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IONOSPHERIC DATA IN JAPAN

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CONTENTS

COMMUNICATIONS RESEARCH LABORATORY
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INTRODUCTION

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

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

A. IONOSPHERE

Ionospheic observations are carried out at the above four stations in Japan by means of vertical sounding using ionosondes.The ionosonde produces ionograms,which are recorded digitally on computer storage medium as well as graphically on 35 mm photographic film. The digitally-recorded ionograms are collected from each station by the central computer and reduced to numerical values and Summary Plots by the automatic processing system. The ionograms obtained at Kokubunji are manually scaled as well by experienced specialists to supplement automatically-scaled parameters.

A1. Automatic Scaling

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

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

a. Characteristics of Ionosphere

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

b. Descriptive Letters

The following descriptive letters are used in the tables.

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

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

C Impossible measurement because of any failure in observation.

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

N Impossible automatic scaling because of complex echoes.

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

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

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

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

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

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

d. Reliability of Automatic Scaling

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

e. Summary Plot

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

A2. Manual Scaling

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

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

a. Characteristics of Ionosphere

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

b. Symbols

(i) Descriptive Letters

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

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

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

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

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

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

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

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

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

K Presence of particle *E* layer.

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

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

N Conditions are such that the measurement cannot be interpreted.

O Measurement refers to the ordinary component.

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

Q Range spread present.

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

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

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

V Forked trace which may influence the measurement.

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

X Measurement refers to the extraordinary component.

Y Lacuna phenomena, severe layer tilt.

Z Third magneto-electronic component present.

(ii) Qualifying Letters

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

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

D Greater than.

E Less than.

I Missing value has been replaced by an interpolated value.

J Ordinary component characteristic deduced from the extraordinary component.

M Mode interpretation uncertain.

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

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

U Uncertain or doubtful numerical value.

Z Measurement deduced from the third magneto-electronic component.

(iii) Description of Types of *Es*

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

The types are:

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

B. SOLAR RADIO EMISSION

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

B1. Daily Data at Hiraiso

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

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

* Measurement impossible because of interference.

B Measurement impossible because of bursts.

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

B2. Outstanding Occurrences at Hiraiso

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

Listed in the table are the date, frequencies, the type of event, the start time and the time of maximum, both in U.T. expressed in hours, minutes and tenths of a minute, the duration in minutes, the peak and mean flux densities in 10^{-22} $Wm^{-2}Hz^{-1}$ unit, and the polarization.

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

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

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

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

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

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

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

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

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

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

C. RADIO PROPAGATION

C1. Phase Variation in OMEGA Radio Waves at Inubo

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

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

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

C2. Sudden Phase Anomaly (SPA) at Inubo

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

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

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

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

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

Transmitting Stations

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

HOURLY VALUES OF foF2 AT Wakkanai

OCT. 2000

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
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24	35	35	35	35	35	31	70	83	58		79		92	106	106	84	95	98	84	79	60	59	47	53
25	56	69	69	37	48	46	73	115	122	129	137	137	107	94	107	114	84	97	82		59	59	A	43
26	N	46	58	42	33	69	69	98	125	125	80	128	80	107	108	93	131	87			A	A	A	A
27	58	48	50	48	39	50	80	94		133	129	130	98	92	94	95	98	95	73	81	68	A		49
28	59	58	47	45	61	44	76	93	93	103	106	74	94	97	97	91	95	83	80	78		A		A
29	A	46	42	42	69	42	53	95		126	140	90	95	109	94	94	122	92	86	82	71			
30	54	53	69	69	44	43	79	84	96	107		99	81	115	96	92	100	86		67	A		A	
31	A	A	44	42	47	46	71	96	92	100	147	142	141	138	95	121	91	88	82	82	69	59		
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	5	7	8	8	8	8	8	8	6	7	7	7	8	8	8	8	8	8	6	6	5	3	1	3
MED	56	48	48	42	46	45	72	94	94	125	129	128	94	106	96	94	96	90	82	80	68	59	47	49
U Q	58	58	63	46	54	48	77	97	122	129	140	137	102	112	106	104	111	96	84	82	70	59	23	53
L Q	44	46	43	39	37	42	69	88	92	103	80	90	86	95	94	91	93	86	80	78	59	59	23	43

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HOURLY VALUES OF fEs AT Wakkanai

OCT. 2000

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
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24	30	31	28	G	26	30	27	33	G		57		G	G	G	G	G	G	52	48	49	G	31	G
25	G	32	32	29	30	G	G	35	43	G	40	G	G	G	G	G	32	49	50		40	63	122	29
26	29	G	G	G	G	G	G	G	G	40	G	G	G	G	G	G	G	73			79	63	72	64
27	43	33	26	26	G	32	G	34		54	G	G	G	G	G	G	G	31	G	G	G	48	G	G
28	31	31	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	26	G	G		60	G	36
29	55	30	29	G	26	G	G	31		G	G	G	G	G	G	G	G	G	G	G	G		G	G
30	G	G	G	G	G	G	G	G	G	G		G	G	G	G	G	G	G		G	104	G	56	G
31	54	44	G	G	G	G	G	48	G	G	G	G	65	G	G	G	G	G	G	G	63	G	G	
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	8	8	8	8	8	8	8	8	6	7	7	7	8	8	8	8	8	8	6	6	7	7	8	7
MED	30	31	14	G	G	G	G	32	G	G	G	G	G	G	G	G	G	14	G	G	49	48	16	G
U Q	48	32	28	13	26	15	G	34	G	40	40	G	G	G	G	G	G	40	50	G	79	63	64	36
L Q	15	15	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G

HOURLY VALUES OF fmin AT Wakkanai

OCT. 2000

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
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24	18	20	17	21	18	17	18	15	18		20		38	21	18	27	23	15	15	15	17	15	15	18
25	17	17	16	18	17	17	17	15	18	20	21	20	18	20	15	15	15	15	15		16	16	15	18
26	18	16	17	20	20	21	20	18	20	20	20	20	20	18	20	17	17	15			16	16	15	17
27	16	17	16	17	17	18	18	16		20	18	17	18	18	20	18	21	15	18	15	16	17	21	17
28	18	17	18	20	18	18	18	26	18	20	21	21	21	20	20	20	23	16	16	18		17	18	15
29	16	17	16	28	20	18	20	15		21	21	60	23	20	18	17	24	15	16	15	18		17	18
30	16	17	21	17	18	16	18	24	16	18		20	20	22	20	18	22	15		15	16		17	
31	18	18	20	21	17	18	17	16	18	20	18	20	20	20	20	29	22	15	17	16	20	20	17	
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	8	8	8	8	8	8	8	8	6	7	7	7	8	8	8	8	8	8	6	6	7	6	8	6
MED	18	17	17	20	18	18	18	16	18	20	20	20	20	20	20	18	22	15	16	15	16	16	17	18
U Q	18	17	19	21	19	18	19	21	18	20	21	21	22	20	20	23	23	15	17	16	18	17	17	18
L Q	16	17	16	17	17	17	17	15	18	20	18	20	19	19	18	17	19	15	15	15	16	16	15	17

HOURLY VALUES OF foF2 AT Kokubunji

OCT. 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	60	68	53	50	60	40	74	86	93	97	85	101	102	103	103	113	102		84	67	63	62	60	60
2	60	57	57	51	47		94	97	114	116	124	132	131	130	135	131	124		107	84	82	94	70	70
3	67		59	52	51	69	93	103	116	120		125	129	129	126	128	124	111	94	81		67	70	
4	70	68	60	68	60	62	96	122		136	151	138	140	128	119	124	117	116	107	93	69	68	57	66
5	A		A	A	37		69	92	88	87	101	94	106	100	105	97	96	91	71	63	67	58		69
6	30	47		23	A	A	94	92	117	123	121	116	115	117	112	110	115	126	82	68	67	63	69	58
7	51	57	57	50	47	50		94	108	100	114	116	117	114	122	114	113	122	93	68	63	57	51	A
8	57	51	53	60	57	48	94	114	113	117	114	120	122	122	123	117	114	108	82	67	67	69	60	60
9	56	50	51	52	47	47		114	115	100	107	123	114	121	120	118	118	113	116	71	70	64	68	68
10	67	58	58	60	56		92	122	116	113	117		128	125	123	132	122	112		74	69	74	68	
11	63	61	60	54	52	60	93	93	116	113	120	133	137	150	136	136	133	123	107		60	68	69	60
12		A	67	54	44	44		117	122	120	127	150	141	143	135	136	137		98	94	65	69	74	62
13	68	57	56	56	41	38	69	106	116	116		131	131	132	150	131	122	126		61	69		68	57
14	60	60	57	48	51	51		97	116	122	132	151	138	133	130	135	121	118	114	94	68	67	69	63
15	69	50	60	52	55	58	93	104	135	150		151		149	153	127	124	112	115		93	70		58
16	58	57	59	57	48	48		104	116	121	126	129	135	137	139	137	122	116	A	82	68	66	60	57
17	60	60	57	57	48	51	93	122	132	124	123	141		138	133	131	133	126	93	68	60	62	57	60
18	63	60	56	53	57	60	69	94	116	125	116	117	131	137	138	132	123	123	115	80	62	67	68	A
19	57	58	60	51		38		87	116	121	131	140	134	134	134	132	120	106	96	68	69	A	68	67
20	60	52	70	69	57	26	69	94	113	132	150	132	125	137	133	124	121	113	97	94	68	58	57	60
21	57	62	57	56	57	58	67	94	116	116	118		132	126	129		120	111	93	95	69	60	57	
22	47	57		60	38		69	95	116	117	121	140	140	142	147	149	117	123	95	93	67	70	48	59
23	46	62	46	46	40	56	62	94	123	128	151		143	134	132	122	117	112	102	94	68	68	58	57
24	57	56	57	59	43	A	69	92	133		150	152	127	133	136	130	133	120	101	92	67	67	60	68
25	57	58	56	66	48	47		116	132		152	153	152	132	131	131	124	118	96	A	69	68	67	47
26	44		48	46		37	68	93	138	132	153	138	151	142	140	127		121	93	81	62	58	56	57
27	48	56	57	48	43	47	69	115	127	122	150	140	128	126	127	117	113	110	92	74	72	68	57	47
28	A	59	46	59	34	36	56	95	116	123	115	116	116	130	123	115	116	100	95	68	68	58	46	48
29	48	57	38	46	37	40	74	114	126	152	151	126	129	128	126	122	122	110	92	87	82		68	56
30	92	47	71	48	50	48	73	107	148	151	148	142		142	137	118	113	86	83	92	67	57	54	57
31	54	57	48	50	48	56	69	108	132	144	148	141	142	143	144	128	120	117	83		74	68	68	57
	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	27	28	30	28	25	24	31	30	29	28	28	28	31	31	30	30	28	28	27	30	28	29	26
MED	58	57	57	52	48	48	71	97	116	121	125	132	131	132	132	128	120	114	95	81	68	67	60	60
U Q	63	60	59	59	55	57	93	114	127	130	150	141	139	138	137	132	124	121	104	93	69	68	68	63
L Q	52	56	53	50	43	40	69	94	116	116	116	121	123	126	123	118	116	110	92	68	67	61	57	57

COMMUNICATIONS RESEARCH LABORATORY, JAPAN

HOURLY VALUES OF fEs AT Kokubunji

OCT. 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	G	G	G	G	G		30	33	31	G	50	G	30	28	34	33	G	34	31	G	G	G	G	28
2	27	G	G	G	G			28	34	31	G	G	G	32	35	33	26		30	G	G	G	G	G
3	G	G	G	G	G	G	29		33	44	44	44	G	36	27	32	36	30	34	28		34	25	24
4	G	G	G	G	G	G	24	26	31	34	58	52	G	70	38	35	48	38	32	28	G	G	G	G
5	45		40	67	53	48	33	42	44	48	40	54	G	52	29	30	27	22	G	G	G	G	G	G
6	G	G	G	28	28	27	40	52	51	62	G	46	59	37	34	28	35	40	44	52	44	27	G	G
7	G	G	G	G	G	G	39	G	32	G	38	40		33	50	53	61	83	108	32	32	44	G	33
8	28	G	G	G	G	G	G	34	30	33	32		G		31	G	G	32	44	39	40	34	G	G
9	G	G	G	37	28	G	G		29	39	36	G	G	G		47	27	33	28	46	37	40	62	G
10	G	G	G	G	G	G	G	32	32	32	32	G	G	G		31	26	25		G	23		28	G
11	G	G	G	G	G	G	G	25	36	33	32	136	G	29	32	53	55	35	28		G	63	G	55
12		98	34	26	27	28	G	37	45	55	47	42	G	60	57	39	35	34	26	27	G	34	29	24
13	G	G	G	G	G	G	30	34	32	31	44	32	40	G	32	34	44	33	63	48	34	31	34	30
14	34	27	25	G	G	G		31	37		33	G	26	38	36	30	30	G	G	30	45	29	59	29
15	31	27	G	G	G	26	36	39	33	51	55		32	34	46	30	34	38	35	35	29	G		25
16	G	G	G	23	G	26	34	25	34	34	G		G	38	36	35	29	58	60	34	42	29	28	25
17	G	G	G	G	G	G	G	30	30	34	32	G	G		33	30	G	G	26	G	25	G	G	G
18	29	G	G	G	G	G	G	G	G	G	G	G	G	45	43	G	69	42	38	36	49	30	26	60
19	34	56	49	25	G	G		G	G	G	59	G	G	G	G	G	34	31	56		46	38	33	34
20	33	23	G	G	G	G	G	39	45	53	45	57	G	G	G	41	38	34	35	39	49	48	40	G
21	G	G	G	G	G	G	G		G	G	G	G	G	G	G	G	33	37	29	G	34	40	24	G
22	G	26	27	G	G	G	G	G	G	G	53	G	G	G	G	G	G	G	G	G	G	G	G	G
23	23	26	G	G	G	G	G	34	G	G	G	G	G	G	G	G	G	25	37	G	G	24	46	54
24	41	32	36	34	33	36	33	34	G	45	55	54	55	G	43	69	52	40	30	34	28	52	30	28
25	28	G	G	G	30	G	G	42	44	G	G	85	G	50	50	G	34	50	55	86	37	55	57	29
26	30		33	30		G	32	38	G	54	52	56	48	G	60	G	G	37	32	31	28	38	32	G
27	30	27	G	G	G	G	G	G	44	G		G	G	G	G	G	G	31	28	52	28	32	G	30
28	30	G	G	G	G	G	42	G	G	G	G	G	G	G	G	G	36	26	31	G	28	G	G	G
29	G	G	G	G	G	G	27	32	38	G	G	G	G	G	G	G	31	28	G	G		G		G
30	G	G	G	26	G	G	G	G	G	G	G	G	G	G	G	G	G	G	26	30	28	G	39	G
31	G	G	G	G	G	G		G	G	G	G	G	G	G	G	G	G	34	G	G	G	G	G	
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	29	31	31	30	29	27	28	31	30	30	28	30	29	29	31	31	30	30	29	29	30	29	30
MED	G	G	G	G	G	G	G	32	32	32	32	G	G	G	32	30	31	34	31	30	28	30	25	12
U Q	30	26	G	25	G	G	33	35	37	44	47	49	G	37	40	35	36	38	38	37	38	38	33	29
L Q	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	26	26	G	G	G	G	G

COMMUNICATIONS RESEARCH LABORATORY, JAPAN

HOURLY VALUES OF fmin AT Kokubunji

OCT. 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	16	15	14	15	15	15	18	62	26		21	21		20		14	15	15	15	14	15	15
2	15	14	15	15	15		23	16	17	22		47	48	23	18	16	15		15	14	14	14	16	15
3	14	15	15	14	15	14	15	18	20	27		41	46	24	20	17	16	15	14	14		15	14	15
4	15	15	15	15	18	15	16	17	18	20	21	36	42	17		15	16	15	14	15	15	14	14	17
5	15		14	14	15	15	14	17	22	21	30	40	66	24	18	17	16	22	15	16	15	14		
6		15	15	14	14	14	15	16	16	22		36	18	29	18	18	16	15	14	14	15	15	14	15
7	15	14	15	15	14	15	14	16	17		44	32	24	15	24	15	16	15	15	14	15	14	15	15
8	15	14	15	14	14	15	22	16	17	23	26	16	50	27	16	16	15	14	15	14	14	14	16	15
9	15	16	15	14	14	15	15	18	21	16	24				21	18	17	15	14	15	15	15	15	15
10	14	15	14	16	15	15	20	14	16	24		44	43	47	21	18	15	16		15	15	15	15	15
11	15	15	15	14	14	15	17	14	21	18	22	18		21	16	18	16	15	14	14	14	14	15	15
12		15	14	15	14	15	18	15	15	18	17	28	14	15	17	20	16	15	14	15	15	14	14	15
13	14	14	14	14	14	20	14	16	21	22	16		44		20	17	15	15	15	14	14	15	14	14
14	15	14	16	14	14	17		14	15	18	24		49	43	22	21	15	20	15	14	14	15	14	14
15	15	14	15	14	14	14	15	15	17	16	28	28	23	21	17	17	14	14	15	14	15	14		16
16	15	15	15	14	15	15	14	14	17	18		21		28	26	24	20	15	15	15	15	14	16	15
17	15	14	15	14	14	15	16	18	14	16	20		44	17	17	16	18	15	15	14	15	15	15	15
18	14	15	14	14	14	14	14	16	17	18	17	24	24	18	15	16	16	14	15	15	14	14	15	14
19	14	15	14	15	18	14		18	15	16	23	22	22	20	16	17	14	14	15	15	14	15	15	14
20	15	14	16	15	15	14	15	15	15	24	16	18	28	28	21	16	14	14	14	14	14	14	14	14
21	14	16	15	14	14	16	18	15	15	18	20		43	38	15	21	15	15	15	14	14	14	14	15
22	15	15	15	15	15	14	18	15	15	16	15	23	23	20	18	16	16	17	14	14	15	15	15	15
23	14	15	15	15	20	14	18	15	15	18	20	26	18	15	16	15	15	16	14	14	15	14	14	15
24	15	14	15	14	14	15	15	15	15	15	18	24	28	23	20	17	16	14	15	15	14	14	14	14
25	15	14	14	15	14	15	20	15	15	15	18	21	17	15	17	16	15	15	14	14	14	14	14	15
26	15		14	14		14	15	15	15	16	27	24	28	15	16	16	15	15	14	15	15	14	14	15
27	14	14	14	14	14	14	17	15	16	17	18	16		17	15	14	15	15	15	15	14	14	14	15
28	15	15	14	14	17	14	15	15	15	17	18	23		15	26	17	21	15	14	15	15	15	16	15
29	14	15	14	15	17	15	17	15	14	16	22		47	42	21	17	14	16	14	14	14	15	15	14
30	15	15	14	15	14	15	18	15	15	17		42	22	26	20	16	16	16	15	14	15	16	14	14
31	15	15	16	15	15	15	16	15	20	20	20	18		17	17	22	27	14	15	14		16	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	29	29	31	31	30	30	29	31	31	30	25	24	25	29	29	31	30	30	30	31	29	31	29	30
MED	15	15	15	14	14	15	16	15	16	18	20	24	28	21	18	17	16	15	15	14	15	14	14	15
U Q	15	15	15	15	15	15	18	16	18	22	25	36	45	27	21	18	16	15	15	15	15	15	15	15
L Q	14	14	14	14	14	14	15	15	15	16	18	21	22	17	16	16	15	14	14	14	14	14	14	14

HOURLY VALUES

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

HOURLY VALUES OF foF2 AT Okinawa

OCT. 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	91	95	80	60	56	71		93	138	149	122	122	172	174	194	187	191	183	172	169	189	155	151	
2	135	127	116	115	69	46	44	93	114	121	120	127	154	165	166	191			186	183		167	171	152
3			116	95	69			93	122	150	144	144	160	180	185	197		181				139		125
4	116	117	96	83	78	80	92	96	124		158	174	160	152	154	145	172	157		169	169		151	117
5	96	92	57	69	70	54	61	94	120	131	152	154	145	150		154	128	124		88	82	83	A	
6	62	54	54	89	43	53	69	94	129	146	142	142	156	162	154	174	173	172	182		129	158	174	178
7	N	152	116	94	81	63	56	93	110	113	121	123	133	132	146	154	147	151	146	130	114	112	127	
8	91	93		96	82		48	94	103	117	124	122	130	158	190			188	180	172	139		173	160
9		151	96	92	95	68	54	87	104	116	116	118	116	121	116	150		145	158	129	109	156		111
10	95	96	82	70	60	60	57	93		116	116	132	151	169	182	177	174	172	154	180		117		116
11		81	50	70	57	52		86	94	121	125	131		171	165	173	176	169	145	168	149	155	127	125
12	116	N	94	58	37			93	130	129	121		160	178	189				187		174		167	126
13		92	94	82		38		95	92	126	139	154					197	178	144				94	116
14	116	116		82	82	69	57	90	95	122	142	142	133	147	152		162	170	141	166	157	N	111	112
15	117	94	71	61	60	67	93	119	147	157	174	178	168	176	186	171	171	161		134	131	134	109	94
16	84	70	71		53		56	83	119	132	132	150	151	175	190	186	181	169	186		145	117		94
17	96		91	94	57	43	48	83	93	122	150	156	145	168		199			185		159	153	155	149
18	129		92	94		38		84	125	120	120		142	160	164	177	186				174	155	167	166
19	156	152	138	116	93	57	44	83	92	117	124	150	136	164	171	174	168	166	164		122	122	93	93
20	95	79	94	83	59			95	120	122	152	153	174	149	168	164	176	183	167	173	155	162	154	110
21	96	92	95	58	39	41	B	82	97	120	134	141	172	165	173	176	171	168	172	166	119	123	96	115
22	88	74	79	80	38	B	36	93	95	108	127	136	148	165	168	178	181	179	165	189	156	148	87	92
23	83	94	60	58	48	B	49	84	94	123	156	175	132	164	141	138	150	146	144	142	175	149	139	127
24	110	95	81	94		31	46	86	116	134	117	121	129	135	148	163	148	146	138	142		135	151	112
25		94	92	95	47	48	47	94	121	116	151	143	156	184			212	196	182		160	166	133	82
26	93	95	80	57	35	B	34	94	120	122	137	172	147	173	183	190		187	172	172	122	174	156	155
27	116	116	117	93	61	62	B	94	122	122	147	150	157	170	191	181	181	184	178	190	164	170	155	117
28	92		72	58	42	35	B	83	125	152	146	148	158	182		186	177	162	140	159	122		155	86
29	134	133		95	77	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
30		B	B	B	B	B	B	B	B	B	B	B	B	B		193	178	168	177	173	159		148	81
31	82	70	62	68	60	B		96	124	132	148	162	184	190			185	175	173	178	162	168		93
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	24	25	27	29	27	20	18	29	28	28	29	27	27	28	23	24	23	26	25	21	25	23	24	27
MED	96	94	91	83	60	54	52	93	120	122	137	144	151	165	168	176	176	170	172	169	155	153	151	116
U Q	116	116	96	94	77	65	57	94	124	132	149	154	160	174	186	186	181	181	181	175	163	162	155	127
L Q	91	86	71	64	47	42	46	85	96	118	121	131	136	155	154	163	168	161	145	142	122	123	119	94

COMMUNICATIONS RESEARCH LABORATORY, JAPAN

HOURLY VALUES OF fEs AT Okinawa

OCT. 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	40	26	G	G	G	G	G	G	G	G	G	G	G	46	37	36	G	50	31	46	43	G	27	G
2	G	G	G	G	G	G	G	G	30	36	40	G	G	G	G	34			35	46		28	25	27
3	G	24	G	G	G	G	G	23	36		44	44	47	65	62	G		27			57	G	G	G
4	G	G	G	G	G	G	G	28	41	36		53	44	37	63	64	49		68	39	33	24	34	26
5	G		G	G	G	G	41	55	61	69	64	G	59	66		35	36	37	27	G	39	44	33	G
6	40	G	G	G	G	G	G	24	26	33	G	58	58	38	39	47	40	25	G		G	G	G	G
7	G	G	G	G	G	G	G	23	25	G	G	G	G	G	G	62	53	97	50	59	35	40	36	
8	28	G	G	G	G	G	G	G	27	42	G	36	36	42	42			24	G	57	G	G	G	G
9		G	G	G	G	G	G	24	31	36	G	G	G	G	47	37	40		38	41	34	G	G	G
10	G	G	G	G	G	G	G	G		39	37	G	G	G	G	38	33	40	43	34		37		G
11		G	G	G	G	G	G	30	41	40	52	58	70	67	82	63	50	41	39	25	G	G	G	G
12	26	G	22	G	G	G	G	23	38	44	50	46	56	45	G				34		24	27	G	G
13		G	G	G		G	G	31	42	47	52	G	G				74	40	29	30			G	24
14	G	G		G	G	G	G	34	39		53	52	50	47	60	44	42	39	G	G	G	G	G	G
15	25	24	G	G	G	G	G	24	36	36	80	68	40	37	36	38	41	37	53	59	46	66	68	40
16	33	G	G	G	G	G	G	G	27	37	G	38	34	34	G	G	G	38	40		35	G	G	G
17	G	G	G	G	G	G	G	29	29	G	58	G	G	G		36			G		G	36	41	36
18	G	G	24	G		G	G	G	38	G	45		60	66	53	47	46			33	G	G	G	G
19	25	28	26	38	37	24	G	G	G		G	46		G	G	G	50	33	29	35	26	G	G	G
20		34	G	G	G			G	38	42	G	69	48	G	G	63	G	G	24	73	41	G	42	26
21	34	40	G	G	G	G	B	G	G	G	G	G	G	G	G	G	53	41	44	54	39	92	G	42
22	28	G	G	G	G	B	G	G	G	G	G	48	G	G	G	G	G	40	54	59	32	24	G	G
23	G	G	25	G	G	B	G	G	G	G	G	G	G	G	G	57	G	60	91	85	29	34	G	G
24	G	G	74	G	G	G	25	G	G	48	G	G	G	62	52	60	63	44	40	28		G	G	G
25		48		G	G	G	G	G	39	45	49	53	54	G			45	32	44		G	G	G	G
26		G	G	G	G	B	G	99	40	54	58	60	47	67	52	42		G	66	64	62	34	G	G
27	G	G	G	G	G	G	B	G	36	G	G	G	G	G	G	G	41	32	40	G	G	G	G	G
28	G	G	44	26	G	G	B	G	133	42	51	G	G	45		G	39	37	G	33	G		G	G
29	G	25		G	G	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
30		B	B	B	B	B	B	B	B	B	B	B	B	B		G	G	G	G	46	G		G	G
31	G	G	G	G	G	B	G	G	G	50	47	G	G	G			G	43	36	G	G	G		G
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	24	29	27	30	28	24	25	29	28	26	28	28	28	28	23	25	24	24	28	24	26	27	28	29
MED	G	G	G	G	G	G	G	G	34	36	38	18	18	36	36	37	40	38	37	40	28	G	G	G
U Q	27	24	G	G	G	G	G	26	39	44	51	52	49	46	52	52	49	41	44	58	39	34	26	12
L Q	G	G	G	G	G	G	G	G	13	G	G	G	G	G	G	G	G	29	25	29	G	G	G	G

