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IONOSPHERIC DATA IN JAPAN

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INTRODUCTION

This Series contains data on ionosphere (I) , solar radio emission (S) and radio propagation (P) obtained at the following stations under the Communications Research Laboratory, Ministry of Posts and Telecommunications of Japan.

Station	Geographic		Geomagnetic		Technical Method
	Latitude	Longitude	Latitude	Longitude	
Wakkanai	45°23.5′N	141°41.2′E	35.3°N	206.5°	Vertical Sounding (I)
Kokubunji	35°42.4′N	139°29.3′E	25.5°N	205.8°	Vertical Sounding (I)
Yamagawa	31°12.1′N	130°37.1′E	20.4°N	198.3°	Vertical Sounding (I)
Okinawa	26°16.9′N	127°48.4′E	15.3°N	196.0°	Vertical Sounding (I)
Hiraiso	36°22.0′N	140°37.5′E	26.3°N	206.8°	Solar Radio Emission (S)
Inubo	35°42.2′N	140°51.5′E	25.6°N	207.0°	Radio Receiving (P)

A. IONOSPHERE

Ionospheic 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 as well as graphically on 35 mm photographic film. 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*).

B Impossible measurement because of absorption in the vicinity of *fmin*.

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 Handbook 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 spread *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 transmisson 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 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.

Z 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 particle *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 normnal *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 measurements, 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 percent.

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 $F_{10.7}$ 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.

C. RADIO PROPAGATION

C1. Phase Variation in OMEGA Radio Waves at Inubo

The phase values of eight OMEGA radio signals as received at Inubo are depicted for an interval of one month, along with the phase deviation defined as a deviation from a value averaged over the six quietest day within the month. Particulars of the received signals are given in the table below.

In each of the four panels of the figure, the phase (ϕ) is shown in the lower part and the phase deviation ($\Delta\phi$) is shown in the upper part. The phase data are sampled every 30 min, so the curves of the phase and phase deviation are composed of 48 data points per day. The phase delay is measured as a positive value.

The polar cap phase anomaly (PCPA) caused by the solar protons are well detected on the Norway signal. The start, end and maximum times of the PCPA are listed in the table next to the figure, where the times are expressed as day / hour & minute in U.T.. The maximum phase deviation in the list is defined as a phase advance (negative values in the figure) in degrees.

C2. Sudden Phase Anomaly (SPA) at Inubo

Data of sudden phase anomaly (SPA) are prepared from the records of phase measurement of VLF radio waves received at Inubo. The transmitting stations are listed in the following table.

Phase advance is shown in unit of degree at its maximum stage. No transmission or no reception during the period is indicated by -, an indistinguishable record is spaced out, and a multi-peak event is marked by *. The most remarkable or distinct phase advance is underlined and listed in the column of *Time*.

In table (b) SPA, *date* indicates the day to which the *start-time* of the event belongs.

The following letters may be attached to the value, if necessary.

D	greater than,
E	less than,
U	uncertain or doubtful.

Transmitting Stations						
Name	Location (Geographic Coordinates)		Call Sign	Frequency (kHz)	Radiation Power (kW)	Arc Distance from Inubo (km)
Norway	66°25′N	013°08′E	/N	13.6	10	7820
Liberia	06°18′N	010°40′W	/L	13.6	10	14480
Hawaii	21°24′N	157°50′W	/H	13.6	10	6100
North Dakota	46°22′N	098°20′W	/ND	13.6	10	9140
La Reunion	20°58′S	055°17′E	/LR	13.6	10	10970
Argentina	43°03′S	065°11′W	/AR	13.6	10	17640
Australia	38°29′S	146°56′E	/AU	13.6	10	8270
Japan	34°37′N	129°27′E	/J	13.6	10	1040
North West Cape	21°49′S	114°10′E	NWC	22.3	1000	6990

HOURLY VALUES OF foF2 AT Wakkanai

JUN. 2000

LAT. 45°23.5'N LON. 141°41.2'E SWEEP 1MHz TO 25MHz 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	95	79	73	70	68	76	93			81	82	88	82	82	85	87	A	71	82	94	92			
2	68	68	71	69	78		92		84	80	82	82	80	82	82	82		A	81		87			A
3	A	71	70		76	83	80	81	A	A	71	81	69	82	70	85	87	81	82	81	81	A		
4	94	80	67	72	67	84			82	A	66	81	74	A	82		A	A	83	80				
5	62		74	77	68		83	94	A	84	A	82	82	80	80	66	73	A	93	A	65	94		
6	66	74	58	61	60	68	73	68	A	A	A	A	A	A	A	A	63	A	78	58	92	A		A
7	67	66	69	67	68	74	93	80	71	69	A	70	76	73		68	78	80		83	82	92		A
8	79	73	70	69		64	88	81	A	A			A	A	A		A	A	A	67	61	70	68	
9	66	68	41	54	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	69	68	67
10	66	68	68	58	64	73	80	77	A	69	A	74	A	A	A	A	64	77		81	68	72		68
11	67	68		71	56	68	A	A	A	A	A	A			A	A	A	A	A	56		68		69
12	67	71	60	A	A	A	A	A	A	A					A	A	A		A	A	A	60	A	
13			60		A	40		A								A	A	A	A	A	A	A		A
14	A			37		A	66	A										A	A	56	A			
15	A	N	31	37		A	A	A		A								A	A	A	A			A
16	A	A	39	71	A		A	A	A					A	A	A	A	A	A	A	A		A	
17	A	A		A		69	A	A								A	A	A	A	A				
18		31	38		59	39	A	A		A					A	A	A	A	A	A	A	A	A	A
19	A	N	36			A	A	A								A	A	A	A	A	A	A	A	
20		59	49	59		69	A	A			A							A	A	A	A	59	A	A
21	69		59	59	N		A	A	A	A						A	A	A	A		60			
22		A					A	A								A	A	A		A	A	A	A	
23	A		59	69		69	A	A		A							A	A		74	40	A		
24	A	A	69		38		A	A	A	A		A	A	A		A	A	A	A	93	A		A	
25	A	A	69	N		56	A	A	A	A			A			A		A	A	70	39			
26	A		A	A	60	70	A	A	A	A							A	67	A	70	A			
27			61	A		A	A	A	A				A	A	A	A	A	A	A	A	A		A	A
28	89	A	A	68	59	60	A	A	A	A							A	A	A	A	A			
29	A	A	A	A	39	A	A	A	A							A	A	A	A	71	A			31
30			49	58		63	A	A		A	A			A			A	A		70		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	23	18	14	17	9	6	3	5	4	7	6	5	5	5	5	5	7	15	11	8	2	4
MED	67	68	60	68	62	69	83	80	82	80	76	81	78	82	82	82	73	77	82	71	68	70	68	68
U Q	84	73	69	70	68	73	92	81	84	82	82	82	82	82	83	86	82	80	83	81	87	82	68	68
L Q	66	67	49	58	59	61	76	77	71	69	68	74	74	76	75	67	63	69	78	67	60	64	68	49

HOURLY VALUES OF fEs AT Wakkanai

JUN. 2000

LAT. 45°23.5'N LON. 141°41.2'E SWEEP 1MHz TO 25MHz AUTOMATIC SCALING

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	31	G	G	G	G	G	44		48	77		70	45	45	36	45	80	78	55	40	37	G	G	G
2		28	32	G	30		59	72	64	61	45	40	40	38	37	42		65	58		68	G	G	53
3	38	28	58		45	66	62	64	89	64	66	62	57	59	46	50	50	36	46	64	61		G	G
4	G	G	G	G	G	32	50		46	45	62	63	40	40	40		72	162	66			G	G	G
5	30		34	30	28	45	51	68	72	73	46	63	61	46	44	40	58	89	64	98	71	42		G
6	G	33	G	G	30	39	49	59	72	67	63	74	76	72	61	38	39	68	69	73	45		G	
7	G	G	G	G	G	40		60	55	48	47	44	G	40		G	G	G	40	44	49	60	G	
8	G	G	G	33	26	36	40	51	88	88	G	G	46	74	160		90	86	85	32	G	G	G	G
9	32	40	58	27	34	45	60	65	43	62	61	31	46	40	59	33	57	73	76	80	42	48		48
10	28	25	25	G	26	27	28	35	60	69	74		32	57	40	31	32	40		G	G	G	G	G
11	40	36		G	G	27	39	44	34	63	79	31			44	71	63	69	29	29	G	G	G	G
12	G	G	27	39	67	44	46	56	57	58					88	88	44	G	44	41	46	61	34	G
13	G	G	G	G	33	32	44	86								33	31	43	40	35	35	36	G	29
14	26	G		G	G	40	45	40	G		G						G	28	40	34	27	G	G	G
15	34	G	27	G	G	34	41	44		71	G		G	G	G		G	43	58	89	40	G	G	86
16	72	62	40	40	72	G	89	86	92		G			30	78	88	43	62	73	73	44	37	34	G
17	34	40		32	G	30	27	43			G					30	33	42	45	44	32	G	G	G
18	G	G	27	G	G	32	31	28		72					28	45	31	30	44	61	43	42	46	33
19	40	27	G	G		33	40	32								70	43	70	61	76	45	53	63	G
20	G	G	G	G	G	34	36	42		G	62			G				88	44	74	45	G	34	46
21	G	G	G	G	G		38	44	41	62				G		34	33	30	31	38	36	G	G	G
22	G	36			G	27	38	44								74	61	63	41	74	47	66	67	
23	40	G	G	G	G	G	44	63	G	70				G	G		36	33	G	G	36	32	G	
24	46	45	G		G	G	38	44	43	61		69	62	62	G	87	87	57	77	61	88	G	40	G
25	36	38	G	G		G	40	43	43	31			68		G	65		42	69	46	28	G	G	G
26	36	24	42	40	G	32	29	43	44	64				G			33	28	28	25	36	G		G
27	G	G	34	33	G	40	43	44	71	G		G	44	41	43	43	62	59	83	80	46	G	71	62
28	70	41	73	40	G	32	42	44	70	77							34	40	39	35	40		G	G
29	29	28	40	28	34	45	45		89					G		36	34	32	35	46	41	G	G	G
30	G	G	G	34		27	44	42		72	42	G		88		G	32	26	G	G	29		G	
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	29	29	26	27	27	28	29	27	22	23	16	13	14	20	18	22	27	30	29	28	29	26	27	25
MED	29	24	13	G	G	32	43	44	56	64	46	44	46	40	42	42	39	43	45	45	41	G	G	G
U Q	37	36	34	33	30	40	47	63	72	72	62	66	61	58	59	70	61	69	67	73	46	42	34	31
L Q	G	G	G	G	G	27	38	43	43	58	G	16	40	G	28	33	32	32	39	34	33	G	G	G

HOURLY VALUES OF fmin AT Wakkanai

JUN. 2000

LAT. 45°23.5'N LON. 141°41.2'E SWEEP 1MHz TO 25MHz AUTOMATIC SCALING

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	15	14	15	15	17	16	16		15	18	16	18	18	16	18	17	21	16	16	14	14	14	17	28
2	14	14	15	14	16		15	15	16	18	18	16	18	21	18	20		17	14		14	26	18	18
3	14	18	14		15	17	18	21	23	20	48	18	21	21	16	18	20	16	18	15	14		30	32
4	18	15	15	17	17	16	15	16	17	17	16	21	21	21	22		16	15	16	14		29	29	15
5	14		14	15	16	15	15	17	20	20	20	18	22	24	18	16	15	17	15	14	14	15		15
6	15	14	15	15	16	14	15	16	17	18	21	20	20	18	17	18	16	16	15	15	15	21	16	15
7	14	14	14	15	17	14	16	16	22	18	20	20	18	20		18	17	16	15	15	14	15	17	
8	14	15	15	15	18	15	16	15	17	17		18	20				18	18	15	15	15	17	15	
9	15	15	15	16	15	16	15	18	18	21	22	20	23		21	20	18	16	15	15	17	18	14	14
10	15	15	17	15	20	15	16	18	20	21	20	21	21	21	21	20	18	16	26	21	15	15	15	16
11	15	14		15	20	16	16	17	18	20	22	23			20	20	18	17	17	16	15	18	18	15
12	15	17	17	15	18	18	16	16	17	20					59	21			21	17	16	20	17	17
13	20	22	20	18	20	23	30	34								23	20	26	23	18	20	24	21	20
14	18	23		18		20	22	22			81								21	18		22	21	17
15	17	20	21	18	21	22	20	20					18				38	22	27	24	16		28	33
16	17	14	16	17	18	23	20	34	40					66	23			21	21	16	17	17	18	17
17	18	18		17		21	20	21								22	21	20	21	20	22	20	21	20
18	18	20	17		21	23	20	22		53						21	22	20	17	18	18	18	18	18
19	18	21	18	18		24	18	22								50	20	20	20	18	18	16	23	26
20	20	18	20	21	23	20	18	21										30	20	17	15	18	20	15
21	20	18	18	20	20		20	20		22						22	21	20	22	17	16	30	30	24
22	21	15			21	27	20	21								35	21	20	21	17	17	18	18	
23	17	21	17	18	22	20	20	21	23	53				66	22		22	20	18	21	20	18	18	
24	20	17	20		20	21	21	21	20	53				51	21	21	21	20	18	16	15	15	15	27
25	18	16	18	20		26	20	22	35							22			20	18	17	16	16	
26	17	20	15	17	21	21	20	20	21					71			23	21	20	16	15	20		17
27	20	18	17	14		18	20	26	21				34	32	26	20	22	18	23	18	16	16	15	14
28	16	18	18	17	22	20	18	22	54	55							20	21	16	20	15		18	17
29	20	20	15	18	20	20	20	20	24								26	21	16	15	18	17	18	21
30	18	21	16	18		18	21	34			24			32		23	21		18	20	16	16	28	26
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	26	26	24	28	30	29	20	17	12	11	12	14	14	20	24	26	30	29	28	27	28	25
MED	17	18	16	17	20	20	19	21	20	20	20	20	20	22	21	20	20	20	18	17	16	18	18	17
U Q	18	20	18	18	21	21	20	22	23	37	23	21	21	51	22	22	21	21	21	18	17	20	21	25
L Q	15	15	15	15	17	16	16	17	17	18	19	18	18	21	18	19	18	16	16	15	15	16	16	15

HOURLY VALUES OF foF2 AT Kokubunji

JUN. 2000

LAT. 35°42.4'N LON. 139°29.3'E SWEEP 1MHz TO 25MHz 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	92	78		63	67		94	97	92	86	86	84	111		111	106	101				81	91	81	
2	94	95	80	77	58	86	99	94	A	A	A	A	106	107	110	99	A			112	93	94		
3		87	92		82	82	87	A	A		103	108	111	110	99	112	117	106	101	116	A	A	96	85
4		93	80	76	78	94	93	100	92	94	86	94	101	108	114	106	A	93	94	A	94	92	94	
5	94	96	94		102	100	96		A	A	108	113	115	116	109	107	101	96	113	104		A	A	91
6	A	94	93	70		82	78	94	78	A	77	A	132	A	A	81	82	81	89		A	A	A	81
7	66	77		70		79		90		A	A	100	A	A	96	92	92	96	86	94	92	82	82	82
8	93	80	68		83	80	94	92	96	82	A	95	A		83	78	76	92	83	93	A	96	93	101
9	95		81	82	69		A	A	A	A	104	A	A		A	A	A	A	80	82	A	53	69	68
10		68	67		56	68	72	72	A	A	A	A	A	86	A	97	104	100	85	93	82	N	94	97
11			92		70		93	82	A	A	A	A	A	A	A	A	A	56	55		67	58	69	68
12	68	90	62	63	60	71	93	68	A			A	A	A	A	A	A	61	63	63	52	A	95	A
13	A	63	60	60	64	68	83	92	A	A	78	A	84	A	A	81	82	84		A	76	70	82	82
14		94	87	85	94	78	94	93	88	A	A	A	A	A	A	A	A	68	A	80	A	78		
15	83	79	82		80	94	92	92	102	A	A	A	A	82	97	102	108	102	95	94	84	93	100	102
16	92	94		78		94	92	100	109	A	A		A		78	80	74	80	94		A	68	67	68
17	68		70	72	77	94	94	81	A	A	82	N	A	94	93	94	90	85	93	94	A	84		96
18				92		100	93	102	A	A	A	A	A		A	A			83	94	91		68	79
19	94	66		57	57		82	88	116	101	83	82	A	81	88	93	92	93	84	93	80	94	93	
20	81	79	71	72	75	81	106	117	109	A	96	100	86	101	101	94	88	97	101	98	93	86	94	93
21	94	82	94	85	84	94	93	78	A	A	A	A	A	A	A		76	78	93	81	69	A	A	72
22		80	73	68		76	92	104	93	86	86	87		90	A	83	A	83	86	81	95	A	N	81
23	A	A	94	68	76	83			A	A	A	86		92	99	100	97	93	98	94		93	92	82
24		A	A	85	66	66	76	90	84		A	A	100	106	87	101	86	82	93	100	A	94	93	102
25	98	94	95	78	72	78	80	94	93		96	A	A	A	94	90	92	84	86	93	A	A	98	A
26	85	90	84	92	81	93	94	96	91	A	A	95	A	A	97	101	91	97	104	99		104	107	
27		113	104	82	82	68	63	68	A	A	A	A	131	96	91	86	81	92	93		80	93	92	77
28	94	95		71	64	66	67	A	A	82	A	85	A	95	A	A	A		93	94		A	A	68
29		68	71	67	73	83	96	82	A	80	A		A	101	107	104	101	100	94	117		72	71	74
30	N	94		77		67	71	81	71	A	A	A	81	87	90	91	91		92	93	91	81	94	
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	16	24	22	24	24	26	27	25	14	7	12	13	11	16	19	23	21	24	26	22	16	20	22	21
MED	92	88	82	74	74	82	93	92	92	86	86	95	106	94	97	94	91	92	93	94	83	88	93	82
U Q	94	94	93	82	81	94	94	96	102	94	99	100	115	104	107	102	101	96	95	98	92	93	94	94
L Q	82	78	71	68	65	71	80	81	88	82	82	85	86	87	91	86	82	82	85	93	78	75	81	73

COMMUNICATIONS RESEARCH LABORATORY, JAPAN

HOURLY VALUES OF fEs AT Kokubunji

JUN. 2000

LAT. 35°42.4'N LON. 139°29.3'E SWEEP 1MHz TO 25MHz 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	57	G	G	29	G	24	37	47	84	70	G	G	77	116	59	85	86	138	94	114	126	72	29	63
2	94	44	56	37	31	37	59	83	118	90	91	94	47	G	56	82	184	138	179		76	86		59
3	61	60	60	47	50	26	53	115			58	G	88	59	75	78	78	64	59	55	81	70	74	50
4	24	G	26	26	30	38	55	90	70	76	84	54	G	49	51	85	133	60	55	86	103	88	62	
5	54	62	66		45	28	73	146	175	129	85	68	82	47	38	56	G	46	47	28	116	135	91	87
6	116	53	30	30	38	34	35	70	54	72	72	130	116	136	115	54	48	61	81		110	102	91	86
7	86	28	62		32	38	66	62	100	93	134		109	86	73	86	64	60	73	57	53	86	51	63
8	69	40	57	45	29	23	44	53	62	70	106	64	85	G	68	84	52	96	61	53	62	58	48	50
9	30		34	40	38	43	54	61	59	61	93	61	64		64	71	62	85	110		69	91	51	
10		57	46	37	36	30	35	64	130	146	89	68	80	59	174	91	48	97	96	34	39	63	45	60
11	40	27	25	33	35	38	43	52	62	77	70	60	93	79	73	82	34	46	47		55	36	G	G
12	24	G	26	G	G	34	34	38	40			54	70	69	69	58	52	47	32	G	G	64	72	85
13	72	34	32	29	32	35	46	82	92	104	57	57	59	58	61	59	65	71	102	111	41	40	34	
14	35	43	28	29	G	26	37	73	70	86	76	96		120	131	53	45	51	112	89	93	73	70	96
15	26	26	30		34		34	74	75	60	90	123	104	58	90	73	73	86	81	92	86	63	34	32
16	62	34	40	51			37	37	120	123	90	61	53	G	G	103	74	30	56	117	83	64	82	66
17	37	34	31	30	26	26	48	62	58	67	60	74	132	58	59	G	52	59	47		114	96	54	72
18	55	44	44	41		63	54	78	112	63	154	148	59		70	30	179	118	60	86		88	71	93
19	56	40		28	28		53	67	59	70	G	49	96	G	G	G	51	55	68	51	51		90	96
20	56	37	33	29	28	32	55	61	83	90	97	96	58	62	55	36	44	54	59	83	74	45	89	46
21	55	34	30	G	31	31	42	68	87	104	90	98	71	93	95		52	45	46	34	34	95	93	54
22		34	32	32		42	34	45	47	54	56	50	G	71	100	46	61	48	54	62	67	119	58	61
23	71	75	49	58		102			125	108	94	91	90	72	59	57	89	86	67	59		44	39	56
24		103	71	60	69	72	66	52	51	62	132	G	59	G	47	G	55	59	56	99		78	71	70
25	34	29	G	28	31	26	43	60	75	76	86		104	95	G	G	54	86	86		79	130	70	106
26	70	46	61	52	34	30	41	70	75	72	81	60	142	125	56	G	40	37	40	58	31	50	94	62
27		32	63	28	G	31	34	50	53	152	98	73		68	70	47	47	106	66	92	42	73	58	60
28	64	100	61	29	55		34	72	67	66	79	56	117	61	164		124	93	108	79	34	122	71	60
29		32	59	37	30	25	52	68	76	62	138		176	57	53	51	59	67	91	44	72	44	36	80
30	61	54		47		34	34	48	66	74	61	101	44	53	38	49	51	54	55	56	45	38	54	59
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	25	29	28	27	25	26	29	29	29	28	29	27	28	28	30	28	30	30	30	24	27	29	29	27
MED	56	37	37	32	31	33	43	64	75	75	86	64	81	60	62	56	54	60	64	60	69	73	62	62
U Q	69	53	59	45	37	38	54	73	96	98	95	96	104	82	75	82	74	86	91	90	86	93	78	85
L Q	36	30	30	29	28	26	35	52	59	66	65	54	59	51	53	41	48	51	55	52	42	54	46	56

HOURLY VALUES OF fmin AT Kokubunji

JUN. 2000

LAT. 35°42.4'N LON. 139°29.3'E SWEEP 1MHz TO 25MHz AUTOMATIC SCALING

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	15	15	14	14	14	15	16	14	16			60	40	36	40	21	22	14	15	14	14	14	14	15
2	15	14	14	15	14	15	14	17	17	22	35	36		76	44	40		16	14	14	14	14		15
3	14	15	15	14	14	14	18	29	38		45	60	40	35	42	24	42	16	15	15	14	15	14	15
4	15	15	15	15	14	16	15	15	18	26		38	63	42		37	20	18	17	15	14	14	14	
5	15	14	15		14	18	16	20		42	42	39	40	28	26	20		16	15	14	14	14	14	14
6	15	14	14	15	14	15	15	16	21		40	41	40	35	35	22	20	17	15	15	15	15	15	15
7	14	14	15	15	15	15	15	20	21		43	40	38	41	40	27	18	15	15	15	17	15	14	14
8	14	14	14	15	15	15	15		21		42	43	43	N	40	38	36	16	15	14	14	14	15	14
9	14		15	14	14	15	15	17	20		40	40	42		42	41	18	16	14	15	14	15	15	14
10		15	14	14	14	15	17	17	38	42	42	42	45	44	40	39	21	17	16	15	14	14	14	15
11	14	14	14	14	14	14	15	18	24		43	40	45	42	42	34		17	17	14	15	15	15	17
12	15	15	14	15	14	17	16	20	22			46	45	42		38	30	26	15	17	15	14	15	14
13	15	15	14	14	14	21	16	16	18	38	44	40	42	42	42	30	20	17	15	15	14	14	15	15
14	14	14	15	14	15	14	17	18	20	22	34	40	38	39	42	39	29	18	15	14	16	15	14	14
15	15	14	15		15	15	14	17	18		44	42	40	42	43	40	20	18	15	15	14	15	15	15
16	14	14	15	15		16	16	14	22	42	39	40	44			24	15	16	14	14	15	14	14	15
17	15	15	15	15	15	16	15	15	21		40	42		38	40		21	16	15	14	15	14	14	15
18	14	14	14	14		20	16	16		40	39	91	43		44		20	15	14	14	15	15	14	15
19	14	14		14	15		15	17	21	27			43		63		20	17	15	15	16	15	15	15
20	14	14	15	14	15	16	16	15	20		39	40	40	34	35	28		16	16	15	16	15	14	15
21	14	15	15	14	14	15	16	16	18	21	43	42	40	39	38		21	17	15	15	15	14	15	14
22		14	14	15		15	16	18	20	23		36		44	44	39	23	26	15	15	15	14	14	14
23	15	15	15	15	15	15			21		24	40	49	40	38	39	23	14	15	15		15	15	15
24		16	15	14	15	15	15	18	27	39	40				63	62	22	16	14	14		15	14	15
25	14	15	15	15	15	17	16	18	21	21	42	40	41	34		52	23	36	17	14	14	15	14	15
26	15	14	14	14	15	15	14	16	22		40	42	40	36	43		23	16	15	15	14	15	15	14
27		15	15	14	14	15	15	16	20			40	36	39	36	26	20	16	16	14	15	14	14	15
28	15	14	14	14	15	17	16	18		35	39	40	39	42	39	26	18	15	14	15	15	14	15	14
29	15	14	14	15	14	16	15	18	21		39	39	40	36	28	26	17	17	14	14	14	15	15	15
30	14	14		14		17	17	18	20		40	38	34	28	24	21	17	15	14	14	14	15	15	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	26	29	28	28	26	29	29	28	27	14	24	28	26	24	26	25	26	30	30	30	28	30	29	29
MED	14	14	15	14	14	15	16	17	21	31	40	40	40	39	40	34	20	16	15	15	14	15	14	15
U Q	15	15	15	15	15	16	16	18	22	40	42	42	43	42	43	39	23	17	15	15	15	15	15	15
L Q	14	14	14	14	14	15	15	16	20	22	39	40	40	35	38	25	20	16	14	14	14	14	14	14

COMMUNICATIONS RESEARCH LABORATORY, JAPAN

HOURLY VALUES

IONOSPHERIC DATA of Yamagawa is not available due to the ionosonde trouble.

HOURLY VALUES OF foF2 AT Okinawa

JUN. 2000

LAT. 26°16.9'N LON. 127°48.4'E SWEEP 1MHz TO 25MHz 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	78	81	95	95	72	68	68		95	76	A	A	A	116	127	115	116	117	123	145	91	A	A	A
2		89		95	93	92	99	84	94	71	72	93	112	117	A	126		A	124		80	83	94	95
3	85		94	77	74	71	95	97	94	84	A	115	118	120	122	125	129	129	130	128	114	84	94	94
4	114	150	94	94		93	80	107	93	64	A	A	114	126	124	120	118	111	110	110	115	A	82	87
5	92	92	94	81	80	80	93	94	99	A	80	106	118	122	125		134	125	126	128	90	84	84	87
6	94	95	95	79	72	75	71	94	95	98	114	A	117	126	121	124	120	112	116		94	94	90	99
7	82	87	77	76	72	72	80		93	A	87	94	107	117	118	116	116	129	131	130	91	76	83	93
8	92	94	90		78	70	70	95	94	88	76	92	94	104	103	110	102	110	110	111	94	A		69
9	79		96	95	93	80		64	A	A	A	A	A		A	A	A	64		64	67	69	A	67
10	70	70	68	61	61	60	62	70	92	80	72	78	92	94	106	114	A	113	105	90	85	82	90	86
11	95	93	A	75	69	A	74	94	94	A	A	A	A	A	A	A	A	A	69	74	A	A	A	66
12		75			72	71		67		81	81	92	92		85	A	A	93	A	A	85	70	71	65
13	65	95	70	66	71	62	A	74	95	A	A	A	A	115	117	128	127	122	95	89	88	86	A	A
14	118			91	96	68	74	100	81	92	A	91	A	A	A	116	104	90	107		86	A	78	75
15	87	94		96	115	95	80	84	92		75	90	102	92	103	111	127	132	128	A	125			
16		149	136	133		88	92	93	94	91	94	94	94	108	94	94	95	114	A	87	77	72	62	76
17	83	70	76	71	70	68		76	94	90	81	A	A	A	115	114		129	125	133	118	109		98
18			151	136		95	81	84	91	77	84	B	91	91	91	95	105	106	101	86	91	A	82	83
19	94		76	75	74	67	76	92	92	81	A	A	A	A	110	113	111	113	95	91	82	86	83	72
20	96	77	84	82	79	75	A	91	94	71	78	85	A	94	94	106	111	108	104		A	83	84	A
21	94	93	87	93	68	68		96	93	82	A	81	94	92	A	92	113	116	122	90	78	70		80
22	68	68	87	92	70	73	73	94	79	83	86	92	100	89	92	95		95	94	90	80	A	95	78
23	93	81	95	77		68	74	80	80	82	A	A	115	110	118	129	134	124	126	133	117		87	99
24	95	86	85	93	82	67	A	84	A	A	95	114	94	106	117	116	116	120	128	128	97	92	90	99
25	89	116	116	93	76	66	80		95	91	93	91	112	121	120		121		121	A	104	94	91	91
26			81	77	80	79	81	94	94	A	A	A	A	112	108	117	117	116	122		83	83	93	90
27	92	94	67	72	73	66	63	62	A	A	92	A	106	102	112	120	117	116	110	109	82	84	A	115
28	92	81		92	70		73	84	82	92	A	115	94	111	116	123	135	166	172		112	111	90	87
29	95	87	70	94	76	70	68	69	74	93	84	79	95	106	117	130	125	131	131	127	93	94	93	94
30	93	93	98	78	69	69	76	81	76	76	92	94	A	112	118	120	118	127	133	123		82	90	87
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	28	26	28	23	27	26	21	18	18	20	24	25	25	23	27	27	21	27	21	21	26
MED	92	90	88	86	74	70	76	84	94	82	84	92	101	110	116	116	117	116	122	110	91	84	90	87
U Q	94	94	95	94	80	79	81	94	94	91	92	94	113	117	119	123	127	127	128	128	104	93	92	94
L Q	82	81	76	76	70	68	71	76	91	76	78	90	94	98	103	110	111	110	105	89	82	79	82	76

HOURLY VALUES OF fEs AT Okinawa

JUN. 2000

LAT. 26°16.9'N LON. 127°48.4'E SWEEP 1MHz TO 25MHz 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	58	40	50	44	26	32	27	32	46	64	108	136	124	90	91	72	78	88	73	41	37	87	86	86
2		82	57	27		G	25	39	50	42	43	G	65	72	77	172	G	124			79	39	56	47
3	44		36	G	G	G	G	49	56	64	100		100	82	79	48	G	102	53	38	G	G	G	G
4	G	G	54	41	26	G	38		70	92	116	185	85	85	75	64	126	73			33	66	62	60
5	60	33	28	G	G	G	24	48	79	85	49	G	48	G	G		36	G	42	31	72	45	34	50
6	68	34	G	G	26	40	33	64	82	80	65	116	82	56	38	38	G	40	42	85	39	34	51	68
7	59	67	38	G	G	26	48	70	85	130	79	115	88	126	152		66	46		38	44	33	36	36
8	48	68	72			24	G	33		69	G	73	64	69	G	G	35	40	52	55	61	71		36
9	36	28	26	24	G	35	48	61	68	49	51	110	63		77	80	74			G	G	46	48	43
10	40	32	32	33	26	33	47	53	46	57	58	56	52	64	68	109	123	51	68	46	43	61	65	57
11	39	67	81	61	66	68	44	86	79	92	81	88	194	90	78	84	64	81	40	29	83	153	166	94
12		40			39	33	38	44		G	54	G	G	G	71	107	96	116	90	97	68	32	29	30
13	65	44	38	32	G	G	60	46	66	134		111	139	97	80	79	56	74	44	61	124	93	85	95
14	74	90	40	25	24	23	26	44	58	77	138	118	107	132	194	59	86	70	44	50	26	62	43	79
15	34	46	46	55	26	24	25	92	59	128		G	G		78	58	50	63	134		86	85		31
16	29	28	24	42		26	36	40	62	52	56	G	G		59	71	83	76	40	96	66	36	25	39	49
17	66	55	41	32	26	29	25	46	56	72	88	177	73	155	66	96		66	47	57	38	G		G
18		G	G	G		G	23	39	40	57	46	B	G	62	G	38	52	58	56	51	135	41	40	30
19	35		66	44	34	37	34	58	78	70	139	94	101	99	56	51	60	48	57	64	65	37	45	34
20	49	29	58	G	56	40	95	65	79	61	56	92	76	G	G	50	G	58	58	42	87	G	36	94
21	48	29	32	38	33	25	29	39	63	88	79	68		82	101	G	G	61	52	40	90		40	26
22	G	40	36	55	51	60	65	50	48	55	45	64	61	58	61	38		32	36	43	42	110		68
23	G	G	G	G	G	G	G	32	51		112	93	65	G	G	G	36	34	27	24	25	G	24	G
24	G	G	G	32	44	28	42	71	86	95	G	50	41	39	G	G	38	61	62	55	68	40	78	71
25	39	42	43	25	35	41	30		59	65	81	66	58	66	48		42				57	34	32	G
26	G		G	G	G	G	G	38	48	126	134		130	100	68	83	93	84	77		41	34	27	27
27	28	G	G	26	26	G	24	43	81	79		98	162	76	145	56	60	64	64	50	49	34	134	84
28		79		40	33		40	68	92	77	86	59	60	63	41	41	37	39	40	72	40	31	41	27
29	47	27	G	73	70	40	38	35	54		43	45	66	G	58	40	36	74	61	78	99	60	83	93
30	43	35	26	28	G	G	24	40	48	58	66	127	86	85	66	58	64	57	61	94	83	26	33	36
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	26	27	28	28	26	29	30	28	28	28	27	27	29	29	30	27	28	28	24	26	30	28	26	30
MED	42	35	36	30	26	26	32	46	60	71	66	88	66	72	67	56	58	61	54	50	53	38	42	45
U Q	58	55	48	41	35	36	42	62	79	90	100	115	100	90	78	83	75	77	63	66	83	61	65	71
L Q	29	28	12	G	G	G	24	39	50	57	49	50	55	57	41	38	36	43	43	40	38	31	34	30

