F-743

IONOSPHERIC DATA IN JAPAN

FOR NOVENBER 2010

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≪Real Time Ionograms on the Web ・・・・・・・・・・・・・http://wdc.nict.go.jp/index_eng.html≫

NATIONAL INSTITUTE OF INFORMATION
AND COMMUNICATIONS TECHNOLOGY
TOKYO, JAPAN

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 , Japan.

Stations	Geographic(WGS84)		Geomagnetic (IGRF-10(2005))		Technical Method
	Latitude	Longitude	Latitude	Longitude	
✳Wakkanai/Sarobetsu	45˚10'N	141˚45'E	36.4˚N	208.9˚	Vertical Sounding (I)
Kokubunji	35˚43'N	139˚29'E	26.8˚N	208.2˚	Vertical Sounding (I)
Yamagawa	31˚12'N	130˚37'E	21.7˚N	200.5˚	Vertical Sounding (I)
Okinawa	26˚41'N	128˚09'E	17.0˚N	198.6˚	Vertical Sounding (I)
Hiraiso	36˚22'N	140˚37'E	27.6˚N	209.1˚	Solar Radio Emission (S)

✳We moved the observation facilities at Wakkanai to Sarobetsu on February 2009. The new observatory is located at approximately 26km south from the old observatory. The observation at Sarobetsu commenced on March 6, 2009.

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 a 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 by experienced specialists to supplement automatically-scaled parameters.

A1. Automatic Scaling

Digital ionograms are automatically scaled by the pattern recognition method. The following five characteristics of the ionospheric are listed below. 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 iono-spheric 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 very small ionization density of the layer (for *fEs*).

N Impossible automatic scaling because of complex echoes.

Blank No digital record because of problems occurring in the auto matic data processing system, but existence of film record.

c. Definitions of 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 spread ***F*** trace
foF2 ***foF1*** ***foE*** ***foEs***	Ordinary wave critical frequency for the ***F2***, ***F1***, ***E,*** and ***Es*** (including particle type ***E)*** layers, respectively
fbEs	Blanketing frequency of the ***Es*** layer, e.g. the lowest ordinary wave frequency visible through ***Es***
fmin	Lowest frequency that shows vertical ionospheric reflections
M(3000)F2 ***M(3000)F1***	Maximum usable frequency factor for a path of 3000 km for transmission by the ***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.
Z Measurement deduced from the third magneto-electronic component.

(iii) Description of Types of *Es*

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

The types are:

f An *Es* trace which shows no appreciable increase of height with frequency.
l A flat *Es* trace at or below the normal *E* layer minimum virtual height or below the 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 as-sociated with high absorption and large *fmin.*
n The designation 'n' is used to denote an *Es* trace which cannot be classified into one of the standard types.
k The designation 'k' is used to show the presence of particle *E*. When *foEs* > *foE* (particle *E*) the *Es* type precedes k.

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

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

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

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

B. SOLAR RADIO EMISSION

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

B1. 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
SGD Code	Letter Symbol	Morphological Classification
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.

B2. 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. 2010

LAT. 45°10.0′N LON. 141°45.0′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	32	41	45	34	32	36	42	59	66	61	62	87	68	58	69	66	58	47	35	34	34	32	37	34
2	31	32	44	43	42	46	42	62	64	79	70	70	65	62	63	58	57	42	34	32	34	44	42	38
3	43	42	43	46	46	47	38	63	71	67	72		68	68	64	62	65	54	37	36	36	34		41
4	42	41	43	37	42	46	35	63	66	66	90	87	83	67	66	61	55	42	34	34	34	38	32	38
5	37	36	34	37	38	37	41	63	64	66	69	71	86	64	70	60	61	42	34	31	31	34	34	34
6	34	34	37	36	32	38	42	65		67	84	71	67	71	65	62	61	32	A	A	A		34	
7	32	A	34	32		47	42		65	65	67	81	65	65	68	65	61	40	A	37	37	34	32	30
8	32	32	41	42	42	49	37		60	64	63	67	68	62	66	62	54	32	32	32	34	32		37
9	34	42	34	43	43	37	44	64	67	66	75	66	59	68	70	60	61	32	30		42	50	53	42
10	52	50	55	53	58	64	50	64	66	64		90	67	67	70	68	65	46	37	34	37	32	32	30
11	35	36	34	40	42	44	36	51	67	67	65	59	62	71	69	66	61	41	32	42	A	48	44	51
12	35	35	42	43		37	38	54	70	43	87	90	89	67	70	67	64	38	34		34	32	34	34
13	36	36	32	37	31	29	32	53	64	66	75	84	59	70	64	67	60	36	38	34	34	36	32	32
14		34	36	34	36	35	31	52	66	60	64	59	67		64	70	62	29		28	28	28	32	32
15	32	35	35	34	34	34	30	52	66	67	68	70	74	68	64	66	67	32	29		34	35	32	38
16		34	30	34	30	31	30	54	67	63	67		70	64	67	66	58	26		32	34	32	28	34
17	31	32	34	34	43	44	31	54		67	74	69	67	67	68	65	64	31		34	34	28	34	32
18	42	44	41	44	46	46	34	50	61	61	65	67	64	67		65	57	32	31	31	30	34	34	34
19	36	34	37	37	34	42	29	52	58	C	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	54	29		32	32	32	34	35
21	37	32	42	44	44	34	29	59	67	67	66	67		67	62	60	56	34	26	26	31	32	32	32
22	32	34	34	34	34	34	32	52	67	66	68	68	62	68	61	66	54	32	34	34	33	34	32	34
23	43	46	44	42	37	31	34	57	60	62	64	68	78	68	61	62	43	32	32		32	30	32	32
24	34	37	41	38	43	37	29	45	55	61	68	62	67	66	61	65	46	38	37	34	34	34	34	36
25	34	34	36	43	46	44	34	51	61	66	66	74	71	60	58	55	44	34	43	36		47	43	32
26	32	42	45	33	51	34	31	45	58	58	58	67	66	61	64	66	35		30	29	34	31	32	32
27	34	34	34	32	34	32	32	45	55	68	61	59	65	65	57	54	45	32		30	31	29		32
28	34	34	34	32	32	30	28	48	60	60	65	65	68	57	61	57	46	36	31	32	31	34	42	43
29	34	46	37	48	51	34	29	46	61	67	62	70	65	60	54	66	47	34	29	34	44	34	34	32
30	48	47	52	50	51	45	32	47	54	66	67	69	74	69	62	64	49	29	29	34	34	32	32	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	27	28	29	29	27	29	29	27	27	28	27	26	27	27	27	28	29	28	22	24	26	28	26	28
MED	34	36	37	37	42	37	34	53	64	66	67	69	67	67	64	65	57	34	33	34	34	34	34	34
U Q	37	42	43	43	46	45	39	62	67	67	72	74	71	68	68	66	61	40	35	34	34	34	34	37
L Q	32	34	34	34	34	34	30	50	60	61	64	67	65	62	61	60	48	32	30	31	32	32	32	32

HOURLY VALUES OF fEs AT Wakkanai

NOV. 2010

LAT. 45°10.0′N LON. 141°45.0′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	28	24	G	G	G	G	28		38	42	48	42	39	34	34	35	28	G	28	26	G	G	G
2	G	25	25	G	G	G	G		G	38	39	39	G	G	G	33	G	G	G	G	G	G	G	G
3	G	G	G	27	G	G	G			43	46	G	G	G	36	30	G	31	24	G	G	G	G	G
4	38	G	G	G	G	G	G	G	34	39	51	43	38	38	37	37	38	27	27	24	G	G	G	G
5	G	G	G	25	G	G	G		G	G	37	G	G	G	34		G	G	27	G	G	G	G	G
6	G	G	26	25	28	38	G	G	36	44	52	40	41	44	46	G	29	29	36	32	30	28	29	38
7	27	35	33	33	39	33	24		34	41	38	65	40	50	36	G	29	34	37	G	G	G	G	G
8	G	G	26	G	G	G	G		31	34	37	37	59	39	35	34	G	G	G	G	G	24	24	27
9	39	30	29	34	32	33	25	G	34	40	48	G	50	G	G	32	32	31	33	34	32	G	G	G
10	G	G	G	G	24	29	26			34	G	G	40	36	G	G	40	34	28	26	29	28	G	G
11	G	G	G	G	G	G	24			39	40	40	38	G	G	32	27	35	26	33	33	G	G	G
12	G	G	34	34	33	26	G	33	35	36	40	40	G	G	36	32	32	G	28	28	G	G	G	G
13	G	25	29	34	24	G	G	29	35	G	37	G	G	39	G	40	33	30	28	26	G	G	G	G
14	G	G	G	G	G	G	G	G	G	38	39	37	G	G	G	G	G	33		G	G	G	G	G
15	G	G	G	G	G	G	G	29		38	38	49	36	35	G	48	G	30	G		G	G	G	34
16	40	26	28	24	25	G	G	30	33	60	G	G	G	G	G		G	G		G	31	G	39	G
17	38	30	26	G	G	G	G	G	33	35	G	G	50	G	G		G	27		25	G	G	G	G
18	G	G	G	G	G	G	G	G	48	G	G	G	N	G	G	G	G	26	G	G	G	G	G	G
19	28	G	G	G	G	G	G	G	G	C	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	28	24		G	G	G	G	27
21	G	G	32	30	27	G	G		G	34	G	G	G	G	G	G	11	G	G	G	G	G	G	G
22	G	G	G	G	G	G	G		G	42	51	42	G	64	G	28	34	G	G	G	G	G	G	G
23	G	G	G	26	34	28	23		32	34	G	G	G	35	32	G	37	24	G		G	G	G	G
24	G	G	G	G	G	G	G	38	43	41	37	G	G	39	34	G	G	G	G	G	G	G	G	G
25	G	G	G	G	G	G	G	G	31	G	37	G	G	G	G	G	11	27	32	27		G	G	G
26	G	G	G	G	G	G	G	G	37	G	G	G	G	G	G	G	30	25	G	G	G	G	G	G
27	23	G	G	G	G	G	G	G	44	G	G	G	G	G	35	G	G	G		G	G	G		G
28	G	G	G	G	G	G	G	G	32	34	G	36	G	G	G	G	G	G	G	G	G	G	25	28
29	G	G	G	G	26	23	G	G	G	34	43	51	45	35	32	G	G	G	G	G	G	G	33	G
30	G	G	G	G	G	G	G	G	33		39	41	35	G	G	32	29	G	G	G	27	28	G	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	29	29	29	29	29	29	29	19	24	27	28	28	27	28	28	25	29	29	24	27	28	29	28	29
MED	G	G	G	G	G	G	G	G	33	36	38	18	G	G	G	G	11	25	G	G	G	G	G	G
U Q	25	13	26	25	25	12	G	29	35	40	41	40	40	38	34	32	32	30	28	26	13	G	G	G
L Q	G	G	G	G	G	G	G	G	G	34	G	G	G	G	G	G	G	G	G	G	G	G	G	G

HOURLY VALUES OF fmin AT Wakkanai

NOV. 2010

LAT. 45°10.0′N LON. 141°45.0′E SWEEP 1.0MHz TO 30.0MHz AUTOMATIC SCALING

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

HOURLY VALUES OF foF2 AT Kokubunji

NOV. 2010

LAT. 35°43.0′N LON. 139°29.0′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	37		26	28	36	22	43	54	55	71	87	75	75	72	59	72	65	46						32
2		27	28		36		32	55	76	70	66	61	71	66	55	66	67	46		A		27	36	36
3	37	34	36		36	36	44	62	69	70	77	74	82	75	64	67	62	51	34	27		32	36	39
4	41	34	32	34	34	28	39	59	72	73	72	73	72	71	68	66	59	51	42	36				27
5	34	32	32	36	37	32	37	59	65	78	78	75	69	87	82	72	64	56	34	34	34	28	28	30
6				34	27		38	63	69	80	70	72	86	66	77	76	61	42	A	A	A			23
7		32	31	32	32		34	58	66	76	76	72	78	72	81	75	61	45					28	26
8	27		24	58	41	41	34		67	72	72	69	72	72	64	65	66	50						
9			32				38	67	67	71	80	71	64	77	71	75	55	42	28		28	34	35	36
10	37	39	42	38	41	44	46	66	67	66	77	72	72	81	76	77	73	47	32	A		A	A	34
11	36	24			34	32	34	53	67	70	77	83	78	72	76	70	68		28	35	32	34		
12	37		36	31	41	27	36	76	81	111	103	111	102	91	77	69	72	44	36	39		27	38	
13	38	38	27	34			34	62	67	87	92	C	C	C	C	C	C	C	C	43	39	39	27	28
14			A		34		32	54	74	84	77	74	78	80	78	71	68	42			32			
15	27				30		32	54	58	73	96	69	82	80	74	74	61	41				A		
16				27		28	A	59	55	75	80	73	81	76	65	66	55	51	A				20	32
17	34	34	32	34	36		34	50	64	77	85	78	74	76	78	77	63	37			26			
18	27	32	34		38	31	26	54	59	68	74	75	67	71	69	76	66	44	32	28				29
19	27	27			36		27	52	58	64	77	74	72	69	76	82	52	46		32				
20	27	28	28	32			28	53	59	65	69	74	66	72	76	69	59	42			28	30		
21		34		41	32		28	54	66	75	88	93	77	78	85	65	55	37	A	A	A		26	
22		35	34	32	38		32	52	63	72	71	81	68	71	69	66	64	39		37	32		34	36
23	39		32	34	34	34	34	52	68	63	70	82	84	71	77	58	51	37	26	31	29			
24	A		32	36	37			52	64	64	79	100	71	64	65	61	57	42	36	34		26	27	
25			34	58	36		25	52	65	66	74	77	67	76	67	54	60	42	28	25		28		
26	27	28		32	23			47	64	62	66	77	71	77	58	56	59	28		28		27	32	27
27	27	30	30	27				47	67	66	65	59	69	59	52	55	49	36		28	28	A	31	
28			31			27		44	73	99	62	63	57	65	78	56	56		27	32	34	28	32	34
29		39	34	38	31	27	26	49	64	66	74	80	69	66	58	52	63		37		28	34	32	
30	31	A	30					53	67	64	65	72	78	70	64	67	53		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	18	17	22	20	23	13	24	29	30	30	30	29	29	29	29	29	29	25	13	15	12	13	15	15
MED	34	32	32	34	36	31	34	54	66	71	76	74	72	72	71	67	61	42	32	32	30	28	32	32
UQ	37	34	34	37	37	35	37	59	68	76	80	79	78	77	77	74	65	46	36	36	33	34	35	36
LQ	27	28	30	32	32	27	30	52	64	66	70	72	69	69	64	63	55	40	28	28	28	27	27	27

HOURLY VALUES OF fEs AT Kokubunji

NOV. 2010

LAT. 35°43.0′N LON. 139°29.0′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	30	28	G	G	G	42	43	G	59	53	G	G	G	G	G			G	G	G	G
2	G	G	G		G	G	G	G	G	G	G	G	G	G	G	G	G	18		32	G	G	G	G
3	G	G	G		G	G	24	38	G	G	52	G	G	G	G	G	G	11	G	G	G	G	G	G
4	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	49	37	30	G	26	28		G
5	G	G	G	G	G	G	G	G	G	G	G	46	G	G	39	G	G	29	G	G	G	G	G	G
6				G	G		G	G	G	G	G	48	46	G	G	40	35	31	37	46	49	31	24	G
7	G	G	26	25	G	G	G	G	G	G	G	G	59	G	G	G	G	28	G		G	G	G	G
8	G	G	G	G	G	G	26		G	G	G	G	G	G	G	G	31	27			25		34	30
9	29	28	G	G	G	G	G	G	G	G	G	G	G	G	40	41	28	G	G		G	G	24	G
10	G	G	G	G	G	G	G	G	G	G	G	G	49	43	50	G	35	34	25	32	G	37	32	G
11	G	G	G	G	G	G	G	28	G	52	64	44	G	G	G	G	37	43	24	G	G	27		
12	G	G	G	G	G	G	G	30	G	G	G	49	G	G	49	G	28	G	G	G	G	G	G	G
13	G	27	G	23	G	G	G	G	G	G	G	C	C	C	C	C	C	C	C	G	G	G	G	G
14	G	G	29		G		G	G	G	G	45	G	G	G	G	37	G	39			G	G	G	G
15	G	G	G	G	G		G	G	G	G	G	G	49	G	G	G	36	G	G			34	G	
16				G		27	34	G	G	G	G	G	G	G	48	G	G	29	26			G	G	G
17	G	G	G	G	G	G	G	G	38	52	G	53	G	56	G	G	G	G	G		G	G	G	G
18	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	23	G	G			G	G
19	G	G	G	G	G	G	11	G	G	G	G	G	G	G	G	G	G	G		G	G	G	G	G
20	G	G	G	G	G	G	G	G	G	G	G	G	G	44	G	G	G	11	G	G	G	G	G	
21		G	G	G	G	26	G	G	G	G	45	G	G	G	G	G	G	31	33	32	29		G	G
22	G	G	G	26	G	G	G	G	N	G	G	G	G	G	G	G	G	G		G	G	G	G	G
23	G	G	G	G	G	G	G	28	G	G	G	G	G	G	G	G	G	G	G	G	G		G	
24	23	30	G	G	G		G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	
25	G	G	G	G	G		G	G	G	41	50	38	G	45	49	G	43	24	G	G		G	G	G
26	26	G	G	G	G			G	47	G	G	G	38	G	G	36	G	11	G	G		G	28	G
27	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	30	G	
28	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	29		G	G	G	G	G	G
29	28	G	G	23	G	G	G	G	G	G	G	G	G	G	37	G	G	33	G	G	G	G	G	G
30	29	26	G	29	28	29	G	G	G	G	G	G	G	G	G	50	51	34	35	24	G	23		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	28	28	27	29	24	29	29	29	30	30	29	29	29	29	29	29	28	23	22	25	26	27	24
MED	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	20	G	G	G	G	G	G
U Q	G	G	G	G	G	G	G	G	G	G	G	19	G	G	19	G	33	31	25	G	G	23	G	G
L Q	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G

HOURLY VALUES OF fmin AT Kokubunji

NOV. 2010

LAT. 35°43.0′N LON. 139°29.0′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	20	14	13	14	20	15	13	15	15	13	15	15	39	17	14	17	13			14	17	15	17
2	21	14	14		13	18	15	14	13	17	15	38	40	42	37	33	15	14		14	17	17	14	14
3	14	14	14		14	14	14	13	13	14	14	14	40	39	18	15	21	13	14	14	18	13	13	13
4	14	14	13	17	14	18	14	13	13	17	15	18	39	15	14	13	13	13	13	15	15	13		15
5	15	14	13	14	13	14	13	22	14	43	40	36	42	37	18	14	13	13	14	15	13	13	15	14
6				13	17		13	14	14	15	17	15	18	41	39	18	14	13	13	13	13	13	14	14
7	20	14	14	13	14	14	14	23	13	13	15	40	14	13	17	14	20	14	14		14	13	14	14
8	14	17	14	20	15	17	15	25	14	14	40	41	14	39	37	18	15	13			15		13	13
9	13	13	13	17	13	13	14	22	13	15	39	17	40	13	13	13	14	14	14		17	13	14	15
10	13	14	13	13	13	14	14	13	13	18	18	15	23	18	15	13	13	13	14	14	13	13	14	20
11	14	14	17	15	14	14	13	14	14	18	13	21	40	17	21	13	13	13	15	18	14	14		
12	17	15	13	14	14	18	14	15	14	14	17	33	39	37	14	14	13	15	14	14	21	14	14	18
13	15	13	14	13	14	14	14	22	18	15	15	C	C	C	C	C	C	C	C	14	14	14	14	13
14	18	17	13		14		14	17	13	14	31	17	39	15	40	13	18	14			13	14	18	14
15	13	14	15	15	14		13	21	13	37	17	40	41	22	21	14	14	15	14			13	14	
16				15		15	13	13	17	37	40	40	40	38	13	13	13	13	14			14	13	14
17	17	14	14	14	14	14	14	34	17	22	39	23	38	17	18	34	20	14	14		14	18	14	15
18	14	14	14	17	14	14	14	20	33	37	17	39	39	21	14	13	17	13	14	17			18	15
19	15	15	14	14	17	14	15	17	13	14	15	17	18	39	18	18	15	15		14	17	15	14	14
20	13	14	14	14	14	14	14	21	13	14	15	39	39	14	13	14	17	13	17	15	14	14	15	
21		14	14	13	13	13	15	15	13	36	13	17	21	40	15	15	18	13	14	13	14		14	14
22	14	13	14	13	14	14	13	21	13	14	13	14	13	39	21	14	22	15		13	13	15	15	18
23	13	17	14	18	17	14	14	21	13	17	14	37	20	15	14	15	18	14	17	14	15		21	
24	14	13	17	13	14		20	13	14	21	36	39	39	14	18	14	17	15	14	14	14	17	13	
25	14	14	15	13	13		14	20	13	14	13	17	20	17	15	13	13	14	15	14		21	14	13
26	13	13	14	15	23			21	18	18	39	34	23	15	17	13	14	13	18	14		13	14	13
27	13	14	14	15	13	15	15	33	14	38	38	39	39	37	15	18	20	17	18	17	17	14	15	
28	15	14	13	14	15	17	14	20	13	13	37	17	22	18	14	13	15		20	14	14	14	14	14
29	17	14	14	14	14	15	14	20	13	36	15	22	37	17	17	34	21	13	14	18	14	13	14	14
30	14	14	14	13	14	13	18	20	13	17	14	15	15	13	15	13	13	13	14	14	14	14		13
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	27	28	28	27	29	24	29	30	30	30	30	29	29	29	29	29	29	28	23	22	25	26	27	24
MED	14	14	14	14	14	14	14	20	13	17	16	22	38	18	17	14	15	13	14	14	14	14	14	14
U Q	15	14	14	15	14	16	15	21	14	22	37	39	39	39	19	16	18	14	15	15	16	15	15	15
L Q	13	14	13	13	13	14	14	14	13	14	14	17	19	15	14	13	13	13	14	14	14	13	14	13

HOURLY VALUES OF foF2 AT Yamagawa

NOV. 2010

LAT. 31°12.0′N LON. 130°37.0′E SWEEP 1.0MHz TO 30.0MHz AUTOMATIC SCALING

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	28	32	34		34	27	28	58	64	71	86	92	71	72	68	72	90	73	42	A	A	34	31	34
2	36	36	34	34	37	28		54	65	61	67	76	62	65	78	81	72	46	42	32	26	28	A	
3	31	34	34	32	34	26	29	53	60	67	77	84	77	75	71	76	70	66	46	36	A	A		
4		34	31	31	29		49	52	72	74	81	78	62	72	82	75	66	66	54	37	34	38	A	34
5	28	34	34	32	34	29	28	52	64	76	90	72	68	82	95	78	76	66	54	36	38	37	28	
6		32	30	31	26	31	32	50	68	71	86	84	88	88	95	92	78		43	A		A	A	
7	A	30	29	29	37	28		55	62	65	77	94	82	86	95	92	70	60	A	32	32	32	A	28
8	28	30	28	26	34	44		48	61	60	76	77	71	67	84	78	81	71	50			31		25
9	30	31	32	32	34	31	30	52	65	66	72	65	71	82	89	80	70	54	34		29	29		A
10	30	32	26	34	36		34	48	60	58	71	78	64	74	89	95	84	66	40	40	A	37	34	30
11	31	29	28	29	36	29		42	54	68	78	81	72	71	87	85	80	67	43	31	32	32	38	34
12	34	31	34	36	45		28	51	75	91	90	98	94	87	80	77	71	61	42	48	46	43	37	37
13	36	40	32	34	34		26	51	62	75	84	91	85	82	85	76	71	64	62	37	37	40	36	36
14	28	30	32	31	28			50	69	74		73	76	77	90	87	67	59	43		43	41	29	31
15	30	32	30	30	34	26		44	55	71	95	80	71	72	78	80	66	56	50	42	34	34	39	34
16					29	30	30	53	55	62	72	83	80	70	77	72	68	55	45			32	26	26
17	26	29	29	34	35			52	60	66	87	96	75	78	86	80	71	55	39	31	32	36	36	34
18	31	26	34	34	42	34		40	54	93	78	70	69	68	80	80	90	74	47	41	44	40	34	30
19	29	30	31	37	41			48	60	72	71	78	77	76	85	81	80	66	45	A	A	29		28
20	30	29	32	34	34			45	65	67	66	72	72	75	85	82	66	55	47	32		30	30	
21	30	31	32	36	34	A		42	63	68	78	85	78	78	102	76	64	60	48		37	28	26	28
22	29	30	30	32	36			46		60	64	71	77	76	77	69	57	63	A	34	34		28	29
23	32	28	28	28	29	30	29	41	55	64	76	77	71	75	80	61	55	50	38	35	A		24	
24	29	30	28	29	37			40	60	65	76	85	67	65	80	68	60	54	37	40	34		26	26
25	26		29	34	34	26		42	54	65	83	67	71	77	81	45	65	A		A	31	32		26
26	28	30	31	A	A	32		42	62	67	68	72	75	86	87	71	64	55	30	A		28	30	32
27	28	28		34	36				63	67	73	72	67	67	65	57	55	45	37	30	40	36	35	29
28	28	31	30	30	26			35	69	99	64	57	54	72	77	68	56	45	36	34	31	31		31
29	34	32	29		34	29	28	38	72	68	65	74	68	71	76	71	66	58	42	31	30	34	34	30
30	29	29				29	29	43	54	67	72	72	73	72	82	65	62	55	45	A	A	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	26	28	27	25	28	17	13	29	29	30	29	30	30	30	30	30	30	28	27	19	19	25	20	22
MED	30	30	31	32	34	29	29	48	62	67	76	78	72	75	82	76	69	60	43	35	34	32	30	30
U Q	31	32	32	34	36	31	31	52	65	72	83	84	77	78	87	81	76	66	47	40	38	37	35	34
L Q	28	29	29	30	34	27	28	42	57	65	71	72	68	71	78	71	64	55	39	32	31	29	28	28

HOURLY VALUES OF fEs AT Yamagawa

NOV. 2010

LAT. 31°12.0′N LON. 130°37.0′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	29	G	G	G	27	33	42	44	44	G	G	G	45	47	35	44	32	36	G	30	27
2	30	24	G	G	G	G	G	G	G	G	G	G	G	41	43	41	47	G	G	G	G	G	44	34
3	G	G	G	G	G	G	G		37	42	48	48	44	G	G	G	41	36	36	32	32	32	29	29
4	27	24	G	G	G	G	G	G	G	37	44	G	G	49	G	G	G	G	G	G	G	29	39	33
5	G	G	G	G	25	G	G	27	34	G	47	51	46	50	56	53	43	34	25	G	24	G	G	
6		G	G	G	G	G	G	G	G	44	G	G	48	G	G	G	37	34	32	33	28	39	48	
7	33	G	24	29	G	G	G	G	G	41	44		46	G	44	44	G	33	50	G	G	28	57	G
8	G	32	G	G	G	G		G	G	G	G	G	G	G	47	43	42	32	11	G	33	G	31	59
9	25	28	28	G	28	G	G	G	G	36	G	G	44	43	51	48	44	G	23	G	25	G		45
10	G	26	G	G	G		G	G	G	36	46	G	58	49	56	49	G	G		29	36	30	24	G
11	G	25	G	G	G	G	G		G	41	50	51	48	58	45	36	44	29	24	G	G	G	G	G
12	G	G	G	G	G	G	G	G		G	G	48	52	80	103	46	G	28	29	G	32	G	G	G
13	G	29	G	30	30		G	26	32	G	42	44	48	48	48	40	49	58	29	G	G	G	G	G
14	G	G	G	G	G		G	G	32	G		G	43	41	G	36	G	33	35	25	32	G	32	G
15	G	G	G	G	G	G	G	G	32	G	44	66	44	G	40	36	32	G	60	31	G	G	G	G
16					G	G	G	G	33	39	44	46	70	40	G	43	G	29	33	30	25	G	G	G
17	G	G	G	G	G	G	G	26	52	50	44	47	58	43	39	38	34	G	G	G	G	G	G	G
18	G	G	G	G	G	20	G	G	46	40	G	42	G	N	G	G	34	G	27	G	24	G	G	G
19	G	G	G	G	G		G	G	38	39	43	42	G	G	G	G	44	28	26	44	34	26	G	G
20	G	G	G	G	G	G	G	G	G	39	G	45	43	43	39	37	36	26	25	28		G	G	
21	G	24	40	34	20	29	27	26	32	G	44	39	43	39	G	G	G	G	G	34	G	G	G	G
22	G	G	G	G	G	G	G		G	G	G	42	G	G	40	40	G	G	39	28	G	G	G	G
23	G	G	G	G	G	G	G	29	G	G	G	G	40	G	G	G	G	G	G	25	28	26	G	
24	G	G	G	G	G	25		26	G	39	44	46	49	39	39	G	G	G	G	G	G		G	G
25	G	G	G	G	G	G	G	G	G	G	39	43	50	53	42	51	40	47	40	40	24	G	G	G
26	G	G	G	32	36	36		G	G	40	46	G	46	50	41	37	31	30	27	33		G	G	G
27	24	G		G	G		G		36	G	41	G	43	G	G	36	G	35	31	G	24	28	44	33
28	G	G	G	G	G	G		G	G	39	G	G	50	G	G	46	40	G	G	26	G	28	26	24
29	G	G	G	30	24	G	G		32	G	G	G	44	41	G	G	31	40	G	G	G	G	G	G
30	G	G	G	30	34	26	G	G	G	36	41	41	48	45	41	40	34	33	G	32	33	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	28	29	28	29	30	25	26	25	29	30	29	29	30	29	30	30	30	30	29	30	28	29	29	25
MED	G	G	G	G	G	G	G	G	G	36	42	42	44	41	39	38	34	28	26	25	24	G	G	G
U Q	G	24	G	15	G	G	G	26	33	40	44	46	48	48	44	44	42	34	34	32	32	27	30	28
L Q	G	G	G	G	G	G	G	G	G	G	G	G	40	G	G	G	G	G	G	G	G	G	G	G

HOURLY VALUES OF fmin AT Yamagawa

NOV. 2010

LAT. 31°12.0′N LON. 130°37.0′E SWEEP 1.0MHz TO 30.0MHz AUTOMATIC SCALING

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

HOURLY VALUES OF foF2 AT Okinawa

NOV. 2010

LAT. 26°41.0′N LON. 128°09.0′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								47	72	76	92	103	88	107	104	101	127	98	59	44	44	53	43	
2			51	46	44	44	32	48	65	58	64	84	70	70	87	87	78	72	63	39				
3		30	29		34			54	60	61	72	88	74	76	87	96	89	67	55		A	A	A	
4		32		30				55	67	73	78	80	67	78	86	85	96	84	60	44		34		30
5			A		49			52	64	70	82	91	64	80	108	105	104	80	78	52	34		34	30
6							26	54	62	67	86	105	101	110	142	159	137	90	77	44	34	53	32	29
7	29	29						47	59	66	80	102	113	131		135	122	92	67	51	42			32
8		34			44	42		44	58	62	67	90	102	116	128	140	129	113	81	50		46	37	42
9			34	34	44	47		48	65	72	74	77	85	97	114	116	98	73	47	36	36	43		
10		29	28	29	28	29		48	68	62	67	89	82	85	108	118	124	110	116	76	67	67	50	43
11	36	34	32	32	34	32		44	54	69	74	72	87	89	90	A	107	103	73	52	44	44	44	42
12	35		34		35			48	84	84	106	118	88	88	96	90	85	85	63	52	53	54	42	
13			37		30			54	67	66	84	86	100	98	90	84	79	92	88			51	52	42
14	34							52	67	76	85	78	75	100	101	98	80	68	58	41	44	48	35	
15					32	30		48	64	65	95	100	71	70	88	96	78	67	53	53	53	53	52	
16	29					26		51	65	64	78	78	84	86	90	90	84	76	57	53	36	34	34	
17					34			47	65	77	86	105	111	106	110	106	104	88		43		43	34	35
18				36	46			43	55	68	90	90	97	121	128	121	134	140	104	67	A	A		44
19	37	32	34	46	46			45	52	67	78	80	90	112	100	84	100	88	64	53	34	43	32	
20			30	32	A	A	A	43	60	67	73	76	88	98	111	104	90	67	62	44				
21			34	34				41	63	77	88	95	94	102	111	110	107	86	78		43	43	30	
22	32			32				42		61	69	78	85	94	83	82	61	67	46	29	44			30
23		28			28		32	37	52	66	87	98	76	79	87	81	65	60	47	28	34		29	
24			32	30	29			34	61	97	67	76	77	80	94	90	91	81	48	44	44			
25		29							54	77	89	86	73	77	90	86	67	66	46	A	43		31	31
26	26	29	31	26				40	54	65	80	81	81	108	130	136	127	98	63	43	36		36	
27				41	46			38	67	57	74	79	67	70	72	63	61	61	44		46	47		
28			29					36	55	108	67	58	61	76	90	82	62	53		34	44	34		
29	28	32				28		40	65	66	64	75	73	74	76	84	86	67	58	43	31	44		
30								37	54	65	75	72	71	77	82	81	70	64	46	51	43		31	
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	9	11	13	13	16	8	3	29	29	30	30	30	30	30	29	29	30	30	28	25	22	18	18	12
MED	32	30	32	32	34	31	32	47	63	67	78	85	83	88	94	96	90	80	61	44	43	45	34	34
U Q	35	32	34	38	45	43	32	49	66	76	86	95	90	106	110	113	107	92	75	52	44	53	43	42
L Q	28	29	29	30	31	28	26	40	55	65	72	78	73	77	87	84	78	67	50	42	36	43	32	30

HOURLY VALUES OF fEs AT Okinawa

NOV. 2010

LAT. 26°41.0′N LON. 128°09.0′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	G	G	44	G	G	G	26	29	G	28
2		G	G	G	G	G	G	G	G	G	G	G	G	58	G	44	34	34	G	G				
3		G	G	G	G			G	38	48	50	59	55	G	G	G	57	42	45	37	38	44	32	
4	27	G	G	G				G	G	G	43	G	G	G	42	39	41	G	39	G		G		G
5		G	29		G			29	G	G	G	G	48	G	G	G	G	G	G	G	G	G	G	G
6					G		G	G	G	G	G	G	G	G	G	G	G	29	G	G	G	G	G	G
7	G	G		28	29			G	G	G	G	G	G	G	G	G	G	G	G		G	36		G
8	G	G			G	G		G	G	G	G	G	G	G	G	44	35	G	11			G	G	G
9		32	G	G	G	G	G	G	G	G	G	G	G	G	51	54	44	30	27	G	G	27	28	
10		G	G	G	G	G		G	G	G	50	52	45	G	40	43	46	34	G	32	27	G	36	30
11	27	G	G	G	G	G		G	G	G	48	50	54	G	58	152	48	94	37	G	29	G	G	G
12	G	G	G		G			G	G	G	G	40	45	49	41	57	42	31	G	G	G	G	G	
13		24	G		G			G	G	41	G	50	53	48	41	37	50	34	G	G		G	G	G
14	G				G			G	G	G	47	G	G	G	39	G	G	G	G	G	G	G	G	G
15				G	G	G		G	G	G	G	45	G	64	49	G	133	40	G	G	G	G	G	
16	G					G	G	G	G	G	G	G	G	G	G	G	G	28	G	G	G	G	G	
17	G				G			G	37	G	62	62	G	G	G	G	G	G		G		G	G	G
18		G		G	G			G	40	G	G	G	G	G	G	G	G	34	11	38	55	54		G
19	G	G	G	G	G			G	G	G	G	40	47	46	47	G	38	G	11	G	26	G	G	
20			G	24	31	26	29	28	G	G	G	G	G	52	48	G	35	31	27	30	28	G	G	
21			G	G				G	G	G	G	46	G	G	G	G	G	34	29	G	G	G	G	
22	G	G		G				G		G	G	G	G	G	G	49	36	G	11	G	G			G
23		G			G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	28	G		G	
24			G	G	G			G	G	36	G	48	48	G	G	38	34	34	37	33	27			G
25		G		G	G			G	G	G	G	61	53	42	G	51	35	32	29	49	G		G	G
26	G	G	G	G		G		G	G	G	N	G	G	49	47	50	72	37	28	25	29	32	28	
27				G	G			G	G	G	G	40	G	G	G	45	38	28	G	G	G	G		
28		G	G	26	G			26	G	G	G	G	G	G	G	44	G	34	G	G	G	G		
29	G	G	G	G	G	G	G	G	35	49	G	G	G	44	G	G	G	G	G	G	G	G	G	
30					G	G	G	G	G	G	G	G	G	G	52	50	39	38	33		24	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	12	19	16	19	25	12	8	30	29	30	29	30	30	30	30	30	30	30	29	27	25	25	22	15
MED	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	19	35	30	G	G	G	G	G	G
U Q	G	G	G	G	G	G	G	G	G	G	G	46	45	44	42	45	44	34	28	28	27	14	G	G
L Q	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G

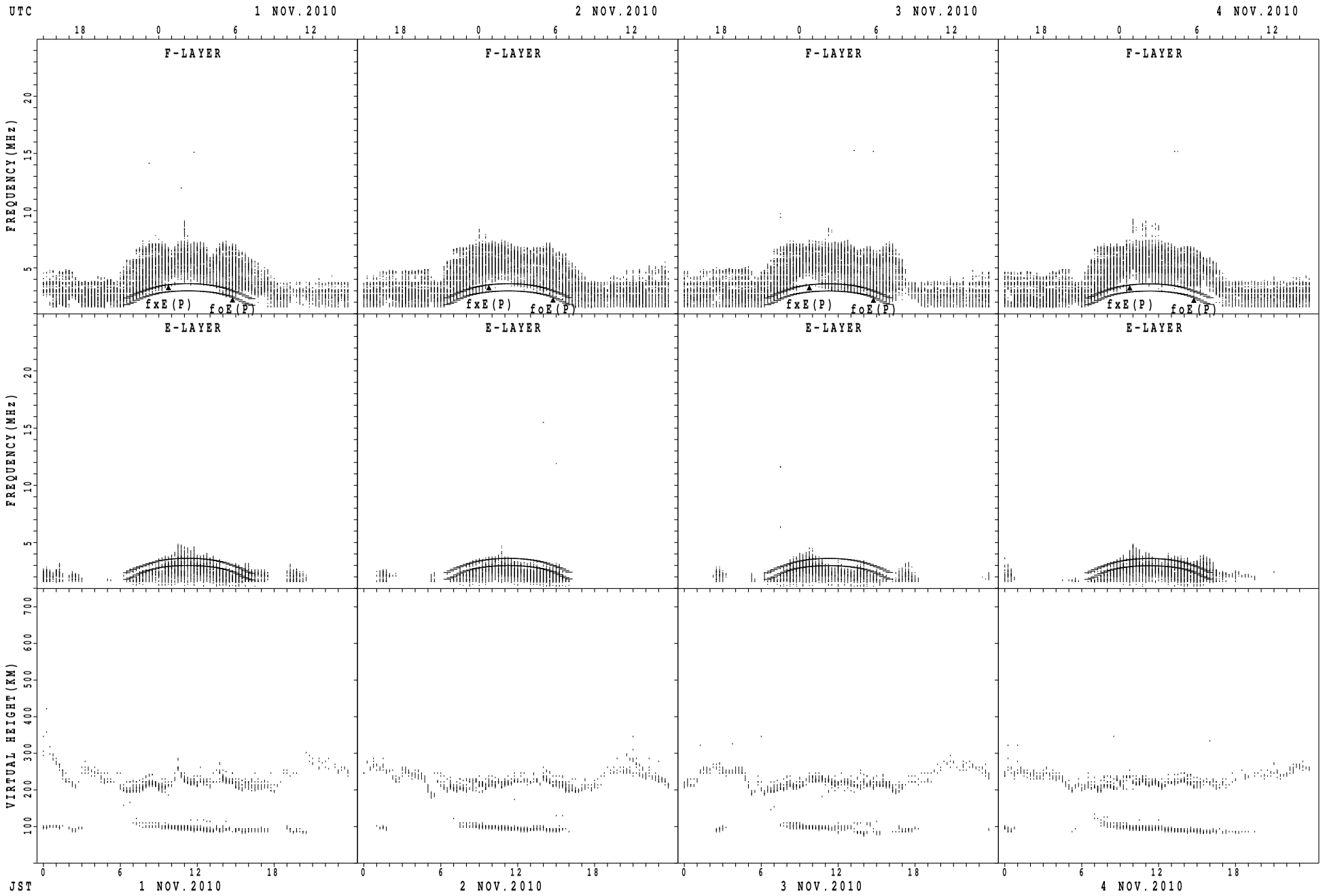
HOURLY VALUES OF fmin AT Okinawa

NOV. 2010

LAT. 26°41.0′N LON. 128°09.0′E SWEEP 1.0MHz TO 30.0MHz AUTOMATIC SCALING

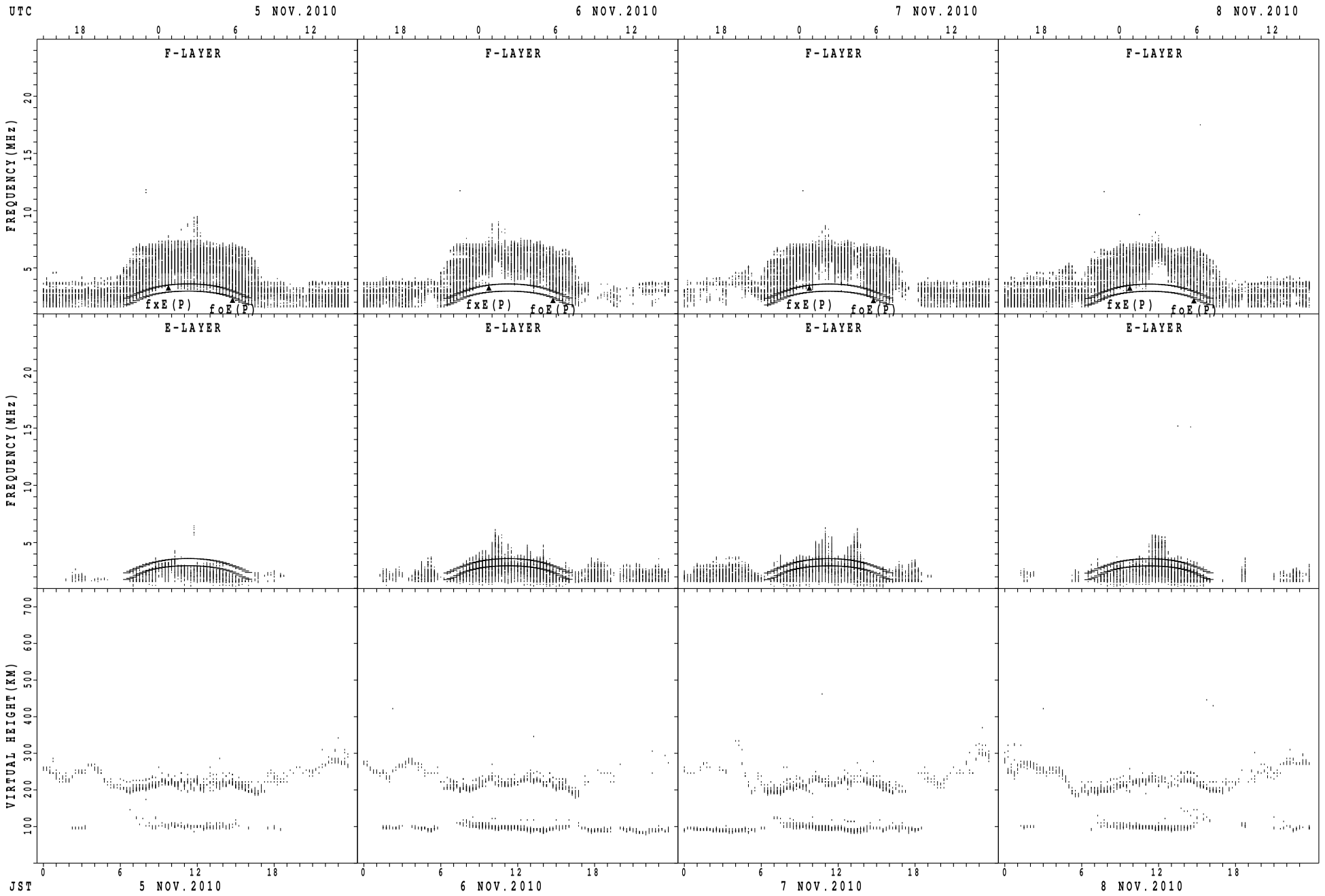
D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1					20			22	18	14	44	43	40	51	42	37	27	21	15	14	17	16	22	15
2		20	22	40	24	15	15	20	14	17	41	41	42	35	43	29	34	15	14	16				
3		22	17	20	21			20	15	29	30	30	32	42	42	36	22	15	20	16	15	14	14	
4	15	20	15	14				21	15	21	27	28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

