ISSN 0021-0382

F−702

IONOSPHERIC DATA IN JAPAN

FOR JUNE 2007

VOL.59 NO.6

CONTENTS

NiCT

NATIONAL INSTITUTE OF INFORMATION
AND COMMUNICATIONS TECHNOLOGY
TOKYO, JAPAN

INTRODUCTION

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

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

A. IONOSPHERE

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

A1. Automatic Scaling

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

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

a. Characteristics of Ionosphere

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

b. Descriptive Letters

The following descriptive letters are used in the tables.

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

C Impossible measurement because of any failure in observation.

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

N Impossible automatic scaling because of complex echoes.

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

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

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

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

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

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

d. Reliability of Automatic Scaling

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

e. Summary Plot

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

A2. Manual Scaling

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

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

a. Characteristics of Ionosphere

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

b. Symbols

(i) Descriptive Letters

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

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

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

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

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

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

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

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

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

K Presence of particle *E* layer.

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

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

N Conditions are such that the measurement cannot be interpreted.

O Measurement refers to the ordinary component.

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

Q Range spread present.

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

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

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

V Forked trace which may influence the measurement.

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

X Measurement refers to the extraordinary component.

Y Lacuna phenomena, severe layer tilt.

Z Third magneto-electronic component present.

(ii) Qualifying Letters

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

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

D Greater than.

E Less than.

I Missing value has been replaced by an interpolated value.

J Ordinary component characteristic deduced from the extraordinary component.

M Mode interpretation uncertain.

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

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

U Uncertain or doubtful numerical value.

X Measurement deduced from the third magneto-electronic component.

(iii) Description of Types of *Es*

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

The types are:

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

B. SOLAR RADIO EMISSION

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

B1. Daily Data at Hiraiso

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

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

* Measurement impossible because of interference.

B Measurement impossible because of bursts.

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

B2. Outstanding Occurrences at Hiraiso

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

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

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

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

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

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

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

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

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

B3. Summary Plots of F10.7 at Hiraiso

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

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

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

HOURLY VALUES OF foF2 AT Wakkanai

JUN. 2007

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

HOURLY VALUES OF fEs AT Wakkanai

JUN. 2007

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	33	G	G	G	27	38	42	50	70	62	74	48	86	60	68	76	45	35	29	45	59	39	28	G
2	G	G	G	G	G	37	42	41	44	48	48	G	G	50	51	48	39	40	78	71	36	46	85	50
3	G	39	33	26	30	43	48	60	47	G	48	G	52	46	G	46	46	41	47	59	28	43	25	G
4	G	G	35	30	G	G	47	60	59	49	90	99	46	40	52	62	83	43	50	76	109	87	83	72
5	81	81	45	41	72	66	80	90	76	61	76	77	77	84	54	G	75	73	78	44	59	71	91	80
6	52	44	40	32	29	31	43	81	80	68	85	73	83	78	62	53	59	60	108	62	49	44	65	60
7	52	29	34	28	29	42	45	53	62	59	50	G	G	G	G	G	G	41	52	59	51	58	28	44
8	60	49	30	33	31	33		60	64	70			62	G	40	48	56		36	48	29	30	G	24
9	31	G	G	G	G	34	42	53	60	50	52	50	63	49	49	46	G	53	52	40	36	33	G	26
10	G	G	G	G	G	36	42	89	92	95	46	42	49	40	48	61	37	G	50	42	52	34	59	29
11	28	G	25	27	G	34	40	45	68	61	62	46	62	60	72	44	38	G	50	40	32	30	34	45
12	49	44	G	G	26	34	39	69	91	46	60	53	62	46	60	55		56	G	40	60	41	46	G
13	G	G	G	G	G	39	41	46	52	63	51	51	G	45	40	G	G	35	35	39	46	59	32	39
14	34	G	24	G	G	G	42	52	58	62	75	78	47	41	G	51	46	77	51	39	44	32	28	32
15	42	32	36	32	34	59	58	61		77	51	G	G	G	G	45	46	60	70	40	39	41	32	39
16	36	G	G	33	27	41	40	65	76	72	51	71	51	64	40	45	47	68	96	64	52	39	53	30
17	G	G	G	G	G	32	46	54	60	76	68	52	52	48	46	G	48	36	42	46	42	35	29	46
18	G	G	28	52	52	50	40	54	62	79	50	G	G	G	48	G	99	60	96	96	59	59	37	35
19	G	G	G	G	G	G	44	60	84	67	49	46	G	48	44	41	G	G	51	46	33	38	50	67
20	60	61	44	40	34	38	46	63	73	121	45	60	46	46	G	G	G	41	34	27	38	38	26	28
21	37	G	G	G	27	28	48	53	60	63	G	45	59	49	48	G	G	G	33	36	40	31	G	30
22	27	G	25	38	33	40	48	60	88	58	67	52	G	G	G	G	51	62	55	58	G	40	40	40
23	47	34	41	43	31		47	72	73	87	86	158	90	74	84	66	44	65	72	88	58	73	47	36
24	28	39	45	G	33	37	43	48	83	60	76		111	113	G	80	88		148	109	84	108	39	48
25	60	46	39	34	59	64	91	89	96	77	66	77	59	77	64	88	110	97	68	52	46	85		83
26	40	33	39	G	49	44	45	59	94	G	G	G	60	G	60	109	88	80	71	45	54	65	44	60
27	38	50	68	60	69	36	59	94	68	84		75	72	60	98	73		N	45	46	62	68	59	50
28	37	44	38	37	43	55	33	50	56	48	G	G	50	68	40	98	111	84	48	55		51	67	49
29	46	58	32	33	50	68	79	98	66	87	64	G	G	G	G	60	44	48	39	39	69	60	33	52
30	39	28	44	35	39	40	37	36	50	44	50	G	G	52	56	47	G	G	36	30	58	30	45	28
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	30	30	30	30	29	29	30	29	30	28	28	30	30	30	30	28	27	30	30	29	30	29	30
MED	36	28	31	29	30	38	44	60	68	62	52	49	52	48	48	48	46	48	50	46	49	42	39	40
U Q	47	44	39	35	39	43	48	69	81	77	71	72	62	60	60	62	67	65	71	59	59	60	56	50
L Q	G	G	G	G	G	33	41	52	59	50	48	G	G	40	G	G	19	35	39	40	37	35	28	29

HOURLY VALUES OF fmin AT Wakkanai

JUN. 2007

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

HOURLY VALUES OF foF2 AT Kokubunji

JUN. 2007

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	A	A	A	47	39	42		52	A	A	A	A	A	A	55	59	54		A	A	66	59	A	59
2	A	44	41	38	38	45	51	48		58	A	A	A	A	A	A	A	A	A	65	76	A	A	A
3	A	A	A	34	A		52		A	A			A	A	A		54	A		A	A	A	A	A
4			A	36	38	41	52	67	A	A	A	A	A	A	A	A		A	52	54	A	A	A	A
5	A		A	38	A	44	48	A	A	A	A	A		65	A		54	A		A	A	A	A	48
6	A	A	48	A	A	A	A	A		A	48	A	A	A		58	61	52	57	54	51	A	52	54
7	A	A	44				48	A		A	A			A	A		66	62	A	A	65	52	54	61
8	52	49	45	45		42		A	A	A	A		63		A	57	61	69	74	78	63	53	52	52
9	51	50	48	45		42	55	A	54	A	56	A	A			60	78	91	A	70	54	51	52	52
10	54	53	46	45	39	38	46	A	67	A	A	A		A	A	62	67	62	A	A	A	52	52	52
11	52	49	49	A		52	54	A	A	A	A	A		A	67	A	69	67	66	75	77	A	A	A
12	A	A	A	A	A	47	57	56	61	A	A	A	A	A	A		A	A		65	64		54	52
13	49	42	A	A		A	A	A	73	62	A	A	A		A	A	A	49	52			62	A	A
14	50	46	45	42	42	46	55	64	64	62	A	A			A	A		A	A	72	A	A	A	A
15	A	A	A	A	A	A		50	A	A	A	A	A	A	A		51	56	A	A	A	48		31
16	32	37	32	34	32	38	52	48		A	A	A	A	A	93	A	A	A	A	A	A	A	52	A
17	A	A	37		A	A	A	A	A	A	A	A	A	A		A			51	A	55	52	A	47
18	A	42	38	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	47	47	48	A
19	A	A	A		38	38	49	A	57	A	A	A	A	A		A		62		62	54	34	A	
20	A	A	A		30	34	46		A		A	A	A	A	A	51	53	55	55		47	A	A	A
21	A	A	A	A	A	39	A	A	A	A	A	A	54		A		A	47	52		61	54	52	45
22	38	A	A	34	32	47	A	A	A	A	A	A			62	71	67	57			54	53	54	52
23	54	59	41	30	31	30	43	A	A	A		A	A	A	A	A	A	A	A	A	66	52	51	39
24	32	A	A	A	A	A	46		A	A	A	A	A	A	A	A	A	A		A	A	54	53	53
25	A	A		34	34	42	A	A	A	A	A	A	A			56		47	52	A	A	52	52	A
26	45	38	36	34	32	39		54	A	A	67	57	A			48	A	A	A	62		54	54	A
27		A	A	28		37	47	62	A	A	A	A	A				64	69	71	65	66	52	47	43
28	42	30	32	38	32	41		A	A			A				A	55	A	A		65		A	A
29	A	A	A	A	A	A	A	A	A	99	A	A	A	A	91	73	59	A	54	54	72	54	34	38
30	39	38	32	34	A	50	41	A		A	A	A	A	A	A	A	A	A	A	A	A	48	44	A
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	13	13	15	17	13	21	17	9	6	4	3	1	2	1	5	10	15	14	11	12	18	19	17	16
MED	49	44	41	36	34	42	49	54	62	62	56	57	58	65	67	58	61	60	54	65	64	52	52	52
U Q	52	49	46	43	38	45	53	63	67	80	67	28	63	32	92	62	67	67	66	71	66	54	53	52
L Q	38	38	36	34	32	38	46	49	57	60	48	28	54	32	58	56	54	52	52	58	54	51	49	44

HOURLY VALUES OF fEs AT Kokubunji

JUN. 2007

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	49	59	57	34	31	28	31	52	83	79	55	73	58	78	40	61	G	54	59	70	59	58	59	59
2	58	48	27	29	36	31	53		61	57	91	56	66	54	96	88	70	80	71	39	55	59	106	104
3	115	47	46	34	70	49	39		78	90	G		61	86	68	40	G	62	112	94	113	83	65	59
4	32	37	38	29	24	G	36	54	69	78	97	124	104	127	124	120	60	80	51	46	70	80	82	71
5	59	39	36	37	59	45	G	67	71	72	95	94	58	61	57	55	G	62	68	94	68	82	68	G
6	70	71	39	70	63	81	68	57	90	73	46	90	85	61		G	G	G	39	34		69	51	49
7	55	72	36	39	37	33	43	78	113	81	92	46	G	60	51	G	G	55	85	90	58	35	33	29
8	34	91	29	28	47	48	47	72	97	91	76		G	G	66	G	G	49	41	36	38	33	32	33
9	29	28	29	26	43	40	37	60	38	67	54	61	64		47	G	60	83	104	61	G	32	37	39
10	27	29	G	G	26	29	42	72	51	84	106	51	60	84	87	54	49	G	66	90	82	37	53	
11	33	G	28	59		G	45	62	79	74	97	136	53	65	53	108	52	47	51	82	112	81	82	103
12	59	58	50	60	52	40	34	60	62	116	68	78	61	62	74		70	77	69	55	50	35	50	49
13	28	40	45	54	37	45	81	105	59	53	69	53	62	48	53	65	76	47	39	48	60	59	87	57
14	25	43	29	34	27	32	36	50	59	70	73	49			64	75	148	118	102	94	114	94	70	124
15	57	45	61	47	65	65	36	44	127	83	148	106	100	59	49		G	50	59	55	37	35	39	29
16	26	G	G	G	G	29	G	50	52	61	72	70	74	67	90	76	64	72	84	101	71	66	45	78
17	59	71	31	36	37	50	71	84	73	59	65	55	54	52	G	50	50	50	45	61	50	53	85	44
18	59	43	24	44	40	48	53	105	92	93	141	122	75	100		104		110	90	107	82	51	57	
19	58	70	49	38	34	31	44	67	59	71	71	87	86	79	53	51	61	42	58	G	49	27	51	38
20	60	59	50	30	26	28	45	79	65	123	112	148	113	82	64	G	55	45	50	55	39	48	60	60
21	83	49	50	61	38	34	53	87	84	70	55	91	G	49	58	55	63	45	40	50	33	34	50	33
22	28	43	59	G	25	43	83	85	72	96	80	60	54	47	46	47	47	43	46	G	G	G	G	G
23	31	24	G	G	29	35	36	64	75	88	82	174	67	89	105	122	118	128	113	114	54	45	49	53
24	30	84	71	63	57	52	43	60	98	82	67	92	116	90	113	150	124	81	61	71	92	50	40	38
25	60	58	41	G	G	39	55	95	69	86	61	67	82		G	44	G	G	40	62	112	53	59	49
26	29	26	30	31	31	28	43	46	72	54	G	45	71	G	43	40	66	110	77	36	54	60	57	
27	60	47	60	27	49	34	37	58	103	72	83	93	61		53	60	57	57	54	27	60	53	55	33
28	29	26	26	29	G	31	42	70	50		46	52	63	G		106	45		175	68	35	35	49	59
29	57	50	54	52	59	60	75	82	62	81	100	96	146	104	96	G	40	58	50	40	G	36	G	33
30	25	G	51	50	83	43	35	51	55	62	83	141	138	94	60	78	74	66	61	80	48	39	43	44
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	30	30	30	29	30	30	28	30	29	30	28	29	26	27	28	29	29	30	30	29	30	30	27
MED	52	46	38	34	37	37	43	66	72	78	74	82	64	64	58	55	55	57	60	61	55	50	52	49
U Q	59	59	50	50	54	48	53	80	84	87	95	101	85	86	87	83	68	80	84	90	76	60	65	59
L Q	29	29	29	28	26	31	36	55	59	68	61	55	58	52	49	40	G	46	50	40	38	35	43	33

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HOURLY VALUES OF fmin AT Kokubunji

JUN. 2007

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

HOURLY VALUES OF foF2 AT Yamagawa

JUN. 2007

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	C	C	C	C	C	C	C	C	C	C	A	A	A	A	A	A	71	72	72	72	74	70	54	A
2	52	52	44	42	41	41	50	56	A	66	56	A			A	63	72	80	81	70	75	49	51	A
3	44	40	A	A	41	38	A	A	A	A	A		71	75	75	66	A	56	66	A	A	54	A	A
4	41	42	41	40	36	38	46	56	57	A	A	A		A	A	70	72	72	A	A	51	53	A	A
5	A	A		40	37	A	47	48	52	A		A	A	A	A	A	A	56	54		A	52	A	A
6	A	A	42	A	A	29	45	54	64	65	57	A	A	A	A	56	66	74	62	56	54	A	58	A
7	A	A	34	37	40	38	50	61	A	A	A	A	A	A	42	66	70	63		55	54	A	A	54
8	54	A	45	44	44	40	52	67	67	A		A	71	67		A		91	82	58		51	53	51
9	48		45	40	40	39	54	60	57	A	A	A	A	A	A	A	A		A	79	A	58	61	A
10	53	62	54	44	32		47	A	67	59			66		A	66	72	72	A	A	67	A	51	A
11	A	54	50	A	40	A	50	52		A	77	A	A	68	A	71	A	85	89	88	86	A	44	41
12		A	A	40	39	41	48	52	A		A	A	A	A	A	68	A	A	88	78	78	A		A
13	52	48	A	36	36	36	46		81	A	A	A	A	A	62	65	68	57	48	51	70	66	A	A
14	A	A	A	A	34	32	56	68	A	A		A	60	A	78	92	88	69	A	76	78	52	50	A
15	54	53	54	55	44	41	51	56	A	A	A	A	A	A	A	A	A		A		49	45	44	42
16	A	42	A	32	A	34	50	A		A		A	65	71	69	66	A	75	76		51	52	52	A
17	A	A	A	A	A	A	A	A		A		A	A	A	A	A	A	A	A	A	A	54	54	50
18	44	42	41	38			45	47	59		61	A	A		56		55	51	52	52	52	A	A	A
19	A	42	A	A		28	A	A	A	A	A	A	A	A	A	A	A	A	A	55	45			42
20	42		34	28	26	26	42	50	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
21	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	64	50		40
22	A	A	41	23	A	A	A	A	A	A	A	A	A		74	A	A	70	60	56	58	53	58	61
23	61	51	32	28	A	A	A	A	54	A	A	A	A		A	A	A	72	77	60	55	A	A	A
24	A	A	A	A	41	A		56		A	A	A	A	A	A	A	A	58	70	74	66	A		
25	A	A	37	34	32	34	A	A	55		A	A	61	A	A	62	A		A	A	A	A	50	45
26	42	40	39	34	29	30		A	A	A		A	A	A			52	48	52	63		66	A	42
27	41	A	A	A	28		41	A	58	A		A	A	A		63	61	66	74		A	54	45	A
28	40		36	28	A	29	44	A	63	62	A	A			58	62	61	64	68	A	A	52	A	A
29	A	A	A			26	38	46	56	A	A	A			71	A	A	A	77	76	A	A		36
30	37	38	40	42	A	A	A	A	44	53	55	A	A	A	64	A	74	A	65	A	A	A	45	A
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	15	13	17	19	18	18	19	15	14	5	5		6	4	10	14	13	20	19	17	18	17	15	11
MED	44	42	41	38	38	35	47	56	58	62	57		66	70	66	66	70	70	70	63	61	53	51	42
U Q	53	52	45	42	41	39	50	60	64	65	69		71	73	74	68	72	73	77	76	74	56	54	51
L Q	41	41	36	32	32	29	45	50	55	56	55		61	67	58	63	61	57	60	55	52	51	45	41

HOURLY VALUES OF fEs AT Yamagawa

JUN. 2007

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	C	C	C	C	C	C	C	C	C	C	65	95	102	107	80	110	62	40	57	44	29	28	29	59
2	49	51	46	33	35	37	48	49	68	56	59	61	52	52	50	G	G	G	36	G	33	40	40	59
3	51	44	60	66	32	32	52	67	72	78	75		65	74	80	62	50	42	57	56	60	91	84	106
4	48	40	40	40	33	43	56	48	60	95	75	102	119	87	84	65	70	35	57	61	24	33	59	91
5	83	70	58	40	30	60	G	35	50	70		143	103	86	92	130	80	56	49	62	76	59	59	83
6	59	81	36	80	70	48	36	41	48	78	47	60	100	94	54	53	54	40	41	32	81	57	28	80
7	60	68	40	34	30		34	46	86	118	124	95	166	150	44	48	G	66	83		57	92	88	50
8	48	71	58	34	G	32	37	51	66	82	118	75	42	48	71	88	78	71	74	56	47	34	49	49
9	34	59	52	33	27	25	28	54	61	71	74	83	80	74	77	82	149		85	73	58	49	56	77
10	55	54	39	28	34	49	32	66	53	58	52	G	G	56	65	44	51	68	96	113	59	80	50	71
11	106	49	47	80		87	41	47	84	84		134	108	53	150		133	74	64	53	39	82	39	39
12		56	60	27	28	G	29	54	82	63	86	74	68	58	84	76	118	82	50	65	65	58	49	70
13	59	50	60	34	31	30	33	61	72	96	99	74	63	78	G	60	55	42	39	49	40	78	93	83
14	115	87	67	50	G	G	33	42	74	77	49	52	42	75	64	76	64	71	58	32	28	46	70	79
15	60	48	51	35	64	60	40	81	111	92	78	100	94	64	68	82	94	71	70	36	43	36	40	33
16	49	91	60	46	43	27	32	69	68	52	G	86	G	52	108	108	93	46	46	68	34	28	47	78
17	85	71	70	60	55	49	64	86	93	150	81	62	68	106	150	81	78	74	71	93	86	50	34	45
18	45	37	40	37	39	39	29	44	44	78	136	52	79	46	49	52	49	44	40	54	136	93	71	59
19	87	59	49	45	35	34	59	80	62	57	67	63	74	102	88	104	130	103	95	58	50	46	36	36
20	G	48	27	29	G	27	36	44	88	114	148	81	101	149	116	138	122	117	81	116	70	94	65	71
21	91	84	92	56	34	34	53	149	78		136	169	76	52	62	74	94	103	106	83	59	56	59	34
22	52	50	40	34	56	65	72	78	85	110	152	152	92	100	63	90	103	56	58	30	42	39	32	44
23	48	32	33	31	50	71	70	116	53	104	136	54	84		110	73	120	61	65	59	46	49	110	65
24	71	84	72	59	46	50	61	52	60	64	60	56		106	102	88	81	46	60	43	58	84	59	48
25	72	60	35	G	31	G	54	60	56	64	151	82	62	76	117	50	59	79	95	156	161	91	49	37
26	31	37	31	27	24	24	34	70	78	149		84	80	48	52	65	G	G	34	29		48	56	40
27	57	78	53	47	25	29	29	60	43	72	45	50	61	52		49	48	49	59		82	67	46	59
28	32		G	32	38	29	36	56	62	63	127	61	49	49	G	G	G	40	48	115	90	70	59	59
29	58	54	43	31	24	23	34	52	50	84	108		78		67	78	83	76	71	65	60	45	35	30
30	26	26	G	31	31	52		84	46	52	G	89	102	62	79	98	81	162	85	157	77	67	48	48
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	28	29	29	28	28	28	29	29	28	27	28	29	28	29	29	30	29	30	28	29	30	30	30
MED	56	55	47	34	32	34	36	56	66	78	78	78	78	74	77	76	78	61	60	58	58	56	50	59
U Q	71	71	60	48	41	49	53	74	80	95	127	95	100	97	97	89	94	75	81	78	76	80	59	77
L Q	48	48	37	31	27	27	32	47	53	63	59	60	61	52	58	52	51	42	49	43	41	45	40	44

HOURLY VALUES OF fmin AT Yamagawa

JUN. 2007

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	C	C	C	C	C	C	C	C	C	C	34	28	23	32	28	23	23	16	14	14	14	15	15	14
2	14	14	14	14	14	14	14	28	15	18	20	27	21	28	21	28	24	16	14	17	14	14	14	14
3	15	14	14	15	14	14	14	14	14	15	23		27	22	21	21	27	14	14	14	14	14	15	14
4	14	14	14	14	14	14	17	14	14	17	32	24	20	29	32	34	21	16	14	14	15	15	14	14
5	14	14	14	14	14	14	15	14	16	20	17	18	24	26	32	21	20	15	14	14	14	14	14	15
6	14	14	14	14	14	14	14	14	14	16	20	28	27	27	24	20	15	14	15	14	14	14	14	14
7	14	14	14	14	14	14	14	14	14	18	23	18	26	27	21	33	44	14	14	14	14	14	14	14
8	14	14	14	14	15	14	14	15	16	17	21	21	23	27	23	21	17	14	14	14	15	15	14	14
9	15	14	14	15	14	14	14	14	16	20	20	18	26	27	29	18	18	14	14	14	15	14	14	14
10	14	14	14	14	14	15	14	14	17	20	18	21	29	30	29	18	20	14	14	14	14	14	14	14
11	16	14	14	14	14	14	14	14	16	18	21	33	22	20	22	18	20	16	14	14	14	14	14	14
12		14	14	14	14	14	14	14	14	18	20	22	28	23	22	22	17	14	14	14	14	15	14	14
13	14	14	14	14	14	14	14	14	14	20	21	17	21	21	47	24	20	16	15	14	15	14	14	14
14	14	14	15	14	14	16	14	14	16	17	22	18	18	20	34	18	17	17	15	14	14	14	14	14
15	14	14	14	14	14	15	14	14	18	17	18	23	27	21	22	21	18	15	14	15	14	15	15	15
16	14	14	14	14	14	15	16	14	16	18	21	20	47	20	34	32	17	17	14	15	14	15	14	14
17	14	14	14	14	20	14	14	14	17	18	20	21	29	29	33	21	18	14	14	14	15	14	15	14
18	14	14	15	14	14	14	14	14	24	20	20	22	26	20	18	17	17	14	14	14	14	14	14	14
19	15	14	14	14	14	14	14	14	14	15	20	24	20	28	32	18	18	17	14	15	14	14	14	15
20	14	14	14	15	16	14	14	16	16	15	17	18	18	18	22	20	17	14	14	14	14	14	14	14
21	14	14	14	15	14	14	14	14	16	17	27	24	27	28	23	20	16	14	15	14	14	15	14	14
22	14	15	14	15	15	14	14	14	15	15	20	18	21	28	26	18	17	15	14	14	14	15	14	14
23	15	14	15	14	14	14	14	14	14	17	20	22	34		24	27	18	14	20	14	14	14	14	14
24	14	14	16	15	14	14	14	14	14	17	21	34	35	20	20	20	16	18	14	14	14	14	14	14
25	14	15	14	14	18	14	14	14	14	17	17	18	22	29	21	27	18	17	14	14	14	15	15	14
26	14	14	15	15	15	14	14	14	16	15		22	20	22	18	21	14	14	14	14		14	15	14
27	14	14	14	14	14	14	14	14	14	14	18	21	21	35		24	21	16	14		14	14	14	14
28	14		14	15	14	14	14	14	14	14	16	20	23	34	23	20	17	14	14	14	15	16	14	14
29	14	14	14	14	14	14	14	14	14	17	26	26	21	20	23	20	16	16	14	15	15	14	14	14
30	14	16	15	14	14	14	14	14	14	17	21	27	23	34	33	17	18	14	14	14	15	15	14	14
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	28	29	29	29	29	29	29	29	29	29	29	30	29	29	30	30	30	30	29	29	30	30	30
MED	14	14	14	14	14	14	14	14	15	17	20	22	23	27	23	21	18	14	14	14	14	14	14	14
U Q	14	14	14	15	14	14	14	14	16	18	21	25	27	29	32	24	20	16	14	14	15	15	14	14
L Q	14	14	14	14	14	14	14	14	14	15	19	18	21	20	21	18	17	14	14	14	14	14	14	14

HOURLY VALUES OF foF2 AT Okinawa

JUN. 2007

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	44	42	39	28	29		41	56	A	A		61	A			75	76	85	81	77	86	53	52	50
2				44	42			A	A	77	A	A	A	A	60	68	82	88	85	72	65	60	A	42
3	A		32	29	29	32	A	A	A		A		76	86	86	75	66	75	76	66	64		42	
4	A	A	A	A	A		A	A	A	A	A	A	71	80	80	80	A		A	A	A	A	34	
5	31			34	A	A	40		A	56	A	A	64		A	A	A	A	A	A	A	50	A	A
6	A	A	A		A	28	42	58	65	56	57	A	A	A	62	60	78	85	63	53		63	51	43
7	31	A	44	31		30	44	62	66	A	A	A	A		70	77	74	67	64	66	63	64	A	58
8	52	49	46	43	35	40	46	57	50			70	71	A	A	A	A	A	A	61		45	51	52
9				35	37	37	46	56	56	54	59	61		71	72	83	100	101	86	63	55	54	53	60
10	54	53	51			A	45	62	72	A			72	72	A	A	A	A	A	A	54	A	A	A
11	A	A	A	A	A	A			A	74	A	A	A	77	74	77	87	96	113	107	A	A	43	43
12	A	42	41	29	34	31	44	51	A			61	A	A	72	82			A	97	75	61	53	50
13	46	43		35	30	29	41	52	79	A	A	A	A	A	77	81	A		A	A	69	54	A	A
14	30	A	A	A	A	A	50	51	58		A	A	64	71	75	100	92	81	83	88	87	66		
15	44	42		32	40		40	54	A	A	A	A	A	A		63	60	56	A	A	44	A	32	
16	A	A	A	A		A	38	47		A	A	A		75	A	75	84	88	93	73	52	A		
17	A	A		A		A	A	72	47	A	A	A		A	A	82	84	A	76	80		61	52	45
18	36	38	37	A	C	C	37		51	69	A						58	56	62	66			40	A
19	A	A	A			A	30	A	A	A	A	A	A	A	A	A	C	C	C	C	C	50	A	A
20	32	40					A	54	A	A	A	A	A	A	A	69	80	91	83	A	A	A	A	A
21	A	A			A		A	A	A	A	70	A	A	A	A	A	A	64	66	66	66			
22	A		A	A		A	A	A	A	A	A	A	A	A	82	87	A	A	A	73	A	70	72	71
23		63		A	32	30	47	A	A	A	A		A		A	A	76	86	75	50	A	A	A	
24		A	A	A	A	A	A	A	56	51							65	70	80	74	64		A	36
25	40	37	29			A		45		A	A		A	A	C	C	C	C	C	C	C	C	C	C
26	44	49	50	30			A	54	A	61	A	A	A	A	C	C	C	C	C	C	C	C	C	C
27	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
28	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
29	C	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																								
	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	12	11	9	11	9	8	15	15	10	8	3	4	6	7	11	16	15	15	15	17	13	13	12	11
MED	42	42	41	32	34	30	42	54	57	58	59	61	71	75	74	77	78	85	80	72	64	60	51	50
U Q	45	49	48	35	38	34	46	58	66	71	70	65	72	80	80	82	84	88	85	78	72	63	52	58
L Q	31	40	34	29	29	29	40	51	51	55	57	61	64	71	70	72	66	67	66	64	54	51	41	43

HOURLY VALUES OF fEs AT Okinawa

JUN. 2007

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	38	30	G	G	26	G	G	48	71	53	40	54	53			G	G	36	G	31	G	G	G	26
2	78	40	33	G	49	27	45	87	79	62	94	93	58	68	51	48	G	41	47	46	37	30	70	34
3	67	44	27	G	G	G	68	82	136	66	125		67	63	69	76	56	48	42	34	56	42	36	41
4	60	54	70	45	60	G	49	68	74	67	86	79	56	58	53	62	100	105	107	111	133	114	27	
5	G	36	36	31	71	48	28	40	62	62	82	80	65	73	68	97	82	67	57	72	113	35	109	49
6	70	87	87	33	36	26	34	43	54	52	46	46	75	64	56	54	48	48	44	40	40	57	39	G
7	71	51	37	29		30	39	42	51	82	86	84	67	61	G	58	G	45	49	35	G	36	48	37
8	G	G	G	G	G	G	G	G	40	53	G	G	G	115	136	146	154	106	96	34	38	39	G	28
9		37	36	G	G	G	G	35	G	49	44	55	44	57	61	76	G	124	52	53	57	36	51	36
10	38	48	57	49	29	50	40	52	51	103	42	49	50	63	66	96	103	117	106	83	53	83	53	59
11	92	83	92	48	56	59	49	45	85	67	95	150	176	75	52	65	44	G	83	60	90	83	27	37
12	58	37	28	30	G	G	G	36	92	93	87	49	88	101	66	69	69	93	92	92	60	45	42	32
13	26	32	40	35	29	28	58	59	39	68	93	78	94	90	72	52	81	63	88	104	36	43	78	82
14	48	66	51	58	57	41	35	42	38	46	49	54	G	55	64	71	48	60	34	38	35	28	36	
15	36	34	48	34	77	35	32	41	54	70	86	63	112	76	G	52	58	46	65	78	48	37	G	30
16	56	49	81	36	G	44	31	36	61	84	95	71	65	76	80	95	60	75	40	49	44	78	48	51
17	36	66	36	53	32	52	48	68	48	67	69	78	62	82	110	77	62	84	68	70	36	G	G	G
18	G	G	30	35	C	C	G	38	41	80	85		G	42		G	38	41	37	30	26	28	78	47
19	36	58	46	34	26	37	26	95	91	87	73	108	90	112	105	110	C	C	C	C	C	49	44	41
20	G	G		27	27	27	49	52	86	73	91	94	91	174	107	41	48	80	78	114	79	72	90	93
21	131	77	32	34	33		51	52	82	152	62	103	158	124	124	83	94	57	36	G	30		28	48
22	36	28	57	59	28	50	50	88	67	179	80	98	121	81	66	49	138	87	115	82	85	59	27	27
23		32		82	G	G	58	113	103	56	53	G	70		56	79	55	79	48	44	72	78	49	36
24	34	51	55	57	49	49	48	57	57	63	G	G			50	58	40	38	45	55	46	25	46	27
25	34	26	29	28	28	35	37	33	48	104	94	77	114	89	C	C	C	C	C	C	C	C	C	C
26	32	29	48	30			40	51	79	86	132	80	67	58	C	C	C	C	C	C	C	C	C	C
27	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
28	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
29	C	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																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	24	26	24	26	23	23	26	26	26	26	26	24	25	23	22	24	23	23	23	23	23	23	24	22
MED	37	38	38	34	29	30	40	50	62	68	84	78	67	75	66	67	56	63	52	53	46	42	43	36
U Q	63	54	56	48	49	48	49	68	82	86	93	88	92	90	80	81	82	87	88	82	72	72	52	48
L Q	33	30	31	28	G	G	28	40	48	62	49	51	54	61	53	52	40	45	42	35	36	30	27	28

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HOURLY VALUES OF fmin AT Okinawa