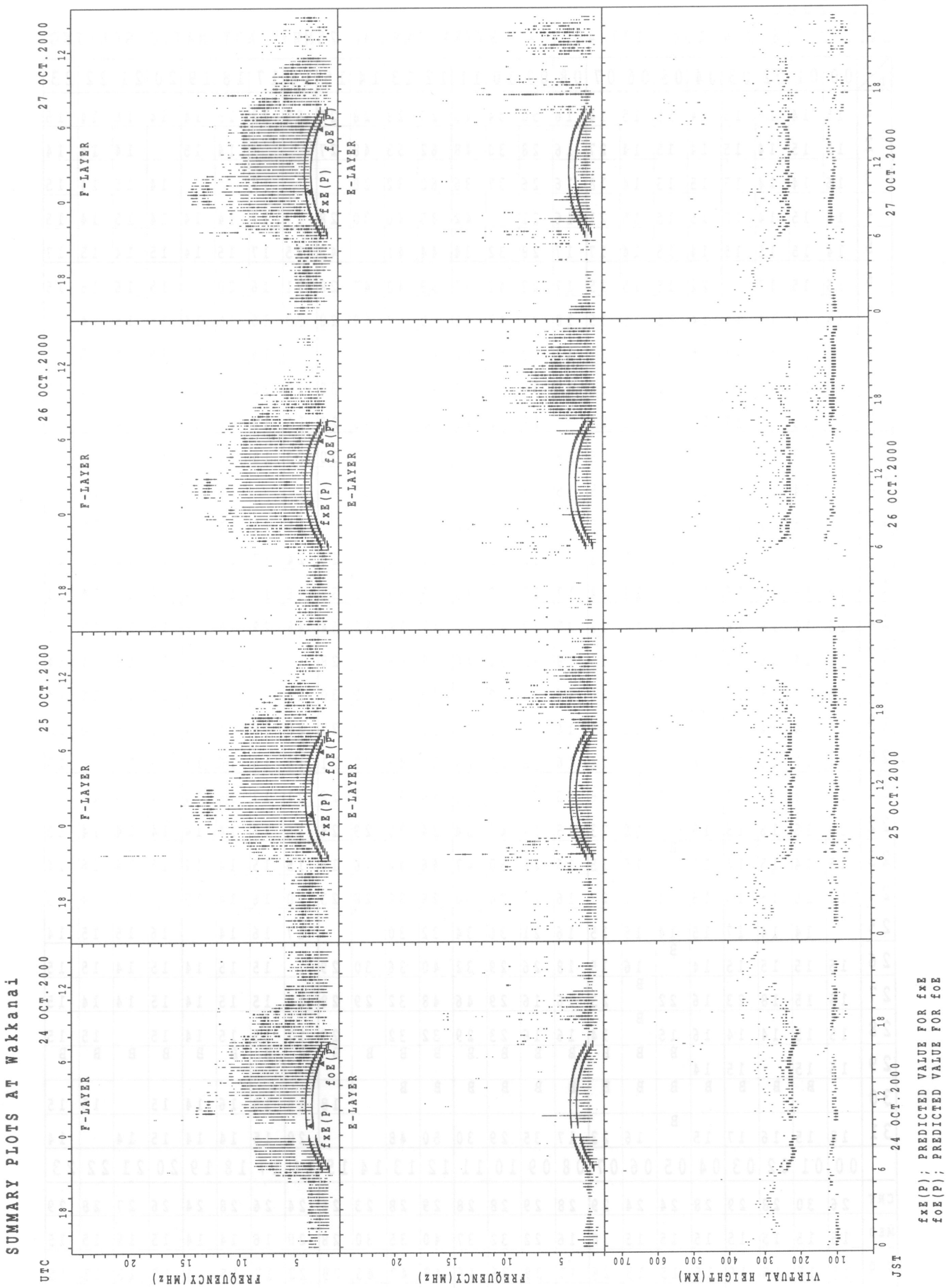
COMMUNICATIONS RESEARCH LABORATORY, JAPAN

HOURLY VALUES OF fmin AT Okinawa

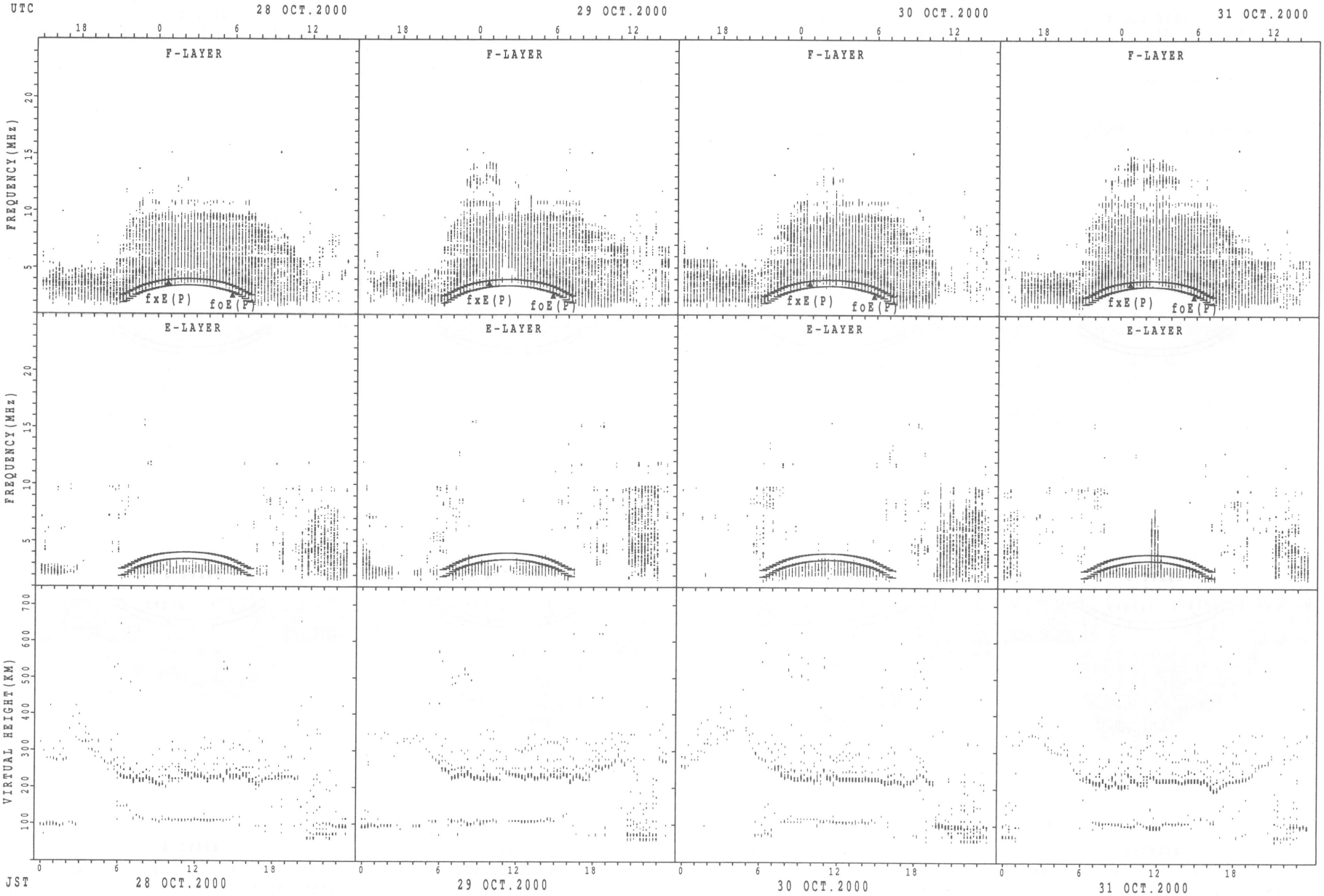
OCT. 2000

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

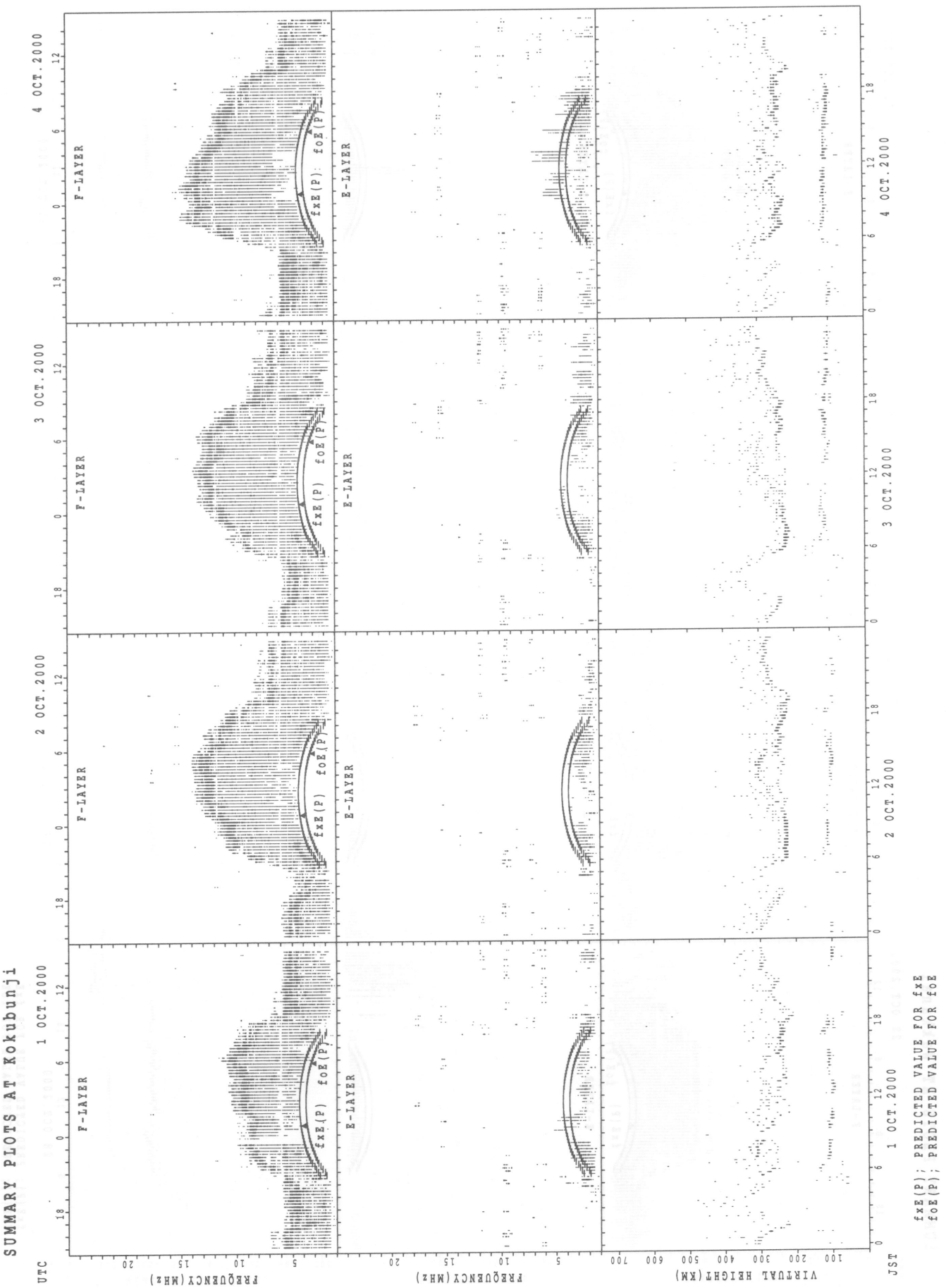
D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	15	14	16	15	14	15	15	14	16	50	34	46	29	28	28	21	59	22	15	14	14	16	14	15
2	15	15	14	15	14	15	14	27	16	28	30	48	62	53	48	27			14	15		14	14	14
3	16	14	14	15	15	15	14	18	16	26	37	36	60	32	28			17			14	15	14	15
4	15	15	14	15	15	15	15	21	16	21		42	35	46	30	28	17	17	14	14	14	15	14	15
5	14	15	15	15	14	15	14	17	17	28	32	34	44	41		45	35	17	15	14	15	14	15	17
6	15	15	17		22	15	15	15	17	28	42	36	39	48	47	28	21	16	20		15	16	16	15
7	18	17	14	15	14	15	15	15	18	35	47	46	50	52	59	28	33	16	15	14	14	15	14	
8	15	15	15	15	15	14	15	27	17	18	46	50	47	30	30			15	20	14	15	15	15	17
9		16	16	16	15	14	15	15	16	36	43	48	49	45	38	30	20	15	14	14	15	16	15	15
10	15	15	16	14	16	15	15	26		29	32	45	45	48	45	29	22	18	15	15		14		15
11		15	15	17	14	14		15	16	30	36	44	39	32	29	30	23	15	14	14	15	14	15	14
12	14	14	14	14	15	15	17	15	15	17	30	35	37	38	35				14		20	16	16	15
13		15	14	15		14	66	15	16	29	32	46	48				16	15	14	15			15	15
14	14	15		15	15	15	15	15	16	21	33	38	36	34	33	29	24	17	20	15	15	14	15	15
15	14	16	16	16	16	18	14	24	17	20	29	33	29	30	28	32	16	17	14	14	14	14	14	14
16	15	15	16	16	15	15	14	26	20	29	45	29	47	28	50	54	48	29	15		15	16	15	16
17	15	14	15	14	15	15	14	15	18	35	34	46	48	46		28			15		14	15	14	14
18	16	16	15	15		15	15	26	16	18	29		30	28	29	30	18			14	15	15	15	14
19	14	14	14	15	14	15	15	26	16	17	30	33	30	30	29	27	20	16	14	14	14	15	14	15
20	14	15	15	20	16			24	16	18	29	29	33	48	28	21	18	15	16	15	15	16	15	15
21	14	14	15	16	15	16	B	26	15	17	17	50	46	48	28	28	21	17	14	14	14	14	15	14
22	14	15	16	15	15	B	66	23	15	17	47	34	34	30	29	26	16	15	14	14	14	14	14	15
23	15	14	15	16	15	B	15	15	16	22	30	47	46	44	46	16	15	15	14	14	15	14	16	14
24	14	15	15	15	15	14	17	27	16	18	24	30	29	30	28	23	20	16	14	15		15	14	15
25		14	14	17	15	14	15	15	16	21	36	34	32	30			17	16	14		16	15	15	14
26	15	15	15	15	14	B	16	15	18	26	29	32	40	36	30	29		15	15	14	15	14	15	15
27	15	15	18	23	16	22	B	23	16	16	29	46	48	32	29	28	17	15	15	14	15	14	14	15
28	15	15	14	14	16	15	B	14	16	16	23	29	32	32		29	17	15	15	14	15		15	15
29	15	15		15	14	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
30		B	B	B	B	B	B	B	B	B	B	B	B	B		18	16	15	16	14	15		15	15
31	18	15	16	17	15	B	16	23	17	35	29	30	50	48			20	15	14	14	15	14		14
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	26	30	28	29	28	24	24	29	28	29	28	28	29	28	23	24	24	26	28	24	26	27	28	29
MED	15	15	15	15	15	15	15	18	16	22	32	37	40	35	30	28	20	16	14	14	15	15	15	15
U Q	15	15	16	16	15	15	15	26	17	29	36	46	48	47	45	29	22	17	15	14	15	15	15	15
L Q	14	14	14	15	14	14	14	15	16	18	29	33	32	30	28	26	17	15	14	14	14	14	14	14


SUMMARY PLOTS AT Wakkanai
UTC
JST
24 OCT.2000
25 OCT.2000
26 OCT.2000
27 OCT.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

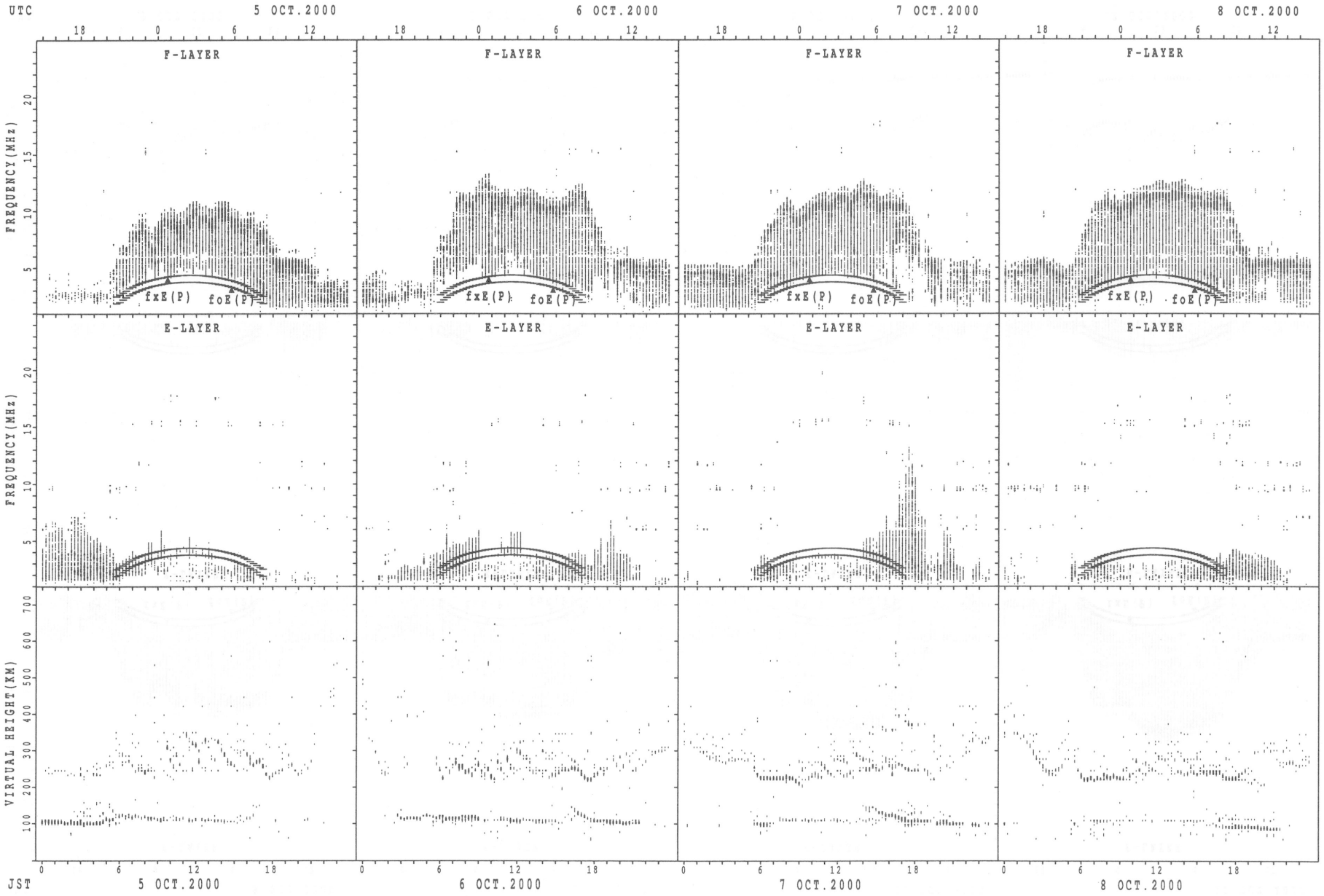
SUMMARY PLOTS AT Wakkanai



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

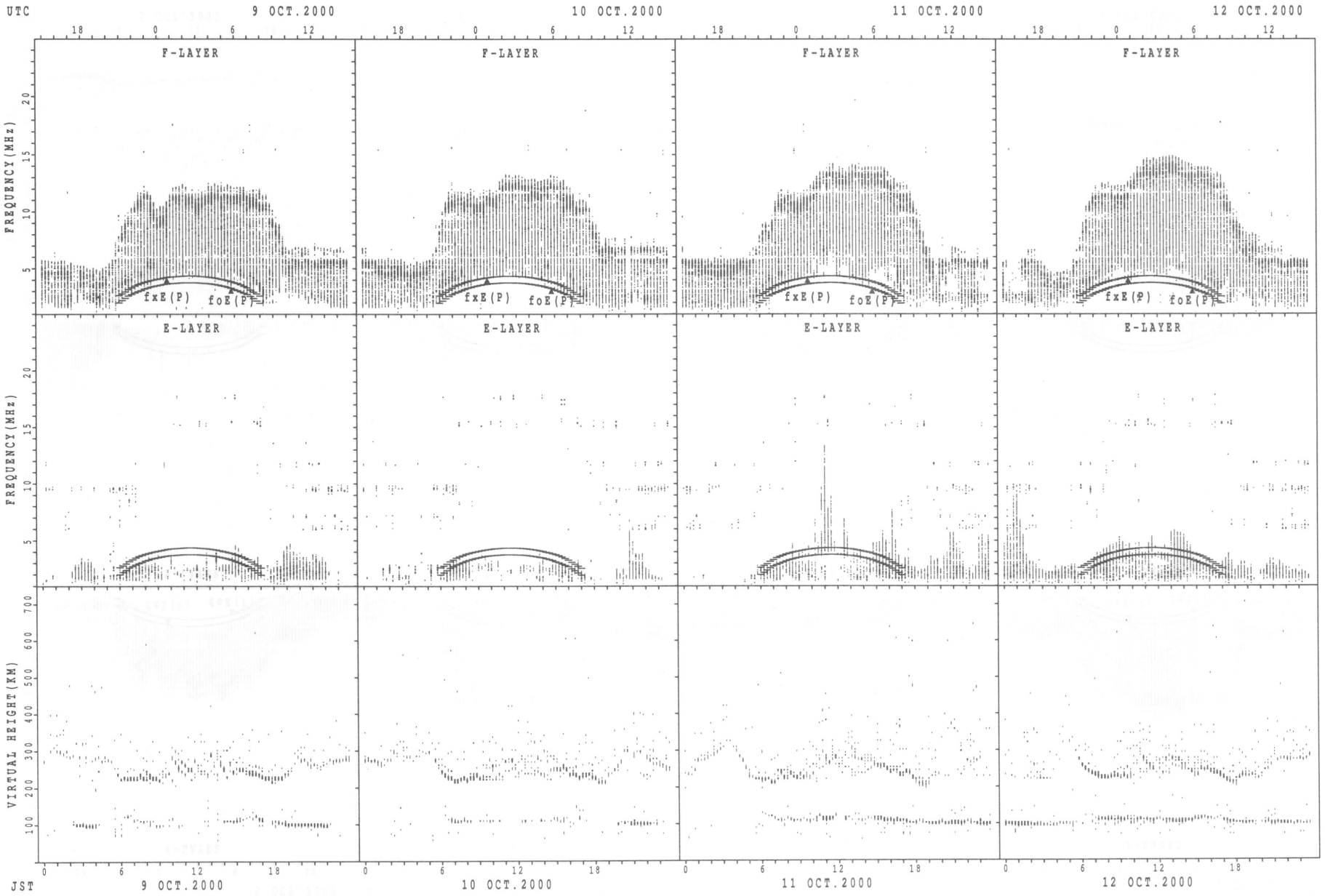

SUMMARY PLOTS AT Kokubunji
UTC
JST
1 OCT.2000
2 OCT.2000
3 OCT.2000
4 OCT.2000
F-LAYER
E-LAYER
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
fxE(P)
foE(P)
fxE(P); PREDICTED VAUUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



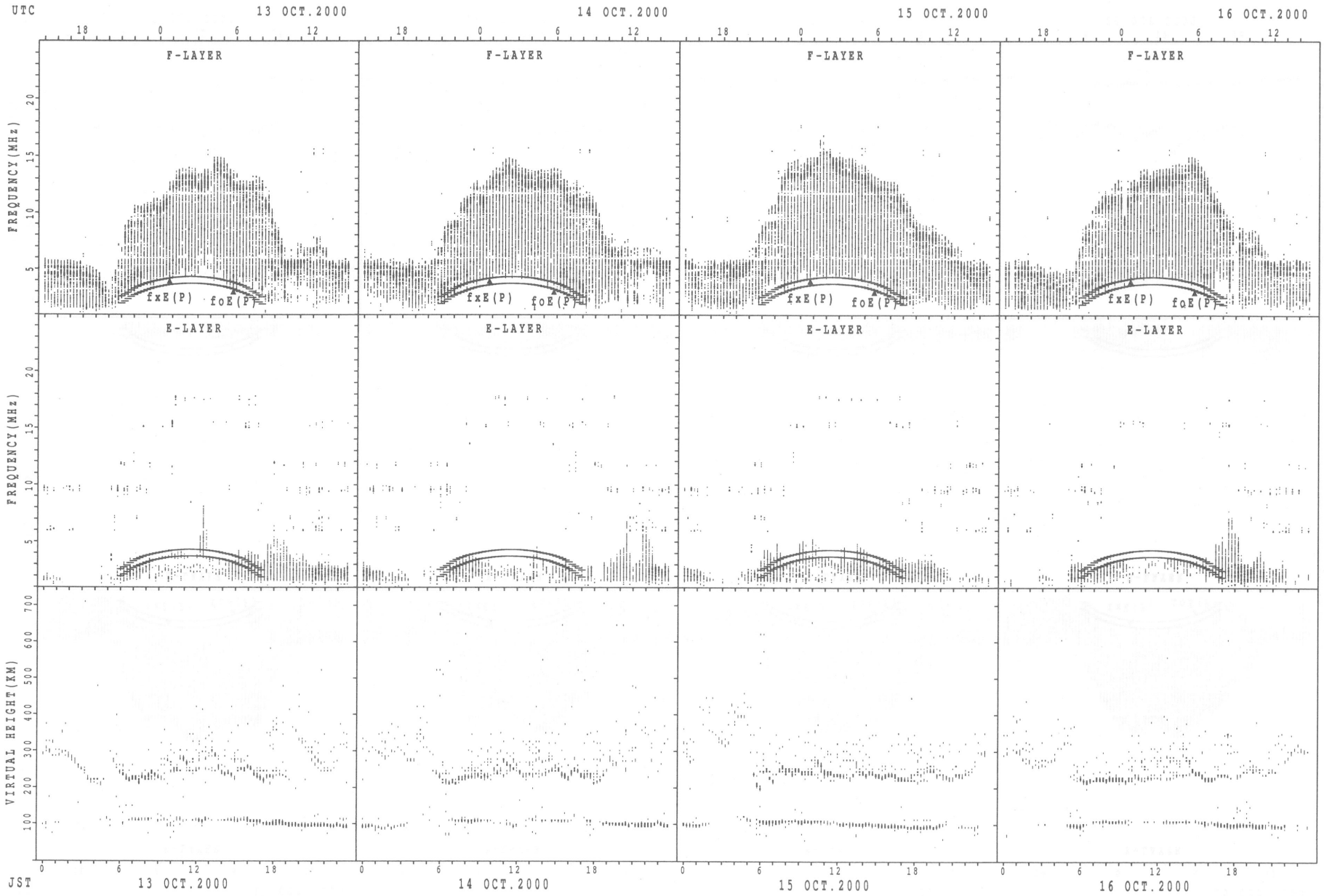
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji

