F-730

IONOSPHERIC DATA IN JAPAN

FOR OCTOBER 2009

VOL. 61 NO. 10

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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

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

HOURLY VALUES OF fEs AT Wakkanai

OCT. 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	24	30	G	G	40	41	43	G	40	44	33	G	G	28	G	34	G	26	G
2	G	G	G	G	G	31	33	33	G	G	G	38	40	47	36	G	33	28	40	32	30	40	26	G
3	G	G	24	29	33	28	35	G	34	G	G	G	48	G	40	44	36	43	G	G	26	27	G	G
4	G	G	G	G	G	G		30	33	G	G	G	G	52	37	36	30	26	G	28	G	26	26	G
5	G	G	G	G	G	G				35	G	G	G	G	38	35		G	G	24	27	26	G	G
6	G	G	G	G	G	G		30		G	G	G	G	G	39	36	30	24	28	27	24	26	24	G
7	G	G	G	G	24	G	26	44	G	G	50	G	G	G	43	34	28	G		G	G	G	G	G
8	G	G	G	G	G	G	31	30	G	56	43	G	G		36	38	31	G	G	G		G	G	G
9	G	G	G	G	G	26	G	G	35	50	46	51	40	G	G	G	28	G	G	G	G	G	G	G
10	G	G	G	G	G	G	G	31			41	51	G	G	G	G	G	G	G	G	G	G	G	28
11	24	G	24	26	G	34	35	G	43	39	43	40	40	68	65	52	36	59	40	30	26	25	G	28
12	G	27	G	G	G	G	G	40	41	G	G	G		G	G	38	33	G	G	G	33	26	G	G
13	G	G	G	G	G	G	G	G	33	G	G	G	G	39	G	G	33	29	29	30	28	G	G	G
14	G	G	24	G	G	G	N	30	38	G	G	G	G	G	36	38	30	G	G	G	27	G	G	G
15	G	G	G	G	G	G	34	36	32	34	G	36	39	40	34	32	32	26	G	32	G	G	G	G
16	G	G	G	G	G	G	G	28	33	35	40	G	G	G	G	G		11	25	24	25	G	26	G
17	G	G	G	G	G	G		28	39	34	42	42	G	G	37		G	11	G	23	G	G	G	24
18	30	23	G	G	G	G	G	39	38	44	40	42	40	39	34	34	36	35	36	40	35	28	G	32
19	34	30	25	31	26	26	G	33	39	37	61	G	G	G	G	33	42	54	43	G	G	G	G	G
20	G	G	G	24	G	29	30	32	32	41	45	40	G	60	42	42	52	40	71	52	67	85	50	50
21	36	36	39	34	34	29	11	38	39	41	42	39	39	39	34	33	G	37	32	G	G	G	G	G
22	G	G	G	G	26	G	28		32	39	37	G	G	35	G	G	27	19	G		G	26	G	56
23	58	39	32	G	G	G	G	28	33	52	54	49	61	53	G	34	G	G	G	G	G	G	G	G
24	27	G	33	33	29	23	G	30	42	58	60	56	62	G	37	46	60	52	G	26	39	34	31	24
25	32	27	32	34	30	25	26	32	32	43	50	44	36	G	G	G	28	29	28	G	G	37	40	29
26	G	23	39	33	27	26	26	46	37	42	44	43	53	53	60	40	44	34	33	34	30	27		G
27	G	33	27	G	G	G	G	30	G	G	50	47	41	G	43	38	35	32	28	30	30	24	24	G
28	26	G	G	G	G	34	G	27	37	34	40	40	G	45	G	G	G	27	G		G	G	G	33
29	28	G	G	G	29	G	G	28	36	72	G	G	G	G	35	34	32	35	27	G	G	G	39	35
30	33	28	27	33	G	G	34	33		39	40	G	G	G	G	34	32	G	29	G	27	27	G	G
31	G	51	39	G	G	G	G		35	35	39		40	50	34	52	45	30	28	G	G	G	G	G
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	31	26	28	27	30	31	30	30	30	31	30	29	31	30	29	30	31	30	31
MED	G	G	G	G	G	G	6	30	34	36	40	37	G	G	35	34	32	26	26	G	24	G	G	G
U Q	27	27	27	26	26	26	30	33	38	42	45	43	40	45	39	38	36	35	29	30	30	27	26	28
L Q	G	G	G	G	G	G	G	28	32	G	G	G	G	G	G	G	27	G	G	G	G	G	G	G

HOURLY VALUES OF fmin AT Wakkanai

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

HOURLY VALUES OF foF2 AT Kokubunji

OCT. 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	30	28	28	27	26	48	69		57	59	56	71	64	65	67	59	54	54	46	37	39	26	
2		38	39	A	30	30	45	53	64	54	53	59	75	68	55	55	60	52	54	44	36		36	34
3	32	34	28	27	A	27	47	52	59		57	61	66		55	59	58	55	49	33	31		30	28
4	34	34	34	32		A	44		69	63	58	71	62	53	57	66	63	59	46	25	26	30	32	34
5	34	27	30	30	27	27	49	59	59		59	66	63	65	60	53	52	47	54	38	36	36	28	34
6	34	32	30	30	27	27	43	54	59	52	53	63	67	69	44	54	59	58	38	27		30		
7		30		30	30		21	42	59	52		63	62	59	53	57	67	52	43	32	31	A	31	31
8	32	34	30	30	31		32	42	42	A	A	A	53	A	65	52	43	53	43	31			27	28
9	27	30	28	27	27		38	46	56	53	55	62	67	50	42	54	52	52	48	43	36	42	37	43
10		42	37	36	41	34	51	56	54	55	64	64	69	62	58	55	52	55	47	A	37	30	30	27
11		A		30	28		38	47	47	57	C	C	C	C	C	C	C	A	A	A			A	
12	32	28	30	30			44	56	46	55	61	74	71	62	60	58	49	58	47		A	A	30	28
13		31	30	31			36		49	60	60	65	65	51	52	53	47	55	47		31	31	30	32
14	34	35	32	31	31	30	44	54		64	59	66	59	53	54	54	47	64	52	36	36	33	32	32
15	32	32	34	30	28		39	58	66	69	59	58	56	52	54	63	55	55	46	26	34	A	32	34
16	32	32	30	30		27	42	59	51	59	64	58	56	51	51	60	66	56	42	32		A	A	32
17	A	34	32	32			36	60	45	52	55	58	65	58	71	61		50	44	A	39	A	A	32
18	A	31	30	32	27		40	59	41	A	62	85		66	58	58	59	52	49	34	39	36	35	36
19	34	34	35	34			39	58	57	74	66	72	74	65	59	57	52	56	36	A	28	34	32	32
20	32	32		34	A		38	52	59	64	64	62	50	51	66	54	51	47	A	A	A	34		32
21	34	32	A	30	26		38	59	56	55	55	58	65	51	58	59	54	45	A	A		34	30	30
22	30	A	A	28	30		36	55	58	58	49	67	64	57	56	61	65	A	A	A		A	26	34
23	34				30		44	64	62	A	68	91	66	72	69	71	66	55	43	45		31	37	42
24	36	30	32	35	28	23	37	48	72	79	68	77	69	A	76	74	75	61	34		27	A		A
25		28	A	32				55	62	78	72	70	77	68	77	71	64	55		41	38	38	39	39
26	38	38		31	28	28	37	59	62	67	77	73	72	68	65	65	56	45	47	38	34	32	36	32
27	32	31	31	32	32	28	41	63	64	61	73	68	63	62	62	67	59	51	A	28	34	28	34	32
28	28	30	31	30	28		36	53	59	61	65	68	78	66	61	65	58	49	27		32	34		27
29		36	34	32	30	27	37	54	59	64	76	77	72	55	51	55	60	44	27	32		31	34	27
30	34		36	37			36	62	68	56	65	69	81	80	76	66	54	43	36	A		A		36
31	A	31	A	36	28		41	52	59	65	67	79	66	60	57	62	66	44		27	31	32	34	34
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	21	27	22	29	21	12	30	29	29	26	28	29	29	27	30	30	29	29	24	19	20	19	23	27
MED	34	32	31	31	28	27	39	55	59	60	62	66	66	62	58	59	58	53	46	33	34	33	32	32
U Q	34	34	34	32	30	29	44	59	62	64	66	72	71	66	65	65	63	55	48	41	36	36	35	34
L Q	32	30	30	30	27	27	37	52	52	55	57	61	62	53	54	55	52	48	40	28	31	31	30	30

HOURLY VALUES OF fEs AT Kokubunji

OCT. 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	G	G	G	G	G	27	36	G	G	G	47	42	G	G	35	G	29	30	G	28	32	G	
2	27	G	50	58		49	49	41	64	50	G	40	40	40	G	G	G	G	29	32	G		G	G
3	G	25	37	30	33	28	30	34	G		G	G	G	51	G	44	46	50	G	G	G		G	G
4	G	G	G	G	G	29	G			G	G	G	G	G	G	G	G	28	G	G	G	G	G	G
5	G	G	G	G	G	G	G	31	G		38	G	G	G	G	G	36	30	26	24	G	23	G	G
6	G	G	G	G	G	G	G	30	50	G	G	G	39	G	43	40	38	25	G	G		G	25	
7	G	26	G	G	G		39	40	G	G		G	G	G	G	G	G	G	23	G	G	29	G	G
8	G	G	G	G	25		29	45	58	52	68	73	45	81	44	G	G	37	G	G	27	26	G	G
9	G	G	G	G	G		33	40	G	G	65	G	G	G	G	G	G	G	G	36	27	G	G	G
10		G	G	G	G	G	G	G	G	G	39	G	G	G	G	G	52	G	22	35	35	28	28	27
11	31	32	30	G	G		29	33	G	57	C	C	C	C	C	C	C	81	57	52	36	32	36	36
12	G	G	G	G		G	28	31	34	58	G	G	G	47	40	G	G	G	G		34	38	29	24
13	26	G	G	G			G		G	40	G	G	G	G	G	G	37	G	G		G	G	G	G
14	G	30	G	G	G	G	G	G		G	G	39	G	G	G	G	G	29	G	G	G	G	G	G
15	35	G	G	24	G	G	G	G	42	38	44	40	G	G	38	34	32	35	31	G	G	28	G	G
16	G	G	G	G	G	G	G		G	G	G	G	G	45	G	G	39	28	G	27	36	38	32	29
17	33	25	26	24	G	G	G	31	46	43	G	38	G	44	G	37		23	33	41	33	26	43	28
18	55	30	26	G	G	G	G	34	47	61	60	45	G	43	51	40	G	G	G	G	G	G	G	G
19	G	G	G	G	G	G	G	35	46	G	48	G	G	G	G	G	37	26	28	34	50	38	34	29
20	G	G		G	35		G	36	34	42	43	38	G	G	G	G	32	28	34	36	50	34	31	23
21	23	23	38	30	26	27	29	31	37	43	48	50	46	G	39	38	33	37	61	57	30	25	22	26
22	G	30	26	G	G		25	45	35	55	37	G	G	G	42	G	44	52	60	37	29	25	G	23
23	G	32	25	26	G		24	G	G	50	53	64	58	55	47	G	G	25	G	G	G	G	G	G
24	27	G	G	G	G	G	G	45	53	53	49	83	59	80	G	61	G	32	29	33	34	70	36	49
25	36	26	34	G	46		G	G	42	46	49	61	46	G	37	35	35	30	36	23	26	26	23	G
26	G	G		G	G	G	11	G	42	61	71	83	68	59	40	42	45	37	50	28	G	G	G	G
27	23	G	G	G	26	G	G	G	G	37	42	G	G	G	42	G	31	31	37	26	29	33	29	G
28	G	G	25	G	26		G	36	38	46	50	44	40	G	G	G	30	40	30	31	29	24	24	52
29	29	29	26	G	G	G	23	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
30	24	29	25	32	32	24	G	34	G	G	G	G	G	44	35	35	G	G	G	30	29	40	29	26
31	41	26	50	G	G		G	44	G	G	37	G	45	58	46	G	39	57	34	27	47	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	30	31	29	31	28	20	31	28	29	29	29	30	30	30	30	30	29	31	31	29	30	29	31	29
MED	G	G	G	G	G	G	G	34	34	40	38	G	G	G	G	G	31	28	26	27	28	26	G	G
U Q	27	26	26	G	25	12	28	38	44	51	49	45	42	45	40	35	37	37	34	34	34	32	29	27
L Q	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G

HOURLY VALUES OF fmin AT Kokubunji

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

HOURLY VALUES OF foF2 AT Yamagawa

OCT. 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	34	37	37	34	34	29	31	54	63	57	58	62	73	86	64	61	55	58	62	54	A	34	34	34
2	34	34	34		30	30	31	39	57	68	64	60	74	66	57	62	58	64	66		30	34	34	34
3	34	34	30				30	47	55	71	62	56	71	60	54	57	62	67	60	34		30	32	
4	28	30	20	28	28		28	48	55	62	56	60	66	61	57	72	66	64	52	40	34	32	29	30
5	34	32	34	32	32	32	34	54		62	70	66	72	72	59	62	51	51	46	51	38	36	34	36
6	34	34	34	30	28		30	50	54	57	55	68	85	69	A	56	52	51	50	34	30	30	28	26
7	30	30	30		30		29	42	49	58	60	66	72	72	80	65	38	61	60	34	20	28		30
8	30	29	30	29	29			42	50	55	58	57	A	A	66	65	60	48	45	42	30	28	34	30
9	28	30	30	28	30		28	44	51	57	40	53	65	57	52	56	57	52	46	28	A		30	28
10		32	32	30	30		29	52	58	62	58	62	64	66	62	56	54	56	53	A	A		28	A
11	A	29	30	32	34		24	46	55	53	61	67	74	62	60	68	68	70	50	28	A		A	32
12	A		34	28	29		28	50	63	66	51	67	86	87	68	62	55	52	47		A	A	30	
13	30	32	36	29		A		46	55		64	56	77	69	72	62	46	47	54	46		34	33	30
14	28	25		25	29	29	29	46	55	48	70	72	55	67	61	55	57	55	54	42	42	34	44	38
15	36	34	34	32	34		26	60	66	60	64	57	62	53	55	64	64	61	59	47		30	24	30
16	28	30	30		28		29	54	49		A	A	63	57	73	66	58	60	58	A	A		A	29
17	30	30		28	25			47	50	56	63	68	72	64	72	76	70	60	A	A		34	A	28
18	32	34	30	30	37	A		50	55	56	66	75	85	88	77	76	68	58		54	A	A		
19	28	32	32	34			28	51	53	71	66	71	87	81	72	62	52		47	36	A	32	A	32
20	34	34		32	36		A	44	67	72	72	51	68	62	78	72	55	52	42	34	A	34	37	30
21	32	34			34	A	A	46	60	58	54	58	64	A	64	62	59	62	48	A	A	A	34	29
22	32	34	30	30	34	25		45	55	61	70	75	76	70	56	64	74	53	46	A		A		37
23	40	42	36	26	32				68	55	66	84	86	71	92	81	78	58	45	50	44	A	42	44
24	28	30	30	34	41	A		53	73	68	68	73	75	73		94	90	62	47			25		28
25	A	29	A	A	34			57	69	77	78	76	81	78	95	92	61	64	44		44	42	39	A
26	40	38	34	30	29	28	28	53	58	66	74	77	74	76	76	72	72	58	44	A		A	43	A
27	26		34		34	30	30	50	63	64	78	63	68	70	74	66	66	62	43	28		34	34	32
28	30		32	28	28			52	62	64	66	74	76	76	67	66	70	62	38	29	30			34
29	32	32	25	31			28	50	69	65	75	77	72	66	67	61	66	57	42	34	34	38	34	29
30	34	34	34	30	31			53	71	61	61	76	72	91	92	84	66	56	47	37	40	42	34	36
31	A	34	A	A	34			51	58	59	58	72	76	77	66	70	70	64	44		30	32	A	A
	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	25	23	27	7	18	30	30	29	30	30	30	29	29	31	31	30	29	20	13	20	21	24
MED	32	32	32	30	31	29	29	50	58	61	64	67	72	70	67	65	61	58	47	36	34	34	34	30
U Q	34	34	34	32	34	30	30	53	63	66	70	74	76	76	75	72	68	62	54	46	41	34	35	34
L Q	28	30	30	28	29	28	28	46	55	57	58	60	68	63	59	62	55	53	44	34	30	30	30	29

