F-731

IONOSPHERIC DATA IN JAPAN

FOR NOVEMBER 2009

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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. 2009

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

HOURLY VALUES OF fEs AT Wakkanai

NOV. 2009

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	G	G	G	G	G	G	G		31	38	45	41	38	36	G	G	G	11	24	25	30	26	26	G
2	G	26	26	24	G	G	G	28	34	37	36	G	G	35	G	32	32	32	G	28	29	G	G	G
3	28	32	50	34	54	38	36	39	32	39	41	38	G	35	G	38	35	35	26	33	35	24	G	G
4	G	34	27	G	G	G	G	40			36	G	G	36	32	G	31	30	33	36	29	G	G	G
5	G	27	G	G	G	25	27	G	G	42	40	44	42	35	32	31	32	29	G	G	G	G	31	33
6	30	G	G	G	G	G	G	G	36	36	40	42	36	34	34	34	26	49	G	G	G	G	G	32
7	36	34	26	29	29	G	G	40	33	39	39	36	54		42	29	G	20	G	24	G	G	G	28
8	30	G	G	G	27	G	G			35	35	42	G	35	G	38	35	40	45	27	32	G	G	G
9	G	24	G	26	G	26	G		37	43	37	38	41	62	32	37	38	33	40	32	40	25	G	32
10	34	25	24	30	39	38	26	34		39	40	58		69	34	35	49	35	56		33	G	29	45
11	34	28	G	33	G	30	G	28	34	34	G	42	35	42	52	59	38	52	29	26	27	33	G	26
12	G	28	G	G	G	G	G	G	30	36	40	51	49	41	34	33	28	G	G	30	G	G	G	G
13	G		G	G	37	26	G	28	32	35	37	41	39	38	34	31	25	G	36	34	32	30	26	G
14	G	G	G	G	26	24	32	40	32	36	G	35	G	34	32		G	G	49	39	38	37	G	G
15	G	G	G	24	G	29	G			39	40	38	40	34	33	39	32	G	G	G	G	27	G	G
16	54	29	G	G	G	G	G		70	82		39	36	33	32	32	28		G	25	38	30	25	G
17	G	G	G	G	G	26	33	26	G	34	35	35	36	34	33	G	C	36	70	49	39	33	G	G
18	29	29	23	G	G	G	27	27	33	C	C	C	C	C	C	C	C	C	32	40	34	48	25	G
19	G	G	G	G	G	26	26	28	30	33	34	G	41	34	31	36	39	43	28	25	35		G	G
20	32	G	G	G	G	G	G	32	35	39	36	37	34	38	33	G	33	G	G	40	33		32	27
21	26	G	G	G	G	G	G	25	30	39	40	42	42	44	72	59	36	26	28	25	58	39	32	29
22	G	25	G	G	G	G	24	G	G		34	34	35	49	37	46	39	43	59	33	34	G	G	G
23	G	G	G	G	G	G	G		30	38	36	37	36	36	39	62	58	37	28	G	G	G	G	G
24	G	G	G	G	G	G	G		34	35	35	37	36		38	35	26	25	G	G	G	G	G	G
25	G	G	G	28	27	G	24	28	35	50	42	51	41	39	37	68	24	G	25	32	36	49	38	37
26	29	29	G	G	G	G	G	G	30	38	59	44	41	38	44	30		G	G	26	37	G	25	G
27	G	G	G	G	G	23	38	30	36	36	39	40	45	38	73	37	11	43	34	68	58	40	43	G
28	G	G	G	G	G	G	24	G		41	33	G	G	G	G	G	G	G	G	27	27	G	G	G
29	24	G	G	G	G	G	G	G	40	39	45	52	59	53	G	G	20	G	60	68	40	35	G	24
30	30	G	G	24	26	24	31		40	40	39	52	39	35	37	36	38	27	69	58	40	58	43	39
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	29	30	30	30	30	30	22	25	27	28	29	28	27	29	28	27	28	30	29	30	28	30	30
MED	G	G	G	G	G	G	G	28	33	38	38	39	37	36	33	34	32	28	28	28	33	24	G	G
U Q	30	28	G	24	26	26	26	32	35	39	40	43	41	41	37	38	38	36	40	37	38	34	26	28
L Q	G	G	G	G	G	G	G	G	30	36	35	35	34	34	31	29	24	G	G	25	27	G	G	G

HOURLY VALUES OF fmin AT Wakkanai

NOV. 2009

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	15	14	14	14	14	14	14	16	14	14	14	14	14	14	14	14	18	14	14	16	15	15	14	14
2	15	15	14	14	14	15	14	14	14	14	14	14	14	14	14	14	14	14	15	15	14	14	14	14
3	14	14	14	14	14	14	14	14	15	14	14	14	14	14	14	14	14	14	14	14	15	15	14	14
4	14	14	14	15	15	15	14	15	14	14	14	14	14	14	14	14	14	14	14	14	14	15	14	14
5	15	14	15	15	14	14	14	14	14	14	14	14	14	14	14	14	14	14	20	15	15	15	14	14
6	14	15	15	14	14	15	14	14	14	14	14	14	14	14	14	14	16	14	15	14	15	14	14	14
7	15	14	14	14	15	14	14	14	14	14	14	14	14	14	14	14	14	14	15	14	15	14	14	14
8	14	14	14	14	14	15	14	14	14	14	14	14	14	14	14	14	14	14	14	15	14	14	14	14
9	14	14	15	14	14	14	15	14	14	14	14	14	14	14	14	14	14	14	15	14	14	14	14	14
10	14	14	14	14	14	14	15	14	14	14	14	14	14	14	14	14	14	14	15		14	14	14	14
11	14	14	14	14	15	14	14	15	14	14	14	14	14	14	14	14	14	15	15	15	14	14	14	14
12	14	14	14	14	14	14	14	15	14	14	14	14	14	14	14	14	14	14	14	14	15	15	14	14
13	15		15	14	14	14	15	14	14	14	14	14	14	14	14	14	14	15	14	14	14	14	14	15
14	14	14	14	14	14	14	14	15	14	14	14	14	14	14	14	14	15	14	15	14	14	14	14	16
15	14	14	14	14	15	14	14	14	14	14	14	14	14	14	14	14	16	14	18	15	14	14	15	15
16	14	14	14	14	14	14	15		14	14	14	14	14	14	14	14	14		15	15	14	15	14	14
17	14	14	15	14	14	14	15	16	14	14	14	14	14	14	14	14	C	14	14	14	14	14	15	14
18	15	14	14	14	14	15	15	16	14	C	C	C	C	C	C	C	C	C	14	14	14	14	15	14
19	14	14	14	17	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	16	14	14
20	15	14	14	15	14	14	15	14	14	14	14	14	14	14	14	14	14	14	14	14	14		14	14
21	14	14	14	14	14	14	17	18	14	14	14	14	14	14	14	14	14	17	16	16	14	14	15	14
22	14	14	14	15	15	15	15	15	14	14	14	14	14	14	14	14	14	14	14	14	14	15	14	15
23	14	15	14	14	14	14	14	15	14	14	14	14	14	14	14	14	14	14	15	14	15	14	14	14
24	14	14	14	14	14	14	17	14	14	14	14	14	14		14	14	15	16	14	14	14	14	14	14
25	14	15	15	14	14	15	14	15	14	14	14	14	14	14	14	14	15	14	15	14	14	15	14	15
26	14	14	14	14	14	15	16	15	14	14	14	14	14	14	14	14	15	15	14	16	14	15	14	14
27	14	14	14	14	14	14	15	14	14	14	14	14	14	14	14	14	15	14	14	15	14	15	14	14
28	14	14	14	14	14	14	14	16	14	14	14	14	14	14	14	14	14	14	14	15	14	14	14	14
29	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	18	15	17	14	14	15	14	14	15
30	14	14	14	14	15	15	15	16	14	14	14	14	14	14	14	14	14	14	14	14	15	14	14	14
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	29	30	30	30	30	30	29	30	29	29	29	29	28	29	29	28	28	30	29	30	29	30	30
MED	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14
U Q	14	14	14	14	14	15	15	15	14	14	14	14	14	14	14	14	15	14	15	15	15	15	14	14
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. 2009

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	34	A	28	27	28		36	54	64	67		63	86	75	74	66	54	42	A	A	A		32	32
2	32	A	A	A	A	A	35	49	60	63	48	64	69	65	61	61	59	39	28	32	34		30	32
3	31	34	36	34	32	30	38	54	58	61	66	59	64	63	66	65	53	A	A	34	30	A	30	30
4	30	31		31		27	37	54	66	62	65	64	72	65	61	62	53	28				26	A	31
5	34	34	28	28	30		34	58	62	57	58		52	63	64	62	55	A	A	30	28	28	32	34
6	37	37	37	37	31	31	38	60	67	64	65	64	64	59	55	59	51	36	A	A	31	32	32	30
7	41	39	38	34	34	27	32	53	60	64	73	54	58	54	55	64	53	39			32	30	30	30
8	30	30	30	30	30		32	42	59	54	60	53	54	55	58	55	58	52	27			28	30	A
9		A	A	A	A	26		51	63	61	59	68	75	72	58	85	67	37	A	30		30	A	32
10	32			31		26	34	66	66	C	C	C	C	C	C	C	C	C	A	28		30	31	A
11	30	27	27	26	32	31	42	51	62	59	C	C	C	C	C	C	62	39		30	A	A		28
12	28	30	27	27		28		49	51	59	60	55	56	62	61	53	55	A	24	A	A	A	A	26
13	30	27	27	28	28		27	47	58	59	60		52	61	61	58	53	47	A	A	32			27
14	28	27	27	26		30	27	44	59	56	54	C	C	C	C	C	C	44					28	28
15			30	28	32			45	59	53	63	66	68	65	67	56	55	47	A	A	A	28	A	A
16	A	31	25		31	27	30	52	59	60	66	91	67	57	60	67	55	A	A	30	A		A	28
17	30	30	28				25	61	69	69	74	66	66	63	60	59	55		A	A	25			30
18	30	27		27	30	30	27	51	67	68	62	57	59	58	66	61	54	42	A	A	A	A		A
19		A	28	28			30	47	58	A	57	71	57	68	62	67	51	A	A	A	A	A		26
20		30	27	25	27		A	53		58	48	67	74	66	66	58	51	45	30	30	26	25	24	27
21	27	26	21		28	27	30	52	54	62	59	64	57	62	65	64	49	38	30	28	28	28	30	30
22	30	32	30	A	30	30	36	66	72	64	63	69	62	69	68	49	52	42			30	A	31	30
23	28	A	28	28	34	27	30	53	59	52	57	71	65	67	61	51	54	36	27	A		27	30	30
24	28	27	30	23	28	27	27	52	39	44	62		54	64	71	77	55	52				28	28	27
25	27	30	27	28		30	27	43	47	69	64	77	66	64	77	55	51	30	34	A	34	37	34	34
26	31	32	32	34	A	A	A	50	63	61	81	72	66	61	66	66	44		36	A	32	32	27	32
27	31	30	28	27	26		30	53	60	66	62	72	69	67	56	60	64				27	28	30	A
28	28	31	36	32	36	28	32	51		54	63	75	62	58	56	55	59	35			36	A	30	28
29	27	48	28	27	26		27	44	39	51	49		65		58	59		39		34	28	23	28	28
30	28	32	28		24	28	A	46	55	41	50	65	54	56	66	55	47	30	34	A	27		26	25
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	25	23	25	23	20	18	24	30	28	28	27	23	27	26	27	27	27	21	9	10	16	16	20	25
MED	30	30	28	28	30	28	31	52	60	60	62	66	64	63	61	60	54	39	30	30	30	28	30	30
U Q	31	32	30	31	32	30	35	54	63	64	65	71	68	66	66	65	55	44	34	32	32	30	31	31
L Q	28	27	27	27	28	27	27	47	58	55	57	63	57	59	58	55	51	36	27	30	27	27	28	27

HOURLY VALUES OF fEs AT Kokubunji

NOV. 2009

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	35	27	G	G		G	G	G	G		48	G	48	37	G	G	31	38	35	48	33	25	28
2	29	37	30	29	36	29	23	35	42	51	G	G	42	G	G	G	G	26	G	G	G	33	G	22
3	G	26	24	G	G	G	G		G	41	44	G	G	G	49	G	49	40	30	G	29	32	29	27
4	29	26	34	29	30	G	26	43	G	G	65	51	50	G	35	33	31	26	23			G	43	26
5	37	24	G	G	G	G	G	29	G	39	52		56	43	45	G	37	50	46	30	30	G	G	G
6	25	G	32	25	G	G	G	G	37	49	47	G	37	37	G	34	43	43	35	31	G	G	G	G
7	G	G	G	G	G	G	G	31	34	G	G	G	G	G	G	39	27	25		G	G	24	23	G
8	G	G	G	G	G		G	43	G	G	40	G	46	62	35	G	G	24	G		G	G	31	50
9		40	46	58	28	G	G	G	40	53	G	G	53	53	37	45	31	23	56	26		G	59	56
10	26	33	32	29	30	23	31	31	G	C	C	C	C	C	C	C	C	C	52	32	26	34	G	34
11	G	32	G	G	G	G	27		G	G	C	C	C	C	C	C	G	G	25	30	38	49		G
12	G	31	23	29	33	24			G	G	G	37	G	52	47	51	58	42	33	74	35	29	27	G
13	G	G	G	G	G		G		37	47	51	50	50	48	45	42	33	29	40	31	31			27
14	25	G	22	G	G	G	34	45	G	G	G	C	C	C	C	C	C	27	G	24			G	G
15	29	29	24	G	G	G		41	38	G	43	G	G	55	38	G	34	11	67	40	29	28	44	65
16	29	37	G	34	25	G	G	G	N	G	G	G	43	38	37	34	G	34	31	G	47	31	36	G
17	G	G	G		G	G	G	G	G	38	G	54	39	G	36	53	31	31	50	40	25	36	33	24
18	G	G	G	G	G	G	G		G	G	42	G	G	37	49	41	48	28	57	57	34	28		33
19	27	33	G	G		G	G	32	36	90	38	41	50	47	52	35	G	43	36	62	39	34	24	G
20	23	29	24	G	G	G	34	G	G	G	G	102	42	39	G	G	G	32	G	G	26	28	29	G
21	G	30	G	G	G	G	G		34	G	G	G	41	40	36	33	29	G	G	G	G	G	G	G
22	G	G	G	34	G	G	G	G	G	G	G	G	G	G	38	36	28	G	G	30	32	42	28	23
23	26	30	G	G	G	G	22	G	G	G	G	G	42	44	58	36	27	G	25	30		G	28	G
24	26	G	G	G	G	G	G	G	G	G	G	G	G	36	G	37		11	G	G	G	G	G	G
25	29	G	G	G	26	G	G	G	G	G	48	45	G	52	50	G	26	G	G	31	G	29	29	33
26	23	G	30	G	50	48	47	G	42	47	43	43	46	79	39	49	29	G	G	38	23	32	24	G
27	36	34	G	G	G	G	G	G	G	34	G	40	43	47	46	47	60			25	26	G	G	36
28	37	G	23	30	G	G	G	29	G	G	36	36	G	G	G	G	G	G			G	29	G	G
29	G	G	G	G	G	G	G	G	51	G	G		G	G	47	48	38	G		G	G	G	G	G
30	28	27	G	G	G	G	33	27	G	G	G	36	38	39	G	G	G	G	G	45	35	G	G	24
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	30	30	29	29	27	28	24	29	29	27	25	27	27	27	27	27	28	26	27	26	28	27	30
MED	25	26	G	G	G	G	G	G	G	G	G	G	39	39	37	34	29	26	28	30	26	28	24	12
U Q	29	32	24	29	25	G	24	31	36	40	43	44	46	48	47	42	37	31	40	38	34	32	29	28
L Q	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G

HOURLY VALUES OF fmin AT Kokubunji

NOV. 2009

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	14	14	14	14	13		14	22	14	17		24	20	14	14	13	18	14	13	14	13	13	14	13
2	13	13	13	13	13	13	13	13	13	13	13	15	18	17	17	13	13	13	14	13	13	14	13	14
3	13	14	14	13	13	13	14	22	14	20	15	37	38	13	13	13	13	14	13	14	14	13	13	14
4	14	13	13	13	13	13	13	22	13	14	15	22	18	13	14	13	14	17	15			15	13	14
5	13	13	14	13	14	15	13	14	13	13	13		18	13	13	13	18	13	13	14	14	14	14	18
6	13	18	14	13	14	14	14	14	14	14	17	35	30	30	13	13	14	15	14	13	14	13	13	14
7	14	14	13	14	13	15	14	15	13	15	14	13	38	37	14	22	13	14		23	13	14	13	14
8	14	14	14	14	15		14	13	13	13	15	23	23	18	17	18	18	14	21		17	13	13	13
9		13	13	13	13	17	14	20	13	15	14	34	30	17	14	14	15	14	13	14		14	13	13
10	14	14	13	13	13	17	13	13	14	C	C	C	C	C	C	C	C	C	13	14	14	13	13	13
11	13	13	14	13	13	15	13	21	13	14	C	C	C	C	C	C	17	17	17	13	14	14		13
12	14	13	13	13	14	14		14	13	13	13	17	36	18	15	14	13	13	21	13	13	13	18	15
13	13	14	13	14	14		17	13	13	13	15	28	31	14	18	13	13	13	14	14	13			15
14	13	14	13	14	14	13	14	17	13	13	13	C	C	C	C	C	C	15	15	15			14	18
15	13	13	13	13	14	18		17	14	14	14	34	15	14	13	13	13	14	14	13	14	14	13	13
16	14	13	15	13	13	13	13	17	13	13	14	14	18	14	23	13	13	14	14	14	14	13	13	14
17	17	14	14		14	15	17	14	13	14	18	18	14	14	13	13	13	13	13	13	14	13	13	13
18	13	14	18	13	13	13	13	13	13	13	13	14	15	17	13	17	14	17	13	13	13	14		15
19	17	14	14	14		15	14	13	13	14	21	13	18	13	18	13	18	14	14	14	14	14	14	13
20	14	14	14	13	14	14	14	23	13	13	14	18	20	13	13	13	20	13	14	15	14	13	14	13
21	13	14	13	13	13	14	14	15	13	14	14	22	17	15	13	14	15	14	14	14	14	14	13	13
22	14	14	13	13	14	14	14	17	13	13	13	13	14	13	14	13	13	13	13	13	13	14	15	14
23	13	14	15	13	13	14	14	20	13	14	14	34	15	15	13	13	13	14	15	13		14	13	13
24	13	13	13	13	13	13	13	18	14	14	34	17	13	14	13	14	13	14	14	13	18	14	13	13
25	13	14	14	13	14	13	13	15	13	13	14	30	13	14	14	13	13	13	13	13	13	14	13	14
26	14	13	14	13	13	13	13	18	13	13	14	14	13	13	13	13	13	14	14	14	13	13	13	14
27	13	13	13	13	13	15	15	17	13	13	13	14	17	14	13	14	13			15	14	13	13	13
28	13	14	14	13	13	13	14	14	29	15	13	14	13	13	14	13	18	15			14	14	18	14
29	14	14	13	13	13	14	14	14	29	14	14		33	15	13	13	13	14		13	14	14	13	15
30	13	13	14	13	13	14	14	14	13	14	18	15	13	14	14	13	22	15	14	13	14	13	13	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	29	30	30	29	29	27	28	30	30	29	27	25	27	27	27	27	28	28	26	27	26	28	27	30
MED	13	14	14	13	13	14	14	15	13	14	14	18	18	14	14	13	13	14	14	14	14	14	13	14
U Q	14	14	14	13	14	15	14	18	14	14	15	29	30	17	14	14	17	14	14	14	14	14	14	14
L Q	13	13	13	13	13	13	13	14	13	13	13	14	14	13	13	13	13	13	13	13	13	13	13	13

HOURLY VALUES OF foF2 AT Yamagawa

NOV. 2009

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	A	A	38					53	56	64	72	78	75	87	86	82	65	45	37	25	34	28	28	34
2	34	A		A	49			44	53	43	66	67	71	62	63	67	68	47	35		34	36	42	34
3				32	36	29		47	54	56	65	64	62	72	69	67	60	60		A	A	A	A	A
4	30		28	28	26	25		48	63	56	59	76		60	58	65	68	58	28		28	A	29	28
5		34	26	28	29	28	28	48	54	56	52	61	56	64	65	62	56	50	42	30	A	A	A	A
6		32	30	30	29	28	28	53		61	55	58	56	57	57	58	58	52	34			32	32	32
7	32	31	36	32	30		26	48	59	57	67	66	46	49	64	68	60	48	44		28	26	28	29
8	29	30	28	28	29			41	50	56	58	45	52	A	82	62	52	73	27	A		29	A	30
9	32	30	25	30	A	A	A	47	67	57	66	77	76	82	88	88	65	44	34	28	A		30	
10	A	A	28	29	29		30	45	59	58	66	72	62	55	81	92	74	60	A	A		A	29	32
11	30			22	29	29		43	58	51	60	62	54	62	80	90	65	56	36	30	34	A	31	
12	28	28	29	30	34	34		43	60	59	65	48	57	57	72	58	66	53	34	30	35	35	34	29
13	29	30	28	30	26	A		44	49	51	52	62	67	60	56	76	80	81	42	26	C	34	34	29
14	30	28	26	26	28	30	22	40	48	48	45	58	57	60	64	62	65	41	37	26	28	30		
15	28		28	30	30			37	60	60	56	74	59	64	63	67	59	54	39		A	26	A	A
16		29	A	30	36		26	45	58	61	68	86	73	58	75	73	66	50	A		A		30	26
17	26	26			28			45	59	56	64	74	63	64	60	61	54	55	36		32	30		29
18	29		28	25	29	29	28	45	69	68	71	65	60	61	63	65	60	54	A	A	A	A	25	
19				26	28	28	28	44	54	51	63	62	61	65	72	72	62	55			25		28	
20	28	29		28	29	28	28	47		61	60	61	69	67	65	70	72	54	43	32	A			
21			25	28	28	28	28	52	51	55	56	64	58	62	70	67	53	50	30	32	34	32		
22		30	29	26	29	30	31	48	66	64	62	61	61	66		65	54	56	42	32	37	34	34	32
23	32	34	28	31	34	34	26	45	50	53	60	65	63	59	58	64	A	47		24		28	28	
24	28	A	31	28	25	29	28	44	53	54		65	45	64	76	75	77	51	40	26		26		28
25	28	28	30	29	30	28		43	52	51	63	68	76	67	69	70	56	51	37	30	28	26	26	28
26	30	30	29	30	30	29	28		65	60	61	81	67	70	65	61	79	A	A	A	A	28	28	28
27	28	30		28	A	28		43	58	62	61	84	81	83	57	66	67	50	28	A	A		A	
28	28		A	30	30	29	28	42	69	58	63	68	56	57	62	58	55	51	35		28	29	28	28
29	28	A		28		26		37	60	58	59	52	68	70	52	62	60	47	35	28	25	A		26
30		28	28	28	29	25		41	50	49	55	64	55	52	62	62	42	45	A	28	28	26	25	25
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	20	17	20	27	26	20	15	29	28	30	29	30	29	29	29	30	29	29	22	15	15	18	19	18
MED	29	30	28	28	29	28	28	45	58	56	61	65	61	62	65	66	62	51	36	28	28	29	29	29
U Q	30	30	29	30	30	29	28	47	60	60	65	74	68	67	73	72	67	55	40	30	34	32	32	32
L Q	28	28	28	28	28	28	26	43	52	53	57	61	56	58	61	62	56	47	34	26	28	26	28	28

HOURLY VALUES OF fEs AT Yamagawa

NOV. 2009

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	59	46	33		G			29	G	39	40	48	39	38	G	G	G	33	G	G	G	23	G	G
2	36	50	44	34	38	27		36	32	39	60	G	G	41	46	52	47	35	38	33	33	32	25	G
3	27	32	32	G	29	24		G		36	44	62	G	G	38	G	32	G	34	36	48	48	40	33
4	33	27	27	28	G	G		G	G	G	39	43	43	43	G	G	G	48	34	31	28	32	G	29
5	28	24	27	G	G	G	G		30	G	G	G	44	52	56	37	31	32	28	G	52	47	43	46
6	32	G	G	G	G	G	G	G			G		G	G	G	39	35	G	G		G	32	G	G
7	24	G	G	G	G	G	G	30		40	43	44	G	G	41	G	G	G	11	27	27	G	G	26
8	G	G	G	G	G	G	22	29	G	44	45	42	50	55	48	48	34	51	36	36		G	25	G
9	G	G	G	32	50	65	47	34	G	G	42	45	46	38	44	42	46	28	G	G	66	G	G	
10	49	40	34	G	27	35	G	28	30	39	G	44	40	43	74	58	91	40	64	29	29	30	31	30
11	28	33	32	G	G	G	G		G	G	G	G	G	G	38	48	40	G	34	G	G	29	G	32
12	G	G	26	28	32	23		G	G	N	G	G	G	38	46	45	54	44	32	24	G	G	G	G
13	G	G	G	G	G	33			36	49	65	44	G	G	52	34	53	32	36	G	C	32	26	26
14	24	G	G	G	G	26	24	G		40	G	G	G	G	G	39	41	30		G	G	G	G	G
15	28	31	G	G	G	G		28	G	40	40	43	44	43	44	35	31	30	35	G	32	26	33	49
16	46	32	50	G	G	G	G	24	30	36	40	45	42	48	48	42	46	38	44	23	26		G	G
17	G	24		G	G	G	G	G	31	35	G	G	G	G	G	G	G	G		G	G	G	33	28
18	G		24	G	G	G	G	G	36	36	G	G	G	42	G	G	32	G	46	32	40	32	33	
19				G	G	G	G	32	30	35	G	G	39	G	G	G	G	G			G	G	G	G
20	G	G		G	G	G	G	G	31	48	53	39	39	43	G	G		G	32	26	33	G		
21		G	G	G	G	G	G	G	31	G	42	43	42	41	40	40	34	28	32	G	G	G		G
22		G	G	23	G	G	G	G	G	34	G	44	G	G		35	36	G	11	G	G	G	31	G
23	G	G	G	G	G	G	G	24	38	G	45	51	55	55	40	42	95	36	32	27	G	G	G	G
24	26	33	G	G	26	G	G	G	29	G		G	G	41	38	35		G	11	G	G	28	36	G
25	G	G	G	G	G	G		G	G		G	53	44	67	46	37	G	G	G	G	G	G	26	G
26	G	G	28	G	G	24	24	G	30	36	47	47	56	53	54	62	76	80	71	46	34	G	G	G
27	G	G	36	28	35	27	29	26	34	G	40	G	42	41	40	G	G	28	42	35	49	34	40	32
28	26	29	40	26	32	G	G	24	30	38	40	44	40	48	G	G	G	G	G		G	G	G	24
29	G	33		G		G		G	G	G	G	G	40	42	40	41	38	30	36	25	G	30	G	G
30		G	G	28	G	25		G	30	G	G	G	40	G	G	G	48	27	45	G	29	G	24	G
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	26	28	26	29	29	29	20	27	26	27	29	29	30	30	29	30	28	30	27	27	28	29	28	27
MED	24	G	12	G	G	G	G	G	30	36	40	43	40	41	40	36	34	28	34	23	14	G	12	G
U Q	28	32	32	24	26	24	11	28	31	39	43	44	43	43	46	42	46	35	38	31	33	32	32	29
L Q	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	11	G	G	G	G	G

HOURLY VALUES OF fmin AT Yamagawa

NOV. 2009

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

HOURLY VALUES OF foF2 AT Okinawa

NOV. 2009

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		42	36	29				50	59	57	71	102	85	90	101	96	75	56	A	A			30	32
2		28	28	29				44	56	61	70	92	68	80	88	85	74	72	47		A		40	
3					31			43	50	56	70	74	78	82	86	77	68	72	61			A	A	A
4	29			A	A	A	A	41	63	58	60	75	95	90	87	89	87	85	54	46		A	A	
5	31	26	A					48	49	55	52	61	64	70	77	86	76	60	52	A	A	A	A	A
6		29			30			47	61	57	57	67	71	62	68		A	A	A	A				
7			30					50	58	54	53	67	65	71	92	92	65	62	56	53	36	42	30	A
8	A	30	28	28	30				50		59	65	44	54	77	97	72	74	65	A	A		30	
9				29	32		30	44	72	65	65	76	92	102	108	97	81	70			32	A	A	A
10	A						29	47	57	54	63	80	62	62	91	115	102	86	43	34	30		A	A
11						32	29	44	55	56	64	76	59	68	84	94	78	70	62	34		34	29	A
12				49	31			45	55	60	68	67	61	60	70	69	62	67	52	34	44	43	32	
13			28	26	30			45	58	55	71	67	67	71	78	A	92	82	85	53	44	48	47	41
14	29		30		32			40	59		57	71	56	52	66	84	72	62	50	34	35	30	29	28
15			30	31	28			40	50	55	64	68	67	65	90	64	66	58	53	42	32	37	A	
16			29					48	55	69	90	96	92	88	92	95	60	59	44		34	38	34	
17		28			22			47	56	59		76	80	76	66	73	70	66	46			32	28	
18		28						44	69	71	68	66	67	63	92	68	66	A	A	A	A		32	
19					30	32		38	70	61	67	66	61	76	84	87	84	67	52			34		29
20						30	30	46	63	60	60	62	66	75	75	87	100	97	78	51	54			
21								45	54	56	64	62	63	65	76	92	71	67	66	A		43	A	
22			28					50	60	63	67	66	64	67	67	70	85	70	62	54	44	48	50	43
23	34		34	29	37	30		41	58	57	64	60	68	80	68	60	62	55		41	45			28
24	28	28	A			29		42	54	60	60	68	72	88	98	104	87	83	72	42	29	49		
25			30	34	30			53	60	56	65	78	99	97	78	92	88	64	44	A	31			
26			25	32	31		29		60	C	C	C	C	C	C	C	C	C	54	29		28		
27			28	29			28	41	54	63	77	87	87	105	81	61	70	66	53	25		A		
28			A		A	26		40	58	66	77	58	60	58		65	57	58	44	32		32	32	34
29								34	60	70	66	58		71	70	61	A	56	42	34		26		
30	28				34			37	49		56	61	57	63	66	64	59	56	42	A		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	6	8	13	11	14	6	6	28	30	26	28	29	28	29	28	27	27	27	25	16	13	16	13	7
MED	29	28	29	29	30	30	29	44	58	58	64	67	67	71	80	86	72	67	53	38	35	36	32	32
U Q	31	29	30	32	32	32	30	47	60	63	69	76	79	85	90	94	85	72	62	48	44	43	37	41
L Q	28	28	28	29	30	29	29	41	54	56	60	63	61	63	70	68	66	59	45	34	31	31	29	28

HOURLY VALUES OF fEs AT Okinawa

NOV. 2009

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	36	37	28	G	G			30	G	G	G	G	42	G	40	G	G	G	70	40		G	G	G
2		G	G	G			26	26	G	G	38	49	46	42	G	40	44	42	40	30	34	29	G	
3				G	G		G	28		46	G	39	43	G	G	G	35	38	36	G		49	34	28
4	G	26		32	36	35	29	G	G	36	38	51	40	40	G	G	46	32	39	36		39	38	28
5	50	G	35	G				G	G	41	40	G	G	52	G	G	38	54	G	59	50	46	36	32
6		G			G			G	40	G	G	38	G	G	46	68	78	81	40	39		G	G	G
7			G	G					G	35	44	G	42	40	50	G	G	40	G	26	G	29	G	40
8	27	G	G	G	G	G	G	29	G		G	G	G	45	81	48	48	43	30	48	30		G	G
9		G	G	G	26		27	39	59	52	52	67	49	49	G	49	48	33	30		G	33	58	50
10	31		27	27	G		G	27	36	40	41	39	40	44	50	69	48	G		G	G	27	35	38
11	34	G		G	32	G	G		G	G	G	G	G	50	46	58	36	28	11	G		G	G	25
12	G			G	G	25	G	26	G	G	G	G	G	G	G	G	46	32	25	G	G	G	G	
13			G	G	G			G	G	G	45	59	86	94	70	78	71	48	48	41	G	G	G	G
14	G		G		G	G		G	G		G	G	G	39	G	39	G	29	G	G	G	G	G	38
15		28	G	29	G		G	G	G	40	37	46	43	G	45	50	38	34	G	G	G	G	30	
16	G	G	G	34	G			G	G	G	G	G	G	G	37	G	39	46	26		G	G	G	
17		G	G	G	G			26	G	36		G	G	G	G	G	36	69	29	29		G	G	
18		26				G		G	36	37	G	G	G	G	G	46	46	65	116	51	50		26	
19				G	G	G	G	G	G	G	G	G	G	41	G	G	G	32				G	G	G
20		27				G	G	G	G	G	G	G	G	49	G	G	G	G	30	G	G		G	
21				G		24	G	G	29	G	G	G	46	51	47	57	40	29	33	59	38	30	33	
22			G				G	G	G	34	G	G	G	G	G	G	G	G	G	31	35	G	G	G
23	27		G	G	G	G	G	G	G	G	37	50	48	54	48	48	38	49	35	32	28			G
24	G	G	37	G		24		G		34	G	G	G	G	39	37	32				G	G	G	G
25		G	G	26	G			G	29	34	G	G	G	48	52	43	44	30	23	29	G			
26	G		G	G	G	G	G	G		C	C	C	C	C	C	C	C	C	11	11		G		
27			G	G	G	G	G	26	G	34	G	G	42	44	G	G	40	G	29	11	28	37		
28			36	27	28	G	G	G	32	39	42	45	51	52		36	G	G	11	29	26	G	G	G
29			G					G	29	G	G	G	44	45	42	50	107	31	27	28	28	G	G	G
30	G	G			G			G	29		N	G	44	52	52	G	34	30	49	34	G	28	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	13	16	20	23	21	14	17	28	27	26	27	29	29	29	28	29	29	28	27	26	22	25	26	18
MED	G	G	G	G	G	G	G	G	G	34	G	G	40	42	38	37	38	32	29	29	G	G	G	G
U Q	32	26	14	26	G	24	G	26	29	37	38	42	44	49	47	49	46	44	39	39	30	29	30	32
L Q	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	16	28	11	G	G	G	G	G

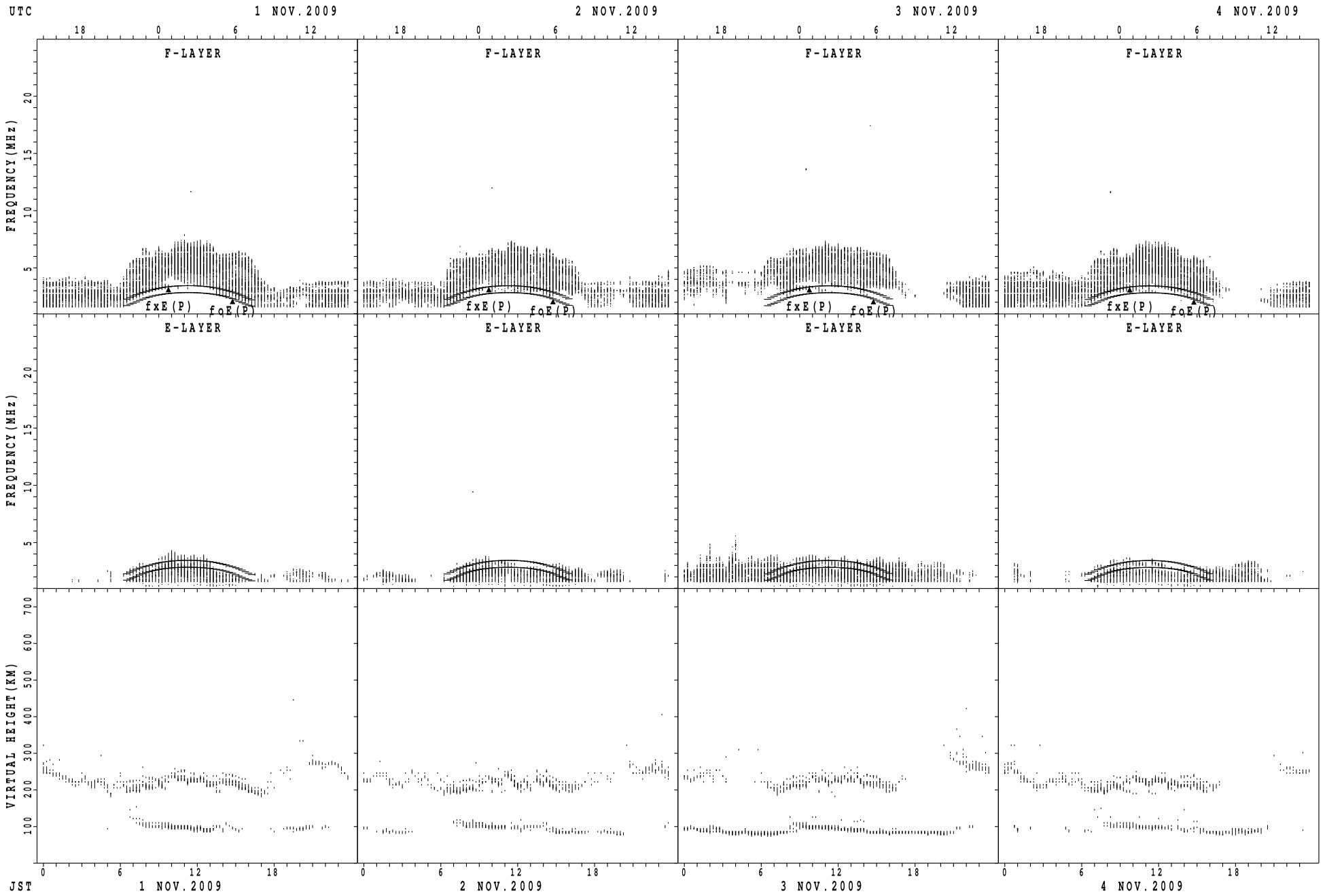
HOURLY VALUES OF fmin AT Okinawa

NOV. 2009

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

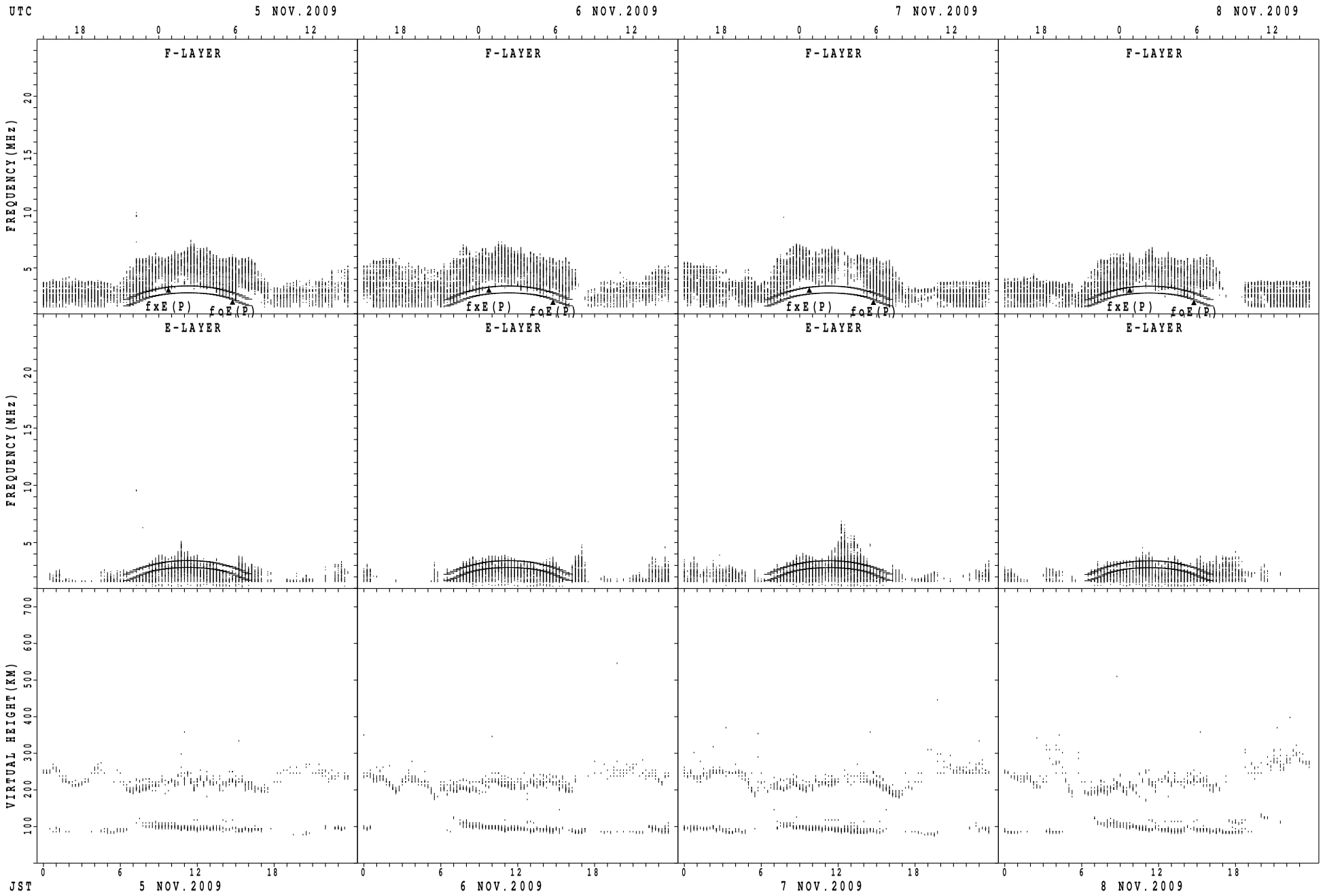
D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	14	15	14	15	15			15	14	14	41	43	28	21	23	30	30	18	15	17		24	18	18
2		16	16	15			15	17	28	37	17	21	28	24	24	21	16	14	14	15	14	14	27	
3				20	18		15	15	14	15	41	32	45	42	44	30	14	14	16	23		20	20	15
4	14	16		15	14	15	14	18	14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

