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IONOSPHERIC DATA IN JAPAN

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CONTENTS

COMMUNICATIONS RESEARCH LABORATORY
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INTRODUCTION

This Series contains data on ionosphere (I) , solar radio emission (S) and radio propagation (P) obtained at the following stations under the Communications Research Laboratory, Independent Administrative Institution in 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°40.5'N	128°09.2'E	16.5°N	161.7°	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

Ionospheric 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. 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*).

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 Hand-book 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 spred ***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 transmission 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 by, 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.

X 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 part *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 normal *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 Measurement, 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

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 F10.7 at Hiraiso

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

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

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

C. RADIO PROPAGATION

C1. Phase Variation in OMEGA Radio Waves at Inubo

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

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

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

C2. Sudden Phase Anomaly (SPA) at Inubo

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

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

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

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

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

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

HOURLY VALUES OF foF2 AT Wakkanai

OCT. 2001

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	68	55	51	44	50	58		80	115		106	96	94	101	94	92	92	92	94	96	84		68	64
2	46	55	56	61	60	64	79	80	82	81	71		64	64	68	73	76	82	72	72	57	57	51	
3	60	69	44	38	37	42	58	73	86	84	70	81	80	82	84	84	91	82	66	74	69	A		
4	46					38	46	58	70	71	76	80	88	83	80	81	83		88	71	61			
5	52	44	41		44	48	70	94				115		95	92	93		88	84	75			68	
6	68	61	54	68	51	69				99	96	86		95	92	93		92	81	83		89	94	67
7	68	70	70	56	54	59	68	94	98	96	108				103	92	108	98	83	87	72		73	
8	60	61	61	64	54	58		97	96	94		134	96	98	95	100	118		98	88	74	74		68
9	56	58	60		60	64	72	94		114		95	112		95	92	94	122	81	83	71	63		
10	53	69	59	59	57	41		96	114	114	125		96	96		102	81	91	93	83	74			
11	51	69	69	57	48	53	69	98	108	109	114		93	91	97	92	88	82	83	94	92			
12	56	70	51	44			59	92	94	93	93	94	89	92	92	134	92	90	83	82		63	64	60
13	63	51	68	60	37	50	84	96	113	115	114	141	125	124	126	92	88	88	80	82		58		
14	54	56	60	62	55	56	84	103	94	102	142	80		125		98	114	98	90	88	93	71	60	
15	55	70	61	62	61	56	59	92	117	117	92	93	94	120			87	114	91	92	70			
16	74	66	62	63	62	69	86	82	94	122					106	127	114	91	92	96	82	66	68	60
17		72	69	60	63	61	82	89	113	124	140	140	92	89	93		116	90	91	92	94			
18	57	64	59	55	58	60		94	123	125	127	140		88			115	98	90	83	82		58	
19	61	57	62	62	60	63	76	95	127	125		89		96		96	124		97		83	83	68	
20			58	60	50	52	94	94	115	143	142	143	140	126	124	122		93	91	84	70			
21	69	61	60		59	60	95			152	98	149	140	139	93		78	109	84	81	57	C		
22	57	70	70	44			50	77		81	84	91	114	92	92		120	114		84	72			53
23	53			37	32	42	59	74	93	97	90	95	92	92	95	91	98	90	92	67	66			
24	50	48	46	44	46	48	52	94	115	126	140	148	92			114	116	88	82		94			
25	58	59	69	57	59	51		93		140	148	143	124	124	125	105	115	105	93	79	70			
26		61	53	55	52	53	75		94	141	143	C	143	143	142	141	125	126	93	93	80			
27	69	67	61	58	60	62	80	115	149	143	150	150	141	143	140		137	115	82	84			66	
28	69	55	55	61	59	60	78	98	148	147	147	147	146	142	91	121			97	92	80		82	
29	69	73		61	47	59		87	81	81	90	82	80	90	82	91	92	88	82		63			
30	48	45	44	52	58	59		113	148	89	143	150	150	141	142	128	95	114	90	82	70	74		
31			40	44	50	44		93	146	150	147	144	147	140	134	137	126	88	77	74	70			58
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	27	27	28	27	28	29	22	28	25	29	26	25	24	27	25	25	27	27	30	28	26	10	12	7
MED	57	61	60	58	54	58	74	94	113	114	114	115	96	96	95	96	98	92	89	83	72	68	68	60
U Q	68	69	62	61	59	60	82	96	120	133	142	143	140	126	124	121	116	109	92	90	82	74	70	67
L Q	53	55	52	44	49	49	59	84	94	93	92	90	92	91	92	92	88	88	82	80	70	63	62	58

COMMUNICATIONS RESEARCH LABORATORY, JAPAN

HOURLY VALUES OF fEs AT Wakkanai

OCT. 2001

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	25	G	G	G	G	G		52	65	80	64	G	G	G	G	G	G	G		43	35	G	G	G
2	33	25	30	33	G	G	G	G	G	52	G	G	G	G	G	41	41	31	32	39	G	G	G	G
3	G	G	G	G	G	G	31	42	37	G	G	G	G	G	G	G	G	G	29	G	G			
4	G					G	G	G	G	G	G	G	G	G	G	G	32		29	54	27			G
5	G	G	G	G	G	G	G	G	G	42		G	G	G	G		G	G	G	G	G		G	G
6	G	G	G	G	G	G	G			G	G	46		G	G	G	G	G	32	G	G	G	G	G
7	G	G	G	G	G	G	G	G	G	G	G	G	G		G	G	G	G	G	G	G		G	G
8	G	G	G	G	G	G		37	G	50		G	G	G	G	G	G	G	29	32	31		44	G
9	42	37	32	31	42	48	30	G	45	G		G	G	48	G	G	32	30	33	28	G	G	G	G
10	G	G	G	G	G	G		G	G	46	G		G	62	70	G	G	30	48	48	43	G	G	
11	G	G	26	46	29	G	29	G	G	G	G	60	G	G	G	G	G	G	G		31		G	G
12	30	G	G	27			G	38	45	G	43	60	51	63	G	42	63	G	G	G	G		30	31
13	G	G	24	G	G	G	32	39	47	47	46	46	43	40	48	G	G	32	33	53	53	49	58	
14	42		30	28	26	G	G	38	G	48	50		G	G		39	43	29	36	40	G	G		G
15	G	G	G	G	G	G	30	G	G	G	G	46	46	40	G	G	G	29	36	G	G		G	
16	26	26	28	G	G	29	28	G	G	G	56	48			51	40	40	38	38	40	38	34	29	G
17		G	G	31	G	G	G	G	G	G	G	G	G		G	39	35	G	G	G	31	G		G
18	G	G	G	G	31			G	G	G	G	G		59			52		60	44	44	G	G	
19		G	G	G	G	G	G			G	G	G	G	49		G	G		G		G	45	48	G
20	29	39	38	G	G	G	G	G	G	54	40	64	46	48	G	G	29	27	30	G	G	G	G	G
21	25	G	G		G	G	G	G	48	49	59	52	50	G	G		30		33		78	C	G	G
22	G	G	G	G			G	34	44	57	50	41	41	G	G	G	G	26		G	G	G	G	G
23	G			32	30	26	33	34	40	41	G	G	G	G	G	G	G	G	G	G	G		G	G
24	G	G	G	G	G	G	28	30	40	44	62	59	61	G		34	G	G	G		25	G	G	G
25	G	G	G	26	G	G	G	G		G	G	G	G	G	G	G	G	G	36		G	G	G	G
26	62	37	G	28	25	G	G	G	G	44	G	C	40	51	G	G	G		39	46	27	G		
27	G	27	G	G	G	G	G	G	G	42	G	66	88		70		50	G	G	32		G	G	G
28	G	26	G	G	G	G	G	G	G	G	G		G	G	G	G	G	G	30	G	G	G	45	
29		38	61	58	61	40		G	G	41	43	G	G	G	G	G	43	32	43	48	G	G	70	
30	29	30	G	26	G	28	36	G	42	G	G	52	46	57	38	44	34	33	G	28	43	44		G
31		46		28	31	28			G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	27	28	28	29	28	28	25	28	28	31	28	27	28	27	27	27	31	26	29	26	30	21	25	23
MED	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	30	28	G	G	G	G
U Q	29	26	25	28	25	G	29	34	41	47	44	52	44	48	G	34	35	30	36	43	31	G	29	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

OCT. 2001

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	20	20	16	20	18	18		18	20	21	20	21	21	21	28	34	20	23	14	15	15	18	21	24
2	15	18	17	15	18	17	22	20	21		33	24	23		21	20	17	15	14	14	20	17	20	28
3	18	16	17	22	18	16	18	18	21	24		48	23		24	20	17	21	15	18	20	20		
4	16					17	21	20	20	22	22		23	22	20	16	15		14	15	17			18
5	18	20	18	20	18	16	23	17	20	22		24	21	20	18	16	16	20	15	15	15		17	18
6	17	18	18	20	18	16	22			20	24	22		26	36	24	27	20	15	15	16	17	18	17
7	17	18	18	17	18	18	16	28	20	20	21	21	22	20	17	16	17	20	14	15	17	18	18	17
8	18	17	18	20	18	16	21	15	18	18		22	23	21	21	20	16	20	16	15	20	15	16	15
9	18	15	18	17	16	15	17	16	18	20		21	20	20	20	15	16	14	15	16	16	17	18	
10	17	18	17	16	18	16		16	20	20	20		21	23	20	17	16	15	15	15	16		17	
11	15	18	17	15	18	20	18	16	18	20	20	24	21	18	18	16	26	18	14	17	16	16		26
12	18	17	17	18			16		18	18	20	20	26	20	20	18	16	16	15	15	20	16	18	17
13	18	20	15	20	20	18	15	18	18	18	21	20	20	20	15	16	15	16	15	15	17	16	15	15
14	15	20	15	15	17	15	20	17	18	15	20	20	22	22		17	15	16	15	15	20	20	14	18
15	17	20	20	17	15	16	14	16	17	16	21	22	22	22	21	18	17	15	15	15	20		17	16
16	18	16	15	18	18	16	16	28	20	17	20	20			18	15	15	15	15	15	17	17	17	21
17		20	20	15	21	17	20	15	17	22	22	23	23	20	18	17	15	16	15	14	21	16		43
18	18	17	16	20	15	17		16	17	18	20	22		21			15	15	14	15	17	21	16	18
19	21	17	18	20	20	20	20	16	17	20	66	53	48	20		17	18		15		16	15	16	16
20	16	16	17	20	20	18	21	15	18	20	21	20	21	20	20	15	15	16	15	14	16	16	17	16
21	18	20	15		18	18	20	15	18	20	21	22	20	17	15		15	15	15	17	18	C	17	17
22	17	15	17	20			17	15	18	20	21	22	22	22	20	18	24	16		16	17	15	17	17
23	18			15	16	21	15	15	17	20	20	20		21	18	18	16	16	15	15	15	18	18	18
24	15	16	17	17	21	21	17	15	20	18	22	20	20	16		16	24	15	15		20	17	16	24
25	21	20	20	18	20	17	20	17		21	21	21	22	21	18	18	24	15	15	14	18	23	22	16
26	15	15	15	18	15	17	18	17	20	20	20	C	20	21	20	30	24	15	14	15	20	21	15	20
27	16	16	16	18	17	20	18	18	18	20	20	20	20	18	17		15	16	15	15		18	16	20
28	18	18	15	17	20	17	17	16	18	18	18	20	24	20	21	17	23	15	15	15	18	21	16	
29	15	15	15	15	16	17	17	16	17	20	20		18	20	20	18	15	15	15	14	16	16	15	16
30	17	17	20	18	20	16	15	17	18	26	21	21	17	20	15	16	15	15	15	15	18	17	18	
31		15	18	20	18	16		21	18	18	20		20	18	21	16	22	15	16	15	18	28	17	18
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	29	29	29	29	28	29	27	29	29	30	27	26	27	28	27	28	31	29	30	29	30	26	27	26
MED	17	17	17	18	18	17	18	16	18	20	21	21	21	20	20	17	16	16	15	15	17	17	17	18
U Q	18	20	18	20	20	18	20	18	20	20	21	22	23	21	21	18	22	17	15	15	20	20	18	20
L Q	16	16	15	16	17	16	16	15	18	18	20	20	20	20	18	16	15	15	15	15	16	16	16	16

HOURLY VALUES OF foF2 AT Kokubunji

OCT. 2001

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

HD	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	70		59	66	70	56	96	124	116		138	133	C	137	132	135	124	123	121	90		94		81
2	73	69	62	58	69	94	116	116	115	85	82	87	90	87	88	92	97	90	96		70	66	59	68
3	59	74	69	55	42	56	94	116	123	133	114	110	121	114	103	134	116	C	94	66	83	94		69
4	53				46	59	66	91		94	104	106	102	100	100	96	93	111	102	95	95	57	59	
5	99	60		49	49	58	99	114	120	114	115	136	152	142	150	142	140	123	106	81	82	91		94
6	95	70	55	62	59	59	93		124	116	126		126	121	123	113	116	114	115	78	94	94	81	77
7		94	57	62	54	52	89	120	115	133	108		125		151	152	124	130	104	81	69	69	74	67
8	69	69		60	44	49		103	122		131	127	114	121	126		133		114	94	94	81	83	95
9	81	69	61	63	61	70		134	133		140		150	127		121	113	130	105	82	80	69	80	67
10		59		62	51	47		114		122	124		129	128	132		123	124	125	91	82		74	74
11		70	61	58		49	88	114		140	150	140	132	133		127	126	128	116		69		70	70
12	64	61	57				75	116	116	132	138	152	154	134	138	154	137	124	93	82	94	94	74	
13	72	69	69	64	54	58		123	140	140	143	150		144	138	134	152	126	101	82	94	82	66	68
14	63	72	68	57	49	46	96	112	124	150	150	140	135	132		152	134	120	114	93	94	94	68	57
15	59	59	57	59	57		94	105	117	122	122		152	150	151	139	139	129	114	92	91		94	74
16	70	73	59	67	51	48	91	113	127	122	127	150	130	127		126	127	124	121	93	92	94	69	67
17	69	69		82	51	48	94	132	133	152	135	137	133	152	152	150	132	127	112	90	91	94	94	74
18	70	69	69	59	49	48		126	132	131	123	131	132	152	137	127	130	130		82	86	95	69	68
19	63	70	69	59	49	49	95	109		130	128	140	136	141	140	133	126	126	96	82	92	94	94	67
20	59	55	58	57	74	49		118	152	152	148	151		153	151	155	138	139	116	97	94	73		67
21	69	72		61	63	59	99	133	138	152	150	152		151	152	142	140	125	104	94	92	98		72
22	69	68	57	56		56		94	122	132	124	141		135	123		140	146	103	86		93	69	63
23	59	68						114	118	140	153	153	152	152	132		127				74		63	49
24	59	59	64	49	44	45	93	116		130	152	151	132	131	132	149	126	123	101		83	82		67
25	70	70	57	56	63	43	72	113		152	135	140	146	152	153	136	128	132	103	82	94	94	94	74
26		59	69	63		49	79	117	152	152	153	134	138	146	152	155	150	155	118	98	92	93	81	
27		95		71	62	53	95		151	148			141		150	140	128	132	130		114	93		94
28	93	73	61		57	57	95		154	151	152	142	132	150	148	151	124	127		92	81	82	81	73
29	81	69	70	57	54		93	116	117	127	123	118		116	119	110	123		96	94	94	76	69	64
30	70	58	63	70	62	60	80	123	151	152	175	153	156	151	171	153		150	117		94	92	76	70
31	63	58	64	51	49	57			154	152		150	148	153	153	140	138	132	114	94	94	74	70	
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	26	29	23	27	26	27	22	27	25	28	29	25	25	29	27	27	30	27	28	25	29	27	24	27
MED	69	69	61	59	54	53	94	116	124	133	135	140	133	137	138	139	128	127	109	90	92	93	74	69
U Q	72	71	69	63	62	58	95	123	145	151	150	150	149	151	151	151	138	132	116	94	94	94	81	74
L Q	63	59	57	57	49	48	88	113	117	124	123	132	127	127	126	127	124	123	101	82	82	76	69	67

COMMUNICATIONS RESEARCH LABORATORY, JAPAN

HOURLY VALUES OF fEs AT Kokubunji

OCT. 2001

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	57	40	24	G	G	G	G	34	47	58	70	G	C	G	G	G			31	G	39	G		G
2	G	G	G	G	G	G	33	58	60	59	59	55	45	G	G	G	36	G	34		24	30	24	G
3	G	G	G	G	G	26	28	G	G	G	G	G	G	G	G	G	G	C	27	29	46	G		G
4	G	G			G	G	G	G	G	G	G	G	G	G	G	G	36	34	33	29	G	G	G	
5	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	33	44	28	28		G
6	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	46	G	G	26	50	G	G
7	G	G	G	G	G	G	34		G	G	45	G	G	G	G	G	G	G	24	26	29		G	G
8	G	G		G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	29	34	36	31	G	G
9	G	G	G	G	G	35		G	G	G	G		45	54	53	42	G	36	37	30	31	31	G	G
10	G	G	G	G	G	G	G	G	G	G	G		56	49	G		G	G	G		46	G	37	31
11	26	G	G	G		G	G			G	G	G	G	G	G	G	39	43	36		46		25	37
12	G	G	G		32		32	G	38	57	G	G	G	G	G	52		60	73	39	42	26	G	G
13	G	G	G	G	G	G	G	G	G	G	G	G	G	46	G	G	G	53	34	50	43	G	32	31
14	26	G		30	G	G	G	G	G	G	G	G	G	G	54	48	40	45	39	36		31	G	G
15	G	G	G	G	G		37	34	G	G	G	G	G	G	G	G	G	G	G	G	G		G	G
16	G	39	33	22	G	G	G	G	52	49	53	46	G	G	41	39	37	61	G	52	33	G	24	G
17	G	G	G	G	G	G	G	G	G	41	G	G	G	52	G	G	41	31	35	25	G	G	G	G
18	G	G	G	G	G	G	G	34	G	G	55	56	46	42	49	40	37	36		G	G	G	G	G
19	G	G	G	G	G	G	G	41	G	G	G	G	G	G	G	G	G	G	G	28	G	26	G	29
20	G	23	G	29	G	G	G	37	G	G	73	45	45	G	G	G	33	27	36	42	46	26		29
21	29	G	G	G	G	G	G	G	39	46	G	G	G	G	G	G	G	39	35	G	G	41		43
22	29	32	29	G		G	31	G	G	48	G	64	45	53	G	G	31	33	31	G	44	G	G	26
23	G	G					32	38	43	50	G	G	50	G	G	G	38	33			70	54	29	37
24	29	G	G	G	G	G	G	36	38	G	G	G	G	G	G	48	35	G	37	G	G	G	G	G
25	G	G	32	30	G	G	G		G	G	G	G	G	G	G	38	33	G	29	36	G	31	33	24
26		G	G	28		G	G	G	G	G	G	G	G	G	G	G	G	32	G	G		G	41	37
27		35	G	G	G	G	G	33	G	G	G	G	G	G	G	G	G	G	G		G	G		G
28	G	G	G		G	G	G	G	G		G	G	G	G	G	38	31	G		30	G	36	28	25
29	32	26	G	G	G		51	86		48	G	G	45	G	G	G	42	42	33	32	50	32	G	33
30	G	G	G	G	G	G	32	38	G	G	G	G	G	G	G	G		34	33		G	G	G	G
31	G	G	G	G	G	G			G	G	G	G	G	G	G	G	G	G	G	31	60	62	39	73
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	29	31	27	27	27	27	29	27	29	30	31	29	30	31	31	30	28	29	28	25	29	28	25	30
MED	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	16	32	32	29	29	26	G	G
U Q	13	G	G	G	G	G	31	36	19	46	G	G	45	G	G	38	36	40	35	36	45	31	28	31
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

OCT. 2001

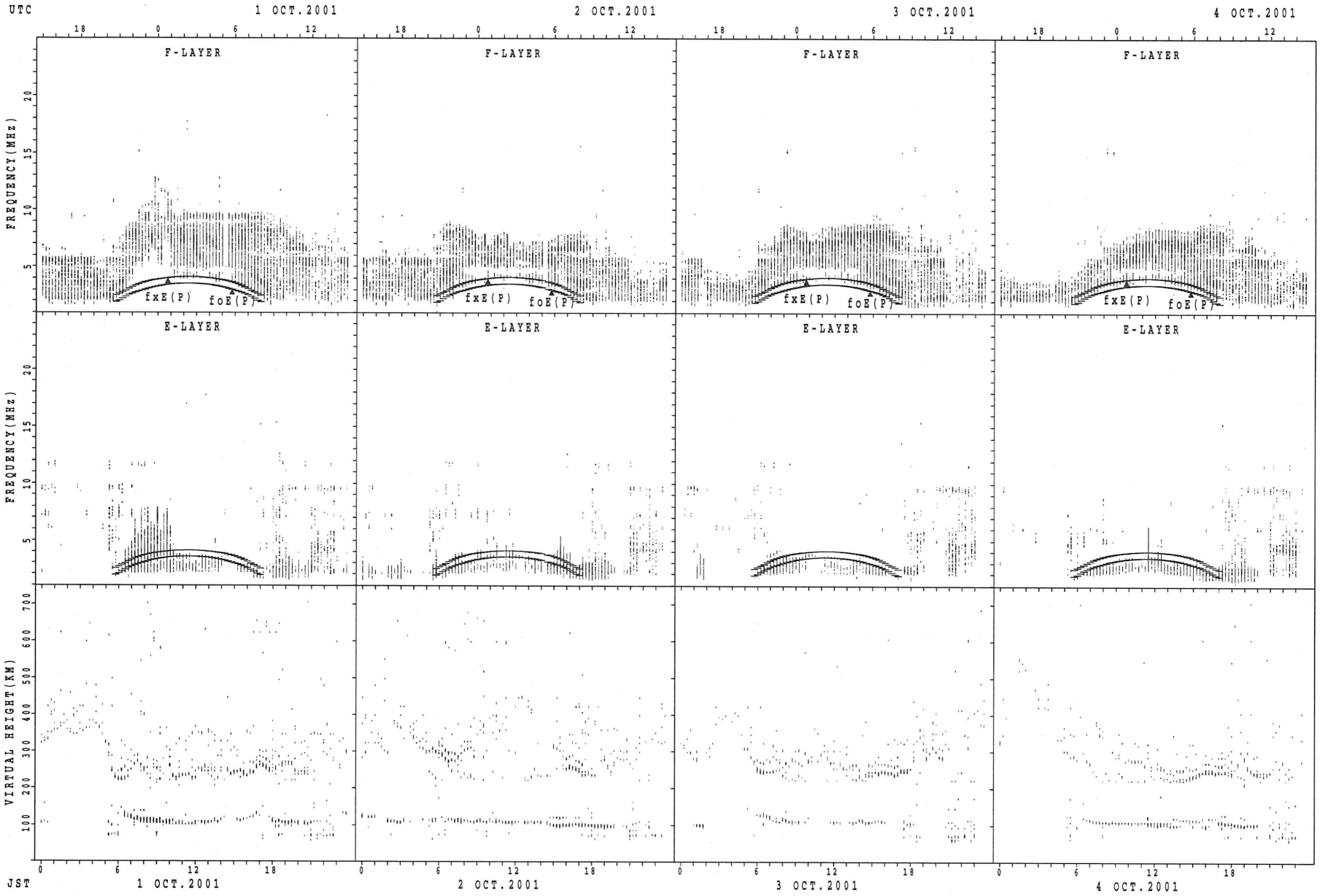
LAT. 35°42.4'N LON. 139°29.3'E SWEEP 1MHz TO 25MHz AUTOMATIC SCALING

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

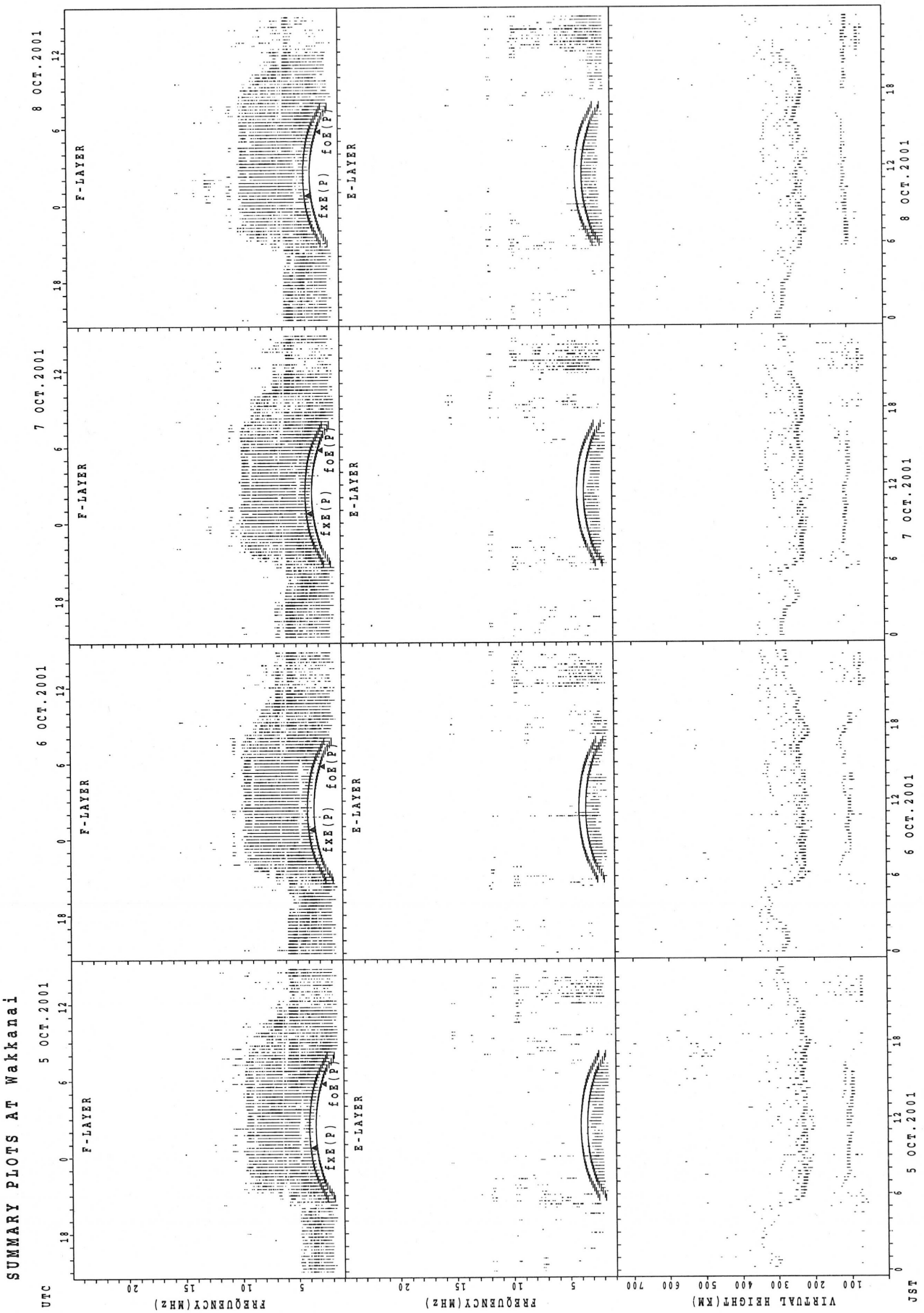
HOURLY VALUES

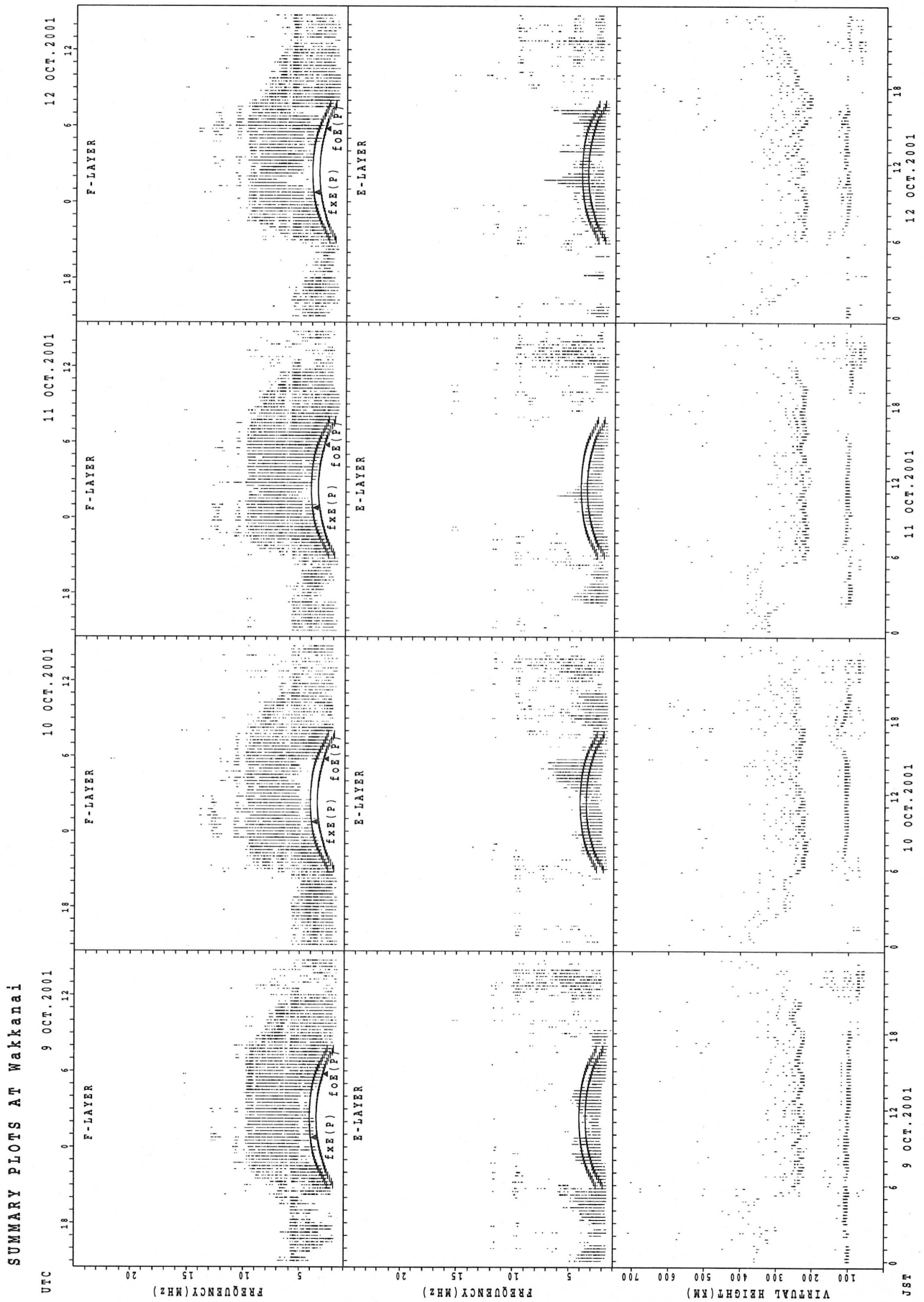
SCALED DATA for Yamagawa and Okinawa are not available under adjustment of the system.