HOURLY VALUES OF fEs AT Yamagawa

OCT. 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	G	G	G	G	G	G	G	30	36	G	G	42	47	G	N	G	G	34	G	36	40	28	30	30
2	G	G	G	32	30	24	G	47	48	46	G	G	48	G	40	G	G	32	G	11	G	28	26	23
3	G	G	G	G	G	G	50	60	39	G	G	39	G	39	G	G	40	36	36	24		G	G	27
4	G	G	G	G	G		23	38	32	G	G	G			G	G	40	29	31	G	G	28	G	G
5	G	G	G	G	G	G	G			G	G		G	G	G	G	G	30	G	G	26	G	G	G
6	27	G	G	G	G	G	G	30	43	37	G	G	G	49	52	G	42	36	25	30	25	G	G	G
7	G	G	G	G	11		G	36	48	55	40	40	G	39	G	G	G	29	28	11	26	34	40	28
8	28	24	G	G	G		G	37	39	50	69	42	88	51	G	G	37	30	G	G	G	G	G	G
9	G	G	G	G	24		G	32	34	39	44	G	46	G	44	G	37	39	44	35	39		G	59
10		25	28	G	G	G	G	G	35	G	39	40	G	42	47	49	49	31	26	53	39	57	33	34
11	30	27	G	G	G	G	G	27	32	G	55	53	62	53	50	40	40	38	34	28	30	32	39	32
12	36	32	27	G	G	G	G	29	36	44	47	51	56	48	48	46	G	G	22	34	40	40	23	29
13	24	36	27	G	26	26		30	34		44	54	58	63	50	38	48	48	36	33	37	G	26	G
14	G	26		27	30	G	G		G	G	49	43	G	44	G	G	33	28	G	G	G	G	26	G
15	30	G	28	G	G		G	32	40	50	G	G	45	46	G	36	G	33	32	G	26	27	G	G
16	24	G	G		G		G	30	44		58	58	43	G	G	49	42	35	33	44	43	37	40	29
17	26	31	35	G	25		G	G	34	48	52	62	48	46	50	57	54	58	51	40	32	28	58	G
18	27	29	26	28	27	27	29	34	39	50	60	65	50	52	40	49	38	33		33	52	58	40	
19	G	G	G	G		G	G		39	53	50	G	G	G	G	42	36		29	36	34	36	36	27
20	41	37	G	G	11		33	30	33	36	G	G	G	G	G	G	G	G	G	G	33	26	29	27
21	G	34	34	43	28	32	30	31	40	44	49	48	48	65	48	43	40	53	40	40	40	36	26	34
22	G	G	G	G	G	37	26	32	45	58	G	G	46	42	43	37	49	58	50	50	32	40	40	36
23	32	26	22	G	G		24	G		40	50	58	62	44	47	G	35	30	24	26	36	58	G	G
24	23	G	G	26	29	28	26	27	36	40	49	108	56	G	G	35	G	G	26	G	25	36	32	28
25	37	26	38	40	27			36	33	39	48	56	58	64	62	44	58	41	36	39	35	32	36	40
26	33	G	G	G	G	G	G	32	36	43	56	55	64	59	50	35	32	26	39	45	36	51	34	48
27	33	32	G	30	G	G	23	30	G	40	G	G	G	G	G	51	39	G	29	G	28	26	25	G
28	G		G	G	24		G	28	38	43	G	43	42	39	40	48	54	44	25	G	29	32	34	29
29	G	G	G	G			G		G	G	41	G	G	G	42	G	32	31	26	28	G	29	G	27
30	28	G	24	G	25		25	28	G	40	38	G	38	G	G	35	G	38	34	28	24	24	G	G
31	47	39	39	35	29		G	31	34	G	G	44	46	39	55		36	G	38	G	G	G	58	53
	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	29	17	29	27	29	29	31	30	30	30	30	30	31	30	30	31	30	30	31	30
MED	24	G	G	G	G	G	G	30	36	40	41	42	46	40	40	35	37	32	29	28	31	28	26	27
U Q	30	29	27	26	26	26	24	34	39	47	50	54	56	49	48	44	42	38	36	36	37	36	36	32
L Q	G	G	G	G	G	G	G	28	33	G	G	G	G	G	G	G	G	29	24	G	25	24	G	G

HOURLY VALUES OF fmin AT Yamagawa

OCT. 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	14	14	15	16	15	15	15	14	14	15	16	17	24	21	22	17	17	14	15	14	15	15	14	14
2	14	15	15	14	14	15	17	14	15	17	20	20	18	17	14	14	14	15	15	14	15	14	16	15
3	16	15	14	15	16	14	15	14	14	14	15	17	17	18	17	20	15	14	14	14		15	15	17
4	16	15	17	14	15		15	14	14	14	15	22	46	20	15	14	14	14	15	15	14	15	16	15
5	15	15	15	15	15	15	15	14		15	18	18	18	18	16	17	14	15	16	15	14	15	14	16
6	14	15	15	16	16	17	14	14	14	14	14	18	20	16	16	16	15	14	16	14	15	14	15	14
7	14	14	16	15	14		15	14	14	14	16	16	18	22	20	17	15	14	15	15	15	15	15	14
8	14	14	14	14	15		17	14	14	14	16	18	17	17	18	15	14	14	15	14	15	14	14	14
9	15	15	14	17	15		14	14	14	14	16	20	20	17	20	14	14	14	14	14	15		14	14
10		14	14	14	15	15	17	14	14	14	20	24	23	21	21	14	14	14	16	16	14	15	14	14
11	14	15	14	15	14	16	14	14	14	16	18	24	22	24	20	17	14	14	14	14	14	15	14	14
12	14	14	14	16	14	16	14	14	14	14	20	28	29	21	20	14	15	15	14	14	14	14	15	14
13	15	14	15	16	14	15		15	14		16	21	21	17	14	14	14	14	14	14	14	15	15	16
14	16	15		16	14	14	20	14	14	14	15	14	15	15	15	14	14	14	15	15	16	15	15	15
15	14	14	15	21	21		15	14	14	14	17	23	16	15	16	14	14	14	14	15	17	14	15	15
16	15	15	15		16		15	14	14		15	18	18	21	18	14	15	14	15	15	14	14	14	15
17	15	14	14	15	14		17	15	14	16	16	18	18	22	20	14	14	14	14	14	14	16	15	14
18	14	15	15	15	14	14	15	14	14	14	15	18	20	21	17	15	14	14		14	15	14	15	
19	16	15	15	20		15	17	14	14	14	16	24	20	18	17	16	14		14	14	15	14	14	14
20	15	15	15	15	16		14	14	14	14	16	15	17	14	15	15	14	18	15	15	14	15	14	14
21	15	14	14	14	14	14	14	15	14	14	14	18	17	15	23	14	14	14	15	14	14	14	15	15
22	14	14	15	14	15	14	15	14	14	15	14	16	14	14	14	16	14	14	14	14	15	14	14	14
23	14	14	14	17	15		15	18	14	14	15	16	16	14	14	14	14	14	15	14	14	14	15	15
24	14	16	15	15	14	15	14	14	14	14	15	17	15	17	17	17	14	15	14	14	17	14	14	14
25	15	14	14	14	14			16	14	14	15	17	17	17	17	15	14	14	15	15	14	14	14	15
26	14	15	16	14	18	15	15	14	14	14	17	17	20	20	18	16	14	14	14	15	14	15	15	14
27	14	15	16	14	15	16	14	15	14	16	18	17	26	22	20	15	14	18	14	16	15	15	14	15
28	15		15	15	16		20	15	14	14	17	17	28	23	22	16	14	14	14	20	14	15	15	14
29	14	15	15	16			17	17	14	14	14	15	39	21	17	17	14	15	16	15	14	15	16	15
30	15	15	14	15	16		15	14	14	16	18	14	21	18	22	16	14	14	14	14	15	15	15	15
31	15	15	14	14	14		17	14	14	14	14	16	20	16	18	16	14	17	14	26	16	14	14	14
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	30	30	30	29	17	29	31	30	29	31	31	31	31	31	31	31	30	30	31	30	30	31	30
MED	14	15	15	15	15	15	15	14	14	14	16	18	20	18	17	15	14	14	14	14	14	15	15	14
U Q	15	15	15	16	16	15	17	15	14	15	17	20	22	21	20	16	14	15	15	15	15	15	15	15
L Q	14	14	14	14	14	14	14	14	14	14	15	16	17	16	16	14	14	14	14	14	14	14	14	14

HOURLY VALUES OF foF2 AT Okinawa

OCT. 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								57	69	65	68	74	88	100	84	75	64	70	78	67	A	A		
2	31				30		A	56	52	A	88	82	86	70	76	88	78	90	93	73	54	32	44	44
3	44	50	45	42	25			48	55	77	78	85	78	86		57	62	83	68	A			28	30
4			32					47	56	63	57	67	84	90	89	72	75	66	56	40	36		28	
5		30	30			28		47	57	67	80	85	107	87	85	61	55	55	62	47	50	34		
6	32		30					45	52	51	65	84	107	84	73	56	52	56	55		34		31	29
7		28		37				35	48	57	69	82	84	85	98	93	88		68	32		A	A	
8	28	29	28		29			44	48	A	48	77	78	77	86	97	87	84	67	54	34			25
9	49		30		26			35	48	56	74	59	56	58	66	70	72	67	51	48	28			
10		32	29	36				56	61	61	64	62	63	78	84	94	66	68	76		34		32	
11	30			35				42	54	57	A	A	83	85	87	105	110	106	76	46				34
12	A		32	30				47	66	77	67	58	96	111	121	107	85	62	46	41		A	A	A
13	A	A	31					47	62	60	64	72	77	97	103	100	71	60	53	63	A	A		34
14						30		46	47	52	67	82	78	76	75	57	55	63	53	44	37	40	44	45
15	34	31	30	29	32			53	60	62	64	81	71	67	65	66	71	62	61	52	45	32	36	28
16		29		31	36			45	58	60	57	72	70	65	76	75	66	61	59	53	A	A	A	A
17	A	28	28					46	48	52	68	85	88	77	88	96	95	A	72	A	A	34	A	A
18	A	A		34				43	52	58	67	85	92	110	122	126	123	115	88	82	52	42		
19		30		29				49	58	66	70	85	101	118	100	90	67	61	55	A		35	41	
20								47	A	67	78	81	87	86	90	90	68	54	42	36	30	30	32	A
21									54	49	62	66	76	77	76	77	76	77				A	A	A
22				30	30			47	57	64	66	84	80	86	90	90	87	72	65	63	A	55	47	44
23		36	A	28				54	64	57	61	82	93	84	102	100	89	70	74	53	52	42	43	36
24				30				55	67	61	70	81	77	81	100	116	98	74	55				A	30
25	28		A	32	A			54	70	83	80	84	90	112	110	115	76	84	65	47	52			
26	A	37						46	59	70	85	88	81	86	90	80	91	81	A	A	54	61	66	
27	A				32	29	31	51	67	66	76	78	67	85	91	84	82	89	58	A	A	A	A	A
28	A							51	62	65	71	82	88	102	98	98	90	80	58			32	36	
29	A	28						48	63	67	81	86	73	85	97	85	67	71	52	41			35	
30	34		A		30			50	74	65	64	78	96	108	115	108	95	85	66	A	A	43		43
31			34	32	30	A		48	57	55	67	77	80	91	98	82	62	66	48	34	34	30	34	A
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	9	12	12	14	10	3	1	30	30	29	30	30	31	31	30	31	31	29	29	20	15	14	15	12
MED	32	30	30	32	30	29	31	47	58	62	68	82	83	85	90	90	76	70	61	48	37	34	36	34
U Q	39	34	32	35	32	30	15	51	63	66	76	84	90	97	100	100	89	83	70	58	52	42	44	43
L Q	29	28	29	30	29	28	15	46	52	57	64	74	77	77	84	75	66	62	54	41	34	32	32	29

HOURLY VALUES OF fEs AT Okinawa

OCT. 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	G				G	G		32	42	48	45	G	G	G	G	G	G	G	G	G	31	30		
2	G	28	28	G	G		28	G	40	115	96	47	G	G	G	G	G	39	32	G	11	G	27	G
3	G	G	G	G	G		G	34	40	55	47	60	G	43	G	47	38	47	40	70			G	G
4			G					31	G	G	G	G	G	G	G	G	G	34	27	G	27		G	G
5		G	G	G		G	G	G	G	G	G		G	G	G	G	G	G	G	G	G	G		
6	G	G	G	G	G			34	41	42	48	G	G	60	G	G	G	G	G	29	G	29	G	G
7		G		G				34	35	G	G	G	G	G	G	58	39	35	30	G	G	36	49	28
8	G	G	G	G	G			G	35	49	49	52	46	40	43	G	G	G	G	G	G			G
9	G		G	G	G		G	40	45	40	50	G	G	G	43	38	38	32	29	G	G		25	25
10		G	G	G	G			28	G	36	G	G	G	G	50	G	G	G	33		G		G	40
11	G			G				G	34	G	75	75	49	61	76	68	70	36	39	37	31	31	29	24
12	28	27	28	G				G	G	G	44	G	48	G	G	G	G	G	G	G		39	41	45
13	47	40	G	30	G			G	34	40	48	40	56	51	G	G	38	41	51	46	36	36	35	G
14				G		G		30	G	36		G	50	43	42	G	45	47	40	G	G	28	G	G
15	G	G	G	G	G			29	45	50	52	56	G	41	G	G	51	51	36	46	27	G	G	G
16		G		G	G			G	34	G	G	41	G	G	G	47	57	40	37	40	30	47	36	52
17	30	G	G	29	34			G	G	46	50	53	53	41	52	70	86	93	57	80	36	33	59	88
18	53	40	35	30	G			G	35	47	61	57	63	58	59	50	40	33	60	90	29	29		29
19	31	G		G				G	43	40	G	G		G	G	G	38	44	38	29	30	G	31	
20	34	29						31	82	G	G	48	G	G	43	G	G	38	G	G	G	25	G	30
21					35			30	40	43	48	50	53	54	48	45	50	40	49	35	28	38	36	33
22				G	G	G		27	G	G	62	G	G	48	G	50	50	53	51	40	69	43	29	29
23	29	32	32	27	G			G	33	38	40	40	G	G	51	43	46	37	28	30	27	G	G	G
24			G	G	G			29	G	43	G	G	48	39	G	G	G	G	27			G	36	G
25	G	34	39	26	28			G	G	G	G	56	66	60	92	50	81	49	48	50	36			
26	32	G					G	29	G	44	54	78	62	75	64	60	59	66	68	70	28	G	G	36
27	57				G	G	G	G	G	G	G	G	48	G	G	G	34	45	36	50	34	34	36	40
28	27					G		G	G	41	G	50	G	G	48	46	38	39	29	31	30	24	G	24
29	34	26		G				29	G	G	G	G	G	G	G	G	G	G	G	G			G	
30	G	35	29		G		G	G	G	G	46	48	G	G	G	49	48	47	50	69	51	41	39	33
31			G	G	G	29		29	36	G	G	G	G	G	G	G	40	30	G	28	G	G	G	46
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	21	20	18	23	20	7	7	31	31	31	30	30	30	31	31	31	31	31	31	29	27	24	26	26
MED	27	G	G	G	G	G	G	27	34	38	44	40	G	G	G	G	38	38	33	30	28	29	26	26
U Q	33	30	28	G	G	G	G	30	40	44	50	52	49	48	48	49	50	47	48	48	31	36	36	36
L Q	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G