SUMMARY PLOTS AT Wakkanai



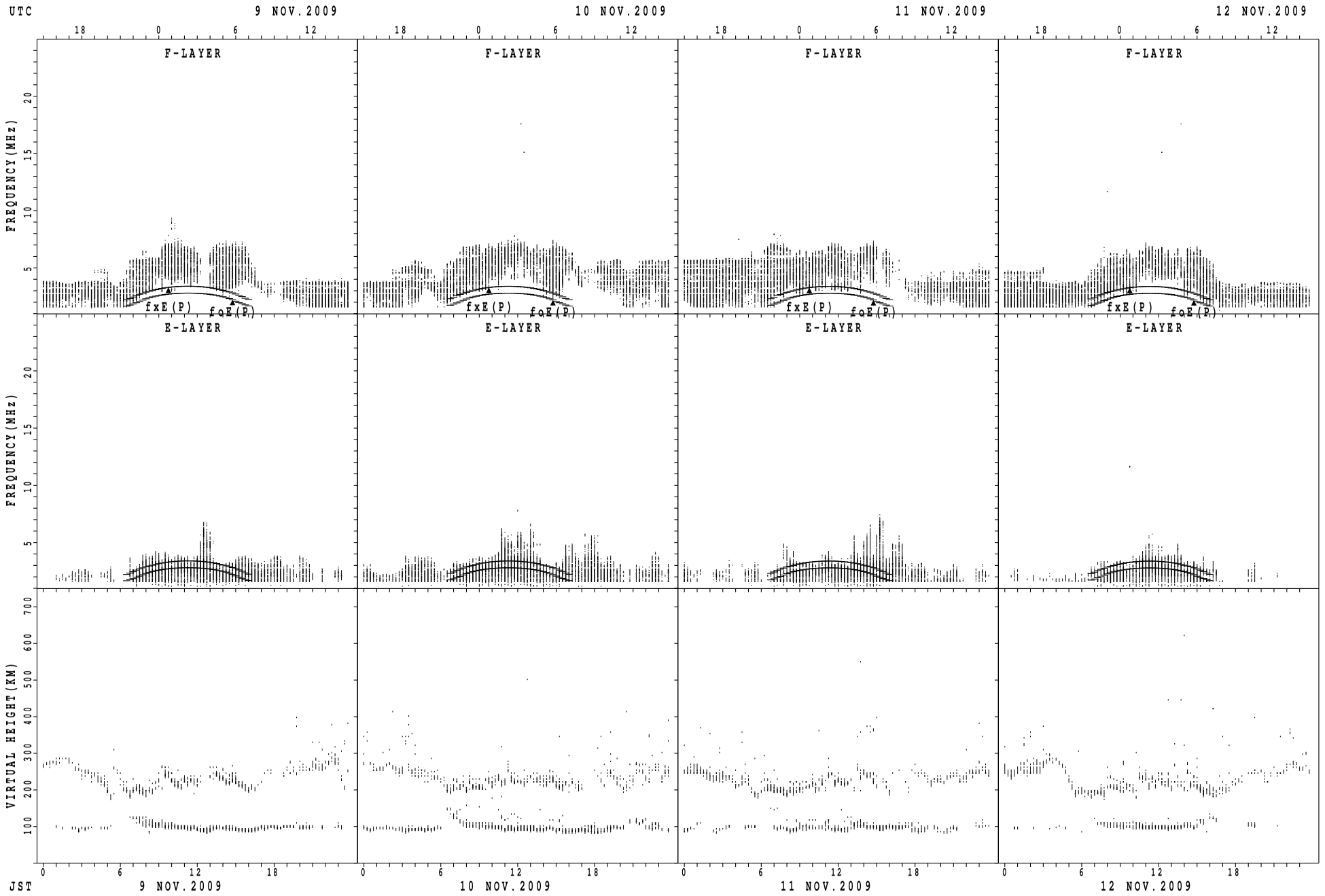
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



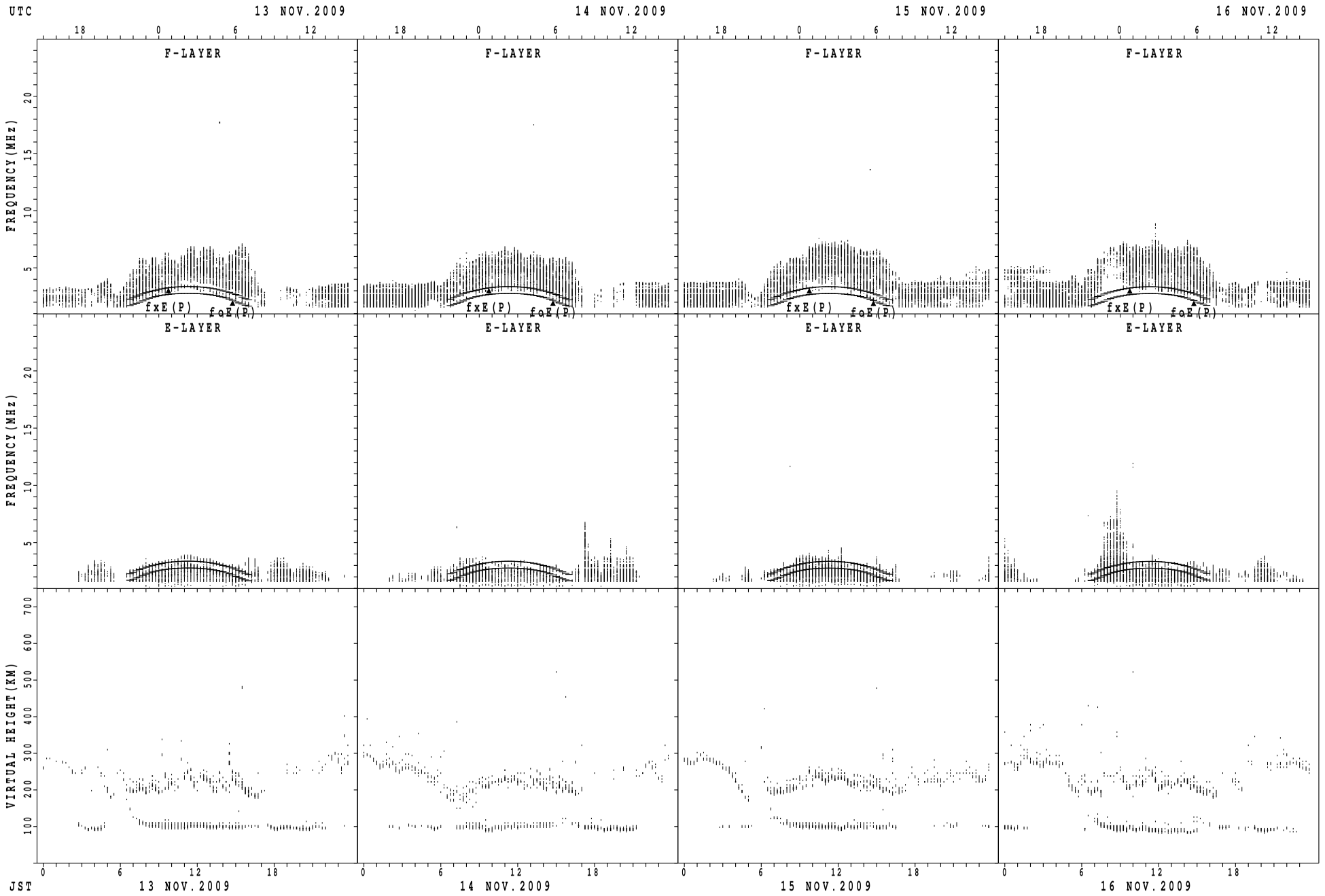
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



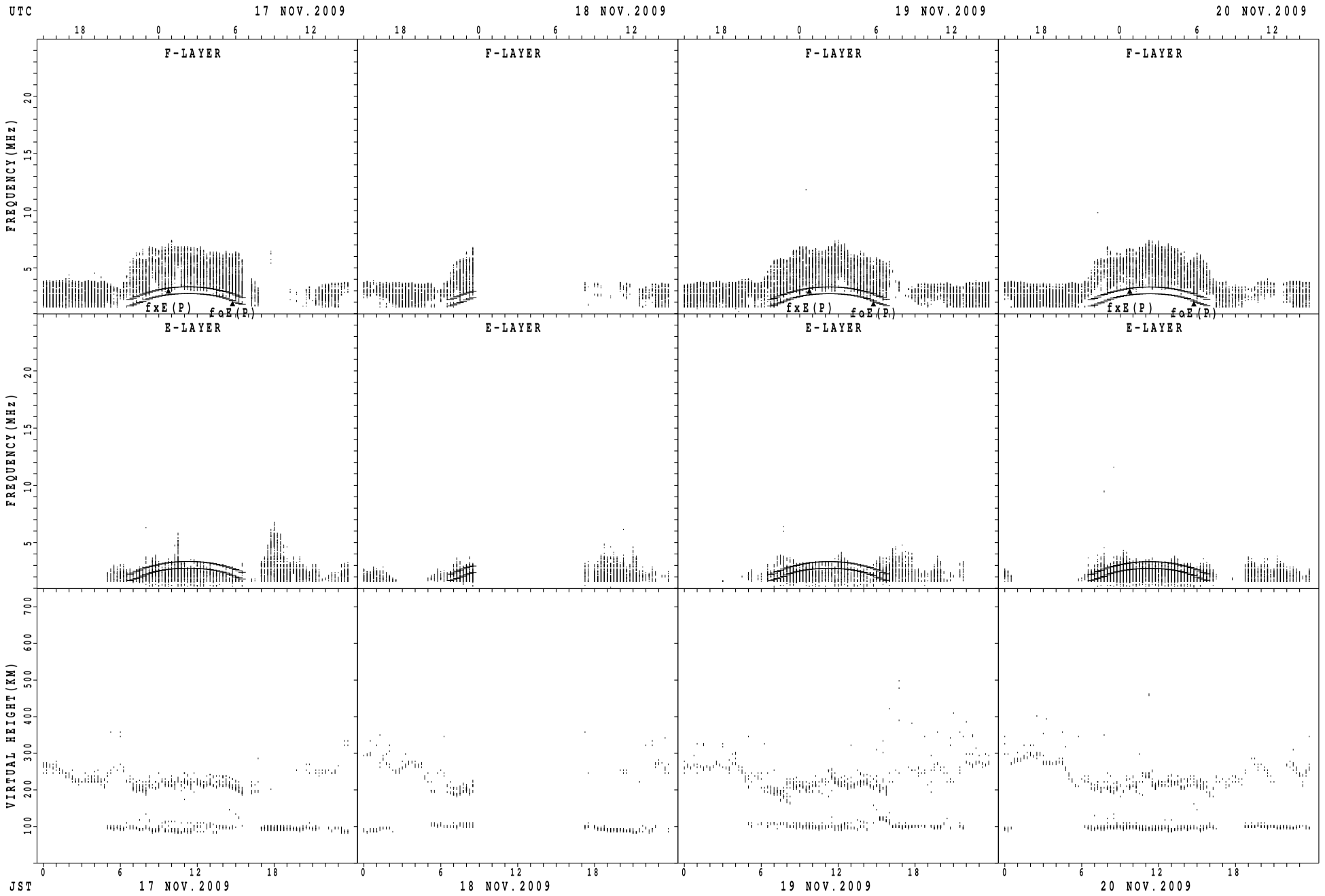
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



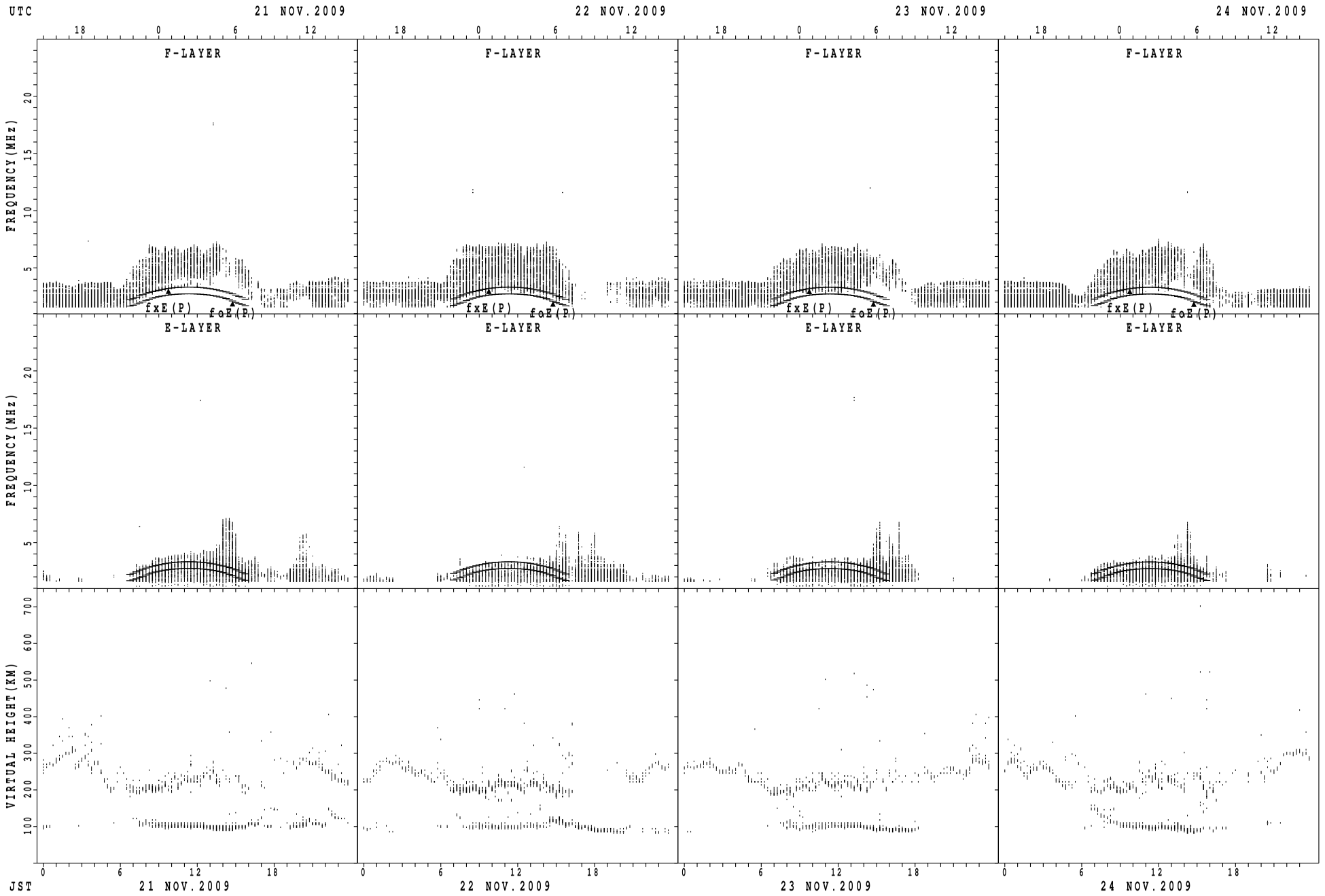
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



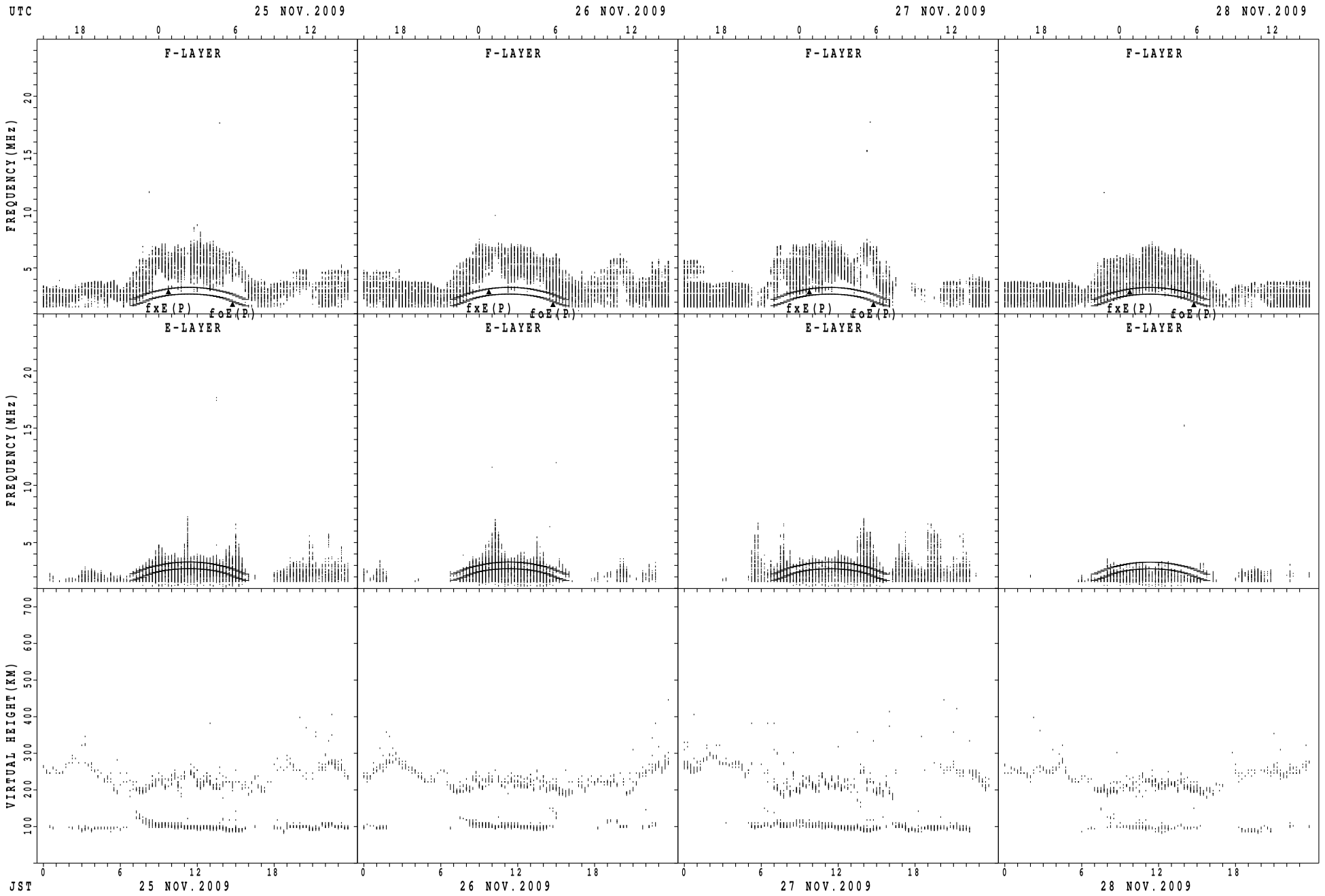
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



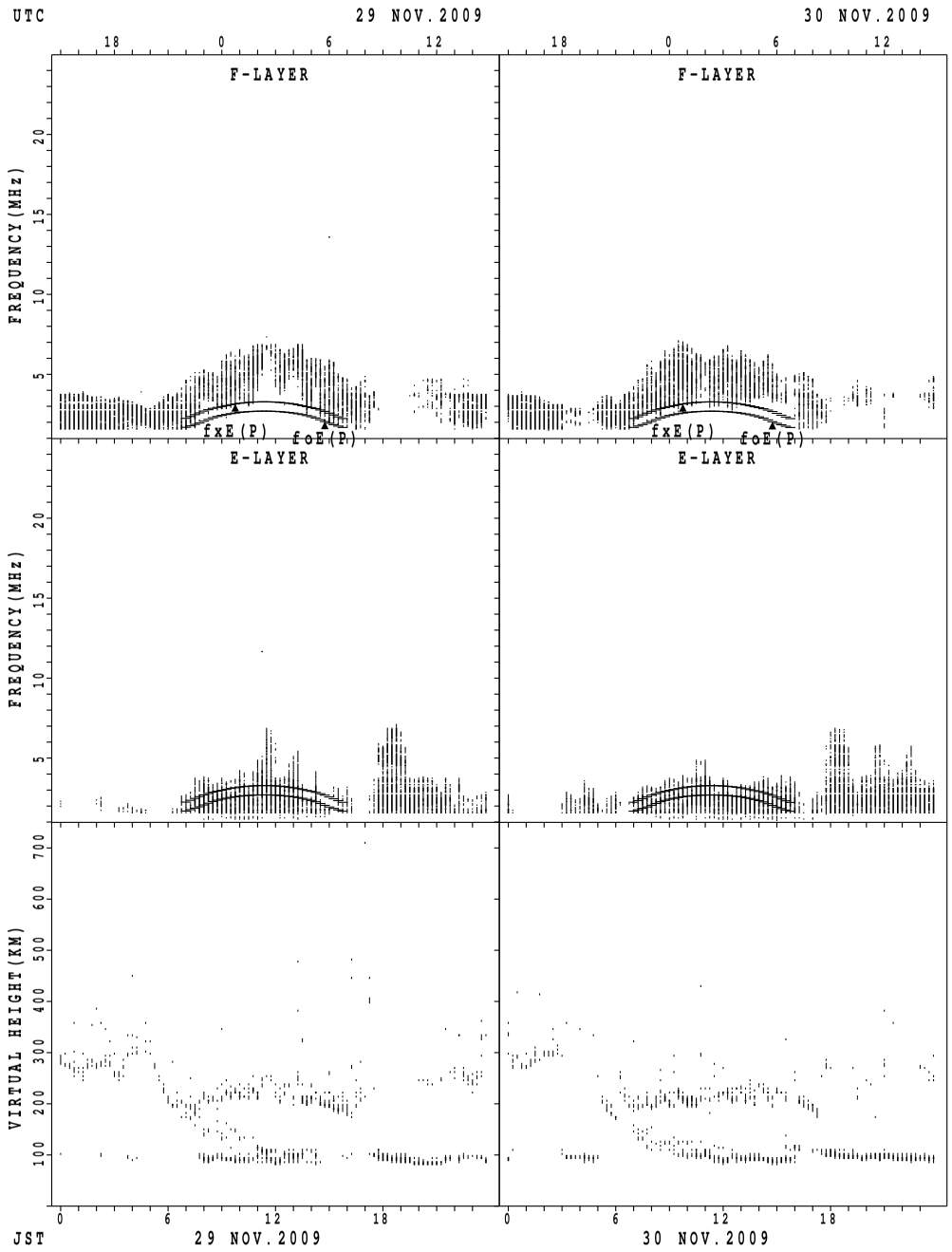
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



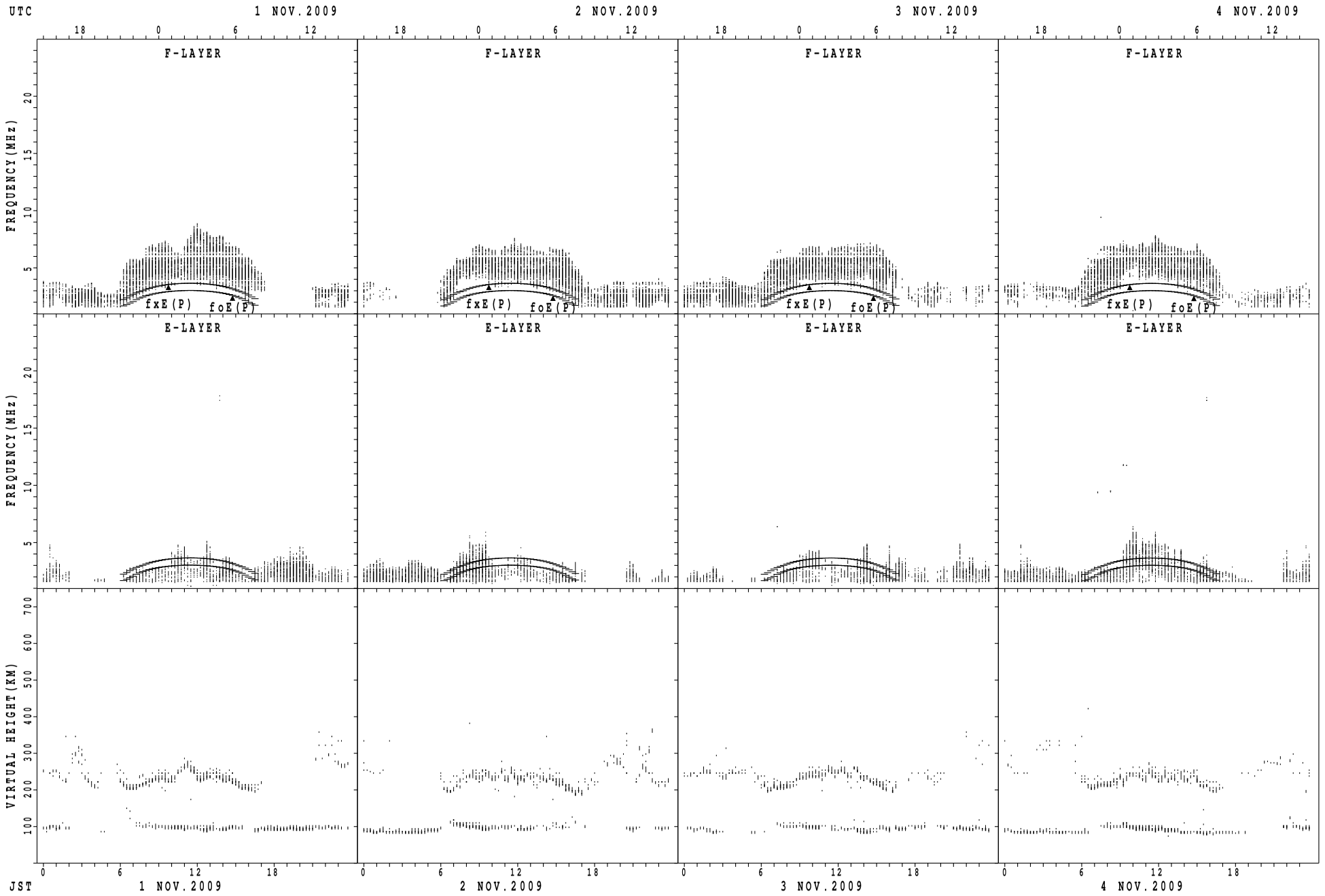
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



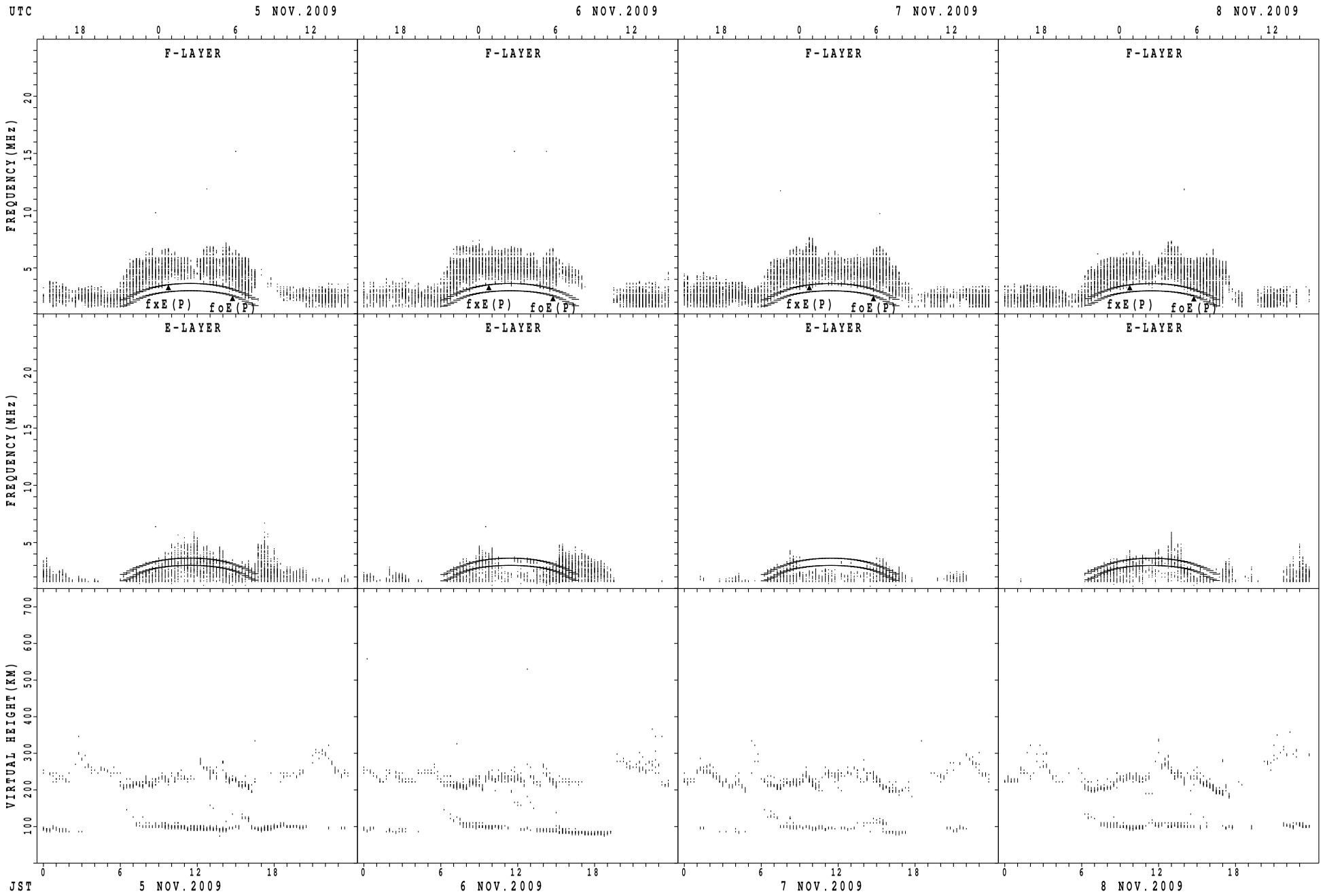
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



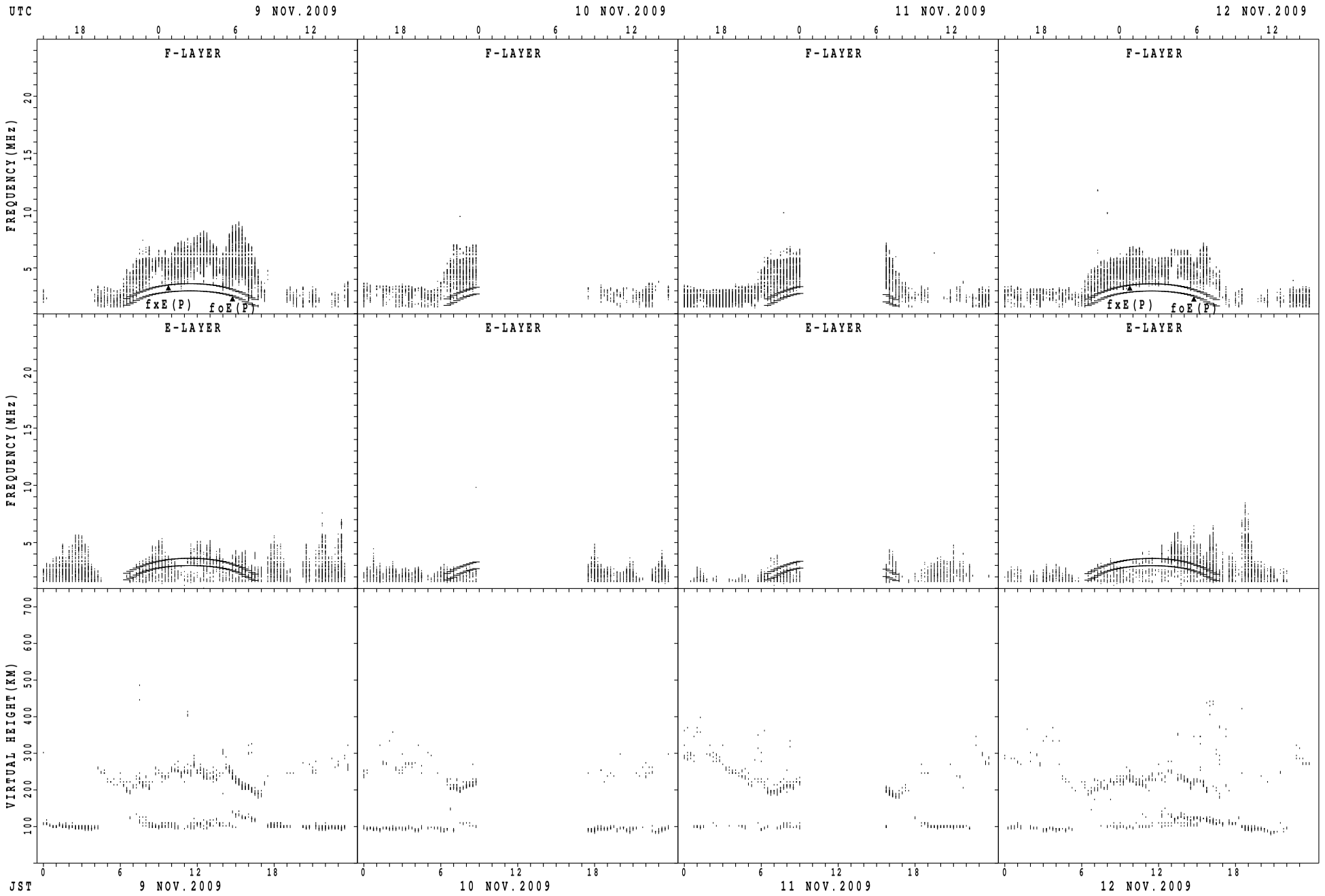
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



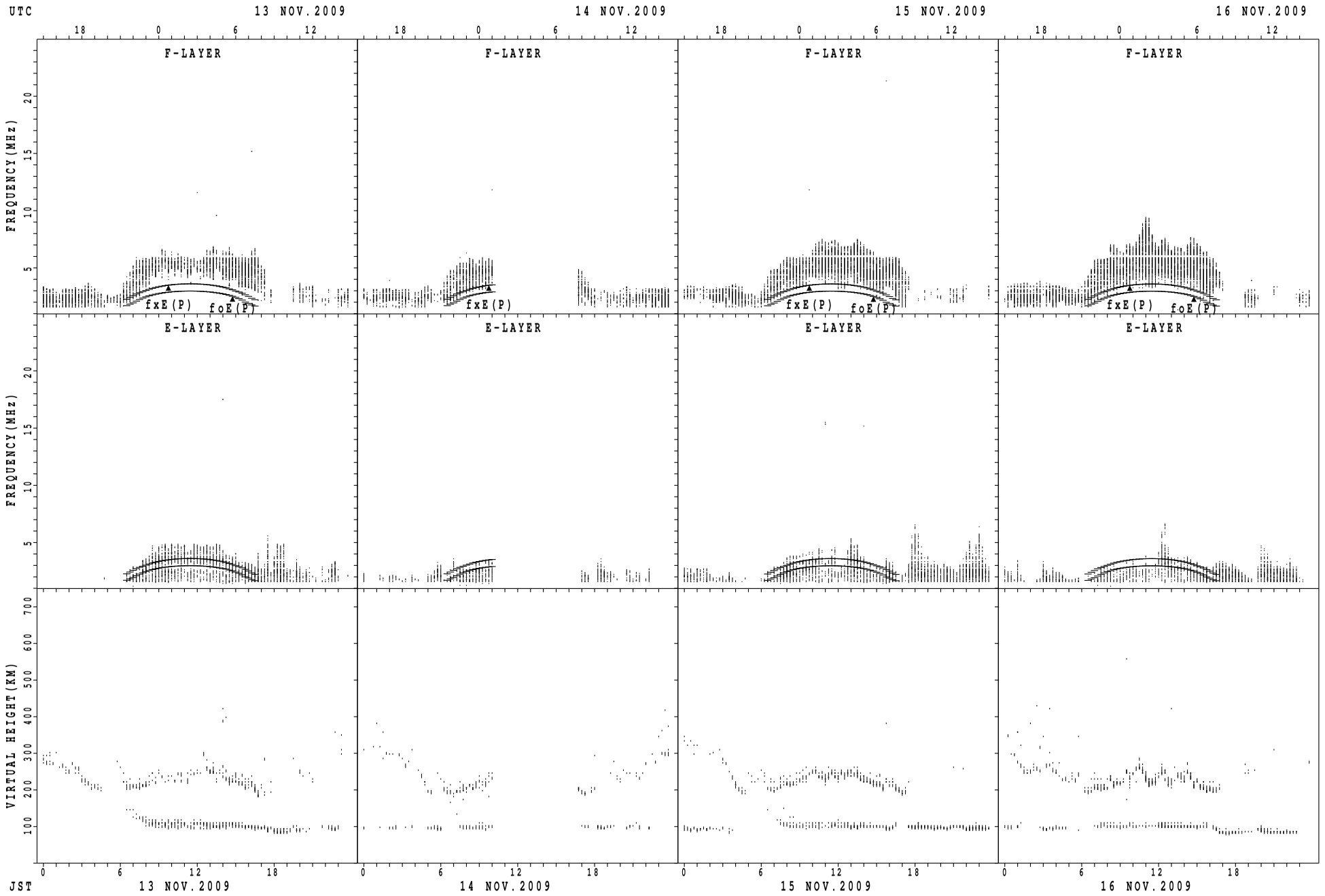
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



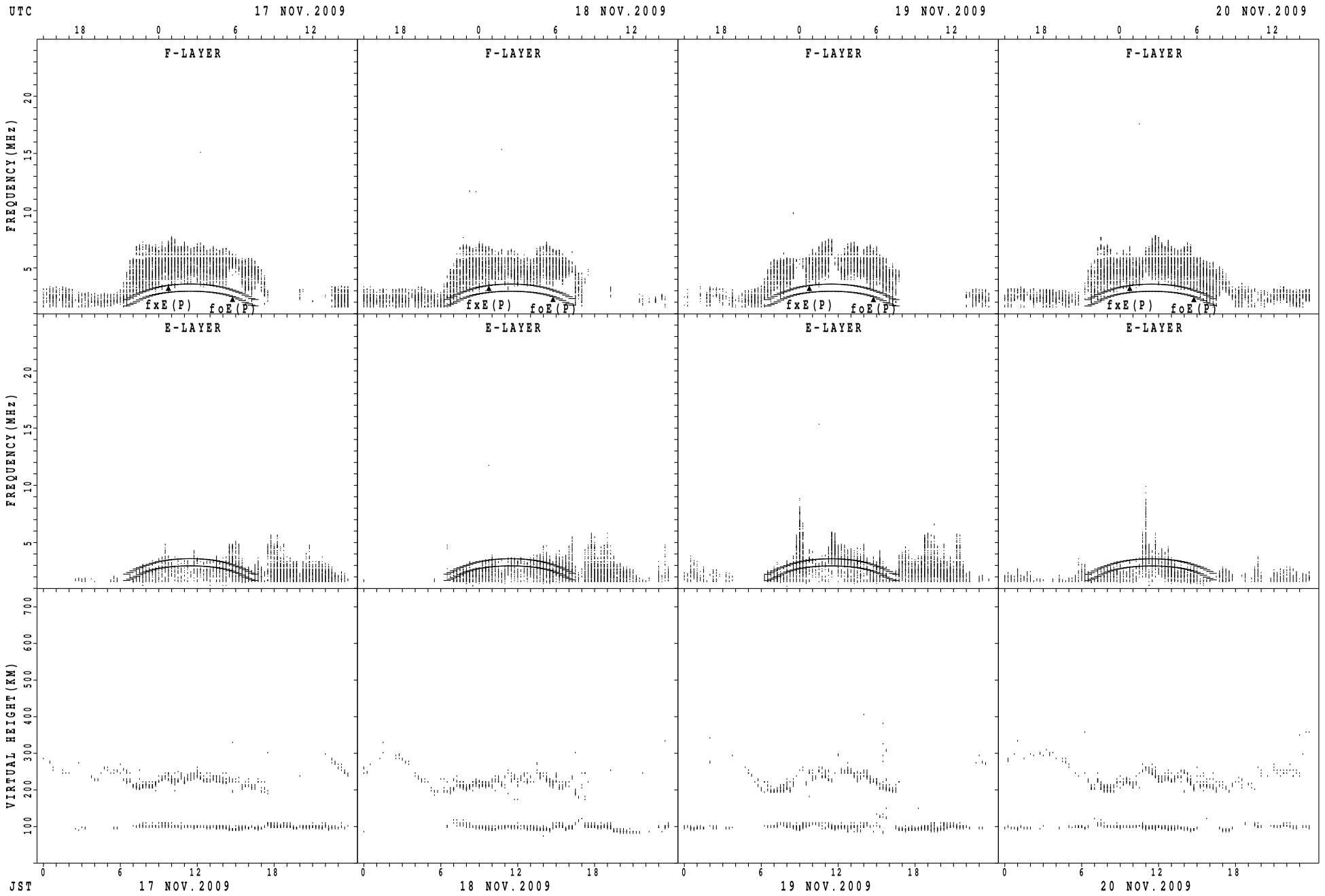
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