SUMMARY PLOTS AT Wakkanai



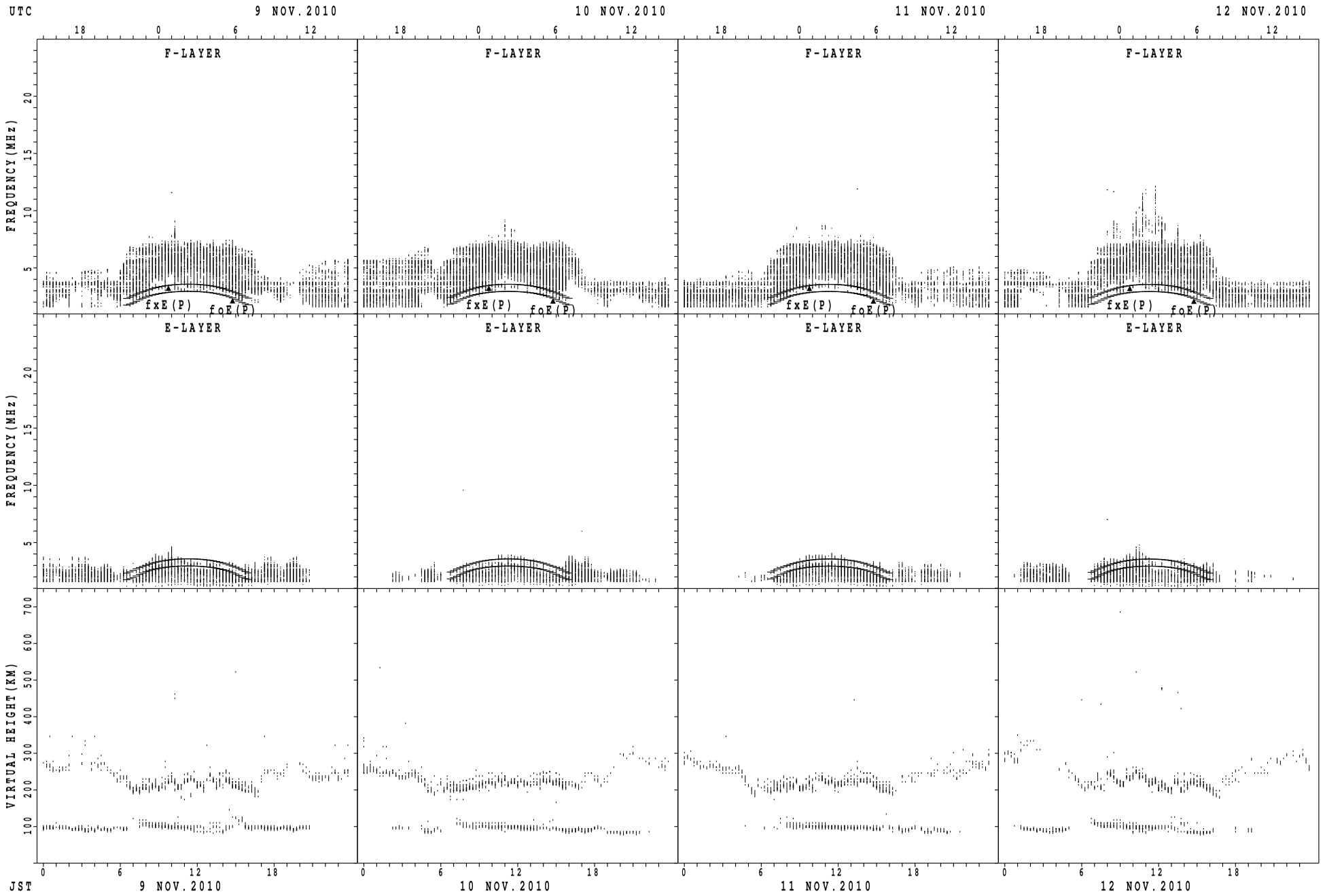
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



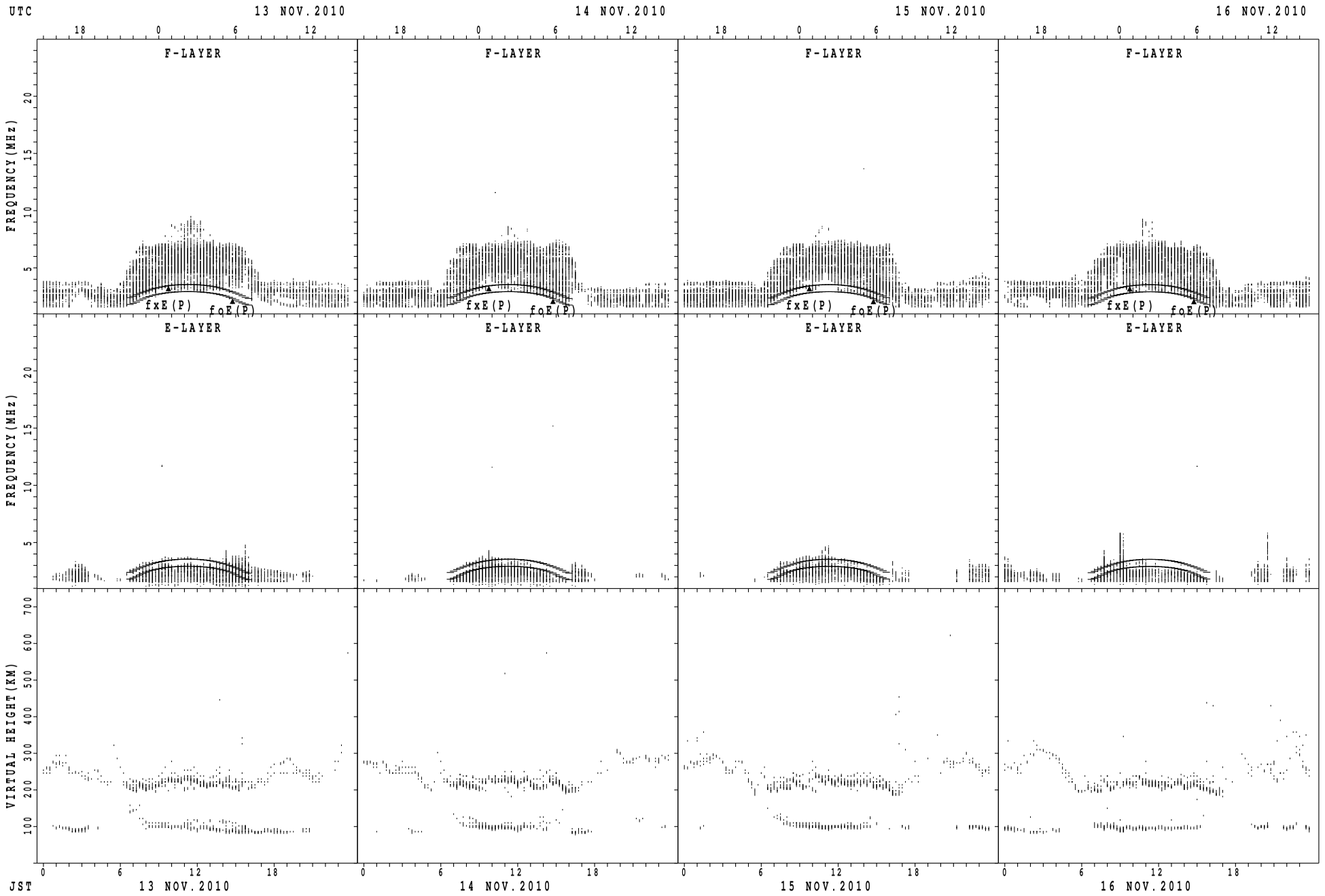
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



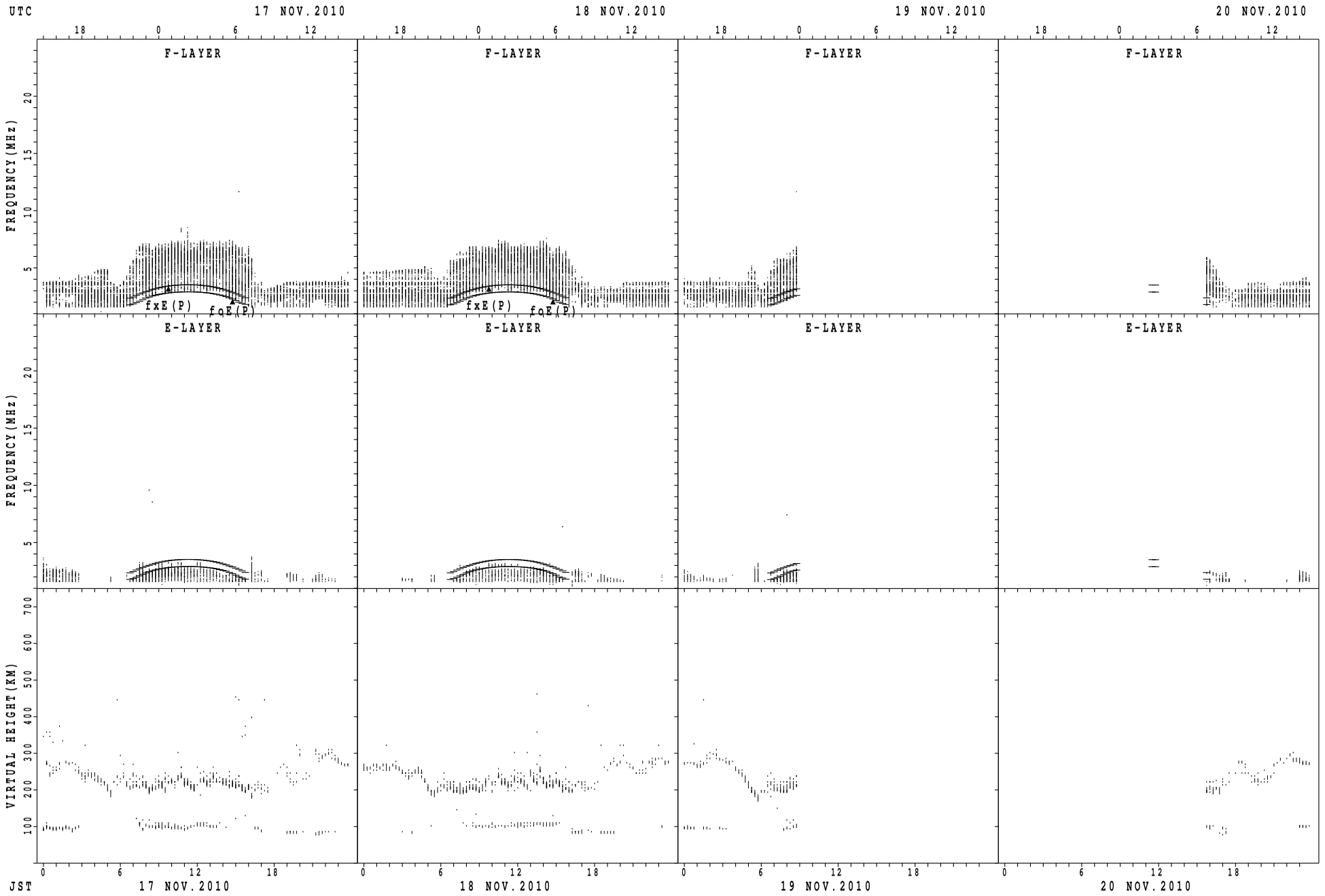
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



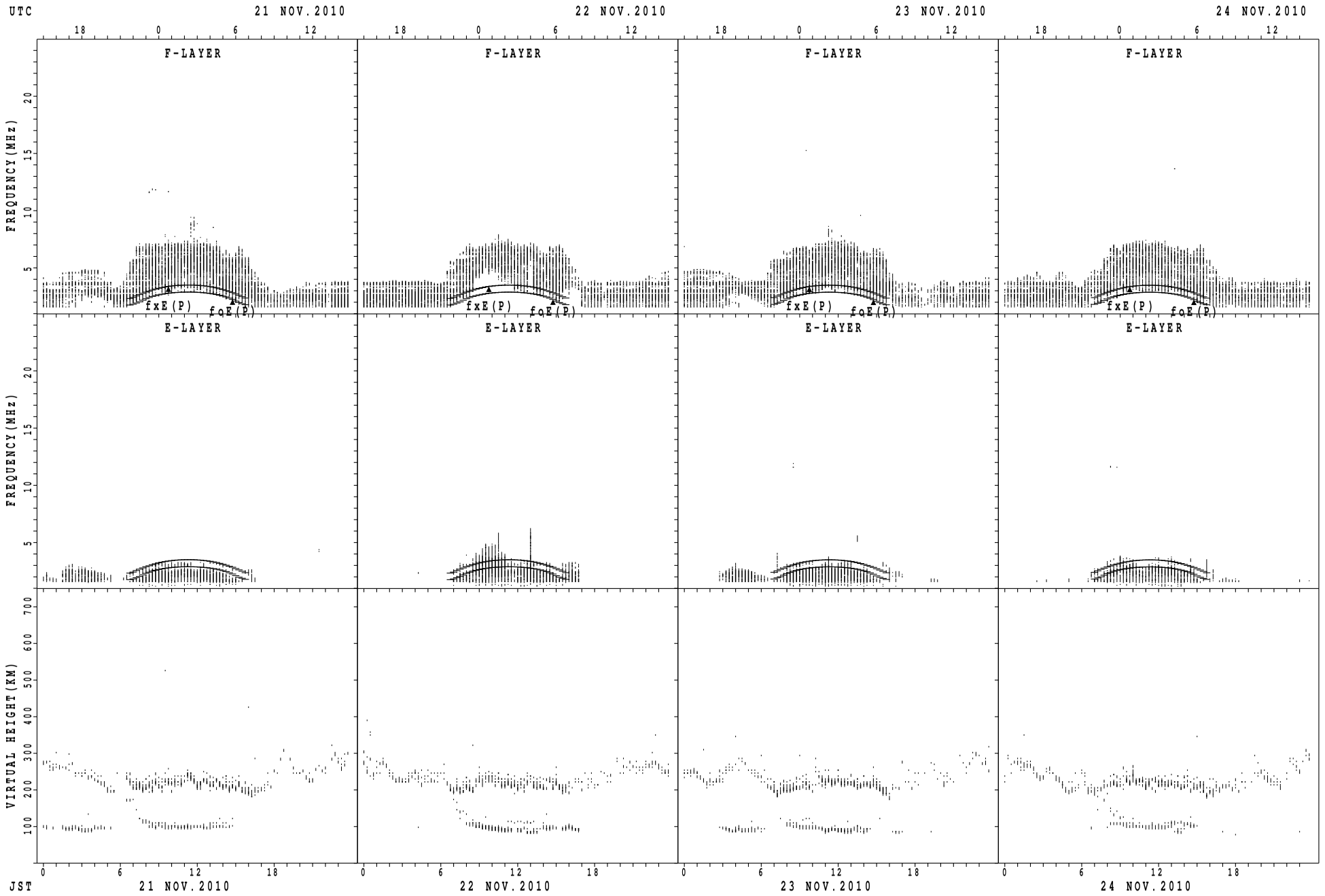
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



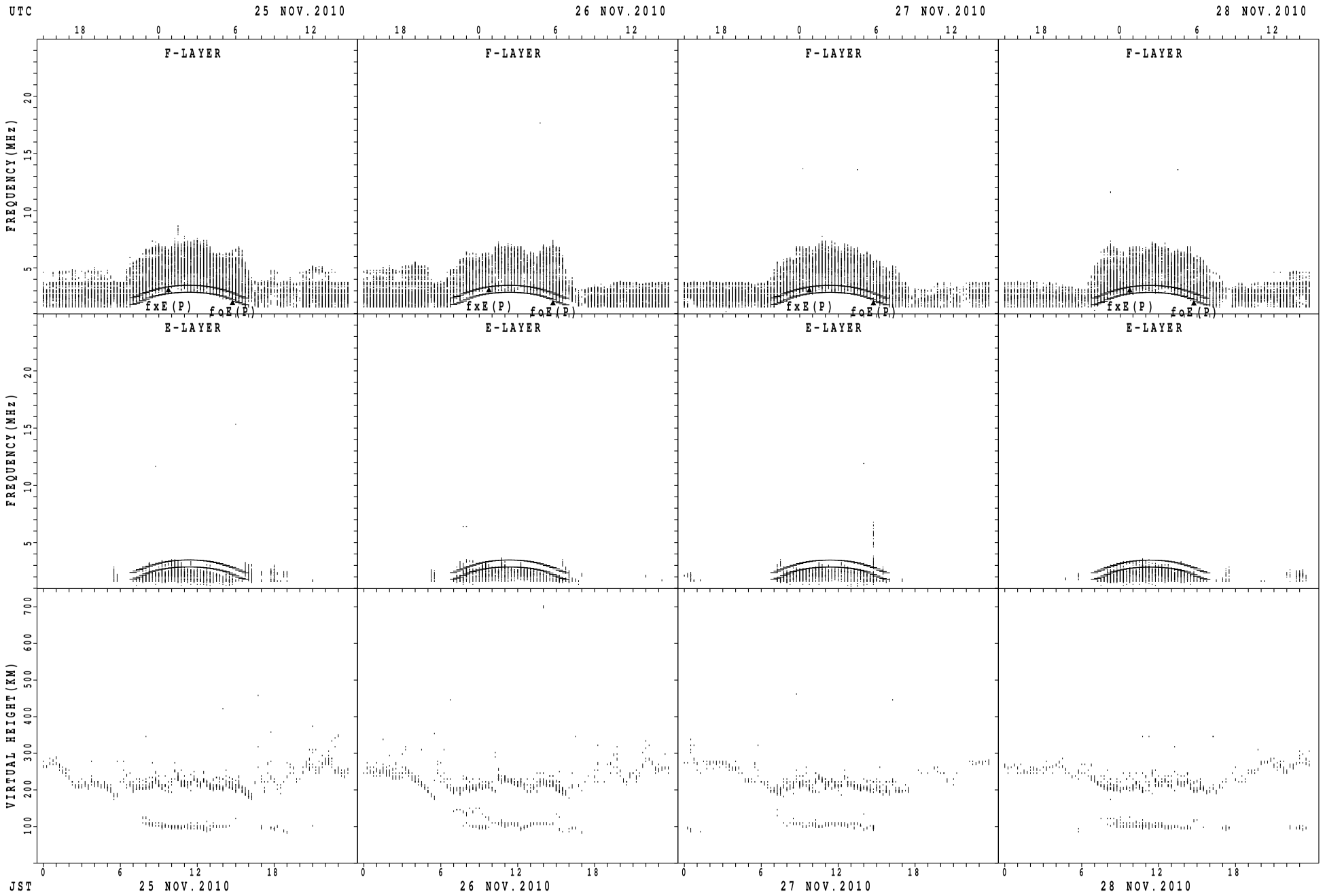
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



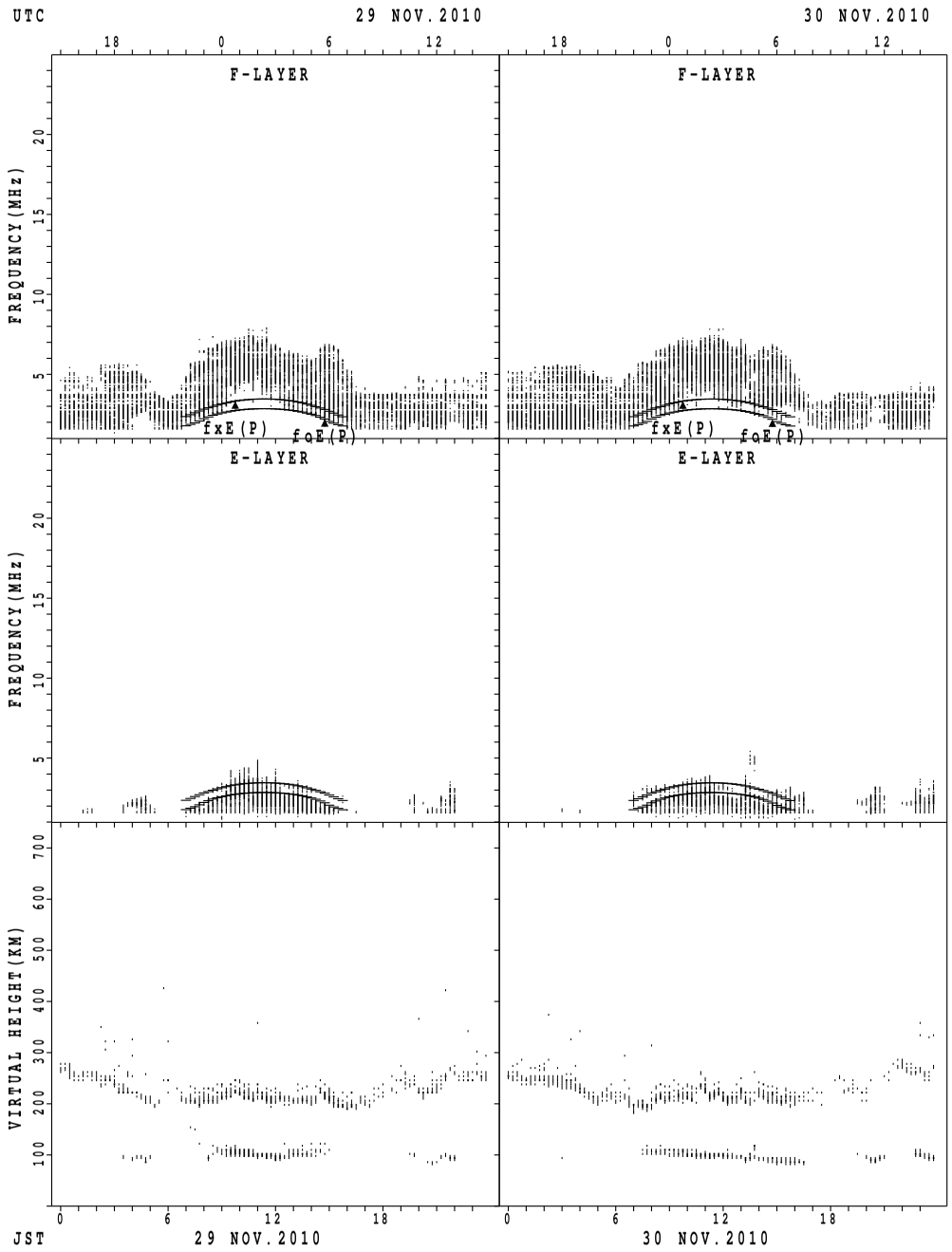
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



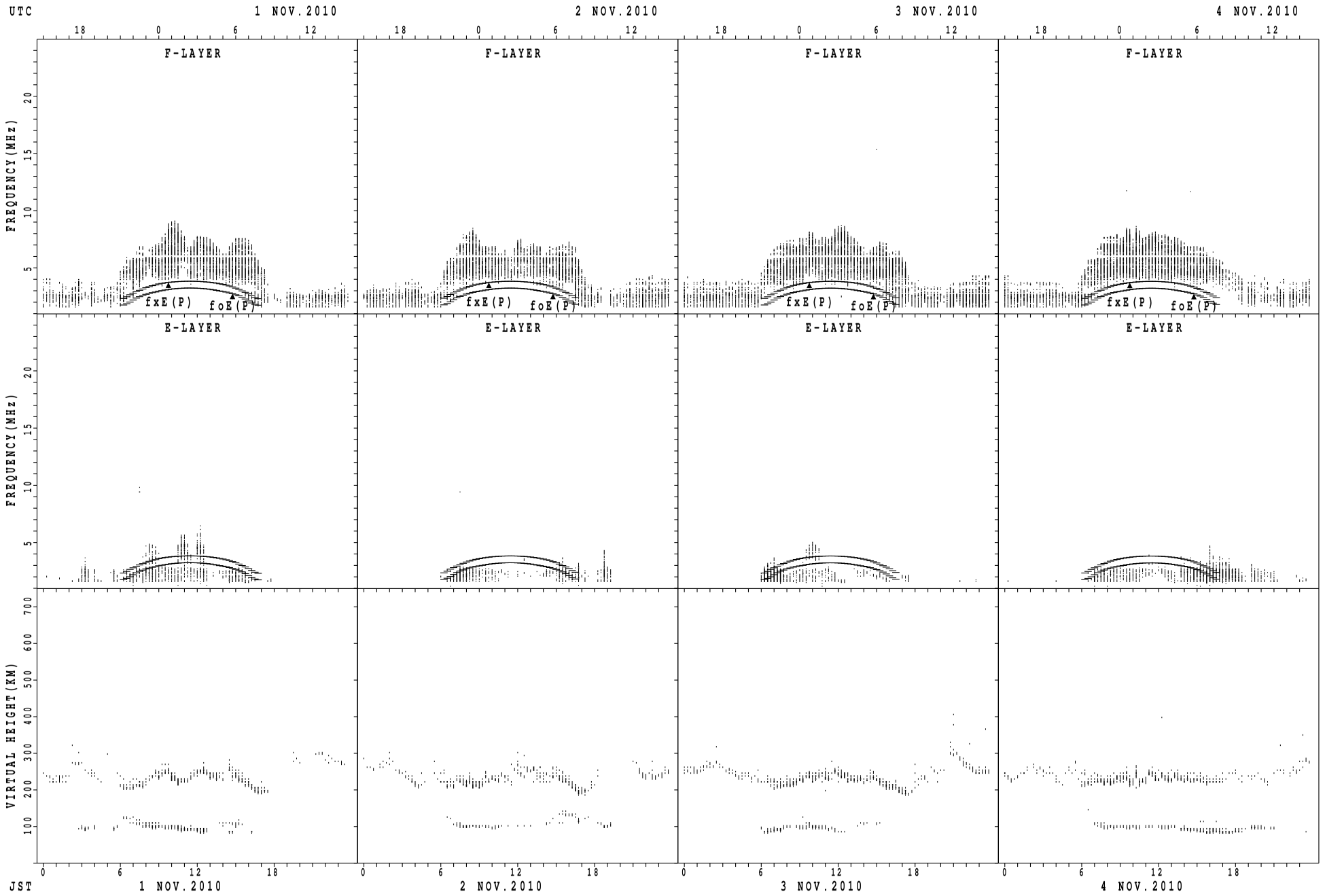
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



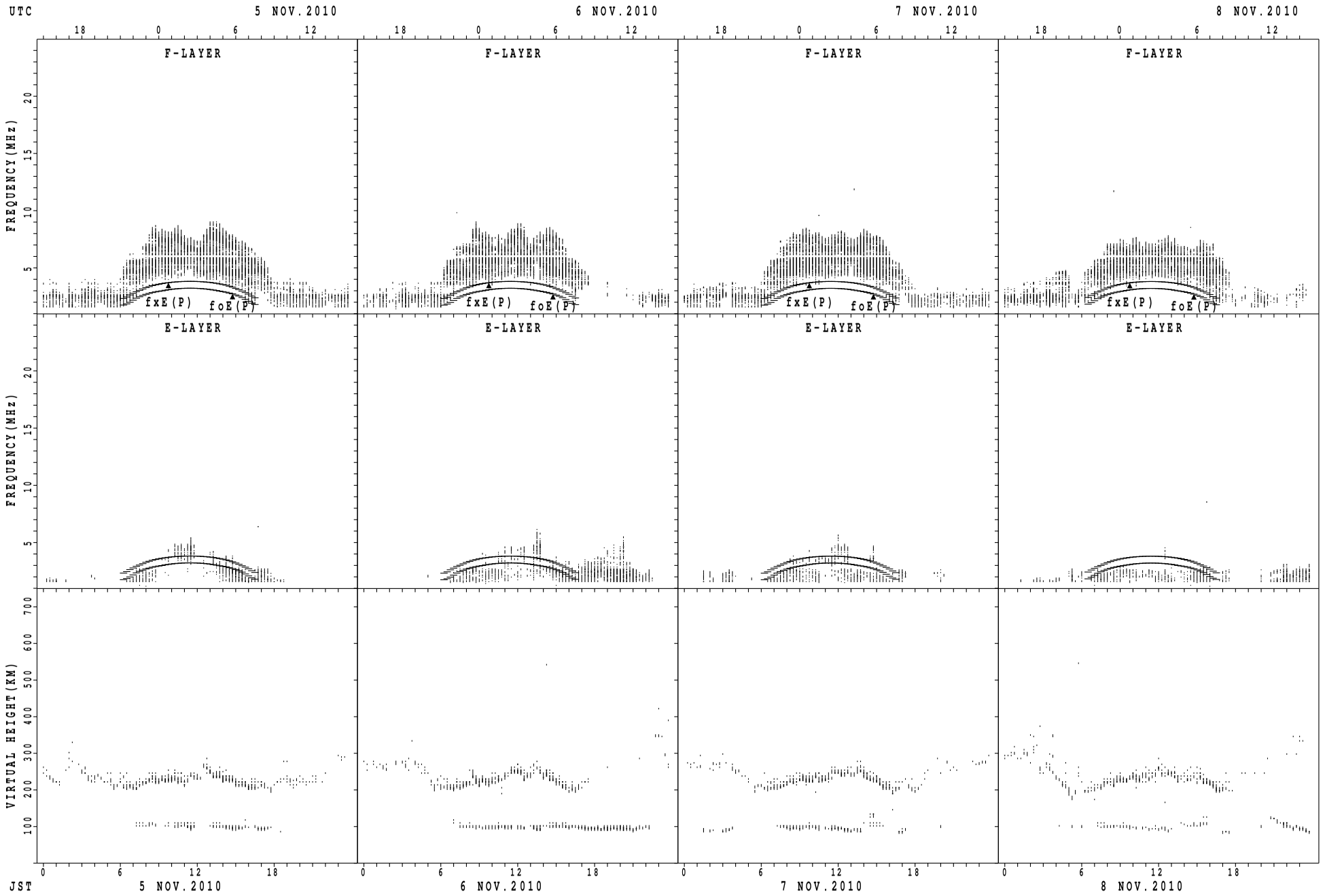
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



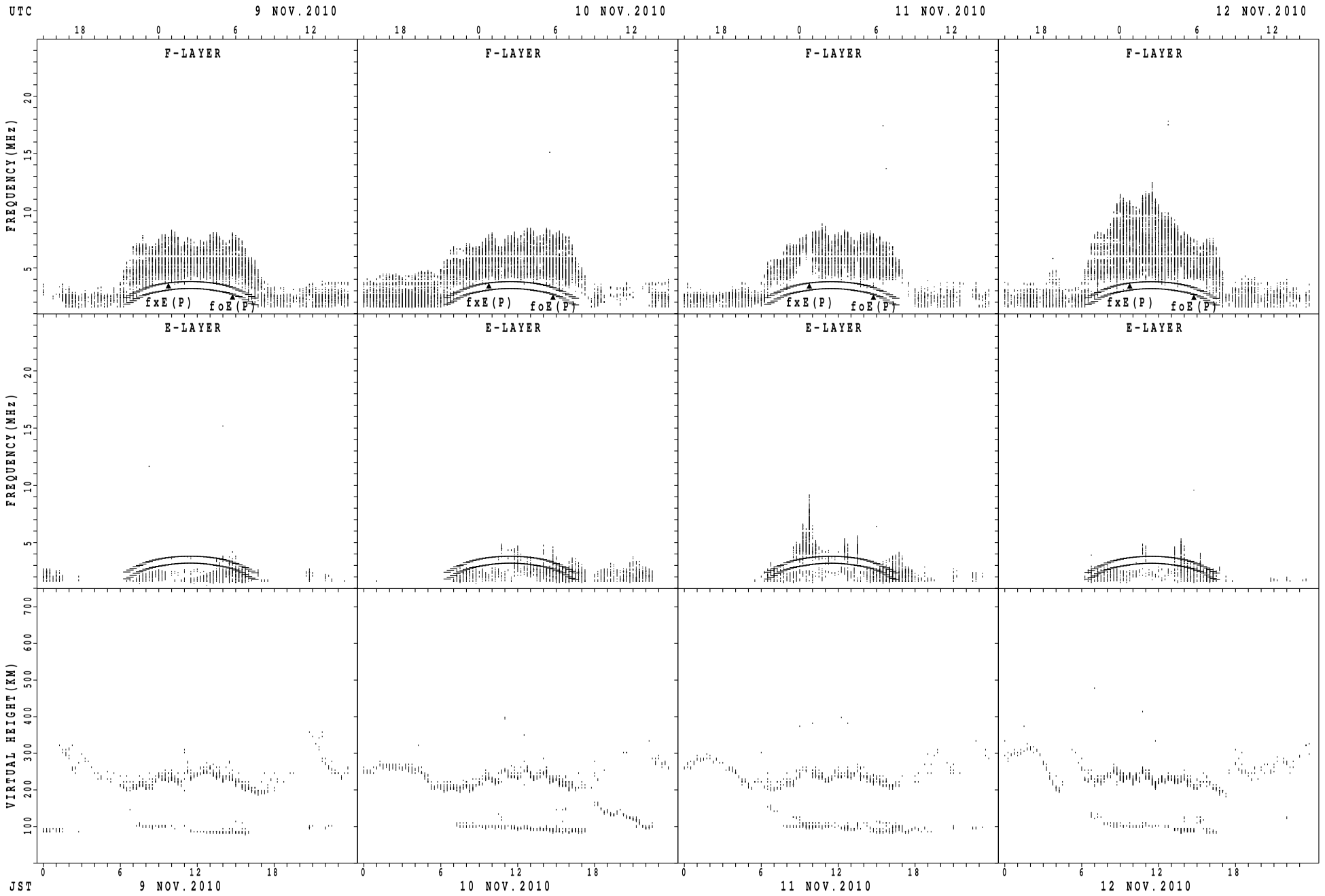
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



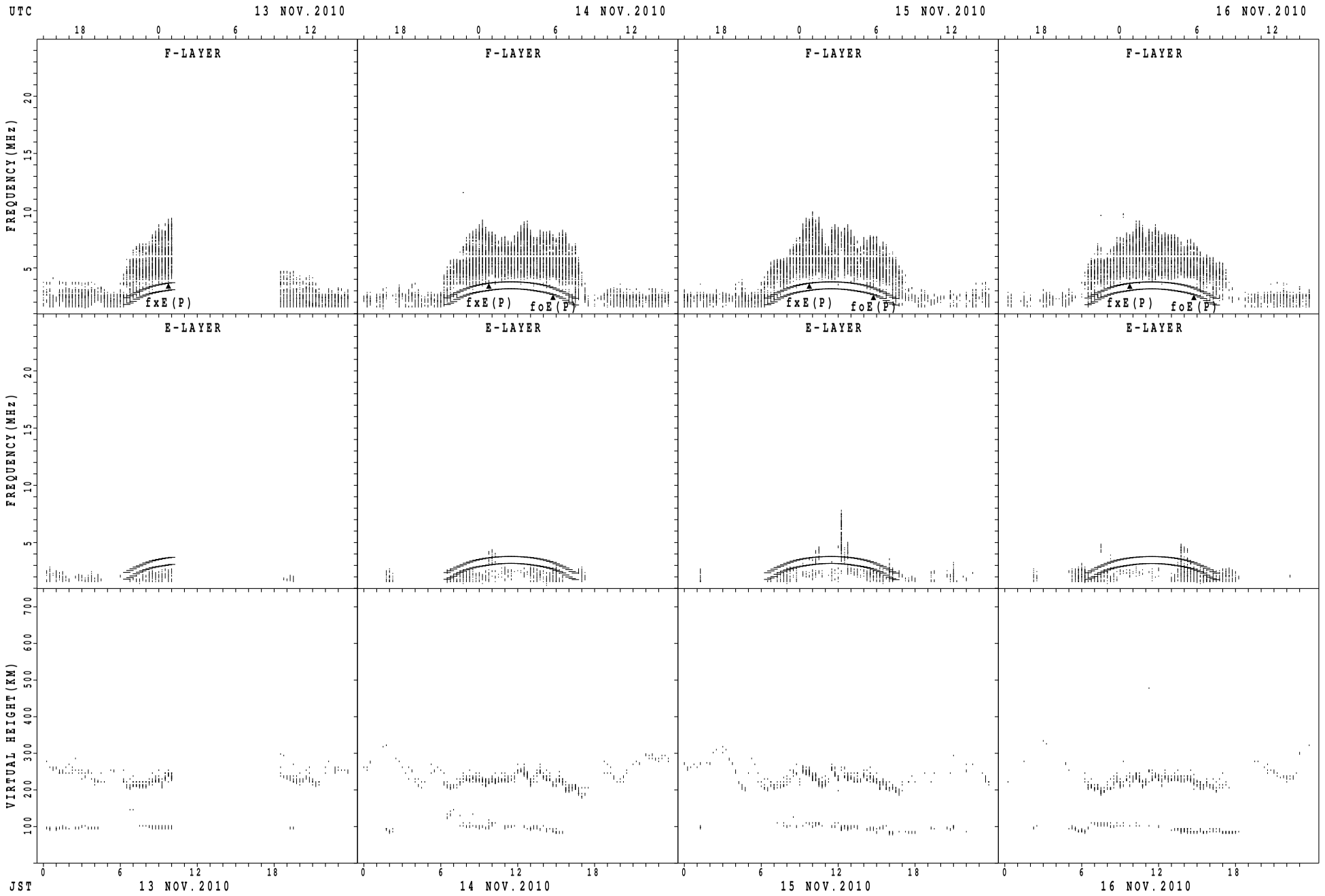
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



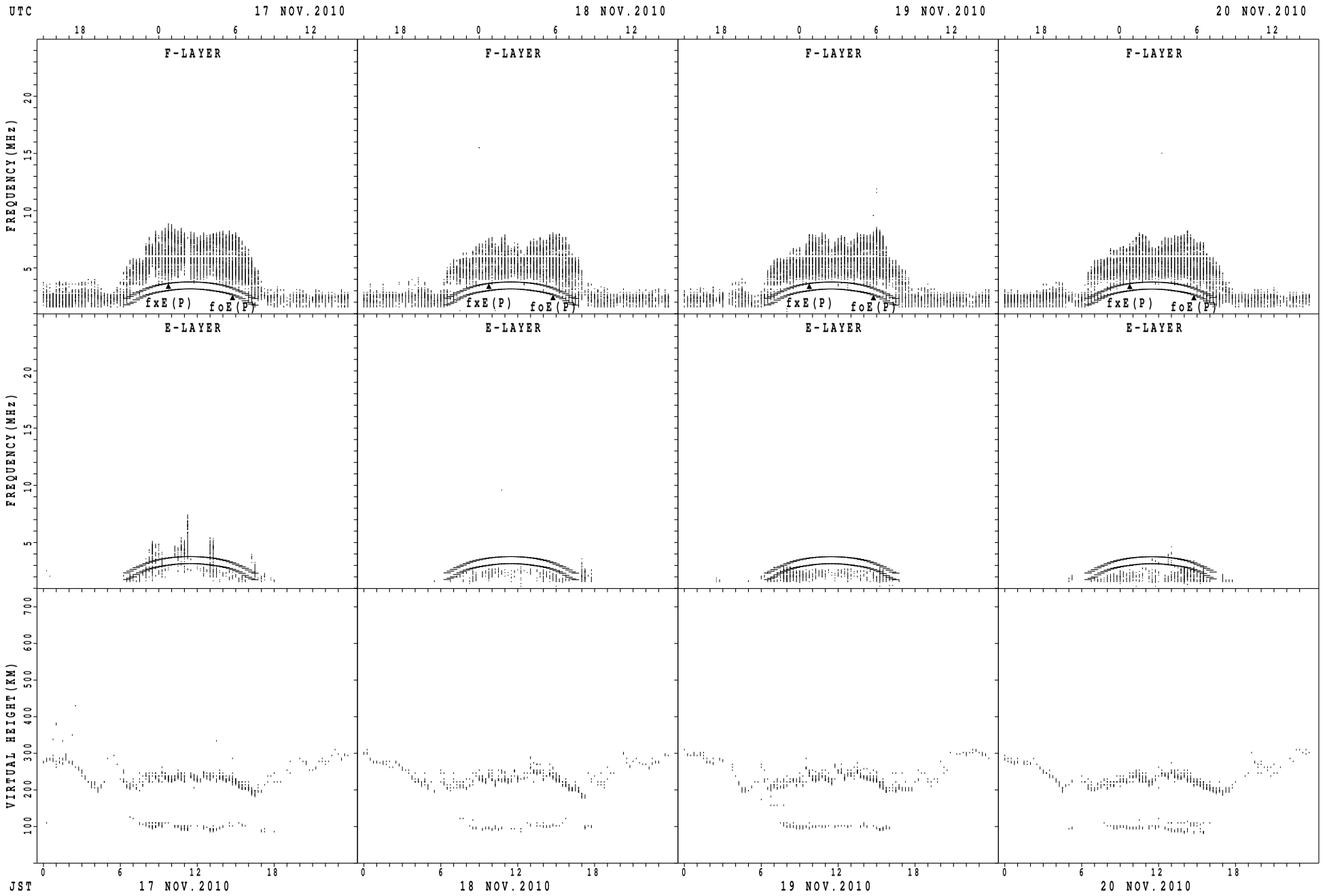
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



