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IONOSPHERIC DATA IN JAPAN

FOR JULY 2000

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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

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

HOURLY VALUES OF foF2 AT Kokubunji

JUL. 2000

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	A	84	92		77	80	69	67	75	A	A	A	A	N	104	104	95	A	98				90	A
2	94	90	90	83	85	97	94	93	94	A	88	101	111	110	112	A	A	A		A	94	84	A	84
3	A	82	82			81	96	113	A	A	81		101	110	102	106	102	104	102		A	57		84
4	95	A	A	83	79				A		92	A		103	102	91	83	86	85	88	81	A	96	94
5	95	93	82	81	81	92	106	114	97	86	82	83	94	A		85	A	79	91	A	86	N	96	90
6	93	94	94	97	94	81	93	95	95	80	82		A	A	A	69	72	73	A	81	80	73	83	81
7	83	94	A	76	72	82		86	A	A	A	A	A	A	A	A	64			A	A	A	A	95
8	68	61	66	52	64	68	94	94	A	A	92	86	100	91	84	87	88	90	92	93	93	A	94	103
9	95	93	94	84	86	80	100	100	86	83		A	A		A	67	A	80	73	67	77	89	82	
10	68	93	96		63	67	95	94	97	A	A	A	A	78				69	71	75	84	67	A	A
11		95	76	47	52	62		A	A				A	B	B	A	A	66	79	61	60	67	68	A
12	66			60	60	64	67	A	A	A	A	A	A		A		A	A	61	A	A	59	64	59
13	A	95	69	67	59	69	84	106	101	A	81	A	85	85	A	86	85	91	114	94	80			
14	96	93			67	68	59	49	A	A	A		B	A	A	A		62	A	A	70	60	68	66
15	68	69	70	56		49	A	A	A	A		A	A	A	A		76	74	76	74	73	A	57	70
16	74	72	52	59	56	A	A	A	A	A		A	A	A	A		68	72	70	A	A	A		67
17	83	95	94	71	68	53	60	A		A	A			A	83	A	80	86	94	97	82	93	94	95
18		84	94	95	95	80	91	93	91	97	91		84	90	100	102	100	98	98		94	93	A	82
19	93	94	93	82	81	80	92	98	102	93	94		A	A	86	A	87	A		96	A	A	94	85
20	94	93			100	93	99		90	87	A	100	85	A	A	102	99	96	83	94		81	84	88
21	93	95	94	93	82	81	92	A	100	A		A	A	A	81	A	A		A	85	A	59	69	95
22	82	95	73	65	70	75	93	A	A	B	A	86	84	96	92	86	96	94	96	85			98	
23	94	94	96	A	79	81	94	103	A	A	A	87	80			69	74	84	A	84	93	93	93	93
24	95	95	67	68	67	67	95	78	A	A		84	90	82	A	A	84	82	84	94	82	82	81	92
25	95		95	80		95	100	93	95	91	89	A		101		85	97	100	97	A	59	83	81	82
26		96	85	89	84	94	115	104	97	83	85	A	92	96	99	94	91	87	94	91	97	80	90	
27	A	95	94	67	63	62	71		A	A	109	A	A		A	A	68	70	64	A	51	A	69	68
28	73	71	68	67	70	69	92	93	82		79	A	92	91	101		92	92	91	92	93	68	A	66
29	71	71	78	67				A	A	A		A	A		A	A	A			A	77	A	82	
30	A	80	70	77	83	A	A	94	86	A	83	A	96	85	81	81	86	A	A	A	A	95	80	82
31	94	76	74	67	62		93	97	86	81	84	88	A	86	A	91	91	100	102	92	83	95	78	82
	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	28	26	25	27	26	24	20	16	9	15	8	13	14	13	16	22	23	22	18	21	19	23	23
MED	93	93	84	71	72	80	93	94	94	86	85	86	92	91	99	86	86	86	91	90	82	81	82	84
U Q	95	95	94	83	83	81	95	101	97	92	92	94	98	101	102	98	95	94	97	94	93	93	94	93
L Q	73	81	70	66	63	67	87	93	86	82	82	85	84	85	83	83	76	73	76	81	75	67	69	70

HOURLY VALUES OF fEs AT Kokubunji

JUL. 2000

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	98	59	61	44	38	30	26	50	58	71	90	104	76	61	60	45	40	103	85	120	59		57	105
2	34	37	37	44	34	39	54	61	84	120	69	82	60	60	60	75				152	60	57	89	86
3	127	86	41	58		31	67	92	98	108	77		56	58	52	61	57	66	107	116	95	130	86	52
4	67	88	70	41	30	24		89	102		60	86	91	89	92	106	90	59	72	131	55	68	33	31
5	32	G	G	29	G	32	72	60	36	43	G	G	G	39		62	136	60	92	96		53	63	55
6	56	52	33	50	38	43	49	72	55	44	54	G	71	93	59	53	40	54	94	50	38	53	38	60
7	70	69	72	62	30	33	56	60	76	87	81	72	89	105	107	39	56			116	81	84	94	40
8	30	30	30	28	29	23	41	60	96	108	92	164	81	70	55	G	32		27	31	G		56	73
9	52	37	33	62	51	22	28	70	59	48		49	76	68	56	65	52	61	47	39	32	G	53	59
10	34	33	36		41	31	59	45	56	130	68	88	109		G	G	G	50	40	G	37	57	59	96
11		41	42	27	88	62		73	146	132			51	B	B	83	111	60	89	51	62	54	G	63
12	60	40	33	31	26	31	34	132	114	173	131	124	57		58		35	31	46	59	51	36	48	34
13	32	28	29	26	G	30	29	51	72	59	74	59	58	68	73	81	74	61	46	58	40	48		G
14	G	26	27		53	44	57	34	55	73	69		B	98	57	122	G	176	86	62	48	32	30	33
15	G	G	G	G		39	74	59	85		168	108	88	57	56	G	49	54	42	51	58	63	30	G
16	26	G	G	G	G	23	28	32	34	58		56	54	60	70	G	34	31	46	66	87	97		52
17	38	40	37	32	39	37	47	49	G	76	57	G	G	44	G	43	33	64	72	58	34	32	G	39
18	66	62	49	46	34	31	54		G	G	G	G	55	58	58	G	60	50	48	36	49	31	45	
19	58	59	52	46	32	29	43	54	73	72	71	122	144	132	84	88	73	119		134	116	117	30	28
20	29	G	G		28	49	94		44	61	90	56	G	68	40	34	G	31	50	43		62	66	31
21	G	24	G	29	52	60	35	91	70	156		170	81	82	66	84	152	131	118	56	121	50	43	29
22	34	29	28	G	G	31	43	84	86	B	89	G	G	97	52	63	61	37	47	35			63	71
23	40	74	85	82	46	47		33	74	119	119	50	G		G	58	62	82	138	33	G	36	95	46
24	40	34	30	28	27	G	31	59	71	68	G	G	75	G	72	57	56	68	42	38	35	35	G	40
25	G	38	34	33	30	30	26	32	34	G	54	71	G	59		59	52	70	74	63	46	42		60
26	58	40	72	88	89	40	37	49	35	G	G	51	71	56	82	80	39	59	42		42	29	34	32
27	39	30	G	G	34	54	38		44	73	144	85	58		57	116	51	52	56	53	81	79	32	63
28	32	43	30	27	35	33	40	34	34	G	52	70	89	64	68		58	55	50	40	28	26	26	G
29	57	60	60	34	31	26	36	30	35	38		70	81		48	60	92	112		72	72	73	71	30
30	56	40	39	33	31	46	60	48	54	52	66	114	49	57	G	39	33	99	151	138	106	62	66	34
31	74	G	G	G	28	32	72	56	52	49	83	68	76	82	113	65	59	44	40	40	32	41	63	69
	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	31	31	28	29	31	28	28	31	28	26	28	30	25	28	29	30	28	27	30	28	28	28	30
MED	40	38	33	32	32	32	43	58	58	70	70	70	66	64	58	60	54	60	50	57	50	53	50	43
U Q	58	59	49	46	40	43	58	71	84	108	90	96	81	85	71	80	62	76	89	96	76	65	64	63
L Q	32	28	27	27	28	30	34	46	36	46	54	49	51	57	52	39	35	51	46	40	36	35	31	31

COMMUNICATIONS RESEARCH LABORATORY, JAPAN

HOURLY VALUES OF fmin AT Kokubunji

JUL. 2000

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	15	15	15	14	15	15	18	17	23	38	36	38	36	36	27	24	18	14	15	14	15		14	14
2	15	15	15	14	14	15	15	20	17		39	40	35	24	34	30	26	14		15	15	14	15	15
3	14	14	15	14		15	16	17	20		40		38	38	33	24	21	18	15	14	15	14	15	15
4	14	14	15	15	15	21		18	22		40	40	42	38	34	16	14	15	14	14	14	14	14	15
5	14	14	15	14	14	15	15	16	18	24	60	62	62	71		41	23	18	15	15	14	15	15	15
6	15	15	14	15	15	15	15	17	18	23	32		42	43	42	26	18	17	14	15	14	14	14	15
7	14	15	14	14	15	14	16	16	20		40	43	42	39	32	27	20			14	15	14	14	14
8	15	15	14	15	14	23	15	15	21		40	40	38	43	42		21	18	17	14	15	15	14	15
9	14	14	14	14	15	15	15	15	23	42		43	43	46		42	23	20	21	15	14	15	15	14
10	15	14	14		15	16	15	20	18	14		42	53	62	71	23		20	17	21	14	14	15	15
11		15	15	15	14	15		46	43	45			42	B	B	40	43	17	16	15	15	16	15	15
12	15	14	14	14	15	15	17	16	22		43		49		43		26	16	15	15	14	14	14	15
13	14	15	15	16	14	16	22		42	42	43	44	42	42	41	34	23	21	16	15	15	15		15
14	14	14	16		15	15	15	18	40	42	45		B	48	45	40		23	15	15	15	15	14	15
15	15	14	15	15		14	16	20		39	45	40	40	38	35		39	14	15	16	14	14	15	16
16	14	16	15		14	15	17	20	24	42		45		46	44		24	21	15	15	14	15		15
17	16	15	14	14	14	15	17	34		49	44			67	63	32	26	17	14	14	14	15	21	15
18	15	14	14	14	15	15	18			64			48	49	44			33	18	14	14	14	15	14
19	14	14	15	14	15	14	18	18		42	43	39	44	42	39	44	40	23		15	15	14	15	15
20	15	15	21		15	16	17		34	44	39	40		45	32	26		20	16	15		14	15	15
21	16	15	17	14	15	17	15	17	21			43	42	46	42	40	39	17	16	15	15	14	15	14
22	15	14	15	16	14	16	18	26	42	B	45			40	40	34	32	24	14	16			15	14
23	14	15	15	15	14	16	16	18	28		44					48	38	21	16	15	15	14	15	15
24	14	14	15	15	14	22	15	18	20	32			32	66	22	18	17	14	15	14	15	14	15	14
25	15	15	15	15	15	15	15	18	22		40	46		45		40	22	18	15	14	17	14	14	14
26	15	14	15	14	15	15	14	17	20		63	42	45	44	40	35	21	20	15	14	15	14	15	14
27	15	14	16	15	15	15	15		26	23	36	42	42		43	24	18	15	14	14	14	14	15	15
28	15	15	15	15	14	15	15	15	15		42	44	45	39	23		16	14	14	14	15	15	15	24
29	14	15	15	15	14	14	15	17	24			40	30		66		17	16		14	14	15	15	15
30	15	15	14	15	15	14	15	15	17	33	33	34	39	44	N	62	20	17	14	15	15	15	15	15
31	15	14	15	15	14	15	14	17	18	17	38	38	34	40	32	20	18	15	14	15	15	15	14	15
	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	31	31	27	29	31	29	27	27	18	23	21	24	26	25	24	27	30	27	31	29	29	29	31
MED	15	15	15	15	15	15	15	17	22	40	40	42	42	44	40	33	22	18	15	15	15	14	15	15
U Q	15	15	15	15	15	16	17	20	26	42	44	43	44	46	43	40	26	20	16	15	15	15	15	15
L Q	14	14	14	14	14	15	15	16	18	24	39	40	38	39	32	24	18	15	14	14	14	14	14	14

COMMUNICATIONS RESEARCH LABORATORY, JAPAN

HOURLY VALUES

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

HOURLY VALUES OF foF2 AT Okinawa

JUL. 2000

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	96	95	92	82	69	60	68	77	82	93	84	A	A	111	110	117	121	124	122	110	82	81	80	80
2	81	75	80	84	72	60	61	94	81		A	A	A	128	124	135	130	117	110	106	82	82	82	
3	96		94	93	80	80	80	A	70	79	80	91	95	A	A	102	A		128		A	84	91	97
4	82	94	115	93	81	77	80		93	82	88	94	98	113	95	97								
5																								
6												112	112	118	108	116	110	120	112	109	93	83	80	A
7	75	70	82	72	71	70	72	92	93	87	80	82	93	94	A	132	133	132	122	102	80	68	72	A
8	68	74	58		61	63	61	95	71	75	72	78	80	92	95	94	112	113	103	84	88	94	94	93
9	93	93	93	96	81	82	95	93	96	A	A	A	79	82	93	94	91	90	93	104	82	A	80	95
10	99	92	95	71	58	61	69	81	96	91	A	87	92	83		116	92	94	81	86	87	80	A	68
11		95	68	53	60	46	60	86	93	80	A	A	69	69	69	69	78	76	76	89	69	60	A	68
12	64	70	69	A	63	58	60	94		A	A	A	A	A		A	88	96	93			A	66	67
13	70	94	72	68	62	60	63	94	92	75	78	84	92	94	91			126	113	122	A			116
14	173						93			69	A		A					70	79	A	58	A	60	69
15	80	95	78	66	47	A		A	A	A	A	A	A	A	90	92	92	95	88	89	68	82	87	92
16	A	122	85		58		A	A	A	A	A		B		A	80	77	88	86	82	N	67	70	
17	81	94	94		64	62	68	93	A	91	100	94	117	122	143	126	A	137	142	146	156		93	
18			115	123	96	90	94	93	97	95	91	92	103	116	107	118	106	94	124	128	92	82	94	99
19	93	100	94	81	72	94	94	96	92	92	81	91	101	116	N	131	131	122	108	102	93	82	92	84
20	96	94	95	93	86	96	92	91	94	80	94	90	91	108	116	132	144	115	110	108	112	94		
21	122		85	95	84	95	A	92		97	99	100		96		120	113	122	110	A	92	88	83	131
22	122	89		92	96	85	92	84	76	A	A	103	123	132	133	131	144	132	126	130	133	122		118
23		102	92	93	75	106	94	92	110	115	A		120	A	109	118	128	136	149		130		93	89
24			99	93	95	73		94	92	74	85	A	A	105		A	112	121	111	110	84	93		65
25	126		136		86			112	95	80	90	93	103	115		121	118	135	105	135	110		129	124
26	116		109	93	86	93	118	139	78	82	92		103	114	105	95	100	116	110	132	117	122	132	68
27	81	94	113	113	82		58	60	94	70	74	81	91	86	89	92	91	85	90	94	A	95	71	78
28	77	81	A	95		70	94	96	70	74	78	90	114	104	115	118	117	118	126	131	87	94	94	93
29	82	72	92	93	60		94	97	104	101	111	114	93	87		81	80	81	88	87	78	A	A	87
30	A	84	78	76		70	72	82	93	78		104	110	133	135	129	133	125	134	136	93	84	82	94
31	115	118	126	118			76	94	81	86	82	91	93	92	101	113	111	111	A	131	93	84		92
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	23	22	26	23	25	22	24	24	23	23	18	19	22	24	19	26	25	28	28	24	24	21	21	23
MED	93	94	92	93	72	72	78	93	93	82	84	91	96	106	107	116	112	116	110	108	90	84	83	92
U Q	115	95	99	95	85	90	94	94	95	92	92	100	110	116	116	126	129	124	123	130	101	94	93	97
L Q	80	81	80	76	61	61	65	88	81	75	80	87	92	92	93	94	91	94	91	91	82	81	76	69

COMMUNICATIONS RESEARCH LABORATORY, JAPAN

HOURLY VALUES OF fEs AT Okinawa

JUL. 2000

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	33	27	G	G	39	36	23	67	68	69	67	102	85	79	39	36	35	58	54	54	34	48	65	38
2	38	28	G	26	79	34		40	48			185	112	150	G	66	76	87	59	28	25	38	39	
3	82	60	38	32	30	38	56	107	84	68	78	83	70	152	97	66			175		95	80	58	58
4	33	G	26	G	G	G	52	61	140	66	85	98	91	67	68	101								
5																								
6												G	G	G	G	57	45	65	65	34			59	79
7	60	59		37	35	G	24	61	65	71	78	90	67	98	195	66	37	34	42	27	G	60	40	94
8	91	60	47		26	28	G	49	87	53	39	G	G	58	51	49	37	35	26	34	30	40	24	G
9	G	34	34	G	G	28	23	35	86	126	178	140	G	G	G	G	34	G	44	32	41	66	51	46
10	50	34	32	G	33	60	40	68	56	55	85	46	G	G	G	G	38	62	52	G	26	34	73	74
11		34	27	G	G	G	G	G	G	150	92	61	G	G	G	36	64	42	65	115	45	66	41	41
12	43	29	43	44	28	28	24	46	68	107	98	100	128	94	G	84	80	56	55		87	54	39	
13	33	56	60	96	58	45	G		42	40	59	49	G	68	60	G		97	80	108	69	62	48	41
14	31	28	24	27	G	G	25	64	74	54	120		66	G	G		G	36	61		74	67	50	28
15	G	25	23	G	G	34		39	58	66		99	144	75	63	65	50	66	74	38	39	64	36	68
16	72	62	45	27	25	36	40	46		36	71		B	G	38	38	36	36	30	35	30	25	26	
17	71	43	43		G	30	46	49	94	71	59	73	100	G	67	82		79	51	55	58		59	59
18	74		51	28	40	36	34	30	38	37		G	G	G	68	61	72	69	50	85	69	33	G	G
19	G	23	G	25	G	24	G	43	61	60	G	G	58	G	G	G	G	G	41	42	G	G	G	43
20	37	45	27	G	32	G	G	38	35	40	61	G	56	G	G	G	38	35	27	G	G	G	G	
21	G	G	G	G	40	60	80	81		56	78	G		G		G	53	95	95	169	132	107	59	94
22	57	38		32	26	G	G		86	112	120	67	G	G	G		62	45	56	42	59	39		26
23		56	43	42	78	84	49	41	96	79	118		202	89	59	59	38	68		115	72		55	40
24		32	23	G	G	G	G	34	50	63	80	85	93	84	65	95	45	44	59	59	49	40	34	38
25	74		40		G			40	46	46	42	65	G	G		G	37	55	52	37	33		42	G
26	24	G	G	G	G	G	G	24	41	35	39	G	G	G	G	35	62	75	38	22	36	G	27	39
27	26	G	G	G	G	G	G	24	65	40	60	46	G	G	G	38	37	48	43	45		32	25	G
28	G	G	85	28	92	38	48	37	48	46	39	49	G	60	39	35	36	47	34	G	G	31	62	42
29	43	40	39	35	43	36	36	54		49	58	46	38	46	39	34	52	45	46	34	36	86	87	56
30	80	68	54	G	G	G	30	42	42	49		66	38	G	G	38	36	33	27	G	G	G	G	G
31	G	G	G	G	G	G	G	24	80	77	137	59	65	74	58	58	59	65	143	55	G	G	26	24
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	26	27	27	26	29	28	26	27	26	28	25	27	28	30	28	28	26	28	28	26	27	25	28	25
MED	38	34	32	13	26	28	24	42	63	58	78	61	47	G	38	38	38	52	52	38	36	40	40	41
U Q	71	56	43	32	39	36	40	61	84	71	95	90	88	75	61	65	59	67	63	55	69	65	58	58
L Q	24	23	G	G	G	G	G	35	46	46	58	G	G	G	G	17	36	36	41	28	25	28	26	25

COMMUNICATIONS RESEARCH LABORATORY, JAPAN

HOURLY VALUES OF fmin AT Okinawa

JUL. 2000

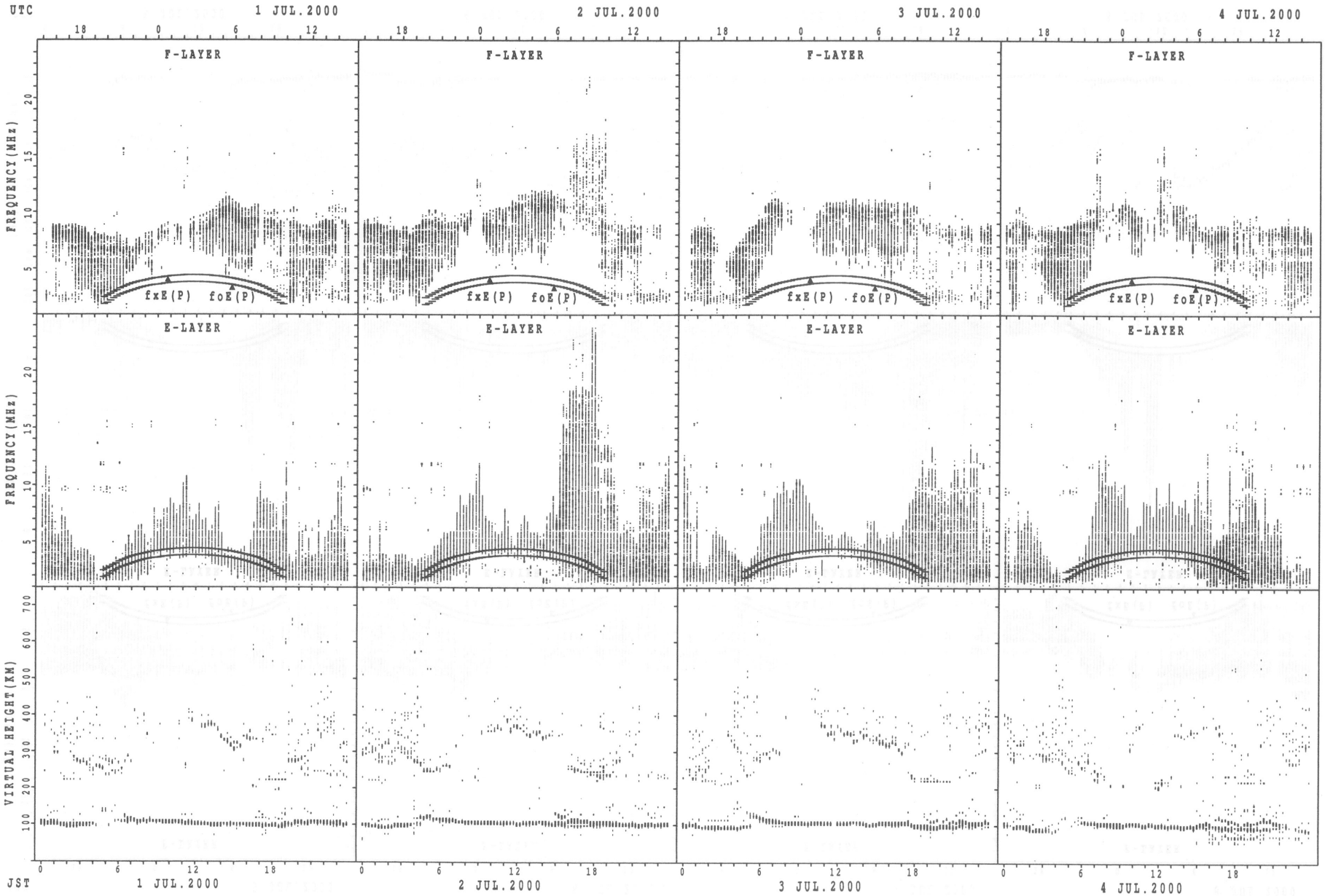
LAT. 26°16.9'N LON. 127°48.4'E SWEEP 1MHz TO 25MHz AUTOMATIC SCALING

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	15	14	16	22	15	20	24	16	20	28	27	34	33	33	29	27	28	17	15	15	14	14	15	14
2	15	15	14	14	14	14	14	16	17		29	32	33	33	63	40	28	32	15	14	14	14	14	
3	15	14	14	14	14	15	15	15	17	21	39	38	43	39	38	29	27		16		15	15	14	15
4	14	15	14	14	16	15	15	16	18	27	29	32	35	35	30	28								
5																								
6												59	62	56	69	44	52	33	18	15	14	16	14	16
7	14	15	17	15	16	15	28	16	20	32	30	44	46	45	43	47	29	20	17	14	14	14	14	14
8	14	14	14		14	15		15	17	21	28				68	33	29			15	14	14	15	14
9	15	15	14	15	15	14	15	15	18	29	30	35	101	66	62	53	54	36	18	15	15	15	14	15
10	14	14	14	18	14	14	15	15	27	28	35	33	64	59	N	62		27	23	23	14	15	14	14
11		14	14	15	15	14	15		46	41	49	46				71	29	33	17	14	15	15	15	14
12	14	15	15	15	14	15	17	17	24	29	30	46	48	49		44	34	27	16	14	15	15	15	14
13	15	15	14	14	14	14	23	18	29	29				46	46			26	18	15	14	15	15	14
14	15	14	16	15	14	16	18	16	29	30	44		49						15	14	15	14	14	14
15	18	15	15	16	14	14		15	18	29	42	45	35	28	35	33	28	23	15	14	14	15	14	15
16	15	14	15	14	15	15	16	15	18	28			B		71	71		24	16	14	15	15	14	
17	15	14	14		16	14	17	18	26	39	32	45	43			46	28	22	16	14	14	14	14	15
18	15		15	14	14	15	16	20	28	30				70	48		39	30	18	14	15	15	16	15
19	16	16	15	14	14	15	26	18	26	28			45		75	66	62	50	18	16	15	16	15	15
20	14	15	15	15	15	15	21	18		32	38		49				30	27	17	28	15	15	14	
21	16	15	15	16	14	14	17	17		27		60				58	32	20	16	14	14	15	15	14
22	14	15		14	15	15	33	18	26	56	44	42				48	39	27	16	14	14	15		14
23		14	14	14	14	15	16	18	27	39	41		48	49	48	45	27	24	15	14	16		14	14
24		15	15	15	15	14	27	16	27	27	32	44	38	44	36	29	24	18	15	14	15	15	15	14
25	14		14		15			15	21	26	34	35				64	29	28	16	14	14		14	15
26	16	15	15	15	15	14	22	17	22	28	30	N	N	68	62	53	38	30	16	15	14	15	15	14
27	14	15	14	15	15	15	18	16	23	29	29	32	62	62	56	56	24	16	15	14	15	14	16	14
28	15	17	14	15	14	15	15	15	18	27	45	60		45	63	54	27	17	20	14	15	14	16	16
29	15	15	14	15	14	14	15	15	18	28	28	29	29	30	30		23	16	14	14	14	16	15	14
30	14	14	15	15	15	15	15	15	15	16		30		61	56	30		20	16	20	14	16	16	17
31	15	15	18	15	15	15	18	17	21	29	34	33	43	34	28	28	26	17	14	14	14	15	15	14
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	26	27	28	26	29	28	26	28	27	28	23	21	19	20	21	25	24	26	28	28	29	27	28	26
MED	15	15	14	15	15	15	17	16	21	28	32	38	45	46	48	46	29	25	16	14	14	15	15	14
U Q	15	15	15	15	15	15	22	17	27	30	41	45	49	60	63	57	36	30	17	15	15	15	15	15
L Q	14	14	14	14	14	14	15	15	18	27	29	32	35	34	35	31	27	20	15	14	14	14	14	14

SUMMARY PLOTS

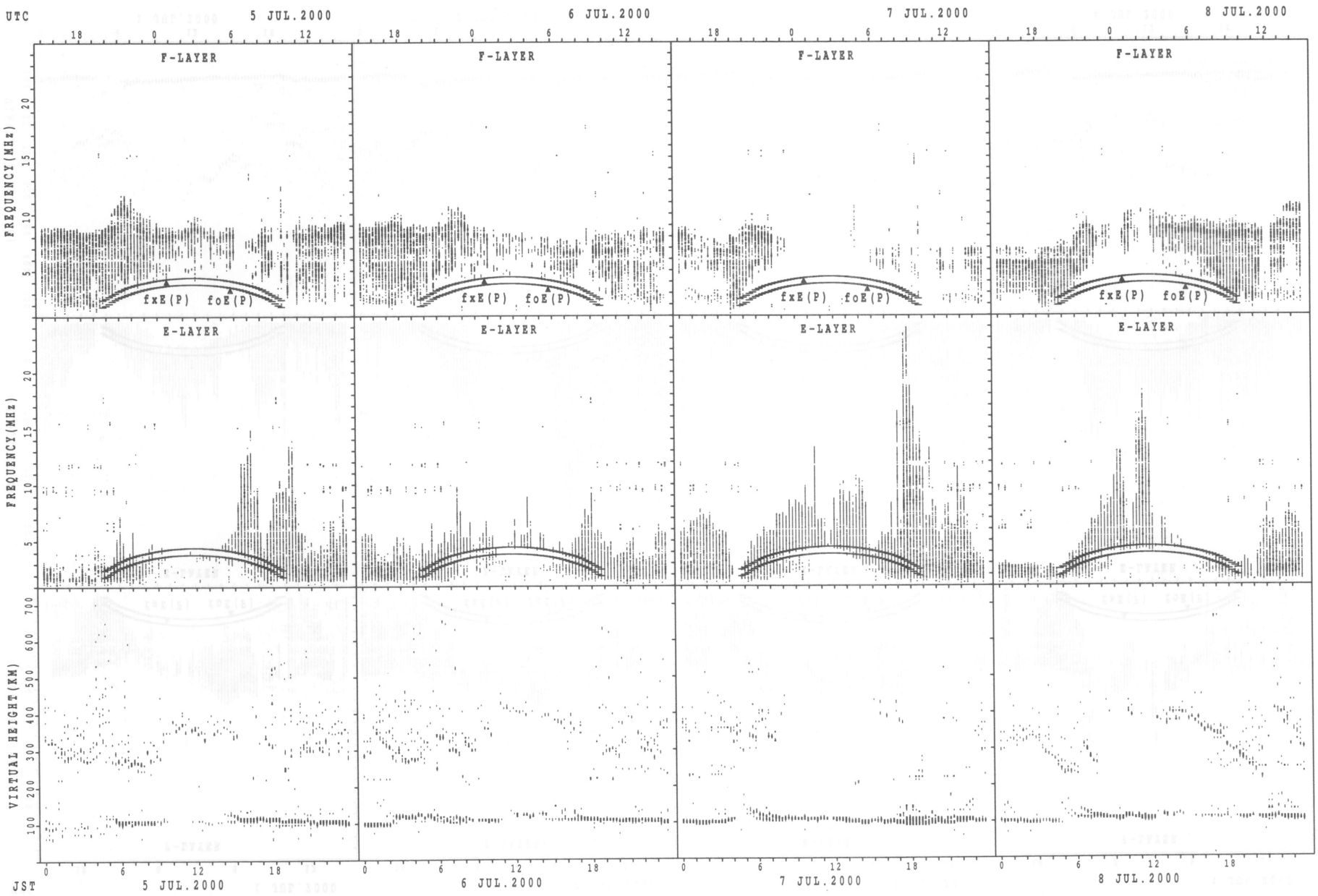
IONOSPHERIC DATA of Wakkanai is not available due to the ionosonde trouble.