JUN. 2007

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	15	14	15	21	32	32	34	33			49	46	20	14	14	21	14	21	15
2	15	14	14	17	15	14	14	26	20	21	22	28	27	28	23	28	18	14	14	14	14	15	14	15
3	14	16	15	17	15	18	15	14	15	24	28		29	27	26	22	38	20	14	14	15	14	14	14
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28	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
29	C	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																								
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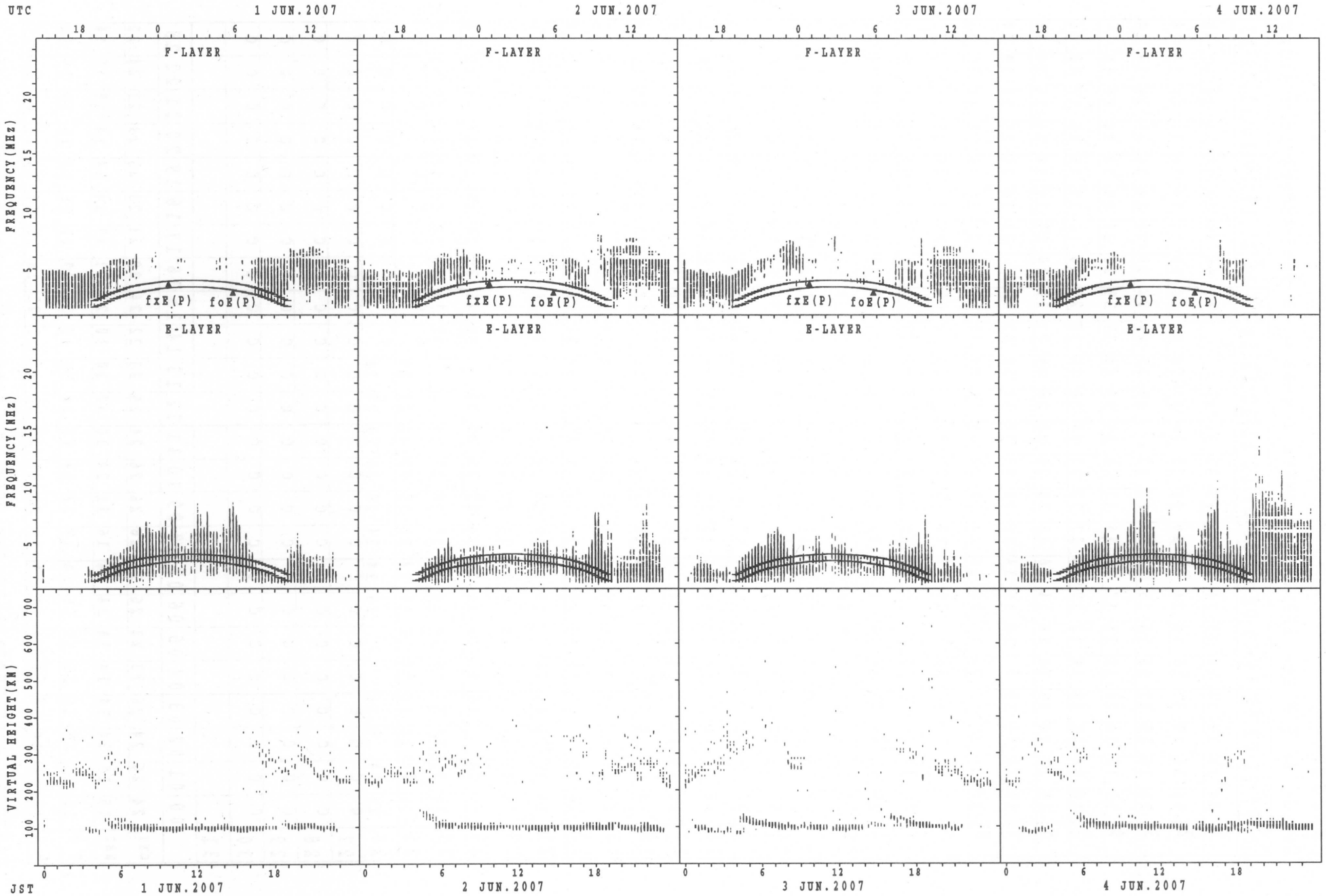
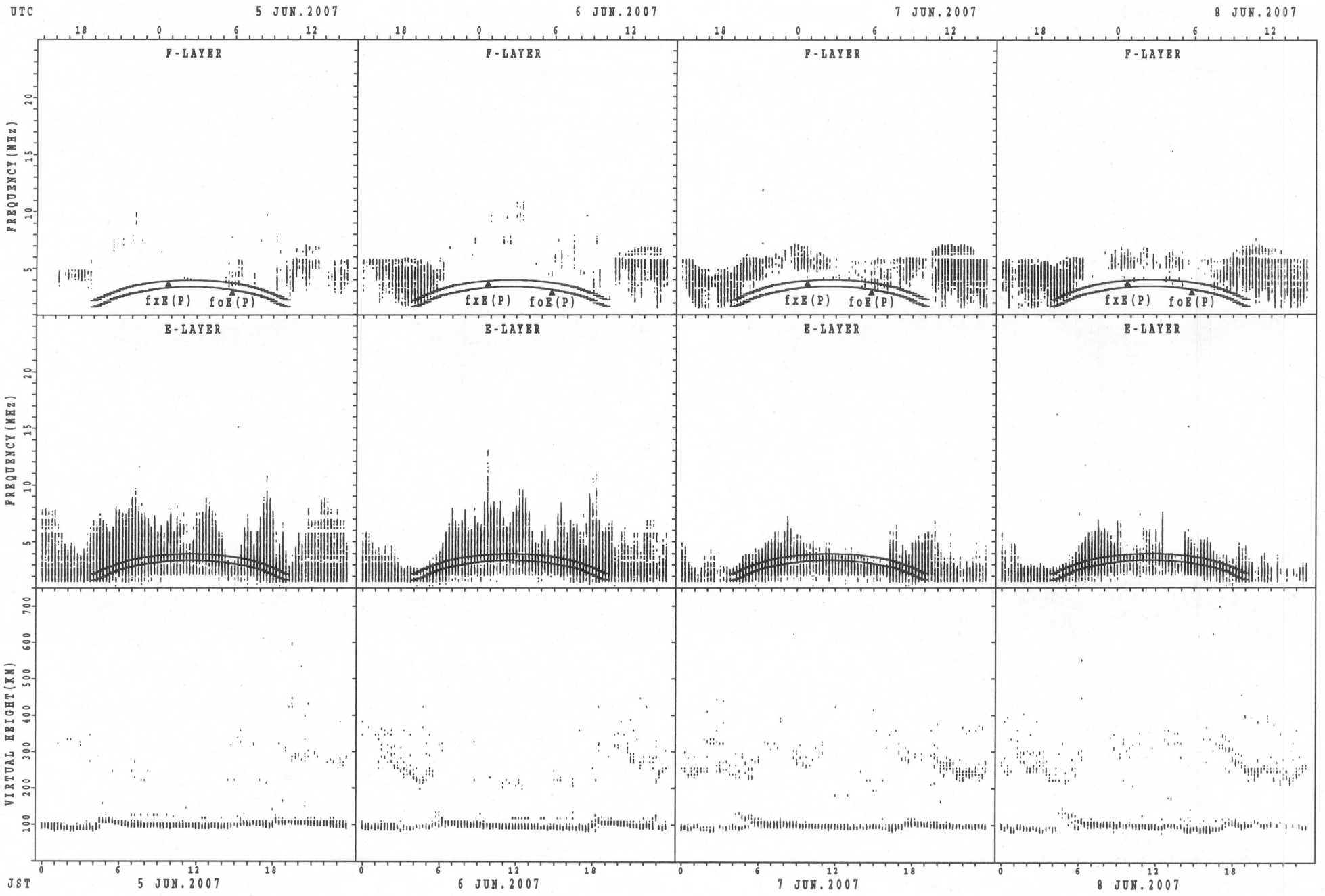
CNT	24	26	24	26	23	23	26	26	26	26	26	24	25	23	22	24	22	23	23	23	23	23	24	22
MED	15	15	14	14	14	14	14	14	16	21	24	30	32	30	30	26	21	17	14	14	14	15	15	14
U Q	15	15	15	15	15	15	15	14	17	22	28	34	34	35	35	31	29	20	15	15	15	15	15	15
L Q	14	14	14	14	14	14	14	14	15	20	22	27	28	28	26	22	18	15	14	14	14	14	14	14

SUMMARY PLOTS AT Wakkanai



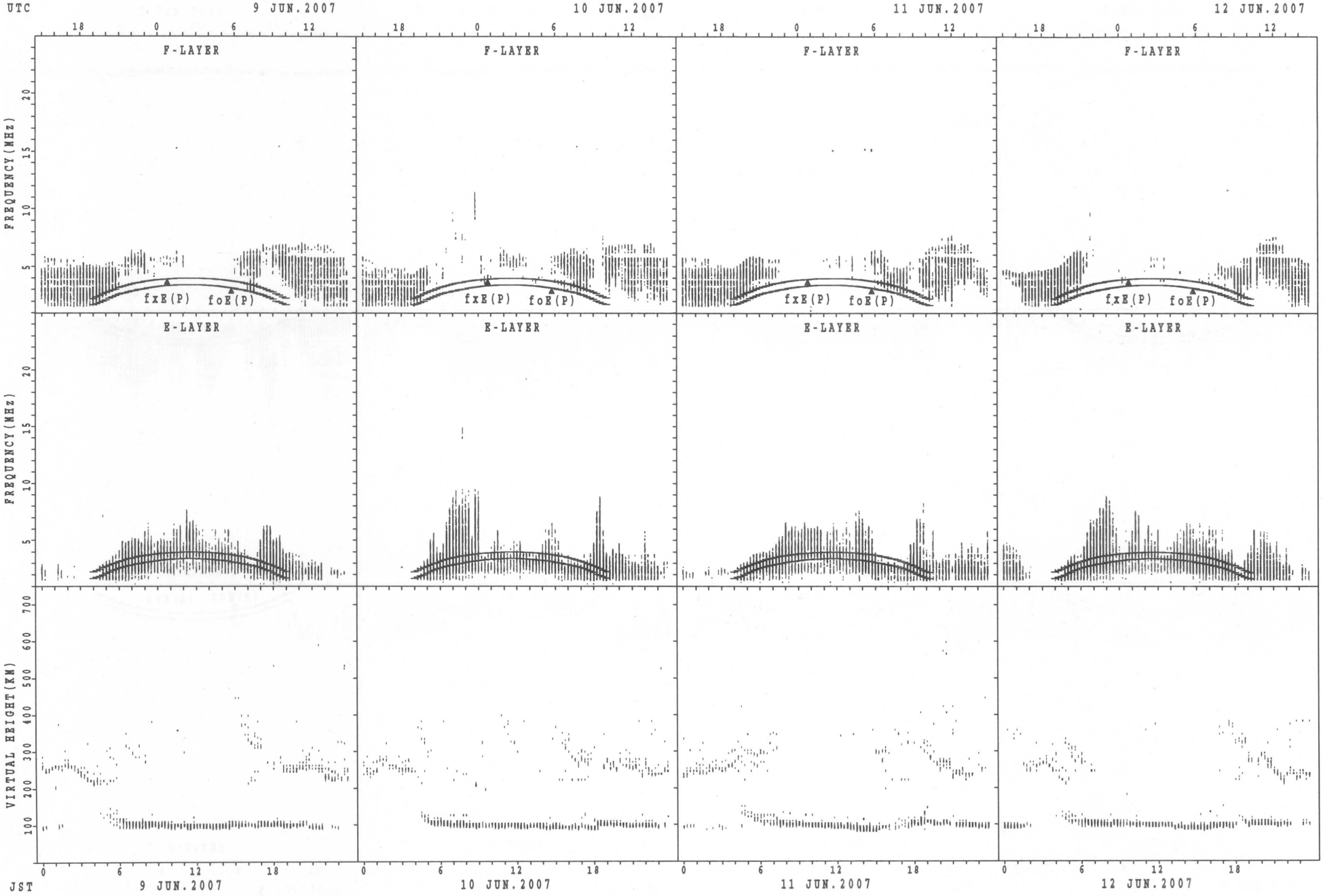
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



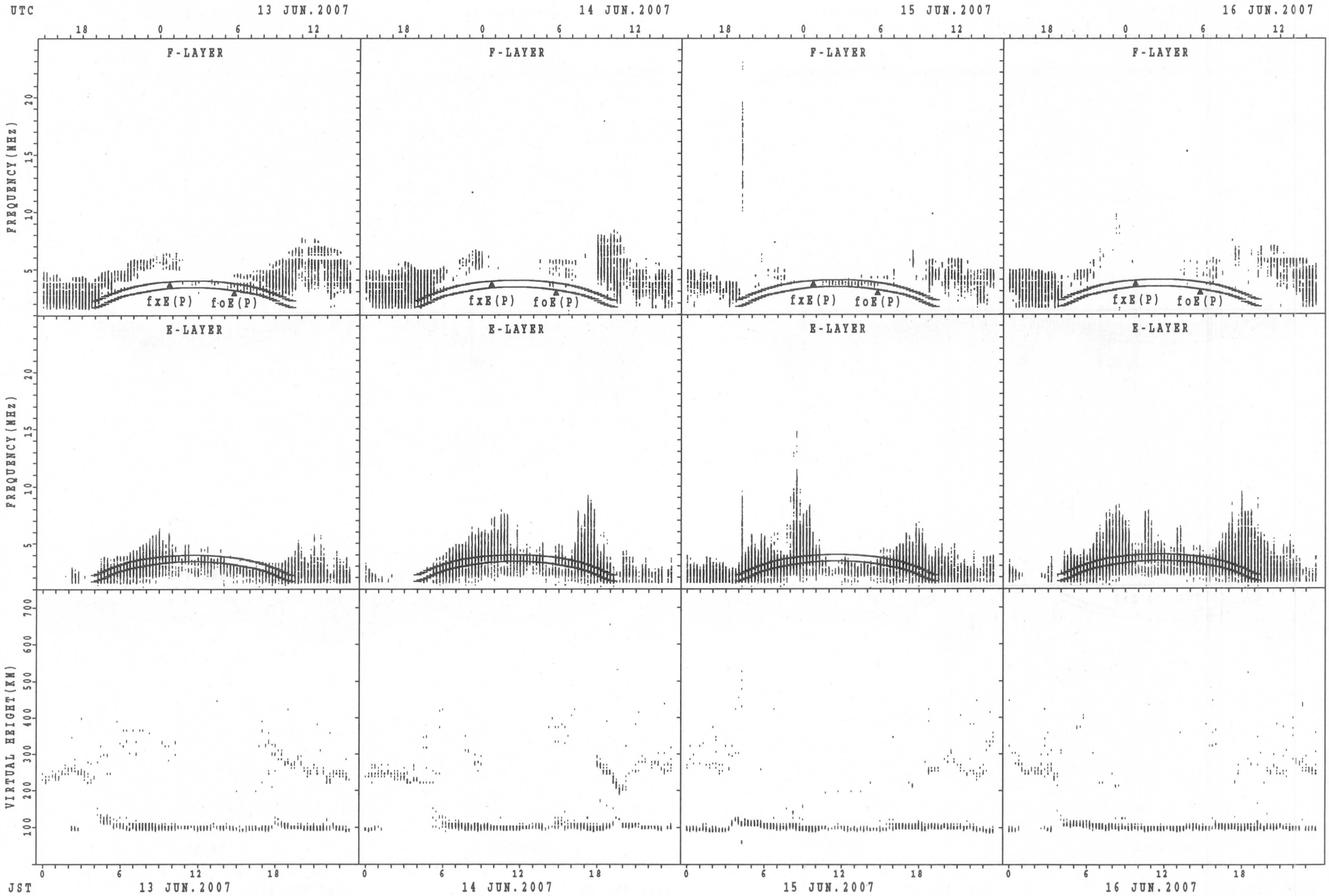
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



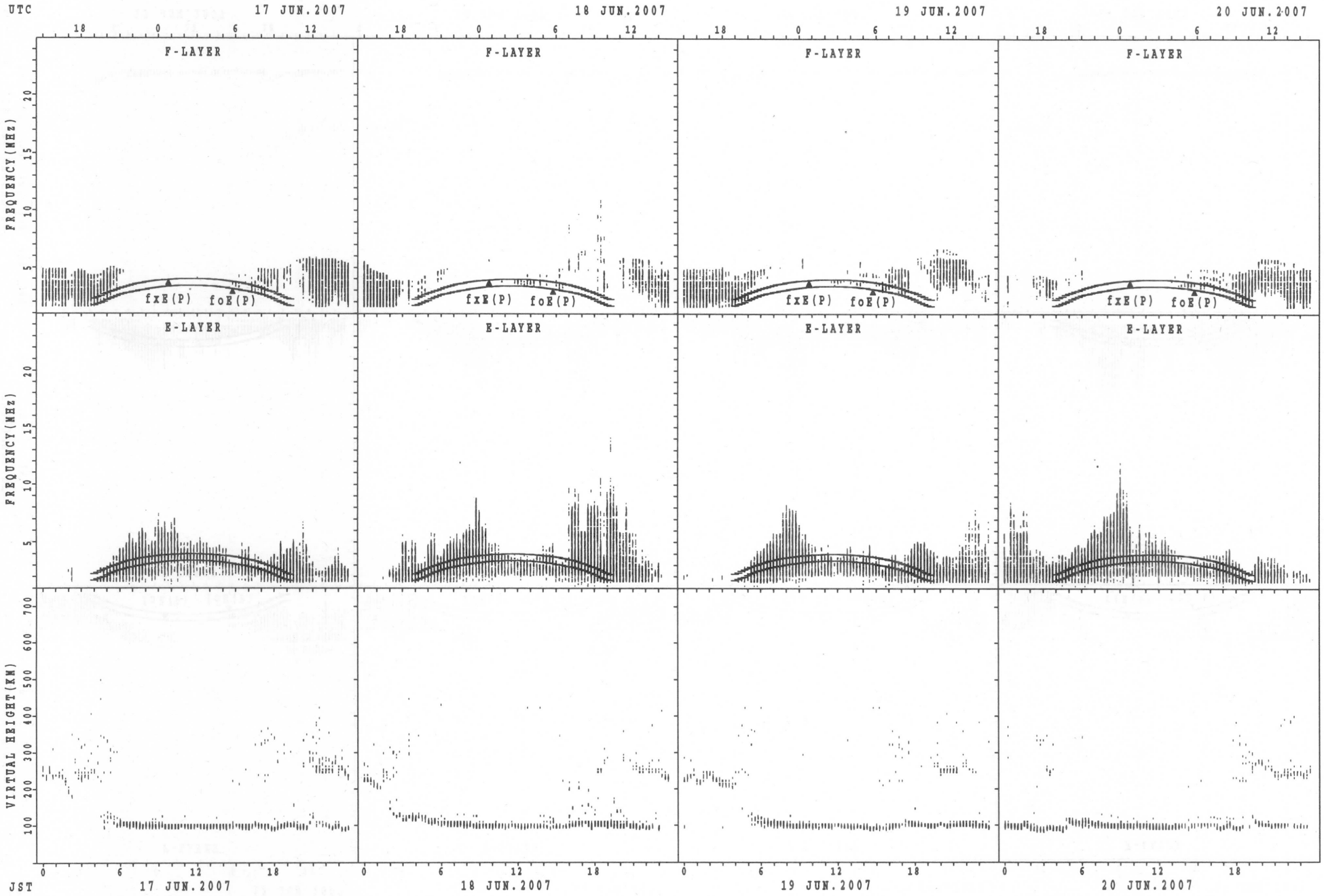
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



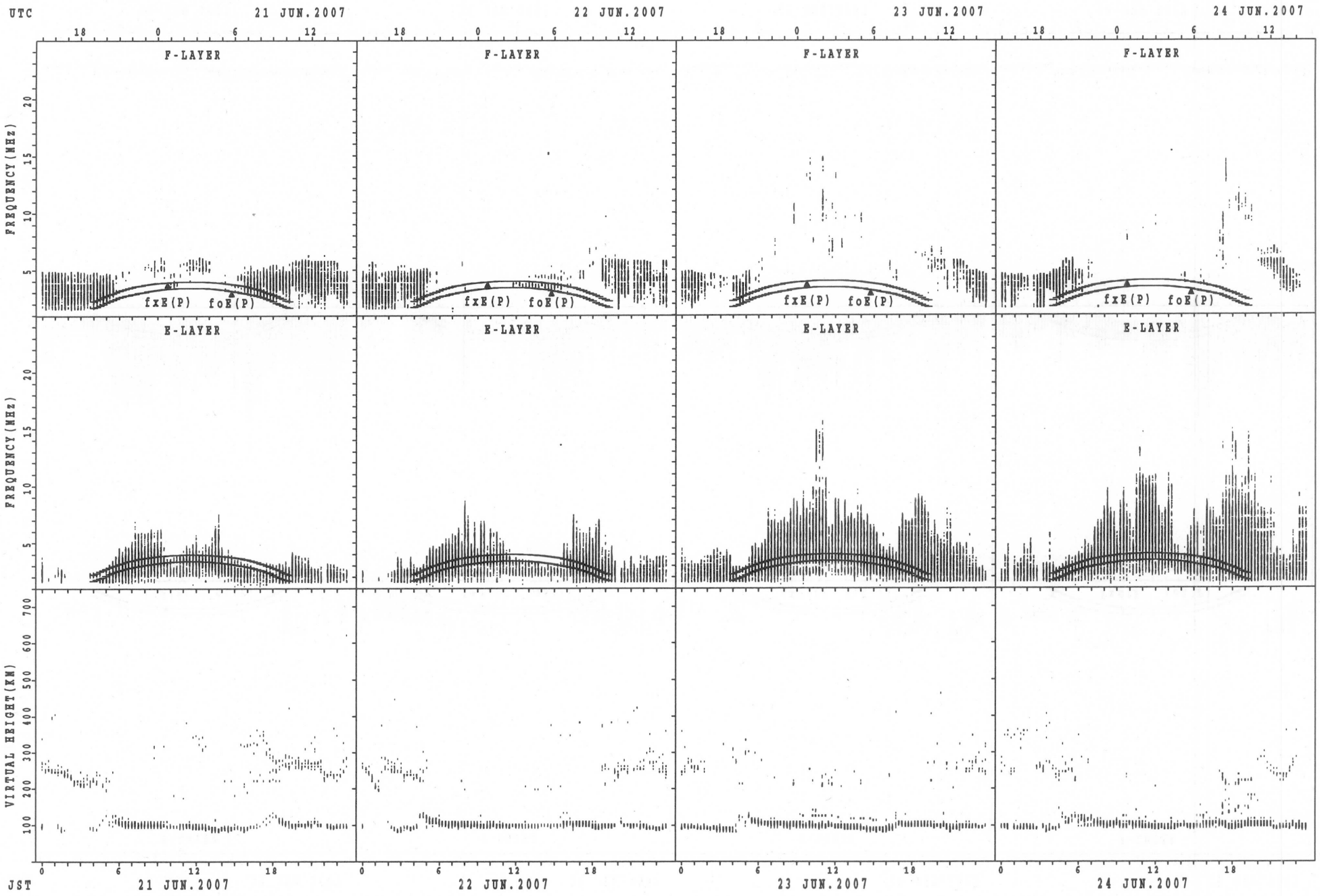
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



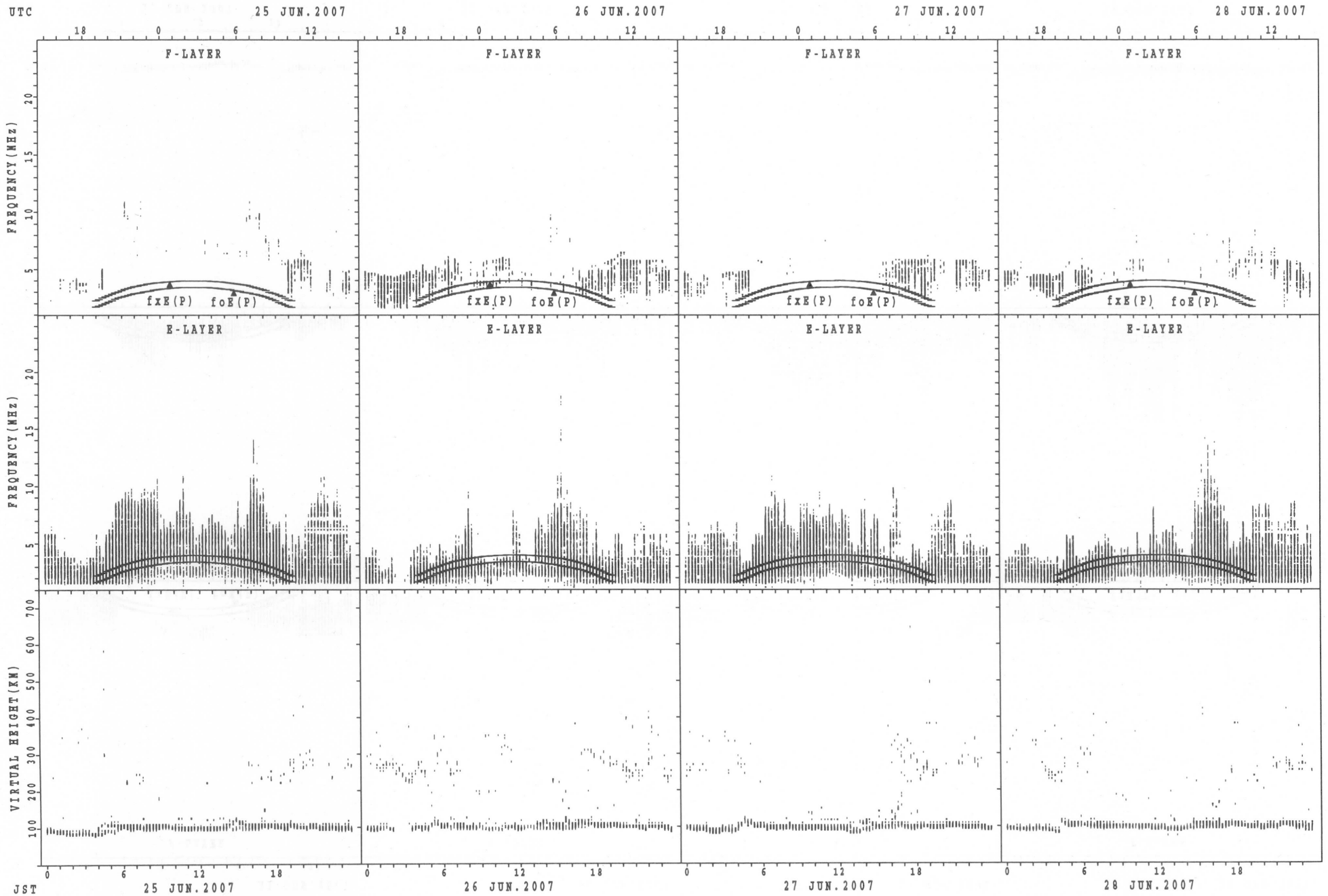
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



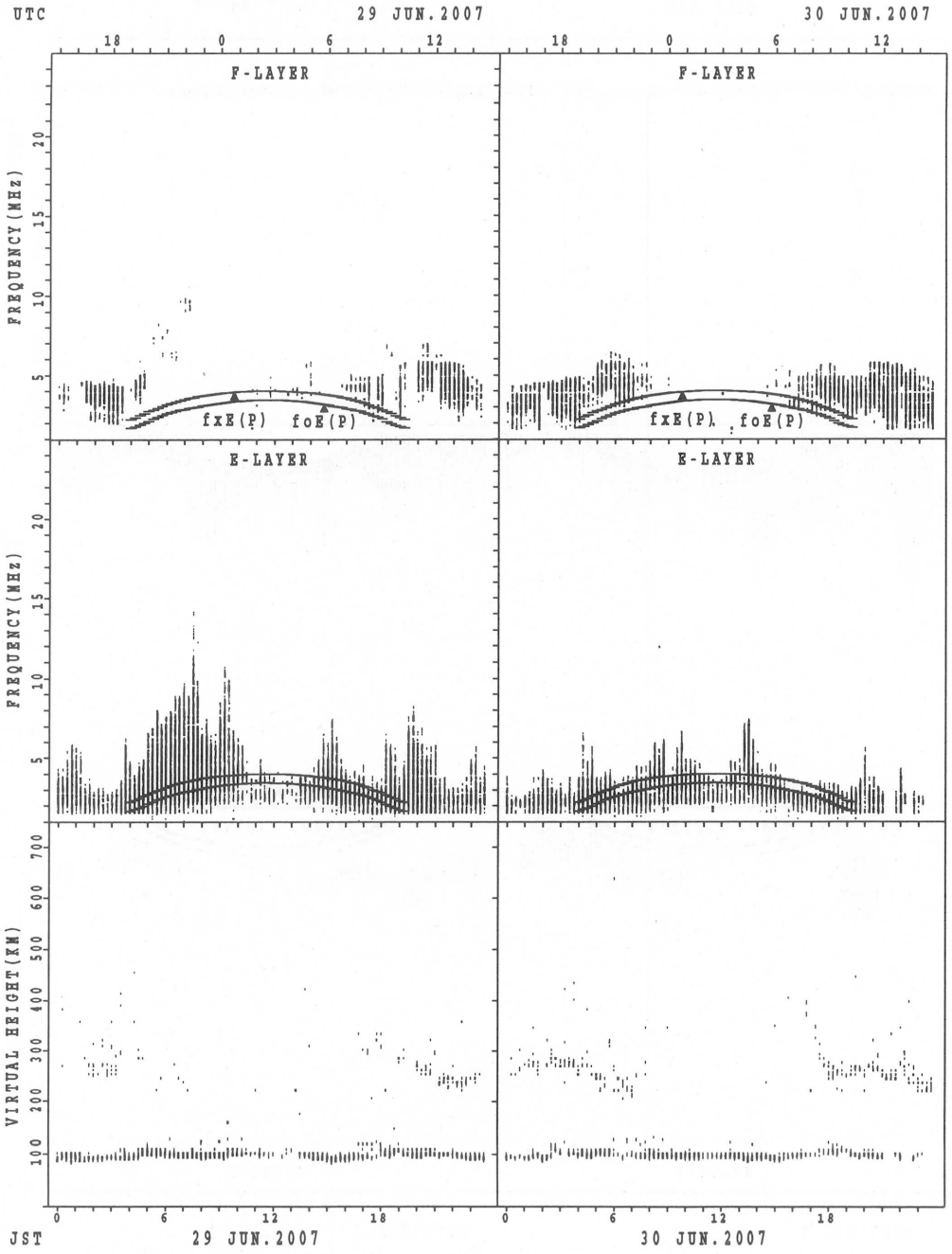
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



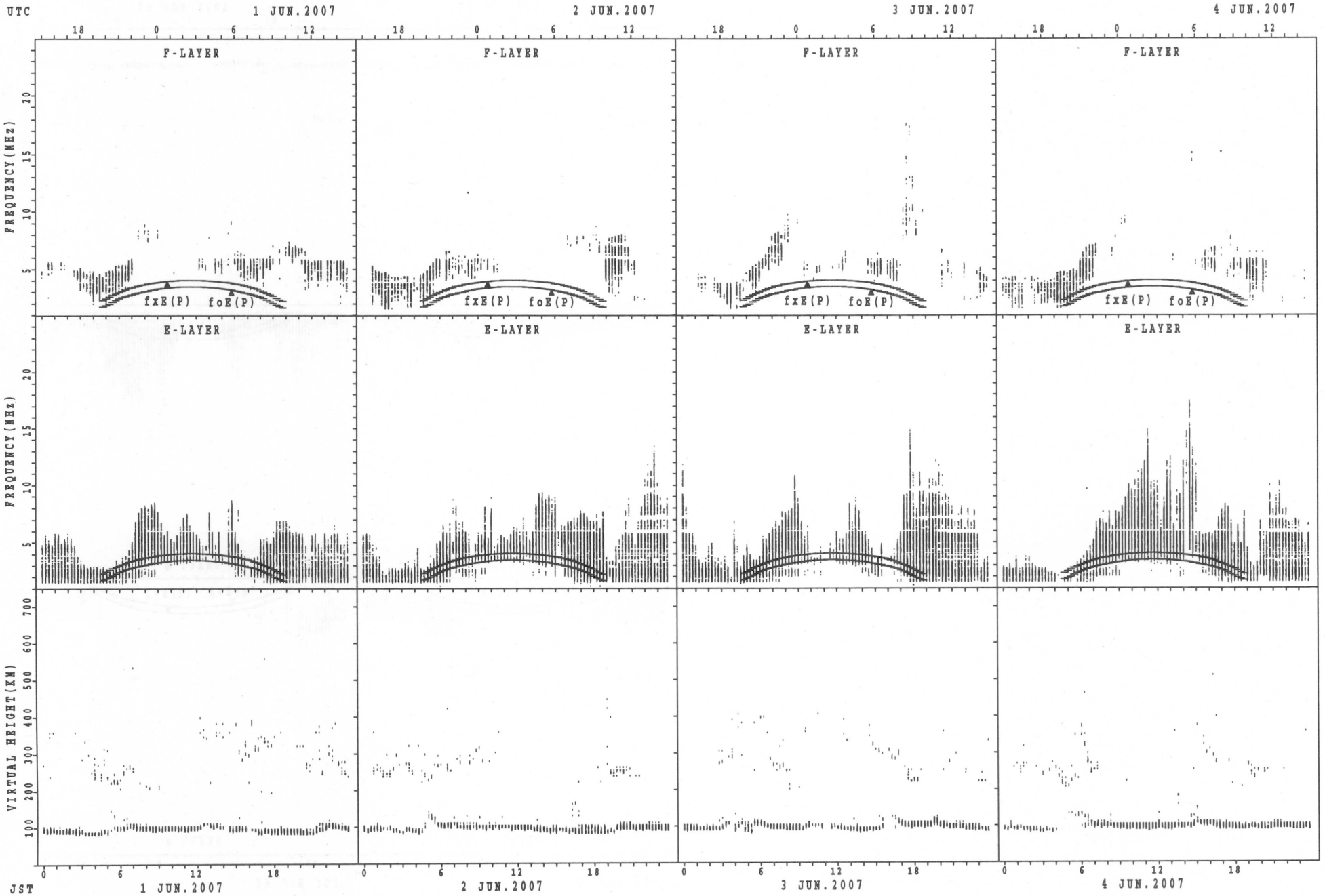
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



