	20	23	21	20	21	18	15	14	14	14	14	17	15
28	15	18	15	17	14	20	16	17	21	23	22	22	20	26	20	18	18	15	15	14	16	14	14	14
29	14	14	14	14	20	14	16	14	15	18	20	23	32	27	26	18	20	15	14	18	16	14	14	14
30	15	14	14	14	14	15	14	17	16	18	18	23	29	18	17	15	15	14	14	14	14	15	14	14
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	30	30	30	30	29	30	30	30	30	29	30	28	30	30	28	30	29	30	30	30	30	30	30	29
MED	14	14	14	14	15	14	14	15	18	20	21	22	22	22	21	20	17	15	14	14	14	14	14	15
U Q	15	15	15	14	17	15	15	17	20	20	22	22	23	23	21	20	18	16	15	14	15	15	15	15
L Q	14	14	14	14	14	14	14	14	16	18	20	20	21	20	20	17	15	14	14	14	14	14	14	14

HOURLY VALUES OF foF2 AT Kokubunji

JUN. 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	63	A	55	54	54	55	71	71	71	58	60		66		A	94	94	A		72	70	A	62	A
2	54	54	54	51	54	59	76	65	64	A	A	A	68	76	84		84	91	87	67	A	A	A	A
3	A	54	54	54	54	48	59	61	A	A	A	A	A	A	91	90	A	A	A	A	66	A	60	66
4	54	62	55	A	54	59	57	66	69	55	61	A	A		66	74	82	88	96		77	73	77	
5	A	A	64	78	61	59	62	67		70	68		A	A	A	A	A	91	91	81	73	77	74	76
6	63	54	63	55	54	50	55	51	66	71	A	61	A	A	A	83	74	73	83	86	87		54	65
7	71	64	66	54	57	58	76	82	A	A		A		68	69	78	85		85	90	87	87	65	66
8	64	51	A	54	55	58	68	64	A	A	A	A	A	83	76	75	83	82	84	A	82	80	76	76
9	78	65	65	A	66	78	57	59	A	A	A	A	A	A	A	A	71	72	77	74	86	63	65	64
10	65	A	62	55	57	64	71	68	62			66	66	72		84	78	72	78	86	73	54	54	54
11	55	54	54	52	54	54		A	77	A	65		A	A	A	66	63	53	66	72	55	53	54	54
12	52	49	48	45	46	52	54	57	64	67	A		A	59	69	69	71	72	76	71	63	54	54	54
13	61	59	54	54	55	65	A	64	61	56		66	71	67	67	72	69	71	74	83	84	76		62
14	54	66	66	66	63	47	55	59	56					71	74	74	73	77	83	85	90	81	72	66
15	54	65	66	65	54	48	69	54		A	A	A	A	A		A	56	55	62	77	54	42		
16	38	43				37	54	47			A	A	A	A	A	A	A	72	59	66	55	59	51	55
17	A	A	A	44	54	56	56	59	55		A	A		66	68	66		67	74	78	78	72	66	63
18	66	62	59	55	A	59	62	62	A	A	A	A			67	78	75	63	66	74	54	A	A	A
19	55	A	52	54	54	53	58	A	73	A		A	A	A	68	72	77	82	86	86	81	63	54	54
20	54	52	45	47	46	52		A	58	58	62					A	A	65	A	80	A	65	66	66
21	66	66	61	55	56	51	64	64		67	A	A	68	A	A			62		88	51	54	A	54
22	65	65	55	52	46	51	64	71		A	62		A		75	A	72	69	A	84	77	72	64	54
23	66	A	60	55	47	A	61		73	A	A	A	A			68	A	72	A	83	78	52	64	A
24	55	61	63	63	65	62	65	A	A	66	73	A	A		A	A	A		71	78	A	76	77	75
25	66	63	59	57	54	61	69	A		78	72	63	A	64		62	A	75	83	A	75	A	64	54
26	61	A	55	54	52	52	59	65	A		A	A	A	A	A		A	A	A	72	A	78	65	A
27	65	62	54	54	55	62	56	A	A		A	A	A	69		71	75	78	77	86	83	70	64	76
28	76	75	71	66	57	52	62	72	86	83	A	58	A	A	A	72	87	77	72	65	85	72	63	61
29	66	65	64	61	62	58	66	62	A	72	A	A	A	A	87	75	73	77	90	105	88	54	51	53
30	53	A	55	54	44	52	61	78	74	A	A		68	A		A	A	A	A	86		66	62	A
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	27	22	27	27	28	29	27	23	15	12	8	5	6	10	13	19	19	24	22	26	25	24	25	22
MED	63	62	59	54	54	55	62	64	66	67	64	63	68	68	69	74	75	72	78	80	77	68	64	62
U Q	66	65	64	57	57	59	68	68	73	71	70	66	68	72	80	78	83	77	85	86	84	76	66	66
L Q	54	54	54	54	54	51	57	59	61	58	61	59	66	66	67	69	71	68	72	72	64	54	54	54

HOURLY VALUES OF fEs AT Kokubunji

JUN. 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	31	60	G	G	G	G	G	42	64	48	53	50	52	60	100	68	43	112	G	60	57	91	81	91
2	48	41	40	36	26	G	39	52	55	104	149	100	51	47	90	88	62	85	49	72		80	145	71
3	78	50	40	35	30	26	45	G	76	80	105	122	105	176		102	110	92	96	84	50		40	49
4	53	60	70	80	G	43	38	41	59	58	56	83	70	55	80	68	G	G	40		33	G	40	103
5	80	94	36	23	G	G	42	54		68	50	61	58	109	142	163	118	93	70	40	45		35	49
6	58	48	G	G	36	41	40	55	57	61	78	51	82	128	133	59	61	82	82	83	70	33	36	59
7	55	49	68	G	26	32	45	62	76	69	64	66	62	72	50	68	52	130	71	80	69	49	40	43
8	50	59	79	49	28	40	51	68	86	117	104	117	91	74	41	45	G	47	72	85	79	67	60	60
9	60	51	59	68	G	33	47	47	66	94	78	79	91		107	101	78	G	43	29	36	G	69	51
10	60	60	48	G	G	G	40	69	61	52		G	G	50	80	47	45	G	33	G	33	58	36	34
11	40	60	33	61	G	G		61	71	75	51		106	63	69	54	45	40	G	G	G	26	G	28
12	41	36	G	G	G	G	34	G	54	67	64	56	55	54	G	G	G	G	G	G	G	G	54	34
13	53	43	41	39	52	58	69	50	43	62		61	52	46	G	G	G	G	39	G	G	G		G
14	G	29	45	25	27	G	33	G	46	69	63	54	49	61	50	70	54	G	33	45	G	34	40	37
15	40	40	31	30	G	33	G	45	39	95	61	162	69	84	51	59	48	41	33	31	25	31	31	
16	G	G				G	G	44	52	46	59	81	85	85	104	81	65	58	45	33	50	33	59	58
17	69	60	48	46	42	32	49	G	48	54	77	94	64	62	60	64	60	39	33	26	26	G	G	26
18	58	60	49	73	60	G	66	72	86	122	126	79		45	G	G	G	39	43	60	53	70	79	82
19	58	60	41	30	G	29	36	69	57	103	64	84	104	73	61	G	64	54	52	61	50	56	32	40
20	G	59	49	39	26	60	78	94	62	51	50	62	60	48	47	106	106	52	91	59	60	42	32	31
21	29	G	G	G	G	G	G	47	60	50	112	101	52	114	107	77	61	84	58	60	50	59	58	50
22	40	40	42	34	G	34	38	52	63	89	61	58	67	56	68	71	62	51	71	60	31	G	G	28
23	79	72	51	47	41	60	43	64	61	140	175	106	140	72	82	G	92	48	80	116	60	94	78	67
24	71	57	67	71	30	41	52	71	108	78	82	70	92	60	75	77	67	152		90	92	50	49	49
25	32	32	G	31	27	29	47	82		70	61	55	76	61		G	89	46	41	88	61	59	43	53
26	60	85	60	49	51	27	34	45	90	104	150	68	101	48	86	72	80	106	150	105	83	60	82	81
27	39	46	G	G	G	G	48	67	77	71	75	82	109	G	45	53	40	55	35	31	G	59	32	33
28	G	G	33	27	28	G	39	G	51	G	65	50	68	81	108	55	50	54		35	70	38	G	51
29	44	43	26	24	26	33	G	42	97	G	62	84	178	133	65	60	43	39	32	36	26	26	26	31
30	49	60	47	51	G	G	G	57	70	84	113	51	60	129	111	117	164	92	109	81	33	28	56	94
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	30	30	29	29	29	30	29	30	28	30	28	29	29	29	28	30	30	30	28	29	29	28	29	29
MED	50	50	41	34	26	28	40	52	62	70	64	70	69	62	72	66	60	52	44	60	50	40	40	49
U Q	60	60	50	49	30	34	47	67	76	94	104	89	96	84	102	77	78	85	71	82	60	59	59	63
L Q	39	40	28	12	G	G	33	42	54	54	61	55	56	52	50	47	43	39	33	31	26	26	32	33

HOURLY VALUES OF fmin AT Kokubunji

JUN. 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	15	17	14	22	26	20	23	24	35	36	36	33	41	29	25	22	13	13	13	14	15	17
2	15	13	14	14	14	14	13	17	21	33	33	33	37	38	36	35	20	23	13	13	13	13	13	14
3	14	14	14	14	15	17	14	21	23	34	35	36	34	34	34	22	14	21	14	14	14	13	13	13
4	13	14	14	13	14	13	13	14	22	34	36	37	34	40	35	33	22	14	14		14	21	13	14
5	14	14	13	13	13	14	14	20		34	34	37	34	34	30	24	22	15	13	14	13	13	13	14
6	14	13	14	14	13	13	14	14	22	33	36	40	38	37	33	35	24	20	14	13	14	13	14	14
7	13	17	14	13	13	15	14	15	20	33	36	37	37	35	34	30	22	13	14	14	13	13	13	14
8	13	13	13	13	14	13	18	22	21	34	33	33	34	31	33	31	15	23	14	13	17	13	13	14
9	13	13	14	14	15	18	13	29	23	26	38	34	35	30	24	22	18	21	13	13	14	22	14	15
10	13	14	17	14	14	22	13	20	22	33			50	38	34	33	29	28	17	18	13	13	14	13
11	14	13	14	13	13	22		21	20	30	36		36	38	36	35	29	17	14	14	14	14	20	13
12	17	14	13	22	17	18	14	40	23	33	34	34	35	34			44	17	13	21	14	14	13	13
13	14	13	14	13	14	17	14	18	22	46		38	38	37	52	51	21	15	17	17	14	14		15
14	14	17	13	15	14	13	14	21	26	35	37	38	38	39	37	33	23	18	13	14	46	14	14	14
15	14	13	13	13	14	14	13	21	31	39	39	39	37	38	37	34	22	17	13	13	14	13	13	
16	18	14				14	14	24	23	34	35	37	36	35	34	28	30	17	14	14	14	14	13	13
17	13	13	14	13	13	13	14	42	21	35	34	33	34	30	28	22	20	14	13	13	14	17	14	15
18	15	14	15	17	14	13	17	22	24	31	35	35		38	48	47	21	18	15	23	13	15	14	13
19	14	14	14	13	15	14	13	17	30	34	34	35	35	34	33	25	18	13	13	13	13	14	14	14
20	17	14	13	13	13	13	20	14	13	33	35	36	37	38	31	20	23	15	13	15	15	13	13	14
21	13	13	14	14	18	15	18	21	31	34	34	31	34	33	26	23	23	17	18	17	13	13	14	13
22	13	13	13	13	20	14	24	14	31	31	34	34	34	33	30	25	18	20	14	21	14	14	20	15
23	14	14	13	13	13	15	18	30	31	34	35	34	36	36	34	50	30	22	18	23	18	14	14	13
24	13	13	13	13	13	13	13	17	22	36	34	35	31	34	31	31	22	24	14	14	14	17	14	14
25	14	14	18	13	15	14	20	22		31	31	35	39	36		45	33	25	14	14	15	14	14	14
26	14	14	14	13	14	15	14	17	20	30	34	36	35	35	37	38	31	23	14	13	14	14	13	14
27	14	18	15	14	13	21	14	20	30	37	36	35	34	53	30	25	22	15	15	14	17	34	13	14
28	13	14	13	13	13	26	20	22	26	49	35	38	37	38	34	34	24	18	17	13	14	18	14	14
29	17	13	17	13	14	14	13	18	21		36	35	36	39	29	28	22	20	13	14	17	15	14	14
30	13	13	14	14	18	22	25	18	25	33	33	34	34	34	31	23	20	14	13	15	14	15	14	13
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	30	30	29	29	29	30	29	30	28	29	28	28	29	30	28	29	30	30	30	29	30	30	29	29
MED	14	14	14	13	14	14	14	20	23	34	35	35	36	36	34	31	22	18	14	14	14	14	14	14
U Q	14	14	14	14	15	18	18	22	26	34	36	37	37	38	36	35	25	22	14	16	14	15	14	14
L Q	13	13	13	13	13	13	13	17	21	32	34	34	34	34	30	24	20	15	13	13	13	13	13	13

HOURLY VALUES OF foF2 AT Yamagawa

JUN. 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	66	66	72	58	54	58	64	66	A	A	A	A		80	86	100	107	92	81	74	66		A	54
2	53	52	51	54	52	52	55	62	67	A	A	67	72	80	86	84	87	100	78	66	66	A		A
3	A	A	51	A	53	51	55	58	A		67	70	A	84	88	A	A	A	78	74	77	66	A	54
4	63	66	53	51	50	47	60	66	A	65	A	67	75	A	74	82	86	86		95	83	84	A	77
5	80	76	A	A	65	63	73	70	76	79	A	A	A	A	77	82	87	88	88	83	81	84	75	77
6	86	77	78	66	54	58	66	64	64	68		63	75	81	82	85	78	78	85	85	78	76	59	76
7	79	73	77	54	66	71	85	64	67	62	A		A	76	80	82	82	81	87	86	84	78	77	
8	73	77	55	60	54	51	60	71	71	66	A	A	A	A	77	78	82	79	82	78	77	66	74	66
9	74	73	77	65	66	54	54	62	A	A	A	A	A	A	82	A	A	84	90	85	77	66	77	64
10	78	78	75	65	63	53	69		61	67	A	67	67	72	77	81	81	78	80	86	78	53	38	51
11	54	61	52	44	43		33	61	71	80	67			A		78	77	74	73	77	78	66	42	61
12	55	61	54	52	52	51	54	66	62		59	A	A	A	A	A	78	81	84	78	66	54	38	48
13	A	A	A	A	48	45	A	A	56	63	57		67	67	76	76	82	82	86	85	78	80	78	72
14	60	55	66	52	52	50	52	67	57	65			62	70	77	76	80	86	90	88	82	80	54	52
15	62	66	66		47	52	58		A	A	A		A	A	A	60	70	73	65	68	52	42		36
16	A	50	34	A	A	30	49	52	A	A	A	A	A	A			A	A	60	62	A	53	53	53
17	34	54	A	55	42	A	52	62	70		57			A	A	76	A	84	81	77	78	77	51	54
18	66	70	52	66		60	60	61	78	72	63			70	80	81	80	A	A	78	76	68	A	A
19	A	A	52	50	52	47	62	A	A	A	A	A	A	A		80	87	103	100	85	75	66	66	65
20	55	52	63	63	63	63	66	73	64			64	58				64	71	78		A	66	65	66
21	64	66	66	61	50	47	59	64	A	62	67	70	68	67	73	71	75	A	92	86	66	54	52	54
22	54	54	75	51	54	50	59	63	60	A	A	A	A	A	75	81	78	77	80	78	77	54	54	52
23	52	54	54	50	A	50		A		67	68	68	A	A	A	77	81	81	80	80	83	A	58	63
24	54	54	66	65	54	54	62	70	70	A		A	A	74		A	75	78	80	80	73	70	63	54
25	65	66	74	66	66	58	60	63	76	77	66	65	59	60			78	82	A	80	73	A	A	66
26	65	66	63	61	54	A	54	65	A	75	A						69	A	A	66	81	75	A	54
27		59	66	65	62	62	52		A	A	A		A	A	A	A	A	A	83	80	66	71	71	73
28	76	73	71	54	52	51	52	73	77	75			61		72	80	80	78			83	A	A	77
29	73	74	79	70	52	52	52	62	74	68	A	A	A	80	A	A	86	A	72	89		51	53	52
30	52	54	66	66	52	47	57	68	59	63		63	73	73		A	78	A		A	A	A	58	52
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	25	27	27	25	27	27	28	24	19	17	9	10	11	14	16	19	25	22	24	27	26	24	21	27
MED	64	66	66	60	53	52	58	64	67	67	66	67	67	74	77	80	80	81	81	80	77	66	58	54
U Q	73	73	74	65	62	58	62	67	74	75	67	68	73	80	82	82	84	86	86	85	81	76	72	66
L Q	54	54	53	52	52	50	53	62	61	64	58	64	61	70	75	76	77	78	78	77	73	54	52	52

HOURLY VALUES OF fEs AT Yamagawa

JUN. 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	40	32	26	42	31	28	G	46	74	95	95	146	79	57	57	G	G	G	G	27	33	70	59	49
2	41	43	44	43	34	37	32	40	77	94	91	58	G	G	54	66	95	64	81	71	36	58		104
3	84	79	59	58	50	40	54	52	71	62	67	82	97	71	86	94	91	105	66	36	28	91	84	82
4	40	56	55	40	35		46	57	92	53	68	57	61	88	90	48	G	G	36	43	40	58	71	35
5	43	50	91	103	59	60	57	52	59	61	64	86	80	50	54	G	61	G	36	71	59	49	34	70
6	57	59	44	41	39	G	35	56	45	49	44	G	71	98	52	82	47	40	39	28	30	G	G	49
7	34	36	40	26	G	24	28	38	G	56	116	63	90	57	54	70	76	96	53	42	40	33	30	40
8	29	29	28	G	G	G	55	72	63	68	82	86	95	88	71	68	68	50	G	27	G	G	59	40
9	58	72	60	58	44	G	39	55	62	79	74	115	93	84	70	85	113	44	101	68	32	39	36	36
10	49	90	59	25	36	G	G		52	52	62	58	49	G	G	50	60	58	45	39	30	28	25	37
11	57	30	32	27	26	40	47	51	48	G	51	G	58	63	61	49	40	52	41	40	38	41	33	32
12	26	40	51	32	28	25	G	36	G	40	G	55	69	60	80	77	48	53	41	30	29	G	G	G
13	48	70	72	43	32	36	68	79	54	50	52	46	G	G	G	55	G	G	G	G	29	37	G	G
14	G	G	43	40	26	G	33	42	40	42	42		G	58	54	54	58	43	36	26	29	26	G	28
15	30	45	61	67	G	32	37	58	80	147	67		54	73	54	G	G	49	46	44	39	30	30	29
16	40	G	23	40	39	G	34	41	51	49	50	68	64	58	48	52	70	60	51	44	84	32	24	27
17	G	G	45	26	30	44	31	G	42	51	51	64	63	84	85	70	90	52	56	71	42	28	G	G
18	G	G	27	34	35	30	33	53	41	40	G	G	G	G	55	42	58	125	92	49	71	134		72
19	91	59	30	34	G	41	50	80	69	117	88	148	85	118	73	71	71	50	56	80	85	G	30	33
20	24	28	26	30	G	26	31	43	G	58	56	61	G			47	57	55	54	71	86	42	33	34
21	26	G	24	G	G	24	36	50	70	58	53	78	G	G	42	68	74	86	56	27	57	44	53	49
22	43	76	48	32	25	29	33	49	57	89	93	70	84	90	54	64	50	58	79	42	27	39	28	39
23	29	28	41	36	53	39	50	90	73	51	54	58	84	77	111	G	49	62	80	46	94	84	51	43
24	46	34	33	G	36	42	54	57	57	81	81	95	118	58	54	77	42	52	90	60	32	38	34	40
25	34	40	40	34	28	24	32	38	43	53	60	60	G	55		60	39	74	116	36	58	85	92	36
26	40	42	29	26	55	67	48	59	93	62	85	49	56	56	46	82	G	92	80	58	78	79	92	59
27	59	53	30	37	28	G	34	50	87	68	85	58	87	81	148	87	107	103	73	28	32	40	33	30
28	56	80	76	65	40	32	47	G	60	44	62		G	57	62	100	G	38	39	32	30	91	69	58
29	72	57	41	38	36	34	34	37	46	60	77	80	104	71	80	93	78	89	66	52		29	26	G
30	G	G	G	G	G	G	G	39	62	55	64	58	G	G	83		81	116	93	134	90	58	56	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	30	30	30	30	30	29	30	29	30	30	30	27	30	29	28	29	30	30	30	30	29	30	28	30
MED	40	41	41	35	32	29	34	50	58	57	64	61	64	58	56	66	58	54	55	42	38	40	33	38
U Q	56	59	55	42	39	39	48	57	71	68	82	82	85	82	80	79	76	86	80	60	65	58	57	49
L Q	29	28	29	26	25	G	32	39	45	50	52	57	G	52	54	48	40	44	39	30	30	29	25	30

HOURLY VALUES OF fmin AT Yamagawa

JUN. 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	14	15	15	14	15	15	15	17	21	23	29	29	29	23	20	17	16	15	15	14	15	14	14
2	14	15	14	15	14	14	15	15	17	26	24	43	52	54	38	21	20	16	15	15	15	14		15
3	14	14	14	14	14	15	16	15	16	18	26	30	23	27	22	18	20	17	15	14	14	15	14	15
4	14	14	14	15	14	14	14	15	15	18	33	35	33	33	27	21	18	17	15	14	15	15	14	15
5	15	15	15	15	14	14	15	15	18	27	29	32	32	27	22	24	18	17	15	15	14	14	14	14
6	15	15	14	15	14	15	17	15	18	20	26	33	28	34	22	23	22	15	14	16	15	15	21	14
7	14	14	15	15	14	14	16	15	17	29	34	34	33	30	34	20	18	17	15	14	14	14	14	15
8	14	14	15	15	15	16	14	15	18	21	26	23	32	28	22	22	18	15	14	15	18	14	14	15
9	15	15	14	14	15	15	14	14	17	21	29	27	23	23	36	18	18	16	14	14	15	15	14	15
10	14	14	14	16	15	15	15		16	16	22	29	26	23	24	21	20	15	14	18	14	15	16	15
11	15	15	15	17	15	16	14	15	18	21	22	46	39	38	24	21	17	15	15	14	15	14	15	15
12	14	15	14	14	16	15	15	15	18	18	50	28	34	28	32	21	24	17	15	15	15	15	18	15
13	14	15	14	15	15	15	16	16	18	24	24	34	52	54	52	34	18	18	14	18	15	15	15	18
14	17	18	15	16	15	15	18	15	17	24	35		58	40	37	21	18	17	15	17	15	15	15	15
15	15	15	16	15	15	14	15	16	18	23	24		27	30	27	24	21	16	14	16	17	15	15	15
16	14	15	16	14	15	15	17	15	18	21	24	29	27	28	33	26	21	17	14	15	16	15	15	14
17	17	15	15	16	15	15	14	16	17	23	30	27	30	34	30	18	20	17	15	14	14	15	15	15
18	15	17	15	15	15	15	14	15	18	20	21	30	29			24	22	20	15	14	17	15	15	15
19	16	15	15	15	17	14	18	15	16	21	33	30	36	26	33	23	21	16	14	15	15	15	14	14
20	15	14	17	14	15	14	15	15	16	32	28	36	50			20	22	16	14	15	15	15	15	14
21	16	16	14	15	16	15	16	16	18	21	21	39	30	30	27	23	21	17	14	17	15	15	15	15
22	14	14	14	15	17	15	17	15	17	18	22	30	33	36	29	26	20	17	15	14	15	15	15	14
23	15	14	15	14	14	15	16	17	18	21	23	29	42	30	32		18	17	18	15	15	14	14	14
24	15	15	14	15	14	14	14	15	17	20	22	33	34	35	33	32	21	17	15	14	14	14	14	14
25	15	14	15	14	15	15	15	15	21	20	29	33	36	35		23	20	17	14	15	15	15	14	15
26	15	15	14	14	15	14	14	14	18	20	38	39	38	40	38	44	48	18	18	14	15	14	14	14
27	14	15	15	14	14	17	14	15	18	28	29	30	30	33	29	23	18	16	15	17	15	14	15	15
28	16	15	14	15	14	16	14	14	23	20	24		30	40	22	30	22	17	14	15	15	14	15	14
29	15	14	14	14	15	14	14	14	17	18	23	34	34	34	34	28	21	17	14	15		15	15	15
30	16	17	15	14	17	15	21	15	18	20	24	24	33	33	27	24	20	17	16	15	15	14	14	15
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	30	30	30	30	30	30	30	29	30	30	30	27	30	28	27	29	30	30	30	30	29	30	29	30
MED	15	15	15	15	15	15	15	15	18	21	25	30	33	33	29	23	20	17	15	15	15	15	15	15
U Q	15	15	15	15	15	15	16	15	18	23	29	34	36	35	34	25	21	17	15	15	15	15	15	15
L Q	14	14	14	14	14	14	14	15	17	20	23	29	29	28	24	21	18	16	14	14	14	14	14	14

HOURLY VALUES OF foF2 AT Okinawa

JUN. 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	76	72	75	71	75	75	60	54	64	66	A	74	90	98	108	117	116	108	A		A	A	A	66
2	64	61	54	54	46	47	55	70	70	75	70	83	88	105	114	112	111	114	107	83	A	73		65
3	A	54	52	61	51	A	51	55	A	A	A	A	87	107	118	120	116	106	90	87	80	78	66	65
4	54	74	78	54	52	49	54	64	70	A	A	A	75	70	84	94	A	117	120	110	88		86	83
5	85	83	76	75	76	71	65	76	A	A	A	A			97	104	107	107	A	108	105	87	86	88
6	87	87	80	A	A	63	72	65	A	A		A	78	97	98	113	104	102	110	110	87	82	82	73
7	85	80	71	83	65	75	79	61	65	68	67	A	A	A	91	91	98	107	102	104	108	88	77	78
8	76	78	72	66	66	60	65	64	63	A	A	73	78	88	96	93	100	102	101	89	87	86	76	76
9	78	82	74	72	65	47	51	71		A	A	A	A	90	104	116	126	117	111	110	88	102	87	86
10	86	85	87	86	73	66	74	66	66	61	67	80	77	77	86	92	91	101	102	106	80	54		53
11	74	72	64	74	86	51	46	A	83	67	64	61	A	A	78	90	90	82	84	87	86	66	64	46
12	54	64	63	A	56	52	64	62	55	66	56	62	61	65	68	77	89	101	108	106	66		54	53
13	53	52	A		42	A	48	55	A	71		65	64	78	80	93	100	107	121	110	89	87	87	86
14	73	86	78	66	66	52	53	61	65	56	64	61	64	74	77	80	90	108	108	90	88	80	73	73
15	72	72	81	82	44	38	54	57	53			64	65			74	86	88	70	76	66	43	43	43
16	43	52	58	A	A		50	58	48	A	54	A	A	A	A		A	66	A	62	54	51	53	53
17	51	54	51	54	37	34	43	72	61	57		63	60	80	90	93	A	98	101	84	90	66	54	66
18	66	64	62	52	64		57	66	74	60	62	59	66	83	93	97	97	96	86	87	90	77	51	52
19	59	52	66	52	52	61	60	65	66	67	A	64	68	A	78	A		115	107	89	81	76	72	72
20	66	66	65	64	62	62	66	75	66	62	67	74	66	72	68	72	69	82	85	83	66	66	65	65
21	66	66	63	58	56	50	58	61	58	66	68	71		86	87	83	90	98	98	86	76	66	64	
22	66	72	66	60	57	58	60	57	61	67	72	A	A	A		87	90	86	88	A	78	54	54	62
23	65	66	62	56	54	47	51	64	67		80	A	70	67	76	85	90	101	110	105	86	72	66	66
24	66	73	72	66	60	61	72	64	71	70		A	A	81	74	80	80	96	89	80	76	74	74	72
25	66	72	74	72	57	51	52	65	71	81	72	68		65	71	80	84	88	101	87	74	66	66	66
26	65	74	74	61	54	51		66	82	66	61		66	68	A	72	72	74	78	88	81		64	65
27	65	66	66	65	71	45	43	56	70	72	A	A	A	A	72	A	79	A	91	87	78	70	74	76
28	77	72	72	62	56	48	51	72	78	68	58		65	73	82	76	74	85	94	90	86	73	77	74
29	72	74	84	65	51	42	50	64	78	64	A	A	A		A	100	A	A	110	110	76	54	54	62
30	65	66	72	74	52	48	52	58	64	62	62	67	75	86	A	A	84	A	98	100		64	A	66
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	29	30	29	26	28	26	29	29	25	21	16	16	19	21	24	26	25	27	27	28	27	26	26	29
MED	66	72	72	65	56	51	54	64	66	66	66	66	68	80	85	92	90	101	101	89	81	72	66	66
U Q	76	74	75	72	65	61	64	66	71	69	69	73	78	89	96	100	102	107	108	106	88	80	77	75
L Q	64	64	63	58	52	47	51	58	62	62	61	62	65	71	76	80	84	88	89	86	76	66	54	62

HOURLY VALUES OF fEs AT Okinawa

JUN. 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	72	78	49	31	28	24	G	38	42	95	164	123	56	59	50	50	49	40	96	80	92	105	91	47
2	39	42	36	31	34	42	34	87	48	40	59	58	46	63	68	67	49	47		40	85	60	52	92
3	82	67	56	33	29	46	43	55	73	114	113	151	69	74	59	50	47	56	38	34	27	26	36	58
4	81	82	48	53	55		72	50	50	87	125	94	84	62	58	67	137	77	45	36	44	36	35	81
5	70	92	80	71	56	77	47	72	107	151	136	100	74	79	48	59	58	78	146	92	43	34	25	39
6	71	56	79	93	83	56	32	70	79	134	76	166	78	67	85	91	90	68	49	41	24	G	G	G
7	G	G	G	G	G	G	28	37	50	51	50	105	83	105	73	96	86	87	103	54	40	29	28	25
8	25	G	G	G	G	G		38	58	95	95	66	77	79	80	56	54	43	54	33	36	25	G	26
9	71	67	57	80	78	30	39	45	64	78	131	82	104	59	60	59	72	66	45	33	68	49	G	G
10	30	G	G	G	36	G	G	34	G	56	70	53	G	G	G	G	50	52	45		32	34	26	33
11	34	29	27	25	G	G	43	56	50	47	G	56	64	74	59	50	59	44	51	50	34	31	32	40
12	30	25	40	50	78	G	G		43	51	G	50	G	50	64	66	61	59	38	37	36	36	32	G
13	G	60	79	90	39	67	45	46	81	48	52	61	54	44	G	G	G	G	G	G	25	G	G	30
14	G	G	G	25	37	36	G	32	36	51	G	G	G	G	G	G	49	40		27	34	35	30	24
15	G	G	G	G	G	G	34	39	45	G	G	50	G	55	68	62	G	46	32	40	42	G	25	24
16	26	54	34	34	70	27	35	38	49	56	55	71	66	78	107	67	96	55	81	38	23	39	25	29
17	G	G	G	G	35	G	28	G	44	48	56	G	61	66	75	84	110	88	38	71	51	27	27	G
18	G	G	G	50	78	64	28	35	40	42	47	49	G	G	54	48	57	55	37	32	G	27	32	46
19	49	55	59	G	31	28	28	55	92	47	91	65	104	90	72	104		77	112	80	47	30	28	33
20	37	G	G	29	25	23	33	40	42	58	62	52	G	G	43	42	45	48	48	35	39	40	43	G
21	G	G	G	G	G	G	29	39	54	58	54	57	93	64	G	58	102	76	76	84	56	33	37	35
22	37	40	30	29	30	G	G	34	44	56	62	104	175	104	82	84	76	65	85	135	53	58	28	29
23	26	25	26	24	G	27	G	G	48	68	66	66	G	G	G	G	G	G	G	G	G	G	G	40
24	37	31	26	G	G	G		34	51	42	70	77	78	83	57	G	51	G	40	58	43	60	34	59
25	58	29	25	25	25	G	G	36	36	48	52	58	G	G	G	50	68	39	42		G	40	38	36
26	46	G	43	30	36	34	60	58	48	39	55	G	G	60	90	49	55	44	92	91	33	38	29	26
27	27	36	26	24	32	27	G	44	52	87	134	76		134	67	95	100	108	58	76	60	43	30	29
28	36	36	G	G	G	G	28	G	G	42	G	G	G	G	60	56	50	51	58	36	25	55	37	40
29	57	54	34	35	28	34	44	41	41	56	81	86	90	99	98	77	175	129	107	61	40	30	29	G
30	G	G	G	24	G	G	G	35	42	53	54	97	48	79	96		98	94	56	72		43	70	59
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	30	30	30	30	30	29	28	29	30	30	30	30	29	30	30	29	29	30	28	28	29	30	30	30
MED	35	30	26	27	30	24	28	39	48	54	60	66	61	64	60	58	58	55	50	40	39	34	30	32
U Q	57	55	48	35	39	35	41	52	54	78	91	94	80	79	75	72	93	77	83	74	49	43	36	40
L Q	G	G	G	G	G	G	G	34	42	47	52	52	G	44	48	48	49	44	39	34	26	27	25	24

