ISSN 0021—0382

F—623

IONOSPHERIC DATA IN JAPAN

FOR NOVEMBER 2000

VOL. 52 NO. 11

CONTENTS

《 Real time Ionograms on the Web ..... *http://wdc-c2.crl.go.jp/index_eng.html* 》

COMMUNICATIONS RESEARCH LABORATORY
MINISTRY OF PUBLIC MANAGEMENT, HOME AFFAIRS,
POSTS AND TELECOMMUNICATIONS
TOKYO, JAPAN

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

NOV. 2000

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	58		52	44	59	50	51		107		149	147	143		124	115	83	83	82	75	60	A		
2	58	55	55		57	59	71	85	133	138	138		95		119	94	91	83	82	66	68			
3	51	59	57	52	59	51				127	142	141	98		89	96	88	83	69	67	60	58	A	
4	59	57	56	66	70	47		92	93			96	93	91	113	112	96	86	82	74	60			
5	48	57	58	66	59	37		92	70	93	92		106	122	124		115	92	92	58	57			79
6	42	43	41	46		39		83	122	130	144	150	126	138	148				76		58			62
7	46	49	31			A	A	A		68	79	80	91	92		98	87	82	72	60	60			
8		49	42	A	37			64	66	78	81	106		91	93	114	114	75	72	52	50			
9	44	57	47	37		61		94	94	91	145	144	106	85	106	107		73	54	59	50			
10	44	44		50	48		49	92	94	94	130		100		107	82	94	86	73	62	62	83		
11	51	59	44	A	A	38	50	92	95			125	126		97	92	91	81	54	54	43		A	A
12	46	46	40		36		69	68	79	101	112	119	121	122	83	92	79	84	70	A	52	A		A
13	A		67	57	57	61	50		84	119	114	116		115	89		92	82	60		46	A	A	A
14	43	47	44	48	50	50	48	92	89	100	114	98	121	98	92	97	77	75		49	49			
15	48	50	57	48	47	46	60	86		114	78			92	95	92	86	60	60	53	45			
16	69	44	38	54	42	47	53	80	96	92		125	95	92	92	92	77	63	72	54	46	A		
17	A	A	36	47	36	40	51	85	103	104		94	111	103	106	115	81	83	54	59	48	A	A	A
18		47		40	43	42	A	72	94	83	126			93	92	106	82	51		54	47		A	
19		47	43	43	58	60	50	84	93	92	109	N	113		108	83	90	71	69	84	49		A	
20	50	44	49	49	47	50	A	89	82	109	109	138		115	94		81	88	64	87		A	A	
21	A	69	69	36		47	48	93	133	114	126	144	124	128		125	117	84	66		58			A
22	A	40	43	49	44	37				134	140			134	134	N	94	87	84	A	49			
23	A	47	41	56	42	60			125		152	148	142	126	124	123	82		55	38	A	A	A	A
24	A	A	38		37	48	A	54	89	94	128	137	94	119	83		94			52	44	A	A	
25	46	41	46	37	40	42	A	84	94	81	142	102	140	134	124	92	90				59	A	A	A
26	50	47	47	44	43		50	A	94	88	150		99	136	127		A	82		66	60	A	A	A
27	A	43	39	49	41	34			106	151	150	139	148	150	150	119	96		A	A	69	71		A
28		37	36	47	65	62		A	94	146	148	147	151	144	146	124	110		81	67	50			
29			49		40	38	A	85	97		147	154	151	148	146	145	112	91	90	82	A	A	A	
30	A		63	68	69	69	74	A	137	149	151	148	141	140	134	125	99	79	74	55	48		A	A
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	17	24	28	23	25	25	14	20	26	25	26	22	24	24	28	23	27	24	24	23	27	3		2
MED	48	47	45	48	47	47	50	85	94	101	134	138	117	120	108	106	91	82	72	59	50	71		70
U Q	54	56	55	54	58	59	60	92	106	128	147	147	140	135	125	119	96	85	81	67	60	83		79
L Q	45	44	40	44	40	39	50	81	89	91	112	106	98	92	92	92	82	75	62	54	48	58		62

COMMUNICATIONS RESEARCH LABORATORY, JAPAN

HOURLY VALUES OF fEs AT Wakkanai

NOV. 2000

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	40		G	G	G	G	G	G	G		65	58	G		G	G	G	G	34	G	G		G	G
2	G	G	G		G	G	G	G	G	80	G	G			G	G	G	G	G	G	G	G	G	G
3	G	G	G	28	G	G	G			G	G	46	63	G	G	G	G	31	34	G	G	G		G
4	G	G	31	G	G	28	33	42	G			G	G	G	G	G	G	G	G	G	G		G	G
5	G	G	G	29	G	G	G	61	34	42	G		G	G	G		G	29	G	36	G	G	G	G
6	G	G	G	G	G	G		G	G	83	59	G	G	G	G				G		G	G	G	G
7	G	G	G	G	G	28	41	30	G	40	G	G	G	G		G	G	G	G	G	G	G	G	G
8	G	G	G	30	G	G	G	G	G	70	G	G	G	G	G	G	G	G	G	G	G	G	G	G
9	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
10	G	G	G	G	G	G	G	G	G	G	G		G		40	39	36		30	G	G		G	G
11	G	G	33	32	32	G	G	30	G			G	G		G	G	31	32	30	G	G	G		
12	G	G	39	29	24	G	G	34	G	G	G	G	126	G	G	G	41	31	32	33	26		G	
13			G	G	G	G	G		40	G	G	G	G	G	G	G	G	G	51		G			
14	G	G	G	G	G	G	G	G		39	64	49	G	G	G	G	G	G	G	G	G	G	G	G
15	G	G	G	G	G	G	G	G	G	39	G		G	G	G	G	G	G	G	26	G	G	G	G
16	G	G	G	25	G	G	G	45	G	40		50	58	G	43	G	30	G	28	G	G		G	G
17			G	G	G	G	G	G	33	40		G	G	G	G	G	G	31	G	G	G			
18	G	G	G	G	G	G	42	45	G	40	G			G	G	G	G	31	G	G	G	G		G
19	G	G	G	G	G	G	G	40	G	G	G	G	44		G	G	G	G	G	G	G	G		G
20	G	G	G	G	G	G	97	G	G	G	G			G	G	G	G		G	G	G			G
21		G	G	24	G	G	G		G	44	G	39	44	G		G	30	31	G		42	G	G	
22	28	G	G	G	G	24		G		50	G			43	40	43	38	40	39	50	32	G	G	
23		G	G	G	G	G	G	G	34		G	G	G	G	36	32	G		G	G	43			
24	43		G	26	G	G		58	52	43	46	41	45	G	G	G	30			25	42			G
25	G	G	G	28	G	G		G	48	G	39	G	G	40	G	31	25	G		G	G			
26	G	G	28	G	G		G		45	G	G	40	G	49	52	37		G		27	47			
27	45	44	G	G	G	G	G	G	G	G		G	G	G	G	30	32				47	27	G	
28		G	27	G	G	G			34	36	50	51	G	G	40		24	G	G	G	29	G	G	
29		G	G	G	G	G			100	46	G	39	G	G	G		40	G	G	32	53			G
30			G	G	G	G	G		40	45	G	G	G	G	G	G	G	48	G	G	G	G		
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	23	25	30	29	30	29	24	23	27	26	25	24	26	25	28	26	28	24	26	26	30	17	17	18
MED	G	G	G	G	G	G	G	G	G	40	G	G	G	G	G	G	G	G	G	G	G	G	G	G
U Q	G	G	G	25	G	G	G	40	34	44	20	40	G	G	G	G	30	31	30	25	29	G	G	G
L Q	G	G	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

NOV. 2000

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	16		20	20	18	17	15	22	29		20	20	18		20	18	23	15	15	15	18	29	15	17
2	17	15	15		16	18	16	24	20	20	21	22	20		20	29	22	17	16	16	18	18	17	20
3	21	18	16	16	20	17	15			20	22	20	21	21	20	18	20	15	16	17	20	21	30	18
4	20	20	18	20	17	20	16	16	17			20	23	21	20	18	22	14	15	15	16		22	18
5	17	18	17	18	21		15	16	15	18	20		20	17	21		21	15	16	16	20	16	17	17
6	15	18	16	17	20	18		17	17	18	18	18	17	16	18				15		16			17
7	21					17	15	15	16	17	17	20	21	20		28	20	14	15	16	17	18	30	15
8	21	18	18	15	20	20	17	22	16	17	17	16	20	20	18	16	21	17	15	17	20	17	16	39
9	23	20	15	20	18	17	16	15	18	40	23	24	23	20	20	28	21	17	17	16	17	16	18	15
10	18	23	20	18	18	18	17	23	20	20	20		18		17	16	15	16	18	15	20	36	36	27
11	16	18	18	16	21	20	15	16	17			20	16		21	24	15	14	15	17	17	32	29	28
12	20	18	16	17	18	21	16	17	17	20	18	20	21	17	17	16	15	15	17	16	17	15		15
13	15		16	16	16	16	15		17	18	18	20	20	18	16		18	15	15		18		29	16
14	18	21	15	21	15	17	15	21	15	18	18	18	18	18	17	26	20	17	15	15	18	18	18	17
15	15	17	16	17	16	16	15	21	18	17	20		21	18	18	26	20	15	15	15	18	29	20	35
16	20	20	21	16	18	16	15	22	16	16		18	18	22	16	16	18	16	15	15	17	30	16	
17	17	18	17	17	18	20	15	20	16	18		18	20	18	16	24	18	15	14	14	17	32		
18	20	16	18	17	18	17	15	15	16	18	18			20	16	15	18	15	15	16	18	36	33	30
19	16	15	17	17	16	17	16	17	16	17	20	20	20		33	26	18	16	15	15	17	18	21	26
20	17	16	18	18	16	15	15	22	14	16	18	20		21	17	15	17	15	15	15	18		18	21
21	15	18	17	16	18	18	15	20	16	16	16	16	15	17		16	17	15	15		17			
22	16	16	18	18	17	18		21		15	17			15	15	15	14	14	15	14	16	20	24	
23	17	16	17	17	17	20	16	23	15		15	17	17	17	16	15	18		15	15	15	17	27	32
24	16	18	20	18	17	16	14	14	15	15	16	17	17	15	15	15	18			16	16	29	29	34
25	16	17	17	17	18	15	16	23	16	15	17	49	21	20	15	17	18			15	18	34	23	
26	21	18	16	18	17		15	18	24	17	16	16	20	15	14	15	16	15		15	15	18		
27	17	16		17	17	18	18	20	16	16	18	17	17	17	17	16	14		14	15	16	15		
28			16	15	15	18	15	16	16	15	16	17	18	15	15	26	18	15	15	15	17	15	18	
29			20	18	20	18	15	18	24	20	21	17	17	20	20	16	18	15	14	14	16	30	27	
30	18		16	20	16	15	15	16	16	18	18	20	20	21	32	26	18	16	15	15	15		42	42
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	24	28	28	29	28	28	28	28	26	26	25	27	25	28	27	29	25	27	27	30	24	24	21
MED	17	18	17	17	18	18	15	19	16	18	18	20	20	18	17	17	18	15	15	15	17	19	22	20
U Q	20	18	18	18	18	18	16	22	17	18	20	20	21	20	20	26	20	16	15	16	18	30	29	31
L Q	16	16	16	16	16	16	15	16	16	16	17	17	17	17	16	16	17	15	15	15	16	17	18	17

COMMUNICATIONS RESEARCH LABORATORY, JAPAN

HOURLY VALUES OF foF2 AT Kokubunji

NOV. 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	57	59	A	48	48	71	106	133		151	152	151	142	152	123	115	114	90		65	58	59	57
2	60	59	48	57	40	42	70	102	122	142	140	135	129	128		118	103			84	74	66	58	57
3	50	48	59	42	38	38	63	114	121	132	132	139	126	134	131	114	107	99	83	69	64	62	57	52
4	49	63	46	58	41	38	56	94	116	140	131	121	126	132	118	122	110	112	86	66	67	57	58	60
5	57	57	68	55	59	38	56	118	150	140	140	142		147	152	151	138	127	116	114	93	57	61	69
6	68		47	44	44	41	70	116	147	150	136	140	136	141	135	131	122	112		81	79	59	57	59
7	57	46	62	34	26	34		63	93	120		152	153	153	136	113	121	94	68	67	60	58	61	69
8	58	44		44	38		52	116	119	142	153	132	152	133	120	116	115	97	70	58	56	57	60	37
9	47	57	56	58	47	46	69	95	116	136		137	133	140	136	120	123	90	94	60	60	58	59	42
10	46	32	43		41			92	114	151	132	134	132	124	126	116	116	111	70	74	72	70		
11	69		56	41	32	37		122	105	132	126	133	125	152	132	116	113	86	81	68	57		59	A
12	A	38	46	44		69	32	106	114	113	131		128	140		114	122	97	94	68	69	43	47	62
13	46	56	58	41		59	57		96	113	122	124	126	132	149	116	101	83	68	29	38	36		A
14	59	58	56	56		35		94	100	123	123	121	123	106	114	108	114	85	54	58	56	37		
15	43	59	42	43	38		64	94	114	106	116	115	115	114	114	116	115	88	61	42		41	59	56
16	41		46	37	38			94	95	122	128	114	114	116	116	97	89	67	58	68	46	44	46	
17	58	58	58			38	50	92	127	123		132	113	120	108	118	116	80	60	68	60	59		46
18			58	42	38	40		93	69	116	126	122	116	126	114	105	97	66	58	57	44	58		A
19	59	46	41	41	40	42	30	94	116	132	115	116	123	125		114	103	97	94	68	57	47		59
20	43	43		42	42	58	59	97	120	116	128		125	132	116	124	114	94	83	58	48		A	38
21	47	41	58	59		37	50	104	94	141	140	142	152	152	144	133	123	115	60	69	57	48	58	59
22	58	34		42	44	32	25	96	104	124	138	134	152	150	140	131	117	115	68	56	45	59		37
23			32	58	37	43	58	94	116	138	140	142	148	143	137	131	127	118	91	68	63	59	44	48
24	47		37	36	34	37		107	122	133	138	125	126	130	124	117	122	82	81	58	60	47	35	47
25		38	47		30	32		92	114	126	150	128	132	131	140			104	78	69	69	57	56	48
26	43		28	38		38		94	108	122	136	140	142	134	130	127	116	105	92	68	58	36	46	36
27	47	49		69	38	A	47	76		151	141	151	151	152	134	121	116	122	96	82	73	71	63	N
28	A	32	38	A	A		A	94	150	136	148	151	150	146	152	140	121	104	116	94	63	56		
29	69	58	59	48	47	43		106	151	174		151		154		150	137	123	99	93	82		68	65
30	70	69	58	70	60	64		106	134	152	171	152		135	131	131	123	106	94	68	57	46	58	A
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	25	23	26	25	23	24	18	29	29	29	26	28	27	30	26	29	29	29	28	29	29	27	21	21
MED	57	49	52	44	40	39	56	95	116	132	136	134	129	134	132	118	116	99	82	68	60	57	58	56
U Q	59	58	58	57	44	44	64	106	124	141	140	142	150	146	140	131	122	113	94	71	69	59	59	59
L Q	46	41	43	41	38	37	50	94	104	122	128	124	125	128	118	115	111	87	68	58	56	46	51	44

HOURLY VALUES OF fEs AT Kokubunji

NOV. 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	34	G	G		G	G	G	G	46	G	G	G	G	33	G	32	G	G	34	G	G
2	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
3	G	G	G	G	G	G	25	G	G	G	G	G	G	G	G	G	32	33	G	G	G	G	G	G
4	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	44	34	G	G	G	G	G	G	G
5	G	G	G	G	G	G	G	G	G	46	46	G	G	G	G	G	G	G	G	G	G	G	G	G
6	G		G	G	G	G	G	G	G	G	G	G	G	49	G	G	G	G	G	G	G	G	G	G
7	G	G	G	G	G	G		38	40	41	46	G	G	G	G	G	G	G	G	G	G	G	G	G
8	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	28	29	G	G	30	G
9	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
10	29	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	
11	G	G	G	G	G	G	G	G	G	G	44	G	G	G	G	G	30	G	G	G	G	G	G	36
12	37	24	G	G		G	G	G	G	G	G	52	50	G	G	G	34	G	G	G	G	G	G	G
13	G	G	G	G	G	G	G	G	G	G	G	G	G	G	51	46	G	G	G	G	28	G	G	44
14	G	G	G	G		G	G	33	G	G	G	G	G	G	43	G	G	G	G	G	G	28	G	G
15	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
16	23	G	G	G	G	G	G	G	G	G	G	G	G	G	G	37	G	G	G	G	G	G	G	G
17	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	30	G	G	G	G	G	G
18	G	G	G	G	G	G	G	G	G	G	48	45	G	G	44	35	32	G	G	27	G	22	25	29
19	24	G	G	G	G	G	G	G	G	G	G	G	G	G	40	G	34	35	28	27	G	G	G	G
20	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	28	G	G	G	28	34	30
21	G	G	G	G	G	G	G		40	46	G	43	44	G	G	36	G	G	G	G	G	G	G	G
22	25	G	G	G	G	28	G	40	G	G	60	48	52	50	49	41	37	G	G	G	G	28	G	G
23	G	G	28	G	G	G	G	29	G	G	G	G	G	45	G		G	G	25	G	G	G	G	G
24	G	G	G	G	G	G	G	G	G	G	G	G	52	G	G	54	35	28	G	G	G	G	G	G
25	G	G	G	G	G	G	G	G	G	G	G	G	G	48	44	37		G	G	24	G	G	G	G
26	G	G	G	G	G	G	G	31	G	G	G	G	G	G	G	G	39	32		32	31	G	24	30
27	G	G	G	G	G	20	G	31	35	G	G	G	45	44	39	G	G	G	25	40	27	40	56	40
28	39	24	27	39	31			33	37	G	G	G	G	64	G	G	39	36	28	G	G	G	G	G
29	22	G	G	G	G	G	G	G	G	G		44	G	G	G	G	G	G	G	G	G		G	G
30	G	G	25	28	27	32	G	G	37	73		52	65	G	60	G	34	47	40	37	27	32	G	30
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	29	30	30	28	29	27	29	30	30	28	30	30	30	30	29	29	30	29	30	30	29	30	29
MED	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
U Q	G	G	G	G	G	G	G	15	G	G	G	G	G	G	39	35	34	28	13	G	G	11	G	15
L Q	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G

COMMUNICATIONS RESEARCH LABORATORY, JAPAN

HOURLY VALUES OF fmin AT Kokubunji

NOV. 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	14	15	14	14	14	15	16	15	15	20	24	32	42	24	21	16	15	14	15	16	15	15	14	14
2	16	14	14	16	22	15	17	16	18	18	23		40	28	18	17	14	15	15	14	14	15	16	15
3	15	14	14	15	14	15	17	18	15	16		41	23	22	18	15	17	15	16	14	17	15	15	14
4	14	14	15	15	14	15	17	18	17	18	20	22		23	20	17	16	14	15	16	15	15	14	15
5	18	15	15	14			15	15	14	16	22		23	24	16	18	14	18	15	15	15	14	15	15
6	15		15	15	15	15	15	15	18	15	15	18	21	16	16	15	15	15	14	15	14	14	14	18
7	15	15	15					15	15	15	18	24		24	16	18	17	15	15	15	14	14	15	14
8	14	15	15	14	66	15	17	15	17	15	18	15	23	18	24	15	15	15	15	14	15	15	14	15
9	14	15	15	18	15	15	15	16	17	47	46	44	42	40	16	17	14	15	14	15	15	15	15	15
10	14	16	17	14	14	16	16	15	15	15	17	16	20	18	16	18	21	14	15	15	15	14	14	
11	15	14	15	14	15	14	16	16	18	16	18	17	18	15	16	15	15	16	14	15	14	14	14	15
12	14	15	15	15		18	18	24	18	15	17	18	15	16	14	29	16	16	15	14	14	15	15	15
13	15	15	14	15	14	15	14	15	15	16	17	17	16	15	18	16	18	16	15	15	15	14	14	15
14	14	14	14	15		18	15	15	15	15	20	20	18	16	15	15	23	15	14	14	15	15	14	15
15	17	14	15	15	14	17	15	14	15	15	18	16	21	20	15	15	21	14	14	14	14	17	14	15
16	14	15	15	15	15	16	15	14	15	14		20	20	21	17	15	15	15	14	14	15	15	15	14
17	15	15	15	15	15	15	15	14	15	15	15	16	17	17	15	15	23	15	15	14	15	14	15	15
18	15	14	14	17	15	15	15	20	14	15	16	17	18	18	16	15	15	15	14	15	15	14	14	14
19	14	15	14	15	15	15	15	16	14	15	17	16	16	15	16	14	15	14	15	15	14	15	15	15
20	15	15	15	15	15	14	15	16	14	15	21	26	18	16	15	15	24	15	14	14	14	15	15	14
21	16	15	14	15	15	15	14	15	14	15	17	18	18	16	17	15	18	15	14	15	14	14	14	16
22	15	15	15	14	15	15	16	15	17	14	15	16	17	17	15	16	16	15	15	15	15	15	15	15
23	16	15	14	15	16	15	15	15	15	15	15	17	17	14	14	15	15	15	15	15	14	15	14	15
24	15	14	15	14	15	15	18	24	16	15	18	17	20	18	23	14	14	15	14	15	15	15	15	14
25	14	14	15	15	17	14	15	36	15	15	17	49	44	18	16	15		16	15	14	14	14	14	14
26	15	14	17	15	15	16	15	24	15	15	16	16	48	16	16	15	15	16	16	15	15	14	15	15
27	16	14	14	16	15	14	15	16	14	14	14	18	21	18	16	15	16	15	15	14	15	15	14	14
28	15	14	14	14	15		16	15	15	14	17	17	18	16	15	15	15	15	15	15	14	14	15	15
29	15	14	14	14	15	15	16	15	20	17		22	18	18	18	16	22	14	16	15	15		15	14
30	15	16	15	14	14	15	15	14	16	15	16	15	20	15	14	14	14	14	16	14	17	15	15	14
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	29	30	29	26	27	29	30	30	30	27	28	28	30	30	30	29	30	30	30	30	29	30	29
MED	15	15	15	15	15	15	15	15	15	15	17	18	20	18	16	15	15	15	15	15	15	15	15	15
U Q	15	15	15	15	15	15	16	16	17	16	20	22	23	21	18	16	18	15	15	15	15	15	15	15
L Q	14	14	14	14	14	15	15	15	15	15	16	16	18	16	15	15	15	15	14	14	14	14	14	14

COMMUNICATIONS RESEARCH LABORATORY, JAPAN

HOURLY VALUES

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

HOURLY VALUES OF foF2 AT Okinawa

NOV. 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	120	96	93	96	60	48	48	91	125		153		171											
2											146	171	171		196	187	185	175	180	167	168	166	150	92
3	82	71	75	61	32			77	123	116	130	150	141	163	194	191	176	172	170	179	164	150	126	95
4	82	94	67	60	37		38	54	111	134	132	124	145	161	170	167	168	172	128	128		127	92	91
5	92	81	82	58	38		40	82	124	144	151	147	163	169	192		185	184	180	168	161	162	154	N
6	120		95	95	43	32		87	123	140	128	172	157	162	168	176	168	169		169	148			116
7	91	68	60	43			58	84	126	122	144	177	187	178	162	163	172	152	137	130	82	92	90	93
8	75	71	69	69	36		69	82	133	157	169	171	173	192	193		181	169			164	116	116	94
9	90	93	95	70	42		40	84	116	121	147	144	154	177	196	198	186	171		142		94	100	69
10	70	60	70	57	34		38		120		139	136	147	178	193	177	173	167	173	172	156	N	114	113
11	94	94	112	75	44	42	61	94	103	133	134	147	150	156	179	153	149	143	148	154	130	116	92	94
12	78	94	71	70	69	69	59	84	81	95		150	148	150	158	144	170	167	174	174	163	132		88
13	93	63	69	69	70	N	38	67	89	121		155	153	171	184	186	181	182	174		117	94	94	70
14	69	73	70	60	48	38	37	95	90	104	115	126	132	146	158	148	150	130	108	82	81	82	63	58
15	62	63		69	70	38			94	125	131	131	147	157	168	172	168	172	168	174	93	111	92	93
16	81	94	70	69	69	35		74	88	123	121	122	122	131	163	177	173	166	165	A	120	117	59	68
17	58	58	70	42	34	37		64	110	116	121	122	125	143	162	168	183	186	189		164		91	70
18	68	70	60	42				47	100	118	123	117	117	128	151	132	127	119	129	118		88	92	44
19	44	43	38	58		89	36	66	93	137	112	118		153	156	154	150	143		132	117	123	96	
20	70	82	70	68	69	46	44	63	110	116	124	152	146	154	165	182	176	171	175	143	125	115	93	94
21	62	70	69	69	69			78	127	148	159	164	178	182	180	170	163	165	165	160	125	82	94	92
22	67	70	61	69	57		59	65	98	96	118	152	171	166	171	166	167	167	172	168	149		137	117
23	90	94	95	77	70	66	95	92	121	141	150	145	147	146	147		148	143	143	110	126	117	81	
24	93	96	95	61	57		43	83	125	156	121	118	122	131		150	151	148						
25																								
26																								
27												153	160	145	127	131	144	146	148	126	90	116		26
28	41	59	60	69	62		44	88	118	122	160	170	174	182	185	189	194		189	A	126		114	94
29	84	82	93	82	95	66	57	83	154	155	151	146	156	167	N	157	150	166	144		120	116	90	94
30	96	88	93	84	78	92	78	106	166	167	154	171	163	181	173		139	133	110	76	87	98	83	80
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	26	25	25	26	23	13	19	24	26	24	25	27	27	26	25	23	27	26	22	20	23	21	23	23
MED	82	73	70	69	57	46	44	82	117	124	134	147	153	162	170	168	168	167	166	148	126	116	93	92
U Q	92	94	93	70	69	67	59	87	125	142	151	164	171	177	188	182	181	172	174	168	161	125	114	94
L Q	68	65	68	60	38	37	38	66	98	117	122	126	145	146	160	153	150	146	143	127	117	94	90	70

HOURLY VALUES OF fEs AT Okinawa

NOV. 2000

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

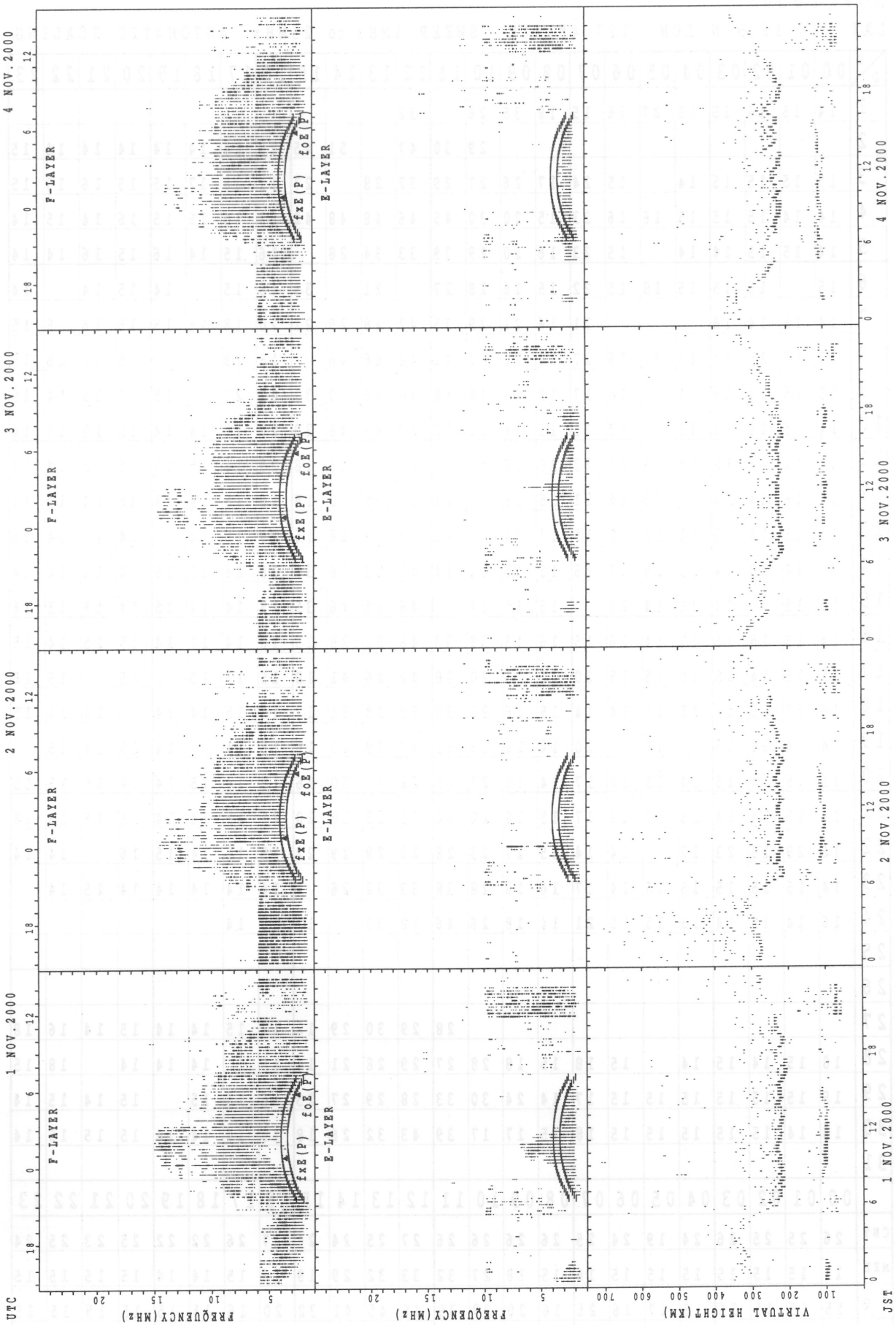
D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	G	G	G	G	G	G	G	G	G	G	G		G											
2											G	46	G		G	G	G	40	35	31	G	G	G	G
3	G	G	G	G	G		G	G		G		G	G	G	G	G	G	G		G	G	28	G	G
4	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
5	G	G	G	G	G	G	G	G	G	G	51	46	46	48	78		62	46	59	38	G	G	G	G
6	G		G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	32		46	G	G		G
7	G	G	G	G	G		G	42	38	46	55	51	G	G	G	G	G	G	G	G	G	G	G	G
8	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G		G	G			34	21	G	G
9	G	G	G	G	G		G	G	G	G	G	G	G	G	G	G	G	G		G	G	G	G	G
10	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	44	39	G	G	G	28	G	G	26
11	28	34	28	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
12		G	G	G	G	G	G	G	G	G	G	G	76	67	52	46	44	48	G	G	G	G	G	G
13	G	G	G	G	G	G	G	G	G	G		60	G	G	G	G	G	G	28		G	G	G	G
14	G	G	G	G	G	G	G	29	G	G	G	G	G	44	G	G	G	G	G	G	G		48	34
15	G	G		G	G	G	G		G	G	G	G	G	G	G	G	G	32	45	36	G	G	G	G
16	G	G	G	G	G	G	G	G	G	G	G	G	G	86	55	G	50	39	48	58	G	G	G	G
17	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G		G		G	G
18	G	G	G	G	G	G	G	59	G	G	47	56	67	G	58	46	40	34	51	55		G	G	G
19	G	G	G	G		G	G	G	G	G	G	G	G	G	47	48	50	G		34	46	32	25	
20	G	G	G	G	27	G	G	G	G	G			G	G	G	G	38	33	G		G	G	G	G
21	26	G	G	32	G	G	G	G	G	G	G	G	50	58	51	60	98	38		45	G	G	G	G
22	G	G	G	G	G		G	27	38	46	50	50	58	52	G	46	41	G	25		G		G	G
23	G	G	G	G	G	G	G	G	34	38	G	46	G	55	52		G	G	26	G	G	G	G	
24	G	G	G	G	G	G	G	G	48	G	G	G	G	G		47	G	46						
25																								
26																								
27												53		90	65	49	37	70		50	26	28	G	G
28	G	G	G	G	G		G	G	36	42	46	43	56	46	44	40	48		57	68	58		G	G
29	G	G	G	G	G	G	G	G	37	46	49	G	G	G	46	46	38	36	G		G	G	G	G
30	G	G	G	G	G	G	G	G	G	G	G	46	68	82	55	72	81	66	47	40	26	G	G	G
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	25	25	25	26	25	21	26	25	25	26	24	26	27	26	26	24	27	26	19	20	25	22	25	24
MED	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	16	25	32	G	G	G	G
U Q	G	G	G	G	G	G	G	G	17	G	23	46	46	52	52	46	44	39	47	45	13	G	G	G
L Q	G	G	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 Okinawa

