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IONOSPHERIC DATA IN JAPAN

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CONTENTS

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INTRODUCTION

This Series contains data on ionosphere (I) and solar radio emission (S) obtained at the following stations under the National Institute of Information and Communications Technology, Independent Administrative Institution in Japan.

Station	Geographic		Geomagnetic (IGRF2000)		Technical Method	
	Latitude	Longitude	Latitude	Longitude		
Wakkanai	45°23.6'N	141°41.1'E	36.4°N	208.6°	Vertical Sounding	(I)
Kokubunji	35°42.4'N	139°29.3'E	26.6°N	207.9°	Vertical Sounding	(I)
Yamagawa	31°12.1'N	130°37.1'E	21.4°N	199.8°	Vertical Sounding	(I)
Okinawa	26°40.5'N	128°09.2'E	16.8°N	198.4°	Vertical Sounding	(I)
Hiraiso	36°22.0'N	140°37.5'E	27.4°N	209.2°	Solar Radio Emission	(S)

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 (**CNT**) 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.

HOURLY VALUES OF foF2 AT Wakkanai

NOV. 2008

LAT. 45°23.5'N LON. 141°41.2'E SWEEP 1.0MHz TO 30.0MHz 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	44	44	39	40	40	42	38	45	56	59	60	68	62	53	55	58	53	37	31	30	35	28	37	37
2	37	36	34		34	34	38	44	46	57	55	66	59	57	55	33	52	41	26			35	29	34
3	36	36	34	35	34	36	32	47	54	49	58	62	60	55	51	49	35	34	34		34		36	41
4	41	36	34	37	34	38	32	46		40	54	58	60	55	60	52	44	40	32	28		30	32	32
5	34	34	34	32	25	30	32	46	38	56	59	61	62	60	36	55	45				31		31	34
6	34	34	34	32	30	30	30	46	50	52	50	62	61	A	39	50	46	A	A	28	29	29	32	34
7	34	26	32	23	28	30	26	46	55	56	59	60	60	60	55	46	57	32		36	37	32	28	32
8	A	A	30	31	26	30	35	57	66	59	68	81	65	61	38	61	60	44	34			A		34
9	34	36	36	38			34	51	54	56	67	69	78	50	56	56	55	38	A	A	32	34	36	37
10	38	38	40	40	39	34	30	44	44	55	55	64	62	53	60	55	45	34		34	23	37	38	40
11	40	45	42	40	37	32	32	41		61	42	66	58	60	56	52	46	34	28	23	35	34	34	34
12	34	34	32	32		30		44	70	56	53	56	58	57	36	53	45				32	30	25	34
13	34	36	34	34	32	25	32	41	57	67	61	56	61	58	56	57	45	23	A	30	31	32	34	32
14	32		34		32	31	28	48	45	49	54	65	62	63	60	52	46	31	A	31	38	36	32	40
15	37	42	44	44	40	44	31	38	50	59	42	61	69	54	60	48	45	36	32		34	38		34
16	34	40	34	38	34	36	35	47	54	59	45	62	68	67	60	61	38	26	30			41	40	38
17	42	41	45	40	42	42	41		55	55	C	C	72	61	62	48	52	34		35	37	36	38	38
18	40	38	31	35	34	36	30	47	49	54	59	55	74	62	57	48		A		31	32	32	32	32
19	34	34	36	35	35	29	26	45	44	47	56	46	68	64	56	49	60	32		31	30	29		32
20	34	32	32	32	30	26			53	54	49	62	76	55	53	60	47	30		31	28	29	32	34
21	32	34	34	34	28	26	39	42	51	52	47	55	57	58	50	62	60	31	28	35	38	40	38	34
22	39	36	34	34	34	36	28	41	50	45	51	50	54	51	54	47	32	28	28	29	26		30	30
23	31	31	31	30	30	29		41	51	42	48		61	54	49	48	42			28	32	30	35	34
24	34	34	34	32	32	29		40	52	50	47	33	60	29	57		46	A	28	29	29	29	30	
25	32	30	32	34	30	30		42	45	48	59	52	60	48	52	52	41	31		30				34
26	28	31	30	32	26	29	25	39	52	56	42	63	61	59	55	39	49	29	28	30	29	28	30	32
27	34	30	31	30	29	34	28		48	39	55	61	65	56	52	54	23	24	36	31	30	34		34
28	34	34	34	34	35	31		40	46	51	42	54	58	58	54	51	20	A	A	32	32	35	34	36
29	34	34	32	32	36	32		38	47	57	53	61	62	45	50	47			26					N
30		30		28	26	30		30		61	47	62	63	58	60		26			39		31	29	23
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	28	29	28	28	29	22	27	27	30	29	28	30	29	30	28	28	21	14	21	23	24	24	28
MED	34	34	34	34	33	31	32	44	51	55	54	61	62	57	55	52	46	32	29	31	32	32	32	34
U Q	37	37	35	37	35	36	35	46	54	57	59	63	65	60	57	55	52	36	32	33	35	35	36	36
L Q	34	33	32	32	29	29	28	41	46	49	47	55	60	53	51	48	41	29	28	29	29	29	30	32

HOURLY VALUES OF fEs AT Wakkanai

NOV. 2008

LAT. 45°23.5'N LON. 141°41.2'E SWEEP 1.0MHz TO 30.0MHz AUTOMATIC SCALING

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	G	26	G	25	G	G	G	27	32	G		G	G	G	G	32	28	36	G	G	G	29	30	G
2	39	30	29		G	G	G	27	34	39	39	40	39	38	G	G	34	34	G		28	G	28	G
3	G	G	G	26	25	26	26	27	32	36	41	37	G	34	G	29	31	35	G		34	43	30	34
4	26	28	G	G	G	G	G	G		44	34	G	N	G	G	G	G	G	G	G	G	37	29	G
5	G	G	G	G	G	G	G	G	G	G	41	42	G	36	33	32	G	G	26		26	32	26	31
6	28	28	26	25	G	G	G		G	G	G	68	G	98	54	G	30	72		G	G	G	G	G
7	28	30	G	G	G	G	G	G	32	G	44	39	G	48	G	G	G	G		G	G	G	G	G
8	49	68	33	G	G	G	27	28	35	34	36	G	G	34	33	32	28	29	25	G	32	44	36	34
9	27	G	G	G	32	29	G	30	42	40	42	42	40	34	G	29	G	30	36	37	27	G	G	G
10	G	29	30	G	25	G	G	34	35	40	G	G	G	G	37	30	43	G	27	23	35	G	32	28
11	26	33	25	28	33	25	G	44		50	52	65	37	37	52	45	28	G	G	G	29	39	29	25
12	31	29	G	G	27	G		G	32	G	G	40	38	36	33	36	32				G	G	G	G
13	32	G	27	G	G	G	G	G	G	33	39	41	52	55	32	G	28	28	29	G	G	G	G	G
14	G	G	28	39	G	G	G		G	39	G	41	39	G	34	33	G	29	36	28	35	32	33	G
15	G	29	33	28	27	G	G	47		36	34	G	39	33	G	G	G	26	G	G	26	39	36	24
16	29	G	G	G	G	G	11	G	G	33	40	34	G	G	34	28	11	G	G			G	G	G
17	G	G	24	26	G	33	G		30	G	C	C	38	34	54	68	31	39	25	G	G	G	G	G
18	G	G	G	G	28	26	G	G		34	36	35	G	G	34	G	26	29		G	G	G	27	G
19	25	28	26	24	G	G	G		43	G	40	G	40	34	32	32	11	22	G	G	G	G		G
20	G	G	G	G	G	G	G		31	G	38	40	50	51	39	46	26	G	G	G	G	G	G	G
21	G	24	G	G	G	G	G		33	40	38		35	G	33	31	27	11	G	G	G	G	33	G
22	G	G	G	G	G	G	G		29	34	39	35	34	34	G	G	11	G	G	G	G		G	G
23	G	G	G	G	G	G	G	G	31	G	G	G	G		G	G	11	G		G	G	G	G	G
24	G	G	G	G	G	G	G		49	34	40	40	35	34	31	32	32	30	G	G	G	G	G	G
25	G	G	G	24	G	G	G	G	G	G	G	G	G	G	G	G	G	G	29	G			G	G
26	G	G	25	29	26	G	G		G		G	G	41	G	33	30	24	G	G	26	G	G	G	G
27	G	G	G	G	G	G	G		32	37	G	35	38	36	39	37	31	G	G	G	G	G	25	31
28	G	G	G	G	G	G	G	G	G	34	G	36	36	35	G	28	27	31	33	G	G	G	G	G
29	G	G	G	G	G	G			30		34			33		G	11	G	G	G		G		G
30	G	G		G	G	G		29	38	G	G	G	G	G	G	G	33			G	G	G	G	G
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	30	29	29	30	30	27	19	26	28	28	27	28	29	29	30	30	28	24	25	27	28	28	30
MED	G	G	G	G	G	G	G	G	32	34	36	35	35	34	32	29	26	16	G	G	G	G	G	G
U Q	27	28	26	25	25	G	G	29	34	38	40	40	39	36	34	32	31	30	26	G	27	30	29	G
L Q	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	11	G	G	G	G	G	G	G

HOURLY VALUES OF fmin AT Wakkanai

NOV. 2008

LAT. 45°23.5'N LON. 141°41.2'E SWEEP 1.0MHz TO 30.0MHz AUTOMATIC SCALING

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

HOURLY VALUES OF foF2 AT Kokubunji

NOV. 2008

LAT. 35°42.4'N LON. 139°29.3'E SWEEP 1.0MHz TO 30.0MHz AUTOMATIC SCALING

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	A	A	A	A			25	54	69	64	61	58	63	64	64	71	56	A	A	A		31		27
2	26	A	28	27	30		30	51	62	55	59	61	58	66	58	51	55		A	A	A	A	A	
3	30	30	30	28	28		34	48	58	51	54	63	64	51	58	55	44	35		30	32	28	31	
4		28	27	27	30		35	48	52	56	54	C	C	C	C	C	C	C	C	C	C	C	C	C
5	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
6	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	47		27		A	25	A
7	28	27	30		26	25	30	47	50	59	45	54	55		57	60	46	43	28	30		30		30
8	28	28			32	26	30	53	59	C	64	68	63	52	61	58	59	52		36	38	34	A	A
9		A	A	32	32	30	34	54	61	73	77	77	64	69	64	55	42	48	38	36	A	A	30	
10	31	30		32	24		30	51	60	67	69	69	55	55	65	65	54	34		28	28	31	25	30
11	30	32	41	32	32	30	31	52	55	57	66	61	58	52	74	59	47	38		27	28	30	A	
12	A	A	A		28		28	48	45	53	62	62	55	55	52	59	54	A	A		28	28	30	26
13	28	27		28	27		32	58	56	56	66	72		56	58	54	47	32	A			27	30	30
14	30	28	26	28	30		30	47	54	56	63	67	A	62	64	61		36			A	A	30	28
15	27	A	30		A	28	27	41	56	59	58	C	C	C	C	C	C	C	C	C	C	C	C	C
16	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
17	C	C	C	C	C	C	C	C	C	C	59	55	61	76	77	72	46	38		32	31	30	27	30
18	30	28	28	30	32	31	30	51	59	55	53	58	67	58	77	64	45	39		28	30	30	30	30
19	32	32	32	31	30	35	28	42	51	51	56	66	51	66	71	68	46	C			27	27	27	21
20	27	27	27				27	45	47	54	50	57		59	70	69	54	37			30			21
21	26	20			27			44	45	48	61	54	A	44	58	61	55	46		A		28	30	30
22	30	30	30	27	28		27		46	47	56	54	50	42	60	61	51	23	A		28	27		
23								44	44	42	59	56	42	64	52	44	41	34	A	A	A			26
24	25	30	28	27	30	28			47	49	52	55		51	61		53	28	A	26	27		27	
25					27			41	49	52	49	59	52	55	54	57	45	27	27		27		30	28
26	31	28	27	34	32			51	52	49	49	63	52	66	C	62	42	42	28		26		A	
27	26	27	26	27	31			39	51	C	C	C	C	C	C	61	56	C	A	A	A	A	A	27
28	28	27	27	30	34			39	47	56	62	47	56		59	56	A	A				30	28	
29	30	30	21					39	48	49		54	64	48	58	56	47	38			32			27
30	28				26			44	45	48	65	64	64	58	55	49	42	32		28	30		28	
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	20	18	16	15	21	8	17	24	26	24	25	24	19	22	23	24	23	20	4	11	15	14	15	15
MED	28	28	28	28	30	29	30	48	52	54	59	60	58	57	60	60	47	38	28	28	28	30	30	28
U Q	30	30	30	32	32	30	31	51	58	56	63	65	64	64	65	63	54	42	33	32	31	30	30	30
L Q	27	27	27	27	27	27	27	43	47	49	53	55	52	52	58	55	45	33	27	27	27	28	27	26

HOURLY VALUES OF fEs AT Kokubunji

NOV. 2008

LAT. 35°42.4'N LON. 139°29.3'E SWEEP 1.0MHz TO 30.0MHz 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	39	29	37		26	G	34	44	43	51	40	53	G	51	35	36	64	68	53	24	G	G	G
2	G	36	G	G	G	G	G	G	35	G	G	G	G	46	46	43	61	58	65	52	43	34	29	
3	G	G	G	G	27		G	33	33	G	37	45	44	G	G	G	G	26	G	34	29	G	G	
4	30	G	26	G	G		G	33	39	40	46	C	C	C	C	C	C	C	C	C	C	C	C	C
5	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
6	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	24		G		30	G	24
7	G	G	G	G	G	24	G	28	N	G	43	65	37		40	34	40	G	G	G	29	G		G
8	G	G	G		G	G	G	30	34	C	45	46	G	38	35	45	33	26	22	G	G	G	29	33
9	33	47	34	G	G	G	G	30	33	40	54	47	51	G	G	34	G	31	26	31	33	31	G	G
10	G	G	G	26	24	30	G	G	G	39	G	G	G	47	G	50	45	G		G	27	G	G	G
11	G	25	47	G	29	G	G	G	G	G	G	37	G	G	G	G	G	11	G	G	G	G	49	33
12	39	29	36	31	G		G	49	40	G	49	G	43	G	35	G	G	34	33		G	G	G	G
13	G	G		G	G		G	G	G	G	G	38	G	G	G	37	34	27	37			G	G	G
14	G	G	G	G	G	G	G	37	G	41	45	45	76	49	48	43	34	33	26	26	44	37	24	G
15	G	51	28	31	42	G	22	G	G	51	49	C	C	C	C	C	C	C	C	C	C	C	C	C
16	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
17	C	C	C	C	C	C	C	C	C	C	G	G	G	49	43	G	G	G		G	G	G	G	G
18	G	G	G	G	G	G	G	G	G	G	G	G	40	45	34	G	G	32	G	G	G	G	G	G
19	G	G	G	G	G	11	G		G	40	G	G	40	57	G	G	G	C	26		G	G	G	G
20	G	G	G		G		G	G	G	G	37	G		G	G	G	G	35	G	G	G	G	G	G
21	G	G		G	23			G	45	G	37	43	56	47	G	37	40	28	G	23	G	26	26	35
22	G	G	G	G	G	G	G	G	G	G	36	G	G	G	G	G	G	27	33	29	G	G		
23				G		G	G	G	36	G	G	G	G	G	34	G	G	G	30	40	39	G		G
24	G	G	G	G	G	G			47	G	43	46		G	42	40	45	G	26	G	G		G	
25		G	G	G	G	G		33	36	34	G	G	37	G	G	G	G	G	G	G	G		G	G
26	G	G	G	G	G		G	G	G	G	G	G	G	42	C	40	31	27	30	25	G	G	37	27
27	G	G	G	G	G	G	G	40	32	C	C	C	C	C	C	53	40	C	60	43	46	49	40	24
28	22	G	G	G	G			39	G	G	G	50	63		G	G	52	34				G	G	G
29	G	G	G	G	G	G		G	G	40	39	G	G	39	G	30	G	G	G	G	G	G	G	G
30	G	G	G		G			G	34	35	38	37	39	G	G	G	G	G		G	G	G	G	
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	24	25	23	23	24	17	20	24	25	24	26	24	22	22	23	25	25	24	21	22	23	24	23	21
MED	G	G	G	G	G	G	G	G	32	G	37	19	37	G	G	30	G	26	26	G	G	G	G	G
U Q	G	13	26	G	G	6	G	33	36	40	45	45	44	46	40	40	40	32	33	31	29	13	26	24
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 Kokubunji

NOV. 2008

LAT. 35°42.4'N LON. 139°29.3'E SWEEP 1.0MHz TO 30.0MHz 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	35	13	13	13		14	14	13	13	13	15	14	13	18	14	17	13	20	15	15	14	14	23	14
2	13	13	13	13	14	14	21	13	13	34	14	45	17	14	13	13	13	13	13	14	14	13	15	
3	20	18	15	13	13		14	15	13	13	18	15	30	20	17	13	13	14	15	14	14	15	17	
4	14	14	13	13	18		14	13	13	14	14	C	C	C	C	C	C	C	C	C	C	C	C	C
5	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
6	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	13		17		13	15	14
7	14	13	13	15	14	14	14	21	13	14	14	14	14		15	13	14	17	13	13	14	14		14
8	14	14	17		13	13	13	14	13	C	13	15	13	14	15	13	13	14	14	13	13	14	14	13
9	13	14	13	14	13	14	14	14	13	13	17	28	18	17	14	13	14	13	13	14	13	13	14	18
10	14	17	14	14	14	13	14	21	13	13	13	15	14	14	14	13	14	14		15	14	13	15	14
11	13	14	14	13	13	18	14	22	13	13	15	15	39	14	13	18	23	13	14	13	14	14	13	14
12	13	13	13	13	14		14	18	13	13	15	35	15	14	15	14	18	13	13		14	14	13	13
13	13	14		14	13		14	15	13	13	13	13	15	14	15	13	14	14	13			15	13	13
14	13	17	14	13	13	13	14	21	14	14	14	13	18	17	14	13	14	13	15	13	14	13	14	14
15	20	13	13	13	13	13	13	15	14	13	15	C	C	C	C	C	C	C	C	C	C	C	C	C
16	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
17	C	C	C	C	C	C	C	C	C	C	15	14	15	13	13	13	17	13		13	14	14	15	13
18	14	15	13	13	13	14	15	17	13	13	14	14	13	15	18	13	20	13	13	14	14	14	14	13
19	13	13	13	13	13	14	14	18	14	14	13	17	21	14	28	13	17	C	14		13	13	13	13
20	13	13	13		14		14	18	15	15	15	20		21	14	13	14	14	15	17	15	14	20	14
21	13	13		14	13			20	14	13	13	18	14	14	13	13	14	13	14	14	13	14	14	13
22	13	13	14	13	14	14	14	20	14	13	13	15	14	13	13	13	17	14	14	14	14	14		
23				15		14	14	17	14	13	14	15	13	13	13	14	13	13	13	13	14	15		14
24	15	15	13	14	14	14			13	14	18	14		15	14	13	13	20	15	15	17		13	
25		14	14	14	13	14		14	13	13	14	17	14	14	13	13	18	14	14	14	14		18	15
26	14	14	15	13	14		15	18	13	14	15	14	13	13	C	13	14	13	14	14	13	14	13	13
27	14	13	13	13	13	13	17	13	13	C	C	C	C	C	C	14	13	C	13	14	13	13	13	13
28	13	14	13	13	13			20	13	13	17	14	14		13	13	13	13				14	14	14
29	13	13	14	13	13	15		14	13	17	14	14	14	13	13	13	20	14	14	18	21	14	14	14
30	13	14	13		14			18	13	14	14	14	15	14	13	13	15	13		14	13	21	13	
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	24	25	23	23	24	17	20	25	26	24	26	24	22	22	23	25	25	24	21	22	23	24	23	21
MED	13	14	13	13	13	14	14	17	13	13	14	15	14	14	14	13	14	13	14	14	14	14	14	14
U Q	14	14	14	14	14	14	14	20	14	14	15	17	17	15	15	13	17	14	14	15	14	14	15	14
L Q	13	13	13	13	13	13	14	14	13	13	14	14	14	14	13	13	13	13	13	13	13	13	13	13

HOURLY VALUES OF foF2 AT Yamagawa

NOV. 2008

LAT. 31°12.1'N LON. 130°37.1'E SWEEP 1.0MHz TO 30.0MHz 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	28	29	28	29	32			54	65	59	63	69	70	52	77	76	67	56	36	A	A	30	32	28
2	28	31	30	A	28	29		48	70	51	60	67	62	69	76	86	64	47	34	A	29	34	A	A
3	28	28	32	34	28	26		C	50	45	52	61	60	54	58	62	56	54	35			A	A	29
4	26	A	A	A	29	28		40	48	52	58	68	A	A	62	71	61	59	A	A	A		30	31
5	30	32	31	28	28			46	60	52	51	46	52	56	62	68	58		28	28	A	30	31	29
6	A	30	30	28	29	28		44	51	54	60	56	53	57	73	81	77	58	52	36	44	43		34
7	29	A		28	28	28		45	56	51	52	48	60	54	66	67	54	50	45		32	32	30	28
8	26	28	28	30	34			43	52	56	51	65	65	A	66	81	71	59	46	A	40	38	28	
9		A	34	34	37		29	47	55	68	77	88	72	70	66	62	57	47	50	46	44	A	30	29
10		25	30	31	34	36		44	51	70	72	68	61	62	67	78	71	47	32	28	34	28	34	28
11	28	30	30	28	34	31	A		60	55	64	81	A	54	72	81	59	51	40	32	28	A	32	28
12	A			28	25	28		40	50	51	62	72	65	58	55	71	68	55	31				30	28
13	30		30	28	28	29		44	56	50	56	72	48	56	66	53	54	56	38			29		29
14	29	28	30	30	30			42	51	54	59	64	60	57	62	67	67	47	30		A	31	28	28
15	30	26	28	28	31	29		42	48	54	62	70	59	52	A	78	74	51	30	A	A	26		28
16		A			29	32	20	37	57	52	62	70	52	66	74	83	65	47	36	A	A	A	A	30
17	26	28	30	30	30	31	29	52		51	55	68	62	56	72	80	55	45	35		30	C	C	C
18	C	C	C	C	C	C	C	C	C	C	C	62	50	58	65	77	55	49	26		28	31		28
19	28	25	28	28	29	28		39	47	51	56	62	62	58	70	82	59	54		A	29	32	28	26
20	26	28		30	26			37	44	55	55	55	51	50	68	74	60	51	A	A		28		
21		28	28	26	26			37	48	47	40	56	57	53	56	59	59	C	A			26	29	32
22	28	29	28	28	30	30		34	43	46	60	52	50	47	59	64	60	50	32		37	30	A	
23					26			38	49	44	58	55	51	58	64	55	47	A	43	28	28	34	A	26
24	26	26	28	28		30		37	44	47	52	59	A	50	58	64	46	48			34	34	32	28
25	29	26	28	29	30	31		35	43	50	51	50	50	54	55	55	48	44	38		28	34	34	34
26	32	32	34	26	34			42	49	49	52	65	64	71	67	85	56	50		34	34	28		
27		26	28	28	34			36	48	48	58	59	55	55	67	67	65	63	A	A	A	A	A	
28	26	26	A	29				34	44	52	64	51	54	54	59	61	55	40	A			28	A	29
29	28	A	25	26	26			34	46	50	59	67	64	57	59	76	64		A		29	31	28	
30	26	26	28	28				35	43	50	51	51	72	70	62	54	47	50	40	A	40			
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	21	21	22	25	26	16	3	27	28	29	29	30	27	28	29	30	30	26	21	7	17	21	15	21
MED	28	28	29	28	29	29	29	40	50	51	58	63	60	56	66	71	59	50	36	32	32	31	30	28
U Q	29	29	30	30	32	31	29	44	55	54	62	68	64	58	69	80	65	55	41	36	38	34	32	29
L Q	26	26	28	28	28	28	20	37	46	49	52	55	52	54	59	62	55	47	31	28	28	28	28	28

HOURLY VALUES OF fEs AT Yamagawa

NOV. 2008

LAT. 31°12.1'N LON. 130°37.1'E SWEEP 1.0MHz TO 30.0MHz AUTOMATIC SCALING

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	G	G	28	G	G			G	53	41	39	40	G	49	50	58	34	39	32	52	60	G	G	G
2	G	G	G	34	G	26		G	G	36	47	48	48	G	46	52	42	32	G	28	27	G	59	45
3	34	G	G	G	G	G	G	C	G	43	37	52	54	G	41	41	40	31	28	G		44	33	33
4	G	33	38	38	G	29	G	32	37	49	52	84	60	59	40	50	56	54	54	40	36	26	26	25
5	G	G	G	G	G	26	25	26	36	40	42	43	42	G	45	44	34	28	33	26	39	32	26	G
6	57	G	G	G	G	G		G	G	G	43	43	43	G	54	41	37	41	40	28	G	G	26	G
7	G	33	34	28	G	G	G	G	G	G	42	44	43	G	G	G	G	G	11		24	G	G	G
8	G	G	G	G	G	G			31	41	43	49	64	61	56	62	36	27	31	39	25	G	G	40
9	34	48	28	33	G	26	G	27		G	47	G	48	44	42	36	54	51		40	28	29	26	G
10	G	G	G	G	G	24		33	G	G	G	G	48	49	55	34	32	G	G	G	G	45	27	G
11	26	G	G	G	G	23	34		G	G	43	44	59	G	G	40	G	48	G	G	G	38	G	44
12	48	28	32	G	29	G	G	35	G	36	41	43	50	50	42	42	35	30	22	23		G	G	G
13	G	29	28	G	G	25	42		G	G	43	G	45	G	G	51	36	44	33		G	G		G
14	G	G	G	G	G				36	42	46	52	57	48	58	49	39	25	11	25			G	23
15	G	G	G	27	24	G	G	28	35	46	60	67	53	G	106	44	41	51	30	31	50	26	30	G
16	G	40	30	39	G	24	G	G	32	G	58	56	46	54	49	51	37	32	23	48	57	48	32	G
17	G	G	G	G	34	G	G	G		36	43	G	40	39	38	36	G	G	G		G	C	C	C
18	C	C	C	C	C	C	C	C	C	C	C	48	48	40	G	G	33	28	24	30	G	G	G	G
19	G	G	G	G	G	G	G	41	G	34	40	41	40	42	G	G	G	38	39	26	G	G	G	G
20	G	G	G	G	G		G	G	G	39	G	G	G	39	G	G	G	27	36	30		27		24
21		G	G	G	G	G		G	G	G	G	G	39	G	39	42	36	C	30		G	G	G	G
22	G	G	G	G	G	G	G	32	G	G	G	G	G	38	G	37	G	G	G		28	29	28	G
23	G	G	G		G	G		G	47	41	42	43	39	46	43	48	38	54	32	G	G	G	36	G
24	G	G	G	G	G	G	G	G		G	G	G	43	G	48	43	44	31	29		G	24	G	G
25	G	G	G	G	G			G	34	39	42	43	43	40	G		G	G	G	G	G	G	G	G
26	G	G	G	G	G	G	G	G	G	G	G	G	G	44	48	42	34	26	11	G	G	G		G
27	G	G	G	23	G	28		27	G	38	G	42	G	G	40	44	51	54	53	36	55	44	32	27
28	G	G	33	31	G	G	27	G	G	G	G	G	G	G	41	G	G	32	36	G	G	G	33	G
29	33	46	32	G	G			G	G	N	G	44	38	G	G	40	50	30	49		G	G	G	29
30	G	G	G	G	G		G		29	38	39	40	40	41	G	G	G		23	35	32	30	G	
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	29	29	28	29	23	18	23	26	28	29	30	30	30	30	29	30	28	29	23	26	28	26	28
MED	G	G	G	G	G	G	G	G	G	36	42	43	43	39	41	42	36	31	29	28	G	G	14	G
U Q	G	14	28	25	G	25	G	28	34	40	43	48	48	46	48	48	40	42	34	36	32	29	30	24
L Q	G	G	G	G	G	G	G	G	G	G	G	G	39	G	G	35	G	26	11	G	G	G	G	G

HOURLY VALUES OF fmin AT Yamagawa

NOV. 2008

LAT. 31°12.1'N LON. 130°37.1'E SWEEP 1.0MHz TO 30.0MHz 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	15	14	15			18	14	14	14	16	16	17	15	14	14	14	15	14	14	17	16	16
2	14	15	14	14	14	16		15	14	15	14	14	17	16	16	21	14	16	15	15	15	15	14	14
3	14	17	15	17	15	17	16	C	14	14	14	15	17	38	18	18	14	15	14	16		14	14	14
4	17	15	15	14	15	14	17	14	14	14	15	17	16	17	15	14	14	14	15	14	14	16	15	15
5	15	14	15	15	15	14	15	14	14	14	14	14	18	16	17	16	15	14	14	15	14	14	14	14
6	14	16	15	15	15	14		18	14	21	15	21	14	14	14	14	14	14	15	15	16	14	14	15
7	14	14	22	14	15	14	15	17	15	15	14	16	14	22	17	15	15	18	14		14	15	14	15
8	15	14	15	15	15	15		14	14	14	14	14	17	17	16	15	14	14	14	14	14	22	14	14
9	14	14	15	14	15	14	15	15	14	14	14	14	14	14	15	15	14	14	14	15	14	15	16	15
10	24	15	14	14	14	14		17	14	14	15	14	17	18	17	17	14	15	14	18	15	15	15	15
11	14	16	14	15	14	14	14		15	14	14	16	17	17	16	14	14	17	18	14	18	14	17	14
12	14	14	14	16	14	14	15	15	14	14	17	17	15	14	14	14	14	15	15	16		21	14	15
13	15	14	14	17	15	15	16	15	14	14	14	15	15	14	15	15	14	14	15		18	14		15
14	15	15	15	14	15			17	15	14	14	17	15	15	15	17	14	15	15	14	14	15	15	14
15	14	21	15	15	14	14	17	14	14	15	14	16	16	16	15	17	14	14	15	15	14	14	14	15
16	15	14	14	21	15	14	16	14	14	15	15	14	22	15	17	15	14	14	16	15	14	14	14	14
17	15	15	15	15	14	15	15	17		14	14	17	17	18	15	14	14	17	17		15	C	C	C
18	C	C	C	C	C	C	C	C	C	C	C	15	16	16	14	14	15	14	14	15	15	15	15	14
19	15	15	14	15	15	15	15	18	14	15	14	17	21	14	14	14	14	14	14	15	18	15	14	15
20	15	22	15	14	14		15	16	22	17	16	18	20	14	17	14	23	16	14	14		15		15
21		15	14	14	15	14		15	14	15	15	14	16	14	15	14	14	C	14		17	15	15	15
22	14	14	14	14	15	15	20	15	14	15	15	14	17	16	21	14	14	21	14		14	17	14	16
23	15	15	15		15	15		14	14	14	15	17	14	16	14	14	14	15	15	16	18	16	14	15
24	15	15	15	15	16	15	15	17	17	15	16	17	14	17	15	15	14	14	15		14	15	15	15
25	14	15	17	15	17	15		21	15	14	16	14	14	14	14	14	14	17	15	20	15	15	15	15
26	17	15	15	21	15	16	17	15	17	14	14	16	15	14	14	21	14	16	14	15	14	15		17
27	15	14	14	15	15	15		14	14	14	15	15	17	18	14	14	14	15	14	14	14	14	15	18
28	17	15	14	14	18	15	16	16	14	14	15	17	15	15	15	16	14	15	15	15	17	16	14	14
29	14	14	14	15	14			15	14	15	14	16	17	15	16	14	14	14	14		16	15	16	15
30	15	14	14	16	15		16	15	15	15	14	14	14	15	15	14	14	14	14	14	15	15	17	
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	29	29	28	29	24	18	27	28	29	29	30	30	30	30	30	30	29	30	23	27	29	26	28
MED	15	15	15	15	15	15	16	15	14	14	14	16	16	16	15	14	14	15	14	15	15	15	14	15
U Q	15	15	15	15	15	15	16	17	15	15	15	17	17	17	16	16	14	16	15	15	16	15	15	15
L Q	14	14	14	14	14	14	15	14	14	14	14	14	15	14	14	14	14	14	14	14	14	14	14	14

HOURLY VALUES OF foF2 AT Okinawa

NOV. 2008

LAT. 26°40.5'N LON. 128°09.2'E SWEEP 1.0MHz TO 30.0MHz 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				30				46	56	51	66	84	86	96	89	78	72	58	41	32		A	A	30
2					41	A		46	50	51	55	75	87	97	114	108	90	54	37				34	
3		31		A				38	52	52	59	58		75	66	A	67	70	53		A	A		A
4		A	30					40	48	56	A	64	65		59	77	71	A	A	A	A	24	31	
5		30	31					40	56	54	60	67		52	49	70	60	48	A	A	A	37	34	
6			28		29			41	50	55	53	60	63	74	100	131	118	111	86	66	52	51	A	40
7	35					23		42	51	48		54	56	57	66	74	74	61	51	48	34	42	30	
8								40	54		57	68	61	72	70	100	95	86	70	44	42	36	30	
9					30	A		44	58	66	80	86	78	76	78	76	65	52	55	55	52	29	A	
10			29		32	29		40	57	72		72	64	80	77	87	67	47		34	32		30	30
11	29	29	30	30	30	30		42	53	54	68	86	78	70	77	97	72	53	52		23	A		
12			28			29	A	41	50	51	62	76	67	71	67	65	88	71	49			A		
13		A						43	58		56	66	85	66	67	67	56	64	51					
14	30	34	32	29				38	51	57	60	63	64	66	64	72	68	58	36	30	A	A		
15	29	28		34		26	29	37	58	56	63	68	65	A	65	82	91	68	50	A	A	30	A	A
16	28	30	A	29	40	34		40	48	56	58	A	68	76	75	86	85	55	A	A	29	28		
17			30	30	30	30	30	40	52	56	64	60	67	70	66	71	61	66	46		29		29	
18	26		28					38	70	47	54	60	61	A	65	92	83	54	41	A		32	29	
19	28			29	30			38	48	48	60	72	61	65	69	82	97	71	45	A			29	
20				30	30			38	56	54	59	64	56		54	69	87	58	40	30		30		
21						30	A	34	40	52	52	51	61	52	55	61	74	56	52	37				
22	30				26			34	46	44	56	62	56	53	58	76	76	59	54	44			34	
23			28					37	48	54	58	69	56	A	64	A	A	51	47	43	28	32	26	
24			29		34	28			47	57	56	66	56	64	74	72	77	55	52	A	43	48	42	34
25	31			30	31			34	44	48	59	57	56	54	47	54	62	50	51	30		30	30	34
26	30	30	31	31				109	60	58	58	81	90	111	120	108	119	78	70	52	44			29
27		28	31	30	44			32	50	55	58	59	57	66	62	77	66	62	66	41		34	A	
28				20				29	44	58	67	64	58	51	62	64	63	50					29	30
29	26			25	26			31	45	51	62	58	74	72	80	100	90	75	43	29			34	
30								32	47	51	65	63	75	90	90	66	58	A	63	47		43		
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	11	8	13	13	14	9	2	29	30	28	27	29	28	25	30	28	29	28	25	16	11	15	15	7
MED	29	30	30	30	30	29	30	40	50	54	59	64	64	70	66	76	74	58	51	42	34	32	30	30
U Q	30	30	31	30	34	30	30	41	56	56	63	72	74	76	77	89	89	69	54	47	44	42	34	34
L Q	28	28	28	29	30	27	29	35	48	51	56	60	57	60	62	69	65	53	44	31	29	30	29	30