HOURLY VALUES OF fmin AT Okinawa

JUN. 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
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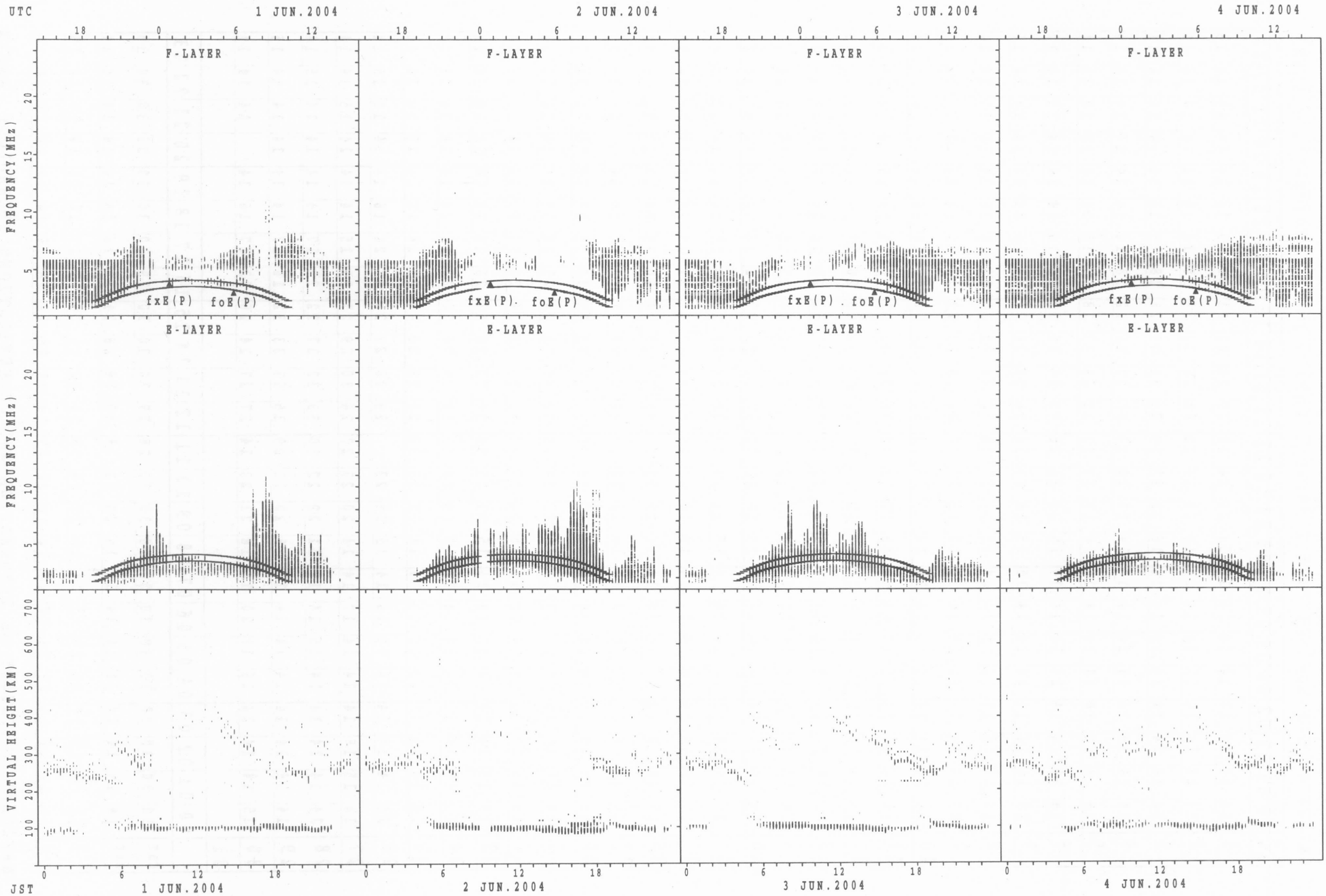
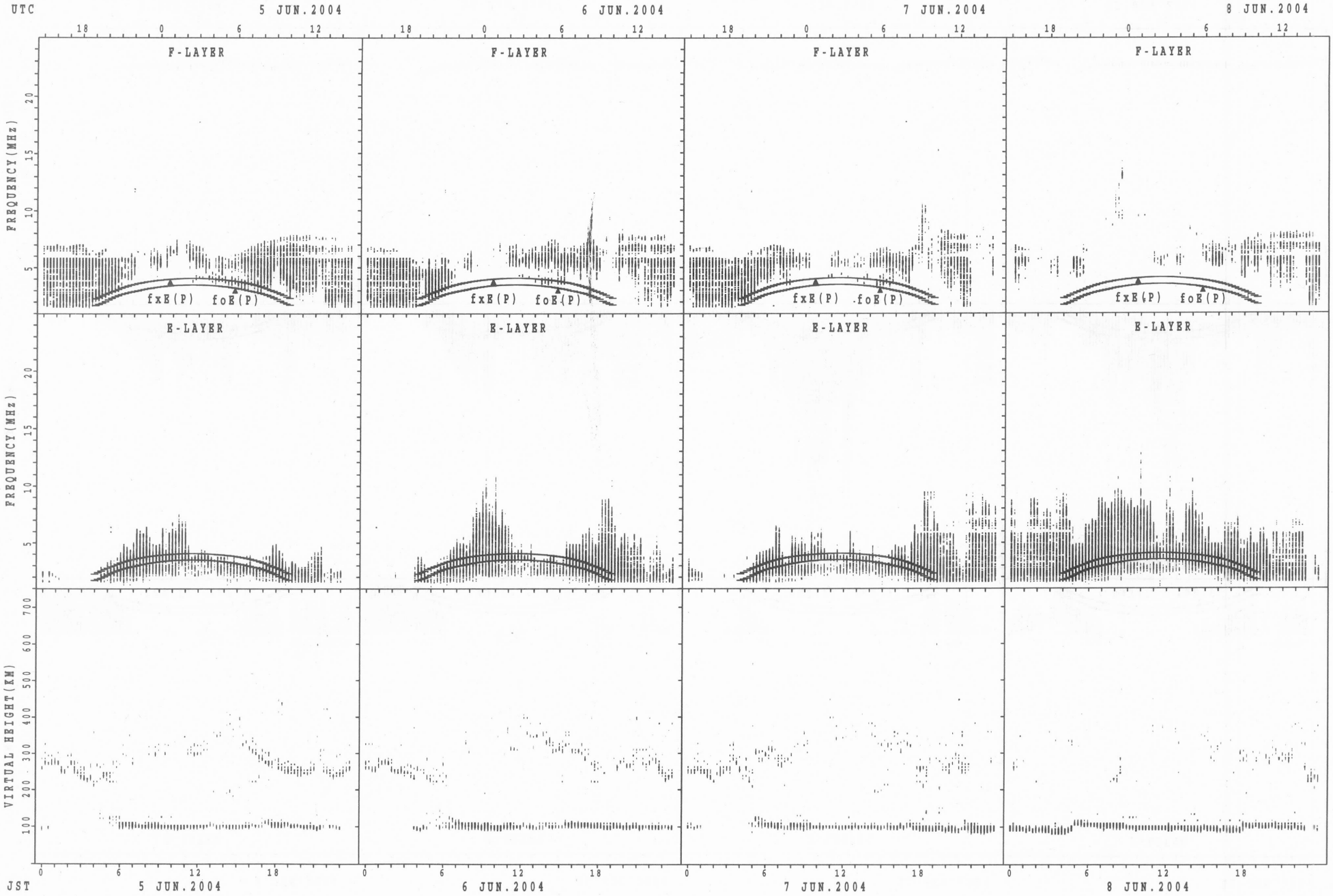
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	30	30	30	30	30	30	30	30	30	30	28	29	30	30	30	29	30	30	30	29	30	30	30
MED	14	14	14	14	14	14	14	14	15	20	23	28	30	28	28	24	20	16	14	14	14	14	14	14
U Q	15	15	15	14	14	15	15	14	16	22	24	30	33	32	32	26	21	17	14	14	14	14	14	15
L Q	14	14	14	14	14	14	14	14	14	18	22	25	28	28	26	22	18	15	14	14	14	14	14	14

SUMMARY PLOTS AT Wakkanai

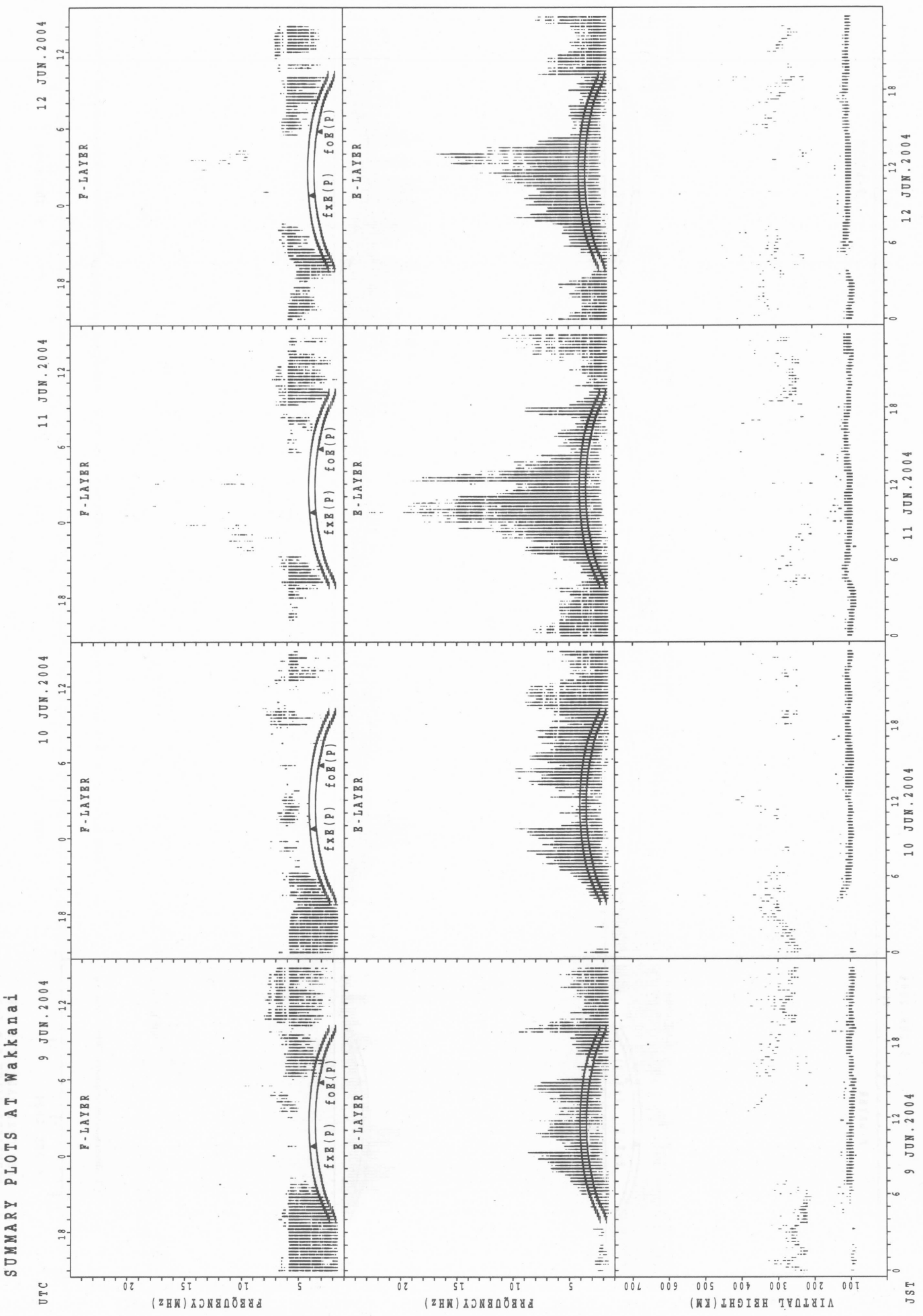


fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

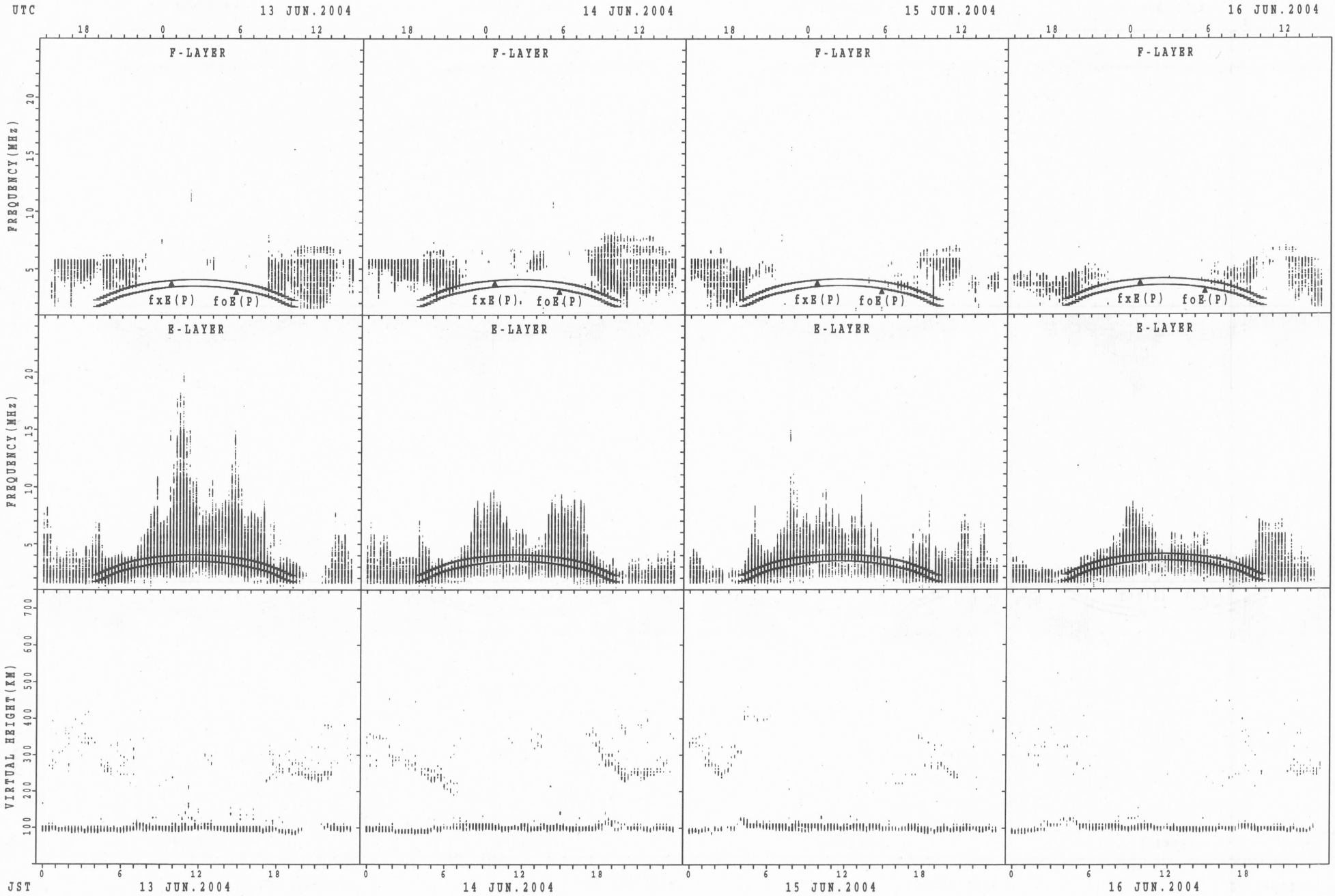
SUMMARY PLOTS AT Wakkanai



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

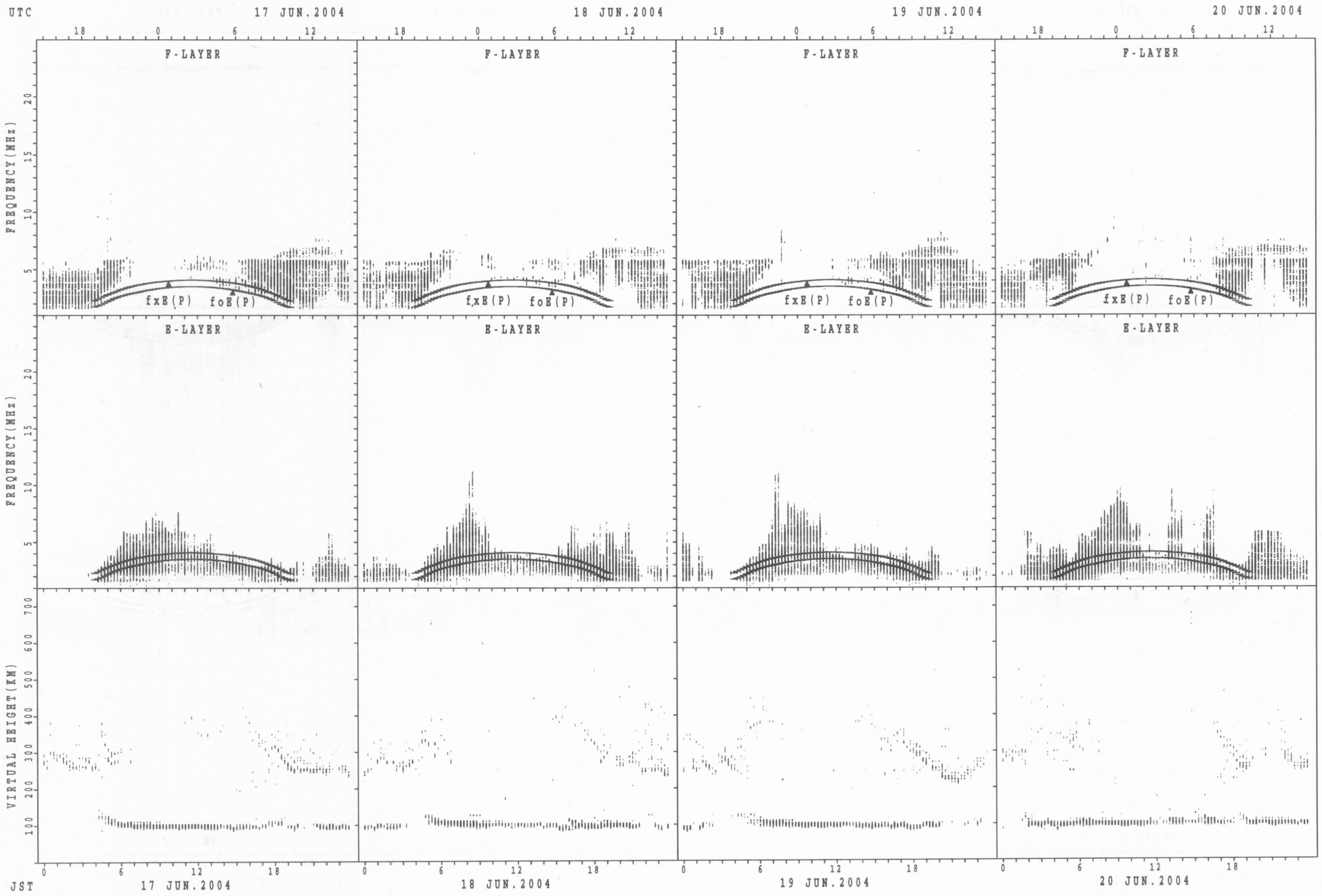

SUMMARY PLOTS AT Wakkanai
UTC
JST
9 JUN.2004
10 JUN.2004
11 JUN.2004
12 JUN.2004
F-LAYER
E-LAYER
fxE(P) foE(P)
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



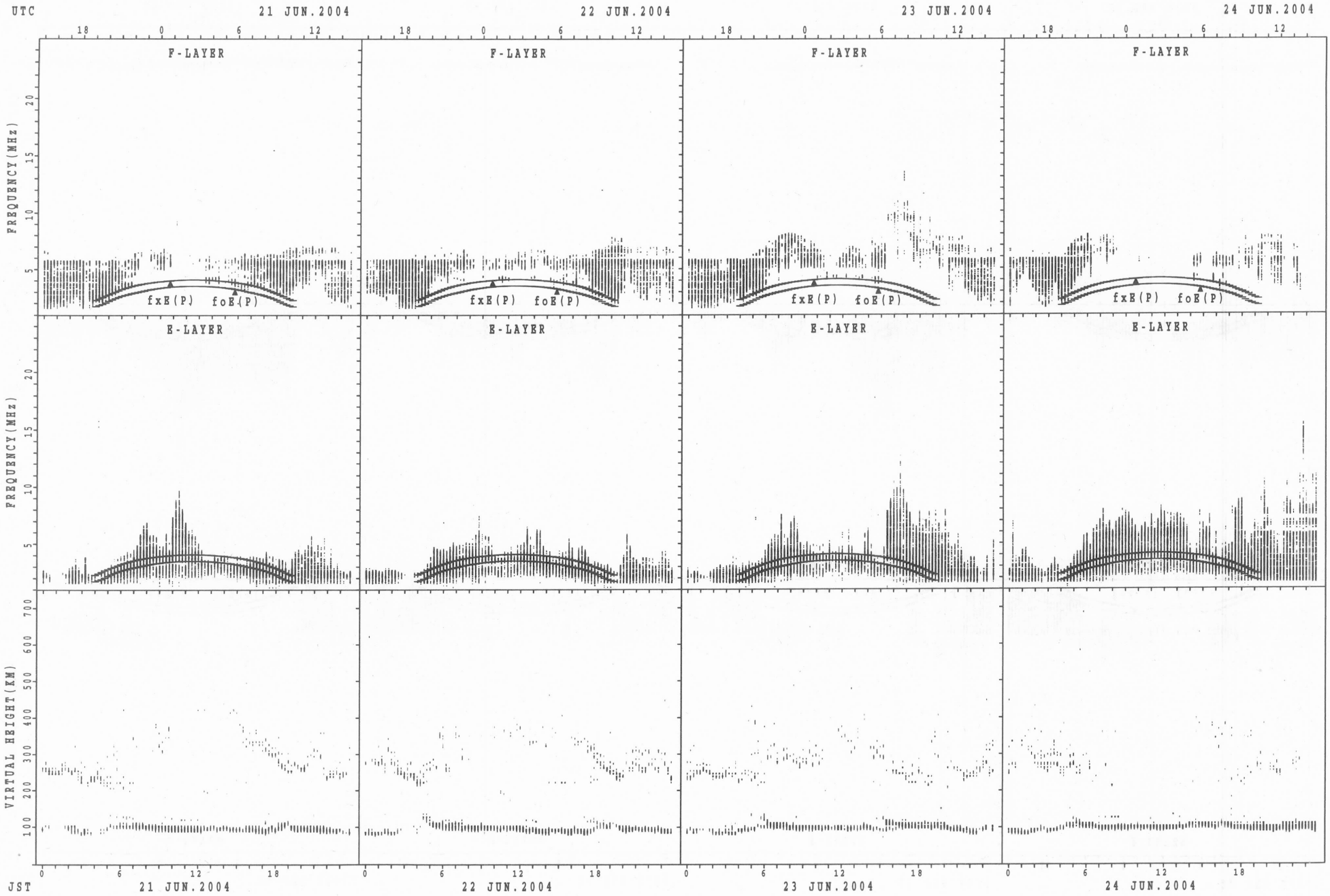
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



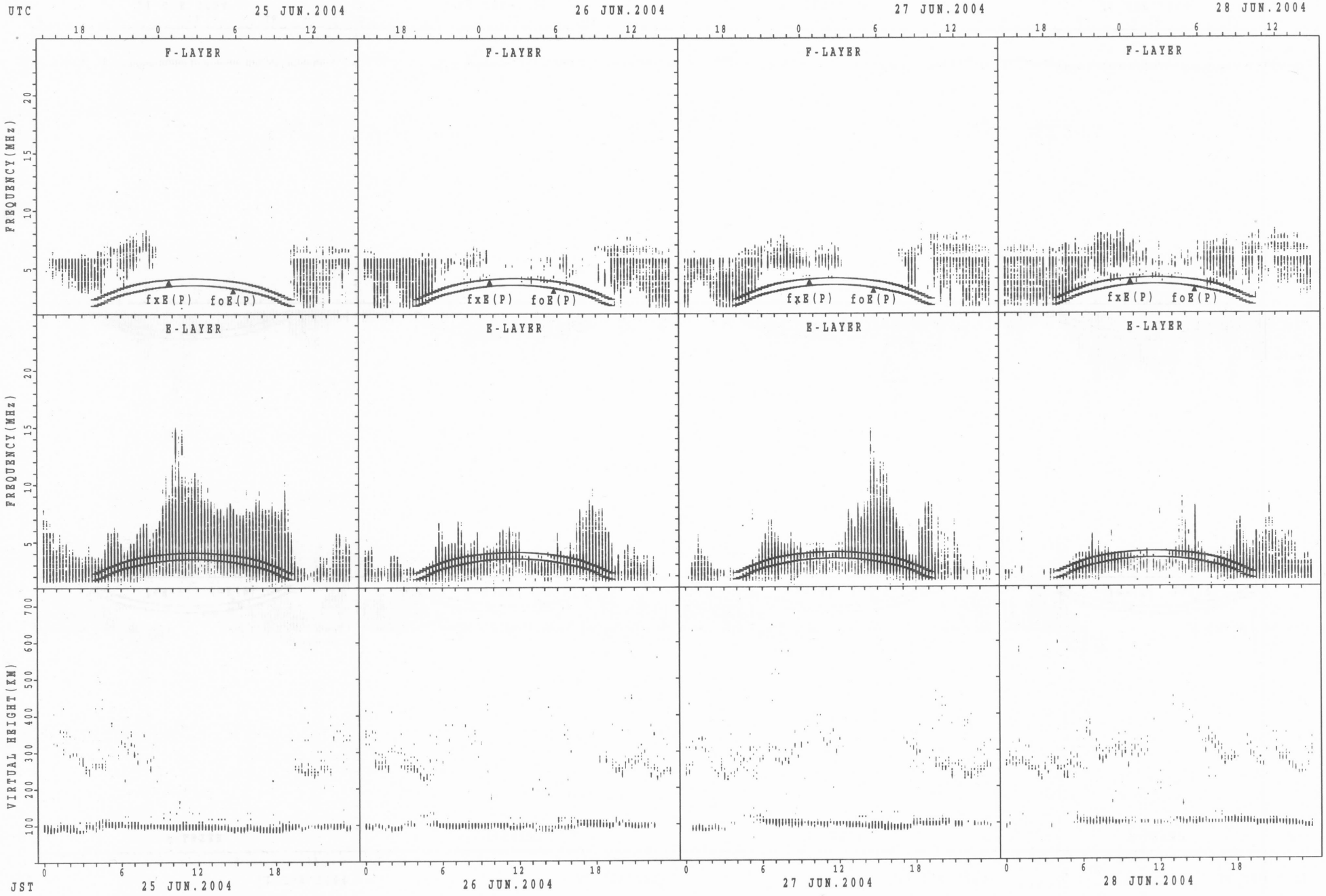
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



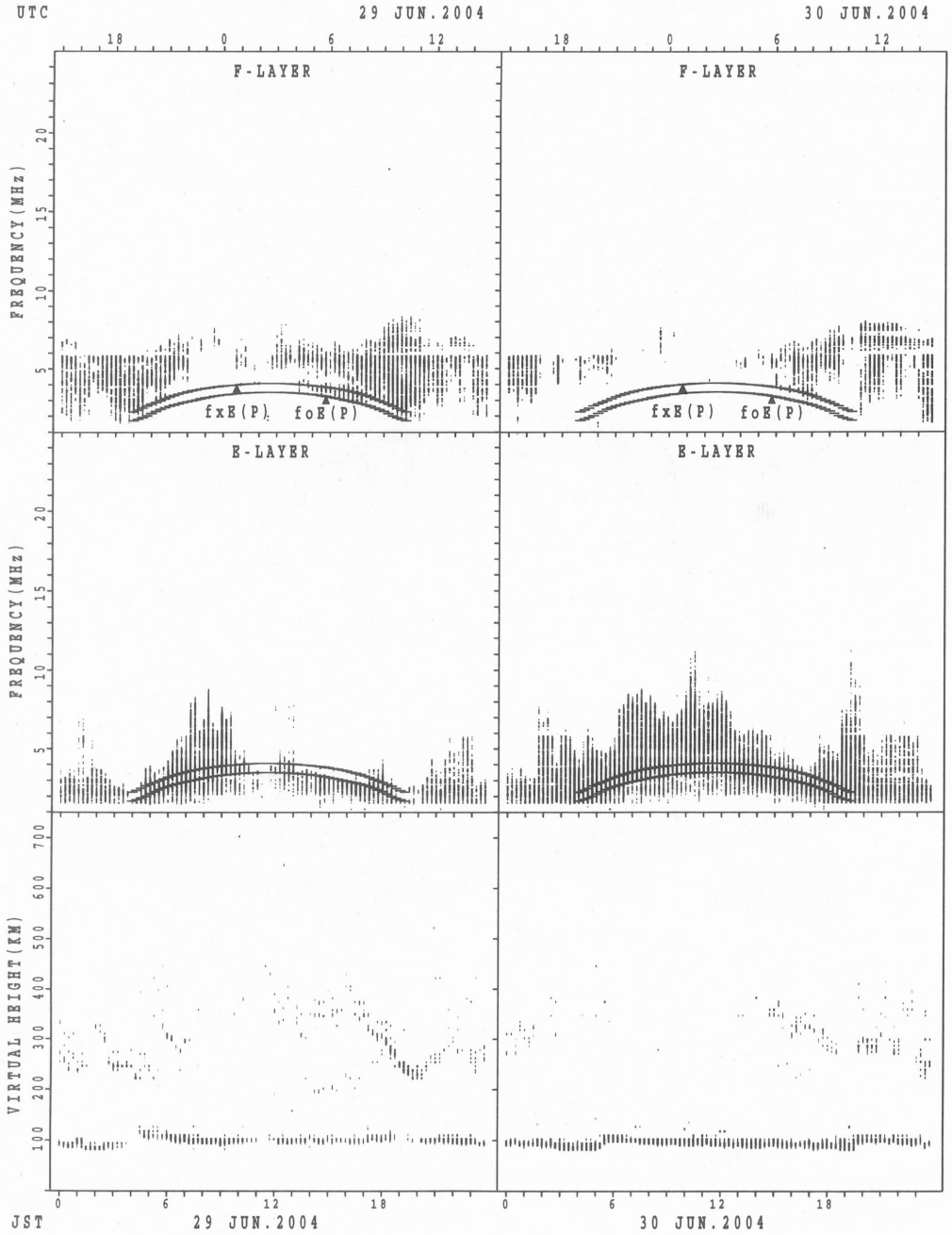
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai

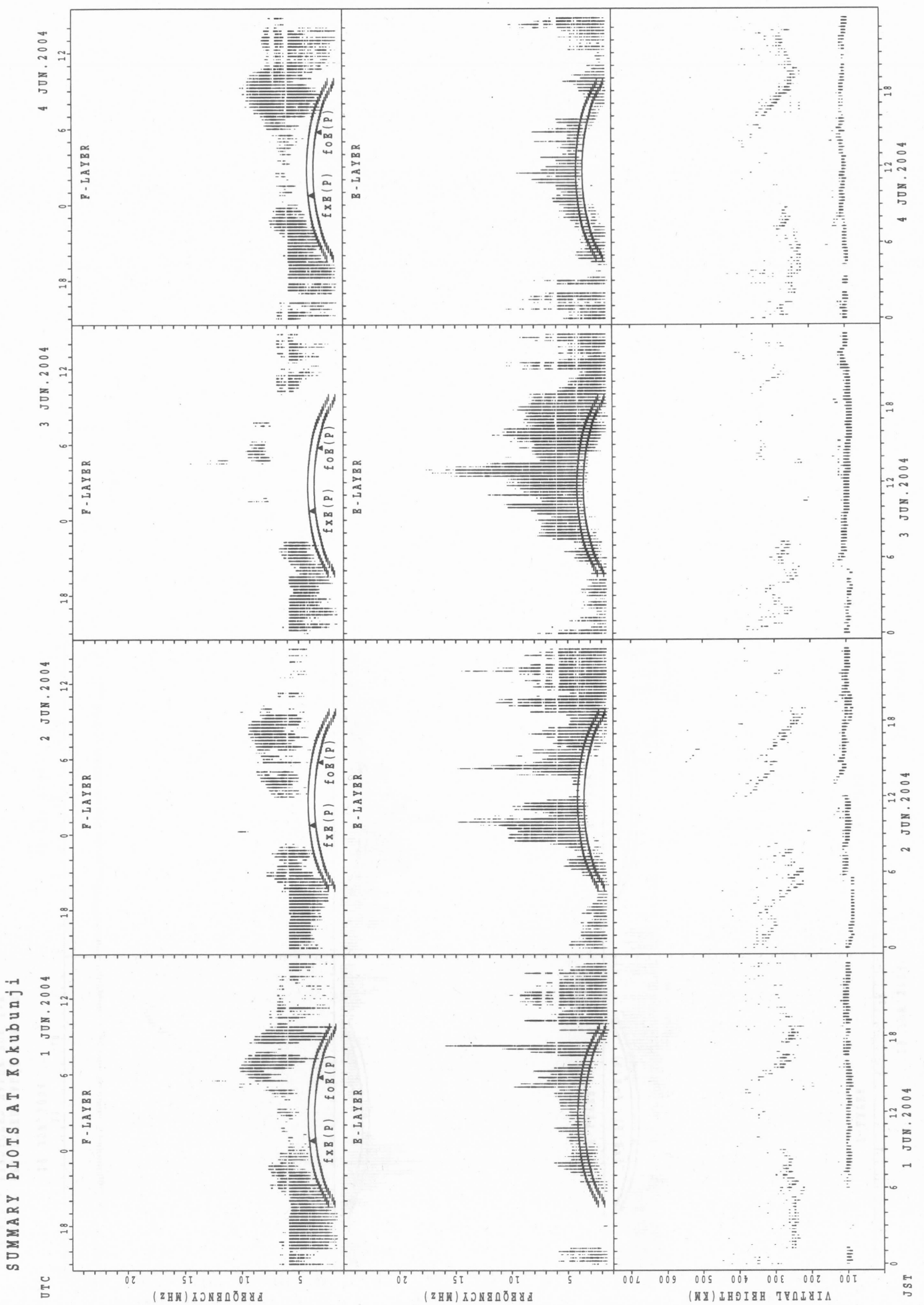


fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

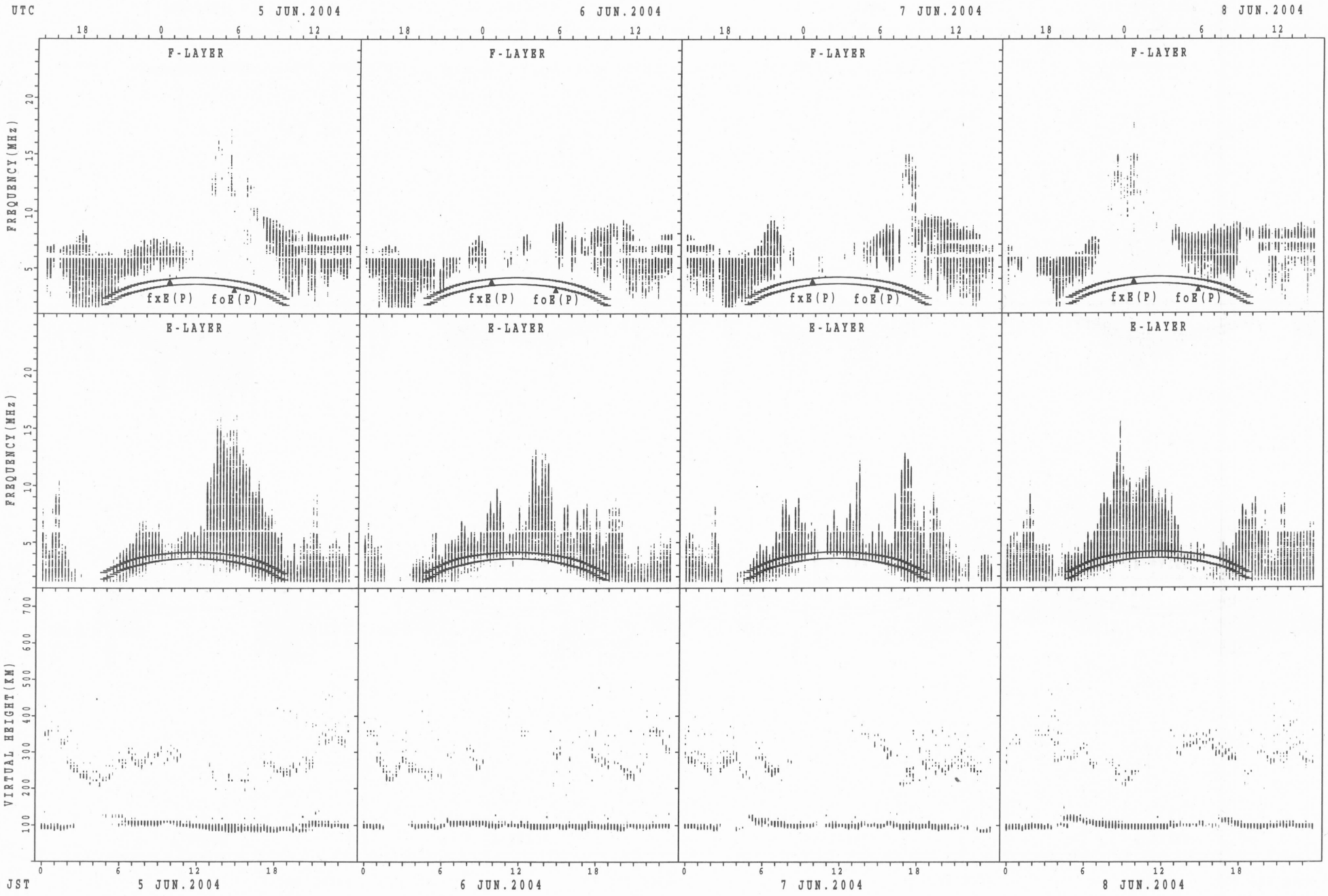
SUMMARY PLOTS AT Wakkanai



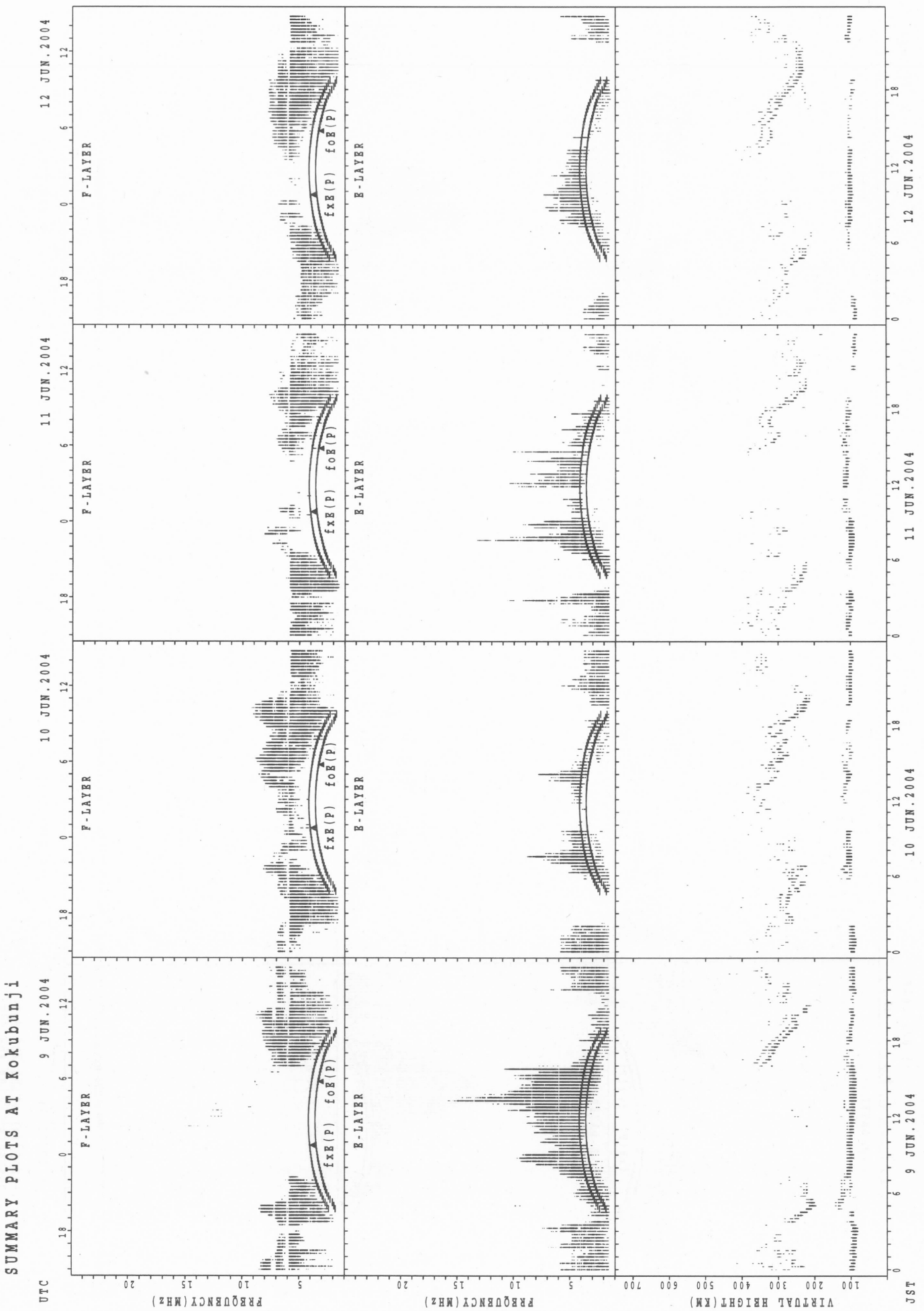
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE