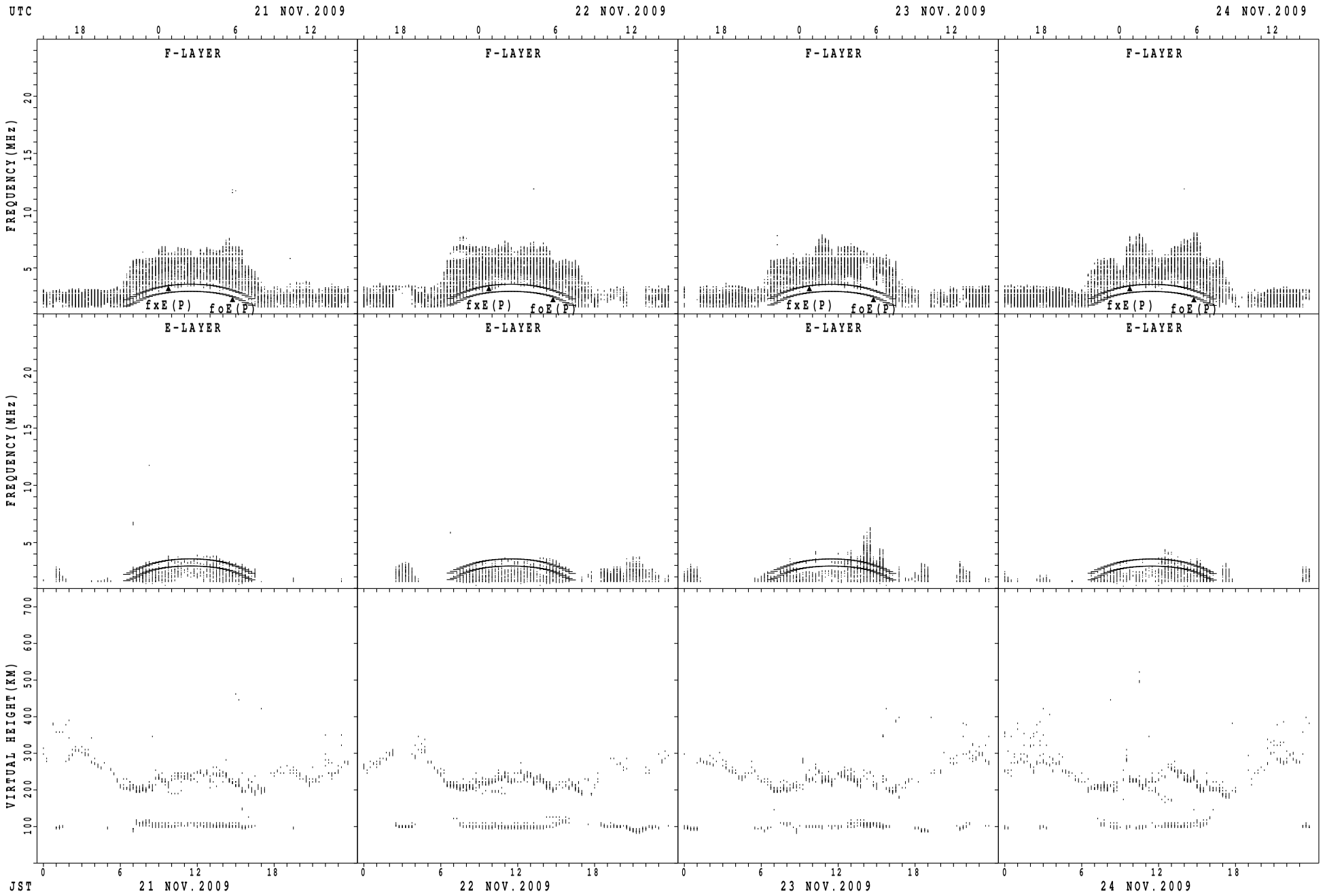
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



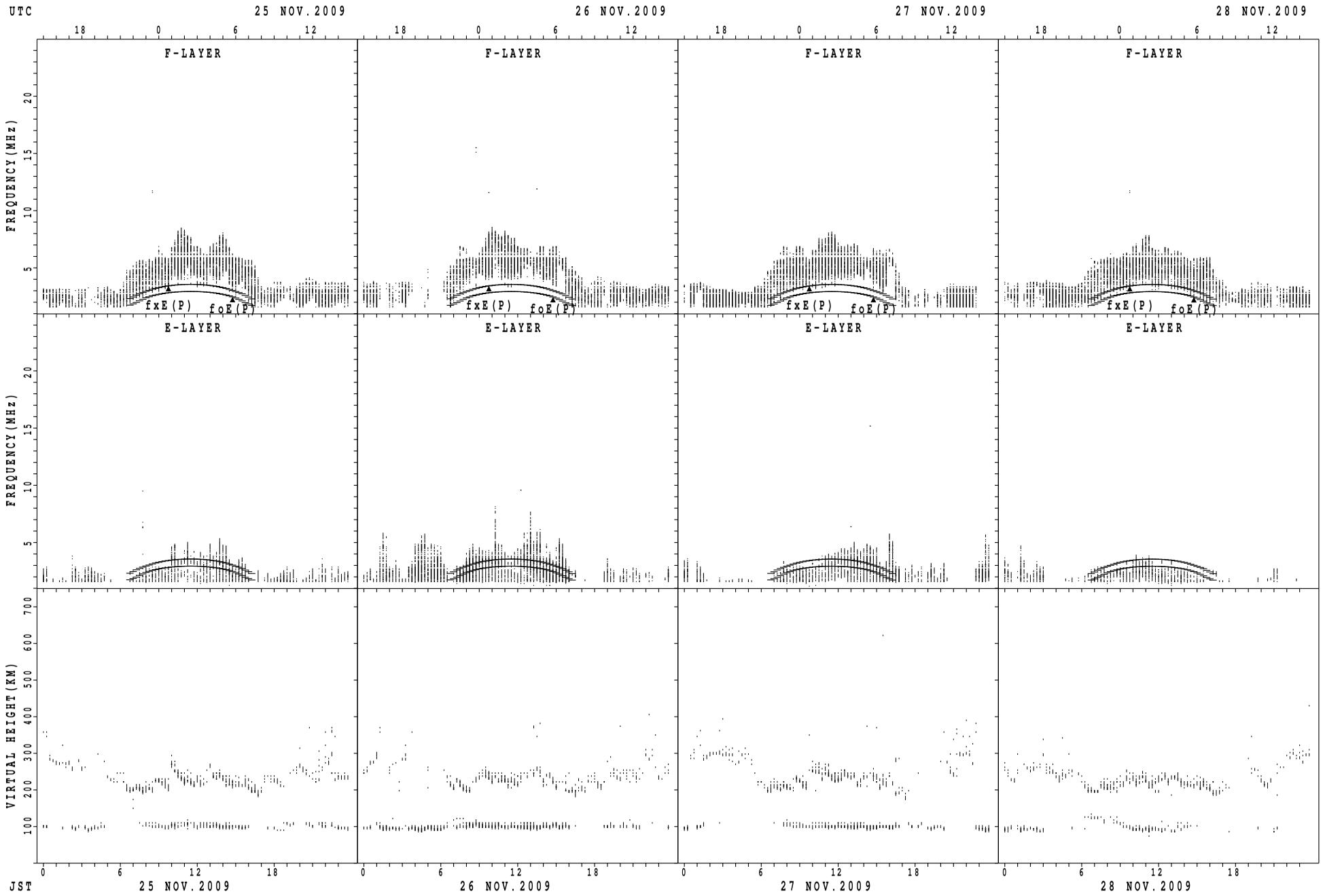
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



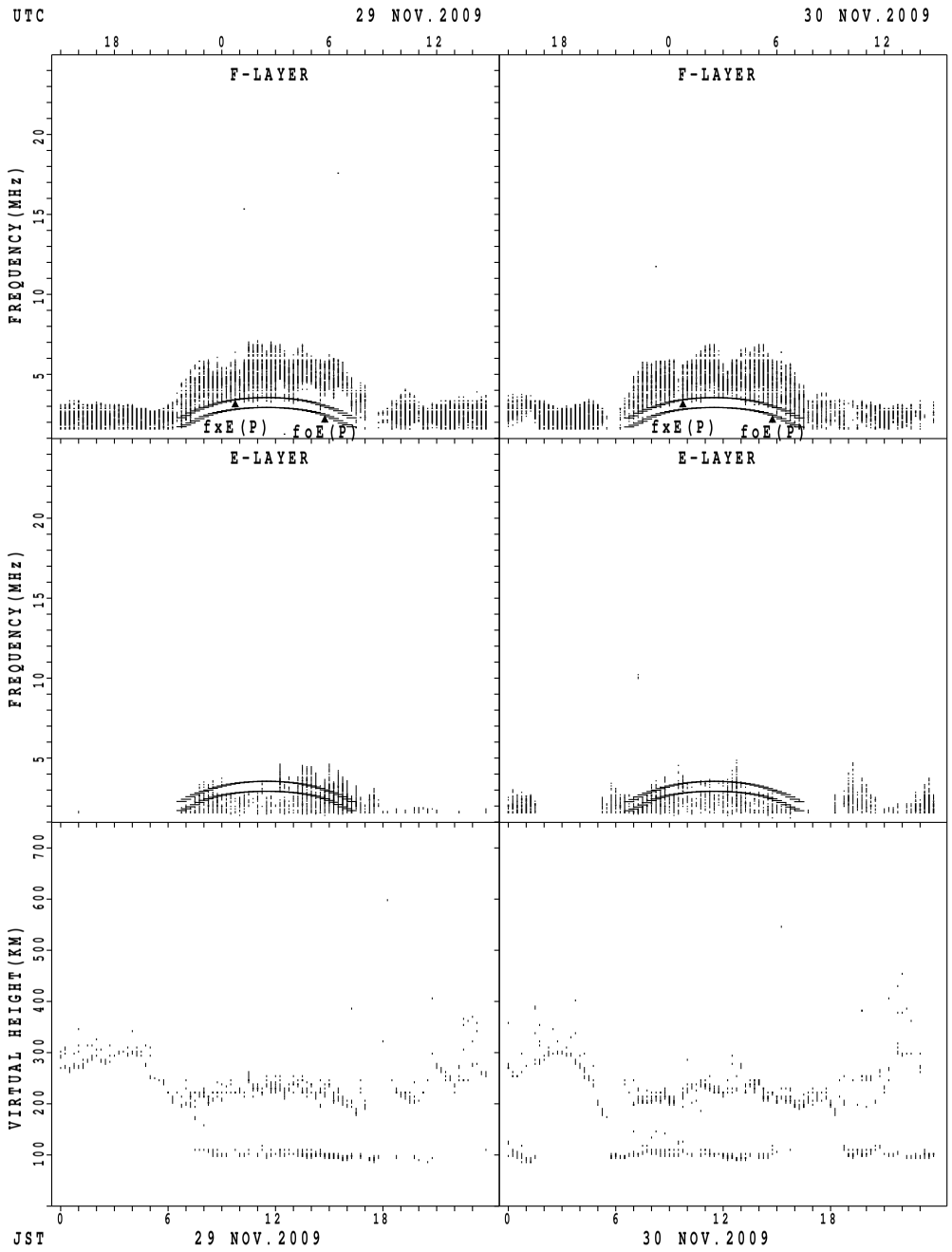
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



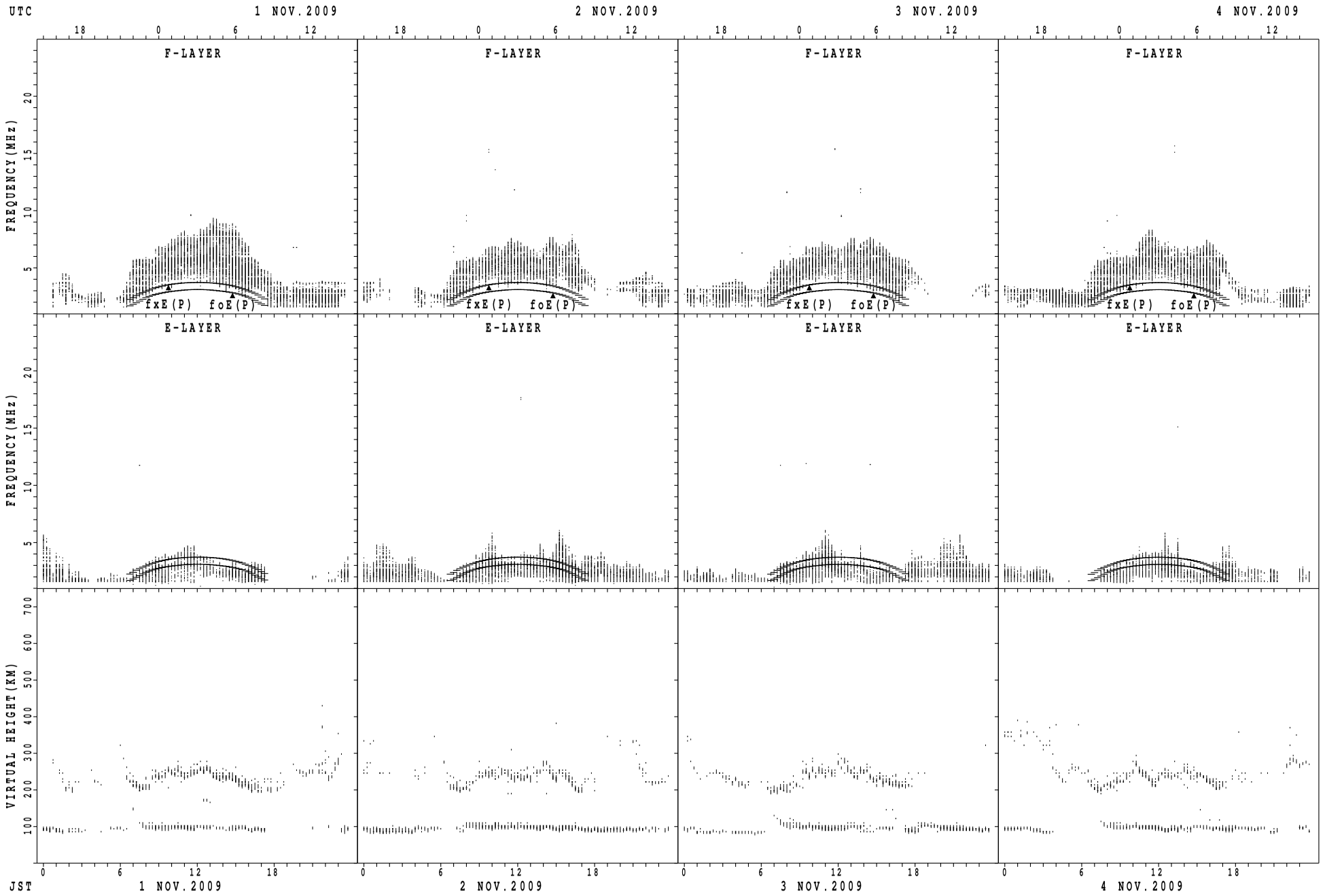
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



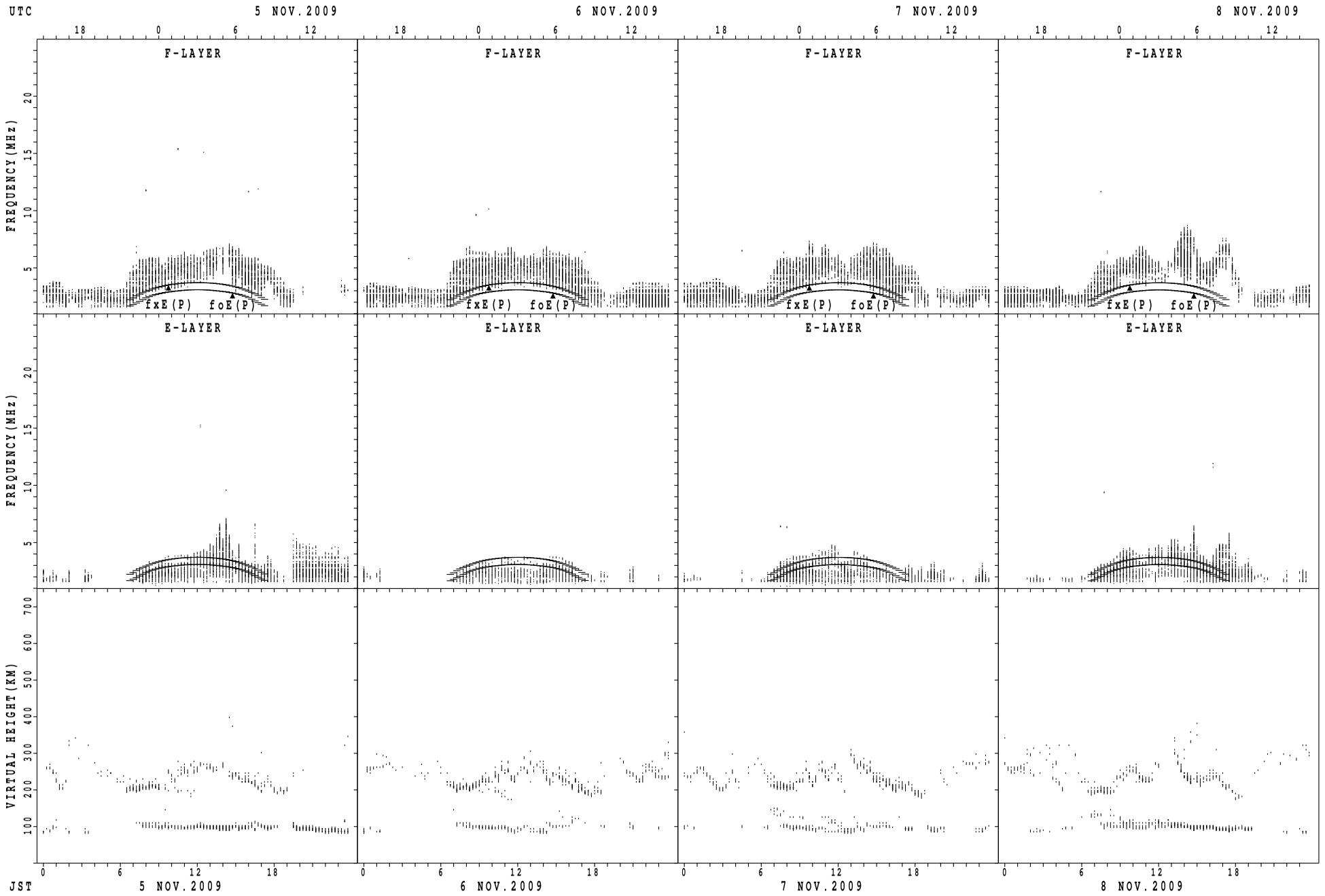
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



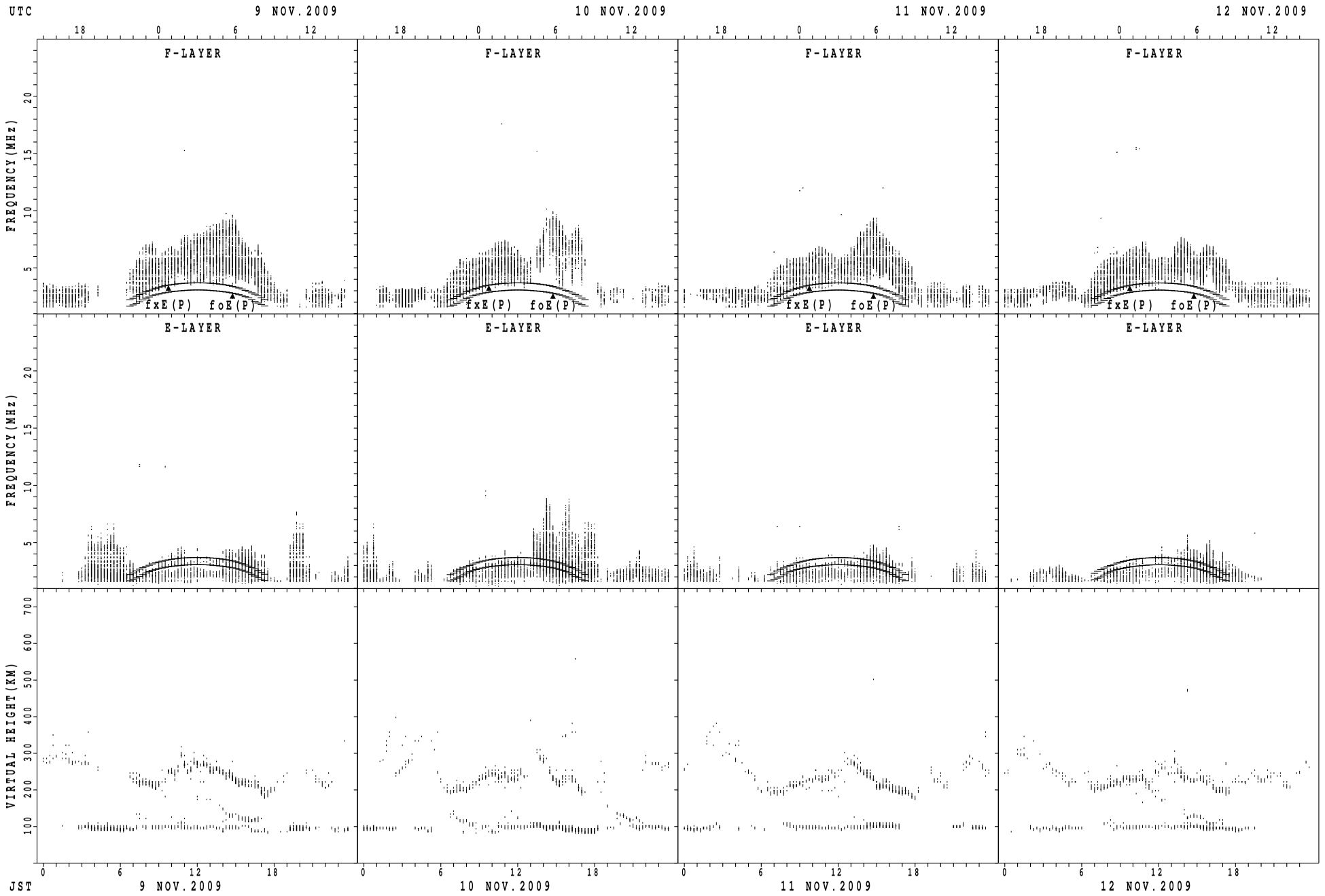
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



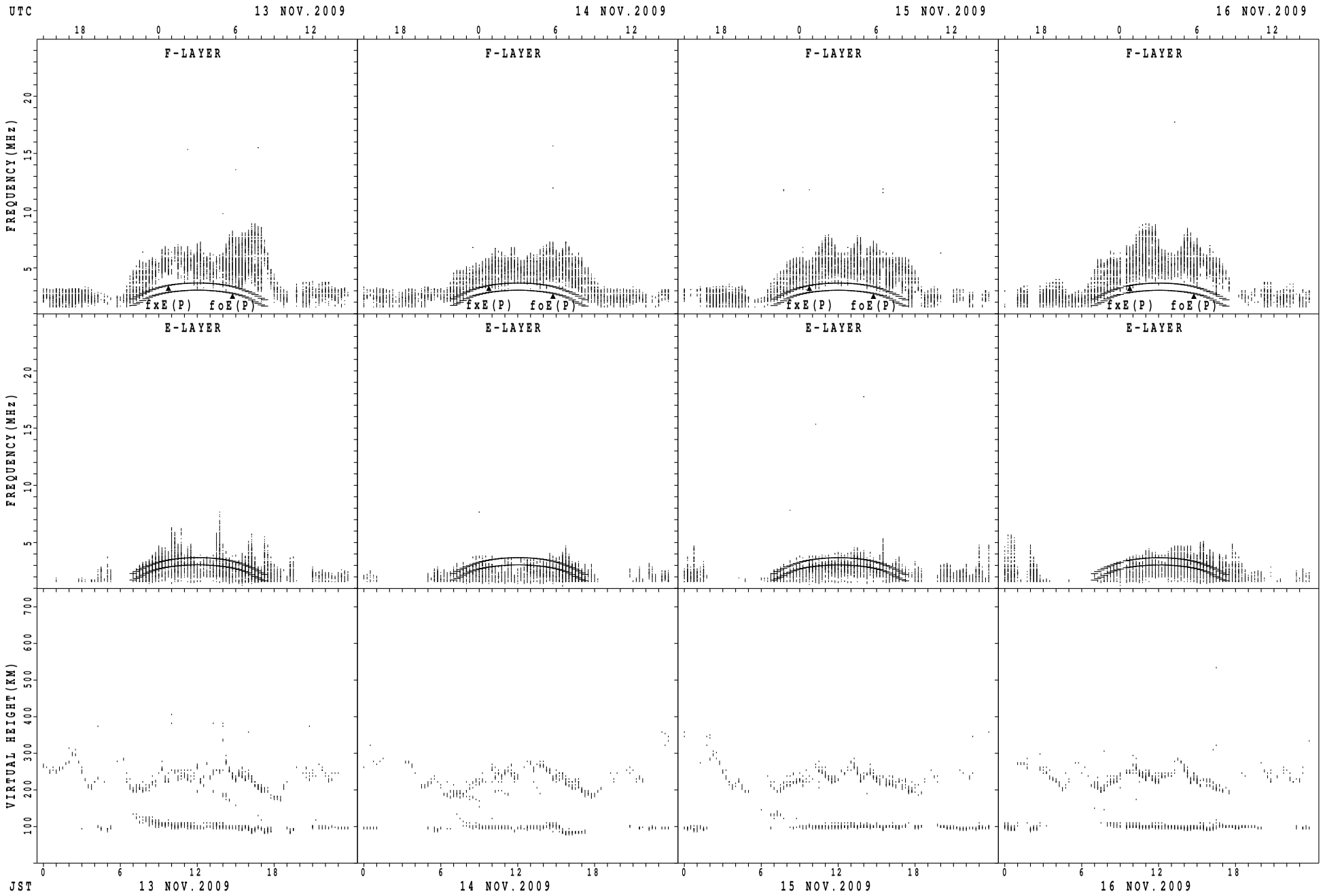
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



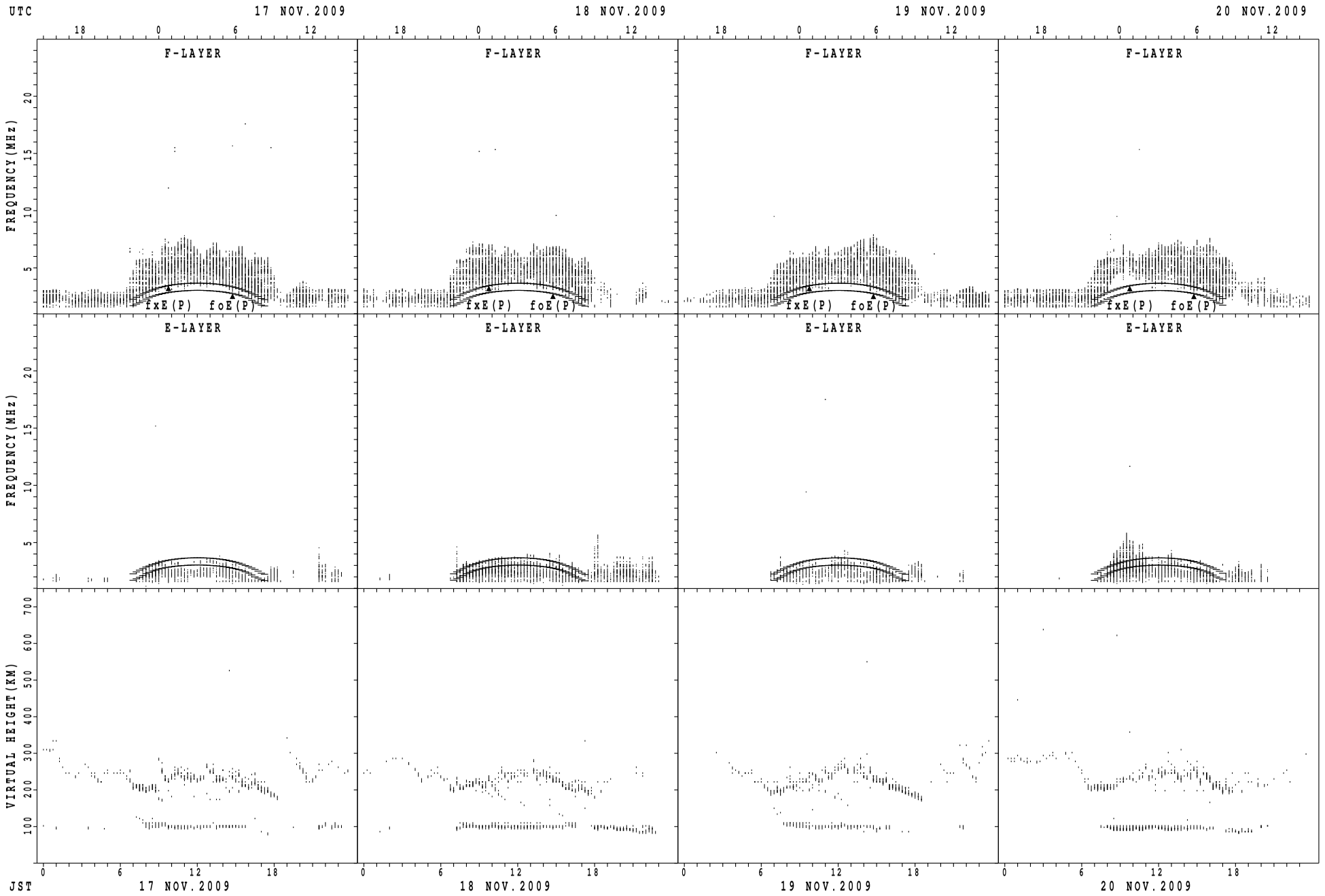
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



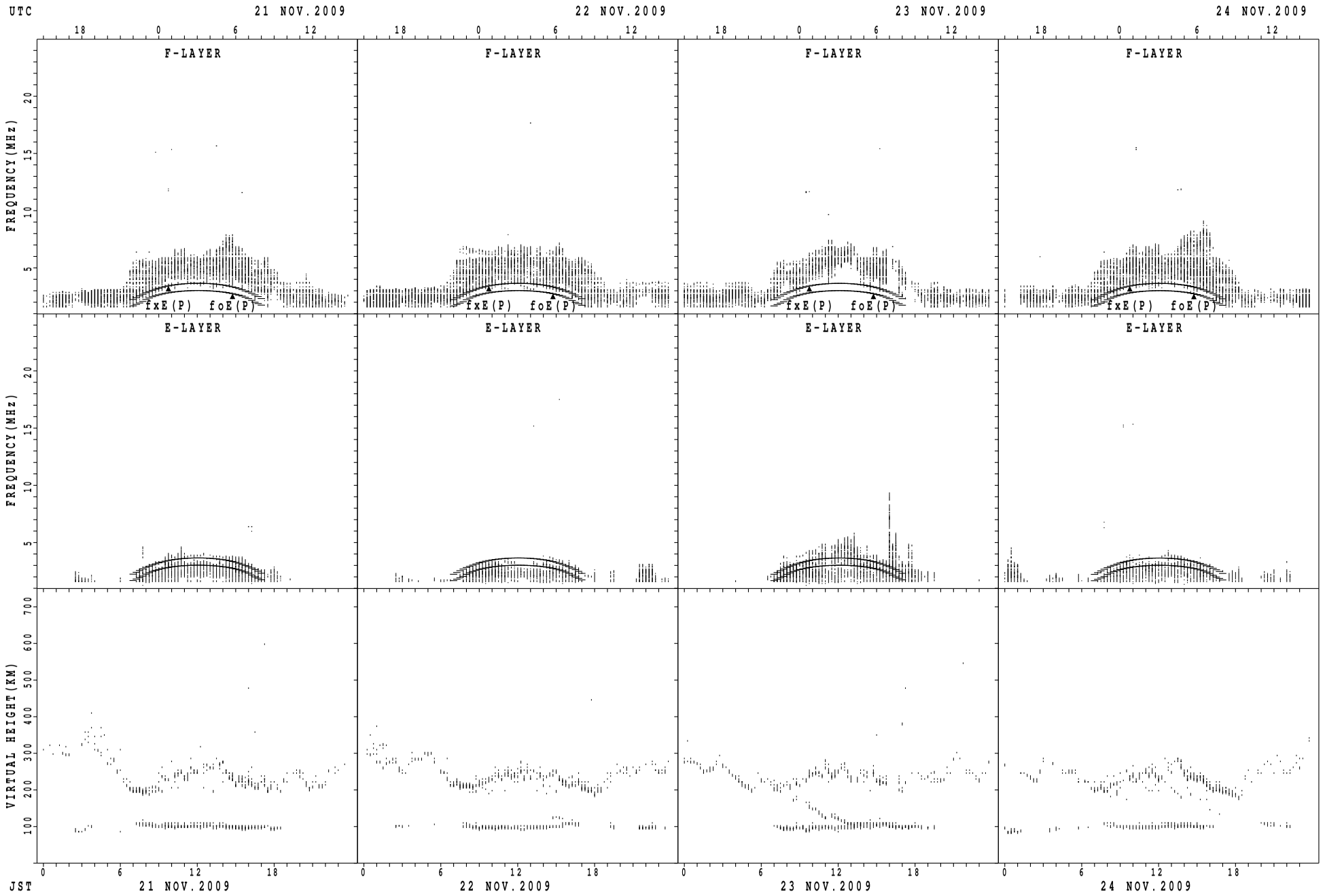
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



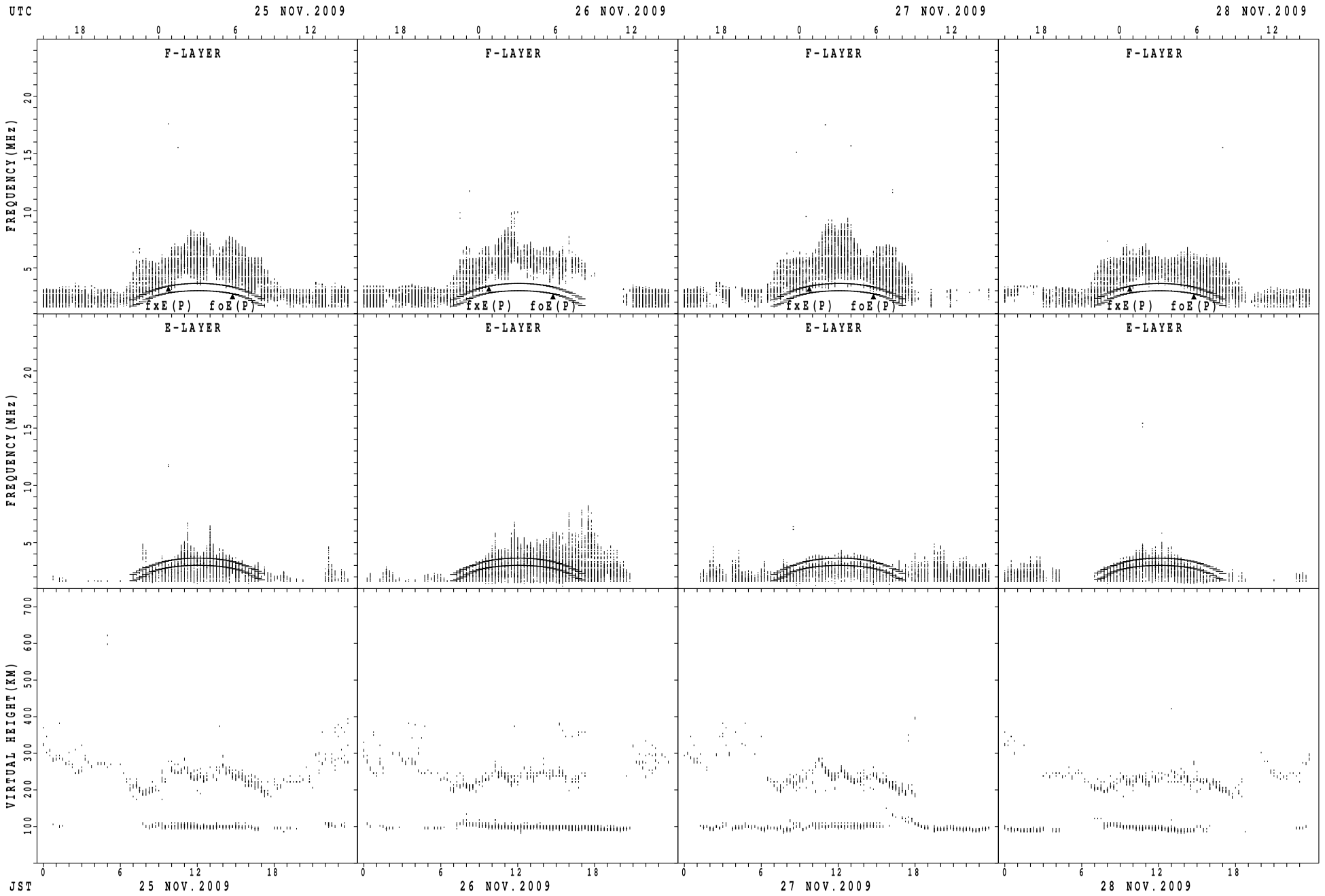
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



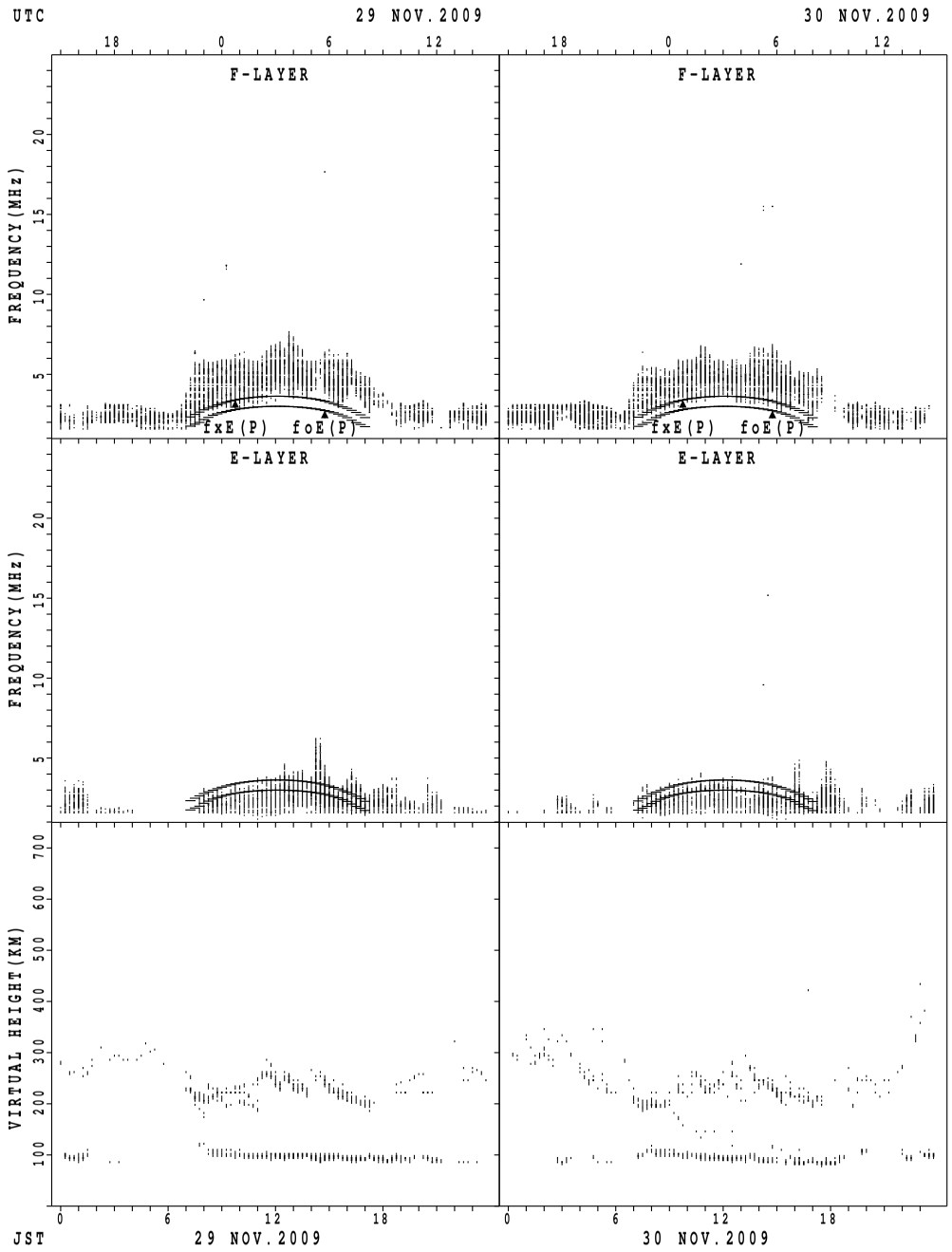
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



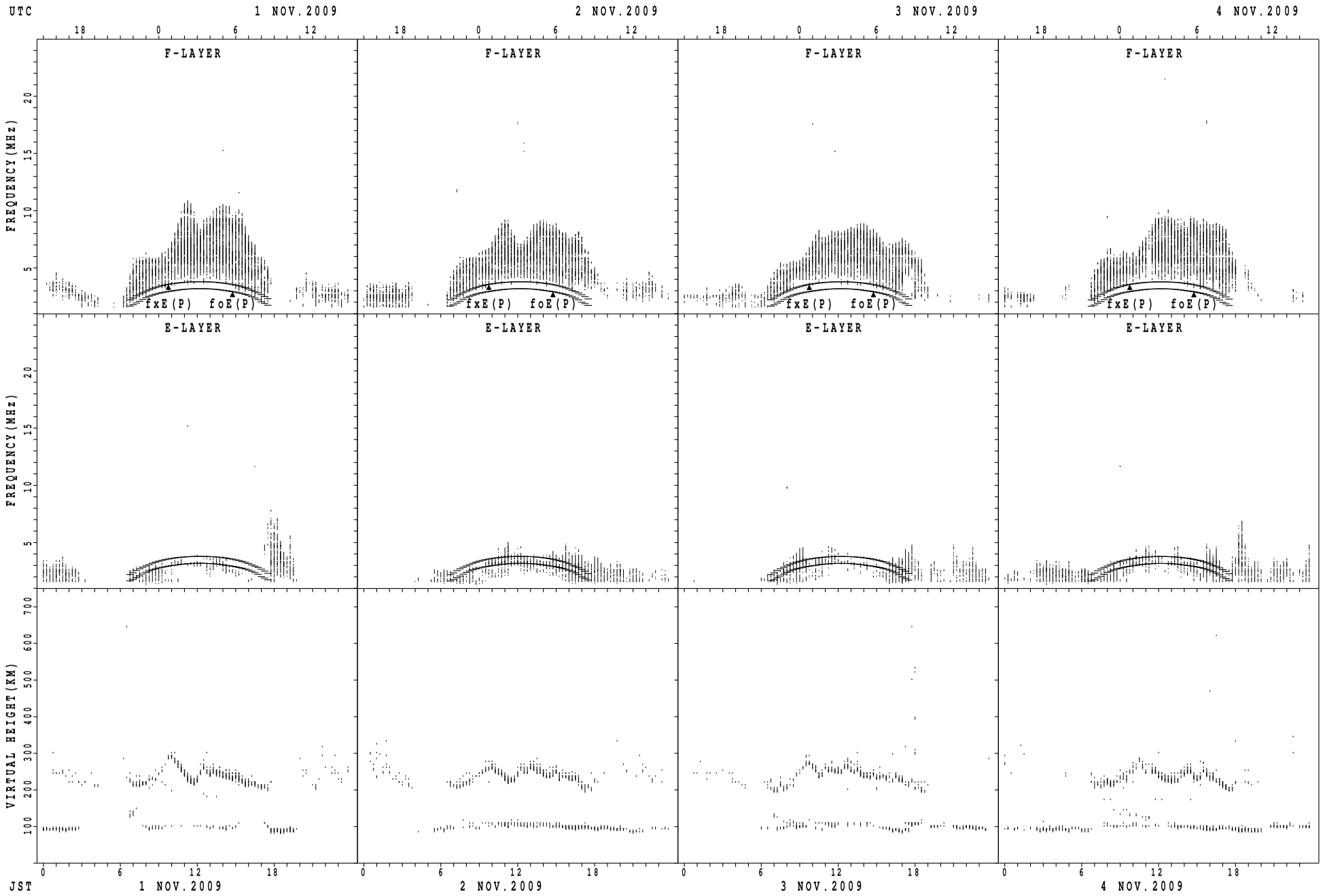
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