HOURLY VALUES OF fEs AT Okinawa

NOV. 2008

LAT. 26°40.5'N LON. 128°09.2'E SWEEP 1.0MHz TO 30.0MHz AUTOMATIC SCALING

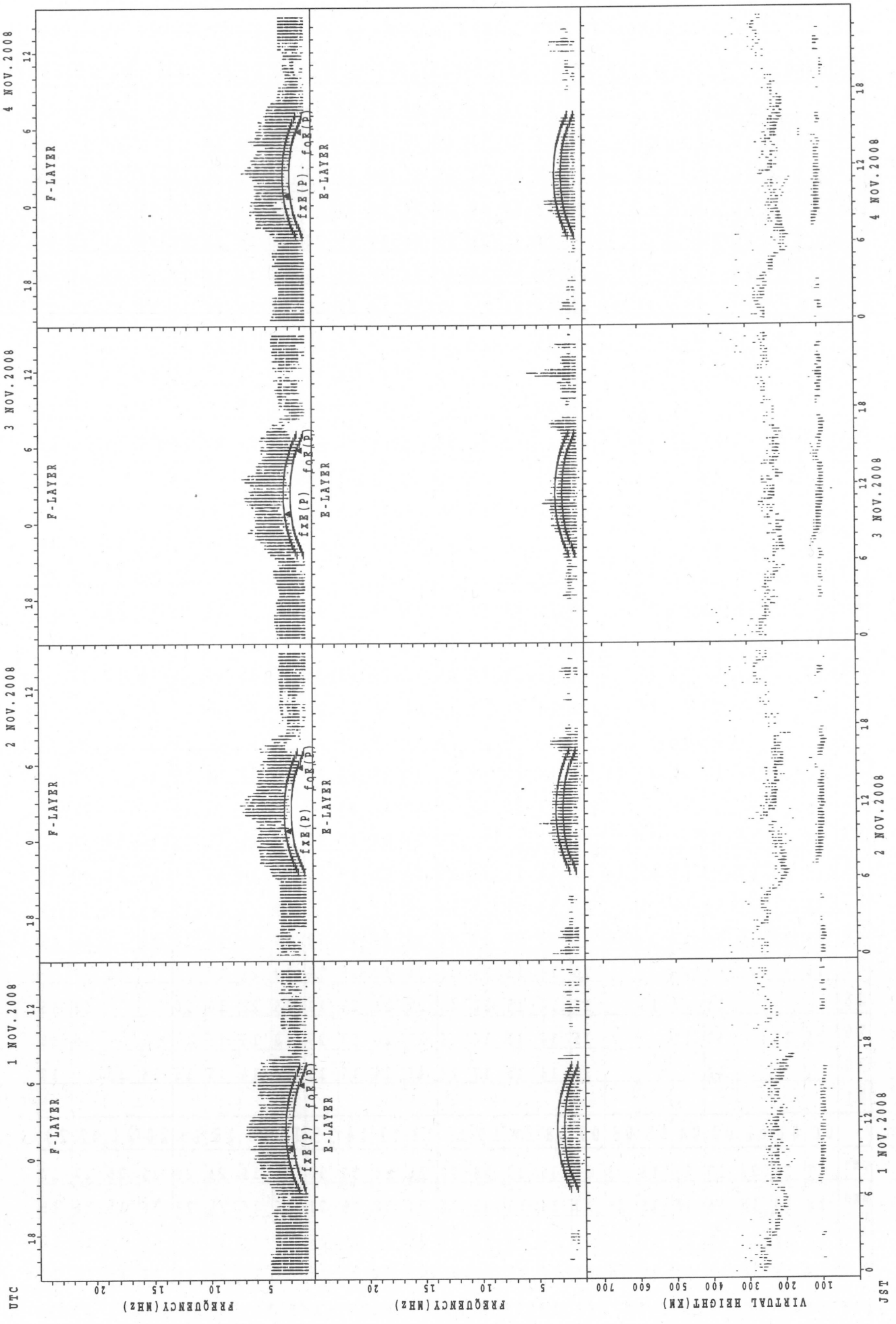
D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1			G	G	G			G	G	G	G	52	68	47	46	42	38	28	28	G		58	38	G
2			G		G	28			48	36	47	47	G	G	G	36	G	G	G			G	G	
3		G	G	29		G		G	37	41	39	G	49	54	52	76	44	28	G	23	41		G	39
4	G	33	G					33	36	47	64	64	84	56	53	52	43	71	60	38	28	G	G	
5		G	G	G				G	33	39	46	G	G	49	46	42	G	36	64	36	36	G	G	28
6			G		G			G	G	G	G	G	G	G	G	G	34	36	28		41	47	47	27
7	G					G	G	G	G	35		48	51	47	38	44	43	36	36	G	28	G	G	G
8		G			27			G	36		45	49	G	51	G	38	37	G	11	34	35	31	24	
9			34	35	24	32		26	G	G	G	G	G	G	47	40	33	G	G	G	G	27	50	32
10			G		G	30		G	G	G		G	44	47	50	36	37	36		G	G	28	29	G
11	30	G	G	G	G	G		G	G	G	44	44	50	53	74	44	G	G	G		G	33		G
12	25		26	26		26	26	G	N	G	45	53	46	56	47	43	40	32	28	26		30	G	
13	G	41	29		G			G	G		G	48	G	52	G	G	G	33	33	27		30		G
14	G	G	G	G				G	42	40	45	48	39	G	56	48	36	G	28	G	32	40	30	27
15	28	G	G	G		G	G	G	36	36	58	75	58	54	57	68	39	34	42	68	69	G	36	32
16	G	G	37	G	G	11		G	42	42	46	72	66	61	62	37	47	67	67	30	G	G	G	
17	G	G	G	G	G	G	G	G	G	35	46	38	42	G	40	39	G	G	21	G	G		G	
18	G		G	G	G	G		G	32	G	G	G	52	53	72	42	49	30	34	28	28	26	28	
19	G			G	G	G		G	32	G	G	G	G	46	63	G	G	G	26	34		G	G	G
20				G	G	G	G		38	39	G	G	G	G	G	G	32	G	G	G		G	27	25
21			G	G	G	G	24	G	G	G	N	G	G	G	G	G	G	G	G	11	G		G	
22	G		G		G			G	G	G	G	G	G	50	45	G	38	G	11		G	28	G	G
23	G		G			G		G	G	34	36	46	38	64	46	58	62	30	34	38	G	G	G	
24		G	G		G	G	G	G	34	G	G	G	39	G	38	42	40	33	28	37	32	G	G	G
25	G		G	G	G	G		G	34	40	38	38	38	47	G	G	G	G	G	G		G	G	G
26	G	G	G	G	G		G	G	G	G	G	G	45	G	G	G	G	G	G	G	28		G	G
27	G	G	G	G	G			G	G	G	G	G	G	G	G	G	45	G	G			48	32	
28				G	G	25		G	G	G	G	G	G	G	G	35	G	G	G	34			G	G
29	G	29		G	G			G	G	G	G	41	G	G	38	G	74	50	G	30			G	G
30				29				G	41	36	36	G	G	G	G		40	61	57	48	35	G		G
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	17	14	23	20	21	18	8	28	29	28	27	30	30	30	30	29	30	30	29	25	20	24	27	20
MED	G	G	G	G	G	G	G	G	G	G	36	20	38	47	42	38	37	28	26	27	28	14	G	G
U Q	G	G	G	G	G	25	12	G	36	37	45	48	49	53	52	43	43	36	34	35	35	30	29	27
L Q	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G

HOURLY VALUES OF fmin AT Okinawa

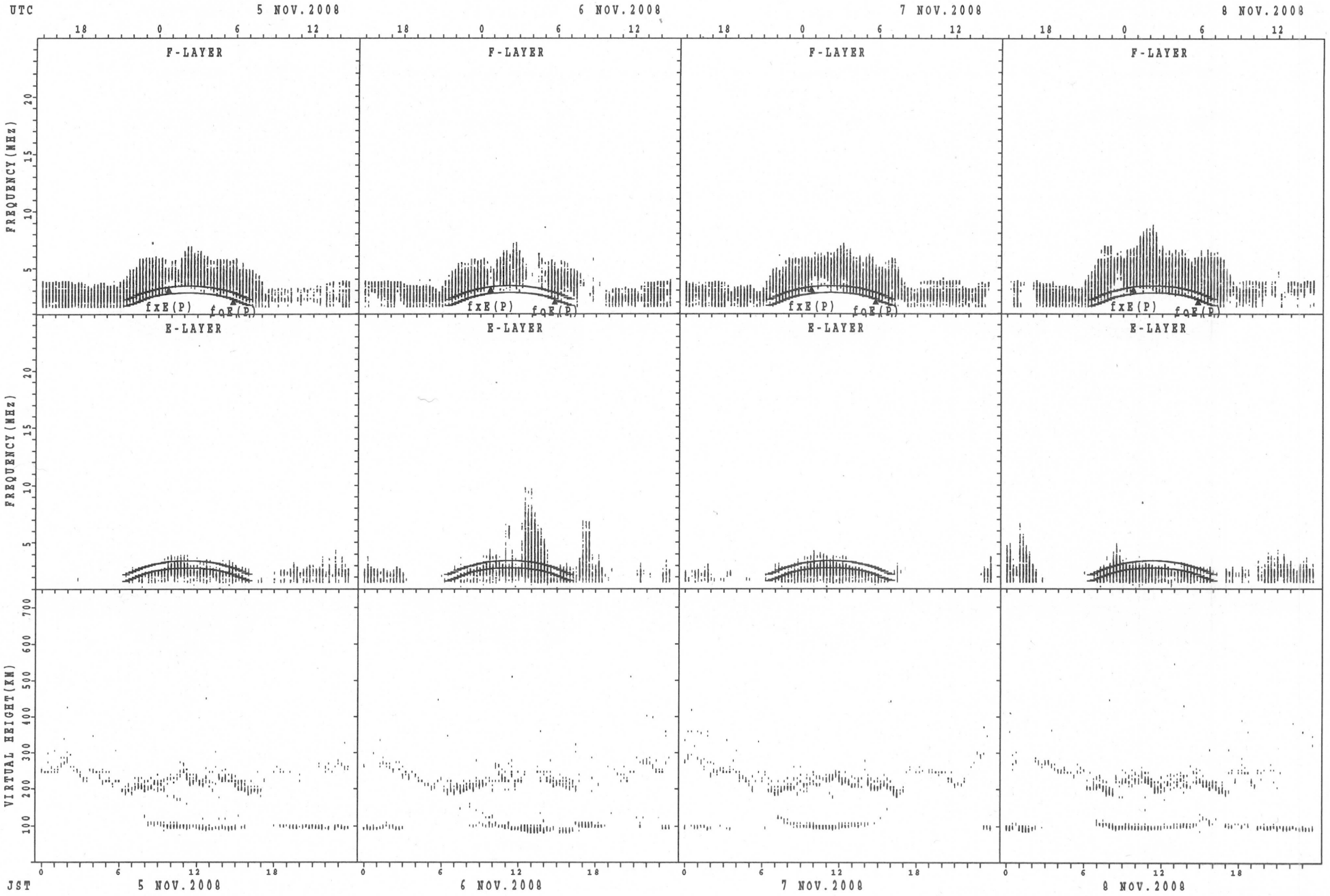
NOV. 2008

LAT. 26°40.5'N LON. 128°09.2'E SWEEP 1.0MHz TO 30.0MHz 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			17	15	17			20	26	32	20	38	28	24	33	26	18	14	20	16		16	15	21
2			22		21	15		20	14	21	33	33	29	28	24	21	29	23	18			22	14	
3		16	16	14		15		18	18	15	32	42	36	40	21	27	20	16	24	27	17	14	22	16
4	21	15	18					15	22	23	20	29	28	28	28	16	23	14	14	14	15	21	18	
5		15	15	15				14	14	17	28	51	44	35	30	30	27	16	22	14	14	17	21	14
6			18		15			20	26	14	18	45	35	42	18	36	16	14	14	22	15	15	16	15
7	18					15	15	18	14	16		32	33	34	28	26	17	15	15	15	14	15	21	21
8		20			15			18	23		17	33	42	36	40	21	16	14	15	14	15	15	16	
9			16	17	14	14		17	24	14	40	21	21	21	29	21	14	21	15	15	21	15	15	15
10			18		17	15		18	26	15		40	28	27	26	24	16	17		15	20	16	15	20
11	15	21	15	15	23	14		17	14	14	30	30	32	30	30	21	15	22	14	14	16	15		14
12	16		15	16		15	15	18	27	15	15	21	32	22	18	22	15	15	15	14		15	17	
13	15	15	15		15			14	23		21	30	30	30	29	18	18	17	14	15		14		15
14	18	16	16	15				17	14	16	29	30	30	44	28	22	17	21	14	21	14	14	14	14
15	15	15	15	17		14	15	17	14	28	16	29	32	30	29	26	16	15	14	17	14	15	14	14
16	15	18	15	15	16	15		16	14	14	29	33	29	28	26	21	17	16	14	15	16	15	14	
17	16	17	16	15	15	14	15	15	14	15	17	30	43	28	22	15	14	22	14	21	21		16	
18	18		15	15	18	16		14	14	15	40	41	27	28	22	14	16	15	15	15	14	15	20	
19	15			15	18	16		21	14	15	20	27	41	26	23	15	15	20	15	15		21	18	15
20				15	14	16	17	17	14	14	21	20	42	39	22	38	16	14	23	15		17	15	15
21			16	15	14	15	15	16	14	15	16	33	39	18	40	30	16	21	14	15	18		17	
22	16		15		15			15	14	16	38	32	40	22	18	15	14	20	14	15	22	15	15	18
23	20		15			14		17	14	17	17	23	24	32	29	15	14	15	15	20	20	18	16	
24		21	20		17	15	16	14	14	14	16	17	23	21	39	16	23	14	15	16	16	23	15	15
25	15		16	14	15	15		17	14	15	29	16	21	30	18	28	14	20	15	15		18	15	18
26	16	18	16	16	15		16	15	14	15	17	18	20	40	18	18	14	21	15	18	14		16	18
27	18	17	15	17	24			15	14	15	18	21	39	40	39	14	14	21	17	15		15	17	
28				15	17	15		16	14	15	20	40	22	21	23	17	15	23	26	16			18	15
29	15	15		15	17			15	14	15	16	18	27	26	23	29	18	14	15	17			15	18
30				14				17	14	15	17	20	40	24	17	15	14	14	15	15	16	15		18
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	17	14	23	20	21	18	8	30	30	28	28	30	30	30	30	30	30	30	29	29	20	25	27	20
MED	16	16	16	15	16	15	15	17	14	15	20	30	31	28	26	21	16	16	15	15	16	15	16	15
U Q	18	18	17	15	17	15	16	18	22	16	29	33	39	35	29	26	18	21	16	17	19	17	18	18
L Q	15	15	15	15	15	14	15	15	14	15	17	21	27	24	22	16	14	14	14	15	14	15	15	15

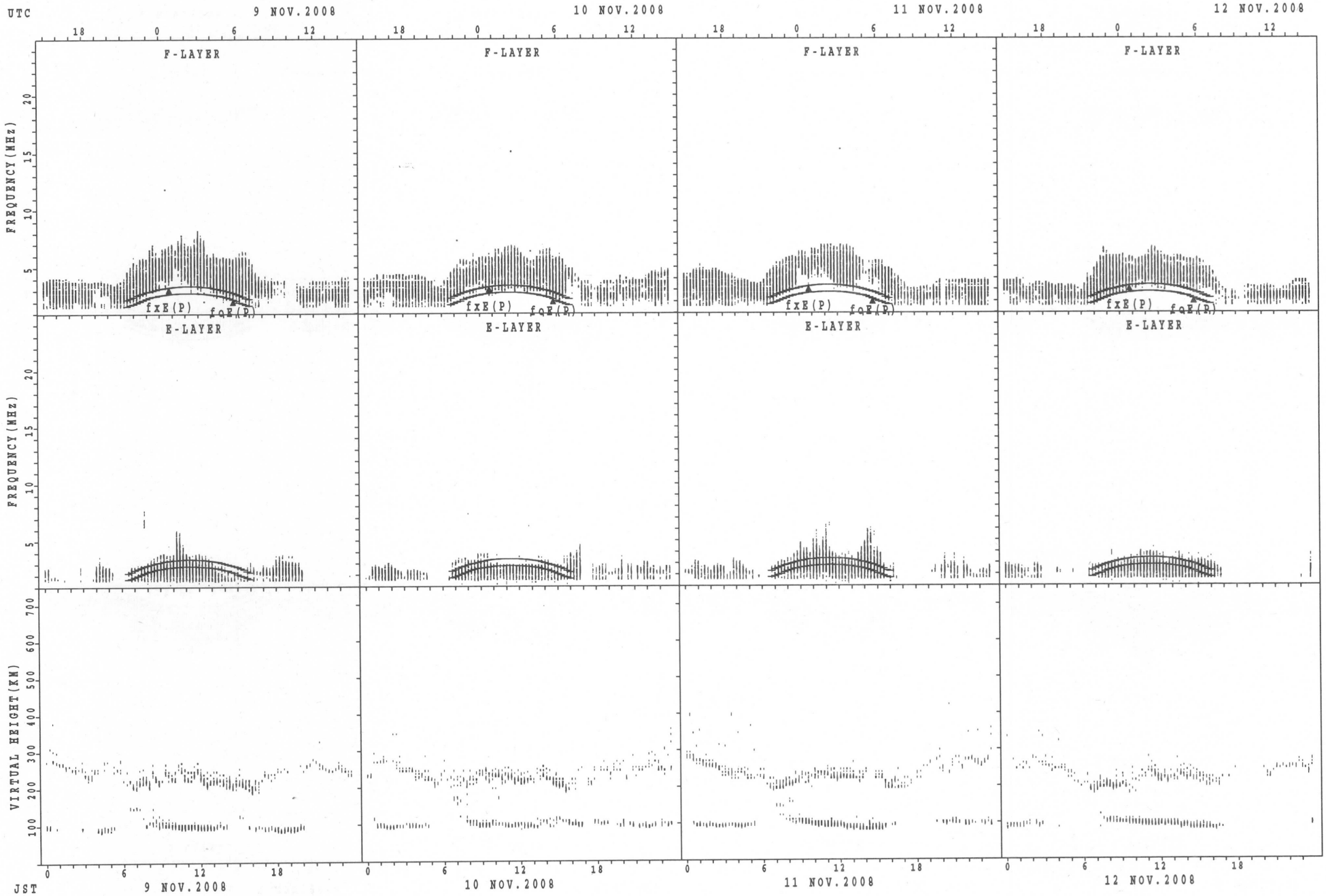

SUMMARY PLOTS AT Wakkanai
UTC
JST
1 NOV.2008
2 NOV.2008
3 NOV.2008
4 NOV.2008
F-LAYER
E-LAYER
fxE(P)
foE(P)
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



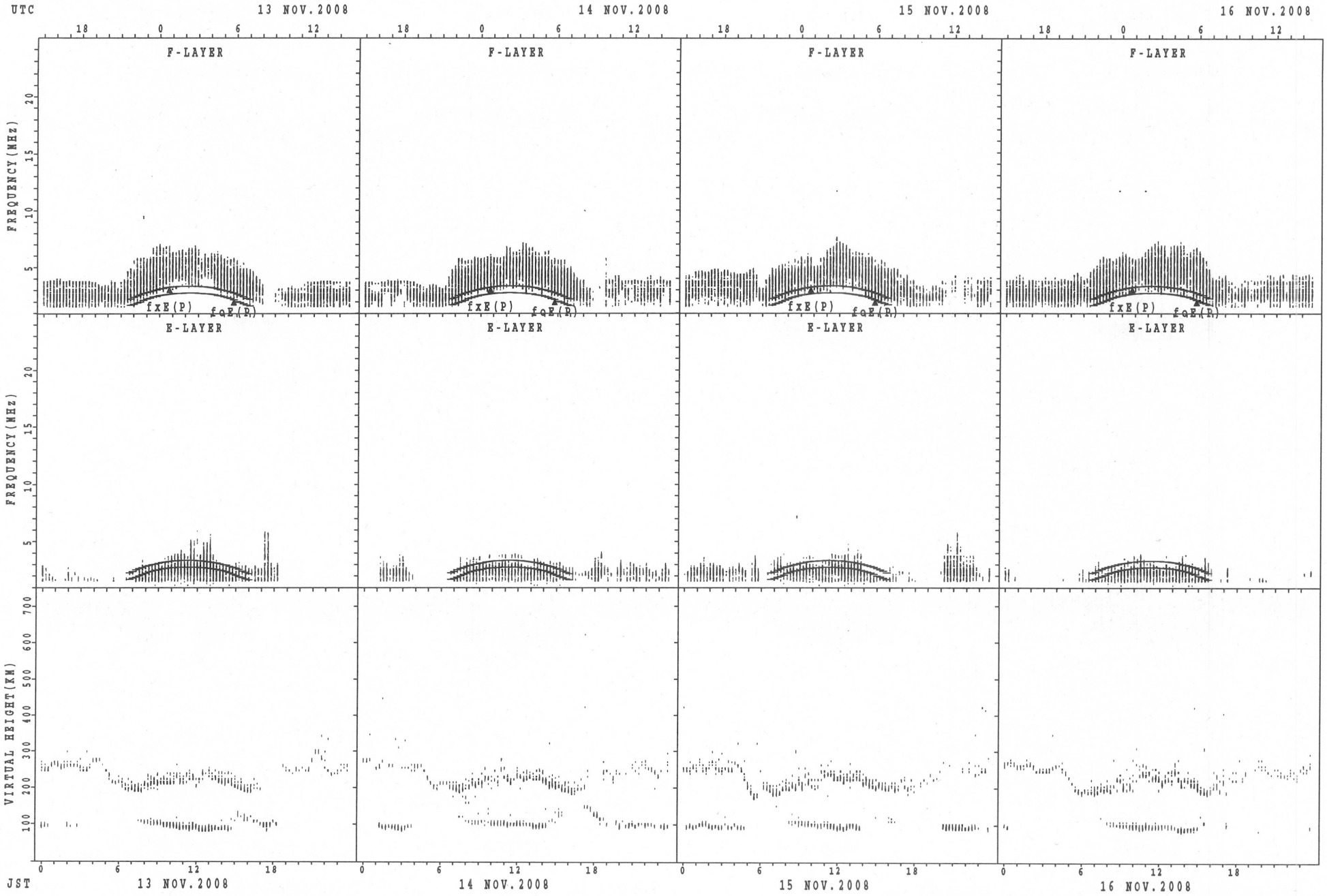
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



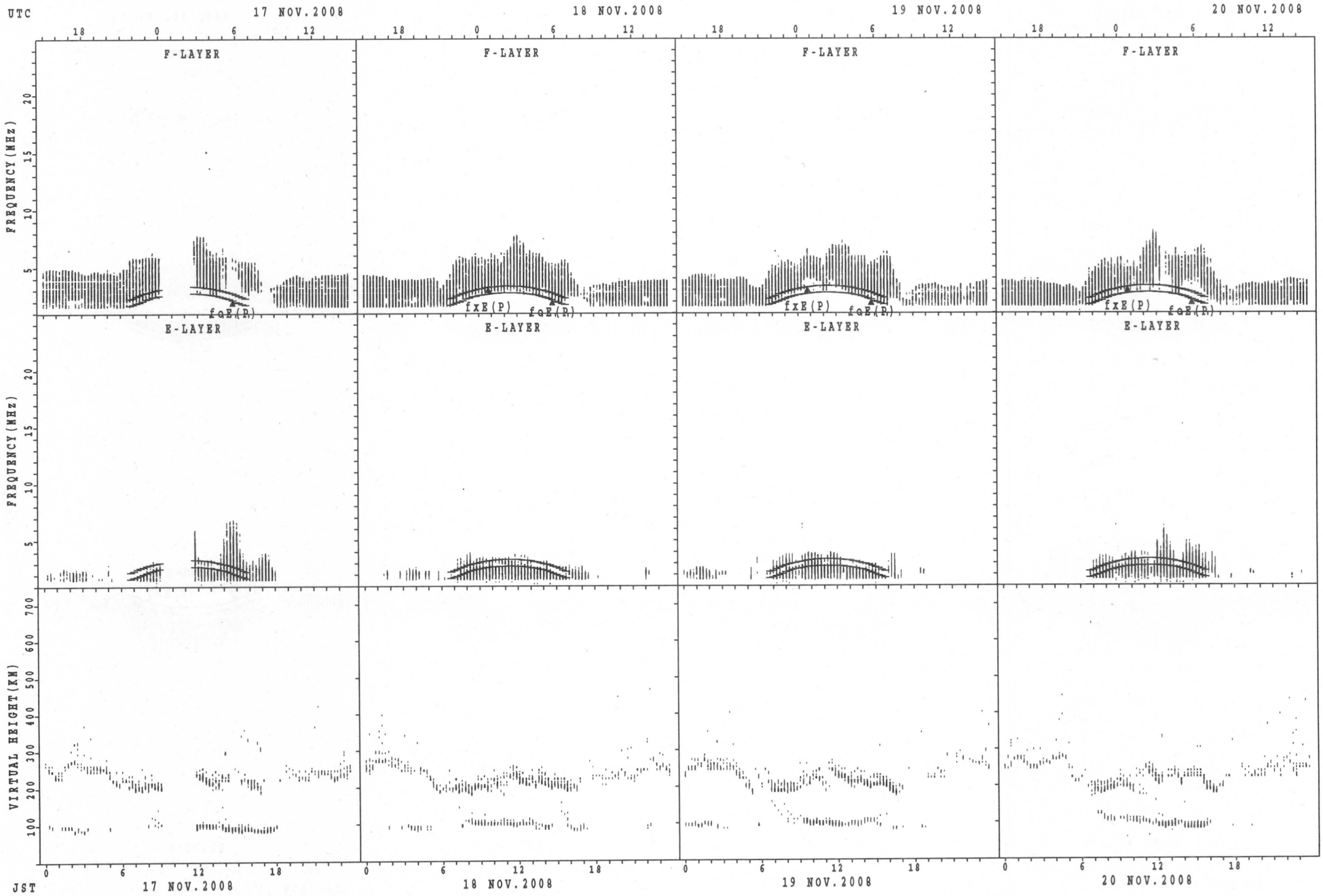
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



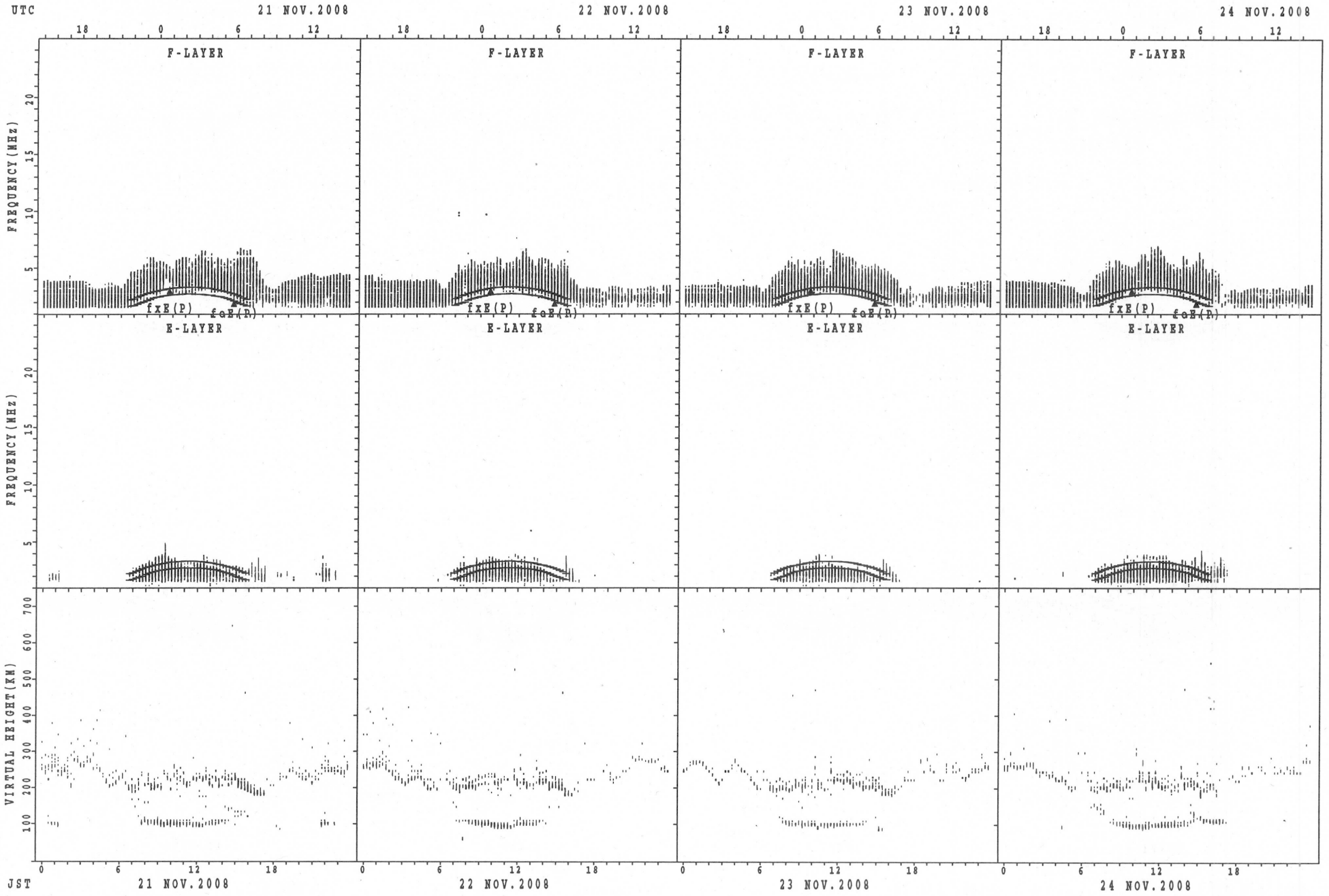
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



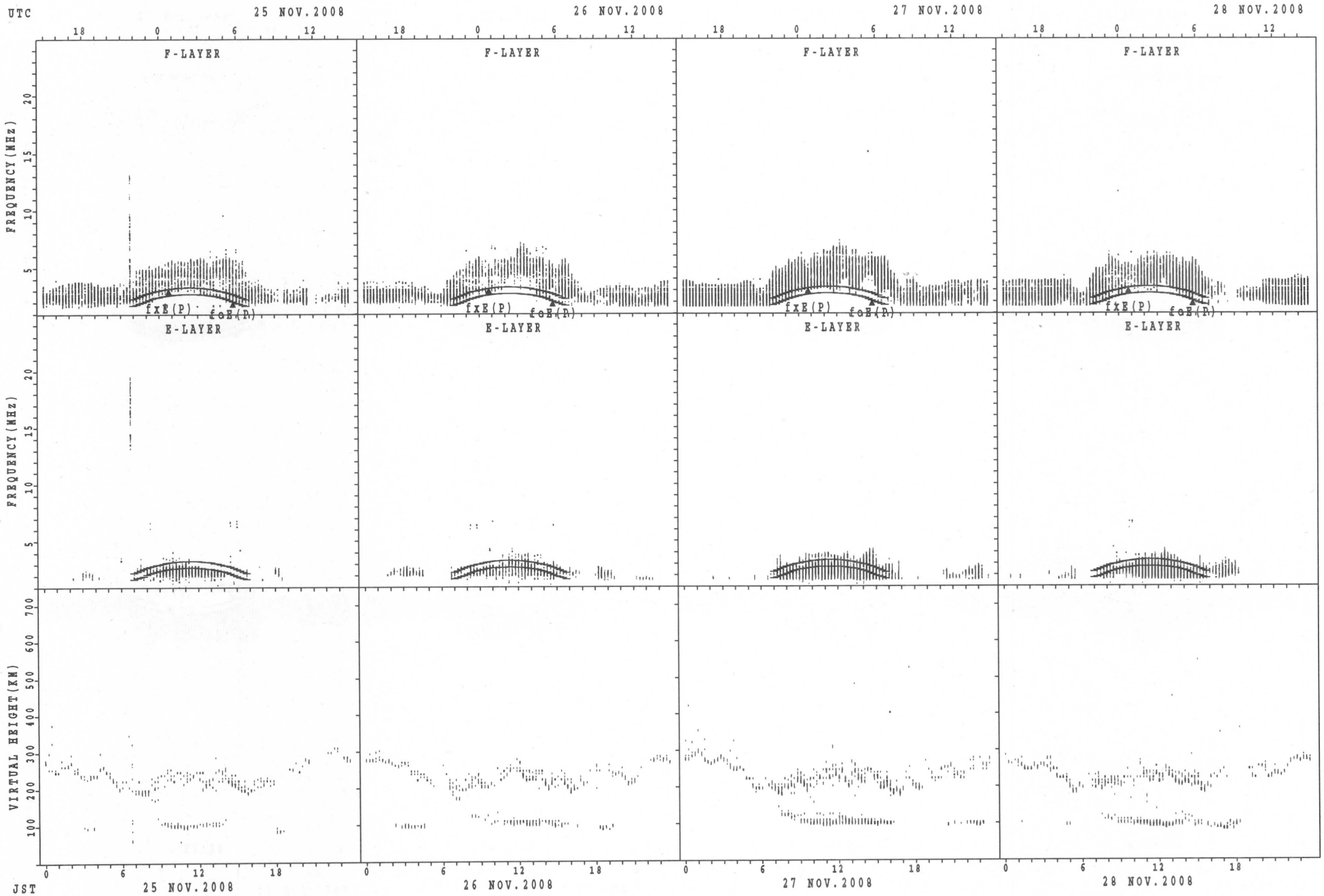
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