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

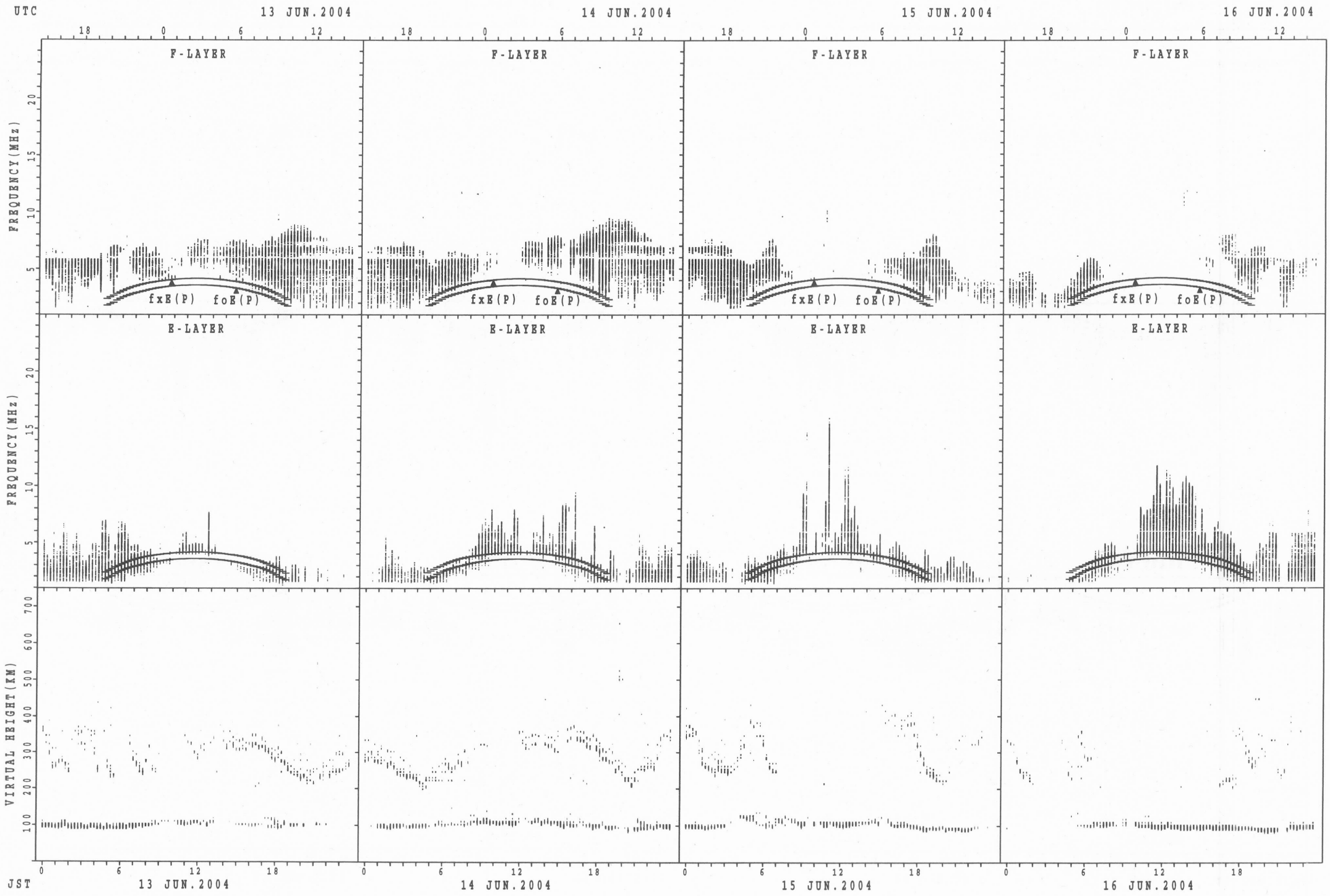
SUMMARY PLOTS AT Kokubunji



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

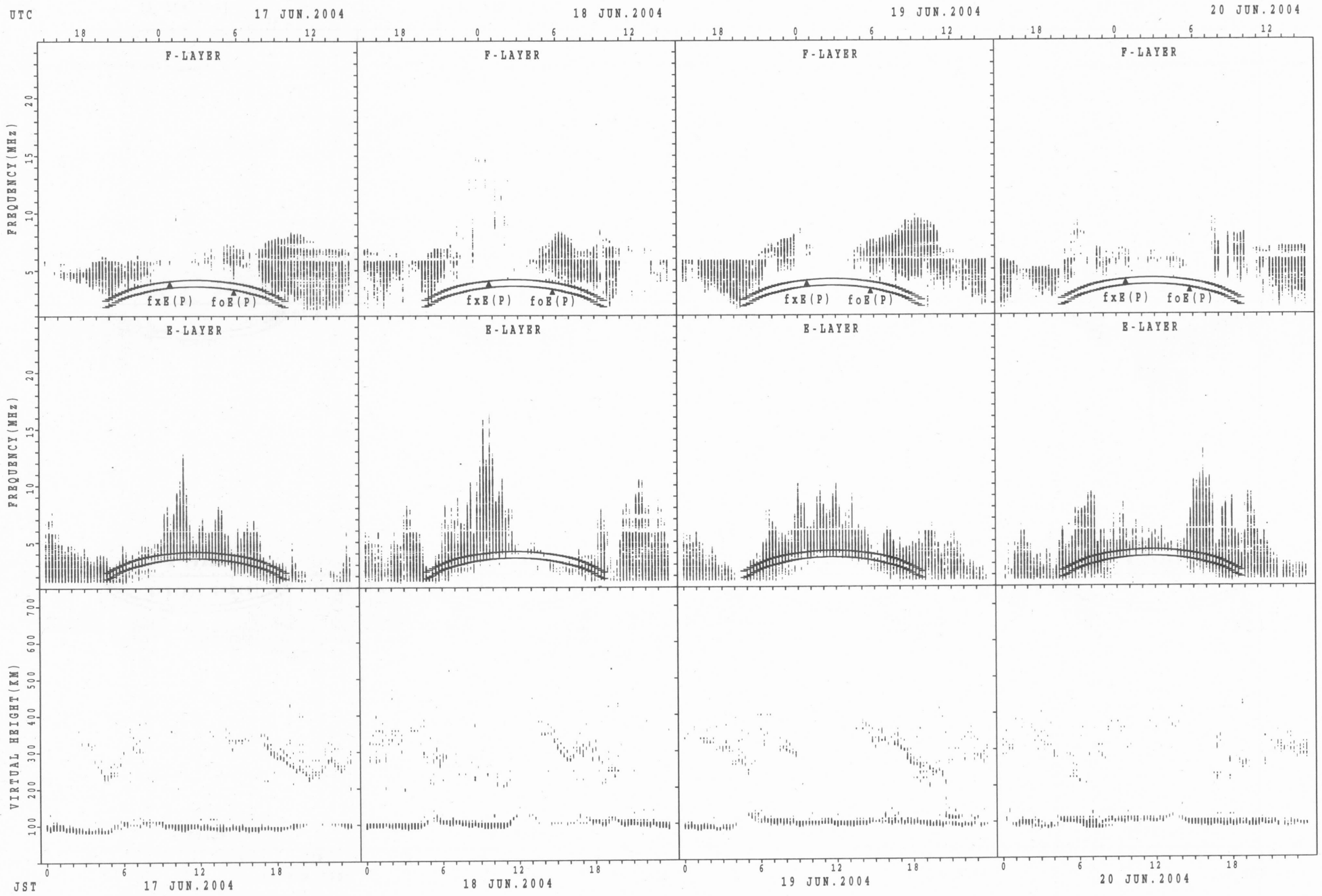

SUMMARY PLOTS AT Kokubunji
UTC
JST
9 JUN.2004
10 JUN.2004
11 JUN.2004
12 JUN.2004
F-LAYER
E-LAYER
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
fxE(P)
foE(P)
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



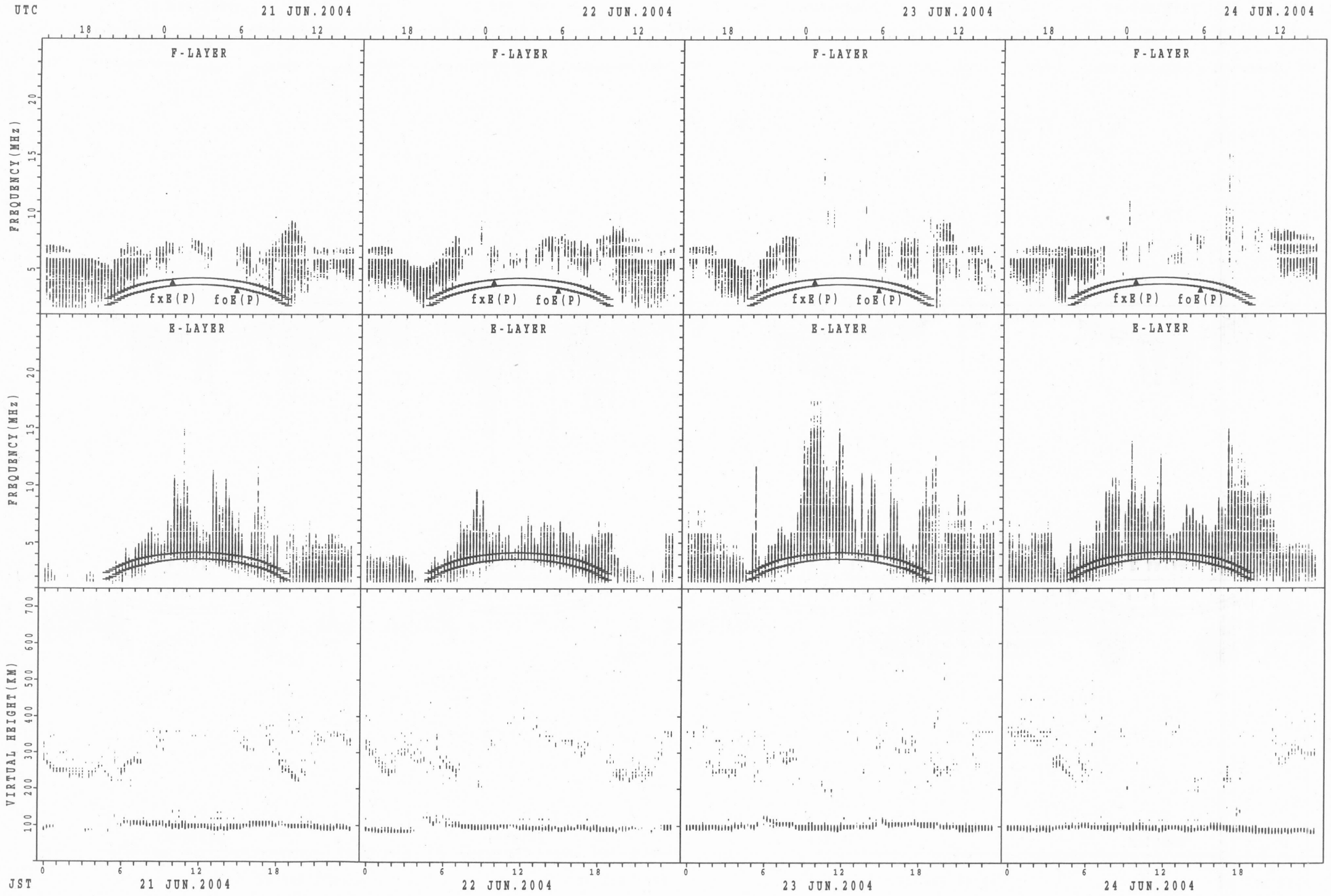
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji

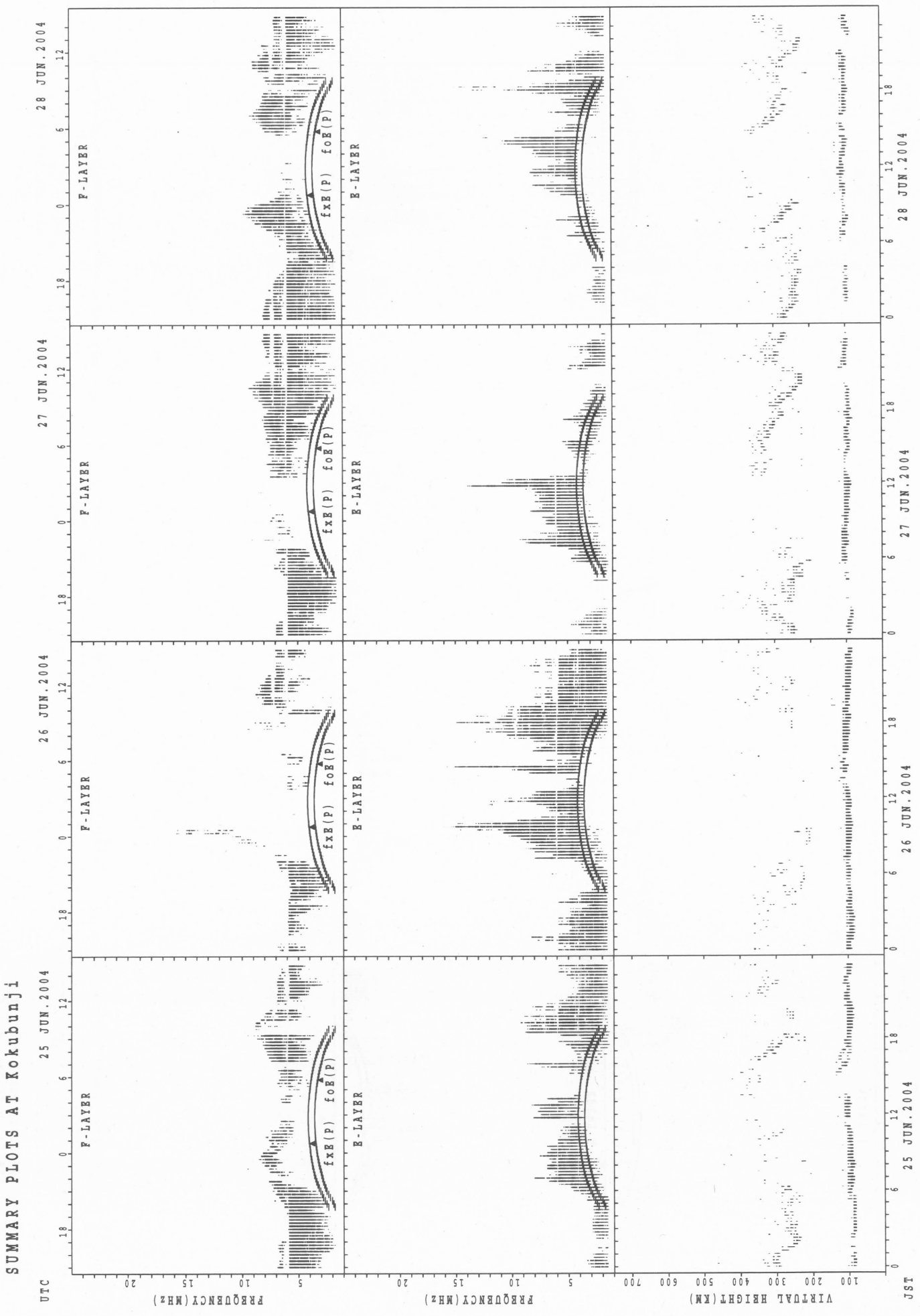


fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

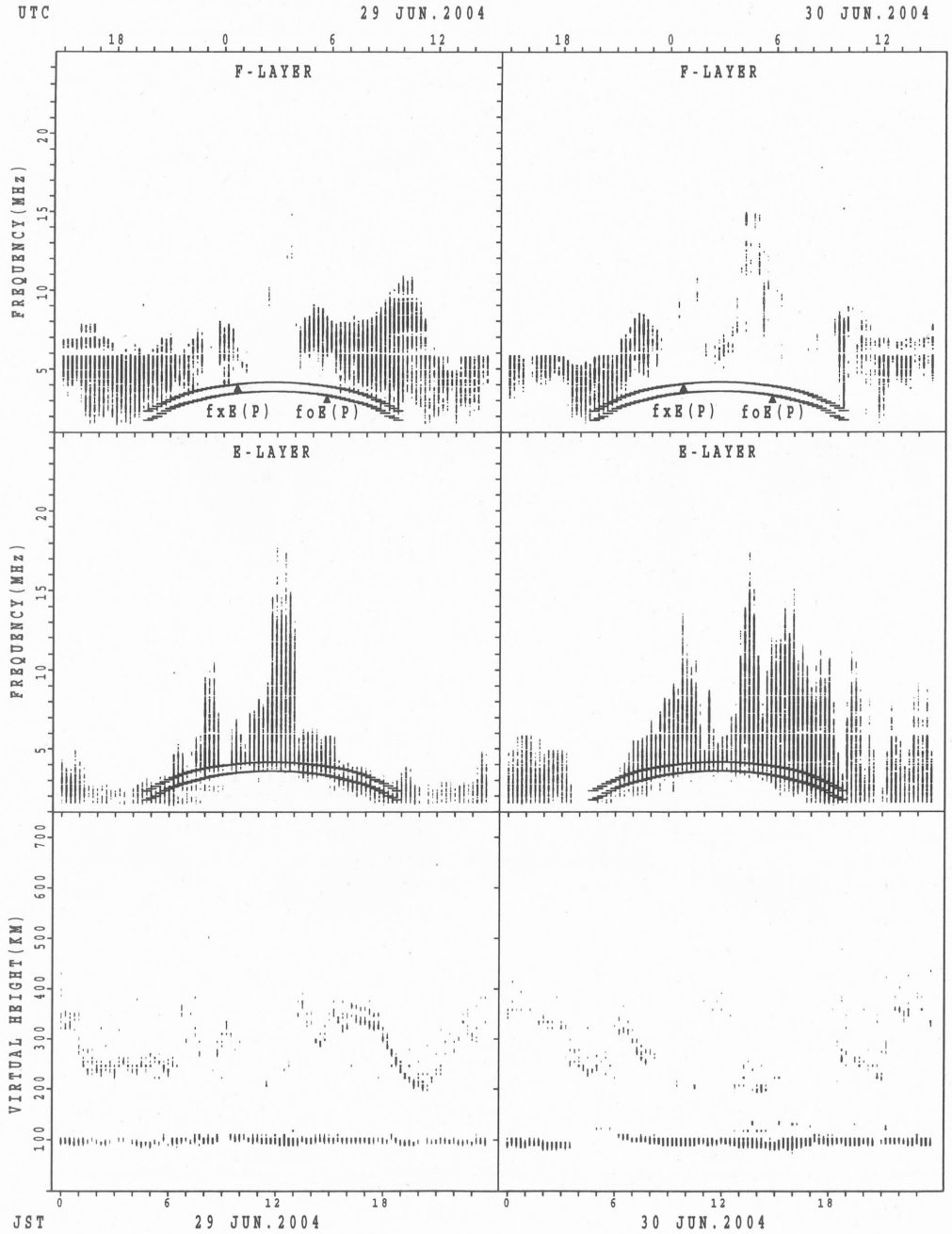
SUMMARY PLOTS AT Kokubunji



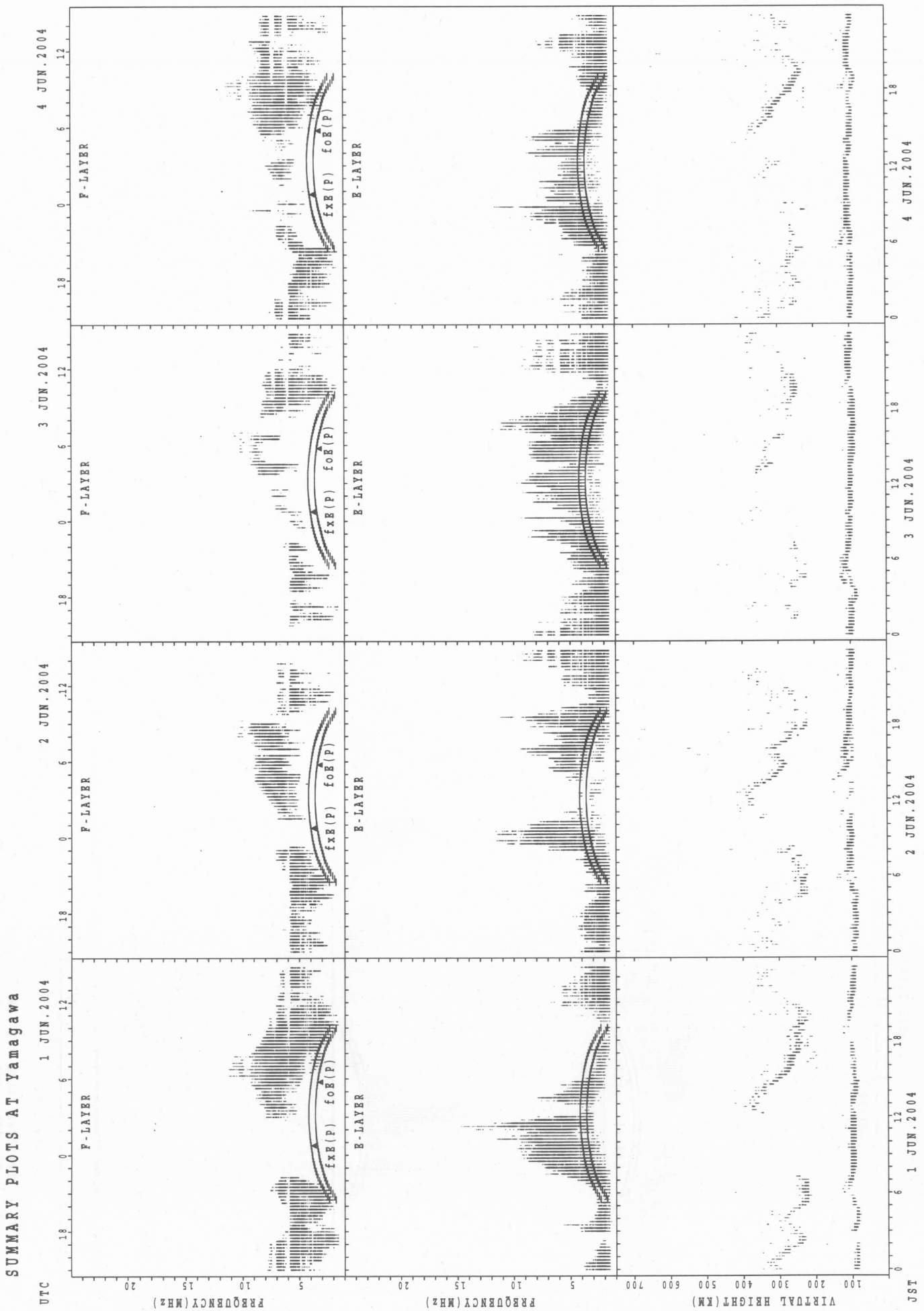
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE


SUMMARY PLOTS AT Kokubunji
UTC
JST
25 JUN.2004
26 JUN.2004
27 JUN.2004
28 JUN.2004
F-LAYER
E-LAYER
fxE(P)
foE(P)
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

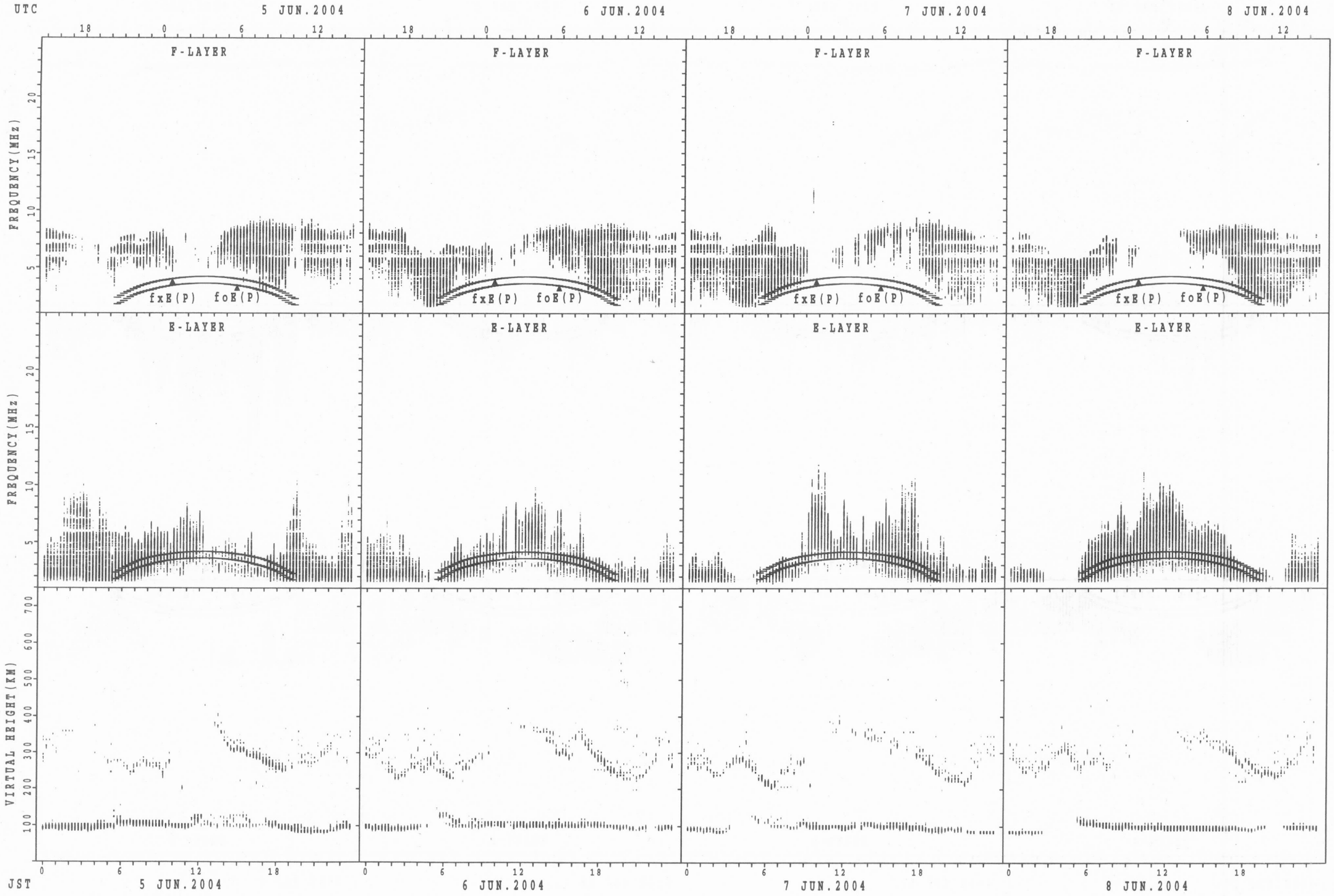
SUMMARY PLOTS AT Kokubunji



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

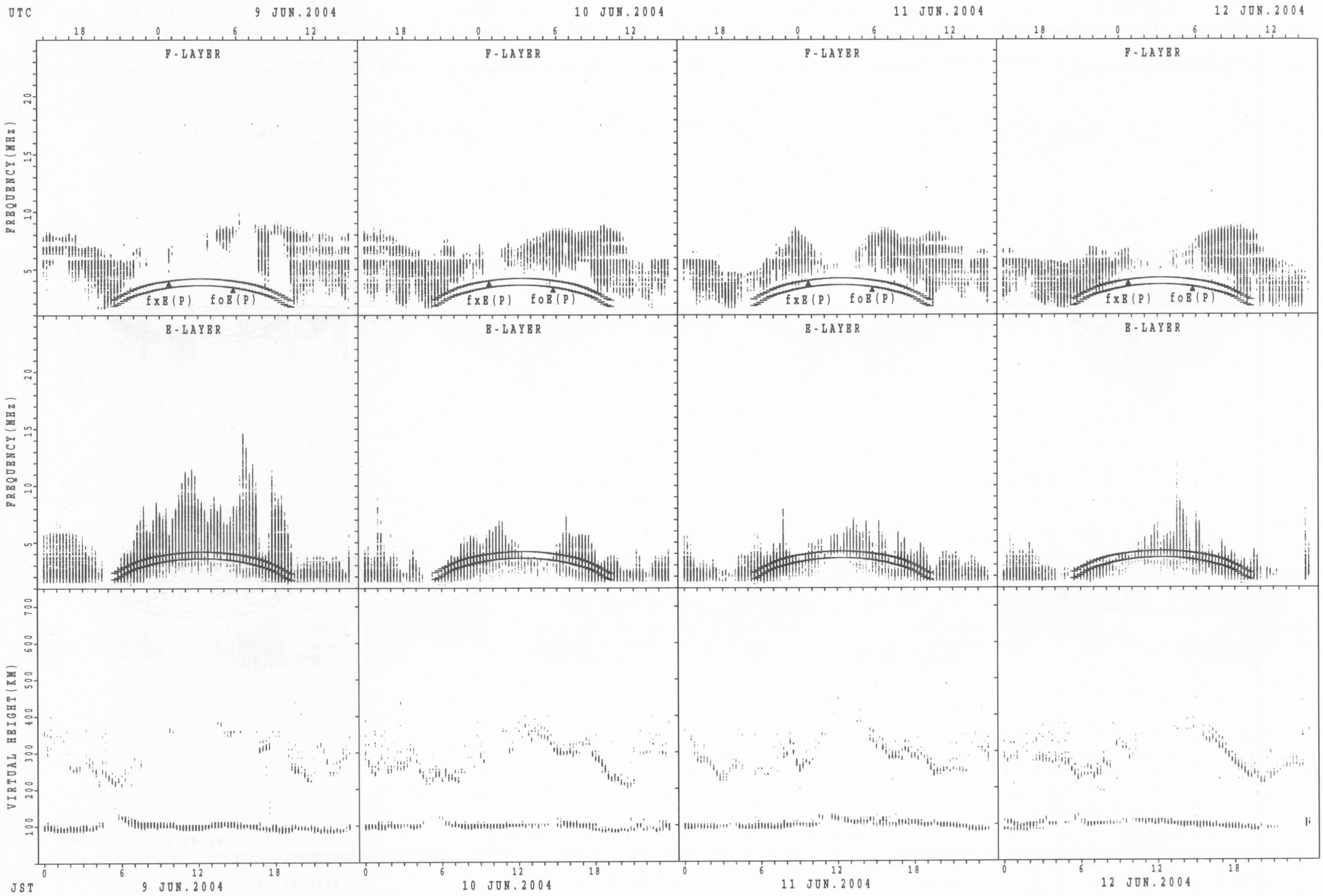

SUMMARY PLOTS AT Yamagawa
1 JUN.2004
2 JUN.2004
3 JUN.2004
4 JUN.2004
UTC
JST
F-LAYER
E-LAYER
fxE(P)
foE(P)
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