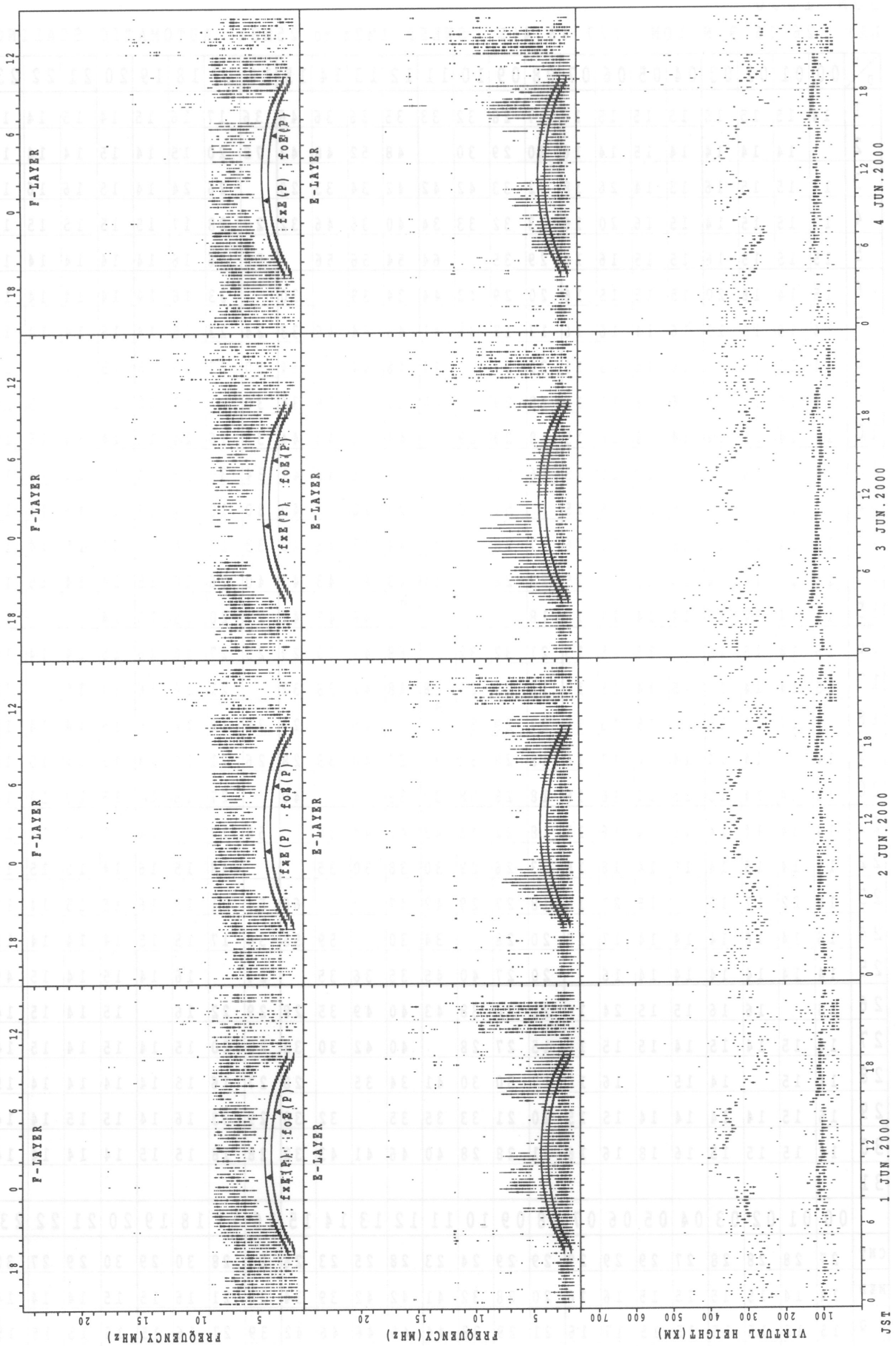
HOURLY VALUES OF fmin AT Okinawa

JUN. 2000

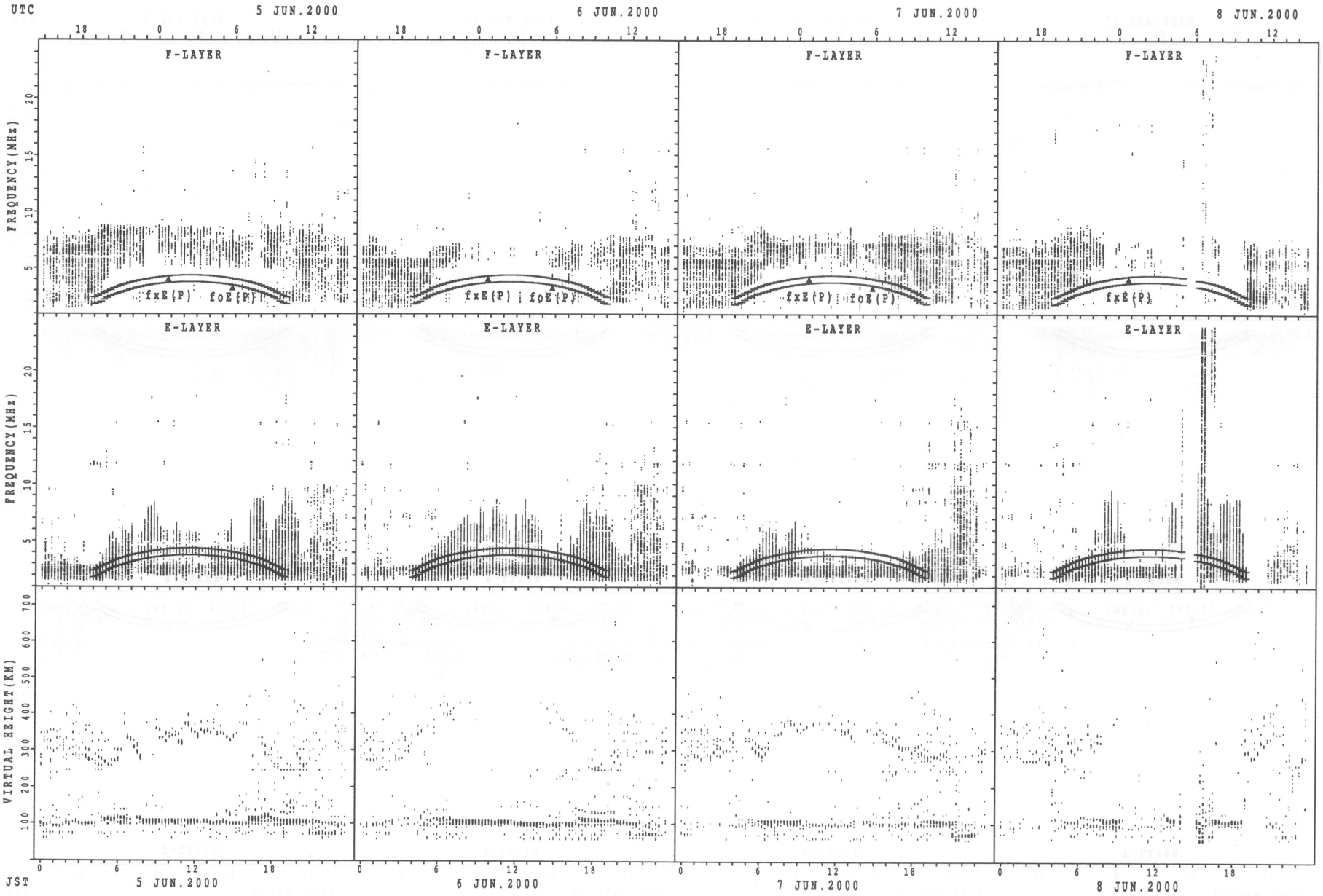
LAT. 26°16.9'N LON. 127°48.4'E SWEEP 1MHz TO 25MHz AUTOMATIC SCALING

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	14	15	15	15	15	15	15	16	17	28	32	33	35	36	36	46	36	17	16	15	14	15	14	14
2		14	14	14	14	15	14	16	20	29	30		48	52	48	42	72	20	15	14	15	14	14	14
3	14	15	15	16	15	14	26	18	32	33	42	42	42	34	33	29		26	24	14	15	16	16	15
4	17	15	15	14	15	16	20	16	23	32	33	34	40	36	46	32	29	28	17	15	15	15	15	14
5	15	15	15	16	15	15	16	16	29	35		64	54	56	56		52	46	16	14	14	14	14	14
6	15	14	16	20	15	15	15	16	20	29	43	44	34	39		30		33	16	14	14	14	14	14
7	14	15	15	15	16	14	16	16	17	18	35	41	43	44	46	33	24	23	15	14	15	14	14	14
8	14	15	15		14	15	23	15	20	27		44	46	44		54	50	27	15	15	15	14		14
9	14	15	15	15	16	14	15	15	18	29		40	44		36	34	30		17	22	27	14	15	15
10	14	14	15	14	14	15	16	15	18	29	29		44	46	48	44	33	16	24	15	14	14	15	14
11	14	14	15	15	15	14	16	15	16	28	41	44	45	46	49	41	34	30	15	14	14	14	15	14
12		15			15	15	15	15		51	30		18	18		40	30	18	17	14	14	15	14	14
13	15	14	15	14	15	15	15	16	17	28	30	40	44	45	46	42	33	17	16	15	14	15	14	14
14	15	14	14	14	15	15		15	23	28		44	43	42	43	43	40	26	18	15	14	14	15	14
15	14	14	14	15	14	14	17	15	18				N	48	45	41	27	20	15	15	14			16
16	15	14	15	15		15	15	15	21	32	32		68	44	30	29	29	27	16	16	15	14	14	15
17	15	14	14	15	15	14	15	17	18	29	29	38	48	42	38	32		21	16	16	14	15		15
18		17	16	15		15	16	16	27	29	30	B		46		29	38	18	16	15	15	14	14	15
19	14		14	14	14	14	17	16	18	28	32	39	39	40	39	28	26	21	15	14	15	14	15	15
20	14	14	14	15	15	14	16	16	18	28	38	39	39			40		27	16	14	15	20	14	14
21	14	14	14	14	15	14	16	15	18	22	41	43	42	44	30		58	17	20	14	15	14	14	14
22	15	14	15	14	15	14	16	16	23	26	29	30	38	30	35			48	15	16	14	15	15	15
23	18	22	17	15		15	27	16	18	27	29	42	47			60	54	21	15	16	16	15	14	15
24	16	14	16	14	14	14	17	15	20	28		34	30		59	55	30	17	15	15	14	14	14	15
25	14	14	14	14	14	14	16		20	27	40	45	35	36	35		24		16	14	15	14	15	49
26	15		16	16	15	15	24	16	22	24	38	43	40	49	35	28	29	22	16		15	14	15	14
27	14	15	14	15	14	15	15	16	15	27	28		40	42	30	32	28	20	15	14	15	14	15	14
28	14	15		14	15		16	15	17	30	30	41	34	35		28	27	16	15	14	14	14	14	15
29	15	15	14	14	14	14	15	15	20	21	33	35	35		32	30	29	33	16	14	15	15	14	14
30	14	15	15	15	16	18	16	16	21	28	28	40	46	41	43	32	28	18	15	15	14	14	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	27	28	28	28	27	29	29	29	29	29	24	23	28	25	23	26	25	28	30	29	30	29	27	30
MED	14	14	15	15	15	15	16	16	20	28	32	41	42	42	39	34	30	21	16	15	15	14	14	14
U Q	15	15	15	15	15	15	17	16	21	29	38	44	45	46	46	42	39	27	16	15	15	15	15	15
L Q	14	14	14	14	14	14	15	15	18	27	29	38	36	36	35	30	28	18	15	14	14	14	14	14

COMMUNICATIONS RESEARCH LABORATORY, JAPAN

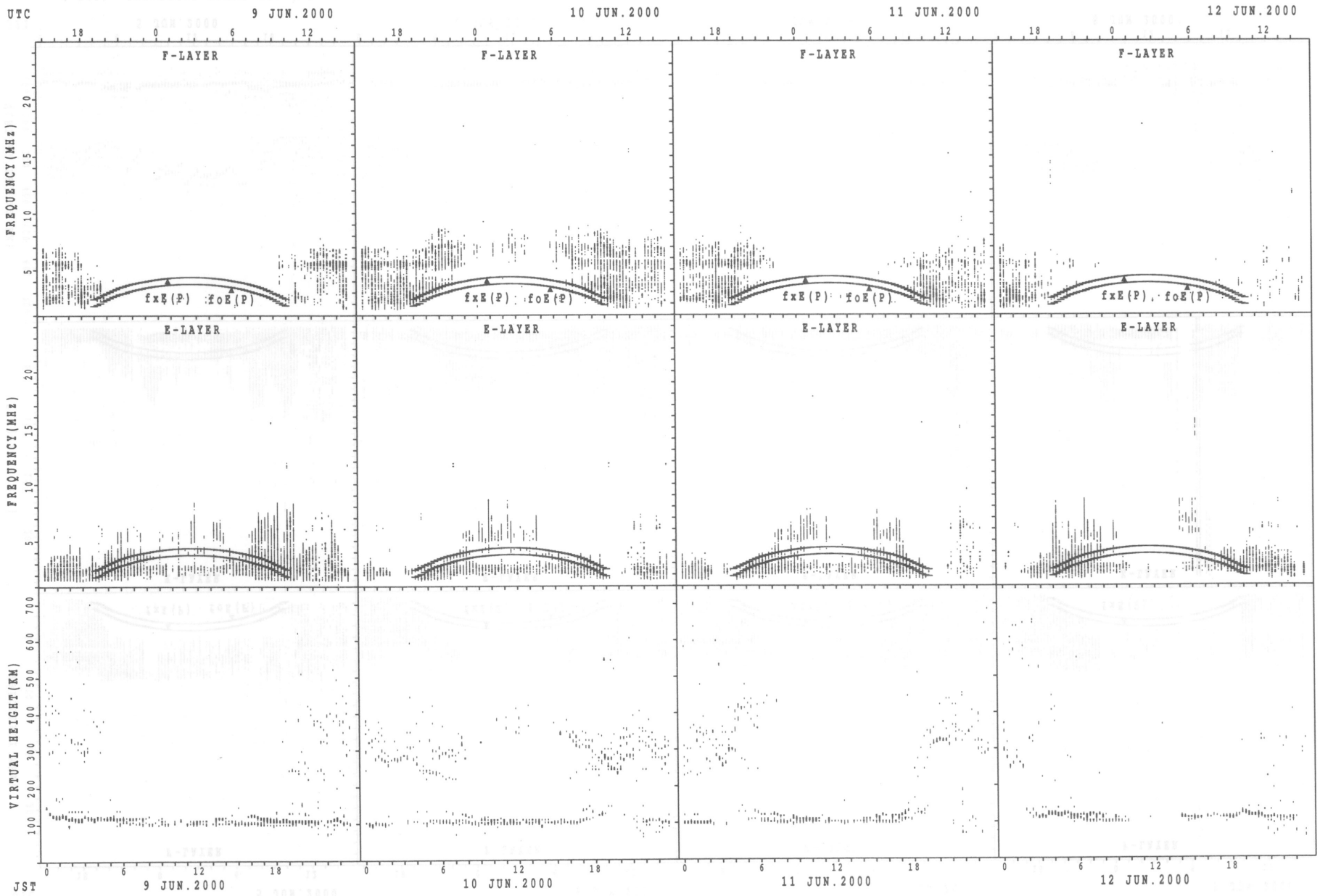

SUMMARY PLOTS AT Wakkanai
UTC
JST
1 JUN.2000
2 JUN.2000
3 JUN.2000
4 JUN.2000
F-LAYER
E-LAYER
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
fxE(P) . foE(P)
fxE(P) : PREDICTED VALUE FOR fxE
foE(P) : PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



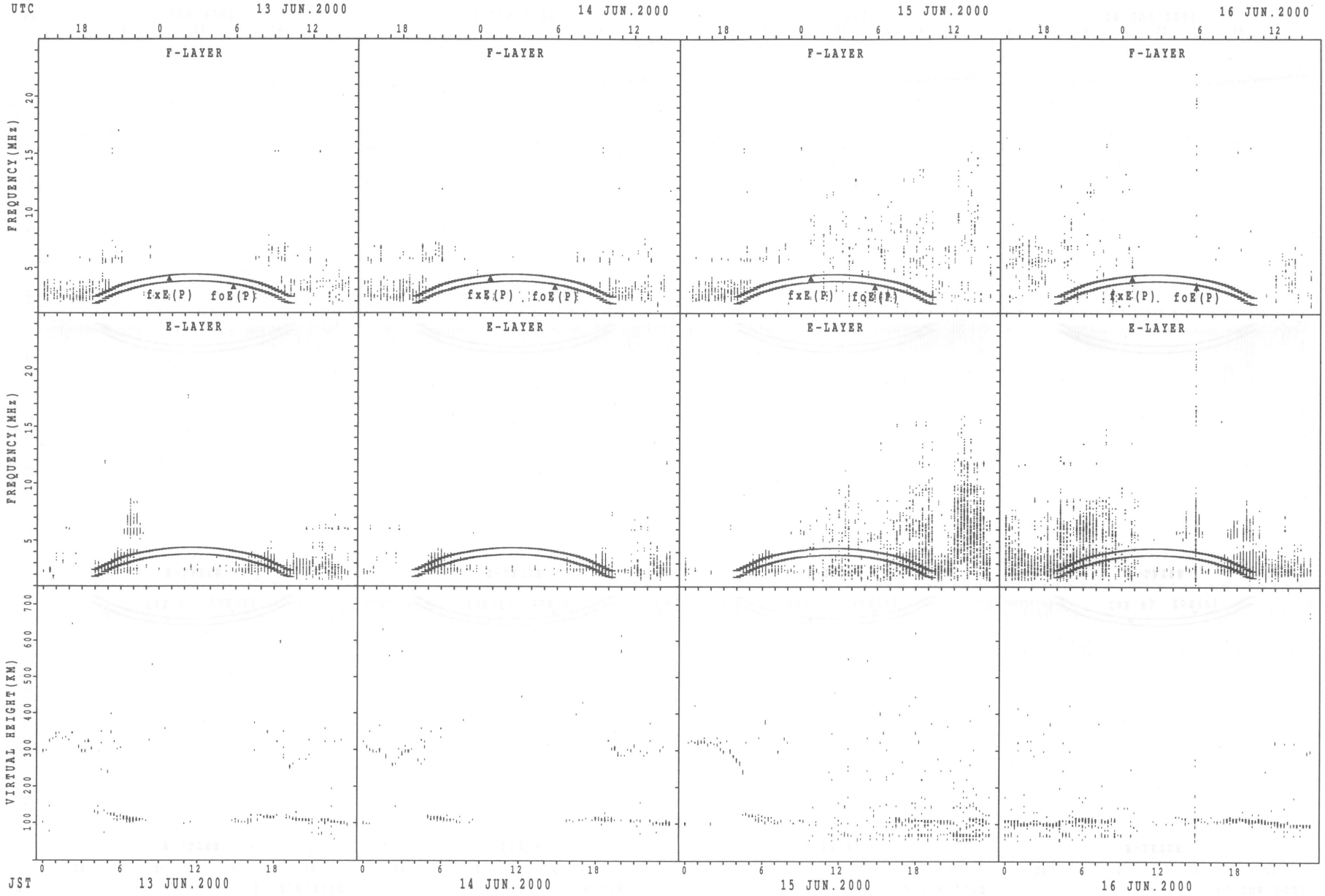
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



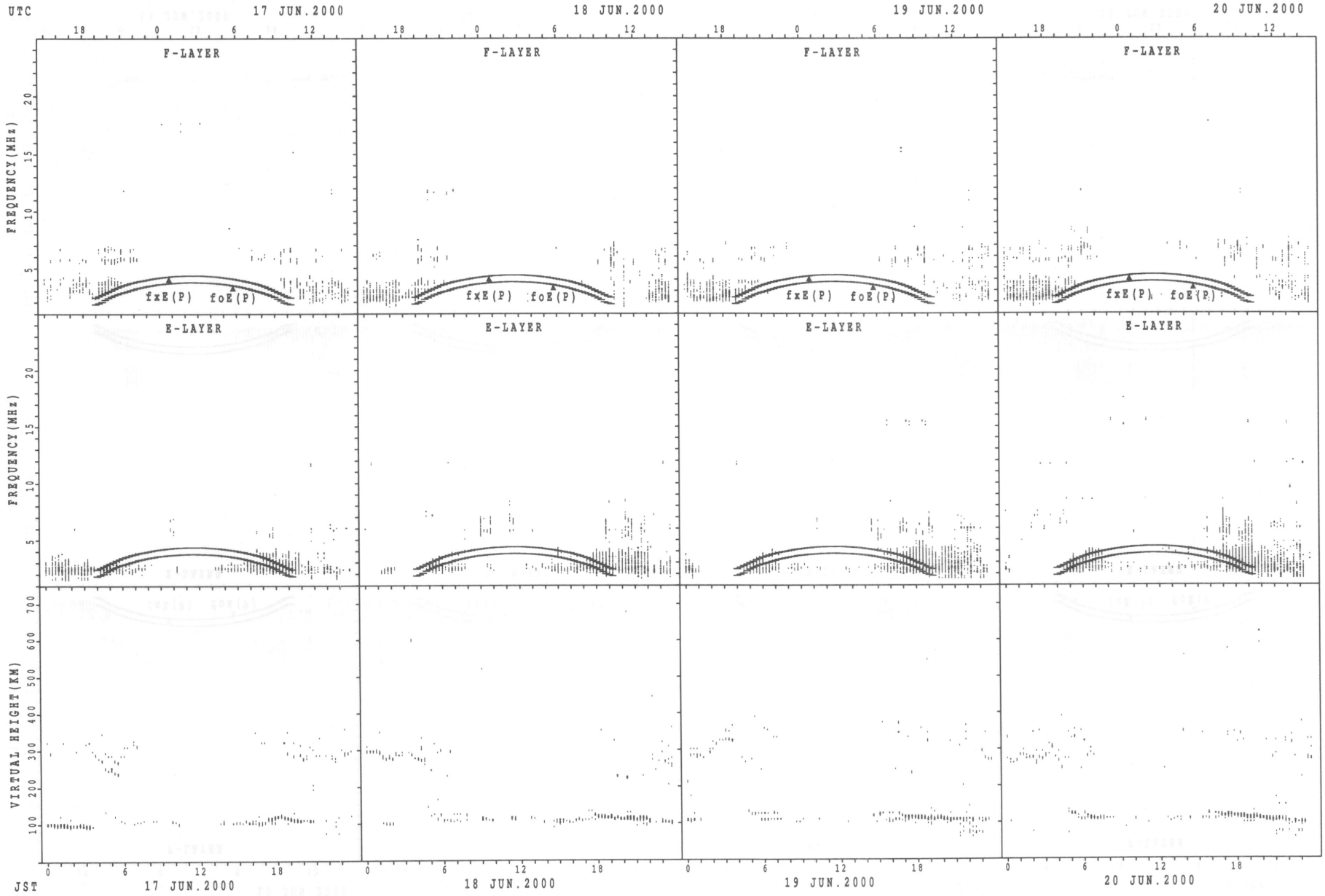
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



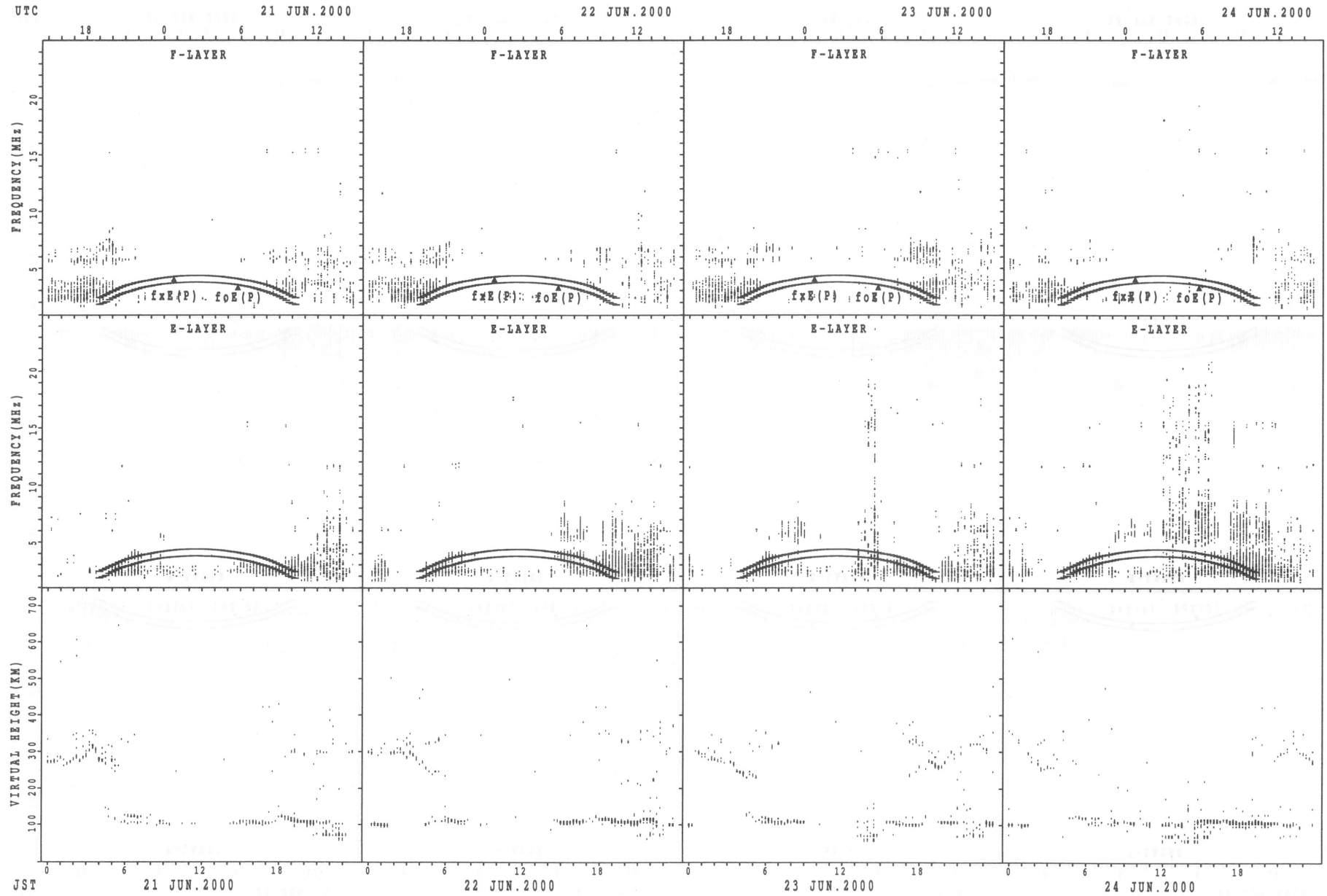
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



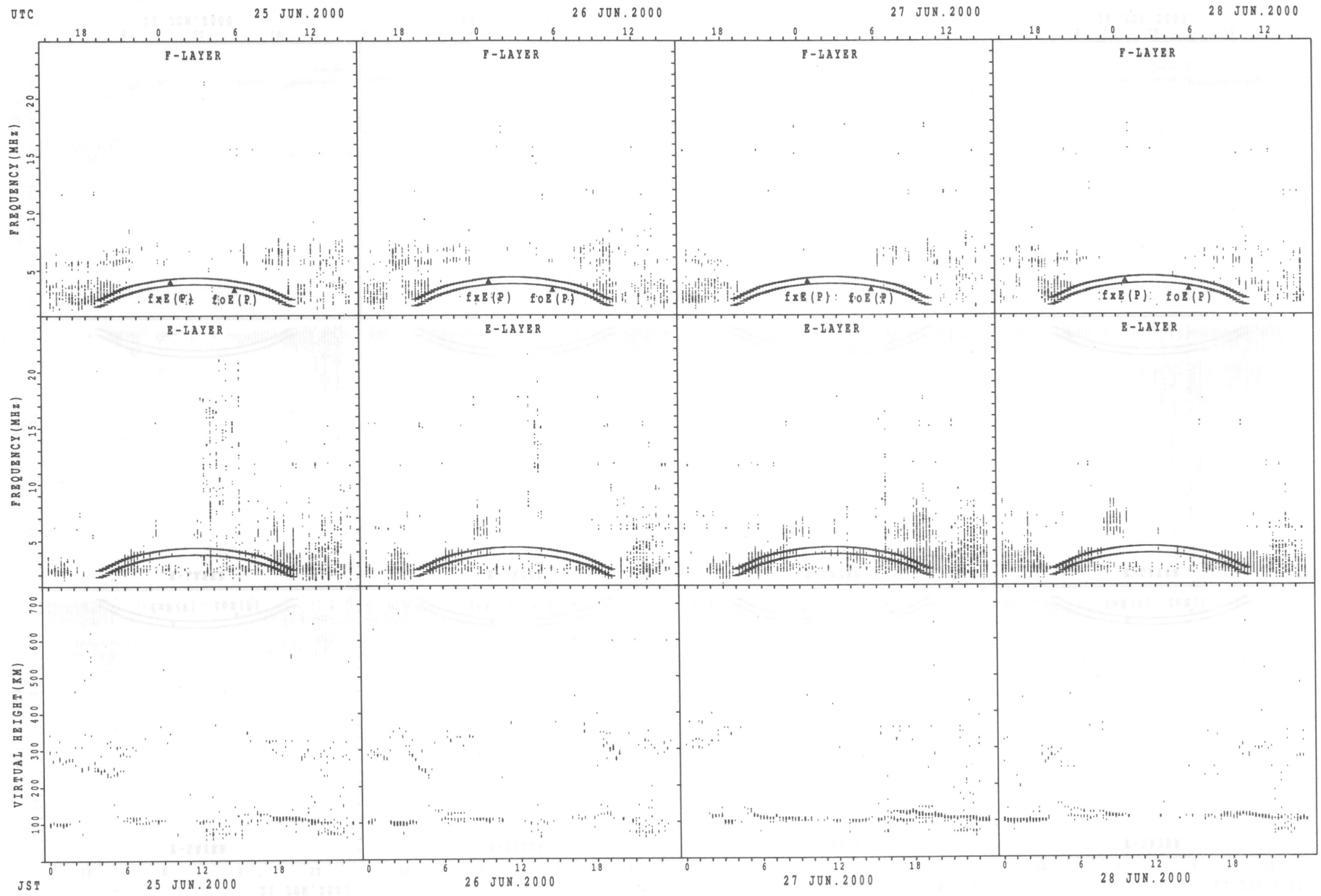
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



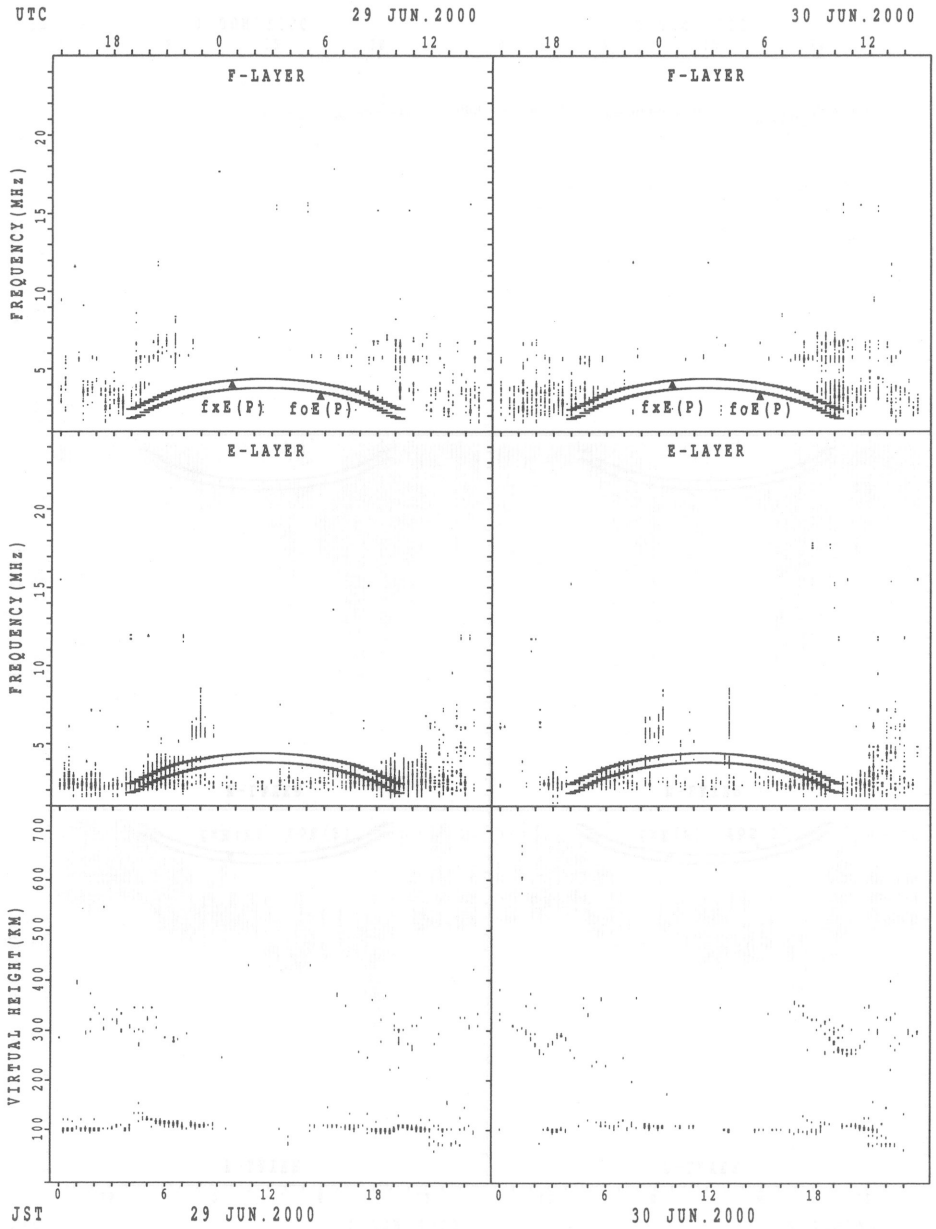
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