SUMMARY PLOTS AT Kokubunji



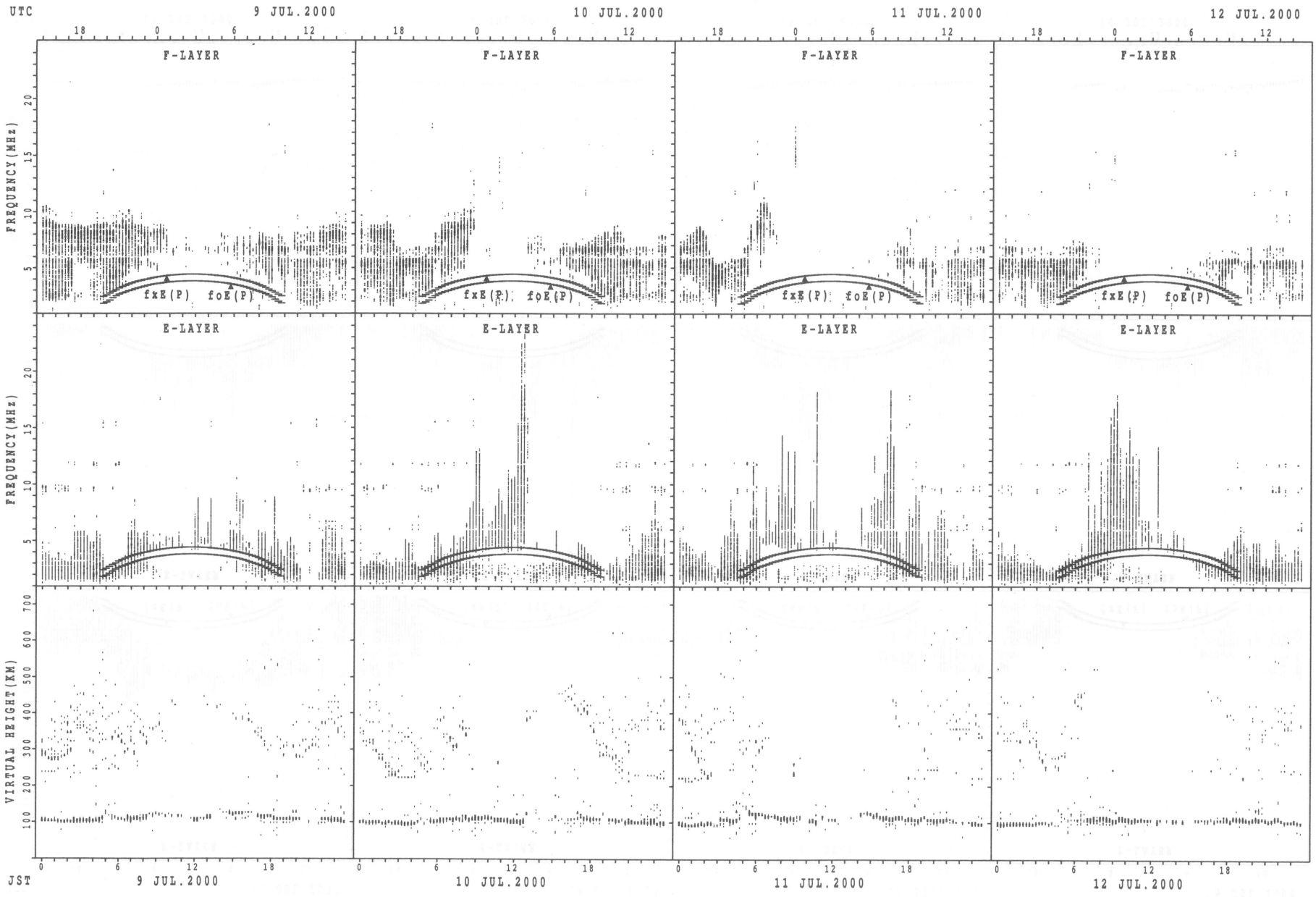
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



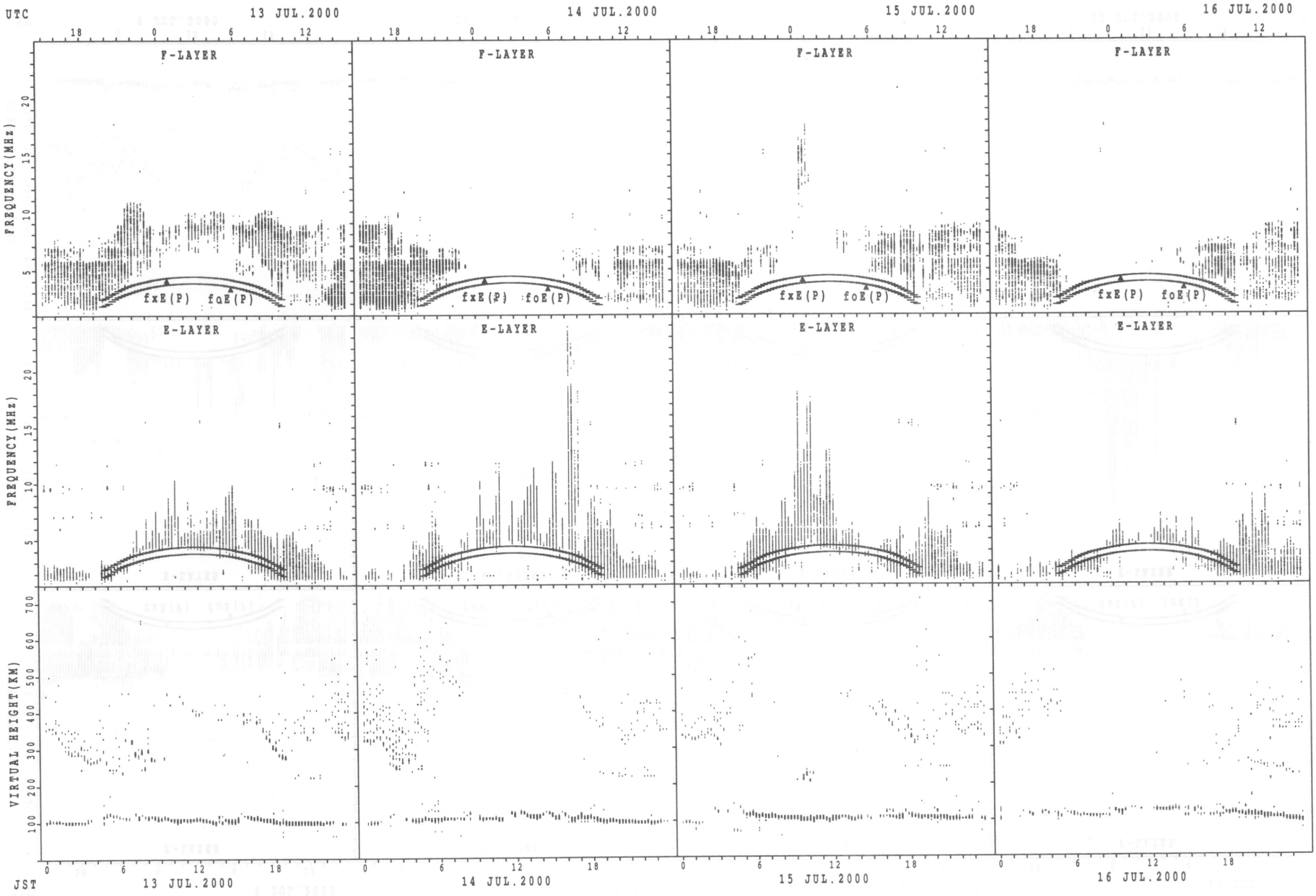
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



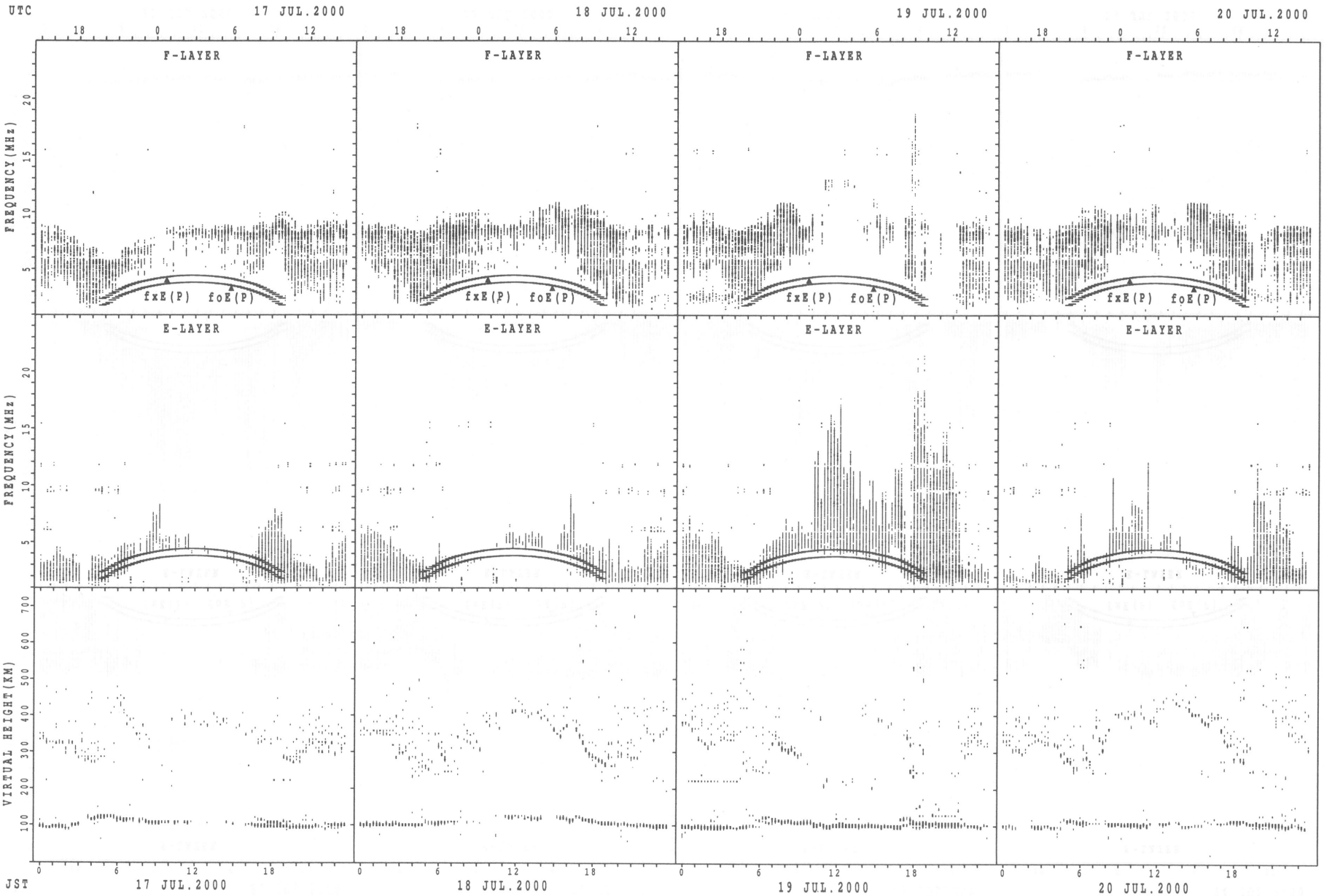
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



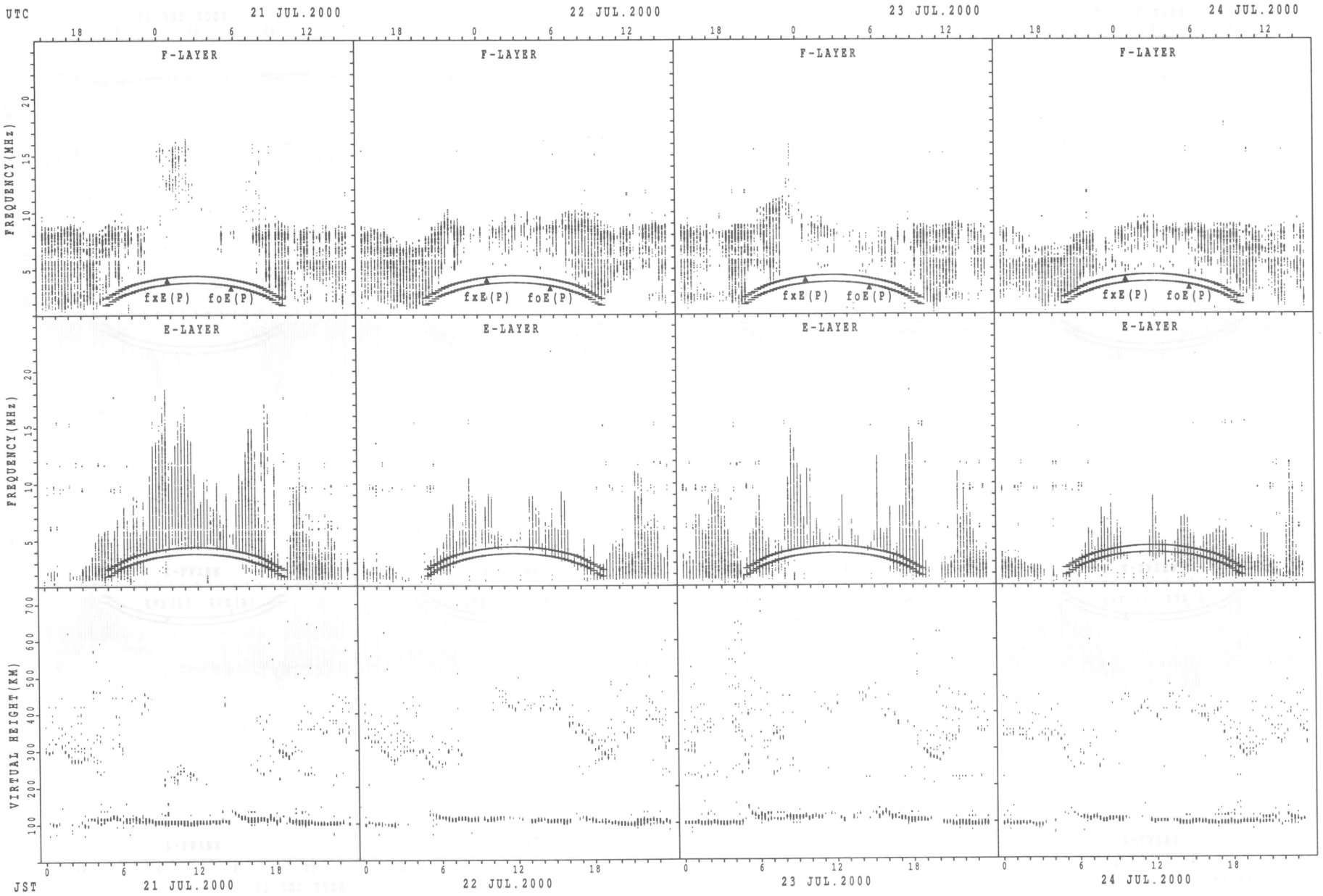
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



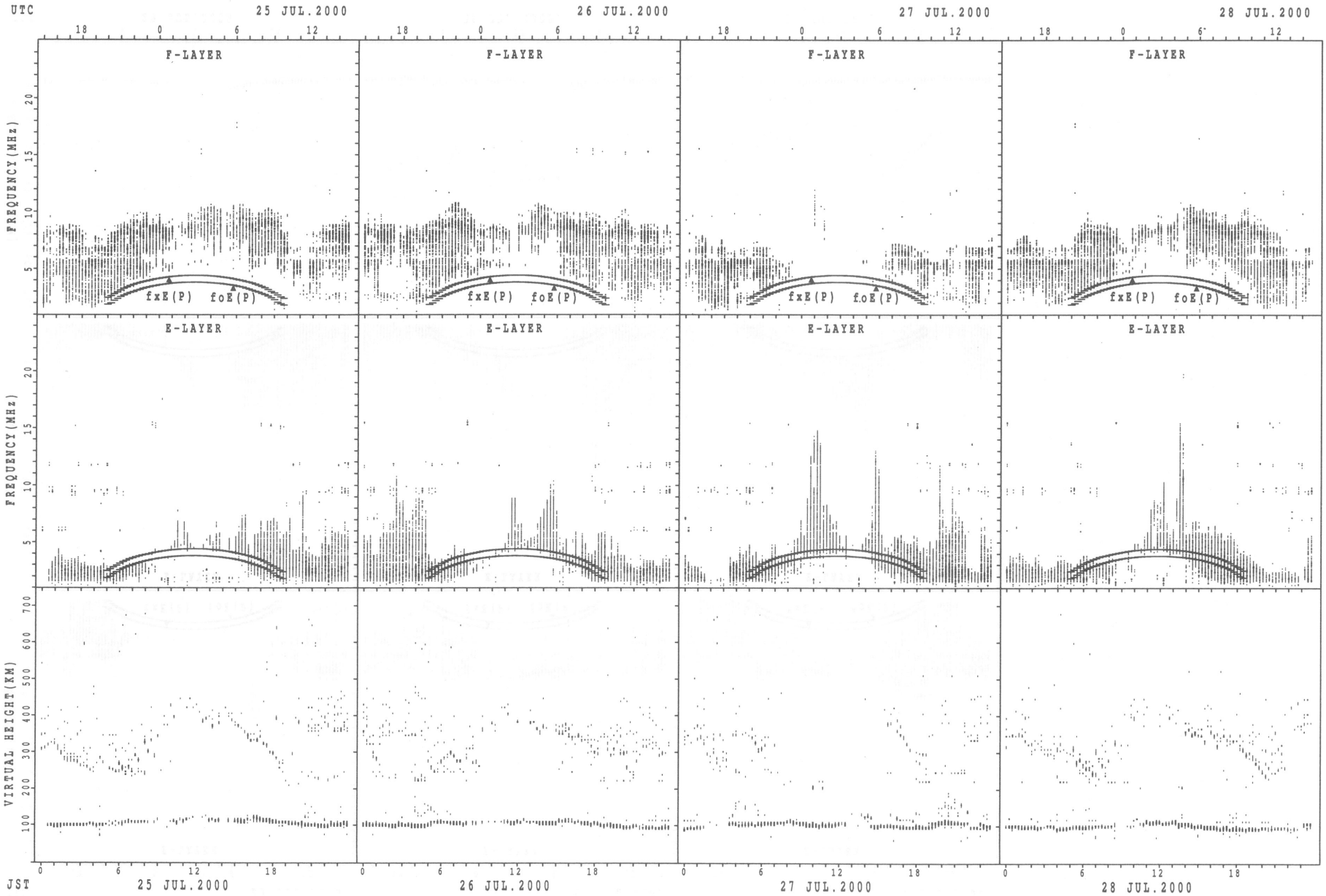
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



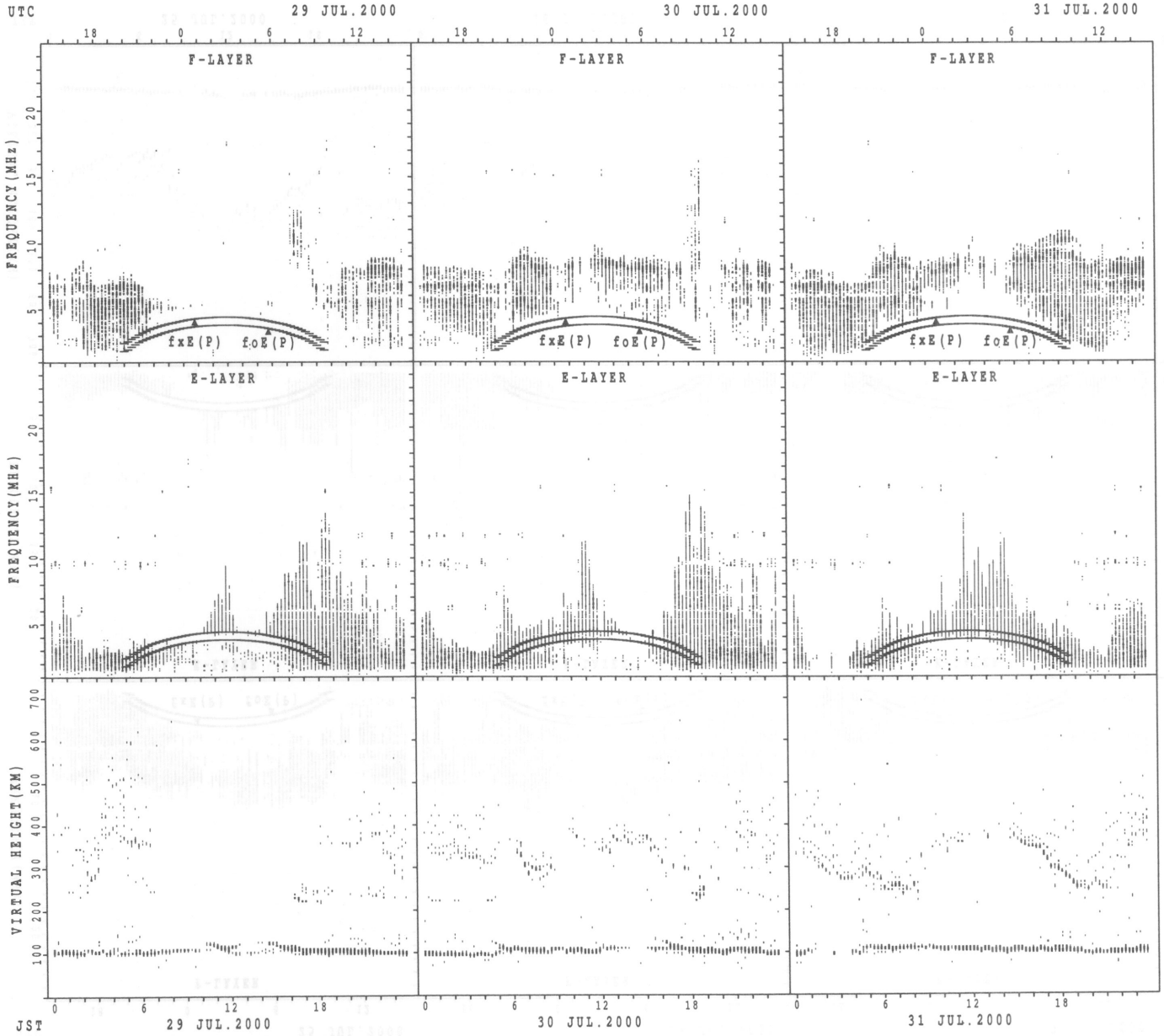
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