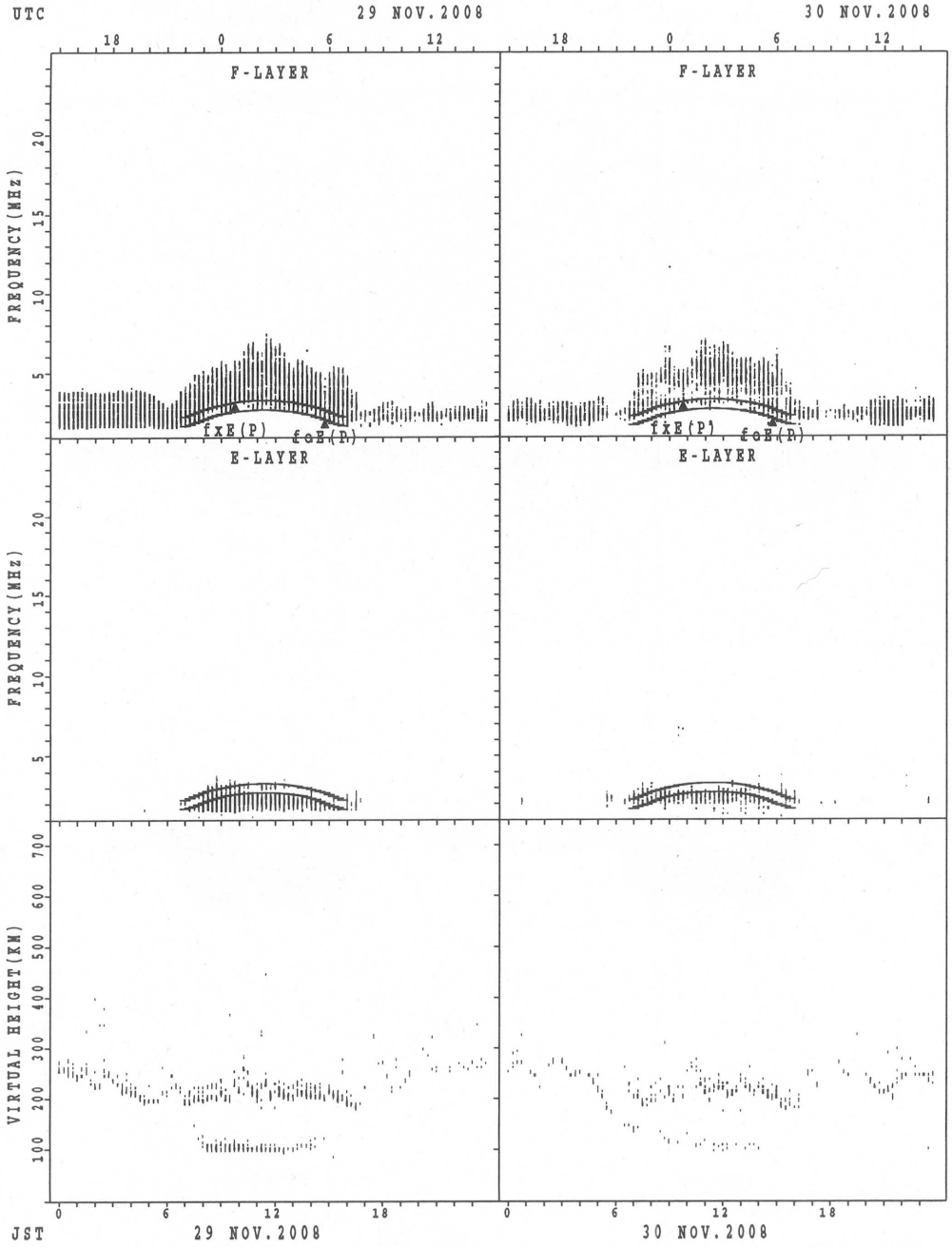
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



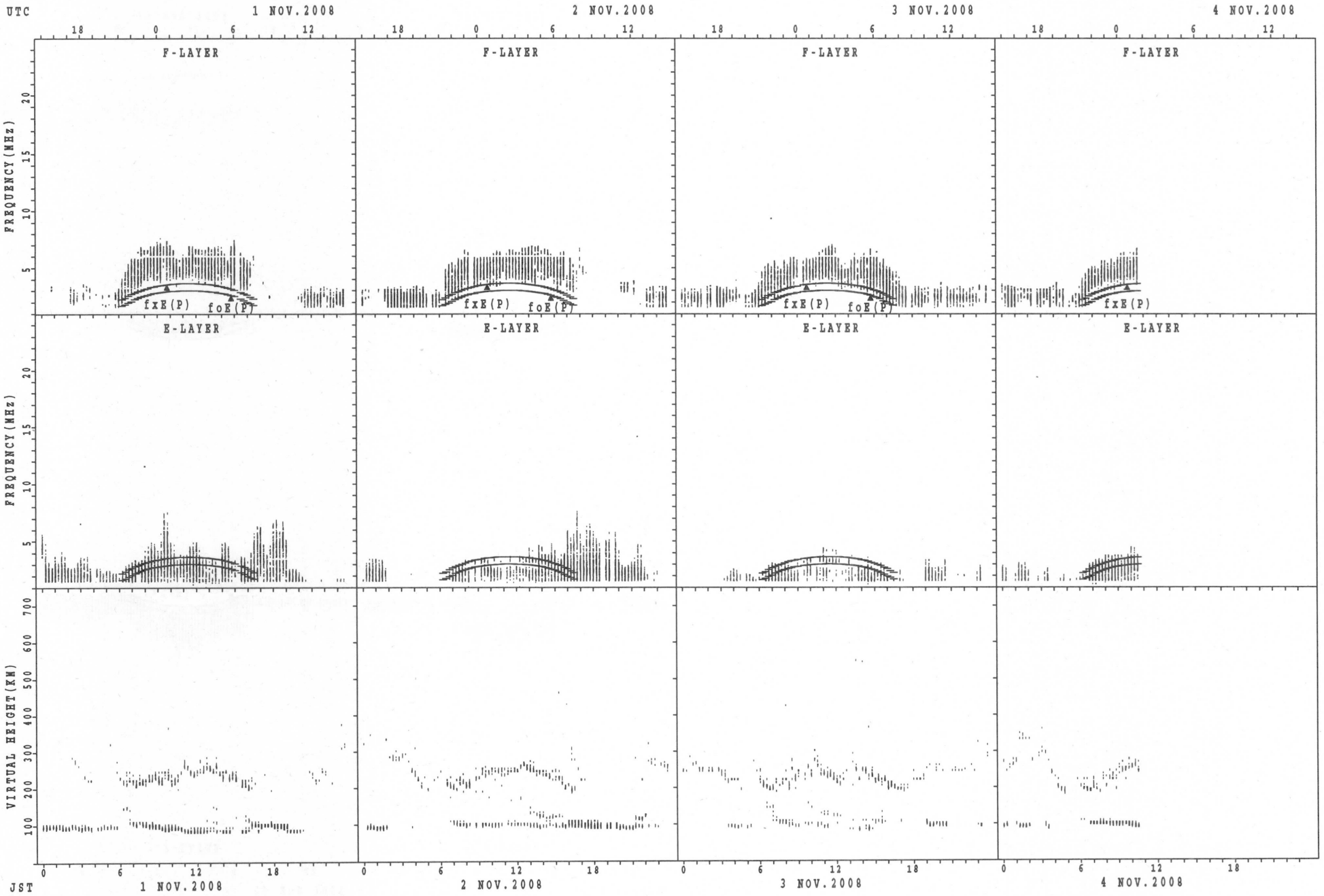
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



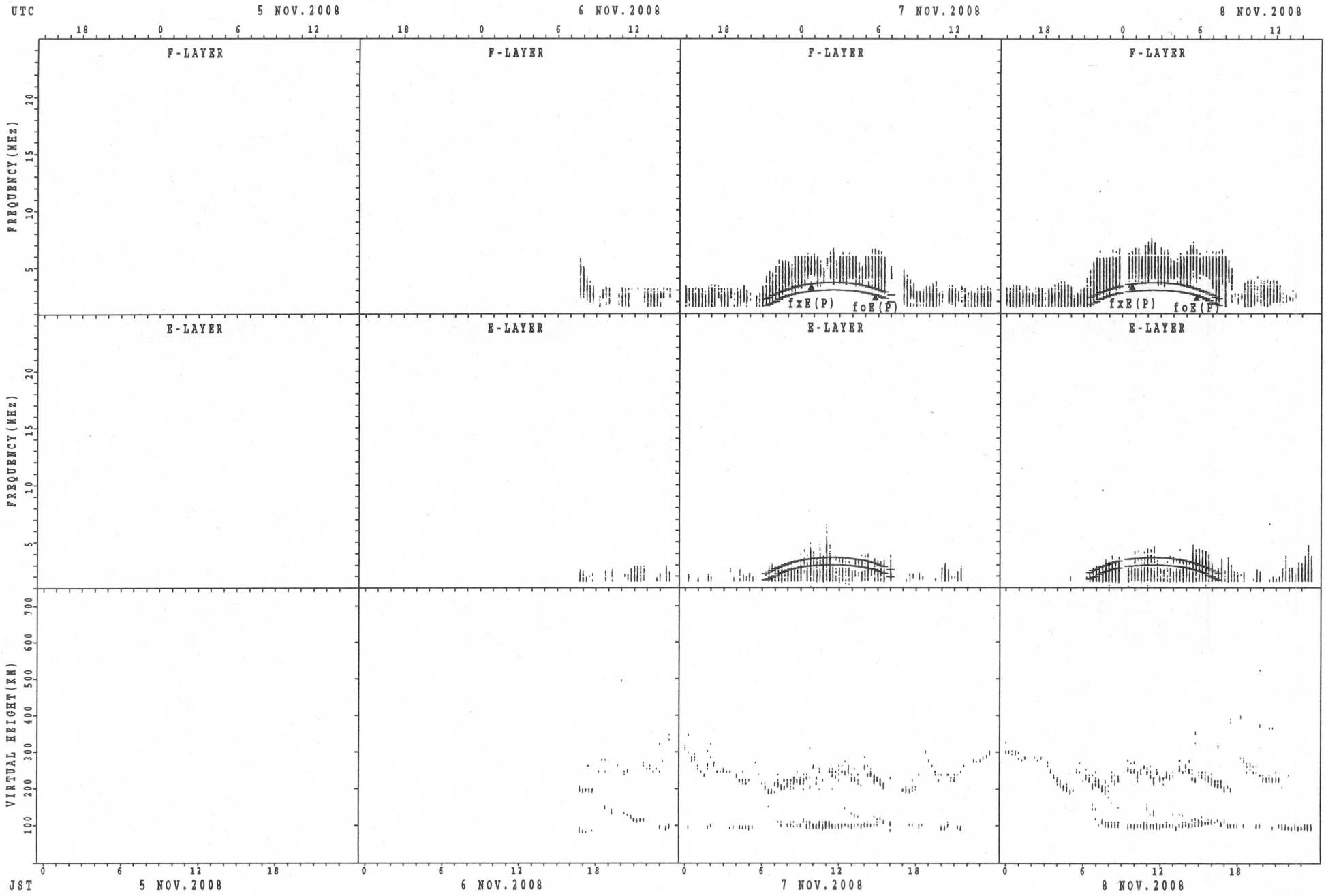
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



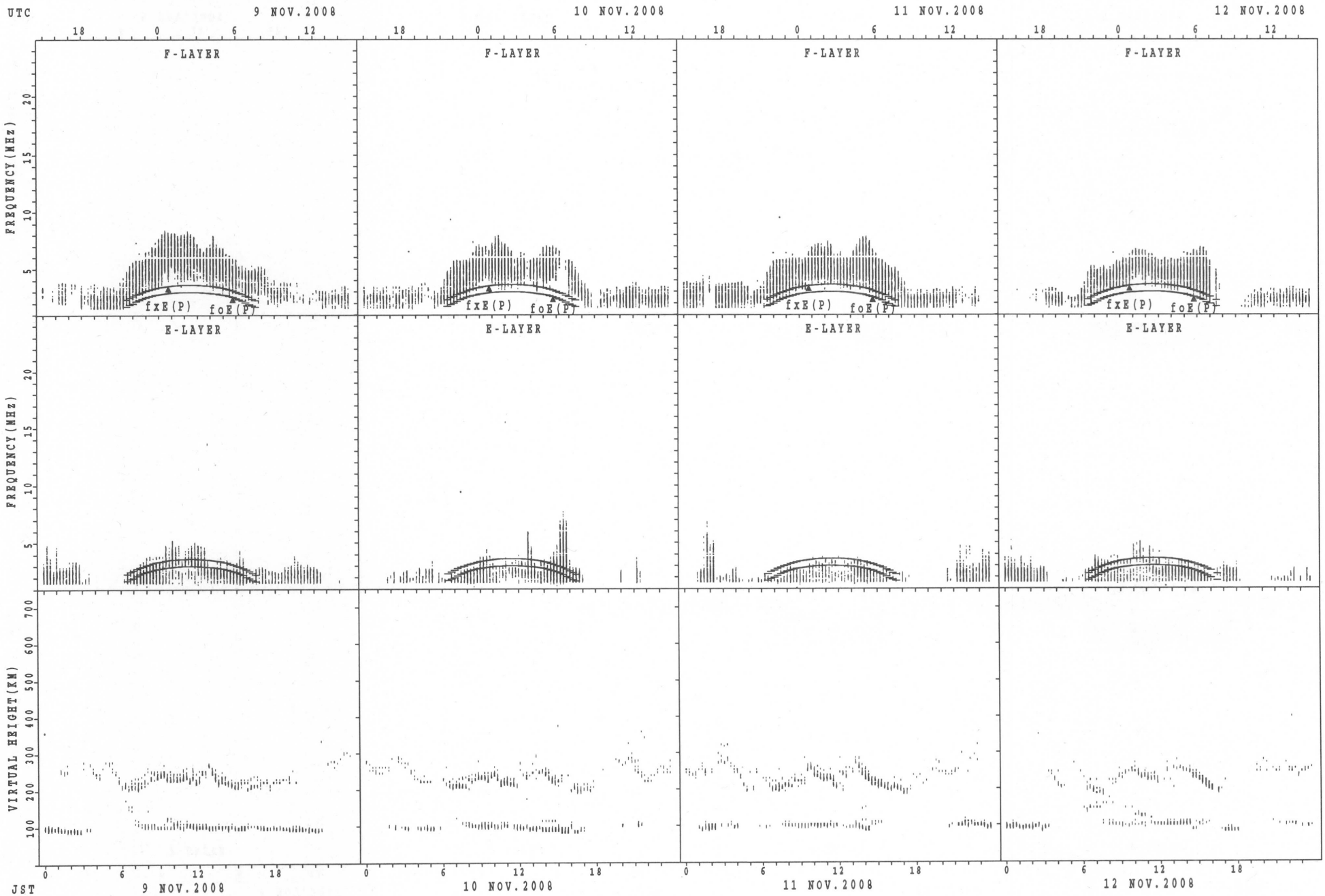
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



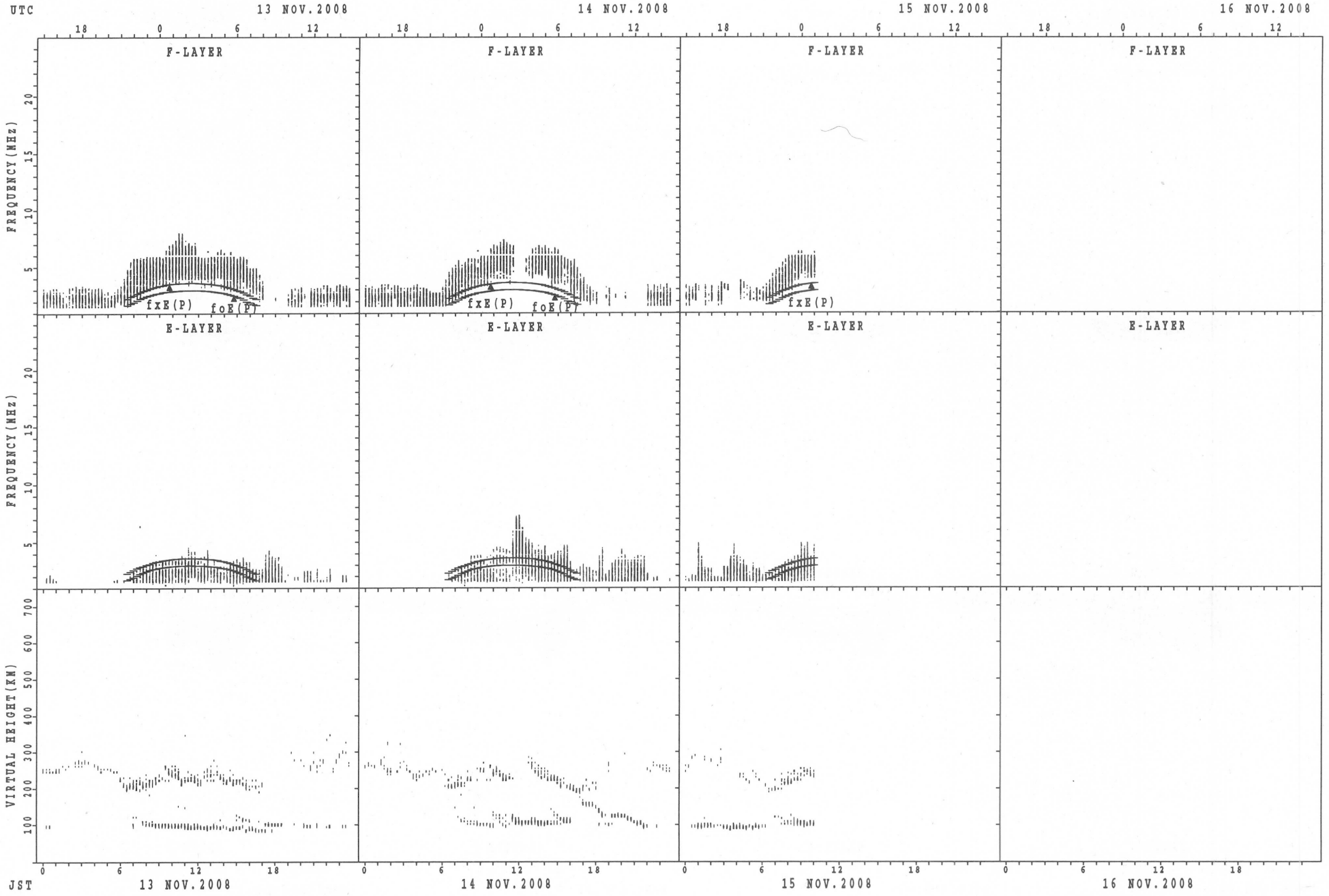
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji

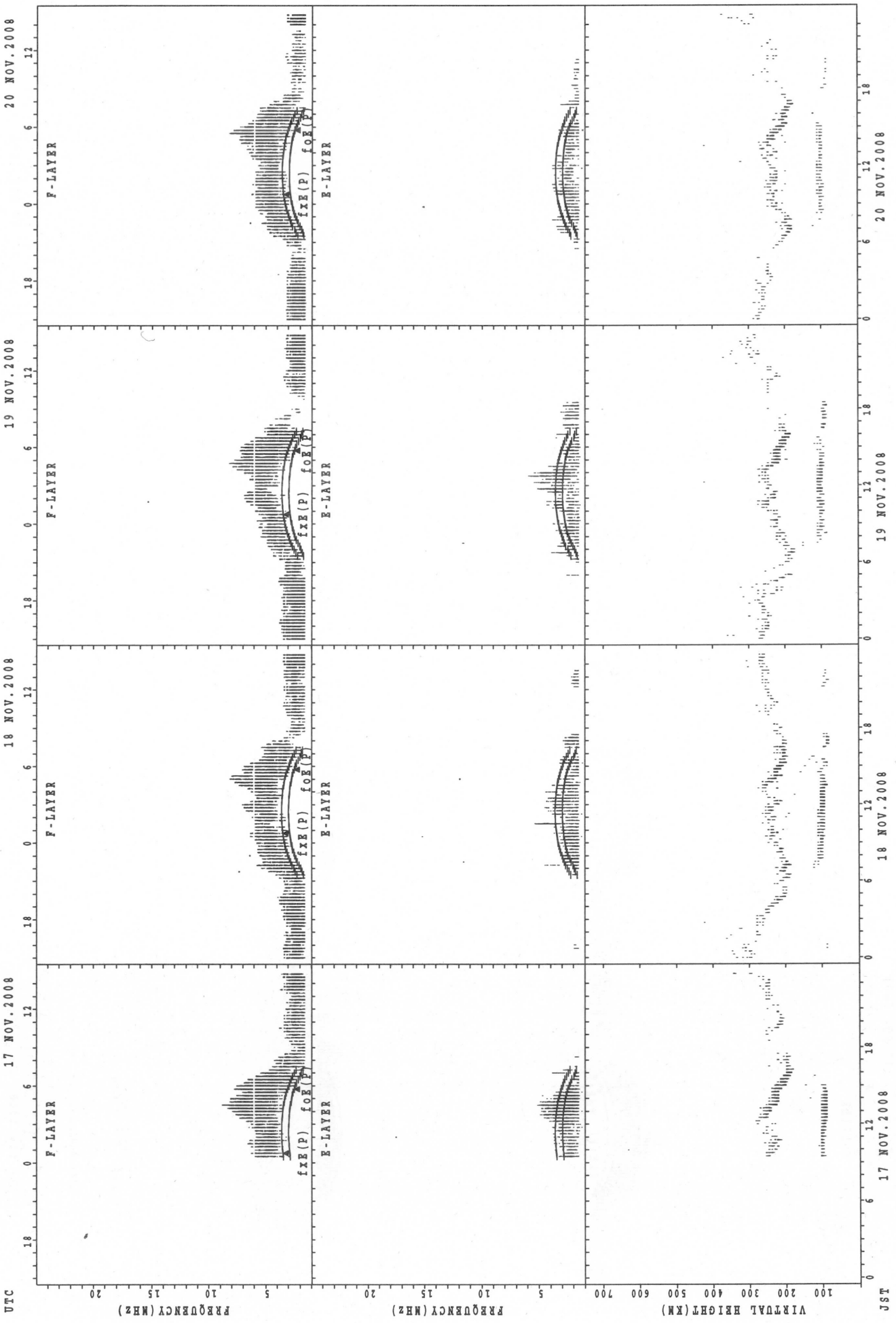


fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

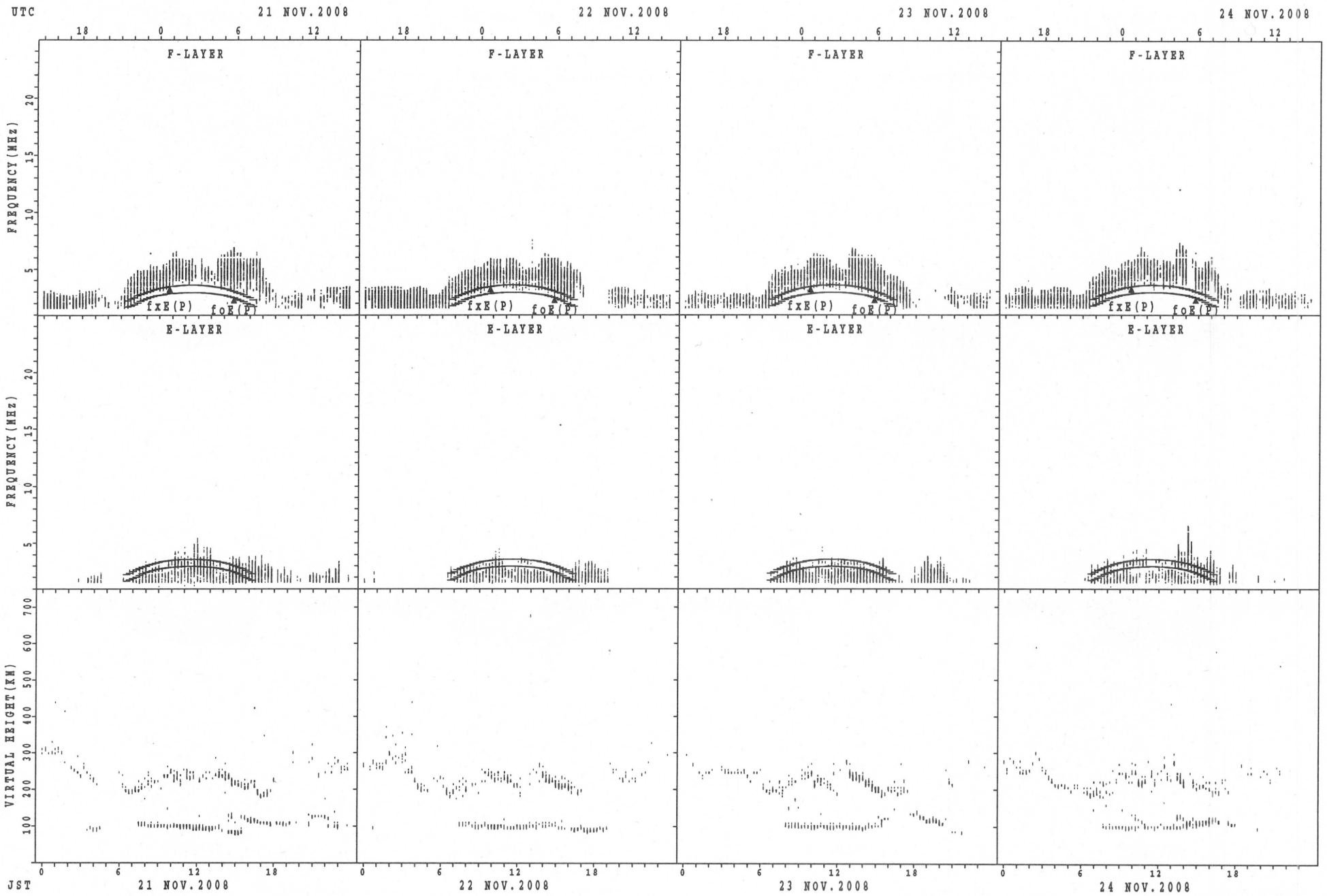
SUMMARY PLOTS AT Kokubunji



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

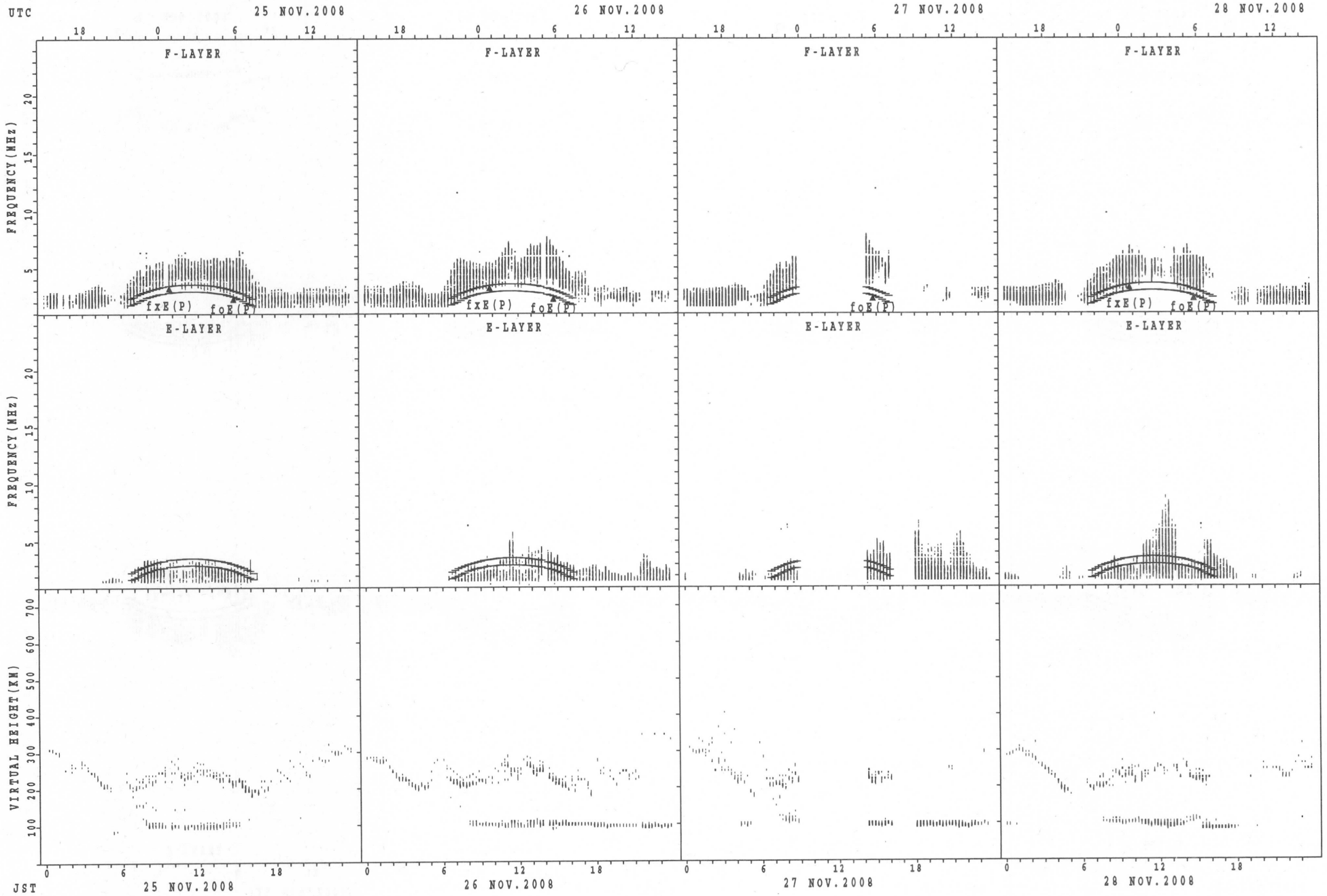

SUMMARY PLOTS AT Kokubunji
UTC
17 NOV.2008
18 NOV.2008
19 NOV.2008
20 NOV.2008
F-LAYER
E-LAYER
fxE(P)
foE(P)
FREQUENCY (MHz)
VIRTUAL HEIGHT (KM)
JST
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



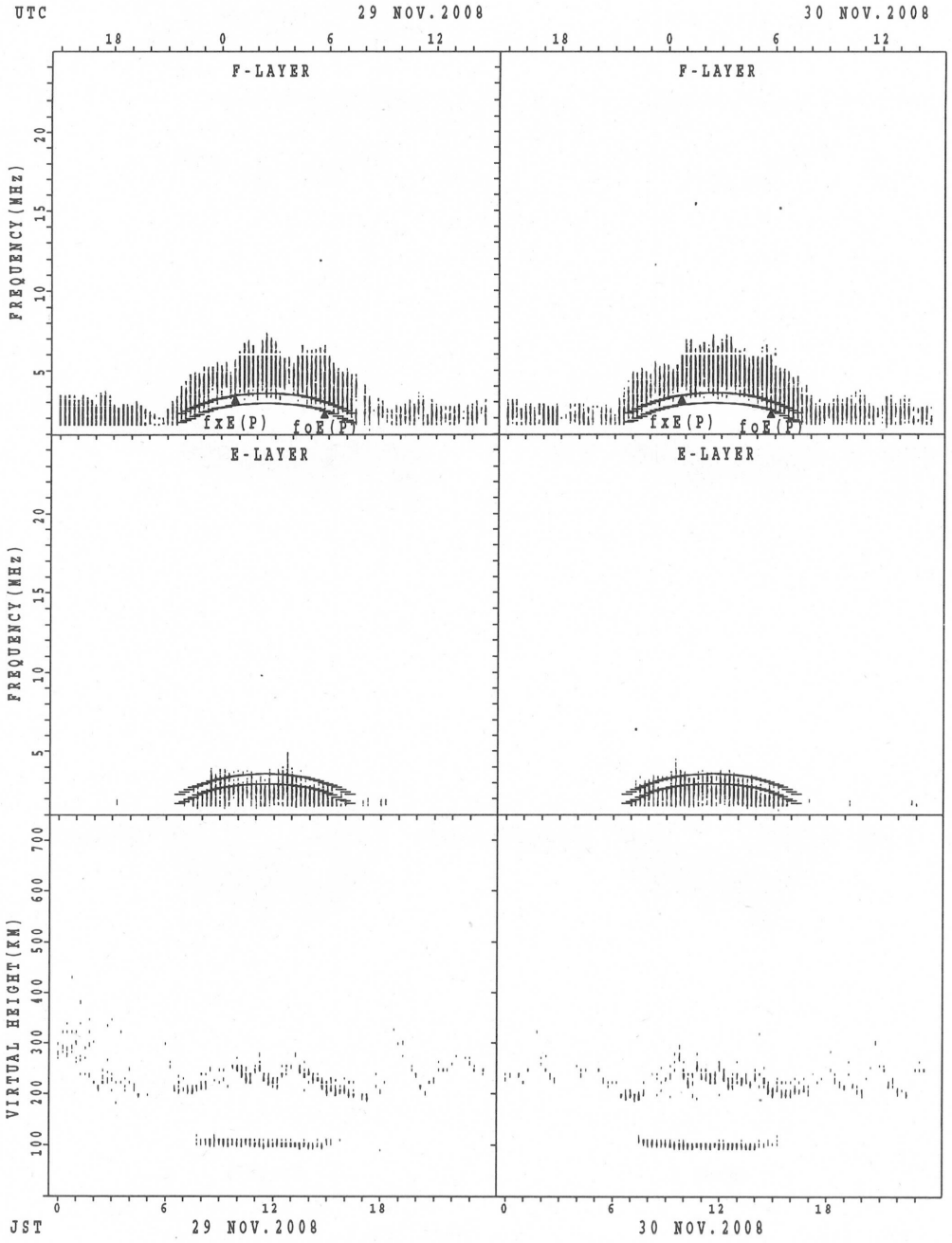
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



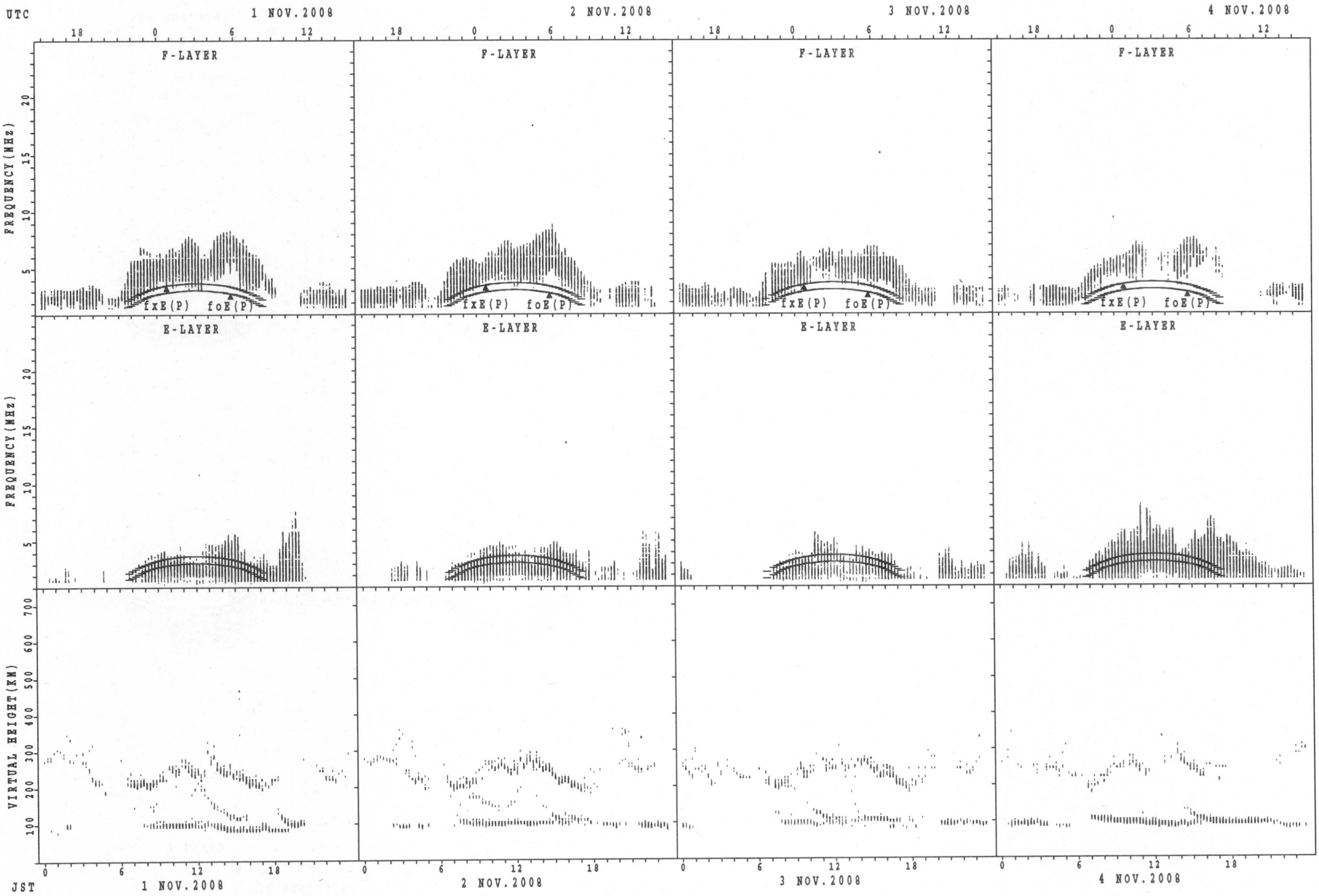
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