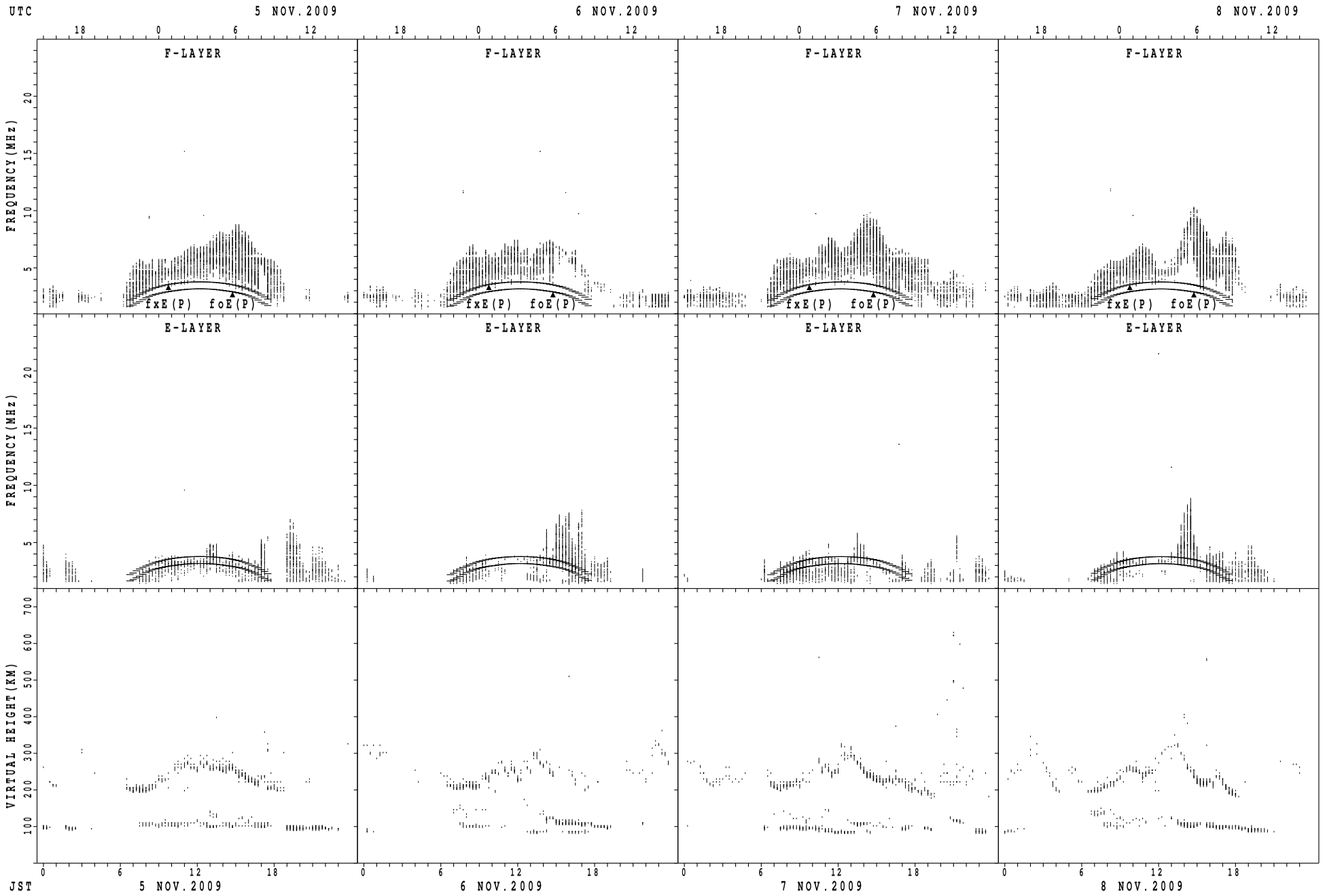
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



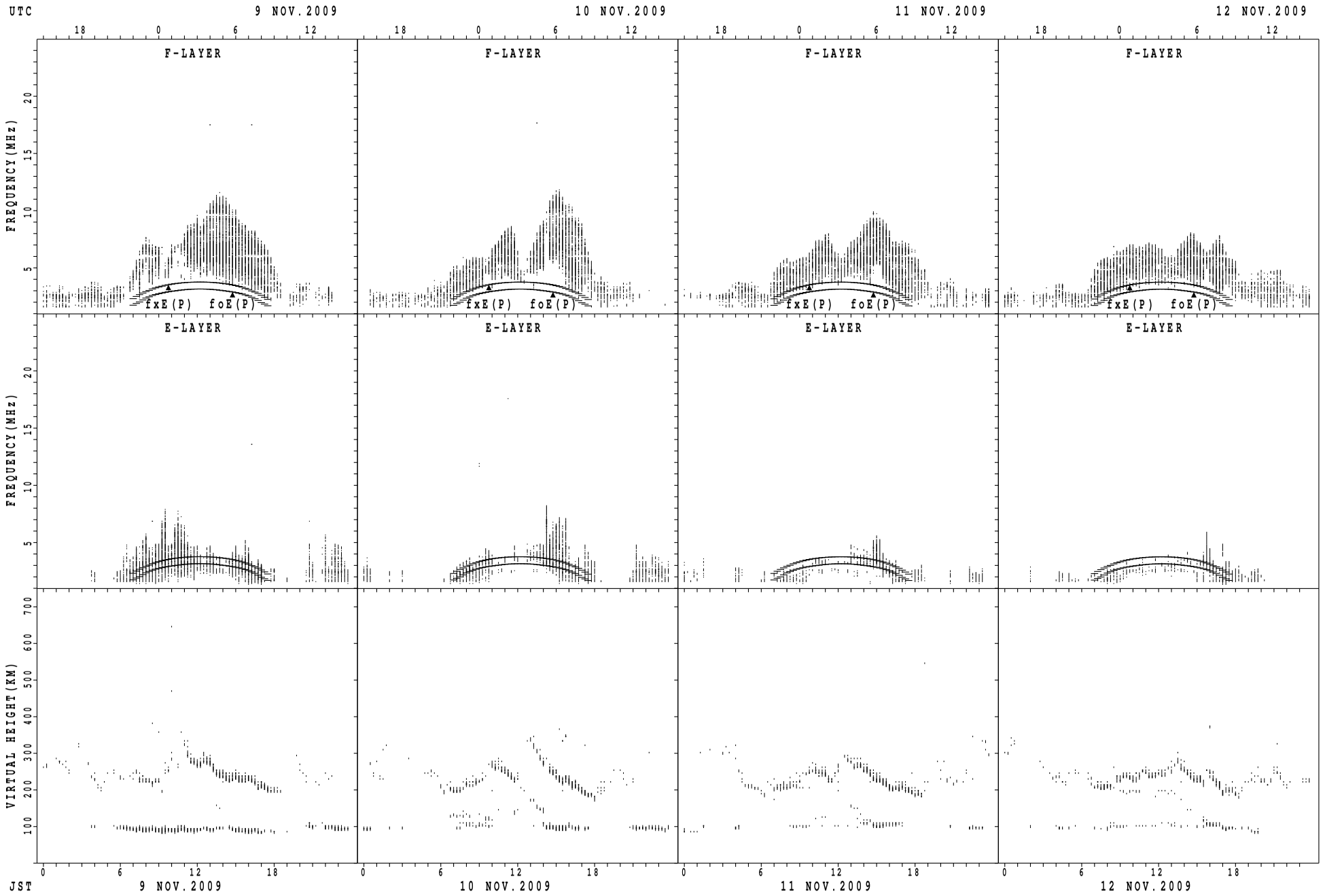
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



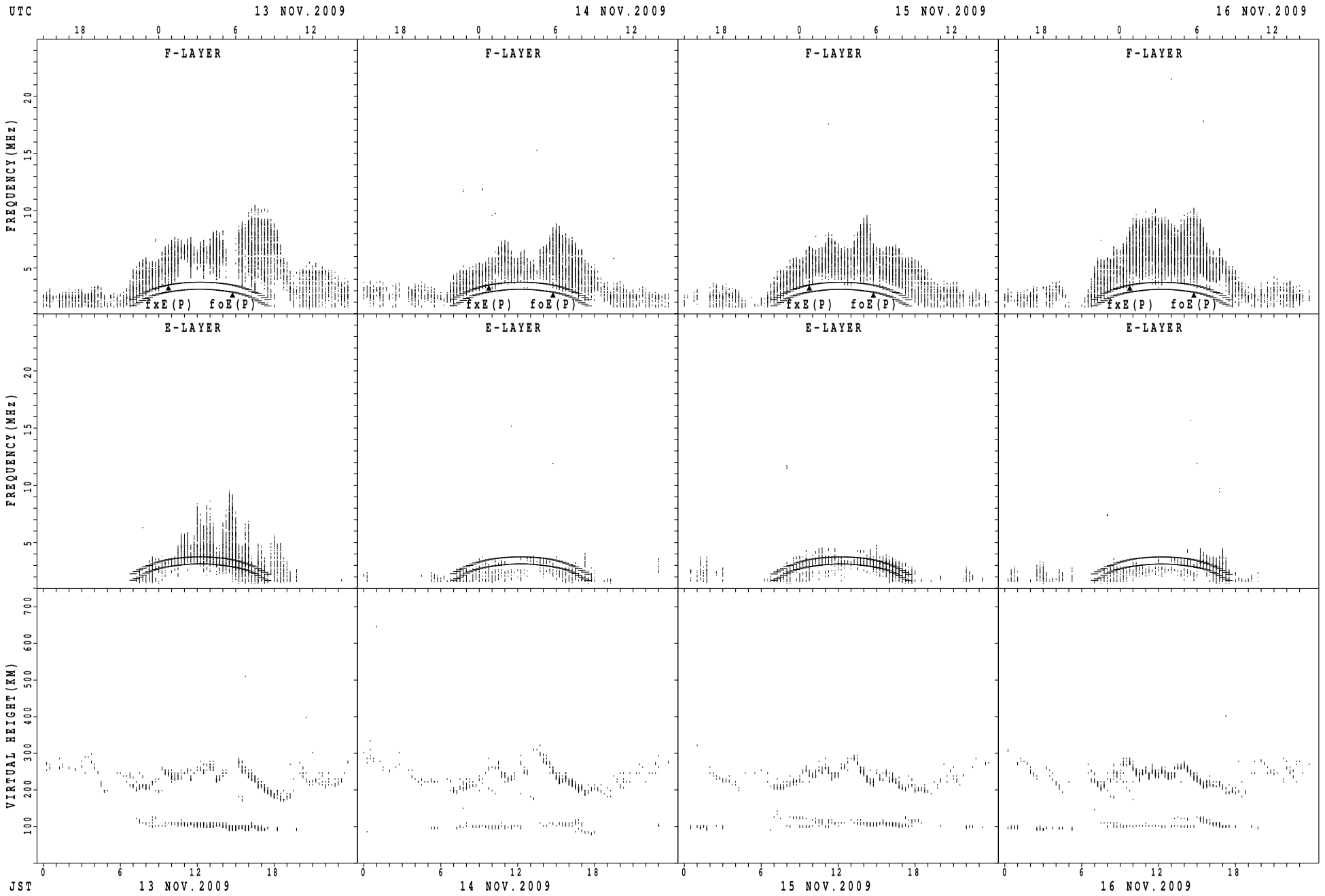
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



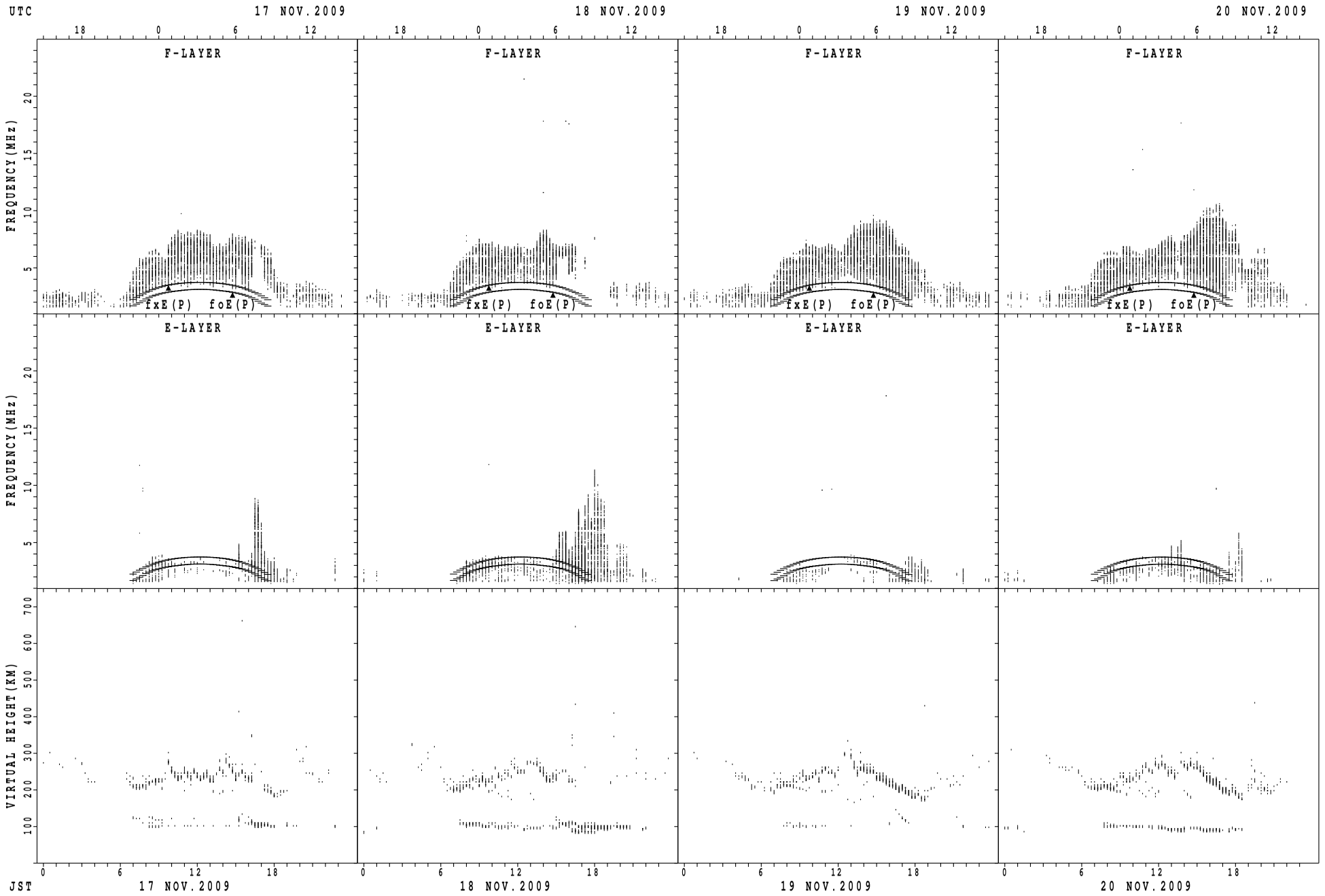
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



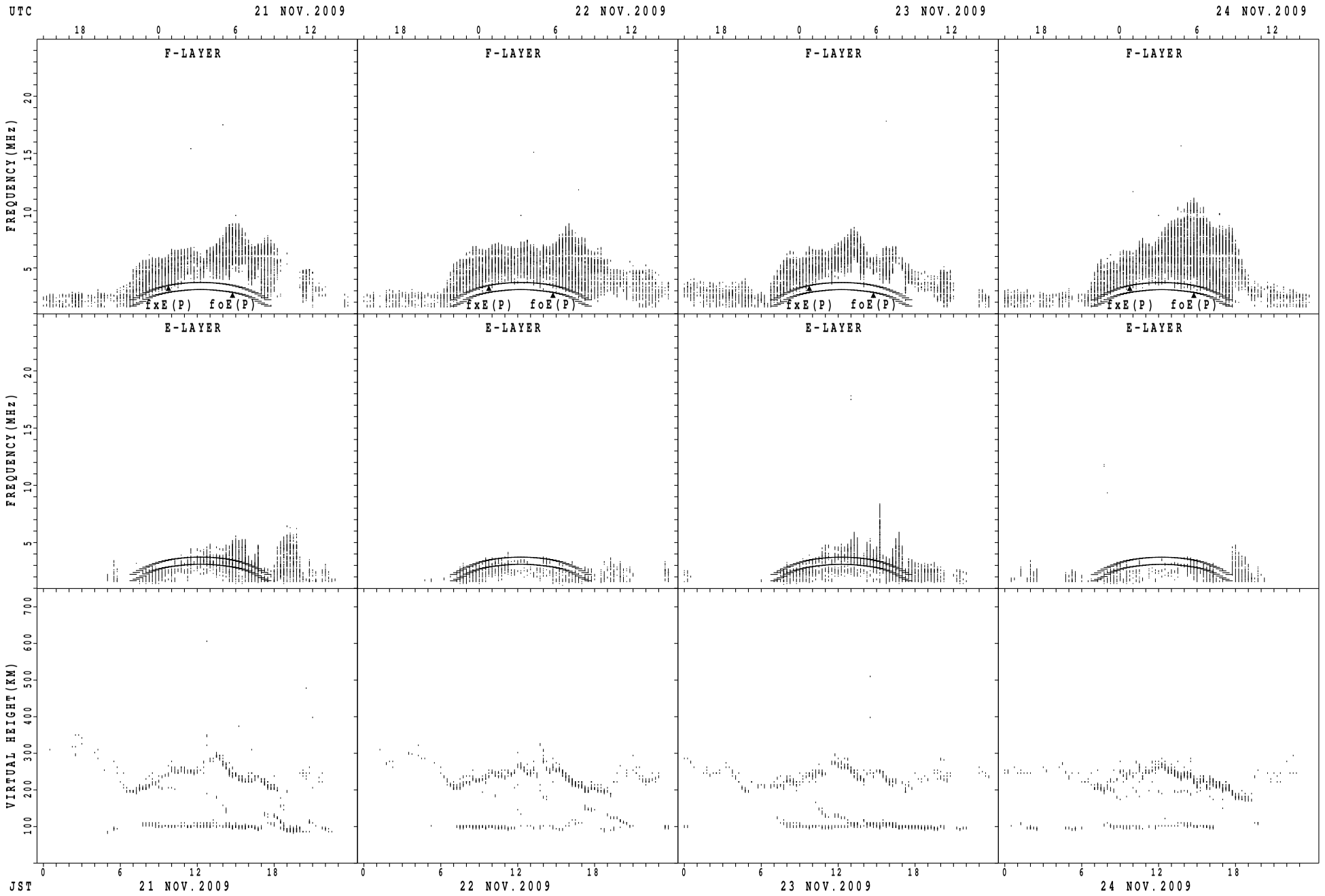
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



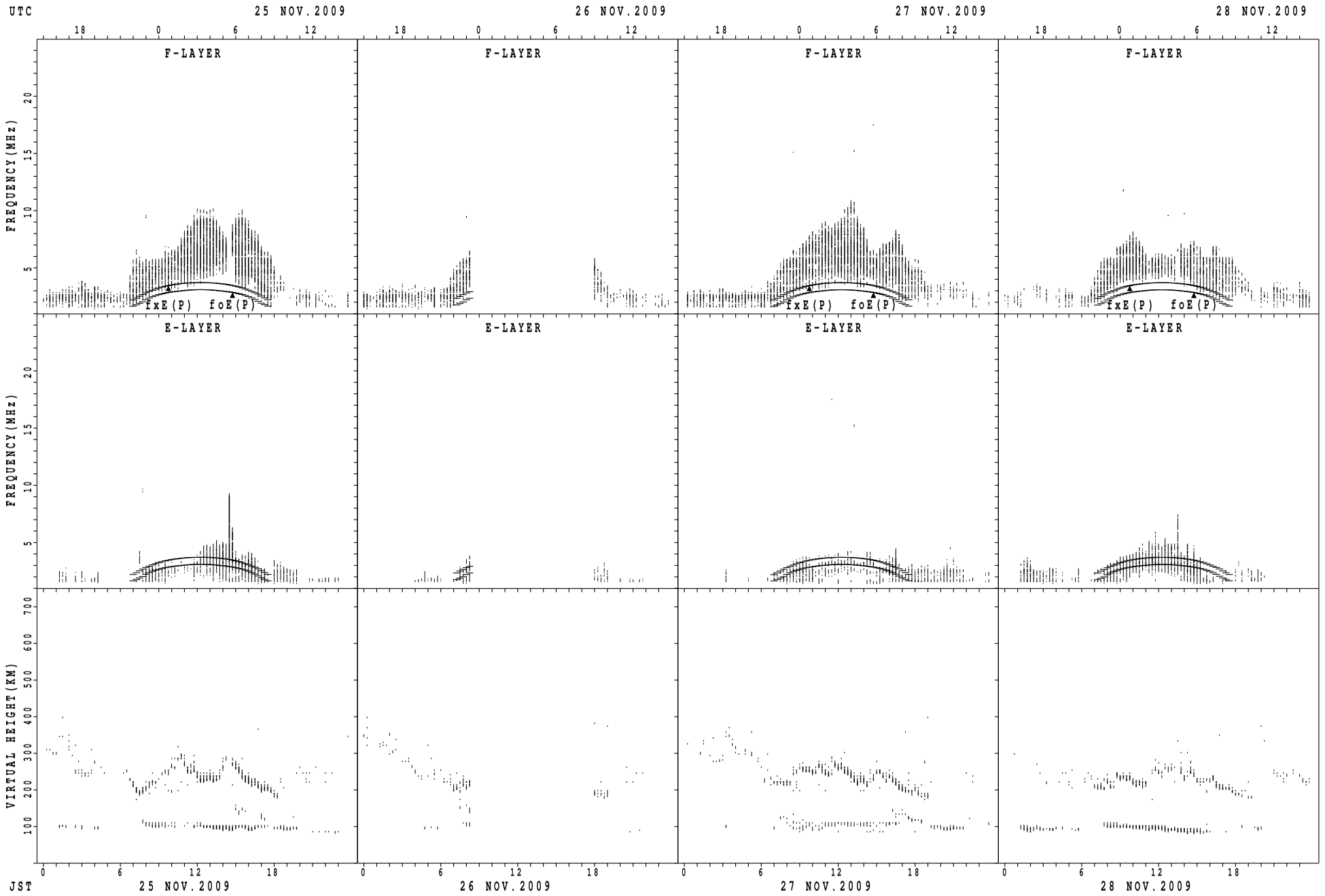
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



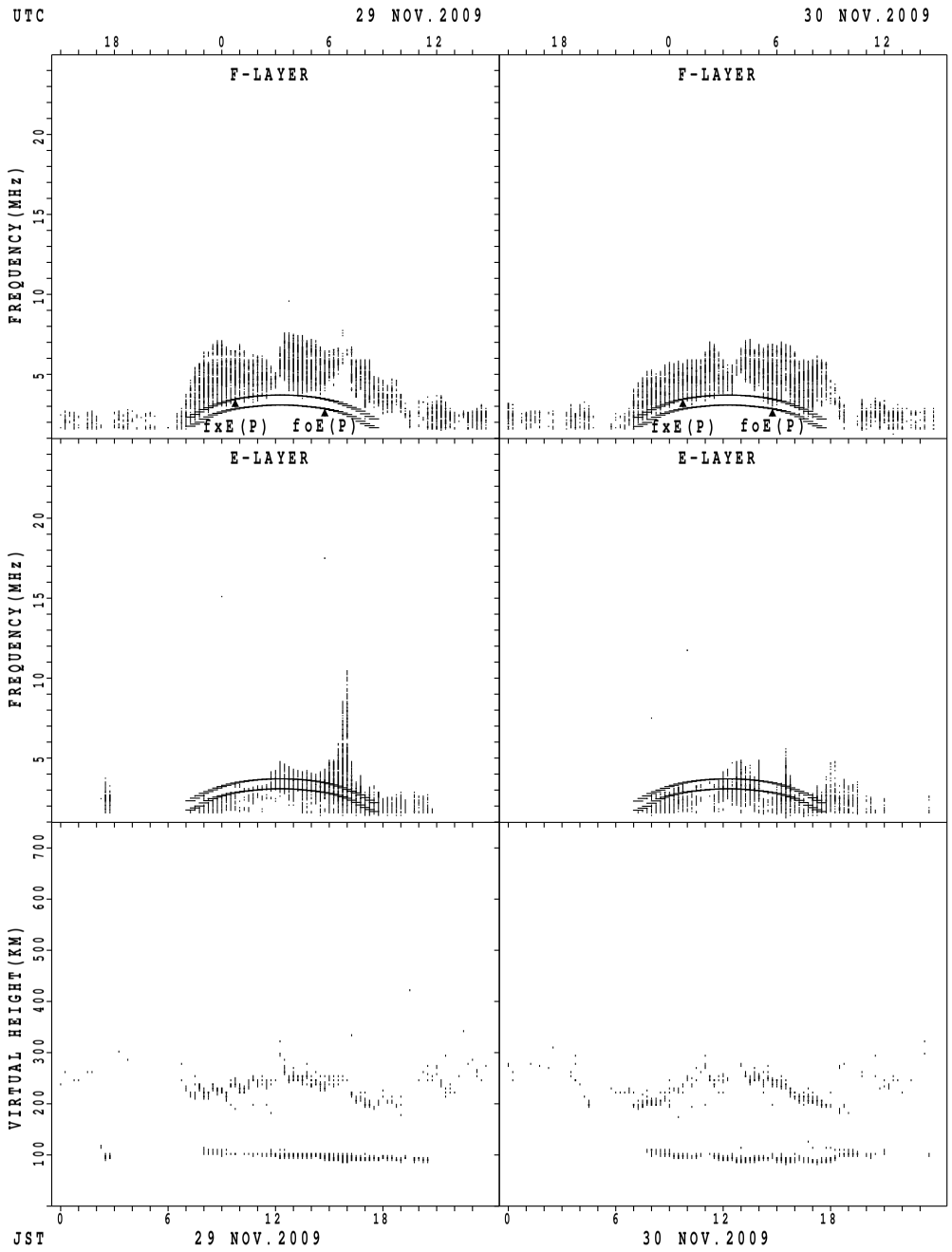
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

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.2009 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	5	14	19	15	22	16	10	9								
MED								216	218	223	230	238	230	232	242	228								
U Q								108	224	230	240	240	238	250	254	231								
L Q								108	212	216	222	226	222	224	234	211								

h′Es

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	13	13	6	9	8	12	12	15	22	27	26	25	22	26	23	22	22	18	19	24	23	15	12	11
MED	97	95	96	93	95	100	100	117	107	105	103	101	98	97	97	95	99	96	97	97	97	97	100	101
U Q	100	98	97	100	96	112	106	149	119	113	107	106	105	103	101	101	107	101	101	103	101	101	104	103
L Q	93	93	91	90	88	96	93	101	103	101	101	97	95	95	95	91	91	87	93	91	91	89	96	95

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								4	11	17	6			8	14	13	3							
MED								223	220	240	233			256	246	232	214							
U Q								228	228	250	238			269	258	232	222							
L Q								219	214	227	224			239	236	228	208							

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	17	17	13	9	8	4	9	11	10	10	12	12	16	19	20	17	18	17	16	19	17	17	16	15
MED	97	97	95	93	95	97	95	125	110	104	102	107	104	103	103	105	100	95	98	101	101	97	103	99
U Q	100	101	97	97	98	101	98	149	131	107	108	114	109	107	105	115	115	107	105	103	103	105	105	99
L Q	95	95	92	90	91	95	93	105	105	101	98	100	102	97	97	99	95	90	89	95	95	89	96	97

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									6	9	14				11	24	16	5						
MED									223	240	253				258	239	230	212						
U Q									234	244	264				272	244	239	220						
L Q									216	231	238				248	228	220	201						

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	14	13	13	8	8	10	5	12	16	17	16	17	18	20	19	19	20	18	19	14	14	14	14	11
MED	97	95	95	96	95	95	95	131	108	105	104	105	104	102	103	103	102	97	97	97	95	96	96	97
U Q	97	97	95	100	97	97	100	154	119	112	109	113	105	105	107	113	109	103	101	99	103	101	105	101
L Q	95	92	91	89	92	91	95	116	104	101	103	99	99	99	101	99	96	95	93	95	95	93	95	93

MONTHLY MEDIANS OF h′F AND h′Es

NOV.2009 135E MEAN TIME(UTC+9H) AUTOMATIC SCALING

h′F

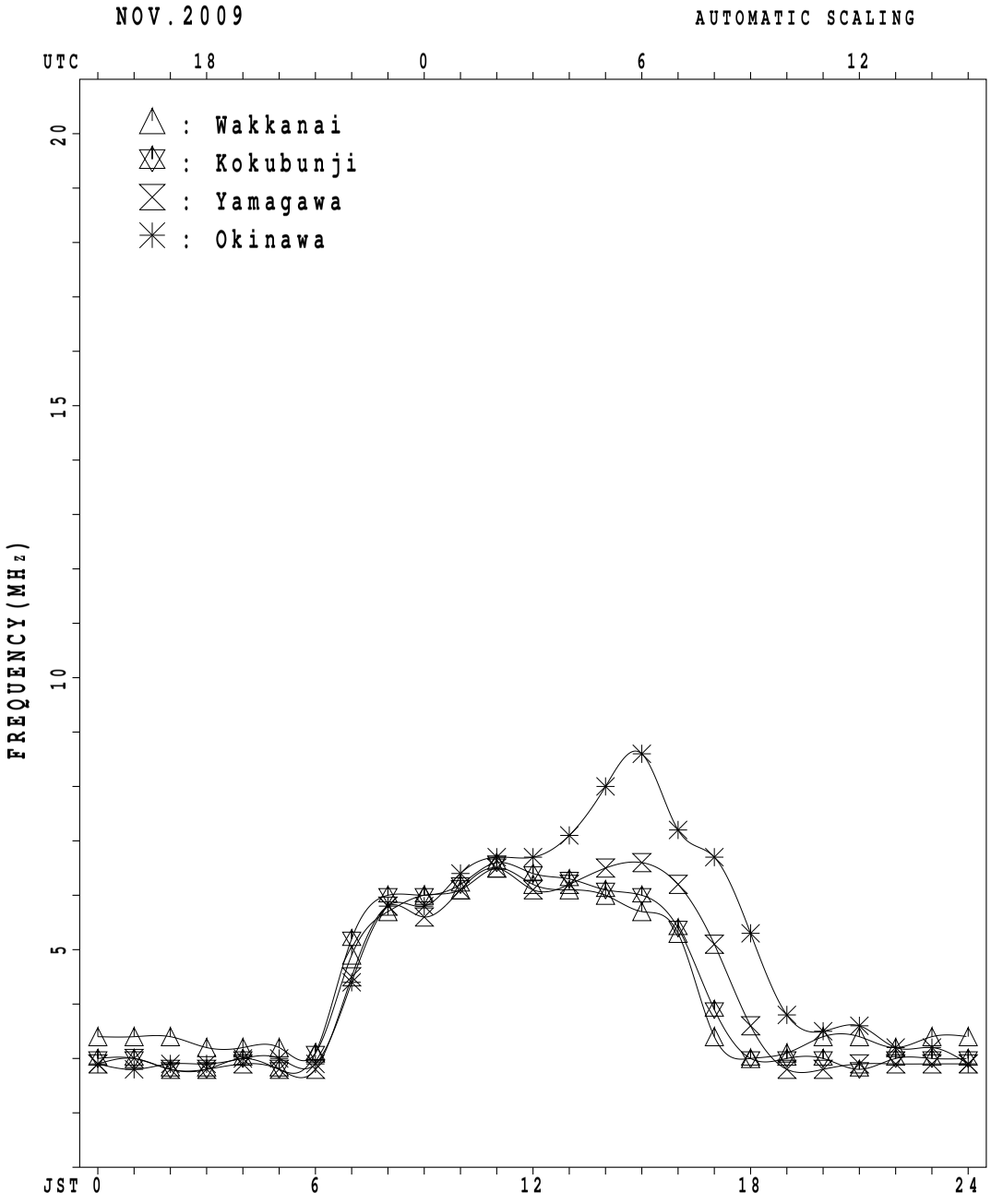
STATION Okinawa LAT. 26°41.0′N LON. 128°09.0′E

	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									6	8	13					25	25	18	4					
MED									225	239	248					236	232	215	215					
U Q									230	250	258					251	238	224	226					
L Q									220	230	233					229	222	214	200					

h′Es

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	6	5	5	6	4	4	3	9	9	14	10	10	15	19	15	16	22	22	19	17	10	10	8	8
MED	96	99	97	97	97	93	97	123	107	108	110	107	105	105	111	103	104	100	101	99	98	103	98	97
U Q	101	101	98	103	100	97	99	135	114	125	115	113	111	123	125	109	111	103	107	106	103	107	103	102
L Q	91	96	93	95	96	89	93	97	105	103	101	99	97	101	103	95	97	95	95	95	95	99	96	96

MONTHLY MEDIANS PLOT OF foF2



IONOSPHERIC DATA STATION Kokubunji

NOV. 2009 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 39	X 42	X 36	X 36	X 36	X 29												X 49	A	X 38	A	X 35	X 37	41
2	X 39	X 38	X 35	X 34	X 35	X 29												X 46	X 38	X 37	X 40	X 42	44	X 42
3	X 37	X 40	X 42	46	43	X 35												X 44	X 35	X 40	X 39	X 34	X 36	X 36
4	39	X 38	X 38	X 36	X 35	X 33												X 44	X 33	X 33	X 34	X 34	X 36	X 37
5	X 40	X 40	X 36	X 34	X 36	X 33												A	X 43	X 38	X 36	X 37	X 38	X 40
6	X 42	X 42	X 42	X 42	X 39	X 39												X 48	A	X 35	X 38	X 39	43	X 40
7	X 46	47	X 44	44	X 39	36												X 46	X 30	X 36	X 38	X 37	X 36	X 36
8	X 38	X 38	X 37	X 36	X 36	X 31												X 59	X 34	X 32	X 35	40	X 37	X 35
9	X 35	X 34	A	A	X 34	X 36												X 44	A	X 37	X 34	X 38	A	X 39
10	X 40	X 36	X 36	38	X 36	X 33				C	C	C	C	C	C	C	C	C	A	X 35	X 35	X 37	X 39	X 41
11	38	34	X 36	35	38	X 35					C	C	C	C	C	C		X 44	X 34	X 38	X 35	X 37	X 36	X 34
12	X 36	X 35	X 36	X 33	X 33	X 34												A	X 32	A	X 37	X 34	X 35	X 35
13	X 35	X 34	X 34	X 34	X 35	X 27												X 54	A	X 30	X 39	X 35	X 34	X 34
14	X 34	X 32	X 32	X 33	X 33	X 36						C	C	C	C	C	C	X 49	X 35	X 32	X 34	O X 36	X 34	X 34
15	X 34	X 36	X 34	X 34	X 38	X 30											X 61	X 53	A	X 36	X 36	X 35	X 35	A
16	X 36	40	X 39	X 39	X 37	X 33												X 40	A	X 35	X 34	X 36	X 36	X 36
17	X 36	X 35	X 34	X 32	X 30	X 30												X 51	A	X 34	X 35	X 32	X 33	X 35
18	X 35	X 35	X 34	X 34	X 34	X 34												X 48	A	X 34	A	X 33	X 34	X 34
19	X 35	X 36	X 36	X 35	X 33	X 34												X 48		A	A	X 30	X 33	X 33
20	X 34	X 34	X 34	X 34	X 32	X 32												X 51	X 36	X 37	X 33	X 34	X 35	X 32
21	X 32	X 32	34	X 32	X 34	X 31												X 44	X 37	X 38	X 42	X 37	X 36	X 35
22	X 36	X 38	X 36	X 36	X 36	X 35												X 48	X 35	X 35	X 36	A	X 36	X 36
23	X 36	X 37	X 36	X 37	X 39	X 34												X 42	X 35	A	X 33	X 36	X 36	
24	X 37	38	37	36	37	X 33												X 60	X 30	X 34	X 32	34	36	35
25	X 34	X 35	X 35	X 33	X 33	X 35												X 37	X 41	X 38	X 41	X 44	X 39	X 39
26	X 40	43	X 40	X 40	X 36	X 37												X 45	X 45	X 41	X 43	X 37	X 32	X 39
27	X 36	X 40	38	X 32	34	X 30												X 40	X 28	X 34	X 34	43	37	X 35
28	X 40	X 35	X 42	42	45	X 36												X 42	X 31	X 37	X 42	X 36	X 37	36
29	37	37	X 34	X 33	X 32	X 28												X 46	X 30	X 40	X 35	X 35	39	35
30	44	45	37	35	39	35												X 42	X 46	X 35	X 33	X 30	34	37
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	30	29	29	30	30											1	27	20	27	27	29	29	28
MED	X 36	X 37	X 36	X 35	X 36	X 34											X 61	X 46	X 35	X 36	X 35	X 36	X 36	X 36
U Q	X 39	X 40	X 38	38	38	X 35												X 49	X 38	X 38	X 39	X 37	X 37	X 39
L Q	X 35	X 35	X 34	X 34	X 34	X 31												X 44	X 32	X 34	X 34	X 34	X 34	X 35

NOV. 2009 fxI (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

NOV. 2009 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	33	35	30	30	30	23	36	54	63	67	64	65	86	74	72	65	54	43	A	31	A	29	30	F
2	33	32	28	28	28	22	33	49	60	68	62	66	69	64	60	63	59	40	32	31	34	36	F	36
3	31	34	36	F	F	29	37	58	59	61	67	60	63	62	65	66	52	38	29	34	33	28	30	30
4	F	32	31	F	28	27	33	53	64	67	64	64	71	64	62	67	52	38	27	27	28	28	30	31
5	34	33	30	28	30	27	33	53	61	57	58	57	56	64	64	61	54	A	37	32	30	31	32	34
6	36	36	36	36	33	33	38	60	66	68	65	65	63	60	54	58	50	42	A	29	32	33	F	34
7	40	F	38	F	33	F	30	54	59	62	72	56	59	54	56	63	54	40	23	30	32	30	30	30
8	31	32	30	30	30	25	30	48	55	58	60	52	59	70	55	56	58	53	28	26	29	F	31	29
9	29	28	A	A	28	30	30	50	62	61	60	70	75	71	59	86	67	38	A	31	28	31	A	33
10	34	30	30	F	29	27	33	66	64	C	C	C	C	C	C	C	C	C	A	29	29	31	33	35
11	F	F	F	F	F	29	35	54	60	61	C	C	C	C	C	C	62	38	28	31	29	30	30	28
12	29	29	F	26	27	28	28	47	52	58	65	54	57	62	61	56	58	A	26	A	31	28	29	29
13	28	28	27	28	27	21	26	47	53	56	58	56	53	60	61	55	54	48	A	24	33	29	28	27
14	28	26	26	26	27	30	27	46	50	53	53	C	C	C	C	C	C	43	28	26	28	30	28	28
15	28	30	28	28	32	23	26	45	58	54	62	68	68	65	66	56	55	47	A	30	30	29	29	A
16	30	F	33	32	30	27	30	52	57	57	64	90	67	63	61	66	58	34	A	29	28	30	30	29
17	30	29	28	26	24	24	28	61	69	63	74	70	68	63	62	59	54	45	A	28	29	26	27	29
18	29	29	28	28	28	28	26	50	67	69	62	57	58	56	64	61	53	42	A	29	A	27	28	28
19	29	30	30	28	27	28	30	54	60	56	62	71	59	69	62	64	49	42	A	A	A	24	27	27
20	28	28	28	28	26	25	27	52	67	59	58	65	72	65	66	58	51	45	30	31	27	28	29	26
21	26	26	F	26	27	25	28	55	57	62	60	64	60	61	64	66	49	V 39	31	32	36	31	30	29
22	30	31	29	30	30	29	35	67	72	64	62	70	61	68	68	51	52	42	28	29	30	A	30	29
23	30	31	30	31	33	28	29	58	56	51	57	70	64	67	60	56	54	36	29	A	27	30	30	
24	31	F	F	F	F	27	25	50	54	50	68	68	53	64	72	76	55	54	24	28	26	F	F	F
25	28	29	29	27	27	29	27	48	52	62	63	79	65	65	77	56	53	31	34	32	34	38	33	32
26	34	F	34	34	30	31	A	51	62	60	82	78	67	58	65	64	49	39	38	34	37	31	26	33
27	30	34	F	26	F	24	28	53	64	66	62	72	68	66	57	62	62	34	22	28	28	F	F	29
28	34	29	36	F	F	F	31	51	59	59	64	74	60	57	55	56	56	36	25	31	36	30	30	F
29	F	F	28	27	26	22	26		56	51	50	68	64	59	58	60	48	40	24	34	29	28	F	F
30	F	F	F	F	F	F	18	45	52	56	54	64	53	59	66	55	48	36	40	29	27	24	F	F
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	23	23	21	24	27	29	29	30	29	28	27	27	27	27	27	28	27	20	27	27	26	23	23
MED	30	30	30	28	28	27	30	52	60	60	62	66	63	64	62	61	54	40	28	30	29	30	30	29
U Q	33	32	33	30	30	29	33	54	64	64	64	70	68	66	66	65	57	43	32	31	33	31	30	33
L Q	29	29	28	26	27	24	27	48	56	56	59	60	59	60	59	56	52	38	26	28	28	28	28	28

