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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. 2007

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	34			32	32	28	32	52	60	62	46	70	66	62	51	50	52	37	24	35	34		36	37
2	35	36	37	34	32	31	24	45	58	54	58	66	75	64	57	55	62	45	32	32				32
3	A	53	34	32	34	34	31	50	61	A	62	70	68	58	58	56	47			32	34	38		A
4	34	32	34	32	29		32	60	A	70	60	61	70	58	54	60	48	38		A			32	34
5	32	32	34	34	32	31	36	50	54	66	71	74	58	50	60	51	51	52		32	35	35	34	34
6	34	40	41	34	34	40	37	47	62	74	56	63	66	58	59	49	52		36	22	34	32	34	34
7	34	34	26	29	26	29	28	44	52	55	58	60	68	64	54	48	54	35		29	30	26	28	24
8	31		34	34	35	37	32	47	57	58	55	66	68	56	50	50	54	34	28	24	29			
9	34	34	34	34	34	37	26	44	57	60	62	71	72	64	57	48	45	35	32	32	34	A	34	35
10	34	36	34	36	34	34	41	55	50	62	62	72	84	61	37	56	47	30	34	35	34	34	34	40
11	40	41	40	38	36	32		51	50	70	70	71	69	58	55		32	30	34	35	31		34	34
12	34	32	34	34	32	37	29	44	61		51	71	81	64	56	40	46	A	A		36	36		36
13	33	36	34	35	34	30	30	42	51	62		61	68	61	58	55	47	32	34	32	34	34	34	34
14	35	34	36	34	34	40	35	54	54	56	63	76	71	64	64	56	54		34	38	34	34	38	40
15	40	41	32	34	29	29	30	47	61	66	60	66	77	58	56	53	46		22	28	26	29		32
16	34	34	34	34	34	30	28	44	47	62	55	63	66	53	59	53	54		A	31		34	34	
17	36	34	34	36	34	34	28	39	54	58	46	58	71	60	54	58	45	28	29	29	30	32	32	34
18	30	30	25	30	28			40	26		35	64	63	54	55	54	39					26	28	30
19	23	26		28	28	26		41		46	56	65	61	55	47		43			28		24	30	31
20	23		30	29	30			40	53	48	46		51	52	54		39	34	28	35	34	32	23	
21	31	24		34	28	28	26	41	35	58	58	64	57	63	58	58	44	A	35	A	44	40	45	45
22	44	42		41	45	47	38	47	53	59	60	65	64	56	58	52	46	25	25	28	23	34	34	33
23	34	37	34	34	26	20		41	61	50	58	65	74	66	57	56	46	37		36		A	34	37
24	38	39	37	36	34	37	34	45	46	44	68	68		47	54	60	43	35	32	34	36	32	31	34
25	34	32	30	34	34	35	29	44	50	62	74	62	57	60	47	62	55	24	35	36	44	40	34	37
26	26	36	34	34	45	52	38	42	59	57	61	63	60	53	47	57	44	35	32	36	38	40	45	42
27	42	41	42	40	44	32	34	38	53	58	61	62	72	57		52	44	28	26	37	34	36	34	34
28	36	32	30	28	26	39	39	42	51	54	64	71	64	60	55	54	58	25	34	34	40	32	41	44
29	44	44	42	41	34	34	28	24	36	54	64	67	62	45	54	47	26	A		A		29	34	34
30	30	39	28	26	26	26		41	49	68	44	63		65	49	54	35			A	32		32	34
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	29	27	26	30	30	27	24	30	28	27	29	29	28	30	29	27	30	19	19	24	23	22	25	26
MED	34	36	34	34	34	34	32	44	53	58	60	65	68	58	55	54	46	34	32	32	34	34	34	34
U Q	36	40	36	35	34	37	35	47	58	62	62	70	71	63	58	56	52	37	34	35	36	36	34	37
L Q	31	32	32	32	29	29	28	41	50	54	55	63	62	55	52	50	44	28	28	29	31	32	32	34

HOURLY VALUES OF fEs AT Wakkanai

NOV. 2007

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	40	34	28	G	G	G	G	G	34	G		40	53	40	G	40	G	33	31	G	29	30	30	36
2	60	39		32	26	G	G		36	44	42	39	43	G	G	G	G	11	26	23	30	30	G	27
3	68	43	39	29	31	G	G	G	G	69	69	53	62	40	G	G	G	44	31	26	32	28		46
4	34	33	28	31	31	32	G	29	78	65	39	G	G	35	G	35	26	G	28	31	28	29	31	38
5	G	G	G	G	G	G	G			36	41	41	40	G	G	46	G	24		30	26	G	G	G
6	G	G	27	25	G	G	G	G	G	G		G	G	47	G		G		32	30	G	G	G	G
7	G	G	G	G	G	G	G		41	38	51	42	G	G	G	G	G	26		G	G	G	G	G
8	G	31	32	32	G	G	G	38	37	35	36	39	G	36	37	30	33	28	G	G	32	31	28	32
9	28	27	28	G	G	G	G	G	34	36	G	66	G	35	G	30	35	29	G	G	27	40	29	29
10	26	27	28	30	33	G	G		31	35	G	G	48	36	G	G	G	26	G	G	G	G	G	G
11	G	G	G	G	G	30	39	33	32	G	G	G	G	G	G	40	G	G	G	G	G		26	25
12	G	27	G	G	G	G	G	G	G	38	42	48	G	68	G	67	48	67	53	34	28	30	28	G
13	G	G	G	G	G	G	G	G	34	37	40	38	G	38		G	G	G	G	G	G	G	G	G
14	G	G	G	26	G	25	G	G	G	G	47	G	G	G	G		40	33	G	G	G	28	G	28
15	G	28	25	G	46	G	G	26	31	42	36	G	35	G	G	G	G		G	G	G	G		G
16	G	G	G	G	G	G	G			44	38	41	G	G	G	32	G	46	59	32	30	32	24	G
17	G	G	G	G	G	G	G		34	G	G	G	G	G	32	G	11	G	G	G	G	30	G	G
18	G	G	G	G	G			28	38	33	G	G	G	G	32	G	29			28	32	G	G	G
19	G	G		G	G	G				G	35	42	G	G	40		G		26	33	G	G	G	G
20	G		G	G	G		G		35	40	G	G	G	G	G	28	26	26	G	G	G	G	G	G
21	G	G	G	G	G	G	G	25	29	G	34	G	G	G	G	G	37	45	32	44	32	G	G	28
22	29	32	39	G	G	G	G	G		G	G	G	G	38	34	G	29	32	30	28	G	G	G	G
23	G	G	G	G	G	G	G	G	G	G	38	G	G	34	32	40	29	G	25	32	34	40	40	G
24	G	36	G	G	G	G	G	G		33	44	60	41	41	G	G	28	27	G	G	26	G	G	G
25	28	G	25	G	G	G	G		33	42	41	40	53	35	G	28	34	G	G	G	G	G	G	G
26	G	G	26	G	G	G	32	28	G	40	G	G	G	G		G	28	32	28	G	G	G	G	29
27	G	29	G	G	G	G	G	G	31	51	G	G	G	G	G	G	11	G	G	G	G	G	G	G
28	G	G	G	G	G	G	32	G	G	G	36	G	G	G	G	G	G	G	G	G	28	G	G	G
29	G	G	G	G	50	G	27	32	37	39	52	54	43	36	G	G	28	33	73	48	32	G	33	G
30	G	G	G	G	G	G	25	34	32	36	52	34	G	G	G	G	30	33		39	40		32	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	30	29	28	30	30	28	28	21	25	30	28	30	30	30	28	27	30	26	26	30	30	28	28	30
MED	G	G	G	G	G	G	G	G	32	36	37	18	G	G	G	G	18	26	13	G	26	G	G	G
U Q	26	30	27	G	G	G	G	28	35	40	42	41	40	36	G	32	29	33	31	31	30	30	28	28
L Q	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G

HOURLY VALUES OF fmin AT Wakkanai

NOV. 2007

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

HOURLY VALUES OF foF2 AT Kokubunji

NOV. 2007

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	34		28		30		38	54		59	68	66	62	55	60	54	51	47	A	35	23		30	30
2	31	28	A		28		34	50	52		64	84	A	71	83	65	57	51	A	A	A	26	27	
3		30	30	28			30	53	66	60	69	60	58	64	64	56	50	39	34		32	32	28	
4	27	28					37	49	56	56	73	66	54	63	74	63	51		32	34				27
5	28					27	30	54	60	71	67	67	51	74	66	60	57	43	34			24		A
6	30			26	27		34	51	55	61		68	51	54	60	65	54	40	30	32				27
7	26		27	27	28		28	49	51	67	52	69	59	78	91	75	57	37					A	
8	27		27	27	28		28	39	59	51	66	A	62	62	67	66	50		A	A	A	N	A	A
9	20	A	A	A	31			48	52	45	67	73	65	55	66	67	51	37		28	26	30		32
10	32	32	32	A	32			47	63	50	74	88	53	72	69	52	47	41			A			27
11		30	A	28	31		31	54	59		60	63	65	56	54	52	48			23	A		26	
12	30		28	A	30	A	22	45	57	54	68	64	44	69	75	61	51	36			A	27	30	30
13		27		A	28	A	A	48	51	51	58	64	50	54	73	74	49	34			28		31	30
14		26	30	31	36		28	48	54	59	58	66	57	67	80	65	54	44	27	34	32		27	30
15	32	28	30	21	30			51		68	85	61	66	64	65	57	49			28	32	27	27	25
16	30	30	30	28	26				53	56	73	57	52	63	69	64	60	38			27		30	
17	27				29			45	52	56	44	44	55	76	60	52	56	39	27	32	30	A		27
18						A		42	50	48	53	47	56	66	62	64	53	33			26			26
19	27	26	28		21			42	46	54	55	52	58	51	63	48	44	31	A		28	27		
20	27	27		28				45	47	55	63	47	54	66	54	55	44	30	27	32	32			
21	26	32	38		28		27	53	66	92	64	54	72	66	63	64	52				32	30		27
22		30	27				27	45	47	53	54	63	60		39	54	49	34	27				28	30
23	30	34	32	32	32	28	20	49	55	66	66	84	85	C	C	C	C	C	C	C	C	C	C	C
24	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
25	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	56	34			30	A	
26	27	27		28	28			39	54	67	72	74	62	52	38	47	51	42	31	28		30	32	27
27	34	31	34	32	34			47	54	59	86	83	57	55	56	49	44	39		34	A	A	30	28
28	28	27	26	26				54	54	43	66	69	66	57	54	52	45	44	32	31	A	28	28	32
29	32		31	30	32	21	24	47	49	50	52	58	57	60	55	49	41					32		26
30	26				27			47	60	A	70	72	77	76	59	54	44	28			30	27	28	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	22	17	16	14	21	3	15	27	26	25	27	27	27	26	27	27	27	22	11	12	13	13	14	18
MED	28	28	30	28	29	27	28	48	54	56	66	66	58	64	63	57	51	39	31	32	30	28	28	28
U Q	31	30	31	30	31	28	34	51	59	63	70	72	65	69	69	65	54	43	34	34	32	30	30	30
L Q	27	27	27	27	28	21	27	45	51	51	58	58	54	55	56	52	47	34	27	28	26	27	27	27

HOURLY VALUES OF fEs AT Kokubunji

NOV. 2007

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	G	G	G	G	G	G	G	29	37	G	43	G	G	40	G	35	33	40	60	29	G	25	G	G
2	G	G	31	29	28	23	G	29	37		43	49	64	38	G	G	34	29	43	42	41	26	G	29
3	29	G	G	G	G	G	G	G	G	G	G		G	G	G	G	G	G	G	G	G	32	G	27
4	G	G	G	G	G		G	29	34	G	G	53	43	G	G	34	35	29	G	G	G	G	29	29
5	G			28		G	G	29	34	G	G	G	G	G	36	G	31	11	24	25	G	26	29	27
6	G		28	G	G		G	G	35	G		G	G	G	G	35	35	G	G	G	G	28	G	30
7	G	G	G	G	G	G	G	G	33	G	G	G	G	G	G	33	G	11	G		28	29	30	G
8	G	G	G	G	G	24	G	28	43	39	G	72	G	G	50	37	28	11	29	29	34	24	36	31
9	G	48	37	38	G	G	G	G	36	37	G	G	G	G	38	46	G	11	G	G	G	G	G	G
10	25	G	27	33	27			G	G	G	G	53	G	G	G	G	29	G	G	28	29	33	G	G
11	G	G	29	G	24		G	G	G	G	G	G	G	G	G	G	G	11	G	G	29	29	27	G
12	20	24	24	36	24	29	25	G	G	G	G	G	44	G	G	G	G	34	24		30	G	G	G
13	G	G	G	30	23	29	25	41	G	37	43	44	G	G	43	32	28	11			G		G	G
14		G	G	G	G	11	G	40	35	G	G	G	G	G	G	G	G	G	G	G	G		G	G
15	27	26	24	G	G		G	G	G	G	G	G	47	38	G	36	26	29	26	G	G	G	G	G
16	G	G	34	G	G		G	G	G	G	G	44	40	G	36	34	36	G		G	G	26	G	G
17	G	G	G	G	G	G	G	G	33	G	G	G	G	G	G	G	G	G	G	G	G	26	G	G
18	G		G	G	G	29		G	G	G	49	G	G	43	G	G	36	34			G	G	G	G
19	G	G	G	G	G	26	G	39	G	37	38	G	49	49	G	G		33	30		G	G	G	
20	G	G	G	G				28	G	G	G	G	50	42	G	40	39	27	G	G	G	G	G	G
21	G	G	G	G	G	G	G		G	G	61	G	G	G	38	36	43	32	G	24	30	G	G	G
22	G	G	G	G	27	G	G	G	44	G	G		G	G	G	G	G	G	G	G	G	G	G	25
23	G	G	G	G	28	G	G	G	G	41	39	37	G	C	C	C	C	C	C	C	C	C	C	C
24	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
25	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	G	G	G	22	G	40	G
26	23	G	G	G	G	28		30	35	G	53	G	G	38	44	G	G	G	G	G		24	24	G
27	29	G	29	26	26	26		G	G	G	50	G	G	G	39	G	G	G	G	G	41	40	G	G
28	G	G	G	G	G		G	G	33	G	G	47	38	G	G	G	34	G	26	G	31	G	G	G
29	G	G	G	G	G	G	G	36	33	37	48	40	37	G	G	35	34		G	25	32	26	28	25
30	24	G	24	30	26			G	33	80	46	46	47	53	50		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	27	25	27	28	26	19	22	27	28	27	27	26	28	27	27	26	26	27	25	22	27	26	28	27
MED	G	G	G	G	G	G	G	G	33	G	G	G	G	G	G	G	28	11	G	G	G	24	G	G
U Q	20	G	27	27	24	26	G	29	35	37	43	44	41	38	38	35	34	29	25	25	30	26	25	25
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. 2007

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	14	18	15	15	15	17	14	15	14	14	17	17	17	13	14	13	14	17	17	13	18	14	14	14
2	14	15	14	14	13	14	14	14	17		15	25	18	18	17	13	15	13	13	13	14	14	15	14
3	15	18	14	17	17	22	15	14	31	17	15	21	21	18	31	29	13	17	15	14	15	14	18	13
4	14	15	13	13	17		14	13	13	13	14	15	15	13	15	13	13	13	15	14	14	17	15	14
5	17			14		14	15	13	13	17	17	15	14	13	17	14	13	15	15	18	17	14	13	14
6	13		13	14	13		15	18	13	13		33	21	18	17	13	14	14	15	17	15	14	17	14
7	17	17	14	14	13	14	15	14	14	15	15	15	17	15	17	13	18	14	14		13	13	13	15
8	14	14	15	14	15	14	17	21	15	14	18	15	17	13	13	18	15	18	13	17	13	14	14	14
9	14	13	13	13	14	14	17	15	13	13	18	15	15	15	14	13	20	13	20	17	17	14	14	15
10	14	14	14	13	14			22	13	13	14	13	14	14	17	13	17	13	17	17	13	13	17	17
11	14	17	14	14	13		14	15	14	15	14	13	15	18	15	15	20	15	17	14	14	14	14	17
12	14	15	14	13	13	14	13	20	13	17	15	15	14	17	17	14	20	15	21		13	14	20	14
13	17	14	21	13	13	13	15	22	13	14	17	15	18	15	14	13	14	17			17		13	18
14		17	14	14	13	13	14	15	13	13	17	20	39	17	14	14	21	14	17	14	14		17	14
15	14	17	13	17	13		21	14	13	15	17	13	17	14	13	13	13	13	14	14	17	17	15	15
16	17	13	13	13	13		17	20	13	17	14	15	17	18	17	17	13	18		15	15	18	14	18
17	15	17	18	20	13	17	17	21	17	14	15	15	14	17	17	17	20	17	18	14	13	13	15	13
18	13		14	15	13	14		17	13	13	15	15	15	15	13	13	14	15			14	18	14	15
19	13	14	13	13	13	13	18	22	13	13	17	15	17	17	14	31	18	17	14		18	18	18	
20	14	13	14	13				20	13	14	15	17	17	15	15	21	13	13	14	15	14	20	15	18
21	14	15	14	20	17	17	17	20	13	13	13	14	17	14	14	13	14	13	18	14	14	15	17	15
22	18	13	13	13	13	13	14	21	13	13	14	13	17	15	14	18	18	14	14	14	20	14	17	13
23	13	13	14	13	13	13	14	15	13	15	17	17	37	C	C	C	C	C	C	C	C	C	C	C
24	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
25	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	37	14	17	14	13	14	14
26	14	13	18	13	14	14		15	14	13	13	15	15	14	13	13	15	17	15	15		15	14	13
27	14	13	13	13	13	14		20	17	18	17	17	20	20	21	18	21	15	17	20	13	13	13	13
28	13	13	13	14	14		17	18	13	18	15	17	18	17	14	13	14	15	14	15	14	14	14	13
29	13	18	14	13	13	15	14	13	14	14	15	15	17	15	15	14	14		14	17	14	13	13	17
30	14	14	14	13	13			17	15	17	17	17	18	15	14	13	20	18	18		14	14	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	27	25	27	28	26	19	22	28	28	27	27	28	28	27	27	27	27	27	25	22	27	26	28	27
MED	14	14	14	14	13	14	15	17	13	14	15	15	17	15	15	13	15	15	15	15	14	14	14	14
U Q	15	17	14	14	14	15	17	20	14	17	17	17	18	17	17	17	20	17	17	17	17	15	17	17
L Q	14	13	13	13	13	13	14	14	13	13	14	15	15	14	14	13	14	13	14	14	14	14	14	14

HOURLY VALUES OF foF2 AT Yamagawa

NOV. 2007

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

HD	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	34	34	34	29	31	31	29	48	54	56	71	67	61	67	82	74	62	51	41	34	32	32	31	34
2	34	31	A	A	26	28	29	50	52	54	61	76	68	72	83	86	65	55	52	A	A	31	30	A
3		29	29	28	26	26	28	52	63	55	64	66	55	55	70	72	58	48	45	32	31	36		A
4	A		26		26	26		44	54	58	65	61	68	70	77	90	68	47	36	A				26
5	26	31	28	26	28	34		45	60	58	75	74	65	76	98	96	70	53	42		28		29	28
6	29	26	30	29	31		28	55	52	56	52	75	64	58	62	90	76	54	41	32	A		26	26
7	28	28	28	29	35	26			49	54	54		73	80	98	85	58	49	36	28	26	A		28
8	28	28	A		30	32		40	52	60	57	64	58	65	75	85	65	50	37	26		29	28	29
9		30	28		34	35		41	47	51	62	62	70	70	80	91	62	47	34	A		31	28	A
10		30		29	35			42	55	58	67	81	67	58	72	68	48	54	38			28	31	
11	29	30		30	32			44	56	63	70	64	65	57	74	68	66	54	36		69	28		28
12	30	29	29	34	32	32		42	52	52	56		58	51	68	70	68	54	37			31	28	
13	28	26		28	26			A	47	47	57	67	61	56	70	90	56	47	30	A		29	31	28
14	30	34	28	31	35			43	53	54	60		65	60	81	85	60	47	40	26	34	30		28
15	29	28	30		30	A		41	59	71	75	86	61	64	72	67	60	44	26		29	34	26	26
16		31	29					40	54	58	60	67	59	53	62	67	72	59	34		28	30	30	
17		28			34			40		57	61	67	58	55	76	65	60	55	37		30			
18	28	26	28	29				41	50	54	54	62	60	66	70	66	52	55	34		29		28	A
19	26	26	28	28	31	30		36	47	50	C	C	C	C	C	C	C	C	C	C	C	C	C	C
20	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
21	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
22	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
23	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
24	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
25	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
26	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
27	C	C	C	C	C	C	C	C	C	C	C	C	61	58	62	51	50	48	37				A	
28			26	26		26		42	50	56		62	55	68	62	56	58	48	32	A	26			
29			28		28	26		40	47	58	59	58	50	60	58	58	57	51	28	A		A	25	28
30	A		A		31			35	60	60	61	68	75	72	62	60	55	A	A	A	A	A		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	13	18	15	13	19	12	4	20	21	22	20	18	22	22	22	22	22	21	21	6	11	12	13	12
MED	29	29	28	29	31	29	28	42	52	56	61	67	61	62	72	71	60	51	37	30	29	30	28	28
U Q	30	31	29	29	34	32	29	44	55	58	66	74	67	70	80	86	66	54	40	32	32	31	30	28
L Q	28	28	28	28	28	26	28	40	49	54	57	62	58	57	62	66	57	47	34	26	28	29	27	27

HOURLY VALUES OF fEs AT Yamagawa

NOV. 2007

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	G	G	G	G	G		36	40	47	G	39	44	57	38	34	32	G	G	G	G	32	36
2	G	26	46	37	28	G	G	29	40	58	45	49	53	45	51	58	44	39	40	48	46	G	32	39
3	29	G	G	G	G	G	G	G	G		G		43	G	G	G	33	G	G	G	G	G	G	45
4	34		G		G	G	G	36	G	G	G	G	G	40	38	50	G	27	24	35	40		26	25
5	G	G	G	G	G	G	G	G	G	42	44	G	41	G	G	G	32	33		G	G	27	G	22
6	G	G	G	G	G		G	G	33	G	G	G	G	G	39	41	38	32	26	G	29	28	28	G
7	G	G	G	G	33	27			38	36	G			45	G	G	G	G		G	G	39		G
8	G	G	43	33	G	26		G	31	43	G	G	G	40	G	G	36	G	G	G	29	27	24	28
9	32	G	33	33	23	11			G	35	95	63	47	41	39	G	32	G	26	35	29	30	G	34
10	30	32	33	31	G	23	G	28	G	37	39	G	G	G	G	G	G	28	23	G	26	G	G	G
11	G	G	G	G	G	G	G		G	G	G	G	G	G	G	G	G	G	26	35	G	G	G	G
12	G	G	G	G	G	G	G	39	31	40	45	42	41	G	41	G	G	G	11		G	G	G	
13	G	G	G	G	G			60	G	G	G	G	G	G	G	G	32	G	26	28	24	G	G	G
14	G	G	G	G	G			29	46	G	G		G	G	G	G	34	28	G	G	G	G		G
15	G	G	G		G	11		25	32	36	39	G	40	49	45	G	G	30	G	G	G	G	G	G
16	G	G	G	G	G		G	26	G	G	G	G	G	40	38	38	34	G	28	34	24	G	G	
17	G	G	G	G	G			G		36	G	39	G	G	G	36	G	25	22	G	G	26	G	G
18	G	G	G	G	G			29	31	34	G	G	47	44	49	42		G	31		G	G	G	26
19	G	G	G	G	G	11			G	43	C	C	C	C	C	C	C	C	C	C	C	C	C	C
20	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
21	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
22	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
23	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
24	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
25	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
26	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
27	C	C	C	C	C	C	C	C	C	C	C	C	44	51	49	37	G	G	G		G		31	30
28	28	G	G	G		G	G	G	G	36		39	G	38	G	40	G	G		39	40	G	G	
29	G	G	G	G	G	G	37	24	G	G	G	G	48	43	61	48	49	35	26	36	32	44	G	25
30	40	30	43	26	G	G		G	31	38	40	46	60	64	48	36	40	58	85	66	45	30	24	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	22	21	22	20	21	16	12	17	21	21	20	18	21	22	22	22	21	22	20	19	22	20	19	19
MED	G	G	G	G	G	G	G	25	G	36	G	G	39	40	38	18	32	13	25	G	G	G	G	22
U Q	28	G	G	13	G	11	G	29	32	40	42	39	45	44	48	40	35	32	27	35	29	27	26	30
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 Yamagawa

NOV. 2007

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	15	15	15	14	15	15	16	15	17	14	15	21	17	17	17	16	14	14	14	15	15	17	15	14
2	17	14	17	14	15	15	15	15	14	14	16	18	20	17	18	18	15	15	15	15	15	16	15	15
3	15	15	15	15	16	16	17	18	15	15	16	20	36	42	18	16	15	20	16	15	15	15	15	15
4	16		15		16	15	16	17	14	15	14	33	20	17	17	17	15	16	15	15	14		17	15
5	14	14	14	14	16	15	16	17	14	14	15	15	17	17	17	15	14	15	15	17	17	14	15	14
6	15	17	15	15	14		15	18	14	15	17	14	17	17	18	15	15	14	16	15	15	17	14	15
7	15	14	15	15	14	15			14	14	15		17	15	18	14	21	16	15	18	15	14		16
8	17	15	14	15	17	15		18	14	14	14	14	38	17	17	16	14	17	15	15	15	14	15	15
9	15	14	15	15	15	15		18	14	15	15	16	15	17	16	15	14	16	14	14	14	15	16	15
10	15	14	14	16	15	16	16	20	14	15	15	15	17	17	16	17	14	15	15	14	15	14	15	17
11	14	15	16	14	15	15	16	18	15	14	14	14	17	15	15	14	15	18	15	14	15	16	15	15
12	16	15	15	24	18	14	15	18	14	16	16	20	16	20	15	14	14	16	15		18	17	14	
13	16	17	17	18	15			14	14	14	17	17	18	18	17	15	16	16	15	16	15	17	15	15
14	16	15	15	15	14			14	17	15	17		18	20	17	15	14	17	15	15	15	15		15
15	15	15	16		17	15		17	14	16	16	17	18	17	17	14	17	14	15	18	15	15	17	15
16	18	18	15	18	15		15	16	15	17	16	17	18	18	16	16	14	17	14	14	15	15	14	
17	15	16	17	17	15			17		16	14	17	17	15	18	15	15	16	15	18	15	15	18	15
18	16	15	15	14	15			17	14	14	16	16	17	18	15	15	14	17	15		14	17	15	15
19	15	15	14	15	15	14		17	14	16	C	C	C	C	C	C	C	C	C	C	C	C	C	C
20	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
21	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
22	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
23	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
24	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
25	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
26	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
27	C	C	C	C	C	C	C	C	C	C	C	C	17	14	17	17	17	18	18		18		14	15
28	14	15	14	14		16	16	17	15	16		20	21	17	18	17	14	17	14	14	20	15		
29	17	15	14	15	15	15	15	15	14	14	16	16	17	16	17	14	14	14	15	14	15	14	15	14
30	14	14	14	14	15	14		18	15	14	15	17	15	15	17	15	14	14	14	14	14	14	14	15
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	21	22	20	21	16	12	21	21	22	20	19	22	22	22	22	22	22	22	19	22	20	19	19
MED	15	15	15	15	15	15	16	17	14	15	16	17	17	17	17	15	14	16	15	15	15	15	15	15
U Q	16	15	15	15	16	15	16	18	15	16	16	20	18	18	18	16	15	17	15	16	15	16	15	15
L Q	15	14	14	14	15	15	15	15	14	14	15	15	17	16	16	15	14	15	15	14	15	14	14	15

HOURLY VALUES OF foF2 AT Okinawa

NOV. 2007

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		30	28	30	28		46	51	61	74	74	62	75	96	105	88	A		49		35		
2	34	28	A		29	37		47	51	50	62	80	85	83	98	115	98	80	66	48	46	51	23	
3		30	26			31	32	54		56	56	70	64	57	76	78	68	66	51	30	30	47	29	
4								42	51	58	68	80	81	88	106	117	114	64	48			30	A	
5					29			44	54	57	66	81	83	101	115	131	112	77	46	38	30	30	31	28
6		30			30	28		50			66	78	72	71	77	80	96	80	40	34		A		
7				28	29	A		36	47	51	59	72	97	106	111	122	85	63		34	32	32		26
8	26	30	30	32	32		A	38	51	68	66	77	77	86	100	118	91	52	44	32				
9		30			38			37	55	50	59	76	73	85	87	113	90	53	34	A				28
10		32		29	32			37	52	66	68	86	81	66	77	84	62	52	42					29
11		30	29	29	31			41	60	66	75	81	68	68	75	86	66	39	44	34			29	
12		29						40	48	68	55	59	50	55	67	87	84	58	A	A	A		30	
13		30		29				40	50	48	57	61	69	59	72	80	66	55	36	32			31	29
14		30	30	30	31			42	51	56	57	74	70	68	78	102	74	57	52			29	A	
15		28	28					36	58	77	88	93		67	82	72	64	50				32	29	
16		28	31		26			37	47	54	63	61	64	58	62	62	74	76	37	28				
17					30			40	54	68	56	63	55	63	77	71	71	72	67					
18				32				42	69	57	53	62	70	76	79	73	63	58	56	32	28		29	30
19	30	30	28		29			29	52	52	60	69	64	A	74	78	63	56	35		28	32	31	31
20	30	29	34	31			A	35	47		52	62	63	46	A	66	51	57		29		50		30
21		36	48			31		34	75		A	71	75	A	A	63	61	54	A	A	A	A		A
22	A	A				20		36	51	51	58	57	59		72	58	56	52	42	30		28		
23				A				36	46	60	75	97	77	85	71	61	64	62	48	A				
24	29		31					42	59	56	64	84	86	97	85	91	66	47	40					A
25		30	29					36	65	62	54	62	77	97	87	88	64	66	54	36	29		A	
26						27		34	46	56	76	81	74	68	59	64	62	53	41	38	A			
27		28	30	A				37	44	65	84	87	75	81	76	66	58	56	37		A			
28				26				32	54	64	65	58	64	84	89	75	64	59	46	36	A		29	30
29	A	A	30	26		24		37	48	59	69	54	54	A	59	76	71	56	A				28	28
30					30			36	59	68	67	76	82	87	77	77	76	46	A					
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	6	17	14	11	14	8	1	30	28	27	29	30	29	26	28	30	30	29	22	16	7	11	11	10
MED	30	30	30	29	30	28	32	37	51	58	64	74	72	76	77	79	67	57	44	34	30	32	29	29
U Q	30	30	31	31	31	31	16	42	56	66	68	81	79	86	88	102	85	65	51	37	32	47	31	30
L Q	29	28	29	28	29	25	16	36	48	54	57	62	64	66	73	71	63	52	40	31	28	30	29	28

HOURLY VALUES OF fEs AT Okinawa

NOV. 2007

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

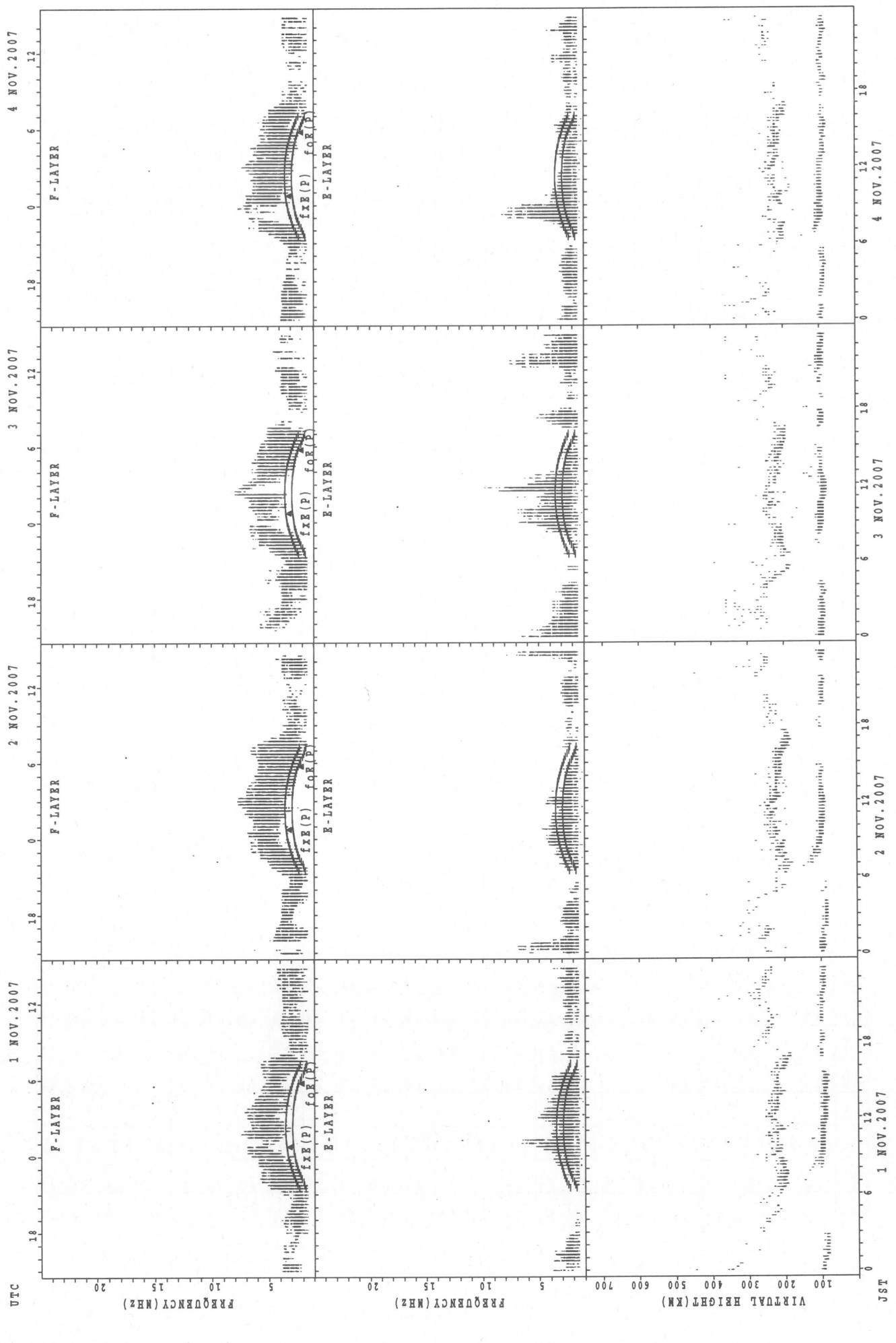
D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	G		G	G	G	G	G	G	G	39	50	48	48	44	46	38	38	41	60	30	G	G	G	
2	G	32	36	G	26	G	G	28	36	44	47	53	57	56	78	49	42	39	36	29	G	G	G	
3		G	G			G	G	G	G	G	G	G	G	G	48	G	65	G	11	29	G	G	27	
4					G	G		26	32	40	G	42	G	G	38	G	38	G	G		29	29	49	
5	G	G	G		G			G	G	37	50	49	G	42	G	G	G	G	11		G	G	G	G
6	G	G	G		G	G	G	G			G	G	G	40	53	G	G	30		G		34	28	
7	G	G	G	G	G	30		G	36	G	G	G	G	G	G	G	G	G	11		G	G	G	G
8	26	G	G	G	G	26	33	G	G	G	G	G	G	G	G	G	G	28	26	32		G	27	27
9	G	27	34		G			28	35	G	47	45	70	41	40	37	50	42	28	38			G	G
10		29	30	27	26			G	G	G	G	G	G	G	G	G	G	G	G	G	28	G		G
11	G	G	G	G	G			26	G	G	G	G	G	G	G	36	G	G	G	21	31		G	
12		G	G		G			38	31	37	G	G	50	53	G	41	35	G	40	34	31		G	G
13	G	G		G					G	G	G	G	G	G	G	G	G	G	G	G	G		G	G
14	G	G	G	G	G			G	G	G	G	G	G	G	G	G	36	31	G	33		26	33	28
15	G	G	G					G	32	37	G	G		G	38	49	39	31	27	26	G	G	G	
16	G	G	G		G			G	G	G	37	G	48	G	45	39	G	G	26	G		G		
17		G			G			26	33	38	44	G	G	G	G	37	35	G	G	30		G	G	
18				G	G		G		46	G	G	G	G	N	G	G	G	G		G	G	G	G	G
19	G	G	G		G			G	35	G	G	G	G	55	G	G	G	G	20	G	G	G	G	G
20	G	G	G	11			27	G	G		G	39	58	50	80	G	44	G	G	G		G	G	G
21	G	G	G	G	G	G		G	33	59	95	71	43	92	104	41	40	36	43	32	44	53	26	40
22	27	34	29	G	G	G		26	35	36	G	38	G	G	G	44		G	G	G	G	G	G	G
23	G	G	G	36	22	G		G	G	G	40	G	G	G	38	51	36	G	11	29				
24	G	G	28					G	G	N	G	G	50	47	42	45	43	G	G	G		G	G	34
25	29	G	G	28	G	G		G	33	34	G	G	G	G	G	G	G	G	G	25	G		28	29
26	29	25		G		G		G	42	G	G	G	49	45	G	48	43	33	35	G	40			
27		G	G	36				G	G	G	G	G	G	G	44	48	G	30	27		68		G	G
28	G		G	G	G	G		G	G	G	48	52	58	G	51	N	40	34	34	30	50	24	G	G
29	49	30	G	G	G	G	G	G	G	G	G	G	G	48	52	48	40	30	60	30		G	G	G
30	G		G	G	G			G	30	35	G	41	G	67	49	44	57	47	34				26	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	23	25	25	19	23	14	8	28	29	27	30	30	29	29	30	29	29	30	28	25	19	21	26	19
MED	G	G	G	G	G	G	G	G	G	G	G	G	G	G	38	37	36	G	16	26	G	G	G	G
U Q	G	13	G	11	G	G	14	13	34	37	40	41	48	47	48	44	41	31	34	30	31	12	26	28
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