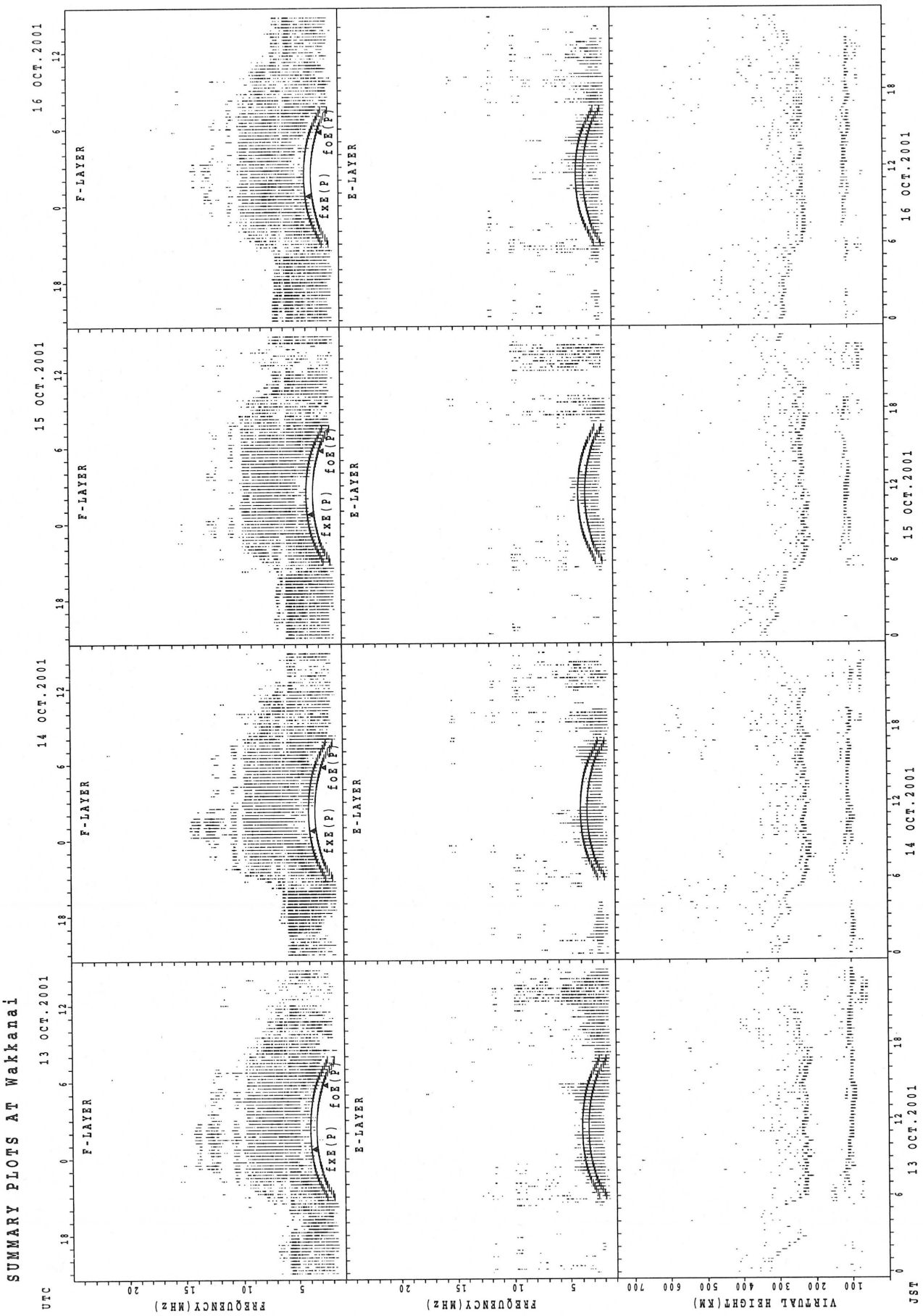
SUMMARY PLOTS AT Wakkanai



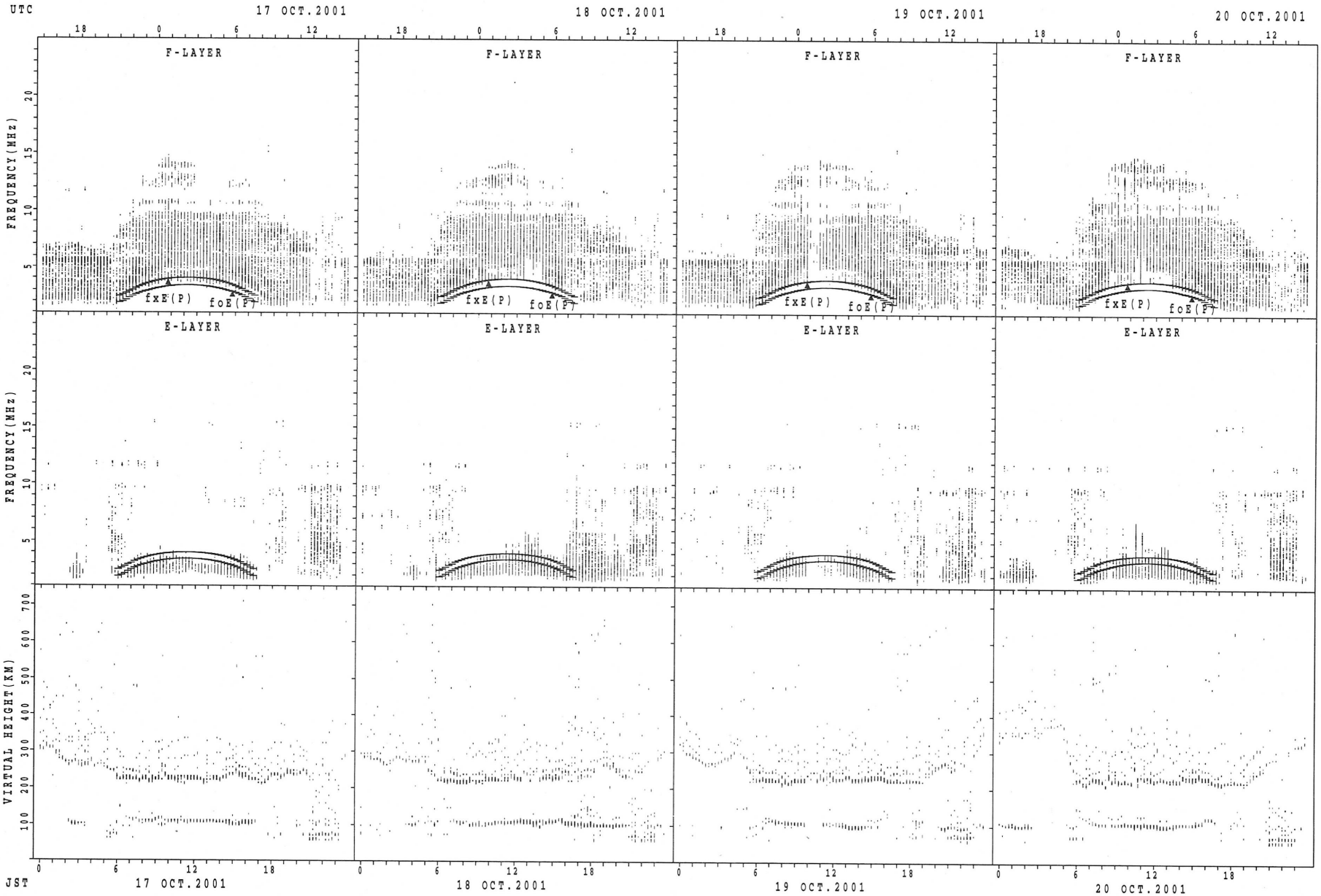
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE


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

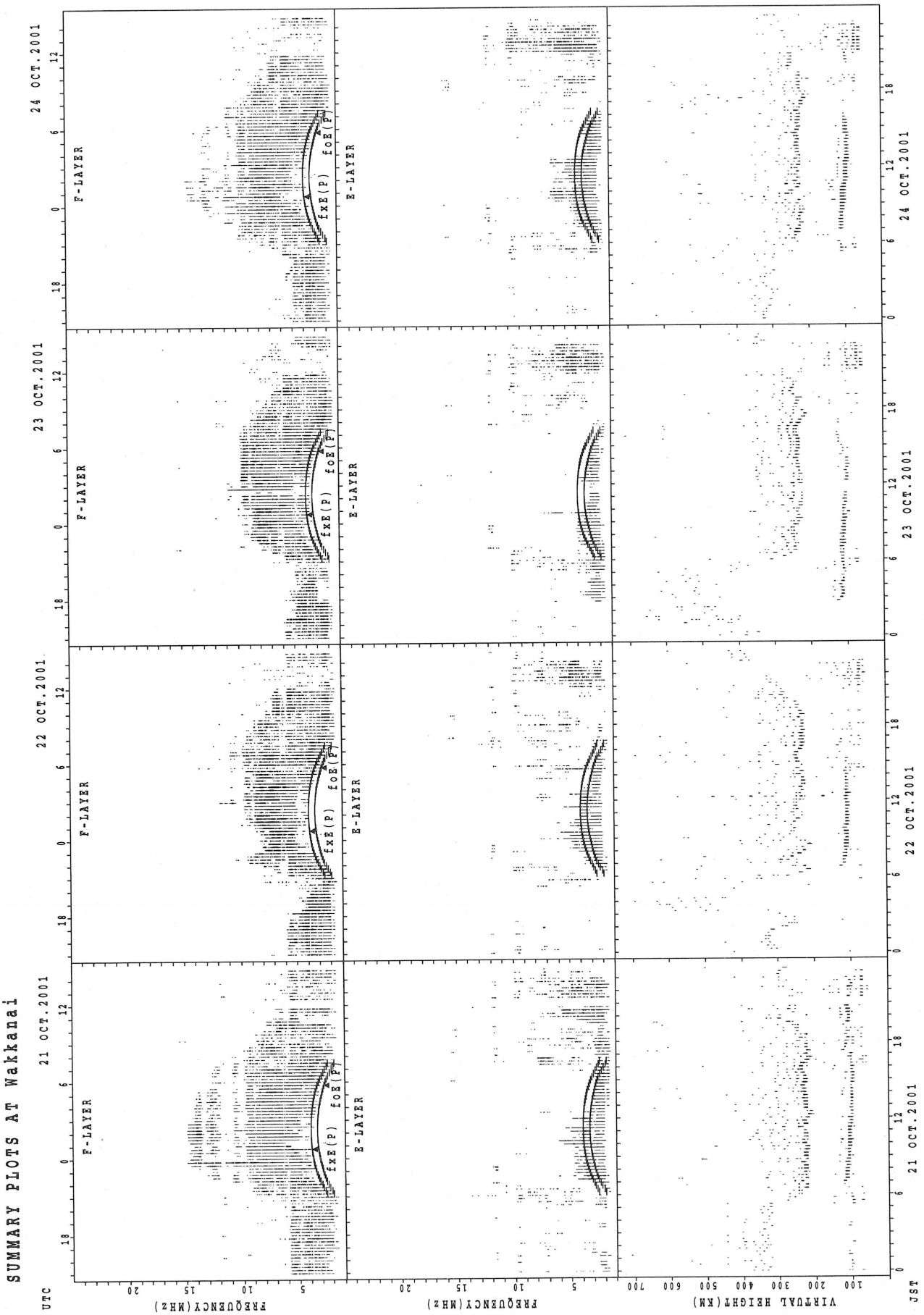

SUMMARY PLOTS AT Wakkanai
UTC
JST
9 OCT.2001
10 OCT.2001
11 OCT.2001
12 OCT.2001
F-LAYER
E-LAYER
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
fxE(P)
foE(P)
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE


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

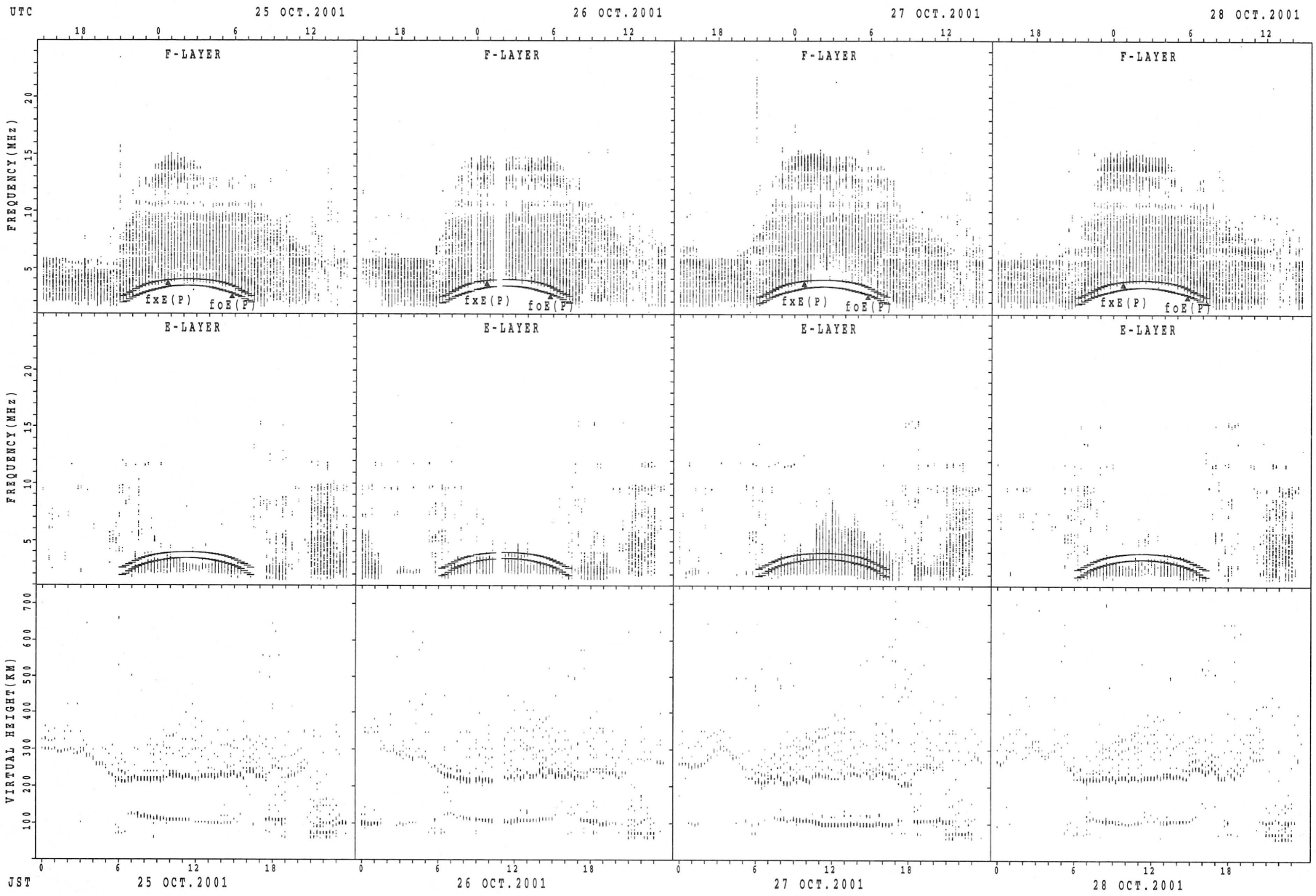
SUMMARY PLOTS AT Wakkanai



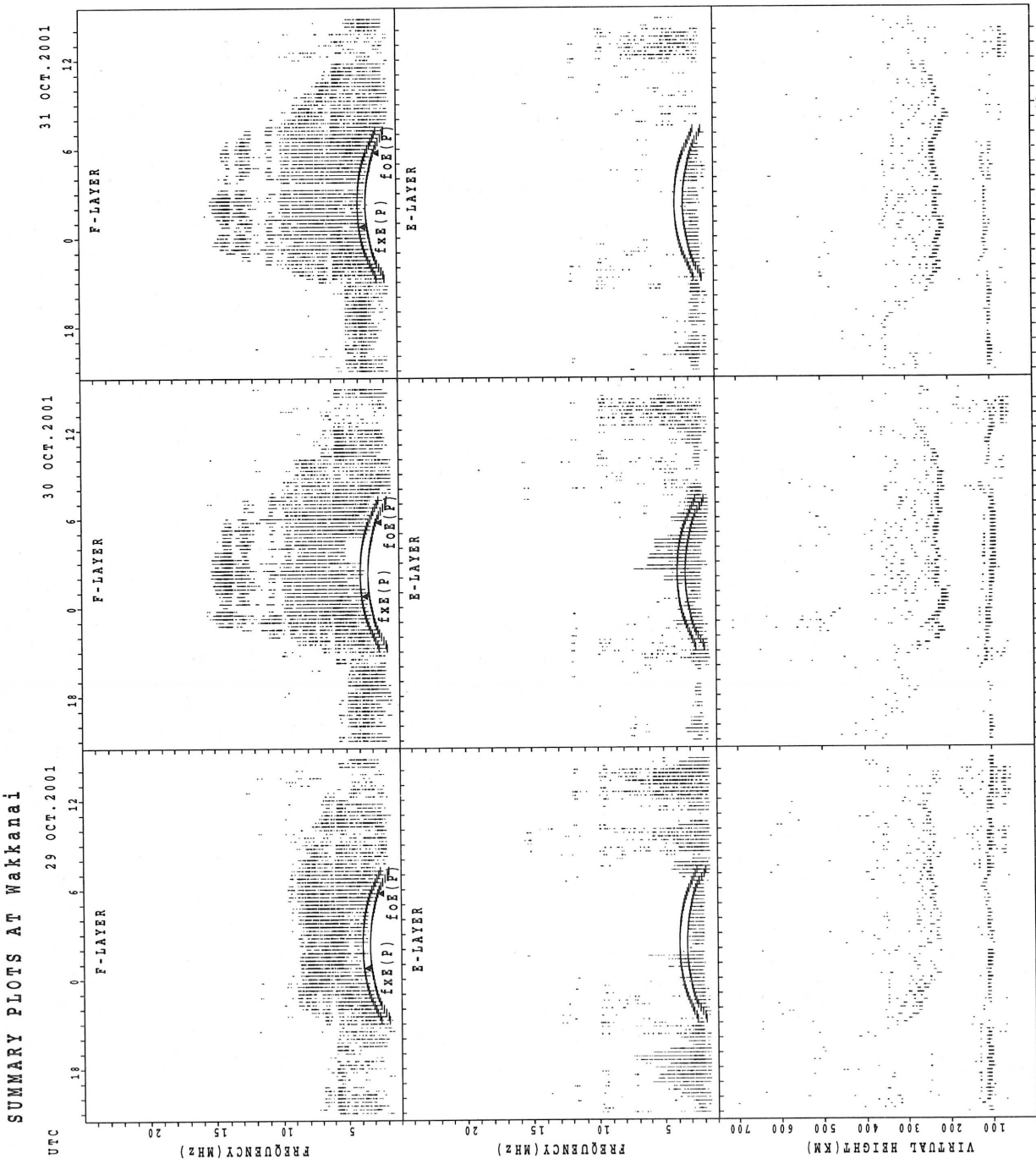
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

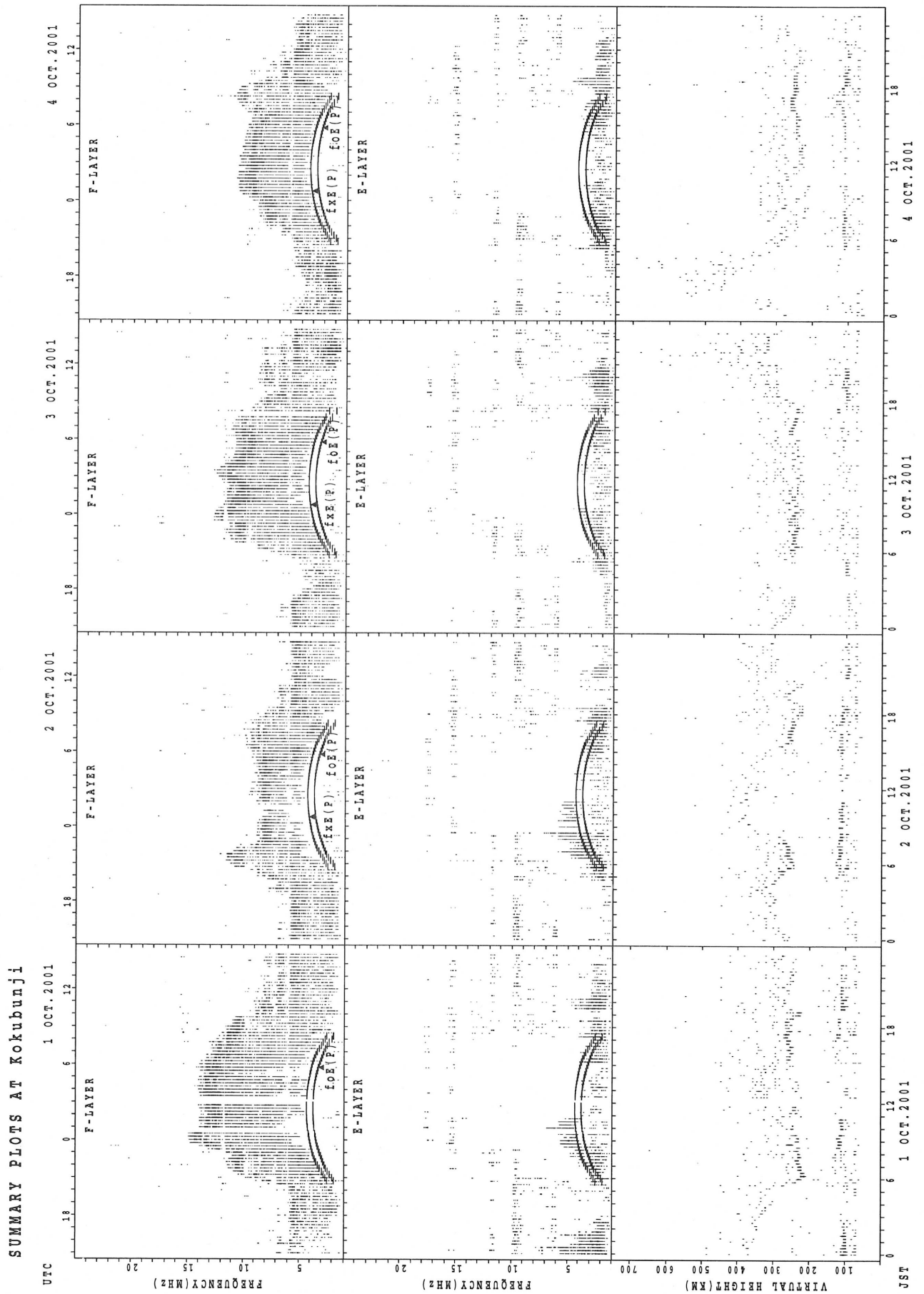

SUMMARY PLOTS AT Wakkanai
UTC
JST
21 OCT.2001
22 OCT.2001
23 OCT.2001
24 OCT.2001
F-LAYER
E-LAYER
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
fxE(P)
foE(P)
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

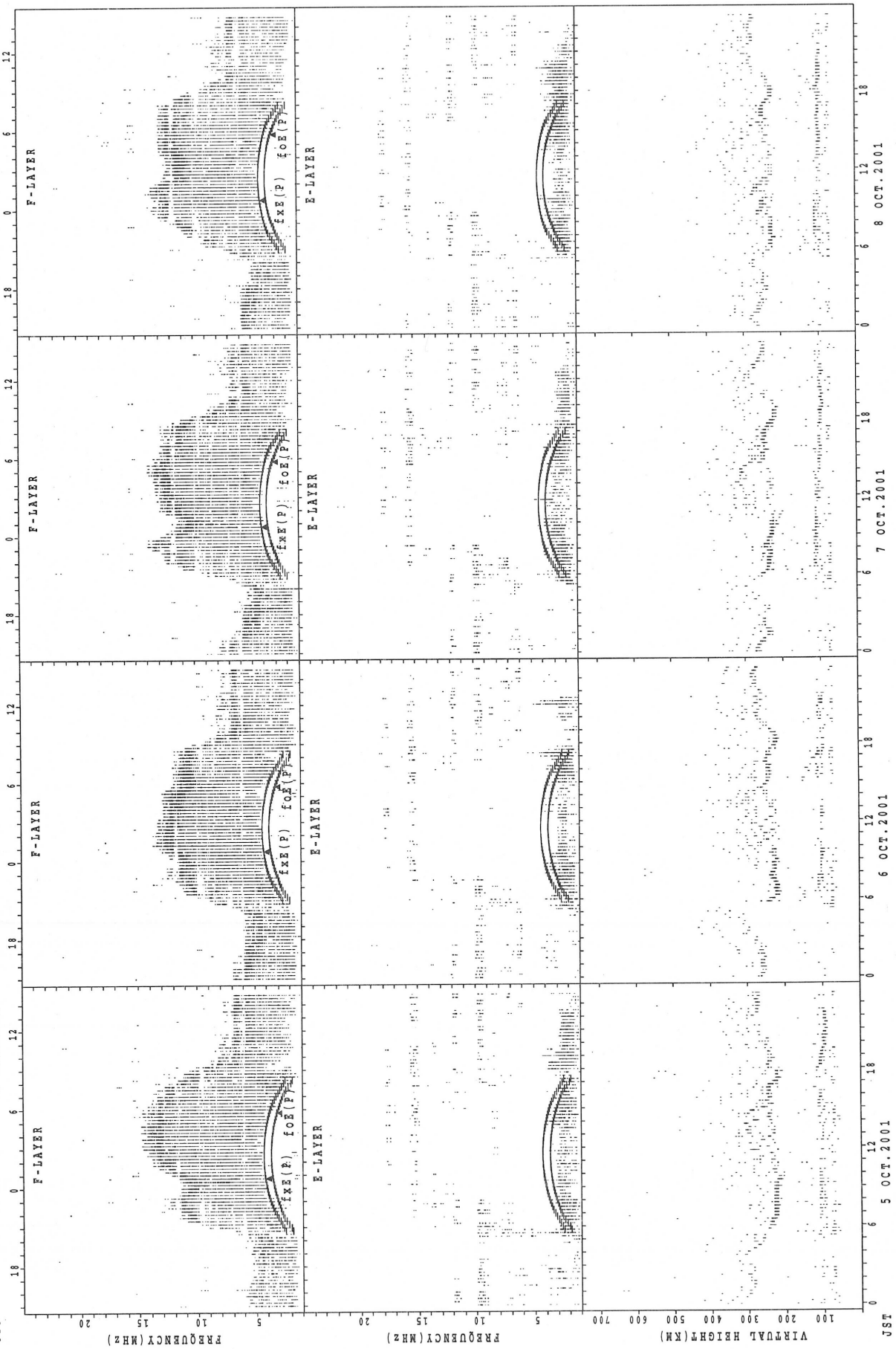
SUMMARY PLOTS AT Wakkanai



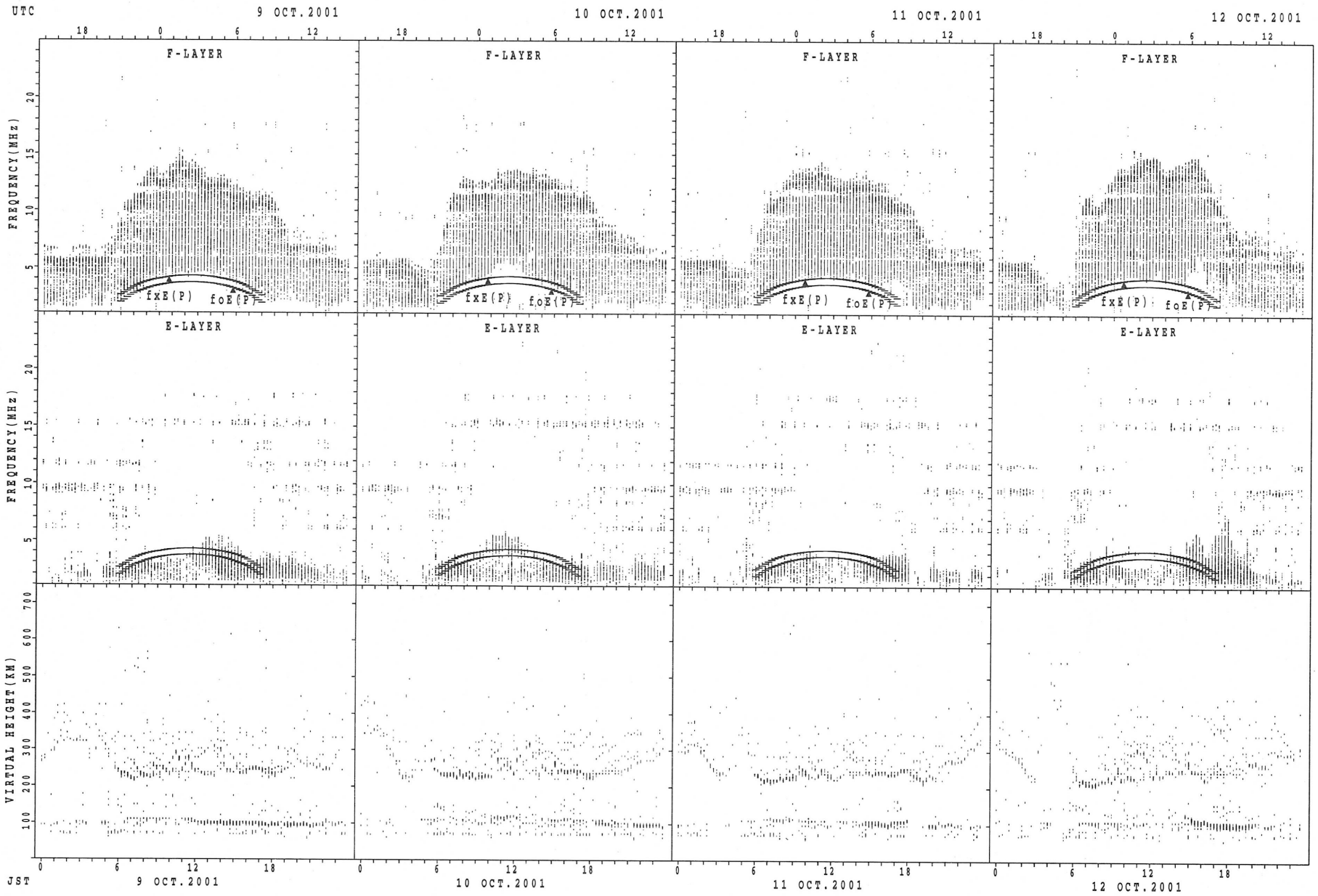
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE


SUMMARY PLOTS AT Wakkanai
29 OCT.2001
30 OCT.2001
31 OCT.2001
UTC
JST
F-LAYER
E-LAYER
fxE(P)
foE(P)
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

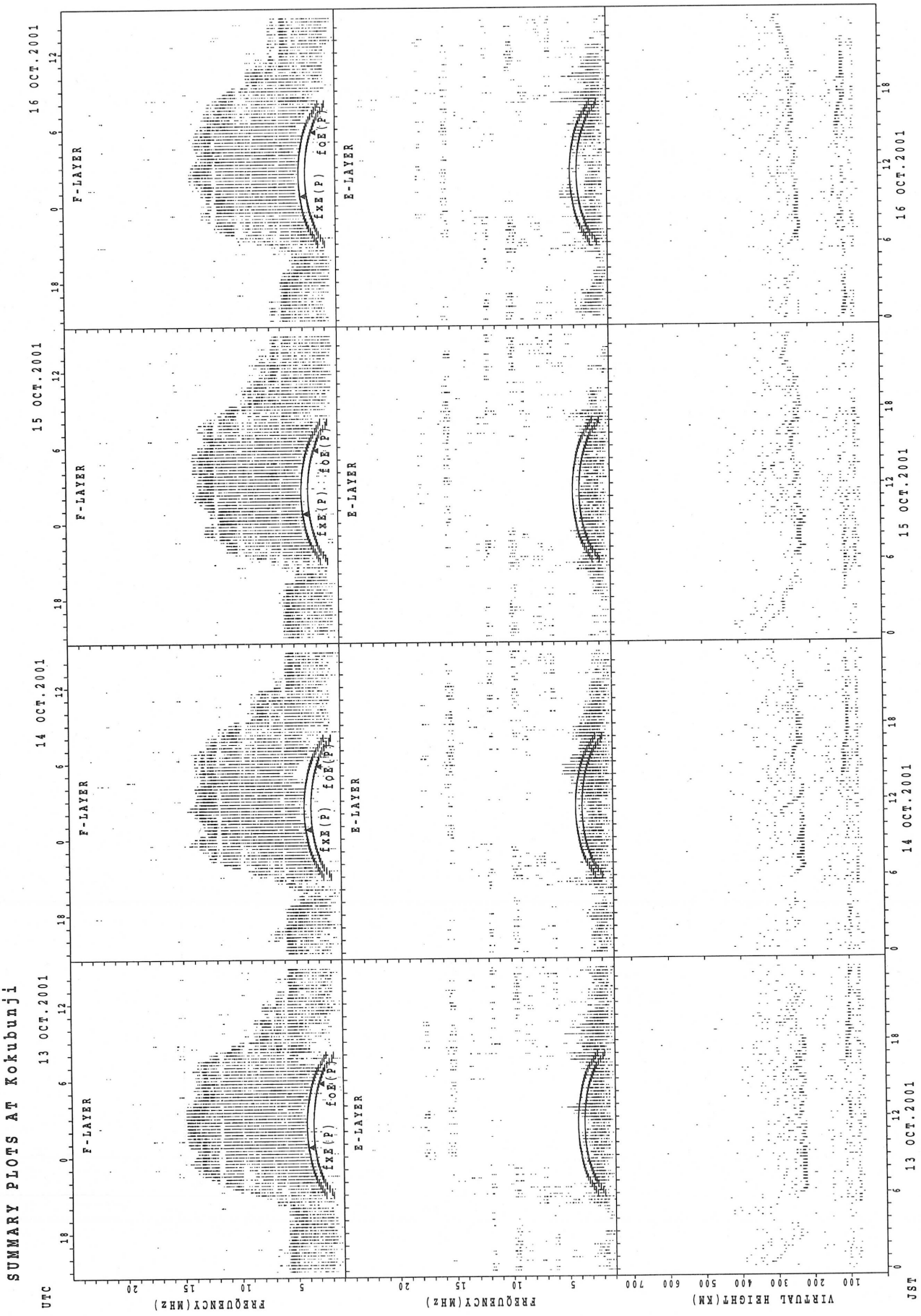

SUMMARY PLOTS AT Kokubunji
1 OCT.2001
2 OCT.2001
3 OCT.2001
4 OCT.2001
UTC
JST
F-LAYER
E-LAYER
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
fxE(P), foE(P)
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE


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

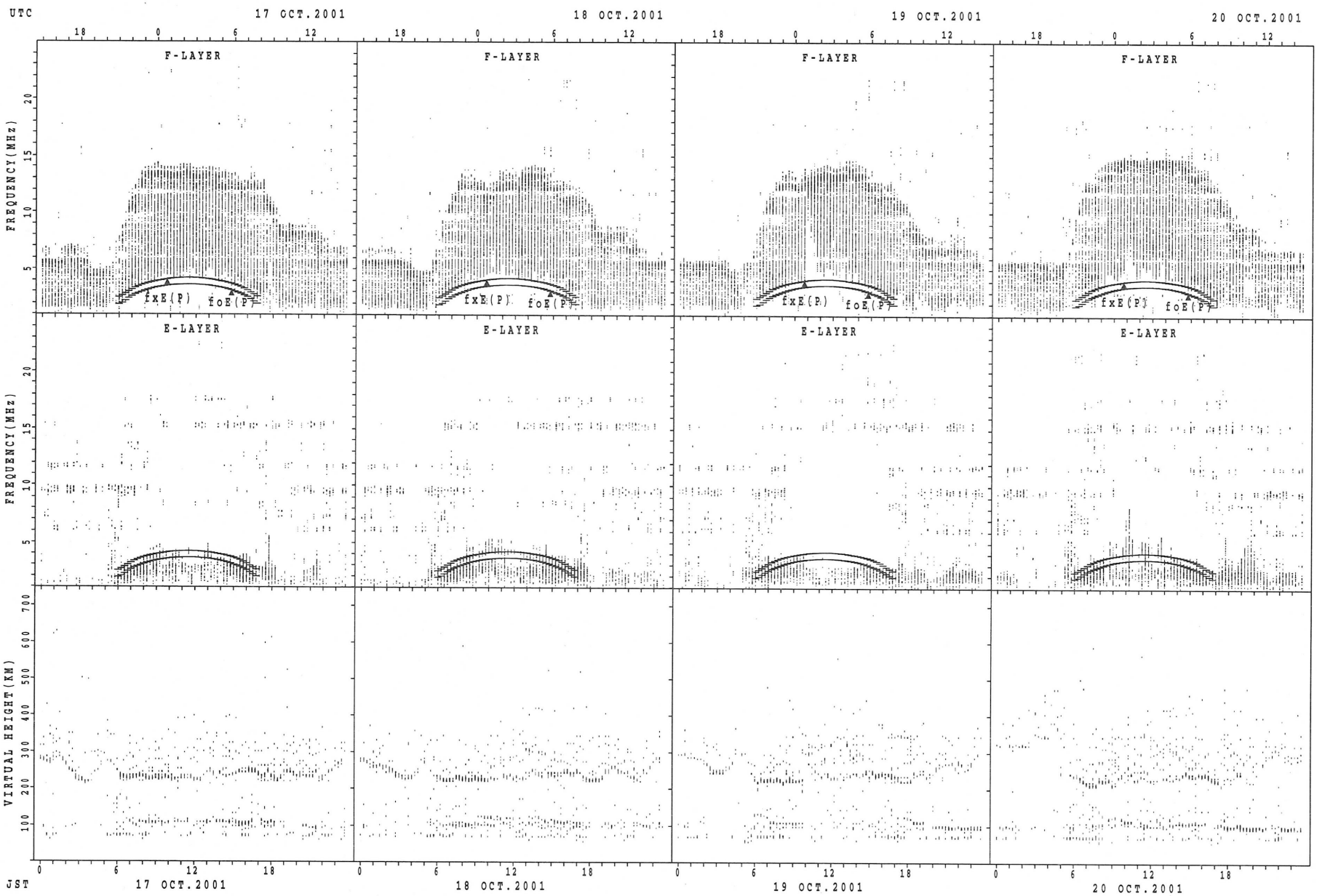
SUMMARY PLOTS AT Kokubunji



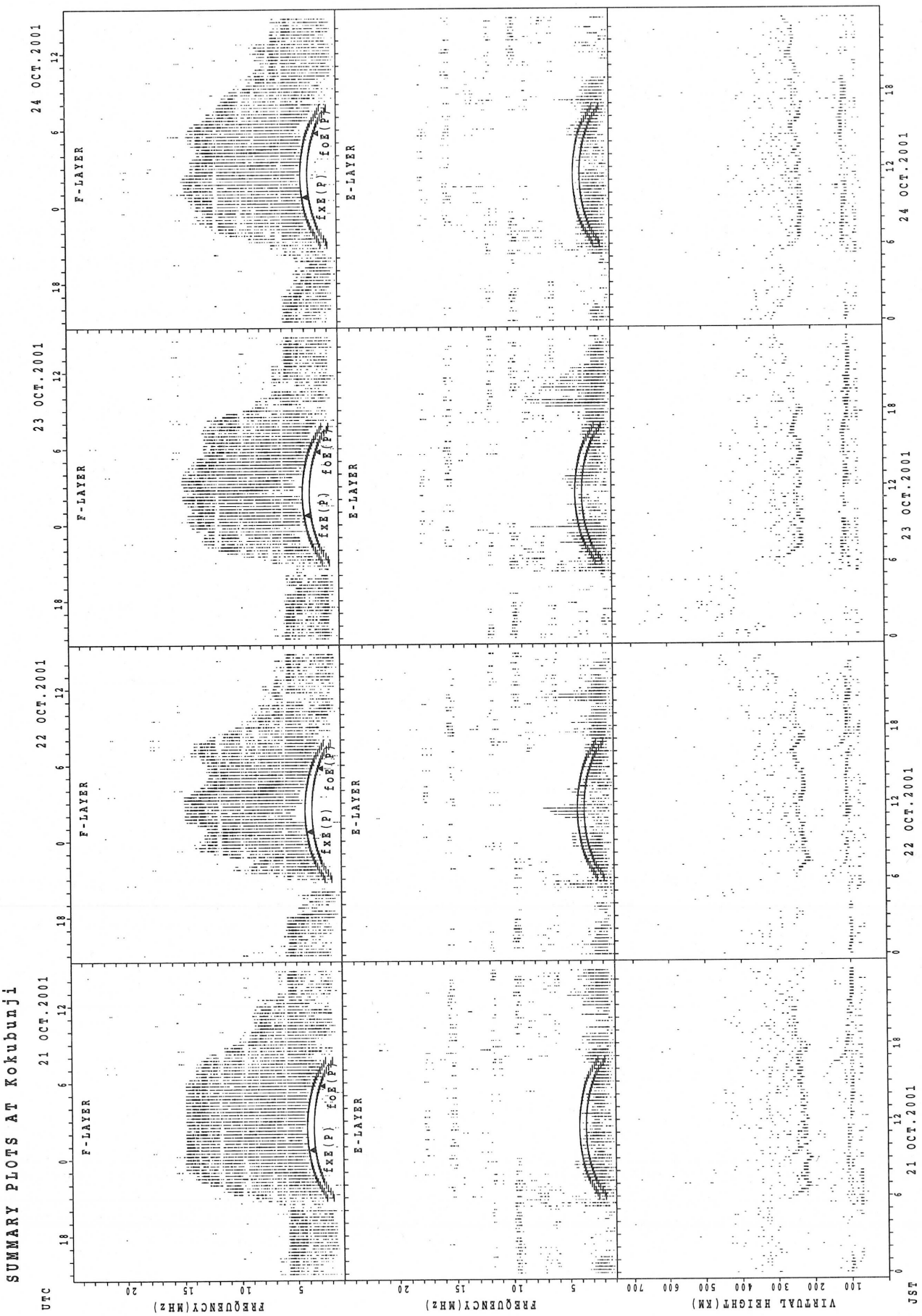
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

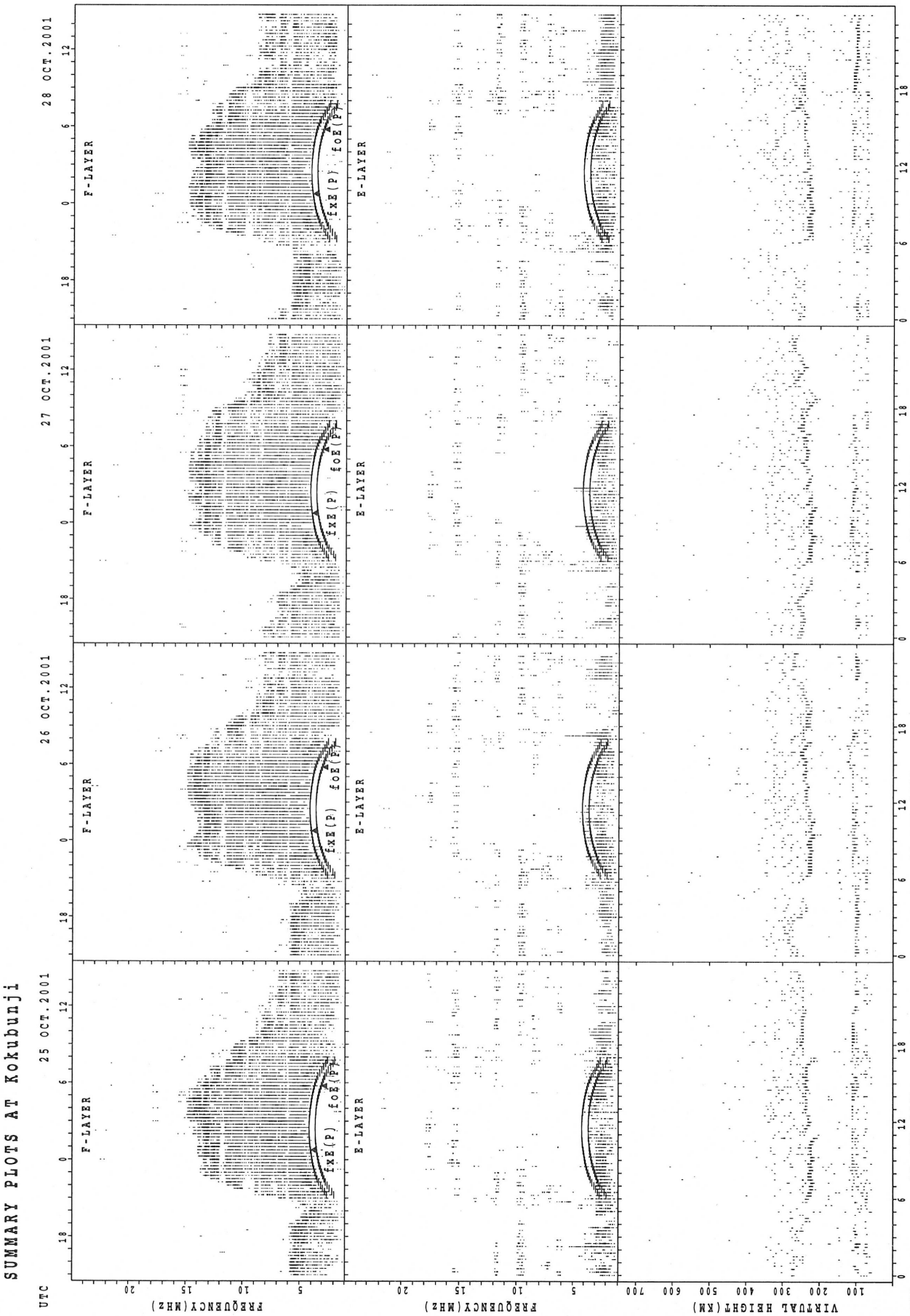

SUMMARY PLOTS AT Kokubunji
UTC
JST
13 OCT.2001
14 OCT.2001
15 OCT.2001
16 OCT.2001
F-LAYER
E-LAYER
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
fxE(P)
foE(P)
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

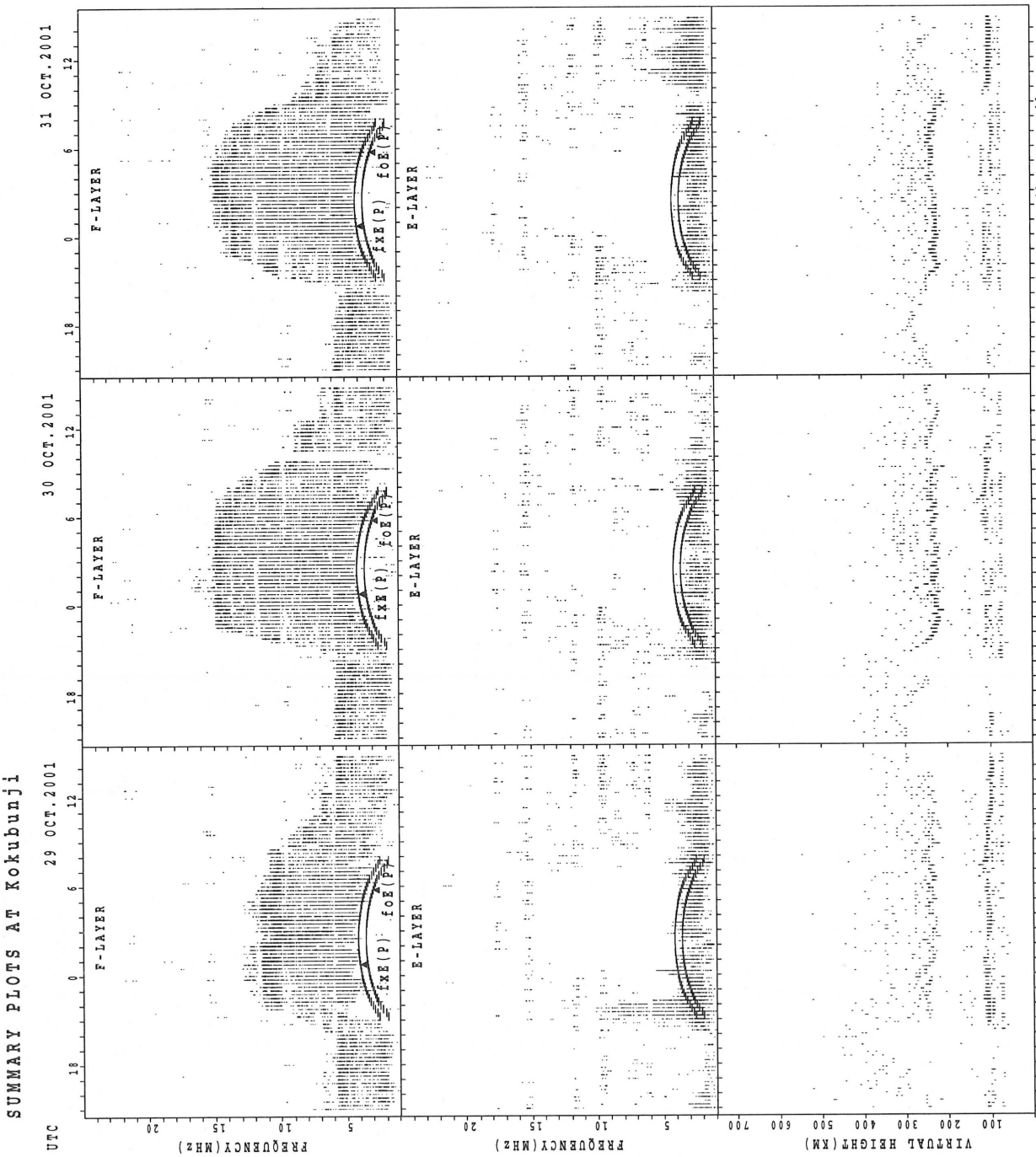
SUMMARY PLOTS AT Kokubunji



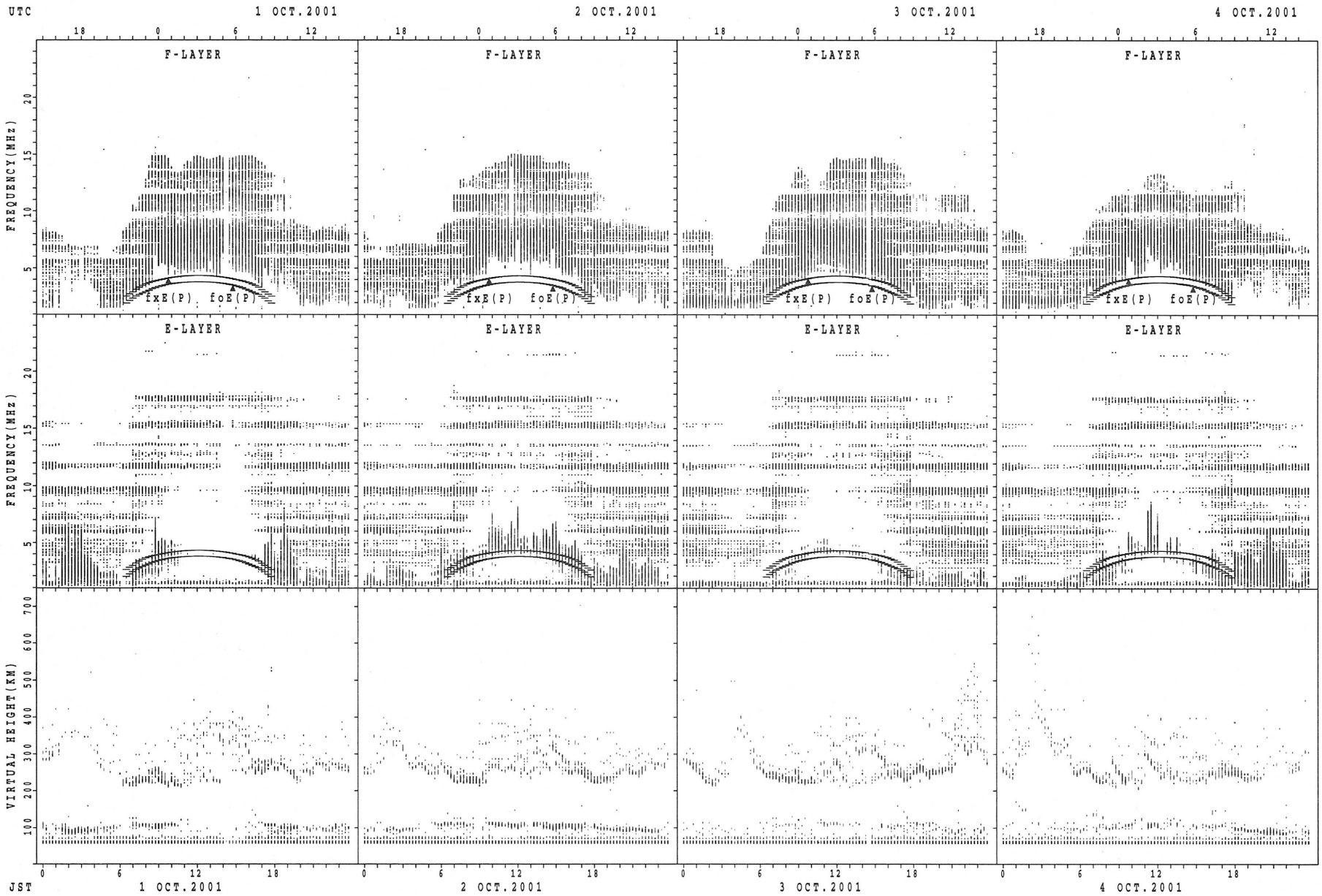
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE


SUMMARY PLOTS AT Kokubunji
UT
21 OCT.2001
22 OCT.2001
23 OCT.2001
24 OCT.2001
F-LAYER
E-LAYER
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
fxE(P)
foE(P)
JST
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

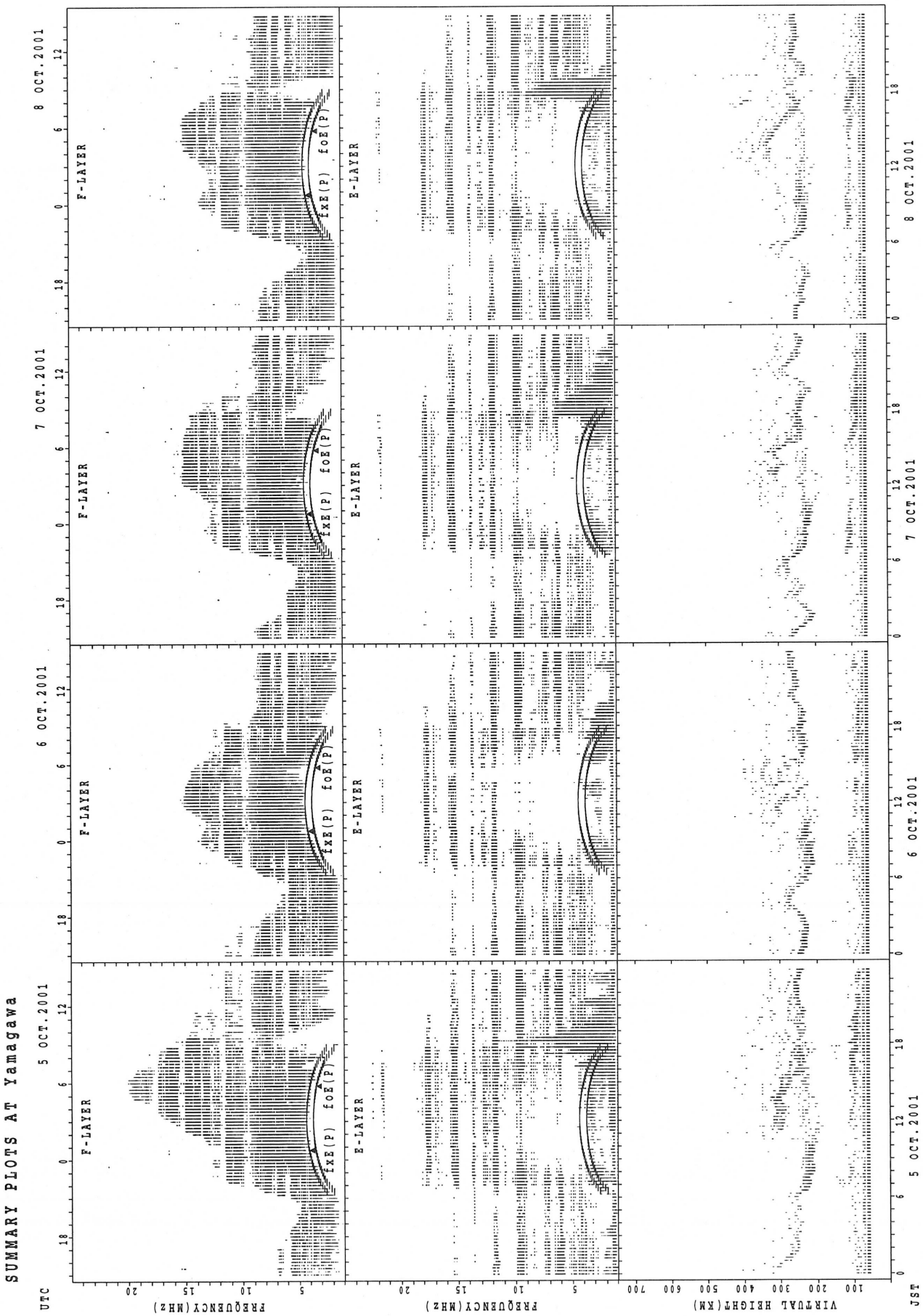

SUMMARY PLOTS AT Kokubunji
UTC
JST
25 OCT.2001
26 OCT.2001
27 OCT.2001
28 OCT.2001
F-LAYER
E-LAYER
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
fxE(P)
foE(P)
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE


SUMMARY PLOTS AT Kokubunji
UTC
JST
29 OCT.2001
30 OCT.2001
31 OCT.2001
F-LAYER
E-LAYER
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
fxE(P)
foE(P)
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

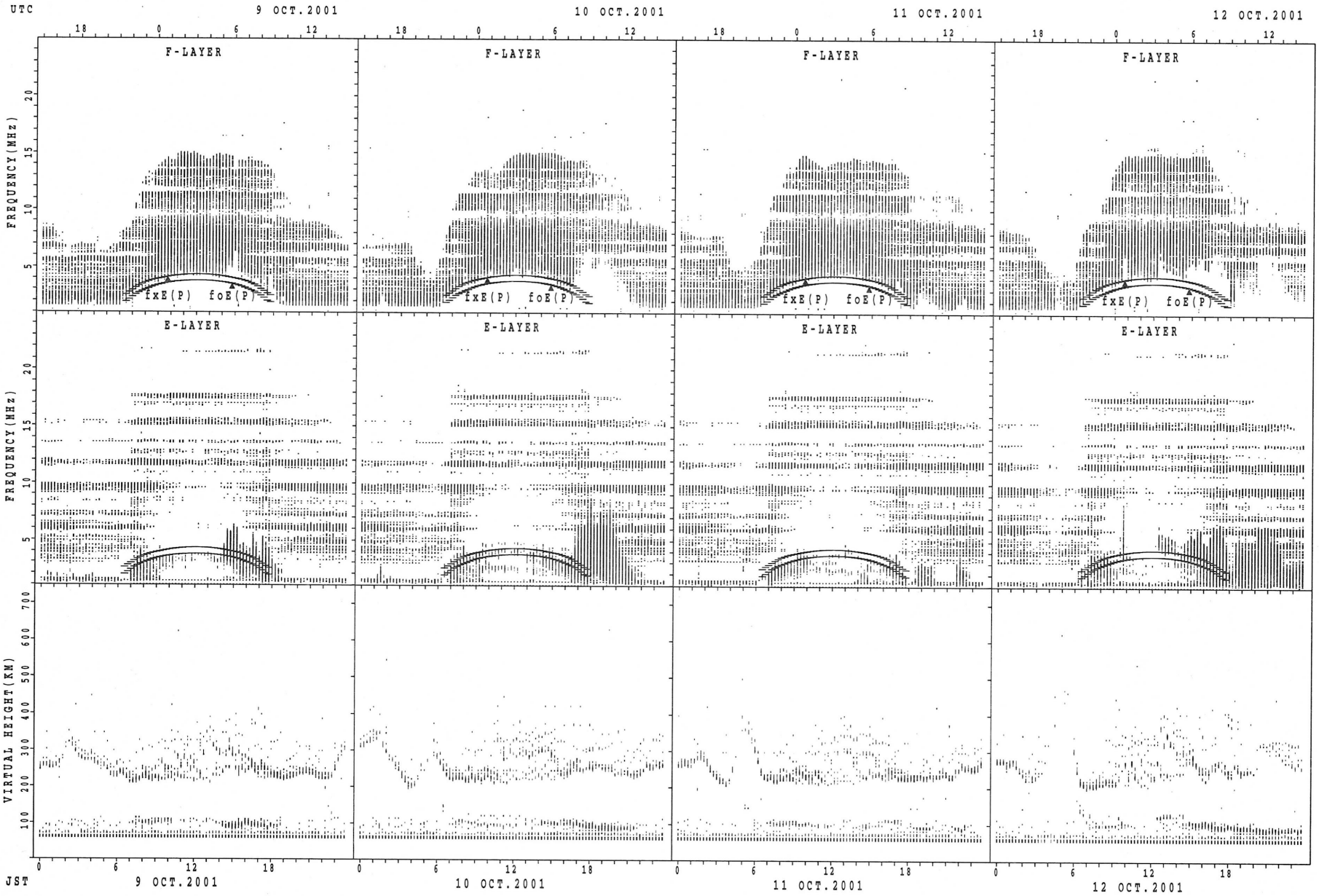
SUMMARY PLOTS AT Yamagawa



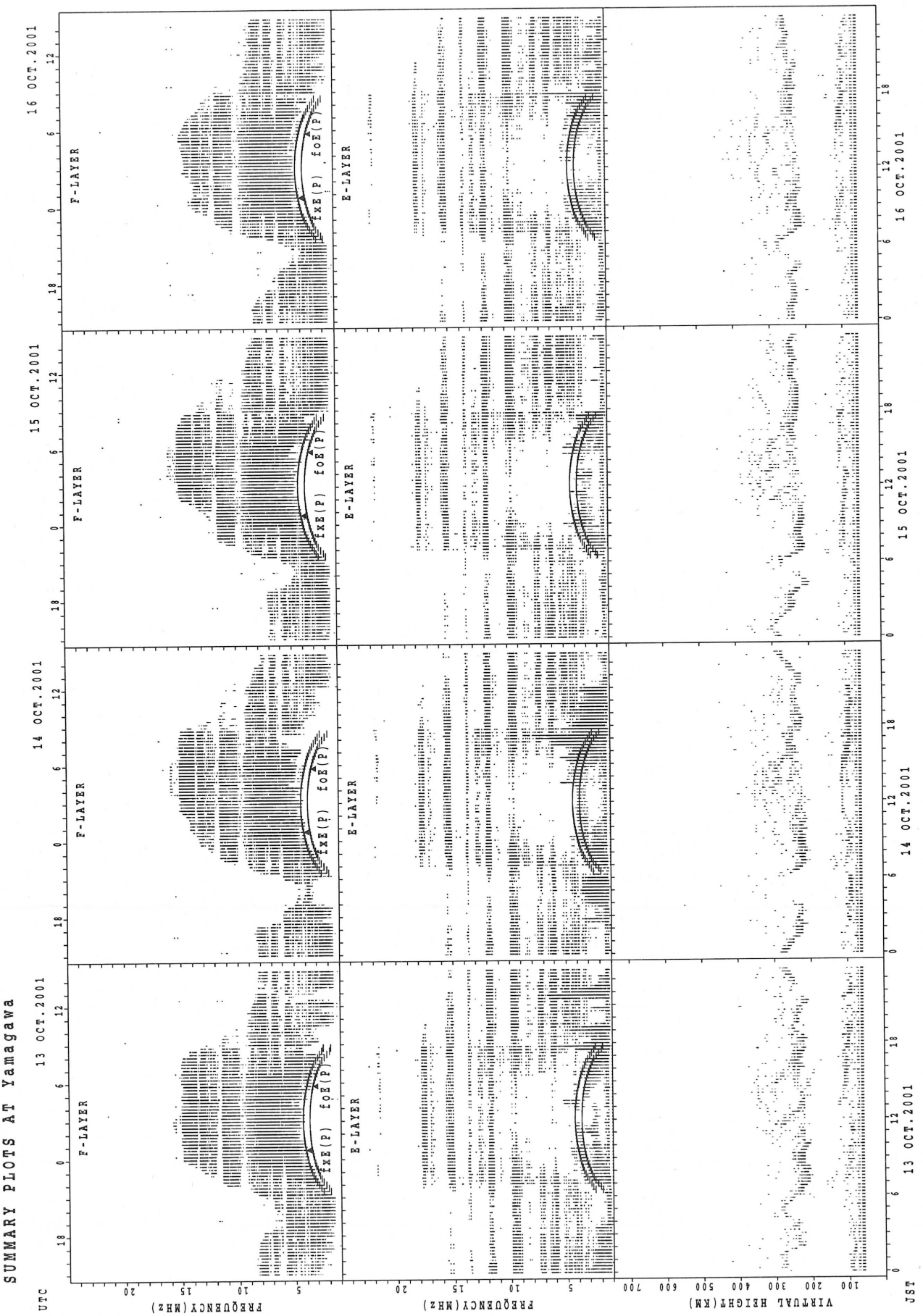
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

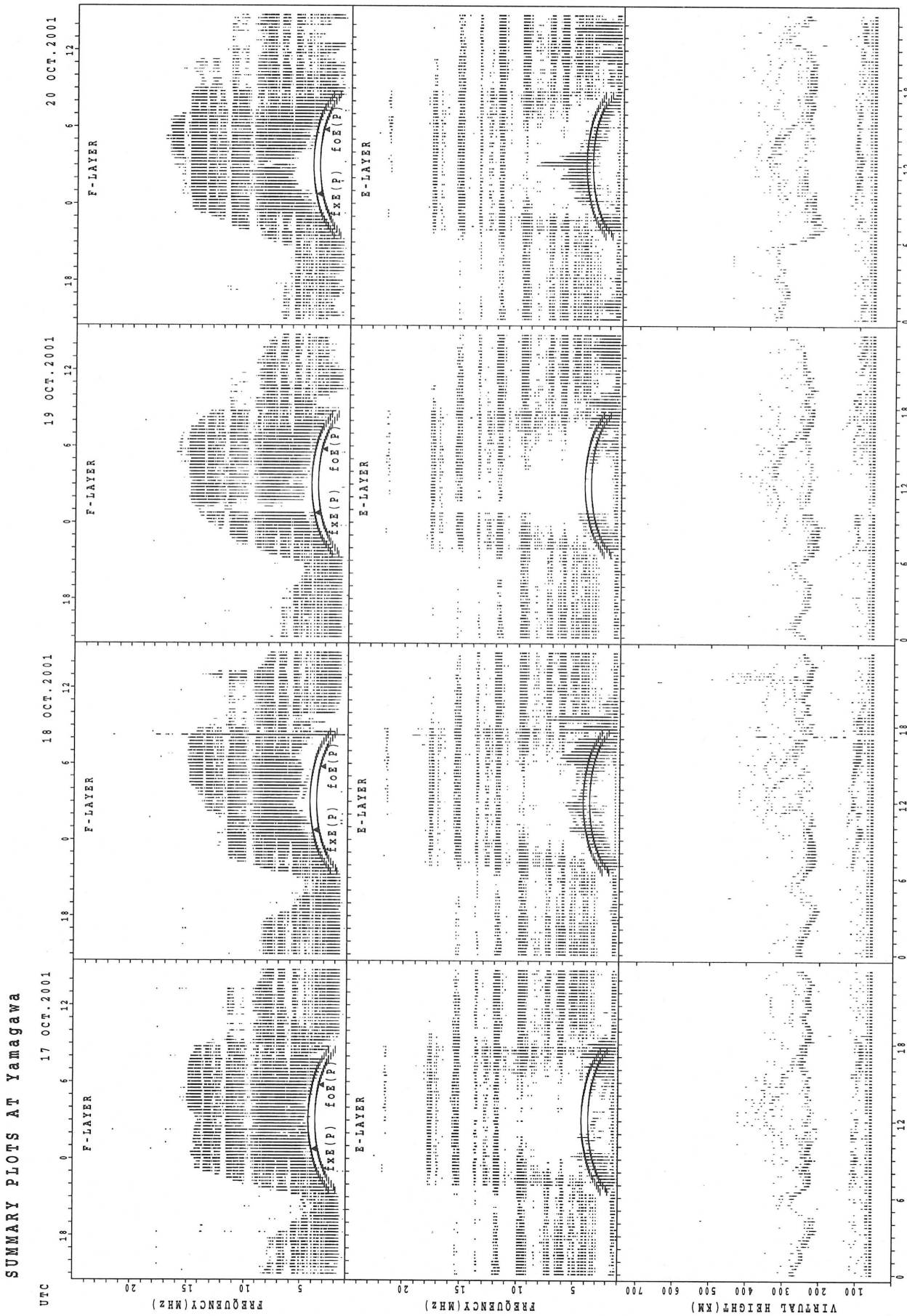

SUMMARY PLOTS AT Yamagawa
UTC
JST
5 OCT.2001
6 OCT.2001
7 OCT.2001
8 OCT.2001
F-LAYER
E-LAYER
fxE(P) foE(P)
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

