ISSN 0021-0382

F−667

IONOSPHERIC DATA IN JAPAN

FOR JULY 2004

VOL.56 NO.7

CONTENTS

《 Real time Ionograms on the Web ..... *http://wdc.nict.go.jp/index_eng.html* 》

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

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

HOURLY VALUES OF fEs AT Wakkanai

JUL. 2004

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

HD	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	G	34	43	44	32	36	72	77	61	65	76	61	64	80	64	72	43	46	70	86	40	30	80	59
2	52	49	50	41	40	36	60	78			52		83	77	86	47	48	G	55	43	83	59	46	38
3	30	43	32	32	G	43	76	65	63	69	73	78	98	99	88	85		91	59	73	43	40	30	46
4	40	26	29	30	28	32	51	60	63	54	60	G	G		51	79	92	96	143	102	84	69	40	
5	30	67	67	39	33	53	62	60	71	89	78	87	59	49	41	45	39	44	51	31	35	28	59	59
6	36	46	33	36	G	38	38	G	62	45	74	106	152	78	56	64	69	109		87	72	36	36	G
7	G	68	G	61	65	45	69	88	60	51		96	50	60	66	89	65	78	86	86	59	49	57	59
8	G	G	33	G	G	36	72	62	80	87	77	60	59	58	74	46	38	46	76	83	72	70		51
9	60	35	33	37	46	34	71	59	58	74		72	79	59	62		64	58	86	83	39	39	46	G
10	30	26	29	34	39	32	36	48	77	46	79	98	74	61	74	53	50	42		30	34	36	39	48
11	34	39	33	53	37	38	42	52	60	61	62	62	79	83		54	52	65	52	44	41	71	82	82
12	80	68	50	65	52	41	51	77	142	83	94	70	46	G	G	G	90	109	74	47	46	53	43	40
13	59	41	44	41	49	46	61	84	92	74	58	51	117	76	81	62	66	121	59	52	29	39	50	39
14	49	32	35	30	34	36	64	79	70	56	60	100	76	60	41	47	80	132			107		59	45
15	60	70	59	33	G	34	54	82	82	95	68		70	80	71	42	64	63	55	82	92	68	58	46
16	60	44	39	28	G	G	G	G	68	48	42	65		60	53	42	G	G	G	33	48	53	60	38
17	47	43	66	50	29	G	52	78	88	50	94	78	61	82	60	39	70	69	84	91	53	51	60	33
18	G	33	28	G	26	39	52	46	72	63	79	72	77	60	85	61	61	50	46	44	85	70	37	59
19	33	27	28	32	26	G	32	50	52	69	61	75	76	68	G	51	81	51	46	109	157		G	80
20	40	39	33	33	27	G	G	39	47	50	42	42	100	100	42	39	40	35	34	G	G	26	72	71
21	60	59	40	58	40	36	G	50	51	62	54	60	50	48	G	G	G	G	29	39	29	25	24	G
22	40	45	38	32	29	G	40	43	G	40		57	46	48	G	G	37	52	79	61	30	46	39	40
23	41	39	25	33	38	33	69		114	45	51	G	G	G	G		40	52	34	108	94	25	G	45
24	48	47	60	46	39	69	78	77	154	110	75	100	84	75	62	42	46	77	68	73	40	88	69	67
25	60	59	37	43		39	39	50		73	68	111	63	59	G		G	33	G	47	79	39	26	24
26		G		G		G	G	G	53	61	G	42		87				50	31	G	45	54	59	26
27	50	39	32	38	32	35	45	50	G		G	49	G	G	42	G	G	G	G		G	G	G	G
28						G	G	G					G				G	G	G	G	G	26	33	35
29	G	33	30	36	38	33	49	G	48	G	71	G		G		60	44		G	41	27	G	G	28
30	G	G	32	43	G	40	58	42	G	50	41	G	G	44	G	G	G	G	G	31	58	52	58	57
31	31	29	G	39	28	G	37	43		63	82	72	61	51	57	82	146	35	53	50	49	72	71	32
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	29	30	29	30	28	31	31	30	27	28	27	28	28	29	27	26	29	30	28	29	31	29	30	30
MED	40	39	33	36	32	36	51	51	63	62	68	68	64	60	56	47	48	50	52	50	46	46	46	42
U Q	55	47	43	43	39	39	64	77	80	73	77	82	79	79	71	62	67	77	72	84	79	63	59	59
L Q	30	32	29	32	26	G	37	43	52	50	52	50	48	48	G	39	37	35	30	36	34	29	33	32

HOURLY VALUES OF fmin AT Wakkanai

JUL. 2004

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	14	14	14	14	14	14	14	14	18	18	20	23	18	20	18	18	16	17	14	14	14	15	14	15
2	15	15	15	14	15	15	15	14	18		21	29	27	20	18	21	18	15	17	14	14	15	14	14
3	15	14	15	15	18	14	18	15	17	20	22	22	22	22	18	23	18	15	20	14	14	15	14	14
4	14	15	15	14	14	14	15	15	17	18	21	20	18		21	23	18	14	14	14	15	15	15	
5	14	14	14	14	14	14	14	18	16	18	20	21	23	26	22	20	20	15	14	14	14	17	14	14
6	14	14	15	14	20	14	15	14	17	20	18	22	20	22	20	17	20	17	14	14	14	15	14	16
7	14	14	20	14	14	14	14	14	18	18	18	20	20	23	21	22	16	17	15	14	14	15	17	14
8	15	15	14	14	15	14	17	14	15	17	20	21	22	21	22	18	17	15	14	14	14	14	14	14
9	15	14	14	15	14	14	14	15	15	16	20	22	23	23	24	22	20	18	14	14	16	15	14	14
10	15	14	14	14	14	14	17	14	17	20	17	22	20	18	21	18	15	15	14	14	14	14	14	14
11	15	14	14	15	14	14	14	16	18	20	21	22	23	27	23	22	20	18	14	14	14	15	14	15
12	14	14	15	14	15	14	14	18	20	22	21	24	22	23	24	20	20	26	17	14	14	14	14	14
13	14	14	15	14	14	15	15	18	18	21	24	23	24	21	21	20	20	14	21	14	14	14	15	14
14	14	14	14	14	14	14	15	16	21	23	32	27	26	21	22	22	21	15	14	14	14	14	14	14
15	14	14	14	14	15	14	16	20	18	20	21		33	28	26	20	21	14	15	14	15	15	14	15
16	15	14	14	15	20	15	20	20	20	20	34	36		40	22	18	14	16	15	14	14	16	14	15
17	15	15	14	14	14	17	17	17	20	22	21	24	33	21	24	21	18	49	15	15	15	14	14	14
18	15	15	14	14	16	14	14	17	24	21	33	35	53	22	22	20	17	15	14	14	16	15	15	14
19	14	15	14	14	20	17	16	18	21	20	21	22	29	23	23	23	20	16	14	14	17	14	16	15
20	15	14	16	14	15	15	18	16	18	20	23	23	33	24	21	20	21	16	14	17	14	15	15	14
21	14	14	14	14	15	14	15	18	20	21	21	20	21	21	22	20	17	14	14	15	14	18	20	15
22	15	15	14	14	16	18	15	16	15	23		26	29	27	22	20	20	17	14	15	15	14	14	14
23	14	14	14	14	14	14	14		35	26	20	29	28	29	22		18	16	15	14	15	15	18	14
24	14	14	14	14	14	14	15	16	20	20	24	20	28	26	21	18	18	14	14	14	15	14	14	15
25	15	14	14	14		14	17	15	18	22	21	23	23	20	20		20	16	20	16	14	15	17	20
26		18		21		14	18	15	20	21	20	34		33				18	14	18	14	18	15	15
27	14	14	14	14	15	14	14	15	18		30	22	23	21	21	23	18	15	14		14	15	15	15
28						20	24	21					33				21	17	16	15	16	15	14	14
29	20	15	14	14	14	14	20	18	18	26	24	23		23		21	18	16	18	15	15	15	15	16
30	18	17	14	15	20	16	18	18	20	23	24	24	24	24	22	22	18	18	14	14	14	14	14	14
31	16	14	15	14	15	15	16	16		29	30	22	24	21	20	20	22	20	16	14	15	14	14	14
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	29	30	29	30	28	31	31	30	29	28	29	29	28	29	28	27	30	31	31	30	31	31	31	30
MED	15	14	14	14	15	14	15	16	18	20	21	23	24	23	22	20	18	16	14	14	14	15	14	14
U Q	15	15	15	14	15	15	17	18	20	22	24	25	28	26	22	22	20	17	16	15	15	15	15	15
L Q	14	14	14	14	14	14	14	15	17	20	20	22	22	21	21	20	18	15	14	14	14	14	14	14

HOURLY VALUES OF foF2 AT Kokubunji

JUL. 2004

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

HD	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	73	72	61	54	54	50	59	A	69	A	A					61	A	67	A	73	A	58	58	43
2	A	54	54	44	44	45	61	71	64	58	A	A	A	A	71	A	A	A	A	A	75	A	A	74
3			54	55	54	61	50	64	A	A	A	A	A			55	A	56	69	80	65	66	64	A
4	A	45	47	46	46	52		62	69	66	A	A	58		62	70	A	A	80	85	A	A	A	54
5	A	49	50	44	44		A	76	A		A	A	A	A	A		A	76	A	72		66	54	A
6		52	46	44	45	51	55	65	65	57	A	A	A	59	57			57	59	71	75	73	66	61
7		A	50	44	36	43	52		77	A		A			A	58	A		67	66	55	54	54	52
8	A	52	47	44	42	44	56	57		A	A	A		62		60	64	A	66	69	66	54	46	61
9	54	54	48	45	41	47	57	54		58						58	66		54	63	66	54	60	54
10		54	54	54	44	50	55	54	70	74	58					A	64	68	65	61	55	54	54	54
11		55	51	A		48	48	59			A		A	A	A	A		80	A	78	59	53	54	
12	65	51	54	44	41				A	A		A	A	A	A			53	58	A	A	66	54	52
13	61	59	52	54	50	54	66	67	77		66	59			79	98	80	74	69	80	75	61	54	62
14	64	61	54	61	49	48	54	60	A	61		A	A	A	A	67	67	71	76	82	66	62	54	52
15	52	55	55	55	54	55	62	58	73	73	69				67	69	72	71	67	71	73	54	66	
16		A	54	59	55	61	67	76	71	61			A	A		72	74	A	75	77	78		64	64
17	59	55	58	54	49	55	78	87	79	72	A	A			A	75	75		A	66	74	61	54	A
18	62	52	54	52	51	51	71	A	70			A					59	60	59	64	69	62	A	
19	62	64	66	55	54	55	65	80	67	58	89	A	80	83	81	77	68	65	72	78	78	74	66	72
20	73	72	61	62	59	63	63	57	62	A						65	67	67	66	62	66	44	54	54
21	54	62	66	52	51	55	60	66	64		A	76	79	80	76	77	75	A	81	78	74	76	A	
22	71	75	A	66	62	64	66	78		A	A	A	77	72		75	75	74	79	82	74	54	66	66
23	66	65	54	52	53	49	57	56		78	88	A	A	A	A	66	64	A	A	77	64	A		66
24	A	66	53	53	55	61	61	A	62	A		60		A	A	58	64	64	67		54	53	54	A
25	54	55	52	52	41	42	47		A					A				53	66	63	72	66	66	65
26	54	53	59	64	54	43	45			A								47	57	54	45	43	44	42
27	41		38	41	30	38	59	66	64	A				96	63		48	71	86	57	77	85	86	76
28						53		A											43	45	48	A	A	
29			A	34	34	A	A	57				A	A				A	A		A	54	39	49	42
30			34		35		52	63		62				61	63	59	54	56	53	44	57	59	54	54
31	47	46	42	41	41	43	53	60	59	A		61	64	71	66		A	A	76		58	64		61
	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	17	24	28	28	29	27	26	23	17	12	5	4	5	8	10	18	17	19	24	26	27	26	24	22
MED	61	55	54	52	49	51	58	63	69	62	69	60	77	72	66	66	67	67	67	71	66	60	54	58
U Q	65	63	54	55	54	55	63	71	72	72	88	68	79	81	76	75	74	71	75	78	74	66	65	65
L Q	54	52	49	44	41	45	53	57	64	58	62	59	61	61	63	59	64	56	59	63	57	54	54	52

HOURLY VALUES OF fEs AT Kokubunji

JUL. 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	42	56	48	48	23	G	34	75	52	101	74	49	50	50	50	49	87	59	95	59	90	47	31	25
2	60	30	G	G	G	G	36	61	66	61	103	122		76	69	80	94	105	120	116	72	92	104	69
3	59	42	29	32	G	48	34	60	76	109	100	96	62	54	44	41	74	43	35	63	39	71	84	82
4	85	37	50	41	40	42		59		70	84	106	51	64	53	64	119	102	46	113	78		70	42
5	60	55	28	28	G		116	55	112	90	96	66	82	81	105	132	107	65	85	82	60	44	30	82
6	36	G	23	G	26	G	38	36	41	49	97	59	61	52	44	43	43	54	34	55	83	85	33	43
7	40	49	41	G	36	G	48	70	87	141		79			61	G	93	60	49	30	37	40	43	48
8	52	41	33	G	26	G	35	49	95	86	89	82	49	50	53	49	50	61	37	24	G	46	35	43
9	27	27	31	G	G	G	G	36	47	51	45		50			50	G	49	31	29	27	30	G	G
10	45	36	31	42	53	42	33	39	G	49	42	43	54	45	52	73	57	61	40	40	31	G	27	41
11	33	49	50	60	36	G	37	47	62	60	61	47	106	65	60	95	59	60	117	68	49	24	G	59
12	34	82	51	53	26	32		42	50	61	100	109	77	83	82	55		50	73	94	86	32	33	G
13	24	27	G	24	G	G	35	G	39	64	122	60			57	59	G	45	G	G	G	59	G	39
14	34	G	G	G	24	G	G	43	109	51	51	72	63	72	80	56	46	48	72	G	G	G	27	26
15	G	G	G	G	G	G	G	G	G	46	G		49		G	57	G	44	G	G	54	G	58	67
16	48	80	58	40	48	33	39	45	54	55	52	49	62	82	50	68	48	94	86	43	82	26	G	G
17	31	32	26	G	G	G	G	G	48	69	104		51	81	104	70	62		64	49	32	29	28	60
18	48	34	26	33	28	33	58	92	59			58		46			G	G	G	G	G	42	81	60
19	49	72	31	40	27	G	43	60		68	97	94	77	58	G	G	38	41	35	G	G	G	G	28
20	G	31	30	G	G	G	G	G	46	71						G	G	G	G	28	G	G	G	G
21	80	37	38	29	G	G	G	50	G		114	66	69	50	60	59	52	89	45	51	70	84		82
22	49	G	65	71	G	G	58	66	96	93	75	80	82	49	75	61	55	53	59	37	33	34	40	53
23	60	78	37	G	60	G	35	47	57	52		127	102	97	148	G	47	81	96	80	81	92	40	65
24	86	G	60	45	50	30	87	68	50	69	51	46	62	92	72	G	G	57	48	49	27	G	49	58
25	43	40	28	G	G	G	G	G	49		50		55	61				50	31	G	G	26	46	G
26	G	G	G	G	G	G	G	44	50	50	G		48		60			G	G	G	G	25	39	29
27	33	47	G	G	G	27	G	40	62	70	44			G	G		G	G	30	G	G	G	24	G
28	23	36	26	G		G		45										40	G	G	G	49	71	40
29	34	33	68	32	24	44	68	35	40			67	43			57	124	78	78	70	70	G	34	G
30			G		G	G	G	G	47	G			G	G	G	G	G	G	32	G	G	G	G	G
31	33	32	27	G	G	G	33	46	81	82	G	G	G	52	61	54	103	94	84	90	51	35	27	23
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	30	31	30	30	30	28	31	28	26	24	22	24	23	25	26	27	30	31	31	31	30	30	31
MED	41	36	30	12	12	G	34	45	51	66	74	66	58	58	60	56	50	54	45	40	33	31	33	41
U Q	52	49	48	40	28	30	41	60	71	82	98	94	73	81	73	64	87	65	78	68	70	47	46	60
L Q	33	27	23	G	G	G	G	36	46	51	47	49	49	50	47	41	G	43	31	G	G	G	24	G

HOURLY VALUES OF fmin AT Kokubunji

JUL. 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	13	13	14	13	13	14	28	28	26	33	31	38	34	34	21	14	14	14	13	13	13	14
2	14	15	14	13	13	20	15	14	30	33	34	35	33	33	29	29	20	17	13	14	14	14	14	15
3	14	14	14	13	13	15	13	15	22	26	30	33	33	29	29	21	18	14	13	13	14	14	13	13
4	13	14	13	13	13	13		20	22	24	25	34	36	37	34	33	21	24	20	13	14	14	14	14
5	15	14	13	14	13		13	18	24	29	34	34	31	33	34	24	20	14	14	23	14	14	14	14
6	14	15	14	13	15	20	13	15	22	25	26	26	28	28	25	22	23	14	14	13	14	13	14	20
7	13	14	14	13	18	18	22	15	21	22		30			36	46	30	17	13	13	15	13	14	14
8	15	13	13	17	14	20	14	15	21	34	33	34	36	34	35	30	24	17	13	18	14	14	13	13
9	14	14	13	22	23	23	13	14	22	25	40		40			31	46	20	14	13	17	13	15	14
10	14	14	13	13	13	13	26	21	23	28		35	35	26	24	22	18	13	17	14	14	13	15	14
11	14	14	13	14	13	20	13	21	23	36	38	39	37	40	35	35	30	23	13	14	15	15	20	14
12	14	14	17	13	15	14		17	34	35	39	37	36	36	36	34		30	20	25	15	15	14	37
13	15	15	18	14	14	23	15	26	30	25	36	37			38	36	46	17	37	20	17	13	18	14
14	13	15	14	14	14	21	13	20	22	34	36	35	37	31	30	31	26	21	14	24	13	14	13	14
15	17	13	14	14	14	20	18	18	22	34			40		54	34	42	17	13	21	14	18	13	13
16	13	13	14	13	14	13	14	29	33	36	38	39	43	40	34	36	31	21	14	13	14	14	17	18
17	14	14	17	14	22	29	17	22	34	34	34	35	37	33	33	28	21		14	18	14	13	14	13
18	13	14	14	13	13	13	17	20	36			38		37			44	18	34	21	14	14	14	13
19	13	13	14	13	13	21	14	20	36	36	37	37	38	36	52	51	42	18	13	15	18	14	17	14
20	23	14	14	15	14	22	28	18	21	31						52	47	14	13	14	18	15	14	21
21	13	13	13	13	20	22	13	15	42		36	38	36	33	36	33	24	20	13	14	13	14	13	13
22	14	14	13	15	15	21	13	21	23	33	43	40	42	36	34	36	21	20	14	14	15	14	15	17
23	13	13	13	14	14	31	15	18	37	44	36	36	37	38	34	49	42	17	14	14	14	14	13	14
24	14	14	15	13	14	18	17	21	18	34	38	39	37	38	36	45	40	17	14	13	14	20	15	14
25	14	13	13	20	14	18	13	14	18		36		33	34				21	14	23	18	17	13	17
26	22	21	17	20	14	21	17	18	30	36	36		36		34			20	22	22	14	17	13	15
27	13	14	21	17	13	17	14	17	18	42	36			50	26		23	40	13	17	41	22	17	47
28	17	14	17	17		23		24										25	18	22	15	13	14	13
29	13	13	15	13	14	15	17	14	22			29	25			22	33	21	17	13	14	21	13	17
30			18		14	26	37	36	37	50			57	54	54	50	39	26	20	17	24	17	14	25
31	14	14	14	14	14	25	13	20	25	30	56	53		36	34	33	33	23	13	15	13	15	17	18
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	30	31	30	30	30	28	31	30	26	23	23	24	23	25	26	27	30	31	31	31	31	31	31
MED	14	14	14	14	14	20	14	18	23	34	36	35	36	36	34	34	30	19	14	14	14	14	14	14
U Q	15	14	15	15	14	22	17	21	33	36	38	38	37	38	36	36	42	21	17	21	15	15	15	17
L Q	13	13	13	13	13	15	13	15	22	28	34	34	33	33	31	29	21	17	13	13	14	13	13	14

HOURLY VALUES OF foF2 AT Yamagawa

JUL. 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	52	A	54	55	51	43	55	65	A	A	A	A	A	A	70	76	77	85	77	A	76	66	52	
2	53	60	54	45	37	44	52	70	60		A		A		A		A	87	A	72	70	62	A	A
3	A	54	54	62	57	50	50	62	A	A	64	A	A	49		A	53	A	A	78	76	72		A
4		A	A	A	46	36		62	A	54	A			61	73	75	78	83	85	77	52	A	A	54
5	A	A	A	37	40	32	54	71	64	60	A	A	A	A	A	A	A	72	A	77	A	65		52
6	51	52	55	58	51	50	50	62	A	58	60				66	65	62	63	65	76	81			A
7	A	A	A	A	A	38	52	55	64	A	A	A			63	64	67	74	76	66	61	44	49	A
8	A	A	50	45	A			A	A	A	A	A	A	A	A	A	A	A	81	78	77	53	52	38
9	46	37	42	40	36	37	51	50	62	59	A			A	A	67	68	60		64	67	52	63	54
10	66	60	51	48	50	47	47	56	71	63				58		76	80	82	89	72	51	53	53	A
11	A	A	A			38	52	62	55	54	A		A	A	A	A	77	82	80	72	66	66	54	52
12	54	51	54	42	38	A	51	47	A	A	A	A	A	A	A	A	A	A	A	64	64	64	54	52
13	51	54	62	52	46	44	54	68	62	56					73	82	81	66	67	84	78		54	
14	60	54	55	34	48	36	50	62	A	A	66	68		76	80	78	78	81	84	78	62	66	62	66
15	64	63	54	63	61	52	51	57	65	72	64				73	80	81	80	78	78	66	52	54	61
16	54	66	54		51	52	63	61	61	A	66	A	A	A		76	77	78	A	A	80	78	76	62
17	53	66			34	38	64	76	70	53	59			69	84	78	71		68	A	78	66	36	50
18	52	A	48	51	50	50	66	76	76		A	A		72			71	72	71	73	78		64	66
19	60	A	73	66	61	52	60	77	60		A	A	A	A	78	77	80	81	83	82	78	77	66	73
20	52	66	59	52	52	52	58	67	66	54	A					75	81	81	81	74	66	64	52	
21	54	72	51	52	53	54	56	61	55	70	72	67		73	A	A	85	86	85	78	73	65		66
22	66	A	A	66	61	61	66	76	A	62		74	A		73	77	76	79	82	80	75	75	A	66
23	66	64	53	52	47	48	37	48		74	A	A	A	74	68	75	73	74	77	77	64	54	61	58
24	54	66	66	54	52	66	66	57	A	A	A	67	A	A			73	77	72	65	53		52	51
25	61	52	54	55	51	43	42		A			A						53	55	54	61	54	72	66
26	54	52		54	44		66	54	48											60	49	37	A	37
27		36	38	37	34	29	46	52	51	49	A	A		81	71		A	75	87	66	48	58	54	
28	75	25		54			39	39							A	A			A	51	55	42		
29	32	32	34	34	32	34	47	47	A			A				A	52	50	52	A	A	58		50
30		48	45		37			54	54					64	68	66	56	62	62	58	61	54	42	42
31	32	37	42	37	32	28	47	60	51				89	75	72		72	74	83	75	66	51	36	53
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	23	22	23	25	27	26	28	29	18	14	7	4	1	11	14	16	23	25	23	27	29	26	21	21
MED	54	54	54	52	48	44	52	61	62	58	64	68	89	72	72	76	76	77	78	74	66	60	54	54
U Q	61	64	55	55	52	52	59	67	65	63	66	71	44	75	73	77	80	81	83	78	76	66	62	66
L Q	52	48	48	41	37	37	48	54	55	54	60	67	44	61	68	71	68	69	68	65	61	53	52	50

HOURLY VALUES OF fEs AT Yamagawa

JUL. 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	48	59	56	45	42	34	43	73	88	103	116	168	102	148	73	44	68	51	106	94	60	57	40	58
2	32	43	39	31	30	G	35	56	59	68	76	42	85	92	93	68	86	77	83	108	51	41	69	92
3	49	27	33	G	G	40	40	61	89	106	52	54	67	60	52	61	43	116	148	68	32	33	39	37
4	41	51	56	58	41	35	38	55	115	80	135	53	60	48	62	71	74	74	82	70	39	43	40	41
5	57	49	43	37	26	26	34	46	42	54	116	103	175	185	118	145	142	54	85	58	72	46	43	33
6	38	50	35	33	43	41	38	38	75	46	G	G	50	53	54	G	39	G	39	28	44	69	51	72
7	60	83	59	45	40	32	42	49	46	107	79	61	49	58	G	G	50	44	36	35	G	G	44	44
8	68	72	71	35	71	40	40	60	116	83	93	102	133	95	87	90	78	94	52	58	36	26	G	26
9	G	G	G	G	G	G	G	G	38	44	51	G	48	76	67	50	G	43	36	35	55	33	32	27
10	26	G	G	G	28	30	30	40	44	42	43	G	52	54	55	58	G	G	35	31	28	27	G	79
11	82	78	59	43	42	44	39	51	48	54	68	56	67	74	66	76	50	40	38	G	G	30	27	34
12	44	49	56	71	28	68	47	42	54	71	72	102	46	58	61	83	91	71	60		60	32	G	26
13	G	G	G	G	G	G	26	G	39	G	49		53	52	G	G	G	41	G	28	32	36	26	23
14	G	G	G	40	38	G	29	51	116	74	48	G		G	54	G	G	44	41			43	33	24
15	G	G	G	G	G	G	G	33	G	G	G				G	G	G	G	40	32	27	29	26	29
16	39	39	54	49	54	38	30	40	52	74	66	85	118	83	48	G	G	62	79	172	33	38	24	29
17	27	27	28	29	23	G	G	G	G	40	46			52	48	62	51		61	83	32	G	36	G
18	26	77	34	G	G	G	G	32	G	66	140	84		46	G	52	44	G	G	G	G		27	26
19	40	60	25	55	39	40	40	42	51	52	69	89	87	92	66	79	65	42	32	G	G	G	G	G
20	G	G	G	G	G	G	30	42	58	50	62	53	G	G		G	G	42	40	32	23	G	33	26
21	25	G	G	G	G	G	G	G	38	72	62	59		64	116	93	49	G	35	58	46	34	27	G
22	38	103	85	40	42	26	72	41	83	G		56	84	62	53	56	70	55	41	48	66	40		41
23	58	G	G	G	37	G	G	39		G	80	81	74	73	G	51	39	G	G	28	23	24	24	36
24	48	33	55	25	G	32	32	48	142	82	95	60	88	75	67	G	G	G	58	42	40	43	40	54
25	54	36	28	28	G	G	32	39	85	73		116						G	G	G	G	G	G	G
26	26	28	G	G	23	26	43	34	G	G	51	G		61	58		60	70	56	42	45	31	40	29
27	40	33	G	G	G	G	G	32	46	G	96	95	G	49	52	43	78	43	36	G	G	G	24	11
28	39	25	28	38	34	24	G	G	G	G					57	46	40		73	G	G	G	30	33
29	28	G	G	G	G	28	G	G	59		G	101	47	G	G	64	G	38	41	44	54	27	G	40
30	40	29	26	24	G	32	G	G	G	39	G	G		G	G	G	G	G	G	G	G	G	26	G
31	G	G	23	G	G	G	G	G	42			42	95	76	54	62	45	83	55	72	68	26	26	24
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	31	31	31	30	29	27	27	22	28	29	29	30	29	31	29	30	30	30	31
MED	39	33	28	28	26	26	30	40	50	54	66	59	67	60	54	52	44	43	41	35	32	30	27	29
U Q	48	51	55	40	40	35	40	49	83	74	93	95	88	76	66	69	68	66	61	63	51	40	40	41
L Q	26	G	G	G	G	G	G	G	38	20	48	42	49	50	24	G	G	G	35	14	G	G	24	24

HOURLY VALUES OF fmin AT Yamagawa

JUL. 2004

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	14	15	14	15	14	14	15	14	16	18	21	27	34	35	29	23	18	18	14	15	14	14	14	14
2	15	14	16	15	15	16	14	14	18	20	29	22	34	32	28	27	20	15	15	14	14	14	15	15
3	14	15	15	14	15	18	14	14	17	16	21	29	29	28	28	21	20	16	14	14	14	14	15	15
4	14	14	14	14	14	14	14	16	21	20	21	22	20	28	24	34	21	17	14	14	15	15	15	15
5	14	14	15	14	15	15	14	14	16	17	22	23	32	33	26	22	20	15	15	14	14	15	15	16
6	15	15	14	14	14	14	14	15	16	21	27	27	24	26	23	22	17	15	14	14	15	14	15	16
7	15	16	14	14	15	14	17	15	15	22	22	27	28	27	26	21	20	17	14	15	16	16	15	15
8	14	14	14	14	15	15	16	16	16	32	34	34	36	33	34	32	20	18	15	15	14	16	18	15
9	16	15	16	15	14	15	21	15	18	18	20	29	34	35	35	21	20	18	16	14	16	15	15	16
10	16	15	16	15	15	14	16	14	17	20	23	28	29	29	23	20	17	15	15	14	15	15	16	14
11	15	14	14	14	14	14	15	14	17	20	21	39	38	39	36	24	30	24	15	18	17	15	15	14
12	14	14	14	15	14	14	15	15	18	22	32	38	38	39	38	33	24	33	18	15	16	14	16	15
13	16	15	15	15	15	15	22	16	18	20	33		36	33			27	18	42	18	15	15	15	15
14	16	16	15	15	15	16	15	15	18	23	35	54			35	53	22	18	16	14	17	14	14	16
15	15	15	15	15	15	15	21	14	17	20	27				53	22	20	18	14	14	15	14	14	14
16	14	14	14	14	14	14	14	18	20	23	36	43	49	42	39	52	22	18	16	15	15	14	16	15
17	14	15	14	14	16	17	20	17	21	20	32			34	27	29	21		18	15	15	15	14	15
18	15	14	14	14	16	15	15	15	43	24	34	38		38	29	29	23	18	15	18	15		15	15
19	16	14	15	15	14	14	14	15	18	20	27	44	39	36	35	34	27	20	14	18	15	16	15	17
20	18	20	15	15	15	15	17	16	18	33	34	28	30	32			23	18	18	17	15	16	15	14
21	16	17	15	14	15	16	15	14	18	23	26	38		39	38	34	20	18	15	14	14	14	18	15
22	15	15	15	15	15	14	15	14	18	48		40	38	34	52	36	26	22	14	14	14	15	15	14
23	14	15	17	15	15	15	21	15		52	40	37	45	45	53	36	22	17	26	14	15	17	15	15
24	15	15	16	16	15	16	17	15	17	18	24	27	44	39	39	20	20	16	16	14	15	15	15	14
25	15	14	14	15	15	15	15	14	17	18		35						20	16	17	15	16	15	17
26	15	15	15	15	15	15	16	15	17	21	28	27		35	33		22	18	17	15	15	15	14	15
27	14	15	16	15	18	16	21	15	17	52	35	36	33	35	33	34	22	17	14	18	15	17	15	17
28	16	17	14	15	15	15	15	17	20	22					40	36	32		16	15	15	18	17	14
29	15	16	15	14	15	15	17	14	17		29	27	27	28	27	26	18	17	15	14	14	17	20	14
30	15	15	16	17	15	15	21	15	17	21	27	26		50		18		18	18	18	15	15	15	21
31	15	15	16	20	15	17	15	15	20			29	22	28	27	34	33	22	16	14	15	16	17	17
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	31	31	31	30	29	27	27	22	27	27	27	29	29	31	31	31	30	31	31
MED	15	15	15	15	15	15	15	15	18	21	27	29	34	34	33	29	21	18	15	15	15	15	15	15
U Q	16	15	16	15	15	16	17	15	18	23	34	38	38	39	38	34	23	18	16	17	15	16	16	16
L Q	14	14	14	14	14	14	15	14	17	20	22	27	29	29	27	22	20	17	14	14	14	14	15	14

HOURLY VALUES OF foF2 AT Okinawa

JUL. 2004

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	64	54	70	65	47	42	54	56	64	A	67		A	A		90	100	96	96	A	A	A	66	65
2	66	66	66	50	48	45	51	62	A		67	66	82	96	112	117	118	A	107	88	76	65	54	42
3	42	54	64		63	51	50	62	A	A	A	A	60	65	65	66	67	73	82	86	84	66	52	48
4		54	51	50	37	29	45	66	64	A				72	75	79	96	107	94	66	A	65	54	54
5	53	54		52	45	42	60	72	A	A			A	A	72	81	82	90	99	100	77	62	52	54
6	61	61	60	58	43	45	52	56	62	58	61	60		70	76	76	68	65	76	87	88	32	A	A
7	A	A	40	35	A	A	44	57	64	55	A	A		67	72	79	86	87	90	88	65	51	48	44
8	43	39	50	41	28		38	55	54	A	A	A		70	A	A	A	96	133	101	A		61	54
9	51	52	51	44	44		40	62	68	60	61			A	65	75	76	80	85	81	72	71	66	65
10	65	72	66	66	65	52	47	64	82	59	A	57	A	58	71	86	90	98	107	82	53	51	54	48
11	42	A	42	36	38	34	46	62	68			56	A	A		65	90	90	80	80	82	A	65	61
12	52	52	52	50	51	50	54	A	A	A	A	A			62	A	A	A	61	66	76	65	61	61
13	61	63	66	53	44	47	52	56	60	60		58		61	71	92	82	65	83	101	62	54	63	64
14	54	66	52	52	50	43	45	62	60	66	68	72	81	90	100	100	100	101	97	A	74	72	73	76
15	74	72	72	71	65	52	51	61	66	67	63	B		66	76	88	92	96	110	100	66	61	53	54
16	54	38	52	52	52	52	50	60	61	A	68	A	A	A	A	79	90	94	94	90	86	86	88	
17	65	66	64	66	64	52	61	66	68	61				71	95	90	78	77	87	88	87		50	A
18	43	44	44	47	44	43	52	75	57	65		A	A	73	78	86	87	87	88	88	86	52	64	66
19	65	62	65	74	54	45	65	67	60	58	66	67	74	80	A	90	A	104	107	107	87	80	81	78
20	76	74	66	56	52	52	59	76	75	67	65	61		68	75	81	100	106	97	85	73	73	74	73
21	66	74	66	71	72	66	58	55	72	66	72		61	74	87	98	A	107	102	83	73	76	71	78
22	72	72	66	64	61	52	70	71	66	61		74	72		75	80	87	100	100	88	81	76	80	74
23	74	78	70	61	58	54	46	42			64	61	67	80	88	94	91	97	100	88	64	63	66	62
24	54	55	66	57	54	52	48				68	A		68	68	65	87	97	84	67	54	63	61	64
25	52	54	52	61	45		31		A	A		A			49			64		63	62	53	66	66
26	54	52	61		52	58	65	46	52	53		73		78			62	67	81	75	32	42	A	47
27	47	32	45	45	36		40	54	51		62	A	A	76	82	60		77	105	82	58	88	84	72
28	72	65			36	23	26						A	A	A		54	51	A	54	59	A	A	A
29	32	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
30	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
31	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	27	26	26	25	27	23	28	24	20	14	13	11	7	19	21	23	22	26	26	26	25	23	25	24
MED	54	58	62	53	50	50	50	62	64	60	66	61	72	71	75	81	87	92	95	86	73	65	64	63
U Q	66	66	66	64	58	52	56	66	68	66	68	72	81	78	84	90	92	98	102	88	83	73	72	69
L Q	51	52	51	48	44	43	45	56	60	58	62	58	61	67	69	76	78	77	84	80	62	53	54	54