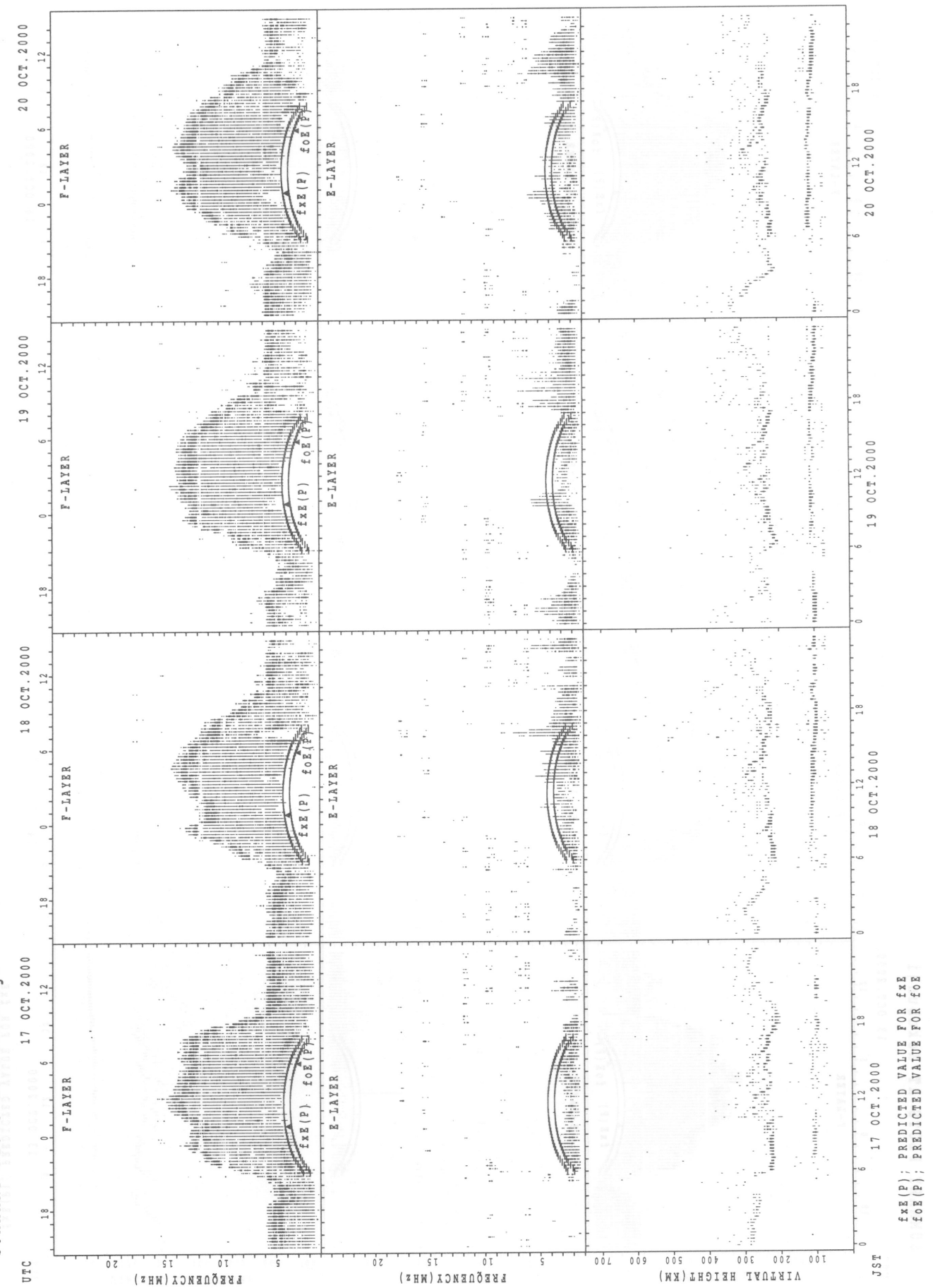


fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

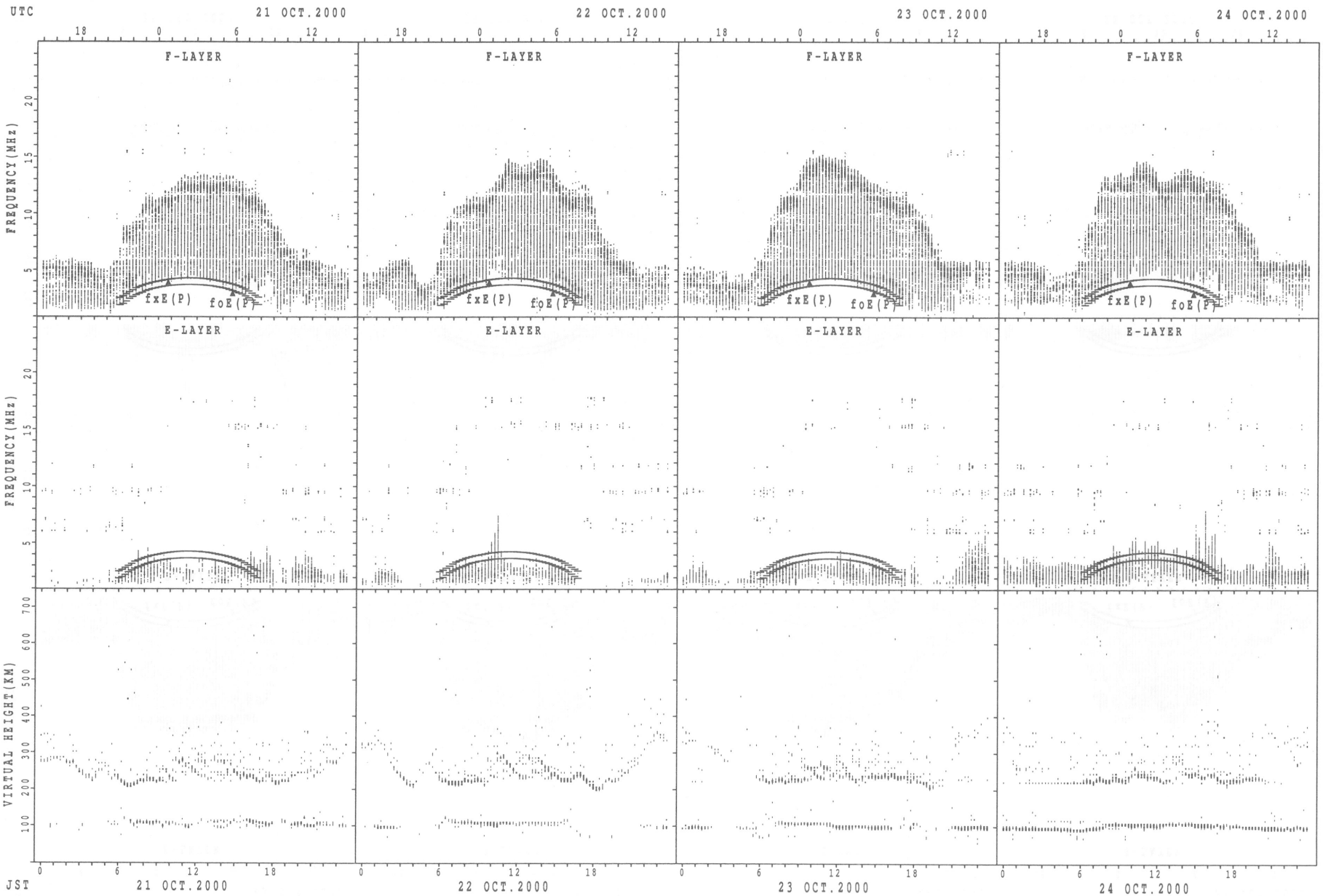
SUMMARY PLOTS AT Kokubunji



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

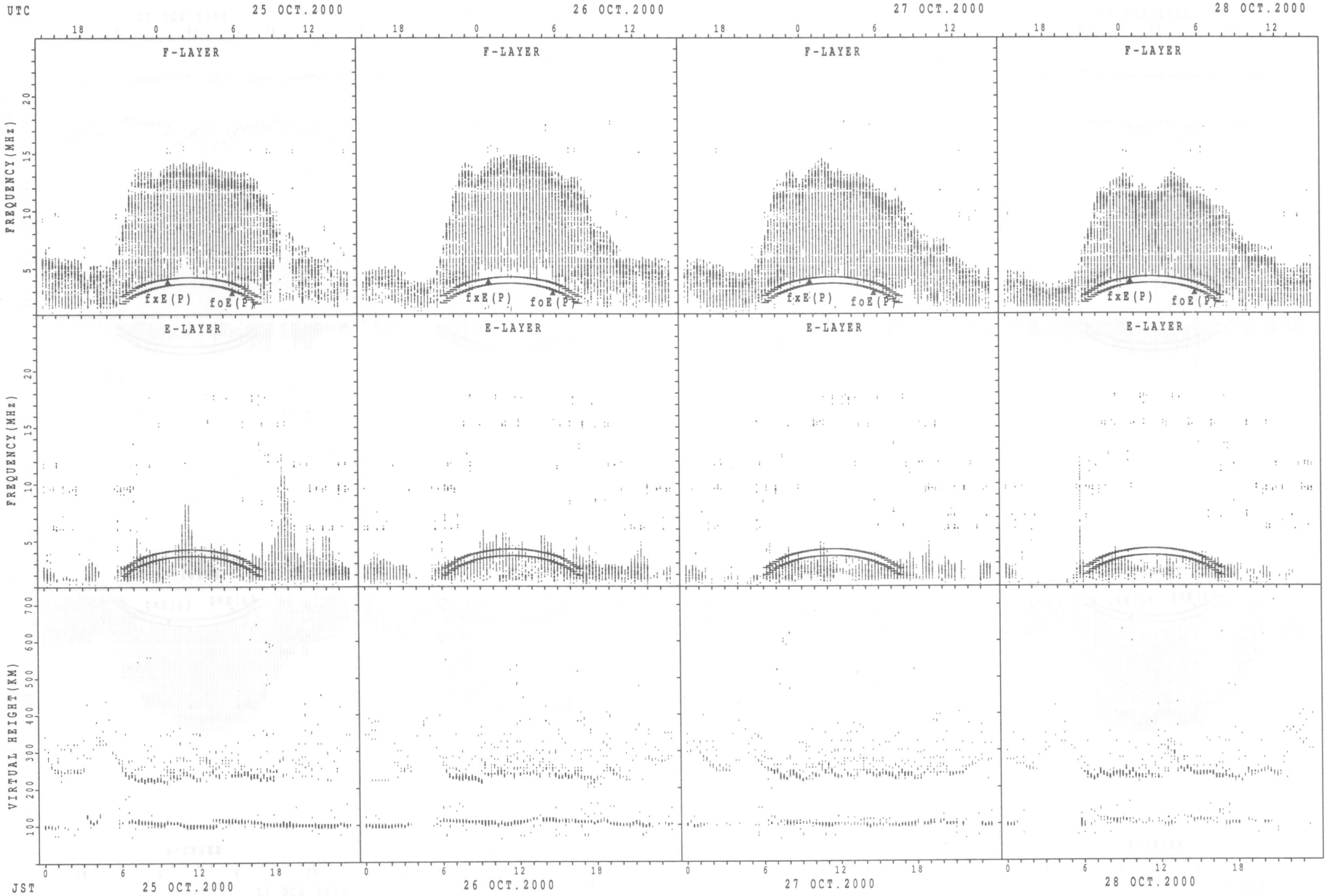

SUMMARY PLOTS AT Kokubunji
UTC
JST
17 OCT.2000
18 OCT.2000
19 OCT.2000
20 OCT.2000
F-LAYER
E-LAYER
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
fxE(P) ; PREDICTED VALUE FOR fxE
foE(P) ; PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



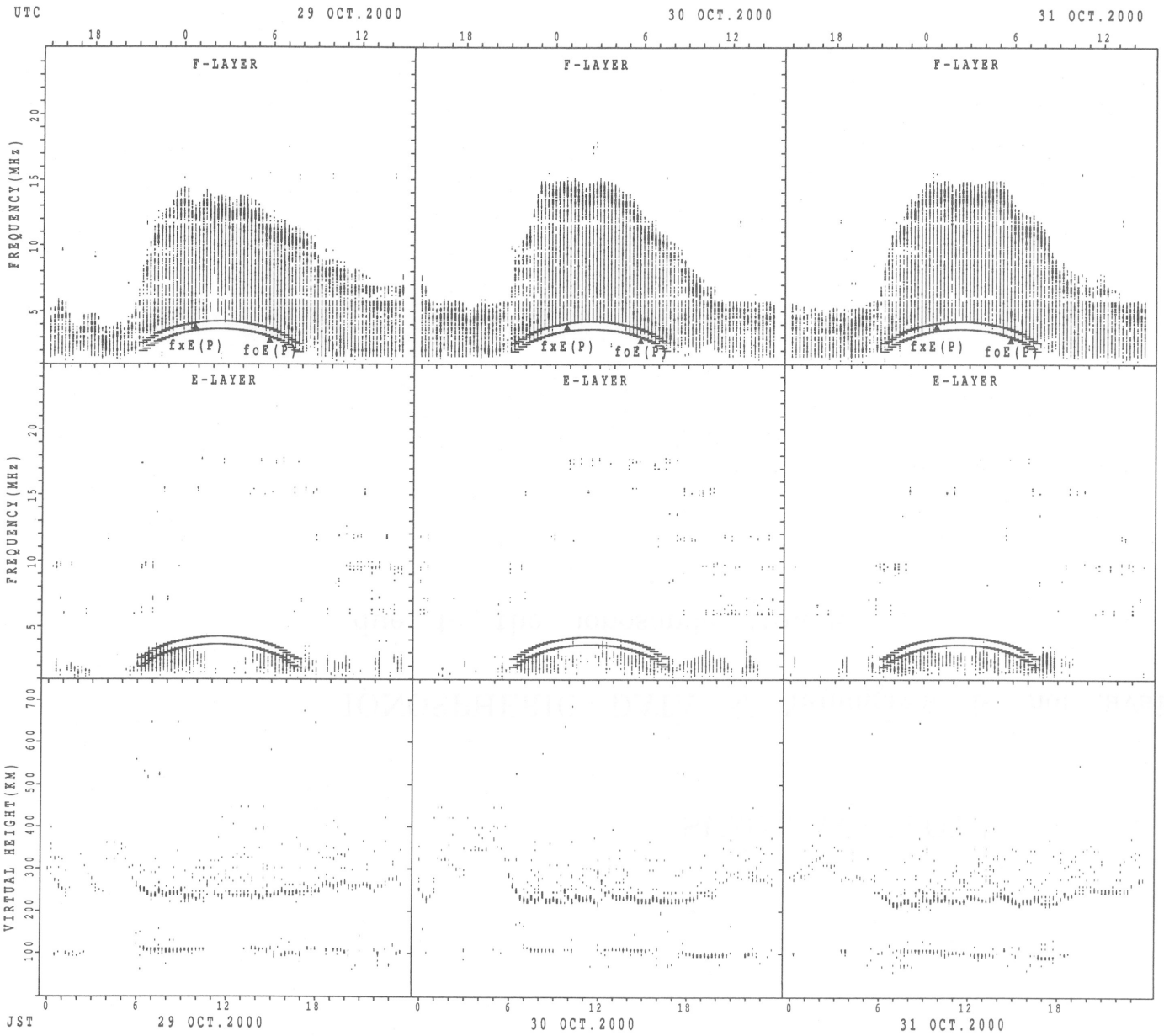
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



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

SUMMARY PLOTS AT Kokubunji

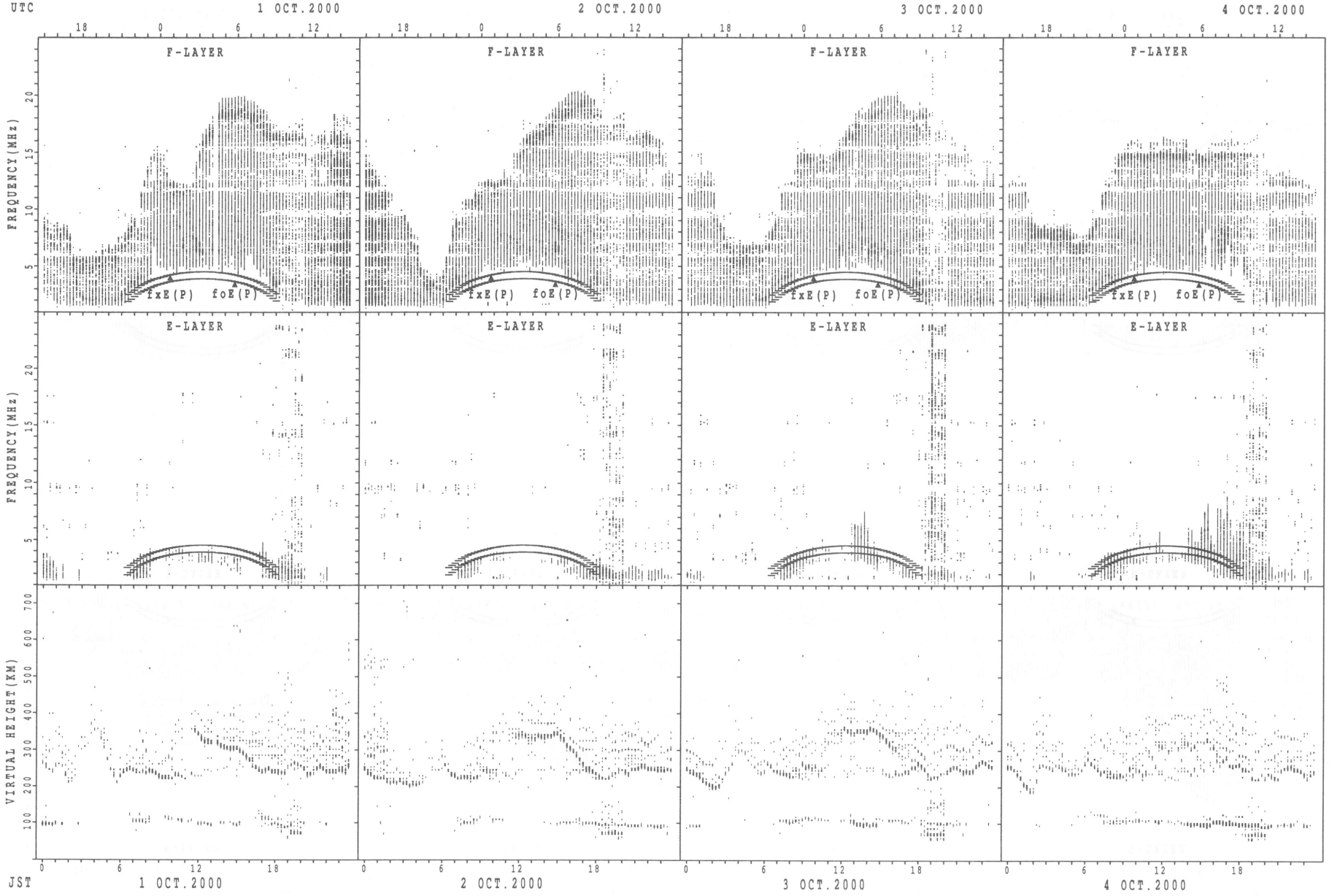


fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS

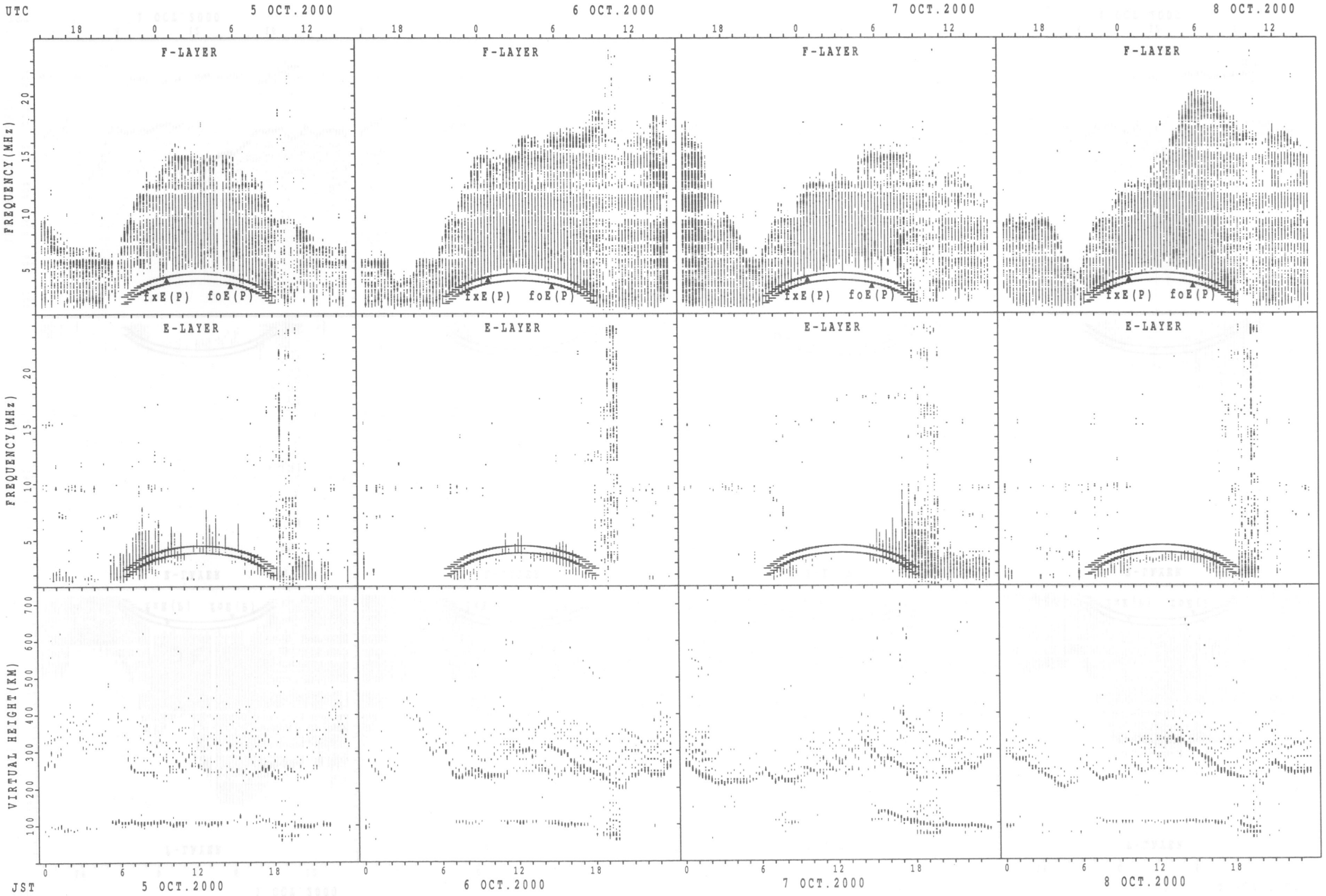
IONOSPHERIC DATA of Yamagawa is not available due to the ionosonde trouble.

SUMMARY PLOTS AT Okinawa



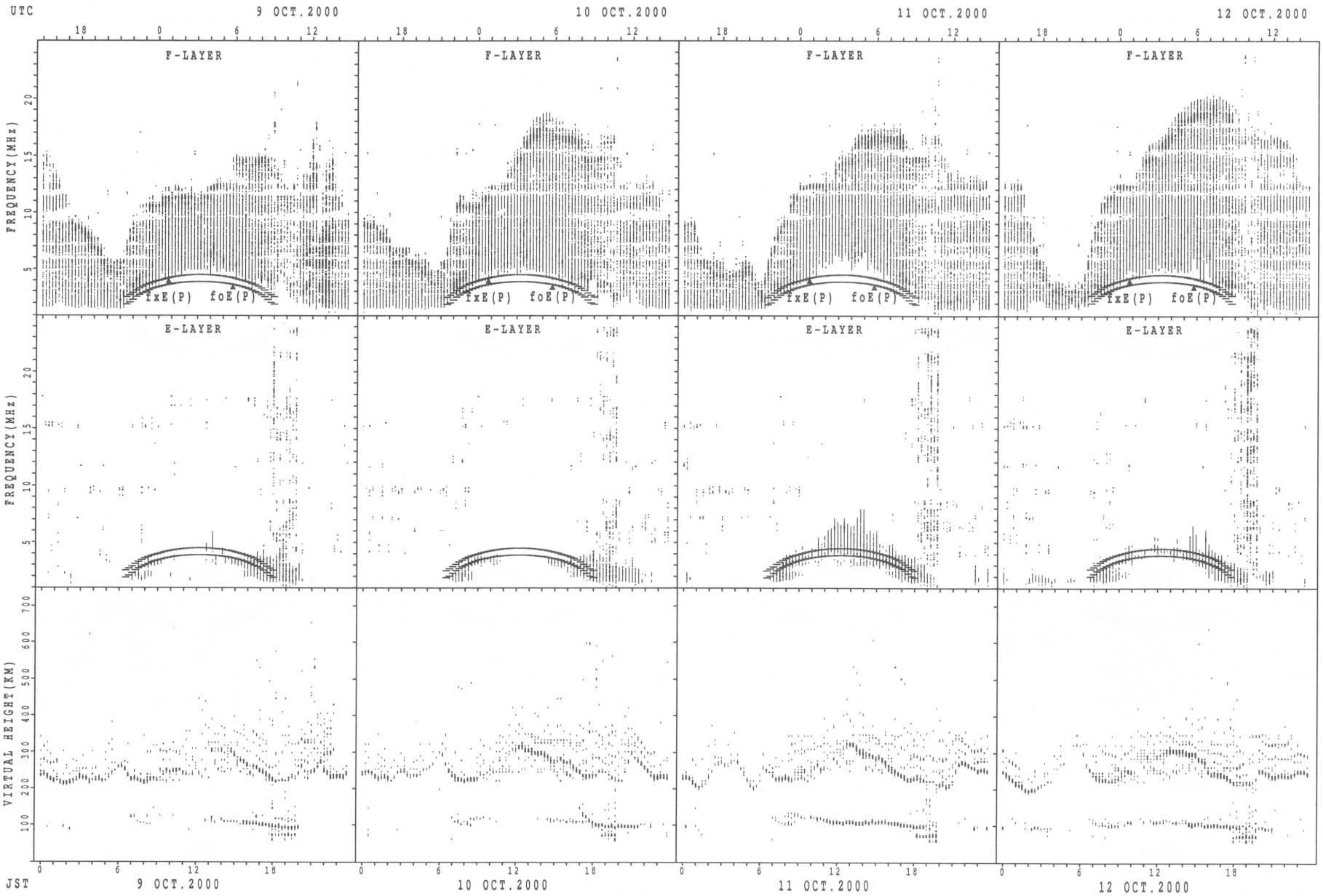
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



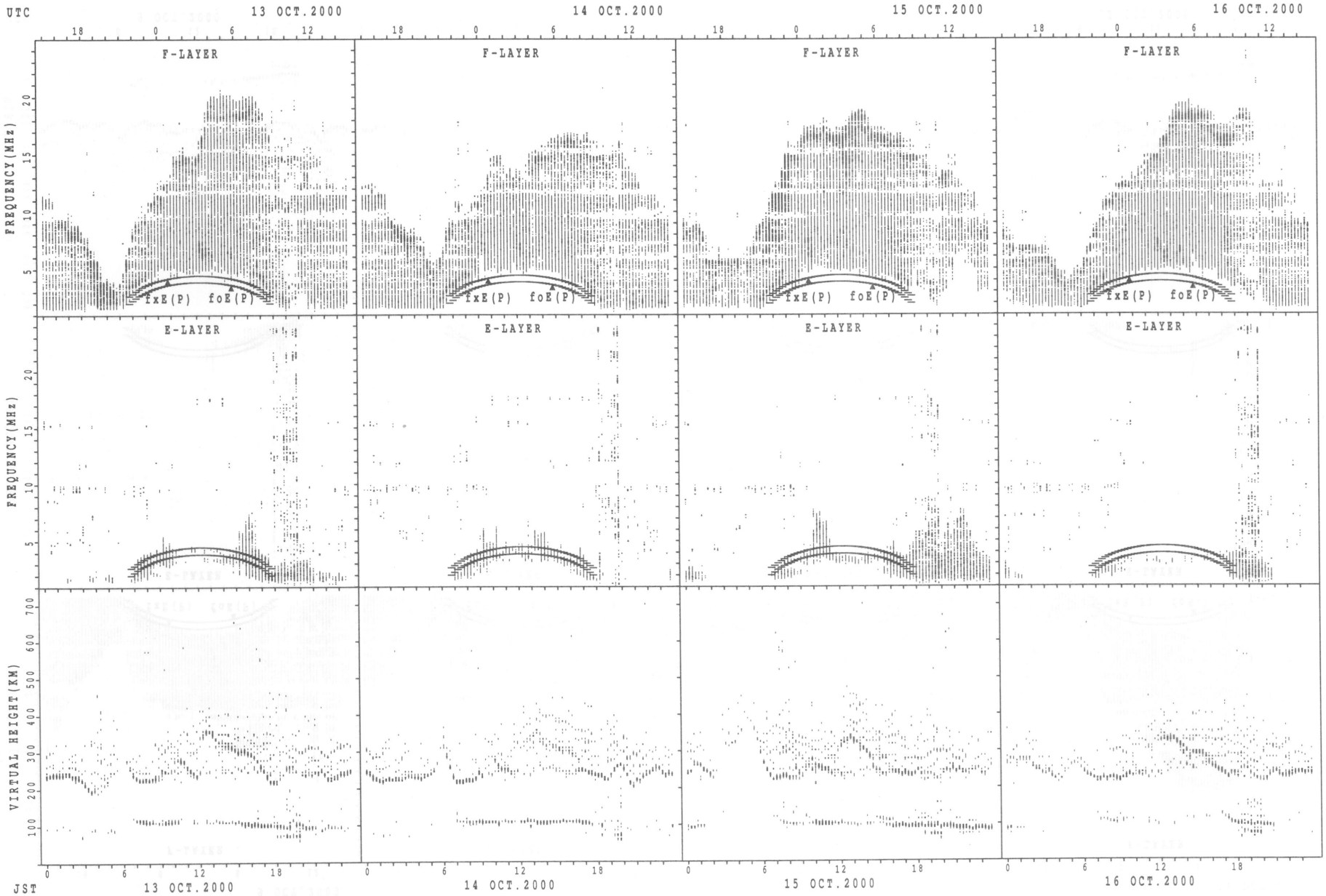
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