HOURLY VALUES OF fmin AT Okinawa

OCT. 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	16		14	14	16	27	29	48	45	40	26	16	14	23	15	15	14		
2	15	14	15	18	15		15	14	15	21	23	22	46	42	46	40	36	14	21	14	16	21	17	15
3	20	24	14	14	15		16	14	16	22	20	22	45	23	44	15	18	14	14	14			21	17
4			15					16	14	21	42	20	55		45	42	14	14	14	15	15		15	16
5		17	15	15		15	16	20	18	38		33	54	48	45	42	29	27	18	27	24	16		
6	23	20	15	14	16			17	14	20	30		46	35	43	40	16	24	18	15	15	15	15	17
7		18		15				14	16	17	26	26	27	43	46	22	18	14	20	15	20	15	14	15
8	15	16	17	14	17			14	14	17	28	28	30	29	26	41	36	23	15	14	15			16
9	17		16	18	22		16	15	15	29	30	22	44	43	26	18	22	14	14	17	15		15	16
10		18	29	17	15			14	15	29	28	28	28	54	23	42	20	14	14		20		20	15
11	20			18				14	15	21	28	29	29	30	28	21	16	14	14	14	14	16	15	17
12	17	15	15	14				22	15	21	29	30	30	29	44	40	27	16	16	24		14	14	15
13	14	14	15	15	16			28	16	18	24	27	30	29	42	21	16	14	14	14	15	14	15	21
14				24		15		14	14	16	22	21	22	17	15	15	28	21	14	23	18	16	15	17
15	15	15	15	16	18			15	15	23	23	30	44	44	42	15	14	14	15	15	18	18	21	15
16		16		16	15			21	15	30	23	22	46	21	14	30	17	14	14	14	14	14	15	14
17	15	18	21	15	16			21	14	28	30	32	33	32	28	28	24	16	15	15	14	14	14	15
18	14	14	14	14	17			21	14	20	29	30	30	30	28	24	20	14	14	14	15	20		14
19	14	20		22				21	15	27	43	47	50	42	40	39	26	14	14	14	15	16	16	
20	21	21						17	15	16	21	21	45	43	30	38	30	14	15	16	20	15	14	14
21					18			15	14	14	29	32	32	30	30	24	18	14	15	14	14	15	15	16
22				15	21	14		14	14	14	20	28	27	30	43	30	17	15	15	17	14	14	15	14
23	15	15	15	15	15			21	14	16	22	28	42	21	14	14	14	14	14	15	14	15	15	15
24			22	15	17			14	14	16	22	23	29	28	27	38	34	14	14			22	15	15
25	17	15	14	14	15			21	14	30	21	29	29	26	22	18	15	14	15	16	15			
26	15	21					15	17	16	28	21	28	29	29	27	24	17	14	15	15	15	20	23	17
27	15				18	16	18	14	16	30	39	42	30	42	42	22	18	16	14	15	14	16	14	15
28	17					20		14	14	18	44	34	45	27	24	23	18	16	15	15	14	15	14	15
29	15	15		16				14	14	32	41	42	44	42	45	24	30	27	20	20			18	
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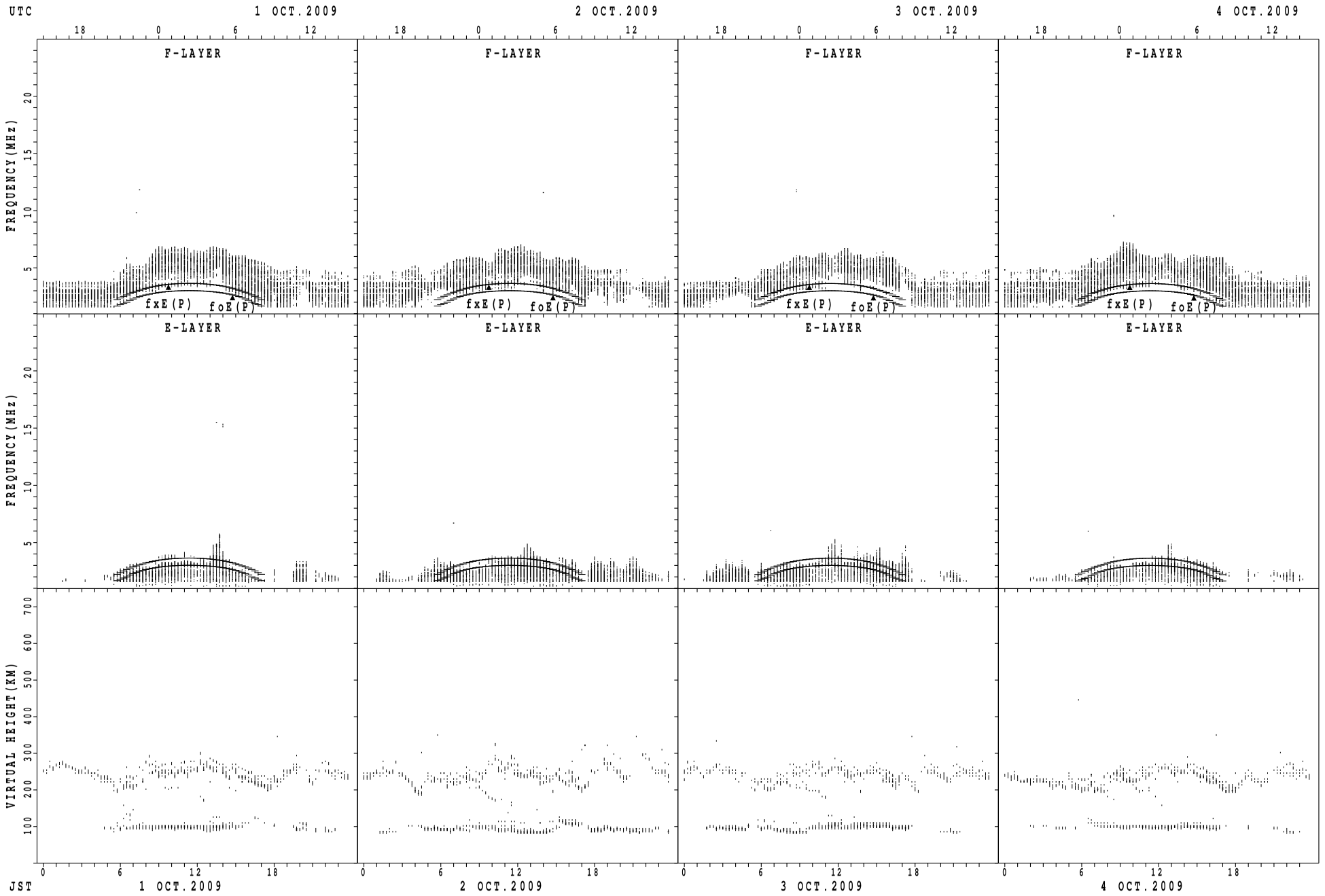
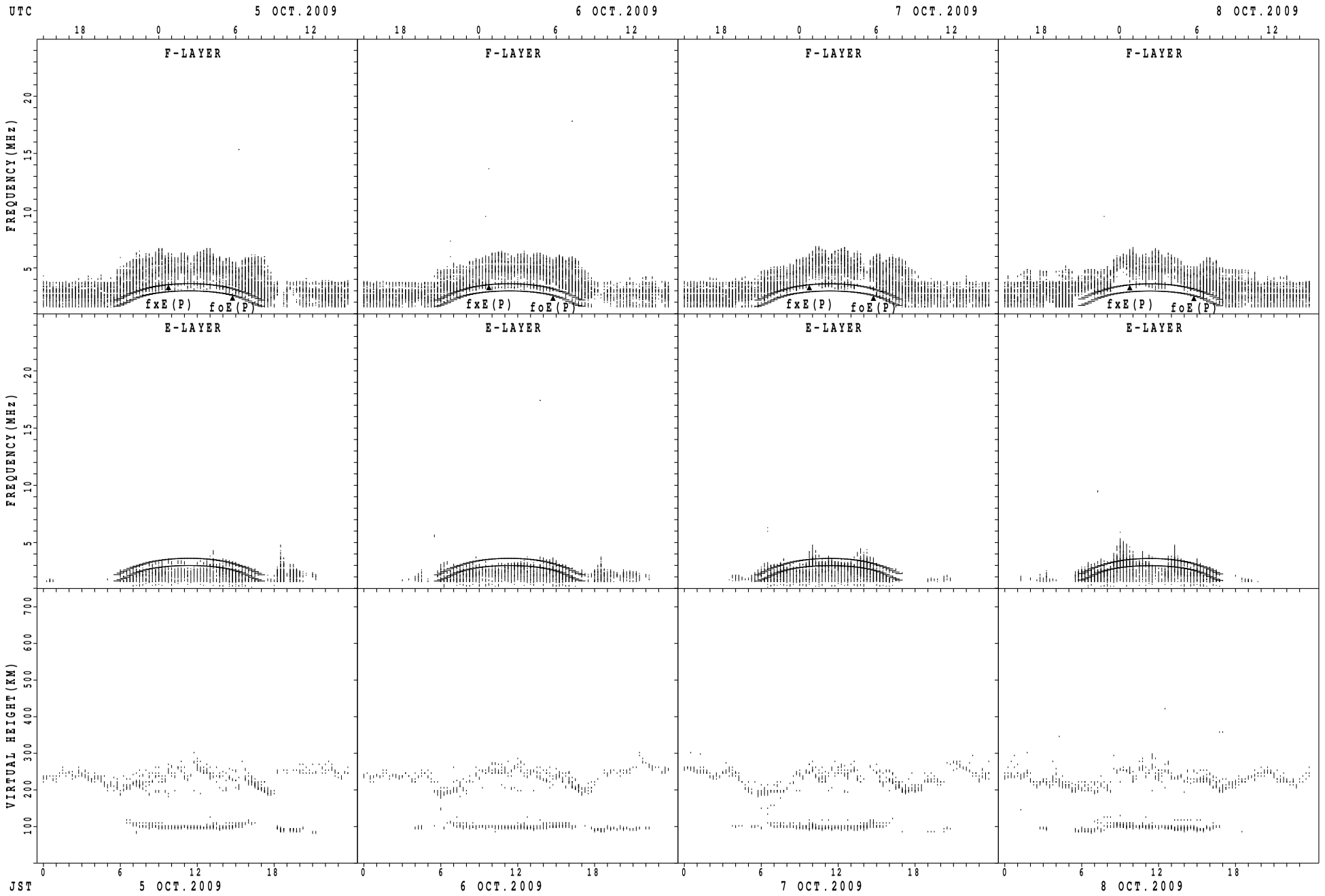
31			16	22	22	16		14	14	30	40	43	29	44	40	28	15	14	15	14	20	18	16	15
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	21	20	18	23	20	7	7	31	31	31	30	30	31	30	31	31	31	31	31	29	27	24	26	26
MED	15	16	15	15	16	16	16	15	15	21	28	28	33	30	30	24	18	14	15	15	15	15	15	15
U Q	17	19	16	18	18	16	18	21	15	29	30	32	45	43	43	39	27	16	15	16	18	17	17	16
L Q	15	15	15	14	15	15	15	14	14	16	22	23	29	29	26	21	16	14	14	14	14	14	15	15

SUMMARY PLOTS AT Wakkanai



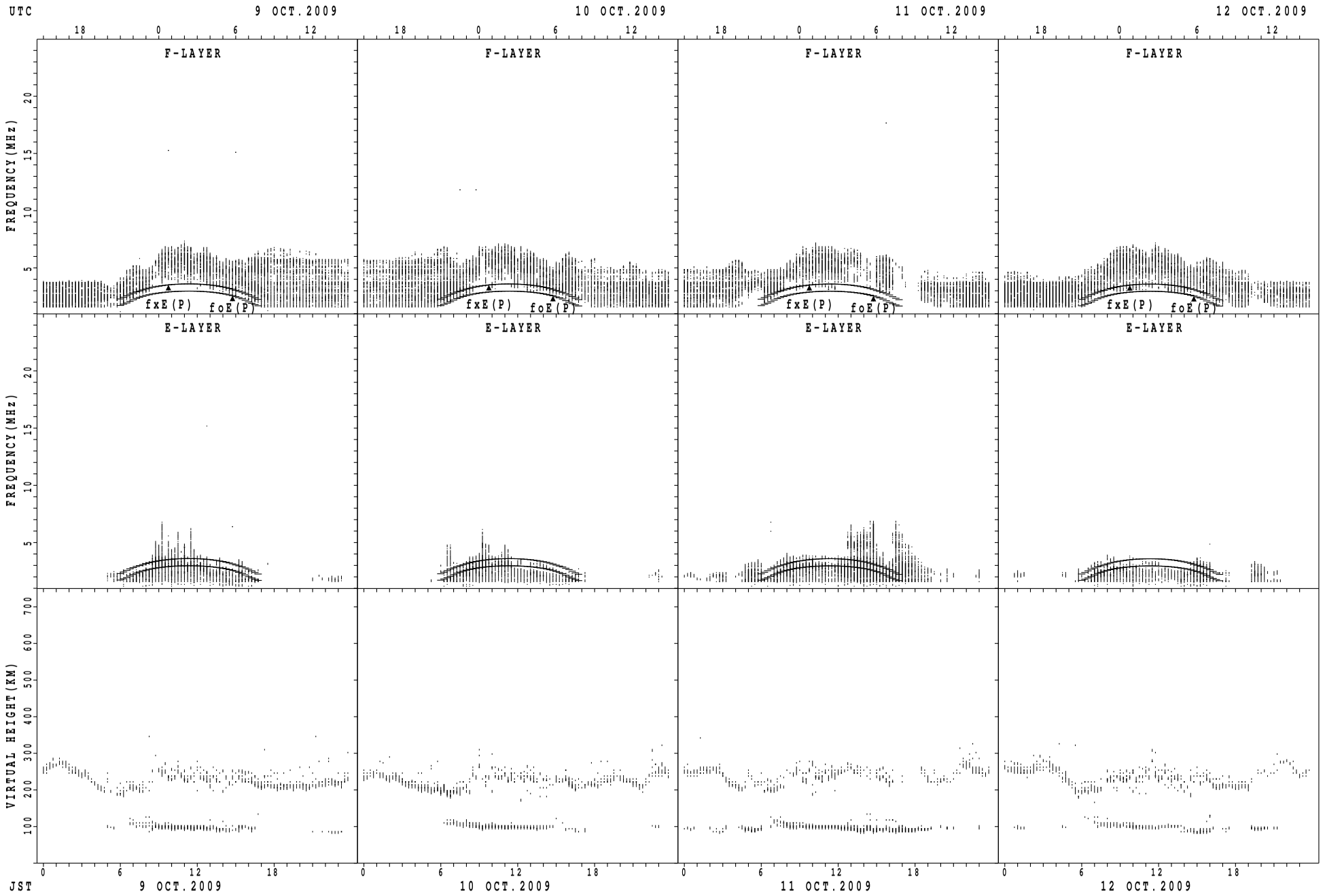
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



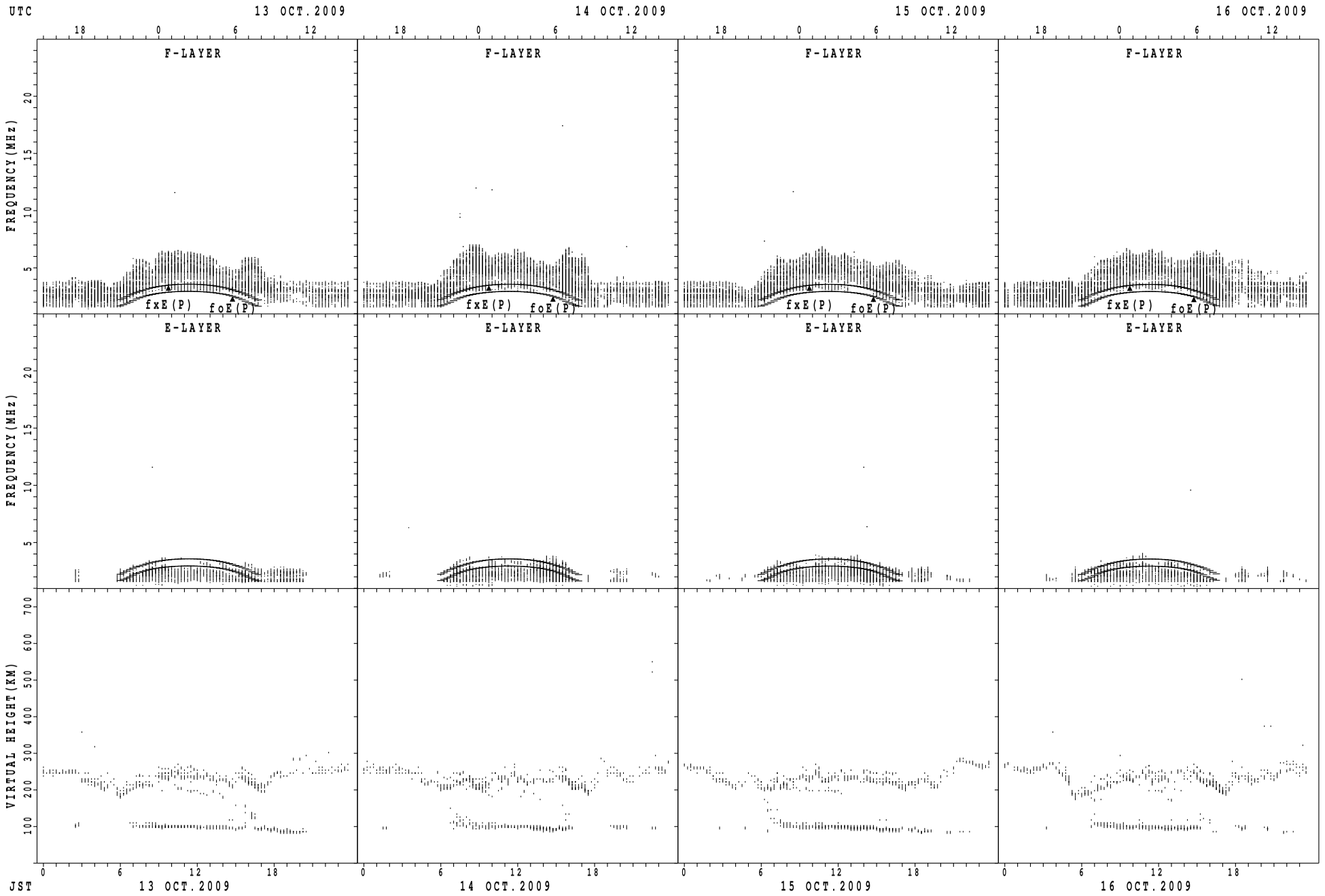
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



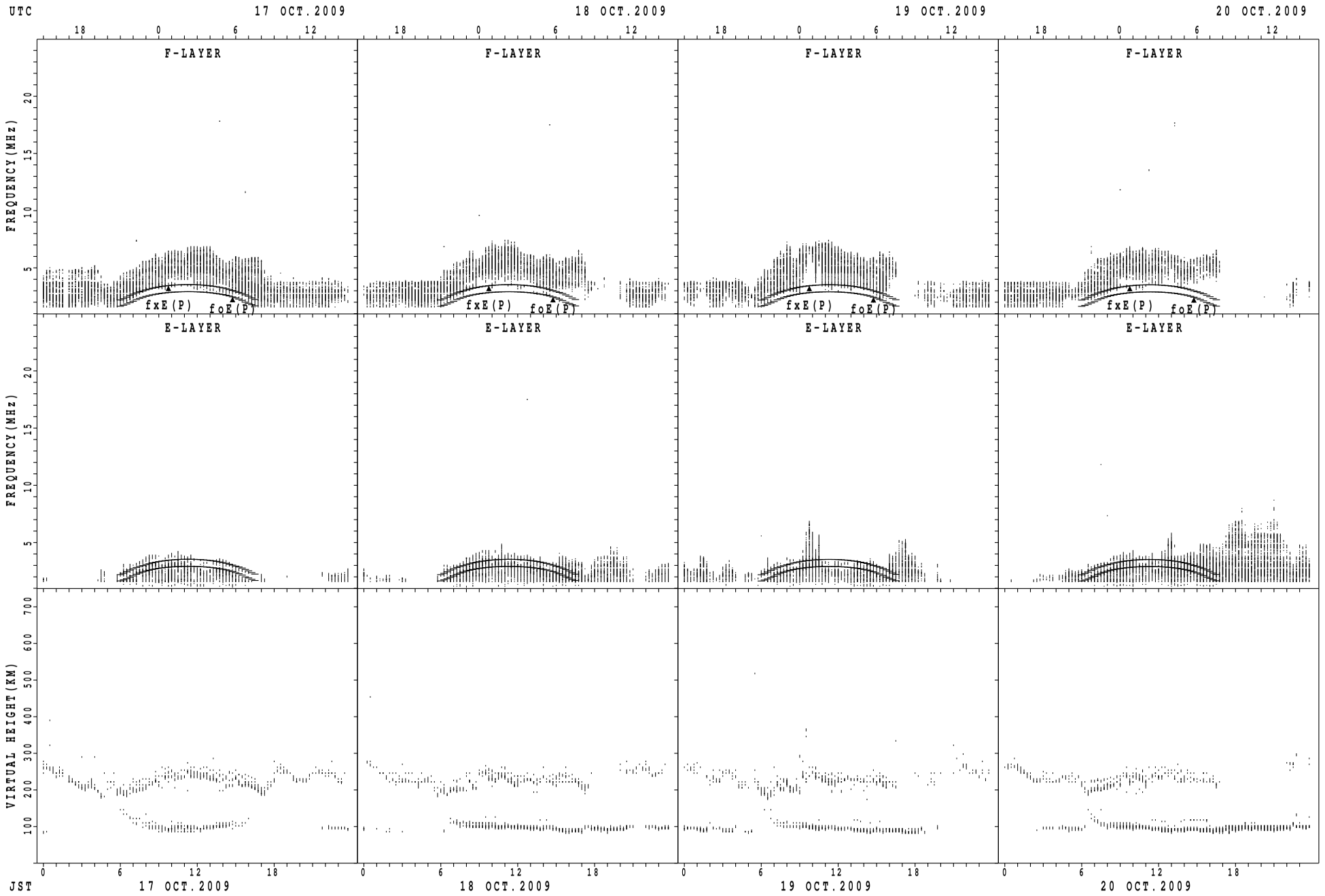
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