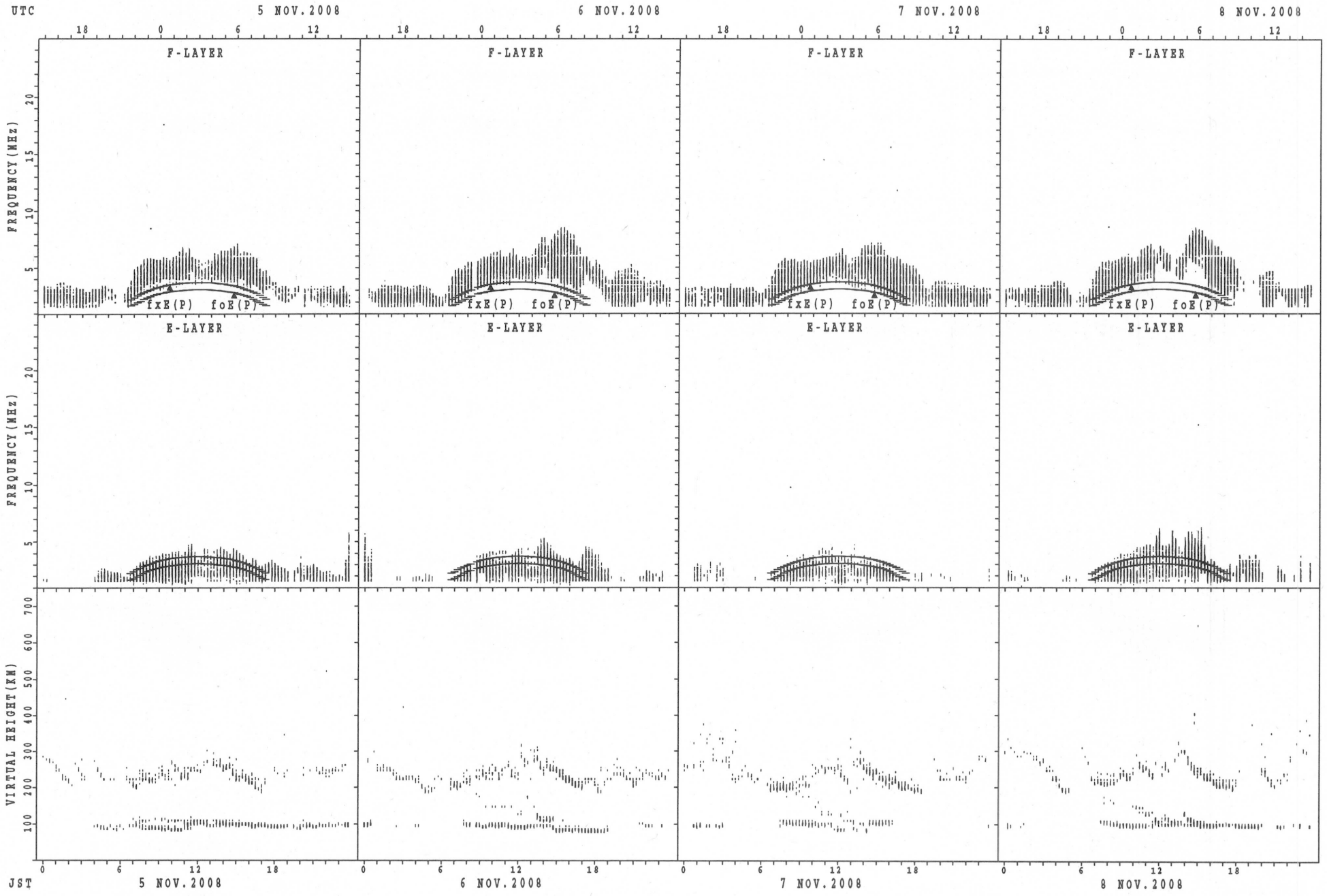
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



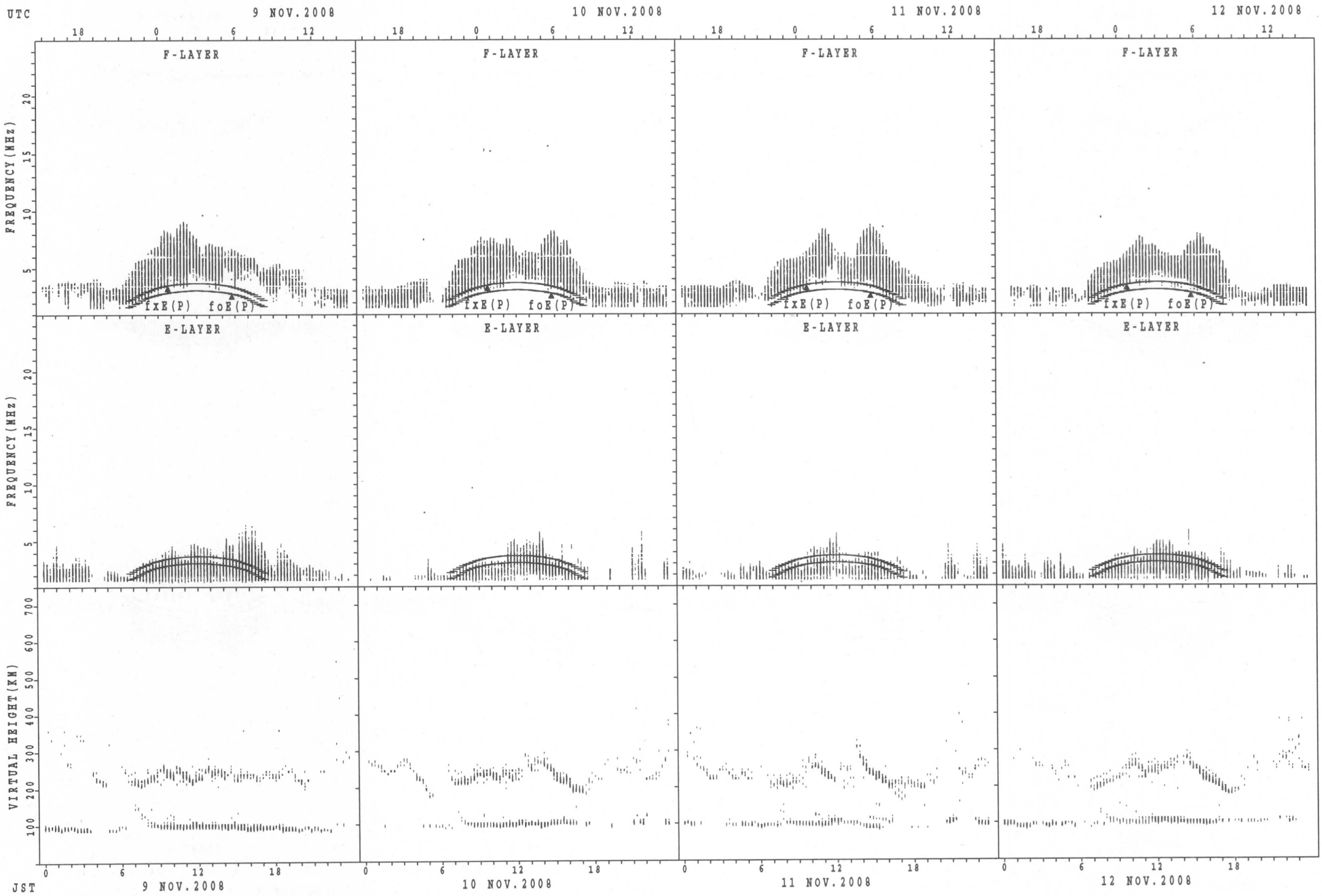
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



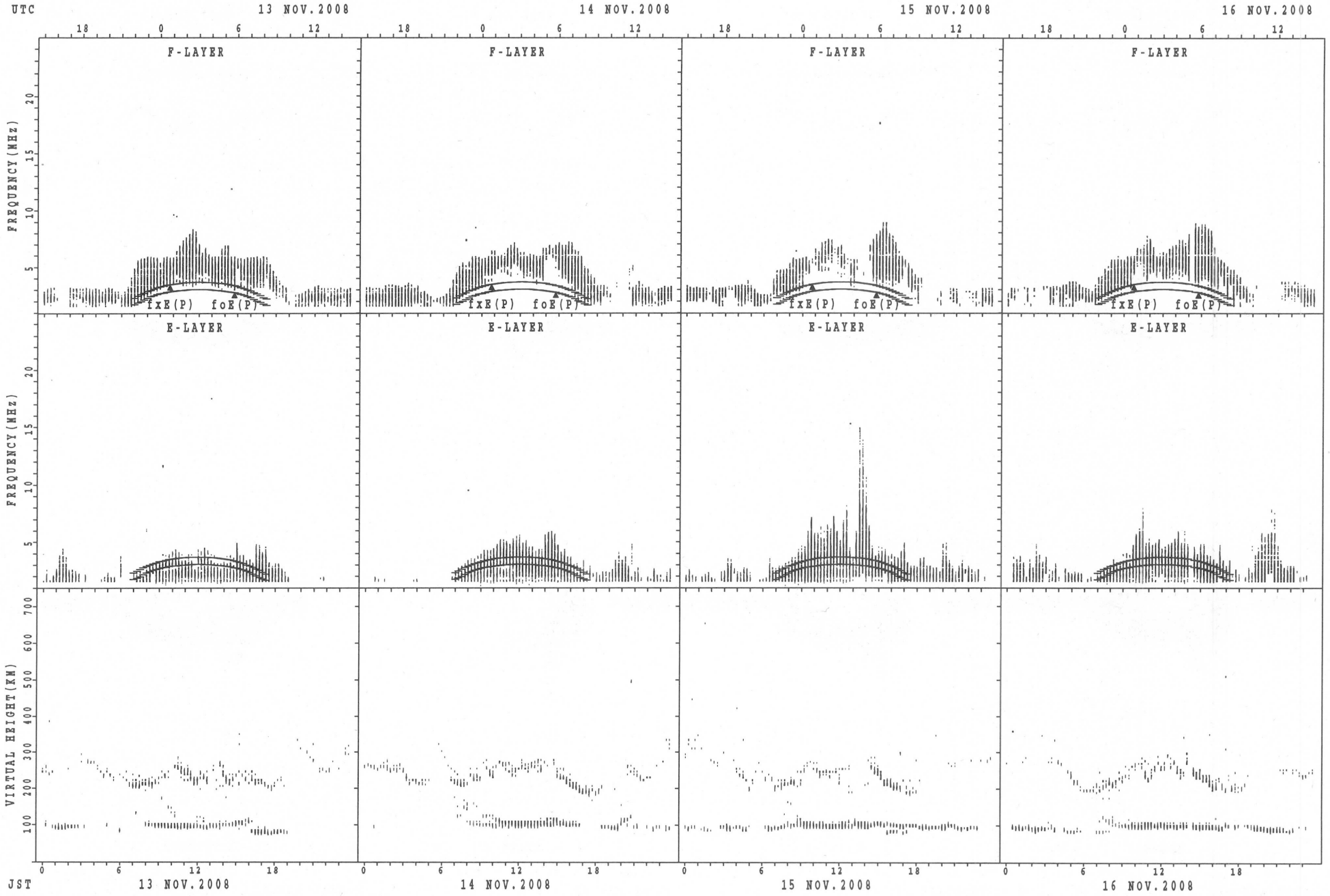
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



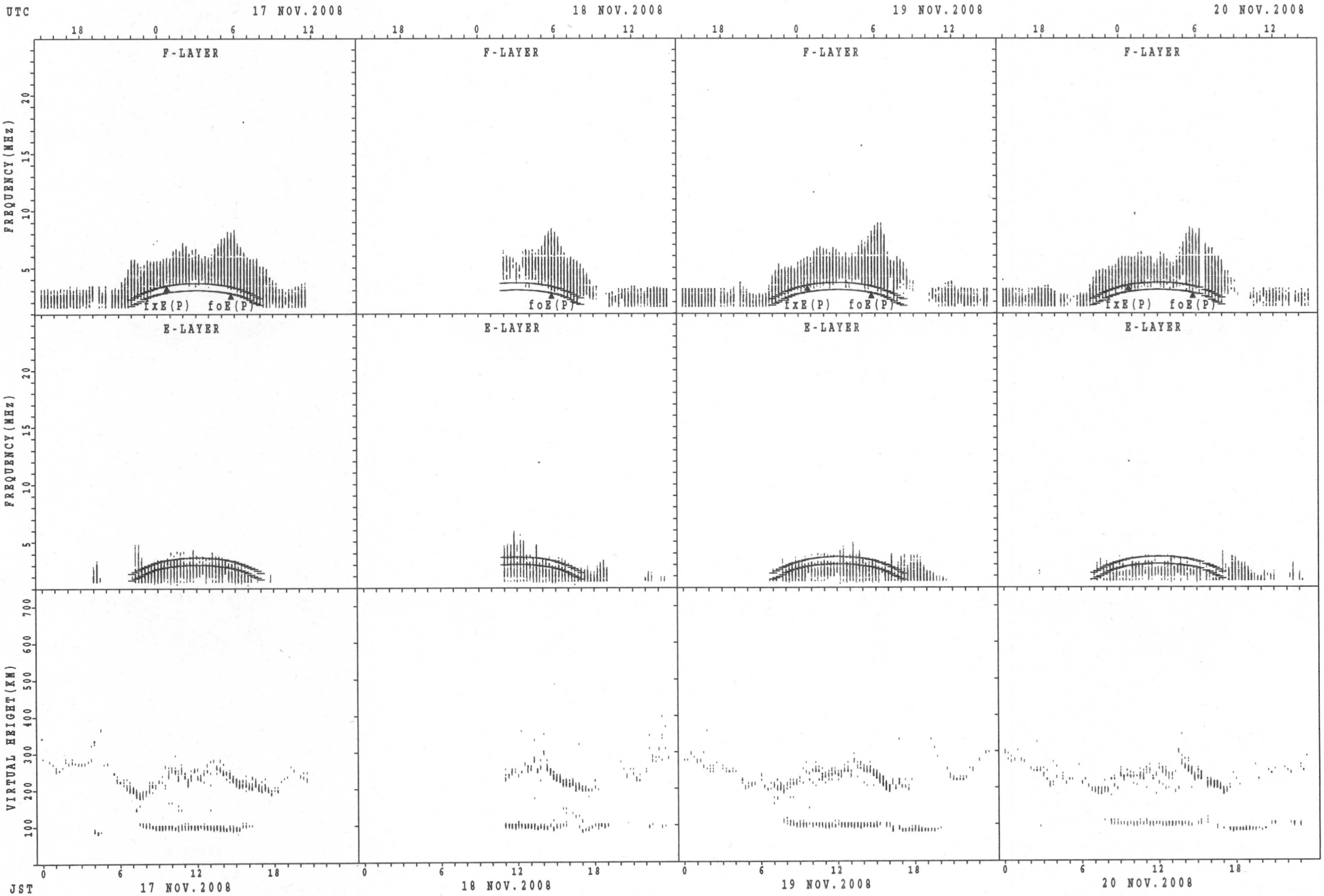
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



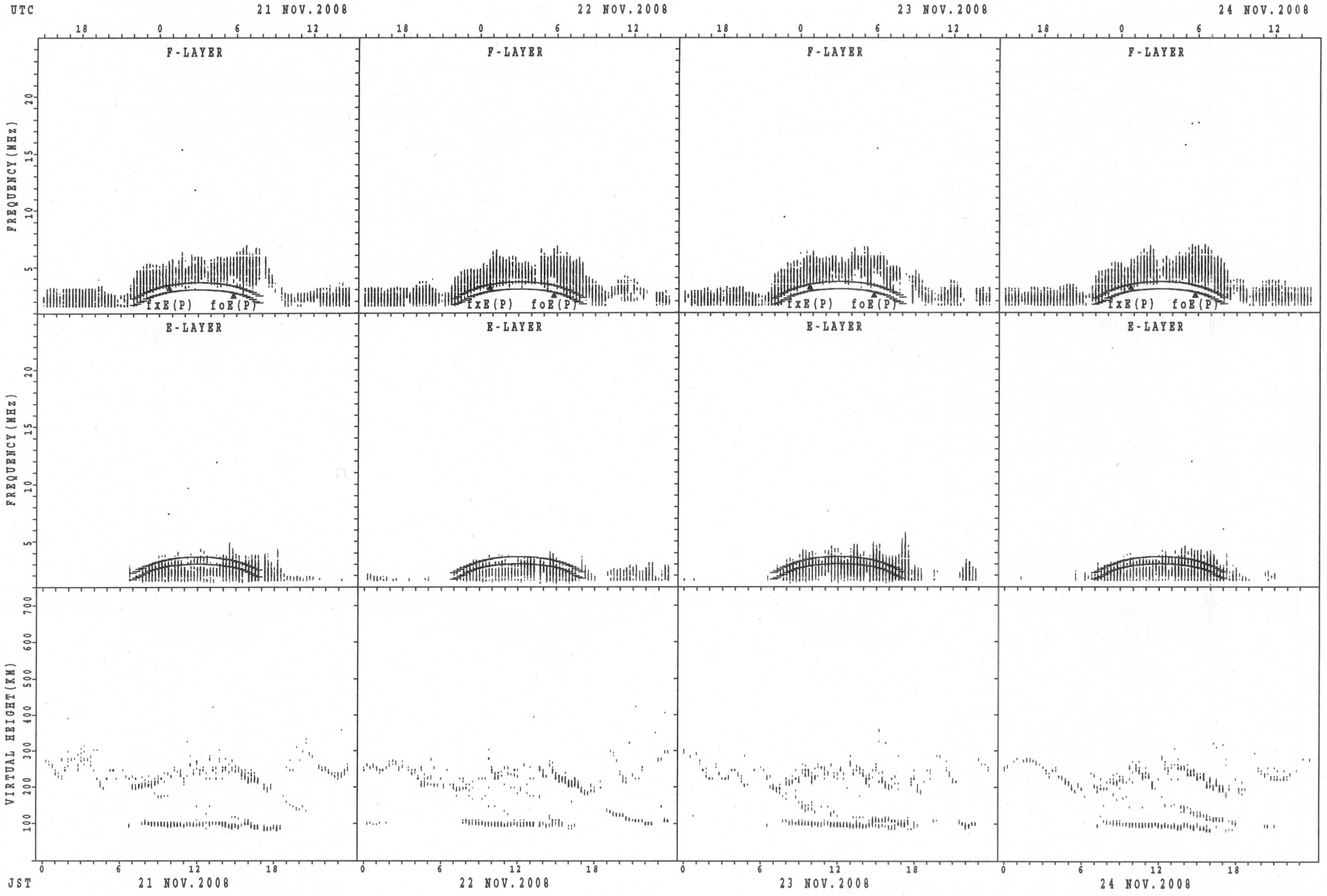
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



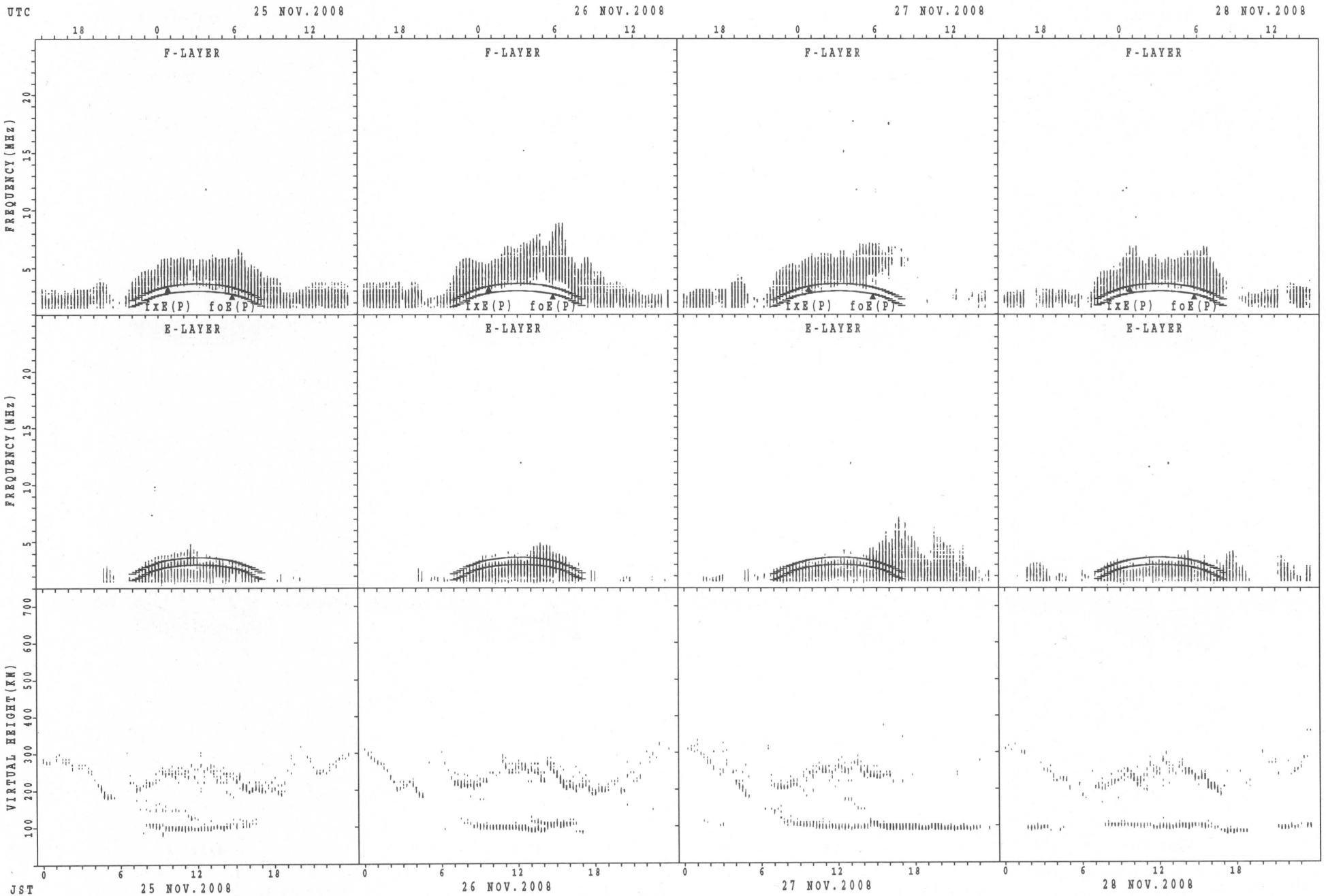
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



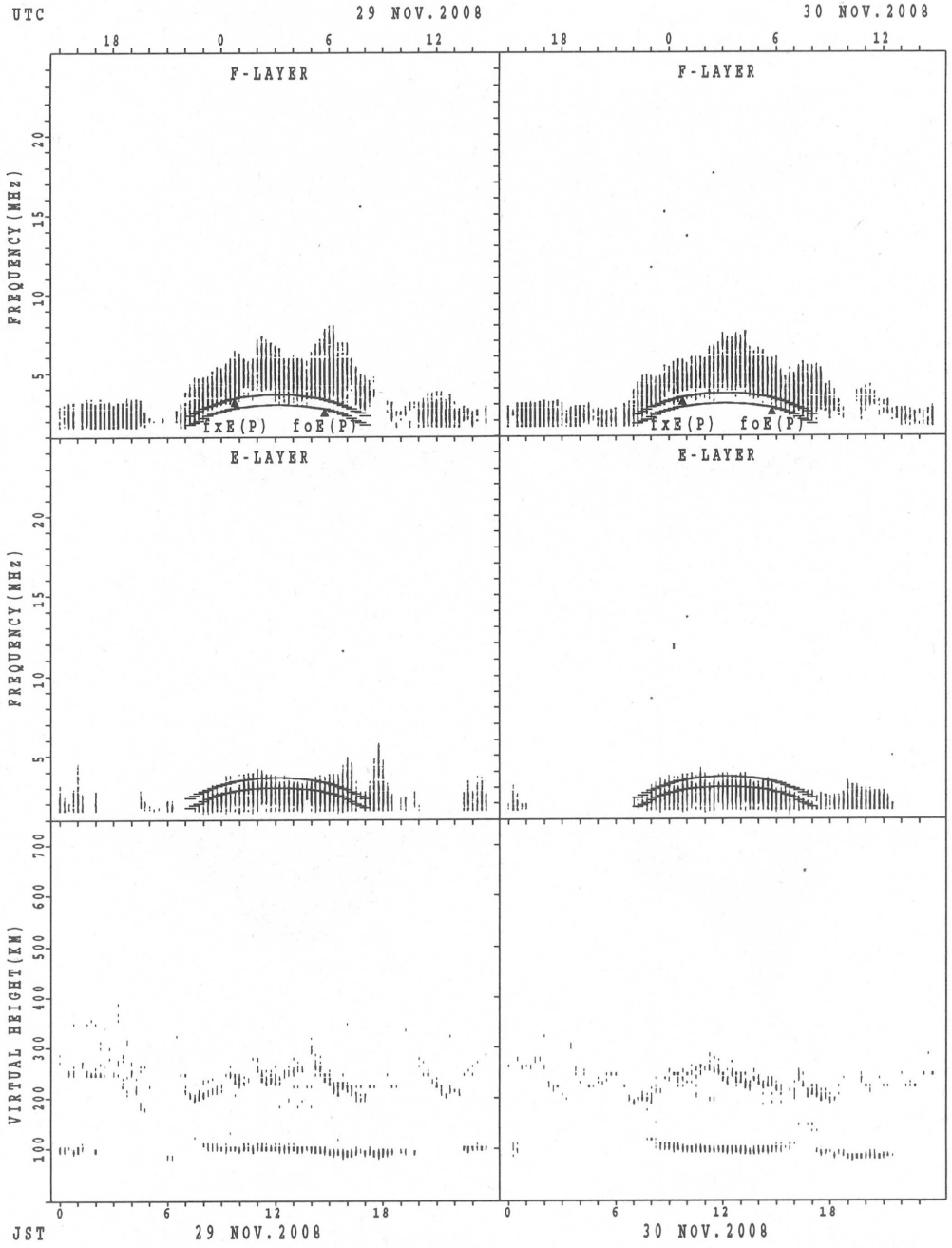
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa

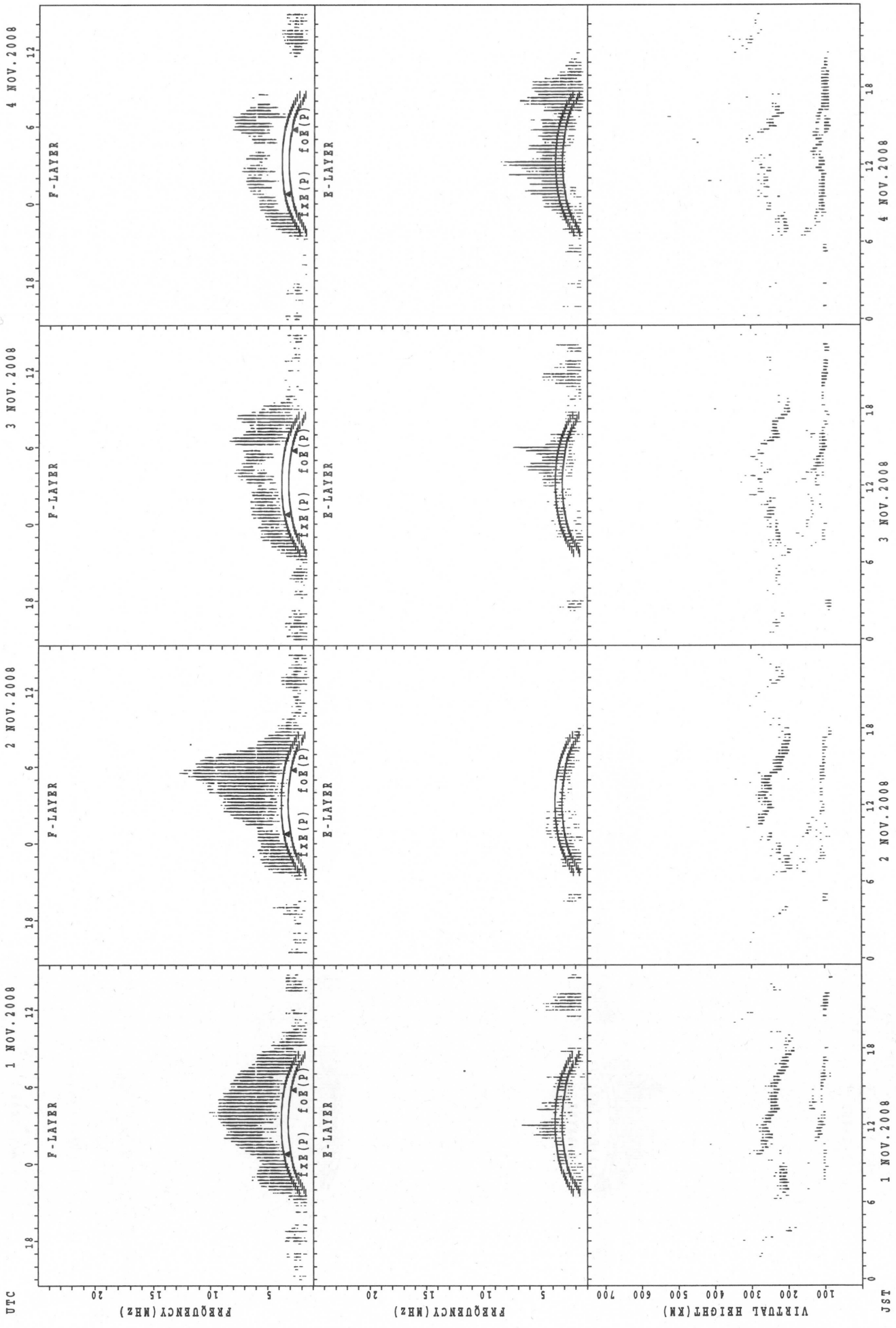


fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

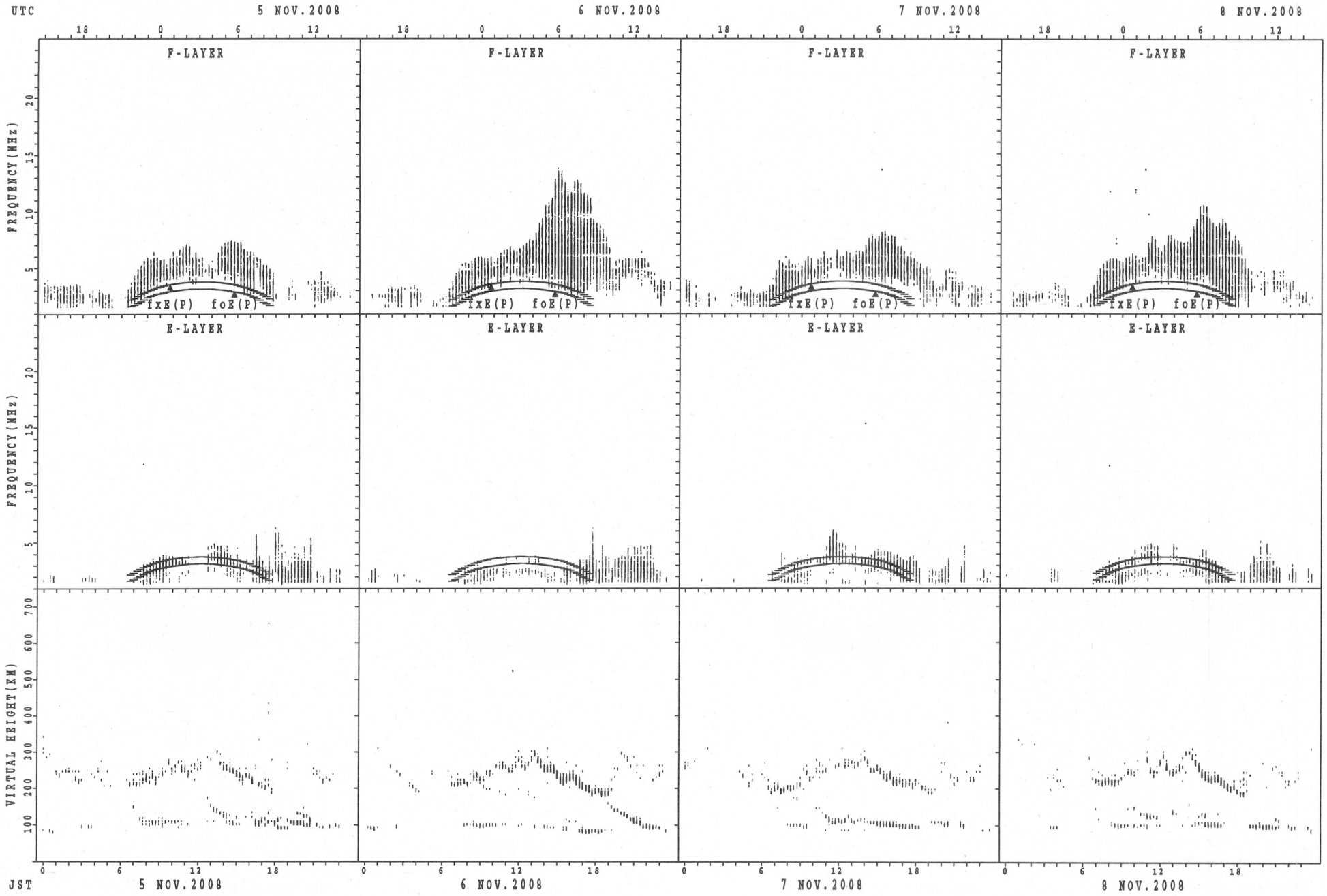
SUMMARY PLOTS AT Yamagawa



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

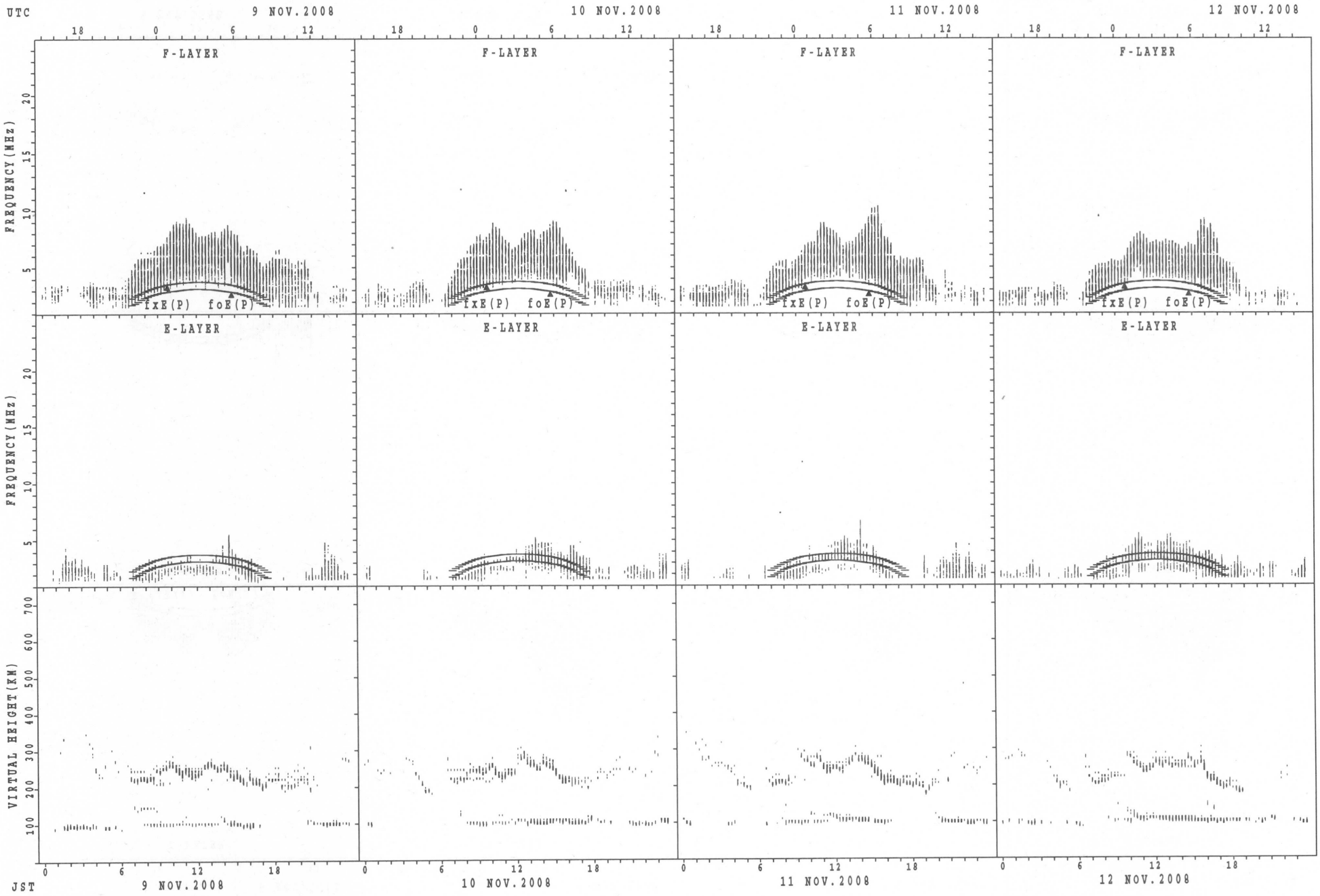

SUMMARY PLOTS AT Okinawa
UTC
JST
1 NOV.2008
2 NOV.2008
3 NOV.2008
4 NOV.2008
F-LAYER
E-LAYER
fxE(P) foE(P)
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