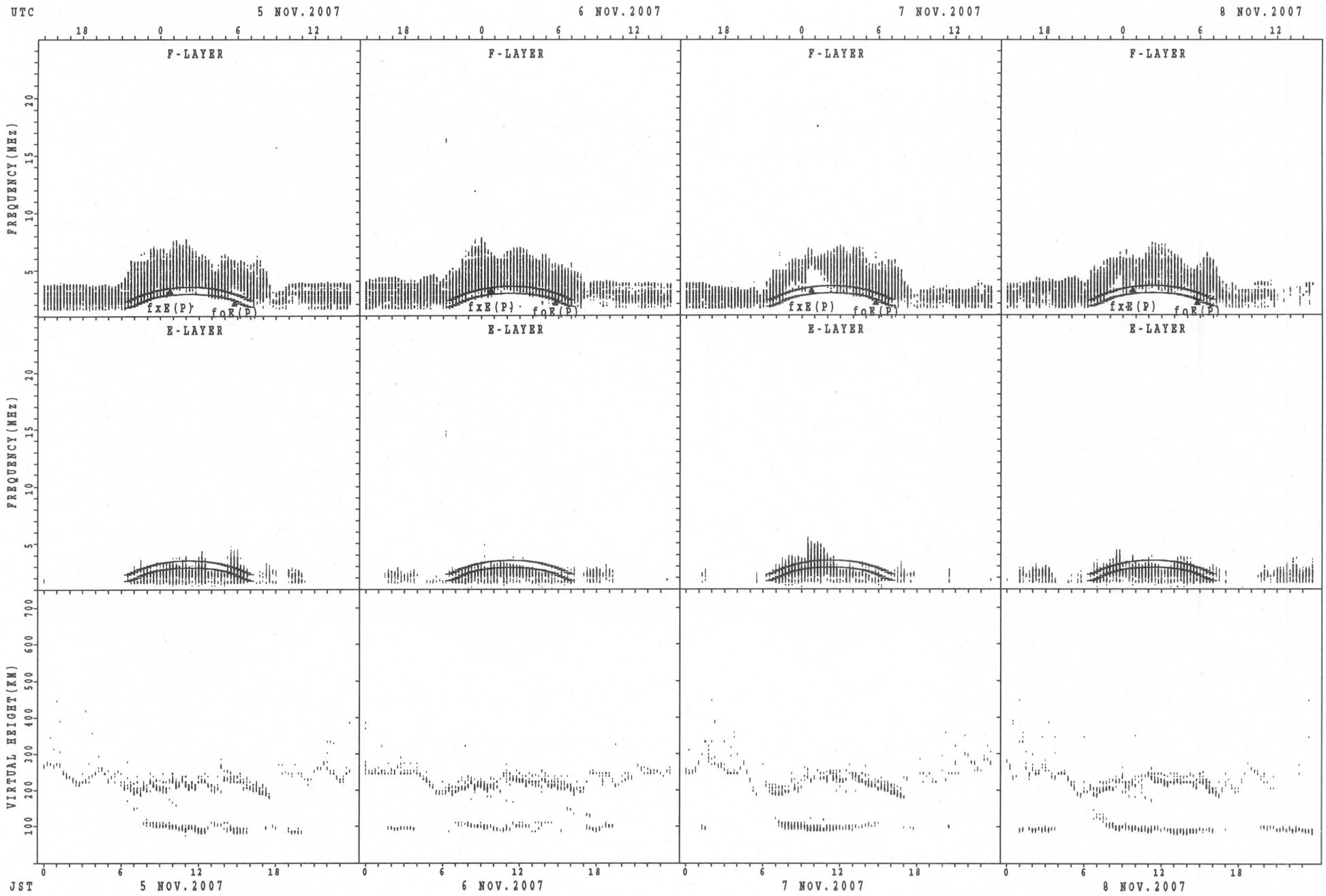
NOV. 2007

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	15		21	14	14	15	15	17	15	14	16	30	30	28	18	16	14	14	15	14	22	16	21	
2	20	14	14	15	14	15	17	14	15	14	17	22	30	23	21	23	15	14	14	14	15	15	21	
3		17	17			21	15	21	15	15	17	40	42	43	32	21	15	21	14	14	15	15	15	
4					14	17		17	14	15	27	29	46	22	26	26	15	22	15		15	15	14	
5	15	15	15		15			20	14	14	15	17	16	27	21	15	14	20	14	15	18	16	16	18
6	16	21	16		14	16	16	18			15	24	26	20	16	17	14	14	18	21		15	15	
7	15	16	16	16	17	15		14	14	14	14	17	32	17	23	20	14	22	15	14	17	20	15	17
8	15	18	20	20	16	15	14	18	14	14	15	15	34	20	16	37	18	14	15	15		20	15	15
9	17	16	14		16			15	14	14	15	22	24	20	22	17	14	14	15	14			18	16
10		16	14	15	15			18	14	15	27	17	26	23	18	17	14	18	15	21	14	17		18
11	14	15	17	16	16			17	15	14	15	26	23	33	22	15	14	20	15	15	14		17	
12		15	16		16			16	15	15	35	26	26	28	23	17	14	15	15	15	15		18	15
13	20	16		18				17	14	15	16	42	35	40	32	30	15	18	15	15	21		16	15
14	16	14	15	15	15			18	14	29	15	29	42	22	18	17	14	14	15	14		15	15	14
15	16	17	15					20	14	15	21	44		38	22	18	14	14	14	14	21	15	14	
16	18	15	15		14			17	14	15	36	32	22	41	28	22	17	18	15	16		17		
17		16			14			14	15	14	17	18	15	34	21	17	14	18	15	14		16	15	
18				21	15		16	17	14	14	17	15	20	17	42	27	18	22	15	15	20	18	17	14
19	16	15	15		15			20	14	16	15	42	22	21	41	16	14	21	15	20	21	16	15	18
20	21	18	16	18			17	16	14		20	22	21	21	16	17	15	18	15	21		15	15	15
21	16	15	15	16	18	15		16	14	14	17	21	20	20	18	14	14	15	14	16	14	15	14	14
22	15	15	15	16	14	18		15	14	14	15	21	20	41	39	23	17	22	16	18	23	15	16	22
23	18	15	15	14	14	15		15	14	14	17	15	41	20	18	17	14	18	15	14				
24	16	15	17					15	14	14	15	20	18	18	20	17	14	14	20	17		16	15	14
25	16	14	15	15	17	18		15	14	15	18	20	22	20	16	15	14	23	14	16	15		14	15
26	15	15		21		15		16	15	14	35	41	36	30	35	17	14	15	14	15	14			
27		15	15	14				16	20	14	15	15	39	21	20	18	24	17	15		15		18	16
28	15		15	14	16	15		18	21	16	29	22	30	36	21	18	15	15	14	14	15	15	16	20
29	15	14	15	15	16	15	15	20	14	16	17	18	23	18	17	17	17	17	14	15		16	14	15
30	17		15	17	14			15	14	14	15	22	18	26	17	17	15	14	14				14	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	23	25	25	19	23	14	8	30	29	28	30	30	29	30	30	30	30	30	30	27	19	21	26	19
MED	16	15	15	16	15	15	16	17	14	14	17	22	26	22	21	17	14	18	15	15	15	16	15	15
U Q	17	16	16	18	16	17	16	18	15	15	20	29	34	33	26	21	15	20	15	16	21	16	17	18
L Q	15	15	15	15	14	15	15	15	14	14	15	18	20	20	18	17	14	14	14	14	15	15	15	15

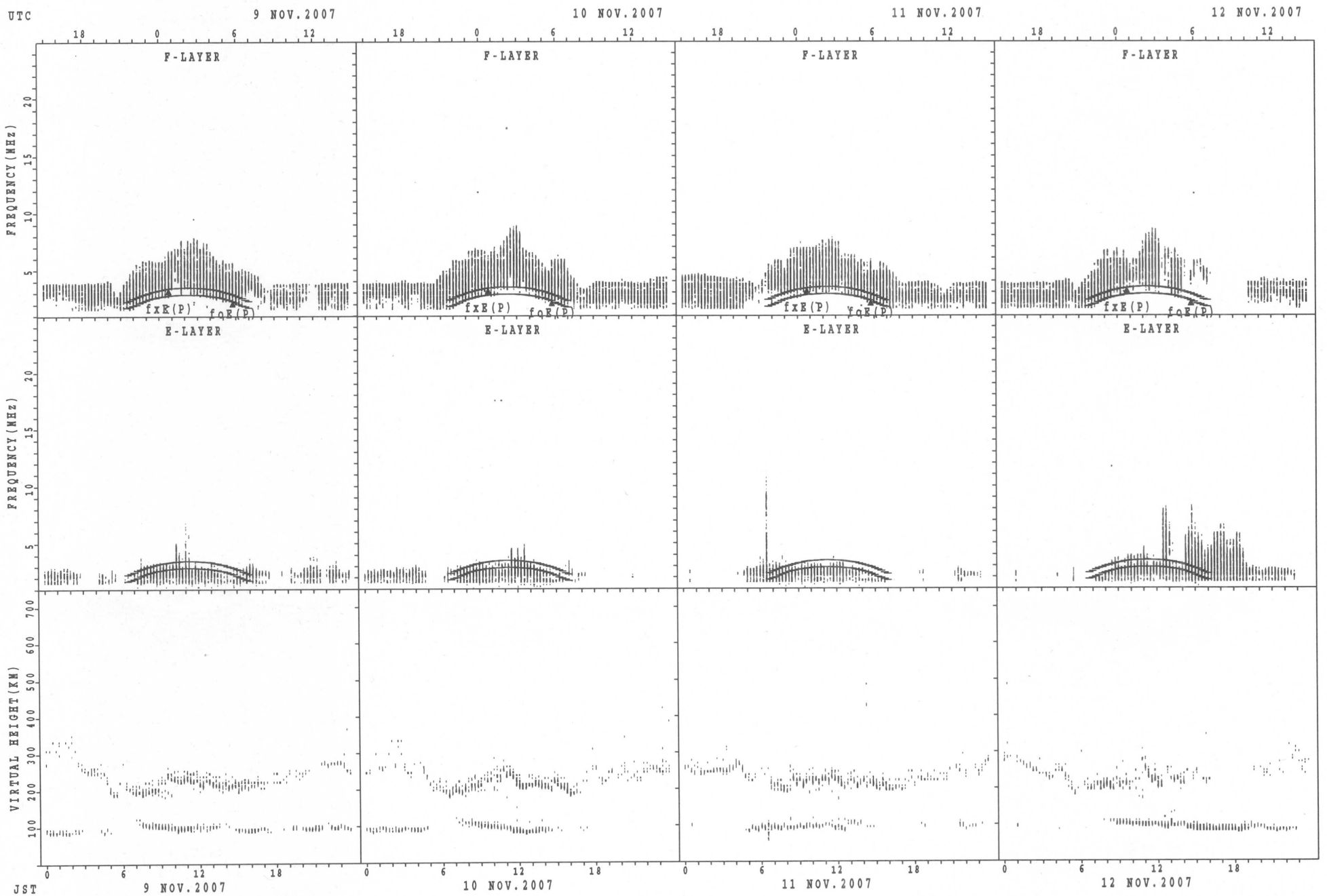

SUMMARY PLOTS AT Wakkanai
1 NOV.2007
2 NOV.2007
3 NOV.2007
4 NOV.2007
UTC
JST
F-LAYER
E-LAYER
fxE(P)
foE(P)
FREQUENCY (MHz)
VIRTUAL HEIGHT(KM)
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



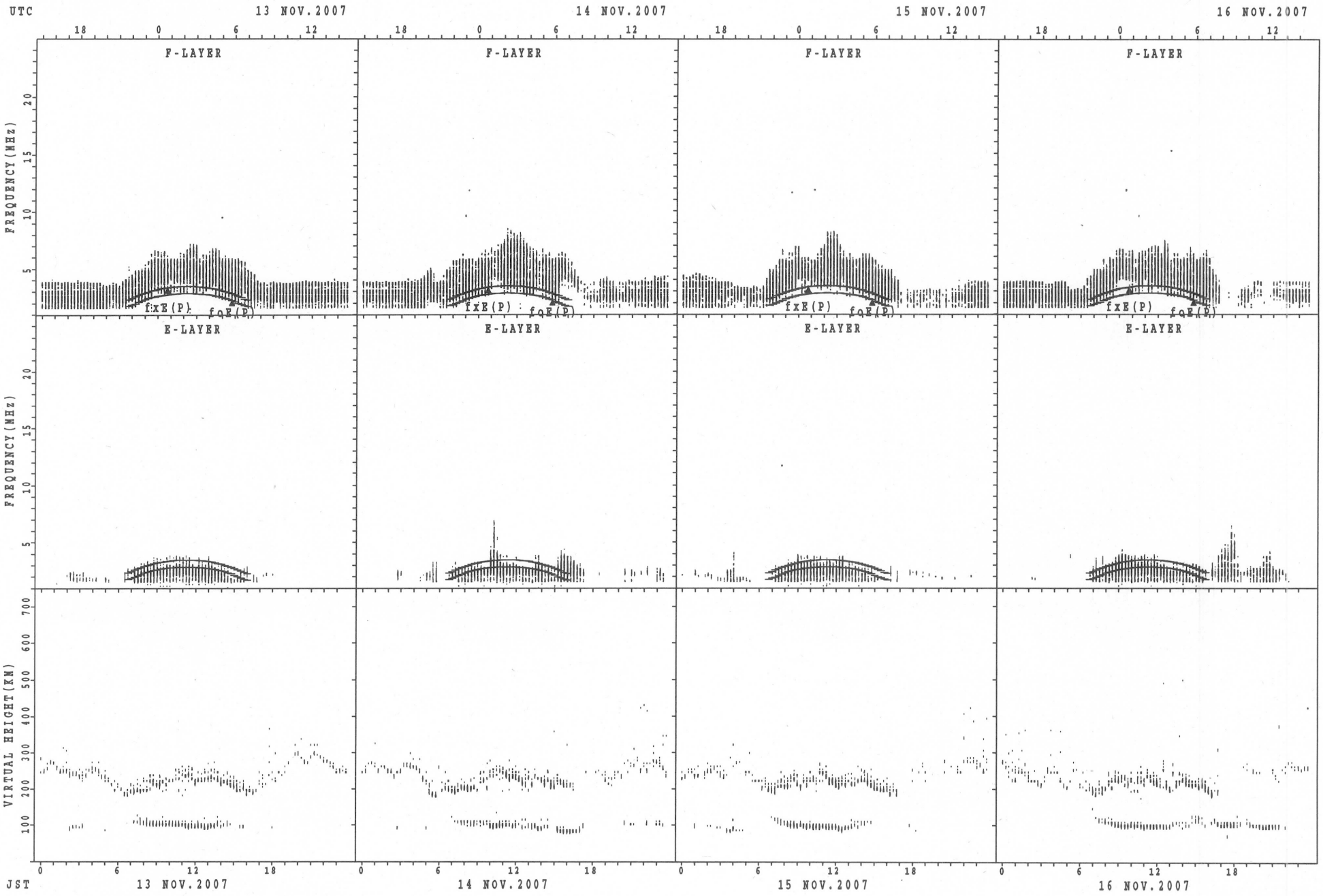
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



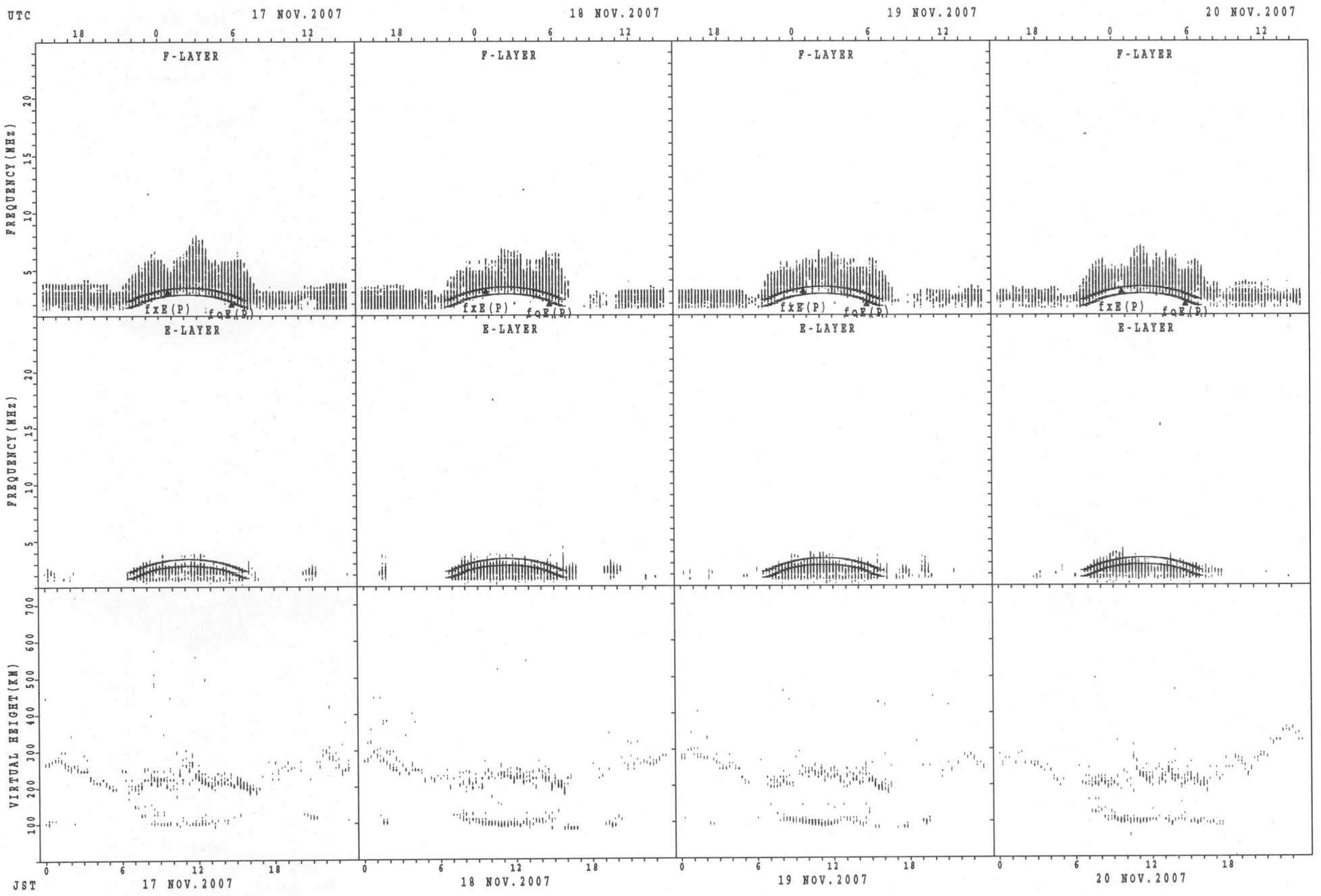
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



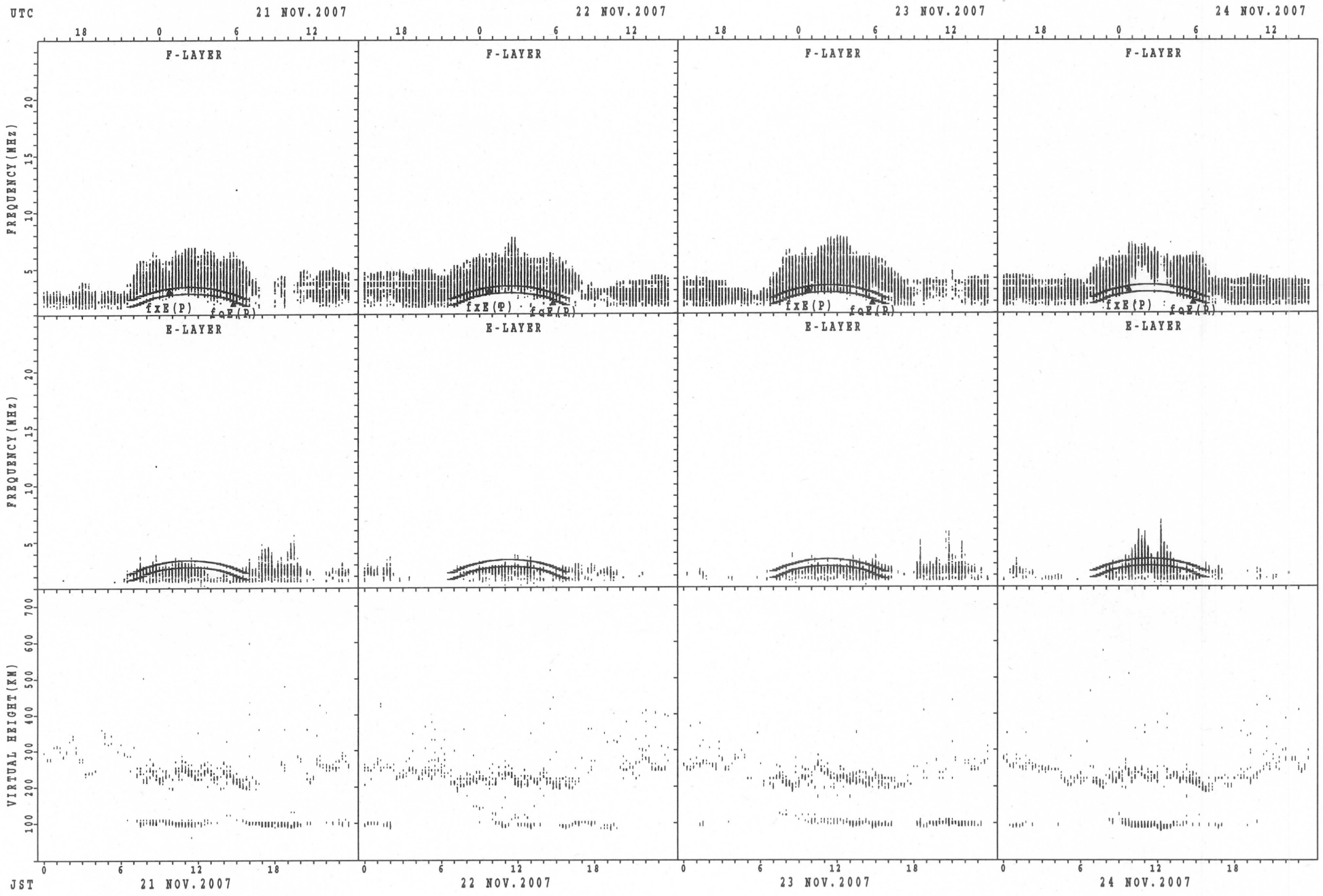
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



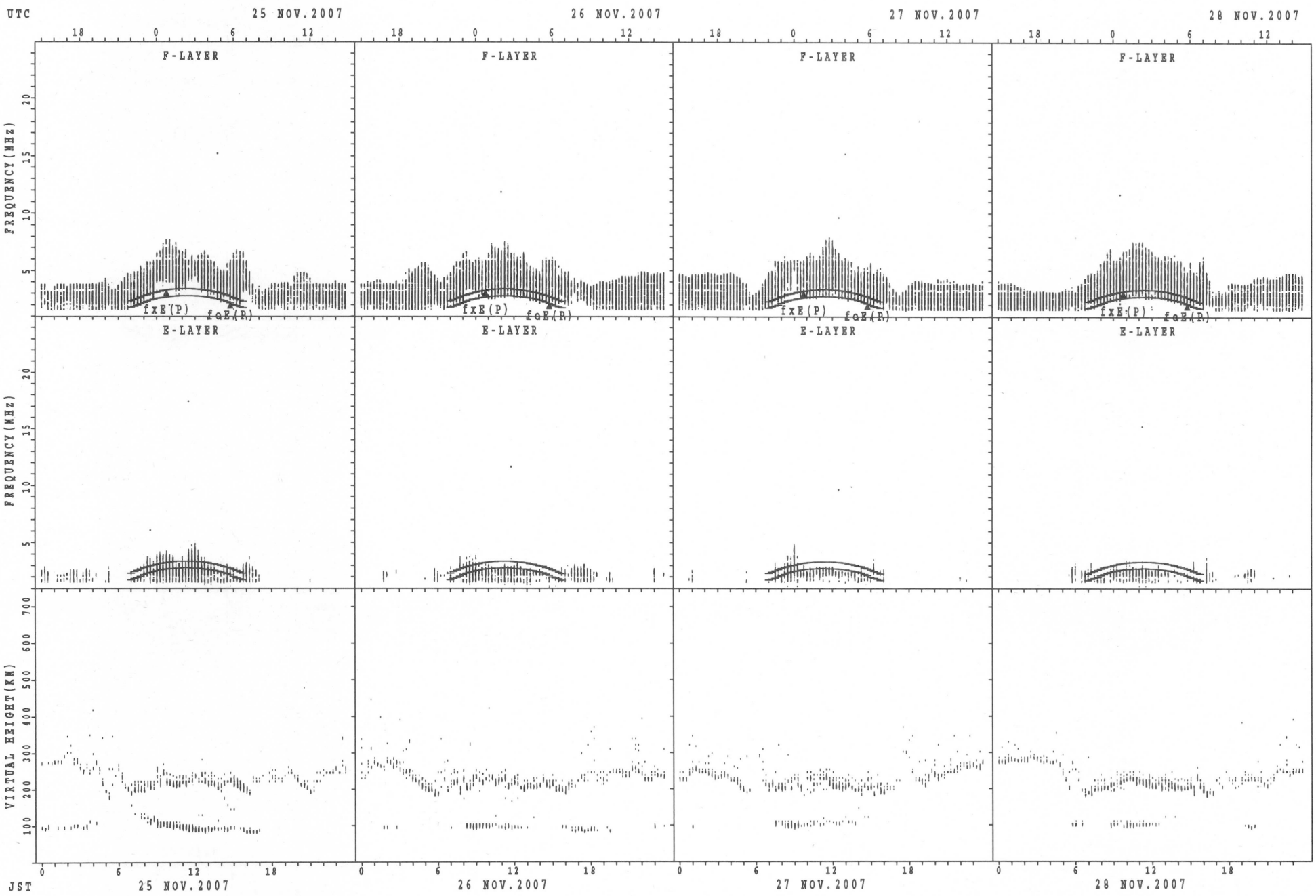
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



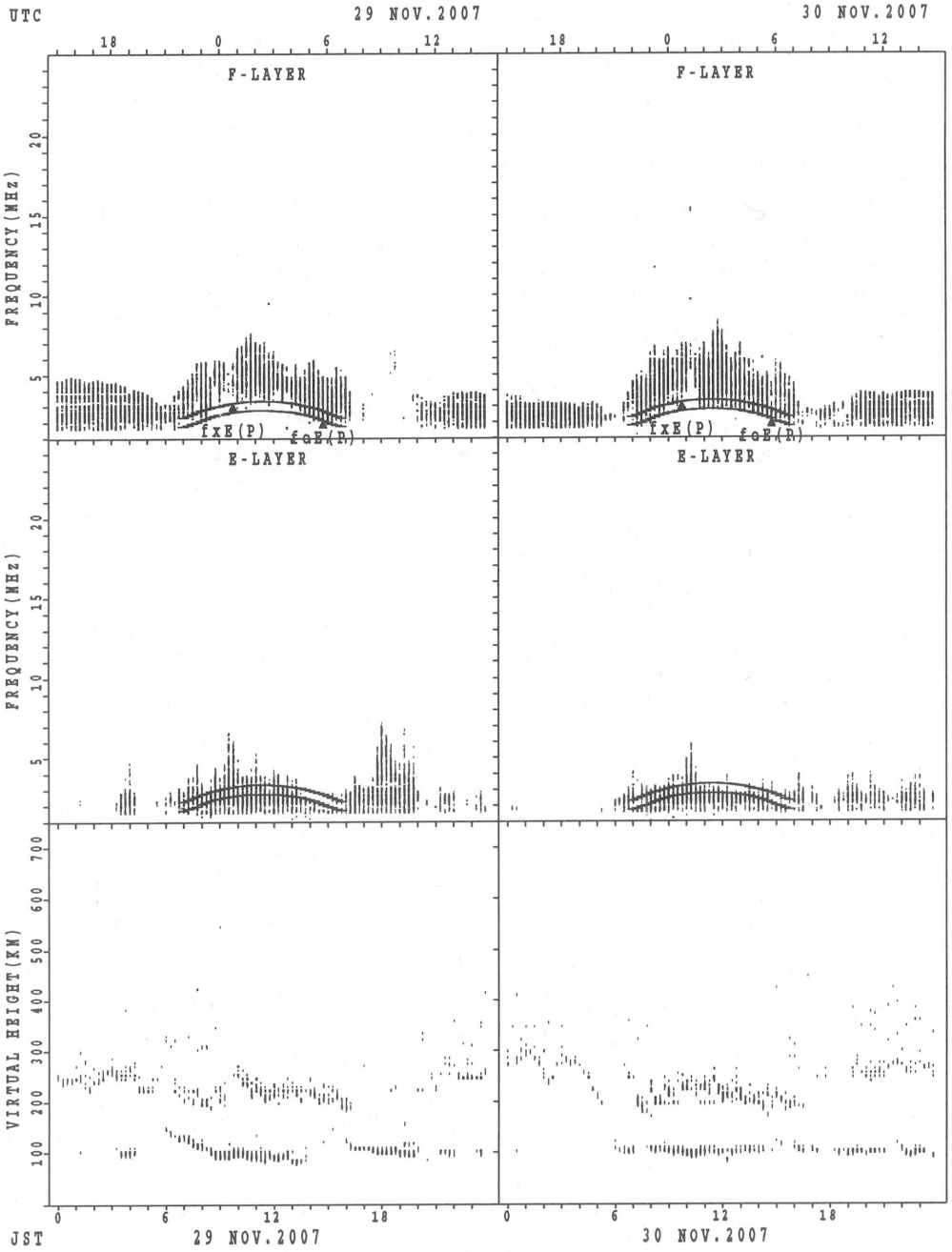
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