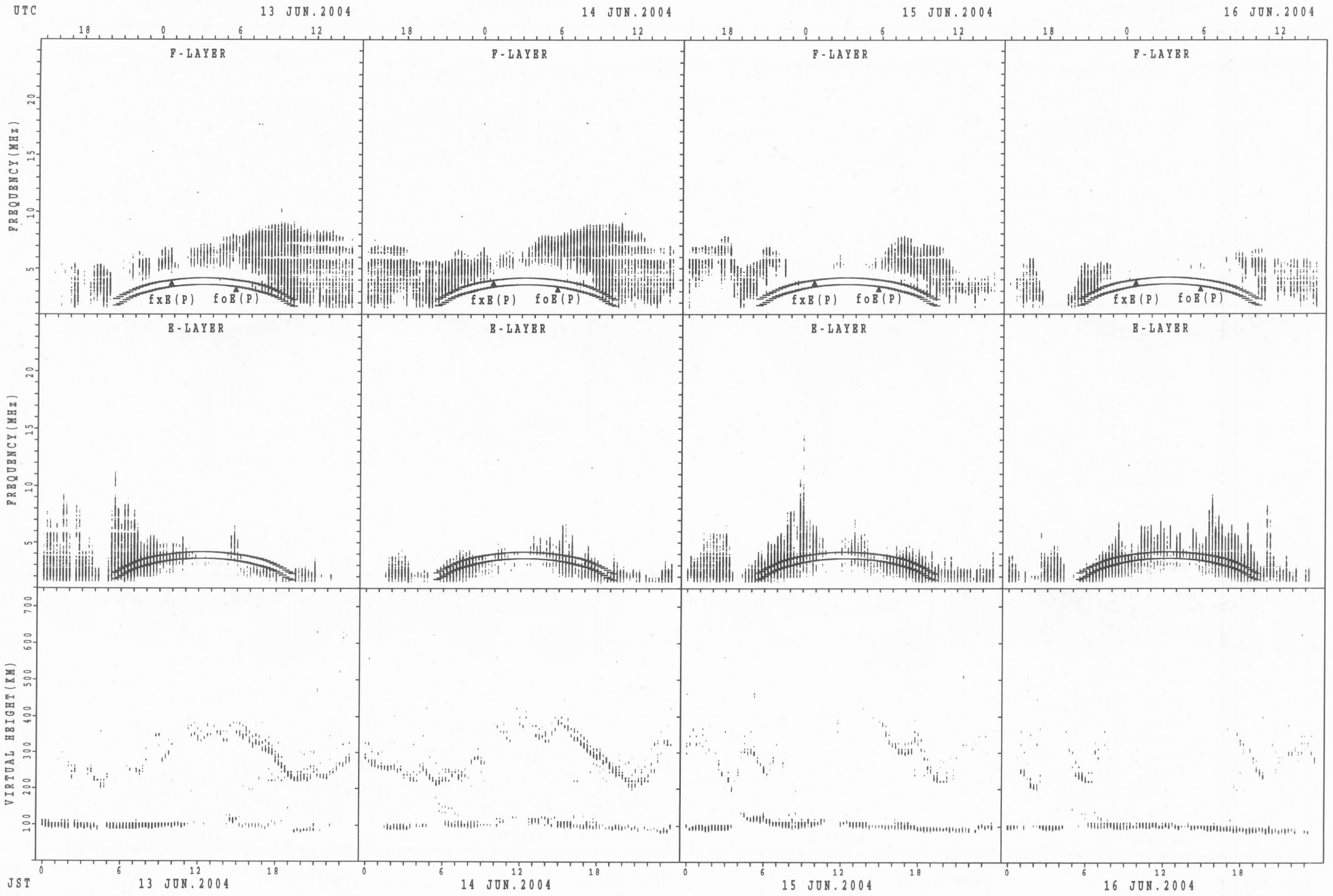
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa

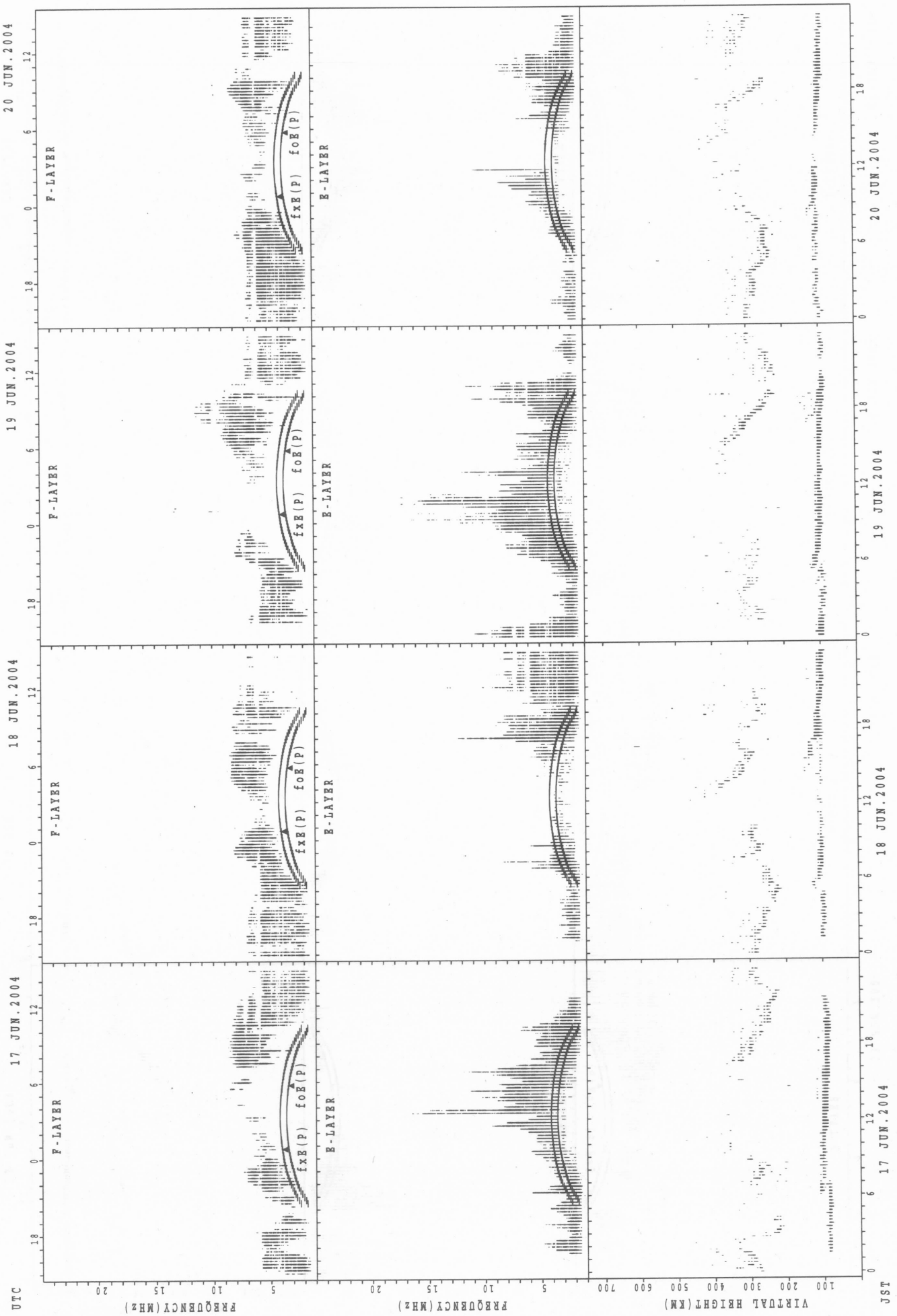


fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

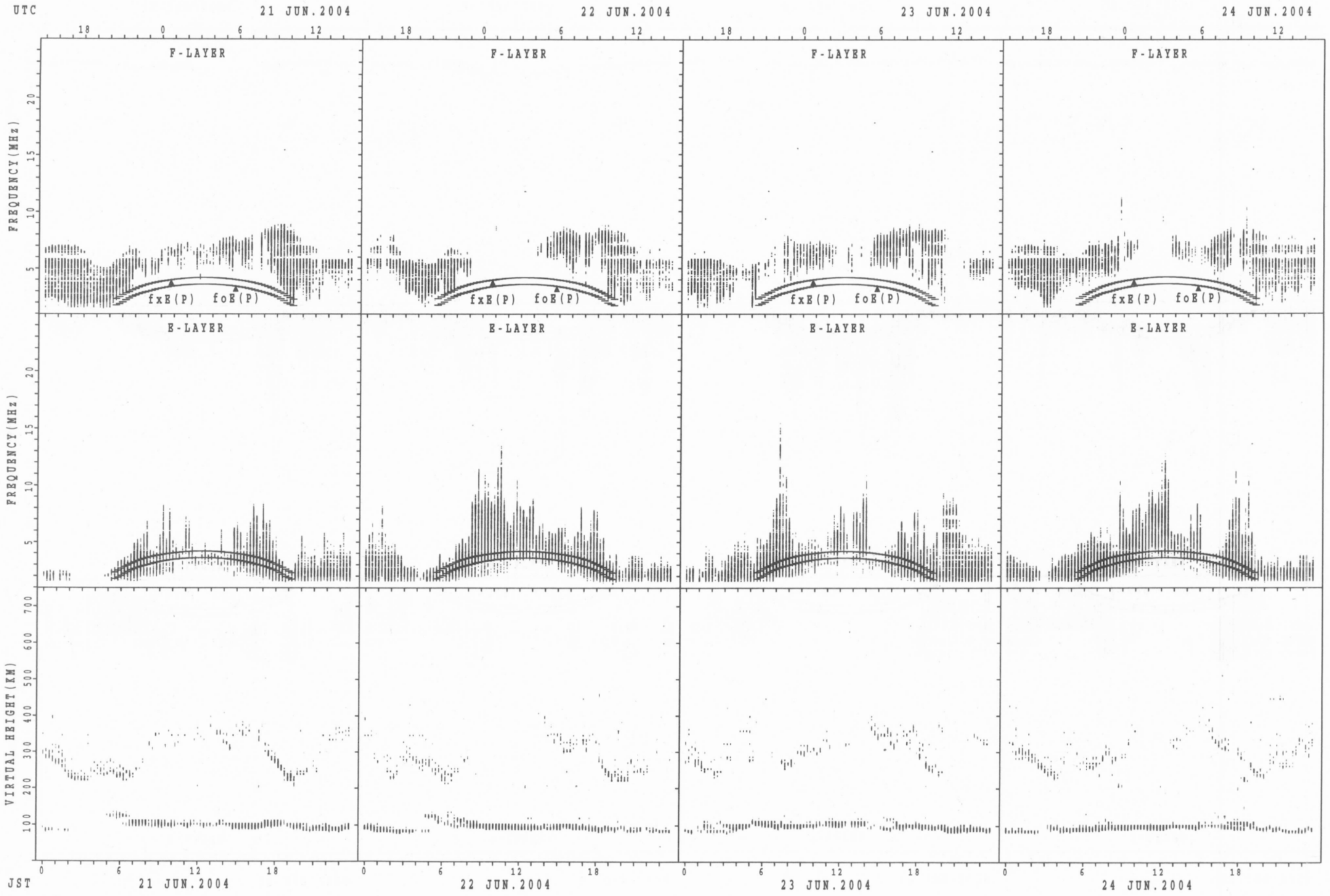
SUMMARY PLOTS AT Yamagawa



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

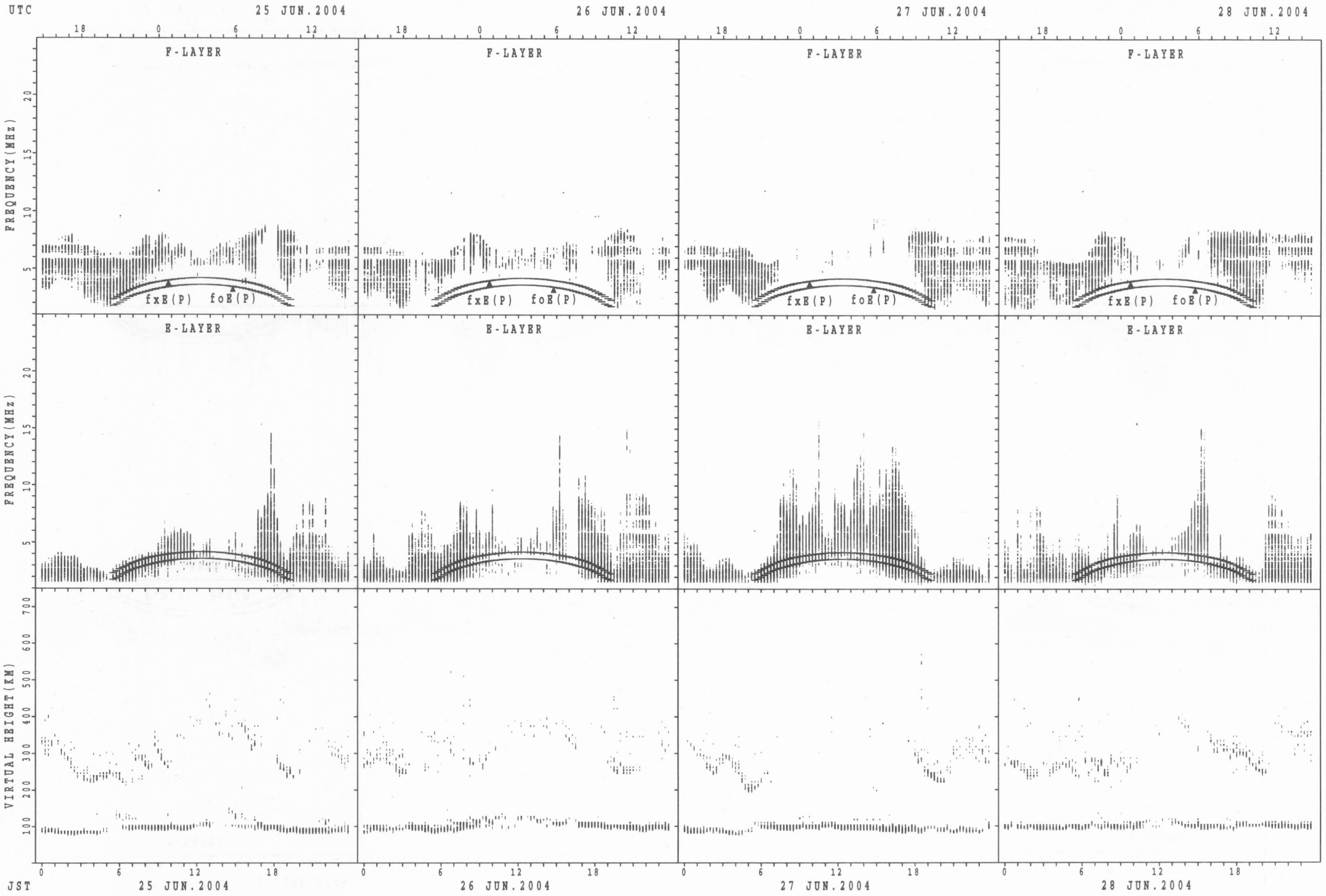

SUMMARY PLOTS AT Yamagawa
UTC
JST
17 JUN.2004
18 JUN.2004
19 JUN.2004
20 JUN.2004
F-LAYER
E-LAYER
fxE(P)
foE(P)
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



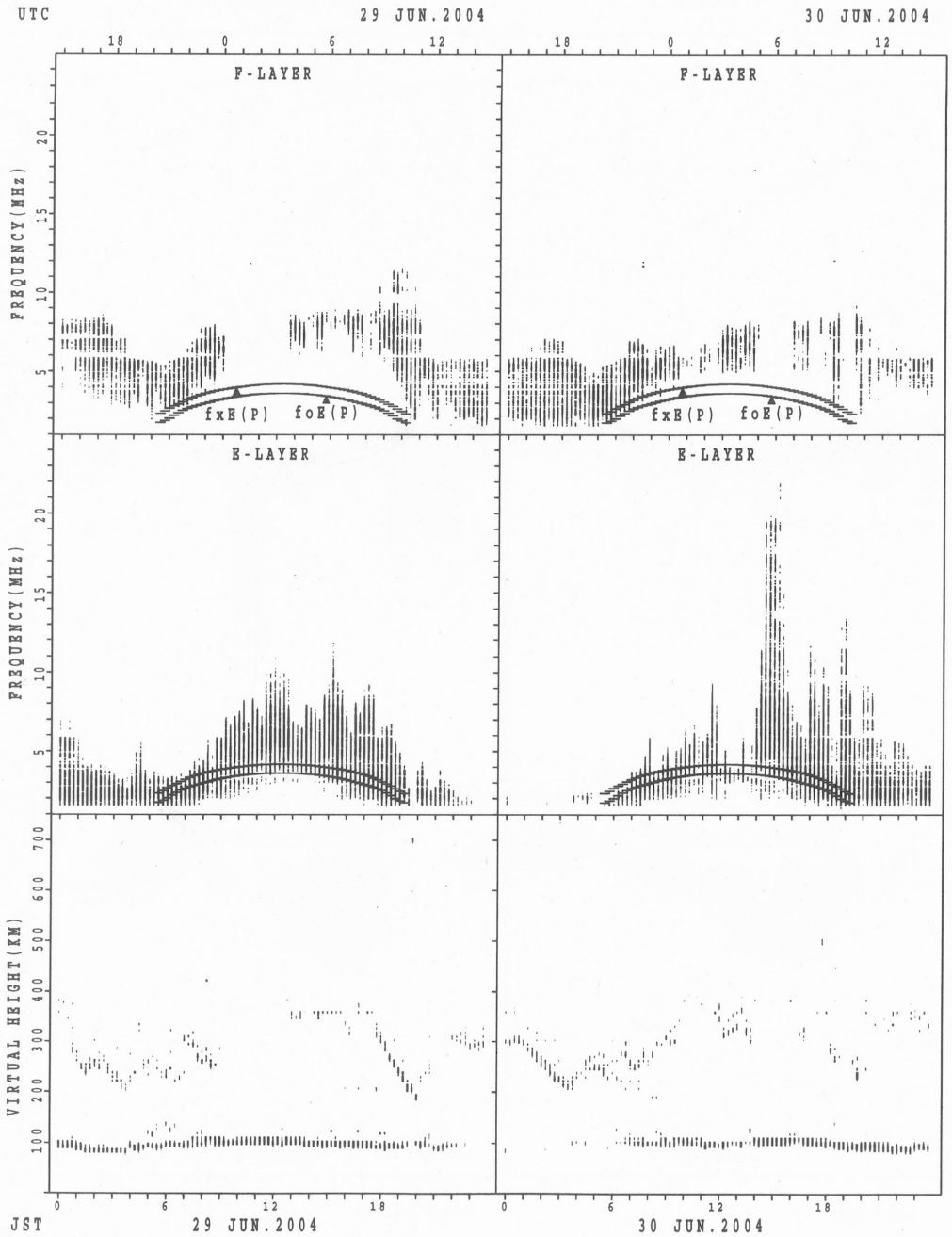
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa

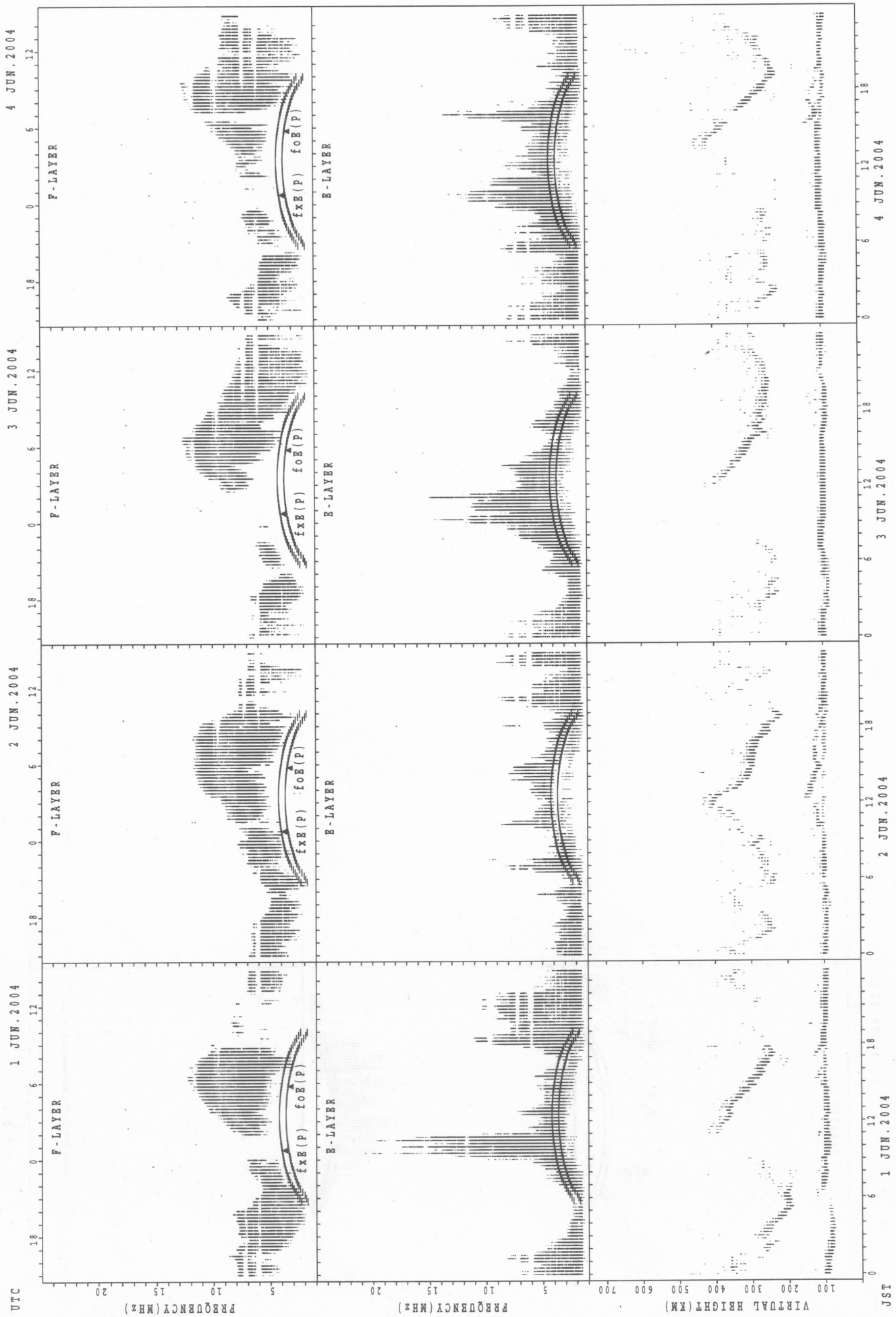


fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

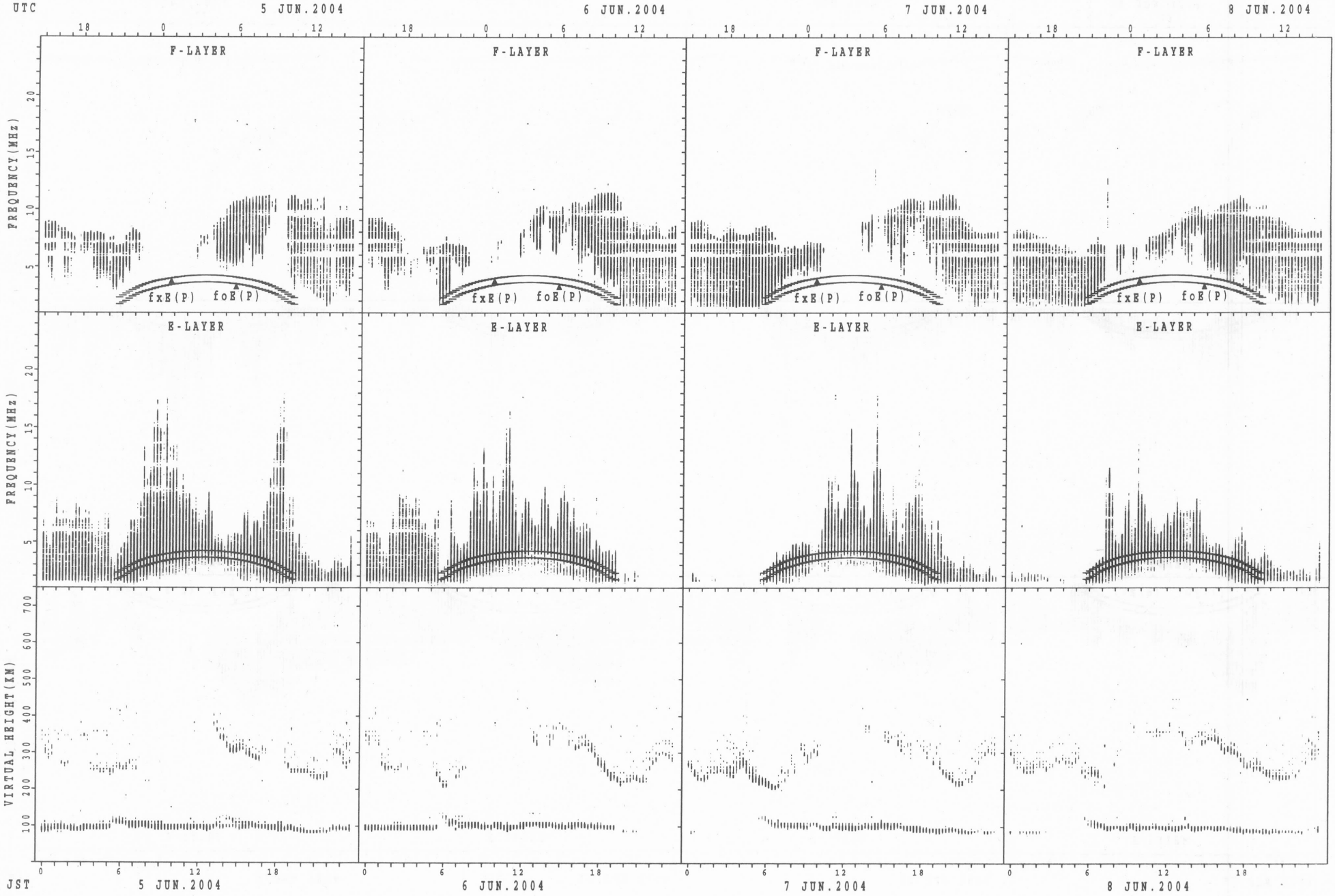
SUMMARY PLOTS AT Yamagawa



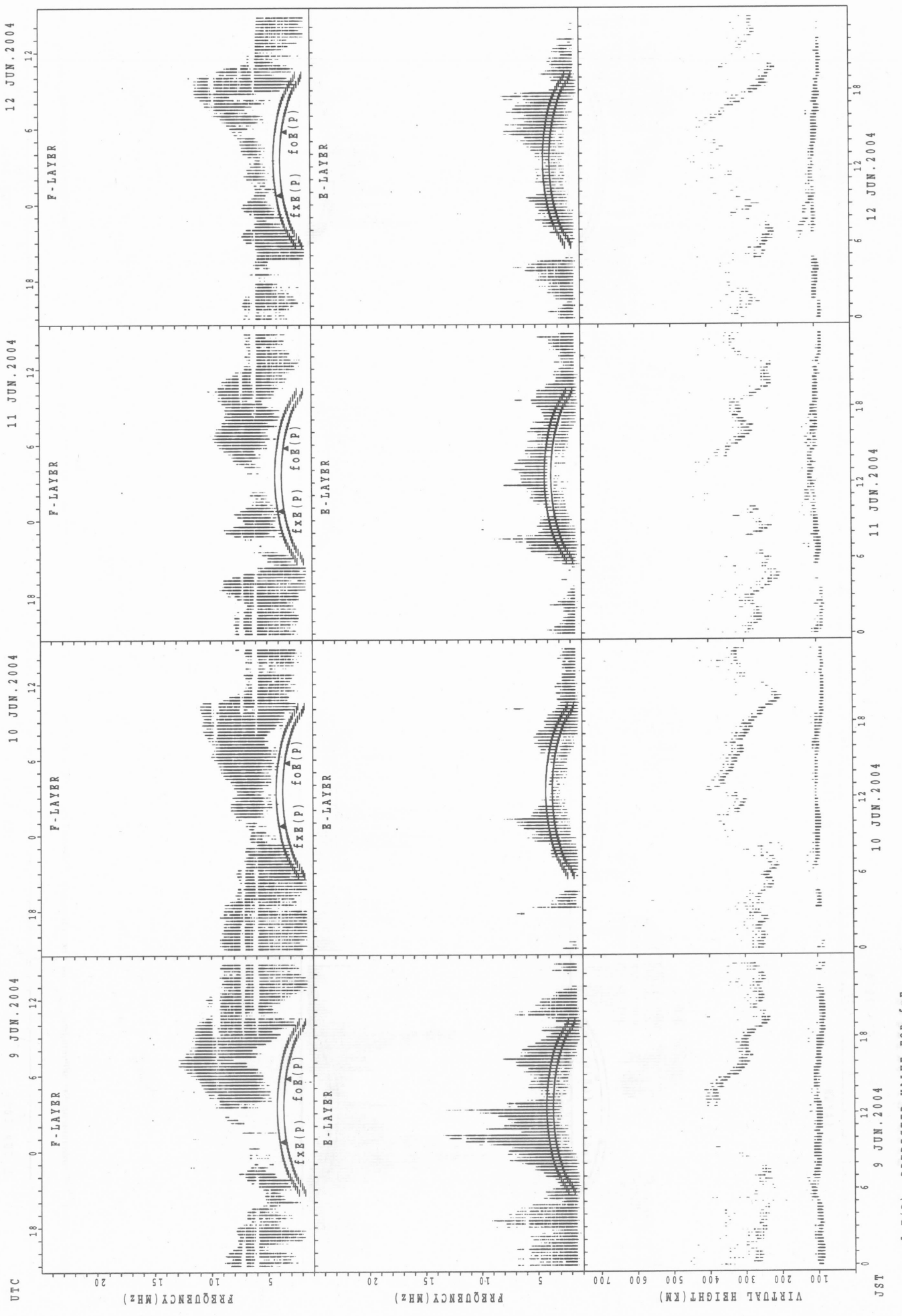
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE


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

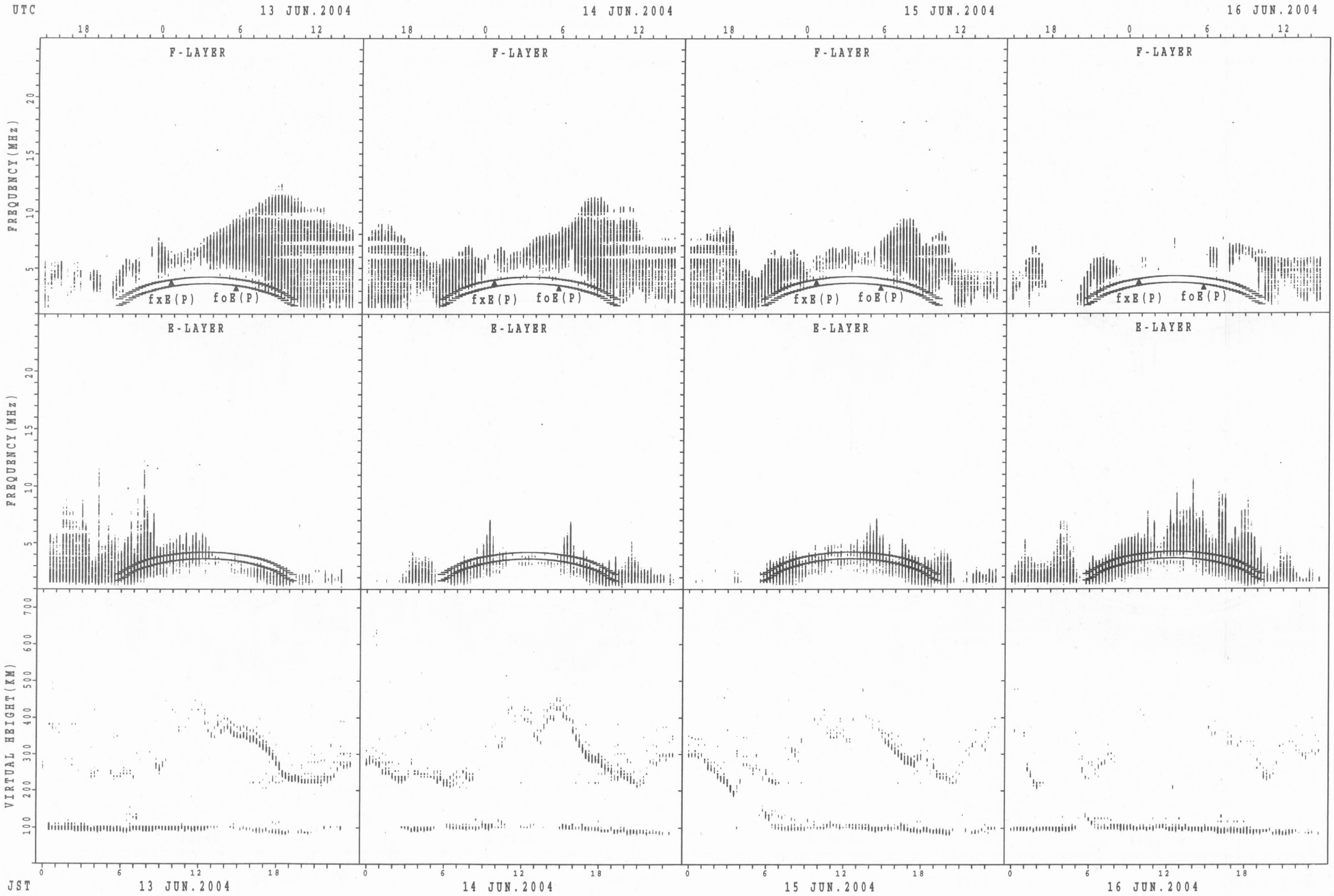
SUMMARY PLOTS AT Okinawa



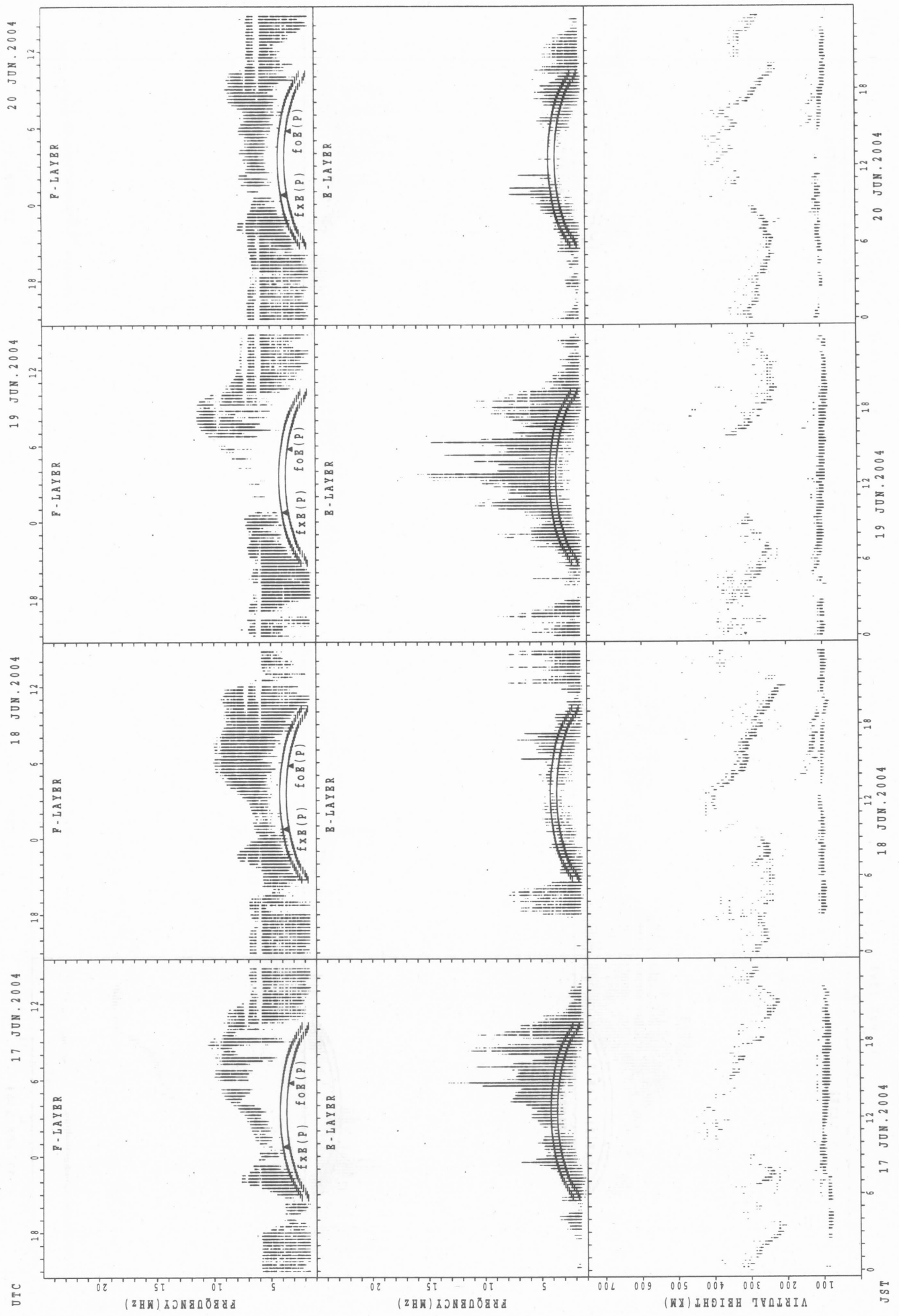
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE