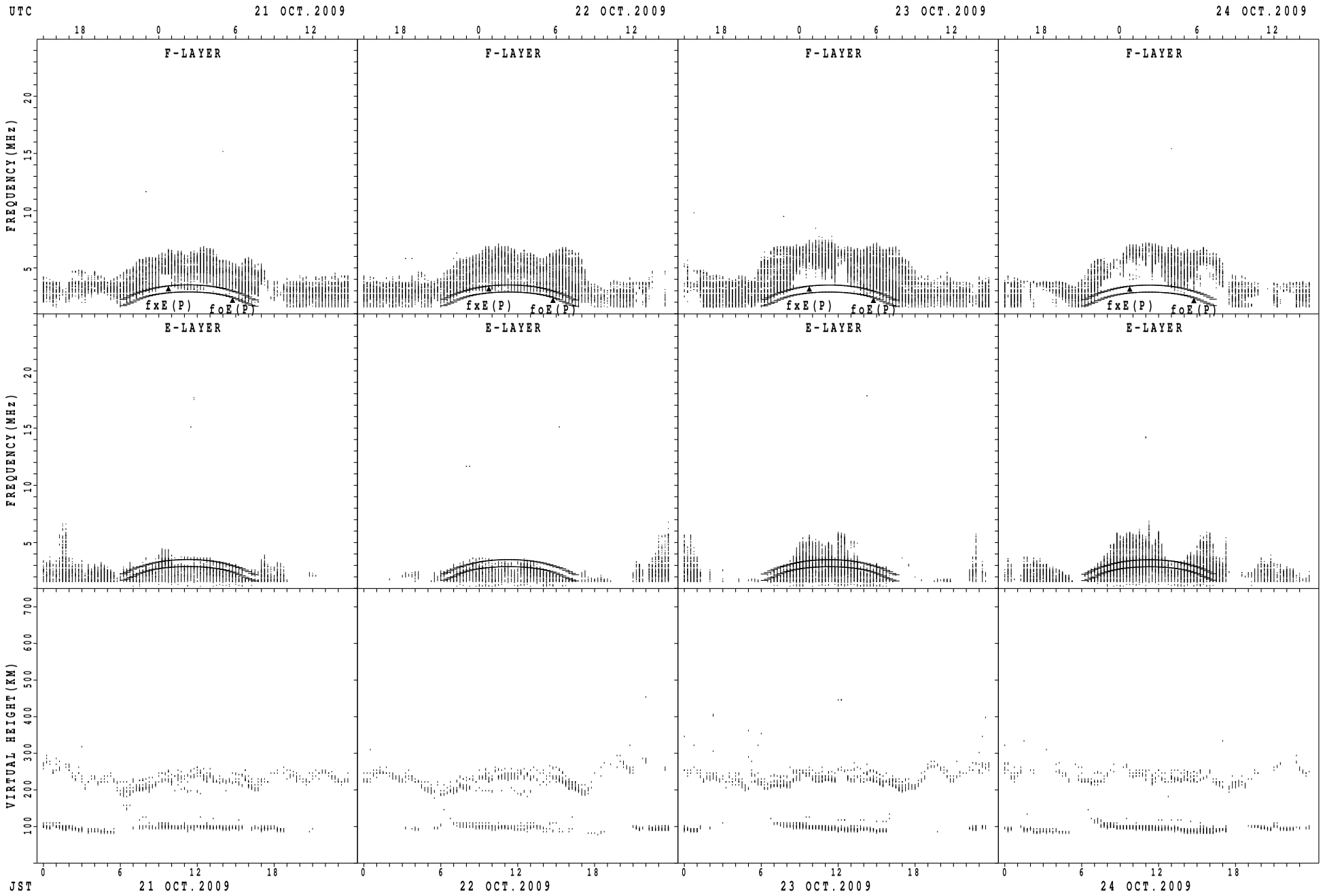
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



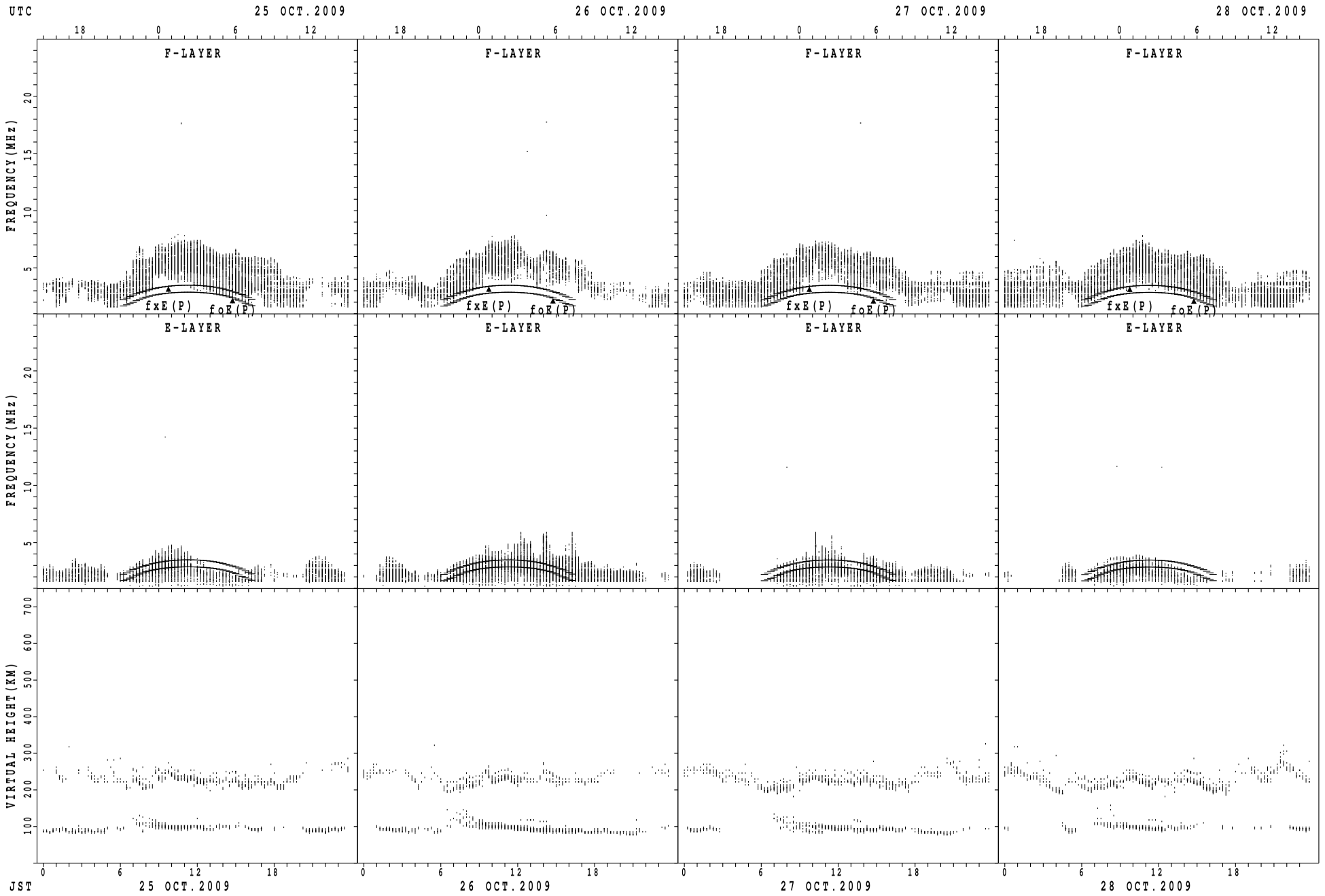
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



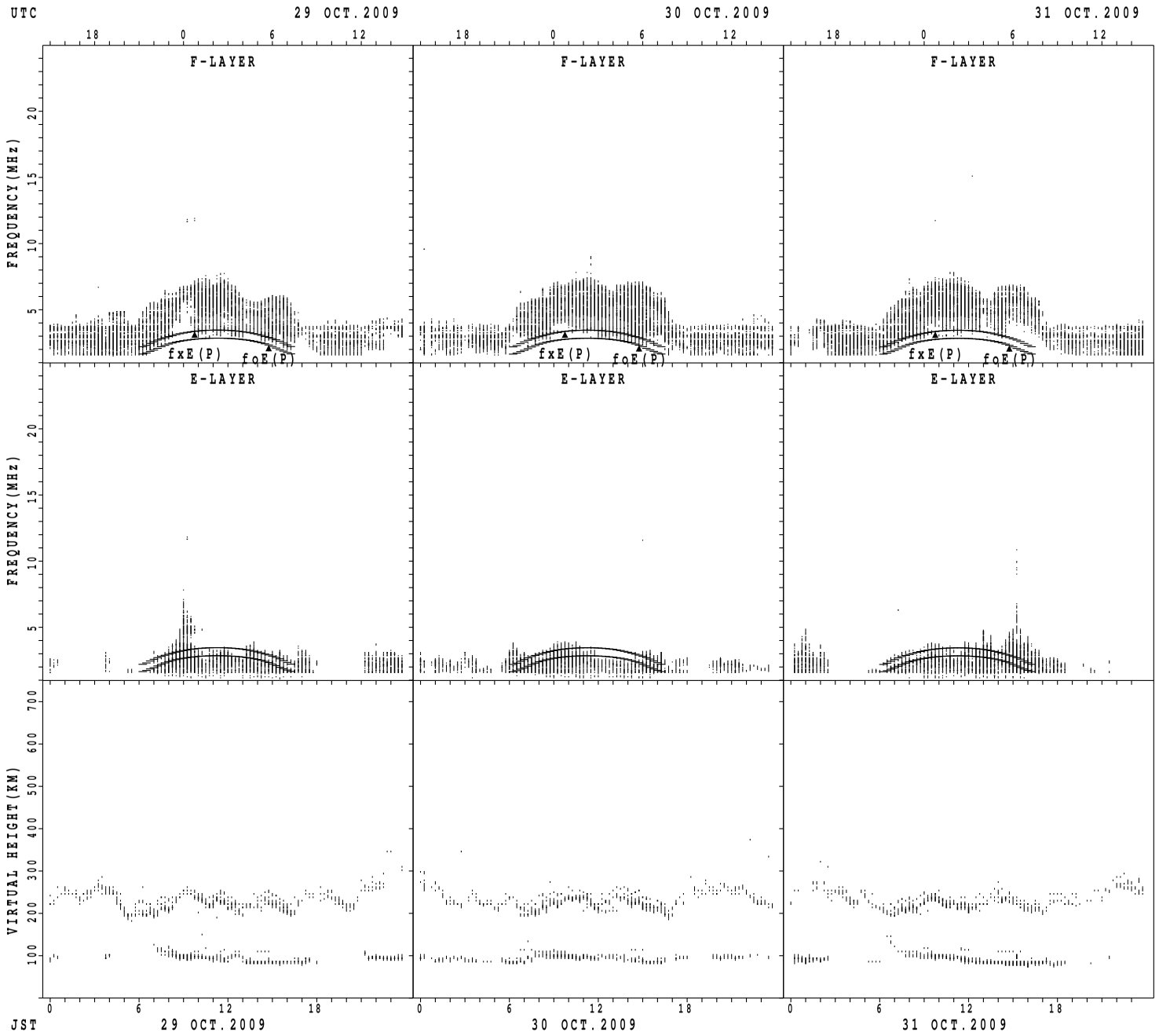
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



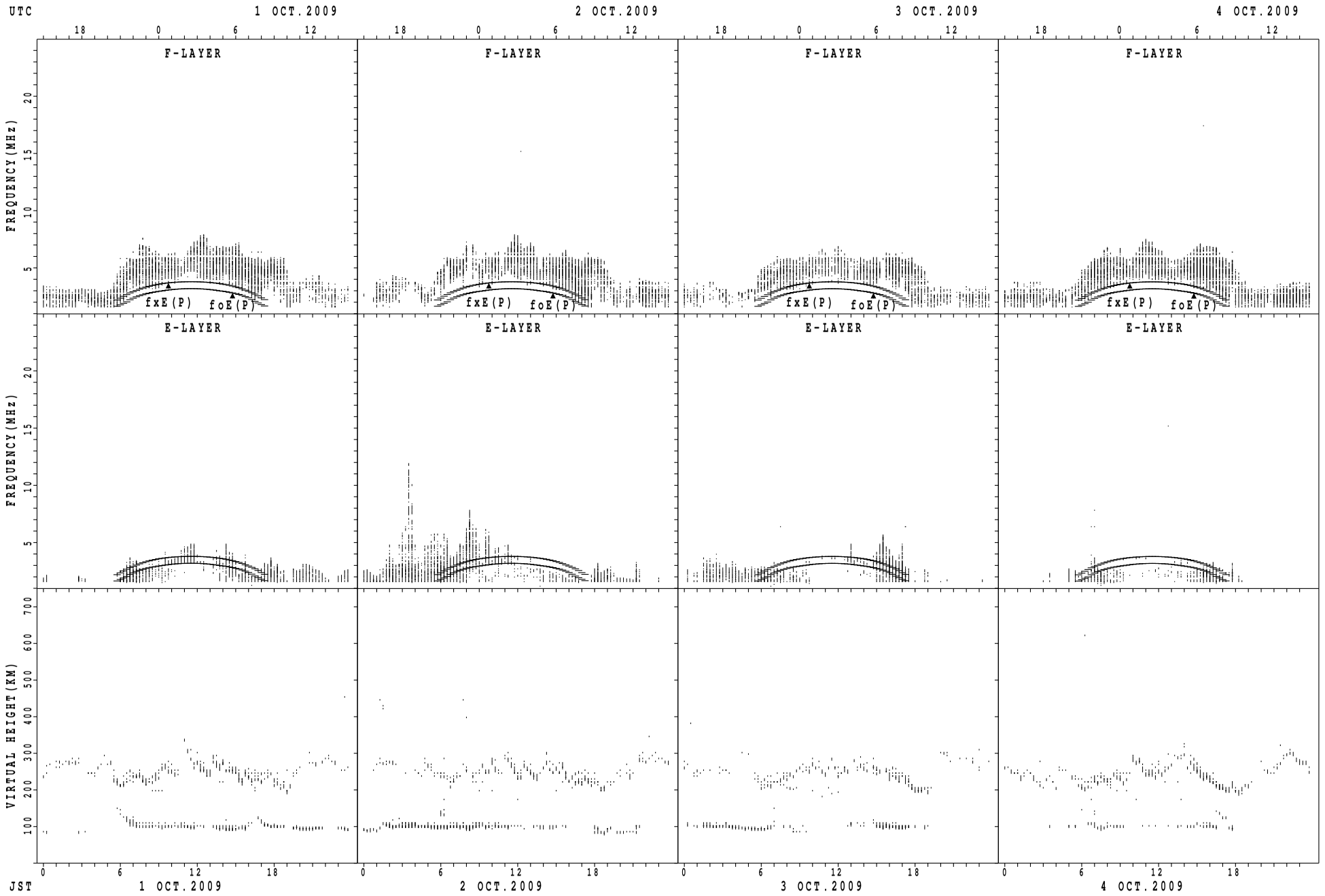
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