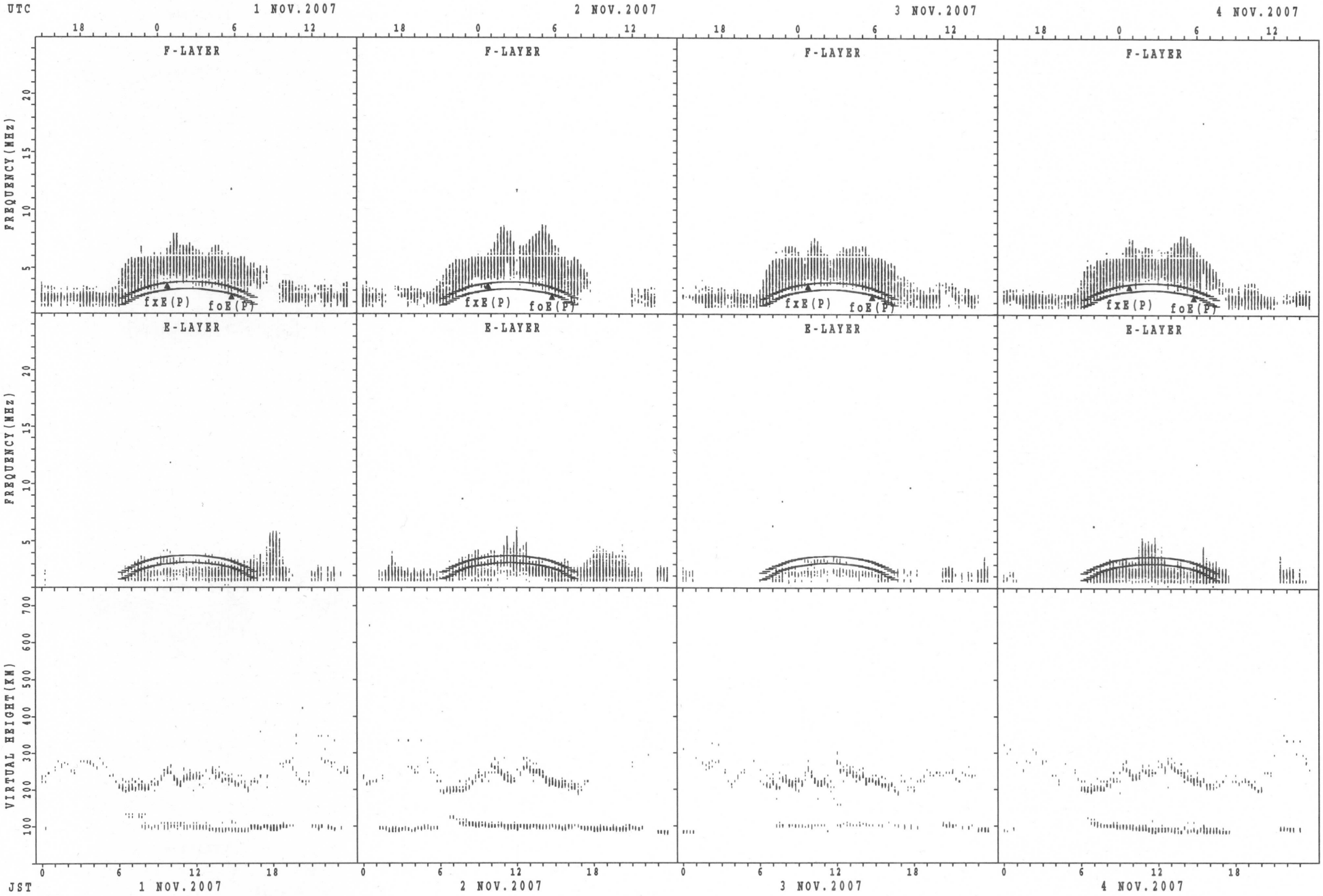
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



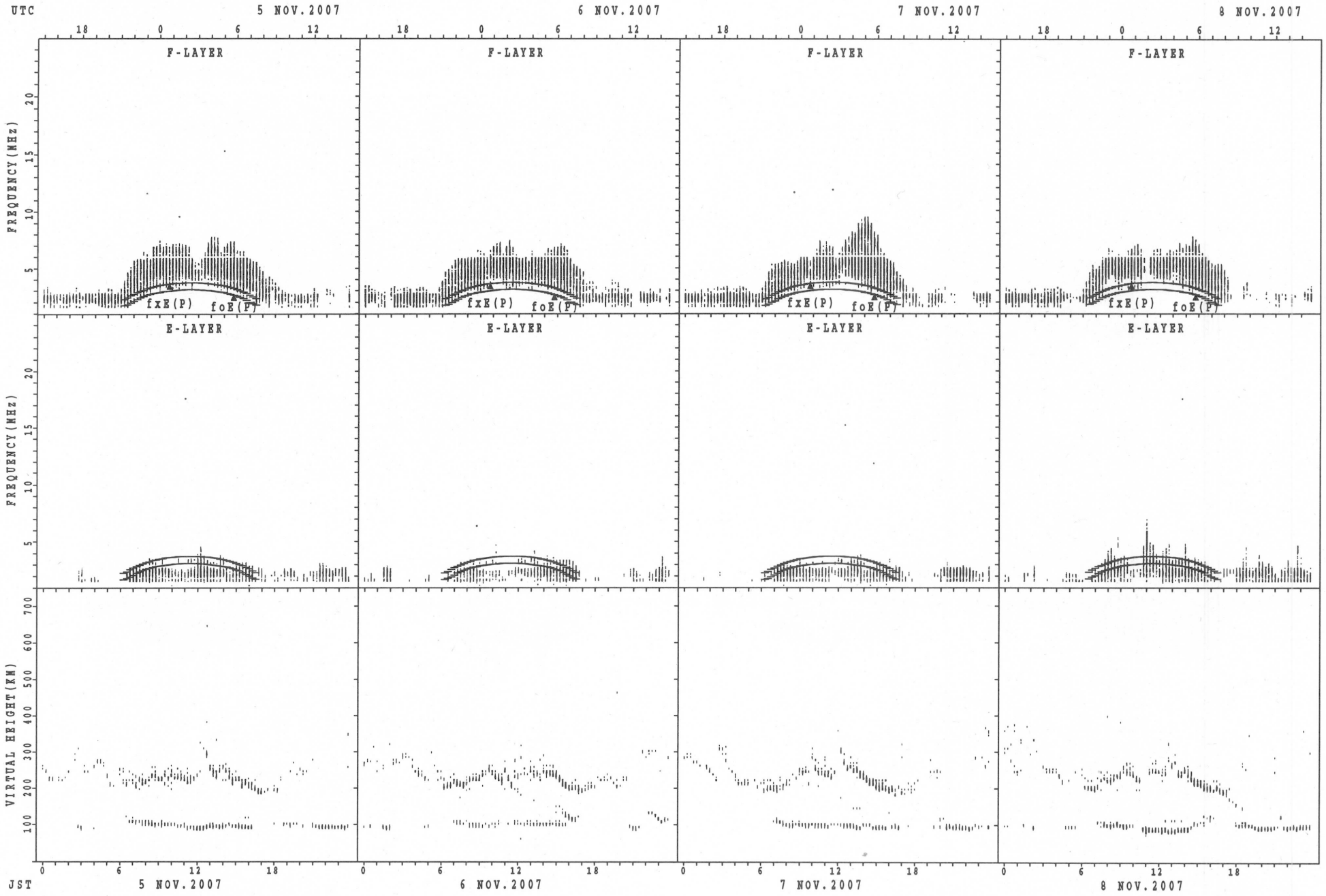
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



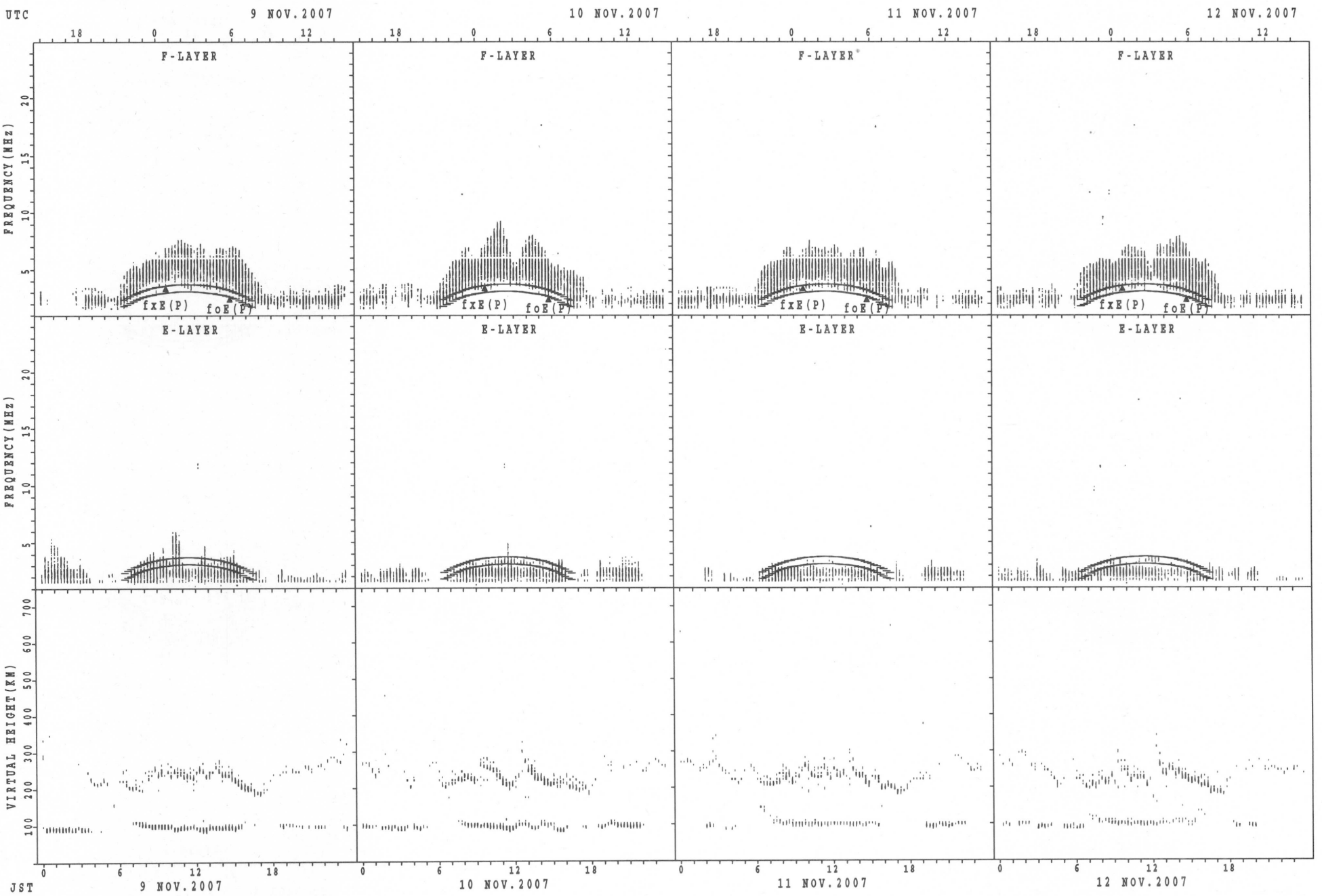
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



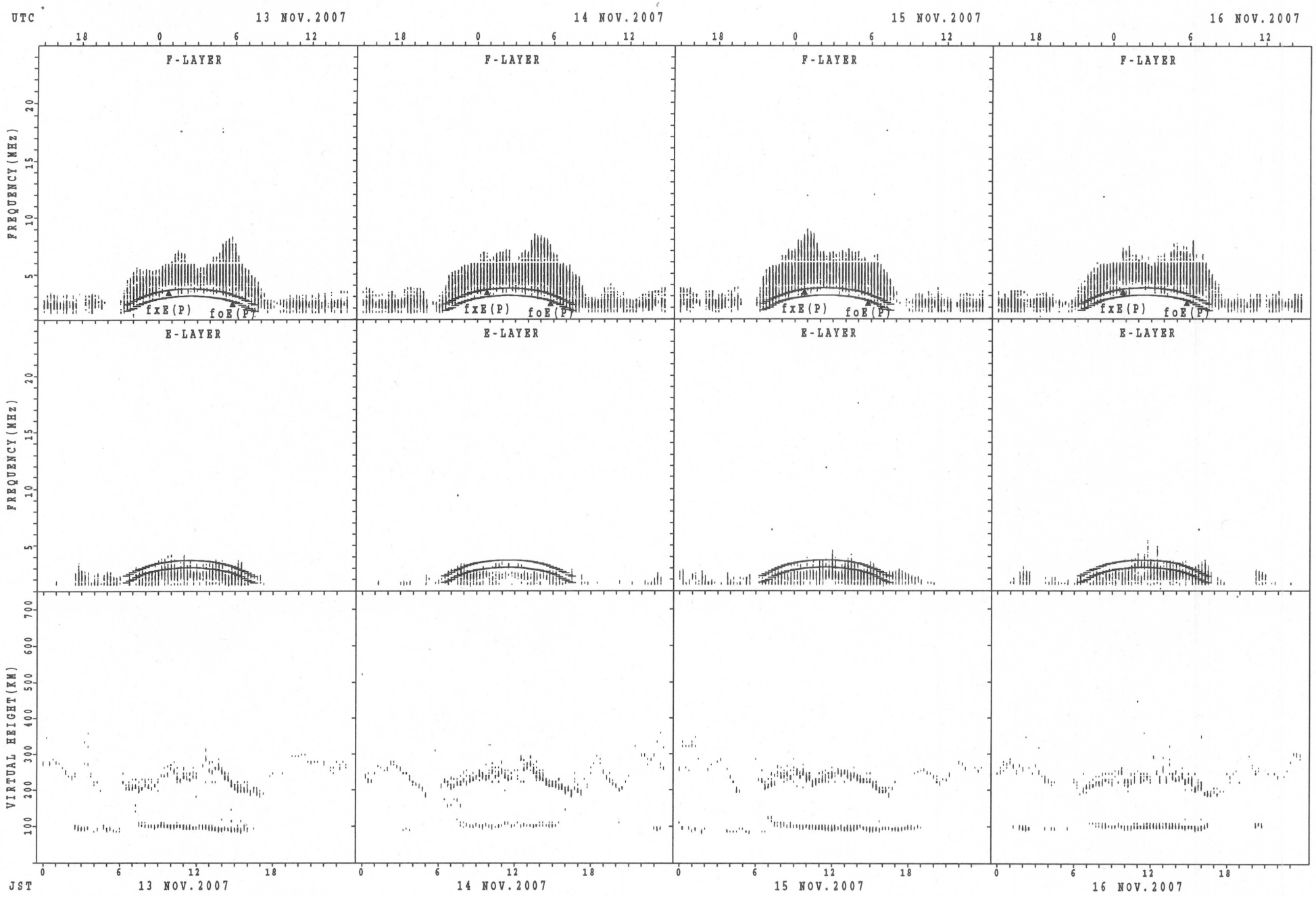
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



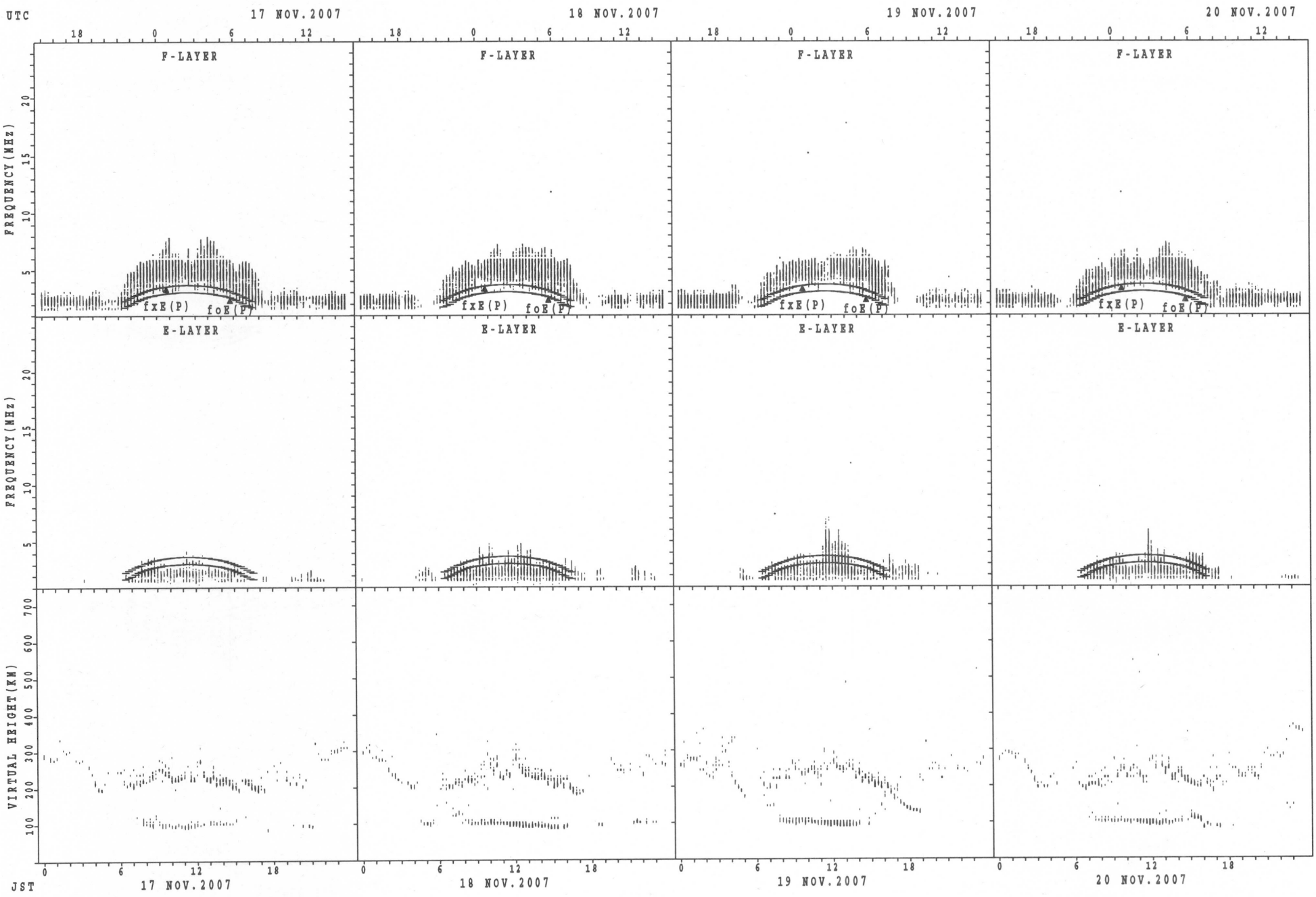
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



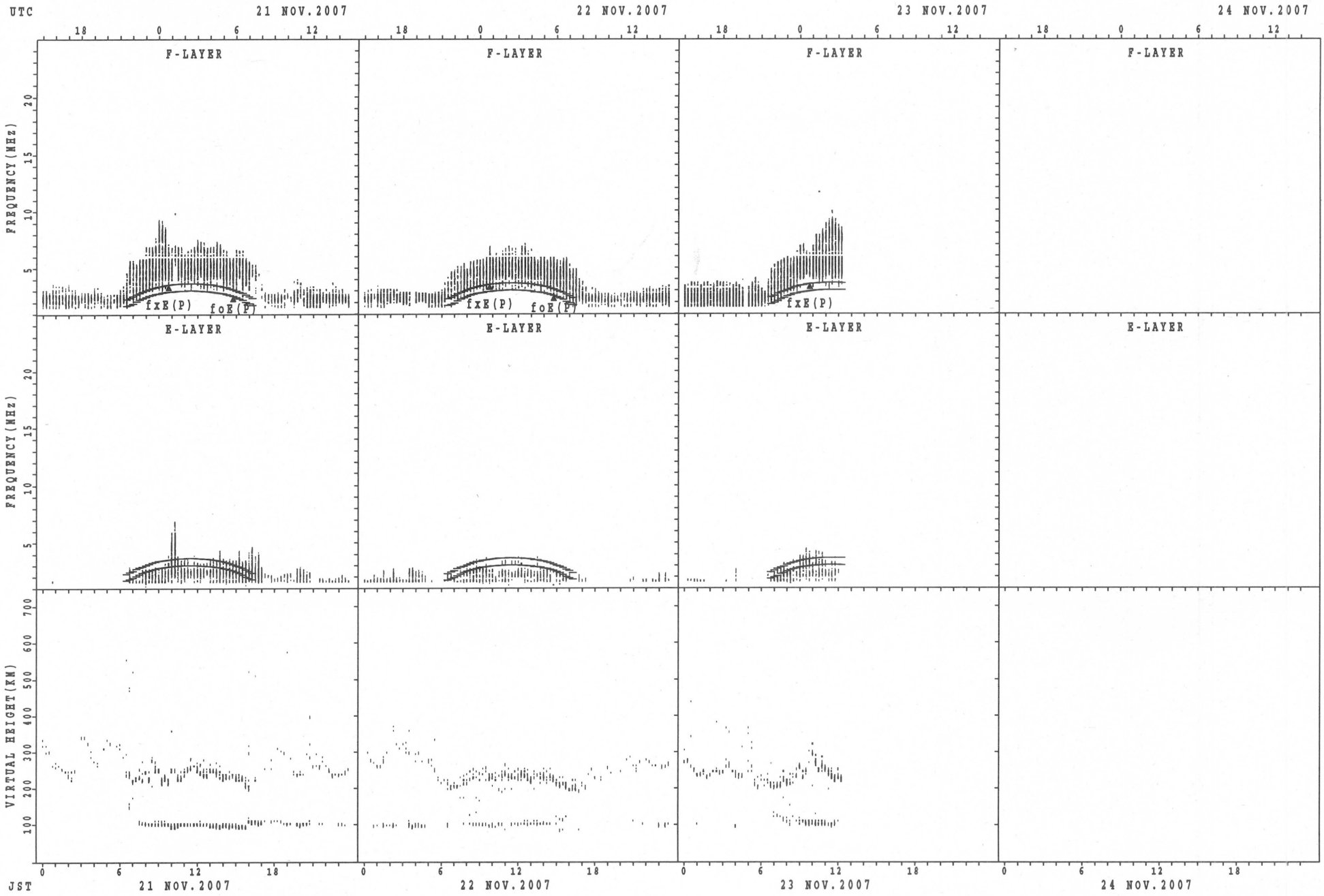
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



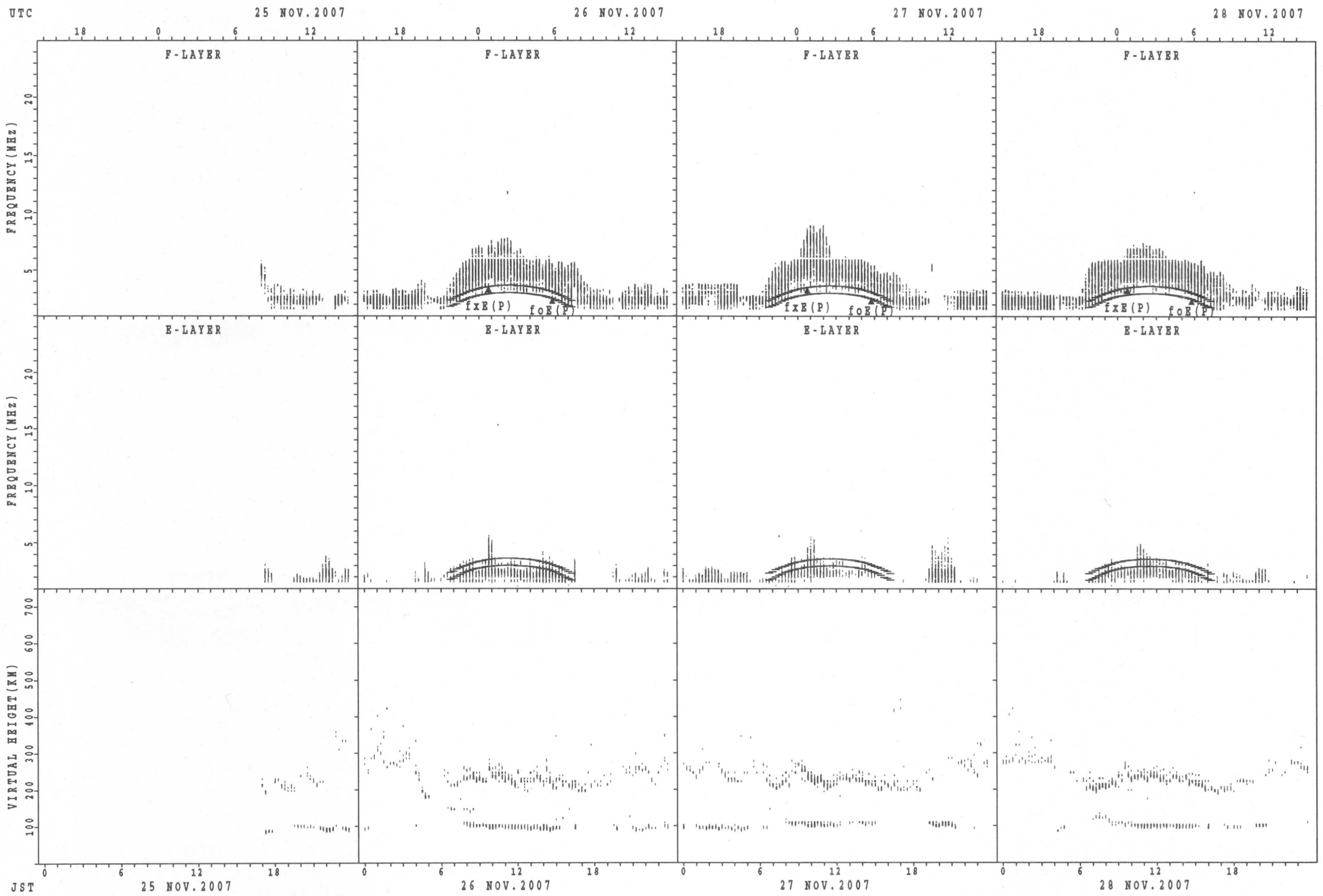
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



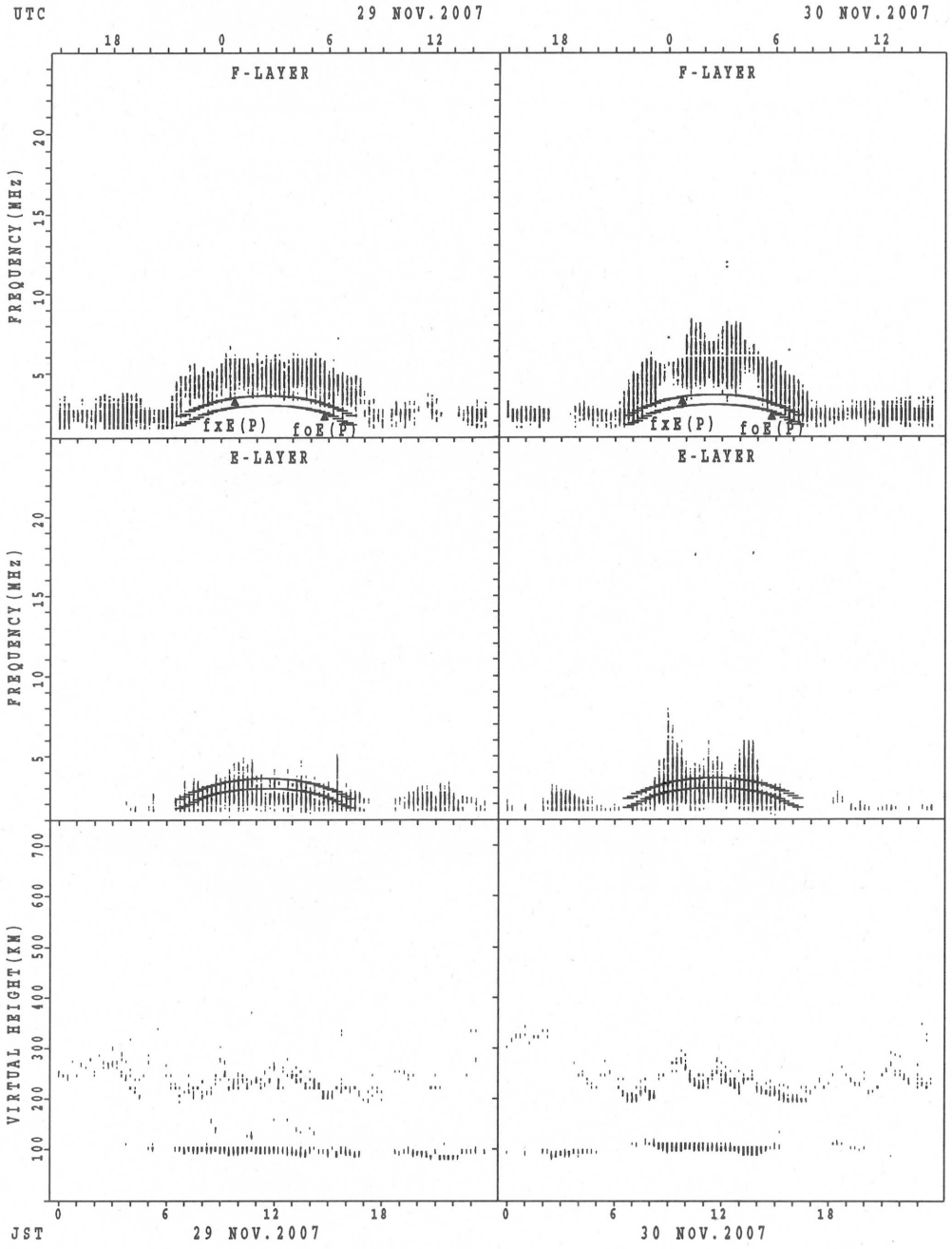
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



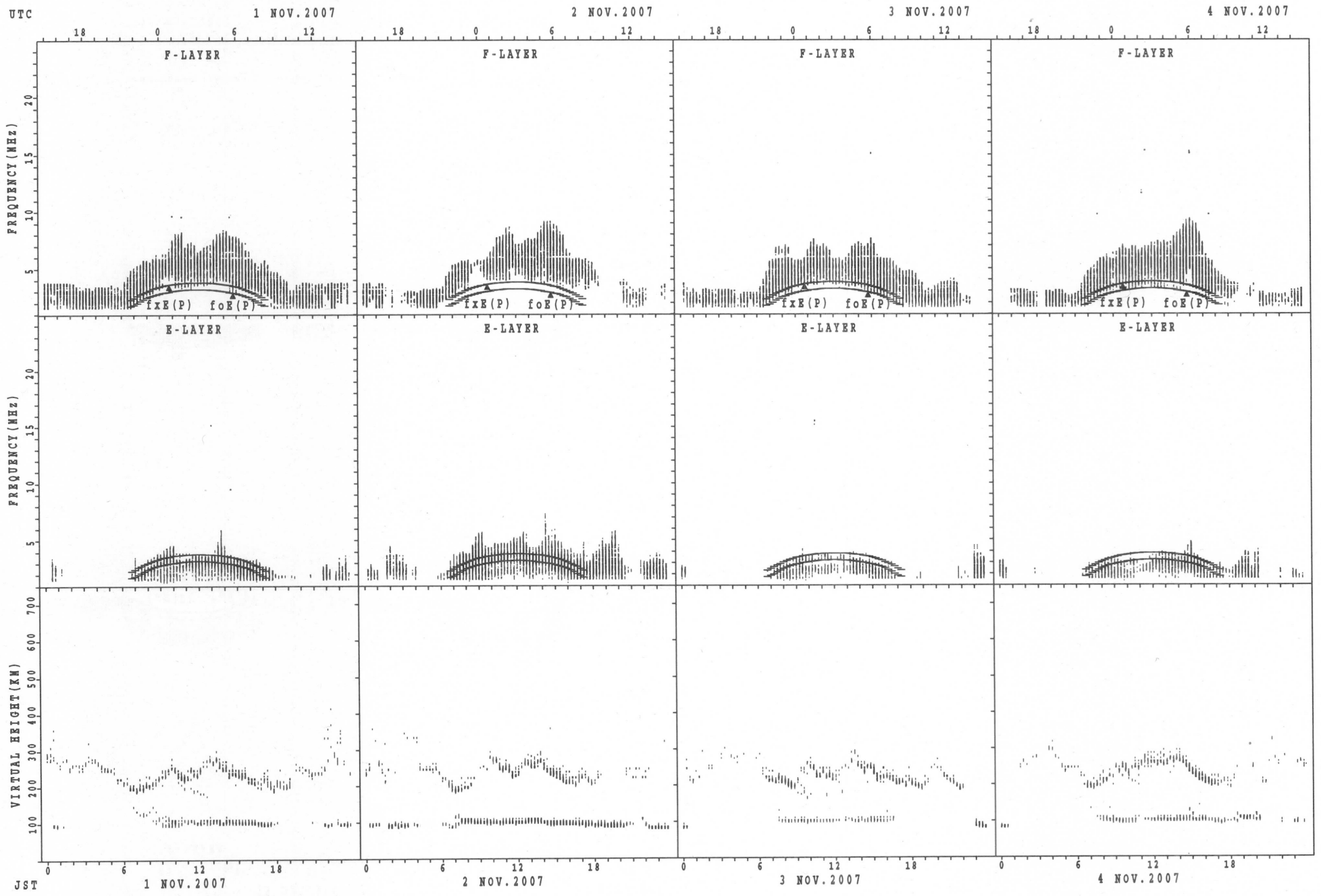
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



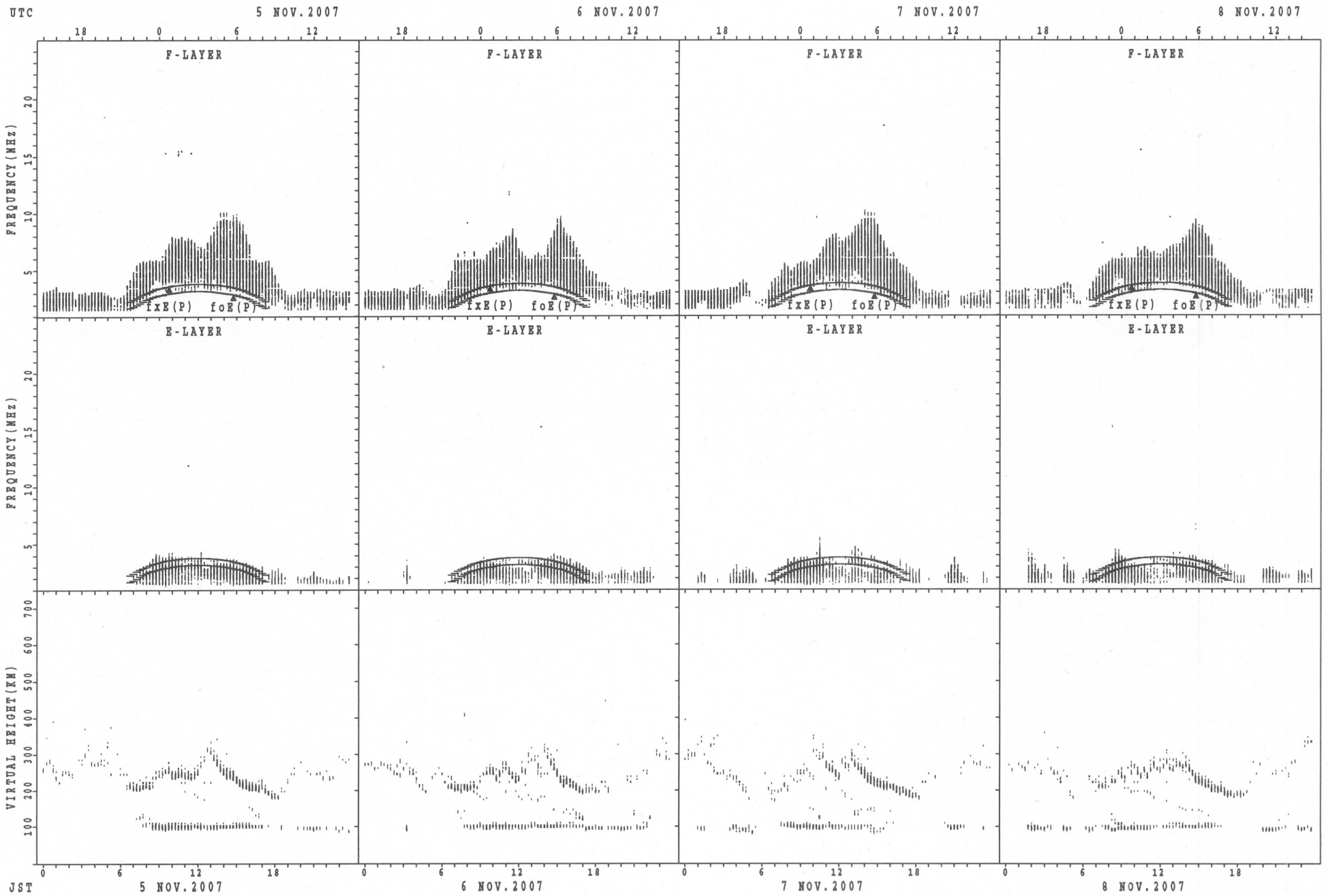
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa

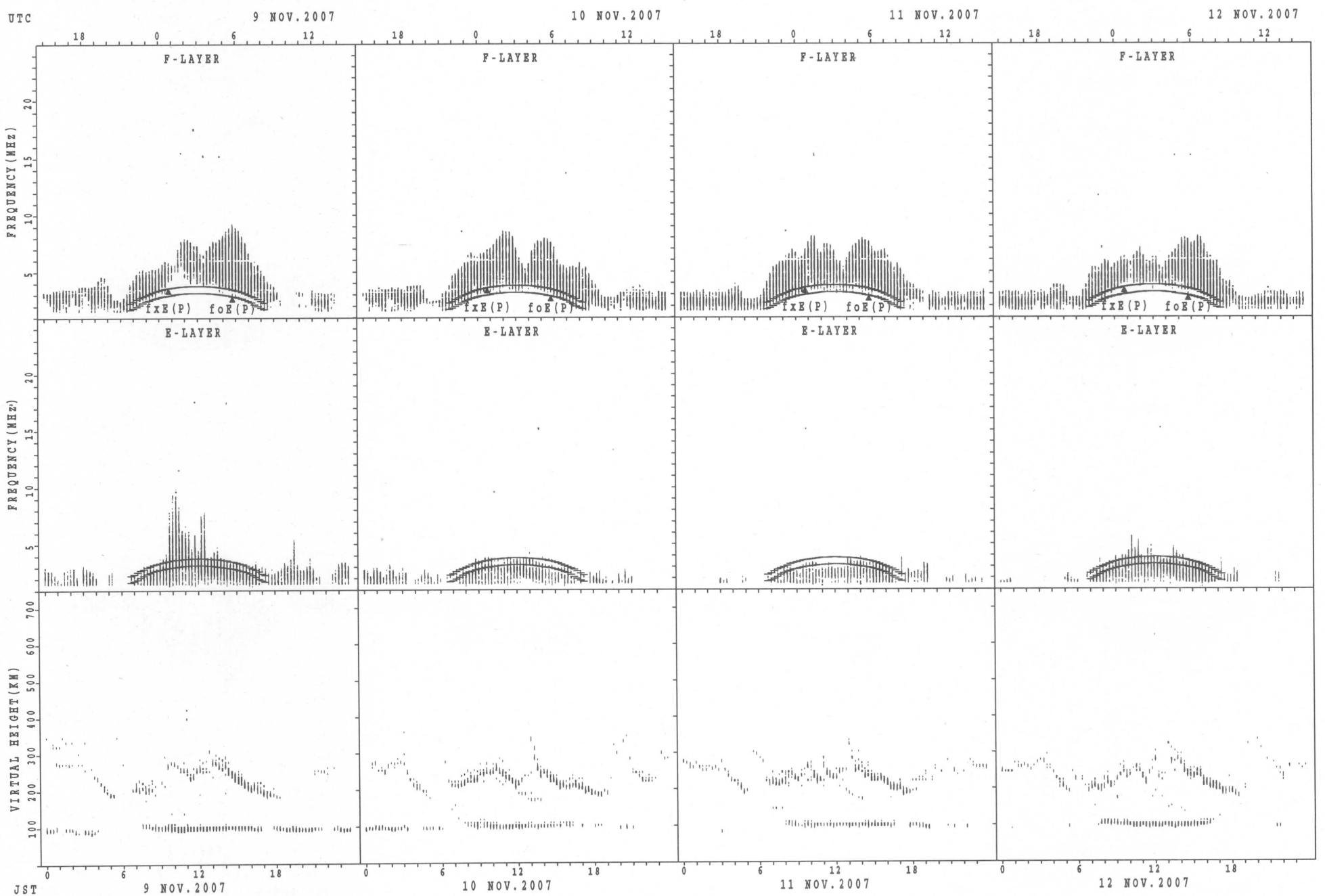


fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

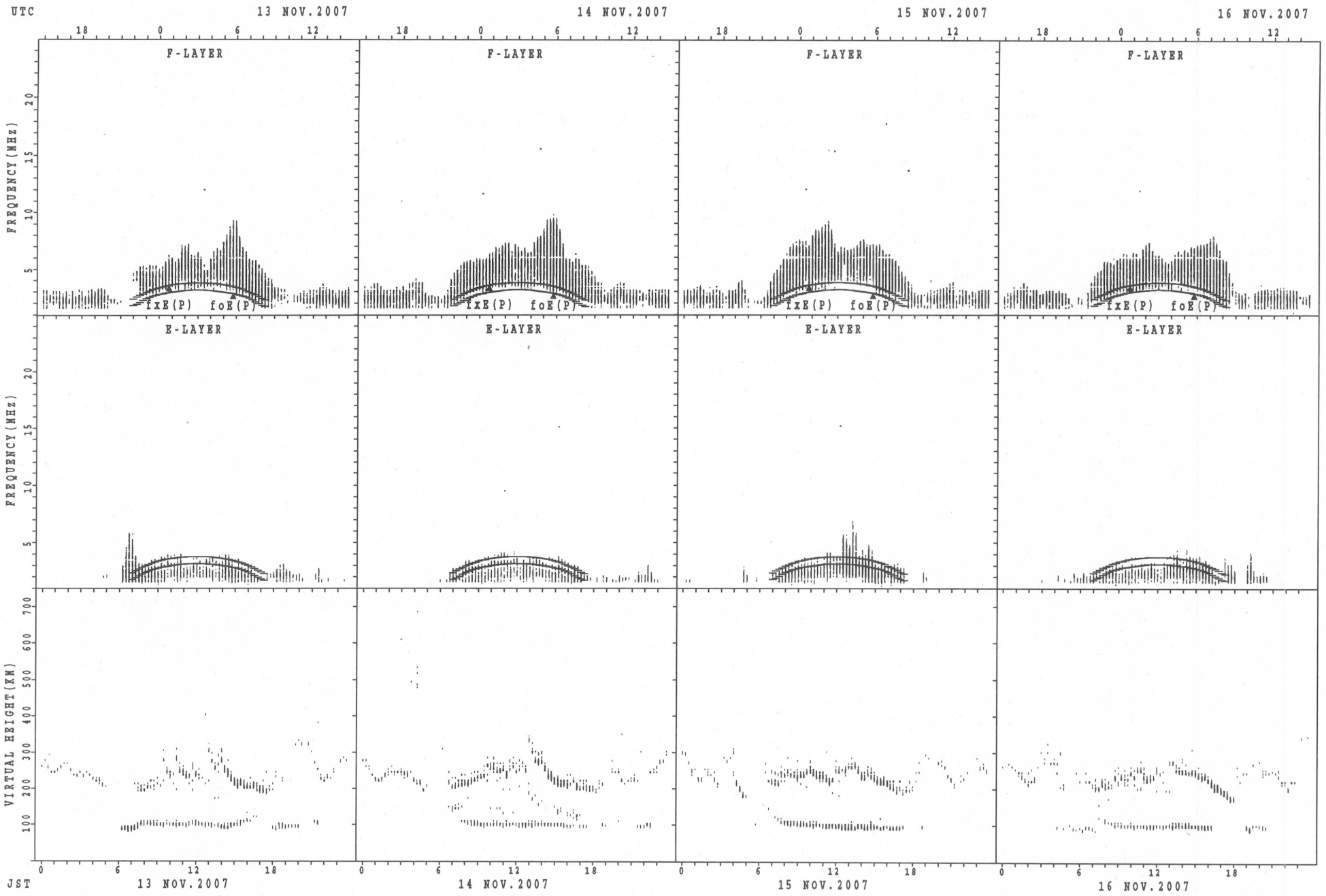
SUMMARY PLOTS AT Yamagawa



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

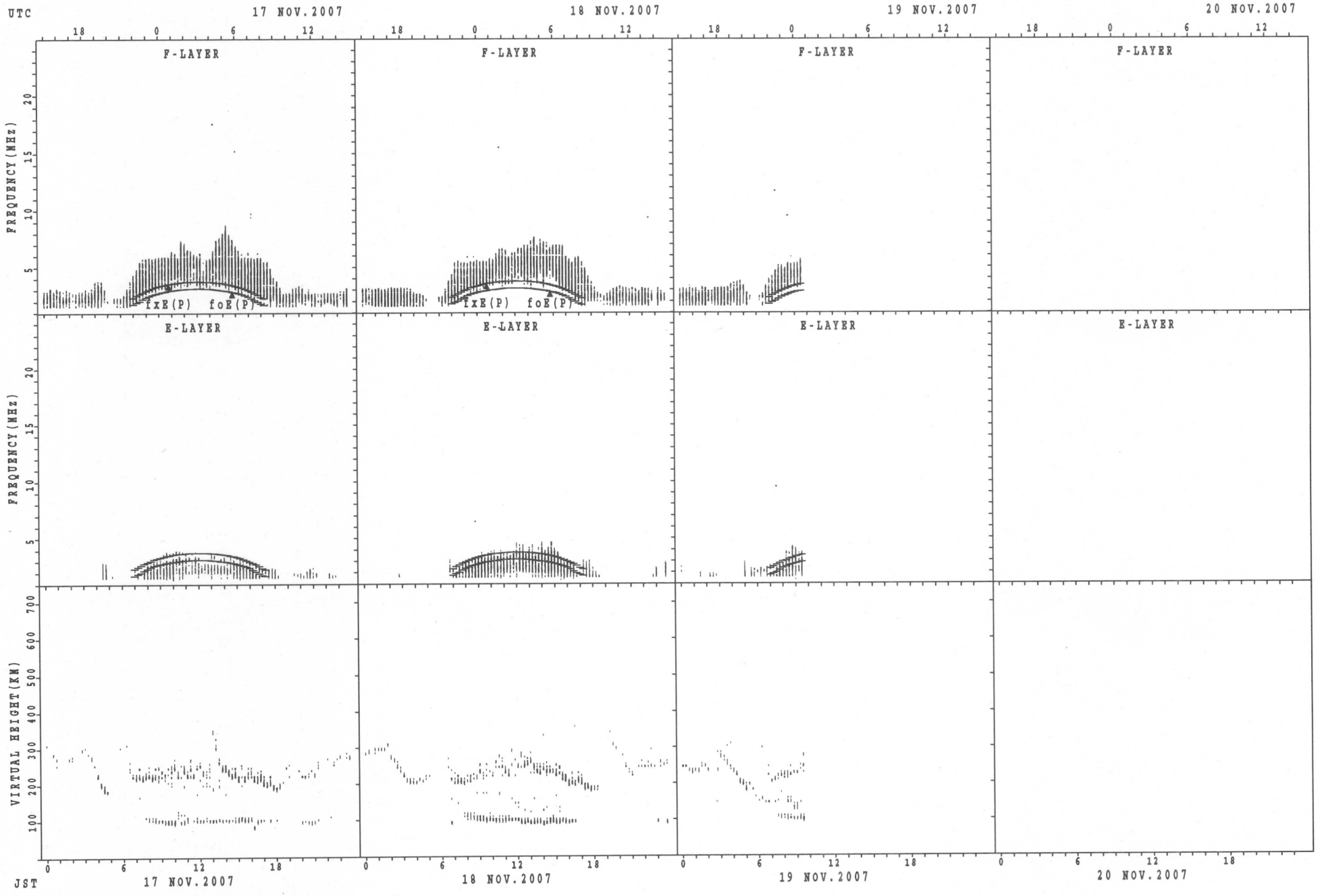

SUMMARY PLOTS AT Yamagawa
UTC
9 NOV.2007
10 NOV.2007
11 NOV.2007
12 NOV.2007
F-LAYER
fxE(P) foE(P)
E-LAYER
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
JST
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



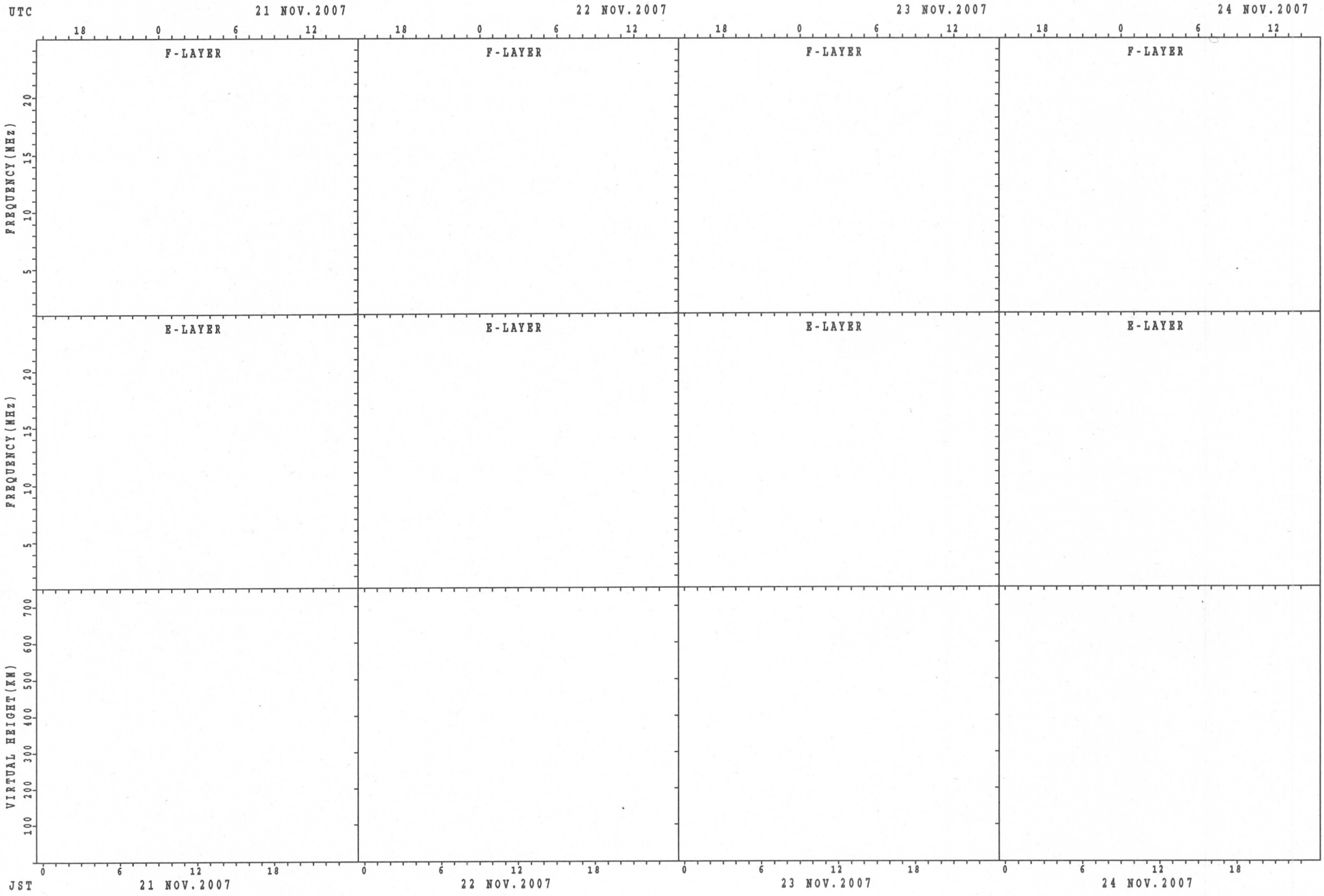
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



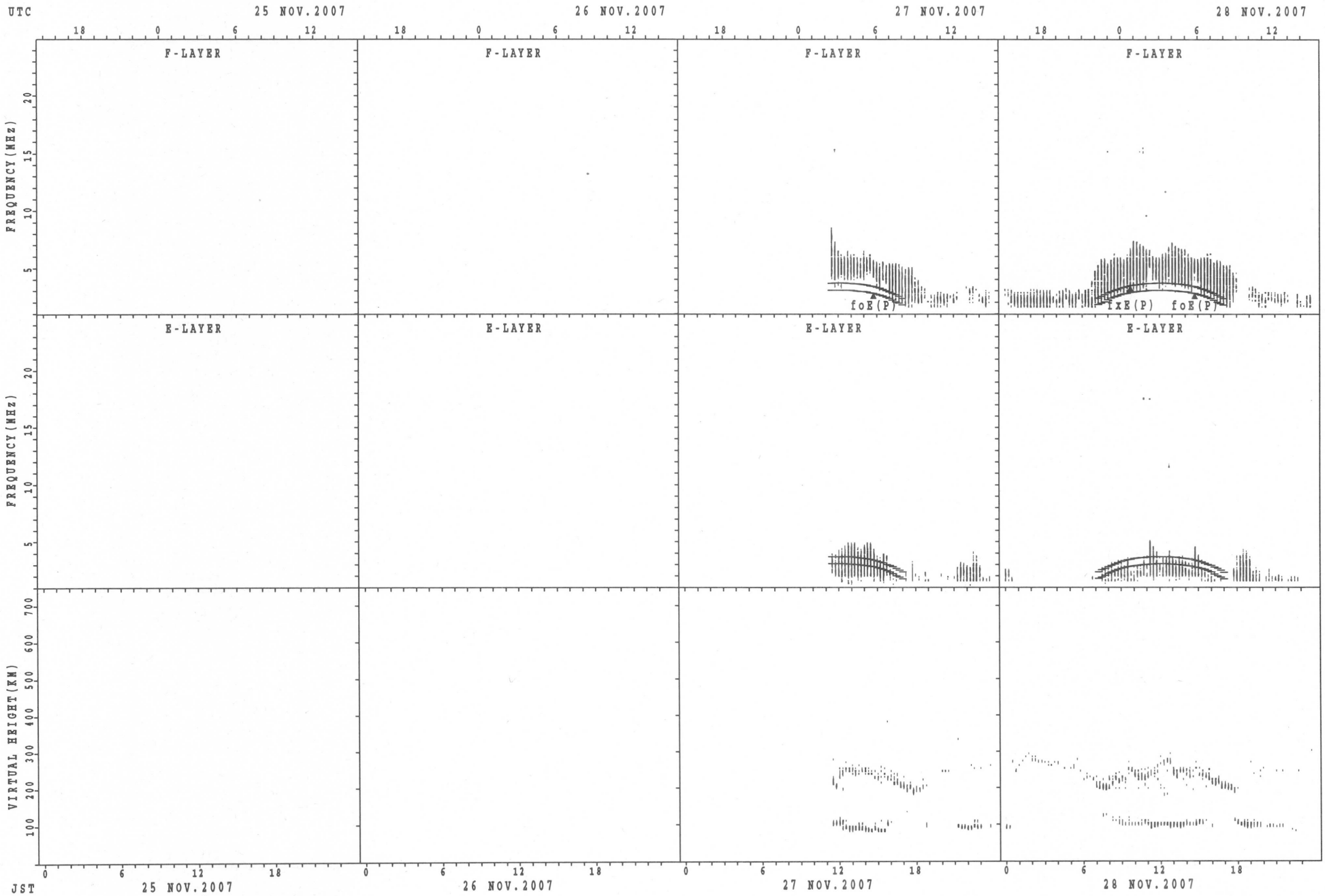
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa

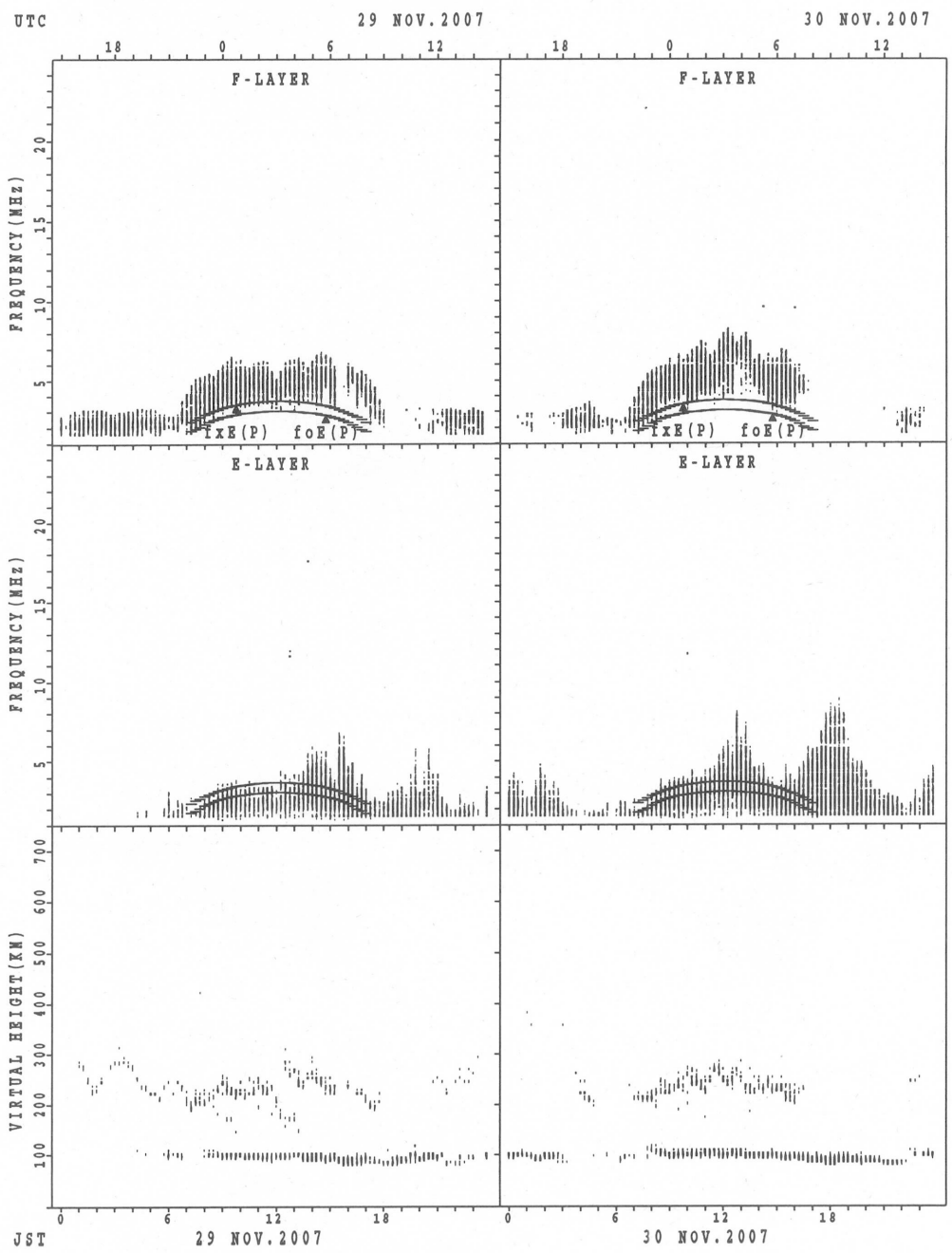


fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

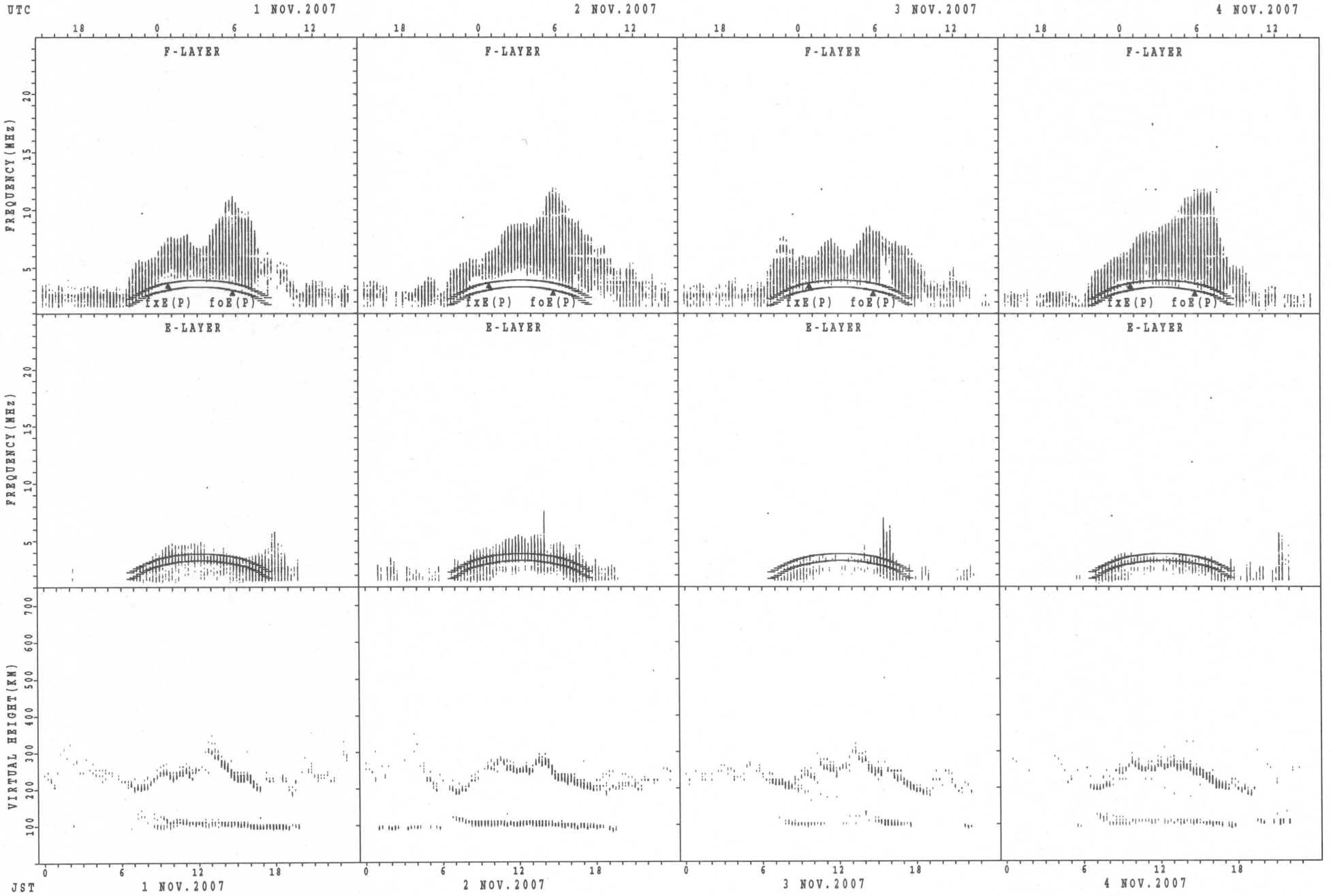
SUMMARY PLOTS AT Yamagawa



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

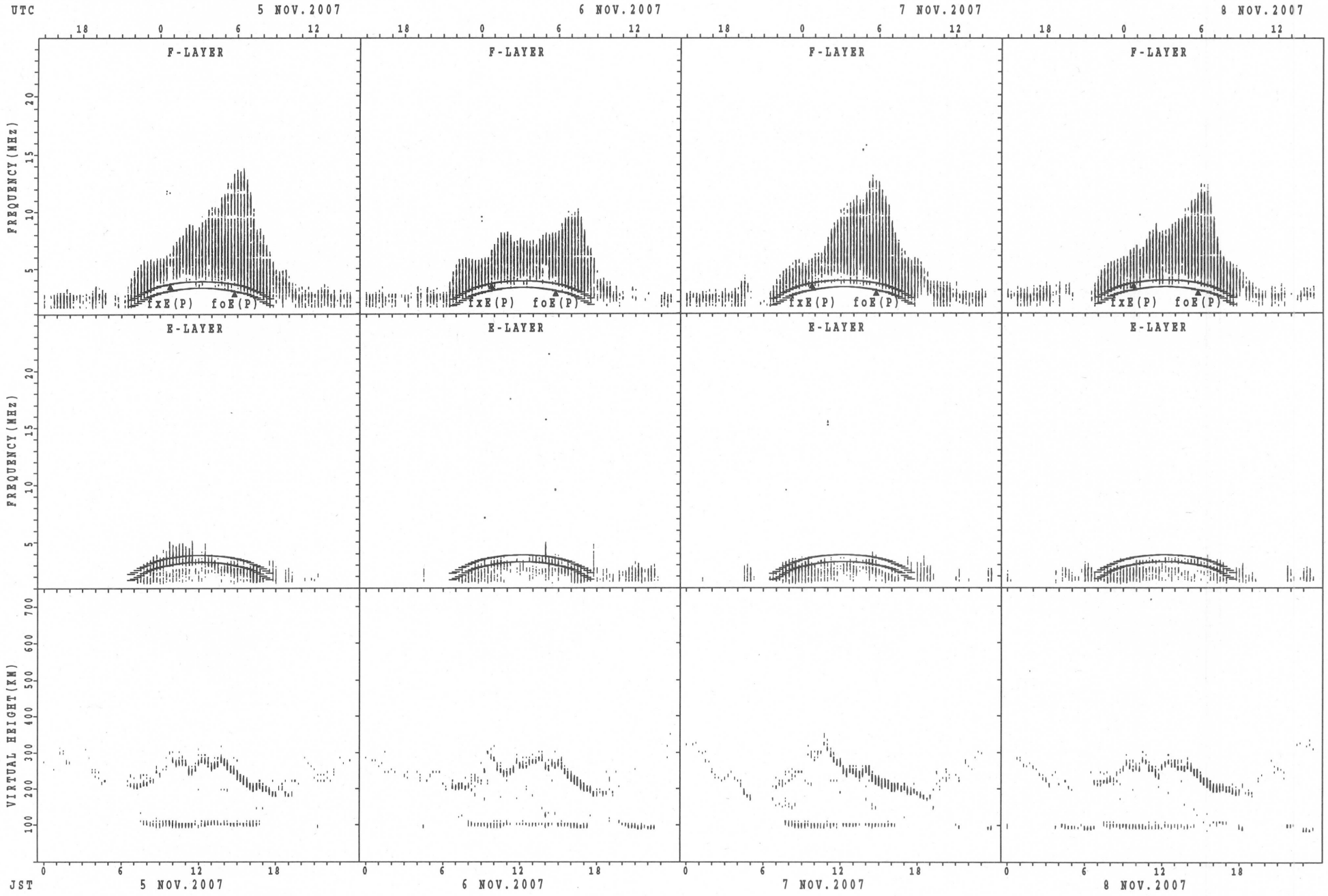

SUMMARY PLOTS AT Yamagawa
UTC
29 NOV.2007
30 NOV.2007
18
0
6
12
F-LAYER
FREQUENCY(MHz)
fxE(P)
foE(P)
E-LAYER
VIRTUAL HEIGHT(KM)
JST
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



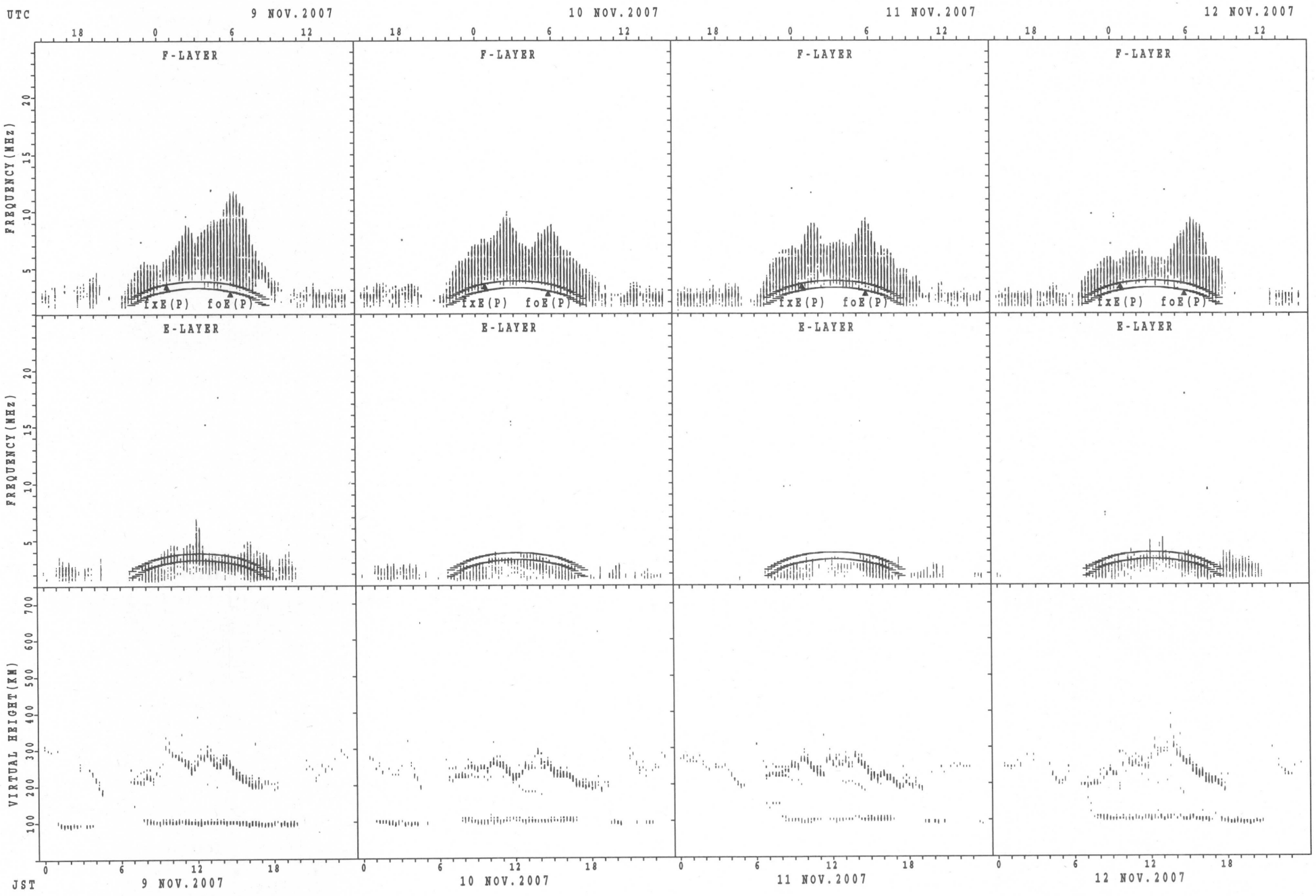
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