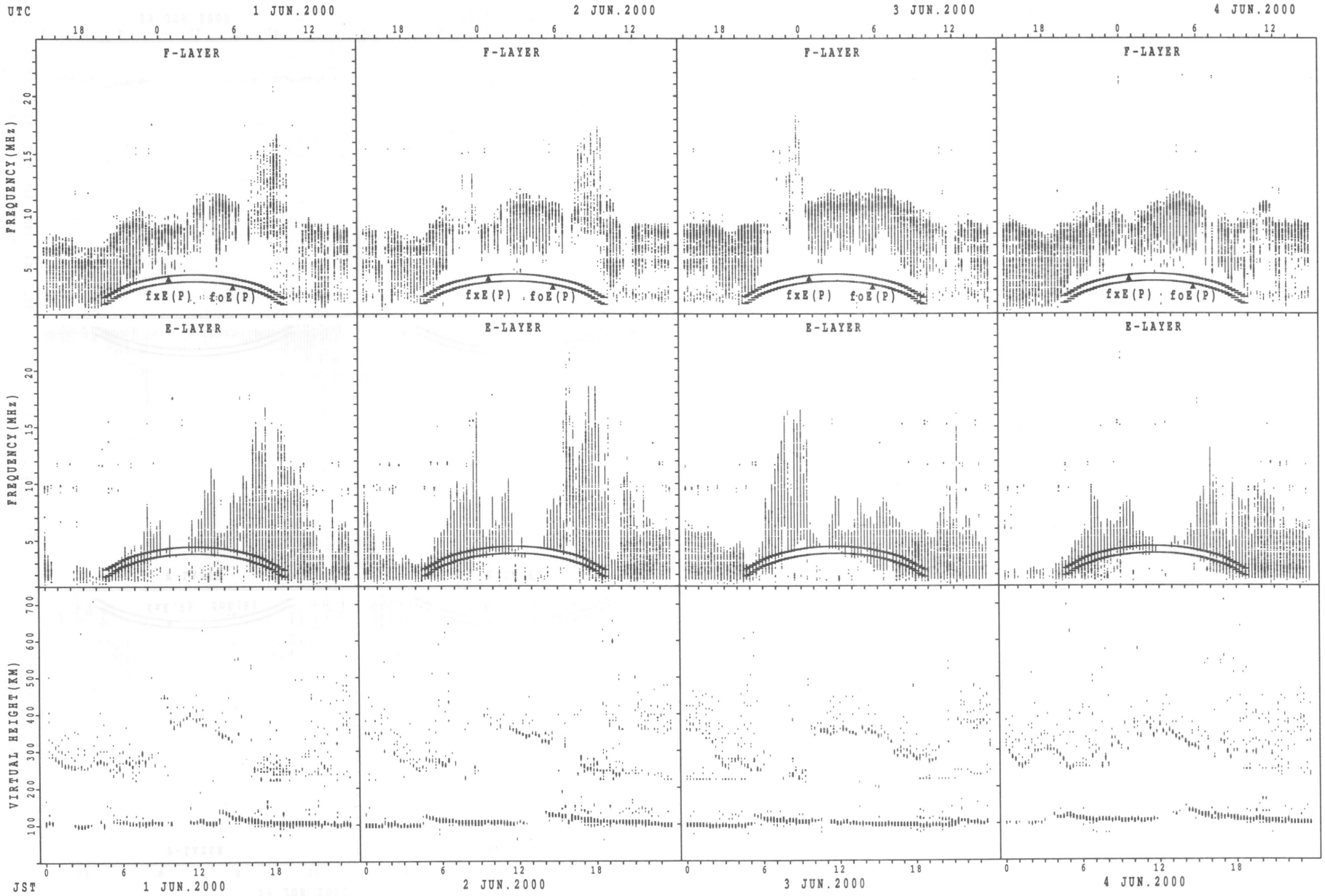
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



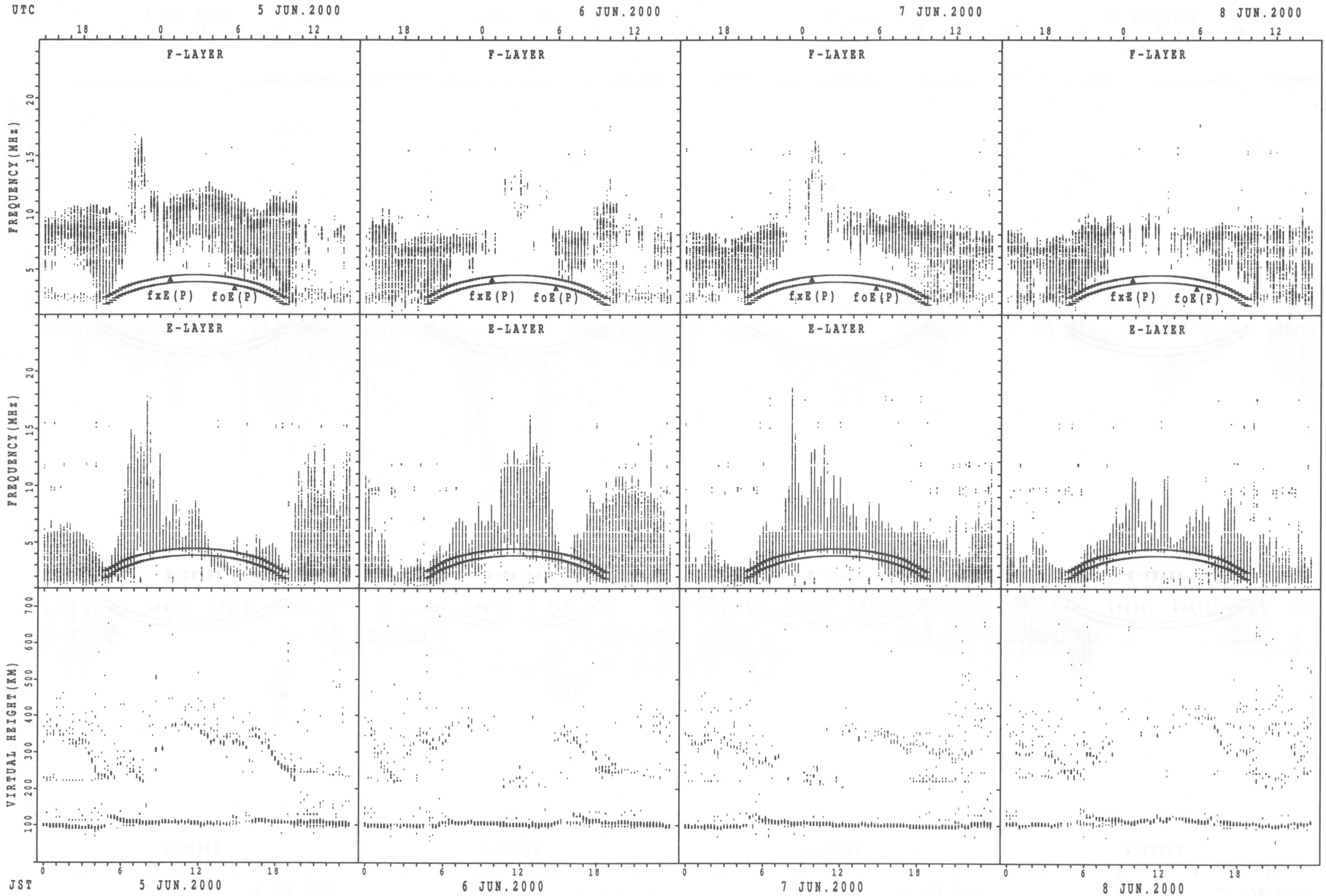
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji

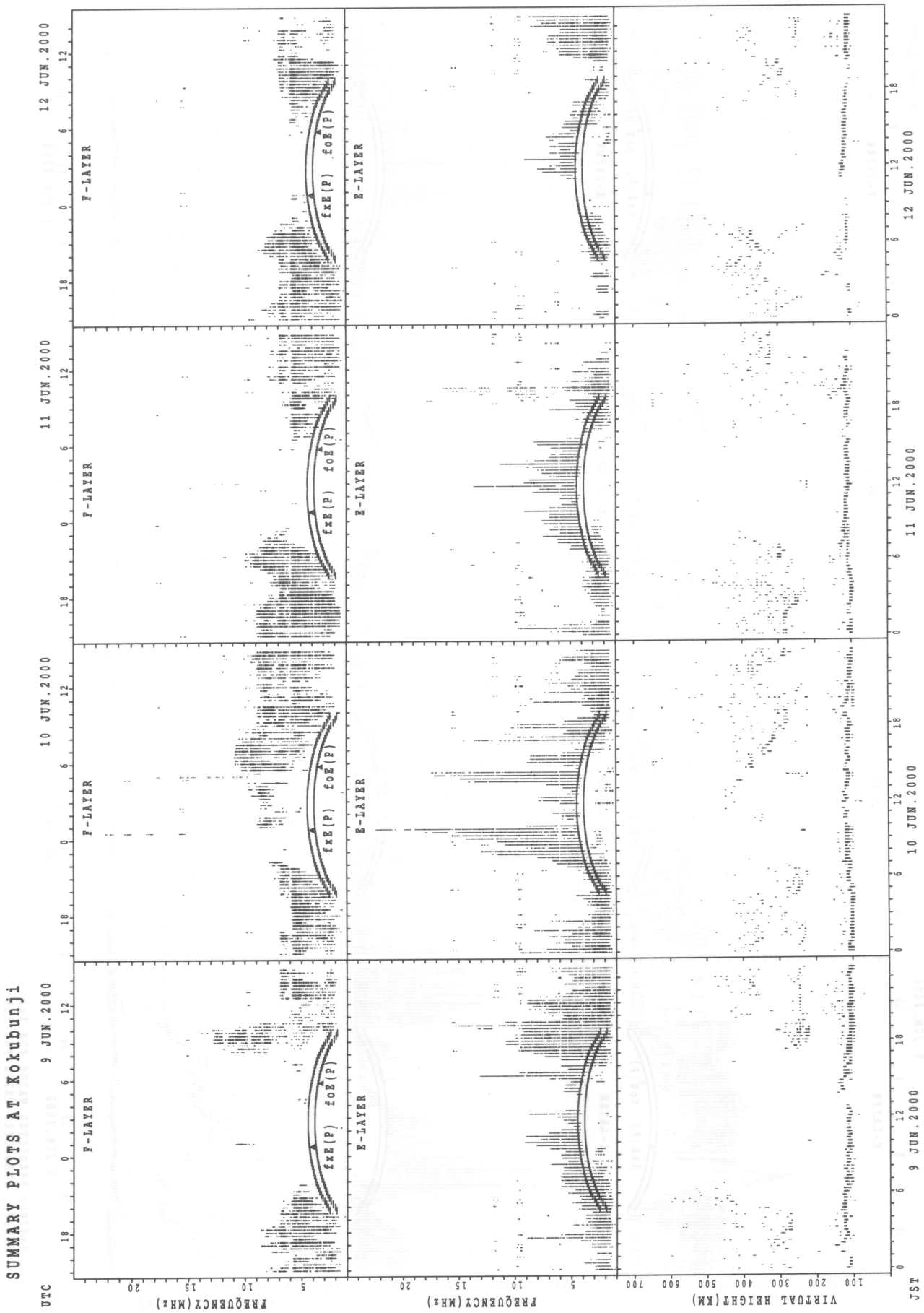


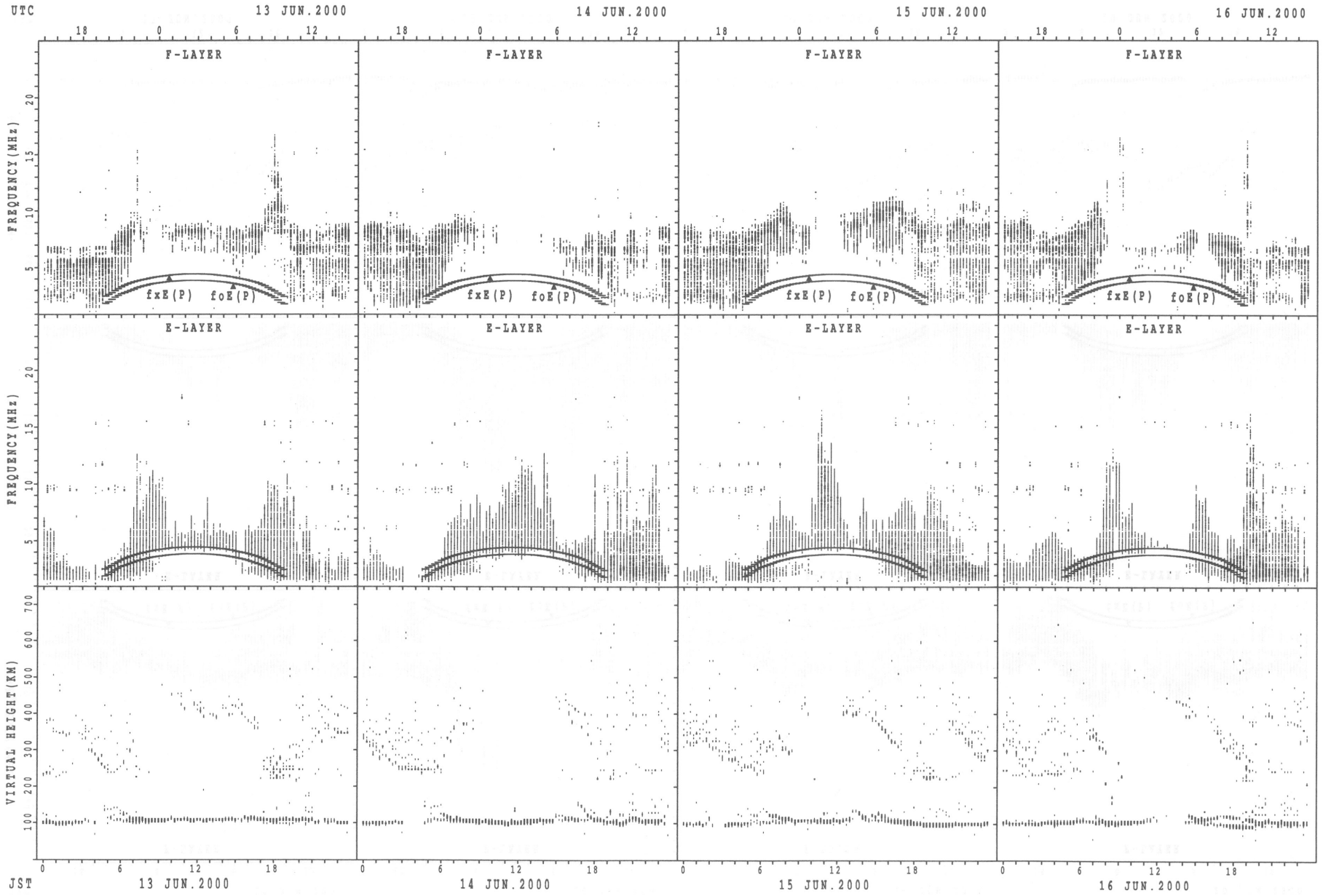
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



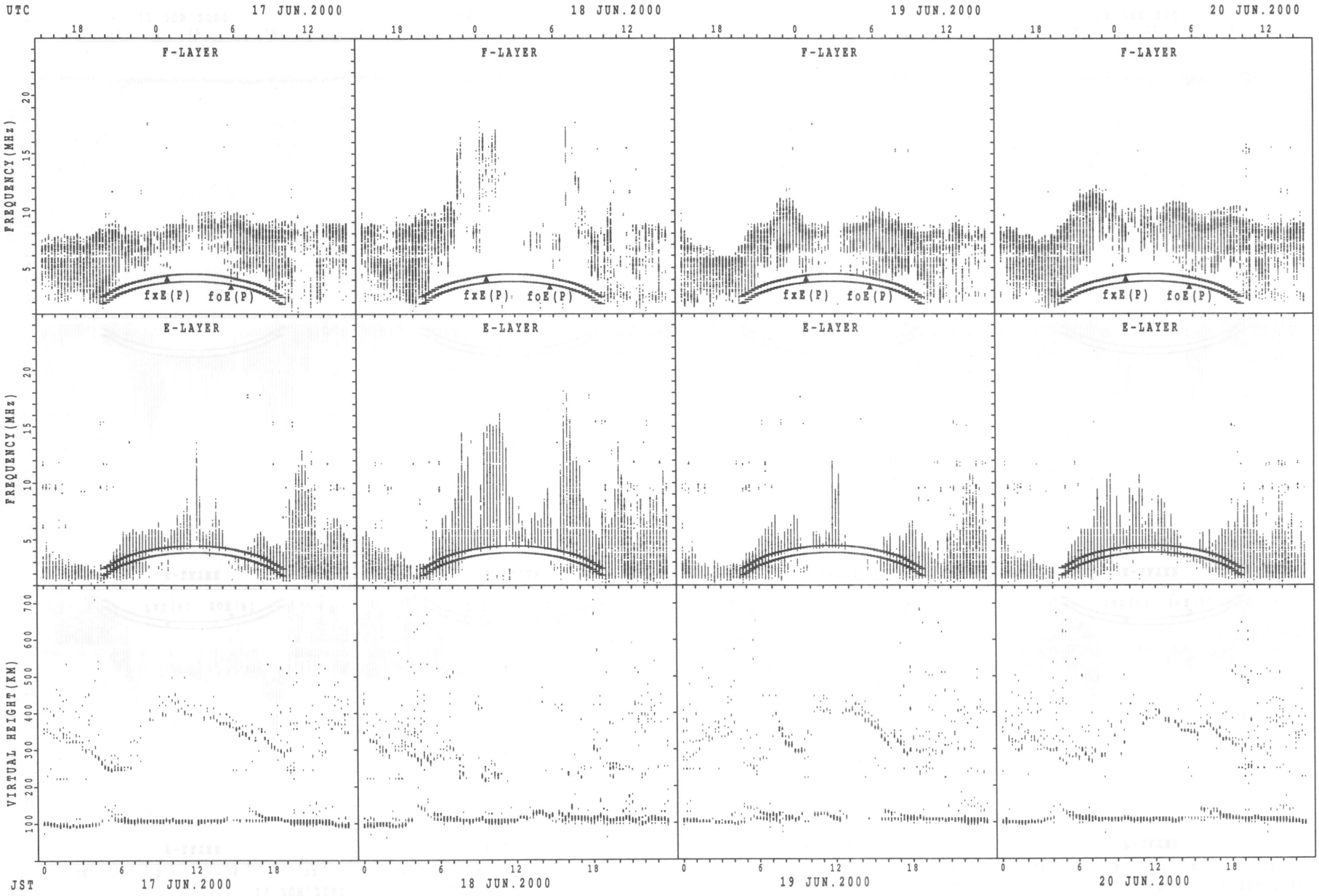
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE


SUMMARY PLOTS AT Kokubunji
UTC
JST
9 JUN.2000
10 JUN.2000
11 JUN.2000
12 JUN.2000
F-LAYER
E-LAYER
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
fxE(P)
foE(P)
fxE(P) ; PREDICTED VALUE FOR fxE
foE(P) ; PREDICTED VALUE FOR foE



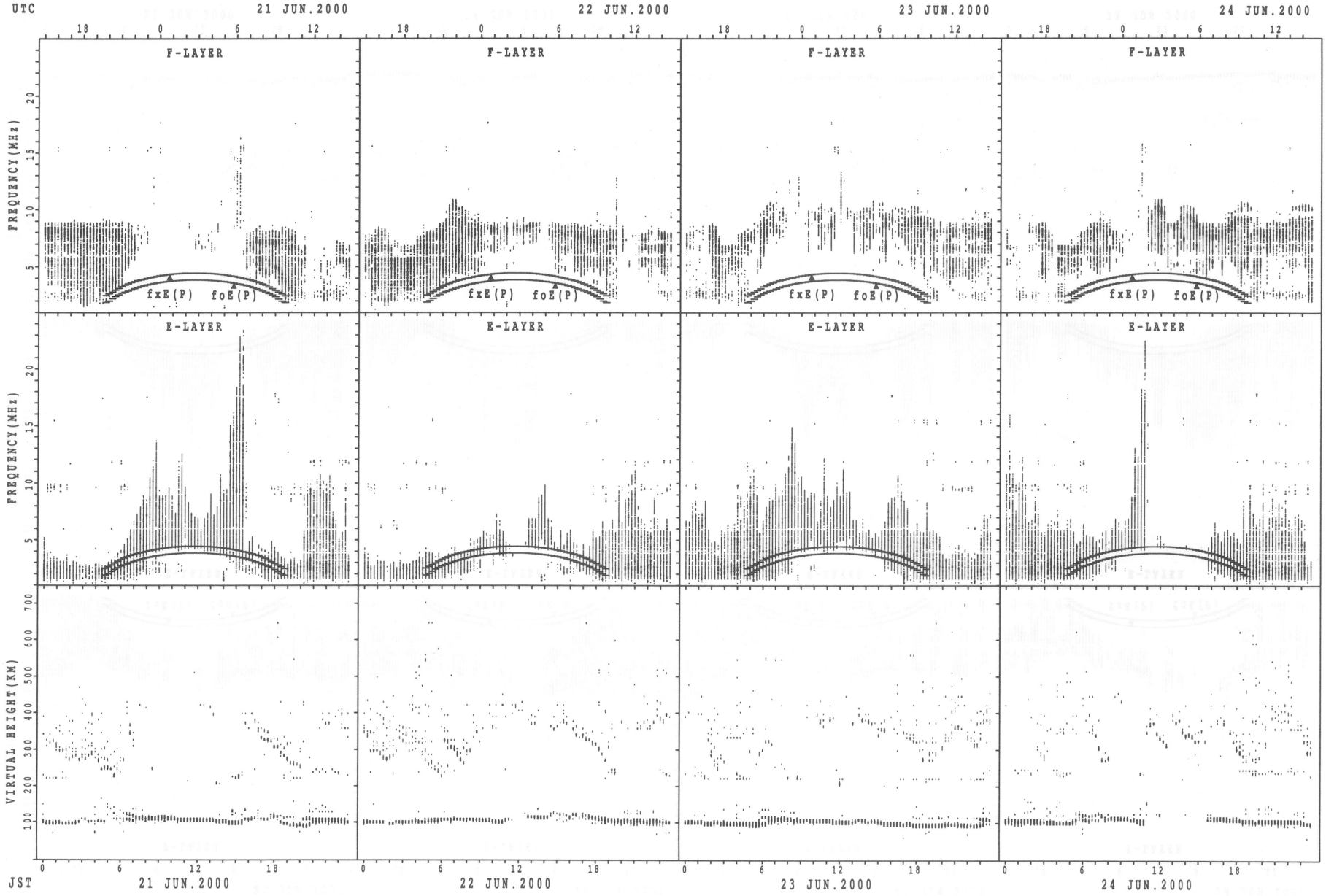
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



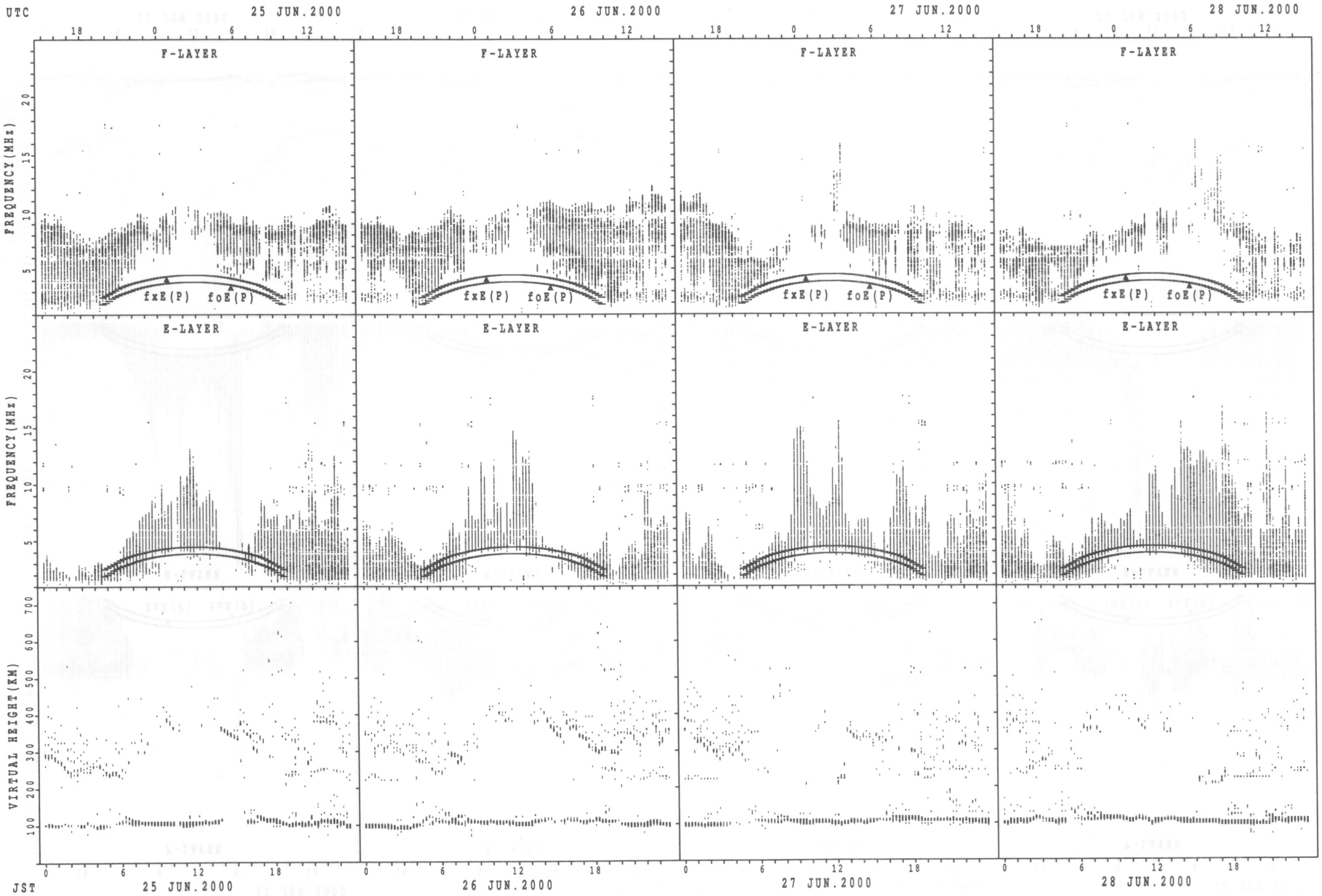
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



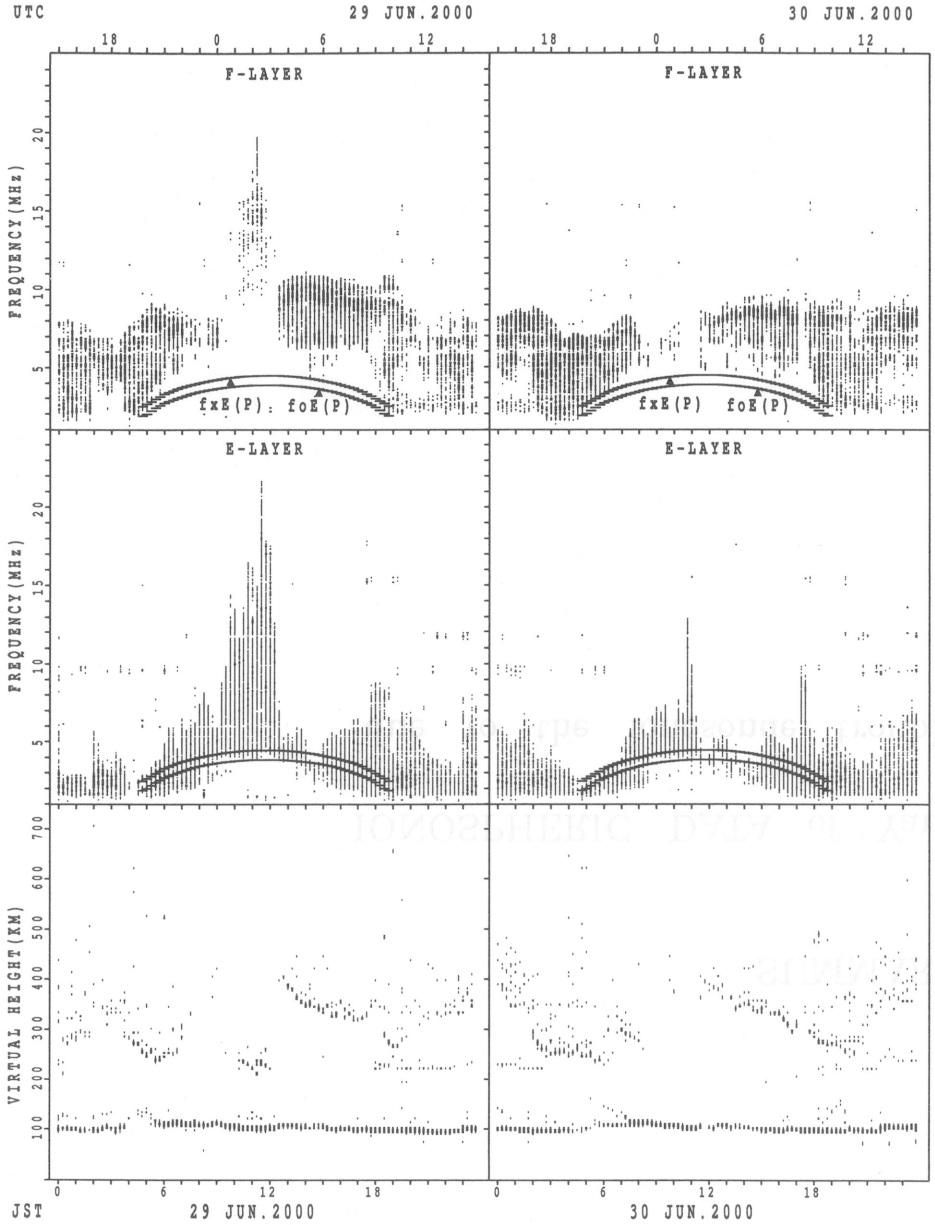
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



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

SUMMARY PLOTS AT Kokubunji

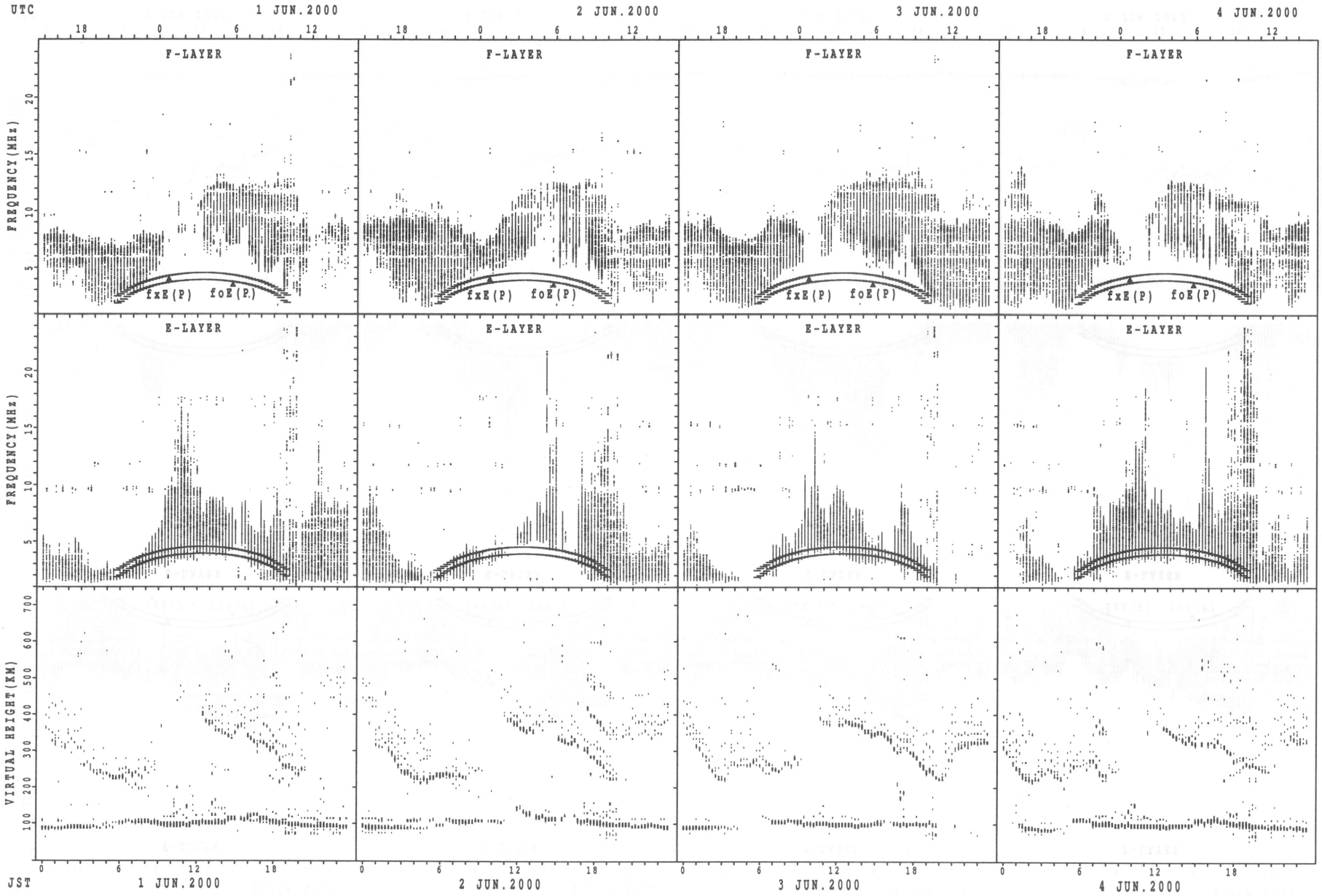


fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS

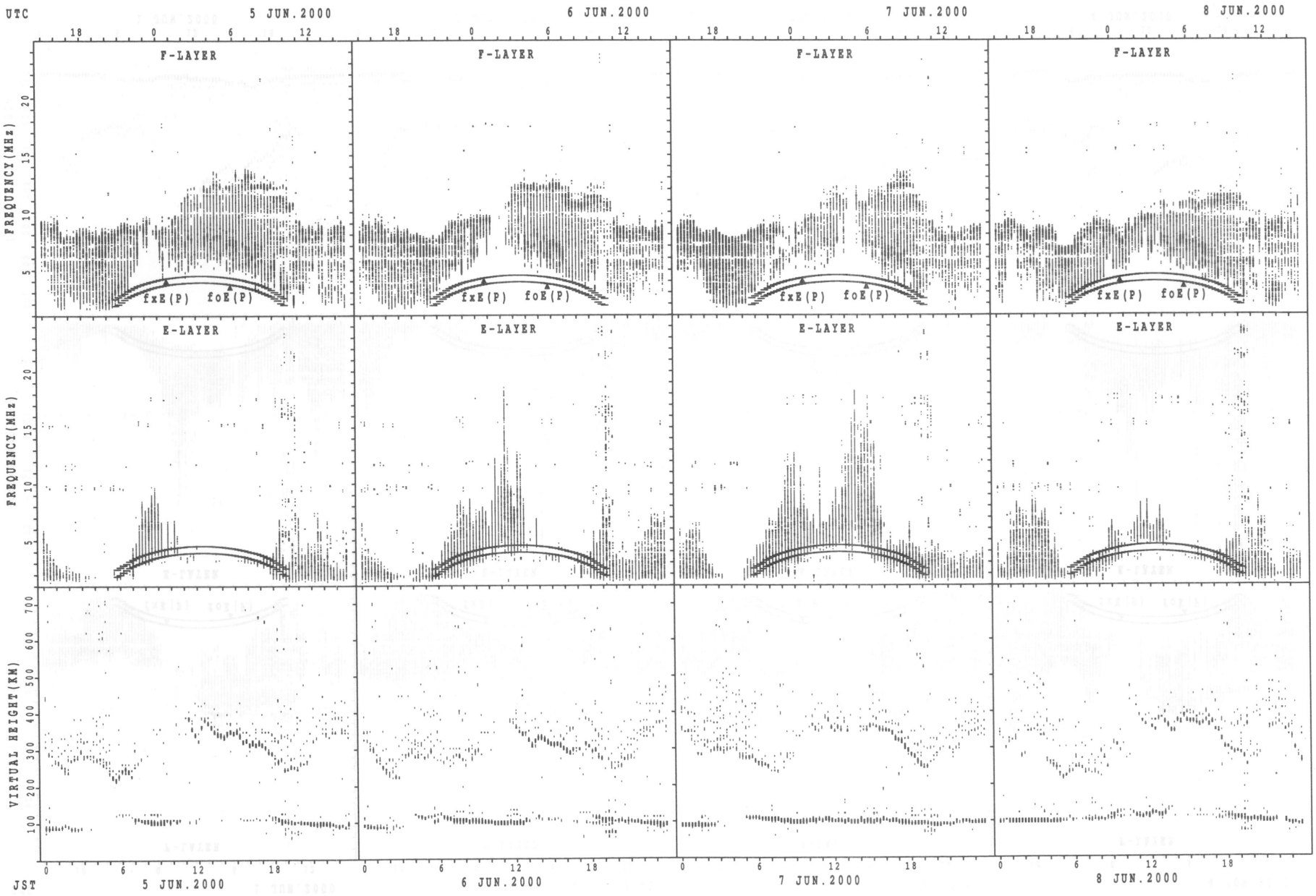
IONOSPHERIC DATA of Yamagawa is not available due to the ionosonde trouble.