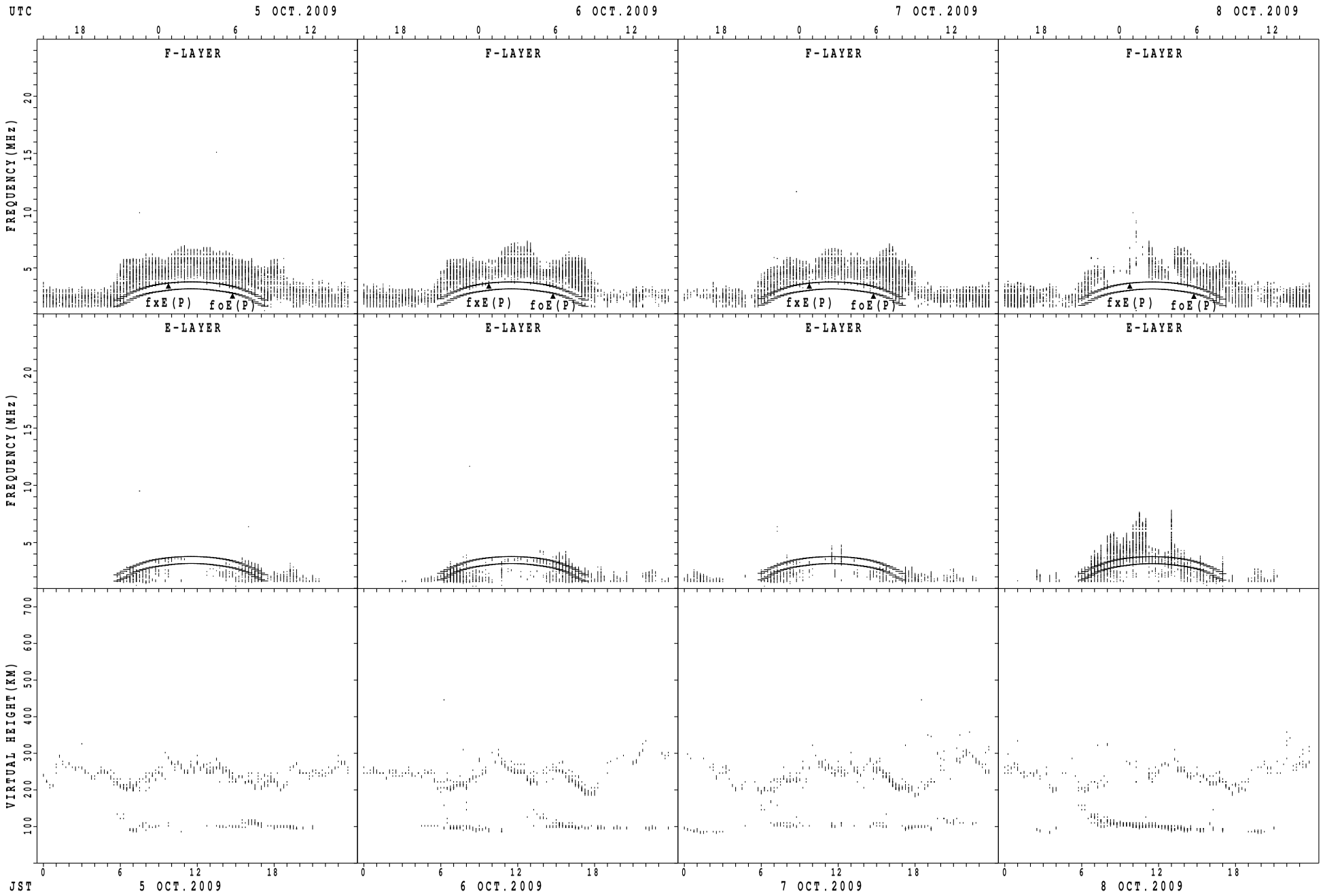
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



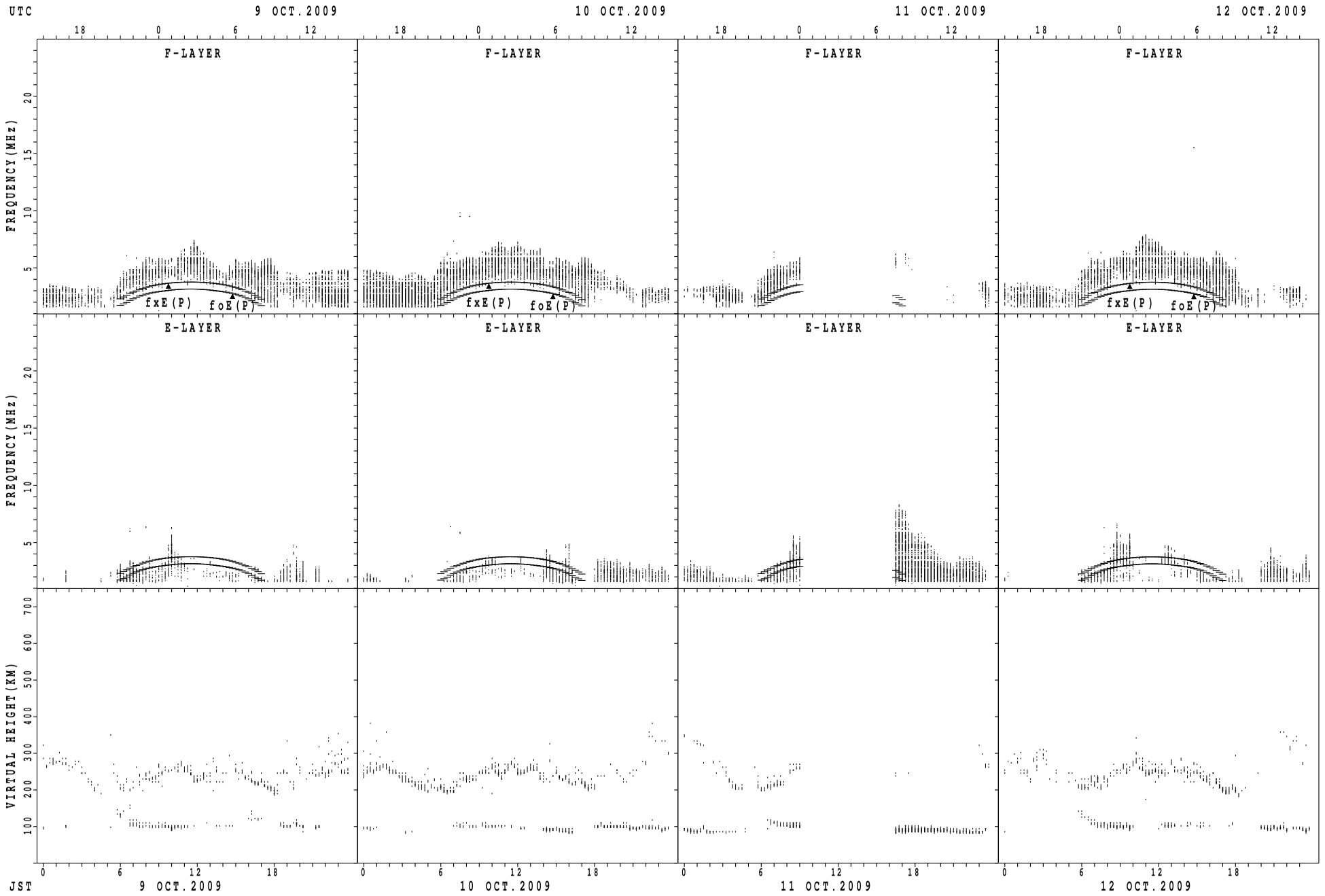
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



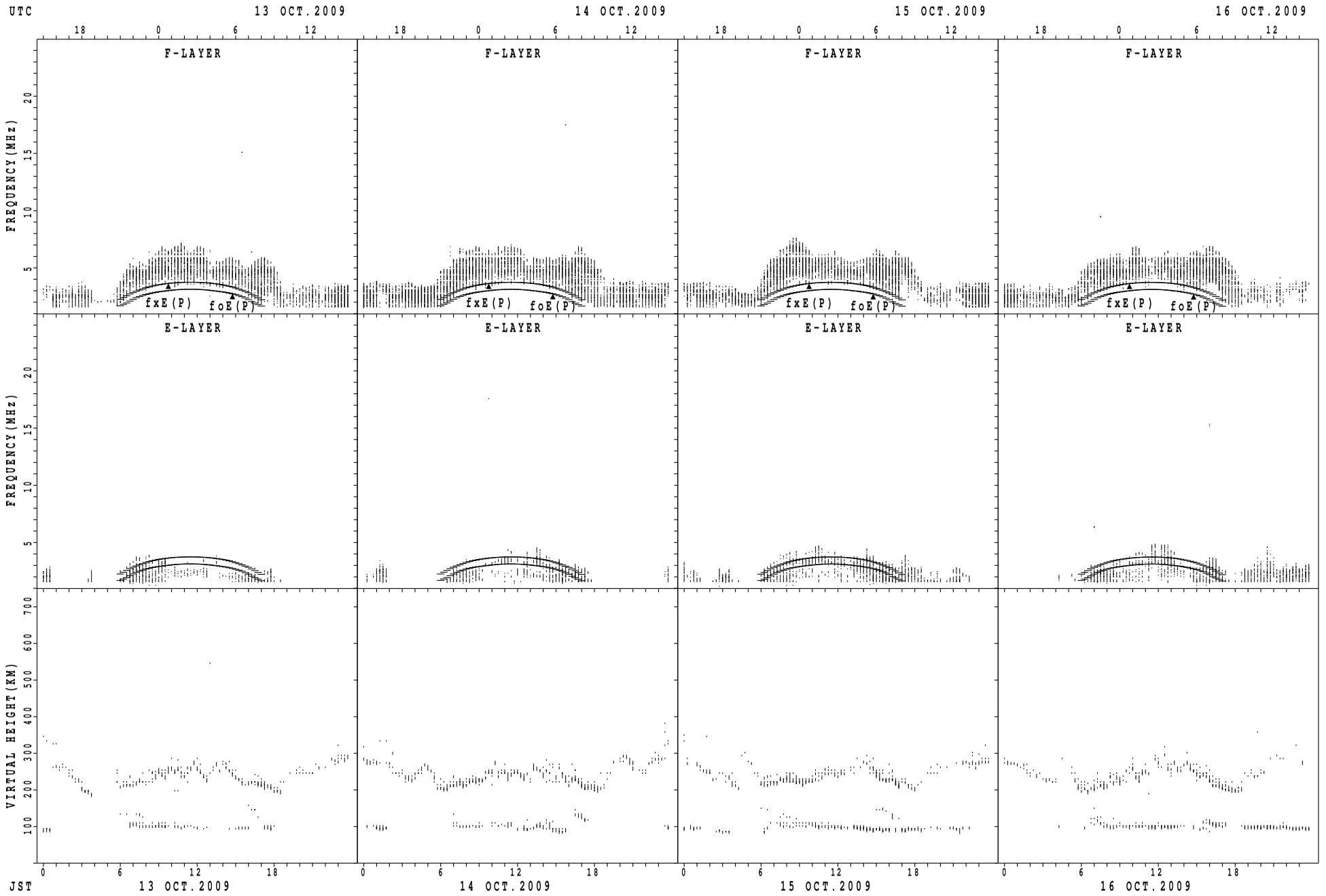
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



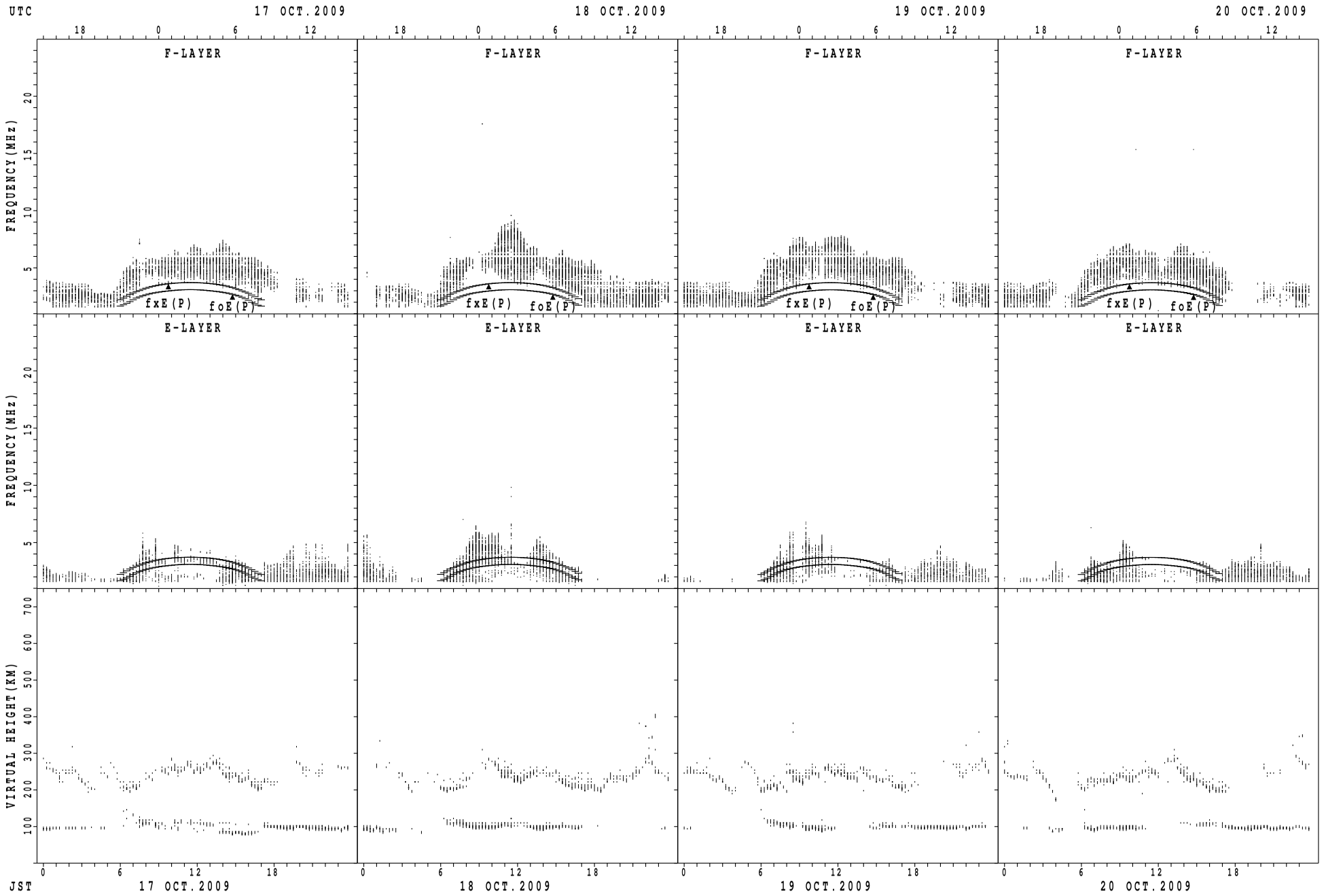
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



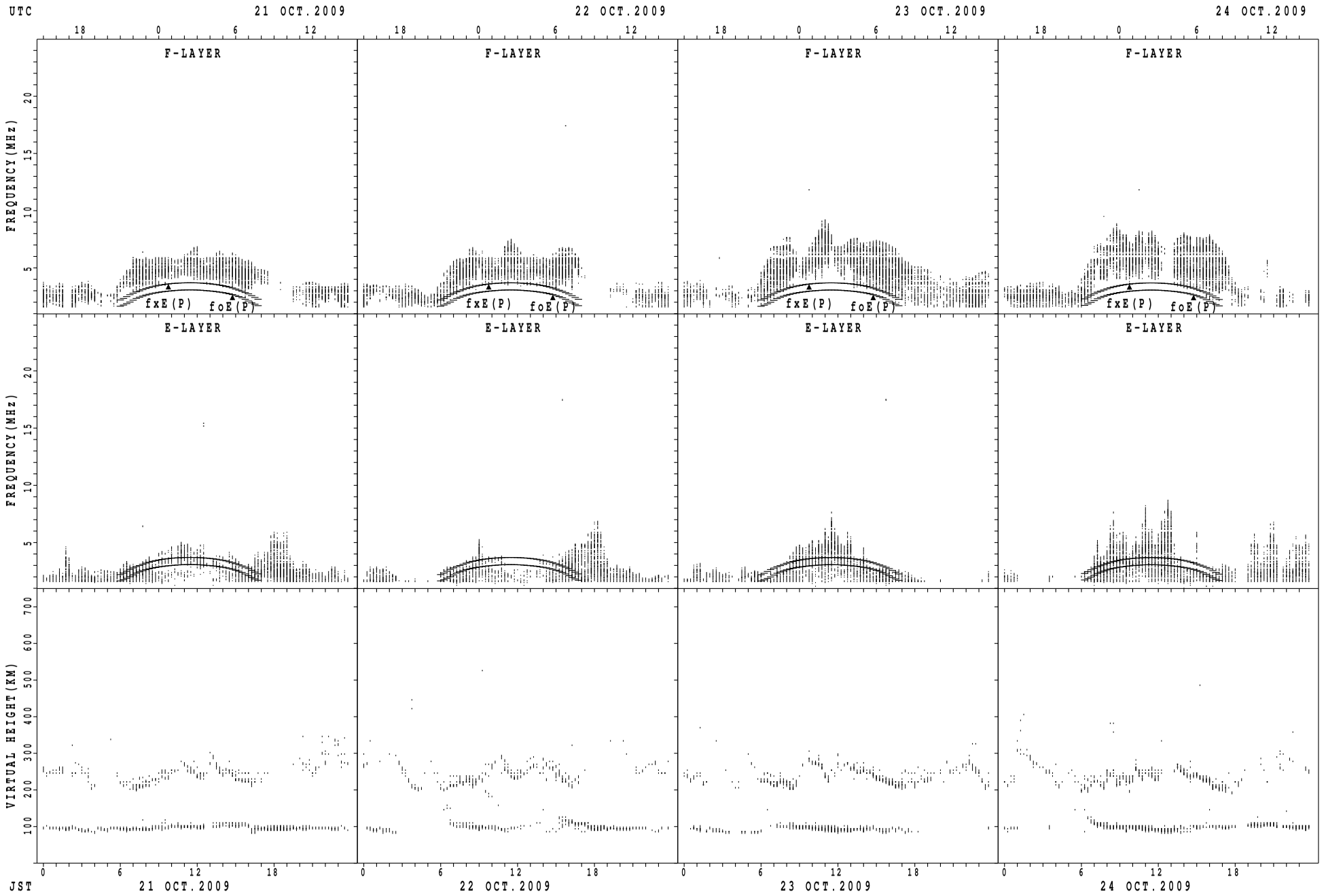
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



