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IONOSPHERIC DATA IN JAPAN

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CONTENTS

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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. 2001

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	68	70	82	72	73	94	77	C	C	73	C	C	73	74	C	72	83	80	84	82	94	94	94
2	73	95	69	71	62	71	94	83	81	69					A				81		A	A	76	68
3	72	76	67	58	61		94	93	96	A	A	82	81	78	A	74	77		81		84	70	95	94
4	83	81	77	70	71	82	94	91	92	91	81	81	85	84	84	83	81	87	60	84	81	94	94	82
5	68	68	70	72	74	80	84		85	66	72	69	78	82			A	A			84	92	95	95
6	94	95	70	68	81	81	94	92	92	81		77	72	81	83	82			A		A	94	93	95
7	95	80	70	71	95	84	94		87	81		72		A	A	A		A	A	77			68	
8	94	71	73	68	58	66	70			A	A	A	A	A	68	72	73	A		A		79	94	80
9	79	70	69	69	70	68	82	81		69	70	A		80		76	83	81	80	92	66	83	82	95
10	95	71	67	70			A	68		70	A	74			A	A	74	78	74		78	91	93	95
11		70	68	71	92	69		70	70	67	74		82	82	83	77		78	84	84	82	86	95	82
12	69	70	81	69	69	81					A	A	A		81	77	80	80	83	92	93		95	
13		74	80	81	95	80		A		A		86	79	76	70	82	77	78	82		81	75	99	95
14	94	80	68	69	72	68	77		74			83		A	81	82	A				A		94	79
15	95	70	77	66	66	73				A			72	81	74	83	82	81	82	84	81	A		
16		70			71	74	80		A	76	A			82	56	77	75	72	75		95		78	
17	80	73	70	72	80	73	81	78	72	68						72	70	69	73	78	80	92	79	74
18	94	79	68	70	72	71	84	78	69	68	69					76	76	80	83	93	71	57		95
19	69	67	74	71	61			A							A		A	A	A					72
20	62	53	70	68	64	56	74				A	A	A				49	68	89	73		94	94	72
21	69	71	61	56	66			62								68	67	74	70	74	74	92	92	72
22	72	69	70	62	64	94		A	A								A	A	A			70	68	
23	69	67	72	69	61	76	79			A	A		A				62	63		72	66	74	76	70
24	55	72	63	60	69	80	94	82		73		A	A	A			61	66	64			68	94	74
25	65		70	69	57	66		68	73						74	73		76	82	92	66	82	94	94
26	68	71	71	75	74	68	95	94	81	66						79	67					98	77	95
27	70	70	70	66	74	79	76	71	66	70						67	67			62	73	92	95	78
28	92	76	71	71	69	93	94	82	88	92	82	78		77	83	80	80			83	78	82	93	84
29	93		74	73	74		94	83	80	85	84	82		88	83	82	83	94	82	83	89	95	94	94
30	70	86	70	71		95	84	84	78	84	92	82	81	84	80	81	83	80	88	81	71		94	79
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	29	29	28	25	21	18	16	17	9	11	8	13	14	20	21	18	19	17	20	22	27	25
MED	73	71	70	70	70	74	84	82	80	70	74	81	80	81	80	77	75	78	81	83	80	88	94	82
U Q	94	77	72	71	74	81	94	84	87	82	83	82	81	83	83	82	80	81	83	88	83	94	94	95
L Q	69	70	68	68	64	68	79	71	72	68	71	74	75	77	74	73	67	72	74	75	72	75	79	74

COMMUNICATIONS RESEARCH LABORATORY, JAPAN

HOURLY VALUES OF fEs AT Wakkanai

JUN. 2001

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	32	32	G	37	G	41	54	56	68	58	60	70	C	52	50	C	41	40	36	C	50	36	23	G
2	G	G	G	G	G	G	48	65	43	59	66		G	56	100	73	72	88			103	64	58	48
3	38	32	29	27	G	49	76	111	100	148	88	74	62	G	90	45	41	113	82	113	57	53	50	G
4	32	28	G	25	G	G	46	65	78	48	56	G	G	G	G	G	G	47	75	60	34	59	32	32
5	26	G	G	G	G	G	G	40	61	74	G	60	61	G		79	96	149		91	33	G	44	27
6	30	41	60	38	40	44	52	76	76	60	60	G	G	62	63	69	164		125	86	112	45	46	40
7	34	G	G	G	G	39	50	66	70	73	108	99	75	98	94	108		100	87	61	69	70	114	80
8	44	49		45	G	G	43	69	65	95	105	142	146	65	65	65	74	163	96	88	88		65	42
9	26	38	33	31	G	43	52	61		74	60	70	61	64	78	60	46	G	42	64	67		46	41
10	27	G	G	40	74	48	72	51	63	68	88	64	64	78	90	83	71	G	57		56	48	G	G
11		44	G	G	G	G		G	59	57	G	66	50	G	G	46	150	68	79	47	72	60	65	48
12	26	G	30	G	31	G		79	82			142	157	151	56	66	67	39	55	50	44	52	46	
13		39	38	31	39	60	76	96	88	89	79	71	46	46	63	50	G	40	G		40	64	46	47
14	48	G	G	G	G	40	51	69	68	88	45	G		80	62	61	113	86	95		114		G	G
15	G	G	28	G	G	G	60	70	87	118	74	47	63	G	56	64	46	40	85		52	109	83	
16	73	44			43	G		85	88	70	108			G	61	62	48	37	48		60	63	76	
17	28	G	G	G	G	38	G	54	G	44	66	76	46	59	G	G	40	G	G	32	43	G	74	G
18	G	G	G	G	G	G	44	54	55	53	63	46	47	G	G	44	G	G	G	72	G	G	G	28
19	36	61		75	49	60	80	78	56	60	48	46	60	46	58	74	79	77	84		71			36
20	32	29	G	G	38	40	66	60	62	79	152	76	82	74	G	46	64	44	135	59		32	G	73
21	25	41	28	24	G	49	48	51	47	60	G	47	80	59	46	G	G	44		58	44	G	48	42
22	G	G	G	G	G	41	111	146	96	64	57	46	G	G	51	48	78	96	132	111		85	42	48
23	42	61	35	G	G	42	59	76	60	74	72	88	65	46	45		G	52	66	48	33	46	44	50
24	34	G	G	G	G	G		79	60	61	78	77	78	74		50	G	G	44		57	45	31	G
25	45		G	28	G	G		51	46	58	60	48	G	G	50	44	94	60	50		45	G	54	G
26	33	G	34	G	G	G	50	65	64	62	68	49	G	66	63	48	44	62	84	85	67	G	41	G
27	G	G	G	G	G	G	50	54	57	62	46		G		G	53	59	64	66	70	36	42	48	G
28	G	30	40	32	G	G	G	50	59	64	57	57	76	G	71	G	70				65	76	G	41
29	31		35	G	G	G	G	40	52	59	59	48	G	G	61	45	G	G	44	39	40	49	50	38
30	71	G	25	28	G	34	37	G	61	71	73	G	61	G	46	G	G	61	43	39	31	26		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	28	28	27	29	30	30	25	30	29	29	29	27	27	29	28	28	29	28	26	19	28	26	28	27
MED	32	14	G	G	G	18	50	65	62	64	63	60	61	46	57	50	48	50	66	61	54	47	46	36
U Q	37	40	33	31	G	42	63	76	77	74	78	76	75	65	64	65	76	81	85	86	68	63	56	47
L Q	25	G	G	G	G	G	43	51	56	59	56	46	G	G	45	44	G	38	44	48	40	26	31	G

HOURLY VALUES OF fmin AT Wakkanai

JUN. 2001

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	18	18	18	15	21	21	18	20	20	21	20	34	16	23	23	18	18	15	15	15	15	15	17	15
2	20	18	18	15	21	26	17	18		23	21		35	23	24	21	17	20	17		16	15	16	15
3	16	18	18	20	20	21	17	18	20	22	21	32	22	20	26	21	20	18	15	15	15	15	15	16
4	18	16	21	16	20	28	20	20	23	21	23		33	33	23	20	20	18	17	15	15	17	15	15
5	16	16	20	20	20	26	18	21	49	22	22	23	24	22		18	17	16		17	18	20	16	18
6	16	16	15	17	17	17	15	20	21	22			24	22		22	20		16	15	17	17	15	18
7	18	18	20	16		20	15	22	22	24	34	36	33	24	18	20	22	20	16	15	15	17	15	17
8	15	16	15	16	18	24	17	20	23	21	21	35	35	24	21	21	21	18	15	15	15	15	16	15
9	18	16	17	17	20	20	18	20		37			24	33	33	23	18	20	15	15	17	17	15	14
10	16	18	16	16	18	20	18	20	21		24	36	22	32	22	24	20	20	15		16	15	17	20
11		17	18	18	23	26		20	18	20	20	24	22	24	26		20	18	15	14	14	15	16	16
12	16	16	18	15	16	22		18	21		22		34	27	34	20	20	17	16	15	18	15	15	
13		15	15	17	17	17	18	20	21	24	24		39		34	21	21	16	16		17	15	17	17
14	18	18	18	17	20	22	17	20	21	22	24			23	21	29	21	18	17		16		20	23
15	17	20	20	17	21	20	15	18	22	20	26	21	20		24	22	21	20	16	15	15	16	15	
16	16	15			20	17	18	20	22	24	21			59	22	24	22	18	16		16	16	15	
17	16	17	20	17	20	21	16	17	20	22	24	37	22	22		23	20	17	16	15	15	18	16	18
18	18	18	20	17	24	26	15	18	21	21	21		34	21		22	18	20		20	17	18	21	15
19	17	15	15	15	18	21	18	20	23	24	34	23	34	26	22	20	18	18	15		16			15
20	17	20	20	17	20	23	18	18	22	21	30	36	22	26	23		18	21	15	16	15	15	16	17
21	17	16	18	20	20	21	18	18		21	22	20	21	21	26	21	18	16	17	15	15	18	18	16
22	20	17	18	15	20	15	16	17	20	23	23		27	27	23	22	17	17	16	15		15	15	17
23	15	15	15	22	21	20	17	18	21	22	21		22	23	26		20	18	16	15	16	16	15	14
24	15	16	20	17	23	28	18	18	21	26	23	22	23	33		24	20	17	16		15	17	17	18
25	20		18	18	27	21		20	22		21	21	21	24	23	21	17	16	16	16	18	17	16	20
26	15	17	20	18	24	27	16	21	18	24	21	22	23	23	32	23	18	17	16	14	17	20	17	18
27	18	17	20	17	23	17	16	18	22	20	21		32		27	20	20	18	15	16	18	17	16	17
28	18	17	15	17	20	27	18	18	23	21	24	20	22	23	23	21	20	20		15	16	15	18	16
29	16		16	17	20	26	16	18	21	22	20	24		23	20	20	17	17	16	16	17	15	16	17
30	15	17	16	15	21	17	18	18	21	23	22	33	33	29	26	22	21	20	16	15	15	17	16	18
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	28	29	29	29	30	27	30	27	27	28	18	27	27	25	27	30	29	27	23	29	28	29	27
MED	17	17	18	17	20	21	17	19	21	22	22	24	24	24	23	21	20	18	16	15	16	16	16	17
U Q	18	18	20	17	21	26	18	20	22	24	24	35	33	27	26	23	20	20	16	16	17	17	17	18
L Q	16	16	16	16	20	20	16	18	21	21	21	22	22	23	22	20	18	17	15	15	15	15	15	15

COMMUNICATIONS RESEARCH LABORATORY, JAPAN

HOURLY VALUES OF foF2 AT Kokubunji

JUN. 2001

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	115	94	94	60	71	81	94	C	114	83	83	90	85	82	90	97	101	C	97	97	92	C	96	92
2	92				81		94	100	98	92	85			88	97	85	96	84			A	81		
3	94		93	67	66	82	101	100	81		83	A	102	95	94	85	84	A	A	92	A	A	A	85
4	83		94	69	68	71	94	96	120	77					107	107	104	101	95	102	115	93	91	82
5	94	76	72	62	64	94	98	116	81	A	A	74		96	100	102	A			96	92		93	115
6	115	94	90	76	76	82	97	116	98	81		86		98	100	103	101	94	92		64	82	82	
7	85	90	81	80	78	84	93		115	83	86	86			90	101	99	111	107	103	92	95	94	80
8			81	80	83	77	82	94	68			A	A	88	87	92	91	94	97	98	93	82	86	
9	92	86	94	80	75	94	94	101	96		82	A	90			92	96	97		94	81		93	93
10	94	95	94	67	64		95	.	82						89	92	85	80		82	80	93		114
11	94	95	80	90	94	94	94		88	93		93	98	106	107	106	102	101	102	92	84	94	94	
12		94	81	94	91	93	94	83	82	A		78	89	99	101	101	102	96	108	121	98	A	A	
13	79	82			94	81	72	102	99	93	92	91	100	99			97	101	105	106		68		94
14	93	95	79		71	69	95		97				96	98		98	96	90	98	96	81	87	94	92
15	93	A	93	81	84	78	93	94	115	91			102		107	97	93	115	96	87	90	94		93
16		96	93	92	93		93	A	A	84	A	89	A			119	94	94	95			83		
17	93	93	94	79		79	94	94	86					88	94	102	97	92	93	83	82	69	92	
18	80	81	94	76	82	95	94		82	A	A	A	A	169		81	87	88	88	86	94		85	102
19		95	94		81	71	66				A		A	A	A					69		68	68	
20	63		65	59	65	74		69		A	A	A	A		79	75		82	82	73	59	67	A	76
21	69	62	68	62	64	69	67		A	A	A	A	A	A	A	81	A	A		A	84	A	A	74
22	95	75	72		95	71	93		82	A	A	A	A	A	A	76	A	A	72	74	94	A	79	62
23	69		59	59	69	82	94		A	A		A	A			77	A	80	74		70	70	A	
24		69	59	57	68	77	94			A	A	A	A	A		A	A	73		A	A	74		76
25	72	70	59	63	62	73	68	86	85	A	A	82			91	94		A	A	78				93
26	91	94	95	94	67	80	93	94	100	A		A	A	90	84				77	86	74		83	
27	84	96	68	64		94	68	94						A		A	108		A	A				93
28	95	91	95	73	70	94	94	94	116	86										113	95	83	86	83
29	93	80	81	80	78		80	84		88	90	91	96	97	C	104	101	101	101	94			117	81
30	80	94	93	77	84	94	94	91	93	80	85	A		102		100	100	103		116	94	69		
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	23	28	25	28	26	29	18	22	12	8	10	9	15	16	24	20	20	18	23	21	18	16	19
MED	92	93	86	76	76	81	94	94	94	85	85	88	96	97	94	97	97	94	96	94	90	82	92	92
U Q	94	95	94	80	83	94	94	100	100	91	88	91	101	99	100	102	101	101	101	102	94	93	94	93
L Q	80	80	72	62	67	74	87	91	82	82	83	82	89	88	89	85	93	86	88	83	80	69	84	80

HOURLY VALUES OF fEs AT Kokubunji

JUN. 2001

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	G	G	32	43	33	29	G	46	51	58	57	47	70	G	72	65	61	82	53	39	36	53	72	C
2	81	90	62	44	39	44	59	66	83	70	58		52	74	56	84	87	68	152		132	84		57
3	52	55	44	33	31	35	62	62	64	56	88	155	97	G	G	G	72	118	163	116	121	119	94	72
4	70	68	60		40	33	59	60	128	64	65	91	131	106	97	61	56	50	31	G	31	69	134	57
5	31	28	G	G	30	28	41	60	58	84	107	57	56	62	G	71	130	154		85	45	56	73	95
6	29	31	22	G	G	35	44	59	55	121	115	127	60	51	G	62	124	83	107		80	60	55	132
7	74	78	63	56	30	35	64	96	71	63	53	64	98	81	49	58	50	54	60	50	39	60	61	71
8	63	97	37	33	37	35	47	52	57	75	66	84	73	65	G	G	G	54	50	44	38	57	73	
9	107	68	45	31	G	42	62	63	68	66	57	97	70	105	106	75	91	84	97	60	53	40	G	G
10	26	G	G	G	G	33	43	69	65	71	68		56	79	71	65	81	47	73		60	55	93	58
11	27	34	27	29	28	30	42	85	55	55	59	G	98	54	62	80	92	61	40	36	45	46	39	49
12		G	G	G	G	G	G	48	69	55		55	60	70	72	85	53	46	56	109	157	150	150	89
13	133		136		65	31	57	102	98	69	G	53	55	86	96	88	101	76	76	67	86	70	60	106
14	62	37	36	31	G	G	79	92	60	109	105	166	G	G	110	G	G	G	61	60	54	71	60	70
15	72	107	72	73	57	45	G	62	74	68	72	104	84		74	53	G	48	37	122	31		43	52
16	84		62	59	45	32	44	105	144	67	103	87	128	136	151	106	113	74	92	175	93	42	45	116
17	91	82	50	29	33		35	75	67	62	82	60	76	68	55	52	45	55	40	34	41	33	42	
18	24	34	59	49	52	36	40	52	51	60	119	68	89	67		G	G	G	34	G	G	G	62	24
19	28	34	42		40	40	G	62	125	118	82	108	61	67	114	G	46	45	39	36	54	44	34	70
20	62		37	40	G	G	G	47	60	87	81	78	108		G	55		70	50	52	34	59	103	68
21	41	39	58	43	34	34	44	64	69	98	79	113	184	73	73	G	116	114		73	36	121	125	58
22	37	37	31		41	35	49	84	57		188	174	121	124	62	G	88	72	58	34	86	97	50	59
23	46	42	51	44	32	G	54		70	67		91	55			57	46	42	35		28	55		46
24	36	35	32	29	32	G	47	86	97	90	138	94	140	72		73	97	60		176	88	83	56	52
25	40	34	26	32	25	G	56	74	74	96	80	55			G	G	85	90	103	54		55	64	70
26	33	34	33	27	34	38	G	G	53	85	95	142	164	G	G		G	83	72	56	58		62	
27	69	35	29	30	30	32	G	55	62			57		73	131	105	128	119	116	114				55
28	25	G	G	G	G	G	39	49	60	G										51	G	G	56	55
29	54	63	40	33	52	42	50	G	G	G	G	66	90	53	87	G	G	74	82		72	73	93	37
30	72	31	85	28	37	31	G	53	68	76	69	166	84	69	86	74	69	138	157	72	81		80	49
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	27	30	26	30	29	30	29	30	28	26	27	27	25	26	28	28	29	26	25	28	26	27	26
MED	52	35	38	32	32	33	44	62	66	68	80	87	84	69	72	60	70	70	60	56	54	58	62	58
U Q	72	68	59	43	40	35	56	79	74	86	103	113	108	80	96	74	94	83	97	97	83	73	93	71
L Q	30	31	29	28	25	14	G	52	57	61	59	57	60	53	G	G	45	49	40	37	36	46	50	52

COMMUNICATIONS RESEARCH LABORATORY, JAPAN

HOURLY VALUES OF fmin AT Kokubunji

JUN. 2001

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	14	14	14	14	13	14	14	17	C	37	39	38	C	36	34	23	23	15	13	14	14	13	14	14
2	13	14	13	14	13	15	14	15	21		36		39	42	43	38	15	15	15	13	15	14		13
3	14	14	13	14	13	14	14	15	17		39	39	42		62		20	15	13	14	13	14	14	14
4	13	14	14	13	13	17	15	17	18		44	39	36	40	39	24	25	15	14	14	14	14	14	14
5	13	14	13	13	13	14	15	15	47	23	22		35	34		18	17	14		14	14	13	15	14
6	14	14	14	13	14	13	13	18	23	31		30	34	37		25	18	15	14		13	14	13	13
7	13	14	15	13	13	17	13	18	22		42	39	42	42	40	22	17	15	14	13	13	13	14	14
8	13	14	14	14	14	14	13	17	18	22	39	40	44	42		22	18	14	13	14	13	13	14	
9	14	14	14	14	14	14	13	17	43	44	43	40	42	40	43	21	25	18	14	15	14	13	14	14
10	14	14	14	17	13	14	15	22	22		42		44	39	36	24	21	14	14	13	13	13	13	14
11	13	13	13	13	13	14	17	17	21	39	39		42	40	39	39	15	14	14	13	14	13	14	14
12		14	25	14	14	18	17	14	20			44	44	44	40	28	18	13	14	13	13	13	14	13
13	14	13	13		14	17	14	17	18			43	42	47	47	38	20	17	14	14	13	13	13	13
14	13	13	14	14	13	15	15	18	24		44	43		62	42	63	24	15	14	14	14	13	13	14
15	13	14	14	13	14	14	15	20	17	24		39	48		43	39	49	17	14	14	13	14	14	13
16	13	13	15	13	14	14	14	15		26	40	46	43	44	46	25	20	17	14	13	13	14	14	14
17	13	14	14	13	14	14	15	14	25		38	39	43	39	33	28	18	14	14	13	14	14	13	
18	14	14	14	14	14	14	14	14	20		23	40	43	43		30	18	15	14	17	14	13	13	17
19	14	14	14		13	14	17	18		39	48	39	40	38	34	17	18	13	14	14	13	13	13	13
20	14		13	13	14	24	15	14	20		44	39	39		62	21		13	14	14	13	13	13	14
21	13	14	13	14	14	14	15	20		39	43	45	44	43	44	60	39	18		14	13	14	14	14
22	17	14	13		14	14	14	15	22		44	44	43	35	37	63	22	17	15	14	14	14	13	14
23	14	14	14	13	14	15	14		43	43		62	40			43	25	15	14		14	13	13	13
24	14	14	13	13	14	24	26	17	40	44	42	44	43	44		44	38	17		14	13	13	14	14
25	14	14	15	14	14	15	15	21		45	43	43					39	23	15	14		14	14	14
26	13	14	14	14	14	15	17	18	26	44	43	43	42					22	14	17	14		14	
27	14	13	14	13	14	17	17	17	26			40		40	34	41	18	18	14	14				15
28	14	14	14	14	14	20	15	18	22											14	14	14	14	13
29	14	13	14	13	14	14	15	15	18		C	C	37	29	C	25	17	14	14	14	13	13	14	14
30	13	14	13	14	14	17	15	15	20	18		42	38	39	39	40	17	15	13	14	13	13	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	29	29	30	27	30	30	30	29	25	15	21	24	25	23	20	26	27	29	26	28	28	28	28	27
MED	14	14	14	14	14	14	15	17	22	39	42	40	42	40	40	28	20	15	14	14	13	13	14	14
U Q	14	14	14	14	14	17	15	18	25	44	43	43	43	43	43	40	25	17	14	14	14	14	14	14
L Q	13	14	13	13	13	14	14	15	19	24	39	39	39	38	36	23	18	14	14	13	13	13	13	13

HOURLY VALUES

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

HOURLY VALUES OF foF2 AT Okinawa

JUN. 2001

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	109	131	C	114		94	95	94	83	86	88	92	94	114	114	118	118	120	128		121	111	117	96
2	93		95	91	73	64		95	83	76	91	114	112	117	119	121	116	120	98	106	86	78	92	92
3	86		91	81	72	67	70	94	93	72	94		118	118	120	121	122	122	118	111	83	93		94
4	96	96	72	70		69	71		94	70	88	102	116		137	158	154	161	167	164	116		94	105
5	96	94	111		80		94	82		71	71	80	94	110	110	115	117	120	122	120	114	85	93	115
6	96	93	94	80	75	78	116	93	74		78	92	100	102	121	114	120	109	120	90	80	80	83	83
7	81	93	93	78	73	72	81	87	A		75	77	91	102	114	114	120	130	132	104		84	91	
8	92	112	93	92	81	78	93	94	95	80	77	90	94	118	118	121	123	127	122			115	102	101
9	105	122		114	116	93	109		78		A	A	91	A		A	A	126	127	91	A	81	92	93
10	94	93																						
11															155	162	168	170	162	164		115		136
12	132	152	85	114	93	92	93																	
13																	146	152	146	128		92	118	115
14		94	91	81	74	76	76		87	A		C	C	115	116	115	112		111	106		82	94	114
15		99		78	72		78	91		80	A	A	94	114	114	124	127	126	110	110		93	93	99
16																								
17																								
18											93	88	A	A	104	119	104	103	106	88	94	93	94	94
19	94	84	66	63	68	49	58	71	A	A	A	A	A	A	A	A	A	A	90	A	94			92
20	73	95	77	80	94	60	60	81	70	63	74		92	94	116	114	102	105	124	107	84	74	94	91
21	78		82	80	75	66	93	76				95	116	125		133	112	124	130	143	134	94	92	93
22	96		79	80	81	70	72	93	83		83	94	A	81	114	114	112	110	83	A	94	80	91	77
23	83			82	80	92	94	79	78		A		93	96	A	A	A		112				75	55
24	70			66	A	60	58	A	A		A	73	82	86	91	115	98	101			93	78		
25	95		93	96		68	95	93	82	78	76	85	93	92	93	96	119	122	110	126	114	90	96	
26		113	93	93	82	79	92	93	95		93	90	92	96	107		121	128	124	122	97		99	116
27	99	114	93	91	80	80	78	90	94		A	84		93	114	94	94	113	92	A	80		93	92
28	95	94	93	94	70	72	80	84	77		82		80	115	116	101	102	123	114	104	93	83	84	93
29	83	94	92	75	72	67	92	93	94	81	A	A	A		125	116	122	126	126	128	122	86	94	93
30		115	94	82	72	61	67	94				114	95	103	105	112	112	121	124		88		93	109
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	18	19	23	20	22	23	19	16	10	14	15	18	19	21	21	23	23	25	18	18	20	22	23
MED	94	96	93	81	75	71	81	93	83	77	82	90	94	103	114	115	118	122	122	110	94	86	93	94
U Q	96	114	93	93	81	79	94	94	94	80	91	95	100	115	119	121	122	127	127	128	114	93	94	109
L Q	83	94	82	78	72	66	71	82	78	71	76	84	92	94	108	114	112	113	110	104	86	80	92	92

COMMUNICATIONS RESEARCH LABORATORY, JAPAN

HOURLY VALUES OF fEs AT Okinawa

JUN. 2001

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	37	37	33		26	G	38	52	G	G	77	61	G	59	G	101	60	46		G	G	29	26
2		G	G	G	G	G	G	42	62	45	G	G	G	G	G	49	58	58	56	39	87	68	69	37
3	44	32	39	G	G	G	G	39	68	G	79	158	87	56	G	G	G	41	39	84	G	G		67
4	90	58	35	23		29			93	79	67	G	82	50	G	G	G	46	68	70	47		26	23
5	G	24	23	G	G	G	30	39	G	45	G	48	58	68	G	64	G	G		68	42		44	88
6		73	60	38	24	26	31	42	76	133	69	68	58	55	56	55	49	45	48	34	34	37	42	26
7	G	G	25	26	G	G	G	56	160		G	62	G	G	61	70	67	69	56	58	50		44	66
8	70	59	62	52	37	60	37	G	58	66	G	60	G	G	G	G	G	G	43	41		41	34	64
9	58	38	24	G	G	G	31		46	91	110	118		138	94	108	127	95	96	97	121	40	38	43
10	36																							
11															95	59	124	99	60	94		39	62	86
12	60	50	39	G	G	G	G																	
13																	57	74	92	88	49	58	69	49
14	44	38	34	26	31	88	63		111	116		163	118	78	65	52	G		G	27	81	27	28	26
15	G	43	24		24	G	G	41	94	117	166		G	G	49	69	84	118	68	72	94	88	62	38
16																								
17																								
18											63	57	101	116	G	47	G	G	G	33	G	G	26	
19	78	68	44	47	25	G	G	34	96	91	152	106	195		130	166	135	143	62	104	74	59	50	33
20	34	24	24	G	G	G	G	38	46	G	G	G	60	G	G	46	G	66	42	42	49	41	42	G
21	70		66	66	66	74	81	93			85	G	74	65	77	75	72	67	76	108	42	38	33	40
22	40	40	25	28	G	G	36	G	48	85	70	79	93	62	G	87	G	62	86	170	61	G	23	48
23	42	84	76	39	37	32	33	57	150	80	185	153	97	104	150	147	126	118	96	92	68	56	57	
24	61	74	86	68	83	50	62	117			123	137	53	68	61	48	G	78	55	50	70		N	42
25	48	46	50	44	47	G	G	41	48	G	G	G	G	G	62	49	G		147	92	50	29	24	60
26		45	36	37	G	G	39	43	50	46	G	54	62	G	67	107	G	93	38	54			48	G
27	34	62	50	56	57	60	46	66	95	117	98	100	84	G	61	59	54	50	76	96	29	59	64	46
28	40	50	70	82	82	58	45	68	53	53	150	98	63	54	G	74	71	79	162	39	37	G	56	G
29	58	30	G	25	26	46	46	51		84	143	151	195	94	G	G	G	G	44	28	G	G		33
30		43	35	38	40	41	39	62			88	95	G	57	G	66	47	85	G	38	G	38		72
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	23	24	23	22	24	23	20	19	19	23	23	23	23	25	25	26	24	25	25	23	21	22	24
MED	44	43	36	33	24	14	31	42	62	79	70	77	62	55	56	59	48	66	56	68	49	38	43	41
U Q	60	59	55	47	40	48	45	59	95	91	123	118	93	68	66	74	72	89	81	93	70	57	57	62
L Q	35	32	24	G	G	G	G	38	48	45	G	48	G	G	G	46	G	45	42	39	29	G	29	26