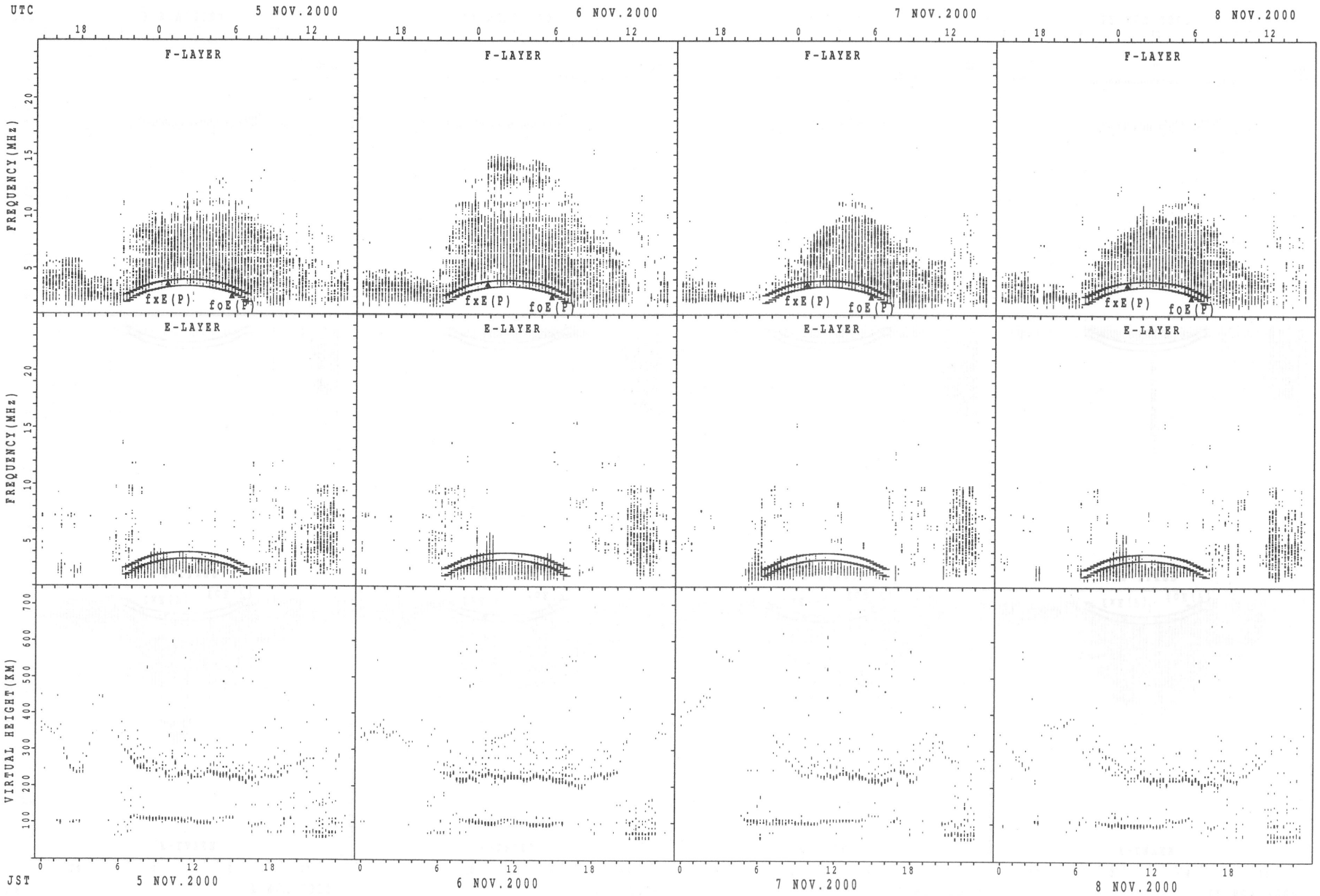
NOV. 2000

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	14	15	16	15	15	27	16	15	18	35	26		32											
2											29	30	47		51	45	23	24	14	14	14	14	14	15
3	15	15	15	15	14		15	24	17	26	27	29	32	28		27	21	28	17	15	15	16	15	15
4	14	14	15	15	15	16	16	23	15	20	30	45	46	48	48	42	23	15	15	15	16	14	15	14
5	14	15	15	14	14		15	23	16	20	29	39	33	34	28		16	15	14	16	15	16	14	14
6	15		15	15	15	18	15	22	15	16	28	27		21		35	18	15		14	15	14		14
7	14	15	14	16				21	16	21	29	35	42	48	29	21	20	18	15	15	15	16	15	15
8	15	15	15	14	15	71	16	22	18	18	27	41	48	46	46		18	18			15	14	26	15
9	15	15	14	14	14		14	17	18	49	48	48	48	46	30	37	21	27		15	15	15	14	15
10	14	15	16	14	15		17	21	15	16	21	32	29	45	46	29	20	15	14	14	15	15	14	14
11	14	14	14	15	15	16	15	22	28	16	17	21	26		41	18	29	16	15	15	16	15	14	14
12	15	16	14	14	17	20	16	21	15	18	36	24	30	35	33	18	16	15	14	14	15	14	14	14
13	14	15	14	15	15	14	18	15	17	34		20	29	28	18	16	29	15	14		14	15	14	16
14	14	14	15	14	15	15	15	15	15	15	16	24	42	28	36	36	18	26	15	15	14	14	14	14
15	15	15		14	16	14	20		15	15	17		46	46	46	35	15	14	14	15	14	16	15	16
16	14	15	15	15	15	14	16	15	16	15	39	33	46	34	28	15	16	14	14	14	15	15	14	15
17	15	15	14	15	16	15	15	20	15	15	20	38	42	46	41	18	15	14	15		15		15	16
18	16	21	15	14	15	17	14	14	15	16	20	30	30	28	21	17	15	15	14	14		14	15	15
19	14	14	14	15		15		20	14	16	29	42	47	29	28	18	16	14		14	15	14	15	
20	15	15	14	15	14	15	17	17	14	16	27	28	22	28	30	16	15	14	15	14	14	15	15	15
21	14	15	14	14	15	17	16	17	15	18	22	44	38	28	28	20	15	15	14	14	15	15	15	18
22	16	29	15	23	17		14	14	15	17	23	28	29	29	29	22	18	15	14	15	16		14	14
23	14	15	15	15	15	15	14	17	16	18	28	38	33	32	26		14	14	14	14	14	15	14	
24	16	14	15	14	15	15	15	21	14	18	26	46	28	33		17	15	14						
25																								
26																								
27												28	29	30	29	18	17	15	14	14	15	14	16	18
28	18	15	14	15	14		15	18	15	18	28	27	29	28	21	16	15		14	14	14		18	15
29	15	15	15	15	15	15	15	17	14	24	30	33	28	29	27	23	16	15	15		15	14	15	14
30	14	14	15	15	15	15	15	18	15	17	17	39	43	32	26	18	16	14	14	14	15	15	15	14
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	26	25	25	26	24	19	24	25	26	26	26	26	27	25	24	24	27	26	22	22	25	23	25	24
MED	14	15	15	15	15	15	15	18	15	18	27	32	33	32	29	19	16	15	14	14	15	15	15	15
U Q	15	15	15	15	15	17	16	21	16	20	29	39	46	45	41	32	20	16	15	15	15	15	15	15
L Q	14	14	14	14	15	15	15	16	15	16	21	28	29	28	27	17	15	14	14	14	14	14	14	14

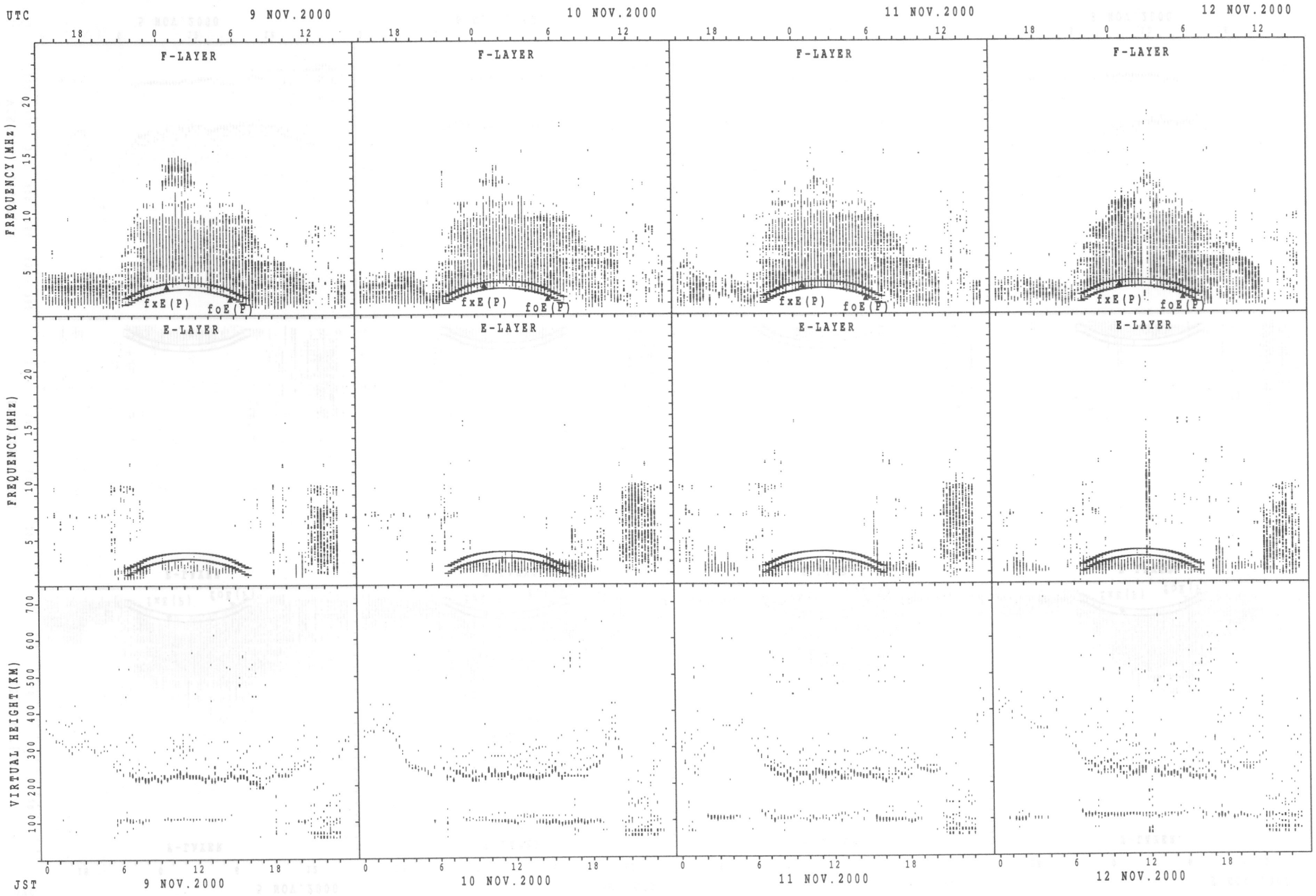

SUMMARY PLOTS AT Wakkanai
UTC
JST
1 NOV.2000
2 NOV.2000
3 NOV.2000
4 NOV.2000
F-LAYER
E-LAYER
fxE(P)
foE(P)
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



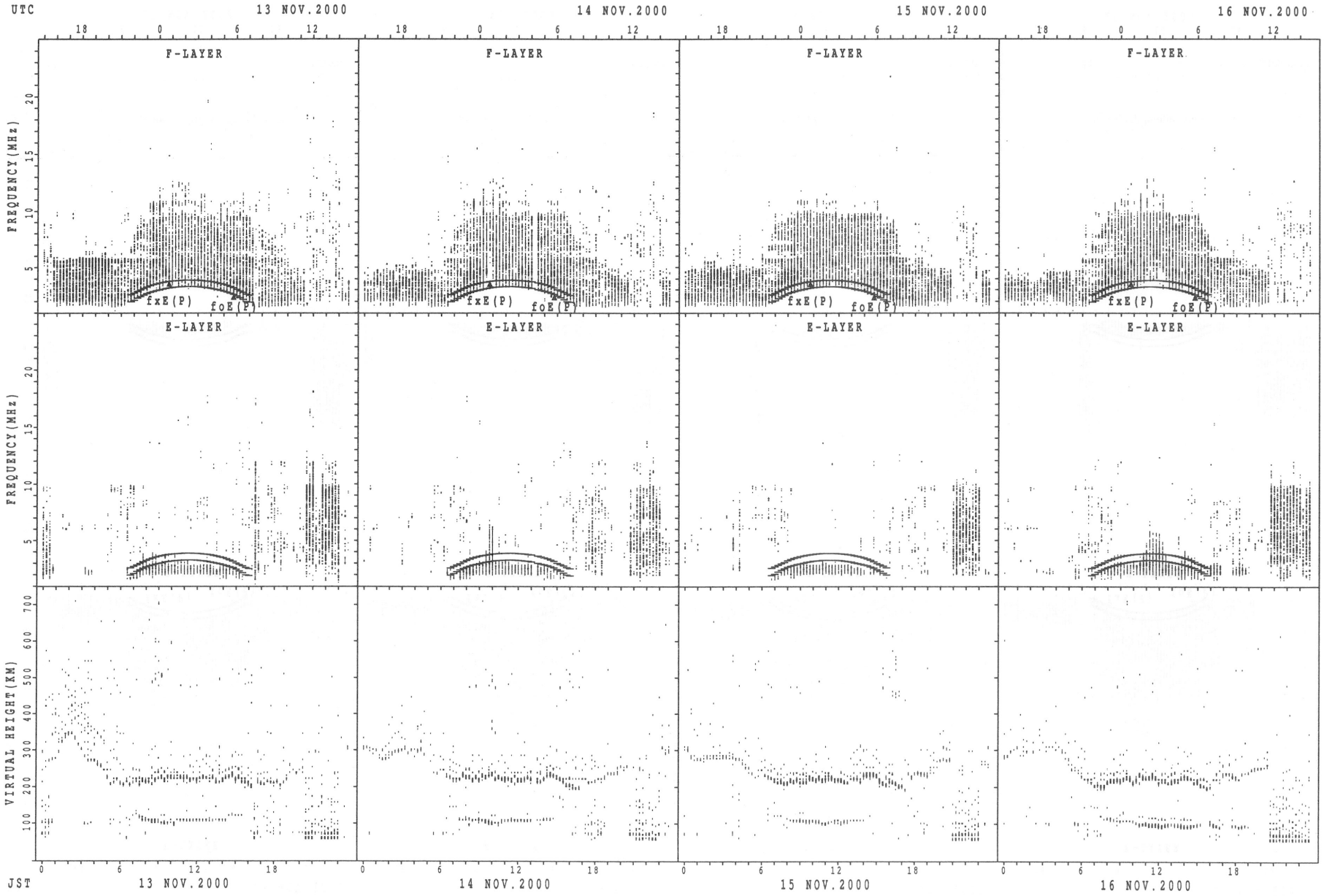
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai

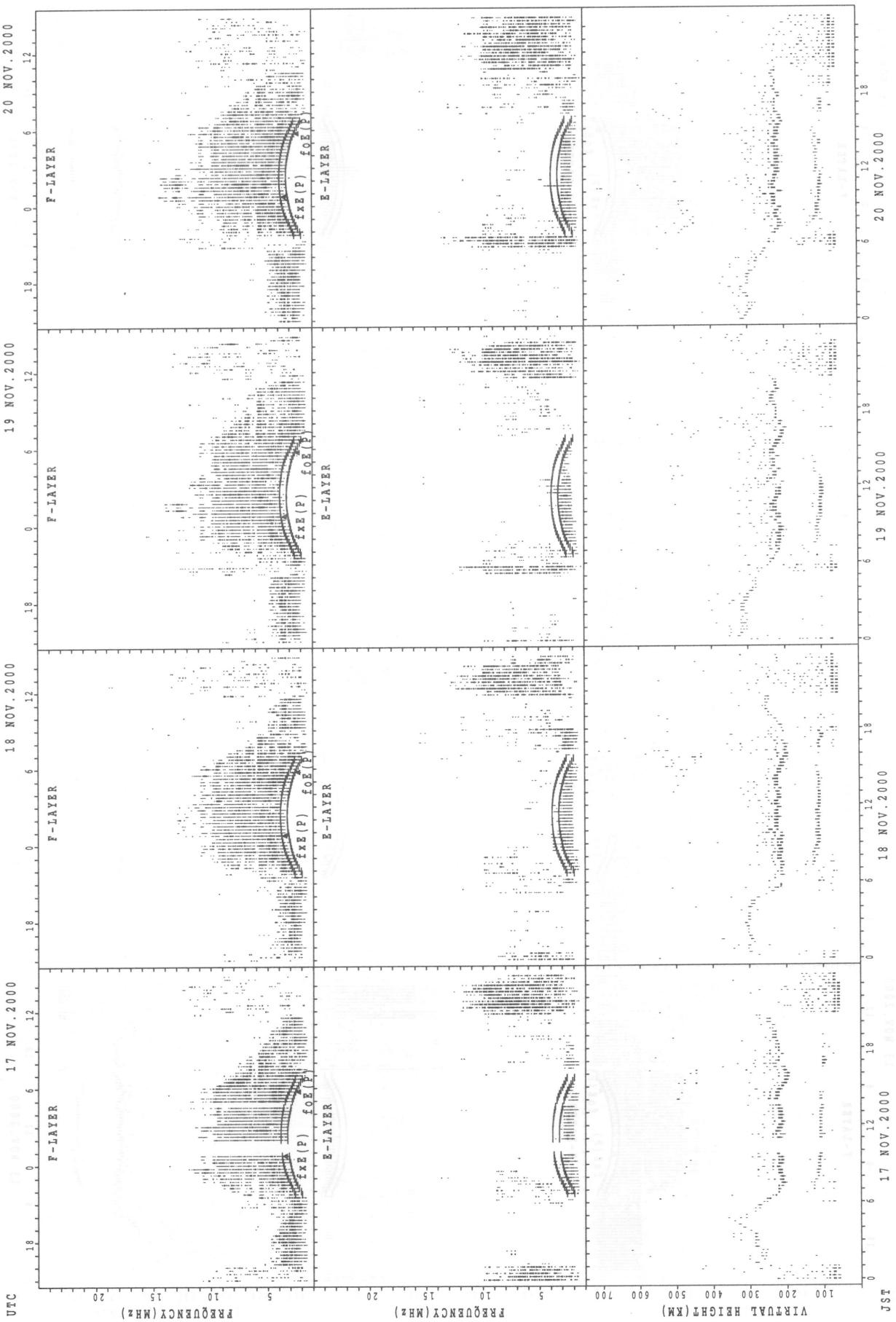


fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

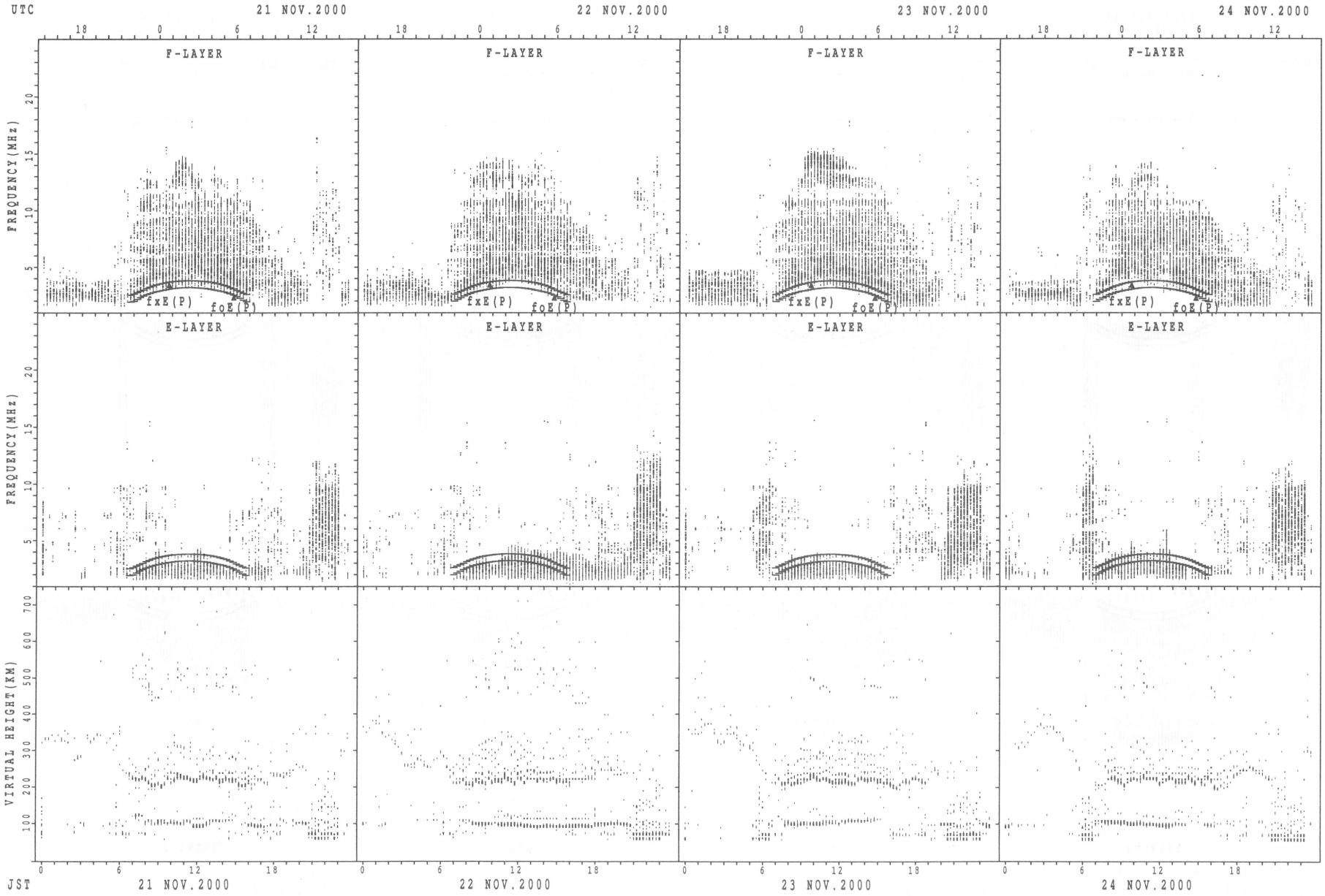
SUMMARY PLOTS AT Wakkanai



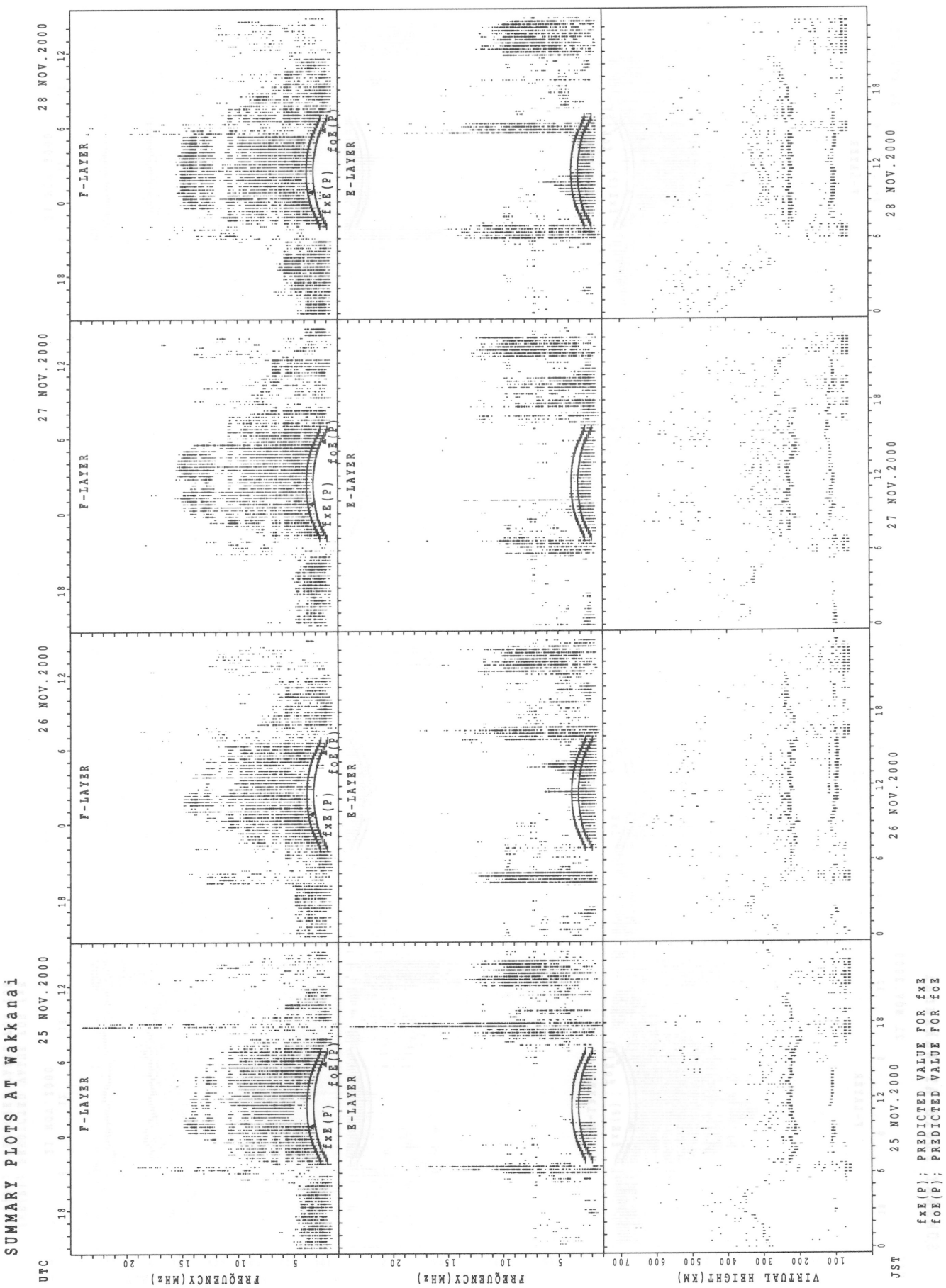
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE


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

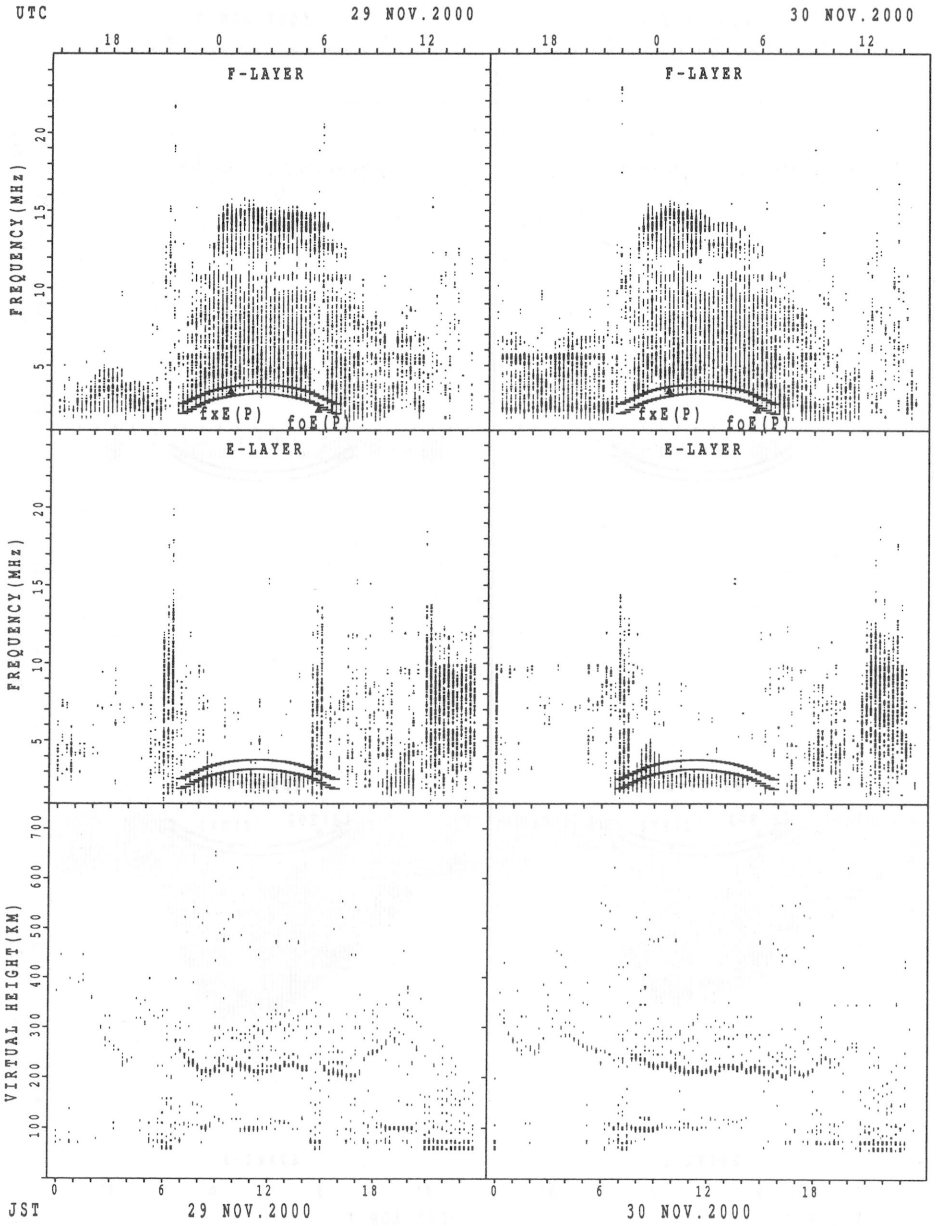
SUMMARY PLOTS AT Wakkanai



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

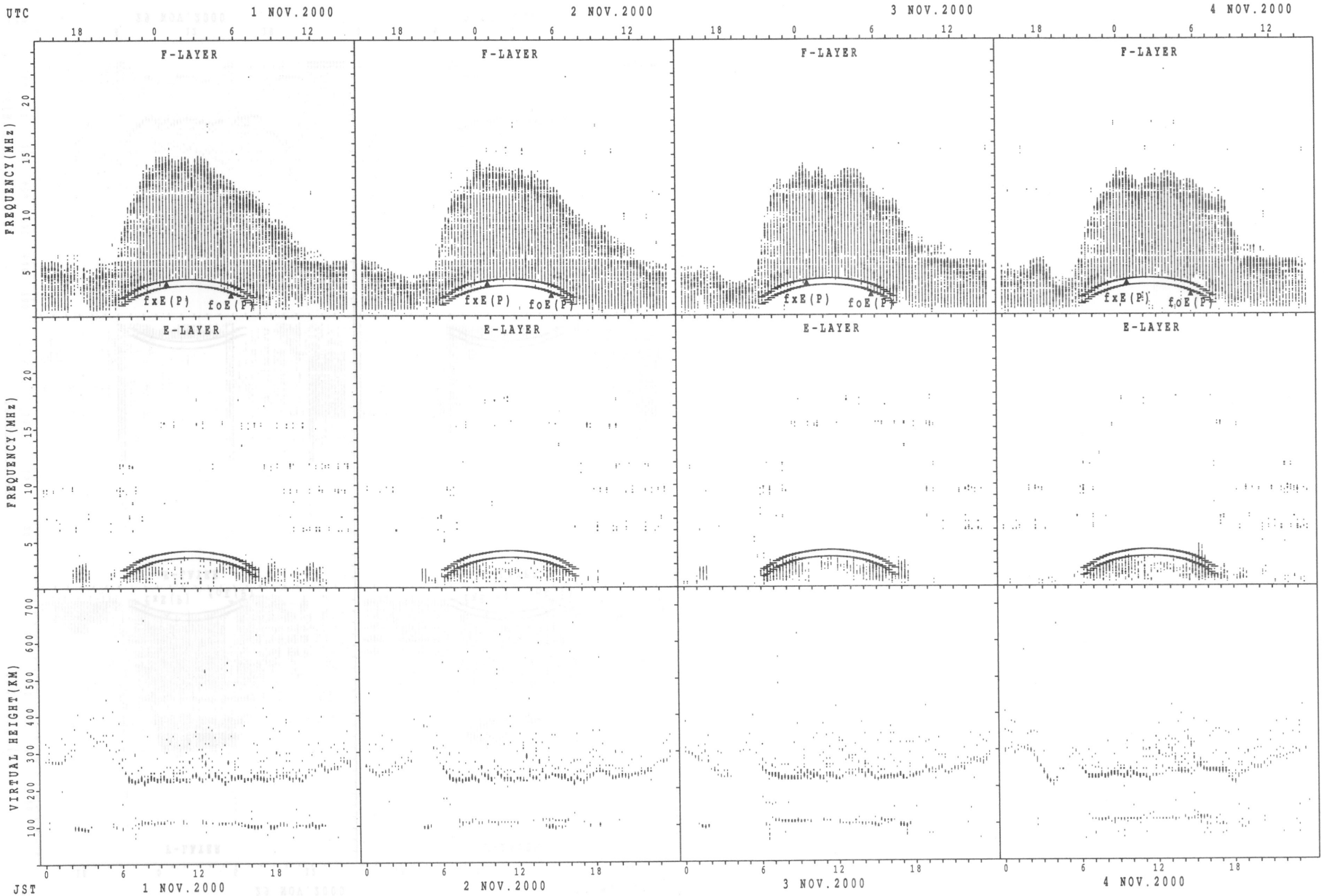

SUMMARY PLOTS AT Wakkanai
UTC
JST
25 NOV.2000
26 NOV.2000
27 NOV.2000
28 NOV.2000
F-LAYER
E-LAYER
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
fxE(P)
foE(P)
fxE(P) : PREDICTED VALUE FOR fxE
foE(P) : PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



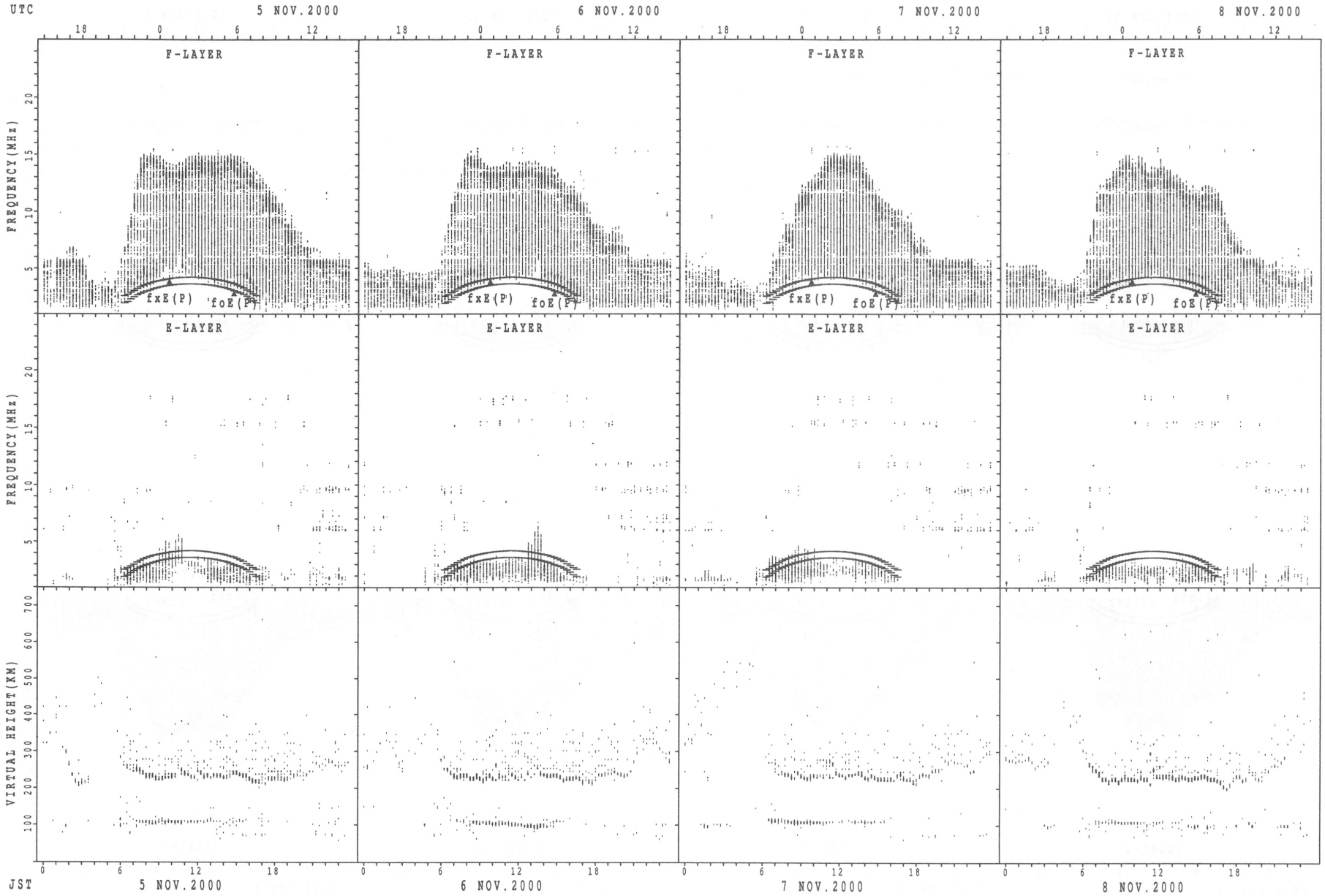
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



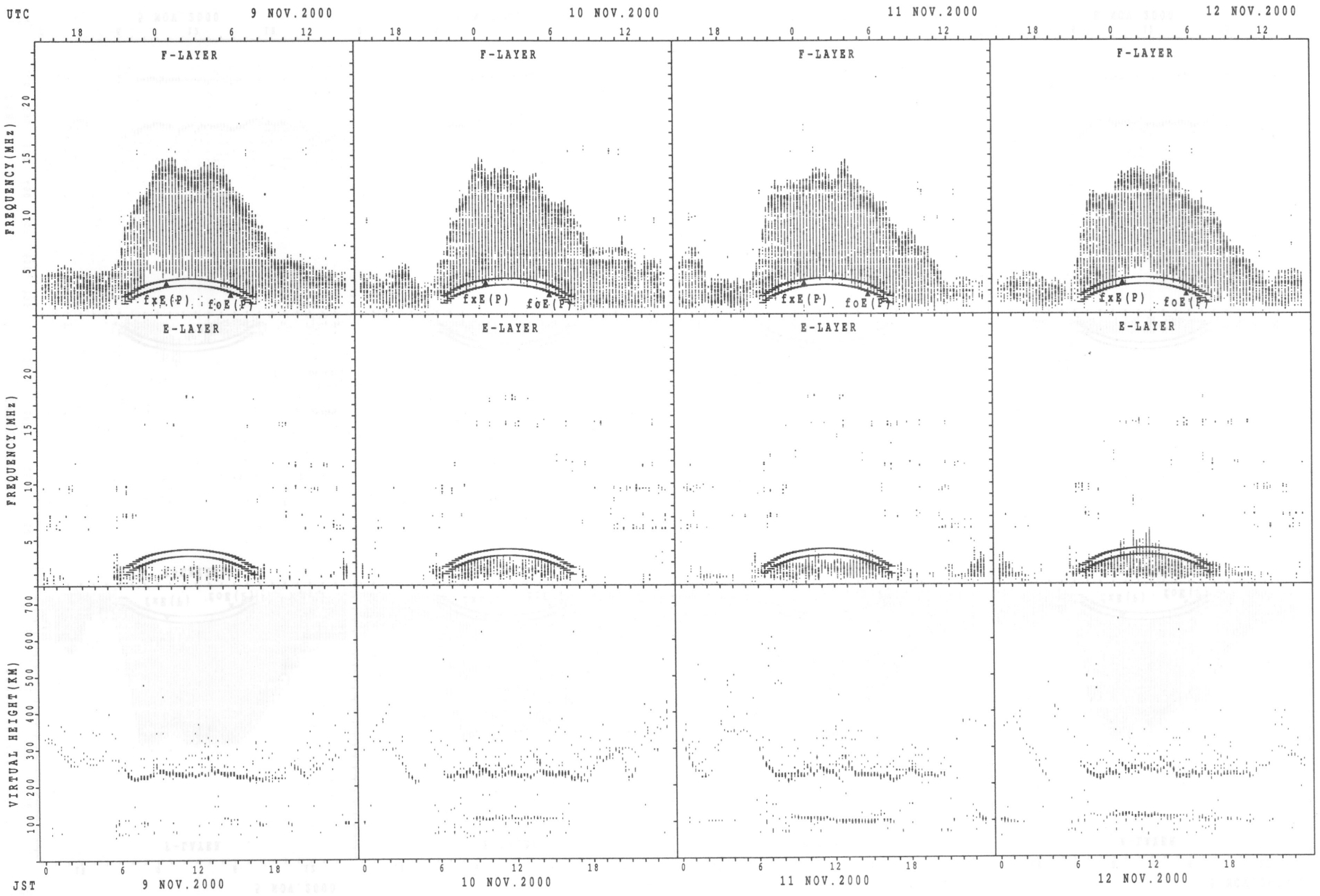
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



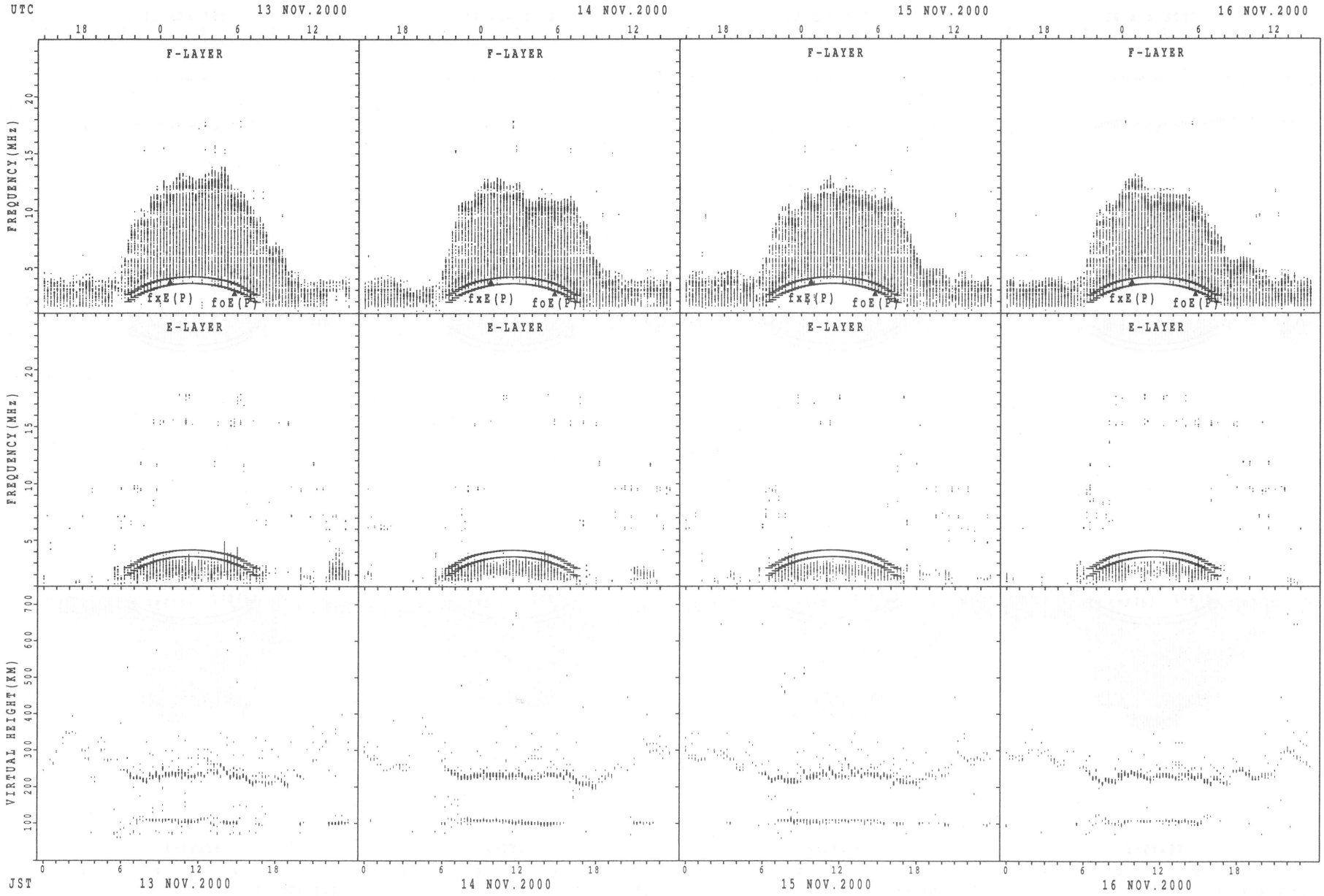
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



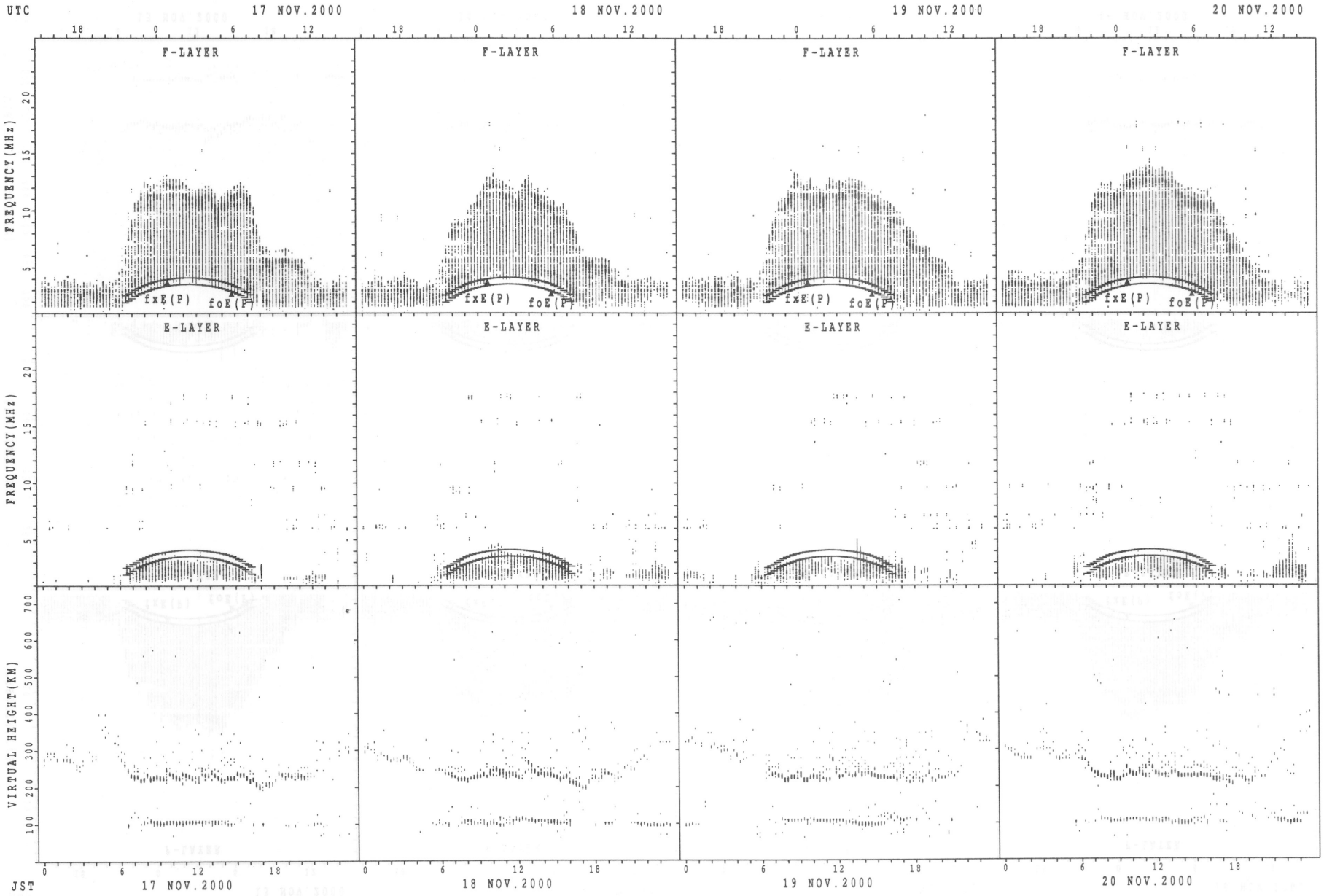
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



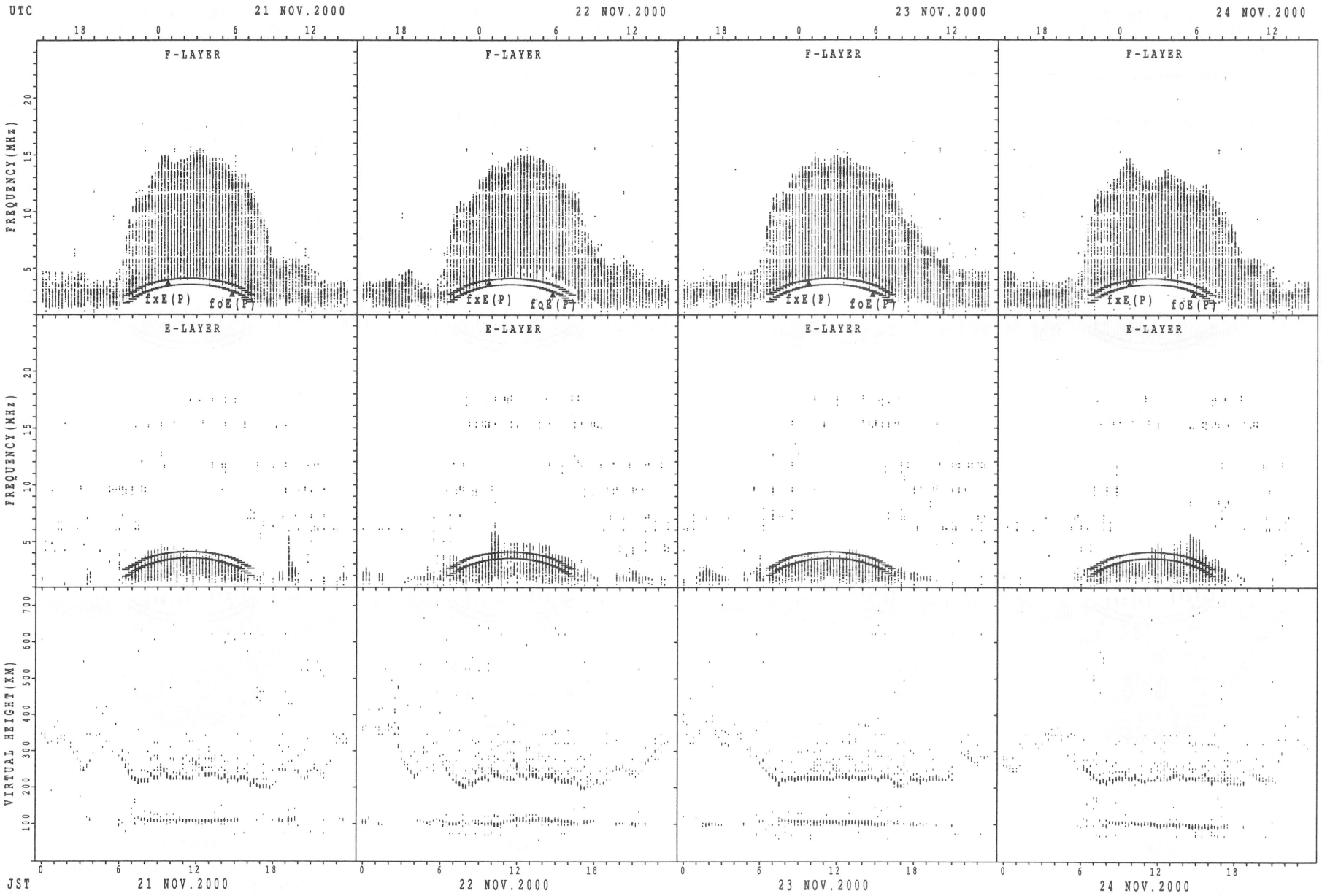
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji

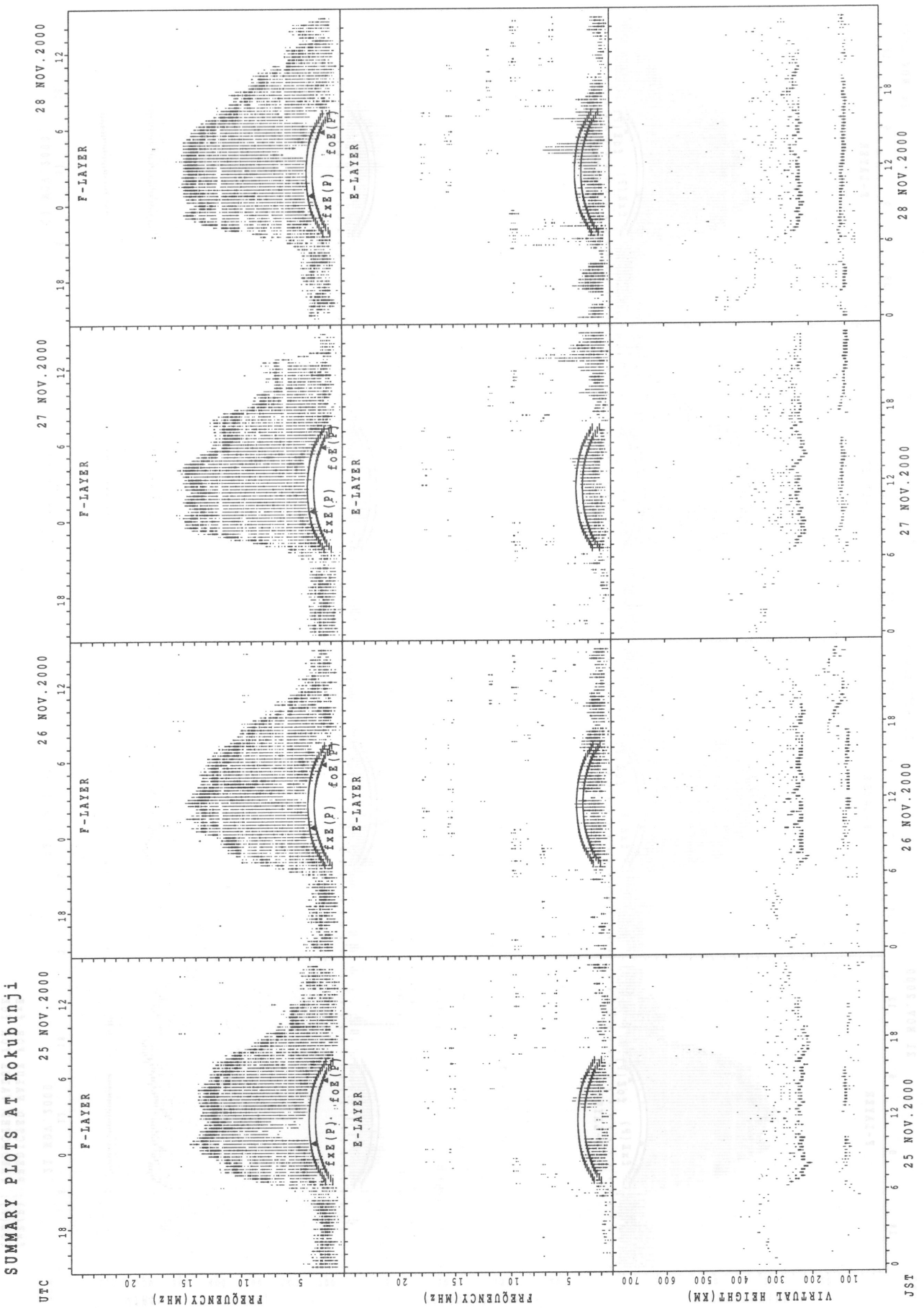


fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

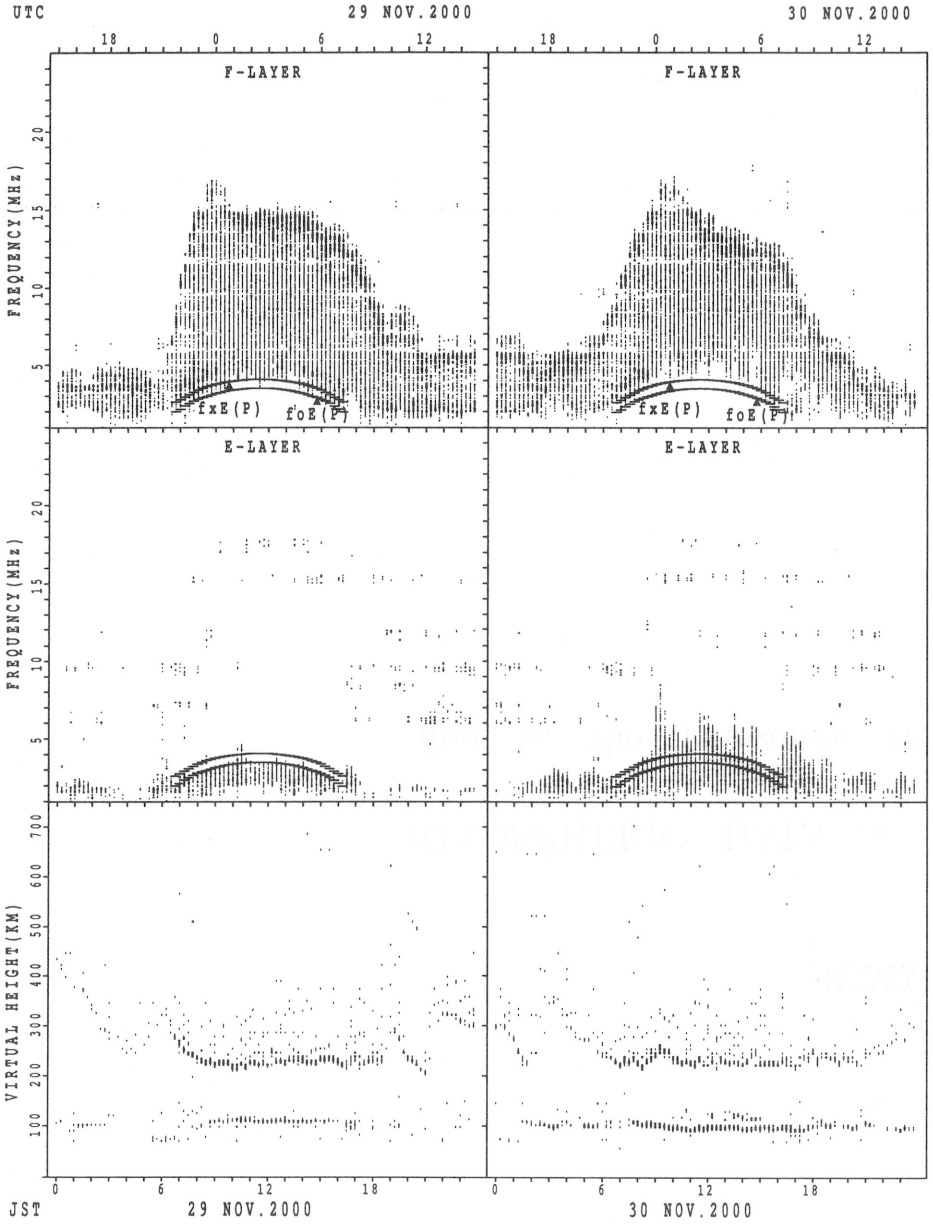
SUMMARY PLOTS AT Kokubunji



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


SUMMARY PLOTS AT Kokubunji
UTC
JST
25 NOV.2000
26 NOV.2000
27 NOV.2000
28 NOV.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 Kokubunji