NOV. 2009 foF2 (0.1MHz)

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IONOSPHERIC DATA STATION Kokubunji

NOV. 2009 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	L	A	424	A	L									
2										L	L	L	L	L	L									
3										L	U L 424	U L 424	L	L	L									
4										L	A	A	L	A	A									
5									L		L	A	448	U L 384	L	A								
6										L	A		396	408	L									
7									L	L	L	L	L	L	L	A								
8										L	L	L	440	A		L								
9										A	U L 416	U L 444	A		U L 452									
10										C	C	C	C	C	C	C	C							
11										L	C	C	C	C	C	C								
12										L	A	A	L	A	A	A								
13											A	A	A	A	A	A								
14									L	L	L	C	C	C	C	C	C							
15											L	L	L	A	A									
16										L	U L 416	L												
17										L	L	412	U L 416	L	A									
18										L	L	A	L	L	A	A								
19											A	A	U L 476	A	A					A				
20												A	U L 432	L	L									
21										L	L	L	U L 424	L	L									
22										L	L	U L 416	L	L	A									
23											A	A	L	L	A									
24												L	L	U L 416										
25										L	U L 428	A	L	A	A									
26							A			A	L	L	A	A	L									
27											L	U L 432	L	A	A	A	A							
28											L	L	L	L										
29											U L 368	L	L	L	A									
30												A	A	U L 432										
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											5	5	8	4	1									
MED											U L 416	U L 424	428	U L 412	U L 452									
U Q											U L 426	U L 438	444	U L 424										
L Q											U L 392	414	420	396										

NOV. 2009 foF1 (0.01MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

NOV. 2009 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	204	R	R	A	A	A	A	A	R	U R 184							
2							B	A	A	A	R	R	A	R	R	240	B							
3							B	204	A	A	A	A	R	R	A	256	A							
4							B	196	R	A	A	A	A	A	A	A	A							
5							B	184	A	A	A	A	A	A	A	U A 240	A							
6							B	U A 192	A	A	A	R	R	R	A	232	A							
7							B	188	A	A	A	A	R	A	R	A	A							
8							B	180	R	R	A	R	A	A	R	R	184							
9							B	184	A	A	A	R	A	A	A	232	U A 172							
10							B	A	R	C	C	C	C	C	C	C	C							
11							B	180	R	R	C	C	C	C	C	C	B							
12							B	180	252	300	A	A	R	A	A	A	B							
13							B	200	A	A	A	A	A	A	A	A	B							
14							B	180	252	A	R	C	C	C	C	C	C							
15							B	192	252	A	A	A	A	A	A	U R 240								
16							B	B	236	R	R	A	A	A	A	A	B							
17							B	B	U R 264	A	A	R	A	R	A	A	B							
18							B	196	256	A	A	R	U R 308	A	A	A	A							
19							B	A	A	A	336	A	A	A	A	U A 228	R		A					
20							B	B	U R 260	R	R	A	A	A	264	224	164							
21							B	B	A	A	A	A	A	A	A	R	R 212							
22							B	R	R 240	R	R	R	R	304	A	A	A							
23							B	168	U R 248	R	A	A	A	A	A	A	A							
24							B	B	U R 240	R	R	R	A	A	A	A	U R 204							
25							B	B	228	R	A	A	A	A	A	A	B							
26							B	U R 184	A	A	A	A	A	A	A	A	B							
27							B	B	252	A	A	A	A	A	A	A	A							
28							B	B	232	A	A	A	A	U R 300	R	R	172							
29							B		236	288	292	304	A	A	A	A	B							
30							B	B	236	272	A	320	A	A	U A 256	U R 240	B							
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								16	15	3	2	2	1	2	2	9	7							
MED								186	248	288	314	312	U R 308	302	260	240	184							
U Q								196	252	300						U R 240	R 204							
L Q								180	236	272						230	172							

NOV. 2009 foE (0.01MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

NOV. 2009 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	J A 19	J A 29	J A 27	20	22	E B 15	22	24	G 22	G 30	J A 38	J A 43	J A 35	J A 46	J A 32	G 21	G	J A 30	J A 33	J A 31	J A 42	J A 31	J A 19	J A 22
2	J A 26	J A 32	J A 30	J A 24	J A 31	J A 28	J A 22	J A 31	J A 42	J A 51	J G 31	G 29	J A 39	G 30	G 22	28	23	J A 28	21	J A 18	E B 15	J A 28	E B 15	23
3	19	J A 24	J A 22	J A 18	18	20	20	24	31	34	J A 39	35	G 26	G 24	J A 46	31	J A 43	J A 37	J A 28	21	J A 25	J A 27	J A 32	J A 22
4	J A 25	J A 24	J A 31	J A 25	J A 30	J A 19	J A 22	24	G 23	36	J A 61	J A 45	J A 46	36	J A 34	J A 31	J A 28	J A 24	22	21	18	E B 15	J A 46	J A 22
5	J A 36	J A 19	21	23	20	E B 15	20	22	30	33	J A 47	J A 51	J A 54	J A 39	J A 42	32	29	J A 44	J A 42	J A 28	J A 25	21	E B 15	20
6	J A 21	20	J A 25	J A 21	19	E B 14	E B 15	27	30	J A 43	J A 42	G 27	G 23	G 24	33	28	J A 38	J A 39	J A 33	J A 29	J A 22	E B 15	E B 15	E B 15
7	J A 16	E B 16	19	19	J A 22	18	E B 15	24	29	32	34	36	G 22	35	G J A 21	34	23	J A 20	E B 15	E B 15	J A 19	J A 19	J A 20	E B 15
8	E B 16	19	E B 15	E B 15	E B 14	E B 15	E B 14	24	G 24	G 28	J A 36	G 30	J A 40	J A 60	G 28	G 20	22	J A 19	J A 24	J A 30	E B 16	E B 14	E B 25	J A 49
9	J A 24	J A 38	J A 41	J A 66	J A 22	E B 15	23	22	J A 37	J A 49	J A 36	G 29	J A 49	J A 49	32	38	24	J A 18	J A 58	J A 30	E B 16	J A 31	J A 73	J A 57
10	J A 22	J A 28	J A 28	J A 27	J A 26	22	J A 28	33	G 20	C	C	C	C	C	C	C	C	C	J A 54	J A 29	J A 21	J A 35	J A 24	J A 30
11	20	J A 26	20	E B 15	J A 25	19	J A 24	G	21	G 23	C	C	C	C	C	C	19	E B 15	J A 31	J A 32	J A 38	J A 50	J A 19	J A 17
12	J A 18	J A 26	J A 23	J A 30	J A 28	J A E B 19	E B 16	G	30	34	36	39	26	J A 47	J A 43	J A 46	J A 54	J A 38	J A 40	J A 76	J A 30	J A 28	J A E B 22	E B 15
13	E B 16	E B 15	E B 15	E B 15	E B 15	E B 14	E B 15	23	J A 34	J A 42	J A 45	J A 46	J A 44	J A 42	J A 39	J A 37	J A 28	J A 25	J A 39	J A 28	J A 25	22	J A 28	J A 25
14	J A 19	22	22	19	21	J A 18	J A 31	G	G 21	32	G 24	C	C	C	C	C	C	J A 21	E B 16	J A 23	20	J A 26	20	22
15	J A 24	J A 24	J A 18	21	19	18	E B 16	26	33	35	39	34	34	J A 50	J A 36	G 23	34	E B 15	J A 60	J A 42	J A 24	J A 24	J A 45	J A 64
16	J A 31	J A E B 32	E B 15	J A 29	J A 20	20	20	20	27	G 25	G 27	34	38	38	J A 35	28	20	J A 30	J A 32	20	J A 47	J A 26	J A 36	J A 23
17	J A 18	J A 18	21	22	18	20	20	21	G 23	32	37	G 28	J A 38	G 28	J A 34	J A 48	J A 25	J A 24	J A 52	J A 47	J A 20	J A 46	J A 32	J A 19
18	20	20	E B 16	J A 22	E B 16	E B 15	E B 16	G	28	31	J A 39	G 28	G 23	J A 34	J A 44	J A 38	J A 43	J A 26	J A 75	J A 61	J A 32	J A 23	20	J A 33
19	J A 27	J A 40	J A 24	J A 21	20	E B 14	22	J A 30	J A 30	J A 82	39	34	J A 44	J A 41	J A 46	36	J A 21	J A 42	J A 39	J A 55	J A 41	J A 36	J A 19	22
20	J A 22	J A 28	J A 21	21	21	20	J A 34	21	G 23	G 25	G 28	J A 95	J A 40	J A 34	G 24	26	20	J A 28	21	J A 22	J A 20	J A 25	J A 28	J A 19
21	J A 18	J A 24	18	E B 15	19	20	E B 15	J A 21	28	J A 32	34	35	35	33	30	G 25	G 19	E B 15	E B 15	E B 16	E B 16	E B 16	E B 15	E B 16
22	E B 16	E B 15	E B 15	J A 33	21	E B 15	E B 15	G	G 21	G 24	G 27	G 29	G 26	34	33	30	21	E B 14	E B 14	J A 28	J A 30	J A 39	J A 24	J A 25
23	J A 23	J A 24	E B 15	E B 15	E B 15	19	22	20	G 21	G 23	36	36	36	J A 40	J A 52	30	21	E B 15	J A 20	J A 24	E B 15	E B 15	J A 24	
24	J A 20	J A 22	E B 15	J A 17	E B 15	19	E B 16	20	G 20	G 21	G 24	G 26	32	J A 34	34	31	G	E B 15	E B 15	E B 15	E B 15	E B 14	E B 15	E B 15
25	J A 24	E B 16	J A 40	J A 20	J A 20	J A 17	E B 16	21	G 21	G 24	J A 43	39	36	52	J A 44	24	22	J A 23	20	J A 27	20	J A 24	J A 23	J A 26
26	J A 17	J A 22	J A 44	20	J A 46	J A 56	J A 44	G	J A 36	J A 41	J A 39	37	J A 42	76	J A 37	J A 44	J A 25	J A 18	E B 16	J A 34	J A 23	J A 47	20	21
27	J A 30	J A 29	E B 15	E B 15	E B 15	20	E B 15	20	30	31	35	34	J A 37	42	J A 40	42	J A 53	E B 14	J A 19	J A 20	J A 24	E B 15	E B 15	J A 34
28	J A 34	J A 29	J A 20	J A 24	E B 14	21	20	22	28	30	J A 30	36	33	G 23	G	G 21	20	J A 17	E B 14	E B 15	20	J A 23	E B 15	E B 14
29	E B 14	20	E B 15	E B 15	E B 14	E B 14	E B 15		31	33	33	35	36	33	J A 40	J A 42	J A 33	22	20	20	22	20	J A E B 20	14
30	J A 27	J A 24	E B 15	E B 15	E B 14	E B 15	J A 29	J A 23	31	30	38	37	37	J A 42	31	G	E B 14	E B 14	20	J A 45	J A 40	21	19	J A 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	29	30	29	28	27	27	27	27	27	28	29	30	30	30	30	30	29
MED	J A 20	J A 24	20	20	20	18	20	22	28	32	36	35	36	J A 38	J A 34	31	23	J A 22	J A 23	J A 28	J A 22	J A 24	J A 20	J A 22
U Q	J A 25	J A 28	J A 25	J A 24	J A 22	20	J A 22	24	31	J A 36	J A 39	J A 39	J A 40	J A 46	J A 42	J A 38	J A 31	J A 29	J A 39	J A 32	J A 30	J A 31	J A 28	J A 26
L Q	18	20	E B 15	E B 15	E B 15	E B 15	E B 15	G 20	G 22	G 26	G 32	G 29	G 32	G 33	G 31	G	20	E B 15	E B 19	20	E B 19	E B 19	E B 19	E B 16

NOV. 2009 foEs (0.1MHz)

IONOSPHERIC DATA STATION Kokubunji

NOV. 2009 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 15	19	16	E B 16	E B 15	E B 15	E B 15	22	G 22	G 28	33	38	34	33	30	G 20	G	25	A A 33	23	A A 42	20	E B 15	E B 15
2	E B 15	22	18	19	20	18	E B 15	22	31	30	G 28	G 28	32	G 24	G 20	28	22	E B 15	E B 15	E B 15	E B 15	23	E B 15	19
3	E B 15	16	16	E B 14	E B 15	E B 15	E B 15	23	28	31	34	31	G 24	G 24	30	30	30	28	19	18	19	22	E B 15	E B 15
4	17	16	22	19	16	16	16	22	G 21	32	40	39	32	34	30	25	20	18	18	E B 15	E B 15	E B 15	18	15
5	17	E B 15	E B 16	E B 15	16	E B 15	16	21	28	32	34	39	38	32	35	30	22	A A 44	24	18	18	E B 15	E B 15	E B 15
6	16	17	16	17	E B 15	E B 14	E B 15	26	29	33	38	G 26	G 22	G 20	32	27	32	30	A A 33	23	E B 15	E B 15	E B 15	E B 15
7	E B 15	E B 16	16	E B 15	E B 15	E B 14	E B 15	23	28	32	32	35	G 21	34	G 20	28	21	18	E B 15	E B 15	E B 15	E B 14	E B 15	E B 15
8	E B 16	E B 15	E B 15	E B 15	E B 14	E B 15	E B 14	22	G 22	G 26	33	G 29	36	40	G 27	G 18	20	E B 15	18	17	E B 16	E B 14	16	18
9	18	22	A A 41	A A 66	16	E B 15	E B 16	20	32	45	33	G 28	43	44	30	36	22	E B 15	A A 58	18	E B 16	E B 16	A A 73	16
10	E B 16	20	E B 16	E B 14	17	E B 15	21	22	G 20	C	C	C	C	C	C	C	C	C	A A 54	18	16	16	15	26
11	E B 16	E B 14	E B 15	E B 15	E B 15	18	17	G	G 20	G 22	C	C	C	C	C	C	18	E B 15	18	17	23	20	E B 15	E B 15
12	E B 16	E B 15	E B 15	E B 15	16	17	E B 16	G	29	31	34	36	G 24	44	38	42	51	A A 38	E B 15	A A 76	18	21	17	E B 15
13	E B 16	E B 15	E B 15	E B 15	E B 15	E B 14	E B 15	22	30	34	40	37	34	40	36	33	25	20	A A 39	16	17	E B 15	E B 16	E B 16
14	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	18	G	G 18	30	G 24	C	C	C	C	C	C	18	E B 16	E B 16	E B 16	17	E B 15	E B 16
15	16	18	E B 15	E B 15	15	16	E B 16	22	30	33	35	32	32	37	32	G 22	31	E B 15	A A 60	17	21	20	20	A A 64
16	16	E B 15	E B 15	18	16	E B 15	E B 16	18	25	G 24	G 25	33	35	33	30	27	19	22	A A 32	16	19	20	23	17
17	E B 15	E B 15	E B 15	16	E B 16	E B 15	E B 16	20	G 22	29	33	G 25	33	G 25	30	44	21	20	A A 52	20	E B 15	E B 15	E B 15	E B 15
18	E B 16	E B 16	E B 16	E B 15	E B 16	E B 15	E B 16	G	27	29	32	G 26	G 22	29	39	30	40	19	A A 75	21	A A 32	20	19	19
19	E B 15	20	16	E B 16	E B 15	E B 14	E B 15	21	27	39	36	32	40	39	41	34	17	34	A A 39	A A 55	A A 41	19	E B 15	16
20	E B 16	E B 15	E B 15	E B 15	E B 15	E B 16	19	21	G 22	G 23	G 27	43	32	32	G 22	26	19	19	15	18	E B 14	E B 15	E B 15	E B 15
21	E B 16	16	E B 15	E B 15	E B 16	16	E B 15	19	25	29	32	34	32	32	29	G 24	G 18	E B 15	E B 15	E B 16	E B 16	E B 16	E B 15	E B 16
22	E B 16	E B 15	E B 15	18	E B 16	E B 15	E B 15	G	G 20	G 22	G 24	G 26	G 26	32	30	28	20	E B 14	E B 14	E B 15	16	A A 39	17	16
23	E B 16	17	E B 15	E B 15	E B 15	E B 15	16	19	G 20	G 20	34	34	34	33	33	29	20	E B 15	17	A A 24	E B 15	E B 15	E B 15	
24	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	E B 16	18	G 18	G 20	G 23	G 25	31	31	32	28	G	E B 15	E B 15	E B 15	E B 15	E B 14	E B 15	E B 15
25	E B 15	E B 16	E B 15	E B 15	E B 15	E B 15	E B 16	20	G 20	G 23	36	36	33	49	38	23	20	E B 15	E B 15	21	E B 15	E B 15	E B 15	E B 15
26	16	E B 15	16	E B 15	18	E B 15	A A 44	G	24	38	34	35	38	44	30	25	22	E B 15	E B 16	25	E B 15	E B 14	E B 16	16
27	20	18	E B 15	E B 15	E B 15	16	E B 15	18	28	29	33	33	33	38	36	31	51	E B 14	16	18	E B 15	E B 15	E B 15	19
28	20	E B 15	E B 15	E B 15	E B 14	E B 15	E B 16	20	25	30	30	32	32	G 20	G	G 20	19	E B 16	E B 14	E B 15	E B 15	21	E B 15	E B 14
29	E B 14	E B 15	E B 15	E B 15	E B 14	E B 14	E B 15		28	32	31	33	34	32	36	35	29	E B 15	E B 15	E B 16	E B 16	E B 15	E B 15	E B 14
30	E B 14	E B 16	E B 15	E B 15	E B 14	E B 15	E B 15	19	28	29	35	35	34	30	30	G	E B 14	E B 14	E B 16	16	16	E B 15	E B 15	E B 14
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	30	30	30	30	30	30	29	30	29	28	27	27	27	27	27	28	29	30	30	30	30	30	29
MED	E B 16	E B 16	E B 15	E B 15	E B 15	E B 15	E B 16	20	25	30	33	33	33	33	30	28	20	E B 16	18	18	E B 16	E B 16	E B 15	E B 15
U Q	16	17	16	16	16	16	16	22	28	32	34	36	34	39	36	31	27	21	A A 33	21	18	20	16	16
L Q	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	G 18	G 21	G 25	G 30	G 28	G 31	G 30	G 30		19	E B 15	E B 15	E B 16	E B 15	E B 15	E B 15	E B 15

NOV. 2009 fbEs (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

NOV. 2009 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	15	15	15	16	15	15	15	14	13	14	15	14	14	15	14	13	15	14	13	16	15	14	15	15
2	15	15	15	14	16	14	15	14	15	15	14	10	15	15	14	14	14	15	15	15	15	15	15	16
3	15	15	14	14	15	15	16	15	13	14	12	12	13	11	12	11	14	14	15	15	15	15	16	15
4	16	15	15	15	14	15	16	14	14	15	14	12	13	14	14	13	15	12	15	15	15	15	14	15
5	16	15	16	15	16	15	15	15	13	13	14	13	14	12	12	13	14	14	16	15	15	15	15	15
6	15	14	14	14	15	14	15	14	13	14	14	12	16	14	13	14	14	14	14	13	15	15	15	15
7	15	16	16	15	15	14	15	14	14	14	12	15	14	15	15	14	14	15	15	15	15	14	15	15
8	16	15	15	15	14	15	14	14	14	15	15	14	15	14	14	14	14	16	15	15	16	14	16	16
9	15	13	14	14	15	15	16	16	14	15	15	12	14	14	14	15	14	15	15	16	16	15	15	15
10	16	14	16	14	15	15	15	13	14	C	C	C	C	C	C	C	C	C	15	15	16	15	15	14
11	16	14	15	15	15	15	14	14	13	15	C	C	C	C	C	C	15	15	15	16	15	14	15	15
12	16	15	15	16	15	15	16	13	14	12	14	14	14	15	15	14	15	15	15	16	14	14	15	15
13	16	15	15	15	15	14	15	14	15	14	15	15	18	14	12	14	14	14	15	15	15	15	16	16
14	15	16	16	15	15	15	15	15	14	13	13	C	C	C	C	C	C	15	16	16	16	16	15	16
15	16	14	16	15	15	15	16	15	15	16	13	13	14	14	14	13	13	15	15	15	15	14	14	16
16	15	15	15	15	14	15	16	15	14	14	13	15	14	13	12	13	14	14	15	15	16	14	15	15
17	15	15	15	16	16	15	16	14	14	14	13	14	14	14	16	13	14	14	15	15	15	15	15	15
18	16	16	16	15	16	15	16	15	16	14	14	15	15	14	13	14	13	14	15	15	15	15	15	16
19	15	15	14	16	15	14	15	14	14	15	14	13	16	13	15	15	14	15	15	16	14	15	14	16
20	16	15	16	15	15	16	15	14	14	14	14	17	16	14	14	13	14	15	15	16	14	15	15	15
21	16	15	15	15	16	15	15	14	15	16	13	17	16	15	14	12	14	15	15	16	16	16	15	16
22	16	15	15	16	16	15	15	15	14	14	15	14	13	14	14	13	14	14	14	15	16	14	14	15
23	16	15	15	15	15	15	16	14	13	14	14	14	14	14	16	14	14	15	15	15	15	15	15	
24	15	15	15	15	15	15	16	15	13	14	13	13	14	15	13	15	14	15	15	15	15	14	15	15
25	16	16	15	15	15	14	16	14	13	14	14	14	14	14	14	13	14	15	15	14	15	15	15	15
26	16	15	15	15	15	15	15	15	15	14	14	14	13	14	14	14	13	15	16	14	15	14	16	14
27	16	15	15	15	15	15	15	14	13	14	14	14	14	15	16	15	14	14	16	15	15	15	15	15
28	15	15	15	15	14	15	16	15	14	15	14	14	14	14	14	14	14	16	14	15	15	15	15	14
29	14	15	15	15	14	14	15		14	15	13	14	14	14	14	14	14	15	15	16	16	15	15	14
30	14	16	15	15	14	15	15	15	13	15	15	14	15	14	14	15	14	14	16	16	15	15	15	14
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	30	30	30	30	30	30	29	30	29	28	27	27	27	27	27	28	29	30	30	30	30	30	29
MED	16	15	15	15	15	15	15	14	14	14	14	14	14	14	14	14	14	15	15	15	15	15	15	15
U Q	16	15	15	15	15	15	16	15	14	15	14	14	15	15	14	14	14	15	15	16	16	15	15	16
L Q	15	15	15	15	15	15	15	14	13	14	13	13	14	14	13	13	14	14	15	15	15	14	15	15

IONOSPHERIC DATA STATION Kokubunji

NOV. 2009 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	321	353	328	332	378	315	363	388	379	383	379	342	363	359	379	385	390	366	A	339	A	321	317	F
2	327	355	333	330	359	322	363	371	380	386	385	383	379	375	371	376	395	376	365	313	312	356	F	374
3	328	348	330	F	F	345	360	388	389	373	373	354	340	353	366	384	380	362	325	351	356	317	294	324
4	F	328	385	F	346	330	367	376	384	375	372	377	375	363	365	378	376	372	374	359	333	334	326	326
5	330	361	369	332	341	336	364	392	379	362	371	388	320	373	357	375	396	A	382	360	338	312	308	337
6	344	341	346	349	328	325	363	392	389	393	376	362	384	382	353	372	383	367	A	329	320	327	F	317
7	350	F	333	F	358	F	352	385	381	384	402	375	375	355	362	385	400	386	361	326	345	334	311	318
8	358	336	340	312	353	334	367	390	397	374	378	396	326	371	396	365	374	383	354	298	316	F	312	308
9	325	323	A	A	333	361	365	364	359	366	357	344	360	349	339	372	393	383	A	341	313	332	A	342
10	353	317	331	F	331	310	362	400	386	C	C	C	C	C	C	C	C	C	A	336	306	338	320	347
11	F	F	F	F	F	347	380	408	390	373	C	C	C	C	C	C	400	394	324	343	352	354	329	303
12	308	321	F	337	298	371	350	378	391	373	395	395	361	370	378	360	400	A	337	A	352	340	335	314
13	318	323	330	378	392	332	340	387	392	368	381	365	366	361	368	384	359	385	A	319	342	365	330	322
14	310	314	323	325	323	396	380	408	395	371	377	C	C	C	C	C	C	394	337	336	350	342	305	314
15	311	315	325	316	377	356	346	402	384	374	359	365	369	355	379	371	375	385	A	334	344	346	331	A
16	321	F	332	316	326	338	365	378	369	385	349	375	340	351	361	381	383	408	A	357	314	332	322	331
17	309	331	332	331	347	351	336	371	383	361	374	386	371	364	377	389	381	381	A	332	348	334	316	322
18	334	307	302	310	351	354	348	366	397	395	381	384	394	344	368	373	385	364	A	344	A	323	316	301
19	312	308	329	323	337	329	392	401	394	383	385	362	335	359	362	380	380	395	A	A	A	334	321	321
20	325	318	318	310	314	332	364	367	407	363	396	355	387	371	364	377	363	373	358	364	347	357	347	339
21	289	307	F	296	315	339	372	394	396	367	362	373	325	354	338	378	385	V 366	340	328	330	344	302	301
22	318	327	307	305	311	327	343	382	396	376	380	367	368	359	380	358	374	358	338	317	337	A	334	317
23	312	329	307	303	332	328	355	397	394	385	369	363	375	379	377	380	375	352	351	A	323	311	298	
24	324	F	F	F	F	331	346	387	418	359	363	385	364	353	369	388	385	391	409	342	353	F	F	F
25	281	319	306	330	323	345	346	394	385	379	346	385	369	345	372	365	365	348	354	349	313	350	293	365
26	359	F	334	305	305	345	A	384	400	366	385	384	386	369	376	392	396	367	358	338	355	333	325	355
27	342	290	F	296	F	324	368	372	395	385	356	355	372	382	370	371	383	381	371	356	297	F	F	312
28	344	328	315	F	F	F	341	384	405	375	382	382	378	361	384	367	396	371	325	312	347	332	317	F
29	F	F	297	311	307	323	372		399	395	362	373	372	363	381	367	394	396	316	357	389	325	F	F
30	F	F	F	F	F	F	325	386	382	405	363	362	392	369	370	393	382	347	390	360	369	375	F	F
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	23	23	21	24	27	29	29	30	29	28	27	27	27	27	27	28	27	20	27	27	26	23	23
MED	324	323	330	316	332	334	363	387	390	375	375	373	369	361	370	377	383	376	354	339	342	334	317	322
U Q	342	336	333	332	352	347	367	394	396	385	382	384	378	371	378	384	394	386	368	356	352	346	329	339
L Q	312	315	315	308	319	327	346	377	383	368	362	362	360	354	362	371	376	366	337	328	316	327	308	314

NOV. 2009 M(3000)F2 (0.01)

IONOSPHERIC DATA STATION Kokubunji

NOV. 2009 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	L	A	395	A	L									
2										L	L	L	L	L	L									
3										L	U L 390	U L 408	L	L	L									
4										L	A	A	L	A	A									
5									L		L	A	394	U L 455	L	A								
6										L	A		461	422	L									
7									L	L	L	L	L	L	L	A								
8										L	L	L	384	A		L								
9										A	U L 373	U L 382	A		U L 369									
10										C	C	C	C	C	C	C	C							
11										L	C	C	C	C	C	C								
12										L	A	A	L	A	A	A								
13											A	A	A	A	A	A								
14									L	L	L	C	C	C	C	C	C							
15											L	L	L	A	A									
16										L	U L 411	L												
17										L	L	412	U L 409	L	A									
18										L	L	A	L	L	A	A								
19											A	A	U L 384	A	A					A				
20												A	U L 368	L	L									
21										L	L	L	U L 397	L	L									
22										L	L	U L 414	L	L	A									
23											A	A	L	L	A									
24												L	L	U L 414										
25										L	U L 382	A	L	A	A									
26							A			A	L	L	A	A	L									
27											L	U L 389	L	A	A	A	A							
28											L	L	L	L										
29											U L 423	L	L	L	A									
30												A	A	U L 393										
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											5	5	8	4	1									
MED											U L 390	U L 408	394	U L 418	U L 369									
U Q											U L 417	413	U L 403	438										
L Q											U L 378	U L 386	U L 384	U L 404										

NOV. 2009 M(3000)F1 (0.01)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

NOV. 2009 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										234	224	268	232	238	236									
2										228	234	230	222	242	238									
3										236	240	244	248	244	236									
4										232	238	234	226	234	234									
5									244		242	232	318	240	272	232								
6										226	234		230	242	272									
7									228	230	216	248	232	252	258	234								
8										234	236	228	302	246		252								
9										240	262	254	246		300									
10										C	C	C	C	C	C	C	C							
11										228	C	C	C	C	C	C								
12										232	224	218	250	246	232	218								
13											232	236	232	242	240	224								
14									210	230	246	C	C	C	C	C	C							
15											258	236	236	244	224									
16										224	246	230												
17										238	230	224	240	230	226									
18										218	222	212	220	232	242	226								
19											240	232	292	252	238				A					
20												254	232	236	248									
21										238	230	240	254	232	254									
22										234	230	238	250	248	228									
23											234	230	244	240	226									
24												222	230	266										
25										230	270	222	232	E 270	A 234									
26							A			236	232	228	216	226	232									
27											262	250	236	240	230	224	222							
28											234	230	234	236										
29											232	238	238	246	222									
30												240	224	276										
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT									3	18	25	26	26	25	22	7	1							
MED									228	232	234	233	235	242	236	226	222							
U Q									244	236	244	240	248	247	248	234								
L Q									210	228	230	228	230	236	230	224								

NOV. 2009 h'F2 (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

NOV. 2009 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	E B 244	E A 234	E A 234	E B 238	206	E B 280	222	204	214	204	202	A	194	A	206	214	204	198	A	E A 264	A	E A 302	E B 272	E B 272
2	E B 252	E A 238	E A 270	E A 264	E A 240	E A 316	208	198	220	204	208	188	172	192	202	212	202	186	198	E B 250	E B 258	E A 234	E B 246	212
3	220	226	E A 242	224	E B 236	E B 234	210	208	210	204	204	186	194	202	200	214	204	E A 240	234	E A 234	218	E A 306	E B 288	E B 274
4	E A 276	242	E A 238	E A 270	E A 256	242	214	206	212	204	A	A	188	A	A	224	202	200	210	218	226	E B 246	E A 278	E A 236
5	E A 242	220	202	E B 256	E A 246	E B 244	214	208	204	202	204	A	196	168	222	A	208	A	218	220	224	E B 262	E B 286	E B 246
6	E A 244	E A 232	E A 230	220	208	E B 226	220	210	206	202	A	208	168	176	192	210	204	214	A	E A 300	E B 270	E B 254	E B 248	240
7	212	226	E B 236	212	204	194	224	214	196	194	198	190	204	194	206	A	202	192	184	E B 236	224	E B 250	E B 268	E B 240
8	218	214	222	E B 246	218	226	214	200	204	202	202	198	198	A	214	192	206	192	198	E A 266	E B 258	E B 246	E A 284	E A 306
9	E A 284	E A 326	A	A	E A 246	220	196	206	216	A	200	214	A	224	186	218	208	188	A	E A 246	220	E B 240	A	E A 248
10	226	E A 284	E B 266	E B 240	E A 258	E B 264	E A 232	202	210	C	C	C	C	C	C	C	C	C	A	210	E A 258	E A 232	E A 230	E A 268
11	E B 282	E B 278	E B 286	E B 264	E B 236	214	206	190	210	192	C	C	C	C	C	C	196	186	222	220	E A 276	E A 238	E B 222	E B 284
12	E B 264	E B 268	E B 280	E B 266	E A 270	206	210	196	200	204	A	A	196	A	A	A	218	A	E B 226	A	230	E A 264	E A 260	E B 264
13	E B 270	E B 252	240	224	206	E B 240	222	202	210	224	A	A	A	A	A	A	204	194	A	E A 278	E A 242	216	E B 272	E B 296
14	E B 284	E B 288	E B 286	E B 270	E B 252	196	202	H 170	H 168	178	184	C	C	C	C	C	C	192	202	210	218	228	E B 252	E B 278
15	E A 286	E A 276	E B 266	E B 270	200	220	218	196	216	218	212	210	204	A	A	212	210	194	A	218	E A 244	E A 252	218	A
16	E A 254	E B 270	E B 234	E A 286	E A 240	204	206	200	200	192	H 182	204	210	204	206	222	202	188	A	E A 238	E A 286	E A 280	E A 306	E A 266
17	E B 252	E B 246	228	E A 250	214	E B 236	232	214	206	198	200	180	176	190	A	214	204	190	A	E A 256	212	E B 230	E B 262	E B 256
18	E B 240	E B 258	E B 282	E B 282	E B 238	212	196	200	210	196	188	A	176	174	A	A	206	204	A	E A 234	A	E A 278	E A 274	E A 318
19	E B 268	E A 306	E A 270	E B 268	E B 252	E B 238	208	196	210	224	A	A	210	A	A	220	204	202	A	A	A	E A 286	E B 256	E A 264
20	E B 268	E B 282	E B 276	E B 278	E B 278	E B 258	226	208	200	206	208	A	188	192	198	216	204	198	E B 200	214	222	228	214	228
21	E B 282	E A 286	E B 274	E B 282	E B 270	E A 272	210	206	196	188	188	190	188	204	202	212	212	196	222	230	E B 226	208	E B 250	E B 236
22	E B 254	E B 252	E B 282	E A 308	E B 274	E B 266	232	206	208	196	192	186	H 186	200	A	202	206	196	192	220	234	A	E A 246	E A 276
23	E B 270	E A 268	E B 260	E B 262	E B 238	220	210	202	H 190	202	A	A	204	212	A	208	200	202	214	A	232	E B 256	E B 278	
24	E B 250	E B 262	E B 262	E B 270	E B 264	E B 230	E B 242	200	202	188	220	H 186	190	174	224	214	206	190	186	E B 254	220	E B 282	E B 272	E B 272
25	E B 304	E B 272	E B 256	E B 242	E A 250	224	E B 232	198	200	196	206	A	196	A	A	210	210	190	E B 216	224	E B 248	212	E B 266	214
26	E A 230	E B 278	E A 236	E B 274	E A 296	E B 238	A	210	206	A	210	198	A	A	198	208	198	198	E B 212	216	218	222	E B 260	228
27	E A 250	E A 290	E B 282	E B 290	E B 264	E A 280	212	210	208	222	200	192	210	A	A	A	A	190	202	E A 246	E B 254	E B 236	E B 298	E A 302
28	E A 254	E B 232	E B 250	E B 248	E B 234	220	214	196	206	198	176	202	194	190	206	H 200	204	190	212	E B 246	222	E A 236	E B 252	E B 276
29	E B 268	E B 258	E B 276	E B 276	E B 288	E B 252	208		218	210	186	208	210	194	A	224	194	196	E B 272	214	196	E B 260	E B 224	E B 242
30	E B 236	E B 260	E B 278	E B 292	E B 268	202	E B 266	200	206	202	210	A	A	190	222	212	196	188	198	196	186	212	E B 290	E B 260
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	30	29	29	30	30	29	29	30	27	22	16	23	17	15	21	27	27	20	27	27	29	29	28
MED	E B 254	E 261	E B 262	E B 266	E 246	E 232	212	202	206	202	201	195	194	192	206	212	204	193	206	E 234	222	E 246	E B 262	E 264
U Q	E B 270	E A 278	E B 277	E B 277	E B 264	E B 252	225	208	210	204	208	206	204	203	214	217	206	198	220	E A 250	E B 254	E B 263	E B 278	E 276
L Q	242	238	E 236	244	234	220	208	198	200	196	188	187	188	183	198	209	202	190	198	218	220	229	E 247	240

NOV. 2009 h′F (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

NOV. 2009 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	118	118	126	A	A	A	A	A	116	122							
2							B	116	A	A	118	118	A	118	118	118	B							
3							B	116	118	A	A	A	112	116	A	114	A							
4							B	112	122	118	A	A	A	A	A	A	A							
5							B	112	122	A	A	A	A	A	A	118	114							
6							B	118	A	A	A	120	116	114	114	114	A							
7							B	124	122	116	118	116	114	118	118	114	108							
8							B	114	128	120	A	120	A	A	120	120	122							
9							B	120	110	A	A	118	A	A	120	116	124							
10							B	A	128	C	C	C	C	C	C	C	C							
11							B	114	122	122	C	C	C	C	C	C	B							
12							B	122	114	114	120	120	120	120	118	122	B							
13							B	126	126	118	120	A	118	A	A	A	B							
14							B	120	126	122	118	C	C	C	C	C	C							
15							B	124	114	114	114	116	A	A	A	120								
16							B	B	122	122	122	A	A	A	A	A	B							
17							B	B	126	A	A	116	A	116	A	A	B							
18							B	112	122	124	A	118	122	A	A	A	A							
19							B	A	A	A	120	112	A	A	A	114	114		A					
20							B	B	120	120	122	A	A	A	116	116	E B 134							
21							B	B	A	A	A	118	A	A	A	122	126							
22							B	122	118	118	122	116	124	120	118	116	116							
23							B	114	124	116	120	120	118	118	A	A	A							
24							B	B	118	122	120	116	114	A	124	124	122							
25							B	B	126	124	A	118	A	A	A	A	B							
26							B	118	A	A	A	A	A	A	A	A	B							
27							B	B	116	A	120	A	A	A	A	A	A							
28							B	B	120	122	A	116	114	116	110	122	126							
29							B		118	118	116	118	122	120	A	A	B							
30							B	B	112	114	120	122	122	A	118	118	B							
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								18	25	19	15	18	12	10	11	17	11							
MED								118	122	120	120	118	118	118	118	118	122							
U Q								122	125	122	120	120	122	120	120	121	126							
L Q								114	118	116	118	116	114	116	116	115	114							

NOV. 2009 h′E (KM)

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IONOSPHERIC DATA STATION Kokubunji

NOV. 2009 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	98	100	96	94	94	B	148	146	108	106	102	100	100	100	98	96	G	96	100	96	96	100	100	102
2	94	92	90	90	90	94	98	118	104	100	100	98	98	100	100	154	130	106	106	106	B	96	B	96
3	92	90	92	90	88	86	84	144	118	108	104	100	98	98	92	156	98	98	96	102	100	100	96	96
4	92	92	90	90	90	90	88	150	106	118	102	100	94	96	92	86	86	88	90	90	92	B	98	100
5	96	94	88	92	88	B	146	134	128	106	104	100	98	96	96	126	120	98	100	102	104	104	B	102
6	96	96	94	90	90	B	B	120	106	106	104	100	98	104	142	136	94	90	88	88	88	B	B	B
7	98	B	94	90	88	90	B	128	136	120	126	114	96	122	106	120	108	86	B	B	96	96	92	B
8	B	98	B	B	B	B	B	138	104	106	102	106	106	104	106	100	140	104	104	96	B	B	104	108
9	112	104	104	100	100	B	96	136	116	104	104	104	106	104	116	132	124	96	106	104	B	108	98	98
10	102	96	96	94	94	98	98	94	108	C	C	C	C	C	C	C	C	C	98	98	94	92	98	92
11	102	102	104	B	102	100	98	G	102	98	C	C	C	C	C	C	102	B	120	106	102	102	102	102
12	100	100	100	102	94	96	B	G	160	144	120	124	100	128	124	124	118	112	110	102	96	92	96	B
13	B	B	B	B	B	B	B	144	124	114	116	104	110	102	102	104	104	100	94	92	94	92	102	96
14	94	98	98	98	106	104	98	G	104	112	102	C	C	C	C	C	C	102	B	98	102	102	102	104
15	98	92	94	92	90	98	B	132	134	120	118	114	108	104	102	104	100	B	98	100	100	100	94	96
16	102	108	B	96	96	94	100	106	154	102	104	108	102	102	102	102	124	90	88	88	92	90	88	88
17	94	94	94	92	98	102	96	128	102	104	100	100	98	104	98	94	98	98	104	106	100	106	104	102
18	90	88	B	100	B	B	B	G	160	122	98	100	100	106	98	102	100	116	102	102	92	88	88	98
19	98	96	100	94	92	B	114	98	102	98	150	114	102	102	100	128	94	92	92	102	98	102	100	98
20	100	100	100	98	100	100	98	160	106	100	102	100	100	98	96	158	148	98	96	108	108	110	106	98
21	108	100	102	B	100	98	B	110	106	110	110	116	106	106	104	104	102	B	B	B	B	B	B	B
22	B	B	B	104	104	B	B	G	102	106	106	98	102	144	118	114	110	B	B	106	106	90	90	100
23	104	98	B	B	B	98	92	140	104	92	138	130	118	118	106	104	100	B	98	94	B	B	100	
24	100	104	B	102	B	102	B	150	102	100	102	96	118	106	126	118	G	B	B	B	B	B	B	B
25	102	B	108	100	100	110	B	152	106	106	108	118	104	104	104	102	98	96	98	110	112	108	110	100
26	98	108	96	96	98	96	98	G	106	102	100	100	96	102	100	108	104	104	B	104	108	108	100	100
27	100	100	B	B	B	100	B	106	166	102	130	102	106	104	104	104	100	B	108	102	100	B	B	96
28	96	94	92	92	B	98	140	124	134	122	100	110	110	96	G	108	168	92	B	B	96	94	B	B
29	B	100	B	B	B	B	B		156	150	142	156	116	114	106	104	98	100	94	96	94	94	138	B
30	108	100	B	B	B	B	100	100	146	140	122	162	132	96	126	G	B	B	94	104	106	106	104	100
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	26	26	20	22	21	19	17	23	30	29	28	27	27	27	26	26	25	21	23	26	24	23	23	22
MED	98	98	96	94	94	98	98	132	107	106	104	104	102	104	103	106	102	98	98	102	99	100	100	99
U Q	102	100	100	100	100	100	107	144	134	119	119	114	108	106	106	126	122	103	104	104	103	106	104	102
L Q	96	94	93	92	90	94	96	110	104	102	102	100	98	100	98	102	98	92	94	96	94	92	96	96