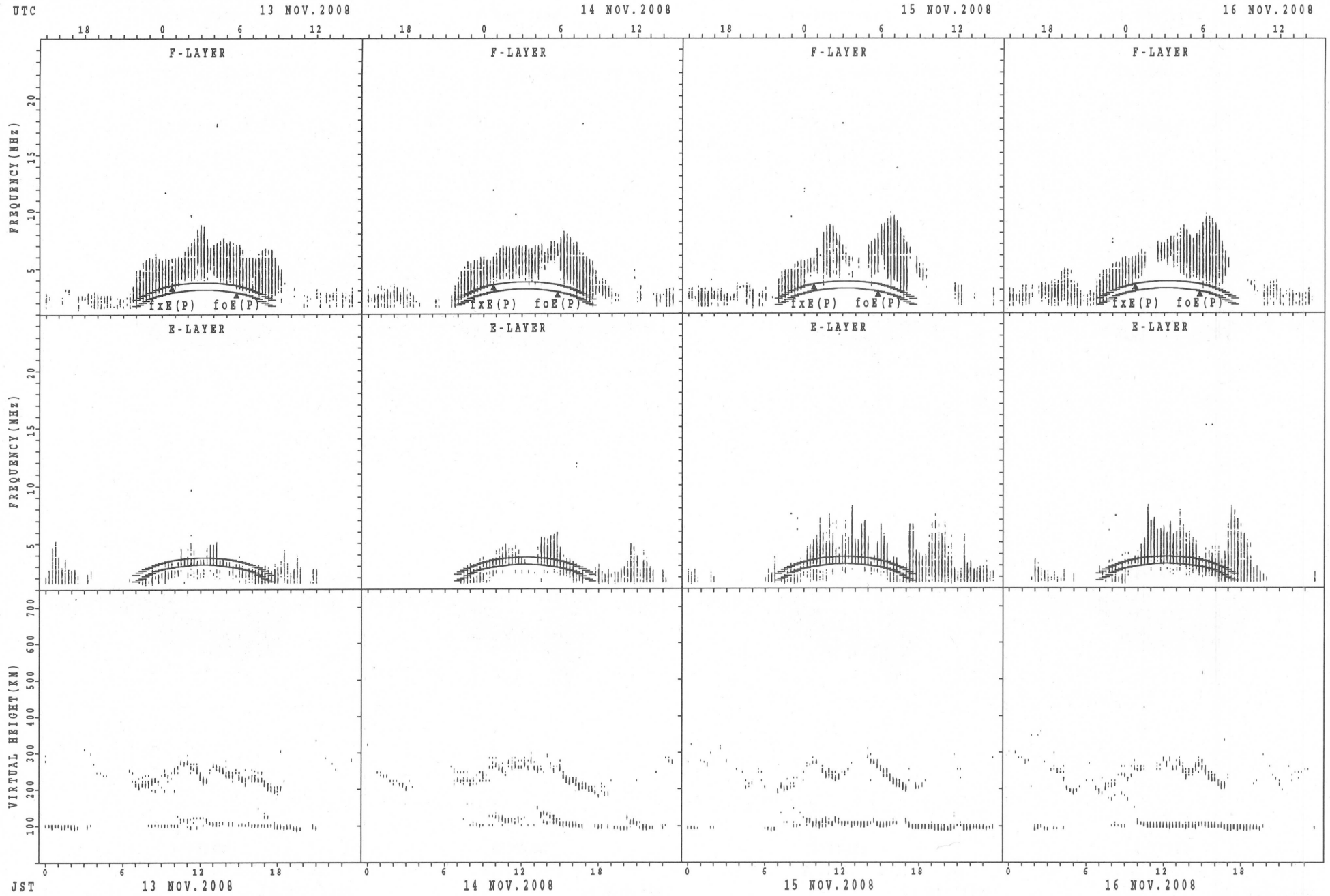
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



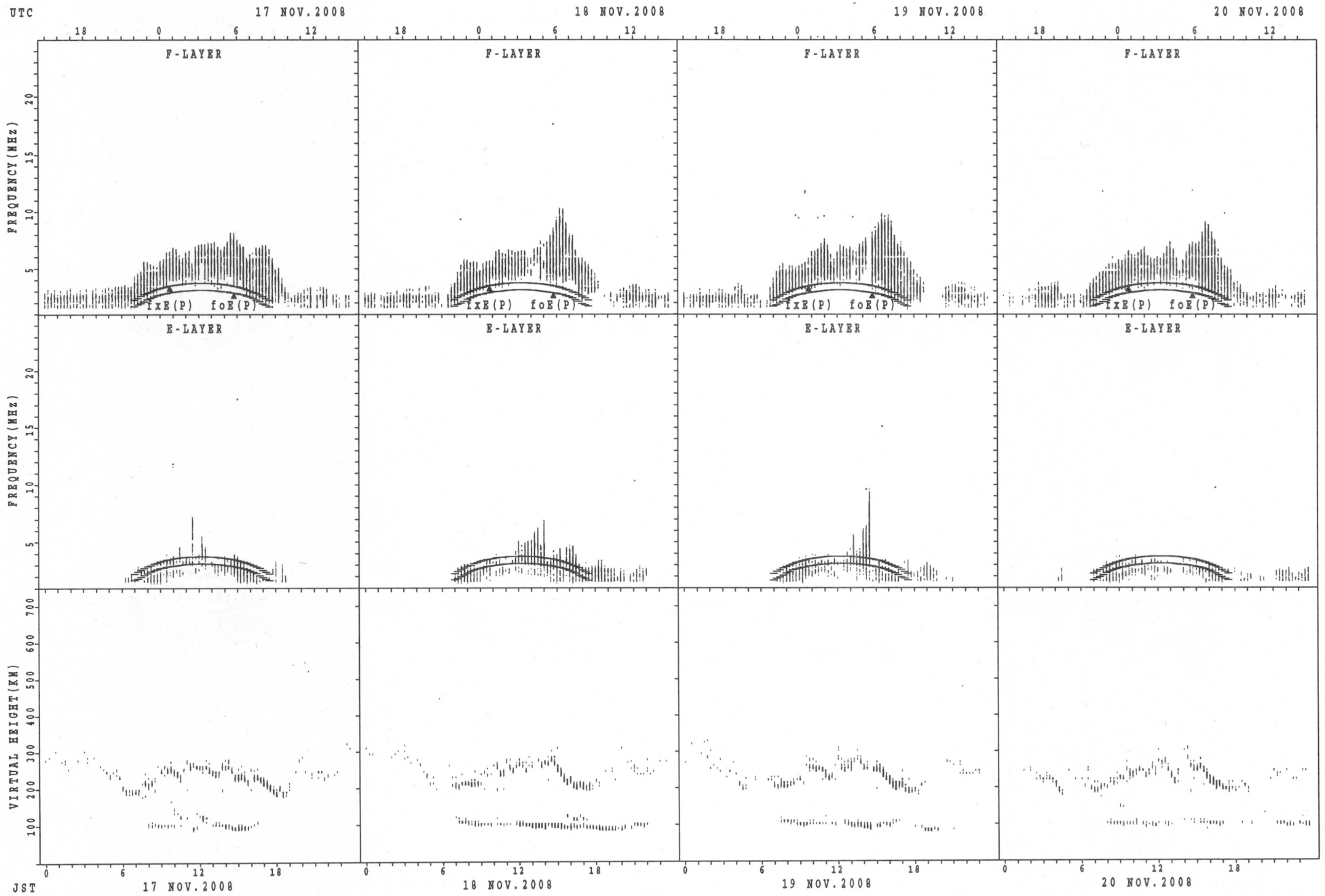
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



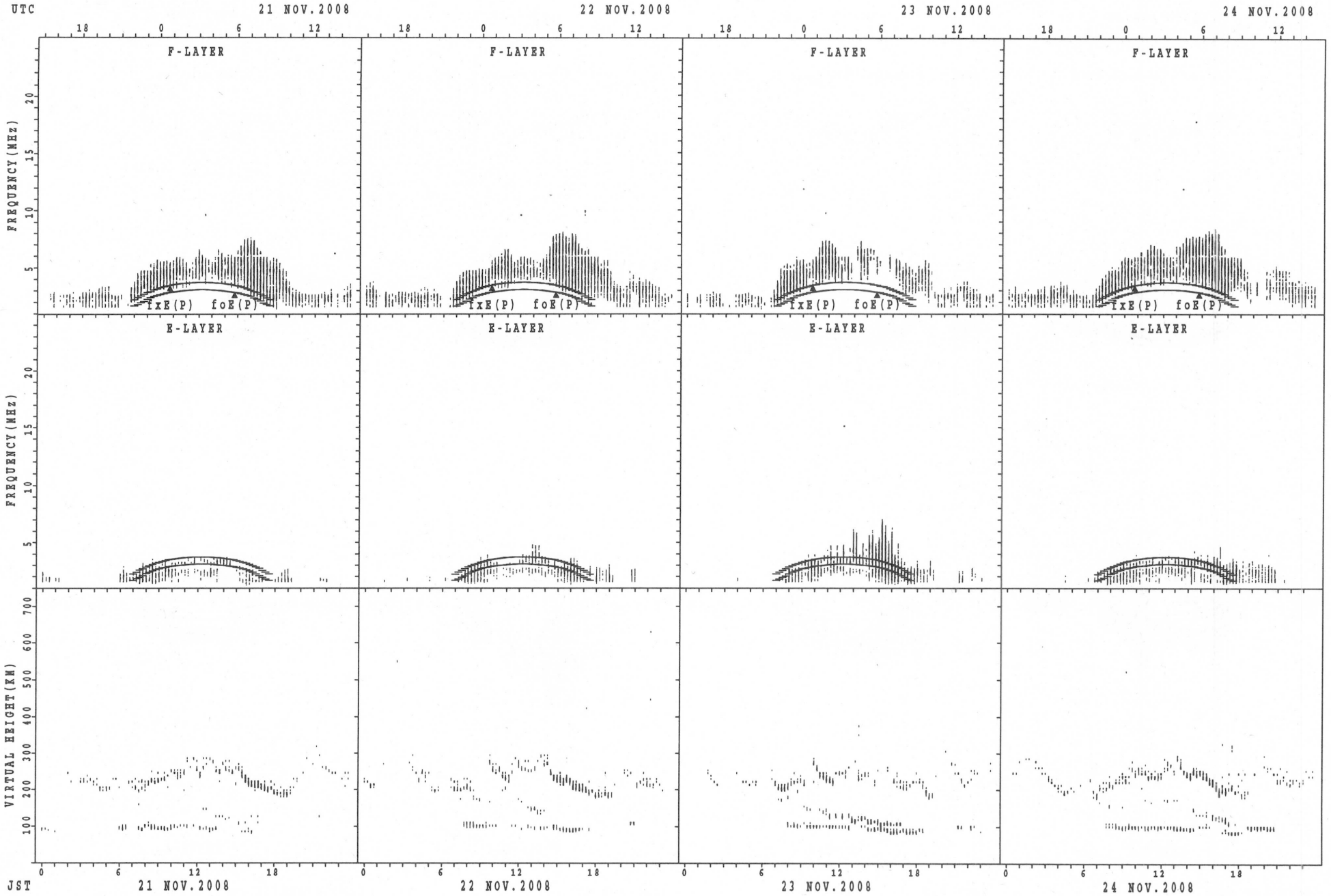
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



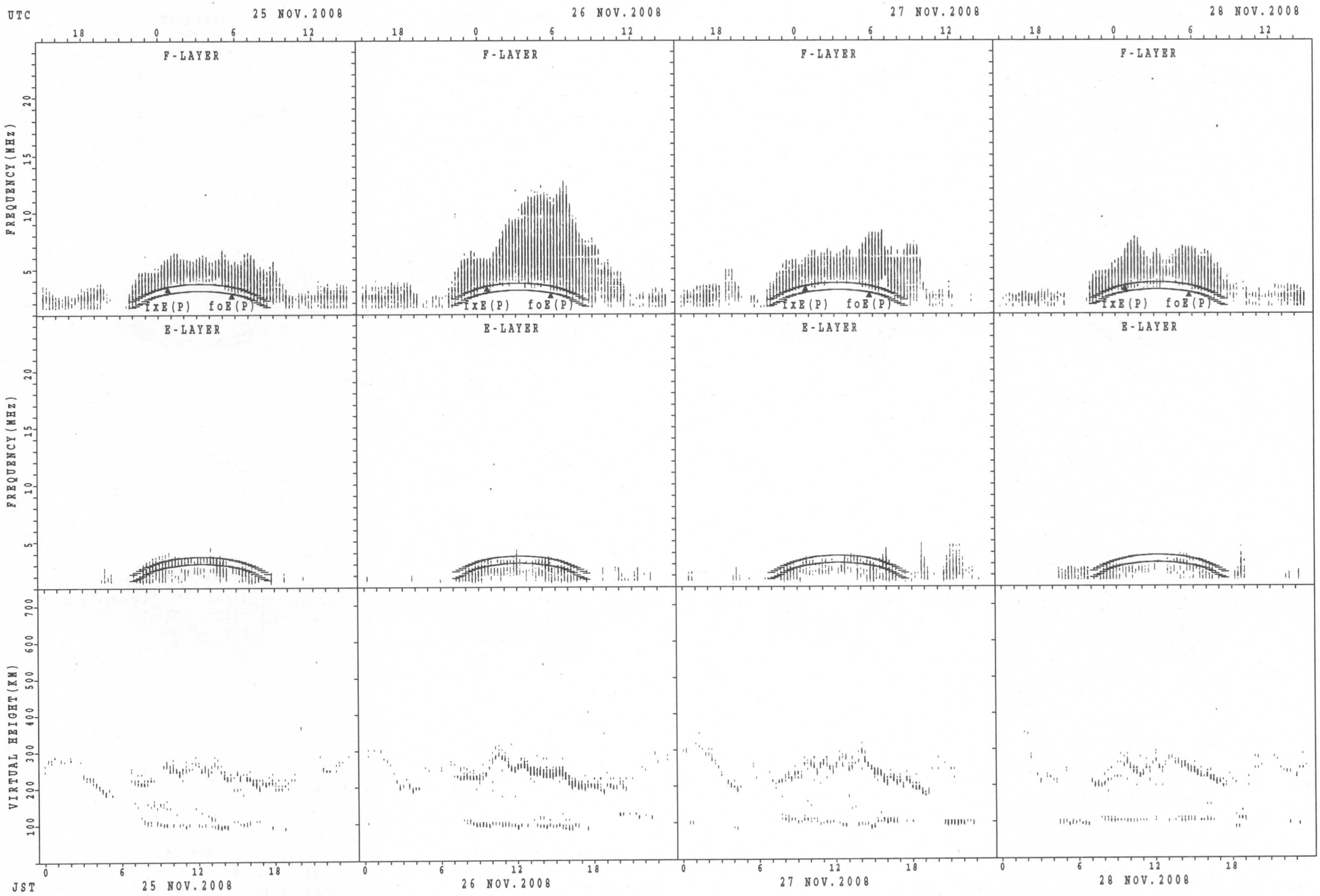
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



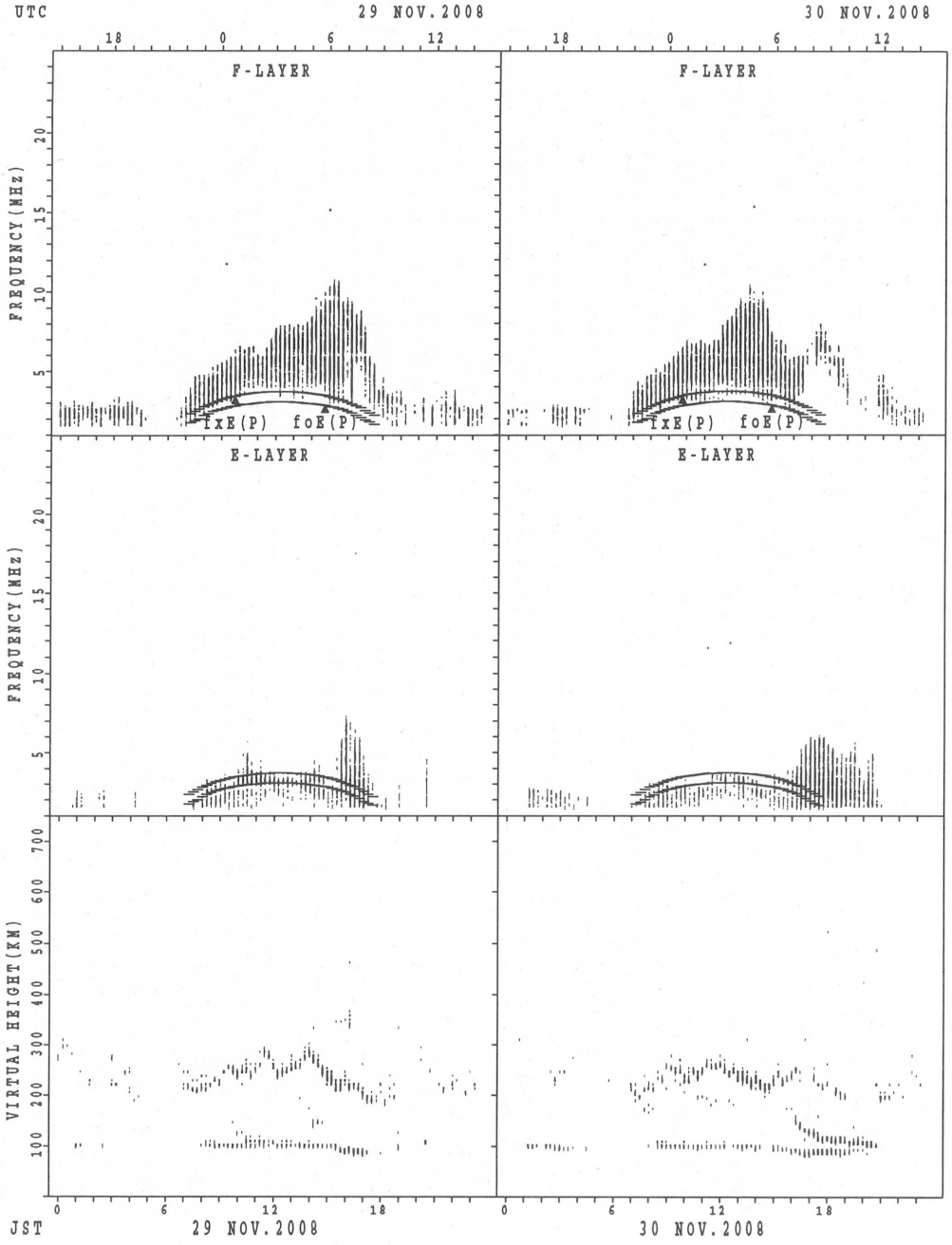
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



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

SUMMARY PLOTS AT Okinawa



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

MONTHLY MEDIANS OF h'F AND h'Es

NOV.2008 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									3	7	8	11	19	10	5	5	2							
MED									214	232	236	248	236	243	248	244	233							
U Q									232	238	243	260	246	246	272	271	248							
L Q									204	224	231	234	228	232	230	221	218							

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	11	12	11	10	8	5	2	9	18	17	18	17	16	19	17	18	17	14	9	4	9	8	13	7
MED	97	97	97	96	96	97	106	137	109	105	99	99	98	97	97	99	95	100	105	97	97	99	97	99
U Q	101	97	97	97	100	98	115	158	137	110	103	122	108	105	109	119	115	107	112	104	102	102	102	99
L Q	95	95	95	91	89	89	97	114	105	102	97	96	95	95	91	95	92	89	92	90	95	98	95	97

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									2	7	4			3	12	12								
MED									222	238	252			268	240	227								
U Q									230	272	269			288	257	241								
L Q									214	236	230			246	229	219								

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	6	6	4	5	3	1	11	13	10	15	12	12	10	10	13	12	15	13	10	9	6	7	6
MED	97	96	95	96	95	95	97	147	113	105	105	106	102	104	103	113	103	99	101	99	97	104	99	99
U Q	98	97	97	97	99	97	48	159	162	131	127	125	113	113	119	114	112	113	108	103	108	119	127	101
L Q	96	95	95	94	93	93	48	137	103	101	101	99	97	97	95	98	97	89	96	97	93	91	95	95

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									1	1	9				11	25	17	4						
MED									216	256	254				248	238	222	216						
U Q									108	128	264				278	248	228	221						
L Q									108	128	242				246	227	214	211						

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	6	7	9	8	3	9	4	9	10	16	20	20	24	17	20	23	21	23	20	16	12	13	13	9
MED	97	95	95	96	93	97	93	137	134	143	131	107	106	101	105	107	101	97	95	97	96	97	95	99
U Q	99	97	97	98	95	100	140	164	167	162	143	133	113	109	119	113	107	103	102	99	101	105	96	102
L Q	95	93	91	92	91	89	91	99	111	108	103	104	103	97	100	101	97	89	90	88	93	94	90	97

MONTHLY MEDIANS OF h'F AND h'Es

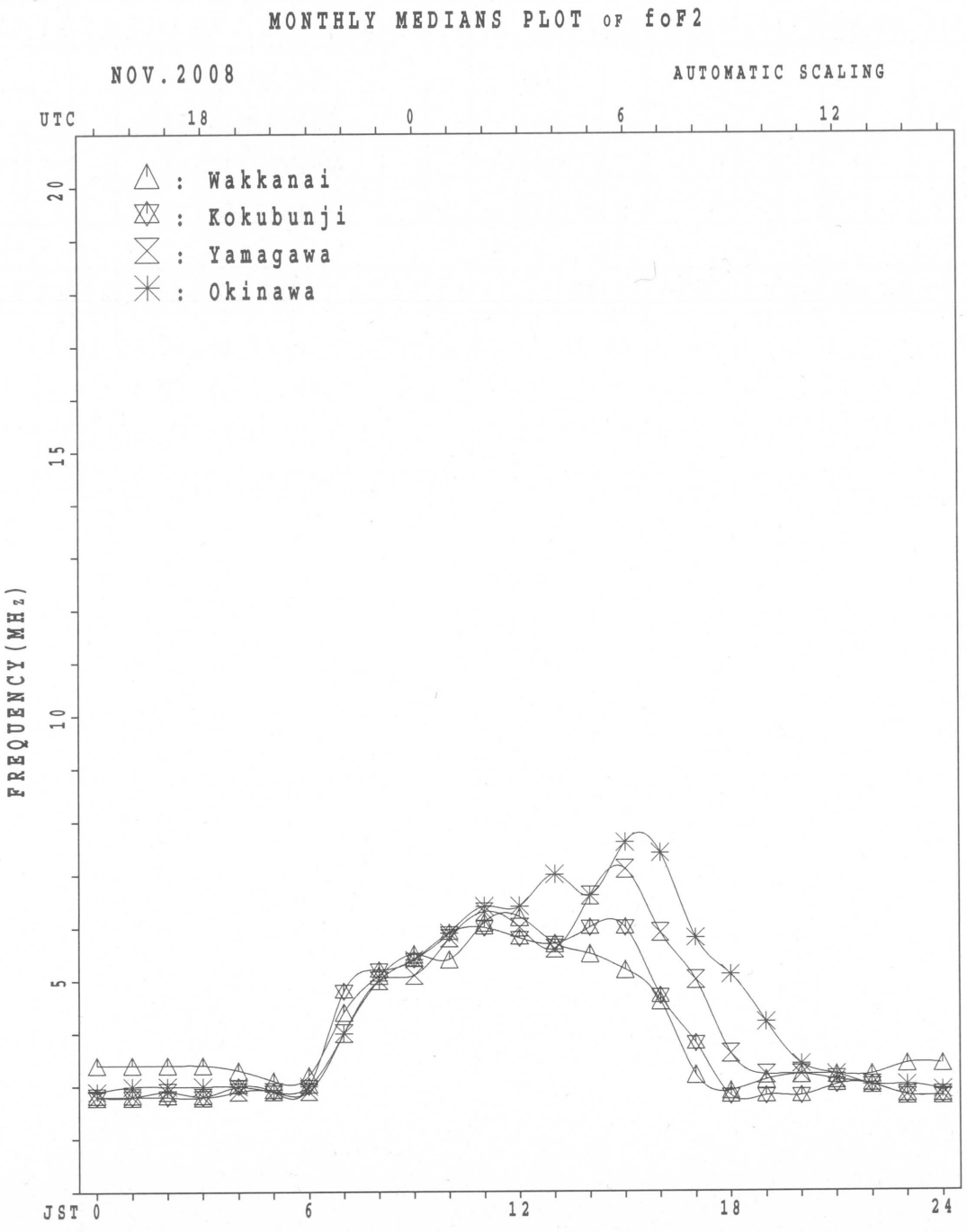
NOV.2008 135E MEAN TIME(UTC+9H) AUTOMATIC SCALING

h'F STATION Okinawa LAT. 26°40.5'N LON. 128°09.2'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										3	10					26	26	10	4					
MED										252	255					238	223	215	214					
U Q										260	276					254	232	230	218					
L Q										242	248					234	216	206	210					

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	3	3	4	4	2	5	2	2	14	13	14	15	16	17	19	19	20	16	16	15	12	12	10	7
MED	99	103	98	98	97	99	94	142	159	157	124	117	111	113	113	105	105	102	99	99	104	105	99	97
U Q	113	103	99	99	97	144	97	145	161	178	141	125	115	137	129	111	113	113	101	107	115	110	101	103
L Q	95	97	96	93	97	96	91	139	125	124	113	107	103	106	105	103	103	97	93	95	98	104	97	97


MONTHLY MEDIANS PLOT OF foF2
NOV. 2008
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

NOV. 2008 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 30.0MHz IN 15.0SEC 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	A	X 38	X 36	A	C	X 29	X 38											A	A	A	X 35	X 38	X 38	X 34
2	X 34	X 34	X 34	X 32	X 35	X 31	X 36											A	A	A	X 38	X 39	X 36	X 36
3	X 37	X 36	X 37	X 34	X 33	X 28	X 40											X 44	X 36	X 36	X 38	X 36	X 38	X 37
4	X 39	X 35	X 34	X 32	X 35	C	X 35					C	C	C	C	C	C	C	C	C	C	C	C	C
5	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
6	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	X 53	X 31	X 35	X 35	X 33	X 35	X 38
7	X 34	X 35	X 36	X 35	X 34	X 31	X 35											X 49	X 35	X 37	X 40	X 37	X 35	X 36
8	X 36	X 36	X 35	X 34	X 38	X 34	X 36			C								X 64	X 35	X 44	X 44	X 40	X 33	X 35
9	X 36	X 38	X 39	X 38	X 40	X 38	X 40											X 55	X 45	X 43	X 37	X 32	X 37	X 37
10	X 38	X 38	X 38	X 37	X 37	X 37	X 37											X 42	X 32	X 32	X 36	43	X 37	X 35
11	X 40	X 38	X 44	45	X 38	X 36	X 36											X 45	X 34	X 34	X 34	X 35	X 36	X 35
12	X 33	X 33	X 32	X 33	X 34	X 26	X 34											X 41	A	X 32	X 34	X 35	X 36	X 36
13	X 35	X 35	X 36	X 36	X 34	X 33	X 38											X 41	A	X 31	X 35	X 36	X 36	X 37
14	X 36	X 36	X 37	X 35	X 36	X 31	X 35											X 43	X 32	X 34	A	X 41	X 38	X 36
15	X 37	X 36	X 36	X 37	X 37	X 33	X 32					C	C	C	C	C	C	C	C	C	C	C	C	C
16	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
17	C	C	C	C	C	C	C	C	C	C								X 45	X 32	X 37	X 40	X 36	X 36	X 38
18	X 35	X 34	X 34	X 34	X 37	X 37	X 37											X 46	X 30	X 34	X 36	X 35	X 35	X 36
19	38	40	X 38	41	X 35	X 38	X 34											C	X 33	X 31	X 34	X 33	X 32	36
20	X 33	X 32	X 32	X 34	X 33	X 31	X 34											X 44	X 30	X 33	X 36	X 33	X 31	X 32
21	35	33	32	X 31	X 33	X 26	X 29											X 54	A	X 30	X 32	X 35	X 37	X 36
22	38	X 36	37	36	37	X 30	X 31											X 40	A	X 35	X 37	X 35	X 32	X 29
23	X 31	X 32	X 31	X 32	X 30	X 31	X 30											X 42	A	A	A	X 33	X 31	X 33
24	X 33	X 36	X 34	X 34	X 35	X 33	X 30											X 37	X 26	X 35	X 36	X 34	X 33	X 33
25	X 33	X 31	X 32	X 31	X 34	X 30	X 29											X 40	X 34	X 32	X 35	X 35	X 36	X 36
26	X 37	X 38	X 40	X 40	X 39	X 29	X 32								C			X 49	X 35	X 37	X 35	X 32	A	X 32
27	X 32	X 32	36	35	38	X 30	X 31			C	C	C	C	C	C			C	A	X 35	A	A	A	X 34
28	X 35	X 33	X 34	X 35	X 39	X 25	X 29											X 33	X 32	X 34	X 35	X 36	X 35	X 34
29	X 36	37	X 36	35	X 29	X 25	X 26											X 44	X 33	X 30	X 40	X 32	X 32	X 34
30	X 34	X 33	X 32	X 31	X 31	X 30	X 29											X 38	X 32	X 35	X 37	X 32	X 36	X 29
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	25	26	26	25	25	25	26											22	18	23	23	25	24	26
MED	X 35	X 36	X 36	X 35	X 35	X 31	X 34											X 44	X 32	X 34	X 36	X 35	X 36	X 36
U Q	X 37	X 37	X 37	X 36	X 38	X 34	X 36											X 49	X 35	X 36	X 38	X 36	X 36	X 36
L Q	X 34	X 33	X 34	X 32	X 34	X 29	X 30											X 41	X 32	X 32	X 35	X 33	X 33	X 34

IONOSPHERIC DATA STATION Kokubunji

NOV. 2008 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 30.0MHz IN 15.0SEC 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	A	32	30	A	C	22	32	55	60	69	66	59	63	64	64	71	53	A	A	A	29	32	32	28
2	28	28	28	26	28	25	30	51	61	55	57	61	59	64	61	56	54	A	A	A	32	33	30	30
3	31	29	30	28	27	22	33	48	53	53	54	63	64	51	58	58	48	38	30	30	32	30	32	30
4	33	29	27	26	29	C	29	48	52	56	58	C	C	C	C	C	C	C	C	C	C	C	C	C
5	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
6	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	47	25	29	29	27	29	32
7	28	29	30	29	27	25	29	46	52	59	56	54	57	57	56	59	46	43	29	31	33	30	28	30
8	30	30	29	28	32	28	30	56	54	C	62	68	64	52	62	55	59	58	30	35	37	33	27	29
9	30	32	33	32	34	32	34	51	60	72	77	77	67	70	63	54	48	49	39	37	31	26	31	31
10	32	32	32	31	31	31	31	53	60	67	69	68	56	53	64	64	51	36	26	26	30	F	31	29
11	34	32	38	F	32	29	30	52	54	55	64	67	59	57	73	58	49	39	28	28	28	28	29	29
12	27	27	26	27	28	20	28	48	47	53	62	61	54	54	56	62	53	34	A	26	28	29	30	30
13	29	29	30	30	28	26	32	53	56	56	67	V 70	60	54	58	54	48	35	A	25	29	30	30	30
14	29	30	31	29	30	24	29	46	52	55	64	68	A	61	64	61	50	36	25	28	A	35	32	30
15	31	30	30	30	31	27	26	43	56	59	60	C	C	C	C	C	C	C	C	C	C	C	C	C
16	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
17	C	C	C	C	C	C	C	C	C	C	58	54	60	76	76	71	51	39	26	31	34	30	29	31
18	29	28	28	28	31	31	30	50	51	53	56	58	65	59	A 78	64	48	40	24	28	30	29	29	30
19	F	F	32	F	29	32	27	40	51	51	54	65	56	64	74	68	44	C	27	25	28	26	26	F
20	27	26	26	28	26	25	28	44	46	54	54	56	53	61	69	71	54	38	24	27	30	26	25	26
21	F	F	F	25	27	20	23	42	46	48	60	52	51	48	58	58	56	48	A	24	26	29	31	30
22	F	30	F	F	F	24	25	39	45	49	54	56	51	48	60	54	51	33	A	29	31	29	26	23
23	25	26	25	26	24	24	24	45	44	48	59	55	47	64	58	50	42	36	A	A	A	26	25	26
24	29	30	28	28	29	27	24	41	46	51	54	58	51	48	65	49	54	31	20	29	29	28	26	27
25	27	25	26	25	28	24	23	41	49	50	50	56	52	54	53	58	45	34	28	26	29	29	30	30
26	31	32	34	34	32	24	26	50	51	50	49	63	51	65	C	62	43	44	29	30	29	26	A	26
27	26	26	F	F	F	24	25	46	51	C	C	C	C	C	C	60	56	C	A	29	A	A	A	28
28	28	27	28	29	33	19	22	40	46	58	60	51	54	58	62	55	42	27	26	28	29	30	29	28
29	30	F	30	F	23	19	20	40	48	50	58	58	64	50	57	53	48	38	27	24	34	26	25	27
30	28	27	25	24	24	23	23	45	43	48	65	62	61	58	52	48	42	31	26	29	30	26	30	22
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	22	23	23	20	23	25	26	26	26	24	26	24	23	24	23	25	25	22	18	23	23	24	24	25
MED	29	29	30	28	29	24	28	46	51	54	58	60	57	58	62	58	49	38	26	28	30	29	29	29
U Q	31	30	31	30	31	28	30	51	54	57	64	66	63	64	65	63	54	43	29	30	32	30	30	30
L Q	28	27	27	26	27	22	24	42	46	50	54	56	52	52	58	54	46	34	25	26	29	26	26	27