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

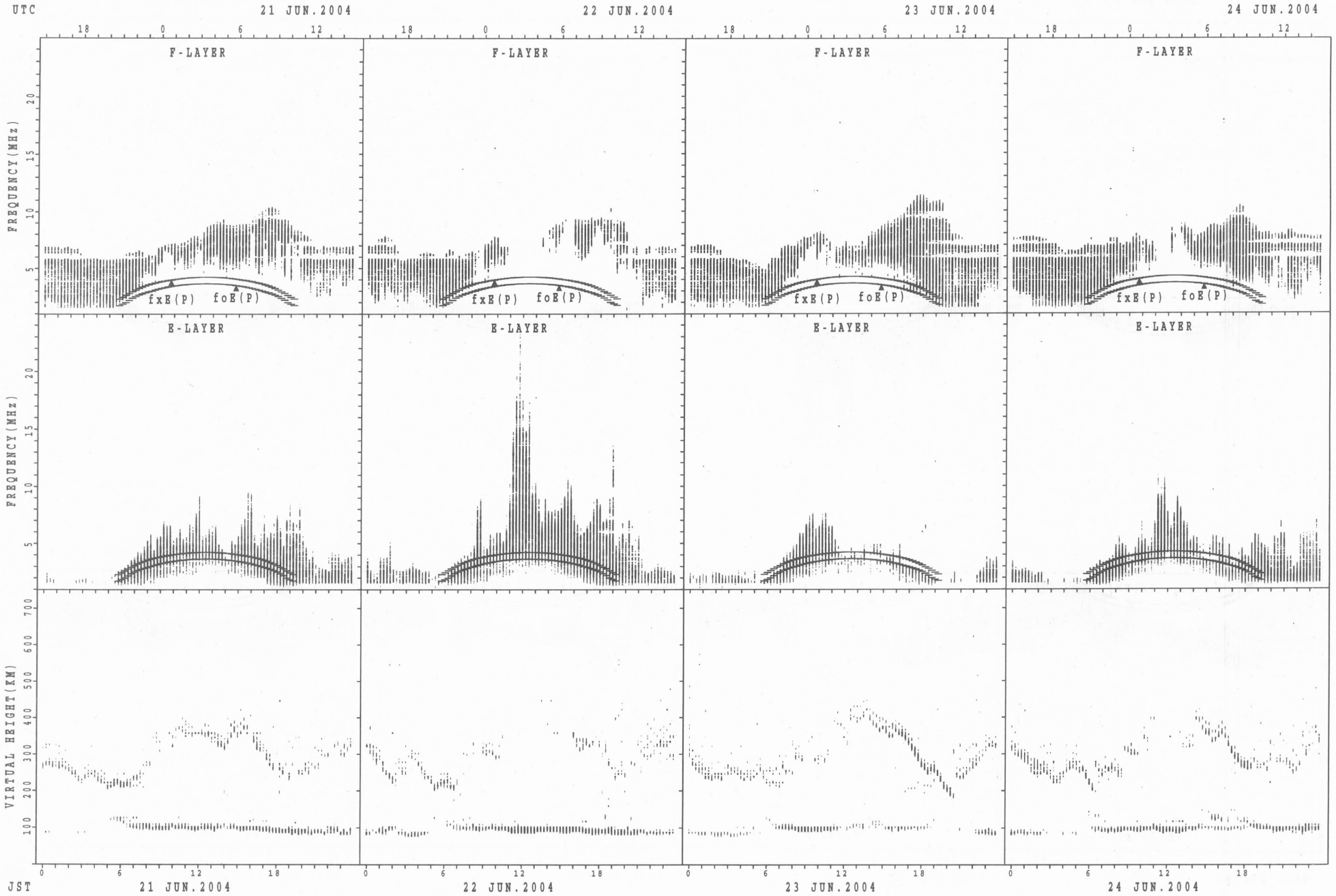
SUMMARY PLOTS AT Okinawa



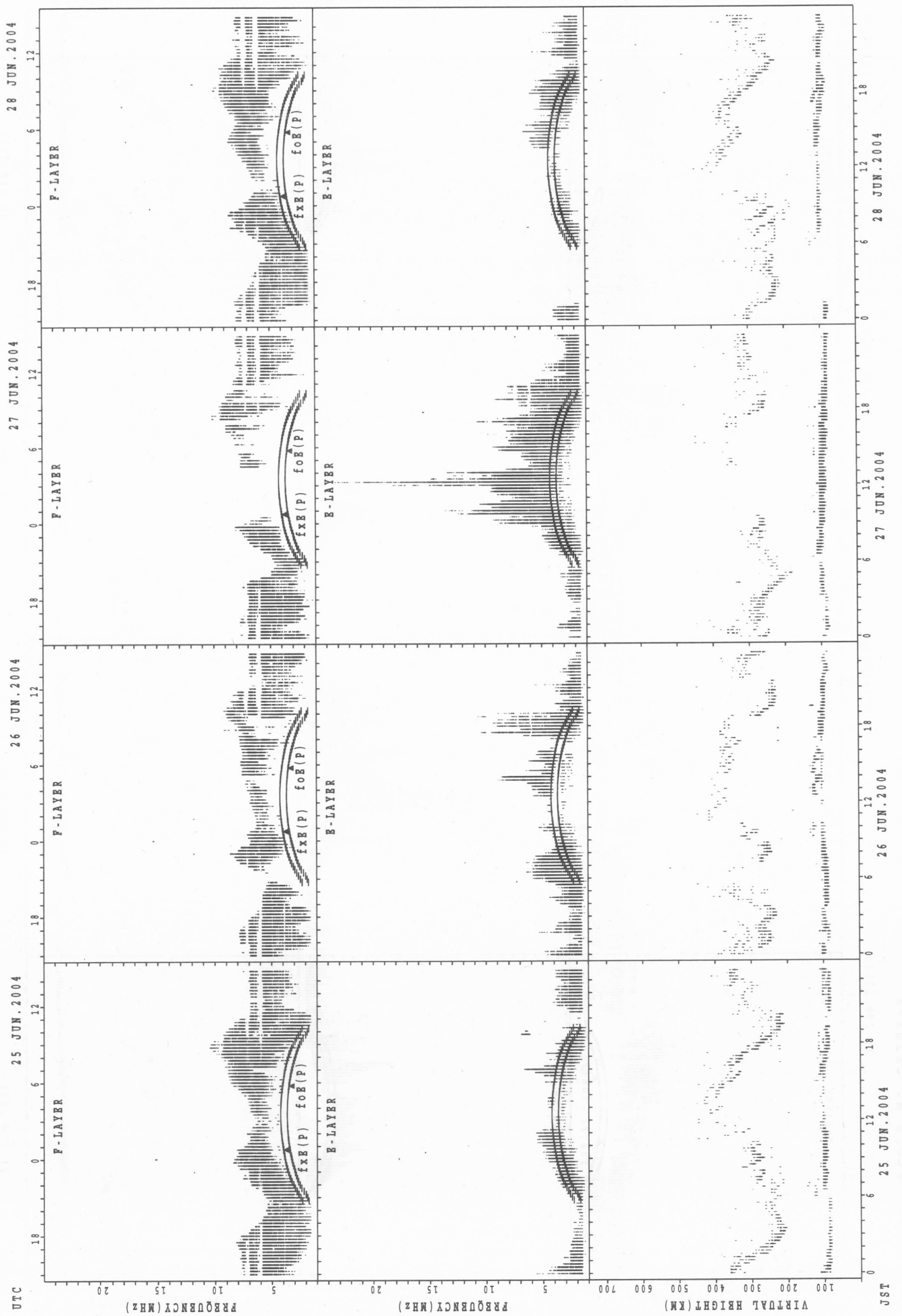
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE


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

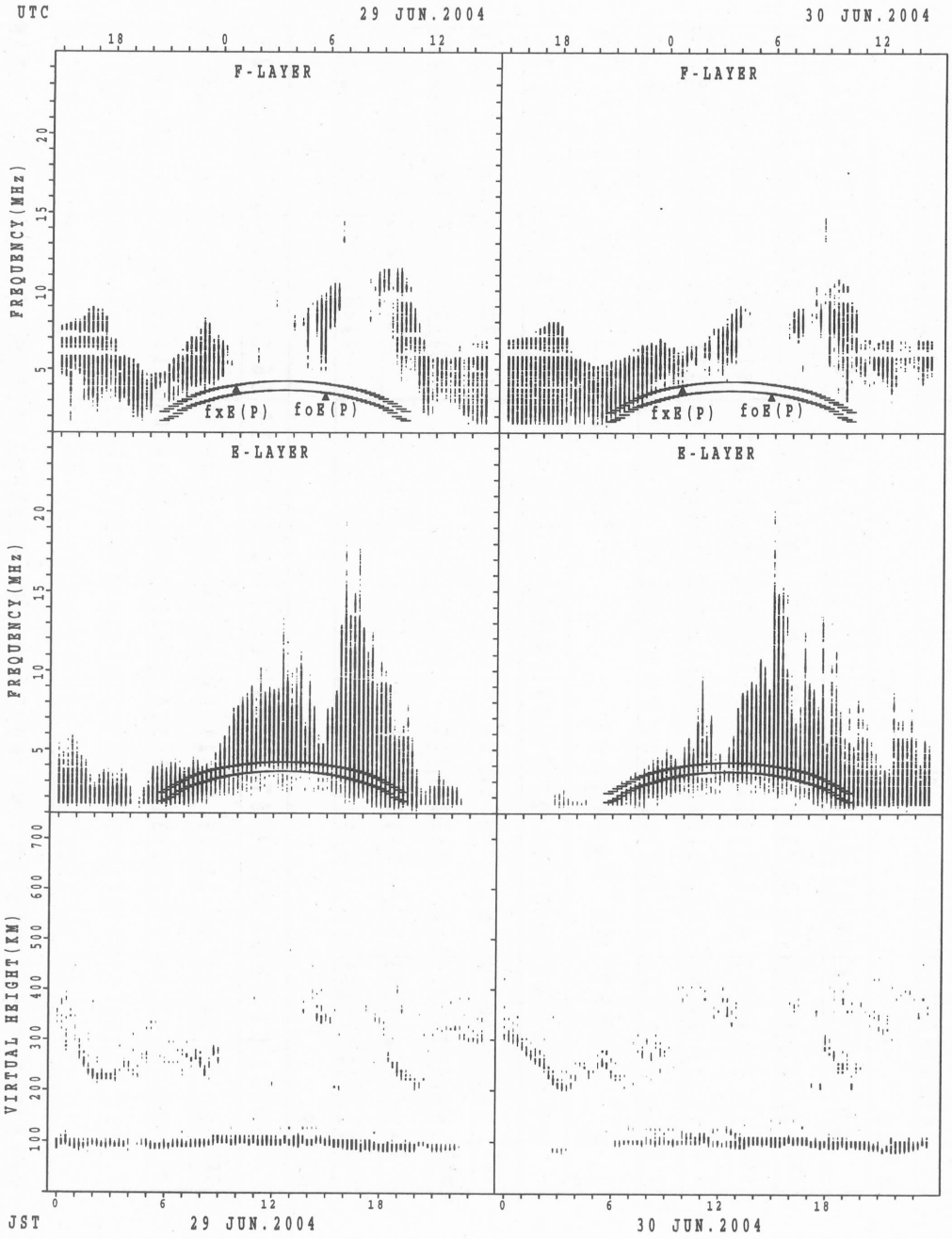
SUMMARY PLOTS AT Okinawa



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


SUMMARY PLOTS AT Okinawa
UTC
JST
25 JUN.2004
26 JUN.2004
27 JUN.2004
28 JUN.2004
F-LAYER
E-LAYER
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
fxE(P)
foE(P)
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



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

MONTHLY MEDIANS OF h'F AND h'Es

JUN. 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	3	1			2	10											8	14	11	12	13	7	4
MED	327	338	304			299	323											310	304	288	287	298	300	284
U Q	334	342	152			314	334											345	310	300	305	311	320	320
L Q	320	312	152			284	314											287	274	280	271	272	280	272

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	25	21	21	17	14	24	28	30	30	28	26	23	20	21	23	23	25	28	28	28	28	29	26	23
MED	95	97	95	93	97	112	107	107	103	103	103	99	99	97	97	99	101	104	103	103	103	99	97	97
U Q	98	99	97	98	105	122	111	109	105	103	103	105	104	102	105	107	111	108	106	107	106	105	105	103
L Q	91	92	89	89	95	106	105	105	103	101	99	97	97	95	95	95	95	94	100	99	98	97	95	97

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	8	8	3	1	1	2	15	11									15	17	18	22	14	5	6	6
MED	324	319	294	272	312	248	294	290									296	294	295	269	264	266	342	317
U Q	336	343	336	136	156	284	322	318									312	320	310	284	274	321	354	344
L Q	307	303	274	136	156	212	262	240									278	217	254	248	252	254	330	304

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	26	27	23	22	16	17	23	25	28	28	28	28	28	28	25	24	25	24	25	25	24	22	25	28
MED	97	95	97	97	97	101	111	107	103	101	101	103	100	102	99	101	107	103	103	99	98	100	103	99
U Q	99	99	99	97	99	119	119	111	107	105	106	103	105	109	107	108	110	111	105	105	103	105	105	103
L Q	95	93	93	89	90	94	103	102	100	97	99	99	97	97	95	95	95	95	95	96	95	95	95	96

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	10	7	10	1	4		5	12	11									21	22	22	16	7	3	4
MED	353	298	284	310	314		262	267	270									310	286	270	279	282	352	344
U Q	376	362	298	155	352		294	298	302									325	304	280	290	298	398	376
L Q	322	282	270	155	296		234	258	270									294	268	248	261	254	312	329

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	26	24	29	26	23	21	26	27	27	29	28	24	21	23	26	25	23	26	27	29	28	26	23	26
MED	96	96	97	95	97	103	113	107	103	103	103	103	103	103	106	103	103	104	101	97	97	93	93	93
U Q	101	98	100	97	103	112	121	113	107	111	105	105	108	107	111	113	107	111	107	103	100	105	97	103
L Q	91	90	88	89	95	95	101	103	99	99	99	99	97	99	97	95	97	95	95	92	93	91	91	89

MONTHLY MEDIANS OF h'F AND h'Es

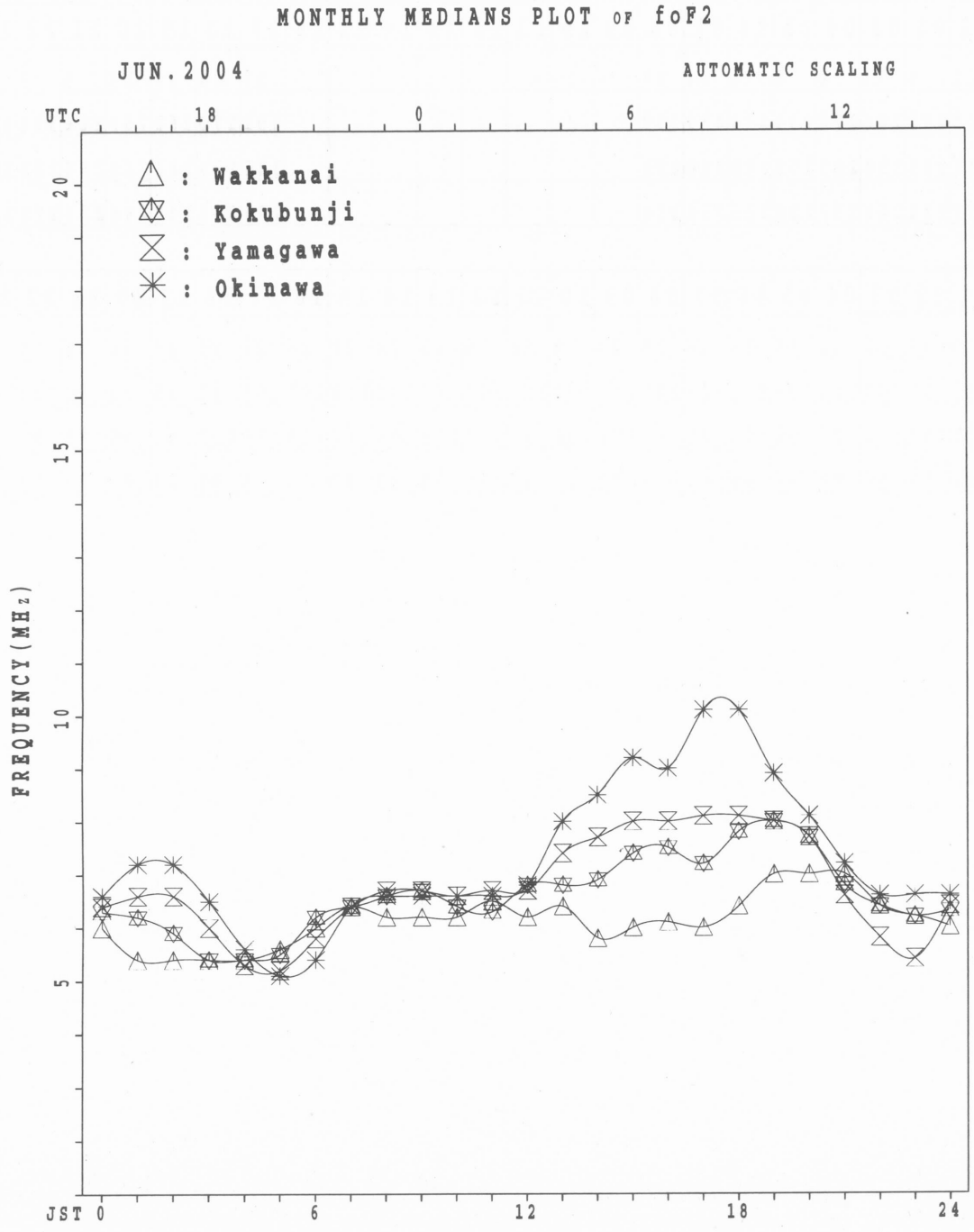
JUN. 2004 135E MEAN TIME(UTC+9H) AUTOMATIC SCALING

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	10	12	9	7	4	2	5	14	19									27	25	27	19	9	7	7
MED	340	300	278	280	270	239	236	259	270									302	270	262	260	264	302	338
U Q	354	316	289	338	293	258	249	280	298									326	279	284	268	290	328	362
L Q	320	277	252	240	257	220	225	254	254									286	254	248	246	236	278	310

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	22	19	19	21	21	16	19	26	28	29	25	26	19	23	24	24	26	27	26	26	26	26	25	24
MED	96	95	97	97	95	97	103	107	105	105	103	103	101	103	101	102	107	101	95	95	92	91	91	93
U Q	103	103	103	101	97	104	121	119	107	111	106	111	107	109	109	114	113	113	103	101	95	99	97	98
L Q	89	89	89	88	88	95	95	101	103	101	97	99	97	95	98	97	97	95	91	91	89	89	89	89


MONTHLY MEDIANS PLOT OF foF2
JUN. 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

JUN. 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 68	X 69	69	67	X 59															X 80	X 78	X 76	74	O X 74
2	65	70	X 59	64	61															A	X 70	X 71	X 73	65
3	65	68	65	63	X 58															X 70	X 75	X 71	70	X 71
4	76	X 67	X 64	X 60	59															X 100	X 84	O X 83	X 83	X 78
5	75	76	78	X 82	X 66															X 87	X 85	X 82	82	87
6	81	80	70	X 60	X 59															X 91	X 94	X 82	X 74	82
7	82	X 74	X 72	68	X 64															X 98	X 95	X 93	X 88	X 77
8	X 70	X 62	65	X 59	X 59															X 86	X 89	X 86	X 83	X 88
9	90	78	X 71	70	X 72	85														X 84	X 92	X 76	X 77	O X 76
10	74	X 70	X 68	X 61	X 63															X 93	X 81	X 61	X 59	X 59
11	X 59	X 57	X 57	X 57	63															X 78	X 72	X 71	X 66	X 61
12	X 56	X 56	X 54	X 52	X 50															X 77	X 75	X 68	X 64	X 63
13	68	66	65	66	67															X 90	X 92	X 83	X 78	X 75
14	X 73	X 72	X 71	X 71	X 68															X 98	X 104	X 89	X 79	X 72
15	X 72	76	77	X 70	X 57															X 83	X 67	X 48	X 46	X 46
16	X 44	X 48	X 40	X 31	X 34															X 72	X 71	X 63	X 56	X 60
17	66	64	X 56	X 55	X 58	X 62														X 85	X 87	X 79	X 77	X 75
18	X 70	X 68	X 64	X 66	X 59	66														X 80	X 74	X 72	75	X 70
19	X 62	65	65	65	63															X 100	X 86	X 71	X 66	X 64
20	X 58	X 57	X 55	X 53	53															X 83	X 72	X 71	X 73	75
21	75	X 72	X 67	X 62	X 57															X 94	X 76	X 70	70	74
22	73	72	X 68	60	55															X 90	X 84	X 77	X 70	X 69
23	X 72	74	68	X 60	54															X 90	X 95	X 72	74	X 65
24	69	77	74	73	73	X 64														X 86	88	86	X 83	86
25	X 72	X 70	X 66	X 64	X 63															X 88	X 81	X 72	76	74
26	74	X 66	68	66	64															X 78	X 90	87	78	78
27	75	73	66	67	X 59															X 92	X 90	X 76	80	X 81
28	X 82	X 80	X 75	X 70	X 62															X 81	X 90	X 84	X 76	X 73
29	75	81	78	69	X 62															X 111	X 96	X 65	X 62	X 63
30	X 60	X 64	X 60	X 58	X 53															X 91	X 87	X 73	75	82
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	30	30	30	30	30	4														29	30	30	30	30
MED	72	X 70	X 66	X 64	X 59	65														X 87	X 86	X 74	X 74	X 74
U Q	75	74	71	68	X 63	76														X 92	X 90	X 83	X 78	78
L Q	X 65	X 65	X 64	X 60	X 57	X 63														X 80	X 75	X 71	X 70	X 65

JUN. 2004 fxI (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

JUN. 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	62	63	F	F	52	53	68	71	71	58	60	63	67	67	A	94	94	A	86	74	72	70	F	68
2	F	F	52	F	F	60	74	63	S 66	A	67	A	69	77	84	80	85	93	88	A	64	65	67	F
3	F	F	F	F	52	48	58	60	A	A	A	A	72	82	92	90	81	81	A	64	69	65	F	65
4	F	60	58	53	F	57	57	66	69	59	62	64	67	66	66	74	82	88	94	93	78	77	77	72
5	F	F	F	V 76	60	58	60	67	67	68	69	64	53	A	A	A	A	93	87	81	79	76	F	F
6	F	F	F	54	53	50	52	54	66	70	A	63	71	A	A	87	74	74	81	85	88	76	68	F
7	F	68	66	F	58	57	74	81	67	A	59	60	62	68	70	79	85	A	88	92	89	87	82	71
8	64	57	F	52	53	55	64	69	A	A	A	A	74	82	76	76	82	81	83	80	83	80	77	82
9	F	F	64	F	66	F 75	59	59	A	A	52	A	A	77	86	81	70	70	78	78	86	70	71	70
10	F	64	62	55	57	67	70	70	62	55	62	66	67	74	81	83	78	72	80	87	75	55	53	53
11	53	51	51	51	F	55	58	63	77	A	65	53	A	56	A	66	63	60	68	72	66	65	S 60	55
12	50	50	48	46	44	51	53	56	64	66	A	58	A	61	69	70	72	72	74	70	69	62	58	57
13	F	F	F	F	F	62	63	64	60	57	56	66	73	67	68	71	69	70	75	84	85	77	72	69
14	67	66	65	65	62	53	56	59	56	60	63	58	67	71	75	74	73	80	85	92	98	83	73	66
15	66	F	F	63	51	50	66	59	48	A	A	A	A	A	54	53	56	57	S 62	76	61	41	S 38	40
16	37	42	34	25	28	38	54	47	48	47	A	A	A	A	A	A	A	54	55	66	65	56	50	54
17	F	F	50	49	52	56	52	57	55	56	A	A	62	66	68	66	62	68	75	79	81	73	71	69
18	64	62	58	60	53	F 55	67	61	A	A	A	A	R 54	59	68	78	74	64	67	74	68	66	F	64
19	56	F	F	F	F	51	57	65	72	73	67	59	A	64	68	74	77	82	92	93	80	65	60	58
20	54	51	S 49	47	F 45	51	A	A	59	61	64	60	62	60	58	A	A	69	A	77	66	65	67	F
21	F	66	61	56	51	50	64	63	63	67	A	72	68	A	62	68	51	62	72	88	70	64	F	F
22	F	F	62	F	F 46	50	63	72	66	A	66	61	A	67	75	75	73	68	74	84	78	70	64	63
23	66	F	F	54	F	46	60	68	73	A	A	A	A	69	72	68	70	72	A	84	89	66	F	59
24	F	F	F	F	F	58	62	65	A	70	73	66	63	66	68	A	61	A	71	80	F	F	77	F
25	S 65	64	60	58	56	59	67	68	74	77	72	64	66	65	63	64	A	76	81	S 82	75	66	F	F
26	F	60	F	F	F	51	58	S 63	A	A	A	59	A	60	A	54	61	A	65	72	Z 84	F	F	F
27	F	F	F	F	53	60	60	63	64	69	66	A	A	70	70	72	75	78	77	85	84	70	F	75
28	76	74	69	64	56	52	62	71	90	84	63	62	A	A	66	78	87	77	72	75	84	78	70	67
29	F	F	F	F	56	58	65	60	A	73	R 58	A	A	A	86	76	76	78	91	105	90	59	56	57
30	54	Z 58	54	52	47	54	59	77	74	68	A	64	68	A	A	A	A	68	78	85	81	67	F	F
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	14	16	17	18	22	30	29	29	23	19	18	19	18	22	23	25	25	26	27	29	29	28	20	21
MED	63	61	58	54	53	54	60	63	66	67	64	63	67	67	69	74	74	72	78	81	79	66	68	65
U Q	66	65	63	60	56	58	66	68	72	70	67	64	69	71	76	80	82	80	86	86	84	76	72	70
L Q	54	54	50	51	51	51	58	60	60	58	60	59	62	64	66	68	66	68	72	74	69	65	59	57

IONOSPHERIC DATA STATION Kokubunji

JUN. 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 440	L 440	A 472	L 472	U L 492	492	A	A	A	A	L 432	A	L					
2							L 500	L 500	L 500	A	A	A	L 508	L 476	A	A	A	A						
3							L	L	A	A	A	A	A	A	A	A	A	A	A					
4								L	A	A	A	A	A	L 476	A 452		L 436	L 396						
5							L	A	A	A	468	A	A	A	A	A	A	A	A					
6								A	A	A	A	A	A	A	A	L 456	L 444	A	A					
7							L	A	A	A	A	A	A	A	L 476	A	A	A	A					
8							A	A	A	A	A	A	A	A	L 448	L 444	L 440	A	A					
9								L	A	A	A	A	A	A	A	L 456	L 436	L 408	L					
10							L	A	L 440	L 512	484	496	468	A	A	436	440	L 420	L 356					
11							L	A	A	A	A	L 468	A	L 520	A	A	L 428	L 400	L 352					
12								L	A	A	A	A	A	A	448	448	428	L 400	L					
13						A	A	L 432	L 460	L 496	L 460	A	A	L 476	L 484	464	L 456	L 424	L					
14						L		L	L 444	A	A	L 476	U L 484	A	468	U L 456	A	L 432	L					
15						L 336	376	L 416	L 432	A	A	A	A	A	A	U L 452	432	392	L 344					
16							L 372	L 416	A	U L 428	A	A	A	A	A	A	A	A	A					
17							L	L	L 468	A	A	A	A	A	A	A	A	L 412	L					
18							L	A	A	A	A	A	U L 468	484	468	444	L 440	392	L					
19							L 408	A	A	A	A	A	A	A	A	444	A	A	A					
20						A	A	A	L 452	468	472	484	A	A	476	A	A	L 420	A					
21							L	L 432	A	448	A	A	A	A	A	A	440	L 428	A					
22							L	A	A	A	A	A	A	A	A	A	A	L 420	A					
23						A	416	A	A	A	A	A	A	A	A	L 468	A	420	A					
24							L	L	A	A	A	A	A	A	A	A	A	A	A					
25						L	L	A	A	A	A	A	A	A	U L 488	456	A	A	A					
26						L	L 400		A	A	A	A	A	488	A	452	A	A	A					
27							L 508	A	A	A	A	A	A	480	460	A	440	A	L					
28							L	L 448	L 448	L 468	U L 508	U L 488	A	A	A	A	L 440	L	L					
29							L	L 456	A	L 476	A	A	A	A	A	L 456	432	412	356					
30							L	A	A	A	A	A	A	A	A	A	A	A	A					
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						1	6	8	8	8	6	6	4	7	9	15	15	15	4					
MED						L 336	L 404	L 436	L 450	L 470	478	486	L 476	L 480	468	452	L 440	L 412	L 354					
U Q							416	L 452	L 464	L 486	U L 492	492	L 496	488	L 480	L 456	L 440	L 420	356					
L Q							376	L 424	L 442	458	468	L 476	468	L 476	454	444	432	400	L 348					

JUN. 2004 foF1 (0.01MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

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

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1						U R 196	U A 252	A	A	A	A	A	A	A	A	A	A	A	U A 192					
2						A	U A 232	A	A	A	A	A	A	A	A	A	292	256	U A 184					
3						U A 184	U A 248	U A 284	A	A	A	A	A	A	A	A	A	A	A					
4						A	U A 256	U A 284	A	A	A	A	A	A	A	A	U A 296	264	U A 192					
5						196	U A 248	A	A	A	A	A	A	A	A	A	A	A	A					
6						A	U A 264	U A 296	A	A	A	A	A	A	A	A	A	A	A					
7						172	U A 252	A	A	A	A	A	A	A	A	A	A	A	A					
8						U A 196	U A 260	U A 304	A	A	A	A	A	A	A	A	U R 312	U A 264	U A 204					
9						204	U A 252	A	A	A	A	A	A	A	A	A	A	U A 256	A					
10						B	U A 244	A	A	A	A	U A 368	A	A	A	U A 324	296	U A 260	A					
11						U A 176	A	A	A	A	A	R	A	A	A	A	A	U A 256	U R 212					
12						U R 188	A	A	A	A	A	A	A	A	A	U R 324	U R 304	U R 268	U A 188					
13						A	A	A	A	A	A	A	A	A	A	R	U R 308	264	A					
14						U R 184	U A 256	U A 296	U A 332	A	A	A	A	A	A	A	A	A	A					
15						U A 176	U A 256	A	A	A	A	A	A	A	A	A	A	A	A					
16						U A 172	U A 244	A	A	A	A	A	A	A	A	A	A	A	A					
17							U A 240	A	A	A	A	A	A	A	A	A	A	A	A					
18						U R 196	A	A	A	A	A	A	A	A	A	R	U A 312	264	U A 208					
19						U A 196	A	A	A	A	A	A	A	A	A	A	A	U A 264	U A 212					
20						A	A	A	A	A	A	A	A	A	A	A	A	A	A					
21						U A 184	U A 248	296	A	A	A	A	A	A	A	A	A	U A 272	U A 204					
22						U A 176	U A 244	A	A	A	A	A	A	A	A	A	A	A	A					
23						A	264	A	A	A	A	A	A	A	A	A	U A 316	A	A					
24							A	A	A	A	A	A	A	A	A	A	A	A	A					
25						A	A	A	A	A	A	A	A	A	A	U A 352	A	A	U A 196					
26						A	A	U A 284	A	A	A	A	A	A	A	A	A	A	A					
27						U A 180	A	A 296	A	A	A	A	A	A	A	A	A	A	A					
28						U R 188	U A 264	R	A	A	A	A	A	A	A	A	A	U A 252	A					
29						A	A	A	A	A	A	A	A	A	A	A	A	A	U A 200					
30						U A 172	U A 232	A	A	A	A	A	A	A	A	A	A	A	A					
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT						18	19	8	1			1				3	8	12	11					
MED						U A 184	U A 252	U A 296	U A 332			U A 368				U A 324	U 306	U A 264	U A 200					
U Q						U 196	U A 256	U A 296								U A 352	U A 312	U A 264	U A 208					
L Q						U A 176	U A 244	U A 284								U A 324	296	U A 256	U A 192					