COMMUNICATIONS RESEARCH LABORATORY, JAPAN

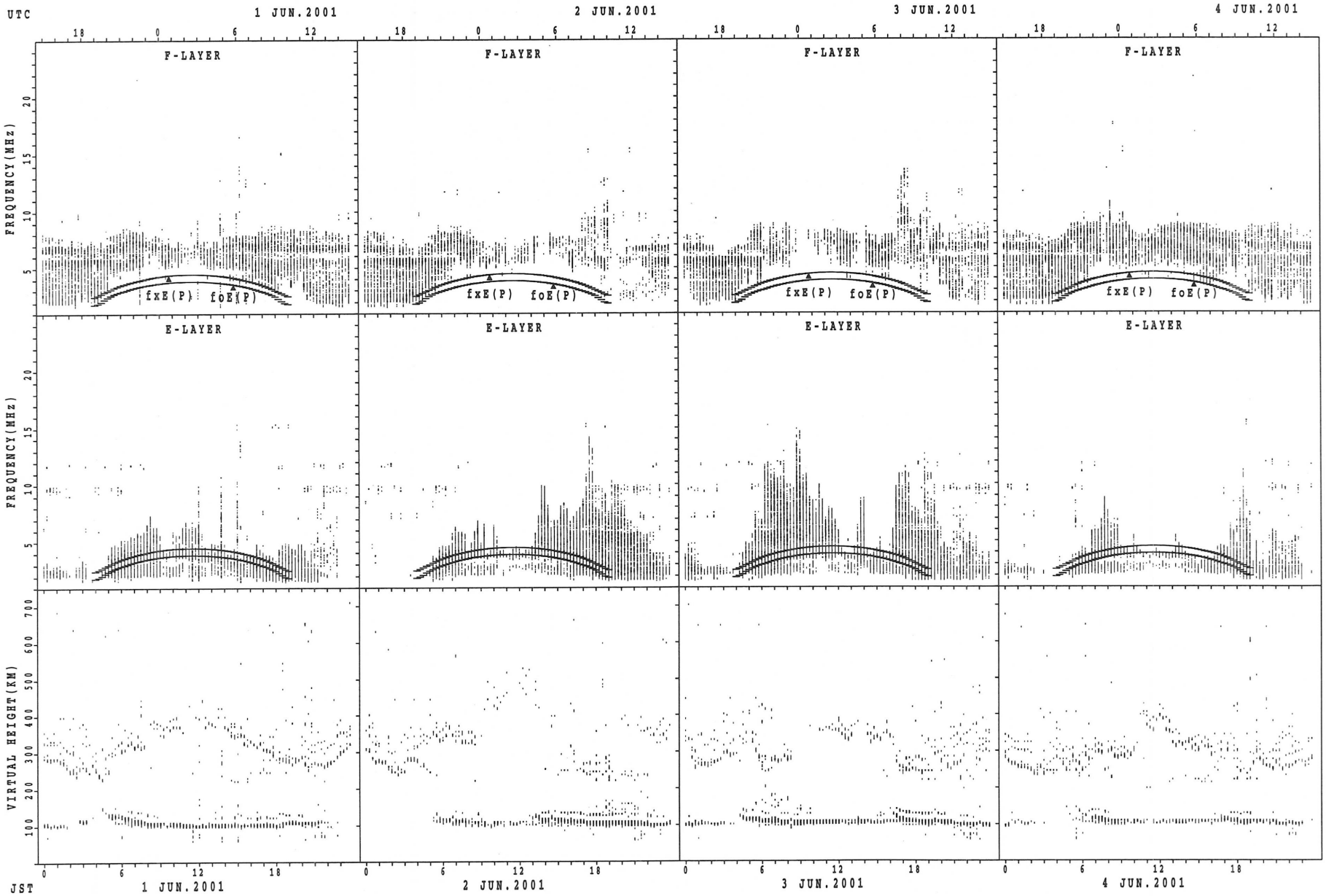
HOURLY VALUES OF fmin AT Okinawa

JUN. 2001

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

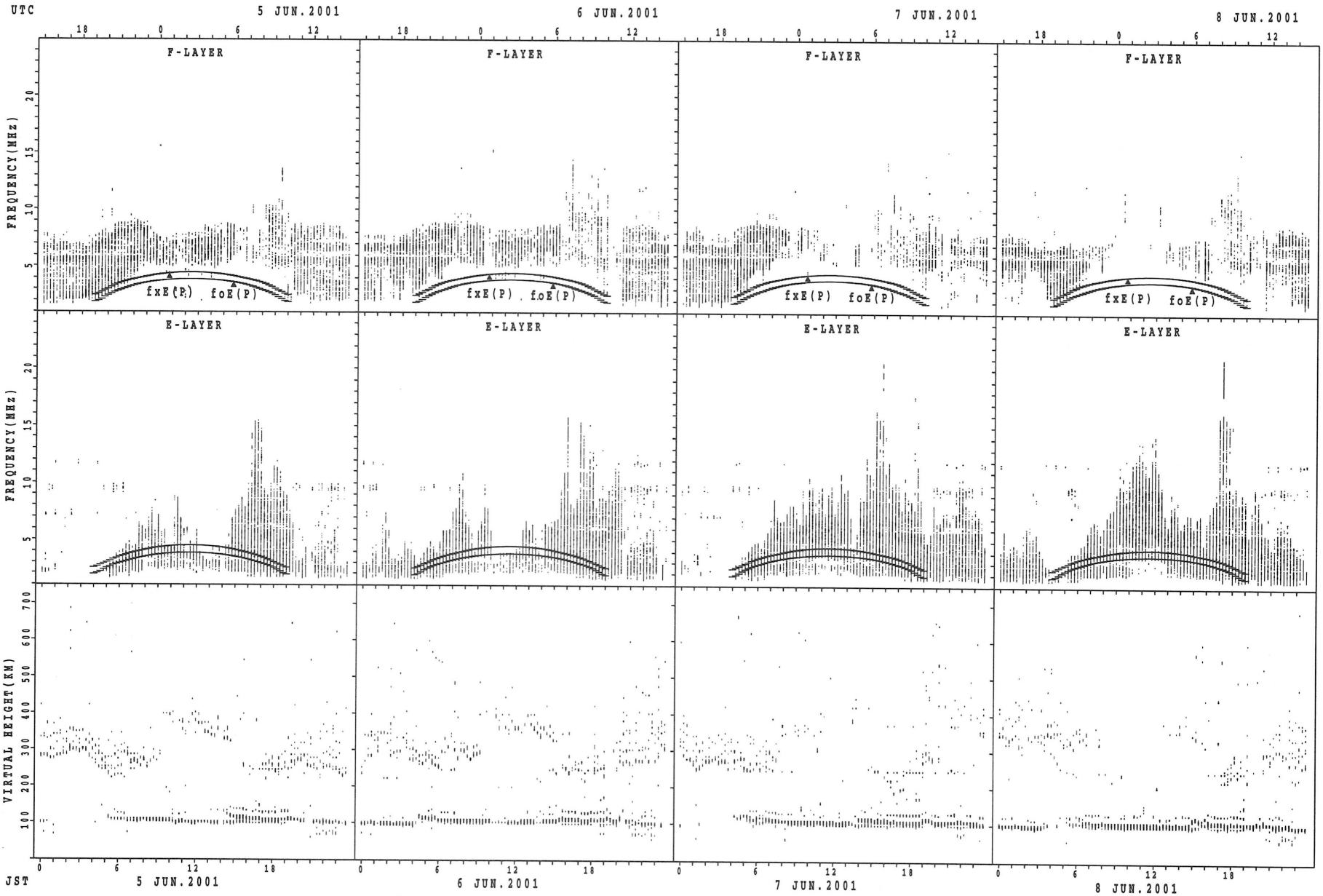
D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	15	15	15	14		14	C	16	18	27	29	35	32	C	35	29	21	21	15		15	15	15	15
2	15	15	14	15	16	15		14	16	28		34			53	40	35	18	15	15	15	15	14	15
3	15	15	16	15	16	15	28	15	17	26	29	35	33	36	30	29	26	20	15	14	17	15		15
4	15	14	15	15		14	15		18	28	29		39	42	58	53	27	17	16	14	15		15	14
5	16	15	15	16	15	15	14	14		26	30	33		45		40	27	17	16	16	14	14	14	15
6	15	15	14	15	15	15	14	14	17	23	30	30	38	33	33	28	17	16	15	14	14	15	14	15
7	17	15	15	15	15	15	23	15	16		30				30	30	27	17	14	14	17	15	14	14
8	14	15	15	14	14	15	15	16	20	26	29	30		54	56	55	48	17	16	15	14	15	15	14
9	15	15	15	15	20	14	15		33	39	43	45	45	44	42	39	28	26	15	14	14	16	15	15
10	15	14																						
11															48	43	33	17	17	14		14	14	15
12	15	15	15		16	17	17																	
13																	32	20	17	15	14	14	15	15
14	14	14	15	14	15	14	18		20	24		39	33	36	33	29	27		14	14	14	14	15	14
15	14	15	15	14	15	15		20	17	29	32	33		55	58	40	40	22	17	15	16	15	15	14
16																								
17																								
18											30	39	43	39			28			14	15	14	14	14
19	15	15	14	14	14	15	16	17	27	28	30		43	40	30	29	23	17	16	14	15	14	15	14
20	14	15	14	14	15	15	22	15	15	32	29	36	38		33	30	27	20	15	14	14	14	14	15
21	15		15	14	14	14	15	16	30		29	32	35	46	44	40	29	21	16	15	15	14	14	15
22	15	15	15	15	16	15	16	15	16	28	33		42	44			51	29	15	14	15	16	15	14
23	15	15	15	14	15	14	16	16	29	36	32	33	39	42	39	32	27	17	15	15	14	15	14	14
24	15	15	15	14	14	14	21	20	22	26	34	30		47	47		57	27	16	15	14	15	14	15
25	15	15	14	15	16	20	17	16		27		32		59		42	27	18	15	14	15	14	15	14
26		14	14	15	15	15	17	16	21	30	33		44	55	46	35		21	16	14	15	15	14	14
27	14	14	14	14	14	15	15	15	16	29	28		46		44	29	28	18	15	15	14	14	14	14
28	14	14	14	15	15	15	20	17	26	29	28	38	41	46	56	48	29	17	14	14	15	18	15	18
29	14	15	27	18	14	15	17	15	17	26	30		45	45			26	18	15	14	15	15	15	15
30		14	14	14	14	14	16	16	17	27	30	30		56	33	30	28	21	15	15	15	14	15	14
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	23	24	24	23	22	24	21	20	21	21	21	17	16	19	20	21	25	24	25	25	25	25	25	26
MED	15	15	15	15	15	15	16	16	18	28	30	33	40	45	43	35	28	18	15	14	15	15	15	14
U Q	15	15	15	15	16	15	19	16	24	29	32	37	43	54	50	41	32	21	16	15	15	15	15	15
L Q	14	14	14	14	14	14	15	15	16	26	29	31	36	40	33	29	27	17	15	14	14	14	14	14

SUMMARY PLOTS AT Wakkanai

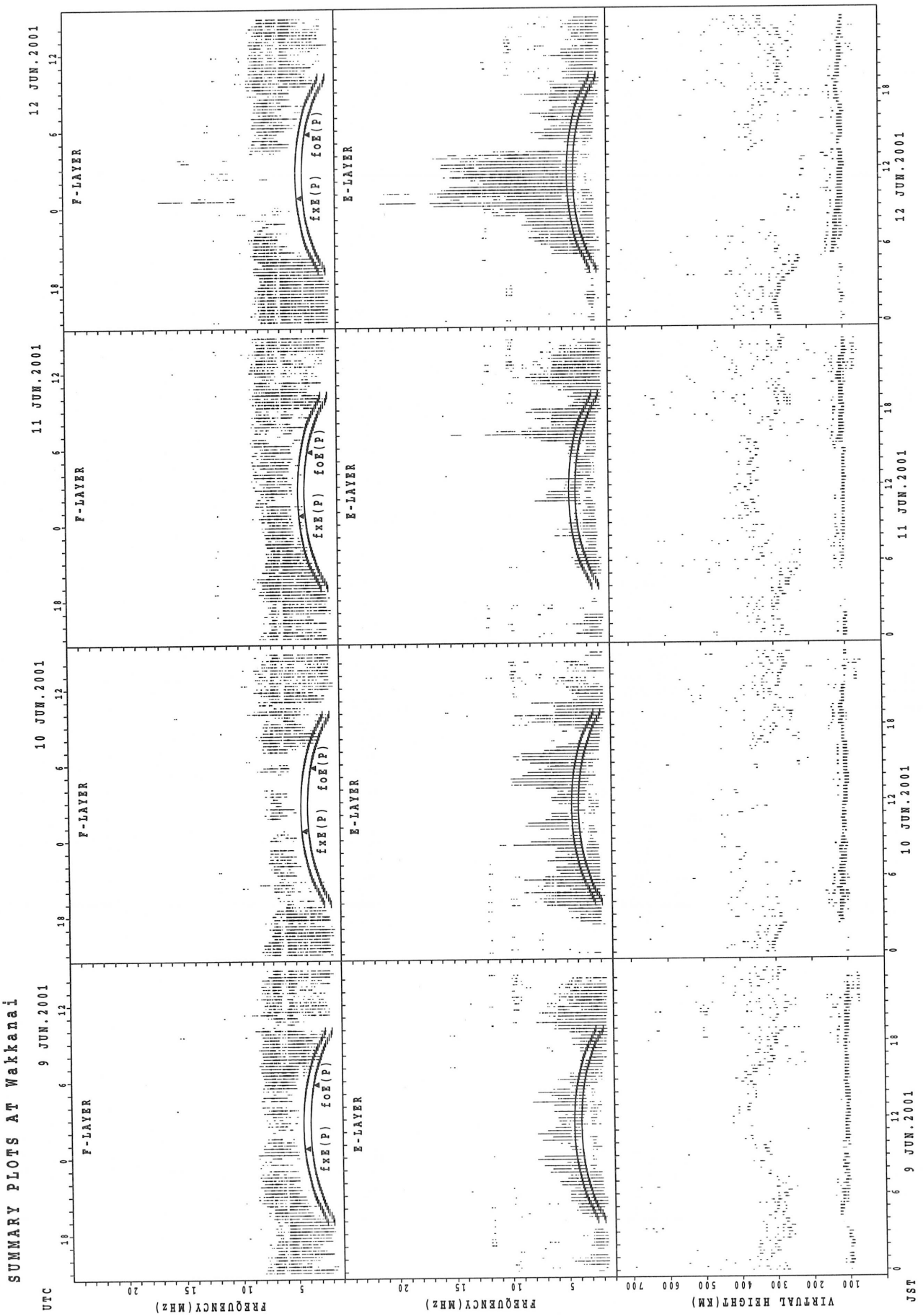


fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

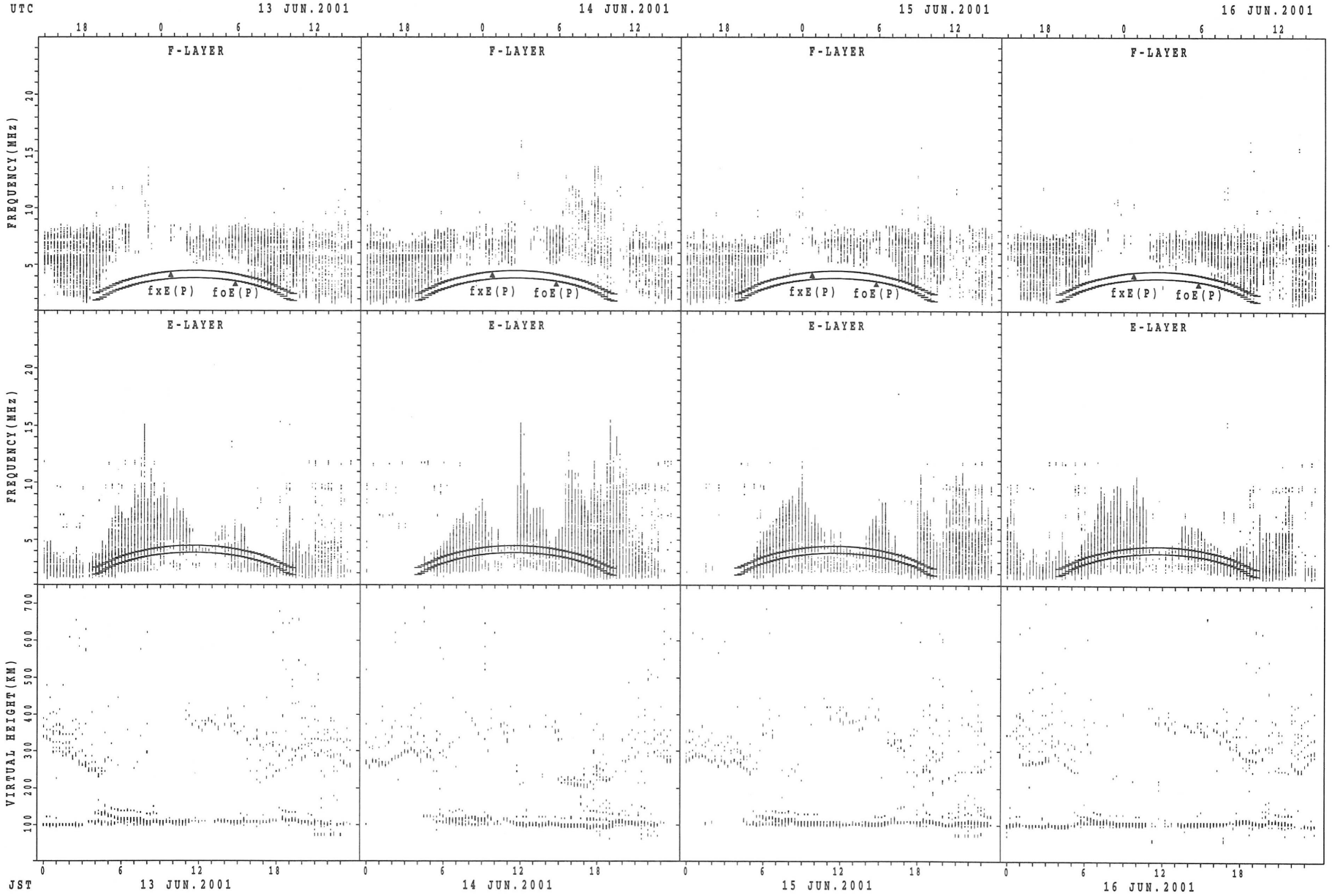
SUMMARY PLOTS AT Wakkanai



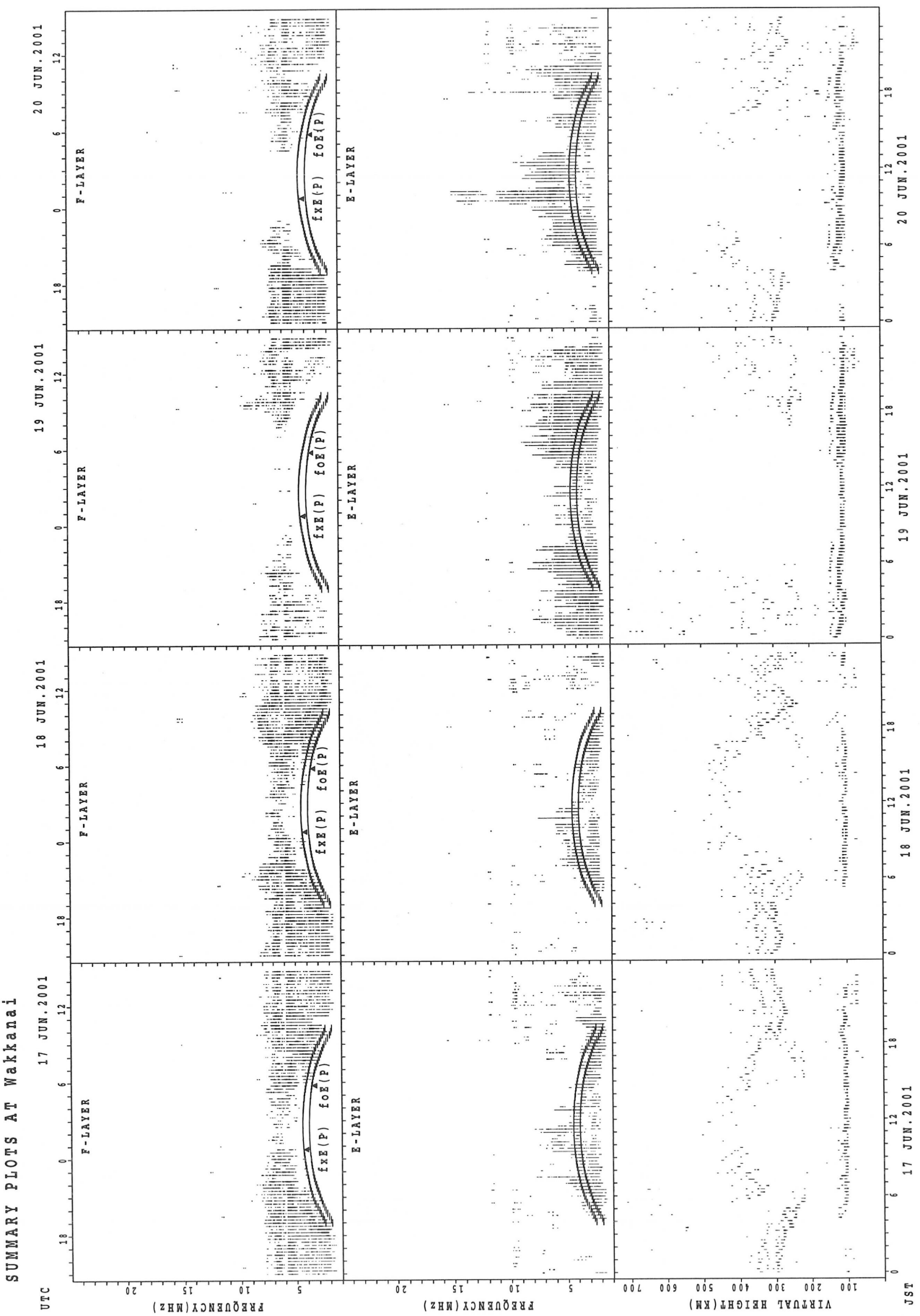
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE


SUMMARY PLOTS AT Wakkanai
UTC
JST
9 JUN.2001
10 JUN.2001
11 JUN.2001
12 JUN.2001
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

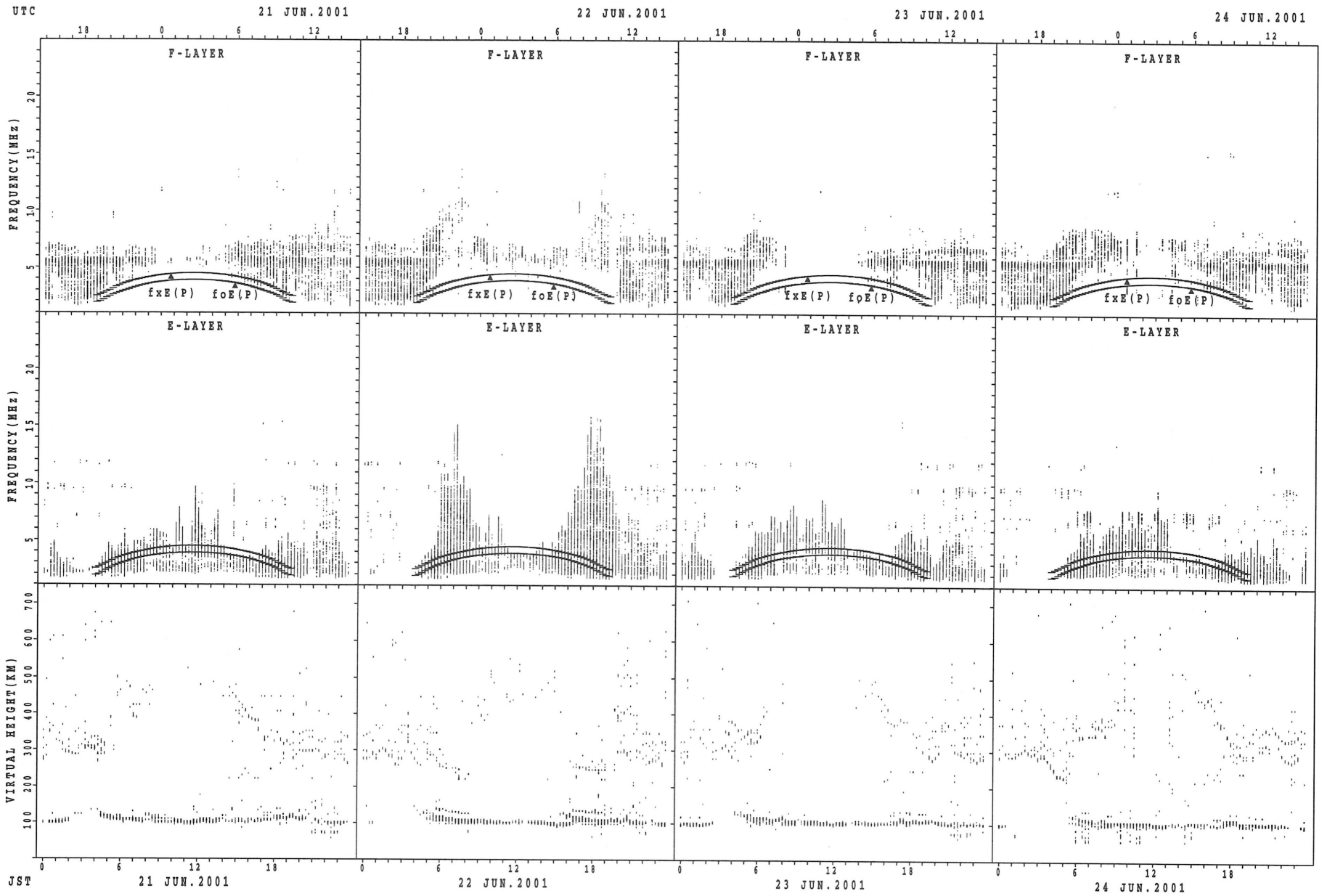
SUMMARY PLOTS AT Wakkanai



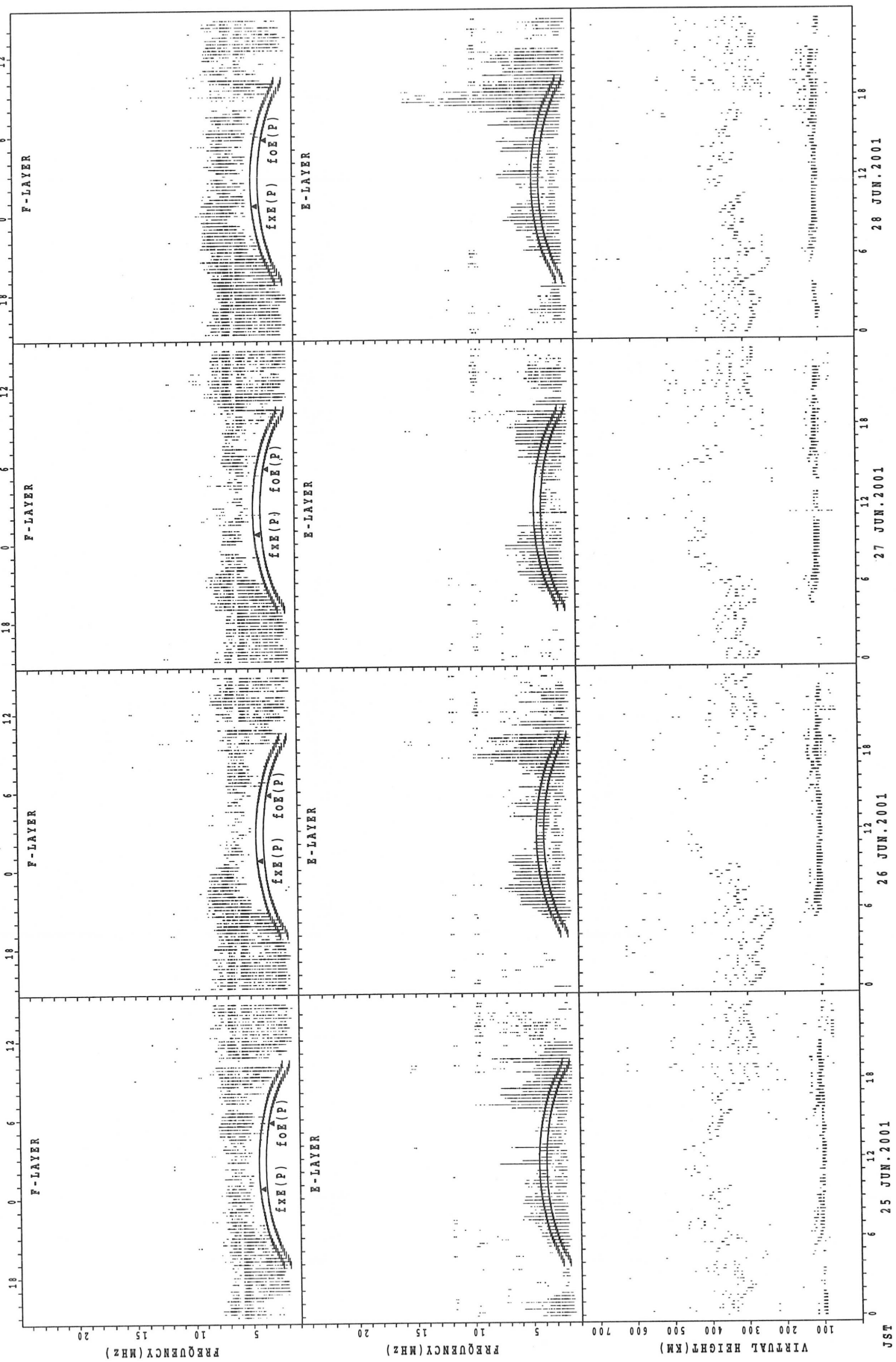
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

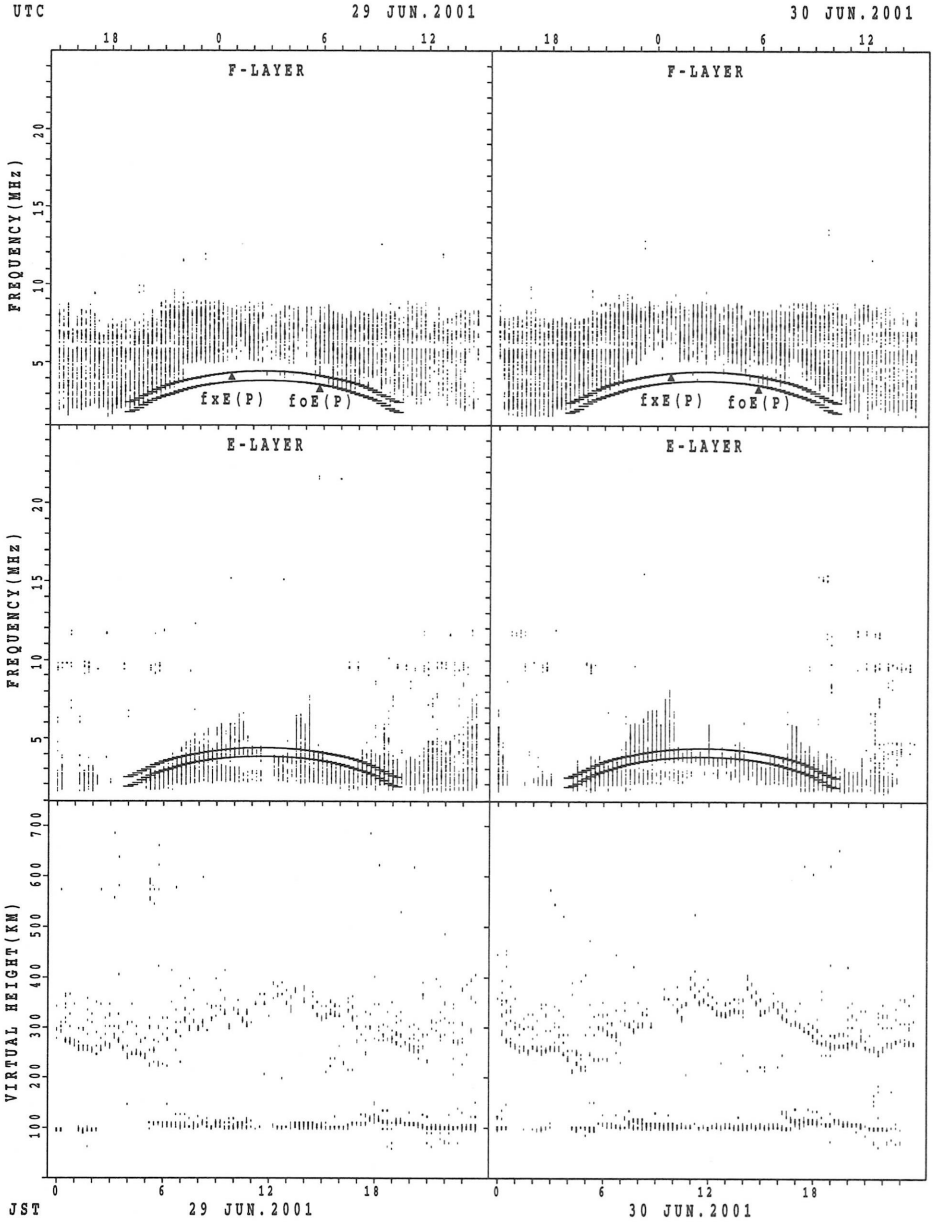

SUMMARY PLOTS AT Wakkanai
17 JUN.2001
18 JUN.2001
19 JUN.2001
20 JUN.2001
UTC
JST
F-LAYER
E-LAYER
fxE(P)
foE(P)
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai

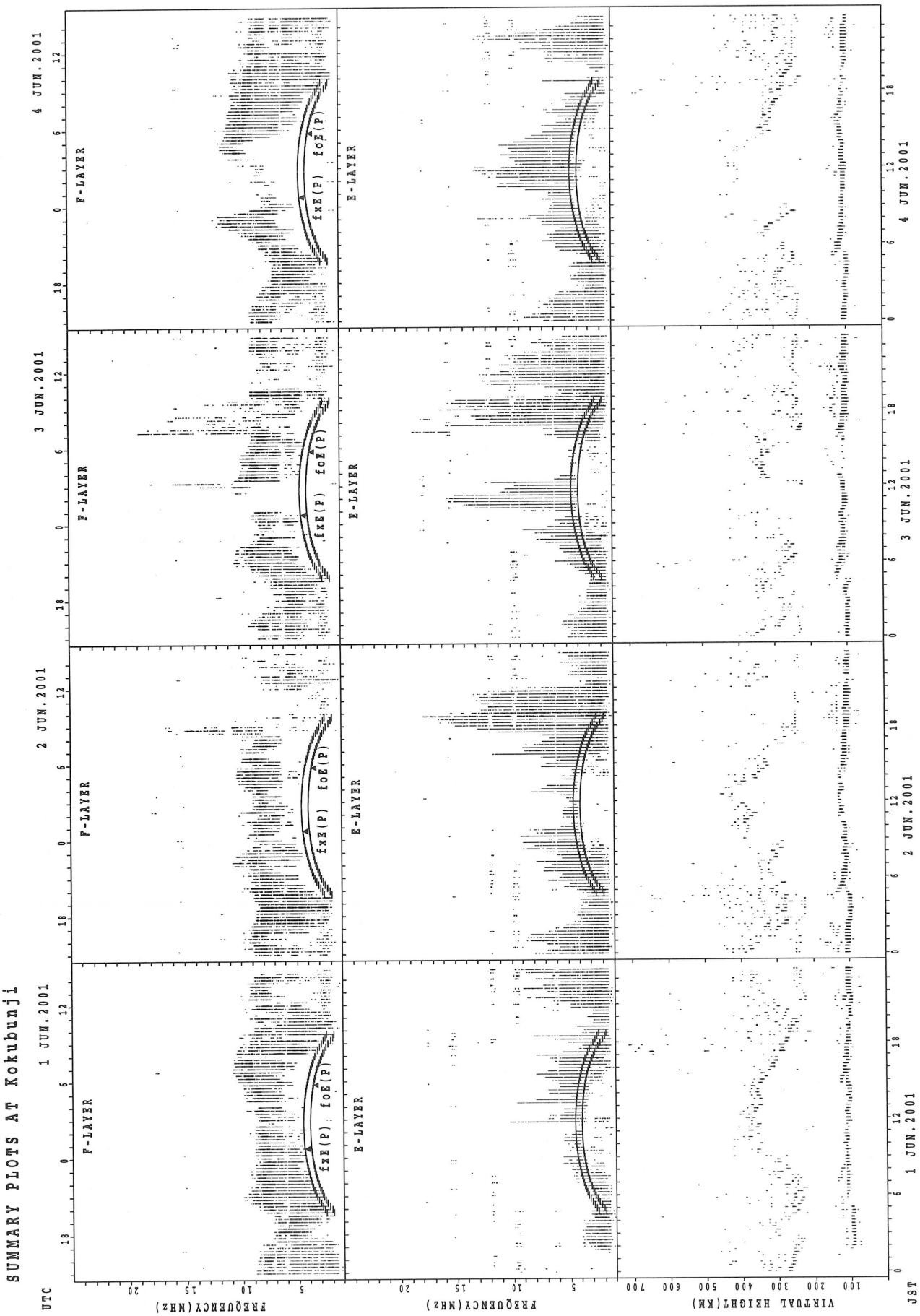


fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

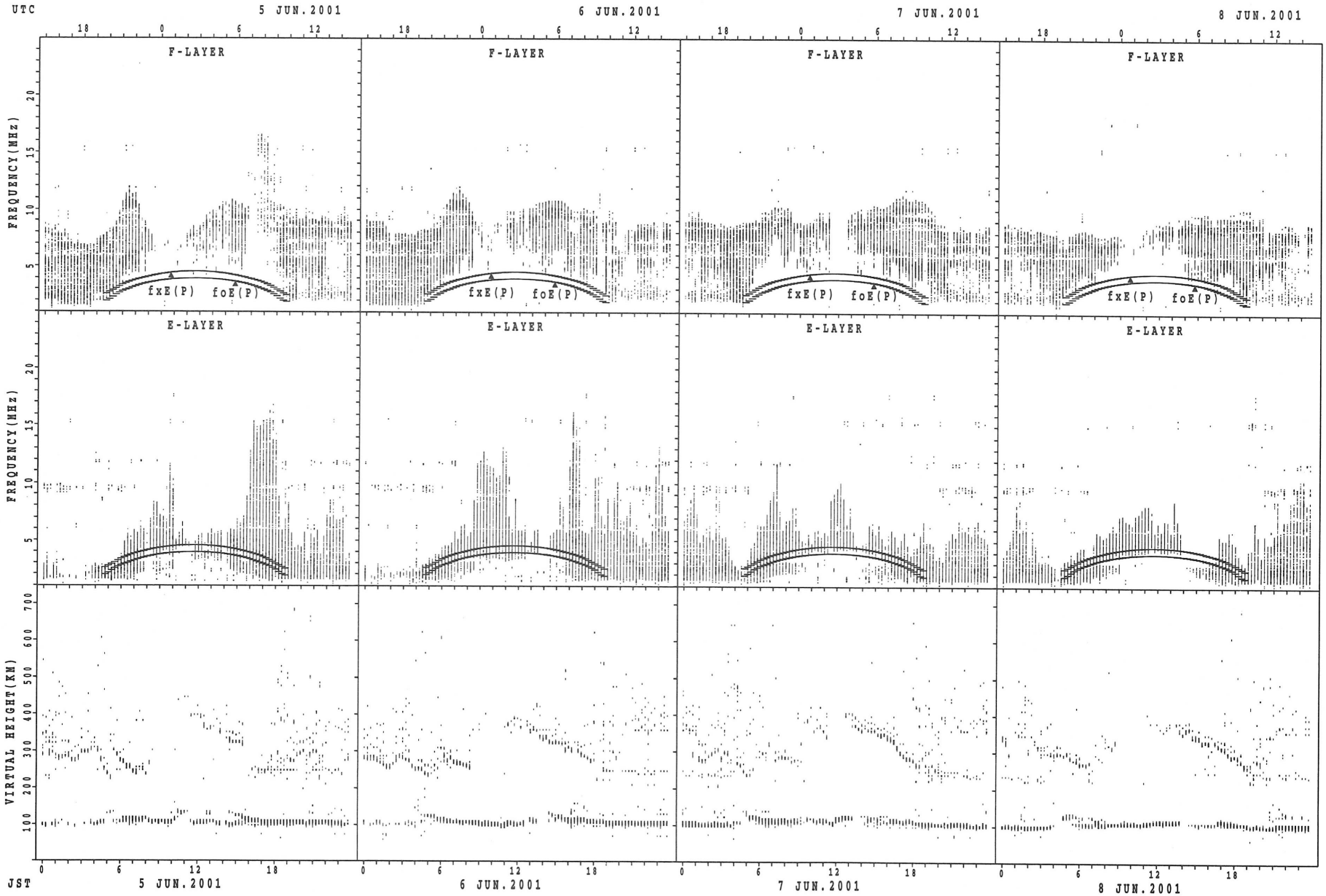

SUMMARY PLOTS AT Wakkanai
UTC
JST
25 JUN.2001
26 JUN.2001
27 JUN.2001
28 JUN.2001
F-LAYER
E-LAYER
fxE(P)
foE(P)
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE



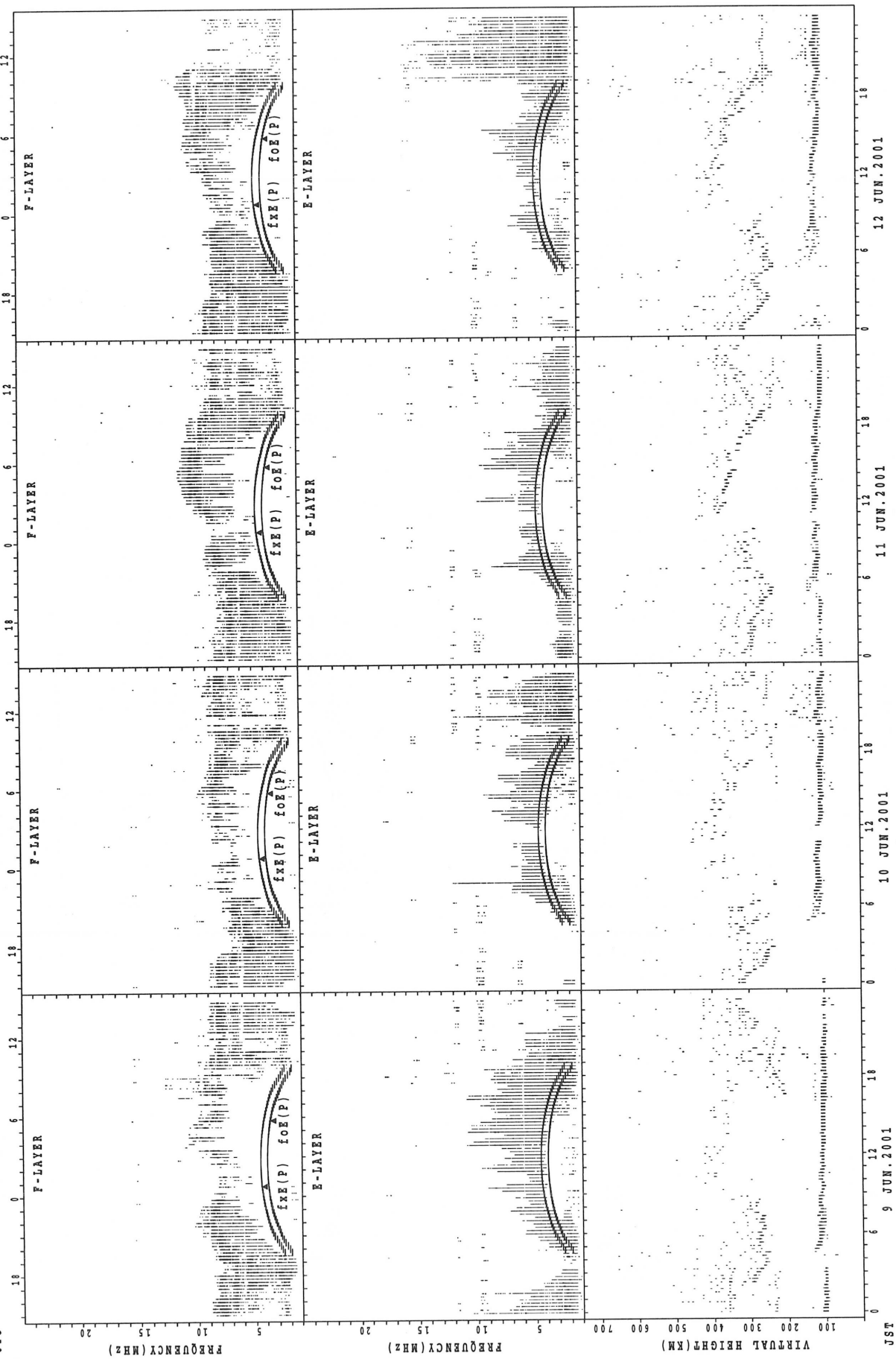
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE


SUMMARY PLOTS AT Kokubunji
1 JUN.2001
2 JUN.2001
3 JUN.2001
4 JUN.2001
UTC
JST
F-LAYER
E-LAYER
fxE(P)
foE(P)
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

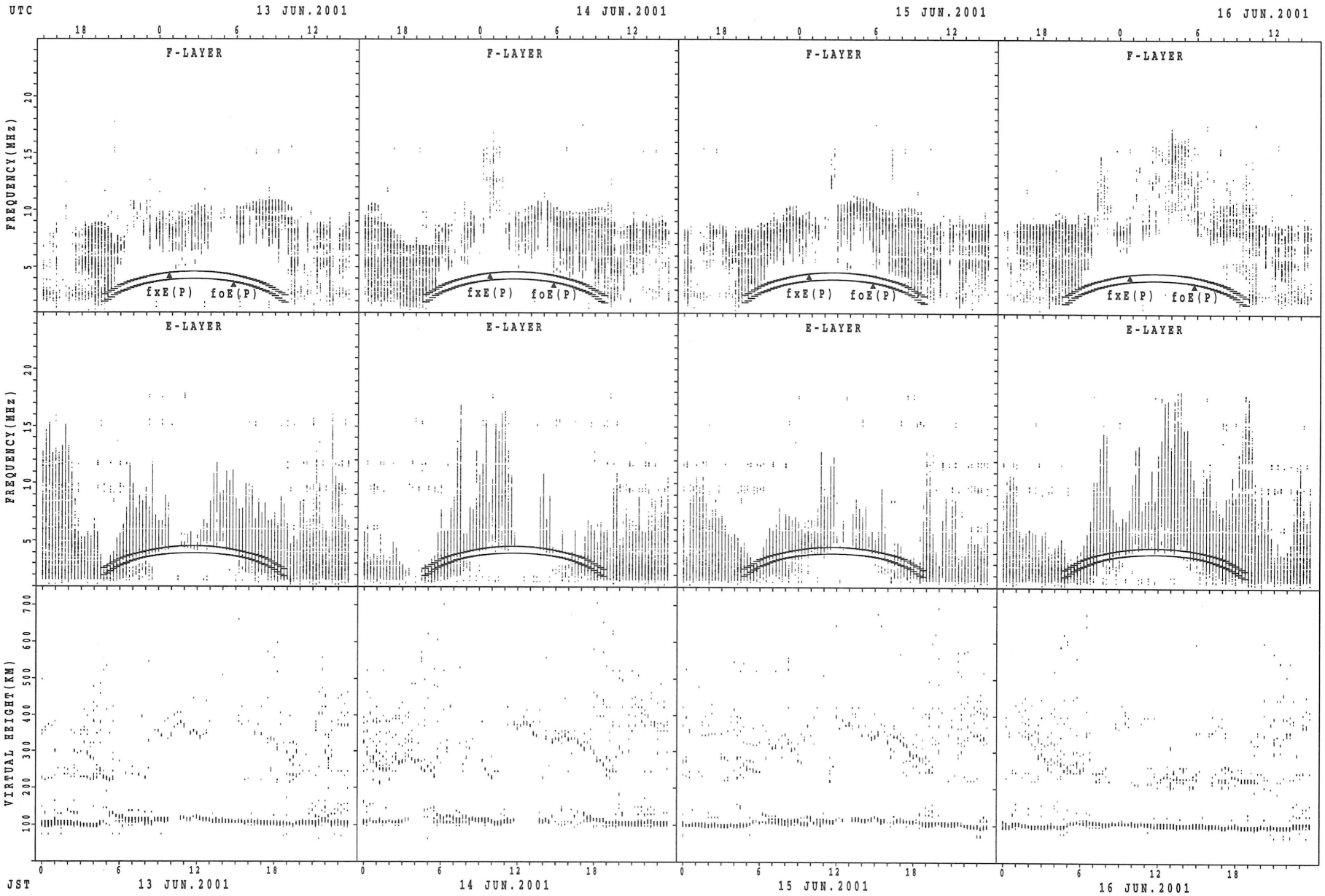
SUMMARY PLOTS AT Kokubunji



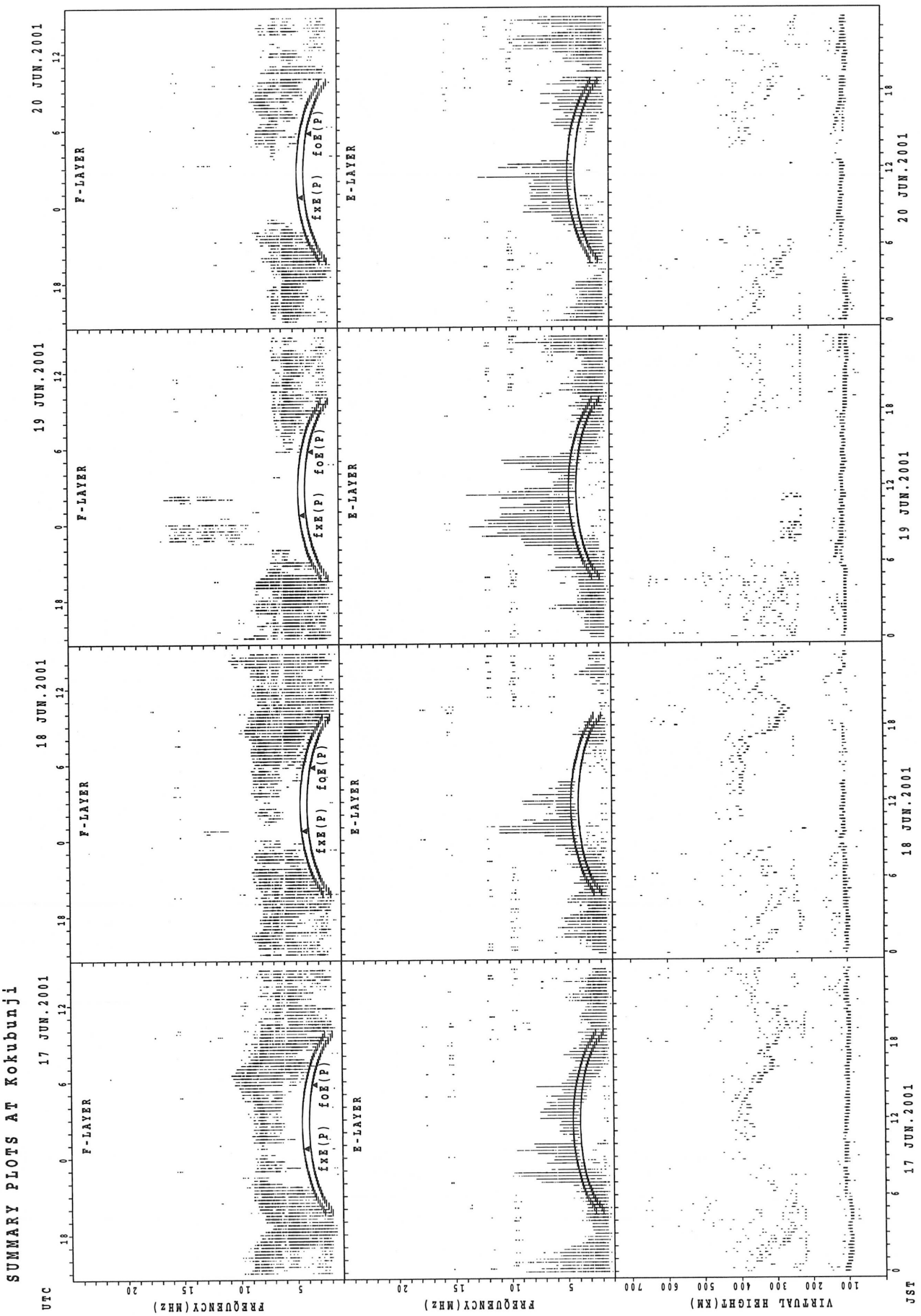
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE


SUMMARY PLOTS AT Kokubunji
UTC
JST
9 JUN.2001
10 JUN.2001
11 JUN.2001
12 JUN.2001
F-LAYER
E-LAYER
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
fxE(P)
foE(P)
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

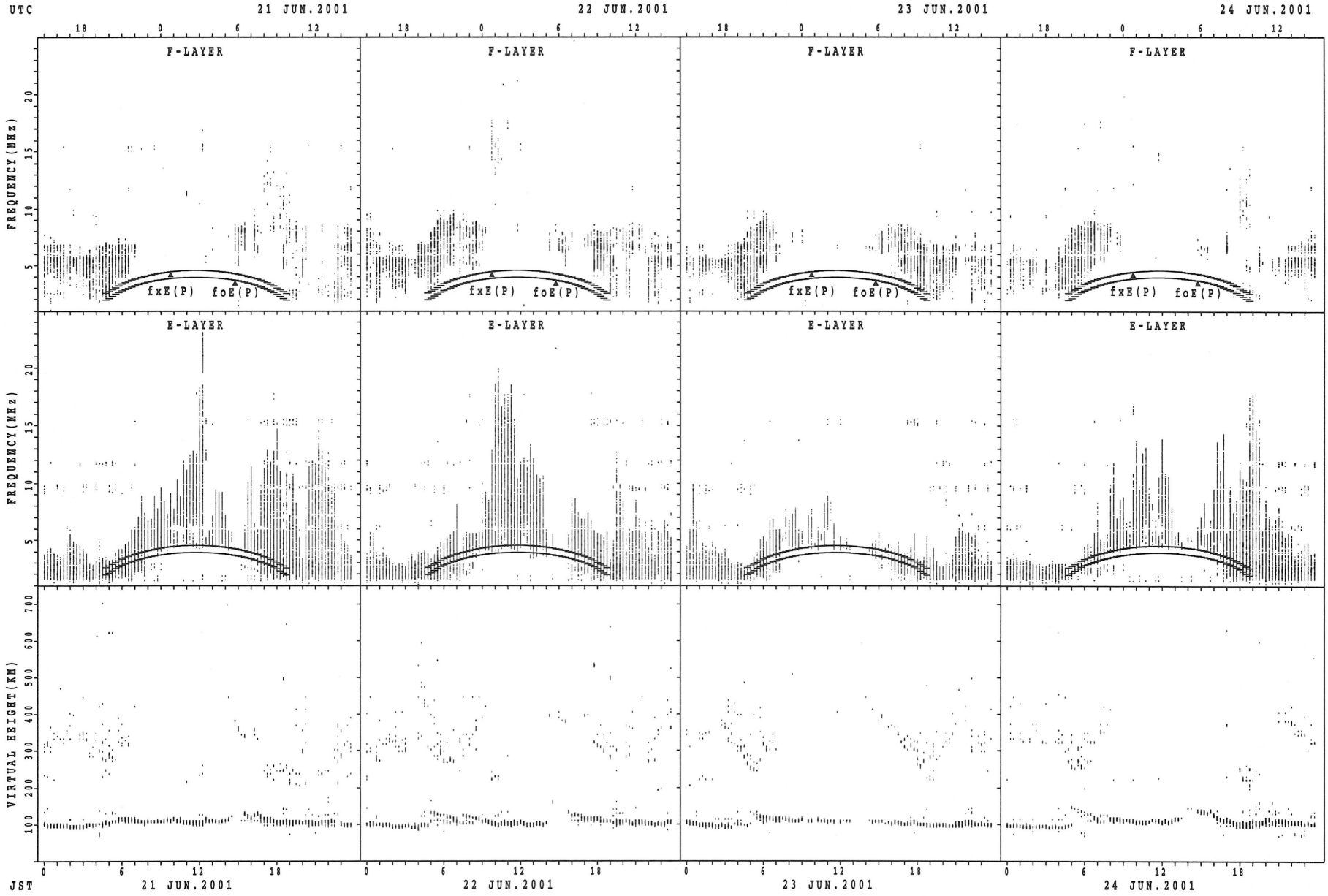
SUMMARY PLOTS AT Kokubunji



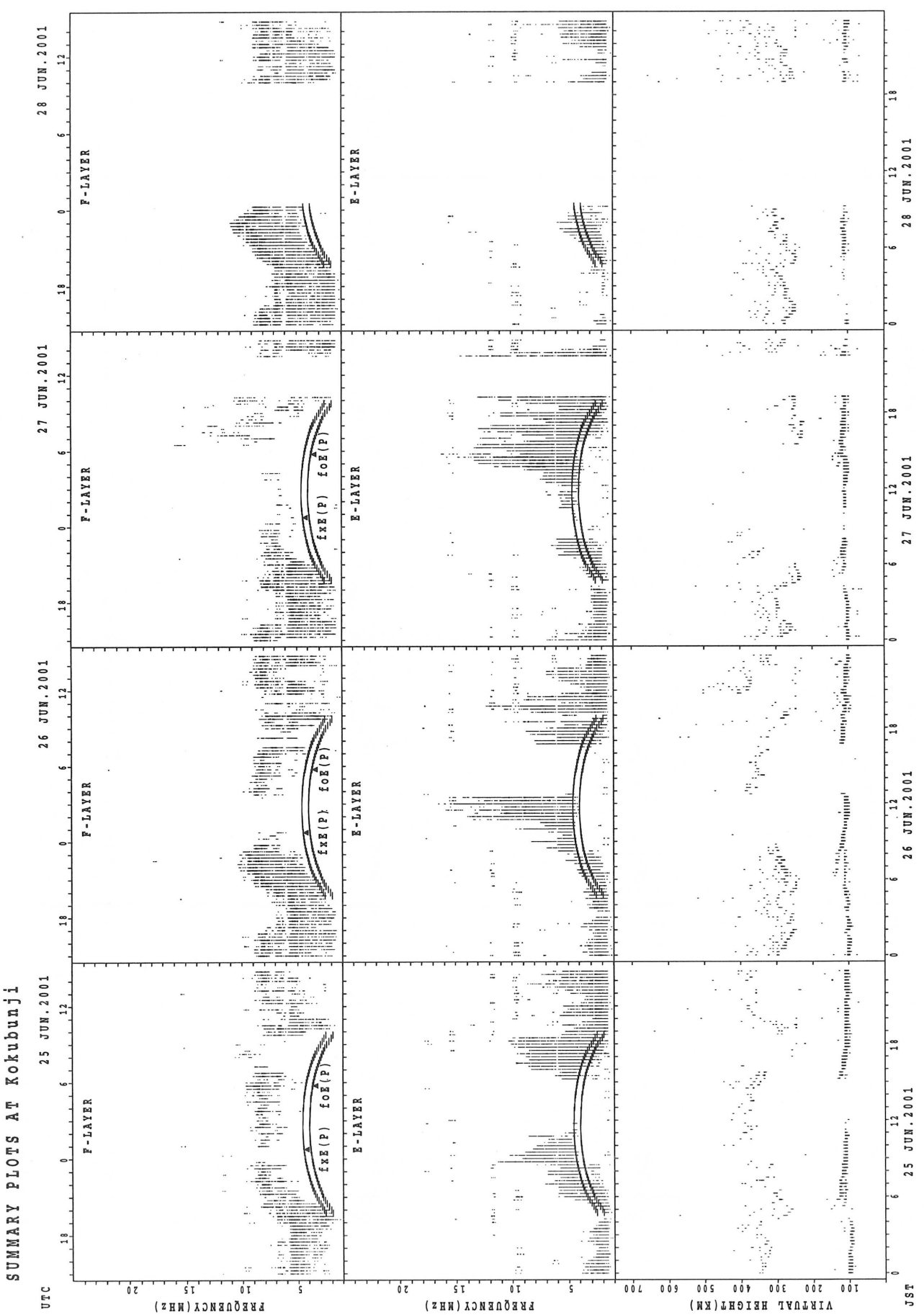
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE


SUMMARY PLOTS AT Kokubunji
UTC
JST
17 JUN.2001
18 JUN.2001
19 JUN.2001
20 JUN.2001
F-LAYER
E-LAYER
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
fxE(P) foE(P)
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

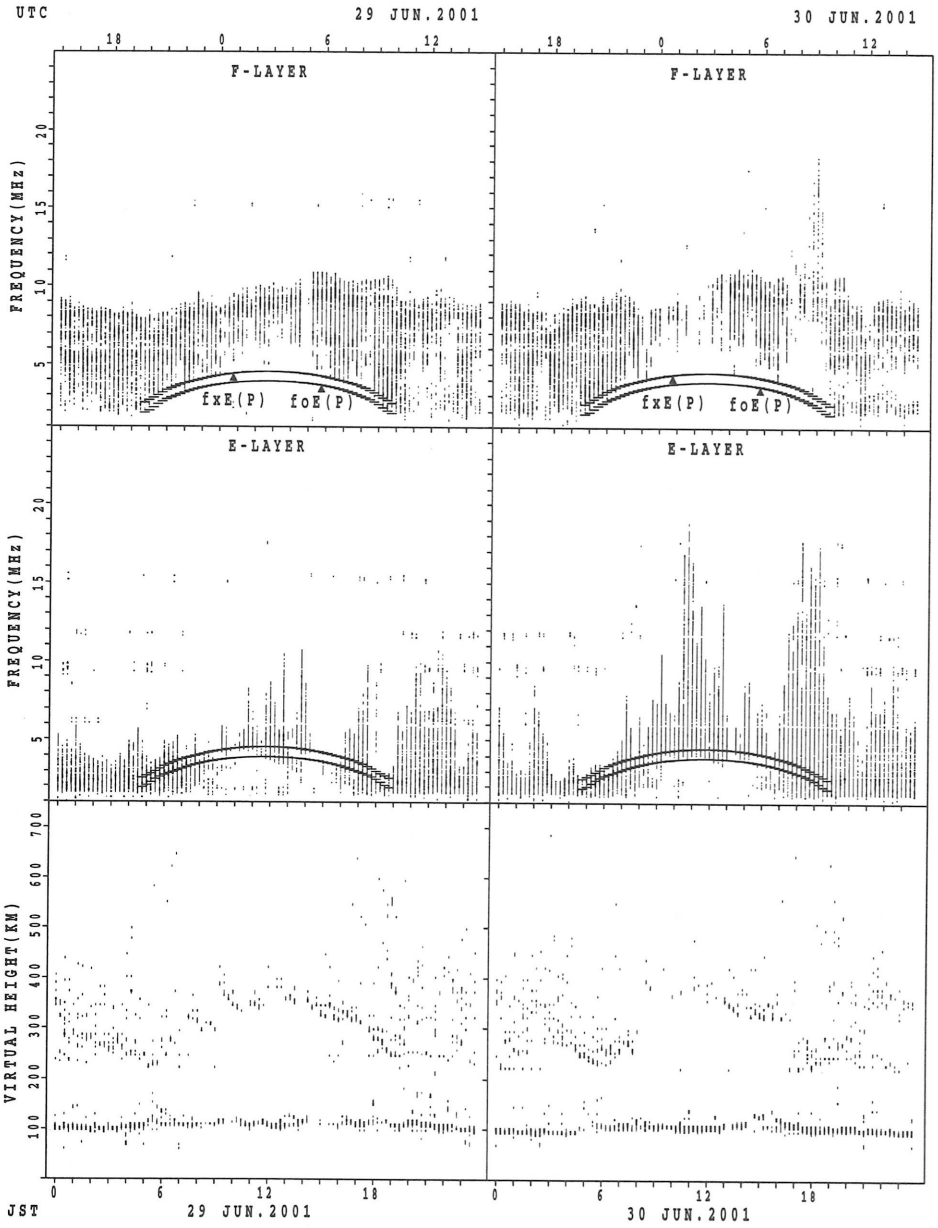
SUMMARY PLOTS AT Kokubunji



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


SUMMARY PLOTS AT Kokubunji
UTC
25 JUN.2001
26 JUN.2001
27 JUN.2001
28 JUN.2001
F-LAYER
E-LAYER
fxE(P)
foE(P)
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
JST
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji

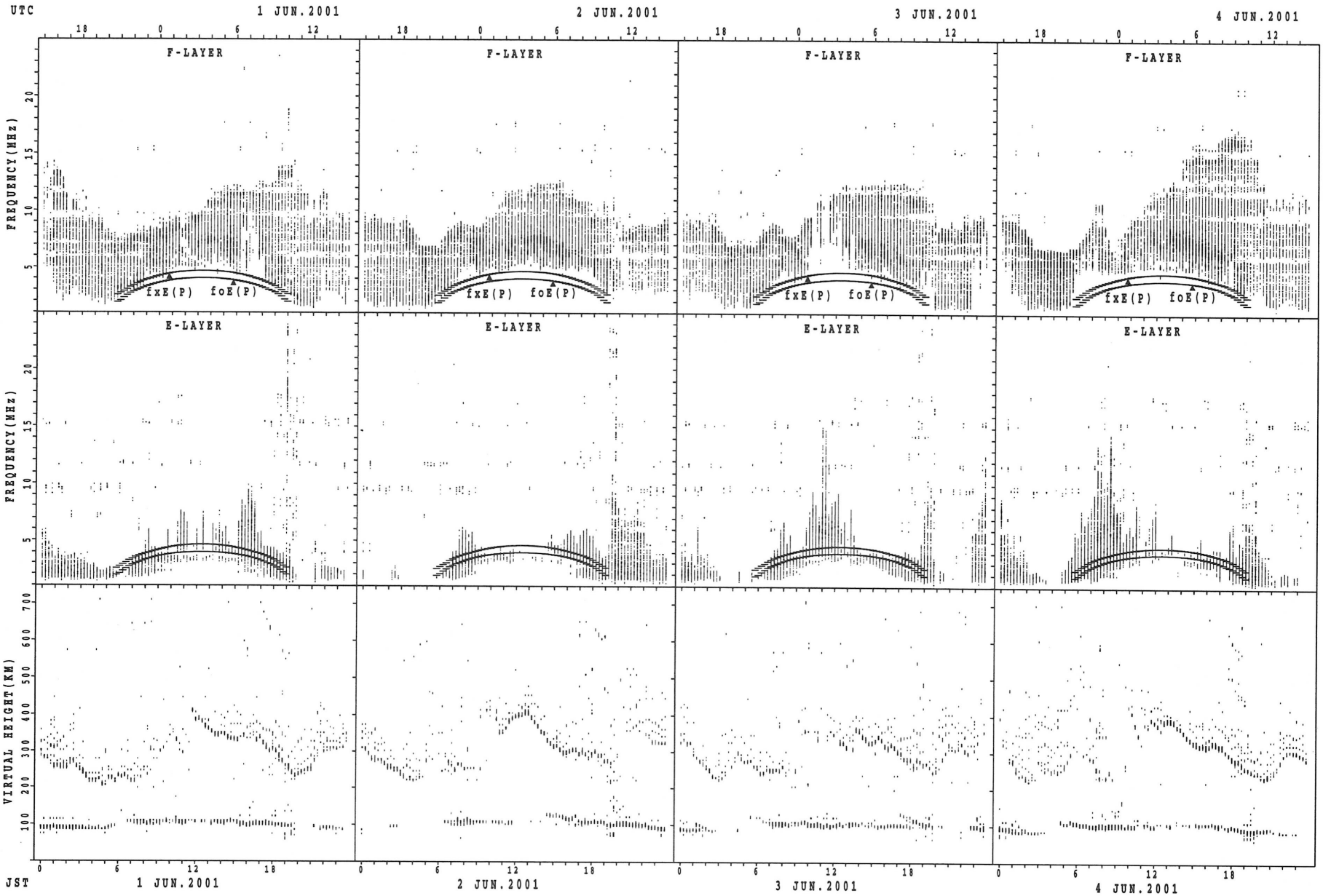


fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

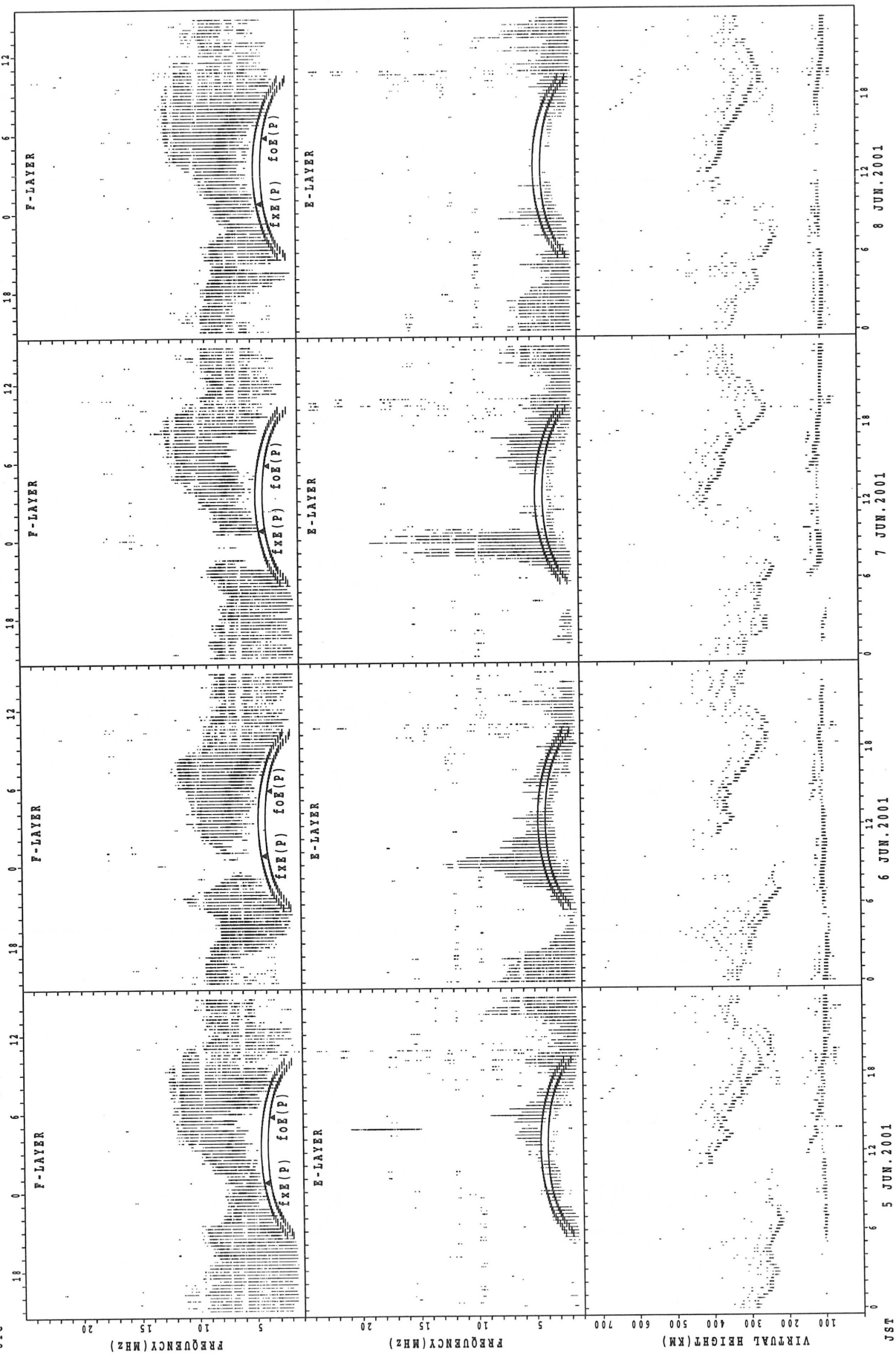
SUMMARY PLOTS

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

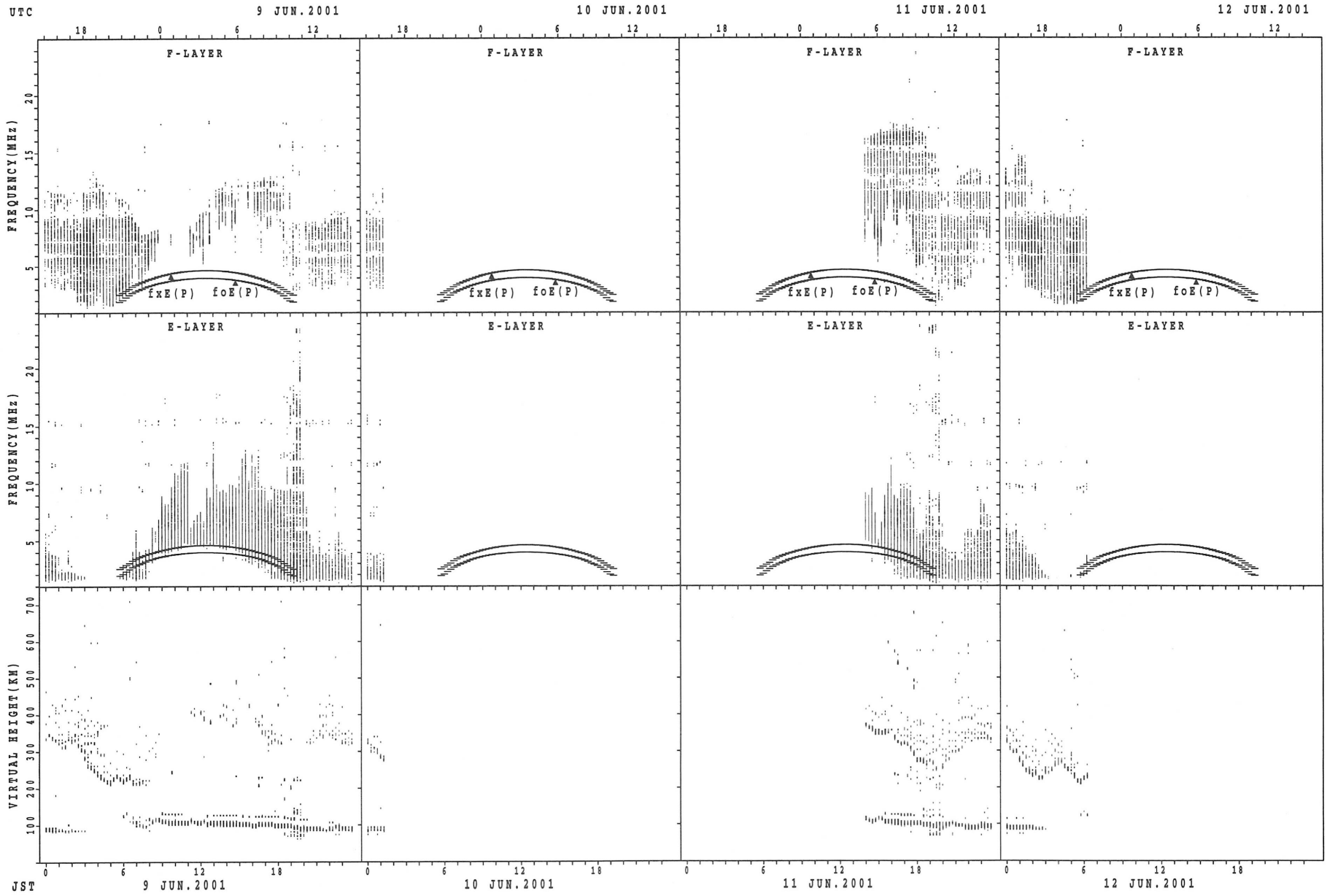
SUMMARY PLOTS AT Okinawa



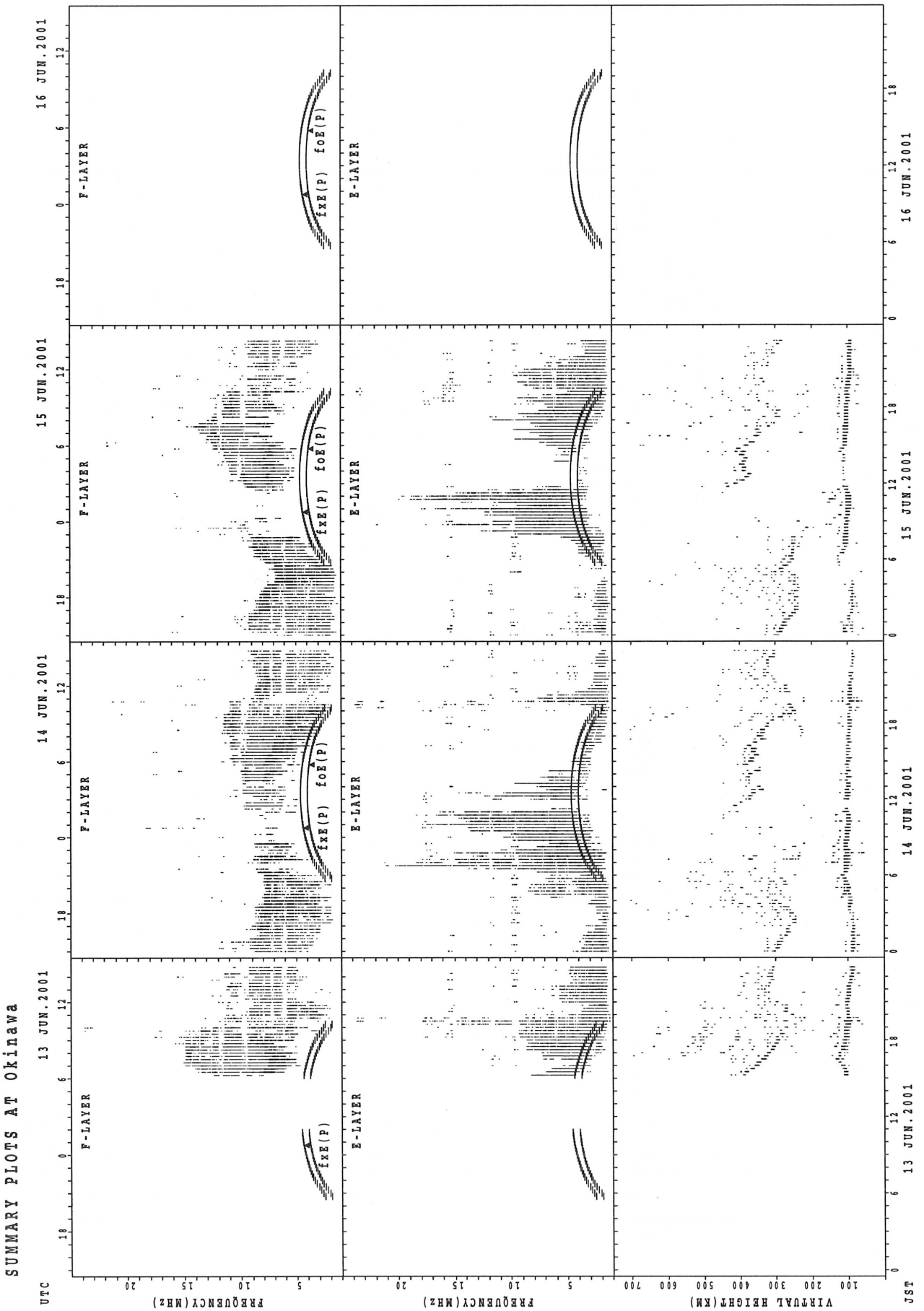
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE


SUMMARY PLOTS AT Okinawa
UTC
JST
5 JUN.2001
6 JUN.2001
7 JUN.2001
8 JUN.2001
F-LAYER
E-LAYER
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
fxE(P) foE(P)
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

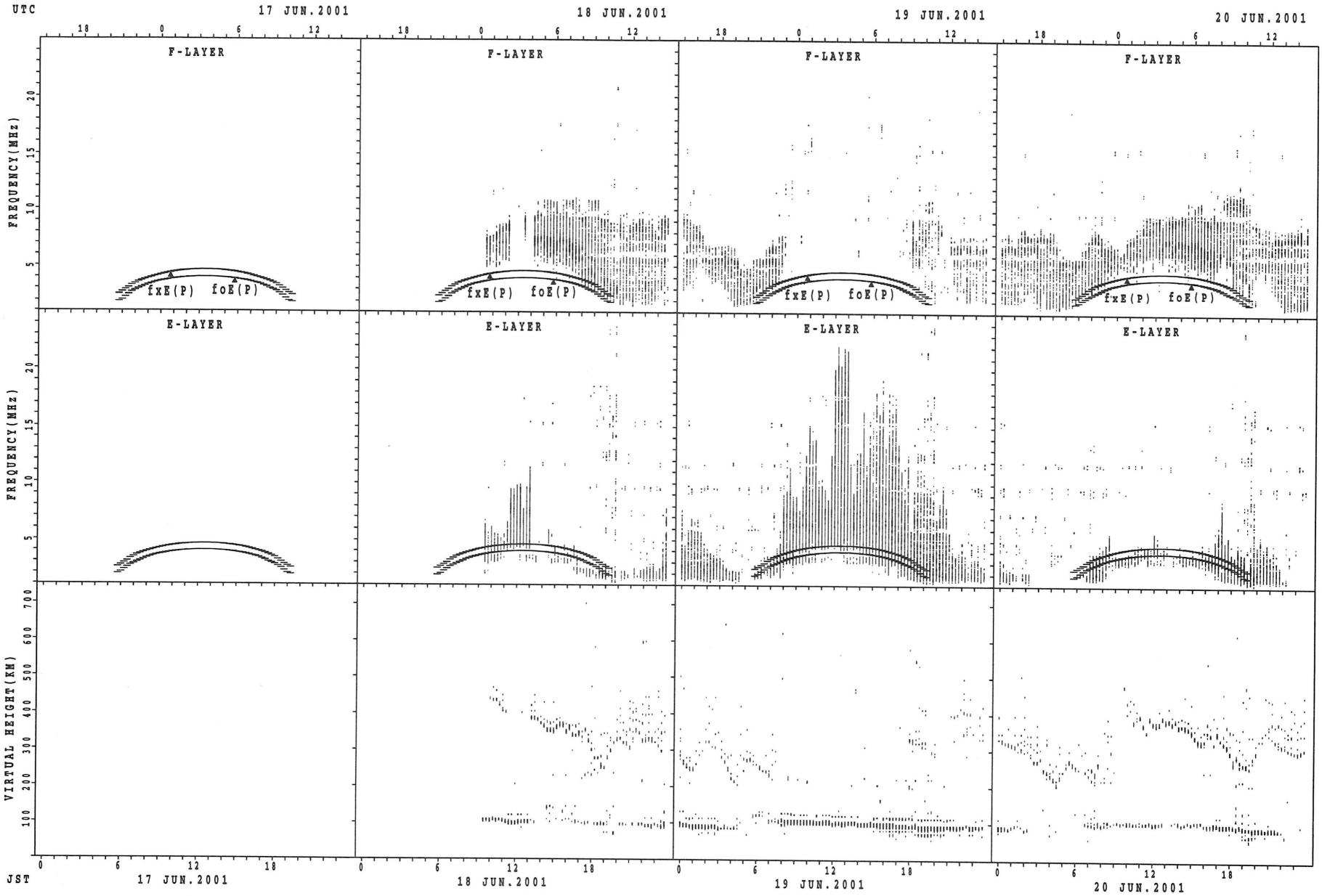
SUMMARY PLOTS AT Okinawa



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

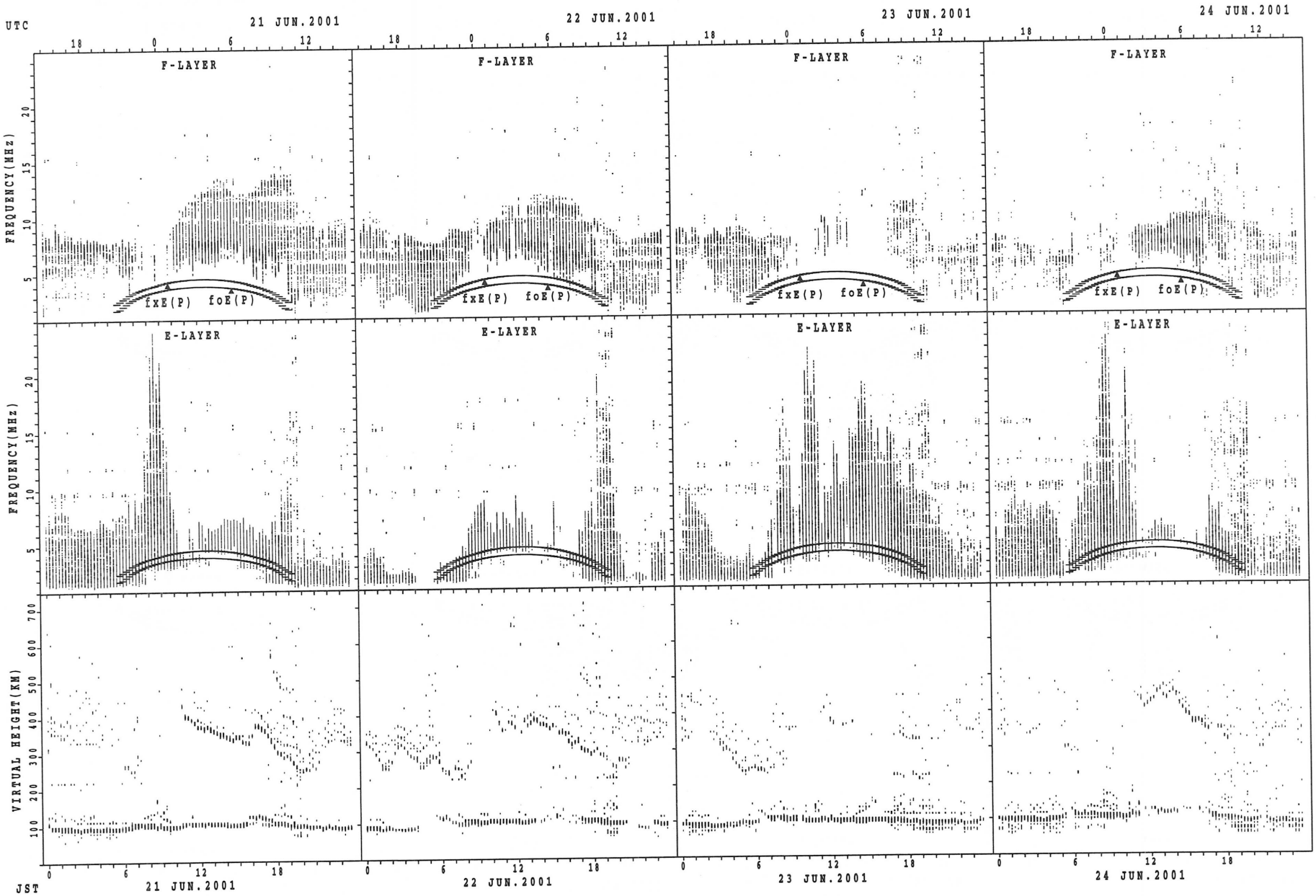

SUMMARY PLOTS AT Okinawa
UTC
JST
13 JUN.2001
14 JUN.2001
15 JUN.2001
16 JUN.2001
F-LAYER
E-LAYER
fxE(P)
foE(P)
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



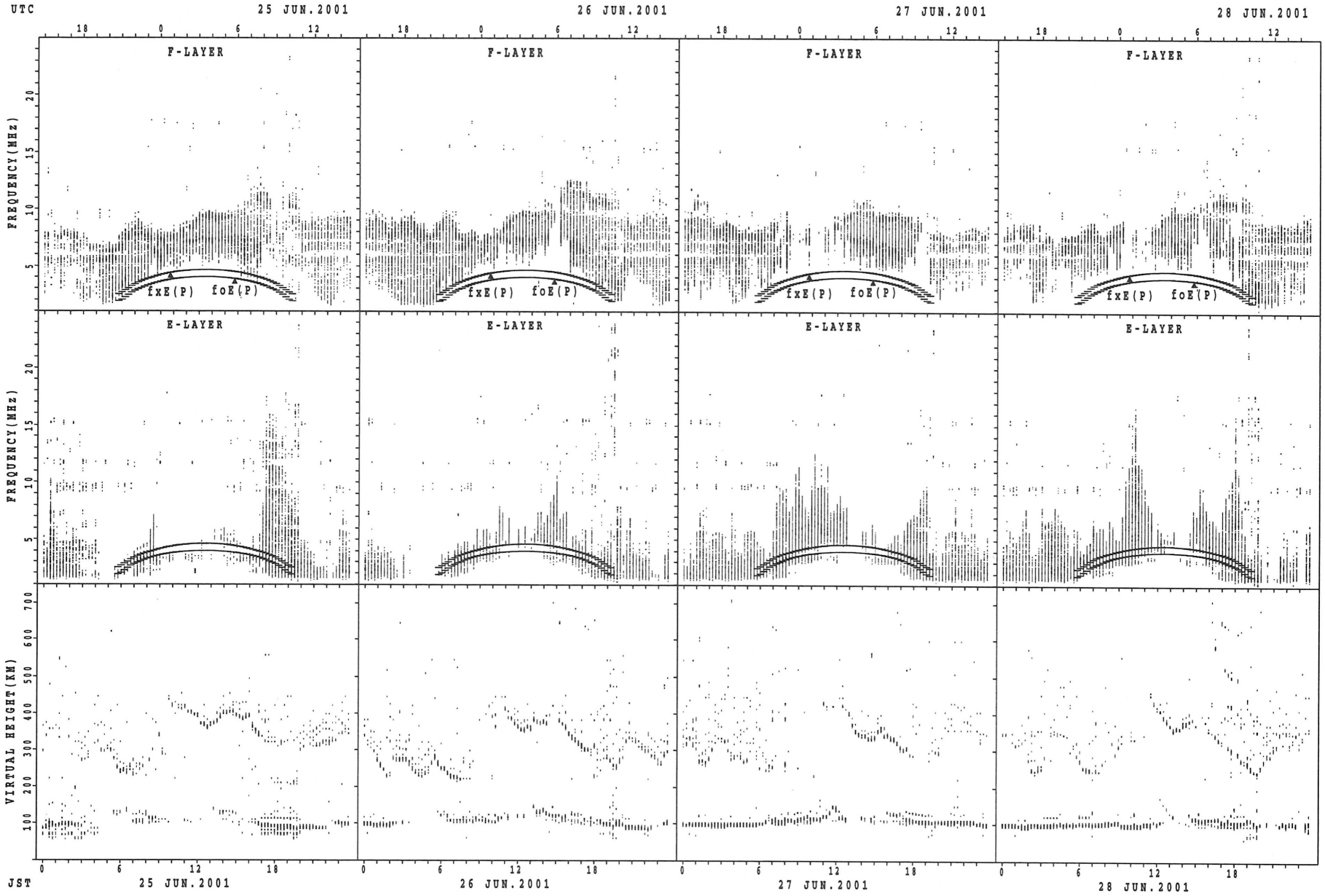
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



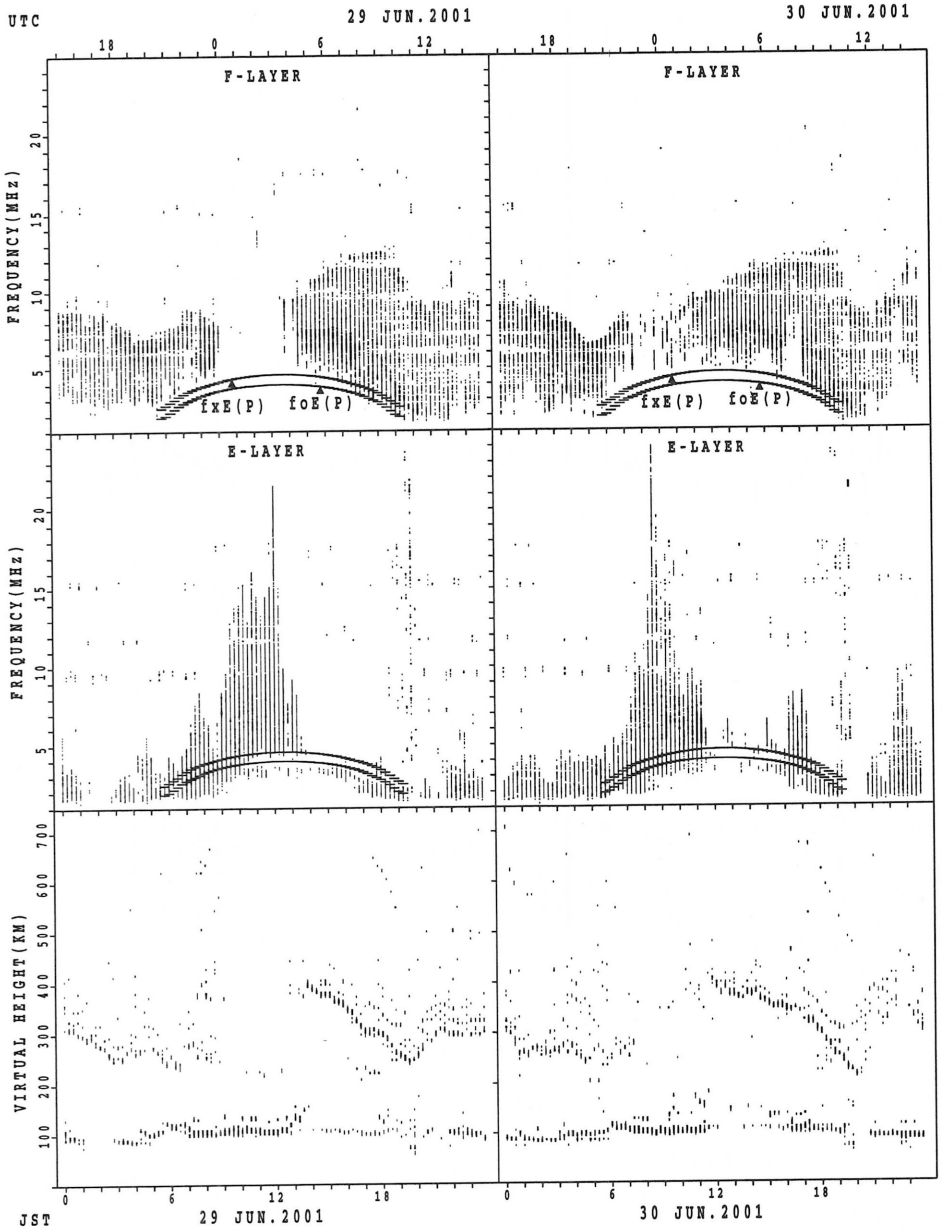
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



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

SUMMARY PLOTS AT Okinawa



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

MONTHLY MEDIANS OF h'F AND h'Es

JUN. 2001 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	14	15	14	13	17	10	18	15									10	13	16	17	15	19	23	21
MED	354	328	345	348	332	293	327	314									335	322	317	296	304	334	338	344
U Q	374	398	374	391	352	330	350	324									342	348	344	308	322	356	368	376
L Q	330	312	308	316	301	264	296	282									292	273	249	246	292	304	316	322

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	14	14	13	7	15	23	28	28	29	27	23	20	17	22	24	22	23	25	23	28	22	24	17
MED	103	103	103	107	105	121	117	115	113	111	111	107	106	105	105	112	113	113	113	111	111	107	104	99
U Q	105	105	109	116	119	129	119	118	116	114	113	111	109	109	113	118	115	117	115	115	113	113	109	105
L Q	99	99	99	100	99	117	113	112	111	107	107	105	103	105	103	106	111	111	111	107	107	103	95	89

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	18	21	20	17	17	20	23	16									15	20	18	21	17	10	10	13
MED	372	346	345	354	400	333	298	278									326	308	290	296	332	360	369	376
U Q	392	368	368	366	426	384	320	314									338	340	308	314	359	398	382	405
L Q	356	312	302	333	353	285	276	264									312	264	280	279	315	354	352	327

h'Es

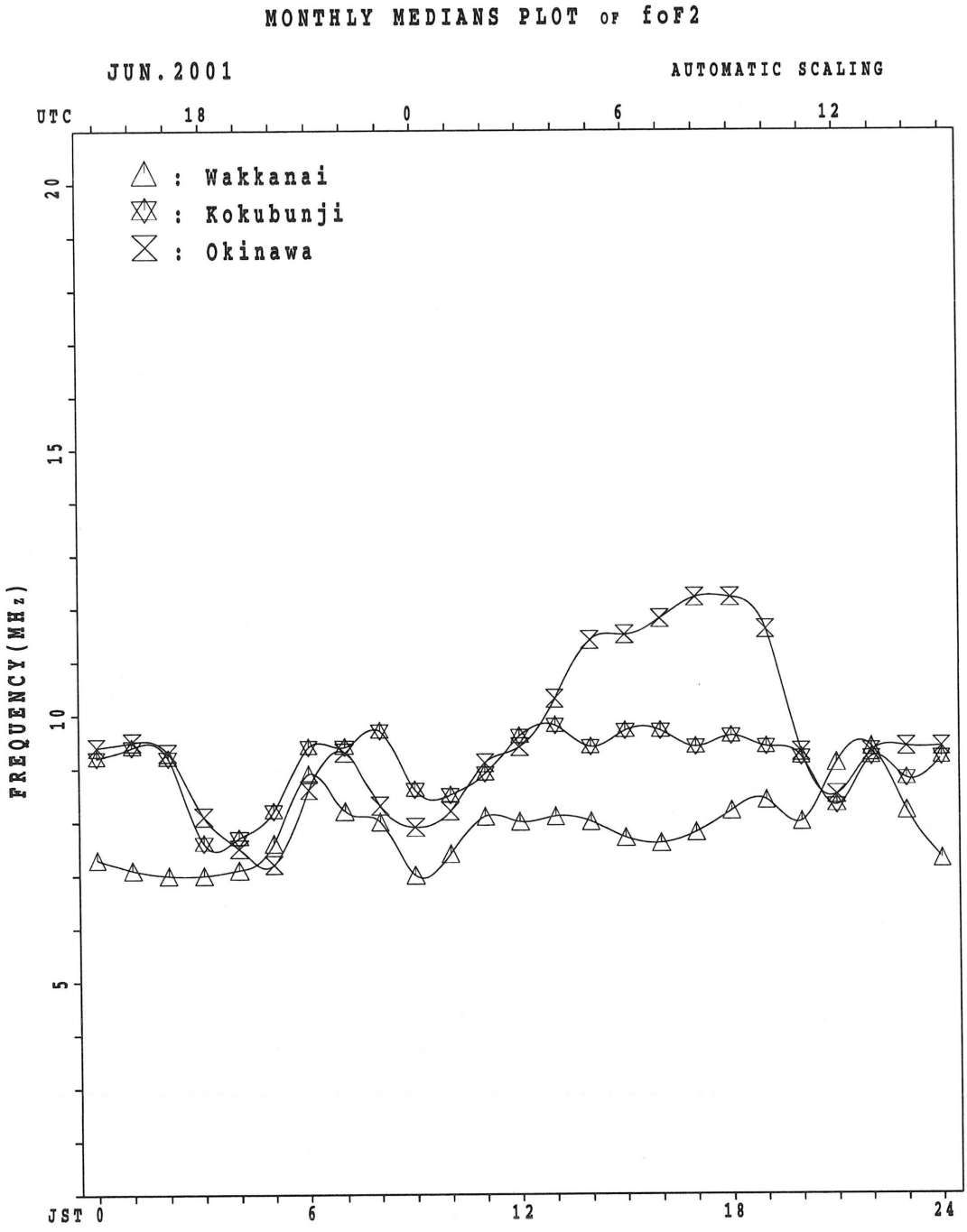
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	25	26	22	23	23	22	27	29	27	24	26	26	21	19	19	22	27	26	26	26	26	27	26
MED	107	105	103	101	101	123	121	117	115	111	111	111	111	113	111	117	115	113	111	111	107	107	109	108
U Q	111	107	105	105	103	131	123	121	118	115	115	111	115	115	113	125	119	115	113	115	111	111	113	111
L Q	105	100	99	95	97	103	119	113	113	111	110	107	107	106	105	109	107	109	105	105	103	103	107	103

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	20	20	21	20	17	16	18	17	14	4							18	22	25	20	15	13	13	15
MED	343	304	302	308	326	337	276	260	264	328							329	318	296	272	296	332	344	328
U Q	362	324	343	342	347	386	302	272	302	345							344	340	312	288	328	362	367	352
L Q	325	286	288	285	298	283	254	236	256	276							318	304	276	264	264	317	323	326

h'Es

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	20	22	22	18	13	12	15	18	22	17	15	19	18	15	14	20	14	21	23	25	20	19	24	23
MED	98	94	93	91	91	97	109	112	111	111	105	107	106	107	114	119	113	107	105	103	99	97	97	95
U Q	104	99	97	97	98	103	119	113	117	115	109	121	113	129	129	124	119	116	111	107	103	107	102	103
L Q	90	91	91	87	89	89	101	109	105	104	103	105	103	103	107	110	101	103	99	95	96	91	91	91