NOV. 2008 foF2 (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

NOV. 2008 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 30.0MHz IN 15.0SEC 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	U L 432	A	A	A	A								
2										C	L	C	U L 420	A	A									
3										L	A	A	A	U L 452	L									
4										L	U L 420	C	C	C	C	C	C							
5								C	C	C	C	C	C	C	C	C	C							
6								C	C	C	C	C	C	C	C	C	C							
7								L		L	L	U L 432	L	A	L									
8								L		C	A	A	A	A										
9										L		A	A	L	L									
10									L	L	L	L	L	L	U L 392	A								
11											U L 412		L	U L 388	A									
12									L		A	A	A	L	L									
13										L	L		U L 404	L										
14										L	A	A	A	A	A									
15											L	C	C	C	C	C	C							
16								C	C	C	C	C	C	C	C	C	C							
17								C	C	C	L	L	U L 404	L	L									
18									L	L	L	L	L		U L 360									
19											L		L	L	L									
20											L	L	L	L	L									
21									L	A	A	U L 432	A		L									
22											A	U L 392	L	L	U L 372									
23											U L 396	L	U L 412	U L 384	L									
24											L	A	L	L	A									
25										L	L	L	L	L	L									
26										A	L	U L 400	408	L	C									
27										C	C	C	C	C	C									
28										L	A	A	A	A	U L 368									
29											L	L	L	L	L									
30												U L 388	U L 408	U L 376	L									
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT											3	6	6	4	4									
MED											U L 412	U L 416	U L 408	U L 386	U L 370									
U Q											U L 420	U L 432	U L 412	U L 420	U L 382									
L Q											U L 396	U L 392	U L 404	U L 380	U L 364									

NOV. 2008 foF1 (0.01MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

NOV. 2008 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 30.0MHz IN 15.0SEC 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								208	A	A	A	A	A	316	272	U A 244	A							
2								U R 196	R	C	320	E C	R	308	U A 296	A	A							
3								192	256	U R 300	332	A	A	A	A	U R 264	R							
4								A	A	A	A	C	C	C	C	C	C							
5								C	C	C	C	C	C	C	C	C	C							
6								C	C	C	C	C	C	C	C	C	C							
7								200	252	A	A	A	A	A	A	A	A							
8								184	256	C	U A 328	324	A	A	A	A	A							
9								176	248	A	A	A	A	R	U R 288	A	A							
10								B	A	A	308	A	R	A	A	A	A							
11								B	R 256	280	A	312	R	A	284	U R 236	B							
12								196	256	304	A	A	A	R	R	R	R							
13								U R 200	U R 260	R	A	A	A	A	272	U A 232	A							
14								176	248	U A 284	A	A	A	A	A	U A 236	A							
15								184	260	A	A	C	C	C	C	C	C							
16								C	C	C	C	C	C	C	C	C	C							
17								C	C	C	R	A	A	A	A	220	B							
18								U R 184	U R 240	U R 288	A	A	A	A	A	216	B							
19								176	R	292	U R 304	A	A	A	U R 280	U R 236	B							
20								B	U A 228	R	A	A	A	R	R	A	B							
21								B	224	256	A	A	A	A	R	A	B							
22								168	R	276	A	A	R	R	R	R	B							
23								B	232	288	R	R	308	A	A	U A 228	B							
24								B	236	R	292	A	R	288	A	A	A							
25								B	252	268	300	300	A	A	R	U A 224	B							
26								B	U R 224	260	A	A	A	A	C	A	B							
27								B	248	C	C	C	C	C	C	A	A							
28								B	R	R	A	A	A	A	R	U R 228	B							
29								180	U R 256	A	A	A	A	A	U R 280	R	B							
30								B	A	R	A	A	A	U R 292	U R 260	U R 232	B							
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								14	18	11	7	3	1	4	8	12								
MED								184	250	284	308	312	308	300	U 280	U 232								
U Q								196	R 256	292	328	324		312	U 286	U R 236								
L Q								176	236	268	300	300		290	272	226								

NOV. 2008 foE (0.01MHz)

IONOSPHERIC DATA STATION Kokubunji

NOV. 2008 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 30.0MHz IN 15.0SEC 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	JA 54	JA 36	JA 32	JA 37	C	JA 20	21	28	JA 44	JA 37	JA 51	JA 36	JA 48	37	34	34	JA 35	JA 60	JA 81	JA 54	JA 24	EB 15	EC 25	20
2	JA 23	JA 30	JA 17	20	EB 16	EB 15	EB 15	G 19	G 27	EC 36	36	EC 47	G 28	40	JA 41	JA 38	JA 56	JA 52	JA 71	JA 52	JA 45	JA 33	JA 44	JA 20
3	EB 15	EC 18	EB 14	EB 14	JA 24	JA 18	EB 14	26	30	G 23	38	40	38	34	32	G	G	JA 21	JA 16	JA 39	JA 27	JA 24	JA 20	JA 30
4	JA 24	JA 24	JA 23	21	20	C	19	JA 26	JA 33	JA 36	JA 40	C	C	C	C	C	C	C	C	C	C	C	C	C
5	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
6	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	JA 23	19	JA 23	JA 19	JA 26	EB 15	JA 18
7	JA 20	JA 19	21	EB 16	20	JA 18	EB 14	23	29	34	JA 38	JA 65	35	36	35	29	JA 35	EB 15	20	EB 15	BJ 24	AJ 18	AJ 18	EB 15
8	EB 15	EB 15	EB 15	EB 14	JA 19	EB 15	EB 16	24	29	C	38	40	35	38	36	JA 40	JA 29	JA 22	JA 19	EB 16	18	19	JA 23	JA 30
9	JA 32	JA 53	JA 29	21	EB 15	EB 16	EB 15	23	32	35	JA 47	JA 43	JA 47	G 26	G 22	JA 32	JA 23	JA 26	JA 20	JA 25	JA 29	JA 25	20	19
10	JA 20	EB 16	JA 20	JA 21	JA 22	JA 32	22	20	29	34	35	JA 34	GJ 28	JA 40	34	JA 58	JA 41	JA 20	20	EB 16	BJ 21	AE 15	EB 16	EB 14
11	EB 15	JA 20	JA 48	21	JA 25	20	20	19	G 22	33	32	36	GJ 22	JA 33	33	G 22	EB 16	EB 14	EB 14	EB 15	EB 15	21	JA 64	JA 28
12	JA 43	JA 27	JA 40	JA 28	18	19	JA 20	28	30	35	JA 47	36	36	G 25	G 26	G 20	G	JA 32	JA 33	AE 16	EB 15	20	20	20
13	EB 15	18	EB 15	EB 14	EB 15	EB 15	JA 20	JA 21	G 22	G 28	36	36	JA 32	JA 32	31	30	JA 29	JA 24	JA 34	JA 19	20	19	20	EB 15
14	EB 15	EB 15	EB 14	EB 15	EB 15	EB 14	EB 15	22	30	36	40	38	JA 72	JA 46	JA 43	36	JA 29	JA 28	JA 22	JA 21	JA 42	JA 32	JA 29	EB 15
15	JA 17	JA 46	JA 21	JA 25	JA 36	JA 22	22	22	30	JA 44	JA 44	C	C	C	C	C	C	C	C	C	C	C	C	C
16	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
17	C	C	C	C	C	C	C	C	C	C	G 26	32	JA 35	JA 44	JA 38	26	18	EB 14	EB 15	EB 15	EB 15	EB 15	EB 13	EB 15
18	20	21	EB 15	EB 15	EB 15	EB 15	EB 16	G	G 21	GJ 24	JA 33	35	JA 37	JA 41	JA 29	27	20	JA 28	EB 15	EB 15	EB 14	EB 15	BJ 18	EB 15
19	EB 16	EB 16	EB 15	EB 15	EB 15	EB 15	18	G	G	32	G 28	36	38	JA 57	G 21	G 20	EB 16	C	JA 24	18	EB 15	EB 15	EB 15	EB 15
20	EB 16	EB 15	EB 15	EB 15	EB 14	BJ 22	22	19	26	GJ 22	JA 34	JA 31	35	G 27	G 24	26	21	EB 15	BJ 17	A 20	20	EB 15	EB 14	EB 15
21	EB 15	EB 16	EB 15	EB 14	JA 18	EB 14	EB 15	20	25	32	38	JA 42	JA 50	JA 42	G 20	GJ 32	JA 36	JA 22	JA 29	JA 19	20	JA 22	JA 22	JA 29
22	19	EB 15	EB 16	EB 15	EB 15	EB 15	EB 15	G	G 21	31	36	34	G 25	G 22	G 21	G	EB 16	BJ 26	AJ 28	AJ 23	19	EB 15	EB 15	EB 15
23	EB 15	20	EB 15	EB 15	EB 15	EB 14	EB 15	EB 15	30	34	G 24	G 27	35	34	31	26	21	EB 15	BJ 24	AJ 34	JA 32	21	20	EB 16
24	19	EB 14	EB 14	EB 14	EB 15	EB 14	EB 14	20	32	G 24	37	JA 40	G 30	33	38	J 34	AJ 40	AJ 20	AJ 22	AE 15	B 21	20	EB 15	EB 15
25	EB 15	EB 14	EB 14	EB 14	EB 16	21	19	22	32	31	35	34	36	32	G 23	27	19	EB 14	EB 14	EB 15	EB 15	20	18	EB 15
26	20	EB 16	EB 15	EB 15	EB 15	EB 15	EB 15	20	G	31	34	37	34	JA 36	C	J 34	AJ 25	AJ 21	AJ 26	AJ 19	20	20	JA 36	JA 21
27	JA 20	EB 15	EB 15	EB 14	EB 16	20	JA 17	20	29	C	C	C	C	C	C	JA 47	JA 36	C	JA 66	AJ 45	JA 48	JA 52	JA 40	JA 24
28	20	20	EB 15	EB 15	EB 15	EB 14	20	20	G 20	G 22	36	JA 46	JA 56	AJ 74	A 20	G 19	JA 48	AJ 29	AJ 19	A 20	EB 15	BE 15	BE 15	BJ 20
29	EB 15	EB 16	EB 15	EB 15	EB 15	EB 14	EB 14	21	G	33	JA 34	JA 33	35	JA 36	G 24	G 20	EB 15	EB 15	22	EB 15	EB 18	BE 15	EB 15	EB 15
30	EB 16	EB 15	EB 15	EB 15	EB 15	EB 15	EB 14	EB 15	27	GJ 27	JA 37	JA 36	JA 36	G 27	G 24	G 21	EB 16	EB 14	18	EB 15	EB 15	EB 15	EB 15	EB 14
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	26	26	26	26	25	25	26	26	26	24	26	24	24	24	23	25	25	24	26	26	26	26	26	26
MED	18	E 17	EB 15	EB 15	EB 15	EB 15	EB 16	20	29	32	36	36	35	36	31	27	JA 23	JA 22	JA 21	19	20	20	18	EB 16
U Q	JA 20	JA 21	JA 21	JA 21	JA 20	JA 20	20	23	30	35	JA 38	JA 40	JA 38	JA 40	35	J 34	JA 36	JA 27	JA 28	JA 23	JA 24	JA 22	JA 23	JA 20
L Q	EB 15	EB 15	EB 15	EB 14	EB 15	EB 14	EB 15	G 19	G 26	G 28	34	34	G 33	G 32	G 23	G	G	EB 15	EB 18	EB 15	EB 15	EB 15	EB 15	EB 15

NOV. 2008 foEs (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

NOV. 2008 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 30.0MHz IN 15.0SEC 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	A A 54	22	20	A A 37	C	16	E B 15	25	32	32	33	34	40	36	30	32	28	A A 60	A A 81	A A 54	E B 16	E B 15	E C 25	16
2	E B 15	22	E B 15	E B 14	E B 16	E B 15	E B 15	G 18	G 25	E C 36	34	E C 47	G 27	40	39	36	22	A A 52	A A 71	A A 52	20	23	16	16
3	E B 15	E C 18	E B 14	E B 14	E B 15	E B 15	E B 14	24	30	G 23	35	39	36	32	30	G	G	17	E B 15	17	16	16	E B 15	E B 15
4	18	E B 15	16	E B 15	E B 15	C	E B 15	22	31	33	32	C	C	C	C	C	C	C	C	C	C	C	C	C
5	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
6	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	17	E B 15	16	16	22	E B 15	E B 15
7	E B 15	16	E B 15	E B 16	E B 16	16	E B 14	22	27	32	35	36	32	35	32	28	31	E B 15	E B 15	E B 15	19	E B 15	E B 15	E B 15
8	E B 15	E B 15	E B 15	E B 14	E B 15	E B 15	E B 16	22	26	C	35	36	34	38	34	38	26	17	17	E B 16	E B 15	E B 15	16	20
9	E B 16	20	18	E B 15	E B 15	E B 16	E B 15	22	30	32	44	38	36	G 24	G 20	24	20	21	16	18	22	20	E B 14	E B 15
10	E B 15	E B 16	16	E B 15	E B 15	19	E B 15	18	27	32	33	31	G 28	33	32	27	23	16	E B 16	E B 16	E B 15	E B 15	E B 16	E B 14
11	E B 15	E B 15	18	E B 14	16	16	E B 16	19	G 21	31	31	36	G 22	30	32	G 22	E B 16	E B 14	E B 14	E B 15	E B 15	E B 15	16	18
12	16	17	17	17	16	E B 15	E B 15	26	29	33	38	35	35	G 24	G 24	G 19	G	24	A A 33	E B 16	E B 15	E B 15	E B 15	E B 15
13	E B 15	E B 15	E B 14	E B 15	E B 15	E B 15	E B 15	E B 15	G 20	G 24	34	34	31	31	30	27	25	20	A A 34	17	E B 15	16	E B 15	E B 15
14	E B 15	E B 15	E B 14	E B 15	E B 15	E B 14	E B 15	20	28	34	37	37	A A 72	40	40	35	28	20	16	16	A A 42	26	E B 15	E B 15
15	E B 15	E B 15	E B 15	19	18	15	17	22	27	30	33	C	C	C	C	C	C	C	C	C	C	C	C	C
16	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
17	C	C	C	C	C	C	C	C	C	C	G 25	31	32	32	28	24	18	E B 14	E B 15	E B 15	E B 15	E B 15	E B 13	E B 15
18	E B 16	E B 16	E B 15	E B 15	E B 15	E B 15	E B 16	G	G 20	G 24	30	32	31	35	28	26	18	18	E B 15	E B 15	E B 14	E B 15	E B 15	E B 15
19	E B 16	E B 16	E B 15	E B 15	E B 15	E B 15	E B 15	G	G	G 32	G 27	35	34	34	G 21	G 19	E B 16	C	18	E B 16	E B 15	E B 15	E B 15	E B 15
20	E B 16	E B 15	E B 15	E B 15	E B 14	E B 14	16	18	26	G 21	32	30	34	G 26	G 24	26	20	E B 15	E B 15	15	E B 15	E B 15	E B 14	E B 15
21	E B 15	E B 16	E B 15	E B 14	16	E B 14	E B 15	19	24	30	36	35	45	34	G 18	30	31	20	A A 29	16	E B 15	17	E B 15	16
22	E B 16	E B 15	E B 16	E B 15	E B 15	E B 15	E B 15	G	G 19	31	34	33	G 25	G 22	G 21	G	E B 16	18	A A 28	19	E B 15	E B 15	E B 15	E B 15
23	E B 15	E B 15	E B 15	E B 15	E B 15	E B 14	E B 15	E B 15	29	32	G 24	G 26	33	33	30	25	19	E B 15	A A 24	A A 34	A A 32	16	E B 15	E B 16
24	E B 16	E B 14	E B 14	E B 14	E B 15	E B 14	E B 14	20	30	G 23	34	37	G 29	32	36	32	37	16	16	E B 15	E B 15	15	E B 15	E B 15
25	E B 15	E B 14	E B 14	E B 14	E B 16	E B 16	E B 14	21	28	30	34	32	33	30	G 22	25	18	E B 14	E B 14	E B 15	E B 15	E B 15	16	17	E B 15
26	E B 16	E B 16	E B 15	E B 15	E B 15	E B 15	E B 15	19	G	31	31	32	33	32	C	30	23	18	20	17	15	16	A A 36	18
27	E B 15	E B 15	E B 15	E B 14	E B 16	E B 15	E B 15	19	27	C	C	C	C	C	C	45	28	C	A A 66	18	A A 48	A A 52	A A 40	E B 15
28	E B 15	E B 15	E B 15	E B 15	E B 15	E B 14	E B 14	20	G 19	G 20	32	38	38	40	G 18	G 18	34	18	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15
29	E B 15	E B 16	E B 15	E B 15	E B 15	E B 14	E B 14	20	G	30	31	30	32	30	G 22	G 19	E B 15	E B 15	16	E B 15	E B 18	E B 15	E B 15	E B 15
30	E B 16	E B 15	E B 15	E B 15	E B 15	E B 15	E B 14	E B 15	25	G 25	33	32	32	G 22	G 21	G 19	E B 16	E B 14	15	E B 15	E B 15	E B 15	E B 15	E B 14
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	26	26	26	26	25	25	26	26	26	24	26	24	24	24	23	25	25	24	26	26	26	26	26	26
MED	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	20	26	30	33	34	33	32	28	26	20	17	16	16	E B 15	E B 15	E B 15	E B 15
U Q	E B 16	16	16	E B 15	16	16	E B 15	22	29	32	35	36	36	35	32	31	28	20	A A 28	17	18	16	16	16
L Q	E B 15	E B 15	E B 15	E B 14	E B 15	E B 14	E B 14	G	G 25	G 24	31	32	G 31	G 30	G 21	G	G	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15

NOV. 2008 fbEs (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

NOV. 2008 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 30.0MHz IN 15.0SEC IN MANUAL SCALING

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E C 34	15	14	14	C	14	15	14	15	13	15	14	15	14	15	14	14	14	15	15	16	15	E C 25	15
2	15	15	15	14	16	15	15	14	14	E C 36	14	E C 47	14	13	14	13	14	15	16	15	15	14	13	15
3	15	E C 18	14	14	15	15	14	14	14	14	14	15	15	15	14	14	14	15	15	15	15	15	15	15
4	15	15	15	15	16	C	15	14	15	14	15	C	C	C	C	C	C	C	C	C	C	C	C	C
5	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
6	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	15	15	15	14	14	15	14
7	15	16	15	16	16	15	14	15	16	14	16	15	13	14	15	16	14	15	15	15	14	15	15	15
8	15	15	15	14	15	15	16	15	14	C	14	12	14	14	14	14	15	14	16	16	15	15	15	14
9	15	16	14	15	15	16	15	15	15	15	15	15	14	14	15	14	13	15	15	14	14	14	14	15
10	15	16	16	15	15	15	15	15	14	13	14	16	12	14	15	14	15	16	16	16	15	15	16	14
11	15	15	16	14	14	15	16	15	14	14	15	14	14	14	15	14	16	14	14	15	15	15	15	15
12	15	15	14	15	15	15	15	16	14	12	16	14	12	15	14	14	15	15	15	16	15	15	15	15
13	15	15	15	14	15	15	15	15	14	14	14	14	14	14	14	12	15	14	14	14	15	15	14	15
14	15	15	14	15	15	14	15	14	14	14	15	15	13	14	14	14	14	15	14	14	15	15	15	15
15	15	15	15	15	14	14	15	15	14	15	15	C	C	C	C	C	C	C	C	C	C	C	C	C
16	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
17	C	C	C	C	C	C	C	C	C	C	14	14	13	14	14	14	14	14	15	15	15	15	13	15
18	16	16	15	15	15	15	16	14	14	15	14	13	14	15	14	14	14	15	15	15	14	15	15	15
19	16	16	15	15	15	15	15	15	15	13	14	16	15	14	13	15	16	C	15	16	15	15	15	15
20	16	15	15	15	14	14	15	15	15	12	15	16	12	13	13	13	16	15	16	14	15	15	14	15
21	15	16	15	14	15	14	15	15	15	14	15	13	14	14	13	13	16	13	15	15	15	16	16	15
22	16	15	16	15	15	15	15	14	15	14	14	15	15	15	15	15	16	14	14	15	15	15	15	15
23	15	15	15	15	15	14	15	15	14	14	14	15	14	15	14	16	14	15	15	15	15	15	15	16
24	16	14	14	14	15	14	14	14	14	14	15	14	15	15	14	14	13	14	15	15	16	15	15	15
25	15	14	14	14	16	16	14	16	14	13	14	14	14	14	13	14	14	14	14	15	15	16	15	15
26	16	16	15	15	15	15	15	15	13	15	14	15	14	15	C	15	15	15	15	15	15	15	15	14
27	15	15	15	14	16	15	15	14	14	C	C	C	C	C	C	15	14	C	15	15	14	14	14	15
28	15	15	15	15	15	14	14	16	14	13	13	13	14	13	13	13	14	11	15	15	15	15	15	14
29	15	16	15	15	15	14	14	14	13	14	13	12	15	14	14	15	15	15	15	15	18	15	15	15
30	16	15	15	15	15	15	14	15	14	13	15	14	15	15	13	14	16	14	15	15	15	15	15	14
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	26	26	26	26	25	25	26	26	26	24	26	24	24	24	23	25	25	24	26	26	26	26	26	26
MED	15	15	15	15	15	15	15	15	14	14	14	14	14	14	14	14	14	15	15	15	15	15	15	15
U Q	16	16	15	15	15	15	15	15	15	14	15	15	15	15	15	15	16	15	15	15	15	15	15	15
L Q	15	15	14	14	15	14	14	14	14	13	14	14	14	14	13	14	14	14	15	15	15	15	15	15

NOV. 2008 fmin (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

NOV. 2008 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 30.0MHz IN 15.0SEC 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	A	321	334	A	C	352	344	370	384	379	400	349	358	354	372	377	389	A	A	A	317	345	352	315
2	287	314	317	319	360	405	365	391	400	371	376	370	349	358	359	373	394	A	A	A	322	327	330	340
3	335	342	348	337	364	335	362	385	375	378	370	371	375	324	367	372	393	386	350	333	335	345	324	340
4	324	330	315	317	376	C	381	406	405	352	363	C	C	C	C	C	C	C	C	C	C	C	C	C
5	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
6	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	399	384	322	340	350	330	328
7	299	347	304	335	356	379	373	381	407	394	378	329	351	395	367	372	383	375	340	320	351	351	325	316
8	307	309	312	321	359	400	335	379	366	C	368	367	364	363	344	358	361	374	309	318	348	351	288	307
9	300	336	355	320	333	317	360	376	354	354	371	362	377	348	369	386	372	366	342	361	361	319	311	318
10	319	317	317	326	362	372	357	380	372	371	364	386	355	355	366	383	381	373	321	315	328	F	366	333
11	333	316	364	F	342	369	364	390	397	387	376	362	351	336	372	402	389	393	358	331	344	349	349	314
12	337	309	319	337	370	342	370	406	390	362	367	385	363	355	350	374	394	390	A	325	318	333	345	325
13	338	337	323	324	326	340	357	390	385	384	370	V 348	392	383	365	380	378	377	A	305	318	317	310	312
14	321	318	341	324	351	347	342	380	370	370	370	371	A	356	374	378	399	391	421	323	A	342	326	321
15	328	302	319	311	356	381	365	387	385	385	380	C	C	C	C	C	C	C	C	C	C	C	C	C
16	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
17	C	C	C	C	C	C	C	C	C	C	374	365	341	349	376	406	408	370	322	337	364	351	338	337
18	305	308	299	309	339	389	372	387	376	376	366	376	398	347	A 383	391	373	400	374	327	351	329	329	311
19	F	F	326	F	316	385	393	383	384	359	390	385	360	347	361	396	406	C	362	316	346	355	308	F
20	329	322	316	329	336	323	378	410	405	381	387	391	370	349	366	370	385	400	408	330	349	356	318	319
21	F	F	F	340	358	333	344	389	387	379	369	351	362	347	363	376	390	403	A	317	325	316	340	323
22	F	312	F	F	F	379	357	410	400	363	383	387	405	375	378	392	379	401	A	329	346	346	347	302
23	324	352	345	337	338	357	346	397	383	363	371	379	358	360	365	408	393	349	A	A	A	376	340	328
24	331	343	322	328	376	379	328	400	412	374	363	391	362	373	365	376	406	357	413	331	337	336	323	319
25	326	316	321	331	351	381	316	377	370	370	348	378	364	379	360	370	399	348	342	357	337	318	320	312
26	320	312	333	345	367	313	335	374	389	380	362	351	366	363	C	391	379	353	326	361	337	370	A	311
27	302	315	F	F	F	410	323	386	373	C	C	C	C	C	C	370	374	C	A	374	A	A	A	302
28	313	294	304	338	387	419	357	395	367	350	390	394	368	356	347	370	396	380	365	353	337	334	341	312
29	321	F	376	F	351	393	320	375	379	372	361	351	380	358	371	388	377	397	396	331	352	354	325	333
30	344	346	341	352	340	340	341	407	383	377	377	383	359	356	377	399	372	381	313	364	376	358	374	367
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	22	23	23	20	23	25	26	26	26	24	26	24	23	24	23	25	25	22	18	23	23	24	24	25
MED	322	317	322	328	356	372	357	387	384	373	370	371	363	356	366	378	389	380	354	330	340	346	330	319
U Q	331	337	341	337	364	387	365	397	397	380	378	385	375	363	372	392	395	397	384	353	351	352	343	330
L Q	307	312	316	320	339	340	341	380	373	363	366	356	358	348	361	372	378	370	326	320	328	331	322	312

NOV. 2008 M(3000)F2 (0.01)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

NOV. 2008 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 30.0MHz IN 15.0SEC 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	U L 409	A	A	A	A								
2										C	L	C	U L 426	A	A									
3										L	A	A	A	E A 379	L									
4										L	U L 381	C	C	C	C	C	C							
5								C	C	C	C	C	C	C	C	C	C							
6								C	C	C	C	C	C	C	C	C	C							
7								L		L	L	U L 419	L	A	L									
8								L		C	A	A	A	A										
9										L		A	A	L	L									
10									L	L	L	L	L	L	U L 365	A								
11											U L 387		L	U L 404	A									
12									L		A	A	A	L	L									
13										L	L		U L 428	L										
14										L	A	A	A	A	A									
15											L	C	C	C	C	C	C							
16								C	C	C	C	C	C	C	C	C	C							
17								C	C	C	L	L	U L 408	L	L									
18									L	L	L	L	L		U L 389									
19											L		L	L	L									
20											L	L	L	L	L									
21									L	A	A	U L 396	A		L									
22											A	U L 404	L	L	U L 371									
23											U L 398	L	U L 411	U L 390	L									
24											L	A	L	L	A									
25										L	L	L	L	L	L									
26										A	L	U L 383	458	L	C									
27										C	C	C	C	C	C									
28										L	A	A	A	A	U L 386									
29											L	L	L	L	L									
30												U L 408	U L 395	U L 411	L									
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT											3	6	6	4	4									
MED											U L 387	U L 406	U L 418	U L 397	U L 378									
U Q											U L 398	U L 409	428	U L 408	U L 388									
L Q											U L 381	U L 396	U L 408	384	U L 368									

NOV. 2008 M(3000)F1 (0.01)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

NOV. 2008 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 30.0MHz IN 15.0SEC 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										222	220	264	242	260	232	226								
2										230	246	240	250	250	236									
3										232	232	240	222	330	254									
4										266	260	C	C	C	C	C	C							
5								C	C	C	C	C	C	C	C	C	C							
6								C	C	C	C	C	C	C	C	C	C							
7								230		226	258	306	252	232	258									
8								228		C	252	248	232	226										
9										252		238	228	258	232									
10									234	242	244	228	262	254	248	220								
11											244		250	252	234									
12									228		248	228	224	256	256									
13										224	242		216	244										
14										252	242	226	A	258	232									
15											232	C	C	C	C	C	C							
16								C	C	C	C	C	C	C	C	C	C							
17								C	C	C	228	240	254	252	234									
18									214	234	234	228	224		234									
19											238		242	260	228									
20											238	228	244	234	236									
21									214	218	242	256	E A 250		246									
22											234	228	218	240	242									
23											242	236	256	242	242									
24											250	222	248	238	218									
25										252	270	236	256	240	248									
26										228	246	264	242	240	C									
27										C	C	C	C	C	C									
28										256	216	232	246	254	256									
29											254	244	226	246	242									
30												236	252	240	236									
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								2	4	14	24	21	23	22	21	2								
MED								229	221	233	242	236	243	248	236	223								
U Q									231	252	249	246	252	256	248									
L Q									214	226	234	228	226	240	233									

NOV. 2008 h'F2 (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

NOV. 2008 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 30.0MHz IN 15.0SEC 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	A	E A 300	E A 282	A	C	E A 230	224	218	216	200	204	180	A	A	A	A	208	A	A	A	E B 260	228	E C 234	E A 262
2	E B 292	E A 316	E B 276	E B 272	228	200	196	H 176	204	C	204	C	H 190	A	A	230	208	A	A	A	E A 256	E A 272	222	E A 248
3	226	E C 258	226	222	202	224	212	196	216	176	A	A	A	H 182	204	212	200	200	206	220	E A 242	222	224	238
4	E B 272	E B 244	E A 282	E B 268	218	C	204	200	204	200	192	C	C	C	C	C	C	C	C	C	C	C	C	C
5	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
6	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	190	192	E A 242	E A 248	E A 274	E B 236	230
7	E B 304	E A 256	E B 258	232	218	206	214	186	208	192	186	192	182	A	212	224	212	194	190	E B 260	222	208	E B 248	E B 266
8	E B 286	E B 274	E B 266	E B 268	216	186	224	196	H 180	C	A	A	A	A	E A 266	226	218	202	208	240	224	210	E A 312	E A 316
9	E B 304	E A 276	E A 250	E B 256	E B 234	E B 248	208	208	218	224	232	A	A	200	206	206	208	212	218	218	220	E A 302	E B 268	E B 246
10	E B 258	236	E A 256	E B 258	218	206	210	210	208	218	212	204	198	202	222	A	200	194	E B 210	E B 264	E B 246	E B 248	214	236
11	E B 240	226	220	E B 258	E A 242	200	210	H 186	202	212	H 190	230	184	180	A	212	H 178	188	200	214	238	222	E A 242	E A 272
12	E A 258	E A 258	E A 288	E A 260	210	E B 260	202	190	180	222	A	A	A	204	204	224	198	200	A	E B 248	E B 246	232	234	E B 236
13	E B 246	238	E B 250	E B 250	E B 252	246	214	206	H 184	H 178	202	216	H 162	198	214	212	204	196	A	E A 270	E B 256	E B 256	E B 266	E B 276
14	E B 260	E B 256	236	E B 250	216	226	222	206	222	228	A	A	A	A	A	218	208	190	198	E A 266	A	E A 260	232	246
15	236	E B 286	E B 262	E A 288	216	200	198	194	214	214	H 188	C	C	C	C	C	C	C	C	C	C	C	C	C
16	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
17	C	C	C	C	C	C	C	C	C	C	198	186	186	204	212	208	196	194	208	224	210	218	214	E B 238
18	E B 282	E B 290	E B 272	E B 252	236	200	204	202	H 172	198	196	190	194	E A 234	194	212	202	196	200	224	214	230	230	E B 252
19	E B 256	E B 242	E B 242	E B 264	208	188	186	180	196	218	210	222	204	208	194	H 182	188	C	216	E B 238	226	216	E B 268	E B 288
20	E B 266	E B 244	E B 240	228	226	E B 248	194	186	190	210	206	194	188	184	200	206	202	180	184	E A 254	216	210	E B 252	E B 274
21	E B 292	E B 290	E B 264	E B 234	216	190	E B 236	190	178	A	A	194	A	200	208	212	202	184	A	E A 248	E B 246	E A 264	E B 238	E A 254
22	E B 248	E B 260	E B 292	E B 272	212	196	208	196	H 182	208	A	H 174	182	180	190	208	202	188	A	E A 262	224	222	216	E B 302
23	E B 286	E B 254	224	E B 250	232	222	226	H 156	196	208	206	194	186	210	206	200	200	186	A	A	A	214	E B 266	E B 256
24	E B 254	E B 252	E B 246	E B 244	214	210	198	188	196	228	206	A	180	186	A	208	208	198	192	222	222	234	E B 264	E B 252
25	E B 270	E B 290	E B 244	E B 254	224	190	210	198	218	210	226	204	206	200	202	216	190	200	214	210	234	E B 246	E A 268	E B 280
26	E B 282	E B 268	E B 240	218	196	210	E B 250	214	206	A	206	214	196	224	C	212	204	202	E A 264	210	212	212	A	E A 314
27	E B 298	E B 284	E B 256	E B 250	214	194	E B 246	206	212	C	C	C	C	C	C	226	210	C	A	210	A	A	A	E B 290
28	E B 278	E B 286	E B 272	E B 244	208	186	220	204	204	210	A	A	A	A	196	204	200	202	E B 238	212	E B 236	E B 238	212	E B 242
29	E B 256	E B 258	206	E B 194	198	194	E B 254	202	210	208	208	194	196	194	212	206	H 174	192	196	E B 250	224	212	E B 240	E B 254
30	222	E B 218	E B 260	E B 224	E B 242	E B 238	206	200	180	220	236	190	196	174	196	202	196	198	224	204	200	226	204	184
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	25	26	26	25	25	25	26	26	26	21	19	16	16	18	18	23	25	22	18	23	23	25	24	26
MED	E B 266	E B 258	E B 256	E B 250	215	201	208	197	204	210	206	194	189	200	204	212	202	195	203	U 224	219	220	E 237	E B 254
U Q	E B 286	E B 286	E B 272	E B 262	E 230	E B 228	E B 224	206	212	219	210	209	196	204	212	218	208	200	216	E A 254	E B 246	E B 252	E B 265	E B 276
L Q	E B 251	E B 244	240	233	211	194	204	188	H 184	200	196	190	183	184	196	206	197	190	196	214	220	215	223	242