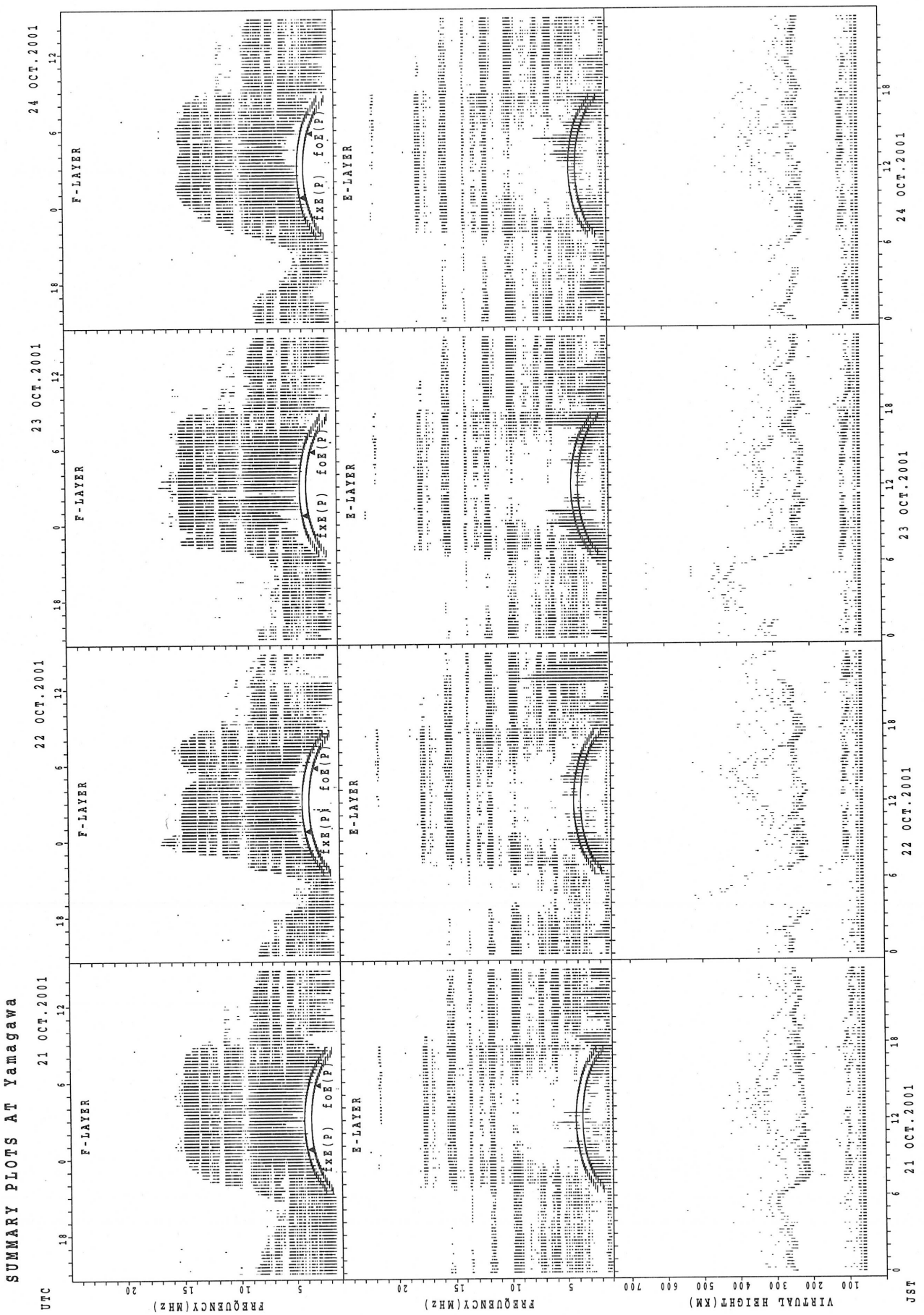
SUMMARY PLOTS AT Yamagawa



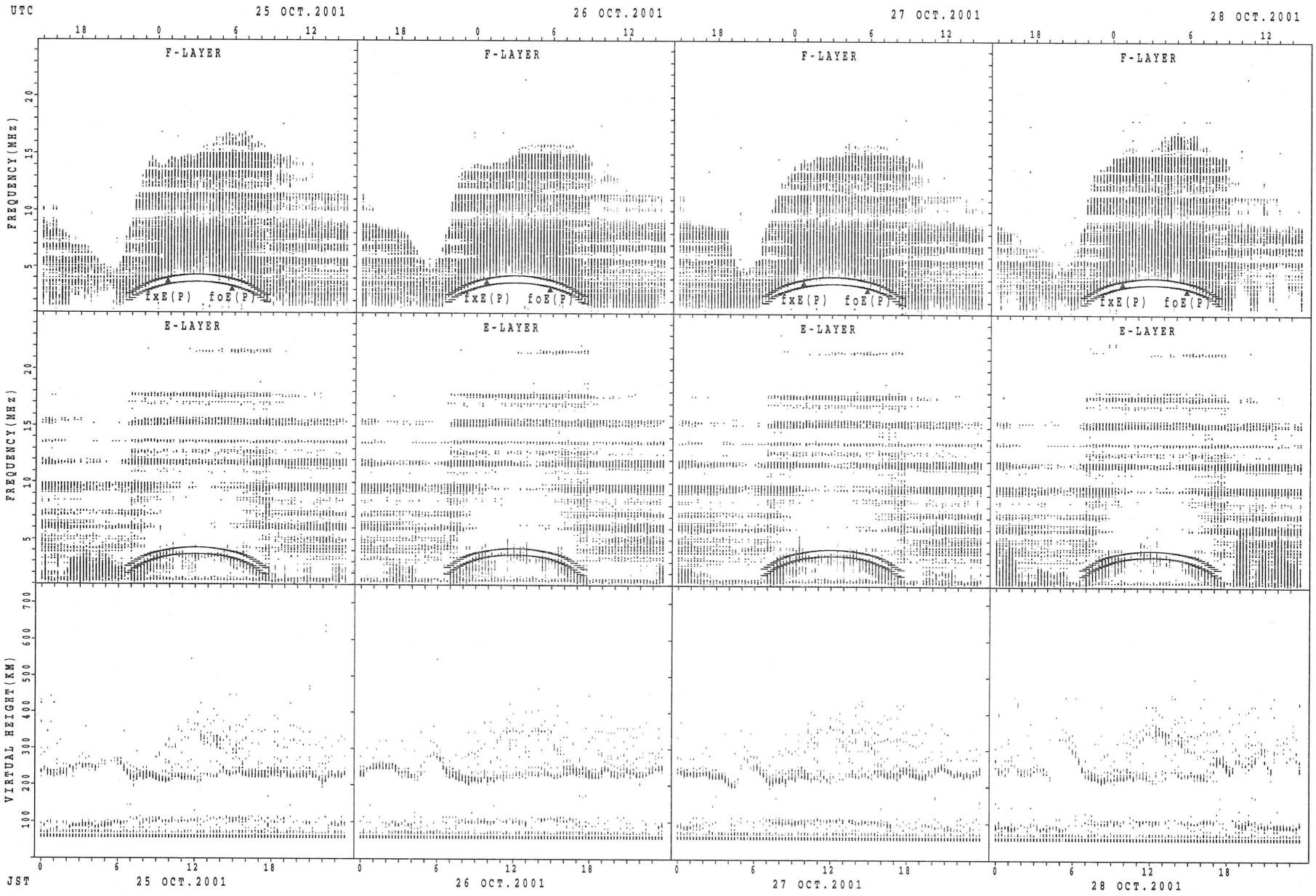
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE


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

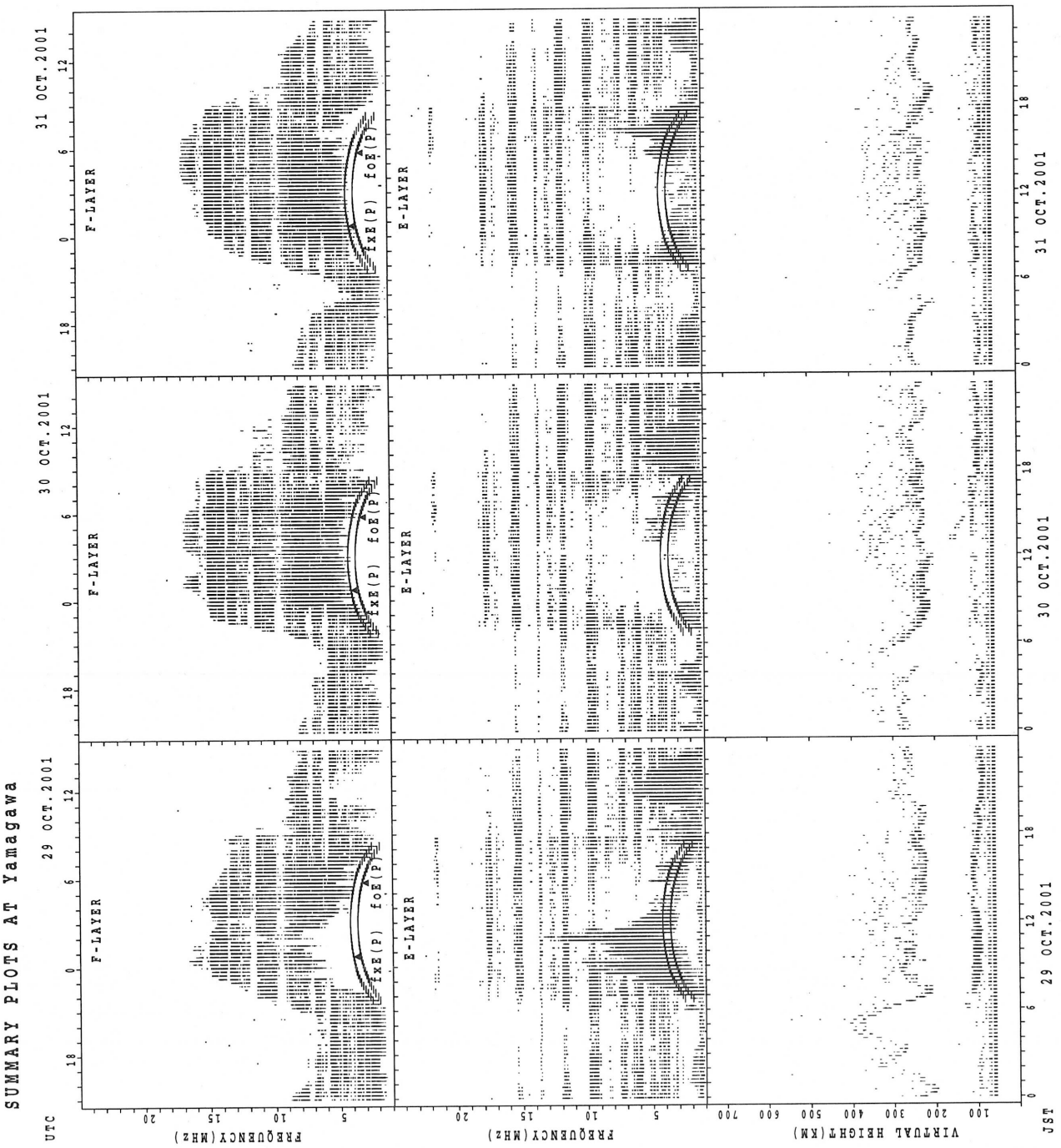

SUMMARY PLOTS AT Yamagawa
UTC
JST
17 OCT.2001
18 OCT.2001
19 OCT.2001
20 OCT.2001
F-LAYER
E-LAYER
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
fxE(P)
foE(P)
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE


SUMMARY PLOTS AT Yamagawa
UTC
JST
21 OCT.2001
22 OCT.2001
23 OCT.2001
24 OCT.2001
F-LAYER
E-LAYER
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
fxE(P)
foE(P)
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

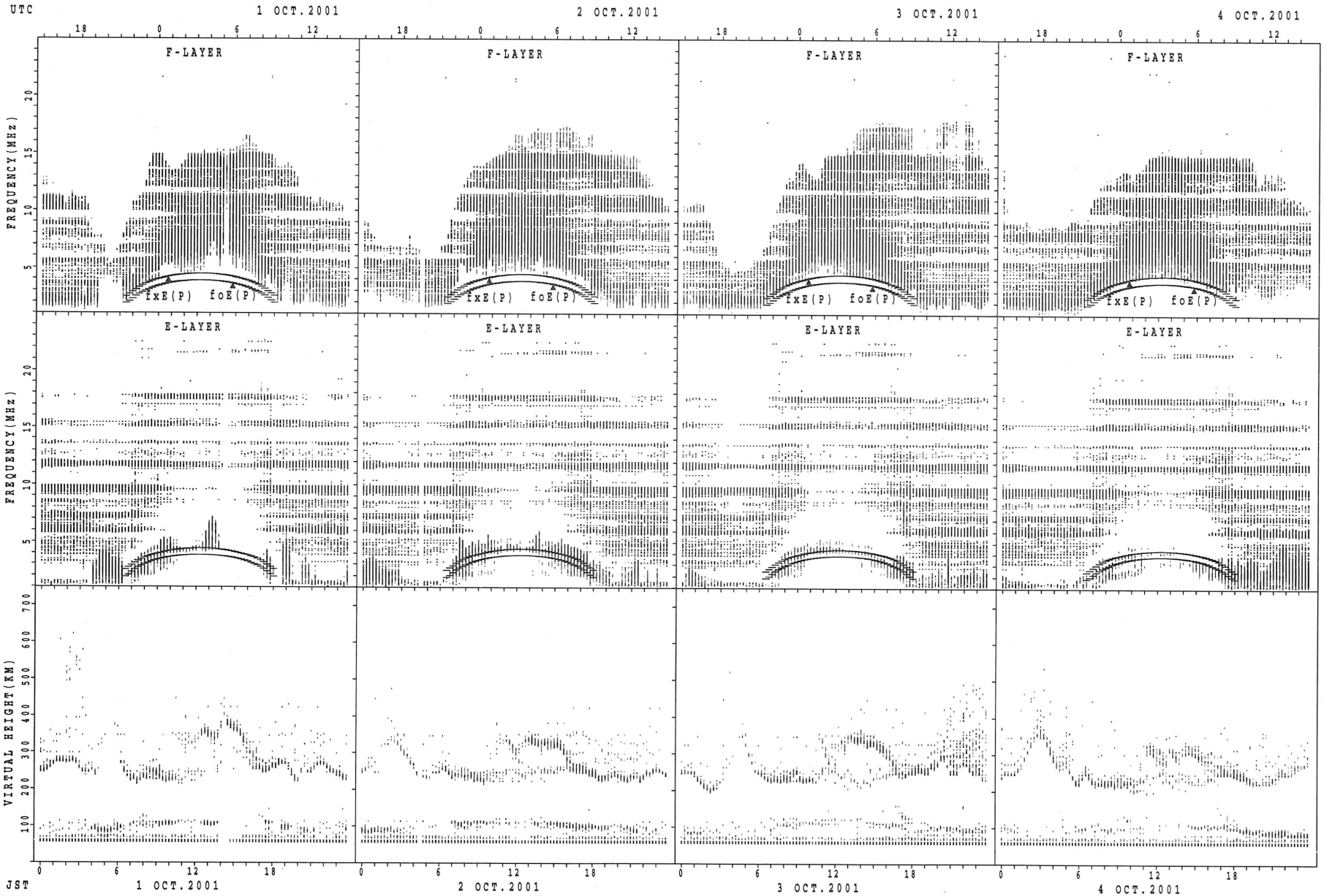
SUMMARY PLOTS AT Yamagawa



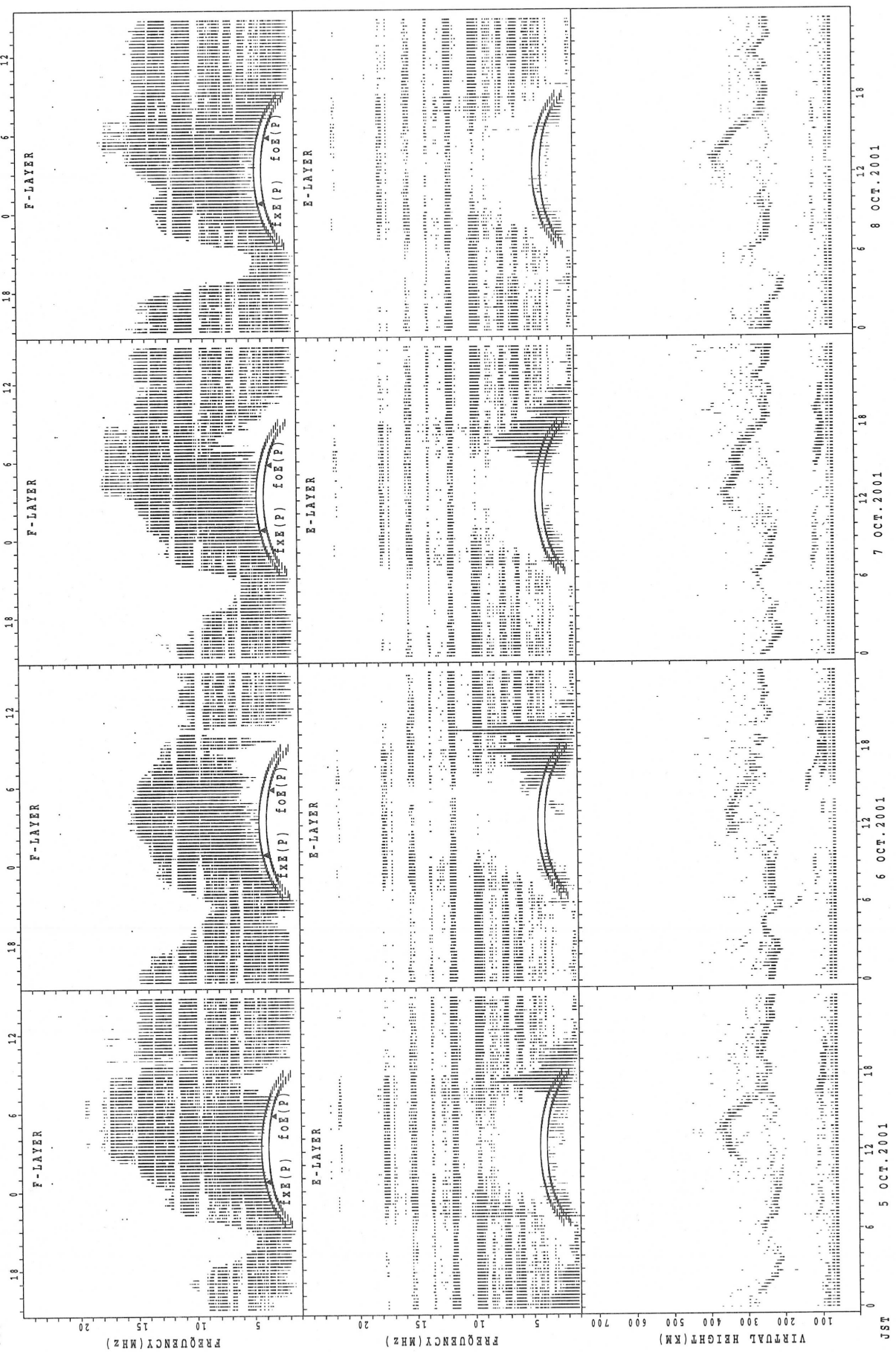
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE


SUMMARY PLOTS AT Yamagawa
UTC
29 OCT.2001
30 OCT.2001
31 OCT.2001
F-LAYER
E-LAYER
fxE(P) foE(P)
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
JST
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

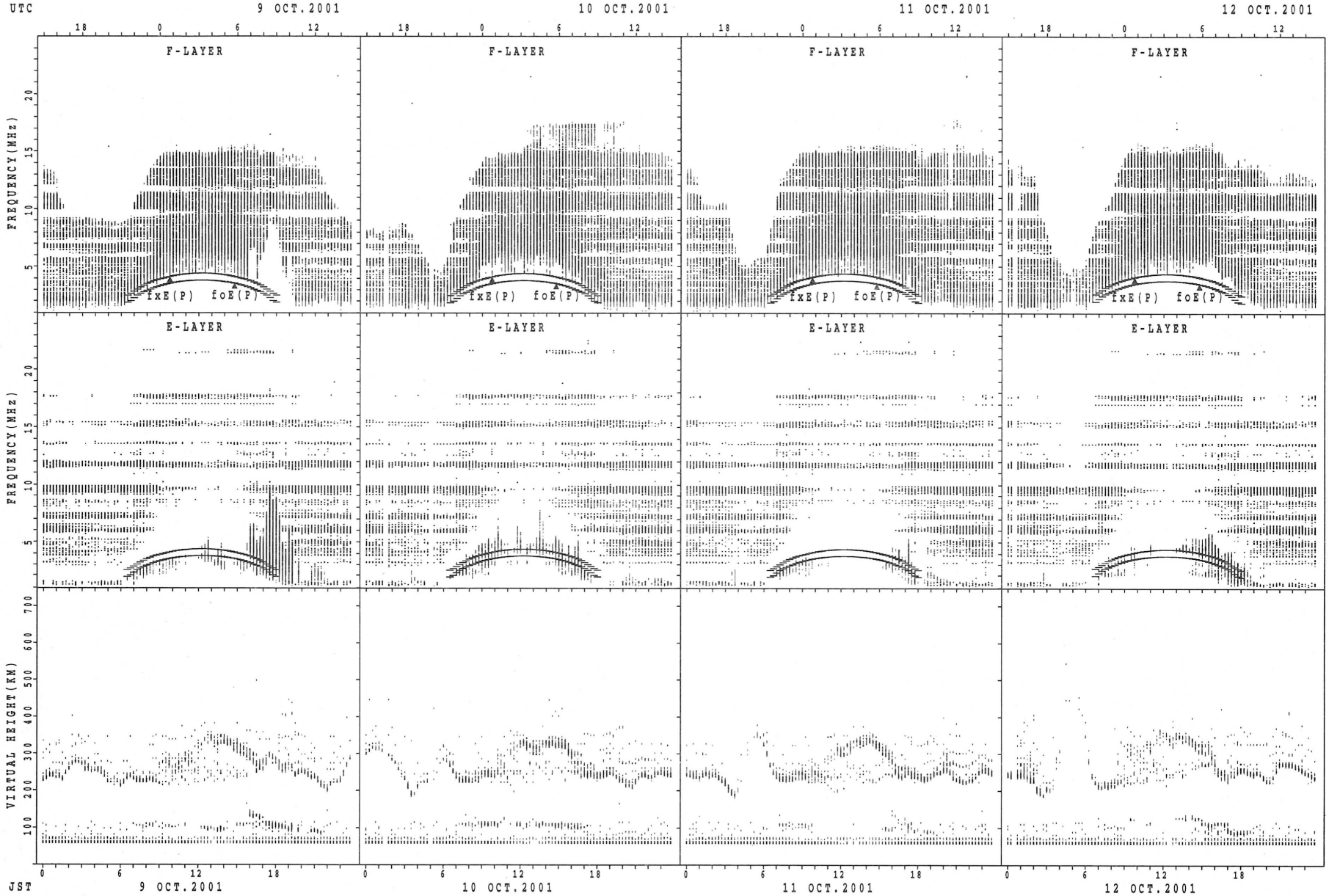
SUMMARY PLOTS AT Okinawa



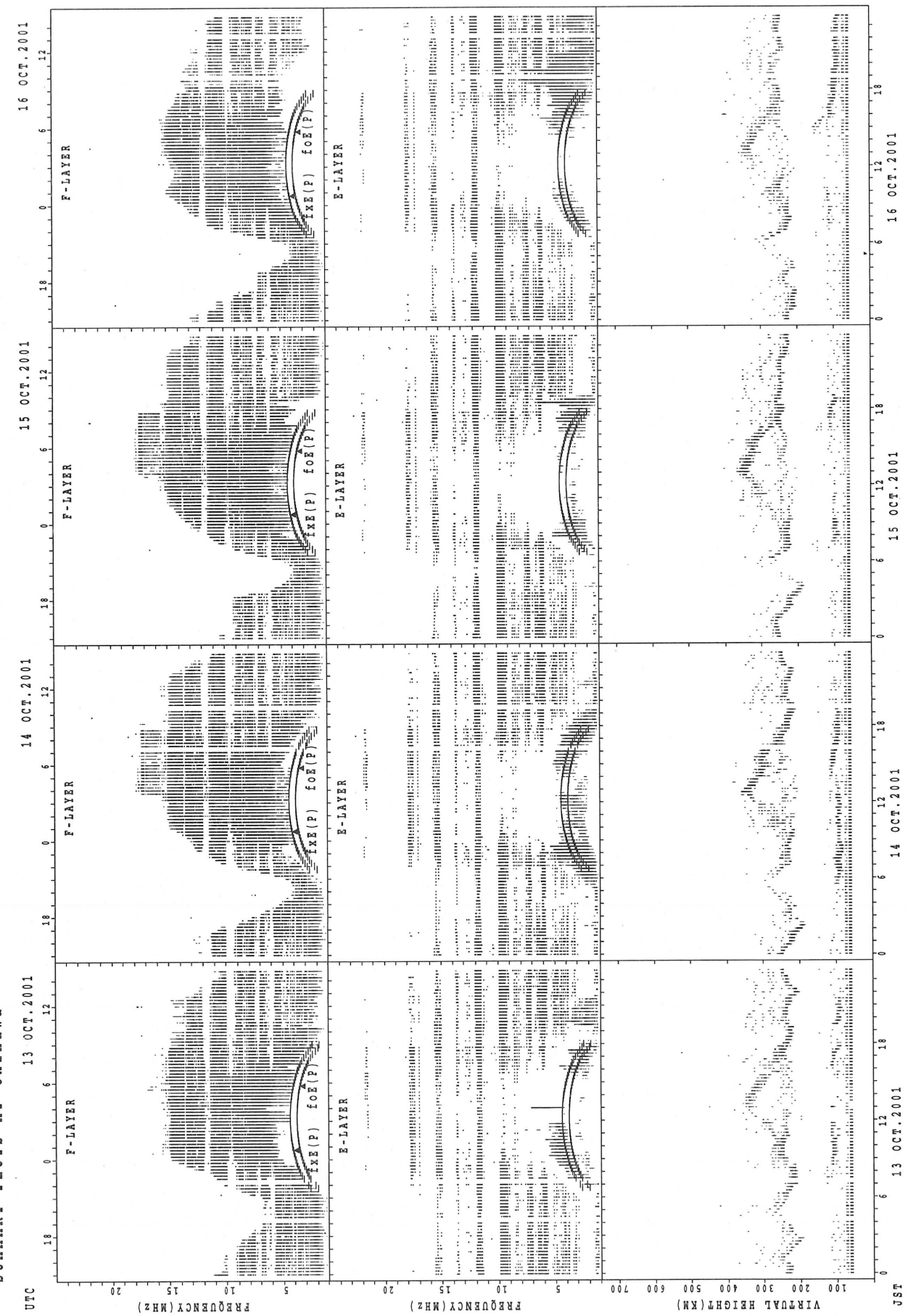
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE


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

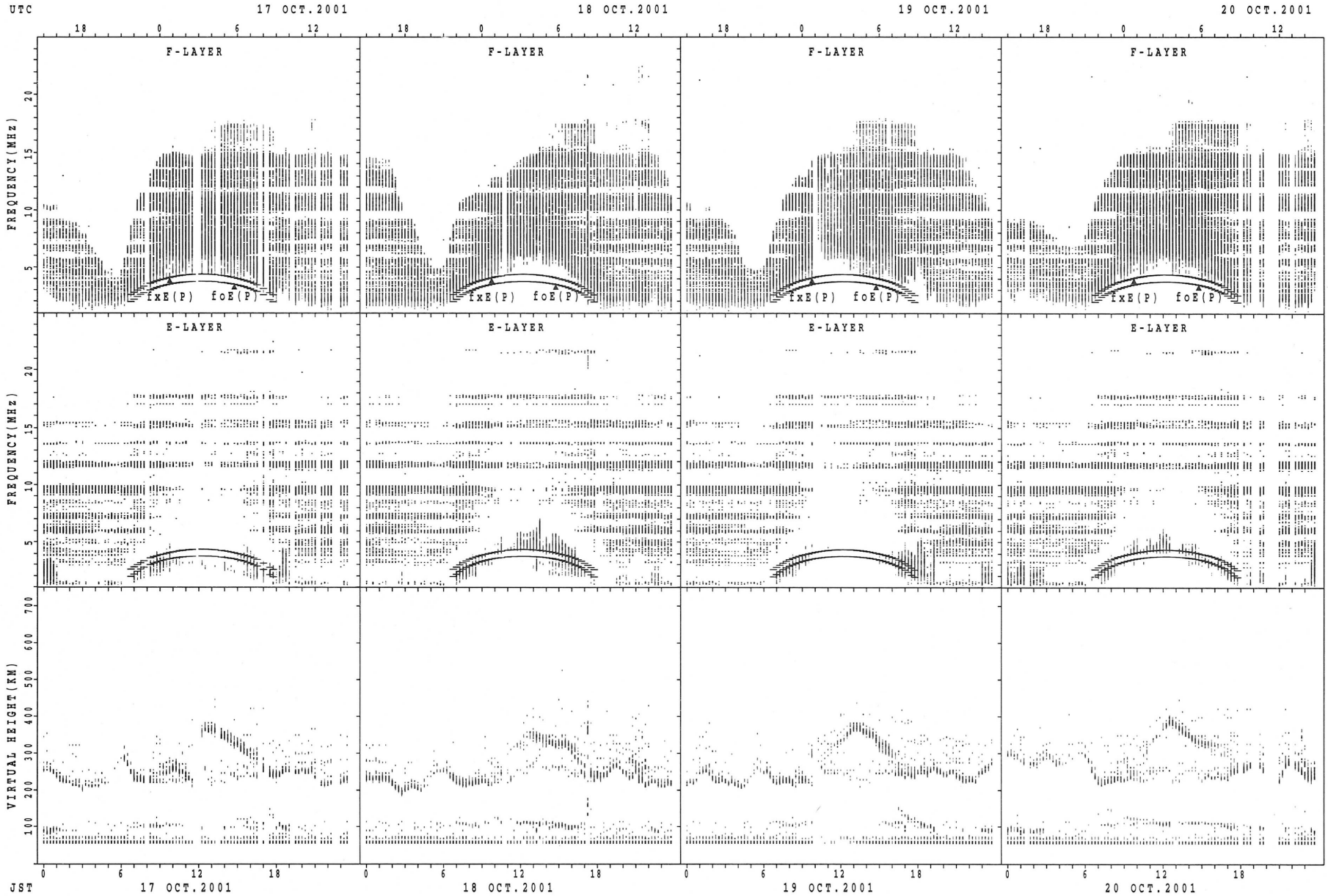
SUMMARY PLOTS AT Okinawa



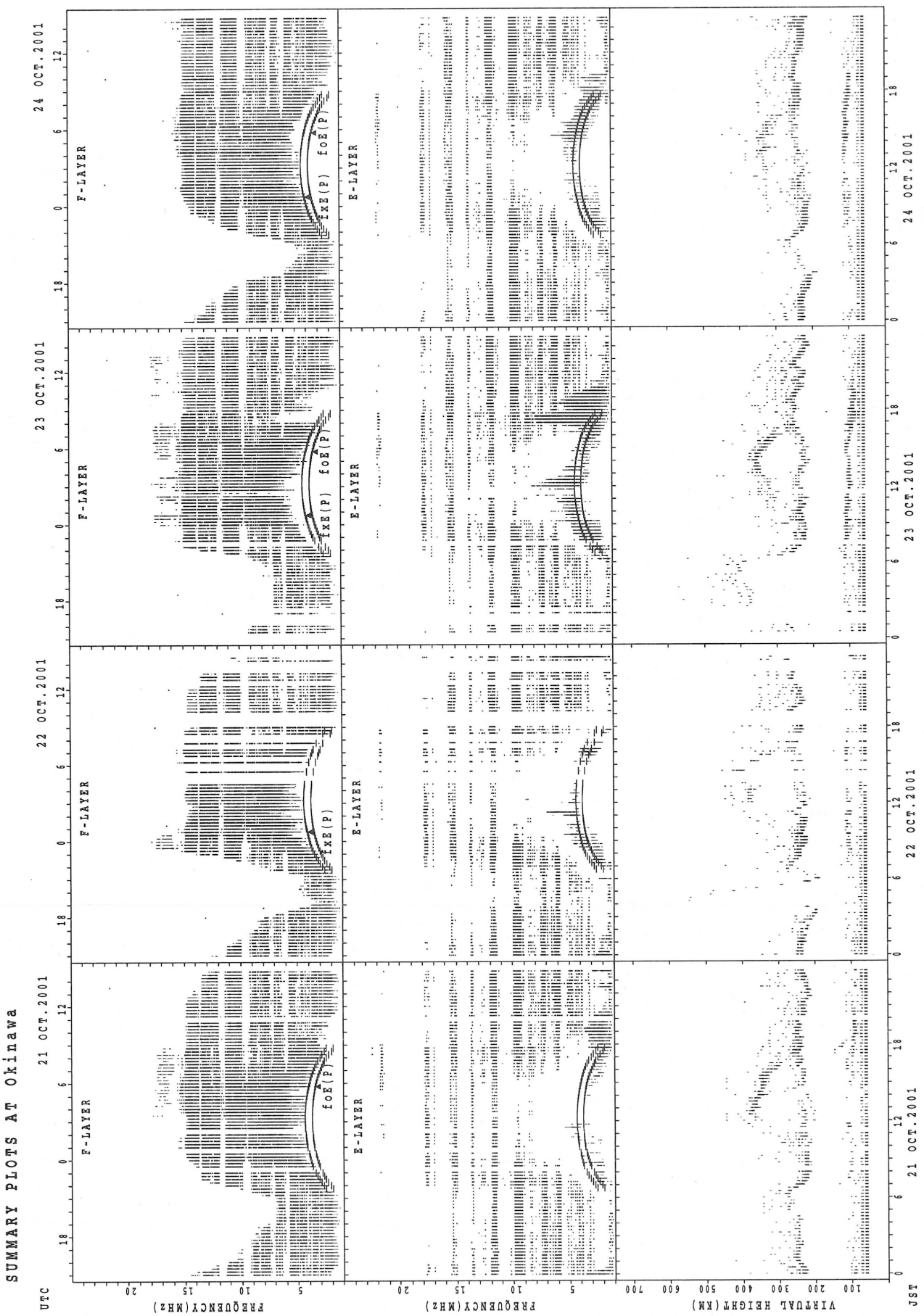
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