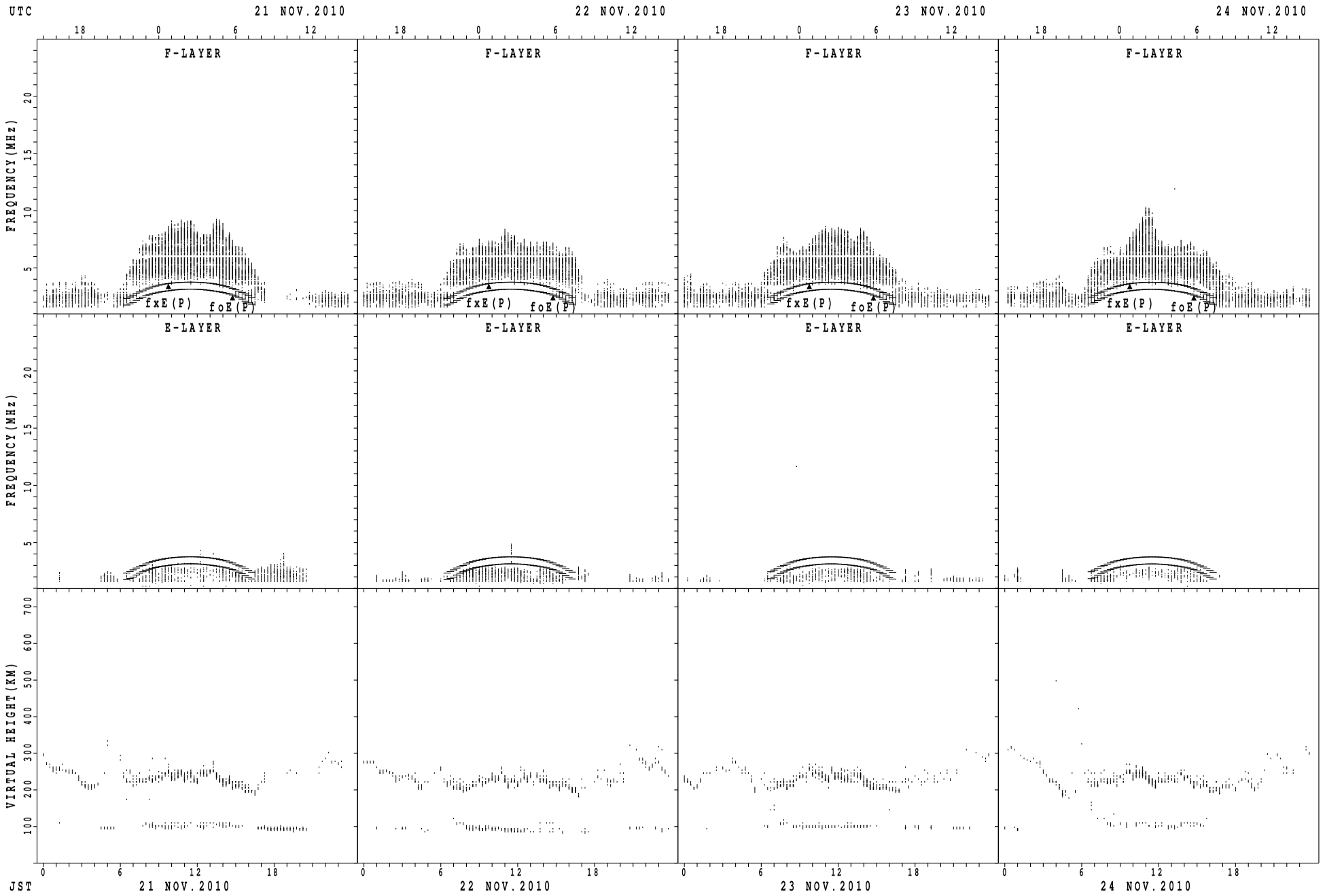
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



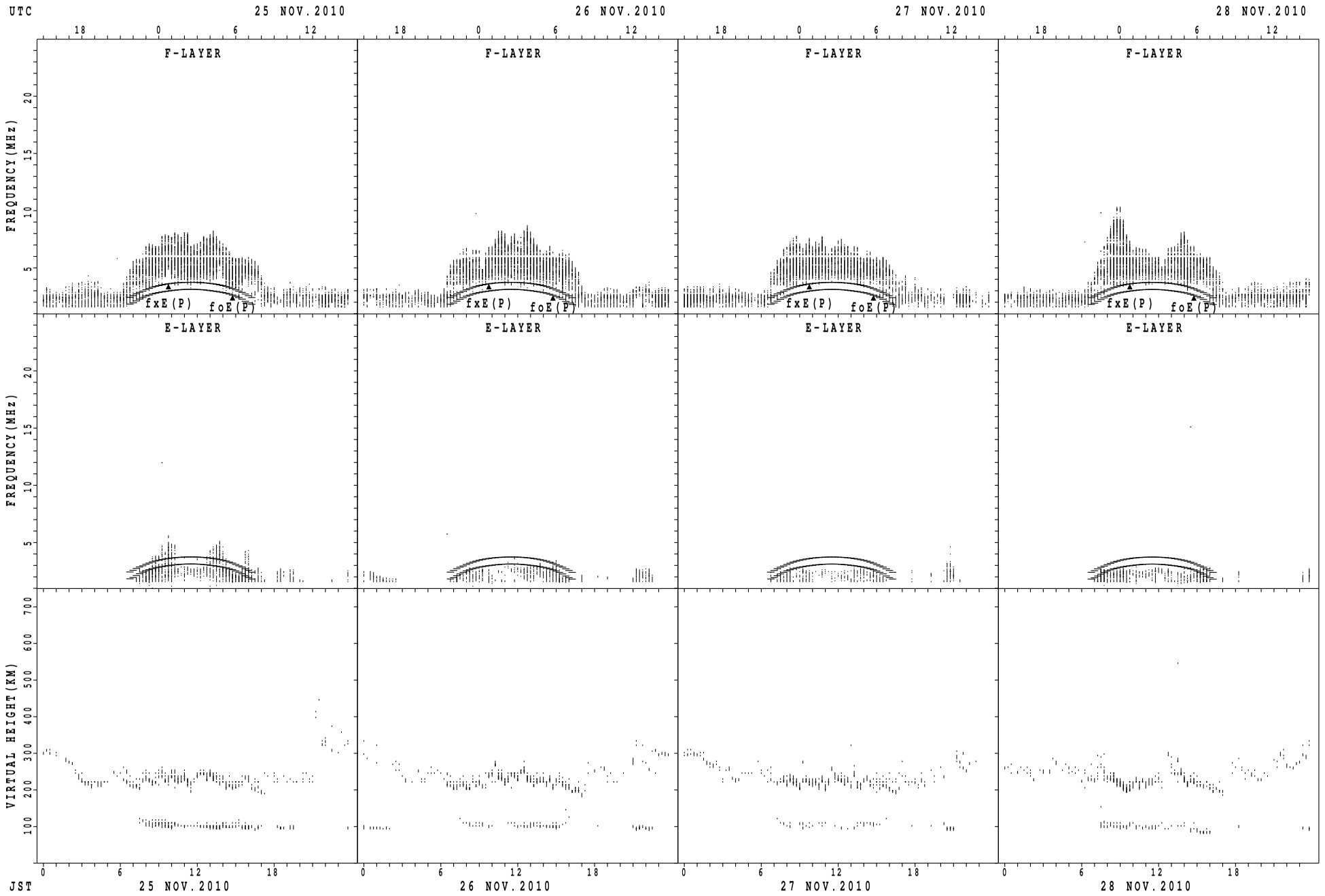
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



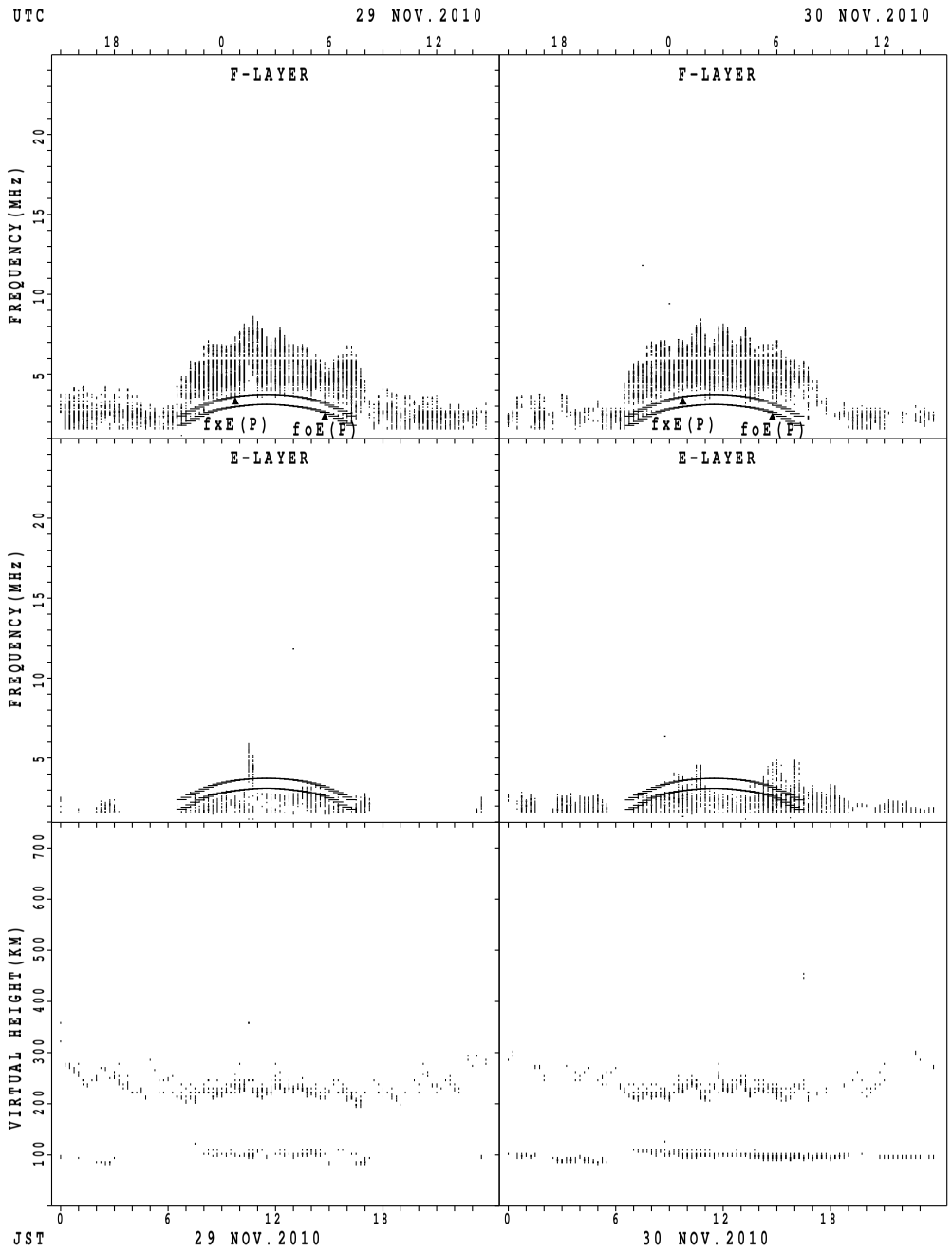
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



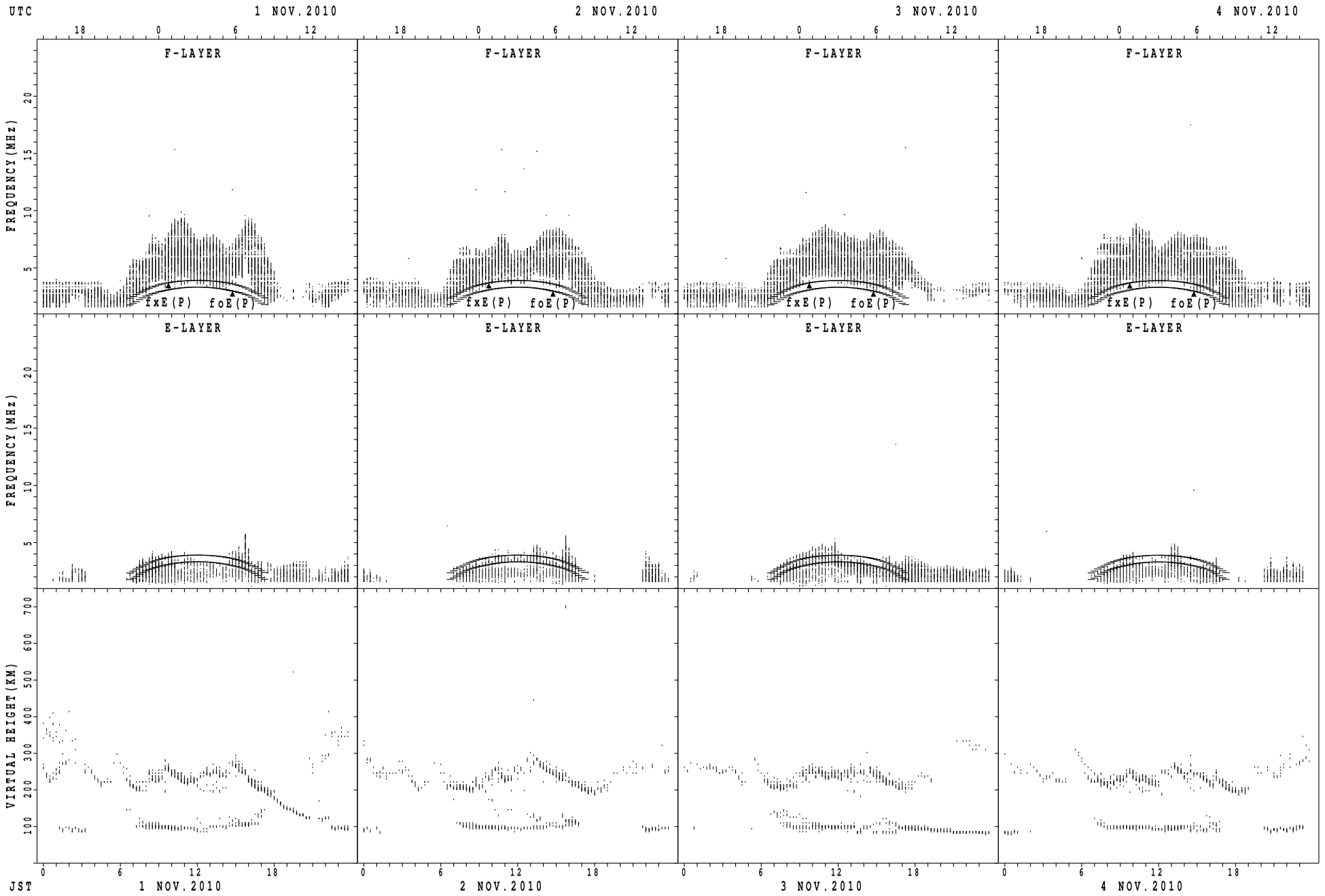
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



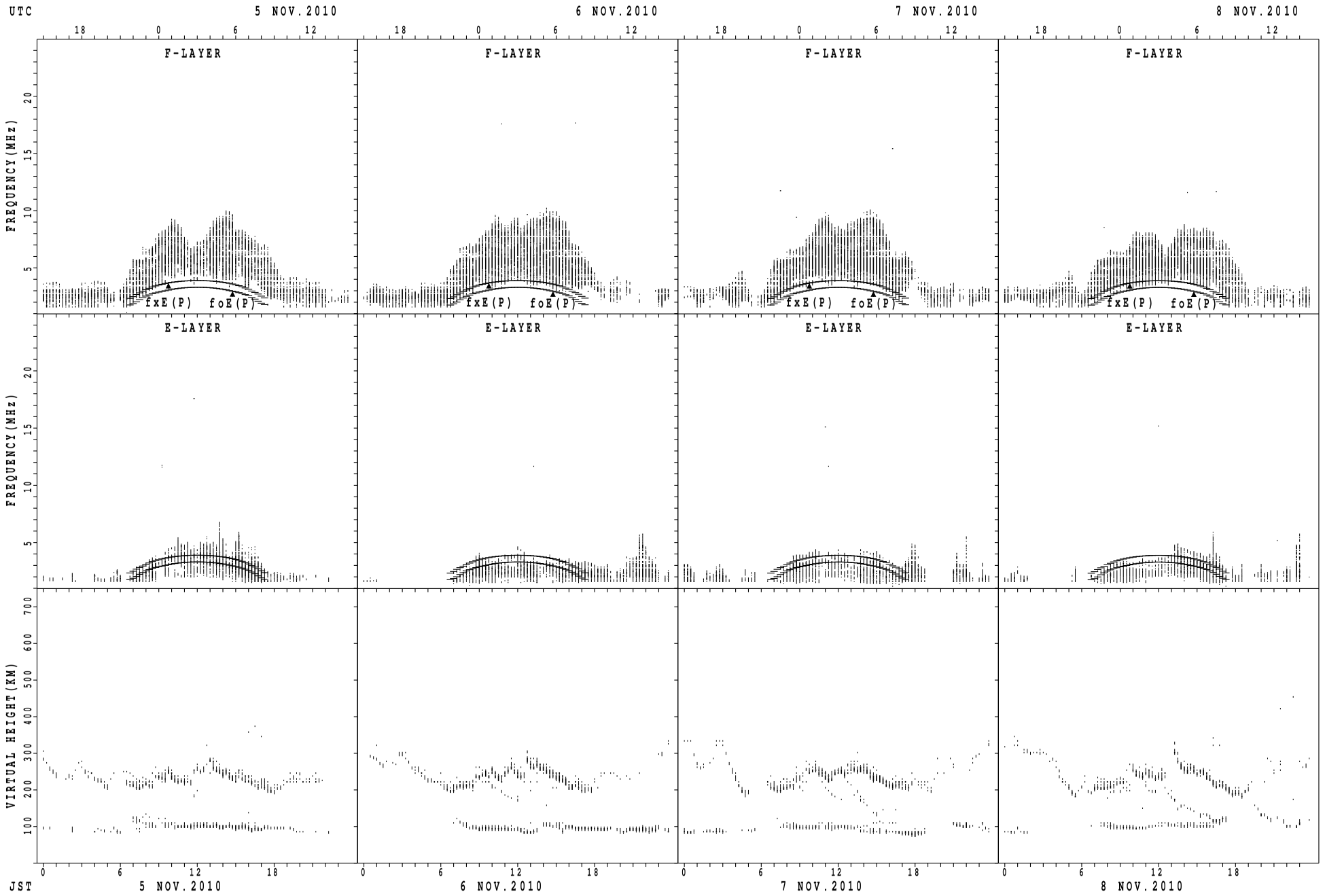
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



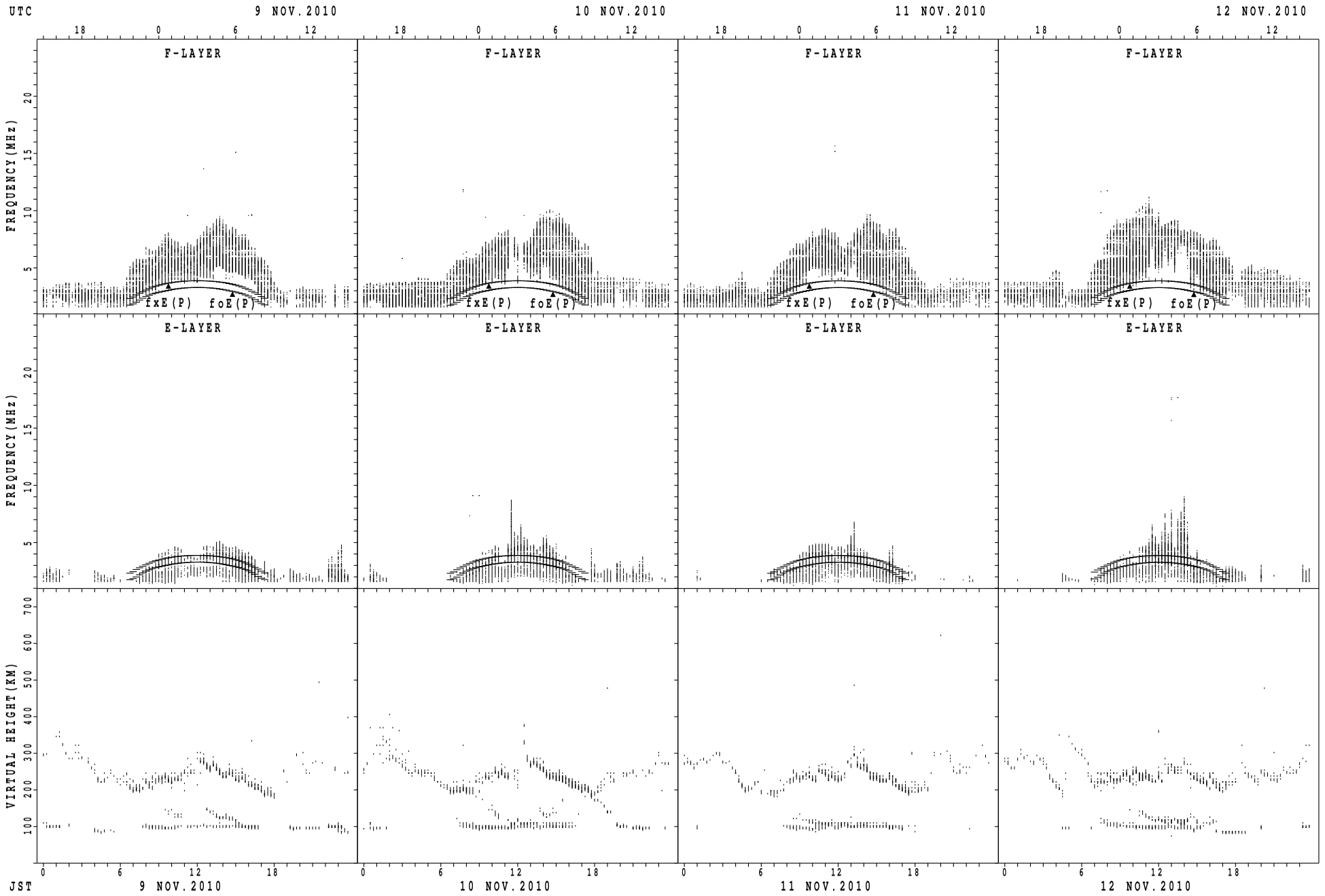
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



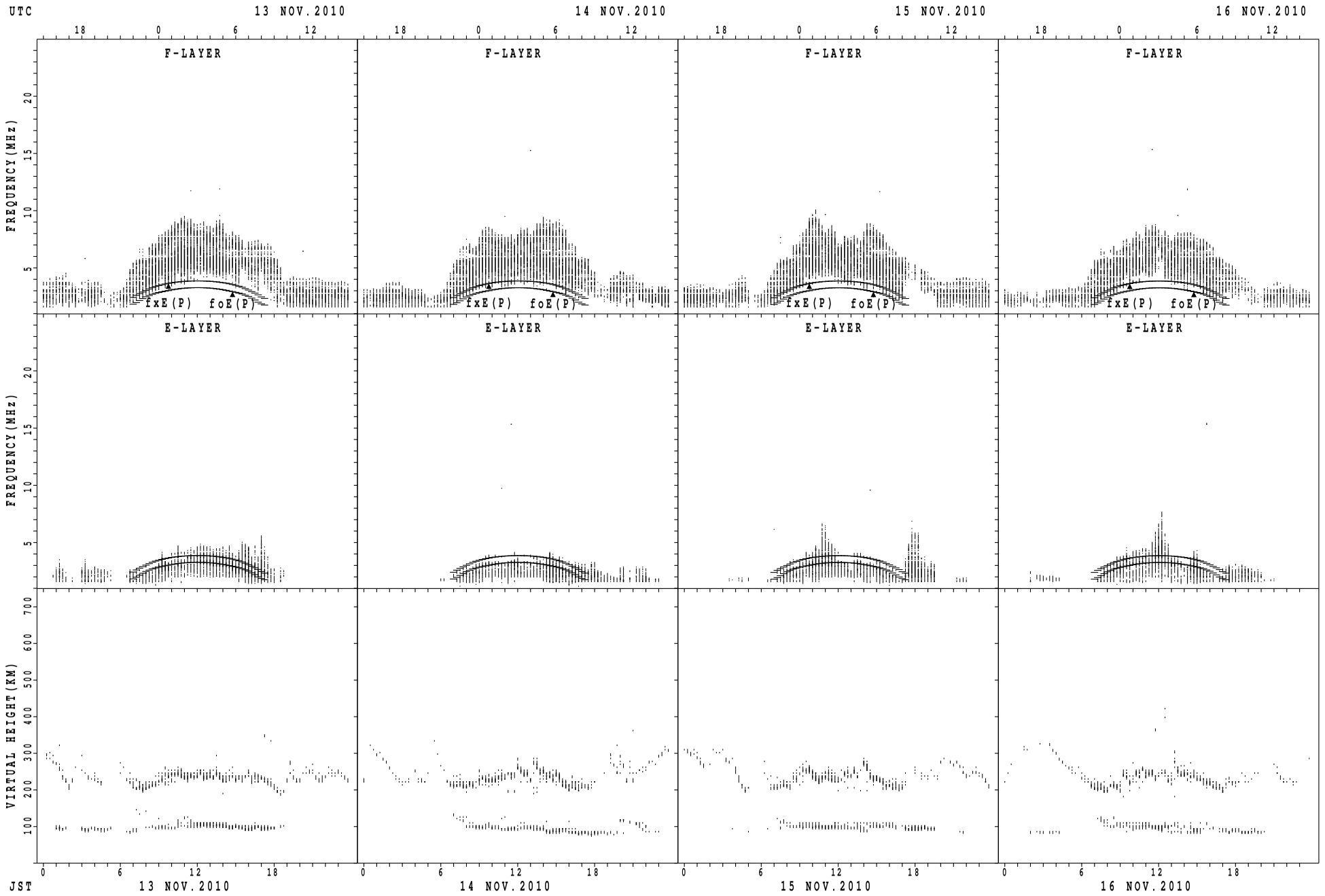
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



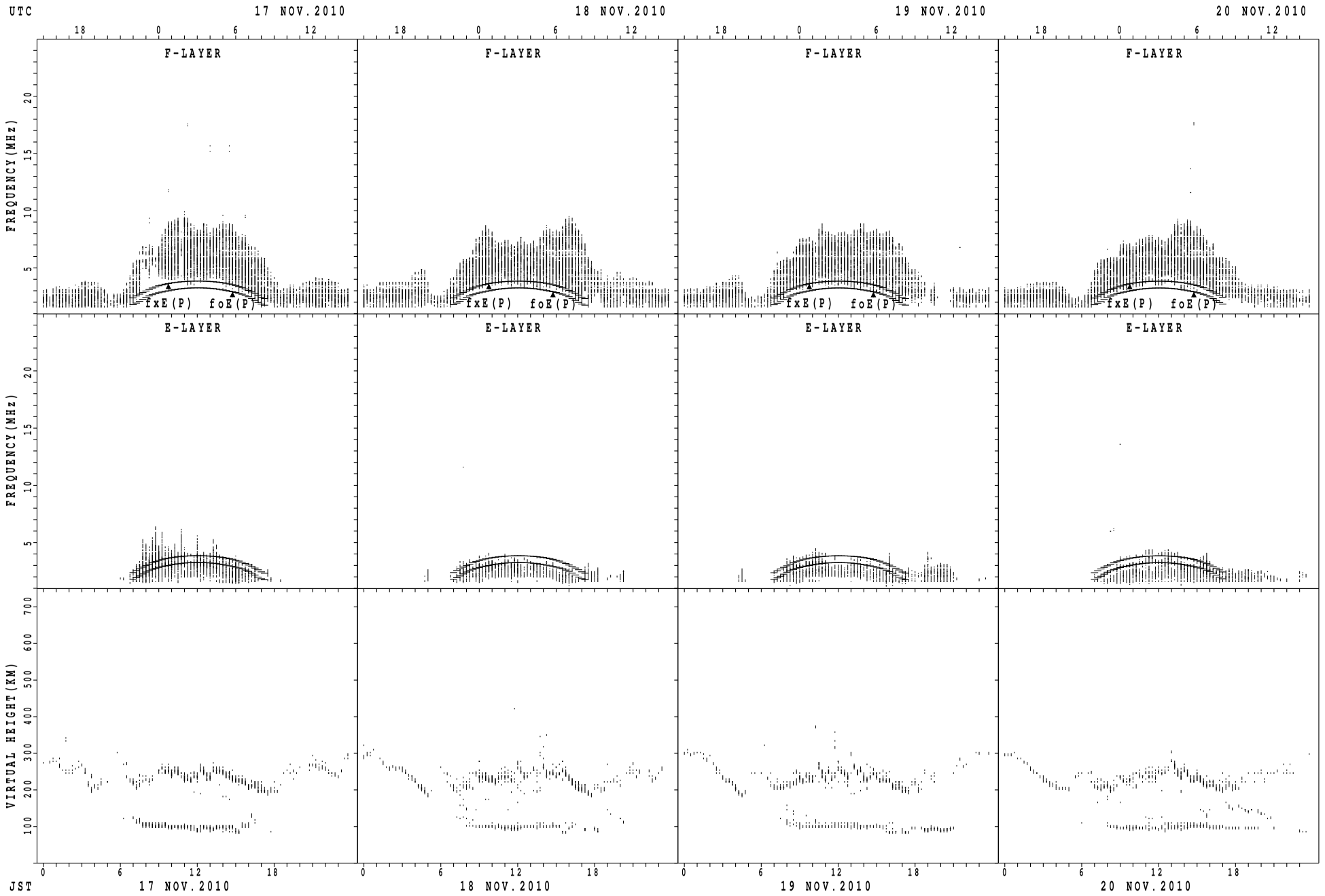
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



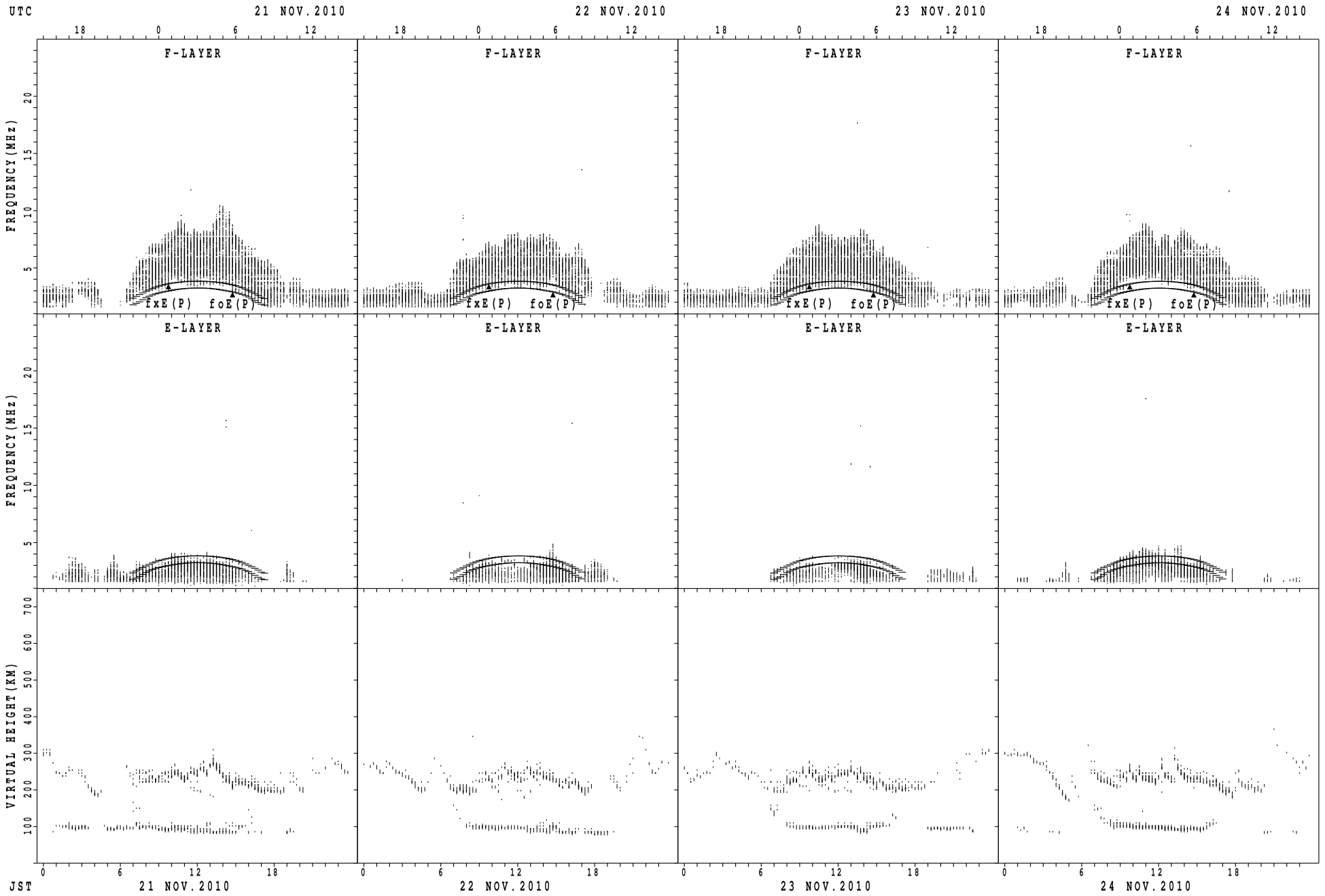
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



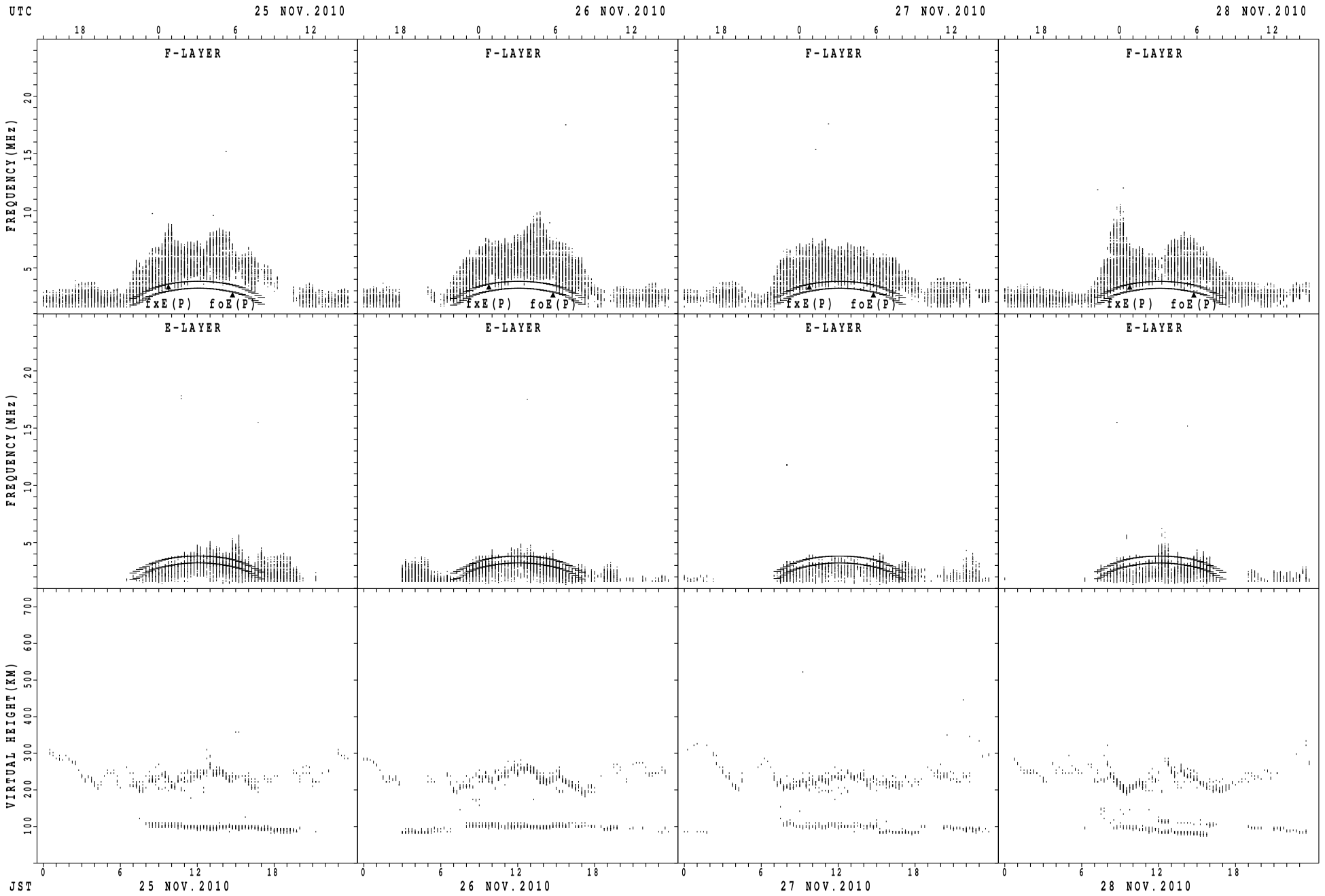
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



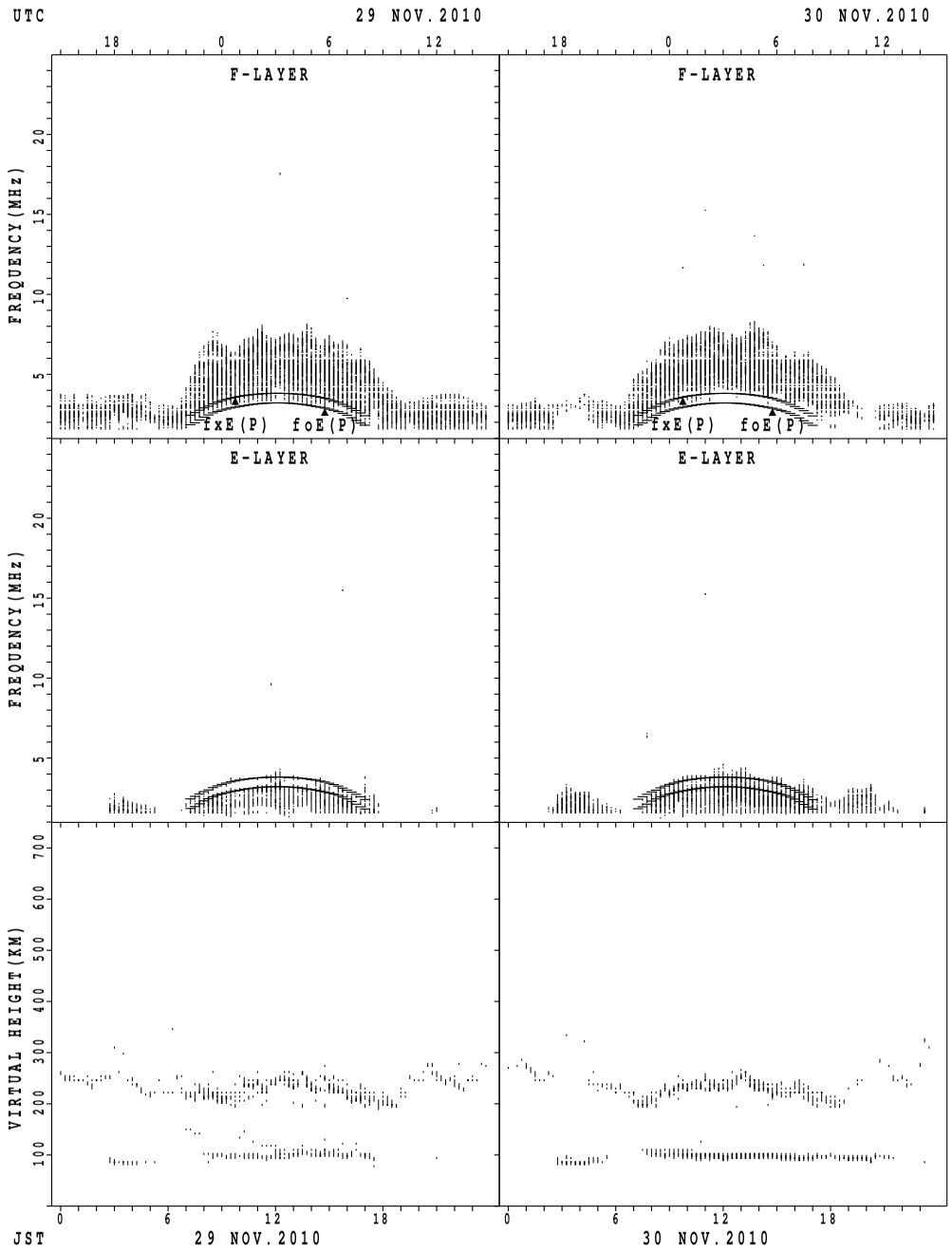
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