HOURLY VALUES OF fEs AT Okinawa

JUL. 2004

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

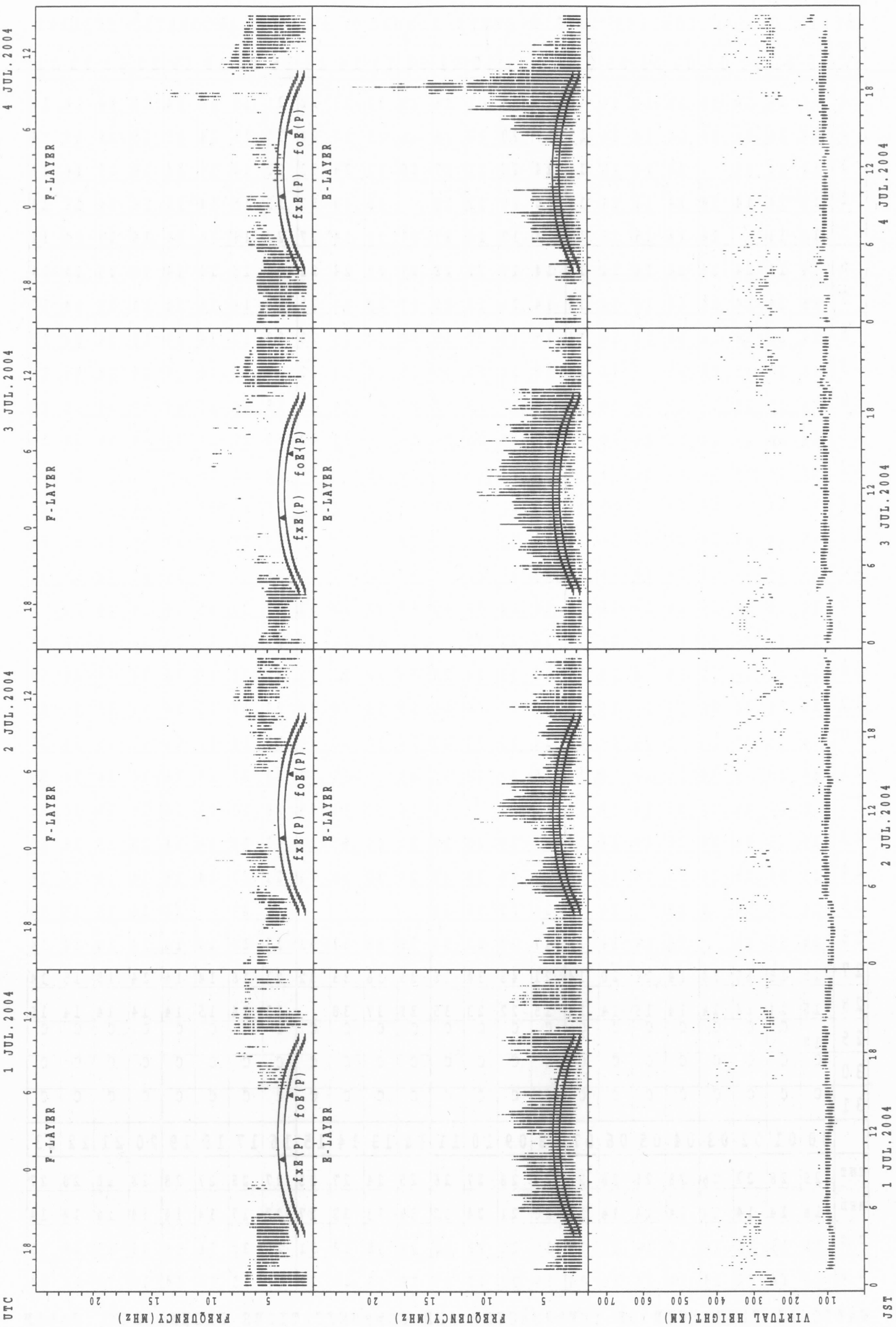
D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	60	35	36	50	44	33	48	38	62	131	96	116		178		G	57	66	76	126	94	89	59	59
2	43	43	G	36	29	52	28	57	104	78	68	52	58	74	71	56	58	140	106	77	79	78	78	28
3	37	34	26		G	G	G	G	73	78	145	78	47	47	G	49	55	44	66	147	53	31	32	33
4	25	G	36	41	34	G	28	50	72	63	48	47		43	43	54	48	66	76	59	59	50	38	33
5	56	45		46	38	26	26	48	93	79	59	52	83	72	68	44	57	38	36	85	58	55	46	29
6	25	26	G	G	G	G	61	34	42	42	44	43	48	45	48	47	57	42	36	39	34	24	80	49
7	50	78	59	35	44	72	32	55	66	59	151	78	46	G	50	44	53	48	45	79	35	G	48	39
8	38	70	35	31	24	G	32	46	54	72	116	79	66	59	123	96	116	88	150	112	91	43	G	25
9	28	G	G	G	G		43	35	38	G	58	44	59	61	58	G	53	87	66	50	54	32	33	G
10	36	31	G	G	G	35	29	34	49	39	64	56	75	46	52	48	G	45	60	44	33	28	34	26
11	67	69	G	G	24	24	36	76	43	52	48	46	66	67	62	63	60	64	56	56	40	72	24	40
12	34	32	54	34	30	29	38	68	71	83	107	68	58	60	57	106	129	123	54	44	37	44	28	25
13	25	29	G	G	G	G	24	34	43	44	49	52	46	G	53	52	51	40	G	39	27	G	G	26
14	G	G	G	G	G	27	32	43	45	42	50	88	52	48	58	G	52	48	34	80	56	47	34	28
15	24	G	G	G	24	29	G	40	37	G	G	B		G	G	99	47	47	40	38	32	G	24	G
16	30	32	36	68	40	54	34	40	52	94	59	73	80	150	98	G	52	60	77	72	40	52	28	
17	G	35	43	37	27	G	G	G	42	G	G		54	G	55	G	41	G	39	50	26	28	27	30
18	G	G	25	G	G	G	G	38	G	G	54	87	114	67	49	75	41	37	43	44	29	59	28	G
19	24	90	40	80	46	40	30	35	58	66	56	67	G	72	99	48	95	39	G	28	28	26	G	G
20	G	G	G	G	G	G	26	37	45	52	50	74		51	49	44	40	56	51	34	29	G	G	G
21	G	28	G	G	G	G	G	G	36	G	G	57	G	G	50	62	129	94	41	38	43	48	28	34
22	G	G	G	30	36	G	G	35	G	G		52	66	70	G	50	51	51	50	49	55	46	56	50
23	56	59	86	51	40	33	G	34		70	50	G	58	51	58	56	G	58	G	31	26	G	G	G
24	G	40	35	32	23	26	70	40	60	62	69	66	65	55	47	53	G	43	42	49	43	29	26	40
25	56	44	26	34	G		33	42	47	106	G	65			G		G	G		G	G	G	G	24
26	35	24	G		36	36	37	35	G	51	61	57	56	81	54	G	54	56	34	G	34	G	59	G
27	G	G	G	G	G	G	G	G	G	G	51	62	115	50	57	G	G	57	43	51	30	G	G	23
28	G	54	34	58	31	G	29	35	41	G	G	49	46	59	51		40	46	76	54	78	52	38	41
29	G	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
30	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
31	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
	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	28	27	26	28	26	28	28	27	28	27	26	23	27	27	26	28	28	27	28	28	28	28	27
MED	25	32	25	32	24	25	29	38	45	52	54	60	58	55	53	48	52	50	45	50	38	32	28	28
U Q	40	44	36	41	36	33	35	44	62	75	68	74	66	70	58	56	57	65	66	74	55	51	42	39
L Q	G	G	G	G	G	G	G	34	38	G	48	52	47	45	48	G	40	42	36	38	29	G	12	G

HOURLY VALUES OF fmin AT Okinawa

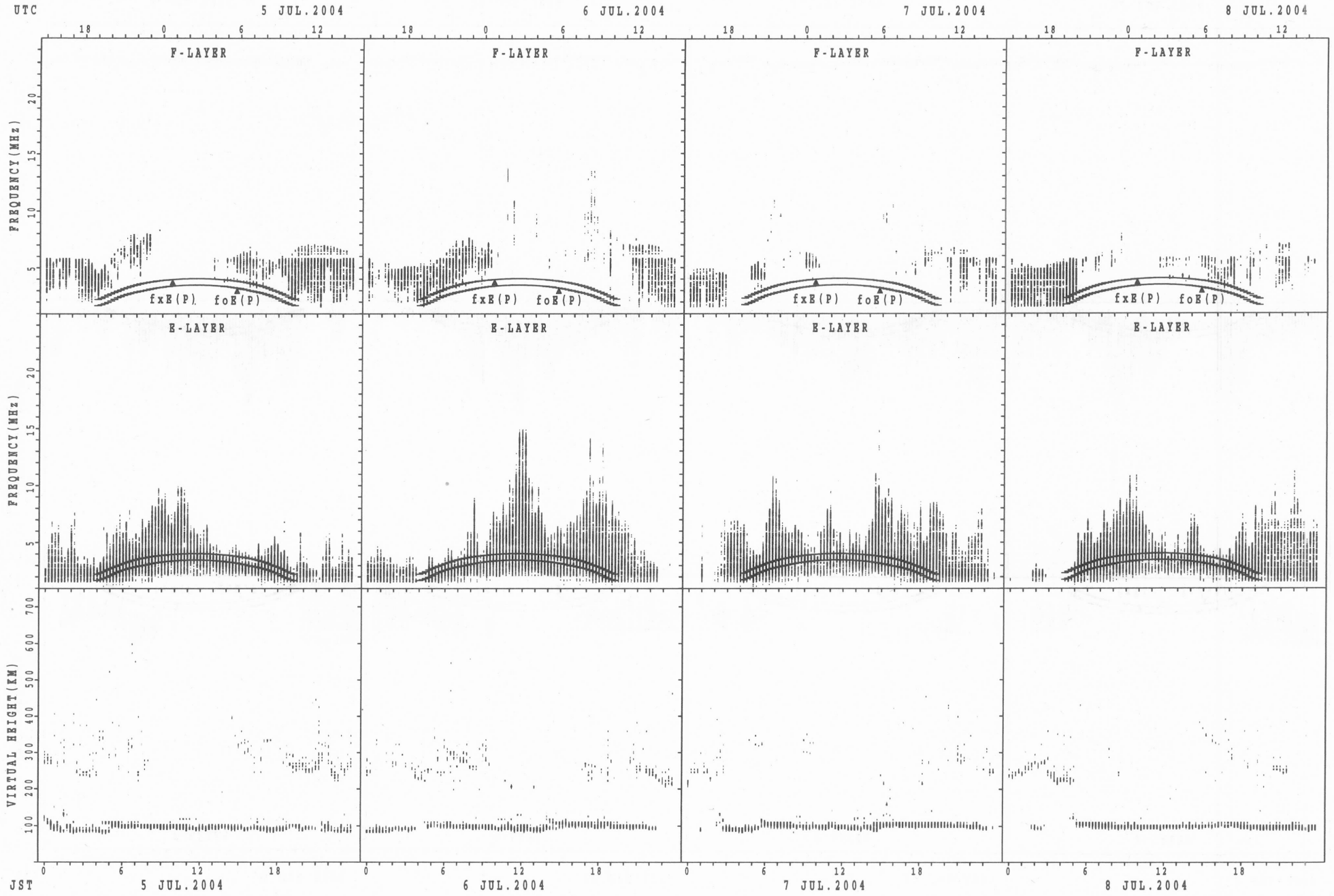
JUL. 2004

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	14	14	14	14	14	14	14	14	16	18	21	34	28	32	28	22	21	15	14	14	14	14	14	14
2	14	14	14	14	14	14	14	15	17	20	20	24	26	29	27	24	20	15	14	15	15	14	15	14
3	14	14	14		14	14	14	14	14	20	21	27	29	27	26	23	21	14	14	14	14	15	14	14
4	15	14	14	14	14	14	14	14	16	20	22	28		28	29	23	15	15	14	14	14	14	14	14
5	14	14		14	14	15	16	14	14	17	20	27	27	28	24	27	20	14	14	14	14	14	14	14
6	14	14	14	14	14	14	14	14	14	17	22	26	27	28	24	22	20	15	14	14	14	15	14	14
7	15	14	14	14	14	14	14	14	14	21	23	22	27	29	23	22	18	14	14	14	14	15	14	17
8	14	15	14	14	14	14	14	14	15	18	22	35	38	38	23	23	22	18	14	14	14	14	14	15
9	14	15	15	16	21		14	14	15	20	24	30	33	34	23	22	26	15	14	14	14	14	14	14
10	14	15	15	18	15	14	14	14	14	17	23	22	28	24	24	21	18	14	14	14	14	15	14	14
11	14	15	14	14	14	14	14	14	16	15	23	24	28	30	32	22	32	27	14	14	14	14	14	14
12	15	14	14	14	14	14	14	14	18	23	27	32	30	38	40	27	22	33	18	14	14	14	15	14
13	15	14	15	14	14	14	18	14	15	22	28	32	33	29	32	34	22	20	23	14	14	15	14	14
14	15	14	15	14	14	14	14	15	18	22	35	41	39		29		23	17	14	14	14	14	14	14
15	15	15	15	14	14	14	14	14	15	23	28	B			55	22	36	17	14	14	14	14	15	17
16	14	14	14	14	14	14	15	20	16	22	30	43	45	38	33	52	22	20	15	14	14	14	14	
17	16	14	14	14	14	14	20	14	16	21	32		35	91	32	28	23	55	15	14	14	14	14	14
18	14	14	14	15	15	14	15	14	43	23	24	28	53	38	33	30	22	20	14	14	14	14	14	14
19	15	14	14	14	14	14	15	14	18	21	26	40	53	29	38	34	27	18	14	14	14	15	16	15
20	16	15	15	20	21	14	14	14	15	22	53	28	28	30	30	28	23	16	14	14	14	15	14	15
21	14	15	15	14	14	14	14	14	16	22	28	39	40		38	33	23	20	14	14	14	14	14	14
22	14	14	15	14	14	14	17	14	18	22		38	36	38	42	29	26	22	14	14	14	14	14	14
23	14	15	14	14	15	14	14	14		29	28	30	30	44	43	28	45	15	14	14	15	15	14	15
24	15	14	15	14	15	14	14	14	17	20	20	39	28	39	39	23	21	17	14	14	14	14	14	14
25	14	14	14	14	14		14	15	16	21	30	33						23		18	14	15	15	14
26	14	15	15		14	14	14	14	17	20	27	36	38	38	37	91	21	16	14	14	14	14	14	14
27	15	18	16	14	14	16	20	14	21	45	34	36	33	38	33	32	21	18	14	14	14	15	15	14
28	15	14	14	14	14	15	14	14	15	22	23	35	39	37	38		33	24	15	14	14	14	14	15
29	17	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
30	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
31	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
	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	28	27	26	28	26	28	28	27	28	27	26	25	24	27	25	27	28	27	28	28	28	28	27
MED	14	14	14	14	14	14	14	14	16	21	24	32	33	33	32	27	22	17	14	14	14	14	14	14
U Q	15	15	15	14	14	14	15	14	17	22	28	36	38	38	38	31	26	20	14	14	14	15	14	15
L Q	14	14	14	14	14	14	14	14	15	20	22	27	28	29	26	22	21	15	14	14	14	14	14	14

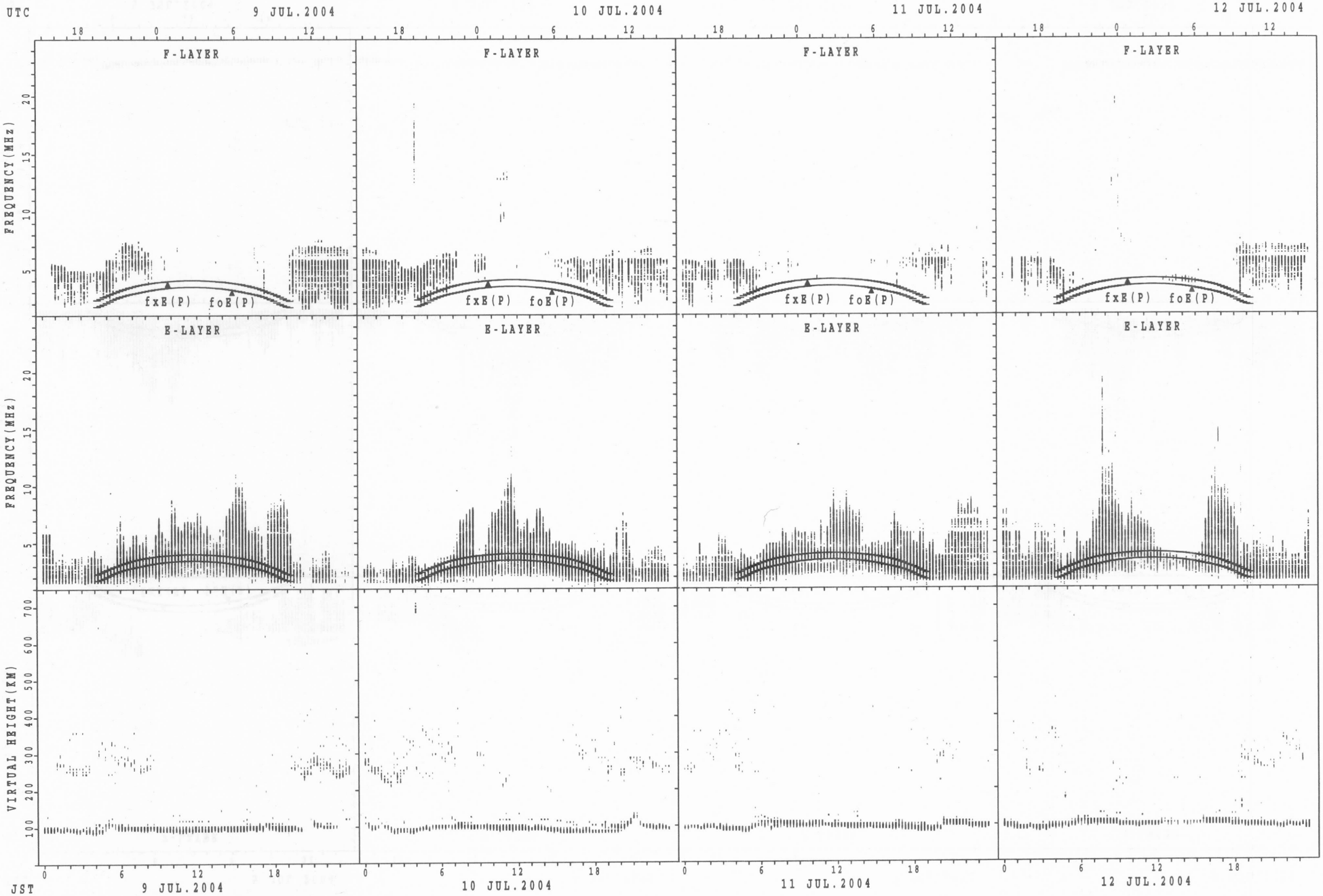

SUMMARY PLOTS AT Wakkanai
UTC
JST
1 JUL.2004
2 JUL.2004
3 JUL.2004
4 JUL.2004
F-LAYER
E-LAYER
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
fxE(P)
foE(P)
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



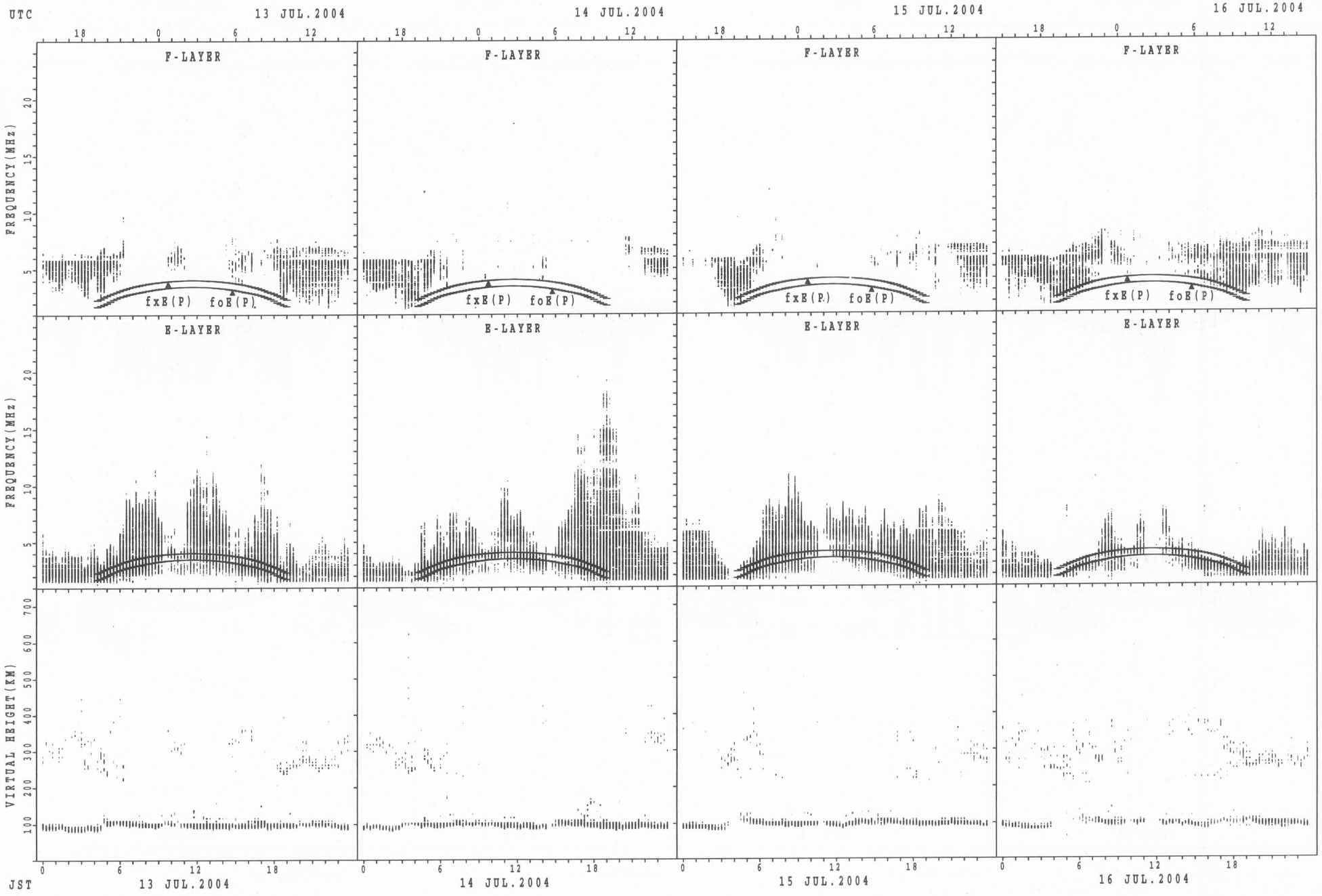
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



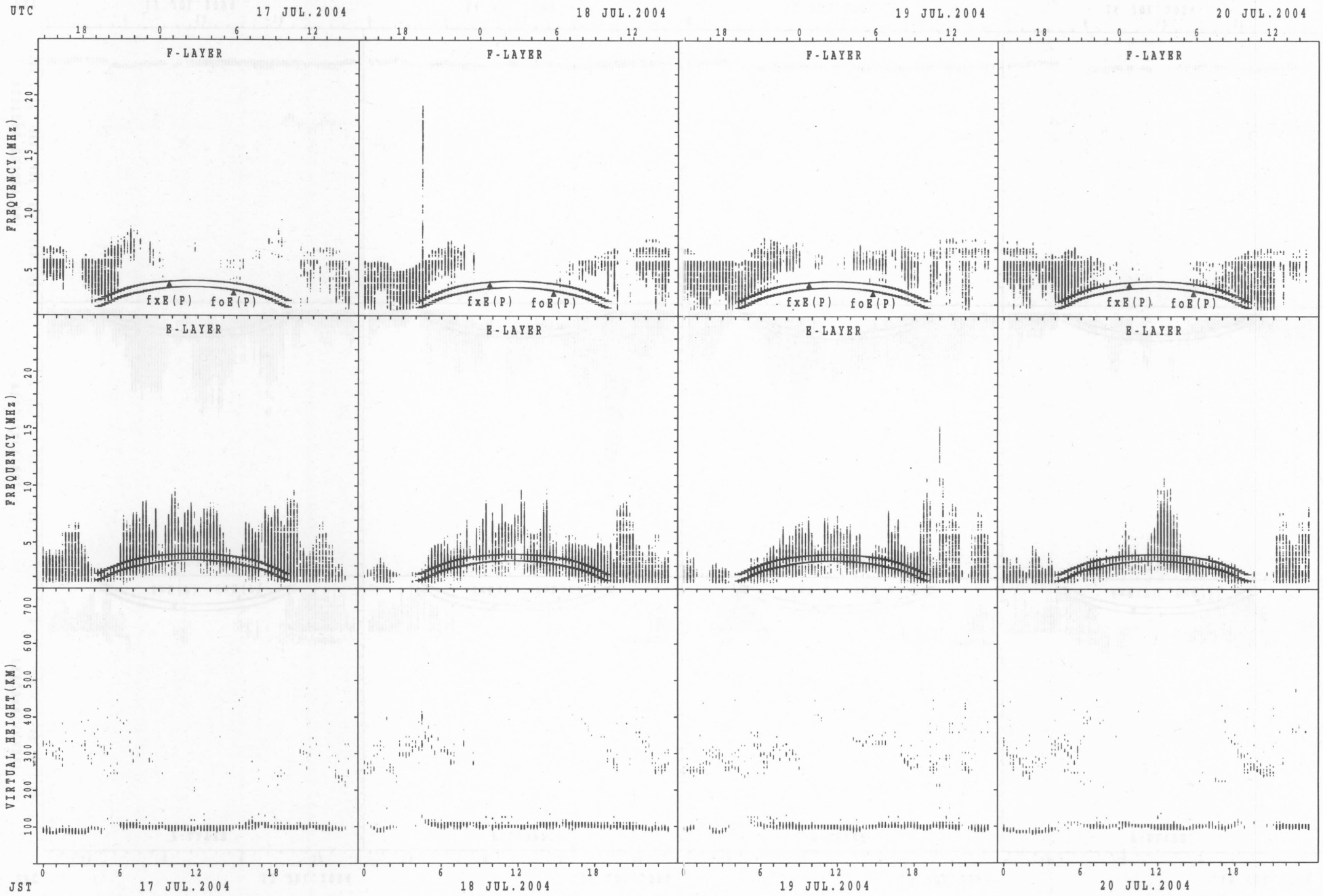
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



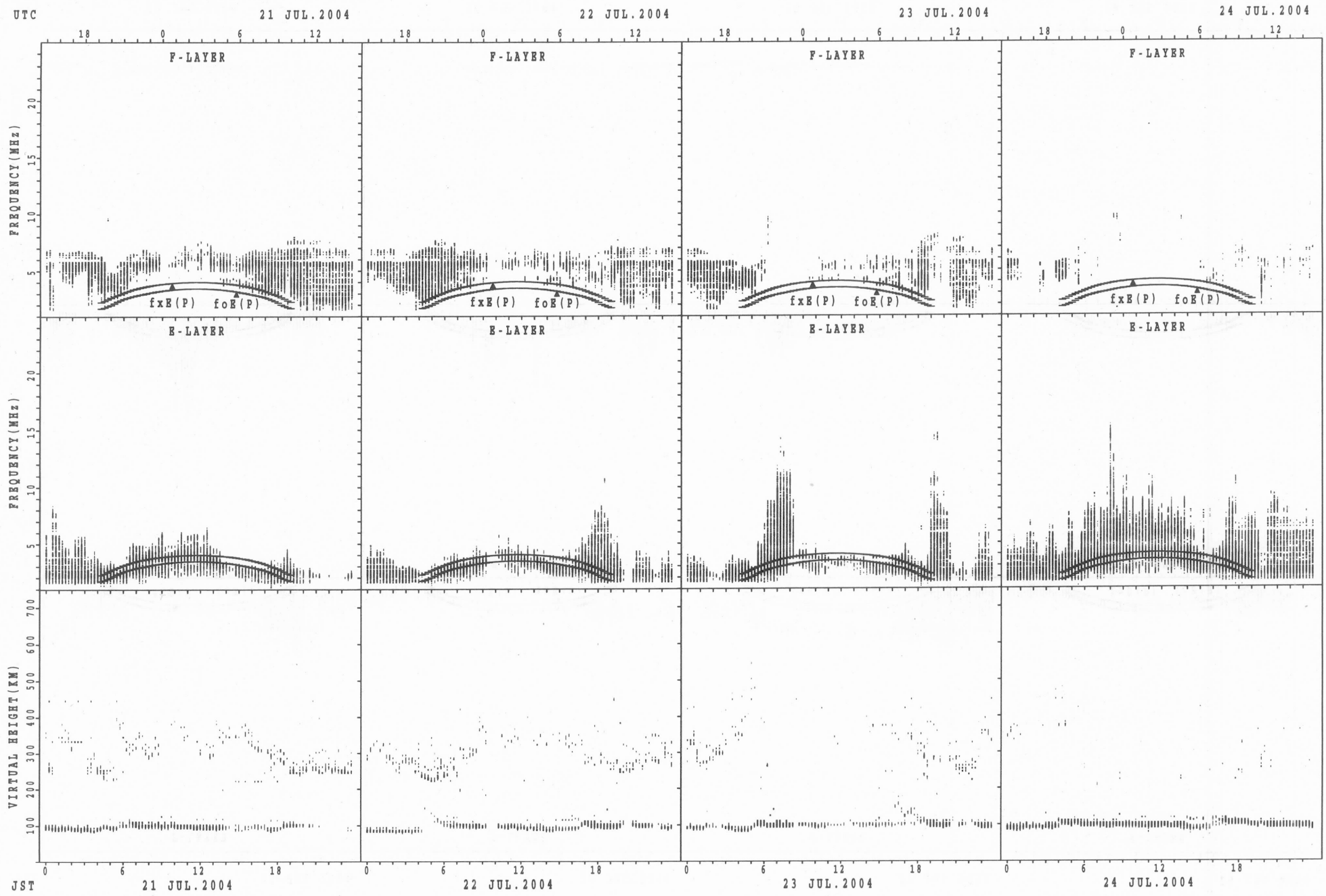
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



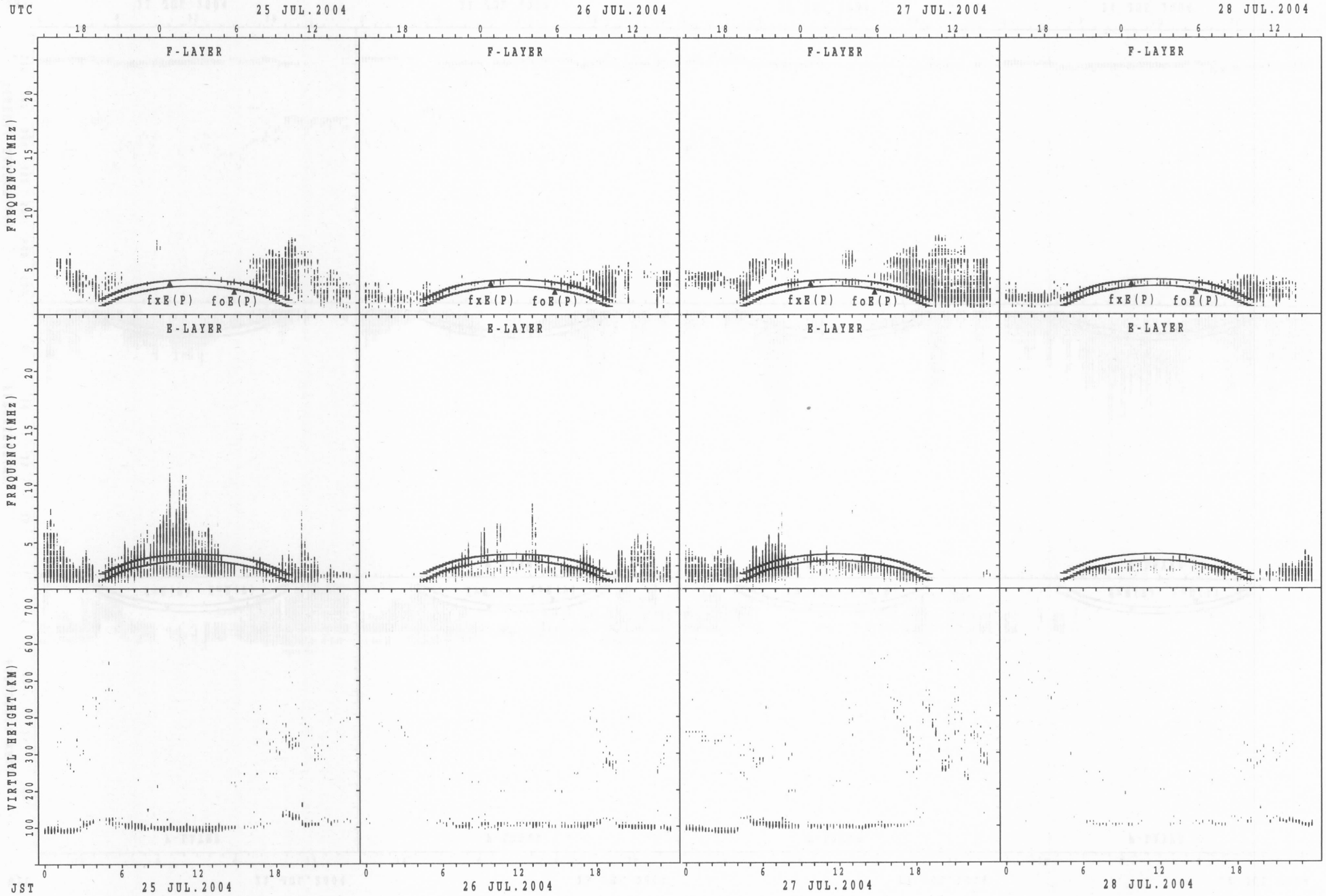
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



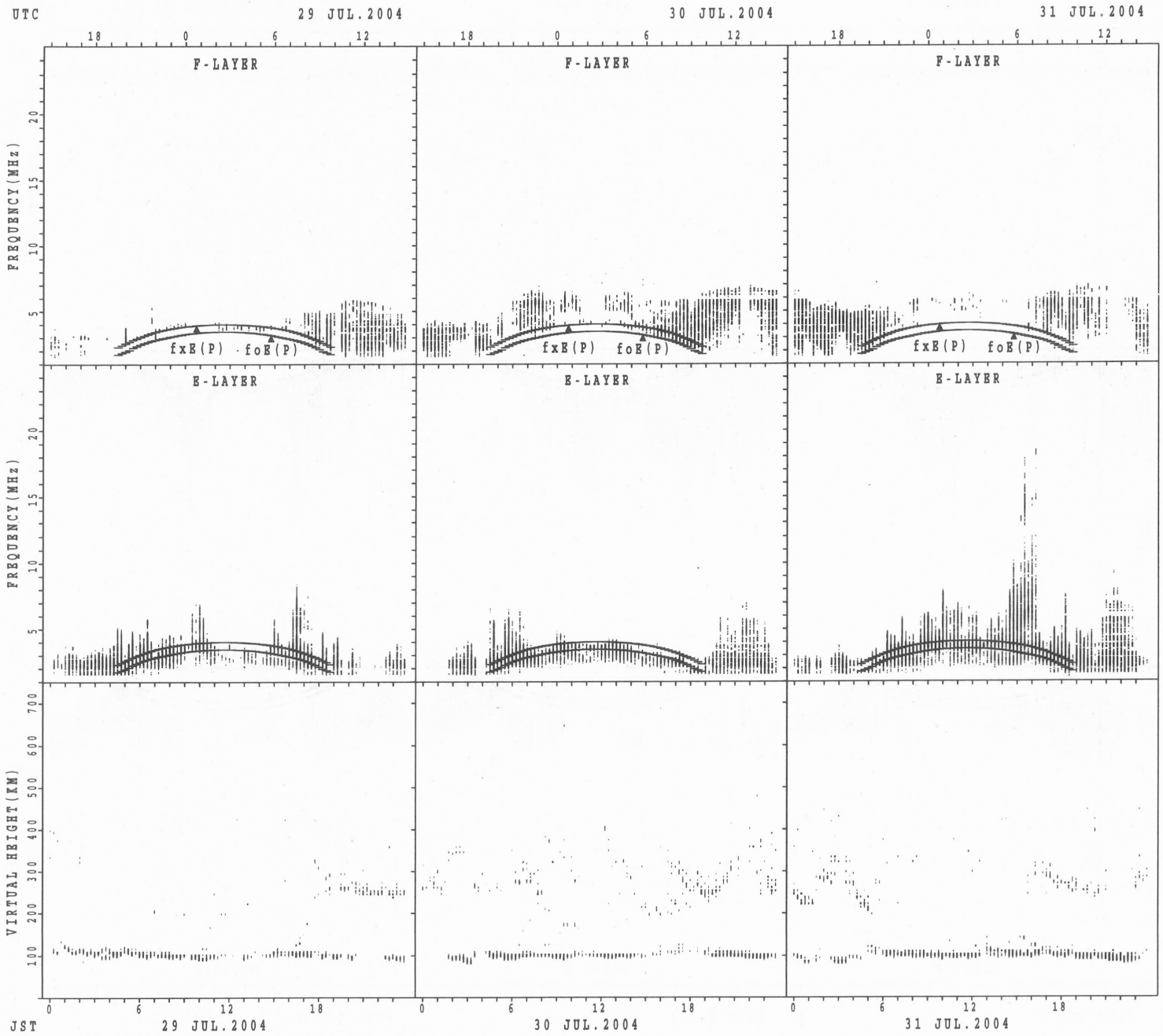
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai

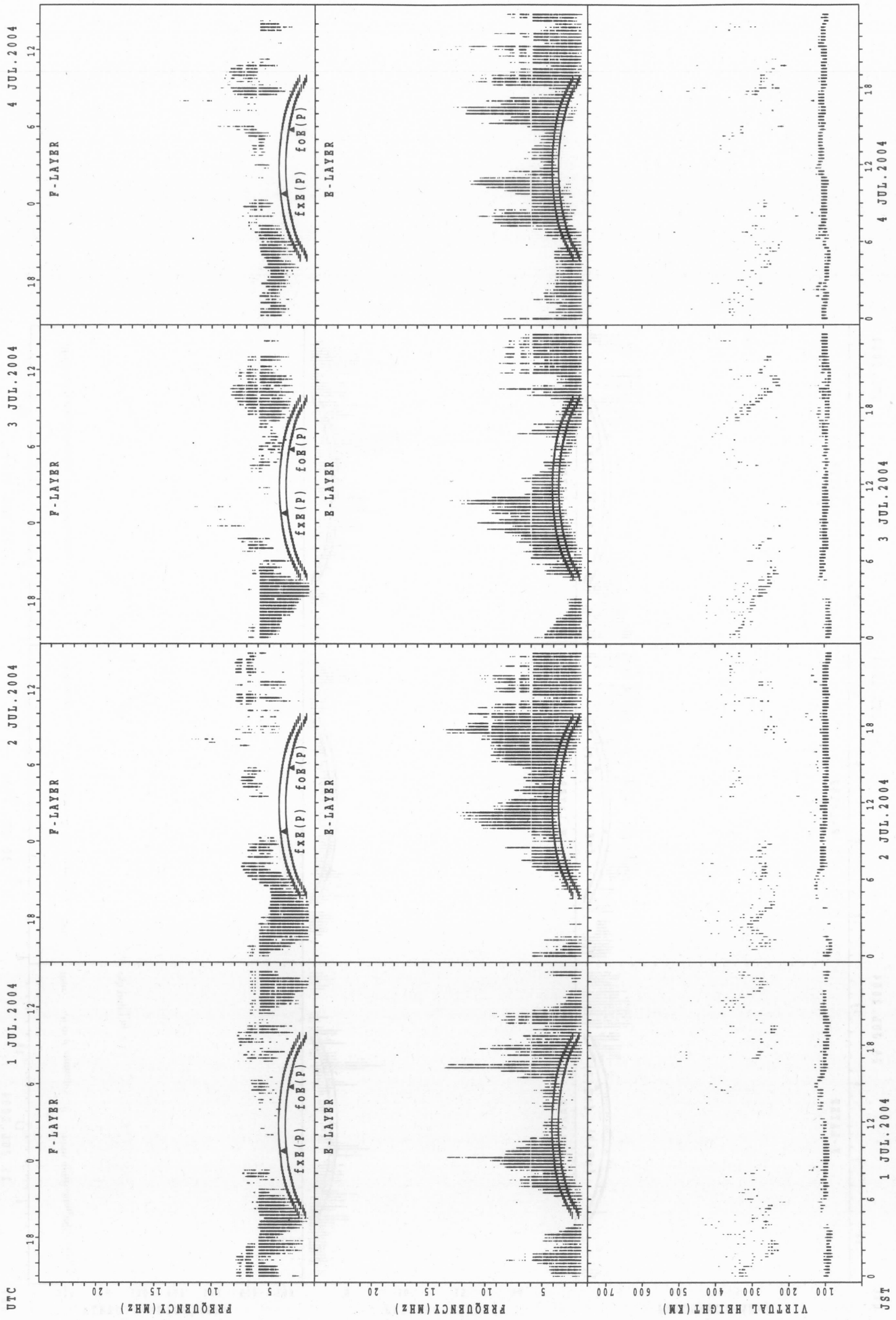


fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

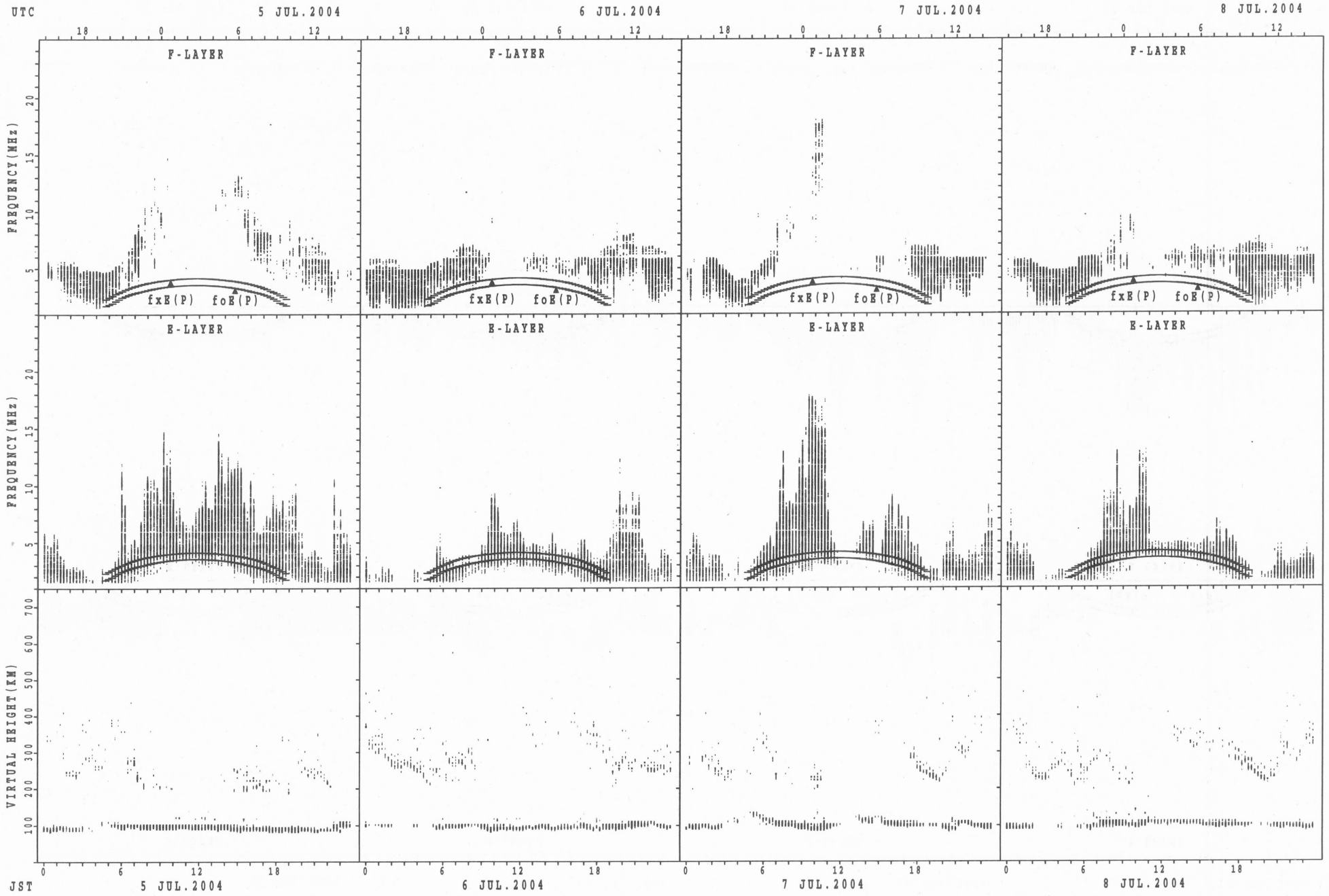
SUMMARY PLOTS AT Wakkanai



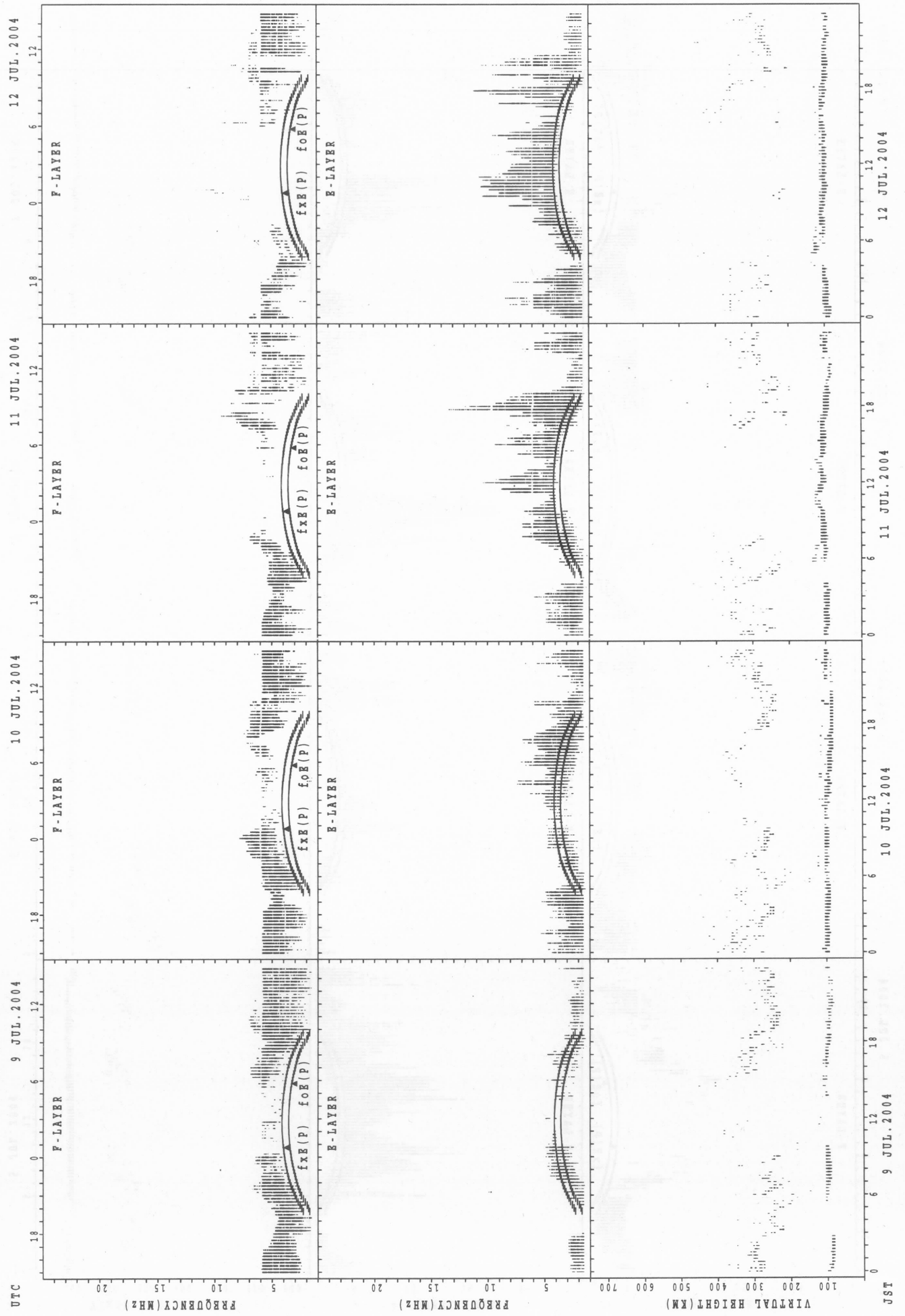
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE


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

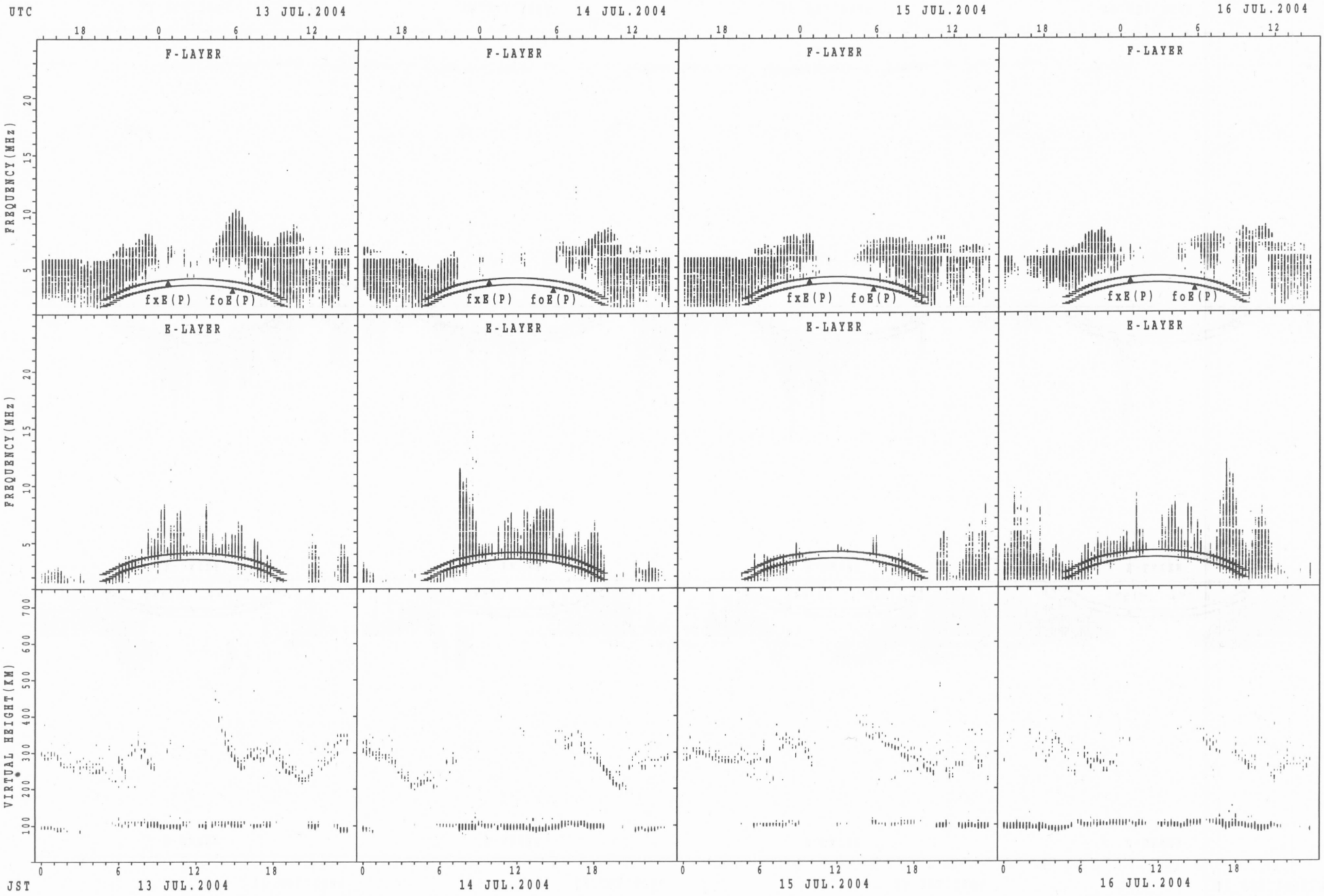
SUMMARY PLOTS AT Kokubunji



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

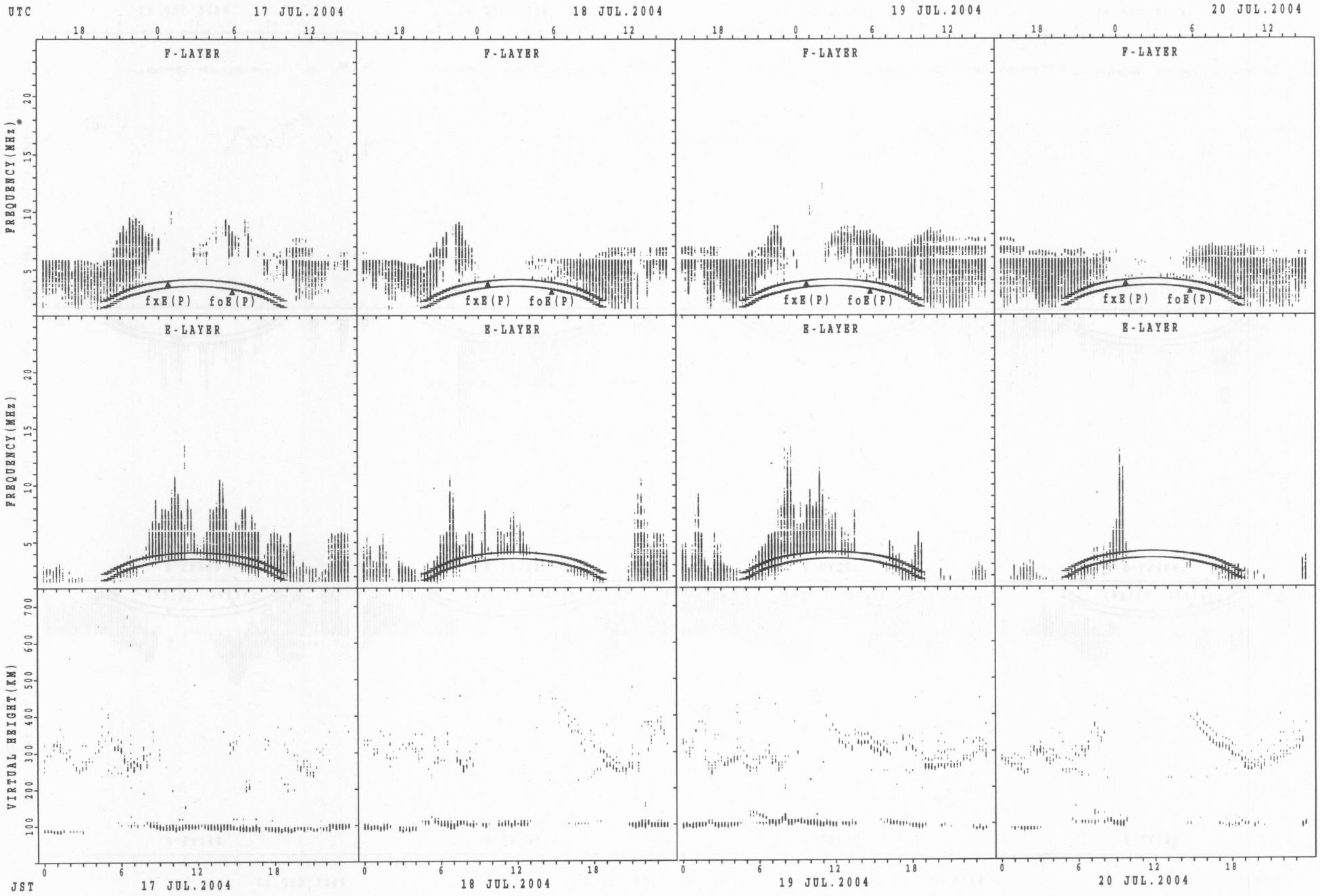

SUMMARY PLOTS AT Kokubunji
UTC
JST
9 JUL.2004
10 JUL.2004
11 JUL.2004
12 JUL.2004
F-LAYER
E-LAYER
fxE(P)
foE(P)
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



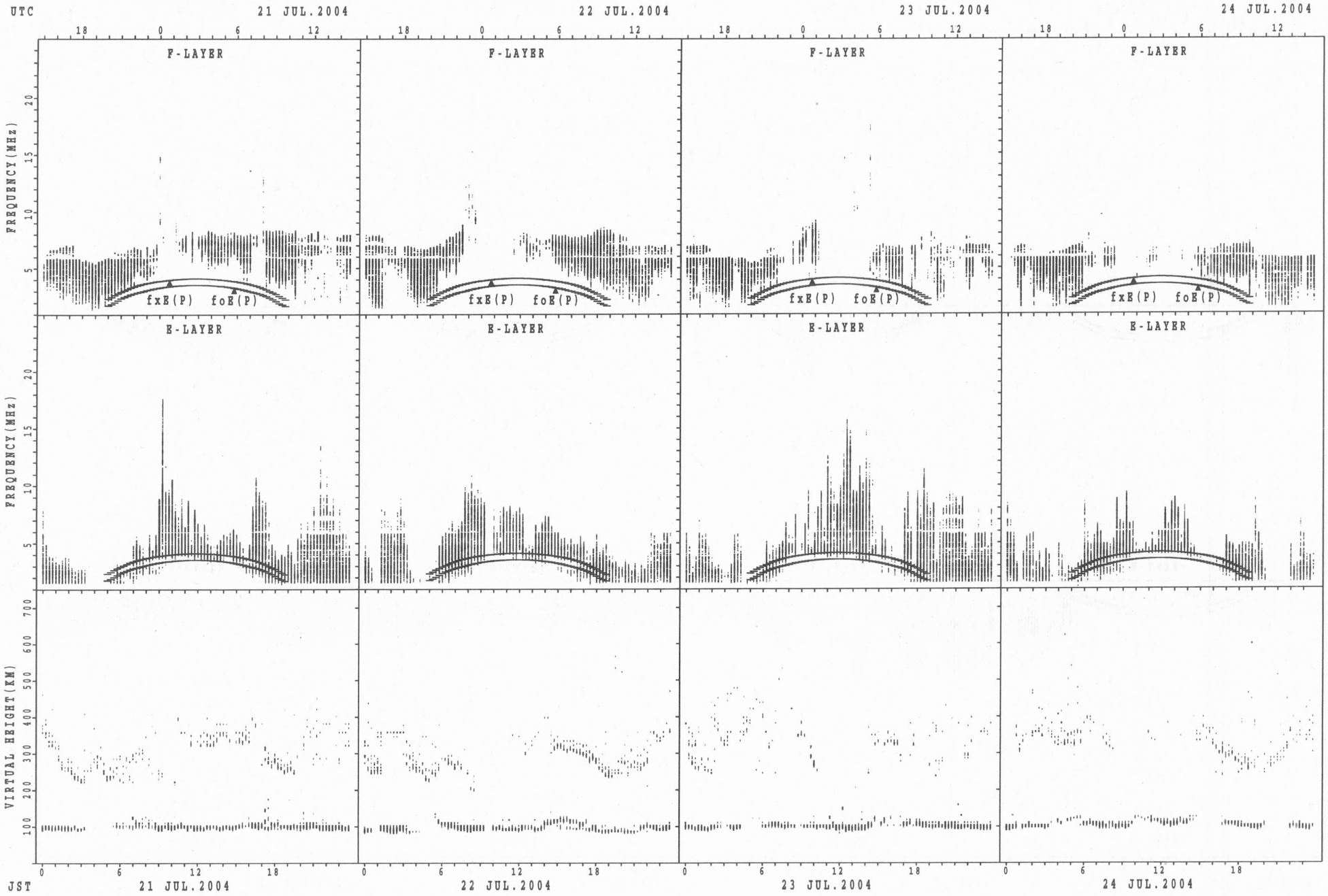
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



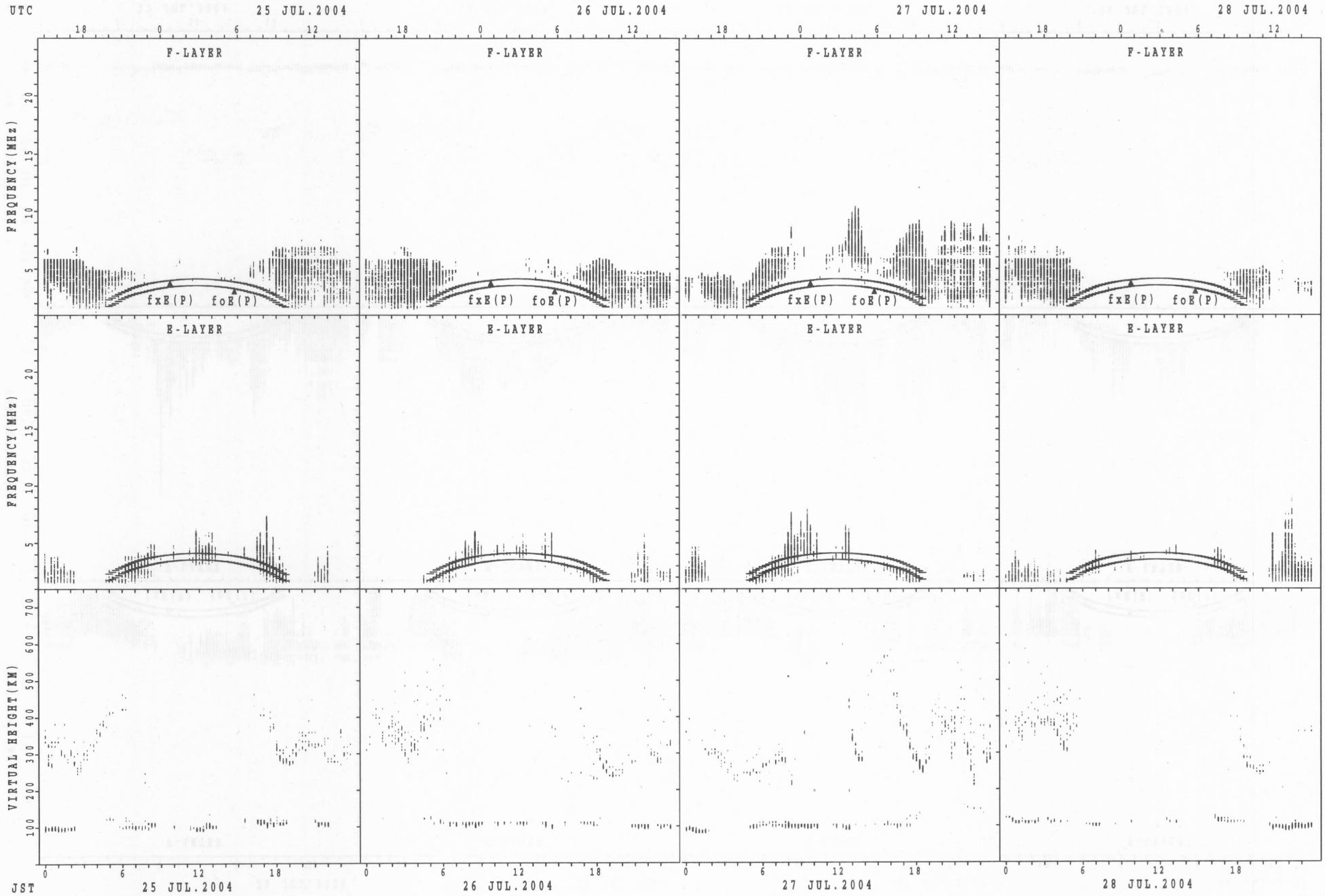
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



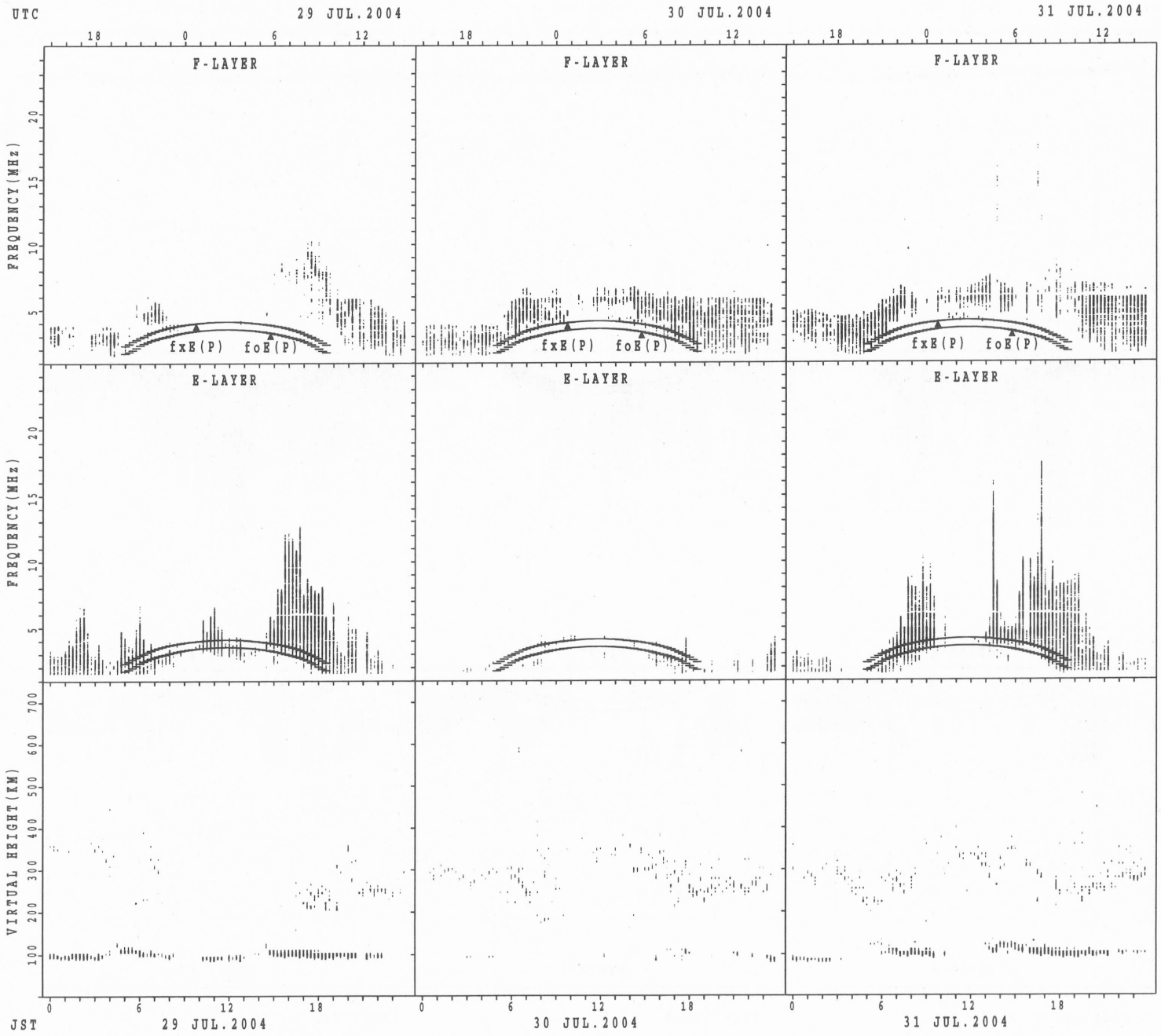
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



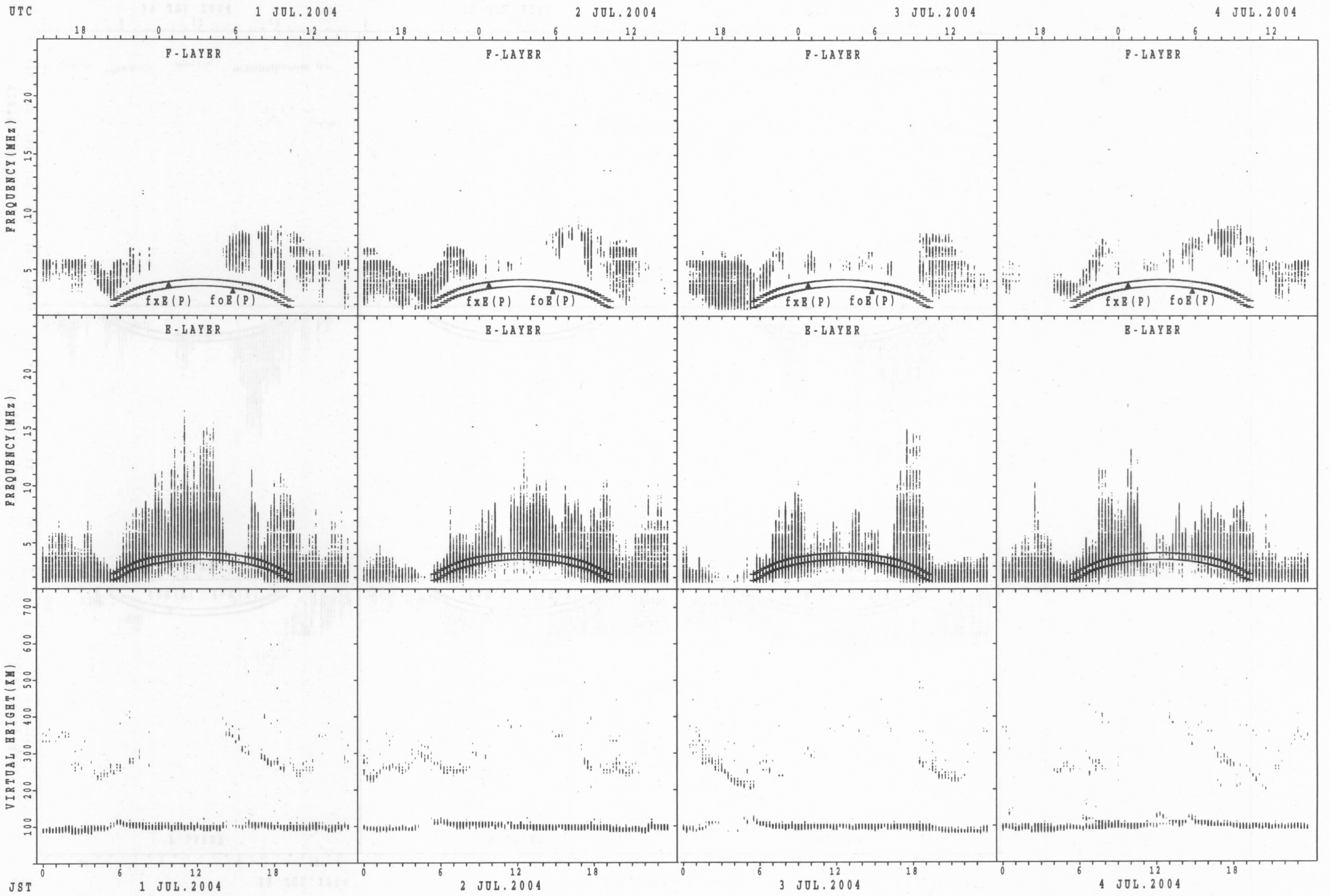
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



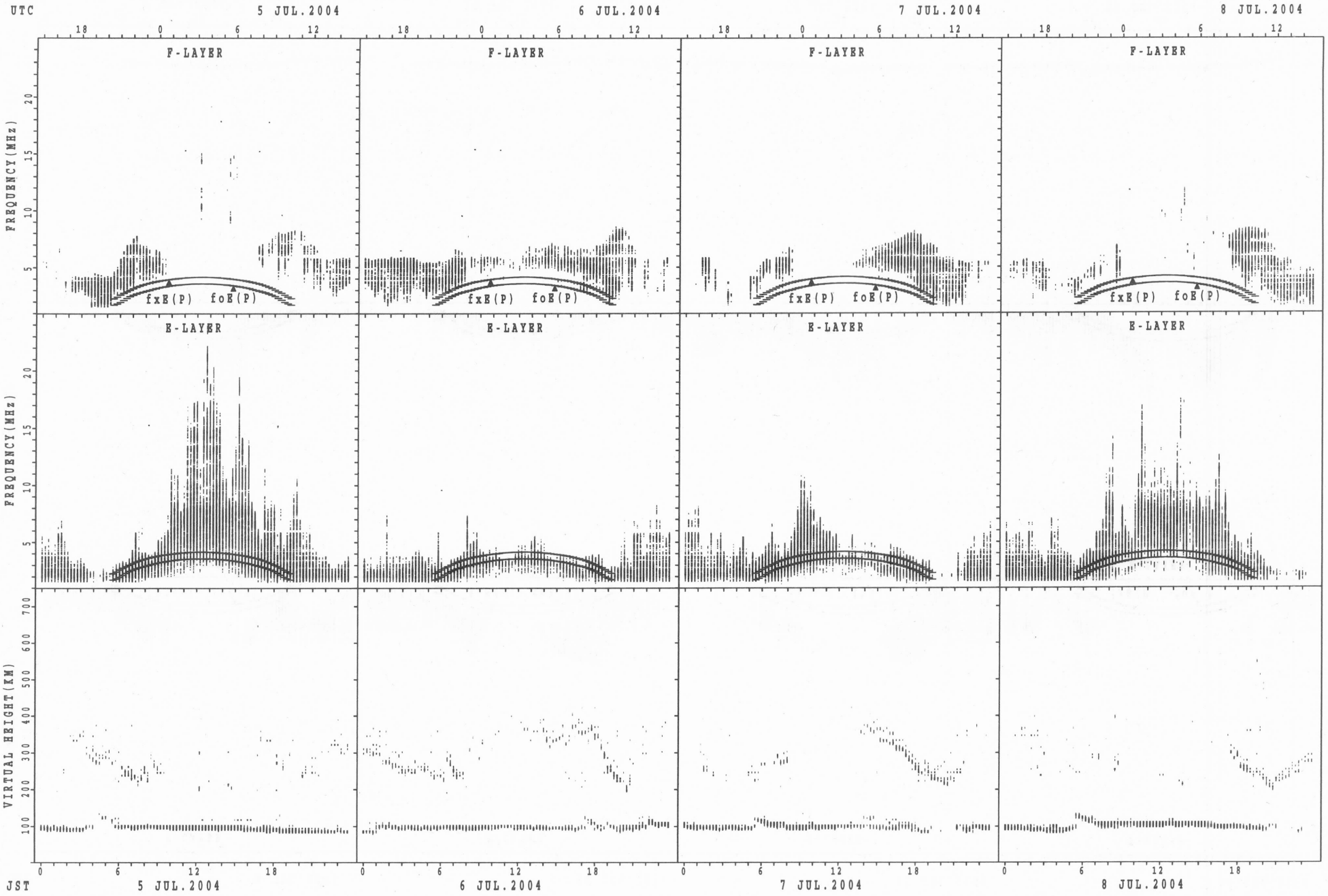
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa

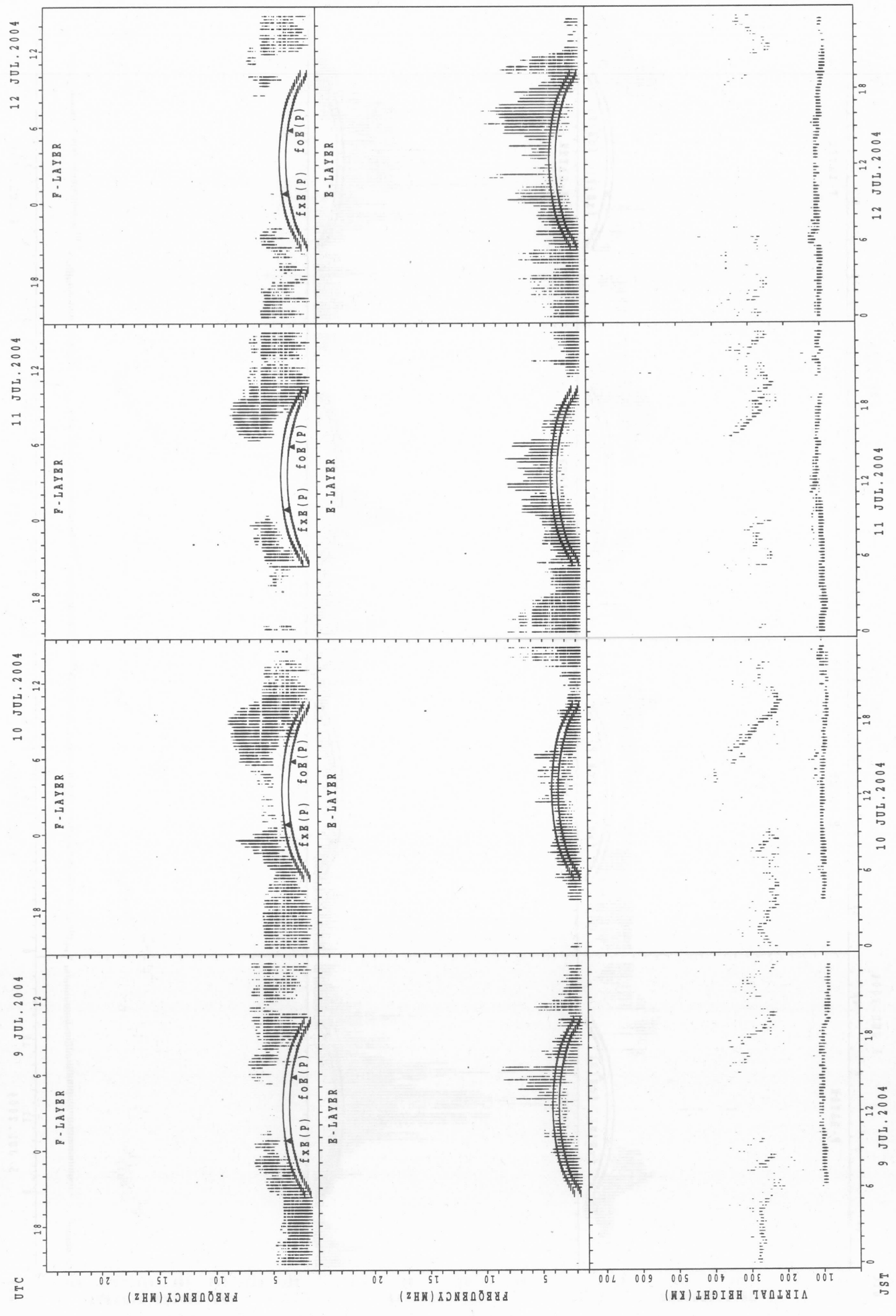


fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

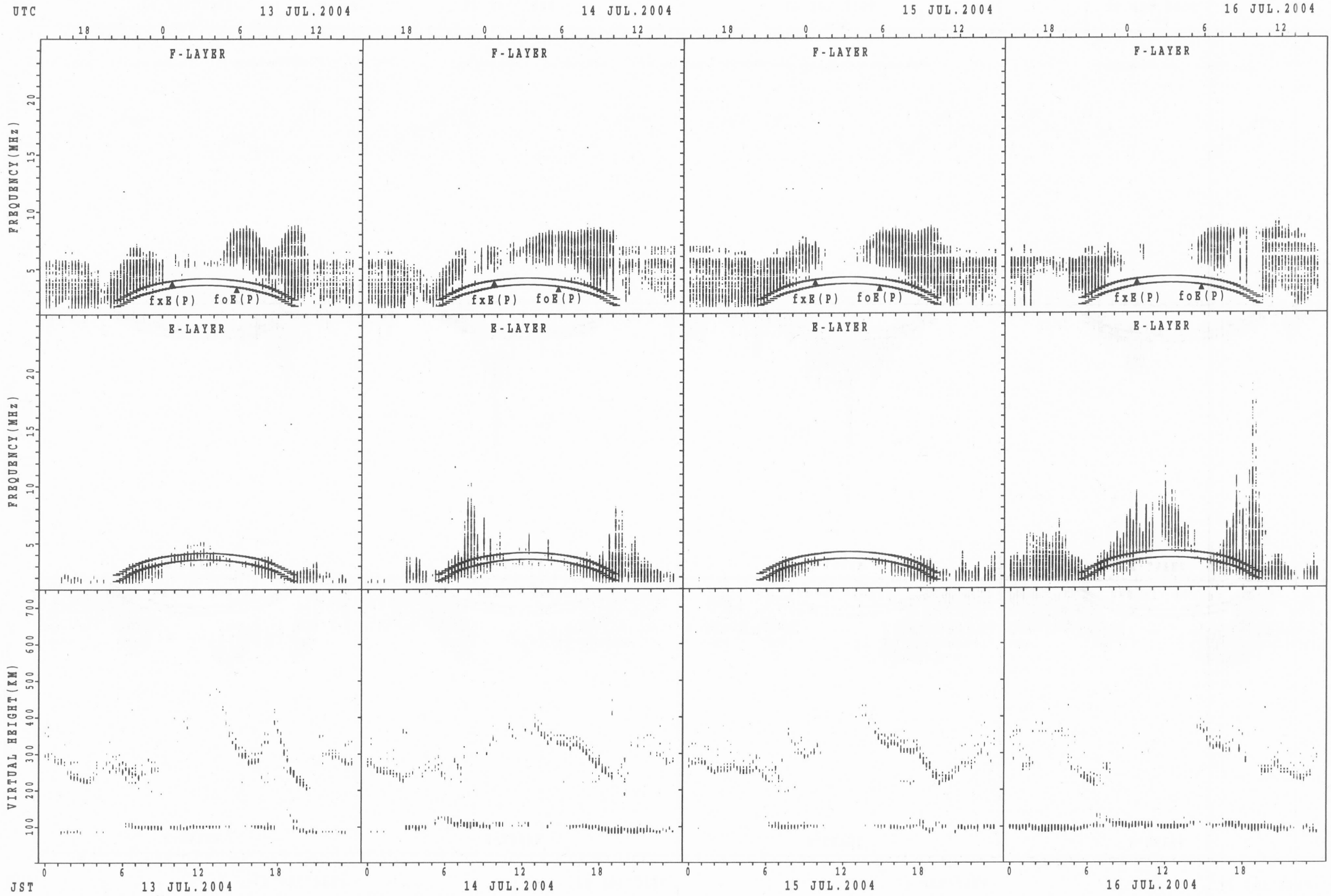
SUMMARY PLOTS AT Yamagawa



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

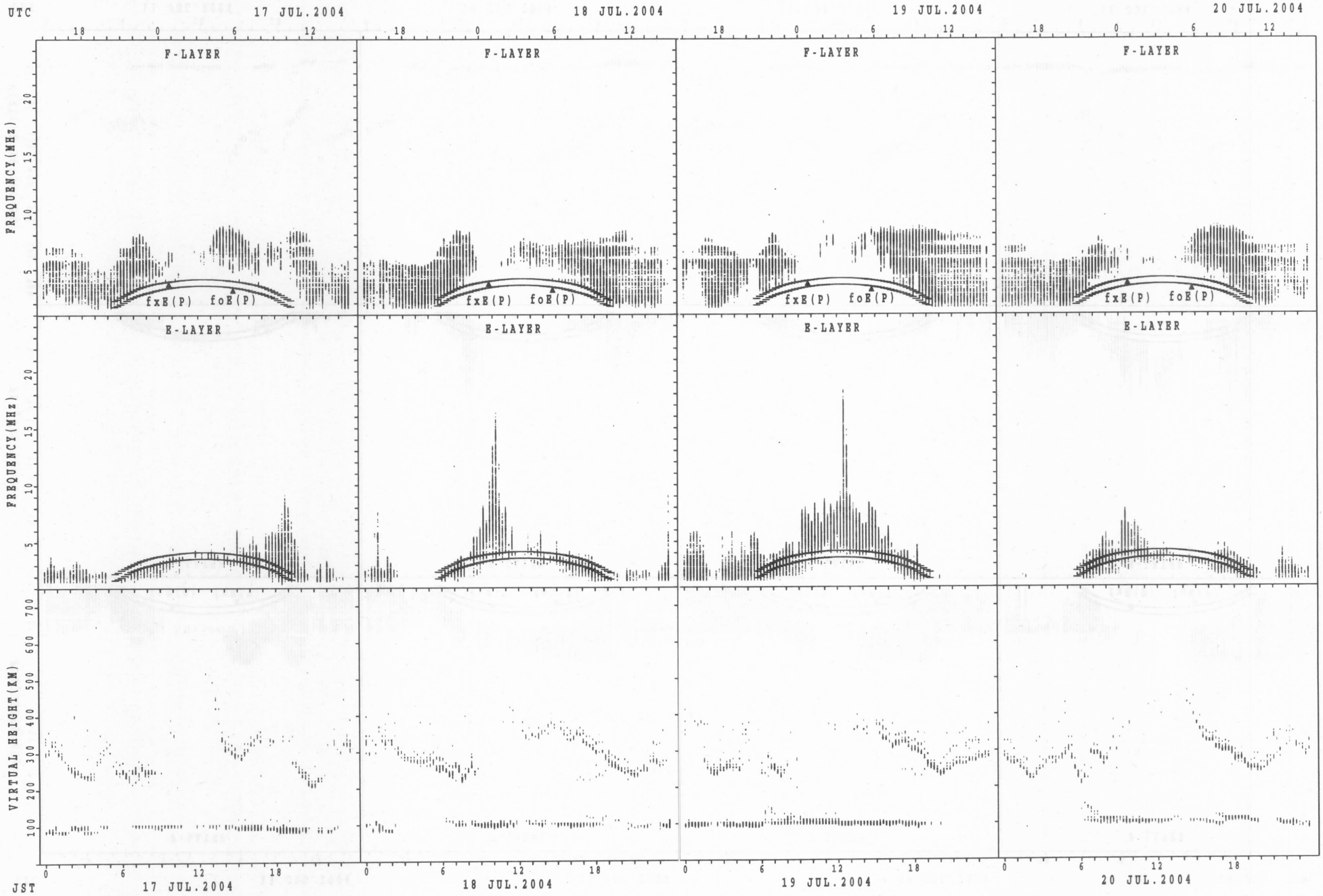

SUMMARY PLOTS AT Yamagawa
UTC
JST
9 JUL.2004
10 JUL.2004
11 JUL.2004
12 JUL.2004
F-LAYER
E-LAYER
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
fxE(P)
foE(P)
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



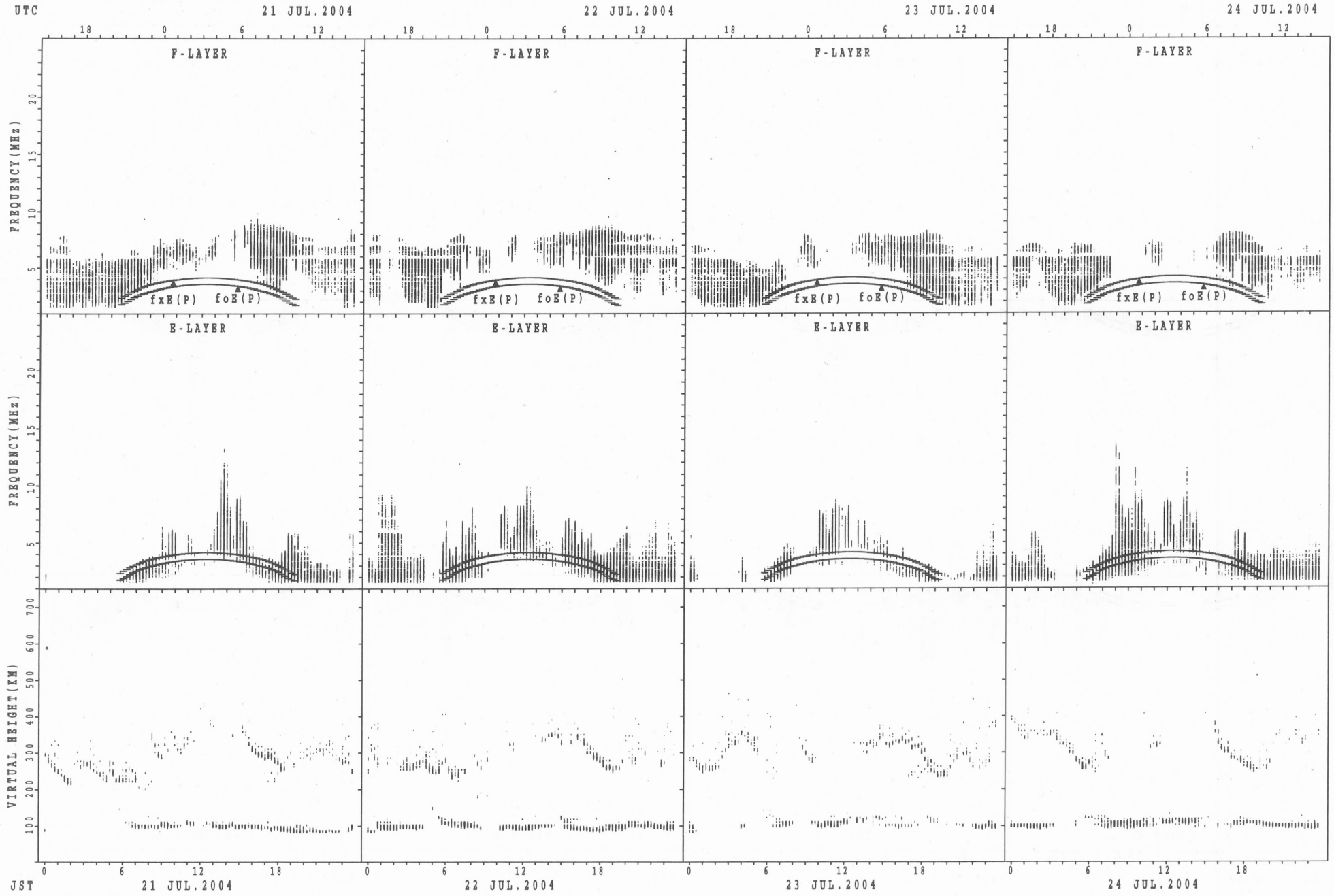
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



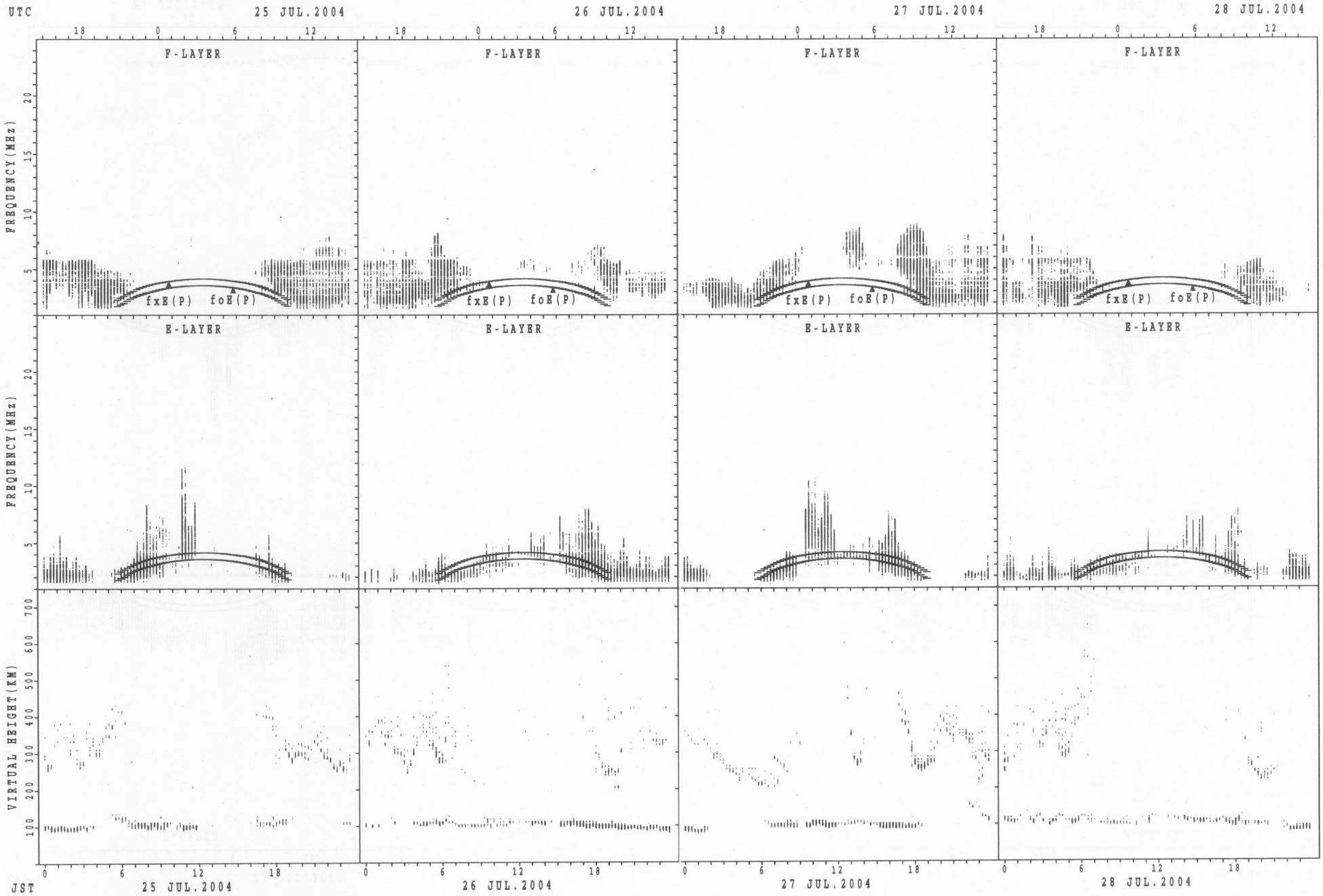
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



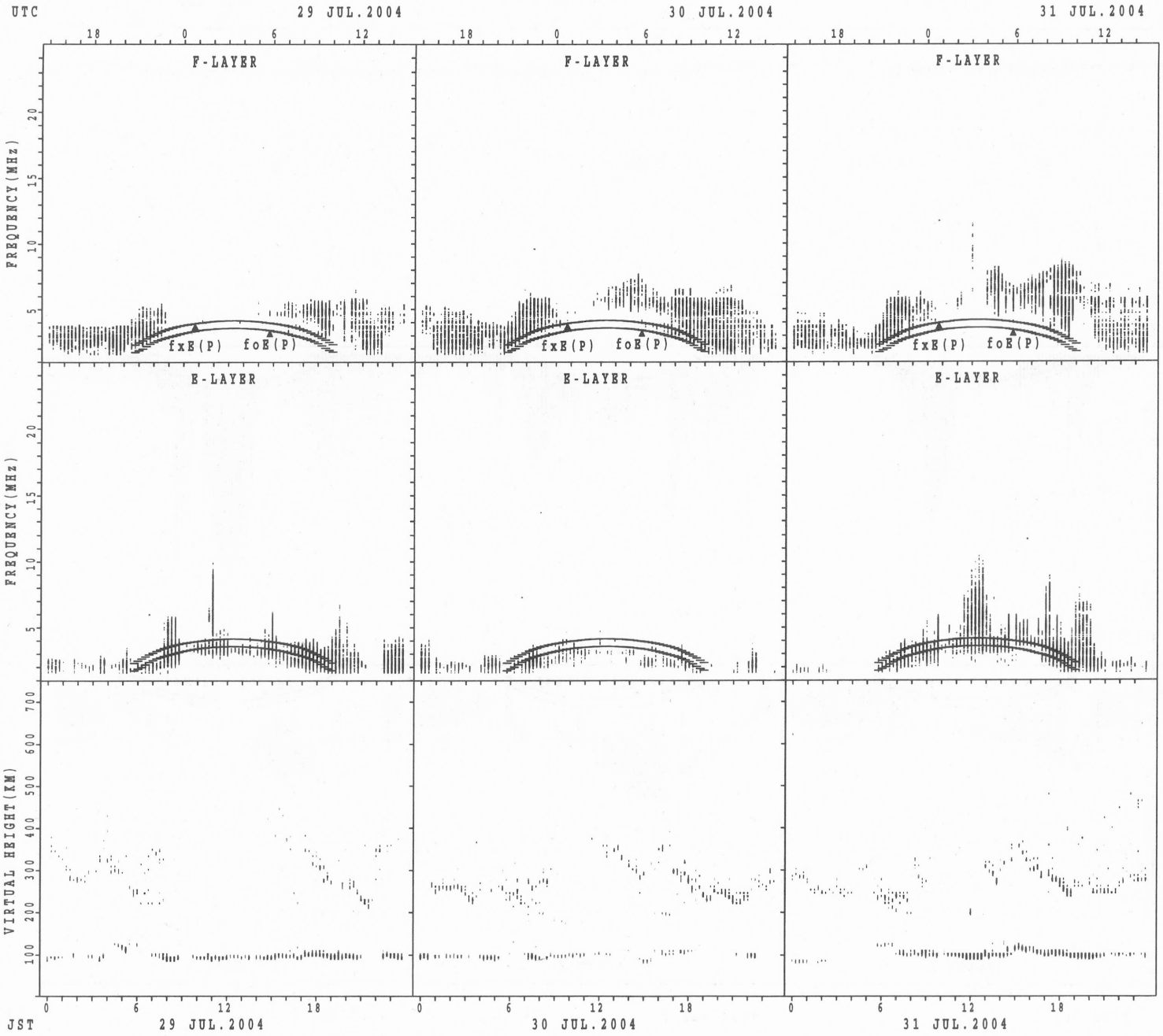
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



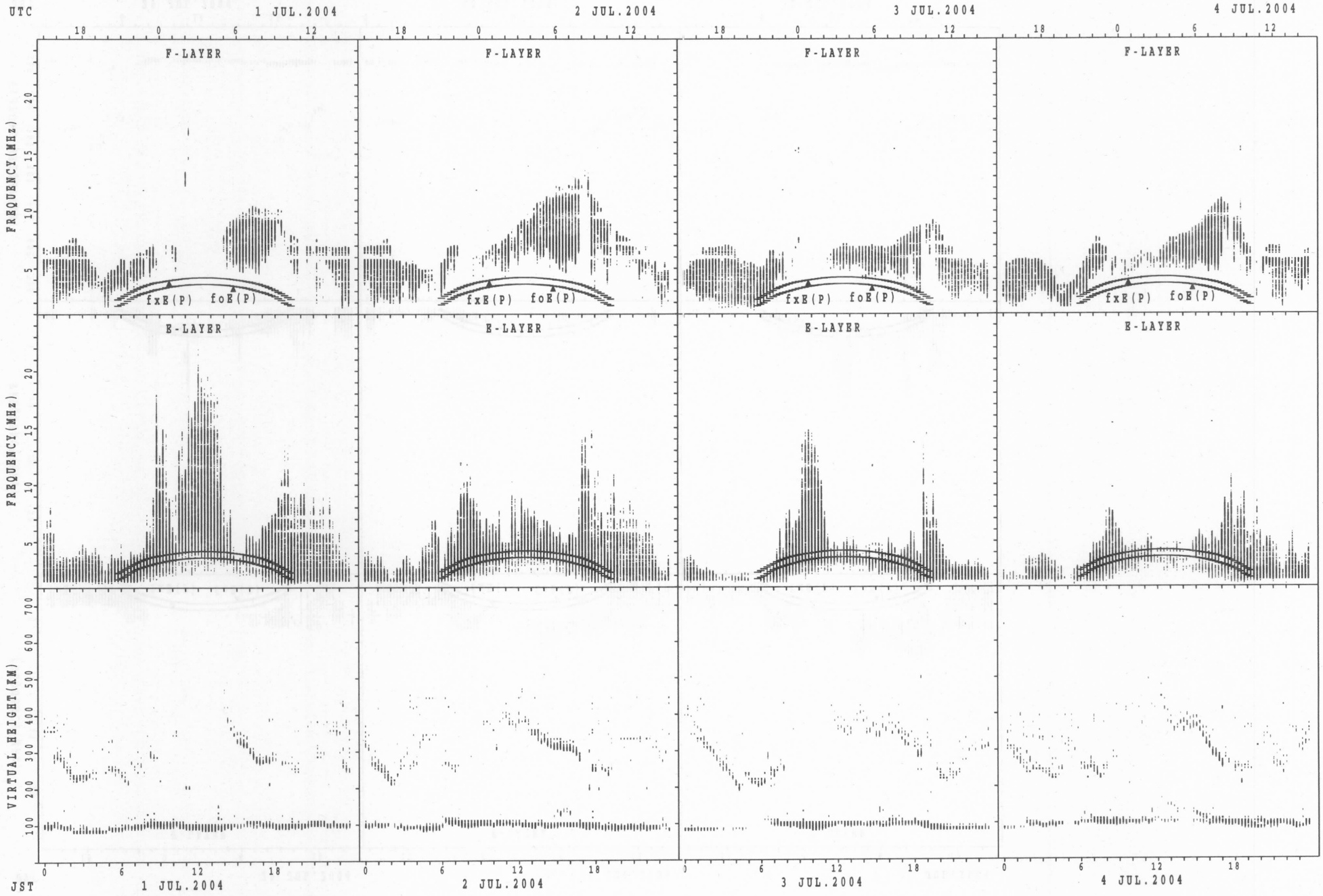
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



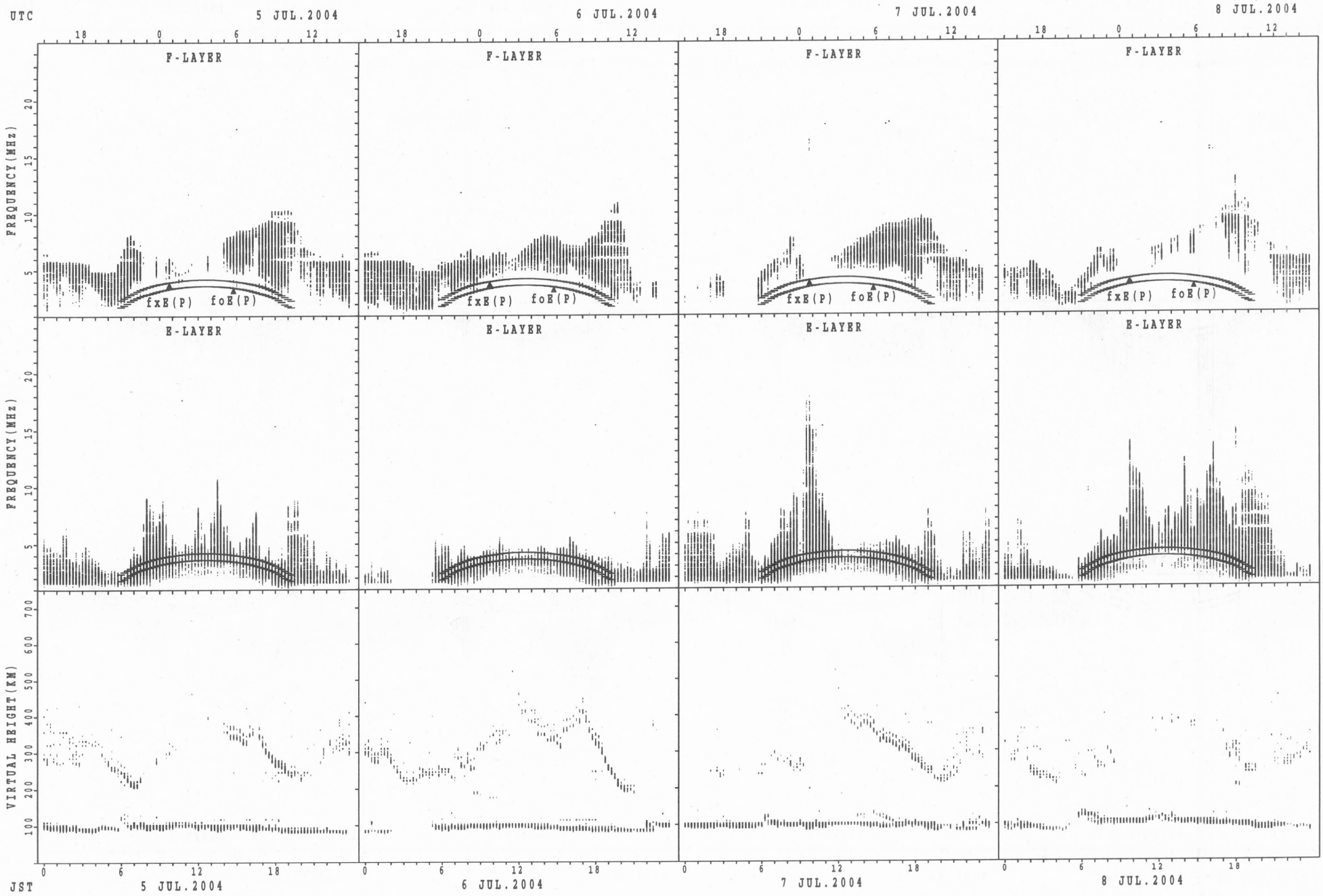
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



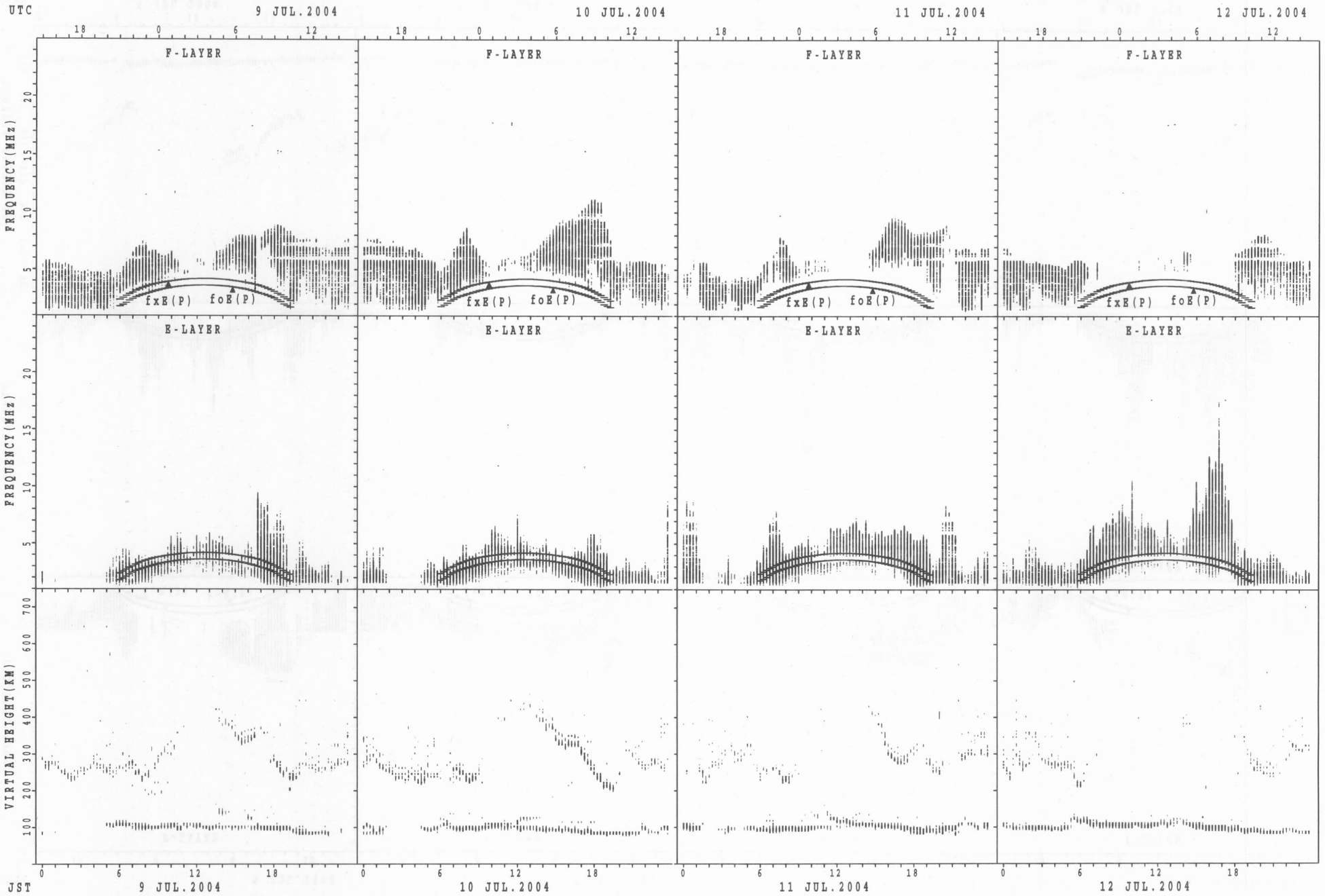
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



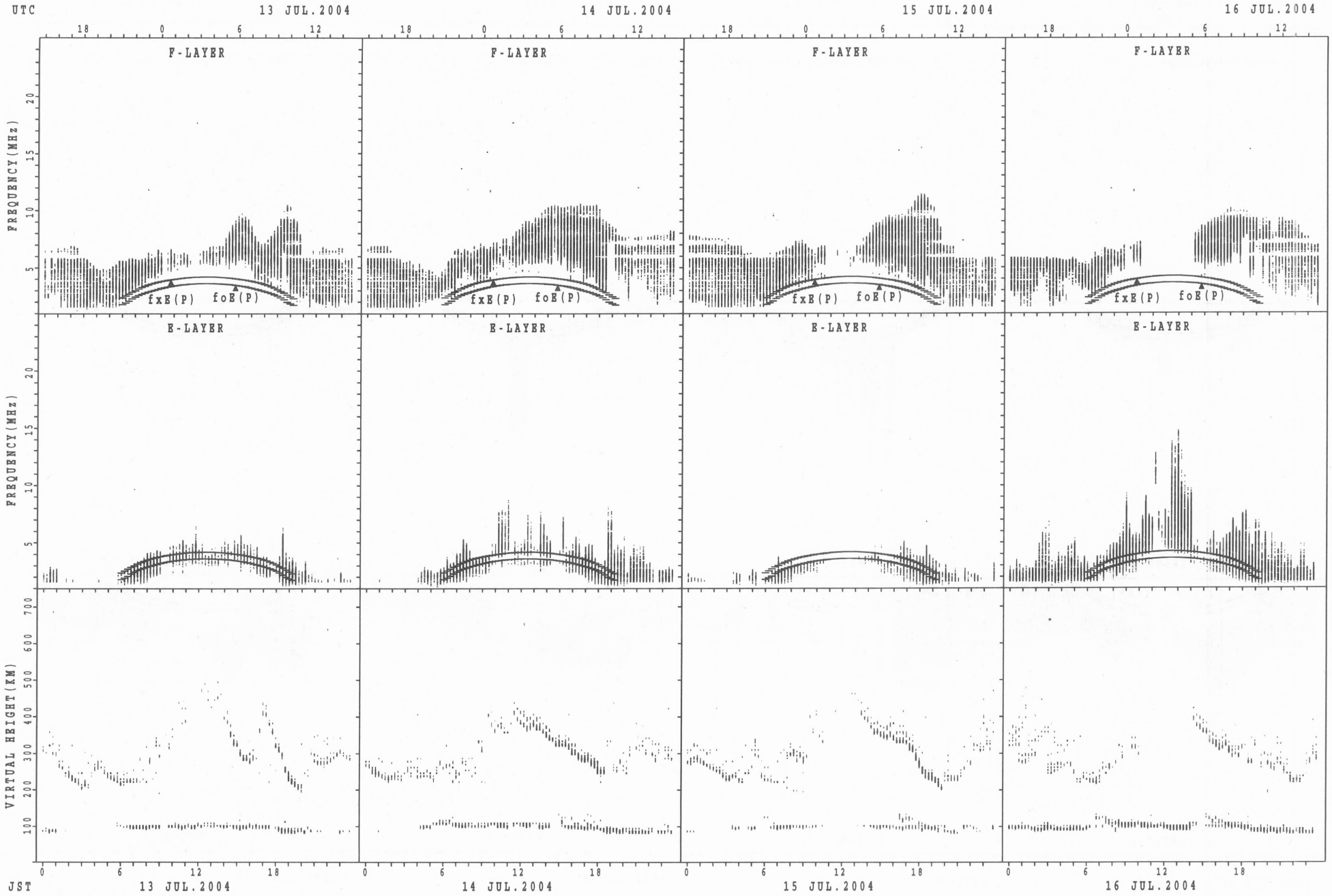
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



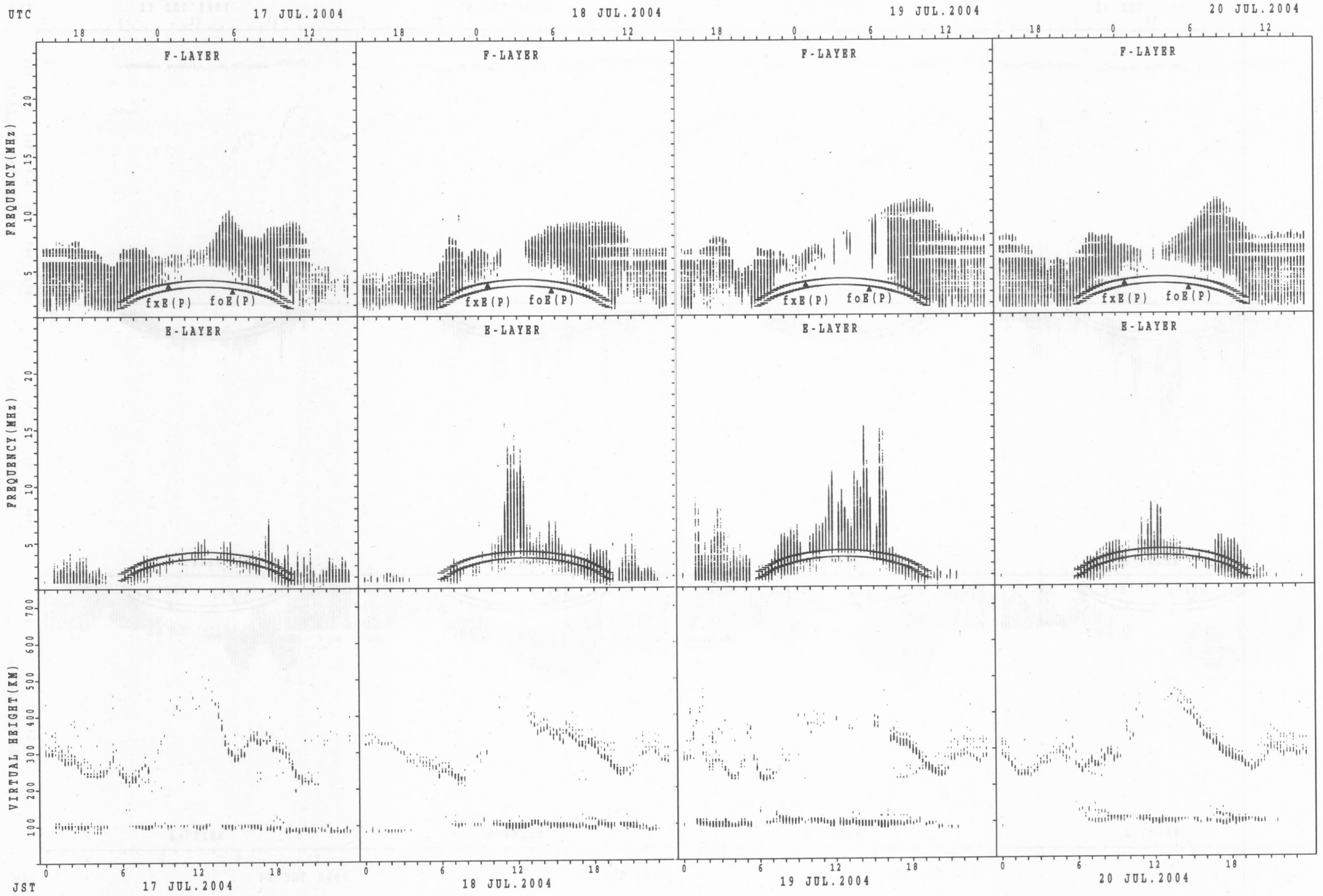
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