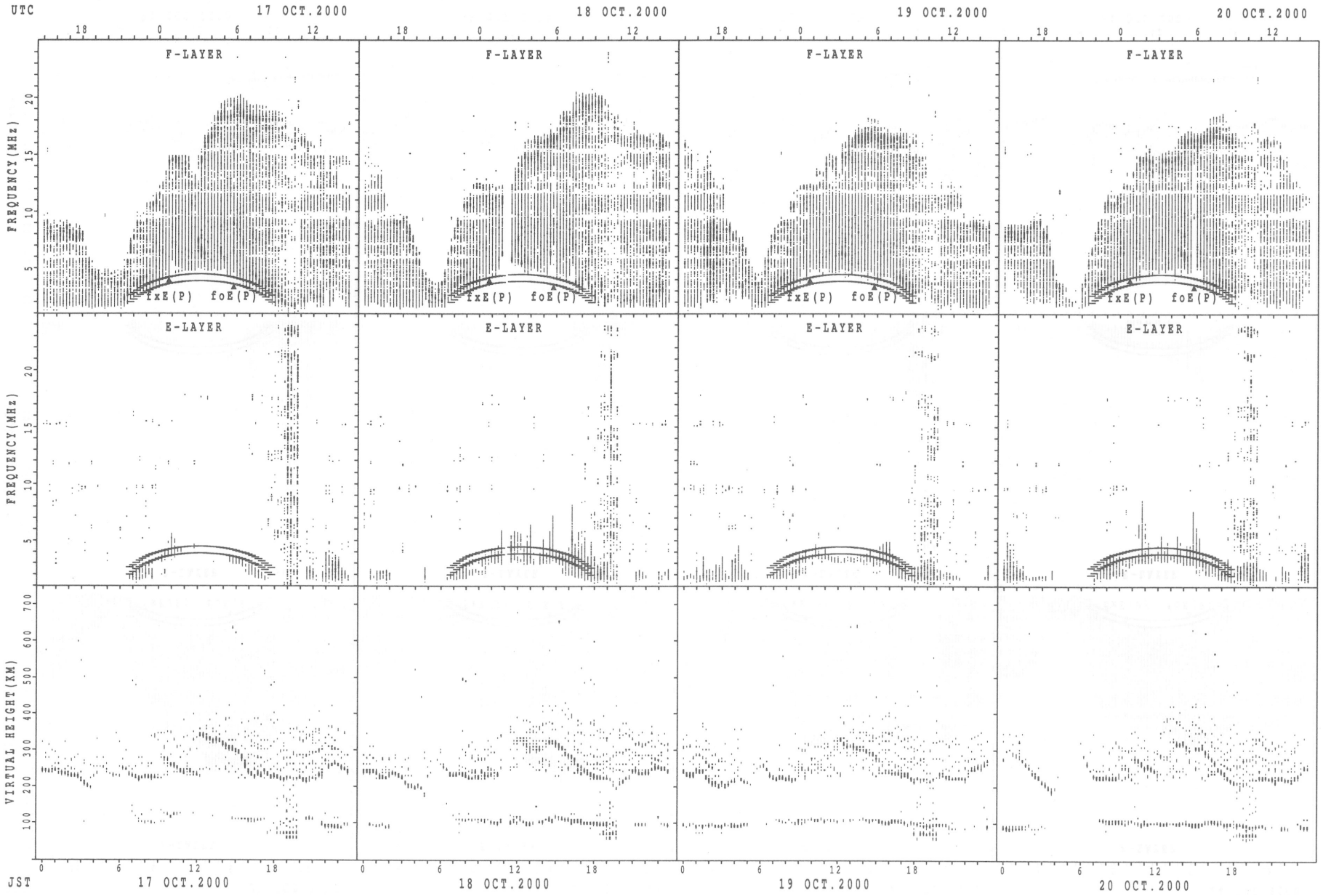
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa

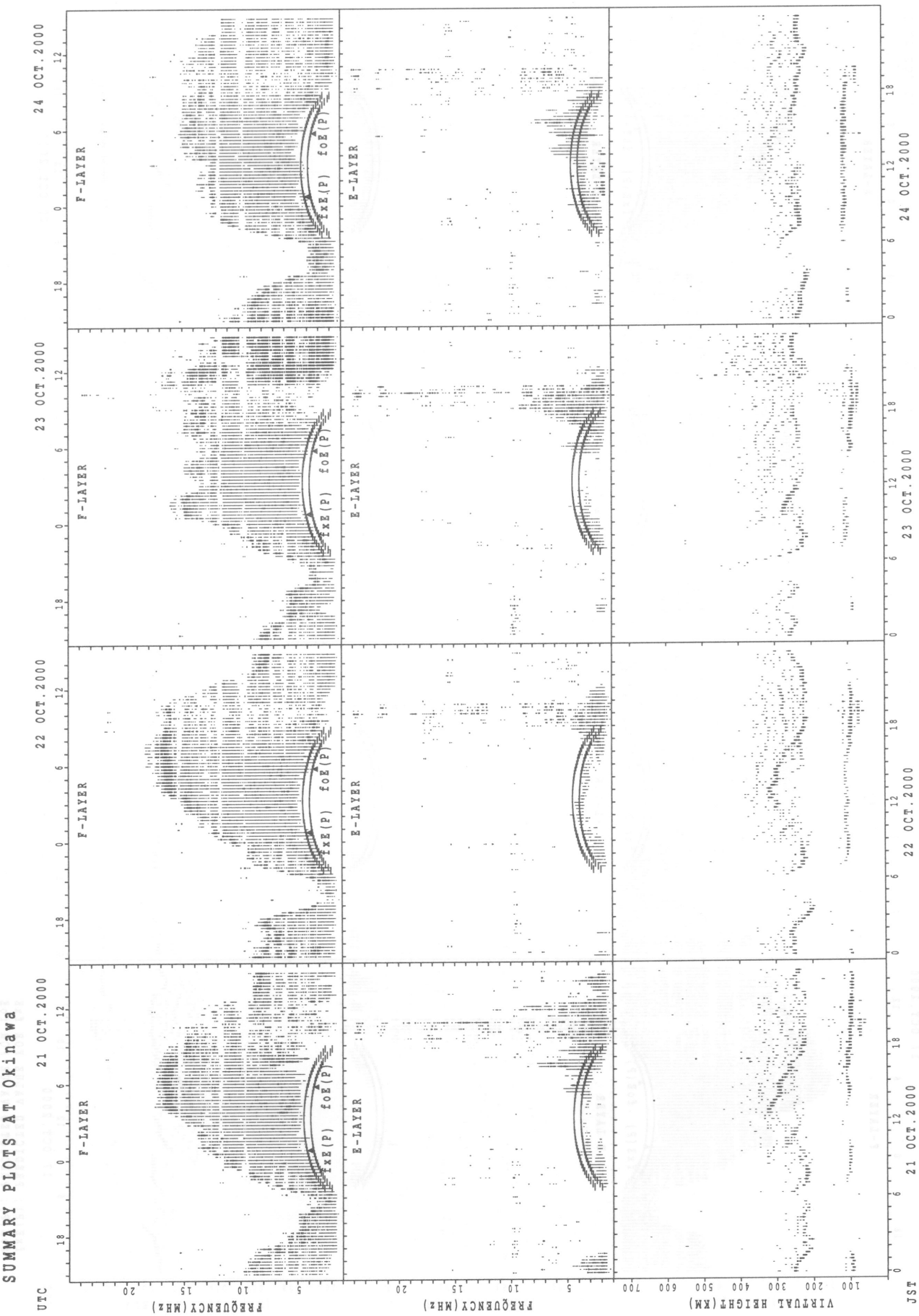


fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

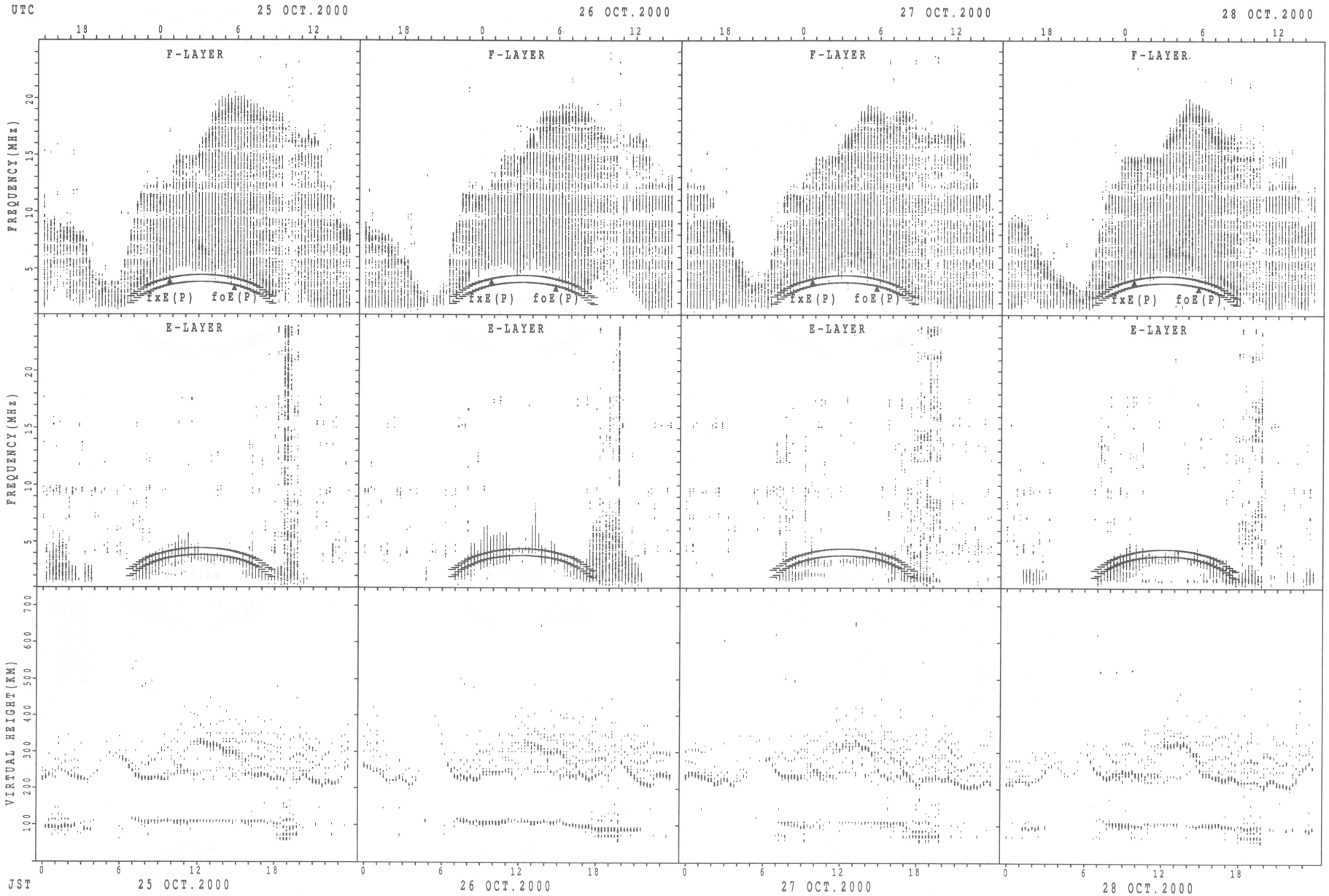
SUMMARY PLOTS AT Okinawa



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

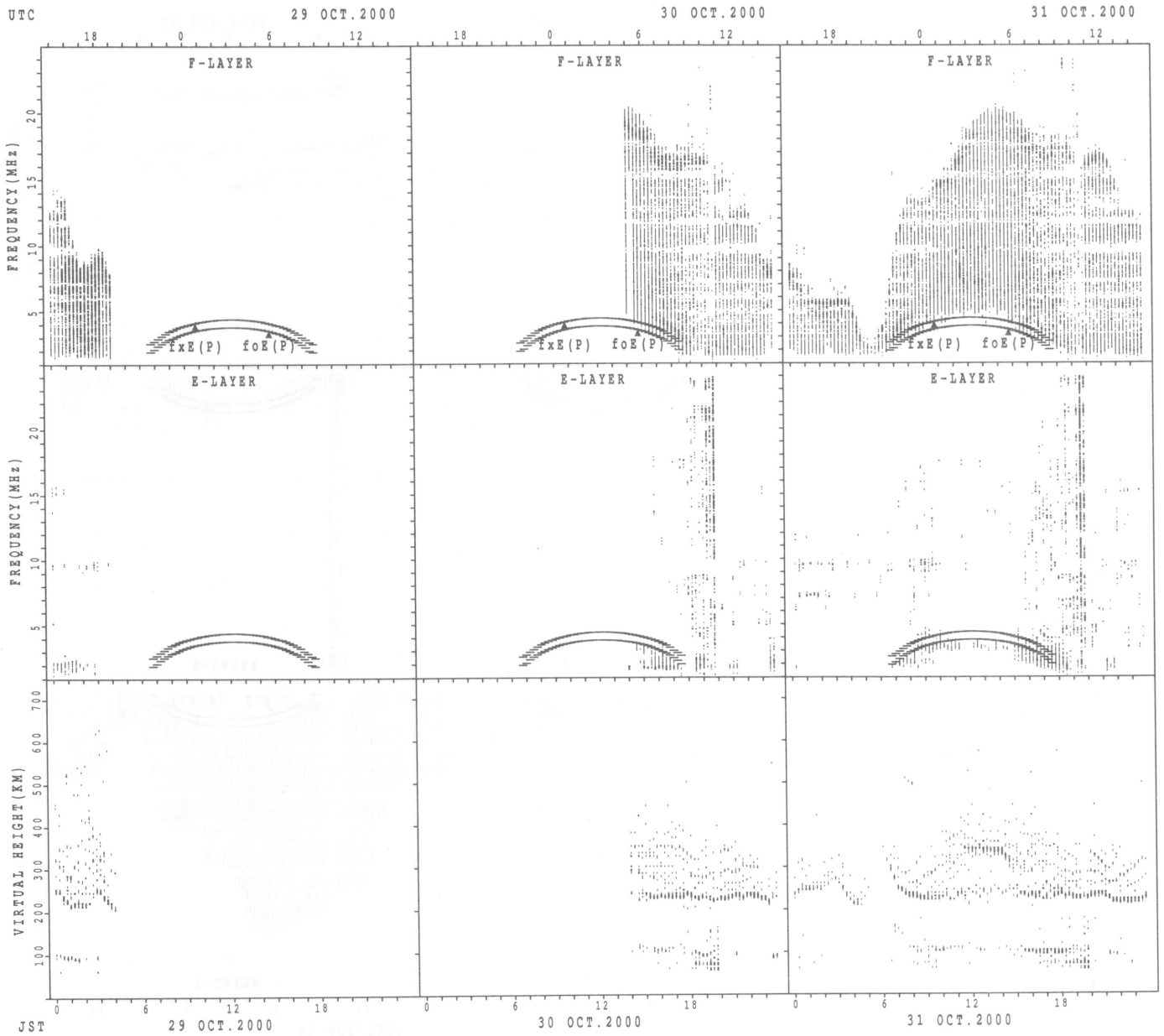

SUMMARY PLOTS AT Okinawa
UTC
JST
21 OCT.2000
22 OCT.2000
23 OCT.2000
24 OCT.2000
F-LAYER
E-LAYER
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
fxE(P) foE(P)
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT 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

OCT. 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	3	2	2	1			19	31	31	31	29	17	18	31	31	31	31	30	28	20	8	11	4	5
MED	364	310	389	264			266	230	240	232	258	266	266	272	266	260	248	247	263	313	323	336	336	380
U Q	380	342	402	132			300	238	246	244	269	278	282	292	280	270	266	256	274	323	330	394	344	421
L Q	300	278	376	132			250	224	228	230	244	256	258	264	256	246	242	238	248	279	314	298	327	345

h'Es

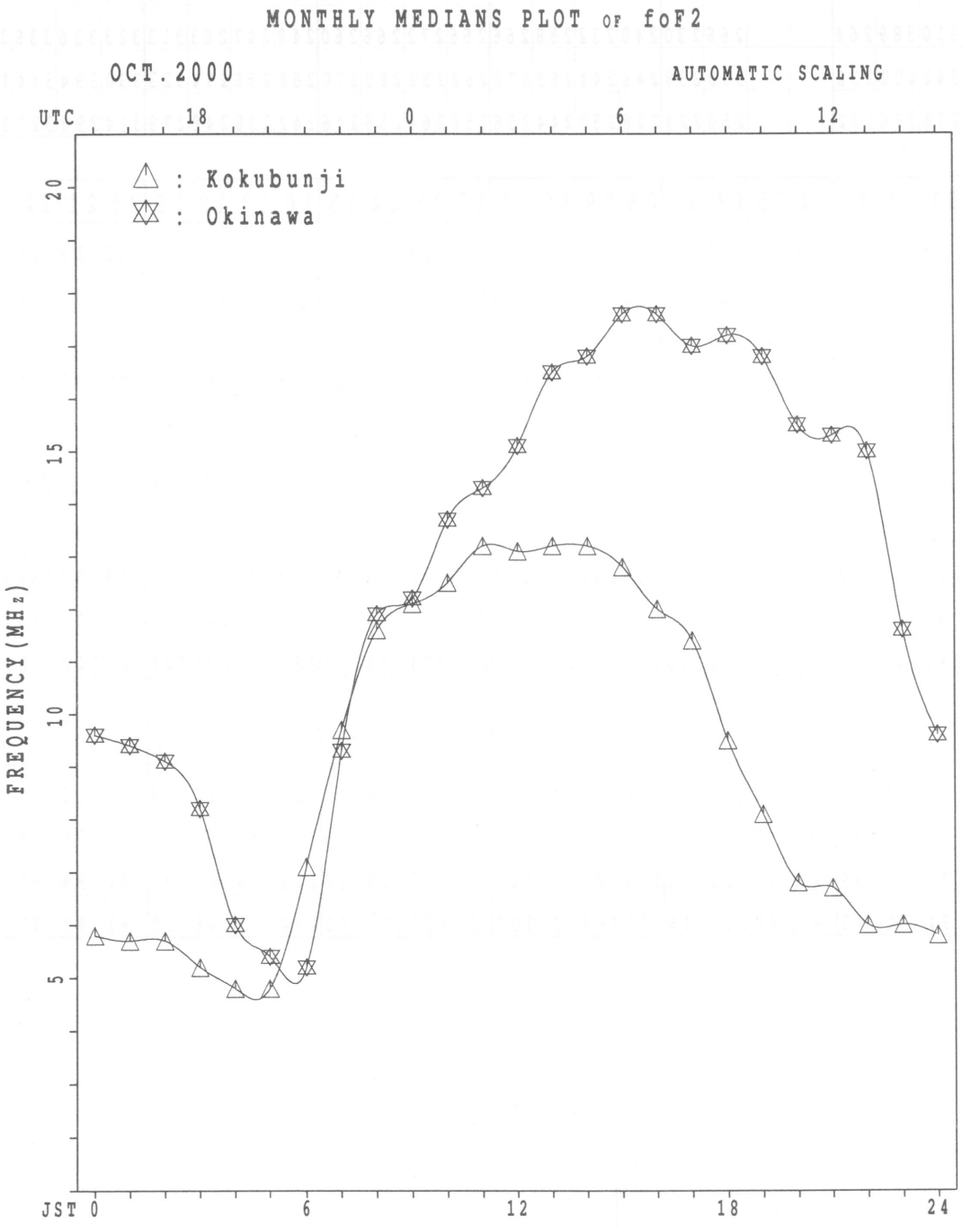
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	14	9	7	9	6	6	13	20	21	17	19	12	7	14	19	18	21	26	25	18	20	19	16	15
MED	99	99	99	105	105	111	119	113	113	113	113	113	107	107	111	113	113	102	105	105	103	101	101	103
U Q	103	101	101	109	115	117	138	119	115	116	117	115	109	113	113	119	121	113	111	107	107	107	103	105
L Q	97	93	97	98	99	101	99	110	107	111	107	108	103	105	107	107	105	99	102	103	100	99	99	99

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	25	27	19	19	8		1	29	28	29	28	15	16	15	22	25	24	26	28	24	26	27	27	28
MED	274	250	258	254	272		308	250	235	248	256	262	280	322	304	294	273	246	240	261	256	256	258	264
U Q	294	282	276	296	307		154	263	249	268	275	280	309	330	318	305	291	256	248	282	264	280	276	274
L Q	262	240	240	238	261		154	240	230	236	246	252	261	304	296	282	263	242	231	241	246	242	250	252

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	9	8	5	2	1	1	2	12	20	18	15	14	14	15	12	17	17	21	21	19	15	12	7	7
MED	95	96	93	96	93	97	110	121	109	113	111	110	111	107	106	109	107	111	99	93	95	96	95	93
U Q	97	98	97	99	46	48	111	130	113	121	117	115	113	113	110	116	113	115	104	95	101	99	99	99
L Q	93	94	90	93	46	48	109	116	107	107	107	107	105	103	105	100	104	103	96	89	93	93	91	91


MONTHLY MEDIANS PLOT OF foF2
OCT. 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

OCT. 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	X 74	X 77	X 61	X 59	X 64	X 63													X 91	X 69	X 71	X 68	X 65	X 64
2	X 64	X 63	X 63	X 58	X 53	X 55													X 112	O X 92	X 87	X 85	X 83	X 79
3	O X 77	X 75	X 61	X 60	X 60	X 62													X 99	X 93	X 88	X 84	X 78	X 78
4	X 80	O X 74	X 68	X 70	X 66	X 68													X 112	X 97	X 76	X 77	O X 68	X 67
5	O X 61	A	X 50	A	A	X 46													X 78	X 70	X 68	X 57	X 44	X 43
6	X 43	X 49	X 34	X 41	X 43	X 40													X 98	O X 76	X 75	X 68	O X 61	X 61
7	X 58	X 58	X 56	X 55	X 54	X 55													X 94	O X 74	O X 64	X 60	X 58	X 59
8	X 57	X 58	X 62	X 66	X 57	X 55													X 91	X 70	X 71	X 70	X 68	O X 65
9	X 61	X 58	X 58	X 57	X 53	X 52													X 104	X 76	X 75	O X 76	X 74	X 72
10	X 70	O X 66	X 61	X 60	X 58	X 59													X 98	X 79	X 77	X 80	X 78	X 78
11	O X 74	X 66	X 64	X 62	X 64	X 66												X 125	X 112	X 78	X 66	X 72	X 72	X 65
12	X 68	X 64	X 70	X 60	X 50	X 51													X 104	X 86	X 78	X 74	X 66	X 69
13	X 64	X 61	X 61	X 58	X 52	X 43													O X 98	X 68	X 75	X 82	X 75	X 64
14	O X 66	O X 64	X 61	O X 60	X 58	X 58													X 112	X 82	X 79	X 75	X 72	X 70
15	X 70	X 59	O X 65	X 68	O X 64	X 69													X 97	A 90	X 84	X 74	X 63	X 59
16	X 60	X 61	X 59	X 57	X 53	X 53													X 92	X 88	X 78	X 69	O X 63	X 64
17	X 68	X 63	O X 63	X 62	X 56	X 58													X 98	X 73	X 68	X 67	X 65	O X 66
18	X 68	X 60	X 60	X 60	X 58	X 54													O X 99	X 82	X 73	X 70	X 64	X 64
19	X 63	X 63	X 69	X 56	X 55	X 50													X 95	X 80	X 75	O X 73	X 68	O X 65
20	X 65	X 64	X 68	X 75	X 59	X 50													X 102	X 93	X 72	X 65	O X 63	X 63
21	X 60	X 62	X 62	X 63	X 56	X 52													X 96	X 79	X 71	X 68	X 57	X 55
22	X 54	X 54	X 58	X 65	X 48	X 42													X 107	X 80	X 68	X 59	X 56	X 56
23	X 56	X 56	X 54	X 54	X 47	X 49													X 107	X 93	X 68	X 64	O X 64	X 61
24	X 61	X 63	X 61	X 57	X 49	X 52													X 107	X 91	X 69	X 67	X 65	O X 66
25	X 69	X 64	X 63	X 58	X 55	X 56													X 101	X 86	O X 76	X 69	X 63	X 53
26	X 52	X 54	X 53	X 51	X 42	X 43													X 94	X 85	X 67	X 62	O X 63	O X 61
27	O X 60	X 61	X 58	X 54	X 50	X 52													X 89	X 78	X 78	X 68	X 57	X 52
28	X 49	X 49	X 45	X 42	X 40	X 42													X 82	X 75	X 71	O X 63	X 53	X 55
29	X 55	X 58	X 48	X 50	O X 45	X 46													X 98	X 94	X 88	X 82	X 77	O X 74
30	X 80	X 60	X 61	X 56	X 60	X 58													X 88	X 77	X 68	O X 64	X 61	X 61
31	X 58	X 55	X 55	X 55	X 55	X 57													X 89	X 82	X 77	X 79	X 70	X 63
	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	30	31	30	30	31												1	31	31	31	31	31	31
MED	X 63	X 61	X 61	X 58	X 55	X 53												X 125	X 98	X 80	X 75	X 69	X 65	X 64
U Q	X 69	X 64	X 63	X 62	X 58	X 58													X 104	X 90	X 78	X 76	X 72	X 67
L Q	X 58	X 58	X 56	X 55	X 50	X 49													X 92	X 76	X 68	X 65	X 61	X 59