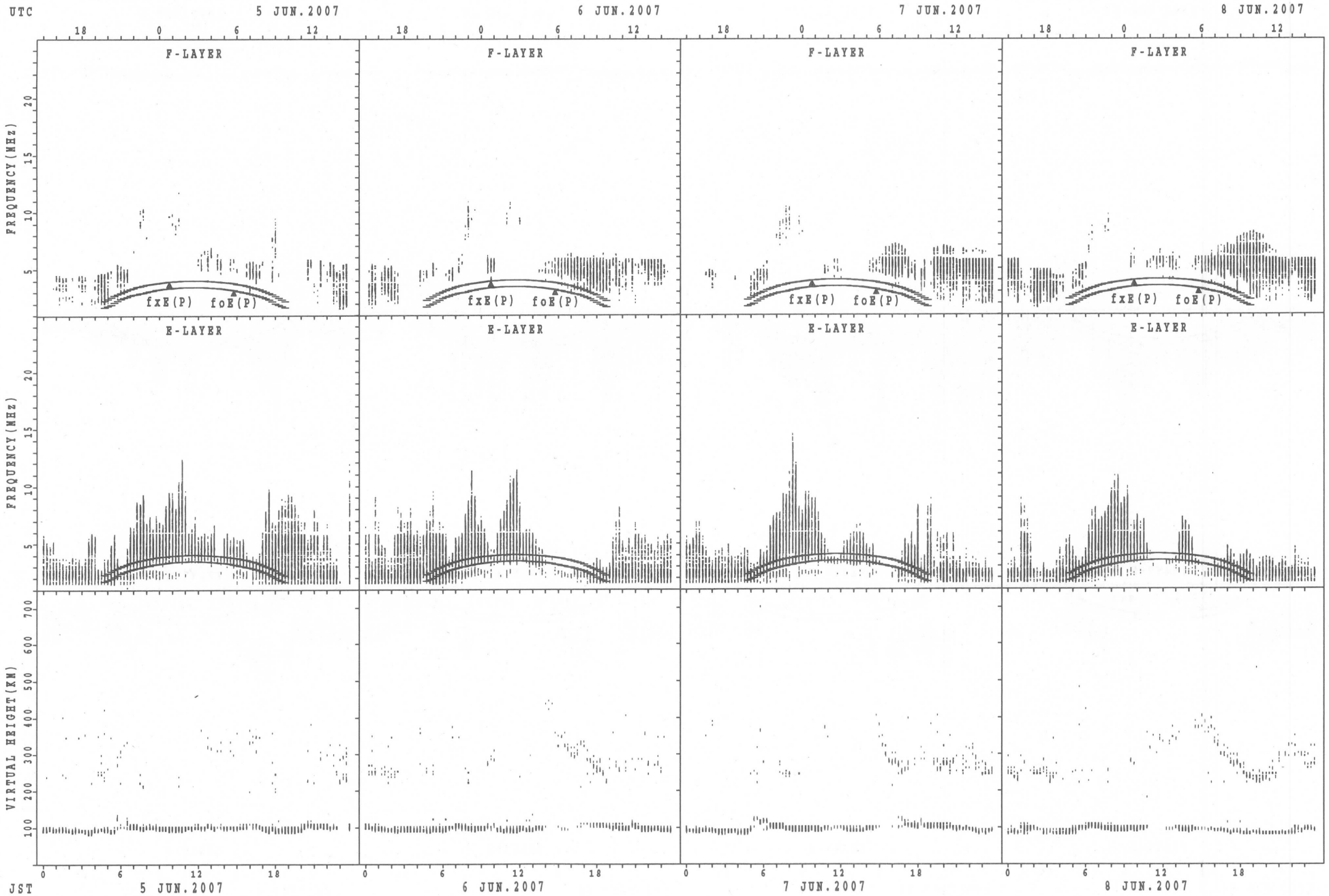
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



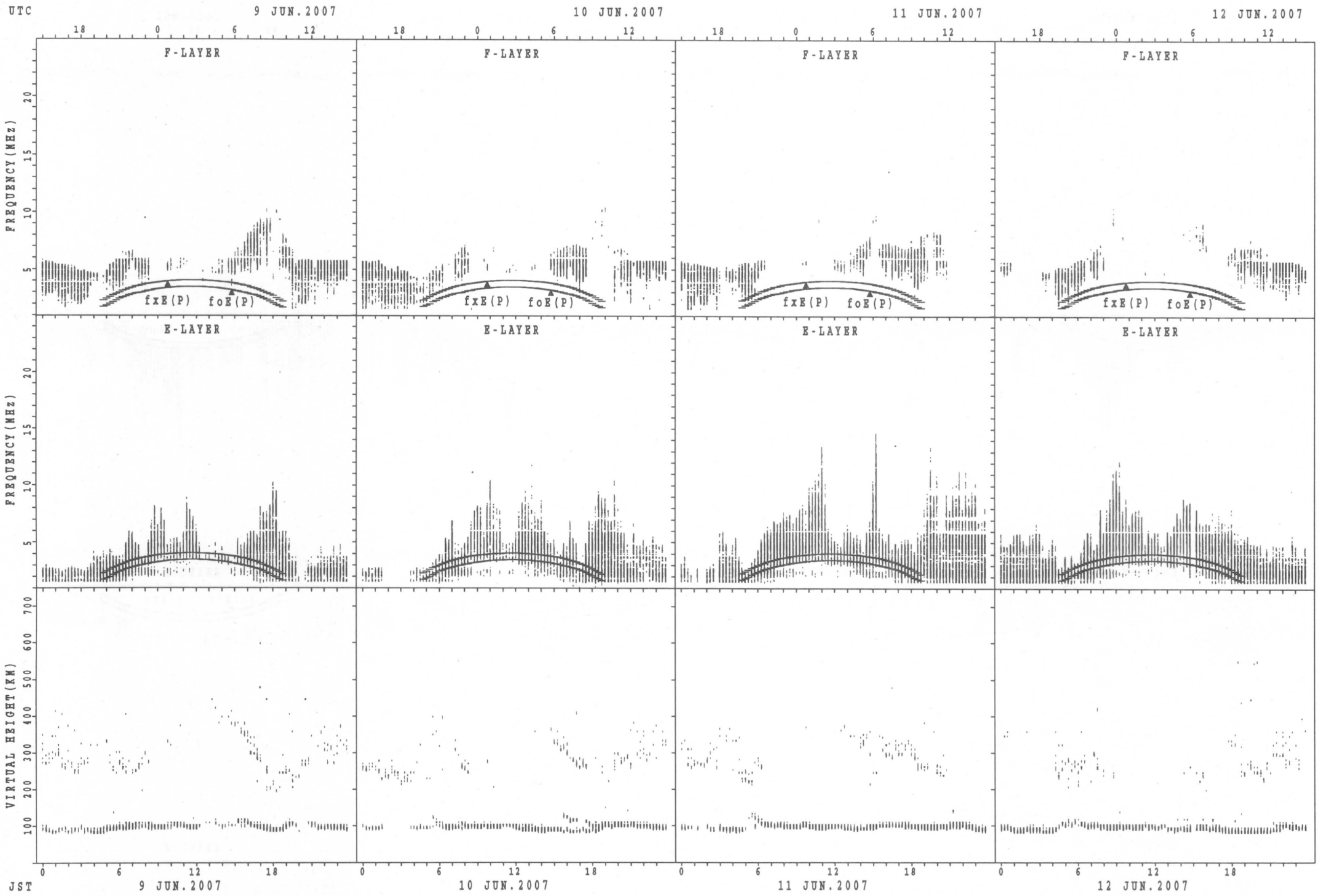
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



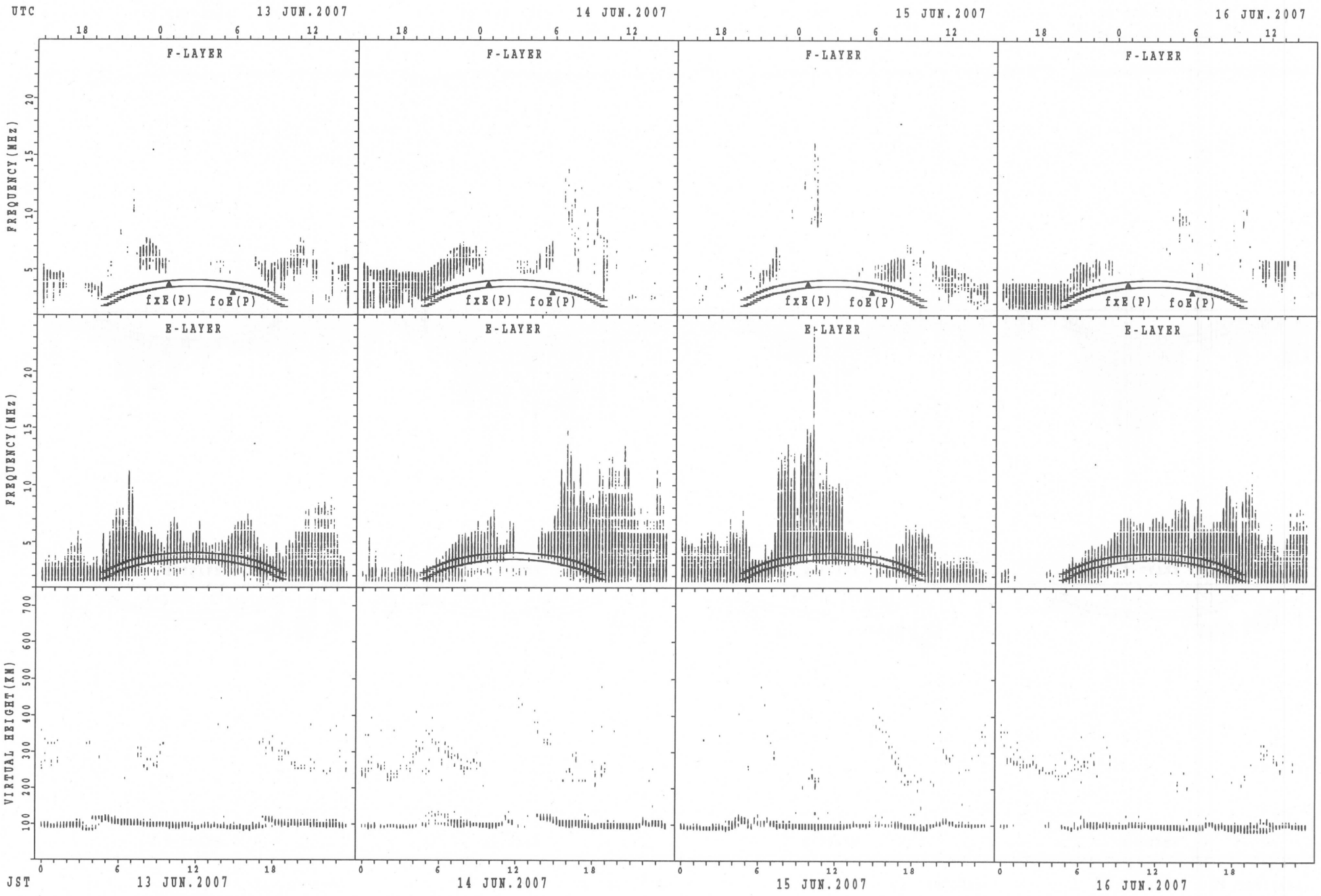
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



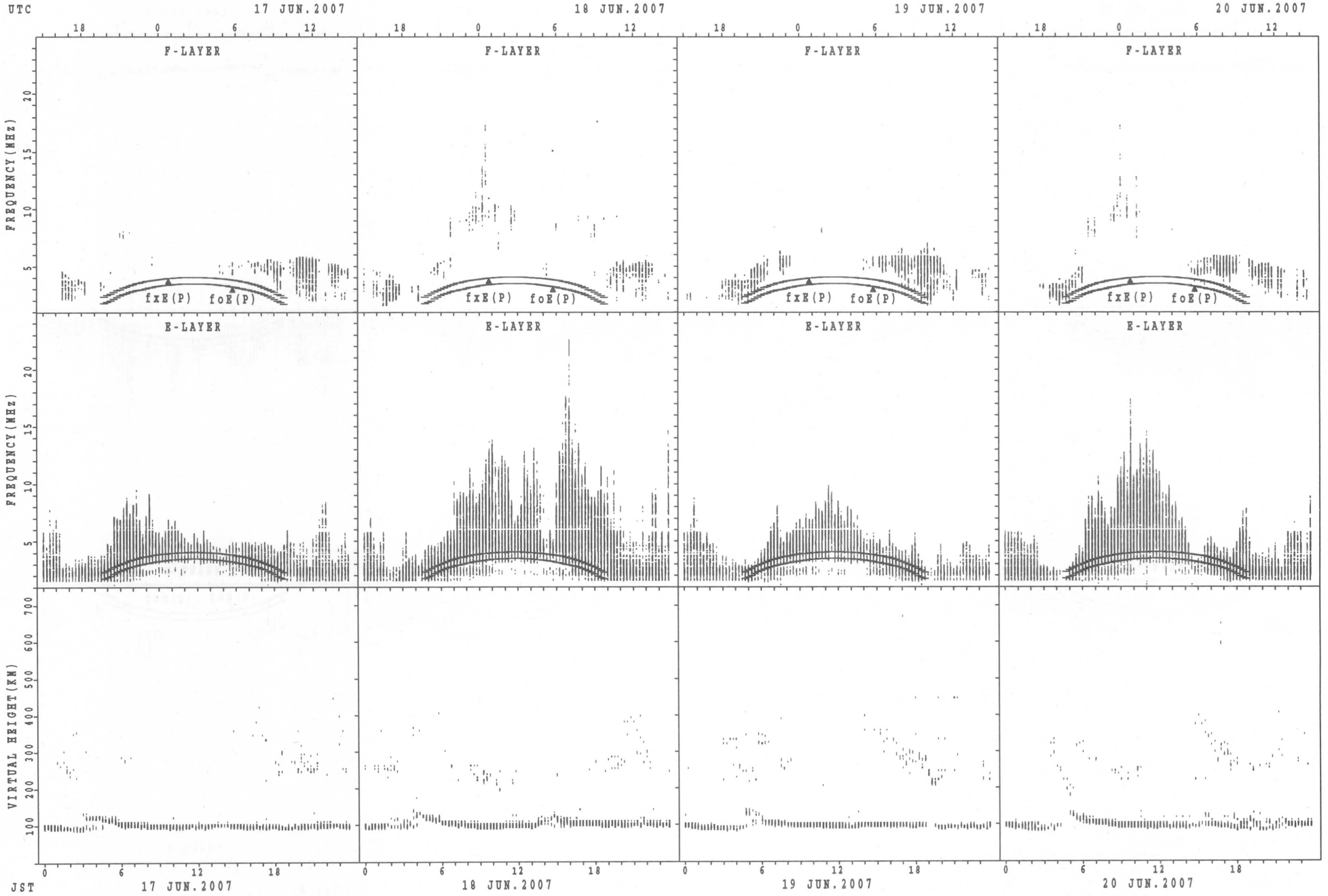
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



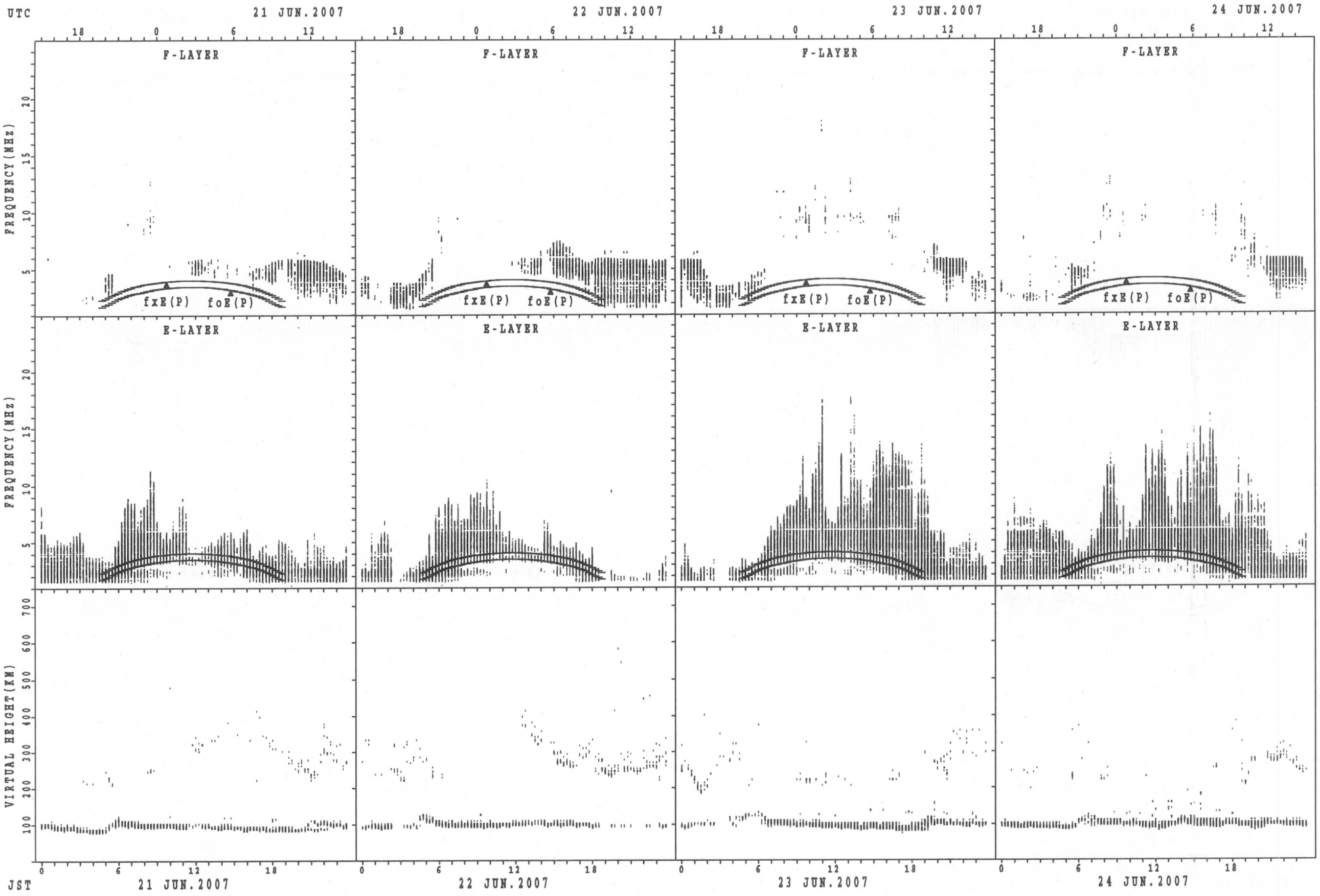
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji

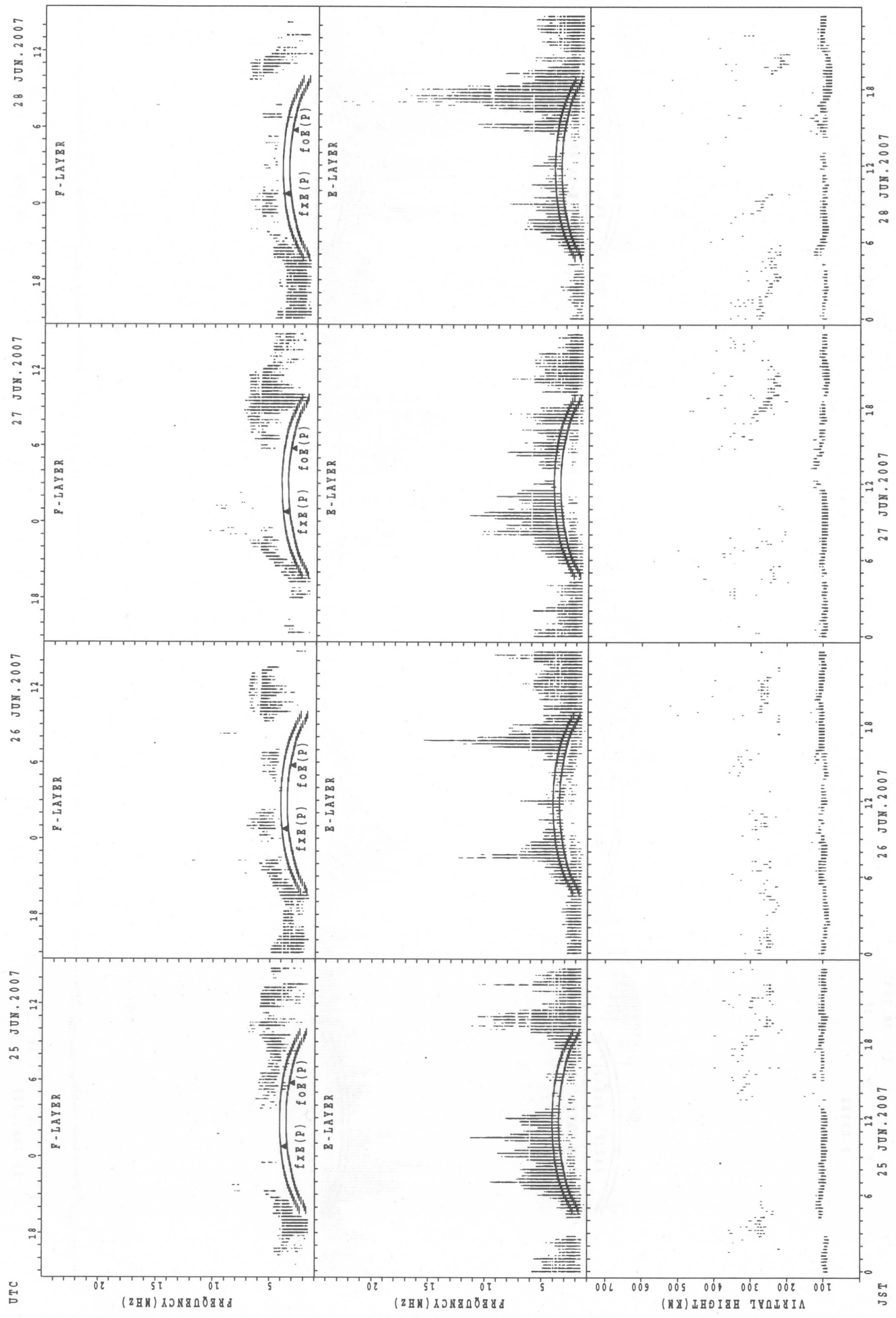


fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

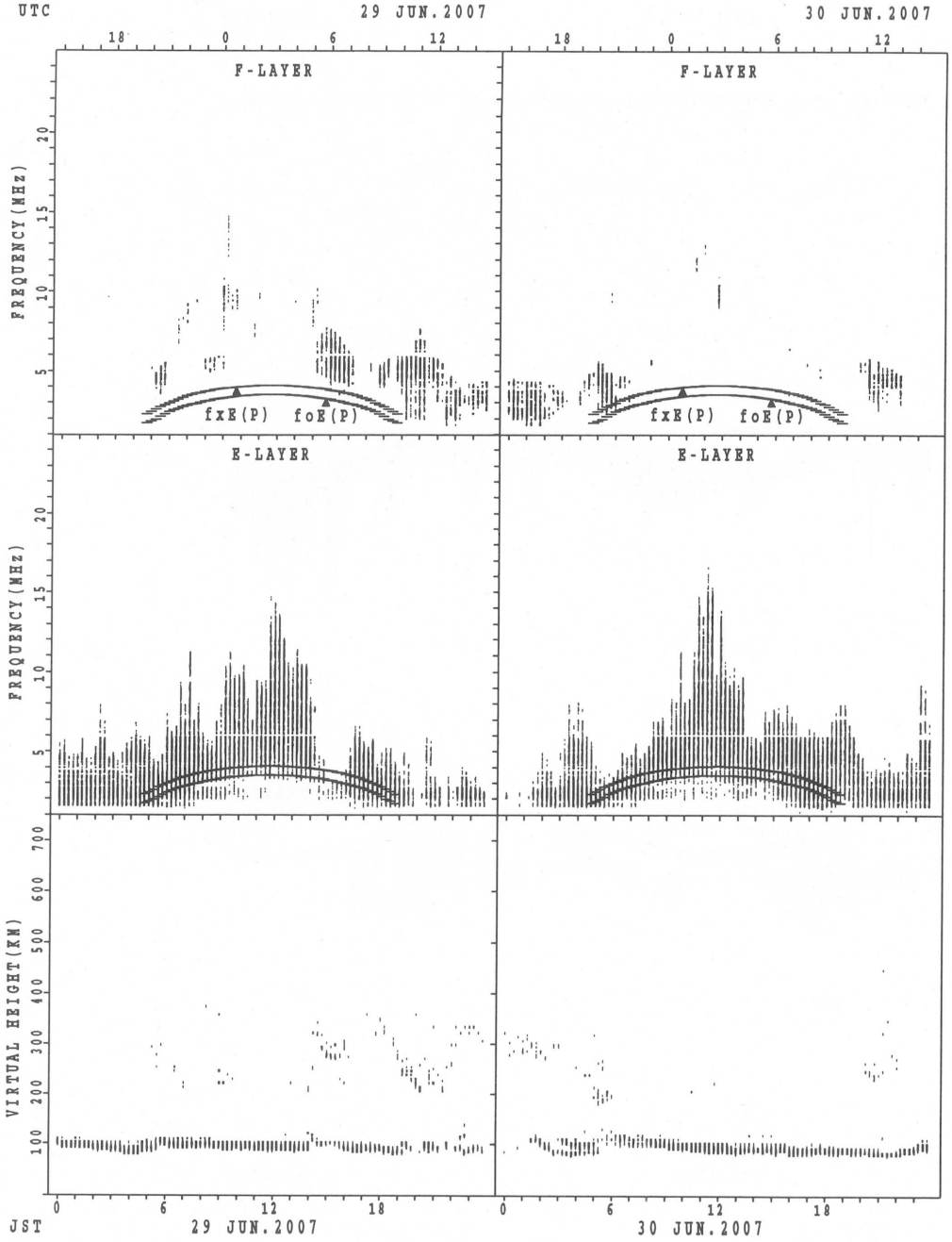
SUMMARY PLOTS AT Kokubunji



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

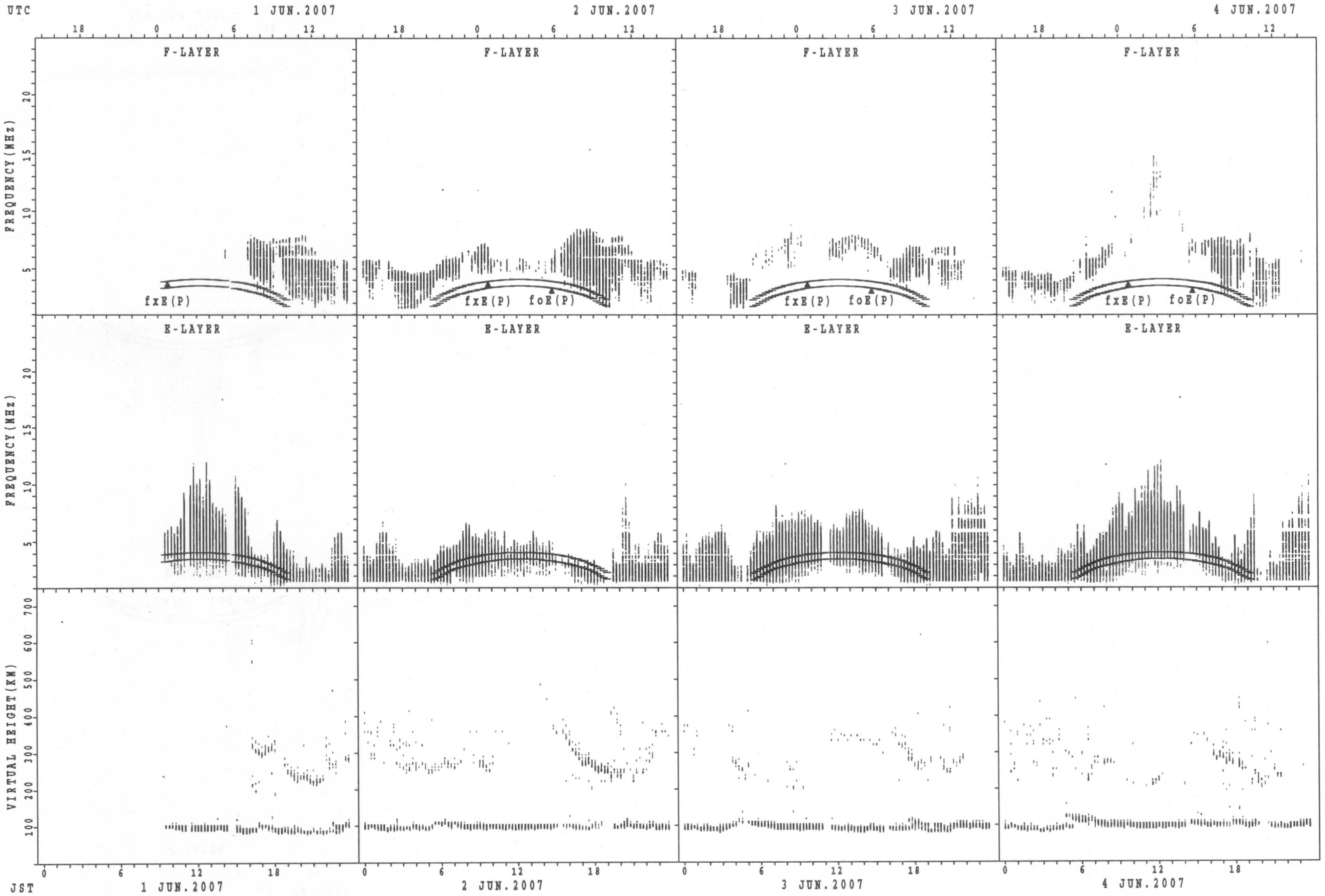

SUMMARY PLOTS AT Kokubunji
UTC
JST
25 JUN.2007
26 JUN.2007
27 JUN.2007
28 JUN.2007
F-LAYER
E-LAYER
fxE(P) foE(P)
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



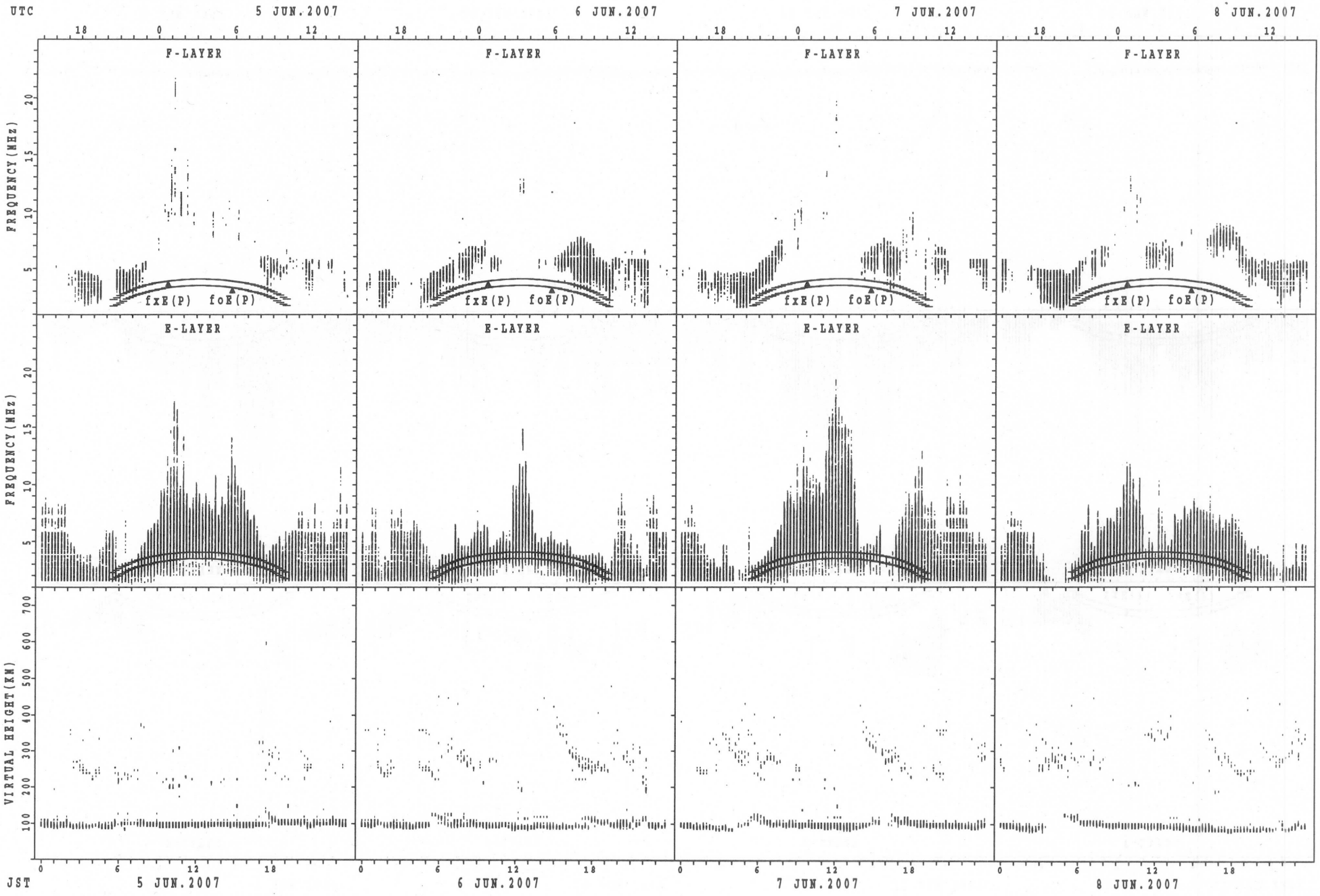
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



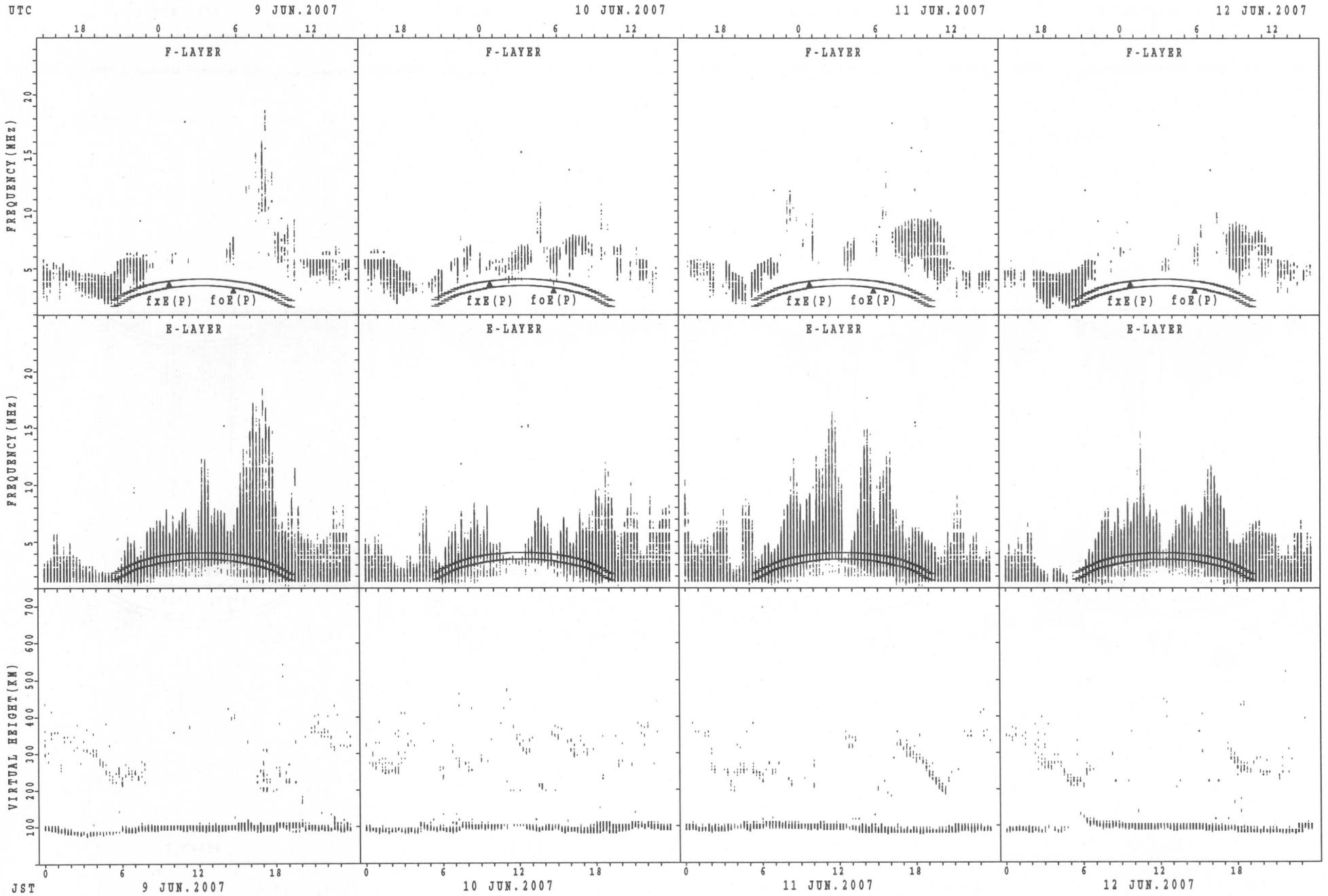
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