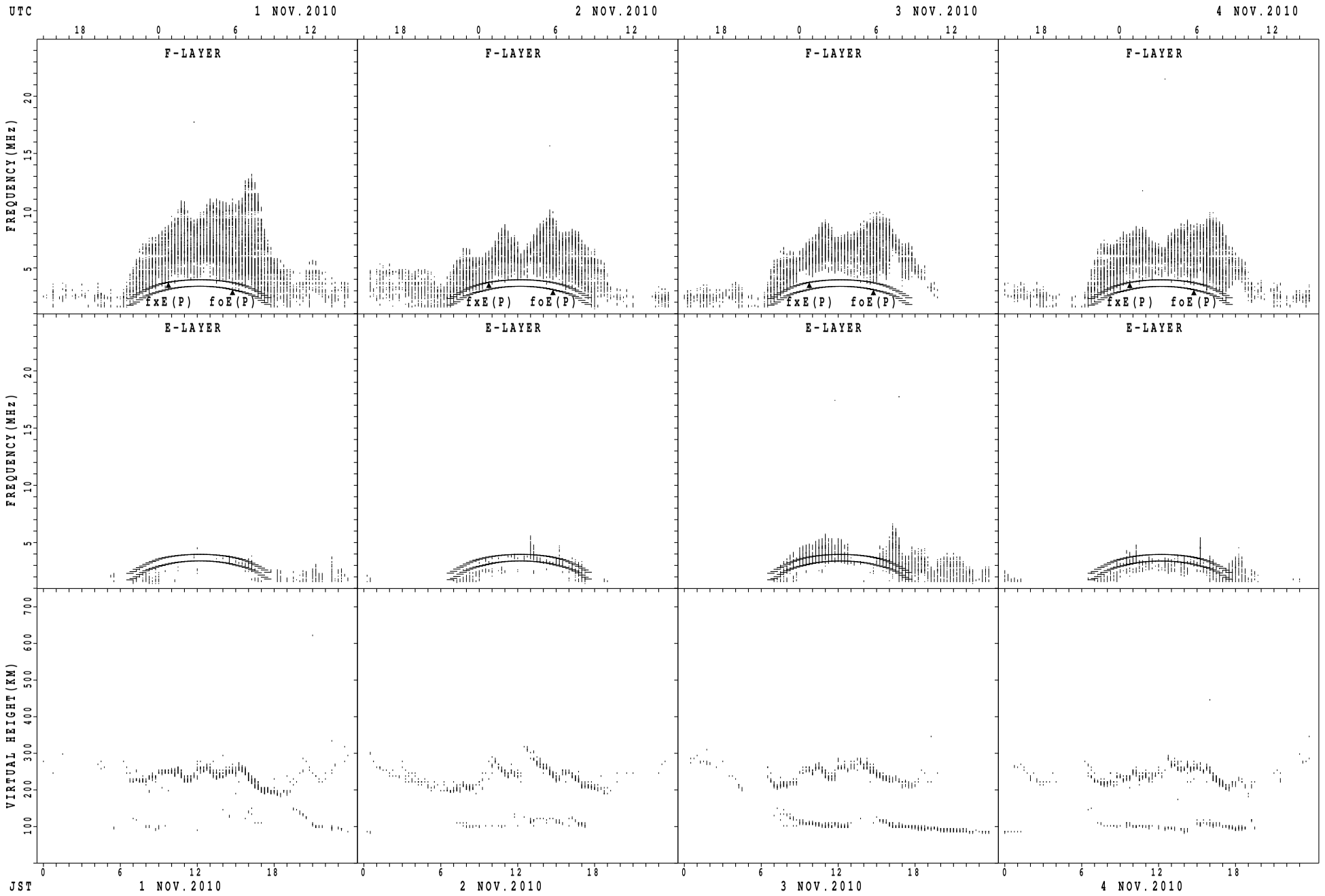
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



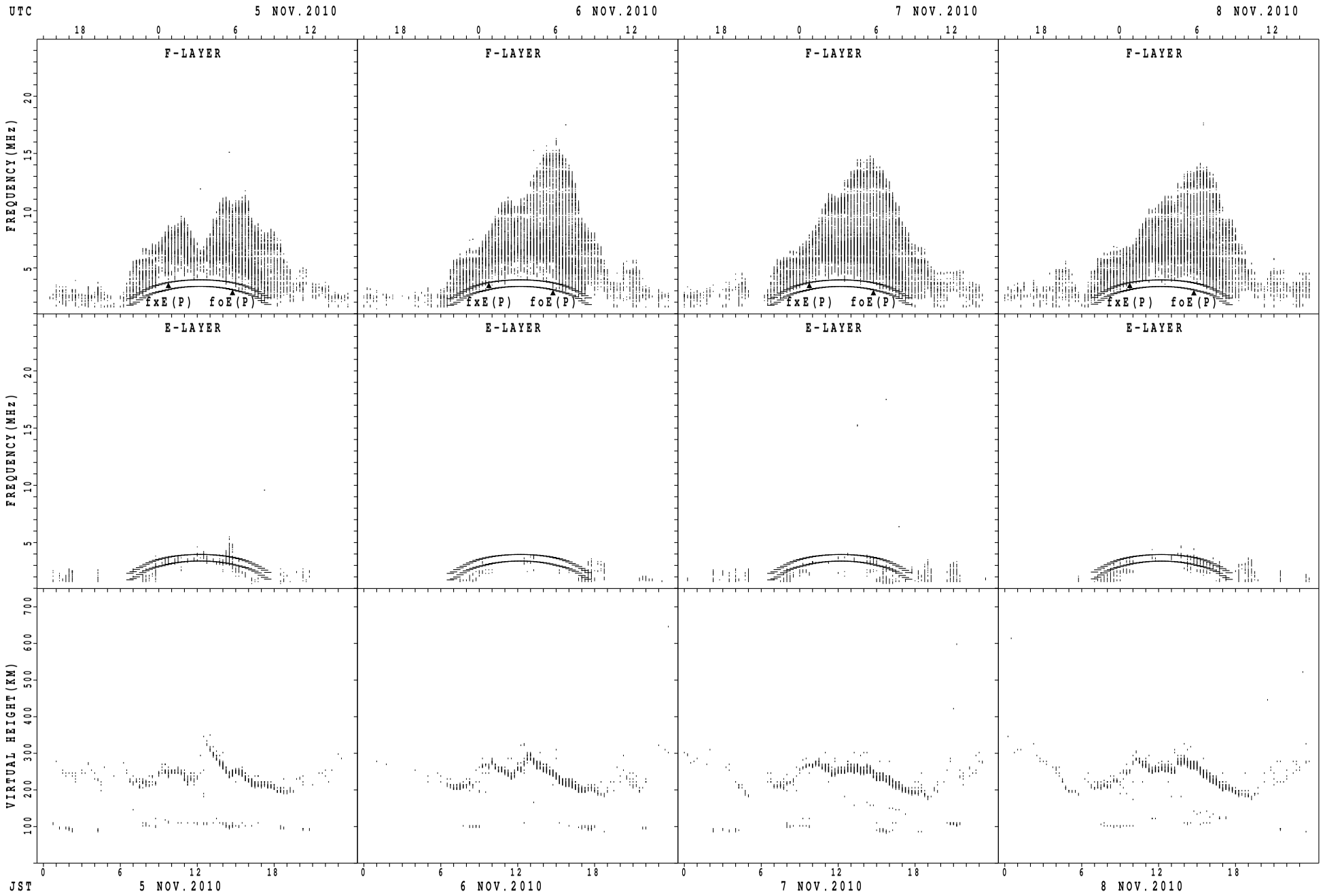
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



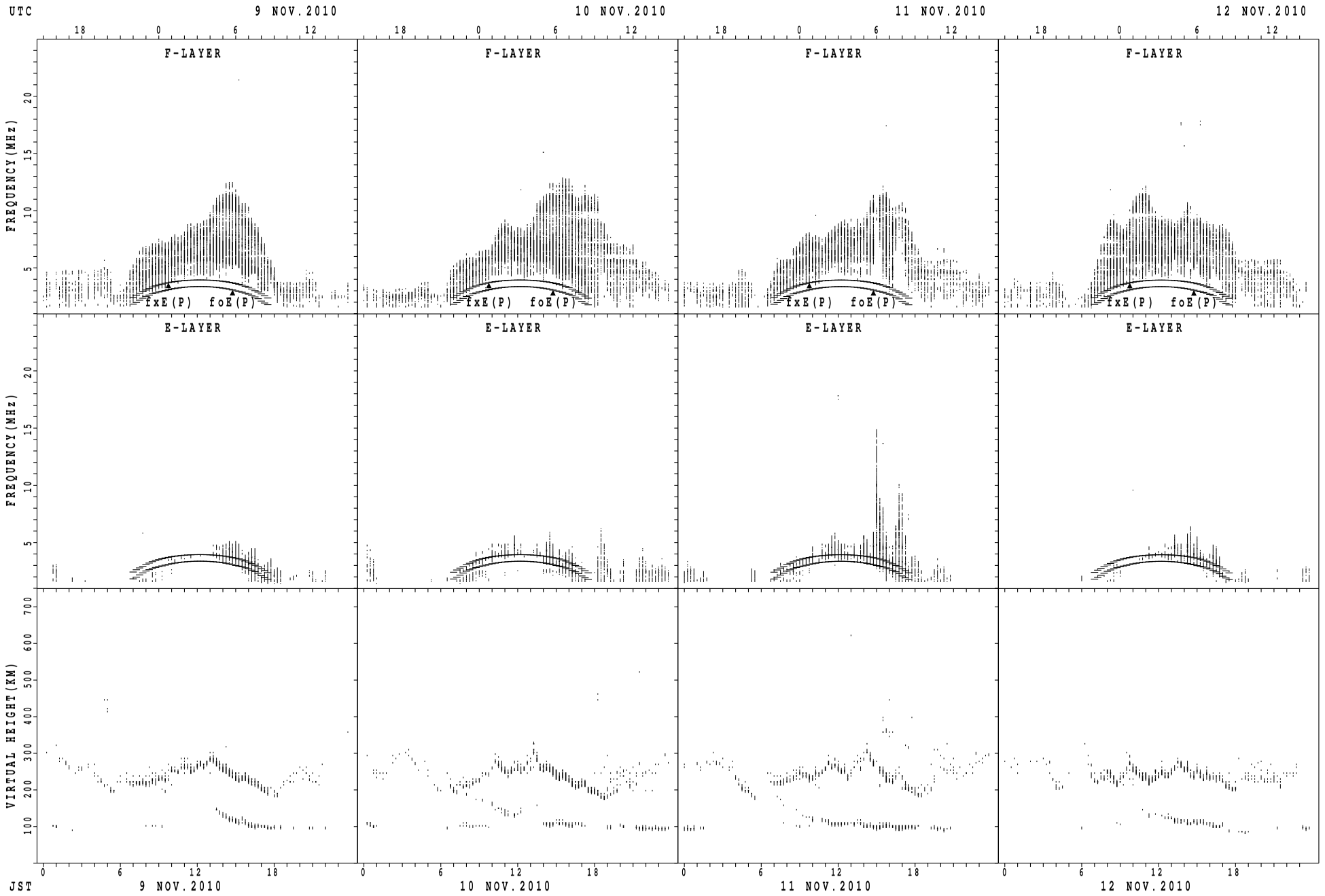
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



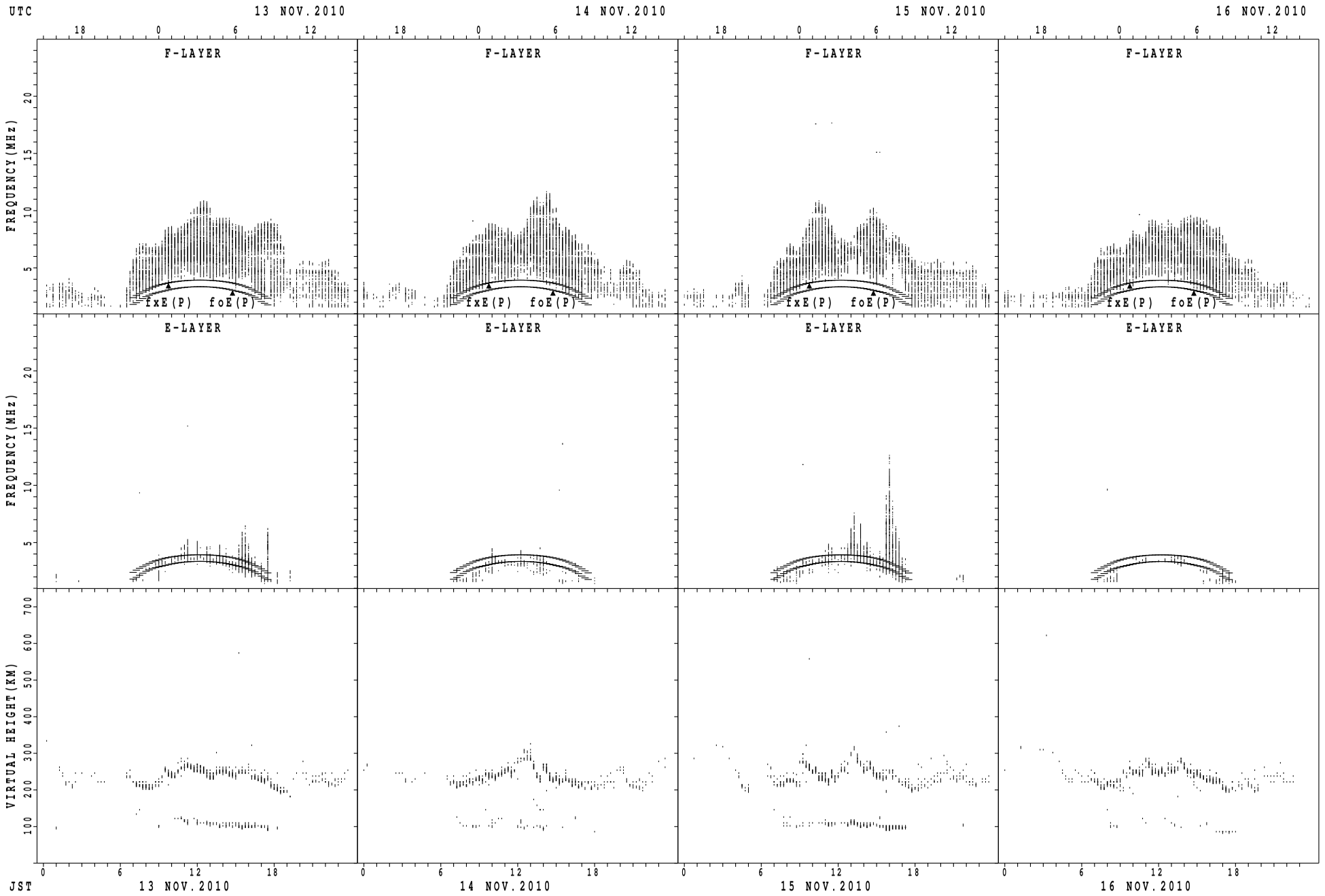
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



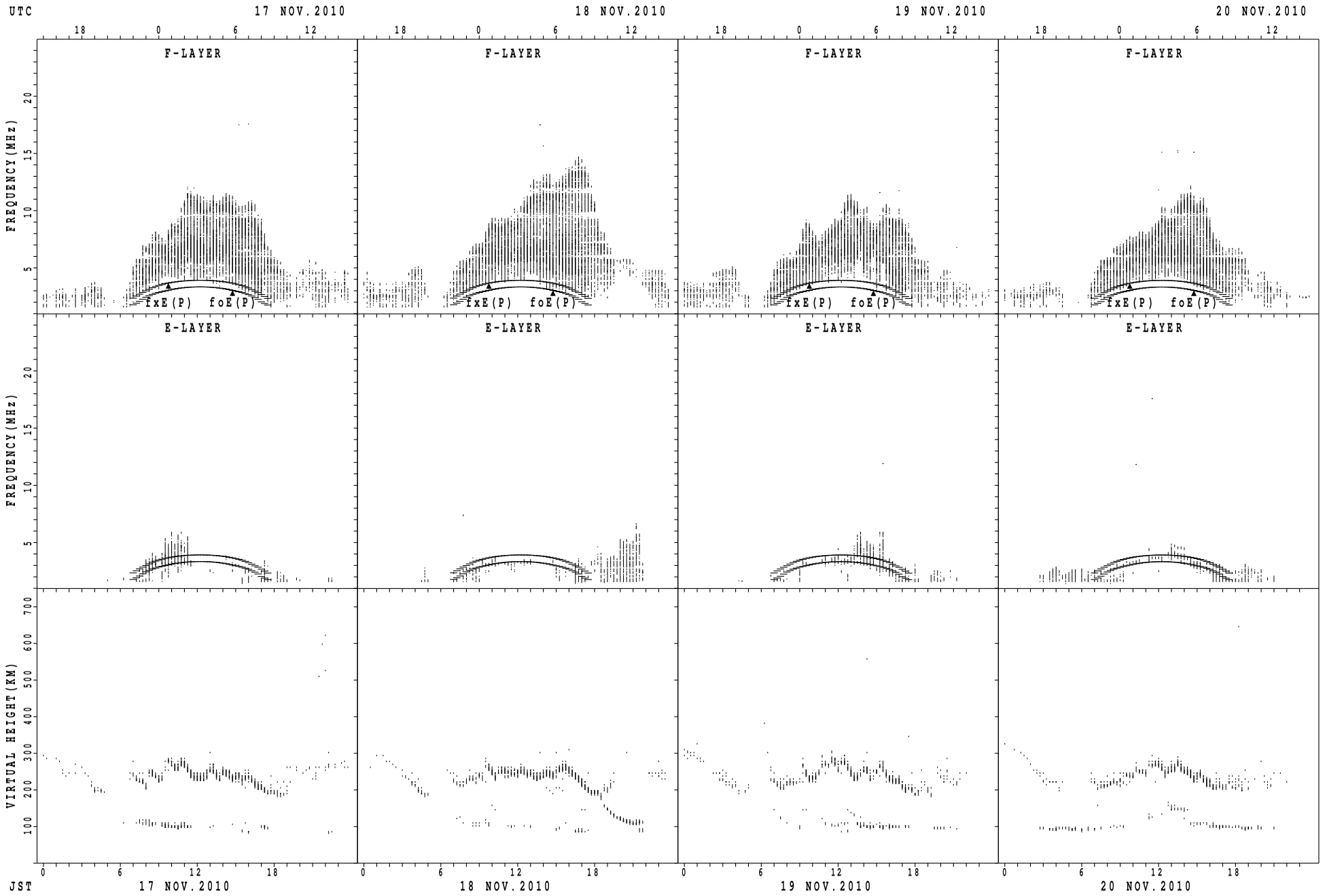
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



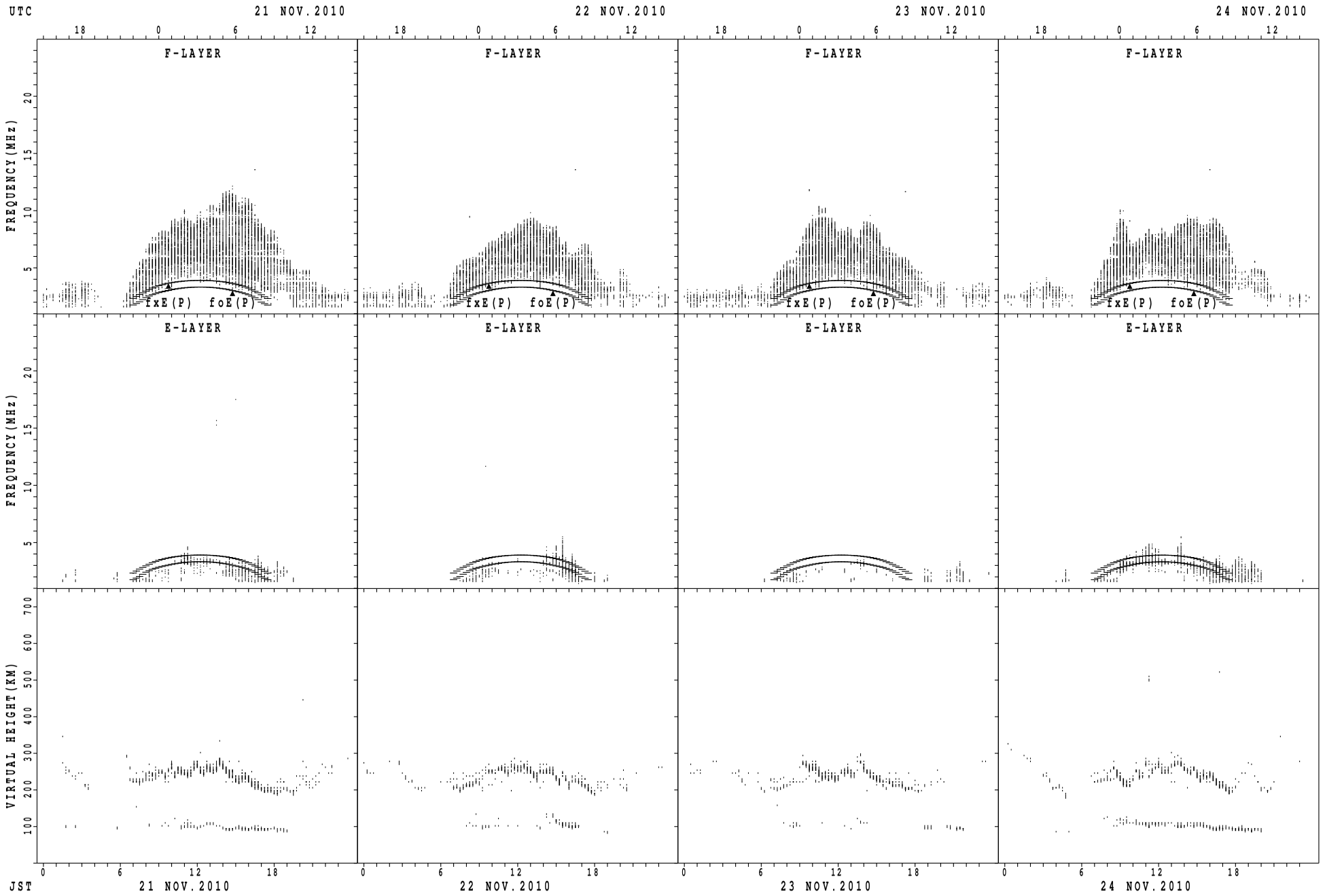
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



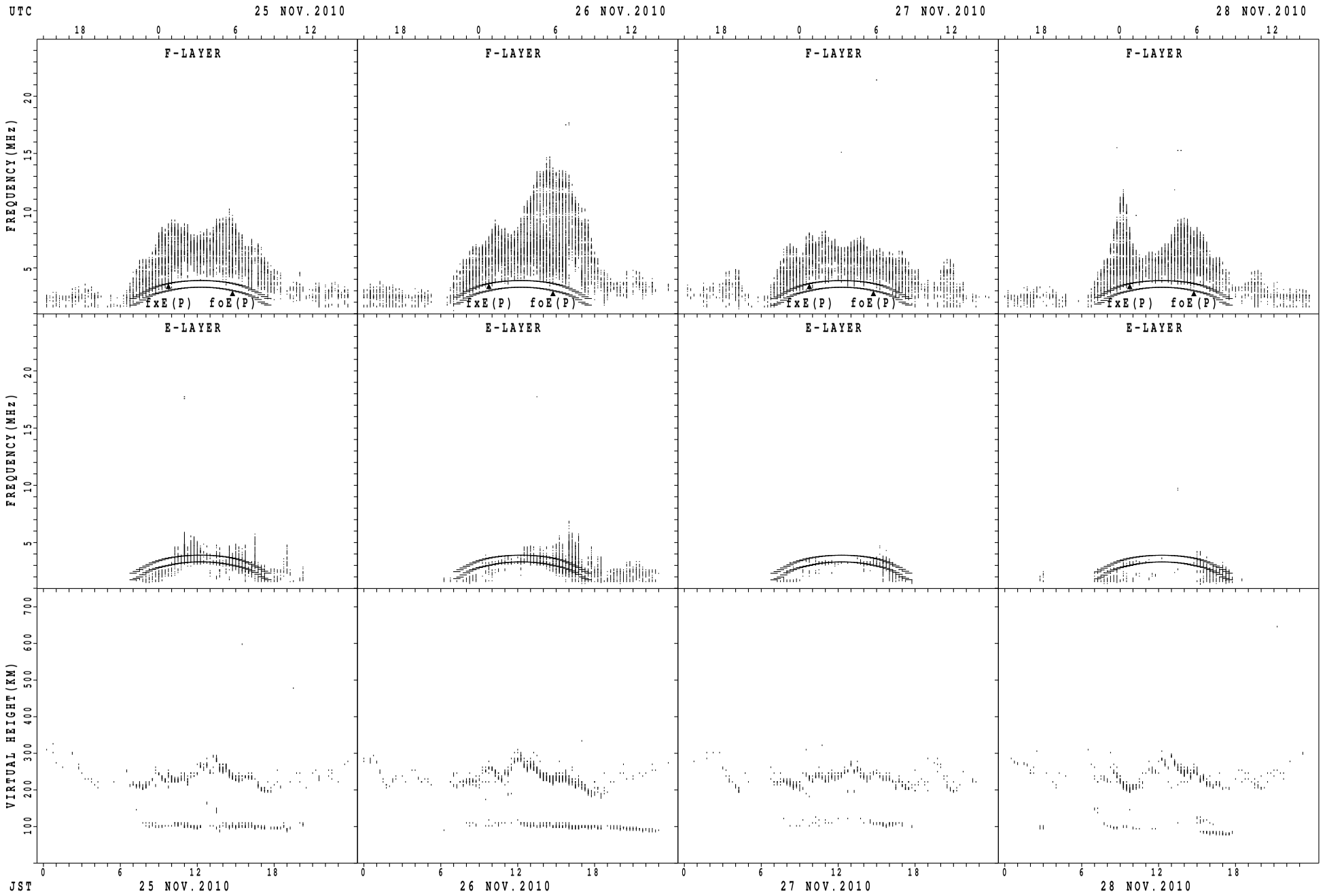
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



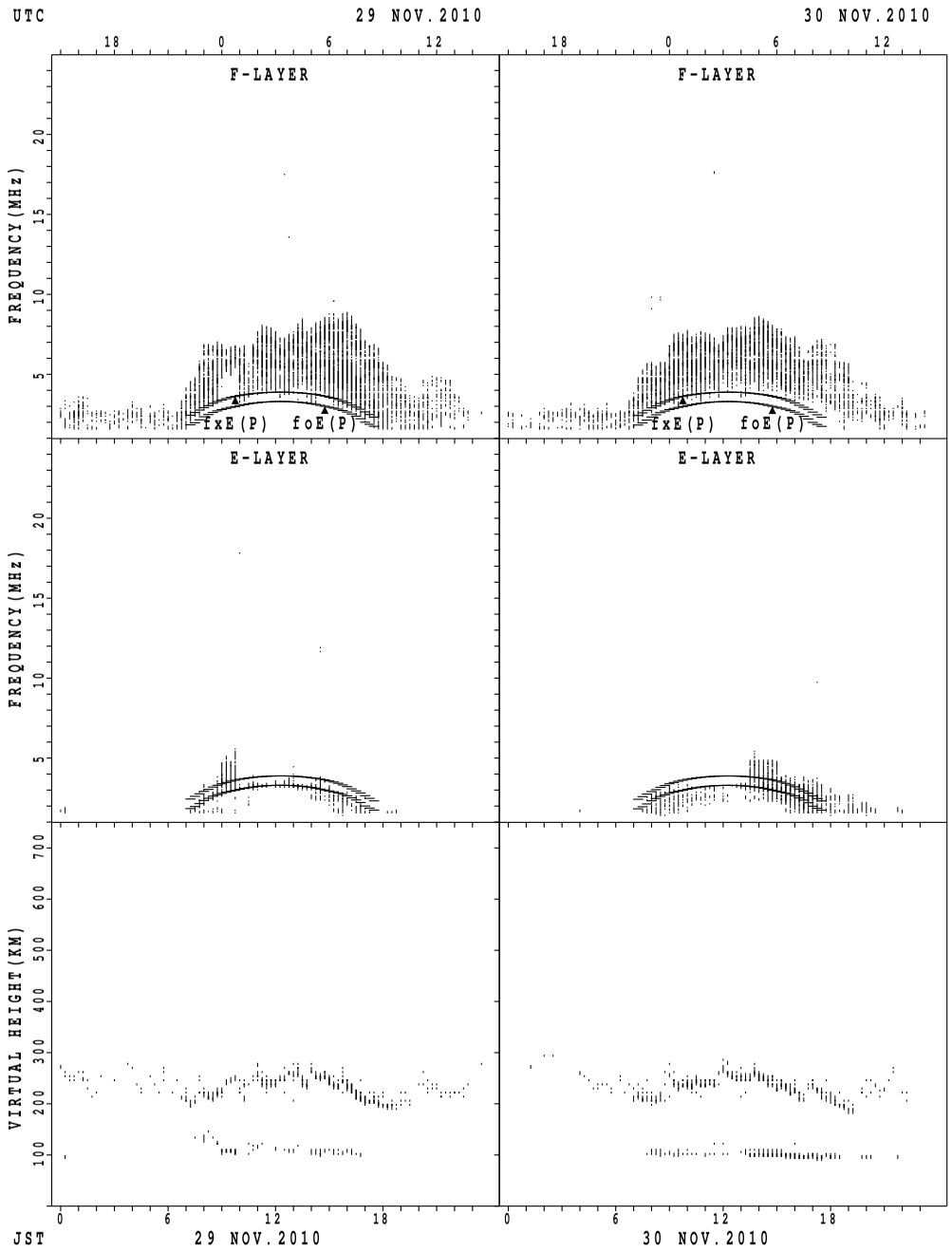
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

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.2010 135E MEAN TIME(UTC+9H) AUTOMATIC SCALING

h′F STATION Wakkanai LAT. 45°10.0′N LON. 141°45.0′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		6	22	25	23	23	26	25	21	19	8							
MED						226		225	224	224	228	222	220	236	240	232	225							
U Q						113		226	232	232	238	230	230	242	249	238	227							
L Q						113		216	216	214	222	216	214	226	226	226	223							

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	7	11	10	10	7	5	6	17	21	19	14	12	12	12	12	14	17	11	10	7	4	5	6
MED	97	99	97	94	93	93	95	126	113	103	99	99	98	92	101	93	96	89	95	90	97	95	95	97
U Q	97	105	99	95	97	95	99	143	131	107	105	99	101	101	107	131	99	99	97	93	99	115	103	103
L Q	95	95	95	91	91	89	91	111	106	103	97	97	95	89	91	88	89	88	91	89	89	90	91	97

h′F STATION Kokubunji LAT. 35°43.0′N LON. 139°29.0′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								6	22	25	16	3	3	18	25	20	12							
MED								227	236	230	232	216	254	246	240	230	223							
U Q								232	242	238	240	226	256	256	251	238	231							
L Q								222	224	223	230	214	230	230	232	225	218							

h′Es

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	5	4	2	6	2	3	3	4	3	4	5	7	6	4	7	5	11	15	7	5	4	7	5	1
MED	99	95	91	94	97	97	97	135	111	109	103	105	101	107	103	101	89	95	95	105	100	99	99	95
U Q	105	99	93	97	99	101	103	149	171	111	107	107	107	133	107	105	99	105	97	124	102	103	104	47
L Q	94	94	89	91	95	87	91	108	105	106	99	95	95	96	91	93	89	89	91	95	97	95	98	47

h′F STATION Yamagawa LAT. 31°12.0′N LON. 130°37.0′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									10	20	21				23	28	23	8						
MED									231	240	234				240	236	230	222						
U Q									234	255	247				254	244	236	227						
L Q									230	235	223				230	230	226	217						

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	8	3	7	7	4	1	7	13	17	18	17	23	18	17	21	19	18	19	16	16	9	11	8
MED	91	97	101	89	89	92	101	137	125	107	106	107	107	103	103	103	103	95	95	95	97	95	95	98
U Q	148	100	109	95	93	133	50	149	142	156	111	118	119	105	121	110	117	99	99	102	112	98	105	102
L Q	89	97	91	87	87	90	50	119	110	103	103	103	101	97	100	95	97	89	87	88	92	95	91	91

MONTHLY MEDIANS OF h′F AND h′Es

NOV.2010 135E MEAN TIME(UTC+9H) AUTOMATIC SCALING

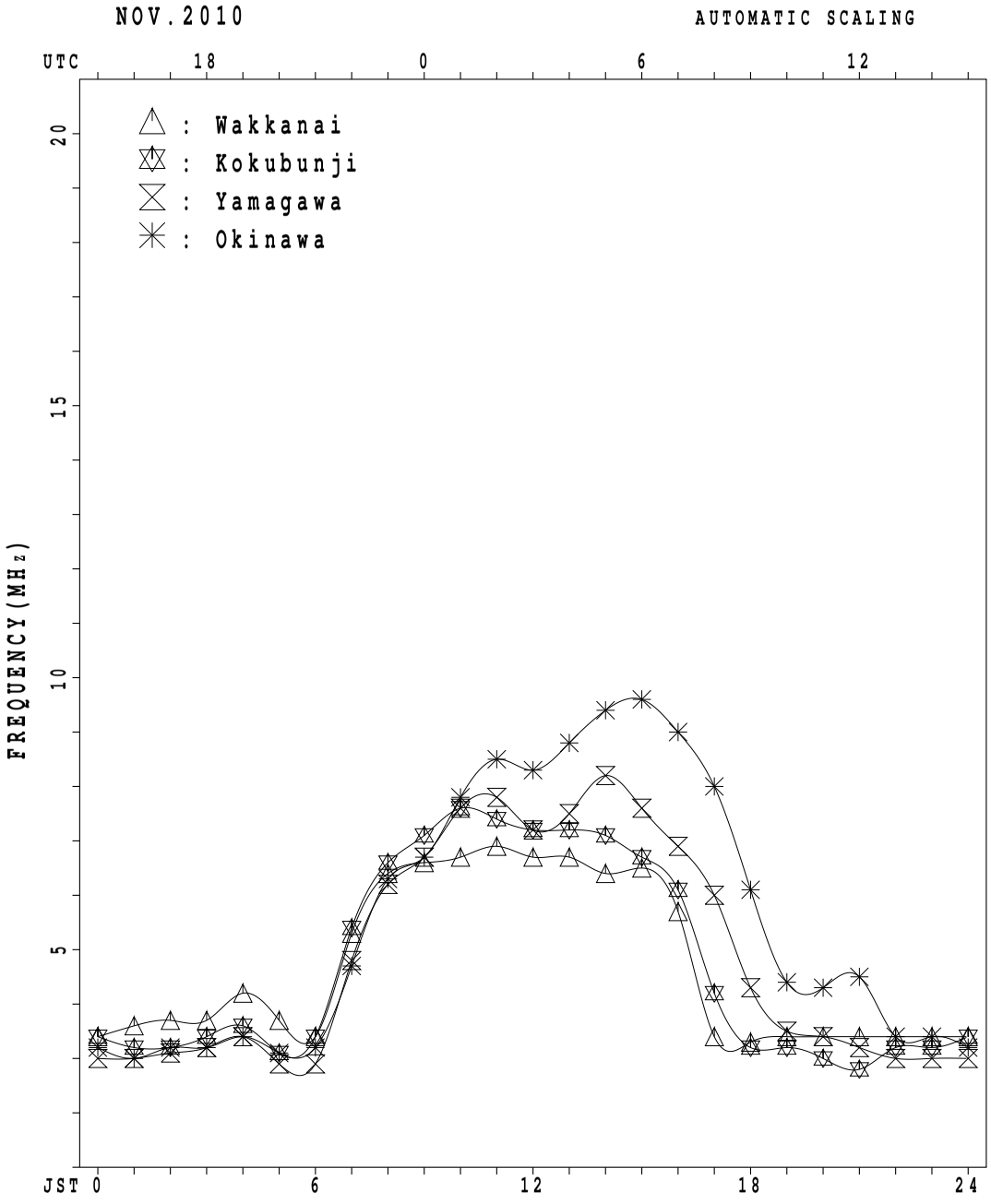
h′F STATION Okinawa LAT. 26°41.0′N LON. 128°09.0′E

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT									14	23	21				5	28	28	23	9					
MED									234	242	246				242	236	231	218	214					
U Q									244	264	254				259	246	243	230	222					
L Q									232	232	232				234	230	222	214	205					

h′Es

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	2	2	1	3	2	1	1	3	4	4	6	12	9	9	12	15	19	19	10	8	10	6	4	2
MED	92	102	95	97	94	95	93	147	124	114	109	111	109	113	105	111	105	103	98	97	97	103	95	97
U Q	95	103	47	99	95	47	46	153	152	123	119	118	121	145	114	115	109	105	99	103	105	111	96	99
L Q	89	101	47	97	93	47	46	97	118	112	105	104	104	111	103	105	103	99	95	96	97	97	93	95

MONTHLY MEDIANS PLOT OF foF2



IONOSPHERIC DATA STATION Kokubunji

NOV. 2010 fxI (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

LAT.35°43.0′N LON.139°29.0′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 42	X 40	X 38	X 40	X 41	X 35												X 55	X 36	X 34	X 36	X 35	X 37	X 38
2	X 39	X 38	X 38	X 41	X 42	X 35												X 52	X 37	O X 36	X 38	X 40	X 43	X 44
3	X 43	X 42	X 41	X 42	X 44	X 41												X 63	X 41	X 37	X 38	X 40	X 42	X 45
4	X 46	X 41	X 40	X 40	X 40	X 36												X 58	X 48	X 44	X 46	X 41	X 41	X 40
5	X 42	X 42	X 40	X 42	X 42	X 41												X 63	X 43	X 44	X 40	X 38	X 36	X 37
6	X 42	X 40	X 42	X 40	X 39	X 42												X 54	A	X 42	X 40	X 33	X 34	X 40
7	X 37	X 39	X 38	X 39	X 38	X 38												X 52	X 43	X 34	X 36	X 35	X 35	X 36
8	X 38	X 39	X 41	X 43	49	X 46												X 58	X 36	X 37	X 34	X 34	X 38	X 38
9	X 39	X 36	X 40	X 38	X 40	X 36												X 47	X 36	X 36	X 36	X 39	X 41	X 42
10	X 42	46	49	46	X 46	51												X 54	X 38	A	X 38	A	X 40	X 42
11	X 42	X 40	X 38	X 39	X 40	X 40												X 52	X 38	X 39	X 40	X 41	X 40	X 40
12	X 43	X 42	X 41	X 43	X 50	X 35												X 50	X 42	X 46	X 42	X 41	X 44	X 40
13	X 43	X 44	X 41	X 41	X 43	X 33						C	C	C	C	C	C	C	C	X 50	X 46	X 46	X 36	X 38
14	X 37	X 36	X 38	X 39	X 40	X 32												X 48	X 33	X 39	X 39	X 36	X 36	X 38
15	X 39	X 39	X 37	X 38	X 42	X 32												X 50	X 39	X 40	X 35	X 36	X 40	X 41
16	X 39	X 33	X 33	X 35	X 36	X 37												X 58	X 36	X 34	X 38	X 41	X 41	X 38
17	X 40	X 40	X 41	X 40	X 41	X 31												X 42	X 35	X 34	X 36	X 38	X 39	X 37
18	X 38	X 40	X 41	X 42	X 44	X 38												X 50	X 40	X 35	X 34	X 35	X 38	X 36
19	X 36	X 37	X 38	X 37	X 43	X 33												X 53	X 35	X 40	X 33	X 33	X 34	X 35
20	X 36	X 37	X 36	X 40	X 41	X 34												X 48	X 34	X 32	X 36	X 37	X 36	X 36
21	X 39	X 42	X 42	X 48	X 40	X 32												X 45	X 39	X 36	X 34	X 35	X 33	X 35
22	X 38	X 40	X 40	X 41	X 44	X 34												X 46	X 36	X 41	X 39	X 36	X 40	X 42
23	X 44	X 41	X 40	X 40	X 40	X 40												X 45	X 39	X 39	X 35	X 32	X 34	X 36
24	X 36	X 38	X 38	X 42	X 43	X 30												X 48	X 42	X 42	X 31	X 34	X 36	X 35
25	X 35	X 37	X 40	X 45	X 42	X 33												X 48	X 36	X 39	X 36	X 36	38	X 36
26	X 35	X 36	X 35	X 38	X 33	X 30												X 38	X 31	X 36	X 32	X 34	X 37	X 35
27	X 37	X 36	X 37	X 37	X 37	X 32												X 43	X 44	X 36	X 36	X 36	X 37	X 35
28	X 38	X 37	X 39	X 35	X 34	X 35												X 42	X 35	X 40	X 40	X 38	X 42	X 41
29	X 43	X 44	X 42	X 44	X 40	X 35												X 49	X 41	X 39	X 38	X 39	X 38	X 36
30	X 38	X 36	X 40	X 40	X 40	X 38												X 51	A	X 32	X 35	X 32	X 32	X 35
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	30	30	30	30	30												29	27	29	30	29	30	30
MED	X 39	X 40	X 40	X 40	X 41	X 35												X 50	X 38	X 39	X 36	X 36	X 38	X 38
U Q	X 42	X 41	X 41	X 42	X 43	X 38												X 54	X 41	X 40	X 39	X 40	X 40	X 40
L Q	X 37	X 37	X 38	X 39	X 40	X 33												X 46	X 36	X 36	X 35	X 34	X 36	X 36

NOV. 2010 fxI (0.1MHz)

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IONOSPHERIC DATA STATION Kokubunji