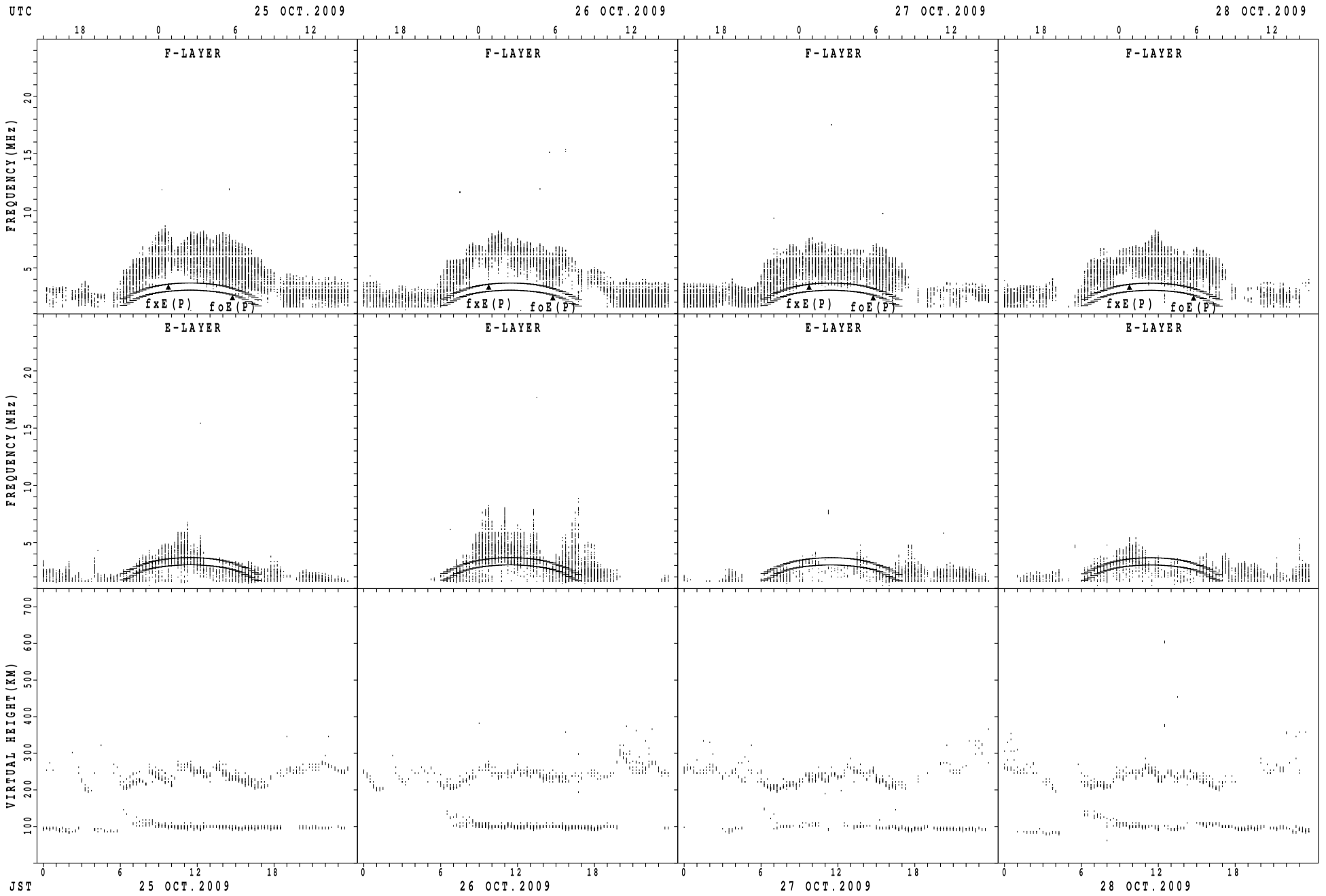
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



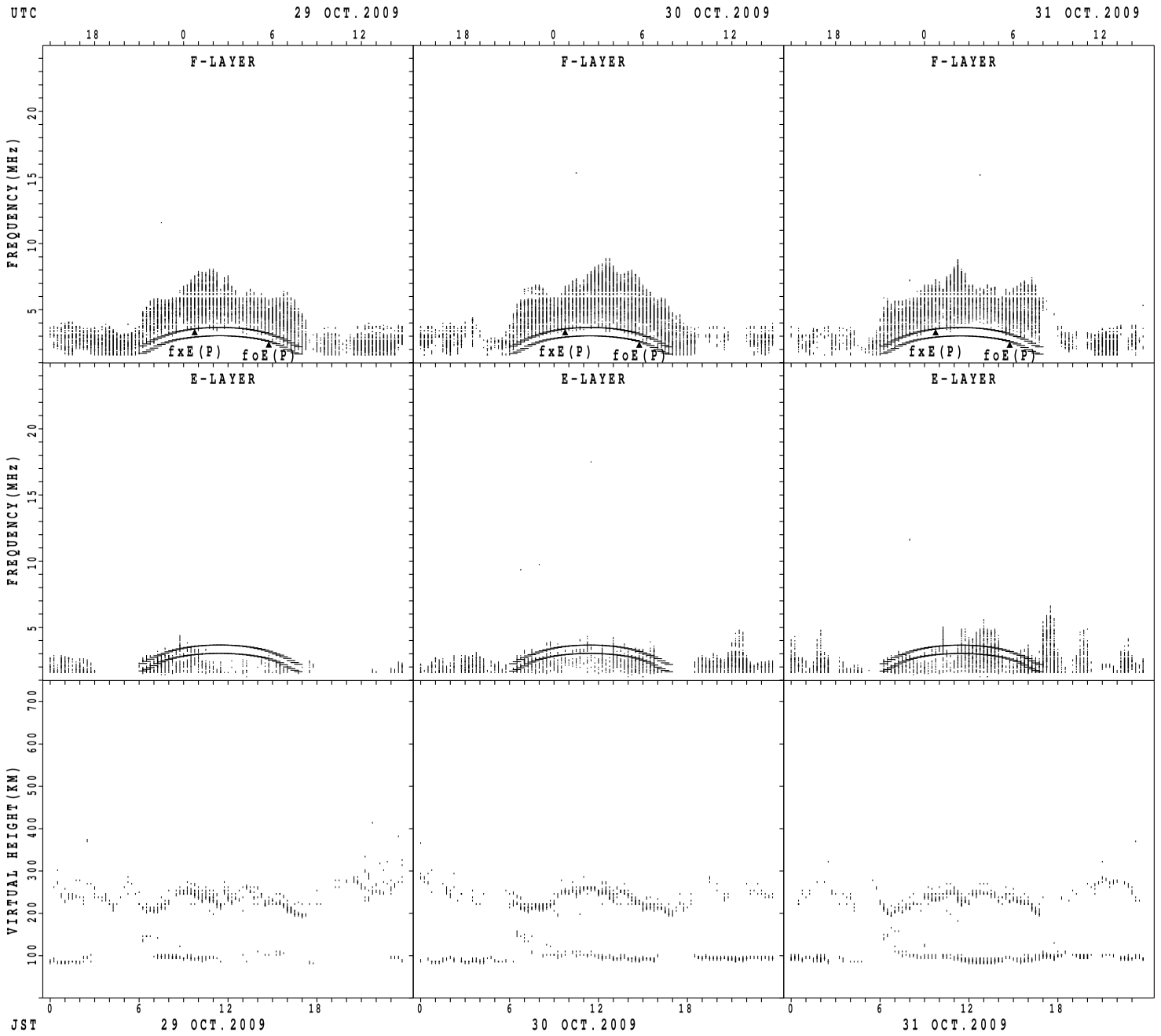
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



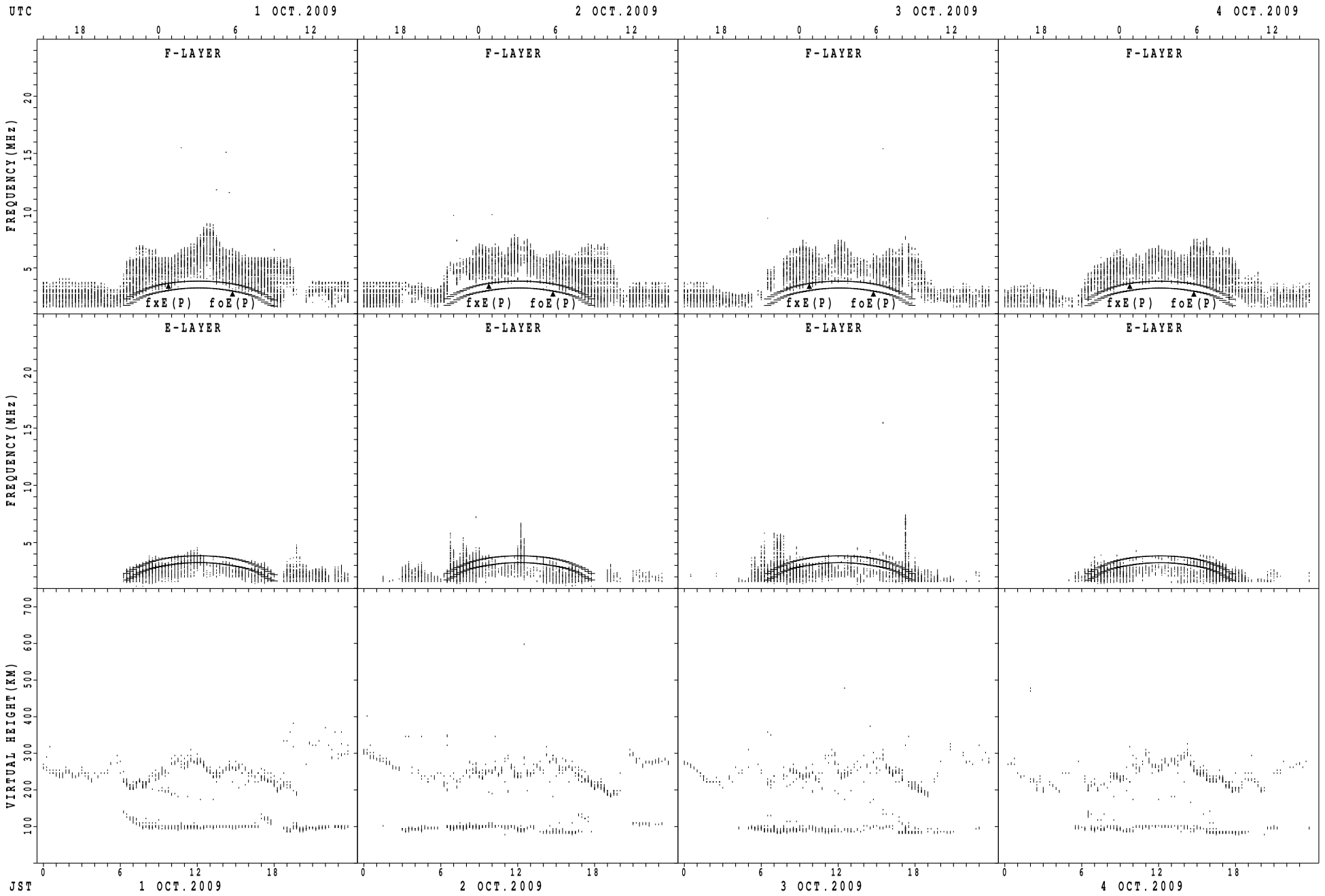
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



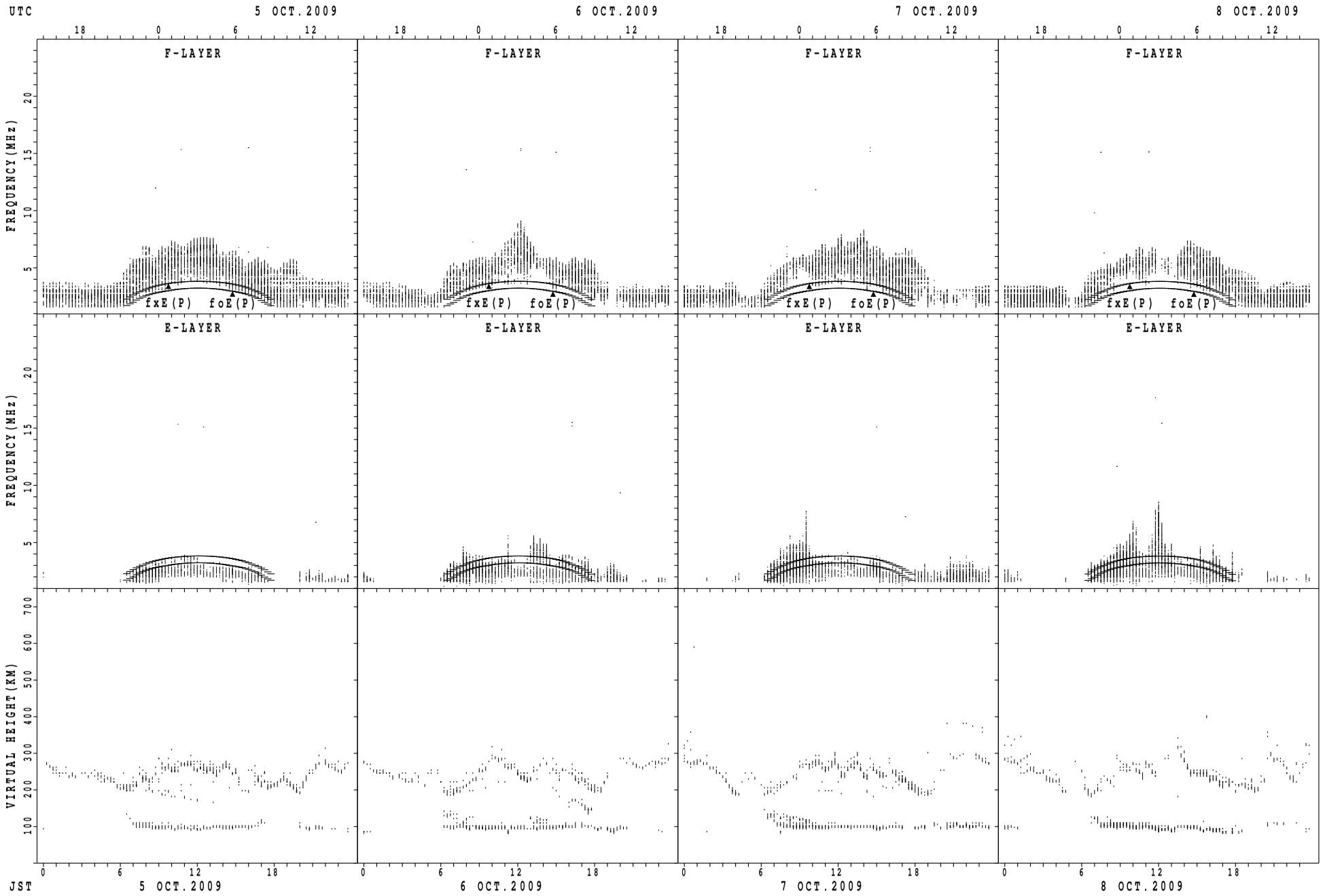
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



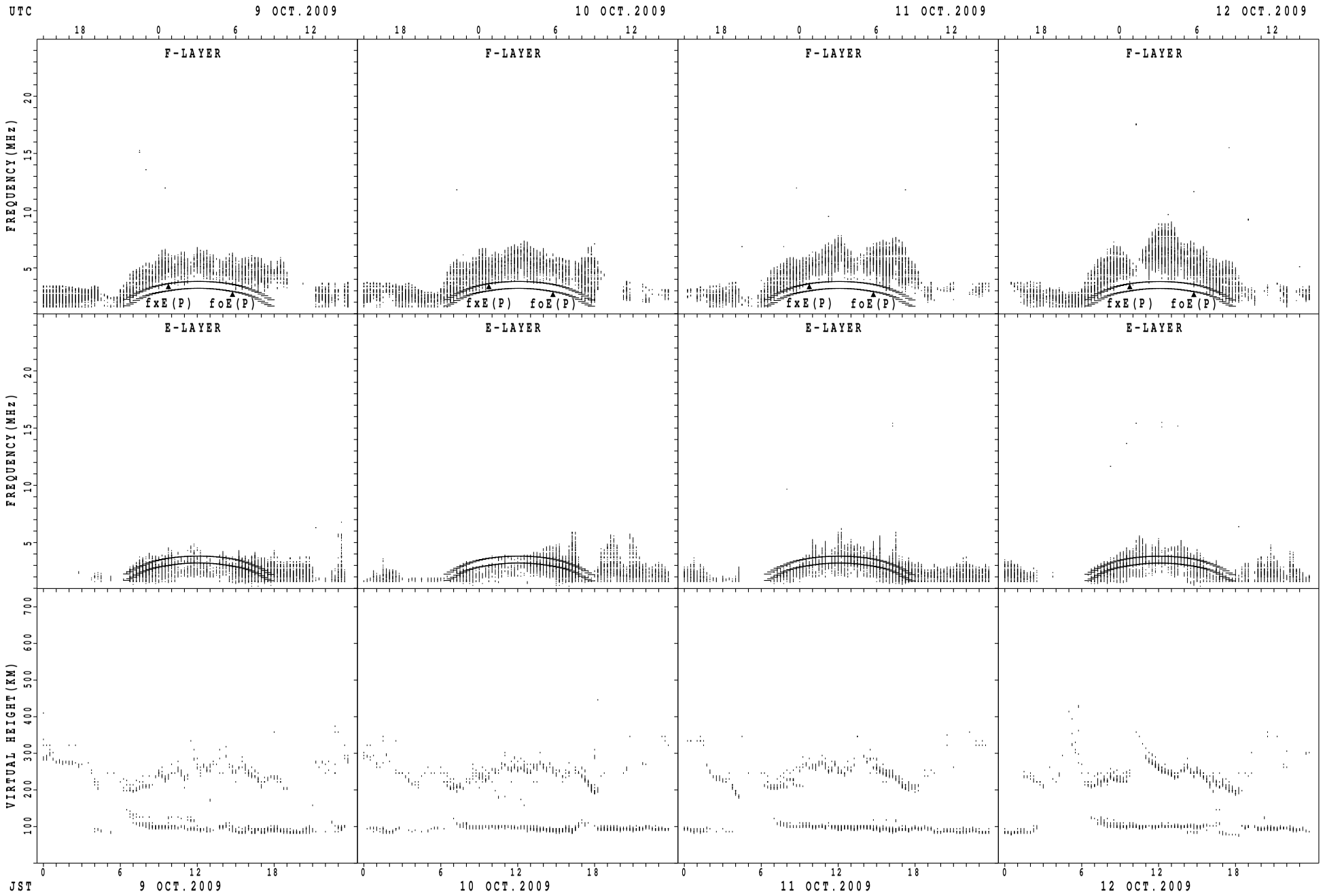
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