IONOSPHERIC DATA STATION Kokubunji

NOV. 2009 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	F3	F3	F3	F2	F2		H1	H2	L2	L2	L2	L2	L2	L2	L2	L2		F3	F3	F3	F3	F3	F2	F3
2	F3	F5	F3	F4	F3	F3	L3	CL22	L2	L2	L2	L2	L2	L2	L2	HL12	HL11	F2	F2	F2		F6		F3
3	F2	F3	F3	F2	F1	F1	L2	H1	C2	L2	L2	L2	L2	L2	L3	HL12	L3	F3	F2	F2	F3	F4	F2	F3
4	F5	F3	F3	F3	F3	F3	L2	H2	L2	CL12	L2	L2	L2	L2	L2	L2	L3	F2	F2	F2	F1		F3	F2
5	F4	F2	F2	F2	F2		H1	H2	CL22	L2	L2	L2	L2	L2	L2	CL22	C2	F4	F3	F2	F3	F1		F1
6	F3	F2	F3	F2	F1			C2	L2	L2	L2	L2	L2	L2	HL22	HL22	L3	F4	F4	F3	F2			
7	F1		F2	F2	F2	F1		H2	CL21	CL21	CL12	CL11	L2	CL11	L2	CL12	CL22	F3			F2	F2	F2	
8		F1						H3	L2	L2	L2	L2	L2	L2	L2	L2	HL21	F2	F3	F1			F2	F3
9	F4	F4	F7	F5	F3		L2	H2	C2	L2	L2	L2	L2	L2	CL11	HL22	C2	F2	F5	F3		F2	F3	F4
10	L3	L4	F3	F4	F3	F1	L3	L3	L2										F5	F3	F4	F3	F2	F5
11	F1	F2	F1		F2	F2	L3		L2	L2							L2		F2	F2	F3	F3	F3	F2
12	F1	F2	F2	F1	F2	F3			HL11	HL11	CL22	CL12	L2	CL22	CL22	CL22	C5	F3	F2	F5	F3	F4	F2	
13								H2	C2	C2	CL22	L2	CL22	L2	L2	L2	L3	F4	F4	F4	F3	F2	F2	F2
14	F2	F1	F2	F2	F2	F3	L3		L2	CL12	L2							F2		F2	F1	F2	F2	F2
15	F4	F4	F2	F2	F2	F2		H2	H2	CL21	CL21	CL22	L2	L2	L2	L2	L3		F5	F3	F5	F3	F5	F5
16	F3	F3		F3	F2	F3	L2	L2	HL12	L2	L2	L2	L2	L2	L2	L3	CL22	F4	F4	F3	F4	F5	F3	F2
17	F2	F1	F1	F2	F1	F1	L1	CL12	L2	L2	L2	L2	L2	L2	L2	L3	L3	F3	F3	F3	F3	F3	F2	F2
18	F2	F1		F1					HL11	CL12	L2	L2	L2	L2	L3	L2	L3	F3	F3	F4	F3	F2	F2	F2
19	F1	F2	F2	F1	F1		C1	L3	L3	L3	HL22	CL22	L2	L2	L2	C2	L2	F5	F4	F6	F4	F3	F2	F3
20	F2	F2	F2	F1	F1	F1	L3	HL21	L3	L2	L2	L2	L2	L2	L2	HL22	H1	F3	F2	F3	F3	F2	F2	F1
21	F1	F3	F1		F2	F2		L2	L3	L2	L2	CL22	L2	L2	L2	L3	L2							
22				F4	F2				L2	L2	L2	L1	L2	HL22	CL12	CL22	CL22			F2	F2	F3	F3	F2
23	F2	F3				F1	L5	HL22	L2	L2	CL12	CL12	CL12	CL11	L2	L2	L3		F2	F4			F2	
24	F2	F2		F1		F1		H2	L2	L2	L2	L2	CL22	L2	CL12	CL22								
25	F2		F2	F1	F2	F2		H3	L2	L2	L2	CL22	L2	L2	L3	L3	L3	F2	F3	FF32	F2	F1	F3	F3
26	F5	F1	F4	F3	F3	F3	L3		L2	L2	L2	L2	L2	L3	L2	L3	L2	F2		F4	F2	F1	F2	F2
27	F3	F3				F2		L3	H2	L2	CL12	L2	L2	L2	L2	L3	L3		F3	F2	F2			F3
28	F6	F3	F2	F3		F2	H1	CL21	H2	CL22	L2	CL12	CL12	L2		L2	H1	F1			F1	F2		
29		F1							H2	HL22	HL12	HL12	CL11	CL21	L3	L3	L3	F1	F2	F2	F2	F2	F2	
30	F2	F2					L2	LH22	HL22	HL22	CL22	HL12	CL12	L2	CL12				F1	F3	F3	F2	F1	F2
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT																								
MED																								
U Q																								
L Q																								

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

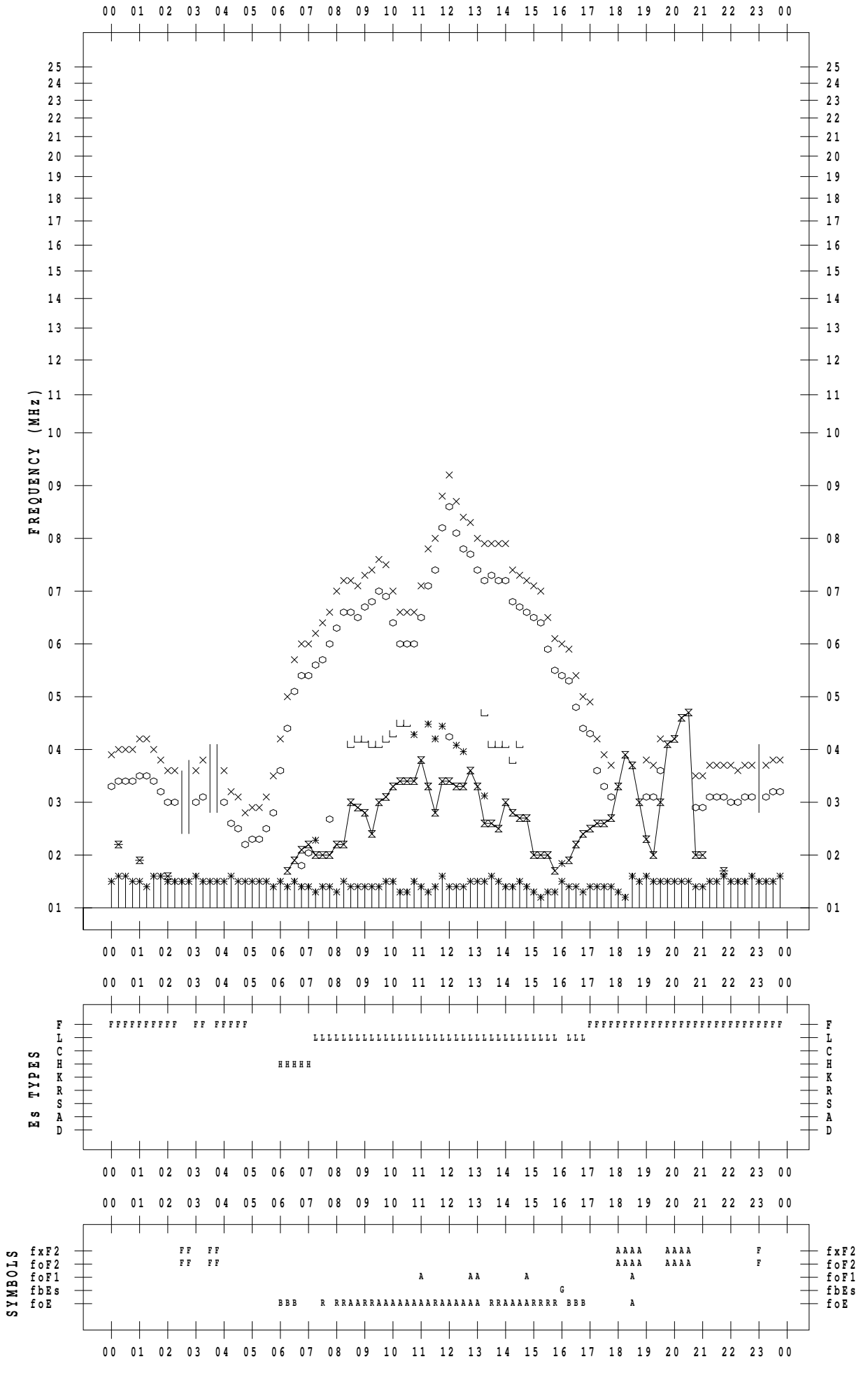
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2009/11/ 1

135 °E MEAN TIME



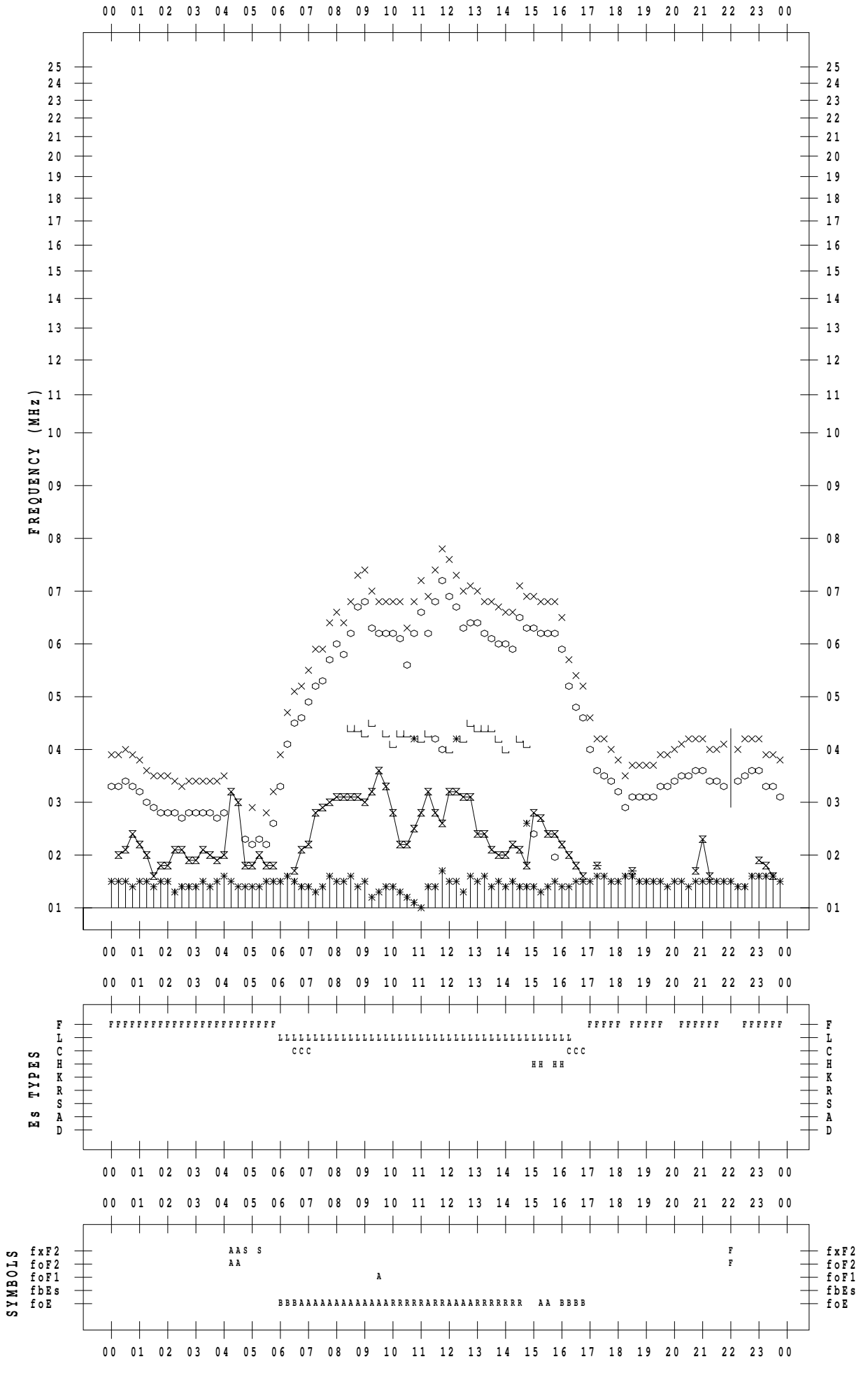
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2009/11/ 2

135 °E MEAN TIME



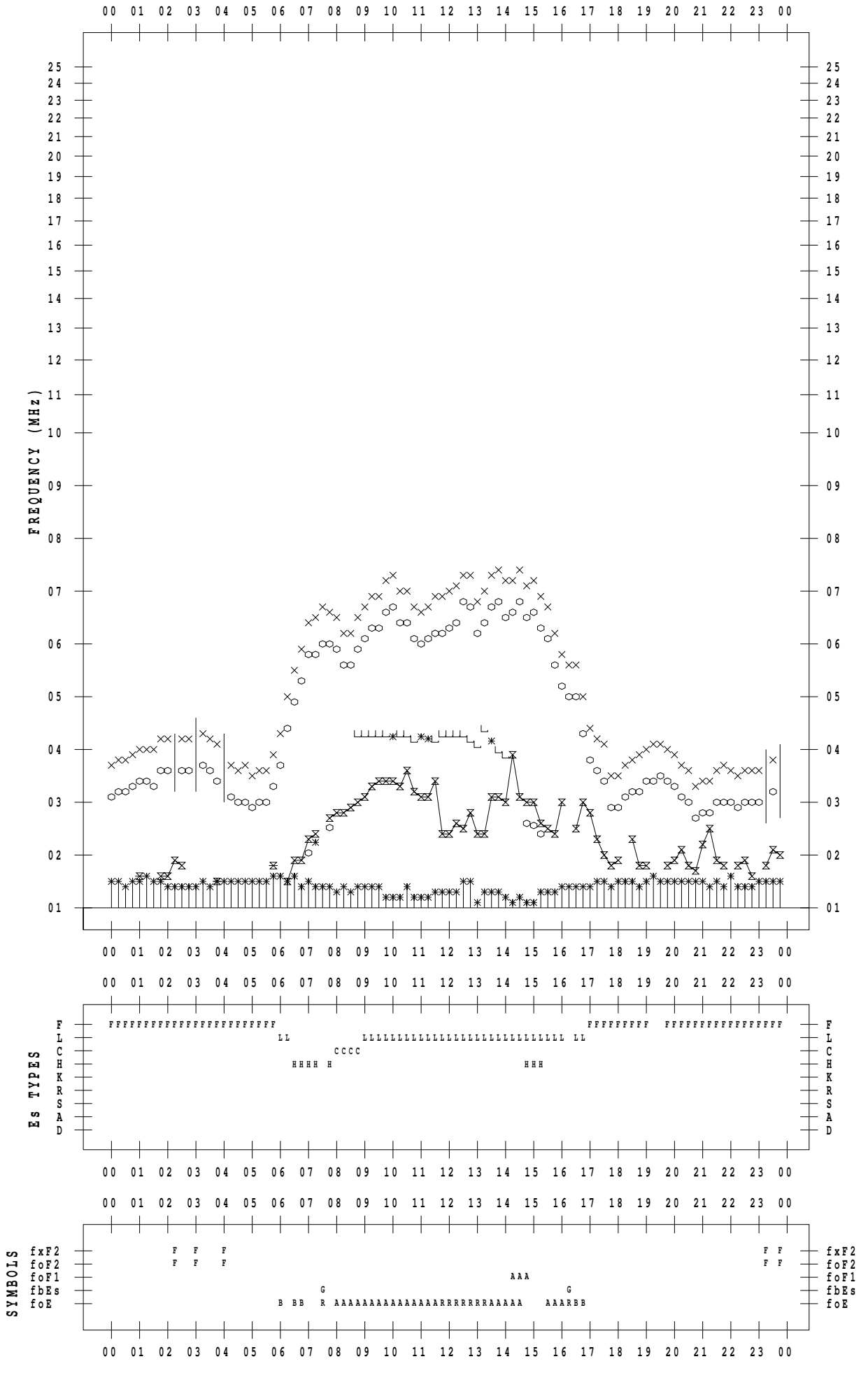
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2009/11/ 3

135 °E MEAN TIME



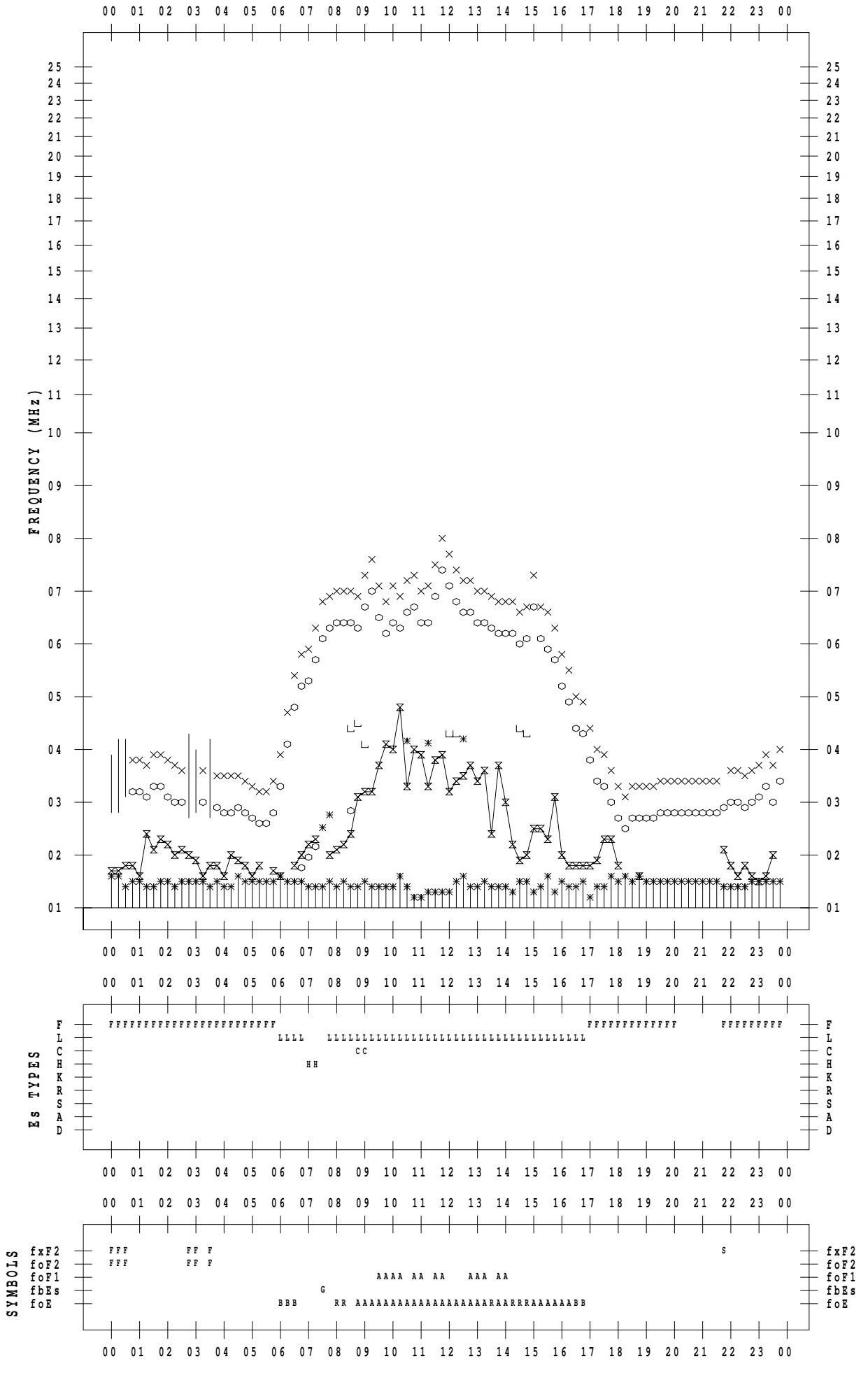
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2009/11/ 4

135 °E MEAN TIME



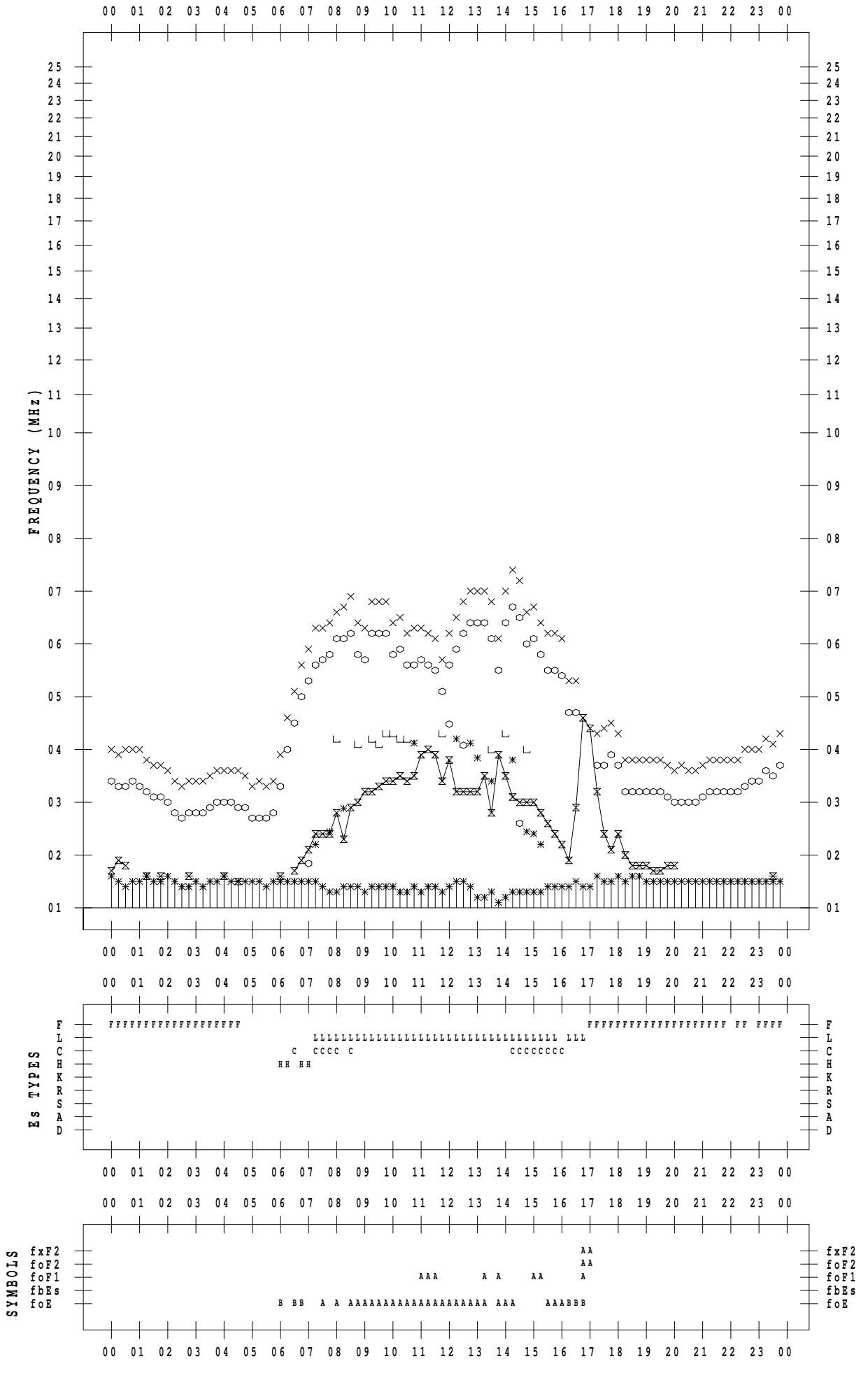
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2009/11/ 5

135 °E MEAN TIME



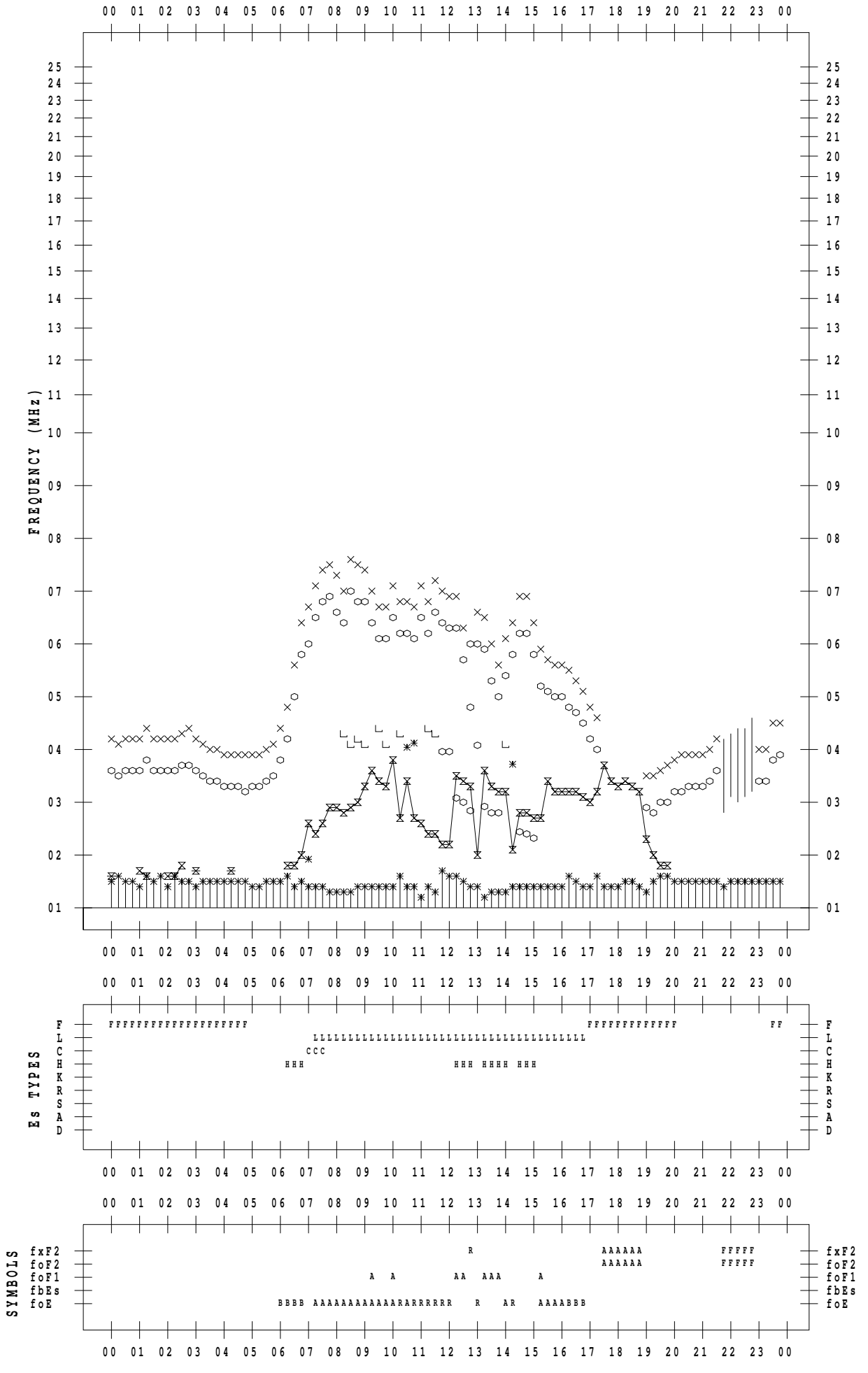
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2009/11/ 6

135 °E MEAN TIME



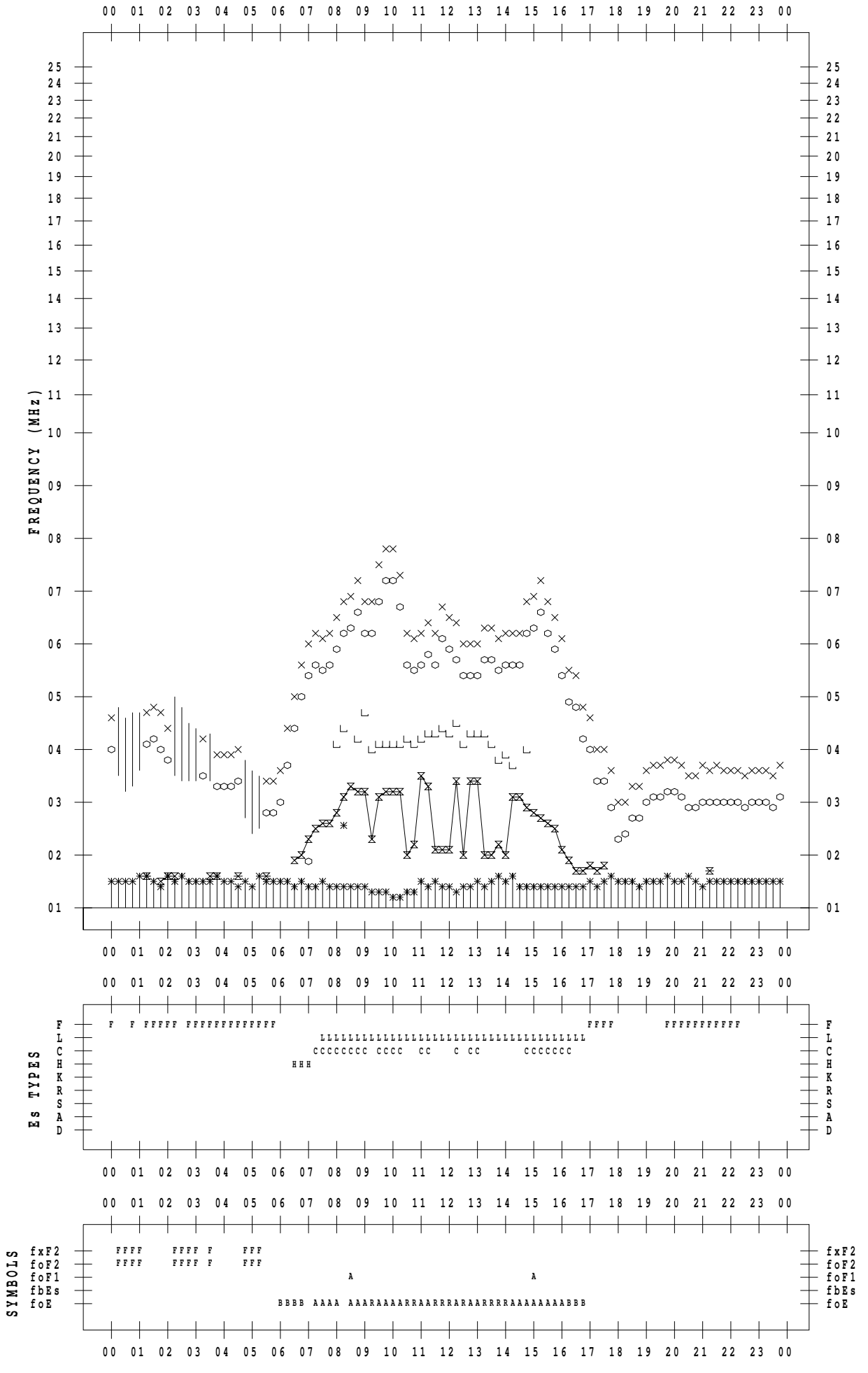
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2009/11/ 7

135 °E MEAN TIME



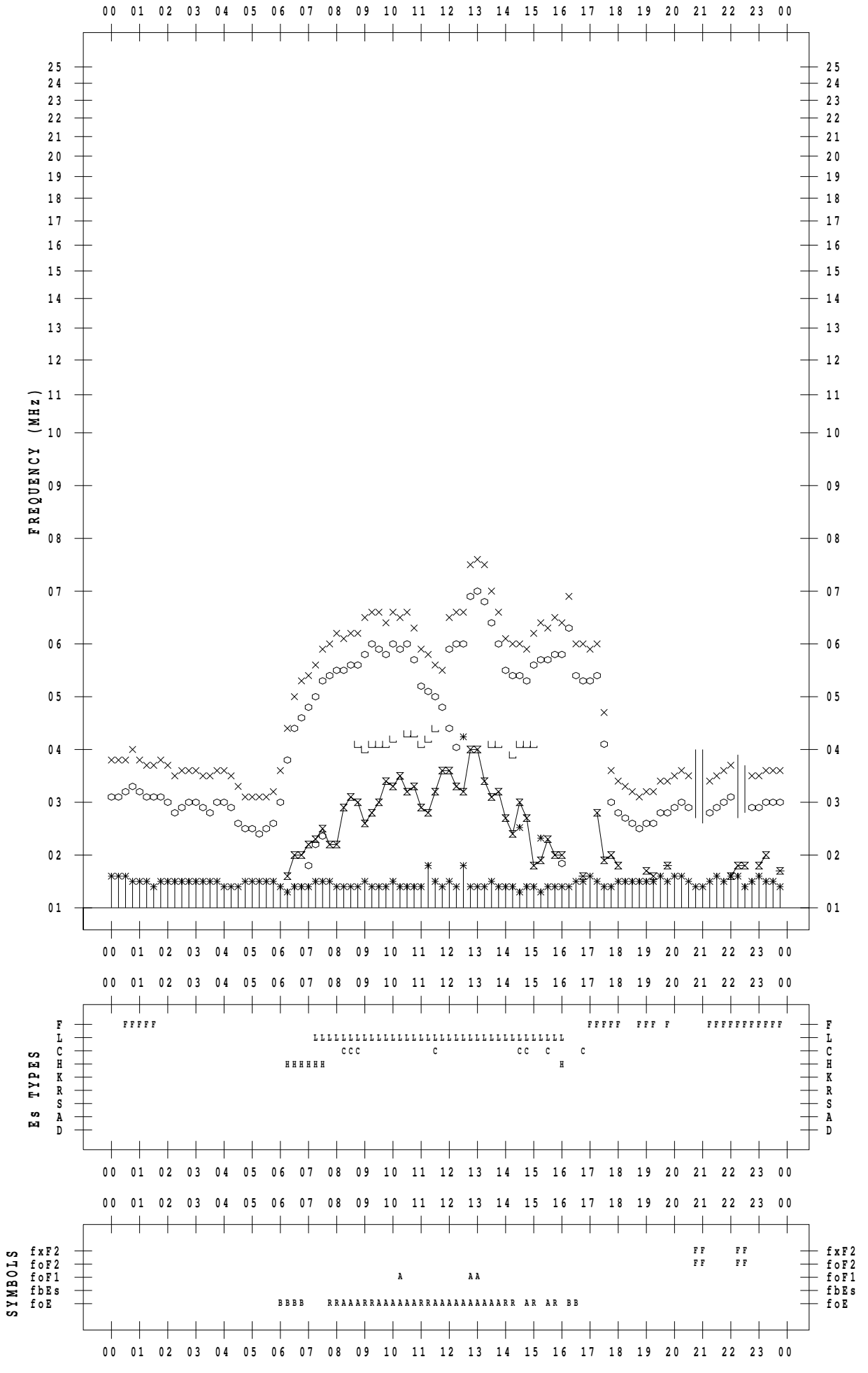
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2009/11/ 8

135 °E MEAN TIME



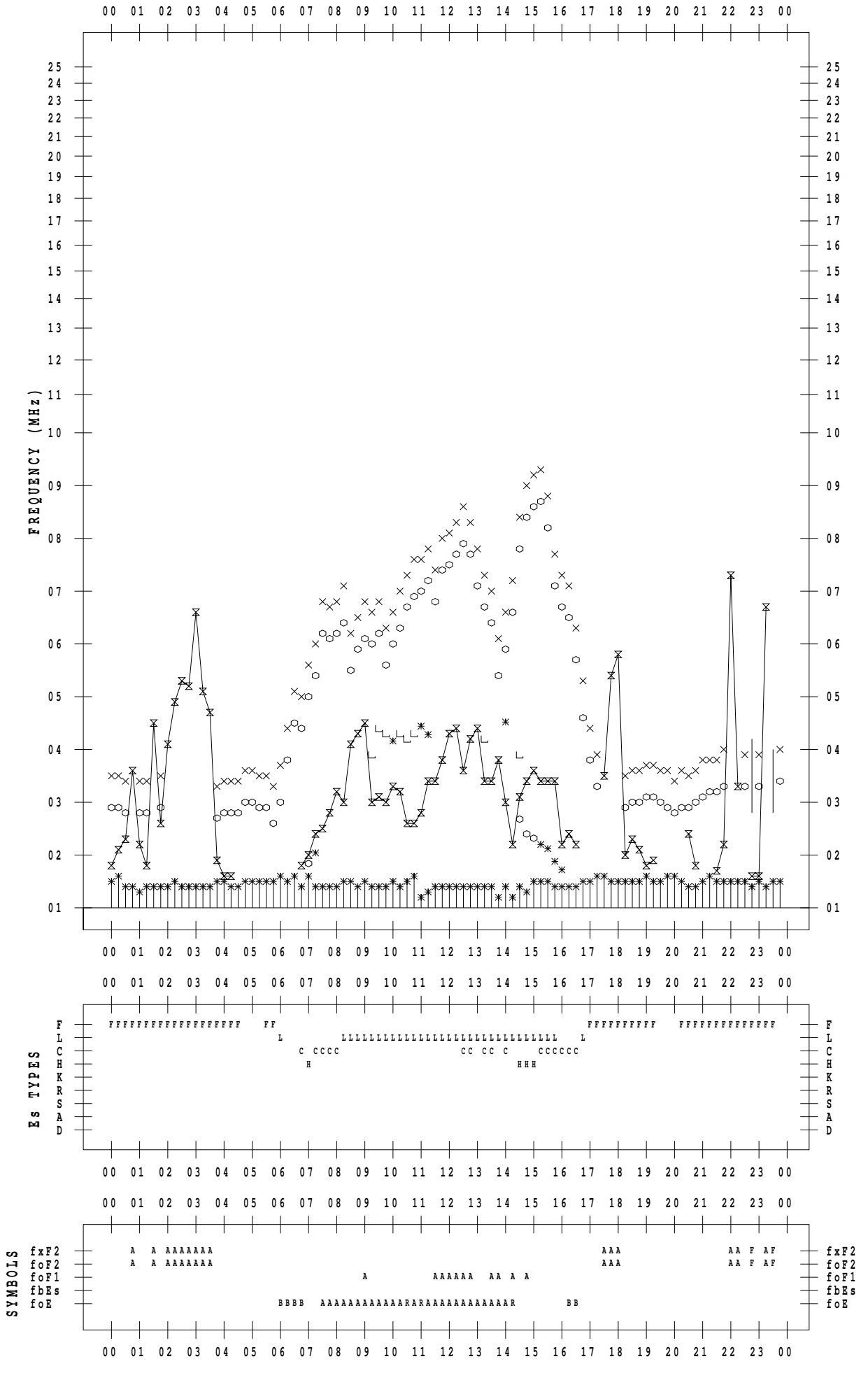
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2009/11/ 9

135 °E MEAN TIME



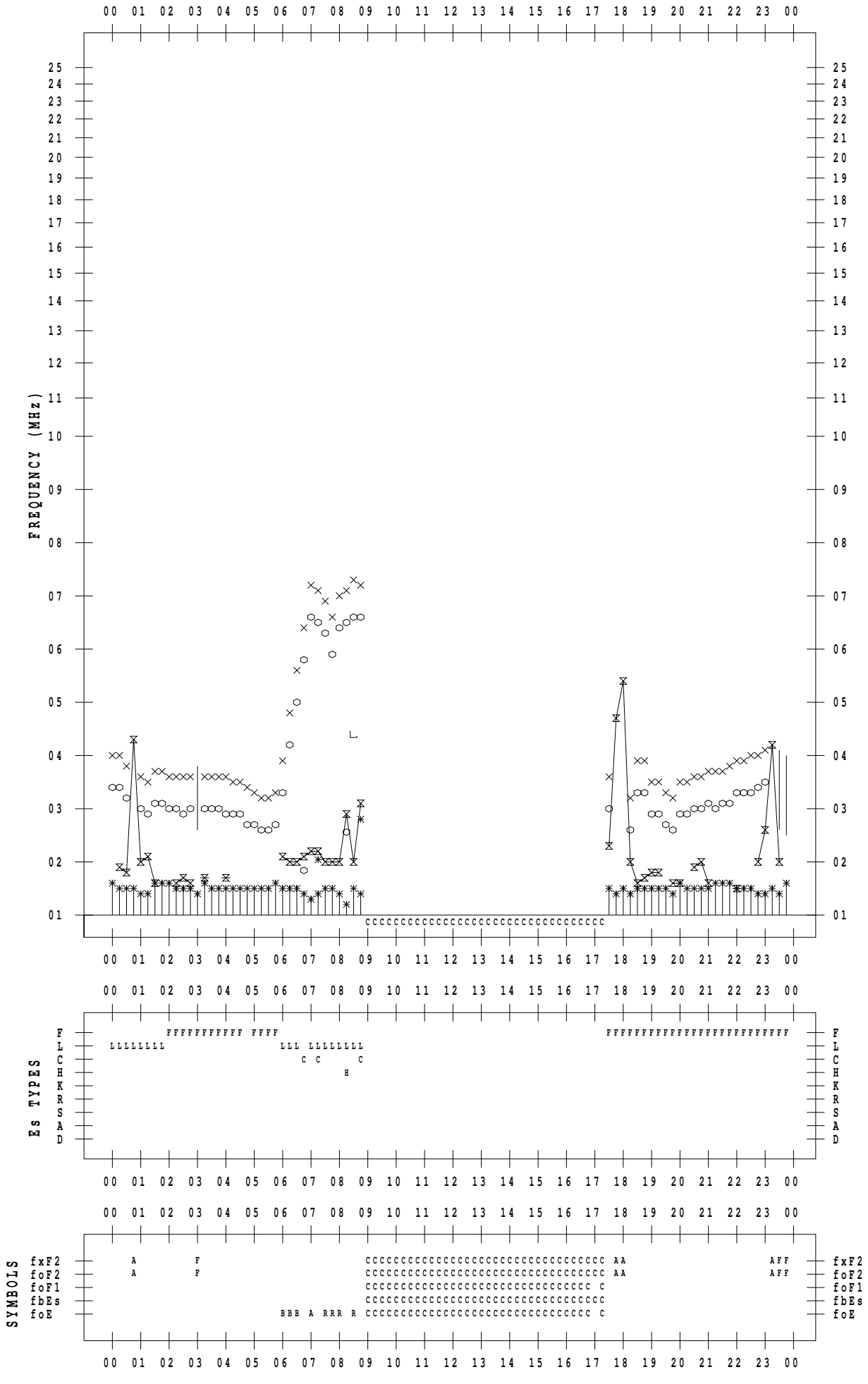
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2009/11/10