MONTHLY MEDIANS PLOT OF foF2
JUN. 2001
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. 2001 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	X 97	X 93	O X 91	X 74	X 71																X 98	O X 97	X 104	X 92
2	93	X 102	101	90	O X 89																A	X 82	X 86	O X 88
3	X 86	X 95	X 85	X 74	X 76																A	A	A	X 92
4	89	90	X 85	X 75	X 73																X 103	O X 94	94	89
5	X 90	X 81	X 77	X 74	74																X 99	X 100	O X 94	X 103
6	O X 97	X 92	X 82	X 81																	X 87	X 88	X 89	X 96
7	X 93	X 93	X 94	88	88																X 95	X 85	X 86	X 84
8	89	O X 88	X 83	X 84	X 80															X 103	X 95	89	X 92	A
9	X 91	93	X 86	O X 90	82															X 100	X 93	X 96	X 94	X 92
10	X 94	X 95	X 88	O X 75	X 70															X 88	X 91	X 89	X 94	X 96
11	X 90	X 86	X 85	X 82	X 82															X 98	X 97	X 96	O X 94	X 96
12	94	X 104	X 92	X 84	X 86															X 118	X 104	A	A	94
13	91	X 90	A	R 93	91															X 108	O X 93	O X 90	R 86	X 91
14	O X 99	X 106	X 87	76	78															X 102	O X 92	O X 92	95	X 96
15	87	A	X 93	X 89	X 81															X 94	X 97	O X 100	X 96	X 93
16	O X 91	X 92	98	O X 96	96															X 102	X 92	X 91	94	A
17	X 97	X 98	96	X 86	81															X 89	X 88	O X 82	X 85	X 84
18	X 86	X 90	X 85	X 82	X 83															X 92	O X 91	X 98	X 94	X 108
19	R 91	X 88	X 86	O X 90	86	78														X 71	X 76	X 74	X 74	O X 75
20	X 75	X 75	X 72	X 68	X 71															X 81	O X 80	76	A	X 84
21	X 81	X 73	X 74	X 68	X 68															A	X 90	A	A	R 82
22	X 86	X 83	X 78	X 75	74															X 82	X 87	A	X 84	X 76
23	X 82	X 78	X 72	R 67	X 72															X 73	X 78	X 78	R 74	X 80
24	O X 72	X 74	X 71	X 69	X 71															A	A	X 75	X 79	X 82
25	X 78	X 77	X 72	O X 74	X 70															X 84	X 85	O X 89	R 81	O X 94
26	X 92	X 95	X 83	X 74	X 72															X 87	X 82	X 84	R 92	O X 100
27	O X 94	X 95	O X 82	X 78	X 78															A	C	C	C	X 90
28	X 91	O X 89	X 81	X 79	X 75						C	C	C	C	C	C	C	C	C	X 96	O X 92	X 94	X 94	O X 93
29	95	X 92	X 87	X 84	X 84															O X 100	X 98	O X 98	R 94	X 94
30	X 90	X 92	X 86	X 83	90															X 109	X 99	X 92	97	S 94
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	29	29	30	29	1														20	26	25	25	28
MED	X 91	X 92	X 85	X 80	X 78	78														X 95	X 92	X 90	X 94	X 92
U Q	X 94	X 95	X 90	X 86	85															X 102	X 97	X 96	X 94	X 95
L Q	X 86	X 84	X 80	X 74	X 72															X 86	X 87	X 83	X 86	X 84

IONOSPHERIC DATA STATION Kokubunji

JUN. 2001 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	91	86	R 85	R 68	65	81	92	90	90	R 85	86	91	89	R 93	94	100	103	R 101	96	96	92	R 91	S 98	R 86
2	F	S 95	F	F	R 83	F	90	R 99	96	88	90	100	R 89	91	99	R 95	94	83	R 72	72	A	R 76	80	R 82
3	80	89	78	68	70	80	101	98	79	82	88	A	103	94	94	R 89	84	A	A	88	A	A	A	86
4	F 81	F	79	69	67	70	78	94	117	81	79	90	95	R 106	110	106	104	101	98	102	S 97	88	F	F
5	84	75	70	R 68	F	76	103	110	82	A	A	76	87	95	104	102	A	A	U R 99	95	S 93	S 94	U R 88	S 97
6	R 91	86	76	75		81	97	112	V 104	82	85	R 92	96	100	103	104	100	96	93	91	81	82	83	90
7	S 87	R 87	88	F	F	83	92	100	100	87	92	97	91	94	97	100	102	110	107	101	89	R 79	80	R 78
8	F	V 82	R 77	R 78	74	76	82	74	73	73	71	A	87	90	90	92	92	93	95	97	R 89	F 79	86	A
9	S 85	F	R 80	R 84	F 71	81	93	99	94	87	81	A	92	R 100	R 104	96	97	98	R 92	94	S 87	90	88	R 86
10	90	89	82	69	64	70	73	80	R 81	81	72	83	83	88	92	91	88	82	80	82	85	R 83	R 88	90
11	84	80	79	76	76	73	79	86	86	U R 81	78	92	102	106	109	107	105	100	102	92	R 91	90	R 88	R 90
12	F	S 98	86	78	80	78	81	81	80	73	81	86	96	99	102	101	101	98	104	112	S 100	A	A	F
13	F	R 84	A	R	F	76	72	A	A	95	94	97	103	99	97	99	100	104	105	R 102	87	R 84	R	R 85
14	S 93	R 100	81	F	F	68	82	R 91	94	R 91	97	93	96	U R 102	105	98	95	94	98	96	R 86	S 86	F	90
15	R 76	A	S 87	R 82	R 75	76	84	90	100	98	93	92	R 102	109	108	101	97	98	99	88	91	94	R 90	87
16	U R 85	R 86	F	R 90	F 84	88	87	A	A	90	A	97	A	A	A	102	96	94	A	R 96	86	85	F	A
17	U S 91	S 92	F	80	F	R 78	86	90	86	84	86	88	89	90	96	102	99	91	87	83	82	76	79	78
18	80	84	79	76	77	77	85	84	82	77	78	82	84	84	85	82	86	89	93	86	85	92	R 88	102
19	R	82	80	84	F	F	69	66	A	A	A	A	A	A	A	U R 62	R 62	R 63	64	65	70	68	R 68	R 69
20	R 69	68	66	R 62	65	73	72	75	68	A	A	R 71	A	U R 71	79	78	71	82	80	74	R 74	F	A	R 78
21	R 75	67	68	U R 62	62	66	68	71	A	A	A	A	A	U R 87	80	88	A	A	A	A	U R 84	A	A	R
22	80	R 77	72	R 69	F	F 69	92	92	R 83	87	A	A	A	A	R 84	76	75	U R 74	76	76	U R 80	A	78	R 69
23	R 76	R 72	R 65	R	S 66	80	92	81	A	76	U R 73	A	R	U R 77	U R 72	78	81	79	74	R 67	U R 71	72	R	R 74
24	U R 66	R 68	65	R 63	65	79	87	U R 89	83	A	A	A	A	A	R 71	R 70	A	73	A	A	A	R 69	R 73	R 76
25	S 72	R 71	U R 66	U R 68	64	72	81	90	R 91	A	85	R 91	88	91	94	94	U R 85	A	A	78	79	R 83	R	R 88
26	R 86	R 88	U R 77	68	66	76	92	U R 100	100	A	84	A	A	96	104	R 90	83	79	77	81	R 76	U R 78	R	U S 94
27	R 88	R 88	R 76	R 72	72	75	74	78	79	83	U R 79	R 69	69	R	A	A	73	A	A	A	C	C	C	84
28	85	83	R 75	73	69	78	R 91	98	105	92	C	C	C	C	C	C	C	C	C	90	R 86	88	88	U R 87
29	F	86	81	R 78	R 78	78	78	84	92	88	94	97	96	100	R 104	105	101	100	101	R 94	92	R 92	R	R 88
30	84	86	80	R 77	F	88	89	90	80	84	92	A	101	106	108	R 103	102	102	A	103	R 92	U R 86	F	R
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	24	27	26	25	21	28	30	28	25	23	22	19	21	24	26	28	26	24	22	27	26	24	16	24
MED	84	86	78	R 73	70	76	86	90	86	84	85	91	92	94	97	97	96	94	94	91	86	84	87	R 86
U Q	88	88	81	R 78	76	80	92	98	98	88	92	97	98	100	104	102	101	100	99	96	91	90	R 88	90
L Q	R 78	R 77	72	R 68	65	73	78	81	80	81	79	83	88	90	90	88	84	82	80	81	R 81	78	80	R 78

JUN. 2001 foF2 (0.1MHz) COMMUNICATIONS RESEARCH LABORATORY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

JUN. 2001 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	U L 552	U L 568	U L 560	U L 548	A	A	A	A	A					
2						A	A	L	U L 520	U L 564	556	A	U L 548	A	U L 516	U L 540	A	A	A	A				
3							A	A	A	L	U L 528	A	A	544	U L 556	A	A	A	A	A				
4							A	A	A	A	A	A	A	A	A	U L 568	L	L	L					
5							L	A	A	A	A	U L 568	A	U L 556	A	A	A	A	A					
6							L	A	L	A	A	A	U L 584	A	U L 532	A	L	L		A				
7							A	A	A	U L 712	548	L	A	A	U L 548	L	U L 516	A	L					
8						L	L	L	L	A	A	A	A	A	U L 552	U L 536	L	L	L					
9							A	A	A	A	U L 672	A	A	A	A	A	A	A	A					
10							L	A	A	A	A	U L 564	U L 580	A	A	A	A	L	A					
11							A	A	L	L	U L 640	U L 588	A	U L 560	A	A	A	A	L					
12								L	A	U L 612	U L 612	U L 600	A	A	A	A	U L 520	L	L					
13								A	A	A	U L 572	U L 576	U L 588	A	A	A	A	A	A					
14							A	A	A	A	A	A	U L 588	U L 572	A	U L 544	U L 512	L						
15								A	A	A	A	A	568	U L 560	A	U L 580	U L 540	L	L					
16							A	A	A	A	A	A	A	A	A	A	A	A	A					
17								A	A	A	A	A	A	A	548	U L 532	L	L	L					
18						L	L	L	516	A	A	U L 576	A	A	U L 564	536	512	476	L					
19							U L 496	A	A	A	A	A	A	A	A	U L 488	496	U L 472	L					
20							U L 444	U L 472	U L 520	A	A	A	A	U L 568	U L 552	U L 516	536	A	A					
21						L	U L 440	A	A	A	A	A	A	A	A	U L 524	A	A	A					
22							A	A	U L 516	A	A	A	A	A	A	B	A	A	A					
23							L	A	A	A	A	A	A	U L 548	B	A	500	L	L					
24								U L 504	A	A	A	A	A	A	B	A	A	A	A					
25						L	A	A	A	A	A	U L 600	L 604	B	U L 548	520	A	A	A					
26							L	L	L	A	A	A	A	B	U L 560	U L 544	U L 496	A	A					
27							U L 544	U L 504	A	U L 508	540	A	U L 544	A	A	A	A	A	A		C	C	C	
28							L	L	U L 536	U L 532	C	C	C	C	C	C	C	C	C					
29								L	U L 528	U L 520	U L 552	A	A	U L 556	A	L 528	U L 504	U L 476	L					
30							L	A	A	A	A	A	A	A	A	A	A	A	A					
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT							4	3	6	6	10	8	9	9	10	13	10	3						
MED							U L 470	U L 504	U L 520	U L 548	U L 554	U L 576	U L 580	U L 556	U L 550	U L 536	U L 512	U L 476						
U Q							U L 520	U L 504	U L 528	U L 612	U L 612	U L 594	U L 588	U L 564	U L 556	U L 544	U L 520	U L 476						
L Q							U L 442	U L 472	516	U L 520	548	U L 568	U L 554	U L 548	U L 548	U L 522	500	U L 472						

JUN. 2001 foF1 (0.01MHz) COMMUNICATIONS RESEARCH LABORATORY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

JUN. 2001 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						UR 240	UR 272	320	A	R	R	B	A	A	A	R	UR 332	280	A	B				
2						B	276	320	A	R	B	B	B	B	B	R	320	A	B	B				
3						172	268	316	A	R	A	A	B	R	R	UR 368	UR 328	A	B	B				
4						200	A	316	R	R	B	A	A	B	B	360	336	UA 284	B	B				
5						204	276	A	B	A	A	UR 420	A	A	B	A	340	280	A	B				
6						A	264	312	A	A	A	A	A	A	B	R	332	UA 268	A	B				
7						UR 212	A	328	R	R	B	R	A	R	R	UR 360	UR 332	288	UA 204	B				
8						204	260	316	R	UR 360	R	A	B	A	R	R	R	296	A					
9						212	UA 280	328	B	B	B	R	B	A	B	A	A	A	A					
10						204	276	R	R	R	R	B	B	A	A	A	A	A	A					
11						UR 176	264	A	UA 356	B	R	R	B	R	R	R	UR 328	A	A					
12						192	272	UR 324	R	R	R	B	B	B	A	A	A	A	UA 208					
13						208	284	UR 336	R	R	B	B	R	B	B	R	336	288	B					
14						200	296	UR 344	R	R	A	B	B	B	B	R	UR 352	308	UR 240					
15						A	288	UR 336	R	A	A	A	B	B	R	UR 380	UR 356	R	B					
16						A	288	A	A	R	R	B	B	B	A	A	A	A	A					
17						UR 204	A	A	A	R	A	B	B	A	A	A	A	A	A					
18						A	A	UR 328	R	R	A	B	A	B	B	R	R	UR 292	232					
19							UA 300	UR 340	A	A	A	A	A	A	A	A	A	292	B					
20						200	276	328	R	R	A	A	A	UR 384	R	UR 376	344	292	A					
21						A	292	324	A	R	B	B	B	B	B	B	364	A	UA 232					
22						204	276	UA 312	A	A	B	B	B	A	A	B	UR 360	312	236					
23						UR 208	UA 300	UR 348	R	B	B	B	B	B	B	A	A	A	A					
24						196	292	A	B	B	A	B	B	B	B	B	UR 372	UA 312	A					
25						UR 208	UR 288	UR 340	R	R	B	B	B	B	B	A	UR 360	304	224					
26						A	R	R	UR 360	B	B	B	A	B	B	B	B	UR 308	236					
27						200	272	UR 324	A	R	B	B	R	A	A	UR 368	340	296	228		C	C	C	
28						UR 184	A	A	364	R	C	C	C	C	C	C	C	C	C					
29						A	280	UR 332	356	R	R	A	A	A	R	UR 372	UR 340	288	UA 224					
30						UR 224	UA 272	308	UR 356	R	A	B	A	B	B	UR 364	336	292	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						21	24	22	5	1		1		1		8	19	18	10					
MED						204	276	326	U 356	UR 360		UR 420		UR 384		UR 368	UR 340	292	230					
U Q						UR 208	288	UR 336	362							UR 374	UR 356	304	236					
L Q						198	272	316	356							UR 362	UR 332	288	UA 224					

JUN. 2001 foE (0.01MHz) COMMUNICATIONS RESEARCH LABORATORY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

JUN.2001 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	E B 13	E B 15	J A 26	J A 39	J A 28	30	30	39	44	J A 52	J A 52	46	J A 64	46	J A 66	J A 61	J A 55	81	J A 46	J A 34	J A 30	J A 48	J A 66	J A 74
2	J A 76	J A 85	J A 50	J A 39	J A 32	J A 39	J A 53	J A 59	J A 80	J A 65	J A 63	56	50	68	49	J A 78	J A 84	J A 62	J A 150	J A 125	J A 128	78	46	J A 50
3	J A 48	J A 50	J A 42	J A 27	J A 26	27	J A 57	J A 50	J A 57	J A 52	J A 82	J A 150	J A 92	G	G 34	43	J A 67	J A 114	J A 158	J A 112	J A 119	J A 102	J A 102	J A 64
4	J A 63	J A 63	J A 53	J A 35	J A 36	27	J A 52	J A 54	J A 121	J A 58	64	J A 87	J A 126	J A 100	J A 90	J A 55	J A 50	J A 44	25	J A 25	J A 25	J A 68	J A 128	J A 50
5	J A 26	J A 21	20	E B 14	J A 22	23	34	J A 54	59	J A 78	J A 103	52	56	J A 57	55	J A 64	J A 123	J A 145	J A 144	78	J A 40	49	71	J A 87
6	J A 24	J A 25	J A 16	22		J A 31	36	J A 53	J A 49	J A 114	J A 110	J A 123	J A 55	50	E B 43	J A 56	J A 117	J A 63	J A 100	85	J A 78	54	J A 50	J A 128
7	J A 64	J A 79	J A 56	J A 54	J A 24	29	J A 58	J A 89	J A 67	J A 59	J A 50	J A 61	J A 92	J A 75	48	51	43	J A 48	J A 44	J A 45	J A 32	J A 54	J A 54	J A 63
8	J A 31	J A 108	J A 34	32	J A 18	28	40	39	J A 51	74	J A 60	J A 81	69	65	G 28	G 31	G 29	J A 47	J A 42	J A 38	J A 31	J A 50	J A 66	J A 101
9	J A 101	J A 62	J A 39	J A 25	22	J A 36	J A 57	J A 57	J A 62	J A 60	57	J A 91	J A 66	J A 98	J A 101	J A 71	J A 85	J A 77	J A 82	J A 55	J A 48	J A 34	J A 16	E B 16
10	J A 22	E B 16	E B 16	E B 16	E B 16	25	36	69	66	J A 64	65	45	52	J A 72	J A 66	64	J A 74	J A 41	J A 68	J A 49	J A 53	J A 50	J A 87	J A 51
11	J A 23	J A 28	J A 22	J A 24	J A 23	22	36	J A 79	J A 49	J A 52	J A 53	46	J A 92	48	56	J A 75	J A 86	J A 55	J A 33	J A 30	J A 39	J A 45	J A 33	J A 44
12	20	E B 15	22	E B 16	E B 14	23	34	41	J A 64	J A 54	44	54	60	J A 64	J A 71	J A 80	J A 47	39	J A 49	J A 108	J A 148	J A 143	J A 144	83
13	J A 126	J A 127	J A 133	J A 48	J A 60	28	J A 51	J A 96	J A 92	J A 63	E B 49	52	50	J A 80	J A 90	J A 81	J A 98	J A 70	J A 70	J A 61	J A 83	J A 62	J A 56	J A 95
14	J A 63	J A 32	J A 32	J A 27	E B 12	27	J A 73	J A 93	J A 64	J A 102	J A 99	J A 159	E B 45	E B 52	J A 104	G	43	39	J A 55	60	J A 52	J A 64	J A 53	J A 66
15	J A 64	J A 102	J A 64	J A 73	J A 50	J A 40	34	J A 57	J A 70	J A 62	74	J A 100	J A 78	E B 46	J A 68	J A 47	40	39	31	J A 108	J A 25	J A 81	J A 38	J A 46
16	J A 77	J A 80	J A 55	J A 52	J A 44	J A 28	34	J A 100	J A 140	J A 60	J A 97	J A 81	J A 121	J A 134	J A 149	J A 100	J A 108	J A 69	J A 85	J A 170	J A 86	43	J A 40	J A 112
17	J A 86	J A 79	J A 43	J A 23	J A 26	J A 30	32	J A 69	J A 61	62	J A 76	58	J A 70	J A 62	J A 49	J A 46	J A 40	54	J A 33	J A 28	36	32	J A 30	30
18	J A 20	J A 28	J A 54	J A 43	J A 46	J A 30	J A 34	45	J A 46	59	J A 120	J A 63	J A 84	65	E B 48	G 30	G 28	32	28	E B 18	18	E B 17	J A 38	24
19	J A 22	J A 27	J A 37	J A 32	J A 34	J A 34	37	J A 58	J A 119	J A 114	J A 78	J A 101	J A 65	J A 64	J A 109	44	39	39	J A 33	J A 31	J A 48	J A 37	J A 32	J A 64
20	J A 60	J A 48	J A 31	J A 33	22	23	30	39	J A 55	J A 84	J A 78	J A 71	J A 102	46	G 31	48	41	J A 63	J A 44	J A 51	J A 30	J A 52	J A 100	J A 65
21	J A 38	J A 33	J A 50	J A 38	J A 27	J A 31	37	J A 60	69	J A 92	J A 73	J A 107	J A 179	J A 68	J A 67	E B 50	J A 110	J A 108	J A 142	J A 70	36	J A 110	J A 128	J A 52
22	J A 31	J A 34	J A 26	J A 27	J A 34	28	J A 43	J A 78	J A 51	J A 122	J A 183	J A 178	J A 115	J A 118	63	E B 62	J A 83	J A 66	J A 52	J A 27	J A 83	J A 83	J A 47	J A 54
23	J A 44	J A 36	J A 48	J A 37	J A 26	J A 25	J A 48	J A 60	J A 64	J A 64	52	J A 84	54	E B 47	E B 61	J A 52	J A 47	44	J A 30	J A 31	J A 22	J A 49	J A 60	J A 47
24	J A 30	J A 29	J A 26	J A 27	J A 26	J A 24	40	J A 82	J A 90	J A 86	J A 132	J A 102	J A 136	J A 67	56	J A 66	J A 92	J A 53	J A 108	J A 171	J A 88	J A 76	J A 50	J A 48
25	J A 32	J A 28	J A 19	J A 27	J A 20	25	J A 50	J A 68	J A 70	J A 101	J A 74	J A 50	E B 48	E B 68	E B 50	44	J A 79	J A 84	J A 96	J A 48	J A 27	J A 53	J A 46	J A 54
26	J A 27	J A 33	J A 28	J A 20	J A 28	J A 32	G		38	47	J A 78	J A 88	J A 136	J A 166	E B 60	E B 49	E B 42	E B 76	E B 72	J A 51	J A 29	J A 29	J A 53	J A 29
27	J A 63	J A 30	J A 22	J A 25	J A 18	27	36	J A 49	63	G 31	46	56	46	J A 66	J A 125	J A 98	J A 125	J A 114	J A 109	J A 108	C	C	C	J A 49
28	J A 19	E B 16	E B 15	21	20	21	J A 33	J A 42	J A 54	43	C	C	C	C	C	C	C	C	C	J A 44	E B 15	E B 14	J A 50	J A 48
29	J A 47	J A 56	J A 33	J A 26	J A 47	J A 42	40	G 30	40	43	48	J A 64	J A 88	J A 76	86	G	37	J A 66	J A 27	J A 30	J A 68	J A 71	J A 89	J A 28
30	J A 67	J A 24	J A 78	J A 22	J A 30	J A 33	33	J A 50	J A 61	J A 70	J A 65	J A 161	J A 79	J A 64	J A 82	J A 74	68	J A 132	J A 153	J A 66	J A 76	J A 43	J A 75	J A 42
31																								

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	30	30	30	29	30	30	30	30	30	29	29	29	29	29	29	29	29	29	30	29	29	29	30
MED	J A 41	J A 33	J A 34	J A 27	J A 26	28	36	J A 57	J A 62	J A 64	J A 73	J A 81	J A 70	J A 64	63	J A 54	J A 67	J A 63	J A 55	J A 51	J A 40	J A 52	J A 53	J A 52
U Q	J A 64	J A 63	J A 50	J A 38	J A 34	J A 31	J A 50	J A 69	J A 70	J A 84	J A 92	J A 104	J A 97	J A 74	J A 88	J A 72	J A 89	J A 79	J A 104	J A 85	J A 80	J A 74	J A 81	J A 66
L Q	J A 24	27	22	23	21	25	34	45	J A 51	J A 58	52	55	54	51	49	44	42	44	J A 33	J A 31	J A 30	43	J A 43	J A 46

JUN.2001 foEs (0.1MHz) COMMUNICATIONS RESEARCH LABORATORY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

JUN. 2001 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	E B 13	E B 15	19	28	20	G 24	30	38	43	49	46	46	49	45	62	52	54	U Y 81	46	30	25	40	60	47
2	24	50	42	28	23	34	48	47	42	46	49	55	48	68	48	44	78	61	64	45	A A 128	29	30	17
3	43	36	28	22	22	25	45	42	50	46	46	A A 150	85	G	U Y 34	43	60	A A 114	A A 158	44	A A 119	A A 102	A A 102	50
4	46	51	37	21	29	26	48	52	66	50	62	65	69	98	85	49	39	42	24	17	22	20	18	E B 16
5	17	17	E B 14	E B 14	16	22	30	46	57	A A 78	A A 103	52	U Y 56	48	U Y 55	52	A A 123	A A 145	66	51	39	45	57	42
6	E B 15	E B 15	E B 14	E B 16		23	35	52	46	63	79	68	53	U Y 50	E B 43	50	40	35	49	80	23	37	27	64
7	45	44	48	30	E B 16	27	50	82	53	54	43	49	84	74	45	50	40	46	35	40	24	45	51	29
8	24	50	28	28	E B 14	26	39	38	48	70	57	A A 81	67	64	G 28	G 31	G 29	40	37	33	25	27	43	A A 101
9	24	46	34	18	E B 16	34	55	54	61	59	54	A A 91	63	94	99	66	74	67	77	46	31	32	E B 13	E B 16
10	E B 15	E B 16	E B 16	E B 16	E B 16	24	35	69	64	60	64	U Y 45	50	70	64	62	70	39	67	28	33	16	42	34
11	14	E B 12	16	16	19	22	34	75	44	44	47	46	62	48	U Y 56	71	67	47	27	20	37	37	28	24
12	E B 14	E B 15	E B 17	E B 16	E B 14	23	33	40	60	45	42	49	U Y 60	63	64	55	42	38	36	23	27	A A 143	A A 144	67
13	37	41	A A 133	40	41	22	47	A A 96	A A 92	60	E B 49	50	48	76	88	80	77	66	67	57	77	16	49	46
14	31	21	21	20	E B 12	23	54	86	52	74	91	76	E B 45	E B 52	98	G	40	34	52	56	43	20	41	22
15	25	A A 102	50	62	40	27	33	54	64	58	70	79	53	E B 46	65	46	39	38	29	30	22	64	20	30
16	45	50	47	33	26	20	34	A A 100	A A 140	59	A A 97	80	A A 121	A A 134	A A 149	68	72	66	A A 85	67	76	41	27	A A 112
17	55	50	29	18	E B 15	23	30	64	56	U Y 62	71	56	66	57	48	45	37	50	30	26	32	28	21	19
18	16	18	28	25	23	28	31	41	44	U Y 59	75	50	65	62	E B 48	G 30	G 28	31	27	E B 18	E B 16	E B 17	35	19
19	19	20	26	27	26	28	34	53	A A 119	A A 114	A A 78	A A 101	A A 65	A A 64	A A 109	43	U Y 39	39	26	22	40	27	25	54
20	32	26	21	19	E B 15	22	29	38	47	A A 84	A A 78	66	A A 102	U Y 46	G 31	44	40	49	40	24	20	40	A A 100	48
21	29	17	37	30	18	23	36	57	A A 69	A A 92	A A 73	A A 107	A A 179	62	65	E B 50	A A 110	A A 108	A A 142	A A 70	U Y 36	A A 110	A A 128	16
22	26	19	20	22	22	26	41	76	44	63	A A 183	A A 178	A A 115	A A 118	U Y 63	E B 62	70	61	47	24	44	A A 83	E B 14	45
23	38	25	37	34	17	23	44	54	A A 64	61	U Y 52	A A 84	U Y 54	E B 47	E B 61	52	41	43	27	28	21	26	46	18
24	28	21	22	19	18	G 19	39	44	70	A A 86	A A 132	A A 102	A A 136	A A 67	56	65	A A 92	51	A A 108	A A 171	A A 88	20	23	24
25	20	22	E B 15	25	E B 15	22	47	65	64	A A 101	70	48	E B 48	E B 68	E B 50	U Y 44	76	A A 84	A A 96	42	22	22	22	47
26	16	20	E B 15	18	21	28	G	U Y 38	46	A A 78	78	A A 136	A A 166	E B 60	E B 49	E B 42	E B 42	76	50	18	21	23	46	18
27	24	E B 14	E B 14	20	E B 15	23	36	45	61	G 31	U Y 46	U Y 56	46	62	A A 125	A A 98	61	A A 114	A A 109	A A 108	C	C	C	16
28	17	E B 16	E B 15	E B 14	E B 16	21	30	41	43	43	C	C	C	C	C	C	C	C	C	43	E B 15	E B 14	24	31
29	36	46	30	19	21	22	38	G 30	U Y 40	42	46	63	63	51	80	G	37	36	26	22	53	62	64	E B 16
30	20	16	22	E B 15	17	24	30	42	60	62	60	A A 161	64	58	67	52	66	64	A A 153	46	54	32	44	35
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	30	30	30	29	30	30	30	30	30	29	29	29	29	29	29	29	29	29	30	29	29	29	30
MED	24	21	24	20	18	23	36	52	56	60	64	66	63	62	62	50	54	50	49	36	32	32	41	30
U Q	36	46	37	28	22	26	45	65	A A 64	A A 74	A A 78	A A 96	A A 84	69	82	62	73	A A 72	A A 81	51	48	45	54	47
L Q	17	E B 16	E B 16	E B 18	E B 16	22	31	41	46	49	48	50	52	49	48	44	40	39	30	24	22	21	24	18

IONOSPHERIC DATA STATION Kokubunji

JUN. 2001 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	13	15	15	16	12	16	14	18	19	27	21	39	36	34	30	22	22	15	14	16	12	14	15	15
2	16	13	16	13	14	16	15	15	18	20	37	41	40	42	42	20	16	15	17	16	14	13	16	13
3	16	16	15	15	15	13	13	16	18	17	26	37	43	26	22	20	15	16	14	15	16	15	16	14
4	16	15	13	14	16	16	16	18	18	23	44	36	34	40	40	21	22	15	16	12	13	15	14	16
5	15	15	14	14	11	15	14	14	46	20	22	28	32	32	49	18	18	15	15	15	14	14	16	16
6	15	15	14	16		13	16	18	19	20	25	31	33	31	43	22	19	16	16	13	15	13	16	15
7	16	14	15	14	16	16	15	16	20	17	40	29	28	28	23	19	14	14	14	16	15	15	15	14
8	12	15	15	16	14	15	16	18	18	21	29	28	45	30	23	20	17	16	15	13	14	15	12	15
9	16	12	15	14	15	16	15	16	42	44	42	30	41	27	43	22	17	18	16	16	13	12	13	16
10	15	16	16	16	16	16	16	18	20	20	30	41	43	36	34	21	22	15	14	13	12	10	15	16
11	12	12	12	14	13	15	15	15	20	38	28	28	43	29	32	27	16	16	13	14	15	13	13	15
12	14	15	17	16	14	15	19	15	19	21	23	44	43	43	25	22	20	16	16	15	13	13	16	12
13	13	14	12	16	15	13	16	20	18	27	49	43	32	44	42	29	22	19	15	16	14	16	13	15
14	12	16	14	12	12	14	15	18	22	18	31	43	45	52	40	20	15	15	14	16	15	14	14	16
15	16	15	15	14	14	14	15	14	20	19	18	33	46	46	32	29	20	17	15	16	15	15	15	16
16	15	15	16	15	16	14	14	18	24	26	35	46	41	44	34	22	18	18	14	14	13	16	16	14
17	16	16	16	12	15	13	16	17	17	24	28	40	42	38	33	28	18	15	14	16	15	15	15	15
18	15	16	14	15	16	14	16	16	18	28	21	40	36	43	48	19	16	16	14	18	16	17	14	12
19	16	13	15	14	16	13	16	20	18	21	23	28	24	28	28	18	17	15	16	16	15	13	14	14
20	15	17	14	15	15	16	15	16	18	22	23	30	34	30	22	20	18	14	14	16	14	14	15	14
21	15	14	15	14	15	14	16	19	26	23	44	45	42	44	44	50	22	19	15	16	16	16	16	12
22	13	13	12	15	15	13	16	16	20	22	41	42	43	34	35	62	22	18	16	15	15	14	14	14
23	15	15	16	16	15	15	14	21	33	42	44	42	42	47	61	21	21	16	15	16	15	14	16	13
24	16	15	16	16	15	14	20	17	40	42	35	44	44	44	48	43	24	16	13	13	15	16	15	15
25	15	16	15	16	15	16	16	18	23	26	42	42	48	68	50	28	29	21	17	16	15	16	16	16
26	13	13	15	12	15	16	20	18	26	43	42	42	40	60	49	42	42	21	15	14	16	15	15	16
27	16	14	14	15	15	12	16	19	19	22	41	41	31	38	29	18	15	18	14	12	C	C	C	14
28	14	16	15	14	16	14	16	20	20	25	C	C	C	C	C	C	C	C	C	16	15	14	15	16
29	16	16	15	14	16	14	15	15	16	22	29	23	37	24	26	26	18	16	14	16	16	14	14	16
30	16	15	15	16	15	16	16	16	20	19	18	40	25	38	39	18	18	15	14	16	14	15	14	16
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	30	30	30	29	30	30	30	30	30	29	29	29	29	29	29	29	29	29	30	29	29	29	30
MED	15	15	15	15	15	14	16	18	20	22	30	40	41	38	35	22	18	16	15	16	15	14	15	15
U Q	16	16	15	16	16	16	16	18	23	27	42	42	43	44	44	28	22	18	16	16	15	15	16	16
L Q	14	14	14	14	14	14	15	16	18	20	23	30	34	30	28	20	16	15	14	14	14	14	14	14

JUN. 2001 fmin (0.1MHz) COMMUNICATIONS RESEARCH LABORATORY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