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

SUMMARY PLOTS AT Kokubunji

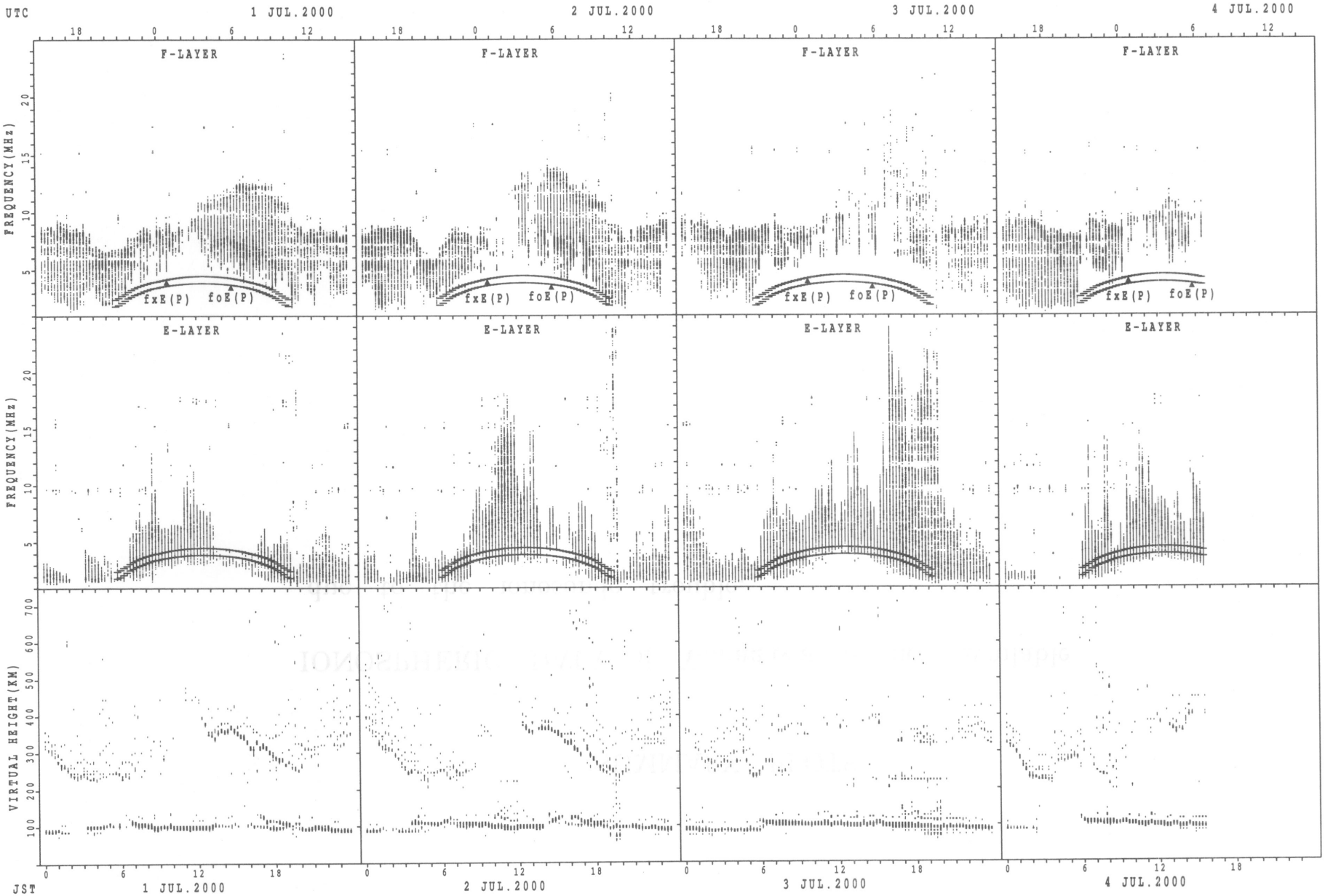


fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS

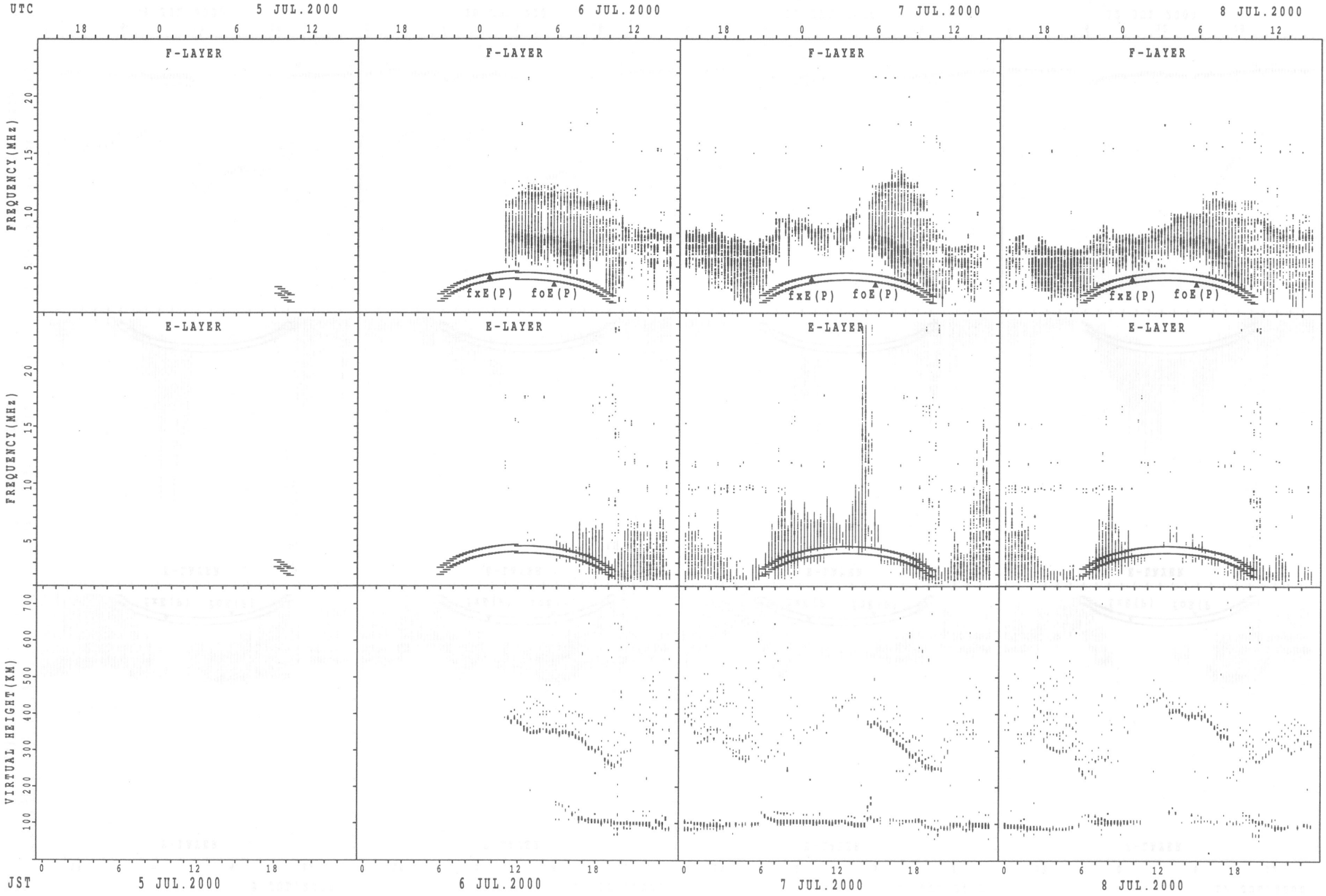
IONOSPHERIC DATA of Yamagawa is not available due to the ionosonde trouble.

SUMMARY PLOTS AT Okinawa



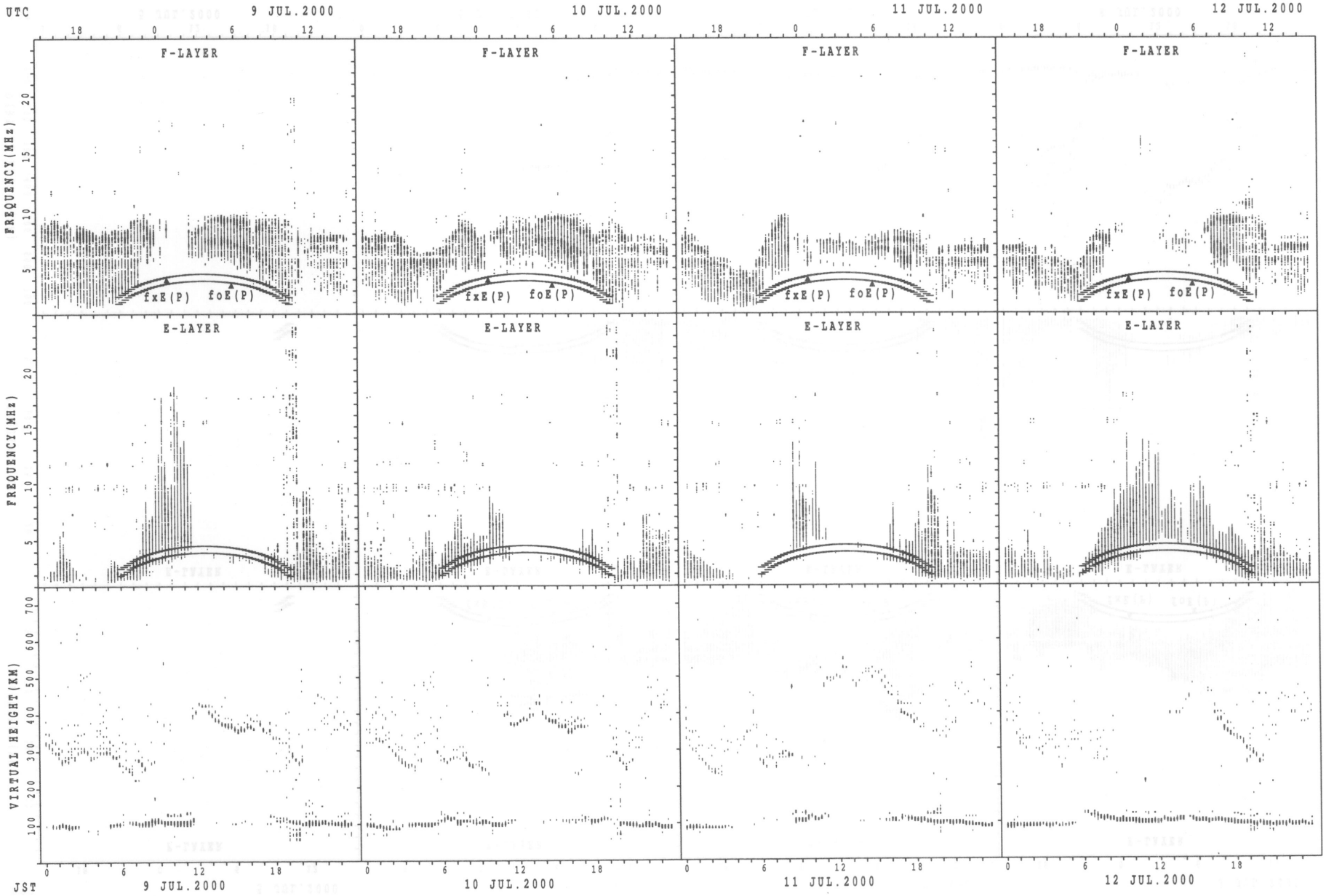
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



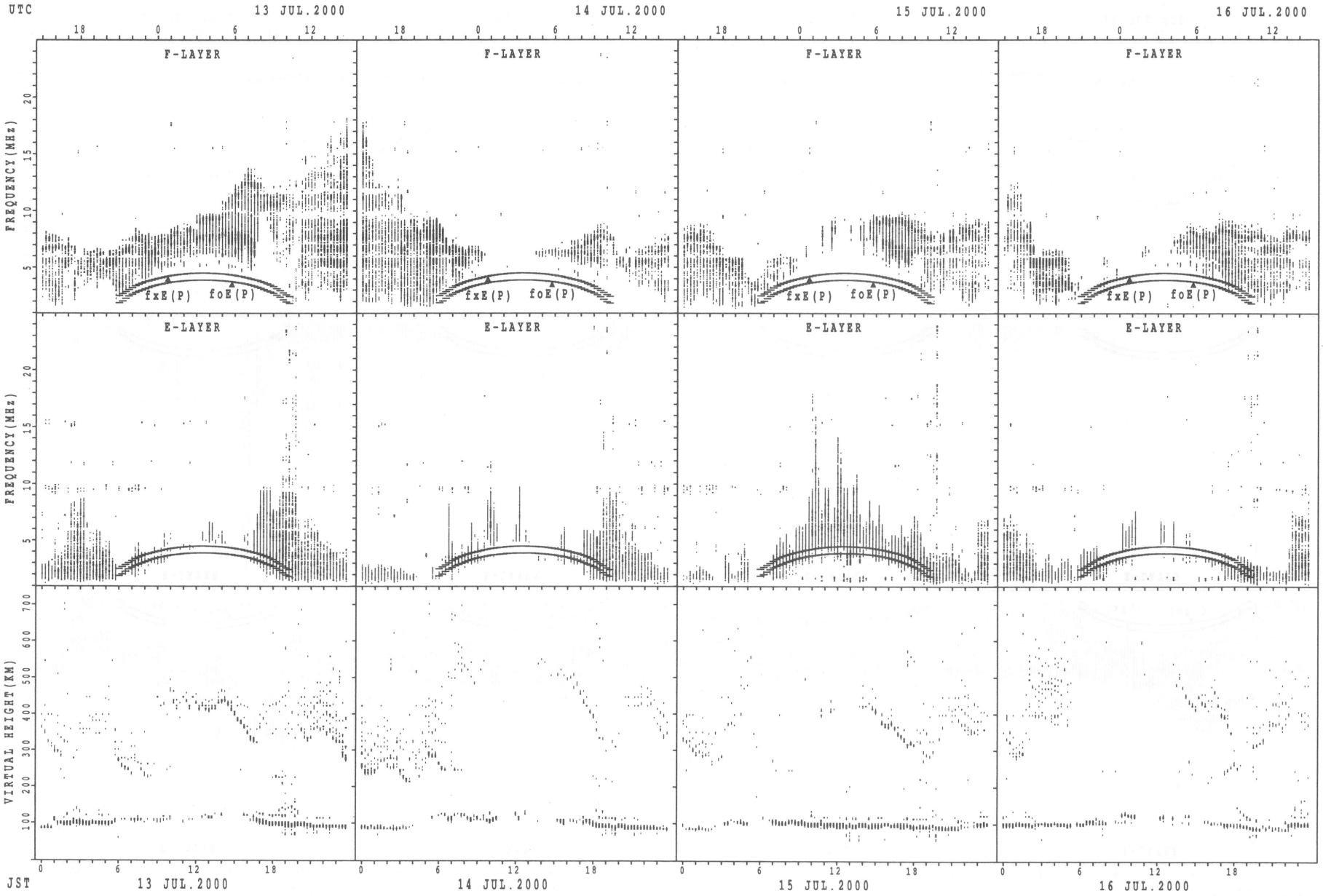
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa

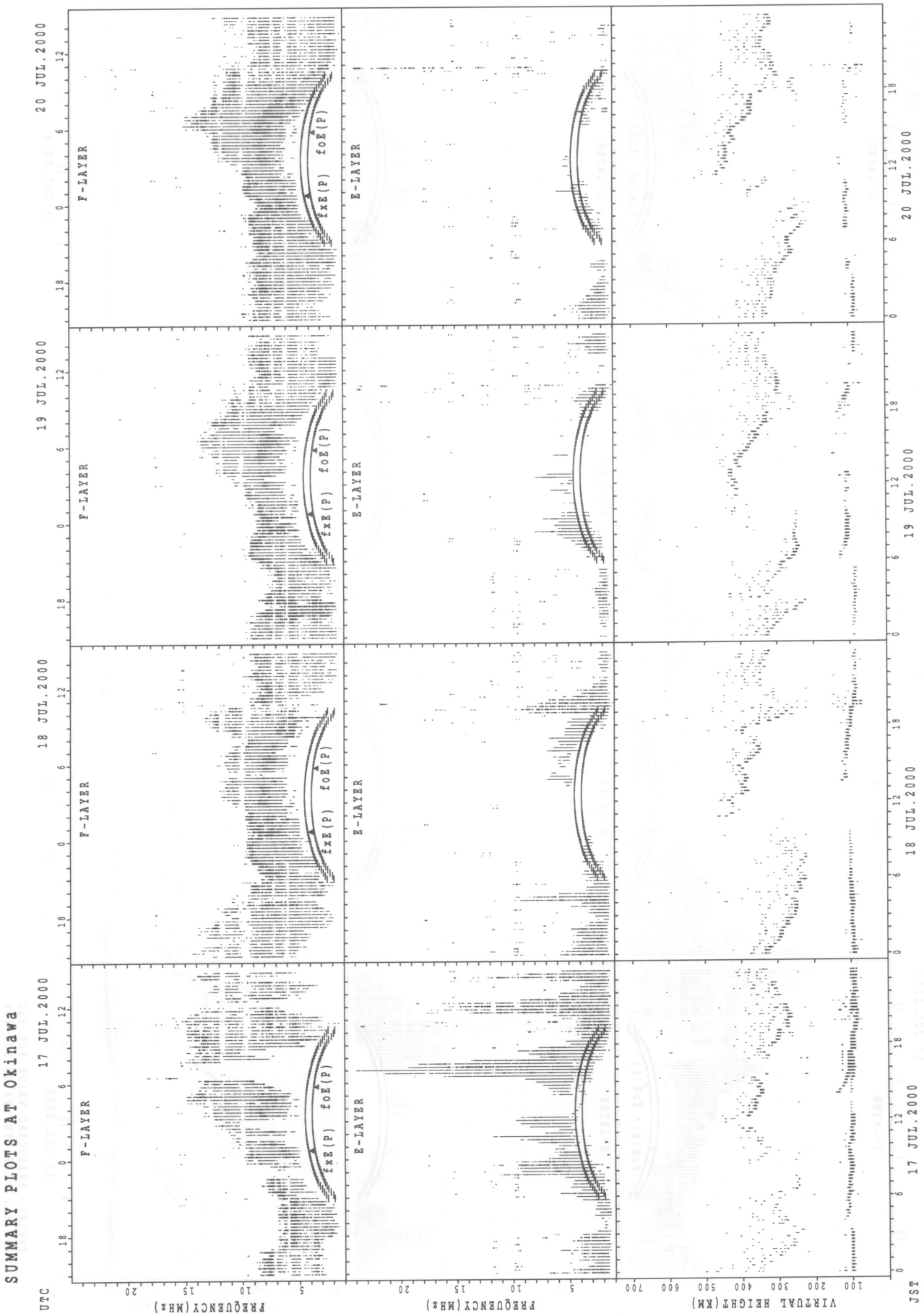


fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

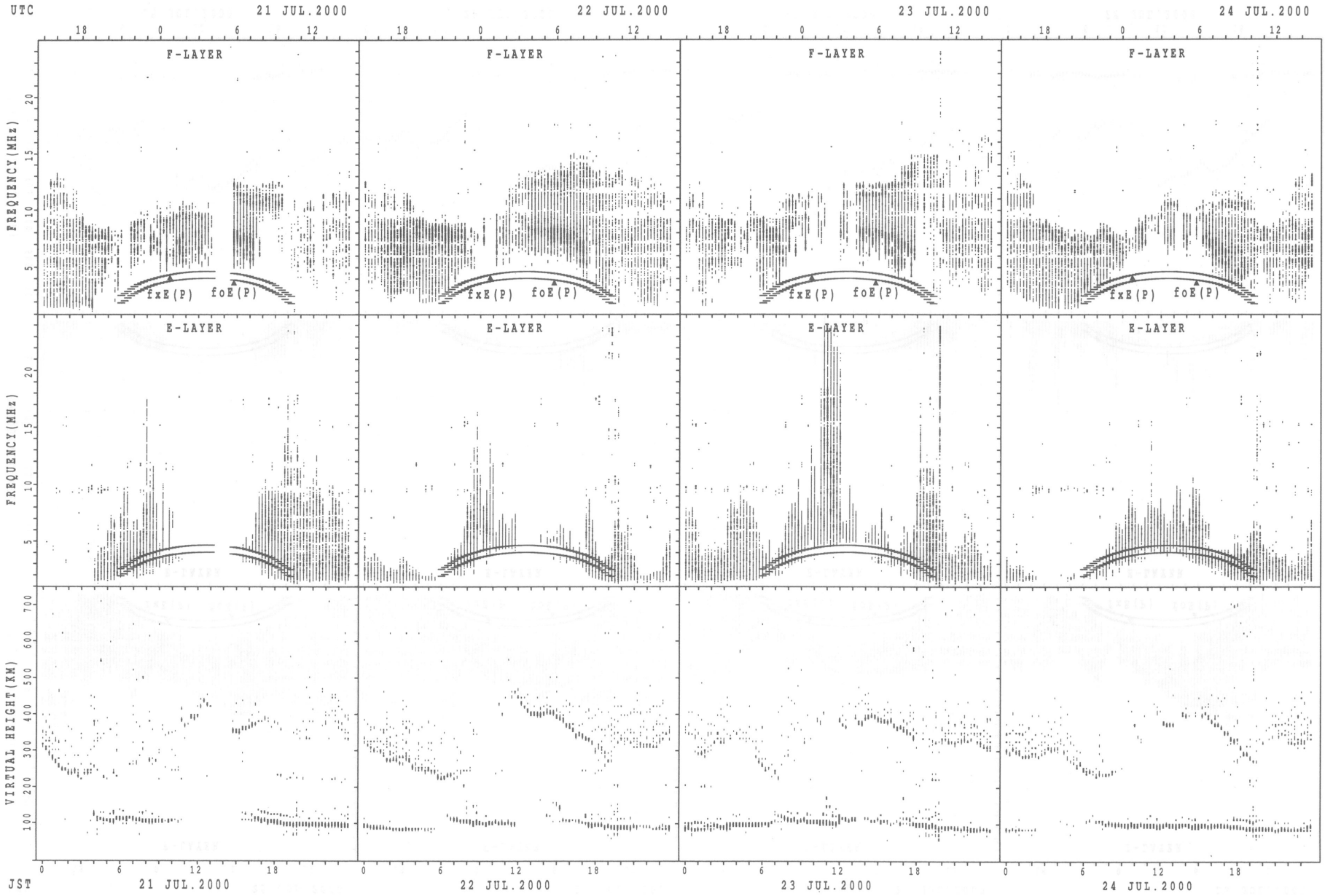
SUMMARY PLOTS AT Okinawa



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

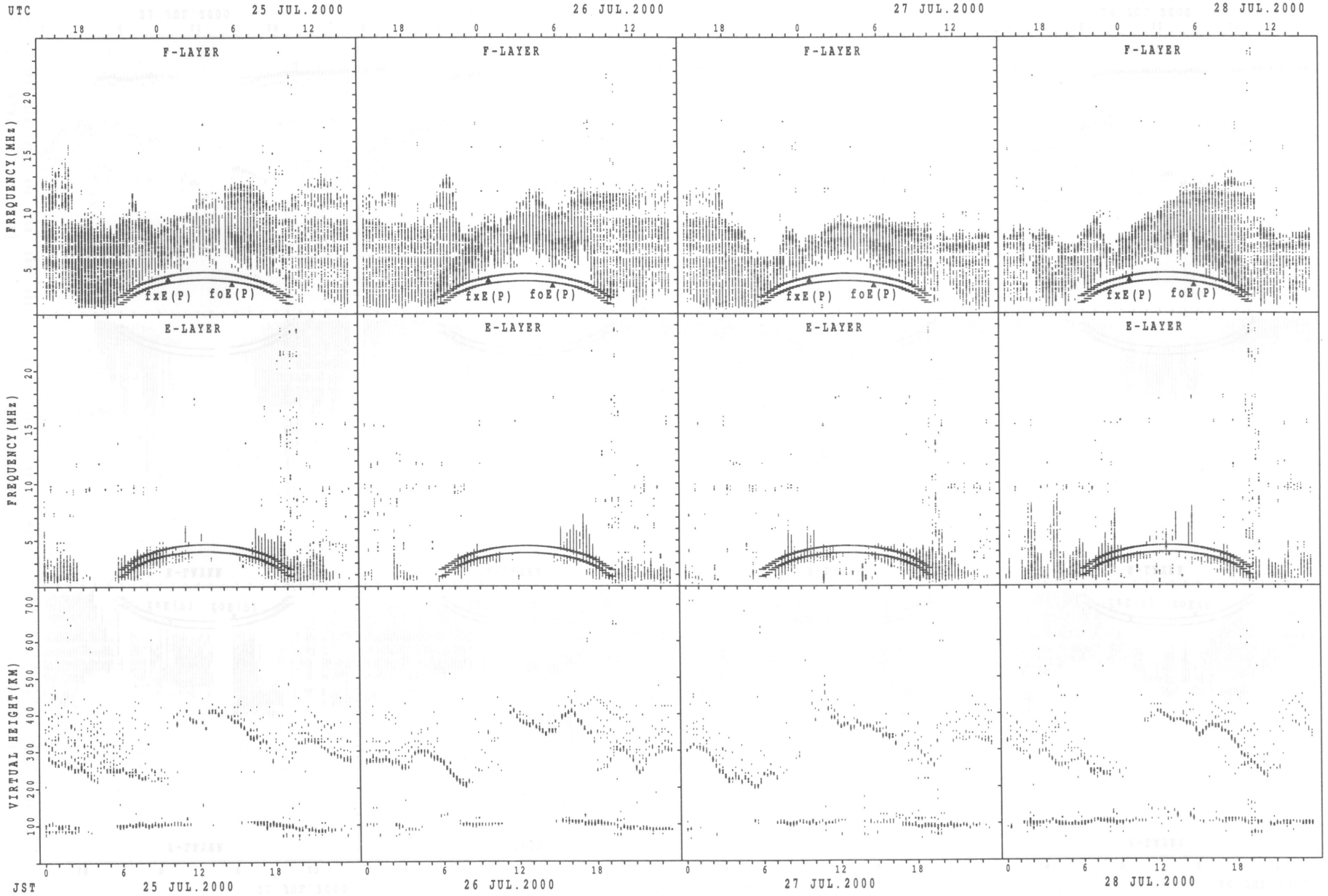

SUMMARY PLOTS AT Okinawa
UTC
JST
17 JUL.2000
18 JUL.2000
19 JUL.2000
20 JUL.2000
F-LAYER
E-LAYER
fxE(P)
foE(P)
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



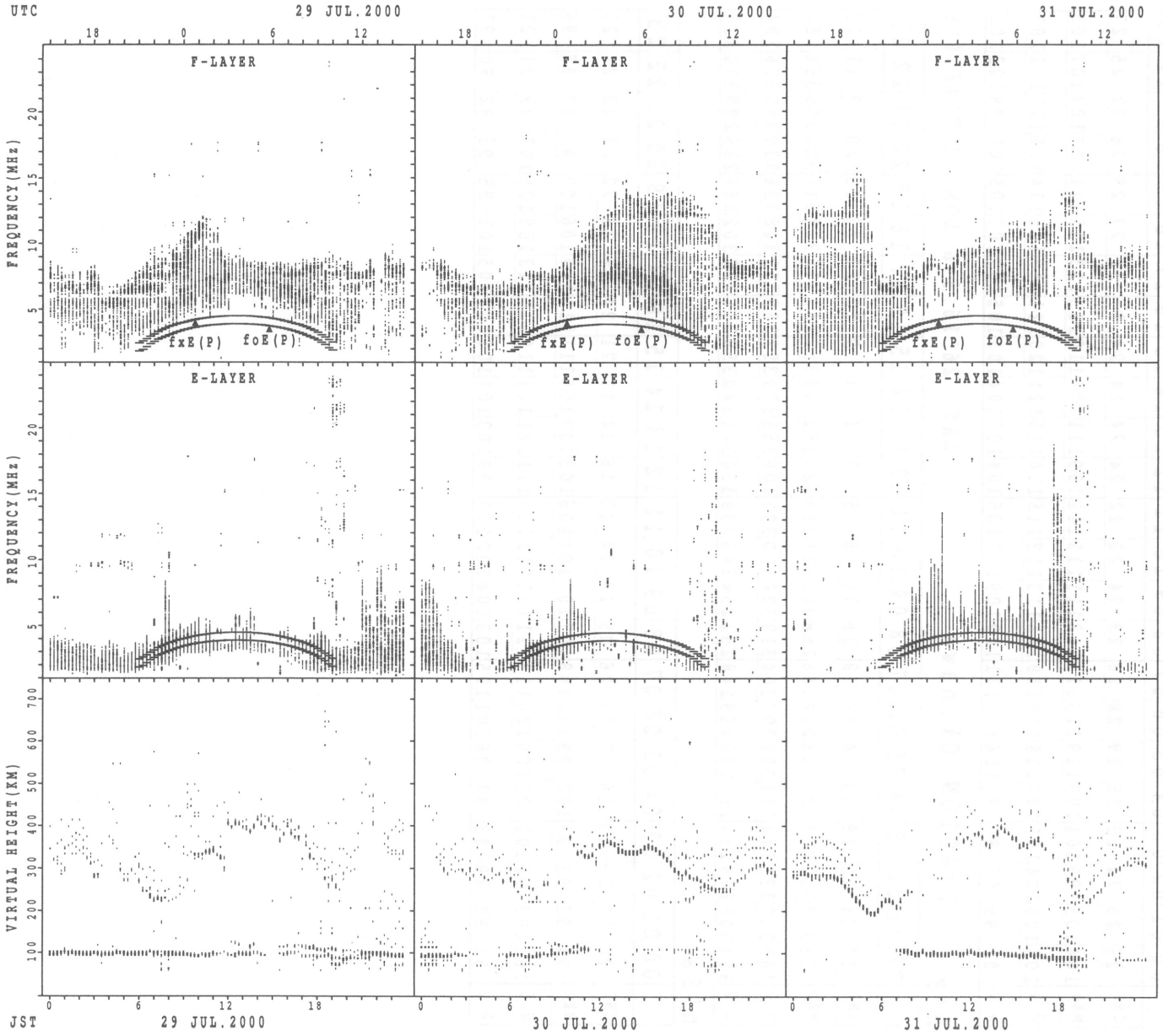
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