SUMMARY PLOTS AT Okinawa



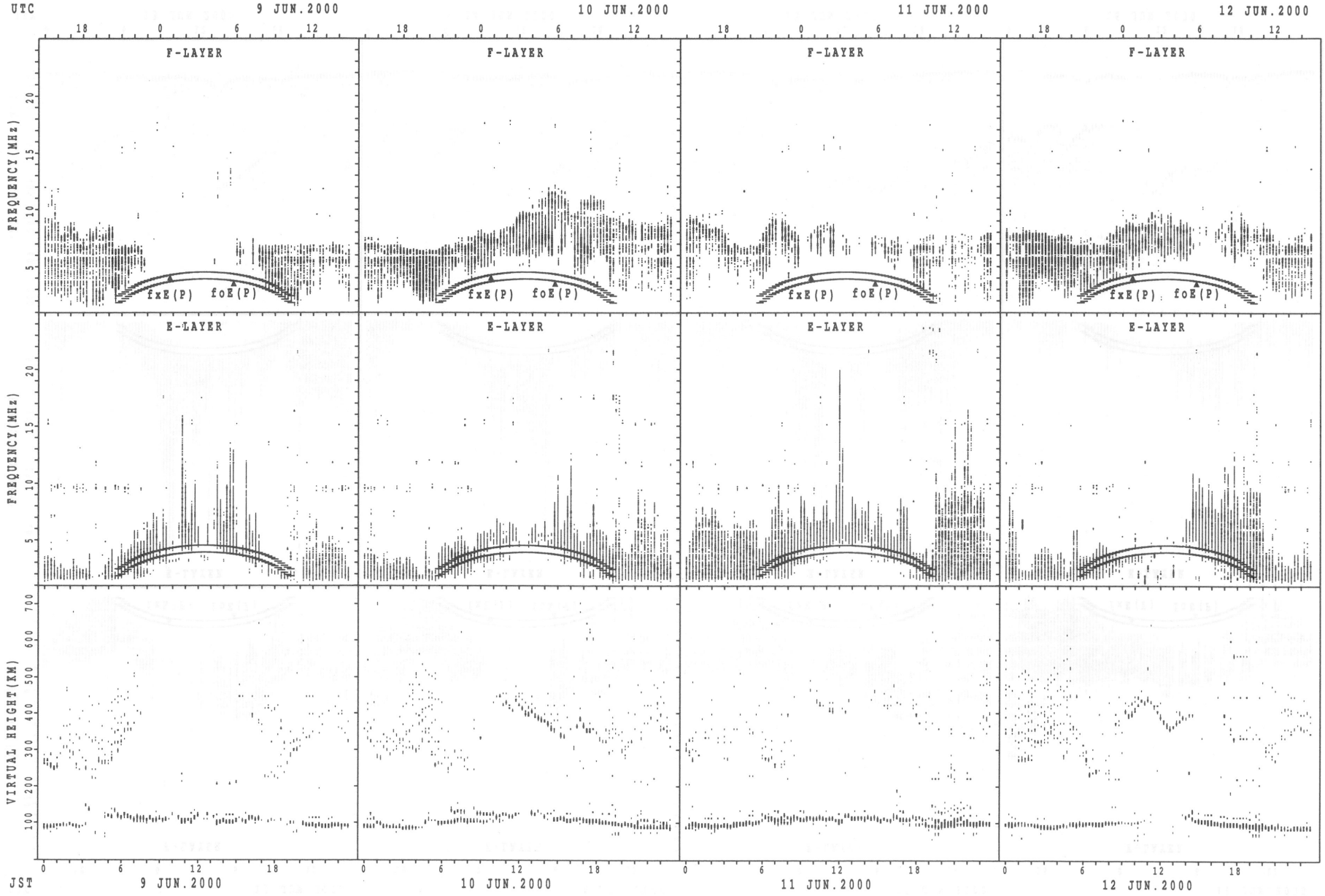
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



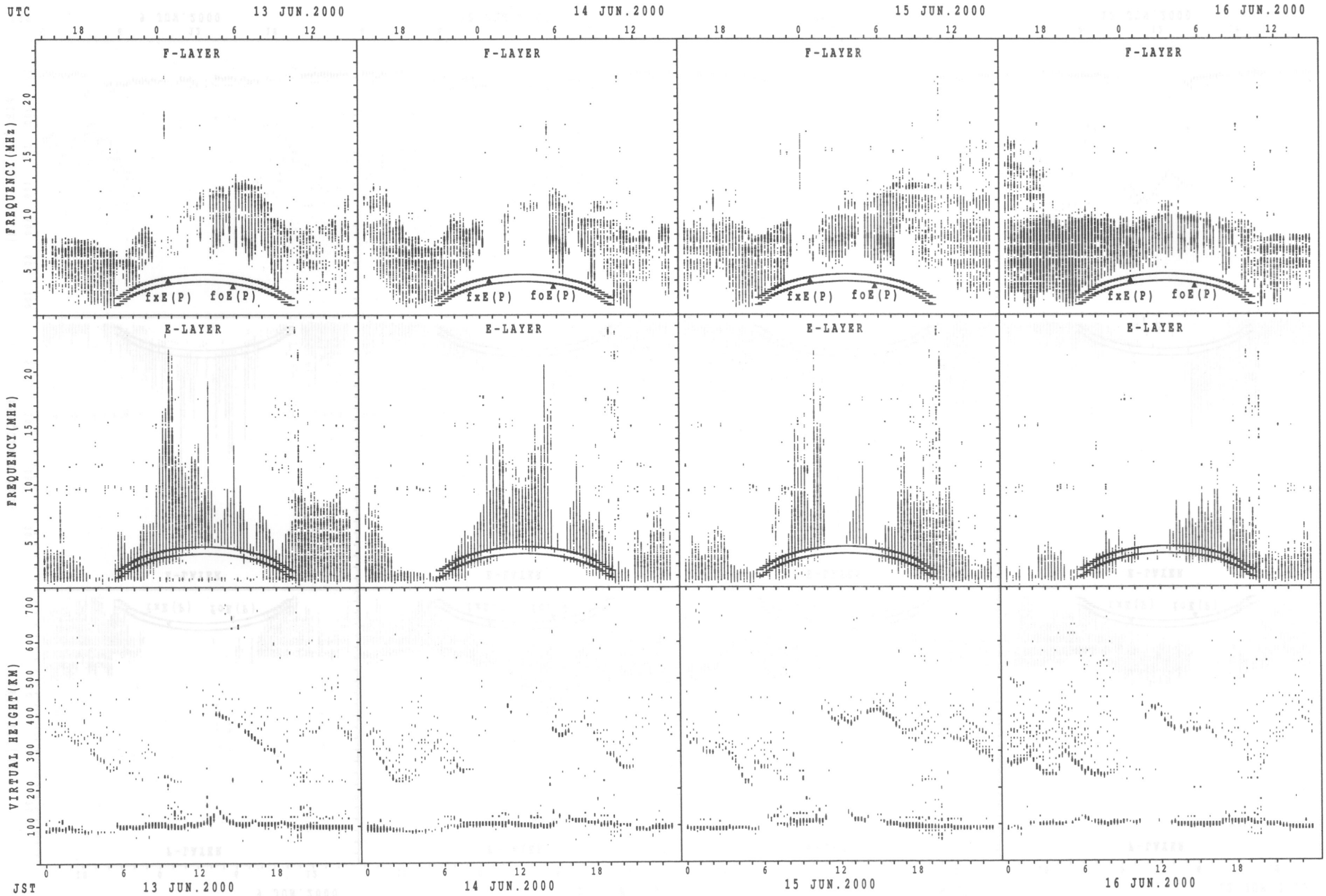
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



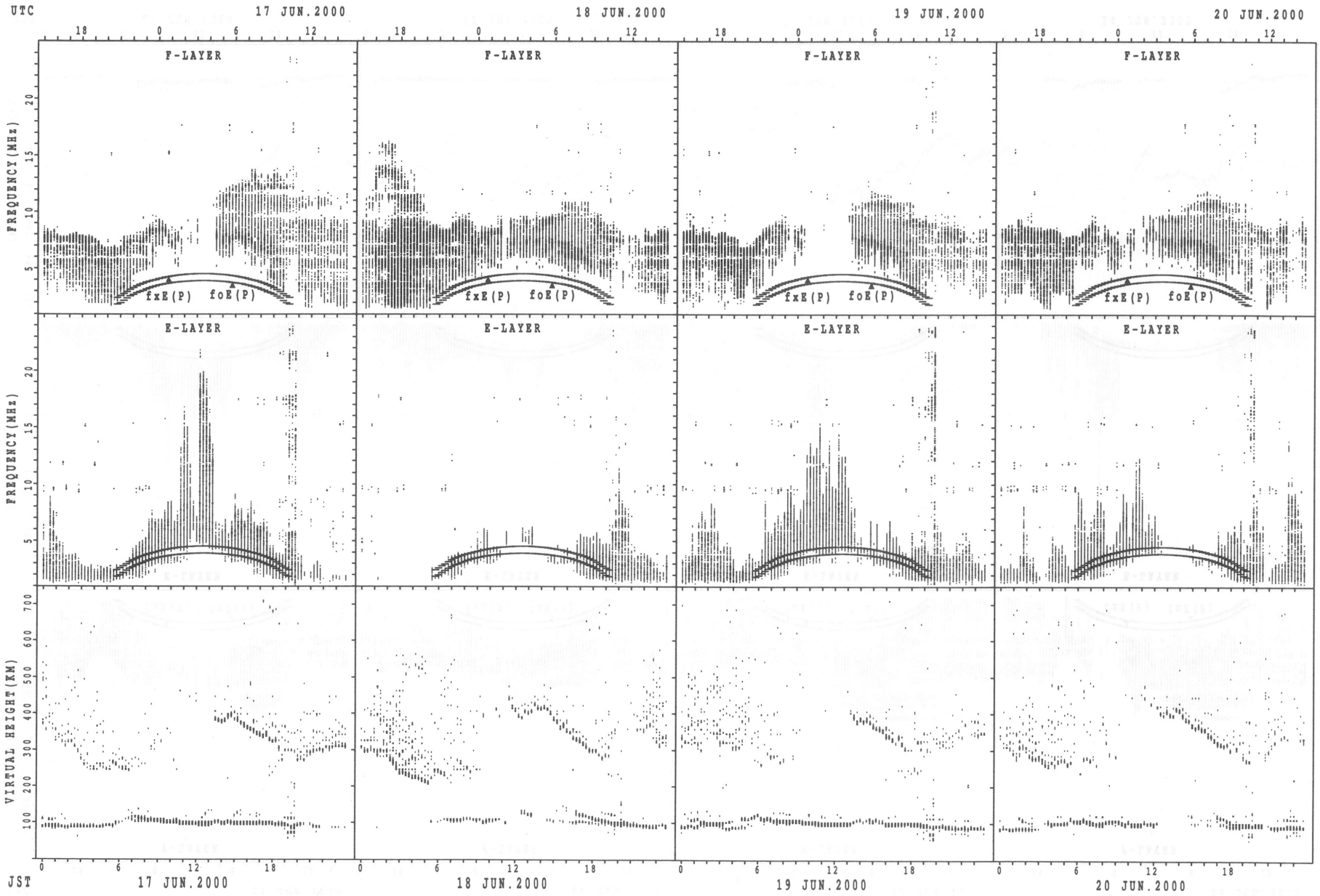
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



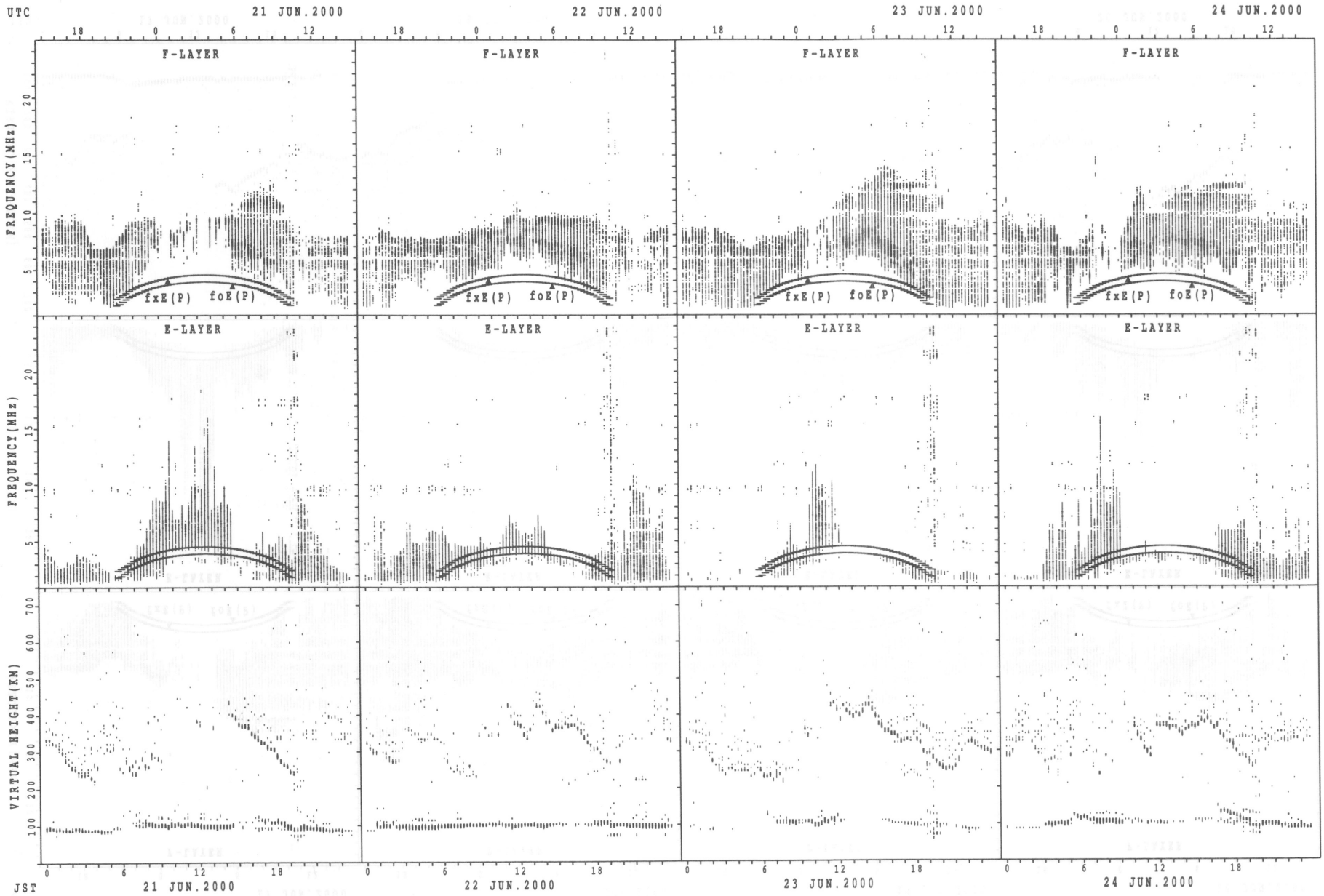
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa

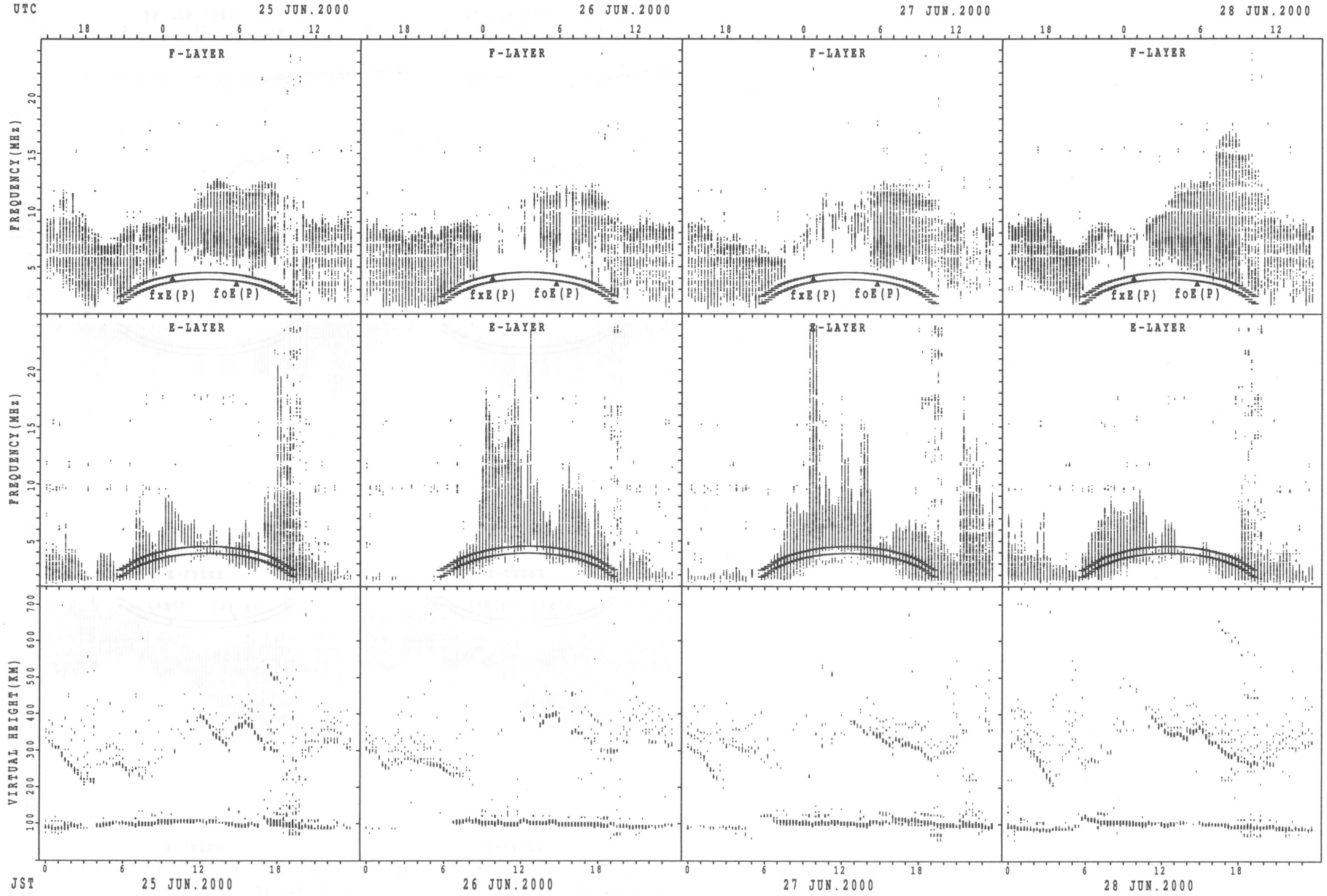


fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

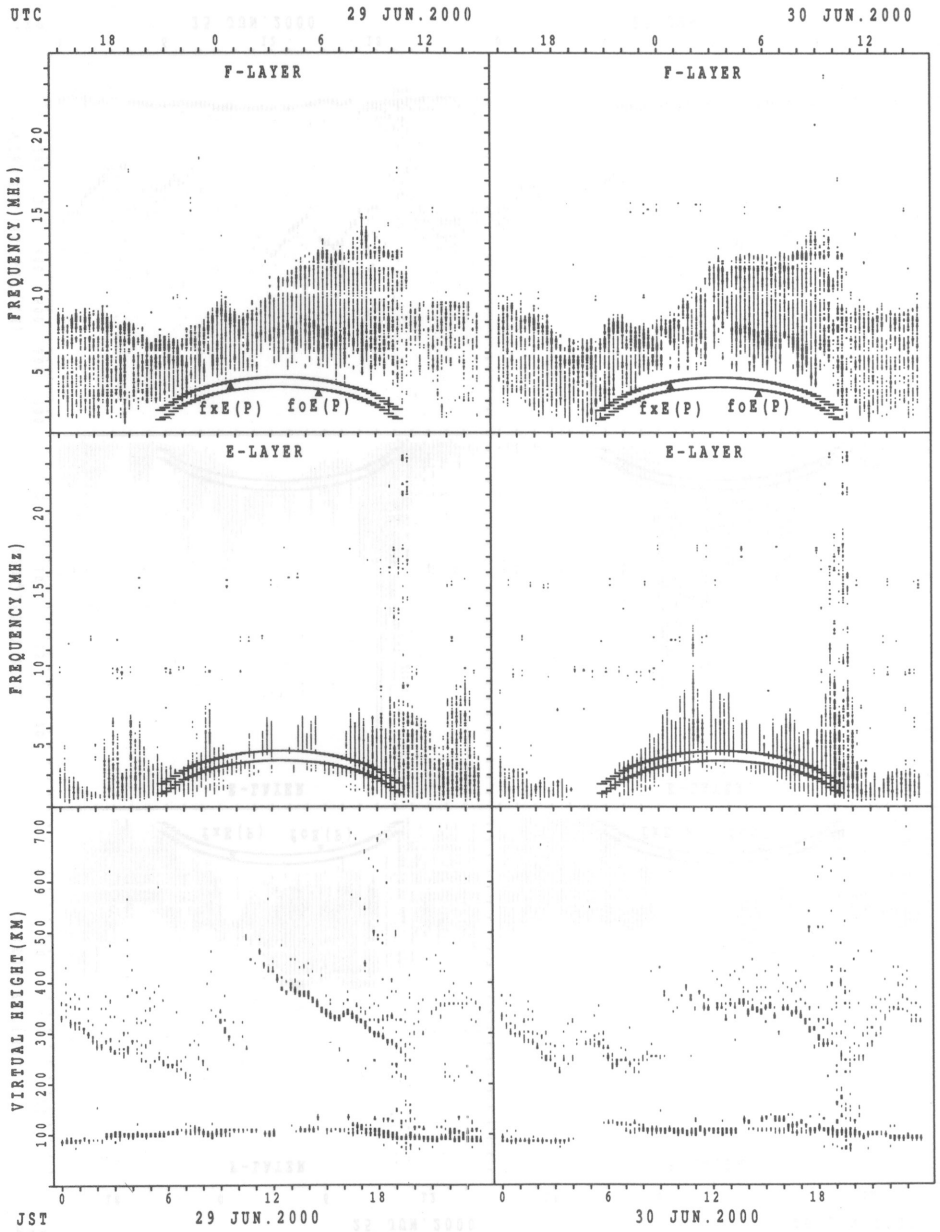
SUMMARY PLOTS AT Okinawa



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


SUMMARY PLOTS AT Okinawa
UTC
25 JUN.2000
26 JUN.2000
27 JUN.2000
28 JUN.2000
F-LAYER
E-LAYER
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
fxE(P)
foE(P)
JST
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. 2000 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	9	5	6	5	3	10	10	6	3	3	3	4	4	4	4	5	4	5	8	11	8	3	1	3
MED	334	354	357	362	342	337	312	299	306	322	328	330	350	347	355	342	332	322	316	300	326	360	354	320
U Q	375	372	384	372	342	370	330	334	326	360	328	347	389	354	369	348	357	343	331	320	361	364	177	354
L Q	312	338	346	339	194	312	304	276	278	308	296	315	334	336	332	335	312	307	274	294	297	342	177	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	18	15	13	11	11	23	30	29	20	21	12	11	12	14	14	20	24	28	28	26	26	13	9	10
MED	103	101	103	101	111	123	115	113	111	113	111	105	106	105	105	111	114	113	115	113	111	103	101	103
U Q	107	105	116	105	121	131	119	115	113	115	113	109	108	107	117	119	119	118	120	117	113	110	107	107
L Q	101	97	101	95	103	117	113	109	111	109	106	101	103	99	103	105	107	108	113	111	107	95	97	99

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	16	19	18	13	12	18	23	20	13	3	2	4	5	6	11	15	14	23	25	24	10	5	10	12
MED	347	348	326	338	337	312	302	302	290	322	283	350	226	350	344	340	333	318	312	287	312	364	356	348
U Q	378	372	374	361	358	352	322	337	321	326	344	364	342	350	350	346	338	332	332	330	360	391	394	378
L Q	336	328	316	312	308	272	288	287	270	294	222	286	209	344	326	336	320	288	281	243	298	339	348	334

h'Es

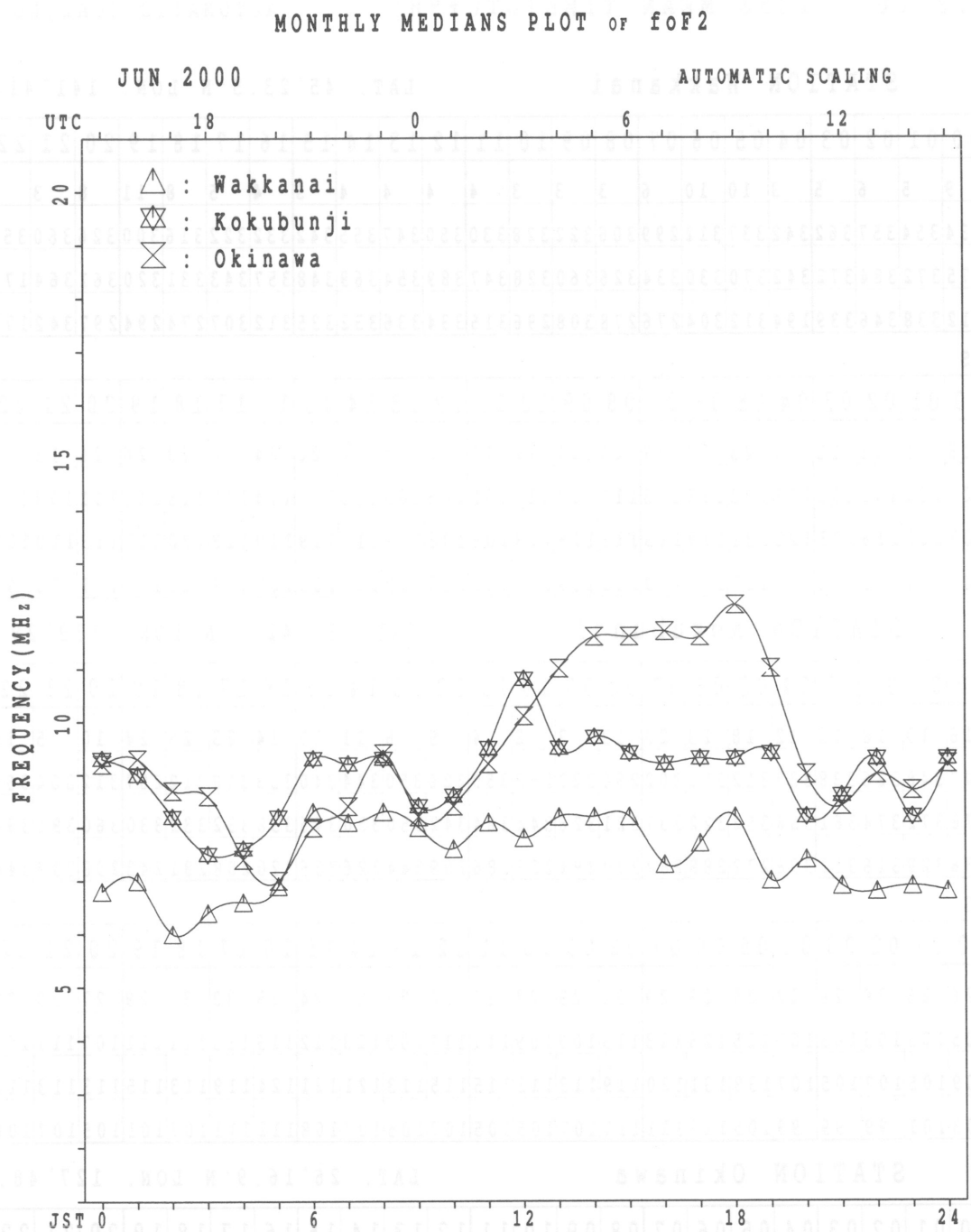
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	26	26	26	26	22	29	29	29	30	28	27	27	28	23	27	24	29	30	30	29	27	30	28	28
MED	105	103	103	103	101	125	125	113	113	109	109	111	111	109	113	112	119	115	111	111	107	111	109	108
U Q	109	105	107	105	107	138	131	120	119	113	113	115	115	113	121	121	124	119	113	115	113	113	111	111
L Q	103	101	99	99	99	105	115	111	111	107	105	105	107	105	107	108	112	111	107	101	105	107	106	105

h'F STATION Okinawa LAT. 26°16.9'N LON. 127°48.4'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	17	24	19	25	18	17	20	19	19	11	3	5	4	8	11	12	18	24	24	22	26	17	6	12
MED	344	321	314	330	328	328	306	264	286	318	324	392	339	350	334	344	337	327	302	288	294	346	373	353
U Q	352	347	336	349	362	398	361	282	322	334	338	407	370	363	348	354	348	336	312	310	322	359	414	356
L Q	323	298	280	269	296	301	268	256	262	266	300	324	329	343	330	328	316	316	287	254	272	324	346	339