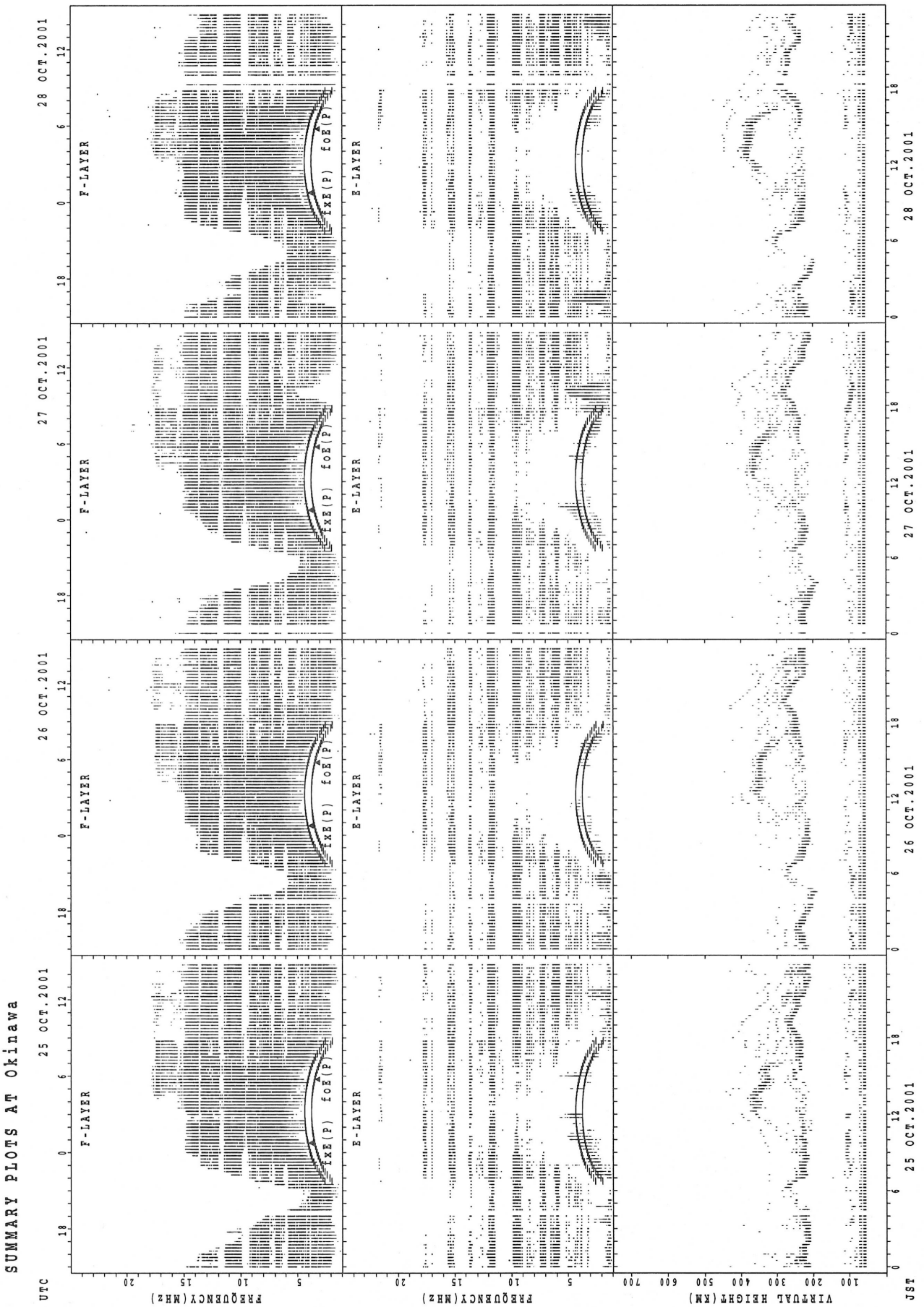

SUMMARY PLOTS AT Okinawa
UTC
JST
13 OCT.2001
14 OCT.2001
15 OCT.2001
16 OCT.2001
F-LAYER
E-LAYER
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
fxE(P)
foE(P)
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

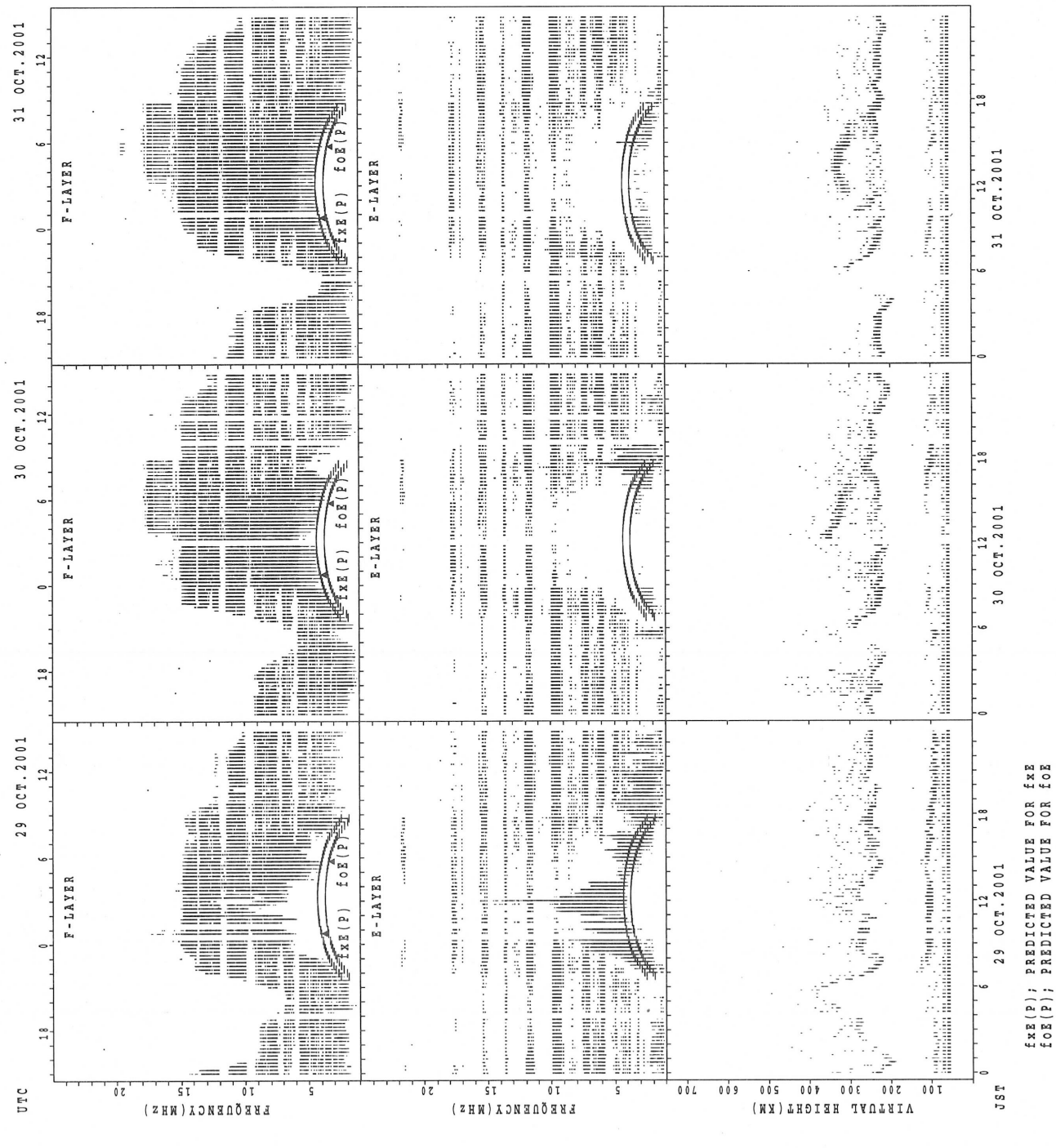
SUMMARY PLOTS AT Okinawa



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


SUMMARY PLOTS AT Okinawa
UTC
JST
21 OCT.2001
22 OCT.2001
23 OCT.2001
24 OCT.2001
F-LAYER
E-LAYER
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
fxE(P)
foE(P)
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE


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


SUMMARY PLOTS AT Okinawa
UTC
29 OCT.2001
30 OCT.2001
31 OCT.2001
F-LAYER
E-LAYER
fxE(P) foE(P)
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
JST
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

MONTHLY MEDIANS OF h'F AND h'Es

OCT. 2001 135E MEAN TIME(UTC+9H) AUTOMATIC SCALING

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

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	1	3			1	1	18	28	28	31	15	7	9	19	26	24	30	29	28	21	19	5	5	2
MED	318	436			406	484	313	241	230	232	230	230	230	248	256	255	251	256	267	294	316	346	356	387
U Q	159	458			203	242	330	264	239	254	256	256	238	308	296	273	264	264	285	352	336	370	412	428
L Q	159	404			203	242	280	231	224	224	224	224	224	240	246	242	246	243	251	269	286	254	306	346

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	12	11	9	12	8	7	11	11	11	15	10	14	10	13	5	8	13	14	19	17	13	10	10	7
MED	109	105	107	107	105	111	109	119	115	111	109	107	104	103	105	103	103	114	107	101	103	93	99	101
U Q	112	107	114	109	113	119	139	131	117	117	109	111	107	111	142	116	109	121	109	106	107	109	113	109
L Q	106	103	101	102	104	103	107	113	109	109	109	103	99	99	99	97	101	103	101	95	100	89	89	83

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	14	11	8	5	2	4	24	30	30	31	5			8	30	30	30	30	28	26	27	27	22	22
MED	338	330	358	328	245	396	267	233	233	232	270			316	289	266	266	251	261	289	316	336	316	335
U Q	354	362	391	379	296	440	289	242	242	248	288			341	314	302	280	264	281	308	354	354	340	362
L Q	332	280	323	318	194	331	260	226	230	224	235			270	274	260	256	246	249	272	298	290	274	248

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	6	5	5	1	2	10	14	8	10	6	6	8	6	4	8	16	18	20	18	20	16	10	13
MED	105	99	105	97	111	99	113	114	112	115	116	112	112	111	112	107	110	106	109	105	104	103	100	99
U Q	107	103	107	107	55	99	143	119	113	133	123	121	116	113	116	114	124	117	113	107	107	105	101	102
L Q	97	97	98	96	55	99	91	111	109	113	111	107	103	103	107	100	102	101	103	97	99	97	99	97

h'F STATION Yamagawa LAT. 31°12.1'N LON. 130°37.1'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	4	2		1	1	1	1									2			4	2	3	3	1	4
MED	313	288		254	464	196	354									264			245	264	272	324	304	310
U Q	334	296		127	232	98	177									280			256	280	296	334	152	396
L Q	296	280		127	232	98	177									248			222	248	268	288	152	299

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	5	2	1	4	5	14	9					1		2		2			4	2	3	3	1	4
MED	83	117	95	89	83	98	89					161		128		113			83	134	131	107	77	122
U Q	125	157	47	113	116	125	110					80		167		113			110	161	143	167	38	155
L Q	77	77	47	77	74	83	77					80		89		113			80	107	125	83	38	86

MONTHLY MEDIANS OF h'F AND h'Es

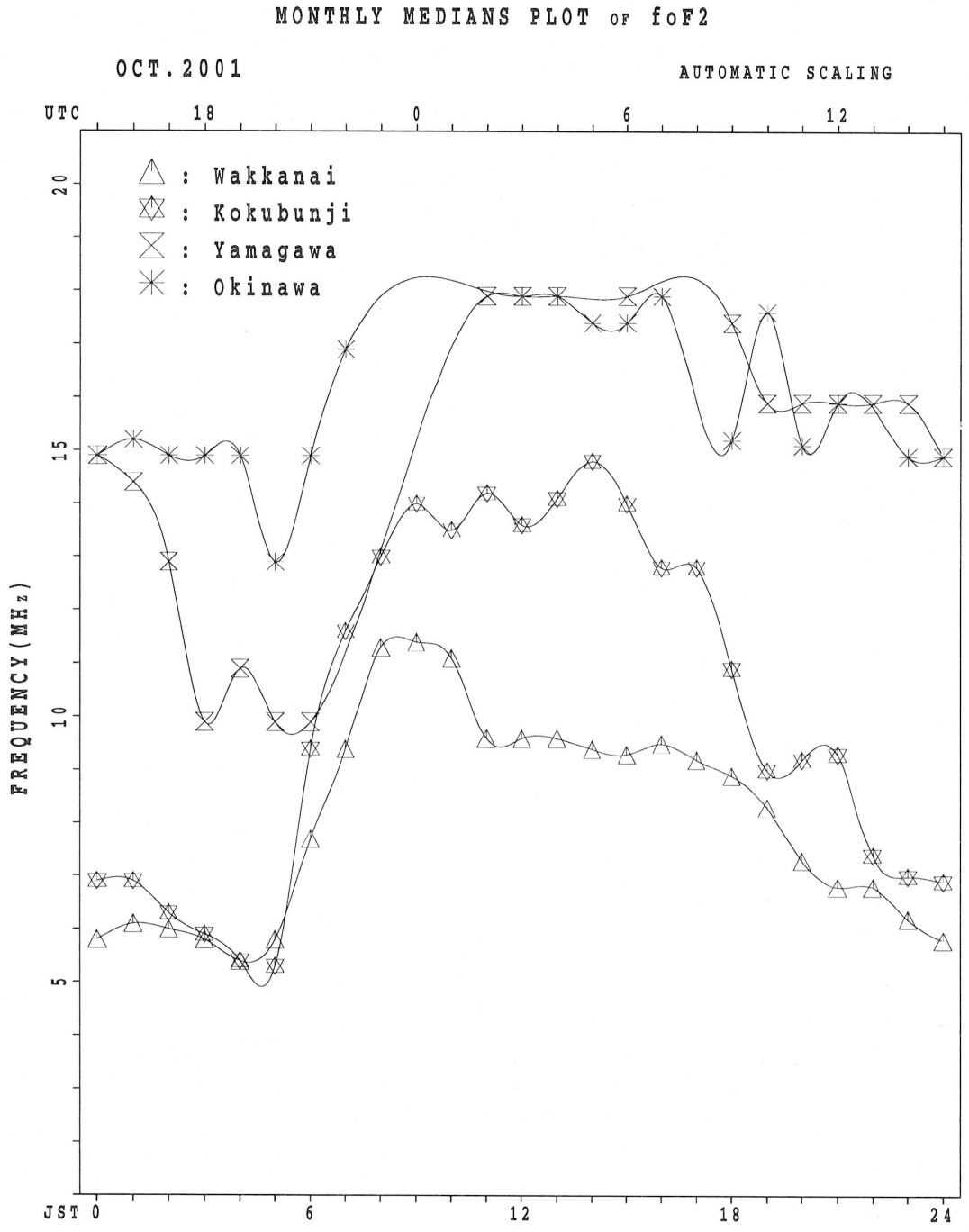
OCT. 2001 135E MEAN TIME(UTC+9H) AUTOMATIC SCALING

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	1	2	1	2	1	1	1	2								13	3		9	2	1	1		3
MED	260	234	258	234	318	356	270	259								312	296		246	275	286	322		342
U Q	130	238	129	244	159	178	135	262								328	310		247	278	143	161		344
L Q	130	230	129	224	159	178	135	256								281	278		240	272	143	161		264

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	1	2	1	3	2	4	7	2					3	8	3	11	3		9	2	1	1		3
MED	77	74	77	113	95	86	83	74					95	115	107	113	101		83	101	119	113		137
U Q	38	77	38	131	113	128	113	77					155	128	125	143	107		113	113	59	56		167
L Q	38	71	38	107	77	80	83	71					77	104	101	89	77		71	89	59	56		95


MONTHLY MEDIANS PLOT OF foF2
OCT.2001
AUTOMATIC SCALING
UTC
18
0
6
12
△ : Wakkanai
⛛ : Kokubunji
⧖ : Yamagawa
✳ : Okinawa
FREQUENCY(MHz)
20
15
10
5
JST 0
6
12
18
24

IONOSPHERIC DATA STATION Kokubunji

OCT. 2001 fxI (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

H / D	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	X 82	X 79	X 73	X 72	X 70	X 69													X 121	X 102	X 95	X 88	X 84	X 84
2	X 77	X 74	X 74	X 72	X 80	X 90													X 91	X 71	X 74	X 71	X 68	X 70
3	X 70	X 71	X 70	X 54	X 51	X 53													X 94	X 88	X 89	X 89	X 82	X 75
4	X 64	X 59	X 48	X 52	X 56	X 59													X 108	X 81	X 81	X 68	X 63	X 60
5	X 59	X 63	X 58	X 55	X 57	X 56													X 108	X 86	X 84	X 80	X 80	X 79
6	X 78	X 73	X 68	X 61	X 60	X 62													X 104	X 82	X 85	X 84	X 81	X 82
7	X 82	X 79	X 66	X 64	X 58	X 58													X 112	X 85	X 74	X 76	X 80	X 76
8	X 70	X 68	X 64	X 60	X 54	X 54													X 106	X 86	X 88	X 86	X 86	X 84
9	X 78	X 71	X 69	X 71	X 68	X 76													X 110	X 88	X 84	X 81	X 80	X 69
10	X 64	X 64	X 64	X 67	X 56	X 53													X 112	X 96	X 87	X 82	X 79	X 74
11	X 71	X 66	X 68	X 69	X 55	X 56													X 108	X 90	X 76	X 75	X 75	X 74
12	X 70	X 64	X 65	X 55	X 44	X 44													X 96	X 85	X 87	X 83	X 79	X 79
13	X 74	X 74	X 74	X 69	X 62	X 66													X 106	X 90	X 86	X 84	X 70	X 69
14	X 68	X 72	X 69	X 62	X 53	X 56													X 112	X 97	X 90	X 78	X 69	X 65
15	X 64	X 65	X 67	X 65	X 62	X 54													X O 114	X 99	X 95	X 82	X 83	X 79
16	X 76	X 74	X 70	X 65	X 55	X 54													X 109	X 94	X 83	X 76	X 76	X 75
17	X 74	X 70	X 76	X 72	X 56	X 54													X 114	X 97	X 97	X 94	X 82	X 76
18	X 74	X 71	X 71	X 68	X 54	X 52													X 108	X 88	X 90	X 86	X 75	X 68
19	X 66	X 64	X 66	X 66	X 58	X 58													X 105	X 89	X 84	X 85	X 82	X 74
20	X 69	X 69	X 66	X 65	X 63	X 66													X 108	X 98	X 91	X 78	X 79	X 78
21	X 75	X 71	X 66	X 66	X 64	X 68													X 112	X 98	X 94	X 88	X 76	X 72
22	X 70	X 66	X 66	X 62	X 47	X 50													X 107	X 89	X 87	X 82	X 75	X 72
23	X 71	X 62	X 60	X 60	X 57	X 59													X 103	X 82	X 79	X 76	X 70	X 65
24	X 66	X 66	X 60	X 52	X 50	X 50													X 107	X 94	X 87	X 87	X 79	X 71
25	X 69	X 67	X 62	X 65	X 61	X 51													X 108	X 93	X 92	X 84	X 80	X 76
26	X 73	X 69	X 67	X 66	X 59	X 55													X 123	X 101	X 94	X 88	X 84	X 85
27	X 87	X 84	X 76	X 79	X 62	X 58													X 130	X 104	X 101	X 98	X 84	X 82
28	X 81	X 70	X 65	X 61	X 61	X 60													X 111	X 96	X 90	X 93	X 87	X 82
29	X 84	X 74	X 75	X 70	X 65	X 70	X 91												X 99	X 90	X 81	X 80	X 75	X 70
30	X 70	X 66	X 68	X 68	X 61	X 61												X 141	X 120	C	X 97	X 94	X 79	X 75
31	X 72	X 61	X 60	X 60	X 58	X 57													X 105	X 86	X 80	X 77	X 73	X 58
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	31	1											1	31	30	31	31	31	31
MED	X 71	X 69	X 67	X 65	X 58	X 57	X 91											X 141	X 108	X 90	X 87	X 83	X 79	X 75
U Q	X 77	X 73	X 70	X 69	X 62	X 62													X 112	X 97	X 92	X 88	X 82	X 79
L Q	X 69	X 65	X 64	X 60	X 55	X 54													X 105	X 86	X 83	X 78	X 75	X 70

OCT. 2001 fxI (0.1MHz) COMMUNICATIONS RESEARCH LABORATORY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

OCT. 2001 foF2 (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

H / D	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	76	R 73	67	66	64	63	96	113	117	146	138	134		139	R 138	135	127	123	115	96	89	82	78	78
2	70	68	68	R 66	74	84	107	109	R 88	88	82	86	90	87	89	92	94	97	85	65	68	65	62	64
3	64	65	64	48	45	47	77	108	110	125	114	109	120	114	106	105	108		88	82	83	83	R 76	69
4	58	53	R 42	46	50	53	62	78	R 88	93	102	105	101	100	98	95	96	106	102	75	R 74	R 62	57	54
5	53	57	52	49	51	50	83	114	121	112	119	135	141	142	142	141	134	R 120	102	80	78	74	R 74	73
6	72	67	62	55	54	56	92	108	R 121	115	128	131	129	124	124	116	114	114	98	76	79	78	75	76
7	76	73	60	58	52	52	86	S 119	133	125	111	124	128	131	134	130	125	124	106	79	67	70	R 74	70
8	64	62	58	54	48	48	73	99	115	132	131	128	117	120	126	126	124	125	100	80	82	80	80	78
9	71	65	S 62	65	62	70	95	113	132	130	138	141	136	127	128	118	112	115	104	82	78	75	74	63
10	58	57	58	61	50	47	75	114	126	R 121	123	131	132	132	130	128	120	115	106	90	81	75	73	68
11	S 65	R 60	62	63	49	50	79	109	121	131	134	140	128	127	128	123	121	110	102	84	70	69	69	68
12	R 64	58	59	49	38	38	69	116	108	134	138	145	S 153	135	142	148	136	113	90	79	80	R 77	73	R 72
13	68	R 68	68	63	56	60	88	121	138	138	142	150	149	144	137	137	139	123	100	83	80	78	64	62
14	62	66	63	56	47	50	80	112	128	135	128	140	135	135	133	136	132	122	106	91	84	72	63	59
15	58	58	61	59	56	49	74	104	123	118	122	132	132	133	134	130	130	125	108	93	89	R 76	77	R 73
16	R 70	R 68	64	58	49	48	75	108	125	121	125	137	133	130	132	128	122	120	103	88	77	70	70	69
17	68	64	70	66	50	48	76	114	134	140	138	139	134	137	132	130	129	128	108	91	91	88	R 76	70
18	68	65	65	62	48	46	74	110	129	129	122	131	130	136	137	128	122	119	102	82	84	80	69	62
19	S 61	59	60	60	52	52	79	113	129	129	136	139	139	142	139	131	123	120	99	83	78	79	76	68
20	S 63	R 63	60	59	57	60	R 92	128	137	150	153	R 152	151	S 152	150	143	135	124	102	91	85	R 72	R 73	72
21	69	66	60	60	58	62	90	126	142	150	R 151	149	147	146	146	145	137	131	106	93	88	82	70	66
22	64	60	60	56	41	44	55	100	120	130	124	145	148	136	124	126	140	130	101	83	81	77	69	66
23	65	56	54	54	51	53	70	115	124	138	137	144	142	144	132	127	126	124	96	75	S 73	70	64	59
24	60	S 60	54	46	44	44	R 76	110	129	134	144	146	136	132	136	138	124	114	101	87	80	81	73	R 65
25	63	61	56	59	55	45	71	110	132	131	136	140	142	145	143	136	127	110	102	87	86	R 78	74	70
26	67	63	61	60	53	49	76	115	139	141	136	138	142	147	148	144	140	129	116	S 95	88	82	78	79
27	81	78	70	73	56	52	79	117	132	143	140	146	141	145	143	139	132	131	124	98	95	92	78	76
28	75	64	59	56	55	54	80	122	142	146	146	142	139	146	146	132	125	120	105	90	84	87	82	76
29	R 78	68	68	64	59	64	85	109	119	124	124	119	112	118	121	113	111	107	93	84	75	74	69	64
30	R 64	60	62	62	55	55	74	124	150	R 153	164	162	S 160	R 159	R 157	150	143	135	113	C	91	88	73	69
31	R 66	55	54	54	52	51	75	108	135	137	144	144	152	153	149	142	136	127	98	80	74	71	67	52
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	31	31	31	31	31	31	31	30	31	31	31	31	30	31	30	31	31	31	31
MED	65	63	61	59	52	51	77	113	128	131	136	139	136	136	134	130	126	121	102	84	81	77	73	69
U Q	70	67	64	63	56	56	86	116	134	140	140	145	142	145	143	139	135	125	106	91	86	82	76	73
L Q	63	59	58	54	49	48	74	108	120	124	123	131	129	127	128	126	121	114	99	80	77	72	69	64

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

IONOSPHERIC DATA STATION Kokubunji

OCT. 2001 foF1 (0.01MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1									L			L		L	L	L								
2										L	L	U L 600	U L 572	L	L	L								
3										L	L	A	L	L	L	L								
4								L	L	L	L	L	L	L	L									
5											L	L	L	L	L									
6										L	L	L	L	L	L									
7											L	L	L	L	L									
8										L	L		L	L	L	L								
9											L		L	L	L									
10												L	L	L	L	L								
11												L		L	L									
12										L	L	L		L	L									
13											L		L	L	L	L								
14											L	L	L	L	L	L								
15												L	L	L	L									
16											L	L		L	L									
17													L	L	L	L								
18											L	L	L	L	L									
19											B	L	L	L	L	L								
20										L	L	L	L	L	L									
21										L			L	L	L	L								
22														L	L	L								
23										L			L	L		L								
24											L		L		L									
25												L	L	L										
26											L	L	L	L	L	L								
27											L	L	L	L	L	L								
28											L	L	L	L	L									
29									L	L		L	L	L	L									
30											L		L	L	L	L								
31												L	L	L										
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT												1	1											
MED												U L 600	U L 572											
U Q																								
L Q																								

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

IONOSPHERIC DATA STATION Kokubunji

OCT. 2001 foE (0.01MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

H / D	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							UR 200	292	UR 344	A	A	A		UR 392	B	B	R	228						
2							B	UA 268	UA 316	A	A	A	B	A	UR 368	344	296	216						
3							UR 168	UR 284	UA 332	R	B	A	B	R	R	UA 336	292							
4							196	268	A	R	R	R	B	R	R	UR 320	284	172						
5							184	UR 296	UR 336	A	R	R	R	R	UR 352	UR 336	264	184						
6							UR 160	280	UR 336	R	R	B	R	R	B	R	272	B						
7							B 308	UA 268	R	R	A	R	UR 388	UR 364	R	308	268	B						
8							UR 180	284	R	R	R	R	B	R	UR 364	UR 332	UR 276	B						
9							152	264	R	R	R	R	R	A	A	A	A	A						
10							B	276	328	UR 356	A	A	R	R	R	R	UA 244	B						
11							B	UR 272	R	UR 364	R	R	R	R	R	UR 312	A	A						
12							UR 228	UR 260	316	UA 352	R	R	R	R	344	316	248	B						
13							B	UR 260	R	R	R	B	UR 412	A	R	UR 292	UA 260	A						
14							B	UR 280	UR 332	R	B	A	UA 412	A	UA 336	A	A	A						
15							A	A	A	UR 356	R	UR 392	R	B	R	R	264	180						
16							204	280	UA 320	UR 356	A	R	UR 400	364	340	UA 308	A	B						
17							B	276	328	A	A	R	B	A	A	R	A	UR 168						
18							B	UR 268	UR 332	364	R	A	R	344	UA 332	308	A	A						
19							UR 192	UA 288	A	A	B	B	B	UR 376	R	324	260	B						
20							UR 188	UA 276	UR 332	R	R	A	UR 392	UR 372	R	UR 328	A	UR 208						
21							B	UR 276	320	A	R	R	R	R	A	UR 316	UR 260	B						
22							B	UR 280	UR 328	UA 356	R	A	A	A	R	UR 332	UR 256	B						
23							B	A	A	A	A	A	A	UR 380	R	R 320	232	B						
24							UR 180	236	A	R	364	R	R	UR 368	UR	A	228	B						
25							B	264	R	R	A	R	R	UR 376	R	UR 312	R	B						
26							UR 196	UR 268	R	344	A	R	UR 376	R	UR 364	320	UR 268	B						
27							B	260	A	R	UR 360	R	R	R	R	UR 320	UA 228	B						
28							UR 188	272	UR 348	UR 408	R	R	R	R	R	300	UR 240	B						
29								A	UR 332	A	R	R	A	A	R	296	UA 228	B						
30							B	284	312	B	R	R	R	UR 364	R	308	232							
31							B	UR 276	R	UR 348	R	R	R	R	UR 332	UR 288	A	B						
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT							15	28	17	10	2	1	6	10	9	23	21	7						
MED							UR 188	UR 276	UR 332	UR 356	362	UR 392	UR 396	UR 370	UR 344	UR 316	260	184						
U Q							200	U 280	UR 334	UR 364			U 412	UR 376	UR 364	UR 328	270	216						
L Q							UR 180	268	320	U 352			UR 388	364	UA 334	308	236	172						

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

IONOSPHERIC DATA STATION Kokubunji

OCT. 2001 foEs (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	J A 56	J A 34	J A 19	22	E B 16	E B 12	26	34	42	J A 52	J A 64	40		G 28	E B 46	E B 41	G	30	J A 25	17	J A 34	J A 24	J A 26	J A 21
2	E B 15	E B 15	E B 16	19	E B 13	J A 23	J A 30	J A 51	J A 53	J A 54	J A 52	J A 54	48	47	G	G	35	26	J A 28	E B 13	E B 13	J A 24	J A 20	20
3	18	19	19	E B 16	E B 15	J A 26	26	35	36	42	E B 44	46	E B 43	42	G	38	35		J A 21	J A 23	J A 42	21	E B 14	E B 15
4	E B 14	E B 16	E B 16	E B 15	20	20	27	33	34	G 31	G 32	G	E B 43	G	G 29	G 39	36	28	J A 27	J A 23	E B 15	J A 22	E B 16	E B 14
5	E B 11	E B 16	E B 14	E B 14	E B 15	E B 15	26	G	38	37	G 31	G 33	G 30	G 30	G 25	G	31	25	J A 25	J A 38	J A 24	J A 24	J A 21	E B 15
6	E B 14	E B 16	E B 16	20	E B 14	E B 16	24	31	G 24	G 27	G 28	E B 42	G 26	G 30	E B 42	G	32	J A 41	E B 16	J A 18	J A 22	J A 46	E B 16	E B 14
7	E B 15	E B 15	E B 16	E B 14	E B 15	E B 16	J A 24	31	G	G 32	J A 46	G 32	G 31	41	G 26	G 25	32	J A 21	23	J A 21	J A 23	J A 21	21	19
8	E B 15	E B 14	E B 16	E B 16	E B 15	E B 15	22	32	G 29	G 32	42	G 28	E B 47	G 25	G 28	G 28	G 24	J A 26	J A 22	J A 28	J A 32	J A 24	18	E B 15
9	E B 16	E B 16	E B 16	21	E B 16	J A 23	22	31	G 29	G 30	G 34	G 34	G 38	J A 52	J A 48	J A 40	33	J A 30	J A 32	J A 24	J A 26	J A 24	22	19
10	J A 22	E B 16	E B 16	20	E B 16	E B 13	23	32	38	40	44	J A 54	48	43	G 24	G	32	25	J A 22	J A 27	J A 24	J A 18	J A 29	J A 22
11	J A E 20	B E 16	B E 16	B E 15	B J A E 25	B 15	22	G	G	38	43	G 32	G 36	G 36	G 32	G 37	J A 33	43	J A E 30	B J 16	A J 27	A J 22	A J 18	A J 20
12	E B 16	E B 13	E B 16	E B 14	J A E 26	B 15	30	33	38	J A 52	46	46	G 26	45	40	J A 50	J A 49	J A 54	J A 69	J A 32	J A 22	J A 20	E B 16	E B 16
13	18	E B 15	E B 14	E B 16	E B 14	20	J A 23	30	32	45	G 30	E B 44	G 38	46	G 29	37	34	54	J A 30	J A 46	J A 37	E B 15	24	J A 26
14	J A E 21	B J 16	A J 21	A J 25	E B 14	E B 15	24	35	37	40	E B 41	40	44	42	J A 48	J A 42	J A 33	J A 34	J A 33	J A 30	J A 23	J A 25	E B 16	19
15	E B 15	E B 16	E B 14	20	22	J A 25	A J 32	A J 28	J A 40	G 31	G	G 32	G E 23	B 41	G	G 29	32	23	J A E 20	B E 12	B E 15	B E 15	B E 14	B E 16
16	E B 14	J A 33	A J 27	22	19	E B 15	24	G 20	J A 48	42	46	45	G 24	43	42	38	J A 32	J A 55	J A 22	J A 46	J A 27	J A 16	A E 19	B J 16
17	E B 14	E B 15	E B 15	18	E B 15	E B 14	24	32	38	42	42	G 33	E B 42	J A 46	38	G 31	J A 36	22	J A 28	J A 19	E B 15	J A 20	E B 13	B 13
18	E B 16	E B 15	E B 16	E B 14	E B 16	E B 16	E B 20	G 21	39	43	48	49	46	43	42	37	36	J A 31	E B 15	J A 20	A J 20	E B 15	J A 26	E B 17
19	E B 14	E B 14	E B 14	E B 14	E B 16	E B 14	27	32	36	39	E B 81	E B 46	E B 46	G 34	G	G	G	22	J A 18	J A 22	21	J A 20	J A 23	J A 22	
20	24	22	E B 15	J A E 23	B E 14	B 14	26	32	36	46	J A 74	45	46	43	42	G	27	27	J A 30	J A 34	A J 41	A J 22	A J 22	A J 23
21	J A 22	J A 22	E B 15	E B 15	E B 16	E B 15	25	38	38	41	42	G 32	G 26	G 28	G 44	J G 26	30	J A 35	J A 30	E B 19	16	41	J A 33	A J 37
22	J A 22	A J 26	A J 24	A E 15	B J A 17	22	25	32	36	41	G J 42	A 58	44	J A 46	G 35	G	G 22	26	32	J A 26	A J 38	A J 26	A J 24	A 20
23	E B 15	22	E B 14	E B 13	E B 12	21	J A J 26	A 33	38	J A 46	39	44	J A 44	G 37	G 29	G 30	31	26	34	J A 47	J A 54	A J 49	A J 22	A J 24
24	J A 23	A J 21	A E 17	B E 15	B E 16	B 20	23	28	36	G 31	G 32	G 24	G 34	G 35	G	40	31	J A 28	A J 30	A J 24	A E 16	B E 16	B E 15	B E 13
25	E B 16	E B 16	B J 26	A J 26	A J 17	A E 16	B E 16	B 33	G 25	G 30	37	G 37	G 34	G 34	G 34	G 29	G 25	E B 16	J A 25	J A 31	A E 16	B J 24	A J 27	A 24
26	J A 20	22	J A 16	A J 22	A J 22	A J 23	G	G	G 27	39	J A 42	G 33	G 32	G	G	36	G	J A 28	E B 16	E B 14	B E 15	B E 14	B J 32	A J 25
27	E B 16	J A 30	E B 15	20	23	E B 15	E B 20	31	35	G	G	G 33	G 31	G 29	G 26	G 24	27	E B 18	E B 15	E B 13	B J 18	A E 15	B E 12	B E 13
28	19	J A 24	E B 16	E B 15	E B 16	E B 12	27	G	G	G 36	G 34	G 34	G	G 31	G	G 31	G	J A 24	J A 26	J A 24	A J 22	A J 22	A J 22	A J 19
29	32	J A 22	E B 13	20	E B 13	E B 13	J A 47	J A 80	G	J A 42	G	G	46	41	G 28	34	J A 36	A J 33	A J 28	33	J A 44	A J 26	A J 24	A 26
30	22	20	E B 15	E B 14	E B 12	E B 15	B J 21	A 32	G	E B 44	G 24	G 26	G	G	G 28	G	30	J A 28	J A 27	C	J A 26	E B 16	B E 15	B E 15
31	E B 16	J A 20	E B 16	E B 16	E B 13	20	23	G 25	35	G 29	G 28	G 32	G 32	G 28	G 22	J G 26	30	28	E B 16	J A 25	A J 54	A J 48	A J 32	A J 49
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	31	31	31	31	31	31	31	30	31	31	31	31	30	31	30	31	31	31	31
MED	E B 16	E B 16	E B 16	E B 16	E B 16	E B 15	24	32	36	40	39	G	G	G	G	G	32	28	J A 26	J A 24	A J 23	A J 22	A J 21	19
U Q	J A 22	A J 22	A J 16	20	17	J A 20	26	33	38	43	46	45	44	43	42	38	34	J A 33	A J 30	A J 31	A J 34	A J 24	A J 24	A J 23
L Q	E B 15	E B 15	E B 15	E B 15	E B 14	E B 15	22	G 28	G	G 32	G 34	G 32	G 31	G 31	G 28	G 30	G 27	25	E B 21	E B 19	B E 16	B E 16	B E 16	B E 15