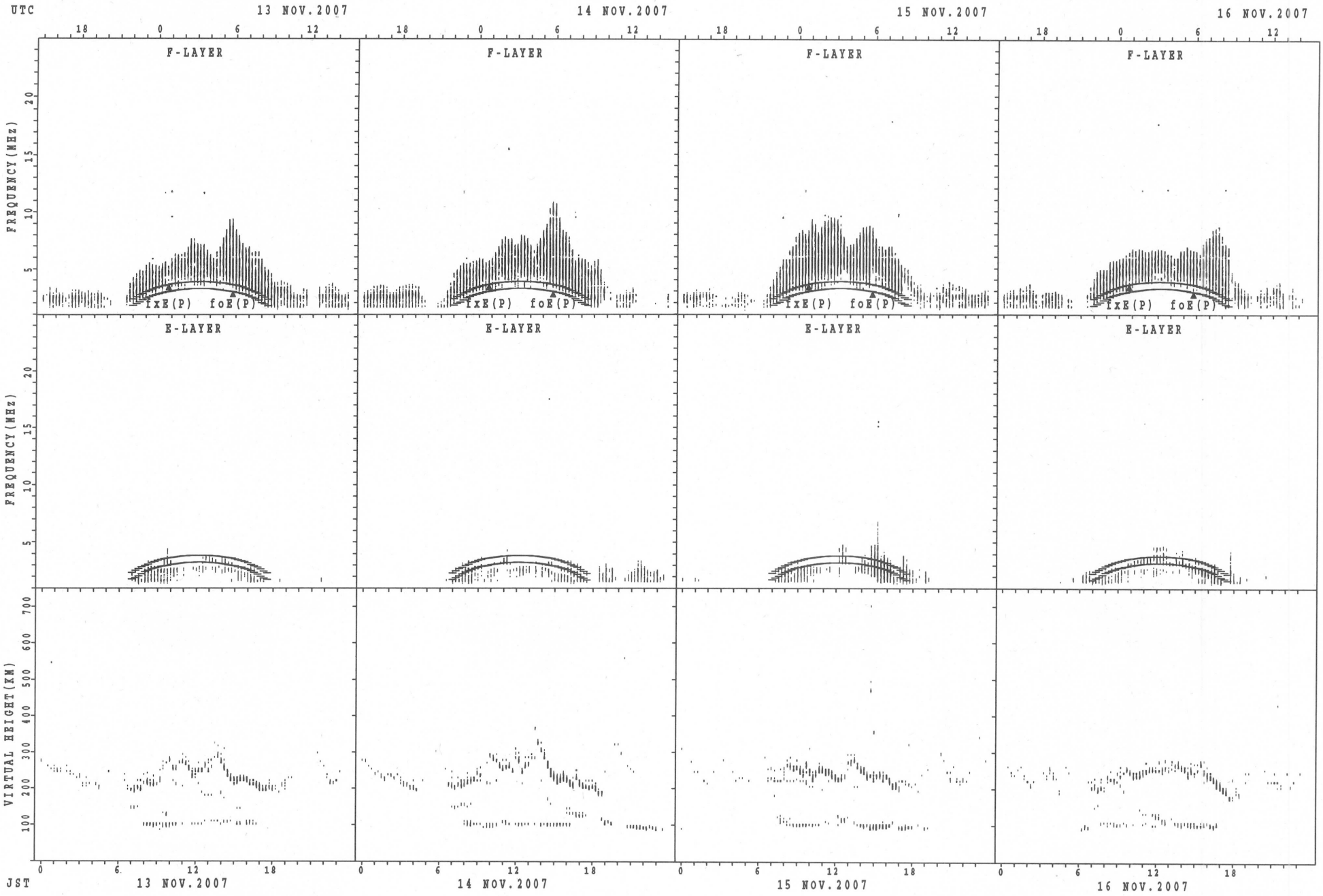
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



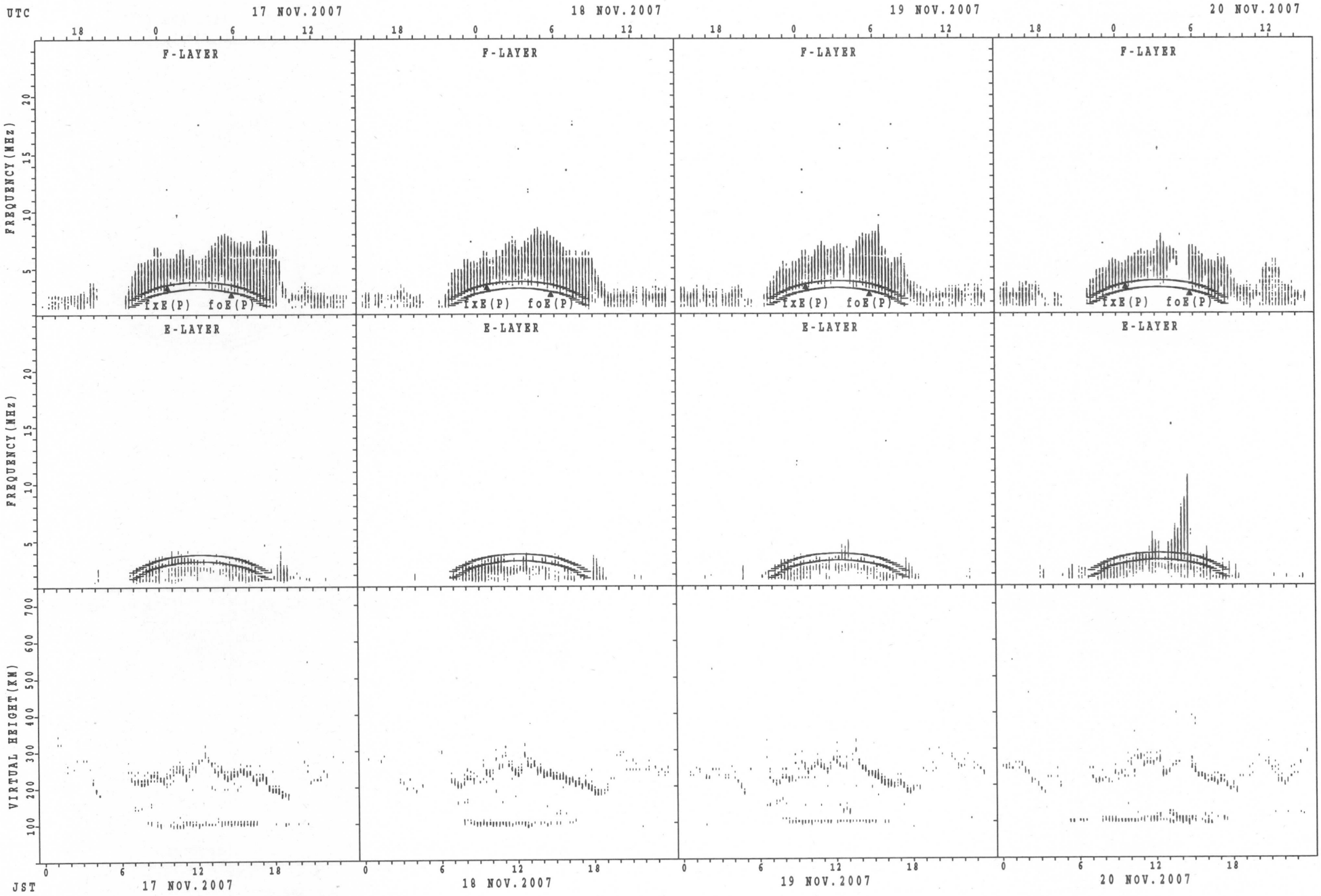
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



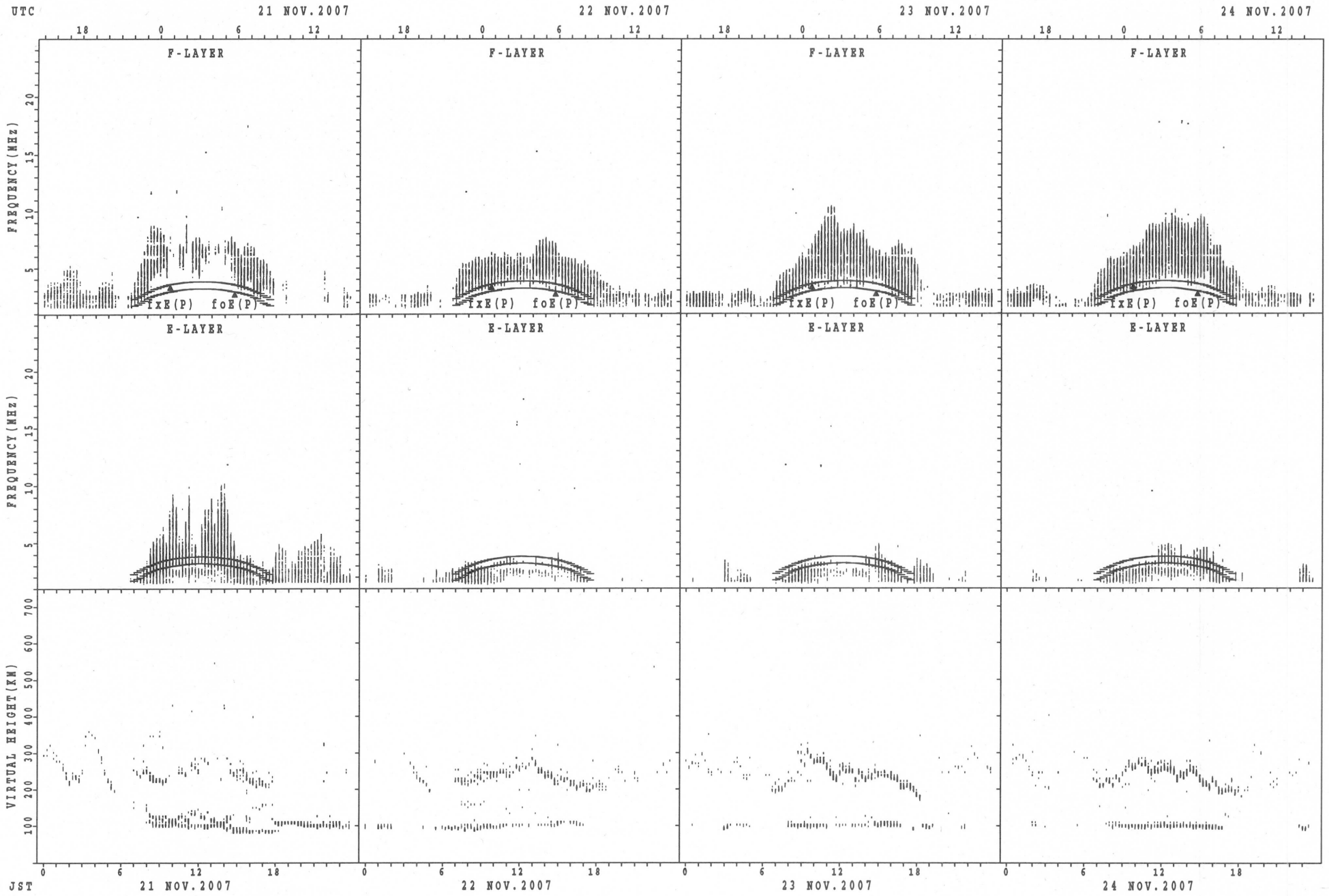
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



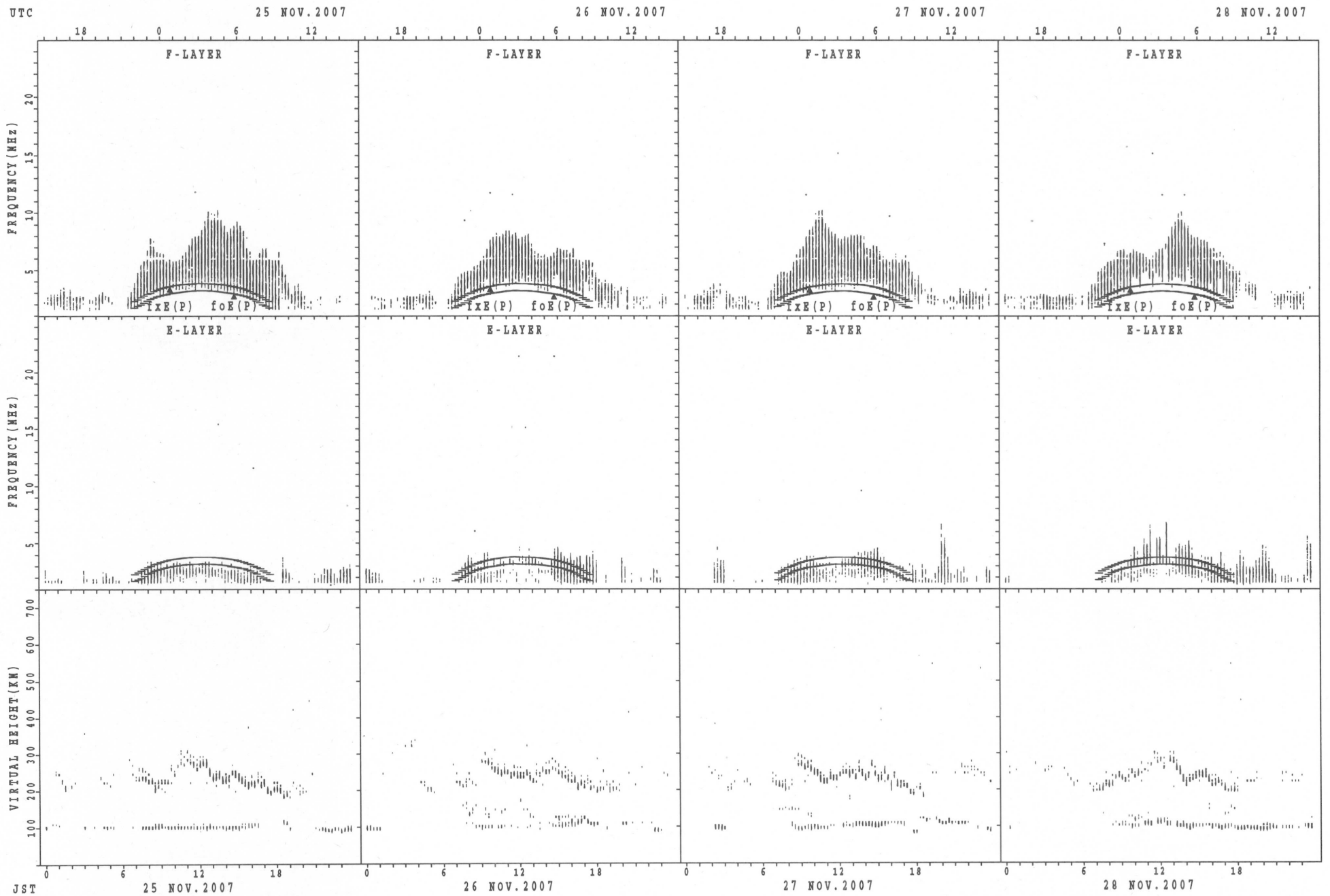
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



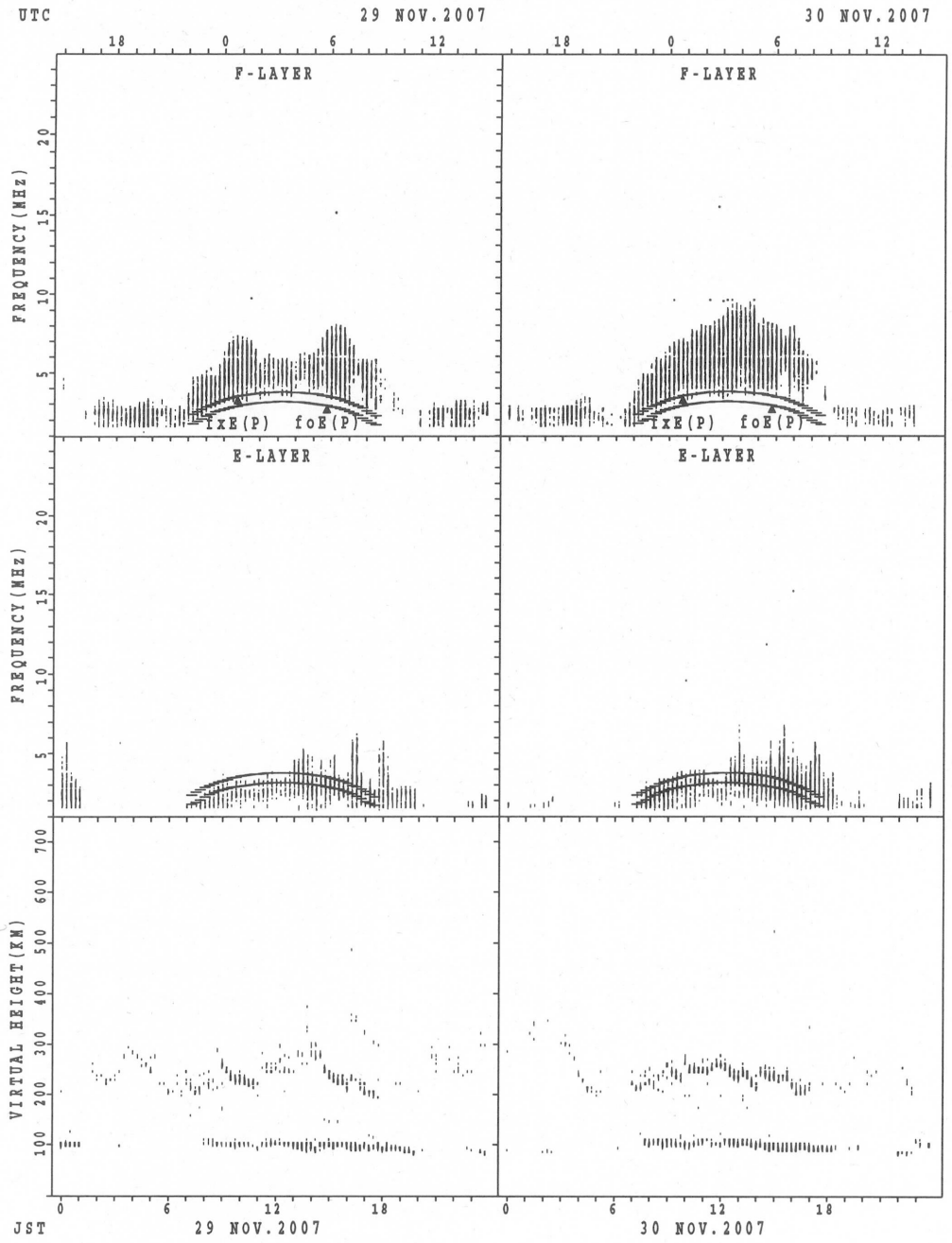
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

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.2007 135E MEAN TIME(UTC+9H) AUTOMATIC SCALING

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

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								1	9	15	13	18	20	14	5	4	1							
MED								226	232	232	232	246	227	244	240	240	228							
U Q								113	241	240	248	258	232	254	257	241	114							
L Q								113	226	224	222	236	213	230	238	239	114							

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	8	12	11	7	6	3	5	9	18	20	19	15	9	14	6	11	15	17	13	13	16	11	10	11
MED	97	95	93	95	92	93	113	119	107	103	101	97	93	92	111	95	97	97	99	97	101	99	99	97
U Q	102	97	97	97	95	95	168	127	113	107	103	103	95	99	155	117	103	103	104	102	103	105	105	105
L Q	95	92	91	93	89	87	99	103	105	100	97	93	89	89	105	89	89	91	93	90	97	95	97	95

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									5	12	7			4	18	13	1							
MED									226	255	244			253	239	232	226							
U Q									253	272	264			261	252	244	113							
L Q									218	236	234			230	234	218	113							

h'Es

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	7	3	10	8	9	8	2	11	15	7	11	10	10	8	9	12	15	9	8	7	11	14	8	8
MED	97	97	96	95	93	97	91	119	113	105	105	100	100	95	97	95	95	97	100	101	99	97	94	97
U Q	101	107	97	95	96	139	91	149	151	107	107	105	105	101	100	109	101	174	121	105	103	101	95	98
L Q	95	93	91	90	91	95	91	111	103	101	99	99	95	95	94	93	95	94	97	95	95	95	92	93

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	3	3				6	18	11							
MED									220	248	250				259	225	220							
U Q									110	252	276				262	240	222							
L Q									110	238	236				256	222	214							

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	3	5	5	3	3	1	10	10	14	8	6	11	13	12	11	12	11	13	9	10	8	7	10
MED	95	97	95	93	93	97	101	143	112	106	103	103	105	105	103	103	104	99	103	95	95	96	95	95
U Q	95	101	99	100	95	99	50	157	131	113	105	105	139	111	106	107	122	107	108	97	97	99	99	97
L Q	87	97	93	91	91	91	50	105	109	103	102	103	103	97	100	99	99	95	95	94	95	95	93	93

MONTHLY MEDIANS OF h'F AND h'Es

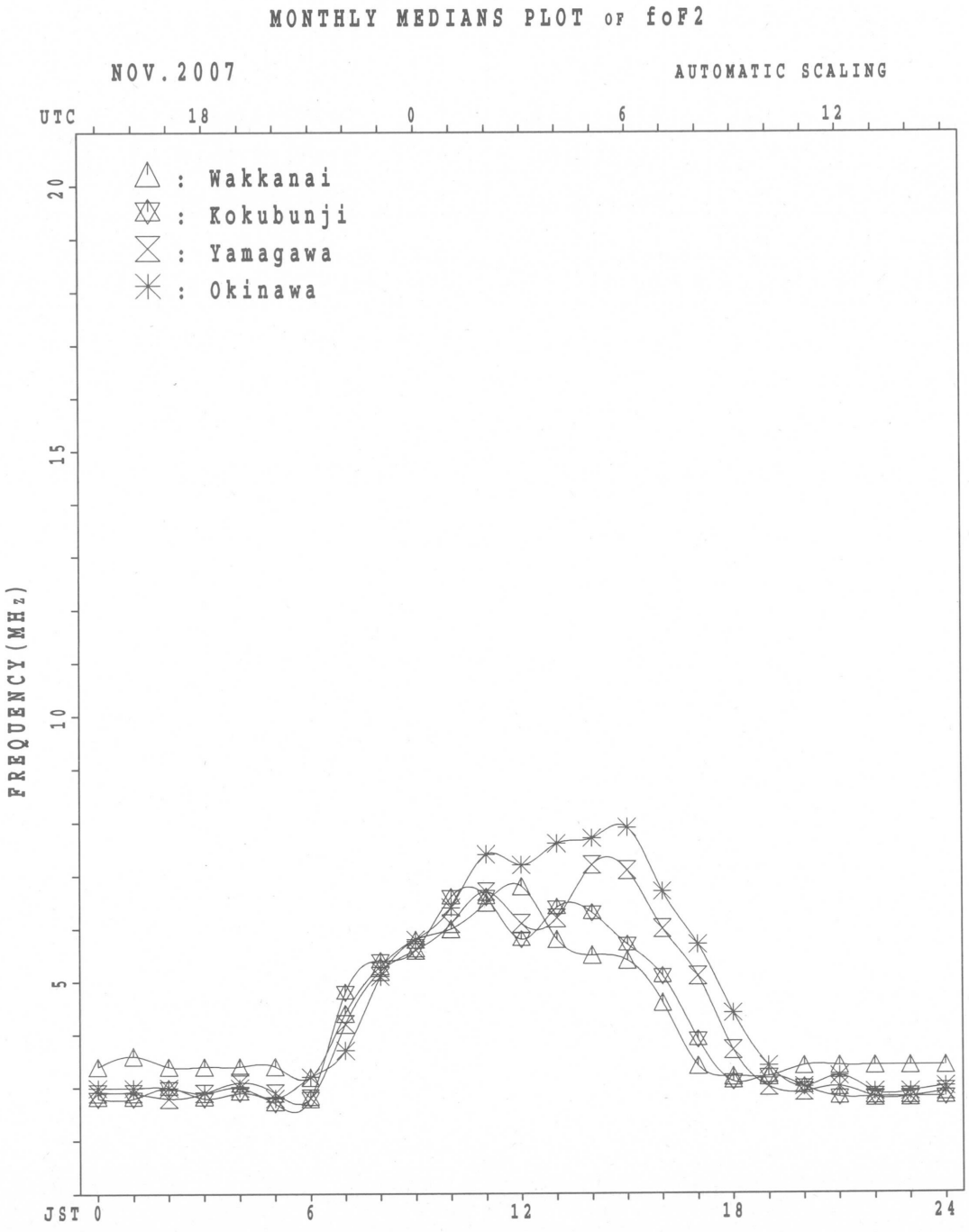
NOV.2007 135E MEAN TIME(UTC+9H) AUTOMATIC SCALING

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	10					28	22	8	1					
MED									248	240	257					232	223	220	214					
U Q									256	260	280					245	238	230	107					
L Q									202	232	248					226	216	207	107					

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	5	4	3	2	2	7	14	11	9	10	10	13	16	16	17	13	14	14	8	5	8	6
MED	101	100	97	99	97	137	101	137	135	107	111	109	111	107	105	103	101	103	97	98	105	97	96	93
U Q	103	103	103	103	105	177	107	151	155	121	116	113	129	124	110	105	105	125	101	113	110	118	102	97
L Q	98	97	94	96	95	97	95	121	107	105	106	103	105	104	103	103	97	97	95	95	97	96	95	91


MONTHLY MEDIANS PLOT OF foF2
NOV. 2007
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. 2007 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	X 38	X 36	X 37	X 36	X 35	X 35													A	X 40	X 44	X 36	37	X 38
2	41	X 36	X 36	X 34	X 34	X 32													X 46	X 41	A	X 34	X 33	X 35
3	X 34	X 36	X 36	X 35	X 33	X 29													X 42	X 36	X 41	X 40	X 36	X 34
4	X 33	X 35	X 32	X 32	X 34	X 28	X 42												X 38	X 40	X 31	X 31	X 32	X 33
5	X 34	X 34	X 32	X 33	X 32	X 33	X 35											X 50	X 41	X 32	X 34	X 34	X 35	X 36
6	X 36	X 35	X 36	X 34	X 33	X 30	X 38											X 49	X 36	X 40	X 36	X 32	X 32	X 34
7	X 34	X 35	X 36	X 33	X 36	X 32	X 35											X 44	X 32	X 32	X 34	X 34	X 32	X 34
8	34	X 34	X 33	X 33	X 34	X 30	X 34											X 50	X 30	X 39	X 34	X 32	A	X 32
9	X 35	A	X 35	X 34	X 38	X 32	X 33											X 43	X 33	X 36	X 38	X 37	X 36	X 38
10	X 40	X 39	X 39	X 40	X 40	X 34	X 36											X 48	X 31	X 34	X 35	X 38	X 36	X 35
11	X 36	X 37	X 39	X 38	X 37	X 33	X 37											X 52	X 35	X 36	X 31	X 32	X 35	X 36
12	X 35	X 34	X 35	X 34	X 37	X 30	X 34											X 48	X 32	X 30	X 34	X 36	X 36	X 35
13	X 35	X 35	X 35	X 32	X 35	A	X 32											X 40	X 33	X 34	X 35	X 38	X 38	X 38
14	X 40	X 36	X 36	X 38	X 41	X 30	X 32											X 49	X 33	X 40	X 43	X 30	X 33	X 37
15	X 39	X 35	X 36	X 35	X 36	X 32	X 32											X 37	X 32	X 35	X 38	X 34	X 34	X 34
16	X 37	X 36	X 35	X 34	X 34	X 28	X 33											X 46	X 31	X 31	X 36	X 36	X 36	X 33
17	X 34	X 34	X 33	X 33	X 36	X 26	X 30											X 46	X 34	X 39	X 39	X 29	X 32	X 32
18	X 31	X 31	X 32	X 33	X 31	A	X 30											X 41	X 25	X 31	X 35	X 33	X 32	X 34
19	X 35	X 32	X 34	X 32	X 35	X 27	X 28											X 39	A	X 28	X 35	X 33	X 35	X 34
20	X 35	X 33	X 34	X 36	X 28	X 24	X 30											X 44	X 35	X 40	X 41	X 36	X 35	X 33
21	X 34	X 40	X 40	X 33	X 37	X 32													X 32	X 39	X 39	X 38	X 38	X 38
22	X 35	X 36	X 33	X 32	X 31	X 30													X 35	X 32	X 30	X 33	X 34	X 36
23	38	X 38	X 37	X 38	42	39	X 33							C	C	C	C	C	C	C	C	C	C	C
24	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
25	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	X 63	X 38	X 35	X 33	X 38	A	X 31
26	X 33	X 33	X 34	37	X 34	X 29	X 27											X 48	X 36	X 34	X 33	X 36	42	X 34
27	41	X 40	43	43	X 39	X 30	X 28											X 47	X 36	X 32	X 30	X 33	X 34	X 35
28	X 34	X 33	X 33	32	X 31	X 29	X 29											X 49	X 38	X 36	X 35	X 35	X 34	X 38
29	X 38	X 36	X 36	40	42	X 32	36											X 42	X 29	X 36	X 40	X 37	X 31	X 32
30	X 32	X 31	X 31	X 32	X 32	X 28	X 28											X 38	X 30	X 33	X 36	X 33	X 35	X 38
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	27	28	28	28	26	23											22	26	28	27	28	26	28
MED	X 35	X 35	X 35	X 34	X 35	X 30	X 33											X 46	X 34	X 36	X 35	X 34	X 35	X 34
U Q	X 38	X 36	X 36	X 36	X 37	X 32	X 35											X 49	X 36	X 39	X 39	X 36	X 36	X 36
L Q	X 34	X 34	X 33	X 33	X 33	X 29	X 30											X 42	X 32	X 32	X 34	X 33	X 33	X 34

NOV. 2007 fxI (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

NOV. 2007 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	32	30	31	30	29	29	39	54	59	60	69	66	62	60	62	54	50	47	A	34	38	30	F	32
2	F	30	30	28	28	25	34	50	52	58	64	83	64	71	83	65	51	51	40	35	A	28	27	29
3	28	30	30	29	27	23	30	54	65	61	70	60	59	63	64	55	51	40	36	30	35	33	30	28
4	27	29	26	26	27	22	36	49	56	56	72	64	59	65	74	61	51	35	32	34	25	24	26	26
5	28	28	26	27	26	26	29	54	61	70	68	66	52	72	64	59	55	43	35	26	28	28	29	30
6	30	29	30	28	26	24	32	56	54	62	69	69	55	63	61	65	54	43	30	34	30	26	26	28
7	28	29	30	26	30	26	29	48	51	58	58	69	56	78	91	75	52	38	26	26	28	28	26	28
8	F	28	27	27	28	24	28	44	62	57	65	60	64	62	67	66	50	44	24	33	28	25	A	26
9	29	A	29	28	32	26	27	46	53	62	67	71	64	62	65	65	51	37	27	29	32	31	30	32
10	34	32	33	34	34	28	30	48	63	55	73	88	52	71	69	51	47	42	25	28	29	32	30	29
11	30	31	33	32	31	27	31	51	59	58	64	63	65	55	62	53	48	46	29	30	25	26	29	30
12	29	29	29	28	30	24	28	48	59	51	68	65	50	64	74	61	54	H 40	26	24	28	30	30	29
13	29	29	29	26	28	A	26	48	50	50	59	64	52	59	73	73	48	34	27	28	29	32	32	32
14	34	30	30	32	35	24	26	47	54	58	60	66	59	68	78	64	55	43	27	34	37	24	27	31
15	33	29	30	28	30	26	26	51	62	67	84	65	65	64	64	58	49	31	26	29	32	28	28	28
16	31	30	29	28	28	21	27	46	53	53	72	57	51	64	68	62	62	40	25	25	30	29	30	27
17	28	28	27	27	30	20	24	45	52	56	74	61	57	75	61	53	54	40	28	33	33	23	26	26
18	25	25	26	27	25	A	24	42	51	50	58	64	61	63	60	62	54	35	18	25	28	26	25	28
19	29	26	28	26	29	21	22	42	46	52	54	51	58	54	62	59	48	H 32	A	22	29	27	29	28
20	29	27	28	30	22	18	24	44	47	56	62	63	54	64	56	54	43	38	29	34	35	30	29	27
21	28	34	34	27	31	26	27	56	67	89	66	58	72	64	65	64	52	32	26	33	33	31	32	32
22	29	30	27	26	25	24	28	45	48	52	59	64	60	63	57	52	48	34	29	26	24	27	28	29
23	F	32	31	32	F	F	27	47	59	67	66	85	84	C	C	C	C	C	C	C	C	C	C	C
24	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
25	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	57	32	29	27	32	A	25
26	27	27	28	F	28	23	20	40	54	69	72	73	62	55	53	H 52	49	42	30	28	27	29	F	28
27	F	34	F	F	33	24	22	46	53	60	83	85	56	55	56	50	44	41	30	26	24	27	28	29
28	28	27	27	F	25	23	23	53	60	56	67	69	65	58	55	52	44	43	32	30	29	29	28	32
29	32	30	30	F	F	26	F	45	48	54	57	59	58	60	54	49	42	36	23	30	34	31	25	26
30	26	25	25	26	26	22	22	46	60	52	70	71	78	77	58	52	44	32	24	27	30	27	29	32
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	27	27	24	26	25	27	28	28	28	28	28	28	27	27	27	27	28	26	28	27	28	24	28
MED	29	29	29	28	28	24	27	48	54	58	67	65	59	63	64	59	50	40	28	29	29	28	28	28
U Q	30	30	30	30	30	26	30	51	60	62	71	70	64	68	69	64	54	43	30	33	33	30	30	30
L Q	28	28	27	26	26	22	24	45	52	54	61	62	56	60	58	52	48	35	26	26	28	26	26	28