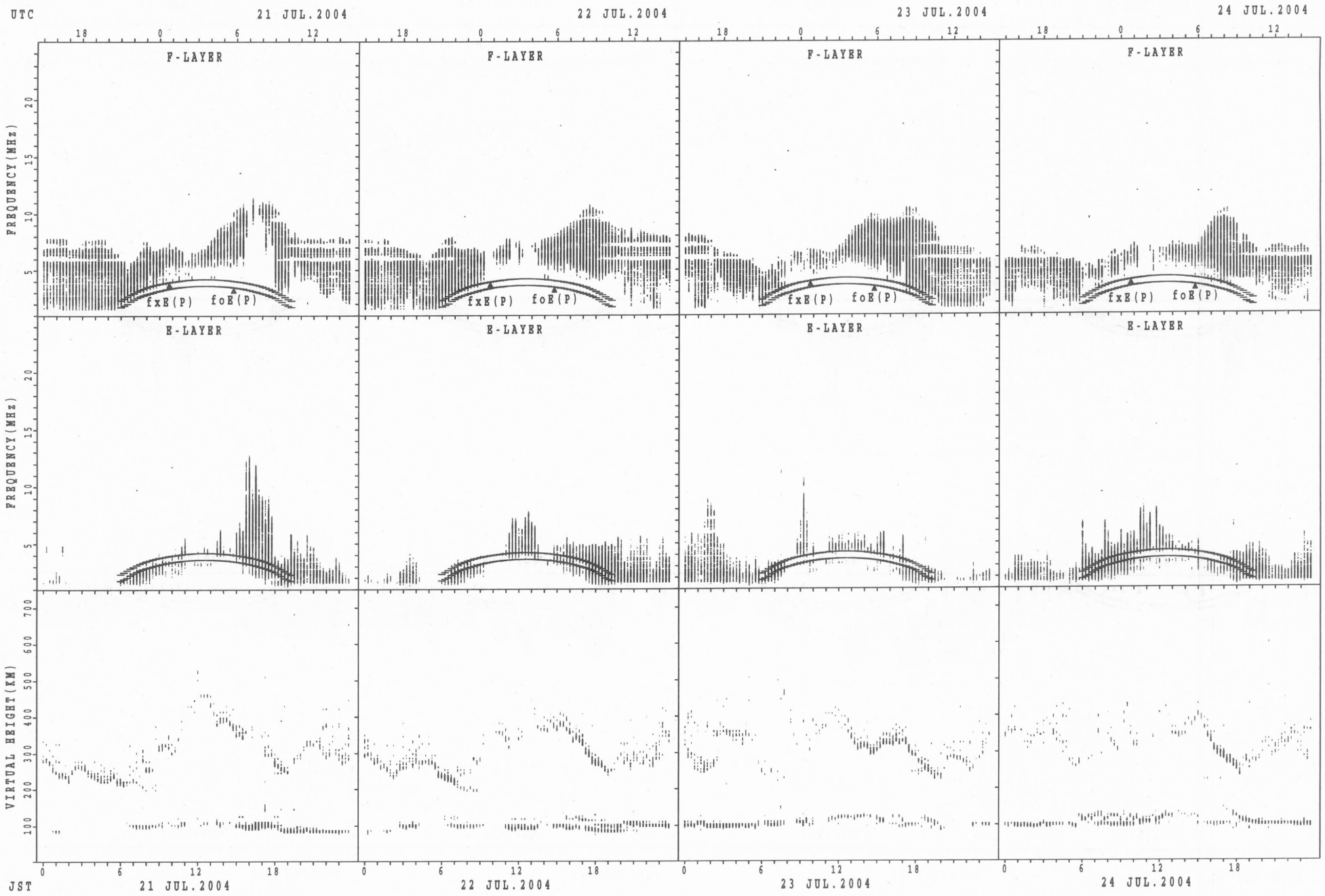
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa

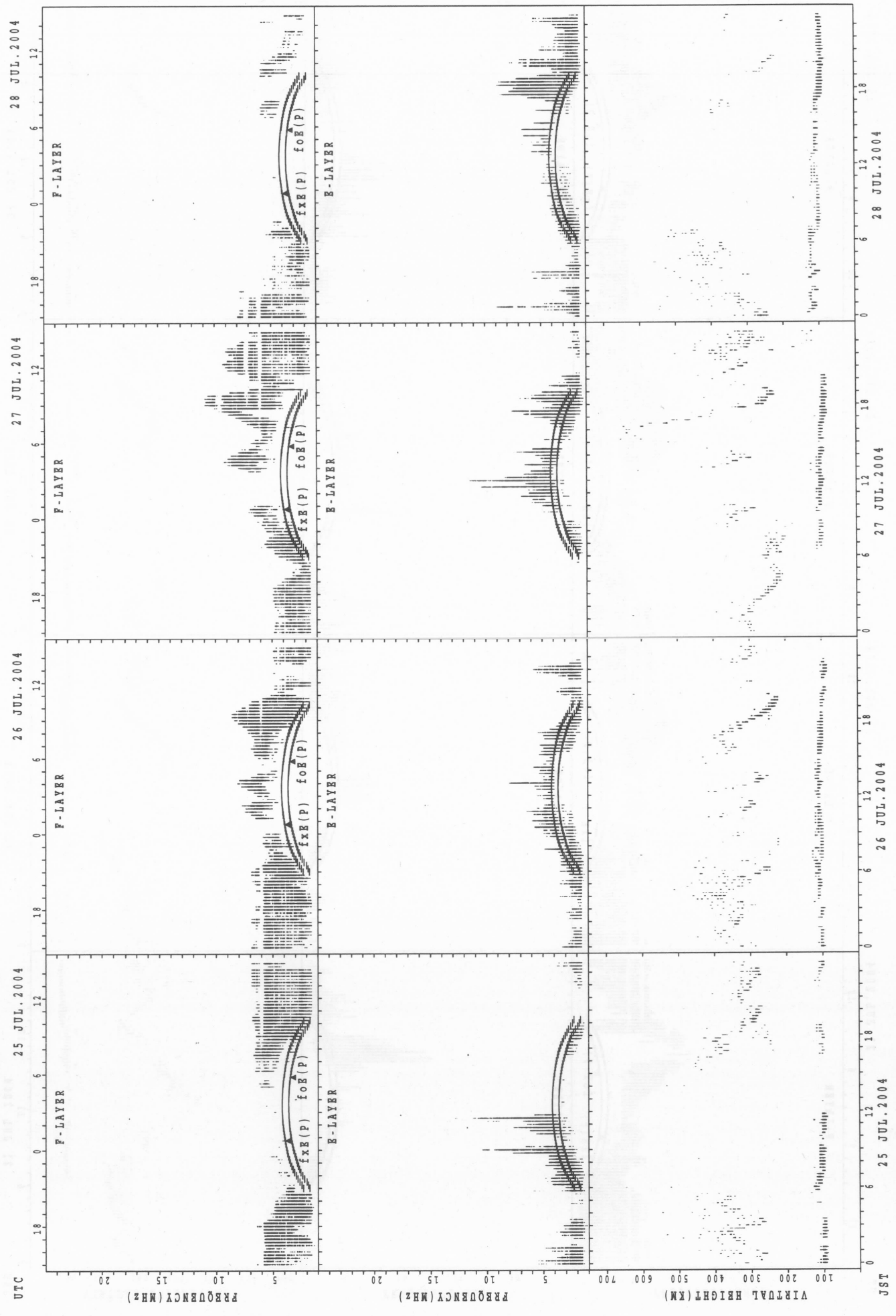


fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

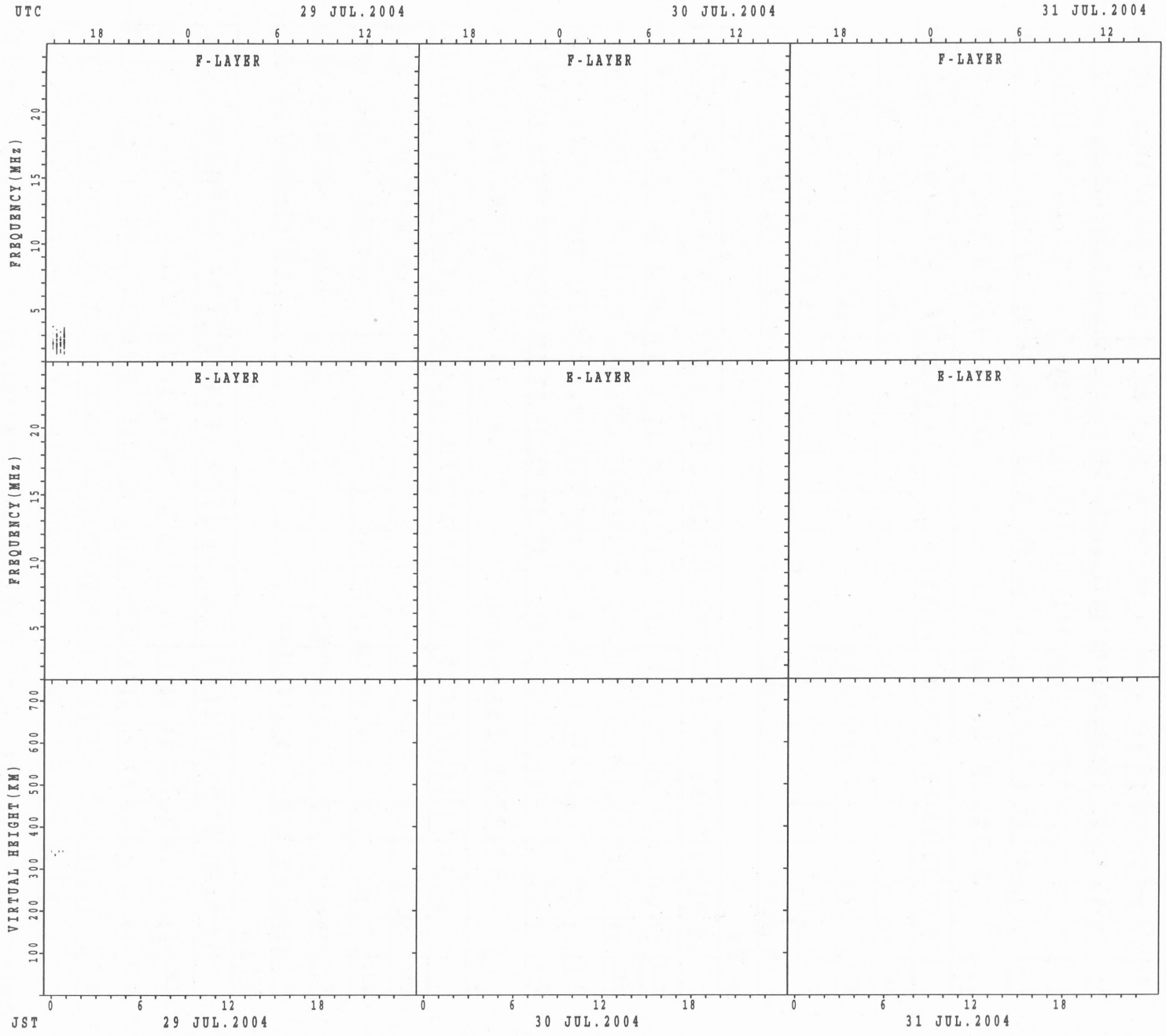
SUMMARY PLOTS AT Okinawa



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


SUMMARY PLOTS AT Okinawa
UTC
JST
25 JUL.2004
26 JUL.2004
27 JUL.2004
28 JUL.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

MONTHLY MEDIANS OF h'F AND h'Es

JUL.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	5	2					5	9										1	6	4	7	9	4	2
MED	334	331					314	296										322	257	284	284	308	284	316
U Q	356	338					342	309										161	304	290	296	324	299	344
L Q	307	324					276	281										161	240	254	224	289	271	288

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	23	27	27	27	22	23	26	25	24	27	25	24	23	25	20	21	23	24	22	26	28	27	26	26
MED	95	93	93	93	95	105	106	107	103	103	101	99	99	97	100	101	107	107	103	101	102	103	103	98
U Q	97	97	95	97	101	111	111	108	105	105	103	104	103	103	103	109	111	112	107	105	105	107	105	101
L Q	93	91	89	87	89	95	103	103	101	99	97	95	95	95	95	96	99	103	103	97	98	99	99	95

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

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	2	4				1	3	12									10	7	14	16	9	4	4	
MED	315	346				244	314	269									324	306	302	271	278	317	305	
U Q	334	383				122	330	290									334	312	328	284	298	324	322	
L Q	296	305				122	296	257									304	228	278	255	255	292	275	

h'Es

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	27	24	24	15	15	9	18	25	25	25	21	21	22	21	21	20	19	25	25	21	20	21	23	23
MED	97	95	96	95	103	111	107	107	105	103	101	103	101	99	105	104	103	105	101	99	97	101	103	101
U Q	99	97	99	99	107	116	119	110	111	107	106	105	109	109	112	107	107	110	106	102	105	107	107	103
L Q	93	89	92	93	95	96	105	101	101	97	97	97	95	96	97	95	95	103	95	95	95	93	95	97

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

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	3	1		1		1	2	13	6									18	18	12	10	1	1	1
MED	314	330		306		314	279	264	264									306	277	274	276	266	298	274
U Q	370	165		153		157	288	288	296									328	296	298	302	133	149	137
L Q	302	165		153		157	270	248	262									286	270	264	246	133	149	137

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	20	18	18	18	20	23	24	22	23	21	20	24	22	20	20	20	26	22	22	22	24	25
MED	97	97	99	97	97	97	111	107	105	105	103	103	103	105	105	103	101	102	100	97	94	96	95	97
U Q	104	100	103	103	101	113	117	113	109	111	109	106	111	107	109	112	107	104	103	105	99	103	100	103
L Q	90	93	96	95	95	95	98	103	101	101	101	101	97	101	101	97	95	97	95	91	91	89	91	91

MONTHLY MEDIANS OF h'F AND h'Es

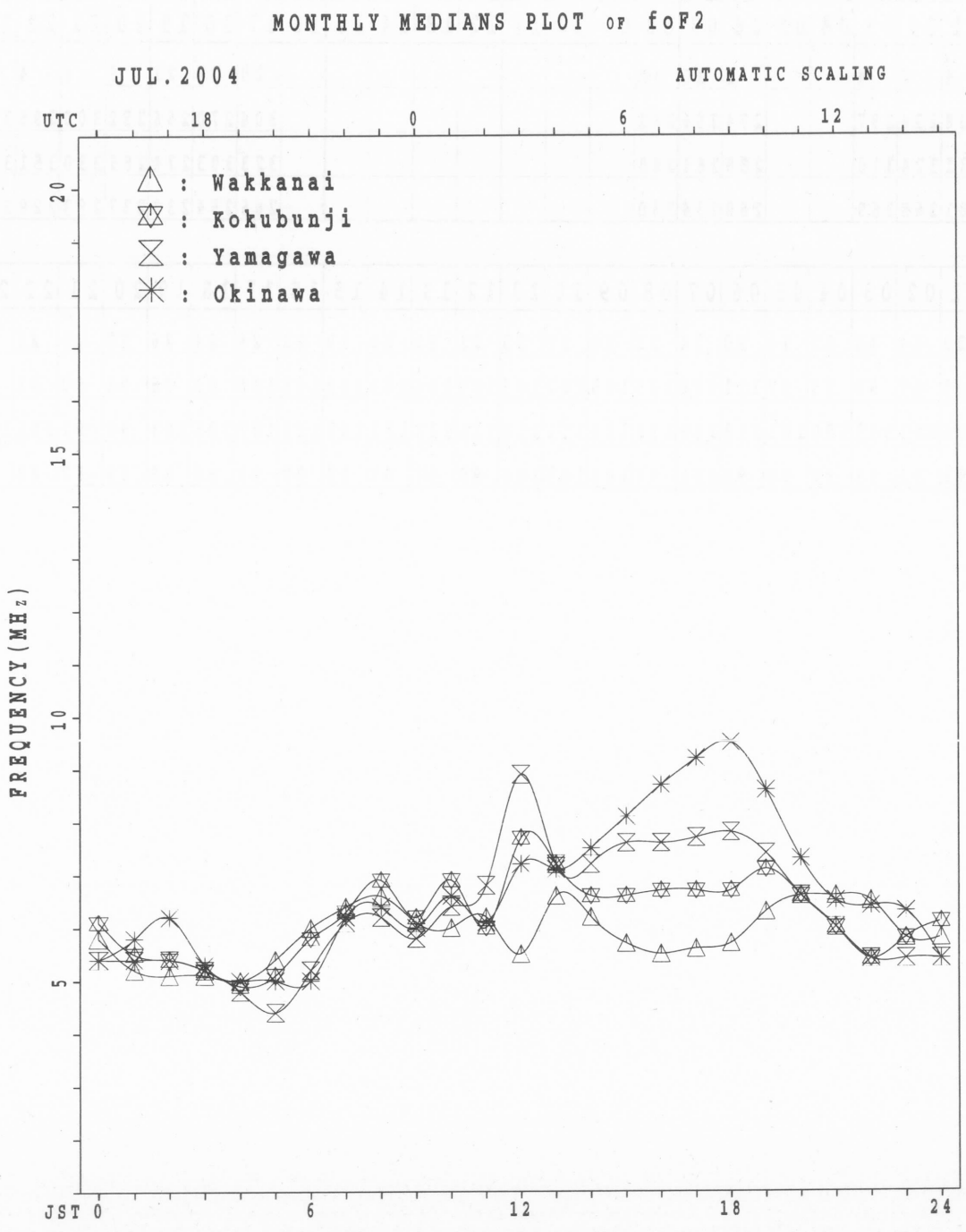
JUL.2004 135E MEAN TIME(UTC+9H) AUTOMATIC SCALING

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	6	4	2	4			2	10	10									20	25	21	9	4	4	3
MED	336	298	296	297			274	256	261									304	270	256	252	300	296	338
U Q	346	331	324	310			288	264	288									323	303	274	286	330	351	390
L Q	318	281	268	269			260	234	230									266	254	238	237	293	229	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	19	20	14	15	17	14	20	24	23	20	22	25	21	22	23	19	23	26	24	26	27	20	21	20
MED	99	100	97	99	95	97	111	109	105	105	107	105	103	104	103	103	105	105	99	96	91	90	95	92
U Q	103	106	103	107	100	101	118	119	111	113	111	110	115	113	111	113	111	107	105	103	97	97	101	104
L Q	89	93	91	95	92	95	98	106	97	102	103	100	99	97	97	99	97	99	95	89	89	87	88	87


MONTHLY MEDIANS PLOT OF foF2
JUL. 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

JUL. 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	82	81	75	64	60															X 80	X 71	74	72	73
2	76	71	64	62	54															X 77	X 80	A	82	85
3	75	70	64	66	70															X 86	X 84	78	72	X 57
4	62	62	63	60	57															X 90	X 72	A	A	65
5	X 57	X 55	X 56	52	X 48															X 72	X 78	X 80	X 68	50
6	60	63	60	54	54															X 75	X 80	X 76	X 73	69
7	X 53	X 48	X 60	50	X 40															X 72	X 65	X 59	64	62
8	62	X 56	X 54	X 49	50															X 76	X 74	X 65	X 61	69
9	66	64	X 55	X 50	X 45															X 70	X 74	X 68	X 66	X 65
10	65	64	61	60	53															X 73	X 69	X 63	X 64	68
11	68	X 61	X 57	X 52	56															X 84	X 74	X 68	X 67	73
12	X 71	X 62	X 64	X 55	X 46															X 76	X 76	X 73	X 70	X 65
13	X 66	X 64	X 64	X 59	X 58															X 86	X 88	X 73	X 71	X 70
14	X 71	X 68	X 65	X 66	X 57															X 89	X 74	X 69	X 69	X 65
15	X 64	X 61	X 62	X 62	X 59															X 78	X 80	X 72	X 71	72
16	69	64	68	70	X 62															X 84	X 87	X 76	X 71	X 71
17	X 67	X 64	X 65	X 64	X 59													C		X 75	X 82	X 72	X 64	X 65
18	X 68	X 63	X 61	X 58	X 56															X 70	X 76	X 74	X 70	75
19	X 75	75	76	75	X 58															X 85	X 86	X 82	X 79	X 78
20	X 80	X 76	X 70		X 66															X 74	X 73	X 71	X 70	X 66
21	67	X 69	X 71	X 60	X 56															X 84	X 81	X 82	85	84
22	84	82	75	74	72															X 88	X 81	X 76	X 73	X 69
23	74	75	O X 65	65	62															X 84	X 73	X 72	78	X 74
24	X 67	X 72	X 66	X 63	X 65															X 74	X 66	X 62	X 61	X 60
25	X 68	X 63	X 64	X 58	X 50															X 71	X 78	X 80	X 77	X 72
26	X 65	X 62	X 68	77	67	62														X 60	X 52	X 51	X 49	X 48
27	X 46	X 48	X 46	48	X 39															X 65	X 88	96	100	86
28	80	78	73	76	79	62														X 52	X 55	X 46	A	X 42
29	X 40	X 39	X 38	X 37	X 38															A	X 63	X 61	X 55	X 47
30	X 43	X 42	X 41	X 42	X 40															X 60	X 66	X 66	X 63	X 60
31	X 54	X 52	X 48	X 46	X 46															X 82	X 72	X 71	X 68	X 67
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	30	31	2														30	31	29	29	31
MED	X 67	X 64	X 64	60	X 56	62														X 76	X 74	X 72	X 70	X 68
U Q	74	71	68	65	62															X 84	X 81	X 76	73	73
L Q	X 62	X 61	X 57	X 52	X 48															X 72	X 71	X 66	X 64	X 62

JUL. 2004 fxI (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

JUL. 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	F	F	F	F	F	54	58	60	68	A	54	54	48	54	59	60	63	69	70	74	65	F	F	F
2	F	F	F	F	F	44	59	68	64	58	A	A	59	68	71	66	A	79	A	71	74	A	F	F
3	F	F	F	F	F	60	51	64	A	A	A	A	A	62	60	56	57	60	68	80	78	F	F	51
4	F	F	F	F	F	51	53	62	68	66	A	57	58	61	64	69	A	69	81	84	66	A	A	F
5	51	49	50	F	42	43	54	75	A	A	A	52	58	A	A	A	A	58	57	66	74	74	62	F
6	F	F	F	F	F	49	53	65	64	59	A	A	55	62	58	55	53	58	57	68	74	70	67	F
7	V 47	42	Z 54	F 40	34	42	51	62	A	A	A	A	52	52	A	59	53	61	67	66	59	53	F	F
8	F	50	48	43	F	42	55	57	66	A	A	55	52	61	60	60	61	62	63	70	68	59	55	F
9	F	F	48	44	39	45	54	58	52	60	52	55	R 52	54	S 56	59	67	58	54	64	68	62	60	S 59
10	F	F	F	F	F	50	54	54	69	75	57	53	53	62	60	60	64	68	66	67	63	56	57	F
11	F	55	51	46	F	46	48	58	62	52	A	56	A	A	A	A	65	77	80	78	68	62	61	F
12	V 65	56	58	49	40	38	42	48	A	A	A	A	A	A	A	55	55	58	60	70	70	66	64	59
13	60	58	58	53	52	52	65	67	76	62	66	66	59	63	82	98	81	74	70	80	82	67	65	Z 64
14	65	62	59	60	51	48	52	61	A	59	52	A	A	66	A	68	67	69	76	83	68	63	63	59
15	58	55	56	55	53	54	61	62	72	70	70	B	R 57	62	68	69	72	71	67	72	74	66	65	F
16	F	F	F	F	56	58	66	73	70	62	62	60	A	65	66	74	74	74	74	78	81	70	65	65
17	61	58	59	58	53	55	77	93	81	77	A	A	67	74	91	76	66	C	A	69	76	66	58	59
18	62	57	55	52	50	52	70	85	73	56	U R 55	A	A	59	58	56	59	60	58	64	70	68	64	F
19	68	F	F	F	52	57	65	79	67	64	A	A	79	83	81	78	69	66	73	79	80	76	73	72
20	74	70	64		60	63	62	57	60	64	R 57	59	R 59	R 58	57	65	67	66	66	68	67	65	64	60
21	F	63	65	54	50	54	59	65	64	A	A	76	80	80	77	78	78	81	81	78	74	76	F	F
22	F	F	F	F	F	62	66	77	A	A	A	70	79	74	72	75	74	74	80	82	75	70	67	62
23	F	F	59	F	50	50	55	60	64	82	88	61	A	A	62	66	65	A	A	78	67	66	F	68
24	61	66	60	57	59	62	57	A	62	A	56	63	64	A	58	60	63	64	66	68	60	56	55	54
25	62	57	58	52	44	46	48	45	A	R 56	R 52	51	R 52	A	52	B	51	56	66	65	72	74	71	66
26	59	56	62	F	F	F	48	46	46	A	R 46	A	52	55	52	51	48	51	54	53	46	45	43	42
27	40	42	40	F 37	33	39	55	66	63	A	57	66	69	95	66	57	60	76	86	59	82	F	F	F
28	F	F	F	F	F	F	32	A	39	41	R	43	B	43	B	B	R 47	44	45	46	49	40	A	36
29	34	33	32	31	32	A	A	52	R	R	R	A	A	R	R	53	A	A	A	A	56	55	49	41
30	37	36	35	36	34	35	52	63	54	62	52	59	63	62	63	61	54	56	56	54	60	60	57	54
31	48	46	42	40	40	43	52	57	58	57	63	64	65	70	66	62	69	74	75	76	66	65	62	61
	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	17	19	21	17	20	28	30	29	23	19	16	19	22	24	24	27	27	28	27	30	31	26	22	18
MED	60	56	56	49	50	50	54	62	64	62	56	59	58	62	62	61	64	66	67	70	68	66	62	59
U Q	64	58	59	54	52	54	61	68	69	66	62	64	65	69	70	69	69	74	75	78	74	70	65	64
L Q	48	46	48	40	40	44	52	57	60	57	52	54	52	58	58	57	55	58	58	66	65	59	57	54

IONOSPHERIC DATA STATION Kokubunji

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

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1						L	L 388	A	A	A	A	452	U L 456	456	U L 516	A	A	392	A					
2							L	A	A	A	A	A	A	A	A	A	A	A	A					
3							L	A	A	A	A	A	A	A	U L 484	L 432	424	L 392	L 368					
4							L 392	L 400	A	A	A	A	464	A	A	A	A	A						
5							A	A	A	A	A	A	A	A	A	A	A	A	A					
6							396	L 408	L 436	L 428	A	A	A	452	444	440	L 424	396	336					
7							A	A	A	A	A	A	456	456	A	436	A	A	A					
8							L	L	A	A	A	464	U L 456	460	A	A	L 432	A	L					
9							L 368	L	L 468	448	L 452	468	L 464	U L 464	U L 456	L 452	L 440	A	L					
10							L	L 452	440	456	448	L 472	A	L 460	A	A	A	A	L					
11							376	A	A	A	A	U L 456	A	A	A	A	A	A	A					
12						L 316	360	404	A	A	A	A	A	A	A	A	448	A	A					
13							L 404	L	L 480	476	U L 488	484	U L 496	L 492	476	A	452	L 412	L					
14							L	L	A	L 468	A	A	A	A	A	A	452	424	L					
15						L	L	L	476	472	492	B	U L 520	U L 484	U L 492	L 488	L 472	L 420	L 360					
16							L	L	A	492	472	A	A	A	U L 508	A	L 456	A	L					
17						L	L	L 420	L 464	A	A	A	A	A	A	A	A	C	A					
18							A	A	A	L 488	U L 504	A	A	480	480	472	436	424	L					
19								A	L 448	A	A	A	A	A	492	L 476	L 464	L	L					
20							L	L 440	L 472	A	U L 488	U L 488	U L 476	504	480	468	452	L 424	L					
21								L	L	A	A	A	A	U L 500	A	A	A	A	A					
22							A	A	A	A	A	A	A	U L 512	A	A	A	A	A					
23						300	384	436	U L 460	L 468	A	L 508	A	A	A	L 484	L 476	A	A					
24						L	A	A	A	A	U L 472	468	A	A	A	L 484	L 436	A	A					
25						252	L 340	L 388	A	U L 464	A	A	U L 456	A	U L 448	B	U L 424	L 408	L					
26						L	L 364	A	420	A	448	A	U L 460	U L 456	A	U L 444	L 444	L 396	L 340					
27							L	L	A	A	U L 464	L 464	448	464	U L 456	E B	U L 420	380	L 312					
28								A					B		B	B	L 408	L 388	L 336					
29						A	A	396	U L 440	U L 444	U L 456	A	A	U L 452	R	A	A	A	A					
30							L	L 412	U L 440	L 444	U L 480	U L 472	U L 452	U L 448	U L 468	448	432	L 428	L					
31							L	L 416	L 436	436	U L 448	468	464	A	448	A	A	A	A					
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT						3	10	11	13	13	13	12	13	16	14	12	19	13	6					
MED						300	L 380	L 412	L 448	L 464	U L 472	468	U L 460	L 462	U L 478	L 460	L 440	L 408	L 338					
U Q						L 316	L 392	L 436	L 470	474	U L 488	L 478	U L 470	U L 488	U L 492	L 480	L 452	424	L 360					
L Q						252	L 364	L 400	438	L 444	450	464	456	456	456	442	L 424	392	336					

JUL. 2004 foF1 (0.01MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

JUL. 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 A 176	U A 268	A	A	A	A	A	A	U A 360	A	U A 320	A	A	A					
2						U R 184	U A 248	U A 284	A	A	A	A	A	A	A	A	A	A	A					
3						A	A	A	A	A	A	A	A	A	A	U A 328	A	U A 268	A					
4						A	U A 236	A	A	A	A	A	A	A	A	A	A	A	A					
5						U A 176	A	A	A	A	A	A	A	A	A	A	A	A	A					
6						U R 180	A	A	A	A	A	A	A	A	A	A	A	U A 260	U A 196					
7						B	A	A	A	A	A	A	U R 368	U A 348	A	U A 324	A	A	A					
8						164	240	A	A	A	A	A	A	A	A	A	A	A	A					
9						U R 180	U R 236	R	A	A	A	R	A	A	A	A	A	A	A					
10						A	U A 228	U A 284	R	A	A	A	A	A	A	A	A	A	A					
11						188	252	292	A	A	A	A	A	A	A	A	A	A	A					
12						U A 192	U A 256	A	A	A	A	A	A	A	A	A	U A 324	A	A					
13						188	A	A	A	A	A	A	A	A	A	A	U A 328	A	B					
14						U R 192	U R 240	300	A	A	A	A	A	A	A	A	A	A	A					
15						180	R	A	A	A	A	B	B	B	R	U A 344	R	280	U R 224					
16						A	A	A	A	A	A	A	B	A	A	A	A	A	A					
17						U R 200	U A 252	A	A	A	A	A	A	A	A	A	A	C	A					
18						A	A	A	A	A	A	A	B	A	R	U A 348	R	U R 284	U R 240					
19						U R 196	U A 256	A	U A 336	A	A	A	A	A	R	R	A	A	A					
20						U R 192	U R 280	U A 312	A	A	A	R	R	R	R	U A 352	R	U A 284	U A 216					
21						U R 192	U A 256	U A 304	A	A	A	A	A	A	A	A	A	A	U A 212					
22						188	U A 252	A	A	A	B	A	A	A	A	U A 348	A	U A 292	A					
23						168	A	A	A	A	A	A	A	A	A	U A 356	U A 324	A	U A 224					
24						U A 172	U A 240	A	B	A	U A 372	A	A	A	A	A	U A 324	U A 280	U A 196					
25						U A 152	U R 252	U A 280	U A 308	A	A	R	A	A	U A 340	B	U A 316	U A 276	U A 220					
26						U R 204	A	A	A	A	A	A	A	A	A	B	R	U A 256	U R 228					
27						B	U R 248	A	A	B	A	A	R	A	A	B	U R 304	U A 256	A				J K 128	
28						B	A	A	A	A	A	R	B	A	B	B	U R 308	U A 268	U A 192					
29						A	A	A	A	B	A	A	A	A	R	A	A	A	A					
30						U R 164	U R 240	U R 280	U R 316	U R 352	R	B	R	U R 364	B	U R 320	U A 292	U A 248	A					
31						B	U A 212	A	A	A	A	U R 364	U A 376	U A 356	U A 348	324	A	A	A					
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT						21	19	8	3	1	1	1	2	4	2	10	8	12	10				1	
MED						U 184	U A 248	U A 288	U A 316	U R 352	U A 372	U R 364	U 372	U A 358	U A 344	U A 336	U A 320	U A 272	U A 218				J K 128	
U Q						U R 192	U A 256	U A 302	U A 336					U 362		U A 348	U A 324	U A 282	U R 224					
L Q						U 174	U A 240	U A 282	U A 308					U A 352		U 324	U R 306	U A 258	U A 196					

JUL. 2004 foE (0.01MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

JUL. 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 43	J A 54	J A 44	J A 43	J A 21	21	29	J A 72	J A 57	J A 100	J A 72	J A 52	J A 53	J A 59	J A 48	J A 45	J A 82	J A 62	J A 92	J A 53	J A 87	J A 47	J A 32	J A 20
2	J A 53	J A 32	J A 30	E B 15	E B 15	G	J A 31	J A 56	J A 63	J A 56	J A 98	J A 118	J A 92	J A 70	J A 64	J A 76	J A 90	J A 100	J A 118	J A 111	J A 67	J A 87	J A 106	J A 66
3	J A 63	J A 38	J A 28	J A 26	E B 15	J A 42	33	J A 54	J A 71	J A 104	J A 96	J A 95	J A 57	53	J A 40	41	J A 68	J A 40	32	J A 58	J A 36	J A 77	J A 86	J A 80
4	J A 87	J A 32	J A 53	J A 37	J A 35	J A 36	27	J A 53	J A 107	J A 65	J A 79	J A 108	J A 48	J A 59	J A 51	J A 60	J A 117	J A 97	J A 41	J A 109	J A 79	J A 84	J A 64	J A 37
5	J A 53	J A 53	J A 26	J A 25	J A 21	22	J A 108	J A 48	J A 107	J A 88	J A 94	J A 63	J A 76	J A 76	J A 100	J A 133	J A 102	J A 60	J A 78	J A 75	J A 61	J A 41	J A 24	J A 79
6	J A 36	21	J A 20	J A 16	J A 21	G	J A 32	31	35	J A 43	J A 96	J A 56	J A 59	J A 54	J A 40	J A 36	J A 39	J A 48	J A 34	J A 48	J A 97	J A 94	J A 28	J A 42
7	J A 35	J A 43	J A 40	J A 20	J A 31	25	J A 42	J A 64	J A 81	J A 142	J A 170	J A 75	43	45	J A 55	J A 42	J A 88	J A 68	J A 43	J A 27	J A 44	J A 36	J A 41	J A 42
8	J A 54	J A 37	J A 32	20	J A 21	20	28	J A 44	J A 90	J A 81	J A 82	J A 82	J A 47	J A 47	J A 49	J A 44	J A 48	J A 55	J A 31	J A 19	J A 18	J A 48	J A 34	J A 39
9	J A 22	J A 24	J A 28	J A 23	J A 21	G	G 19	G 29	J A 42	J A 53	40	G	43	40	J A 41	J A 46	J A 37	J A 43	J A 26	J A 24	J A 34	J A 25	J A 20	J A 20
10	J A 40	J A 32	J A 28	J A 40	J A 54	J A 38	28	34	G 31	J A 46	J A 42	J A 46	J A 48	J A 43	J A 48	J A 70	J A 50	J A 54	J A 37	J A 34	J A 24	J A 31	J A 27	J A 37
11	J A 30	J A 53	J A 45	J A 59	J A 30	G	31	41	J A 57	J A 56	J A 61	47	J A 102	J A 60	J A 54	J A 88	J A 53	J A 63	J A 113	J A 74	J A 44	J A 19	26	J A 58
12	J A 32	J A 78	J A 47	J A 55	J A 32	26	31	35	J A 48	J A 55	J A 98	J A 108	J A 80	J A 86	J A 98	J A 51	36	J A 62	J A 70	J A 96	J A 88	J A 26	J A 34	J A 24
13	J A 23	J A 23	J A 20	J A 20	E B 15	G	28	35	39	J A 64	J A 61	J A 63	J A 48	47	J A 51	J A 54	37	J A 40	E B 27	E B 16	J A 17	J A 72	21	J A 41
14	J A 32	J A 20	18	J A 16	J A 19	G	G 22	35	J A 102	J A 52	J A 49	J A 66	J A 59	J A 72	J A 76	J A 50	J A 46	J A 59	J A 72	E B 14	J A 17	J A 22	J A 27	J A 24
15	21	E B 15	E B 15	E B 15	20	G	G 21	33	37	J A 43	39	B	48	43	G J A	51	G 27	37	G	E B 16	J A 47	20	J A 43	J A 63
16	J A 44	J A 88	J A 53	J A 44	J A 42	J A 28	33	39	J A 50	J A 49	J A 47	J A 51	J A 62	J A 76	J A 45	J A 65	J A 42	J A 98	J A 78	J A 40	J A 77	J A 32	J A 23	J A 23
17	J A 27	J A 27	27	21	E B 16	G	31	35	42	J A 64	J A 101	J A 63	54	J A 85	J A 106	J A 62	J A 68	C	J A 60	J A 43	J A 27	J A 23	J A 22	J A 61
18	J A 42	J A 28	J A 22	J A 32	J A 24	J A 27	J A 57	J A 94	J A 54	J A 43	44	J A 52	J A 69	J A 47	G 31	38	G 29	G 23	G 20	E B 17	19	J A 39	J A 87	J A 66
19	J A 48	J A 82	J A 29	J A 44	J A 21	G	J A 38	J A 54	J A 93	J A 61	J A 94	J A 98	J A 70	J A 54	G 30	G 31	38	34	J A 28	J A 19	J A 16	21	E B 16	J A 23
20	J A 18	J A 26	J A 24	E B 15	G	G 22	35	40	J A 66	41	G	G	G 35	G 32	G 38	G	33	25	J A 22	J A 19	19	20	E B 15	
21	J A 76	J A 35	J A 33	E B 26	E B 15	G	29	J A 44	38	J A 84	J A 101	J A 64	J A 63	J A 45	J A 54	J A 56	J A 47	J A 87	J A 39	J A 45	J A 75	J A 88	J A 130	J A 98
22	J A 44	22	J A 66	J A 73	J A 19	23	J A 53	J A 60	J A 92	J A 94	J A 76	J A 80	J A 82	J A 45	J A 70	J A 56	J A 48	J A 47	J A 54	36	J A 30	27	J A 39	J A 53
23	J A 60	J A 74	J A 33	J A 20	J A 55	20	29	J A 42	J A 52	J A 46	J A 54	J A 126	J A 98	J A 90	J A 130	41	J A 52	J A 78	J A 88	J A 75	J A 87	J A 98	J A 45	J A 60
24	J A 85	J A 23	J A 55	J A 39	J A 43	J A 29	J A 81	J A 62	J A 45	J A 63	45	45	J A 64	J A 86	J A 69	41	38	J A 51	J A 42	J A 46	J A 30	E B 15	J A 47	J A 56
25	J A 39	J A 36	J A 22	A E B 14	E B 14	22	G 22	36	J A 46	38	44	G 30	J A 54	J A 56	40	B	36	J A 54	29	20	E B 15	J A 21	J A 43	21
26	21	21	E B 16	E B 16	23	G	27	J A 38	J A 44	J A 53	J A 44	J A 45	J A 48	J A 44	J A 63	E B 39	G 25	32	G 20	24	23	J A 20	J A 36	J A 26
27	J A 32	J A 44	J A 24	E B 16	J A 16	J A 21	J A 26	36	J A 58	J A 65	J A 45	41	G 32	44	35	E B 44	G 23	30	J A 26	E B 16	E B 14	B E B 15	J K 27	23
28	23	J A 32	J A 24	J A 21	J A 24	21	27	J A 40	34	38	38	G 33	B	42	B	B	G	33	26	J A 20	J A 16	J A 56	J A 86	J A 40
29	J A 31	J A 30	J A 67	J A 46	J A 23	J A 38	J A 63	29	J A 36	E B 40	40	J A 62	J A 46	39	G J A 35	62	J A 123	J A 76	J A 73	J A 65	J A 76	J A 18	J A 28	J A 19
30	18	E B 16	E B 16	21	J A 16	G 16	G 19	G 23	G 26	G 30	G	E B 38	G 32	41	E B 38	G 20	33	28	J A 31	J A 20	J A 19	J A 28	J A 19	J A 19
31	J A 28	J A 26	J A 26	18	E B 16	E B 17	27	J A 40	J A 83	J A 77	J A 48	G 33	42	46	J A 55	J A 52	J A 97	J A 97	J A 77	J A 86	J A 53	J A 30	J A 22	J A 18
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	30	31	31	31	31	31	31	31	30	30	31	30	29	31	30	31	31	31	31	31	31
MED	J A 36	J A 32	J A 28	J A 22	J A 21	20	29	J A 40	J A 50	J A 56	J A 54	J A 59	J A 54	J A 47	J A 50	J A 50	J A 46	J A 54	J A 39	J A 36	J A 34	J A 30	J A 32	J A 39
U Q	J A 53	J A 44	J A 44	J A 40	J A 30	J A 26	J A 33	J A 54	J A 81	J A 77	J A 94	J A 80	J A 69	J A 70	J A 64	J A 61	J A 68	J A 68	J A 73	J A 65	J A 75	J A 56	J A 45	J A 60
L Q	27	23	22	E B 18	E B 16	G	G 27	35	39	46	44	G 45	47	44	G 40	41	G 36	37	27	E B 20	J A 19	21	J A 23	J A 23