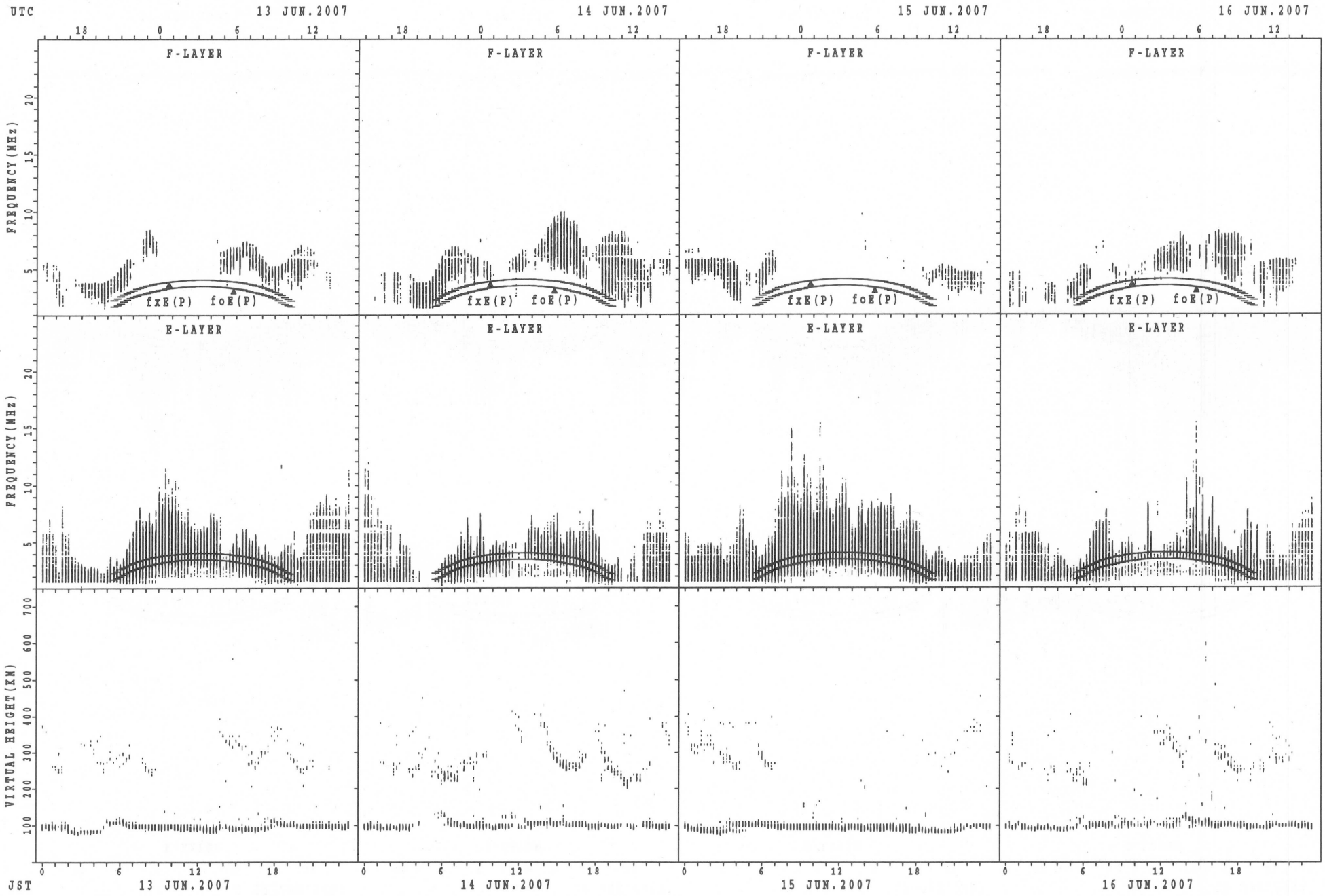
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



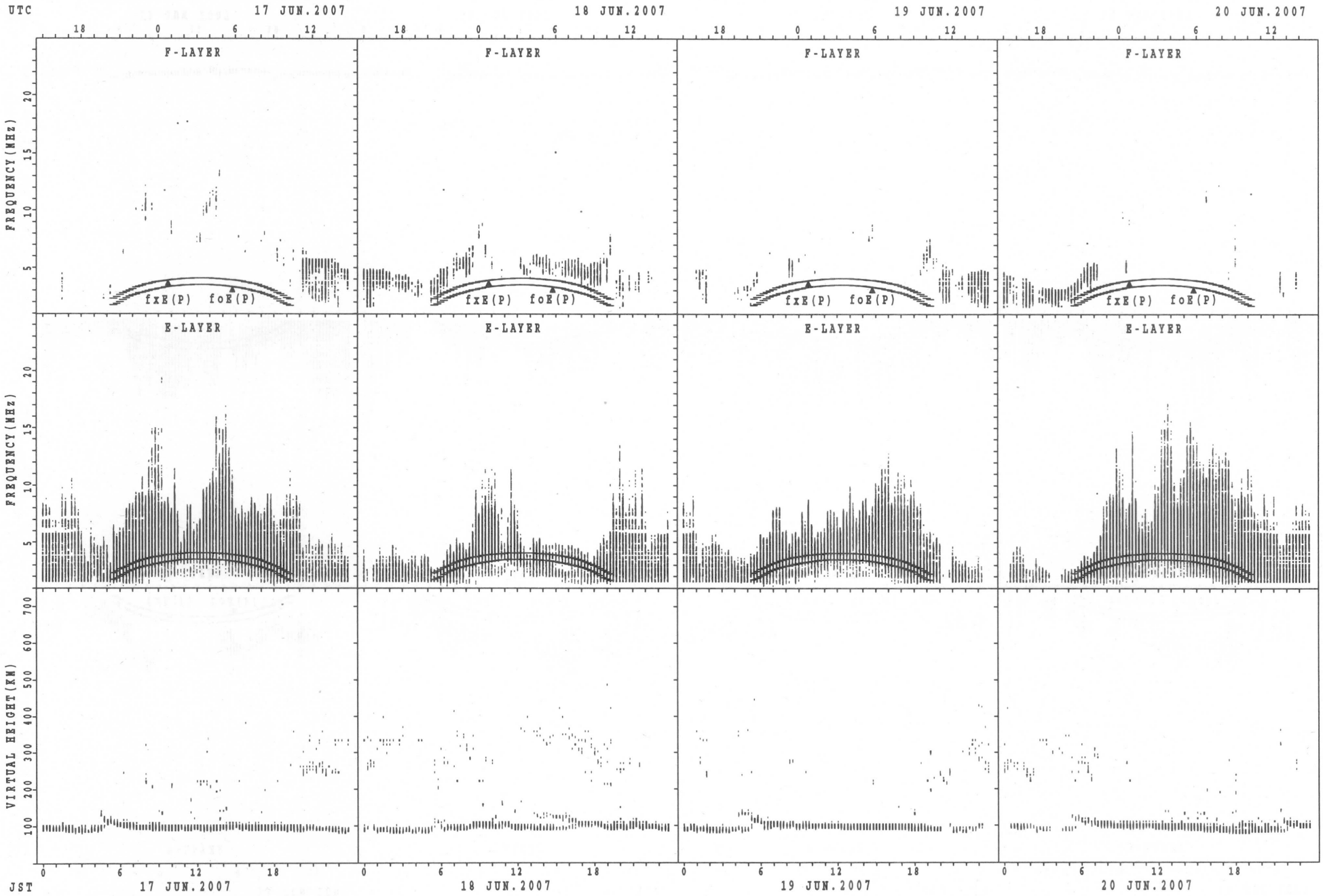
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



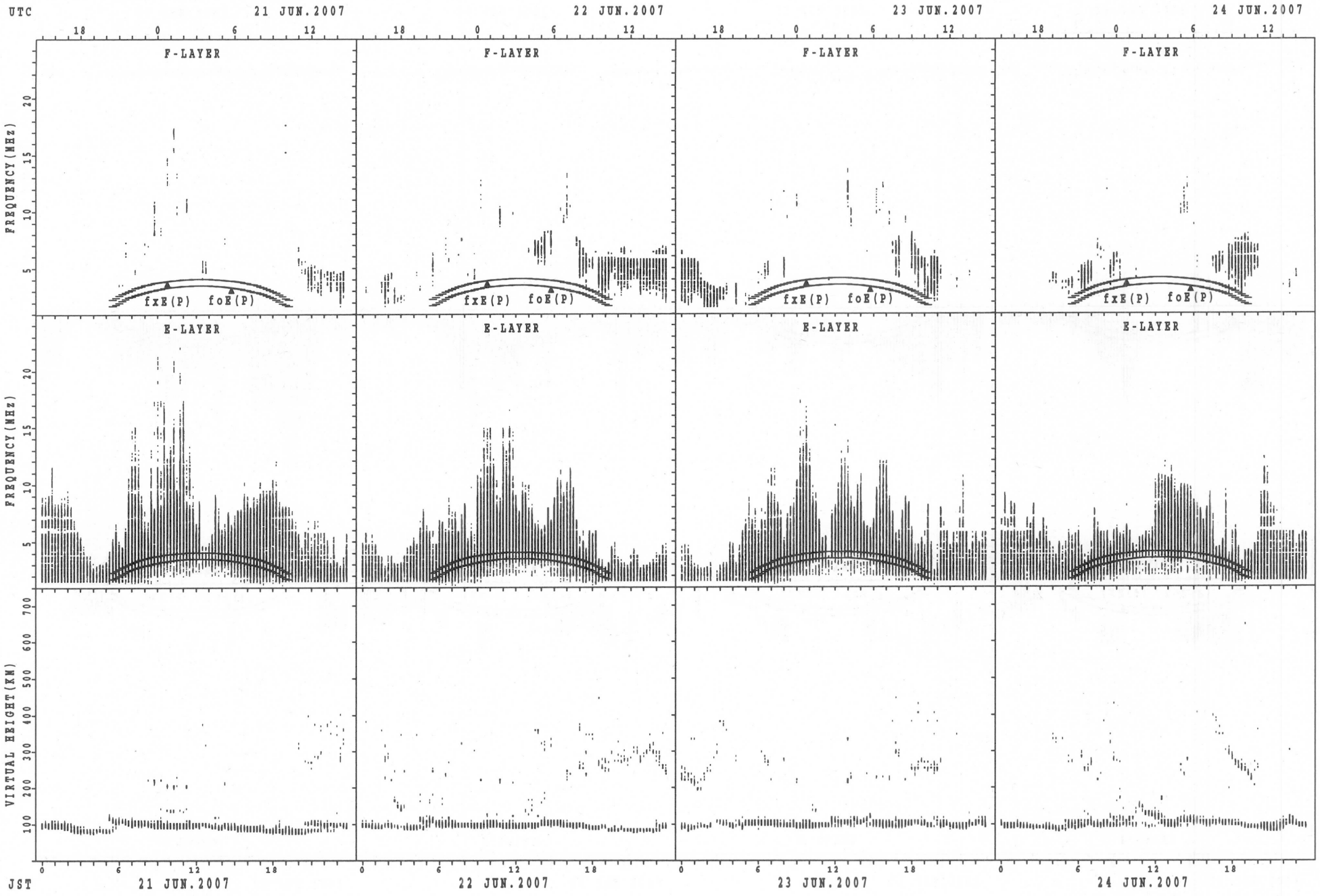
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



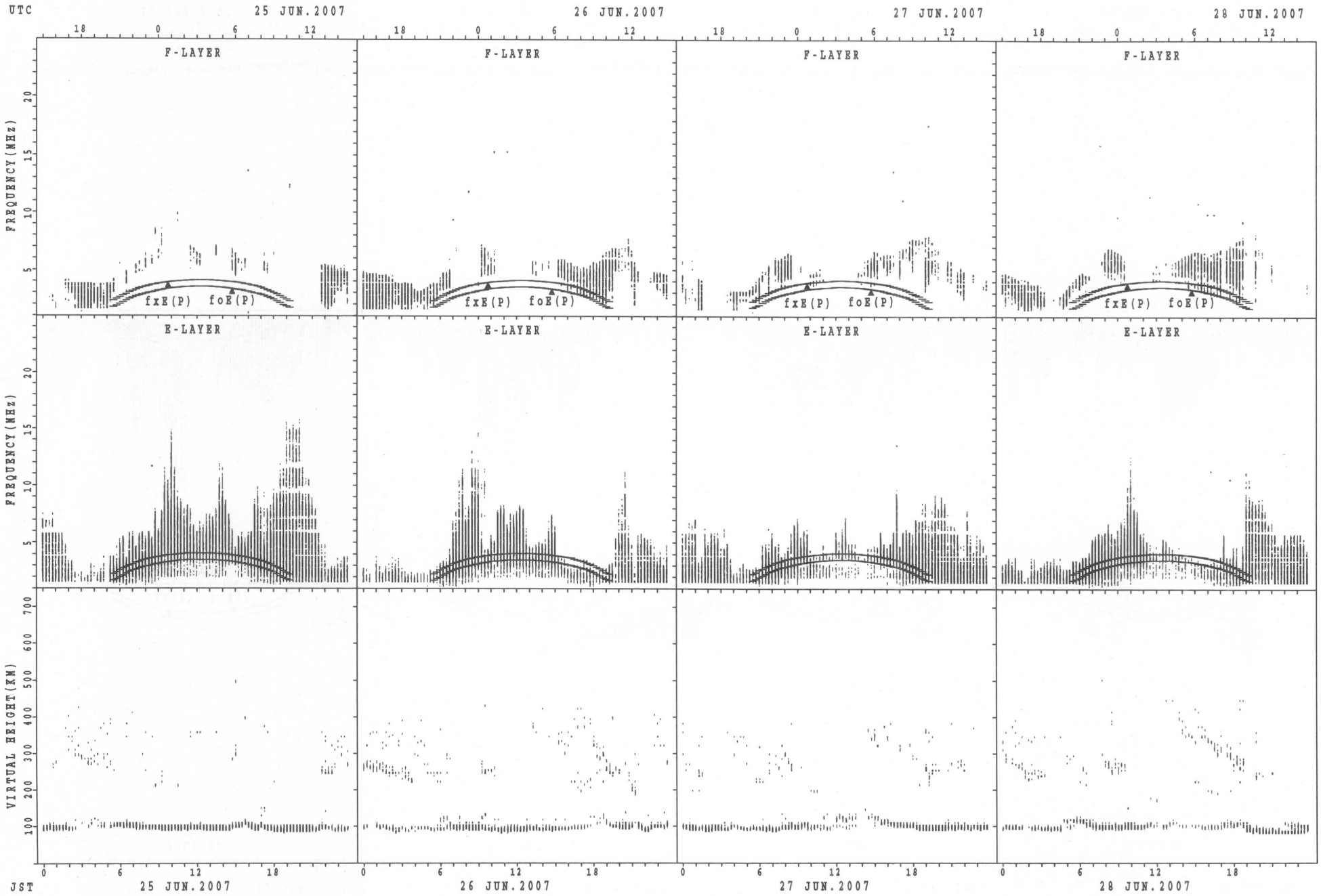
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



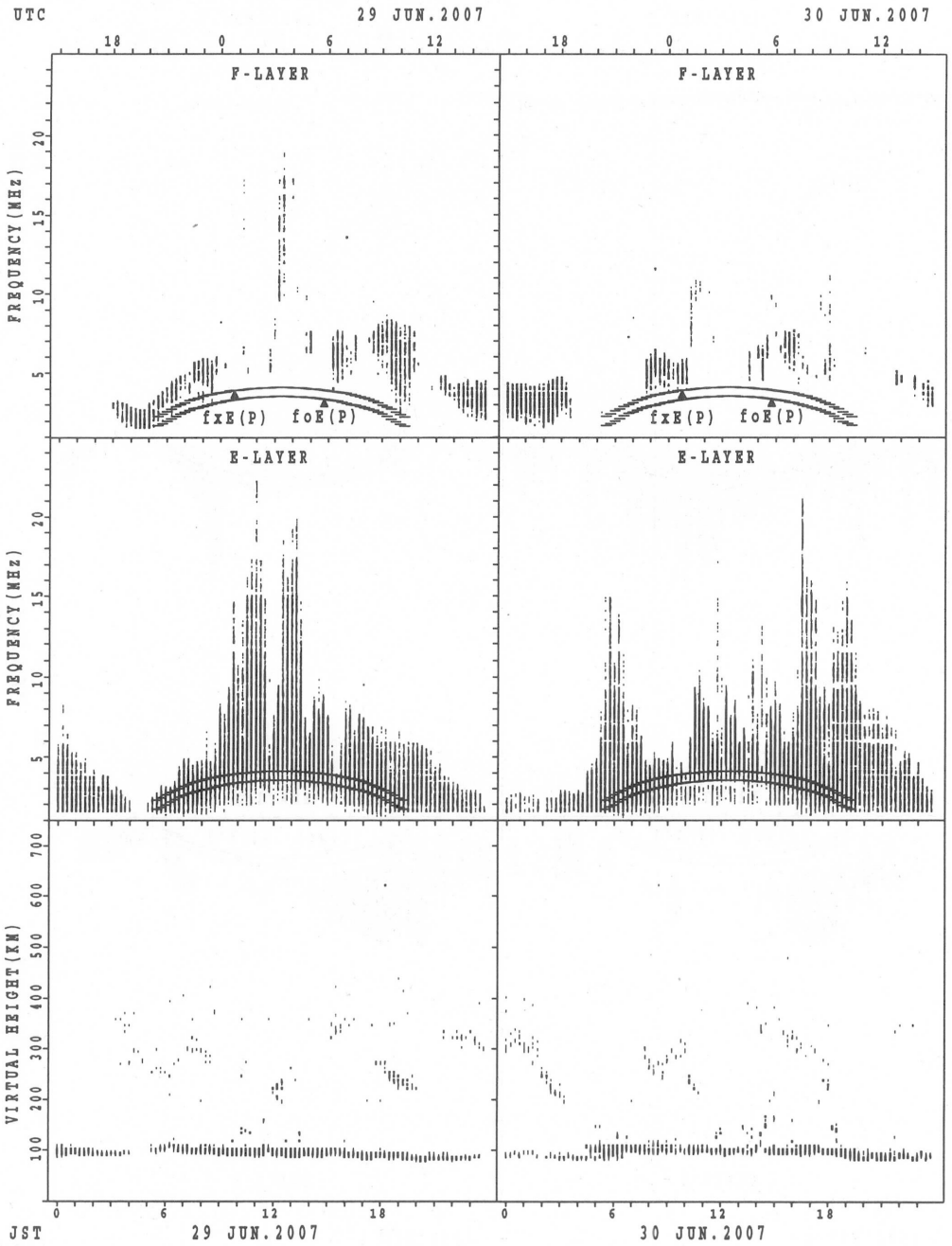
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



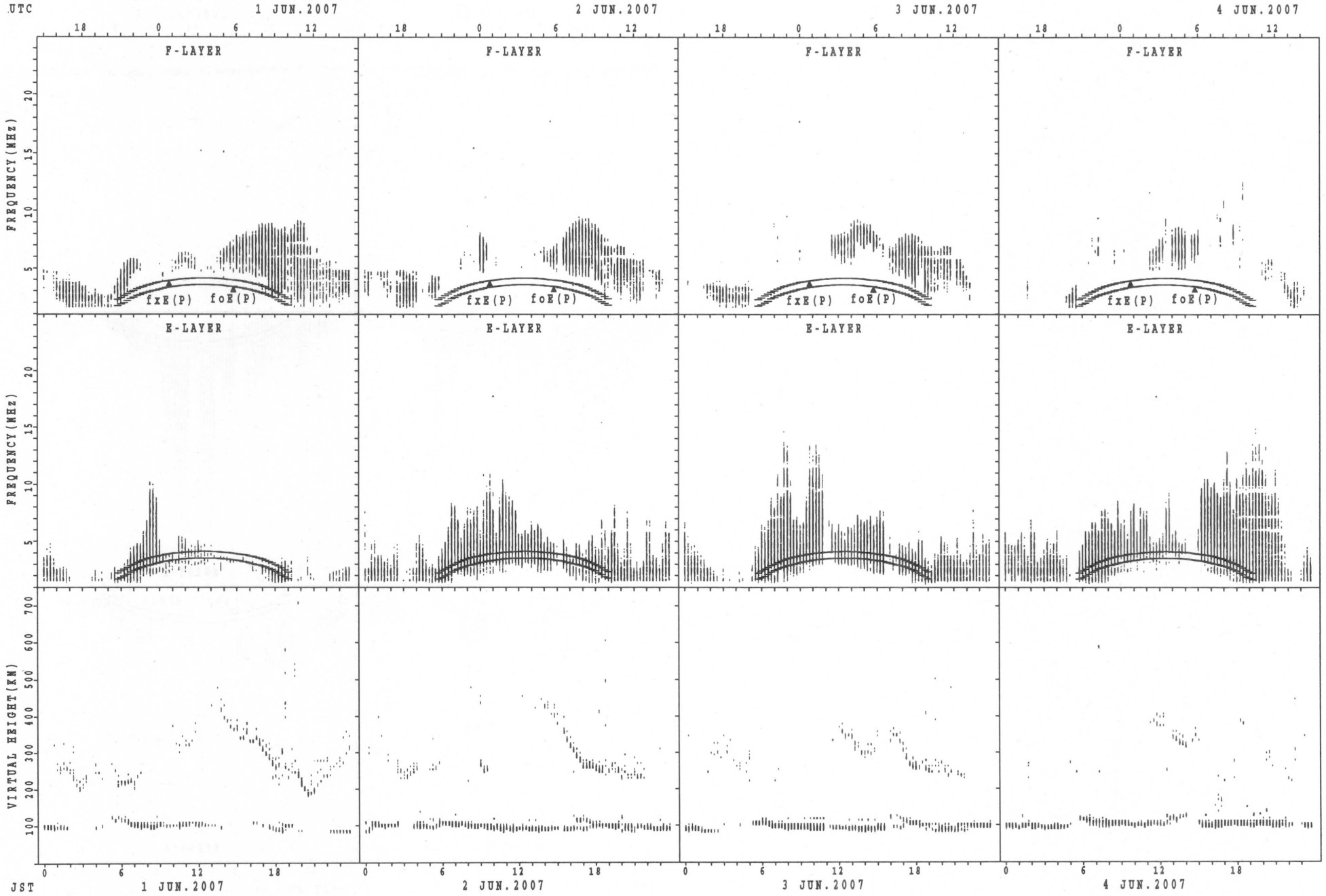
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



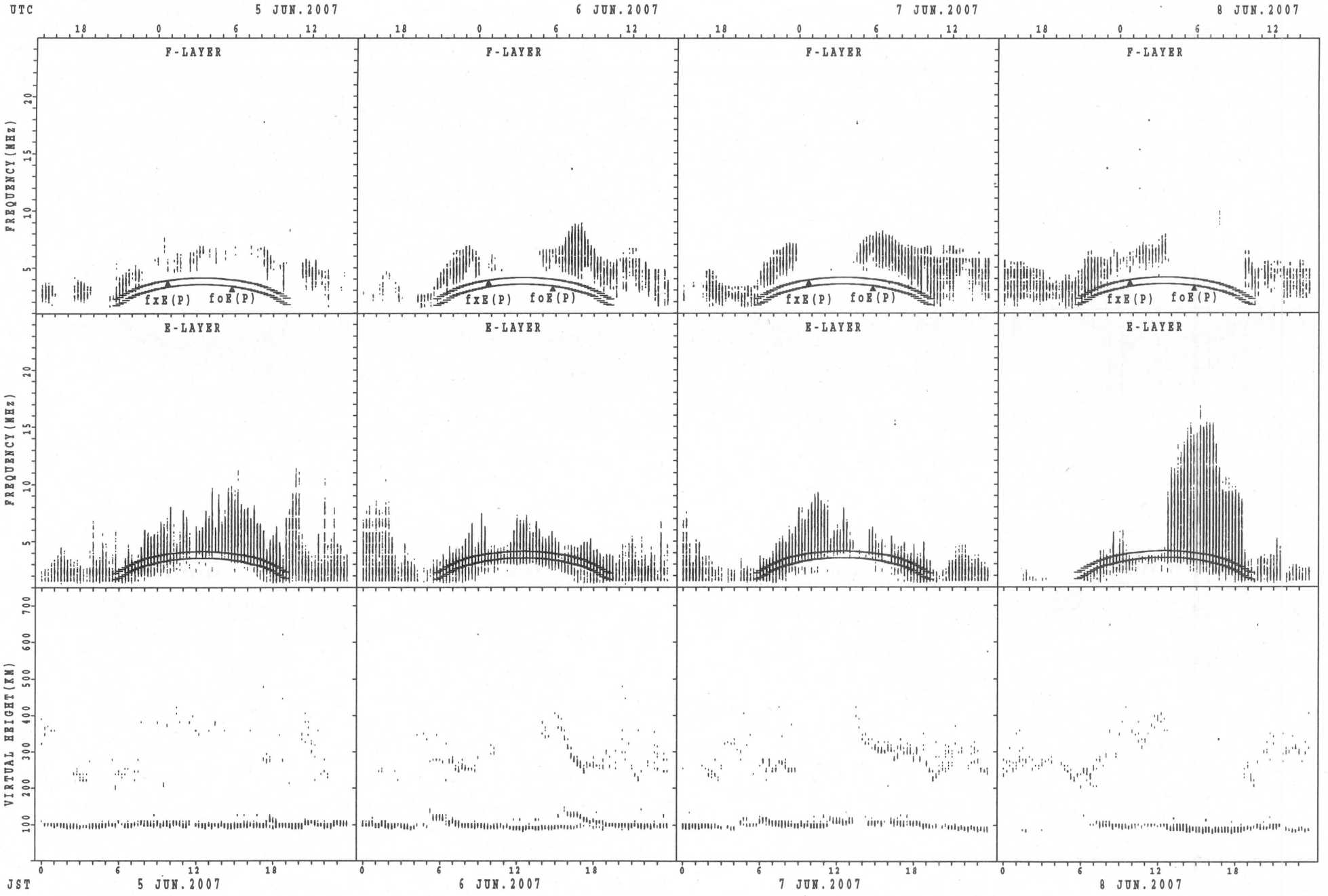
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



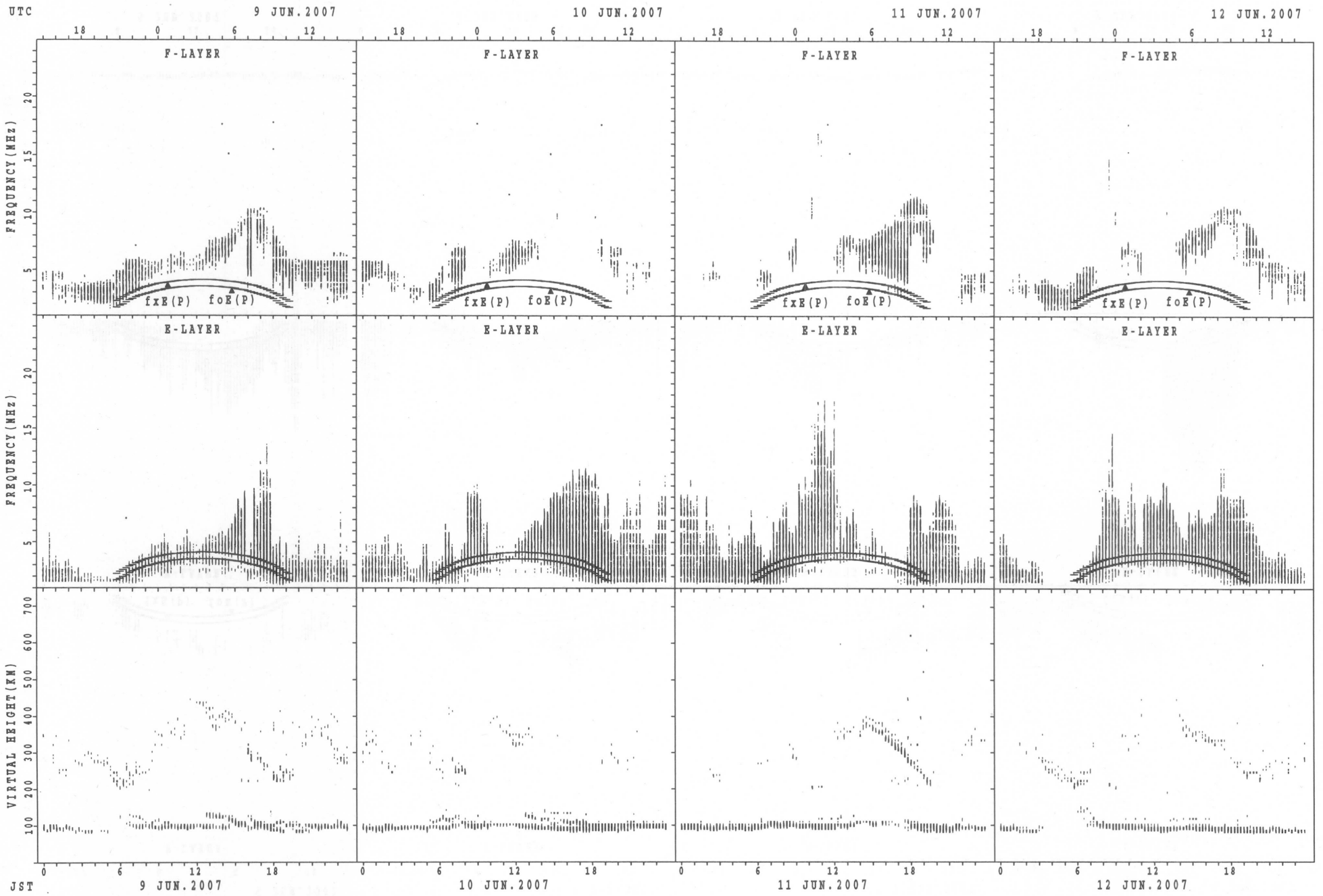
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



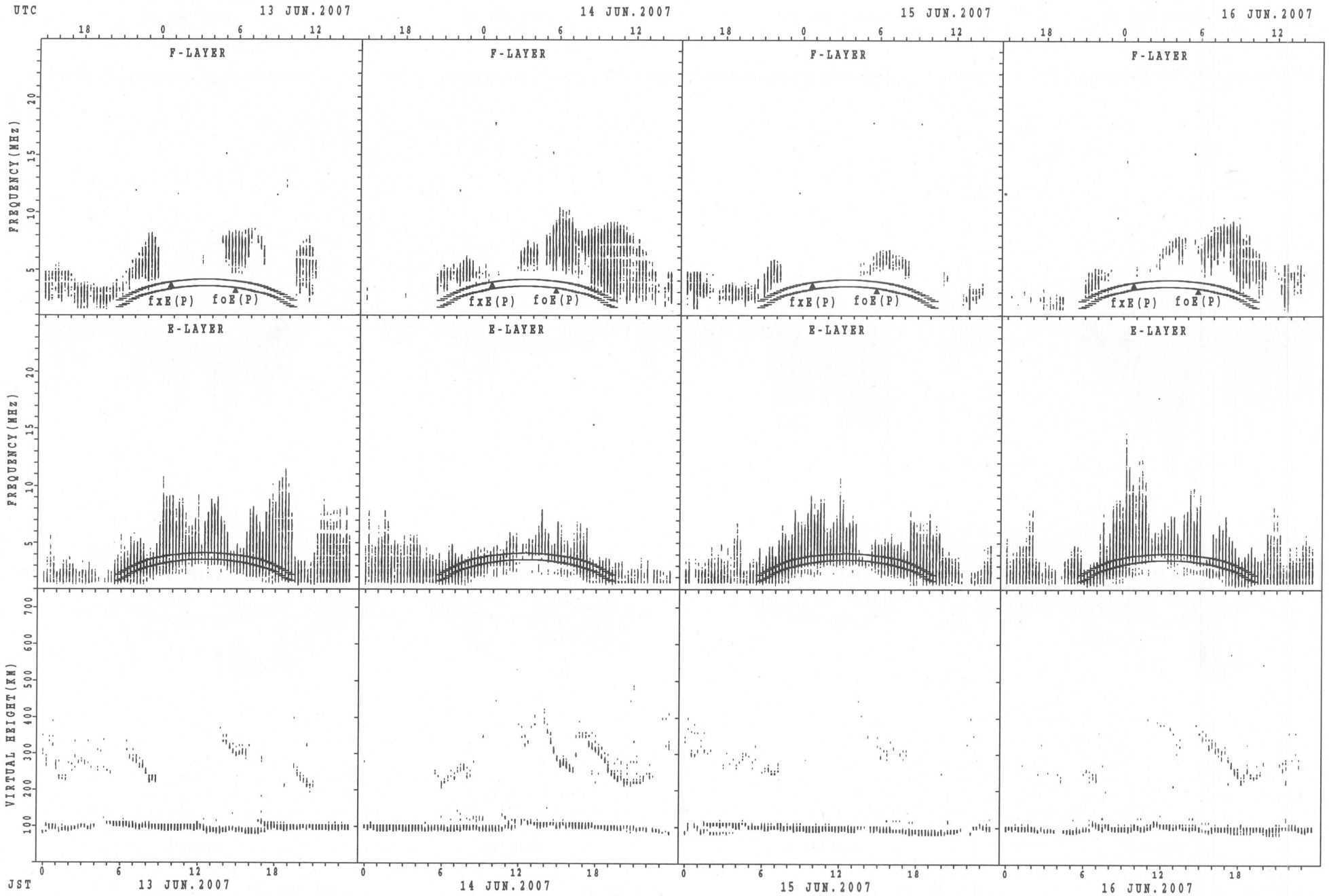
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