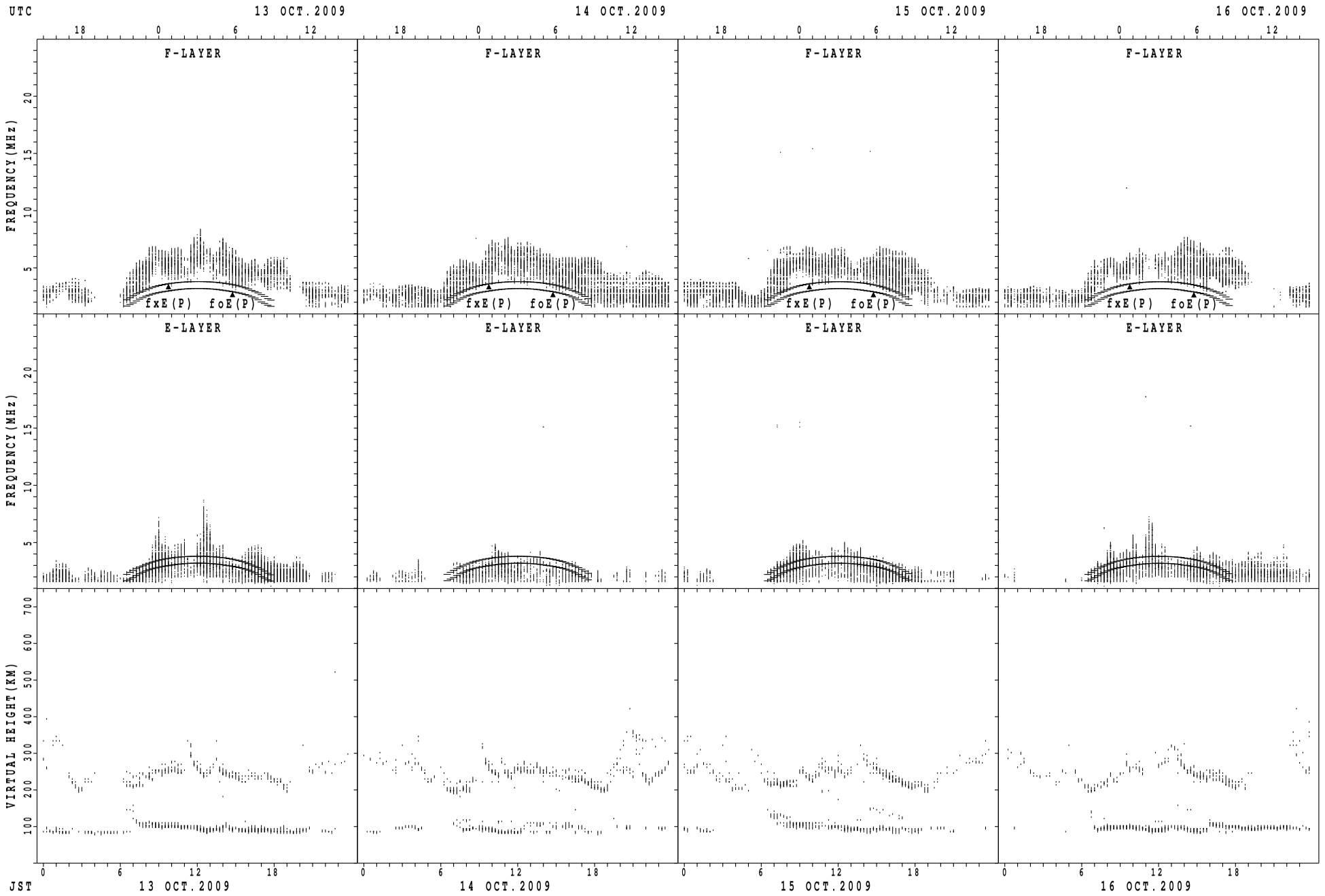
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



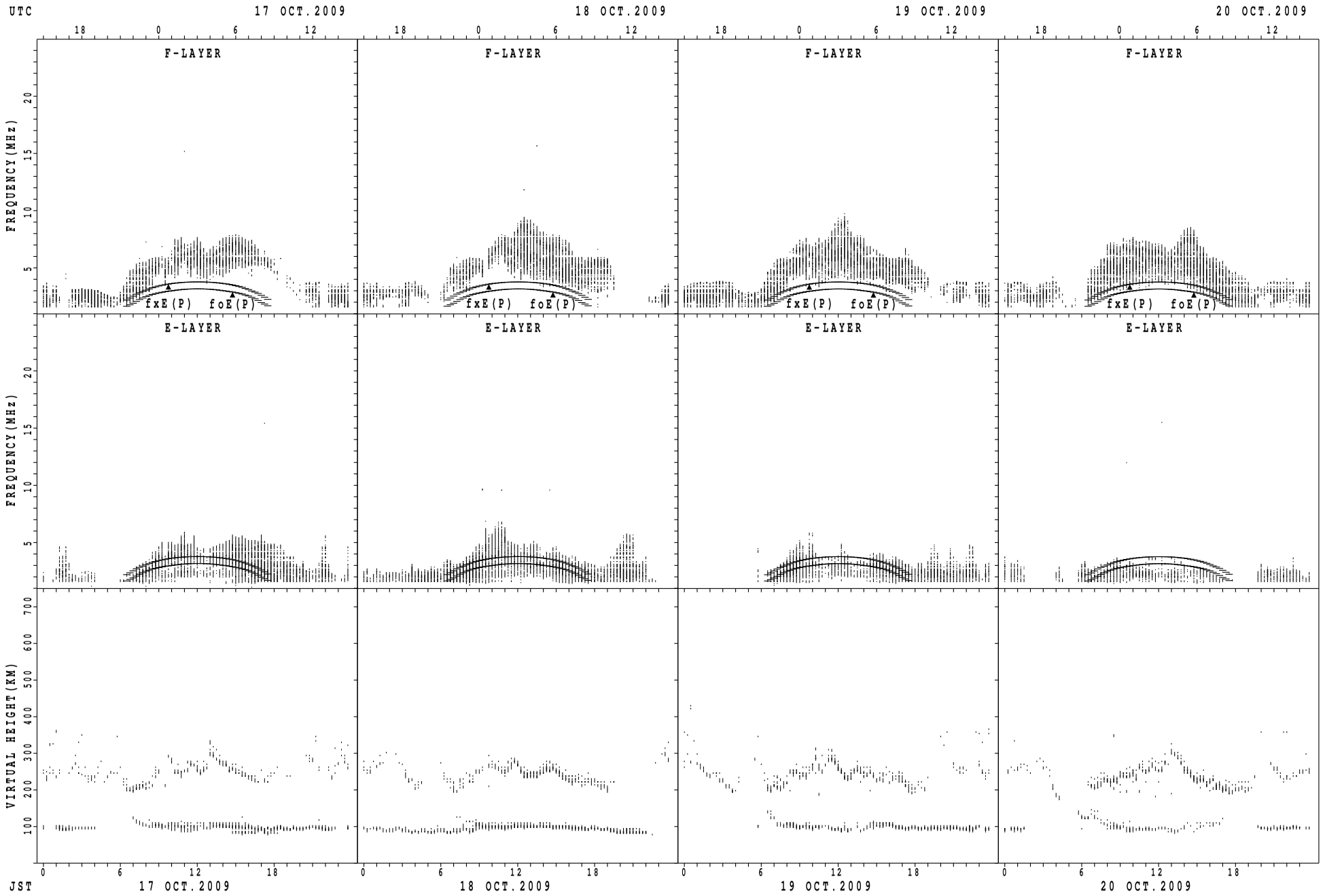
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



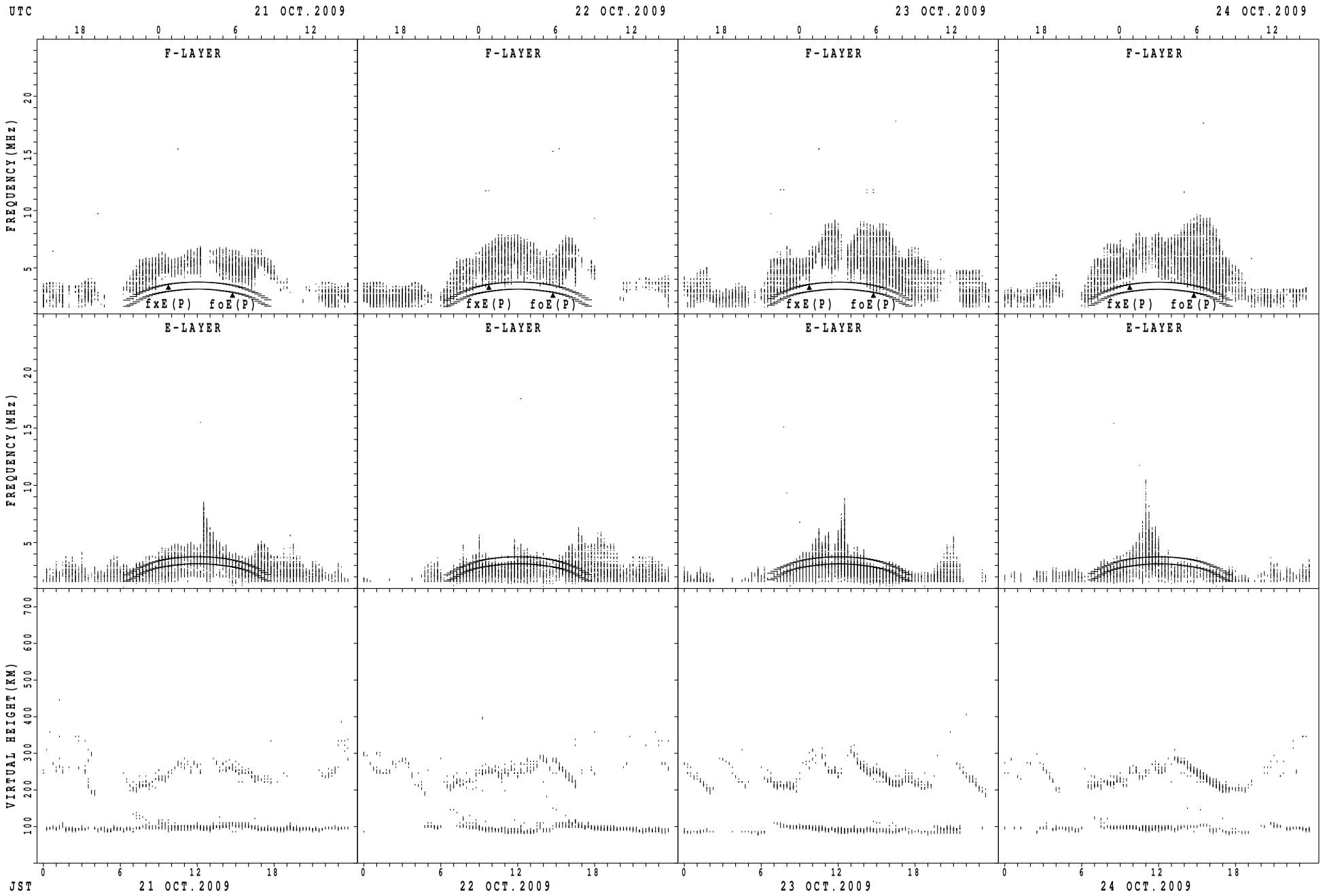
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



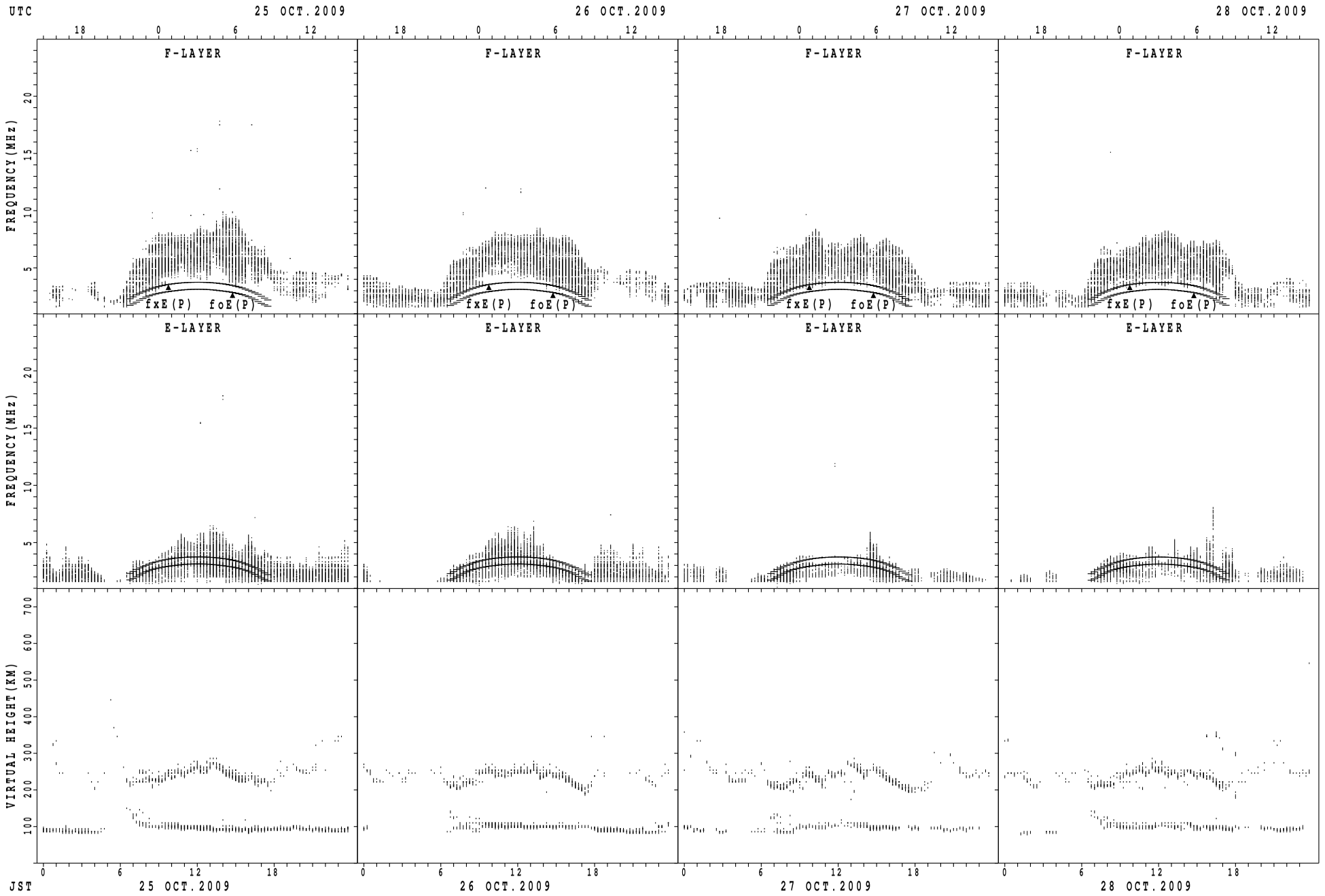
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