JUL. 2004 foEs (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

JUL. 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	31	35	E B 14	26	E B 16	19	28	41	42	A A 100	46	40	40	40	39	42	58	28	52	26	35	20	19	E B 16
2	26	E B 14	E B 16	E B 15	E B 15	G	29	44	49	43	A A 98	A A 118	48	55	48	59	A A 90	65	A A 118	61	23	A A 87	35	42
3	37	31	18	18	E B 15	25	27	47	A A 71	A A 104	A A 96	A A 95	A A 57	49	39	37	36	37	26	36	20	35	20	39
4	40	22	30	21	22	28	25	33	42	44	A A 79	46	43	47	46	49	A A 117	58	33	34	41	A A 84	A A 64	32
5	36	28	17	17	16	20	44	43	A A 107	A A 88	A A 94	47	49	A A 76	A A 100	A A 133	A A 102	54	50	44	28	30	E B 15	24
6	21	E B 15	16	E B 16	16	G	29	30	33	35	A A 96	A A 56	46	40	38	35	36	31	25	32	38	38	22	25
7	24	37	26	E B 16	E B 15	23	38	55	A A 81	A A 142	A A 170	A A 75	40	42	A A 55	38	43	44	40	22	24	21	24	35
8	23	28	16	E B 15	E B 15	20	26	35	50	A A 81	A A 82	38	40	40	46	44	35	54	28	18	E B 16	E B 15	19	25
9	18	19	22	19	E B 15	G	G 19	G 29	38	36	38	G	41	39	38	38	32	39	21	17	18	19	E B 14	E B 16
10	21	20	20	17	25	23	28	32	G 31	38	38	38	47	40	46	48	46	41	31	29	22	16	18	28
11	25	24	19	24	21	G	30	41	54	47	A A 61	43	A A 102	A A 60	A A 54	A A 88	46	51	57	48	17	19	20	34
12	26	35	37	30	16	25	29	34	A A 48	A A 55	A A 98	A A 108	A A 80	A A 86	A A 98	50	35	40	36	42	24	E B 15	21	E B 16
13	17	18	17	E B 16	E B 15	G	26	33	37	42	43	42	47	44	44	49	36	34	E B 27	E B 16	E B 15	18	E B 16	E B 15
14	21	15	E B 16	E B 16	E B 15	G	U Y 22	34	A A 102	39	46	A A 66	A A 59	52	A A 76	47	38	33	26	E B 14	E B 15	E B 15	19	22
15	E B 15	E B 15	E B 15	E B 15	E B 15	G	G 21	32	36	38	39	B	47	42	G	44	G 27	35	G	E B 16	41	E B 16	36	22
16	26	26	26	29	30	22	32	38	44	44	43	51	A A 62	52	42	56	39	54	25	20	34	E B 15	17	E B 16
17	17	23	24	E B 15	E B 16	G	30	34	41	57	A A 101	A A 63	53	55	67	56	54	C	A A 60	37	24	19	19	42
18	25	25	E B 16	22	16	22	46	72	49	39	43	A A 52	A A 69	42	G 31	35	G 27	G 22	G 18	E B 17	E B 15	16	38	38
19	34	33	E B 15	23	16	G	35	46	37	49	A A 94	A A 98	53	51	G 30	G 30	37	33	24	16	E B 16	E B 15	E B 16	16
20	E B 15	21	21		E B 15	G	G 22	34	37	54	40	G	G	U Y 35	G 32	37	G	31	24	17	E B 15	E B 15	E B 15	E B 15
21	20	22	21	17	E B 15	G	28	35	38	A A 84	A A 101	57	57	42	52	51	44	57	36	40	48	E B 15	21	E B 15
22	28	E B 16	41	25	E B 15	21	48	45	A A 92	A A 94	A A 76	59	65	43	64	53	46	42	35	35	20	24	23	36
23	26	16	18	E B 15	32	19	27	35	43	44	46	43	A A 98	A A 90	54	41	38	A A 78	A A 88	46	21	24	25	45
24	34	E B 16	16	16	E B 15	22	39	A A 62	44	A A 63	42	44	50	A A 86	56	39	37	43	38	40	E B 16	E B 15	E B 15	24
25	E B 15	24	19	E B 14	E B 14	21	G 20	34	A A 46	35	42	G 30	40	A A 56	40	B	34	34	24	16	E B 15	18	21	E B 15
26	E B 16	17	E B 16	E B 16	E B 14	G	26	36	36	A A 53	39	A A 45	40	39	42	E B 39	G 25	31	G 19	E B 19	E B 16	16	16	16
27	16	25	E B 15	E B 16	E B 14	19	G 20	34	54	A A 65	44	40	G 32	41	35	E B 44	G 23	28	23	E B 16	E B 14	E B 15	J K 26	22
28	16	23	16	E B 15	E B 15	19	26	A A 40	32	36	37	U Y 33	B	40	B	B	G	32	24	19	E B 16	25	A A 86	18
29	21	21	26	19	16	A A 38	A A 63	28	33	E B 40	U Y 40	A A 62	A A 46	38	G 35	46	A A 123	A A 76	A A 73	A A 65	24	E B 16	20	E B 15
30	18	E B 16	E B 16	E B 14	E B 15	G 16	G 19	G 23	G 25	G 30	G	E B 38	G 31	41	E B 38	U Y 20	31	27	23	16	E B 15	E B 16	E B 16	E B 15
31	20	21	19	16	E B 16	E B 17	26	35	36	36	40	G 32	41	46	40	48	53	60	60	46	19	18	19	E B 16
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	30	31	31	31	31	31	31	31	30	30	31	30	29	31	30	31	31	31	31	31	31
MED	21	22	18	16	E B 15	19	28	35	42	44	46	46	47	43	43	44	37	40	28	26	20	18	20	22
U Q	26	26	22	21	16	22	32	43	A A 50	A A 65	A A 94	A A 62	A A 57	A A 55	A A 54	50	46	54	50	40	24	24	24	34
L Q	17	E B 16	E B 16	E B 15	E B 15	G	G 25	33	36	38	40	38	40	40	G 38	38	G 32	32	24	E B 17	E B 16	E B 15	E B 16	E B 16

JUL. 2004 fbEs (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

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

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	15	14	14	15	16	14	14	14	16	22	17	20	26	21	19	21	16	14	14	15	14	14	15	16
2	15	14	16	15	15	14	16	16	16	20	25	35	32	30	19	19	17	13	14	15	15	15	16	15
3	14	14	14	14	15	15	13	13	19	22	22	31	29	22	22	17	17	13	14	15	15	15	15	15
4	15	14	15	13	14	14	15	20	18	20	19	20	16	19	20	21	18	16	18	14	15	15	15	15
5	15	14	14	14	13	14	15	16	16	23	23	22	21	24	29	16	16	13	14	15	16	15	15	15
6	15	15	14	16	14	14	15	15	18	18	16	18	26	20	22	18	20	15	14	14	16	14	15	15
7	15	16	16	13	15	14	13	14	16	19	25	25	19	22	18	18	15	15	14	13	14	15	14	15
8	16	15	15	16	15	14	15	14	16	20	22	24	24	24	28	17	19	14	15	14	15	15	16	14
9	16	15	15	15	15	14	14	13	16	19	22	28	25	25	23	18	14	17	15	15	15	16	14	16
10	15	15	16	14	15	13	14	16	16	20	22	23	21	21	22	18	16	15	15	13	15	14	14	16
11	15	15	15	15	14	15	16	14	20	23	20	23	28	24	24	21	19	18	16	14	14	14	15	15
12	15	16	16	15	15	14	20	15	20	23	27	25	36	26	32	24	23	29	15	21	14	15	15	16
13	15	14	14	16	15	14	15	20	20	21	25	33	28	32	20	26	18	15	27	16	15	15	16	15
14	15	14	16	16	15	15	14	15	18	24	30	34	35	25	23	24	18	15	15	14	15	15	15	14
15	15	15	15	15	15	15	15	16	22	23	23	B	38	34	30	22	21	16	16	16	14	16	15	16
16	16	15	15	14	16	15	16	22	25	24	35	36	43	28	29	24	22	16	14	14	15	15	16	15
17	14	14	14	15	16	16	16	15	16	19	20	26	34	28	23	22	18	C	14	14	15	14	15	14
18	16	14	16	14	13	14	16	18	23	20	29	31	47	28	22	22	16	16	14	17	15	16	15	15
19	15	14	15	14	14	15	14	17	20	18	22	26	26	25	23	24	23	15	14	14	16	15	16	15
20	15	15	15		15	13	14	17	16	21	24	34	26	24	25	22	24	15	15	14	15	15	15	15
21	16	16	16	14	15	15	15	15	20	23	24	20	23	23	32	27	18	16	14	16	15	15	15	15
22	15	16	14	15	15	14	14	15	19	23	41	35	36	27	24	23	18	16	14	15	15	14	15	16
23	16	16	16	15	16	14	16	16	22	26	25	30	35	37	26	21	22	14	14	14	15	15	16	16
24	15	16	13	15	15	14	16	15	16	20	25	37	23	26	22	23	19	15	15	13	16	15	15	16
25	15	16	15	14	14	13	14	15	15	22	28	21	22	24	24	B	26	17	14	15	15	16	15	15
26	16	15	16	16	14	15	13	16	21	16	25	26	24	23	19	39	19	16	14	19	15	14	14	14
27	13	15	15	16	14	15	12	14	16	38	22	20	27	23	23	44	16	15	15	16	14	15	E S 16	15
28	15	16	14	15	15	15	17	18	20	22	24	26	B	27	B	B	24	22	14	14	16	14	15	14
29	15	16	15	16	14	14	15	15	16	40	30	25	24	24	29	14	16	15	16	15	15	16	15	15
30	15	16	16	14	15	13	16	16	15	22	23	38	28	27	38	16	16	13	15	15	15	16	16	15
31	16	14	14	12	16	17	15	17	16	21	31	27	23	23	20	22	26	17	14	16	14	14	15	16
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	30	31	31	31	31	31	31	31	31	31	31	31	31	31	30	31	31	31	31	31	31
MED	15	15	15	15	15	14	15	15	18	22	24	26	26	24	23	22	18	15	14	15	15	15	15	15
U Q	16	16	16	15	15	15	16	17	20	23	27	34	35	27	29	24	22	16	15	16	15	15	16	16
L Q	15	14	14	14	14	14	14	15	16	20	22	23	23	23	22	18	16	15	14	14	15	14	15	15

IONOSPHERIC DATA STATION Kokubunji

JUL. 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	F	F	F	F	F	324	315	299	337	A	323	324	302	291	294	276	291	318	300	320	326	F	F	F
2	F	F	F	F	F	302	324	351	345	349	A	A	290	297	320	295	A	326	A	314	297	A	F	F
3	F	F	F	F	F	369	345	337	A	A	A	A	A	296	310	292	287	293	297	307	318	F	F	299
4	F	F	F	F	F	333	322	334	345	356	A	331	295	299	296	324	A	309	312	337	331	A	A	F
5	314	306	320	F	316	292	307	347	A	A	A	257	300	A	A	A	A	321	297	299	316	326	340	F
6	F	F	F	F	F	339	317	332	311	358	A	A	289	311	311	311	288	305	295	301	305	316	319	F
7	V 292	287	Z 322	F 354	318	318	321	337	A	A	A	A	239	289	A	303	323	313	330	338	323	286	F	F
8	F	296	327	337	F	342	350	330	342	A	A	312	266	310	313	309	311	330	315	317	324	303	273	F
9	F	F	312	330	322	365	335	346	322	390	293	305	R 294	279	297	299	307	316	299	320	322	302	305	S 318
10	F	F	F	F	F	350	329	283	347	346	329	287	265	314	305	307	301	322	321	330	310	300	286	F
11	F	303	321	289	F	326	302	319	356	289	A	R 243	A	A	A	A	299	304	315	313	301	273	280	F
12	V 296	298	325	321	297	270	268	295	A	A	A	A	A	A	A	282	285	293	293	305	296	295	296	285
13	281	291	297	312	311	304	321	309	302	336	326	318	278	255	274	313	314	314	283	304	316	292	282	Z 269
14	280	286	288	318	332	342	309	342	A	334	325	A	A	292	A	308	314	302	307	324	314	284	295	296
15	286	277	287	293	293	310	312	276	289	308	339	B	R 246	282	290	297	303	314	313	291	298	286	291	F
16	F	F	F	F	274	304	307	310	352	326	328	277	A	277	280	298	305	288	300	301	299	314	290	295
17	295	282	296	301	286	273	290	319	328	333	A	A	254	250	300	317	304	C	A	293	304	302	286	264
18	293	292	294	292	293	280	314	314	345	A 273	R 293	A	A	301	288	277	290	310	299	287	293	291	276	F
19	285	F	F	F	301	318	308	319	340	335	A	A	308	297	304	312	314	283	290	293	293	291	282	277
20	286	304	300		282	301	306	292	309	316	R 251	295	R 287	R 245	271	285	305	298	299	310	292	282	280	277
21	F	287	314	327	299	335	324	325	306	A	A	304	298	299	285	285	280	293	308	306	299	281	F	F
22	F	F	F	F	F	316	300	335	A	A	A	293	306	293	301	306	292	301	310	322	300	289	283	290
23	F	F	307	F	266	269	271	271	257	267	332	301	A	A	304	307	298	A	A	311	274	266	F	280
24	264	269	252	262	264	274	291	A	328	A	239	303	305	A	R 264	302	311	319	316	321	288	282	273	265
25	276	268	284	285	262	269	270	279	A	R 243	R 259	R 237	R 262	R	A 257	B	260	276	298	273	264	256	270	279
26	261	242	253	F	F	F	249	282	259	A	R 263	A	270	291	288	319	263	312	303	310	282	287	282	291
27	274	280	282	F 306	348	327	342	323	309	A	231	230	220	283	274	229	230	261	292	260	249	F	F	F
28	F	F	F	F	F	F	337	A	390	400	R	413	B	322	B	B	R 251	275	289	311	311	300	A	282
29	284	278	302	303	297	A	A	328	R	R	R	A	A	R	R	316	A	A	A	A	291	289	312	306
30	295	294	294	315	311	308	337	351	330	377	211	297	318	315	307	334	314	326	338	313	297	303	301	307
31	294	303	299	305	328	349	345	337	365	331	311	306	308	313	323	311	314	313	330	328	311	298	290	295
	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	17	19	21	17	20	28	30	29	23	19	16	19	22	24	24	27	27	28	27	30	31	26	22	18
MED	286	287	299	306	298	317	314	323	330	334	302	301	290	294	296	306	301	310	300	310	300	291	286	288
U Q	294	298	317	324	317	337	329	337	345	356	327	312	302	306	306	312	311	317	315	320	316	302	296	296
L Q	278	278	288	292	284	296	302	297	309	308	255	277	265	282	282	292	287	293	297	301	293	284	280	277

JUL. 2004 M(3000)F2 (0.01)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

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

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

H / D	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1						L	L 351	A	A	A	A	414	U L 411	416	U L 342	A	A	365	A					
2							L	A	A	A	A	A	A	A	A	A	A	A	A					
3							L	A	A	A	A	A	A	A	U L 369	L 420	372	L 366	L 336					
4							L 360	L 400	A	A	A	A	380	A	A	A	A	A						
5							A	A	A	A	A	A	A	A	A	A	A	A	A					
6							367	L 396	L 404	L 455	A	A	A	406	374	383	L 373	352	349					
7							A	A	A	A	A	A	406	346	A	371	A	A	A					
8							L	L	A	A	A	439	U L 424	367	A	A	L 362	A	L					
9							L 379	L	L 375	406	L 433	437	L 409	U L 413	U L 386	L 391	L 360	A	L					
10							L	L 356	386	414	439	L 418	A	L 404	A	A	A	A	L					
11							370	A	A	A	A	U L 397	A	A	A	A	A	A	A					
12						L 333	361	370	A	A	A	A	A	A	A	A	365	A	A					
13							L 354	L	L 366	400	U L 424	390	U L 375	L 347	371	A	384	L 358	L					
14							L	L	A	L 383	A	A	A	A	A	A	371	350	L					
15						L	L	L	380	399	393	B	U L 376	U L 406	U L 396	L 349	L 345	L 353	L 361					
16							L	L	A	380	402	A	A	A	U L 322	A	L 383	A	L					
17						L	L	L 403	L 375	A	A	A	A	A	A	A	A	C	A					
18							A	A	A	L 389	U L 397	A	A	388	378	367	373	336	L					
19								A	L 414	A	A	A	A	A	383	L 373	L 365	L	L					
20							L	L 373	L 355	A	U L 398	U L 395	U L 393	375	387	385	359	L 349	L					
21								L	L	A	A	A	A	U L 385	A	A	A	A	A					
22							A	A	A	A	A	A	A	U L 358	A	A	A	A	A					
23						316	349	357	U L 317	L 352	A	L 371	A	A	A	L 347	L 339	A	A					
24						L	A	A	A	A	U L 405	331	A	A	A	L 349	L 358	A	A					
25						308	L 349	L 310	A	U L 354	A	A	U L 420	A	U L 382	B	U L 382	L 337	L					
26						L	L 341	A	379	A	387	A	U L 390	U L 373	A	U L 377	L 347	L 342	L 346					
27							L	L	A	A	R 363	L 369	364	R 367	U L 373	E B	U L 341	316	L 340					
28								A					B		B	B	L 372	L 343	L 333					
29						A	A	378	U L 388	U L 407	U L 437	A	A	U L 403	R	A	A	A	A					
30							L	L 373	U L 439	L 439	U L 427	U L 421	U L 417	U L 420	U L 386	390	391	L 352	L					
31							L	L 386	L 396	440	U L 444	417	398	A	393	A	A	A	A					
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT						3	10	11	13	13	13	12	13	16	14	12	19	13	6					
MED						316	L 357	L 373	L 380	L 400	U L 405	406	U L 398	L 386	U L 380	L 375	L 365	L 350	L 343					
U Q						L 333	367	L 396	L 400	426	L 435	420	U L 414	U L 406	386	388	L 373	L 356	349					
L Q						308	L 349	L 357	L 370	L 382	395	380	378	367	U L 371	L 358	L 358	340	L 336					

JUL. 2004 M(3000)F1 (0.01)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

JUL. 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

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						284	304	E A 296	296	A	340	354	432	404	378	402	E A 398	284	E A 302					
2							276	246	260	258	A	A	382	348	298	E A 384	A	E A 294	A					
3							302	278	A	A	A	A	A	370	364	348	382	334	306					
4							332	260	264	258	A	320	382	358	354	302	A	342						
5							336	270	A	A	A	E A 488	372	A	A	A	A	E A 346	E A 354					
6							322	268	268	266	A	A	414	348	350	356	382	318	316					
7							316	E A 290	A	A	A	A	536	440	A	348	324	310	258					
8							262	280	276	A	A	354	464	340	344	332	326	E A 304	280					
9							276	246	322	238	384	376	386	430	362	354	316	300	276					
10							288	360	268	262	304	416	474	332	354	364	328	286	262					
11							354	312	260	414	A	538	A	A	A	A	348	296	E A 290					
12						426	462	384	A	A	A	A	A	A	A	E A 432	394	340	326					
13							280	302	312	282	312	320	426	464	364	282	288	278	322					
14							302	276	A	304	E A 322	A	A	354	A	330	314	320	286					
15						290	292	304	334	318	266	B	U R 498	406	372	336	318	294	288					
16							296	278	248	328	310	E A 342	A	402	380	324	302	E A 324	296					
17						388	308	262	264	290	A	A	E A 446	442	310	E A 302	E A 328	C	A					
18							278	E A 316	262	446	404	A	A	384	392	426	366	324	322					
19								270	252	296	A	A	322	316	318	298	298	348	306					
20							290	344	334	332	526	386	410	566	452	378	340	316	294					
21								292	302	A	A	328	314	318	352	326	334	E A 296	282					
22							E A 282	260	A	A	A	E A 360	328	318	E A 366	316	306	300	276					
23						384	404	382	458	356	270	342	A	A	E A 342	330	334	A	A					
24						336	320	A	316	A	572	356	334	A	E A 508	334	324	290	282					
25						378	410	428	A	582	R 460	R 486	488	A	480	B	464	392	316					
26						352	438	422	442	A	506	A	472	400	400	346	464	342	318					
27							270	280	E A 338	A	562	544	568	340	380	544	526	366	282					
28								A					B		B	B	504	470	372					
29						A	A	308	R	R	R	A	A	R	R	346	A	A	A					
30							284	242	300	258	690	378	328	336	340	304	322	296	266					
31							270	274	252	314	338	350	334	308	300	334	306	E A 288	E A 284					
	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	27	29	22	18	16	18	22	23	24	27	27	28	26					
MED						365	302	279	279	300	362	356	405	358	358	335	328	308	290					
U Q						386	332	314	322	332	516	416	472	406	380	364	382	341	316					
L Q						313	280	269	262	262	311	342	334	336	343	324	316	295	282					

JUL. 2004 h'F2 (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

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

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E A 308	300	226	E A 260	E B 242	230	214	A	A	A	A	206	202	196	E A 292	A	A	202	A	E A 240	E A 254	E A 306	E A 300	E B 258
2	E A 298	E B 244	E B 270	E B 258	220	234	220	A	A	A	A	A	A	A	A	A	A	A	A	E A 310	E A 250	A	E A 258	E A 272
3	E A 294	E A 296	E A 296	E A 290	E B 254	230	218	A	A	A	A	A	A	A	218	H 192	230	226	E A 240	E A 260	208	E A 266	220	E A 310
4	E A 336	E A 312	E A 298	304	E A 256	E A 254	218	204	A	A	A	A	E A 246	A	A	A	A	A	266	234	212	A	A	E A 280
5	E A 310	E A 308	232	E A 250	E A 252	216	A	A	A	A	A	A	A	A	A	A	A	A	A	E A 290	E A 242	224	206	E A 308
6	E A 338	E B 288	E A 262	E B 252	E A 244	212	210	204	H 186	H 182	A	A	A	206	E A 254	206	220	228	216	E A 272	E A 260	E A 260	E A 248	E A 240
7	224	E A 316	E A 266	216	E B 238	236	A	A	A	A	A	A	204	E A 256	A	230	A	A	A	228	220	E A 290	E A 282	E A 318
8	E A 264	E A 298	224	220	248	232	212	E A 238	A	A	A	H 182	194	E A 238	A	A	218	A	E A 232	250	218	224	E A 282	E A 288
9	E A 282	E A 276	E A 274	E A 242	222	216	H 166	200	210	H 190	188	H 184	206	190	H 190	204	202	A	208	244	226	E A 242	E B 250	E B 246
10	E A 250	E A 282	E A 272	E A 246	E A 250	228	208	H 196	208	H 190	H 182	H 172	A	208	A	A	A	A	E A 240	240	244	250	E A 280	E A 304
11	E A 298	E A 268	E A 250	E A 274	E A 302	238	228	A	A	A	A	232	A	A	A	A	A	A	A	E A 262	222	E A 280	E A 274	E A 290
12	E A 278	E A 310	240	E A 260	E A 274	252	246	240	A	A	A	A	A	A	A	A	220	A	A	E A 286	E A 248	246	E A 260	E B 266
13	E A 290	E A 280	E A 256	E B 248	240	240	206	210	214	218	E A 236	228	E A 250	E A 254	E A 250	A	216	224	244	248	224	220	E B 260	E B 282
14	E A 292	E A 276	E B 272	232	202	224	H 210	220	A	222	A	A	A	A	A	A	E A 242	230	238	242	200	E B 260	E A 252	E A 268
15	E B 272	E B 290	E B 280	E B 266	E B 264	236	210	214	208	H 190	H 192	B	E A 244	214	198	E A 276	E A 264	E A 252	210	246	E A 268	218	E A 294	E A 246
16	E A 256	E A 314	E A 312	E A 284	E A 316	248	238	220	A	228	212	A	A	A	E A 272	A	226	A	220	252	E A 270	220	E A 250	248
17	E A 250	E A 292	E A 278	E A E B 246	E B 276	256	238	208	E A 218	A	A	A	A	A	A	A	A	C	A	E A 284	E A 252	230	E A 256	E A 340
18	E A 278	E A 282	E B 264	E A 284	E A 286	E A 252	A	A	A	H 198	204	A	A	214	216	202	216	218	236	E B 262	238	E A 254	E A 326	E A 364
19	E A 294	E A 306	242	E A 268	E A 268	254	E A 250	A	194	A	A	A	A	A	216	212	210	214	242	252	248	250	E B 268	E A 274
20	E B 268	E B 254	236		E B 264	238	234	214	234	A	202	198	224	218	204	200	214	234	238	252	246	250	E B 280	E B 296
21	E A 308	E A 296	E A 250	220	E B 260	230	228	218	210	A	A	A	A	208	A	A	A	A	A	E A 252	E A 286	254	E A 284	E B 266
22	E A 270	246	E A 312	E A 270	248	226	A	A	A	A	A	A	A	E A 244	A	A	A	A	A	236	242	E A 262	E A 276	E A 310
23	E A 330	E A 254	234	E B 316	E A 376	E A 264	242	222	E A 336	E A 298	A	204	A	A	A	E A 264	E A 250	A	A	E A 260	E A 260	E A 328	E A 284	E A 326
24	E A 360	E B 298	E A 302	E A 330	E B 318	E A 274	A	A	A	A	206	E A 294	A	A	A	234	236	A	A	E A 264	232	E B 264	E B 300	E A 344
25	E B 292	E A 310	E A 294	E B 270	E B 328	E A 332	244	E A 342	A	218	A	A	204	A	228	B	230	E A E A 290	268	270	E B 312	E A 314	E A 280	240
26	E B 288	E A 366	E B 328	E B 284	E B 292	304	264	A	226	A	220	A	218	236	A	232	224	236	232	232	238	E A 270	E A 296	E A 268
27	E A 314	E A 326	E B 272	E B 248	216	238	234	214	A	A	E A 270	E A 244	244	E A 274	206	B	266	E A 274	E A 252	282	E B 344	E B 288	E B 292	E A 328
28	E A 280	E A 334	E A 356	E A E B 362	E B 336	E A 328	E A 288	A	210	212	202	208	B	E A 348	B	B	214	246	258	254	236	E A 278	A	E A 306
29	E A 328	E A 344	E A 348	E A 312	E A 288	A	A	H 194	210	220	200	A	A	210	U R 242	A	A	A	A	E A	E A 282	224	242	226
30	E A 270	E B 276	E B 280	254	258	240	H 212	H 178	H 182	H 182	H 186	H 184	H 182	216	208	198	202	210	224	226	E B 242	250	240	236
31	E A 272	E A 268	E A 270	E A 276	244	214	216	210	202	H 186	H 184	200	214	A 222		A	A	A	A	242	228	250	E A 266	E B 266
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	30	31	30	25	19	15	14	14	13	13	17	15	12	19	14	18	30	31	29	29	31
MED	E A 290	E A 296	E A 272	E A 263	E 258	234	219	212	209	200	199	201	209	211	212	206	218	225	233	245	U 230	E 254	E A 274	E A 280
U Q	E A 308	E A 310	E A 296	E A 284	E 288	E A 254	240	220	218	220	212	230	E A 244	E A 249	E A 250	233	E A 236	E A 246	244	E A 264	E A 260	E A 274	E A 284	E A 310
L Q	E A 270	E A 276	250	248	244	230	211	H 204	202	H 190	H 188	H 184	203	208	206	201	214	218	224	242	226	236	251	258

JUL. 2004 h'F (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

JUL. 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	122	A	A	A	A	A	A	116	114	114	A	A	A					
2						112	122	120	A	A	A	A	A	A	A	A	A	A	A					
3						A	A	A	A	A	A	A	A	A	A	122	A	114	114					
4						A	114	A	A	A	A	A	A	A	A	A	A	A	A					
5						116	A	A	A	A	A	A	A	A	A	A	A	A	A					
6						112	A	A	A	A	A	A	A	A	A	A	A	116	114					
7						B	114	A	A	A	A	A	114	118	116	114	A	A	A					
8						120	116	118	112	A	A	A	A	A	A	A	A	A	A					
9						112	116	118	A	A	114	112	116	116	A	A	A	A	A					
10						A	A	120	118	A	A	A	A	A	A	A	A	A	A					
11						124	120	116	A	A	A	118	120	A	A	A	A	A	A					
12						124	120	118	A	A	A	A	A	A	A	A	118	A	A					
13						116	114	116	114	A	A	A	A	A	A	A	114	A	B					
14						112	122	120	A	A	A	A	A	A	A	A	A	A	A					
15						118	112	A	A	A	A	B	B	B	116	116	112	116	110					
16						A	A	A	A	A	A	A	B	A	A	A	A	A	A					
17						120	114	118	A	A	A	A	A	A	A	A	A	C	A					
18						A	A	A	A	A	A	A	B	A	114	116	114	116	120					
19						114	122	A	114	A	A	A	A	A	120	116	118	A	A					
20						118	120	116	116	A	A	120	114	114	116	116	110	110	118					
21						118	124	118	116	A	A	A	A	A	A	A	120	A	116					
22						122	122	A	A	A	B	A	A	A	A	118	112	118	A					
23						116	A	A	A	A	A	A	A	A	A	116	118	116	120					
24						120	124	A	A	A	114	120	116	A	116	118	118	122	118					
25						120	120	118	112	112	A	114	A	A	116	B	116	114	116					
26						118	122	A	A	A	A	A	A	A	A	B	116	116	124					
27						B	126	120	A	B	A	A	116	A	A	B	118	120	122				S	
28						B	A	A	118	116	116	A	B	116	B	B	116	120	120					
29						A	A	A	A	B	A	A	A	A	120	A	A	A	A					
30						112	118	114	114	116	114	B	114	116	B	112	114	112	A					
31						B	120	A	A	A	A	116	116	116	118	118	A	A	A					
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT						21	22	14	9	3	4	6	8	7	10	12	15	13	12					
MED						118	120	118	114	116	114	117	116	116	116	116	116	116	118					
U Q						120	122	120	117	116	115	120	116	116	118	118	118	119	120					
L Q						113	116	116	113	112	114	114	114	116	116	115	114	114	115					

JUL. 2004 h'E (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

JUL. 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	96	92	92	90	92	112	124	102	104	102	98	102	102	114	114	122	106	100	98	96	96	104	104	98
2	94	86	96	B	B	G	122	114	104	106	104	102	102	100	98	98	96	98	100	100	98	96	96	94
3	90	90	90	90	B	108	106	102	100	100	98	96	96	94	94	134	98	112	114	104	104	100	102	96
4	98	98	94	94	92	90	130	106	100	100	98	100	106	104	104	104	104	104	102	98	96	98	102	100
5	92	92	92	92	96	114	98	100	100	100	98	100	98	98	98	94	92	92	90	90	92	90	90	106
6	104	106	102	110	100	G	98	98	102	102	92	96	96	98	98	96	98	110	114	96	98	104	106	100
7	94	96	100	102	116	138	118	106	104	96	94	98	148	132	116	122	104	102	102	104	100	106	108	100
8	96	96	96	94	94	182	142	118	112	104	102	108	106	106	104	104	102	100	100	104	100	100	100	96
9	92	88	88	88	96	G	102	102	98	100	122	G	116	114	100	106	108	104	98	98	96	90	90	92
10	100	98	100	100	96	96	128	120	108	100	102	100	104	96	118	94	90	92	90	88	88	106	104	102
11	102	96	98	96	102	G	128	122	106	106	110	124	112	106	106	102	106	106	98	92	92	90	106	100
12	94	110	96	100	128	130	126	118	106	102	100	100	100	102	106	106	120	106	102	98	98	98	94	112
13	96	98	92	90	B	G	114	114	116	104	102	106	108	110	106	106	114	102	B	B	96	102	90	100
14	92	92	90	106	106	G	106	136	96	104	102	98	98	98	94	96	104	106	102	B	96	94	92	92
15	94	B	B	B	114	G	104	102	104	104	104	B	104	106	G	110	102	114	G	B	100	106	96	98
16	100	96	96	94	88	96	104	104	102	102	106	104	102	102	98	104	108	100	98	98	92	96	94	94
17	90	88	90	90	B	G	120	124	108	102	96	102	102	96	96	96	94	C	92	92	92	90	90	98
18	98	94	96	92	90	106	102	98	106	106	108	104	104	104	102	120	102	100	102	B	108	102	98	102
19	96	98	106	98	102	G	126	108	118	106	104	100	98	100	108	102	114	98	98	96	98	94	B	88
20	90	88	86		B	G	104	126	118	98	106	G	G	102	102	126	G	116	118	96	92	92	102	B
21	96	96	96	94	B	G	120	124	118	100	104	102	96	100	98	98	120	106	112	104	100	104	98	98
22	92	92	92	94	86	122	116	104	96	96	98	98	98	98	106	118	118	112	92	92	92	90	104	94
23	100	96	96	104	100	132	104	104	102	106	104	100	100	98	98	118	120	108	112	104	102	102	102	100
24	98	106	104	98	112	120	112	106	104	104	122	120	116	106	116	134	170	114	110	102	106	B	102	100
25	94	98	100	B	B	124	102	116	112	114	102	100	96	102	146	B	124	118	128	116	B	120	108	114
26	118	118	B	B	144	G	116	106	106	106	108	110	106	108	104	B	106	112	108	112	102	100	100	96
27	92	90	90	B	90	102	106	118	104	102	102	106	100	102	102	B	106	120	122	B	B	B	S	134
28	122	110	112	120	112	110	108	104	116	116	120	104	B	114	B	B	G	118	114	112	108	116	92	98
29	98	96	98	98	102	106	104	102	98	B	100	96	94	96	98	106	102	100	102	100	100	100	98	94
30	94	B	B	94	96	96	106	100	98	100	G	B	98	160	B	94	124	116	102	94	94	100	96	94
31	92	90	88	88	B	B	124	108	104	102	106	104	138	122	122	118	104	104	102	100	102	100	102	104
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	29	28	25	23	18	31	31	31	30	30	27	29	31	28	27	29	30	29	26	29	29	29	30
MED	96	96	96	94	100	111	112	106	104	102	102	102	102	102	103	106	106	106	102	98	98	100	100	98
U Q	98	98	99	100	112	124	124	118	108	106	106	104	106	108	107	118	116	112	112	104	101	104	103	100
L Q	92	91	91	91	92	102	104	102	100	100	98	100	98	98	98	98	102	100	98	96	93	94	94	94