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

IONOSPHERIC DATA STATION Kokubunji

OCT. 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	68	R 71	55	53	58	57	70	87	R 95	96	R 94	99	100	101	102	110	102	94	85	R 63	65	R 62	59	58
2	58	57	56	52	R 47	49	78	R 102	110	113	124	132	132	133	135	130	124	R 118	106	R 86	81	R 79	R 77	R 73
3	R 71	69	55	54	54	56	87	102	109	R 120	129	127	132	132	125	130	121	111	R 93	87	82	R 78	R 72	R 72
4	R 74	68	62	R 64	60	61	94	122	144	137	145	140	R 139	130	122	117	116	106	106	91	R 70	R 71	R 62	R 61
5	55	A	R 44	A	A	40	R 66	86	89	89	98	96	104	99	105	98	94	R 88	72	R 64	R 62	52	38	R 37
6	37	R 43	28	R 35	37	34	R 75	U R 97	117	122	R 118	116	114	114	108	108	114	120	92	R 70	69	62	55	55
7	52	52	50	49	48	49	74	R 94	108	98	108	112	116	114	121	112	112	R 111	R 88	68	58	54	52	53
8	51	52	56	60	51	49	79	102	112	106	113	118	122	121	122	116	113	114	85	R 64	65	R 64	R 62	59
9	55	53	52	51	47	47	R 74	R 99	118	98	112	120	113	118	120	118	117	111	R 98	70	69	70	68	66
10	R 64	R 60	55	54	52	53	R 85	113	111	110	116	126	129	125	123	128	120	108	92	R 73	71	74	72	72
11	R 68	R 60	58	56	58	60	R 77	R 97	115	113	R 118	134	R 137	136	136	136	132	R 119	106	R 72	R 60	R 66	R 66	R 59
12	R 62	R 58	R 64	54	43	45	74	115	R 122	R 119	127	142	142	145	142	136	134	128	R 98	80	R 72	R 68	R 60	R 63
13	58	55	55	52	46	37	70	101	107	108	128	136	132	140	144	131	127	126	92	R 62	69	R 76	69	58
14	R 60	R 58	R 55	54	52	52	R 73	R 96	114	J R 120	133	144	137	133	132	135	R 121	118	106	76	R 73	69	R 66	R 64
15	R 64	53	59	R 62	58	R 63	R 85	102	139	140	R 147	U R 164	148	144	136	126	123	112	91	R	78	R 68	57	53
16	54	55	53	51	47	47	R 76	101	114	R 120	126	134	134	136	140	142	121	R 98	R 86	R 82	72	R 63	R 57	59
17	58	57	57	56	50	52	77	111	126	125	123	141	147	137	133	132	133	124	92	67	R 62	R 61	58	R 60
18	R 62	54	54	54	52	48	69	89	118	124	R 116	118	130	137	138	131	120	111	R 93	R 76	R 67	64	58	58
19	57	57	R 63	50	48	44	R 69	84	R 122	122	132	140	133	134	134	131	119	104	89	R 74	R 69	U R 67	R 62	U R 59
20	59	F 55	R 61	69	R 53	44	67	92	112	127	R 138	132	124	136	132	127	123	111	96	87	66	R 59	R 57	57
21	54	56	56	57	50	46	72	R 94	110	110	R 118	129	130	128	130	126	R 119	109	90	73	65	R 62	R 51	49
22	48	48	52	R 58	42	36	66	101	110	111	120	140	R 139	141	144	132	116	R 122	R 101	R 74	R 61	53	50	R 50
23	R 50	50	48	48	R 40	J R 43	60	92	117	133	146	149	143	134	129	122	116	111	101	87	R 62	58	R 58	55
24	R 55	57	55	51	R 43	R 46	67	103	130	132	R 138	142	129	129	136	130	124	118	R 101	85	63	R 61	R 59	R 60
25	65	58	57	52	49	50	R 72	121	133	127	137	140	136	136	132	129	R 127	116	R 95	80	R 70	R 63	57	47
26	46	48	47	45	36	37	R 61	108	R 138	130	R 141	144	146	144	R 140	132	124	R 118	R 88	R 79	R 61	56	57	55
27	R 54	55	52	48	44	R 46	64	114	132	120	134	141	130	128	126	115	108	103	83	R 72	R 72	R 62	R 50	46
28	R 43	J R 43	39	36	34	36	62	101	114	122	R 118	116	116	128	122	112	106	100	76	69	J R 65	57	R 47	49
29	49	52	42	44	39	40	R 64	109	126	R 141	129	133	131	132	128	116	113	109	92	88	82	76	71	R 68
30	R 74	54	55	50	54	52	70	105	149	146	148	142	149	142	136	118	109	99	82	71	R 62	58	55	R 55
31	52	49	49	49	49	51	70	109	131	143	144	140	144	143	145	127	120	109	83	R 76	70	R 73	R 64	57
	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	30	31	30	30	31	31	31	31	31	31	31	31	31	31	31	31	31	31	30	31	31	31	31
MED	57	55	55	52	48	47	72	101	117	120	127	134	132	133	132	127	120	111	92	74	69	R 63	R 58	58
U Q	R 64	R 58	57	56	52	52	77	109	130	130	138	141	139	137	136	131	124	118	98	82	72	R 70	66	R 61
L Q	52	52	50	49	43	43	67	94	110	110	118	120	124	128	122	116	113	106	86	70	R 62	59	55	53

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

IONOSPHERIC DATA STATION Kokubunji

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

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1								L	L	B	L	L	L	L	L	L	L							
2										L	L	L	L	L	L		L							
3									L	L	L	L	L	L	L	L								
4									L	L	L	L	L	L	L	L								
5								L	L	U L 544	L	L	L	L	L	L	U L 400							
6								L	A	L	L	L	L	L	L	L	L							
7									L	L	L	L	L	L	L	A	A							
8											L	L	L	L	L	L								
9									L	L	L	L	L	L	L	L								
10											L	L	L	L	L	L								
11									L	L	L	L	L	L	L	L								
12											L	L	L	L	L	L								
13											L	L	L	L	L	L								
14									L	L	L	L	L	L	L	L	L							
15									L	L	L	L	L	L	L									
16										L	L	L	L	L	L									
17										L	L	L	L	L	L	L								
18									L	L	L	L	L	U L 476	L	L								
19									L	L	L	L	L	L	L	L								
20										L	L	L	L	L	L	L	L							
21										L	L	L	L	L	L									
22										L	L	L	L	L	L									
23										L	L	L	L	L	L	L	L							
24											L	L		L	L									
25											L	L	L	L	L	L								
26										L	L	L	L	L	L	L								
27									L	L	L	L	L	L	L									
28											L	L	L	L		L								
29										L	L	L	L	L	L	L								
30									L	L		L	L	L	L	L								
31										L	L	L	L	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										1				1			1							
MED										U L 544				U L 476			U L 400							
U Q																								
L Q																								

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

IONOSPHERIC DATA STATION Kokubunji

OCT. 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							B	276	336	B	A	R	UR 372	R	R	332	R	216						
2							196	268	UA 312	R	R	R	R	R	A	R	284	B						
3							UA 212	284	R	R	R	R	R	R	R	UR 332	UR 284	B						
4							180	280	UR 316	R	R	R	R	R	A	UR 332	A	A						
5							B	UA 252	316	356	R	R	A	A	R	R	264	B						
6							B	264	304	344	R	R	R	R	R	320	280	180						
7							B	256	R	R	UR 368	R	R	R	352	320	256	B						
8							B	A	UR 308	R	R	R	R	R	R	R	264	B						
9							184	276	R	348	R	R	B	R	336	304	244	B						
10							B	256	320	R	R	R	R	R	R	UR 308	264	A						
11							B	240	R	UR 336	R	B	UR 364	UR 348	340	304	A							
12							B	252	288	328	A	A	R	A	A	A	A	B						
13							B	276	300	344	R	R	R	R	R	324	248	B						
14							B	272	312	R	R	R	R	A	356	308	248	B						
15							B	A	A	R	A	R	R	R	A	UR 312	A	B						
16							A	260	A	UR 340	R	R	R	A	A	A	A	B						
17							B	256	R	R	R	R	B	R	R	308	UR 244	B						
18							B	A	304	R	R	A	R	A	A	A	A	A						
19							B	R	A	R	A	R	UR 380	R	UR 344	A	A	B						
20							B	216	288	A	A	A	R	R	R	A	A	B						
21							B	248	A	R 340	368	R	R	R	R	UR 304	232	B						
22							B	256	UR 324	R	A	R	R	UR 368	R	300	232	B						
23							B	276	312	A	R	R	R	A	R	UR 300	228	B						
24							B	UA 236	304	A	A	A	A	A	A	A	A	B						
25							B	A	A	A	R	A	A	A	A	A	A	B						
26							B	A	A	A	A	A	A	UR 372	344	R	R	B						
27							B	256	A	UR 336	R	A	R	UR 360	UR 328	300	A	B						
28							B	236	296	348	R	R	R	R	UR 356	296	248	B						
29							B	284	A	R	R	B	R	R	UR 328	UR 300	UR 244	B						
30							B	260	300	332	R	R	UR 380	R	328	284	224	B						
31							B	256	R	R	R	R	R	R	R	292	200	B						
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT							4	25	17	11	2		4	4	10	20	18	2						
MED							190	256	308	340	368		UR 376	UR 364	342	306	248	198						
U Q							204	276	316	348			UR 380	UR 370	R 352	320	264							
L Q							182	252	300	336			UR 368	UR 354	UR 328	300	232							

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

IONOSPHERIC DATA STATION Kokubunji

OCT. 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	E B 16	E B 15	E B 14	E B 15	E B 12	E B 15	24	33	G	E B 54	J A 44	G 30	G 29	G 29	G 23	G	G	26	J A 19	E B 16	E B 15	E B 16	E B 16	J A 22
2	J A 21	19	E B 15	E B 14	E B 15	E B 15	G	33	34	36	37	G	G 28	G 31	40	G 21	32	19	J A 24	22	19	21	19	E B 15
3	E B 16	E B 16	E B 15	E B 14	E B 16	E B 15	23	31	37	43	43	43	G	G 26	G 26	G	G	J A 24	J A 28	J A 22	J A 28	J A 32	J A 18	J A 18
4	E B 14	J A 20	19	E B 12	E B 15	E B 16	26	32	G	40	J A 51	J A 50	41	J A 64	37	G	47	J A 32	J A 26	J A 25	E B 14	E B 14	19	E B 16
5	J A 38	J A 65	J A 34	J A 61	J A 48	J A 41	J A 29	35	37	43	39	46	49	J A 46	G 29	G 24	G	22	E B 14	E B 15	E B 16	E B 15	E B 16	E B 14
6	E B 16	E B 16	21	J A 22	J A 25	J A 21	J A 34	J A 45	44	58	43	44	J A 52	G	G 34	34	35	J A 34	J A 38	J A 47	J A 39	J A 22	E B 14	E B 16
7	19	E B 15	E B 16	E B 14	E B 15	E B 15	B J A 32	34	G	44	G	38	G	G	45	50	J A 54	J A 78	J A 104	J A 28	J A 24	J A 44	23	J A 26
8	J A 22	E B 20	E B 15	E B 15	E B 15	E B 16	G	J A 28	G 27	G	G	G	G	G	G 29	G	32	J A 27	43	J A 33	J A 35	J A 28	E B 17	E B 15
9	E B 16	E B 14	E B 16	J A 35	J A 22	E B 15	G	G	G 23	38	G	G 26	E B 42	G	G	J A 40	30	J A 26	28	J A 42	J A 31	J A 33	J A 28	E B 15
10	E B 16	E B 15	E B 15	19	E B 16	E B 14	21	28	G	G	G	G	G	G	G	G	G	J A E B 19	16	20	22	J A 48	J A 22	E B 16
11	E B 16	E B 16	E B 16	E B 15	E B 16	E B 15	B J A 22	28	36	39	J A 50	J A 129	41	40	40	J A 47	J A 51	J A 29	J A 22	28	J A 18	J A 52	J A 20	J A 50
12	J A 46	J A 86	J A 29	J A 20	J A 23	J A 24	J A 20	32	38	J A 49	40	J A 40	36	J A 54	J A 50	34	28	J A 27	J A 20	J A 20	J A 19	J A 33	J A 22	24
13	21	E B 16	E B 16	E B 13	E B 16	B J A 19	22	33	34	37	42	42	47	42	G	G	J A 36	J A 26	J A 49	J A 41	J A 27	J A 26	J A 22	J A 25
14	J A 27	J A 20	24	J A 18	E B 15	E B 19	19	G	36	G	G	G 24	G 29	38	G	35	30	18	E B 16	J A 24	J A 40	28	J A 54	24
15	J A 22	J A 20	20	19	E B 16	J A 20	J A 30	J A 32	33	J A 44	J A 50	G	G 33	G 35	J A 39	G 28	J A 28	J A 31	J A 30	J A 29	J A 24	E B 14	J A 18	J A 19
16	E B 16	E B 16	E B 14	22	E B 14	J A 22	27	G	J A 35	G	G	G	G	37	35	35	26	J A 54	59	J A 30	J A 40	J A 23	J A 23	J A 18
17	E B 16	E B 16	E B 16	E B 14	E B 15	E B 16	21	28	G 24	G 30	G 26	40	G	G	G	G	G	J A 23	J A 22	E B 16	23	J A 18	E B 16	E B 16
18	J A 23	20	19	20	E B 16	24	21	30	G	G	G	37	G J A 35	40	43	35	J A 63	J A 31	J A 32	J A 29	J A 46	J A 24	J A 24	J A 55
19	J A 28	J A 54	J A 43	J A 22	22	18	20	32	37	G	J A 52	G	G	G 29	G 30	34	J A 28	J A 24	J A 49	J A 52	J A 44	38	J A 26	J A 24
20	J A 27	19	E B 15	E B 16	E B 14	E B 16	23	J A 32	38	J A 48	45	J A 52	G 36	G 34	G	34	J A 33	J A 27	J A 29	J A 32	J A 42	J A 40	32	20
21	E B 15	E B 15	E B 14	E B 12	E B 15	E B 15	20	28	J A 32	G 32	G 28	G 22	G	G	G 23	G	34	J A 31	J A 26	J A 22	J A 27	J A 32	J A 17	E B 16
22	20	J A 20	J A 22	19	E B 16	E B 16	B J A 21	G	G	G	J A 46	G 34	G 30	G	G 27	G 21	G	E B 18	22	E B 15	E B 16	E B 13	20	20
23	22	J A 23	21	E B 16	E B 16	20	E B 18	30	35	35	G 32	G 32	G 36	43	G 26	G 26	23	24	J A 26	E B 16	B J A 18	J A 18	J A 40	J A 48
24	J A 37	J A 26	J A 31	J A 28	J A 26	J A 30	J A 26	J A 31	34	J A 39	J A 49	J A 48	J A 48	40	J A 38	J A 64	J A 46	J A 34	J A 24	J A 28	J A 22	J A 46	23	J A 22
25	J A 22	19	20	18	J A 23	E B 15	B J A 19	J A 37	J A 39	40	G J A 33	82	44	J A 43	J A 43	34	27	J A 44	J A 48	J A 86	J A 34	J A 50	J A 52	J A 24
26	J A 22	J A 32	J A 26	J A 24	19	E B 16	J A 26	J A 32	34	55	J A 46	J A 52	J A 42	G	J A 59	G	J A 27	J A 32	J A 28	J A 26	J A 23	J A 33	J A 25	22
27	J A 24	J A E B 22	16	18	19	E B 16	J A 22	G J A 22	37	G 29	G J A 32	42	G 27	G 26	G 26	33	26	28	J A 24	J A 44	J A 24	J A 25	E B 14	J A 24
28	J A 24	J A E 22	E B 15	E B 15	E B 16	E B 16	B J A 28	28	36	G 28	G 27	G 28	G 24	G 26	G	G 24	29	J A 23	31	J A 20	J A E B 22	14	21	E B 16
29	E B 12	20	20	E B 16	E B 15	E B 16	B J A 20	33	39	G 33	G E B 60		G	G	G	G	30	J A J A 22	20	22	J A 24	18	J A E 22	B 15
30	E B 15	E B 15	E B 13	B J A 20	E B 14	J A 23	J A 20	G	G	G	G	G	G 29	G	G	G	G	E B J A 16	J A 19	J A 24	J A 22	23	J A E 31	B 15
31	E B 15	E B 16	20	J A 18	E B 16	E B 16	B J A 40	G	G 28	G 30	G 32	G 30	G	G 32	G	G	24	J A 28	J A E 23	B 16	E B 16	E B 16	E B 16	E B 16
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31
MED	21	19	E B 16	18	E B 16	E B 16	B J A 22	31	34	36	G E G 37		G	G	G	G	28	J A J A 27	J A 26	J A 25	J A 24	J A 25	J A 22	19
U Q	J A 24	J A 22	J A 21	J A 20	J A 19	J A 20	J A 26	33	37	43	J A 45	J A 46	41	J A 40	39	34	J A 34	J A 31	J A 32	J A 32	J A 34	J A 33	J A 25	J A 24
L Q	E B 16	E B 16	E B 15	E B 15	E B 15	E B 15	20	G 28	G	G	G	G 34	G 33	G 34	G 29	G	G 23	23	22	E B 20	E B 19	E B 18	E B 17	E B 16

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

IONOSPHERIC DATA STATION Kokubunji

OCT. 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	E B 16	E B 15	E B 14	E B 15	E B 12	E B 15	23	31	G	E B 54	41	G 30	G 29	G 29	G 23	G	G	25	E B 16	E B 16	E B 15	E B 16	E B 16	20
2	E B 14	E B 14	E B 15	E B 14	E B 15	E B 15	G	30	U Y 34	U Y 36	U Y 37	G	G 28	G 31	40	G 21	32	U Y 19	22	E B 15	E B 15	16	16	E B 15
3	E B 16	E B 16	E B 15	E B 14	E B 16	E B 15	22	30	36	41	U Y 43	43	G	G 26	G 26	G	G	21	25	17	25	23	E B 15	E B 16
4	E B 14	E B 16	15	E B 12	E B 15	E B 16	22	30	G	40	45	45	41	63	U Y 37	G	44	28	20	21	E B 14	E B 14	E B 14	E B 16
5	29	A A 65	20	A A A 61	A 48	26	23	34	U Y 37	41	U Y 39	46	49	45	G 29	G 24	G	21	E B 14	E B 15	E B 16	E B 15	E B 16	E B 14
6	E B 16	E B 16	E B 14	18	19	18	31	40	43	56	43	43	49	G	G U Y 34	U Y 33	34	30	21	34	37	19	E B 14	E B 16
7	16	E B 15	E B 16	E B 14	E B 15	E B 15	23	33	G	42	G U Y 38		G	G	45	50	51	53	42	24	18	19	16	25
8	17	E B 20	E B 15	E B 15	E B 15	E B 16	G	27	G 27	G	G	G	G	G	G 29	G	28	25	43	29	32	24	E B 17	E B 15
9	E B 16	E B 14	E B 16	28	16	E B 15	G	G	G 23	38	G	G 26	E B 42	G	G	40	28	22	24	28	24	24	20	E B 15
10	E B 16	E B 15	E B 15	E B 16	E B 16	E B 14	20	28	G	G	G	G	G	G	G	G	G	18	E B 16	E B 15	E B 16	18	18	E B 16
11	E B 16	E B 16	E B 16	E B 15	E B 16	E B 15	20	U Y 28	34	38	42	43	41	40	36	39	31	21	20	26	16	24	E B 15	18
12	23	54	17	17	E B 15	16	19	30	36	44	39	40	U Y 36	53	46	34	27	24	16	18	E B 14	20	17	16
13	E B 15	E B 16	E B 16	E B 13	E B 16	16	22	29	U Y 34	U Y 37	42	41	45	U Y 42	G	G	35	22	34	39	23	E B 12	18	18
14	21	18	19	E B 16	E B 15	E B 19	18	G	34	G	G	G 24	G 29	U Y 38	G	33	28	18	E B 16	22	34	22	44	E B 15
15	E B 16	E B 14	E B 15	E B 16	E B 16	17	28	30	U Y 33	44	43	G	G 33	G 35	37	G 28	28	27	21	23	19	E B 14	E B 16	E B 16
16	E B 16	E B 16	E B 14	E B 16	E B 14	E B 15	24	G	32	G	G	G	G	37	35	U Y 35	U Y 26	36	58	20	26	E B 15	17	E B 14
17	E B 16	E B 16	E B 16	E B 14	E B 15	E B 16	20	28	G 24	G 30	G 26	U Y 40	G	G	G	G	G	19	18	E B 16	E B 16	E B 16	E B 16	E B 16
18	18	E B 15	E B 16	E B 16	E B 16	E B 16	20	28	G	G	G	37	G 35	38	43	34	48	23	30	28	E B 14	18	16	43
19	17	38	29	E B 15	16	16	20	26	34	G	42	G	G	G 29	G 28	33	25	20	44	20	E B 16	U Y 38	21	22
20	22	16	E B 15	E B 16	E B 14	E B 16	E B 18	24	36	41	45	42	G 36	G 34	G	34	32	23	25	29	26	28	29	17
21	E B 15	E B 15	E B 14	E B 12	E B 15	E B 15	19	26	32	G 31	G 28	G 22	G	G	G 23	G	33	27	18	16	16	22	16	E B 16
22	16	E B 14	16	E B 16	E B 16	E B 16	18	G	G	G	42	G 34	G 30	G	G 27	G 20	G	E B 18	E B 15	E B 15	E B 16	E B 16	E B 13	E B 15	E B 16
23	16	16	E B 16	E B 16	E B 16	E B 15	E B 18	29	33	35	G 32	G 32	G 35	41	G 26	G 22	G 20	17	22	E B 16	E B 16	E B 15	32	28
24	27	E B 16	24	22	24	28	25	27	33	36	44	46	47	U Y 40	37	47	34	31	21	26	18	40	18	E B 16
25	E B 16	16	E B 15	E B 16	20	E B 15	18	27	32	37	G 32	51	U Y 44	41	42	32	26	40	48	55	28	29	29	E B 16
26	17	18	24	E B 15	E B 16	E B 16	19	27	32	36	42	48	42	G	42	G	26	20	21	E B 15	17	16	19	16
27	17	E B 16	E B 16	E B 16	E B 15	E B 16	18	G 22	33	G 28	G 32	41	G 27	G 26	G 23	32	25	25	17	18	E B 16	E B 15	E B 14	E B 16
28	E B 15	E B 16	E B 15	E B 15	E B 16	E B 16	18	26	33	G 28	G 26	G 28	G 24	G 25	G	G 24	28	16	27	16	18	E B 14	E B 15	E B 16
29	E B 12	E B 16	E B 16	E B 16	E B 15	E B 16	17	G 28	32	G 32	G	E B 60	G	G	G	G	26	17	18	E B 16	22	16	16	E B 15
30	E B 15	E B 15	E B 13	E B 14	E B 14	E B 15	E B 16	G	G	G	G	G	G 29	G	G	G	G	E B 16	17	23	16	18	18	E B 15
31	E B 15	E B 16	18	E B 16	E B 16	E B 16	19	G	G 27	G 30	G 32	G 30	G	G 31	G	G	24	23	17	E B 16	E B 16	E B 16	E B 16	E B 16
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31
MED	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	19	G	32	36	G E 37	G	G	G	G	G	27	22	21	20	16	18	16	E B 16
U Q	17	16	16	16	16	16	22	30	34	41	42	43	41	40	37	34	32	27	27	26	24	23	18	17
L Q	E B 15	E B 15	E B 15	E B 14	E B 15	E B 15	18	27	G	G	G	G 34	G 33	G 34	G 29	G	G	19	E B 17	E B 16	E B 16	E B 15	E B 16	E B 15

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

IONOSPHERIC DATA STATION Kokubunji

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

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	16	15	14	15	12	15	14	16	19	54	21	23	20	18	14	20	20	16	16	16	15	16	16	16
2	14	14	15	14	15	15	15	16	18	24	23	28	22	22	17	16	15	14	15	15	15	14	12	15
3	16	16	15	14	16	15	15	14	19	22	22	22	28	20	20	16	16	16	14	15	14	14	15	16
4	14	16	14	12	15	16	16	15	14	21	19	25	26	20	19	14	16	16	14	16	14	14	14	16
5	16	15	16	14	16	15	15	18	22	21	22	29	22	21	14	16	18	13	14	15	16	15	16	14
6	16	16	14	14	16	14	15	16	19	21	27	26	26	27	16	18	17	15	13	15	16	15	14	16
7	14	15	16	14	15	15	16	16	14	22	25	27	25	26	24	20	17	14	14	14	12	14	16	14
8	16	20	15	15	15	16	22	17	20	24	23	26	24	23	17	16	18	16	16	16	15	15	17	15
9	16	14	16	12	13	15	16	14	16	16	26	17	42	22	22	18	18	15	13	13	15	16	15	15
10	16	15	15	16	16	14	14	15	17	25	23	24	28	23	22	17	17	15	16	15	16	15	15	16
11	16	16	16	15	16	15	15	16	20	23	21	40	23	23	20	22	16	14	16	14	15	15	15	16
12	16	16	15	15	15	15	12	14	18	20	16	24	24	19	18	19	13	14	12	14	14	16	15	15
13	15	16	16	13	16	15	16	18	19	21	16	19	28	20	20	16	15	16	16	16	16	12	14	15
14	16	15	16	16	15	19	14	16	18	20	25	19	17	23	21	22	16	12	16	15	16	17	16	15
15	16	14	15	16	16	14	16	14	19	23	28	27	24	20	19	16	13	16	16	15	15	14	16	16
16	16	16	14	16	14	15	13	16	14	16	22	23	30	22	21	24	18	15	15	16	16	15	15	14
17	16	16	16	14	15	16	16	16	14	15	20	28	44	25	22	18	19	16	14	16	16	16	16	16
18	16	15	16	16	16	16	15	18	19	19	21	22	21	19	19	14	16	16	15	16	14	15	16	16
19	16	15	16	15	16	12	16	15	14	16	21	22	24	21	20	19	16	15	16	16	16	16	14	15
20	16	14	15	16	14	16	18	15	20	23	19	22	26	25	21	18	15	16	12	14	12	13	15	12
21	15	15	14	12	15	15	15	16	16	19	16	16	28	23	16	20	16	12	14	14	14	16	13	16
22	14	14	14	16	16	16	12	15	17	19	15	22	21	22	21	16	14	18	15	15	16	13	15	16
23	14	15	16	16	16	15	18	16	15	19	21	25	18	16	16	16	16	16	16	16	16	15	14	17
24	14	16	16	15	16	16	16	14	14	16	18	19	22	22	19	17	14	16	16	16	16	16	15	16
25	16	14	15	16	16	15	15	16	16	15	19	19	18	16	20	17	16	16	16	16	16	15	16	16
26	15	15	16	15	16	16	17	16	16	16	24	23	19	27	22	18	15	16	15	15	16	14	16	15
27	14	16	16	16	15	16	15	16	23	22	22	18	21	18	15	14	16	16	16	15	16	15	14	16
28	15	16	15	15	16	16	16	15	16	19	21	20	18	16	22	16	16	15	15	14	15	14	15	16
29	12	16	16	16	15	16	16	16	16	16	23	60	28	28	17	19	16	16	13	16	12	14	14	15
30	15	15	13	14	14	15	16	15	16	18	24	28	23	23	21	16	16	16	15	15	14	16	16	15
31	15	16	16	16	16	16	17	16	22	18	19	19	30	19	15	23	18	16	16	16	16	16	16	16
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31
MED	16	15	15	15	16	15	16	16	17	20	21	23	24	22	20	17	16	16	15	15	15	15	15	16
U Q	16	16	16	16	16	16	16	16	19	22	23	27	28	23	21	19	17	16	16	16	16	16	16	16
L Q	14	15	15	14	15	15	15	15	16	16	19	19	21	19	17	16	15	15	14	15	14	14	14	15