NOV. 2008 h'F (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

NOV. 2008 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 30.0MHz IN 15.0SEC 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								118	A	A	A	A	A	116	118	116	A							
2								124	120	C	120	C	118	116	120	122	A							
3								114	120	122	122	116	116	118	116	114	120							
4								A	A	A	A	C	C	C	C	C	C							
5								C	C	C	C	C	C	C	C	C	C							
6								C	C	C	C	C	C	C	C	C	C							
7								118	122	122	A	A	A	118	120	118	A							
8								112	124	C	126	122	120	118	120	122	A							
9								120	126	122	118	A	A	118	120	A	A							
10								B	120	A	118	A	116	A	110	A	A							
11								B	120	118	A	120	118	114	112	122	B							
12								130	118	120	120	118	118	120	120	124	122							
13								118	120	120	118	116	A	A	118	116	A							
14								120	122	126	124	120	A	A	A	116	112							
15								114	118	A	A	C	C	C	C	C	C							
16								C	C	C	C	C	C	C	C	C	C							
17								C	C	C	120	A	A	A	A	112	B							
18								116	122	124	A	A	A	A	A	108	B							
19								120	116	122	120	A	A	A	116	112	B							
20								B	114	118	118	A	A	122	120	118	B							
21								B	112	120	120	A	A	A	114	A	B							
22								114	118	120	A	118	116	116	116	114	B							
23								B	112	116	124	116	118	122	116	126	B							
24								B	122	122	122	A	118	116	118	A	122							
25								B	116	120	116	116	112	A	126	116	B							
26								B	112	118	124	118	110	112	C	A	B							
27								B	118	C	C	C	C	C	C	A	A							
28								B	120	120	118	A	A	A	114	120	B							
29								128	114	A	A	A	A	A	120	124	B							
30								B	A	122	A	A	A	120	120	128	B							
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								14	23	18	17	10	11	14	20	19	4							
MED								118	120	120	120	118	118	118	118	118	121							
U Q								120	122	122	123	120	118	120	120	122	122							
L Q								114	116	120	118	116	116	116	116	114	116							

NOV. 2008 h'E (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

NOV. 2008 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 30.0MHz IN 15.0SEC 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	102	100	94	92	C	92	96	142	104	104	96	96	92	158	152	122	116	104	104	100	90	B	C	90
2	102	98	92	96	B	B	B	110	104	C	154	C	102	132	124	122	112	104	98	98	98	98	124	94
3	B	C	B	B	96	94	B	136	156	96	140	126	124	118	112	G	G	110	106	106	98	100	100	100
4	98	106	96	98	94	C	110	104	100	102	100	C	C	C	C	C	C	C	C	C	C	C	C	C
5	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
6	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	92	92	142	138	124	B	98
7	94	94	94	B	96	94	B	142	162	120	104	100	102	128	122	120	104	B	102	B	98	100	98	B
8	B	B	B	B	90	B	B	138	126	C	154	150	134	128	126	124	106	114	102	B	104	102	100	96
9	100	100	96	96	B	B	B	144	146	128	118	108	106	102	100	102	100	100	98	98	96	90	94	88
10	102	B	100	100	102	98	102	116	110	102	148	102	100	100	122	96	96	90	96	B	102	B	B	B
11	B	100	96	106	104	104	104	132	100	154	102	158	100	116	148	106	B	B	B	B	B	100	104	104
12	100	98	92	92	96	98	138	144	152	154	124	126	122	108	108	104	G	90	90	B	B	110	104	98
13	B	100	B	B	B	B	96	102	104	98	130	128	96	96	132	116	114	90	102	100	100	100	100	B
14	B	B	B	B	B	B	B	140	162	122	126	124	108	106	102	124	112	150	148	102	122	110	102	B
15	96	96	100	100	96	94	96	156	146	106	106	C	C	C	C	C	C	C	C	C	C	C	C	C
16	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
17	C	C	C	C	C	C	C	C	C	C	104	102	100	100	98	136	124	B	B	B	B	B	B	B
18	94	90	B	B	B	B	B	G	106	106	102	104	100	100	98	138	126	92	B	B	B	B	92	B
19	B	B	B	B	B	B	90	G	G	156	98	102	104	104	98	96	B	C	94	90	B	B	B	B
20	B	B	B	B	B	92	98	118	118	106	114	104	104	104	102	136	124	B	94	92	92	B	B	B
21	B	B	B	B	94	B	B	142	150	152	124	102	98	96	96	84	122	114	108	106	108	130	126	102
22	102	B	B	B	B	B	B	G	104	158	102	108	104	100	100	G	B	96	90	98	98	B	B	B
23	B	96	B	B	B	B	B	B	152	156	106	108	134	130	134	134	116	B	134	120	120	92	90	B
24	88	B	B	B	B	B	B	144	156	104	138	100	104	162	126	108	122	120	112	B	104	102	B	B
25	B	B	B	B	B	100	94	156	154	148	136	130	114	104	104	126	118	B	B	B	B	94	92	B
26	94	B	B	B	B	B	B	148	G	152	128	116	114	112	C	100	106	104	98	94	98	98	96	96
27	94	B	B	B	B	104	104	148	156	C	C	C	C	C	C	100	100	C	98	98	92	90	94	98
28	98	98	B	B	B	B	96	154	104	100	112	102	98	96	102	106	88	92	90	90	B	B	B	106
29	B	B	B	B	B	B	B	138	G	104	106	104	104	106	104	106	B	B	90	B	B	B	B	B
30	B	B	B	B	B	B	B	B	106	104	102	100	104	104	102	110	B	B	138	B	B	B	B	B
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	14	12	9	8	9	10	12	21	23	23	26	23	24	24	23	23	18	16	22	15	17	16	15	12
MED	98	98	96	97	96	96	97	142	126	106	113	104	104	105	104	110	113	102	98	98	98	100	100	98
U Q	102	100	98	100	99	100	104	146	154	152	130	126	111	123	126	124	122	112	106	106	106	106	104	101
L Q	94	96	93	94	94	94	96	125	104	104	102	102	100	100	100	102	104	92	94	94	97	96	94	95

NOV. 2008 h'Es (KM)

IONOSPHERIC DATA STATION Kokubunji

NOV. 2008 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 30.0MHz IN 15.0SEC IN MANUAL SCALING

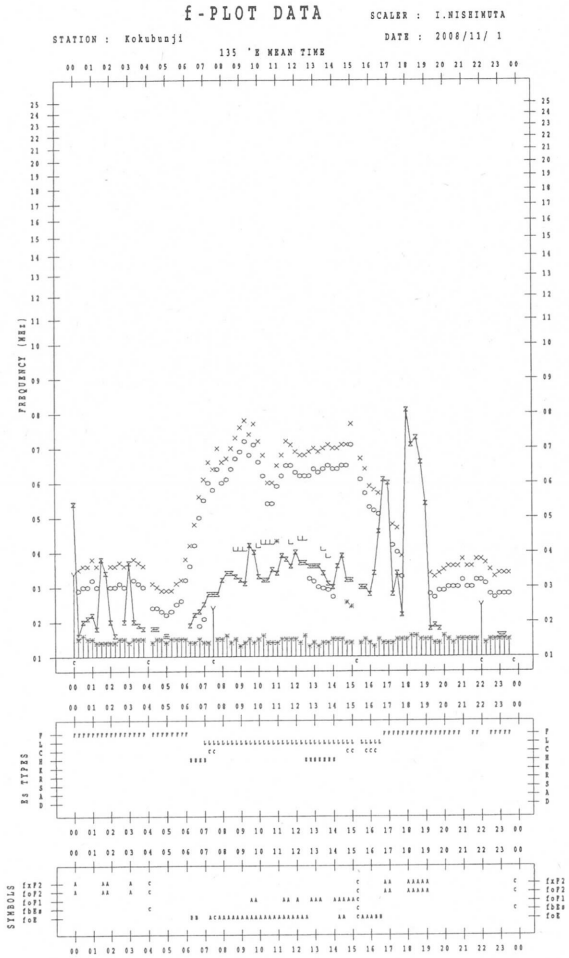
D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	F3	F3	F3	F5		F2	F3	HL22	L3	L2	L2	L2	L2	HL12	HL12	CL11	CL22	F4	F3	F3	F2			F2
2	F2	F4	F2	F1				L2	L2		HL22		L2	HL11	CL21	CL32	CL32	F5	F5	F5	F3	F4	FF22	F3
3					F3	F3		H2	HL22	L2	HL22	CL22	CL22	CL22	CL11			F2	F1	F2	F3	F2	F1	F1
4	F4	F2	F3	F1	F2		F1	L3	L2	L2	L2													
5																								
6																		F3	F3	F3	F2	F3		F2
7	F2	F1	F2		F2	F3		H3	HL22	CL22	L2	L2	L2	CL12	CL22	CL12	L2		F2		F3	F2	F2	
8					F1			H3	CL22		HL22	HL22	CL12	CL12	CL12	CL22	L2	F3	F3		F2	F1	F5	F5
9	F3	F4	F5	F4				H2	H2	CL22	CL22	L2	L2	L2	L2	L2	L3	F3	F2	F3	F4	F6	F2	F1
10	F2		F2	F2	F3	F2	F2	C3	CL21	L2	HL11	L2	L2	L3	CL22	L2	L2	F2	F2		F2			
11		F2	F3	F2	F2	F1	F1	H1	L2	HL12	L2	HL11	L2	CL12	HL12	L2						F2	F3	F5
12	F4	F2	F3	F3	F1	F2	F2	H3	HL22	HL12	CL22	CL22	CL22	L2	L2	L2		F3	F2			F2	F3	F2
13		F3					F1	L2	L2	L2	CL12	CL22	L2	L2	CL12	CL22	CL23	F3	F3	F2	F1	F3	F2	
14								H3	HL22	CL22	CL22	CL22	L3	L2	L3	C2	C2	F2	F2	FF32	FF62	F3	F5	
15	F3	F5	F4	F5	F5	F3	F3	H2	H2	L3	L2													
16																								
17											L2	L2	L2	L3	L2	HL12	H2							
18	F2	F2							L2	L2	L2	L2	L2	L3	L3	HL12	C3	F3					F3	
19							F1			HL22	L2	L2	L2	L2	L2	L2			F2	F2				
20						F2	F1	C1	C2	L2	CL11	L2	L2	L2	L1	CL11	C2		F1	F2	F2			
21					F3			H1	H2	HL22	CL22	L2	L3	L3	L2	L3	L2	F5	F3	F2	F2	FF11	F1	F4
22	F1								L2	HL12	L2	CL22	L2	L2	L2			F2	F4	F2	F2			
23		F1							H2	H2	L2	L2	CL11	CL12	CL12	CL12	C2		F3	F6	F6	F2	F2	
24	F2							H3	HL33	L2	HL22	L2	L2	HL12	CL32	L2	CL22	F2	F3		F1	F1		
25						F1	F2	H2	HL22	HL22	HL22	CL22	CL22	L2	L2	C2	C2					F2	F2	
26	F2							H2		HL22	CL22	CL22	CL11	CL22		L3	L3	F4	F4	F3	F4	F2	F5	F4
27	F2					F1	F1	H3	H2							L3	L5		F4	F3	F3	F5	F5	F2
28	F3	F1					F2	H2	L2	L2	CL11	L3	L2	L2	L2	L2	L2	F3	F2	F1				F2
29								H1		L2	L2	L1	L1	L1	L2	L2			F1					
30									L2	L2	L2	L2	L2	L2	L2	L1			F1					
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT																								
MED																								
U Q																								
L Q																								

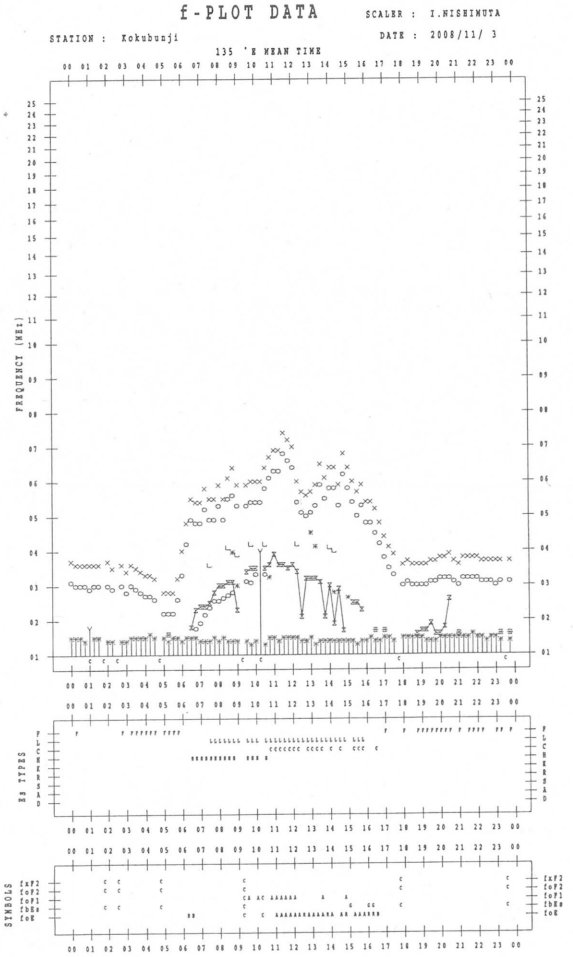
NOV. 2008 TYPES OF Es

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, 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 : 2008/11/ 1
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS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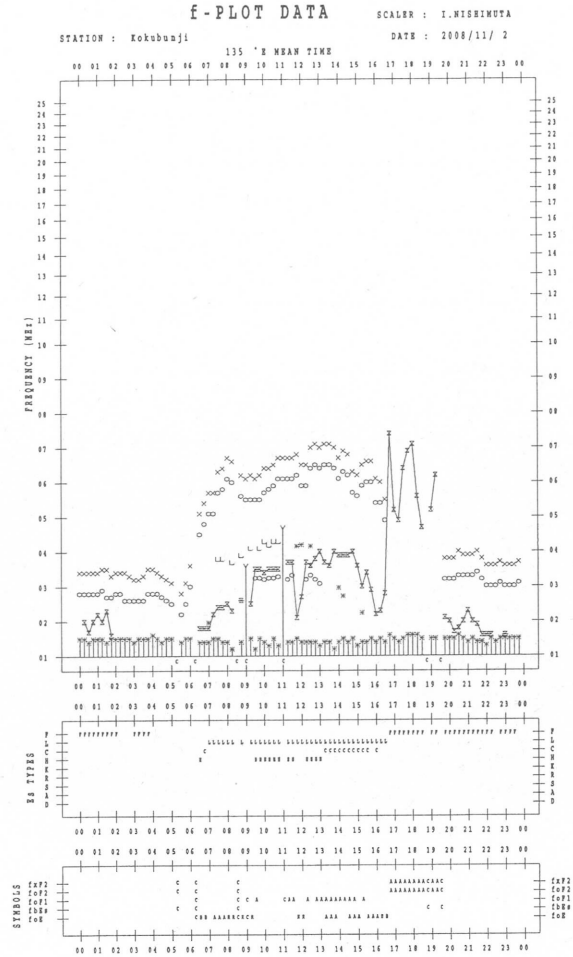
STATION : Kokubunji
DATE : 2008/11/ 3
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS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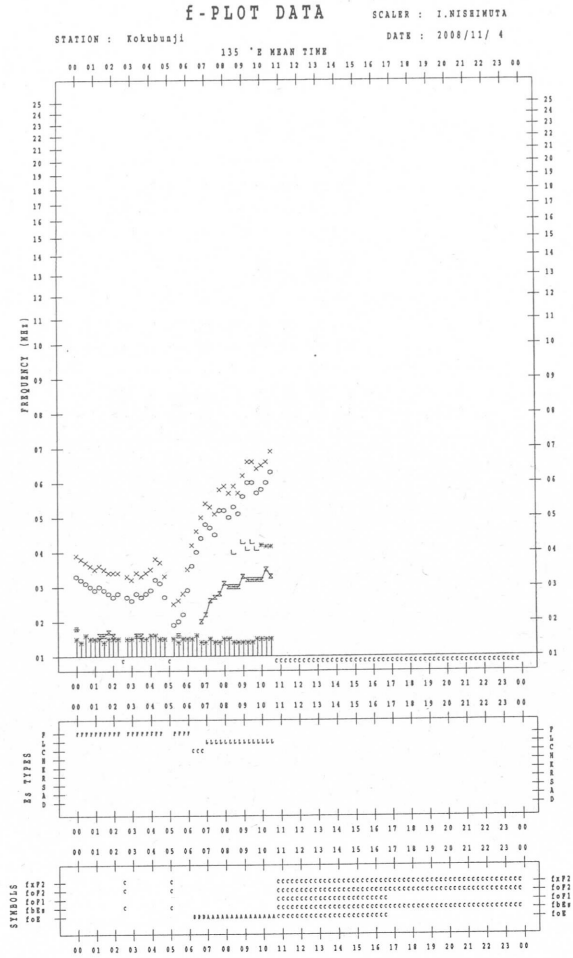
STATION : Kokubunji
DATE : 2008/11/ 2
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS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STATION : Kokubunji
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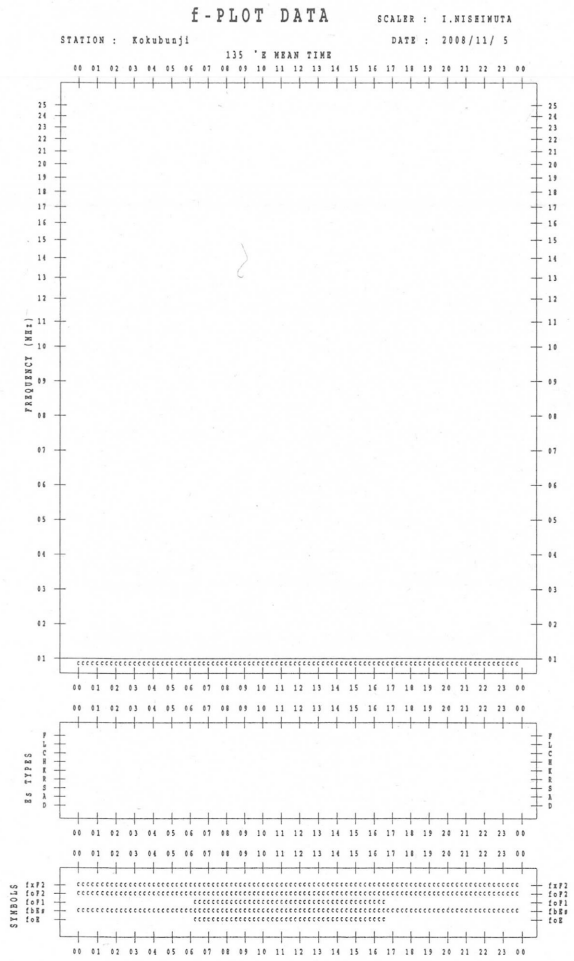
FREQUENCY (MHz)
Es TYPES
SYMBOLS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STATION : Kokubunji
DATE : 2008/11/ 5
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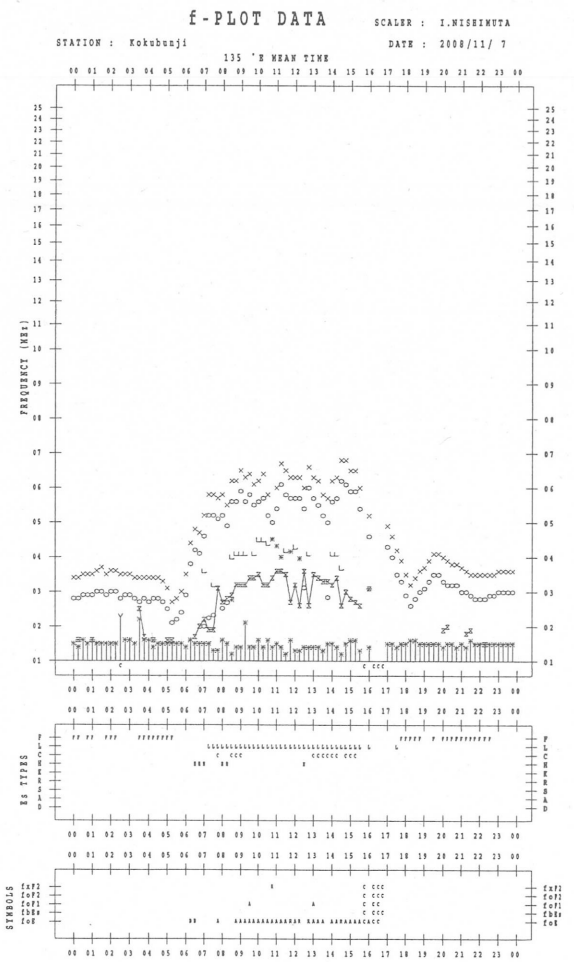
FREQUENCY (MHz)
Es TYPES
SYMBOLS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STATION : Kokubunji
DATE : 2008/11/ 7
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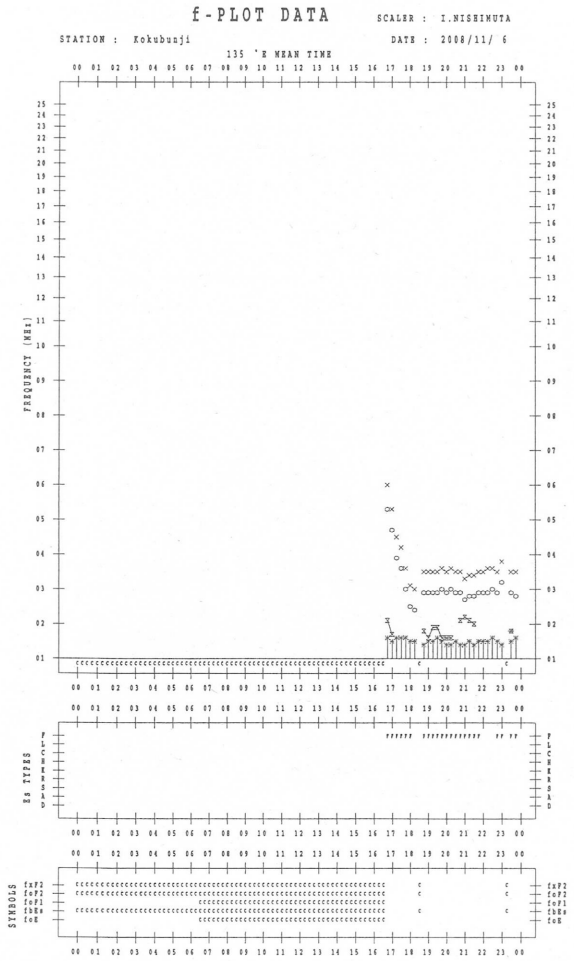
FREQUENCY (MHz)
Es TYPES
SYMBOLS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STATION : Kokubunji
DATE : 2008/11/ 6
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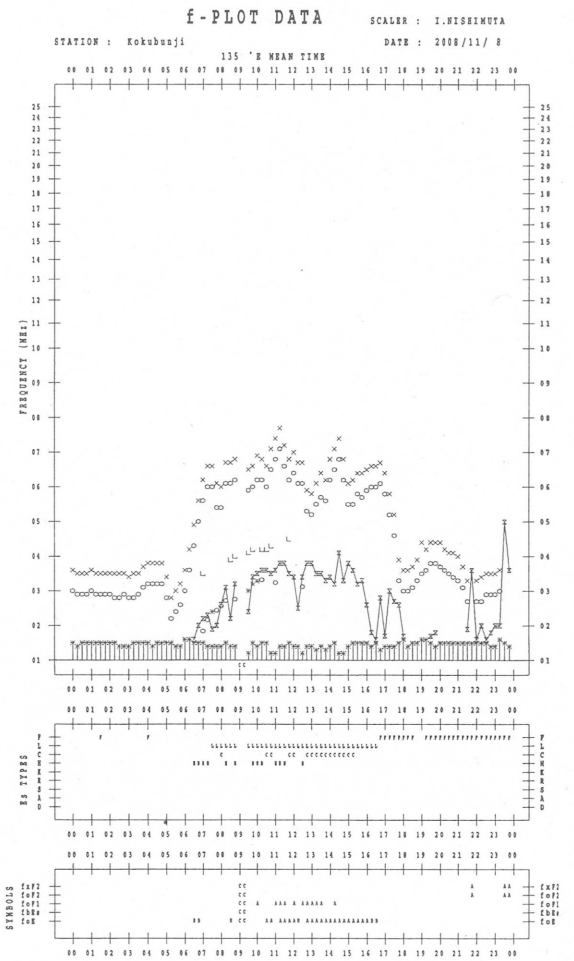
FREQUENCY (MHz)
Es TYPES
SYMBOLS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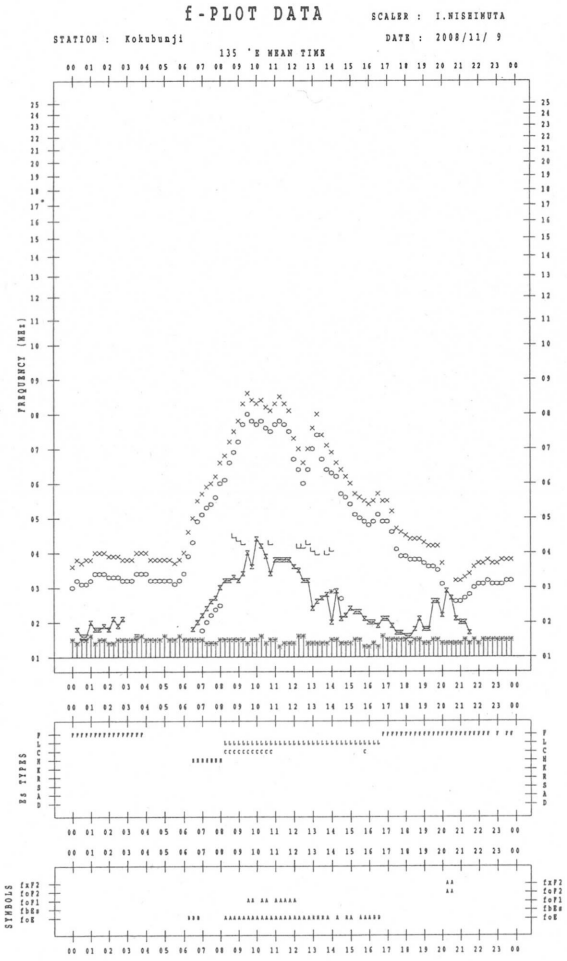
STATION : Kokubunji
DATE : 2008/11/ 8
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS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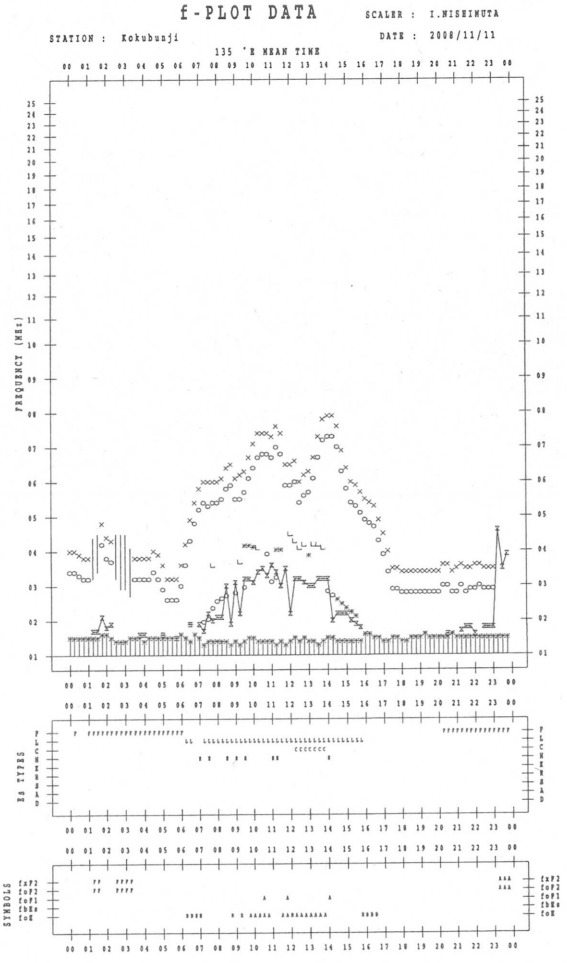
STATION : Kokubunji
DATE : 2008/11/ 9
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS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STATION : Kokubunji
DATE : 2008/11/11
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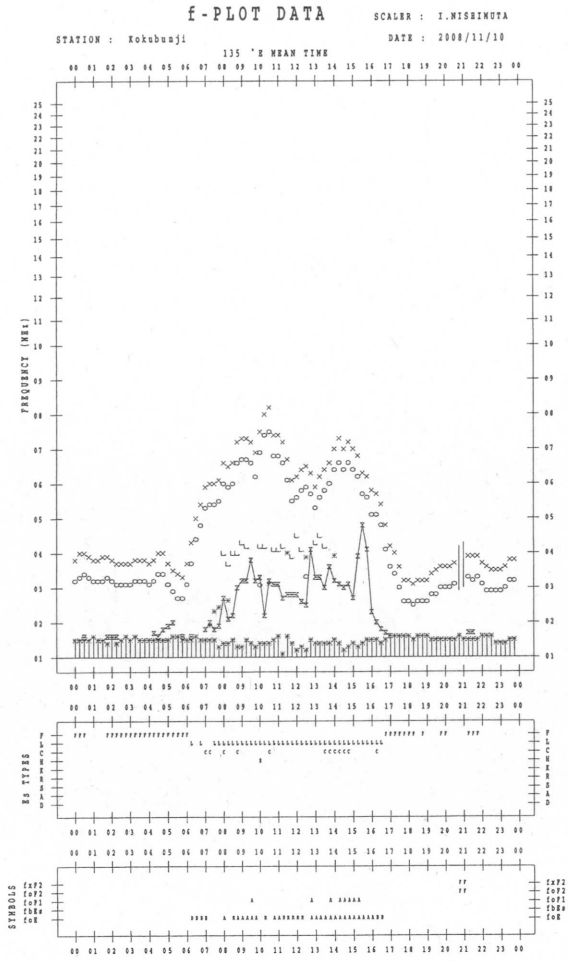
FREQUENCY (MHz)
Es TYPES
SYMBOLS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STATION : Kokubunji
DATE : 2008/11/10
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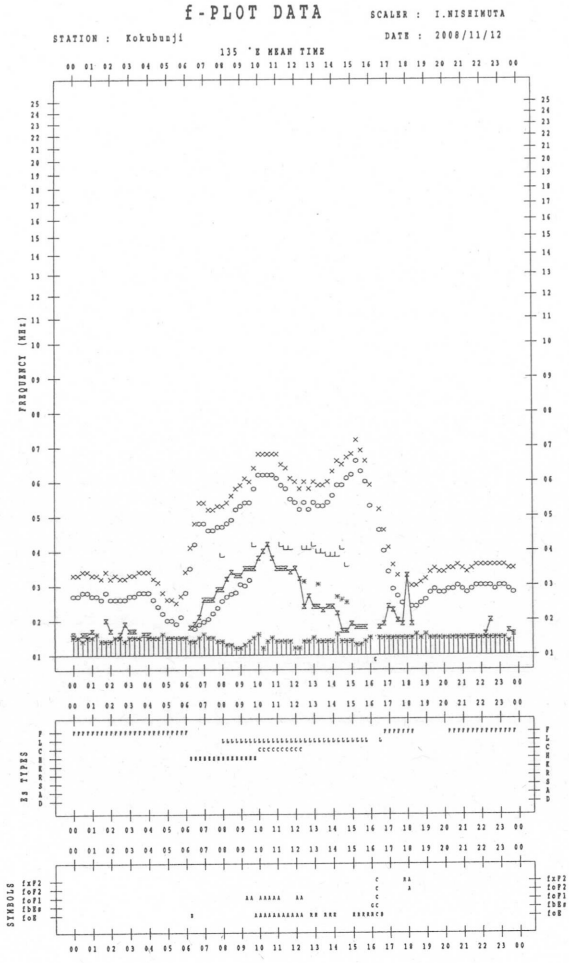
FREQUENCY (MHz)
Es TYPES
SYMBOLS


f-PLOT DATA
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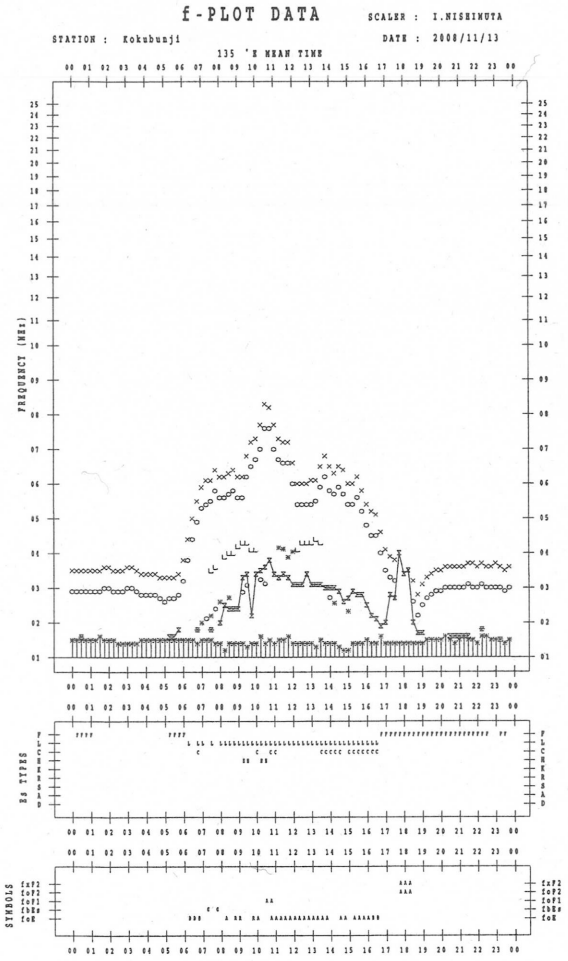
STATION : Kokubunji
DATE : 2008/11/12
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS


f-PLOT DATA
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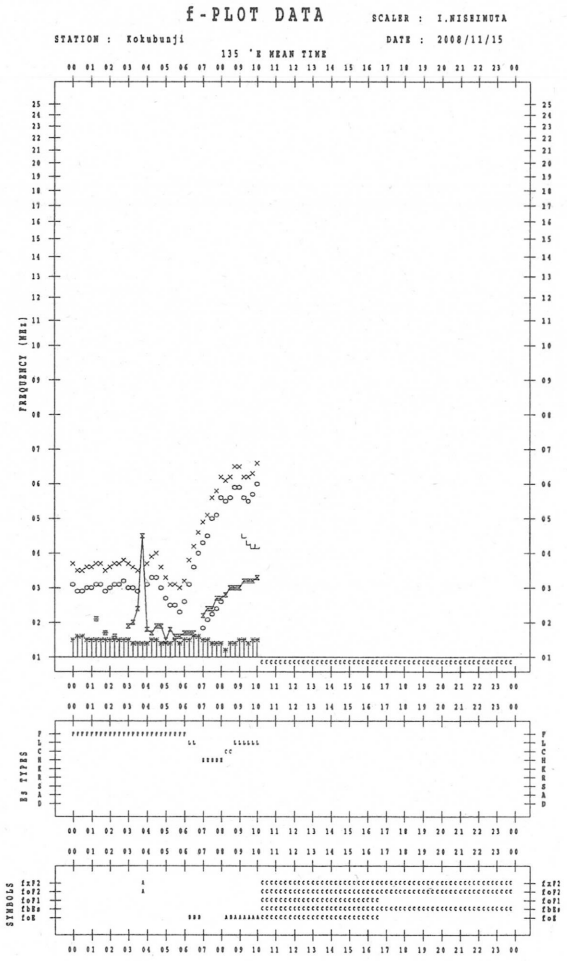
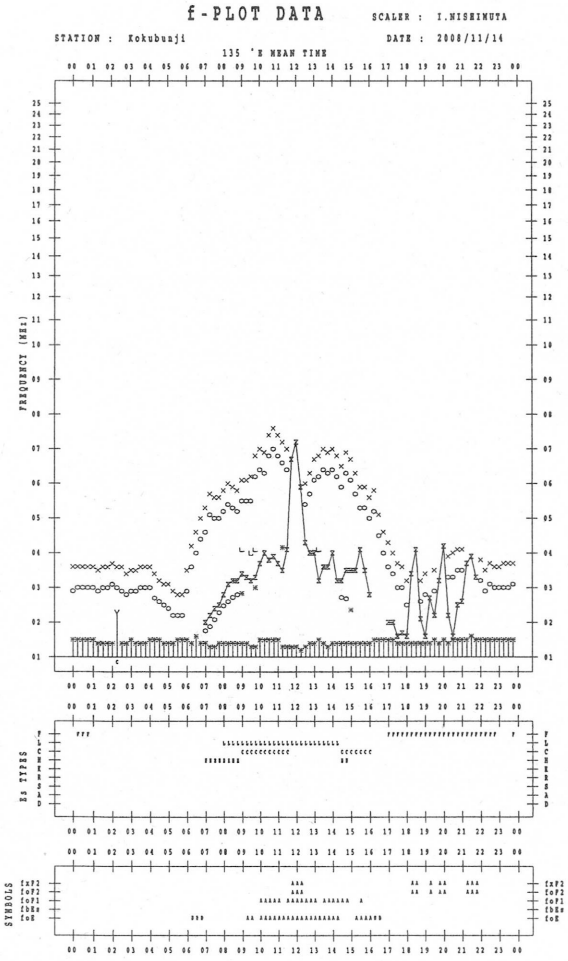
STATION : Kokubunji
DATE : 2008/11/13
135 'E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS


f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2008/11/15
135 'E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS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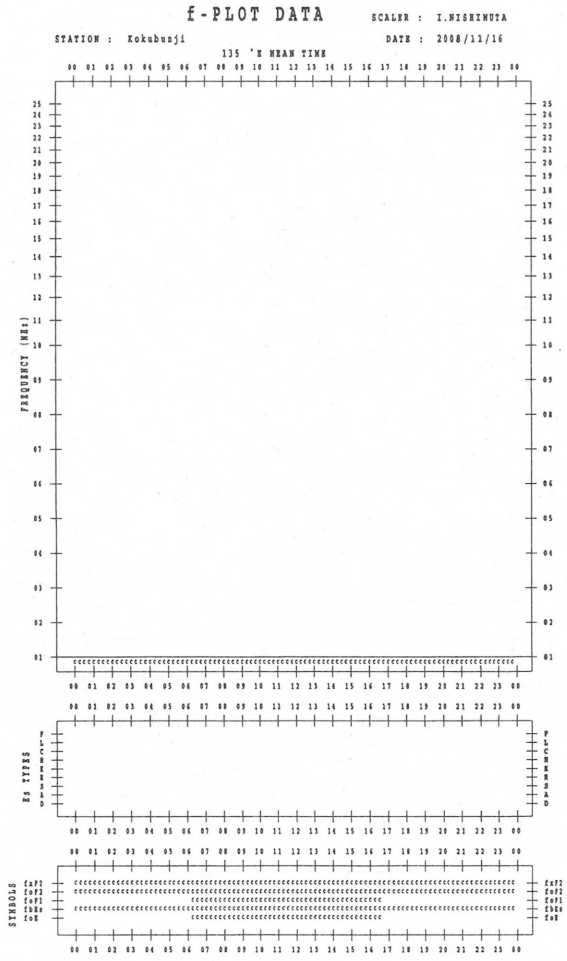
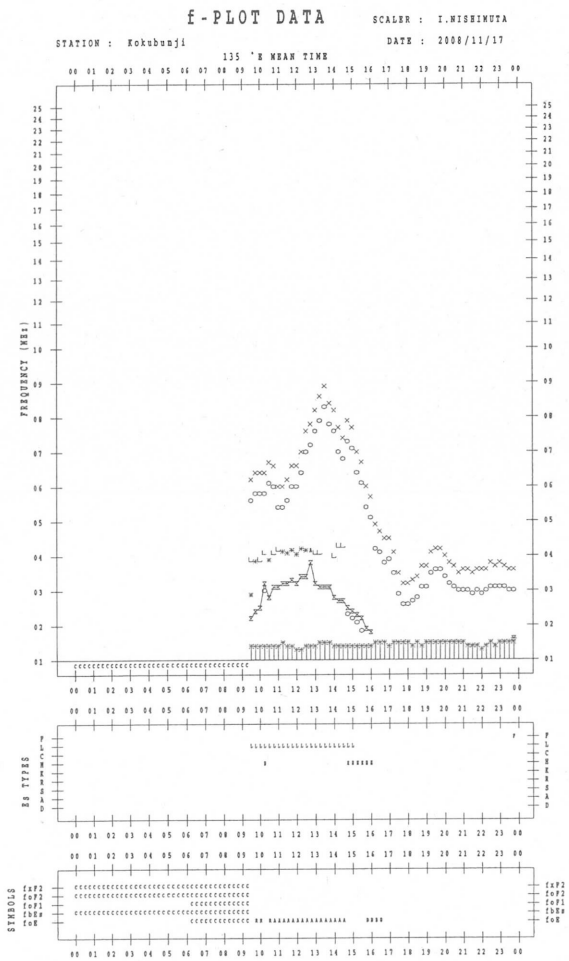
STATION : Kokubunji
DATE : 2008/11/14
135 'E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS


f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2008/11/16
135 'E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS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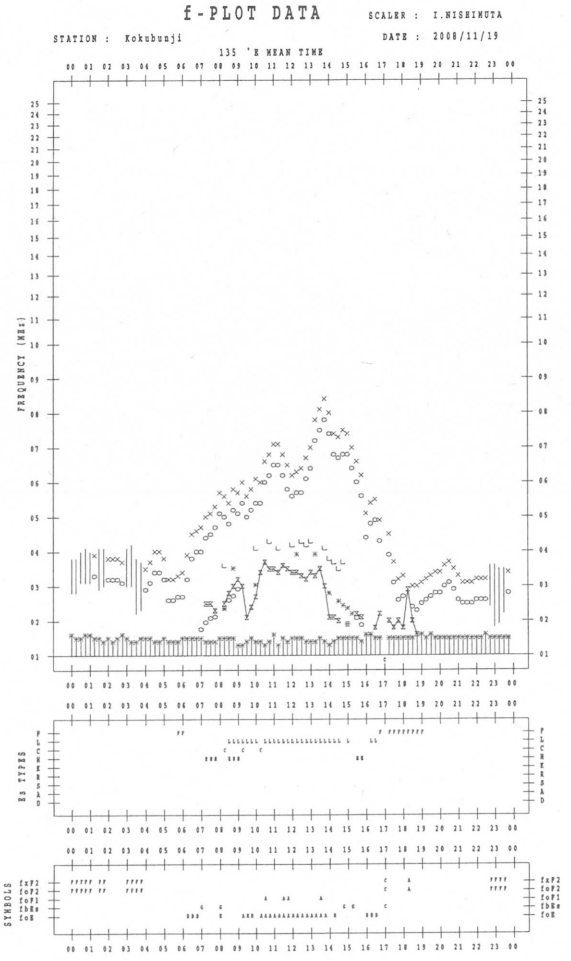
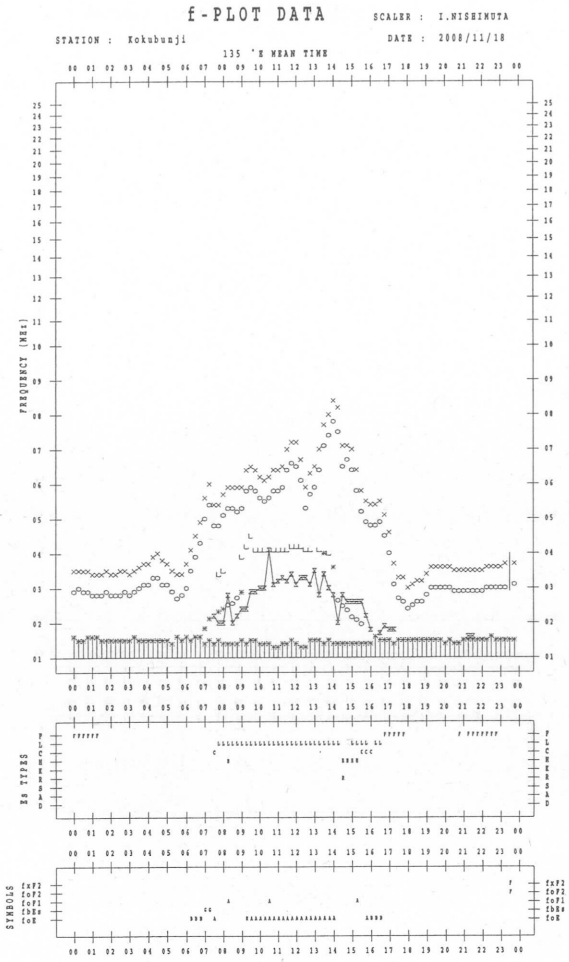
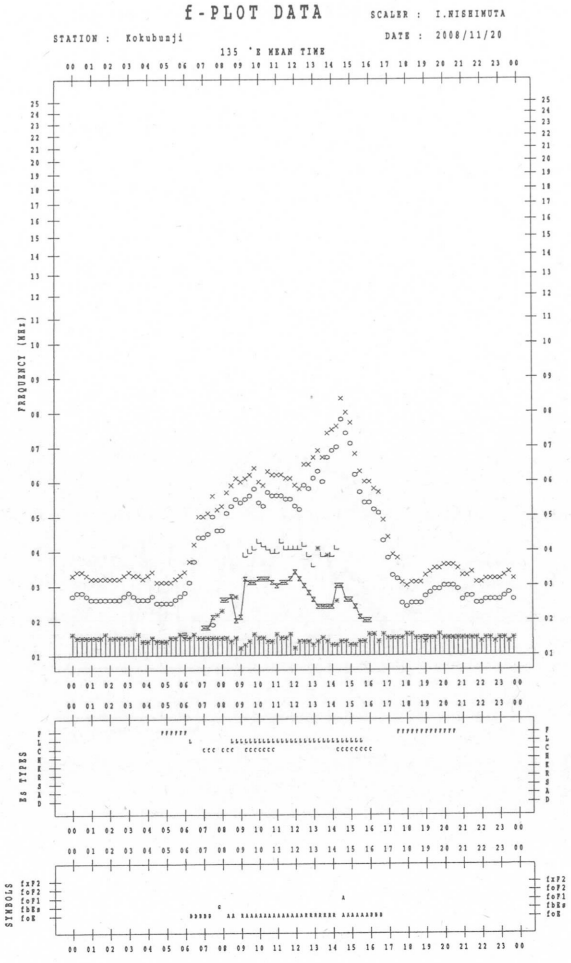
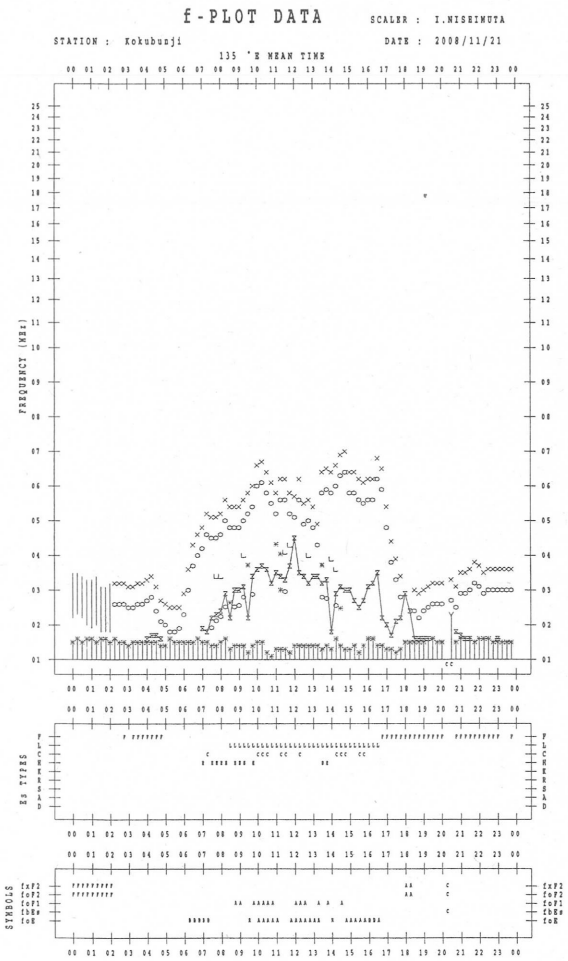
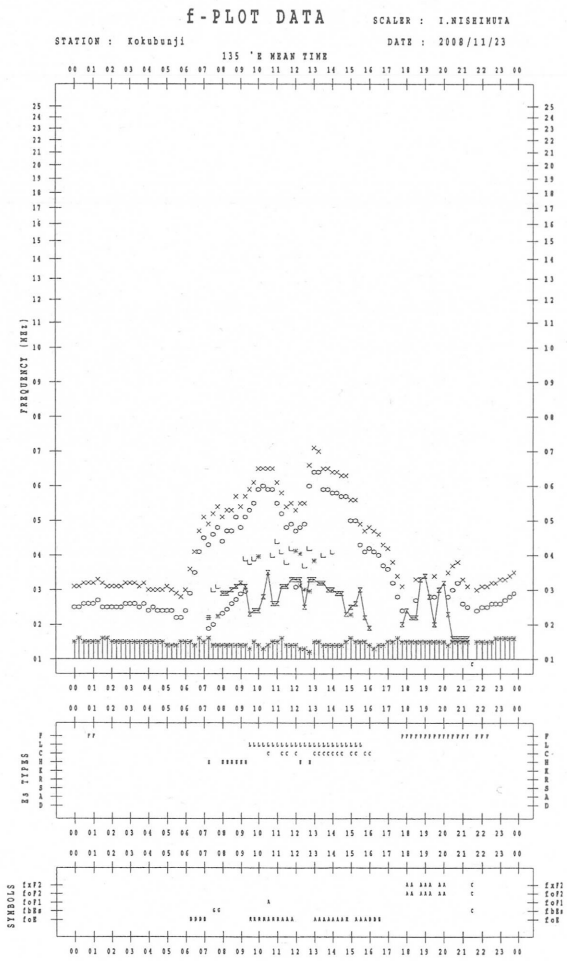
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2008/11/17
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS


f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2008/11/19
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS


f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2008/11/18
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS


f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2008/11/20
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS


f-PLOT DATA
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2008/11/21
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS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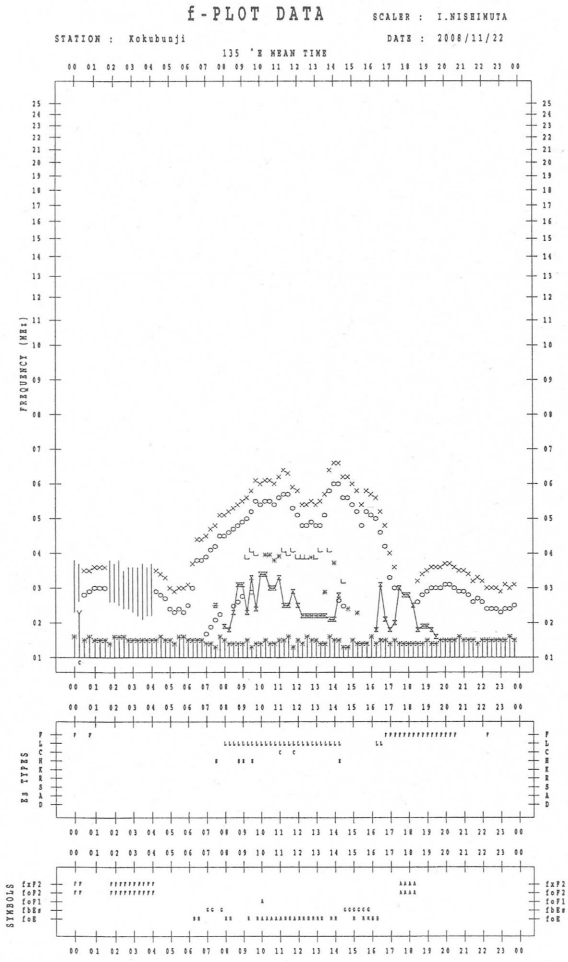
SCALER : I.NISHIMUTA
STATION : Kokubunji
DATE : 2008/11/23
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS


f-PLOT DATA
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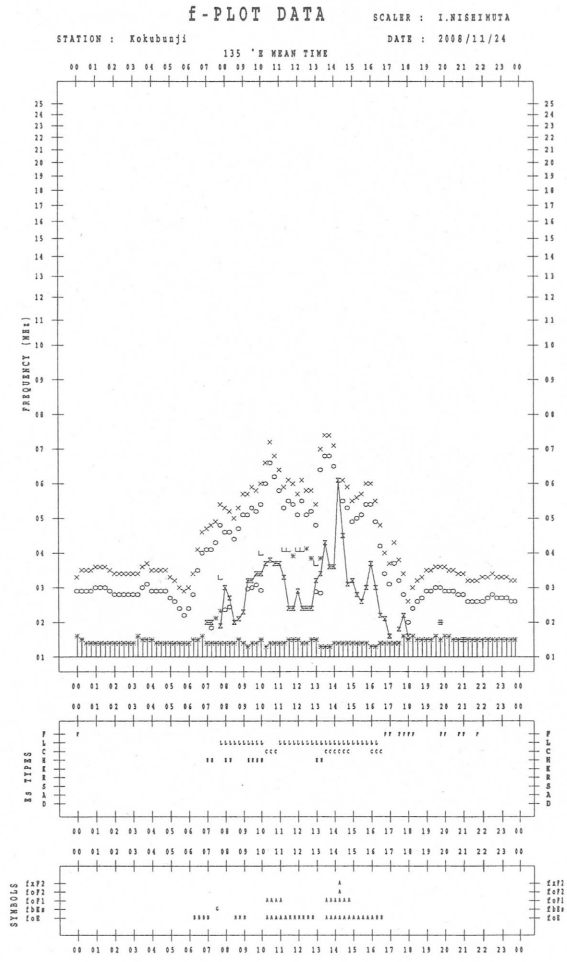
STATION : Kokubunji
DATE : 2008/11/22
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS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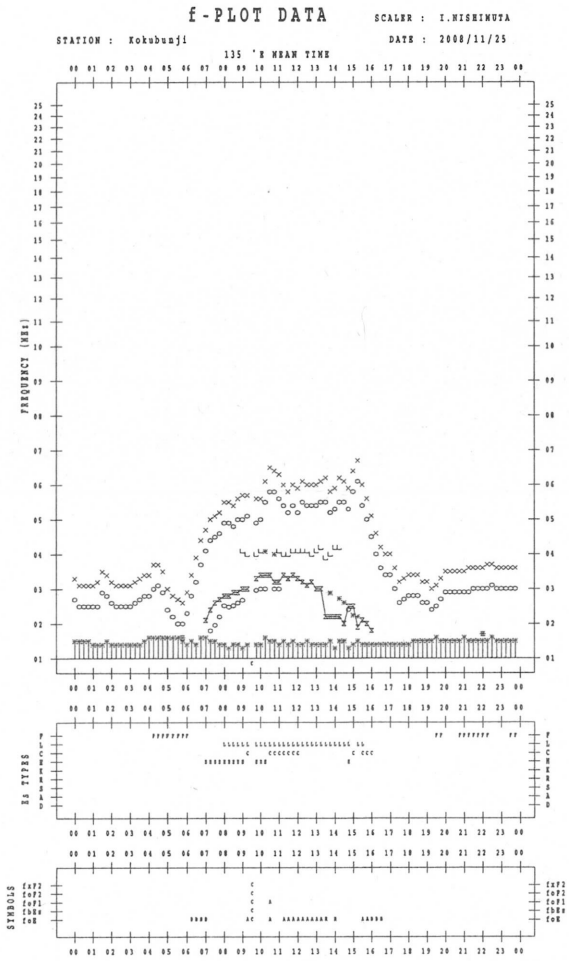
STATION : Kokubunji
DATE : 2008/11/24
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS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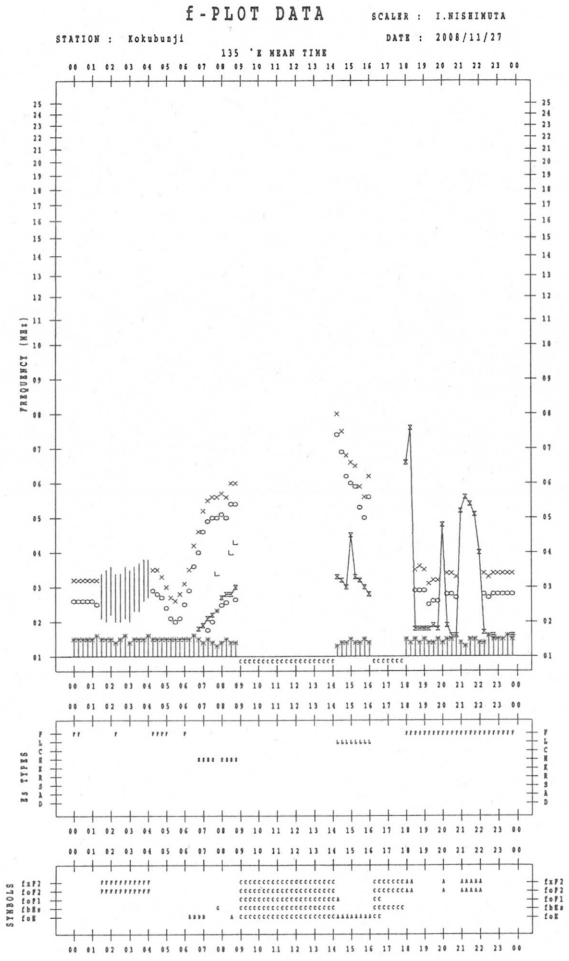
STATION : Kokubunji
DATE : 2008/11/25
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS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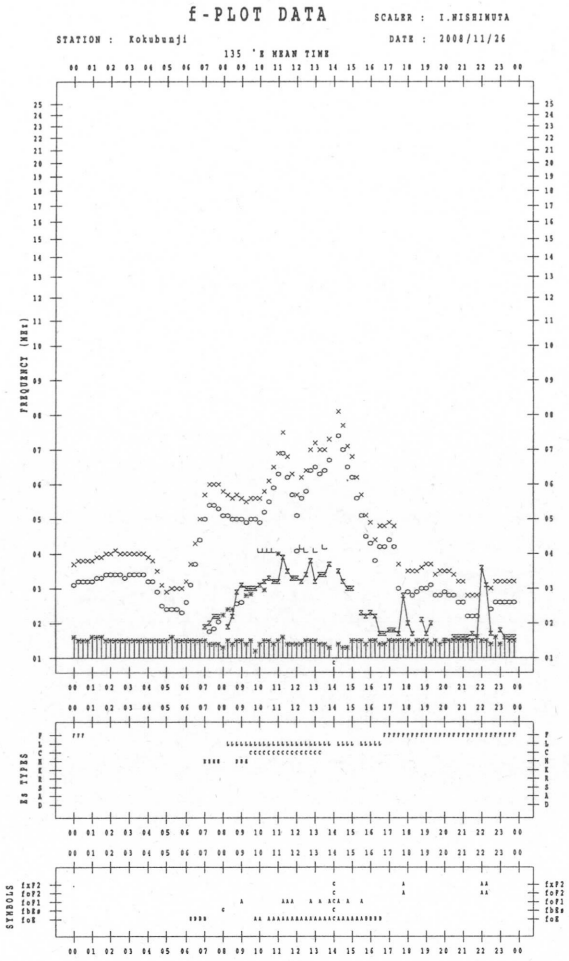
STATION : Kokubunji
DATE : 2008/11/27
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS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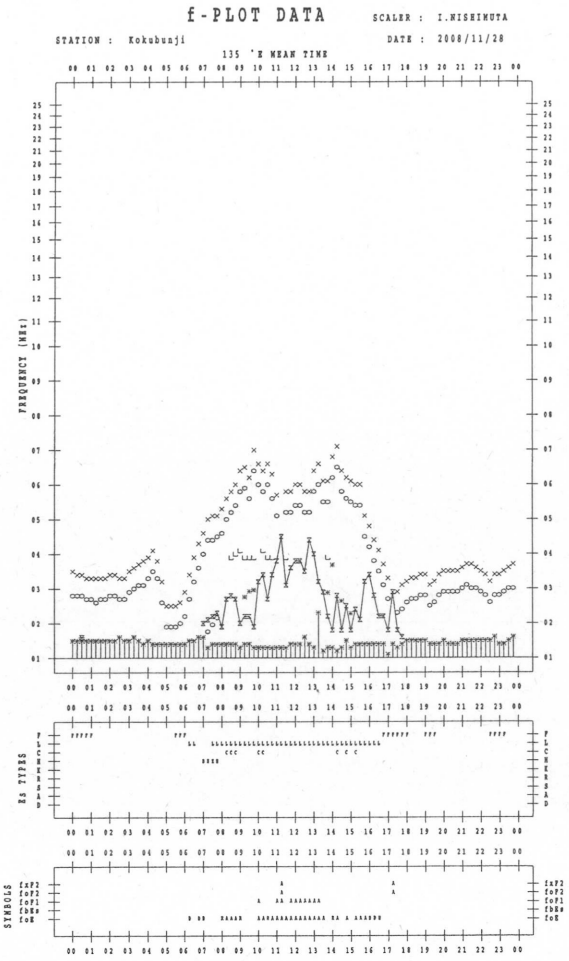
STATION : Kokubunji
DATE : 2008/11/26
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS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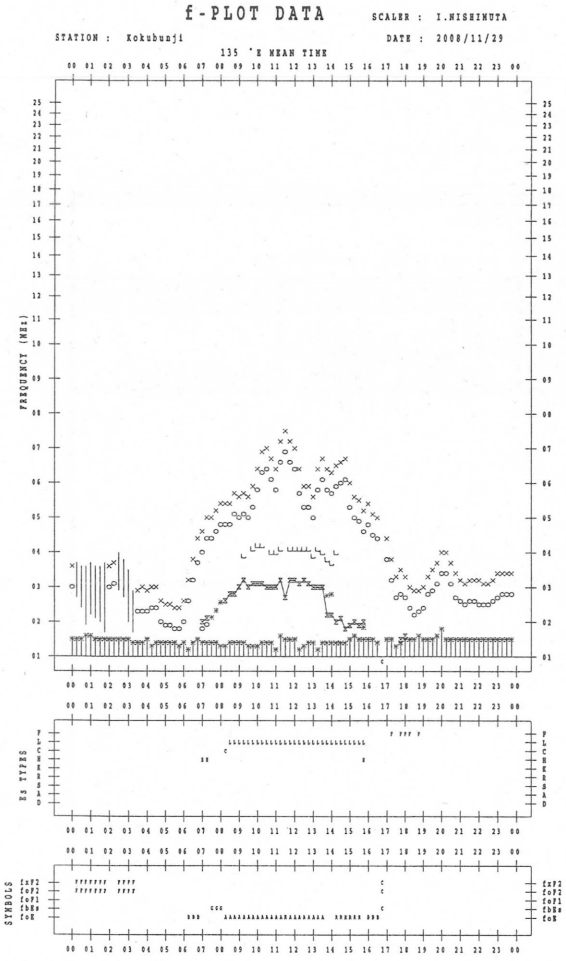
STATION : Kokubunji
DATE : 2008/11/28
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS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STATION : Kokubunji
DATE : 2008/11/29
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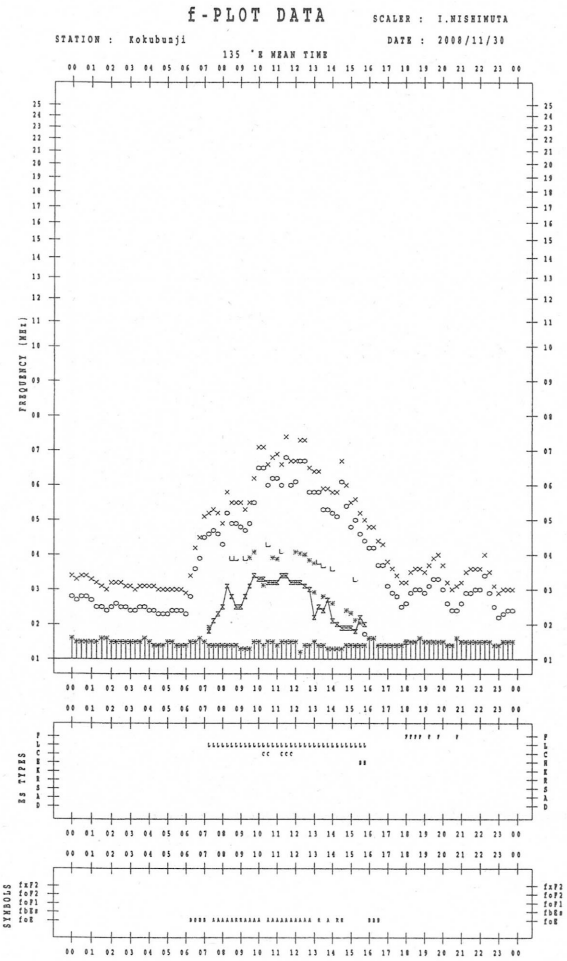
FREQUENCY (MHz)
Es TYPES
SYMBOLS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STATION : Kokubunji
DATE : 2008/11/30
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS

B. Solar Radio Emission

B1.Outstanding Occurrences at Hiraiso

Hiraiso November 2008

Single-frequency observations

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

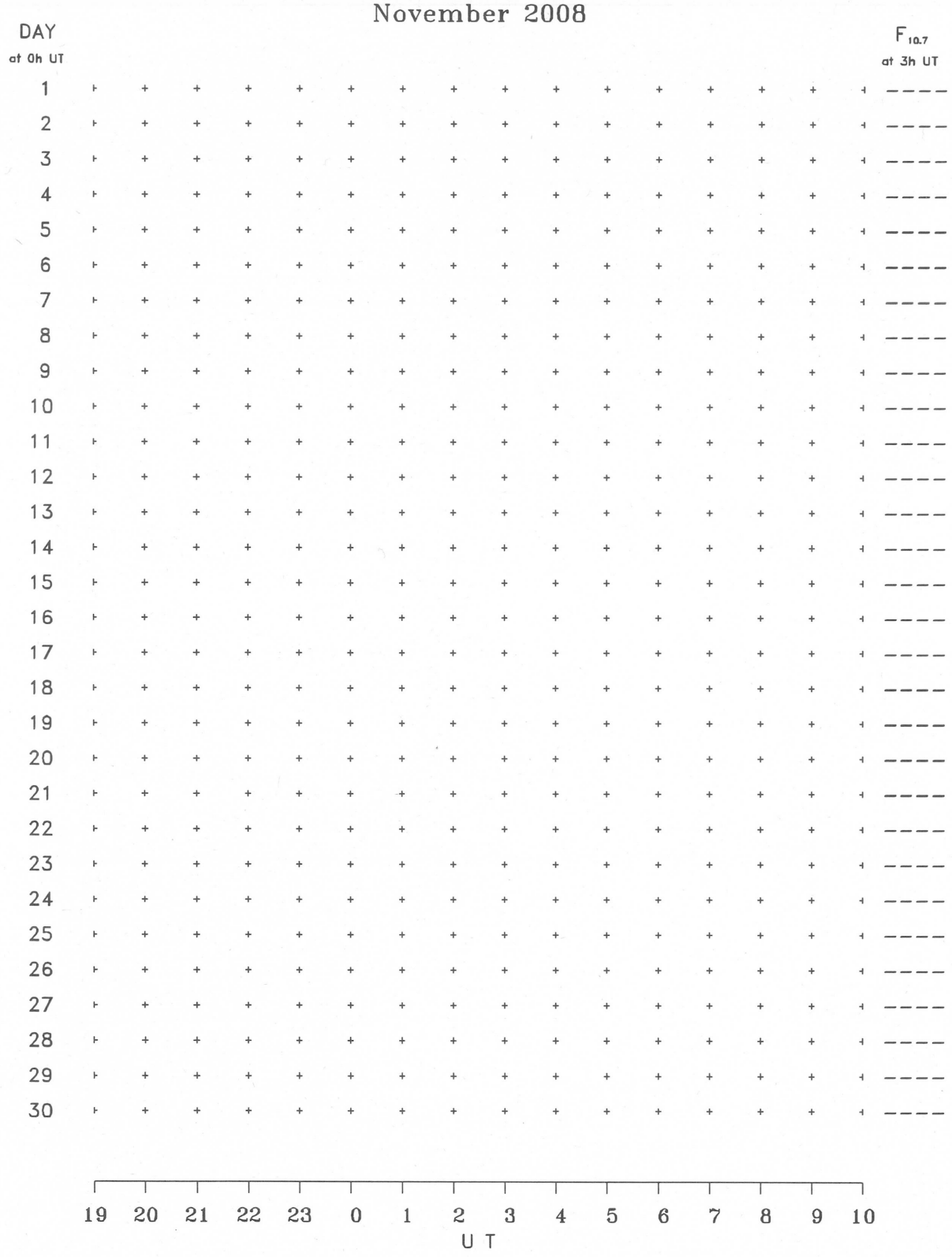
NOV.	FREQ.	TYPE	START TIME	TIME OF MAXIMUM	DUR.	FLUX DENSITY (10^{-22} W m^{-2} Hz^{-1})		POLARIZATION
2008	(MHz)		(U.T.)	(U.T.)	(MIN.)	PEAK	MEAN	REMARKS

No data for the 2800MHz fixed-frequency observation are available due to system maintenance.

B. Solar Radio Emission

B2. Summary Plots of $F_{10.7}$ at Hiraiso

November 2008



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

IONOSPHERIC DATA IN JAPAN FOR NOVEMBER 2008
F—719 Vol.60 No.11 (Not for Sale)

電離層月報（2008年11月）
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2009年1月26日発行

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☎(042)(327)7540(直通)

Queries about "Ionospheric Data in Japan" should be forwarded to:
National Institute of Information and Commnications Technology
2-1 Nukui-Kitamachi 4-chome, Koganei-shi, Tokyo 184-8795 JAPAN