NOV. 2010 foF2 (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

LAT.35°43.0'N LON.139°29.0'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	36	34	32	34	35	29	42	57	63	68	87	74	75	71	59	71	71	49	30	28	30	29	31	32
2	33	32	32	35	36	28	38	58	75	71	66	62	71	66	60	65	68	45	30	30	32	34	37	38
3	37	36	35	36	38	35	42	62	70	72	76	74	83	74	62	66	62	57	35	31	32	34	36	39
4	39	35	33	34	34	30	40	59	74	72	72	73	77	69	68	64	57	52	42	38	40	35	35	34
5	36	36	34	36	36	34	39	59	70	79	78	75	70	87	83	72	64	56	37	37	33	32	30	31
6	36	34	36	34	33	35	40	61	70	82	73	71	86	67	77	75	58	48	A	35	33	27	28	34
7	31	33	32	33	32	32	34	59	70	76	75	72	78	72	80	74	61	46	37	28	30	29	29	30
8	32	33	35	37	F	40	34	53	68	71	71	68	72	71	65	66	66	52	30	31	28	28	32	32
9	33	30	34	32	34	30	40	66	69	73	80	71	68	76	71	73	59	41	29	30	29	33	35	36
10	36	F	F	F	40	F	45	64	69	65	76	72	72	81	76	77	72	48	32	A	32	A	33	36
11	36	34	32	33	34	33	34	57	67	71	78	82	77	73	76	70	68	46	31	32	34	35	34	34
12	37	36	35	37	44	29	35	75	81	111	100	114	101	91	77	68	72	44	36	40	36	34	38	34
13	37	38	34	35	37	27	33	61	68	83	92	C	C	C	C	C	C	C	C	44	40	40	30	32
14	30	30	32	32	33	26	33	54	72	84	77	72	79	79	77	72	69	42	27	33	33	30	30	32
15	33	33	31	32	36	26	34	55	58	73	95	68	81	79	72	73	61	44	33	34	29	30	34	35
16	33	27	27	29	30	31	34	60	60	74	80	73	79	75	67	65	55	51	30	28	32	35	34	31
17	34	34	34	34	35	24	33	56	69	76	84	78	74	76	78	76	63	36	29	28	30	32	32	31
18	32	34	35	36	38	32	30	54	59	68	74	74	66	70	70	75	66	44	34	29	28	29	32	30
19	30	31	32	31	37	27	29	53	56	63	75	76	72	70	74	82	57	47	29	34	27	27	28	29
20	30	30	30	34	35	28	28	52	60	64	70	72	66	72	76	68	58	42	28	26	30	31	30	30
21	33	36	36	42	34	26	29	53	70	75	87	88	78	77	84	65	54	38	33	29	28	29	27	29
22	31	34	34	35	37	28	31	57	64	71	70	82	66	69	70	65	64	39	30	35	33	30	34	36
23	38	35	34	34	33	34	34	57	65	62	72	83	82	71	78	58	51	39	33	32	28	26	28	30
24	30	31	32	36	37	24	25	51	64	64	78	99	71	63	66	62	57	42	36	36	25	28	30	29
25	29	30	34	39	36	27	29	52	64	65	71	76	67	78	68	54	56	42	30	33	30	30	F	29
26	29	30	29	32	27	24	25	55	63	61	64	76	70	78	58	60	58	32	24	30	26	28	31	29
27	31	30	31	30	31	26	24	48	64	67	66	66	70	57	58	56	49	37	38	30	30	30	30	29
28	32	31	33	29	28	29	26	44	73	100	62	63	57	64	78	60	54	35	28	34	33	32	36	35
29	37	38	36	38	34	29	28	49	64	64	72	80	71	66	58	52	66	43	35	32	32	33	32	30
30	32	30	34	34	34	31	30	54	66	63	65	72	78	70	63	65	56	45	A	26	29	25	26	29
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	29	29	29	29	29	30	30	30	30	30	29	29	29	29	29	29	29	27	29	30	29	29	30
MED	33	33	34	34	35	29	34	56	68	71	75	74	72	72	71	66	61	44	31	32	30	30	32	32
U Q	36	35	34	36	37	32	38	59	70	76	80	79	78	78	77	73	66	48	35	34	33	34	34	34
L Q	31	30	32	32	33	26	29	53	64	65	71	72	70	69	64	63	56	40	29	29	29	28	30	30

IONOSPHERIC DATA STATION Kokubunji

NOV. 2010 foF1 (0.01MHz) 135°E MEAN TIME (G.M.T. + 9 H)

LAT.35°43.0′N LON.139°29.0′E SWEEP 1.0MHz TO 30.0MHz IN 15.0SEC IN MANUAL SCALING

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1											L	A	L	L	L									
2									A	L	L	L	L	L	L									
3										L	A	L	L	L	L									
4										L	L	L			L									
5										L	A	A	L	L	A	A								
6										A	L	A	U L 4 4 8		A	A								
7										L	L	A	A	L	L	A								
8										L	L	L	L	L	L									
9									A	L	L	L	U L 4 3 2	L	L	A								
10												U L 4 6 8	A	L	L	A								
11								A	L	A	A	A	L	L	L									
12										L		A												
13										L	L	C	C	C	C	C	C							
14										L	A	L	L	L	L									
15											L	L	U L 4 2 0	L	L									
16										A		L	A	L	A									
17									L	A	L	A	L	A	L	L								
18										L	U L 4 1 2	A	L	L										
19											A	L	L	L	L									
20										L	L	L	L	L	L									
21										L	L	L	L	L										
22										L	L	L	L	L	L									
23										L	L	L	L	L	L									
24										L	L		L	U L 4 1 2	L									
25											L	L	U L 4 3 6	L										
26											L		L	A	L									
27										A	A	L	L	L										
28										L	L	L	L	L										
29											L		L											
30											L		L	L										
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT											1	1	4	1										
MED											U L 4 1 2	U L 4 6 8	U L 4 3 4	U L 4 1 2										
U Q													U L 4 4 2											
L Q													U L 4 2 6											

NOV. 2010 foF1 (0.01MHz)

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NOV. 2010 foE (0.01MHz) 135°E MEAN TIME (G.M.T. + 9 H)

LAT.35°43.0'N LON.139°29.0'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	U A 220	A	A	A	A	A	R	R	R	U A 196							
2							B	R	A	R	R	R	R	R	R	272	208							
3							B	A	264	A	A	A	R	R	R	R	U R 200							
4							B	224	R	R	R	R	A	292	A	U R 268	A							
5							B	212	R	R	A	A	A	A	A	A	U R 188							
6							B	U R 204	R	A	A	A	A	A	A	A	A							
7							B	224	R	A	A	A	A	A	A	U A 256	U R 196							
8							B	204	272	R	A	R	R	R	R	A	A							
9							B	188	U A 276	U R 328	324	R	R	R	A	A	A							
10							B	196	A	R	A	A	A	A	A	264	A							
11							B	224	304	A	A	A	A	A	R	A	A							
12							B	196	A	R	R	A	A	A	A	U A 248	A							
13							B	220	260	A	R	C	C	C	C	C	C							
14							B	U A 192	U A 264	R	A	A	R	R	R	A	R							
15							B	A	A	A	A	A	A	A	R	R	B							
16							B	B	A	A	A	R	A	R	A	A	A							
17							B	U A 180	A	A	A	A	A	A	R	R	176							
18							B	R	R	R	R	A	R	R	R	R	U R 184							
19							B	180	248	A	A	A	R	A	R	R	A							
20							B	B	244	R	304	A	A	A	A	U R 248	180							
21							B	B	256	A	A	A	A	A	A	R 252	R							
22							B	180	A	R	A	A	A	R	R	248	196							
23							B	172	240	R	R	A	R	R	R	R	B							
24							B	168	R	288	R	U A 308	R	R	R	U R 236	B							
25							B	U R 176	U R 260	A	A	A	R	A	A	A	B							
26							B	184	A	A	R	A	A	A	A	A	156							
27							B	208	256	320	A	A	R	R	R	A	U R 180							
28							B	168	U R 256	R	R	R	R	R	R	U A 240	A							
29							B	B	244	R	R	A	R	A	A	R	B							
30							B	B	A	A	A	A	R	A	A	A	A							
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								21	14	3	2	1		1		10	11							
MED								196	258	320	314	U A 308		292		U 250	U 188							
U Q								216	264	U R 328						264	U R 196							
L Q								180	248	288						U 248	180							

NOV. 2010 foE (0.01MHz)

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IONOSPHERIC DATA STATION Kokubunji

NOV. 2010 foEs (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

LAT.35°43.0′N LON.139°29.0′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 21	 20	E B 15	J A 34	J A 24	E B 14	 22	 29	J A 43	J A 40	 35	J A 58	J A 56	G	G	G	 24	J A 17	 19	E B 15	E B 16	E B 15	E B 14	E B 16
2	E B 15	E B 15	E B 15	E B 15	E B 13	E B 15	E B 15	G 19	 31	G 26	G 28	G 27	G 25	G	G	 35	 29	J A 24	 20	J A 31	E B 15	E B 15	E B 15	E B 15
3	E B 15	E B 16	E B 16	E B 15	E B 16	E B 15	J A 19	J A 34	 31	 35	J A 48	 36	G 19	G	G	G 22	G	E B 14	E B 15	E B 15	E B 14	E B 15	 19	E B 15
4	 18	 21	E B 15	E B 15	 20	E B 15	E B 15	J A 25	G 23	G 24	G 28	G 28	 40	 38	J A 39	J A 34	J A 45	J A 38	J A 28	J A 24	J A 52	J A 26	E B 15	 20
5	 20	 20	E B 15	E B 16	 22	E B 14	E B 14	G	 	 	 41	J A 42	 38	J A 38	 42	J A 30	J A 26	J A 30	 22	 20	E B 15	E B 15	E B 15	E B 14
6	E B 15	E B 16	E B 14	E B 15	E B 14	J A 20	E B 15	 	G 22	 36	 36	J A 43	J A 40	 35	 39	J A 40	 36	J A 29	J A 33	J A 44	J A 49	J A 32	J A 22	E B 14
7	E B 15	 20	J A 20	J A 22	J A 20	J A 17	E B 15	 26	G 26	 37	 37	 40	J A 56	 38	J A 38	 35	 	G J A 23	 19	E B 15	J A 28	 20	E B 15	E B 15
8	E B 14	 19	 19	 22	 21	E B 15	J A 21	 24	 34	G 27	 36	G 24	G 26	G 27	G 25	 32	 25	J A 22	J A 18	 20	J A 27	J A 22	J A 29	J A 30
9	J A 26	J A 24	 20	J A 20	E B 15	E B 15	E B 14	 22	 34	G 24	 41	G 22	G 21	G 26	J A 35	 38	J A E 29	B J 15	A E 21	B J 16	A E 16	B J 24	A J 20	 19
10	E B 15	 19	E B 15	E B 16	E B 15	E B 15	E B 15	G 	 34	G 27	 39	 39	J A 44	J A 39	J A 44	 34	J A 31	J A 31	 20	J A 30	J A 23	J A 39	J A 29	E B 15
11	E B 16	E B 15	E B 15	E B 15	E B 16	E B 15	 20	 30	 38	J A 50	J A 63	J A 41	J A 40	 38	G 20	J A 30	 38	J A 39	J A 20	 21	E B 15	J A 24	E B 15	J A 17
12	E B 15	E B 15	E B 14	E B 15	E B 14	E B 14	E B 15	 26	 40	G 26	G J 26	A 43	 38	 38	 42	 33	 27	E B 15	E B 14	E B 15	E B 15	 20	 22	E B 14
13	J A 20	J A 21	 21	J A 18	J A 22	 21	J A 19	G 	 30	 36	G 23	C	C	C	C	C	C	C	C	 22	E B 15	E B 14	E B 14	E B 15
14	E B 14	E B 15	J A 28	E B 15	E B 14	E B 15	E B 15	 25	 30	G 21	 41	 36	G 31	G 28	G 22	 40	G 	 19	 20	E B 14	E B 14	E B 15	E B 15	E B 16
15	E B 16	E B 15	E B 16	E B 16	E B 15	E B 15	E B 15	 24	 32	 35	 37	J A 41	J A 43	 33	G 24	G 20	J A 33	J A 20	J A 21	J A 22	J A 17	J A 34	J A 18	E B 15
16	 20	 20	 22	E B 16	J A 22	J A 22	J A 31	 22	 32	 34	 39	G 31	 40	G 21	J A 42	J A 31	J A 30	J A 28	J A 25	E B 16	E B 14	E B 15	B J 18	A E 15
17	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	J A 18	 24	 34	J A 45	 39	J A 48	 36	J A 50	G 26	 	 21	 22	 20	E B 15	E B 15	E B 15	E B 15	E B 15
18	E B 14	E B 15	E B 15	 20	E B 15	E B 15	E B 15	G 	G 	G 25	G 28	J A 39	G 25	G	G 24	G 22	G	J A 18	E B 15	E B 14	 19	E B 16	E B 14	E B 14
19	E B 15	E B 14	E B 14	 20	E B 16	E B 14	E B 15	 24	 31	 37	 39	 40	G 27	 34	G 26	G 22	 33	 20	E B 14	E B 14	E B 14	E B 15	E B 14	E B 15
20	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	 E B 14	 22	 G	G 24	 35	 37	 36	J A 42	 36	 G	G	E B 14	E B 15	E B 14	E B 15	E B 14	E B 16	E B 13
21	E B 15	J A 22	E B 15	E B 16	 20	J A 23	 20	 23	 32	 34	J A 39	 36	J A 38	 38	 30	G 23	G	J A 25	J A 29	J A 45	J A 24	J A E 15	B E 15	B E 14
22	E B 15	 22	 20	J A 22	 19	 22	 21	 23	 30	G 26	 39	J A 35	J A 35	G 23	G 24	G 21	 22	J A 22	E B 16	E B 15	E B 15	 20	E B 15	 21
23	 21	 20	J A 20	 20	E B 15	E B 14	 18	 23	 30	G 21	G 26	 36	G 24	G 26	G 26	G 21	 21	J A 20	J A 20	E B 14	 19	 21	 21	 22
24	J A 22	J A 24	E B 16	E B 16	E B 15	E B 14	E B 15	 22	G 	 33	G 26	 34	G 26	G 23	G 24	G	E B 16	 20	E B 15	E B 15	E B 15	E B 14	E B 15	E B 16
25	E B 14	E B 16	E B 16	E B 15	E B 14	E B 15	E B 16	G 	G J 23	A J 38	A J 44	A J 37	G 28	J A 40	J A 48	 26	J A J 39	A E 21	B J 15	A 24	 20	E B 15	E B 15	E B 14
26	J A 20	J A 18	 20	 22	E B 15	E B 15	E B 15	G 	 30	 34	G 23	 38	J A 40	 36	J A 35	J A 32	 20	E B 14	E B 14	 21	E B 15	 20	J A 23	E B 14
27	E B 16	E B 15	E B 14	E B 14	E B 14	E B 14	 16	 	 29	 40	 36	J A 45	G 24	G 21	G 26	 26	 	G E B 14	 22	E B 14	E B 13	B J 46	A E 15	B E 15
28	E B 15	E B 14	E B 14	E B 14	E B 16	E B 15	 16	 20	G 22	G 22	G 26	G 25	G 28	G 23	G 24	 30	J A 26	E B 15	E B 15	E B 15	E B 15	E B 14	E B 14	E B 14
29	J A 26	 20	J A 20	J A 20	E B 15	E B 14	E B 15	 20	 27	G 24	G J 24	A 38	G 29	 31	J A 38	G 21	 20	J A 33	E B 15	E B 14	E B 16	E B 16	E B 14	 18
30	J A 30	J A 20	E B 15	J A 28	J A 28	J A 24	E B 15	 20	 29	J A 36	 36	 36	G 28	 37	 34	J A 47	J A 48	J A 30	J A 31	J A 20	J A 18	J A 18	 22	 21
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	30	30	30	30	30	30	30	30	30	30	29	29	29	29	29	29	29	29	30	30	30	30	30
MED	E B 15	 18	E B 15	E B 16	E B 15	E B 15	E B 15	 22	 30	 34	 36	 37	 35	 33	G 	 30	 25	J A 21	 20	E B 16	E B 15	E B 16	E B 15	E B 15
U Q	J A 20	J A 20	 20	J A 20	J A 20	J A 17	 19	 24	 32	J A 36	 39	J A 41	J A 40	J A 38	J A 38	 34	J A 32	J A 28	J A 22	J A 22	J A 19	J A 22	J A 20	 17
L Q	E B 15	E B 15	E B 15	E B 15	E B 15	E B 14	E B 15	G 	G 	G 25	G 28	G 34	G 26	G 26	G 24	G 22	 	G E B 16	E B 15	E B 15	E B 15	E B 15	E B 15	E B 14

NOV. 2010 foEs (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

NOV. 2010 fbEs (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

LAT.35°43.0'N LON.139°29.0'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 16	E B 15	E B 15	16	E B 14	E B 15	25	34	34	32	48	34	G	G	G	22	E B 15	16	E B 15	E B 16	E B 15	E B 14	E B 16
2	E B 15	E B 15	E B 15	E B 15	E B 13	E B 15	E B 15	G 18	29	G 25	G 26	G 25	G 24	G	G	33	24	17	E B 15	24	E B 15	E B 15	E B 15	E B 15
3	E B 15	E B 16	E B 16	E B 15	E B 16	E B 15	19	24	28	33	44	32	G 18	G	G	G 21	G	E B 14	E B 15	E B 15	E B 15	E B 14	E B 15	E B 15
4	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	G 18	G 22	G 22	G 28	G 26	36	34	29	G 19	24	20	20	E B 15	17	19	E B 15	E B 14
5	E B 14	E B 16	E B 15	E B 16	E B 15	E B 14	E B 14	G	G	G	38	37	38	34	38	28	G 17	20	E B 15	E B 15	E B 15	E B 15	E B 15	E B 14
6	E B 15	E B 16	E B 14	E B 15	E B 14	E B 15	E B 15	G	G 21	35	33	40	35	34	38	30	32	21	A A 33	20	19	18	E B 16	E B 14
7	E B 15	E B 16	E B 15	16	E B 15	E B 15	E B 15	24	G 25	33	36	38	41	35	33	32	G	18	E B 16	E B 15	16	E B 15	E B 15	E B 15
8	E B 14	E B 15	E B 15	E B 15	E B 15	E B 15	18	23	31	G 26	34	G 23	G 25	G 23	G 24	29	23	19	17	E B 15	E B B 16	19	16	16
9	16	16	E B 15	E B 15	E B 15	E B 15	E B 14	21	29	G 24	36	G 21	G 20	G 24	32	36	20	E B 15	E B 15	E B 16	E B 16	16	E B 16	E B 15
10	E B 15	E B 15	E B 15	E B 16	E B 15	E B 15	E B 15	G	34	G 23	36	37	40	29	34	32	25	22	16	A A 30	18	A A 39	21	E B 15
11	E B 16	E B 15	E B 15	E B 15	E B 16	E B 15	15	28	31	46	41	36	36	36	G 19	20	34	32	E B 15	E B 16	E B 15	15	E B 15	E B 16
12	E B 15	E B 15	E B 14	E B 15	E B 14	E B 14	E B 15	23	38	G 24	G 25	39	37	36	40	31	25	E B 15	E B 14	E B 15	E B 15	E B 15	E B 15	E B 14
13	E B 15	E B 14	E B 15	E B 15	E B 15	E B 15	16	G	28	32	G 22	C	C	C	C	C	C	C	C	E B 15	E B 15	E B 14	E B 14	E B 15
14	E B 14	E B 15	17	E B 15	E B 14	E B 15	E B 15	22	28	G 20	38	34	G 30	G 26	G 18	37	G	E B 16	E B 15	E B 14	E B 14	E B 15	E B 15	E B 16
15	E B 16	E B 15	E B 16	E B 16	E B 15	E B 15	E B 15	20	30	33	35	32	32	31	G 22	G 18	29	E B 15	16	17	16	16	E B 15	E B 15
16	E B 14	E B 15	E B 15	E B 16	E B B 16	17	22	18	27	34	38	G 28	38	G 20	39	26	20	17	18	E B 16	E B 14	E B 15	E B 15	E B 15
17	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	22	29	34	33	43	32	39	G 24	G	19	E B 15	E B 16	E B 15	E B 15	E B 15	E B 15	E B 15
18	E B 14	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	G	G	G 23	G 26	36	G 22	G	G 21	G 21	G	E B 14	E B 15	E B 14	E B 15	E B 16	E B 14	E B 14
19	E B 15	E B 14	E B 14	16	E B 16	E B 14	E B 15	22	28	32	34	35	G 26	31	G 24	G 20	30	16	E B 14	E B 14	E B 14	E B 15	E B 14	E B 15
20	E B 15	E B 15	E B 15	E B 15	E B B 15	16	E B 14	21	G	G 23	34	35	34	34	31	G	G	E B 14	E B 15	E B 14	E B 15	E B 14	E B 16	E B 13
21	E B 15	17	E B 15	E B 16	E B 15	E B 15	E B 15	21	28	32	34	33	32	34	28	G 23	G	19	27	19	20	E B 15	E B 15	E B 14
22	E B 15	E B 16	E B 15	16	E B 16	E B 16	E B 15	20	25	G 24	34	34	31	G 22	G 20	G 18	21	17	E B 16	E B 15	E B 15	E B 15	E B 15	E B 15
23	E B 14	E B 16	E B 15	E B 15	E B 15	E B 14	E B 15	21	27	G 20	G 25	32	G 23	G 25	G 25	G 20	19	17	E B 14	E B 14	E B 15	E B 15	E B 15	17
24	E B 15	18	E B 16	E B 16	E B 15	E B 14	E B 15	20	G	32	G 25	34	G 25	G 22	G 22	G	E B 16	E B 15	E B 15	E B 15	E B 15	E B 14	E B 15	E B 16
25	E B 14	E B 16	E B 16	E B 15	E B 14	E B 15	E B 16	G	G 23	30	35	30	G 28	32	29	23	19	E B 15	E B 15	E B 16	E B 15	E B 15	E B 15	E B 14
26	E B 15	E B 15	E B 15	E B 16	E B 15	E B 15	E B 15	G	28	31	G 21	34	32	34	28	25	19	E B 14	E B 14	E B 16	E B 15	E B 15	E B 15	E B 14
27	E B 16	E B 15	E B 14	E B 14	E B 14	E B 14	E B 16	G	28	38	34	34	G 23	G 20	G 25	25	G	E B 14	E B 20	E B 14	E B 13	20	E B 15	E B 15
28	E B 15	E B 14	E B 14	E B 14	E B 16	E B 15	E B 16	19	G 21	G 21	G 25	G 23	G 26	G 22	G 24	26	20	E B 15	E B 15	E B 15	E B 15	E B 14	E B 14	E B 14
29	18	E B 15	E B 14	16	E B 15	E B 14	E B 15	19	25	G 22	G 23	34	G 27	27	33	G 19	18	18	E B 15	E B 14	E B 16	E B 16	E B 14	E B 15
30	E B 15	E B 15	E B 15	17	E B 15	19	E B 15	19	24	34	32	34	G 26	32	29	29	24	22	A A 31	E B 15	E B 14	E B 16	17	16
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	30	30	30	30	30	30	30	30	30	30	29	29	29	29	29	29	29	29	30	30	30	30	30
MED	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	20	28	30	34	34	31	29	G	23	20	16	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15
U Q	E B 15	E B 16	E B 15	16	E B 15	E B 15	15	22	29	33	36	36	36	34	32	30	24	19	16	16	16	16	E B 15	E B 15
L Q	E B 15	E B 15	E B 15	E B 15	E B 15	E B 14	E B 15	G	G	G 23	G 26	G 31	G 25	G 24	G 24	G 20	G	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	E B 14

IONOSPHERIC DATA STATION Kokubunji

NOV. 2010 fmin (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

LAT.35°43.0'N LON.139°29.0'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	16	15	15	15	14	15	14	14	15	13	14	12	18	16	16	15	15	15	15	16	15	14	16
2	15	15	15	15	13	15	15	15	14	13	14	14	14	17	15	14	12	14	15	14	15	15	15	15
3	15	16	16	15	16	15	15	15	15	14	14	12	14	14	19	14	15	14	15	15	14	15	15	15
4	15	15	15	15	15	15	15	15	14	14	14	13	19	15	12	14	14	14	14	15	14	14	15	14
5	14	16	15	16	15	14	14	14	14	20	22	18	14	16	14	14	14	14	15	15	15	15	15	14
6	15	16	14	15	14	15	15	14	15	14	15	14	16	13	13	14	14	14	14	14	15	16	16	14
7	15	16	15	14	15	15	15	14	13	14	14	19	14	14	13	13	14	14	16	15	15	15	15	15
8	14	15	15	15	15	15	15	14	15	16	14	17	15	14	15	14	14	15	15	15	16	14	15	15
9	15	15	15	15	15	15	14	14	14	15	19	14	13	14	13	14	12	15	15	16	16	14	16	15
10	15	15	15	16	15	15	15	15	13	11	16	13	14	16	13	11	12	12	15	14	14	14	14	15
11	16	15	15	15	16	15	15	14	15	13	12	14	16	17	12	12	14	15	15	16	15	14	15	16
12	15	15	14	15	14	14	15	13	14	14	13	18	15	14	14	14	13	15	14	15	15	15	15	14
13	15	14	15	15	15	15	15	15	13	13	14	C	C	C	C	C	C	C	C	15	15	14	14	15
14	14	15	16	15	14	15	15	15	14	13	13	12	20	15	14	15	16	16	15	14	14	15	15	16
15	16	15	16	16	15	15	15	15	14	14	15	15	15	14	13	14	14	15	16	14	15	15	15	15
16	14	15	15	16	16	15	15	14	14	14	18	15	14	14	14	12	14	16	14	16	14	15	15	15
17	15	15	15	15	15	15	15	15	14	17	16	19	17	16	12	16	14	15	16	15	15	15	15	15
18	14	15	15	15	15	15	15	15	13	15	14	17	16	16	15	14	12	14	15	14	15	16	14	14
19	15	14	14	15	16	14	15	15	13	13	13	14	16	15	15	13	14	14	14	14	14	15	14	15
20	15	15	15	15	15	14	14	15	14	14	14	14	15	14	13	13	14	14	15	14	15	14	16	13
21	15	15	15	16	15	15	15	14	14	13	14	14	15	14	14	15	16	14	14	15	15	15	15	14
22	15	16	15	16	16	16	15	14	14	12	14	15	13	14	12	13	16	15	16	15	15	15	15	14
23	14	16	15	15	15	14	15	14	12	14	12	14	14	15	14	13	14	15	14	14	14	15	15	15
24	15	16	16	16	15	14	15	14	14	14	13	14	16	15	12	15	16	15	15	15	15	14	15	16
25	14	16	16	15	14	15	16	15	14	13	14	12	17	15	14	14	13	15	15	16	15	15	15	14
26	15	15	14	16	15	15	15	15	12	13	13	15	15	15	13	14	14	14	14	16	15	15	15	14
27	16	15	14	14	14	14	16	15	15	12	12	14	16	15	14	15	15	14	15	14	13	14	15	15
28	15	14	14	14	16	15	16	14	14	14	14	13	12	14	14	15	14	15	15	15	15	14	14	14
29	15	15	14	15	15	14	15	15	14	15	14	20	12	14	15	14	15	15	15	14	16	16	14	15
30	15	15	15	15	15	15	15	15	15	15	14	14	12	13	14	13	14	14	13	15	14	16	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	30	30	30	30	30	30	30	30	30	30	30	29	29	29	29	29	29	29	29	30	30	30	30	30
MED	15	15	15	15	15	15	15	15	14	14	14	14	15	15	14	14	14	15	15	15	15	15	15	15
U Q	15	16	15	16	15	15	15	15	14	15	14	16	16	16	14	14	15	15	15	15	15	15	15	15
L Q	15	15	15	15	15	14	15	14	14	13	13	14	14	14	13	13	14	14	14	14	14	14	14	14

IONOSPHERIC DATA STATION Kokubunji

NOV. 2010 M(3000)F2 (0.01) 135°E MEAN TIME (G.M.T. + 9 H)

LAT.35°43.0'N LON.139°29.0'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	345	334	337	319	345	314	364	376	373	364	370	372	337	367	359	354	383	365	371	306	310	303	318	316
2	320	313	319	332	356	304	357	375	387	398	377	370	341	338	343	343	381	385	350	326	330	324	333	329
3	317	328	317	326	329	324	341	373	378	374	380	360	353	365	368	367	374	382	343	327	326	295	319	324
4	339	331	319	324	349	332	352	359	364	369	350	347	347	355	359	372	366	357	352	333	351	330	328	321
5	331	345	294	329	345	344	350	392	363	367	372	384	347	347	363	375	369	362	356	341	353	346	330	306
6	314	321	316	310	329	354	353	390	378	370	372	350	348	346	342	369	376	357	A	333	345	347	310	270
7	323	311	326	318	328	343	363	376	375	366	369	366	357	354	361	371	383	364	361	326	335	322	313	319
8	314	299	311	332	F	389	364	382	370	378	372	366	353	342	345	341	362	386	349	359	335	310	311	299
9	306	320	288	306	345	340	352	373	384	350	377	329	323	347	361	375	379	371	369	337	317	284	318	332
10	330	F	F	F	319	F	362	382	385	381	381	347	359	364	348	358	395	365	356	A	308	A	309	312
11	313	296	317	321	336	360	345	403	368	365	363	377	364	353	354	352	379	357	367	321	296	324	334	286
12	299	303	300	314	377	301	337	379	343	360	364	352	360	357	364	382	365	374	311	332	338	331	326	308
13	310	341	321	332	357	348	330	376	375	374	374	C	C	C	C	C	C	C	C	334	346	357	318	322
14	326	307	318	337	362	325	340	370	362	362	371	373	340	373	356	345	370	396	309	325	338	326	307	312
15	308	322	309	309	334	319	352	391	363	328	365	374	365	362	367	375	383	357	349	354	314	319	318	325
16	351	303	308	299	319	321	363	391	369	390	341	358	374	367	351	373	376	368	330	313	329	337	334	303
17	323	310	306	336	371	331	338	375	369	362	380	378	360	371	373	380	388	373	351	332	320	338	323	315
18	304	316	316	329	350	362	334	375	384	375	372	383	371	349	338	356	379	409	327	323	317	314	314	315
19	308	303	314	310	330	391	337	370	377	374	372	372	345	341	360	367	371	351	329	338	328	308	312	301
20	307	317	323	320	359	369	338	386	387	362	368	383	348	348	356	374	380	373	350	321	333	342	328	308
21	308	315	331	363	366	315	332	361	358	357	357	357	354	340	381	371	386	331	344	354	332	336	315	321
22	318	327	325	338	354	349	334	380	385	380	376	368	379	366	368	375	374	370	342	346	324	301	326	322
23	339	373	326	321	330	324	325	371	386	355	357	364	356	347	380	365	373	350	351	343	339	333	308	312
24	311	307	315	328	366	372	314	376	373	369	358	368	362	365	363	371	371	344	369	347	355	305	321	298
25	313	305	310	349	350	327	328	372	359	349	361	369	360	342	372	376	374	357	360	343	345	346	F	305
26	304	312	322	343	319	338	323	388	390	393	362	386	371	382	373	344	388	394	339	343	334	318	322	289
27	294	306	322	354	349	341	330	359	370	394	380	405	366	377	354	378	386	341	370	327	327	316	328	316
28	322	325	332	320	325	327	349	327	333	372	381	392	376	346	377	369	388	375	317	338	333	310	325	287
29	293	318	327	330	334	319	356	366	366	375	364	383	344	377	373	362	329	369	359	338	323	343	331	316
30	294	315	314	309	335	337	345	380	379	381	351	374	373	358	360	388	375	382	A	372	349	344	301	314
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	29	29	29	30	30	30	30	30	29	29	29	29	29	29	29	27	29	30	29	29	30
MED	314	315	317	326	345	337	343	376	373	370	370	370	357	355	361	371	376	368	350	334	332	324	319	313
U Q	323	326	324	334	356	352	353	382	384	378	376	380	366	366	370	375	383	378	360	343	339	340	328	321
L Q	307	306	310	316	330	322	334	371	364	362	362	359	347	346	354	357	371	357	339	326	323	310	312	303

IONOSPHERIC DATA STATION Kokubunji

NOV. 2010 M(3000)F1 (0.01) 135°E MEAN TIME (G.M.T. + 9 H)

LAT.35°43.0′N LON.139°29.0′E SWEEP 1.0MHz TO 30.0MHz IN 15.0SEC IN MANUAL SCALING

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1											L	A	L	L	L									
2									A	L	L	L	L	L	L									
3										L	A	L	L	L	L									
4										L	L	L			L									
5										L	A	A	L	L	A	A								
6										A	L	A	U L 386		A	A								
7										L	L	A	A	L	L	A								
8										L	L	L	L	L	L									
9									A	L	L	L	U L 410	L	L	A								
10												U L 387	A	L	L	A								
11								A	L	A	A	A	L	L	L									
12										L		A												
13										L	L	C	C	C	C	C	C							
14										L	A	L	L	L	L									
15											L	L	U L 399	L	L									
16										A		L	A	L	A									
17									L	A	L	A	L	A	L	L								
18										L	U L 410	A	L	L										
19											A	L	L	L	L									
20										L	L	L	L	L	L									
21										L	L	L	L	L										
22										L	L	L	L	L	L									
23										L	L	L	L	L	L									
24										L	L		L	U L 384	L									
25											L	L	U L 401	L										
26											L		L	A	L									
27										A	A	L	L	L										
28										L	L	L	L	L										
29											L		L											
30											L		L	L										
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT											1	1	4	1										
MED											U L 410	U L 387	U L 400	U L 384										
U Q													U L 406											
L Q													U L 392											

NOV. 2010 M(3000)F1 (0.01)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

NOV. 2010 h'F2 (KM) 135°E MEAN TIME (G.M.T. + 9 H)

LAT. 35°43.0'N LON. 139°29.0'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											230	226	258	236	242									
2									222	214	234	240	270	250	252									
3										230	232	246	250	232	228									
4										234	232	236			238									
5										224	230	218	236	256	230	222								
6										216	230	240	250		236	224								
7										238	232	230	248	242	244	222								
8										232	240	244	260	252	256									
9									208	246	230	266	244	262	232	224								
10												252	238	236	260	232								
11								202	232	236	242	226	244	242	254									
12										238		244												
13										236	234	C	C	C	C	C	C							
14										242	230	236	256	224	242									
15											236	222	234	238	246									
16										220		228	232	232	228									
17									244	234	230	232	234	240	238	226								
18										240	238	232	236	276										
19											230	234	260	246	238									
20										238	242	232	248	254	246									
21										246	248	240	230	256										
22										240	240	234	226	254	236									
23										248	252	232	240	240	228									
24										240	240		224	240	240									
25											244	230	242	248										
26											246		234	228	242									
27										206	220	212	236	224										
28										224	222	220	244	272										
29											242		252											
30											250		228	244										
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								1	4	22	27	25	27	25	21	6								
MED								202	227	236	234	232	242	242	240	224								
U Q									238	240	242	240	250	254	246	226								
L Q									215	224	230	227	234	236	234	222								

NOV. 2010 h'F2 (KM)

IONOSPHERIC DATA STATION Kokubunji

NOV. 2010 h′F (KM) 135°E MEAN TIME (G.M.T. + 9 H)

LAT.35°43.0′N LON.139°29.0′E SWEEP 1.0MHz TO 30.0MHz IN 15.0SEC IN MANUAL SCALING

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	222	216	220	E B 260	232	E B 254	214	204	214	222	196	A	186	194	186	224	214	194	198	E B 242	E B 238	E B 272	E B 274	E B 266
2	E B 258	E B 250	E B 256	E B 238	216	E B 266	214	210	A	194	192	198	220	194	206	230	216	196	206	E A 274	E B 242	E B 256	E B 230	228
3	E B 240	E B 244	E B 256	E B 252	234	E B 224	212	206	210	200	A	196	200	194	196	208	204	198	E B 196	E B 206	228	E B 280	E B 262	E B 242
4	E B 240	216	E B 248	E B 236	218	E B 216	210	220	214	202	194	196	224	212	204	224	212	206	226	228	224	E A 244	E B 236	E B 242
5	E B 250	212	E B 248	E B 246	220	212	218	206	210	200	A	A	194	206	A	A	208	204	198	216	212	216	E B 230	E B 256
6	E B 258	E B 252	E B 238	E B 260	E B 254	E B 232	208	202	212	A	194	A	204	210	A	A	200	190	A	E A 242	E A 242	218	E B 252	E B 266
7	E B 252	E B 256	E B 246	E A 258	E B 242	212	204	204	212	206	200	A	A	202	198	A	202	196	200	E B 218	240	E B 238	E B 264	E B 262
8	E B 272	E B 276	E B 274	234	224	198	212	198	214	202	202	190	186	208	210	216	216	198	200	216	222	E A 286	E A 274	E A 284
9	E A 282	E A 292	E B 278	E B 268	E B 236	220	206	206	A	194	212	198	200	216	202	A	198	E B 192	202	204	E B 258	E A 298	E B 266	E B 240
10	E B 244	E B 250	E B 254	E B 254	E B 246	220	206	204	214	214	218	204	A	206	212	A	204	198	E A 230	A	E A 282	A	E A 312	E B 272
11	E B 250	E B 268	E B 272	E B 260	E B 240	E B 214	206	A	200	A	A	A	210	210	214	222	206	226	218	E B 232	E B 282	E A 238	230	E B 302
12	E B 284	E B 286	E B 300	E B 266	202	E B 280	E B 252	214	238	198	216	A	H 196	230	228	210	216	196	E B 260	E B 234	E B 236	E B 244	E B 254	E B 262
13	E B 280	E B 248	E B 242	E B 226	212	214	230	208	208	208	204	C	C	C	C	C	C	C	C	228	214	210	E B 232	E B 244
14	E B 240	E B 270	E A 284	E B 238	216	E B 240	224	204	212	206	A	198	210	200	200	210	202	186	220	E B 244	E B 218	E B 240	E B 272	E B 276
15	E B 260	E B 250	E B 250	E B 288	E B 232	216	212	206	208	210	208	198	194	206	204	222	200	194	212	E B 226	E A 250	E A 260	E B 254	E B 260
16	210	E B 252	E B 284	E B 304	E B 288	E A 256	218	204	204	A	218	202	A	198	A	212	202	204	210	E B 250	E B 246	E B 242	E B 226	E B 282
17	E B 252	E B 258	E B 274	E B 240	210	E B 256	224	210	210	A	206	A	194	A	202	186	204	184	220	218	E B 258	E B 240	E B 260	E B 278
18	E B 278	E B 264	E B 260	E B 246	218	204	210	202	208	200	198	A	202	220	216	228	206	188	E B 210	208	E B 278	E B 268	E B 258	E B 258
19	E B 276	E B 280	E B 262	E B E A 270	E B 228	196	E B 258	204	208	218	A	208	198	198	214	226	200	202	202	220	228	E B 270	E B 278	E B 294
20	E B 280	E B 266	E B 260	E B E B 244	E B 228	204	216	198	H 184	204	196	204	200	208	210	220	204	194	200	226	E B 238	E B 234	E B 250	E B 290
21	E B 274	E A 246	E B 246	214	202	E B 258	E B 248	212	220	218	220	202	200	204	218	212	200	208	E A 268	226	E A 252	E B 232	E B 256	E B 260
22	E B 268	E B 250	E B 240	222	220	212	E B 246	212	206	210	202	198	194	200	206	212	200	192	212	216	226	E B 274	E B 260	E B 262
23	220	198	E B 234	E B E B 242	E B 256	226	218	208	208	208	218	200	202	206	206	206	204	206	210	E B 216	E B 214	222	E B 272	E A 298
24	E B 288	E A 298	E B 268	E B E B 242	214	182	E B 280	212	216	198	206	234	202	182	206	214	200	204	202	220	202	E B 254	E B 246	E B 256
25	E B 292	E B 286	E B 270	222	212	210	220	214	H 192	216	206	204	184	204	216	206	212	192	208	222	220	214	E B 316	E B 288
26	E B 292	E B 272	E B 236	E B 230	226	224	E B 232	204	208	216	210	216	198	A	198	208	206	192	E B 218	222	220	E B 258	E B 270	E B 280
27	E B 284	E B 292	E B 264	228	222	E B 228	232	218	214	A	A	192	204	194	200	H 186	200	220	216	E B 218	E B 230	E A 298	E B 242	E B 244
28	E B 254	E B 240	E B 242	E B E B 240	E B 254	E B 236	212	224	222	204	200	196	198	232	226	216	204	194	E B 228	226	210	E B 244	E B 258	E B 264
29	E A 298	E B 256	E B 230	E B A 248	214	E B 238	222	208	204	216	212	220	202	208	216	208	212	196	210	200	224	E B 224	226	E B 260
30	E B 268	E B 268	E B 250	E B E A 262	E B 240	E B E A 238	E B 238	214	210	212	204	212	198	196	216	214	208	204	A	206	208	E B 236	E B E A 286	E A 274
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	30	30	30	30	30	30	29	28	25	24	21	26	27	26	24	29	29	27	29	30	29	30	30
MED	E B 264	E B 256	E B 255	E B 245	218	U 210	215	206	210	206	205	200	200	206	206	213	204	196	206	219	E 229	E B 244	E B 258	E B 263
U Q	E B 280	E B 272	E B 270	E B E B 260	E B 240	E B 238	E B 232	212	214	215	212	206	202	210	216	222	210	204	E 220	E B 230	E B E B 246	E B E B 269	E B 272	E B 280
L Q	E B 250	248	E B 242	236	216	212	212	204	208	200	199	197	194	198	202	208	200	192	202	216	220	233	E B 242	E B 256

NOV. 2010 h′F (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

NOV. 2010 h′E (KM) 135°E MEAN TIME (G.M.T. + 9 H)

LAT.35°43.0′N LON.139°29.0′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	112	A	A	A	A	114	112	114	122							
2							B	126	A	124	126	120	120	114	120	118	120							
3							B	A	118	118	A	A	116	114	118	120	120							
4							B	122	122	120	124	124	A	114	A	122	A							
5							B	116	114	118	A	A	A	A	A	A	116							
6							B	116	120	122	118	A	A	A	A	A	A							
7							B	122	124	A	A	A	A	A	120	124	126							
8							B	124	120	120	A	110	110	116	116	110	112							
9							B	120	114	116	112	116	112	112	A	112	A							
10							B	114	124	124	122	120	A	A	A	120	A							
11							B	116	114	116	A	A	A	116	116	A	A							
12							B	116	112	122	122	A	A	A	120	120	120							
13							B	126	114	118	114	C	C	C	C	C	C							
14							B	124	124	120	A	A	118	118	118	A	120							
15							B	120	114	112	A	A	A	A	120	114	B							
16							B	B	A	A	A	124	A	120	A	A	A							
17							B	120	A	A	A	A	A	A	118	118	116							
18							B	122	120	120	118	A	112	112	120	124	120							
19							B	118	116	114	122	122	118	A	120	124	A							
20							B	B	112	112	124	118	118	116	116	118	112							
21							B	B	114	116	116	A	A	A	A	124	120							
22							B	114	116	122	A	A	A	112	116	114	118							
23							B	118	118	118	116	116	116	118	118	122	B							
24							B	122	122	118	122	122	122	122	118	114	B							
25							B	122	124	A	A	A	124	A	A	A	B							
26							B	114	122	122	120	A	A	A	A	A	116							
27							B	124	114	124	118	120	120	120	124	118	124							
28							B	124	118	122	122	120	118	118	118	116	A							
29							B	B	114	124	122	A	122	A	A	118	B							
30							B	B	A	A	A	A	124	126	A	A	A							
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								24	26	24	17	12	15	17	18	21	15							
MED								121	117	120	122	120	118	116	118	118	120							
U Q								123	122	122	122	122	122	119	120	122	120							
L Q								116	114	117	117	117	116	114	116	114	116							