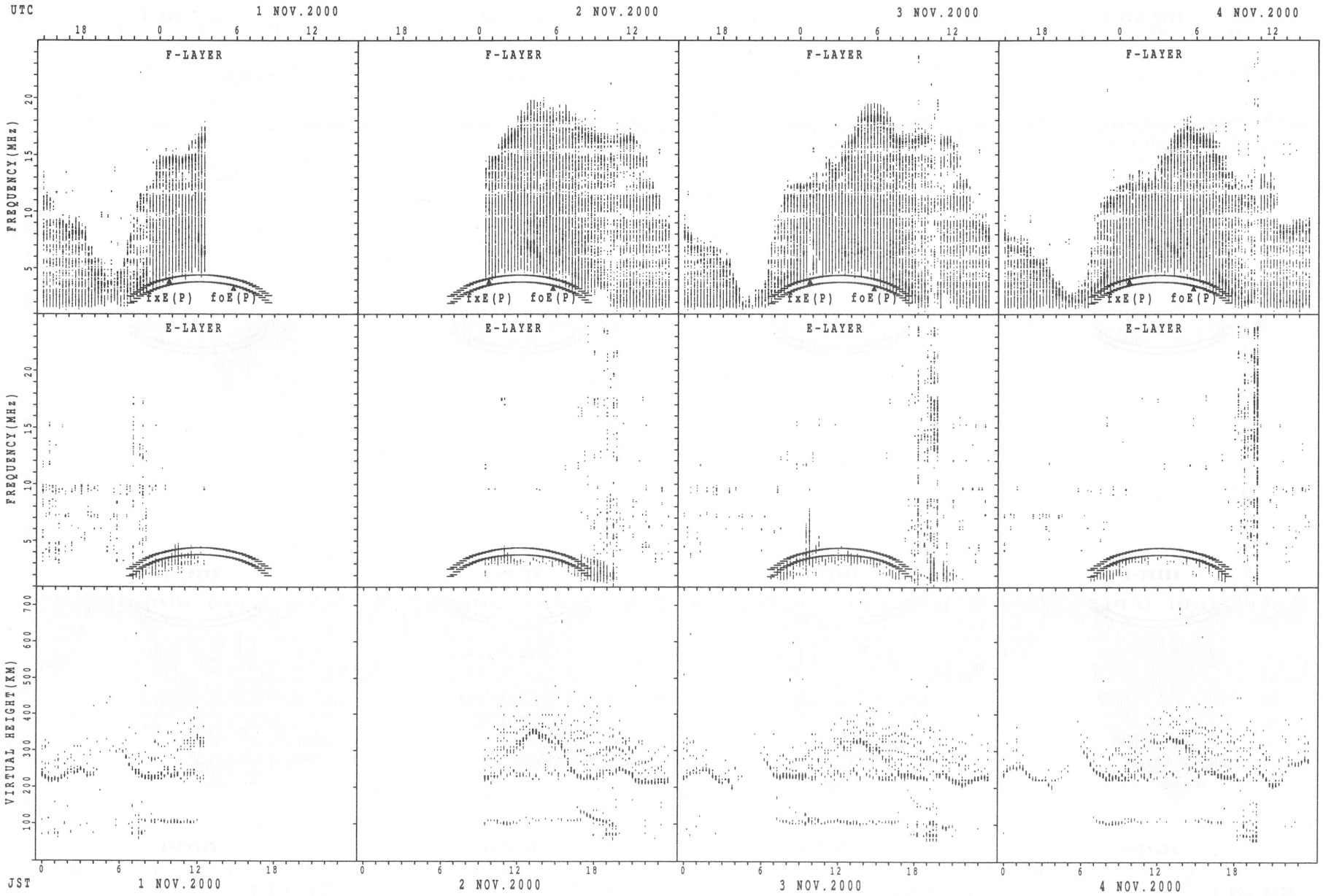


fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS

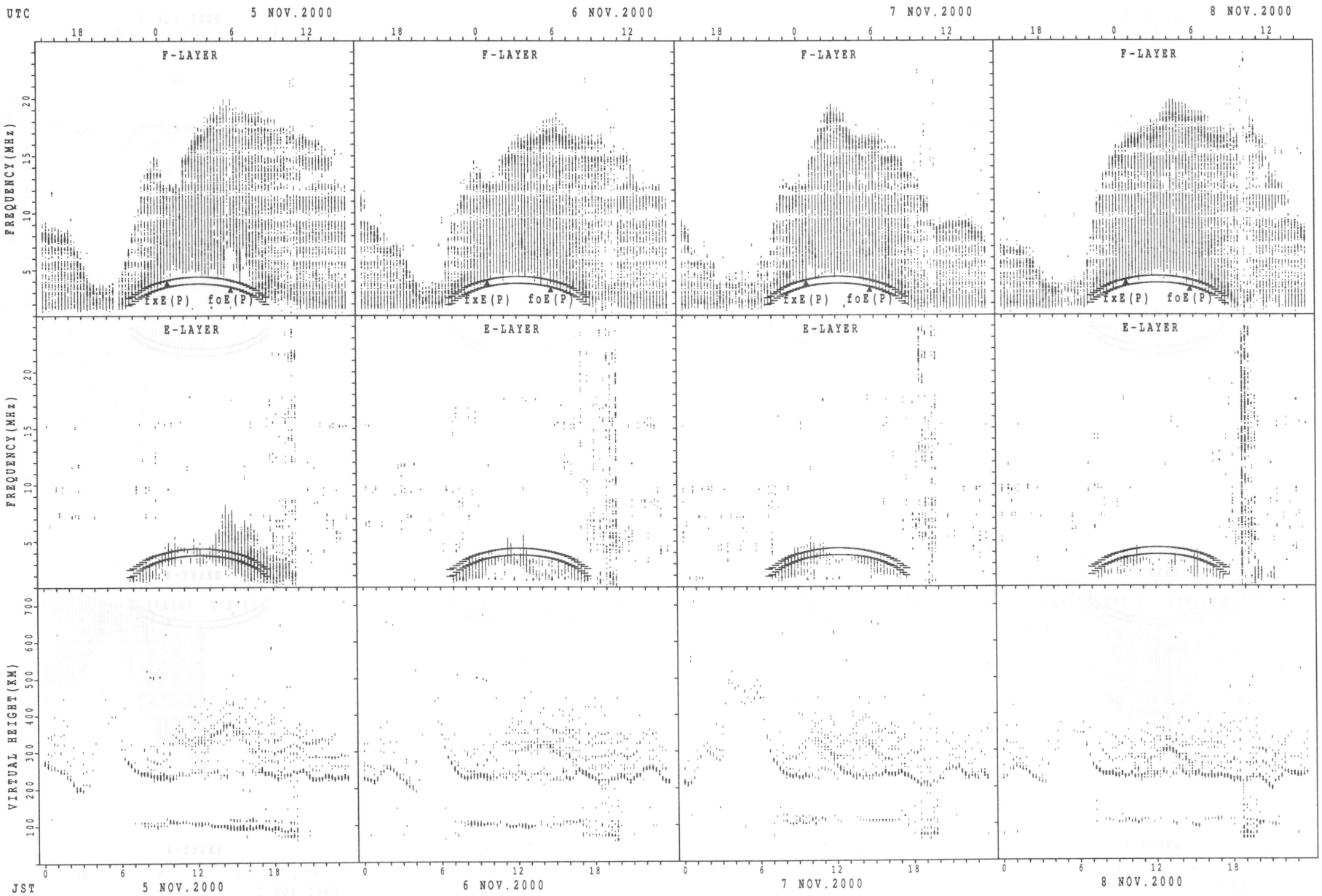
IONOSPHERIC DATA of Yamagawa is not available due to the ionosonde trouble.

SUMMARY PLOTS AT Okinawa



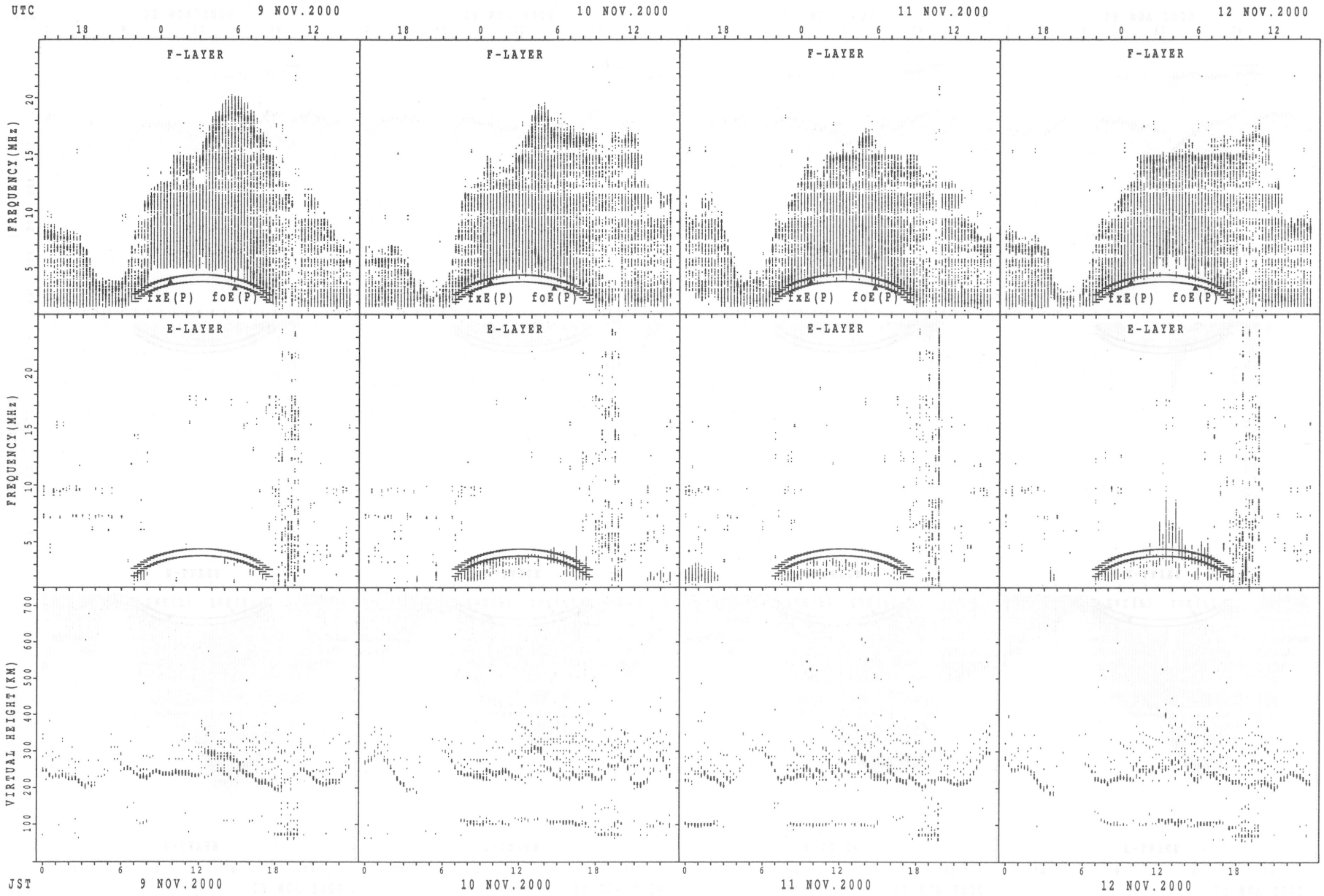
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



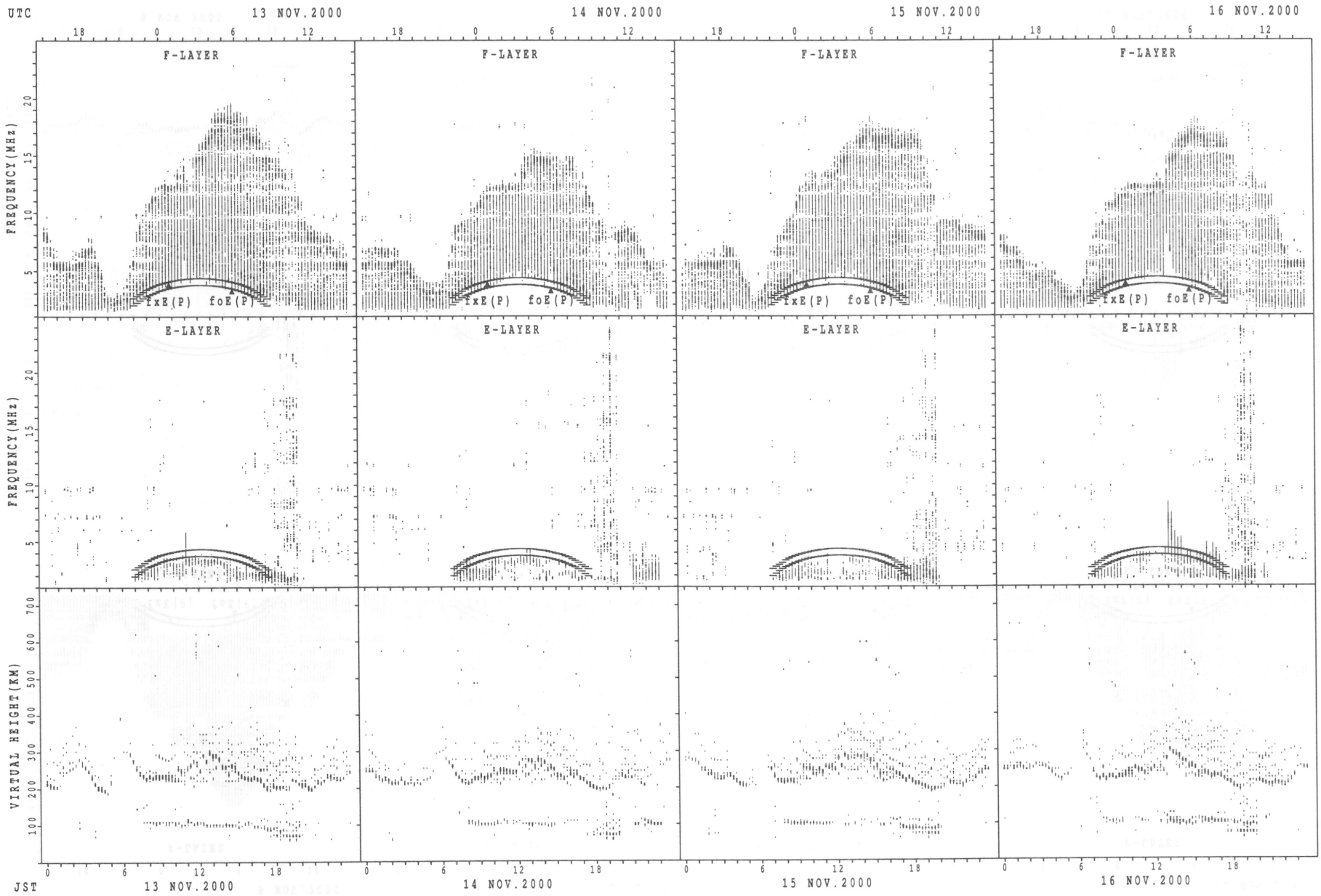
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



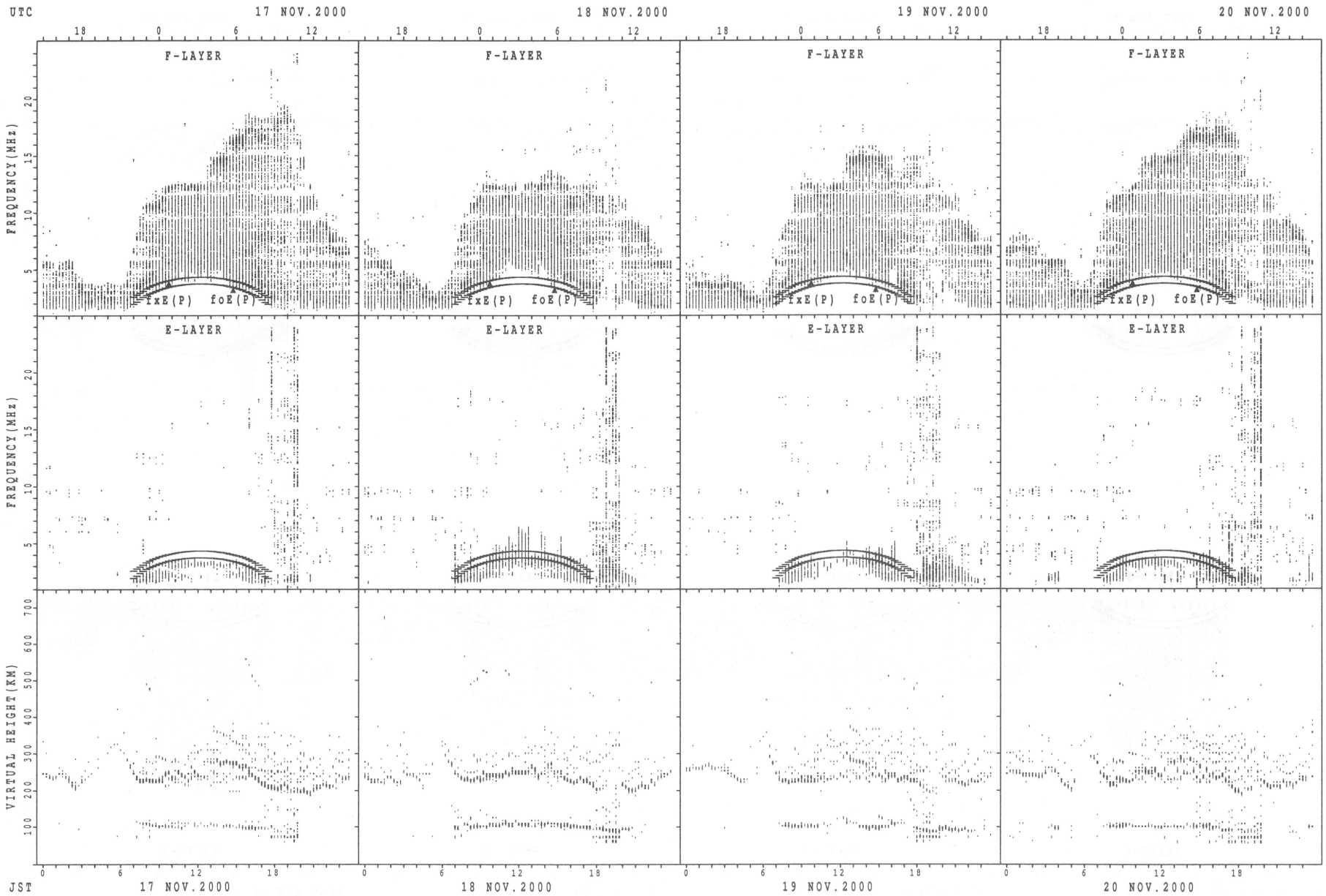
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



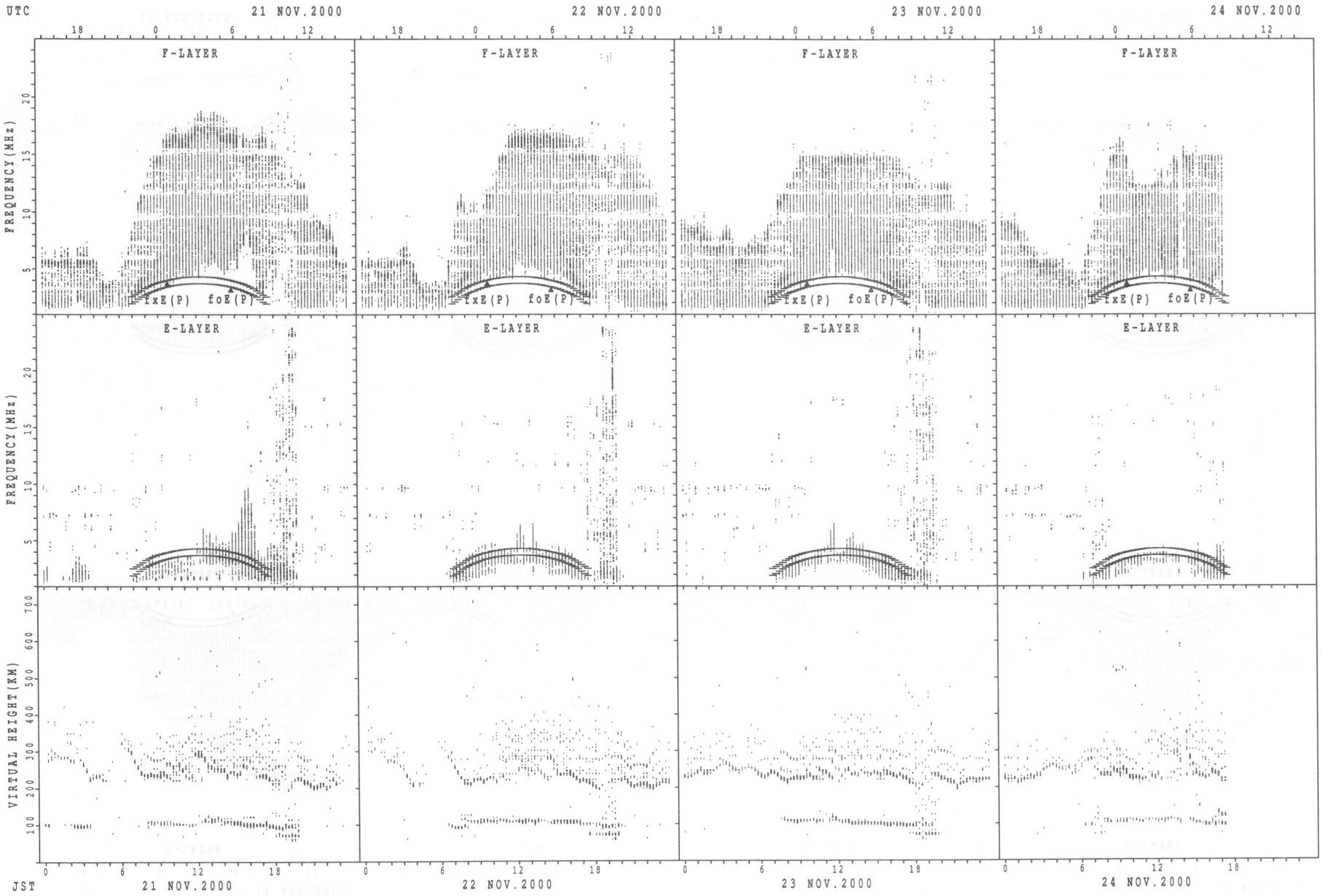
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



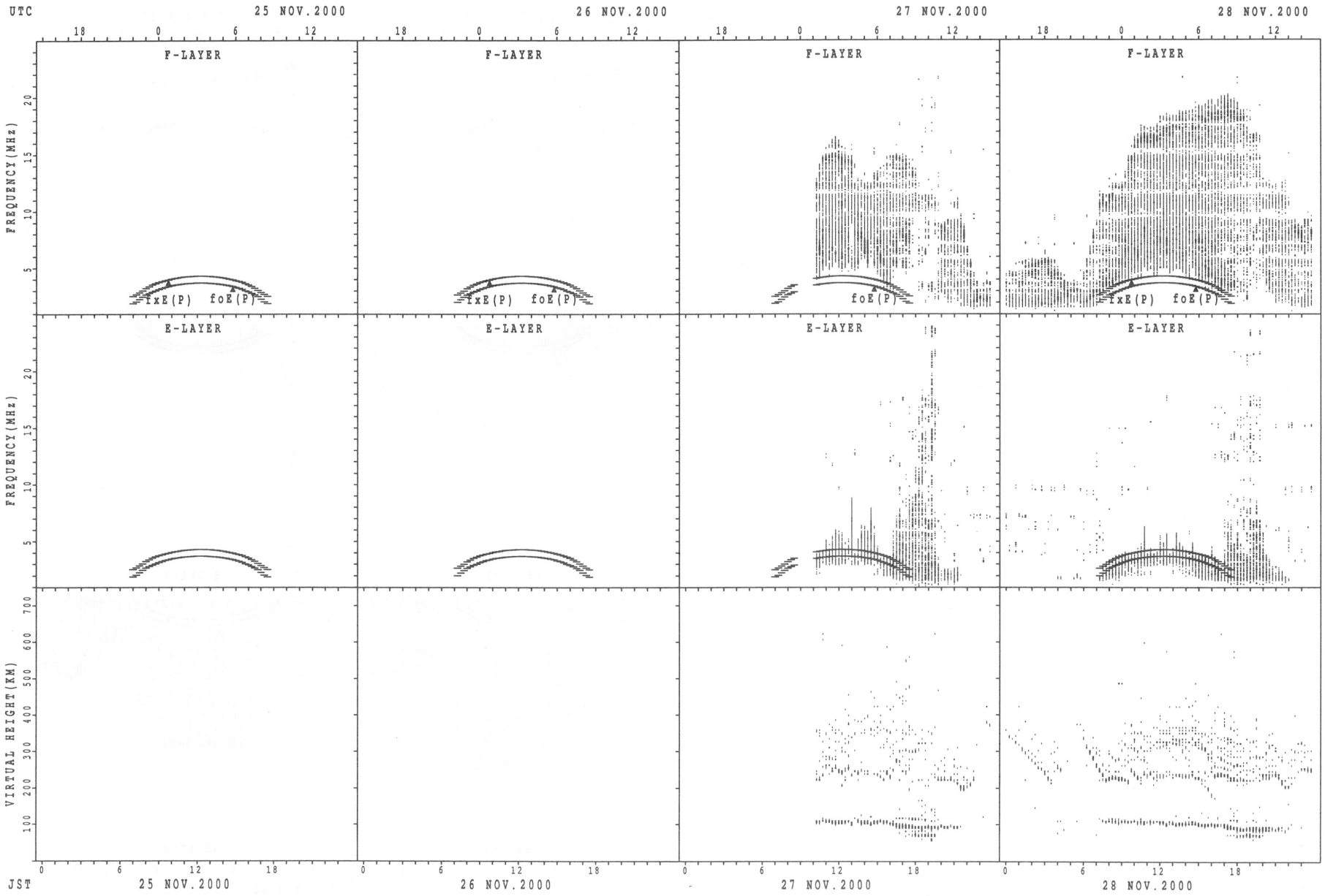
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