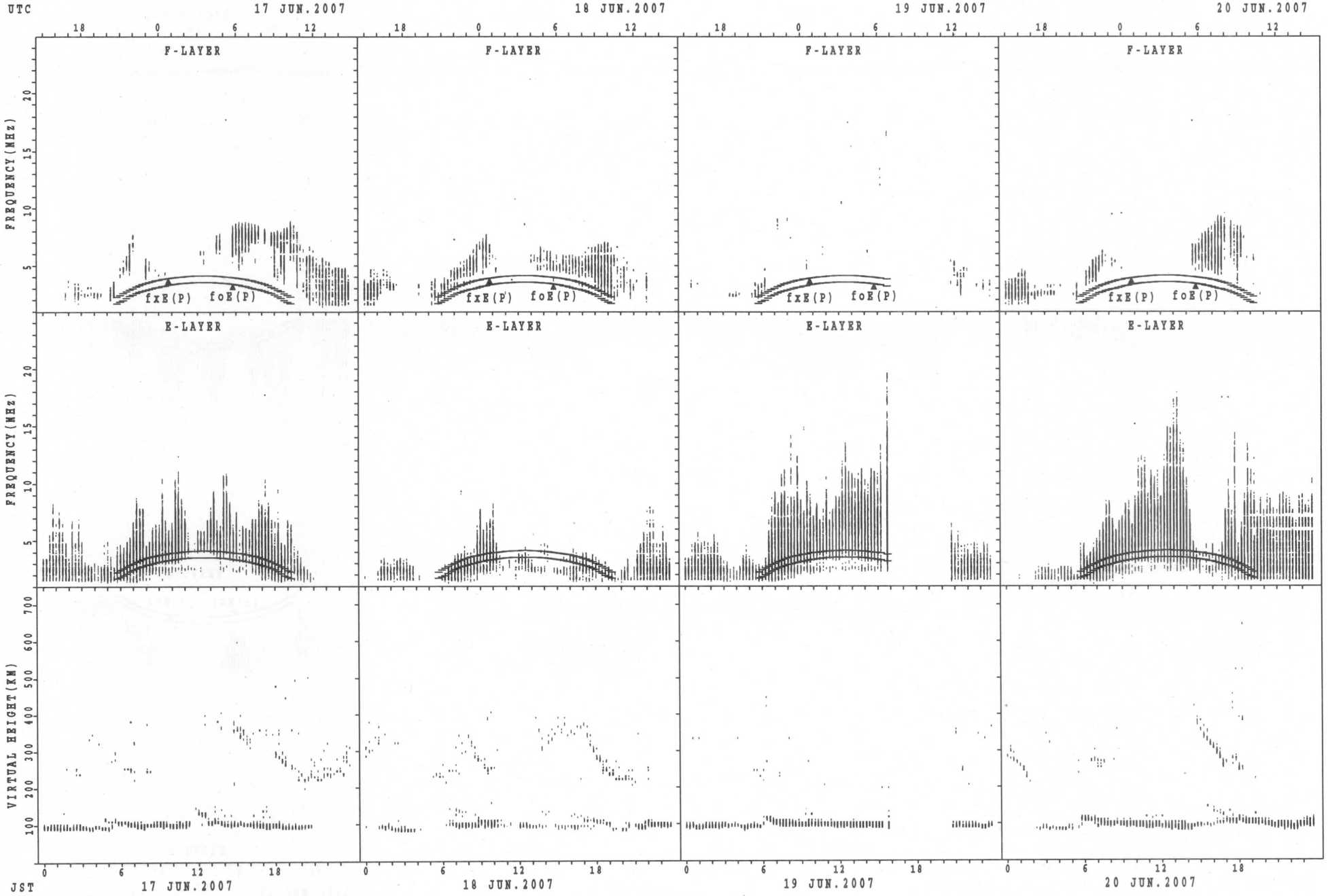
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



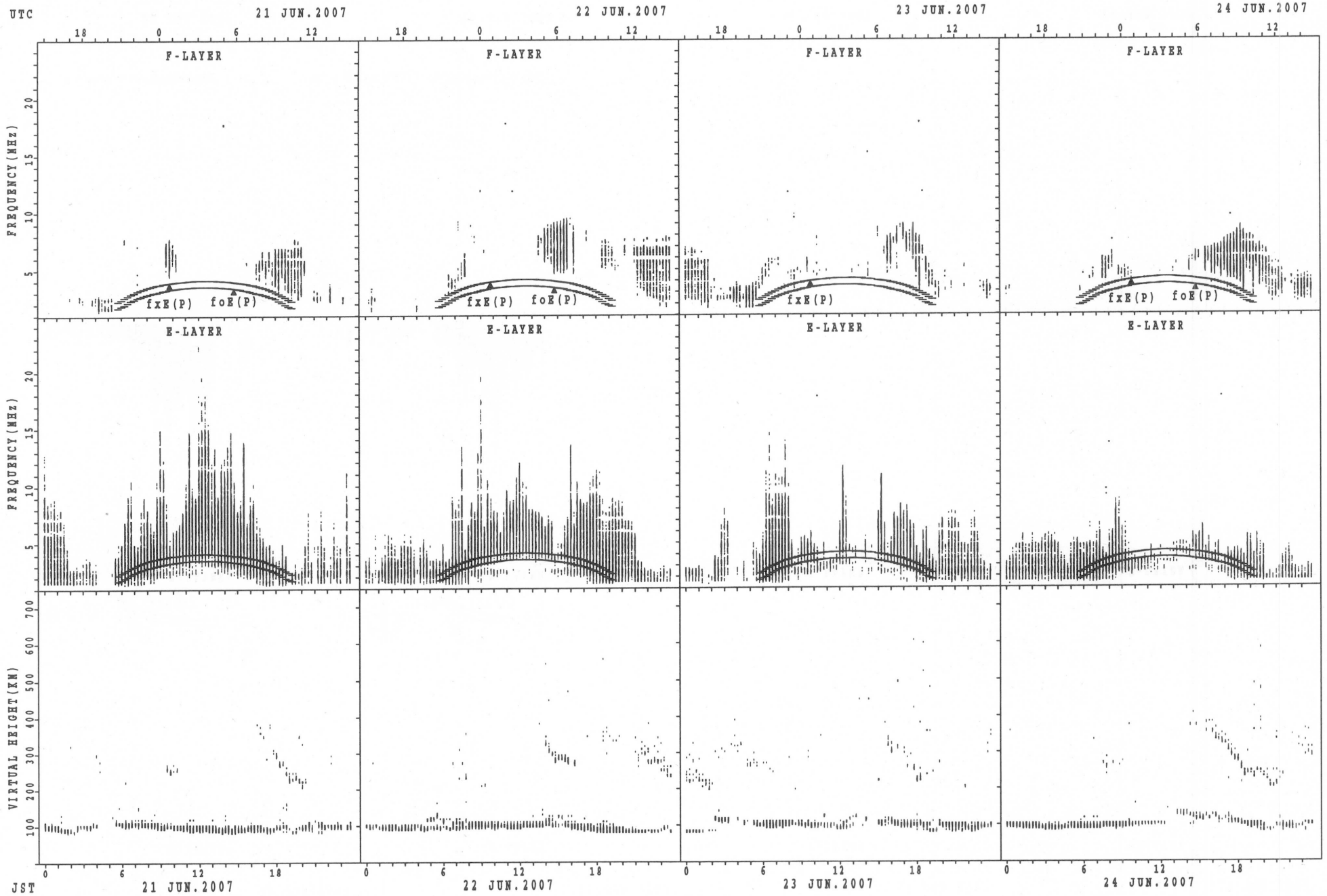
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



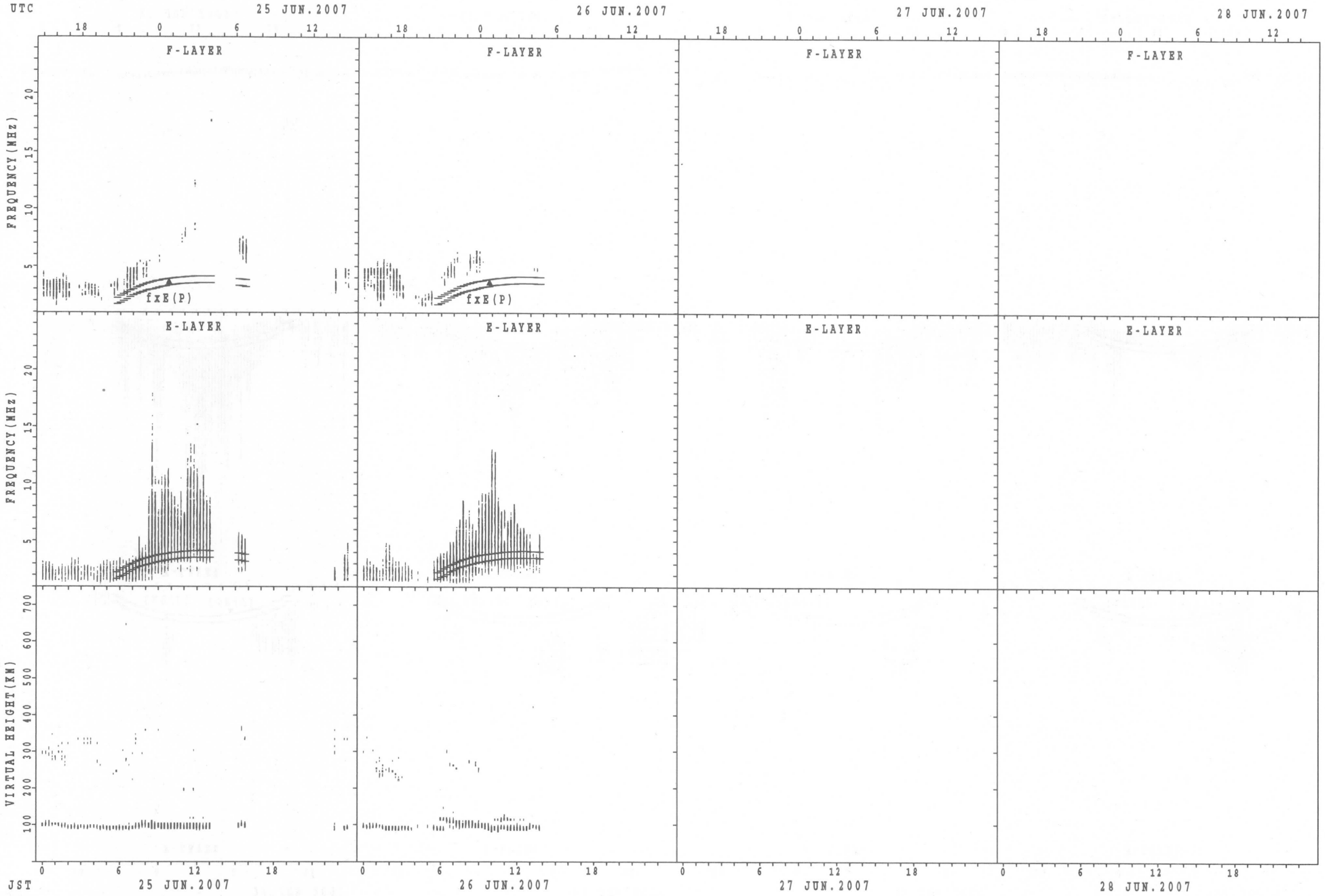
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



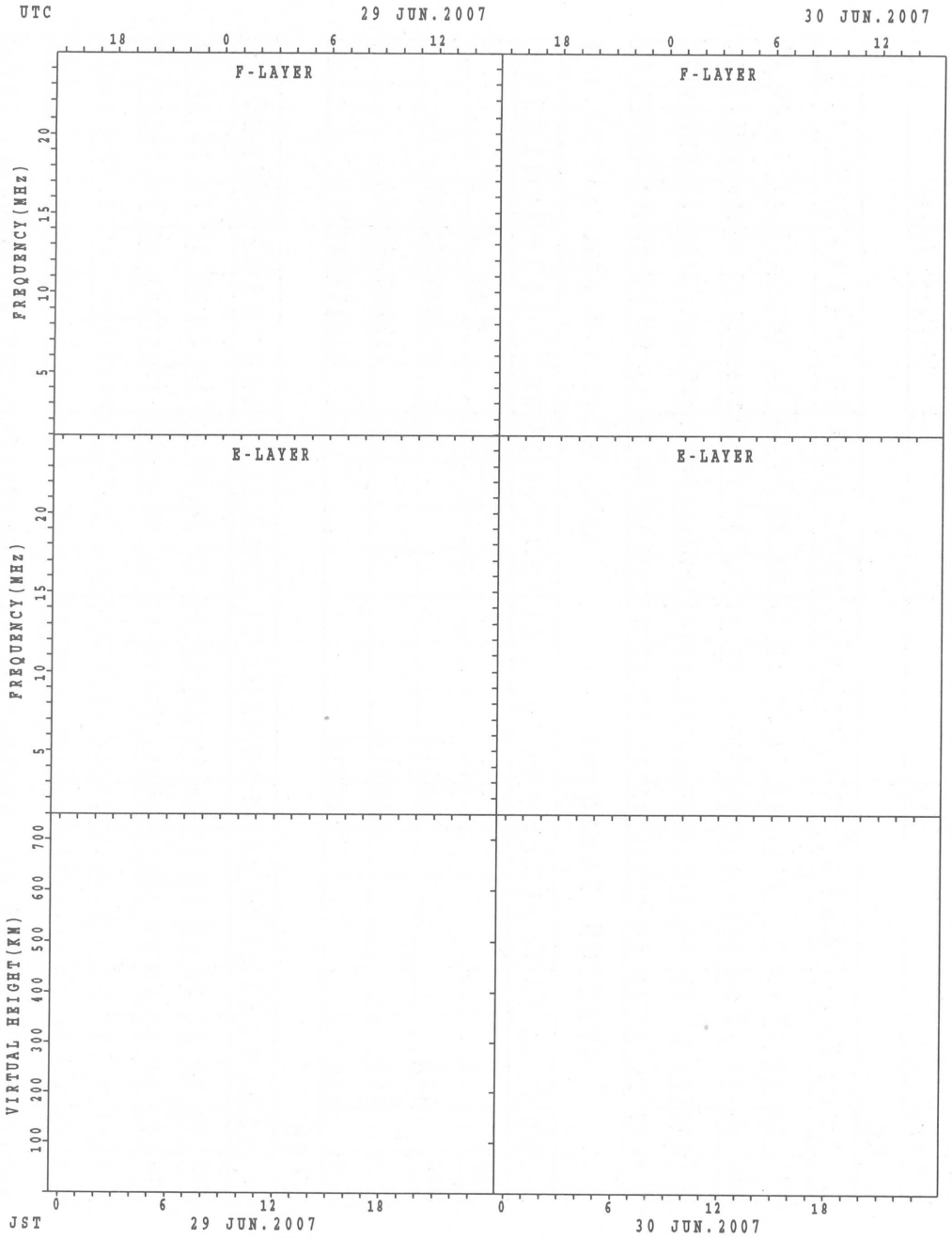
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



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

SUMMARY PLOTS AT Okinawa



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

MONTHLY MEDIANS OF h'F AND h'Es

JUN. 2007 135E MEAN TIME(UTC+9H) AUTOMATIC SCALING

h'F STATION Wakkanai LAT. 45°23.5'N LON. 141°41.2'E

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT							2											1	2	3	4	5	3	
MED							288											342	282	282	291	274	284	
U Q							296											171	294	328	294	317	298	
L Q							280											171	270	264	254	264	274	

h'Es

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	22	16	20	18	21	26	29	30	29	28	25	19	21	23	22	22	21	22	29	30	28	30	26	27
MED	97	97	94	94	95	113	111	107	105	103	103	101	99	97	96	101	107	106	105	105	105	105	103	99
U Q	99	97	96	97	104	119	113	111	107	105	103	103	103	101	103	111	111	113	107	109	108	107	107	105
L Q	95	94	93	89	91	111	110	105	103	103	99	99	96	95	95	93	95	97	103	103	103	99	99	97

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

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	1							4										4	3	5	5			
MED	298							270										291	246	264	258			
U Q	149							288										304	296	270	266			
L Q	149							243										275	222	229	245			

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	30	27	27	25	26	28	28	28	30	29	28	28	26	23	25	22	21	26	30	28	26	29	28	25
MED	99	95	95	95	95	103	110	105	103	101	99	99	98	97	97	103	103	101	99	99	100	103	103	101
U Q	101	101	97	97	99	115	114	108	103	103	103	101	101	101	104	111	109	103	103	105	105	105	105	104
L Q	97	95	93	90	89	95	106	103	101	97	97	97	97	95	94	95	95	95	95	91	89	95	98	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		1						1	10									9	11	6	4			
MED		228						240	284									272	262	250	249			
U Q		114						120	310									295	292	264	264			
L Q		114						120	232									233	220	224	224			

h'Es

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	27	28	27	28	25	25	27	29	29	28	25	27	26	28	27	27	26	27	30	27	29	30	30	30
MED	101	97	95	95	93	99	111	107	103	103	103	99	99	99	97	103	97	101	103	97	97	99	101	99
U Q	101	99	97	95	97	113	115	111	107	104	107	103	103	112	107	111	105	111	107	105	103	103	105	103
L Q	97	95	91	89	88	95	107	103	100	100	97	97	95	95	95	95	93	95	95	89	89	95	93	97

MONTHLY MEDIANS OF h'F AND h'Es

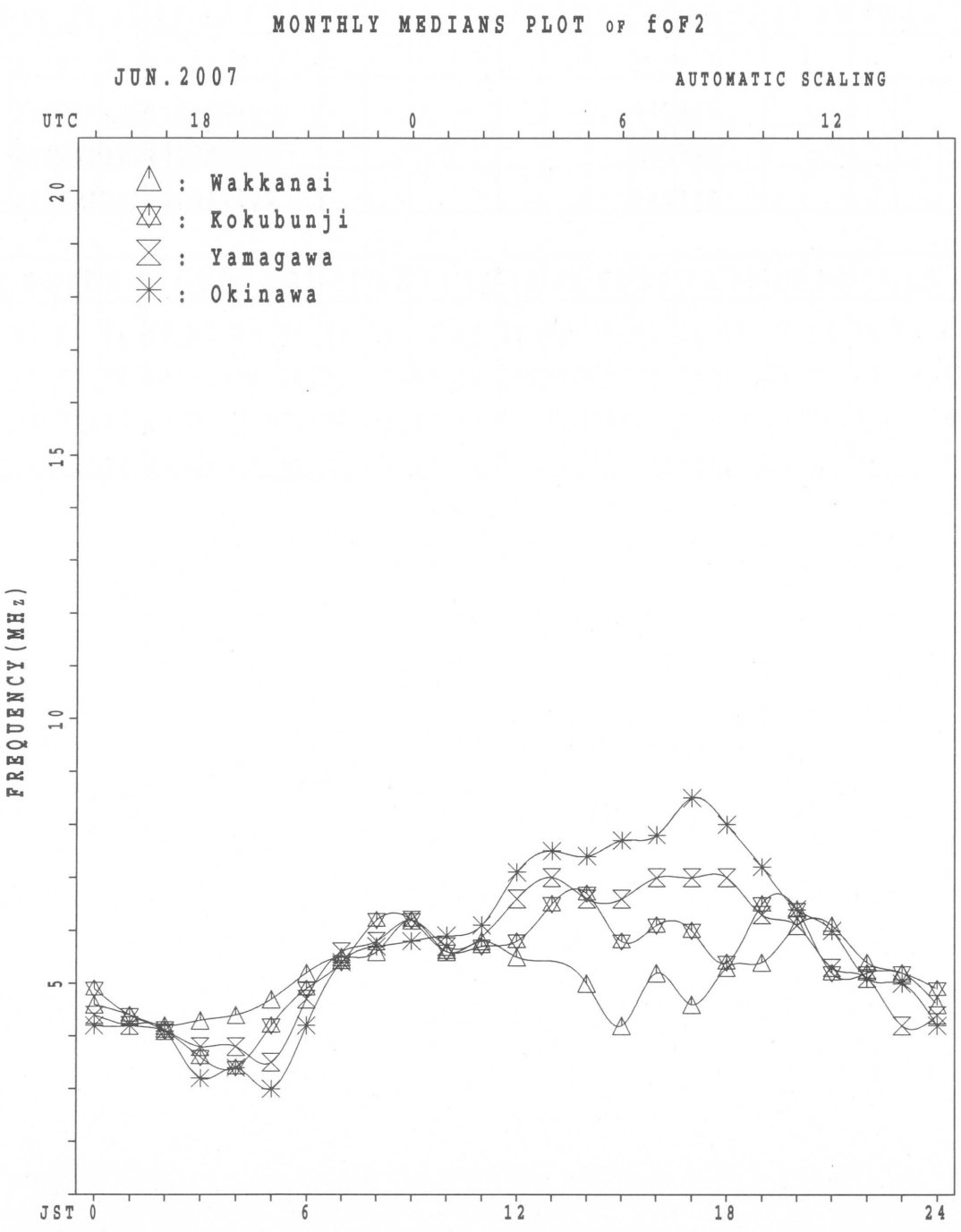
JUN. 2007 135E MEAN TIME(UTC+9H) AUTOMATIC SCALING

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

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								3	5									14	14	7	5	2	1	
MED								260	256									301	278	272	254	317	350	
U Q								326	266									328	306	298	254	326	175	
L Q								224	246									262	248	230	235	308	175	

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	20	23	22	21	17	16	21	25	25	26	24	21	22	23	20	22	19	22	21	22	21	21	20	20
MED	98	97	97	95	97	96	109	107	105	103	100	101	100	99	103	101	103	104	103	100	97	97	97	97
U Q	104	99	101	98	105	103	112	111	107	107	103	105	105	107	109	107	117	109	107	103	104	103	102	101
L Q	95	95	93	95	95	93	99	103	103	99	97	96	95	95	95	95	99	97	96	95	94	92	95	91


MONTHLY MEDIANS PLOT OF foF2
JUN.2007
AUTOMATIC SCALING
UTC
18
0
6
12
△ : Wakkanai
⛛ : Kokubunji
⧖ : Yamagawa
✳ : Okinawa
FREQUENCY(MHz)
20
15
10
5
JST 0
6
12
18
24

IONOSPHERIC DATA STATION Kokubunji

JUN. 2007 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	56	64	60	53	52																X 72	X 64	68	69
2	A	55	X 45	46	46																X 81	X 63	A	A
3	A	51	51	X 40	X 38																A	70	X 66	X 58
4	X 44	X 44	X 45	X 42	X 44															X 66	X 67	A	A	A
5	A	X 45	X 44	X 42	X 44															A	X 65	A	X 57	X 54
6	57	54	X 54	A	51															X 62	X 65	X 63	X 63	X 59
7	A	A	52	X 45	X 42																X 75	70	X 66	X 68
8	X 64	X 56	X 51	X 49	X 44															X 84	X 74	X 64	X 64	64
9	64	62	56	51	49															X 80	X 62	X 63	64	X 61
10	X 60	X 59	X 51	X 50	X 44															X 61	X 70	70	67	66
11	59	X 56	X 54	X 53	52															X 82	X 83	78	A	A
12	64	64	58	A	55											C				X 75	X 75	X 64	66	65
13	56	54	47	44	X 38															X 68	X 78	X 67	A	56
14	57	53	X 50	X 47	X 47															X 78	X 75	A	X 60	A
15	X 51	50	48	48	A															A	O X 59	X 53	X 47	X 41
16	44	45	X 41	45	44																X 62	A	64	A
17	50	51	X 42	X 39																	X 61	X 58	A	57
18	54	X 46	46	X 33																	X 54	56	58	50
19	A	X 46	A	45	44																X 62	X 47	A	X 47
20	X 43	A	A	43	X 33																X 54	X 50	A	54
21	48	A	A	A																	X 66	X 64	66	57
22	48	47	A	47	41																X 67	X 66	X 62	X 60
23	X 60	X 66	X 45	X 35																	X 70	65	63	53
24	45	A	A	A																	A	72	68	64
25	53	A	49	47	44																X 74	64	62	52
26	52	X 44	X 41	X 40	X 38																X 73	X 70	X 69	A
27	O X 44	42	X 37	X 34	X 35																X 74	X 63	X 51	52
28	52	53	49	46																	X 76	X 47	48	A
29	45	A	A	A																	X 77	X 61	49	50
30	48	46	45	X 40																	X 60	X 56	X 48	X 46
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	25	24	24	25	21															9	28	26	23	23
MED	52	52	X 48	X 45	X 44															X 75	X 70	X 64	63	57
U Q	58	X 56	52	X 48	48															X 81	X 75	67	66	64
L Q	46	X 46	X 45	X 40	X 40															X 64	X 62	X 58	X 57	52

JUN. 2007 fxI (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

JUN. 2007 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	41	47	56	A	A	50	A	A	A	59	60	58	56	57	68	66	58	F	F
2	A	F	39	F	F	44	56	60	57	57	57	A	A	46	A	A	65	A	68	72	75	56	A	A
3	A	F	F	34	32	42	51	73	73	A	52	R	56	A	59	58	57	54	A	60	A	F	60	52
4	38	38	38	36	38	43	52	66	60	A	A	A	A	A	A	57	63	64	56	60	61	A	A	A
5	A	38	38	36	37	41	48	A	A	A	A	A	56	65	55	52	53	53	54	A	59	A	51	48
6	F	F	48	A	F	48	A	51	A	62	60	A	A	A	52	58	60	56	57	56	59	57	57	53
7	A	A	F	38	36	39	49	A	A	65	A	53	52	A	52	56	66	62	50	57	69	F	60	62
8	57	50	45	43	38	42	49	A	A	A	A	62	62	61	63	58	59	67	74	78	68	58	58	F
9	F	F	F	F	F	44	56	64	57	A	57	58	54	52	55	61	78	90	A	74	56	57	F	54
10	54	53	45	44	38	39	48	A	68	A	A	A	56	57	61	64	68	68	60	54	63	F	F	F
11	F	50	48	47	F	50	54	A	A	56	65	A	56	A	67	A	70	67	67	76	77	F	A	A
12	F	F	F	A	F	43	56	54	61	A	55	54	A	54	A	C	54	54	63	69	69	58	F	F
13	F	F	F	F	32	A	A	A	71	64	A	A	A	52	52	54	A	51	52	61	72	60	A	F
14	F	F	44	41	40	43	53	60	68	63	A	A	53	54	63	73	A	A	74	72	69	A	54	A
15	45	F	F	F	A	A	42	54	A	A	A	A	A	A	46	50	52	56	A	A	53	47	41	35
16	F	F	35	F	F	38	51	50	52	A	A	A	A	61	A	A	A	A	A	A	56	A	F	A
17	F	F	36	33	33	A	A	A	A	A	A	A	A	A	48	48	48	50	52	46	55	52	A	F
18	F	40	F	27	28	A	46	54	A	A	A	A	A	A	51	A	A	A	A	50	48	F	F	F
19	A	40	A	F	F	38	48	A	58	A	A	A	A	A	52	54	56	59	53	68	56	41	A	41
20	36	A	A	F	26	35	45	A	A	A	A	A	A	A	A	52	54	55	56	53	48	44	A	F
21	F	A	A	A	A	38	A	A	A	A	49	55	60	54	53	48	A	47	52	58	60	57	F	F
22	F	F	A	F	F	46	A	A	A	A	A	51	52	57	62	69	65	54	52	61	60	60	56	54
23	54	60	39	29	31	34	42	A	A	A	A	A	A	A	A	A	A	A	A	60	64	F	F	F
24	F	A	A	A	A	39	44	47	A	A	A	A	A	A	56	A	A	A	57	68	A	F	F	F
25	F	A	F	F	F	40	46	A	A	A	57	A	A	55	54	54	47	47	50	60	68	F	F	F
26	F	38	34	34	32	38	45	53	A	44	67	58	A	47	52	52	49	A	A	61	66	64	63	A
27	38	F	30	28	29	36	45	57	A	A	58	A	A	48	52	56	62	67	70	68	68	57	45	F
28	F	F	F	F	33	43	43	A	55	62	54	A	55	51	51	A	55	58	61	69	70	41	F	A
29	F	A	A	A	A	41	A	A	53	56	A	A	A	A	64	72	60	51	52	59	71	54	F	F
30	F	F	F	34	36	48	40	40	52	A	A	A	A	A	A	A	63	54	A	A	54	50	42	39
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	7	9	13	14	16	26	24	15	13	9	12	7	11	15	23	21	23	23	22	26	28	18	11	9
MED	45	40	39	35	33	41	48	54	58	62	57	55	56	54	54	56	59	56	56	61	64	57	56	52
U Q	54	52	45	41	38	43	52	60	68	64	59	58	56	57	61	60	65	64	63	69	69	58	60	54
L Q	38	38	36	33	32	38	45	51	54	56	53	53	53	51	52	52	54	53	52	58	56	50	45	40

JUN. 2007 foF2 (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

JUN. 2007 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								A	A	A	A	A	A	A	UL 436	A	UL 412	A	A					
2							A	A	A	A	A	A	A	A	A	A	A	A	A					
3							384	A	A	A	UL 456	460	A	A	A	UL 428	E B	A	A					
4							372	A	A	A	A	A	A	A	A	A	A	A						
5							360	A	A	A	A	A	A	A	A	A	420	A	A					
6						A	A	A	A	A	456	A	A	A	444	UL 432	UL 404	416	A					
7							A	A	A	A	A	UL 456	UL 448	A	UL 440	UL 440	UL 440	A	A					
8							UL 440	A	A	A	A	UL 452	472	460	A	UL 432	UL 420	A						
9							L	A	UL 444	A	UL 456	A	A	UL 468	440	436	A	A	A					
10							UL 376	A	A	A	A	A	A	A	A	A	A	L	A					
11							A	A	A	A	A	A	A	A	A	A	A	A	A					
12							L	A	A	A	A	A	A	A	A	C	A	A	A					
13						A	A	A	A	A	A	A	A	444	A	A	A	U L 388	A					
14						L	360	A	A	A	A	A	UL 444	UL 436	A	A	A	A	A					
15						A	UL 336	UL 376	A	A	A	A	A	A	A	UL 412	UL 392	A	A					
16						L	L	A	A	A	A	A	A	A	A	A	A	A	A	A				
17						A	A	A	A	A	A	A	A	A	UL 420	A	A	A	A					
18						A	A	A	A	A	A	A	A	A	A	A	A	A	A					
19							A	A	A	A	A	A	A	A	A	A	A	U L 368	L					
20							A	A	A	A	A	A	A	A	A	408	A	A	A					
21					A		A	A	A	A	A	A	432	UL 448	A	A	A	A	A	A				
22							A	A	A	A	A	UL 440	A	A	UL 424	A	A	A	A					
23							364	A	A	A	A	A	A	A	A	A	A	A	A					
24					A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A				
25							A	A	A	A	A	A	A	432	UL 432	UL 412	412	368	A	A				
26							UL 404	L	A	A	A	A	A	UL 440	UL 432	UL 420	A	A	A					
27						UL 308	UL 360	A	A	A	A	A	A	428	A	A	A	A	L					
28							UL 400	A	A	A	UL 456	A	A	UL 448	UL 436	A	UL 400	A	A					
29					A	L	A	A	A	A	A	A	A	A	A	UL 420	UL 408	A	A	A				
30									A	A	A	A	A	A	A	A	A	A	A	A				
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT						1	11	1	1		4	4	4	9	9	10	9	4						
MED						UL 308	UL 372	UL 376	UL 444		UL 456	UL 454	446	UL 444	UL 436	UL 424	UL 412	378						
U Q							UL 400				UL 456	458	460	UL 454	440	UL 432	UL 420	402						
L Q							360				456	UL 446	438	434	UL 428	UL 412	UL 402	368						

JUN. 2007 foF1 (0.01MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

JUN. 2007 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						A	A	A	A	A	A	A	A	A	A	A	A	A	A	B				
2						U A 176	A	A	A	A	A	A	A	A	A	A	A	A	A	B				
3						A	A	A	A	A	A	A	A	A	A	A	B	U A 256	A	B				
4						B	U A 244	A	A	A	A	A	A	A	A	A	A	A	A					
5						A	232	A	A	A	A	A	A	A	A	A	A	A	A					
6						B	A	A	A	A	A	A	A	A	R	R	R	U R 268	A					
7						A	U A 244	A	A	A	A	A	392	A	A	A	R	U A 264	A	B				
8						A	A	A	A	A	A	A	R	A	A	A	A	A	A					
9						A	U R 280	A	A	A	A	A	A	A	A	A	A	A	A					
10						A	U A 236	A	A	A	A	A	A	A	A	A	U A 292	A	B					
11						180	A	A	A	A	A	A	A	A	A	A	A	A	A					
12						B	A	A	A	A	A	A	A	A	A	C	A	A	A					
13						B	A	A	A	A	A	A	A	A	A	A	A	A	A					
14						U A 168	U A 236	A	A	A	A	A	A	A	U A 340	A	A	A	A					
15						A	A	A	A	A	A	A	A	A	A	A	A	A	A					
16						A	U A 232	A	A	A	A	A	A	A	A	A	A	A	A	B				
17					B	A	A	A	A	A	A	A	A	A	A	A	A	A	A	B				
18					B	A	A	A	A	A	A	A	A	A	A	A	A	A	A	B				
19					B	A	A	A	A	A	A	A	A	A	A	A	A	A	A	B				
20						B	A	A	A	A	A	A	A	A	A	A	A	A	A	B				
21					B	A	A	A	A	A	A	A	A	A	A	A	A	A	A	B				
22						B	A	A	A	A	A	A	A	A	A	A	A	A	A	B				
23					B	A	248	A	A	A	A	A	A	A	A	A	A	A	A	B				
24					B	A	U A 236	U A 268	A	A	A	A	A	A	A	A	A	A	A	B				
25					B	A	A	A	A	A	A	A	A	A	A	U A 312	R	U A 252	A	B				
26						A	A	A	A	A	A	A	A	U R 340	A	A	A	A	A	B				
27						A	A	A	A	A	A	A	U A 348	U R 368	A	A	A	A	A	B				
28					B	B	A	A	A	A	A	A	A	A	A	A	A	A	A	B				
29					B	A	A	A	A	A	A	A	A	A	A	A	A	A	A	B				
30					B	A	A	A	A	A	A	A	A	A	A	A	A	A	A	B				
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT						3	9	1					2	2	1	1	1	4						
MED						U A 176	U A 236	U A 268					370	U R 354	U A 340	U A 312	U A 292	U A 260						
U Q						180	U 246											U 266						
L Q						U A 168	U A 234											U A 254						