JUN. 2001 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

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	279	292	R 283	R 290	273	314	307	289	292	R 266	272	267	271	R 280	275	276	285	R 286	289	292	276	R 280	S 279	R 265
2	F	S 281	F	F	R 275	F	267	R 273	294	261	260	263	R 242	255	271	R 293	304	317	R 297	297	A	R 257	243	R 269
3	261	293	285	265	263	274	313	327	307	R 283	261	A	284	289	282	R 280	288	A	A	296	A	A	A	264
4	F 275	F	280	289	286	300	263	281	312	306	264	266	258	R 266	279	278	285	285	283	283	S 295	270	F	F
5	269	276	283	R 284	F	282	311	345	365	A	A	257	260	273	275	279	A	A	R 270	285	S 280	S 291	U R 274	S 270
6	R 275	283	284	273		282	291	315	V 301	278	257	R 281	264	269	276	283	293	292	295	290	270	255	260	262
7	S 261	R 277	290	F	F	297	281	297	300	266	265	269	263	266	269	270	274	289	297	300	294	R 259	268	R 251
8	F	V 283	R 272	R 281	273	289	311	311	297	314	291	A	286	279	275	279	285	286	291	297	R 292	F 257	267	A
9	S 272	F	R 261	R 272	F 281	282	304	302	303	277	258	A	263	R 266	R 264	273	271	276	R 288	281	S 274	269	269	R 262
10	265	277	293	282	262	288	304	258	R 292	273	267	269	263	276	274	285	281	280	283	268	268	R 259	R 251	283
11	268	268	273	279	292	291	304	288	299	R 304	257	270	275	275	274	275	283	287	291	284	R 279	273	R 265	R 264
12	F	S 286	292	280	285	296	317	319	327	261	258	270	263	274	272	279	278	276	278	298	S 291	A	A	F
13	F	R 293	A	R	F	340	306	A	A	270	269	266	276	267	258	260	264	274	275	R 290	267	R 262	R	R 262
14	S 270	R 292	281	F	F	288	279	R 277	286	R 284	R 266	272	272	U R 270	281	278	283	277	288	289	R 266	S 258	F	277
15	R 290	A	S 269	R 302	R 280	283	277	285	276	278	280	247	R 266	263	270	271	278	277	279	276	258	259	R 266	258
16	R 284	R 262	F	R 279	F	297	311	A	A	255	A	264	A	A	A	280	273	276	A	R 267	257	255	F	A
17	S 275	S 287	F	274	F	R 273	268	285	277	254	261	271	271	264	265	273	282	278	284	279	271	250	251	245
18	253	269	267	268	271	260	278	271	290	R 256	R 242	256	262	266	270	269	270	270	295	285	249	248	R 243	282
19	R	268	272	245	F	F	249	251	A	A	A	A	A	A	A	R 258	R 265	R 266	272	267	269	256	R 246	R 257
20	R 263	266	277	R 269	278	292	235	261	254	A	A	R 277	A	U R 268	277	282	265	282	278	270	R 272	F	A	R 255
21	R 278	265	281	R 265	274	303	288	256	A	A	A	A	A	U R 270	280	277	A	A	A	A	R 277	A	A	R
22	271	R 275	276	R 273	F	F 272	292	291	R 279	260	A	A	A	A	R 256	276	282	R 283	286	280	R 278	A	272	R 267
23	R 267	R 267	R 271	R	S 286	284	286	267	A	255	R 246	A	R	R 271	U R 266	274	280	295	297	R 295	U R 265	251	R	R 263
24	R 274	R 267	263	R 261	262	283	282	R 276	272	A	A	A	A	A	R 257	R 264	A	284	A	A	A	R 257	R 265	R 265
25	S 266	R 264	S 269	R 252	254	264	272	265	R 291	A	259	R 262	270	272	274	285	R 284	A	A	281	256	R 255	R	R 253
26	R 276	R 288	R 292	273	270	271	291	U R 299	285	A	250	A	A	274	272	R 276	286	R 281	280	294	R 255	R 248	R	S 268
27	R 276	R 301	R 268	R 270	270	306	258	279	266	271	U R 252	R 239	252	R	A	A	287	A	A	A	C	C	C	266
28	277	285	R 277	280	272	286	R 281	275	299	278	C	C	C	C	C	C	C	C	C	287	R 269	269	273	R 269
29	F	292	280	R 287	R 289	311	303	292	295	253	269	274	270	256	R 262	279	271	285	289	R 295	274	R 277	R	R 276
30	281	291	R 261	R 280	F	306	314	307	303	260	260	A	256	267	271	R 273	276	276	A	283	R 287	R 280	F	R
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	24	27	26	25	20	28	30	28	25	23	22	19	21	24	26	28	26	24	22	27	26	24	16	24
MED	273	281	277	R 274	274	288	290	285	294	270	260	267	264	270	272	276	282	282	287	285	272	258	266	R 264
U Q	R 276	291	283	R 282	283	298	306	300	302	278	267	271	272	274	275	280	285	286	291	295	279	270	270	269
L Q	266	R 268	R 269	R 268	270	282	277	272	282	260	257	262	261	266	R 266	273	273	276	279	280	266	255	R 251	R 260

JUN. 2001 M(3000)F2 (0.01) COMMUNICATIONS RESEARCH LABORATORY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

JUN. 2001 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	U L 351	U L 361	U L 341	U L 348	A	A	A	A	A					
2						A	A	L	U L 350	U L 337	353	A	U L 347	A	R 346	U L 345	A	A	A	A				
3							A	A	A	L	U L 380	A	A	356	U L 332	A	A	A	A	A				
4							A	A	A	A	A	A	A	A	A	U L 341	L	L	L					
5							L	A	A	A	A	U L 343	A	U L 315	A	A	A	A	A					
6							L	A	L	A	A	A	U L 326	A	U L 361	A	L	L		A				
7							A	A	A	U L 325	366	L	A	A	U L 348	L	U L 327	A	L					
8						L	L	L	L	A	A	A	A	A	U L 344	U L 336	L	L	L					
9							A	A	A	A	U L 322	A	A	A	A	A	A	A	A					
10							L	A	A	A	A	U L 343	U L 328	A	A	A	A	L	A					
11							A	A	L	L	U L 321	U L 342	A	U L 355	A	A	A	A	L					
12								L	A	U L 330	U L 337	U L 326	A	A	A	A	U L 337	L	L					
13								A	A	A	U L 336	U L 331	U L 339	A	A	A	A	A	A					
14							A	A	A	A	A	A	U L 343	R 332	A	U L 355	U L 354	L						
15								A	A	A	A	A	324	U L 354	A	U L 328	U L 333	L	L					
16							A	A	A	A	A	A	A	A	A	A	A	A	A					
17								A	A	A	A	A	A	A	347	U L 332	L	L	L					
18						L	L	L	345	A	A	U L 339	A	A	U L 369	330	329	324	L					
19							U L 296	A	A	A	A	A	A	A	A	U L 369	325	U L 313	L					
20							U L 329	U L 350	U L 329	A	A	A	A	U L 332	U L 335	U L 359	327	A	A					
21						L	U L 336	A	A	A	A	A	A	A	A	U L 318	A	A	A					
22							A	A	U L 367	A	A	A	A	A	A	B	A	A	A					
23							L	A	A	A	A	A	A	U L 358	B	A	336	L	L					
24								U L 366	A	A	A	A	A	A	B	A	A	A	A					
25						L	A	A	A	A	A	U L 332	L 325	B	U L 331	354	A	A	A					
26							L	L	L	A	A	A	A	B	R 324	U L 336	U L 359	A	A					
27							U L 320	U L 330	A	U L 375	347	A	U L 354	A	A	A	A	A	A		C	C	C	
28							L	L	U L 342	U L 365	C	C	C	C	C	C	C	C	C					
29								L	U L 348	U L 370	U L 358	A	A	U L 337	A	L 346	U L 340	U L 333	L					
30							L	A	A	A	A	A	A	A	A	A	A	A	A					
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT							4	3	6	6	10	8	9	9	10	13	10	3						
MED							U L 324	U L 350	U L 346	U L 351	U L 349	U L 340	U L 339	U L 348	U L 345	U L 341	U L 334	U L 324						
U Q							U L 332	U L 366	U L 350	U L 370	U L 358	U L 343	U L 345	U L 356	U L 348	U L 354	U L 340	U L 333						
L Q							U L 308	U L 330	U L 342	U L 330	U L 336	U L 332	L 326	U L 332	U L 332	U L 331	327	U L 313						

JUN. 2001 M(3000)F1 (0.01) COMMUNICATIONS RESEARCH LABORATORY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

JUN. 2001 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							266	276	296	278	350	378	370	352	360	344	316	E A 362	282					
2						312	302	332	316	394	382	360	424	E A 414	360	332	328	290	356	294				
3							260	262	280	314	324	A	E A 366	334	350	304	324	A	A	266				
4							276	316	272	268	378	372	384	E A 438	E A 344	338	326	308	286					
5							280	248	238	A	A	444	398	364	352	324	A	A	E A 334					
6							314	272	262	E A 338	E A 464	E A 346	392	354	336	330	316	294		E A 366				
7							278	E A 332	288	406	378	364	E A 462	E A 390	362	360	344	300	280					
8						304	272	264	330	E A 356	366	A	352	348	354	346	332	320	294					
9							282	272	292	284	418	A	392	E A 478	E A 478	350	E A 364	332	E A 352					
10							292	E A 438	E A 336	372	E A 428	400	394	E A 378	374	332	E A 360	302	E A 358					
11							260	E A 352	304	280	472	376	356	348	340	340	332	290	276					
12								264	264	446	R 418	366	380	372	352	336	344	328	308					
13								A	A	358	350	370	354	E A 370	E A 466	E A 404	E A 376	E A 336	E A 322					
14							264	E A 440	290	E A 358	E A 468	E A 380	366	374	E A 418	340	338	322						
15								314	350	278	E A 344	E A 450	382	380	348	342	332	336	296					
16							260	A	A	E A 326	A	E A 394	A	A	A	336	E A 354	E A 364	A					
17								312	348	E A 394	E A 414	380	380	380	376	346	318	346	312					
18						304	328	350	342	E A 424	E A 568	430	406	400	396	396	376	368	296					
19							418	464	A	A	A	A	A	A	A	482	438	402	350					
20							426	348	456	A	A	E A 434	A	448	380	370	426	344	306					
21						298	322	E A 392	A	A	A	A	A	382	372	366	A	A	A					
22							276	E A 344	318	384	A	A	A	A	E A 430	386	E A 426	366	316					
23							326	306	A	458	E A 416	A	E B 396	400	438	384	372	314	286					
24								366	E A 384	A	A	A	A	A	468	E A 472	A	348	A					
25						348	298	362	318	A	E A 412	392	U R 378	384	366	346	E A 396	A	A					
26							292	286	316	A	E A 514	A	A	370	350	356	340	E A 430	300					
27							376	348	E A 390	366	452	496	492	E A 400	A	A	366	A	A		C	C	C	
28							306	298	298	306	C	C	C	C	C	C	C	C	C					
29								304	316	300	348	348	366	364	E A 384	332	322	324	286					
30							276	260	E A 288	E A 376	364	A	362	360	352	330	346	330	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						5	24	28	25	23	22	19	22	25	26	28	26	24	20	3				
MED						304	287	U 298	306	U 342	U 382	376	380	371	358	343	337	326	296	U 280				
U Q						330	318	351	339	394	E A 452	430	396	E A 400	E A 396	368	372	355	E A 328	E A 366				
L Q						301	274	274	288	300	364	366	366	362	352	334	328	311	286	266				

JUN. 2001 h'F2 (KM) COMMUNICATIONS RESEARCH LABORATORY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

JUN. 2001 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	266	262	244	E A 268	E A 278	262	230	E A 234	E A 252	A	238	220	E A 234	E A 240	A	A	A	A	A	262	278	E A 302	340	E A 338
2	E A 326	E A 320	292	292	264	A	A	E A 294	218	248	202	A	E A 260	A	E A 324	E A 240	A	A	A	A	A	E A 344	E A 348	E A 310
3	E A 356	E A 280	258	E A 282	E A 314	E A 268	A	A	A	E A 252	224	A	A	238	228	A	A	A	A	A	A	A	A	E A 354
4	E A 330	E A 304	E A 298	264	E A 274	246	A	A	A	A	A	A	A	A	A	E A 284	244	A	252	274	248	274	262	268
5	290	290	284	Q 286	306	238	250	A	A	A	A	E A 268	A	E A 306	A	A	A	A	A	E A 282	E A 290	300	E A 330	E A 326
6	272	276	256	284		238	238	A	A	A	A	A	E A 310	A	E B 226	A	E A 254	E A 250	E A 276	A	258	E A 340	E A 346	E A 380
7	E A 340	E A 308	E A 286	Q 280	264	240	A	A	A	E A 266	216	E A 300	A	A	214	E A 340	E A 258	A	A	E A 260	246	E A 340	E A 356	E A 352
8	E A 326	E A 314	E A 294	E A 298	294	E A 266	A	E A 226	E A 282	A	A	A	A	A	218	230	228	E A 266	A	262	E A 258	E A 298	E A 332	A
9	E A 296	E A 330	E A 318	284	260	E A 276	A	A	A	A	E A 296	A	A	A	A	A	A	A	A	E A 296	284	E A 304	276	310
10	304	284	250	242	316	254	A	A	A	A	A	244	E A 282	A	A	A	A	E A 272	A	286	E A 312	302	E A 366	E A 300
11	288	282	278	278	260	234	A	A	E A 242	238	234	226	A	E A 244	A	A	A	A	E A 250	238	E A 292	E A 312	E A 310	E A 322
12	302	278	234	254	268	226	240	E A 240	A	220	204	E A 274	A	A	A	A	E A 248	E A 264	E A 282	264	242	A	A	E A 396
13	E A 342	302	A	E A 300	278	228	E A 264	A	A	A	222	E A 296	E A 246	A	A	A	A	A	A	E A 292	E A 402	E A 306	E A 296	E A 356
14	E A 324	268	242	Q 274	272	258	A	A	A	A	A	A	216	E A 310	A	236	240	E A 248	E A 294	E A 292	E A 310	E A 316	E A 344	286
15	268	A	E A 344	302	306	258	246	A	A	A	A	A	E A 330	224	A	220	220	E A 252	E A 262	272	300	E A 370	E A 310	E A 328
16	E A 326	E A 370	E A 320	290	250	252	A	A	A	A	A	A	A	A	A	A	A	A	A	E A 360	E A 440	E A 330	E A 344	A
17	E A 356	E A 324	E A 284	256	272	256	250	A	A	A	A	A	A	A	E A 270	E A 278	E A 242	A	E A 264	278	E A 296	E A 316	E A 326	E A 348
18	E A 334	E A 304	E A 302	E A 306	E A 292	E A 270	234	E A 260	238	A	A	236	A	A	234	258	244	244	E A 256	270	294	348	E A 374	290
19	244	294	E A 292	Q 264	264	270	260	A	A	A	A	A	A	A	A	248	E A 278	E A 300	252	E A 288	E A 330	E A 320	E A 336	E A 434
20	E A 344	E A 330	318	E A 312	274	264	240	E A 252	E A 318	A	A	A	A	E A 280	U R 270	248	E A 252	A	A	272	E A 280	E A 378	A	E A 376
21	E A 302	300	E A 328	E A 328	E A 270	E A 250	E A 264	A	A	A	A	A	A	A	A	A	A	A	A	A	E A 300	A	A	E A 280
22	E A 296	272	E A 302	E A 284	E A 304	E A 248	A	A	230	A	A	A	A	A	A	B	A	A	A	284	E A 318	A	270	E A 358
23	E A 338	E A 312	E A 336	E A 344	302	252	A	A	A	A	A	A	A	242	B	A	260	A	E A 264	286	E A 300	E A 344	E A 352	E A 302
24	E A 330	E A 316	E A 312	E A 312	320	260	256	234	A	A	A	A	A	A	B	A	A	A	A	A	A	E A 344	E A 340	E A 322
25	E A 304	E A 312	298	E A 326	E A 342	264	A	A	A	A	A	250	E A 248	B	E B 322	E A 262	A	A	A	E A 288	E A 292	E A 326	E A 322	E A 380
26	296	278	250	256	298	254	238	E A 234	E A 266	A	A	A	A	B	E A 304	E B 264	244	A	A	272	E A 300	E A 364	E A 350	E A 304
27	E A 306	256	304	298	296	236	242	E A 296	A	216	264	A	252	A	A	A	A	A	A	A	C	C	C	E A 296
28	278	250	262	276	294	246	238	E A 248	232	222	C	C	C	C	C	C	C	C	C	278	260	272	296	E A 310
29	E A 332	286	280	260	244	244	E A 252	222	E A 240	216	230	A	A	E A 300	A	224	228	236	250	246	E A 320	E A 322	E A 358	270
30	300	260	E A 270	276	270	248	234	A	A	A	A	A	A	A	A	A	A	A	A	E A 274	E A 288	E A 286	E A 332	E A 316
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	29	29	30	29	29	17	11	10	8	10	9	9	9	10	13	14	9	11	24	26	25	25	28
MED	E A 305	U 277	U 271	275	275	250	240	E A 240	E A 241	224	225	U 235	E A 252	E A 244	U 234	U 236	236	E A 252	E A 262	270	E A 293	E A 320	E A 336	E A 322
U Q	E A 332	E A 313	E A 308	E A 300	303	263	E A 254	E A 260	E A 266	E A 250	238	E A 285	E A 296	E A 303	E A 304	E A 271	E A 254	E A 269	E A 276	E A 287	E A 310	E A 344	E A 349	E A 355
L Q	296	277	260	268	266	242	238	E A 234	232	218	216	231	E A 240	239	226	233	240	246	252	267	278	302	310	301

JUN. 2001 h'F (KM) COMMUNICATIONS RESEARCH LABORATORY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

JUN. 2001 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

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						124	122	124	126	120	118	B	A	A	A	124	126	118	A	B				
2						B	122	118	122	118	B	B	B	B	B	118	120	124	B	B				
3						122	120	124	118	118	A	A	B	118	124	124	120	A	B	B				
4						126	118	120	120	120	B	A	A	B	B	124	122	120	B	B				
5						118	120	120	B	A	A	124	A	A	B	A	120	122	A	B				
6						122	122	120	A	A	A	A	A	A	B	118	126	122	A	B				
7						128	120	120	122	120	B	118	A	124	A	122	122	118	120	B				
8						124	124	120	122	118	118	A	B	A	118	124	126	122	118					
9						126	124	120	B	B	B	116	B	A	B	A	A	A	A					
10						126	120	124	120	120	120	B	B	A	A	A	A	A	A					
11						122	120	122	118	B	120	120	B	120	120	124	120	118	116					
12						134	124	124	120	118	118	B	B	B	A	A	A	A	116					
13						130	122	124	120	120	B	B	120	B	B	122	122	116	B					
14						122	122	122	128	120	A	B	B	B	B	120	120	120	122					
15						A	126	122	122	A	A	A	B	B	122	120	122	124	B					
16						A	120	124	A	124	118	B	B	B	A	A	A	A	A					
17						118	120	118	118	120	A	B	B	A	A	A	A	A	A					
18						A	A	124	120	118	A	B	118	B	B	120	120	128	122					
19							124	122	118	A	A	A	A	A	A	A	A	120	B					
20						128	124	122	118	118	A	A	A	118	A	120	118	120	A					
21						A	128	122	120	122	B	B	B	B	B	B	126	124	118					
22						126	124	118	114	A	B	B	B	A	A	B	126	122	120					
23						128	122	122	120	B	B	B	B	B	B	A	A	A	B					
24						A	120	124	B	B	A	B	B	B	B	B	128	120	A					
25						E B 138	124	120	122	118	B	B	B	B	B	A	122	122	118					
26						A	118	122	126	B	B	B	A	B	B	B	B	122	118					
27						130	124	122	120	122	B	B	118	A	A	120	120	120	120		C	C	C	
28						118	A	A	118	120	C	C	C	C	C	C	C	C	C					
29						A	122	124	120	124	120	A	A	A	118	118	126	124	124					
30						128	122	118	120	120	120	B	A	B	B	120	120	120	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						21	28	29	25	20	8	4	3	4	5	16	21	22	12					
MED						126	122	122	120	120	119	119	118	119	120	120	122	121	119					
U Q						128	124	124	122	120	120	122	120	122	123	124	126	122	121					
L Q						122	120	120	118	118	118	117	118	118	118	120	120	120	118					

IONOSPHERIC DATA STATION Kokubunji

JUN. 2001 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	B	B	96	96	98	166	134	132	120	112	116	114	106	108	102	126	118	112	108	108	104	114	102	108
2	108	102	106	98	100	126	118	112	116	116	114	120	122	122	128	118	116	116	108	110	106	110	106	106
3	102	104	100	102	108	126	120	122	114	116	112	108	112	G	108	166	118	110	106	106	104	112	108	108
4	106	106	98	106	98	132	124	114	110	114	110	108	108	110	112	118	124	116	110	110	108	104	108	106
5	104	106	108	B	104	138	128	116	118	108	108	136	108	128	108	126	114	110	108	108	108	110	110	106
6	108	112	106	108		124	120	112	110	108	104	104	102	112	B	120	118	116	110	110	108	108	108	106
7	106	104	104	104	110	132	122	116	118	114	120	114	114	124	130	124	126	118	114	110	108	108	108	104
8	104	102	100	100	110	130	120	126	118	114	112	110	114	114	110	108	110	122	112	108	106	104	106	106
9	106	102	106	108	108	122	116	116	116	114	114	110	112	108	108	108	106	106	104	106	106	102	106	B
10	104	B	B	B	B	130	128	118	116	120	116	122	114	106	108	108	108	108	106	104	110	110	112	106
11	104	104	106	104	102	130	124	116	118	118	110	120	114	120	114	118	110	112	112	106	102	102	102	102
12	100	B	98	B	B	160	146	130	118	118	120	124	118	118	108	104	106	122	112	108	104	112	112	108
13	102	106	106	102	100	148	124	118	116	114	B	118	122	116	112	110	110	112	106	108	106	108	118	110
14	110	110	114	112	B	148	124	122	126	116	110	110	B	B	114	G	158	140	120	114	108	104	110	108
15	104	102	102	100	104	102	150	120	116	118	126	114	120	B	118	126	146	120	112	108	110	106	104	100
16	114	106	104	102	106	108	138	110	108	114	110	110	106	104	100	106	102	100	104	100	104	104	102	110
17	108	100	98	96	96	96	148	112	114	112	106	112	106	104	104	104	104	102	102	98	100	104	106	106
18	104	102	100	104	106	108	108	134	116	122	112	112	114	112	B	104	106	164	136	B	110	B	122	112
19	110	106	122	102	104	102	140	124	112	110	112	104	110	106	102	106	106	118	102	102	100	100	96	114
20	112	98	98	96	100	152	148	134	118	112	110	110	106	122	110	126	126	112	110	102	98	118	108	106
21	106	100	98	96	102	104	122	114	112	110	118	106	104	114	114	B	120	120	110	110	108	106	112	104
22	104	102	96	114	96	132	126	114	120	110	102	104	106	104	108	B	124	120	116	112	110	108	106	104
23	108	100	98	96	104	140	122	118	114	112	114	108	110	B	B	108	106	102	104	102	102	114	106	116
24	100	100	96	96	96	104	132	116	116	114	108	110	106	116	148	138	126	114	100	124	114	110	110	106
25	102	100	100	96	102	152	126	124	118	112	110	110	B	B	B	142	120	114	110	110	110	110	106	108
26	106	98	104	106	104	106	G	138	130	116	110	106	104	B	B	B	B	120	116	110	108	118	110	108
27	104	108	104	104	112	140	130	118	114	112	118	108	116	108	106	120	118	114	112	112	C	C	C	126
28	106	B	B	112	112	140	110	112	120	124	C	C	C	C	C	C	C	C	C	114	B	B	110	110
29	104	106	100	104	106	108	134	108	130	128	122	110	110	124	118	G	142	116	126	114	118	112	108	104
30	104	100	98	98	98	106	140	118	118	114	112	124	110	110	114	132	126	114	106	106	106	102	106	100
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	26	28	27	26	30	29	30	30	30	28	29	27	23	24	24	28	29	29	29	28	27	29	29
MED	104	102	100	102	104	130	126	118	116	114	112	110	110	112	110	118	118	114	110	108	107	108	108	106
U Q	108	106	106	106	106	140	136	124	118	116	116	116	114	120	114	126	125	120	112	110	109	112	110	109
L Q	104	100	98	96	100	108	121	114	114	112	110	108	106	108	108	108	107	111	106	106	104	104	106	105

JUN. 2001 h'Es (KM) COMMUNICATIONS RESEARCH LABORATORY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

JUN. 2001 TYPES OF Es 135°E MEAN TIME (G.M.T. + 9 H)

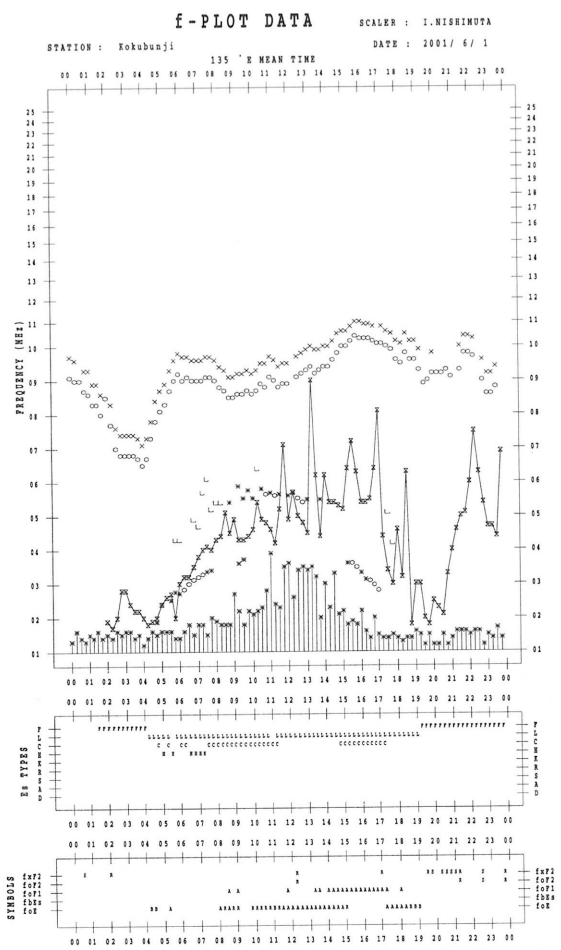
LAT. 35°42.4'N LON. 139°29.3'E SWEEP 1.0MHz TO 25.0MHz IN 24.0SEC IN MANUAL SCALING

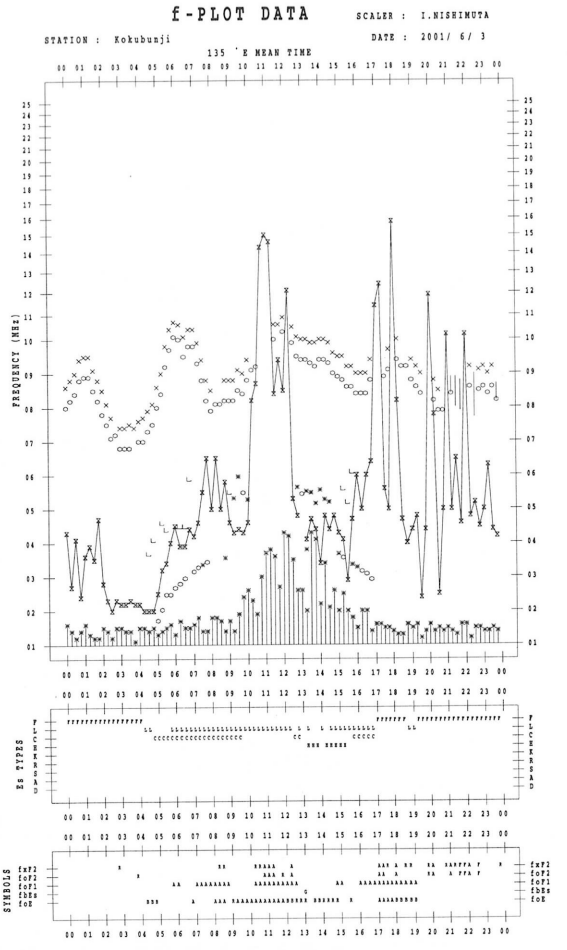
D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1			F 2	F 3	F 2	HL 11	CL 11	HL 11	CL 11	CL 21	CL 11	C 1	L 2	L 1	L 2	CL 21	CL 21	CL 31	L 4	L 4	F 2	FF 23	F 4	F 4
2	F 2	F 3	F 6	F 4	F 2	CL 22	CL 21	CL 21	CL 11	CL 11	C 1	C 1	C 1	C 2	C 1	CL 21	CL 21	CL 31	CL 41	C 3	F 4	F 4	F 3	F 2
3	F 4	F 4	F 4	F 2	F 2	C 2	CL 31	CL 21	CL 21	CL 11	L 1	L 2	L 2		L 1	HL 11	CL 21	F 3	F 3	L 5	F 3	F 3	F 4	F 6
4	F 4	F 6	F 2	F 2	F 3	CL 21	C 3	CL 31	CL 21	CL 21	C 2	L 2	L 1	L 2	L 2	CL 11	C 1	CL 21	L 2	L 1	F 2	F 3	F 3	F 4
5	F 3	F 2	F 1		F 2	CL 11	CL 11	CL 21	C 1	L 2	L 1	HL 11	L 1	CL 11	L 1	CL 11	CL 31	CL 41	L 4	L 4	F 3	F 5	F 5	F 3
6	F 2	F 1	F 1	F 1		C 2	CL 21	CL 21	L 2	L 2	L 2	L 3	L 2	L 1		CL 21	CL 21	CL 21	L 4	L 5	F 4	F 4	F 4	F 3
7	F 5	F 4	F 5	F 6	F 3	H 2	CL 31	CL 31	CL 21	CL 21	C 1	C 1	L 2	C 1	CL 11	CL 11	CL 21	C 2	C 3	C 3	F 3	F 6	F 6	F 5
8	F 4	F 4	F 4	F 3	F 1	C 3	CL 21	CL 11	CL 21	CL 21	CL 21	L 2	L 1	L 2	L 1	L 1	L 1	CL 21	C 3	F 4	F 4	F 3	F 3	F 4
9	F 4	F 4	F 5	F 4	F 1	C 3	CL 41	CL 21	C 1	C 1	C 1	C 2	C 2	L 3	L 2	L 2	L 3	L 3	L 4	F 4	F 4	F 3	F 2	
10	F 2					C 2	CL 21	CL 21	CL 21	CL 21	CL 11	C 1	C 1	L 2	L 2	L 2	L 2	L 2	L 4	F 4	F 6	F 2	F 5	F 5
11	F 2	F 2	F 2	F 2	F 2	C 2	C 2	CL 21	CL 11	C 1	C 1	C 1	C 2	C 1	C 1	C 2	CL 21	CL 21	C 3	F 3	F 4	F 4	F 5	F 3
12	F 2		F 1			H 2	H 1	CL 11	CL 21	CL 11	CL 11	C 1	C 1	C 1	L 1	L 2	L 2	CL 11	C 3	F 2	F 4	F 3	F 4	F 4
13	F 3	F 4	F 4	F 5	F 4	HL 11	CL 31	CL 31	CL 31	CL 21		C 1	C 1	C 2	C 2	C 2	CL 31	C 3	L 3	F 5	F 3	F 2	F 4	F 3
14	F 3	F 5	F 3	F 2		H 2	CL 31	CL 21	CL 21	CL 21	L 2	L 2			C 2		HL 11	HL 11	C 3	F 3	F 4	F 2	F 3	F 2
15	F 3	F 5	F 3	F 3	F 4	L 3	HL 11	CL 21	CL 21	CL 21	CL 11	CL 21	C 1		C 2	C 1	HL 11	CL 21	L 2	F 2	F 3	F 3	F 3	F 4
16	FF 13	F 4	F 5	F 3	F 2	LC 21	HL 12	CL 31	L 3	CL 21	C 2	L 1	L 3	L 3	L 3	L 2	L 2	L 3	L 3	F 3	F 4	F 5	F 3	F 3
17	F 3	F 3	F 2	F 2	F 3	LC 21	CL 11	CL 31	CL 21	CL 21	L 2	C 2	L 2	L 2	L 2	L 2	L 1	L 3	L 4	F 4	F 3	F 3	F 2	F 2
18	F 1	F 2	F 4	F 2	F 4	L 3	LC 21	HL 11	CL 11	C 2	L 2	C 1	C 1	L 1		L 1	L 1	HL 11	CL 21		F 1		F 4	F 2
19	F 2	F 4	FF 23	F 3	F 6	L 3	HL 11	CL 21	CL 21	L 2	L 2	L 2	L 1	L 2	L 2	L 1	L 1	CL 21	L 3	F 3	F 3	F 3	F 4	FF 35
20	FF 23	FF 23	F 2	F 2	F 1	H 1	HL 11	HL 11	CL 21	CL 21	L 2	L 2	L 2	CL 11	L 1	CL 11	CL 11	CL 21	L 3	F 3	F 2	FF 13	FF 43	F 6
21	F 4	F 2	F 3	F 2	F 3	L 3	CL 21	CL 31	CL 21	CL 21	C 2	L 3	L 3	C 1	C 1		CL 21	CL 31	C 3	F 4	F 4	F 3	F 3	F 2
22	F 3	F 2	F 3	FF 11	F 2	CL 21	CL 21	CL 31	CL 11	L 1	L 2	L 2	L 2	L 2	L 1		CL 21	CL 21	C 3	F 4	F 3	F 3	F 2	F 4
23	F 4	F 2	F 2	F 3	F 2	HL 11	CL 21	CL 21	C 1	L 1	L 1	L 2	L 1			L 1	L 1	L 2	L 2	F 3	F 2	FF 13	F 2	FF 12
24	F 3	F 3	F 3	F 2	F 2	L 1	H 1	CL 11	CL 21	C 2	L 2	L 2	L 2	L 1	H 1	H 1	CL 21	CL 21	LC 31	FF 13	F 3	F 3	F 3	F 2
25	F 2	F 2	F 2	F 3	F 2	HL 11	CL 31	CL 21	CL 21	CL 21	L 2	L 1				HL 11	C 2	CL 31	C 3	F 3	F 2	F 2	F 2	FF 41
26	F 2	F 2	F 2	F 2	F 4	L 3		HL 11	CL 11	C 1	C 1	C 2	L 2					CL 21	C 3	F 2	F 2	F 4	F 4	F 2
27	F 2	F 2	F 2	F 2	F 1	H 2	HL 21	CL 21	CL 21	L 1	C 1	L 1	C 1	L 2	LC 21	CL 21	CL 21	C 3	C 3	F 4	C	C	C	F 1
28	F 1			F 1	F 1	H 1	L 1	L 1	CL 21	CL 11	C	C	C	C	C	C	C	C	C	F 6			F 3	F 3
29	F 5	F 4	F 4	F 2	F 3	L 2	HL 22	L 2	CL 21	CL 11	C 1	L 1	L 1	CL 11	C 1		HL 11	CL 21	CL 11	F 3	F 5	F 3	F 4	F 3
30	F 2	F 3	F 2	F 2	F 2	L 1	HL 11	CL 21	CL 21	CL 21	CL 21	CL 12	L 2	L 1	C 2	HL 21	CL 21	CL 31	L 3	F 6	F 6	F 6	F 4	F 5
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																								