IONOSPHERIC DATA STATION Kokubunji

NOV. 2010 h'Es (KM) 135°E MEAN TIME (G.M.T. + 9 H)

LAT.35°43.0'N LON.139°29.0'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	96	96	B	100	102	B	102	124	114	102	100	94	96	G	G	G	132	88	86	B	B	B	B	B
2	B	B	B	B	B	B	B	108	104	104	102	102	100	G	G	136	134	122	92	108	B	B	B	B
3	B	B	B	B	B	B	102	94	146	124	104	104	94	G	G	104	G	B	B	B	B	B	98	B
4	94	94	B	B	92	B	B	104	104	102	106	106	104	142	98	94	88	90	88	94	98	96	B	90
5	86	88	B	B	96	B	B	G	G	G	104	106	102	108	106	104	104	102	100	94	B	B	B	B
6	B	B	B	B	B	94	B	G	102	120	110	106	104	96	104	104	106	102	98	98	98	92	102	B
7	B	98	94	92	98	98	B	150	106	102	102	102	98	94	114	128	G	90	90	B	102	100	B	B
8	B	96	92	94	104	B	104	158	154	104	104	98	96	104	106	122	126	90	90	90	100	114	108	96
9	92	92	94	94	B	B	B	152	114	106	148	96	96	94	88	120	90	B	98	B	B	100	100	100
10	B	100	B	B	B	B	B	G	126	100	116	126	102	98	96	142	92	92	98	142	144	124	104	B
11	B	B	B	B	B	B	96	138	132	124	104	102	102	116	100	94	100	96	92	92	B	104	B	98
12	B	B	B	B	B	B	B	130	112	104	104	104	104	100	118	124	122	B	B	B	B	122	130	B
13	104	98	98	96	96	100	100	G	146	122	98	C	C	C	C	C	C	C	C	100	B	B	B	B
14	B	B	96	B	B	B	B	130	134	98	104	100	104	102	100	92	G	90	92	B	B	B	B	B
15	B	B	B	B	B	B	B	118	118	116	104	106	108	102	108	92	92	88	90	92	92	100	94	B
16	90	98	98	B	100	100	98	106	106	106	104	108	106	98	94	92	92	92	92	B	B	B	92	B
17	B	B	B	B	B	B	128	130	104	106	106	102	102	100	100	G	148	94	88	B	B	B	B	B
18	B	B	B	90	B	B	B	G	G	98	98	96	98	G	104	106	G	104	B	B	132	B	B	B
19	B	B	B	98	B	B	B	152	154	138	120	126	104	108	106	104	96	90	B	B	B	B	B	B
20	B	B	B	B	B	96	B	130	G	100	144	116	118	112	116	G	G	B	B	B	B	B	B	B
21	B	130	B	B	108	100	100	158	158	124	112	106	106	112	108	106	G	100	92	94	92	B	B	B
22	B	102	102	98	100	92	98	156	118	100	100	98	94	100	92	94	126	96	B	B	B	96	B	92
23	92	96	96	96	B	B	106	140	142	102	102	116	102	102	106	104	134	104	104	B	106	96	96	98
24	98	102	B	B	B	B	B	144	G	148	108	130	104	102	104	G	B	102	B	B	B	B	B	B
25	B	B	B	B	B	B	B	G	106	106	104	106	108	106	106	106	102	106	B	96	92	B	B	B
26	94	98	100	98	B	B	B	G	118	116	102	104	106	108	104	102	130	B	B	106	B	96	96	B
27	B	B	B	B	B	B	B	G	152	138	120	114	100	104	108	122	G	B	102	B	B	100	B	B
28	B	B	B	B	B	B	B	140	104	104	106	100	102	106	104	130	90	B	B	B	B	B	B	B
29	98	94	94	92	B	B	B	152	158	110	102	104	106	104	106	90	104	94	B	B	B	B	B	100
30	102	102	B	94	94	94	B	112	106	100	106	102	106	124	102	94	98	98	102	98	102	102	96	94
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	11	16	10	12	10	8	10	22	26	29	30	29	29	25	26	25	21	22	18	13	11	14	11	8
MED	94	98	96	95	99	97	101	134	118	106	104	104	102	104	104	104	104	95	92	96	100	100	98	97
U Q	98	101	98	98	102	100	104	152	146	121	108	107	106	108	106	122	128	102	98	103	106	104	104	99
L Q	92	95	94	93	96	94	98	118	106	102	102	101	99	100	100	94	92	90	90	93	92	96	96	93

IONOSPHERIC DATA STATION Kokubunji

NOV. 2010 TYPES OF Es 135°E MEAN TIME (G.M.T. + 9 H)

LAT.35°43.0′N LON.139°29.0′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	F1		F2	F1		L1	C2	C2	L2	L2	L3	L2				CL22	F1	F1					
2								L2	L2	L2	L2	L2	L2			CL11	C2	F2	F1	F3				
3							L3	L3	HL12	CL12	L2	L2	L2			L2							F2	
4	F3	F2			F1			L2	L2	L2	L2	L2	L2	HL22	L2	L2	L2	F4	F2	F3	F2	F2		F2
5	F2	F2			F2						L2	L2	L2	L2	L2	L2	L1	F2	F1	F1				
6						F1			L2	CL22	CL22	L2	L2	L2	L2	L2	L2	F4	F4	F3	F3	F3	F2	
7		F1	F1	F2	F2	F2		H2	L2	L2	L2	L2	L2	L2	CL12	CL21		F3	F1		F2	F1		
8		F1	F2	F1	F2		L3	HL11	HL12	L2	L2	L2	L2	L2	L2	C2	C2	F3	F2	F1	F2	F2	F2	F4
9	F3	F3	F1	F2				H2	CL22	L2	HL22	L2	L2	L2	L3	CL22	L2		F3			F1	F2	F1
10		F3							CL22	L2	CL12	CL22	L2	L2	L2	HL22	L3	F3	F2	F5	F3	F4	F4	
11							L3	H2	H2	C2	L3	L2	L2	CL11	L2	L2	L2	F3	F3	F2		F2		F1
12								H2	C2	L2	L2	L2	L2	L2	CL22	CL22	CL12					F2	F1	
13	F2	F2	F1	F3	F2	F1	L2		H1	CL12	L2									F1				
14			F4					C2	CL22	L2	L2	L2	L2	L2	L2	L3		F1	F2					
15								C2	C2	C2	L2	L2	L2	L2	L2	L2	L3	F2	F2	F2	F2	F2	F2	
16	F1	F1	F2		F1	F3	L4	L3	L2	L2	L2	L2	L2	L2	L2	L3	L2	F2	F2				F1	
17							C1	C2	L2	L2	L2	L2	L2	L2	L2		H2	F2	F2					
18				F1						L2	L2	L2	L2		L2	L2		F1			F1			
19				F1				H2	H3	C2	CL12	CL12	L2	L2	L2	L2	L2	F1						
20						F2		H2		L2	HL12	CL12	CL12	CL22	CL22									
21		F3			F2	F2	F2	H2	H2	CL12	CL22	L2	L2	L2	L2	L2		F3	F4	F3	F3			
22		F2	F2	F2	F1	F2	L1	H2	CL22	L2	L2	L2	L2	L2	L2	L2	CL12	F2				F1		F2
23	F1	F1	F1	F1			L1	HL21	H2	L2	L2	CL12	L2	L2	L1	L2	C1	F2	F2		F1	F2	F2	F2
24	F2	F4						H2		HL12	L2	CL11	L2	L2	L2			F1						
25									L2	L2	L2	L2	L2	L2	L2	L2	L2	F2		F2	F2			
26	F2	F1	F2	F1					C2	CL12	L2	L2	L2	L1	L2	L3	H2			F2		F2	F2	
27									H2	HL12	CL12	CL12	L2	L2	L1	CL11			F3			F4		
28								C2	L2	L2	L2	L2	L2	L1	L2	CL11	L2							
29	F2	F3	F3	F2				H2	H2	L2	L2	L2	L2	L2	L2	L2	L2	F3						F1
30	F1	F2		F3	F3	F4		C4	L2	L2	L2	L2	L2	CL11	L2	L3	L3	F3	F4	F2	F2	F2	F2	F3
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. 2010 TYPES OF Es

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

f-PLOTS OF IONOSPHERIC DATA

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

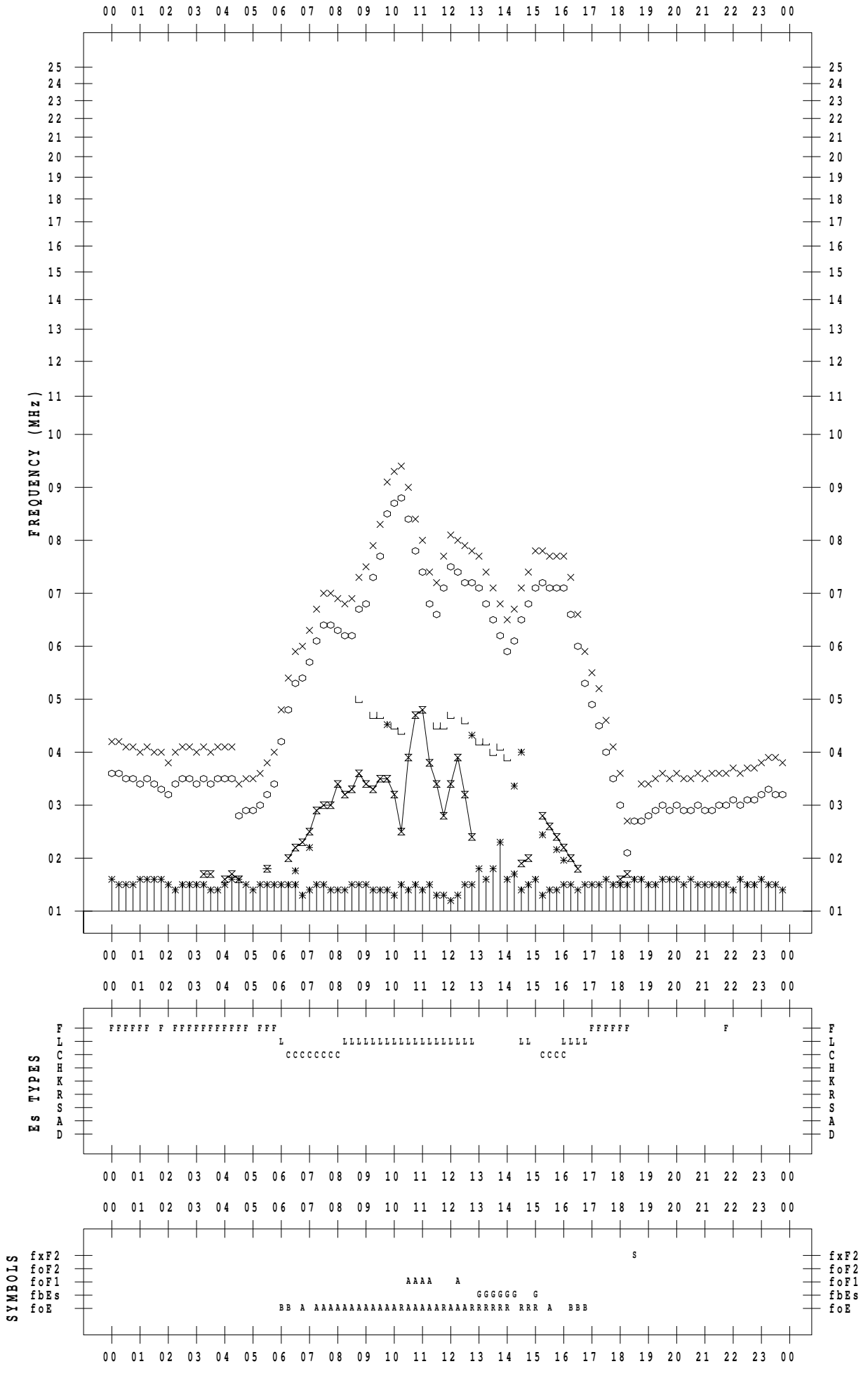
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2010/11/ 1

135 °E MEAN TIME



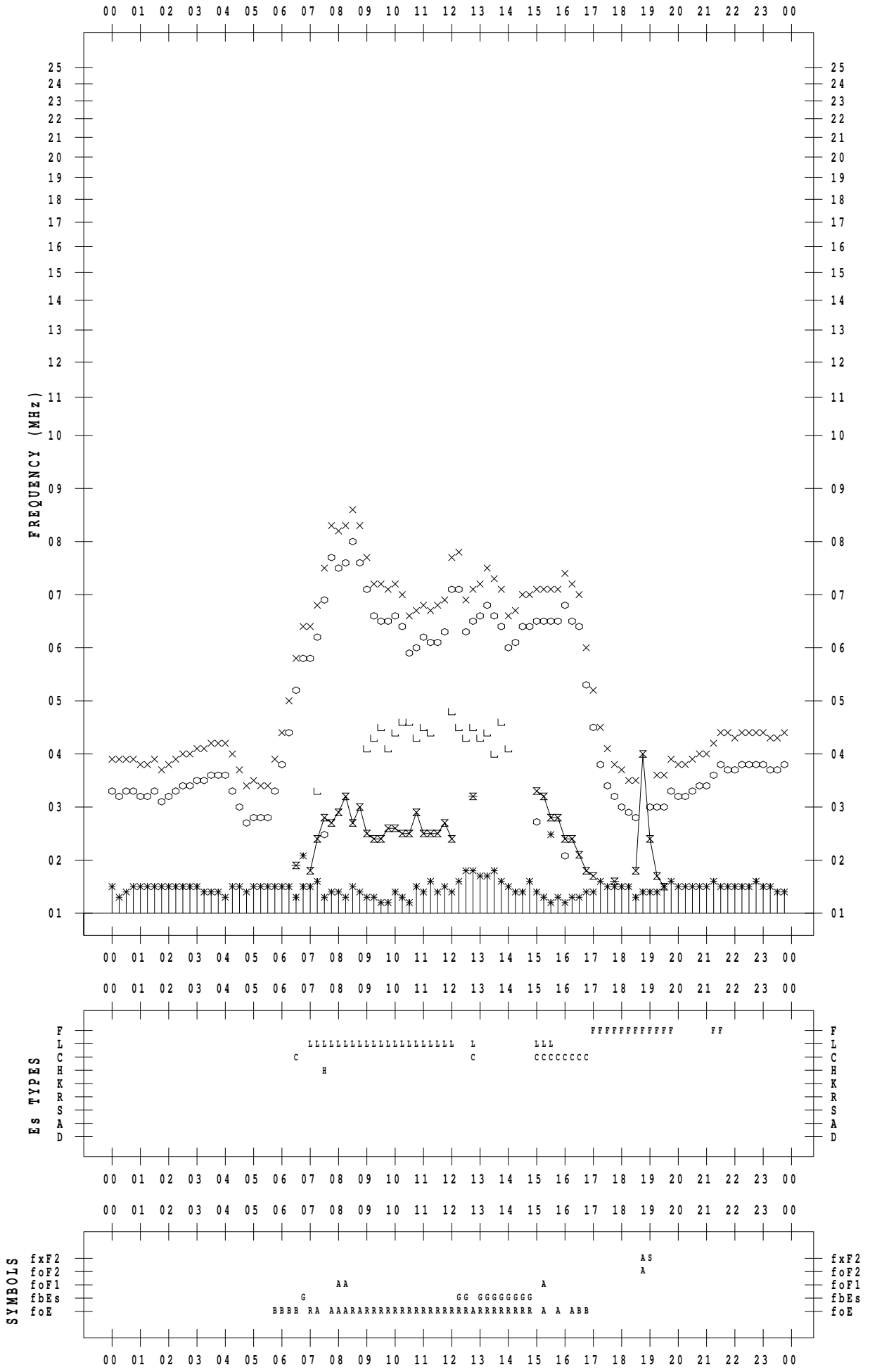
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2010/11/ 2

135 °E MEAN TIME



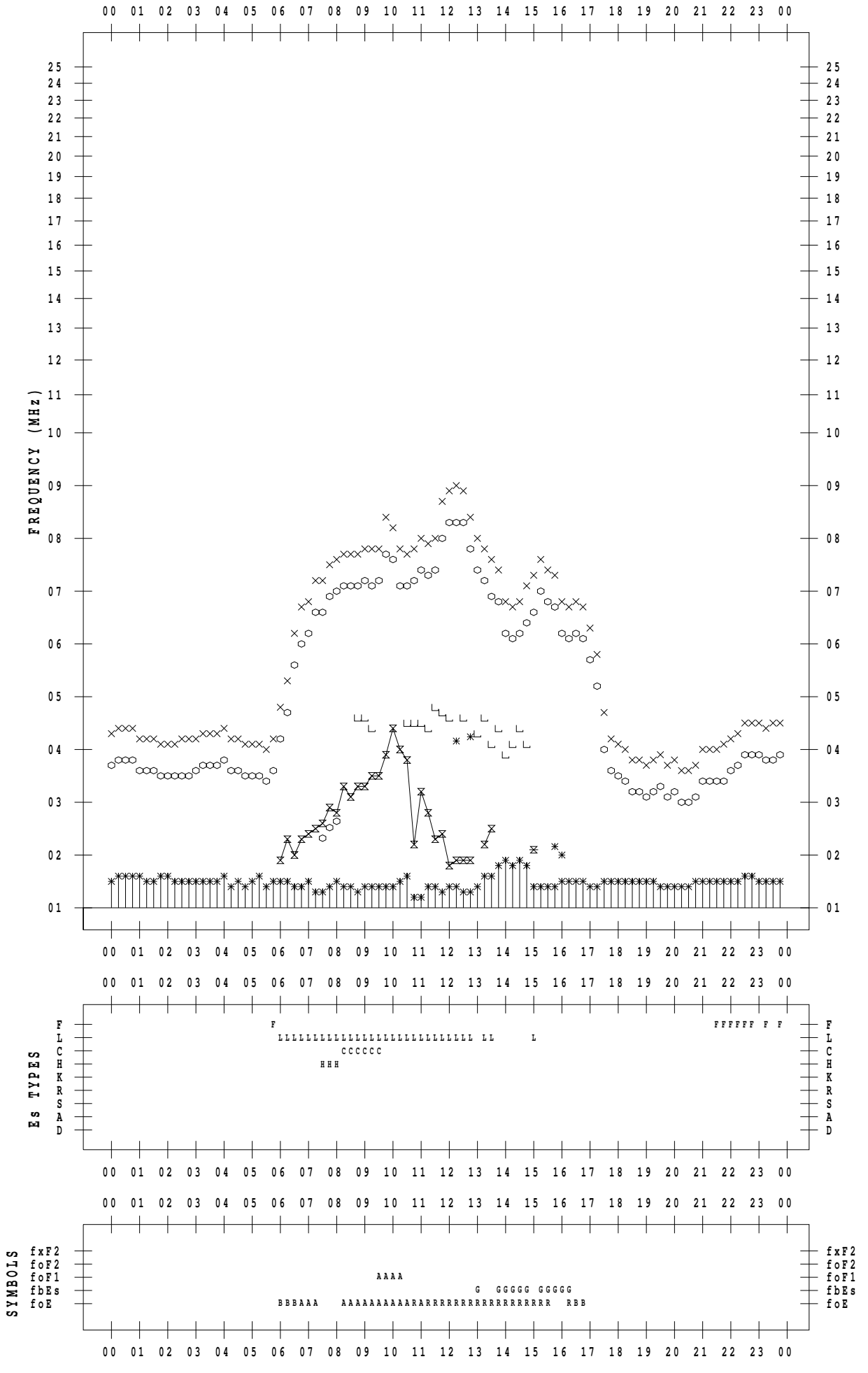
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2010/11/ 3

135 °E MEAN TIME



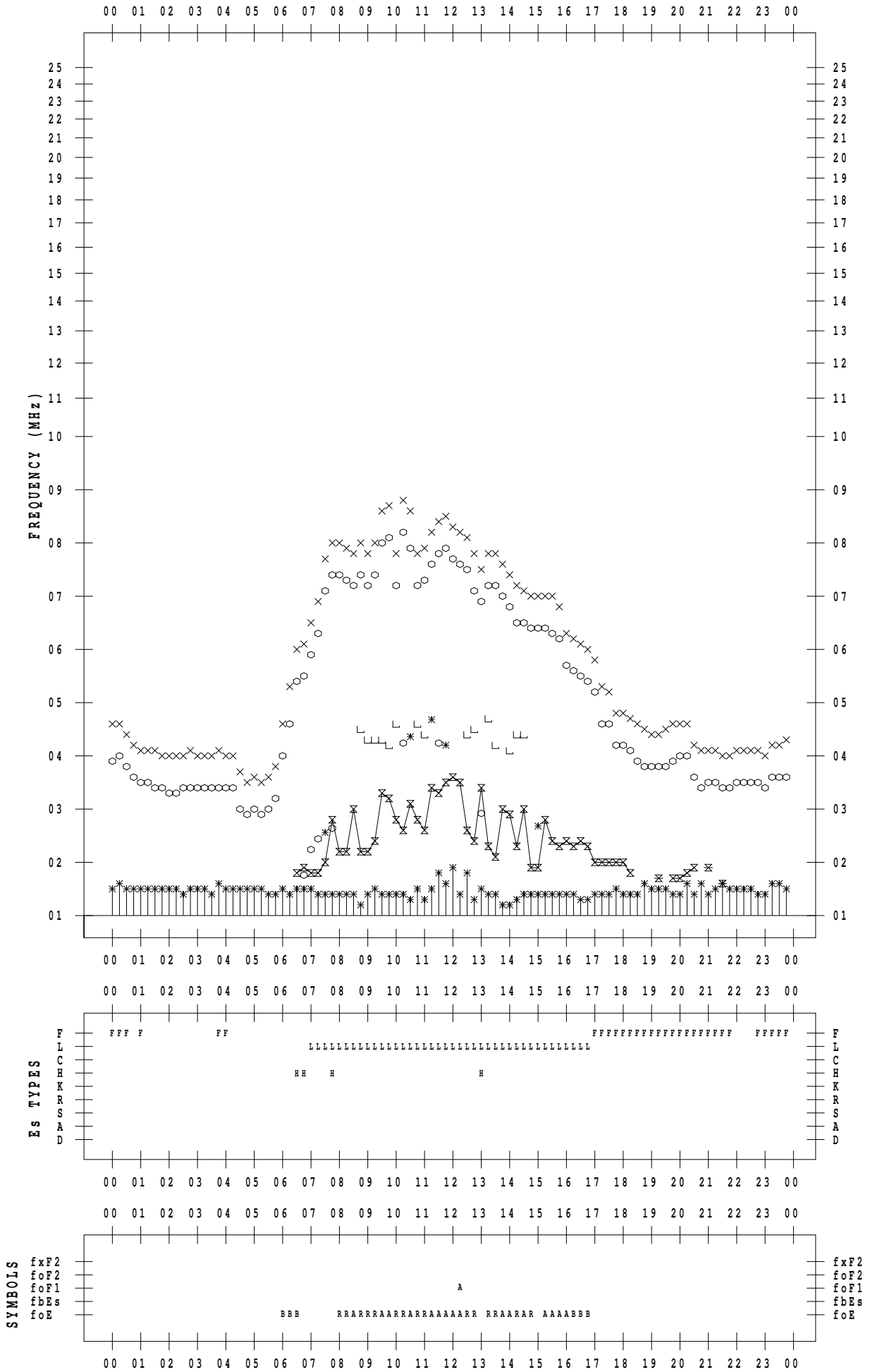
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2010/11/ 4

135 °E MEAN TIME



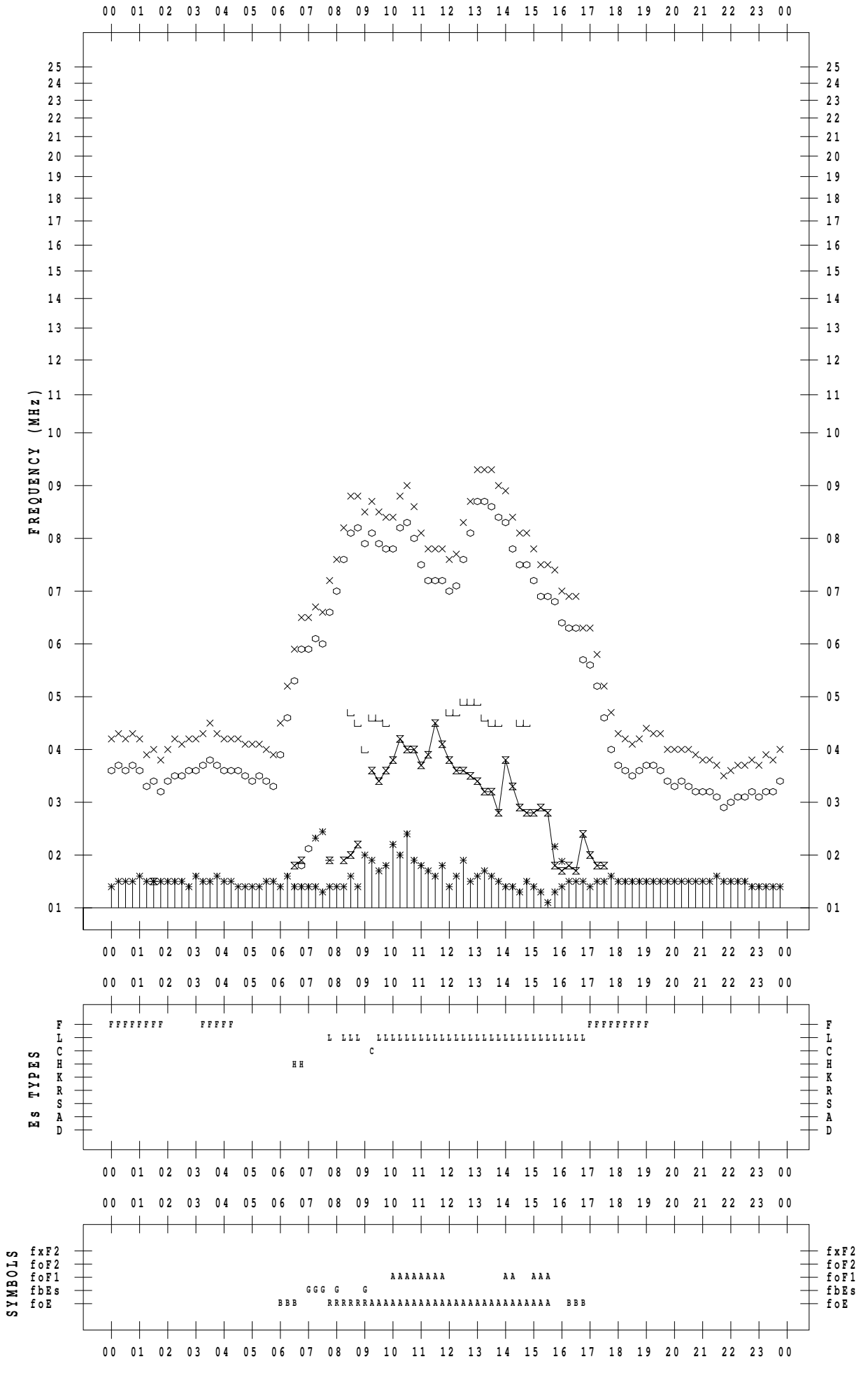
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2010/11/ 5

135 °E MEAN TIME



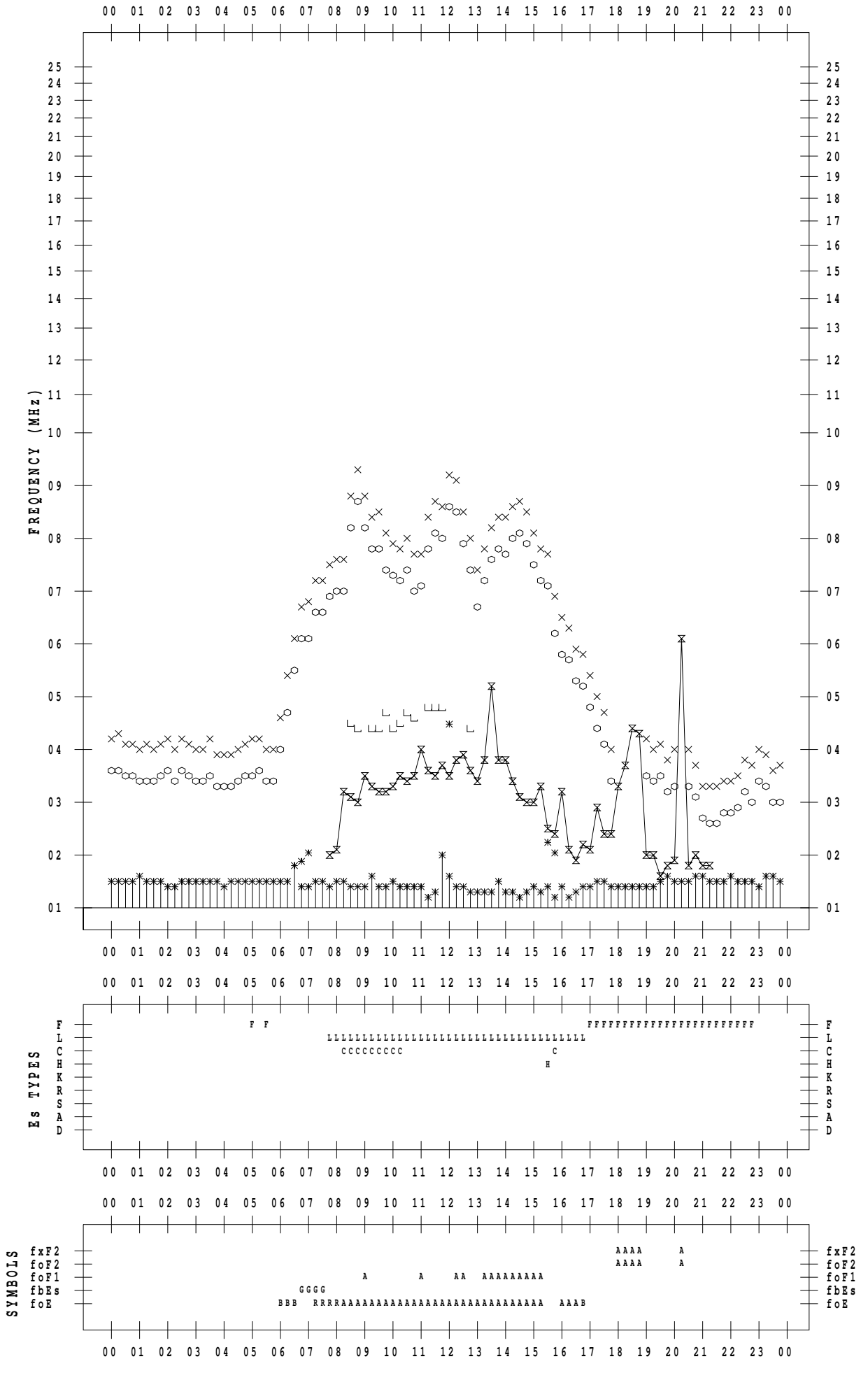
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2010/11/ 6

135 °E MEAN TIME



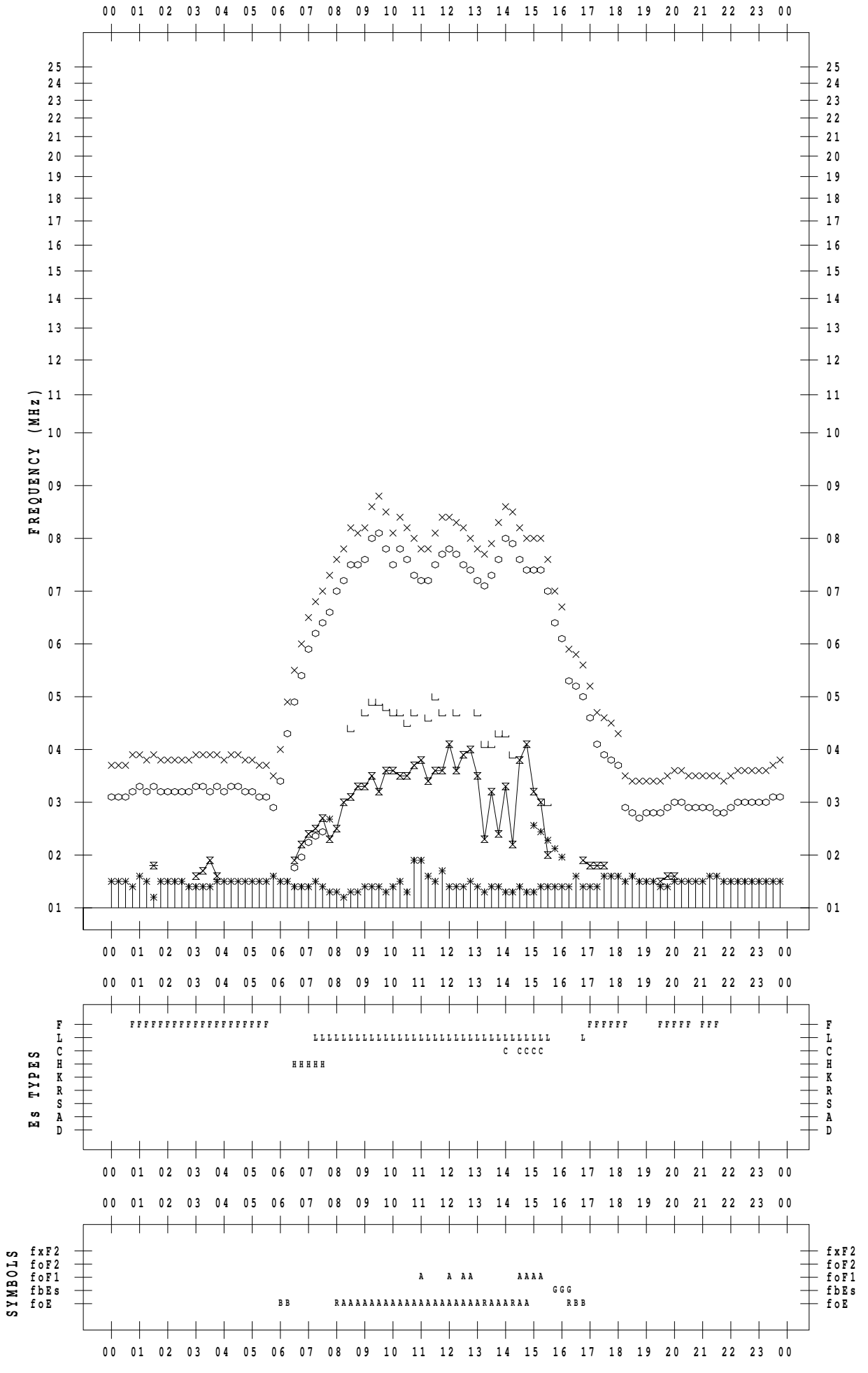
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2010/11/ 7

135 °E MEAN TIME



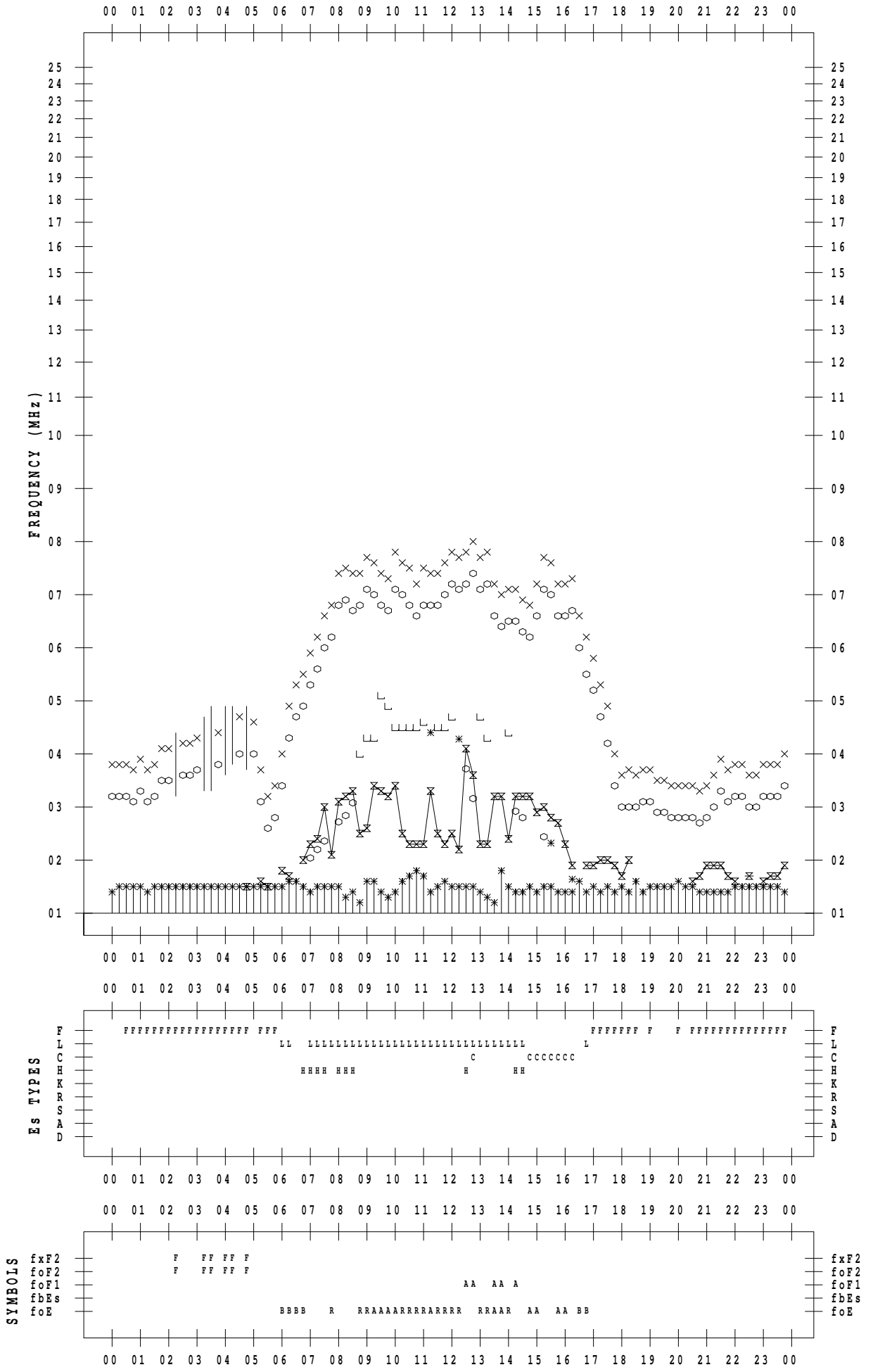
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2010/11/ 8

135 °E MEAN TIME



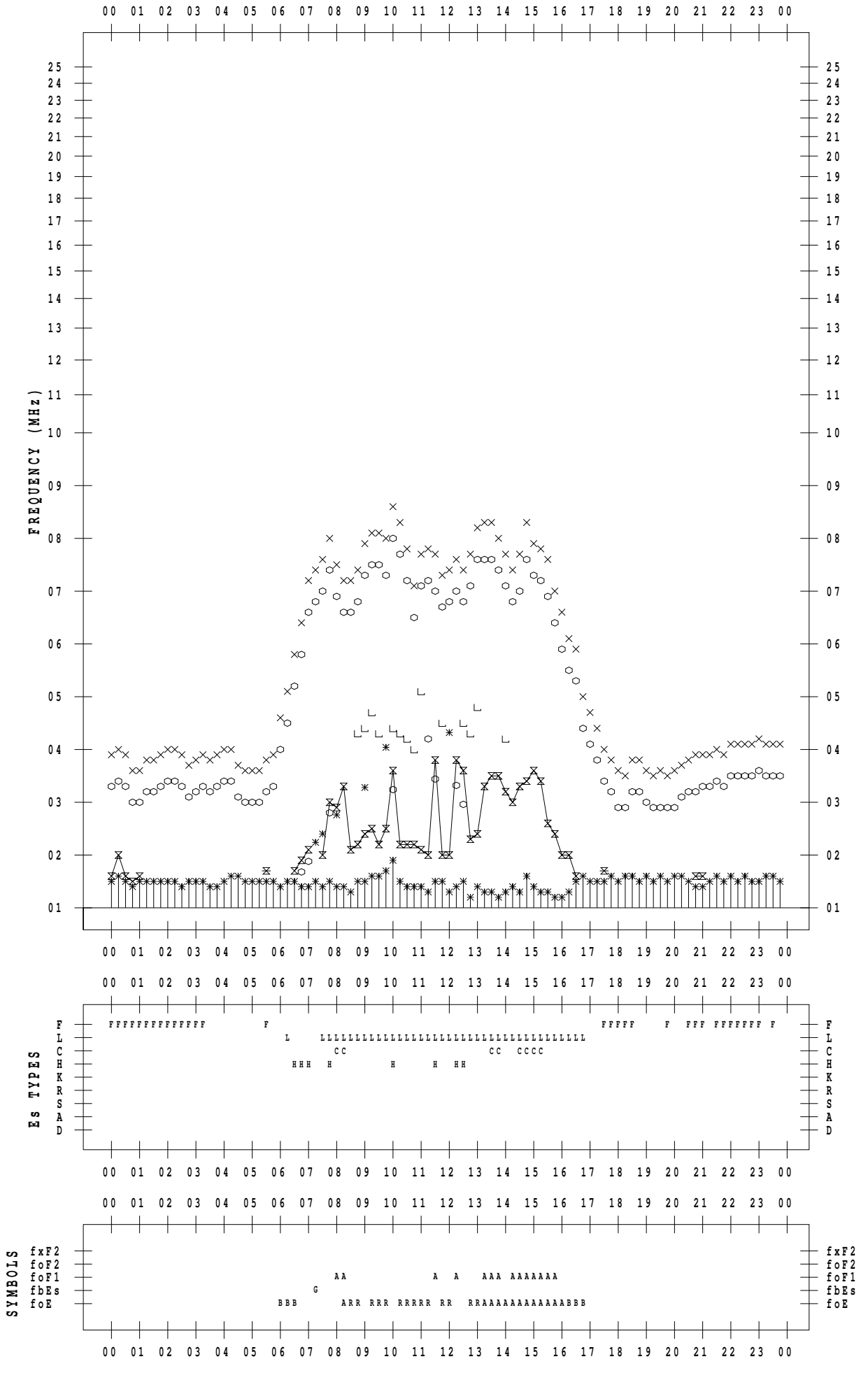
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2010/11/ 9