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

MONTHLY MEDIANS OF h'F AND h'Es

JUL. 2000 135E MEAN TIME(UTC+9H) AUTOMATIC SCALING

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	13	16	16	12	9	15	16	18	11	6	5	2	3	3	4	4	8	15	16	14	14	11	9	13
MED	378	353	346	360	402	324	304	307	310	291	344	283	344	344	342	343	343	344	314	316	335	360	358	368
U Q	390	374	382	374	420	396	324	334	338	328	401	354	346	350	350	353	347	354	357	344	378	372	405	389
L Q	332	335	322	323	320	306	284	276	286	266	209	212	206	242	340	322	328	336	295	270	296	354	349	336

h'Es

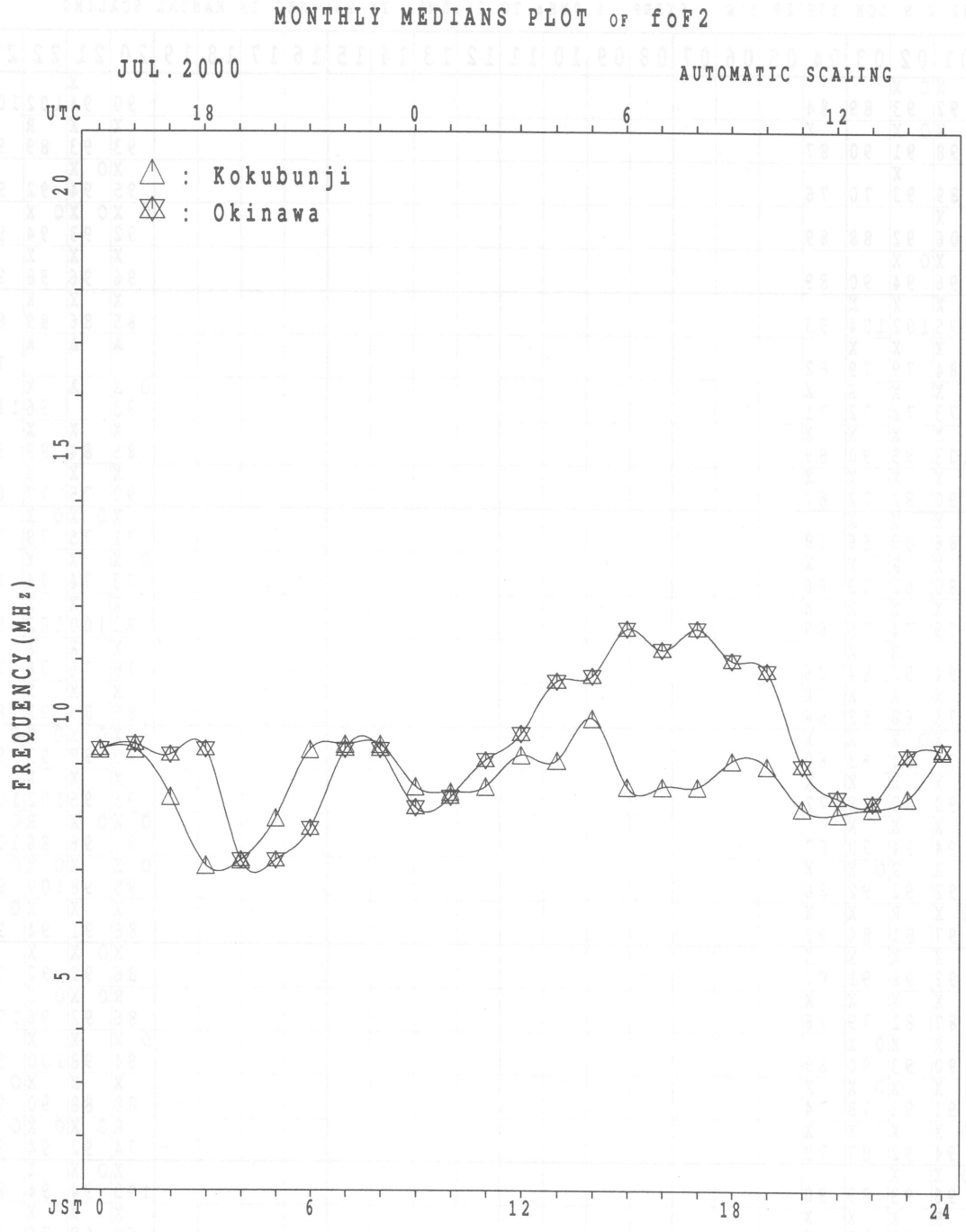
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	26	26	24	23	25	29	28	28	29	24	22	22	24	24	24	24	27	28	27	29	26	27	25	27
MED	104	103	99	101	103	119	113	113	113	111	111	111	109	111	109	110	113	113	111	111	107	107	107	105
U Q	105	105	104	105	107	128	119	118	115	113	113	115	114	115	121	120	121	119	115	114	111	111	112	107
L Q	101	99	97	97	97	106	111	111	109	109	107	105	104	107	104	105	105	107	107	105	101	99	103	101

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	13	24	20	19	13	14	16	18	16	11	6	5	2	4	4	9	12	21	23	23	20	9	11	13
MED	338	320	312	304	328	326	284	266	268	300	356	346	380	352	344	352	343	338	314	312	320	350	354	352
U Q	383	357	333	344	344	358	307	304	318	334	370	392	406	355	379	352	359	352	348	336	339	395	376	394
L Q	321	305	279	284	267	290	269	248	252	254	348	338	354	348	340	350	336	323	302	286	289	299	334	332

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	21	20	13	16	17	16	26	25	28	24	20	16	14	15	21	24	26	28	22	21	20	24	20
MED	94	93	91	91	102	99	111	108	107	107	104	106	103	107	105	111	111	107	106	102	95	97	95	96
U Q	101	103	98	100	103	105	126	113	111	111	111	112	111	121	119	116	113	113	109	105	103	99	97	101
L Q	91	90	89	89	93	96	101	105	103	104	102	103	99	103	101	104	107	105	101	95	93	92	90	91


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

IONOSPHERIC DATA STATION Kokubunji

JUL. 2000 fxI (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	O X 95	X 92	O X 93	89	84																90	X 94	102	R 108
2	X 96	X 98	O X 91	90	X 87																X 93	X 93	R 89	94
3	A	89	X 93	70	76																X 95	O X 94	92	93
4	O X 96	X 106	92	88	89																O X 92	O X 93	O X 94	R 91
5	X 92	X 96	O X 94	90	89																X 96	X 96	X 98	X 97
6	X 98	X 95	X 102	X 104	93																X 85	X 86	X 89	X 88
7	X 89	X 84	X 79	X 79	82																A	A	A	X 78
8	X 74	X 73	X 72	X 72	X 71																O X 93	A	X 96	X 110
9	X 106	X 103	X 95	X 90	X 89																X 85	X 84	X 89	X 93
10	X 92	X 90	X 92	X 72	X 67																X 90	X 75	X 77	68
11	O X 84	X 86	X 80	X 56	58																X 71	O X 75	O X 78	R 70
12	X 78	X 80	R 62	X 73	X 66																O X 73	X 74	X 74	X 75
13	X 74	X 79	X 74	X 75	X 69																X 92	X 100	X 102	59
14	R 93	94	R 92	X 84	76																X 78	X 76	X 76	X 76
15	X 78	X 75	R 68	X 68	X 56																X 85	X 89	X 92	X 88
16	X 90	X 79	O X 64	X 63	X 60																X 80	O X 88	O X 93	O X 90
17	X 91	X 90	X 82	X 79	X 72																X 95	X 95	X 102	X 101
18	O X 96	X 94	X 94	X 90	87																O X 94	O X 96	R 86	O X 101
19	X 98	R 92	R 92	O X 92	X 86																O X 95	X 98	O X 100	O X 98
20	O X 98	O X 97	R 81	X 86	X 90																X 86	X 91	X 94	O X 94
21	O X 97	X 92	X 98	X 91	X 87																X 86	O X 90	X 92	X 92
22	X 89	X 87	X 82	X 79	X 76																R 86	O X 92	O X 96	X 101
23	X 94	R 90	X 93	O X 90	89																O X 94	X 98	X 100	X 98
24	R 88	X 91	X 83	O X 78	X 74																X 88	X 88	X 90	O X 91
25	O X 94	O X 94	X 92	X 87	X 79																R 74	O X 92	O X 94	O X 94
26	R 94	O X 98	X 93	89	90																X 103	O X 94	X 94	R 84
27	R 59	R 78	X 81	X 73	X 66																X 69	R 69	X 76	X 79
28	X 79	X 80	X 78	O X 76	X 74															X 99	X 94	X 86	O X 74	O X 81
29	X 80	X 80	X 85	X 79	75															X 77	X 85	O X 88	X 92	X 95
30	X 87	X 86	X 84	X 84	X 80															A	117	X 80	X 85	89
31	X 84	O X 86	X 80	O X 77	R 70															X 106	X 94	X 91	X 90	X 88
	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	31	31	31	31															3	30	29	30	31
MED	X 92	X 90	X 85	X 79	X 76															X 99	X 90	X 91	X 92	X 91
U Q	X 96	X 94	X 93	X 90	87															X 106	X 94	X 94	X 96	X 97
L Q	X 84	X 80	X 80	X 73	X 70															X 77	X 85	X 85	X 86	X 81

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

IONOSPHERIC DATA STATION Kokubunji

JUL. 2000 foF2 (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	U R 89	86	87	F	F 72	R 74	75	H 70	78	83	86	A	94	95	107	105	100	A	R 98	A	R	87	F	R
2	F 86	R 92	85	F	R 81	U R 96	92	93	96	A	R 100	R 104	111	116	115	112	A	R 113	A	R 96	88	87	R	R
3	A	F 78	F	R	F	F 76	R 94	108	100	A	91	105	106	109	108	108	105	104	R 101	95	88	88	R	R
4	R 90	R 100	R	R	F	F	95	100	99	102	98	91	95	103	101	92	84	87	R 92	91	86	R 87	R 88	R
5	86	90	R 88	F	F	84	105	R 111	97	89	88	89	95	86	84	85	R 76	82	87	A	90	90	92	91
6	92	R 88	Z 96	F 94	F 82	87	92	R 103	100	86	82	78	80	R	78	76	72	73	A	R 78	80	R 80	83	R 82
7	R 83	R 78	R 73	73	F 72	85	84	84	76	A	A	A	A	A	A	R 68	65	68	A	A	A	A	A	R 72
8	69	68	66	U R 66	65	70	75	94	84	A	94	U R 99	100	R 95	92	92	92	90	88	92	87	A	R 90	104
9	R 100	R 97	89	84	R 83	86	R 98	93	88	87	R	R 74	A	R	R 76	75	74	79	74	R 74	79	R 78	83	87
10	86	84	86	66	R 61	64	81	R 94	97	A	R	A	A	80	73	69	68	72	73	80	84	R 69	71	R
11	R 78	J R 80	74	50	F	R 61	R 99	95	A	A	R	R	R	B	B	67	A	70	64	R 62	R 65	R 69	R 72	R
12	R 72	R 74	R	U R 66	60	67	72	A	A	A	A	A	A	R	A	R	R 62	67	61	R 62	U R 67	69	68	68
13	R 68	72	68	69	R 63	70	86	106	100	R	91	R 95	96	R	R 97	94	91	94	R 97	87	R 86	R 94	U R 96	F
14	R	F	R	J R 78	F	F	R 61	61	R	A	A	A	B	A	A	A	61	62	A	R 66	R 72	70	R 70	70
15	R 72	69	R	R 62	50	51	A	70	A	A	A	A	A	80	80	79	76	75	78	U R 76	79	83	86	82
16	U R 84	73	R 58	57	54	44	R	R	R	A	R	R	A	69	A	R	R 69	72	72	A	R 74	R 82	R 87	84
17	85	84	76	73	66	56	R 60	R 72	73	R 76	81	85	88	87	87	86	85	86	92	96	R 89	R 89	R 95	R 96
18	90	88	88	84	F 78	82	R 96	R 94	96	R 98	94	R 92	R 92	97	100	106	99	102	100	R 94	R 88	90	R	R 95
19	R 92	R	R	86	79	82	93	R 100	107	95	98	A	A	A	U R 95	96	R 95	90	A	94	R 89	92	R 94	U R 92
20	92	91	R	R 81	84	90	99	100	98	98	97	R 100	102	R 95	R 99	R 104	100	98	92	R 86	80	85	88	88
21	R 91	86	92	85	81	85	88	86	R 86	87	A	A	81	85	86	87	A	85	A	87	80	R 84	86	86
22	83	81	75	73	70	74	88	90	88	B	90	94	98	97	93	91	96	97	R 96	91	R	R 86	R 90	R 95
23	89	R	87	Z 84	F	F	R 99	106	110	108	94	94	88	82	78	78	80	84	86	89	R 88	93	R 94	92
24	R	85	U R 77	R 72	R 68	69	77	80	R	80	89	93	93	88	R	87	84	84	86	86	82	82	84	R 85
25	R 88	88	86	81	73	76	U R 91	R 94	96	94	92	93	100	104	R 98	J R 101	99	J R 97	97	79	R	86	88	88
26	R	R 92	86	F	F	86	R 98	102	97	88	R 91	91	J R 97	100	102	97	R 96	92	R 96	R 98	97	U R 88	88	R
27	R	R	R 75	R 66	60	R 62	69	58	R	A	A	A	A	68	68	A	68	69	R 64	R 61	R 65	R	70	Z 73
28	R 73	R 74	R 72	R 70	68	69	88	87	82	R 76	82	90	R 91	96	100	100	96	93	R 92	U R 93	88	80	R 68	R 75
29	74	74	79	73	F	F	F	56	55	56	R	A	A	R	R 64	58	A	A	69	R 71	J R 79	82	R 86	89
30	R 82	80	U R 78	78	R 74	R 71	83	R 92	87	79	84	A	95	91	88	87	85	81	A	A	R	R 74	R 80	F
31	80	R 80	74	R 71	R	72	90	95	84	82	86	89	93	90	A	92	93	100	105	100	90	R 85	84	82
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	26	27	24	25	22	27	28	29	24	18	20	18	20	22	24	27	27	29	24	26	26	28	26	22
MED	R 86	84	78	73	71	74	89	94	96	87	91	92	95	93	92	91	85	85	90	87	85	85	86	86
U Q	R 90	R 88	87	82	79	85	R 96	100	98	95	94	R 95	99	97	100	100	96	96	R 96	94	R 88	88	R 90	R 92
L Q	R 78	74	74	R 66	63	67	79	82	84	80	86	89	92	85	79	78	72	72	74	R 76	R 79	R 80	R 80	82

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

IONOSPHERIC DATA STATION Kokubunji

JUL. 2000 foF1 (0.01MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							L	A	U L 568	A	A	A	A	U L 576	A	U L 540	L 512	A	A	A				
2							L	L	A	A	L	A	U L 584	A	A	A	A	A	A					
3						L	A	A	A	A	A	U L 560	A	552	532	552	L	A	A	A				
4						L	L	A	A	A	L	A	A	A	A	A	U L 492	A	A					
5						L	A	L	U L 524	U L 516	U L 624	U L 576	564	U R 564	A	A	A	A	A	A				
6						L	U L 464	L	504	U L 576	532	U L 568	A	A	A	540	L	A	A					
7						L	A	A	A	A	A	A	A	A	A	U L 544	L 496	A	A	A				
8							L	A	A	A	A	A	A	540	548	556	528	U L 484	L					
9						L	L	A	532	U L 584	A	U L 588	A	A	U L 564	A	U L 536	L	L					
10							A	L	U L 568	A	A	A	A	U L 564	A	564	520	488	U L 408					
11							A	A	A	A	U L 532	R	R	B	B	U L 580	A	A	L					
12							U L 460	A	A	A	A	A	A	R	A	R	U L 512	U L 476	L	A				
13							L	L	A	U L 740	A	A	L 628	A	A	A	L	A	L					
14						L	U L 440	U L 476	A	A	A	A	B	A	A	A	U L 504	A	A					
15						U L 356	A	A	A	A	A	A	A	A	U L 572	U L 556	L 556	L	L					
16						U L 316	U L 388	U L 432	U L 484	A	U L 512	U L 560	A	A	A	U L 568	U L 592	L	L	A				
17							U L 432	L 520	L 552	A	U L 624	B	U L 608	L	U L 604	L	L	L	A					
18							L	L	L	L	U L 616	U L 656	U L 592	A	A	U L 588	L	U L 548	L					
19						L		L 516	A	A	632	A	A	A	A	A	A	A	A	A				
20							A	L	L	U L 600	A	U L 620	U L 588	A	U L 604	U L 592	U L 604	U L 516	A					
21							L	U L 588	584	A	A	A	A	A	U L 624	A	A	A	A					
22							L	A	A	B	A	U L 616	A	A	U L 596	A	L 564	L 512	L					
23							U L 596	U L 588	A	A	A	U L 632	U L 584	U L 636	U L 576	564	U L 552	A	L					
24							L	L	U L 600	U L 644	U L 588	L	U L 576	B	A	U L 560	U L 528	U L 488						
25							L		L	L	L	A	B	A	E B	A	L 548	A	A					
26							L	L	L	U L 720	U L 620	U L 624	A	A	A	U L 576	536	L	L					
27						L	L	U L 460	U L 540	A	A	A	A	U L 544	A	A	512	A	A					
28							L	L	L	L	U L 592	A	A	A	U L 548	U L 548	U L 540	L	L					
29						L	L 408	460	U L 480	U L 496	U L 512	A	A	U L 528	U L 520	A	A	A	A					
30						L	U L 472	L	L	R	U L 604	A	576	L 576	548	L	L	A	A					
31						L	A	L	L	L	A	U L 576	A	A	A	A	L	L	L					
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT						2	8	8	11	8	12	11	9	9	12	15	18	7	1					
MED						U L 336	U L 450	U L 496	U L 540	U L 592	U L 598	U L 588	U L 584	U L 564	U L 568	U L 560	L 532	U L 488	U L 408					
U Q							U L 468	U L 554	U L 568	U L 682	U L 622	U L 624	U L 600	U L 576	U L 600	U L 576	U L 552	U L 516						
L Q							U L 420	U L 460	U L 504	U L 546	U L 532	U L 568	576	U L 542	548	U L 548	L 512	U L 484						

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

IONOSPHERIC DATA STATION Kokubunji

JUL. 2000 foE (0.01MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1						192	272	U R 320	344	R	R	R	A	A	A	A	A	A	A	B				
2						180	280	316	R	R	R	R	A	A	A	A	A	292	216	B				
3						180	276	320	356	R	R	B	R	A	A	A	A	A	A	B				
4						B	268	312	336	360	B	B	A	A	A	A	A	288	A	B				
5						180	A	A	A	U R 368	B	B	R	R	R	R	U R 340	304	236	B				
6						204	276	312	360	380	A	R	B	U R 408	R	U R 380	U R 352	300	232	B				
7						208	280	324	360	U R 380	R	B	B	A	A	A	A	A	A	B				
8						184	288	336	U R 356	R	B	B	A	R	R	R	R	300	228	B				
9						168	280	316	A	B	B	R	B	B	B	R	U R 356	320	244	B				
10						164	A	A	A	R	R	R	B	B	R	R	R	328	A	B				
11						196	304	B	B	B	R	R	A	B	B	R	R	312	A	B				
12						172	272	328	R	R	B	B	B	B	B	R	R	320	244	B				
13						184	292	356	R	B	B	B	B	A	A	A	R	308	B	B				
14						A	A	A	B	B	B	B	B	B	B	R	R	A	A	B				
15						184	280	328	R	R	A	A	A	A	A	B	R	312	A	B				
16						184	288	U R 312	R	R	B	B	B	B	R	R	U R 352	308	236	B				
17						180	272	R	B	B	B	B	B	R	B	R	R	A	A	B				
18						A	268	R	B	B	B	B	B	B	B	B	R	R	240	B				
19						A	296	348	R	B	B	B	A	A	A	A	B	A	A	B				
20						B	260	R	R	R	A	R	B	B	A	R	R	316	252	B				
21						208	276	336	R	R	B	B	B	B	B	U R 412	R	324	232	B				
22						192	280	332	B	B	B	B	B	B	B	A	A	316	A	B				
23						196	276	332	R	R	B	B	B	B	B	B	R	316	B	B				
24						188	A	A	A	A	R	B	A	B	A	A	A	A	A	B				
25						A	264	R	R	R	R	B	B	R	B	R	A	R	228	B				
26						A	A	A	360	R	B	R	B	B	B	A	A	A	A	B				
27						A	A	A	A	R	A	A	A	R	B	A	A	A	A	B				
28						A	A	R	340	R	R	R	B	A	R	A	A	A	A					
29						A	A	316	R	A	R	B	R	R	R	U R 368	336	284	A					
30						B	A	A	R	R	R	A	A	B	R	R	U R 344	288	184					
31						B	A	A	A	R	B	R	A	A	A	A	A	A	A					
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT						19	21	17	8	4				1		3	6	18	12					
MED						184	276	324	356	374				U R 408		U R 380	U R 348	310	234					
U Q						196	284	334	360	380						U R 412	U R 352	316	242					
L Q						180	272	316	342	364						U R 368	340	300	228					

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

IONOSPHERIC DATA STATION Kokubunji

JUL. 2000 foEs (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	J A 102	J A 54	J A 54	J A 36	J A 31	25	34	42	J A 51	J A 65	J A 83	J A 97	75	J A 55	59	45	40	101	J A 78	J A 118	J A 62	J A 34	J A 50	J A 99
2	J A 29	J A 30	J A 30	J A 40	J A 27	32	J A 48	J A 55	J A 79	J A 114	J A 63	J A 77	J A 58	59	58	74	J A 200	J A 215	D D 250	J A 154	J A 63	J A 50	J A 85	J A 83
3	J A 128	J A 81	J A 36	J A 51	J A 32	26	J A 63	J A 85	J A 91	J A 101	J A 70	J A 53	56	J A 52	50	J A 54	J A 51	J A 60	J A 102	J A 108	J A 90	J A 125	J A 80	J A 46
4	J A 62	J A 82	J A 63	J A 36	J A 23	23	34	J A 82	J A 96	J A 89	J A 54	J A 80	J A 85	J A 83	J A 85	J A 100	J A 78	J A 52	J A 66	J A 126	J A 50	J A 63	J A 26	29
5	28	22	21	25	E B 15	24	J A 63	J A 54	36	43	E B 47	E B 49	G	G	48	J A 61	J A 130	59	J A 87	J A 92	J A 63	J A 47	J A 40	J A 48
6	J A 50	J A 49	J A 26	J A 47	J A 32	J A 37	J A 42	J A 67	48	44	J A 52	G	J A 65	J A 87	58	47	40	J A 48	J A 88	J A 44	J A 31	J A 48	J A 32	J A 54
7	J A 53	J A 63	J A 66	J A 56	J A 24	26	J A 50	J A 54	J A 70	J A 83	J A 74	J A 68	J A 82	J A 100	J A 100	43	J A 50	J A 166	J A 188	J A 110	J A 74	J A 77	J A 88	J A 32
8	J A 24	J A 22	J A 25	J A 23	J A 22	22	36	J A 54	J A 93	J A 101	J A 88	J A 154	J A 85	J A 66	J A 49	J A 52	G	37	28	J A 24	18	J A 77	J A 49	J A 67
9	J A 46	J A 31	J A 27	J A 55	J A 45	23	33	J A 63	J A 54	48	54	48	J A 77	67	J A 52	J A 61	45	J A 54	J A 40	J A 34	J A 25	E B 15	J A 46	J A 53
10	J A 34	J A 27	J A 29	J A 28	38	J A 26	J A 52	45	J A 49	J A 124	J A 65	J A 81	J A 102	E B 52	57	43	G	41	34	J A 21	34	J A 53	J A 52	J A 81
11	J A 48	J A 34	J A 36	26	J A 82	25	J A 74	72	J A 138	J A 126	47	48	52	B	B	J A 80	J A 104	J A 54	J A 82	J A 46	J A 53	56	E B 12	J A 49
12	J A 54	J A 32	J A 26	J A 25	J A 23	22	34	J A 126	J A 108	J A 168	J A 128	J A 125	57	46	57	G	G	G	J A 40	J A 53	J A 44	J A 31	J A 48	J A 28
13	J A 28	J A 21	J A 22	24	E B 16	J A 25	G	46	J A 67	58	73	59	J A 52	69	76	J A 76	J A 68	J A 56	J A 40	J A 52	J A 32	J A 41	J A 24	E B 15
14	E B 15	J A 20	J A 20	20	J A 47	J A 40	J A 52	36	49	J A 67	69	58	B	98	57	J A 114	J A 84	J A 177	J A 81	J A 60	J A 44	J A 26	J A 28	J A 27
15	21	21	19	20	E B 16	J A 33	J A 68	J A 53	J A 78	J A 106	J A 161	J A 124	J A 84	58	J A 50	E B 47	J A 44	J A 48	36	52	J A 34	J A 62	J A 26	21
16	J A E B 22	15	22	21	21	22	G	G	42	J A E B 51	47	55	54	59	J A 65	44	40	39	J A 39	J A 64	J A 84	J A 84	28	J A 46
17	J A 38	J A 35	J A 31	J A 26	J A 32	30	40	44	J A 43	69	J A E B 52	70	46	G	E B 48	43	40	J A 52	J A 66	J A 51	J A 37	27	22	J A 33
18	J A 50	J A 54	J A 42	J A 44	J A 28	J A 25	J A 51	G	E B 43	E B 45	E B 50	49	55	57	56	49	60	42	J A 41	J A 30	J A 42	J A 24	J A 40	J A 40
19	J A 51	59	J A 47	J A 44	J A 26	J A 23	37	47	72	J A 66	J A 67	J A 115	J A 142	J A 125	J A 78	J A 84	J A 68	J A 117	J A 174	J A 128	J A 109	J A 112	J A 24	J A 26
20	J A 22	21	22	J A 26	J A 24	J A 42	79	G	43	56	J A 83	J A 53	50	64	47	30	G	G	J A 43	J A 37	J A 83	J A 53	J A 54	J A 26
21	E B 15	J A 17	J A 18	J A 23	J A 45	J A 59	J A 46	J A 85	J A 64	J A 148	J A 114	J A 164	80	J A 102	J A 59	J A 78	J A 146	J A 123	J A 115	J A 50	J A 112	J A 45	J A 40	J A 26
22	J A 28	J A 22	J A 22	J A 21	E B 15	25	38	82	J A 78	B	J A 91	51	54	J A 92	J A 50	62	J A 55	36	J A 40	J A 29	J A 47	J A 38	J A 54	J A 65
23	J A 33	J A 68	J A 78	J A 75	J A 41	32	J A 84	36	J A 67	J A 112	J A 119	49	51	47	E B 48	J A 52	J A 54	J A 76	J A 132	J A 26	21	J A 23	J A 88	J A 47
24	J A 39	J A 27	J A 25	J A 22	J A 21	21	31	J A 56	J A 64	J A 62	G	E B 48	J A 74	E B 63	J A 66	J A 52	J A 49	J A 64	J A 47	J A 33	J A 36	J A 32	21	J A 34
25	E B 15	J A 32	J A 29	J A 27	J A 24	J A 26	G 23	G	G	46	48	70	E B 80	61	E B 79	56	J A 46	J A 64	J A 67	J A 56	J A 40	J A 35	J A 56	J A 52
26	J A 52	J A 33	J A 74	J A 79	J A 83	J A 34	34	J A 42	40	G	E B 57	J A 50	J A 66	54	J A 75	J A 77	39	J A 52	J A 39	J A 39	J A 41	24	29	28
27	J A J A 33	24	19	E B 16	J A 28	J A 50	J A 34	J A 44	43	J A 67	J A 138	J A 78	57	49	56	J A 115	43	52	J A 50	J A 47	J A 76	J A 76	J A 28	J A 51
28	J A 26	J A 37	J A 22	J A 21	35	J A 26	J A 33	G 27	37	G	52	70	J A 84	63	J A 62	J A 65	J A 53	J A 50	J A 48	J A 32	J A 22	22	21	J A 21
29	J A 50	60	J A 34	J A 29	J A 24	J A 22	J A 32	G	G 34	37	45	70	J A 75	47	46	54	J A 85	J A 106	J A 51	J A 66	J A 65	J A 66	J A 64	J A 23
30	J A 52	J A 33	J A 34	J A 28	J A 26	J A 44	J A 53	40	J A 49	J A 46	J A 60	J A 108	46	52	42	38	41	J A 95	J A 143	J A 135	J A 101	J A 53	J A 49	J A 28
31	J A 68	23	E B E B 15	B 16	J A 23	J A 26	J A 66	J A 50	J A 46	48	J A 76	J A 62	J A 74	J A 77	J A 117	J A 58	J A 52	J A 40	J A 33	J A 38	J A 26	J A 19	J A 54	J A 65
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
CNT	31	31	31	31	31	31	31	31	31	30	31	31	30	30	30	31	31	31	31	31	31	31	31	31
MED	J A 38	J A 32	J A 27	J A 26	J A 26	J A 26	J A 40	47	J A 51	J A 66	J A U 65		64	60	57	J A 54	J A 50	J A 54	J A 51	J A 51	J A 44	J A 47	J A 40	J A 40
U Q	J A 52	J A 54	J A 36	J A 44	J A 35	J A 33	J A 53	J A 63	J A 78	J A 101	J A 83	J A 81	J A 80	J A 77	J A 66	J A 76	J A 68	J A 95	J A 88	J A 92	J A 74	J A 63	J A 54	J A 53
L Q	26	22	22	22	23	23	34	G 36	43	46	52	50	54	52	50	45	40	42	J A 40	34	J A 34	J A 27	J A 26	J A 27