IONOSPHERIC DATA STATION Kokubunji

JUL. 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

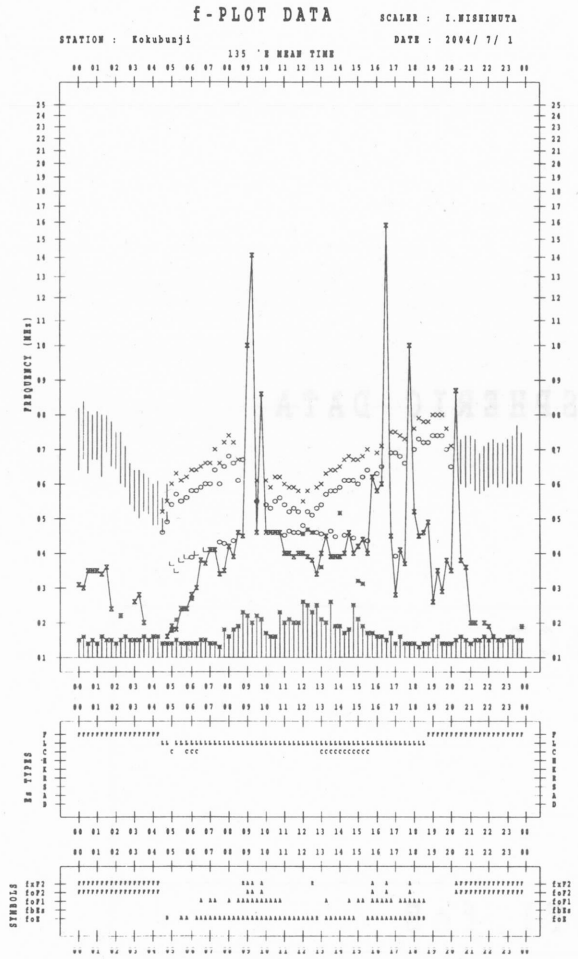
D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	F5	F4	F3	F3	F2	C1	CL11	L2	L1	L3	L2	L1	L2	CL11	CL11	CL21	L3	L2	L4	F3	F3	F2	F2	F2
2	F2	F3	F1				C2	CL31	L2	L2	L2	L2	L2	L2	L2	L3	L5	L4	L4	F4	F2	F4	F2	F4
3	F4	F3	F2	F2		L3	L2	L3	L2	L3	L2	L2	L2	L2	L2	CL11	L2	CL22	CL22	FF32	FF12	FF23	F2	F3
4	F3	F4	F3	F3	F3	L3	CL12	L2	L2	L2	L2	L2	L2	L2	L2	L3	L3	L2	L3	F2	F3	F3	F4	F4
5	F4	F3	F2	F2	F1	C2	L3	L2	L4	L3	L2	L2	L2	L3	L4	L4	L4	L5	L3	F4	F4	F5	F3	FF23
6	F3	F2	F3	F1	F3		L2	L2	L1	L1	L3	L2	L2	L2	L2	L2	L2	CL22	CL23	F3	F3	F4	F5	F4
7	F3	F3	F5	F1	F1	H2	C3	L2	L2	L3	L3	L2	HL11	HL11	CL21	CL11	L2	L3	L2	F4	F2	FF22	F4	F4
8	F4	F4	F2	F2	F2	HL11	HL11	CL21	CL31	L2	L3	L2	L2	L1	L2	L2	L2	L3	L3	F1	F1	F2	F2	F2
9	F2	F3	F2	F1	F1		L1	L2	L2	L1	CL11		CL11	CL11	L1	L1	L1	L2	L2	F2	F2	F2	F2	F2
10	F2	F3	F2	F3	F2	L4	CL11	CL21	L1	L1	L1	L1	L1	L1	CL21	L3	L3	LC22	L3	F4	F2	F2	FF22	F4
11	F5	F3	F3	F3	F3		CL11	CL11	L3	L2	L3	CL11	CL31	L3	L3	L3	L2	L4	L3	F3	F3	F3	FF13	F3
12	F2	FF12	F4	F3	FF22	C2	CL11	CL21	L2	L2	L3	L3	L3	L2	L2	L2	CL11	L2	L2	F2	F3	F2	F3	F1
13	F2	F2	F2	F2			CL11	CL11	CL11	L2	L1	L1	L1	L2	L2	L2	CL11	L2			F1	F2	F2	F2
14	F2	F2	F1	F1	F1		L1	HL11	L2	L1	L2	L2	L2	L2	L3	L2	L2	L3	L2		F2	F1	F3	F2
15	F1				F1		L1	L1	L1	L1	L1		L1	L1		CL21	L1	CL21			F5	F1	F4	F5
16	F3	F4	F5	F5	F4	L2	L2	L2	L2	L2	L1	L1	L1	L2	L2	L2	L1	L4	L1	F2	F2	F2	F2	F2
17	F3	F3	F2	F1			CL21	CL11	L1	L2	L3	L2	L1	L2	L2	L3	L4		L4	F4	F3	F3	F2	F3
18	F3	F4	F3	F3	F2	L2	L2	L3	L2	L1	L1	L2	L1	L1	L1	CL11	L1	L1	L1		F1	F2	F2	F5
19	F4	F5	F1	F2	F3		CL21	L3	CL11	L2	L4	L3	L2	L2	L1	L1	CL11	L2	L2	F2	F2	F2		F2
20	F2	F2	F2				L1	CL11	CL11	L2	L1			L1	L1	CL11		CL11	CL11	F2	F2	F1	F1	
21	F2	F2	F2	F2			CL11	CL11	CL11	L2	L2	L2	L3	L1	L3	L2	CL21	L4	CL21	F4	F3	F3	F2	F2
22	F3	F1	F2	F2	F2	C1	CL31	L3	L3	L2	L1	L2	L2	L1	L2	CL21	CL21	CL21	L3	F4	F3	F3	F3	F4
23	F3	F3	F2	F1	F4	C1	L2	L2	L1	L1	L2	L2	L2	L2	L2	CL11	CL11	CL21	CL42	F3	F3	F3	F3	F3
24	F3	F2	F2	F2	F2	C2	CL21	L3	L2	L2	CL11	CL11	CL21	L2	CL21	CL11	HL11	CL21	CL51	F6	F1		F2	F3
25	F2	F5	F2			C2	L1	CL11	CL21	CL11	L1	L1	L2	L2	H1		C1	CL31	CL21	F2		F2	F3	F2
26	F1	F2			F1		CL21	L2	L2	L2	L1	L1	L1	L1	L2		L1	CL11	L2	F1	F1	F2	F2	FF11
27	F2	F3	F2		F1	L3	L1	CL11	L3	L2	L1	L1	L1	L1	L1		L1	CL11	CL11				K1	F1
28	F2	F4	F3	F1	F2	L1	L1	L1	CL11	CL11	CL11	L1		CL11				CL11	C1	F1	F1	FF23	F4	F2
29	F2	F3	F3	F6	F2	L3	L3	L1	L2		L1	L3	L2	L2	L1	L2	L2	L4	L5	F4	F3	F1	F4	F2
30	F1			F2	F2	L1	L1	L1	L1	L1			L1	HL11		L1	CL11	CL11	L2	F1	F1	F1	F2	F1
31	F2	F2	F2	F1			CL22	L1	L2	L2	L2	L1	HL11	CL11	CL11	CL21	L2	L4	L3	F4	F2	F3	F2	F1
	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																								

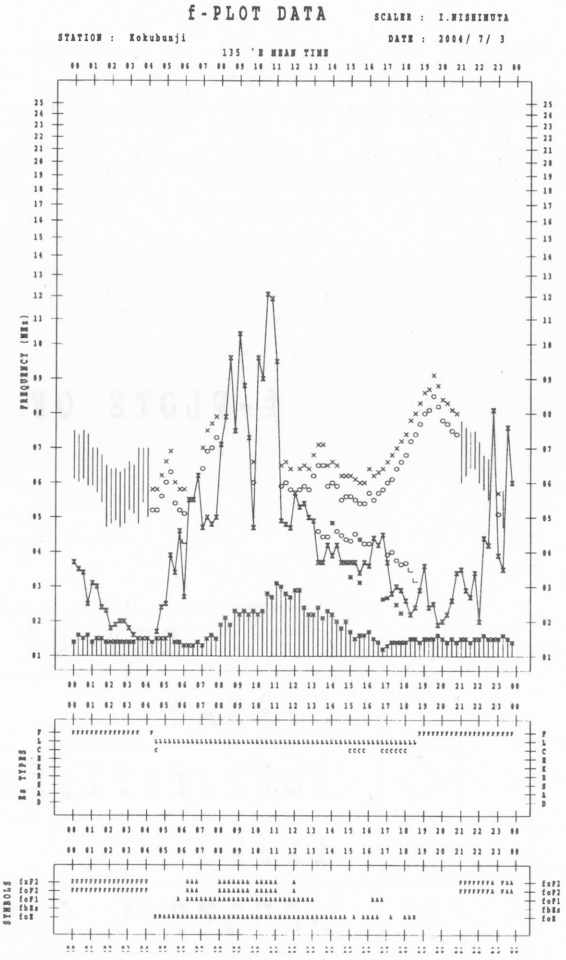
JUL. 2004 TYPES OF Es

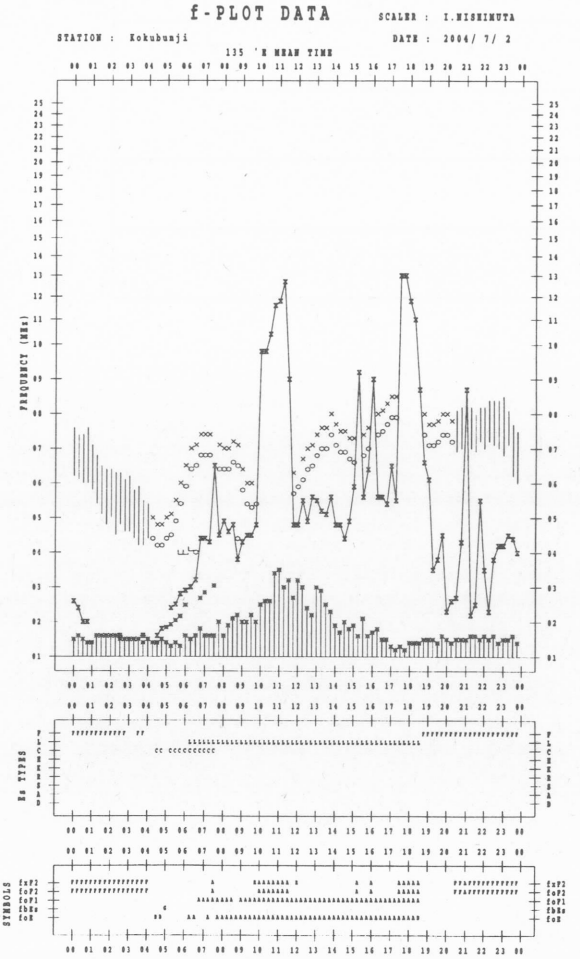
NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

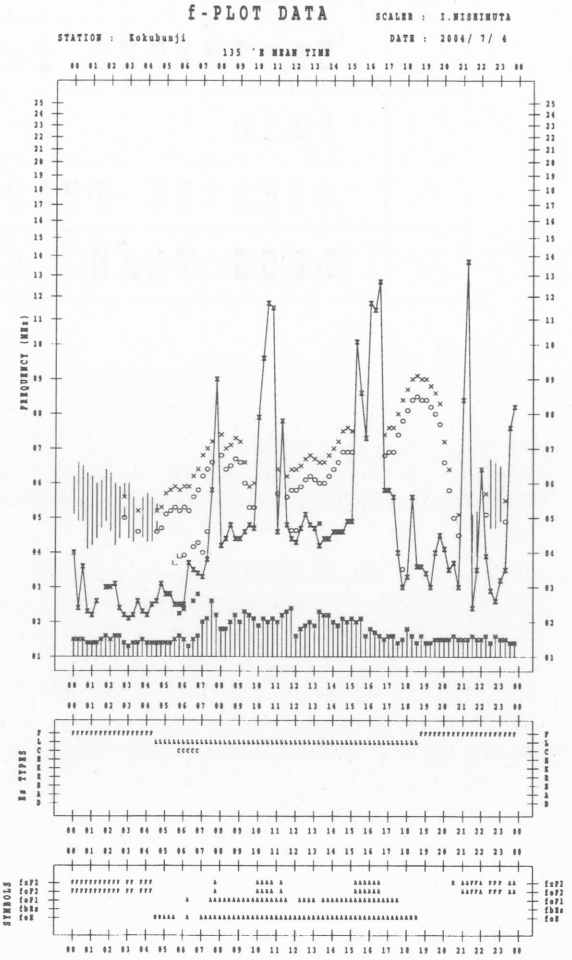
f-PLOTS OF IONOSPHERIC DATA

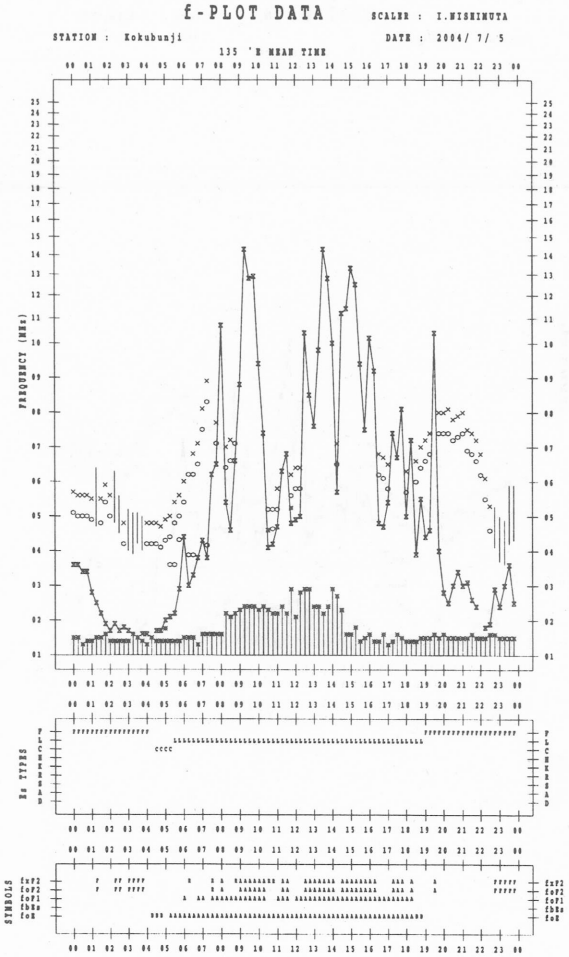
KEY OF f-PLOT	
	SPREAD
	foF2,foF1,foE
	fxF2
	DOUBTFUL foF2,foF1,foE
	fbEs
	ESTIMATED foF1
	fmin
	GREATER THAN
	LESS THAN

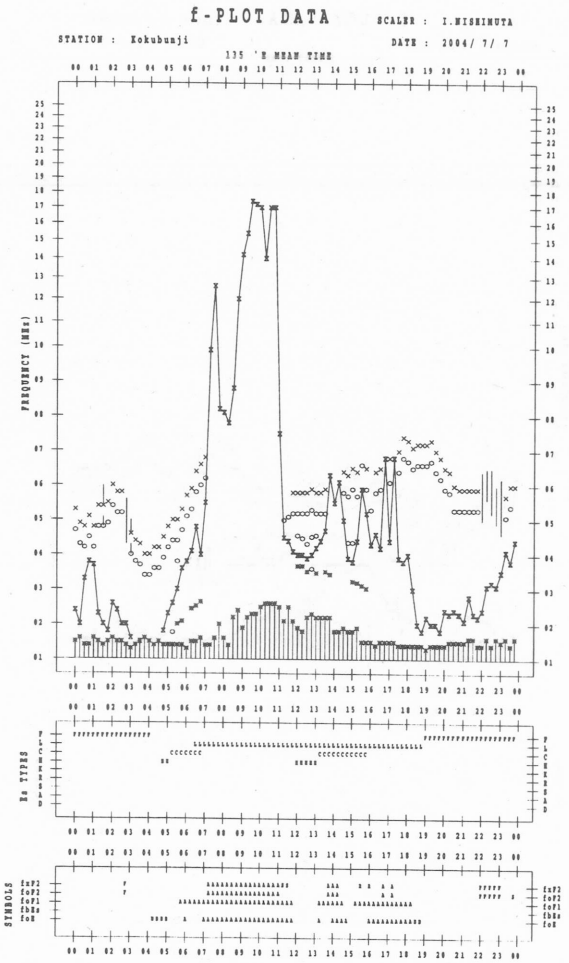

f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/ 7/ 1
135 'E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS

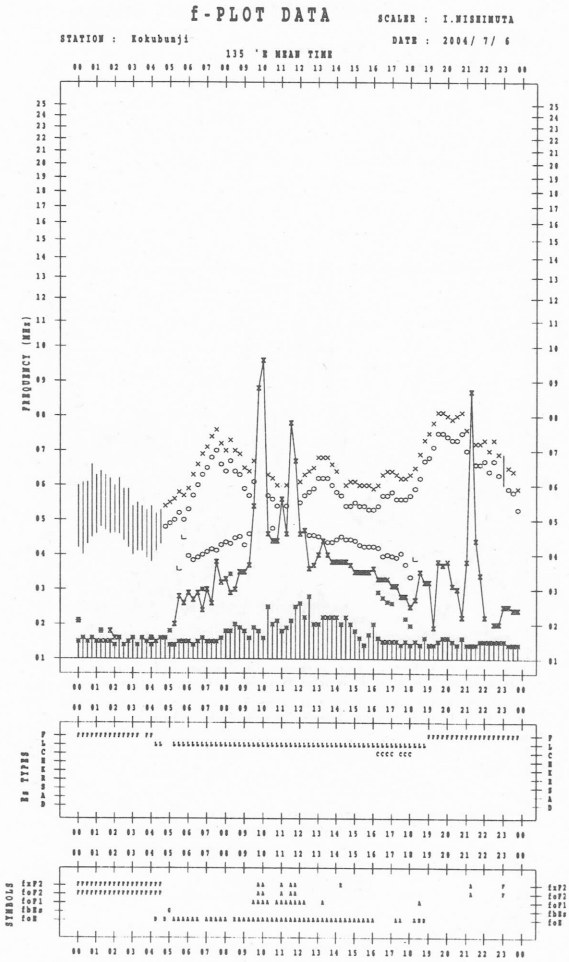

f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/ 7/ 3
135 'E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS

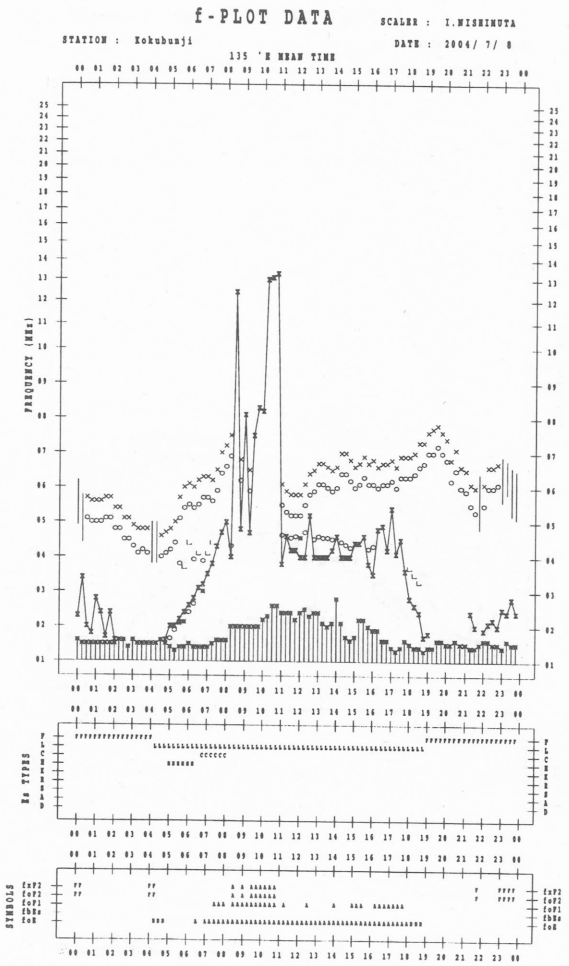

f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/ 7/ 2
135 'E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS

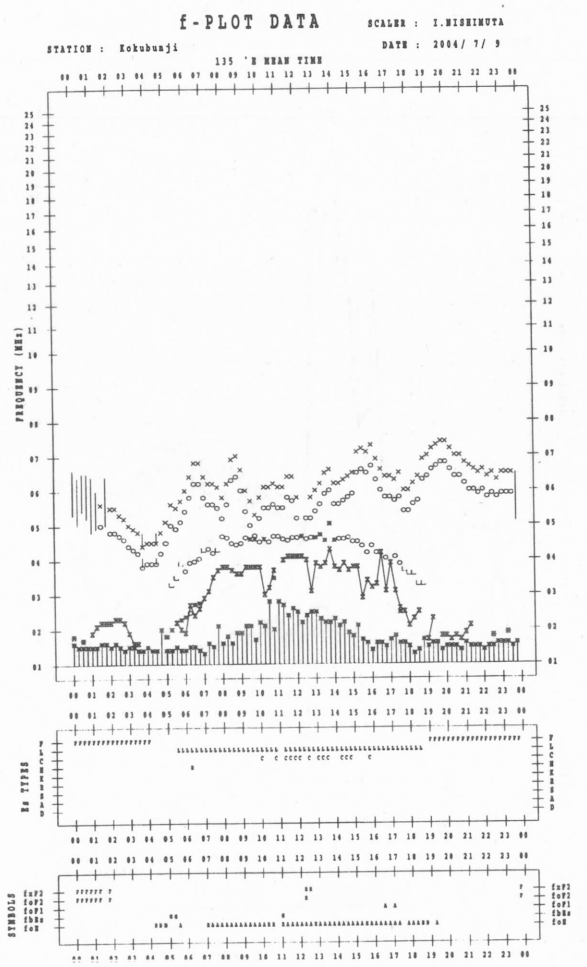

f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/ 7/ 4
135 'E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS

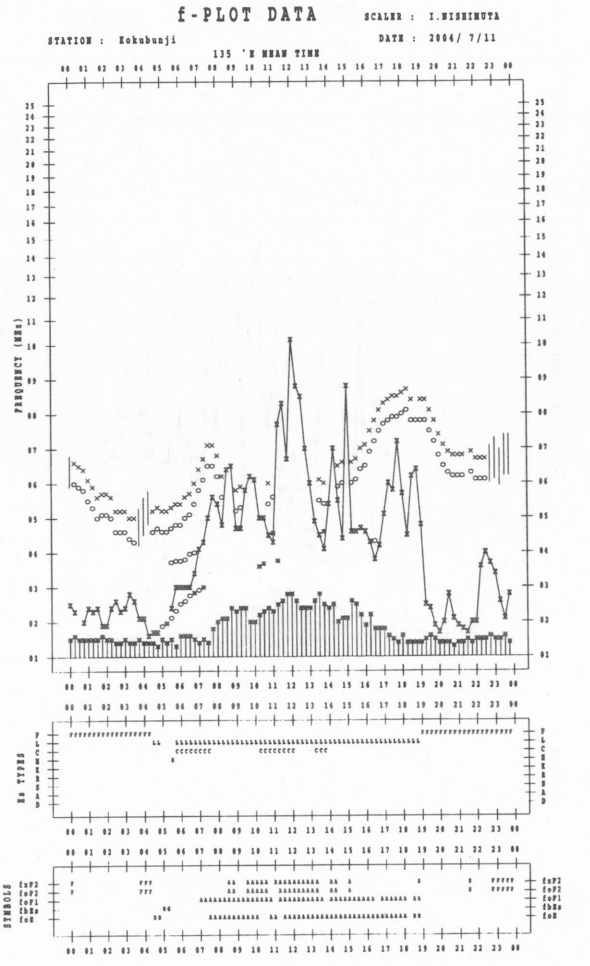

f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/ 7/ 5
135 'E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS

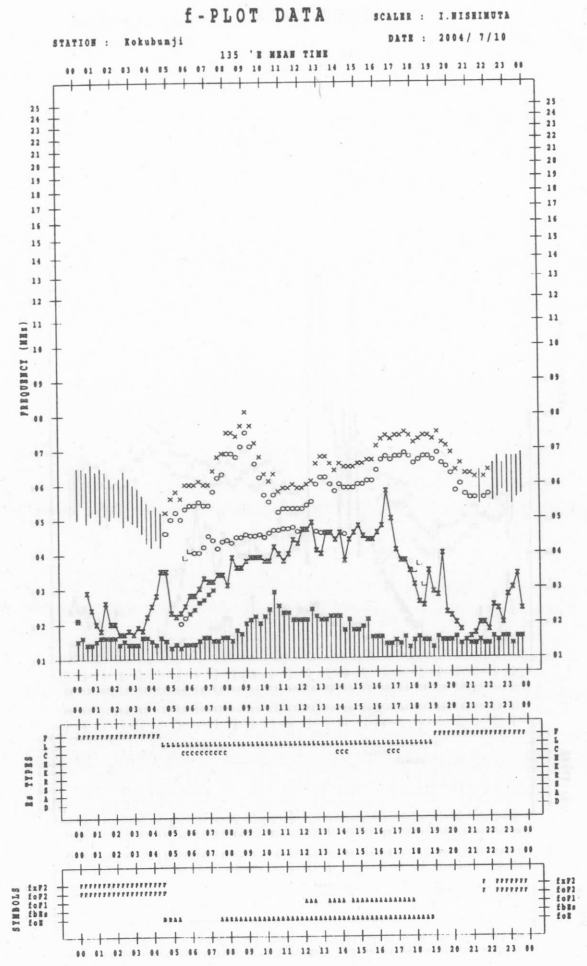

f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/ 7/ 7
135 'E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS

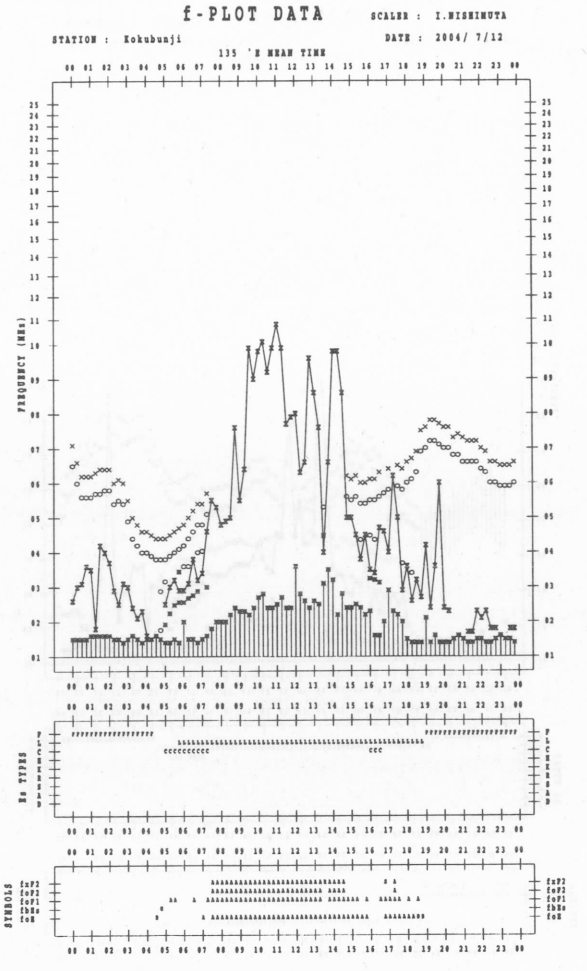

f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/ 7/ 6
135 'E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS

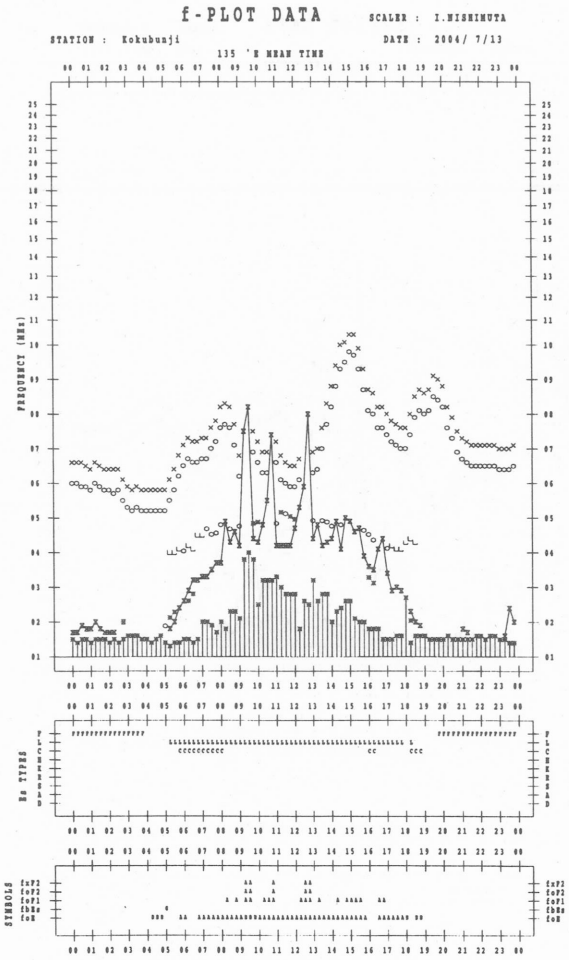

f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/ 7/ 8
135 'E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS

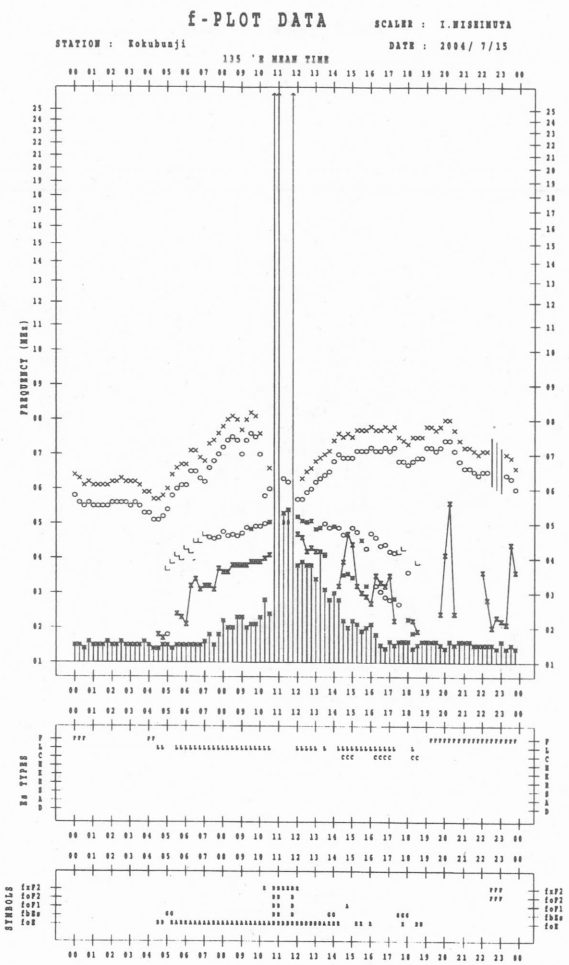

f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/ 7/ 9
135 'E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS

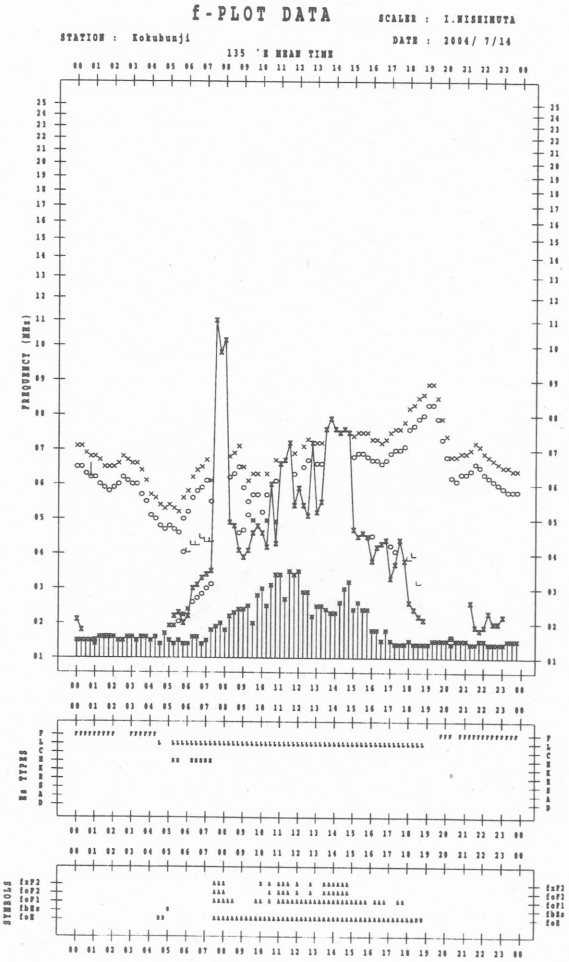

f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/ 7/11
135 'E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS

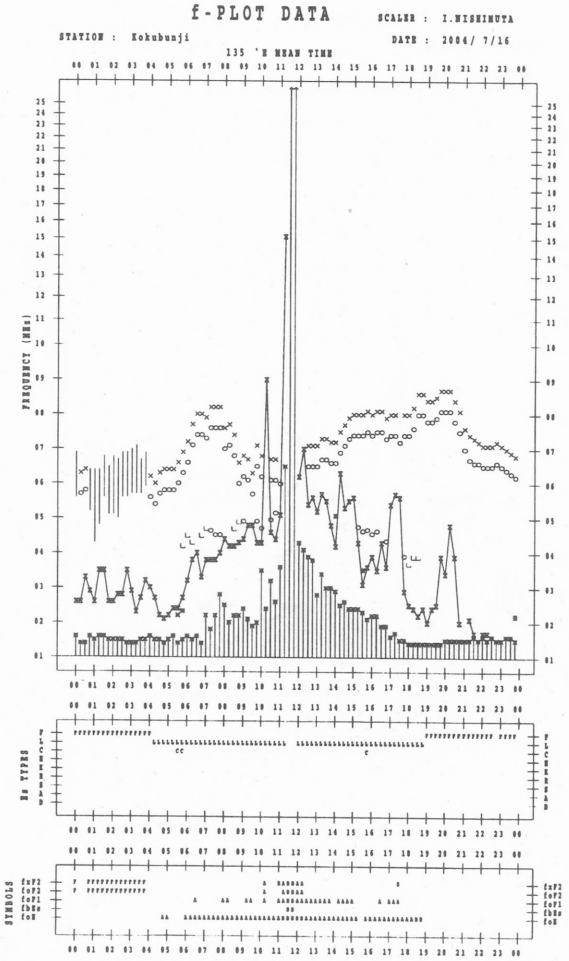

f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/ 7/10
135 'E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS

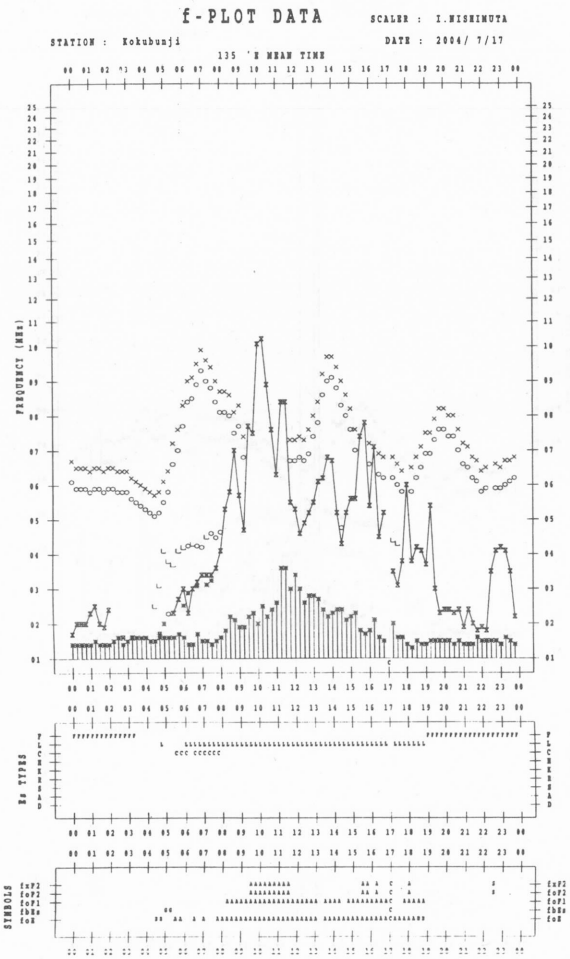

f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/ 7/12
135 'E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS

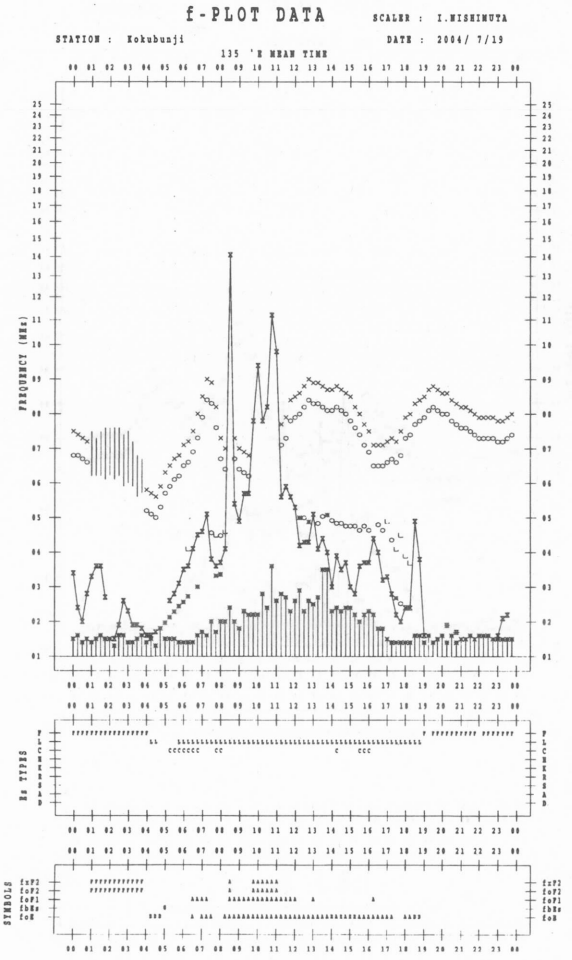

f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/ 7/13
135 'E MEAN TIME
FREQUENCY (MHz)
Hz TYPES
SYMBOLS