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	23	21	20	20	19	26	29	29	28	28	24	26	24	24	24	23	28	29	28	28	25	26	26
MED	91	95	91	91	95	103	114	109	107	106	105	110	105	107	109	110	113	112	111	105	103	97	96	96
U Q	105	101	99	97	102	113	123	114	113	111	112	119	117	117	117	117	121	117	115	106	107	103	105	101
L Q	89	89	91	89	90	93	105	105	105	103	103	104	99	103	101	107	105	105	106	99	97	92	91	91


MONTHLY MEDIANS PLOT OF foF2
JUN.2000
AUTOMATIC SCALING
UTC
18
0
6
12
△ : Wakkanai
✡ : Kokubunji
⧖ : Okinawa
FREQUENCY(MHz)
20
15
10
5
JST 0
6
12
18
24

IONOSPHERIC DATA STATION Kokubunji

JUN. 2000 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 25.0MHz IN 24.0SEC 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	80	X 82	X 80	X 75	X 72																92	X 96	X 92	92
2	O X 91	X 86	X 85	X 81	X 80																X 92	91	97	92
3	95	94	96	88	X 88																X 92	A	O X 98	X 94
4	X 98	X 98	87	X 82	X 84																X 108	X 105	98	98
5	X 100	100	108	108	108																X 89	92	O X 88	X 92
6	O X 94	X 100	X 96	X 80	X 81																X 89	X 90	X 93	X 89
7	X 86	X 84	X 82	X 80	X 79																X 97	X 92	X 88	X 86
8	X 86	X 84	X 79	X 80	X 82																X 94	O X 95	O X 96	X 106
9	X 82	X 79	X 86	X 88	X 70																X 65	O X 70	74	75
10	O X 75	74	X 67	63	X 61																O X 93	X 92	X 93	X 101
11	X 94	92	X 98	80	78																O X 76	R 80	X 82	X 80
12	X 82	X 84	X 73	X 71	72						Y										X 76	68	X 78	A
13	O X 76	X 74	X 71	X 69	X 70																X 87	X 89	X 92	X 93
14	O X 95	X 97	X 95	X 91	X 81																X 87	X 85	83	91
15	O X 92	X 87	X 87	X 87	X 84																X 94	X 100	X 110	X 110
16	X 100	X 104	X 94	X 85																	X 70	X 79	X 78	X 71
17	76	X 79	X 80	X 80																	O X 94	O X 94	X 93	O X 94
18	93	X 97	X 92	X 92																	A	X 86	90	X 95
19	X 86	X 74	X 68	69																	O X 90	X 89	X 92	90
20	87	X 86	X 81	X 78																	X 97	X 94	O X 98	X 98
21	X 95	O X 94	X 94	X 92																	X 74	A	R 70	R 82
22	X 86	86	X 80	X 76																	X 86	X 84	X 84	X 80
23	X 80	86	90	X 75																	O X 91	X 94	R 88	O X 94
24	X 93	A	X 94	X 92																	X 94	O X 96	103	X 106
25	X 104	O X 98	X 88	X 85																	R 84	96	X 105	X 106
26	96	96	93	X 85																	R 93	X 115	X 114	125
27	X 116	X 115	X 111	X 90																	O X 91	O X 96	X 95	X 85
28	X 85	83	81	X 76																	R 82	A	X 82	X 80
29	R 84	X 80	X 76	O X 75																	R 89	X 85	X 84	82
30	85	X 92	X 91	84																	X 94	X 88	X 94	X 95
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	30	30	15																29	27	30	29
MED	X 89	X 86	X 87	X 80	X 80																X 91	X 92	X 92	X 92
U Q	X 95	X 97	X 94	X 88	X 84																X 94	X 96	X 97	X 98
L Q	X 84	X 82	X 80	X 76	X 72																X 85	X 85	X 84	X 84

JUN. 2000 fxI (0.1MHz) COMMUNICATIONS RESEARCH LABORATORY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

JUN. 2000 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 25.0MHz IN 24.0SEC 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	76	R 74	69	R 66	R 74	90	96	94	89	R 94	95	107	112	113	108	R 100	A	97	R 93	R	90	86	F
2	R 85	80	80	75	R 74	79	R 96	92	91	83	94	R 102	109	110	110	103	A	A	A	110	R 86	F	F	F
3	F	F	F	F	F 78	F 80	86	A	R 95	A	105	112	111	113	111	115	116	104	100	R 98	R 86	A	U R 92	F 84
4	R 92	R 92	F 78	U R 76	78	85	91	R 100	H 94	R 94	95	100	104	110	113	106	A	91	87	R	F 93	F	F	F 86
5	F 91	F	F	F	F	U R 98	90	A	A	A	110	114	117	120	113	108	100	100	112	104	R 82	R	U R 82	86
6	U R 88	F 89	90	R 74	76	78	77	76	78	79	78	A	A	R 74	A	80	80	81	R	A	83	R 84	R 87	83
7	R 80	78	76	74	73	79	89	89	A	A	A	97	A	U R 98	98	R 94	92	96	91	91	91	86	82	80
8	80	R 78	73	R 74	76	80	90	91	94	87	A	96	A	86	85	83	82	89	83	89	R 88	89	R 90	100
9	R 77	R 73	81	82	64	F	58	A	A	A	A	A	A	R	A	A	60	A	A	A	R 59	R 64	F 62	F
10	R 69	F	R 62	F	R 55	65	71	72	A	A	86	81	88	92	A	104	105	100	90	88	R 87	86	87	U R 96
11	R 88	F	92	R	F	F 70	94	82	74	A	A	A	A	A	A	A	R 60	60	R 61	R	70	R	76	R 74
12	R 76	78	67	65	F 62	76	79	70	60	R	Y	A	A	R	A	R 62	61	R 62	63	65	70	R	R 72	A
13	R 70	67	65	64	64	68	84	89	85	A	84	87	90	88	R 80	80	84	86	A	92	81	83	86	87
14	R 89	91	88	85	75	80	88	R 95	R 92	82	82	A	A	A	A	U R 74	74	R 74	A	R 76	81	79	R	F
15	86	81	81	81	78	81	92	97	101	84	86	A	A	95	100	103	108	104	93	85	88	R 94	104	104
16	R 94	U R 98	88	79	71	82	92	105	84	A	A	71	R	74	79	78	77	79	76	A	R 64	F 67	72	R 65
17	F	R 73	74	R 74	F 72	81	85	80	80	83	85	93	R 93	96	96	96	91	88	88	R 88	88	88	R 87	88
18	F	91	R 87	86	R 92	F	R 92	104	A	88	A	A	83	78	78	78	R 82	84	82	80	A	80	F	F 83
19	80	68	62	F	58	75	88	91	107	100	88	87	90	88	92	96	93	93	86	83	84	85	86	F
20	F	80	75	R 72	F 70	F	107	116	111	103	98	100	J R 98	101	104	98	92	97	100	R 100	91	88	92	92
21	89	R 88	88	86	84	93	85	77	79	A	A	A	74	79	76	A	76	78	78	80	U R 67	A	R	R
22	U R 80	F	R 74	70	F	F 72	88	104	94	88	90	90	88	92	A	84	83	83	82	82	80	78	78	U R 75
23	U R 74	R	F	R 69	F	V 81	94	104	A	A	98	99	99	100	101	102	98	98	98	R 93	85	88	R	U R 88
24	87	A	F 84	86	R 69	F 64	78	92	87	77	R	100	106	94	102	91	86	89	R 101	R 100	88	R 90	F	R 100
25	U R 98	92	82	79	72	77	82	91	94	R	R 99	A	R 98	96	97	90	92	89	88	94	R	F	R 99	R 99
26	F	F	F	79	R 78	81	87	100	92	90	R 93	98	A	103	104	105	98	102	104	R 100	R	R 109	108	F
27	R 110	U R 109	R 105	84	77	R 66	64	64	66	A	A	84	A	94	92	86	86	88	86	A	85	R 90	88	79
28	J R 79	F	F	70	64	68	69	78	74	80	84	90	R 91	100	A	100	102	R 99	92	86	R	A	76	U R 74
29	R	R 74	70	69	72	F 78	86	81	80	82	A	A	A	103	107	104	104	100	R 100	104	R	R 79	78	U R 74
30	R 76	F 82	R 85	J R 73	F	F	69	78	70	A	72	A	81	88	91	92	92	89	90	92	88	82	88	89
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	21	25	25	25	26	30	27	24	16	19	19	18	26	22	27	28	27	25	24	24	22	23	22
MED	R 85	80	80	74	72	78	88	91	89	86	90	96	96	96	99	96	92	89	90	92	85	86	86	86
U Q	R 89	91	88	82	78	81	91	100	94	90	98	100	106	103	107	104	99	99	99	R 99	88	R 90	90	92
L Q	R 77	75	74	70	65	72	79	78	78	82	84	87	88	88	91	83	81	83	82	84	80	80	78	R 79

JUN. 2000 foF2 (0.1MHz) COMMUNICATIONS RESEARCH LABORATORY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

JUN. 2000 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 25.0MHz IN 24.0SEC IN MANUAL SCALING

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1						L	L	L	A	A	U L 596	U L 564	A	A	U L 528	A	A	A	A	A				
2								A	A	A	A	A	L 572	B	A	A	A	A	A					
3								A	A	A	A	L 584	A	A	A	A	A	A						
4							L	A	A	A	L 600	L 612	B	U L 548	L 552	A	A	A	A					
5							A	A	A	A	A	L	A	L 556	540	L	L	L	A					
6						L	L	A	512	A	A	A	A	A	A	L 520	L	A	A	A				
7							A	A	A	A	A	A	A	A	A	A	A	L	A					
8							L 500	L	A	A	A	A	A	B	A	A	L	A	A					
9						A	A	A	A	A	A	A	A	U R 480	A	A	A	A	A	A				
10							L	A	A	A	A	U L 588	A	A	A	A	L 544	A	L					
11							L	L	A	A	A	A	A	A	A	A	U L 520	U L 528	U L 404					
12						L	L 436	472	U L 496	U L 520	Y	A	A	A	A	U L 528	U L 524	U L 488	U L 452					
13							L	A	A	A	U L 612	U L 580	U L 620	A	A	U L 564	A	A	A	A				
14							L	A	A	A	A	A	A	A	A	A	U L 512	A	A					
15							L	A	A	L	A	A	A	U L 632	A	A	A	A	A					
16						A	L	520	A	A	A	A	R	U L 560	556	A	A	L	A	A				
17							L	A	L	U L 656	U L 588	U L 608	A	A	A	552	U L 520	A	A					
18						L	L	A	A	A	A	A	U L 580	U L 592	A	U L 604	A	A	A					
19					L			L	L	A	L 568	U L 604	A	568	U L 552	L 548	L	L	A					
20								A	A	A	U L 700	A	U L 576	U L 560	L 552	U L 568	L	A	A					
21							L	A	A	A	A	A	A	A	A	A	L 500	L 464	A					
22						L	L	L 484	L	U L 548	U L 576	U L 560	U L 592	A	A	560	A	L	A					
23						A	A	A	A	A	A	A	A	A	572	U L 556	A	A	A					
24						A	A	L 516	L	U L 584	A	U L 580	A	U L 628	U L 568	L	U L 556	L	A					
25								L	A	U L 608	A	A	A	A	U L 600	U L 524	L	A	A					
26								A	L 524	A	U L 600	A	A	A	U L 584	520	528	L 476	L					
27						L	L	500	U L 556	A	A	A	A	A	A	L	L	A	A	A				
28						L	U L 468	A	A	A	A	A	A	A	A	A	A	A	A					
29							A	A	A	U L 548	A	A	A	568	U L 564	528	A	A	A					
30						L	L	L	A	A	U L 544	A	U L 576	L	U L 564	L 524	L	L	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							3	5	4	6	9	9	6	10	12	13	8	4	2					
MED							L 468	500	L 518	U L 566	U L 596	U L 584	U L 578	U L 564	U L 560	L 548	U L 522	L 482	U L 428					
U Q							L 500	518	L 540	U L 608	U L 606	U L 606	U L 592	U L 592	U L 570	U L 562	L 536	U L 508						
L Q							L 436	478	504	U L 548	U L 572	U L 572	L 576	U L 556	L 552	L 524	U L 516	L 470						

JUN. 2000 foF1 (0.01MHz) COMMUNICATIONS RESEARCH LABORATORY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

JUN. 2000 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 25.0MHz IN 24.0SEC 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 268		A	A 360	R	B	B	B	B	R		340	280	A	B				
2						196	A	308	A	A	B	B	B	B	B	B	B	292	A	B				
3						A	280	320	B	B	B	B	B	A	A	A	B	A	A	B				
4						A	276	304	U R 340	360	R	B	B	B	B	B	340	296	196	B				
5						192	284	324	U R 356	B	B	B	B	A	A	R	340	288	A	B				
6						R	A	336	R	R	B	A	A	B	A	A	352	292	224	B				
7						208	A	324	360	R	B	B	B	R 328	B	A	A	A	A	B				
8						U R 216	284	R	364	R	B	B	B	B	R	U R 372	344	300	224	B				
9						196	U R 256	320	U R 348	360	R	R	R	R	B	U R 372	344	292	220	B				
10						224	A	328	U R 368	R	B	B	B	B	B	B	348	A	A	B				
11						A	284	328	U R 368	R	B	B	B	B	B	364	340	288	A	B				
12						216	276	324	U R 356	R	R	R	R	U R 408	B	B	U R 332	A	B	B				
13						212	280	328	U R 356	R	R	B	B	B	B	A	356	308	A	B				
14						196	276	316	R	R	R	B	A	A	B	R	340	316	224	B				
15						212	276	340	368	R	R	B	B	B	R	B 324	A	A	B					
16					B	A	A	348	356	R	R	B	B	B	B	U R 388	348	R	248	B				
17					B	188	292	A	R	R	B	B	B	A	R	380	352	U R 304	232	B				
18					B	204	296	A	R	B	R	B	B	R	B	R	R	U R 300	A	B				
19					B	184	A	336	U R 364	R	B	R	B	R	B	R	348	292	A	B				
20					B	204	280	328	356	R	R	R	B	A	A	R	R	300	A	B				
21					B	184	280	332	368	R	B	R	B	B	A	A	A	308	248	B				
22					B	A	A	A	A	A	A	A	B	R	R	R	U R 344	308	232	B				
23					B	A	A	336	368	R	A	U R 380	A	A	R	B	A	A	A	B				
24					B	A	280	324	R	R	R	B	R	B	R	B	U R 348	300	224	B				
25					B	188	276	332	U R 356	R	B	B	A	R	B	R	316	R	232	B				
26					B	A	288	324	U R 352	R	R	B	A	A	B	R	U R 332	A	236	B				
27					B	236	268	320	A	R	R	B	A	A	A	A	U R 348	292	A	B				
28					B	236	284	320	360	R	R	R	A	B	R	A	A	A	A	B				
29					B	200	268	320	U R 356	384	R	A	A	A	A	A	A	A	A	B				
30					B	188	264	336	U R 356	R	R	A	A	A	R	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						20	22	25	20	3		1		2		6	20	18	12					
MED						202	280	324	U R 356	360		U R 380		R 368		372	344	298	228					
U Q						214	284	334	366	384						380	348	304	234					
L Q						190	276	320	U R 356	360						364	340	292	224					

JUN. 2000 foE (0.01MHz) COMMUNICATIONS RESEARCH LABORATORY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

JUN. 2000 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 25.0MHz IN 24.0SEC IN MANUAL SCALING

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	JA 53	EB 15	EB 14	JA 22	19	22	32	39	JA 78	JA 63	42	EB 48	JA 77	JA 110	JA 52	JA 78	JA 81	JA 132	JA 88	JA 108	JA 130	JA 68	JA 22	JA 53
2	JAJA 84	JA 36	JA 50	JA 32	JA 25	29	JA 53	JA 76	JAJA 100	JA 86	JA 85	93	46	EB 77	55	82	JA 179	JAJA 131	JA 182	JA 100	JA 70	JA 84	JA 72	JA 50
3	JAJA 70	JA 55	59	JA 43	JA 43	26	JA 46	JA 108	JAJA 115	JA 160	57	EB 48	JA 82	60	JA 68	JA 71	78	JA 58	JA 52	JA 49	JA 75	JA 64	JA 69	50
4	23	19	25	26	29	31	JA 50	JA 82	JAJA 63	JA 66	JA 78	JA 49	EB 61	48	50	JA 78	JA 126	JA 54	JA 49	79	JA 99	JA 82	JA 52	JA 61
5	JAJA 49	JA 59	JA 63	JA 52	JA 40	27	JA 66	JA 140	JAJA 170	JA 122	JA 78	JA 64	JA 74	51	40	JA 50	40	39	JA 40	20	JA 110	JA 134	JA 85	JA 78
6	JAJA 104	JA 47	JA 26	JA 24	JAJA 31	30	34	JA 63	JA 48	JA 66	JA 65	JA 123	JA 109	JA 133	JA 107	JA 50	41	JA 54	JA 74	JA 84	JA 103	JA 87	JA 85	JA 81
7	JAJA 78	JA 21	JA 50	JA 29	JA 24	29	JA 59	JA 54	JAJA 95	JA 86	JA 126	JA 72	JA 102	JA 80	JA 66	JA 81	JA 61	JA 53	JA 66	JA 47	JA 50	JA 70	JA 48	JA 53
8	JAJA 65	JA 32	JA 52	JA 40	JA 24	28	37	47	JA 59	JA 64	JA 99	63	JA 79	EB 65	JA 62	JA 80	45	JA 78	JA 55	JA 46	JA 58	JA 51	JA 43	JA 45
9	JAEB 25	EB 21	JA 27	JA 39	JAJA 32	JA 37	JA 49	JA 55	58	JA 55	JA 86	60	64	46	59	73	JA 56	JA 79	JA 103	JA 89	JA 63	JA 85	JA 47	JA 43
10	JAJA 98	JA 50	JA 46	JA 32	JA 27	24	JA 30	JA 58	JAJA 124	JA 139	JA 82	JA 61	JA 74	58	JA 177	JA 85	42	JA 90	JA 89	JA 27	JA 32	JA 36	JA 41	JA 53
11	JA 34	26	24	JA 26	JAJA 31	JA 31	36	45	JA 57	JA 75	69	59	JA 86	JA 75	76	JA 76	38	39	JA 40	JA 25	JA 49	JA 30	EB 14	20
12	23	EB 16	JA 20	20	EB 15	29	34	38	40	G	G	56	68	JA 62	69	50	43	39	25	EB 17	EBJA 14	JA 54	JAJA 65	JA 80
13	JAJA 66	JA 27	JA 26	JA 22	JA 26	29	38	JA 76	JAJA 85	JA 100	JA 51	JA 50	JA 52	58	62	JA 55	JAJA 59	70	JA 96	JA 104	JAJA 36	JA 41	JA 31	JA 31
14	JAJA 29	JA 37	JA 21	JA 23	22	23	36	JA 66	JAJA 65	JA 79	JA 70	JA 90	JA 86	JAJA 116	JA 126	50	45	44	JA 105	JA 76	JAJA 86	JA 64	JA 65	JA 80
15	25	25	JA 24	EB 16	JA 26	29	33	JA 68	JA 69	60	JA 83	JA 125	JA 97	52	90	JA 66	JAJA 67	JA 80	JA 74	JA 84	JAJA 79	JA 46	JA 28	JA 27
16	48	JA 28	JA 34	JA 45	JAJA 53	JA 39	JA 31	37	JA 115	JA 116	JA 85	JA 58	52	EB 48	EB 46	JA 100	JAJA 68	36	JA 48	JA 111	JAJA 77	JA 57	JA 75	JA 62
17	JAJA 31	JA 31	JA 24	JA 22	JA 19	25	JA 41	JA 54	JAJA 51	JA 60	JA 55	JA 71	JA 128	57	59	G	44	JA 52	45	JA 46	JAJA 105	JA 96	JA 50	JA 66
18	JAJA 49	JA 38	JA 40	JA 34	28	29	JA 47	JA 71	JAJA 106	63	JA 148	JA 144	JA 53	JA 51	JA 64	44	JA 175	JA 111	JA 53	72	JAJA 128	JA 77	JA 65	JA 88
19	JAJA 50	JA 32	JA 20	JA 23	JA 22	32	43	JA 60	JAJA 52	69	EB 48	48	JA 90	GE 44	B	G	JA 45	JAJA 48	JA 62	JA 44	50	JA 53	JA 82	JA 88
20	JAJA 49	JA 31	JA 27	JA 22	JA 20	26	JA 48	JA 55	JAJA 77	88	JA 90	JA 90	JA 54	JA 56	JA 48	46	43	47	JA 52	JA 76	JAJA 67	JA 40	JA 85	JA 41
21	JAJA 48	JA 31	JA 23	JA 23	JA 24	26	36	JA 62	JAJA 80	JA 100	JA 85	JA 92	JA 65	JA 87	JA 90	JA 179	JAJA 46	38	JA 40	JA 28	JAJA 27	JA 89	JA 85	JA 47
22	JAJA 40	JA 32	JA 25	JA 24	JAJA 27	JA 36	34	41	41	46	JA 50	48	EB 50	JA 66	JA 94	45	JA 54	41	JA 47	JA 56	JAJA 62	JA 116	JA 52	JA 54
23	JAJA 64	JA 68	JA 44	JA 51	JAJA 52	JA 96	JA 66	JA 96	JAJA 126	JA 100	JA 87	JA 85	JA 94	JA 66	JA 53	JA 51	JAJA 82	JA 80	JA 63	JA 53	JA 33	42	JA 33	JA 51
24	JAJA 108	JA 96	JA 64	JA 54	JAJA 63	JA 64	64	44	46	JA 58	JA 126	JA 148	59	EB 50	46	EB 46	JAJA 50	JA 52	JA 46	JA 86	JAJA 98	JA 74	JA 54	JA 63
25	JAJA 26	JA 22	19	JA 22	JAJA 24	25	36	JA 53	74	JA 70	JA 79	JA 97	JA 99	JA 90	EB 46	G	47	JA 82	JA 73	JA 68	JAJA 76	JA 139	JA 64	JA 103
26	JAJA 52	JA 35	JA 54	JA 39	JAJA 26	JA 24	34	JA 63	JAJA 68	JA 84	JA 84	60	JA 137	JA 124	JA 52	42	41	33	JA 34	58	JA 28	JA 46	JA 85	JA 58
27	JAJA 52	JA 28	JA 53	JA 22	18	28	32	41	JA 48	JA 145	JA 91	72	JA 94	JA 62	JA 64	49	40	JA 100	JA 65	JA 86	41	JA 64	JA 52	56
28	JAJA 54	JA 85	JA 54	JA 24	JAJA 49	G	34	JA 66	JAJA 62	JA 60	78	50	JA 116	61	JA 159	JA 109	JAJA 122	JA 86	JA 102	JA 75	JAJA 28	JA 109	JA 64	JA 54
29	JAJA 40	JA 29	JA 52	JA 31	23	24	JA 45	JA 62	JAJA 70	JA 56	JA 131	JA 125	JA 175	JA 51	JA 47	JA 44	58	JA 60	JA 87	JA 45	JAJA 66	JA 37	JA 30	76
30	JAJA 54	JA 50	JA 45	JA 43	JAJA 28	30	32	41	JA 60	JA 68	JA 54	JA 94	43	52	GJ 37	JA 43	JAJA 46	JA 47	JA 48	JA 52	JAJA 41	37	JA 47	JA 52
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30
MED	JAJA 50	JA 32	JA 30	JA 26	JAJA 26	29	36	JA 59	JAJA 68	JA 70	JA 80	JA 68	JA 78	59	JA 60	JA 50	JAJA 48	JA 54	JA 58	JA 63	JAJA 64	JA 64	JA 53	JA 54
U Q	JAJA 65	JA 47	JA 52	JA 39	JAJA 31	JA 31	JA 48	68	JAJA 95	JA 100	JA 87	JA 93	JAJA 97	JA 77	JA 76	JA 78	JAJA 68	JA 80	JA 87	JA 84	JAJA 86	JA 85	JA 72	JA 76
L Q	JA 34	26	JA 24	JAJA 22	23	25	34	45	JA 57	JA 60	57	56	59	51	48	45	43	44	JA 47	JA 46	JAJA 41	JA 46	JA 43	JA 50

JUN. 2000 foEs (0.1MHz) COMMUNICATIONS RESEARCH LABORATORY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

JUN. 2000 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 25.0MHz IN 24.0SEC 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	18	E B 15	E B 14	20	E B 13	22	30	36	67	59	U Y 42	E B 48	62	94	48	75	74	A A 132	74	53	20	43	16	21
2	48	24	16	27	20	26	46	59	77	78	81	U Y 93	45	E B 77	54	82	A A 179	A A 131	A A 182	43	55	47	47	44
3	47	48	46	30	34	24	45	A A 108	78	A A 160	56	E B 48	76	60	66	67	74	48	44	42	72	A A 64	62	31
4	16	E B 14	E B 15	16	20	30	36	65	62	64	51	46	E B 61	47	49	64	A A 126	50	46	60	50	70	E B 15	47
5	20	48	58	46	24	25	50	A A 140	A A 170	A A 122	68	50	69	50	U Y 40	47	40	37	38	19	25	79	52	65
6	24	33	22	E B 14	E B 15	23	30	62	44	64	63	A A 123	A A 109	64	A A 107	43	39	52	52	A A 84	77	75	78	46
7	28	15	37	22	18	27	48	50	A A 95	A A 86	A A 126	66	A A 102	78	65	72	51	46	44	43	41	21	28	16
8	29	17	17	21	17	23	34	45	56	60	A A 99	U Y 62	A A 79	E B 65	59	60	U Y 45	54	44	43	48	46	24	25
9	16	E B 21	23	17	29	28	41	A A 55	A A 58	A A 55	A A 86	A A 60	A A 64	43	A A 59	A A 73	51	A A 79	A A 103	A A 89	34	42	23	20
10	44	41	17	16	16	24	27	56	A A 124	A A 139	74	53	72	U Y 58	A A 177	56	42	48	29	26	27	29	29	20
11	24	16	E B 14	21	16	27	34	44	54	A A 75	A A 69	A A 59	A A 86	A A 75	A A 76	A A 76	37	U Y 39	29	18	31	28	E B 14	E B 16
12	E B 16	E B 16	E B 14	E B 14	E B 15	26	32	37	39	G	G	A A 56	A A 68	55	A A 69	U Y 50	42	37	25	E B 17	E B 14	37	54	A A 80
13	65	22	E B 15	18	E B 12	26	37	72	75	A A 100	48	49	50	U Y 58	U Y 62	46	58	U Y 70	A A 96	80	32	19	E B 12	29
14	18	22	E B 14	18	E B 16	23	35	63	63	78	60	A A 90	A A 86	A A 116	A A 126	U Y 50	44	U Y 44	A A 105	34	79	34	31	49
15	16	20	E B 14	E B 16	16	24	33	65	64	57	81	A A 125	A A 97	U Y 52	86	56	67	62	67	70	58	28	17	20
16	46	24	31	42	38	36	30	37	65	A A 116	A A 85	U Y 58	R	E B 48	E B 46	63	65	35	38	A A 111	24	44	46	21
17	19	20	20	18	E B 16	22	34	52	47	60	48	52	78	U Y 57	U Y 59	G	44	51	43	42	52	E B 16	21	44
18	40	32	32	29	16	23	42	70	A A 106	U Y 63	A A 148	A A 144	49	50	62	44	64	71	42	47	A A 128	22	16	74
19	20	14	15	E B 15	16	27	42	51	49	67	E B 48	U Y 48	85	G	E B 44	G	44	46	57	39	45	19	16	42
20	35	23	18	18	E B 15	24	46	54	73	87	57	64	48	53	47	44	43	46	51	57	49	23	50	20
21	22	E B 15	18	E B 15	E B 15	24	34	55	70	A A 100	A A 85	A A 92	63	64	73	A A 179	42	37	38	18	24	A A 89	28	22
22	23	20	19	19	16	23	32	39	40	46	48	48	E B 50	63	A A 94	44	52	U Y 41	46	52	62	66	29	42
23	47	51	35	20	43	45	61	91	A A 126	A A 100	86	76	93	62	50	48	73	66	50	42	30	40	26	38
24	52	A A 96	44	34	38	41	60	44	43	55	78	E B 44	58	E B 50	U Y 46	E B 46	47	48	44	64	52	44	48	47
25	16	19	E B 15	17	19	24	34	51	U Y 74	51	63	A A 97	71	88	E B 46	G	46	63	46	57	65	24	52	41
26	40	28	46	34	22	24	33	60	44	64	51	U Y 60	A A 137	78	49	41	40	33	32	54	23	36	28	41
27	34	19	44	15	16	24	32	39	40	A A 145	A A 91	67	A A 94	56	62	47	38	73	45	A A 86	35	50	46	40
28	39	34	16	E B 14	26	G	32	65	59	59	70	U Y 50	78	61	A A 159	80	100	73	62	58	26	A A 109	49	46
29	19	16	17	18	E B 15	22	42	51	63	50	A A 131	A A 125	A A 175	49	41	42	U Y 58	50	68	34	54	35	27	20
30	45	36	38	E B 15	E B 16	23	32	40	52	A A 68	50	A A 94	U Y 43	49	U Y 37	40	43	44	39	26	26	33	39	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	30	30	30	30	30	30	30	30	30	30	30	30	29	30	30	30	30	30	30	30	30	30	30	30
MED	26	22	18	18	16	24	34	54	63	66	68	60	72	57	59	49	46	49	46	45	43	38	28	40
U Q	44	33	35	22	22	27	42	65	A A 75	A A 100	A A 85	A A 92	A A 90	65	A A 73	67	65	66	62	60	55	50	48	46
L Q	19	16	E B 15	E B 16	E B 16	23	32	44	49	59	51	50	60	50	47	44	42	44	39	34	26	28	21	21

JUN. 2000 fbEs (0.1MHz) COMMUNICATIONS RESEARCH LABORATORY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

JUN.2000 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 25.0MHz IN 24.0SEC IN MANUAL SCALING

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	16	15	14	14	13	16	16	15	14	20	37	48	39	37	28	21	22	14	14	16	15	15	15	16
2	16	14	15	14	12	15	16	16	16	17	35	36	36	77	44	39	48	16	14	15	16	15	16	15
3	12	16	15	15	15	16	15	22	36	46	44	48	41	35	30	24	43	15	15	15	15	15	12	15
4	15	14	15	15	12	16	15	15	21	16	26	35	61	43	45	37	21	16	14	15	14	15	15	16
5	15	13	14	13	14	14	15	24	22	41	41	41	41	28	22	19	20	15	14	12	14	16	15	14
6	15	15	15	14	15	16	16	16	21	17	39	24	40	36	30	18	18	18	16	15	16	16	14	16
7	16	14	13	15	12	16	16	21	21	22	42	41	39	22	38	27	20	15	16	16	17	16	12	15
8	15	16	16	16	15	16	16	16	21	22	42	44	42	65	29	23	21	15	16	16	15	16	16	15
9	14	21	14	14	13	14	15	17	19	21	24	29	25	27	43	23	18	16	14	16	15	15	15	16
10	15	14	15	15	16	16	16	18	30	20	42	40	48	43	41	37	18	20	14	14	16	15	14	16
11	15	15	14	15	13	16	15	18	22	24	44	41	44	41	41	22	23	16	16	13	16	15	14	16
12	16	16	12	14	15	14	15	20	20	23	26	35	34	26	51	38	22	18	14	17	14	14	16	15
13	15	15	15	14	12	15	15	16	17	30	32	40	38	42	42	27	20	18	14	16	14	15	12	13
14	16	15	14	12	16	15	15	16	16	20	24	40	37	34	42	35	22	19	16	15	14	14	16	15
15	15	15	14	16	15	14	13	16	18	18	21	41	40	42	28	36	20	19	14	13	15	16	15	15
16	14	14	15	15	16	16	16	15	20	38	20	40	44	48	46	21	16	16	16	16	15	15	13	13
17	15	16	16	14	16	16	14	14	16	22	41	41	48	32	30	19	18	14	14	14	14	16	14	15
18	16	13	14	16	15	14	15	16	22	40	30	82	42	28	44	21	18	13	14	14	13	12	14	14
19	14	14	14	15	16	12	16	15	19	18	48	25	43	23	44	22	19	16	16	15	15	15	12	15
20	15	13	15	13	15	14	15	16	21	18	21	24	41	35	22	28	25	18	16	14	16	13	15	16
21	16	15	16	15	14	17	14	14	19	17	42	27	41	39	34	20	16	17	16	13	15	16	16	15
22	13	14	15	14	15	16	14	18	19	21	28	27	50	33	28	21	18	22	15	15	14	12	15	14
23	15	16	14	15	16	14	16	15	20	23	23	33	47	36	24	35	21	26	14	16	14	15	16	12
24	12	16	15	14	15	16	15	17	22	27	35	44	28	50	24	46	21	14	15	12	16	15	16	16
25	14	16	15	13	16	16	16	18	20	18	40	40	28	29	46	23	21	25	16	13	14	15	15	16
26	16	14	13	16	13	12	16	14	20	24	27	42	38	36	42	26	21	15	14	15	14	15	16	14
27	14	14	16	13	12	16	16	16	17	22	26	40	36	34	35	25	17	15	16	16	16	16	14	16
28	15	15	14	14	15	18	16	14	22	23	22	30	24	42	28	21	13	14	13	14	15	15	16	14
29	16	13	14	14	15	16	16	17	18	21	33	26	36	23	28	22	16	19	15	14	15	16	14	16
30	15	15	15	15	15	15	15	18	19	21	21	24	28	25	22	22	17	14	14	13	14	16	16	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	30	30	30	30	30	30	30	30	30
MED	15	15	15	14	15	16	15	16	20	22	32	40	40	36	34	23	20	16	14	15	15	15	15	15
U Q	16	16	15	15	15	16	16	18	21	24	41	41	43	42	43	35	21	18	16	16	16	16	16	16
L Q	14	14	14	14	13	14	15	15	18	18	24	29	36	28	28	21	18	15	14	14	14	15	14	14