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

IONOSPHERIC DATA STATION Kokubunji

JUL. 2000 fbEs (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	40	20	45	28	26	23	32	42	50	64	79	A A 97	U Y 75	52	58	44	U Y 40	A A 101	72	A A 118	23	30	39	92
2	24	18	25	22	21	30	44	52	74	A A 114	56	69	51	U Y 59	57	U Y 74	A A 200	102	A A 250	78	43	29	67	66
3	A A 128	19	24	49	18	22	48	79	90	A A 101	69	51	54	50	46	48	40	57	66	64	60	47	69	18
4	50	42	46	18	16	22	33	77	85	87	50	72	82	83	81	71	42	46	58	46	27	48	16	18
5	17	E B 16	18	18	E B 15	22	49	43	U Y 36	43	E B 47	E B 49	G	G	U Y 48	56	64	59	53	A A 92	19	23	23	28
6	26	28	18	27	27	35	40	46	44	44	44	G	62	63	U Y 58	44	39	44	A A 88	42	24	29	28	24
7	34	45	60	42	E B 15	23	46	52	67	A A 83	A A 74	A A 68	A A 82	A A 100	A A 100	U Y 43	47	48	A A 188	A A 110	A A 74	A A 77	A A 88	21
8	17	18	E B 13	18	E B 16	22	34	48	75	A A 101	58	68	67	51	45	49	G	36	27	24	16	A A 77	46	50
9	24	20	24	34	21	22	32	47	50	47	53	48	A A 77	62	52	58	45	42	36	28	20	E B 15	22	30
10	18	17	18	17	34	22	44	42	49	A A 124	56	A A 81	A A 102	E B 52	U Y 57	42	G	39	31	20	32	20	34	44
11	42	34	31	18	34	24	65	U Y 72	A A 138	A A 126	46	U Y 48	50	B	B	55	A A 104	49	38	43	48	18	E B 12	24
12	18	16	17	20	E B 13	20	34	A A 126	A A 108	A A 168	A A 128	A A 125	A A 57	U Y 46	A A 57	G	G	G	38	52	21	20	16	23
13	19	E B 15	20	18	E B 16	23	G	46	64	56	71	U Y 59	50	67	U Y 76	70	48	53	36	40	24	36	22	E B 15
14	E B 15	16	15	E B 14	19	23	29	36	U Y 49	A A 67	A A 69	A A 58	B	A A 98	A A 57	A A 114	43	49	A A 81	49	37	20	17	24
15	E B 15	17	E B 14	E B 16	E B 16	23	A A 68	53	A A 78	A A 106	A A 161	A A 124	A A 84	U Y 58	46	E B 47	41	39	31	48	33	50	20	E B 16
16	17	E B E B 15	E B 14	E B 16	E B 16	22	G	G	41	A A 51	E B 47	51	A A 54	U Y 59	A A 65	U Y 44	40	38	36	A A 64	52	66	24	41
17	24	20	28	20	28	28	38	44	43	U Y 69	49	E B 70	U Y 46	G	E B 48	U Y 43	U Y 40	47	62	47	25	23	21	20
18	36	42	22	26	20	21	30	G	E B 43	E B 45	E B 50	U Y 49	51	U Y 57	U Y 56	U Y 49	57	U Y 42	37	24	23	16	22	21
19	39	U Y 59	43	33	22	22	33	45	68	57	53	A A 115	A A 142	A A 125	76	77	66	63	A A 174	77	25	84	E B 15	18
20	18	16	20	17	E B 16	25	76	G	U Y 43	56	64	48	U Y 50	64	U Y 47	G 30	G	G	36	25	44	44	24	16
21	E B 15	E B 14	E B 14	16	24	28	30	49	47	76	A A 114	A A 164	76	79	55	78	A A 146	57	A A 115	23	20	39	26	E B 14
22	20	18	18	18	E B 15	22	34	80	63	B	66	48	U Y 54	63	48	60	47	35	28	27	28	26	49	19
23	28	34	34	45	18	23	48	35	63	105	74	U Y 49	50	46	E B 48	48	42	56	30	20	16	16	75	38
24	24	23	20	20	16	21	29	42	43	50	G	E B 48	49	E B 63	64	48	45	42	32	24	18	26	E B 15	33
25	E B 15	28	18	16	16	22	G 23	G	G	U Y 46	U Y 48	67	E B 80	61	E B 79	U Y 56	46	61	64	55	33	33	41	44
26	37	26	46	43	23	25	32	40	U Y 40	G	E B 57	48	65	U Y 54	72	48	U Y 39	36	32	35	33	E B 16	22	18
27	28	18	E B 16	E B 16	17	25	28	36	40	A A 67	A A 138	A A 78	A A 57	48	54	A A 115	40	48	35	44	36	46	16	21
28	16	22	18	E B 15	30	24	31	G 27	U Y 37	G	49	U Y 70	65	63	50	48	40	34	28	24	E B 15	16	18	18
29	35	48	34	23	16	21	31	G	G 34	U Y 37	U Y 45	A A 70	A A 75	47	46	52	A A 85	A A 106	48	44	22	45	50	20
30	20	20	23	21	16	24	40	U Y 40	45	44	53	A A 108	45	51	U Y 41	U Y 38	37	77	A A 143	A A 135	18	28	19	17
31	25	E B 14	E B 15	E B 16	16	23	46	40	42	46	62	54	63	64	A A 117	57	40	39	29	23	21	16	21	46
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	31	31	31	31	30	31	31	30	30	30	31	31	31	31	31	31	31	31	31
MED	24	20	20	18	17	23	34	43	49	60	56	U 63	58	58	56	49	42	47	38	44	25	29	22	21
U Q	35	28	31	27	23	24	46	52	68	A A 101	A A 71	A A 78	A A 76	64	65	60	48	57	A A 72	A A 64	36	46	41	38
L Q	17	E B 16	E B 17	E B 16	E B 16	22	30	G 36	42	46	49	49	50	51	48	44	40	39	32	24	20	20	18	18

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

IONOSPHERIC DATA STATION Kokubunji

JUL. 2000 fmin (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	16	15	12	16	16	15	15	18	20	24	33	20	18	23	27	22	18	15	15	15	14	15	16	15
2	14	15	15	16	15	14	14	17	18	23	22	29	34	35	23	24	23	15	16	15	15	14	15	16
3	14	15	14	16	12	16	15	14	20	22	22	39	22	35	22	24	18	19	16	15	15	14	14	14
4	14	15	15	12	15	17	15	17	21	22	41	40	38	29	22	19	21	17	17	16	15	20	14	16
5	16	16	14	16	15	16	15	15	16	18	47	49	26	30	37	28	15	15	12	14	16	15	16	14
6	15	16	15	15	16	15	16	18	17	23	22	24	43	32	25	21	18	15	16	14	16	14	16	14
7	16	15	16	12	15	15	15	15	19	20	21	43	42	36	31	26	20	14	14	14	15	13	14	16
8	15	13	13	16	16	14	15	14	18	22	40	41	36	34	24	20	18	20	16	14	15	15	16	16
9	15	14	14	12	15	15	15	15	20	42	46	29	42	47	44	29	22	21	18	14	16	15	15	12
10	14	16	14	16	12	13	15	20	22	24	24	34	48	52	31	19	22	21	16	17	14	16	15	15
11	14	16	16	13	16	17	18	45	42	45	31	20	41	B	B	30	22	19	14	13	16	16	12	16
12	15	15	15	15	13	13	16	14	20	28	43	46	44	42	41	33	22	18	14	15	14	12	14	15
13	14	15	12	15	16	14	18	20	34	43	42	42	42	35	34	28	24	21	14	14	16	15	14	15
14	15	14	13	14	16	14	16	18	41	42	46	46	B	47	44	28	23	19	15	13	16	16	14	15
15	15	12	14	16	16	14	15	21	18	22	36	37	35	35	32	47	23	14	15	13	14	13	16	16
16	13	15	14	16	16	16	16	19	22	31	47	44	50	47	29	22	18	20	15	16	12	16	15	14
17	18	14	15	12	15	14	17	29	39	48	41	70	42	37	48	22	25	16	16	14	14	15	14	14
18	14	15	16	13	15	14	18	23	43	45	50	45	46	46	44	44	24	20	20	14	13	12	15	14
19	15	15	16	14	16	12	14	18	18	42	42	40	41	40	40	30	41	21	15	16	13	16	15	14
20	16	14	14	16	16	16	18	23	24	28	39	28	43	42	32	23	25	15	16	15	16	16	16	12
21	15	14	14	14	15	17	16	19	21	17	44	42	43	42	42	26	20	18	16	14	15	14	12	14
22	14	13	15	14	15	15	19	26	40	B	45	46	44	41	40	34	21	24	14	15	15	15	16	13
23	15	15	15	16	14	16	17	20	20	28	44	44	47	42	48	42	24	19	16	14	15	12	16	14
24	16	15	14	16	12	16	15	19	21	24	31	48	30	63	24	18	20	15	14	13	15	16	15	14
25	15	16	15	14	14	14	15	18	22	22	35	47	80	28	79	24	22	22	15	15	18	15	14	15
26	16	14	15	15	16	16	14	18	21	24	57	36	45	42	42	26	18	14	16	13	15	16	16	13
27	15	15	16	16	14	16	14	18	24	21	26	39	42	34	43	25	18	15	12	13	14	11	16	15
28	14	16	15	15	16	16	17	21	20	25	21	34	43	37	22	22	17	15	12	13	15	15	15	16
29	14	16	17	15	15	16	15	16	22	28	28	42	29	25	22	20	18	15	16	14	15	15	16	16
30	15	15	14	15	15	12	16	14	18	21	22	32	28	43	29	24	17	15	15	14	15	16	15	12
31	16	14	15	16	12	16	15	16	20	19	39	28	34	34	21	17	20	16	14	13	15	14	15	15
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31
MED	15	15	15	15	15	15	15	18	21	24	39	40	42	37	32	24	21	17	15	14	15	15	15	15
U Q	16	15	15	16	16	16	17	20	24	42	44	45	44	43	43	29	23	20	16	15	16	16	16	16
L Q	14	14	14	14	14	14	15	16	19	22	26	32	34	34	24	22	18	15	14	13	14	14	14	14

IONOSPHERIC DATA STATION Kokubunji

JUL. 2000 M(3000)F2 (0.01) 135°E MEAN TIME (G.M.T. + 9 H)

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

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	R 265	273	285	F	F 306	R 289	312	H 268	270	281	280	A	272	267	276	283	269	A	R 281	A	R	255	F	R
2	F 287	R 279	283	F	R 276	U R 310	320	285	266	A	R 257	R 254	260	270	276	278	A	R 295	A	R 294	274	262	R	R
3	A	F 315	F	R	F	F 272	R 288	295	289	A	247	259	261	270	267	273	274	284	R 288	286	269	267	R 295	R
4	R 262	R 297	R	R	F	F	281	290	269	262	265	252	261	271	292	279	273	278	R 290	298	265	R 267	R 274	R
5	264	282	R 270	F	F	266	284	R 289	289	287	264	278	282	281	279	289	R 277	274	277	A	269	256	267	274
6	282	R 264	Z 280	F 293	F	258	270	266	R 286	256	281	266	269	R	273	279	271	288	A	R 272	263	R 269	274	R 262
7	R 269	R 271	R 265	272	F 271	245	251	286	268	A	A	A	A	A	A	R 264	R 277	273	A	A	A	A	A	R 266
8	263	263	267	U R 273	275	299	278	319	249	A	252	R 257	259	R 268	263	265	272	272	272	283	268	A	R 250	271
9	R 288	R 277	275	257	R 277	256	R 261	283	282	272	R	R 262	A	R	R 277	276	267	285	277	R 276	262	R 255	256	257
10	258	267	304	289	R 283	270	249	R 284	265	A	R	A	A	275	272	254	262	261	259	253	282	R 259	249	R
11	R 249	R	326	254	F	R 284	R 286	291	A	A	R	R	R	B	B	222	A	266	265	R 275	R 246	R 250	R 252	R
12	R 252	R 261	R	R 286	282	246	246	A	A	A	A	A	A	R	A	R	R 238	254	262	R 275	R 260	251	247	241
13	R 247	259	277	287	R 270	258	254	291	299	R	257	R 246	258	R	R 259	268	268	273	R 291	272	R 253	R 244	R 237	F
14	R	F	R	R 256	F	F	R 225	253	R	A	A	A	B	A	A	A	250	264	A	R 255	R 265	249	R 248	242
15	R 252	255	R	R 257	232	226	A	246	A	A	A	A	A	260	263	269	276	274	279	R 270	253	239	249	241
16	R 274	245	R 239	221	235	234	R	R	R	A	R	R	A	240	A	R	R 267	276	273	A	R 238	R 247	R 254	249
17	252	263	269	267	261	267	R 260	R 272	280	R 303	275	274	278	279	276	275	279	277	282	283	R 279	R 261	R 266	R 267
18	267	260	261	273	F 275	258	R 275	R 280	267	R 278	269	R 256	R 256	263	262	269	264	271	278	R 287	R 273	261	R	R 260
19	R 251	R	R	266	253	248	263	R 264	286	286	254	A	A	A	R 268	260	R 271	273	A	R 276	R 258	250	R 261	R 260
20	255	264	R	R 256	255	274	271	260	264	249	259	R 265	256	R 254	R 250	R 253	257	256	271	R 266	240	232	240	250
21	R 258	248	272	265	254	243	268	262	R 256	253	A	A	R 261	260	257	268	A	275	A	287	269	R 248	249	248
22	255	266	273	261	264	281	276	306	268	B	254	250	249	256	253	255	264	268	R 267	274	R	R 242	R 254	R 257
23	268	R 273	261	Z 253	F	F	R 253	258	257	R 253	266	260	258	258	259	256	255	276	271	275	R 259	252	R 256	252
24	R	256	R 257	R 246	R 248	251	287	285	R	244	253	257	267	254	R	262	268	272	259	267	257	252	242	R 250
25	R 254	268	274	274	266	268	U R 308	R 271	291	279	256	255	254	259	R 261	J R 266	275	J R 277	294	277	R	245	250	251
26	R	R 274	265	F	F	262	R 280	294	295	267	R 271	255	R 271	262	272	275	R 278	269	R 263	R 264	267	R 269	258	R
27	R	R	R 264	R 270	263	R 278	301	296	R	A	A	A	A	R 262	265	A	282	291	R 291	R 288	R 251	R	256	Z 254
28	R 268	R 264	R 269	R 266	266	271	306	305	312	R 302	265	263	R 274	261	266	268	270	273	R 263	R 284	282	270	R 240	R 242
29	255	249	269	263	F	F	F	240	230	237	R	A	A	R	R 244	235	A	A	275	R 261	R 248	241	R 245	266
30	R 257	R 259	R 258	258	R 262	R 254	255	R 292	R 289	R 264	271	A	282	275	277	282	294	287	A	A	R	R 245	R 255	F
31	271	R 251	273	R 276	R	289	320	325	334	276	271	280	282	274	A	268	277	284	286	R 306	R 279	R 269	263	259
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	26	27	24	25	21	27	28	29	24	18	20	18	20	22	24	27	27	29	24	26	26	28	27	22
MED	R 260	264	270	266	266	266	276	285	275	270	264	258	261	262	266	268	271	274	276	R 276	264	252	R 254	256
U Q	R 268	R 273	276	274	276	R 278	288	293	289	281	271	265	273	271	276	276	277	281	R 284	R 286	269	R 262	R 261	262
L Q	R 254	259	R 264	256	254	251	258	265	266	253	255	255	258	259	R 260	260	264	270	266	R 270	R 253	246	R 248	249

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JUL. 2000 M(3000)F1 (0.01) 135°E MEAN TIME (G.M.T. + 9 H)

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

H / D	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							L	A	UL320	A	A	A	A	UL320	A	UL342	L360	A	A	A				
2							L	L	A	A	L	A	UL333	A	A	A	A	A	A					
3						L	A	A	A	A	A	UL318	A	333	365	333	L	A	A	A				
4						L	L	A	A	A	L	A	A	A	A	A	UL352	A	A					
5						L	A	L	UL366	UL379	UL318	R346	353	R346	A	A	A	A	A	A				
6						LUL354	L		400	UL349	391	UL343	A	A	A	334	L	A	A					
7						L	A	A	A	A	A	A	A	A	A	UL327	L315	A	A	A				
8							L	A	A	A	A	A	A	358	374	333	326	UL340	L					
9						L	L	A	346	UL328	A	UL359	A	A	R281	A	UL326	L	L					
10							A	L	UL346	A	A	A	A	R334	A	331	332	318	UL315					
11							A	A	A	A	R371	R	R	B	B	R315	A	A	L					
12							UL293	A	A	A	A	A	A	R	A	R	UL330	UL318	L	A				
13							L	L	A	UL307		A	L322	A	A	A	L	A	L					
14						L	UL318	R294	A	A	A	A	B	A	A	A	UL354	A	A					
15						UL273	A	A	A	A	A	A	A	A	UL354	UL349	L321	L	L					
16						UL302	UL322	R334	R360	A	R364	R361	A	A	A	R346	UL305	L	L	A				
17							UL332	L338	L360	A	UL357	B	R340	L	UL343	L	L	L	A					
18							L	L	L	L	UL347	R337	R366	A	A	R325	L	UL334	L					
19						L		L354	A	A	348	A	A	A	A	A	A	A	A	A				
20							A	L	L	R318	A	UL347	UL357	A	R331	UL324	UL296	UL322	A					
21							L	UL332	330	A	A	A	A	A	UL317	A	A	A	A					
22							L	A	A	B	A	UL344	A	A	UL342	A	L307	L327	L					
23							UL320	UL335	A	A	A	R327	UL360	UL314	UL346	343	UL322	A	L					
24							L	L	UL319	R327	UL350	L	UL358	B	A	UL329	UL334	UL331						
25							L		L	L	L	A	B	AE	B	A	L325	A	A					
26							L	L	L	UL334	R318	UL346	A	A	A	UL326	332	L	L					
27						L	L	UL356	UL335	A	A	A	A	UL358	A	A	330	A	A					
28							L	L	L	L	UL337	A	A	A	UL333	UL340	UL325	L	L					
29						L	L322	329	UL355	UL360	UL327	A	A	UL362	UL349	A	A	A	A					
30						LUL343	L		L	R	UL317	A	354	L339	358	L	L	A	A					
31						L	A	L	L	L	AUL302		A	A	A	A	L	L	L					
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT						2	8	8	11	8	12	11	9	9	12	15	18	7	1					
MED						UL288	UL322	L334	UL346	UL331	UL348	UL344	L354	L339	UL344	333	L326	UL327	UL315					
U Q							UL338	L346	360	UL354	360	UL347	UL359	UL358	356	342	UL332	UL334						
L Q							UL319	330	UL330	R322	UL322	UL327	L336	UL326	332	326	L321	318						

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JUL. 2000 h'F2 (KM) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							272	260	E A 404	E A 352		A	A	E A 388	376	342	310	340	A	342	A			
2							274	324	E A 352	A	364	E A 390	372	346	342	E A 418	A	E A 366	A					
3						308	280	310	E A 396	A	E A 412	374	360	354	346	338	322	300	306	E A 314				
4						294	266	330	E A 400	E A 422	328	E A 428	E A 430	E A 374	338	E A 350	342	340	324					
5						352	286	276	302	286	386	356	350	352	372	346	376	372	E A 316	A				
6						330	336	330	320	418	342	416	402	384	390	384	312	348	A					
7						366	378	336	E A 418	A	A	A	A	A	A	440	392	380	A	A				
8							324	278	E A 472	A	402	388	378	368	380	386	348	342	316					
9						330	344	326	342	364	E A 300	444	A	422	R 392	400	406	342	332					
10							E A 316	336	362	A	458	A	A	384	E A 390	470	436	414	374					
11							320	E A 336	A	A	R	R	R	B	B	U R 652	A	390	338					
12							450	A	A	A	A	A	A	R	A	R	528	426	410	E A 382				
13							342	292	300	R	E A 412	R 464	398	410	E A 418	378	360	328	306					
14						334	484	482	E A 540	A	A	A	B	A	A	A	518	442	A					
15						536	A	458	A	A	A	A	A	440	422	406	390	346	332					
16						426	R	R	R	A	R	R	A	E A 550	A	R	428	334	338	A				
17							444	388	378	E A 382	384	398	382	376	378	366	356	342	324					
18							316	318	340	330	376	R 442	416	394	396	364	376	344	296					
19						380		328	310	294	414	A	A	A	E A 406	E A 408	372	E A 350	A	E A 362				
20							E A 366	350	340	404	376	398	374	430	R 440	408	386	366	284					
21							312	382	416	E A 466	A	A	E A 478	E A 476	430	E A 432	A	358	A					
22							272	E A 324	312	B	412	432	432	416	424	422	370	352	312					
23							376	348	352	E A 540	376	420	426	448	436	444	412	350	328					
24							298	290	R	498	426	422	388	444	420	406	372	366						
25							274		330	346	430	416	E B 432	394	E B 410	376	344	344	296					
26							296	294	284	410	382	408	386	382	370	358	344	338	308					
27						340	310	326	R	A	A	A	A	R 488	440	A	382	340	284					
28							276	312	290	292	396	412	370	400	356	348	362	352	328					
29						370	366	540	602	566	R	A	A	544	R 536	578	A	A	E A 342					
30						356	366	290	286	U R 446	386	A	346	368	362	370	318	E A 422	A					
31						292	254	260	262	292	372	360	346	372	A	368	350	318	294					
	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	28	28	25	18	21	18	20	26	25	27	27	29	23	3				
MED						346	315	326	U 326	U 371	384	412	380	389	386	381	372	348	320	E A 362				
U Q						370	366	342	E A 402	446	412	428	421	440	423	422	392	369	338	E A 382				
L Q						330	278	293	306	330	374	390	371	374	366	364	344	341	306	E A 314				

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JUL. 2000 h'F (KM) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E A 336	E A 296	E A 310	268	268	240	E A 244	A	E A 314	A	A	A	A	E A 326	A	E A 246	234	A	A	A	268	E A 302	E A 348	E A 390
2	E A 296	E A 276	E A 266	E A 292	E A 276	248	248	E A 266	A	A	E A 318	A	E A 260	A	A	A	A	A	A	E A 340	E A 282	E A 286	E A 408	E A 372
3	A	228	264	E A 344	294	236	A	A	A	A	A	E A 340	A	E A 308	238	E A 282	E A 252	A	A	A	E A 352	E A 326	E A 374	E A 282
4	E A 384	298	290	278	274	252	E A 240	A	A	A	E A 280	A	A	A	A	A	E A 252	A	A	E A 284	E A 284	E A 366	286	278
5	320	286	286	278	290	254	A	A	216	208	E B 236	E B 262	212	E B 232	A	A	A	A	A	A	E A 288	298	E A 312	E A 302
6	284	E A 344	294	278	270	E A 308	E A 264	E A 300	220	204	194	260	A	A	A	E A 260	E A 242	A	A	E A 292	282	E A 326	E A 300	E A 304
7	E A 320	E A 312	E A 396	E A 342	316	278	A	A	A	A	A	A	A	A	A	E A 268	E A 368	A	A	A	A	A	A	E A 312
8	E A 292	304	302	312	280	234	236	A	A	A	A	A	A	E A 290	204	E B 296	232	202	254	272	240	A	E A 394	E A 346
9	286	276	292	E A 330	292	E A 274	244	A	E A 290	E A 270	A	226	A	A	A	A	E A 274	E A 312	E A 296	E A 286	E A 282	300	E A 328	E A 350
10	328	302	254	226	E A 308	248	A	E A 262	E A 264	A	A	A	A	E A 312	A	228	234	E A 270	E A 284	E A 288	280	E A 296	E A 382	E A 404
11	E A 384	304	238	E A 284	E A 374	E A 292	A	A	A	A	E A 242	R	E A 248	B	B	E A 360	A	A	E A 310	E A 338	E A 334	E A 352	328	E A 356
12	E A 350	288	258	E A 304	246	E A 258	E A 296	A	A	A	A	A	A	E A 240	A	E B 264	236	240	E A 330	A	E A 332	E A 332	310	E A 362
13	E A 358	318	288	282	270	250	236	A	A	E A 296	A	A	E A 264	A	A	A	E A 308	A	A	E A 292	E A 326	E A 344	E A 380	Q 348
14	326	320	Q 258	266	288	292	E A 272	240	A	A	A	A	B	A	A	A	254	A	A	E A 400	E A 330	E A 308	E A 346	E A 368
15	332	E A 316	336	310	E B 418	E A 306	A	A	A	A	A	A	A	A	E A 242	E A 258	E A 244	E A 262	E A 272	E A 334	E A 334	E A 410	E A 324	360
16	310	342	394	E B 436	382	306	E A 296	E A 250	236	A	E A 268	E A 274	A	A	A	A 262	E A 254	E A 284	E A 290	A	E A 436	E A 446	E A 340	E A 364
17	E A 334	294	E A 304	284	E A 324	E A 276	E A 312	E A 258	222	A	224	B	U R 272	E A 294	234	E A 270	244	A	A	E A 286	278	E A 302	E A 300	298
18	E A 320	E A 344	E A 330	296	272	258	224	E A 246	216	212	228	E A 264	238	A	A	E A 298	A	E A 288	A	268	E A 288	E A 284	E A 308	E A 292
19	E A 376	E A 372	E A 314	E A 322	E A 320	252	254	E A 254	A	A	248	A	A	A	A	A	A	A	A	A	E A 302	E A 492	286	E A 312
20	E A 320	304	E A 318	E A 310	E A 312	282	A	246	E A 248	E A 356	A	220	E A 250	A	E A 282	236	240	250	A	E A 296	E A 382	E A 416	E A 360	E A 324
21	296	310	274	284	E A 316	E A 276	262	E A 282	E A 260	A	A	A	A	A	E A 314	A	A	A	A	282	E A 304	E A 358	E A 332	326
22	E A 336	312	276	E A 296	288	266	236	A	A	B	A	214	A	A	248	A	E A 308	234	266	280	E A 310	E A 328	E A 374	E A 316
23	E A 302	E A 334	E A 334	E A 376	E A 348	266	E A 272	234	A	A	A	E A 250	236	238	236	E A 260	248	A	278	290	268	308	E A 412	E A 344
24	340	E A 324	E A 312	E A 344	E A 338	272	254	E A 256	222	E A 258	210	E B 260	E A 246	B	A	E A 288	E A 280	E A 284	E A 266	E A 278	280	E A 324	318	E A 356
25	310	E A 312	280	266	256	262	248	H 236	244	E A 262	E A 270	A	B	A	B	A	E A 280	A	A	E A 314	E A 372	E A 360	E A 366	E A 362
26	E A 330	280	E A 330	E A 330	E A 344	274	254	246	218	H 240	E B 328	228	A	A	A	E A 290	238	E A 262	E A 280	E A 310	E A 298	234	E A 302	284
27	E A E 318	A 336	280	260	324	E A 306	258	236	232	A	A	A	A	256	A	A	E A 250	A	A	E A 326	E A 356	484	320	348
28	E A E 312	A 328	298	292	E A 304	268	E A 246	H 214	204	212	E A 256	A	A	A	E A 278	E A 276	E A 272	E A 250	E A 274	286	250	240	E A E 320	A 364
29	E A E 348	A 394	E A 320	Q 308	370	E A 292	E A 278	242	240	R 256	E A 326	A	A	256	E A 282	A	A	A	A	E A 346	E A E 336	A 406	E A E 378	A 294
30	E A E 296	A 298	E A 318	E A 308	E A E 302	A 280	E A 266	A	A	232	E A 316	A	212	E A E 292	A 240	E A 256	238	A	A	A	E A E 302	A 370	E A 304	288
31	E A 298	326	290	270	268	E A 280	A	E A 240	E A 240	218	A	A	A	A	A	A	E A 258	E A 272	E A 258	252	260	252	E A E 314	A 366
	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	31	31	31	31	31	23	18	17	13	15	11	10	11	11	18	24	13	13	23	30	29	30	31
MED	E A 320	303	U 279	U 282	U 286	U 261	245	E A 246	226	U 224	E A E 256	260	U 230	E A E 290	A E 242	A E 266	A E 251	A E 262	A E 278	A E 290	A E 300	A E 326	A E 328	A E 346
U Q	E A E 336	328	A E 318	A E 322	E A E 324	282	E A E 272	A E 258	A E 254	A E 266	A E 316	A E 264	A E 260	A E 308	A E 282	A E 288	A E 273	A E 284	A E 293	A E 326	A E 334	A E 368	E A 374	A E 362
L Q	E A 302	296	276	278	274	252	244	240	219	212	228	226	236	E 240	236	E A 258	239	245	266	282	280	299	E A 310	302