JUN. 2004 foE (0.01MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

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

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	J A 42	J A 63	J A 17	J A 21	E B 14	G	28	35	J A 60	J A 46	J A 47	J A 54	J A 51	J A 54	J A 98	J A 62	J A 42	J A 110	23	J A 57	J A 63	J A 89	J A 78	J A 86
2	J A 46	J A 37	J A 35	J A 32	J A 20	24	32	J A 46	J A 52	J A 99	J A 144	J A 98	J A 46	47	J A 91	J A 91	J A 61	J A 78	J A 44	J A 68	J A 57	J A 75	J A 144	J A 78
3	J A 76	J A 48	J A 39	J A 33	J A 27	21	J A 39	34	J A 71	J A 75	J A 99	J A 116	J A 101	J A 173	J A 76	J A 99	J A 107	J A 88	J A 95	J A 80	J A 48	J A 128	J A 47	J A 47
4	J A 51	J A 76	J A 75	J A 79	19	J A 37	31	35	J A 53	J A 51	J A 54	J A 82	J A 64	J A 48	J A 64	J A 64	36	30	J A 35	J A 32	J A 27	J A 18	J A 44	J A 108
5	J A 77	J A 97	J A 30	J A 19	E B 15	24	36	J A 48	J A 66	J A 66	J A 48	J A 56	J A 55	J A 106	J A 137	J A 164	J A 112	J A 90	J A 65	J A 35	J A 48	J A 116	J A 41	J A 44
6	J A 54	J A 46	E B 15	18	J A 32	J A 37	32	J A 48	J A 51	J A 56	J A 71	J A 48	J A 77	J A 122	J A 146	J A 54	J A 55	J A 77	J A 84	J A 82	J A 73	J A 42	J A 35	J A 53
7	J A 51	J A 48	76	J A 16	J A 20	25	J A 38	J A 58	J A 70	J A 63	J A 58	J A 60	J A 56	J A 67	J A 46	J A 62	J A 47	J A 125	J A 68	J A 78	J A 65	J A 43	J A 34	J A 38
8	J A 47	J A 54	J A 75	J A 43	J A 24	J A 34	J A 45	J A 61	J A 84	J A 125	J A 102	J A 113	J A 96	J A 69	J A 44	J A 44	G 26	J A 43	J A 68	J A 80	J A 73	J A 70	J A 55	J A 57
9	J A 54	J A 48	J A 54	J A 65	20	26	J A 42	39	J A 60	J A 90	J A 72	J A 87	J A 84	J A 99	J A 109	J A 97	J A 76	30	J A 38	J A 23	J A 30	J A 18	J A 62	J A 45
10	J A 61	J A 54	J A 42	E B 14	E B 15	23	33	J A 64	J A 63	J A 50	39	43	J A 48	J A 48	J A 74	40	38	32	26	18	J A 28	J A 54	J A 32	J A 34
11	J A 34	J A 61	J A 28	J A 77	19	22	J A 35	J A 55	J A 66	J A 68	J A 48	G 32	J A 105	J A 60	J A 65	J A 58	J A 40	33	G E 20	B E 15	B E 15	B J A 21	20	J A 29
12	J A 36	J A 32	J A 23	E B E 14	B E 16	G	28	32	J A J 50	A 66	71	J A 51	J A 54	J A J 48	A 39	G 29	G 26	G 20	23	E B 15	B E 16	21	J A 54	J A 34
13	J A 52	J A 43	J A 38	J A 42	J A 48	J A 52	J A 63	J A 45	J A 39	J A 44	42	J A 56	J A 54	J A 56	43	G 26	G 26	30	J A 33	21	J A E 17	B J A 14	24	18
14	J A 17	J A 23	J A 41	J A 27	J A 23	G 18	29	37	41	J A J 67	A 67	J A 49	48	J A 56	J A 50	J A 64	J A 51	31	25	J A 39	28	J A 30	J A 35	J A 36
15	J A 38	J A 42	J A 31	J A 26	22	26	30	38	39	J A J 89	A 55	J A 161	J A 64	J A 79	45	J A 53	J A 42	J A 40	J A 27	J A 27	J A 18	J A 25	J A 28	J A 20
16	21	E B 15	J A 18	E B 15	B E 14	22	30	J A 40	J A 46	J A 43	J A 56	J A 80	J A 82	J A 79	J A 98	J A 79	J A 60	J A 52	J A 40	J A 30	J A 44	J A 34	J A 55	J A 53
17	J A 76	J A 53	J A 44	J A 42	J A 36	J A 29	J A 43	34	J A 44	J A 49	J A 70	J A 112	J A 59	J A 56	J A 53	J A 68	J A 61	J A 45	J A 28	24	J A 23	20	J A 24	J A 23
18	J A 54	J A 54	J A 42	J A 72	J A 58	G	J A 62	J A 66	J A 81	J A 118	J A 119	J A 74	43	46	42	G 28	37	31	J A 40	J A 62	J A 46	J A 65	J A 80	J A 95
19	J A 52	J A 53	J A 36	J A 24	J A 20	24	32	J A 62	J A 51	J A 96	J A 59	J A 78	J A 99	J A 77	J A 58	44	J A 59	J A 48	J A 47	62	J A 45	J A 52	J A 40	J A 41
20	J A 21	J A 53	J A 60	J A 32	J A 20	J A 53	J A 74	J A 89	J A 56	J A 45	J A 47	J A 63	J A 56	J A 50	44	J A 101	J A 108	J A 47	J A 84	J A 59	J A 56	J A 37	J A 28	J A 34
21	J A 24	20	J A 17	E B 15	B E 15	21	30	J A 43	J A 56	J A 47	J A 110	J A 106	J A 70	J A 108	J A 103	J A 74	J A 60	J A 82	J A 53	J A 56	J A 60	J A 59	J A 64	J A 52
22	J A 36	J A 33	J A 37	J A 36	20	J A 28	32	J A 46	J A 65	J A 82	J A 56	J A 52	J A 60	J A 50	J A 63	65	J A 56	J A 46	J A 66	J A 53	J A 26	J A 19	J A 20	J A 25
23	J A 76	J A 74	J A 54	J A 42	J A 38	J A 53	J A 38	J A 60	J A 56	J A 140	J A 168	J A 101	J A 144	J A 70	J A 82	40	J A 85	J A 43	J A 76	J A 112	J A 54	J A 101	J A 74	J A 63
24	J A 76	J A 52	J A 72	J A 70	J A 25	J A 37	J A 46	J A 66	J A 103	J A 72	J A 99	J A 66	J A 98	J A 56	J A 70	J A 74	J A 61	J A 155	J A 108	J A 88	J A 101	J A 45	J A 44	J A 50
25	J A 34	J A 30	J A 21	J A 28	J A 24	23	J A 43	J A 79	J A 66	J A 66	J A 55	J A 52	J A 73	J A 69	41	42	J A 83	J A 42	J A 40	J A 84	J A 57	J A 63	J A 43	J A 47
26	J A 55	J A 86	J A 65	J A 46	J A 46	J A 21	31	J A 40	J A 88	J A 102	J A 144	J A 63	J A 93	J A 44	J A 80	66	J A 85	J A 100	J A 146	J A 104	J A 81	J A 62	J A 85	J A 81
27	J A 35	J A 43	J A 24	20	J A 16	21	J A 42	J A 61	J A 69	J A 67	J A 70	J A 83	J A 103	J A 43	40	J A 48	J A 38	J A 50	J A 29	J A 25	J A 22	J A 53	J A 30	J A 46
28	20	18	J A 30	J A 22	J A 22	G 18	32	G 21	J A 46	42	J A 60	J A 48	J A 68	J A 90	J A 102	J A 56	J A 52	J A 48	J A 102	J A 34	J A 65	J A 43	J A 25	J A 52
29	J A 42	J A 39	J A 24	J A 21	J A 20	J A 27	28	36	J A 90	41	J A 56	J A 78	J A 170	J A 134	J A 61	J A 58	J A 39	J A 33	26	J A 35	J A 24	J A 22	J A 25	J A 28
30	J A 44	J A 71	J A 43	J A 44	J A 25	20	27	J A 51	J A 68	J A 76	J A 111	52	J A 54	J A 129	J A 106	J A 114	J A 168	J A 87	J A 102	J A 76	J A 31	J A 26	J A 51	J A 98
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	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30
MED	J A 46	J A 48	J A 38	J A 30	J A 20	24	32	J A 46	J A 60	J A 66	J A 64	J A 64	J A 66	J A 64	J A 64	J A 62	J A 56	J A 46	J A 42	J A 54	J A 46	J A 43	J A 42	J A 46
U Q	J A 54	J A 54	J A 54	J A 43	J A 25	J A 29	J A 42	J A 61	J A 69	J A 89	J A 99	J A 87	J A 96	J A 90	J A 98	J A 74	J A 76	J A 82	J A 76	J A 78	J A 60	J A 63	J A 55	J A 57
L Q	J A 35	J A 37	J A 24	20	E B 19	G 21	30	37	J A 51	J A 49	J A 55	J A 52	J A 54	J A 50	45	44	39	33	28	27	J A 26	J A 22	J A 28	J A 34

JUN. 2004 foEs (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

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

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E B 14	E B 15	E B 15	E B 16	E B 14	G	27	33	53	39	44	41	47	49	A A 98	56	37	A A 110	22	50	44	18	E B 16	35
2	E B 15	30	25	26	18	20	30	42	43	A A 99	56	A A 98	44	42	49	62	42	51	37	A A 68	36	54	21	44
3	30	E B 16	E B 15	24	17	20	35	34	A A 71	A A 75	A A 99	A A 116	57	70	62	46	57	70	A A 95	43	36	28	20	17
4	38	18	E B 16	34	E B 15	29	30	32	44	48	47	50	56	43	48	38	33	29	32	30	24	E B 15	E B 15	21
5	53	E B 15	19	E B 15	E B 15	22	34	42	43	46	39	50	46	A A 106	A A 137	A A 164	A A 112	72	54	24	32	18	21	34
6	35	E B 16	E B 15	E B 15	24	23	28	46	46	54	A A 71	46	66	A A 122	A A 146	41	37	51	39	29	36	19	24	24
7	26	36	17	E B 14	17	23	32	46	56	A A 63	45	50	53	55	41	58	44	A A 125	62	32	26	29	22	33
8	28	26	29	30	E B 15	31	41	58	A A 84	A A 125	A A 102	A A 113	60	67	38	39	G 25	39	65	61	50	32	42	44
9	21	33	31	38	E B 15	24	35	36	A A 60	A A 90	46	A A 87	A A 84	50	60	40	38	29	26	20	26	E B 15	29	32
10	34	39	31	E B 14	E B 15	21	30	56	35	42	38	41	40	44	58	38	36	31	26	17	24	24	27	24
11	18	17	19	23	E B 14	21	33	53	48	A A 68	46	U Y 32	A A 105	43	A A 65	46	37	31	G 19	E B 15	E B 15	17	16	25
12	31	24	E B 15	E B 14	E B 16	G	26	31	45	47	A A 71	48	A A 54	47	35	G 29	G 26	G 19	22	E B 15	E B 16	E B 14	29	23
13	32	22	E B 16	23	37	38	56	38	37	39	39	50	48	42	42	G 26	G 26	29	30	16	16	E B 14	23	E B 15
14	E B 15	18	30	16	18	G 16	27	34	38	46	49	43	43	46	40	38	45	30	24	37	24	26	25	26
15	18	18	18	17	E B 15	24	28	35	36	A A 89	A A 55	A A 161	A A 64	A A 79	44	41	40	33	24	24	E B 15	22	25	E B 15
16	E B 15	E B 15	E B 16	E B 15	E B 14	21	28	36	41	38	A A 56	A A 80	A A 82	A A 79	A A 98	A A 79	A A 60	45	34	27	38	23	20	36
17	36	36	36	38	27	20	34	33	37	44	A A 70	A A 112	54	49	50	45	47	30	24	24	E B 16	E B 15	E B 16	E B 15
18	18	E B 15	21	33	36	G	37	52	A A 81	A A 118	A A 119	A A 74	42	43	40	G 28	34	30	30	24	36	53	30	24
19	26	38	22	20	16	22	31	55	46	64	55	52	A A 99	54	47	38	52	39	40	56	38	23	26	21
20	E B 15	20	24	22	18	37	A A 74	A A 89	39	40	40	42	50	47	43	A A 101	A A 108	37	A A 84	36	35	28	19	E B 16
21	20	E B 16	E B 15	E B 15	E B 15	20	28	36	52	42	A A 110	52	49	A A 108	54	46	34	34	52	18	22	24	33	35
22	24	25	29	23	E B 15	23	30	44	54	A A 82	46	49	A A 60	48	59	61	45	35	42	40	24	E B 16	E B 15	17
23	28	40	24	20	24	40	35	56	48	A A 140	A A 168	A A 101	A A 144	62	55	39	61	33	A A 76	47	24	18	39	25
24	30	24	21	22	18	24	32	43	A A 103	54	54	57	56	53	62	A A 74	46	A A 155	41	55	44	36	37	36
25	20	21	17	20	20	23	35	59	64	60	51	49	60	55	39	40	A A 83	40	36	58	40	44	30	38
26	36	41	33	28	30	20	29	33	A A 88	A A 102	A A 144	51	A A 93	40	A A 80	40	41	A A 100	52	19	64	40	38	36
27	24	29	19	E B 15	E B 14	20	38	45	48	60	54	A A 83	A A 103	40	38	45	33	44	25	22	E B 15	E B 15	20	E B 15
28	E B 15	E B 15	18	16	21	G 17	31	G 21	41	41	46	45	A A 68	A A 90	60	45	37	38	27	23	37	21	E B 15	19
29	24	24	19	E B 14	16	25	28	33	A A 90	39	45	A A 78	A A 170	A A 134	46	38	33	29	24	26	E B 15	17	E B 16	18
30	24	26	26	32	16	20	26	46	44	64	A A 111	50	49	A A 129	A A 106	A A 114	A A 168	44	48	42	24	20	39	32
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	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30
MED	24	23	19	20	16	22	31	42	47	57	54	50	56	52	52	43	40	38	35	28	26	22	24	24
U Q	31	30	26	26	20	24	35	52	A A 60	A A 82	A A 71	A A 83	A A 82	A A 79	A A 62	A A 58	A A 52	51	52	43	37	28	30	35
L Q	E B 18	E B 16	E B 16	E B 15	E B 15	G 20	28	34	41	42	46	48	49	44	42	38	34	30	25	22	E B 22	E B 17	E B 19	E B 18

JUN. 2004 fbEs (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

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

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	14	16	15	16	14	14	14	15	20	24	23	24	20	20	23	18	15	13	13	14	16	16	16	14
2	15	14	14	15	15	14	14	16	18	19	22	20	21	20	21	20	19	14	15	14	14	15	16	14
3	14	16	15	15	14	16	14	18	22	24	23	20	25	24	19	20	16	15	15	16	15	16	15	16
4	15	16	16	15	15	14	14	14	18	21	22	21	25	24	21	20	16	14	14	14	15	15	15	16
5	15	15	15	15	15	14	14	15	20	20	20	23	23	16	16	17	16	14	14	15	15	14	15	15
6	16	16	15	15	15	15	15	15	20	23	28	24	23	27	23	26	17	16	14	14	15	14	15	15
7	15	15	14	14	14	14	15	15	18	22	26	27	26	23	23	15	17	15	13	16	15	15	14	16
8	15	15	14	15	15	14	14	20	20	22	23	18	22	21	22	20	15	15	15	15	15	14	16	16
9	15	15	16	16	15	14	13	15	16	18	19	22	23	19	19	20	14	15	13	14	15	15	14	16
10	15	15	15	14	15	14	16	13	14	22	21	19	21	23	19	15	19	14	16	15	15	15	16	16
11	15	16	15	15	14	14	14	16	13	23	23	24	20	21	20	16	16	14	14	15	15	15	14	15
12	16	15	15	14	16	16	15	19	21	22	24	23	22	20	20	16	17	14	13	15	16	14	15	15
13	16	15	15	15	15	16	15	16	22	21	26	23	26	25	26	20	18	13	15	14	16	14	15	15
14	15	15	16	14	14	14	15	14	17	23	23	23	24	24	22	18	20	14	15	14	14	14	13	14
15	15	15	14	13	15	14	15	19	15	18	19	24	22	22	29	21	20	15	14	14	15	14	14	15
16	15	15	16	15	14	15	14	19	19	21	26	21	22	22	23	18	15	14	15	14	14	15	14	16
17	16	15	15	16	14	14	15	14	14	20	24	23	22	21	23	16	16	14	14	14	16	15	16	15
18	14	15	15	15	16	14	14	15	21	23	34	35	28	23	20	20	17	14	14	16	15	14	16	15
19	14	15	14	14	15	14	14	14	17	22	24	20	23	24	20	18	14	13	14	14	15	16	16	15
20	15	14	16	15	15	15	14	15	15	16	19	24	26	33	20	18	15	14	14	16	15	15	15	16
21	14	16	15	15	15	15	14	16	16	20	21	24	25	27	26	21	20	14	15	14	15	14	14	15
22	16	15	15	16	15	14	14	15	18	18	20	25	24	26	22	21	14	16	13	15	15	16	15	14
23	14	15	16	15	14	15	18	23	22	17	21	34	24	25	23	20	16	16	15	14	15	16	15	14
24	15	15	14	16	14	14	14	15	20	19	25	26	28	25	25	23	16	15	13	14	16	16	14	15
25	14	15	14	14	13	16	16	13	21	20	23	18	35	23	22	23	17	13	14	15	15	14	14	15
26	15	14	14	15	15	14	14	15	15	22	20	18	23	27	18	19	21	15	16	15	15	14	15	14
27	14	14	16	15	14	14	15	16	18	23	19	23	23	24	20	19	19	16	14	14	15	16	16	15
28	15	15	14	14	13	14	15	14	23	24	19	23	28	23	32	23	18	15	16	14	15	15	15	14
29	16	15	14	14	14	15	14	15	16	24	25	24	23	30	24	18	18	14	15	15	15	15	16	15
30	14	15	15	15	14	15	15	15	15	16	24	19	20	18	23	24	14	15	14	15	15	15	15	14
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	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30
MED	15	15	15	15	15	14	14	15	18	22	23	23	23	23	22	20	16	14	14	14	15	15	15	15
U Q	15	15	15	15	15	15	15	16	20	23	24	24	25	25	23	21	18	15	15	15	15	15	16	16
L Q	14	15	14	14	14	14	14	15	16	19	20	20	22	21	20	18	15	14	14	14	15	14	14	14

JUN. 2004 fmin (0.1MHz)

IONOSPHERIC DATA STATION Kokubunji

JUN. 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	292	308	F	F	305	311	342	325	341	344	307	293	307	279	A	297	320	A	330	299	291	296	F	273
2	F	F	296	F	F	340	357	300	S 314	A	326	A	279	284	304	300	303	323	337	A	266	277	304	F
3	F	F	F	F	307	330	322	352	A	A	A	A	281	288	293	312	296	330	A	308	295	283	F	294
4	F	314	303	300	F	346	341	333	356	334	315	300	307	317	292	285	290	300	320	324	295	295	282	305
5	F	F	F	V 318	312	324	329	330	332	326	324	347	306	A	A	A	A	323	328	307	299	293	F	F
6	F	F	F	291	328	338	299	315	328	358	A	277	287	A	A	309	313	289	301	304	318	315	285	F
7	F	300	306	F	286	295	312	362	341	A	319	308	287	304	286	299	300	A	295	305	307	287	294	318
8	313	295	F	295	291	305	298	352	A	A	A	A	283	303	299	296	300	304	310	298	304	283	267	311
9	F	F	306	F	316	F 383	361	351	A	A	343	A	A	272	303	312	296	293	296	300	322	286	292	281
10	F	301	302	297	291	329	341	325	354	280	308	304	308	288	311	306	309	300	298	325	340	319	279	280
11	274	282	286	298	F	322	305	310	319	A	330	274	A	265	A	301	314	307	304	314	300	313	S 309	302
12	297	294	295	305	315	340	299	317	341	356	A	308	A	312	302	302	300	304	308	317	317	321	294	294
13	F	F	F	F	F	327	355	330	346	342	273	320	323	302	301	309	288	303	285	307	321	307	311	303
14	287	292	306	319	349	326	339	335	346	326	328	260	301	295	303	305	283	280	281	304	325	320	300	284
15	273	F	F	308	296	271	303	348	315	A	A	A	A	A	286	288	288	290	293	319	320	299	S 292	262
16	281	326	384	280	297	313	333	350	277	242	A	A	A	A	A	A	A	282	280	311	304	303	275	275
17	F	F	290	296	319	340	329	317	305	304	A	A	310	303	303	313	293	296	292	289	308	301	290	307
18	293	300	294	297	306	F 303	311	343	A	A	A	A	R 298	276	298	303	320	307	291	309	298	277	F	321
19	293	F	F	F	F	311	289	302	316	328	324	306	A	292	300	302	291	296	315	324	323	299	307	290
20	287	289	S 285	298	F 301	319	A	A	338	292	323	286	315	307	289	A	A	304	A	328	299	277	284	F
21	F	308	311	320	308	311	356	328	313	303	A	312	322	A	296	300	357	282	303	325	334	294	F	F
22	F	F	320	F	F 305	303	322	358	316	A	324	293	A	288	302	294	305	304	304	314	316	325	311	284
23	294	F	F	319	F	302	305	318	323	A	A	A	A	292	316	314	303	295	A	303	339	296	F	289
24	F	F	F	F	F	345	332	313	A	319	331	343	285	299	319	A	280	A	304	293	F	F	285	F
25	S 293	288	314	325	297	318	329	330	288	324	315	309	309	294	285	290	A	300	301	S 317	317	282	F	F
26	F	273	F	F	F	330	331	S 289	A	A	A	279	A	295	A	304	302	A	294	282	Z 286	F	F	F
27	F	F	F	F	306	347	259	328	309	314	303	A	A	309	280	293	300	310	297	312	330	288	F	290
28	286	314	307	318	308	309	314	292	326	361	305	302	A	A	292	289	316	308	303	282	291	294	303	296
29	F	F	F	F	312	320	340	295	A	327	R 346	A	A	A	285	281	289	278	292	330	347	296	280	279
30	278	Z 262	299	311	316	339	291	311	340	A 307	A	294	295	A	A	A	A	294	289	300	309	299	F	F
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	14	16	17	18	22	30	29	29	23	19	18	19	18	22	23	25	25	26	27	29	29	28	20	21
MED	290	298	303	302	306	323	329	328	326	326	324	302	304	294	299	301	300	300	301	308	309	296	292	290
U Q	293	308	309	318	315	339	340	346	341	342	328	309	309	303	303	308	311	307	308	318	322	305	304	304
L Q	281	288	294	297	297	311	304	312	314	304	308	286	287	288	289	294	290	293	292	300	298	286	283	280

JUN. 2004 M(3000)F2 (0.01)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

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

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							L	L 365	A	L 396	U L 343	375	A	A	A	A	L 378	A	L					
2							L	L 360	L 356	A	A	A	L 357	L 376	A	A	A	A						
3							L	L	A	A	A	A	A	A	A	A	A	A	A					
4								L	A	A	A	A	A	L 366	A	373	L 363	L 367						
5							L	A	A	A	409	A	A	A	A	A	A	A	A					
6								A	A	A	A	A	A	A	A	L 358	L 379	A	A					
7							L	A	A	A	A	A	A	A	L 364	A	A	A	A					
8							A	A	A	A	A	A	A	A	L 413	L 387	L 359	A	A					
9								L	A	A	A	A	A	A	A	L 364	L 357	L 342	L					
10							L	A	L 377	L 362	409	389	400	A	A	403	370	L 360	L 344					
11							L	A	A	A	A	L 406	A	L 273	A	A	L 359	L 348	L 348					
12								L	A	A	A	A	A	A	397	377	366	L 357	L					
13						A	A	L 382	L 385	L 374	L 433	A	A	L 378	L 373	375	L 351	L 340	L					
14						L		L	L 420	A	A	L 386	U L 390	A	401	U L 384	A	L 341	L					
15						L 309	343	L 382	L 391	A	A	A	A	A	A	U L 349	346	362	L 335					
16							L 353	L 388	A	U L 405	A	A	A	A	A	A	A	A	A					
17							L	L	L 375	A	A	A	A	A	A	A	A	L 343	L					
18							L	A	A	A	A	A	U L 365	309	381	392	L 367	383	L					
19							L 357	A	A	A	A	A	A	A	A	385	A	A	A					
20						A	A	A	L 394	388	396	390	A	A	364	A	A	L 351	A					
21							L	L 387	A	405	A	A	A	A	A	A	367	L 350	A					
22							L	A	A	A	A	A	A	A	A	A	A	L 362	A					
23						A	380	A	A	A	A	A	A	A	A	L 393	A	348	A					
24							L	L	A	A	A	A	A	A	A	A	A	A	A					
25						L	L	A	A	A	A	A	A	A	U L 389	379	A	A	A					
26						L	L 371		A	A	A	A	A	390	A	298	A	A	A					
27							L 364	A	A	A	A	A	A	396	412	A	365	A	L					
28							L	L 359	L 370	L 387	U L 345	U L 367	A	A	A	A	L 374	L	L					
29							L	L 370	A	L 385	A	A	A	A	A	L 362	368	341	331					
30							L	A	A	A	A	A	A	A	A	A	A	A	A					
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						1	6	8	8	8	6	6	4	7	9	15	15	15	4					
MED						L 309	L 360	L 376	L 381	L 388	402	388	L 378	L 376	389	377	L 366	L 350	L 340					
U Q							371	L 384	L 392	L 400	409	390	395	390	406	387	L 370	362	L 346					
L Q							353	L 362	L 372	L 380	U L 345	375	L 361	309	L 368	L 362	L 359	L 342	333					

JUN. 2004 M(3000)F1 (0.01)

IONOSPHERIC DATA STATION Kokubunji

JUN. 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							266	272	264	282	344	380	328	386	A	304	266	A	256					
2							232	318	318	A	E A 320	A	380	350	306	E A 322	298	272						
3							288	258	A	A	A	A	E A 378	E A 364	E A 310	282	E A 302	E A 300	A					
4								288	254	E A 280	322	E A 342	E A 320	318	362	330	324	292						
5							282	282	272	292	296	E A 280	E A 334	A	A	A	A	E A 284	248					
6								E A 300	306	258	A	370	E A 402	A	A	284	278	E A 314	278					
7							292	236	E A 280	A	324	E A 360	E A 406	342	352	322	290	A	E A 316					
8							314	E A 264	A	A	A	A	E A 352	E A 328	316	312	308	298	E A 300					
9								268	A	A	E A 314	A	A	372	304	288	320	318	290					
10							256	E A 266	266	398	356	356	338	354	304	296	296	308	288					
11							316	E A 314	296	A	304	396	A	468	A	334	294	326	296					
12								294	274	276	A	362	A	344	328	318	304	298	270					
13						258	E A 274	284	272	294	384	326	288	328	334	304	328	316	288					
14						248		256	274	318	292	456	356	320	324	306	340	332	310					
15						384	320	250	346	A	A	A	A	A	406	398	376	352	318					
16							292	290	440	622	A	A	A	A	A	A	A	E A 380	336					
17							300	308	346	364	A	A	E A 342	340	334	314	E A 334	322	292					
18							280	E A 278	A	A	A	A	384	428	348	310	278	294	304					
19							360	E A 346	302	E A 290	E A 304	E A 350	A	E A 366	342	312	314	304	262					
20						E A 288	A	A	272	366	306	388	342	352	388	A	A	310	A					
21							248	280	342	330	A	320	318	A	E A 366	338	270	344	E A 308					
22							282	242	E A 312	A	296	378	A	368	E A 338	E A 332	308	302	E A 286					
23						E A 340	314	E A 294	282	A	A	A	A	E A 374	302	316	E A 356	300	A					
24							258	332	A	306	268	E A 288	E A 386	348	E A 342	A	E A 378	A	296					
25						272	270	E A 296	E A 354	E A 284	316	E A 336	E A 344	E A 356	378	338	A	312	272					
26						276	286		A	A	A	E A 408	A	376	A	370	340	A	E A 330					
27							438	240	338	E A 330	E A 326	A	A	326	334	332	320	286	296					
28							290	326	276	238	346	370	A	A	E A 394	326	282	294	264					
29							256	306	A	286	290	A	A	A	324	318	322	336	298					
30							330	298	256	E A 390	A	E A 352	358	A	A	A	A	E A 302	E A 322					
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT						7	24	28	23	19	18	19	18	22	23	25	25	26	25					
MED						267	287	278	279	292	310	358	340	348	329	316	305	304	291					
U Q						340	314	303	338	364	326	380	E A 380	372	362	332	331	322	E A 309					
L Q						258	268	265	272	282	296	E A 336	334	340	316	305	292	298	275					

JUN. 2004 h'F2 (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

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

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E B 282	E B 248	230	236	234	234	216	212	A	202	E A 282	214	A	A	A	A	E A 230	A	222	E A 280	E A 268	E A 284	E B 270	E A 326
2	E B 278	E A 300	E A 284	E A 316	E A 270	224	A	E A 244	E A 258	A	A	A	E A 246	E A 230	A	A	A	A	226	A	E A 320	E A 402	E A 248	E A 348
3	E A 330	E B 270	236	E A 278	E A 256	238	A	226	A	A	A	A	A	A	A	A	A	A	A	E A 268	E A 298	E A 272	E A 312	E A 266
4	E A 304	E A 264	228	E A 296	216	220	228	228	A	A	A	A	A	E A 250	A	228	224	218	250	232	E A 242	E B 250	E B 266	E A 254
5	E A 340	E B 306	E A 260	228	212	222	E A 238	A	A	A	196	A	A	A	A	A	A	A	A	236	E A 258	E A 256	E A 320	E A 318
6	E A 330	E B 272	216	E B 268	E B 236	218	222	A	A	A	A	A	A	A	A	E A 264	222	A	A	E A 258	E A 250	218	E A 274	E A 314
7	E A 278	E A 272	228	E B 252	E A 280	224	226	A	A	A	A	A	A	A	E A 246	A	A	A	A	E A 248	238	E A 266	E A 262	236
8	E A 244	E A 282	E A 280	E A 316	E B 264	E A 278	A	A	A	A	A	A	A	A	202	226	214	A	A	E A 306	E A 284	E A 282	E A 298	E A 276
9	E A 264	E A 272	E A 278	E A 286	E B 246	202	220	220	A	A	A	A	A	A	A	E A 232	E A 256	216	E A 240	250	242	E B 262	E A 272	E A 300
10	E A 282	E A 274	E A 288	E B 256	E B 266	244	212	A	206	E A 234	188	206	210	A	A	206	220	224	224	230	214	228	E A 314	E A 322
11	E A 296	E A 300	E A 276	E A 266	E B 244	222	E A 244	A	A	A	A	208	A	E A 368	A	A	E A 234	228	228	240	214	228	228	E A 252
12	E A 294	E A 288	E B 268	E B 266	E B 258	224	202	200	A	A	A	A	A	A	200	206	214	212	230	236	226	230	E A 266	E A 300
13	E A 324	E A 254	236	E A 304	E A 282	A	A	E A 242	204	204	H 192	A	A	220	222	H 194	202	214	E A 248	252	226	210	E A 240	E B 242
14	E B 270	E A 270	E A 268	234	220	H 182	218	202	H 194	A	A	E A 230	212	A	212	208	A	220	224	E A 272	232	212	E A 256	E A 300
15	E A 320	E A 290	E A 246	E A 242	E B 256	E A 272	E A 254	E A 232	198	A	A	A	A	A	A	E A 294	E A 300	E A 244	E A 256	234	200	E A 264	E A 332	E B 318
16	E B 310	E B 242	204	E B 328	E B 298	228	230	220	A	220	A	A	A	A	A	A	A	A	A	E A 262	E A 278	E A 240	E A 276	E A 346
17	E A 310	E A 344	E A 336	E A 330	E A 250	222	E A 250	212	216	A	A	A	A	A	A	A	A	210	212	E A 262	238	224	E B 264	240
18	E A 254	E B 264	E A 296	E A 288	E A 290	216	A	A	A	A	A	A	E A 284	E A 328	198	204	204	218	E A 244	E A 244	E A 288	E A 360	E A 268	E A 248
19	E A 306	E A 322	E A 290	E A 286	E A 252	234	230	A	A	A	A	A	A	A	A	220	A	A	A	E A 260	E A 228	E A 238	E A 272	E A 268
20	E B 268	E A 288	E A 302	E A 290	E A 276	A	A	A	208	216	H 192	212	A	A	216	A	A	E A 274	A	E A 244	E A 276	E A 300	E A 288	E B 272
21	E A 276	E B 244	232	228	232	236	218	208	A	222	A	A	A	A	A	A	H 202	E A 254	A	242	222	E A 260	E A 310	E A 316
22	E A 298	E A 250	E A 242	E A 276	E B 264	E A 238	212	A	A	A	A	A	A	A	A	A	A	224	A	E A 256	230	234	224	E A 282
23	E A 282	E A 290	E A 240	E A 240	E A 264	A	214	A	A	A	A	A	A	A	A	214	A	E A 242	A	E A 274	230	216	E A 306	E A 254
24	E A 324	E A 308	E A 308	E A 298	E A 270	218	226	E A 238	A	A	A	A	A	A	A	A	A	A	A	E A 314	E A 306	E A 270	E A 296	E A 278
25	E A 274	E A 276	240	E A 250	E A 254	234	E A 248	A	A	A	A	A	A	A	196	E A 238	A	A	A	E A 268	E A 246	E A 310	E A 308	E A 310
26	E A 316	E A 316	E A 296	E A 276	E A 270	212	206	222	A	A	A	A	A	202	A	A	A	A	A	244	E A 328	240	E A 274	E A 304
27	E A 238	E A 270	E A 304	230	242	214	214	A	A	A	A	A	A	206	200	A	220	A	222	250	220	224	E A 288	E B 276
28	E B 260	236	236	226	230	232	234	214	E A 260	206	E A 288	E A 272	A	A	A	A	226	E A 262	E A 244	280	E A 280	230	216	E A 266
29	E A 308	E A 264	234	224	228	E A 238	226	206	A	202	A	A	A	A	A	216	220	226	236	240	204	214	E B 272	E A 288
30	E A 322	E A 346	E A 274	E A 276	242	236	214	A	A	A	A	A	A	A	A	A	A	A	A	E A 276	218	212	E A 330	E A 342
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	30	30	30	30	30	27	24	16	8	8	6	6	4	7	9	14	15	16	15	29	30	30	30	30
MED	E A 295	E A 273	E A 264	E A 272	E 255	223	220	215	204	208	192	210	229	E A 230	201	212	217	220	226	E A 252	U 221	E 240	E A 273	E A 285
U Q	E A 316	E A 300	E A 288	E A 290	E A 270	E A 236	E A 232	E A 230	E A 237	221	E A 282	E A 230	E A 265	E A 328	219	E A 232	E A 230	E A 243	E A 244	E A 270	E A 278	E A 270	E A 306	E A 316
L Q	E A 274	E A 264	236	240	236	218	214	210	201	203	192	208	211	206	199	206	214	217	224	241	226	224	E 264	E A 266

JUN. 2004 h'F (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

JUN. 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						116	118	114	A	A	A	A	A	A	A	A	A	A	122					
2						A	110	A	116	A	A	A	A	114	116	116	116	116	114					
3						116	116	116	A	A	A	A	A	A	A	A	A	A	A					
4						A	A	116	116	A	A	A	A	A	A	A	116	118	112					
5						122	120	118	A	A	A	A	A	A	A	A	A	A	A					
6						A	118	116	A	A	A	A	A	A	A	A	A	A	A					
7						122	118	114	A	A	A	A	A	A	A	A	A	A	A					
8						118	116	120	A	A	A	A	A	A	A	A	118	118	118					
9						126	118	116	A	A	A	A	A	A	A	A	A	114	A					
10						B	116	116	A	112	A	114	114	114	A	116	112	110	A					
11						110	A	A	A	A	114	118		116	110	116	116	118	124					
12						124	A	116	A	A	A	A	A	A	A	116	116	114	116					
13						A	A	A	A	118	116	A	A	A	116	112	116	116	116					
14						120	124	122	120	114	A	A	116	A	116	A	A	A	A					
15						114	114	114	114	A	A	A	A	A	A	112	A	A	A					
16						116	116	A	A	114	A	A	A	A	A	A	A	A	A					
17							112	114	114	A	A	A	A	A	A	A	A	A	A					
18						112	A	A	A	A	A	A	118	122	114	116	116	116	116					
19						122	122	A	A	A	A	A	A	A	A	A	116	116	118					
20						A	A	A	A	A	A	A	A	A	A	A	A	A	A					
21						120	118	116	A	A	A	A	A	A	A	A	A	116	114					
22						116	116	108	A	A	A	A	A	A	A	A	A	A	A					
23						A	116	112	A	A	A	A	A	A	A	112	114	A	A					
24							A	A	A	A	A	A	A	A	A	A	A	A	A					
25						A	A	A	A	A	A	A	A	A	116	112	120	114	112					
26						A	A	114	A	A	A	A	A	114	A	114	A	A	A					
27						122	A	A	A	A	A	A	A	A	A	A	A	A	A					
28						126	116	110	A	A	A	A	A	A	A	A	112	118	A					
29						A	112	A	A	118	A	A	A	A	A	A	A	A	116					
30						120	116	A	A	A	A	A	A	A	A	A	A	A	A					
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT						18	20	18	5	5	2	2	3	5	6	10	12	13	12					
MED						120	116	116	116	114	115	116	116	114	116	115	116	116	116					
U Q						122	118	116	118	118			118	119	116	116	116	118	118					
L Q						116	116	114	114	113			114	114	114	112	115	114	114					