JUN.2000 fmin (0.1MHz) COMMUNICATIONS RESEARCH LABORATORY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

JUN. 2000 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 25.0MHz IN 24.0SEC IN MANUAL SCALING

H / D	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	F	285	R 294	282	R 288	R 282	297	295	295	253	R 261	253	253	273	274	279	R 283	A	280	R 222	R	287	284	F
2	R 267	266	269	288	R 300	284	R 315	315	288	R 252	257	R 262	271	269	275	275	A	A	A	311	R 332	F	F	F
3	F	F	F	F	R 296	F 270	293	A	R 263	A	260	267	263	269	266	270	284	293	299	R 298	R 286	A	R 273	F 261
4	R 266	R 293	F 268	R 269	275	295	286	R 284	H 289	R 288	270	259	268	273	292	292	A	290	277	R	F 271	305	F	F
5	F 271	F	F	F	F	R 307	309	A	A	A	258	260	262	273	273	278	268	266	292	296	R 285	R 285	R 263	249
6	R 268	F 287	323	R 263	259	268	280	281	273	282	265	A	A	R 282	A	283	287	300	R	A	262	R 269	R 276	268
7	R 263	270	280	261	268	276	293	302	A	A	A	274	A	R 276	282	R 279	284	288	283	277	278	275	270	258
8	263	R 266	266	R 277	284	287	283	290	291	256	A	269	A	273	273	265	260	280	276	270	R 264	253	R 246	284
9	R 269	R 243	269	285	249	F	239	A	A	A	A	A	A	R	A	A	259	A	A	A	R 265	R 252	F 264	F
10	R 271	F	R 290	F	R 279	306	297	278	A	A	273	253	251	256	A	268	273	279	290	269	R 263	250	249	R 275
11	R 282	F	287	R	F	F 250	291	260	268	A	A	A	A	A	A	A	R 275	259	R 274	R	252	R	250	R 245
12	R 256	274	261	246	F 244	247	252	248	241	R 267	Y	A	A	R	A	R 265	244	R 271	266	268	263	R	R 263	A
13	R 255	248	262	259	271	269	302	297	259	A	244	254	256	260	R 262	260	270	275	A	287	261	252	247	257
14	R 268	273	269	281	291	269	267	R 265	R 266	232	252	A	A	A	A	R 266	268	R 267	A	R 262	R 252	254	R	F
15	259	259	258	268	271	273	284	277	284	261	R 257	A	A	257	251	262	274	282	280	268	248	R 243	254	276
16	R 279	R 278	291	260	264	269	269	267	323	A	A	247	R	262	260	284	276	286	293	A	R 269	F 255	251	R 263
17	F	R 261	258	R 272	F 271	303	323	285	257	249	248	257	R 264	260	264	274	274	273	271	R 273	267	263	R 257	252
18	F	281	R 277	264	R 266	F	R 291	294	A	254	A	A	246	260	259	259	R 274	287	293	265	A	263	F	F 259
19	278	264	271	F	240	261	277	254	285	303	266	257	R 258	259	262	272	279	295	276	261	263	264	265	F
20	F	268	R 262	R 261	F 272	F	273	284	282	277	254	259	J R 254	264	270	273	265	273	280	R 290	271	256	263	261
21	265	R 273	274	277	281	291	278	292	278	A	A	A	255	269	R 266	A	278	285	287	290	R 291	A	R	R
22	R 245	F	R 271	266	F	F 281	258	293	281	267	272	268	268	275	A	274	279	282	284	279	270	256	253	R 252
23	R 250	R	F	R 279	F	V 274	278	290	A	A	250	256	R 255	260	258	271	261	269	284	R 297	259	251	R	R 261
24	248	A	F 266	288	R 261	F 263	243	275	258	254	R	265	286	265	281	278	269	261	R 272	R 292	265	R 265	F	R 269
25	R 270	280	286	283	283	289	290	280	291	R	R 262	A	R 271	266	277	280	283	282	271	274	R	F	R 243	R 278
26	F	F	F	273	R 273	268	269	302	272	244	R 258	254	A	257	251	266	262	264	280	258	R	R 258	248	F
27	R 252	R 269	R 284	255	249	R 258	269	263	232	A	A	281	A	291	289	292	289	289	291	A	259	R 262	280	269
28	R	F	F	284	270	272	266	268	258	262	251	274	R 269	271	A	272	R 267	R 290	294	292	R	A	272	R 256
29	R	R 275	271	266	282	F 318	328	305	258	253	A	A	A	258	265	268	275	277	R 269	293	R	R 259	260	U R 256
30	R 254	F 267	R 285	R 273	F	F	288	307	328	A	287	A	277	275	280	282	281	288	289	284	282	259	254	269
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	22	21	25	25	25	26	30	27	24	17	19	19	18	26	22	27	28	27	25	24	24	23	23	21
MED	R 266	270	271	272	271	274	284	284	276	256	258	259	262	268	268	273	274	282	280	278	265	259	260	261
U Q	R 270	279	286	282	282	289	293	295	288	272	266	268	269	273	277	279	280	288	290	292	R 274	265	270	269
L Q	R 255	265	266	262	262	268	269	268	258	252	252	254	255	260	262	266	268	271	275	268	262	253	250	R 256

JUN. 2000 M(3000)F2 (0.01) COMMUNICATIONS RESEARCH LABORATORY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

JUN. 2000 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 25.0MHz IN 24.0SEC IN MANUAL SCALING

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1						L	L	L	A	A	U L 328	U L 347	A	A	R 321	A	A	A	A	A				
2								A	A	A	A	A	L 333	B	A	A	A	A	A					
3								A	A	A	A	L 315	A	A	A	A	A	A						
4							L	A	A	A	L 347	L 329	B	U L 361	L 334	A	A	A	A					
5							A	A	A	A	A	L	A	L 355	347	L	L	L	A					
6						L	L	A	351	A	A	A	A	A	A	L 344	L	A	A	A				
7							A	A	A	A	A	A	A	A	A	A	A	L	A					
8							L 323	L	A	A	A	A	A	B	A	A	L	A	A					
9						A	A	A	A	A	A	A	A	U R 409	A	A	A	A	A	A				
10							L	A	A	A	A	U L 326	A	A	A	A	L 317	A	L					
11							L	L	A	A	A	A	A	A	A	A	U L 333	U L 294	U L 318					
12						L	L 320	356	U L 358	R 363	Y	A	A	A	A	R 306	U L 338	U L 327	U L 320					
13							L	A	A	A	U L 339	U L 347	U L 330	A	A	U L 321	A	A	A	A				
14							L	A	A	A	A	A	A	A	A	A	U L 341	A	A					
15							L	A	A	L	A	A	A	R 300	A	A	A	A	A					
16						A	L	333	A	A	A	A	R	U L 351	336	A	A	L	A	A				
17							L	A	L	U L 302	U L 347	R 337	A	A	A	337	U L 337	A	A					
18						L	L	A	A	A	A	A	U L 325	U L 322	A	U L 340	A	A	A					
19					L			L	L	A	L 365	U L 338	A	344	U L 349	L 326	L	L	A					
20								A	A	A	U L 337	A	U L 345	U L 299	L 336	U L 327	L	A	A					
21							L	A	A	A	A	A	A	A	A	A	L 337	L 331	A					
22						L	L	L 363	L	U L 366	U L 350	U L 372	U L 336	A	A	331	A	L	A					
23						A	A	A	A	A	A	A	A	A	320	U L 325	A	A	A					
24						A	A	L 326	L	A 285	A	U L 329	A	U L 312	U L 332	L	U L 327	L	A					
25								L	A	R 328	A	A	A	A	R 327	U L 358	L	A	A					
26								A	L 358	A	R 335	A	A	A	U L 321	349	339	L 326	L					
27						L	L	333	U L 329	A	A	A	A	A	A	L	L	A	A	A				
28						L	U L 336	A	A	A	A	A	A	A	A	A	A	A	A					
29							A	A	A	U L 347	A	A	A	337	U L 334	348	A	A	A					
30						L	L	L	A	A	R 346	A	U L 352	L	U L 327	L 350	L	L	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							3	5	4	6	9	9	6	10	12	13	8	4	2					
MED							L 323	333	L 354	338	U L 346	U L 337	U L 334	U L 340	L 333	L 337	U L 337	L 326	U L 319					
U Q							U L 336	360	L 358	363	U L 348	U L 347	U L 345	U L 355	336	348	U L 338	L 329						
L Q							L 320	330	340	302	U L 336	L 328	U L 330	U L 312	324	L 326	U L 330	L 310						

JUN. 2000 M(3000)F1 (0.01) COMMUNICATIONS RESEARCH LABORATORY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

JUN. 2000 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 25.0MHz IN 24.0SEC 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						304	284	288	278	E A 298	366	394	388	E A 388	342	350	E A 332	A	E A 350	E A 468				
2								270	E A 350	A	E A 434	E A 488	352	E B 348	328	E A 364	A	A	A					
3								A	E A 394	A	346	354	E A 360	350	350	336	324	286						
4							264	294	258	298	360	374	370	348	322	304	A	320	294					
5							270	A	A	A	E A 360	380	374	330	324	334	342	334	284					
6						326	326	E A 370	372	E A 364	E A 398	A	A	E A 394	A	342	332	304	E A 304	A				
7							276	290	A	A	A	364	A	E A 374	338	E A 350	332	314	294					
8							338	296	330	418	A	396	A	372	386	400	384	318	300					
9						Q 366	484	A	A	A	A	A	A	R	A	A	476	A	A	A				
10							256	E A 344	A	A	E A 404	392	E A 434	412	A	368	340	318	314					
11							300	320	394	A	A	A	A	A	A	A	438	432	372					
12						358	372	404	530	640	Y	A	A	R 542	A	454	482	396	376					
13							294	E A 324	E A 446	A	456	414	414	402	E A 418	422	384	E A 382	A	E A 374				
14							316	E A 342	366	A	440	A	A	A	A	E A 438	404	368	A					
15							312	308	308	366	E A 506	A	A	418	E A 442	382	340	308	E A 334					
16						292	322	346	292	A	A	504	R	450	430	376	E A 394	332	298	A				
17							254	288	398	434	442	404	E A 410	390	378	358	338	356	310					
18						284	304	302	A	414		A	A	444	440	428	420	E A 386	E A 366	306				
19					378			378	318	296	326	406	E A 504	408	394	360	316	318	316					
20								268	286	E A 366	424	368	392	378	352	346	372	336	318					
21							278	316	E A 402	A	A	A	E A 454	420	E A 492	A	364	334	310					
22						298	356	304	304	328	366	394	390	368	A	368	366	342	320					
23						E A 298	300	E A 358	A	A	E A 466	E A 390	E A 506	374	388	346	E A 382	346	310					
24						E A 352	420	342	278	436	E A 450	354	334	386	342	328	372	374	304					
25								338	E A 322	E A 380	368	A	E A 366	E A 450	360	338	344	330	334					
26								290	328	E A 392	410	386	A	E A 394	406	346	364	340	304					
27						358	360	444	526	A	A	378	A	352	336	344	332	354	296	A				
28						322	350	E A 386	E A 426	412	E A 434	358	E A 408	352	A	372	A	314	308					
29							250	290	E A 394	364	A	A	A	388	350	340	356	306	340					
30						280	292	304	282	A	376	A	380	382	354	342	336	312	292					
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	12	24	27	24	16	20	19	18	27	22	27	27	27	25	2				
MED					378	307	302	U 305	U 319	369	U 386	388	U 377	383	354	348	U 353	332	308	E A 421				
U Q						355	344	346	396	416	441	404	E A 434	412	406	376	384	356	327					
L Q						295	277	290	298	346	366	368	370	368	342	342	336	314	299					

JUN. 2000 h'F2 (KM) COMMUNICATIONS RESEARCH LABORATORY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

JUN. 2000 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 25.0MHz IN 24.0SEC 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 304	274	258	260	272	252	240	220	A	A	E A 226	248	A	A	E A 308	A	A	A	A	A	256	304	252	308
2	E A E A 350	312	300	270	254	256	266	A	A	A	A	A	220	B	A	A	A	A	A	256	250	E A 386	Q 362	Q 346
3	Q 354	Q 350	306	Q 258	Q 284	246	254	A	A	A	A	E B 288	A	A	A	A	A	A	278	E A 274	E A 360	A	E A 366	Q 362
4	Q 308	256	284	304	292	254	E A 244	A	A	A	E A 262	E A 272	B	E A 252	E A 298	A	A	A	A	E A 318	E A 308	300	264	Q 348
5	Q 308	310	Q 304	Q 324	Q 250	230	A	A	A	A	A	E A 284	A	E A 268	232	E A 292	E A 256	E A 256	A	254	E A 260	E A 444	A 366	E A 430
6	E A 326	288	236	256	E A 324	266	258	A	E A 258	A	A	A	A	A	A	E A 254	E A 280	A	A	A	E A 454	E A 436	E A 418	E A 352
7	E A 326	298	324	E A 310	296	270	A	A	A	A	A	A	A	A	A	A	A	A	A	E A 292	E A 298	278	E A 290	310
8	E A 346	298	304	298	278	248	236	A	A	A	A	A	A	B	A	A	E A 346	A	A	E A 310	E A 330	E A 382	E A 364	E A 282
9	276	374	E A 294	276	E A 330	A	A	A	A	A	A	A	A	212	A	A	A	A	A	A	E A 364	E A 378	E A 362	340
10	E A 344	E A 344	E A 252	282	302	246	228	A	A	A	A	E A 316	A	A	A	A	E A 252	A	E A 266	280	E A 294	E A 336	A 356	318
11	284	282	268	Q 248	312	E A 270	E A 260	E A 280	A	A	A	A	A	A	A	A	222	E A 254	E A 272	308	368	E A 342	326	342
12	306	274	280	330	360	E A 312	E A 282	240	216	E B 262	Y	A	A	A	A	A	232	E A 258	228	288	296	E A 354	E A 388	A
13	E A E A 496	E A 354	E A 320	E A 318	292	240	E A 252	A	A	A	220	E A 250	E A 246	A	A	E A 270	A	A	A	A	E A 280	310	328	E A 340
14	E A 320	302	270	242	244	246	242	A	A	A	A	A	A	A	A	A	E A 278	A	A	E A 296	A	E A 360	342	E A 372
15	304	312	310	280	280	256	240	A	A	E A 282	A	A	A	E A 336	A	A	A	A	A	E A 384	E A 386	E A 370	E A 312	288
16	E A 316	290	256	E A 342	E A 354	A	242	244	A	A	A	A	R	E B 260	E B 254	A	A	252	A	A	304	E A 400	E A 396	338
17	E A 324	320	E A 320	294	288	248	E A 240	A	E A 260	E A 368	E A 236	E A 248	A	A	A	226	E A 260	A	A	E A 300	E A 324	288	294	E A 354
18	E A 340	310	282	E A 300	286	264	E A 268	A	A	A	A	A	E A 278	E A 282	A	U R 272	A	A	A	E A 320	A	294	Q 324	E A 412
19	E A 274	286	316	322	346	258	E A 258	E A 326	E A 302	A	E A 224	E A 258	A	E B 268	224	U R 272	E A 296	A	A	E A 296	E A 334	E A 316	292	E A 334
20	E A E A 320	E A 304	E A 314	E A 304	298	262	E A 280	A	A	A	E A 292	A	E A 250	A	E A 278	E A 266	E A 268	A	A	E A 302	E A 308	E A 286	E A 362	E A 304
21	308	294	272	282	282	254	E A 240	A	A	A	A	A	A	A	A	A	E A 278	E A 262	A	278	252	A	E A 346	E A 338
22	E A 326	304	282	E A 314	306	262	228	226	234	E A 224	E A 234	E A 230	E B 266	A	A	E A 254	A	E A 304	A	E A 308	E A 368	E A 424	E A 348	E A 386
23	E A 392	374	E A 288	268	E A 324	A	A	A	A	A	A	A	A	A	E A 314	E A 300	A	A	A	272	E A 284	E A 362	E A 316	E A 320
24	E A 376	A	E A E A 326	E A E A 278	E A 332	A	A	E A 286	E A 234	A	A	216	A	E A E A 260	E A E A 274	E B 266	E A 288	A	A	E A E A 292	E A E A 332	E A E A 348	E A E A 382	E A E A 340
25	296	278	238	250	266	238	234	E A 306	A	E A 286	A	A	A	A	H 278	U R 236	E A 292	A	A	E A 324	E A E A 322	E A E A 308	E A E A 372	E A E A 310
26	E A E A 318	E A 306	E A E A 308	E A E A 288	286	262	244	A	228	A	E A 266	A	A	A	E A 290	224	E A 240	242	E A 288	E A 332	E A 308	E A 334	E A 348	E A 324
27	350	316	304	288	304	272	E A 274	238	224	A	A	A	A	A	A	E A 246	E A 236	A	A	A	E A 316	E A 352	E A 316	E A 294
28	E A 348	Q 374	254	272	E A 304	264	246	A	A	A	A	A	A	A	A	A	A	A	A	E A E A 308	E A 272	A	E A E A 324	E A 388
29	E A 296	284	286	316	E A 278	244	A	A	A	E A 278	A	A	A	E A 278	206	E A 238	A	A	A	270	E A 318	E A 316	E A 330	E A 332
30	Q 388	336	E A 294	254	E B 252	248	232	E A 250	A	A	E A 296	A	216	E A 302	E B 258	E A 242	E A 268	A	A	272	262	E A 314	E A 356	E A 342
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	29	30	30	30	26	24	10	8	6	9	10	6	10	12	15	16	7	5	24	28	27	30	29
MED	E A 322	301	281	277	286	254	241	247	227	E A 280	E A 236	E A 254	E 248	E A 268	E 276	E A 254	E A 268	E A 256	E A 272	E A 296	E A 308	E A 342	E A 347	E A 340
U Q	E A 348	328	E A 308	310	E A 312	264	E A 259	E A 286	E A 259	E A 286	E A 279	E A 284	E 266	E A 282	E A 294	272	E A 284	E A 262	283	E A 309	E A 333	E A 378	E A 364	E A 353
L Q	306	287	270	268	278	246	240	238	226	E 262	E A 225	E A 248	220	E A 260	243	238	E A 246	252	247	276	282	308	316	314

JUN. 2000 h'F (KM) COMMUNICATIONS RESEARCH LABORATORY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

JUN. 2000 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 25.0MHz IN 24.0SEC IN MANUAL SCALING

H / D	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1						124	120	112	A	112	B	B	B	B	120	114	114	112	114	B				
2						122	116	114	116	110	B	B	B	B	B	B	B	122	122	B				
3						A	110	120	B	B	B	B	B	A	A	A	B	A	A	B				
4						132	120	114	110	112	116	B	B	B	B	B	116	116	118	B				
5						116	116	112	116	B	B	B	B	A	A	110	116	116	116	B				
6						118	132	112	112	112	B	A	A	B	A	A	112	112	120	B				
7						126	114	114	110	112	B	B	B	108	B	112	110	A	A	B				
8						116	116	112	112	116	B	B	B	B	118	116	118	118	120	B				
9						128	116	110	112	116	112	120	118	118	B	120	112	120	120	B				
10						A	A	112	114	114	B	B	B	B	B	B	114	A	112	B				
11						A	112	114	114	112	B	B	B	B	B	110	120	114	116	B				
12						126	116	116	112	112	116	114	116	112	B	B	120	116	B	B				
13						122	108	118	110	114	116	B	B	B	B	114	110	110	116	B				
14						136	112	108	112	110	112	B	A	A	B	122	118	114	118	B				
15						A	114	122	108	112	110	B	B	B	114	B	114	A	A	B				
16					B	A	A	114	112	114	108	B	B	B	B	114	118	126	120	B				
17					B	118	112	110	110	108	B	B	B	A	112	114	124	114	116	B				
18					B	132	114	112	114	B	118	B	B	110	B	110	118	110	126	B				
19					B	118	114	112	112	108	B	112	B	112	B	114	112	116	118	B				
20					B	124	116	110	112	110	110	110	B	A	A	112	A	122	122	B				
21					B	140	112	114	108	108	B	110	B	B	A	A	A	116	114	B				
22					B	A	A	A	110	110	A	A	B	118	114	108	114	120	120	B				
23					B	A	A	110	112	114	A	110	A	A	112	B	A	A	A	B				
24					B	A	114	110	112	116	118	B	120	B	114	B	116	114	116	B				
25					B	110	114	110	110	108	B	B	A	114	B	116	116	120	120	B				
26					B	A	116	110	112	114	118	B	A	A	B	116	116	108	116	B				
27					B	142	112	108	114	112	108	B	A	A	A	A	112	112	118	B				
28					BE	B 142	112	110	118	114	106	114	A	B	114	A	A	A	A	B				
29					B	136	114	112	112	114	114	A	A	A	A	A	A	A	A	B				
30					BE	A 154	114	114	112	112	110	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						21	26	29	28	27	15	7	3	7	8	16	22	22	22					
MED						125	114	112	112	112	112	112	118	112	114	114	116	116	118					
U Q						136	116	114	113	114	116	114	120	118	116	116	118	120	120					
L Q						118	112	110	110	110	110	110	116	110	113	111	112	112	116					

JUN. 2000 h'E (KM) COMMUNICATIONS RESEARCH LABORATORY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

JUN. 2000 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 25.0MHz IN 24.0SEC 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	106	B	B	100	110	138	130	124	112	108	114	B	118	106	134	122	120	112	108	108	108	108	108	102
2	102	100	106	102	104	120	112	110	106	106	106	106	112	B	136	130	118	116	112	110	106	106	108	102
3	100	100	98	100	98	124	118	112	112	110	112	B	104	106	104	100	102	100	98	114	112	110	110	106
4	106	104	104	104	120	122	116	108	110	108	108	110	B	124	146	128	118	120	112	110	110	106	110	104
5	104	100	98	94	94	126	118	112	106	106	110	108	108	106	106	118	130	114	112	110	110	110	110	106
6	106	100	102	102	102	126	132	112	118	108	108	104	104	104	104	110	154	124	116	112	112	108	106	106
7	102	100	98	100	100	126	120	114	112	110	106	108	102	104	108	102	102	104	100	102	98	114	112	110
8	110	106	108	106	108	122	142	124	122	122	114	122	122	B	122	118	128	116	114	114	106	104	108	112
9	116	B	130	122	128	126	122	120	120	118	110	114	112	124	132	128	118	116	114	106	106	108	108	114
10	118	104	104	104	102	104	114	120	116	116	120	116	118	120	110	114	120	110	110	148	114	110	106	108
11	104	106	110	102	100	106	134	128	124	120	118	116	112	114	116	112	132	120	114	116	118	116	B	110
12	108	B	108	112	B	144	130	124	124	G	G	124	124	118	118	114	118	112	110	B	B	110	108	108
13	104	100	102	104	104	140	132	116	110	108	114	112	112	112	110	110	116	112	108	110	110	110	110	104
14	102	102	104	104	110	150	132	114	108	106	106	102	104	104	110	124	114	150	112	122	102	118	108	108
15	100	102	116	B	102	156	130	124	118	112	112	112	110	112	122	124	112	106	102	98	100	102	104	104
16	106	106	108	106	106	106	110	132	110	106	108	112	114	B	B	120	118	132	122	118	108	112	110	106
17	106	100	92	96	100	144	122	110	114	108	114	112	106	108	112	G	140	124	118	112	106	108	104	98
18	116	102	108	112	128	162	126	114	110	112	106	108	114	116	130	142	124	116	116	114	110	110	118	114
19	110	108	108	100	100	136	130	122	120	116	B	126	112	G	B	G	128	120	112	112	110	112	108	106
20	104	104	102	104	116	130	118	114	112	108	108	108	110	106	108	138	134	120	114	110	110	108	108	104
21	102	100	98	112	106	138	130	120	114	116	112	106	108	108	104	102	110	128	122	116	94	108	106	106
22	110	102	102	102	106	106	108	108	118	108	104	108	B	120	114	132	118	120	116	110	108	106	106	108
23	102	104	100	112	100	96	118	116	112	106	104	108	106	104	110	106	102	100	96	96	98	98	96	112
24	120	106	108	106	104	104	122	122	128	114	124	126	124	B	130	B	124	118	114	108	108	110	108	106
25	106	106	106	102	96	140	132	116	112	110	108	106	130	110	B	G	114	120	114	104	106	106	116	108
26	98	100	96	96	100	132	136	118	116	110	110	110	104	106	114	120	118	110	120	112	104	102	100	104
27	100	102	98	100	110	150	128	122	120	106	106	108	102	104	104	110	142	116	114	110	112	112	110	106
28	102	106	108	112	104	G	144	120	116	114	110	110	106	112	106	104	102	100	100	100	100	114	104	106
29	102	102	102	106	120	138	116	114	112	114	106	104	116	108	108	106	104	100	100	100	98	98	96	102
30	104	102	96	98	96	104	148	128	118	114	112	102	106	106	104	100	100	102	100	100	120	100	106	106
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	27	29	29	29	29	30	30	30	29	28	28	28	25	27	26	30	30	30	29	29	30	29	30
MED	104	102	104	104	104	126	127	117	114	110	110	109	111	108	110	116	118	116	112	110	108	108	108	106
U Q	108	106	108	106	110	140	132	122	118	114	113	113	115	115	122	124	128	120	114	114	110	110	110	108
L Q	102	100	98	100	100	113	118	114	112	108	106	107	106	106	106	106	112	110	108	105	103	106	106	104

IONOSPHERIC DATA STATION Kokubunji

JUN. 2000 TYPES OF Es 135°E MEAN TIME (G.M.T. + 9 H)

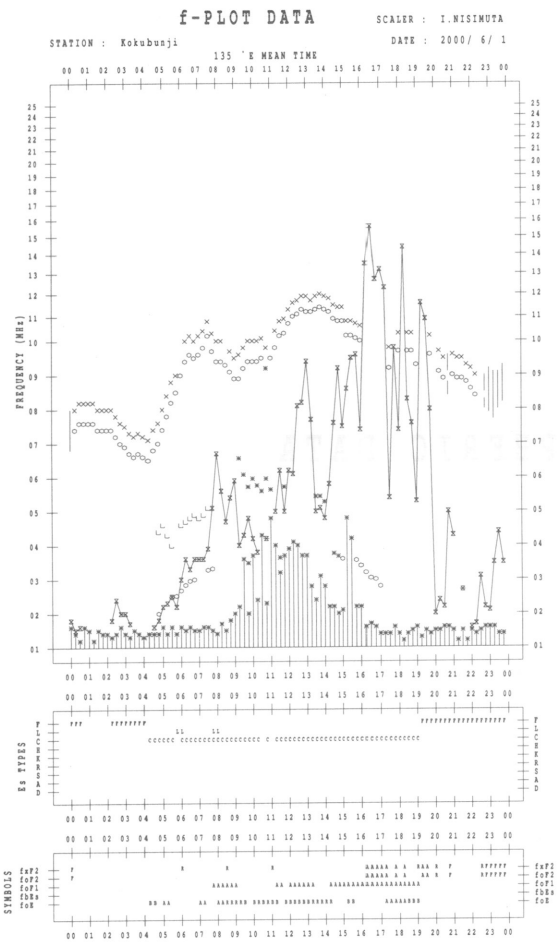
LAT. 35°42.4'N LON. 139°29.3'E SWEEP 1.0MHz TO 25.0MHz IN 24.0SEC IN MANUAL SCALING

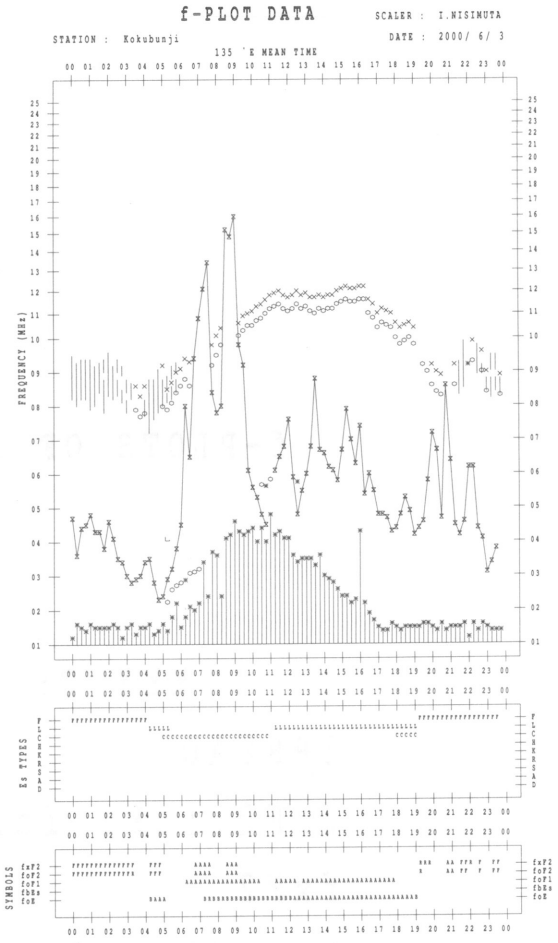
D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	F2			F4	F1	C2	CL11	C1	CL21	C2	C1		C1	C2	C1	C2	C3	C4	C4	C5	F3	F3	F2	F2
2	F3	F3	F2	F3	F3	C2	C3	C3	C2	C2	C2	C2	C1		C1	C2	C1	CL41	C4	C4	F3	F3	F4	F4
3	F4	F4	F5	F5	F3	CL11	C1	C3	C2	C3	C1		L2	L1	L2	L2	L2	L2	LC22	CL23	FF33	FF32	F6	F5
4	F1	F1	F1	F1	F3	C2	C2	C3	C3	C2	C1	C1		C1	C1	C2	C2	C3	C3	C6	F4	F4	F2	F3
5	F4	F4	F4	F3	F3	CL31	C2	C3	C2	C2	C2	C1	L1	L1	L1	C1	C1	C2	C3	C2	F2	F4	F4	F4
6	F4	F5	F2	F2	F2	C1	CL12	C3	C1	C2	C2	L2	L2	C2	L2	L1	H1	C5	C4	C5	F4	F4	F3	F3
7	F4	F2	F3	F2	F2	C2	C2	C3	C2	C2	C2	C2	C2	C2	C1	C2	C2	L2	L2	L5	F4	FF23	FF13	F2
8	F3	F2	F2	F4	F1	C1	H1	C1	C2	C2	C2	C2	C2		C2	C3	C1	C2	C3	C4	F3	F4	F3	F3
9	F2		F4	F5	FF21	C3	C2	C2	C1	C1	C2	C1	C1	C1	C2	C2	C2	C2	C3	C4	FF41	F3	F3	F6
10	FF14	F4	F3	F2	F2	L1	L1	C2	C2	C2	C1	C1	C1	C1	C2	C1	C1	L1	C2	HC11	FF31	F3	F4	F2
11	F3	F1	F1	F3	F2	L2	H1	C1	C2	C1	C2	C2	C2	C1	C1	C2	C1	C1	C2	C2	F4	F3		F1
12	F1		F2	F1		H2	C1	C1	C1			C1	C1	C1	C1	C2	C1	C2	C1			F3	F5	F5
13	F6	F3	F2	F2	F1	H3	H2	CL21	C2	C2	C1	C1	C1	C1	C2	C1	C2	C3	C3	C4	F3	F2	F2	F3
14	F4	F2	F2	F3	F1	HL11	C1	C2	C2	C2	C1	C2	L2	L2	L2	C1	C1	H1	C4	CL23	F4	F4	F4	F4
15	F2	F1	F1		F2	HL12	C1	CL21	C2	C2	C2	C1	C2	C1	CC11	CC11	C2	L3	L3	L4	F4	F3	F2	F2
16	F2	F4	F4	F4	L6	L4	L1	C1	C2	C2	C1	C1	C1			C2	C2	CL11	CL32	CL43	F3	F6	F4	F3
17	F2	F2	F3	F2	L1	H1	C1	C2	C2	C2	C1	C1	L1	L1	C1		HL11	C2	C2	C3	F3	F3	F2	F3
18	FF13	F3	FF22	FF42	C1	H1	C2	C2	C3	C1	C3	C1	C1	C1	C1	C1	CL21	C3	CL32	CL42	F3	F3	FF24	F5
19	F3	F2	F2	F2	L2	C2	C2	C2	C2	C2		C1	C2				C1	CL21	C3	C5	F3	F2	F2	F3
20	F3	F2	F2	F2	C1	C2	C2	C2	C3	C2	C2	C2	C1	L1	L1	C1	CL11	CL21	C3	C5	F4	F3	F3	F2
21	F2	F2	F3	F1	L2	H1	C2	CL41	C2	C3	C1	C2	C1	C2	L2	L3	L1	C1	C2	LC22	F3	F4	F3	F3
22	FF12	F3	F3	F2	L2	L2	L2	L2	C1	C2	L1	L1		C2	C2	C1	C2	C2	C2	C3	F4	FF31	FF21	FF31
23	F4	F3	F4	FF13	L4	L3	LL32	C2	C3	C2	L2	C1	L2	L2	C1	C1	L2	L3	L3	L3	F3	F2	F4	FF43
24	FF14	F5	F3	F3	L5	L3	C2	C1	C1	C2	CC12	C2	C1		C1		C2	C2	C4	C4	F3	F3	F4	F4
25	F2	F3	F1	F2	L2	H1	C1	C2	C2	C2	C2	C2	CL12	C2			C1	C3	C2	C3	F4	F2	F4	F3
26	F4	F4	F3	F3	L3	CL22	C2	C3	C1	C2	C1	C1	L2	L2	L1	C1	C1	C2	C2	C4	F3	F3	F4	F5
27	F5	F4	F4	F1	C1	H1	C2	C1	C1	C3	C2	C2	L2	L2	L2	L1	H1	C2	C4	C4	F3	F5	F4	F6
28	F4	F3	F2	F2	L3		H2	C2	C2	C2	C2	C1	L2	C2	C2	L2	L2	L3	L3	L4	F4	FF44	F4	F4
29	F2	F2	F1	F2	C2	C1	C2	C2	C2	C1	C2	L3	CL23	L1	L1	L1	L2	L2	L3	L5	F3	F4	F4	F3
30	F4	F5	F3	F2	L2	HL11	H1	C1	C2	C2	C1	L2	L1	L1	L1	L1	L2	L2	L3	L3	FF14	F6	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																								