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

IONOSPHERIC DATA STATION Kokubunji

JUL. 2000 h'E (KM) 135°E MEAN TIME (G.M.T. + 9 H)

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

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	116	112	112	112	110	104	A	A	A	A	A	A	A	B				
2						126	120	112	108	112	112	110	A	A	A	A	A	116	114	B				
3						142	116	112	110	108	112	B	110	A	A	A	A	A	A	B				
4						B	114	112	114	114	B	B	A	A	A	A	AE	A 132	A	B				
5						122	112	A	A	112	B	B	112	110	122	114	118	122	116	B				
6						130	110	106	118	110	A	110	B	118	116	116	114	112	116	B				
7						128	112	108	110	110	110	B	B	A	A	A	A	A	A	B				
8						130	116	112	112	110	B	B	A	120	108	116	112	114	122	B				
9						128	112	108	A	B	B	112	B	B	B	118	116	118	118	B				
10						106	A	A	A	110	114	110	B	B	114	112	114	116	114	B				
11						136	116	B	B	B	112	112	A	B	B	116	114	116	116	B				
12						120	116	108	110	116	B	B	B	B	B	114	112	108	112	B				
13						134	118	118	124	B	B	B	B	A	A	A 116	112	B	B					
14						A	A	114	B	B	B	B	B	B	B	118	114	116	A	B				
15						122	110	114	110	110	A	A	A	A	A	B	112	108	112	B				
16						126	114	114	112	120	B	B	B	B	114	110	114	116	118	B				
17						126	120	120	B	B	B	B	B	108	B	112	108	116	A	B				
18						A	A	112	B	B	B	B	B	B	B	B	114	120	120	B				
19						A	120	112	112	B	B	B	A	A	A	A	B	A	A	B				
20						B	116	118	114	112	A	112	B	B	A	120	116	116	118	B				
21						130	116	110	110	112	B	B	B	B	B	114	114	116	118	B				
22						134	122	118	B	B	B	B	B	B	B	A	A 120	112	B					
23						148	116	114	112	116	B	B	B	B	B	B	118	116	B	B				
24						122	114	114	110	A 110		B	A	B	A	A	A	A	A	B				
25						A	120	112	114	112	114	B	B	114	B	110	120	118	120	B				
26						A	A	A	110	114	B	114	B	B	B	A	114	110	A	B				
27						A	A	A	118	110	A	A	A	118	B	A	A	A	A	B				
28						A	A	118	122	112	120	114	B	118	110	A	A	A	A					
29						A	A	112	A	116	110	B	108	110	110	110	110	116	118					
30						B	112	110	106	112	106	A	118	B	114	116	126	112	118					
31						B	112	114	112	116	B	114	A	A	A	A	A	A	A					
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT						19	24	26	22	22	11	10	4	8	8	15	20	23	17					
MED						128	116	112	112	112	112	112	111	116	114	114	114	116	118					
U Q						134	117	114	114	114	114	114	115	118	115	116	116	118	118					
L Q						122	112	112	110	110	110	110	109	110	110	112	113	112	114					

IONOSPHERIC DATA STATION Kokubunji

JUL. 2000 h'Es (KM) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	106	104	98	106	98	142	136	122	112	108	108	106	104	104	100	102	100	100	98	96	108	108	108	106
2	106	98	96	100	106	124	120	116	112	108	108	106	102	110	110	136	116	112	108	116	104	104	102	102
3	102	102	94	94	96	136	122	116	110	106	110	108	110	110	106	106	106	108	102	120	114	110	114	108
4	106	98	102	106	90	126	122	110	110	106	108	104	104	104	102	104	106	122	116	110	118	116	106	98
5	96	96	92	98	B 122	108	108	106	122		B	B	G	G	134	122	120	118	116	112	112	110	110	108
6	104	102	100	124	122	120	120	116	118	116	108	G	124	120	130	146	138	118	110	112	110	108	110	110
7	104	100	102	104	114	142	122	118	114	110	110	114	108	106	102	106	102	114	112	110	108	114	110	104
8	104	104	100	100	102	150	134	122	114	110	118	108	110	116	122	124	G	126	138	110	102	114	114	108
9	108	106	106	106	106	124	134	114	112	122	120	120	110	118	134	124	132	118	118	110	110	B	110	106
10	104	102	100	100	96	116	106	110	120	112	114	108	104	B	134	132	G	128	108	126	110	106	104	104
11	98	94	96	92	108	154	124	120	112	114	120	122	112	B	B	128	114	114	114	116	108	110	B	100
12	100	98	100	98	100	122	132	112	116	110	110	112	112	116	110	G	G	G	118	114	114	110	116	108
13	106	108	104	108	B	140	G	128	114	112	110	112	112	104	108	108	118	110	104	100	102	100	102	B
14	B	102	118	128	106	110	110	146	124	114	110	122	B	118	122	114	118	122	112	102	100	100	100	96
15	100	94	100	126	B	118	114	116	108	118	104	106	106	106	108	B	122	116	116	114	108	106	106	112
16	104	B	126	140	120	128	G	G	134	122	B	128	128	128	128	140	142	136	120	116	114	108	108	100
17	98	102	94	106	120	124	120	120	122	110	112	B	112	G	B	106	128	116	112	114	96	98	96	106
18	106	104	106	104	104	110	106	G	B	B	B	138	128	122	122	132	120	122	114	108	106	104	104	98
19	98	98	98	98	98	102	134	120	116	112	112	102	102	104	106	102	104	102	116	114	108	108	110	102
20	104	100	114	98	98	118	114	G	120	108	106	112	114	112	104	108	G	G	120	114	110	110	104	106
21	B	106	104	102	118	120	130	118	116	110	108	106	108	112	108	126	114	114	110	114	108	106	104	106
22	102	102	98	100	B	130	122	112	116	B	114	118	118	108	116	110	110	128	106	108	100	100	106	108
23	102	104	104	102	102	142	122	134	120	114	114	122	116	134	B	126	122	112	108	106	108	98	98	96
24	96	96	94	94	98	158	114	114	106	104	G	B	102	B	98	100	96	96	126	98	116	112	96	106
25	B	102	104	104	106	102	108	G	G	118	114	116	B	118	B	114	120	122	112	110	106	104	100	108
26	106	106	104	104	100	104	140	106	134	G	B	110	112	110	110	106	116	110	106	106	100	100	96	96
27	92	94	104	B	108	106	104	106	122	110	106	104	108	136	128	102	132	100	100	112	132	114	142	110
28	98	102	100	98	94	98	100	102	116	G	120	118	114	114	112	102	98	96	98	94	96	96	96	94
29	106	106	106	108	108	108	104	G	108	110	136	120	120	128	128	122	114	110	108	108	106	104	102	102
30	100	100	98	98	100	118	112	110	110	114	106	104	116	112	118	114	132	116	108	106	102	138	108	98
31	98	106	B	B	100	118	110	114	114	120	110	108	108	108	104	104	104	124	104	104	98	98	100	104
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	30	30	29	27	31	29	26	29	27	26	27	28	26	27	29	27	29	31	31	31	30	30	30
MED	103	102	100	102	102	122	120	116	114	112	110	112	111	112	110	114	116	116	112	110	108	107	105	105
U Q	106	104	104	106	108	136	127	120	120	116	114	120	115	118	128	126	122	122	116	114	110	110	110	108
L Q	98	98	98	98	98	110	109	110	111	110	108	106	107	108	106	105	106	110	106	106	102	100	100	100

IONOSPHERIC DATA STATION Kokubunji

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

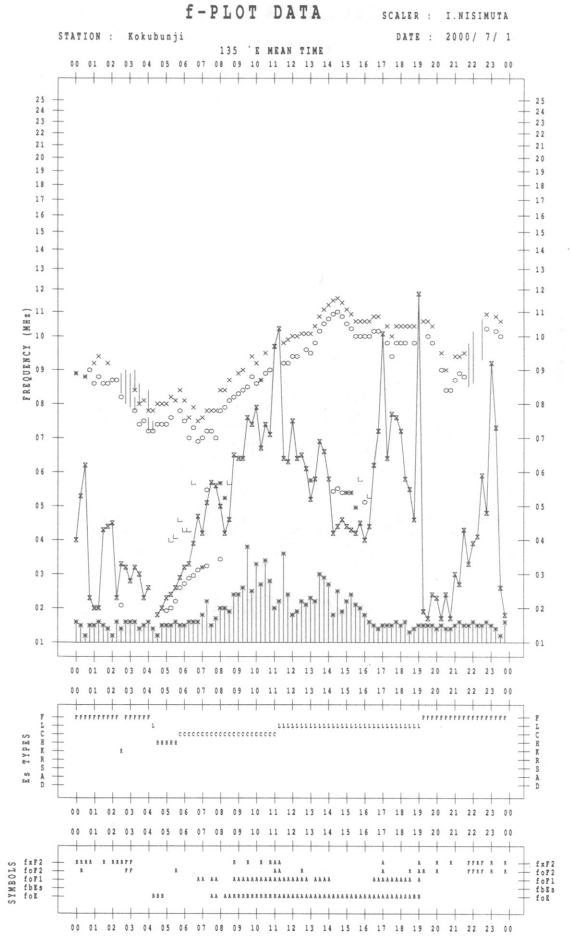
LAT.35°42.4'N LON.139°29.3'E SWEEP 1.0MHz TO 25.0MHz IN 24.0SEC IN MANUAL SCALING

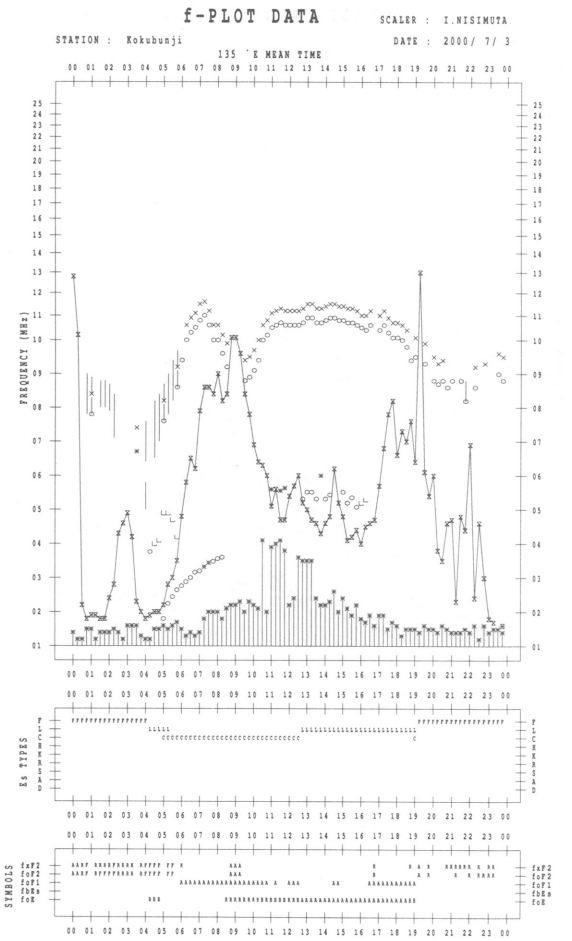
D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	F4	F3	F3	FF33	F4	H2	C2	C1	C2	C1	C2	C3	L2	L2	L2	L1	L2	L3	L3	L3	F3	F4	F6	F4
2	F3	F3	F3	F2	F4	C2	C2	C3	C2	C2	C2	C2	L1	L1	L1	CL12	CL32	C4	C3	CL25	F3	F2	F3	F4
3	F4	F4	F4	F4	F3	CL11	C3	C3	C3	C2	C2	C2	C1	L1	L1	L1	L2	L2	L3	CL23	FF13	FF24	F5	F3
4	F4	F3	FF22	FF12	F2	C1	C1	C2	C3	C2	C2	L2	L2	L2	L2	L2	L1	CL21	CL21	CL22	FF22	F3	F2	F1
5	F2	F2	F1	F1		C1	C2	L2	L1	C1					H1	C1	C2	C2	C2	C3	F2	F2	F2	F2
6	F3	F3	F2	F4	F5	C3	C2	C2	C1	C1	L1		C1	C1	C1	H1	H1	C2	C3	C3	F4	F3	F4	F3
7	F3	F3	F4	F5	F2	H1	C2	C2	C2	C2	C2	C2	C1	L2	L2	L1	L2	CL13	CL24	CL23	F3	FF32	F3	F2
8	F2	F2	F1	F1	F1	HL11	C1	C2	C2	C2	C1	L1	L1	C1	C1	C1		C1	H1	C2	F1	F3	F4	F4
9	F5	F3	F4	F3	F5	C2	H1	C1	L2	C1	C1	C1	C1	C1	C1	C1	C1	C2	C3	C4	F3		F2	F3
10	F3	F2	F2	F3	F5	C2	L3	L2	CL11	C3	C1	C2	L2		C1	C1		C1	C3	C1	F4	F2	F5	F2
11	F3	F5	F4	F1	F2	H1	C3	C1	C2	C2	C1	C1	L1			C1	C1	C2	C2	C3	F4	F3		F3
12	F3	F2	F2	F2	F2	C2	C2	C2	C1	C2	C2	C2	C1	C1	C1				C2	C2	F2	F2	F2	F5
13	F3	F1	F3	F2		C2		C1	C2	C1	C1	C1	C1	L1	L1	L2	C2	C2	C3	C2	F2	F4	F2	
14		F1	F2	F1	F2	LC21	L2	HC11	C1	C1	C1	C1		C2	C1	C2	C1	C2	L2	L3	F4	F2	F3	F3
15	F1	F2	F1	F1		C4	C3	C2	C2	CC12	L3	L1	L1	L1	L1		C1	C1	C2	C2	F4	F4	F3	F1
16	FF22		F1	F1	F1	C2			C1	C1		C1	C1	C1	C1	C1	H1	H1	C3	C2	F6	F3	F3	F4
17	F2	FF23	F3	F2	F5	C3	C2	C1	C1	C1	L1		C1			L1	C1	CL21	CL31	CL32	F2	F2	F1	FF21
18	FF31	F3	F3	F2	F3	L1	LC11					C1	C1	C1	C1	C1	C1	C1	C2	C4	F3	F2	F2	F2
19	F3	F4	F5	F3	F5	L2	CL11	C2	C2	C2	C1	L2	L2	L3	L2	L2	L1	LC11	CL32	C2	F2	F3	F2	F2
20	F1	F1	F1	F1	F1	C2	C2		C1	C2	L1	C1	C1	C1	L1	L1			C3	C2	F4	F3	F4	F2
21		F1	F1	FF11	F5	C2	C1	C2	C2	C2	L3	L2	L2	L1	L1	C2	C2	C3	C3	C2	F2	F6	F3	F3
22	F3	F2	F2	F1		C1	C1	C2	C2		C1	C1	C1	L2	C1	L2	L1	C1	C2	C2	F2	F2	F3	F2
23	F5	F5	F3	F3	F5	C1	C3	C1	C2	C3	C2	C1	C1	C1		C1	C1	C3	C2	C2	F1	F2	F4	F3
24	F3	F2	F2	F1	F1	H1	C2	C2	C2	L1			L2		L3	L1	L2	L2	CL13	L2	FF22	FF12	F2	FF21
25		F4	F2	F2	F2	L2	L1			C1	C1	C1		C1		C2	C1	C2	C4	C4	F4	F4	F3	F3
26	F4	F5	F4	F4	F5	L2	CL12	L2	C1			C1	L1	C1	C1	L2	C1	C1	L2	L4	F3	F2	F2	F2
27	F3	F2	F1		F2	L3	L2	L2	C1	C2	L2	L2	L1	C1	C1	L2	CL12	L2	CL22	CL33	FF12	F4	FF12	FF12
28	F2	F3	F2	F2	F4	L2	L2	L1	CL11		CL11	C1	C1	C1	C1	L2	L2	L2	L2	F2	F2	F1	F2	F1
29	F3	F3	F4	F3	F2	L2	L2		L1	C1	C1	C1	C1	C1	C1	C1	C2	CL31	C3	F2	F3	F3	F4	F2
30	F2	F2	F2	F2	F2	CL31	C2	C2	C2	C1	C2	L2	C1	C1	C1	C1	CL11	C2	C3	F3	F3	FF13	F2	F2
31	F2	F1			F2	C3	C2	C2	C1	C1	C2	C2	L2	L2	L2	L2	L2	CL21	L3	F3	F3	F3	F2	F3
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT																								
MED																								
U Q																								
L Q																								

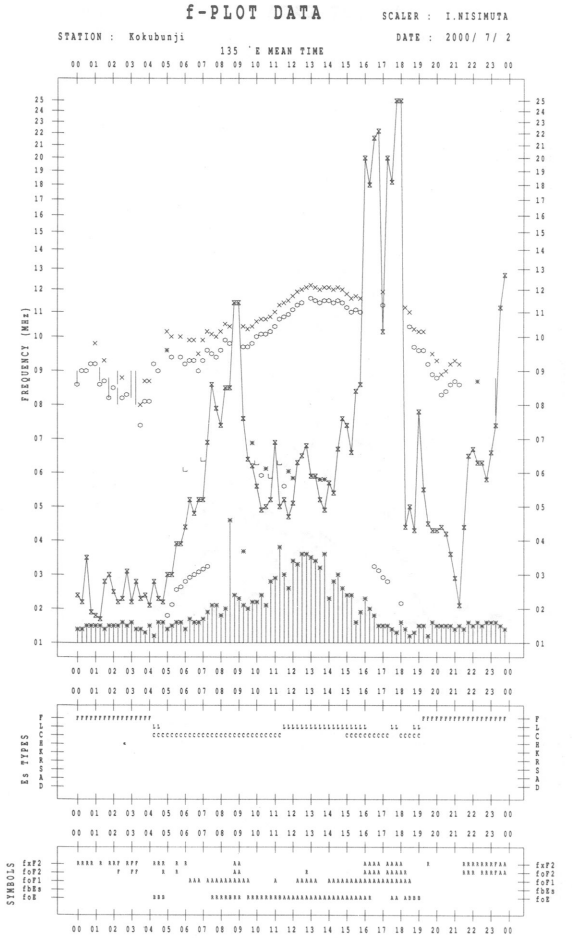
JUL. 2000 TYPES OF Es COMMUNICATIONS RESEARCH LABORATORY, JAPAN

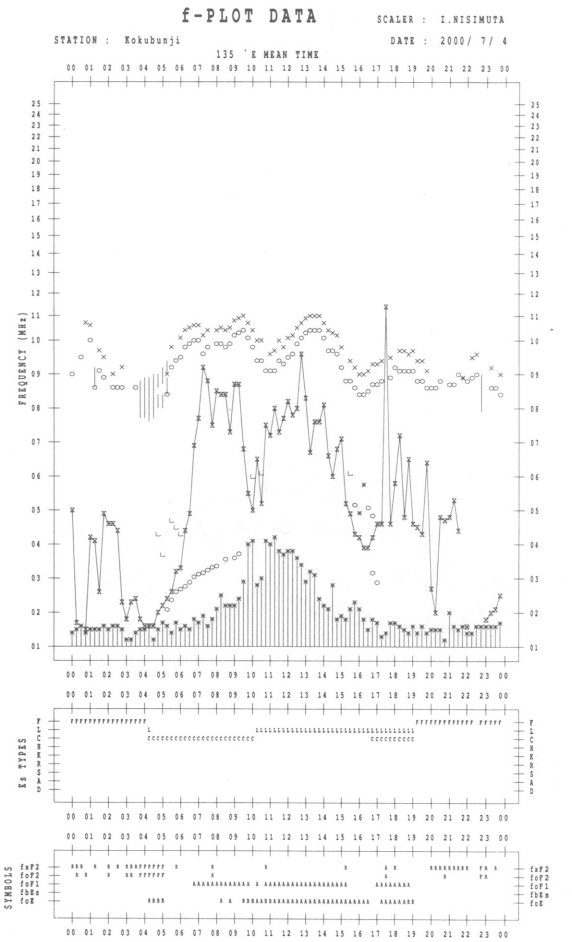
f-PLOTS OF IONOSPHERIC DATA

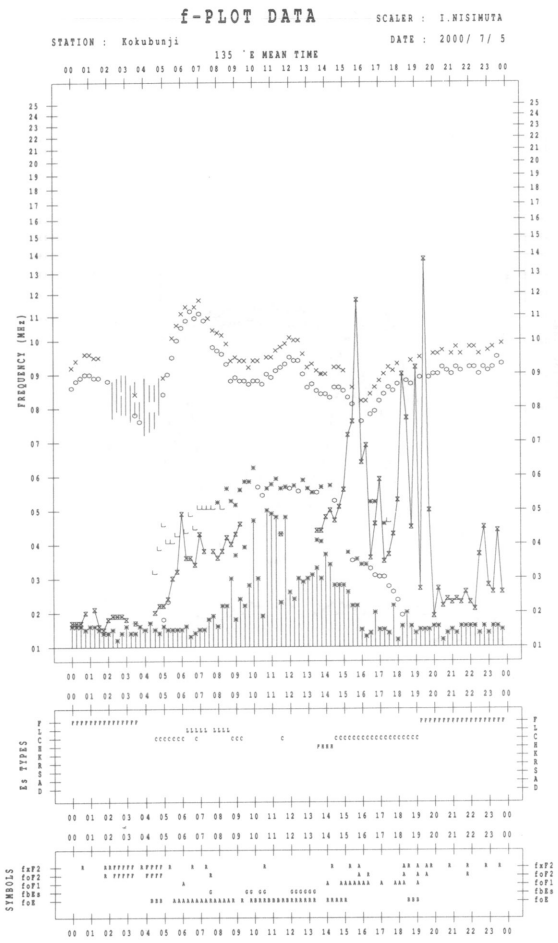
KEY OF f-PLOT	
	SPREAD
	foF2, foF1, foE
	fxF2
	DOUBTFUL foF2, foF1, foE
	fbEs
	ESTIMATED foF1
	fmin
	GREATER THAN
	LESS THAN

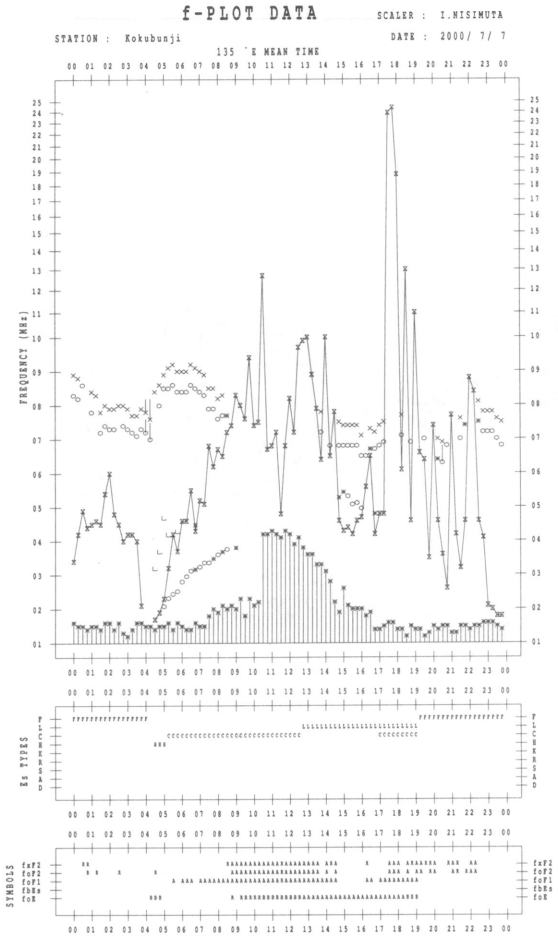

f-PLOT DATA
SCALER : I.NISIMUTA
STATION : Kokubunji
DATE : 2000/ 7/ 1
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE

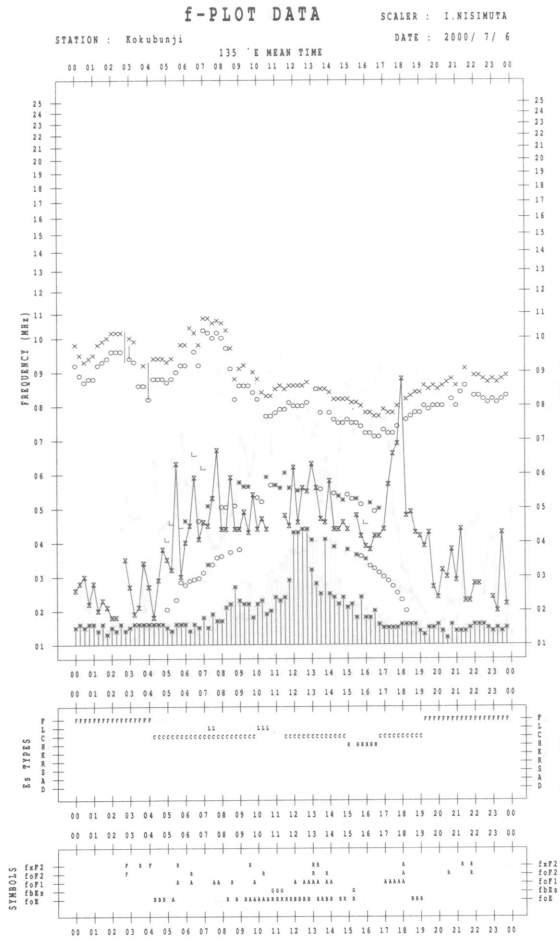

f-PLOT DATA
SCALER : I.NISIMUTA
STATION : Kokubunji
DATE : 2000/ 7/ 3
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE

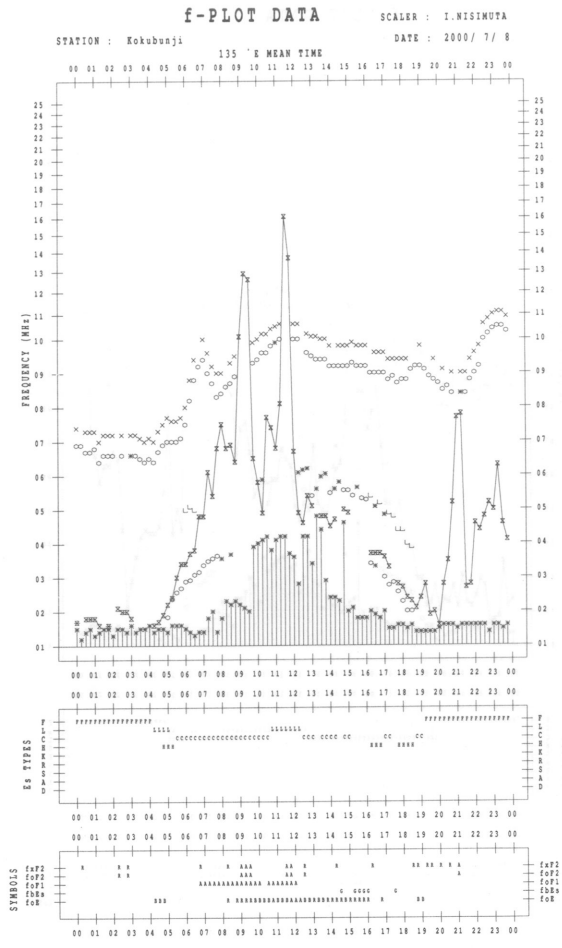

f-PLOT DATA
SCALER : I.NISIMUTA
STATION : Kokubunji
DATE : 2000/ 7/ 2
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE

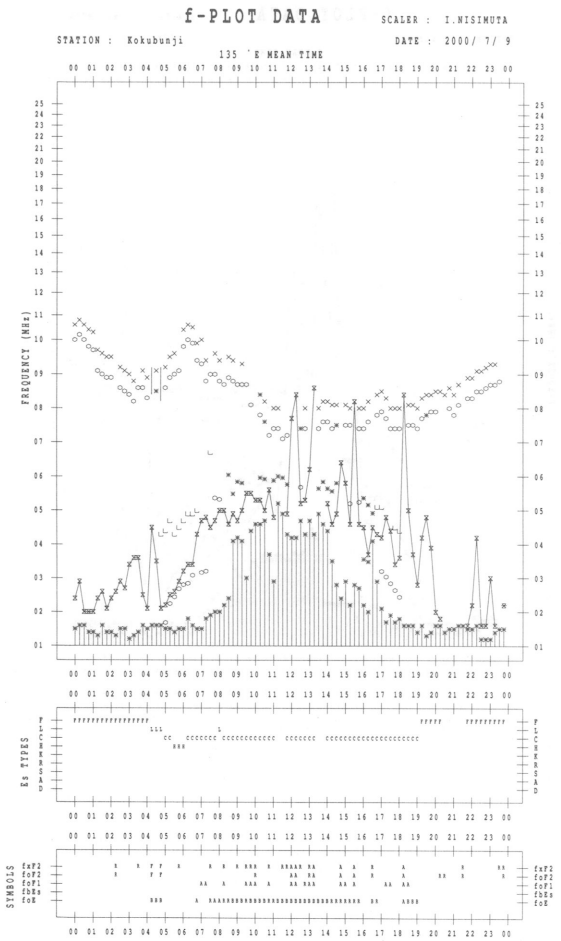

f-PLOT DATA
SCALER : I.NISIMUTA
STATION : Kokubunji
DATE : 2000/ 7/ 4
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE

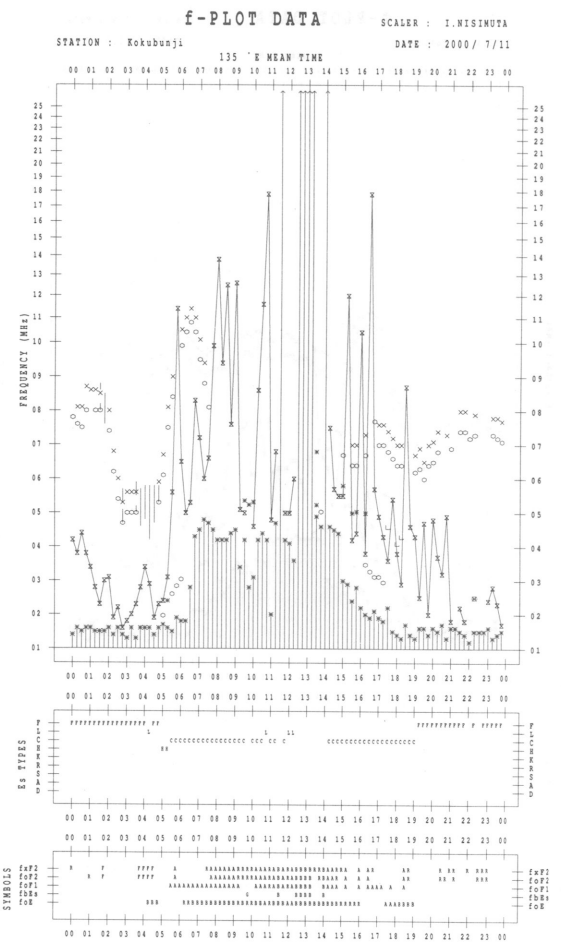

f-PLOT DATA
SCALER : I.NISIMUTA
STATION : Kokubunji
DATE : 2000/ 7/ 5
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE

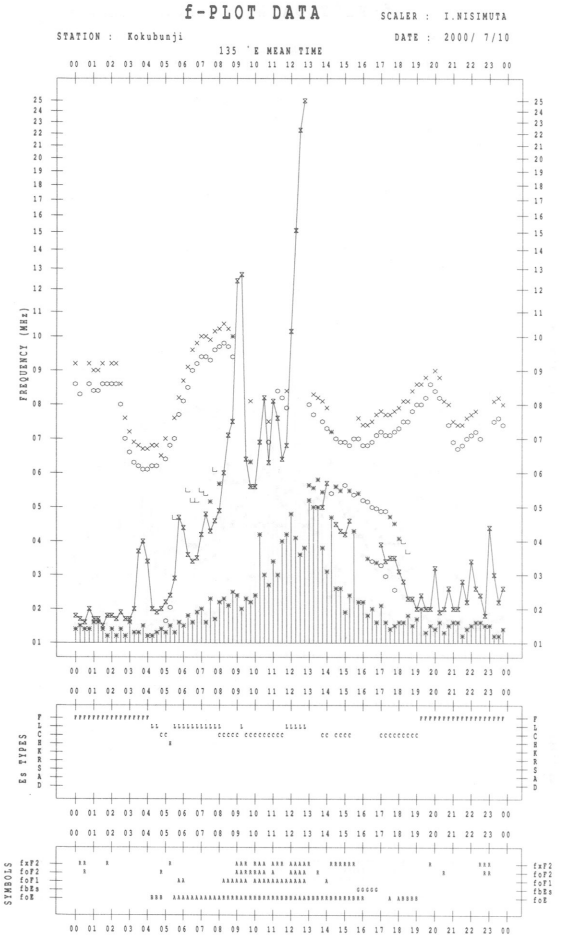

f-PLOT DATA
SCALER : I.NISIMUTA
STATION : Kokubunji
DATE : 2000/ 7/ 7
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE

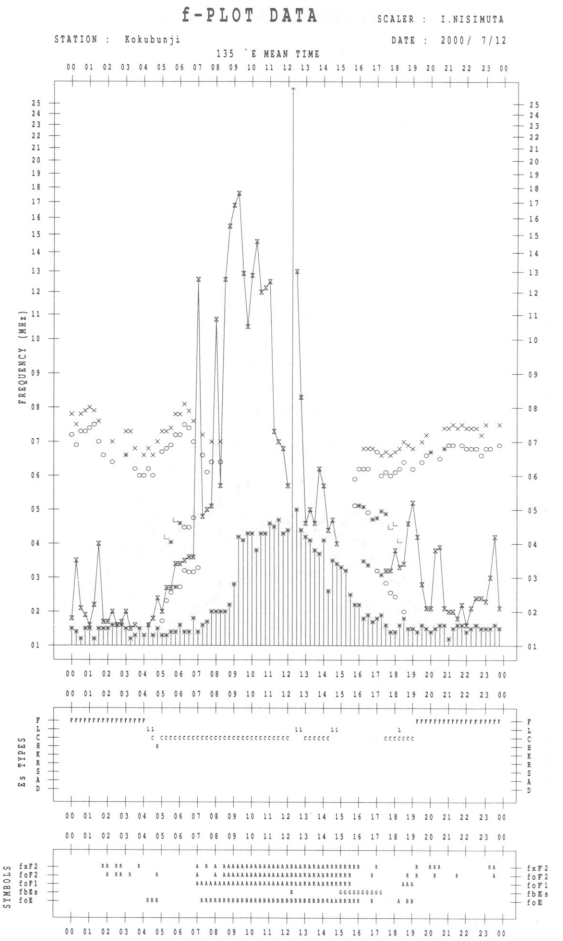

f-PLOT DATA
SCALER : I.NISIMUTA
STATION : Kokubunji
DATE : 2000/ 7/ 6
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE

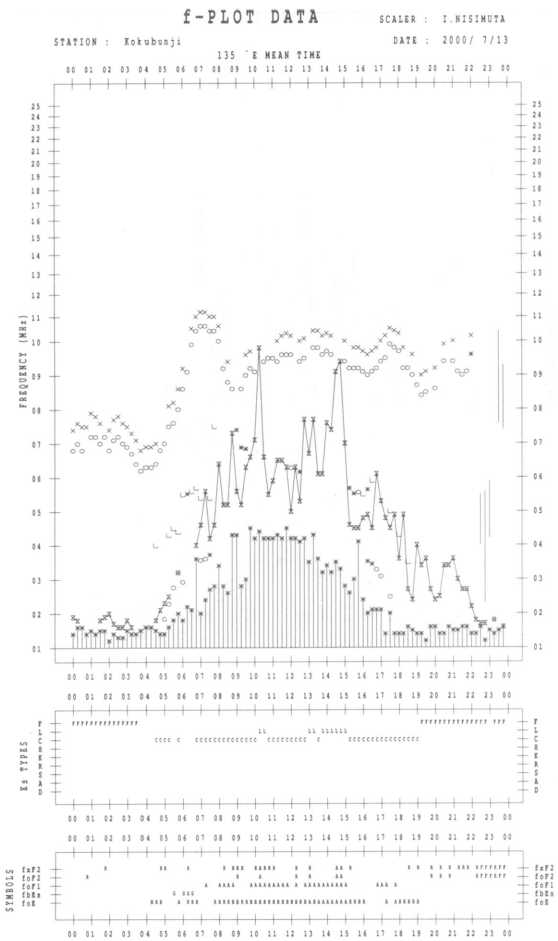

f-PLOT DATA
SCALER : I.NISIMUTA
STATION : Kokubunji
DATE : 2000/ 7/ 8
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE

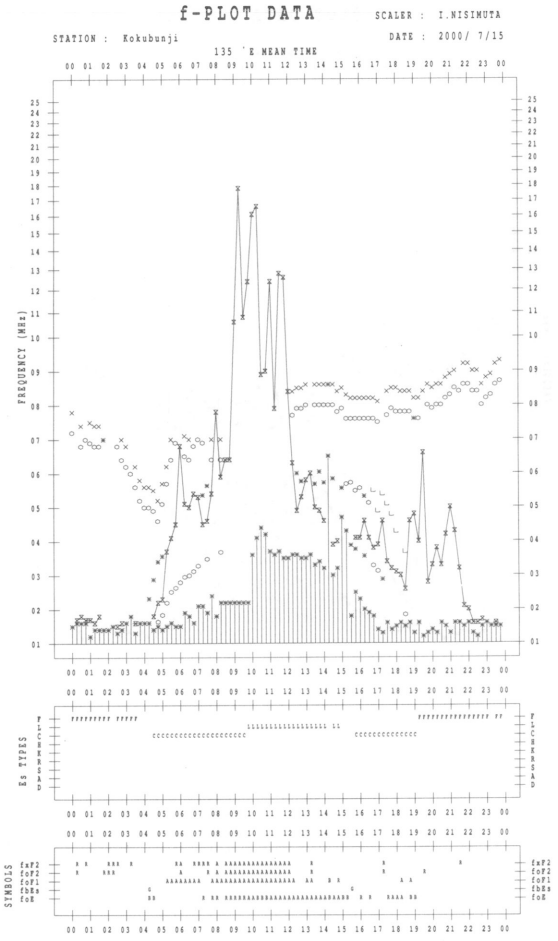

f-PLOT DATA
SCALER : I.NISIMUTA
STATION : Kokubunji
DATE : 2000/ 7/ 9
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE

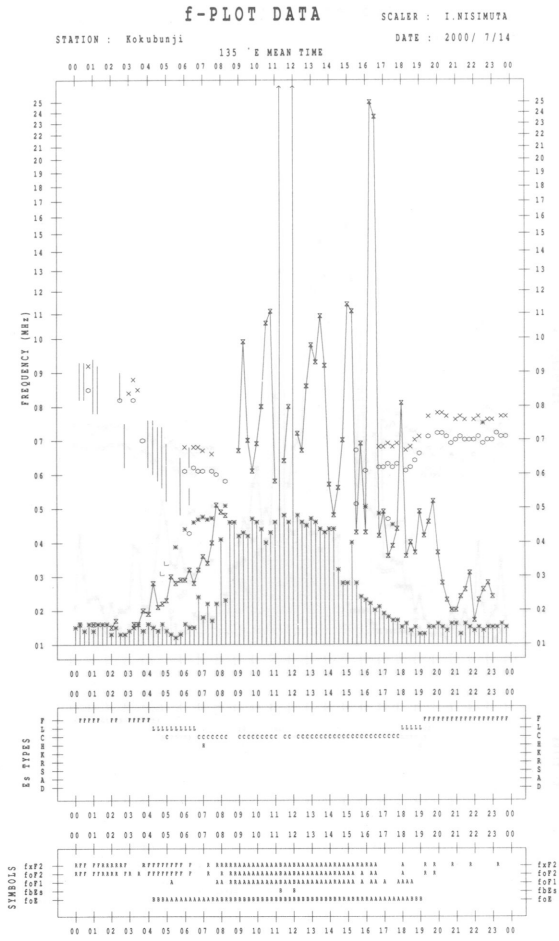

f-PLOT DATA
SCALER : I.NISIMUTA
STATION : Kokubunji
DATE : 2000/ 7/11
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE

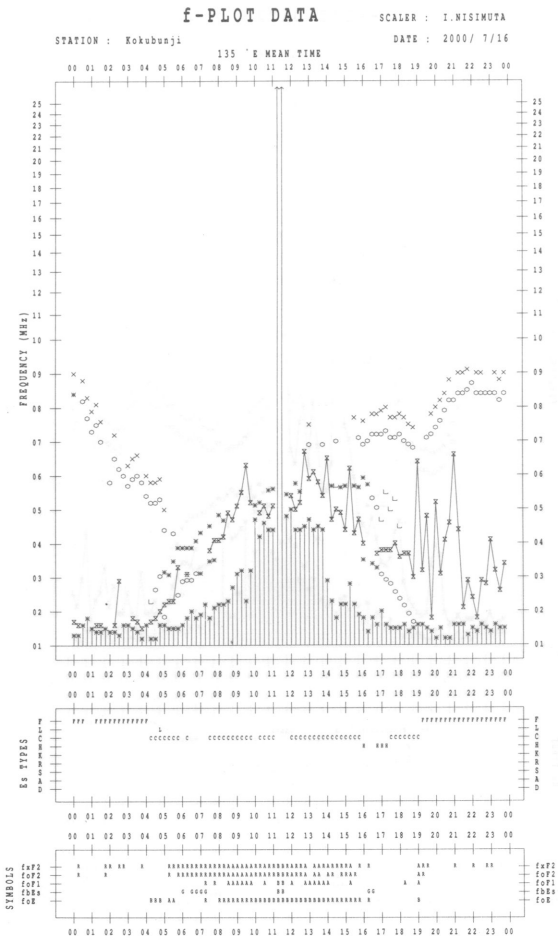

f-PLOT DATA
SCALER : I.NISIMUTA
STATION : Kokubunji
DATE : 2000/ 7/10
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE

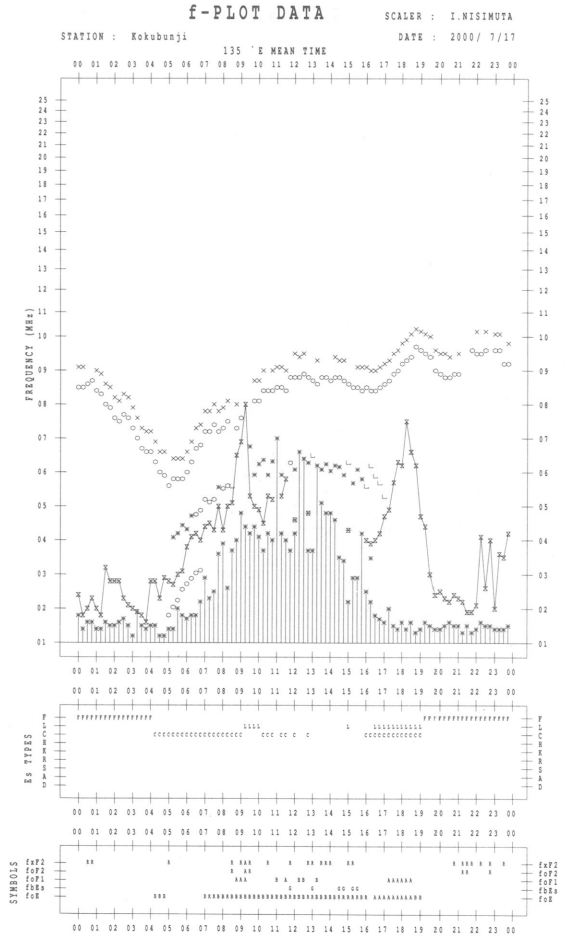

f-PLOT DATA
SCALER : I.NISIMUTA
STATION : Kokubunji
DATE : 2000/ 7/12
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE

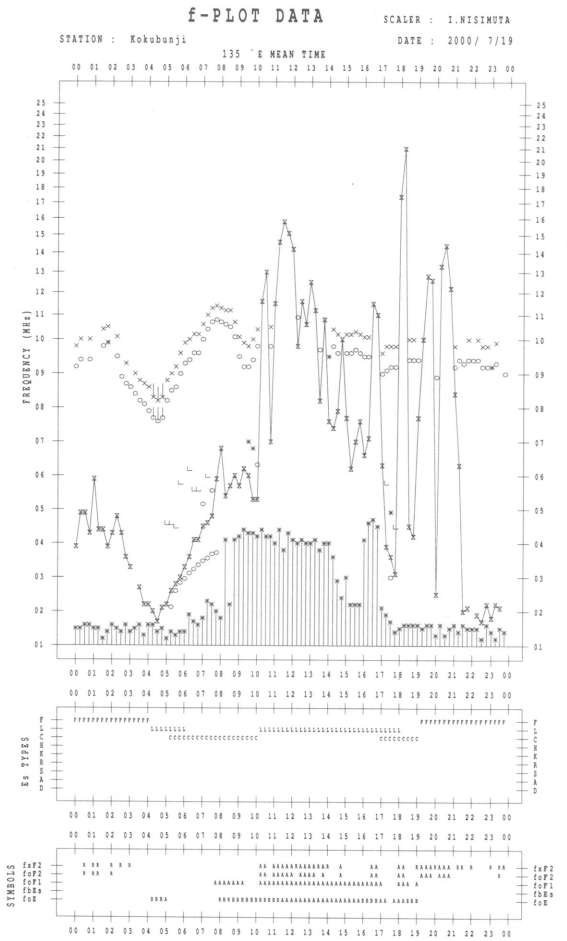

f-PLOT DATA
SCALER : I.NISIMUTA
STATION : Kokubunji
DATE : 2000/ 7/13
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE

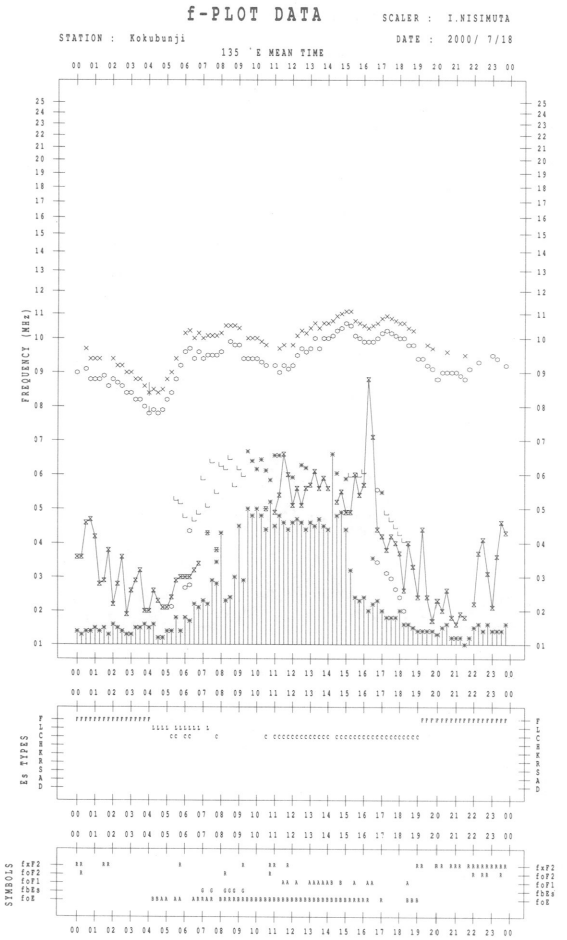

f-PLOT DATA
SCALER : I.NISIMUTA
STATION : Kokubunji
DATE : 2000/ 7/15
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE

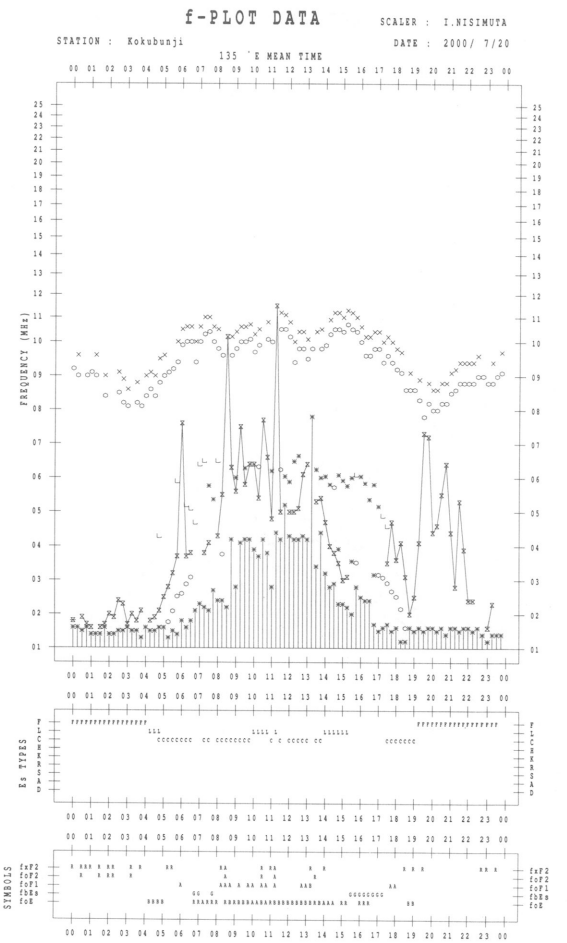

f-PLOT DATA
SCALER : I.NISIMUTA
STATION : Kokubunji
DATE : 2000/ 7/14
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE

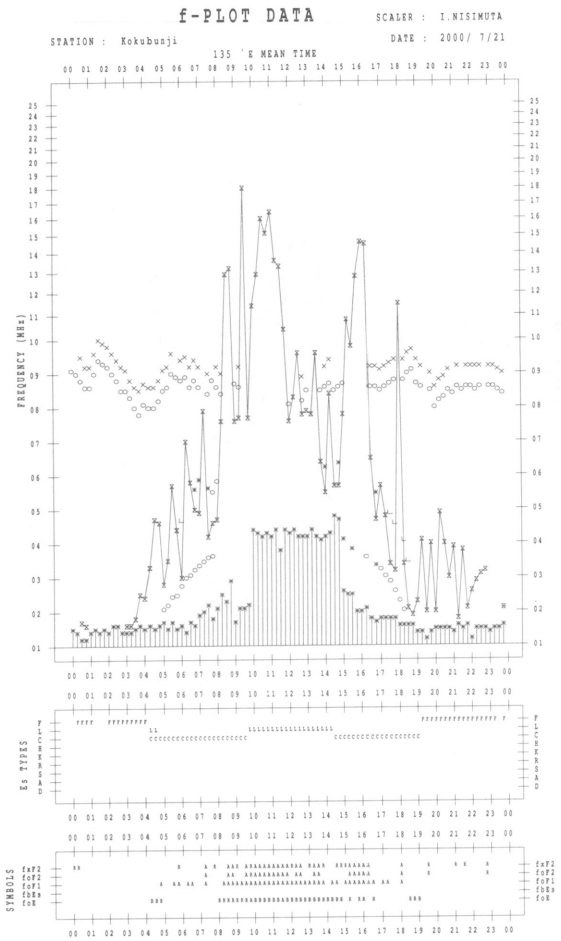

f-PLOT DATA
SCALER : I.NISIMUTA
STATION : Kokubunji
DATE : 2000/ 7/16
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE

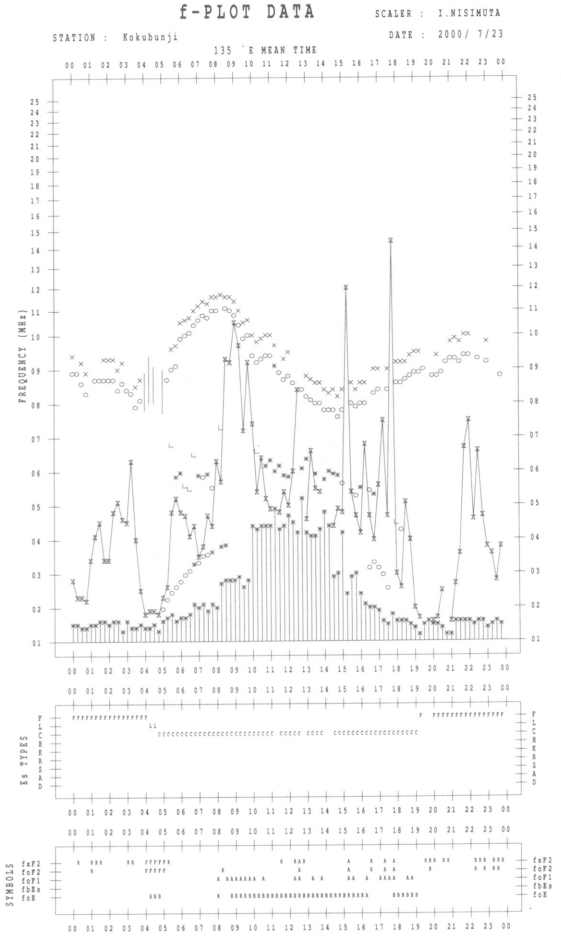

f-PLOT DATA
SCALER : I.NISIMUTA
STATION : Kokubunji
DATE : 2000/ 7/17
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE

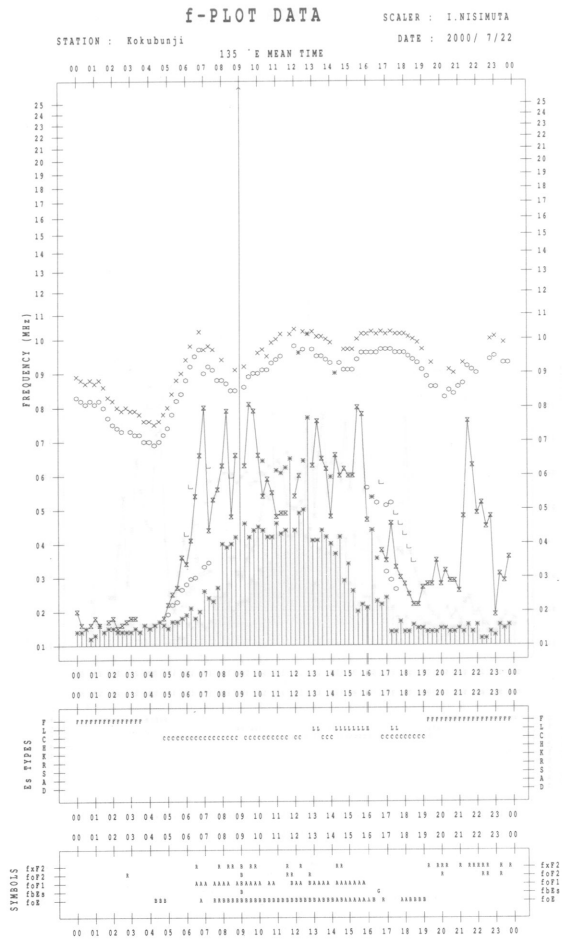

f-PLOT DATA
SCALER : I.NISIMUTA
STATION : Kokubunji
DATE : 2000/ 7/19
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE

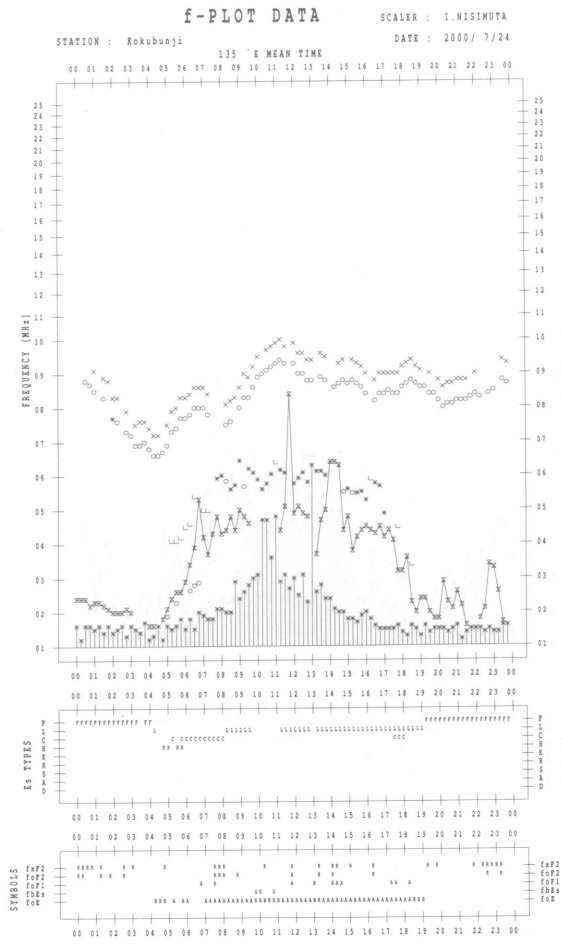

f-PLOT DATA
SCALER : I.NISIMUTA
STATION : Kokubunji
DATE : 2000/ 7/18
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE

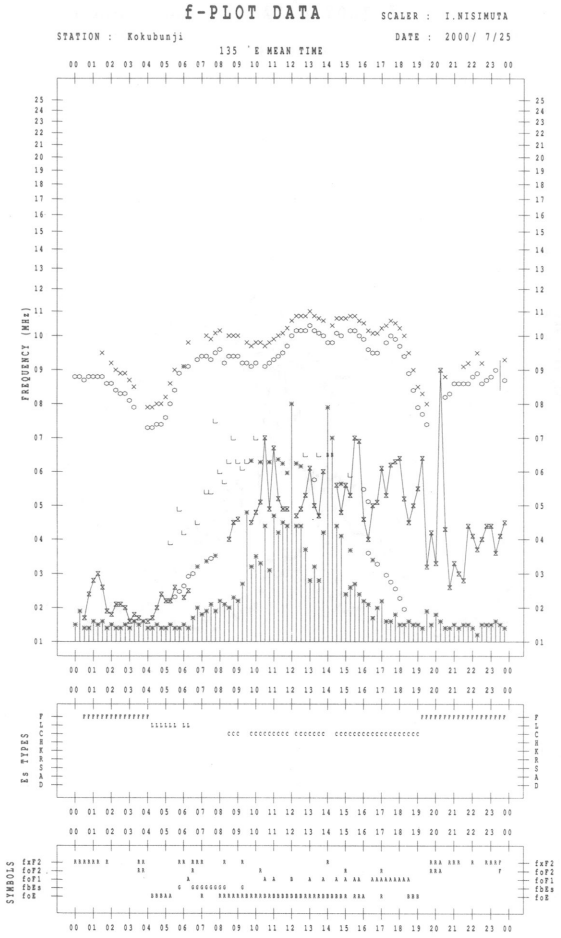

f-PLOT DATA
SCALER : I.NISIMUTA
STATION : Kokubunji
DATE : 2000/ 7/20
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE

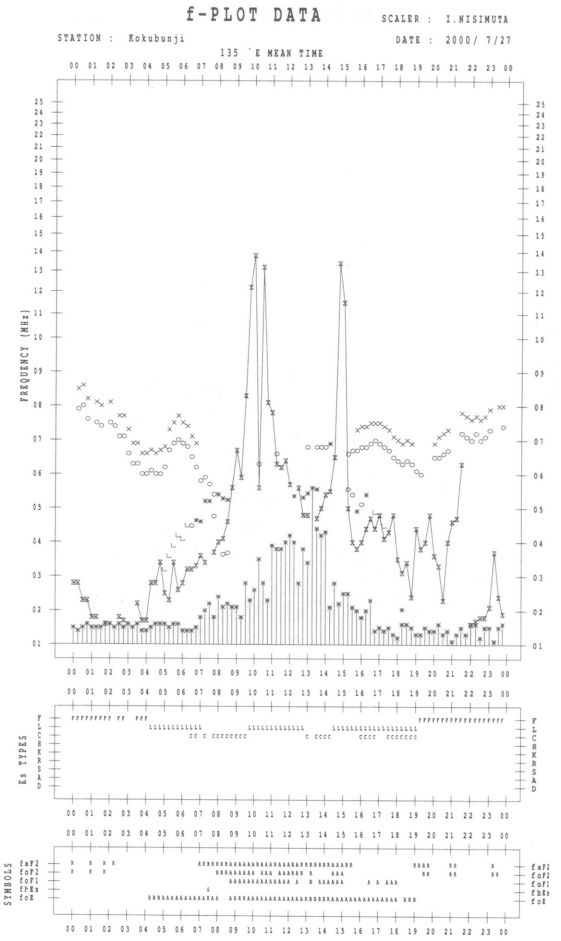

f-PLOT DATA
SCALER : I.NISIMUTA
STATION : Kokubunji
DATE : 2000/ 7/21
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE

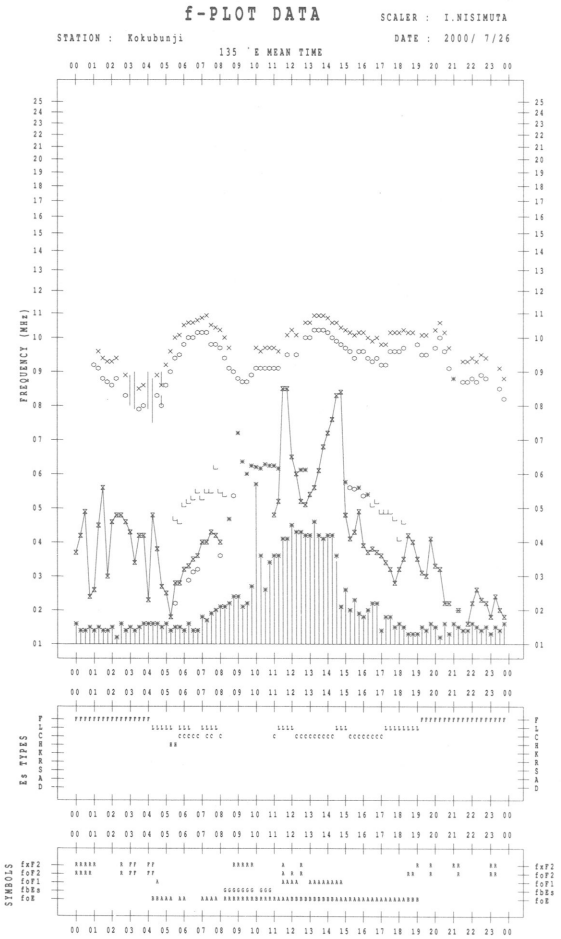

f-PLOT DATA
SCALER : I.NISIMUTA
STATION : Kokubunji
DATE : 2000/ 7/23
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE

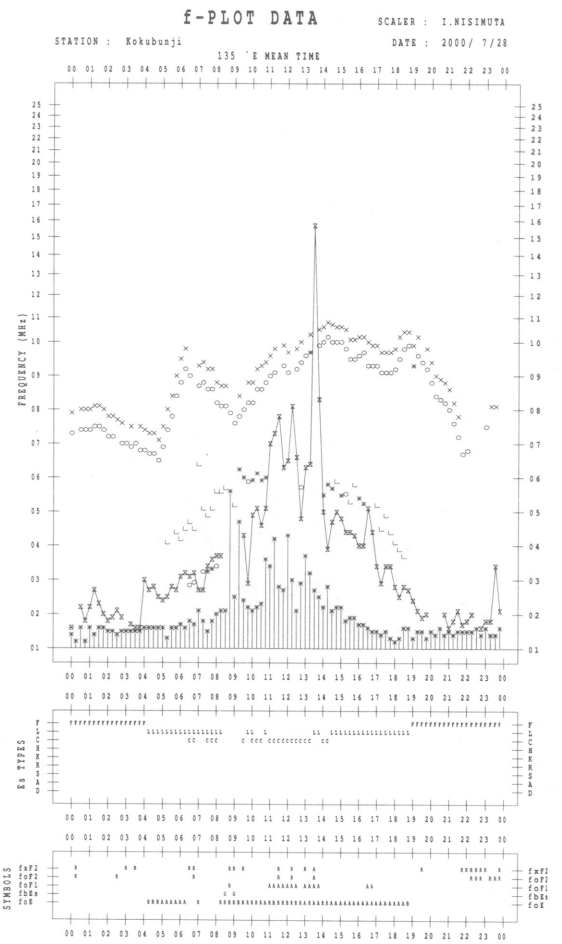

f-PLOT DATA
SCALER : I.NISIMUTA
STATION : Kokubunji
DATE : 2000/ 7/22
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE

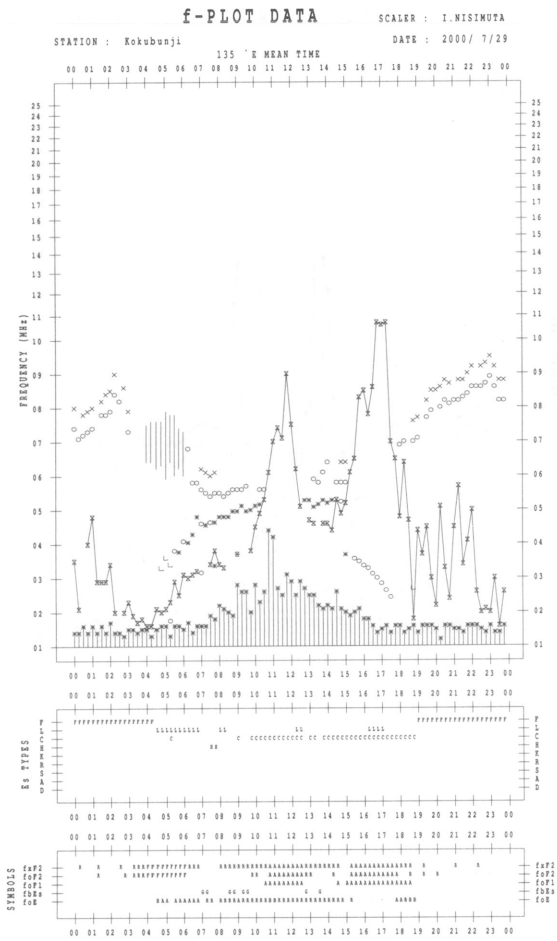

f-PLOT DATA
SCALER : I.NISIMUTA
STATION : Kokubunji
DATE : 2000/ 7/24
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE

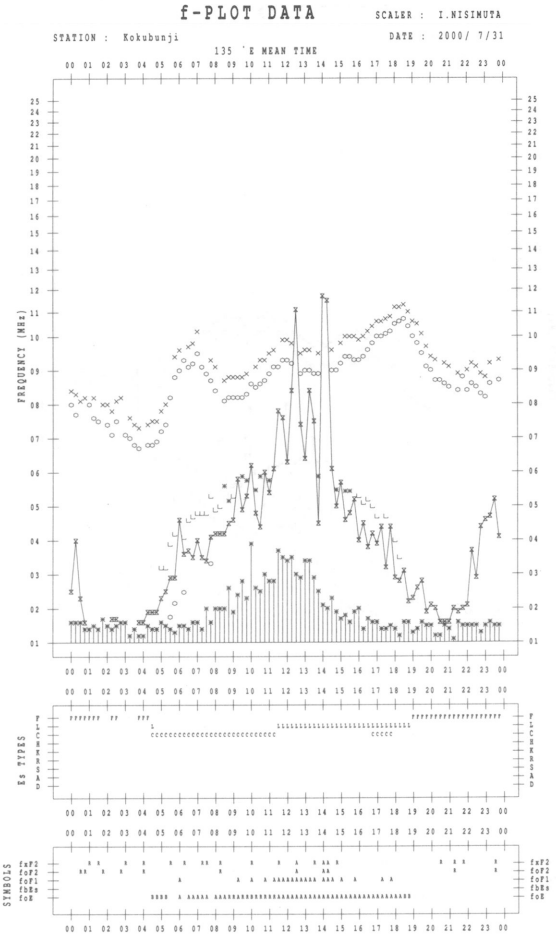

f-PLOT DATA
SCALER : I.NISIMUTA
STATION : Kokubunji
DATE : 2000/ 7/25
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE

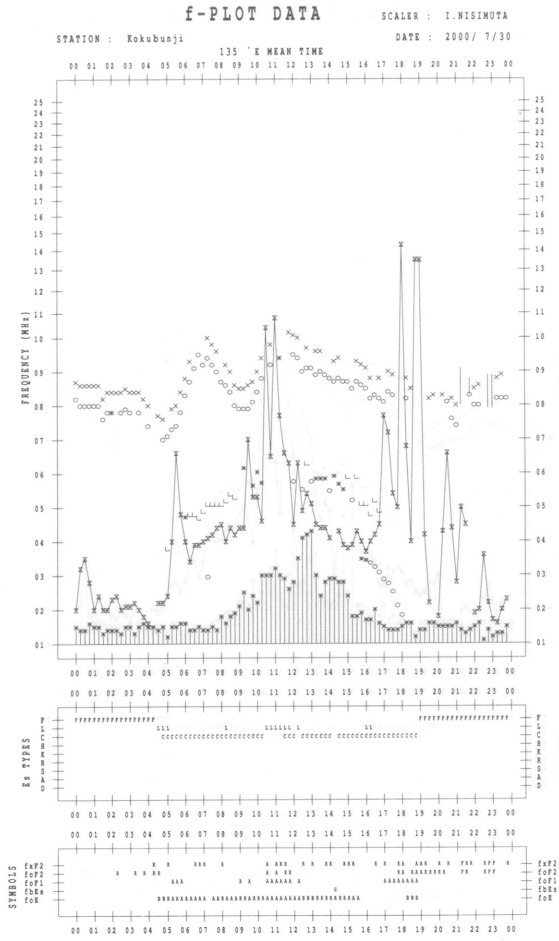

f-PLOT DATA
SCALER : I.NISIMUTA
STATION : Kokubunji
DATE : 2000/ 7/27
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE


f-PLOT DATA
SCALER : I.NISIMUTA
STATION : Kokubunji
DATE : 2000/ 7/26
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE


f-PLOT DATA
SCALER : I.NISIMUTA
STATION : Kokubunji
DATE : 2000/ 7/28
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE


f-PLOT DATA
SCALER : I.NISIMUTA
STATION : Kokubunji
DATE : 2000/ 7/29
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
foE
fbEs


f-PLOT DATA
SCALER : I.NISIMUTA
STATION : Kokubunji
DATE : 2000/ 7/31
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
foE
fbEs


f-PLOT DATA
SCALER : I.NISIMUTA
STATION : Kokubunji
DATE : 2000/ 7/30
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
foE
fbEs

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

Hiraiso July 2000

Single-frequency total flux observations at 500 MHz					
Flux density: 10^{-22} W m^{-2} Hz^{-1}					
Date \ UT	00-03	03-06	06-09	21-24	Day
1	33	33	33	33	33
2	32	33	34	33	33
3	33	33	33	34	33
4	35	35	35	37	35
5	36	35	36	36	36
6	36	36	35	37	36
7	38	38	38	–	38
8	41	40	39	40	40
9	39	38	38	41	39
10	41	42	42	47	43
11	43	43	42	47	44
12	45	41	41	45	43
13	43	44	45	43	44
14	44	42	42	41	42
15	41	41	41	41	41
16	40	40	41	43	41
17	–	–	42	45	43
18	42	42	46	48	44
19	47	47	51	49	48
20	47	48	48	45	47
21	47	48	44	47	46
22	49	45	45	45	46
23	44	43	44	–	44
24	–	–	–	–	–
25	–	–	–	45	45
26	45	44	40	42	43
27	42	40	40	38	40
28	39	37	38	37	38
29	37	37	37	42	38
30	38	36	35	38	37
31	36	36	36	36	36

Note: No data is available during the following periods.
7th 2000 - 8th 0130 16th 2200 - 17th 0800 23th 2000 - 25th 0900

B. Solar Radio Emission

B2. Outstanding Occurrences at Hiraiso

Hiraiso — July 2000

Single-frequency observations

Normal observing period: 1930 - 1000 U.T. (sunrise to sunset)

JUL. 2000	FREQ. (MHz)	TYPE	START TIME (U.T.)	TIME OF MAXIMUM (U.T.)	DUR. (MIN.)	FLUX DENSITY (10^{-22} W m^{-2} Hz^{-1}) PEAK	FLUX DENSITY (10^{-22} W m^{-2} Hz^{-1}) MEAN	POLARIZATION REMARKS
1	200	8 S	0842.0	0842.0	1.0	50	-	0
1	200	8 S	2107.0	2107.0	1.0	50	-	0
1	200	8 S	2349.0	2349.0	1.0	220	-	WR
5	200	8 S	0510.0	0510.0	1.0	300	-	0
5	200	47 GB	2000.0	2001.0	1.0	900	-	0
5	200	47 GB	2136.0	2136.0	1.0	620	-	0
5	200	8 S	2311.0	2311.0	1.0	420	-	0
6	200	8 S	0255.0	0255.0	1.0	440	-	0
6	2800	3 S	2040.0	2041.0	4.0	70	-	0
6	200	8 S	0318.0	0318.0	1.0	300	-	0
7	500	42 SER	0319.0	0321.0	5.0	30	-	WL
8	200	42 SER	0309.0	0311.0	2.0	160	-	0
8	500	8 S	0310.0	0311.0	1.0	50	-	WL
8	200	8 S	0629.0	0630.0	1.0	100	-	0
8	500	8 S	0629.0	0630.0	1.0	50	-	WL
8	500	8 S	0758.0	0759.0	1.0	80	-	WL
8	200	8 S	2016.0	2017.0	1.0	260	-	0
8	500	46 C	2241.0	2310.0	5.0	50	-	WR
9	500	8 S	2340.0	2340.0	1.0	280	-	0
10	500	8 S	2000.0	2000.0	1.0	80	-	0
10	500	4 S/F	2034.0	2035.0	2.0	40	-	0
10	2800	3 S	2034.0	2035.0	5.0	60	-	WL
10	2800	47 GB	2107.0	2213.0	120.0	2800	-	WL
10	500	47 GB	2112.0	2208.0	90.0	1800	-	WL
11	500	8 S	0414.0	0145.0	1.0	80	-	WL
12	500	46 C	0453.0	0453.0	7.0	30	-	MR
12	2800	3 S	0455.0	0459.0	10.0	40	-	0
13	200	8 S	0009.0	0009.0	1.0	110	-	0
13	200	8 S	0235.0	0235.0	1.0	160	-	0
13	500	47 GB	0502.0	0506.0	6.0	2080	-	0
13	200	8 S	0506.0	0506.0	1.0	80	-	MR
13	500	8 S	0521.0	0521.0	6.0	340	-	0
13	200	8 S	0521.0	0522.0	4.0	90	-	ML
13	500	47 GB	0539.0	0540.0	2.0	1440	-	0
13	200	8 S	0540.0	0540.0	1.0	300	-	0
13	500	8 S	0618.0	0618.0	2.0	90	-	0
13	500	8 S	0635.0	0636.0	1.0	140	-	0
13	500	8 S	0653.0	0655.0	8.0	390	-	0
13	200	47 GB	0655.0	0655.0	8.0	540	-	WL
13	2800	3 S	0659.0	0701.0	9.0	140	-	ML
14	2800	3 S	0441.0	0443.0	5.0	40	-	0
14	500	8 S	0815.0	0816.0	1.0	60	-	0
14	200	47 GB	0815.0	0816.0	1.0	1820	-	0
15	2800	46 C	0136.0	0159.0	49.0	100	-	SL
15	200	8 S	0202.0	0202.0	3.0	50	-	0
15	500	46 C	0251.0	0334.0	89.0	60	-	SL

B. Solar Radio Emission

B2. Outstanding Occurrences at Hiraiso

Hiraiso July 2000

Single-frequency observations

Normal observing period: 1930 - 1000 U.T. (sunrise to sunset)

JUL. 2000	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
15	200	8 S	0438.0	0440.0	10.0	110	-	WR
15	200	8 S	0554.0	0554.0	7.0	120	-	0
15	200	8 S	2215.0	2217.0	7.0	120	-	0
15	200	8 S	2257.0	2301.0	5.0	70	-	WL
15	2800	3 S	2300.0	2301.0	4.0	160	-	0
15	500	3 S	2300.0	2300.0	18.0	60	-	0
16	2800	3 S	0122.0	0123.0	6.0	200	-	0
16	500	3 S	0122.0	0123.0	10.0	100	-	0
16	200	47 GB	0123.0	0124.0	3.0	680	-	MR
16	500	46 C	0607.0	0609.0	7.0	110	-	WR
16	200	46 C	0607.0	0612.0	11.0	160	-	MR
16	2800	45 C	0608.0	0609.0	6.0	130	-	MR
16	200	8 S	0623.0	0632.0	9.0	240	-	WL
17	200	47 GB	2014.0	2026.0	16.0	3820	-	ML
17	2800	8 S	2024.0	2025.0	2.0	90	-	0
18	2800	8 S	0412.0	0413.0	3.0	70	-	0
18	500	8 S	0412.0	0413.0	1.0	50	-	ML
18	200	47 GB	0412.0	0412.0	1.0	1960	-	0
18	2800	4 S/F	0459.0	0503.0	19.0	50	-	0
18	500	47 GB	0722.0	0722.0	1.0	650	-	WL
18	200	47 GB	0722.0	0723.0	11.0	900	-	ML
18	2800	8 S	0723.0	0723.0	1.0	50	-	WR
19	500	8 S	0446.0	0450.0	7.0	240	-	0
19	2800	21 GRF	0647.0	0716.0		80	-	0
19	500	40 F	0649.0	0650.0	55.0	100	-	WL
19	200	47 GB	0656.0	0706.0	44.0	930	-	WR
20	200	8 S	0728.0	0729.0	5.0	160	-	ML
20	200	47 GB	0934.0	0935.0	3.0	550	-	ML
20	200	47 GB	2012.0	2018.0	7.0	4460	-	ML
20	500	8 S	2013.0	2018.0	6.0	450	-	ML
20	2800	8 S	2024.0	2024.0	3.0	100	-	WR
20	200	46 C	2102.0	2104.0	6.0	220	-	ML
20	2800	3 S	2103.0	2103.0	1.0	50	-	WR
20	200	8 S	2139.0	2144.0	6.0	220	-	ML
20	500	8 S	2240.0	2240.0	1.0	110	-	0
20	200	8 S	2240.0	2241.0	5.0	300	-	SR
20	2800	3 S	2308.0	2309.0	3.0	100	-	SR
20	500	8 S	2313.0	2316.0	5.0	200	-	WL
20	200	8 S	2315.0	2317.0	2.0	90	-	0
21	200	47 GB	0101.0	0102.0	2.0	1150	-	0
21	500	4 S/F	0357.0	0401.0	14.0	120	-	ML
21	2800	4 S/F	0359.0	0401.0	6.0	140	-	SR
21	200	3 S	0359.0	0401.0	7.0	170	-	0
21	500	4 S/F	0514.0	0523.0	12.0	320	-	WL
21	200	47 GB	0522.0	0523.0	2.0	2200	-	WR
21	2800	8 S	0523.0	0523.0	1.0	70	-	WL

B. Solar Radio Emission

B2. Outstanding Occurrences at Hiraiso

Hiraiso July 2000

Single-frequency observations

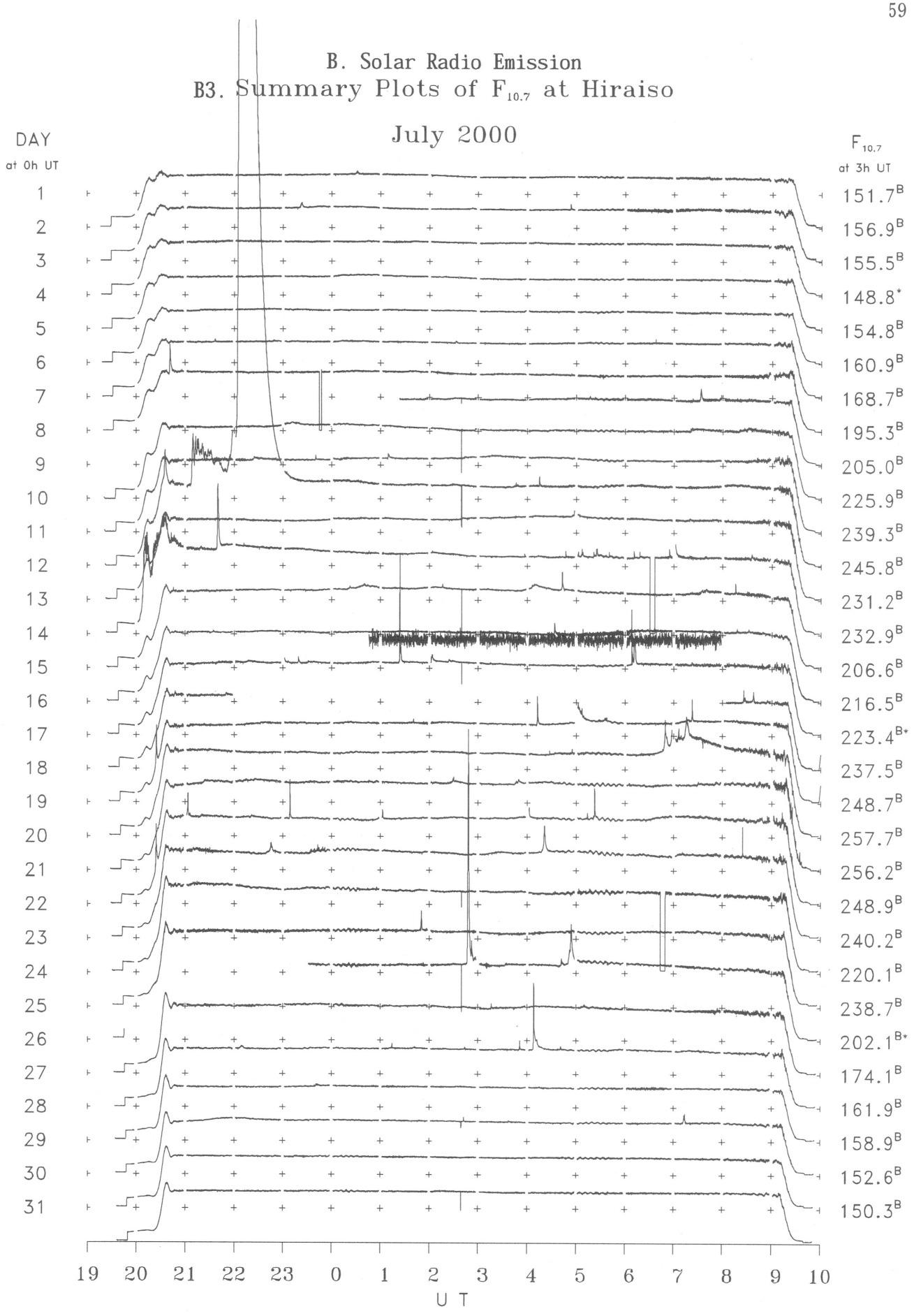
Normal observing period: 1930 – 1000 U.T. (sunrise to sunset)

JUL. 2000	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	40 F	0829.0	0850.0	37.0	280	–	
22	2800	3 S	0418.0	0421.0	8.0	60	–	
23	500	8 S	0047.0	0049.0	6.0	60	–	
23	200	8 S	0047.0	0048.0	3.0	120	–	
23	500	8 S	0431.0	0434.0	6.0	70	–	
27	200	42 SER	0015.0	0016.0	8.0	240	–	ML
27	200	42 SER	0051.0	0059.0	8.0	120	–	WR
27	500	8 S	0114.0	0114.0	1.0	100	–	0
27	2800	3 S	0407.0	0408.0	18.0	160	–	ML
27	500	4 S/F	0407.0	0408.0	7.0	420	–	0
27	200	8 S	0435.0	0436.0	1.0	50	–	0
27	200	8 S	0440.0	0441.0	2.0	40	–	WL
28	200	8 S	0356.0	0356.0	2.0	50	–	0
28	200	8 S	0817.0	0818.0	2.0	40	–	SR
28	200	8 S	0832.0	0832.0	1.0	110	–	0
29	200	42 SER	0055.0	0108.0	25.0	50	–	0
29	200	8 S	0315.0	0316.0	2.0	140	–	WL
29	500	8 S	0712.0	0713.0	2.0	50	–	0
31	200	8 S	0149.0	0149.0	1.0	90	–	0

B. Solar Radio Emission

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

July 2000



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

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