NOV. 2007 foF2 (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

NOV. 2007 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									E A		U L 424		L											
2										L	L	E A	E A	L	L									
3									L	L	U L 416	L	L	L										
4									L	L	U L 412	U L 416	L	U L 408	U L 384	L								
5									L	L	L	L	L	U L 388	L									
6									L	L	U L 416	L	L	U L 404	U L 388									
7									L	U L 392	U L 416	U L 408	U L 460	U L 416	L									
8									E A	L	U L 416	E A	U L 408	L	L	E A								
9									L	U L 380	U L 404	L	L	L	L									
10									L		U L 420	U L 412	L	U L 384										
11									L	L	L	L	L	L	U L 364	L								
12										L	U L 400	L	U L 432	U L 376										
13										L	L	U L 420	L	U L 412	L									
14											L	L	L	U L 420	L									
15										L	L	L	U L 400	L	L									
16											L	L	L	U L 408	U L 364									
17										L	L	L	L	L										
18										L	E A	L	U L 432											
19										L	L	L	U L 412	L	U L 384									
20										E A		U L 404	U L 408	E A	L									
21									L	L	E A	L	U L 420	L	E A									
22										L	L	U L 404	L	L	L									
23										L	U L 420	U L 420	L	C	C	C	C							
24								C	C	C	C	C	C	C	C	C	C							
25								C	C	C	C	C	C	C	C	C	C							
26										L	L	U L 416	L	L										
27									L	L	L	L	L		L									
28										L	L	L	L	L	L									
29										U L 436	E A	U L 404	L	E A										
30										E A	U L 400	L	E A	E A	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	11	9	8	9	5									
MED										U L 392	U L 416	U L 412	U L 416	U L 408	U L 384									
U Q										U L 436	U L 420	U L 418	U L 432	U L 414	U L 386									
L Q										U L 380	U L 404	U L 404	U L 408	U L 386	U L 364									

NOV. 2007 foF1 (0.01MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

NOV. 2007 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							B	216	A	A	A	A	A	A	A	A	A	B						
2							B	U A 212	A	A	A	A	A	A	A	R 244	A	B						
3							B	U A 188	U R 260	R	A	R	308	R	R	240	A	B						
4								216	A	R	R	A	A	A	R	A	A	B						
5								228	A	R	A	R	A	R	A	236	A							
6								192	244	U R 284	U R 304	R	R	R	300	A	U A 176							
7								200	A	A	296	U R 320	A	304	U A 276	A	U R 200							
8								192	A	A	R	A	A	A	A	228	B							
9								208	A	A	316	A	R	A	A	A	168							
10								192	256	R	A	A	A	R	R	224	172							
11								192	A	A	A	A	316	U R 296	R	228	B							
12								188	A	U R 284	A	A	R	R	R	232	192							
13								188	U R 248	A	A	A	A	R	A	U R 236	A							
14								176	240	288	R	A	308	R	R	240	B							
15								B	R	R	R	A	A	A	A	A	A							
16								168	U R 248	R	A	A	A	U R 308	U R 280	A	A							
17								B	A	A	U R 296	U A 296	A	A	U A 248	U R 244	B							
18								200	248	A	A	U R 308	A	A	256	232	A							
19								188	A	A	A	A	A	A	256	A	B							
20								180	U R 252	U A 280	A	R	A	A	U A 268	A	A							
21							B	188	R	264	A	R	R	A	A	A	A	B						
22							B	B	220	U A 252	A	R	R	A	252	U A 208	A	B						
23								184	236	A	A	A	A	C	C	C	C							
24								C	C	C	C	C	C	C	C	C	C							
25								C	C	C	C	C	C	C	C	C	C							
26								B	232	U R 288	A	R	R	A	A	A	B							
27								B	A	R	A	A	R	R	A	A	B							
28								B	A	A	A	A	A	R	A	A	A							
29								A	A	A	A	A	304	312	U A 252	U A 232	A							
30								176	A	A	A	A	A	A	A	228	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								21	11	7	4	3	4	4	9	14	5							
MED								192	248	U 284	300	U R 308	308	306	U 256	232	176							
U Q								204	U R 252	288	310	U R 320	312	310	U 278	240	196							
L Q								186	236	264	296	U A 296	306	300	U A 252	228	170							

NOV. 2007 foE (0.01MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

NOV. 2007 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	19	E B 15	E B 15	E B 13	E B 15	E B 14	E B 15	24	32	33	37	37	38	36	34	30	28	J A 35	J A 75	J A 30	E B 15	J A 20	E B 14	J A 20
2	E B 14	E B 15	J A J A 31	J A J A 26	J A J A 23	J A 20	20	24	32	43	36	J A 42	J A J A 58	J A 38	J A 34	J A 26	J A J A 31	J A 26	J A 41	J A J A 38	J A J A 40	J A 24	J A 19	J A 30
3	J A 23	23	E B 14	E B E B 15	E B E B 15	15	19	25	G 23	G 25	34	G 26	38	G 24	G	27	J A J A 22	J A 22	J A 23	J A E B 15	E B E B 16	J A 32	J A 19	J A 21
4	J A J A 20	J A 18	E B 15	E B E B 15	E B E B 14	E B 16	E B 16	G 20	30	G 24	G 28	J A 48	J A 42	34	G 25	J A 28	J A J A 32	24	E B 15	E B 15	E B 15	E B 15	J A 24	J A 23
5	J A 19	E B 16	E B 15	J A 23	20	E B 16	E B 14	25	30	G 22	35	G 23	J A 40	G 27	J A 34	26	J A 25	J A 16	J A 22	J A 23	22	J A 20	26	J A 22
6	J A 17	J A J A 19	J A 23	19	E B 14	22	E B 15	G	29	G 21	G 23	G 19	G 24	G 20	33	30	28	J A 17	20	E B 15	J A J A 19	23	19	J A 26
7	18	E B 15	19	E B 15	E B E B 15	15	E B 14	G	30	31	34	G 25	35	36	33	33	J G 20	E B 14	E B E B 15	E B 15	E B J A 23	J A 27	J A 33	J A 24
8	J A 18	E B 15	J A 20	E B 15	19	J A 20	18	23	J A 39	J A 40	G 26	J A 72	34	36	J A 46	31	26	E B 16	J A 20	J A 29	J A 28	J A 21	J A 35	J A 36
9	J A 18	J A 44	J A 33	J A 32	20	19	E B 15	24	31	30	36	35	G 27	J A 33	J A 36	J A 40	20	E B 15	19	20	21	J A 20	20	18
10	J A 20	J A 16	J A 22	J A 28	J A 22	J A 21	E B 14	23	30	G 20	J A 33	37	J A 36	G 22	G 26	25	20	J A 17	19	J A 31	J A J A 24	30	20	E B 15
11	E B 15	E B 15	J A E B 28	15	J A 18	20	E B 15	25	30	32	34	33	36	G 23	G 22	27	22	E B 15	J A J A 21	J A 20	J A J A 30	26	J A 23	E B 16
12	J A 24	J A 22	J A 21	J A J A 39	J A J A 21	23	J A 20	22	27	G 26	33	38	G 26	G 24	G 22	27	20	E B 14	J A 19	24	28	19	J A 21	E B 15
13	E B 16	20	E B 15	J A 30	21	J A 28	J A 20	24	G 23	J A 34	J A 38	J A 39	34	G 29	J A 38	28	J A 23	E B 16	J A 18	20	E B 15	E B 15	E B 15	E B 15
14	E B 15	19	E B 15	20	E B 15	E B 15	E B 15	23	30	32	G 23	34	35	G 20	G 24	G 23	21	E B 15	E B 15	E B 15	E B 15	E B 15	J A 23	22
15	J A 23	J A 21	J A 21	21	21	J A 20	J A 19	22	G	G 20	G 28	31	J A 41	J A 33	J A 36	J A 32	21	J A 23	J A 22	20	18	E B 14	E B 15	E B 15
16	E B 16	19	J A 30	21	21	J A 18	J A 17	G	G 19	G 24	34	J A 39	J A 39	G 26	J A 34	J A 30	J A 32	E B 15	E B 15	E B 15	E B 15	J A 24	E B 14	20
17	E B 15	19	E B 15	J A 18	E B 15	J A 20	E B 15	20	29	32	G 24	34	35	34	31	G 20	E B 16	20	19	20	21	J A 20	J A 20	18
18	19	E B 16	E B 15	E B 15	19	J A 24	20	26	28	33	J A 45	G 28	J A J A 37	39	31	27	J A 31	E B 14	E B 14	J A 20	18	E B 15	19	19
19	E B 14	E B 14	E B E B 15	15	E B E B 15	15	E B 15	22	27	J A 33	J A 34	33	J A J A 44	44	31	30	20	E B 15	J A J A 28	18	21	E B 15	E B E B 15	E B 14
20	E B 15	E B 15	E B 14	E B 15	E B E B 14	E B 14	E B 15	22	G 20	42	34	G 28	J A 45	36	31	33	J A 35	J A E B 22	E B 16	15	E B 15	E B 15	19	19
21	18	E B 15	E B 15	E B 15	E B E B 15	E B 14	E B 15	23	G 20	31	J A 56	G 28	G J A 27	31	J A 34	J A 31	J A J A 37	26	J A 17	J A 20	J A E B 26	15	21	21
22	20	22	20	19	J A 23	19	E B 16	24	26	30	33	G 21	G 26	34	31	28	24	J A 19	E B 15	E B 15	E B 16	21	20	J A 25
23	E B 15	20	18	E B 16	J A 21	J A 17	E B 16	23	28	34	33	35	32	C	C	C	C	C	C	C	C	C	C	C
24	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
25	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	E C 35	J A 22	E B 15	J A 17	20	J A 36	J A 22
26	J A 18	E B 15	E B 15	E B 15	J A E B 21	15	20	24	30	G 25	J A 49	G 26	G J A 24	33	J A 40	25	23	J A 18	J A 19	E B 15	J A 19	J A 20	J A 20	E B 15
27	J A 24	23	J A 28	J A 22	J A J A 24	23	20	21	26	G 28	J A 52	J A 34	G 27	G 25	34	27	E B 20	E B E B 14	E B 15	22	J A 42	J A 51	E B 15	20
28	18	20	E B 15	E B 15	J A 22	18	E B 14	21	28	32	33	J A 40	J A 35	G 26	28	24	J A 28	J A 16	J A 21	20	J A 25	E B 15	E B 15	E B 15
29	E B 15	E B 15	E B 14	E B 15	20	J A 17	E B 14	J A 31	J A 27	J A 33	J A 42	J A 35	36	36	34	28	J A 30	J A 19	E B 15	J A 20	J A 29	J A 21	J A 23	J A 20
30	J A 18	22	J A 21	J A 33	J A 23	J A 18	J A 21	J A 20	28	J A 74	J A 42	J A 44	J A 46	J A 55	J A 46	27	E B 16	E B E B 15	E B 15	22	20	20	19	19
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	28	28	28	28	28	28	28	28	28	28	28	27	27	27	27	28	28	28	28	28	28	28
MED	18	18	16	17	20	18	E B 16	23	28	32	34	34	36	33	33	28	23	16	19	20	20	J A 20	20	20
U Q	J A 20	20	J A 22	J A 22	J A J A 21	20	20	24	30	J A 33	J A 38	J A 38	J A 40	J A 36	J A 34	J A 30	J A 30	J A 22	J A 22	J A 22	J A 26	J A 24	J A 23	J A 22
L Q	E B 15	E B 15	E B 15	E B 15	E B E B 15	E B 15	E B 15	21	G 26	G 25	G 33	G 28	G 30	G 25	G 28	26	20	E B 15	E B 15	E B 15	E B 16	E B 15	E B 16	E B 16

NOV. 2007 foEs (0.1MHz)

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IONOSPHERIC DATA STATION Kokubunji

NOV. 2007 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	E B 16	E B 15	E B 15	E B 13	E B 15	E B 14	E B 15	22	30	31	34	35	34	34	30	29	26	22	A A 75	20	E B 15	17	E B 14	E B 15
2	E B 14	E B 15	20	E B 16	17	E B 16	E B 15	22	29	35	35	38	40	32	30	G 20	19	20	30	31	A A 40	17	E B 15	18
3	20	18	E B 14	E B 15	E B 15	E B 15	E B 15	22	G 23	G 24	32	G 26	37	G 24	G	27	19	18	E B 15	E B 15	E B 16	16	E B 15	18
4	16	E B 14	E B 15	E B 15	E B 14	E B 16	E B 16	G 20	29	G 24	G 28	32	34	32	G 21	25	23	20	E B 15	E B 15	E B 15	E B 15	17	E B 15
5	E B 16	E B 16	E B 15	19	E B 15	E B 16	E B 14	23	28	G 20	32	G 23	31	G 24	30	25	22	E B 15	E B 15	E B 15	E B 15	16	18	21
6	E B 15	E B 14	E B 15	E B 15	E B 14	E B 15	E B 15	G	27	G 20	G 23	G 18	G 24	G 20	32	30	27	E B 15	E B 16	E B 15	E B 15	19	16	20
7	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	E B 14	G	26	30	31	G 25	30	34	32	28	G 17	E B 14	E B 15	E B 15	16	18	18	E B 15
8	E B 15	E B 15	E B 15	E B 15	E B 15	18	E B 15	20	35	30	G 26	38	34	33	32	29	23	E B 16	19	21	23	17	A A 35	17
9	E B 15	A A 44	19	20	E B 14	E B 15	E B 15	23	29	30	34	32	G 26	31	29	29	18	E B 15	E B 16	E B 15	E B 15	E B 15	17	E B 15
10	E B 16	E B 15	16	22	E B 16	16	E B 14	22	28	G 20	30	31	31	G 21	G 25	24	19	E B 15	E B 15	16	21	21	18	E B 15
11	E B 15	E B 15	E B 15	E B 15	16	E B 15	E B 15	22	26	30	30	31	33	G 23	G 20	26	20	E B 15	E B 16	E B 15	19	16	E B 15	E B 16
12	E B 15	E B 16	E B 15	16	17	17	16	20	26	G 25	32	32	G 26	G 23	G 20	26	20	E B 14	E B 15	E B 15	20	E B 15	E B 15	E B 15
13	E B 16	E B 15	E B 15	18	16	A A 28	E B 15	22	G 22	29	32	33	31	G 26	30	G 22	20	E B 16	16	E B 16	E B 15	E B 15	E B 15	E B 15
14	E B 15	E B 16	E B 15	E B 14	E B 15	E B 15	E B 15	22	28	31	G 23	33	33	G 20	G 21	G 22	20	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	E B 16
15	E B 15	16	16	E B 15	E B 15	16	16	20	G	G 19	G 28	30	33	30	28	22	18	18	16	E B 15	E B 15	E B 14	E B 15	E B 15
16	E B 16	E B 15	E B 15	E B 15	E B 16	E B 15	E B 15	G	G 19	G 24	32	35	33	G 26	G 21	25	21	E B 15	E B 15	E B 15	E B 15	16	E B 14	E B 16
17	E B 15	E B 15	E B 15	E B 16	E B 15	E B 15	E B 15	19	26	30	G 23	33	33	G 22	30	G 20	E B 16	E B 15	E B 14	E B 15	E B 15	E B 15	E B 15	E B 15
18	E B 14	E B 16	E B 15	E B 15	E B 15	A A 24	19	22	28	32	39	G 28	31	33	31	25	25	E B 14	E B 14	16	E B 15	E B 15	E B 15	E B 15
19	E B 14	E B 14	E B 15	E B 15	E B 15	E B 15	E B 15	19	25	32	32	32	34	32	30	27	20	E B 15	A A 28	E B 15	16	E B 15	E B 15	E B 14
20	E B 15	E B 15	E B 14	E B 15	E B 14	E B 14	E B 15	21	G 20	39	31	G 26	35	33	29	32	27	E B 15	E B 16	E B 15	E B 15	E B 15	E B 15	E B 15
21	E B 15	E B 15	E B 15	E B 15	E B 15	E B 14	E B 15	20	G 19	29	38	G 28	G 27	29	29	27	29	23	E B 15	E B 15	17	E B 15	E B 15	E B 14
22	E B 14	E B 15	E B 15	E B 15	16	E B 15	E B 16	19	24	28	31	G 20	G 25	31	28	25	21	E B 16	E B 15	E B 15	E B 16	E B 15	E B 15	E B 16
23	E B 15	E B 15	E B 15	E B 16	E B 15	E B 14	E B 16	20	26	32	32	34	31	C	C	C	C	C	C	C	C	C	C	C
24	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
25	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	E C 35	E B 14	E B 15	E B 15	E B 15	A A 36	E B 15
26	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	22	28	G 24	34	G 25	G 24	32	28	25	21	E B 15	E B 15	E B 15	E B 16	16	E B 15	E B 15
27	18	20	16	16	16	16	E B 15	19	25	G 28	32	30	G 27	G 23	30	24	E B 20	E B 14	E B 15	E B 15	E B 15	15	E B 15	E B 15
28	E B 16	E B 16	E B 15	E B 15	16	E B 15	E B 14	20	25	29	30	36	32	G 26	27	22	19	E B 15	E B 15	E B 15	E B 14	E B 15	E B 15	E B 15
29	E B 15	E B 15	E B 14	E B 15	E B 15	E B 15	E B 14	20	26	30	38	32	35	33	31	28	21	E B 15	E B 15	16	22	E B 15	18	E B 15
30	E B 16	E B 16	E B 15	18	16	E B 15	E B 15	G 15	25	40	32	32	40	35	32	26	E B 16	E B 15	E B 15	17	E B 16	E B 15	E B 15	E B 15
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	28	28	28	28	28	28	28	28	28	28	28	27	27	27	27	28	28	28	28	28	28	28
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	32	32	32	30	29	25	20	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15
U Q	E B 16	16	15	16	16	16	E B 15	22	28	31	33	33	34	33	30	28	23	17	16	16	16	16	17	16
L Q	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	G	G 24	G 24	G 30	G 27	G 28	G 23	G	G 24	19	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15

NOV. 2007 fbEs (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

NOV. 2007 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	16	15	15	13	15	14	15	14	14	12	13	16	15	13	14	13	14	15	14	14	15	14	14	15
2	14	15	15	16	15	16	15	13	14	15	14	14	16	17	14	12	14	14	15	14	15	14	15	14
3	14	14	14	15	15	15	15	15	14	13	14	17	18	13	18	14	15	15	15	15	16	16	15	14
4	15	14	15	15	14	16	16	15	14	14	14	14	14	14	14	15	14	15	15	15	15	15	15	15
5	16	16	15	15	15	16	14	16	14	14	14	12	15	15	14	13	14	15	15	14	15	15	16	15
6	15	14	15	15	14	15	15	15	15	12	16	10	18	17	13	14	14	15	16	15	15	14	15	15
7	15	15	15	15	15	15	14	14	15	13	14	13	16	14	14	14	14	14	15	15	16	15	15	15
8	15	15	15	15	15	15	15	14	13	15	14	15	15	13	15	14	16	16	14	16	15	15	15	16
9	15	16	15	14	14	15	15	14	14	13	15	14	13	14	14	15	14	15	16	15	15	15	15	15
10	16	16	15	15	16	14	14	14	12	14	13	13	15	14	14	14	14	15	15	14	15	15	15	15
11	15	15	15	15	14	16	15	14	14	14	14	12	13	13	13	12	15	15	16	15	14	15	16	16
12	15	16	15	14	15	14	15	14	15	15	15	14	15	16	12	13	14	14	15	15	14	15	15	15
13	16	15	15	15	14	13	15	15	14	14	14	13	14	14	14	14	13	16	14	16	15	15	15	15
14	15	16	15	14	15	15	15	14	15	14	13	15	15	14	14	13	14	15	15	15	15	15	15	15
15	15	15	15	15	15	16	14	15	13	15	14	14	13	14	13	15	15	15	14	15	15	14	15	15
16	16	15	15	15	16	15	15	14	13	14	16	14	14	12	15	13	16	15	15	15	15	16	14	16
17	15	15	15	16	15	15	15	16	14	15	15	14	14	14	11	15	16	15	14	16	16	15	15	15
18	14	16	15	15	16	15	15	15	14	14	15	14	13	13	12	13	14	14	14	15	15	15	15	15
19	14	14	15	15	15	15	15	13	14	14	15	14	14	15	13	13	14	15	15	15	16	15	15	14
20	15	15	14	15	14	14	15	14	14	12	14	15	14	15	14	14	14	15	16	15	15	15	15	15
21	15	15	15	15	15	14	15	13	14	14	14	12	14	13	14	14	15	14	15	15	13	15	15	14
22	14	15	15	15	15	15	16	14	14	13	14	14	16	13	14	12	14	16	15	15	16	15	16	15
23	15	16	15	16	14	14	16	14	14	14	18	15	14	C	C	C	C	C	C	C	C	C	C	C
24	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
25	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	E 35	C 14	15	15	15	14	15
26	15	15	15	15	15	15	15	15	15	14	15	15	15	14	14	13	16	15	15	15	16	16	15	15
27	15	16	15	14	15	15	15	15	15	14	15	18	17	18	18	16	20	14	15	15	15	15	15	15
28	16	16	15	15	15	15	14	15	15	15	15	15	14	13	14	14	14	15	15	15	14	15	15	15
29	15	15	14	15	15	15	14	14	14	14	12	13	16	14	14	14	14	15	15	14	16	15	14	16
30	16	16	15	14	15	15	15	13	14	13	15	15	14	16	14	14	16	15	15	14	16	16	15	15
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	28	28	28	28	28	28	28	28	28	28	28	27	27	27	27	28	28	28	28	28	28	28
MED	15	15	15	15	15	15	15	14	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	14	14	15	15	16	15	14	14	15	15	15	15	16	15	15	15
L Q	15	15	15	15	14	14	15	14	14	13	14	13	14	13	13	13	14	15	14	15	15	15	15	15

NOV. 2007 fmin (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

NOV. 2007 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	348	337	336	326	325	338	376	391	395	381	359	373	368	351	365	378	383	366	A	323	353	325	F	332
2	F	357	338	313	344	336	390	395	400	374	348	373	364	348	371	383	385	376	363	338	A	333	316	303
3	335	331	323	325	346	331	364	380	383	383	375	388	359	364	373	371	385	359	380	334	339	353	351	338
4	307	323	321	329	356	329	376	388	390	364	375	368	336	348	365	384	390	376	351	365	388	331	308	311
5	333	361	340	327	339	354	353	381	377	381	372	381	319	368	360	368	388	391	388	333	330	336	317	334
6	311	339	315	326	347	347	367	386	384	378	364	353	380	365	363	362	400	388	354	348	373	333	315	310
7	323	321	341	312	350	386	352	399	395	369	348	370	327	333	355	392	386	401	398	307	357	333	342	313
8	F	343	329	334	336	386	352	409	391	373	374	352	361	344	357	399	403	401	353	352	357	351	A	321
9	315	A	330	337	357	376	337	391	357	373	368	367	346	365	375	382	397	390	358	344	329	337	338	310
10	308	346	326	335	359	325	363	360	366	351	352	387	387	363	381	392	381	372	380	325	348	339	339	320
11	320	323	342	318	361	328	352	380	365	366	360	371	353	358	373	365	369	411	360	388	378	315	319	334
12	307	330	309	322	351	405	355	401	375	400	376	363	342	369	354	388	363	394	H 361	336	309	331	352	333
13	315	310	351	313	397	A	350	387	389	374	353	376	381	350	349	398	399	379	343	313	329	319	307	318
14	333	337	325	320	368	407	351	381	376	357	363	360	343	324	364	375	361	389	323	339	372	358	316	306
15	328	320	329	317	350	378	339	375	361	340	371	367	363	350	374	366	396	379	320	341	344	335	324	328
16	346	319	331	337	360	375	348	377	385	372	397	365	391	361	374	371	396	371	338	377	330	345	354	316
17	311	303	316	324	373	356	329	376	368	367	388	376	333	384	380	379	372	359	345	357	348	340	319	315
18	316	321	340	375	404	A	344	390	370	367	345	383	346	357	371	405	385	398	397	325	342	338	340	329
19	323	320	352	314	356	428	344	402	375	361	377	393	358	357	374	386	369	H 337	A	388	331	338	338	335
20	316	318	329	380	369	372	342	391	356	362	389	404	349	356	368	401	379	357	319	343	363	316	327	278
21	292	329	362	301	315	308	308	372	360	368	343	369	358	365	365	368	391	396	301	319	358	318	322	353
22	314	343	294	309	322	334	368	392	386	369	373	366	367	392	376	379	378	374	362	343	345	333	320	335
23	F	344	339	320	F	F	351	388	390	360	326	345	350	C	C	C	C	C	C	C	C	C	C	C
24	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
25	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	387	369	381	334	363	A	310
26	336	300	330	F	327	438	325	379	363	378	370	380	370	384	400	H 319	367	379	359	363	333	345	F	334
27	F	351	F	F	361	353	315	375	379	350	369	395	395	372	380	376	375	375	353	342	352	331	324	330
28	322	310	318	F	324	345	349	391	399	375	371	378	374	363	358	380	379	367	382	340	365	327	326	321
29	326	317	318	F	F	333	F	387	395	358	384	372	364	365	367	398	382	384	403	340	349	366	331	313
30	324	304	296	326	351	361	336	406	395	366	349	376	369	383	394	396	379	364	361	357	343	338	345	333
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	27	27	24	26	25	27	28	28	28	28	28	28	27	27	27	27	28	26	28	27	28	24	28
MED	321	323	329	324	351	354	351	388	381	368	370	372	360	363	371	380	383	379	360	342	348	336	325	321
U Q	330	343	340	332	361	382	363	392	390	374	375	380	370	368	375	392	391	390	380	357	358	342	340	334
L Q	312	318	318	316	339	334	339	380	367	362	352	366	346	350	363	371	375	369	345	334	333	331	318	312

NOV. 2007 M(3000)F2 (0.01)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

NOV. 2007 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									E A		U L 395		L											
2										L	L	E A	E A	L	L									
3									L	L	U L 403	L	L	L										
4									L	L	U L 387	U L 379	L	U L 384	U L 387	L								
5									L	L	L	L	L	U L 387	L									
6									L	L	U L 390	L	L	U L 420	U L 382									
7									L	U L 398	U L 404	U L 392	U L 356	U L 368	L									
8									E A	L	U L 391	E A	U L 420	L	L	E A								
9									L	U L 401	U L 398	L	L	L	L									
10									L		U L 382	U L 392	L	U L 417										
11									L	L	L	L	L	L	U L 394	L								
12										L	U L 388	L	U L 424	U L 419										
13										L	L	U L 387	L	U L 372	L									
14											L	L	L	U L 376	L									
15										L	L	L	U L 397	L	L									
16											L	L	L	U L 394	U L 375									
17										L	L	L	L	L										
18										L	E A	L	U L 382											
19										L	L	L	U L 380	L	U L 391									
20										E A		U L 408	U L 403	E A	L									
21									L	L	E A	L	U L 378	L	E A									
22										L	L	U L 408	L	L	L									
23										L	U L 373	U L 385	L	C	C	C	C							
24								C	C	C	C	C	C	C	C	C	C							
25								C	C	C	C	C	C	C	C	C	C							
26										L	L	U L 380	L	L										
27									L	L	L	L	L		L									
28										L	L	L	L	L	L									
29										U L 373	E A	U L 393	L	E A										
30										E A	U L 386	L	E A	E A	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	11	9	8	9	5									
MED										U L 398	U L 390	U L 392	U L 390	U L 387	U L 387									
U Q										U L 401	U L 398	U L 400	U L 412	U L 418	U L 392									
L Q										U L 373	U L 386	U L 382	U L 379	U L 374	U L 378									

NOV. 2007 M(3000)F1 (0.01)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

NOV. 2007 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									214		252		238											
2										240	270	236	244	262	242									
3									222	226	244	220	274	250										
4									224	252	232	254	264	266	242	234								
5									228	234	242	228	244	258	262									
6									226	232	244	248	234	252	246									
7									218	252	284	236	350	260	244									
8									226	240	238	260	254	258	250	216								
9									254	238	240	236	252	242	242									
10									244		256	216	224	254										
11									238	242	256	230	260	242	232	232								
12										230	238	230	282	238										
13										232	264	236	242	258	260									
14											244	250	254	260	248									
15										258	236	228	238	250	242									
16											234	242	232	254	230									
17										256	228	236	252	240										
18										272	256	226	282											
19										266	248	236	268	266	242									
20										264		232	274	236	250									
21									254	256	250	242	250	254	228									
22										258	240	240	230	226	240									
23										260	292	252	232	C	C	C	C							
24								C	C	C	C	C	C	C	C	C	C							
25								C	C	C	C	C	C	C	C	C	C							
26										232	244	230	248	234										
27									242	270	230	220	216		236									
28										246	234	240	236	230	240									
29										284	228	242	274	244										
30										252	270	226	238	222	218									
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									12	24	27	27	28	24	19	3								
MED									227	252	244	236	249	251	242	232								
U Q									243	259	256	242	266	258	248	234								
L Q									223	236	236	228	237	239	236	216								

NOV. 2007 h'F2 (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

NOV. 2007 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	220	234	E B 248	234	E B 248	236	208	200	A	206	200	218	196	222	214	214	202	214	A	E A 266	222	E A 244	E B 270	246
2	224	210	E A 260	E B 272	238	E B 258	198	196	200	214	204	A	A	208	222	214	206	198	218	E A 286	A	E A 250	E B 250	E A 288
3	E A 276	E A 272	240	E B 252	212	236	220	206	202	194	190	178	212	226	232	212	204	206	200	226	226	218	216	228
4	E A 280	E B 258	E B 262	E B 254	222	E B 264	200	196	198	190	186	192	218	206	214	202	206	194	216	212	194	234	E A 300	E B 292
5	E B 246	216	234	E A 262	234	218	230	210	202	216	192	188	186	218	214	220	206	190	190	210	220	E A 250	E A 274	E A 262
6	E B 260	234	E B 270	E B 270	E B 240	216	206	H 192	194	182	186	198	188	H 182	214	228	202	192	196	212	198	E A 248	E A 274	E A 296
7	E B 276	E B 256	240	E B 276	222	206	194	200	H 188	H 182	200	208	182	218	216	210	198	192	190	E B 250	228	242	E A 274	E B 270
8	E B 276	234	E B 270	244	238	214	214	198	A	196	196	A	H 182	208	228	A	202	192	E A 260	230	E A 240	E A 250	A	E A 290
9	E B 270	A	E A 296	E A 276	212	204	202	202	204	202	218	198	190	202	212	218	196	190	210	238	242	240	E A 248	E B 268
10	E B 258	228	E A 254	E A 262	202	220	214	210	218	216	204	190	188	182	222	210	208	196	194	E A 246	250	E A 262	E A 250	E B 252
11	E B 254	E B 254	240	E B 256	220	E B 240	210	206	210	208	188	192	206	194	182	190	196	188	194	212	216	E A 266	E B 256	230
12	E B 268	E B 254	E B 280	E A 276	224	202	216	196	H 178	190	190	H 184	176	196	228	216	204	188	196	234	E A 302	236	224	234
13	246	E B 268	220	E A 280	218	A	238	204	H 198	196	210	204	184	210	232	210	200	192	212	238	E B 262	E B 252	E B 260	E B 272
14	E B 246	224	240	246	216	190	222	208	220	224	214	202	192	206	222	212	194	200	234	234	204	208	E B 272	E B 278
15	E B 250	230	E A 258	250	228	186	E A 250	210	228	216	208	H 188	198	202	222	220	200	196	244	226	220	210	E B 260	E B 250
16	242	E B 258	E B 254	234	222	210	214	H 168	216	214	208	202	200	200	196	214	206	192	218	202	E B 248	226	218	E B 254
17	E B 280	E B 272	E B 276	E B 258	218	202	230	204	H 190	192	202	H 186	H 192	214	212	206	212	196	226	218	208	232	E B 252	E B 292
18	E B 290	E B 278	240	210	200	A	242	200	214	212	A	H 190	194	218	216	204	210	186	210	E A 266	242	232	224	242
19	E B 256	E B 264	226	E B 254	222	180	252	H 186	H 200	214	204	202	210	228	206	220	H 180	168	A	200	242	208	220	232
20	E B 254	E B 274	E B 260	198	200	E B 254	234	200	194	A	218	202	208	A	208	208	196	208	244	214	216	254	E B 248	E B 334
21	E B 308	E B 250	224	E B 312	E B 258	E B 302	E B 280	218	H 198	214	A	196	H 182	220	A	222	202	198	240	E B 256	216	E B 250	E B 246	226
22	E B 274	E B 246	E B 288	E B 300	E A 258	E B 256	214	200	182	216	208	188	180	206	212	202	196	202	216	224	234	232	E B 250	E B 250
23	E B 262	234	218	226	232	232	208	206	214	204	204	202	196	C	C	C	C	C	C	C	C	C	C	C
24	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
25	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	210	222	202	220	212	A	E B 288
26	238	E B 286	E B 250	E B 276	234	180	E B 276	210	230	206	222	208	202	198	212	204	210	194	206	200	232	228	248	228
27	E A 254	234	E A 264	E A 250	218	212	230	212	204	210	A	202	190	216	198	210	208	200	200	208	E B 314	E B 248	E B 258	228
28	E B 260	E B 268	E B 260	E B 266	E A 262	246	212	206	206	202	196	A	188	200	190	214	200	202	192	202	204	224	224	E B 256
29	244	226	240	E B 268	214	E B 256	236	200	204	214	A	184	226	A	214	208	206	190	200	E A 238	234	210	E A 254	E B 272
30	E B 254	E B 308	E B 300	E A 288	238	208	228	H 180	206	A	202	H 180	A	A	194	208	H 178	194	202	230	216	222	232	216
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	27	28	28	28	26	28	28	26	26	24	25	26	24	26	26	27	28	26	28	27	28	26	28
MED	E B 257	E B 254	E 254	E 260	220	210	216	201	203	207	203	196	192	207	214	211	202	194	209	218	221	U 223	E 250	E 255
U Q	E B 275	E B 268	E B 267	E 276	E 238	E B 246	235	207	214	214	208	202	202	218	222	216	206	200	222	E 238	E 242	E A 250	E A 260	E B 283
L Q	246	234	240	248	217	204	209	197	198	196	194	188	186	200	208	208	196	191	196	211	216	223	232	233

NOV. 2007 h'F (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

NOV. 2007 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								B 122	122	116	A	A	110	112	112	116	110	B						
2								B 120	118	A	A	A	A	A	A	122	A	B						
3								B 116	120	118	116	112	122	128	120	118	130	B						
4								130	A	120	118	A	A	A	116	A	A	B						
5								132	118	114	114	116	A	112	A	120	A							
6								116	116	116	122	114	118	118	120	120	118							
7								116	116	118	118	122	116	118	120	A	130							
8								124	A	A	116	A	A	A	A	122	B							
9								126	A	A	118	A	112	A	A	A	114							
10								114	118	118	A	A	A	124	116	114	120							
11								122	122	122	A	A	120	116	116	116	B							
12								120	118	122	A	A	122	116	118	118	118							
13								116	120	A	A	A	A	114	A	120	A							
14								118	118	118	118	120	120	116	118	124	B							
15								B	118	114	116	A	A	A	A	A	A							
16								120	120	118	A	A	A	120	120	A	A							
17								B	112	116	116	116	114	122	124	120	B							
18								124	124	124	A	120	A	A	116	116	A							
19								130	118	A	A	A	A	A	114	118	B							
20								114	124	118	114	118	A	120	122	122	A							
21								B 132	120	120	A	120	120	A	A	A	A	B						
22								B	B 114	118	118	118	118	118	118	118	A	B						
23								126	122	124	A	A	A	C	C	C	C							
24								C	C	C	C	C	C	C	C	C	C							
25								C	C	C	C	C	C	C	C	C	C							
26								B	116	120	A	112	116	A	A	118	B							
27								B	118	126	A	A	122	120	A	A	B							
28								B	118	116	116	A	A	124	A	A	A							
29								A	A	A	A	A	116	118	112	112	A							
30								124	124	A	A	A	A	A	A	124	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								21	24	21	13	11	14	17	16	19	7							
MED								122	118	118	116	118	118	118	118	118	118							
U Q								126	121	121	118	120	120	121	120	122	130							
L Q								116	118	116	116	114	116	116	116	116	114							