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

IONOSPHERIC DATA STATION Kokubunji

OCT. 2001 fbEs (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	35	25	14	E B 15	E B 16	E B 12	23	33	40	50	62	U Y 40		U Y 28	E B 46	E B 41	G	28	19	14	18	E B 14	16	17
2	E B 15	E B 15	E B 16	E B 14	E B 13	E B 16	24	49	45	51	46	48	48	43	G	G	34	24	18	E B 13	E B 13	E B 16	17	E B 15
3	E B 14	16	16	E B 16	E B 15	18	22	31	34	41	E B 44	45	E B 43	41	G	35	34		18	20	21	16	E B 14	E B 15
4	E B 14	E B 16	E B 16	E B 15	E B 16	15	21	29	34	G 31	G 32	G	E B 43	G	G 29	38	34	26	24	E B 15	E B 15	16	E B 16	E B 14
5	E B 11	E B 16	E B 14	E B 14	E B 15	E B 15	22	G	34	37	G U Y 31	U Y 32	U Y 30	G 28	G 25	G	30	21	16	28	17	18	E B 16	E B 15
6	E B 14	E B 16	E B 16	14	E B 14	E B 16	22	30	G 21	G 26	G 27	E B 42	G 26	G 30	E B 42	G	29	30	E B 16	16	18	26	E B 16	E B 14
7	E B 15	E B 15	E B 16	E B 14	E B 15	E B 16	G 22	29	G	G 32	41	U Y 32	G 31	40	G 24	G 22	29	21	E B 16	16	18	E B 16	16	16
8	E B 15	E B 14	E B 16	E B 16	E B 15	E B 15	20	G 28	G 29	G 32	40	U Y 28	E B 47	G 25	G 26	G 25	G 20	20	18	20	22	E B 15	16	E B 15
9	E B 16	E B 16	E B 16	16	E B 16	16	21	29	G 29	G U Y 24	34	U Y 34	G 36	43	41	34	30	24	24	21	21	19	17	16
10	E B 14	E B 16	E B 16	16	E B 16	E B 13	22	30	34	39	44	51	46	42	G 24		29	20	E B 14	17	17	E B 14	18	17
11	17	E B 16	E B 16	E B 15	E B 12	E B 15	20	G	G	38	41	G 32	G 36	G 36	G U Y 32	34	28	42	23	E B 16	19	17	16	16
12	E B 16	E B 13	E B 16	E B 14	16	E B 15	28	29	36	38	43	44	U Y 26	41	39	42	46	36	45	19	15	15	E B 16	E B 16
13	16	E B 15	E B 14	E B 16	E B 14	16	21	28	30	41	G E B 30	44	G 38	44	G 28	33	29	52	19	41	28	E B 15	17	19
14	20	E B 16	E B 16	19	E B 14	E B 15	19	30	35	38	E B 41	38	43	41	44	39	30	28	22	28	E B 15	21	E B 16	16
15	E B 15	E B 16	E B 14	E B 14	E B 14	17	27	28	36	G 31	G	G 31	G 23	E B 41	G	G 27	28	21	E B 14	E B 12	E B 15	E B 15	E B 14	E B 16
16	E B 14	21	22	17	E B 13	E B 15	21	G 19	34	40	45	42	G 22	40	41	36	28	46	16	28	20	E B 16	E B 16	E B 16
17	E B 14	E B 15	E B 15	E B 14	E B 15	E B 14	22	30	36	40	41	U Y 33	E B 42	42	37	G 30	33	20	16	18	E B 15	16	E B 13	E B 13
18	E B 16	E B 15	E B 16	E B 14	E B 16	E B 16	E B 20	G 18	37	39	47	48	45	41	40	36	34	21	E B 15	16	17	E B 15	E B 14	E B 17
19	E B 14	E B 14	E B 14	E B 14	E B 16	E B 14	21	30	35	38	E B 81	E B 46	E B 46	U Y 34	G	G	G	20	17	20	16	17	18	17
20	19	16	E B 15	16	E B 14	E B 14	21	30	34	44	42	44	44	41	41	G	26	G 18	21	28	29	18	E B 14	18
21	16	E B 15	E B 15	E B 15	E B 16	E B 15	20	32	36	38	42	G 32	G 26	G 28	G 39	G 22	28	30	28	E B 15	E B 16	40	26	22
22	18	E B 15	E B 16	E B 15	E B 12	16	20	G 28	34	39	G	46	40	45	G 35	G	G 22	23	28	19	21	E B 14	E B 16	E B 15
23	E B 15	16	E B 14	E B 13	E B 12	E B 16	20	28	35	43	U Y 39	41	41	G 33	G 29	G 30	29	24	31	17	19	19	18	E B 15
24	18	16	E B 17	E B 15	E B 16	16	19	28	34	G 31	G 32	G 24	G 34	G 35	G	39	27	17	19	E B 16	E B 16	E B 16	E B 15	E B 13
25	E B 16	E B 16	E B 12	16	E B 12	E B 16	E B 16	30	G 24	G 30	U Y 37	G 33	G 34	G 34	G 33	G 29	G 24	E B 16	19	28	E B 16	21	22	E B 16
26	E B 15	19	E B 13	E B 14	16	E B 15	G	G	G 27	38	40	U Y 33	U Y 32	G	G	34	G	19	E B 16	E B 14	E B 15	E B 14	22	20
27	E B 16	18	E B 15	E B 15	15	E B 15	E B 20	28	33		G	G 33	U Y 31	G 29	G 26	G 23	26	E B 18	E B 15	E B 13	E B 16	E B 15	E B 12	E B 13
28	16	16	E B 16	E B 15	E B 16	E B 12	20	G	G	G 35	G 34	G 34	G	G 30	G	G 27	G	18	18	20	20	18	18	E B 15
29	18	16	E B 13	E B 16	E B 13	E B 13	29	66	G	38	G	G	43	41	G 28	33	31	24	24	28	28	E B 15	E B 15	19
30	E B 16	E B 16	E B 15	E B 14	E B 12	E B 15	20	G 28	G	E B 44	G 24	G 26	G	G	G 28	G	24	20	24	C	16	E B 16	E B 15	E B 15
31	E B 16	E B 16	E B 16	E B 16	E B 13	E B 13	18	G 23	31	G 29	G 28	G 30	G U Y 32	G 28	G 21	G 20	26	19	E B 16	18	38	26	24	30
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	31	31	31	31	31	31	31	30	31	31	31	31	30	31	30	31	31	31	31
MED	E B 16	E B 16	E B 16	E B 15	E B 15	E B 15	21	29	34	38	U 37	G	G	G	G	G	28	21	18	18	17	16	E B 16	E B 16
U Q	16	16	E B 16	16	E B 16	16	22	30	35	40	43	44	43	41	39	35	30	28	24	21	21	18	18	17
L Q	E B 14	E B 15	E B 14	E B 14	E B 13	E B 14	20	G	G	G 32	G 34	G 32	G 31	G 30	G 28	G 29	G 24	20	E B 16	E B 16	E B 16	E B 15	E B 15	E B 15

OCT. 2001 fbEs (0.1MHz) COMMUNICATIONS RESEARCH LABORATORY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

OCT. 2001 fmin (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	16	12	14	15	16	12	14	20	19	25	18	30		23	46	41	26	13	16	12	14	14	11	12
2	15	15	16	14	13	16	16	13	14	33	32	28	39	24	23	20	12	13	15	13	13	16	14	15
3	14	12	12	16	15	14	12	14	19	24	44	29	43	27	27	21	14		14	14	15	12	14	15
4	14	16	16	15	16	12	14	15	18	18	20	33	43	27	23	20	17	13	14	15	15	13	16	14
5	11	16	14	14	15	15	15	16	16	18	16	24	24	21	20	20	14	12	12	14	15	16	16	15
6	14	16	16	12	14	16	12	16	14	18	20	42	21	20	42	24	16	16	16	14	16	13	16	14
7	15	15	16	14	15	16	16	16	17	21	26	24	20	24	18	16	16	13	16	11	14	16	14	13
8	15	14	16	16	15	15	13	16	16	16	18	23	47	19	15	17	14	12	14	14	16	15	12	15
9	16	16	16	13	16	12	12	16	17	20	28	29	19	22	17	16	15	14	13	16	16	14	12	12
10	14	16	16	12	16	13	20	16	16	16	21	20	18	20	17	16	16	15	14	14	16	14	14	12
11	14	16	16	15	12	15	15	17	18	21	22	25	28	22	18	19	15	14	12	16	13	12	12	13
12	16	13	16	14	12	15	15	14	14	23	16	15	17	25	20	16	16	15	14	15	11	10	16	16
13	13	15	14	16	14	15	12	14	18	18	23	44	18	24	18	19	16	13	12	16	12	15	14	14
14	15	16	16	12	14	15	14	16	15	20	41	21	37	25	19	14	14	15	16	16	15	14	16	12
15	15	16	14	14	14	14	14	14	20	23	22	20	19	41	22	20	18	15	14	12	15	15	14	16
16	14	16	15	14	13	15	12	13	14	17	17	16	18	29	20	17	15	14	12	16	15	16	16	16
17	14	15	15	14	15	14	13	12	20	19	24	24	42	24	22	17	15	12	13	12	15	11	13	13
18	16	15	16	14	16	16	20	14	14	17	22	21	20	17	17	20	14	12	15	12	12	15	14	17
19	14	14	14	14	16	14	14	16	16	21	81	46	46	27	19	16	17	16	13	16	15	12	16	11
20	16	12	15	14	14	14	16	16	17	19	19	29	24	20	18	16	16	14	15	15	13	15	14	16
21	12	15	15	15	16	15	18	18	17	20	18	13	17	17	16	15	15	16	16	15	16	12	15	12
22	15	15	16	15	12	13	15	13	16	18	28	21	28	35	22	18	14	15	14	16	16	14	16	15
23	15	13	14	13	12	16	16	15	16	16	24	24	24	20	19	18	16	14	15	13	16	16	16	15
24	13	13	17	15	16	12	16	15	12	16	15	18	23	22	20	14	13	13	16	16	16	16	15	13
25	16	16	12	12	12	16	16	15	18	17	19	22	30	22	14	17	16	16	12	12	16	16	16	16
26	15	10	14	14	14	14	12	16	21	19	21	24	20	22	23	17	14	16	16	14	15	14	16	11
27	16	16	15	15	13	15	20	16	17	21	22	21	21	18	16	15	15	18	15	13	16	15	12	13
28	12	15	16	15	16	12	15	16	18	16	21	25	30	24	22	16	17	11	13	14	13	13	16	15
29	12	12	13	16	13	13	12	14	16	19	21	17	20	20	16	17	15	16	16	15	13	15	15	13
30	16	16	15	14	12	15	16	16	15	44	18	20	28	25	21	16	16	16	11	C	11	16	15	15
31	16	16	16	16	13	13	12	14	13	14	21	16	21	15	16	12	16	15	16	12	14	15	16	15
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	31	31	31	31	31	31	31	30	31	31	31	31	30	31	30	31	31	31	31
MED	15	15	15	14	14	15	15	16	16	19	21	24	24	22	19	17	15	14	14	14	15	15	15	14
U Q	16	16	16	15	16	15	16	16	18	21	24	29	30	25	22	20	16	16	16	16	16	16	16	15
L Q	14	13	14	14	13	13	12	14	15	17	18	20	20	20	17	16	14	13	13	13	13	13	14	13

IONOSPHERIC DATA STATION Kokubunji

OCT. 2001 M(3000)F2 (0.01) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	257	R 254	243	252	258	249	314	317	291	298	297	282		264	R 266	271	274	287	289	293	273	271	263	260
2	278	252	250	R 266	254	282	307	316	R 288	262	263	264	274	272	279	282	296	299	305	280	285	261	263	250
3	260	280	291	263	247	259	304	318	315	305	299	284	283	287	284	287	295		288	261	263	256	R 246	247
4	243	242	R 219	223	231	263	292	294	R 291	284	293	297	294	286	298	300	291	301	310	297	R 300	R 296	272	270
5	253	281	271	264	275	284	325	340	329	317	293	289	285	280	285	290	299	R 319	303	286	280	278	R 280	292
6	294	292	298	271	261	262	339	336	R 328	301	293	292	284	281	286	286	293	305	321	290	273	288	286	285
7	291	308	289	293	281	275	319	S 336	326	336	300	286	283	281	284	289	295	309	324	291	287	279	R 294	305
8	288	294	300	300	279	280	330	318	319	318	302	299	277	269	277	285	289	310	309	276	269	271	280	274
9	275	258	S 255	258	256	269	305	303	303	304	288	294	289	278	289	293	291	303	311	296	277	279	292	273
10	245	245	261	291	286	269	311	329	323	R 312	292	291	280	278	282	288	297	301	306	292	292	282	284	277
11	S 273	R 268	279	301	260	253	315	335	319	310	307	303	288	284	282	287	299	302	301	310	295	277	279	268
12	R 256	278	281	265	229	224	295	341	303	287	284	282	S 283	268	277	285	295	293	288	278	280	R 278	264	R 267
13	255	R 264	275	276	258	268	315	318	317	312	300	293	289	285	279	284	306	305	304	285	296	309	297	285
14	272	282	315	285	306	278	312	322	319	323	302	298	286	287	283	291	303	307	301	291	295	302	277	266
15	263	265	285	298	296	269	315	328	331	314	295	295	284	280	282	285	284	300	304	287	293	R 287	294	R 291
16	R 292	R 296	299	311	303	280	316	334	328	314	302	293	286	278	280	283	291	303	304	293	290	279	279	277
17	274	270	295	317	284	272	R 313	324	319	312	299	289	274	274	274	276	286	300	309	288	295	296	R 281	284
18	284	293	299	313	300	289	325	336	328	319	297	291	280	277	277	276	286	296	300	287	292	300	291	284
19	S 281	278	296	302	284	277	321	334	316	308	300	281	280	267	273	280	283	302	295	294	280	281	286	280
20	S 261	265	259	247	240	246	R 301	321	315	291	291	R 287	272	S 269	274	279	293	298	284	292	281	R 273	R 267	270
21	268	256	257	255	255	257	303	313	309	297	R 295	283	276	272	270	275	281	296	288	292	287	295	279	275
22	273	269	279	300	218	241	275	332	286	294	271	274	269	269	263	265	279	294	283	272	272	265	253	233
23	227	234	225	223	228	228	270	317	301	297	284	281	274	281	277	275	280	294	305	292	S 277	276	273	278
24	269	S 280	295	290	267	272	R 315	320	314	305	300	292	278	275	278	287	290	290	293	282	286	287	305	R 297
25	287	291	293	296	309	299	321	335	330	302	296	283	272	270	275	280	289	287	299	288	291	R 274	289	285
26	285	280	283	311	298	272	301	318	314	311	292	278	271	269	272	272	285	281	292	S 288	286	273	R 277	283
27	300	313	298	308	319	269	319	331	312	313	299	285	274	271	267	277	273	284	294	275	285	298	280	278
28	292	291	284	267	272	260	305	326	325	305	291	280	269	265	266	268	264	274	275	267	247	261	253	247
29	R 288	256	259	239	240	237	276	293	287	288	278	288	263	269	283	289	295	294	301	306	285	291	289	263
30	R 265	253	265	277	273	260	295	313	318	R 304	305	295	S 277	R 281	R 278	281	287	295	309	C	295	301	287	285
31	R 292	291	281	282	282	293	327	325	337	314	302	291	288	285	281	282	291	306	310	295	291	303	315	301
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	31	31	31	31	31	31	31	30	31	31	31	31	30	31	30	31	31	31	31
MED	273	278	281	282	272	269	313	324	317	305	296	289	280	277	278	283	291	300	301	289	286	279	280	277
U Q	288	291	295	300	286	278	319	334	326	314	300	293	285	281	283	287	295	303	309	293	292	296	289	285
L Q	260	256	259	263	254	257	301	317	303	297	291	282	274	269	274	276	284	294	292	282	277	273	272	267

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

IONOSPHERIC DATA STATION Kokubunji

OCT. 2001 M(3000)F1 (0.01) 135°E MEAN TIME (G.M.T. + 9 H)

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

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

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

IONOSPHERIC DATA STATION Kokubunji

OCT. 2001 h'F2 (KM) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1									304			288		350	354	324								
2										384	380	398	352	364	352	332								
3										254	276	262	330	286	324	328								
4								294	312	286	304	282	298	328	316									
5											304	304	314	318	288									
6										252	292	308	334	328	310									
7											266	318	314	328	316									
8										276	290		336	348	328	312								
9											300		300	342	314									
10												294	342	336	316	308								
11												292		324	316									
12										306	312	316		348	310									
13											296		296	292	318	306								
14											272	296	308	318	326	302								
15												298	312	332	332									
16											286	300		326	314									
17													326	350	340	304								
18											292	302	328	324	318									
19											288	318	330	352	322	302								
20										302	306	304	346	330	322									
21										298			332	338	342	316								
22														354	330	340								
23										274			348	302		332								
24											290		326		314									
25												312	356	336										
26											300	328	344	338	332	330								
27											296	314	338	338	344	320								
28											316	320	336	344	332									
29									304	294		312	348	350	316									
30											282		322	320	320	324								
31												300	312	320										
	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	3	10	20	22	26	30	28	15								
MED								294	304	290	294	304	330	334	321	320								
U Q									312	302	304	316	342	348	332	330								
L Q									304	274	287	296	314	324	316	306								

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

IONOSPHERIC DATA STATION Kokubunji

OCT. 2001 h'F (KM) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	EA 350	EA 350	324	330	310	316	230	228	230	234	240	224		238	240	EB 256	252	258	260	232	278	260	228	EA 274
2	266	286	294	300	312	288	250	262	270	EA 294	EA 266	EA 274	250	238	232	234	EA 256	252	222	232	238	EB 282	EA 292	EB 304
3	294	266	246	276	294	EA 340	258	244	236	EA 230	220	A	H 208	222	224	238	256		250	302	300	298	332	320
4	274	EB 312	EB 456	EB 426	366	318	282	238	232	210	220	212	230	228	216	EA 244	244	264	242	244	234	234	254	264
5	324	292	280	286	294	260	238	228	216	216	206	216	242	232	236	H 246	242	230	218	236	248	EA 274	EB 290	266
6	264	254	262	274	294	312	232	220	230	202	202	218	238	218	248	244	242	240	222	232	270	276	260	276
7	268	244	240	238	268	286	250	236	224	228	210	212	206	218	238	240	244	246	220	216	242	282	270	252
8	256	262	244	236	244	272	224	222	228	230	220	236	212	224	240	248	244	242	220	234	282	288	274	286
9	268	290	328	312	286	298	246	220	230	228	238	228	208	226	230	238	240	248	234	240	274	264	242	278
10	330	EB 356	304	236	234	252	236	234	232	220	232	EA 248	236	222	224	238	244	242	230	234	238	246	262	EA 282
11	288	300	286	240	230	EB 334	236	224	226	226	234	224	226	228	230	242	242	238	242	224	232	264	274	294
12	EB 326	286	262	212	EA 438	EB 410	EA 272	216	214	222	212	216	240	236	238	EA 262	238	232	EA 270	EA 248	262	262	292	288
13	EA 318	296	252	226	274	EA 304	236	228	228	226	212	226	220	234	236	234	250	234	218	EA 292	252	240	250	EA 286
14	EA 286	266	236	262	232	EB 280	236	228	226	224	208	208	234	226	238	238	244	232	226	EA 256	242	222	246	EA 304
15	EB 314	EB 308	268	266	228	EA 256	238	216	220	214	H 206	226	230	224	242	248	244	232	220	222	234	246	268	260
16	250	256	262	256	230	266	240	222	232	224	226	226	230	228	234	244	240	248	230	252	234	244	262	274
17	278	266	268	228	224	260	250	232	238	230	226	218	220	224	246	238	244	244	224	240	236	238	230	254
18	270	260	256	238	232	EB 268	234	226	232	234	222	232	230	232	244	244	248	244	228	232	256	240	230	266
19	280	280	270	248	254	290	236	228	228	228	B	234	230	232	242	238	246	236	220	234	250	262	260	264
20	EA 316	EA 316	320	EA 338	344	346	244	220	226	214	232	230	228	234	236	246	244	230	228	248	258	EA 284	292	278
21	288	300	282	306	304	320	256	220	226	214	228	222	222	234	240	242	238	244	224	250	254	EA 278	EA 262	EA 286
22	EA 282	300	278	228	EB 428	EB 382	248	226	222	228	234	238	234	228	228	246	260	234	236	244	EA 258	304	EB 314	EB 354
23	EB 362	EA 330	EB 416	402	EA 406	EB 410	308	242	230	228	226	222	230	224	232	234	240	242	226	244	EA 268	EA 268	EA 268	274
24	EA 306	282	254	246	272	280	242	230	220	216	216	232	232	226	234	248	230	226	230	224	234	254	240	248
25	258	256	254	262	244	244	238	222	228	222	220	H 206	230	240	238	240	238	216	248	242	242	240	258	256
26	262	276	282	252	238	EA 282	250	230	224	228	224	228	240	238	242	242	250	228	234	230	238	244	274	274
27	258	250	250	256	232	EB 260	236	228	220	228	220	228	236	228	240	240	234	244	234	212	264	248	248	266
28	260	248	266	246	266	308	266	234	234	226	230	232	230	234	238	248	244	262	246	240	EA 302	286	EA 302	298
29	244	EA 292	304	280	EB 374	EB 400	Q 296	EA 272	246	240	238	240	234	238	234	248	244	240	226	234	EA 260	244	250	EA 294
30	296	310	292	264	250	EB 302	276	234	224	230	212	230	222	230	230	232	240	228	220	C	246	236	218	246
31	238	244	278	284	266	260	250	220	234	222	224	216	232	242	240	238	236	224	208	236	EA 280	274	258	EA 278
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	31	31	31	31	31	30	30	30	31	31	31	31	30	31	30	31	31	31	31
MED	270	U 274	269	259	259	U 278	243	228	228	226	222	226	230	228	238	241	244	240	227	235	247	254	258	270
U Q	E 314	E 300	294	286	310	E 320	256	234	232	230	232	232	234	234	240	246	246	244	236	244	268	278	274	288
L Q	262	260	254	238	234	266	236	222	224	220	212	218	222	224	232	238	240	232	220	232	238	244	248	264

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

IONOSPHERIC DATA STATION Kokubunji

OCT. 2001 h'E (KM) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							126	120	124	116	A	A		122	B	B	124	130						
2							B	120	120	A	A	A	B	A	124	120	118	120						
3							120	124	126	122	B	120	B	122	122	126	126							
4							124	126	A	122	124	124	B	120	126	118	120	122						
5							E B 132	122	130	124	124	122	128	124	120	120	130	126						
6							E B 142	126	120	122	118	B	120	124	B	120	118	B						
7							B	126	116	126	A	126	124	122	118	118	118	B						
8							124	124	128	126	122	120	B	120	120	118	118	B						
9							E B 148	122	124	122	128	128	124	A	A	A	A	A						
10							B	118	120	120	124	120	116	120	122	118	120	B						
11							B	118	118	126	126	124	124	126	116	122	A	A						
12							126	126	124	120	118	120	120	118	126	124	116	B						
13							B	118	118	118	122	B	120	A	122	120	120	A						
14							B	130	120	122	B	124	122	118	118	A	A	A						
15							A	A	A	122	122	124	130	B	118	122	124	120						
16							122	126	118	118	118	124	122	122	120	120	118	B						
17							B	118	120	114	120	122	B	118	118	E A 134	A	126						
18							B	126	120	122	120	118	120	124	126	118	A	A						
19							120	128	122	122	B	B	B	122	120	118	120	B						
20							128	122	126	126	122	122	122	122	122	118	A	118						
21							B	120	116	118	122	122	122	124	A	120	124	B						
22							B	122	118	128	120	A	A	A	134	118	124	B						
23							B	120	120	A	124	116	A	126	128	130	120	B						
24							E A 134	132	A	128	122	116	128	126	122	120	118	B						
25							B	120	124	124	120	E A 130	E A 130	126	124	126	120	B						
26							126	118	122	122	A	126	122	118	122	124	124	B						
27							B	124	120	120	118	122	120	120	122	120	122	B						
28							E B 138	120	118	128	126	124	120	122	122	128	128	B						
29								A	118	122	120	126	A	A	122	128	122	B						
30							B	132	120	B	122	120	124	120	122	120	122							
31							B	E A 136	120	124	120	118	124	120	120	118	A	B						
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT							14	29	28	28	24	25	21	25	27	28	24	7						
MED							124	122	120	122	122	122	122	122	122	120	120	122						
U Q							E B 134	126	124	125	124	124	124	124	124	124	124	126						
L Q							124	120	118	120	120	120	120	120	120	118	118	120						

OCT. 2001 h'E (KM) COMMUNICATIONS RESEARCH LABORATORY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

OCT. 2001 h'Es (KM) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	106	104	108	108	B	B	164	136	126	116	110	110		100	B	B	G	136	120	114	112	110	110	110
2	B	B	B	106	B	126	122	118	116	114	112	110	116	116	G	G	150	130	114	B	B	100	100	100
3	94	98	94	B	B	104	108	136	132	130	B	122	B	124	G	122	134		102	104	106	114	B	B
4	B	B	B	B	130	124	120	118	110	108	108	G	B	G	110	160	148	132	120	110	B	104	B	B
5	B	B	B	B	B	B	156	G	136	128	108	108	108	106	104	G	148	136	118	108	100	96	98	B
6	B	B	B	98	B	B	146	152	106	102	104	B	108	104	B	G	138	112	B	98	108	104	B	B
7	B	B	B	B	B	B	142	122	G	112	110	108	106	150	102	104	130	104	100	96	96	100	102	100
8	B	B	B	B	B	B	120	132	112	108	132	108	B	104	100	100	106	102	108	100	100	96	94	B
9	B	B	B	104	B	102	138	130	110	110	110	112	104	102	104	104	102	102	102	98	98	96	100	100
10	98	B	B	96	B	B	144	146	142	138	122	118	116	122	104	G	122	110	110	108	104	98	100	100
11	98	B	B	B	106	B	160	G	G	154	126	112	110	112	106	128	104	108	112	B	100	104	104	102
12	B	B	B	B	108	B	162	152	132	130	130	130	104	126	140	128	116	108	106	106	108	108	B	B
13	106	B	B	B	B	100	150	140	136	134	106	B	100	104	108	146	148	108	110	106	106	B	106	102
14	102	B	102	96	B	B	158	148	134	142	B	128	120	126	116	110	108	106	104	104	110	106	B	100
15	B	B	B	104	104	104	104	104	104	108	G	106	106	B	G	108	124	148	114	B	B	B	B	B
16	B	98	98	98	98	B	150	108	114	130	124	126	104	130	128	118	116	106	108	104	104	B	102	B
17	B	B	B	100	B	B	154	156	126	126	120	110	B	118	118	112	106	128	114	112	B	104	B	B
18	B	B	B	B	B	B	B	108	134	132	126	122	122	124	122	120	112	108	B	112	104	B	106	B
19	B	B	B	B	B	B	152	128	126	120	B	B	B	112	G	G	G	132	126	116	102	104	100	100
20	100	102	B	102	B	B	120	140	144	124	120	124	126	128	126	G	110	126	106	106	100	102	102	100
21	102	102	B	B	B	B	158	140	124	124	128	106	104	104	100	100	122	122	116	96	B	106	104	104
22	100	100	100	B	100	104	128	144	134	122	G	108	114	110	114	G	108	122	116	112	110	114	124	102
23	B	104	B	B	B	132	126	126	112	108	122	116	110	104	108	110	116	112	108	106	102	98	102	104
24	102	102	B	B	B	118	138	144	110	108	106	100	110	110	G	120	118	110	106	112	B	B	B	B
25	B	B	108	108	106	B	B	150	108	110	120	108	114	110	108	110	106	B	114	110	B	108	102	102
26	106	106	104	98	100	104	G	G	110	120	112	106	106	G	G	142	G	118	B	B	B	B	102	104
27	B	100	B	96	100	B	B	154	122	G	G	110	108	108	106	104	152	B	B	B	112	B	B	B
28	100	106	B	B	B	B	174	G	G	112	112	108	G	110	G	110	G	134	112	110	106	106	104	102
29	112	120	B	104	B	B	114	110	G	122	G	G	108	104	106	124	122	118	112	112	106	104	108	102
30	102	102	B	B	B	B	116	162	G	B	104	100	G	G	110	G	124	112	110	C	106	B	B	B
31	B	104	B	B	B	114	110	108	120	108	106	106	110	102	98	96	134	128	B	108	104	104	104	100
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	14	14	7	14	9	11	27	27	26	29	24	26	23	27	22	22	27	28	26	25	23	23	21	18
MED	102	102	102	101	104	104	142	136	123	120	112	110	108	110	108	111	122	115	111	108	104	104	102	102
U Q	106	104	108	104	107	124	156	148	134	130	123	118	114	124	116	124	134	129	114	112	108	106	105	102
L Q	100	100	98	98	100	104	120	118	110	109	108	108	106	104	104	104	108	108	106	104	100	100	100	100

IONOSPHERIC DATA STATION Kokubunji

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

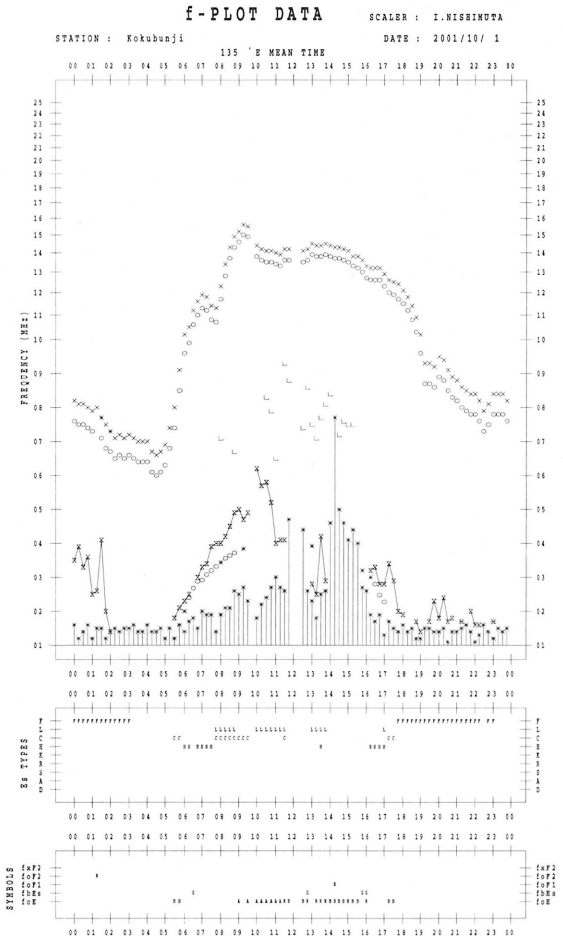
LAT.35°42.4'N LON.139°29.3'E SWEEP 1.0MHz TO 25.0MHz IN 24.0SEC IN MANUAL SCALING