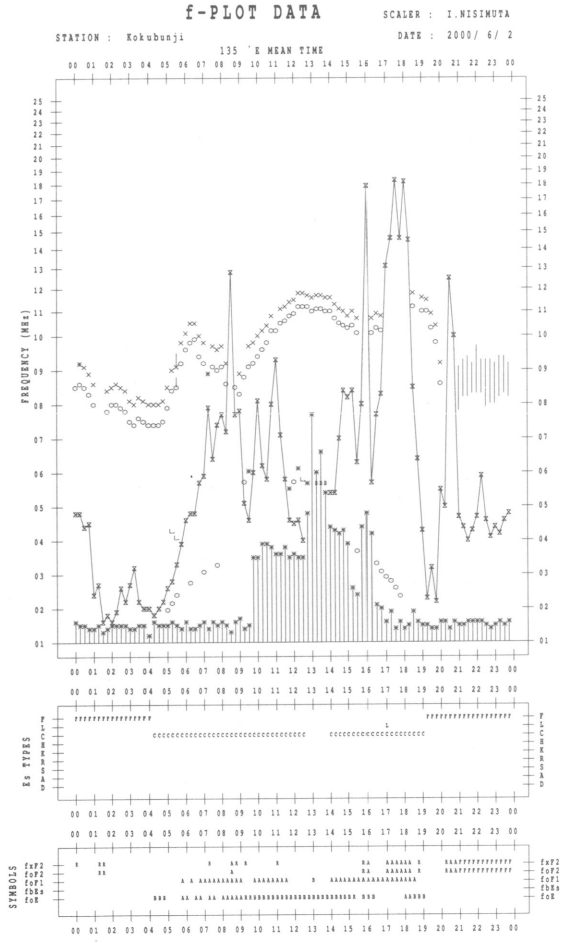
JUN. 2000 TYPES OF Es COMMUNICATIONS RESEARCH LABORATORY, JAPAN

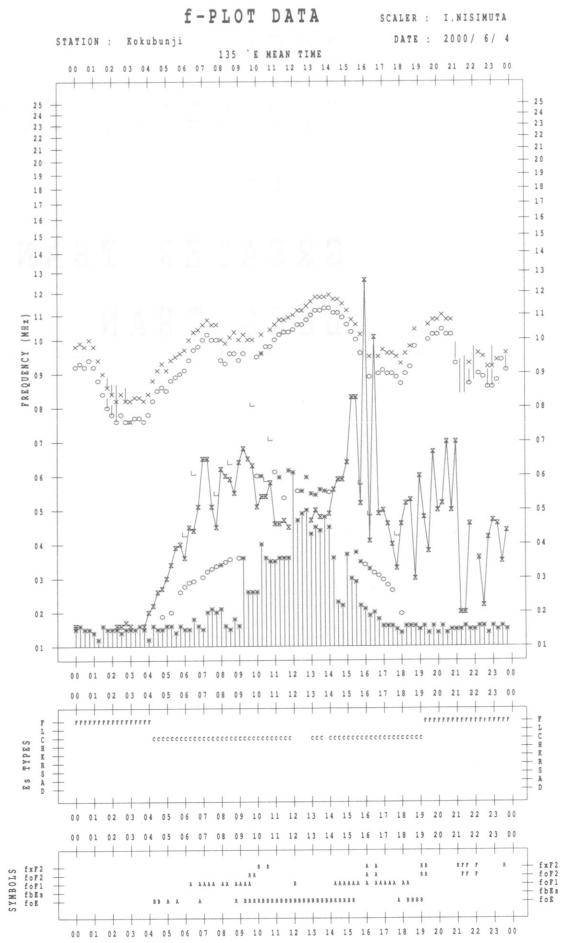
f-PLOTS OF IONOSPHERIC DATA

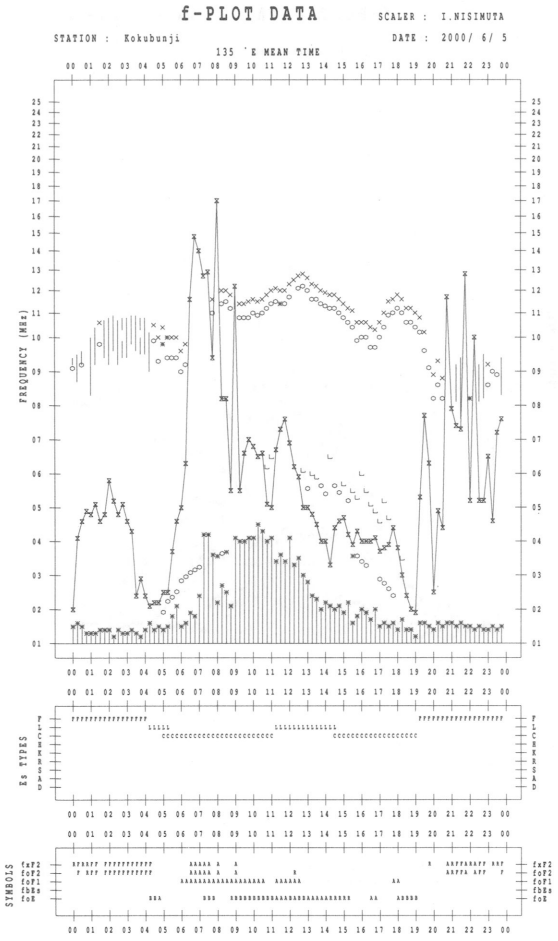
KEY OF f-PLOT	
	SPREAD
	foF2, foF1, foE
	fxF2
	DOUBTFUL foF2, foF1, foE
	fbEs
	ESTIMATED foF1
	fmin
	GREATER THAN
	LESS THAN

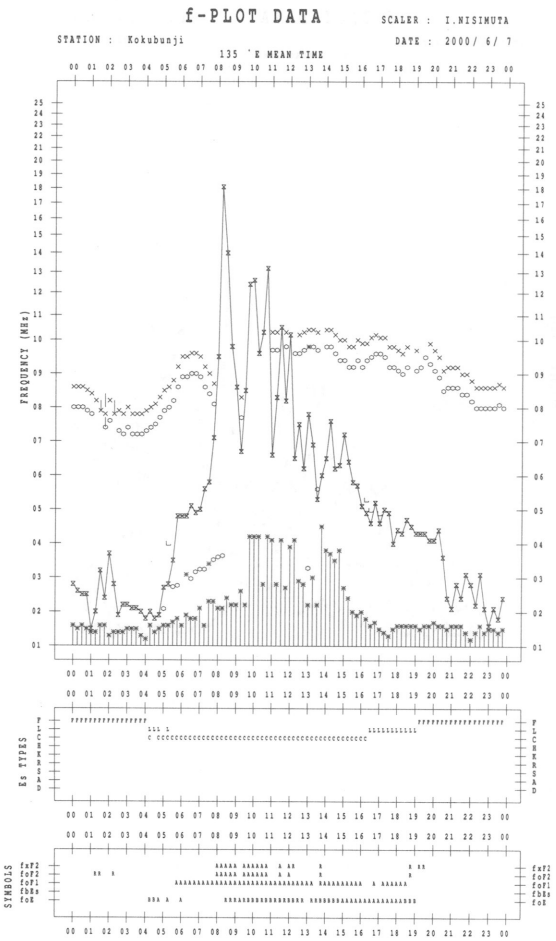

f-PLOT DATA
SCALER : I.NISIMUTA
STATION : Kokubunji
DATE : 2000/ 6/ 1
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE

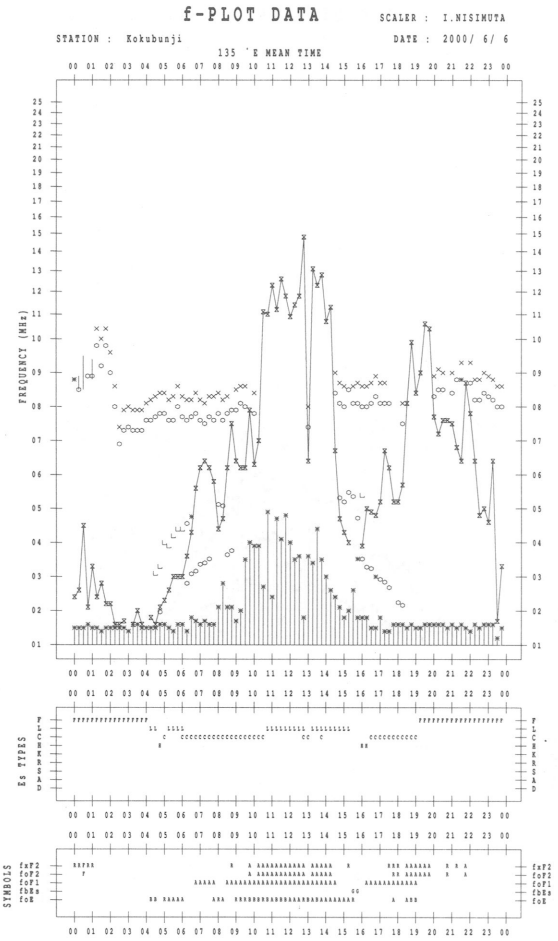

f-PLOT DATA
SCALER : I.NISIMUTA
STATION : Kokubunji
DATE : 2000/ 6/ 3
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE

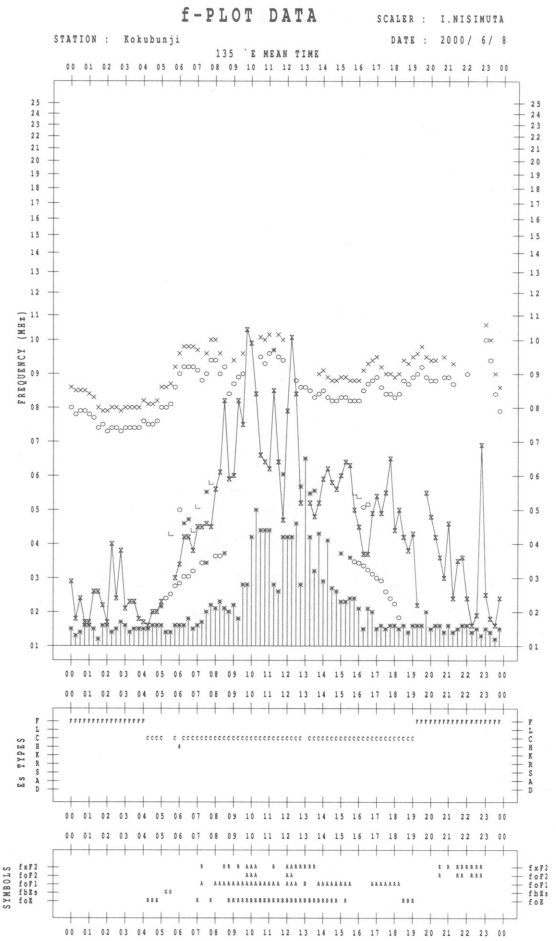

f-PLOT DATA
SCALER : I.NISIMUTA
STATION : Kokubunji
DATE : 2000/ 6/ 2
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE

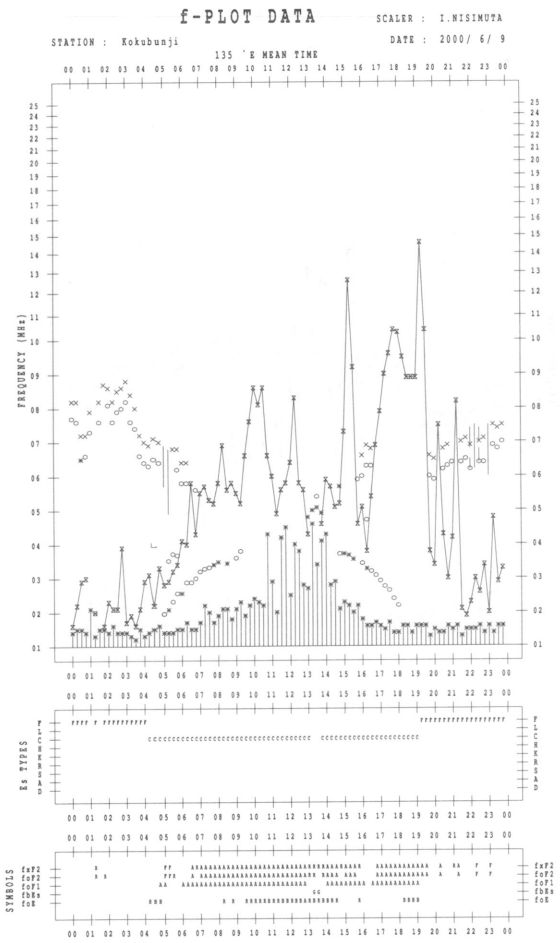

f-PLOT DATA
SCALER : I.NISIMUTA
STATION : Kokubunji
DATE : 2000/ 6/ 4
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE

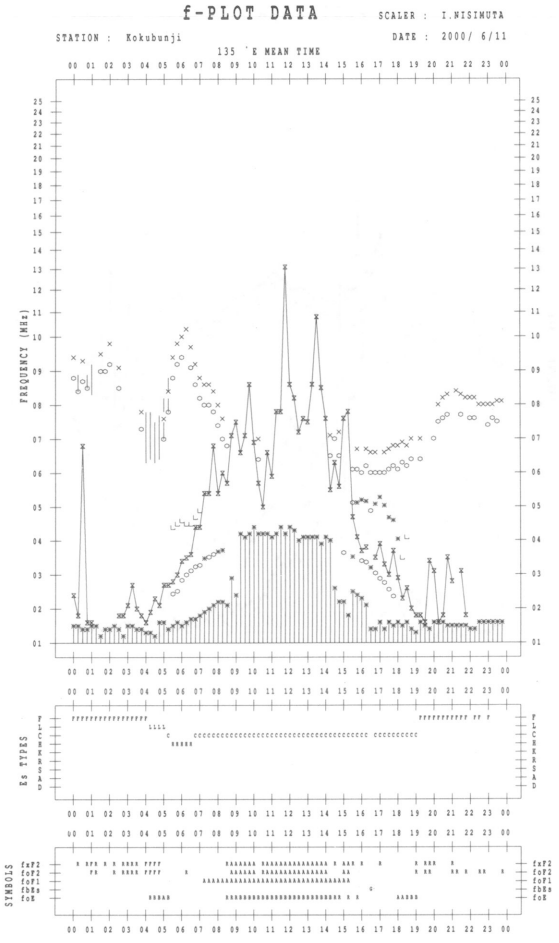

f-PLOT DATA
SCALER : I.NISIMUTA
STATION : Kokubunji
DATE : 2000/ 6/ 5
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
foE

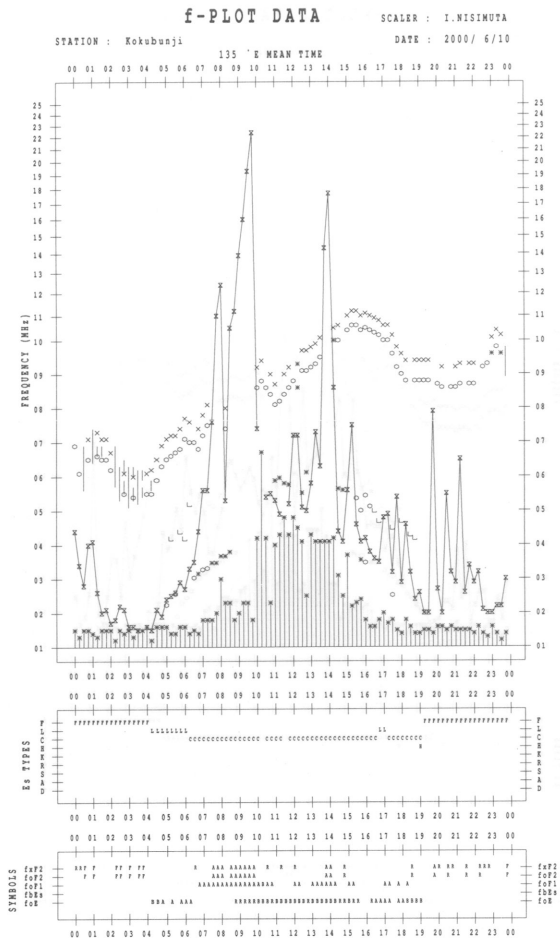

f-PLOT DATA
SCALER : I.NISIMUTA
STATION : Kokubunji
DATE : 2000/ 6/ 7
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
foE

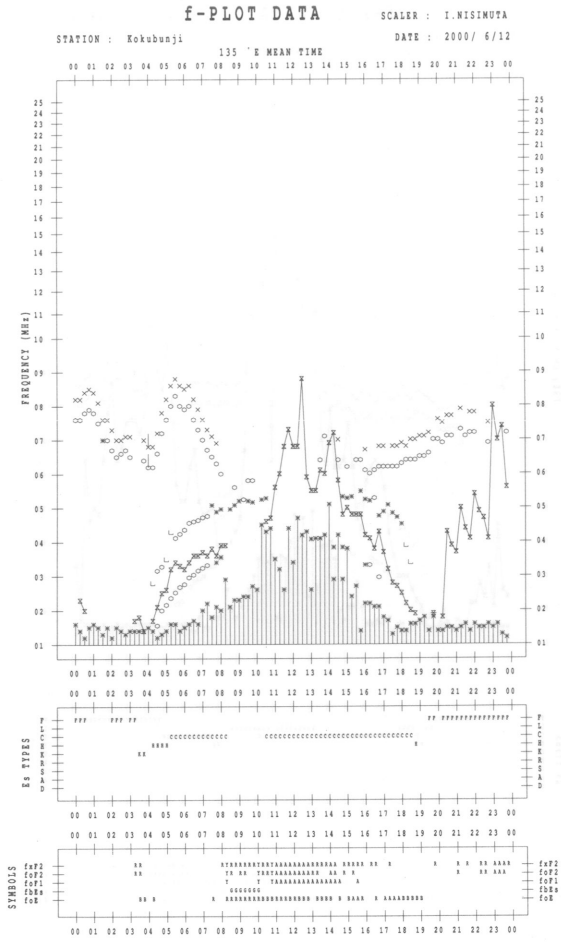

f-PLOT DATA
SCALER : I.NISIMUTA
STATION : Kokubunji
DATE : 2000/ 6/ 6
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
foE

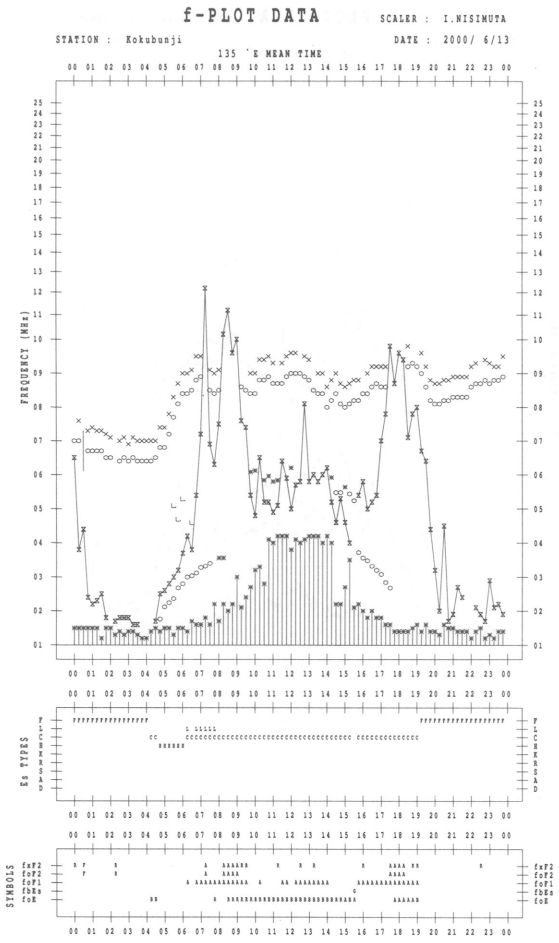

f-PLOT DATA
SCALER : I.NISIMUTA
STATION : Kokubunji
DATE : 2000/ 6/ 8
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
foE

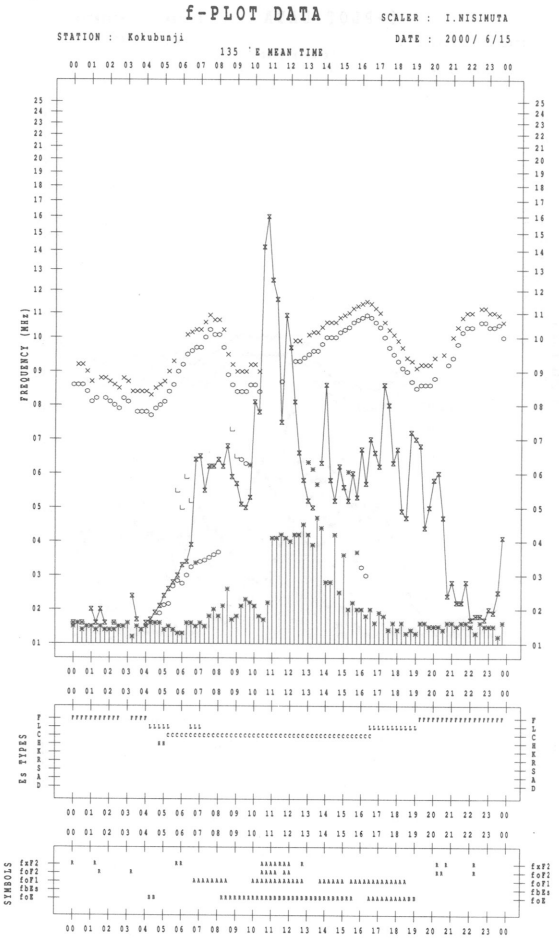

f-PLOT DATA
SCALER : I.NISIMUTA
STATION : Kokubunji
DATE : 2000/ 6/ 9
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE

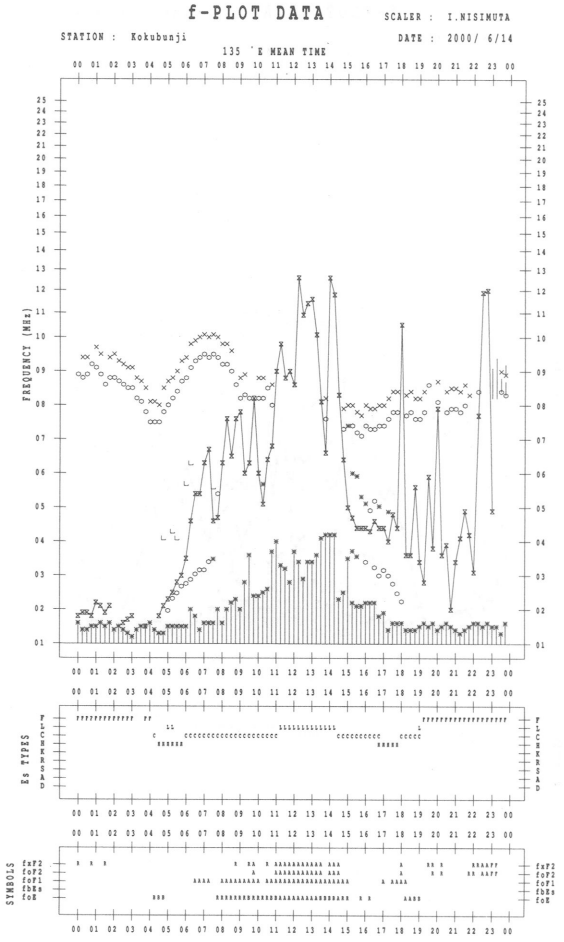

f-PLOT DATA
SCALER : I.NISIMUTA
STATION : Kokubunji
DATE : 2000/ 6/11
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE

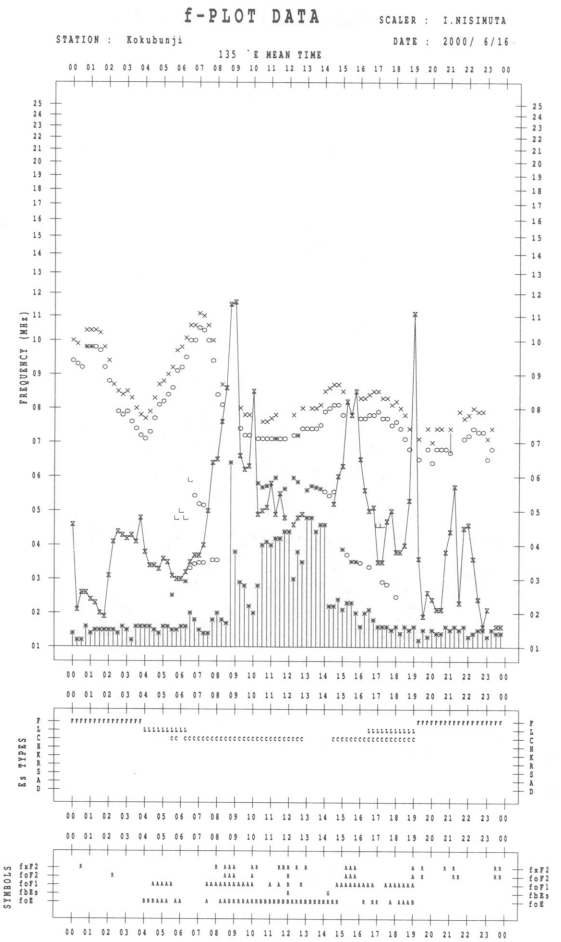

f-PLOT DATA
SCALER : I.NISIMUTA
STATION : Kokubunji
DATE : 2000/ 6/10
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE

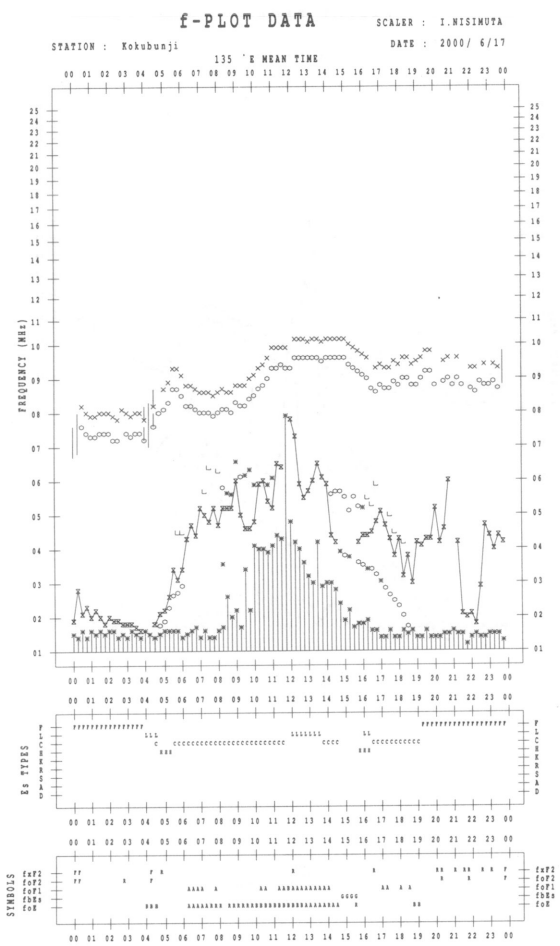

f-PLOT DATA
SCALER : I.NISIMUTA
STATION : Kokubunji
DATE : 2000/ 6/12
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE

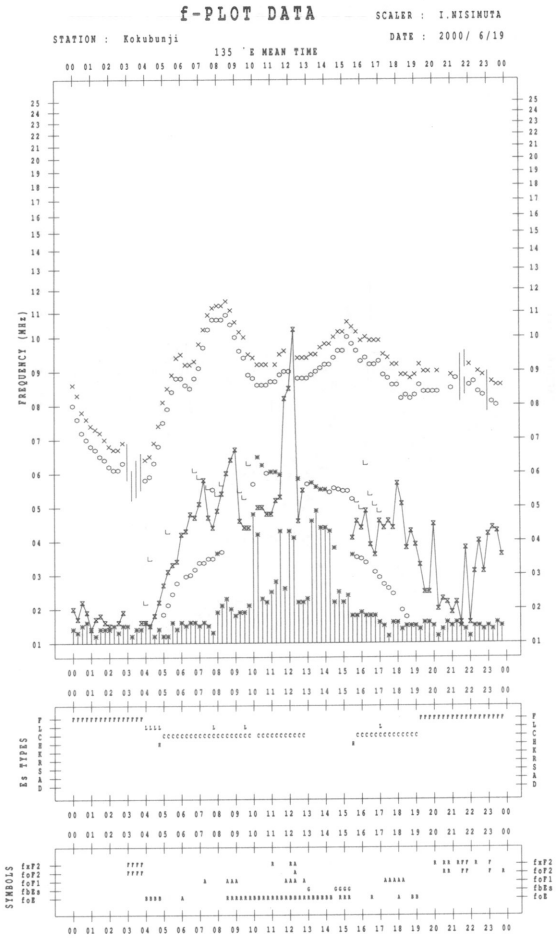

f-PLOT DATA
SCALER : I.NISIMUTA
STATION : Kokubunji
DATE : 2000/ 6/13
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE

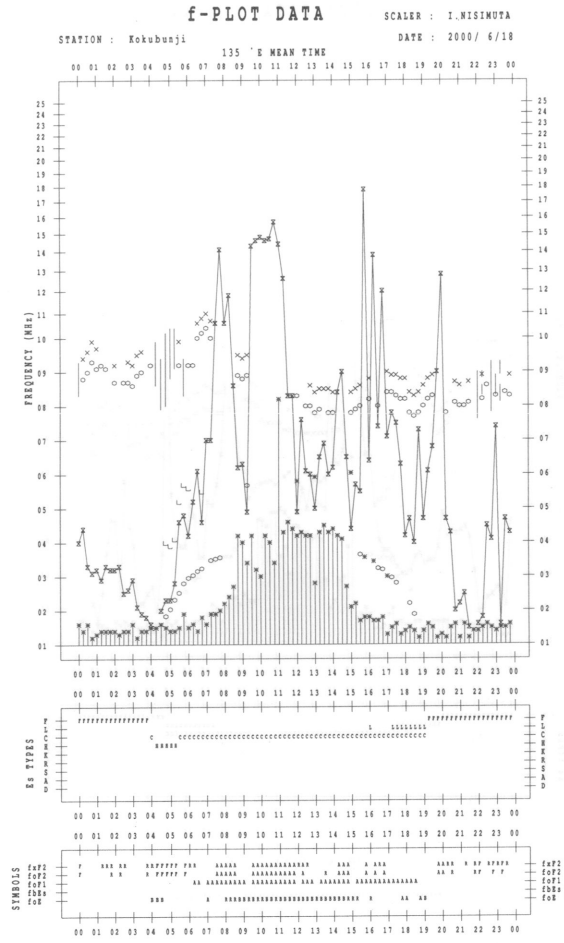

f-PLOT DATA
SCALER : I.NISIMUTA
STATION : Kokubunji
DATE : 2000/ 6/15
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE

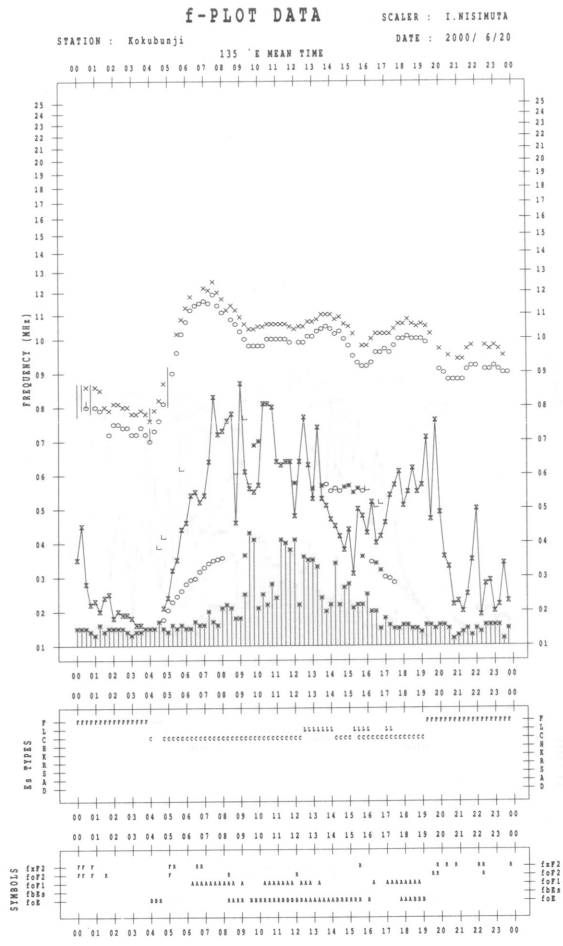

f-PLOT DATA
SCALER : I.NISIMUTA
STATION : Kokubunji
DATE : 2000/ 6/14
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE