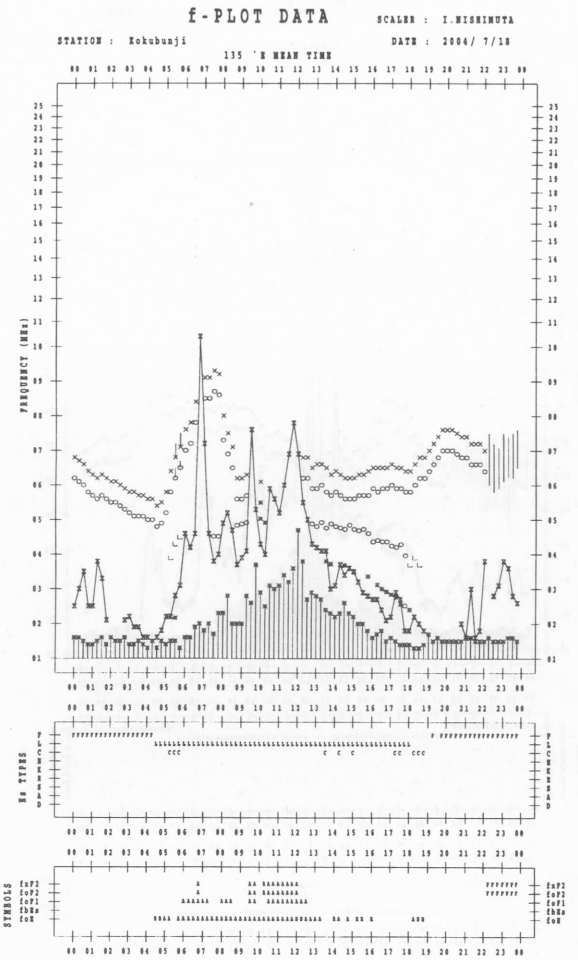

f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/ 7/15
135 'E MEAN TIME
FREQUENCY (MHz)
Hz TYPES
SYMBOLS

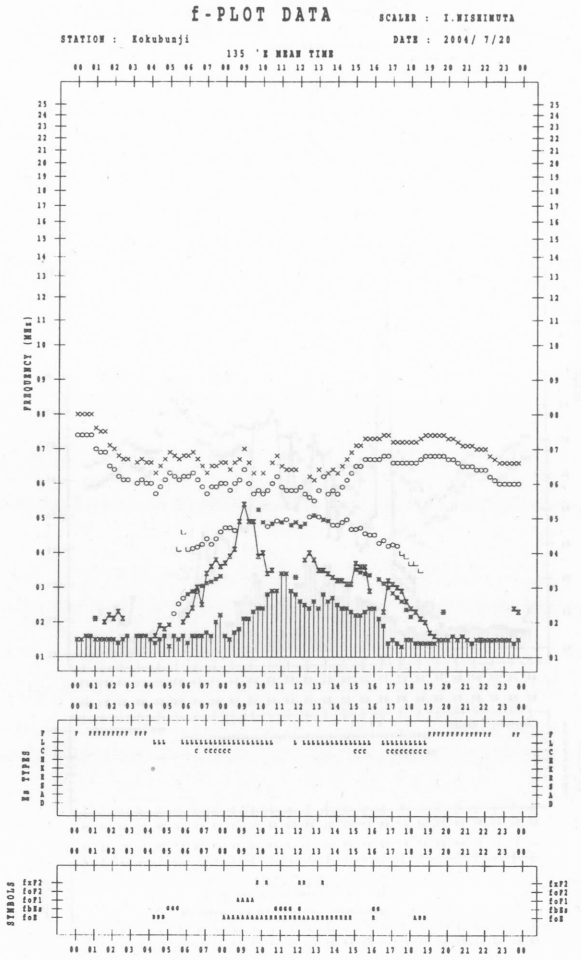

f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/ 7/14
135 'E MEAN TIME
FREQUENCY (MHz)
Hz TYPES
SYMBOLS

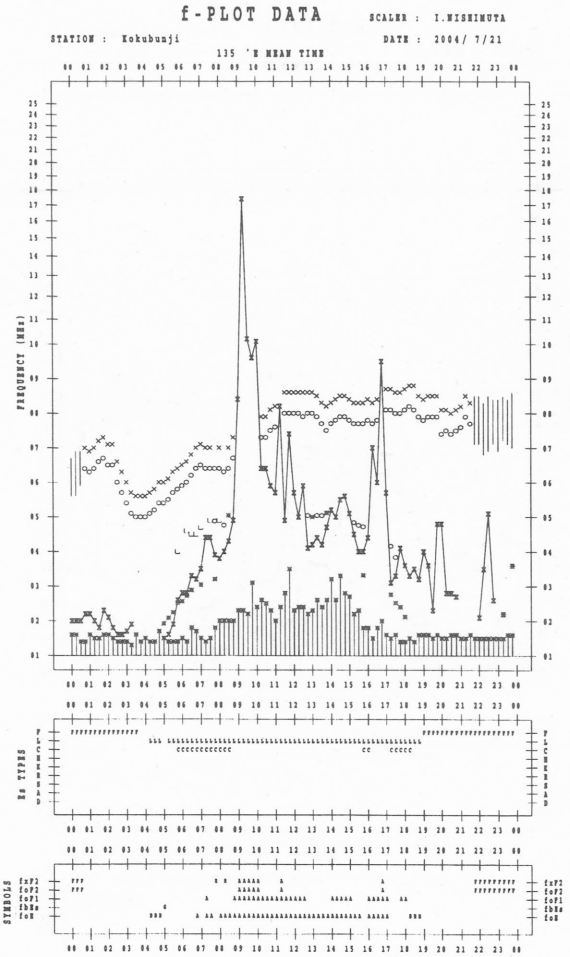

f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/ 7/16
135 'E MEAN TIME
FREQUENCY (MHz)
Hz TYPES
SYMBOLS

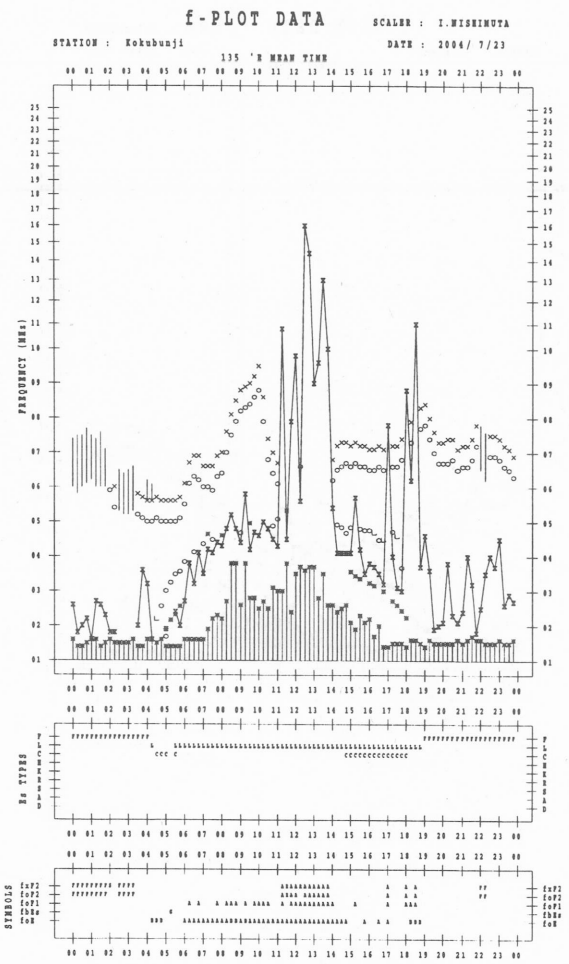

f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/ 7/17
135 'E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS

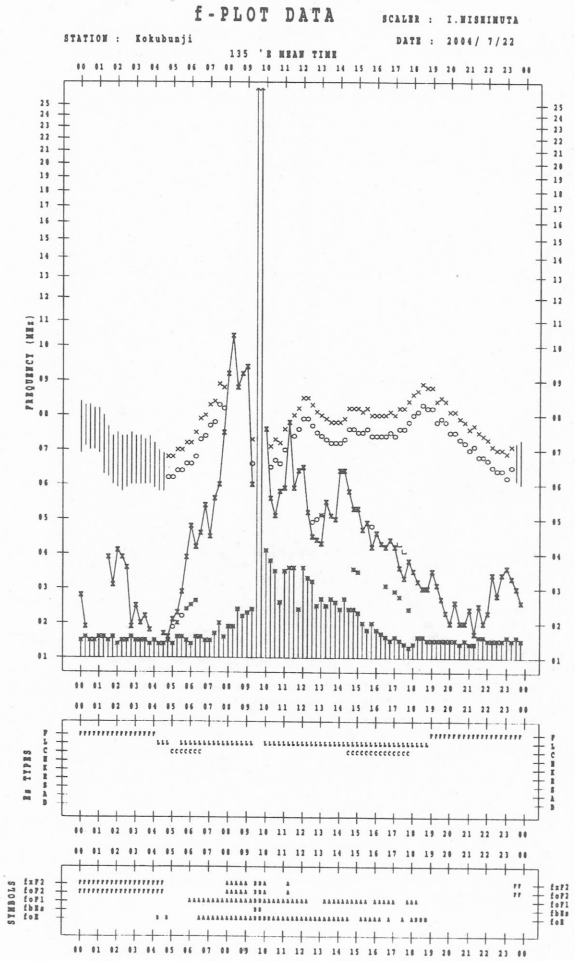

f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/ 7/19
135 'E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS

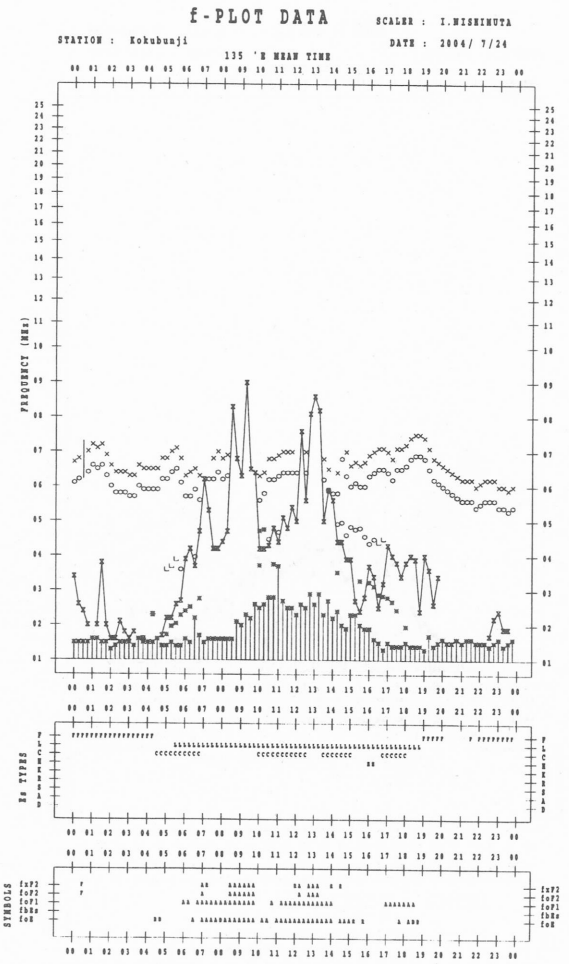

f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/ 7/18
135 'E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS

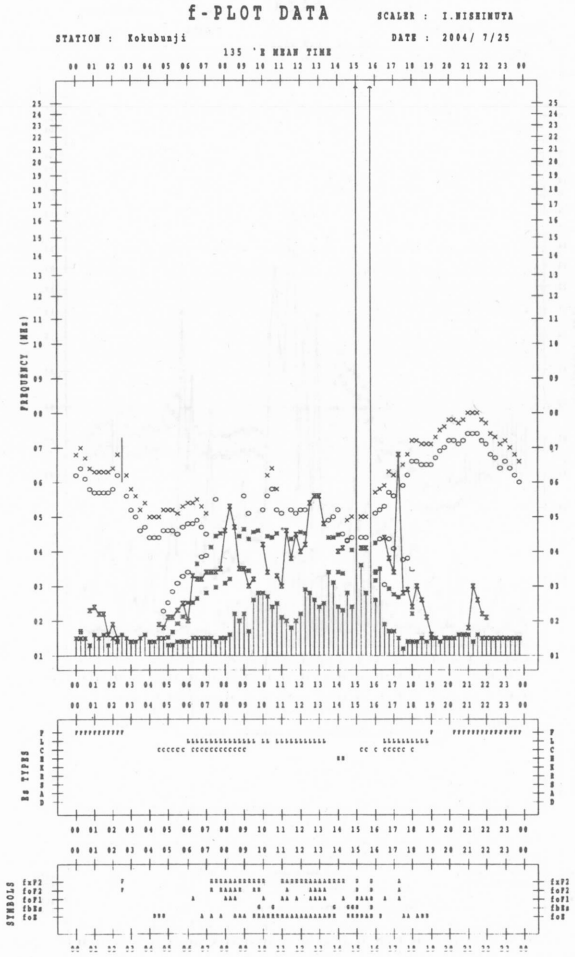

f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/ 7/20
135 'E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS

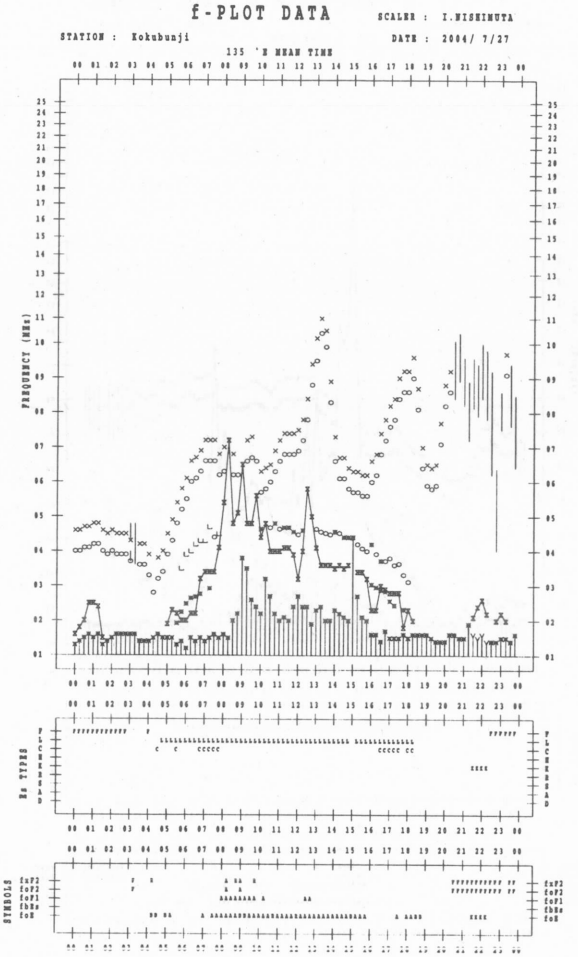

f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/ 7/21
135 'E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS

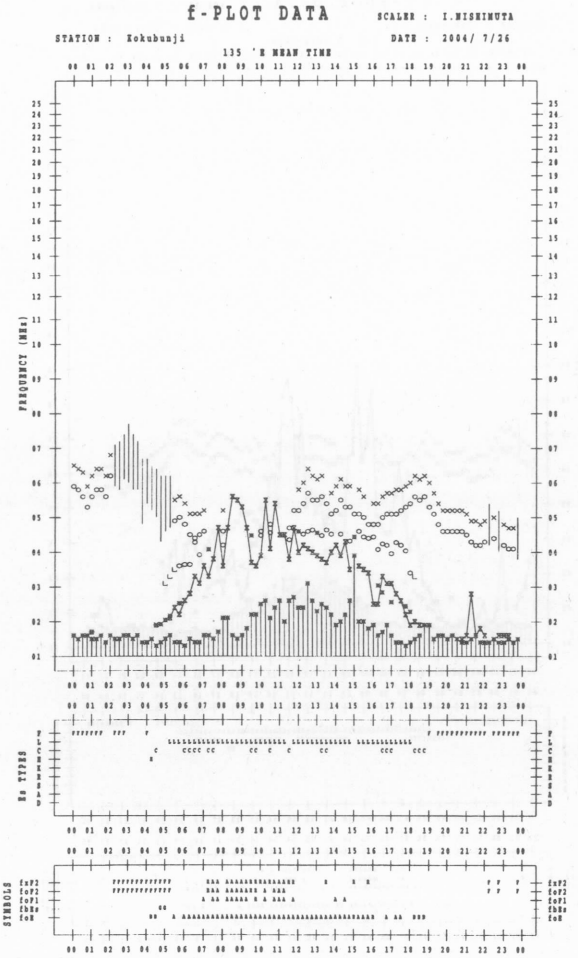

f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/ 7/23
135 'E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS

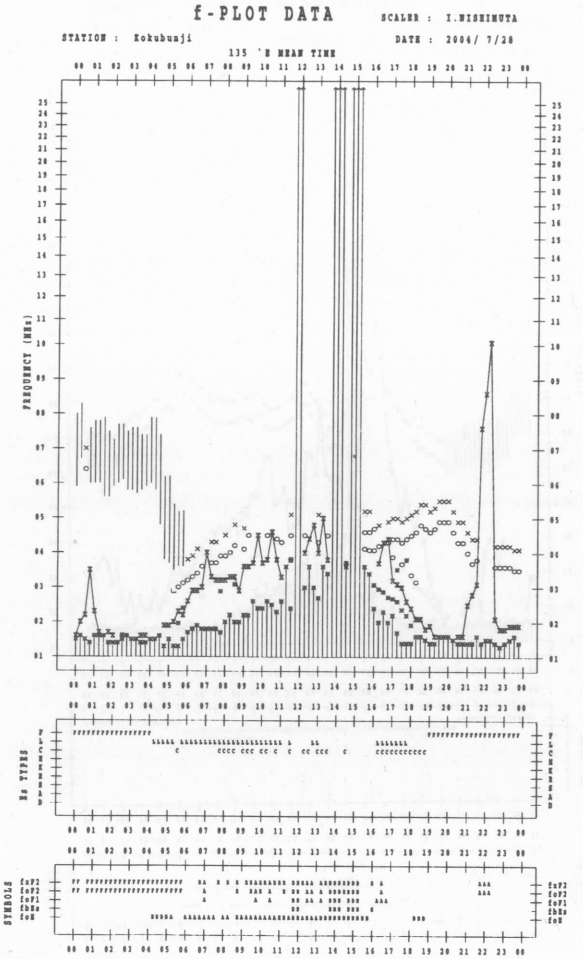

f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/ 7/22
135 'E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS

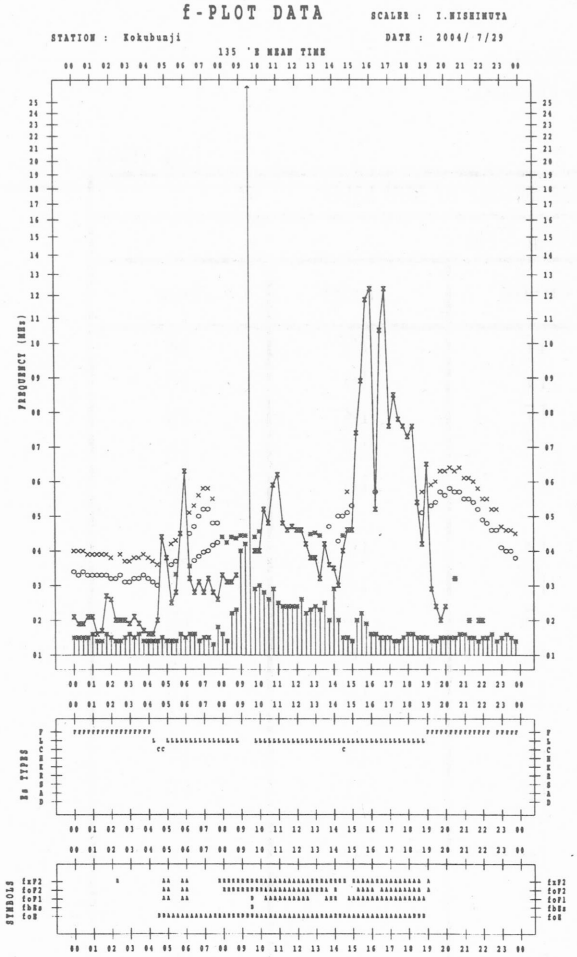

f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/ 7/24
135 'E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS

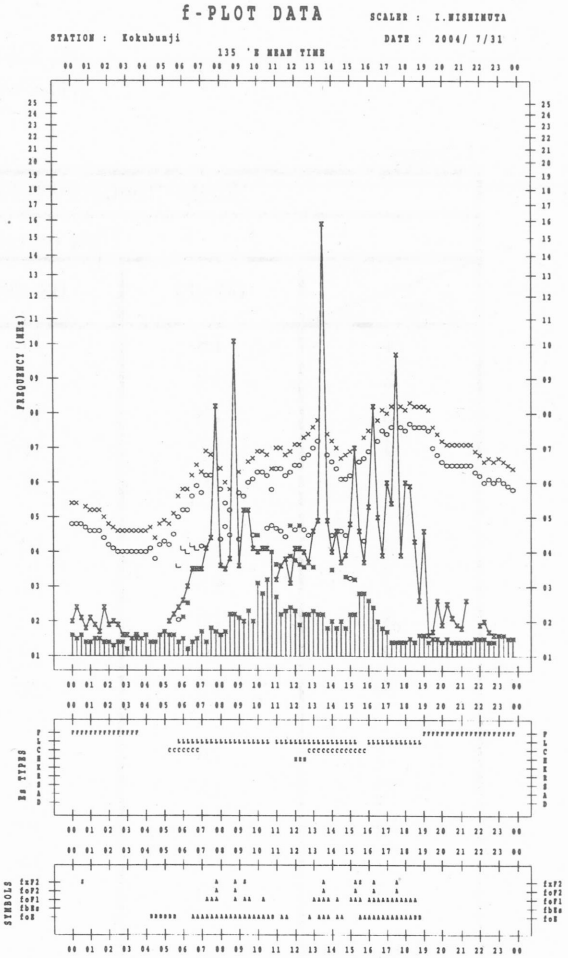

f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/ 7/25
135 'E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS

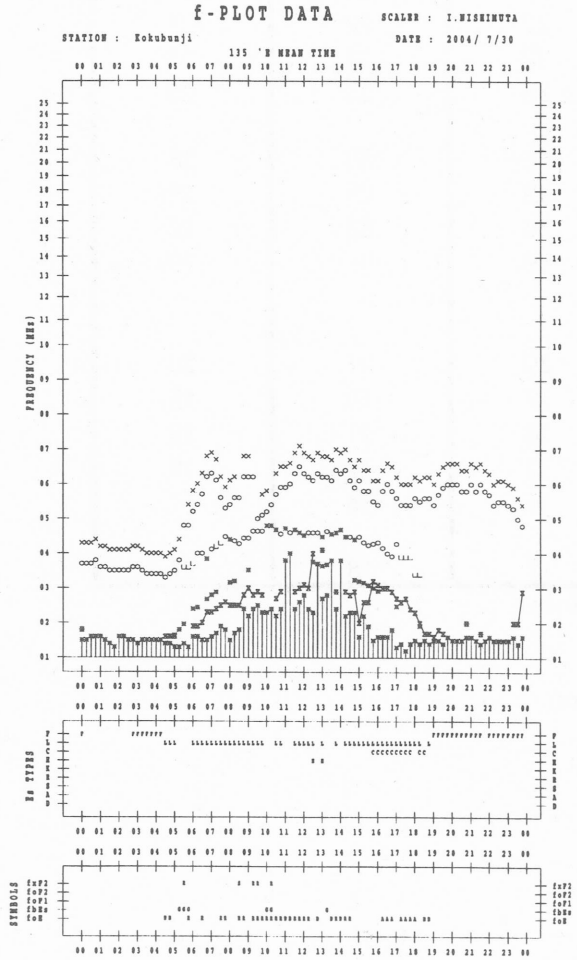

f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/ 7/27
135 'E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS


f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/ 7/26
135 'E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS


f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/ 7/28
135 'E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS


f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/ 7/29
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS


f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/ 7/31
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS


f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2004/ 7/30
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS

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

Hiraiso July 2004

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

Note: No data is available during the following periods.
24th 1935 - 26th 0045

A superscript * denotes to be superposed on a burst.

B. Solar Radio Emission

B2.Outstanding Occurrences at Hiraiso

Hiraiso July 2004

Single-frequency observations

Normal observing period: 1925 - 1000 U.T. (sunrise to sunset)

JUL. 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
7	500	8 S	0802.0	0802.0	1.0	5	-	0
7	500	8 S	0848.0	0848.0	1.0	5	-	0
11	2800	7 C	0737.0	0739.0	6.0	45	-	0
12	2800	1 S	0101.0	0103.0	4.0	10	-	0
12	2800	7 C	0741.0	0756.0	24.0	45	-	0
13	2800	7 C	0013.0	0015.0	21.0	335	-	0
13	500	7 C	0014.0	0017.0	21.0	95	-	0
13	2800	1 S	0527.0	0529.0	6.0	10	-	0
13	2800	7 C	0844.0	0848.0	6.0	70	-	0
13	500	7 C	0846.0	0852.0	19.0	25	-	0
13	500	47 GB	0934.0	0943.0	/////	510	-	WR
14	500	42 SER	0441.0	0603.0	151.0	10	-	WR
14	2800	7 C	0518.0	0518.0	6.0	85	-	0
14	500	8 S	2355.0	2355.0	1.0	10	-	0
15	2800	7 C	0133.0	0139.0	18.0	310	-	0
15	500	8 S	0244.0	0246.0	3.0	45	-	WL
16	2800	8 S	0202.0	0204.0	5.0	425	-	0
16	500	8 S	2100.0	2100.0	1.0	25	-	
16	500	8 S	2112.0	2112.0	1.0	20	-	
16	2800	1 S	2113.0	2113.0	1.0	20	-	
17	2800	1 S	0345.0	0347.0	5.0	50	-	
17	500	7 C	0346.0	0347.0	6.0	30	-	
17	500	8 S	0735.0	0737.0	2.0	100	-	
17	2800	47 GB	0755.0	0757.0	7.0	560	-	
17	500	8 S	0823.0	0823.0	1.0	15	-	
17	500	8 S	2109.0	2109.0	1.0	25	-	
17	2800	7 C	2126.0	2129.0	4.0	40	-	
17	500	8 S	2129.0	2129.0	1.0	10	-	
17	500	8 S	2359.0	2359.0	1.0	10	-	
18	2800	1 S	0009.0	0010.0	2.0	15	-	
18	2800	8 S	0254.0	0254.0	1.0	40	-	
18	500	8 S	0319.0	0319.0	2.0	10	-	
18	500	8 S	2204.0	2204.0	1.0	15	-	
19	2800	8 S	0652.0	0653.0	3.0	45	-	
19	500	47 GB	0652.0	0652.0	2.0	525	-	
19	2800	8 S	2057.0	2057.0	1.0	40	-	
19	2800	7 C	2137.0	2138.0	3.0	55	-	
19	500	7 C	2137.0	2138.0	2.0	15	-	
19	500	8 S	2150.0	2150.0	1.0	50	-	
20	500	8 S	0057.0	0059.0	3.0	80	-	
20	2800	7 C	0058.0	0059.0	2.0	100	-	
20	500	7 C	0204.0	0206.0	3.0	20	-	
20	500	42 SER	0409.0	0450.0	92.0	45	-	
20	2800	7 C	0646.0	0646.0	8.0	15	-	
20	500	7 C	0646.0	0646.0	11.0	180	-	
20	2800	7 C	2108.0	2114.0	14.0	30	-	0
20	500	7 C	2109.0	2118.0	17.0	30	-	0

B. Solar Radio Emission

B2. Outstanding Occurrences at Hiraiso

Hiraiso July 2004

Single-frequency observations

Normal observing period: 1925 - 1000 U.T. (sunrise to sunset)

JUL. 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
20	500	7 C	2251.0	2253.0	11.0	25	-	0
21	500	7 C	0018.0	0035.0	17.0	20	-	0
21	2800	1 S	0032.0	0033.0	3.0	35	-	0
21	500	7 C	0137.0	0142.0	7.0	20	-	0
21	500	7 C	0452.0	0454.0	4.0	20	-	0
21	500	7 C	0505.0	0516.0	15.0	95	-	WL
21	2800	4 S/F	0510.0	0516.0	11.0	240	-	0
21	2800	1 S	0758.0	0759.0	4.0	20	-	0
21	500	8 S	2115.0	2115.0	1.0	50	-	0
21	500	8 S	2321.0	2322.0	2.0	20	-	0
21	2800	3 S	2353.0	2355.0	8.0	35	-	0
22	500	42 SER	0015.0	0016.0	21.0	100	-	0
22	2800	4 S/F	0016.0	0028.0	19.0	290	-	0
22	2800	3 S	0109.0	0111.0	6.0	65	-	0
22	500	7 C	0109.0	0110.0	3.0	35	-	WL
22	500	8 S	0122.0	0122.0	1.0	35	-	WL
22	500	8 S	0131.0	0131.0	1.0	85	-	WL
22	2800	8 S	0207.0	0207.0	1.0	40	-	0
22	2800	4 S/F	0212.0	0216.0	8.0	90	-	0
22	500	4 S/F	0215.0	0216.0	2.0	15	-	0
22	2800	1 S	0253.0	0253.0	1.0	15	-	0
22	500	8 S	0332.0	0332.0	1.0	25	-	0
22	2800	1 S	0358.0	0358.0	1.0	20	-	0
22	2800	3 S	0743.0	0745.0	5.0	55	-	0
22	500	47 GB	0745.0	0745.0	2.0	730	-	WR
22	2800	3 S	0755.0	0756.0	4.0	80	-	0
22	500	8 S	0827.0	0827.0	1.0	20	-	0
22	500	8 S	0910.0	0910.0	1.0	70	-	0
22	2800	23 GRF	2240.0	2243.0	43.0	55	-	0
22	500	7 C	2251.0	2253.0	32.0	120	-	0
23	500	8 S	0046.0	0046.0	1.0	15	-	0
23	2800	3 S	0642.0	0644.0	7.0	70	-	0
23	500	8 S	0644.0	0644.0	10.0	120	-	0
23	2800	7 C	0718.0	0732.0	18.0	100	-	0
23	2800	4 S/F	2117.0	2120.0	13.0	40	-	0
23	500	7 C	2117.0	2121.0	8.0	35	-	0
24	2800	3 S	0216.0	0216.0	2.0	45	-	0
24	500	8 S	0411.0	0412.0	2.0	190	-	0
24	2800	3 S	0604.0	0605.0	7.0	180	-	0
24	500	7 C	0604.0	0605.0	11.0	200	-	0
24	2800	42 SER	0802.0	0815.0	17.0	40	-	0
24	500	42 SER	0803.0	0806.0	14.0	115	-	0
24	2800	8 S	2137.0	2137.0	1.0	30	-	0
24	2800	4 S/F	2312.0	2314.0	10.0	60	-	0
25	2800	7 C	0028.0	0029.0	23.0	300	-	0
25	2800	47 GB	0544.0	0549.0	15.0	630	-	0
25	2800	40 F	0632.0	0713.0	44.0	25	-	0

B. Solar Radio Emission

B2.Outstanding Occurrences at Hiraiso

Hiraiso July 2004

Single-frequency observations

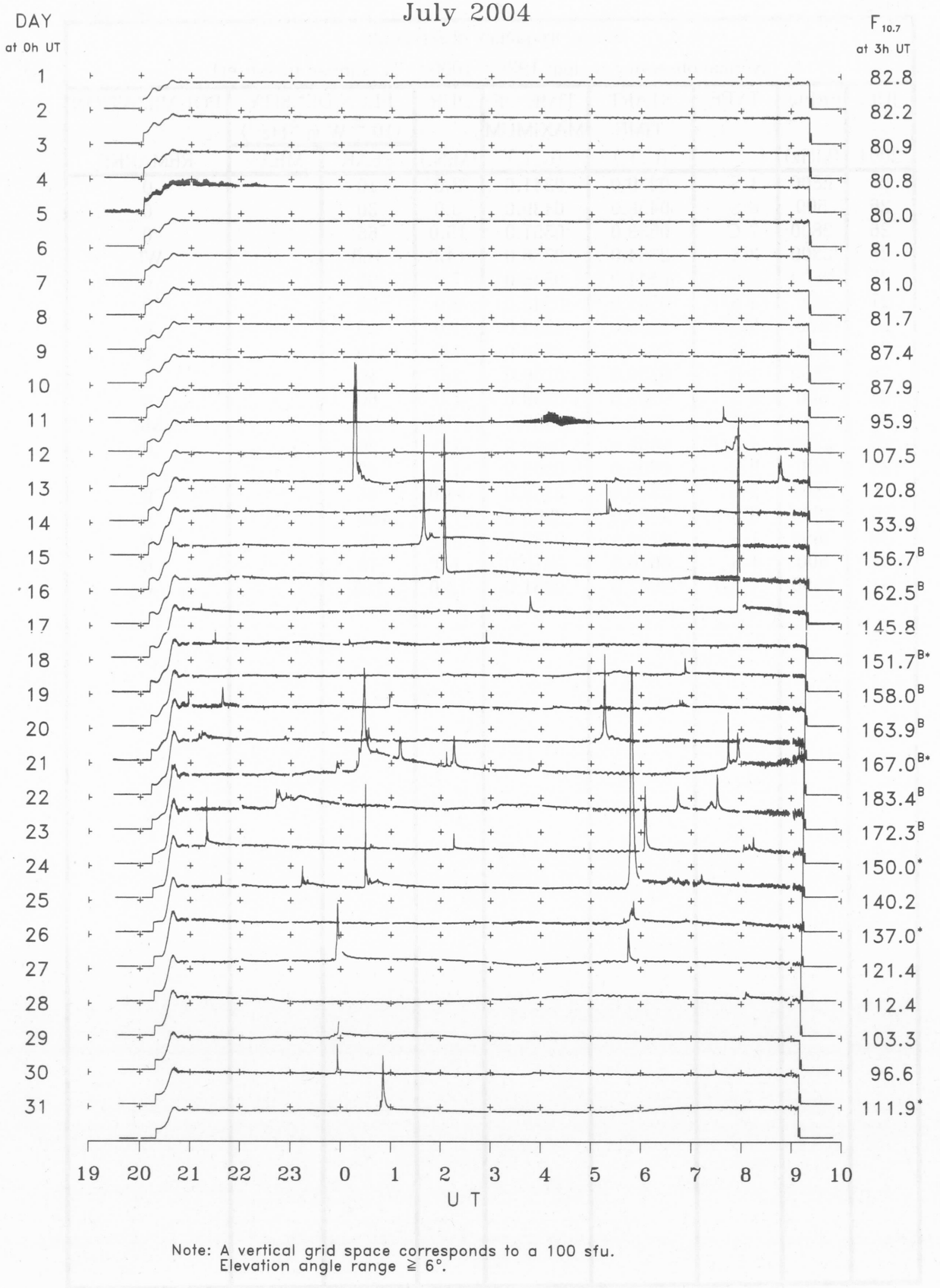
Normal observing period: 1925 - 1000 U.T. (sunrise to sunset)

JUL.	FREQ.	TYPE	START TIME	TIME OF MAXIMUM	DUR.	FLUX DENSITY (10^{-22} W m^{-2} Hz^{-1})		POLARIZATION
2004	(MHz)		(U.T.)	(U.T.)	(MIN.)	PEAK	MEAN	REMARKS
26	2800	1 S	0239.0	0241.0	3.0	10	-	0
26	500	8 S	0438.0	0439.0	3.0	30	-	0
26	2800	7 C	0539.0	0551.0	15.0	65	-	0
26	2800	3 S	2354.0	2356.0	14.0	160	-	WL
27	2800	3 S	0544.0	0545.0	7.0	95	-	0
27	500	4 S/F	0545.0	0545.0	8.0	25	-	0
27	500	8 S	2229.0	2229.0	1.0	20	-	0
27	500	8 S	2233.0	2233.0	1.0	10	-	0
28	2800	1 S	0259.0	0259.0	2.0	10	-	0
28	500	8 S	0259.0	0259.0	1.0	60	-	0
28	500	7 C	0332.0	0439.0	170.0	100	-	MR
28	2800	4 S/F	0805.0	0806.0	7.0	20	-	0
28	500	8 S	0805.0	0805.0	1.0	40	-	0
28	2800	3 S	2348.0	2358.0	14.0	45	-	0
29	2800	8 S	2353.0	2365.0	7.0	85	-	0
30	2800	1 S	0730.0	0730.0	3.0	15	-	0
31	500	1 S	0010.0	0010.0	1.0	10	-	0
31	2800	4 S/F	0047.0	0051.0	12.0	155	-	0

B. Solar Radio Emission

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

July 2004



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

IONOSPHERIC DATA IN JAPAN FOR JULY 2004
F－667 Vol.56 No.7 (Not for Sale)

電離層月報 (2004年7月)
第56巻 第7号 (非売品)
2004年11月25日 印刷
2004年11月30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)

Queries about "Ionospheric Data in Japan" should be forwarded to :
National Institute of Information and Commnications Technology, 2-1
Nukui-Kitamachi 4-chome, Koganei-shi, Tokyo 184-8795 JAPAN