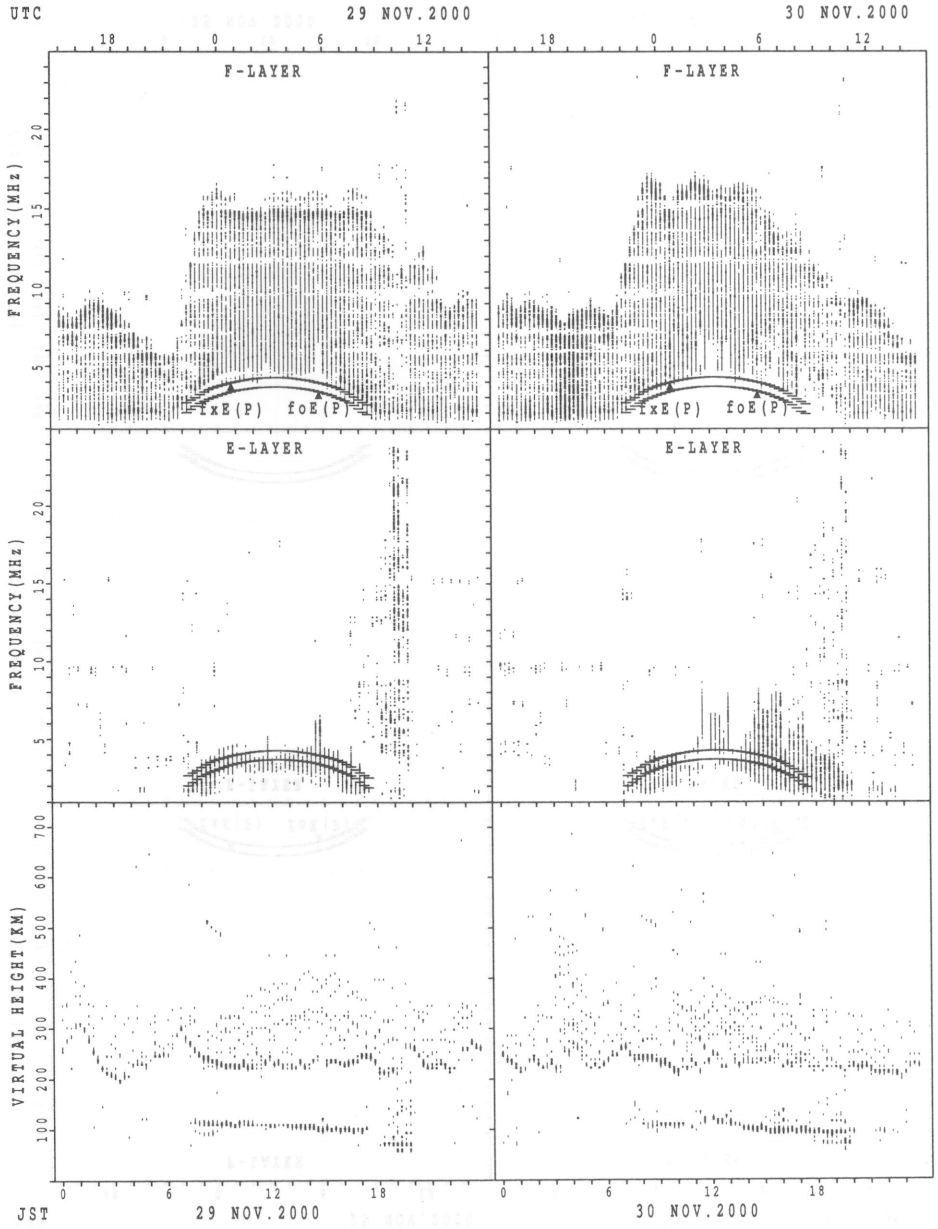
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



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

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

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

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT							5	19	26	25	25	25	27	25	28	28	28	18	11	4	1	3		1
MED							296	250	232	222	232	228	226	232	234	230	238	261	286	337	198	248		254
U Q							400	292	248	232	239	231	232	248	242	238	254	298	316	420	99	424		127
L Q							243	240	222	216	224	222	218	226	229	224	230	248	252	322	99	192		127

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	4	1	5	9	2	3	4	9	10	16	6	9	6	3	6	6	11	9	8	7	9	1		
MED	98	101	101	105	108	115	109	111	112	109	104	101	97	95	95	108	101	97	99	105	103	107		
U Q	100	50	109	108	109	117	115	147	161	113	125	112	101	111	97	121	107	107	106	107	105	53		
L Q	96	50	99	102	107	115	89	107	105	103	101	97	97	95	95	95	95	96	96	91	93	53		

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

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	1	1					1	29	30	30	29	30	30	30	30	30	29	27	18	14	4	2	2	1
MED	498	346					292	234	230	238	234	239	243	249	247	244	240	254	273	301	309	241	344	468
U Q	249	173					146	244	236	242	239	244	258	258	260	248	245	266	288	316	318	292	444	234
L Q	249	173					146	230	224	226	230	230	238	240	234	238	233	242	262	278	292	190	244	234

h'Es

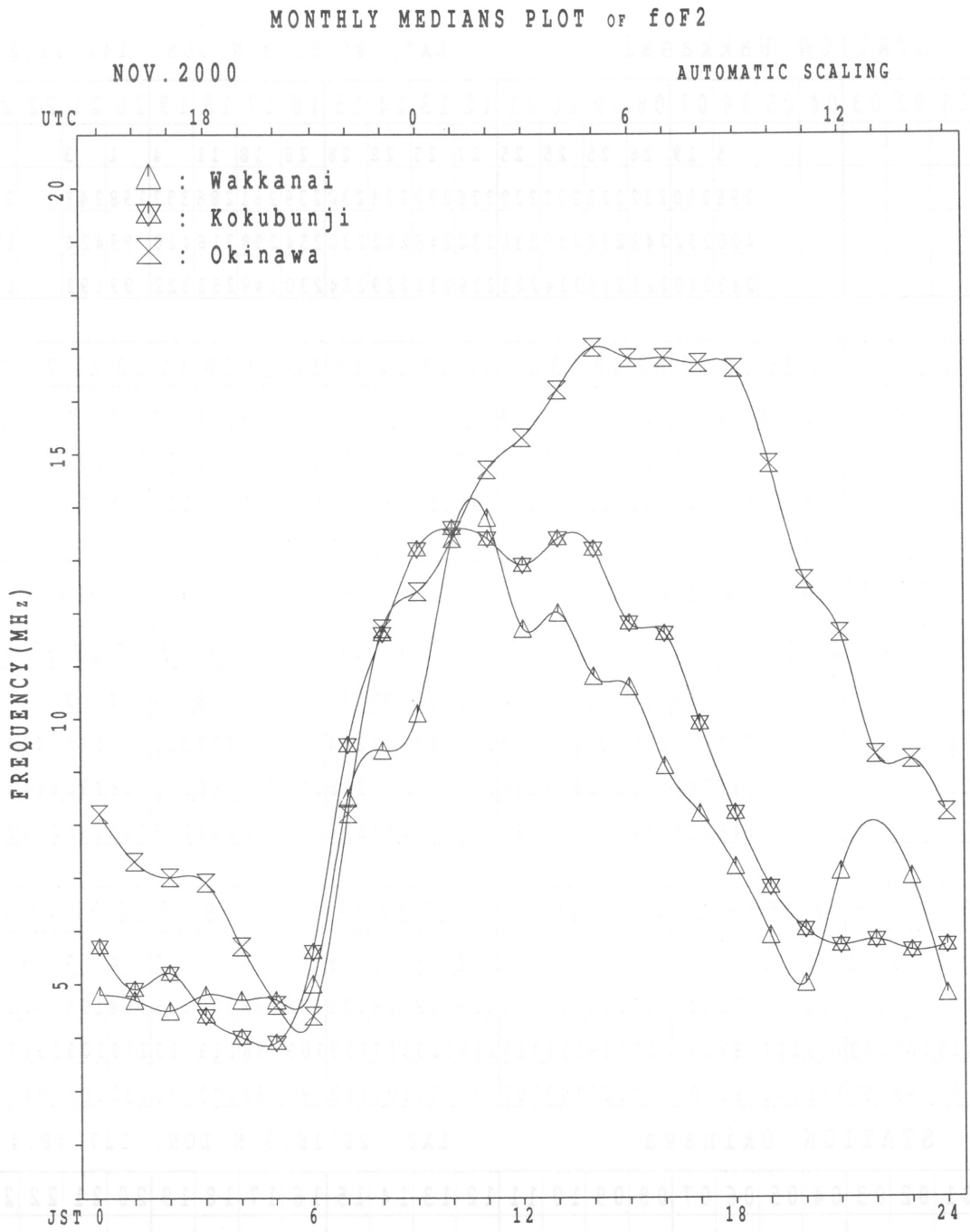
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	7	2	3	3	2	3	1	7	5	4	5	7	6	6	8	8	12	8	7	7	4	7	5	7
MED	99	106	107	103	112	107	175	111	113	112	111	113	113	108	106	106	102	96	107	105	104	105	99	103
U Q	109	115	107	103	113	127	87	137	117	119	115	115	115	113	117	113	109	98	113	113	110	109	131	113
L Q	97	97	99	97	111	103	87	103	100	106	107	107	101	99	103	103	97	92	103	103	102	103	94	95

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	16	12	12	11	4	1	2	18	26	26	26	26	14	19	26	24	27	26	22	19	25	23	23	17
MED	276	303	279	306	302	278	282	272	238	238	239	250	255	284	280	268	258	241	250	272	256	242	260	274
U Q	302	309	307	352	313	139	290	302	246	242	246	274	288	312	320	312	272	248	264	316	280	260	280	303
L Q	247	272	273	248	268	139	274	262	228	232	234	238	242	268	256	249	246	230	224	242	241	232	248	257

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	2	1	1	1	1			4	6	5	6	10	7	10	11	11	13	13	10	11	6	4	2	2
MED	104	97	103	97	99			102	113	113	114	115	111	105	105	107	105	103	97	91	96	94	92	105
U Q	105	48	51	48	49			119	113	119	115	117	121	111	111	113	111	109	101	101	99	96	105	107
L Q	103	48	51	48	49			98	107	110	113	113	109	103	103	105	103	98	89	89	95	93	79	103


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

IONOSPHERIC DATA STATION Kokubunji

NOV. 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 63	X 62	X 60	X 56	X 56	X 58													O X 98	X 90	X 78	X 68	X 65	O X 62
2	X 64	X 59	X 54	X 52	X 48	X 49												X 99	X 90	X 90	X 80	X 71	X 61	X 58
3	X 55	X 54	X 54	X 47	X 42	X 43													X 81	X 75	X 74	X 69	O X 62	X 61
4	X 55	X 54	X 57	X 61	X 46	X 43													X 92	X 74	X 70	X 65	X 65	X 65
5	X 63	O X 63	X 71	X 62	X 45	X 44													X 115	X 97	X 85	X 71	X 65	X 62
6	X 58	X 50	X 53	X 48	X 50	X 49													X 92	X 86	X 81	O X 62	X 62	X 65
7	O X 62	X 54	X 53	X 44	X 44	X 38													X 79	X 68	X 64	X 63	X 65	X 56
8	X 58	X 55	X 55	X 49	X 44	X 44													X 80	X 70	X 59	X 58	X 53	O X 51
9	X 54	X 55	X 57	X 54	X 51														X 76	X 64	X 65	X 56	X 54	X 54
10	X 50	X 50	X 50	X 55	X 47	X 38												O X 98	X 76	X 78	X 78	X 70	O X 62	X 62
11	X 65	X 75	X 52	X 46	X 45	X 44												X 90	X 86	X 74	X 59	X 44	X 45	X 45
12	X 47	X 46	X 49	X 48	X 40	X 42												X 102	X 82	X 70	X 55	X 47	X 49	X 50
13	X 48	X 46	X 43	X 46	X 38	X 45												X 91	X 74	X 51	X 42	X 40	X 42	X 40
14	X 44	X 45	X 45	X 40	X 36	X 38												X 93	X 60	X 50	X 45	X 42	X 44	X 45
15	X 48	X 50	X 47	X 48	X 50	X 44											X 114	X 93	X 66	X 52	X 52	X 46	X 49	X 45
16	X 46	X 45	X 42	X 44	X 45	X 42												X 72	X 59	X 63	X 51	X 43	X 46	X 44
17	O X 43	X 43	X 44	X 40	X 40	X 39												X 82	O X 65	X 69	X 64	X 48	X 42	X 43
18	O X 43	X 45	X 45	X 45	X 43	X 40												X 76	X 64	X 61	X 48	X 46	X 44	X 44
19	X 45	X 46	X 45	X 46	X 45	X 45												X 102	X 84	X 74	O X 60	X 49	X 45	X 45
20	X 47	X 49	X 47	X 46	X 46	X 48												X 100	X 81	X 65	X 54	X 47	X 44	X 45
21	X 47	X 50	X 48	X 50	X 41	X 43												X 103	X 65	X 58	X 60	X 51	O X 45	X 42
22	X 39	X 41	X 42	X 46	X 45	X 36												X 102	X 74	X 56	X 56	X 56	X 47	X 44
23	X 44	X 44	X 45	X 48	X 44	X 48												X 105	X 92	O X 76	X 66	X 54	X 53	X 52
24	X 51	X 44	X 42	X 41	X 41	X 43	X 56											X 102	X 84	X 63	X 61	X 51	X 38	X 40
25	X 43	X 42	X 41	X 41	X 41	X 42	X 53											X 110	X 88	X 70	X 69	X 55	X 51	X 53
26	X 47	X 41	O X 44	X 44	X 42	X 43	X 50											X 105	X 96	X 76	X 64	X 54	X 47	X 46
27	X 44	X 45	X 43	X 44	X 42	X 40	X 50											X 128	X 102	X 89	X 80	X 82	X 54	O X 38
28	X 42	X 44	X 45	X 46	X 46	X 46	X 58											X 110	X 105	X 90	X 74	O X 63	O X 49	X 58
29	X 46	X 48	X 50	X 54	X 51	X 49	X 54											X 128	X 105	X 88	X 88	X 70	X 72	X 74
30	X 76	X 77	X 62	X 60	X 66	X 70	X 80											X 104	X 86	X 69	X 62	X 50	X 46	X 45
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	30	30	30	30	29	7										1	22	30	30	30	30	30	30
MED	X 48	X 48	X 48	X 46	X 45	X 43	X 54										X 114	X 102	X 83	X 70	X 64	X 54	X 49	X 48
U Q	X 58	X 54	X 54	X 52	X 47	X 47	X 58											X 105	X 92	X 78	X 74	X 65	X 62	X 58
L Q	X 44	X 45	X 44	X 44	X 42	X 41	X 50											X 93	X 74	X 63	X 56	X 47	X 45	X 44

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

IONOSPHERIC DATA STATION Kokubunji

NOV. 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	57	56	54	50	50	52	69	105	132	144	149	146	144	140	131	123	115	108	92	84	72	R 62	59	56
2	58	53	48	46	42	43	67	109	R 120	142	139	135	131	130	124	118	104	93	84	84	R 74	R 65	55	52
3	49	48	48	41	36	37	R 59	110	R 120	130	131	132	126	133	130	112	106	98	R 75	69	68	R 63	56	55
4	49	48	51	55	40	37	59	91	115	133	130	121	128	131	121	122	111	110	86	68	65	59	59	59
5	57	57	65	56	39	38	58	112	150	146	138	142	147	145	148	145	137	124	109	R 91	78	R 65	R 59	57
6	52	44	47	42	44	43	60	110	150	142	R 137	140	139	141	134	130	118	106	86	80	R 74	56	56	59
7	56	48	47	38	38	32	38	R 60	87	118	129	147	149	146	134	110	98	93	R 73	62	58	57	59	50
8	52	49	49	43	38	38	50	108	124	142	139	R 133	141	128	120	116	116	95	R 74	R 64	53	52	R 47	R 45
9	48	49	51	48	45	46	60	R 97	116	138	145	136	133	139	136	119	104	90	70	58	58	50	48	48
10	R 44	R 44	44	49	41	32	52	88	113	140	132	133	128	124	126	107	106	92	70	R 72	R 72	64	56	56
11	R 59	R 69	46	40	R 39	38	52	112	R 120	128	126	133	125	141	124	113	106	84	80	68	53	38	39	39
12	41	40	43	42	R 34	36	R 47	104	110	112	131	134	127	139	124	113	107	R 96	76	64	49	41	43	44
13	42	40	R 37	40	32	39	48	86	R 96	116	122	126	124	131	134	112	100	85	68	45	R 36	R 34	R 36	34
14	R 38	39	39	34	30	32	43	90	105	118	122	R 120	120	104	107	105	108	R 87	54	44	39	36	38	39
15	42	R 44	41	42	44	38	50	88	100	106	108	123	115	116	112	106	108	R 87	R 60	46	46	40	43	R 38
16	40	39	36	38	38	36	46	92	101	116	128	112	112	110	110	101	78	R 66	53	56	44	37	R 40	38
17	37	37	38	34	34	33	42	91	R 122	R 119	126	121	112	R 118	110	R 118	115	R 76	R 59	63	58	42	R 36	37
18	R 37	39	39	39	37	R 34	44	86	90	110	126	121	113	126	110	105	R 96	R 70	58	55	42	40	38	38
19	R 39	40	39	40	39	39	45	R 89	108	129	124	116	121	124	122	112	104	R 96	78	68	54	R 43	39	39
20	41	43	41	40	40	42	52	102	R 119	115	128	132	131	130	120	113	111	R 94	R 75	59	R 48	41	38	39
21	41	44	R 42	45	R 35	37	R 47	100	112	140	139	141	R 156	R 146	R 143	128	122	R 96	R 59	52	54	45	39	36
22	34	35	36	40	39	30	40	92	101	126	137	135	150	146	141	132	118	96	69	50	50	R 50	R 41	38
23	38	R 37	39	R 42	38	42	55	108	115	133	141	141	146	142	136	130	126	R 99	86	70	R 60	48	47	46
24	46	37	36	35	35	37	50	106	115	132	R 138	126	126	129	122	116	116	R 95	78	57	55	45	32	34
25	37	36	35	35	35	36	47	R 93	111	131	140	130	131	134	134	126	119	104	82	R 64	63	R 49	45	R 47
26	R 41	35	R 38	38	36	37	44	85	107	117	135	138	144	135	132	124	114	R 99	90	70	58	R 48	41	40
27	38	39	37	38	36	R 34	R 44	R 74	130	R 153	142	144	147	R 157	134	121	123	122	R 96	83	R 74	76	48	32
28	R 36	38	39	R 40	40	R 40	52	109	R 144	136	148	150	150	148	144	136	119	104	R 99	84	68	57	43	R 52
29	R 40	44	R 44	48	45	R 43	48	106	153	R 167	R 152	R	152	150	149	139	136	122	99	82	82	R 64	R 66	R 68
30	R 70	R 71	56	54	60	64	74	105	134	R 158	R 169	R 158	144	R 134	131	124	R 122	98	80	R 63	56	44	40	39
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	30	30	30	30	30	30	30	30	30	30	29	30	30	30	30	30	30	30	30	30	30	30	30
MED	42	44	42	40	38	38	50	98	115	132	136	133	131	134	130	118	112	96	77	64	58	48	43	42
U Q	52	48	48	46	41	42	58	108	124	142	140	141	146	142	134	126	119	104	86	72	68	R 59	56	52
L Q	38	39	38	38	36	36	45	89	107	118	128	124	125	128	121	112	106	R 90	69	57	50	41	39	38

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

IONOSPHERIC DATA STATION Kokubunji

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

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

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

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

IONOSPHERIC DATA STATION Kokubunji

NOV. 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							132	248	304	R	356	R	B	U R 356	R	288	256	B						
2							B	252	U R 304	R	R	R	R	R	U R 336	R	208							
3							R	232	292	U R 340	R	R	U R 376	R	U R 328	U R 292	184	B						
4							B	224	308	U R 356	R	R	R	R	U R 324	288	B	B						
5							B	U R 236	280	A	A	A	R	U R 360	U R 324	292	B	B						
6							B	R	288	U R 328	R	R	360	A	316	276	220	B						
7							B	200	272	A	A	R	R	U R 356	324	284	192	B						
8							B	232	296	R	R	R	R	U R 336	320	276	172	B						
9						B	B	216	292	B	B	B	B	R	U R 328	U R 272	R	B						
10							B	U R 256	292	A	U R 348	R	R	R	316	280	U R 176							
11							B	R 204	R 292	R	A	R	R	R 328	296	A	A							
12							B	236	288	A	A	A	A	R	R	R 268	A							
13							B	240	292	328	R	R	U R 344	R	A	A	B							
14							B	216	296	A	R	R	U R 336	324	A	U R 260	204							
15							B	204	280	R	U R 332	U R 352	R	U R 324	R	252								
16							B	U R 220	268	U R 316	R	R	R	R	U R 296	A	200							
17							B	220	A	R	R	R	R	U R 336	308	256	180							
18							B	228	276	316	336	A	A	R	A	A	A							
19							B	220	276	312	R	A	R	R	A	272	200							
20							B	204	276	R	R	A	R	R	R	U R 264	R							
21							B	212	292	320	U R 340	A	A	U R 348	A	A	204							
22							B	A	288	324	A	U R 364	R	348	320	276	B							
23							B	200	U R 292	U R 328	A	U R 352	R	A	A	A	A							
24								U R 200	292	332	U R 356	U R 360	A	U R 356	A	A	A							
25								B	U R 300	R	360	B	R	A	A	A	B							
26								196	272	U R 324	R	R 368	B	R	320	A	A							
27								B	U R 292	R	U R 348	A	A	A	A	A	B							
28								B	A	R	R	R	R	A	A	A	A							
29								B	264	A	A	A	A	R	R	R	R							
30								B	A	A	A	A	A	A	A	A	A							
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT							1	23	27	12	8	5	4	11	14	16	12							
MED							132	220	292	326	U R 348	U R 360	U R 352	U R 348	320	276	200							
U Q								236	292	U R 330	356	R 366	368	U R 356	U R 324	286	206							
L Q								204	276	318	U R 338	U R 352	U R 340	R 328	316	R 266	182							

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

IONOSPHERIC DATA STATION Kokubunji

NOV. 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 15	E B 16	E B 14	J A 30	E B 15	E B 16	J A 23	30	G	G	39	38	E B 42	G 33	G	32	J A 26	J A 18	J A 25	J A 19	J A 19	J A 28	E B 15	E B 16
2	E B 16	E B 16	E B 15	E B 16	E B 14	20	G	G	G	G	G	G	G 29	G	G 26	G 20	25	E B 16	19	E B 16	E B 14	E B 16	E B 17	E B 16
3	E B 16	J A 18	E B 15	E B 14	E B 16	E B 15	J A 19	30	34	37	G	G 32	G 30	G 27	G 25	J G 26	J A 28	J A 27	20	E B 14	E B 19	E B 15	E B 16	E B 16
4	E B 15	E B 14	E B 16	E B 15	18	E B 16	E B 16	26	G 27	G	G	G	G	G	G	38	27	23	21	22	E B 16	E B 15	E B 16	E B 15
5	16	E B 16	21	E B 15	E B 13	20	J A 33	28	33	39	J A 41	46	G 33	G	G	G	E B 24	E B 21	E B 16	21	E B 16	E B 16	E B 16	J A 24
6	21	E B 15	E B 15	18	E B 15	E B 16	E B 16	G	31	G 28	G 34	G 31	G 32	J A 42	J G 26	G	G	E B 16	E B 16	E B 16	E B 16	E B 15	E B 16	21
7	E B 16	E B 15	22	18	E B 16	18	22	31	34	J A 38	J A 40	G 33	G	G	G	G	23	E B 16	E B 15	E B 15	E B 15	E B 14	E B 16	E B 15
8	E B 16	E B 16	E B 16	20	18	E B 16	21	29	G 28	G 29	G 30	G 30	G	G 24	34	30	23	E B 16	J A 21	A E 22	A E 15	B E 16	J A 24	E B 16
9	E B 15	E B 16	E B 15	E B 16	E B 16	E B 14	J A 22	G	G E 28	B E 47	B E 47	B E 43	E B 42	G 30	G	G	G	J A 24	E B 14	E B 16	E B 14	E B 16	E B 16	E B 16
10	J A 24	E B 15	E B 16	E B 14	E B 15	E B 15	J A 20	30	G	36	G 32	G 36	G	G	G	G	25	E B 15	E B 16	E B 16	E B 16	E B 15	E B 14	E B 15
11	E B 16	E B 16	20	20	20	E B 16	24	G	G	G	37	G 32	G 32	G 28	37	33	J A 26	E B 16	20	E B 16	E B 16	E B 13	B J 12	A 21
12	J A 34	J A 21	18	E B 15	E B 15	E B 14	22	J A 24	G 22	35	J A 44	A J 47	A J 45	G J 34	G 26	G 22	33	J A 23	J A 24	20	17	E B 16	E B 13	B E 16
13	E B 16	E B 16	E B 16	E B 15	E B 14	E B 16	J A 18	G	G 28	G 30	G 29	G 32	G 24	G J 27	A J 44	A J 39	E B 22	J A 22	E B 16	E B 16	B J 22	A E 16	B E 16	J A 39
14	J A 18	E B 16	E B 14	E B 14	E B 14	E B 15	J A 26	28	G 26	37	G 31	G 28	G 30	G J 30	A 40	G 23	G	E B 16	E B 16	E B 16	E B 16	B J 22	A J 19	A E 16
15	E B 15	E B 16	E B 16	20	20	E B 16	E B 16	24	38	G 31	G 31	G 31	G 29	G 26	G 25	G	26	E B 15	B J 20	A 22	E B 16	B E 13	20	18
16	J A 17	E B 16	E B 15	E B 15	E B 16	E B 14	J A 19	G	33	G 21	G	G 32	G 21	G 30	G 28	J A 31	G	E B 16	E B 14	19	E B 15	E B 16	E B 16	E B 16
17	E B 15	E B 16	E B 16	E B 15	E B 16	E B 16	E B 16	G	33	G 28	G 34	G 27	G 29	G 30	G 25	G	22	J A 23	E B 16	19	E B 16	21	21	E B 16
18	E B 15	22	J A 24	E B 18	E B 15	E B 16	21	G	30	34	39	J A 40	38	G	43	J A 29	J A 26	E B 16	22	J A 20	E B 16	21	J A 18	J A 22
19	J A 17	J A 17	E B 16	E B 16	E B 16	E B 15	E B 16	28	30	37	G	38	G 30	G 25	40	G 23	27	35	J A 22	A E 20	E B 15	E B 16	E B 16	E B 15
20	E B 16	E B 16	E B 14	E B 15	E B 16	E B 16	E B 16	G	30	34	37	38	G 27	G 25	G 26	32	G	J A 22	E B 15	J A 17	19	J A 22	A J 27	A J 23
21	19	E B 16	E B 16	E B 16	E B 15	E B 16	E B 16	25	34	39	38	J A 39	41	J A 37	35	J A 30	G	E B 16	19	19	J A 19	E B 16	20	E B 14
22	J A 19	E B 13	E B 15	E B 16	20	J A 23	A J 21	A J 33	G 21	G J 22	A 53	43	45	42	40	33	J A 32	22	22	E B 16	21	J A 22	21	E B 15
23	19	21	J A 22	21	E B 16	20	J A 26	28	G 25	G 30	36	G 32	G J 33	A 38	37	J A 31	26	J A 22	A J 18	20	E B 16	B E 16	E B 15	B E 15
24	E B 16	E B 14	E B 16	E B 15	E B 15	E B 16	E B 16	24	G	G 29	G 31	G 29	J A 45	G 28	J A 40	J A 48	32	J A 22	E B 15	B E 15	B E 16	E B 20	E B 16	B E 15
25	E B 15	E B 16	19	E B 15	18	E B 16	J A 19	E B 36	34	G 31	G 33	E B 49	G	J A 41	A J 37	A J 31	A E 24	B E 16	B E 16	B J 19	A	20	19	19	E B 16
26	E B 17	E B 16	E B 15	E B 15	18	E B 16	E B 14	24	30	G 24	G J 24	G 30	E B 45	G 31	G 24	30	J A 32	A J 27	A J 20	A J 25	A J 25	A J 22	A J 19	A J 25
27	20	E B 15	E B 15	18	18	20	22	J A 25	35	G 23	G 23	37	37	J A 38	34	26	E B 23	E B 16	B J 19	A J 33	A J 21	A J 33	A J 50	A J 37
28	J A 34	A J 19	A J 22	A J 33	J A 24	23	J A 42	J A 27	29	G 28	G 31	G 33	G 33	62	J A 39	A J 33	A J 33	A J 29	A J 22	A 23	J A 19	20	20	J A 20
29	22	19	22	E B 16	E B 16	E B 16	E B 16	22	G	34	38	37	37	G 33	G 30	G	G	J A 22	E B 17	20	E B 16	21	18	E B 16
30	E B 15	E B 17	B J 18	A J 23	A J 22	A J 27	A E 16	B 22	J A 30	J A 66	J A 55	J A 45	A J 60	A 44	J 52	A J 39	A J 27	A J 42	A J 34	A J 30	A J 20	A J 24	18	J A 26
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30
MED	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	19	24	30	G	G	G	G	G 34	G	30	25	22	19	19	E B 16	E B 16	E B 16	E B 16
U Q	19	17	19	18	18	18	J A 22	28	33	37	J A 39	39	41	J A 37	A J 39	32	J A 27	A J 23	A J 21	21	J A 19	A J 21	20	J A 21
L Q	E B 15	E B 16	E B 15	E B 15	E B 15	E B 16	E B 16	G	G 28	G 29	G 31	G 32	G 30	G 28	G 26	G	G	E B 16	E B 16	B 16	E B 16	E B 16	E B 16	E B 15