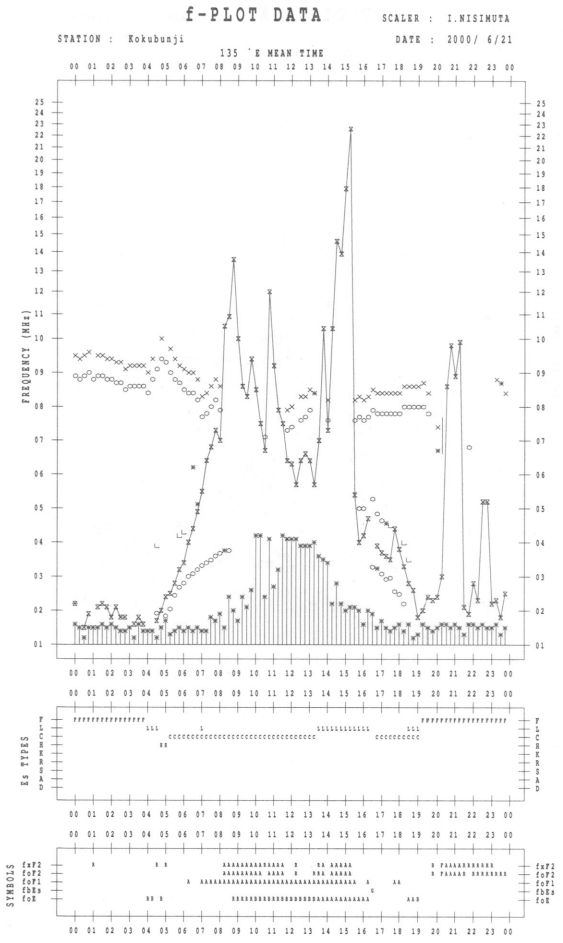

f-PLOT DATA
SCALER : I.NISIMUTA
STATION : Kokubunji
DATE : 2000/ 6/16
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE

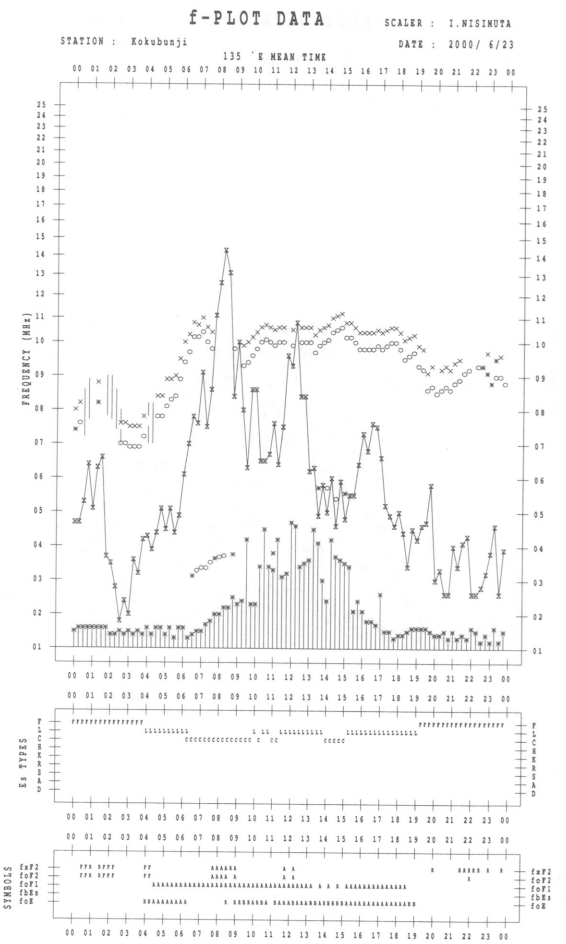

f-PLOT DATA
SCALER : I.NISIMUTA
STATION : Kokubunji
DATE : 2000/ 6/17
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE

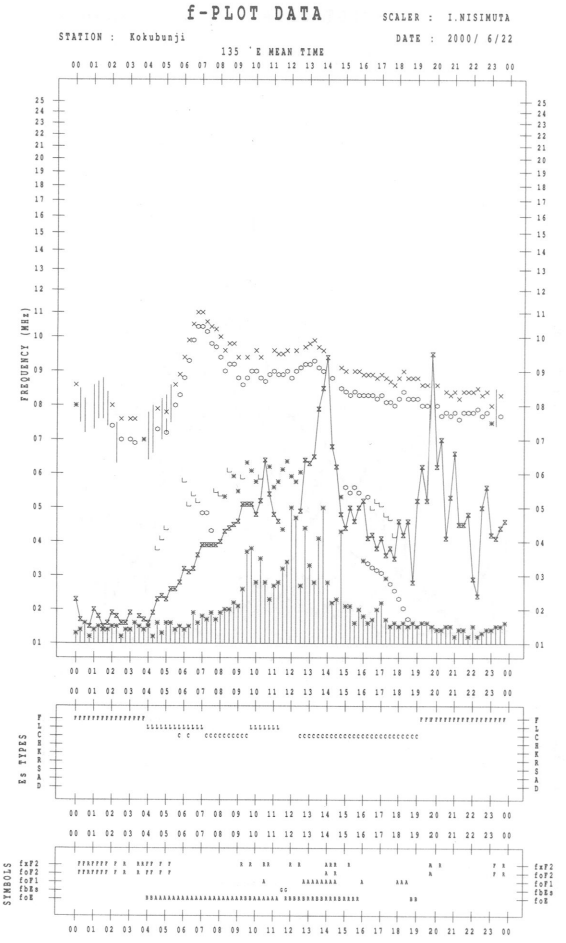

f-PLOT DATA
SCALER : I.NISIMUTA
STATION : Kokubunji
DATE : 2000/ 6/19
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE


f-PLOT DATA
SCALER : I.NISIMUTA
STATION : Kokubunji
DATE : 2000/ 6/18
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE


f-PLOT DATA
SCALER : I.NISIMUTA
STATION : Kokubunji
DATE : 2000/ 6/20
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE


f-PLOT DATA
SCALER : I.NISIMUTA
STATION : Kokubunji
DATE : 2000/ 6/21
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE


f-PLOT DATA
SCALER : I.NISIMUTA
STATION : Kokubunji
DATE : 2000/ 6/23
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE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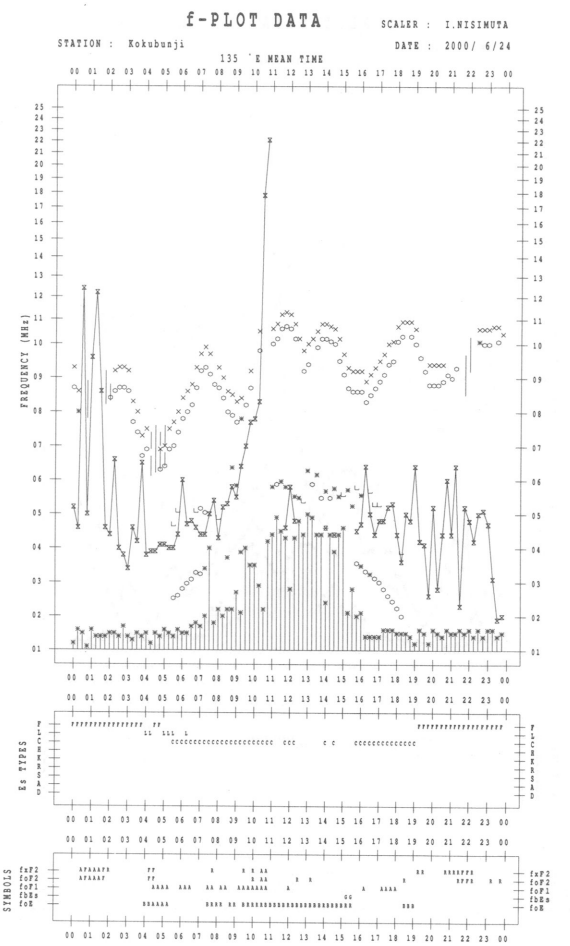
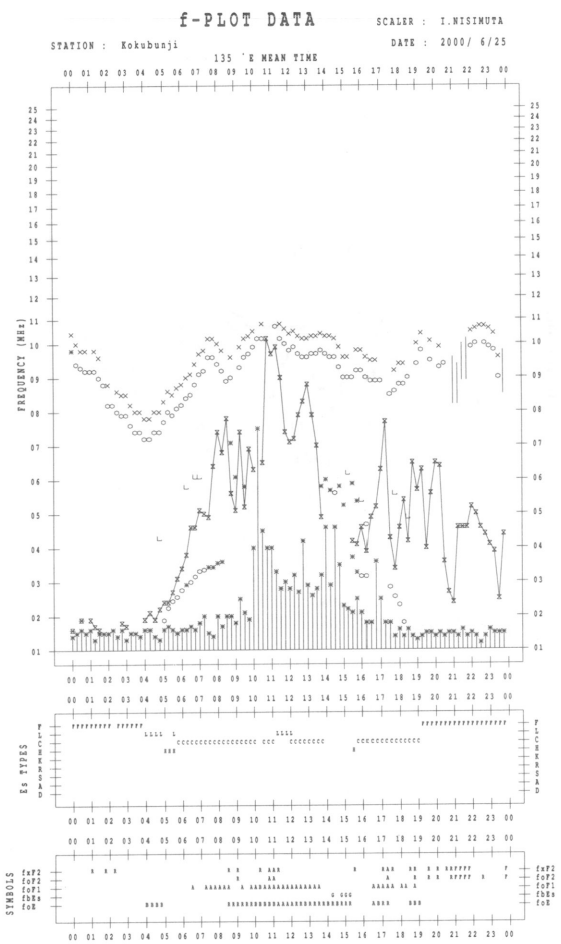
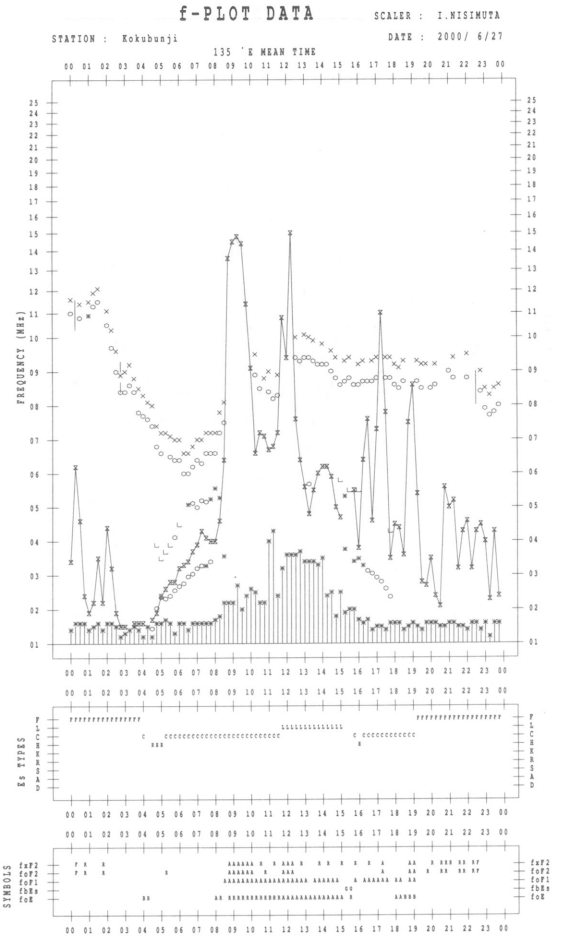
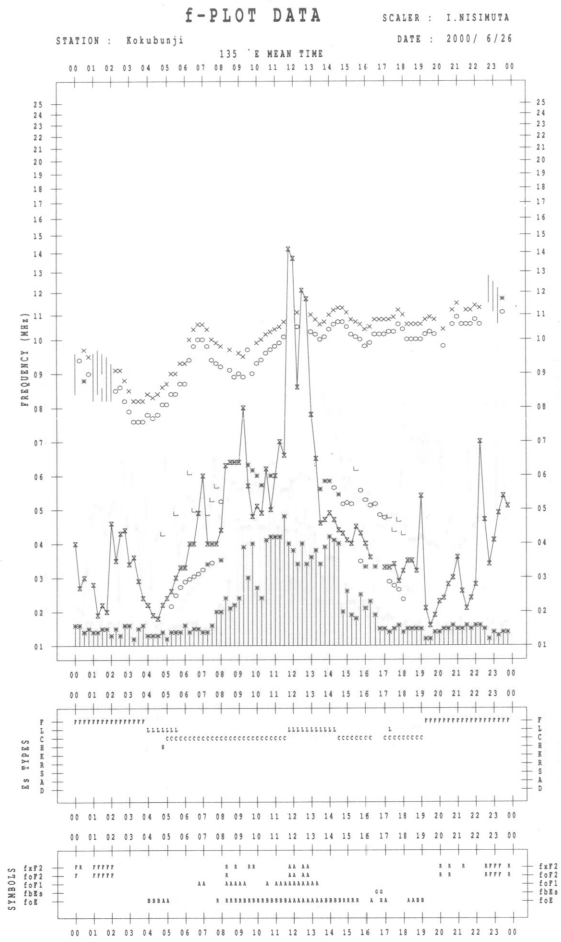
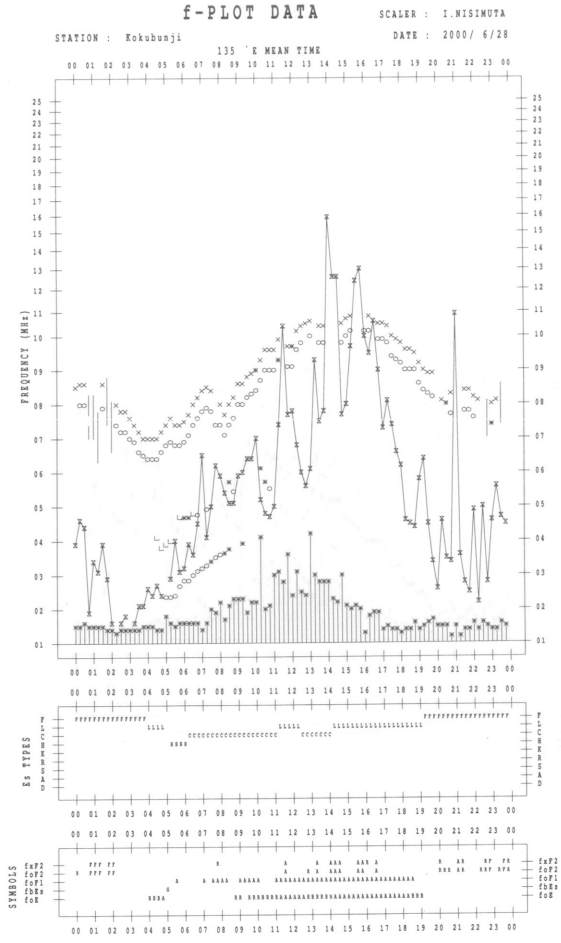
STATION : Kokubunji
DATE : 2000/ 6/22
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE

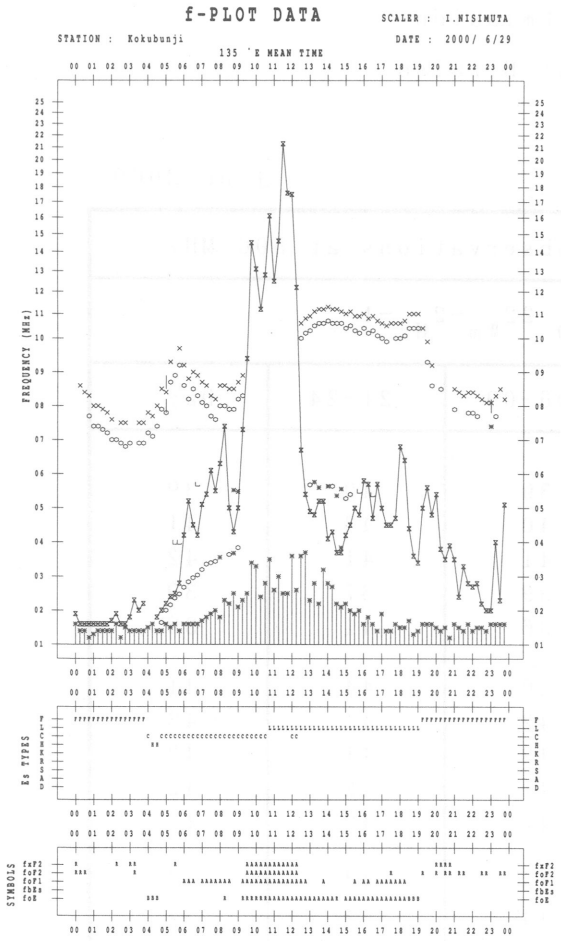

f-PLOT DATA
SCALER : I.NISIMUTA
STATION : Kokubunji
DATE : 2000/ 6/24
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE

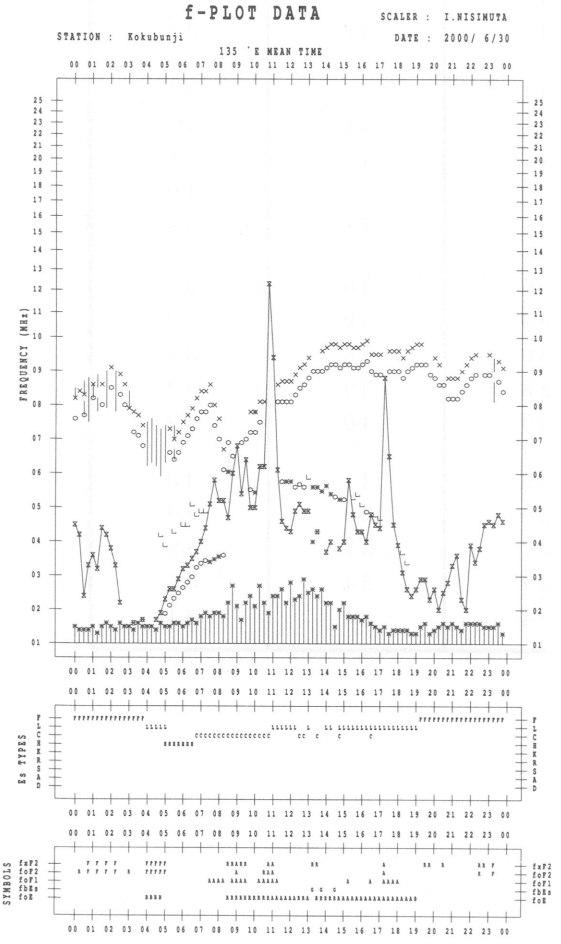

f-PLOT DATA
SCALER : I.NISIMUTA
STATION : Kokubunji
DATE : 2000/ 6/25
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE


f-PLOT DATA
SCALER : I.NISIMUTA
STATION : Kokubunji
DATE : 2000/ 6/27
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE


f-PLOT DATA
SCALER : I.NISIMUTA
STATION : Kokubunji
DATE : 2000/ 6/26
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE


f-PLOT DATA
SCALER : I.NISIMUTA
STATION : Kokubunji
DATE : 2000/ 6/28
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE


f-PLOT DATA
SCALER : I.NISIMUTA
STATION : Kokubunji
DATE : 2000/ 6/29
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE


f-PLOT DATA
SCALER : I.NISIMUTA
STATION : Kokubunji
DATE : 2000/ 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

Hiraiso June 2000

Single-frequency total flux observations at 500 MHz					
Flux density: 10^{-22} Wm^{-2} Hz^{-1}					
UT	00-03	03-06	06-09	21-24	Day
Date					
1	40	39	39	40	39
2	40	40	40	43	41
3	43	42	41	41	42
4	41	40	39	37	39
5	37	37	36	41	38
6	41	40	40	44	41
7	43	42	42	44	43
8	43	42	42	41	42
9	42	41	41	42	42
10	42	42	42	42	42
11	42	42	43	44	43
12	44	44	44	44	44
13	44	43	43	44	44
14	44	44	44	44	44
15	44	44	43	42	43
16	41	41	41	43	41
17	42	41	41	41	41
18	41	40	41	41	41
19	41	39	39	40	40
20	39	38	38	37	38
21	38	36	36	40	37
22	39	39	39	39	39
23	39	39	39	38	39
24	39	39	38	39	39
25	39	40	39	40	39
26	40	40	39	41	40
27	39	39	39	39	39
28	38	38	37	37	38
29	37	35	34	34	35
30	34	34	34	34	34

B. Solar Radio Emission

B2. Outstanding Occurrences at Hiraiso

Hiraiso June 2000

Single-frequency observations

Normal observing period: 1920 - 1000 U.T. (sunrise to sunset)

JUN. 2000	FREQ. (MHz)	TYPE	START TIME (U.T.)	TIME OF MAXIMUM (U.T.)	DUR. (MIN.)	FLUX DENSITY (10^{-22} Wm^{-2} Hz^{-1}) PEAK	FLUX DENSITY (10^{-22} Wm^{-2} Hz^{-1}) MEAN	POLARIZATION REMARKS
1	2800	6 S	0610.0	0612.0	8.0	340	-	0
	2800	47 GB	0729.0	0731.0	6.0	600	-	MR
	500	46 C	0729.0	0732.0	6.0	30	-	0
	200	4 S/F	0733.0	0734.0	2.0	60	-	WL
2	2800	46 C	0337.0	0345.0	17.0	60	-	0
	2800	46 C	0408.0	0410.0	7.0	80	-	0
	200	42 SER	2050.0	2052.0	2.0	500	-	0
3	2800	4 S/F	0839.0	0844.0	7.0	80	-	0
4	200	46 C	0702.0	0704.0	12.0	60	-	0
	500	42 SER	0702.0	0704.0	3.0	60	-	0
	200	8 S	2035.0	2036.0	1.0	80	-	0
	2800	46 C	2204.0	2210.0	17.0	300	-	WR
	500	42 SER	2208.0	2211.0	4.0	40	-	0
7	2800	3 S	0439.0	0441.0	6.0	90	-	0
8	2800	4 S/F	0053.0	0056.0	9.0	30	-	0
9	200	8 S	0202.0	0203.0	1.0	120	-	0
	200	8 S	0213.0	0214.0	1.0	140	-	0
	200	8 S	0856.0	0856.0	1.0	90	-	0
11	500	42 SER	0034.0	0037.0	3.0	30	-	WL
	200	8 S	0035.0	0035.0	1.0	120	-	0
	500	8 S	0118.0	0118.0	1.0	40	-	0
12	200	42 SER	0131.0	0134.0	4.0	50	-	0
	500	42 SER	0131.0	0135.0	4.0	150	-	WL
	200	42 SER	0258.0	0300.0	5.0	400	-	0
	500	4 S/F	0258.0	0300.0	4.0	170	-	ML
	2800	3 S	0258.0	0300.0	3.0	70	-	WR
	200	42 SER	0912.0	0913.0	2.0	100	-	0
13	200	42 SER	2348.0	2348.0	2.0	70	-	0
	500	8 S	2348.0	2348.0	1.0	150	-	0
15	200	8 S	0719.0	0720.0	1.0	110	-	0
	2800	4 S/F	2122.0	2123.0	3.0	80	-	0
	200	42 SER	2337.0	2339.0	3.0	140	-	0
	500	46 C	2337.0	2339.0	7.0	40	-	WR
	500	8 S	2338.0	2339.0	1.0	140	-	0
	2800	4 S/F	2340.0	2342.0	4.0	60	-	0
	500	8 S	2344.0	2345.0	1.0	340	-	0
17	2800	4 S/F	0230.0	0234.0	6.0	40	-	0

B. Solar Radio Emission

B2. Outstanding Occurrences at Hiraiso

Hiraiso June 2000

Single-frequency observations

Normal observing period: 1920 - 1000 U.T. (sunrise to sunset)

JUN. 2000	FREQ. (MHz)	TYPE	START TIME (U.T.)	TIME OF MAXIMUM (U.T.)	DUR. (MIN.)	FLUX DENSITY (10^{-22} Wm^{-2} Hz^{-1}) PEAK	FLUX DENSITY (10^{-22} Wm^{-2} Hz^{-1}) MEAN	POLARIZATION REMARKS
17	500	46 C	0305.0	0307.0	8.0	200	-	WL
	500	46 C	0343.0	0352.0	11.0	70	-	WL
	2800	3 S	0350.0	0352.0	12.0	60	-	0
18	2800	4 S/F	0155.0	0157.0	6.0	240	-	0
	500	46 C	0155.0	0158.0	10.0	40	-	0
	200	47 GB	0155.0	0159.0	9.0	1800	-	0
	500	8 S	0156.0	0157.0	1.0	180	-	0
19	500	42 SER	0135.0	0135.0	1.0	30	-	0
	200	8 S	0241.0	0242.0	1.0	560	-	0
	200	47 GB	0458.0	0459.0	1.0	1200	-	0
	500	8 S	0458.0	0459.0	1.0	40	-	WL
	200	47 GB	0750.0	0755.0	6.0	700	-	0
	500	4 S/F	0917.0	0918.0	2.0	60	-	WL
	200	8 S	0918.0	0918.0	1.0	120	-	0
	200	47 GB	2050.0	2051.0	5.0	1700	-	0
	500	8 S	2052.0	2053.0	1.0	240	-	0
	200	8 S	2235.0	2235.0	1.0	100	-	0
	200	8 S	2249.0	2250.0	1.0	80	-	0
20	500	8 S	0140.0	0140.0	1.0	200	-	0
	200	8 S	0237.0	0237.0	1.0	110	-	0
	200	42 SER	0311.0	0311.0	3.0	240	-	0
	500	42 SER	0311.0	0311.0	2.0	170	-	0
	200	42 SER	0331.0	0332.0	1.0	260	-	0
	500	47 GB	0331.0	0332.0	1.0	1200	-	0
	200	8 S	0344.0	0345.0	1.0	70	-	0
	500	8 S	0344.0	0345.0	1.0	130	-	0
	500	8 S	0402.0	0402.0	1.0	130	-	0
	200	8 S	0432.0	0432.0	1.0	120	-	0
	500	47 GB	0505.0	0505.0	1.0	740	-	WL
	200	47 GB	0516.0	0517.0	1.0	860	-	0
	500	8 S	0516.0	0517.0	1.0	40	-	0
	200	4 S/F	0606.0	0608.0	4.0	60	-	0
	200	42 SER	0739.0	0740.0	10.0	120	-	0
	500	8 S	0739.0	0740.0	1.0	90	-	WR
	200	3 S	1923.0	1924.0	2.0	110	-	ML
	200	47 GB	2112.0	2112.0	1.0	660	-	0
	200	8 S	2350.0	2350.0	1.0	60	-	0

B. Solar Radio Emission

B2. Outstanding Occurrences at Hiraiso

Hiraiso June 2000

Single-frequency observations

Normal observing period: 1920 - 1000 U.T. (sunrise to sunset)

JUN. 2000	FREQ. (MHz)	TYPE	START TIME (U.T.)	TIME OF MAXIMUM (U.T.)	DUR. (MIN.)	FLUX DENSITY (10^{-22} Wm^{-2} Hz^{-1}) PEAK	FLUX DENSITY (10^{-22} Wm^{-2} Hz^{-1}) MEAN	POLARIZATION REMARKS
21	200	42 SER	0123.0	0125.0	6.0	150	-	0
	200	8 S	0202.0	0203.0	1.0	50	-	0
	200	42 SER	0406.0	0406.0	6.0	240	-	0
	500	8 S	0427.0	0428.0	1.0	500	-	0
	200	47 GB	0427.0	0432.0	9.0	780	-	0
	200	47 GB	0457.0	0502.0	5.0	1300	-	0
	200	8 S	0523.0	0524.0	1.0	160	-	0
	200	42 SER	0539.0	0546.0	9.0	120	-	0
	200	47 GB	0612.0	0613.0	1.0	2300	-	0
	500	8 S	0612.0	0613.0	1.0	30	-	0
	200	8 S	0711.0	0712.0	1.0	70	-	0
	500	42 SER	0736.0	0737.0	1.0	40	-	0
	200	47 GB	0737.0	0737.0	1.0	680	-	0
	200	47 GB	0758.0	0758.0	2.0	3000	-	0
	500	46 C	0758.0	0759.0	2.0	110	-	WL
	2800	8 S	0800.0	0800.0	1.0	140	-	0
	200	47 GB	0832.0	0843.0	11.0	620	-	0
	2800	4 S/F	0923.0	0925.0	3.0	70	-	WL
	500	8 S	0925.0	0925.0	1.0	70	-	0
	200	42 SER	0931.0	0932.0	3.0	120	-	0
	200	8 S	2304.0	2304.0	1.0	90	-	0
	200	8 S	2327.0	2327.0	1.0	80	-	0
	200	47 GB	2338.0	2348.0	10.0	680	-	WR
22	200	8 S	0101.0	0101.0	1.0	80	-	WR
	200	8 S	0155.0	0156.0	1.0	80	-	0
	200	8 S	0829.0	0829.0	1.0	70	-	0
	200	8 S	0905.0	0905.0	1.0	220	-	0
	200	8 S	1954.0	1955.0	1.0	340	-	0
	200	47 GB	2017.0	2018.0	1.0	1800	-	0
	200	47 GB	2043.0	2044.0	3.0	880	-	0
	200	42 SER	2140.0	2140.0	2.0	140	-	WL
	200	42 SER	2204.0	2205.0	4.0	160	-	WL
23	200	42 SER	0129.0	0130.0	4.0	200	-	WR
	2800	46 C	0402.0	0404.0	6.0	280	-	WL
	500	46 C	0403.0	0404.0	5.0	150	-	0
	200	42 SER	0406.0	0407.0	2.0	70	-	0
	200	8 S	0748.0	0748.0	1.0	100	-	0

B. Solar Radio Emission

B2. Outstanding Occurrences at Hiraiso

Hiraiso June 2000

Single-frequency observations

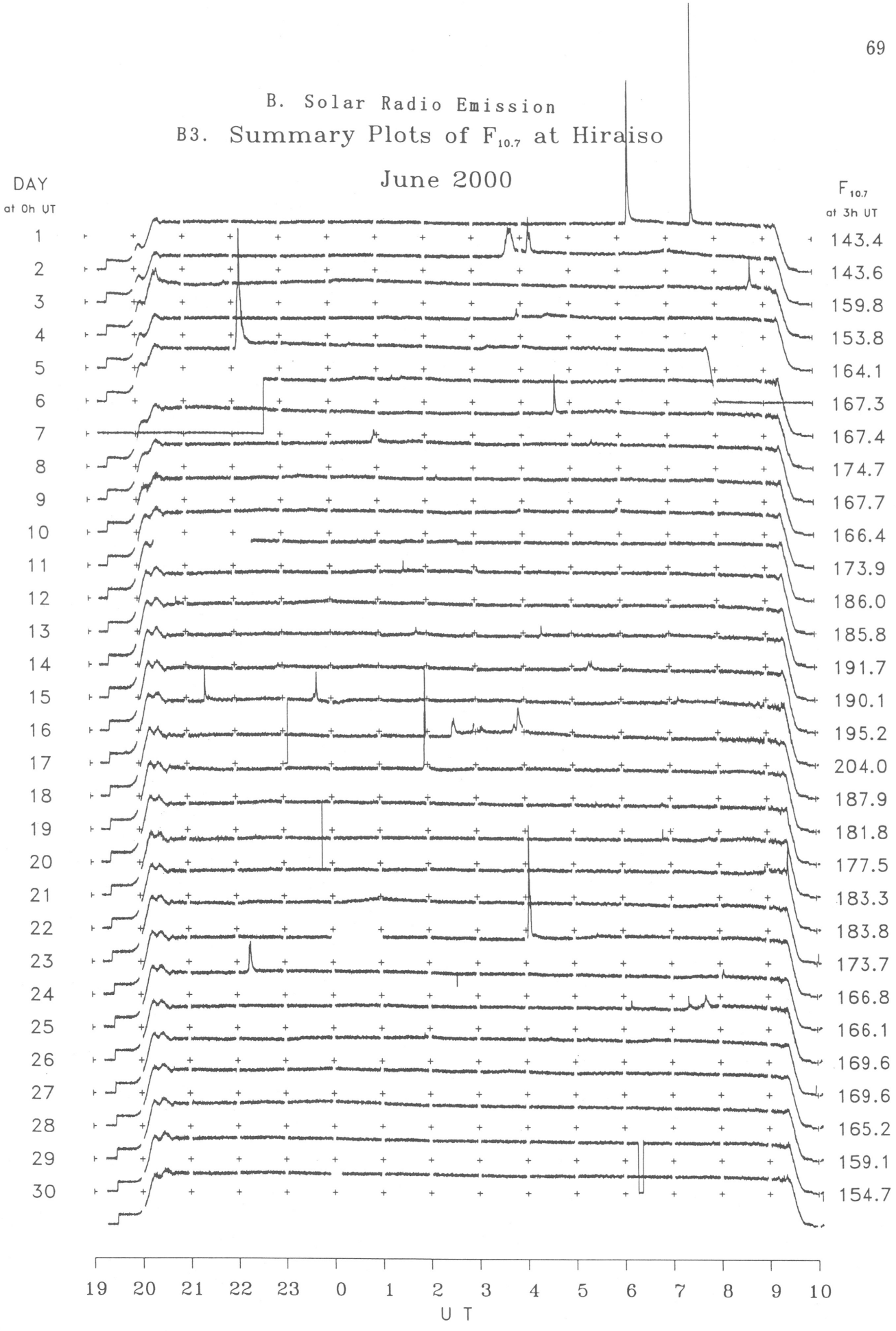
Normal observing period: 1920 - 1000 U.T. (sunrise to sunset)

JUN. 2000	FREQ. (MHz)	TYPE	START TIME (U.T.)	TIME OF MAXIMUM (U.T.)	DUR. (MIN.)	FLUX DENSITY (10^{-22} Wm^{-2} Hz^{-1}) PEAK	FLUX DENSITY (10^{-22} Wm^{-2} Hz^{-1}) MEAN	POLARIZATION REMARKS
23	200	4 S/F	2214.0	2215.0	5.0	70	-	0
	2800	46 C	2214.0	2217.0	9.0	70	-	0
24	200	8 S	0001.0	0002.0	1.0	60	-	WR
	200	8 S	0927.0	0928.0	1.0	160	-	0
25	200	42 SER	0533.0	0534.0	1.0	50	-	0
	500	8 S	0534.0	0534.0	1.0	60	-	0
	200	42 SER	2331.0	2331.0	1.0	120	-	0
27	200	8 S	2317.0	2317.0	1.0	140	-	0
30	500	8 S	0816.0	0817.0	1.0	240	-	ML

B. Solar Radio Emission

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

June 2000



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

IONOSPHERIC DATA IN JAPAN FOR JUNE 2000
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