IONOSPHERIC DATA STATION Kokubunji

OCT. 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	256	R 284	243	238	259	264	302	290	R 286	296	R 301	309	300	296	293	304	309	311	315	R 284	273	R 282	271	281
2	266	272	288	298	R 274	277	335	R 331	319	309	295	288	282	281	287	293	296	R 312	304	R 296	280	R 282	R 276	R 278
3	R 280	288	281	259	246	260	332	339	317	R 307	300	285	282	277	276	282	293	299	R 285	276	267	R 262	R 255	R 256
4	R 263	258	259	R 267	266	264	297	305	321	296	291	286	R 287	288	291	298	308	305	306	312	R 280	R 268	R 254	R 264
5	232	A	R 236	A	A	235	R 298	298	317	276	294	276	296	287	291	280	284	R 290	276	R 257	R 281	266	228	R 233
6	217	R 292	369	R 243	251	262	R 329	R 291	317	314	R 315	299	300	300	306	297	301	330	315	R 306	288	291	267	276
7	265	266	285	282	279	289	340	R 345	342	315	313	311	301	290	304	308	313	R 323	R 334	312	280	283	268	267
8	258	256	276	309	306	273	341	333	334	312	304	301	299	291	297	299	311	331	326	R 301	285	R 292	R 288	283
9	283	275	287	291	285	280	R 329	R 336	341	328	309	312	301	296	294	298	312	321	R 331	315	295	294	277	286
10	R 283	R 294	280	291	271	270	R 325	343	331	313	312	296	286	285	288	299	309	307	324	R 284	273	274	278	290
11	R 293	R 284	275	263	268	312	R 334	R 305	333	318	R 295	297	R 290	286	291	296	308	R 312	324	R 316	R 262	R 269	R 295	R 281
12	R 286	R 264	R 292	318	282	271	318	339	R 328	R 314	294	300	293	296	295	297	308	325	R 309	299	R 296	R 283	R 287	R 288
13	279	275	283	299	320	268	329	339	333	307	304	300	287	276	284	292	295	309	306	R 262	R 269	R 283	309	267
14	R 282	R 286	R 273	265	276	267	R 324	R 336	318	J R 304	297	300	295	287	286	294	R 291	299	304	282	R 273	276	R 276	R 278
15	R 272	235	244	R 261	237	R 252	R 300	311	323	320	R 303	U R 308	295	294	299	305	311	324	312	R	R 312	R 312	298	279
16	267	268	287	282	281	263	R 335	R 338	336	R 332	306	307	294	290	290	305	314	R 309	R 299	R 288	314	R 300	R 288	263
17	290	286	282	288	264	269	317	334	325	317	295	301	300	293	295	293	305	320	322	291	R 283	R 284	281	R 282
18	R 297	293	276	293	308	290	337	330	327	329	R 312	295	293	292	294	298	304	308	R 309	R 296	R 303	288	286	272
19	270	278	R 313	331	299	276	R 344	329	R 314	318	304	301	292	297	296	301	307	307	310	R 310	R 299	R 317	R 299	R 286
20	274	F 272	R 288	328	R 327	305	336	345	322	316	R 317	312	286	296	293	295	302	313	308	315	305	R 285	R 293	295
21	286	294	290	311	307	298	342	R 335	333	314	R 297	304	289	286	292	300	R 301	315	322	311	297	R 309	R 287	289
22	272	270	294	R 331	346	295	330	355	333	323	298	296	R 295	293	298	303	299	R 314	R 334	R 303	R 303	292	268	R 254
23	R 268	264	269	275	R 253	R 259	317	327	316	287	303	300	296	287	292	293	297	297	301	318	R 302	272	R 280	266
24	R 274	297	305	314	R 287	R 299	317	318	330	325	R 301	303	292	283	293	297	302	318	R 321	316	304	R 271	R 265	R 287
25	273	298	292	296	266	264	R 307	339	334	312	310	301	295	297	295	300	R 307	310	R 312	301	R 293	R 294	305	264
26	256	268	286	303	255	262	R 314	331	R 331	302	R 313	298	296	292	R 294	299	299	R 306	R 312	R 301	R 304	281	290	274
27	R 274	284	288	288	268	R 279	309	339	312	307	303	308	292	287	293	296	306	316	303	R 301	R 309	R 308	R 297	291
28	R 287	J R 299	306	281	273	279	R 318	329	329	320	R 325	305	289	296	306	305	314	313	302	303	J R 304	319	R 260	268
29	272	322	263	295	259	268	R 321	327	311	R 321	291	285	280	276	280	280	280	289	287	279	277	274	270	R 269
30	R 305	255	259	256	243	240	293	321	317	305	299	289	293	292	297	301	311	306	312	309	R 286	277	284	R 277
31	283	274	266	276	266	286	314	329	327	316	299	289	292	284	295	297	293	309	293	R 291	295	R 304	R 291	280
	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	30	31	30	30	31	31	31	31	31	31	31	31	31	31	31	31	31	31	30	31	31	31	31
MED	274	276	283	290	272	270	324	331	327	314	303	300	293	290	293	298	305	311	310	301	293	R 283	R 281	278
U Q	R 283	292	290	303	287	286	335	339	333	320	R 310	305	296	296	296	301	309	318	322	311	303	R 294	R 291	286
L Q	266	268	269	267	259	263	314	321	317	307	297	295	289	286	291	294	297	306	303	R 288	280	274	268	267

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

IONOSPHERIC DATA STATION Kokubunji

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

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

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

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

IONOSPHERIC DATA STATION Kokubunji

OCT. 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								318	310	300	290	302	304	296	302	294	296							
2										264	288	304	322	324	304		290							
3									270	274	286	298	316	318	326	318								
4									264	312	288	292	322	304	306	290								
5								288	258	312	286	350	318	316	306	296	302							
6								308	248	280	234	306	310	274	308	290	298							
7									244	270	286	268	294	302	288	264	258							
8											274	288	296	308	284	302								
9									254	254	296	272	274	298	278	282								
10											264	292	300	294	308	284								
11									262	256	310	292	296	310	294	290								
12											294	280	282	296	280	288								
13											286	286	316	318	308	292								
14									270	272	290	288	302	326	292	292	276							
15									268	266	280	262	294	304	294									
16										242	284	280	294	296	310									
17										260	266	296	288	298	304	302								
18									278	266	280	298	304	284	302	292								
19									270	262	300	296	316	300	298	294								
20										268	276	276	328	300	296	300	286							
21										264	312	304	316	302	314									
22										254	286	300	302	306	298									
23										314	278	286	286	294	308	296	288							
24											302	276		328	310									
25											278	284	308	278	296	292								
26										282	278	282	312	306	298	280								
27									266	258	298	288	318	294	290									
28											248	268	316	300		290								
29										268	300	310	314	330	336	316								
30									276	284		294	302	310	304	264								
31										270	274	302	292	322	302		286							
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								3	14	24	30	31	30	31	30	23	9							
MED								308	267	268	286	292	304	302	302	292	288							
U Q								318	270	281	294	300	316	316	308	296	297							
L Q								288	258	261	278	280	294	296	294	288	281							

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

IONOSPHERIC DATA STATION Kokubunji

OCT. 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	306	270	258	334	312	278	268	266	258	B	224	222	242	222	232	244	250	240	220	232	268	254	294	296
2	298	278	268	238	270	294	228	228	228	214	212	226	226	238	234	248	242	238	226	216	266	272	284	286
3	272	246	236	322	354	284	224	224	222	226	232	224	224	220	246	246	244	246	234	272	296	292	298	300
4	288	268	262	266	236	308	264	234	240	226	236	228	232	E A 270	240	242	250	242	248	240	222	266	266	314
5	244	A	E A 422	A	A	470	278	E A 252	A	222	232	244	250	E A 258	232	U R 260	248	274	236	262	236	270	454	412
6	E B 422	298	236	E A 432	E A 342	E A 378	246	E A 244	A	E A 254	E A 224	H 208	E A 242	220	228	236	246	240	220	252	E A 282	E A 246	264	294
7	312	300	278	266	276	276	230	224	218	210	236	230	246	244	E A 256	A	A	E A 248	230	222	236	E A 258	E A 294	E A 336
8	334	320	302	252	236	280	234	222	224	224	216	H 216	240	240	234	240	244	238	228	242	E A 288	E A 278	266	260
9	270	296	288	E A 304	E A 268	268	226	228	224	218	224	240	228	220	242	242	238	232	226	236	E A 272	E A 260	E A 268	272
10	274	264	274	276	280	290	244	216	220	226	224	208	230	234	234	240	238	232	224	220	270	288	282	262
11	236	272	284	312	298	232	220	214	226	222	222	226	218	226	234	248	242	236	214	214	E A 254	E A 326	270	282
12	E A 280	E A 472	274	218	260	300	260	234	224	226	210	208	222	E A 260	248	234	244	228	208	220	226	E A 274	E A 268	E A 274
13	286	288	286	242	216	E A 300	242	226	226	230	240	216	248	E A 250	244	226	254	224	222	E A 324	E A 316	274	250	270
14	E A 290	E A 292	E A 280	E A 278	272	310	234	218	218	236	218	240	242	238	238	246	228	236	216	E A 252	E A 294	E A 280	E A 348	250
15	300	268	E A 360	328	E B 376	E A 354	200	220	242	E A 244	E A 230	230	234	226	240	238	238	230	228	252	238	226	242	282
16	284	300	268	262	280	324	228	224	224	214	222	224	232	226	240	246	228	230	E A 298	256	242	248	274	302
17	288	278	274	262	264	300	228	224	230	222	224	206	236	232	244	240	240	226	206	220	260	264	288	282
18	264	268	288	264	236	244	216	218	220	228	208	H 224	236	210	252	242	236	224	232	E A 240	228	E A 270	266	E A 372
19	E A 304	E A 352	274	226	260	E A 276	222	214	226	224	232	220	222	236	230	246	230	220	E A 256	236	240	E A 290	E A 266	E A 294
20	E A 300	E A 310	278	228	218	230	222	218	220	226	230	E A 232	224	230	234	234	236	224	234	236	240	E A 288	E A 304	282
21	272	284	270	246	220	250	234	210	218	220	226	244	250	230	224	250	236	222	220	222	226	E A 250	256	270
22	312	310	284	238	208	266	234	220	226	220	224	218	230	234	238	242	228	242	208	218	228	256	302	340
23	308	E A 314	310	278	354	366	230	224	224	230	222	234	228	A	232	238	236	236	230	218	216	284	E A 328	E A 330
24	E A 314	264	258	258	E A 294	E A 306	232	222	228	228	230	E A 240	236	232	226	246	236	228	222	230	226	E A 356	298	266
25	296	250	250	250	E A 328	312	258	232	222	226	210	242	230	238	232	242	232	230	E A 250	E A 290	E A 264	E A 262	E A 276	276
26	336	300	E A 286	244	306	338	262	232	228	220	E A 230	216	228	232	E A 238	228	232	222	210	248	228	258	278	270
27	E A 296	286	252	248	272	284	258	244	226	222	234	224	230	226	238	234	234	232	218	236	238	238	256	274
28	270	262	244	294	310	306	242	228	226	232	214	210	216	248	250	234	234	234	220	228	244	230	316	316
29	298	250	306	256	316	330	262	236	230	226	230	242	240	238	244	240	244	244	242	264	268	262	250	274
30	248	240	304	284	344	360	288	230	230	232	236	230	220	238	238	228	232	224	226	246	234	290	288	280
31	262	284	322	290	262	270	246	218	228	206	232	226	240	230	242	230	228	224	222	242	254	248	252	262
	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	30	31	30	30	31	31	31	29	30	31	31	31	30	31	30	30	31	31	31	31	31	31	31
MED	285	276	276	260	270	292	234	224	226	225	224	225	231	232	238	241	237	232	224	234	238	260	272	278
U Q	306	300	288	290	312	324	258	232	228	228	232	234	240	238	244	246	244	240	234	252	E A 268	284	298	302
L Q	272	268	262	246	260	276	228	218	222	220	222	216	226	226	232	234	232	224	220	222	228	254	266	270

IONOSPHERIC DATA STATION Kokubunji

OCT. 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							B 114	114		B	A	A	118	A	116	116	118	136						
2							138	114	114	114	120	116	A	A	A	116	114	B						
3							138	118	120	118	118	114	118	116	118	116	118	B						
4							136	122	116	114	114	112	114	114	112	112	A	A						
5							B 120		122	116	116	120	A	A	124	122	120	B						
6							B 118		114	116	116	114	116	112	A	126	124	120						
7							B	A 120	116	118	116	114	118	120	118	120	B							
8							B	A 122	116	116	112	114	114	122	114	122	B							
9							134	116	122	114	122	116	B	118	114	116	116	B						
10							B	A 114	116	114	116	116	118	118	120	122	A							
11							B 124		118	116	112	B	124	116	116	118	118							
12							B 120		114	108	118	118	116	A	118	118	118	B						
13							B 118		120	118	110	118	118	122	118	122	116	B						
14							B 120		114	116	116	116	A	118	114	114	114	B						
15							B	A	A 114		A	112	122	A	A	130	A	B						
16							A 116		118	112	116	116	112	114	118	118	A	B						
17							B 124		120	A	120	118	B	118	120	114	118	B						
18							B 120		116	116	116	A	118	A	A	A	A	A						
19							B 118		A	116	A	118	116	118	120	A	A	B						
20							B	A 118	116	118	A	130	128	118	A	A	B							
21							B 140		114	A	118	118	118	118	118	118	122	B						
22							B 120		112	114	A	120	120	118	120	118	120	B						
23							B 114		116	112	A	124	A	A	114	122	124	B						
24							B	A 118		A	A	A	A	A	A	A	A	B						
25							B	A	A	A	E A 132	A	A	A	118	116	120	B						
26							B 114		A	A	A	A	A	120	114	116	118	B						
27							B 122		A	118	120	A	122	122	112	114	A	B						
28							B 124		116	120	118	118	120	118	120	118	126	B						
29							B 156		A	128	112	B	120	116	116	112	132	B						
30							B 122		114	114	116	118	122	118	116	116	122	B						
31							B 118		124	126	126	118	114	114	114	122	126	B						
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT							4	24	25	25	24	22	22	22	26	27	23	2						
MED							137	120	116	116	116	117	118	118	118	118	120	128						
U Q							138	122	120	117	119	118	120	118	120	120	122							
L Q							135	117	114	114	116	116	116	116	114	116	118							

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

IONOSPHERIC DATA STATION Kokubunji

OCT. 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	B	B	B	B	B	B	142	128	G	B	102	100	102	104	102	G	G	124	114	B	B	B	B	104
2	100	118	B	B	B	B	G	132	120	120	118	G	100	104	100	104	136	140	118	102	100	98	96	B
3	B	B	B	B	B	B	146	156	136	126	124	124	G	106	106	G	G	122	116	112	106	108	110	108
4	B	104	102	B	B	B	156	128	G	134	118	114	118	110	118	G	104	106	102	110	B	B	112	B
5	108	110	106	108	104	118	122	122	126	122	118	118	114	110	106	106	G	142	B	B	B	B	B	B
6	B	B	130	118	118	122	122	118	122	118	118	116	112	G	106	120	162	126	112	112	106	108	B	B
7	98	B	B	B	B	B	100	126	G	122	G	114	G	G	152	142	124	116	110	110	108	106	108	100
8	104	B	B	B	B	B	G	110	104	G	G	G	G	G	106	G	134	118	96	96	92	92	B	B
9	B	B	B	104	102	B	G	G	106	140	G	102	B	G	G	122	130	116	108	104	102	102	100	B
10	B	B	B	98	B	B	156	170	G	G	G	G	G	G	G	G	G	142	B	114	108	114	106	B
11	B	B	B	B	B	B	142	140	144	134	132	116	130	130	130	120	114	110	108	104	108	104	112	112
12	102	100	102	100	100	98	132	116	116	114	118	114	116	108	110	116	116	112	106	106	104	102	104	100
13	98	B	B	B	B	118	148	146	132	128	122	124	118	118	G	G	112	108	106	102	100	100	100	100
14	96	94	98	100	B	B	138	G	122	G	G	102	100	120	G	152	126	122	B	108	102	106	102	108
15	104	102	104	132	B	118	108	108	110	110	108	G	108	104	102	102	100	98	96	94	102	B	100	96
16	B	B	B	106	B	104	102	G	116	G	G	G	G	114	114	114	106	104	102	104	100	104	102	104
17	B	B	B	B	B	B	146	140	106	108	106	146	G	G	G	G	G	100	98	B	104	106	B	B
18	96	100	100	100	B	104	150	114	G	G	G	106	108	106	106	106	102	98	102	106	108	102	102	104
19	102	100	102	108	108	108	122	120	106	G	108	G	G	106	108	110	110	108	108	106	104	102	96	100
20	94	96	B	B	B	B	148	112	112	114	112	110	112	116	G	108	104	104	114	104	100	102	98	92
21	B	B	B	B	B	B	154	166	114	112	104	106	G	G	100	G	122	112	110	112	110	104	112	B
22	100	102	98	98	B	B	124	G	G	G	108	108	108	G	104	106	G	B	120	B	B	B	96	102
23	100	100	100	B	B	98	B	142	130	124	110	110	100	102	104	100	100	104	112	B	100	98	102	102
24	100	102	100	98	100	98	96	118	124	110	106	104	106	110	112	106	106	106	106	104	104	100	100	104
25	104	104	100	120	116	B	122	112	110	108	108	102	102	114	116	114	114	106	106	106	104	102	100	106
26	102	102	100	102	102	B	118	120	108	120	108	104	110	G	118	G	124	110	110	108	120	112	100	108
27	102	100	B	104	104	B	116	108	104	106	104	100	104	100	98	128	114	102	108	106	112	104	B	102
28	100	104	B	B	B	B	100	134	124	108	104	104	100	102	G	110	138	124	102	112	106	B	104	B
29	B	104	98	B	B	B	158	150	106	108	G	B	G	G	G	G	100	100	112	114	106	112	110	B
30	B	B	B	110	B	110	110	G	G	G	G	G	108	G	G	G	G	B	102	100	98	102	100	B
31	B	B	118	116	B	B	106	G	108	110	110	106	G	102	G	G	142	96	108	B	B	B	B	B
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	18	17	15	17	9	11	27	25	24	22	22	23	20	20	21	19	24	29	28	25	26	24	24	18
MED	100	102	100	104	104	108	124	126	115	116	109	108	108	107	106	110	114	110	108	106	104	103	102	103
U Q	102	104	104	113	112	118	148	141	124	124	118	116	113	114	115	120	128	122	112	111	108	106	107	106
L Q	98	100	100	100	101	98	110	115	107	110	106	104	102	104	103	106	105	104	102	104	100	102	100	100

IONOSPHERIC DATA STATION Kokubunji

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

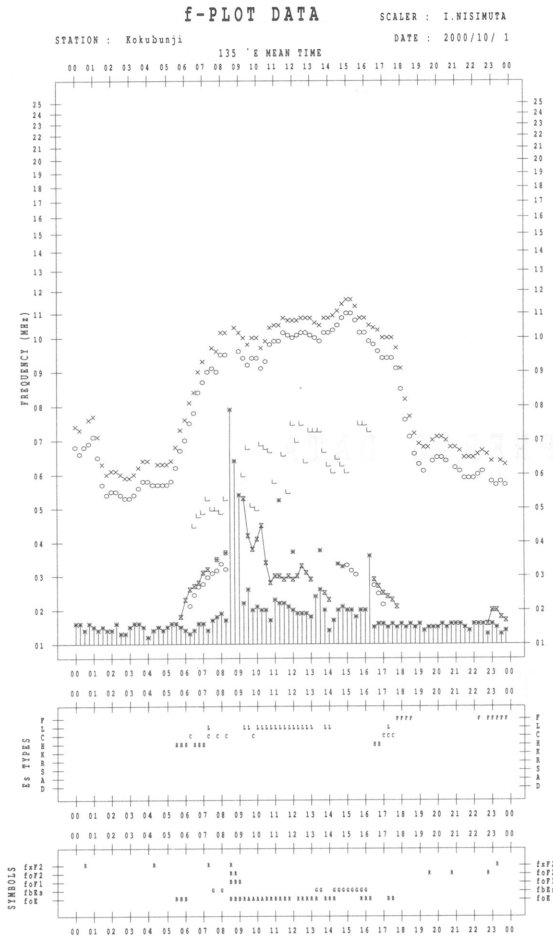
LAT. 35°42.4'N LON. 139°29.3'E SWEEP 1.0MHz TO 25.0MHz IN 24.0SEC IN MANUAL SCALING

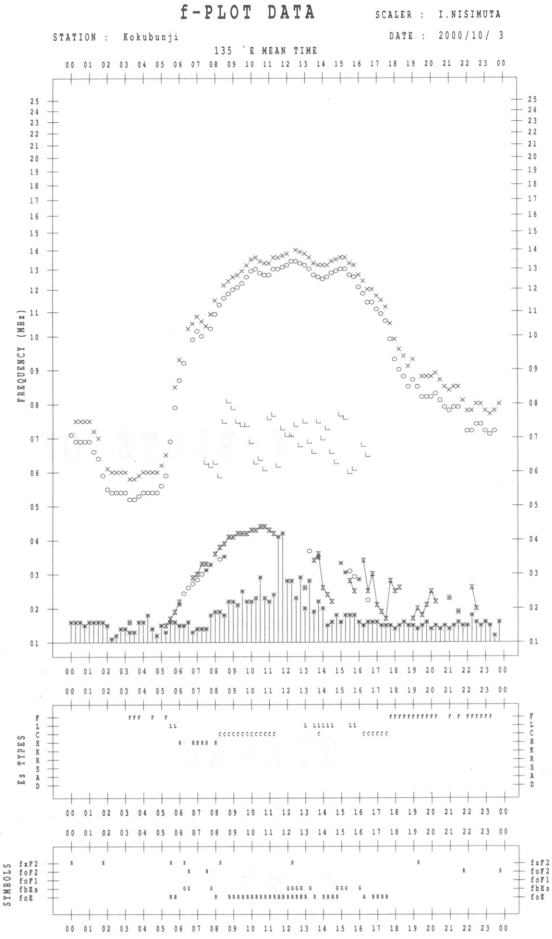
D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							H 1	H 1			L 1	L 1	L 1	L 1	L 1			C 2	F 2					F 2
2	F 2	F 1						C 1	C 1	C 1	C 1		L 1	L 1	L 1	L 1	HL 11	HL 11	F 2	F 1	F 1	F 1	F 1	
3							H 1	H 1	H 1	C 1	C 1	C 1		L 1	L 1			C 2	FF 31	F 1	F 5	F 2	F 1	F 1
4		F 2	F 3		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

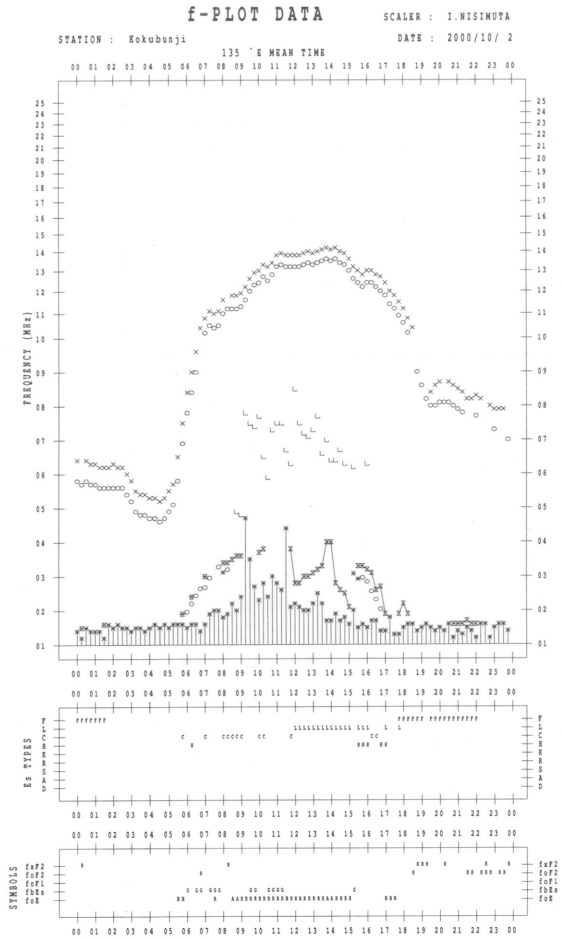
OCT. 2000 TYPES OF Es COMMUNICATIONS RESEARCH LABORATORY, JAPAN

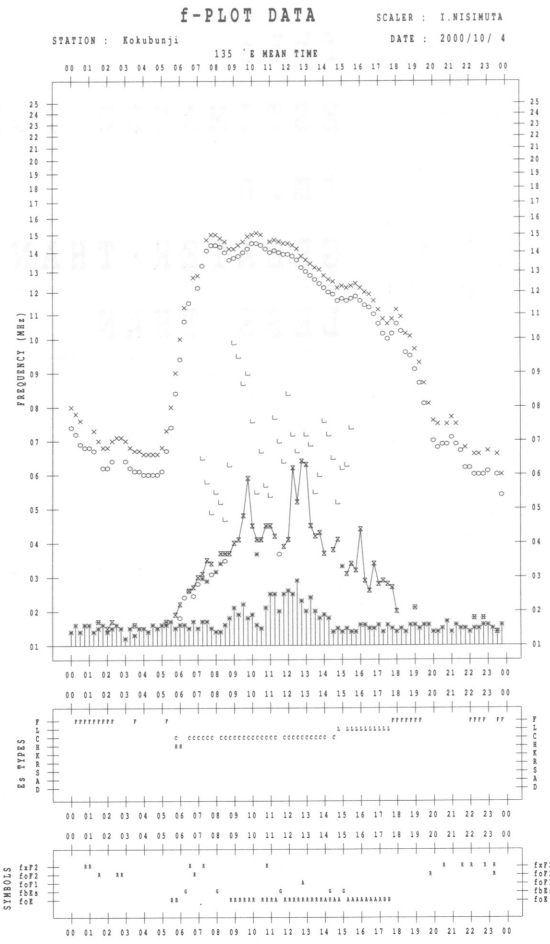
f-PLOTS OF IONOSPHERIC DATA

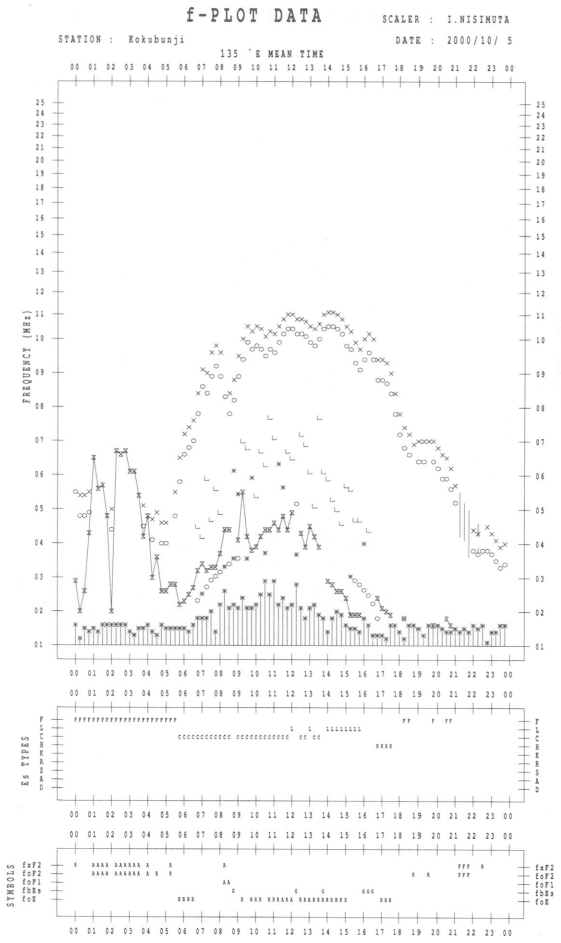
KEY OF f-PLOT	
	SPREAD
	foF2, foF1, foE
	fxF2
	DOUBTFUL foF2, foF1, foE
	fbEs
	ESTIMATED foF1
	fmin
	GREATER THAN
	LESS THAN

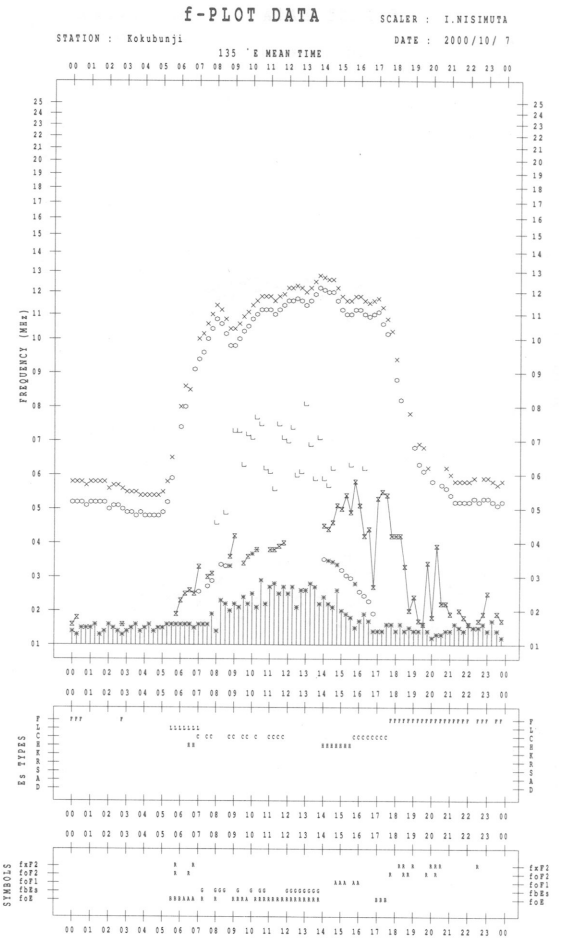

f-PLOT DATA
SCALER : I.NISIMUTA
STATION : Kokubunji
DATE : 2000/10/ 1
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE

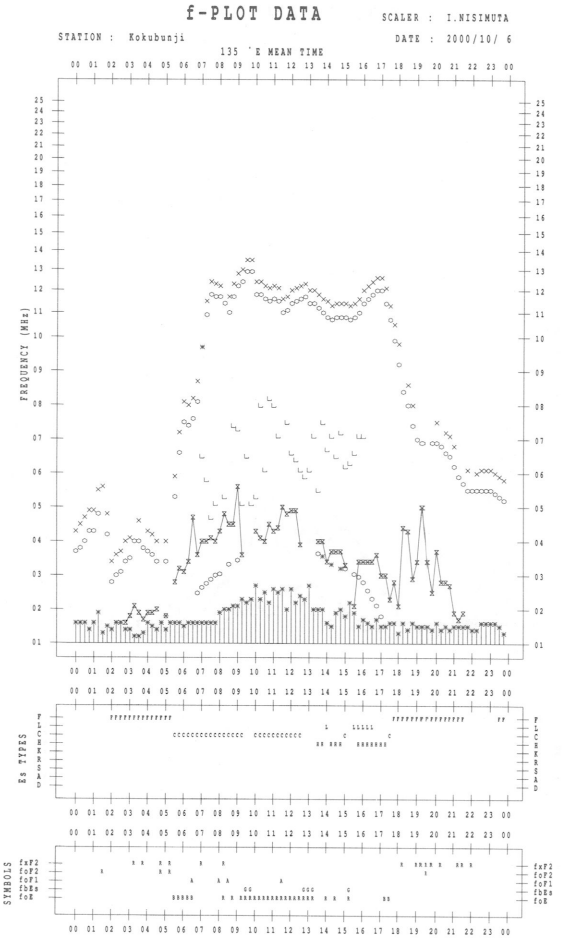

f-PLOT DATA
SCALER : I.NISIMUTA
STATION : Kokubunji
DATE : 2000/10/ 3
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE

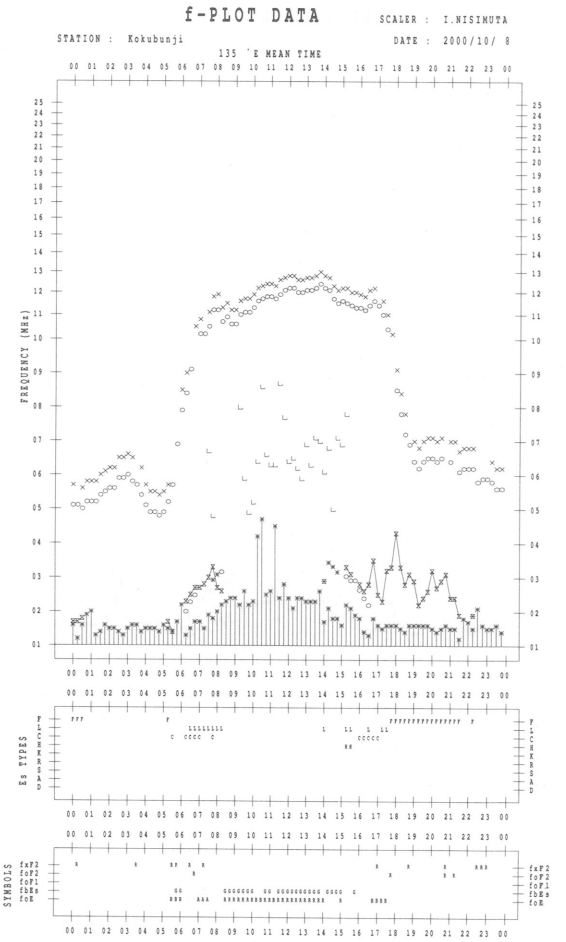

f-PLOT DATA
SCALER : I.NISIMUTA
STATION : Kokubunji
DATE : 2000/10/ 2
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE

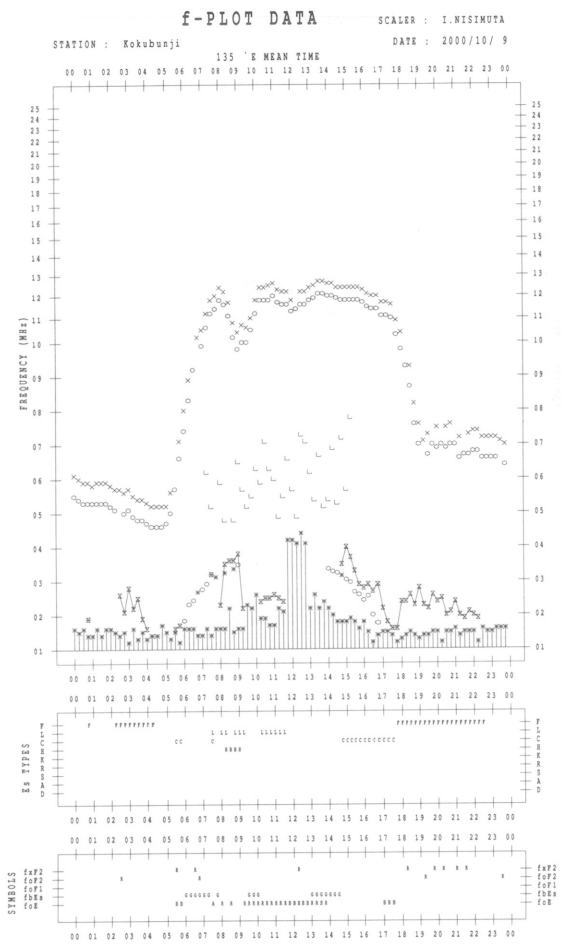

f-PLOT DATA
SCALER : I.NISIMUTA
STATION : Kokubunji
DATE : 2000/10/ 4
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE

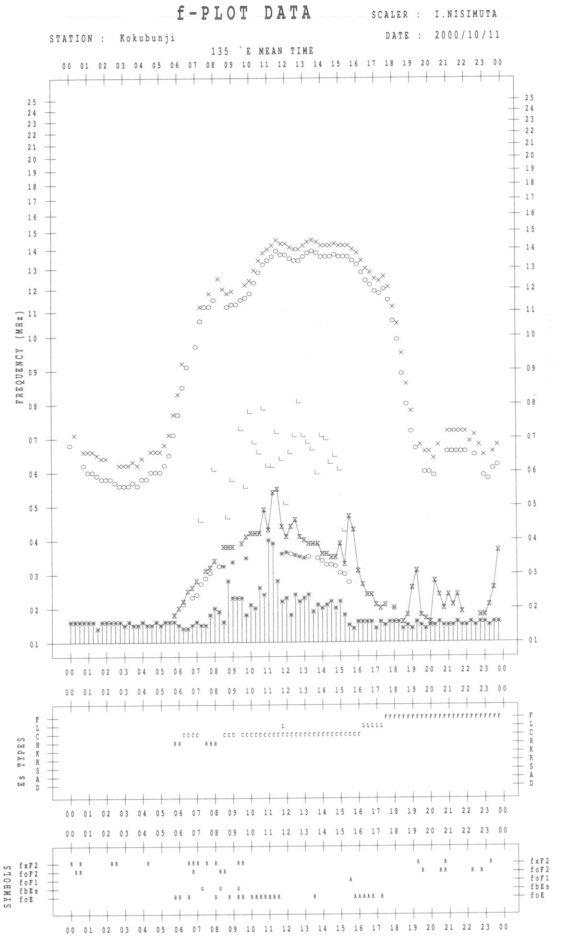

f-PLOT DATA
SCALER : I.NISIMUTA
STATION : Kokubunji
DATE : 2000/10/ 5
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE

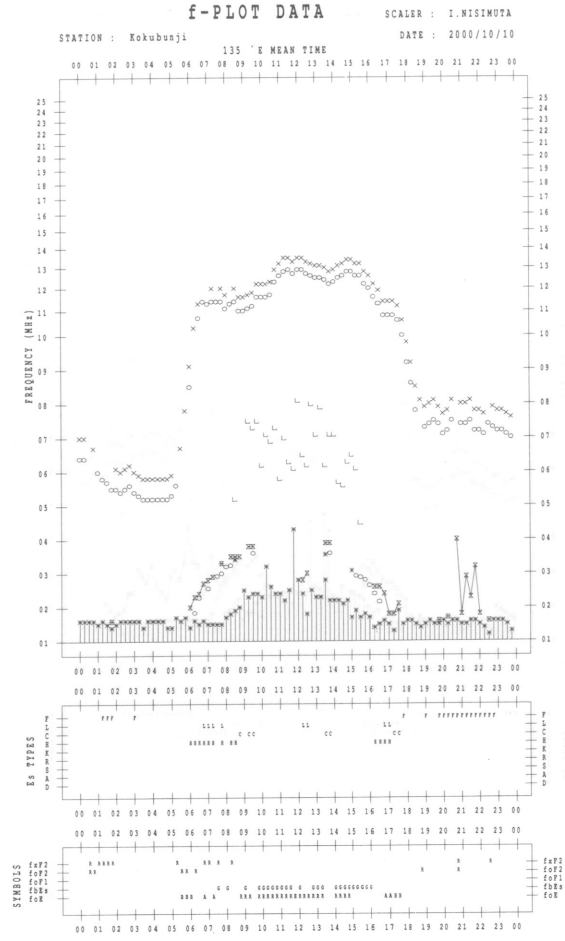

f-PLOT DATA
SCALER : I.NISIMUTA
STATION : Kokubunji
DATE : 2000/10/ 7
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE

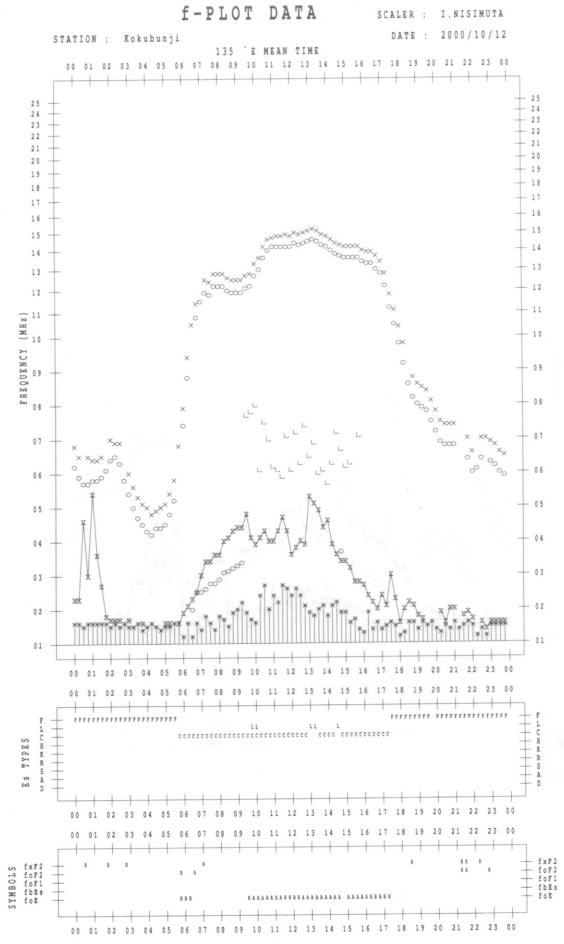

f-PLOT DATA
SCALER : I.NISIMUTA
STATION : Kokubunji
DATE : 2000/10/ 6
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE

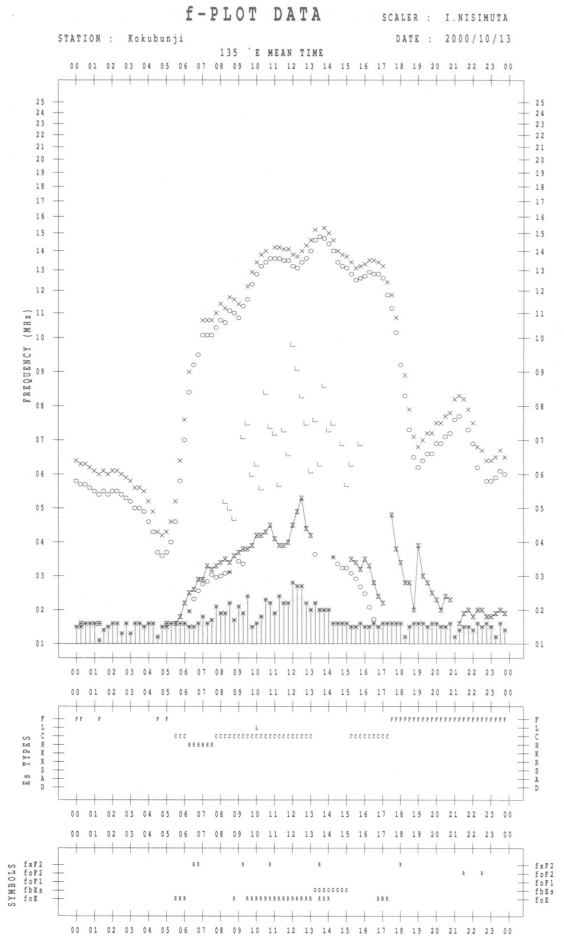

f-PLOT DATA
SCALER : I.NISIMUTA
STATION : Kokubunji
DATE : 2000/10/ 8
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE

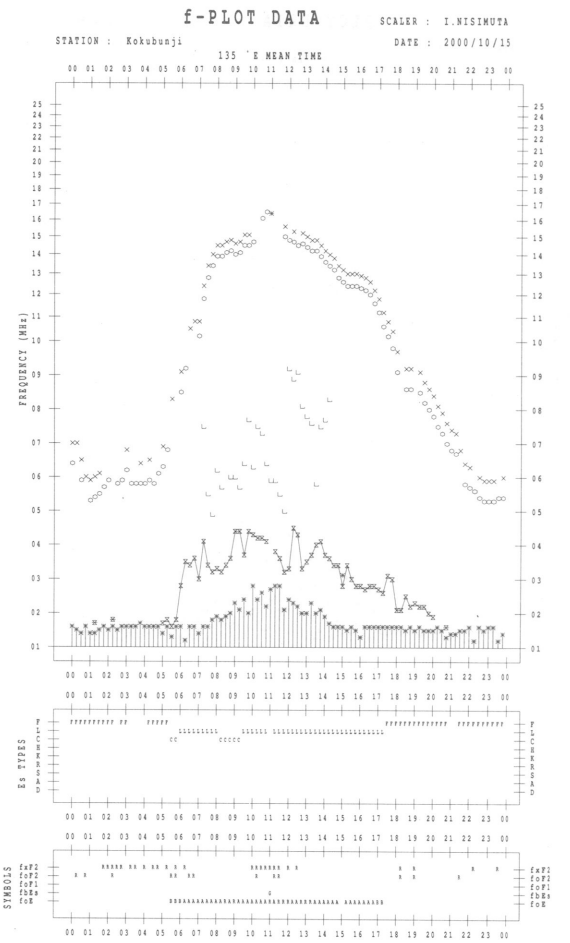

f-PLOT DATA
SCALER : I.NISIMUTA
STATION : Kokubunji
DATE : 2000/10/ 9
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE

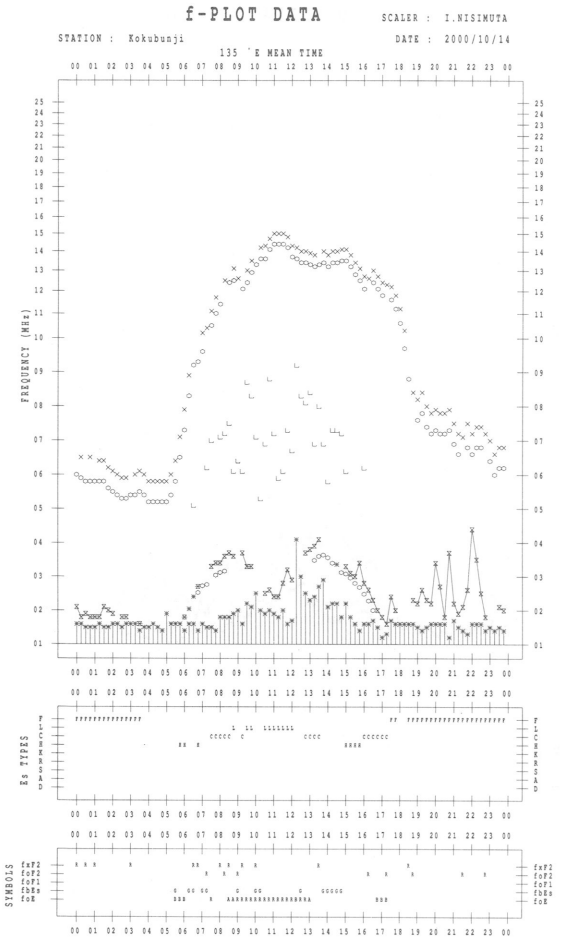

f-PLOT DATA
SCALER : I.NISIMUTA
STATION : Kokubunji
DATE : 2000/10/11
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE

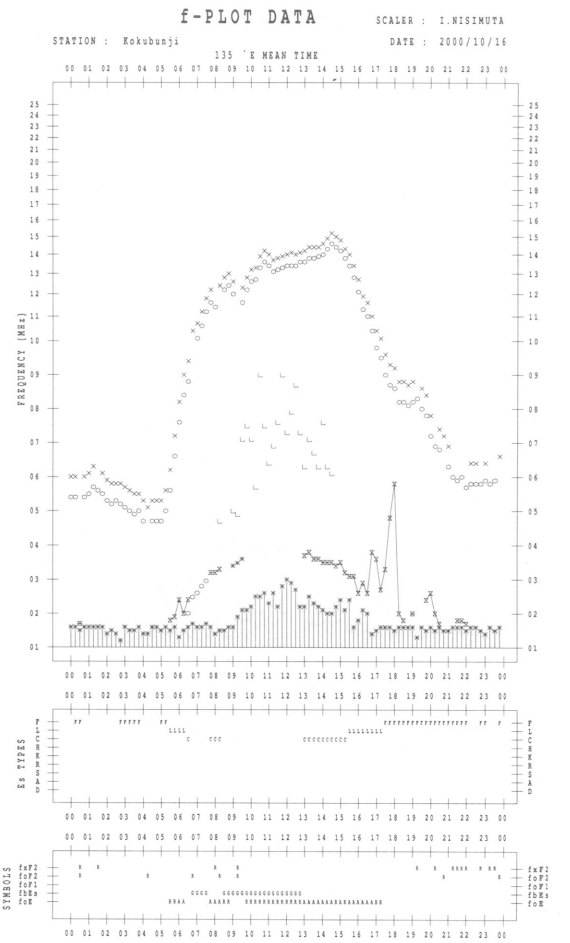

f-PLOT DATA
SCALER : I.NISIMUTA
STATION : Kokubunji
DATE : 2000/10/10
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE

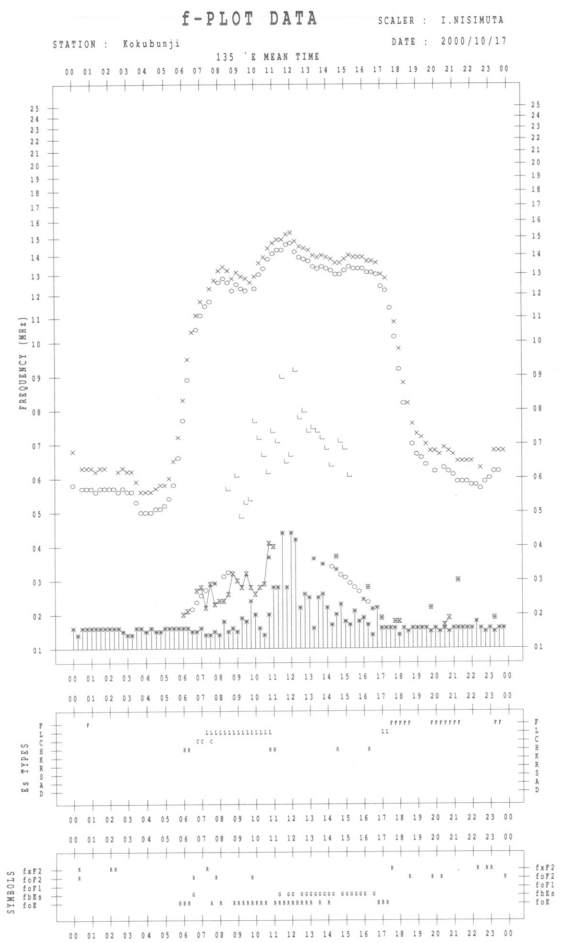

f-PLOT DATA
SCALER : I.NISIMUTA
STATION : Kokubunji
DATE : 2000/10/12
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE

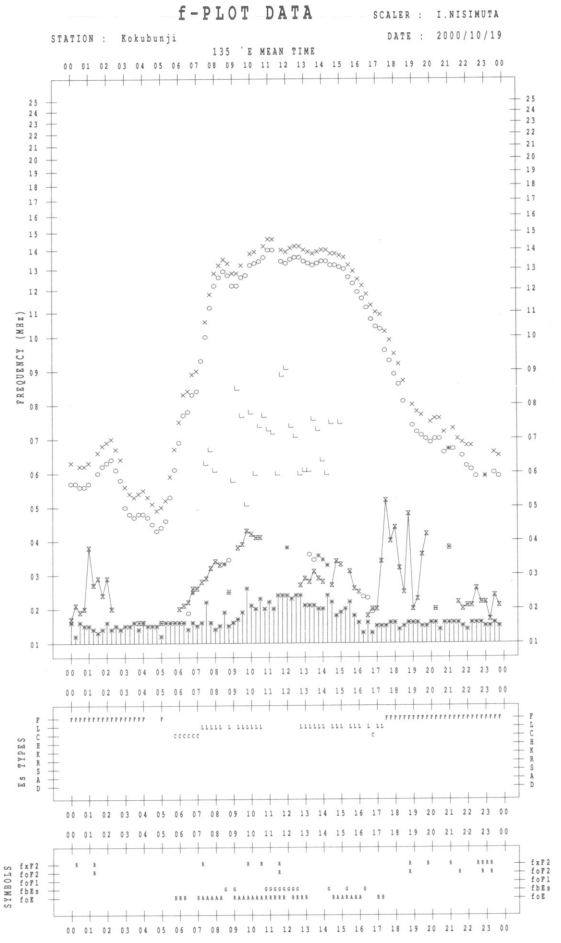

f-PLOT DATA
SCALER : I.NISIMUTA
STATION : Kokubunji
DATE : 2000/10/13
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS

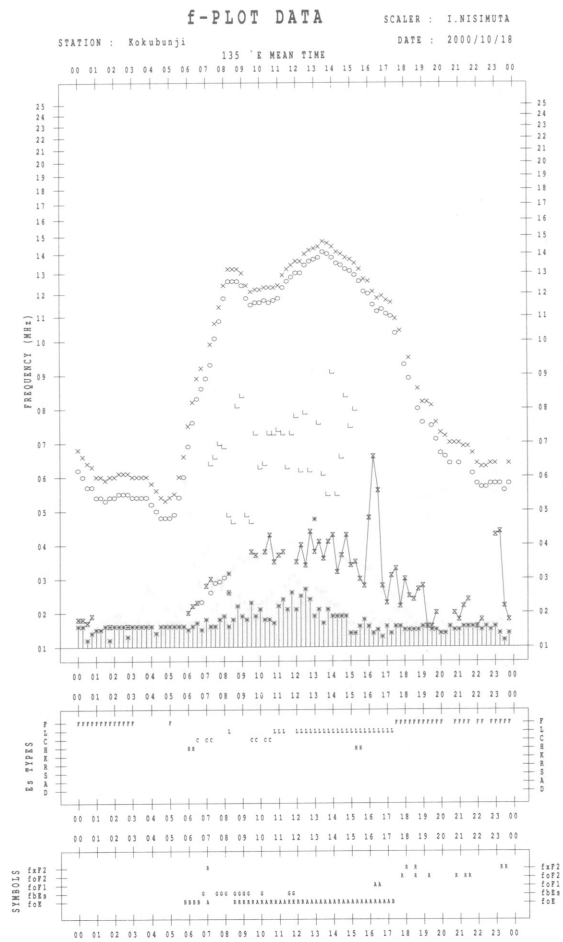

f-PLOT DATA
SCALER : I.NISIMUTA
STATION : Kokubunji
DATE : 2000/10/15
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS

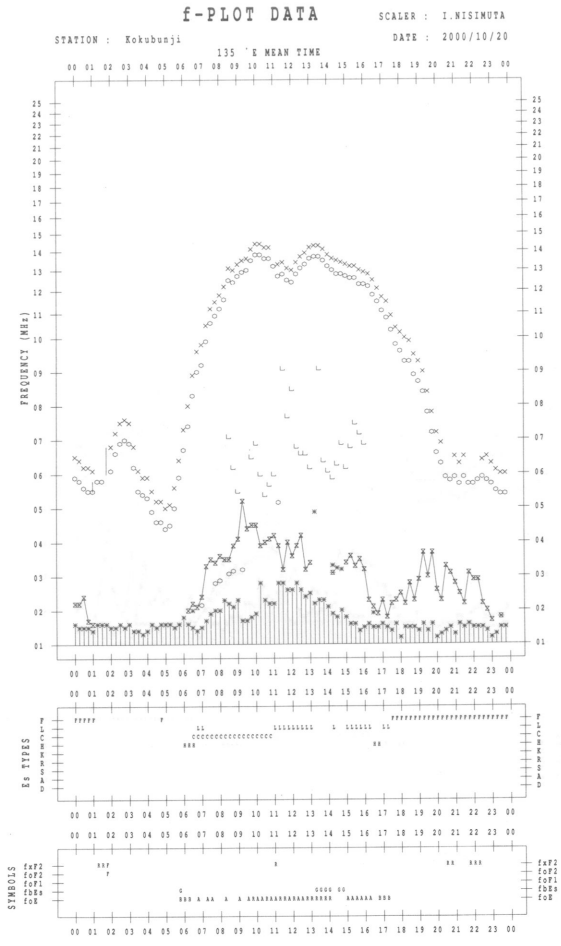

f-PLOT DATA
SCALER : I.NISIMUTA
STATION : Kokubunji
DATE : 2000/10/14
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS

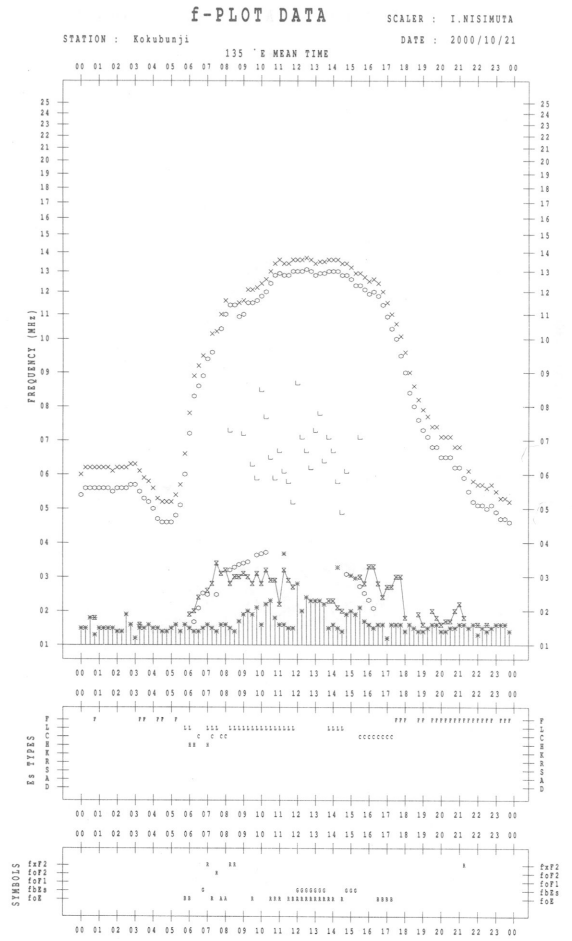

f-PLOT DATA
SCALER : I.NISIMUTA
STATION : Kokubunji
DATE : 2000/10/16
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS

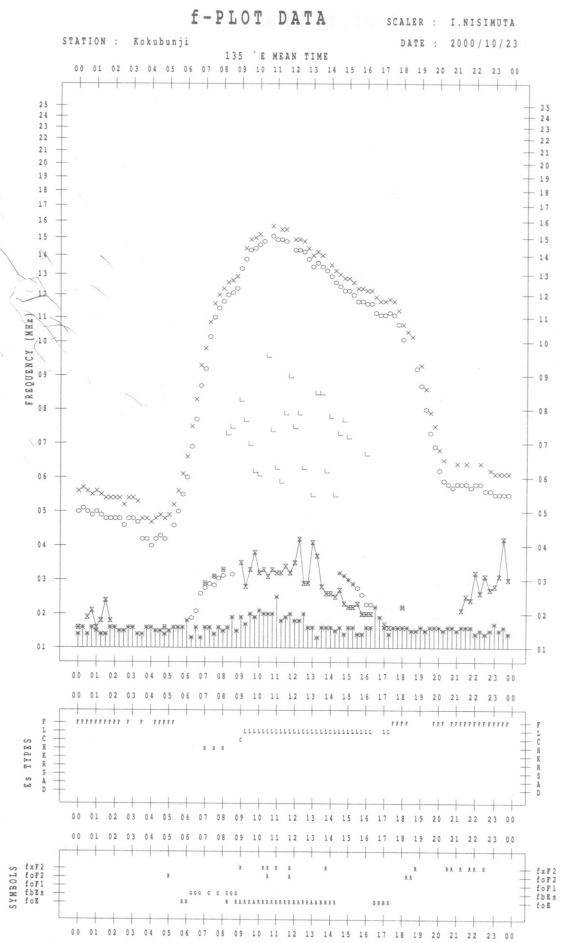

f-PLOT DATA
SCALER : I.NISIMUTA
STATION : Kokubunji
DATE : 2000/10/17
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE

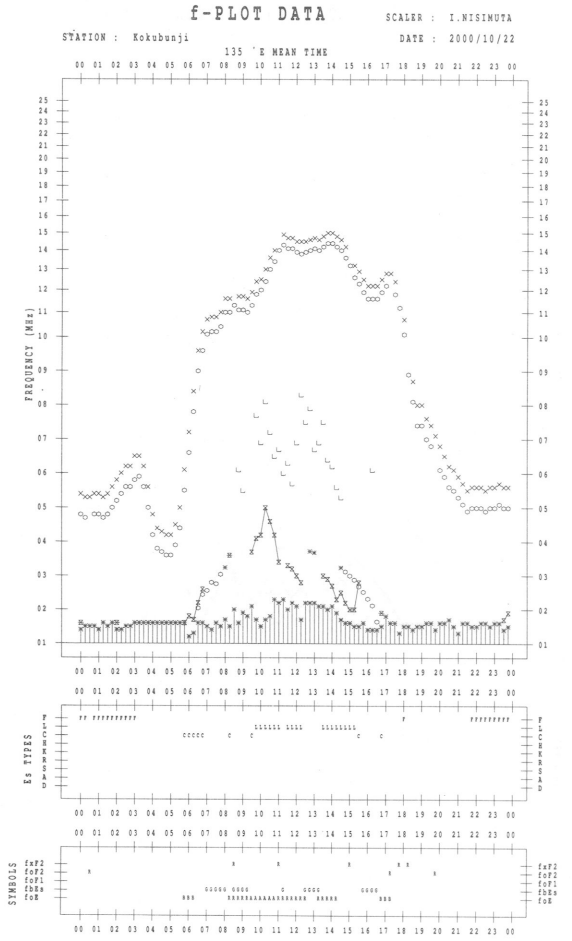

f-PLOT DATA
SCALER : I.NISIMUTA
STATION : Kokubunji
DATE : 2000/10/19
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE

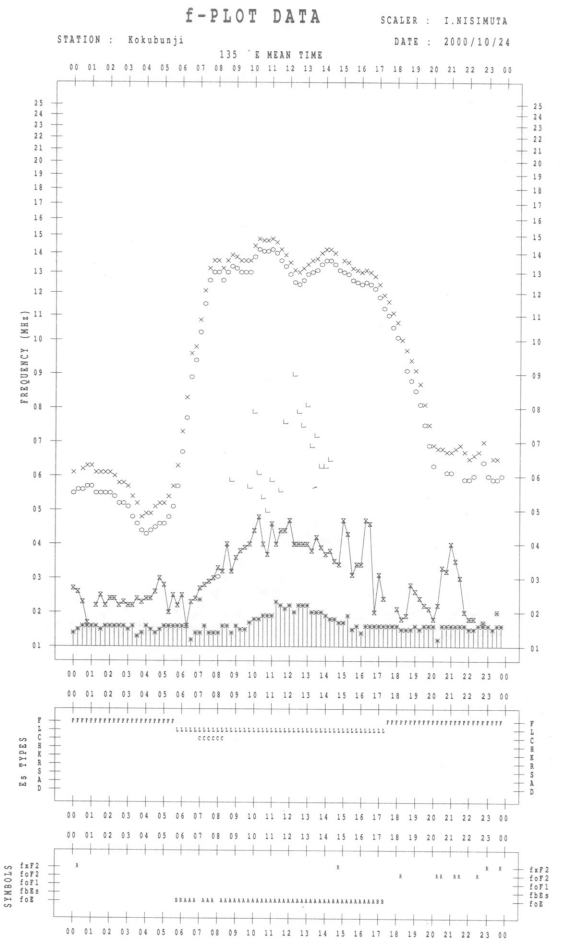

f-PLOT DATA
SCALER : I.NISIMUTA
STATION : Kokubunji
DATE : 2000/10/18
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE

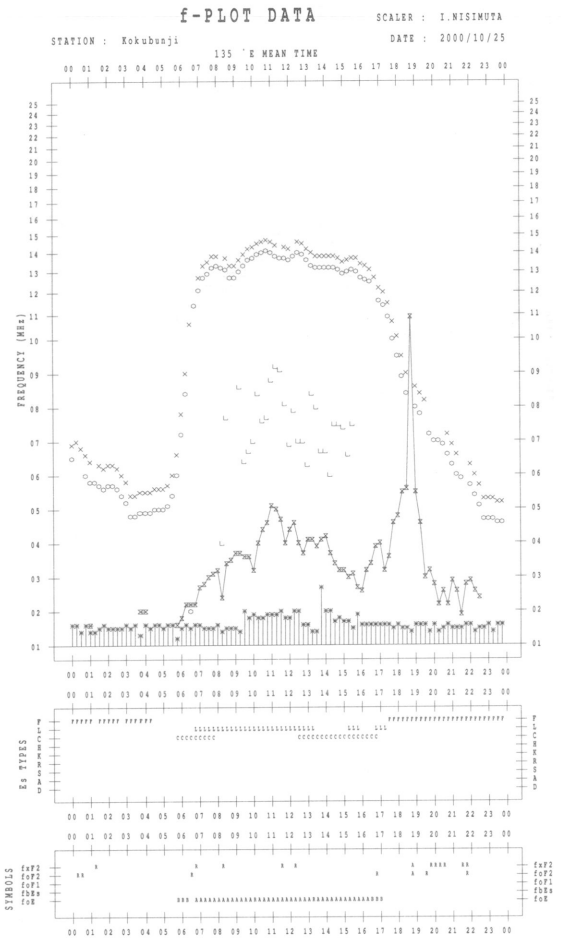

f-PLOT DATA
SCALER : I.NISIMUTA
STATION : Kokubunji
DATE : 2000/10/20
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE

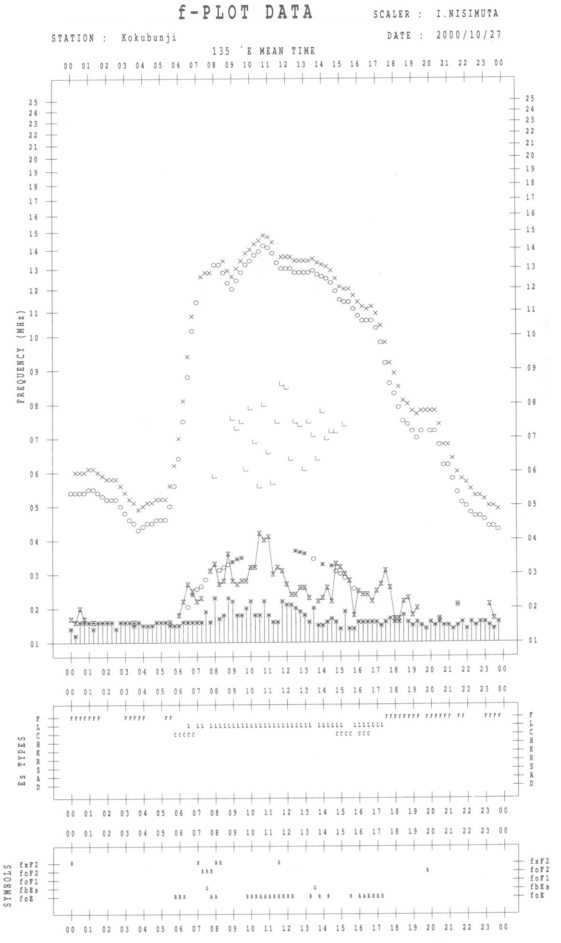

f-PLOT DATA
SCALER : I.NISIMUTA
STATION : Kokubunji
DATE : 2000/10/21
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE

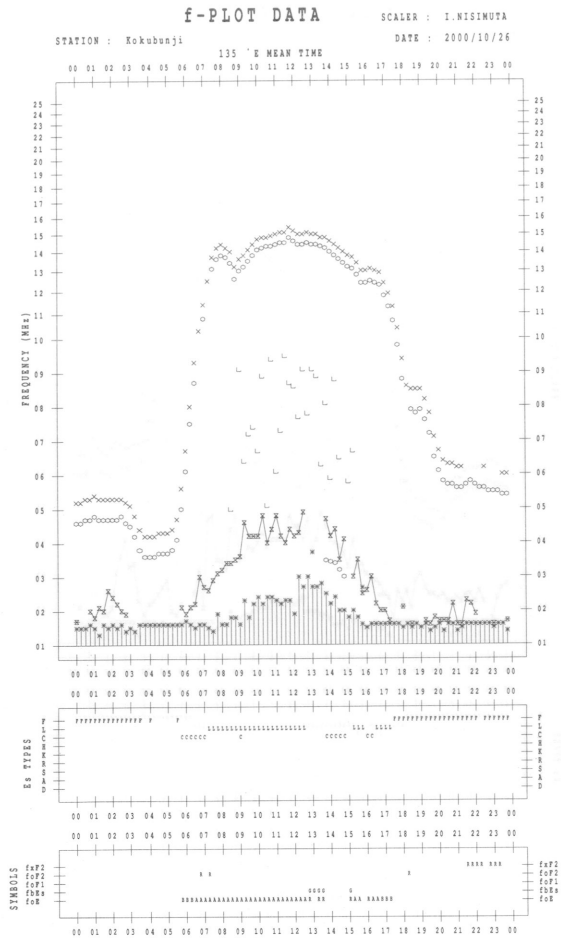

f-PLOT DATA
SCALER : I.NISIMUTA
STATION : Kokubunji
DATE : 2000/10/23
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE

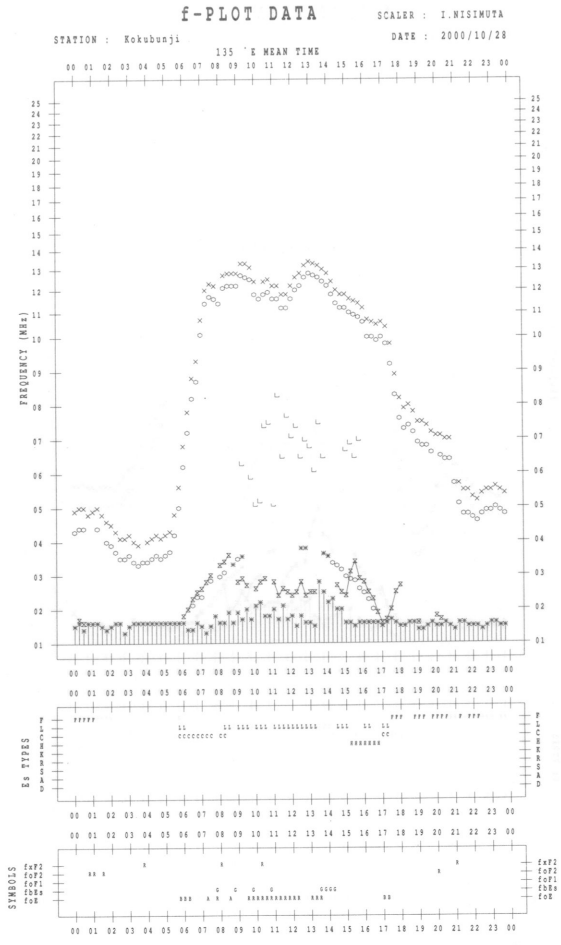

f-PLOT DATA
SCALER : I.NISIMUTA
STATION : Kokubunji
DATE : 2000/10/22
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE

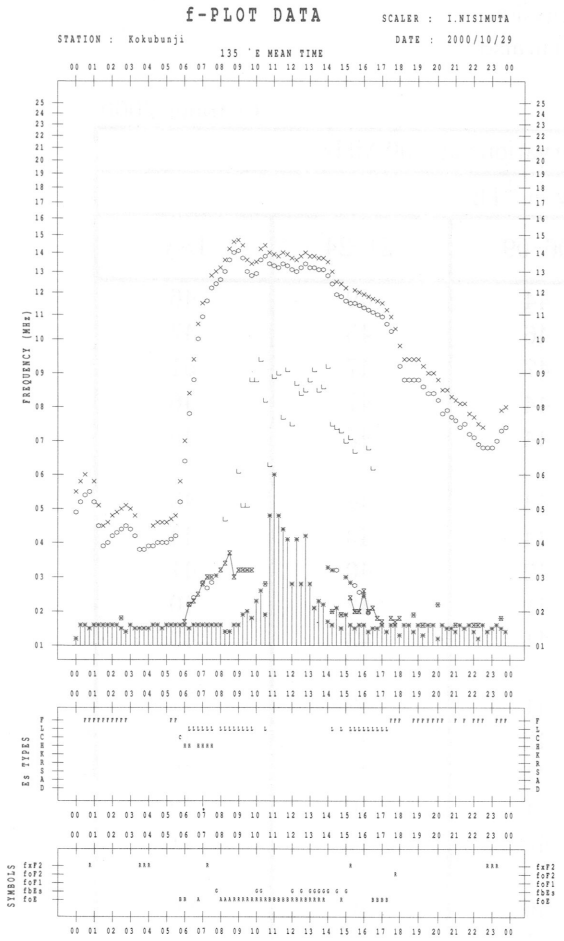

f-PLOT DATA
SCALER : I.NISIMUTA
STATION : Kokubunji
DATE : 2000/10/24
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE

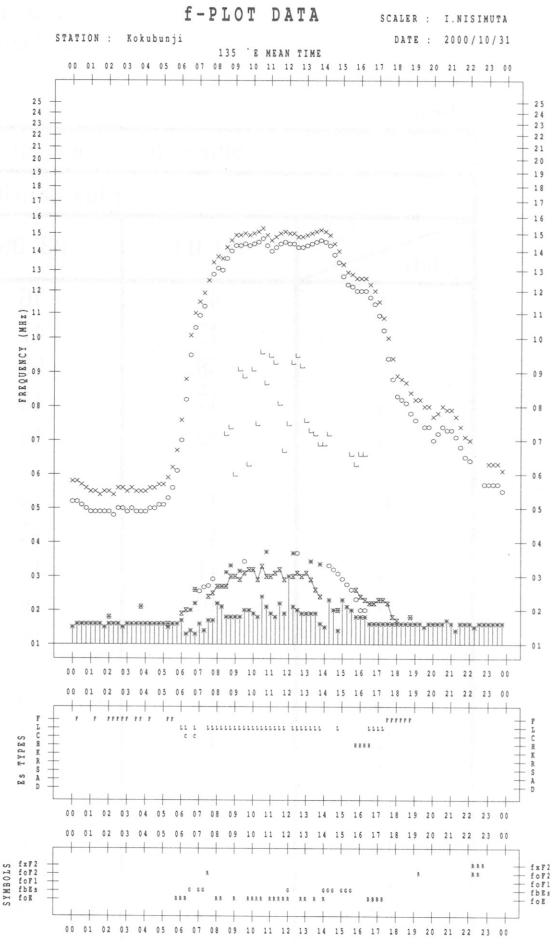

f-PLOT DATA
SCALER : I.NISIMUTA
STATION : Kokubunji
DATE : 2000/10/25
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE

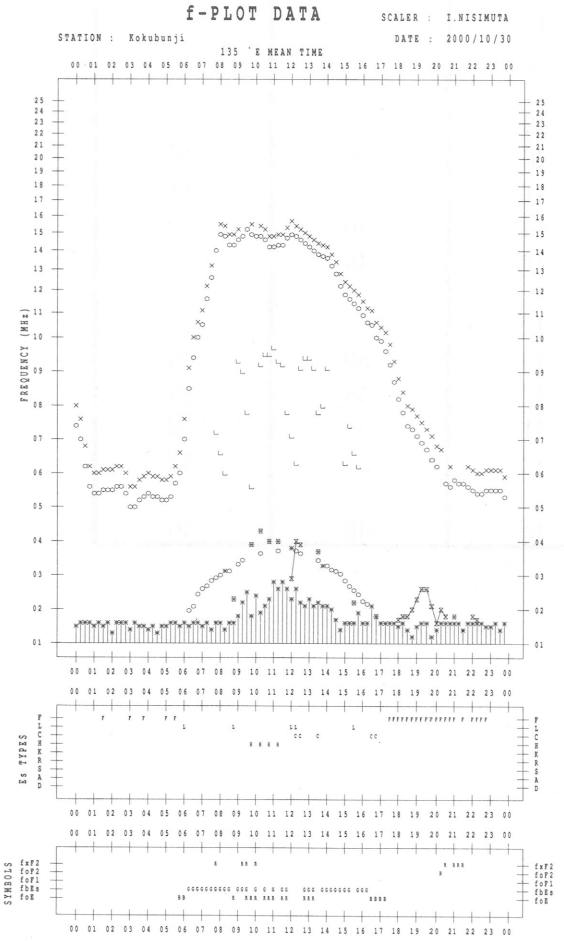

f-PLOT DATA
SCALER : I.NISIMUTA
STATION : Kokubunji
DATE : 2000/10/27
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE


f-PLOT DATA
SCALER : I.NISIMUTA
STATION : Kokubunji
DATE : 2000/10/26
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE


f-PLOT DATA
SCALER : I.NISIMUTA
STATION : Kokubunji
DATE : 2000/10/28
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE


f-PLOT DATA
SCALER : I.NISIMUTA
STATION : Kokubunji
DATE : 2000/10/29
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE


f-PLOT DATA
SCALER : I.NISIMUTA
STATION : Kokubunji
DATE : 2000/10/31
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE


f-PLOT DATA
SCALER : I.NISIMUTA
STATION : Kokubunji
DATE : 2000/10/30
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE

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

Hiraiso October 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	45	46	44	49	46
2	49	47	46	45	47
3	58	53	47	47	51
4	47	45	44	47	46
5	45	44	44	45	45
6	45	44	44	46	45
7	45	44	44	43	44
8	41	42	42	40	41
9	40	38	41	42	40
10	47	41	41	43	43
11	42	40	41	42	41
12	42	40	42	44	42
13	43	42	41	41	42
14	40	39	41	40	40
15	40	41	40	41	41
16	41	40	40	40	40
17	41	40	41	41	41
18	40	42	40	48	42
19	43	40	42	44	42
20	43	42	40	47	43
21	42	42	42	46	43
22	46	46	46	46	46
23	45	43	41	48	44
24	46	45	44	46	45
25	45	45	43	46	45
26	44	42	42	50	44
27	47	45	44	50	46
28	48	47	47	45	46
29	47	51	51	51	50
30	49	45	43	54	48
31	49	46	45	46	46

B. Solar Radio Emission

B2.Outstanding Occurrences at Hiraiso

Hiraiso October 2000

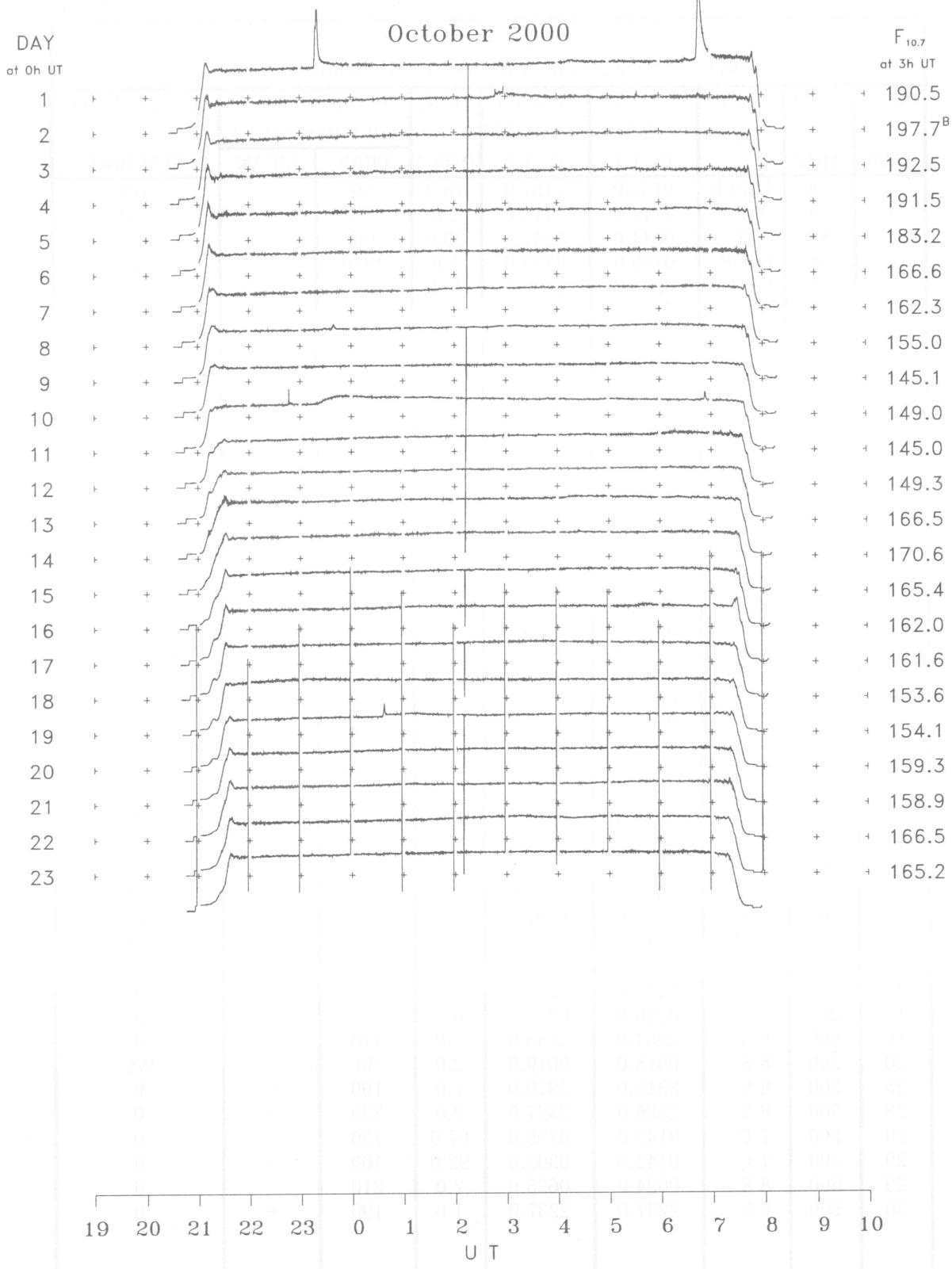
Single-frequency observations

Normal observing period: 2040 - 0800 U.T. (sunrise to sunset)

SEP.	FREQ.	TYPE	START TIME	TIME OF MAXIMUM	DUR.	FLUX DENSITY (10^{-22} W m^{-2} Hz^{-1})		POLARIZATION
2000	(MHz)		(U.T.)	(U.T.)	(MIN.)	PEAK	MEAN	REMARKS
1	200	42 SER	0143.0	0157.0	16.0	50	-	MR
1	200	8 S	0412.0	0413.0	2.0	80	-	WR
1	2800	3 S	0644.0	0647.0	20.0	180	-	WL
1	200	47 GB	0709.0	0709.0	1.0	1070	-	0
2	500	42 SER	0247.0	0300.0	35.0	270	-	MR
2	200	42 SER	0247.0	0320.0	36.0	40	-	0
3	200	8 S	0107.0	0108.0	1.0	210	-	MR
3	200	8 S	0604.0	0604.0	1.0	90	-	0
3	200	8 S	0634.0	0634.0	1.0	50	-	MR
3	200	8 S	0739.0	0739.0	1.0	120	-	WR
3	200	8 S	2255.0	2256.0	2.0	50	-	
4	200	8 S	0613.0	0614.0	2.0	200	-	
5	200	8 S	0440.0	0440.0	1.0	90	-	0
5	500	7 C	0602.0	0603.0	4.0	30	-	0
6	200	8 S	0114.0	0114.0	1.0	50	-	0
6	200	8 S	2340.0	2340.0	1.0	40	-	0
7	500	8 S	0602.0	0602.0	1.0	30	-	0
7	200	8 S	0602.0	0602.0	1.0	130	-	0
7	500	8 S	0620.0	0621.0	1.0	70	-	WL
7	200	8 S	0620.0	0620.0	1.0	100	-	0
8	200	8 S	0211.0	0212.0	1.0	480	-	
9	200	8 S	0402.0	0402.0	1.0	70	-	
9	200	8 S	0510.0	0510.0	1.0	70	-	
9	200	8 GB	0748.0	0748.0	1.0	580	-	
9	2800	8 S	2246.0	2247.0	1.0	40	-	0
9	200	8 S	2246.0	2247.0	1.0	390	-	ML
9	500	4 S/F	2250.0	2251.0	5.0	50	-	0
9	500	7 C	2322.0	0037.0	57.0	150	-	WL
9	200	8 S	2327.0	2328.0	1.0	170	-	ML
10	200	8 S	0006.0	0006.0	1.0	100	-	ML
10	200	8 S	0407.0	0407.0	1.0	50	-	WL
10	200	42 SER	0645.0	0653.0	10.0	90	-	WL
12	200	8 S	0142.0	0143.0	2.0	70	-	0
15	500	7 C	0220.0	0222.0	3.0	40	-	0
15	200	7 C	0220.0	0222.0	6.0	90	-	0
16	500	8 S	2254.0	2255.0	1.0	170	-	0
20	200	8 S	0018.0	0019.0	2.0	30	-	WL
25	200	8 S	2315.0	2316.0	1.0	190	-	0
28	500	8 S	2326.0	2327.0	2.0	330	-	0
29	500	7 C	0143.0	0155.0	67.0	130	-	0
29	200	7 C	0143.0	0303.0	92.0	100	-	0
29	500	8 S	0624.0	0625.0	2.0	210	-	0
30	500	8 S	2237.0	2237.0	1.0	190	-	0

B. Solar Radio Emission

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



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

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