NOV. 2007 h'E (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

NOV. 2007 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	92	B	B	B	B	B	B	162	126	132	106	104	118	114	110	114	106	100	100	102	B	104	B	96
2	B	B	92	92	92	98	98	132	110	104	104	104	98	102	104	104	98	100	92	94	94	96	96	88
3	88	88	B	B	B	B	96	108	104	104	114	106	156	106	G	138	122	104	102	B	B	102	100	96
4	94	96	B	B	B	B	B	106	102	100	100	100	96	96	94	90	92	92	B	B	B	B	96	94
5	94	B	B	92	92	B	B	166	116	102	132	98	96	96	98	148	100	104	102	102	104	94	96	94
6	98	98	96	98	B	96	B	G	156	98	102	94	98	104	152	134	126	118	100	B	100	94	92	120
7	86	B	104	B	B	B	B	G	116	118	148	104	124	144	132	100	98	B	B	B	116	102	96	96
8	102	B	104	B	96	96	104	144	104	106	102	94	92	94	92	126	122	B	110	106	96	96	96	98
9	96	92	92	92	96	94	B	168	102	102	158	100	98	94	94	96	150	B	110	102	104	100	100	100
10	98	100	98	92	94	96	B	150	170	100	96	96	94	100	106	152	138	98	98	98	106	98	98	B
11	B	B	96	B	92	92	B	144	120	118	102	102	146	106	100	152	144	B	108	100	94	96	100	B
12	104	102	96	92	92	96	92	162	118	108	106	106	104	106	106	134	136	B	98	94	94	100	94	B
13	B	94	B	94	94	96	92	156	104	108	104	102	102	98	96	96	94	B	94	90	B	B	B	B
14	B	96	B	96	B	B	B	156	154	156	102	124	148	102	104	108	140	B	B	B	B	B	108	96
15	108	92	92	92	92	92	88	118	G	102	100	102	98	96	98	98	98	96	96	96	98	B	B	B
16	B	104	96	96	98	92	98	G	108	108	106	104	106	106	104	104	102	B	B	B	B	102	B	98
17	B	110	B	100	B	94	B	132	116	120	102	122	114	120	136	108	B	90	92	128	102	94	96	112
18	110	B	B	B	108	104	146	146	150	124	106	104	100	92	144	112	94	B	B	96	128	B	106	104
19	B	B	B	B	B	B	B	138	130	104	106	106	98	98	132	124	136	B	138	134	120	B	B	B
20	B	B	B	B	B	B	B	138	106	130	118	100	100	116	126	118	92	92	B	B	B	B	128	140
21	136	B	B	B	B	B	B	152	106	156	94	102	102	102	98	98	108	108	110	108	104	B	104	102
22	102	102	100	100	98	98	B	98	154	154	150	98	98	122	154	126	88	90	B	B	B	106	106	106
23	B	100	98	B	98	96	B	132	154	118	104	102	108	C	C	C	C	C	C	C	C	C	C	C
24	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
25	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	92	B	104	102	94	98
26	92	B	B	B	106	B	156	146	146	106	104	98	98	94	94	122	136	126	106	B	96	96	94	B
27	100	98	98	96	94	94	94	146	118	106	106	104	104	106	104	108	B	B	B	116	106	106	B	98
28	94	94	B	B	92	94	B	118	122	118	116	104	104	98	96	102	98	104	96	98	104	B	B	B
29	B	B	B	B	106	104	B	102	100	106	100	102	152	146	126	126	94	122	B	92	96	94	90	96
30	96	96	96	92	92	94	94	118	120	104	106	106	104	102	100	152	B	B	B	110	104	92	94	92
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	18	16	14	14	18	18	11	25	27	28	28	28	28	27	26	27	24	15	18	18	20	19	21	20
MED	97	97	96	93	94	96	96	144	118	107	105	102	102	102	104	114	104	100	100	101	104	98	96	98
U Q	102	101	98	96	98	96	104	154	146	119	110	104	111	106	126	134	136	108	108	108	105	102	102	103
L Q	94	94	96	92	92	94	92	118	106	104	102	100	98	96	98	102	96	92	96	96	96	94	94	96

NOV. 2007 h'Es (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

NOV. 2007 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

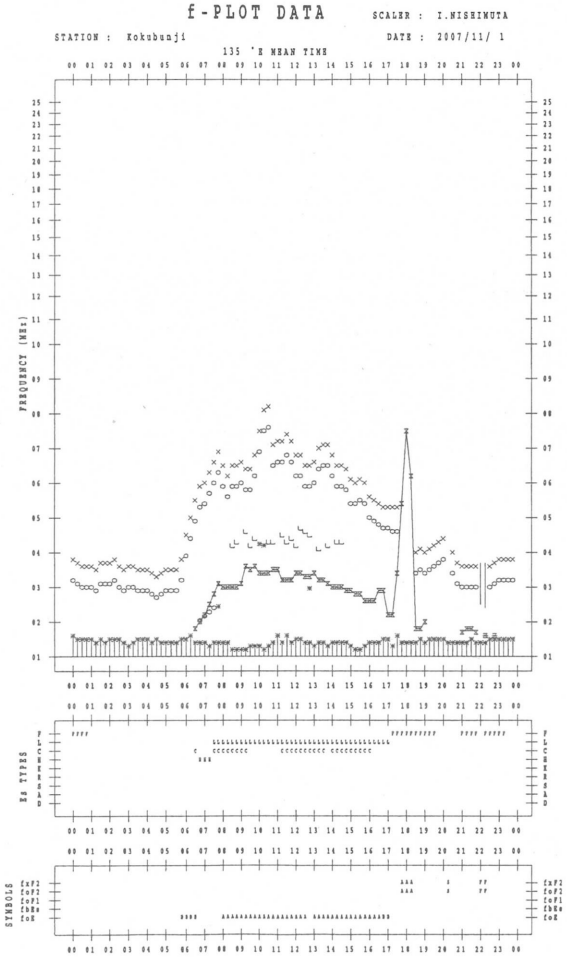
D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	F2							H2	CL21	CL11	L2	L2	CL21	CL21	CL11	CL21	CL21	L3	F4	F3		F2		F2
2			F4	F3	F2	F1	L2	C3	C2	L2	L2	L2	L2	L2	L2	L2	L2	L3	F3	F4	F4	F2	F2	F3
3	F2	F2					L1	C2	L2	L1	CL12	L2	HL11	L2		H2	C2	L3	F3			F2	F1	F3
4	F2	F1						L2	L3	L2	L2	L2	L2	L2	L2	L2	L2	L2					F3	F2
5	F2			F2	F2			HL12	CL22	L2	CL11	L2	L3	L2	L2	HL22	L3	F2	F2	F2	F2	F2	F3	F5
6	F2	F3	F2	F1		F2			HL22	L2	L2	L2	L2	L1	HL11	CL11	C4	F2	F1		F2	F2	F2	FF41
7	F2		F1						C1	C2	HL22	L2	CL22	HL22	CL22	L3	L3				FF21	F2	F3	F2
8	F2		F2		F1	F3	F2	H2	L3	L2	L2	L2	L3	L3	L3	CL22	C2		F3	F3	F5	F3	F6	F3
9	F2	F5	F5	F4	F3	F2		HL22	L4	L3	HL12	L2	L2	L2	L2	L2	H2		F2	F2	F3	F3	F4	F2
10	F3	F2	F3	F4	F3	F3		H2	HL12	L2	L2	L2	L2	L2	L2	HL11	HL21	F1	F1	F3	F4	F3	F2	
11			F2		F3	F2		H3	CL22	CL22	L2	L2	HL11	L2	L2	HL11	H2		F1	F2	F3	F3	F2	
12	F1	F2	F1	F3	F2	F3	F2	HL12	CL22	L2	L2	L1	L2	L2	L2	HL21	H3		F2	F2	F3	F1	F3	
13		F1		F3	F3	F3	F2	H3	L2	L2	L1	L2	L2	L2	L2	L3	L2		F1	F2				
14		F1		F2				H2	H2	HL11	L2	CL22	HL11	L2	L2	L2	H2						F2	F2
15	F1	F3	F3	F2	F3	F2	F2	C2		L1	L2	L2	L2	L2	L2	L2	L2	F3	F2	F2	F2			
16		F1	F3	F1	F2	F2	F2		L2	L2	L2	L2	L2	L2	L2	L2	L2					F2		F2
17		F1		F1		F1		H2	C2	CL12	L2	CL22	CL11	L2	CL22	L2		L2	F1	F1	F2	F3	F2	F1
18	F4				F1	F3	F2	H2	HL22	CL22	L2	L2	L2	L2	HL12	CL22	L3			F3	F1		F1	F2
19								H2	C2	L2	L2	L1	L2	L2	HL12	CL22	H2		F3	F2	F1			
20								H3	L3	HL12	CL11	L2	L2	CL22	CL12	CL22	L4	F2					F1	F2
21	F3							H2	L3	HL11	L3	L2	L2	L2	L3	L3	L4	L4	F2	F2	F3		F2	F2
22	F3	F3	F2	F2	F3	F1		L2	H1	HL22	HC11	L2	L1	CL11	HL12	CL22	L2	L1				F2	F3	F3
23		F3	F1		F2	F1		C2	H2	CL22	L2	L2	L2											
24																								
25																			F2		F3	F2	F5	F2
26	F2				F2		F1	H3	H2	L2	L2	L2	L1	L2	L2	CL22	H2	F2	F2		F2	F2	F3	
27	F4	F3	F3	F3	F4	F3	F2	H2	C2	L1	L2	L2	L2	L2	L2	L2				F1	F3	F3		F2
28	F2	F2			F2	F1		C2	C2	C2	C2	L2	L2	L2	L2	L3	L4	F2	F2	F1	F3			
29					F1	F2		L2	L3	L3	L2	L2	HL12	HL22	CL22	CL22	L2	F2		F2	F3	F3	F4	F2
30	F2	F3	F2	F3	F3	F2	F2	C2	CL12	L3	L2	L2	L2	L2	L2	HL11				F2	F3	F2	F2	F2
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT																								
MED																								
U Q																								
L Q																								