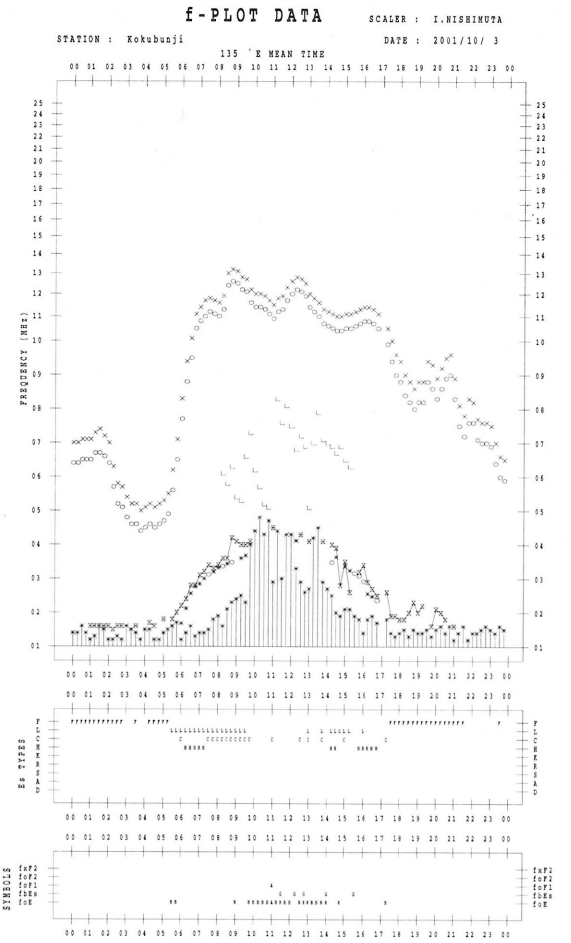
D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	F3	F4	F2	F2			H1	H1	CL11	C1	L2	L1		L1				HL11	F2	F1	F2	F2	F1	F1
2				F1		F1	C2	C2	C2	L1	L1	L1	C1	L1			H1	H2	F2			F1	F1	F1
3	F1	F1	F2			F2	CL11	HL11	CL11	CL11		C1		CL11		CL11	HL11		F2	F3	F2	F2		
4					F1	F1	CL11	CL11	L1	L1	L1				L1	H1	H1	H2	F3	F3		F1		
5							H1		CL11	CL11	L1	L1	L1	L1	L1		HL11	HL11	F2	F2	F1	F1	F1	
6				F1			H2	HL21	L1	L1	L1		L1	L1			H1	C3		F2	F1	F2		
7							H2	CL11		L1	L2	L1	L1	HL11	L1	L1	HL11	LC11	F1	F2	F3	F2	F1	F1
8							C1	CL11	L2	L2	CL11	L1		L1	L1	L1	L2	L1	F2	F3	F2	F1	F2	
9				F2		F2	H2	CL11	L2	L1	L1	L1	L1	L2	L2	L2	L2	L3	F4	F3	F2	F2	F1	F1
10	F2			F2			H1	H1	H2	HL11	CL21	CL21	CL21	CL11	L1		C2	L2	F2	F1	F2	F2	F3	F2
11	F2				F1		HL11			H1	CL11	L1	L1	L1	L1	CL11	L2	L3	F4		F3	F1	F2	F2
12					F2		H2	HL11	HL21	CL21	CL11	CL11	L1	CL11	HL11	CL21	C2	L3	F3	F3	F2	F2		
13	F1					F2	H1	H2	HL11	CL11	L1		L1	L2	L1	H1	H1	L3	F2	F3	F4		F2	F2
14	F2		F2	F2			HL11	HL11	HL11	HL11		CL11	C1	C2	CL21	L2	L2	L3	F3	F3	F2	F2		F2
15				F1	F2	F2	L2	L2	L2	L2		L1	L1			L1	C1	HL11	F1					
16		F4	F3	F2	F1		HL11	L1	L1	HL11	CL11	CL11	L1	C1	C1	C1	C2	L3	F1	F3	F2		F2	
17				F1			H1	H1	C2	C1	CL11	L1		C1	C1	L2	L2	C1	F2	F2		F2		
18								L2	HL11	CL11	CL11	CL11	CL11	CL11	CL11	C2	L1	L2		F1	F2		F2	
19							H1	CL11	CL11	CL11				L1				H1	F1	F2	F2	F2	F2	F2
20	F2	F1		F2			C1	HL11	HL11	CL11	CL11	C1	CL11	CL21	CL11		L1	C1	F3	F4	F3	F2	F1	F3
21	F2	F2					H1	H1	C1	C1	CL11	L1	L1	L1	L2	L2	CL11	C3	F2	F2		F3	F3	F3
22	F2	F2	F2		F1	F1	C1	H1	H1	CL11		L3	L1	L1	L1		L2	C3	F4	F3	F3	F1	F1	F2
23		F2				F2	C3	C2	CL21	L2	C1	C1	L1	L1	L1	L1	C2	C3	F5	F2	F2	F2	F2	F1
24	F1	F2				F1	CL11	HL11	L2	L2	L2	L1	L1	L1		C2	C2	L2	F3	F1				
25			F1	F2	F1			H1	L1	L1	C1	L2	L2	L1	L2	L2	L2		F2	F3		F3	F3	F1
26	F2	F2	F2	F2	F2	F2			L2	CL11	L1	L1	L2			HL11		C2					F2	F3
27		F2		F2	F1			H1	CL11			L1	L1	L2	L1	L2	HL12				F1			
28	F2	F2					H1			L2	L2	L1		L1		L1		H1	F3	F3	F3	F3	F3	F2
29	F4	F2		F1			L5	L4		C1			L1	L1	L1	CL11	CL21	C2	F3	F3	F3	F2	F2	F3
30	F1	F1					C3	HL12			L1	L1			L1		C2	CL21	F2		F1			
31		F1				F2	L1	L2	CL11	L1	L2	L2	L1	L1	L1	L2	CL11	CL11		F2	F3	F2	F2	F3
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT																								
MED																								
U Q																								
L Q																								

OCT. 2001 TYPES OF Es COMMUNICATIONS RESEARCH LABORATORY, JAPAN

f-PLOTS OF IONOSPHERIC DATA

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


f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2001/10/ 1
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE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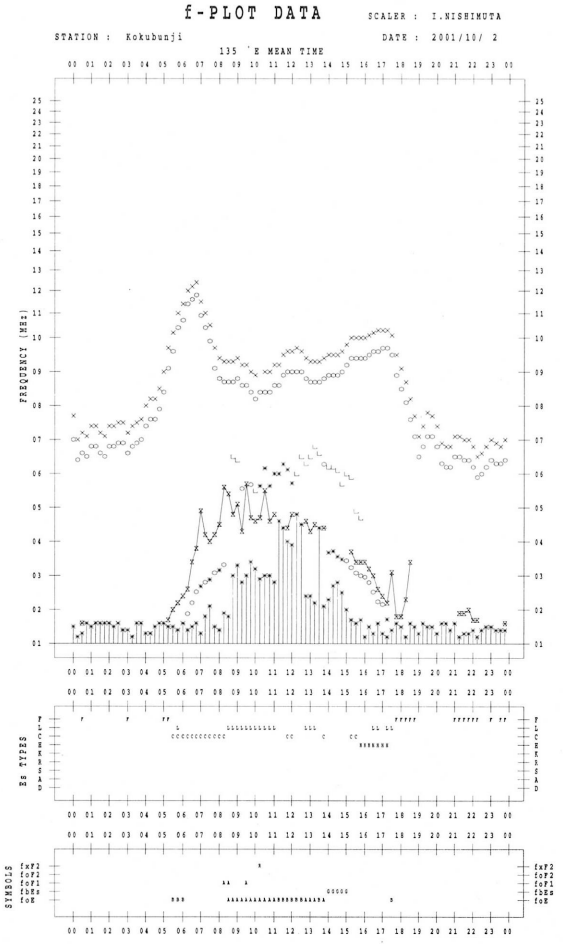
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2001/10/ 3
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE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STATION : Kokubunji
DATE : 2001/10/ 2
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
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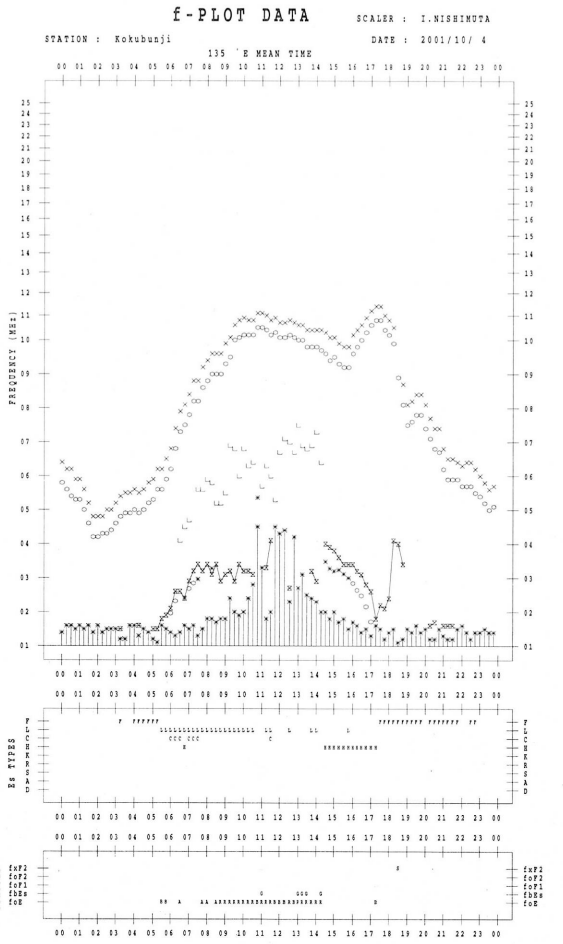
foF2
foF1
fbEs
foE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STATION : Kokubunji
DATE : 2001/10/ 4
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
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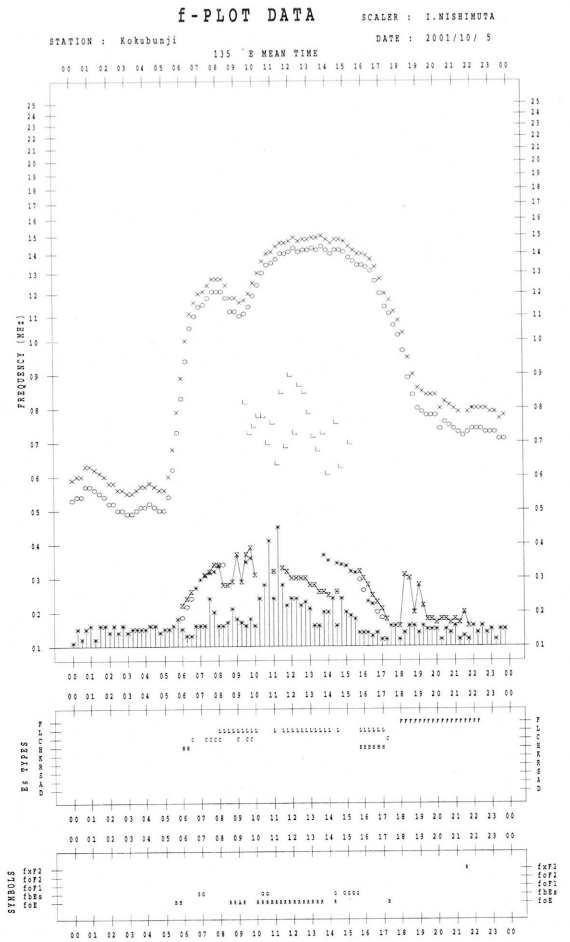
foF2
foF1
fbEs
foE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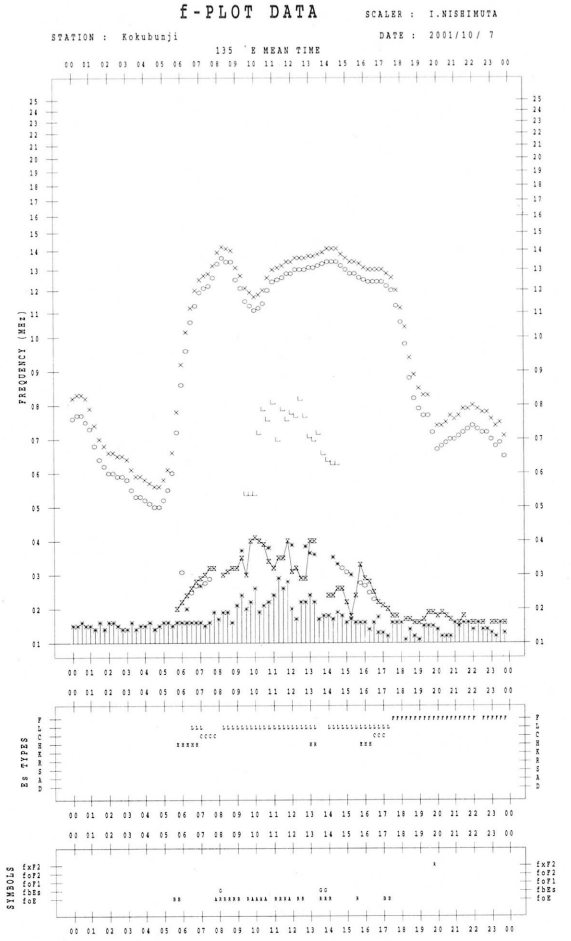
DATE : 2001/10/ 5
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE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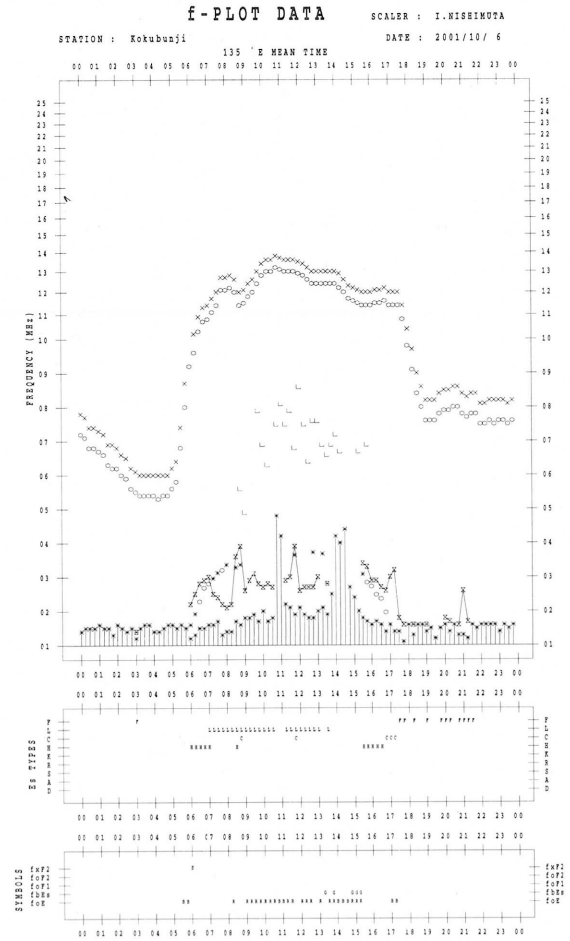
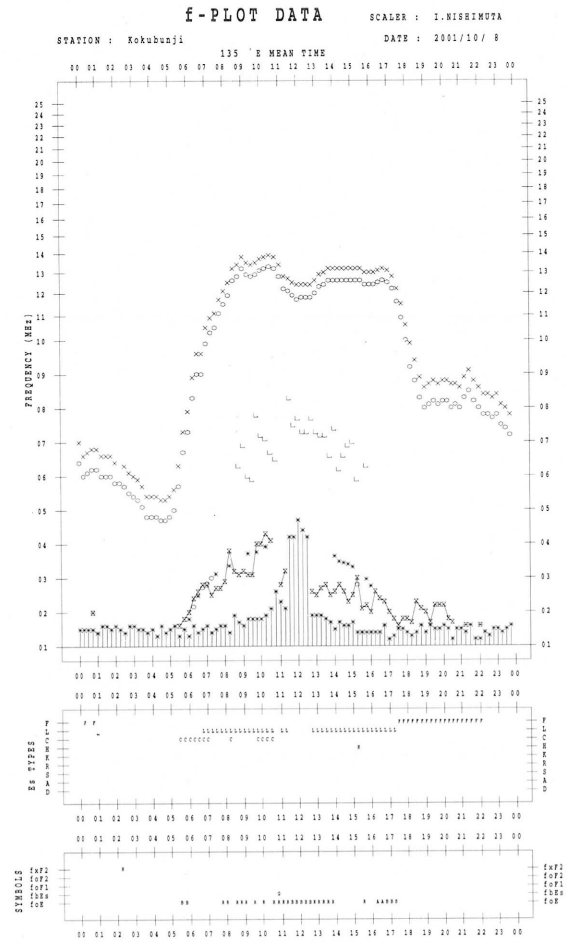
STATION : Kokubunji
DATE : 2001/10/ 7
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE


f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2001/10/ 6
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE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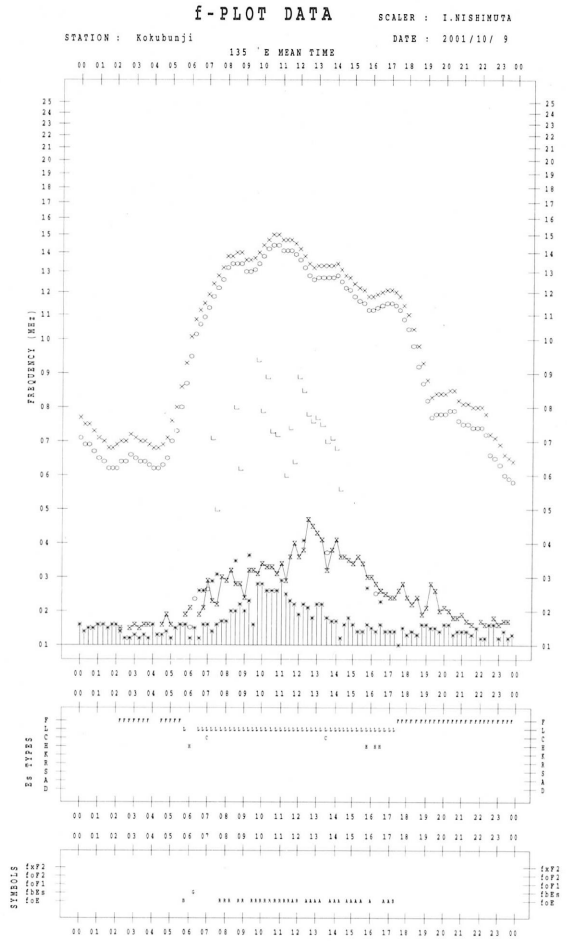
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2001/10/ 8
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE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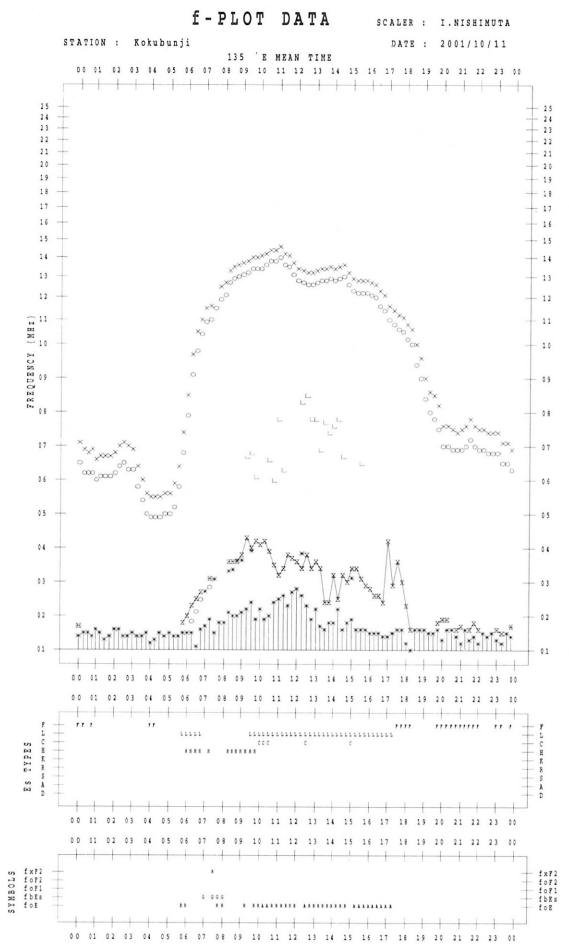
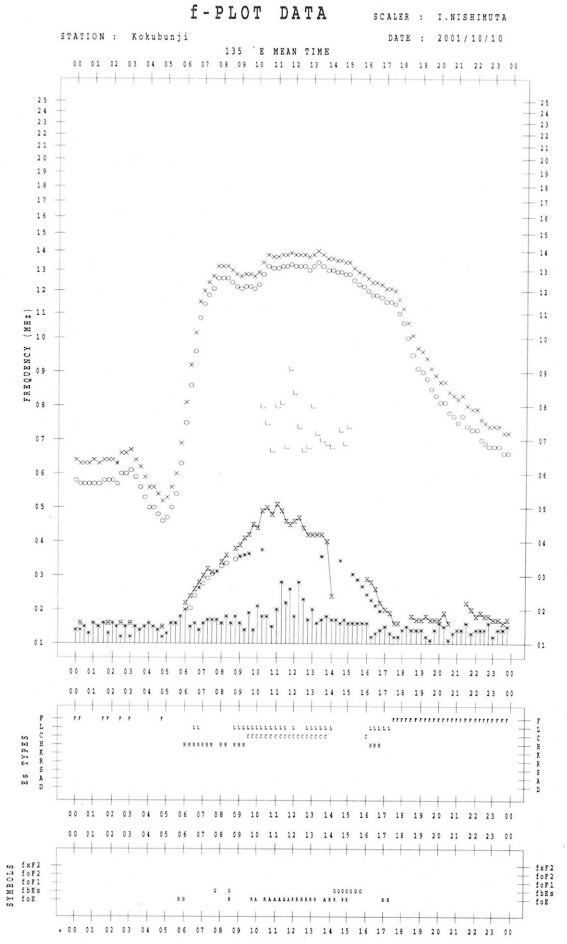
STATION : Kokubunji
DATE : 2001/10/ 9
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS


f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2001/10/11
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS


f-PLOT DATA
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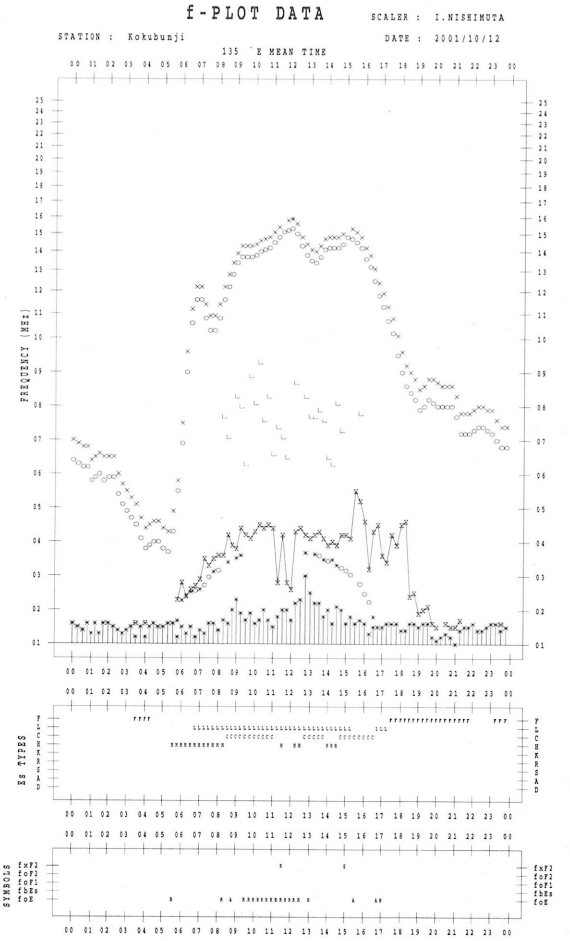
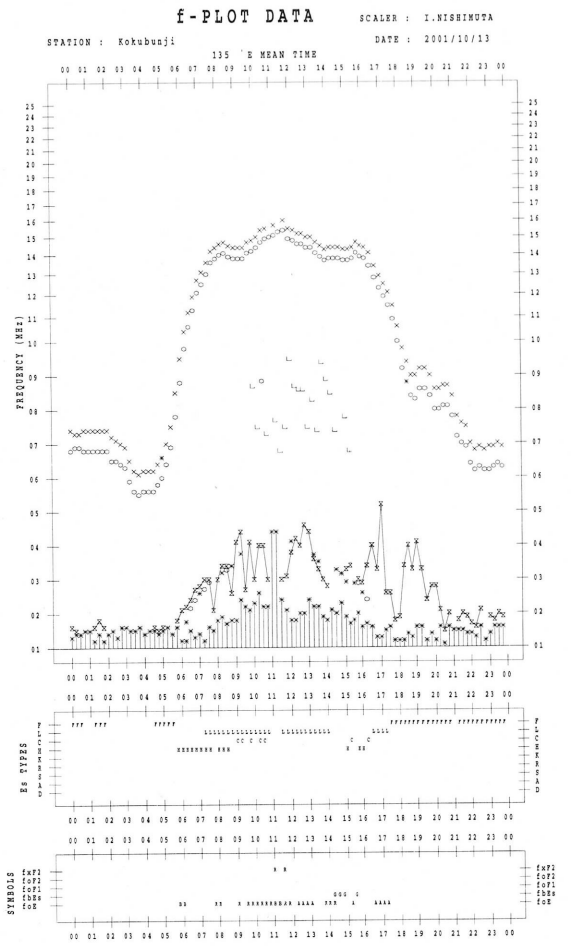
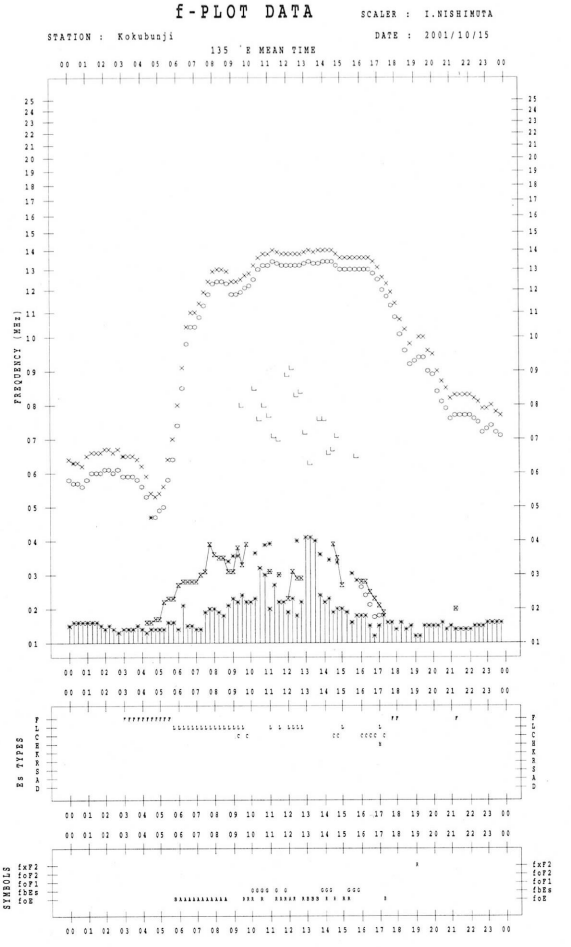
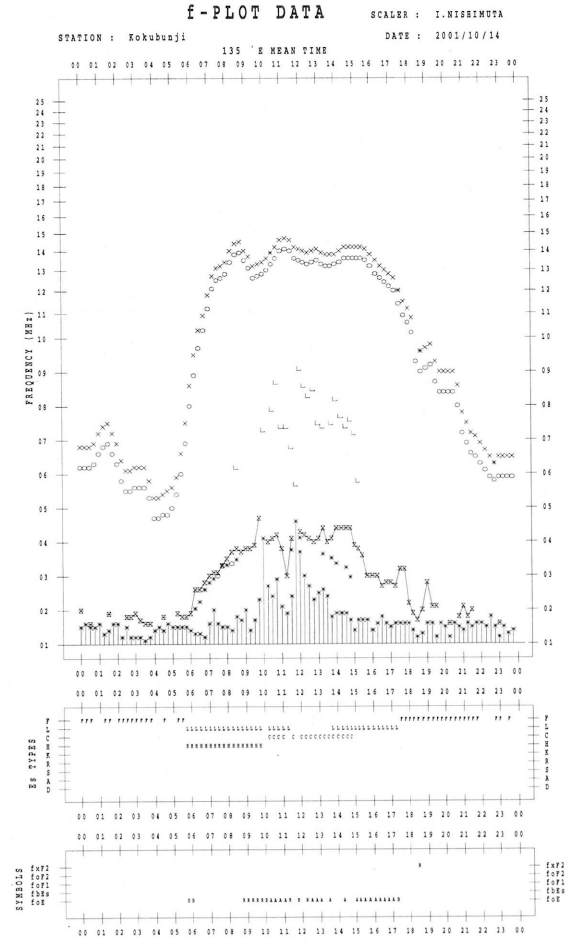
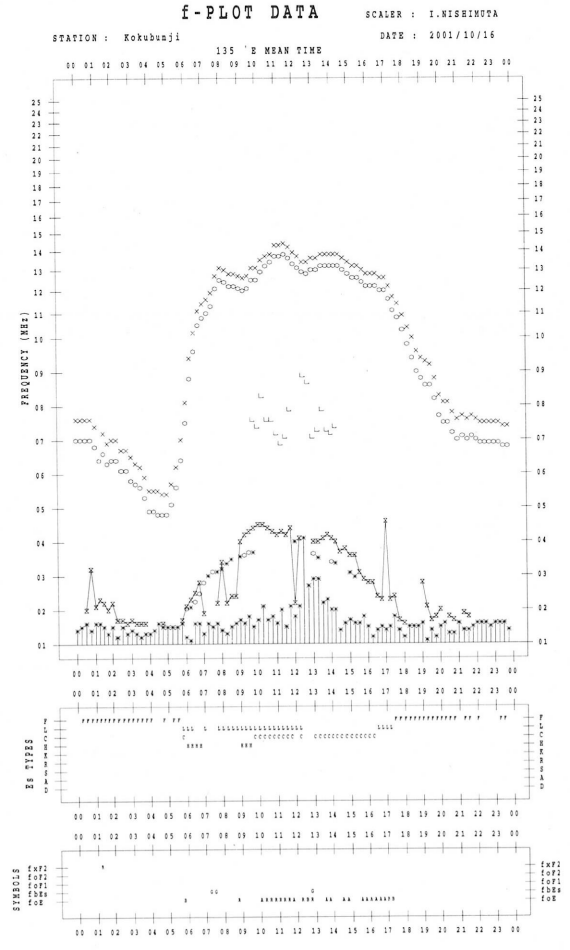
STATION : Kokubunji
DATE : 2001/10/10
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS

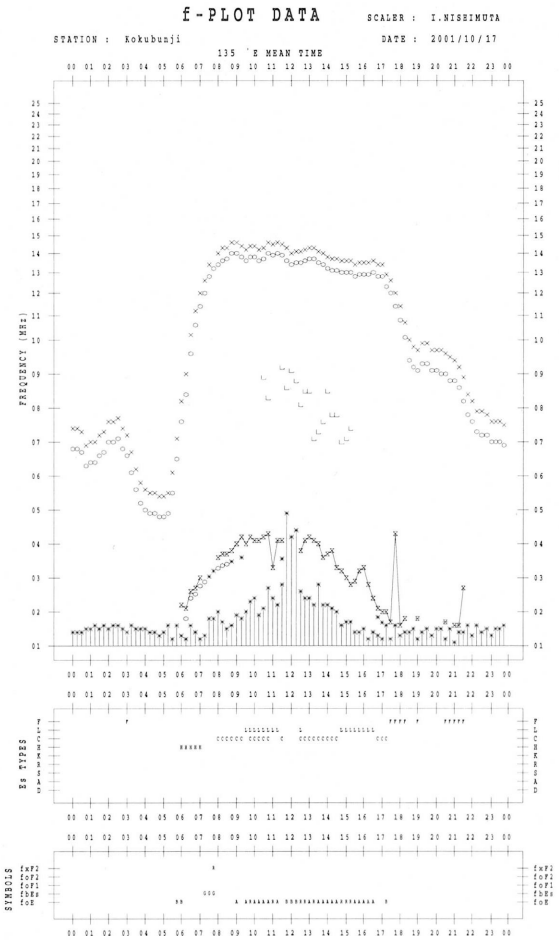

f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2001/10/12
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS

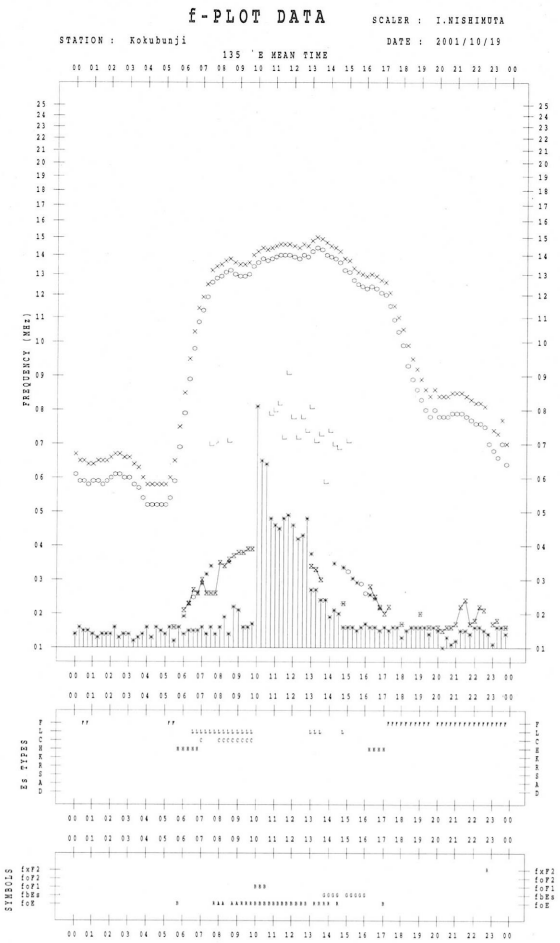

f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2001/10/13
135 °E MEAN TIME
FREQUENCY [MHz]
Es TYPES
SYMBOLS