IONOSPHERIC DATA STATION Kokubunji

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

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

IONOSPHERIC DATA STATION Kokubunji

NOV. 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	15	16	14	15	15	16	11	16	15	16	21	24	42	24	17	18	15	12	14	15	16	16	15	16
2	16	16	15	16	14	14	16	17	16	18	20	22	24	26	18	15	15	16	15	16	14	16	17	16
3	16	14	15	14	16	15	12	15	16	16	26	24	22	22	19	16	13	16	16	14	19	15	16	16
4	15	14	16	15	15	16	16	15	19	22	20	30	28	22	24	19	18	14	16	14	16	15	16	15
5	12	16	16	15	13	13	18	13	16	16	18	29	22	27	23	24	24	21	16	15	16	16	16	14
6	12	15	15	14	15	16	16	15	20	14	16	18	21	16	16	16	15	16	16	16	16	15	16	15
7	16	15	14	14	16	12	15	17	16	16	14	22	24	21	18	17	16	16	15	15	15	14	16	15
8	16	16	16	14	16	16	16	15	18	15	19	22	23	18	24	15	13	16	15	15	15	16	15	16
9	15	16	15	16	16	14	12	16	15	47	47	43	42	26	22	18	18	16	14	16	14	16	16	16
10	16	15	16	14	15	15	16	12	20	21	18	19	23	22	20	14	15	15	16	16	16	15	14	15
11	16	16	14	16	14	16	16	13	22	15	20	17	19	16	16	14	16	16	16	16	16	13	12	14
12	16	14	14	15	15	14	16	14	14	19	23	22	22	14	20	16	16	16	16	16	12	16	13	16
13	16	16	16	15	14	16	16	16	18	22	17	19	17	16	19	15	22	16	16	16	16	16	16	16
14	13	16	14	14	14	15	15	18	15	15	21	20	20	17	16	16	14	16	16	16	16	13	15	16
15	15	16	16	16	15	16	16	16	15	15	18	22	21	18	16	15	16	15	16	15	16	13	15	16
16	14	16	15	15	16	14	16	16	15	15	20	17	16	23	16	14	14	16	14	16	15	16	16	16
17	15	16	16	15	16	16	16	15	15	15	16	18	16	18	15	17	14	16	16	15	16	15	15	16
18	15	16	15	18	15	16	16	16	14	15	16	18	18	22	18	14	14	16	15	15	16	14	16	13
19	13	11	16	16	16	15	16	16	14	18	18	16	14	15	16	13	16	16	14	14	15	16	16	15
20	16	16	14	15	16	16	16	13	15	15	19	21	20	16	14	18	16	16	15	15	16	16	15	14
21	15	16	16	16	15	16	16	16	15	16	18	18	18	16	16	17	17	16	12	16	13	16	16	14
22	16	13	15	16	16	15	18	16	14	15	16	17	18	16	19	15	15	16	16	16	16	15	16	15
23	15	16	14	16	16	15	15	16	14	15	22	19	18	16	18	14	14	16	16	16	16	16	15	15
24	16	14	16	15	15	16	16	17	16	16	16	18	15	18	26	19	13	16	15	15	16	16	16	15
25	15	16	14	15	13	16	15	36	15	16	20	49	25	19	18	16	24	16	16	15	15	16	16	16
26	17	16	15	15	16	16	14	15	13	14	15	18	45	15	14	13	16	16	12	16	16	12	12	15
27	15	15	15	13	15	16	16	16	16	16	15	19	19	18	18	14	23	16	16	14	14	14	15	15
28	15	15	16	15	15	16	16	16	16	15	19	20	18	15	16	15	15	16	16	16	14	16	16	16
29	15	16	16	16	16	16	16	16	17	18	19	21	17	21	16	23	16	16	17	16	16	16	16	16
30	15	17	15	16	14	16	16	16	17	16	15	15	19	15	16	16	15	16	19	16	13	15	14	14
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30
MED	15	16	15	15	15	16	16	16	16	16	18	20	20	18	18	16	16	16	16	16	16	16	16	15
U Q	16	16	16	16	16	16	16	16	17	18	20	22	23	22	19	17	16	16	16	16	16	16	16	16
L Q	15	15	14	15	15	15	15	15	15	15	16	18	18	16	16	14	14	16	15	15	15	15	15	15

IONOSPHERIC DATA STATION Kokubunji

NOV. 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	273	279	268	259	245	259	298	330	321	312	307	293	285	295	289	299	298	300	298	315	298	R 300	299	289
2	297	303	287	280	249	264	317	336	R 325	321	312	301	286	280	288	297	298	295	296	308	R 302	R 306	307	288
3	280	289	296	326	279	281	R 306	339	R 339	321	317	311	285	292	300	289	297	310	R 307	304	304	R 298	287	295
4	274	274	276	326	322	290	323	341	322	317	317	287	290	288	280	291	294	294	304	284	280	277	270	277
5	254	253	301	329	243	240	279	303	323	321	306	292	290	286	280	291	292	297	298	R 303	299	R 284	R 291	298
6	299	259	265	290	262	252	293	325	330	322	R 294	296	287	291	286	297	296	300	300	298	R 319	263	256	264
7	268	242	246	226	227	225	256	R 303	309	304	292	291	293	289	297	304	304	308	R 294	305	280	271	294	273
8	281	272	296	286	254	255	289	327	320	318	311	R 298	316	305	308	308	322	326	R 316	R 309	300	295	R 274	R 267
9	268	277	291	286	278	278	312	R 345	338	329	320	307	300	299	300	312	315	315	320	294	314	302	284	291
10	R 281	R 280	273	297	357	289	316	319	328	327	312	305	294	288	309	303	317	311	285	R 281	R 283	308	243	245
11	R 261	R 291	332	267	R 265	267	296	344	R 324	336	315	318	302	320	314	318	330	319	320	326	329	286	254	263
12	263	260	282	301	R 255	263	R 292	346	335	319	317	320	307	308	306	315	317	R 317	313	321	316	301	281	293
13	308	286	R 268	277	331	291	303	347	R 314	319	325	316	306	308	321	325	325	332	326	337	R 347	R 303	R 278	293
14	R 290	298	309	315	275	274	308	341	350	326	330	R 320	324	310	312	311	327	R 340	318	316	302	298	290	293
15	290	R 282	293	291	319	292	320	340	348	330	335	316	308	319	316	318	343	R 329	R 343	314	326	269	299	R 303
16	297	301	286	288	308	278	310	349	347	341	338	325	330	313	317	324	319	R 326	306	332	316	324	R 288	296
17	299	298	317	288	288	281	306	344	R 347	R 337	336	331	318	R 320	306	R 313	324	R 316	R 312	320	329	320	R 297	288
18	R 293	294	312	302	316	R 305	317	346	345	330	323	323	319	322	321	327	R 335	R 329	329	332	306	312	291	286
19	R 286	282	281	280	293	287	299	R 336	332	344	329	302	300	304	308	311	315	R 319	321	333	324	R 328	R 256	266
20	273	292	290	291	298	278	298	329	R 341	320	319	313	305	306	308	311	318	R 322	R 328	333	R 313	287	278	259
21	266	267	R 278	306	R 270	271	R 288	346	328	321	322	309	R 302	R 303	R 303	309	328	R 326	R 333	302	311	303	304	268
22	261	256	255	286	328	284	295	340	338	321	320	302	311	303	302	310	316	326	315	305	304	R 314	R 293	278
23	265	R 270	246	R 274	266	283	306	351	330	330	311	311	302	300	298	300	315	R 313	323	309	R 329	278	285	279
24	294	302	282	274	258	284	299	348	333	324	R 324	310	299	299	302	301	319	R 314	331	301	316	298	277	281
25	285	282	279	269	262	272	293	R 322	324	320	313	296	294	282	287	290	303	305	315	R 291	307	R 307	R 290	R 293
26	R 309	312	R 282	280	291	280	308	344	334	R 313	313	306	296	300	293	299	307	R 307	324	312	323	R 274	298	276
27	255	278	260	255	256	R 277	R 283	R 302	R 309	307	291	290	284	R 287	278	281	293	300	R 296	304	R 293	320	350	229
28	R 233	245	258	R 283	281	R 267	R 284	329	R 322	306	308	300	295	289	294	296	299	292	R 317	312	305	289	261	R 298
29	R 249	245	R 262	279	293	R 284	285	307	329	R 318	R 314	R	300	289	285	290	299	297	293	265	286	R 261	R 253	R 253
30	R 266	R 290	275	247	264	281	300	305	323	R 311	R 317	R 303	303	R 306	303	305	R 316	324	325	R 319	338	309	316	293
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	30	30	30	30	30	30	30	30	30	30	29	30	30	30	30	30	30	30	30	30	30	30	30
MED	277	281	282	286	276	278	299	340	330	321	317	306	300	300	302	304	316	314	316	309	309	299	288	284
U Q	293	292	293	297	298	284	308	345	338	329	323	316	307	308	308	312	322	R 326	324	320	323	308	297	293
L Q	265	267	268	274	258	267	292	325	323	318	311	297	293	289	289	297	299	300	300	302	300	284	274	267

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

IONOSPHERIC DATA STATION Kokubunji

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

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

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

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

IONOSPHERIC DATA STATION Kokubunji

NOV. 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									266	272	268	318	322	302	322									
2										276	270	278	312	332	316									
3										262		280	332	304	284	292								
4										270		326	302	312	302									
5								302				302	306	310	320									
6											284	302	306	306	312									
7										278	298	298		306										
8													272	286	278	274								
9										272		290	294	286										
10										266		294	308	308		280								
11										256	286		282	274										
12											246			282										
13													292	290										
14													274	286	276									
15										272		286	282											
16													268	282										
17											252	248	272	270	290									
18										266		274		274										
19											276		278	290	282									
20										268		282				272								
21										272		276	284		280									
22										274	266		288	280	282	274								
23													282		292									
24													286											
25									250				316	314	312	292								
26														302	322									
27										284	292	304			322	320	308							
28												278	300	312	284									
29												300	302	298										
30											250		294		288									
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								1	2	14	11	17	24	23	18	7	1							
MED								302	258	272	270	290	293	298	291	280	308							
U Q										274	286	302	306	308	316	292								
L Q										266	252	278	282	282	282	274								

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

IONOSPHERIC DATA STATION Kokubunji

NOV. 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	272	276	292	E A 338	330	312	266	222	226	218	218	222	230	228	218	236	230	230	228	230	220	254	246	264
2	264	236	250	268	324	E A 338	260	224	230	230	212	212	228	232	234	238	228	220	242	240	230	242	246	272
3	300	280	248	232	278	304	256	236	226	226	232	216	224	238	230	226	230	224	236	242	256	252	260	272
4	290	292	296	238	214	280	250	226	228	232	238	224	236	242	238	252	246	244	210	242	252	264	280	286
5	300	338	264	214	370	396	286	248	236	224	226	238	228	230	230	242	228	216	224	220	240	248	264	256
6	260	292	326	242	294	350	280	236	236	226	226	220	218	228	240	236	228	214	228	238	238	266	318	300
7	290	344	344	470	474	488	338	246	242	230	230	230	238	240	232	226	224	230	220	238	258	268	262	270
8	280	276	276	258	332	364	310	250	218	226	224	218	234	232	230	232	226	206	232	234	230	262	280	294
9	314	298	258	268	262	270	252	222	228	242	238	230	234	244	236	228	220	214	220	240	238	238	260	276
10	300	318	300	266	212	282	256	230	234	230	226	230	224	222	236	230	236	214	248	276	292	224	318	280
11	326	240	222	302	326	332	300	238	224	224	238	234	228	238	226	230	226	220	240	222	220	226	332	358
12	344	356	302	246	280	348	278	230	218	232	226	244	216	224	220	228	228	224	220	226	230	254	290	266
13	248	274	342	298	216	272	246	224	216	220	230	234	218	234	252	228	216	214	218	204	222	270	296	304
14	294	266	246	244	274	320	270	238	226	234	234	230	H 212	220	226	230	232	210	198	234	236	258	292	292
15	288	270	290	282	252	270	240	222	216	214	H 210	224	222	234	240	238	232	214	210	230	232	254	270	276
16	280	276	284	286	262	288	258	230	222	228	240	224	226	232	224	230	212	214	242	232	230	234	296	272
17	258	270	268	246	270	330	278	232	240	222	222	214	216	222	218	H 220	220	196	220	234	230	228	264	286
18	294	280	268	282	246	282	248	230	220	230	236	228	222	220	234	228	218	200	228	232	228	246	274	290
19	294	294	308	294	274	266	270	238	220	234	218	220	230	230	236	226	224	232	226	232	224	230	328	318
20	300	280	270	302	272	270	276	238	222	218	232	228	226	236	224	226	226	210	222	216	224	252	304	E A 346
21	340	316	316	252	278	312	290	230	220	228	226	228	212	236	226	226	222	202	204	246	236	244	230	308
22	340	346	358	284	224	270	280	224	204	212	222	228	238	236	226	220	220	202	212	218	254	228	252	284
23	326	326	374	312	338	302	264	232	222	226	222	224	232	228	228	230	230	204	226	220	224	224	290	266
24	264	240	294	316	346	294	262	234	216	232	230	222	222	230	234	228	228	212	218	236	228	214	290	304
25	288	300	328	318	348	318	272	230	210	230	230	232	236	236	234	226	238	214	216	202	240	234	258	256
26	240	228	290	294	278	278	250	218	H 228	226	232	226	234	236	232	232	218	222	230	218	222	234	262	320
27	344	318	334	366	278	296	296	236	216	220	234	236	234	244	212	220	248	232	224	254	264	228	230	E A 468
28	E A 428	392	350	318	278	332	290	236	220	214	228	228	228	244	220	228	224	234	240	236	228	224	250	282
29	E A 380	356	322	268	254	264	294	268	238	224	218	230	224	224	234	234	230	218	232	286	234	204	318	312
30	296	272	226	E A 324	302	270	240	224	228	242	A	224	222	230	222	224	224	216	236	232	236	236	234	286
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	30	30	30	30	30	30	30	30	30	29	30	30	30	30	30	30	30	30	30	30	30	30	30
MED	293	286	293	279	278	297	270	231	223	226	228	228	227	232	230	228	227	214	225	233	231	240	272	284
U Q	326	318	326	312	326	332	286	238	228	230	233	230	234	236	234	232	230	224	232	240	240	254	296	304
L Q	280	272	268	252	262	272	256	224	218	222	222	222	222	228	224	226	222	210	218	222	228	228	258	272

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

IONOSPHERIC DATA STATION Kokubunji

NOV. 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							128	118	118	118	120	118	B	130	116	118	A	B						
2							B 124	116	116	116	118	118	122	122	120	116	118							
3							144	120	134	124	116	A	122	118	118	120	112	B						
4							B 122	126	118	118	120	122	120	120	120	120	B	B						
5							B 120	112	120	A	A	130	120	120	118		B	B						
6							B 118	116	130	122	120	116	A	114	116	124		B						
7							B 118	116	A	A	122	118	118	114	118	116		B						
8							B 116	138	132	124	122	118	118	120	124	116		B						
9						B	B 116	124	B	B	B	B	A	122	116	120		B						
10							B 136	122	A	124	A	120	118	118	116	130								
11							B 124	118	116	A	124	A	120	118	120		A							
12							B 124	122	120	122	120	116	122	126	124		A							
13							B 140	132	122	118	122	116	118	A	A	B								
14							B 134	130	A	126	122	120	120	A	118	138								
15							B 116	A	128	E A 128	126	120	118	116	116									
16							B 122	116	116	118	A	116	130	130	130	126								
17							B 128	118	120	126	114	118	122	120	116	120								
18							B 126	126	116	122	118	118	116	A	A	A								
19							B 126	114	118	116	A	122	116	A	118	120								
20							B 118	124	122	A	A	118	120	122	114	142								
21							B 128	114	122	112	A	A	126	A	116	136								
22							B A	118	118	A	120	114	116	118	118	B								
23							B 126	128	130	A	124	124	A	A	A	A								
24							130	116	124	122	120	A	118	122	A	A								
25							B	118	128	124	B	122	A	A	A	B								
26							120	126	124	120	118	B	118	114	A	A								
27							B	118	118	120	118	116	A	A	A	B								
28							B	A 126	126	128	124	A	118	A	118	A								
29							B	124	122	120	120	A	130	130	114	116								
30							B	A	A	A	A	A	A	A	A	A								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT							2	24	27	25	22	20	22	23	20	22	14							
MED							136	123	118	122	120	120	119	120	120	118	120							
U Q								127	126	125	124	122	122	122	122	120	130							
L Q								118	116	118	118	118	116	118	117	116	116							

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

IONOSPHERIC DATA STATION Kokubunji

NOV. 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	98	B	B	110	154	G	G	142	118	B	112	G	162	102	106	106	108	108	104	B	B
2	B	B	B	B	B	102	G	G	G	G	G	G	108	G	102	98	154	B	108	B	B	B	B	B
3	B	106	B	B	B	B	178	160	156	132	G	110	106	106	104	100	112	100	126	B	B	B	B	B
4	B	B	B	B	94	B	B	174	112	G	G	G	G	G	G	124	116	108	100	102	B	B	B	B
5	140	B	100	B	B	104	120	166	154	116	110	110	112	G	G	G	B	B	B	98	B	B	B	118
6	128	B	B	102	B	B	B	G	152	104	108	108	104	100	100	G	G	B	B	B	B	B	B	108
7	B	B	100	108	B	150	136	116	118	108	108	110	G	G	G	G	124	B	B	B	B	B	B	B
8	B	B	B	104	106	B	118	118	108	112	112	108	G	104	140	130	120	B	104	110	B	B	102	B
9	B	B	B	B	B	B	112	G	104	B	B	B	B	106	G	G	G	94	B	B	B	B	B	B
10	102	B	B	B	B	B	158	136	G	112	106	112	G	G	G	G	114	B	B	B	B	B	B	B
11	B	B	104	108	104	B	154	G	G	G	106	108	102	104	124	104	104	B	132	B	B	B	B	102
12	106	96	98	B	B	B	142	118	106	124	120	114	118	104	110	104	104	100	102	92	98	B	B	B
13	B	B	B	B	B	B	128	G	112	112	108	108	102	100	104	104	B	110	B	B	104	B	B	104
14	110	B	B	B	B	B	108	152	110	110	108	108	106	102	102	104	G	B	B	B	B	106	104	B
15	B	B	B	104	106	B	B	160	140	110	104	110	110	110	104	G	138	B	110	108	B	B	104	100
16	100	B	B	B	B	B	120	G	122	100	G	108	104	112	110	102	G	B	B	108	B	B	B	B
17	B	B	B	B	B	B	B	G	126	108	108	108	108	110	108	G	150	106	B	96	B	102	98	B
18	B	116	114	B	B	B	104	G	138	140	120	118	120	G	108	106	104	B	100	104	B	106	100	98
19	102	102	B	B	B	B	B	136	132	128	G	108	106	104	98	102	118	112	112	114	B	B	B	B
20	B	B	B	B	B	B	B	G	132	118	122	118	104	100	98	126	G	102	B	120	122	116	104	104
21	108	B	B	B	B	B	B	146	138	124	124	106	112	110	110	110	G	B	114	112	122	B	128	B
22	110	B	B	B	116	106	114	102	106	100	104	126	120	122	118	116	110	110	110	B	106	108	106	B
23	122	112	104	100	B	108	110	142	110	106	108	110	110	106	104	104	110	108	108	106	B	B	B	B
24	B	B	B	B	B	B	B	172	G	106	108	104	102	104	106	100	98	98	B	B	B	112	B	B
25	B	B	112	B	110	B	106	B	128	106	110	B	G	110	110	112	B	B	B	104	98	102	100	B
26	B	B	B	B	96	B	B	154	142	108	104	98	B	98	100	156	100	98	144	128	118	114	160	138
27	134	B	B	130	128	126	138	124	126	108	104	120	122	110	106	106	B	B	114	106	108	102	102	98
28	100	116	110	102	106	116	116	116	110	108	108	110	102	102	102	122	116	98	98	108	102	98	96	108
29	110	104	106	B	B	B	B	158	G	122	122	118	110	112	114	G	G	110	B	108	B	138	156	B
30	B	B	106	102	110	106	B	110	106	104	98	96	98	130	124	122	100	94	120	106	102	110	104	94
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	13	7	10	10	10	8	18	20	24	25	24	26	22	24	24	22	19	16	17	19	11	13	14	11
MED	110	106	105	103	106	107	119	144	124	110	108	110	107	106	106	106	112	104	110	108	106	106	104	104
U Q	125	116	110	108	110	121	138	159	138	120	116	114	112	110	110	122	120	109	117	110	118	113	106	108
L Q	102	102	100	102	104	105	110	118	110	106	106	108	104	103	102	104	104	98	103	104	102	102	100	98

NOV. 2000 h'Es (KM) COMMUNICATIONS RESEARCH LABORATORY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

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

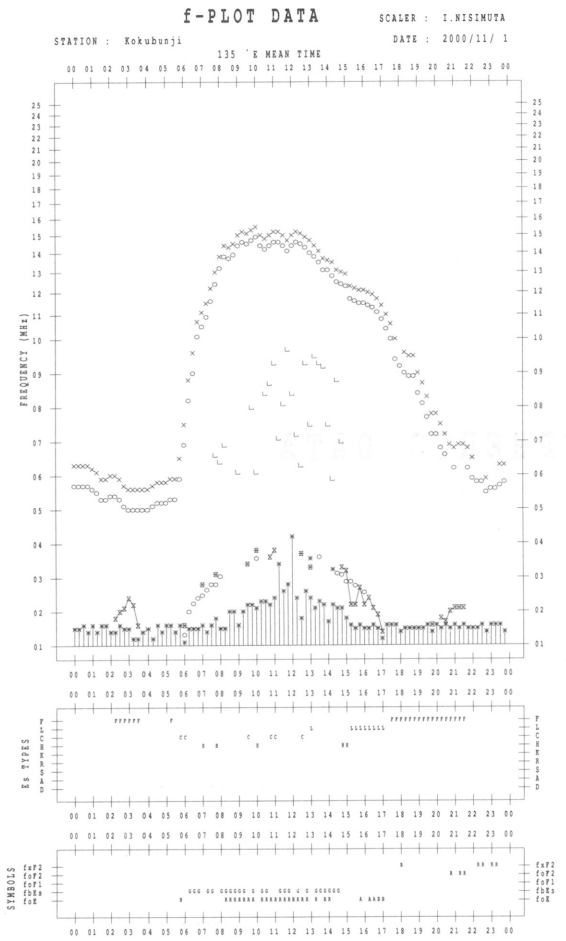
LAT.35°42.4'N LON.139°29.3'E SWEEP 1.0MHz TO 25.0MHz IN 24.0SEC IN MANUAL SCALING

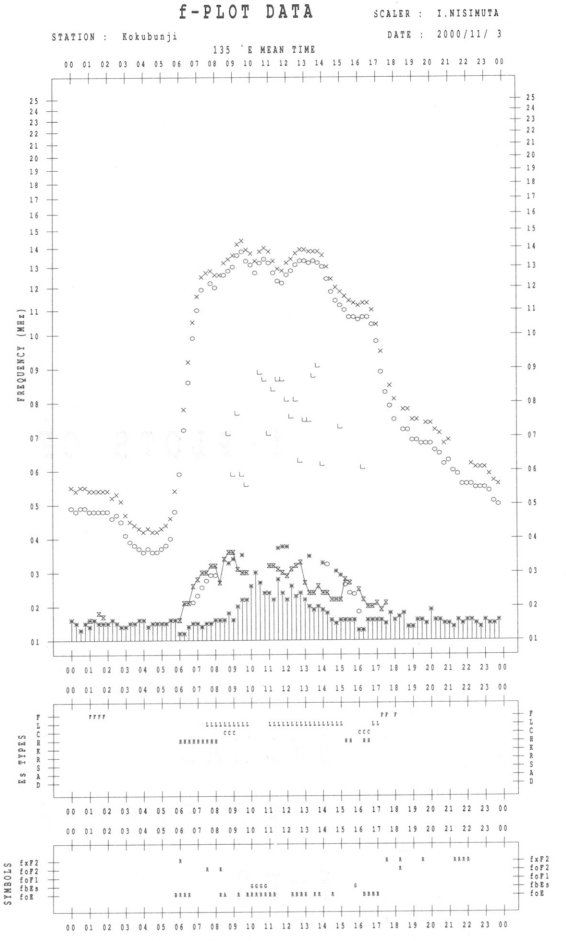
D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1				F2			C1	H1			H1	C1		L1		H1	L2	L2	F1	F1	F1	F1		
2						F2							L1		L1	L1	H1		F1					
3		F1					H1	H1	HL11	CL11		L1	L1	L1	L1	L1	C2	L2	F1					
4					F1			HL11	L1							C1	C2	L1	F1	F2				
5	F1		F1			F1	CL12	H2	H1	CL11	L1	L1	L1							F1				F1
6	F1			F1					H1	L1	L1	L1	L1	L2	L1									F1
7			F2	F1		F1	C1	C3	C2	L1	L1	L1					C1							
8				F1	F1		C1	C1	L1	L1	L1	L1		L1	C1	CL11	C1		F1	F1			F2	
9							C1		L1					L1				L1						
10	F2						H1	C1		L1	L1	L1					C1							
11			F1	F2	F1		H1				L1	L1	L1	L1	CL11	LC11	LC11		F1					F1
12	F2	F2	F1				H1	C1	L1	C1	C1	C1	C1	L1	L1	L1	L1	F1	F1	F1	F1			
13							C1		L1	L1	L1	L1	L1	L1	L2	L3		F1			F3			F2
14	F1						LH11	HL11	L1	L1	L1	L1	L1	L1	L1	L1						F2	F2	
15				F1	F1			H1	HL11	L1	L2	L1	L1	L1	L1		F1		F1	F1			F1	F1
16	F1						CL11		CL11	L1		L1	L1	L1	L1	L2				F1				
17									CL11	L1	L1	L1	L1	L1	L1		H1	F1		F1		F1	F1	
18		F1	F1				L1		CL11	H1	CL11	CL11	CL11		L2	L2	L1		F1	F2		F1	F2	F2
19	F1	F2						C2	C1	C1		L2	L1	L1	L2	L2	C1	F3	F1	F1				
20									CL11	CL11	CL11	CL11	L1	L1	L1	C1		F1		F2	F1	F1	F2	F3
21	F1							H1	H1	CL11	C1	L1	L1	L1	L1	C1			F1	F1	F2		F2	
22	F2				F1	F2	C1	L3	L1	L1	LC21	CL21	C1	C1	C1	C1	C2	F1	F2		F1	F1	F1	
23	F2	F1	F1	F1		F1	L1	C1	L2	L1	L1	L1	L1	L2	L2	L2	L2	F1	F1	F1				
24								H1		L1	L1	L1	L2	L1	L2	L3	L2	F1				F1		
25			F1		F1		F1		C1	L2	L1			L1	L1	L1				F1	F1	F1	F1	
26					F1			H1	H1	L1	L1	L2		L2	L1	HL12	L3	F3	F2	F2	F1	F1	F1	F2
27	F1			F1	F1	F1	F2	C3	C2	L1	L1	C1	C1	L1	L2	L2			F1	F4	F3	F5	F3	F4
28	F2	F2	F2	F3	F2	F1	F2	C3	CL22	L2	L2	L1	L2	L3	L2	CL12	CL22	F3	F1	F1	F1	F2	F2	F1
29	F2	F2	F2					H1		CL11	CL11	CL11	L1	L1	L1			F1		F1		F2	F1	
30			F3	F3	F1	F2		C1	L2	L2	L2	L2	LC33	CL12	CL22	CL21	L2	F2	FF11	F2	F2	F1	F1	F2
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT																								
MED																								
U Q																								
L Q																								

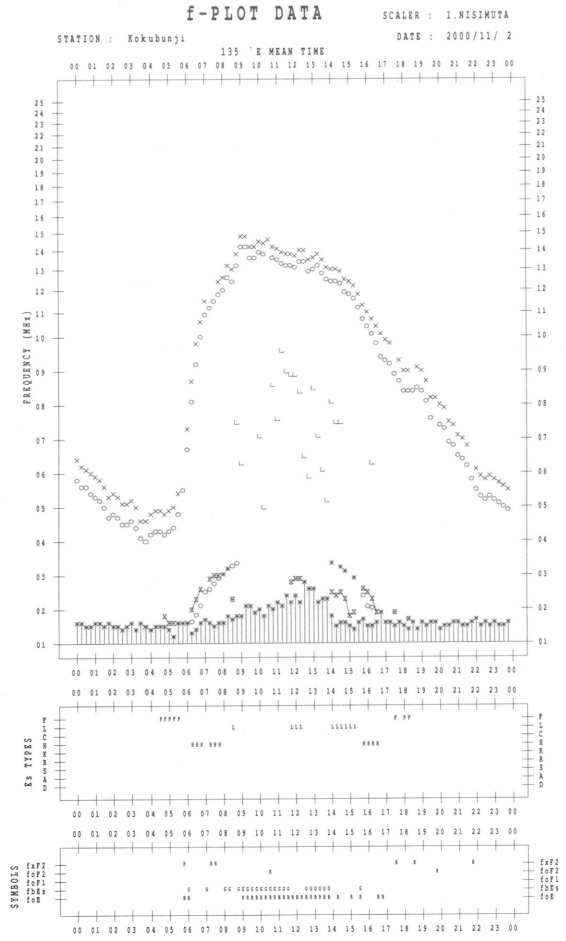
NOV. 2000 TYPES OF Es COMMUNICATIONS RESEARCH LABORATORY, JAPAN

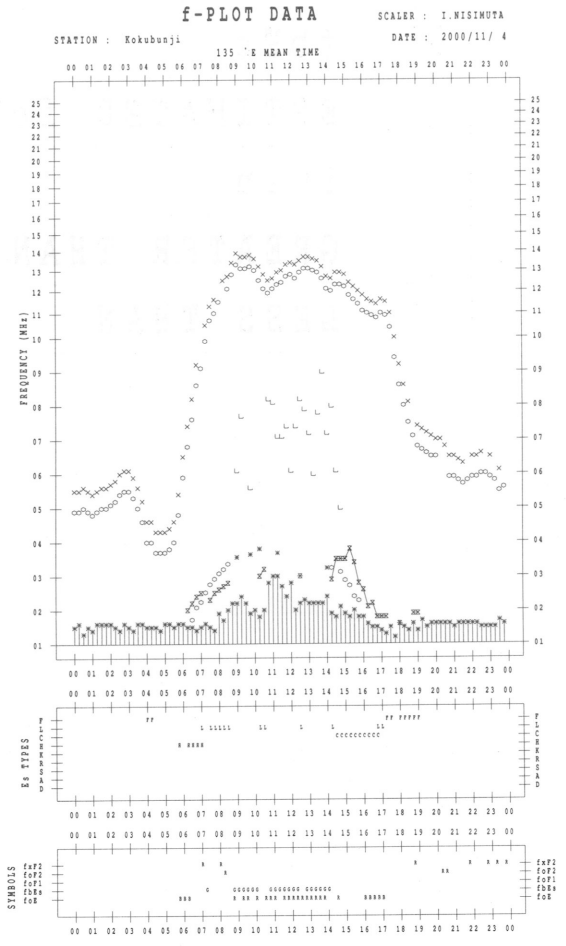
f-PLOTS OF IONOSPHERIC DATA

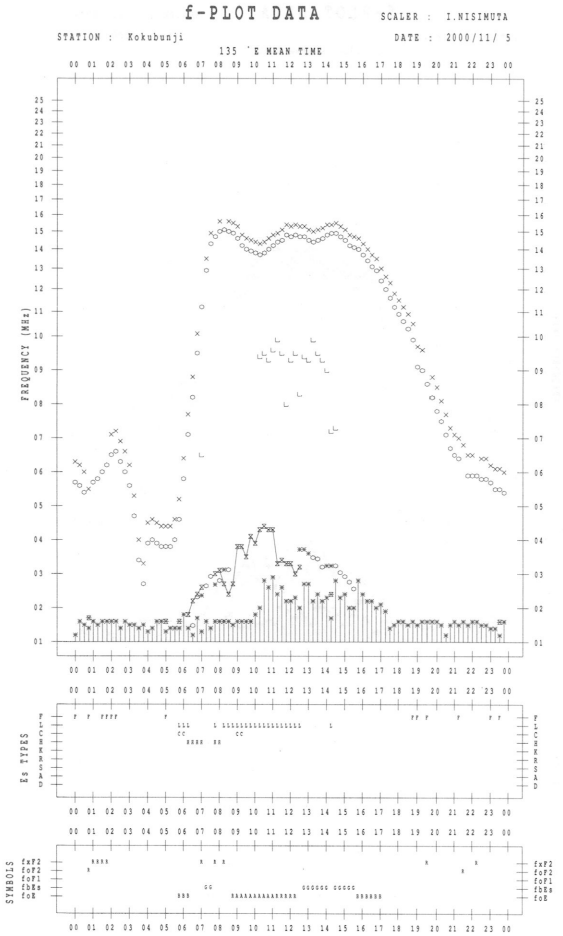
KEY OF f-PLOT	
	SPREAD
	foF2, foF1, foE
	fxF2
	DOUBTFUL foF2, foF1, foE
	fbEs
	ESTIMATED foF1
	fmin
	GREATER THAN
	LESS THAN