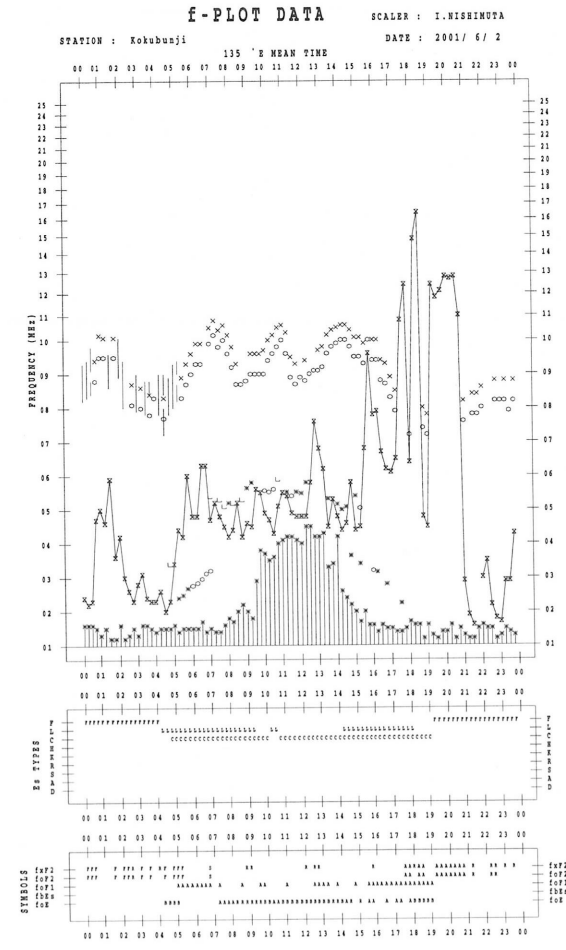
JUN. 2001 TYPES OF Es COMMUNICATIONS RESEARCH LABORATORY, JAPAN

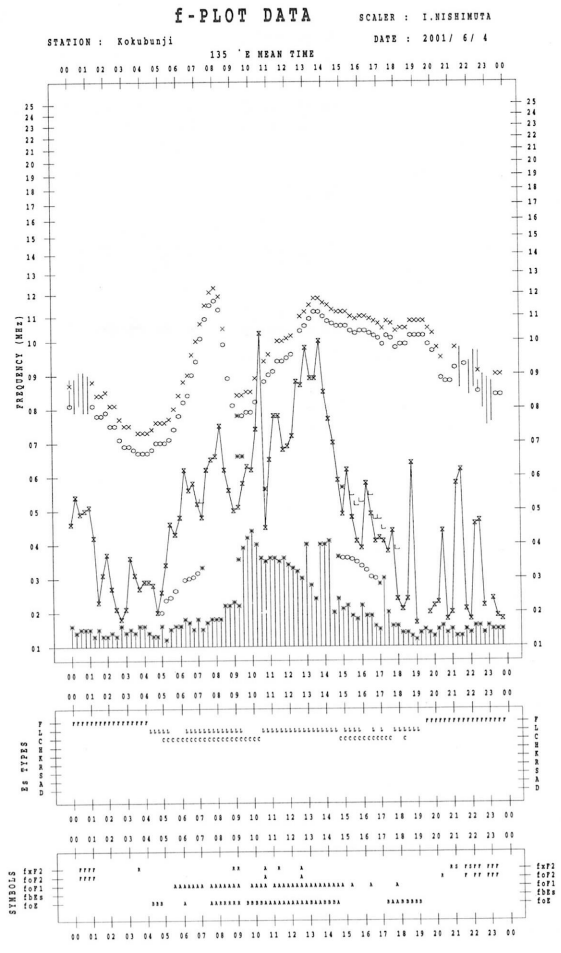
f-PLOTS OF IONOSPHERIC DATA

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.NISHIMUTA
STATION : Kokubunji
DATE : 2001/ 6/ 1
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS


f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2001/ 6/ 3
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS


f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2001/ 6/ 2
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS


f-PLOT DATA
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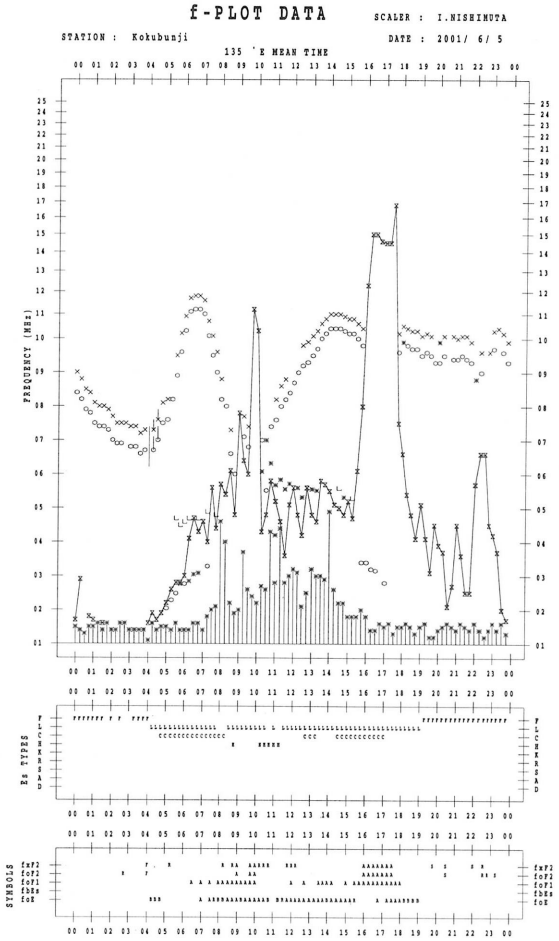
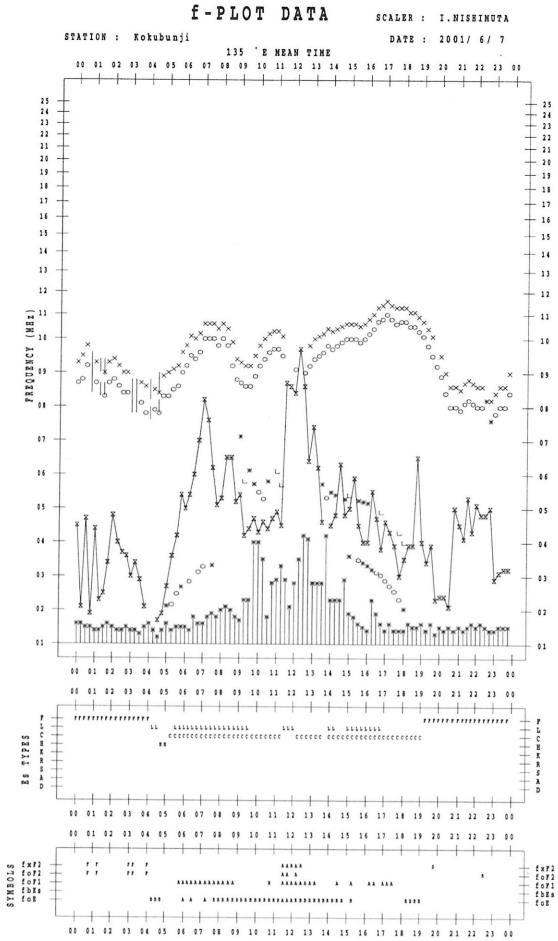
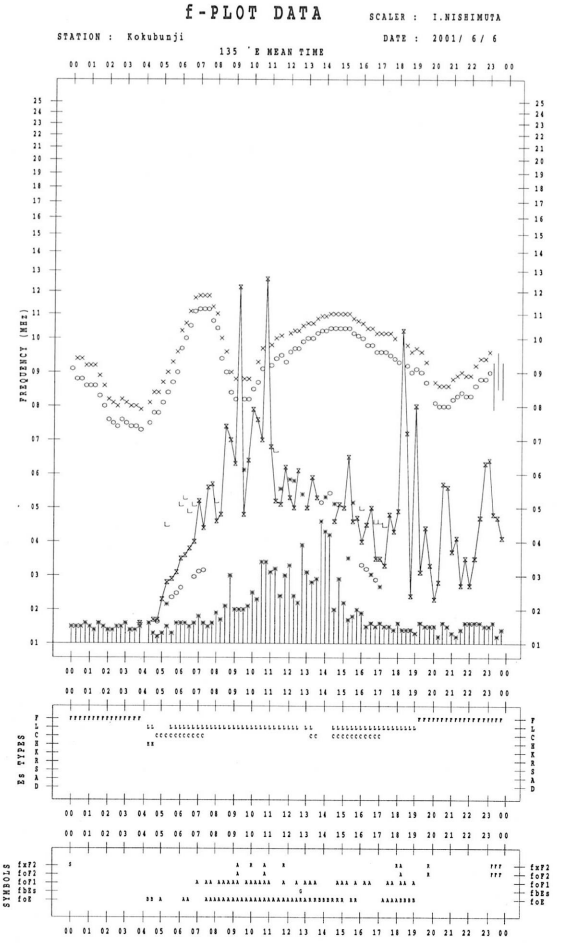
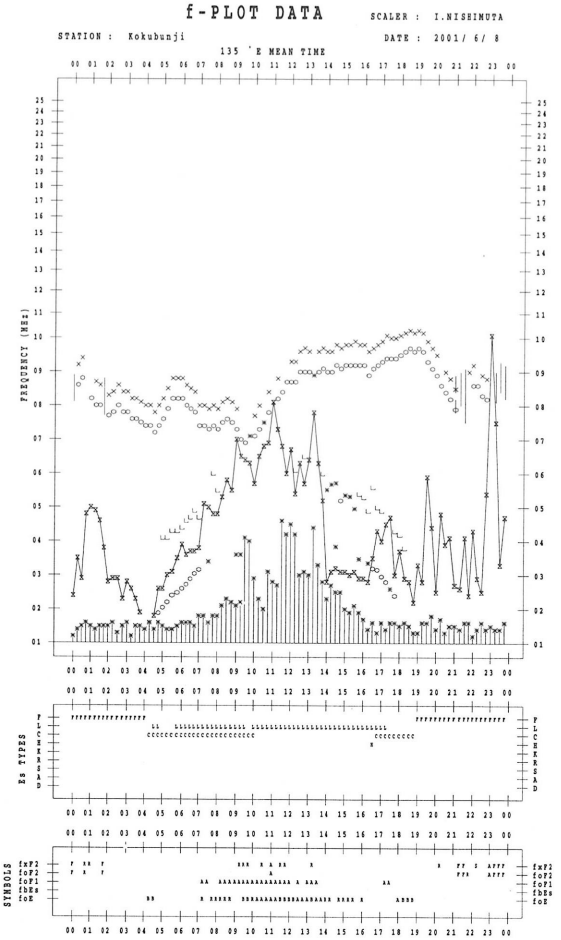
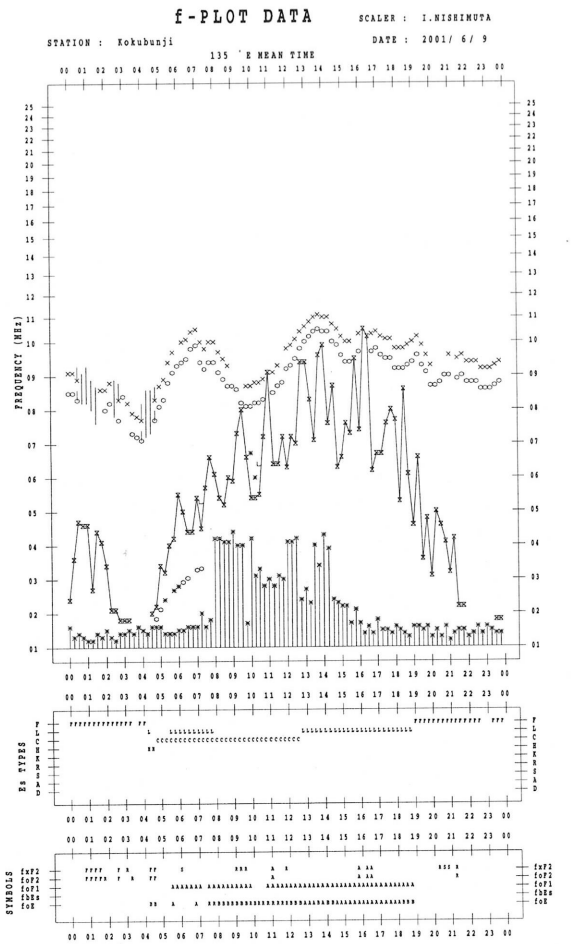
STATION : Kokubunji
DATE : 2001/ 6/ 4
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS

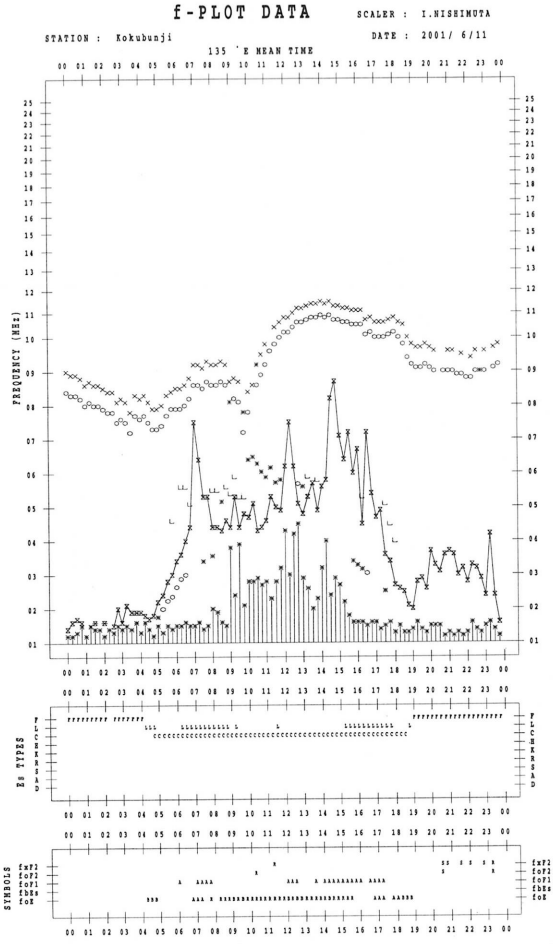

f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2001/ 6/ 5
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS

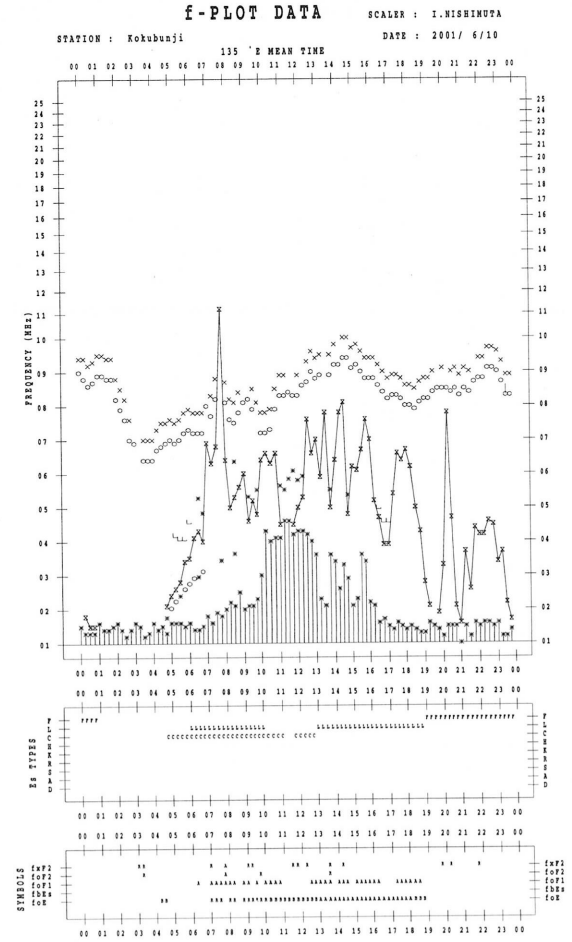

f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2001/ 6/ 7
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS

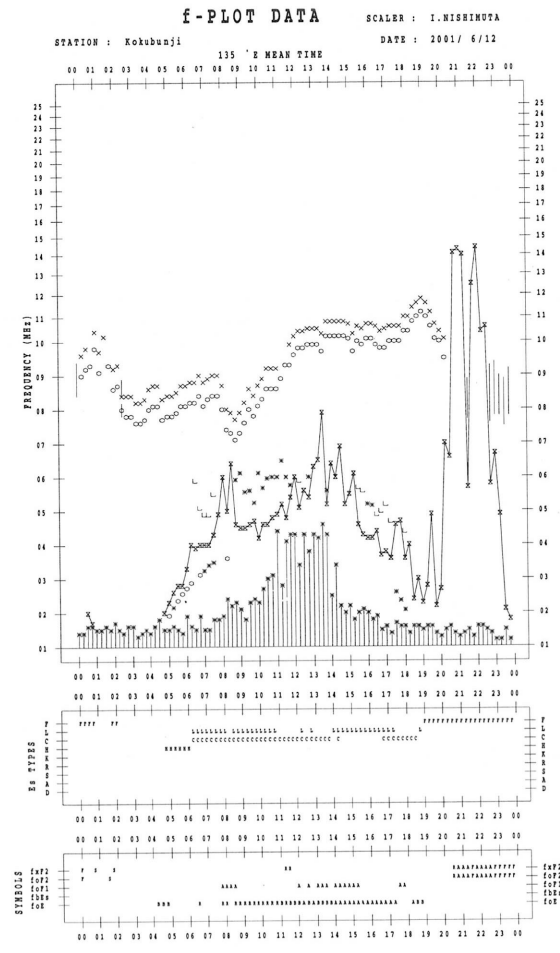

f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2001/ 6/ 6
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS

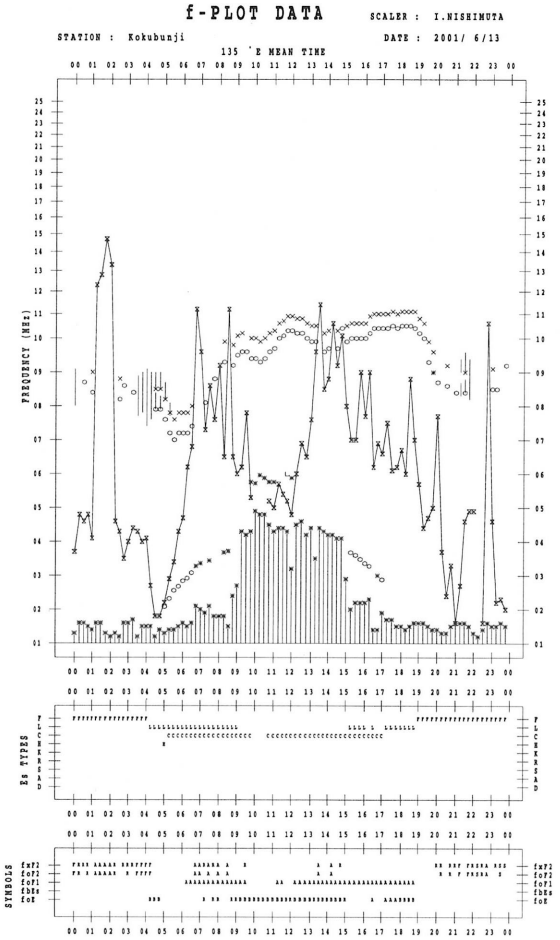

f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2001/ 6/ 8
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS

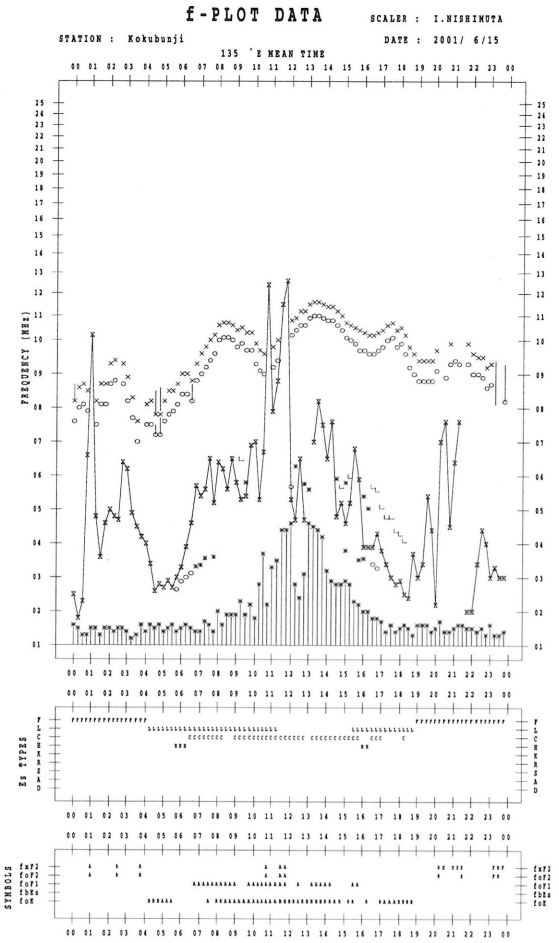

f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2001/ 6/ 9
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE

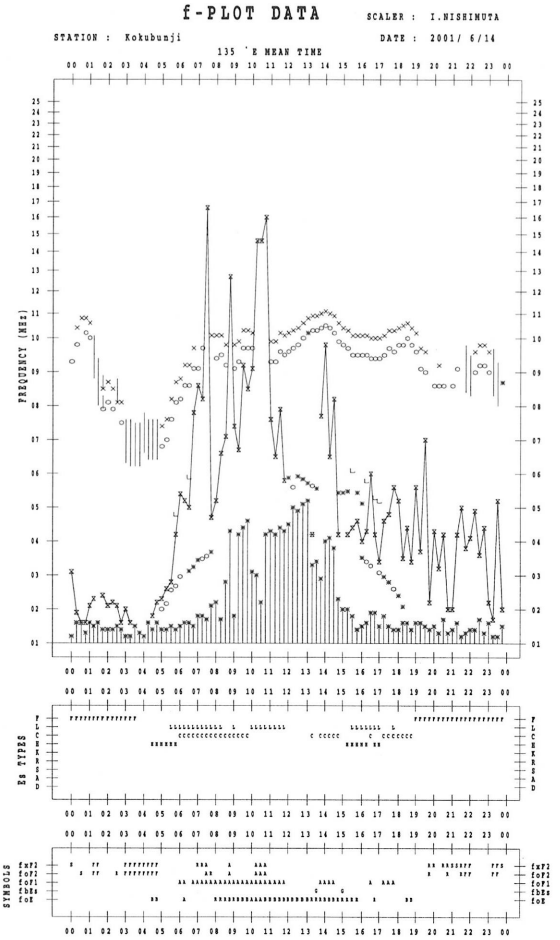

f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2001/ 6/11
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE


f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2001/ 6/10
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE


f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2001/ 6/12
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE


f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2001/ 6/13
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS


f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2001/ 6/15
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS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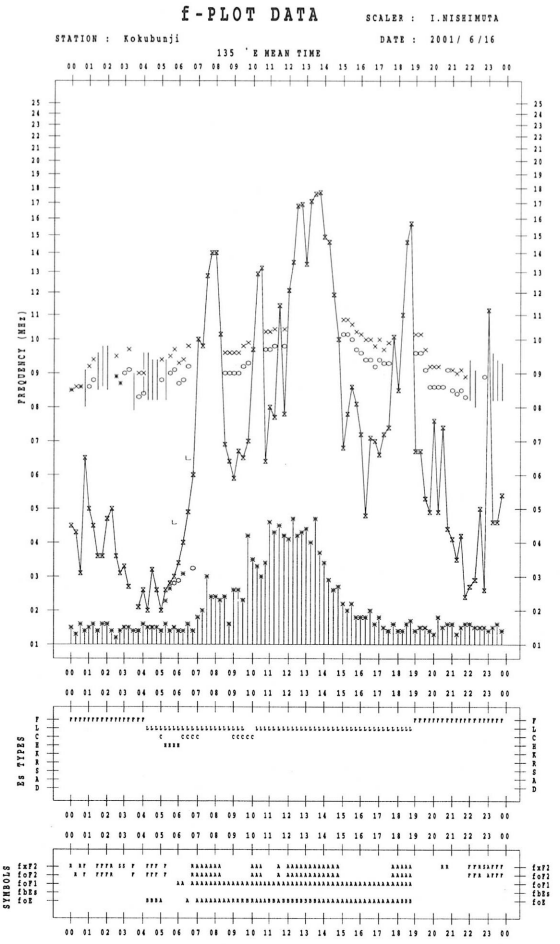
STATION : Kokubunji
DATE : 2001/ 6/14
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS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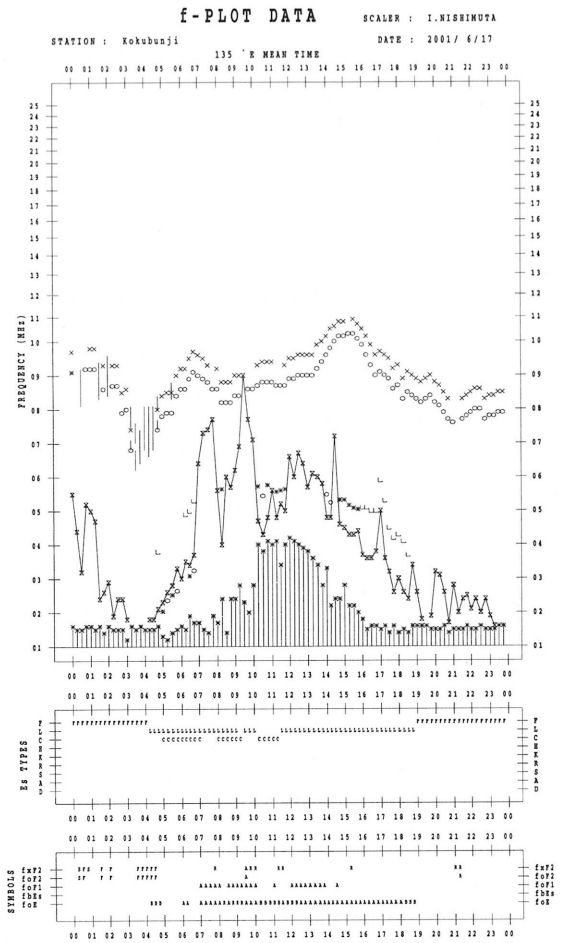
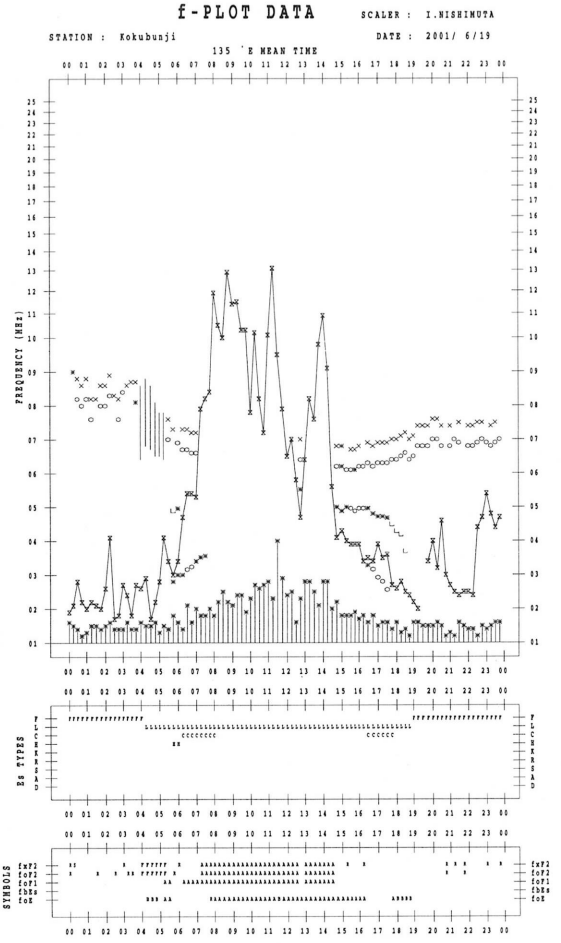
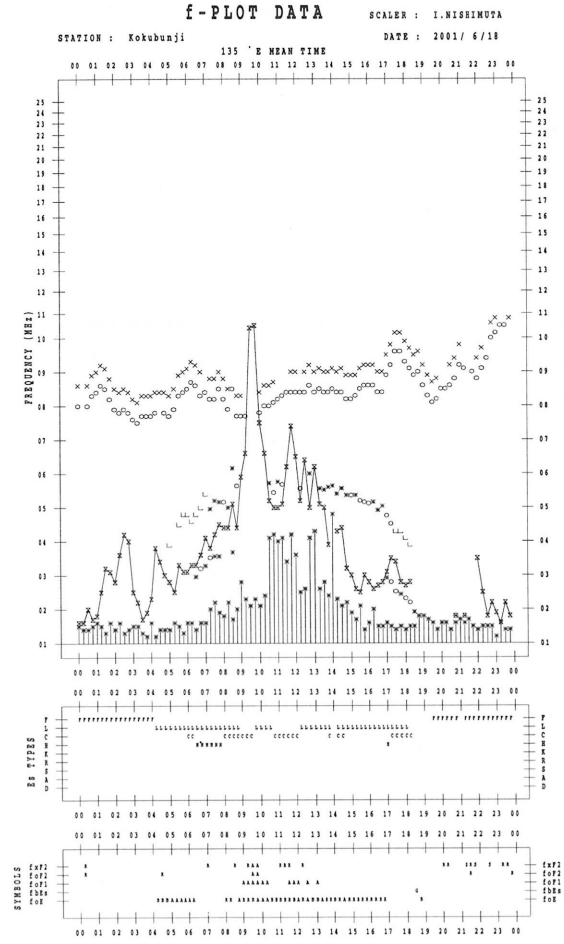
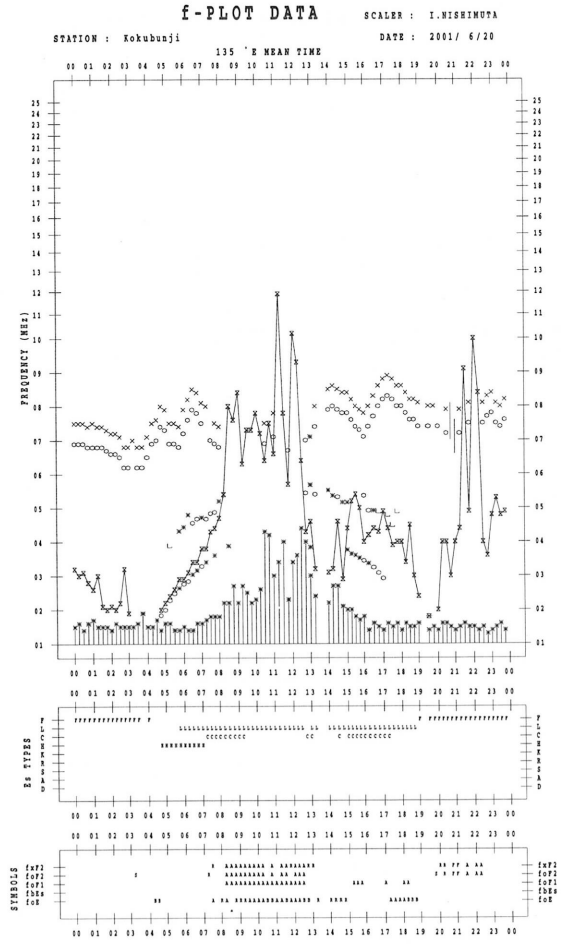
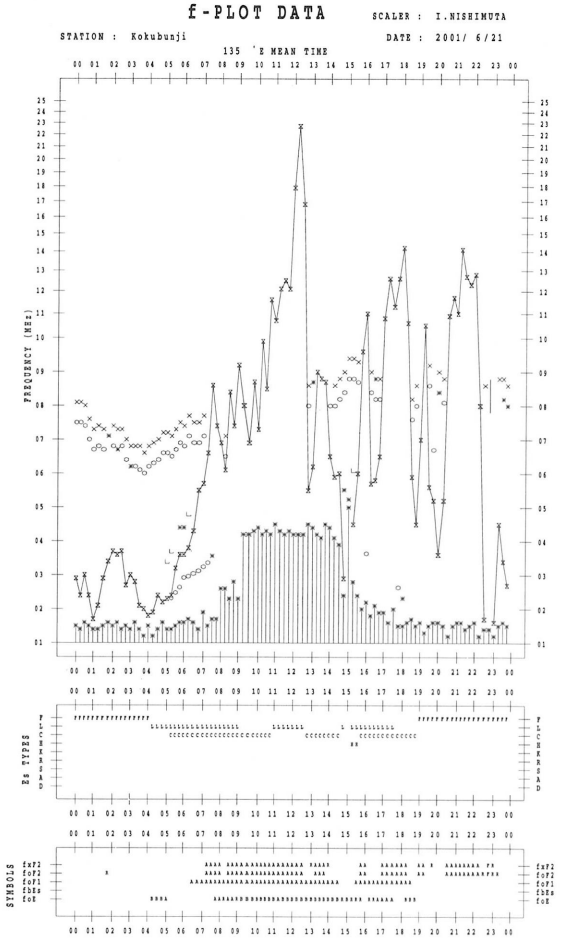
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2001/ 6/16
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS

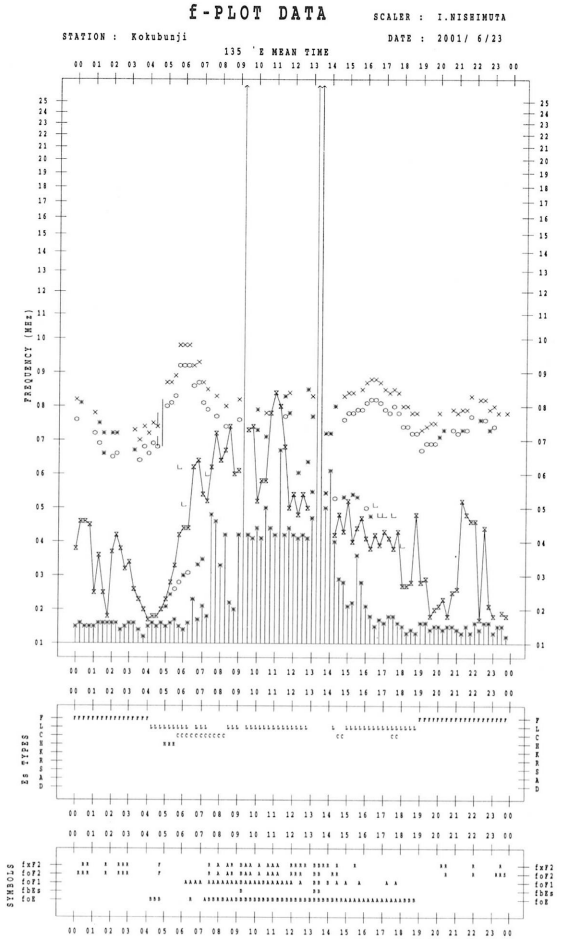

f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2001/ 6/17
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS

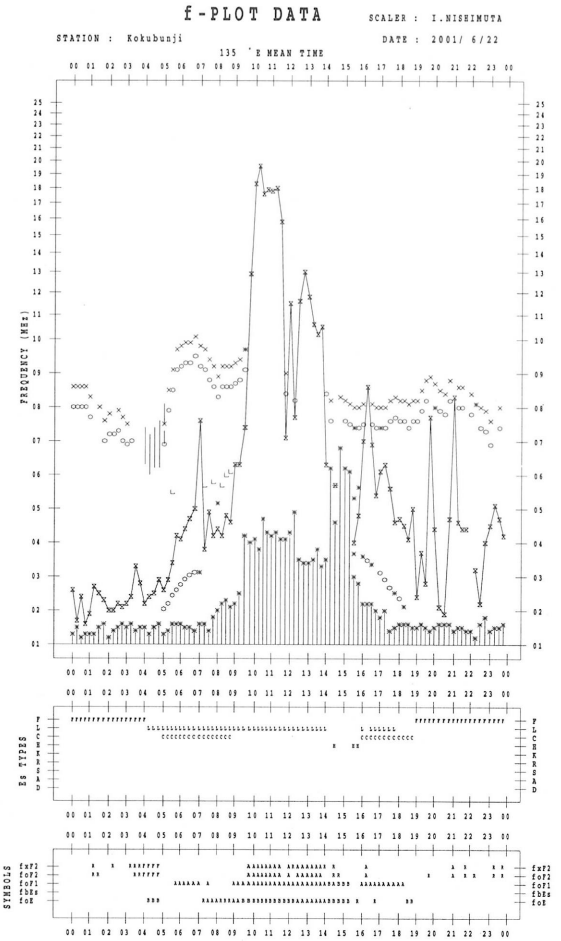

f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2001/ 6/19
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS

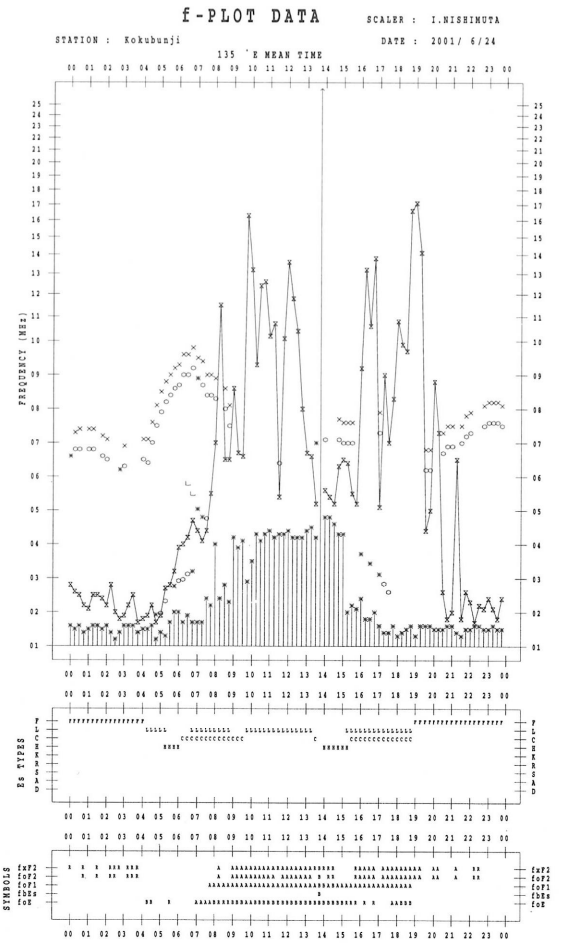

f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2001/ 6/18
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS

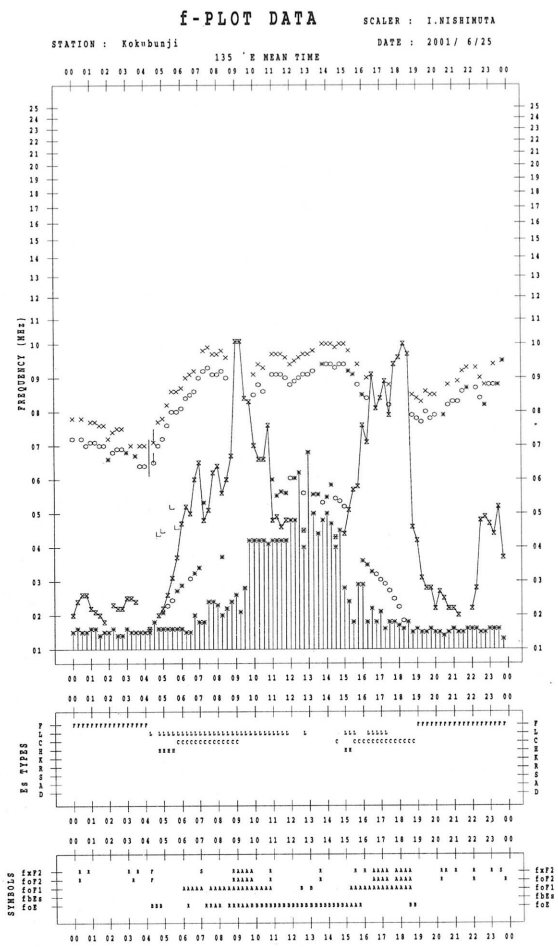

f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2001/ 6/20
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS

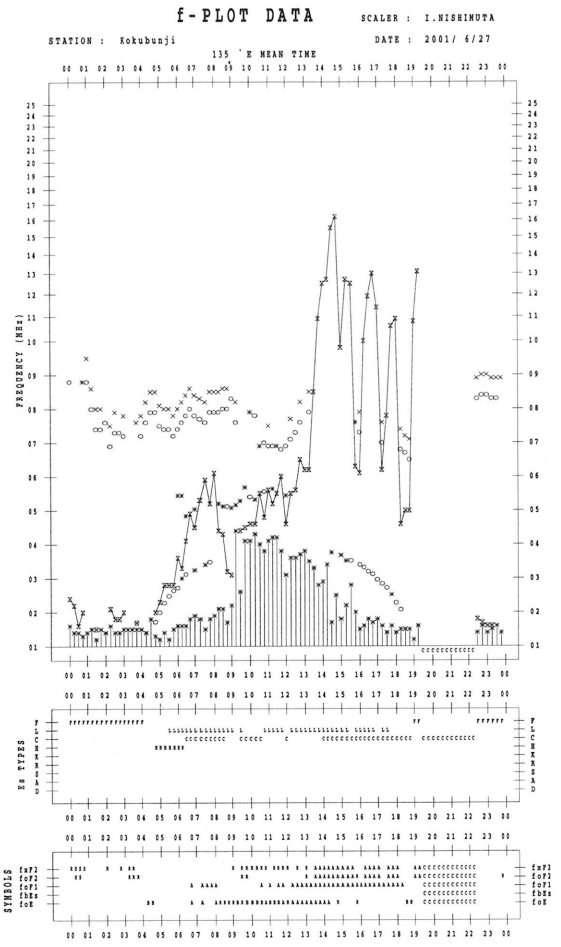

f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2001/ 6/21
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS

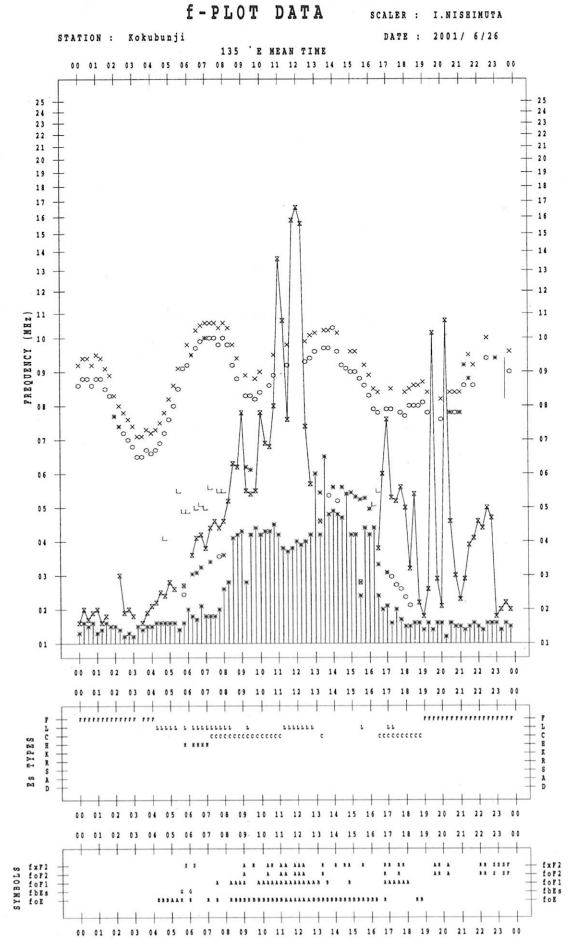

f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2001/ 6/23
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS

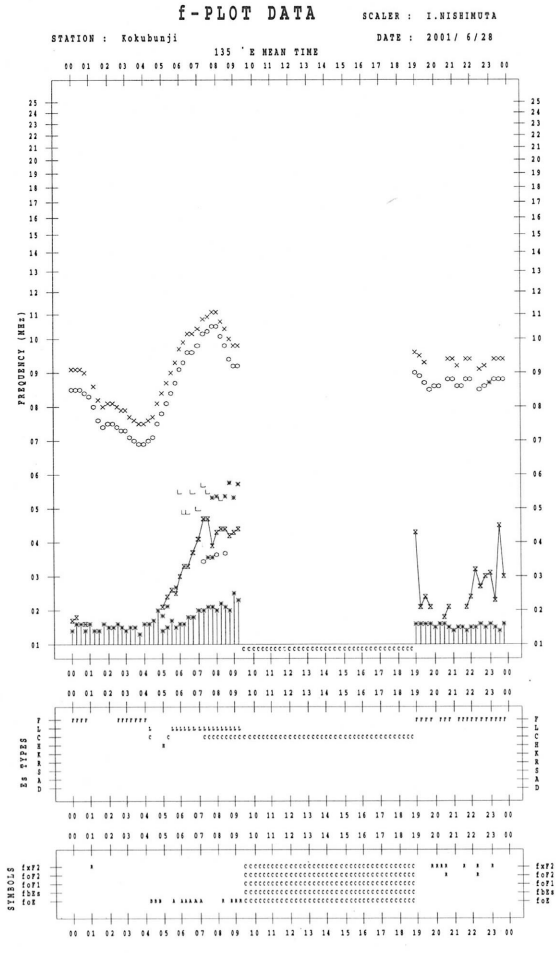

f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2001/ 6/22
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS

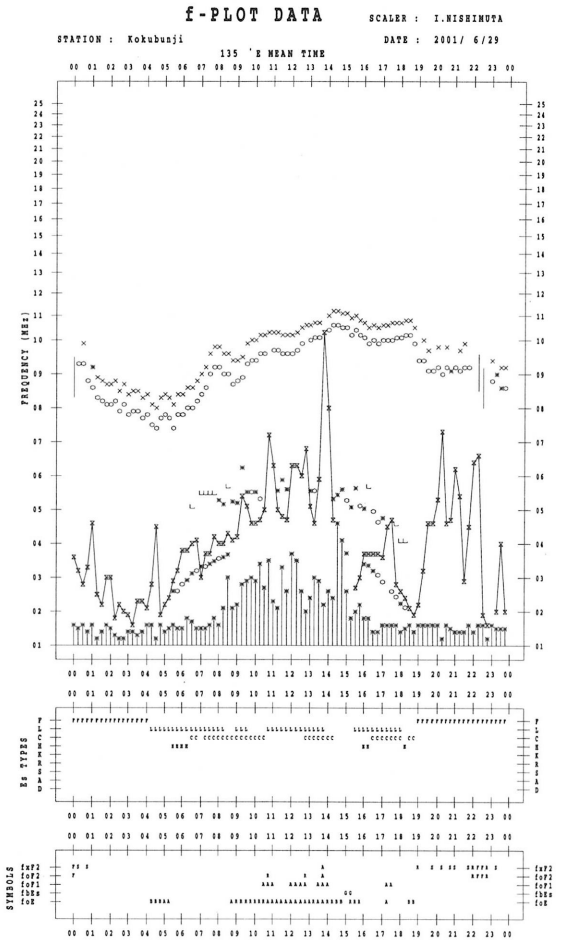

f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2001/ 6/24
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS

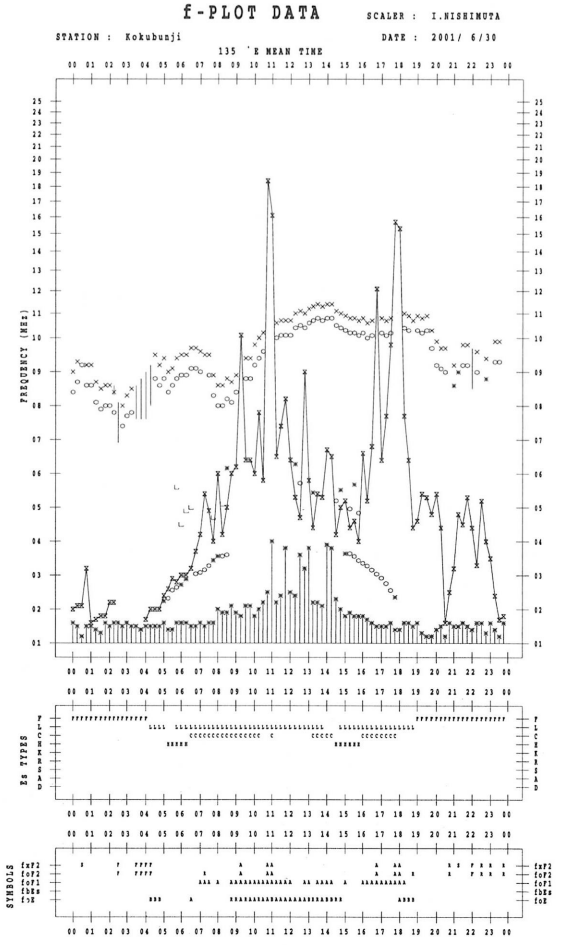

f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2001/ 6/25
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS


f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2001/ 6/27
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS


f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2001/ 6/26
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS


f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2001/ 6/28
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS


f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2001/ 6/29
135 'E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
foF2
foF1
foE


f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2001/ 6/30
135 'E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
foF2
foF1
foE

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

Hiraiso June 2001

Single-frequency total flux observations at 500 MHz					
Flux density: 10^{-22} W m^{-2} Hz^{-1}					
UT / Date	00-03	03-06	06-09	21-24	Day
1	35	36	38	37	36
2	35	38	40	39	38
3	36	36	35	43	38
4	40	37	40	39	39
5	38	36	36	36	36
6	37	38	35	39	37
7	36	38	37	39	38
8	39	41	43	44	42
9	47	46	45	43	45
10	43	43	39	43	42
11	40	39	40	40	40
12	40	40	41	41	41
13	41	40	40	39	40
14	40	42	42	38	41
15	39	40	39	41	40
16	40	40	40	40	40
17	39	38	36	42	38
18	39	36	39	40	38
19	38	36	36	37	37
20	38	40	41	39	40
21	40	38	39	40	40
22	40	38	39	41	40
23	38	38	37	40	39
24	40	39	36	38	38
25	38	38	38	40	38
26	37	36	35	38	37
27	35	35	36	38	36
28	35	34	34	37	35
29	35	33	34	35	34
30	34	33	33	36	34
31					

B. Solar Radio Emission

B2. Outstanding Occurrences at Hiraiso

Hiraiso June 2001

Single-frequency observations

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

JUN. 2001	FREQ. (MHz)	TYPE	START TIME (U.T.)	TIME OF MAXIMUM (U.T.)	DUR. (MIN.)	FLUX DENSITY (10^{-22} W m^{-2} Hz^{-1}) PEAK	FLUX DENSITY (10^{-22} W m^{-2} Hz^{-1}) MEAN	POLARIZATION REMARKS
2	200	2 S	0157.0	0159.0	8.0	45	-	ML
2	200	1 S	0724.0	0724.0	8.0	200	-	0
2	200	1 S	2059.0	2059.0	8.0	5	-	0
2	200	2 S	2256.0	2257.0	8.0	20	-	0
3	200	1 S	0156.0	0156.0	8.0	20	-	0
3	200	4 C	0840.0	0841.0	7.0	35	-	0
3	2800	3 S	2100.0	2101.0	3.0	60	-	0
3	500	7 S/F	2100.0	2101.0	4.0	10	-	0
3	200	3 S	2100.0	2101.0	8.0	60	-	0
3	200	17 GB	2107.0	2115.0	47.0	1020	-	0
3	500	14 C	2109.0	2114.0	7.0	30	-	0
3	2800	3 S	2117.0	2119.0	1.0	30	-	0
4	200	1 S	0801.0	0802.0	8.0	65	-	0
4	2800	5 S	0806.0	0808.0	3.0	170	-	0
4	500	9 S/F	0806.0	0812.0	4.0	25	-	0
4	200	13 C	0806.0	0807.0	7.0	320	-	0
4	200	1 S	2016.0	2016.0	8.0	40	-	WR
4	200	2 S	2221.0	2222.0	8.0	55	-	MR
4	200	1 S	2308.0	2309.0	8.0	20	-	0
5	200	1 S	0036.0	0036.0	8.0	25	-	0
5	2800	11 GB	0443.0	0447.0	47.0	835	-	WL
5	500	10 S/F	0443.0	0447.0	4.0	235	-	0
5	200	13 GB	0443.0	0446.0	47.0	2510	-	0
5	200	1 S	0509.0	0509.0	8.0	10	-	0
6	200	2 S	1933.0	1934.0	8.0	10	-	0
6	500	6 C	2125.0	2126.0	7.0	350	-	MR
6	500	1 S	2140.0	2140.0	8.0	30	-	0
6	500	1 S	2207.0	2208.0	8.0	20	-	0
6	200	3 S	2313.0	2314.0	8.0	55	-	WR
6	500	1 S	2314.0	2315.0	8.0	170	-	MR
6	500	4 S	2317.0	2318.0	8.0	250	-	MR
6	200	2 S	2318.0	2318.0	8.0	50	-	0
6	500	1 S	2338.0	2338.0	8.0	150	-	MR
6	200	1 S	2338.0	2338.0	8.0	30	-	0
7	200	1 S	0042.0	0043.0	8.0	15	-	0
7	200	3 C	0106.0	0109.0	7.0	15	-	WR
7	500	1 S	0109.0	0110.0	8.0	70	-	WR
7	500	1 S	0143.0	0144.0	8.0	25	-	0
7	200	1 S	0143.0	0143.0	8.0	20	-	WR
7	500	7 C	0247.0	0248.0	7.0	175	-	WR
7	200	2 S	0248.0	0250.0	8.0	40	-	WR
7	200	3 C	0355.0	0358.0	7.0	40	-	0
7	500	7 C	0356.0	0356.0	7.0	60	-	WR
7	200	2 S	0504.0	0505.0	8.0	90	-	WR
7	500	1 S	0506.0	0506.0	8.0	10	-	0
7	200	1 S	0626.0	0626.0	8.0	50	-	0
7	500	5 S	0707.0	0708.0	3.0	75	-	WR

B. Solar Radio Emission

B2. Outstanding Occurrences at Hiraiso

Hiraiso June 2001

Single-frequency observations

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

JUN. 2001	FREQ. (MHz)	TYPE	START TIME (U.T.)	TIME OF MAXIMUM (U.T.)	DUR. (MIN.)	FLUX DENSITY (10^{-22} W m^{-2} Hz^{-1}) PEAK	FLUX DENSITY (10^{-22} W m^{-2} Hz^{-1}) MEAN	POLARIZATION REMARKS
7	200	5 S	0707.0	0710.0	3.0	480	-	MR
8	200	1 S	0005.0	0005.0	8.0	35	-	WR
8	200	1 S	0024.0	0024.0	8.0	30	-	WR
8	200	5 S	0222.0	0224.0	8.0	290	-	0
8	500	7 S/F	0223.0	0225.0	4.0	40	-	0
8	2800	4 S	0226.0	0227.0	8.0	35	-	0
9	200	1 S	0533.0	0533.0	8.0	30	-	0
10	200	1 S	0645.0	0645.0	8.0	50	-	WL
12	200	1 S	0134.0	0134.0	8.0	80	-	0
12	2800	4 S/F	0713.0	0714.0	4.0	70	-	0
12	500	5 S/F	0713.0	0714.0	4.0	30	-	0
12	200	7 C	0713.0	0719.0	7.0	140	-	0
12	200	1 S	2318.0	2318.0	8.0	15	-	0
13	2800	18 S/F	0425.0	0432.0	4.0	75	-	0
13	500	17 S/F	0426.0	0428.0	4.0	30	-	0
13	200	2 S	0426.0	0428.0	8.0	10	-	0
13	200	15 S/F	0428.0	0434.0	4.0	5	-	0
13	2800	7 S	0825.0	0828.0	1.0	20	-	0
13	500	7 S	0825.0	0828.0	1.0	10	-	0
13	200	12 C	0825.0	0827.0	7.0	180	-	0
13	200	1 S	1954.0	1954.0	8.0	65	-	0
14	200	1 S	0628.0	0629.0	8.0	10	-	0
14	200	1 S	0717.0	0718.0	8.0	25	-	0
15	200	1 S	2028.0	0228.0	8.0	10	-	0
15	2800	8 S/F	2215.0	2220.0	4.0	30	-	0
15	500	4 C	2217.0	2218.0	7.0	10	-	0
15	200	17 C	2229.0	2230.0	7.0	10	-	0
16	500	1 S	0048.0	0048.0	8.0	10	-	0
16	200	1 S	0048.0	0048.0	8.0	10	-	0
16	2800	11 S	2233.0	2237.0	3.0	60	-	0
16	500	6 S/F	2233.0	2236.0	4.0	10	-	0
16	200	4 SER	2234.0	2235.0	42.0	15	-	0
17	2800	7 S	0307.0	0310.0	1.0	20	-	0
17	500	1 S	0309.0	0309.0	8.0	5	-	0
18	200	8 C	0833.0	0834.0	7.0	35	-	WL
19	500	8 S	0333.0	0336.0	3.0	60	-	0
19	200	14 C	0335.0	0337.0	7.0	90	-	0
19	200	3 S	0806.0	0807.0	8.0	60	-	-
20	200	10 SER	0117.0	0121.0	42.0	30	-	0
20	500	10 S/F	0340.0	0342.0	4.0	25	-	0
20	200	10 C	0341.0	0342.0	7.0	30	-	0
21	2800	1 S	0130.0	0130.0	8.0	40	-	0
21	500	1 S	0130.0	0130.0	8.0	20	-	0
21	200	1 S	0130.0	0130.0	8.0	80	-	0
21	200	20 GB	0259.0	0308.0	47.0	500	-	0
21	500	16 SER	0303.0	0308.0	42.0	35	-	0
21	500	1 S	0436.0	0437.0	8.0	10	-	0

B. Solar Radio Emission

B2. Outstanding Occurrences at Hiraiso

Hiraiso June 2001

Single-frequency observations

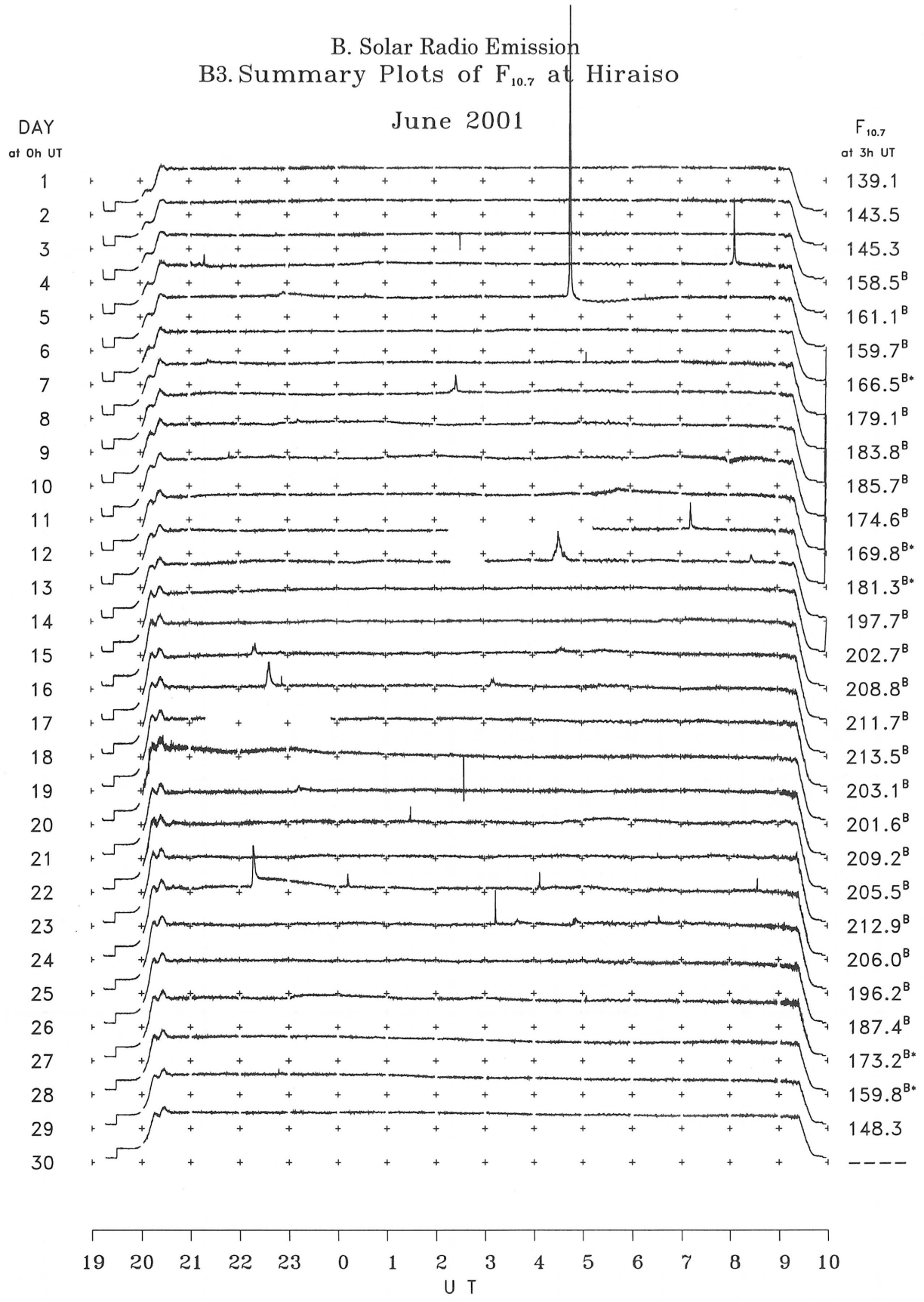
Normal observing period: 1920 – 1000 U.T. (sunrise to sunset)

JUN. 2001	FREQ. (MHz)	TYPE	START TIME (U.T.)	TIME OF MAXIMUM (U.T.)	DUR. (MIN.)	FLUX DENSITY (10^{-22} W m^{-2} Hz^{-1}) PEAK	FLUX DENSITY (10^{-22} W m^{-2} Hz^{-1}) MEAN	POLARIZATION REMARKS
21	200	1 S	0437.0	0437.0	8.0	5	–	ML
21	200	1 S	0830.0	0830.0	8.0	25	–	0
21	200	1 S	0903.0	0930.0	8.0	60	–	SL
22	500	2 S	0500.0	0500.0	8.0	80	–	0
22	200	1 S	0500.0	0500.0	8.0	30	–	0
22	200	31 C	2022.0	2034.0	7.0	75	–	0
22	500	24 C	2027.0	2034.0	7.0	180	–	0
22	2800	9 S	2215.0	2217.0	3.0	105	–	0
22	500	3 S	2216.0	2217.0	8.0	50	–	0
23	200	1 S	0000.0	0001.0	8.0	20	–	0
23	2800	3 S	0012.0	0013.0	1.0	35	–	0
23	500	2 S	0208.0	0209.0	8.0	70	–	0
23	200	1 S	0208.0	0208.0	8.0	20	–	0
23	2800	4 S	0406.0	0408.0	3.0	45	–	0
23	500	1 S	0507.0	0507.0	8.0	140	–	0
23	500	1 S	0519.0	0519.0	8.0	60	–	0
23	500	1 S	0637.0	0637.0	8.0	190	–	0
23	200	1 S	0638.0	0638.0	8.0	20	–	0
23	500	4 C	0832.0	0835.0	7.0	145	–	0
23	200	2 S	0832.0	0083.0	8.0	100	–	0
23	500	1 S	0849.0	0849.0	8.0	85	–	0
23	200	3 C	0853.0	0856.0	7.0	45	–	0
23	200	1 S	1927.0	1927.0	8.0	25	–	0
23	200	3 S	2257.0	2259.0	8.0	15	–	0
24	200	3 S	0045.0	0046.0	8.0	25	–	0
24	200	1 S	0229.0	0229.0	8.0	90	–	0
24	2800	3 S	0313.0	0314.0	8.0	90	–	0
24	500	3 GB	0313.0	0313.0	47.0	510	–	0
24	200	4 S	0313.0	0313.0	8.0	380	–	0
24	500	2 GB	0448.0	0448.0	47.0	790	–	MR
24	200	2 S	0448.0	0450.0	8.0	15	–	WR
24	200	2 S	0530.0	0531.0	8.0	90	–	0
24	500	3 C	0633.0	0633.0	7.0	160	–	0
24	500	2 S	0728.0	0729.0	8.0	25	–	0
24	200	1 S	0728.0	0729.0	8.0	20	–	0
24	200	1 S	0814.0	0814.0	8.0	20	–	MR
25	200	1 S	0545.0	0545.0	8.0	40	–	0
26	200	1 S	0307.0	0307.0	8.0	40	–	0
26	200	1 S	0622.0	0622.0	8.0	70	–	0
27	200	4 C	0115.0	0116.0	7.0	275	–	0
27	200	1 S	0741.0	0741.0	8.0	15	–	0
27	200	1 S	2105.0	2105.0	8.0	30	–	0
27	200	1 S	2252.0	2252.0	8.0	10	–	0
28	200	3 S	0323.0	0325.0	8.0	15	–	WL

B. Solar Radio Emission

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

June 2001



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

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