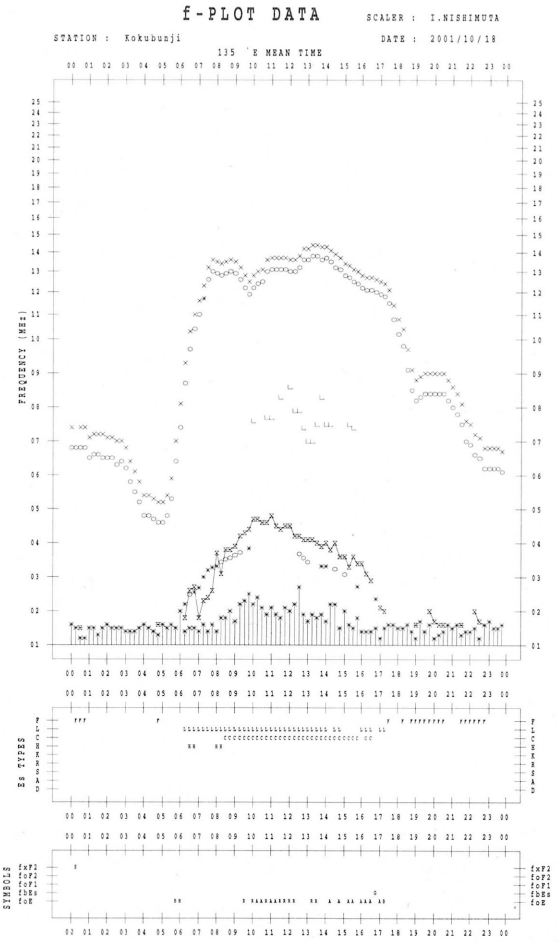

f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2001/10/15
135 °E MEAN TIME
FREQUENCY [MHz]
Es TYPES
SYMBOLS

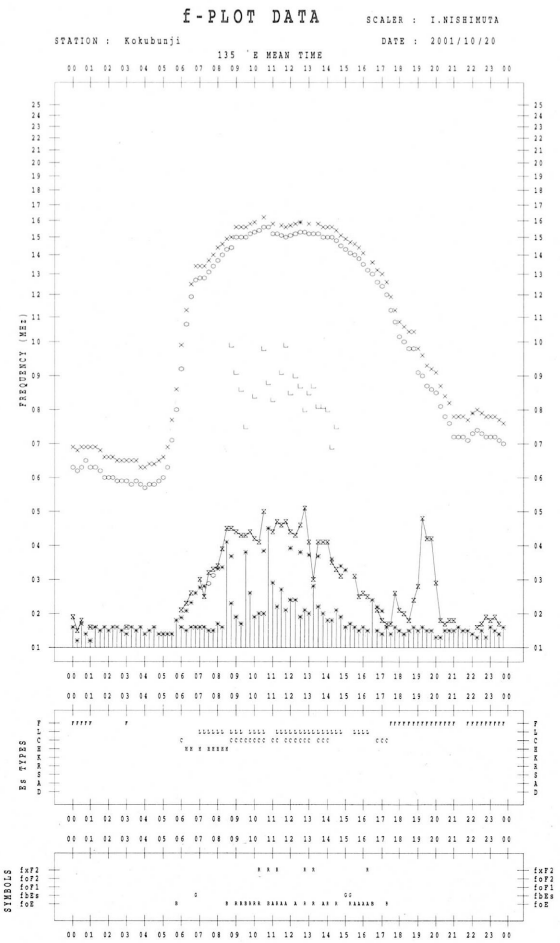

f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2001/10/14
135 °E MEAN TIME
FREQUENCY [MHz]
Es TYPES
SYMBOLS

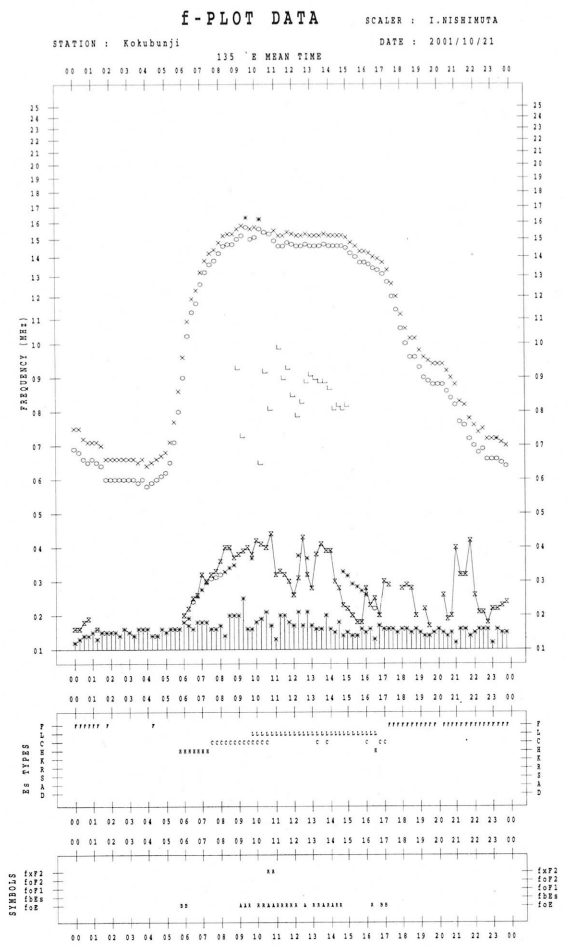

f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2001/10/16
135 °E MEAN TIME
FREQUENCY [MHz]
Es TYPES
SYMBOLS

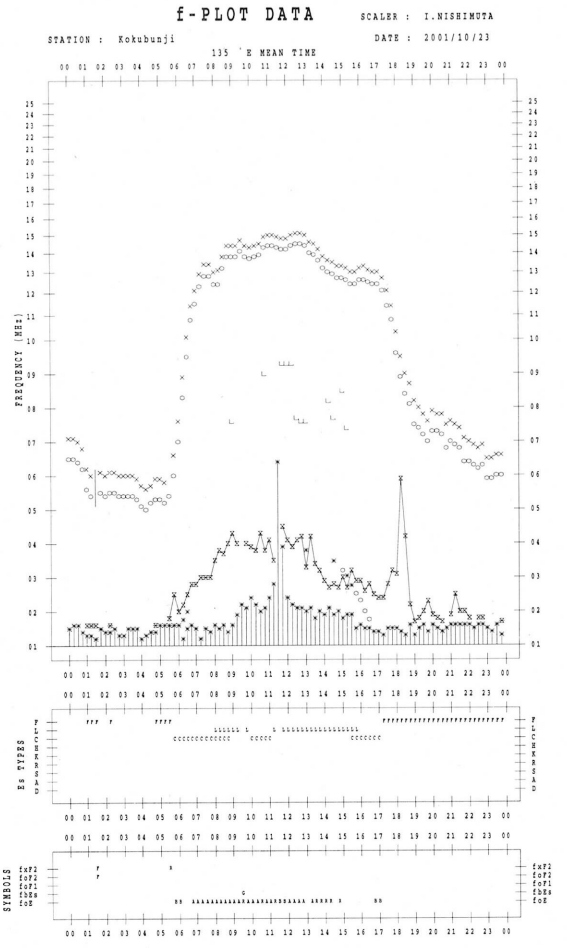

f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2001/10/17
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS

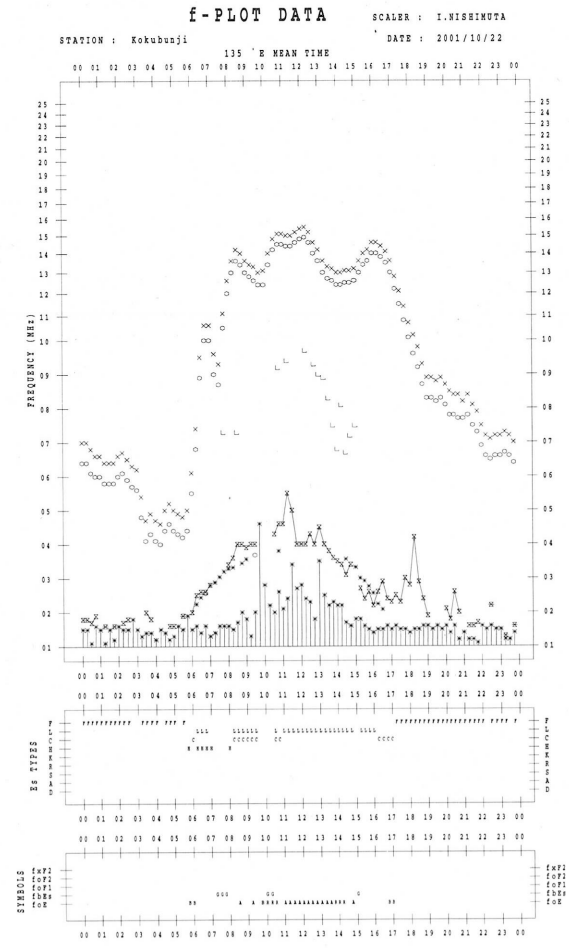

f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2001/10/19
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS

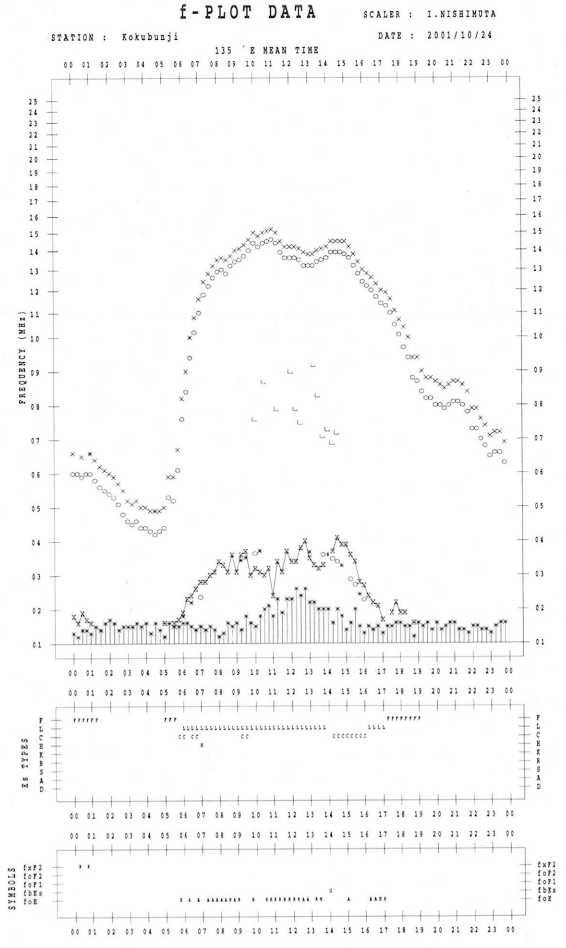

f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2001/10/18
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS

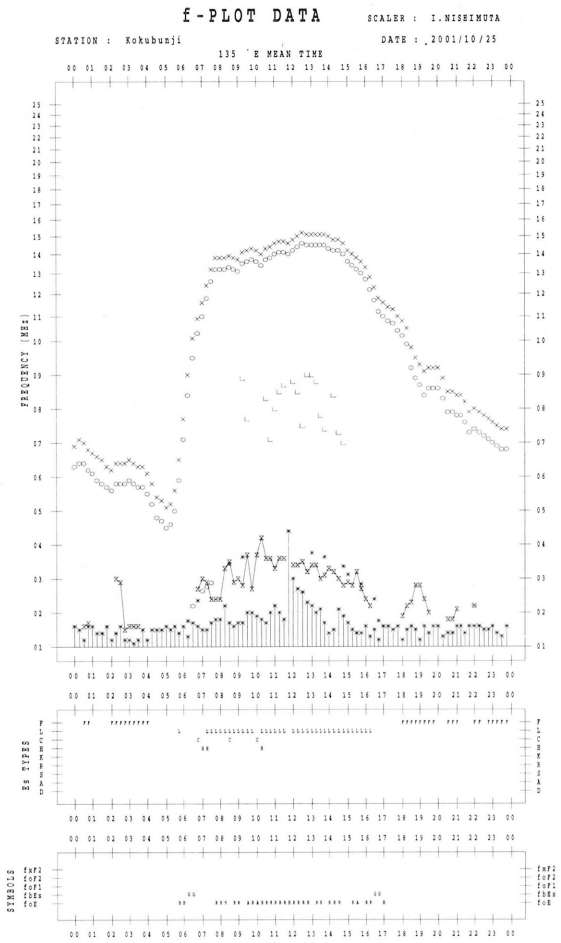

f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2001/10/20
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS


f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2001/10/21
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS


f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2001/10/23
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS


f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2001/10/22
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS


f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2001/10/24
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS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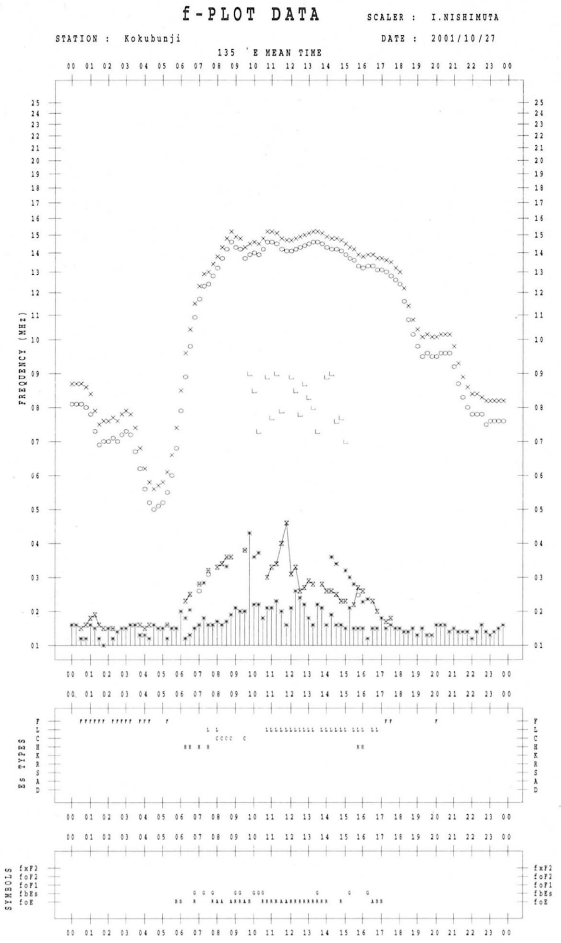
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2001/10/25
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE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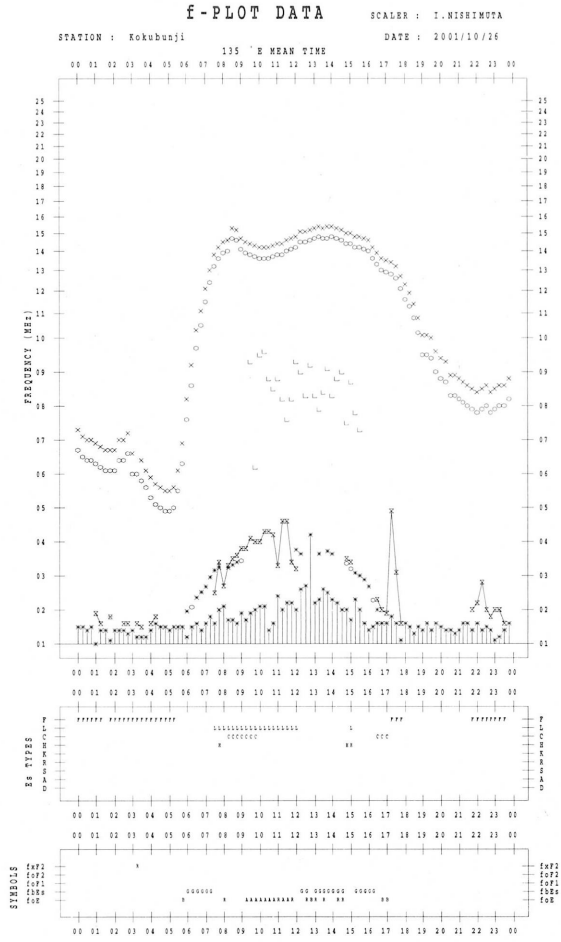
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2001/10/27
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE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SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2001/10/26
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
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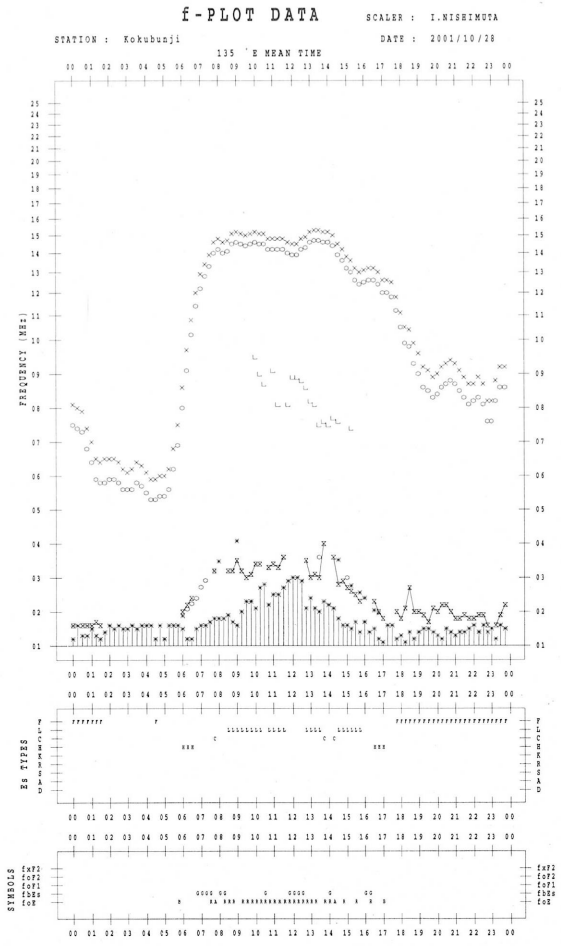
foF2
foF1
fbEs
foE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STATION : Kokubunji
DATE : 2001/10/28
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
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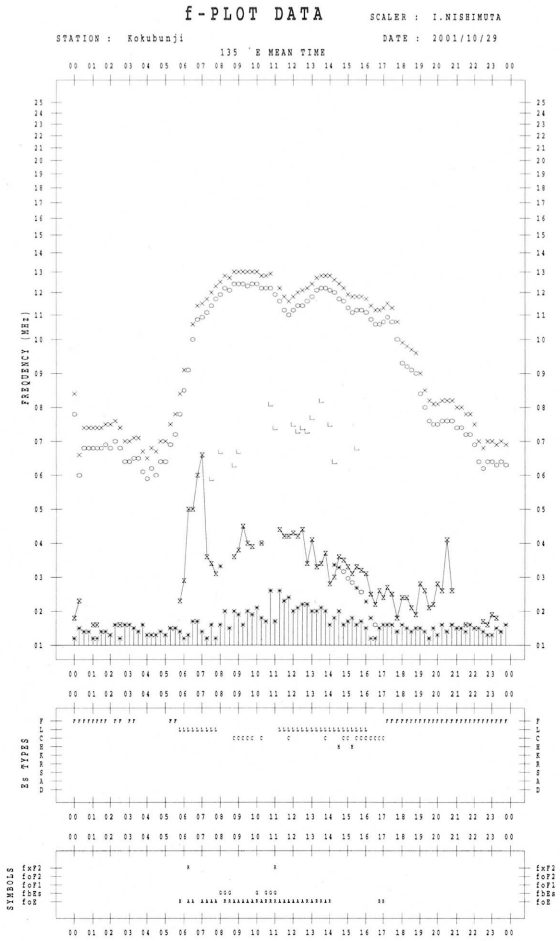
foF2
foF1
fbEs
foE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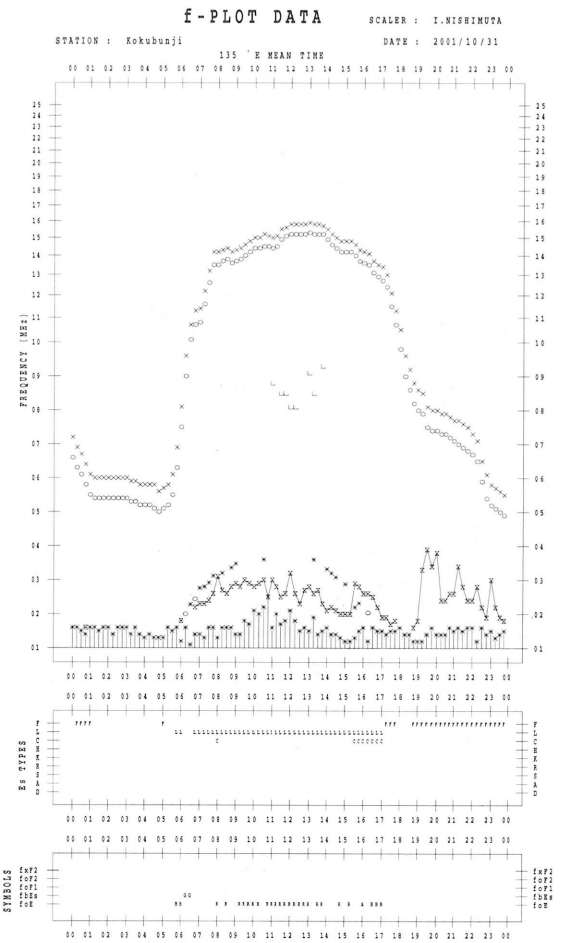
STATION : Kokubunji
DATE : 2001/10/29
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE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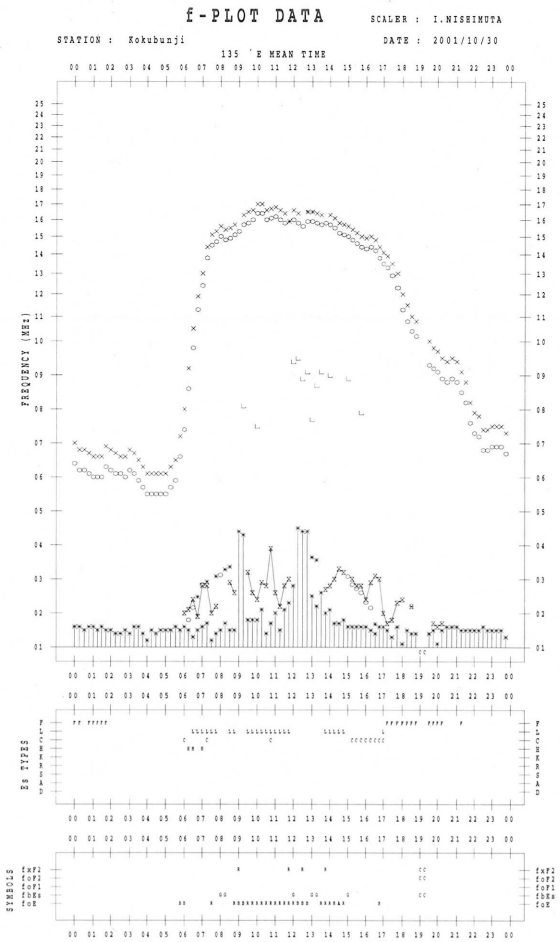
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2001/10/31
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE


f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2001/10/30
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS
fxF2
foF2
foF1
fbEs
foE

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

Hiraiso October 2001

Single-frequency total flux observations at 500 MHz					
Flux density: 10^{-22} W m^{-2} Hz^{-1}					
Date \ UT	00-03	03-06	06-09	21-24	Day
1	45	43	45	41	43
2	41	39	39	42	41
3	52	61	52	47	53
4	44	42	43	45	44
5	42	43	43	45	43
6	43	42	42	42	42
7	42	–	–	–	42
8	–	–	–	39	39
9	39	39	38	36	38
10	35	34	33	37	35
11	38	36	35	39	37
12	38	37	37	42	39
13	40	37	38	45	40
14	41	40	42	45	42
15	43	42	41	45	43
16	43	43	41	40	42
17	41	41	43	42	41
18	44	45	46	54	47
19	54	47	45	55	51
20	48	46	45	50	48
21	47	46	45	54	48
22	47	48	48	46	47
23	44	42	42	47	44
24	43	42	43	52	45
25	47	45	45	54	48
26	52	50	48	56	52
27	50	47	47	51	49
28	49	47	47	49	48
29	46	45	46	53	48
30	49	47	46	52	49
31	52	50	47	61	53

Note: No data is available during the following periods.
7th 0300 - 8th 0830

B. Solar Radio Emission

B2. Outstanding Occurrences at Hiraiso

Hiraiso October 2001

Single-frequency observations

Normal observing period: 2045 - 0800 U.T. (sunrise to sunset)

OCT. 2001	FREQ. (MHz)	TYPE	START TIME (U.T.)	TIME OF MAXIMUM (U.T.)	DUR. (MIN.)	FLUX DENSITY (10^{-22} W m^{-2} Hz^{-1}) PEAK	MEAN	POLARIZATION REMARKS
1	2800	7 C	0340.0	0346.0	19.0	90	-	0
1	500	7 C	0555.0	0607.0	43.0	165	-	0
3	2800	4 S/F	0641.0	0642.0	2.0	40	-	0
3	500	7 C	0641.0	0642.0	5.0	40	-	WL
3	2800	8 S	2118.0	2118.0	1.0	120	-	SL
3	500	8 S	2118.0	2118.0	1.0	70	-	0
3	500	8 S	2235.0	2235.0	1.0	15	-	0
5	500	7 C	2104.0	2110.0	12.0	110	-	ML
6	2800	1 S	0520.0	0523.0	8.0	35	-	0
6	500	4 S/F	0520.0	0521.0	10.0	60	-	0
9	500	3 S	0756.0	0801.0	10.0	20	-	0
9	500	8 S	2116.0	2116.0	1.0	15	-	0
10	500	8 S	0121.0	0122.0	3.0	25	-	0
10	500	8 S	0145.0	0145.0	1.0	30	-	0
10	500	1 S	0454.0	0457.0	4.0	10	-	0
10	500	7 C	2150.0	2156.0	8.0	30	-	0
11	500	42 SER	0416.0	0420.0	6.0	10	-	0
13	2800	4 S/F	0522.0	0522.0	8.0	85	-	0
13	500	4 S/F	0522.0	0522.0	7.0	60	-	0
18	500	8 S	0010.0	0010.0	1.0	35	-	0
18	500	8 S	0612.0	0613.0	1.0	10	-	0
19	2800	47 GB	0050.0	0126.0	62.0	1520	-	SL
19	500	47 GB	0054.0	0125.0	64.0	5210	-	WL
19	2800	3 S	2315.0	2320.0	11.0	100	-	0
19	500	4 S/F	2315.0	2320.0	12.0	40	-	0
20	2800	1 S	0014.0	0016.0	6.0	30	-	0
20	500	8 S	0622.0	0622.0	1.0	20	-	0
20	2800	8 S	2146.0	2146.0	1.0	60	-	0
20	500	8 S	2146.0	2146.0	1.0	10	-	0
20	500	42 SER	2202.0	2206.0	9.0	55	-	0
20	500	8 S	2236.0	2236.0	1.0	15	-	0
21	2800	8 S	0009.0	0009.0	1.0	80	-	WL
21	500	8 S	0018.0	0019.0	1.0	20	-	0
21	500	8 S	0251.0	0252.0	1.0	30	-	WR
21	500	7 C	0321.0	0324.0	3.0	10	-	0
21	2800	3 S	0435.0	0436.0	3.0	60	-	0
21	500	7 C	0435.0	0437.0	6.0	110	-	WL
21	2800	7 C	0511.0	0513.0	7.0	50	-	0
21	500	4 S/F	0511.0	0513.0	20.0	15	-	0
21	2800	1 S	0544.0	0545.0	3.0	20	-	0
22	2800	1 S	0034.0	0036.0	4.0	15	-	0
22	500	1 S	0034.0	0036.0	6.0	5	-	0
23	500	8 S	0012.0	0012.0	1.0	10	-	0
23	2800	4 S/F	0014.0	0016.0	6.0	205	-	SL
23	2800	3 S	0215.0	0218.0	6.0	110	-	WL
24	500	8 S	0241.0	0243.0	2.0	20	-	WL
24	500	4 S/F	0443.0	0443.0	3.0	35	-	WL

B. Solar Radio Emission

B2. Outstanding Occurrences at Hiraiso

Hiraiso October 2001

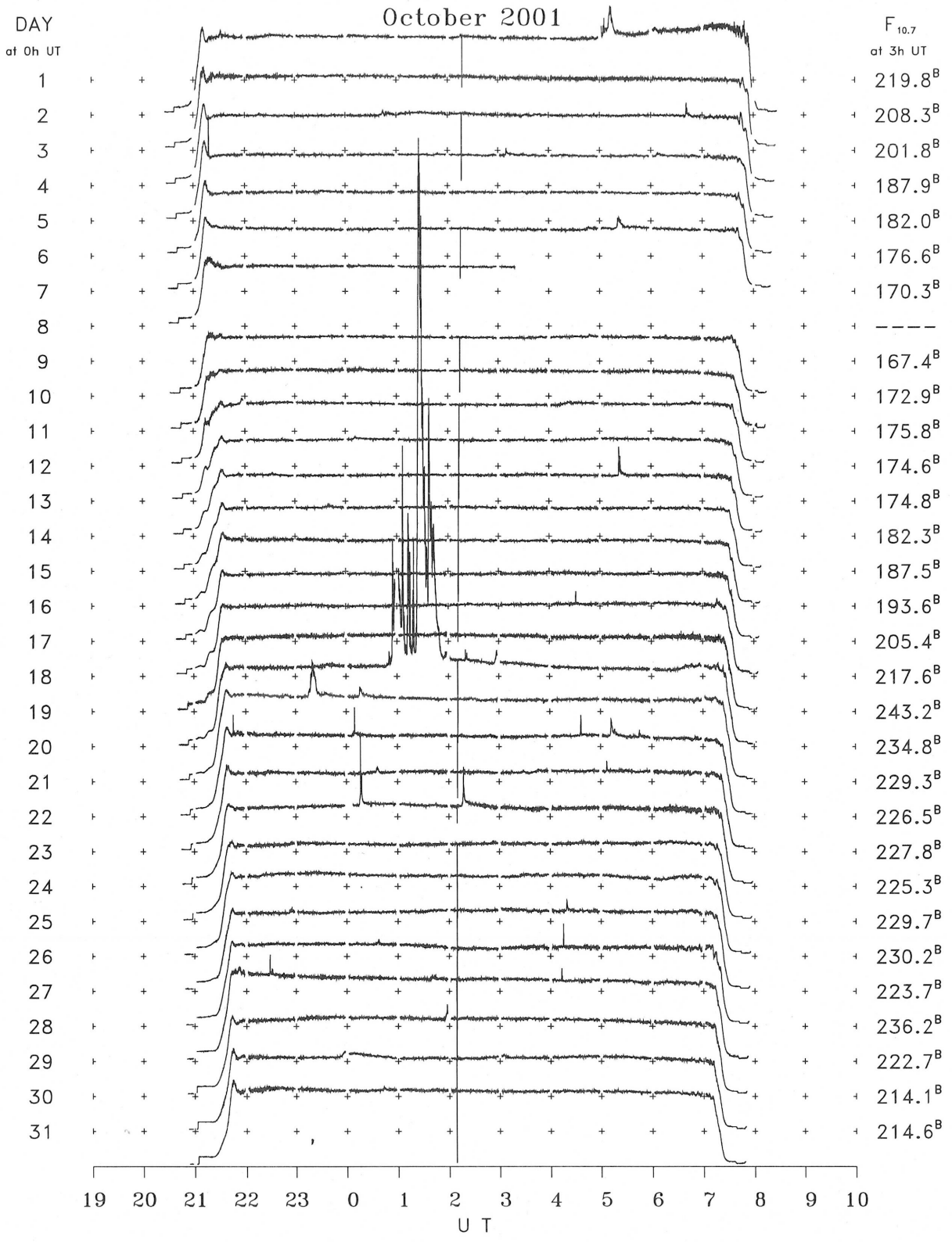
Single-frequency observations

Normal observing period: 2045 - 0800 U.T. (sunrise to sunset)

OCT. 2001	FREQ. (MHz)	TYPE	START TIME (U.T.)	TIME OF MAXIMUM (U.T.)	DUR. (MIN.)	FLUX DENSITY (10^{-22} W m^{-2} Hz^{-1}) PEAK	FLUX DENSITY (10^{-22} W m^{-2} Hz^{-1}) MEAN	POLARIZATION REMARKS
24	500	1 S	0545.0	0546.0	5.0	10	-	0
25	500	47 GB	2251.0	2255.0	11.0	1885	-	0
26	500	8 S	0139.0	0139.0	1.0	65	-	0
26	500	47 GB	0433.0	0436.0	5.0	1185	-	0
26	500	8 S	0625.0	0626.0	1.0	20	-	0
26	500	8 S	2149.0	2149.0	1.0	495	-	MR
27	500	8 S	0036.0	0036.0	1.0	40	-	0
27	2800	8 S	0415.0	0415.0	1.0	70	-	0
27	500	1 S	0415.0	0415.0	1.0	10	-	0
27	500	8 S	2154.0	2155.0	1.0	245	-	WR
28	500	7 C	0138.0	0143.0	7.0	25	-	WR
28	2800	8 S	0412.0	0413.0	1.0	40	-	0
28	500	8 S	0555.0	0555.0	1.0	150	-	0
28	500	8 S	2311.0	2312.0	1.0	90	-	0
29	2800	3 S	0155.0	0157.0	4.0	50	-	0
29	500	7 C	0157.0	0201.0	7.0	15	-	0
29	2800	1 S	2354.0	2358.0	8.0	15	-	0
29	500	1 S	0302.0	0305.0	4.0	5	-	0
31	500	8 S	0531.0	0532.0	1.0	15	-	0
31	500	8 S	2147.0	2147.0	1.0	20	-	0

B. Solar Radio Emission

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



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

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