IONOSPHERIC DATA STATION Kokubunji

JUN. 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	98	98	94	92	B	G	118	112	104	100	102	98	100	98	96	98	104	102	142	104	104	106	104	100
2	100	88	88	88	90	88	112	104	114	100	96	96	104	128	116	114	112	114	110	106	112	102	102	100
3	98	94	96	92	92	134	118	118	104	104	100	98	98	96	94	94	92	92	92	92	94	94	108	100
4	102	102	100	96	100	98	138	124	118	106	104	104	102	110	108	106	124	138	108	106	102	102	106	100
5	96	94	94	98	B	126	116	114	104	104	104	102	100	98	92	88	92	92	92	90	102	108	106	102
6	100	98	B	104	98	102	134	112	104	104	100	102	102	96	98	102	98	98	100	98	94	102	96	102
7	100	96	98	100	92	124	116	110	102	100	102	102	102	102	104	104	102	102	100	100	96	96	96	92
8	94	94	98	98	104	124	120	110	102	102	98	96	98	102	102	102	100	118	110	100	98	100	100	100
9	98	94	94	92	98	128	120	120	104	100	104	102	100	98	96	92	96	114	102	100	98	96	94	96
10	94	92	96	B	B	126	120	110	104	116	100	126	118	118	102	118	114	116	104	104	102	104	104	102
11	102	106	98	100	106	118	104	100	98	100	116	104	110	114	110	118	120	112	104	B	B	92	94	90
12	90	88	92	B	B	G	102	112	102	102	100	98	102	98	104	102	102	98	122	B	B	92	104	100
13	100	98	98	100	98	98	96	98	100	122	120	104	106	110	124	100	100	120	116	106	104	B	104	92
14	102	98	100	98	96	104	136	126	122	114	110	104	118	106	114	104	102	108	98	98	96	94	110	104
15	102	100	98	100	126	122	126	118	118	102	104	102	104	104	108	110	106	102	100	92	94	94	92	94
16	94	B	100	B	B	136	120	106	106	118	104	102	102	100	100	100	100	100	98	94	90	92	98	98
17	98	94	90	90	88	94	110	116	114	100	98	94	98	94	94	94	92	94	94	96	98	96	104	104
18	98	98	100	96	96	G	108	108	102	102	100	98	132	128	124	100	136	128	114	104	106	104	100	98
19	94	88	92	88	92	118	126	106	104	102	102	106	104	98	98	102	116	120	116	102	96	118	114	116
20	114	114	100	102	88	104	100	100	100	104	106	106	102	108	134	100	98	98	94	98	98	94	94	92
21	90	96	110	B	B	124	120	114	106	104	98	102	100	96	96	96	100	110	108	102	100	100	92	94
22	94	90	90	88	88	116	122	112	100	98	98	100	98	96	94	94	94	98	96	92	92	94	92	90
23	100	98	98	96	100	104	120	114	104	98	100	98	98	102	100	110	112	108	106	104	100	104	98	98
24	96	96	96	92	96	102	104	102	98	100	100	98	96	102	94	96	100	96	96	94	88	90	90	90
25	88	86	92	90	88	86	100	96	92	96	98	102	104	104	116	124	110	114	110	100	96	104	100	100
26	98	98	94	94	96	98	98	116	102	98	96	100	104	116	106	112	104	100	102	104	100	96	92	92
27	94	94	88	92	100	118	104	102	104	96	98	98	98	106	102	98	96	94	94	94	98	112	104	104
28	98	98	98	98	100	104	134	100	100	104	104	108	108	102	102	104	110	106	100	104	104	108	98	96
29	100	98	96	98	94	92	112	104	102	116	104	104	102	98	100	102	102	102	118	98	94	92	102	96
30	94	94	92	92	98	118	120	104	102	98	100	102	100	94	96	94	106	98	102	96	98	98	100	96
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	30	29	29	26	24	27	30	30	30	30	30	30	30	30	30	30	30	30	30	28	28	29	30	30
MED	98	96	96	96	96	116	118	110	104	102	100	102	102	102	102	102	102	102	102	100	98	98	100	98
U Q	100	98	98	98	100	124	120	114	104	104	104	104	104	108	108	106	110	114	110	104	102	104	104	100
L Q	94	94	92	92	92	98	104	104	102	100	98	98	100	98	96	96	98	98	98	95	95	94	94	94

JUN. 2004 h'Es (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

JUN. 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

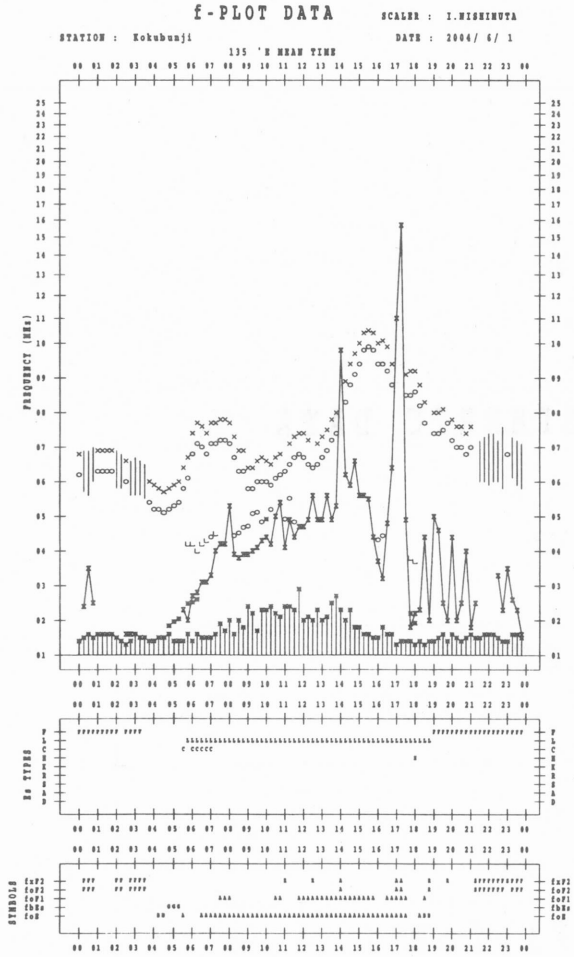
D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	F2	F2	F1	F2			CL11	CL21	L3	L1	L2	L2	L2	L2	L3	L3	L2	L4	HL12	F3	F3	F3	F3	F3
2	F2	F5	F3	F4	F2	L2	CL21	L2	CL21	L4	L3	L3	L1	CL11	CL21	CL21	CL21	CL41	CL41	FF53	FF22	F6	F3	F5
3	F3	F2	F2	F3	F2	CL11	CL21	CL11	L2	L2	L3	L3	L2	L3	L3	L2	L3	L4	L4	F3	F3	F2	F5	F2
4	F5	F2	F3	F3	F1	L3	HL12	CL11	CL21	L2	L2	L2	L2	L1	L2	L2	CL11	HL11	C4	F3	F3	F1	F2	F3
5	F4	F4	F3	F2		C1	CL11	CL21	L2	L2	L1	L2	L2	L3	L4	L3	L4	L5	L3	F2	FF33	FF22	F2	F4
6	F5	F2		F2	F2	L2	CL22	CL31	L2	L2	L3	L1	L2	L3	L3	L2	L3	L2	L3	F3	F2	F2	F2	F2
7	F3	F5	F3	F1	F2	C2	CL21	CL21	L2	L2	L2	L2	L2	L2	L2	L2	L3	L4	L3	F3	F3	F3	F4	F3
8	F2	F3	F3	F4	F1	CL31	C2	CL21	L3	L2	L3	L4	L3	L3	L1	L1	L1	CL31	CL41	F4	F5	F4	F3	F4
9	F4	F5	F3	F4	F2	CL21	CL21	CL11	L3	L4	L2	L3	L3	L2	L2	L2	L2	CL21	L2	F2	F4	F2	F3	F5
10	F4	F3	F3			C2	CL21	CL21	L2	CL21	L1	CL11	CL11	CL21	L2	CL11	CL21	CL21	L3	F2	F3	F3	F4	F3
11	F2	F3	F2	F3	F1	C1	L1	L2	L2	L2	CL21	L1	CL21	CL21	CL21	CL21	CL21	CL21	L2			F3	F1	F3
12	F3	F3	F2				L1	CL11	L2	L2	L2	L2	L2	L2	L1	L1	L1	L1	CL22			F1	F3	F6
13	F4	F3	F2	F3	F6	L3	L4	L3	L1	CL11	CL11	L2	L1	L1	CL11	L1	L1	CL11	CL21	F2	F3		F2	F1
14	F1	F2	F3	F2	F3	L1	HL11	CL11	CL11	CL21	L2	L2	CL11	L1	CL11	L2	L2	L1	L3	F3	F3	F3	FF22	F2
15	F2	F3	F4	F2	F1	C2	CL21	CL21	CL11	L2	L2	L2	L2	L2	L1	CL21	L2	L2	L3	F2	F1	F5	F4	F1
16	F2		F1			C1	CL11	L1	L2	CL11	L3	L2	L3	L3	L3	L3	L3	L3	L3	F3	F4	F3	F3	F4
17	F3	F2	F3	F4	F4	L2	CL21	CL11	CL11	L2	L2	L3	L2	L3	L2	L3	L3	L3	L3	F2	F2	F1	F1	F2
18	F3	F3	F3	F6	F3		L3	L2	L2	L2	L2	L2	CL11	CL11	CL11	L1	HL11	CL11	CL31	F3	F4	F4	F3	F3
19	F4	F4	F4	F2	F2	C1	CL21	L3	L2	L2	L3	L2	L3	L3	L2	L1	CL31	CL21	CL42	F4	F5	FF22	FF24	FF32
20	F2	F3	F2	FF23	F2	L3	L4	L2	L2	L2	L1	L2	L2	L2	CL11	L3	L3	L3	L4	F2	F3	F3	F2	F2
21	F2	F1	F1			CL11	CL11	CL31	L3	L2	L2	L2	L2	L3	L3	L2	L2	CL21	C3	F2	F3	F2	F4	F3
22	F4	F3	F4	F2	F1	C2	CL21	CL31	L3	L3	L2	L2	L2	L3	L3	L3	L2	L3	L4	F3	F3	F2	F2	F2
23	F3	F3	F3	F3	F2	L3	CL11	CL21	L2	L3	L3	L3	L2	L2	L2	CL11	CL31	L2	L4	F4	F4	F3	F2	F2
24	F3	F2	F3	F3	F2	L2	L3	L2	L3	L2	L2	L3	L2	L2	L3	L3	L3	L4	L2	F3	F4	F4	F3	F4
25	F2	F2	F2	F2	F2	L2	L2	L3	L2	L2	L2	L2	L2	L2	CL11	CL11	CL21	CL22	CL31	F4	F3	F4	F3	F5
26	F4	F5	F3	F2	F3	L3	L3	CL21	L3	L3	L3	L2	L2	CL11	L2	CL21	L2	L3	L3	F2	F4	F4	F4	F3
27	F3	F3	F2	F1	F1	CL11	L2	L3	L2	L2	L2	L2	L3	L1	L1	L3	L2	L3	L3	F3	F1	F1	F4	F2
28	F2	F1	F3	F3	F3	L1	HL21	L1	L2	L1	L2	L2	L2	L2	L3	L2	CL21	CL31	L2	F2	F4	F2	F2	F2
29	F2	F3	F2	F1	F1	L2	CL11	L1	L2	CL11	L2	L2	L3	L3	L2	L2	L1	L2	CL12	F3	F3	F2	F2	F2
30	F2	F2	F3	F2	F1	C1	CL21	L2	L3	L3	L3	L2	L2	L4	L3	L4	LL23	L3	L4	F3	F2	F2	F5	F5
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT																								
MED																								
U Q																								
L Q																								

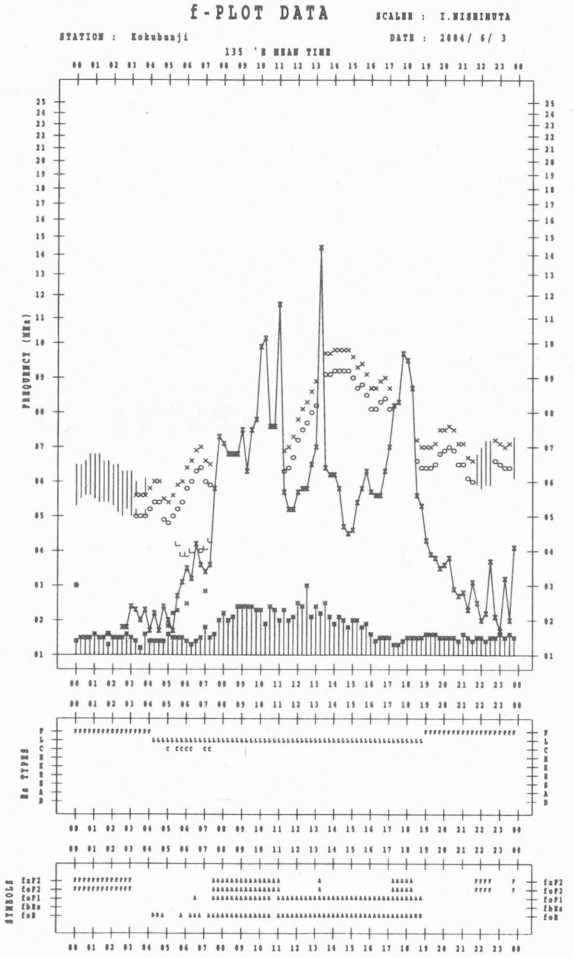
JUN. 2004 TYPES OF Es

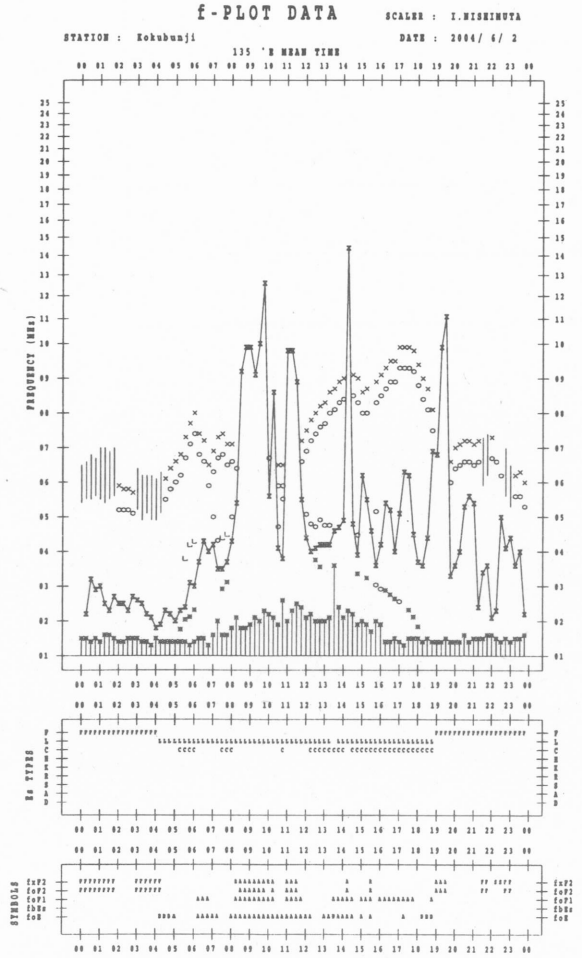
NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

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.NISHINUTA
STATION : Kokubunji
DATE : 2004/ 6/ 1
135 'E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS


f-PLOT DATA
SCALER : I.NISHINUTA
STATION : Kokubunji
DATE : 2004/ 6/ 3
135 'E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS


f-PLOT DATA
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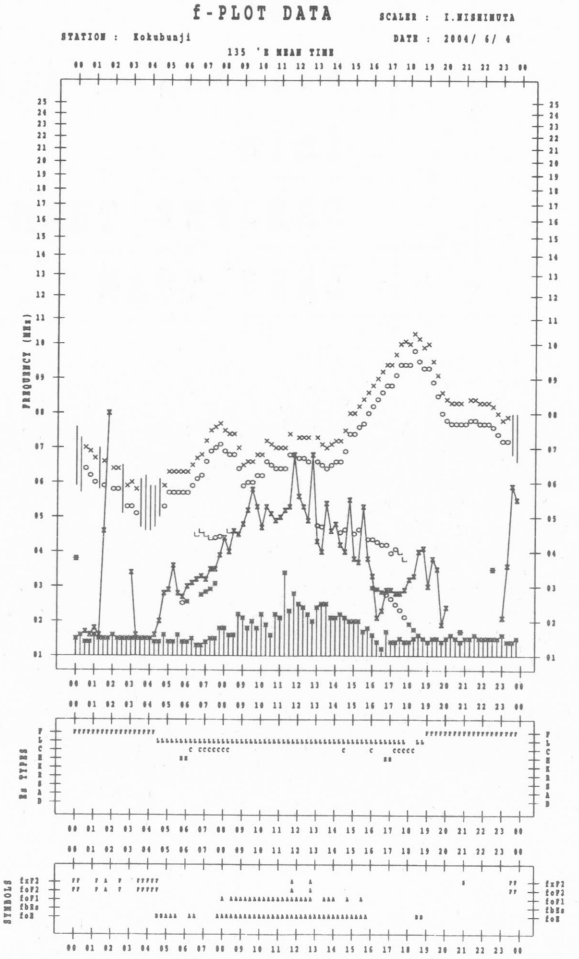
STATION : Kokubunji
DATE : 2004/ 6/ 2
135 'E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS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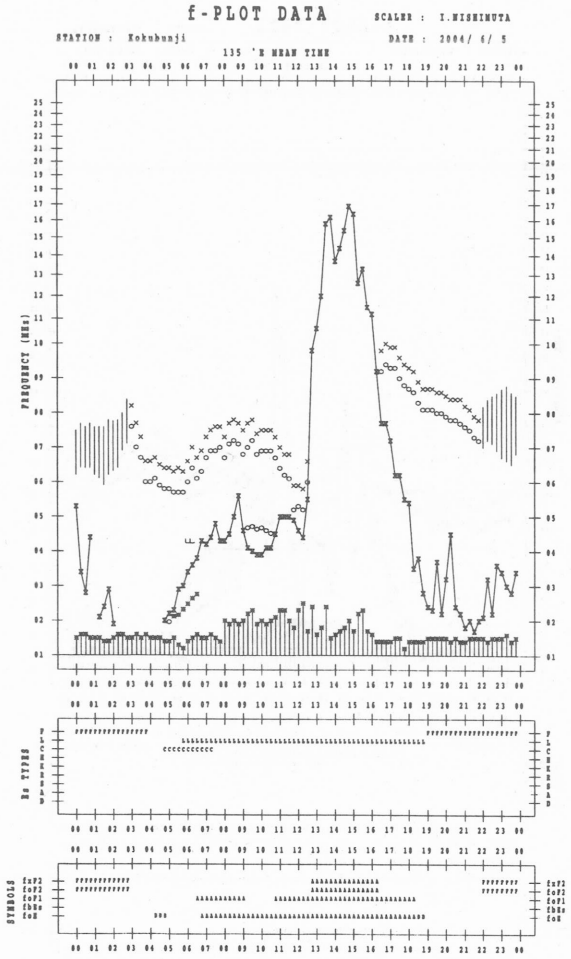
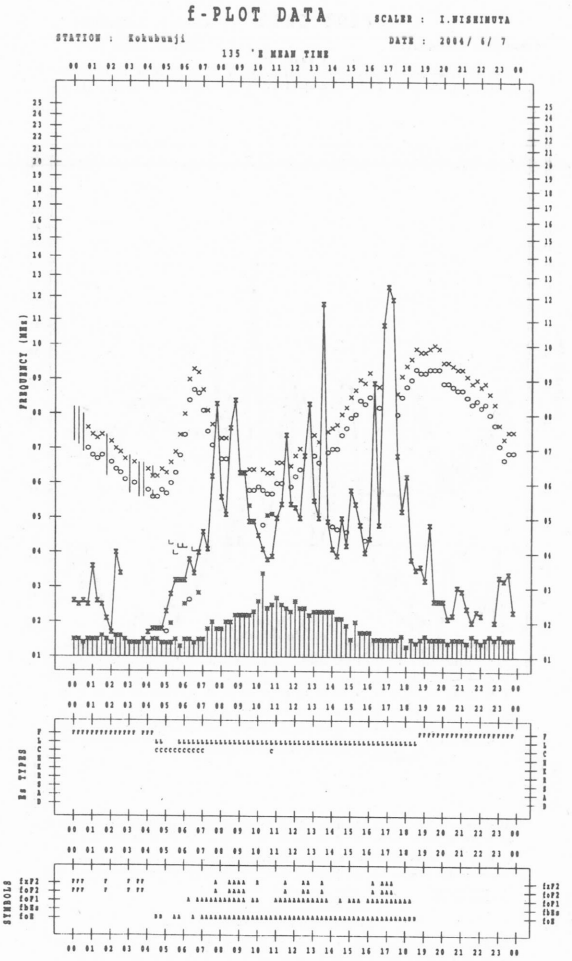
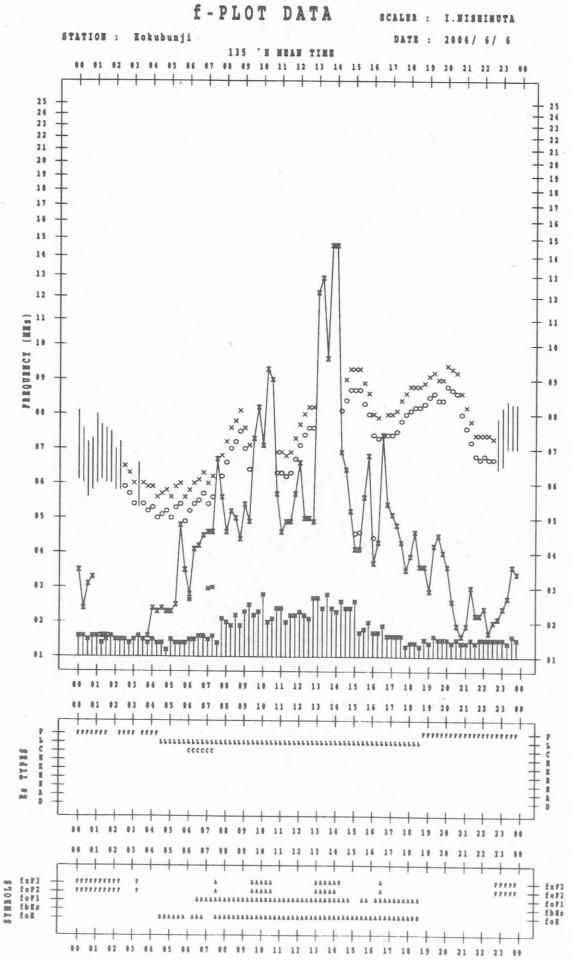
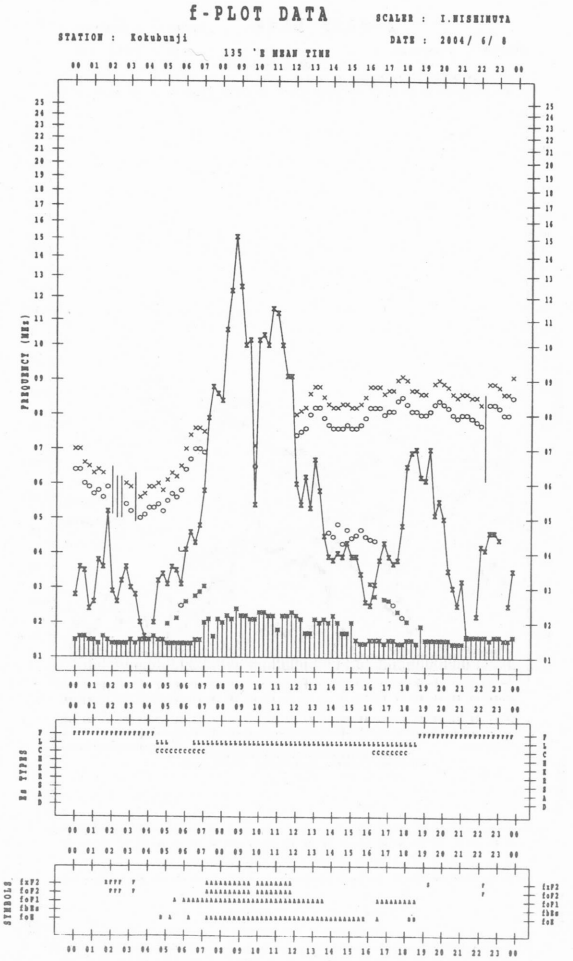
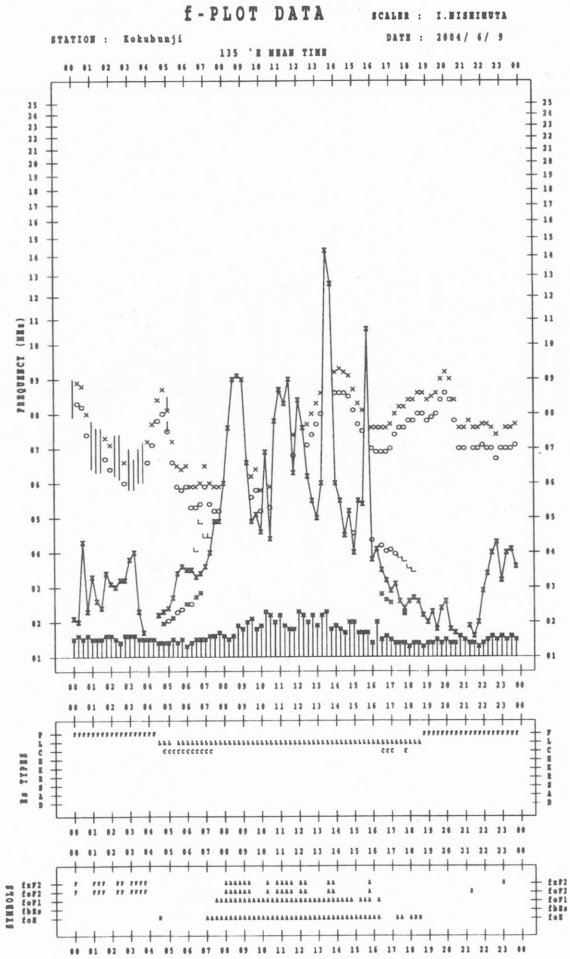
STATION : Kokubunji
DATE : 2004/ 6/ 4
135 'E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS

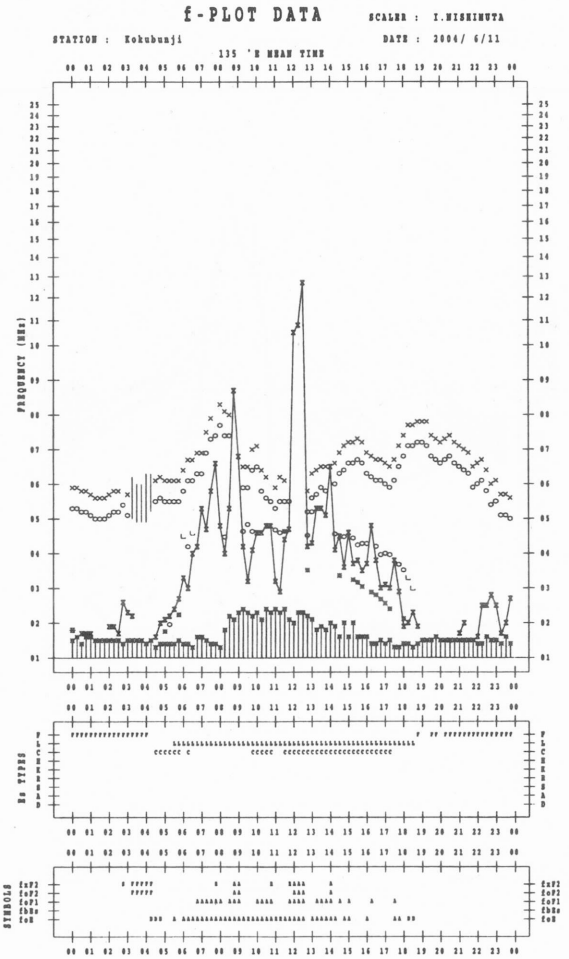

f-PLOT DATA
SCALER : I.NISHINUTA
STATION : Kokubunji
DATE : 2004/ 6/ 5
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS

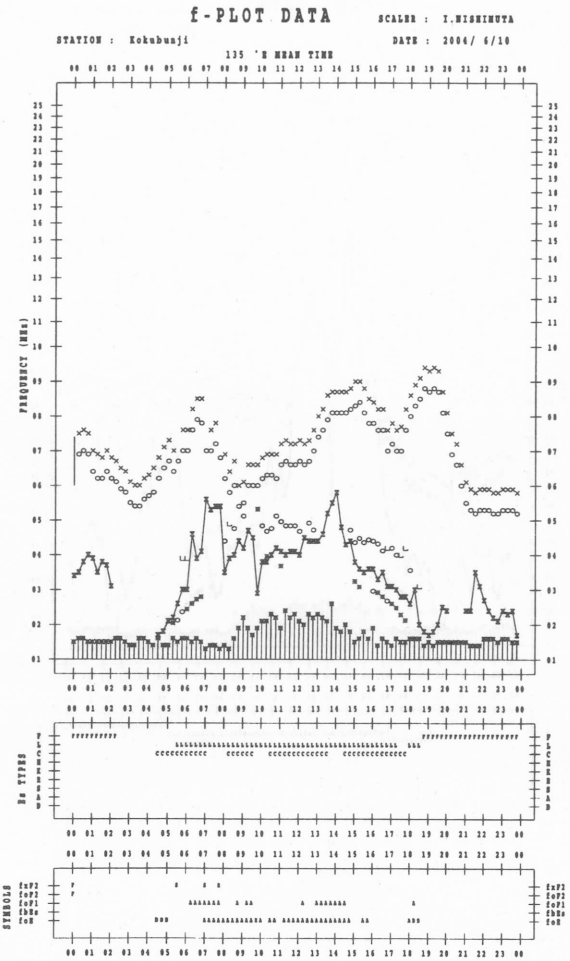

f-PLOT DATA
SCALER : I.NISHINUTA
STATION : Kokubunji
DATE : 2004/ 6/ 7
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS

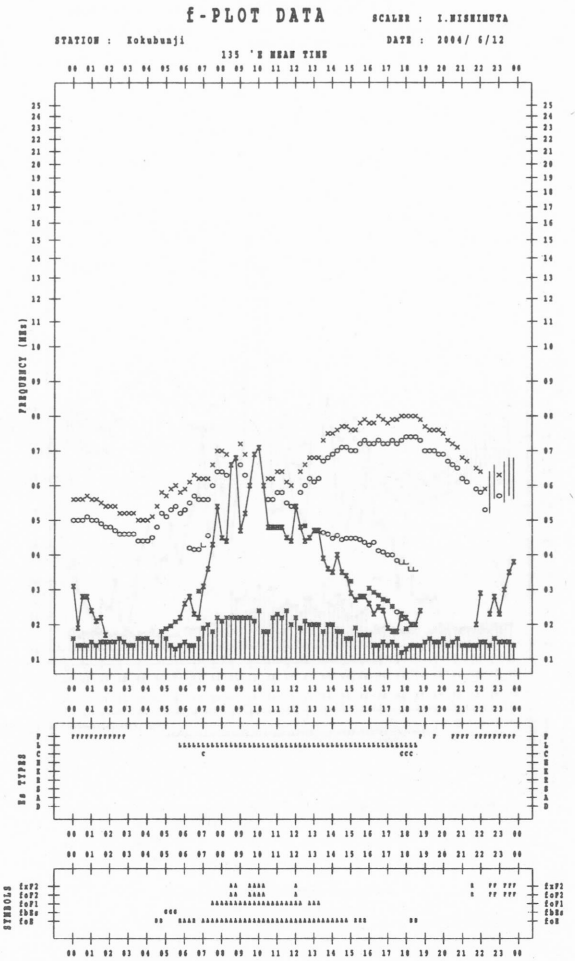

f-PLOT DATA
SCALER : I.NISHINUTA
STATION : Kokubunji
DATE : 2004/ 6/ 6
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS

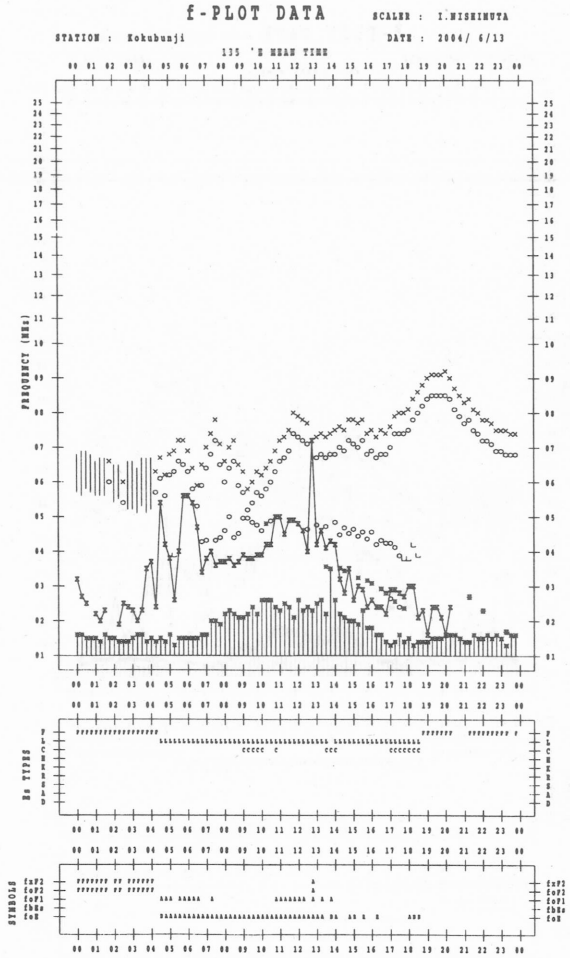

f-PLOT DATA
SCALER : I.NISHINUTA
STATION : Kokubunji
DATE : 2004/ 6/ 8
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS

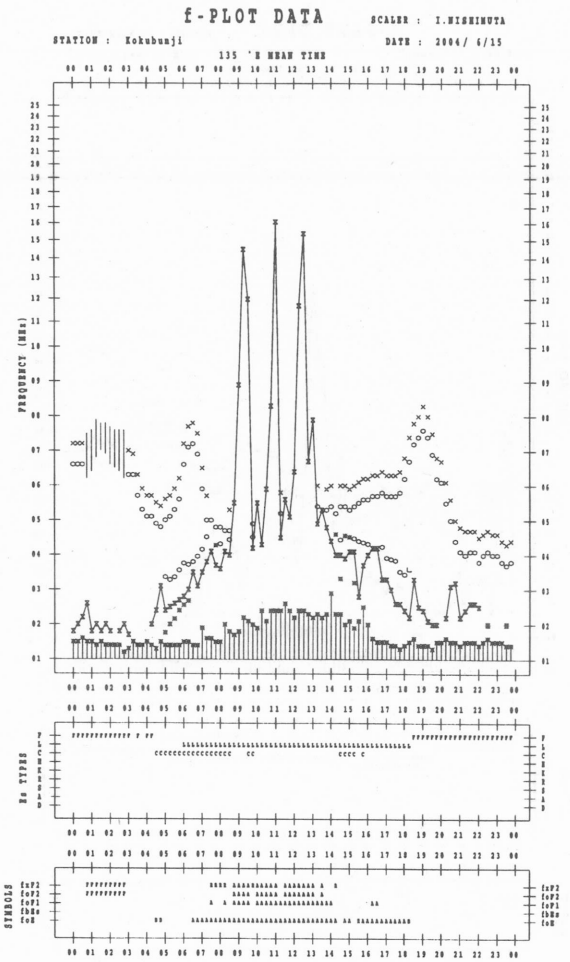

f-PLOT DATA
SCALER : I.NISHINUTA
STATION : Kokubunji
DATE : 2004/ 6/ 9
135 'E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS

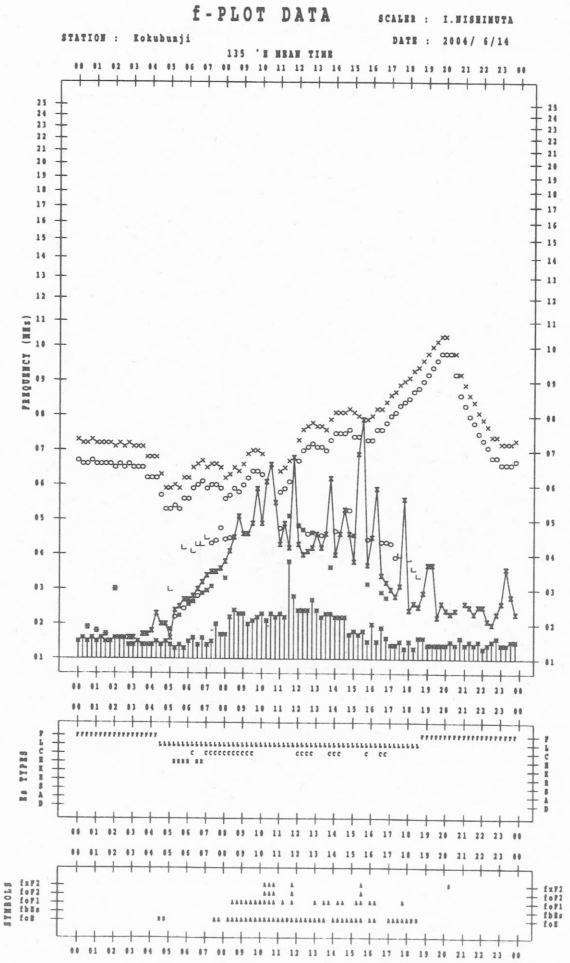

f-PLOT DATA
SCALER : I.NISHINUTA
STATION : Kokubunji
DATE : 2004/ 6/11
135 'E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS

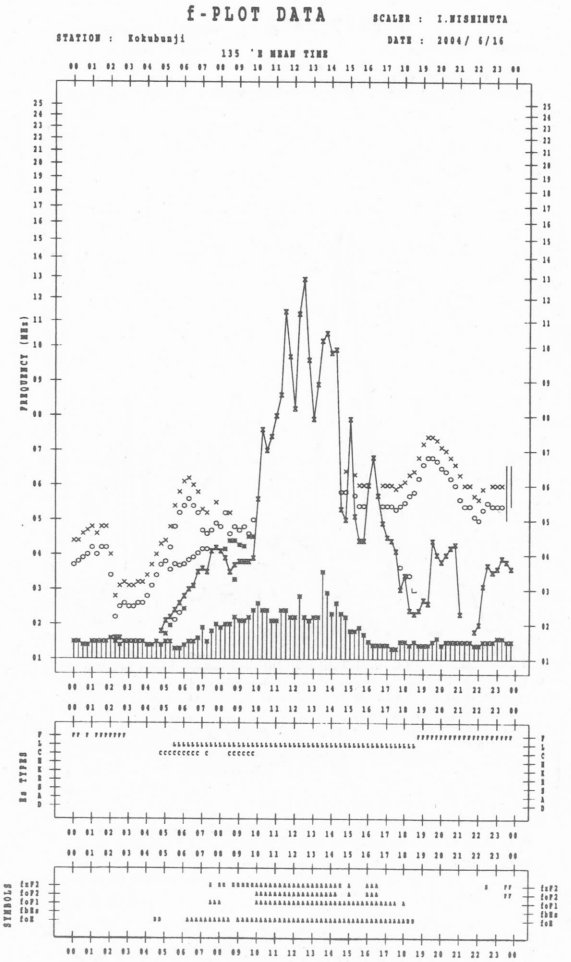

f-PLOT DATA
SCALER : I.NISHINUTA
STATION : Kokubunji
DATE : 2004/ 6/10
135 'E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS

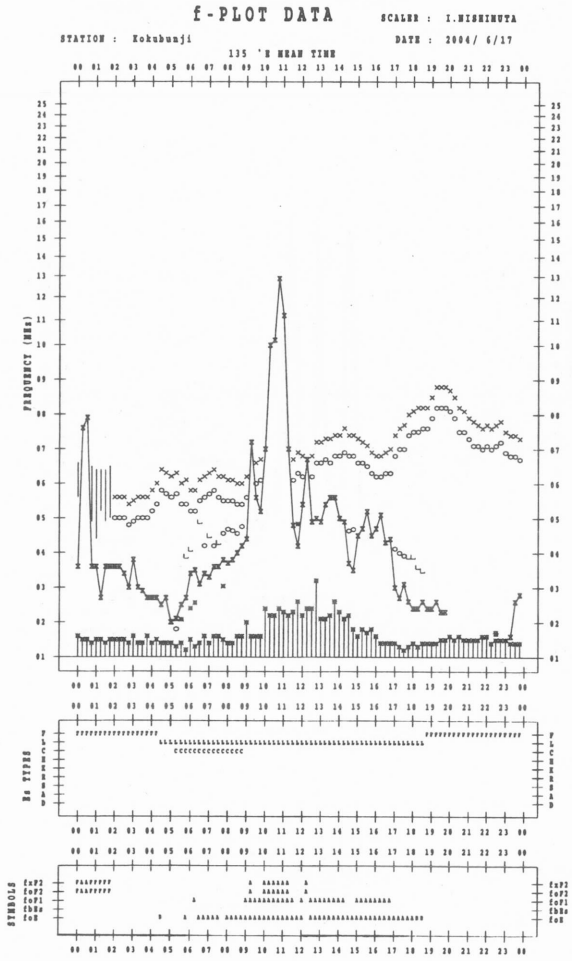

f-PLOT DATA
SCALER : I.NISHINUTA
STATION : Kokubunji
DATE : 2004/ 6/12
135 'E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS


f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/ 6/13
135 'E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS


f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/ 6/15
135 'E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS


f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/ 6/14
135 'E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS


f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/ 6/16
135 'E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS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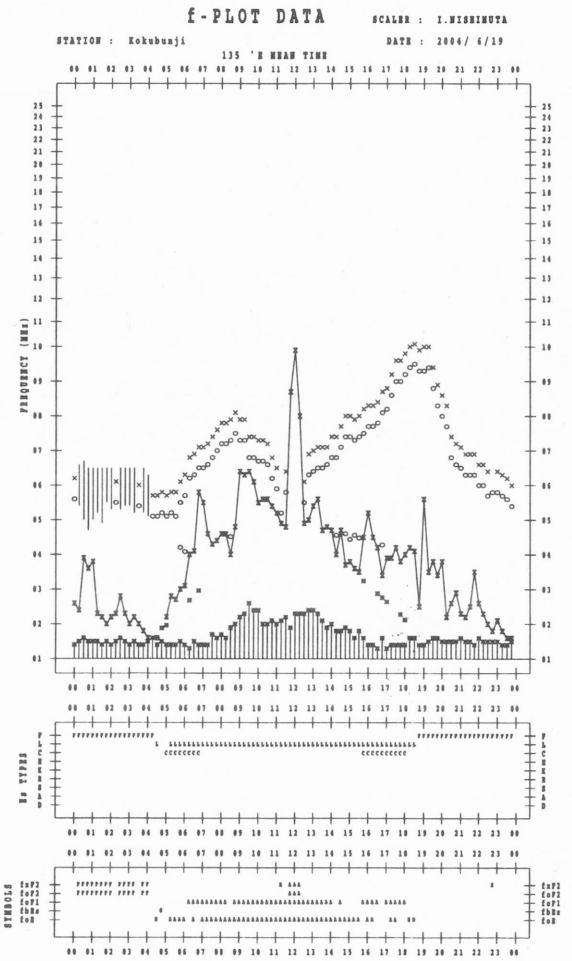
SCALER : I.NISHINUTA
STATION : Kokubunji
DATE : 2004/ 6/17
135 'E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
foF2
foF1
fbEs
foE


f-PLOT DATA
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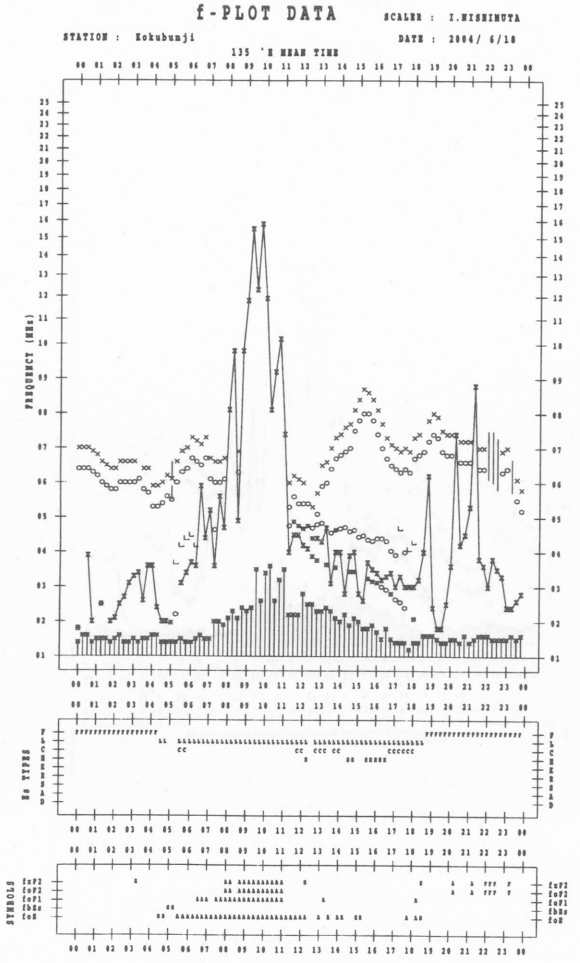
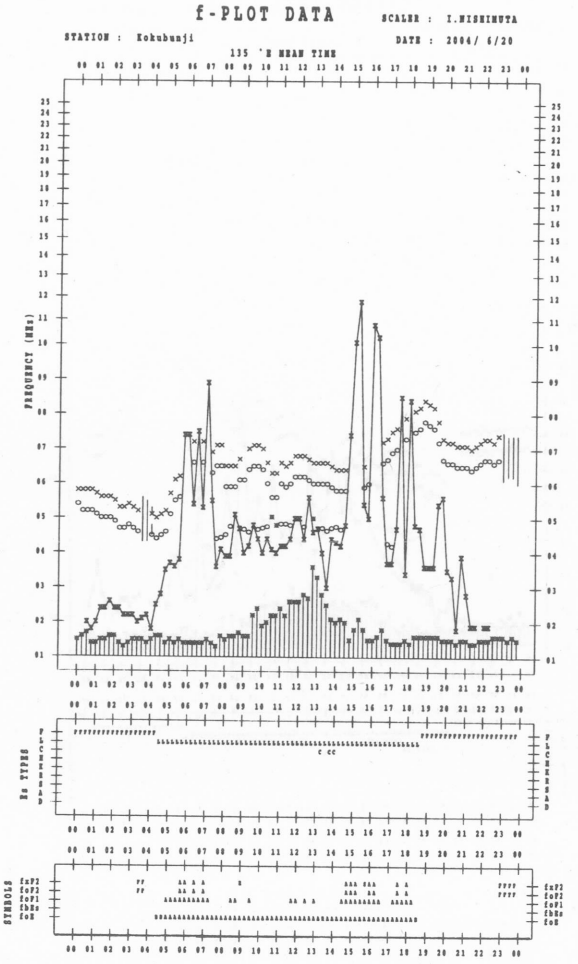
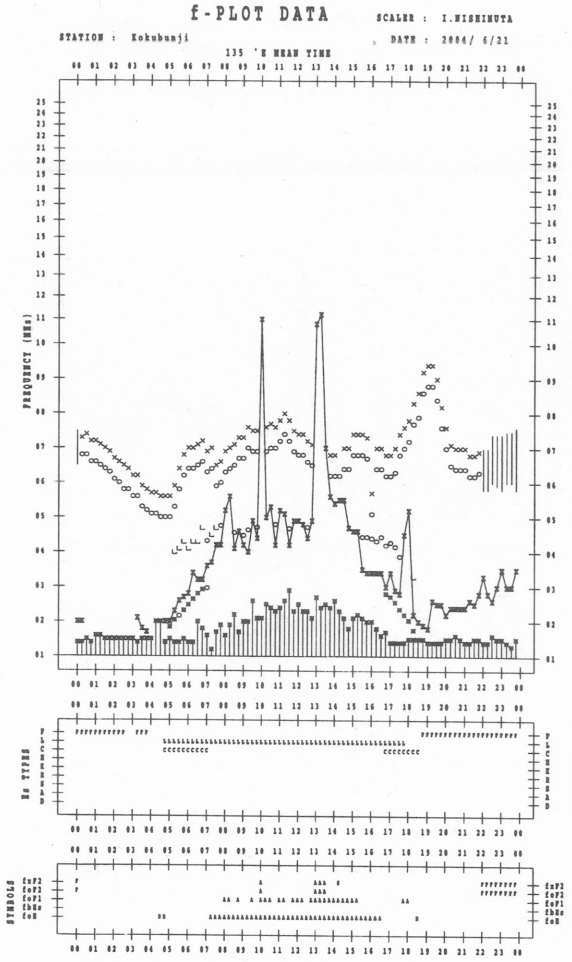
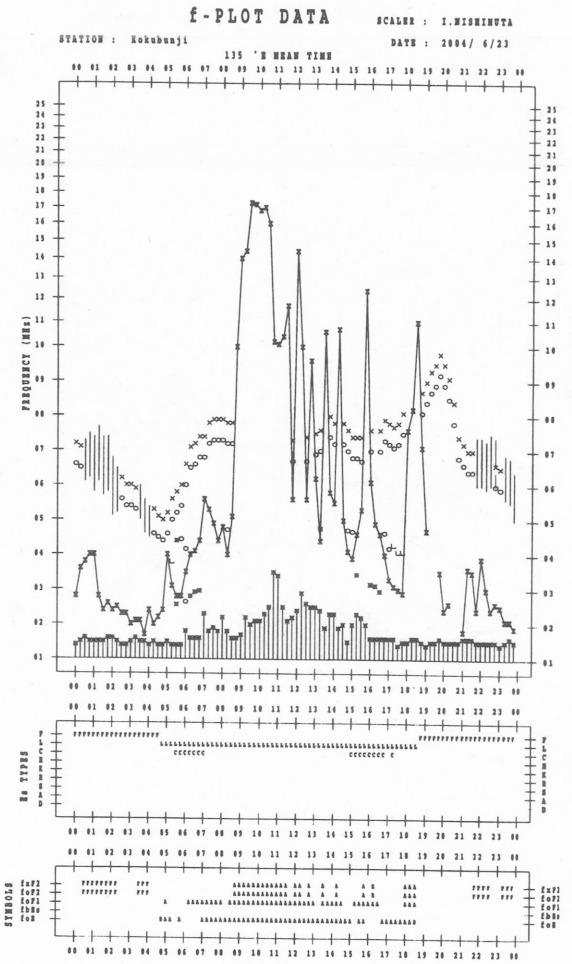
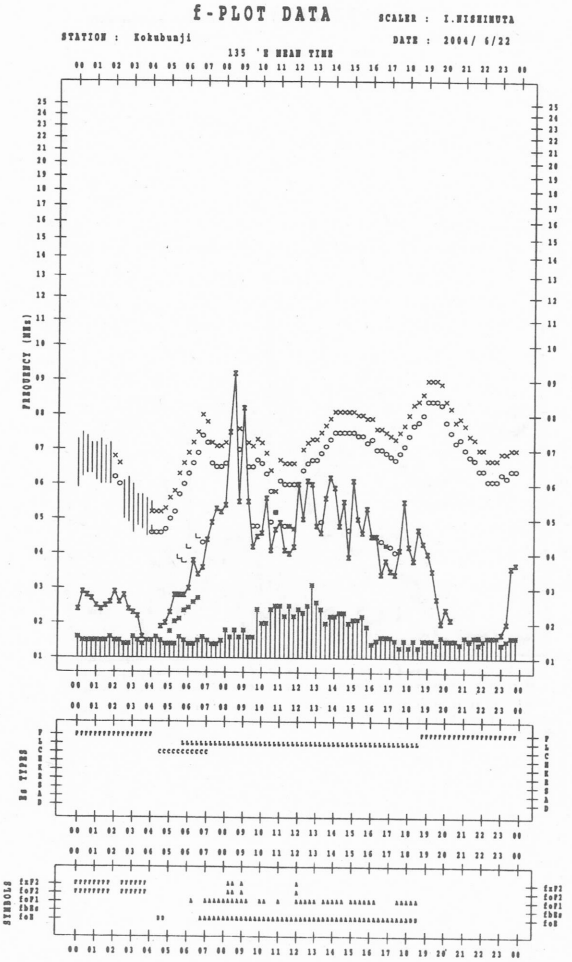
STATION : Kokubunji
DATE : 2004/ 6/19
135 'E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
foF2
foF1
fbEs
foE


f-PLOT DATA
SCALER : I.NISHINUTA
STATION : Kokubunji
DATE : 2004/ 6/18
135 'E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
foF2
foF1
fbEs
foE


f-PLOT DATA
SCALER : I.NISHINUTA
STATION : Kokubunji
DATE : 2004/ 6/20
135 'E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
foF2
foF1
fbEs
foE


f-PLOT DATA
SCALER : I.NISHINUTA
STATION : Kokubunji
DATE : 2004/ 6/21
135 'E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS


f-PLOT DATA
SCALER : I.NISHINUTA
STATION : Kokubunji
DATE : 2004/ 6/23
135 'E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS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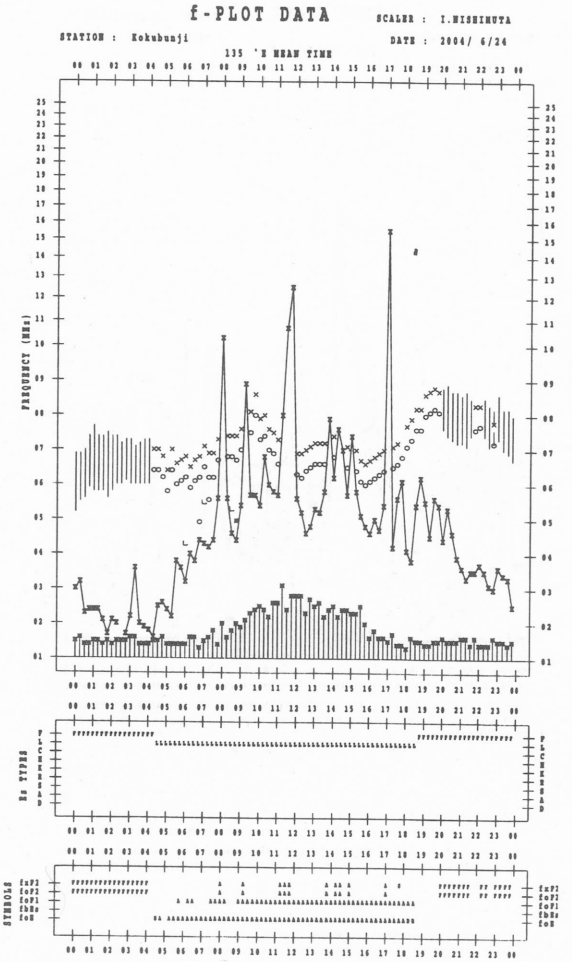
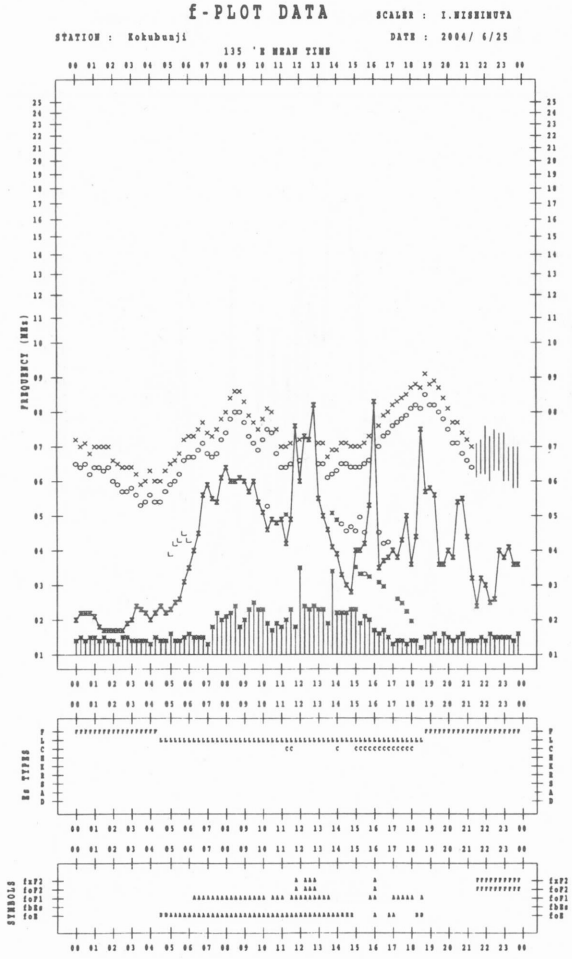
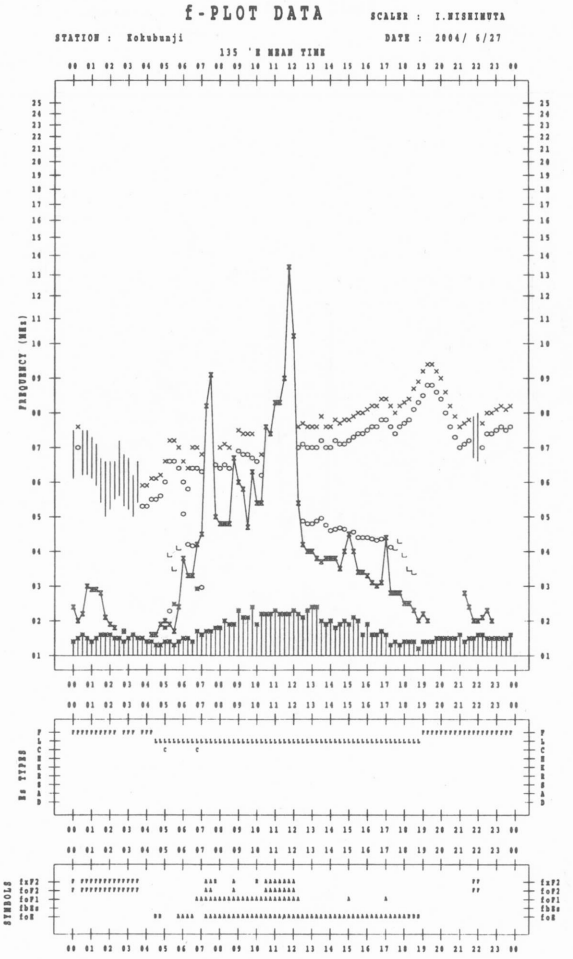
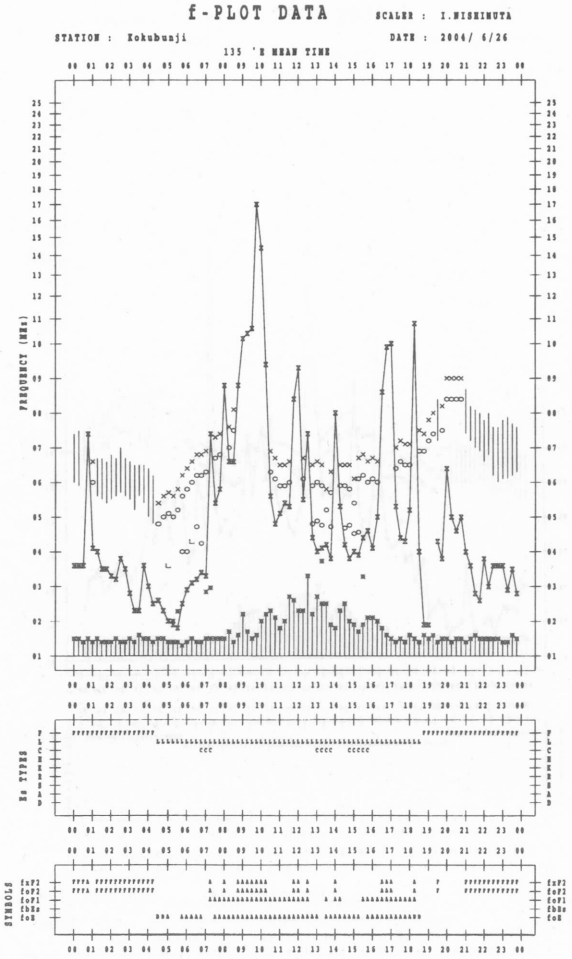
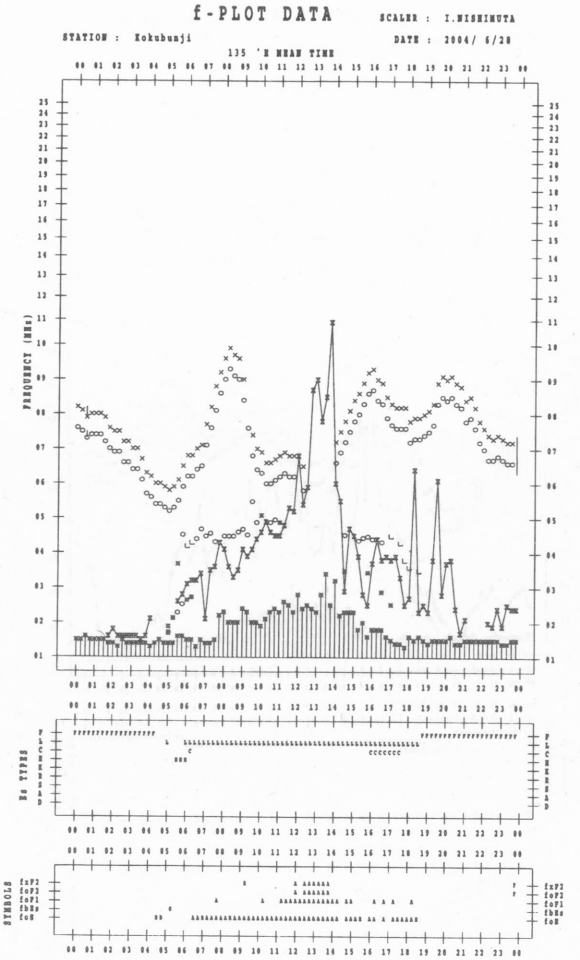
STATION : Kokubunji
DATE : 2004/ 6/22
135 'E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS

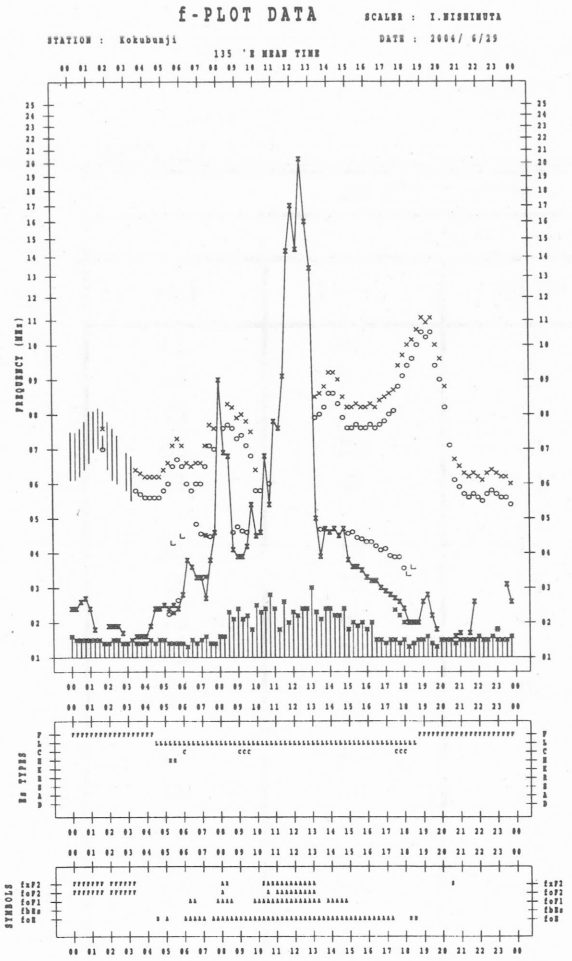

f-PLOT DATA
SCALER : I.NISHINUTA
STATION : Kokubunji
DATE : 2004/ 6/24
135 'E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS

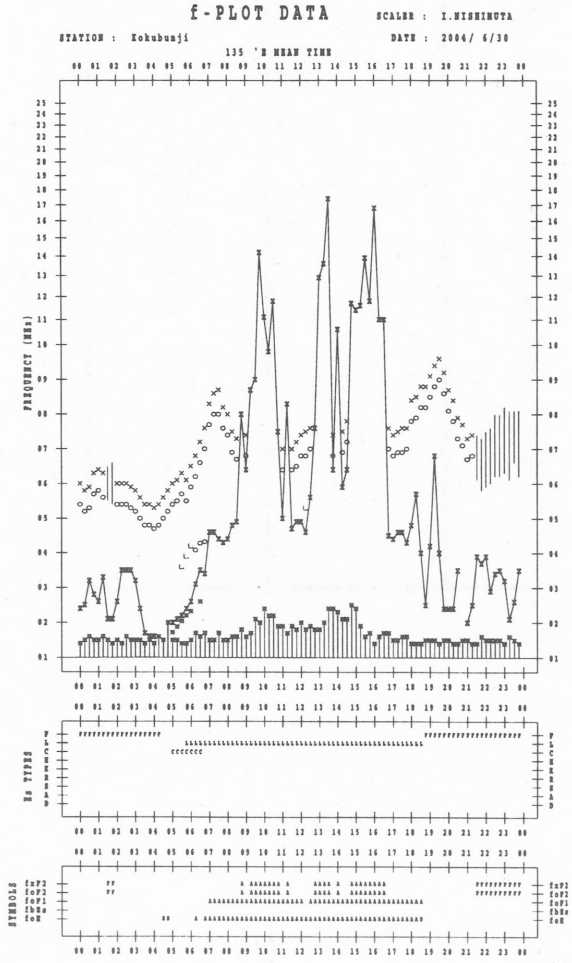

f-PLOT DATA
SCALER : I.NISHINUTA
STATION : Kokubunji
DATE : 2004/ 6/25
135 'E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS


f-PLOT DATA
SCALER : I.NISHINUTA
STATION : Kokubunji
DATE : 2004/ 6/27
135 'E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS


f-PLOT DATA
SCALER : I.NISHINUTA
STATION : Kokubunji
DATE : 2004/ 6/26
135 'E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS


f-PLOT DATA
SCALER : I.NISHINUTA
STATION : Kokubunji
DATE : 2004/ 6/28
135 'E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS


f-PLOT DATA
SCALER : I.NISHINUTA
STATION : Kokubunji
DATE : 2004/ 6/29
135 'E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
foF2
foF1
fbEs
foE


f-PLOT DATA
SCALER : I.NISHINUTA
STATION : Kokubunji
DATE : 2004/ 6/30
135 'E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
foF2
foF1
fbEs
foE

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

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

Note: No data is available during the following periods.
14th 1920 - 15th 0045 27th 1915 - 28th 0100

A superscript * denotes to be superposed on a burst.

B. Solar Radio Emission

B2. Outstanding Occurrences at Hiraiso

Hiraiso June 2004

Single-frequency observations

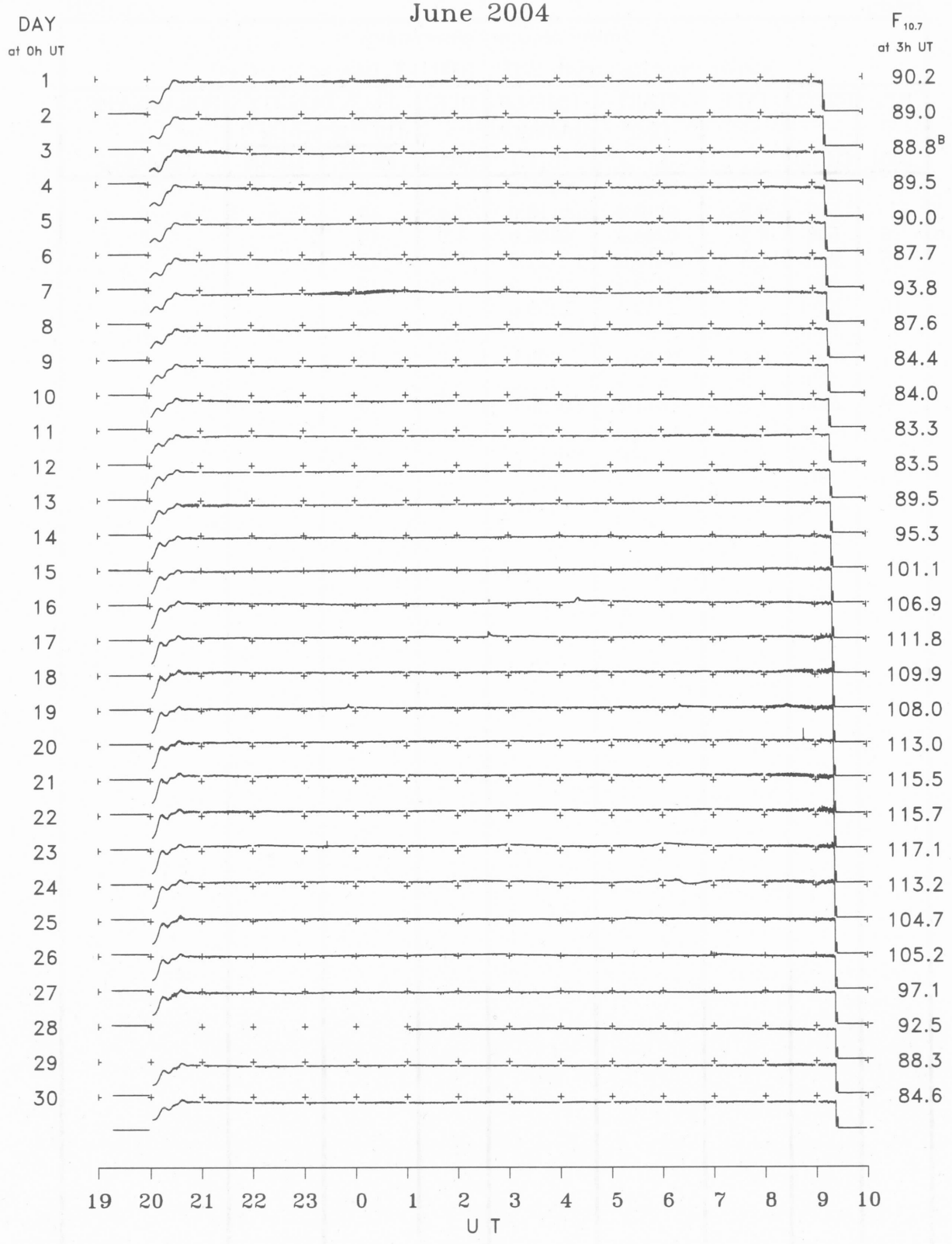
Normal observing period: 1915 - 1000 U.T. (sunrise to sunset)

JUN. 2004	FREQ. (MHz)	TYPE	START TIME (U.T.)	TIME OF MAXIMUM (U.T.)	DUR. (MIN.)	FLUX DENSITY (10^{-22} W m^{-2} Hz^{-1}) PEAK	FLUX DENSITY (10^{-22} W m^{-2} Hz^{-1}) MEAN	POLARIZATION REMARKS
1	500	8 S	0053.0	0053.0	1.0	10	-	0
1	500	8 S	0110.0	0110.0	1.0	10	-	0
16	500	8 S	0346.0	0346.0	1.0	10	-	0
16	2800	1 S	0416.0	0422.0	9.0	15	-	0
16	500	4 S/F	0416.0	0422.0	14.0	10	-	0
16	2800	8 S	2259.0	2259.0	1.0	30	-	0
17	2800	3 S	0236.0	0237.0	5.0	15	-	WR
17	500	7 C	0236.0	0248.0	76.0	15	-	0
18	2800	1 S	2348.0	2352.0	5.0	15	-	0
19	2800	1 S	0619.0	0620.0	3.0	10	-	0
20	2800	8 S	0846.0	0846.0	1.0	35	-	0
24	500	7 C	0613.0	0617.0	6.0	5	-	0
25	500	8 S	2144.0	2144.0	1.0	15	-	0
26	2800	1 S	0656.0	0657.0	3.0	15	-	0

B. Solar Radio Emission

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

June 2004



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

IONOSPHERIC DATA IN JAPAN FOR JUNE 2004
F－666 Vol.56 No.6 (Not for Sale)

電離層月報 (2004年6月)
第56巻 第6号 (非売品)
2004年11月10日 印刷
2004年11月15日 発行

編集兼 独立行政法人情報通信研究機構
発行所 〒184－8795 東京都小金井市貫井北町4丁目2－1
☎ (042) (327) 7 4 7 8 (直通)

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