JUN. 2007 foE (0.01MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

JUN. 2007 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 46	J A 53	J A 54	J A 30	J A 28	J A 24	30	J A 47	J A 78	J A 77	J A 49	J A 66	J A 53	J A 74	J A 52	J A 68	34	J A 48	J A 55	J A 67	J A 56	J A 64	J A 75	J A 53
2	J A 66	J A 54	J A 25	J A 28	J A 33	25	J A 48	J A 105	J A 59	J A 55	J A 89	J A 52	J A 67	J A 47	J A 90	J A 90	J A 66	J A 72	J A 68	J A 37	J A 58	J A 64	J A 108	J A 108
3	J A 127	J A 52	J A 45	J A 28	J A 66	J A 43	33	J A 59	J A 72	J A 85	J A 55	44	J A 56	J A 84	J A 66	40	E B 41	J A 62	J A 122	J A 97	J A 132	J A 89	J A 63	J A 54
4	J A 31	J A 35	J A 34	J A 26	J A 18	21	30	J A 48	J A 64	J A 75	J A 99	J A 127	J A 107	J A 124	J A 122	J A 124	J A 53	J A 74	J A 44	J A 41	J A 76	J A 77	J A 79	J A 76
5	J A 55	J A 40	J A 34	J A 35	J A 54	J A 40	29	J A 61	J A 66	J A 68	J A 91	J A 94	J A 60	J A 56	J A 51	J A 49	J A 40	J A 60	J A 67	J A 92	J A 70	J A 74	J A 68	19
6	J A 74	J A 78	J A 37	J A 68	J A 57	J A 77	J A 65	J A 53	J A 88	J A 71	41	J A 95	J A 84	J A 60	G 32	G 29	G 24	GJ 22	J A 35	J A 29	J A 77	J A 64	J A 46	J A 46
7	J A 53	J A 75	J A 33	J A 33	J A 39	J A 29	J A 39	J A 71	J A 112	J A 95	J A 87	J A 42	J A 43	J A 58	J A 52	36	G 25	J A 49	J A 79	J A 88	J A 55	J A 45	J A 29	J A 32
8	J A 32	J A 86	J A 30	J A 32	J A 43	J A 44	J A 41	J A 67	J A 97	J A 85	J A 70	42	G 34	41	J A 68	34	36	J A 43	42	J A 37	J A 34	J A 30	29	J A 35
9	J A 27	J A 23	J A 23	J A 23	J A 40	J A 37	J A 35	J A 55	39	J A 63	J A 48	J A 56	J A 70	43	J A 43	38	J A 53	J A 79	J A 98	J A 59	J A 17	J A 35	J A 36	J A 39
10	J A 23	J A 27	J A 19	J A 19	J A 22	J A 24	J A 37	J A 66	J A 44	J A 77	J A 110	J A 48	J A 60	J A 98	J A 95	J A 50	J A 45	34	J A 65	J A 86	J A 91	J A 45	J A 49	J A 85
11	J A E 29	B 15	J A 23	J A 78	J A 51	23	38	J A 59	J A 74	J A 69	J A 99	J A 131	J A 52	J A 66	J A 52	J A 102	J A 47	J A 43	J A 45	J A 76	J A 122	J A 78	J A 98	J A 99
12	J A 72	J A 57	J A 56	J A 58	J A 50	J A 34	29	J A 54	J A 59	J A 110	J A 68	J A 73	J A 58	J A 55	J A 68	C	J A 65	J A 79	J A 63	J A 53	J A 48	J A 38	J A 48	J A 58
13	J A 30	J A 38	J A 45	J A 56	J A 32	J A 49	J A 76	J A 100	J A 55	J A 48	J A 66	J A 49	J A 60	J A 42	J A 47	J A 60	J A 70	J A 44	J A 34	J A 43	J A 67	J A 56	J A 83	J A 55
14	J A 23	J A 50	J A 25	J A 30	J A 21	22	29	J A 43	J A 54	J A 66	J A 68	J A 49	J A 51	40	J A 59	J A 70	J A 147	J A 116	J A 97	J A 99	J A 124	J A 109	J A 76	J A 121
15	J A 56	J A 47	J A 65	J A 48	J A 64	J A 64	30	J A 40	J A 123	J A 100	J A 144	J A 124	J A 106	J A 62	J A 45	J A 40	33	J A 46	J A 58	J A 50	J A 35	J A 31	J A 39	J A 25
16	J A 22	22	E B 14	E B 15	J A 24	J A 24	29	J A 45	J A 49	J A 59	J A 70	J A 66	J A 68	J A 62	J A 88	J A 71	J A 62	J A 65	J A 82	J A 98	J A 76	J A 63	J A 41	J A 87
17	J A 74	J A 74	J A 34	J A 32	J A 34	J A 44	J A 66	J A 78	J A 68	J A 53	J A 60	J A 51	J A 57	J A 49	J A 42	J A 45	J A 47	J A 43	J A 38	J A 55	J A 44	J A 49	J A 86	J A 40
18	J A 54	J A 45	J A 19	J A 40	J A 36	J A 43	J A 46	J A 109	J A 98	J A 98	J A 141	J A 122	J A 74	J A 100	J A 60	J A 98	J A 244	J A 105	J A 85	J A 101	J A 97	J A 56	J A 58	J A 95
19	J A 60	J A 77	J A 47	J A 32	J A 30	J A 27	J A 38	J A 61	J A 53	J A 66	J A 67	J A 82	J A 80	J A 73	J A 56	J A 48	J A 60	J A 38	J A 52	J A 22	J A 44	J A 24	J A 46	J A 34
20	J A 56	J A 61	J A 48	J A 30	J A 21	23	J A 41	J A 74	J A 60	J A 118	J A 108	J A 154	J A 108	J A 78	J A 60	38	J A 52	J A 48	J A 45	J A 51	J A 38	J A 55	J A 58	J A 72
21	J A 87	J A 49	J A 51	J A 57	J A 35	J A 32	J A 49	J A 81	J A 78	J A 65	J A 50	J A 86	37	J A 44	J A 54	J A 51	J A 59	J A 40	J A 39	J A 45	J A 28	J A 31	J A 46	J A 33
22	J A 24	J A 39	J A 54	18	J A 23	J A 38	J A 77	J A 79	J A 67	J A 90	J A 94	J A 60	J A 52	J A 42	J A 45	J A 48	J A 43	J A 40	J A 41	J A 18	21	20	J A 22	E B 14
23	J A 26	J A 19	J A 23	E B 14	J A 24	27	30	J A 59	J A 70	J A 84	J A 82	J A 173	J A 63	J A 84	J A 99	J A 140	J A 112	J A 142	J A 116	J A 109	J A 56	J A 40	J A 46	J A 55
24	J A 28	J A 87	J A 76	J A 61	J A 52	J A 46	44	J A 55	J A 100	J A 87	J A 66	J A 86	J A 130	J A 88	J A 114	J A 148	J A 119	78	J A 55	J A 74	J A 98	J A 49	J A 40	J A 33
25	J A 53	J A 51	J A 37	J A 22	E B 14	J A 34	J A 50	J A 92	J A 66	J A 81	J A 63	J A 68	J A 76	J A 46	41	38	G 27	30	J A 36	J A 56	J A 110	J A 51	J A 63	J A 54
26	J A 28	J A 20	J A 34	J A 28	J A 25	J A 24	J A 37	J A 44	J A 69	J A 49	44	46	J A 68	41	J A 38	39	J A 60	114	J A 71	J A 31	J A 49	J A 64	J A 57	J A 99
27	J A 70	J A 47	J A 56	J A 28	J A 44	J A 28	J A 33	J A 55	J A 98	J A 67	J A 78	J A 88	J A 57	42	J A 50	J A 56	J A 51	J A 54	J A 48	J A 24	J A 65	J A 54	J A 52	J A 30
28	J A 23	J A 23	J A 22	J A 22	J A 22	24	J A 37	J A 68	J A 46	J A 84	J A 45	J A 49	J A 58	J A 57	42	J A 103	J A 52	J A 223	J A 175	J A 72	J A 37	J A 32	J A 46	J A 60
29	J A 56	J A 54	J A 59	J A 56	J A 56	J A 58	J A 74	J A 82	J A 72	J A 86	J A 108	J A 98	J A 148	J A 107	J A 85	J A 39	J A 40	J A 59	J A 44	J A 40	J A 24	J A 47	J A 28	J A 30
30	J A 24	J A 20	J A 46	J A 50	J A 88	J A 45	30	J A 46	J A 50	J A 60	J A 77	J A 135	J A 134	J A 90	J A 57	J A 73	J A 74	J A 61	J A 58	J A 76	J A 44	J A 35	J A 40	J A 42
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	29	30	30	30	30	30	30	30	30
MED	J A 50	J A 48	J A 36	J A 31	J A 34	J A 33	J A 38	J A 60	J A 68	J A 76	J A 70	J A 70	J A 62	J A 59	J A 55	J A 50	J A 52	J A 56	J A 56	J A 56	J A 56	J A 50	J A 48	J A 54
U Q	J A 60	J A 57	J A 51	J A 50	J A 51	J A 44	J A 48	J A 78	J A 78	J A 86	J A 94	J A 98	J A 80	J A 84	J A 68	J A 82	J A 65	J A 78	J A 79	J A 86	J A 77	J A 64	J A 68	J A 76
L Q	J A 27	J A 27	J A 25	J A 26	J A 24	24	30	J A 53	J A 55	J A 65	J A 60	J A 49	J A 56	44	J A 45	39	40	J A 43	J A 44	J A 40	J A 38	J A 35	J A 40	J A 33

JUN. 2007 foEs (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

JUN. 2007 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	34	37	38	24	19	20	28	44	A A 78	A A 77	44	A A 66	A A 53	A A 74	39	52	33	41	42	54	48	33	19	37
2	A A 66	18	E B 15	19	21	22	40	39	42	43	51	A A 52	A A 67	44	A A 90	A A 90	59	A A 72	58	24	23	39	A A 108	A A 108
3	A A 127	20	28	17	21	28	30	54	66	A A 85	36	43	49	A A 84	52	34	E B 41	46	A A 122	46	A A 132	40	41	32
4	16	18	31	18	E B 16	19	28	42	56	A A 75	A A 99	A A 127	A A 107	A A 124	A A 122	46	51	55	42	40	51	A A 77	A A 79	A A 76
5	A A 55	24	24	20	29	21	27	A A 61	A A 66	A A 68	A A 91	A A 94	45	51	46	42	30	40	48	A A 92	51	A A 74	33	E B 15
6	35	36	20	A A 68	21	43	A A 65	48	A A 88	58	39	A A 95	A A 84	A A 60	G 32	G 29	G 24	G 22	29	20	20	38	34	31
7	A A 53	A A 75	28	30	26	24	35	A A 71	A A 112	58	A A 87	38	40	A A 58	41	35	G 25	46	44	34	18	E B 14	20	16
8	22	22	16	18	21	28	35	A A 67	A A 97	A A 85	A A 70	40	G 34	39	57	34	32	40	38	24	31	20	23	21
9	20	20	18	E B 15	28	30	G 22	50	35	A A 63	40	45	47	40	38	37	42	50	A A 98	32	E B 14	20	26	20
10	E B 15	18	E B 15	16	17	21	30	A A 66	42	A A 77	A A 110	A A 48	46	46	52	44	41	30	54	42	40	21	38	31
11	18	E B 15	17	18	23	20	36	A A 59	A A 74	52	47	A A 131	44	A A 66	44	A A 102	43	38	37	40	20	51	A A 98	A A 99
12	24	36	29	A A 58	29	30	27	44	50	A A 110	50	46	A A 58	49	A A 68	C	48	40	48	39	34	22	29	31
13	16	21	30	20	21	A A 49	A A 76	A A 100	48	44	A A 66	A A 49	A A 60	40	44	46	A A 70	30	30	41	41	30	A A 83	31
14	16	E B 15	E B 14	19	16	22	28	40	43	49	A A 68	A A 49	41	39	57	67	A A 147	A A 116	46	30	50	A A 109	40	A A 121
15	34	26	22	28	A A 64	A A 64	28	33	A A 123	A A 100	A A 144	A A 124	A A 106	A A 62	42	34	31	40	A A 58	A A 50	29	20	21	E B 15
16	E B 16	E B 16	E B 14	E B 15	E B 15	19	28	38	43	A A 59	A A 70	A A 66	A A 68	55	A A 88	A A 71	A A 62	A A 65	A A 82	A A 98	35	A A 63	18	A A 87
17	20	E B 15	20	17	20	A A 44	A A 66	A A 78	A A 68	A A 53	A A 60	A A 51	A A 57	A A 49	35	41	39	38	34	34	22	E B 15	A A 86	20
18	18	20	16	19	18	A A 43	42	46	A A 98	A A 98	A A 141	A A 122	A A 74	A A 100	42	A A 98	A A 244	A A 105	A A 85	20	E B 15	29	19	22
19	A A 60	20	A A 47	20	18	22	36	A A 61	44	A A 66	A A 67	A A 82	A A 80	A A 73	44	42	40	30	26	E B 16	35	19	A A 46	30
20	31	A A 61	A A 48	19	17	20	35	A A 74	A A 60	A A 118	A A 108	A A 154	A A 108	A A 78	60	33	40	35	38	38	22	26	A A 58	20
21	24	A A 49	A A 51	A A 57	A A 35	21	A A 49	A A 81	A A 78	A A 65	46	48	36	40	44	41	A A 59	37	31	39	24	20	20	18
22	16	20	A A 54	E B 15	16	35	A A 77	A A 79	A A 67	A A 90	A A 94	40	43	41	37	41	39	35	38	E B 15	E B 15	E B 15	E B 15	E B 14
23	E B 16	E B 15	E B 15	E B 14	16	23	29	A A 59	A A 70	A A 84	A A 82	A A 173	A A 63	A A 84	A A 99	A A 140	A A 112	A A 142	A A 116	33	20	24	28	20
24	19	A A 87	A A 76	A A 61	A A 52	37	40	42	A A 100	A A 87	A A 66	A A 86	A A 130	A A 88	46	A A 148	A A 119	A A 78	45	56	A A 98	31	21	20
25	21	A A 51	20	E B 15	E B 14	23	40	A A 92	A A 66	A A 81	49	A A 68	A A 76	37	39	36	G 26	28	32	47	23	38	E B 14	30
26	16	E B 16	18	20	20	16	31	35	A A 69	40	43	44	A A 68	39	36	38	41	A A A 114	A A 71	31	41	34	42	A A 99
27	E B 15	19	22	E B 15	19	20	31	43	A A 98	A A 67	48	A A 88	A A 57	39	43	44	43	40	23	20	30	29	18	18
28	17	E B 15	E B 15	E B 15	E B 15	22	30	A A 68	40	48	36	A A 49	52	37	39	A A 103	33	45	45	39	20	17	26	A A 60
29	29	A A 54	A A 59	A A 56	A A 56	26	A A 74	A A 82	42	44	A A 108	A A 98	A A 148	A A 107	50	35	34	42	33	27	E B 14	18	16	E B 15
30	18	E B 16	E B 15	18	20	25	27	34	44	A A 60	A A 77	A A 135	A A 134	A A 90	A A 57	A A 73	55	43	A A 58	A A 76	38	22	27	34
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	29	30	30	30	30	30	30	30	30
MED	20	20	21	19	20	23	33	56	A A 66	A A 66	A A 66	A A 66	A A 59	53	44	42	41	40	44	38	30	28	28	30
U Q	A A 34	A A 36	A A 31	A A 24	26	30	A A 40	A A 71	A A 78	A A 85	A A 91	A A 98	A A 80	A A 78	A A 57	A A 72	A A 59	A A 55	A A 58	46	41	38	A A 42	A A 37
L Q	16	E B 16	E B 16	E B 16	17	21	28	42	44	53	47	48	46	40	39	36	33	37	34	27	20	20	20	20

JUN. 2007 fbEs (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

JUN. 2007 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	15	14	14	15	14	14	15	18	26	17	30	21	20	20	16	20	15	14	14	13	15	14	15
2	15	14	15	14	14	14	12	21	16	16	18	21	17	18	18	18	18	13	11	13	14	14	16	15
3	15	14	14	15	15	14	14	14	17	16	18	23	22	18	19	19	41	15	16	15	14	16	15	15
4	16	15	15	16	16	14	14	14	18	14	18	24	18	19	15	28	17	15	15	14	15	13	12	14
5	15	15	15	14	13	14	13	13	16	14	19	20	16	18	19	13	14	13	15	16	14	15	14	15
6	15	15	14	14	14	14	15	16	13	17	16	16	18	18	16	18	16	15	12	14	14	15	14	15
7	15	15	15	15	15	13	13	13	14	18	18	17	16	17	18	16	15	13	13	12	E S 15	14	18	14
8	15	15	16	15	14	16	12	15	17	20	18	20	17	20	18	18	14	14	14	15	14	15	15	14
9	15	14	15	15	14	14	14	14	14	15	20	18	23	20	17	18	16	16	13	14	14	14	14	14
10	15	14	15	15	14	15	13	14	14	23	17	16	20	16	18	15	16	13	14	13	13	14	14	16
11	14	15	14	15	15	14	14	14	15	15	17	19	18	17	17	16	16	14	15	14	15	15	13	15
12	15	15	14	14	14	14	14	14	12	16	20	17	20	18	23	C	16	15	14	14	15	15	14	14
13	14	15	14	15	14	14	15	14	14	18	20	18	17	16	19	17	18	16	14	15	14	14	14	16
14	15	15	14	15	16	13	14	14	14	18	18	19	18	16	16	18	16	15	14	14	15	15	15	15
15	15	15	15	15	14	14	14	14	15	16	18	18	18	18	20	19	16	14	14	16	14	14	14	15
16	16	16	14	15	15	15	14	15	16	16	18	22	19	16	20	18	16	16	16	15	13	15	15	15
17	16	15	15	14	15	14	14	14	15	16	16	17	19	18	17	16	17	16	14	14	15	15	15	14
18	15	15	14	14	15	14	15	14	15	15	20	15	17	16	18	18	16	15	16	15	15	15	15	15
19	16	14	15	14	13	12	13	14	15	14	17	19	16	20	18	16	17	15	15	16	14	14	15	14
20	14	15	14	14	14	14	12	15	15	14	19	16	23	18	17	17	16	15	13	12	14	15	15	13
21	15	16	13	15	14	15	14	16	14	17	16	16	17	14	16	18	16	14	16	14	14	12	14	12
22	15	14	15	15	15	14	13	14	14	13	13	18	16	20	15	18	14	14	14	15	15	15	15	14
23	16	15	15	14	15	14	13	14	14	17	17	18	20	20	17	17	17	16	13	13	15	15	14	14
24	14	15	15	16	15	13	12	15	14	14	14	19	18	18	20	14	14	15	14	14	13	16	14	14
25	14	14	15	14	14	13	13	13	14	14	16	15	18	16	15	19	14	13	14	13	15	15	14	14
26	15	16	15	14	14	13	15	16	14	14	18	23	18	18	20	15	14	14	15	14	13	15	14	15
27	15	15	15	15	16	14	14	14	14	19	19	17	20	20	19	20	17	16	14	14	15	14	15	14
28	15	15	14	16	15	14	12	13	14	15	20	17	18	17	18	20	16	14	14	15	14	14	15	15
29	16	14	15	14	15	14	13	14	14	14	17	20	18	18	20	17	14	15	14	13	14	14	15	15
30	15	16	15	15	14	14	15	13	14	13	17	20	22	19	17	17	15	14	15	15	15	14	14	15
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	29	30	30	30	30	30	30	30	30
MED	15	15	15	15	14	14	14	14	14	16	18	18	18	18	18	18	16	15	14	14	14	15	14	15
U Q	15	15	15	15	15	14	14	15	15	17	19	20	20	19	19	18	17	15	15	15	15	15	15	15
L Q	15	14	14	14	14	14	13	14	14	14	17	17	17	17	17	16	15	14	14	14	14	14	14	14

JUN. 2007 fmin (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

JUN. 2007 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	354	361	368	A	A	297	A	A	A	302	285	320	310	317	316	311	317	F	F
2	A	F	337	F	F	337	362	360	334	335	348	A	A	290	A	A	310	A	320	311	327	336	A	A
3	A	F	F	346	301	302	292	327	322	A	291	R	293	A	327	320	325	327	A	307	A	F	335	344
4	309	318	307	334	328	328	298	354	352	A	A	A	A	A	A	312	323	328	319	326	312	A	A	A
5	A	312	306	325	323	337	337	A	A	A	A	A	307	329	311	320	311	312	320	A	317	A	314	319
6	F	F	317	A	F		A	322	A	340	351	A	A	A	296	317	322	315	340	318	324	296	322	323
7	A	A	F	326	320	324	345	A	A	338	A	326	285	A	273	326	334	352	309	305	312	F	303	310
8	321	325	327	335	335	342	299	A	A	A	A	326	311	312	297	298	314	317	326	319	318	311	312	F
9	F	F	F	F	F	300	333	371	329	A	322	309	288	266	278	286	285	317	A	327	310	299	F	300
10	299	323	332	343	314	297	310	A	352	A	A	A	304	286	301	302	317	318	324	313	309	F	F	F
11	F	310	306	302	F	351	344	A	A	322	330	A	289	A	310	A	310	315	308	326	323	F	A	A
12	F	F	F	A	F	338	361	315	374	A	307	311	A	293	A	C	303	287	326	327	335	305	F	F
13	F	F	F	F	300	A	A	A	346	350	A	A	A	302	290	322	A	331	302	314	334	325	A	F
14	F	F	328	326	319	314	327	336	367	362	A	A	285	276	306	319	A	A	311	330	319	A	298	A
15	331	F	F	F	A	A	274	313	A	A	A	A	A	A	291	301	319	353	A	A	332	298	327	302
16	F	F	323	F	F	329	350	342	330	A	A	A	A	335	A	A	A	A	A	A	312	A	F	A
17	F	F	327	329	326	A	A	A	A	A	A	A	A	A	321	310	291	323	325	299	315	315	A	F
18	F	321	F	311	311	A	323	319	A	A	A	A	A	A	333	A	A	A	A	310	331	F	F	F
19	A	338	A	F	F	310	319	A	368	A	A	A	A	A	314	316	324	334	316	351	348	319	A	332
20	350	A	A	F	330	401	340	A	A	A	A	A	A	A	A	306	321	316	347	355	321	317	A	F
21	F	A	A	A	A	347	A	A	A	A	280	320	318	310	338	302	A	296	312	324	317	344	F	F
22	F	F	A	F	F	343	A	A	A	A	A	295	284	301	298	320	327	322	304	317	309	311	303	305
23	318	362	351	311	320	357	316	A	A	A	A	A	A	A	A	A	A	A	A	308	338	F	F	F
24	F	A	A	A	A	324	340	328	A	A	A	A	A	A	324	A	A	A	308	322	A	F	F	F
25	F	A	F	F	F	336	321	A	A	A	337	A	A	301	310	320	295	311	313	326	333	F	F	F
26	F	327	331	328	346	337	311	352	A	364	352	364	A	252	321	326	334	A	A	322	340	328	366	A
27	324	F	304	312	328	315	294	336	A	A	354	A	A	282	286	307	309	320	319	333	355	344	301	F
28	F	F	F	F	336	378	285	A	314	352	316	A	293	274	273	A	310	308	327	329	368	354	F	A
29	F	A	A	A	A	319	A	A	333	332	A	A	A	A	300	332	332	304	297	318	351	365	F	F
30	F	F	F	312	344	386	387	377	310	A	A	A	A	A	A	A	335	340	A	A	325	341	340	337
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	7	9	13	14	16	25	24	15	13	9	12	7	11	15	23	21	23	23	22	26	28	18	11	9
MED	321	323	327	326	324	337	325	336	334	340	326	320	293	293	302	316	319	317	318	320	324	318	314	319
U Q	331	332	332	334	332	349	344	360	360	357	350	326	307	310	321	320	325	328	325	327	334	341	335	334
L Q	309	315	306	312	316	317	304	322	326	334	302	309	285	276	291	302	310	311	309	313	314	311	303	304

JUN. 2007 M(3000)F2 (0.01)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

JUN. 2007 M(3000)F1 (0.01) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1								A	A	A	A	A	A	A	UL 398	A	UL 383	A	A					
2							A	A	A	A	A	A	A	A	A	A	A	A	A					
3							356	A	A	A	UL 417	425	A	A	A	UL 361	EB	A	A					
4							364	A	A	A	A	A	A	A	A	A	A	A						
5							377	A	A	A	A	A	A	A	A	A	368	A	A					
6						A	A	A	A	A	401	A	A	A	420	UL 412	UL 386	338	A					
7							A	A	A	A	A	UL 444	UL 434	A	UL 374	UL 394	UL 401	A	A					
8							UL 346	A	A	A	A	UL 444	381	414	A	UL 407	UL 374	A						
9							L	A	UL 384	A	UL 401	A	A	UL 388	386	373	A	A	A					
10							UL 366	A	A	A	A	A	A	A	A	A	A	L	A					
11							A	A	A	A	A	A	A	A	A	A	A	A	A					
12							L	A	A	A	A	A	A	A	A	C	A	A	A					
13						A	A	A	A	A	A	A	A	356	A	A	A	UL 373	A					
14						L	375	A	A	A	A	A	UL 384	UL 383	A	A	A	A	A					
15						AU	UL 347	UL 348	A	A	A	A	A	A	A	UL 382	UL 382	A	A					
16						L	L	A	A	A	A	A	A	A	A	A	A	A	A	A				
17						A	A	A	A	A	A	A	A	A	UL 403	A	A	A	A					
18						A	A	A	A	A	A	A	A	A	A	A	A	A	A					
19							A	A	A	A	A	A	A	A	A	A	A	UL 379	L					
20							A	A	A	A	A	A	A	A	A	410	A	A	A					
21					A		A	A	A	A	A	A	445	UL 389	A	A	A	A	A	A				
22							A	A	A	A	A	UL 377	A	A	UL 382	A	A	A	A					
23							373	A	A	A	A	A	A	A	A	A	A	A	A					
24					A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A				
25							A	A	A	A	A	A	A	414	UL 399	UL 383	370	370	A	A				
26							UL 364	L	A	A	A	A	A	UL 418	UL 407	UL 392	A	A	A					
27						UL 346	UL 377	A	A	A	A	A	A	447	A	A	A	A	L					
28							UL 361	A	A	A	UL 424	A	A	UL 405	UL 375	A	UL 370	A	A					
29					A	L	A	A	A	A	A	A	A	A	A	UL 414	UL 399	A	A	A				
30									A	A	A	A	A	A	A	A	A	A	A	A				
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT						1	11	1	1		4	4	4	9	9	10	9	4						
MED						UL 346	UL 364	UL 348	UL 384		UL 409	UL 434	409	UL 405	UL 398	UL 393	UL 382	372						
U Q							375				UL 420	UL 444	440	416	UL 405	UL 410	UL 392	UL 376						
L Q							UL 356				401	401	382	UL 386	UL 378	UL 382	370	354						

JUN. 2007 M(3000)F1 (0.01)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

JUN. 2007 h'F2 (KM) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1								248	A	A	E A 382	A	A	A	346	E A 376	296	E A 278	E A 298					
2							252	260	284	298	E A 290	A	A	392	A	A	E A 354	A	E A 320					
3							366	268	E A 324	A	376	498	E A 360	A	E A 318	310	306	E A 296	A					
4							344	256	E A 296	A	A	A	A	A	A	E A 340	E A 310	E A 294						
5							286	A	A	A	A	A	350	296	E A 326	E A 310	328	322	E A 336					
6						E A 266	A	E A 354	A	E A 310	284	A	A	A	398	318	296	320	258					
7							278	A	A	E A 302	A	342	404	A	446	342	276	248	E A 314					
8							336	A	A	A	A	318	330	338	E A 362	372	340	290						
9							282	238	298	A	314	346	E A 386	470	388	380	334	282	A					
10							324	A	254	A	A	A	372	398	E A 356	324	298	266	E A 334					
11							262	A	A	E A 344	296	A	378	A	312	A	292	298	294					
12							254	E A 306	240	A	E A 354	E A 350	A	E A 404	A	C	E A 382	356	E A 290					
13						A	A	A	262	262	A	A	A	372	E A 396	E A 334	A	298	306					
14						296	308	284	228	256	A	A	410	428	E A 358	E A 344	A	A	E A 260					
15						A	420	326	A	A	A	A	A	A	E A 402	360	328	258	A					
16						280	278	294	310	A	A	A	A	E A 296	A	A	A	A	A	A				
17						A	A	A	A	A	A	A	A	A	346	E A 358	376	316	272					
18						A	E A 340	E A 334	A	A	A	A	A	A	304	A	A	A	A					
19							314	A	246	A	A	A	A	A	338	332	300	280	278					
20							294	A	A	A	A	A	A	A	A	346	318	294	258					
21					A		A	A	A	A	E A 434	E A 336	306	342	298	366	A	E A 366	306	272				
22							A	A	A	A	A	396	400	356	330	296	264	296	E A 314					
23							346	A	A	A	A	A	A	A	A	A	A	A	A					
24					A	E A 334	E A 308	E A 318	A	A	A	A	A	A	318	A	A	A	E A 298	E A 304				
25							E A 348	A	A	A	E A 306	A	A	356	328	316	378	322	322	E A 274				
26							384	270	A	274	260	262	A	472	336	320	302	A	A					
27						332	366	282	A	A	276	A	A	450	E A 406	342	332	284	270					
28							408	A	320	268	312	A	370	430	418	A	334	E A 318	E A 284					
29					A	302	A	A	320	310	A	A	A	A	E A 334	280	296	E A 350	316	262				
30									E A 354	A	A	A	A	A	A	A	E A 292	E A 276	A	A				
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT						6	22	14	13	9	12	8	11	15	23	21	23	23	20	4				
MED						294	314	U 270	U 279	U 280	U 298	342	371	382	336	332	306	293	U 286	273				
U Q						332	348	E A 318	320	E A 310	E A 365	373	400	430	396	359	334	320	E A 315	E A 289				
L Q						280	282	260	250	265	287	327	350	342	326	317	296	280	275	267				

JUN. 2007 h'F2 (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

JUN. 2007 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 268	E A 276	E A 288	E A 274	236	238	206	A	A	A	A	A	A	A	230	A	218	A	A	E A 310	E A 290	E A 272	224	E A 266
2	A	224	234	E A 258	E A 270	222	A	A	A	A	A	A	A	A	A	A	A	A	A	E A 238	238	E A 246	A	A
3	A	E A 312	E A 300	230	E A 312	E A 262	234	A	A	A	H 192	210	A	A	A	208	B	A	A	E A 298	A	E A 270	E A 254	E A 242
4	E A 248	E A 258	E A 316	238	238	206	226	A	A	A	A	A	A	A	A	A	A	A	E A 266	E A 266	E A 328	A	A	A
5	A	E A 314	E A 330	E A 266	E A 296	218	216	A	A	A	A	A	A	A	A	A	196	A	A	A	E A 316	A	E A 280	222
6	E A 332	E A 300	218	A	E A 340	A	A	A	A	A	212	A	A	A	194	H 182	198	210	A	232	236	E A 300	E A 270	E A 246
7	A	A	E A 286	E A 288	E A 284	218	A	A	A	A	A	182	198	A	E A 254	194	216	A	A	E A 272	E A 250	E B 254	E A 260	234
8	E A 248	236	E A 242	242	E A 250	224	E A 242	A	A	A	A	H 176	192	200	A	186	220	A	E A 266	226	220	228	E A 256	E A 268
9	E A 272	E A 272	E A 258	E B 256	E A 286	E A 250	214	A	196	A	210	A	A	206	210	236	A	A	A	226	226	E A 264	E A 278	E A 278
10	E B 258	E A 250	226	220	232	228	E A 234	A	A	A	A	A	A	A	A	A	A	220	A	E A 308	E A 280	E A 258	E A 284	E A 260
11	E A 286	E B 254	E A 264	E A 256	E A 242	224	A	A	A	A	A	A	A	A	A	A	A	A	A	E A 256	232	E A 292	A	A
12	E A 254	E A 302	E A 260	A	E A 292	E A 268	208	A	A	A	A	A	A	A	A	C	A	A	A	E A 238	E A 242	218	E A 286	E A 268
13	232	E A 270	E A 306	E A 270	E A 274	A	A	A	A	A	A	A	A	E A 256	A	A	A	220	A	E A 284	E A 248	E A 236	A	E A 286
14	230	E B 290	218	E A 250	E A 268	224	216	A	A	A	A	A	E A 252	E A 260	A	A	A	A	A	232	E A 272	A	E A 322	A
15	E A 276	E A 322	E A 302	E A 308	A	A	256	E A 270	A	A	A	A	A	A	A	218	214	A	A	A	234	E A 276	228	E B 270
16	E B 296	E B 272	E B 258	238	230	216	224	A	A	A	A	A	A	A	A	A	A	A	A	A	E A 278	A	242	A
17	E A E 312	B 256	226	E B 252	E A 278	A	A	A	A	A	A	A	A	A	202	A	A	A	A	E A 308	E A 246	236	A	E A 298
18	232	232	230	E A 314	E A 330	A	A	A	A	A	A	A	A	A	A	A	A	A	A	236	208	E A 334	E A 246	E A 286
19	A	E A 264	A	A	E A 274	E A 258	220	A	A	A	A	A	A	A	A	A	A	E A 234	212	232	212	E A 246	A	E A 264
20	E A 272	A	A	E A 262	E A 242	186	A	A	A	A	A	A	A	A	A	198	A	A	A	E A 234	230	E A 254	A	E A 270
21	E A 284	A	A	A	A	204	A	A	A	A	A	A	176	210	A	A	A	A	A	A	E A 246	224	E A 282	E A 260
22	E A 262	E A 328	A	218	E B 250	E A 262	A	A	A	A	A	E A 264	A	A	218	A	A	A	A	240	234	240	234	244
23	242	214	194	E B 264	E A 270	238	214	A	A	A	A	A	A	A	A	A	A	A	A	E A 280	226	E A 254	E A 280	E A 286
24	E A 296	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	E A 262	E A 274	234
25	E A 270	A	E A 286	E B 260	E B 266	222	A	A	A	A	A	A	A	H 186	216	E A 250	208	208	A	A	232	E A 290	218	E A 274
26	E A 266	240	E A 244	E A 258	E A 258	226	234	224	A	A	A	A	A	212	204	198	A	A	A	E A 258	E A 250	242	228	A
27	236	E A 290	E A 320	E B 282	E A 272	218	240	A	A	A	A	A	A	196	A	A	A	A	218	228	216	210	E A 260	E A 290
28	E A 276	E B 270	E B 248	224	222	218	214	A	A	A	194	A	A	196	216	A	224	A	A	E A 262	200	202	E A 298	A
29	E A 306	A	A	A	A	E A 262	A	A	A	A	A	A	A	A	A	208	202	A	A	A	218	208	E A 248	E B 294
30	E A 286	E B 270	E B 264	E A 272	236	198	192	E A 240	A	A	A	A	A	A	A	A	A	A	A	A	E A 260	218	E A 242	E A 284
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	25	24	24	25	26	24	16	3	1		4	4	4	9	9	10	9	5	4	22	28	26	23	23
MED	E A 270	E A 270	E A 259	E A 258	E A 267	220	218	E A 240	196		202	188	190	201	213	200	214	215	242	E A 248	U 220	E A 250	E A 260	E A 268
U Q	E A 286	E A 295	E A 294	E A 273	E A 284	E A 238	234	E A 270			211	237	225	E A 234	224	218	219	227	E A 266	E A 280	E A 255	E A 270	E A 280	E A 286
L Q	248	252	232	240	242	218	214	224			193	179	184	196	203	194	200	209	215	232	226	228	242	246