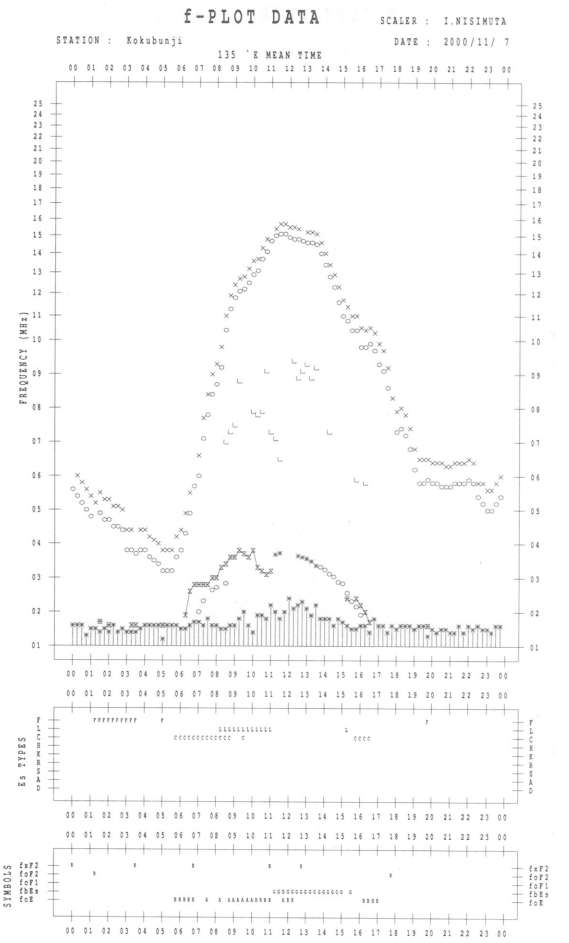

f-PLOT DATA
SCALER : I.NISIMUTA
STATION : Kokubunji
DATE : 2000/11/ 1
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE

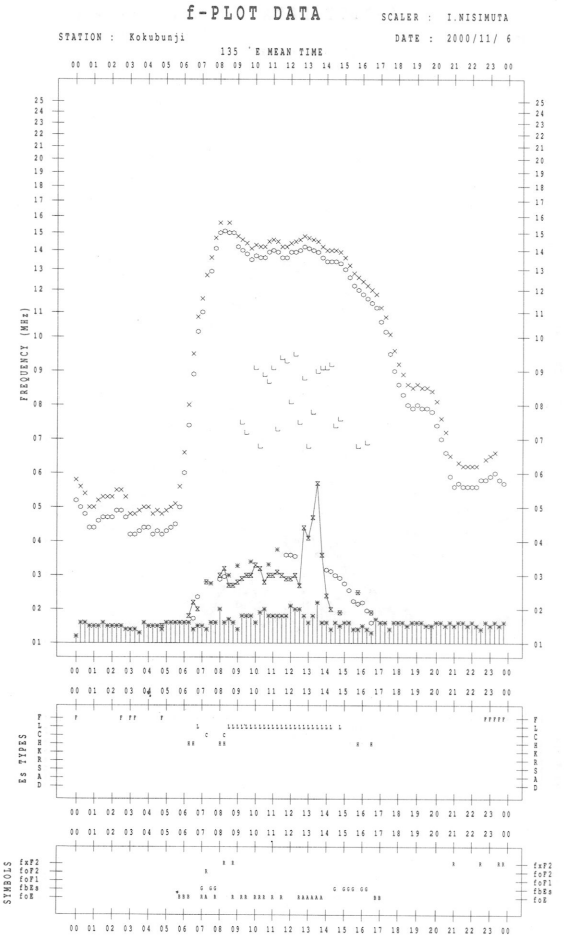

f-PLOT DATA
SCALER : I.NISIMUTA
STATION : Kokubunji
DATE : 2000/11/ 3
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE

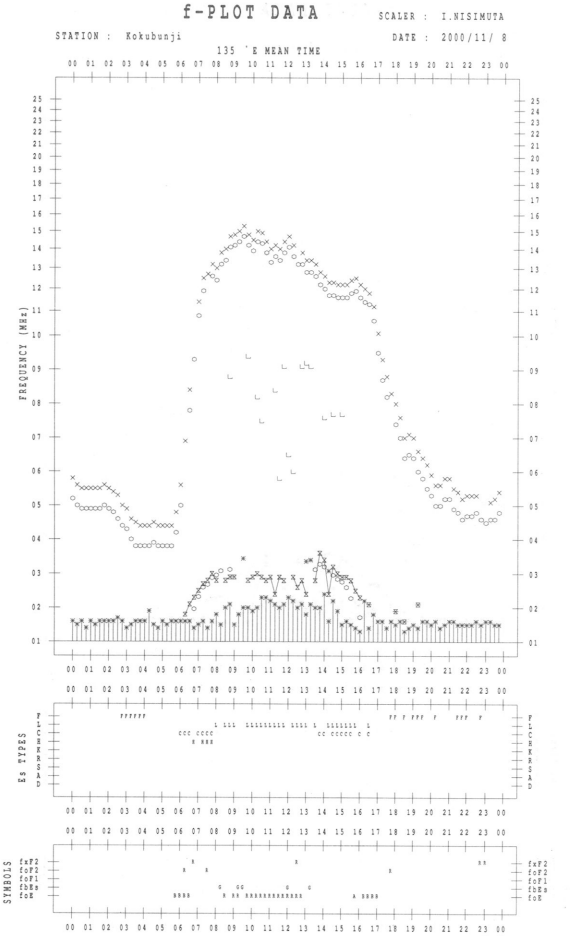

f-PLOT DATA
SCALER : I.NISIMUTA
STATION : Kokubunji
DATE : 2000/11/ 2
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE

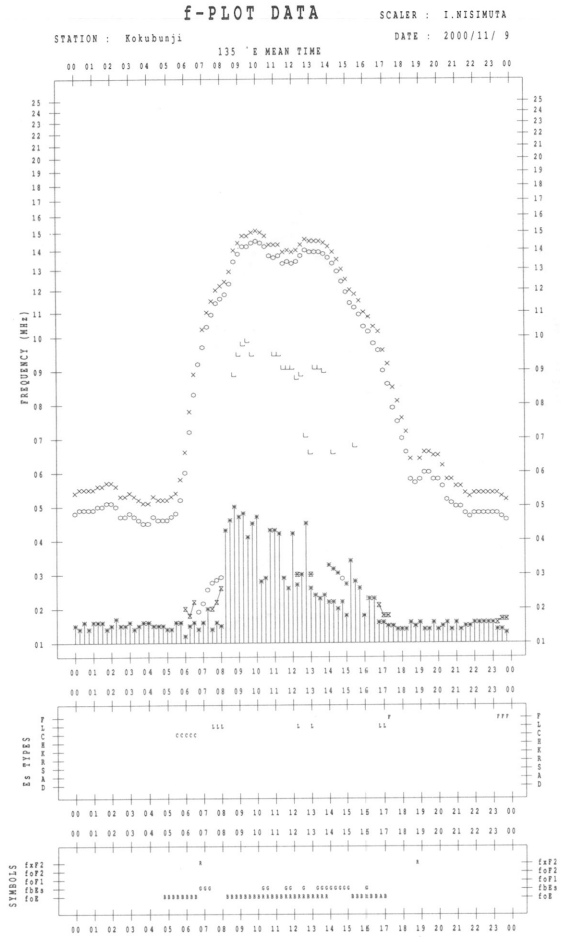

f-PLOT DATA
SCALER : I.NISIMUTA
STATION : Kokubunji
DATE : 2000/11/ 4
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE

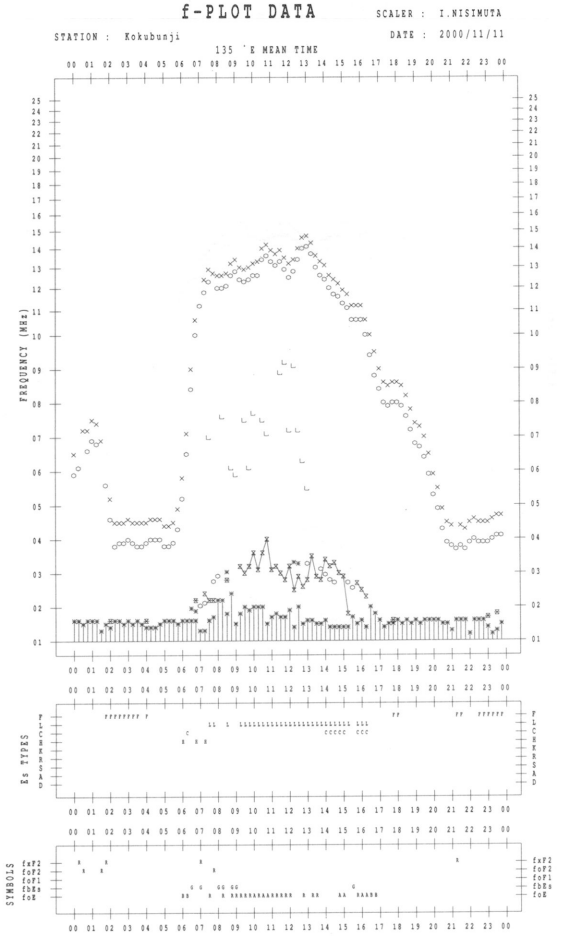

f-PLOT DATA
SCALER : I.NISIMUTA
STATION : Kokubunji
DATE : 2000/11/ 5
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE

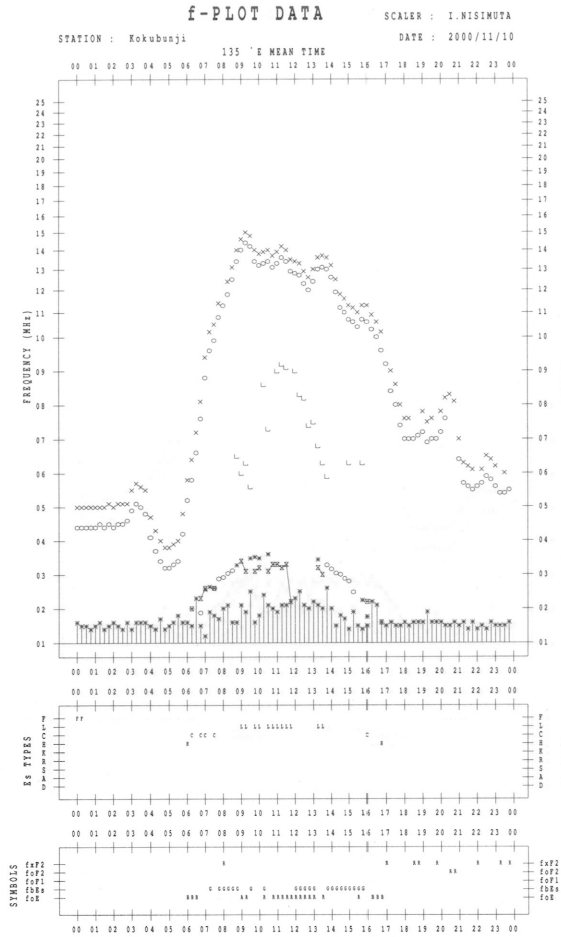

f-PLOT DATA
SCALER : I.NISIMUTA
STATION : Kokubunji
DATE : 2000/11/ 7
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE

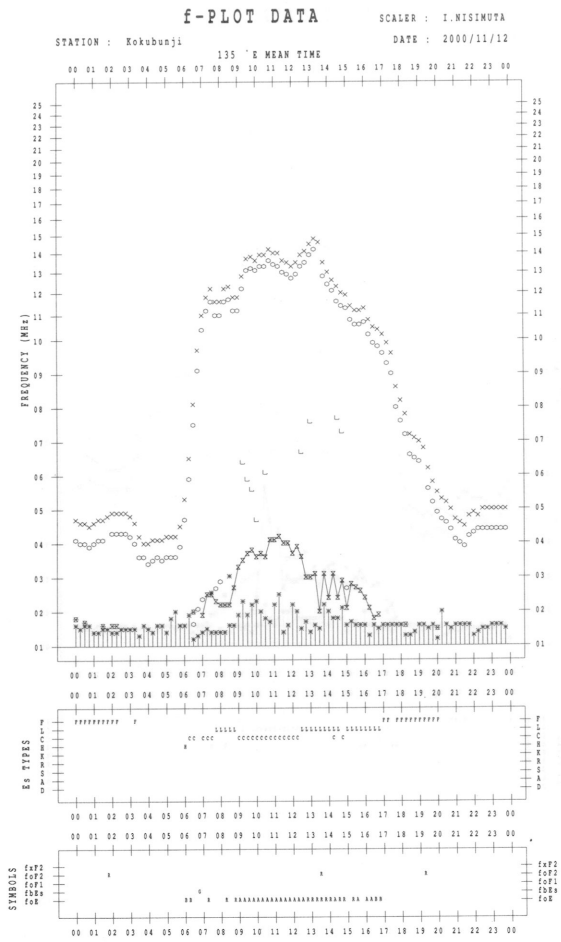

f-PLOT DATA
SCALER : I.NISIMUTA
STATION : Kokubunji
DATE : 2000/11/ 6
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE

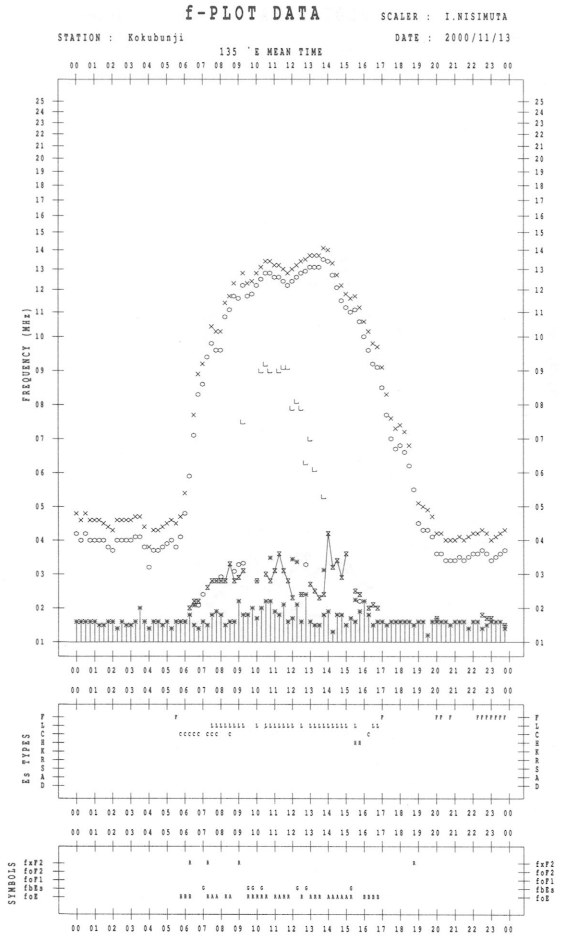

f-PLOT DATA
SCALER : I.NISIMUTA
STATION : Kokubunji
DATE : 2000/11/ 8
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE

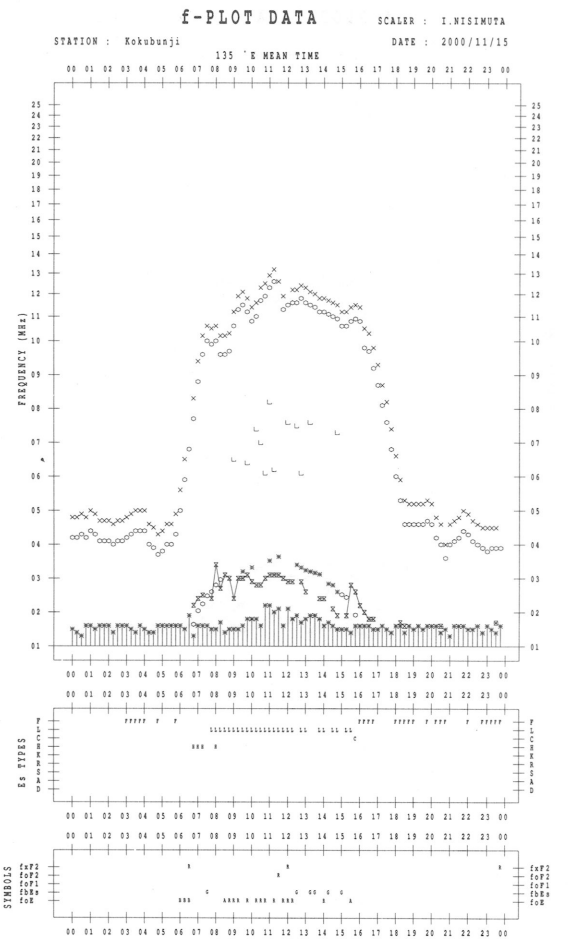

f-PLOT DATA
SCALER : I.NISIMUTA
STATION : Kokubunji
DATE : 2000/11/ 9
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE

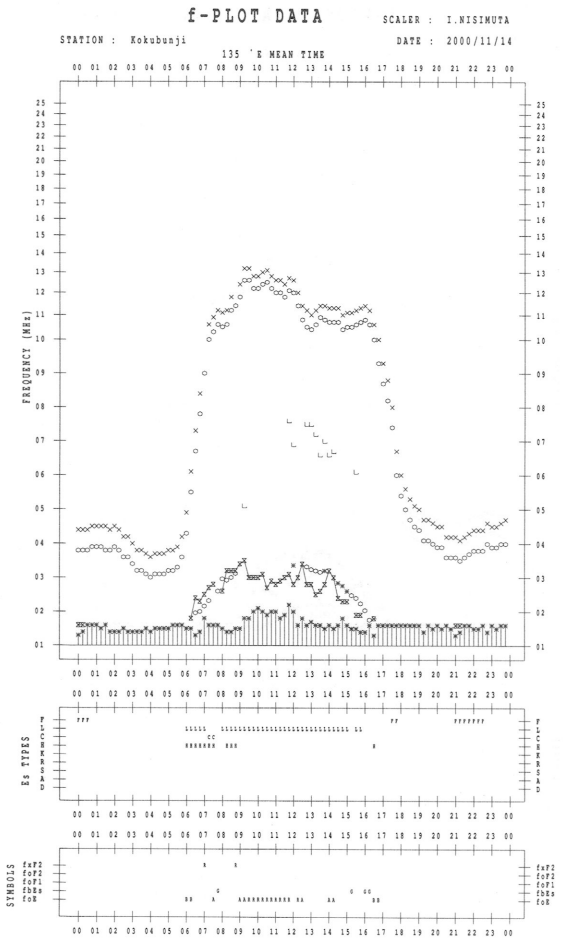

f-PLOT DATA
SCALER : I.NISIMUTA
STATION : Kokubunji
DATE : 2000/11/11
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE

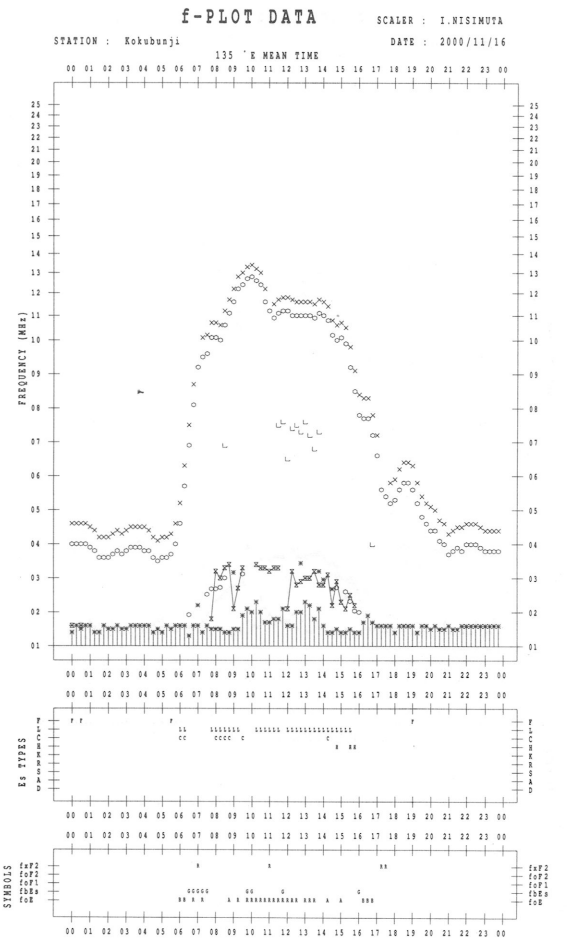

f-PLOT DATA
SCALER : I.NISIMUTA
STATION : Kokubunji
DATE : 2000/11/10
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE

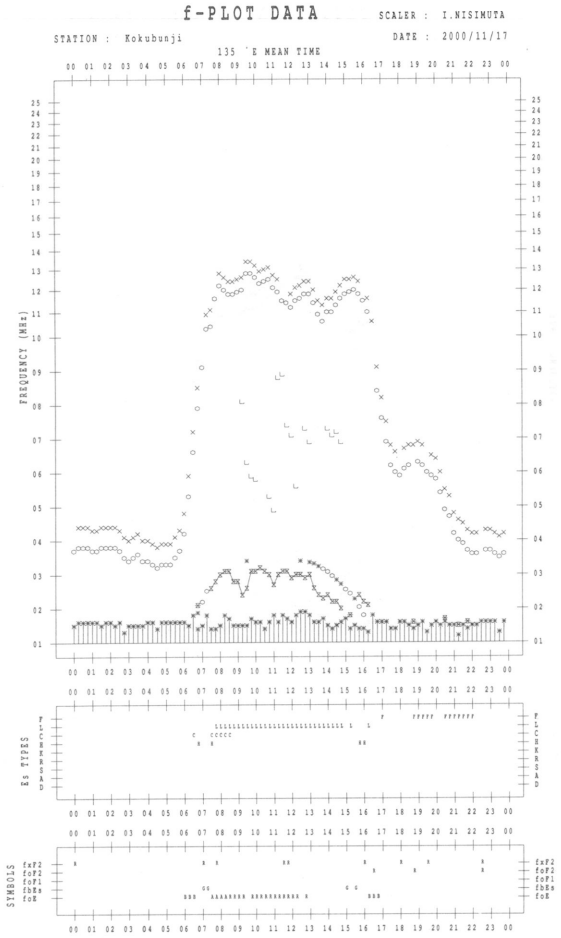

f-PLOT DATA
SCALER : I.NISIMUTA
STATION : Kokubunji
DATE : 2000/11/12
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE

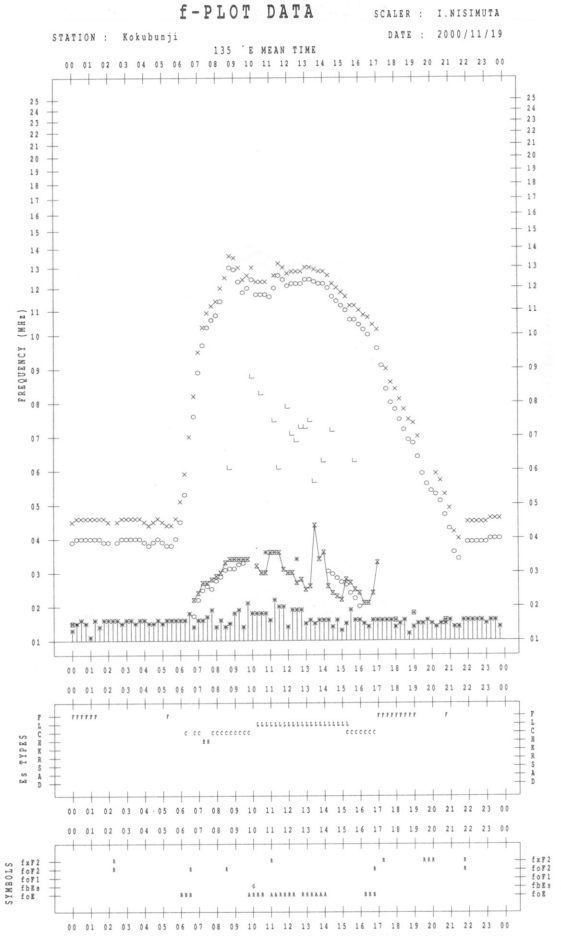

f-PLOT DATA
SCALER : I.NISIMUTA
STATION : Kokubunji
DATE : 2000/11/13
135 'E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE

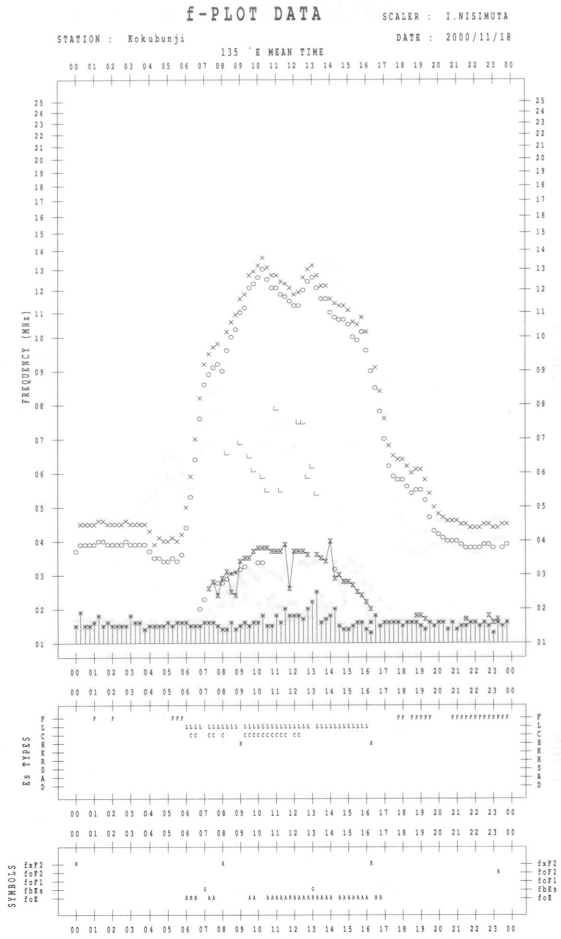

f-PLOT DATA
SCALER : I.NISIMUTA
STATION : Kokubunji
DATE : 2000/11/15
135 'E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE

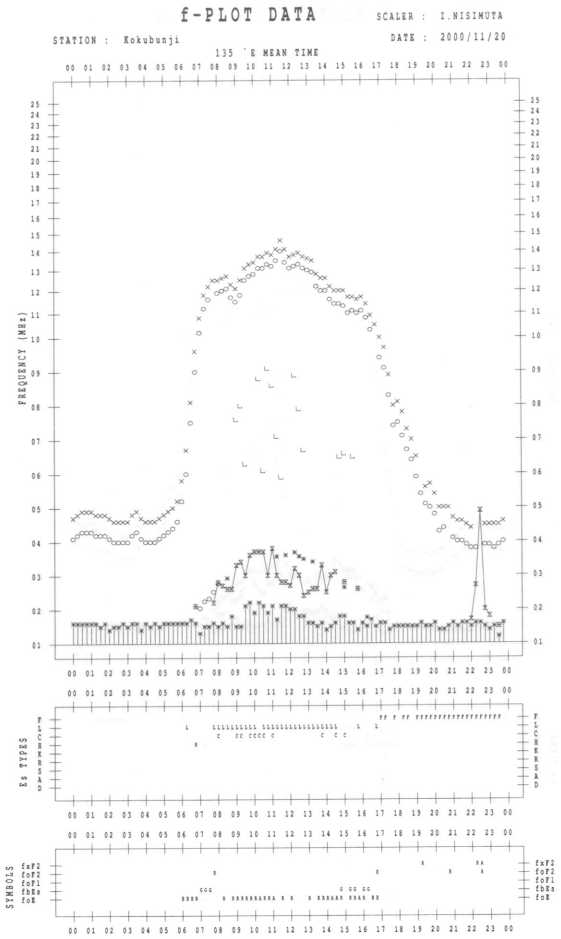

f-PLOT DATA
SCALER : I.NISIMUTA
STATION : Kokubunji
DATE : 2000/11/14
135 'E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE

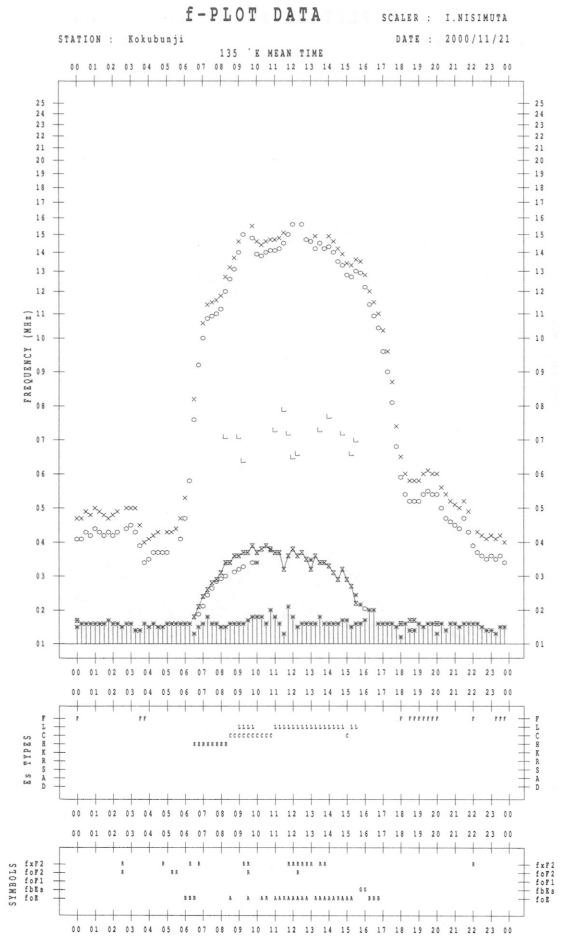

f-PLOT DATA
SCALER : I.NISIMUTA
STATION : Kokubunji
DATE : 2000/11/16
135 'E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE

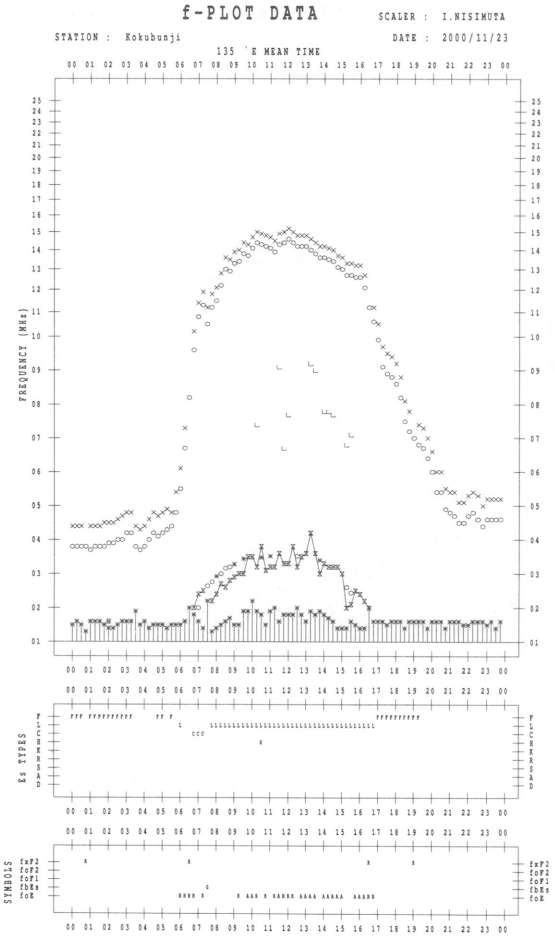

f-PLOT DATA
SCALER : I.NISIMUTA
STATION : Kokubunji
DATE : 2000/11/17
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE

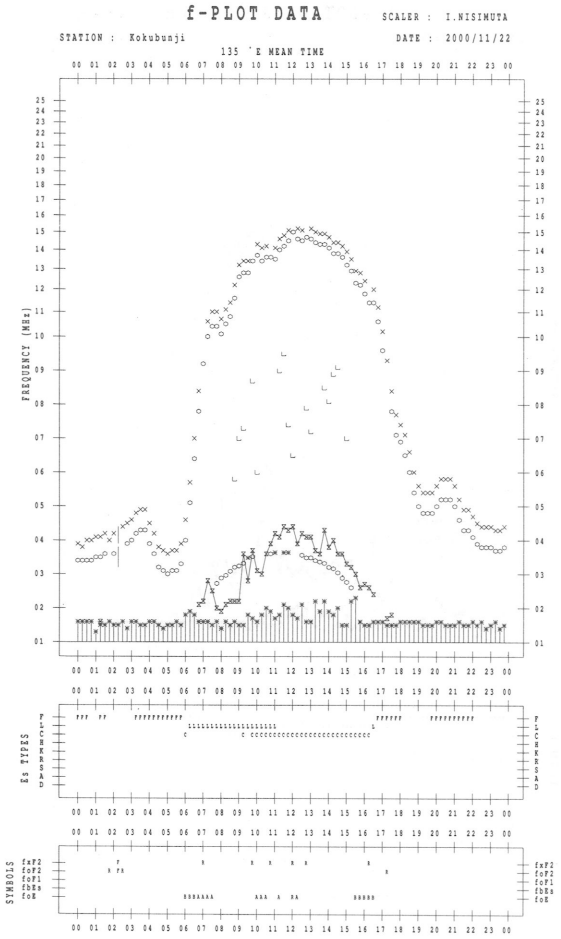

f-PLOT DATA
SCALER : I.NISIMUTA
STATION : Kokubunji
DATE : 2000/11/19
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE

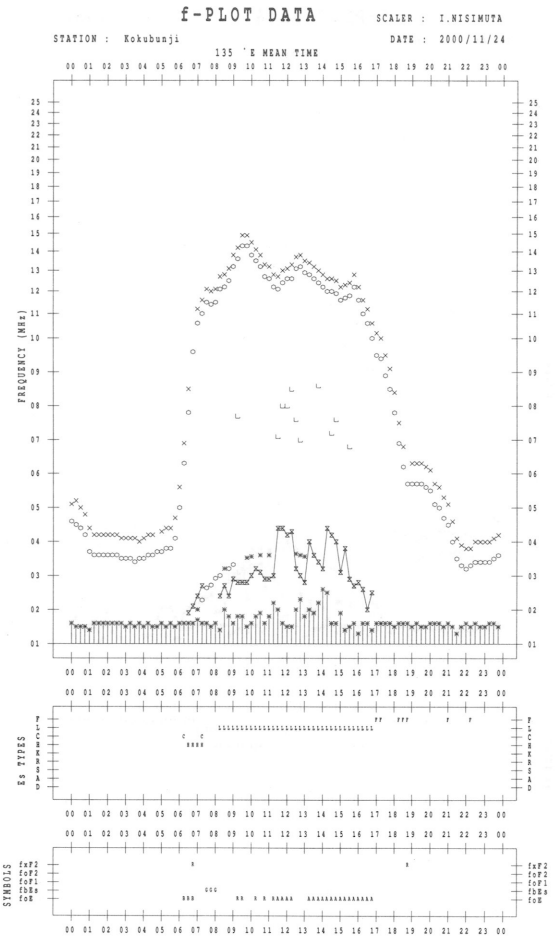

f-PLOT DATA
SCALER : I.NISIMUTA
STATION : Kokubunji
DATE : 2000/11/18
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE

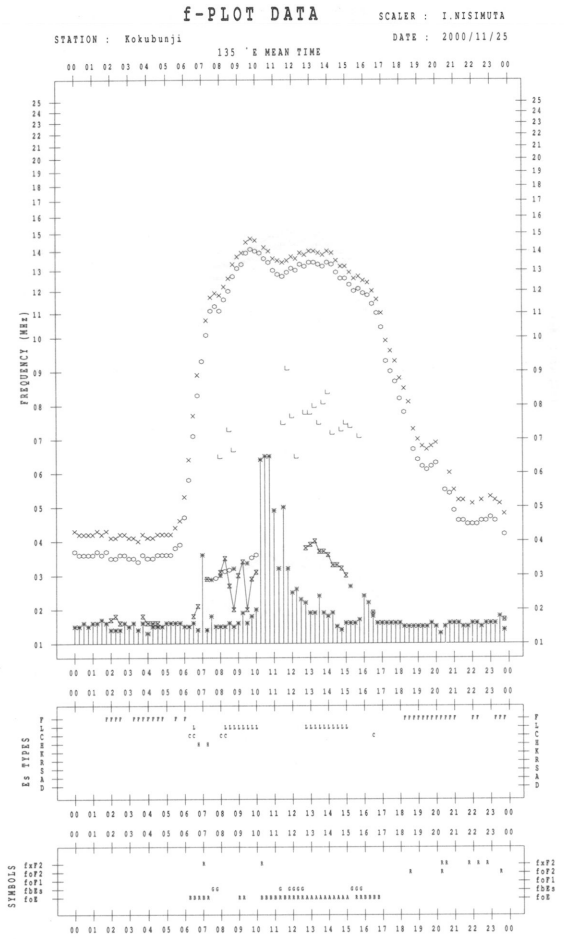

f-PLOT DATA
SCALER : I.NISIMUTA
STATION : Kokubunji
DATE : 2000/11/20
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE

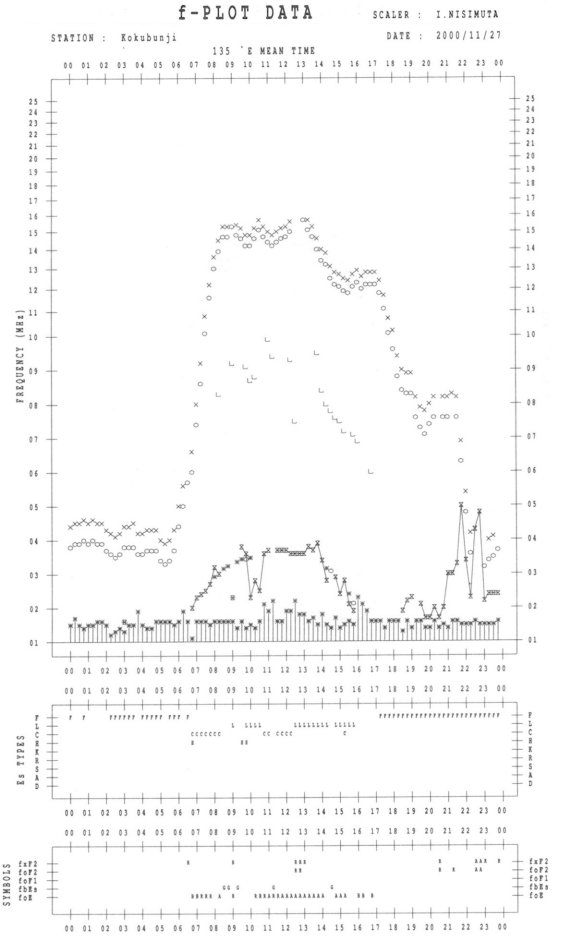

f-PLOT DATA
SCALER : I.NISIMUTA
STATION : Kokubunji
DATE : 2000/11/21
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS

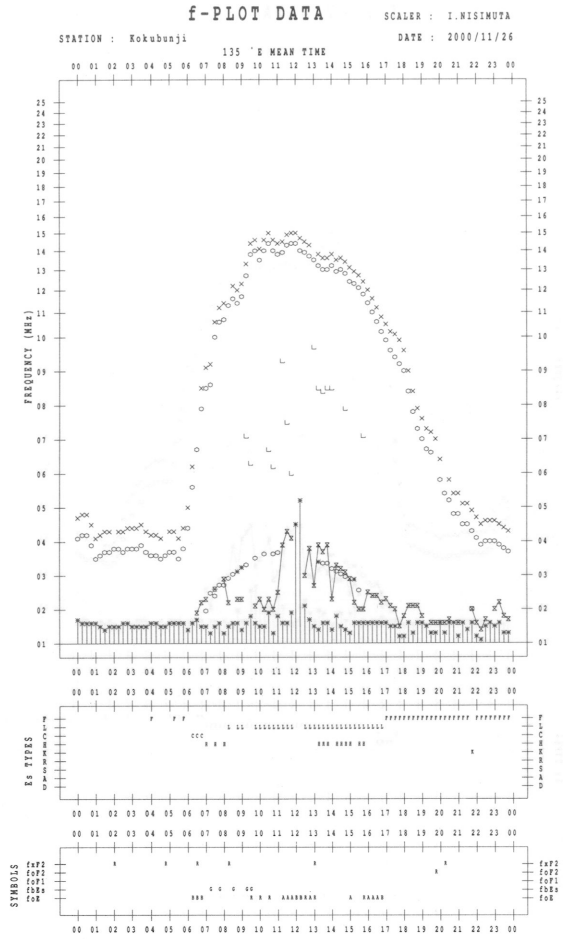

f-PLOT DATA
SCALER : I.NISIMUTA
STATION : Kokubunji
DATE : 2000/11/23
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS

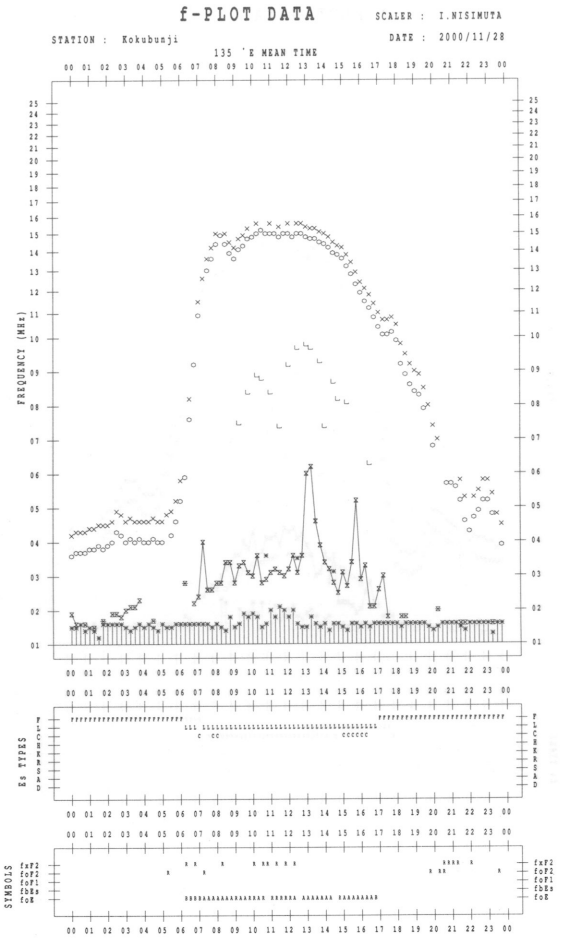

f-PLOT DATA
SCALER : I.NISIMUTA
STATION : Kokubunji
DATE : 2000/11/22
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS

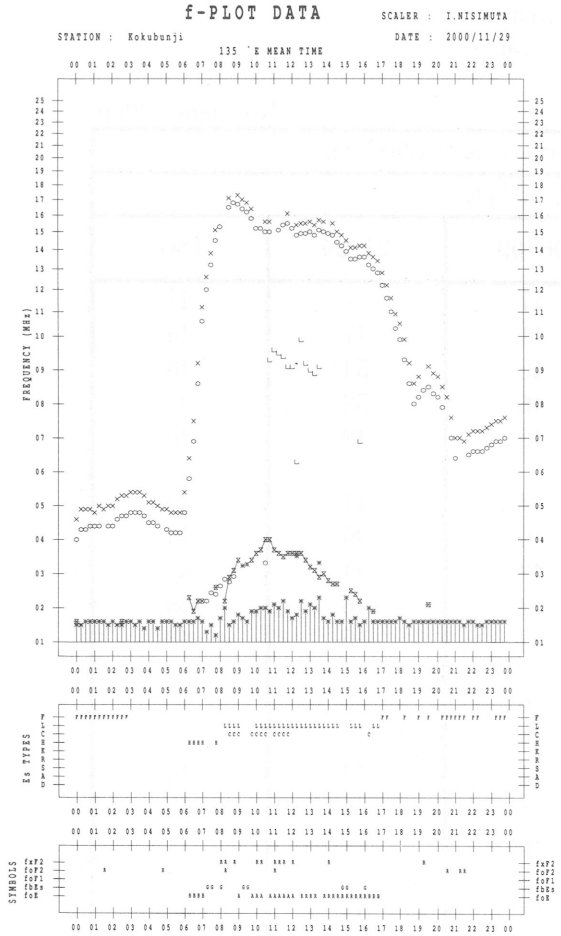

f-PLOT DATA
SCALER : I.NISIMUTA
STATION : Kokubunji
DATE : 2000/11/24
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS

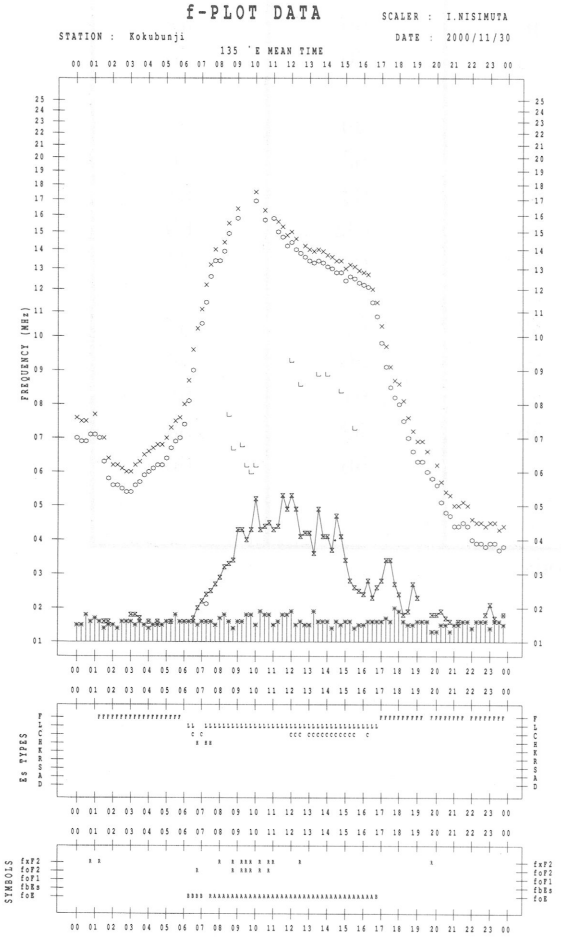

f-PLOT DATA
SCALER : I.NISIMUTA
STATION : Kokubunji
DATE : 2000/11/25
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE


f-PLOT DATA
SCALER : I.NISIMUTA
STATION : Kokubunji
DATE : 2000/11/27
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE


f-PLOT DATA
SCALER : I.NISIMUTA
STATION : Kokubunji
DATE : 2000/11/26
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE


f-PLOT DATA
SCALER : I.NISIMUTA
STATION : Kokubunji
DATE : 2000/11/28
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE


f-PLOT DATA
SCALER : I.NISIMUTA
STATION : Kokubunji
DATE : 2000/11/29
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE


f-PLOT DATA
SCALER : I.NISIMUTA
STATION : Kokubunji
DATE : 2000/11/30
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 November 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	48	47	47	–	47
2	–	–	41	47	44
3	47	46	45	54	48
4	51	46	46	52	49
5	50	44	43	49	46
6	48	46	47	41	46
7	44	43	40	49	44
8	46	42	43	44	44
9	46	44	43	46	45
10	44	41	40	45	43
11	41	39	39	42	40
12	42	41	39	47	42
13	43	40	41	44	41
14	42	41	41	46	42
15	42	40	40	43	41
16	44	44	44	42	44
17	42	41	39	54	44
18	48	44	44	53	47
19	50	47	46	50	48
20	51	50	49	50	50
21	52	50	51	59	53
22	57	52	52	63	56
23	59	61	67	63	61
24	59	57	64	102	69
25	102	68	54	64	74
26	57	50	52	57	54
27	53	53	53	59	54
28	59	56	57	61	58
29	58	56	56	62	58
30	62	77	64	56	66
31					

Note: No data is available during the following periods.
1st 2100 - 2nd 0600

B. Solar Radio Emission

B2.Outstanding Occurrences at Hiraiso

Hiraiso November 2000

Single-frequency observations

Normal observing period: 2115 - 0730 U.T. (sunrise to sunset)

NOV. 2000	FREQ. (MHz)	TYPE	START TIME (U.T.)	TIME OF MAXIMUM (U.T.)	DUR. (MIN.)	FLUX DENSITY (10^{-22} W m^{-2} Hz^{-1}) PEAK	FLUX DENSITY (10^{-22} W m^{-2} Hz^{-1}) MEAN	POLARIZATION REMARKS
2	200	8 S	2242.0	2243.0	2.0	240	-	0
3	200	8 S	0031.0	0032.0	1.0	120	-	0
5	500	4 S/F	0043.0	0046.0	9.0	70	-	0
6	200	8 S	0318.0	0319.0	1.0	50	-	WL
8	2800	47 GB	2301.0	2319.0	67.0	670	-	WL
8	500	21 GRF	2301.0	2347.0	77.0	10	-	0
8	500	4 S/F	2311.0	2311.0	10.0	20	-	WR
9	500	42 SER	2252.0	2256.0	5.0	50	-	0
9	200	42 SER	2248.0	2256.0	9.0	40	-	0
10	200	8 S	2236.0	2236.0	2.0	50	-	WL
12	200	8 S	0626.0	0628.0	2.0	60	-	WL
13	200	8 S	2330.0	2330.0	1.0	60	-	0
14	200	8 S	0339.0	0340.0	1.0	120	-	WR
14	200	42 SER	0416.0	0420.0	5.0	170	-	0
14	200	8 S	0434.0	0436.0	2.0	40	-	0
14	200	42 SER	0457.0	0459.0	3.0	130	-	0
15	2800	3 S	0242.0	0245.0	5.0	50	-	0
15	500	8 S	0242.0	0244.0	4.0	330	-	0
15	200	8 S	0242.0	0244.0	3.0	110	-	0
16	500	8 S	0218.0	0218.0	1.0	20	-	0
17	200	7 C	0203.0	0206.0	4.0	60	-	
18	200	8 S	2317.0	2318.0	2.0	30	-	WL
22	500	8 S	0123.0	0123.0	1.0	40	-	ML
22	200	47 GB	0123.0	0124.0	1.0	1250	-	WL
22	200	8 S	0151.0	0152.0	1.0	190	-	WL
22	200	47 GB	0220.0	0220.0	1.0	820	-	WL
22	200	8 S	0355.0	0355.0	1.0	70	-	0
22	200	8 S	0648.0	0648.0	1.0	140	-	0
22	200	7 C	2326.0	2330.0	6.0	330	-	WL
23	200	8 S	0016.0	0018.0	2.0	360	-	0
23	200	8 S	0404.0	0405.0	1.0	400	-	0
23	500	4 S/F	0536.0	0540.0	6.0	260	-	MR
23	200	4 S/F	0536.0	0537.0	4.0	40	-	WR
23	200	7 C	2232.0	2235.0	4.0	40	-	MR
23	500	8 S	2234.0	2234.0	2.0	110	-	0
23	200	8 S	2251.0	2252.0	1.0	80	-	0
23	200	8 S	2311.0	2311.0	1.0	60	-	0
23	200	48 C	2316.0	2319.0	7.0	460	-	0
23	2800	4 S/F	2317.0	2323.0	10.0	110	-	0
24	500	8 S	0303.0	0303.0	1.0	100	-	0
24	200	42 SER	0303.0	0326.0	44.0	130	-	ML
24	2800	47 GB	0459.0	0459.0	11.0	1730	-	0
24	500	47 GB	0459.0	0459.0	16.0	2620	-	WL
24	200	47 GB	0459.0	0459.0	15.0	2880	-	0
25	2800	47 GB	0057.0	0131.0	110.0	11340	-	SL
25	500	47 GB	0059.0	0146.0	82.0	840	-	0
25	200	7 C	0108.0	0114.0	22.0	360	-	SR

B. Solar Radio Emission

B2. Outstanding Occurrences at Hiraiso

Hiraiso November 2000

Single-frequency observations

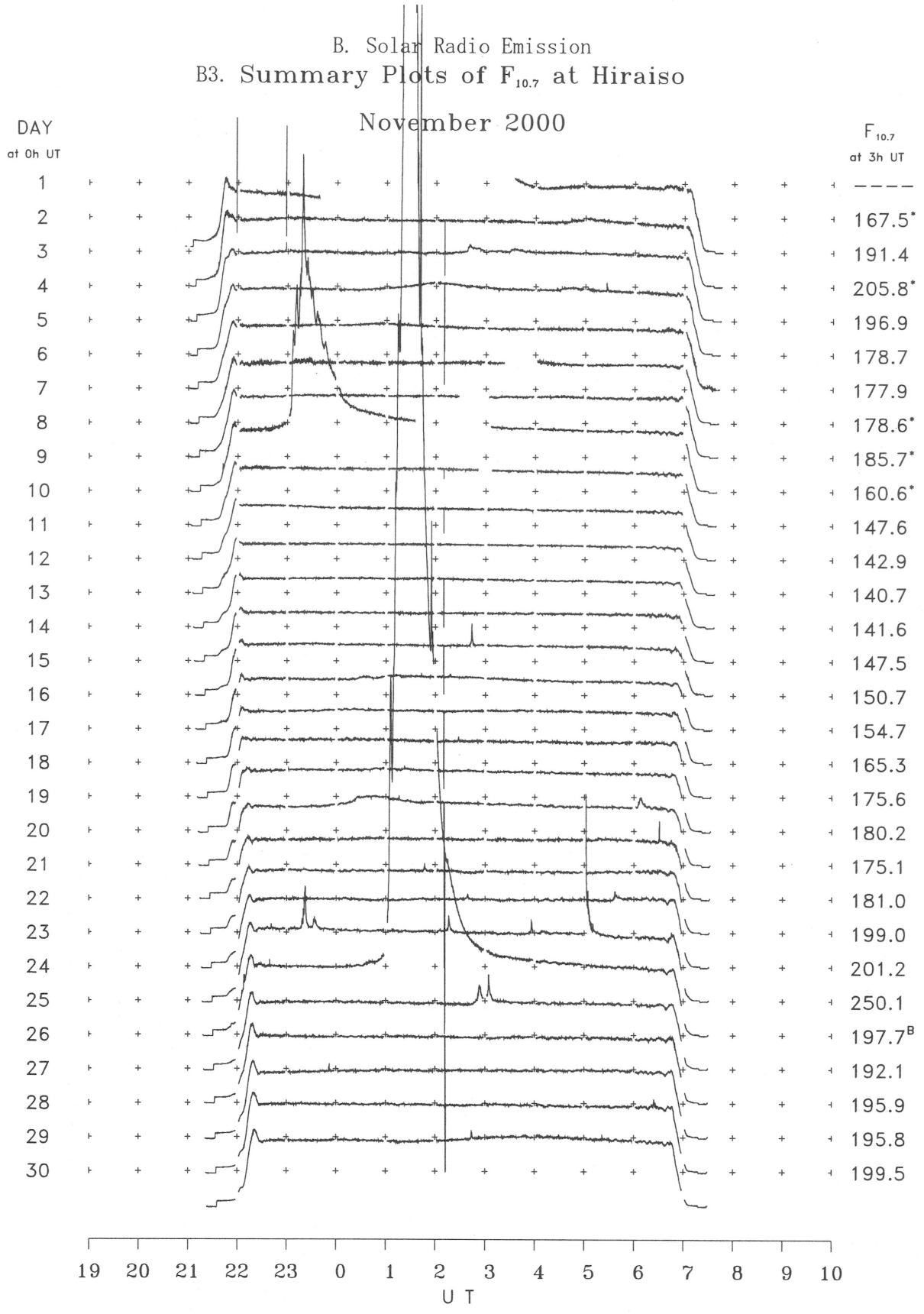
Normal observing period: 2115 - 0730 U.T. (sunrise to sunset)

NOV. 2000	FREQ. (MHz)	TYPE	START TIME (U.T.)	TIME OF MAXIMUM (U.T.)	DUR. (MIN.)	FLUX DENSITY (10^{-22} W m^{-2} Hz^{-1}) PEAK	FLUX DENSITY (10^{-22} W m^{-2} Hz^{-1}) MEAN	POLARIZATION REMARKS
25	200	8 S	0212.0	0212.0	1.0	460	-	MR
25	200	7 C	0353.0	0356.0	4.0	220	-	0
25	200	8 S	0452.0	0452.0	1.0	180	-	MR
26	2800	3 S	0247.0	0254.0	10.0	50	-	0
26	500	8 S	0251.0	0253.0	6.0	40	-	0
26	200	8 S	0255.0	0258.0	1.0	70	-	0
26	200	4 S/F	0258.0	0301.0	9.0	70	-	0
26	500	4 S/F	0300.0	0307.0	14.0	30	-	0
26	2800	3 S	0303.0	0304.0	5.0	50	-	0
26	200	7 C	0442.0	0445.0	3.0	40	-	0
26	500	8 S	0445.0	0445.0	1.0	30	-	0
26	200	8 S	0613.0	0613.0	1.0	70	-	0
26	500	8 S	0626.0	0626.0	1.0	30	-	0
26	200	8 S	2323.0	2323.0	1.0	220	-	0
27	200	8 S	2331.0	2331.0	1.0	290	-	ML
27	200	4 S/F	2341.0	2352.0	16.0	190	-	SR
27	500	8 S	2352.0	2352.0	1.0	50	-	WL
28	200	7 C	0153.0	0155.0	4.0	80	-	WR
28	200	8 S	0245.0	0246.0	1.0	60	-	0
29	200	8 S	0428.0	0429.0	1.0	240	-	0
29	200	8 S	0624.0	0624.0	1.0	80	-	0
30	500	8 S	0243.0	0243.0	1.0	200	-	0
30	200	8 S	0244.0	0244.0	1.0	180	-	0
30	200	8 S	0521.0	0522.0	1.0	230	-	MR
30	200	47 GB	2213.0	2214.0	1.0	790	-	0

B. Solar Radio Emission

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

November 2000



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

IONOSPHERIC DATA IN JAPAN FOR NOVEMBER 2000
F-623 Vol.52 No.11 (Not for Sale)

電離層月報（2000年11月）
第52巻 第11号（非売品）
2001年２月23日 印刷
2001年２月28日 発行
編集兼 総務省通信総合研究所
発行所 〒184-8795 東京都小金井市貫井北町４丁目２－１
☎（042）（327）７４７８(直通)

Queries about "Ionospheric Data in Japan" should be forwarded to :
Communications Research Laboratory, Ministry of Public Management, Home Affairs, Posts and Telecommunications, 2-1 Nukui-Kitamachi 4-chome, Koganei-shi, Tokyo 184-8795 JAPAN