135 °E MEAN TIME



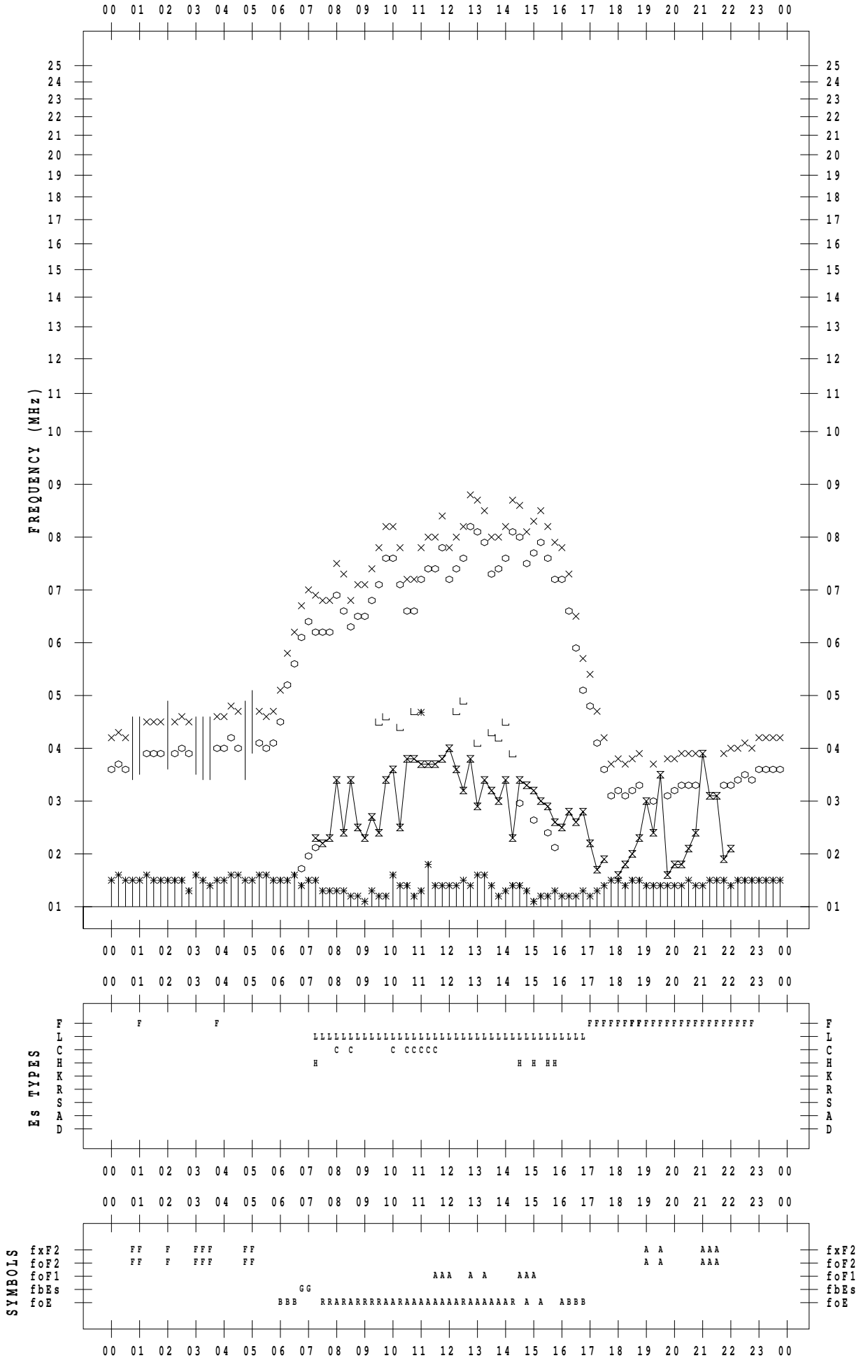
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2010/11/10

135 °E MEAN TIME



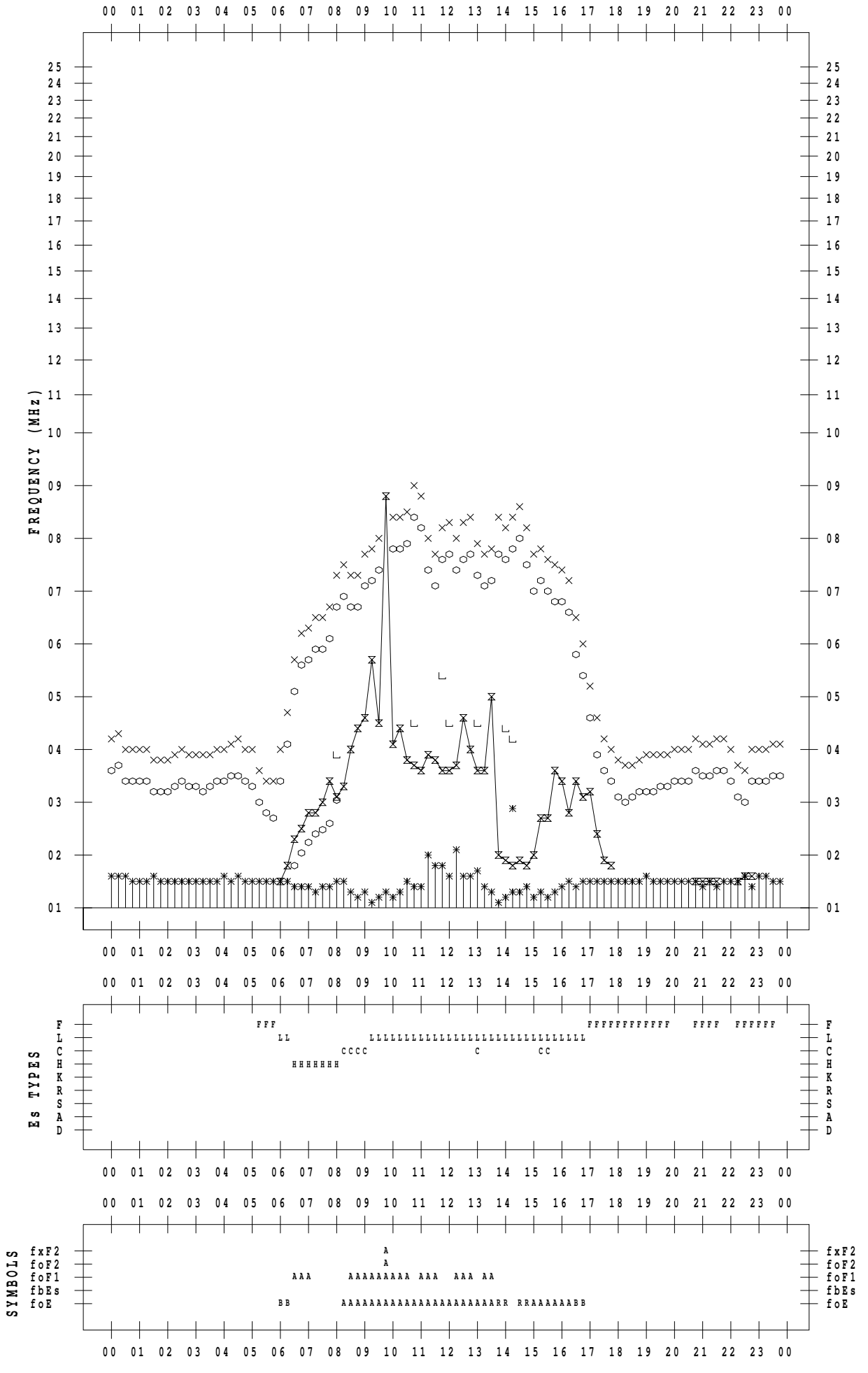
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2010/11/11

135 °E MEAN TIME



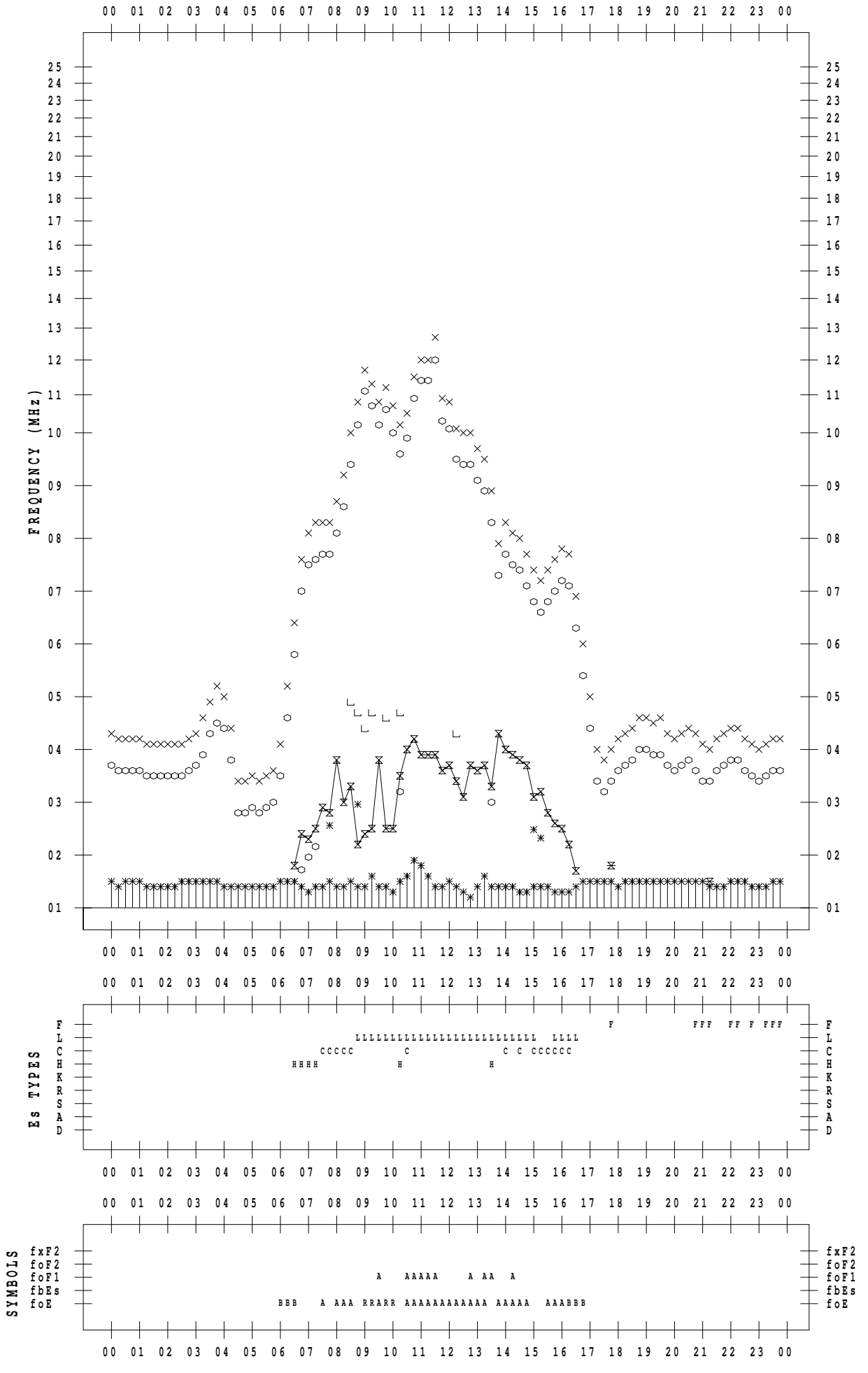
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2010/11/12

135 °E MEAN TIME



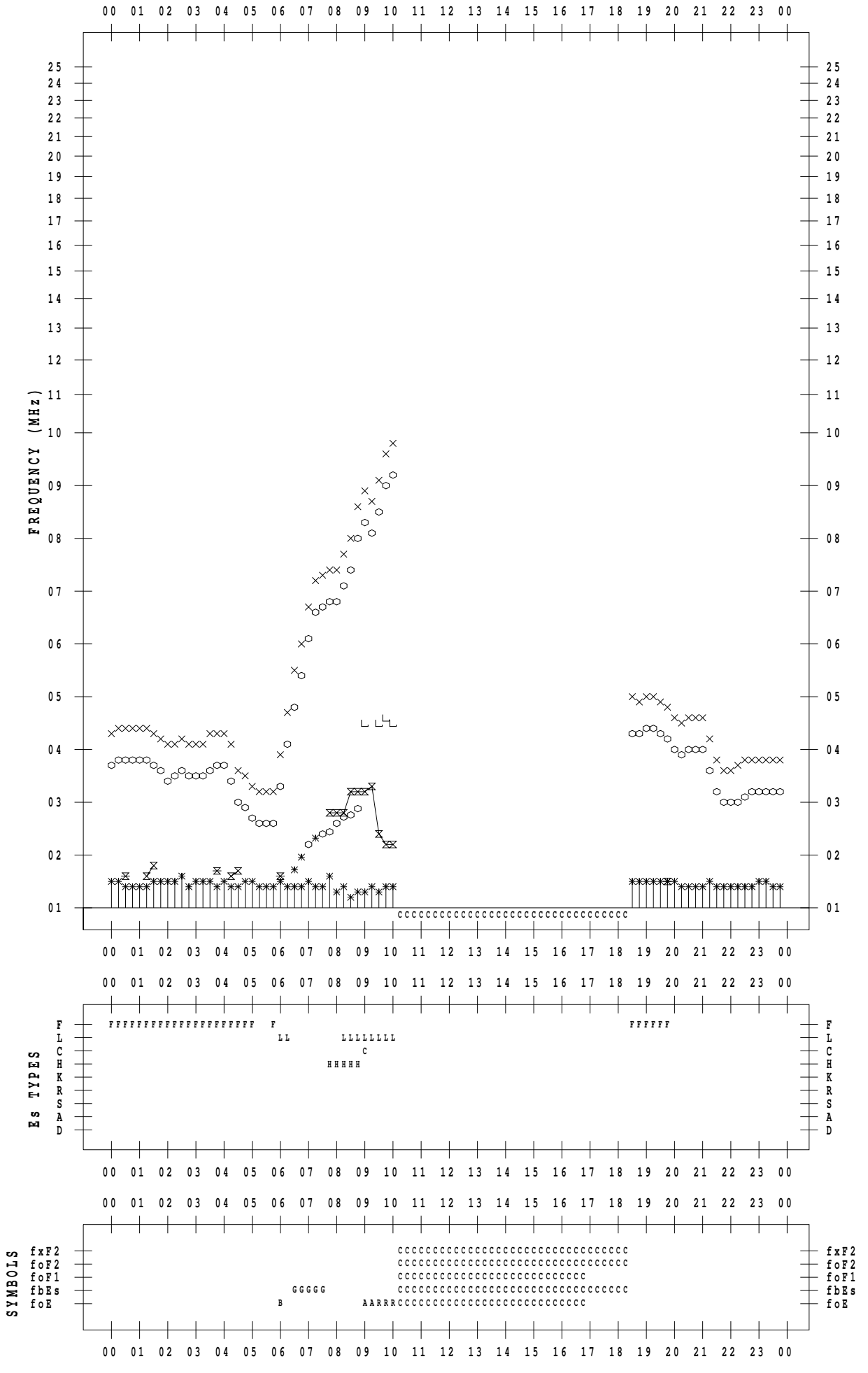
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2010/11/13

135 °E MEAN TIME



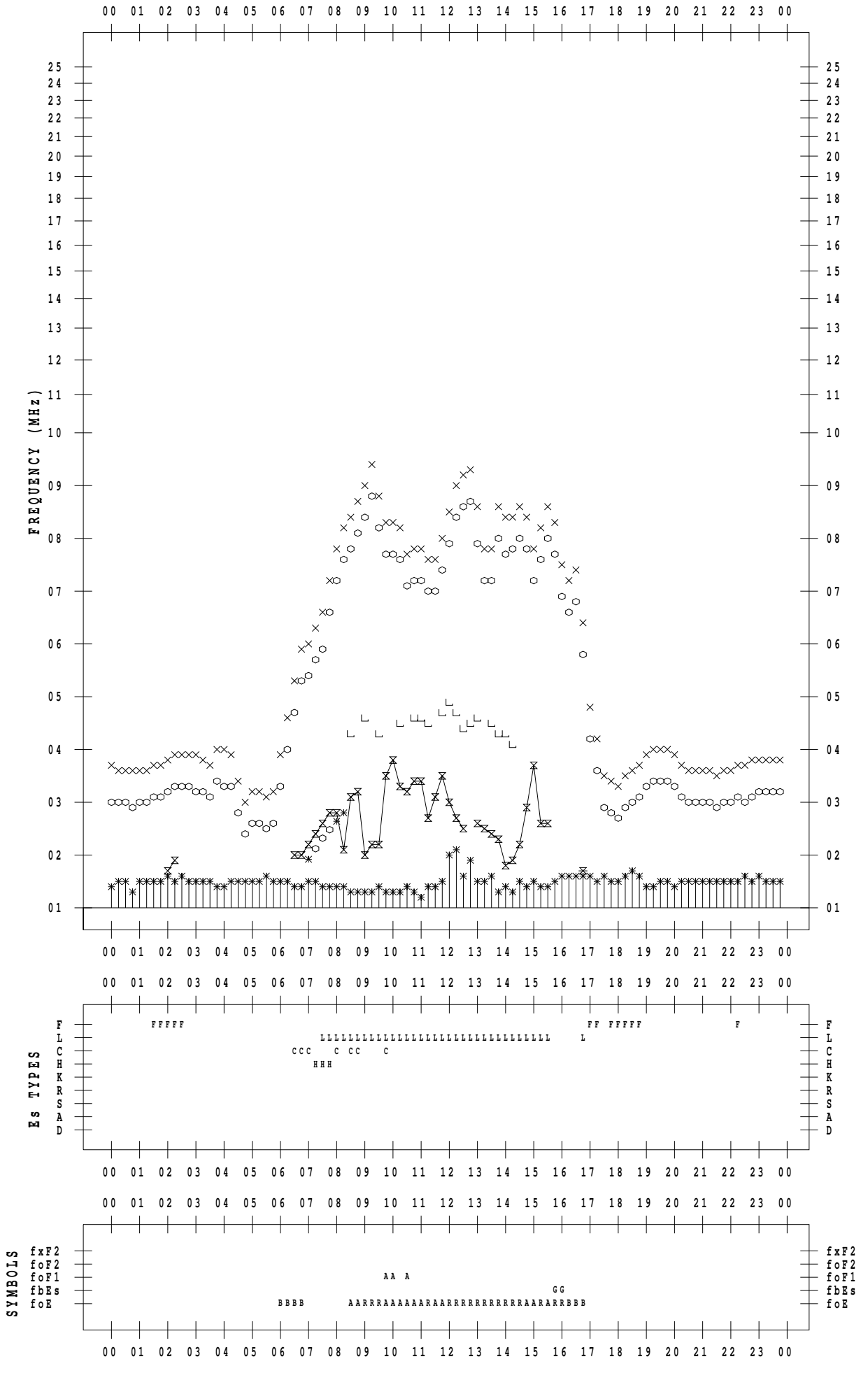
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2010/11/14

135 °E MEAN TIME



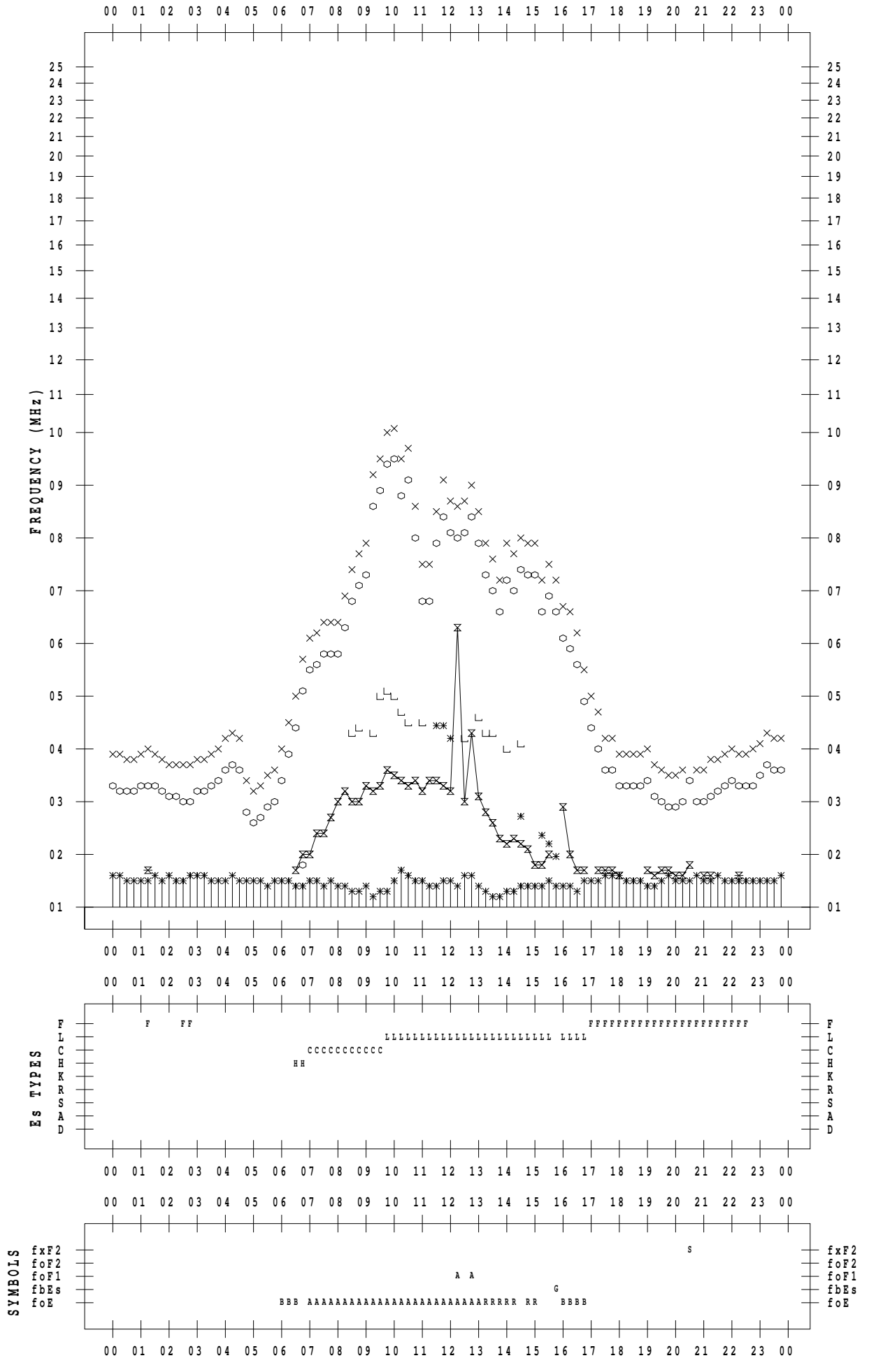
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2010/11/15

135 °E MEAN TIME



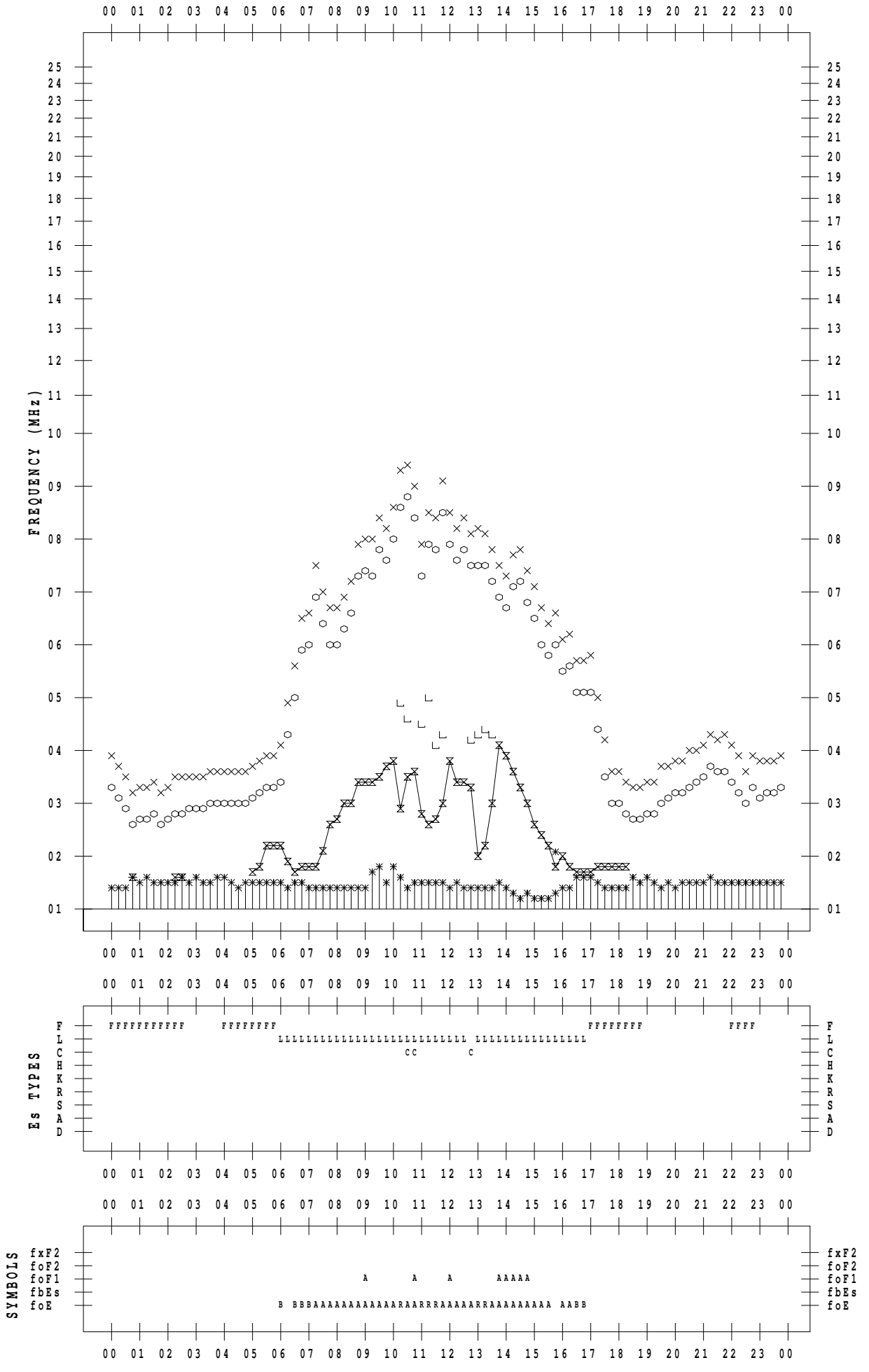
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2010/11/16

135 °E MEAN TIME



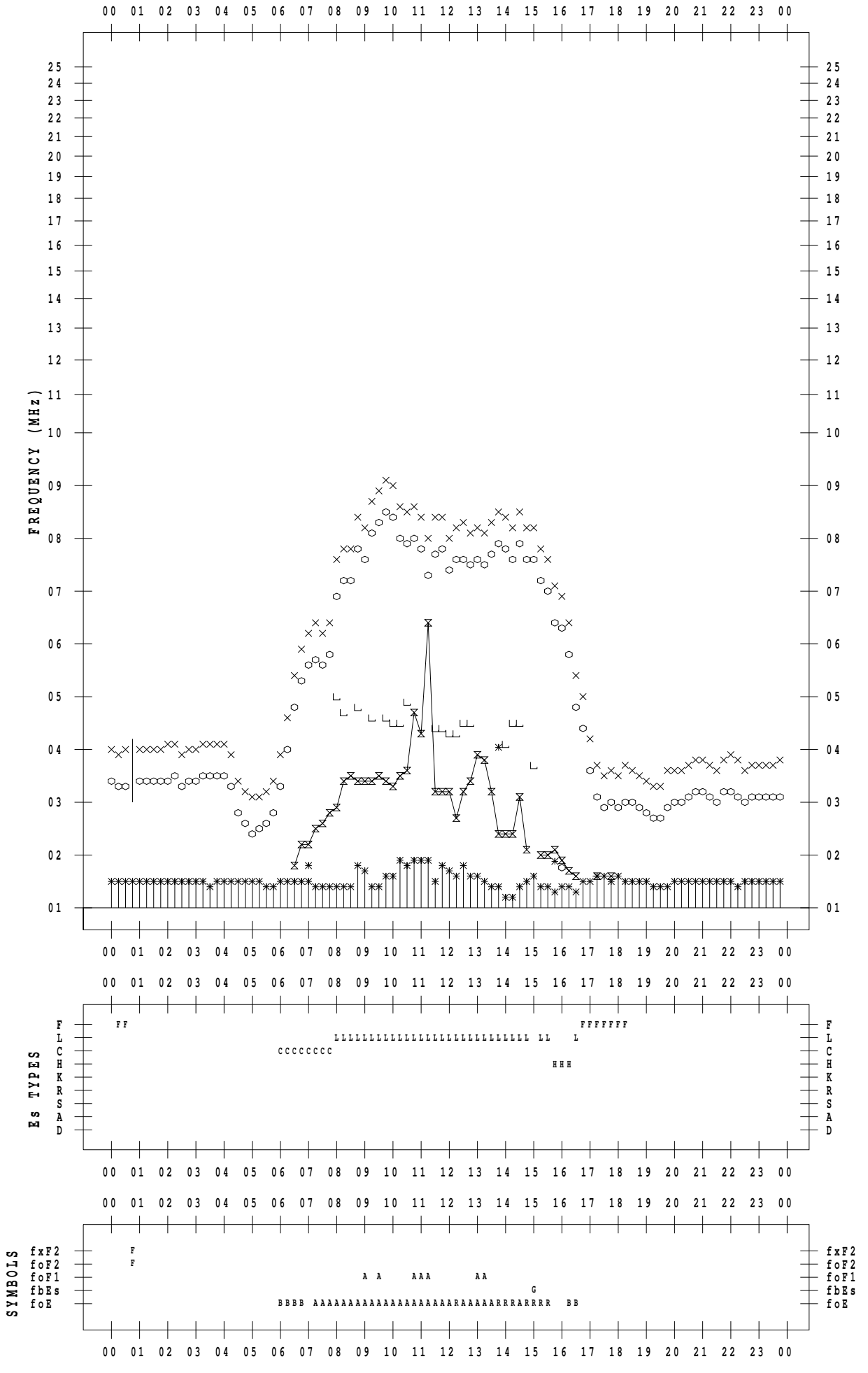
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2010/11/17

135 °E MEAN TIME



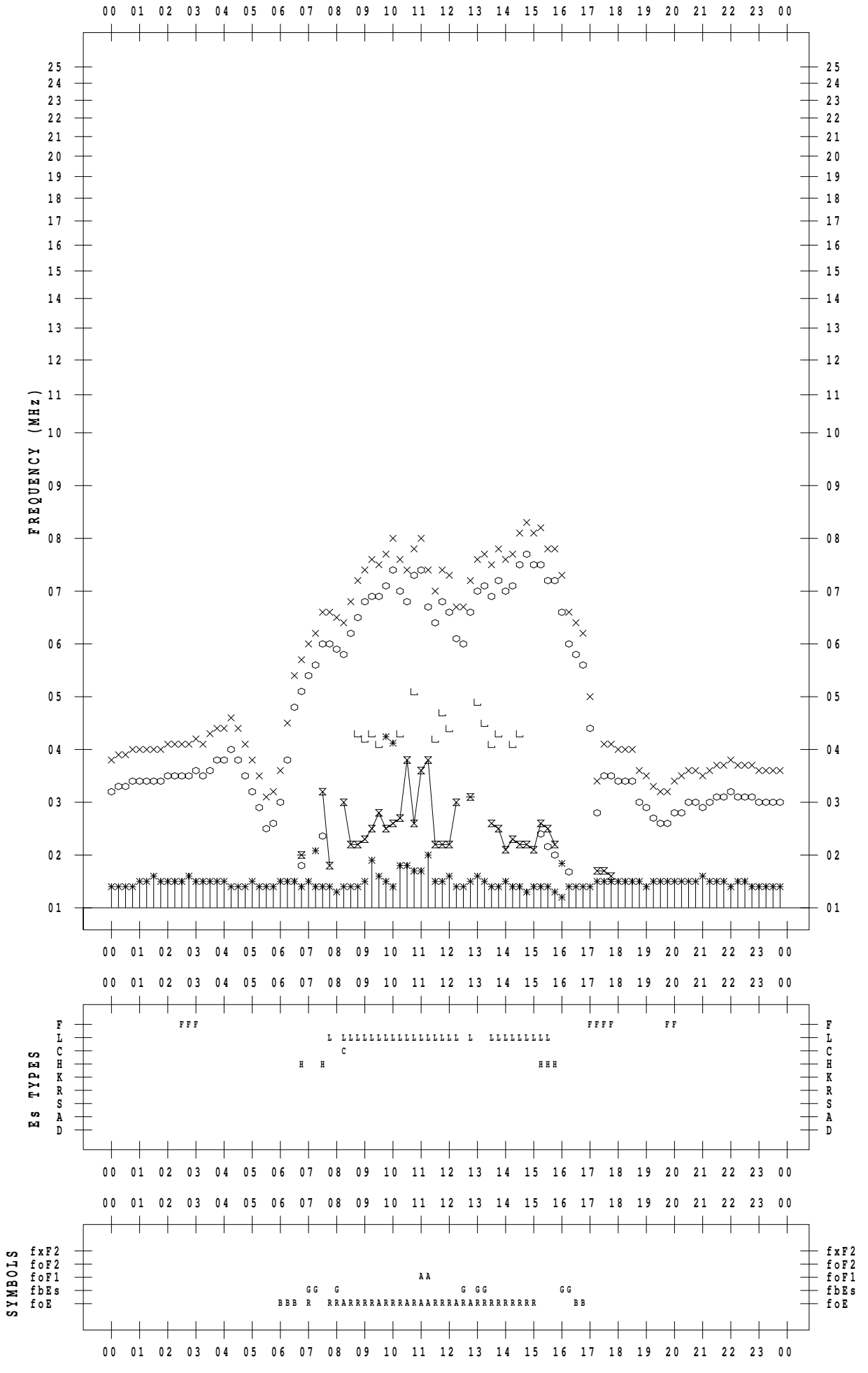
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2010/11/18

135 °E MEAN TIME



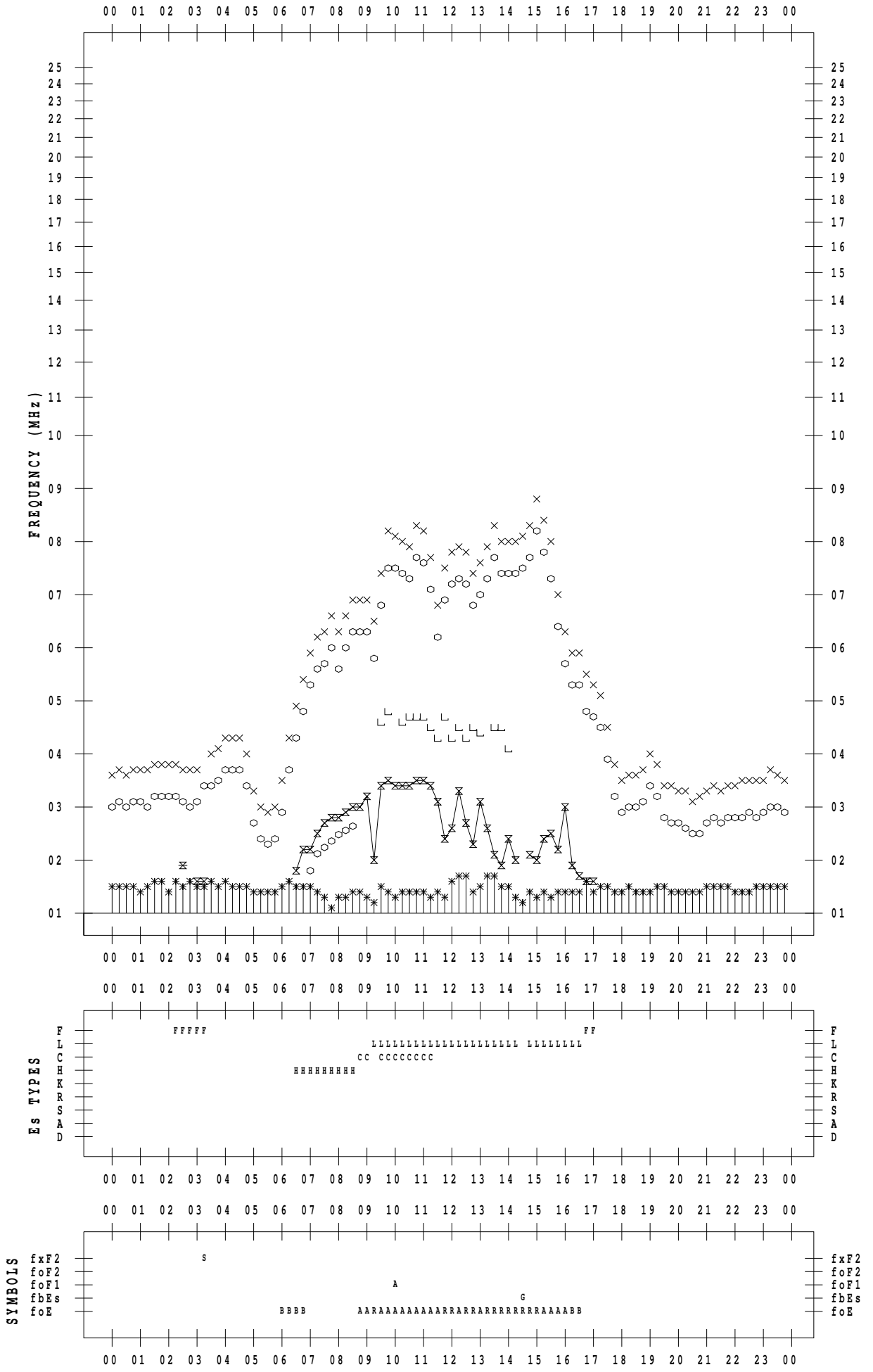
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2010/11/19

135 °E MEAN TIME



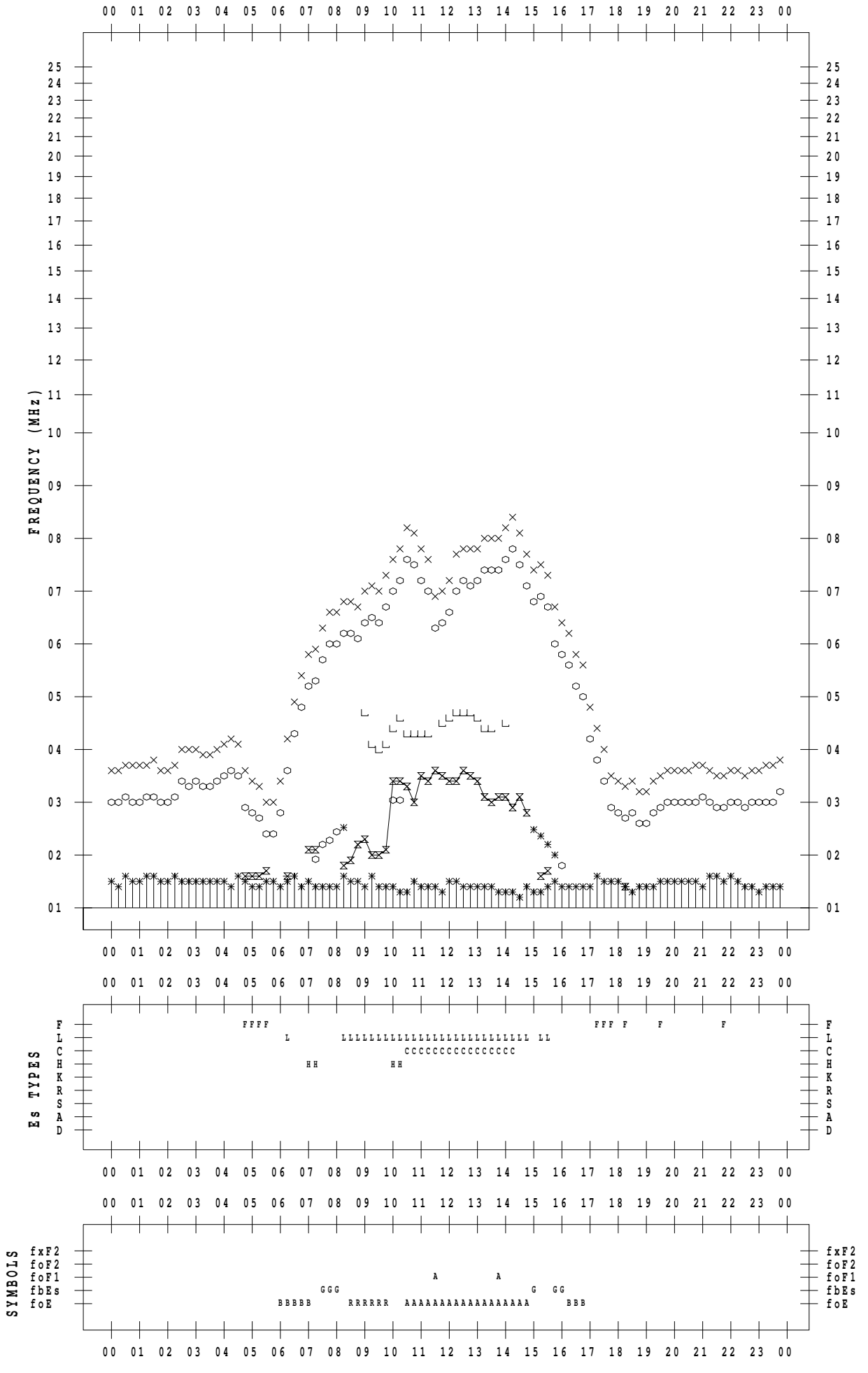
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2010/11/20