135 °E MEAN TIME



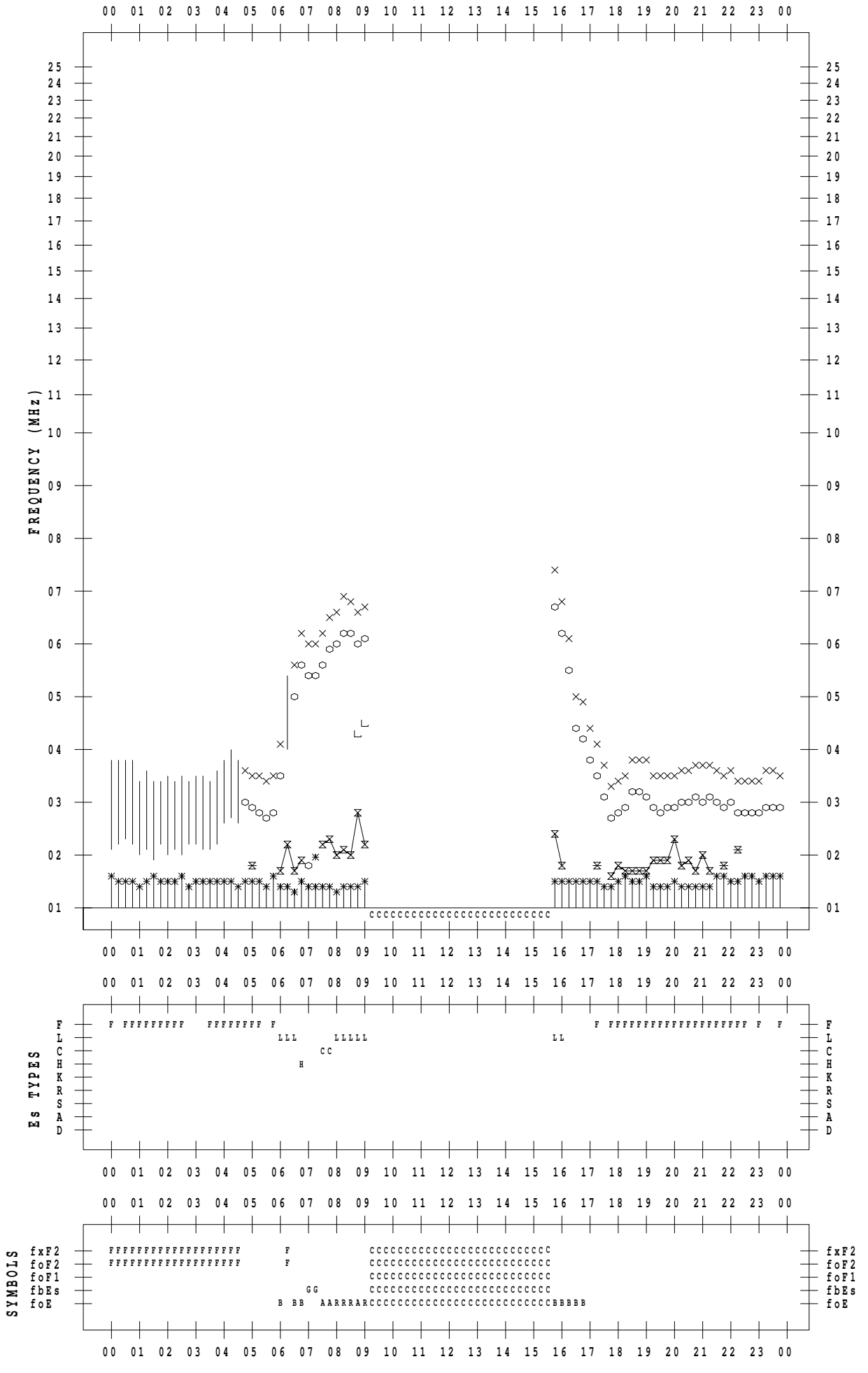
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2009/11/11

135 °E MEAN TIME



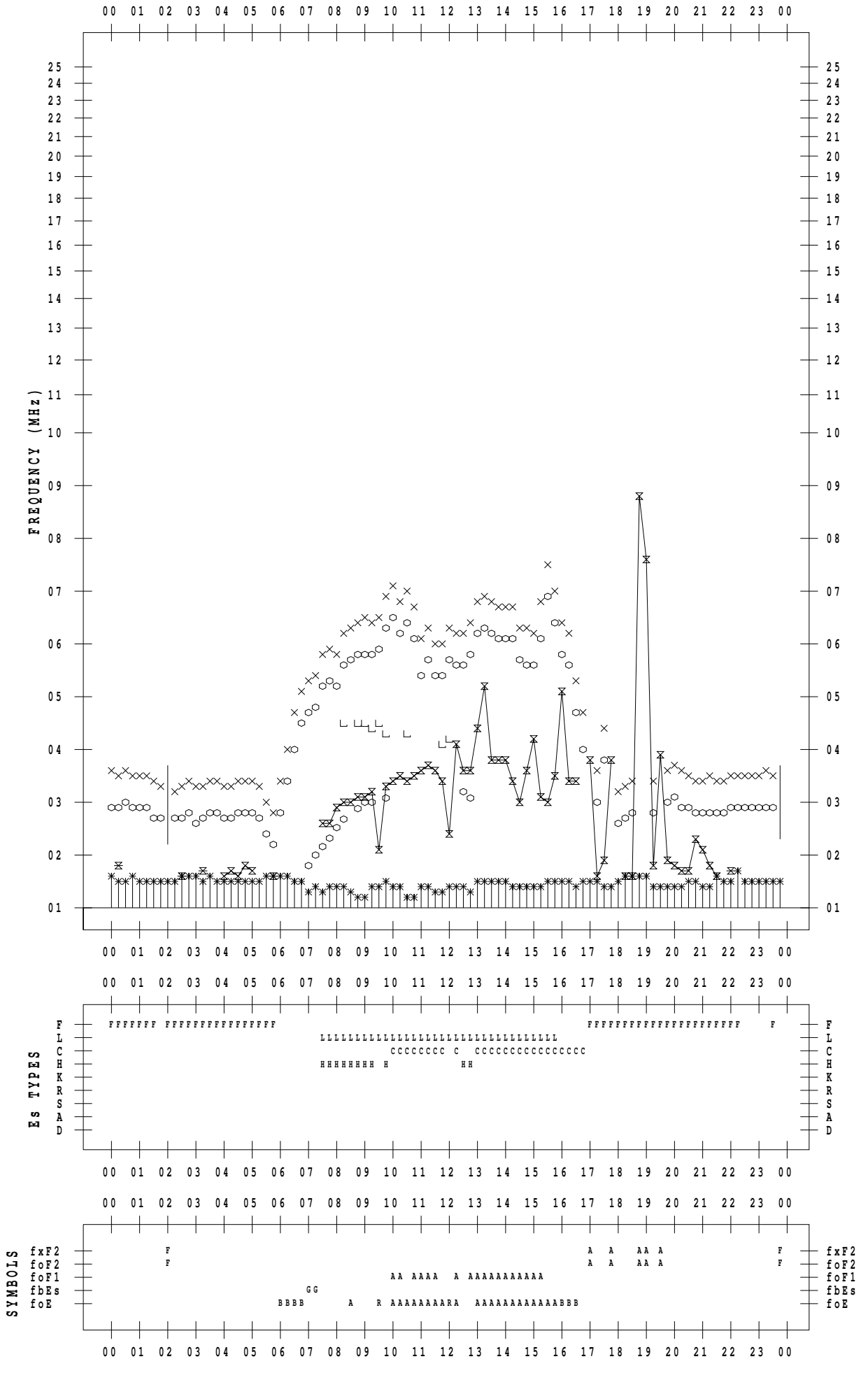
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2009/11/12

135 °E MEAN TIME



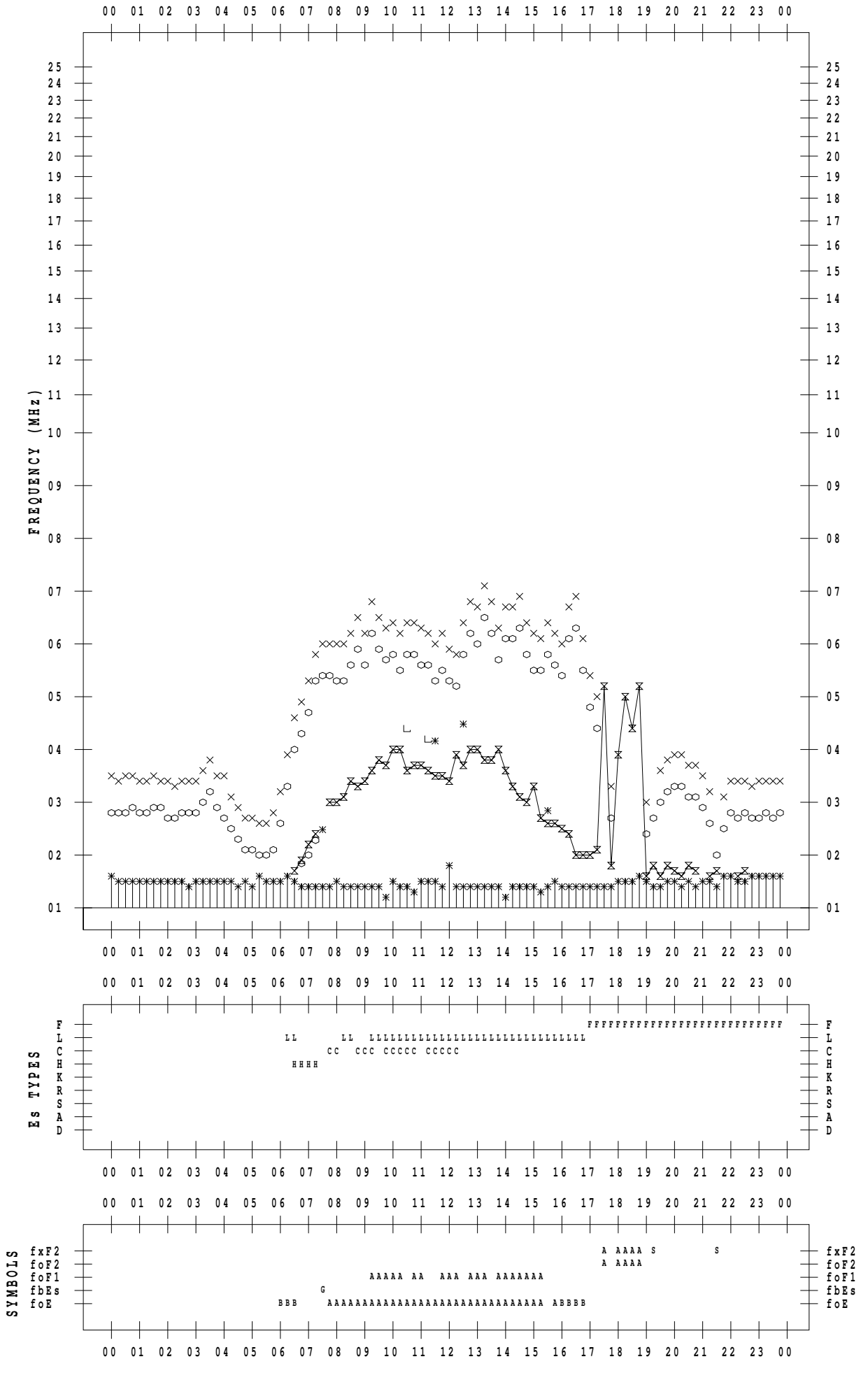
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2009/11/13

135 °E MEAN TIME



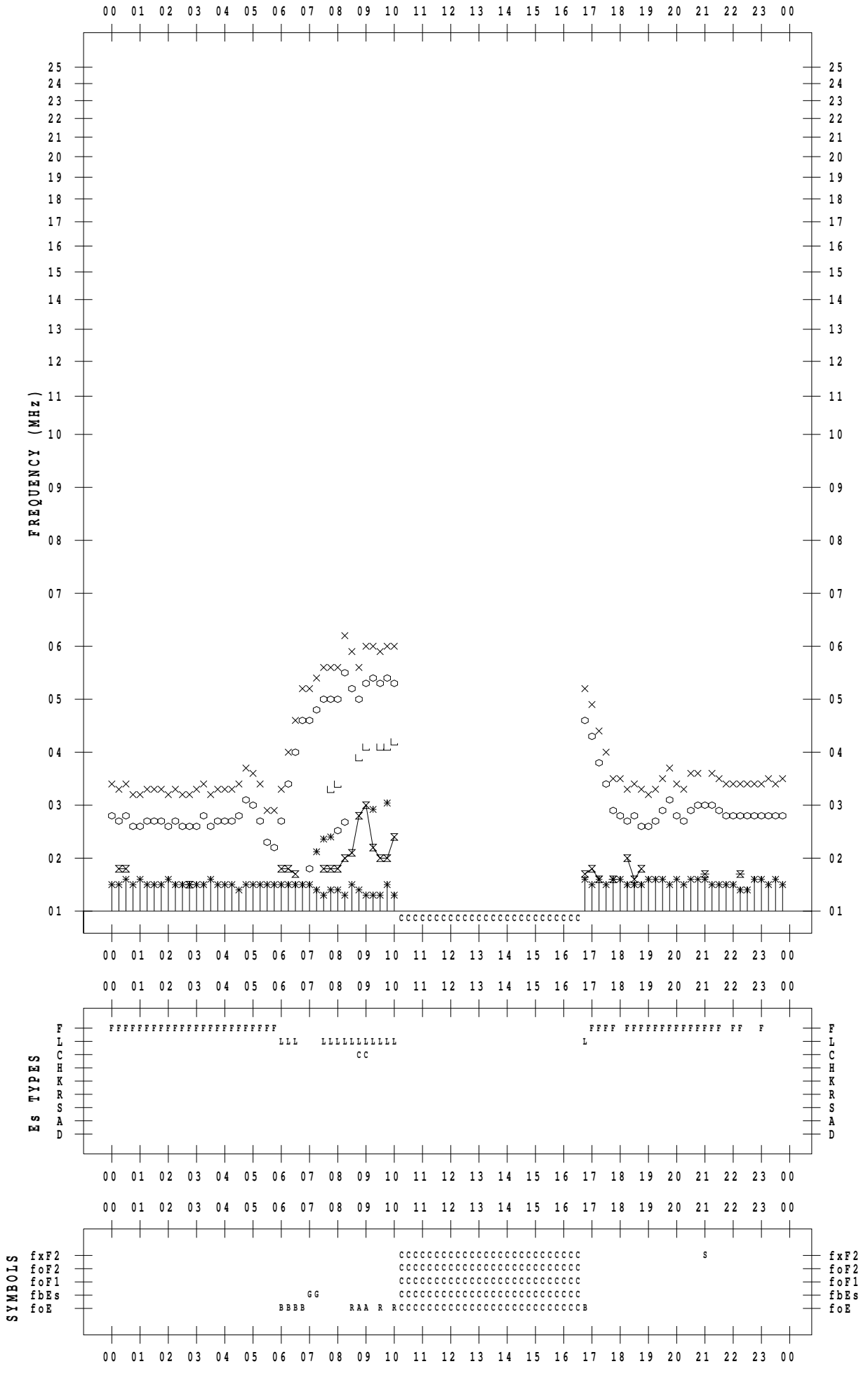
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2009/11/14

135 °E MEAN TIME



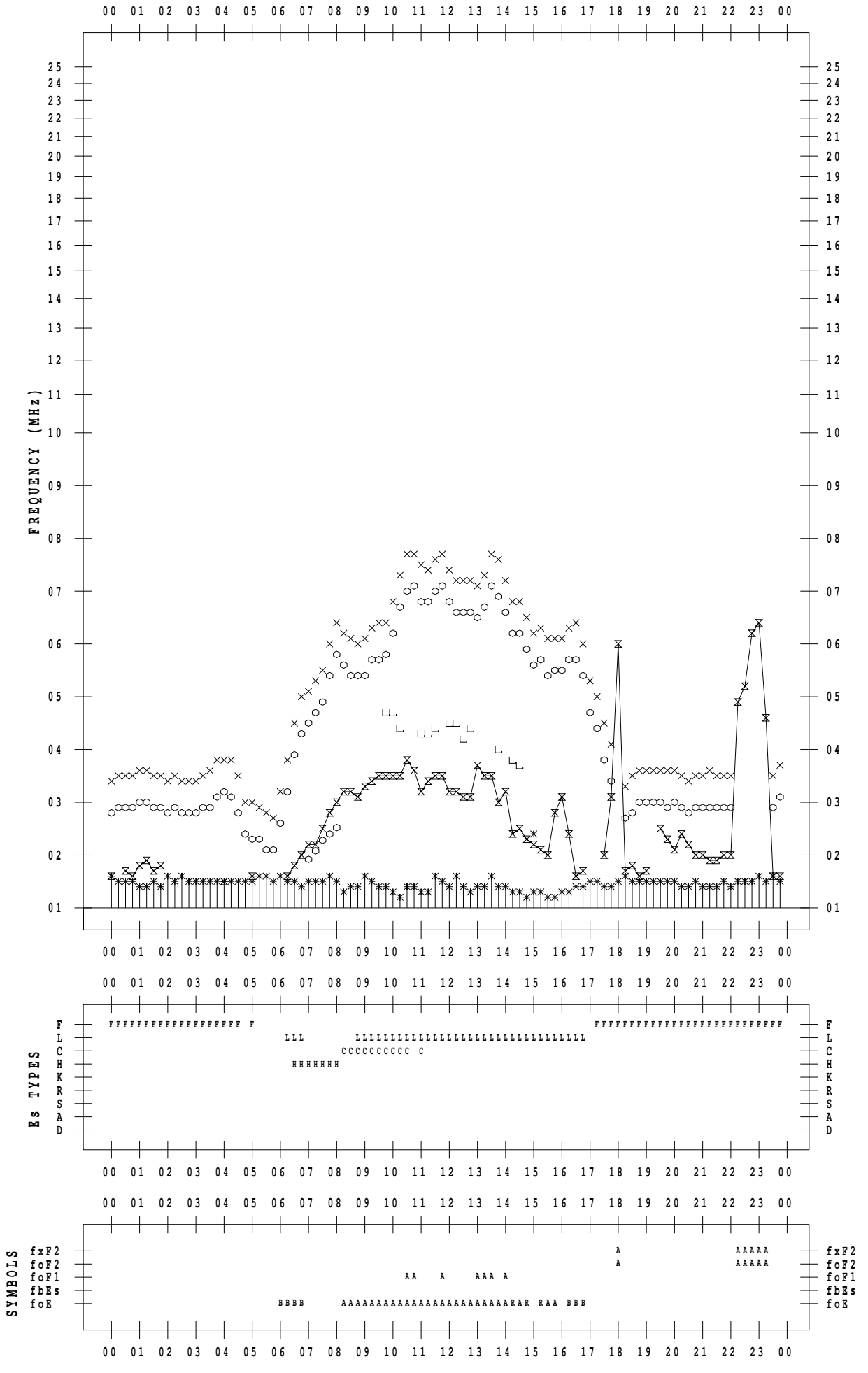
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2009/11/15

135 °E MEAN TIME



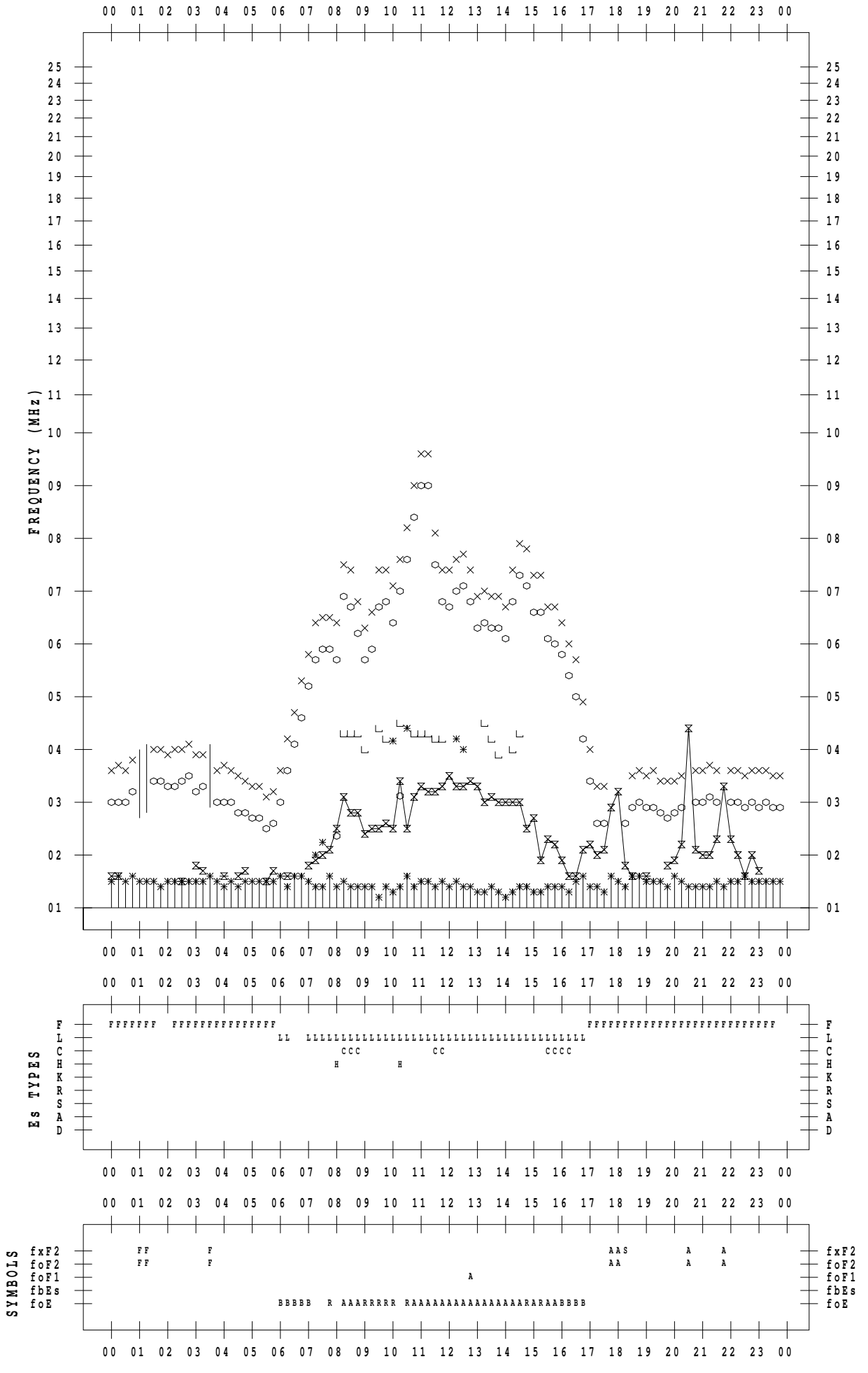
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2009/11/16

135 °E MEAN TIME



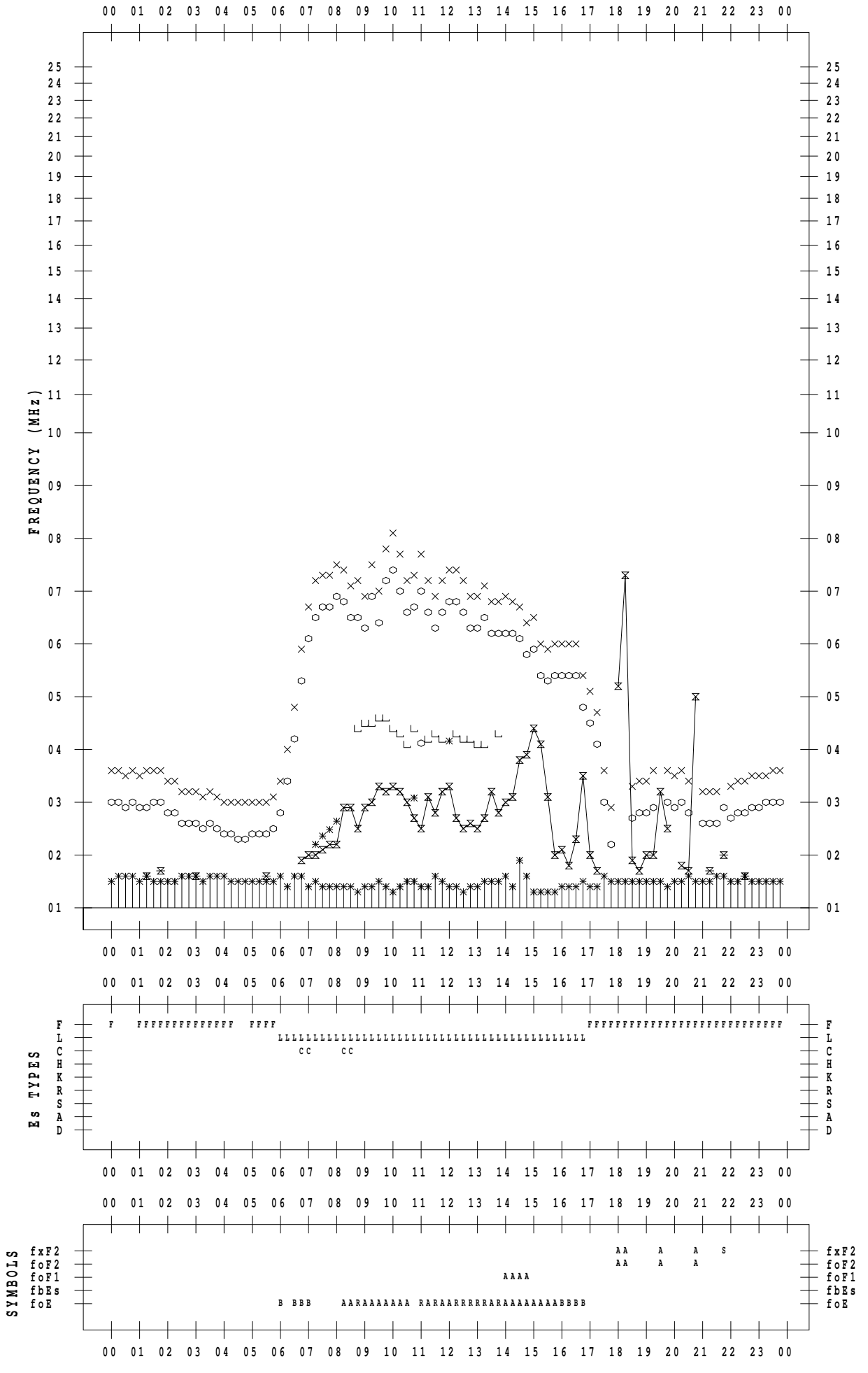
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2009/11/17

135 °E MEAN TIME



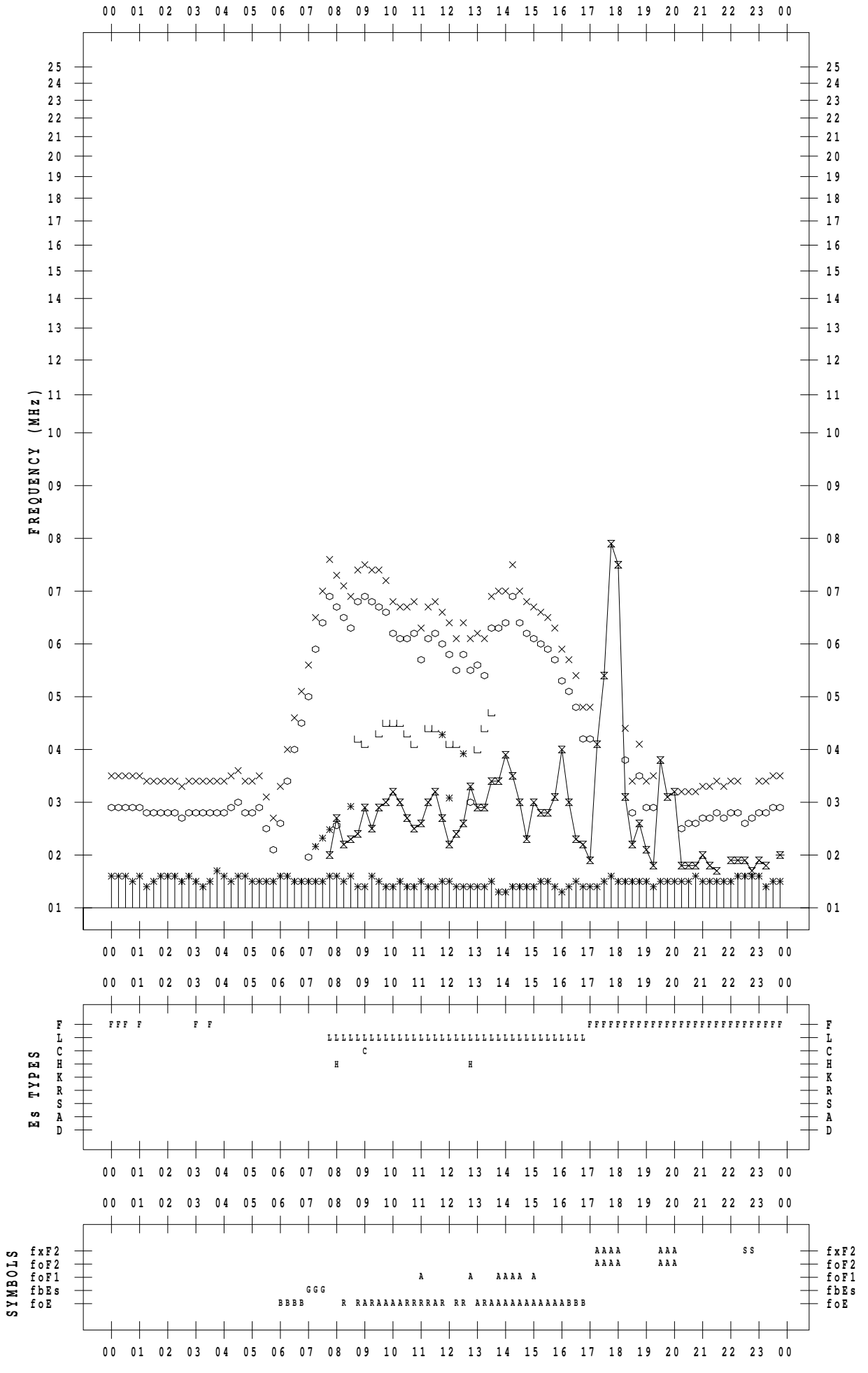
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2009/11/18

135 °E MEAN TIME



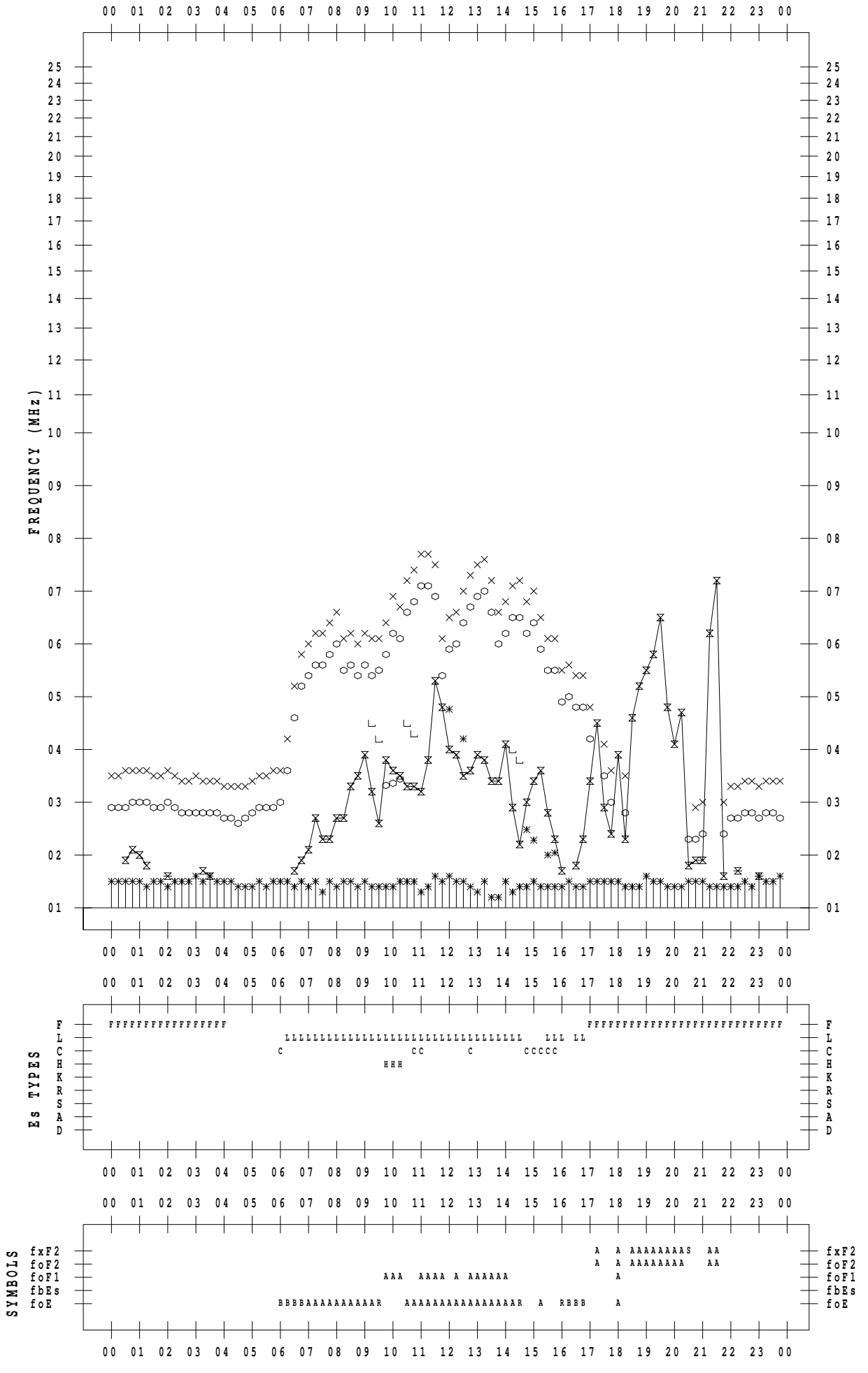
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2009/11/19

135 °E MEAN TIME



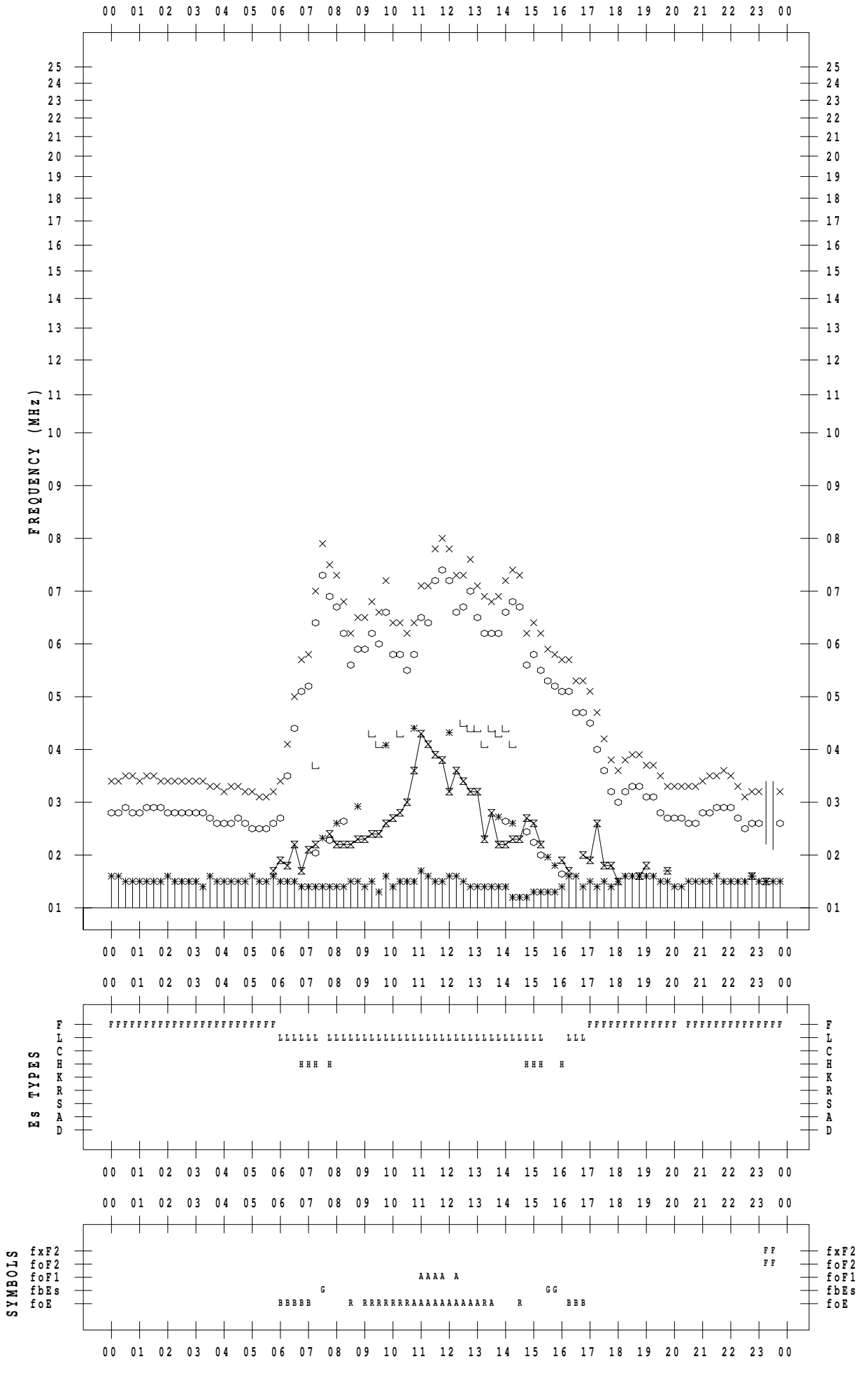
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2009/11/20

135 °E MEAN TIME



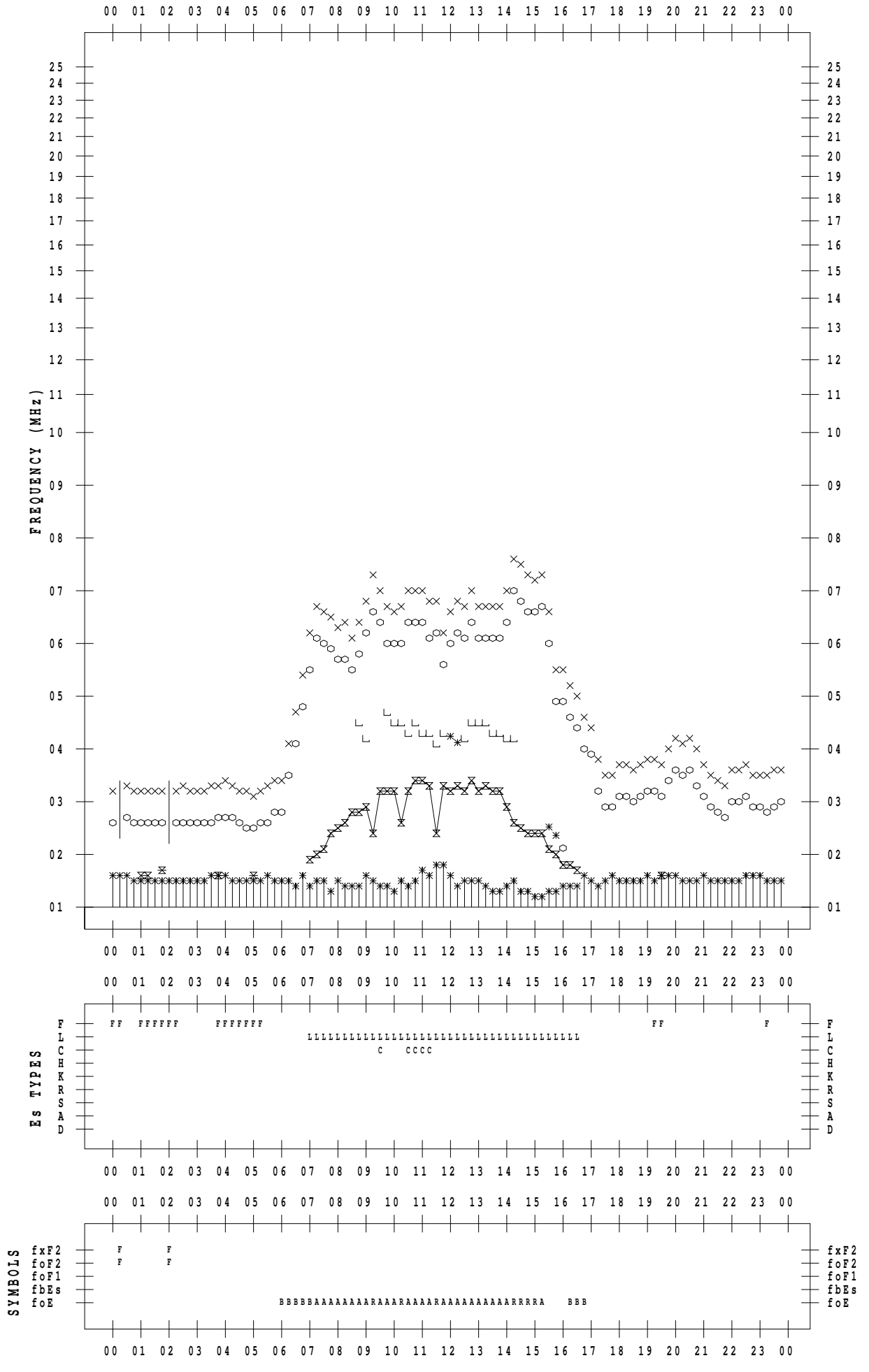
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2009/11/21