NOV. 2007 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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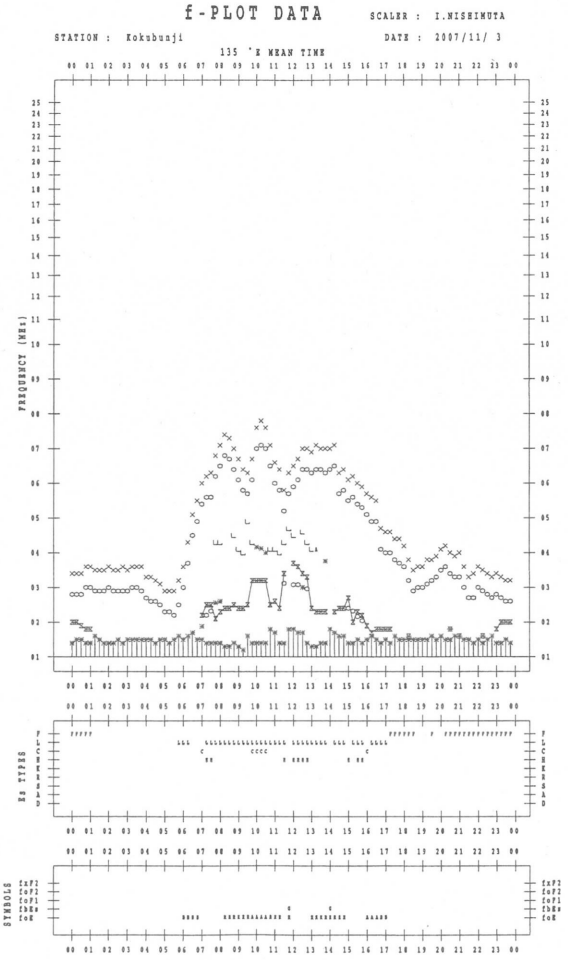
STATION : Kokubunji
DATE : 2007/11/ 1
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS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STATION : Kokubunji
DATE : 2007/11/ 3
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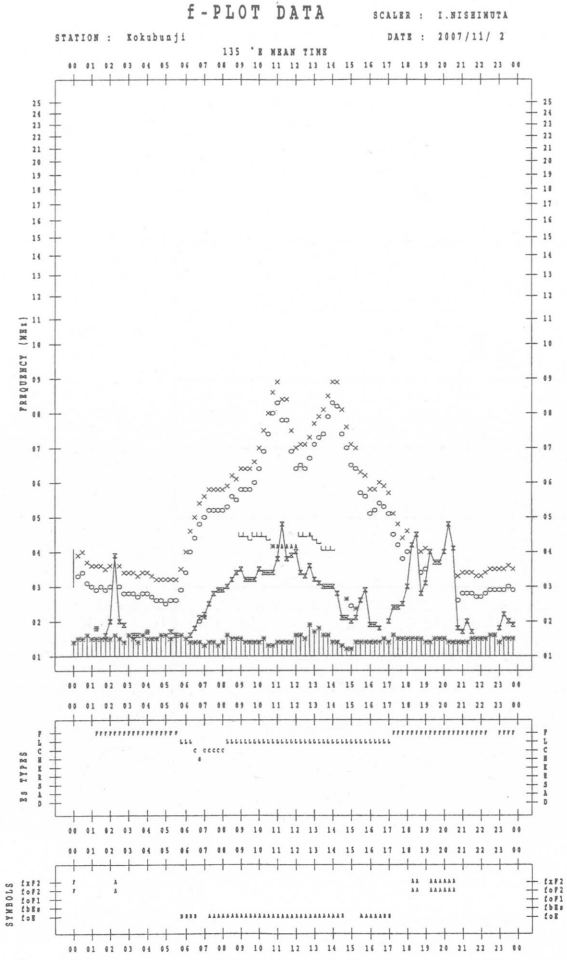
FREQUENCY (MHz)
Es TYPES
SYMBOLS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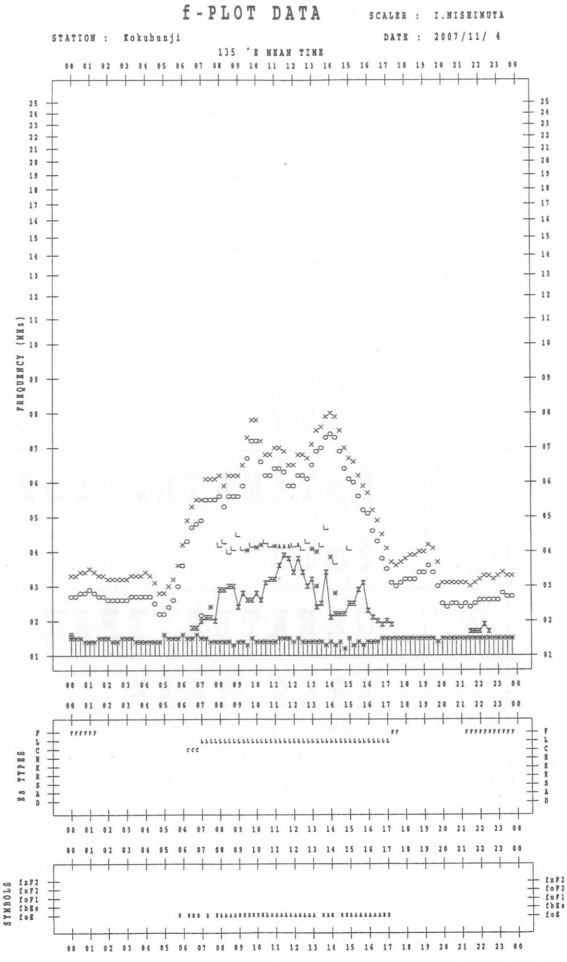
STATION : Kokubunji
DATE : 2007/11/ 2
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS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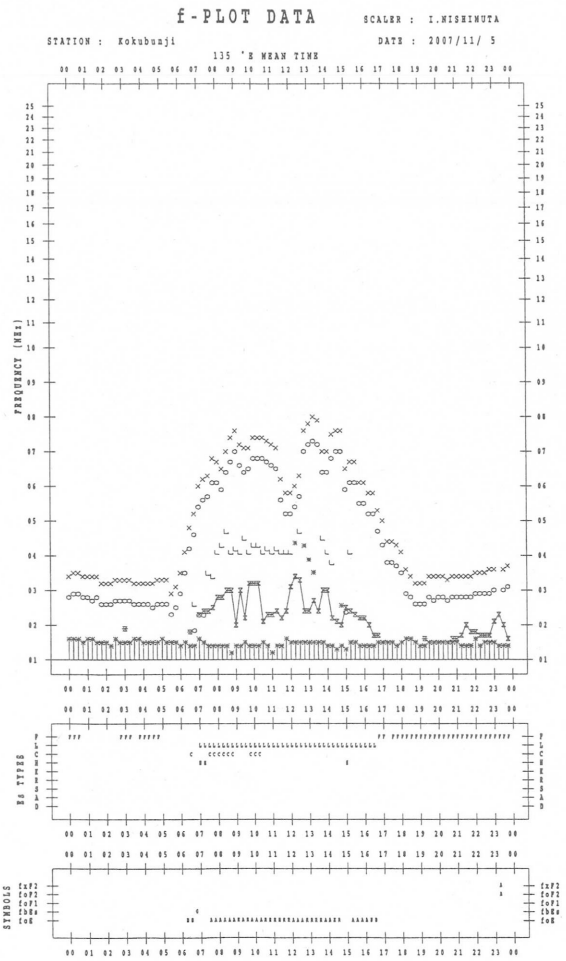
FREQUENCY (MHz)
Es TYPES
SYMBOLS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DATE : 2007/11/ 5
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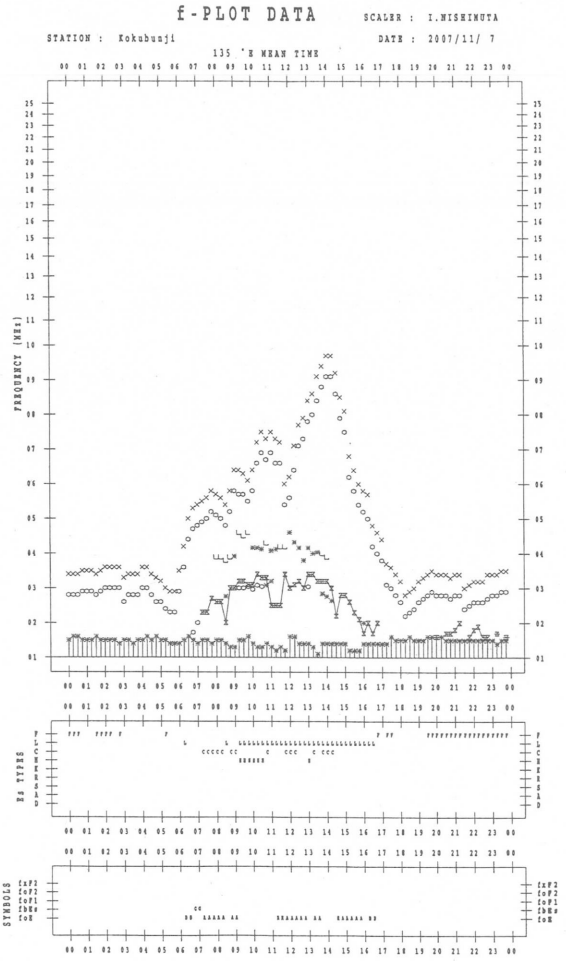
FREQUENCY (MHz)
Es TYPES
SYMBOLS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STATION : Kokubunji
DATE : 2007/11/ 7
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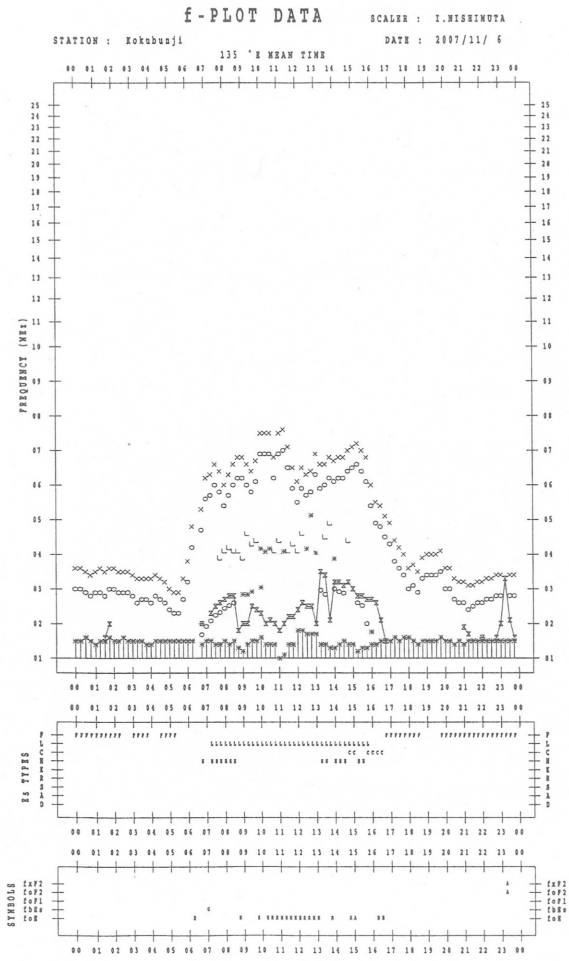
FREQUENCY (MHz)
Es TYPES
SYMBOLS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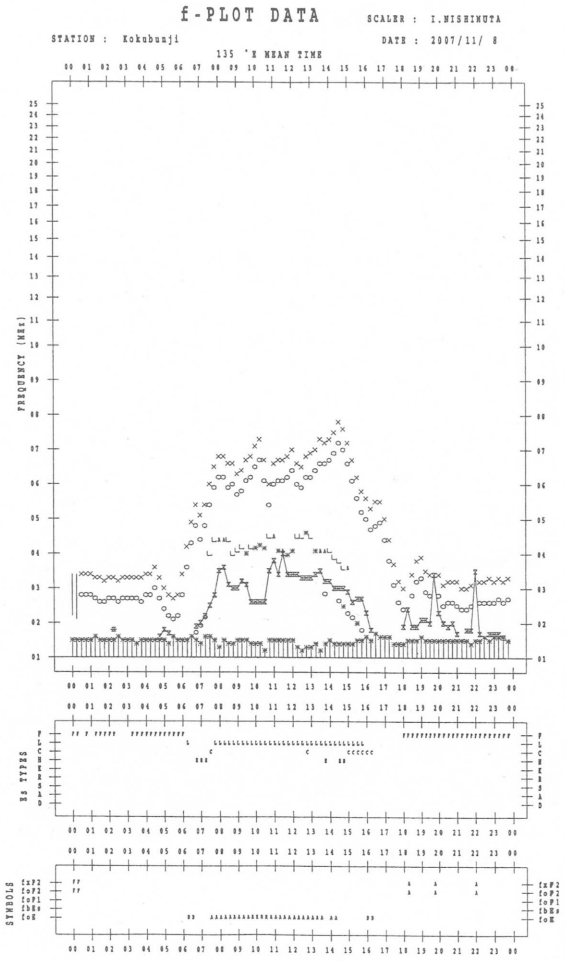
FREQUENCY (MHz)
Es TYPES
SYMBOLS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STATION : Kokubunji
DATE : 2007/11/ 8
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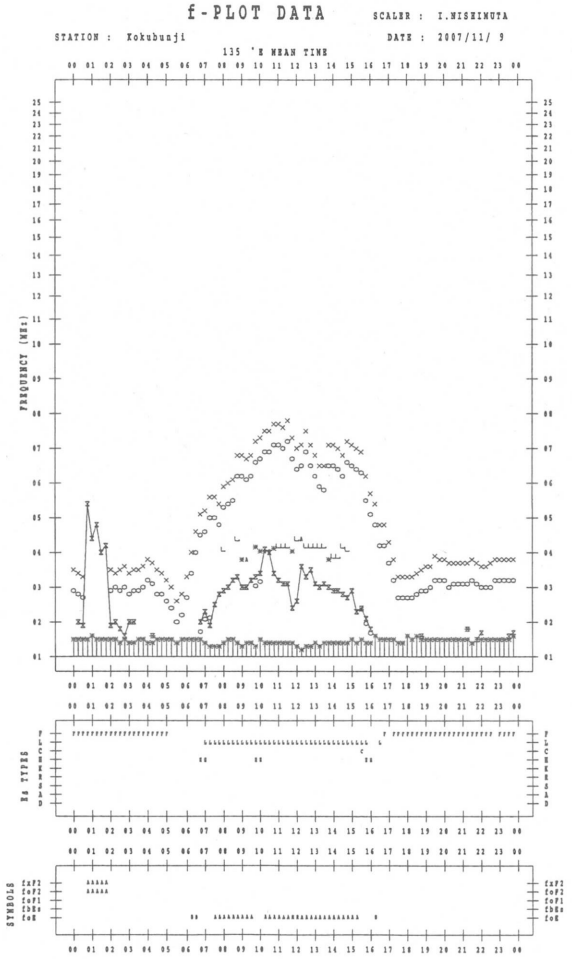
FREQUENCY (MHz)
Es TYPES
SYMBOLS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STATION : Kokubunji
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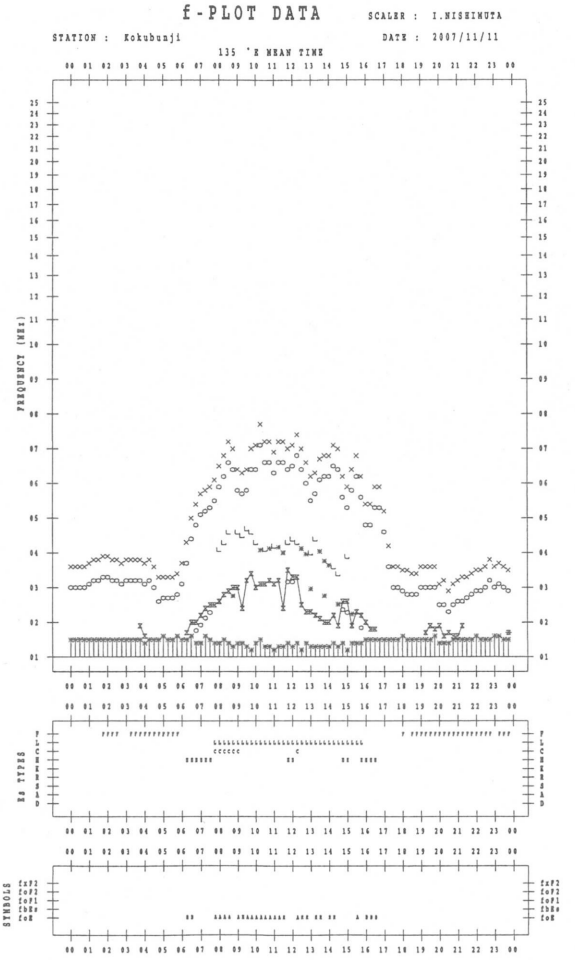
FREQUENCY (MHz)
Es TYPES
SYMBOLS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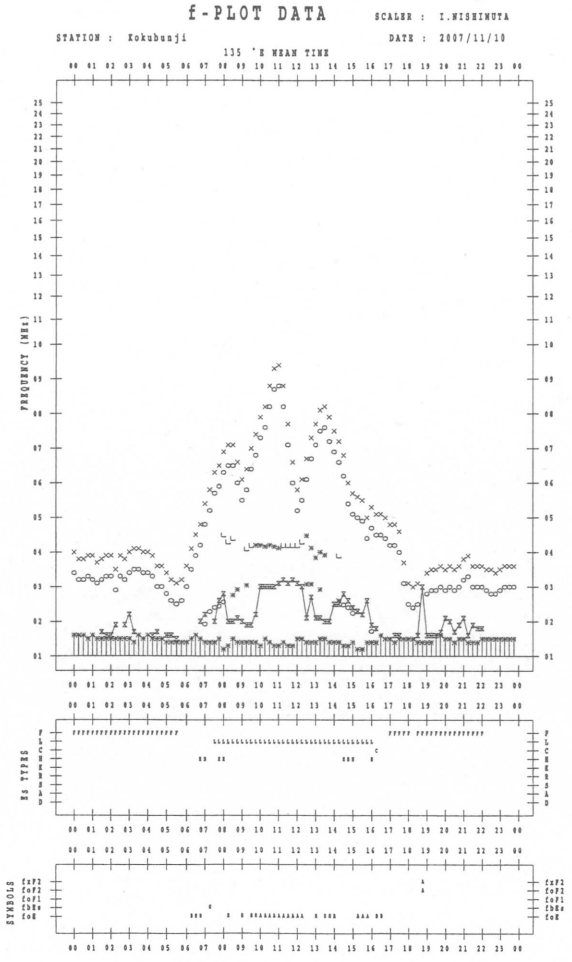
STATION : Kokubunji
DATE : 2007/11/11
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS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STATION : Kokubunji
DATE : 2007/11/10
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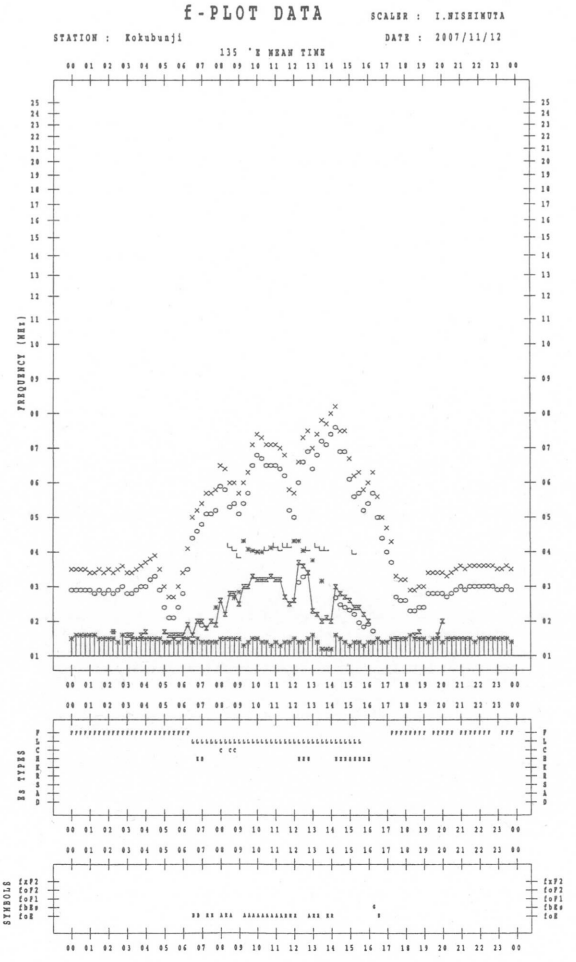
FREQUENCY (MHz)
Es TYPES
SYMBOLS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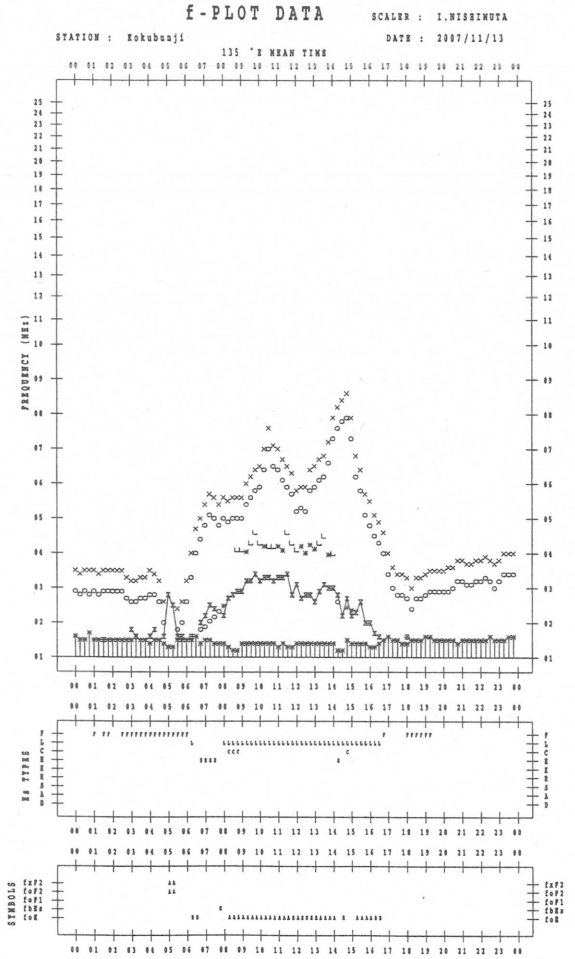
STATION : Kokubunji
DATE : 2007/11/12
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS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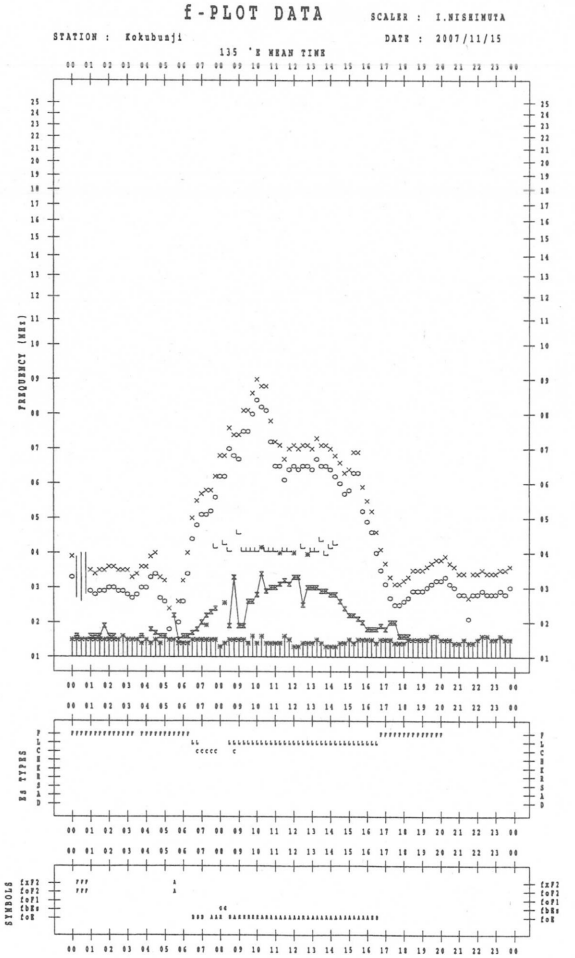
STATION : Kokubunji
DATE : 2007/11/13
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS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STATION : Kokubunji
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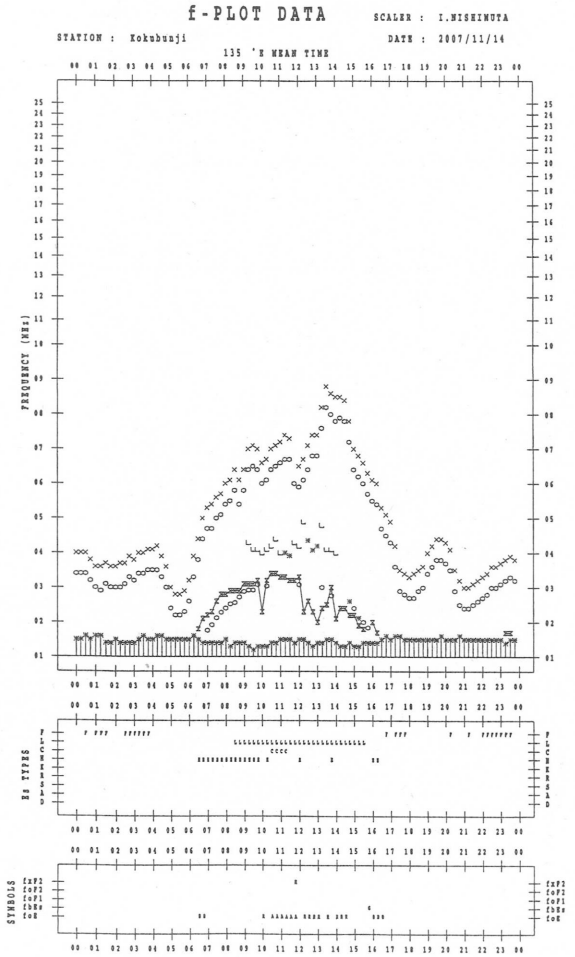
FREQUENCY (MHz)
Es TYPES
SYMBOLS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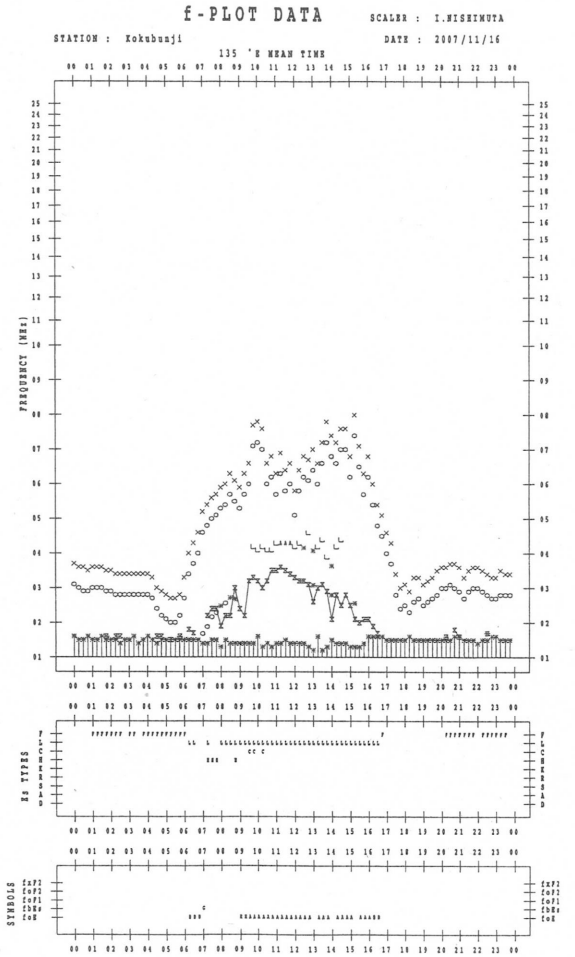
STATION : Kokubunji
DATE : 2007/11/14
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS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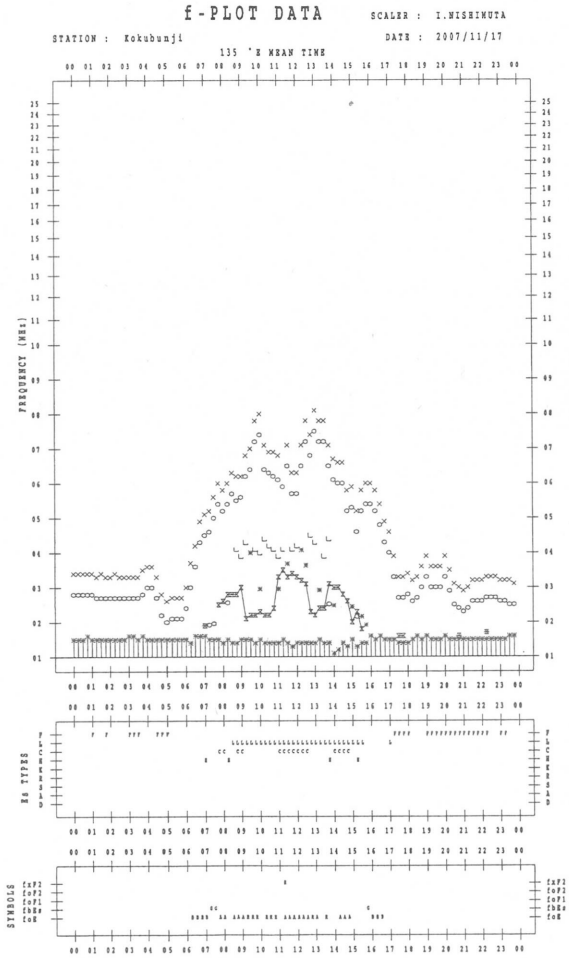
STATION : Kokubunji
DATE : 2007/11/16
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS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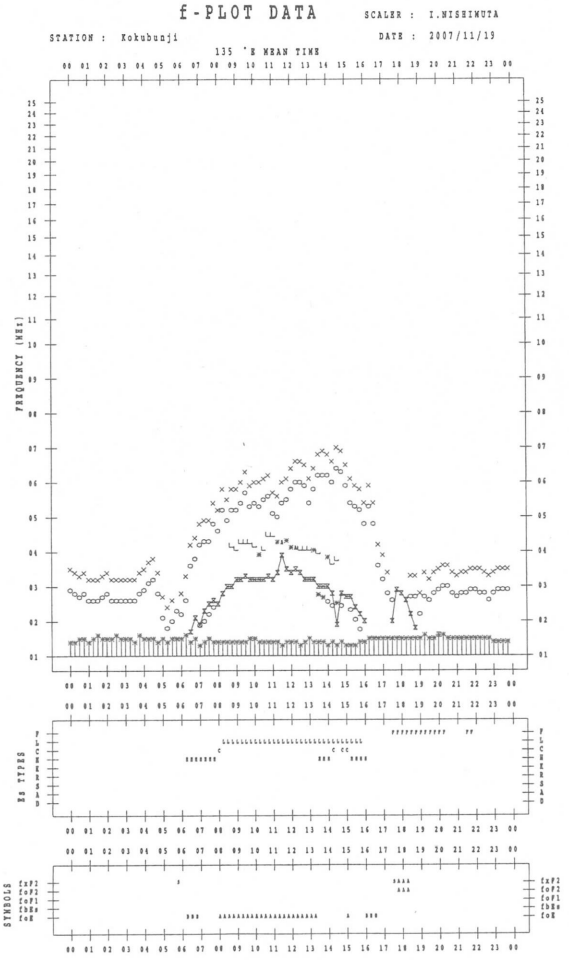
STATION : Kokubunji
DATE : 2007/11/17
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS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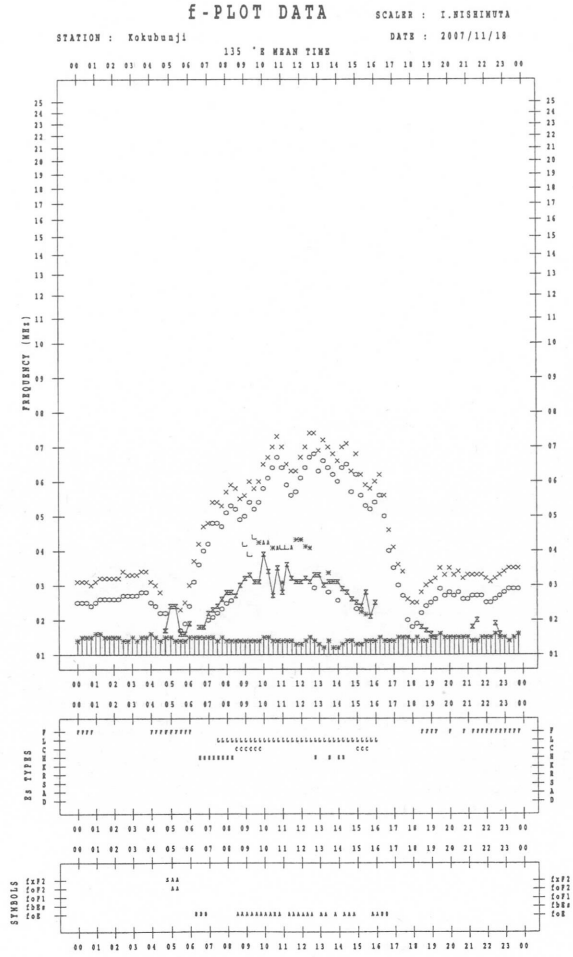
STATION : Kokubunji
DATE : 2007/11/19
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS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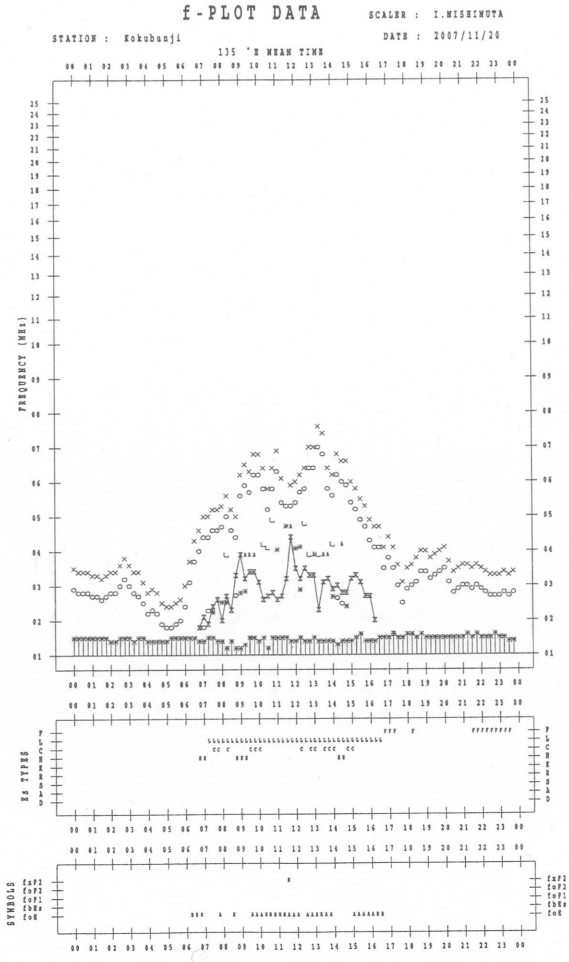
STATION : Kokubunji
DATE : 2007/11/18
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS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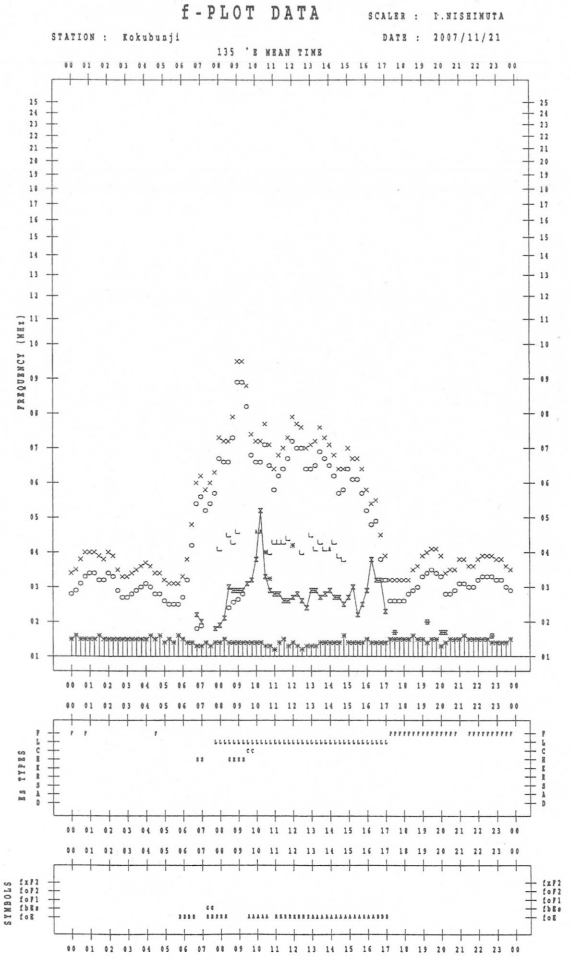
STATION : Kokubunji
DATE : 2007/11/20
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS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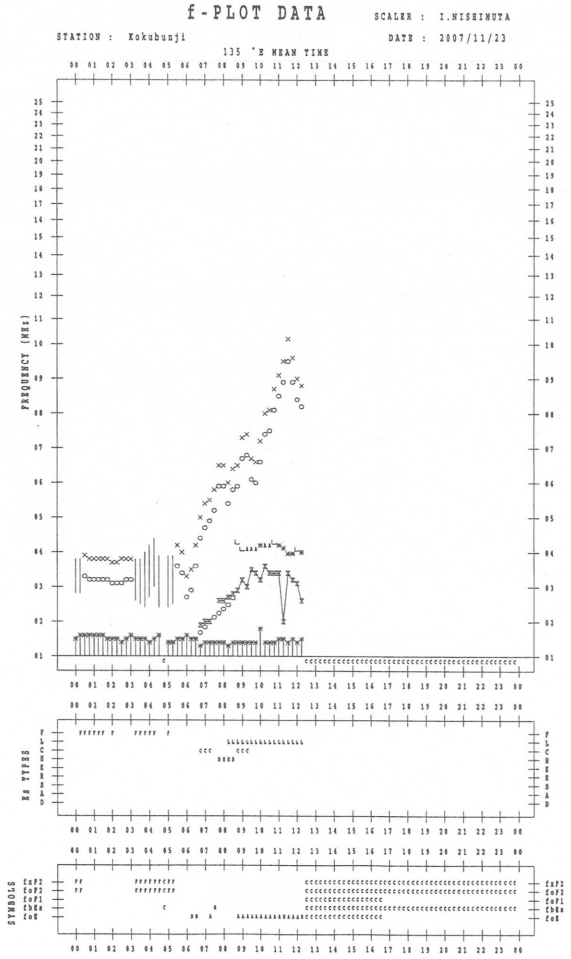
SCALER : T.NISHIMUTA
STATION : Kokubunji
DATE : 2007/11/21
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS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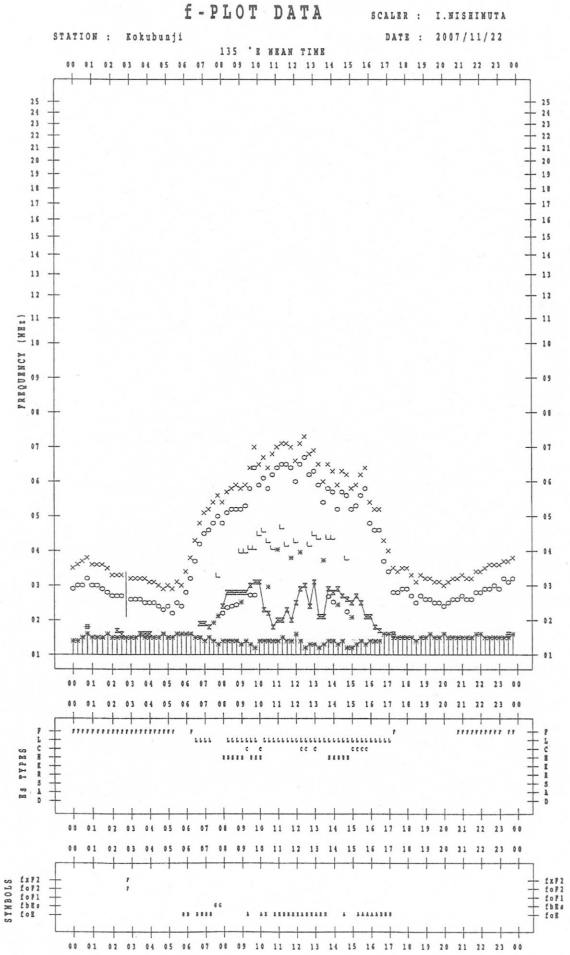
STATION : Kokubunji
DATE : 2007/11/23
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS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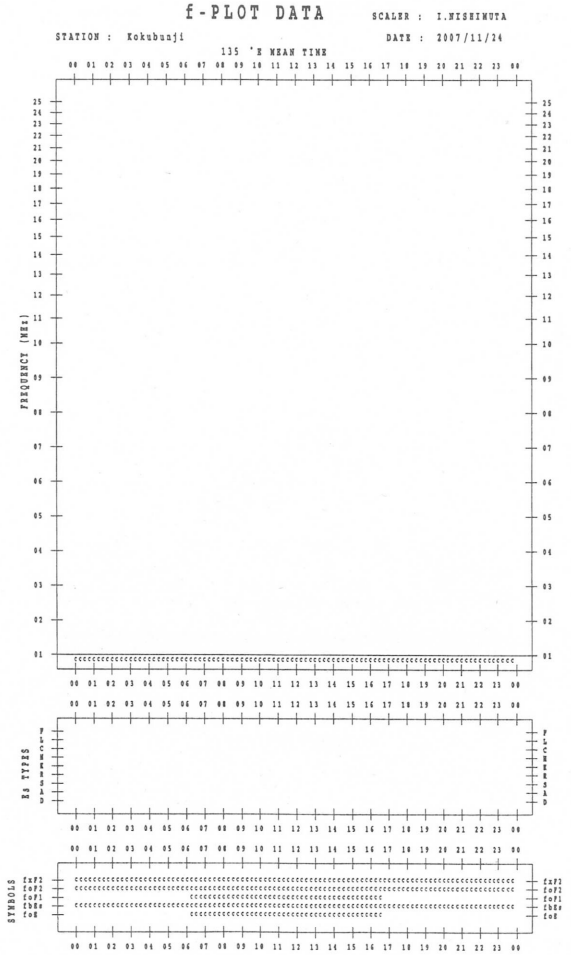
STATION : Kokubunji
DATE : 2007/11/22
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS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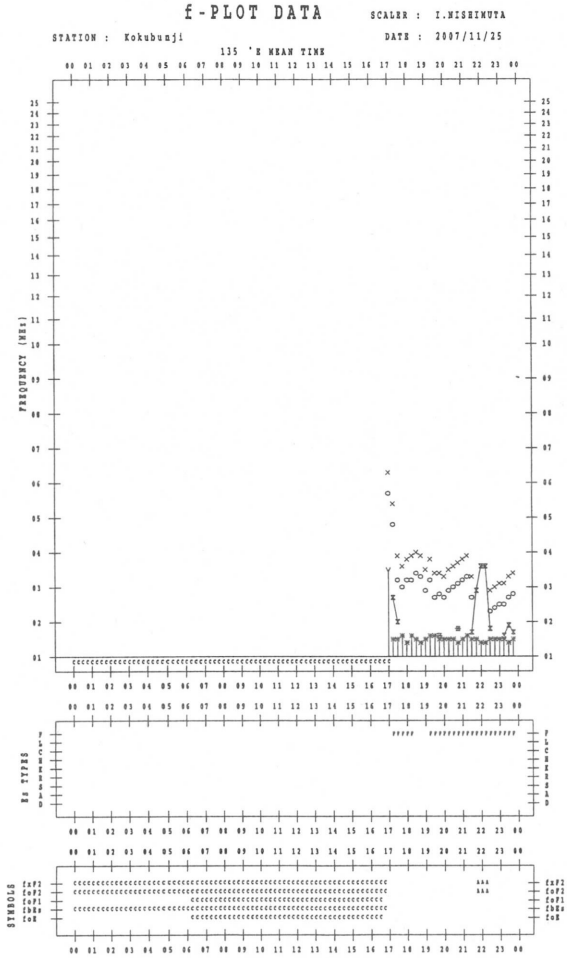
FREQUENCY (MHz)
Es TYPES
SYMBOLS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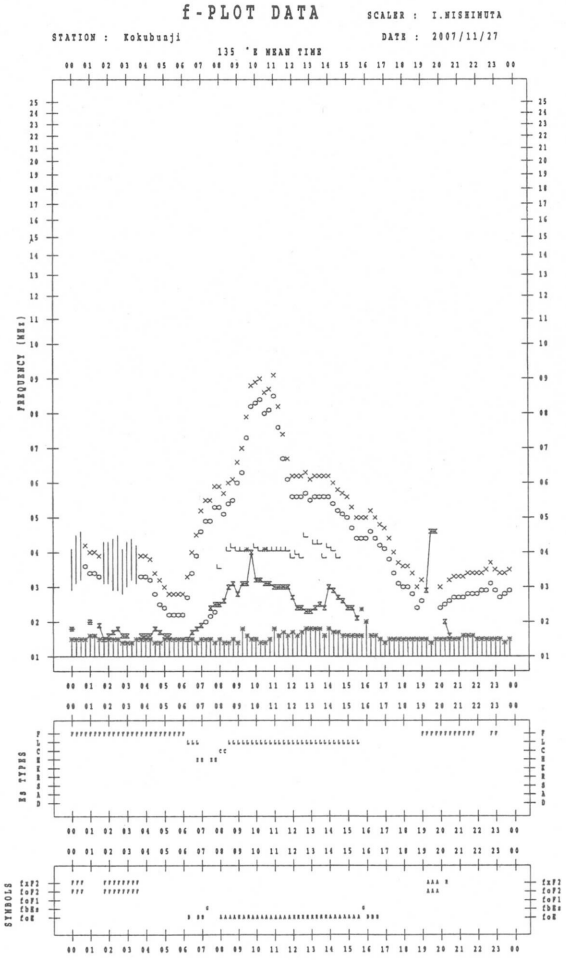
FREQUENCY (MHz)
Es TYPES
SYMBOLS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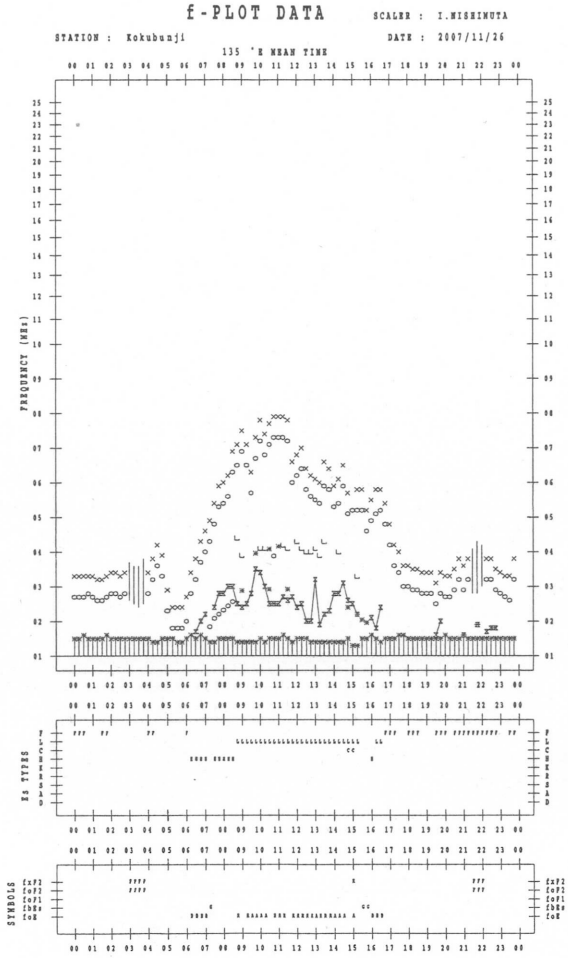
DATE : 2007/11/27
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS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DATE : 2007/11/26
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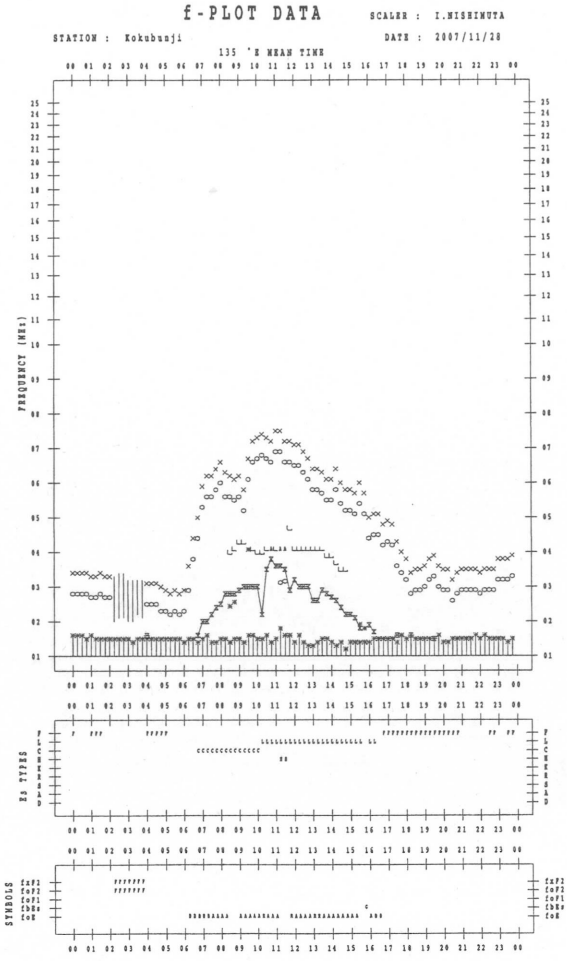
FREQUENCY (MHz)
Es TYPES
SYMBOLS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DATE : 2007/11/28
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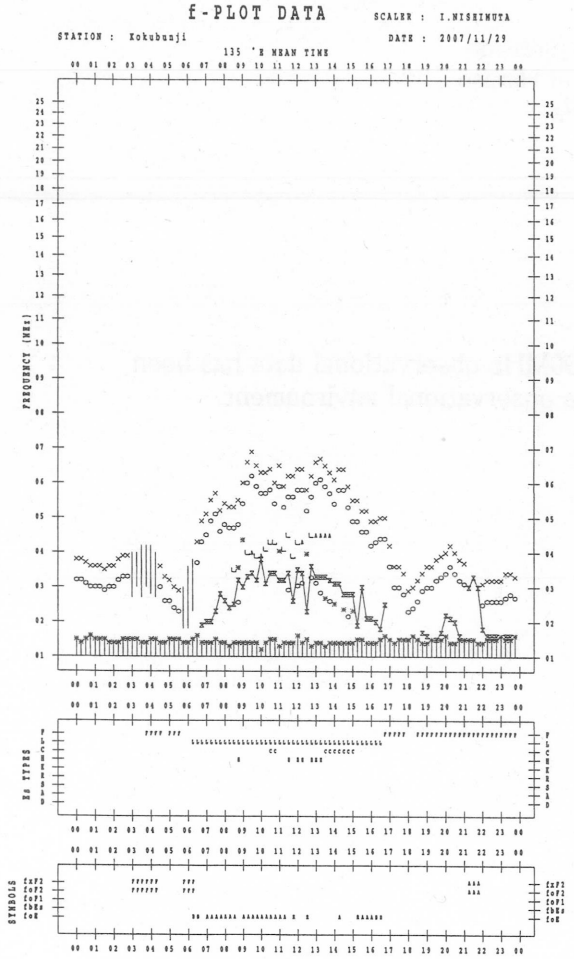
FREQUENCY (MHz)
Es TYPES
SYMBOLS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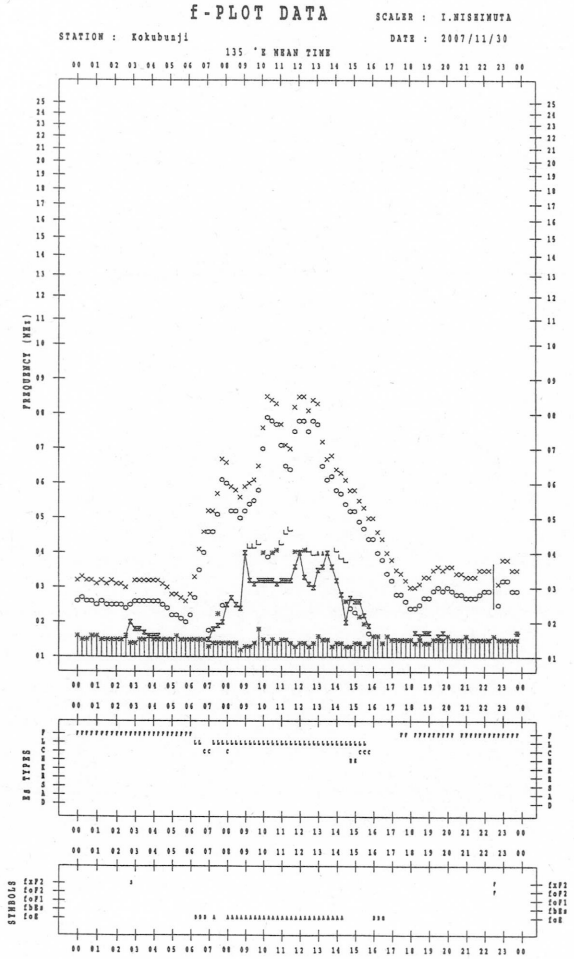
FREQUENCY (MHz)
Es TYPES
SYMBOLS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STATION : Kokubunji
DATE : 2007/11/30
135 °E MEAN TIME
FREQUENCY (MHz)
Es TYPES
SYMBOLS

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

Since 10th November 2004, offering of 500MHz observational data has been finished due to deterioration of the observational environment.

B. Solar Radio Emission
B2.Outstanding Occurrences at Hiraiso

Hiraiso November 2007

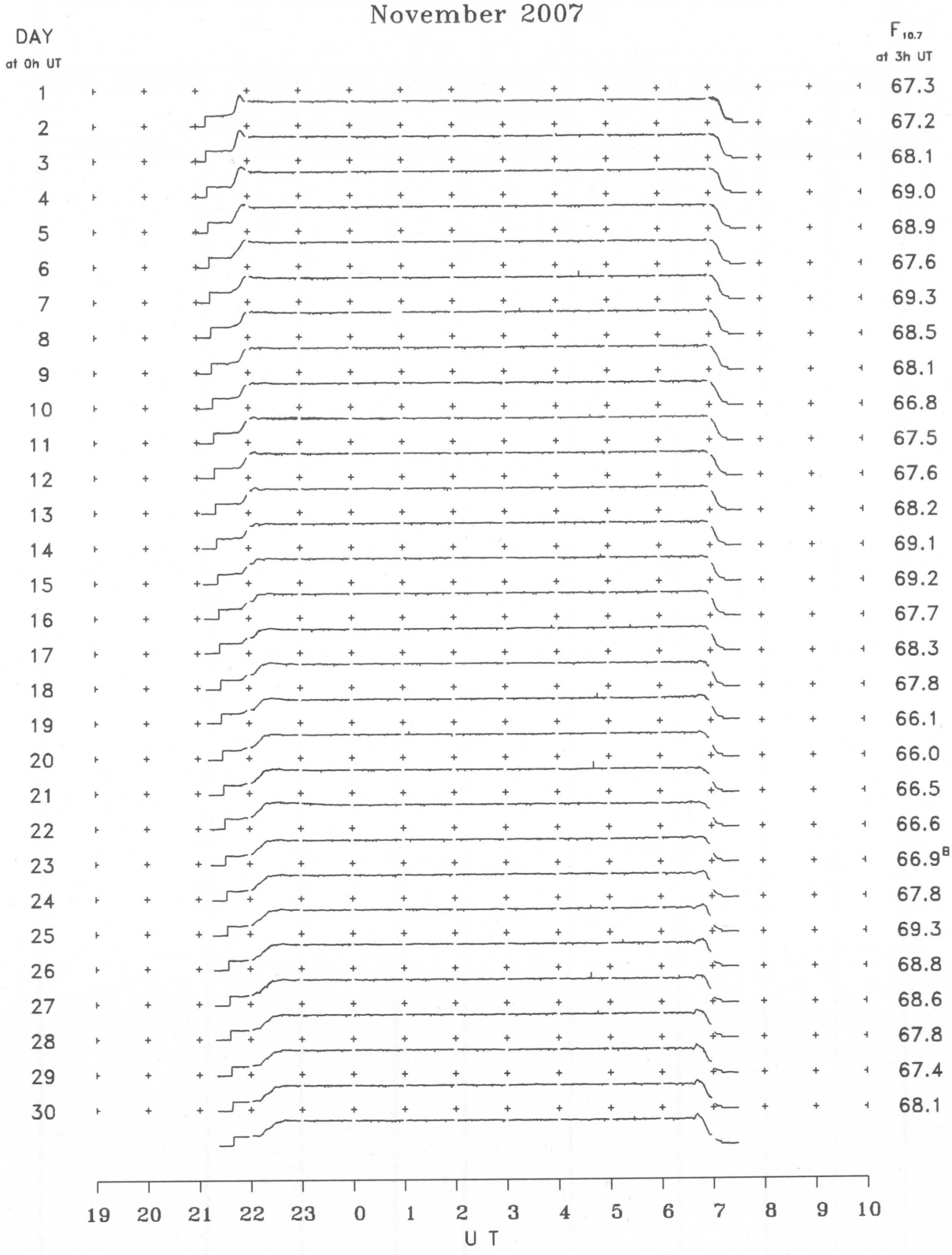
Single-frequency observations
Normal observing period: 2105 - 0735 U.T. (sunrise to sunset)

NOV. 2007	FREQ. (MHz)	TYPE	START TIME (U.T.)	TIME OF MAXIMUM (U.T.)	DUR. (MIN.)	FLUX DENSITY (10^{-22} W m^{-2} Hz^{-1}) PEAK	FLUX DENSITY (10^{-22} W m^{-2} Hz^{-1}) MEAN	POLARIZATION REMARKS

B. Solar Radio Emission

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

November 2007



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

IONOSPHERIC DATA IN JAPAN FOR NOVEMBER 2007
F—707 Vol.59 No.11 (Not for Sale)

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☎(042)(327)7540(直通)

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National Institute of Information and Commnications Technology
2-1 Nukui-Kitamachi 4-chome, Koganei-shi, Tokyo 184-8795 JAPAN