135 °E MEAN TIME



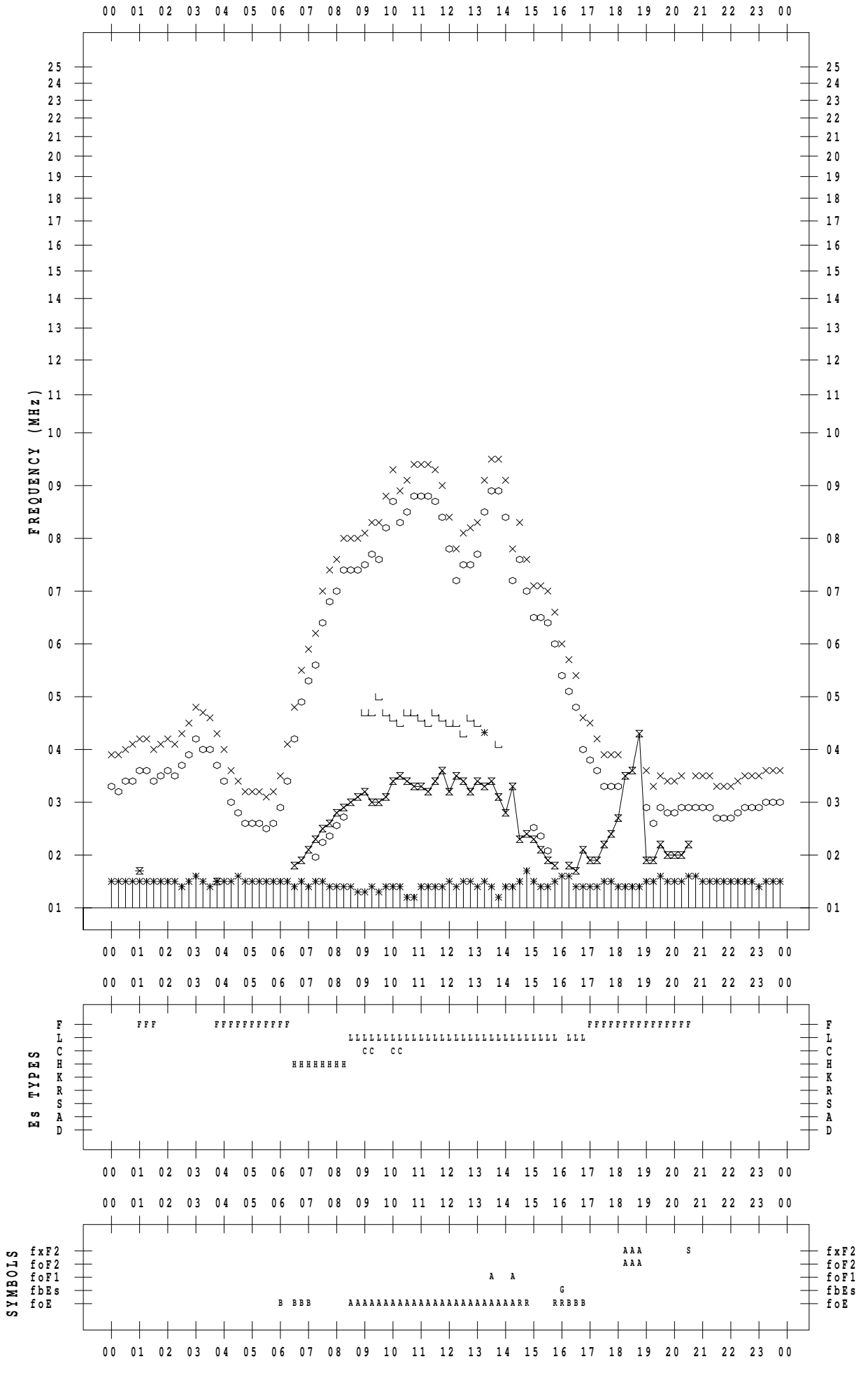
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2010/11/21

135 °E MEAN TIME



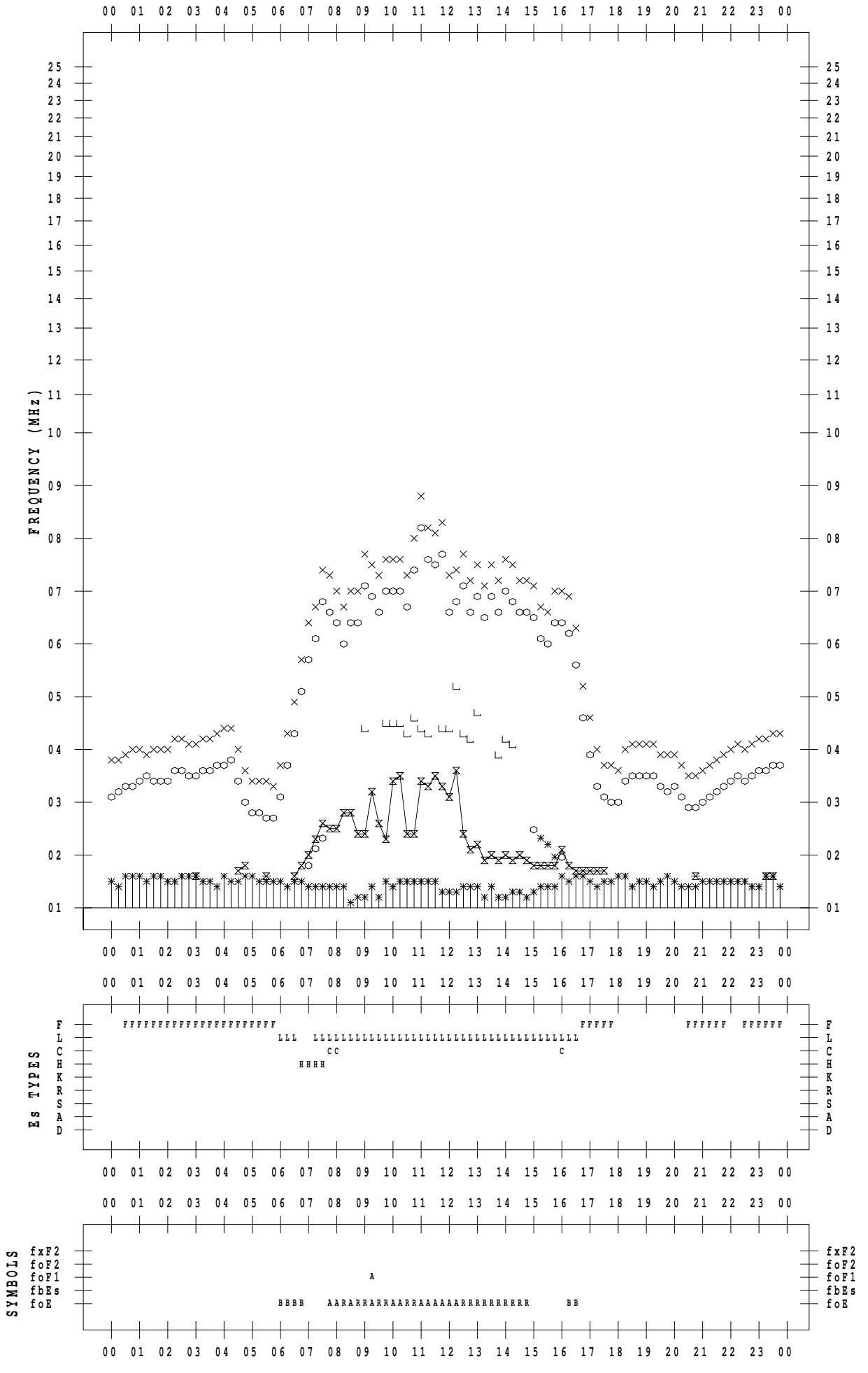
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2010/11/22

135 °E MEAN TIME



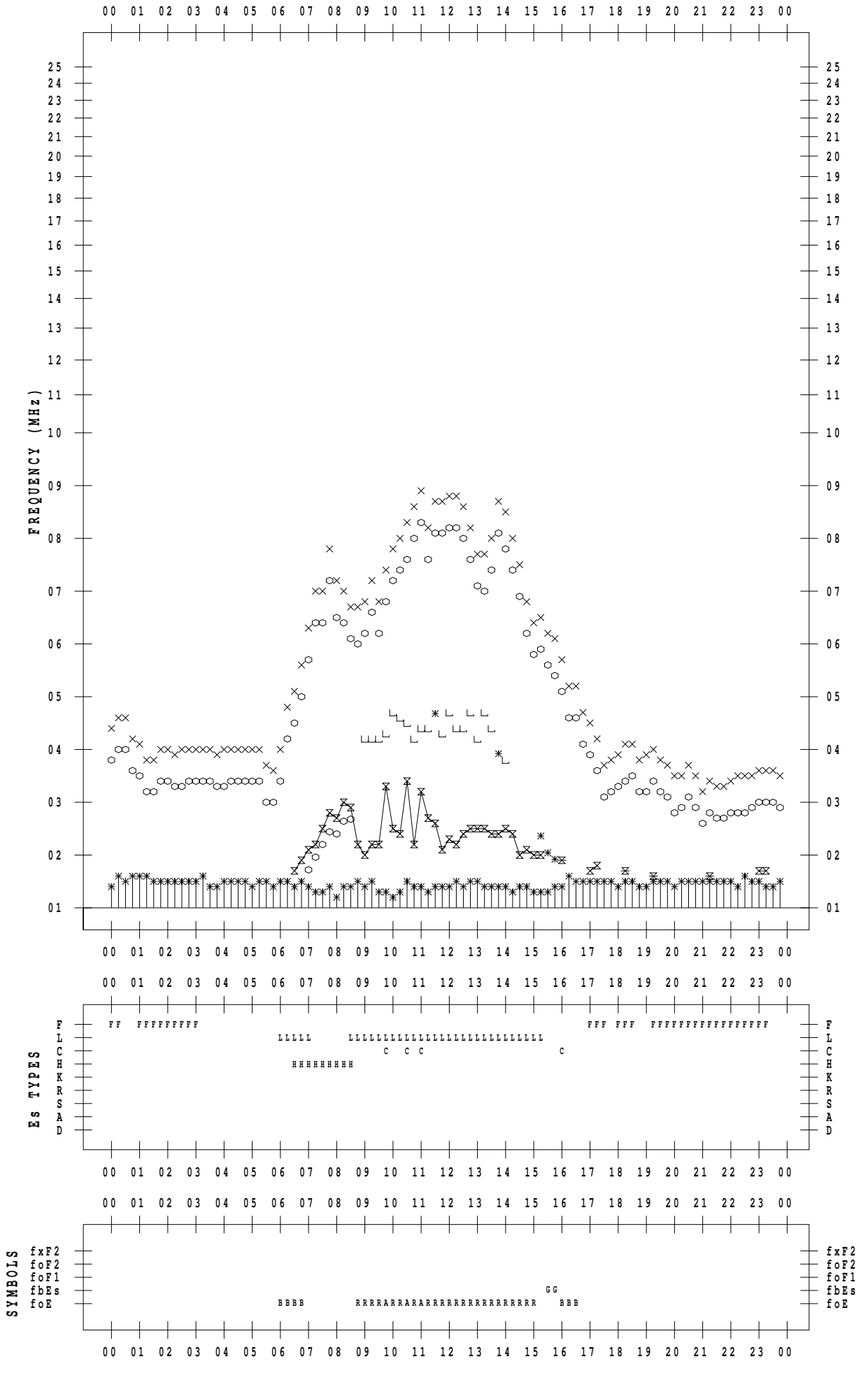
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2010/11/23

135 °E MEAN TIME



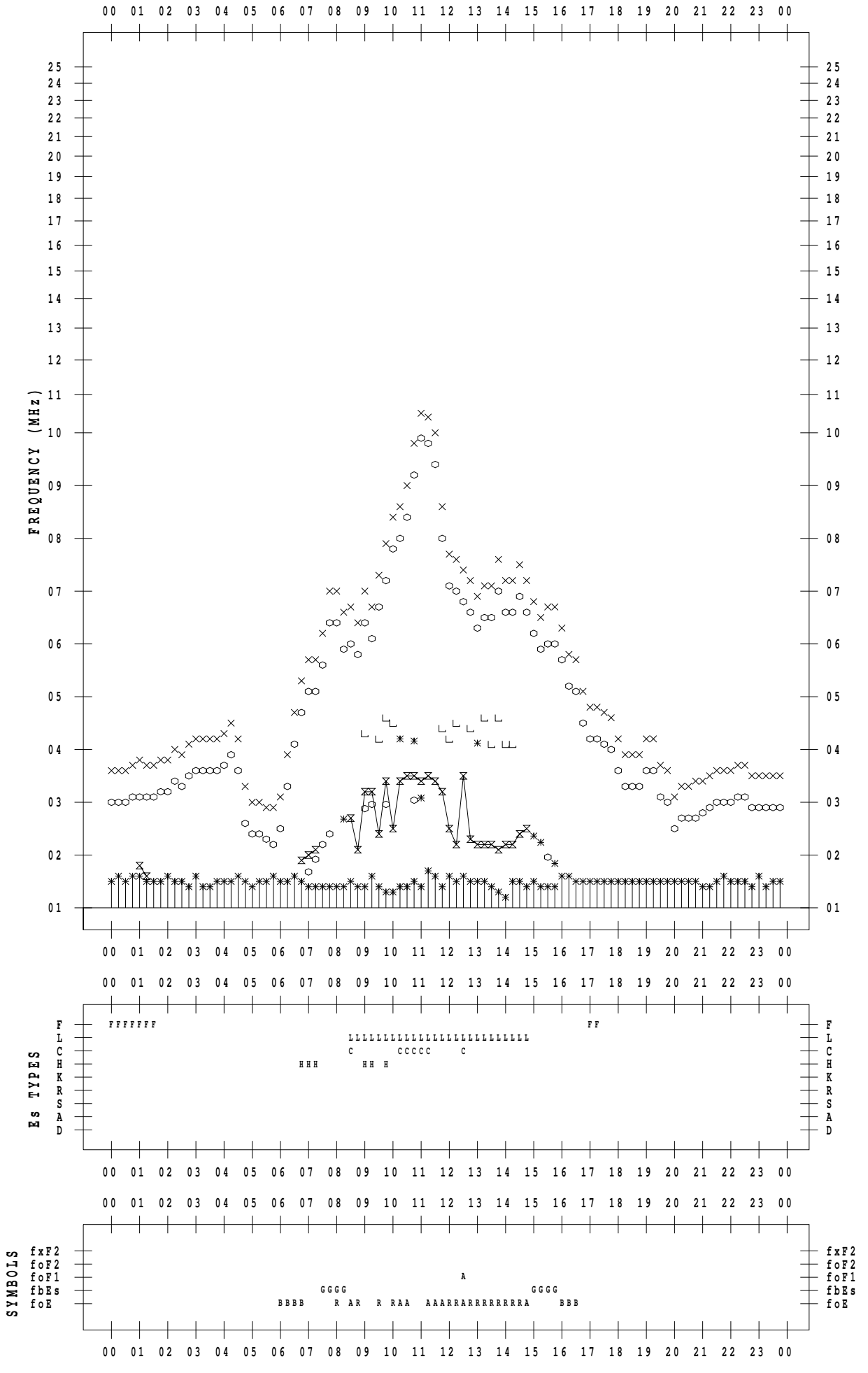
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2010/11/24

135 °E MEAN TIME



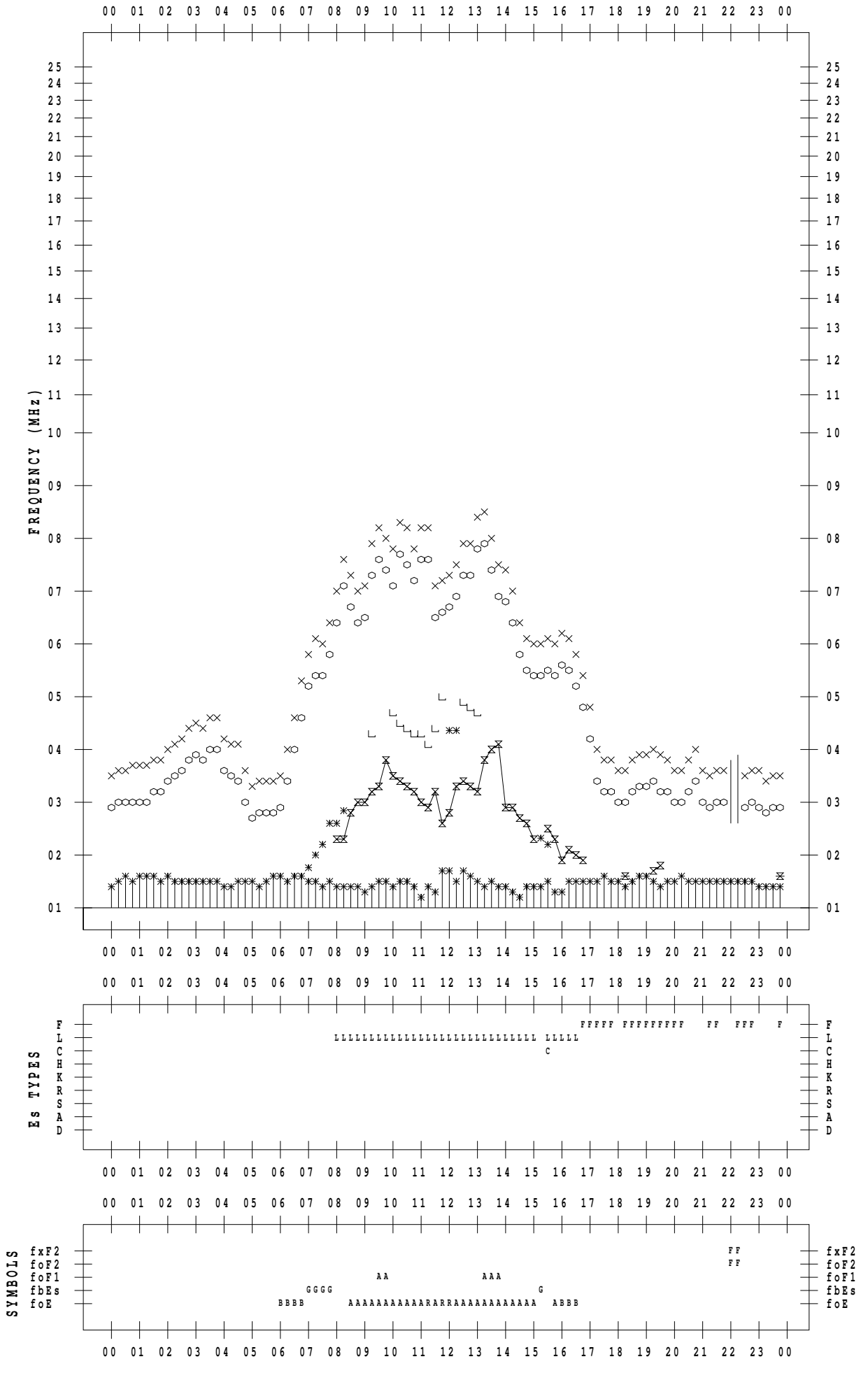
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2010/11/25

135 °E MEAN TIME



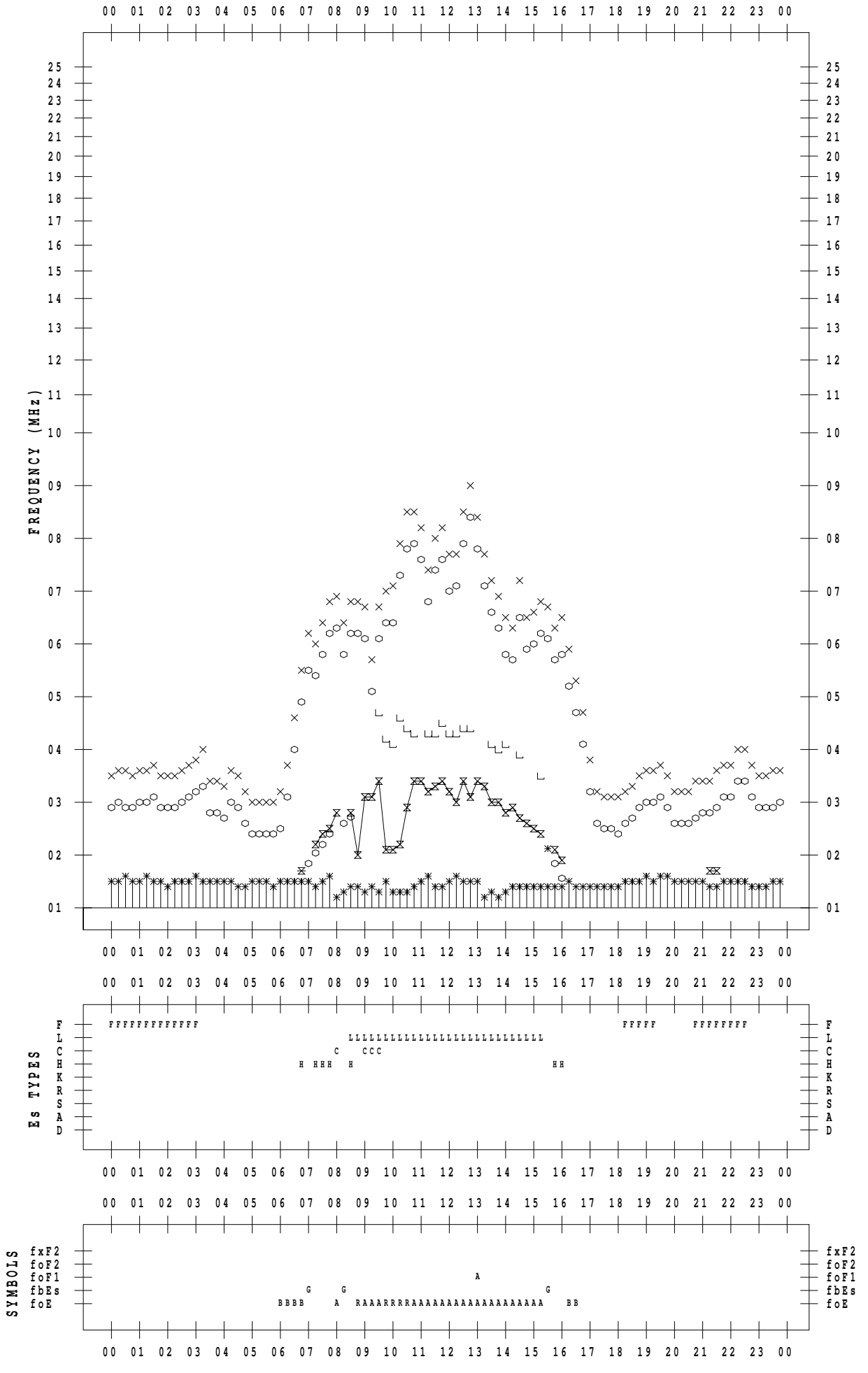
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2010/11/26

135 °E MEAN TIME



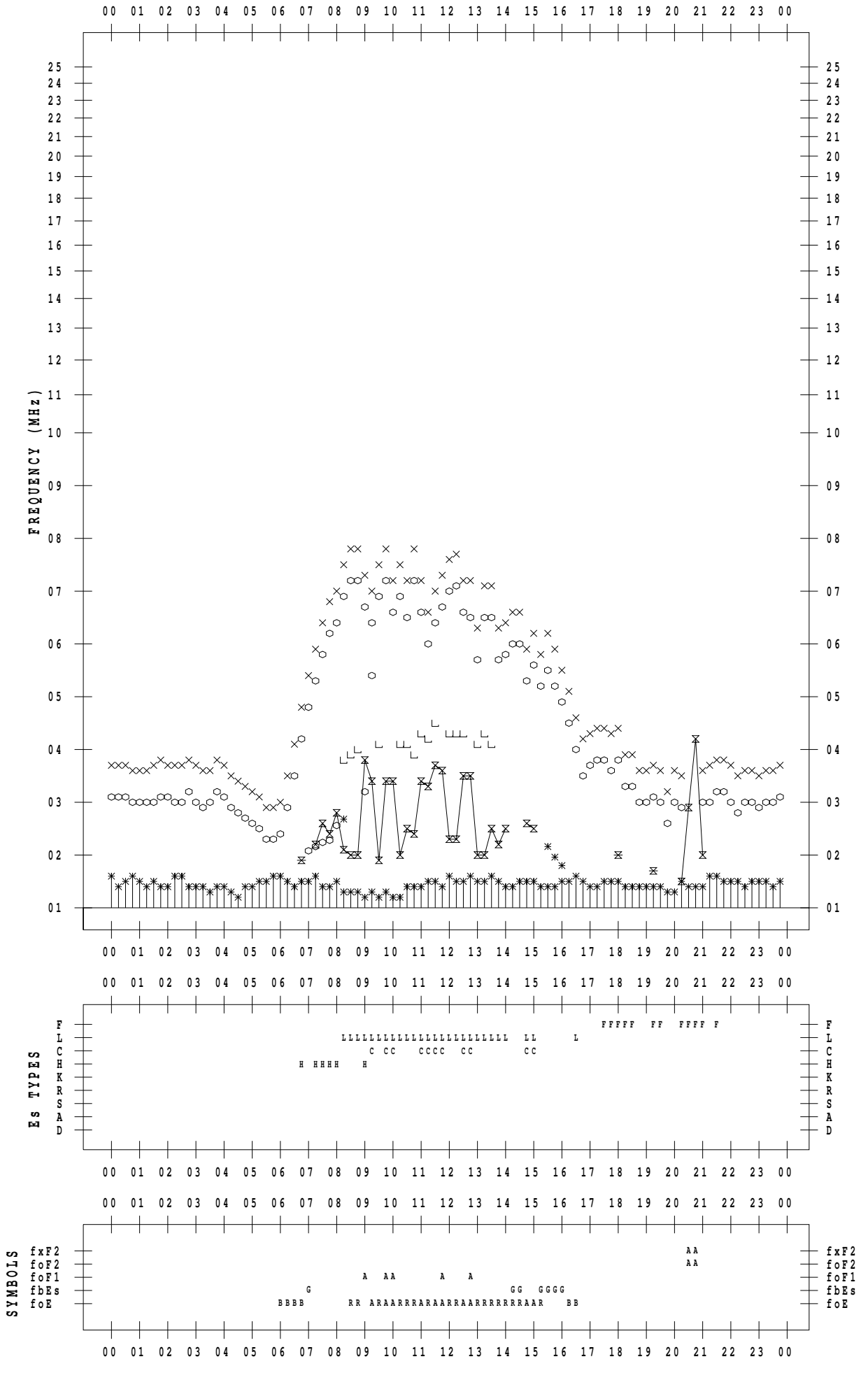
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2010/11/27

135 °E MEAN TIME



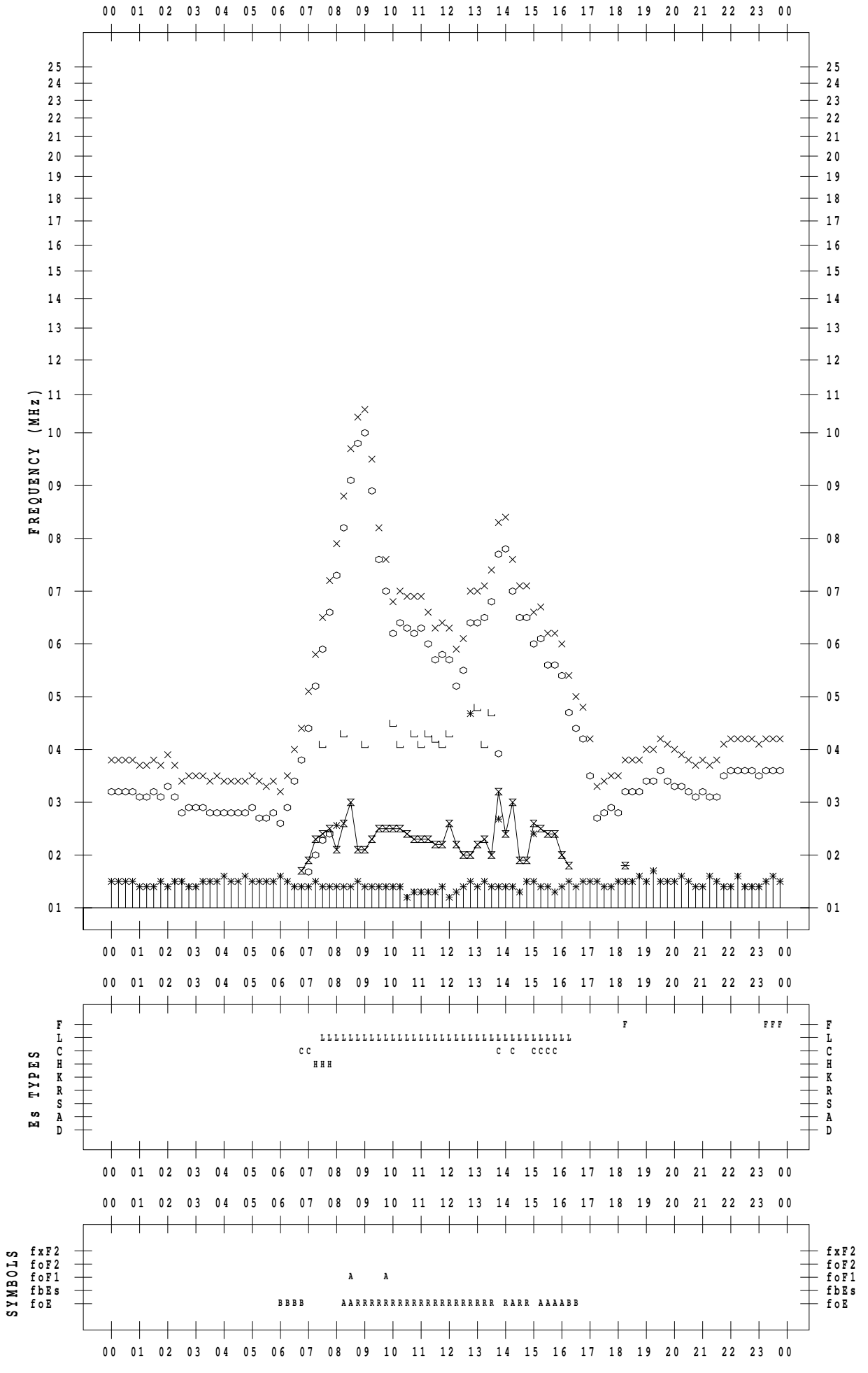
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2010/11/28

135 °E MEAN TIME



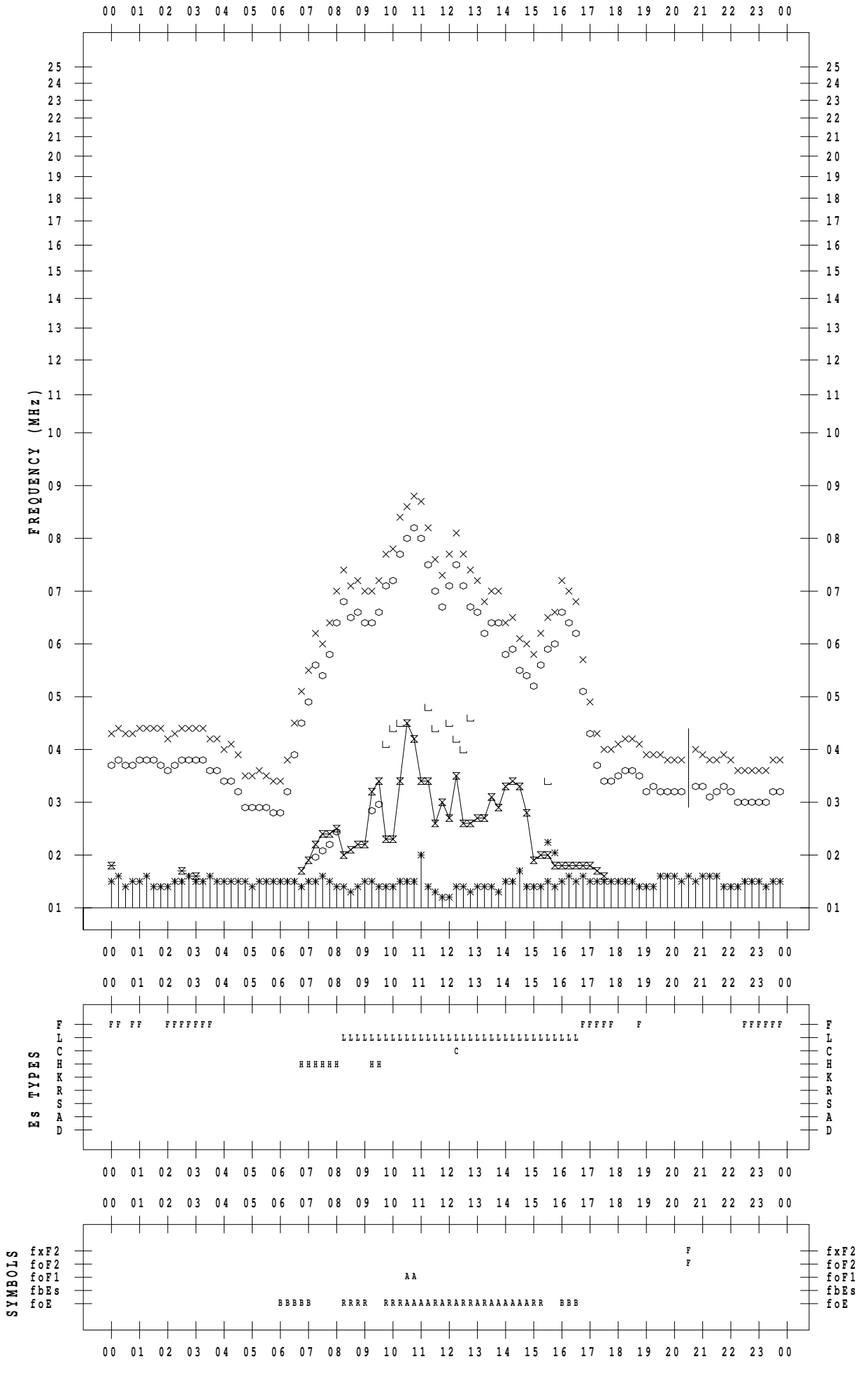
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2010/11/29

135 °E MEAN TIME



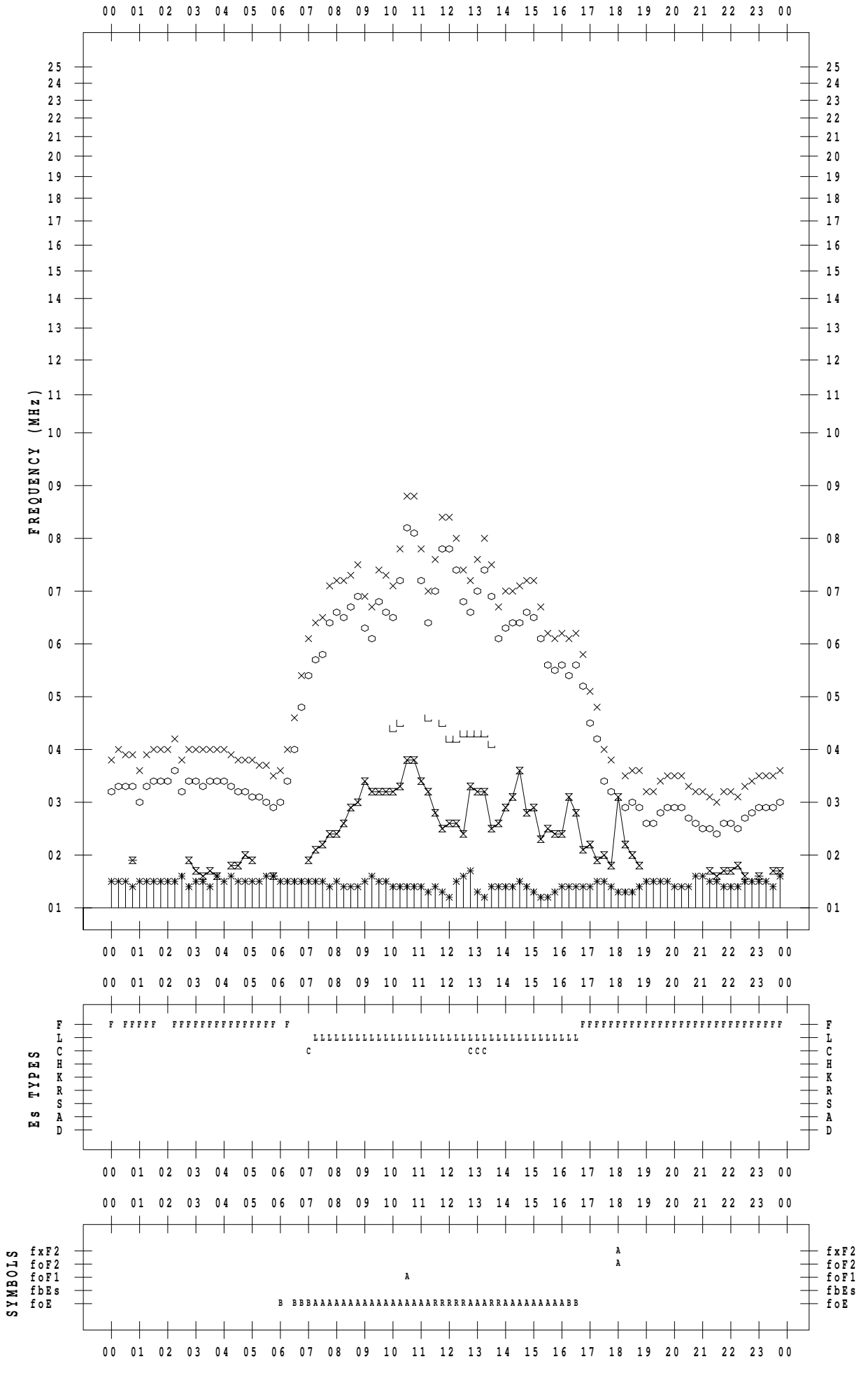
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2010/11/30

135 °E MEAN TIME



B. Solar Radio Emission

B1.Outstanding Occurrences at Hiraiso

Hiraiso November 2010

Single-frequency observations

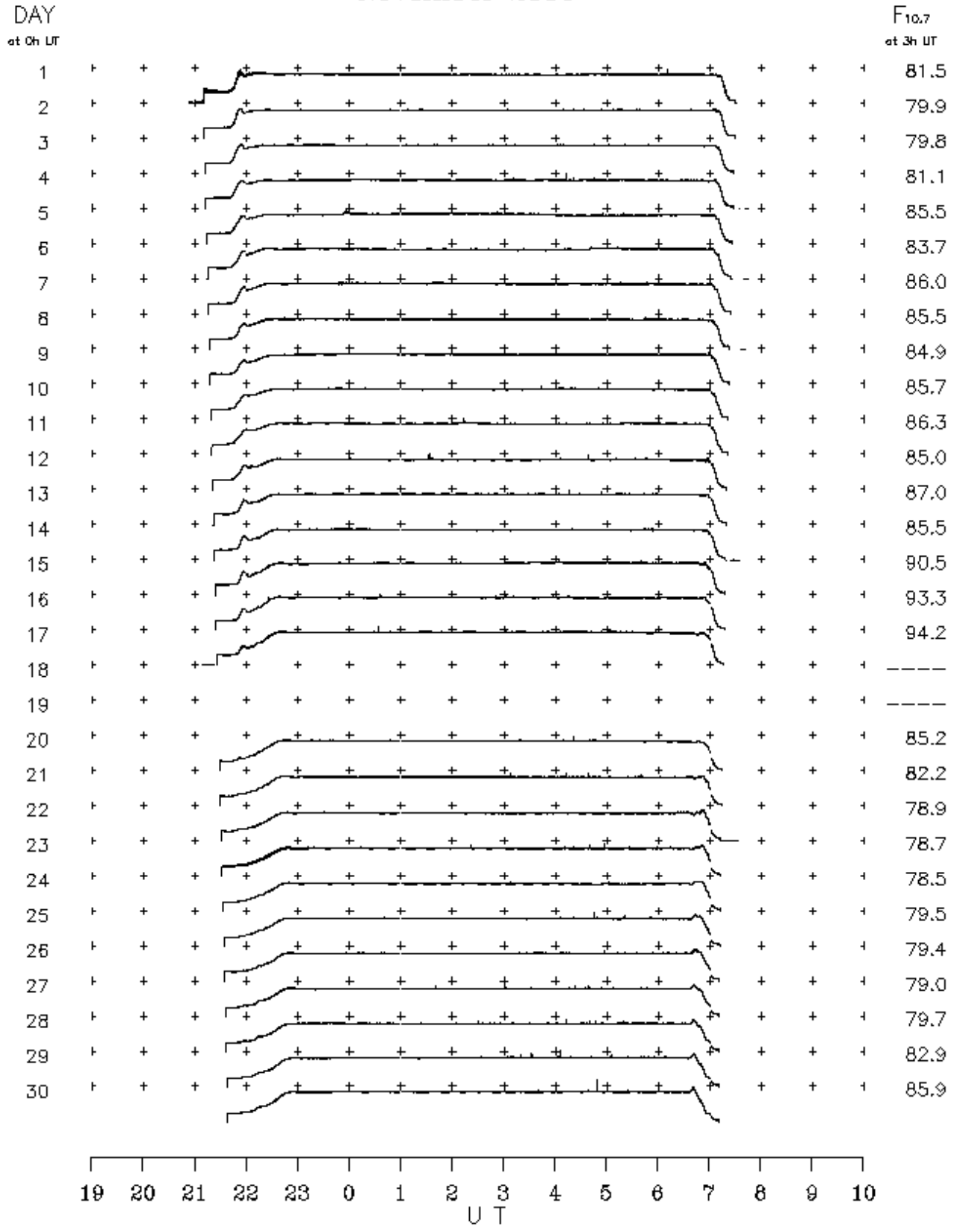
Normal observing period: 2110 - 0735 U.T. (sunrise to sunset)

NOV.	FREQ.	TYPE	START TIME	TIME OF MAXIMUM	DUR.	FLUX DENSITY (10^{-22} W m^{-2} Hz^{-1})		POLARIZATION
2010	(MHz)		(U.T.)	(U.T.)	(MIN.)	PEAK	MEAN	REMARKS
4	2800	1 S	2353.0	2357.0	6.0	10	-	
6	2800	1 S	0440.0	0441.0	13.0	5	-	
11	2800	4 S/F	0212.0	0213.0	3.0	10	-	
12	2800	7 C	0131.0	0132.0	4.0	15	-	
16	2800	8 S	0035.0	0036.0	1.0	10	-	

B.Solar Radio Emission

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

November 2010



Note: A vertical grid space corresponds to a 100 sfu.
Elevation angle range ≧ 6°.
A link to the daily plot data directory : http://sunbase.nict.go.jp/solar/denpa/hirasDB/2010/11/