135 °E MEAN TIME



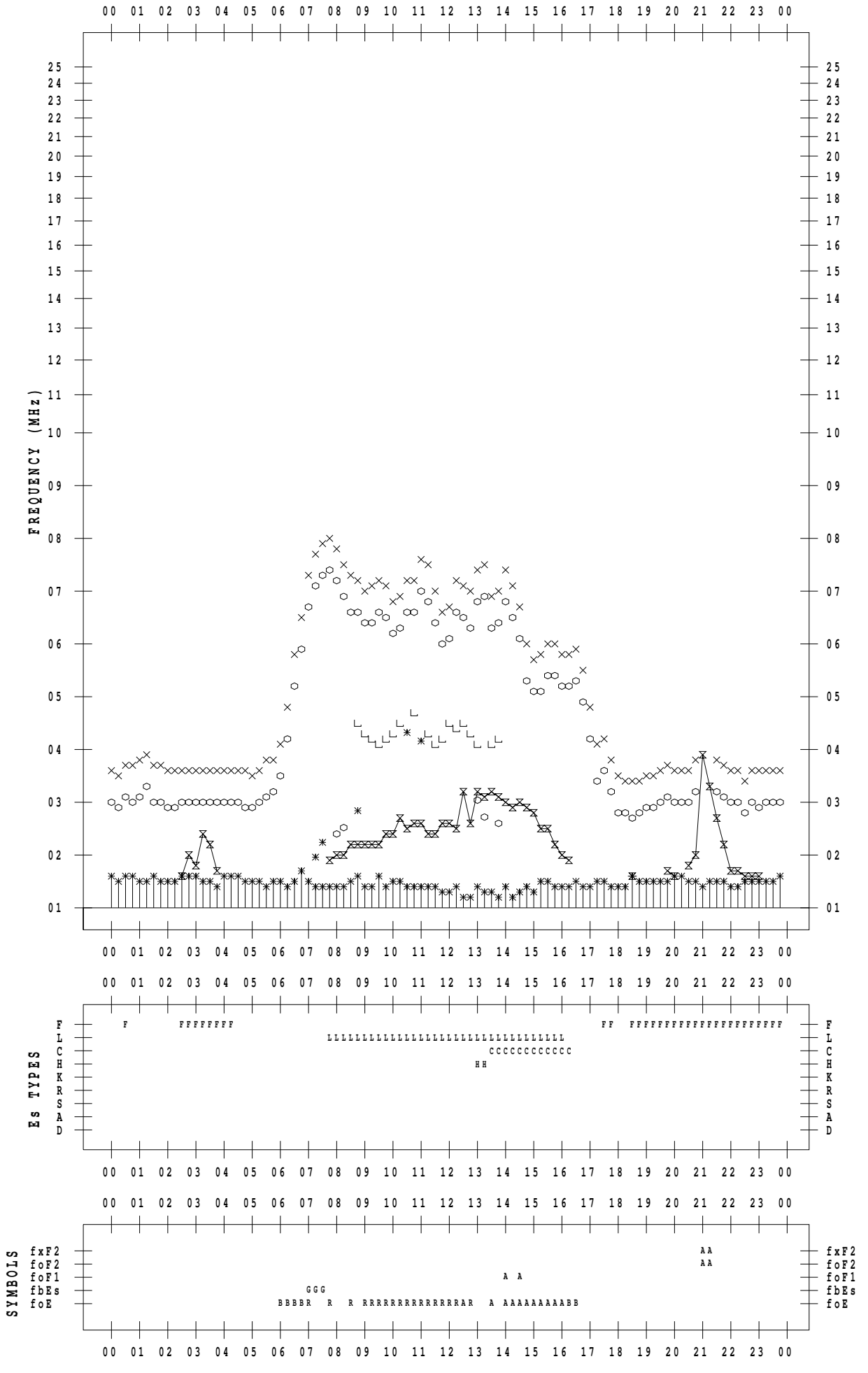
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2009/11/22

135 °E MEAN TIME



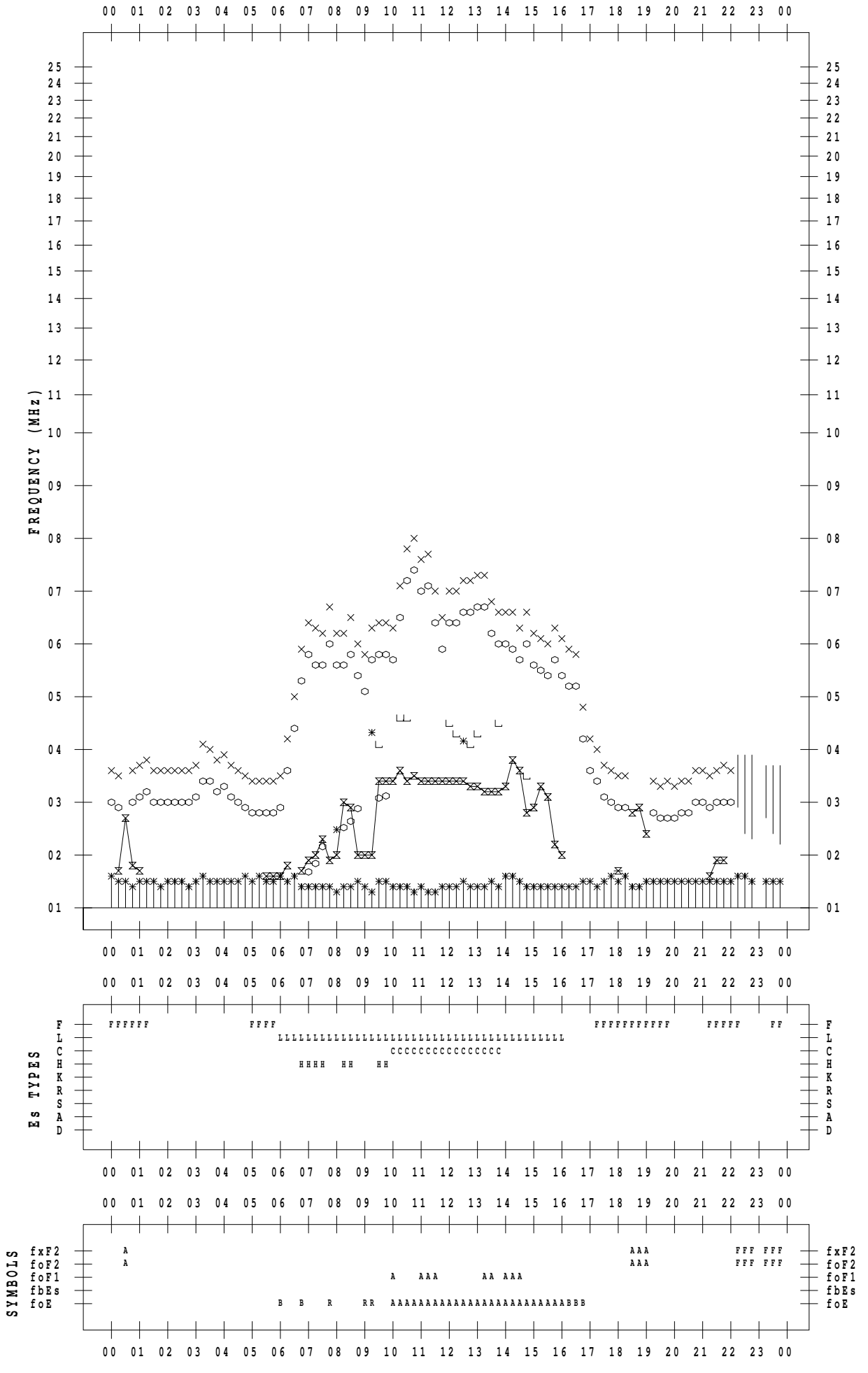
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2009/11/23

135 °E MEAN TIME



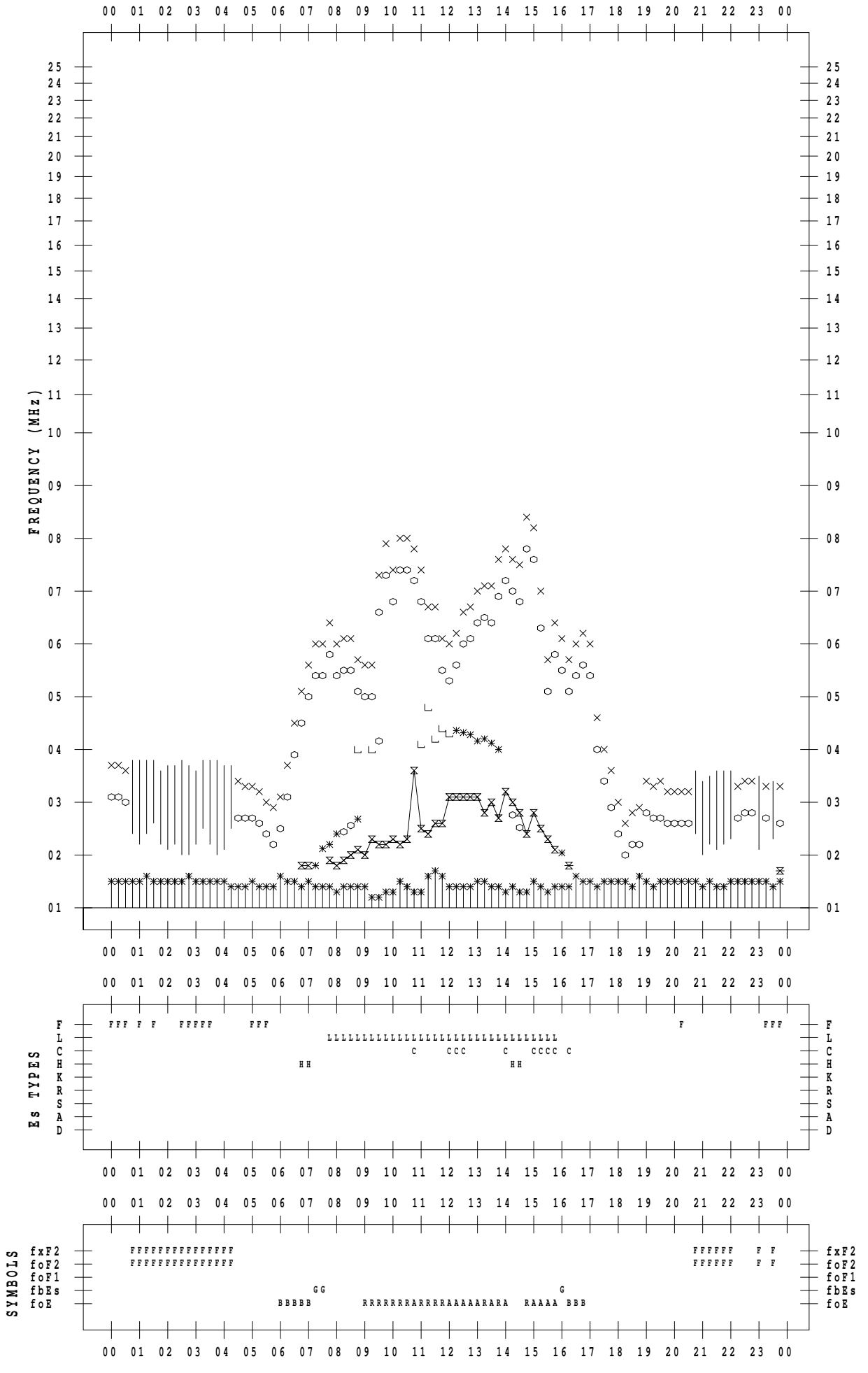
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2009/11/24

135 °E MEAN TIME



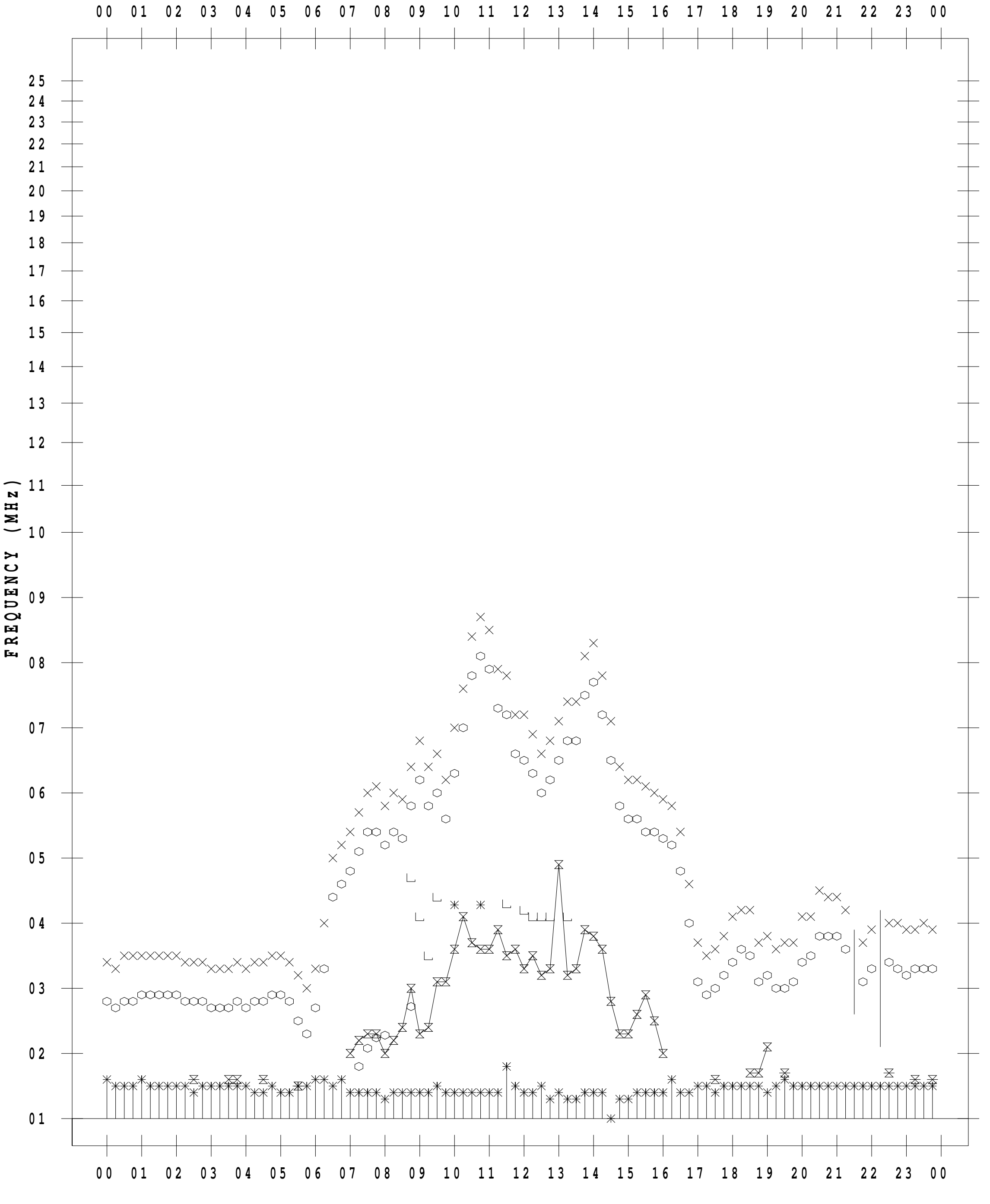
f-PLOT DATA

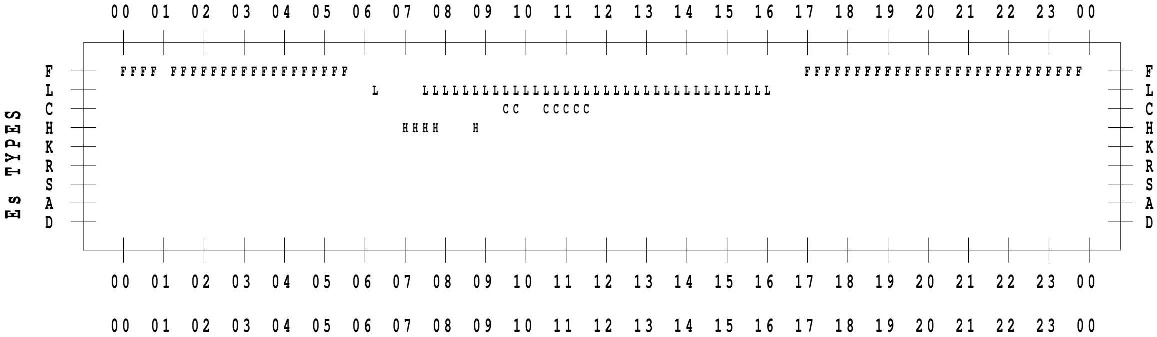
SCALER : I.NISHIMUTA

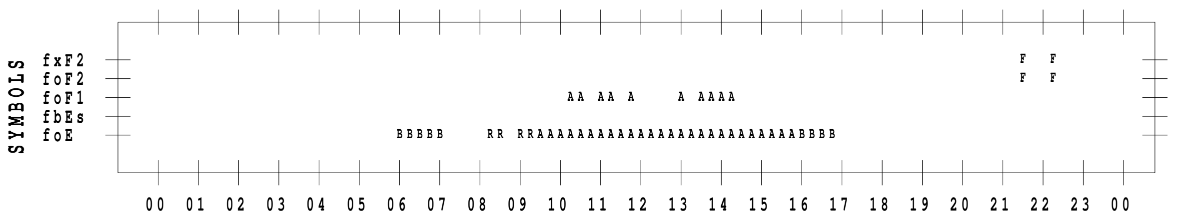
STATION : Kokubunji

DATE : 2009/11/25

135 °E MEAN TIME







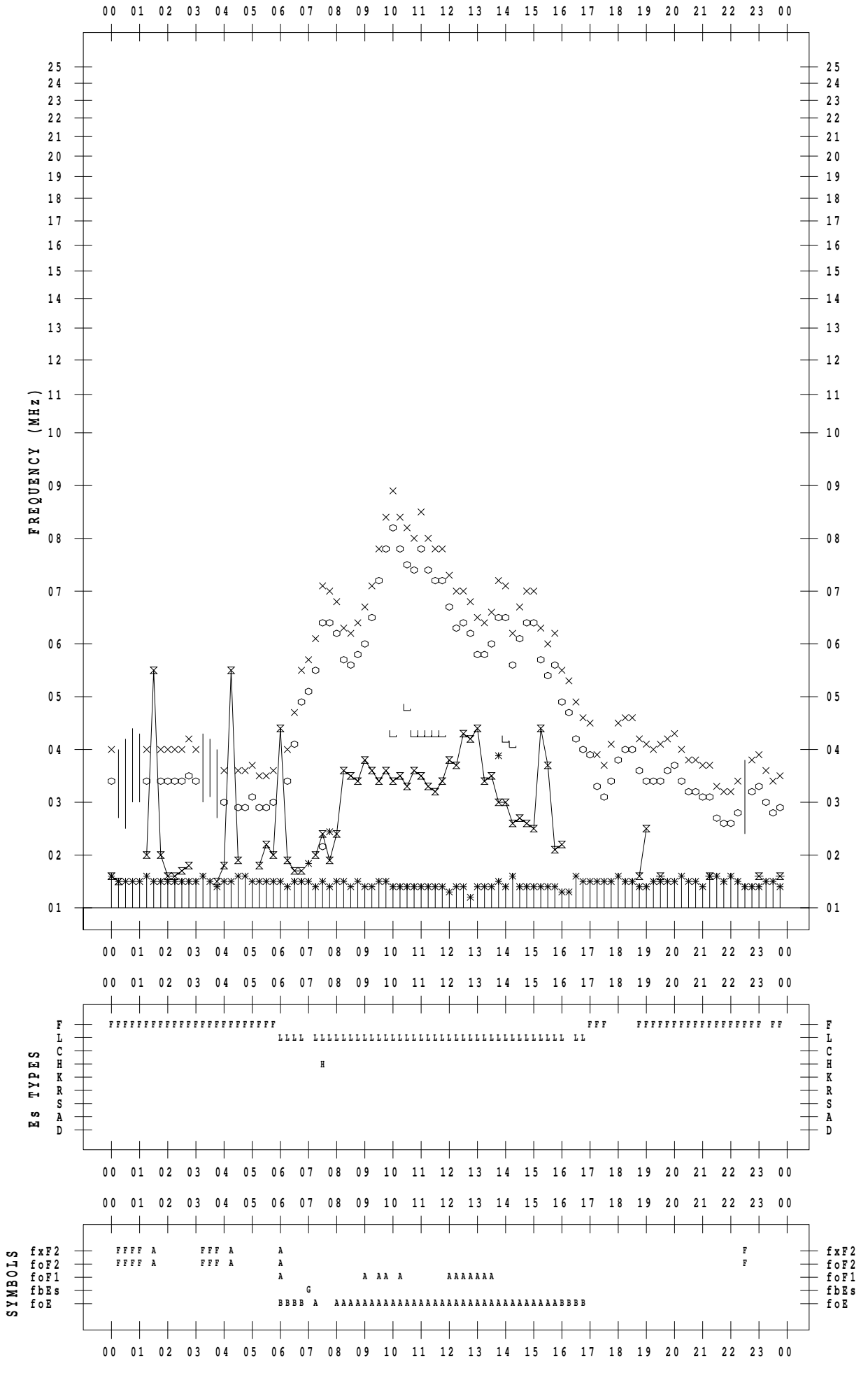
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2009/11/26

135 °E MEAN TIME



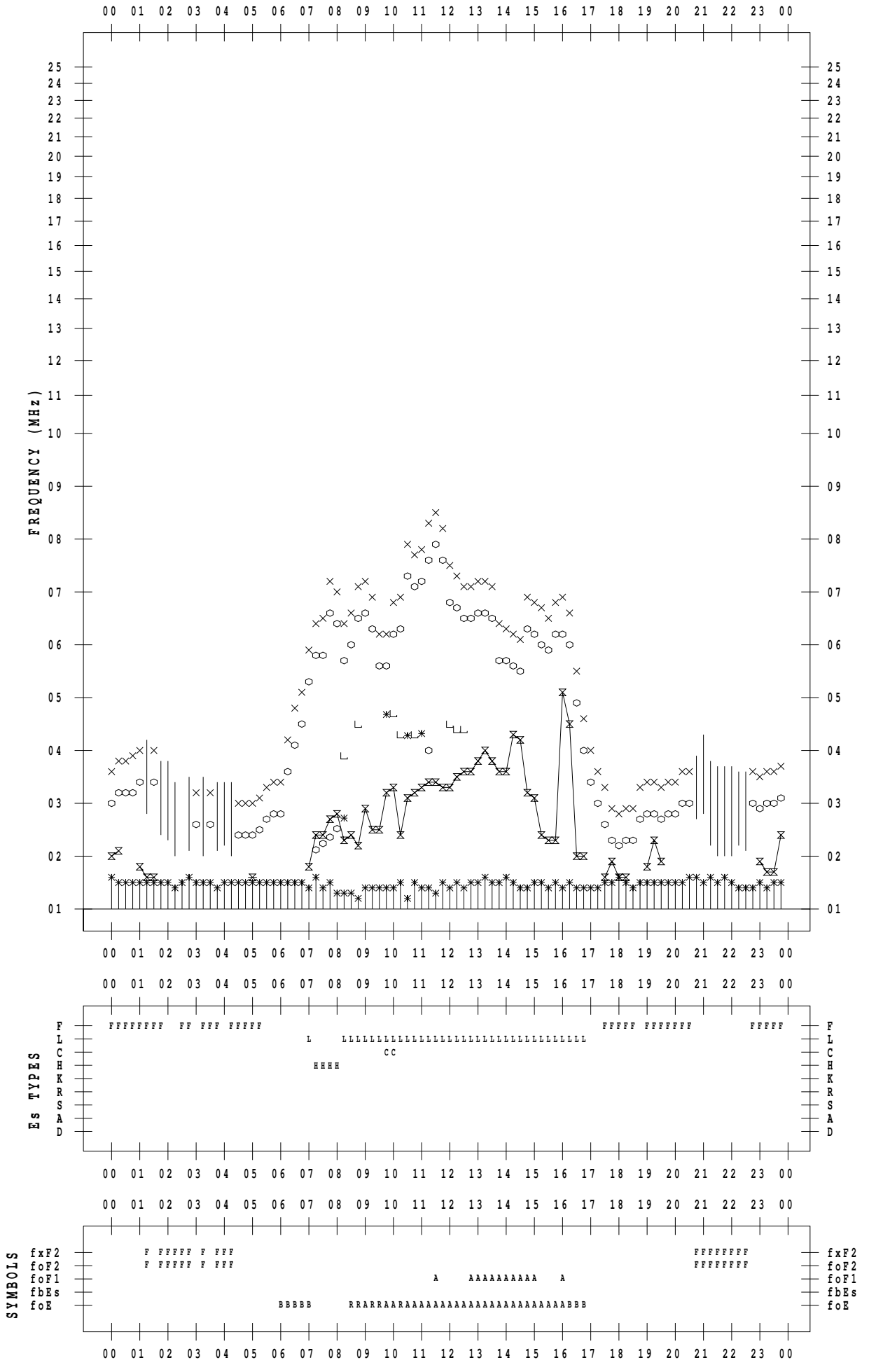
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2009/11/27

135 °E MEAN TIME



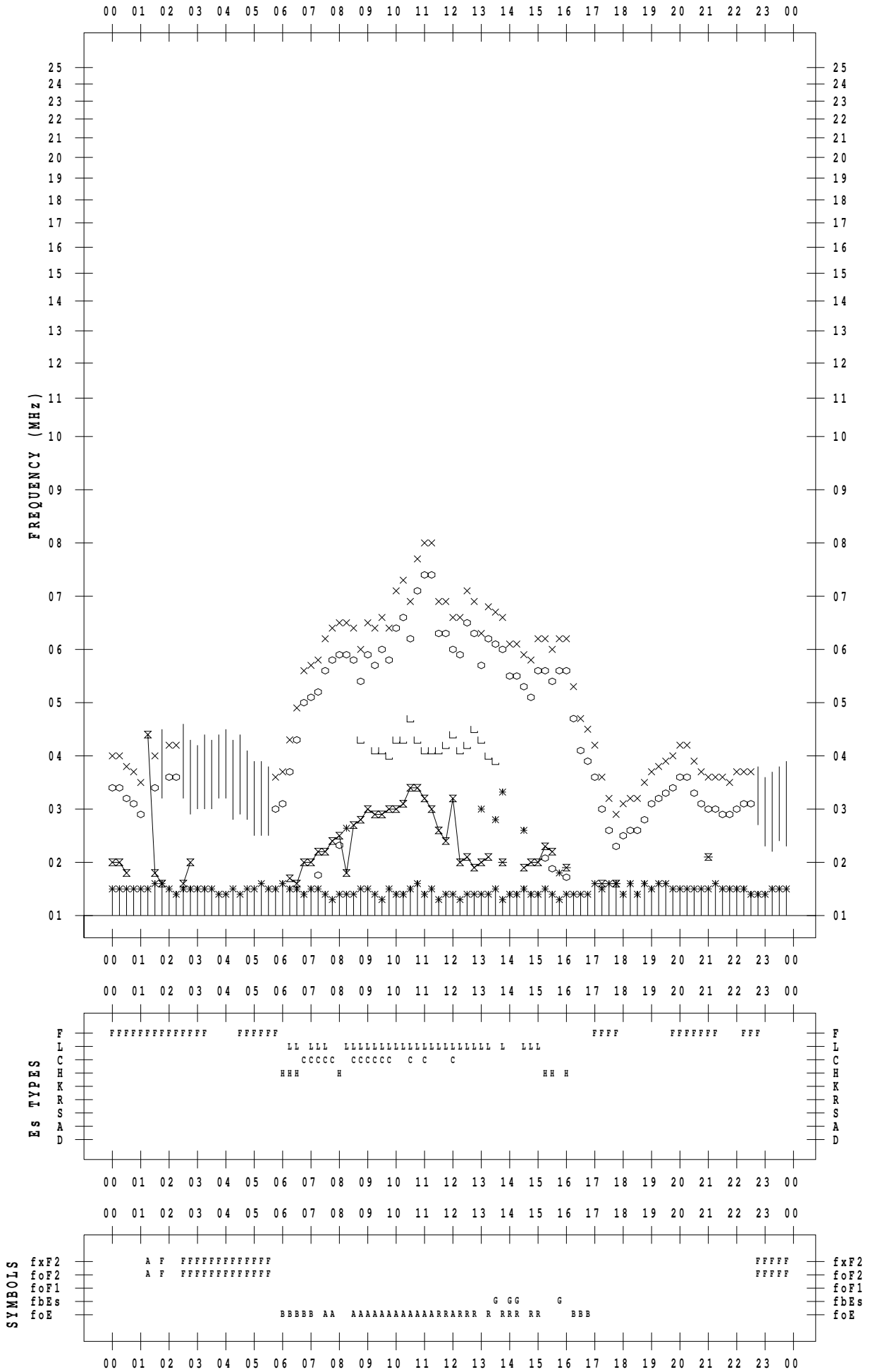
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2009/11/28

135 °E MEAN TIME



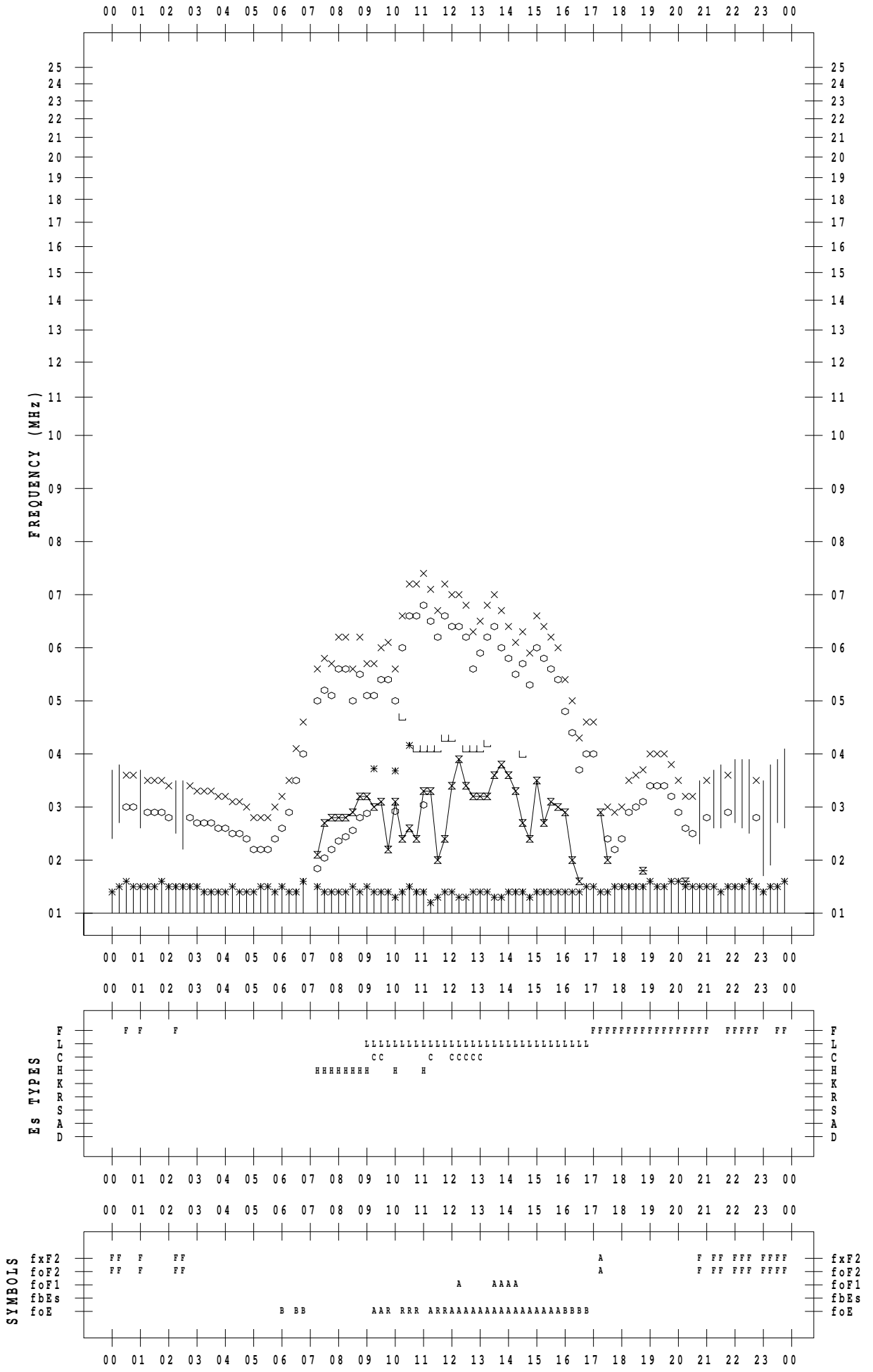
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2009/11/29

135 °E MEAN TIME



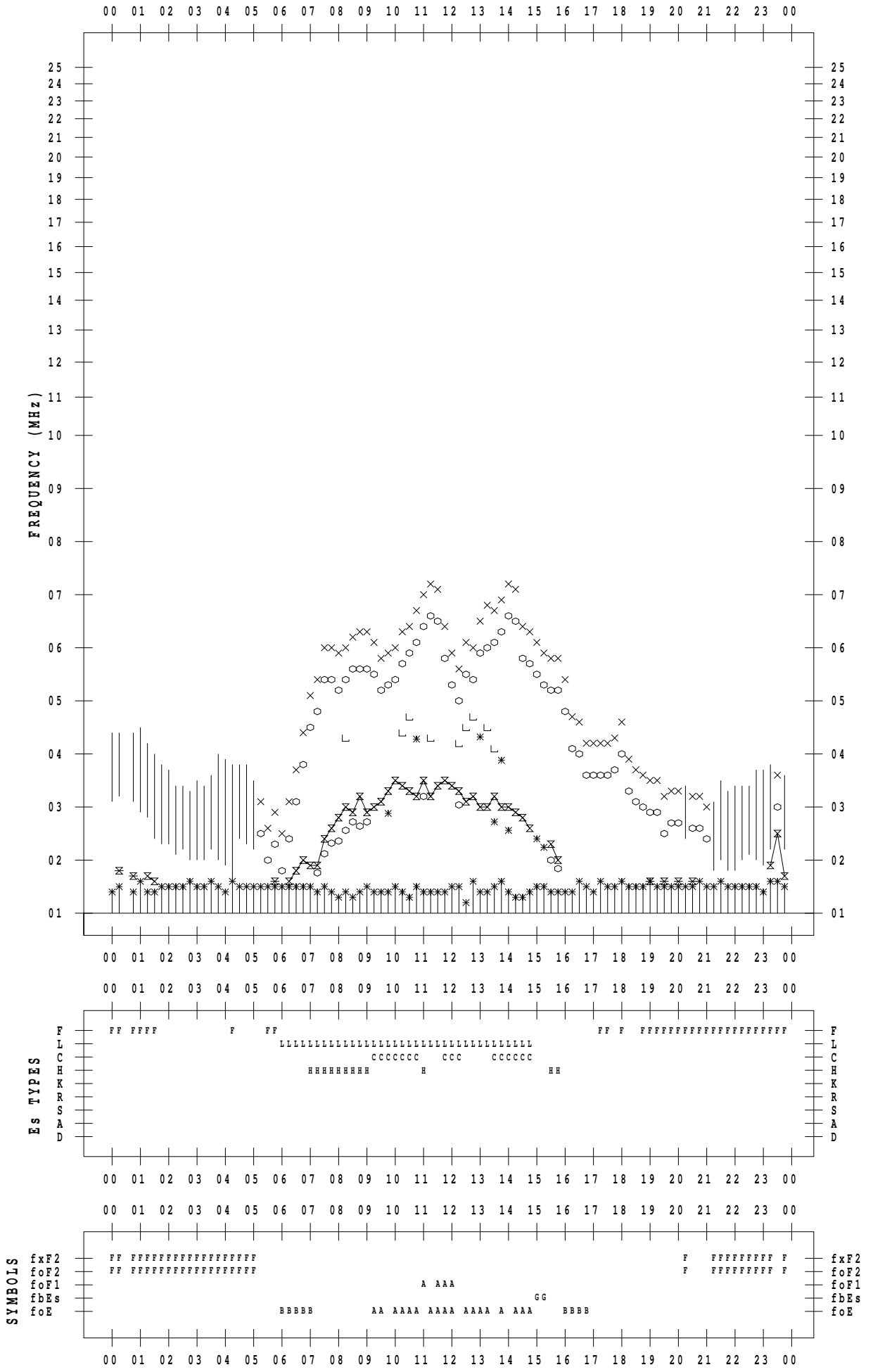
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2009/11/30

135 °E MEAN TIME



B. Solar Radio Emission

B1.Outstanding Occurrences at Hiraiso

Hiraiso November 2009

Single-frequency observations

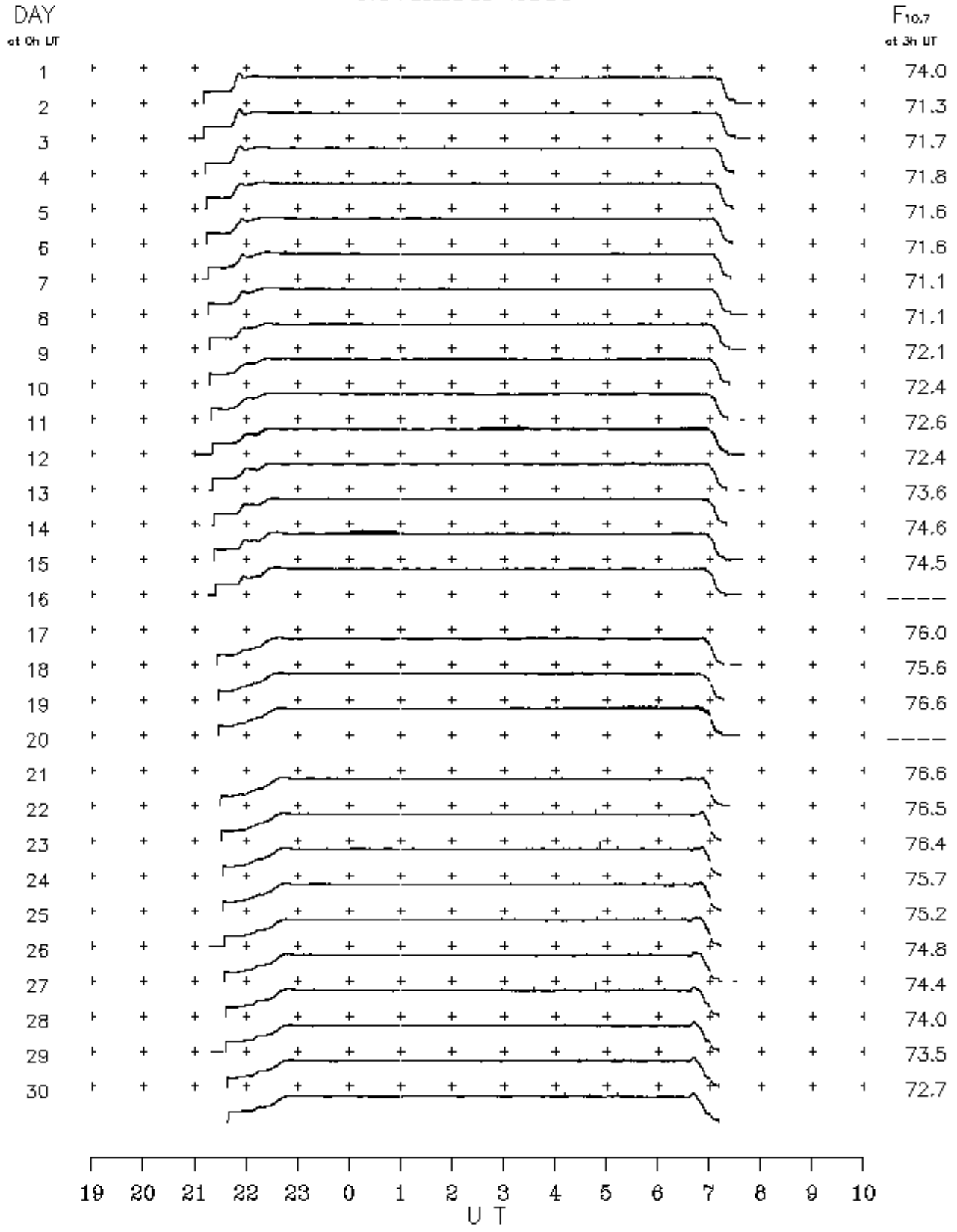
Normal observing period: 2110 - 0735 U.T. (sunrise to sunset)

NOV. 2009	FREQ. (MHz)	TYPE	START TIME (U.T.)	TIME OF MAXIMUM (U.T.)	DUR. (MIN.)	FLUX DENSITY (10^{-22} W m^{-2} Hz^{-1}) PEAK	FLUX DENSITY (10^{-22} W m^{-2} Hz^{-1}) MEAN	POLARIZATION REMARKS

B.Solar Radio Emission

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

November 2009



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/2009/11/