JUN. 2007 h'F (KM)

IONOSPHERIC DATA STATION Kokubunji

JUN. 2007 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						A 112		A	A	A	A	A	A	A	A	A	A	A	A	B				
2						124	A	A	A	A	A	A	A	A	A	A	A	A	A	B				
3						A 114		A	A	A	A	A	A	A	A	A	B	118	A	B				
4						B 116		A	A	A	A	A	A	A	A	A	A	A	A					
5						A 118		A	A	A	A	A	A	A	A	A	A	A	A					
6						B	A	114	A	A	A	A	A	A	114	116	116	118	A					
7						A 118		A	A	A	A	A	110	A	A	A	114	112	A	B				
8						A 122		A	A	A	A	A	114	A	A	A	A	A	A					
9						A 120		A	120	A	A	A	A	116	A	112	118	A	A					
10						A 116		A	A	A	A	A	A	A	A	A	120	114	B					
11						114	118	A	A	A	A	A	A	A	A	A	A	A	A					
12						B 118		A	A	A	A	A	A	A	A	C	A	A	A					
13						B	A	A	A	A	A	A	A	A	A	A	A	A	110					
14						124	122	114	A	A	A	A	114	112	122	A	A	A	A					
15						116	112	A	A	A	A	A	A	A	A	A	118	A	A					
16						A 120		A	A	A	A	A	A	A	A	A	A	A	A	B				
17					B	120	A	A	A	A	A	A	A	A	A	A	A	A	A	B				
18					B	120	116	A	A	A	A	A	A	A	112	112	112	A	A	B				
19					B	126	112	A	A	A	A	A	A	A	A	A	A	A	A	B				
20						B 114		A	A	A	A	A	A	A	A	A	116	A	A	B				
21					B	A 120		A	A	A	A	A	A	A	A	A	A	A	A	B				
22						B	A	A	A	A	A	A	A	A	A	A	A	A	A	B				
23					B	116	116	116	A	A	A	A	A	A	A	A	A	A	A	B				
24					B	A 118		120	A	A	A	A	A	A	118	A	A	A	A	B				
25					B	A 110		A	A	A	A	A	A	116	116	116	112	114	A	B				
26						A	A	A	A	A	116	A	A	118	A	116	114	A	A	B				
27						A	A	A	A	A	A	A	112	116	118	116	A	A	A	B				
28					B	B 118		A	A	A	A	A	A	A	114	A	118	A	A	B				
29					B	A	A	A	A	A	A	A	A	A	A	A	A	A	A	B				
30					B	A	122	116	114	A	A	A	A	A	A	A	A	A	A	B				
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT						8	22	5	2		1		4	5	7	6	10	5	1					
MED						120	118	116	117		116		113	116	116	116	116	114	110					
U Q						124	120	118					114	117	118	116	118	118						
L Q						116	114	114					111	114	114	112	114	113						

JUN. 2007 h'E (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

JUN. 2007 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	94	94	92	92	86	92	124	106	102	98	98	98	98	104	104	98	96	92	92	92	92	90	102	104
2	96	94	96	92	92	124	106	106	102	102	102	102	102	102	96	94	92	108	92	90	102	98	96	98
3	96	96	96	96	96	102	112	100	98	96	102	102	98	96	96	96	B	114	108	106	102	100	94	94
4	96	94	92	90	90	124	126	104	102	98	96	98	96	96	102	106	106	102	98	100	98	100	100	98
5	96	96	96	98	94	94	128	106	104	104	98	100	102	104	104	102	106	104	98	96	96	106	106	108
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16	102	102	B	B	104	100	118	106	104	104	104	104	102	98	96	96	106	104	98	96	102	110	104	100
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31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	29	29	28	29	30	30	30	30	30	30	30	30	30	30	29	29	30	30	30	30	30	30	29
MED	98	96	96	94	96	105	116	104	102	102	101	100	100	98	98	100	104	102	98	98	99	100	101	100
U Q	100	100	97	96	103	118	120	106	104	104	102	102	102	104	104	107	111	106	106	102	104	104	106	104
L Q	96	94	94	92	92	96	106	102	102	100	98	98	98	96	96	96	97	94	94	92	94	96	98	97

IONOSPHERIC DATA STATION Kokubunji

JUN. 2007 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	F4	F4	F4	F3	F3	L2	CL22	L2	L3	L3	L3	L3	L3	L2	L2	L3	L2	L3	L3	L3	F4	F4	F3	F6
2	F3	F3	F2	F2	F3	C3	L3	L2	L3	L2	L3	L2	L3	L2	L3	L3	L4	CL45	L4	L5	F3	F5	F4	F5
3	F4	F4	F4	F2	F3	L3	C2	L3	L3	L3	L2	L2	L2	L3	L3	L2		CL32	L5	L3	F4	F3	F5	F5
4	F2	F3	F3	F3	F3	C2	C2	L2	L3	L4	L4	L3	L2	L3	L3	L2	L3	L4	L3	F3	F4	F5	F5	F4
5	F5	F5	F5	F4	F4	L4	CL12	L4	L3	L3	L3	L2	L2	L3	L2	L3	L2	L4	L4	F3	F4	F6	F5	F1
6	F5	F5	F3	F5	F4	L3	L3	CL33	L4	L4	L2	L3	L3	L3	L2	L2	L2	L2	L2	F5	F3	F6	F4	F5
7	F4	F4	F4	F3	F3	L3	CL32	L4	L3	L3	L3	L2	L2	L3	L3	L2	L2	C2	L3	L3	F3	F3	F2	F3
8	F2	F3	F2	F2	F3	L2	CL22	L3	L4	L2	L2	L2	L2	L2	L3	L2	L2	L3	L2	F4	F3	F3	F2	F2
9	F3	F3	F2	F2	F3	L2	L2	L2	CL22	L2	L2	L2	L3	CL11	L2	CL22	CL32	L4	L4	F3	F2	F2	F3	F3
10	F2	F3	F2	F2	F2	L2	CL22	L3	L2	L3	L3	L3	L2	L3	L3	L3	CL22	CL32	L3	F4	F3	F6	F4	F5
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13	F3	F3	F4	F3	FF32	C3	L4	L3	L2	L2	L3	L2	L3	L3	L2	L4	L4	L2	CL22	F4	F5	F4	F5	F5
14	F3	F3	F3	F3	F3	CL22	CL11	CL21	L2	L3	L3	L3	CL22	CL12	CL32	L3	L4	L4	L4	F3	F3	F4	F4	F5
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18	F5	F4	F2	FF22	CL22	C4	C2	L4	L4	L4	L4	L3	L3	L3	CL22	CL42	CL32	L4	L6	L4	F3	F4	F3	F4
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20	F5	F4	F4	F3	F3	C2	C2	L3	L3	L3	L3	L3	L4	L3	L4	L2	CL22	L3	CL23	CL33	FF33	F3	F4	F4
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22	F6	F6	F4	F2	F2	C5	L4	L3	L3	L3	L3	L3	L2	L2	L2	L2	L2	L3	L2	L1	F2	F2	F1	
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25	F4	F4	F3	F2		L2	C3	L3	L3	L3	L3	L3	L4	CL22	CL22	CL11	L2	CL11	L3	L5	F3	F6	F3	F5
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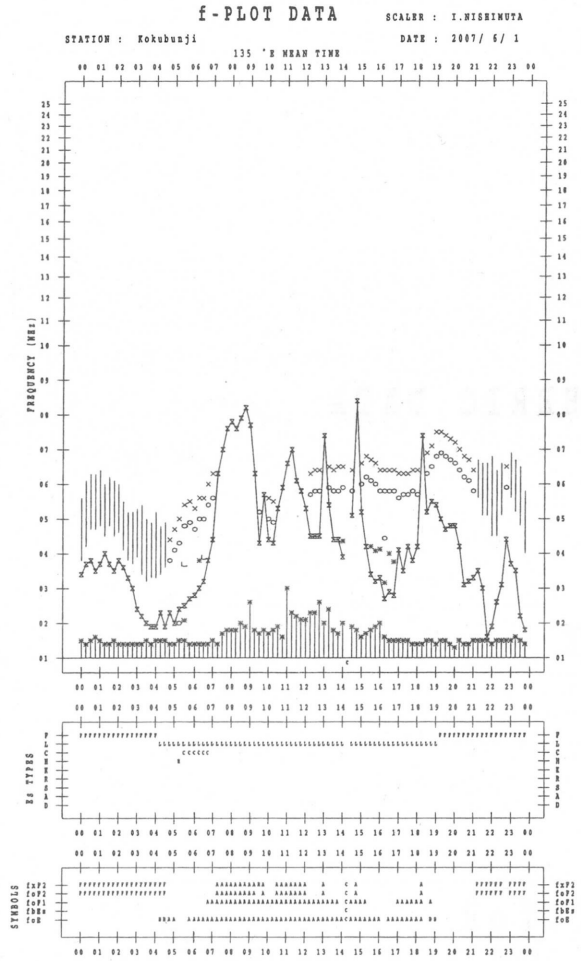
29	F3	F3	F4	F4	L4	LL23	L5	L4	L3	L2	L3	L4	L3	L3	L3	L2	L3	L3	L3	L4	F2	F3	F2	F3
30	F1	F2	F3	F3	LL23	L3	CL21	C2	CL21	L3	L3	L3	L3	L3	L3	L3	L4	L3	L5	L3	F4	F3	F3	F4
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT																								
MED																								
U Q																								
L Q																								

JUN. 2007 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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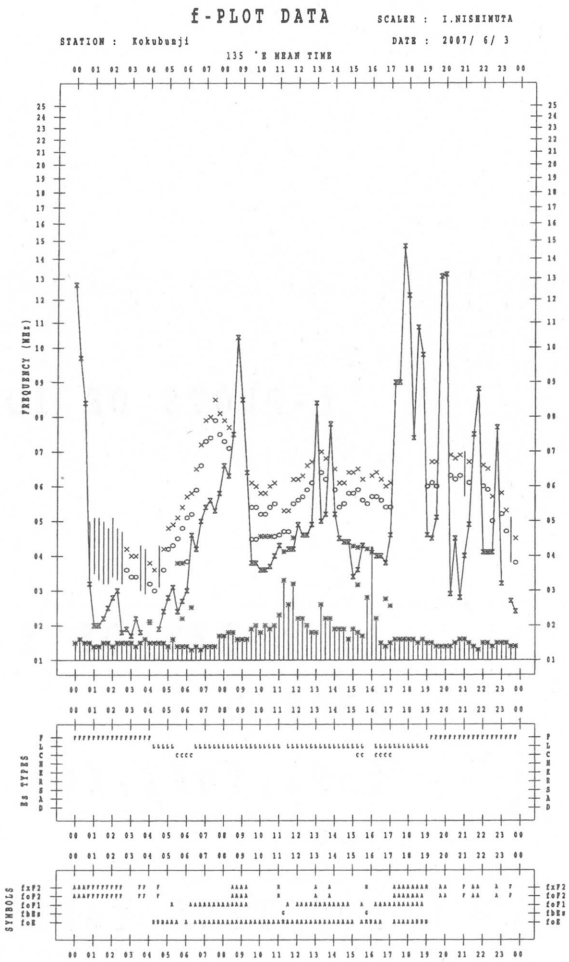
STATION : Kokubunji
DATE : 2007/ 6/ 1
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS


f-PLOT DATA
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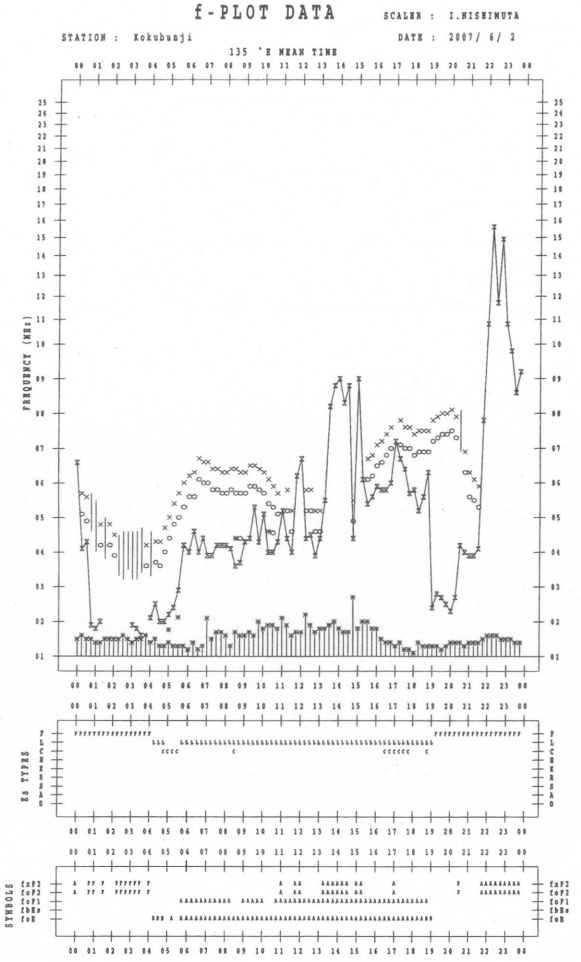
STATION : Kokubunji
DATE : 2007/ 6/ 3
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS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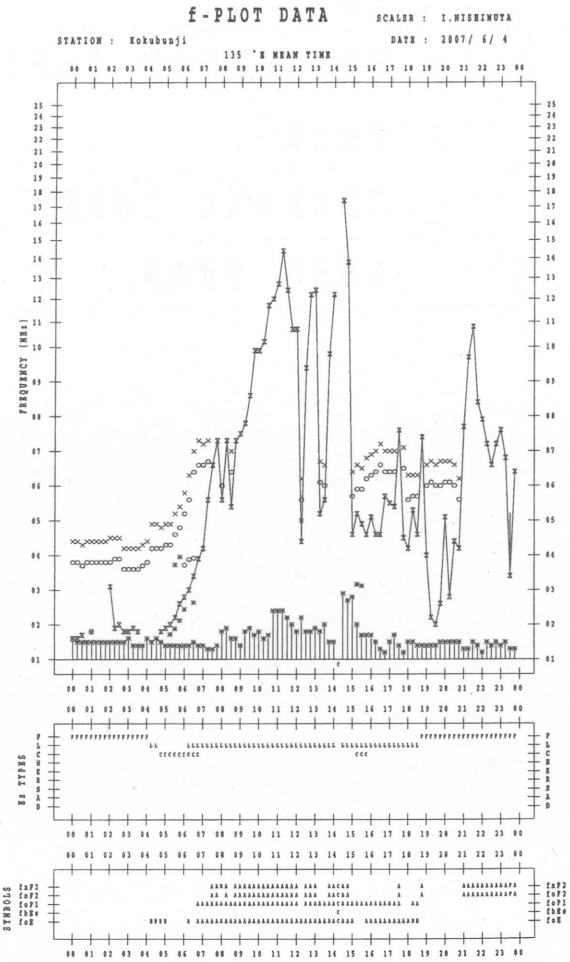
STATION : Kokubunji
DATE : 2007/ 6/ 2
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS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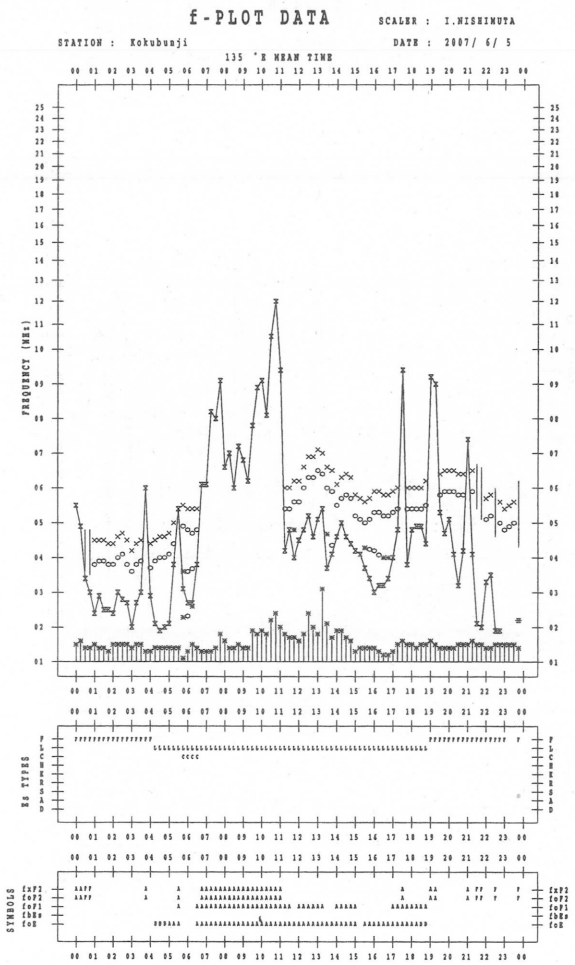
STATION : Kokubunji
DATE : 2007/ 6/ 4
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS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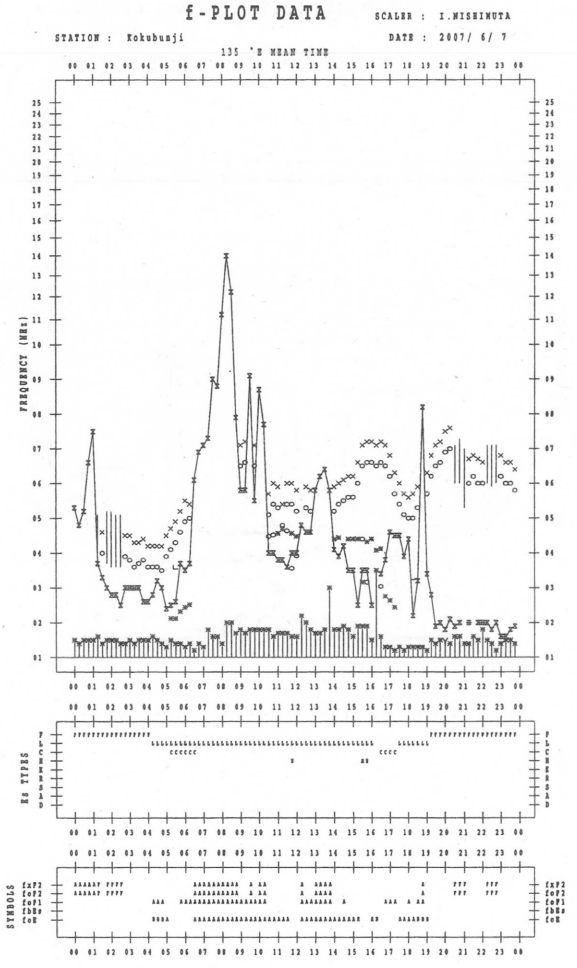
STATION : Kokubunji
DATE : 2007/ 6/ 5
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE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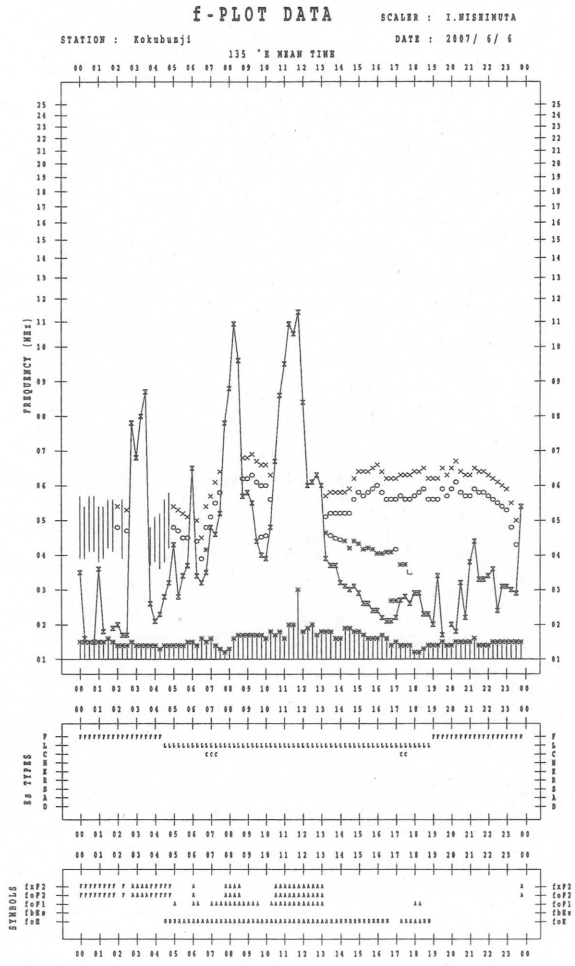
STATION : Kokubunji
DATE : 2007/ 6/ 7
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE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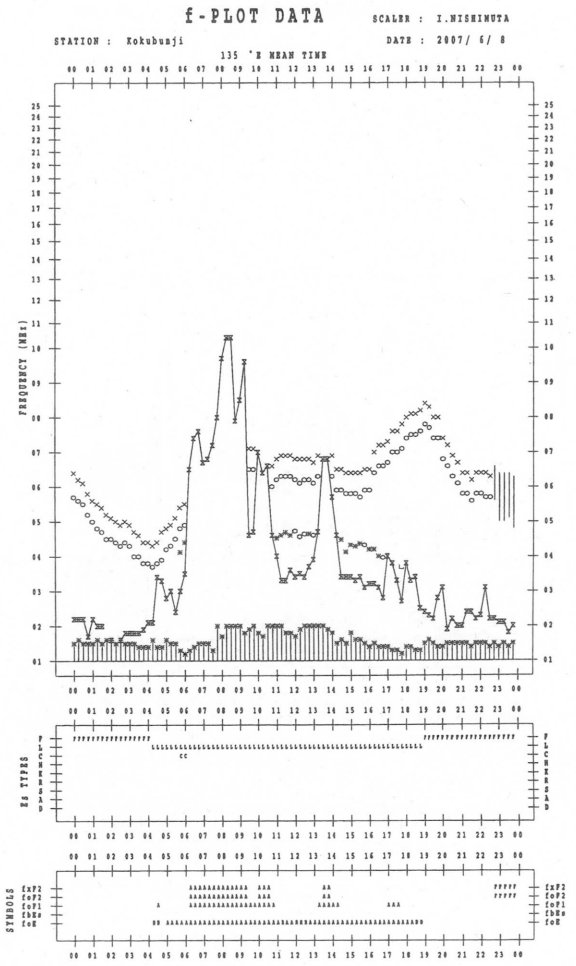
STATION : Kokubunji
DATE : 2007/ 6/ 6
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE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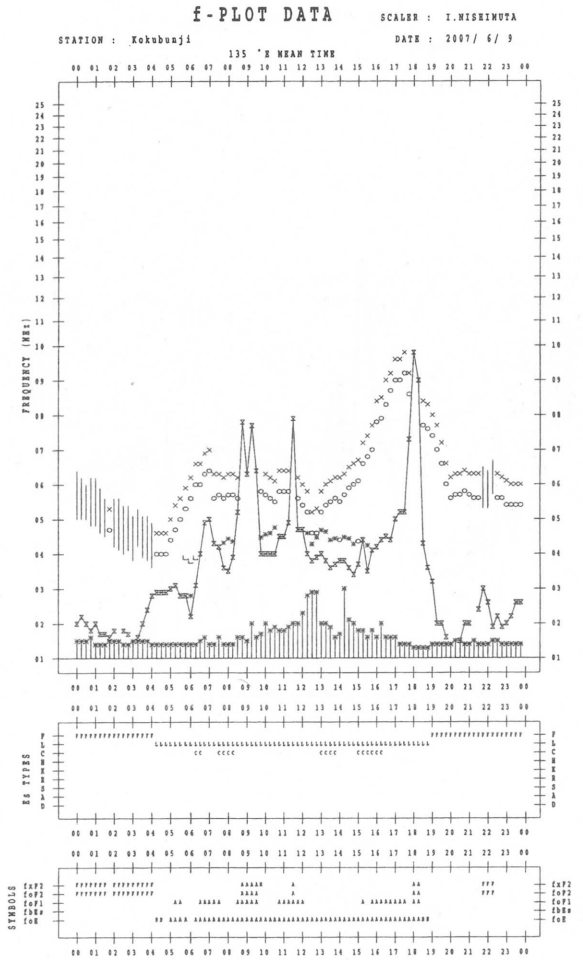
STATION : Kokubunji
DATE : 2007/ 6/ 8
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE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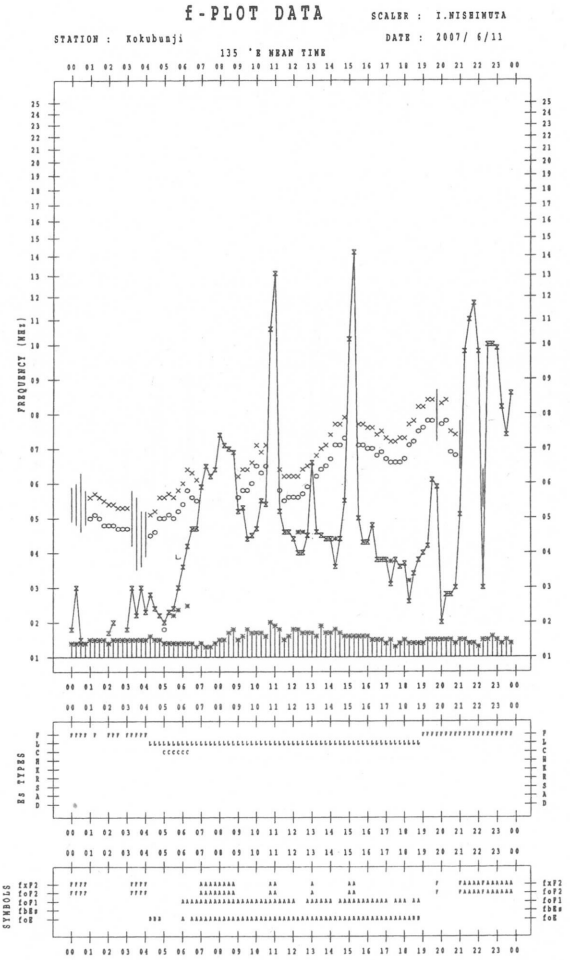
STATION : Kokubunji
DATE : 2007/ 6/ 9
135 'E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS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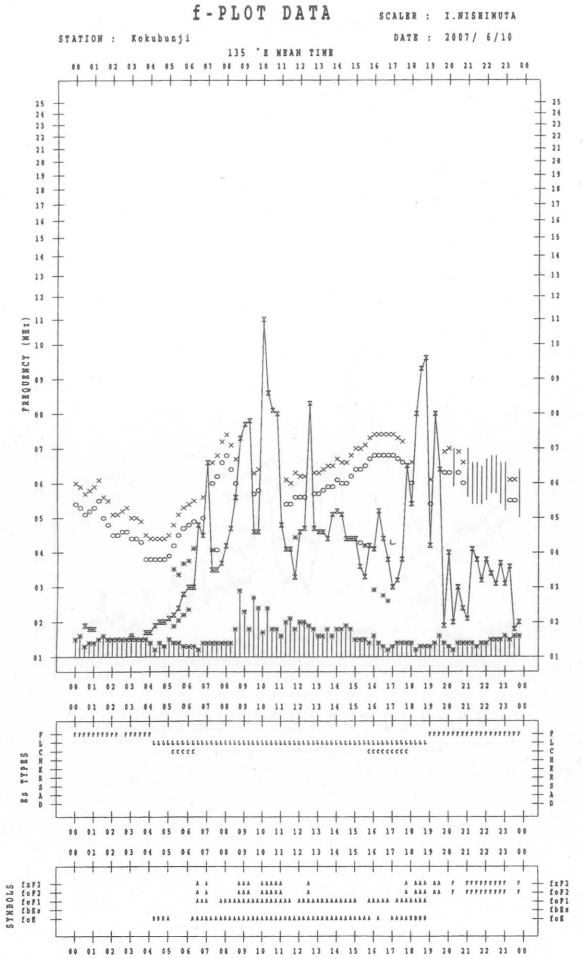
STATION : Kokubunji
DATE : 2007/ 6/11
135 'E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS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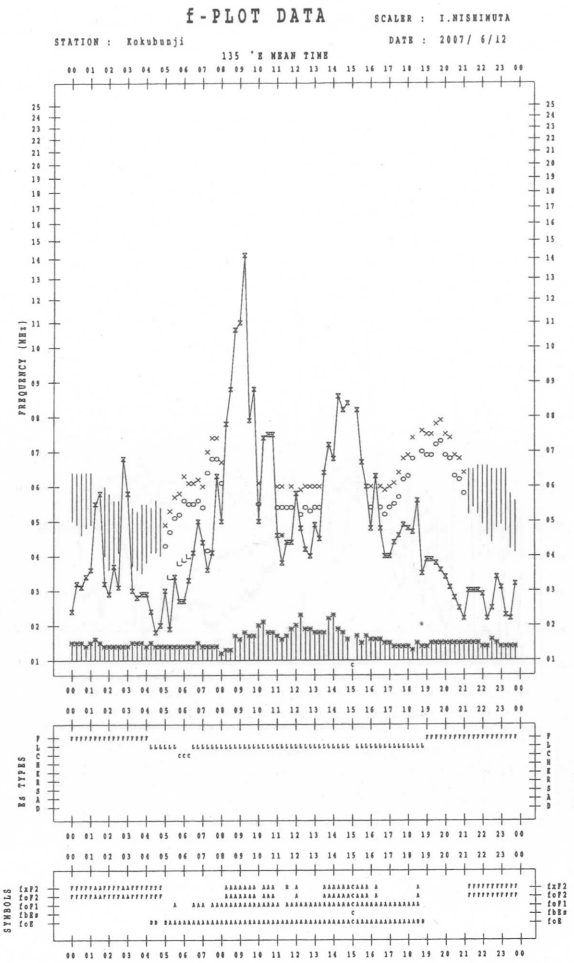
STATION : Kokubunji
DATE : 2007/ 6/10
135 'E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS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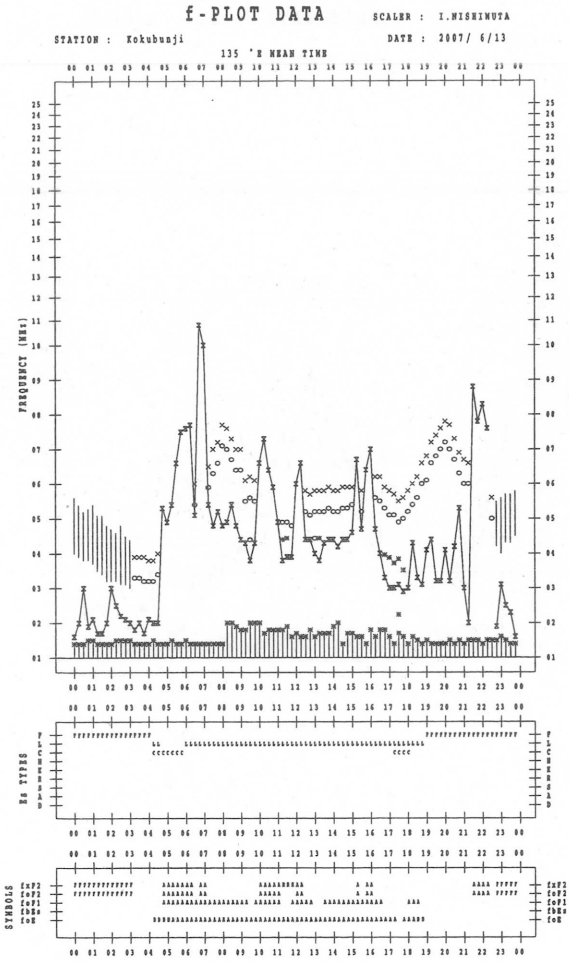
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2007/ 6/12
135 'E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS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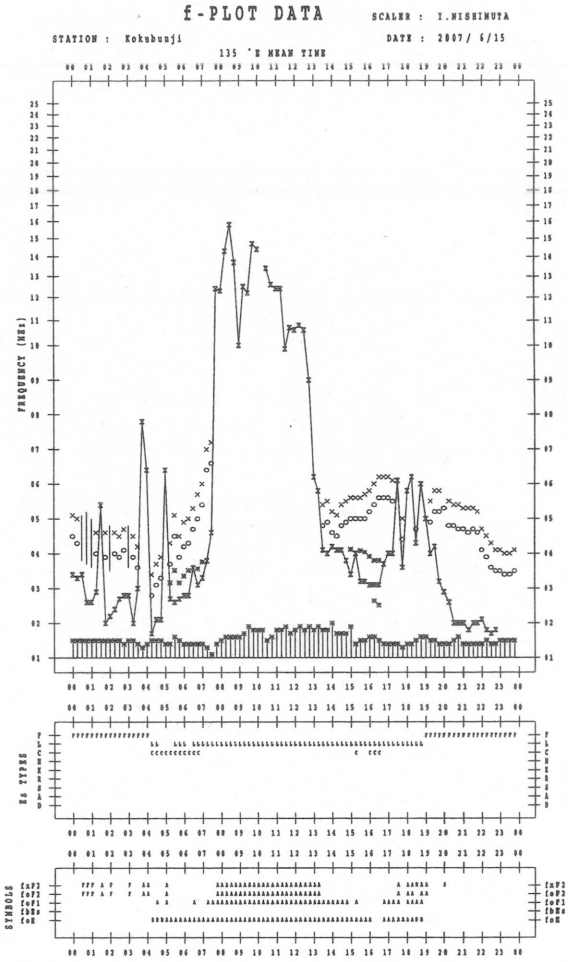
STATION : Kokubunji
DATE : 2007/ 6/13
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS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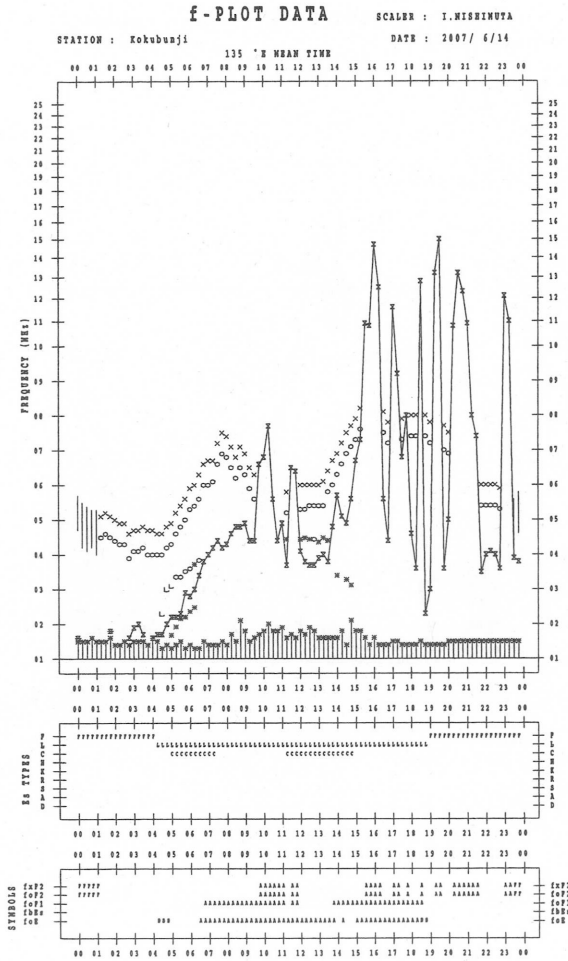
STATION : Kokubunji
DATE : 2007/ 6/15
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS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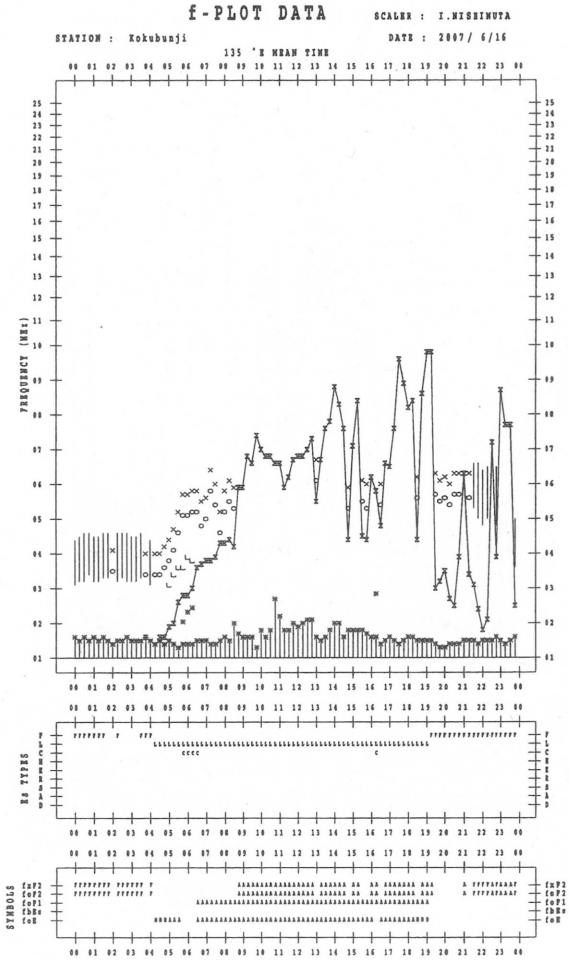
STATION : Kokubunji
DATE : 2007/ 6/14
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS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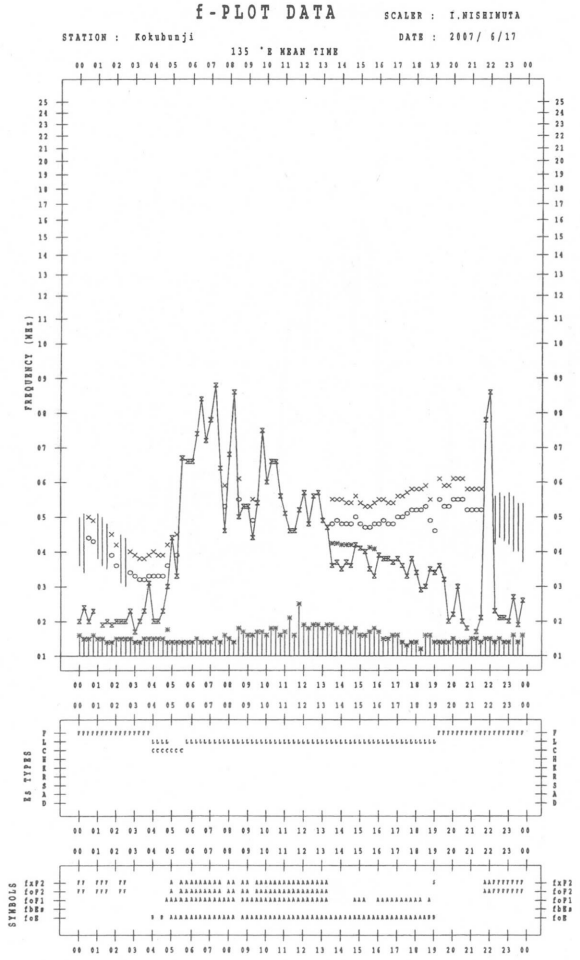
STATION : Kokubunji
DATE : 2007/ 6/16
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS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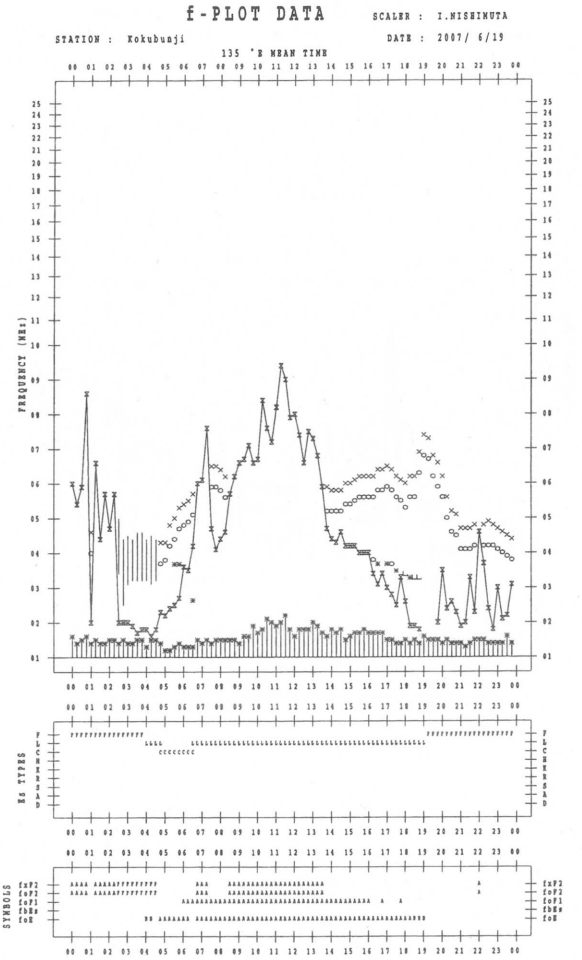
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2007/ 6/17
135 °E MEAN TIME
FREQUENCY (MHz)
Rs TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE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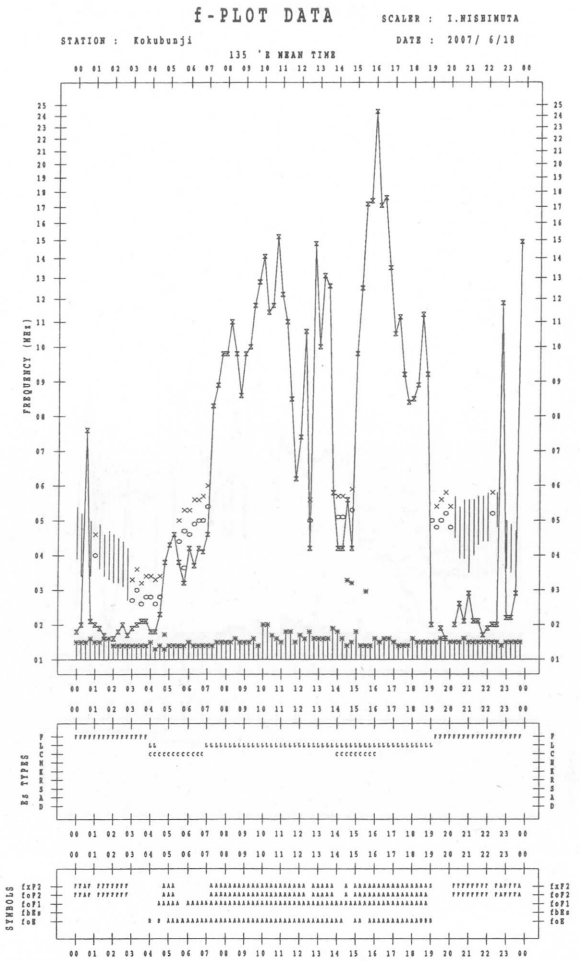
STATION : Kokubunji
DATE : 2007/ 6/19
135 °E MEAN TIME
FREQUENCY (MHz)
Rs TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE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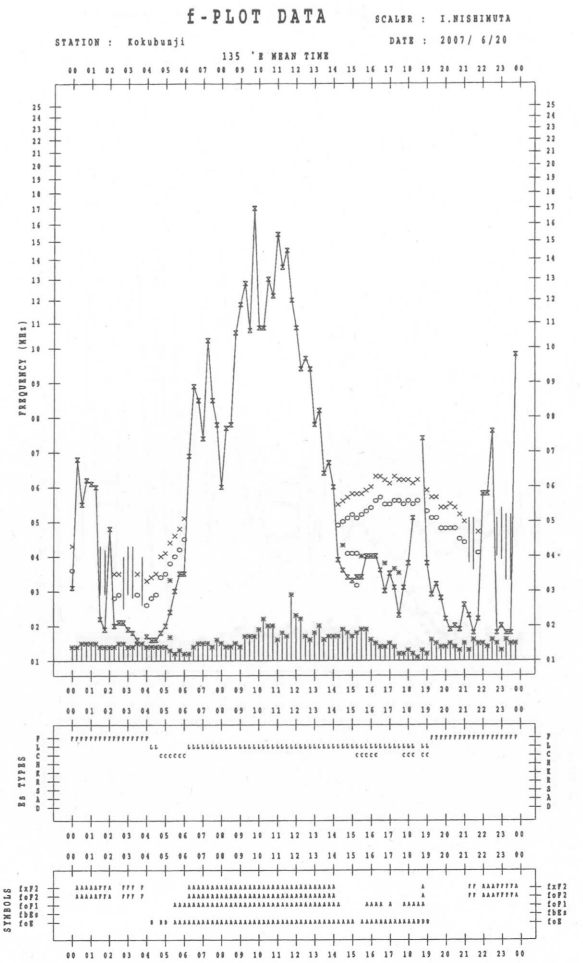
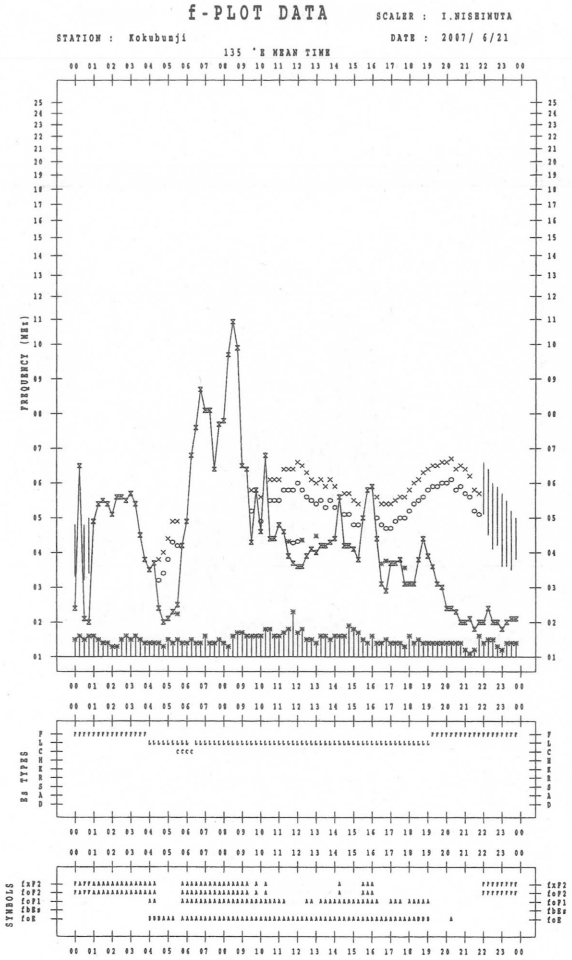
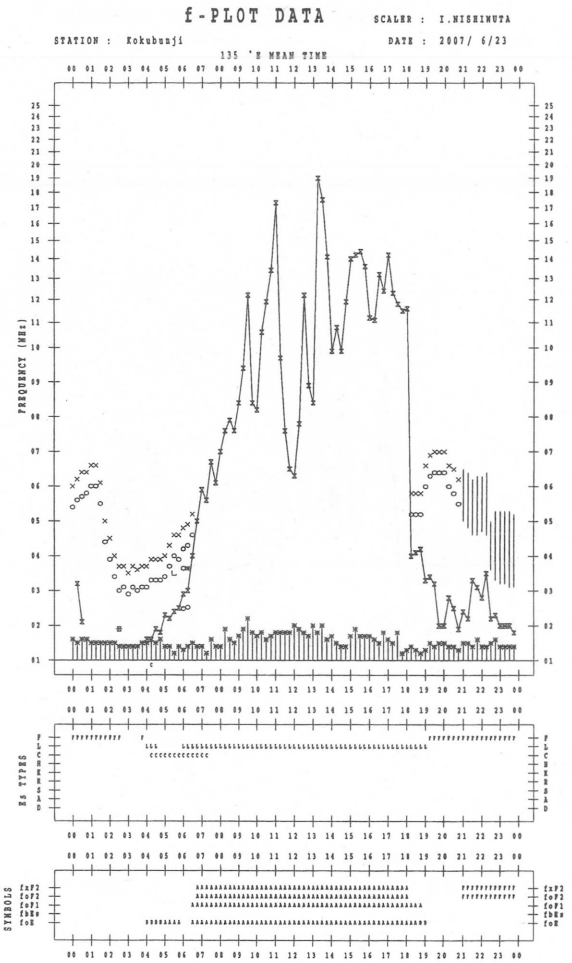
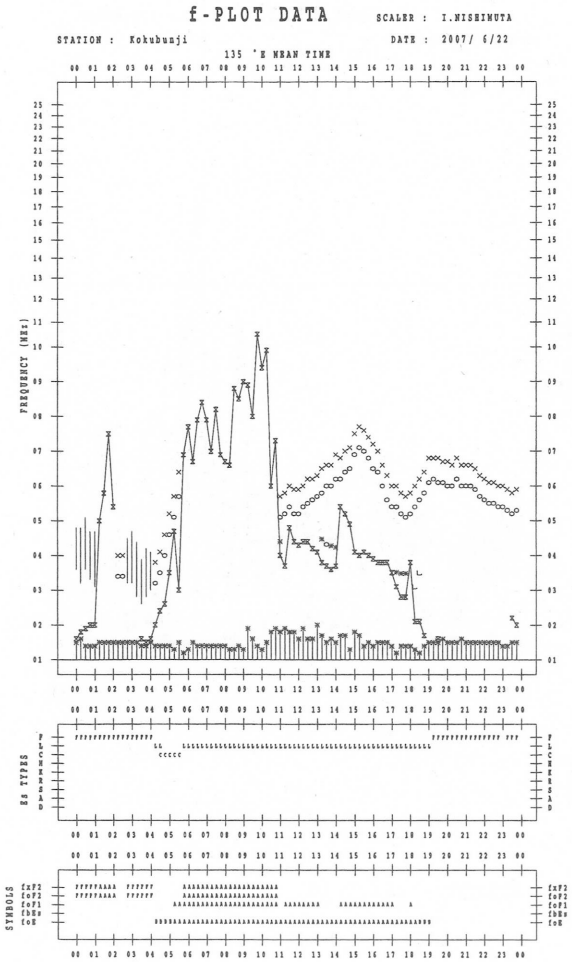
STATION : Kokubunji
DATE : 2007/ 6/18
135 °E MEAN TIME
FREQUENCY (MHz)
Rs TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE


f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2007/ 6/20
135 °E MEAN TIME
FREQUENCY (MHz)
Rs TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE


f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2007/ 6/21
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS


f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2007/ 6/23
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS


f-PLOT DATA
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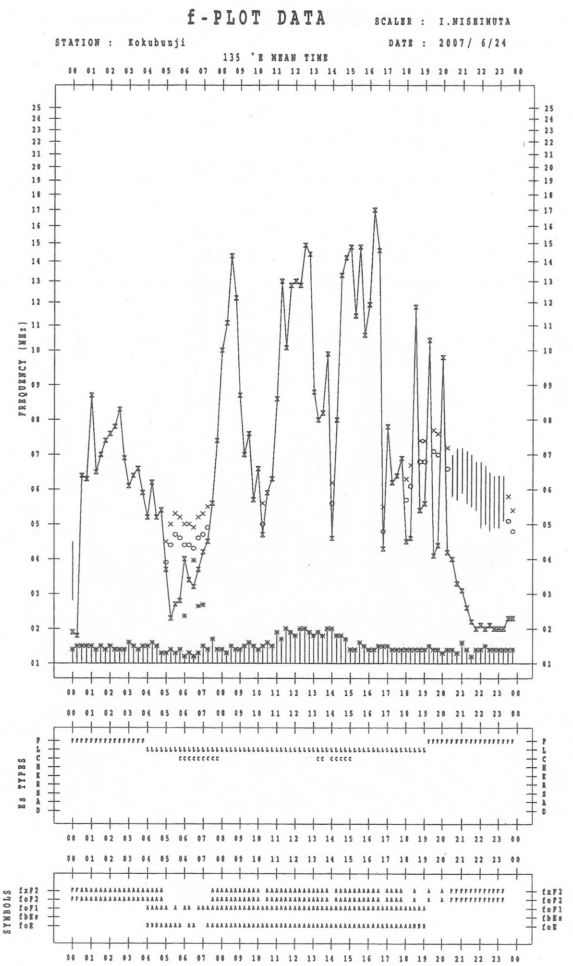
STATION : Kokubunji
DATE : 2007/ 6/22
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS


f-PLOT DATA
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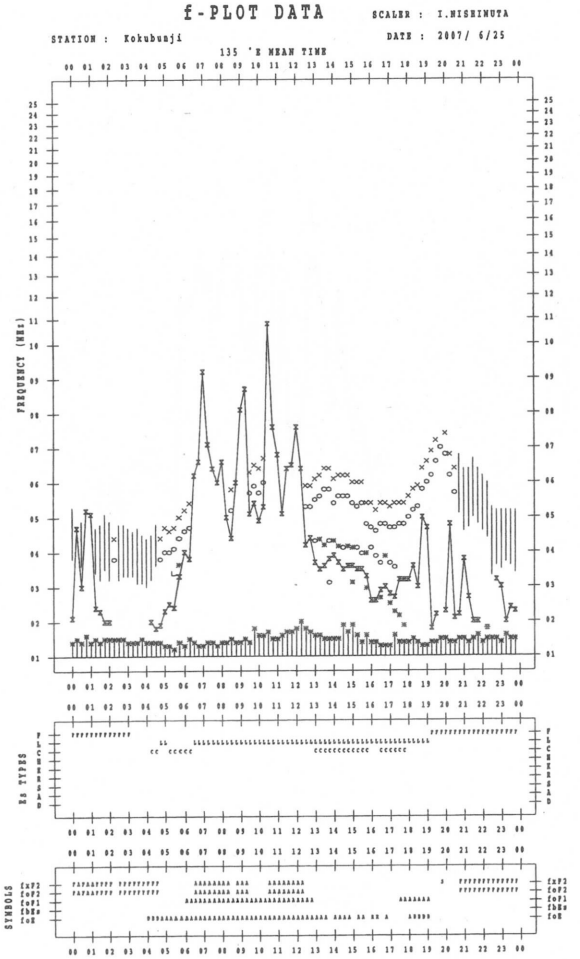
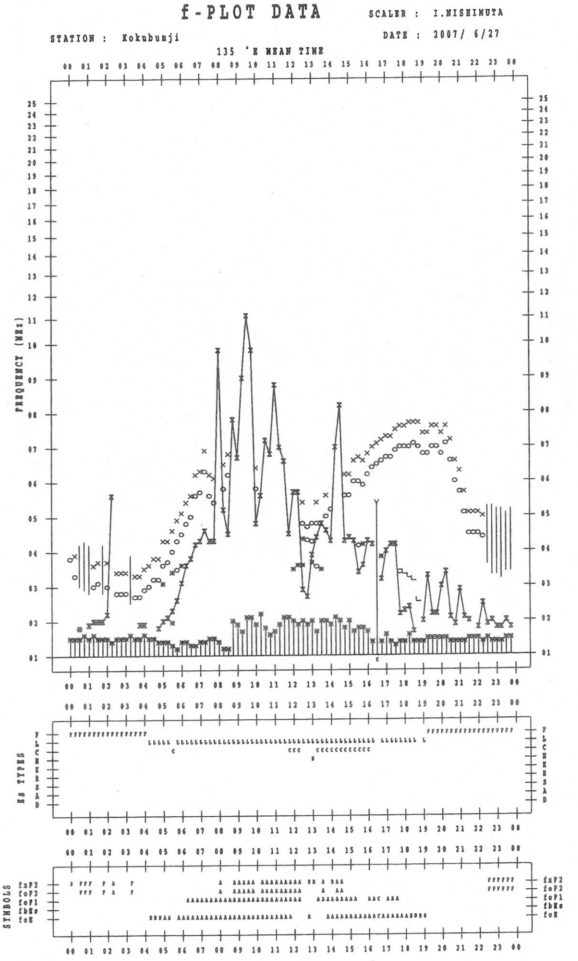
STATION : Kokubunji
DATE : 2007/ 6/24
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS


f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2007/ 6/25
135 'E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE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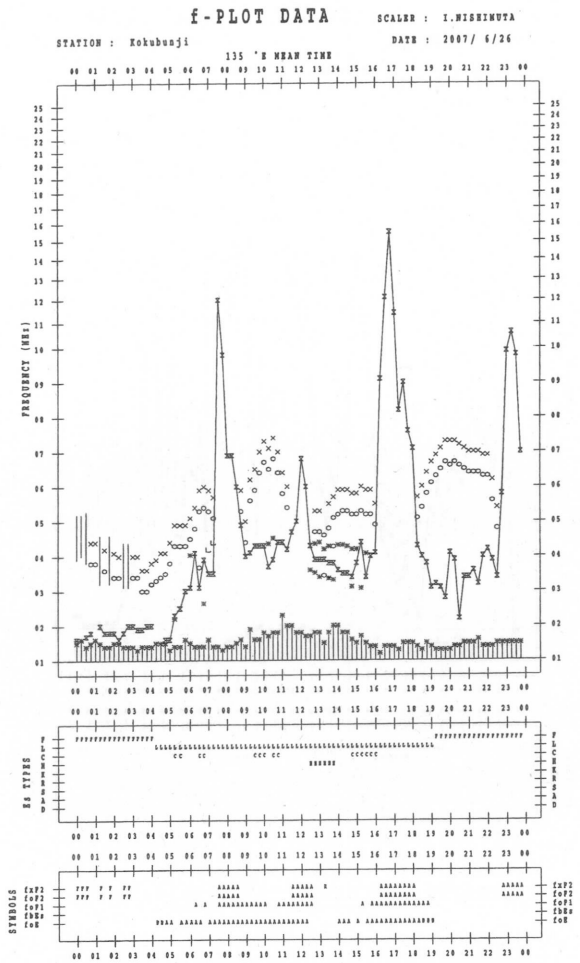
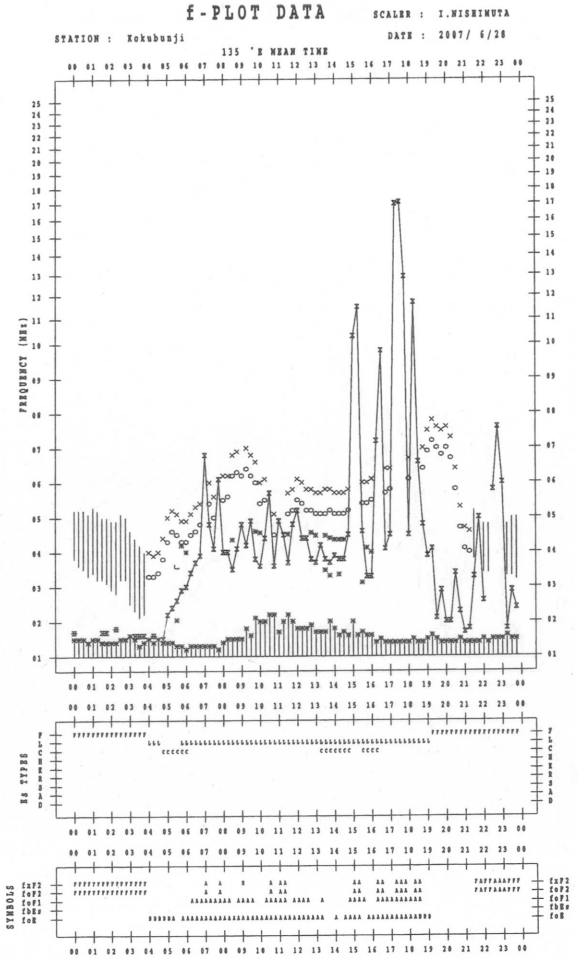
STATION : Kokubunji
DATE : 2007/ 6/27
135 'E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE


f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2007/ 6/26
135 'E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE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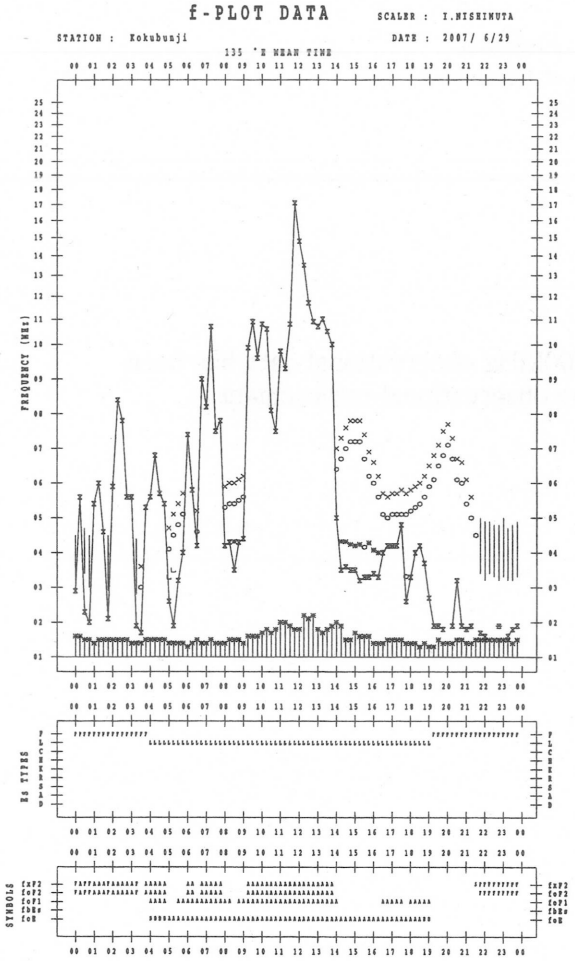
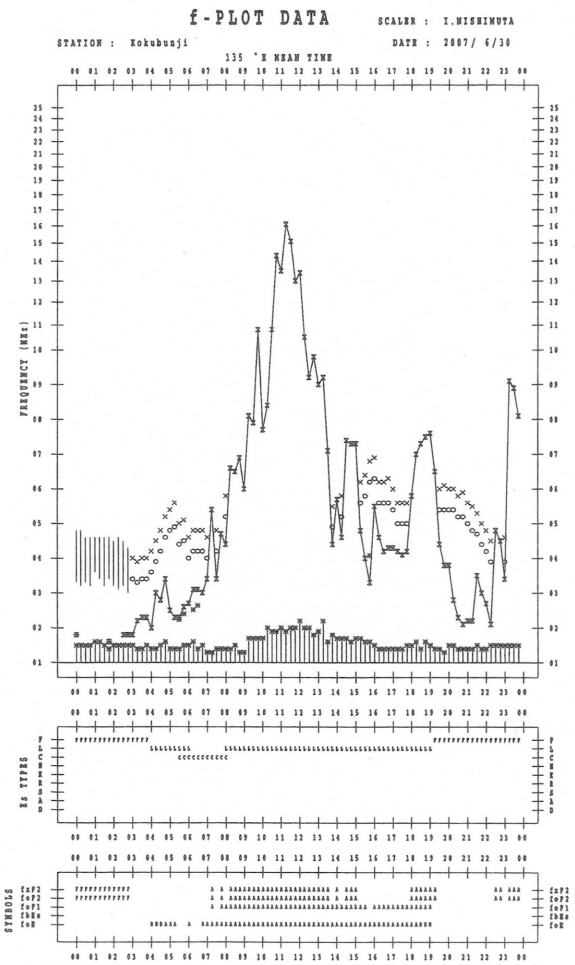
STATION : Kokubunji
DATE : 2007/ 6/28
135 'E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE


f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2007/ 6/29
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE


f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2007/ 6/30
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE

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

Since 10th November 2004, offering of 500MHz observational data has been finished due to deterioration of the observational environment.

B. Solar Radio Emission

B2. Outstanding Occurrences at Hiraiso

Hiraiso June 2007

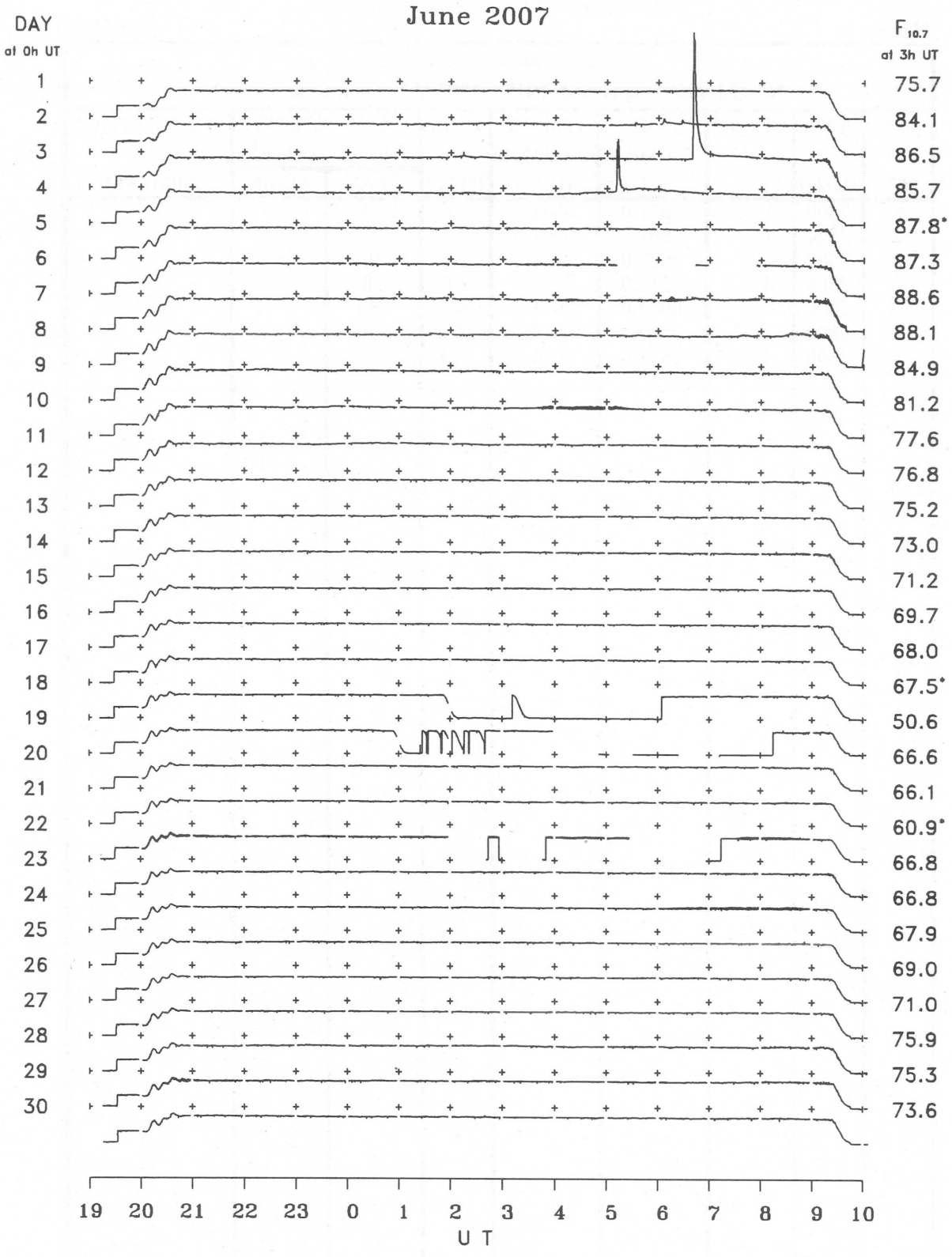
Single-frequency observations

Normal observing period: 1915 - 1005 U.T. (sunrise to sunset)

JUN. 2007	FREQ. (MHz)	TYPE	START TIME (U.T.)	TIME OF MAXIMUM (U.T.)	DUR. (MIN.)	FLUX DENSITY (10^{-22} W m^{-2} Hz^{-1}) PEAK	FLUX DENSITY (10^{-22} W m^{-2} Hz^{-1}) MEAN	POLARIZATION REMARKS
2	2800	1 S	0531.0	0534.0	4.0	10	-	
2	2800	1 S	0604.0	0607.0	7.0	15	-	
2	2800	1 S	0627.0	0628.0	3.0	10	-	
3	2800	8 S	0215.0	0215.0	1.0	10	-	
3	2800	3 S	0639.0	0641.0	31.0	345	-	
4	2800	7 C	0510.0	0513.0	10.0	150	-	
7	2800	4 S/F	0634.0	0634.0	14.0	10	-	

B. Solar Radio Emission

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



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

IONOSPHERIC DATA IN JAPAN FOR JUNE 2007
F－702　Vol.59　No.6（Not for Sale）

電離層月報（2007年6月）
第59巻　第6号（非売品）
2007年8月15日 印刷
2007年8月20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
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2-1 Nukui-Kitamachi 4-chome, Koganei-shi, Tokyo 184-8795 JAPAN