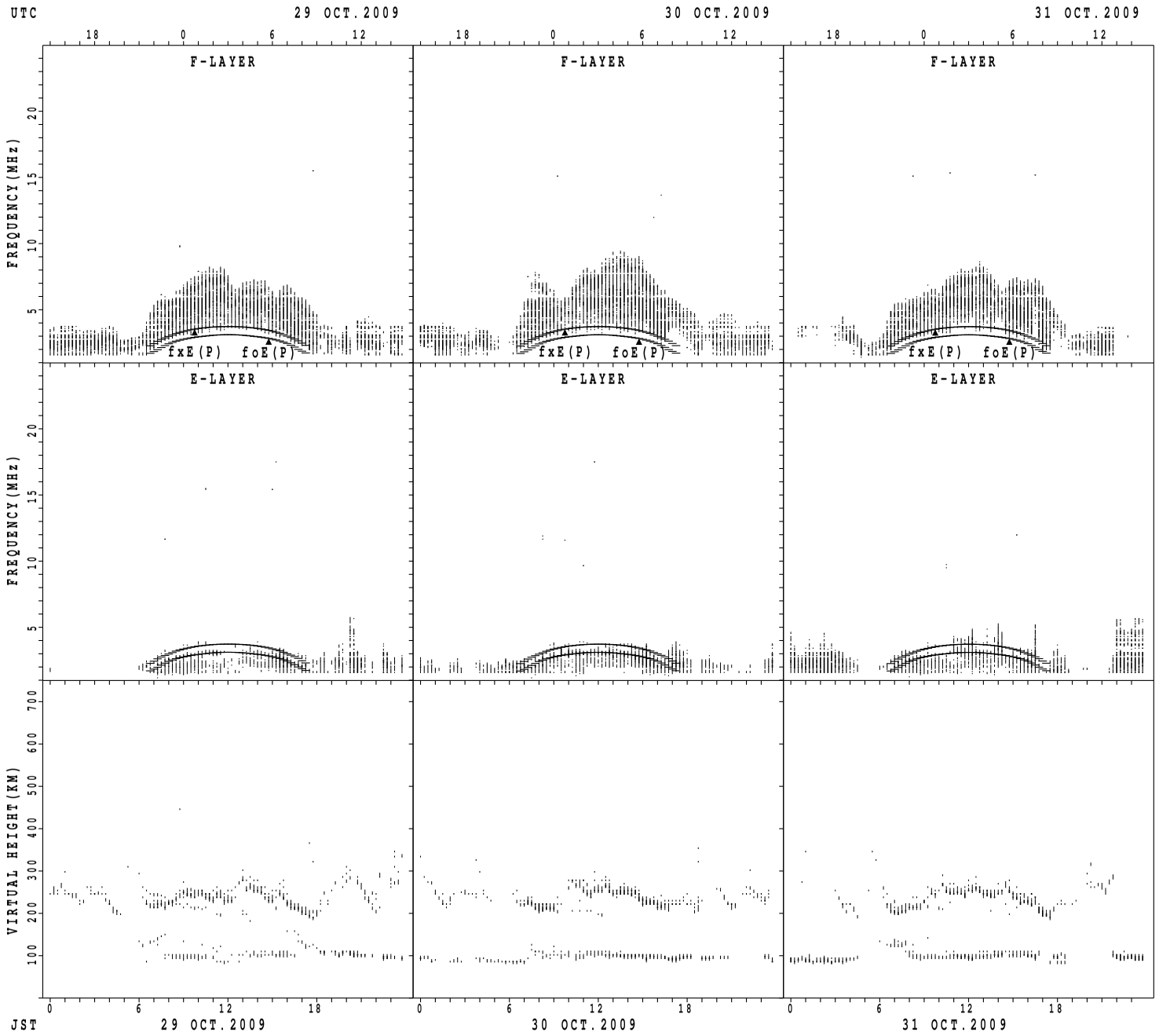
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



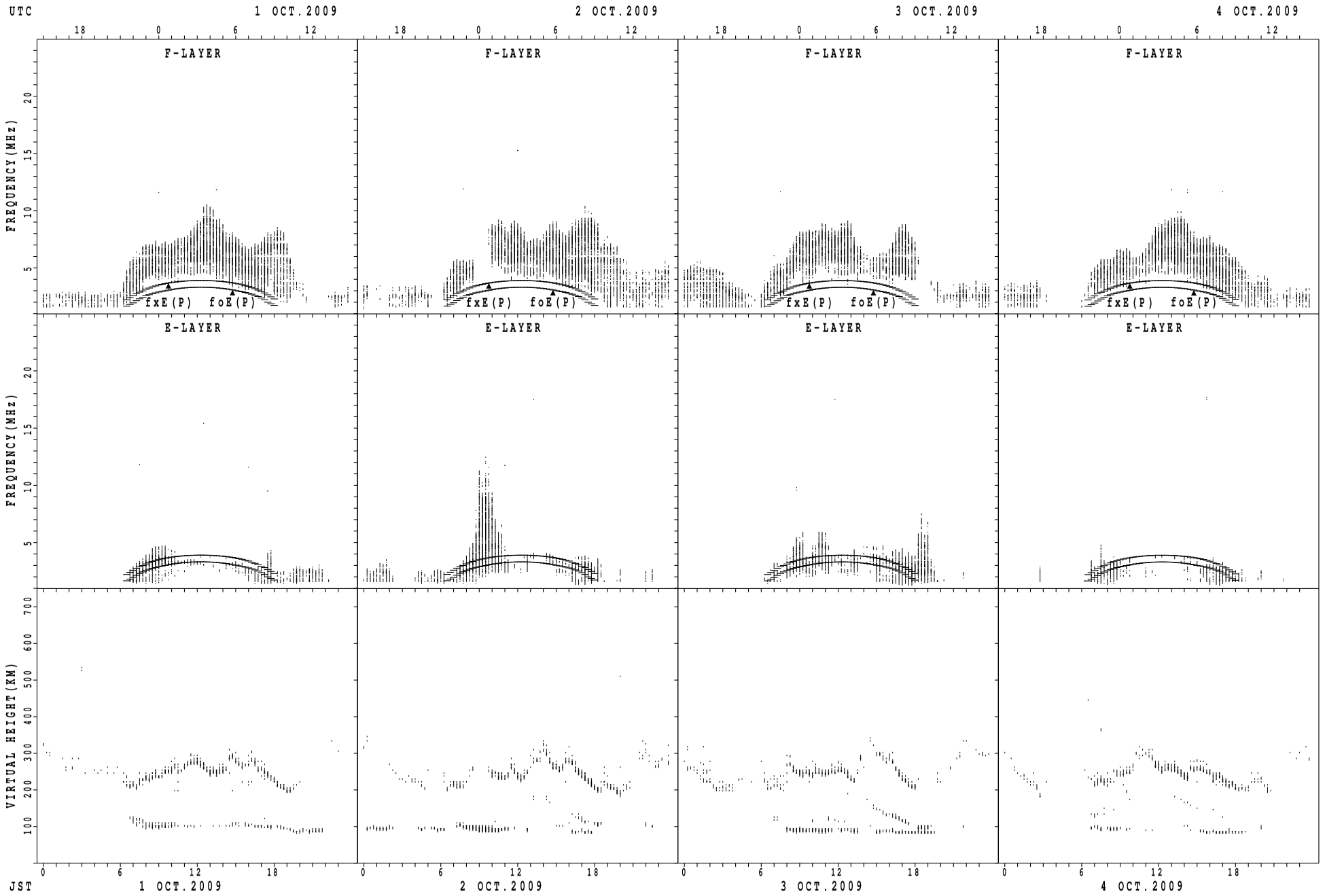
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



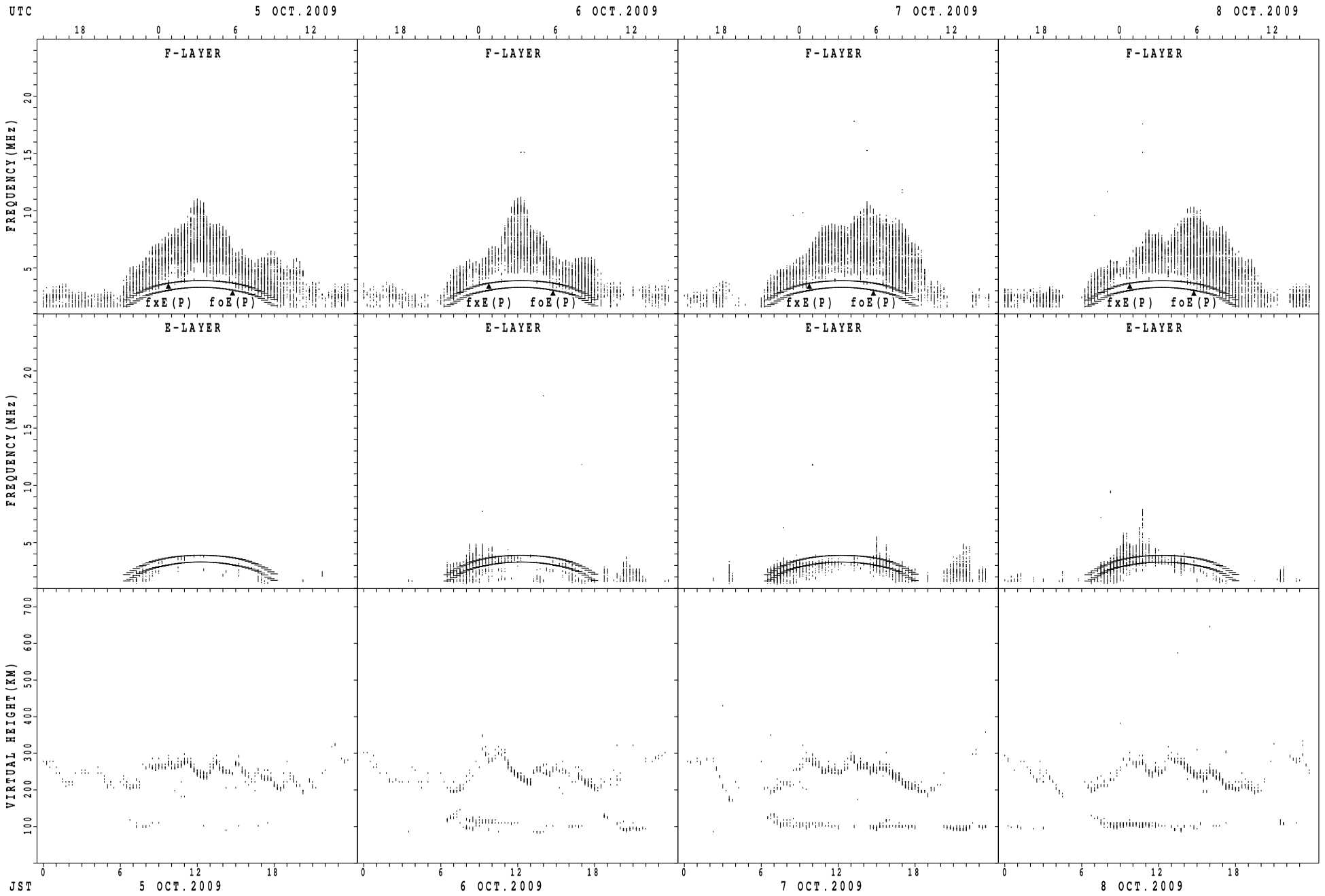
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



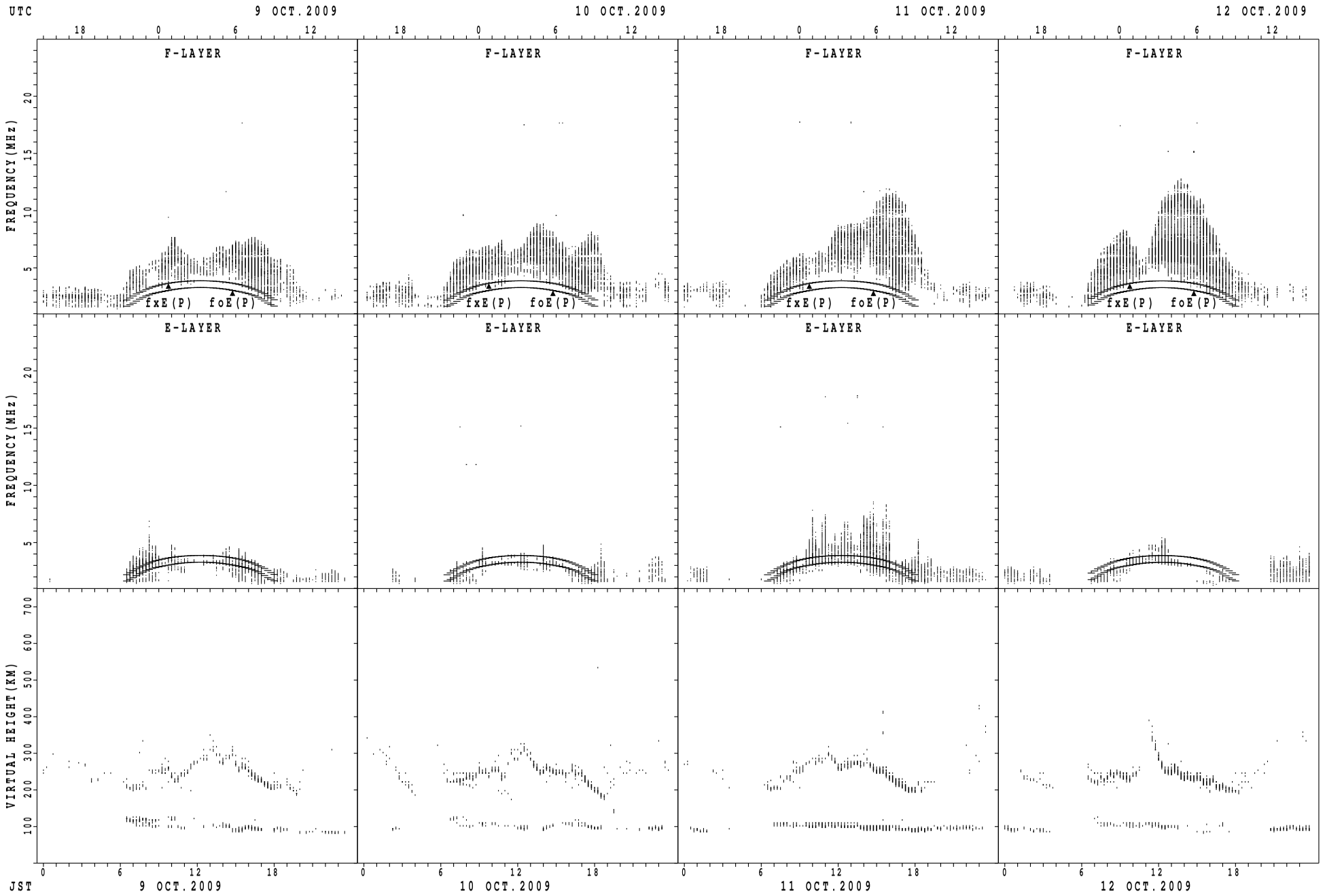
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



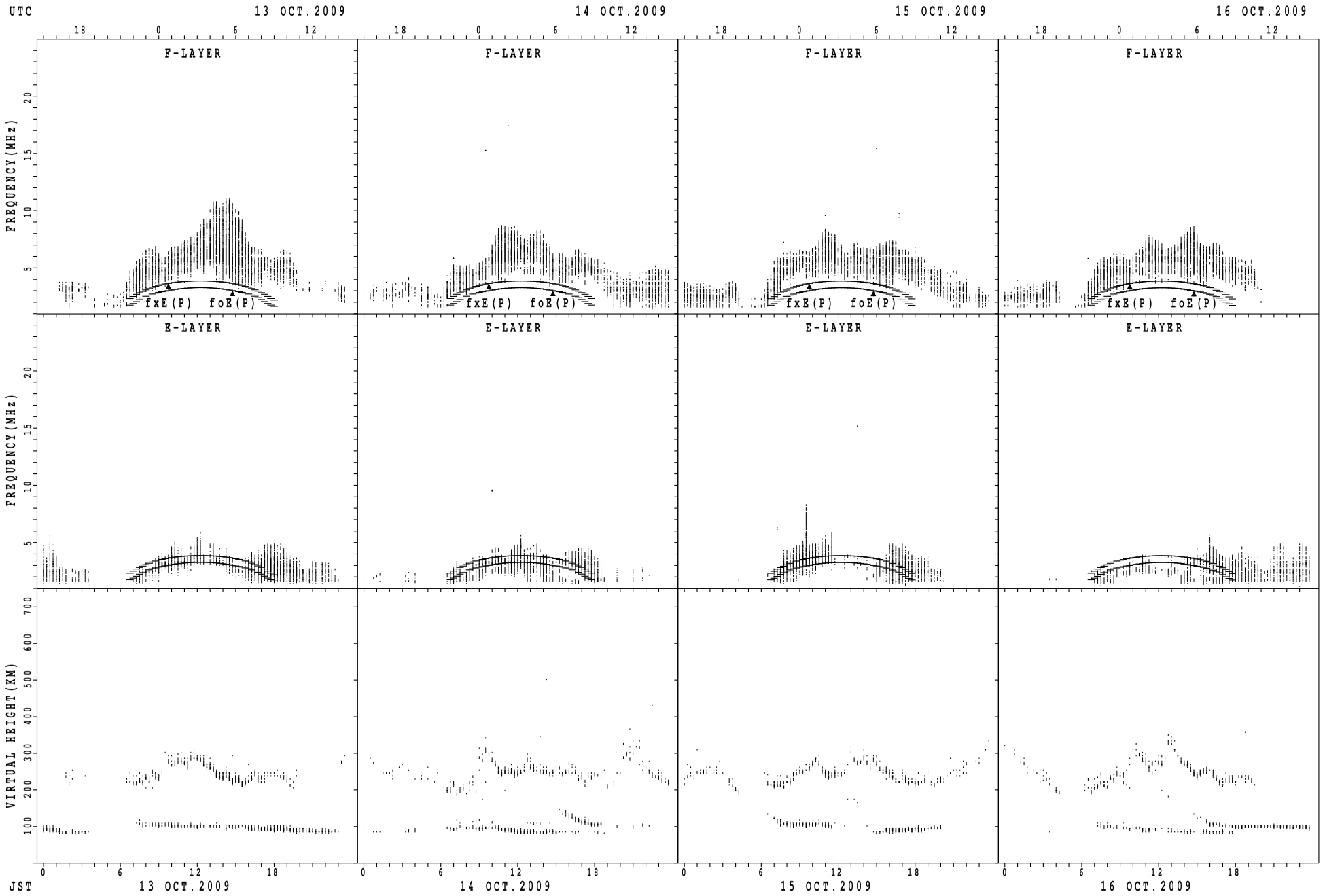
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



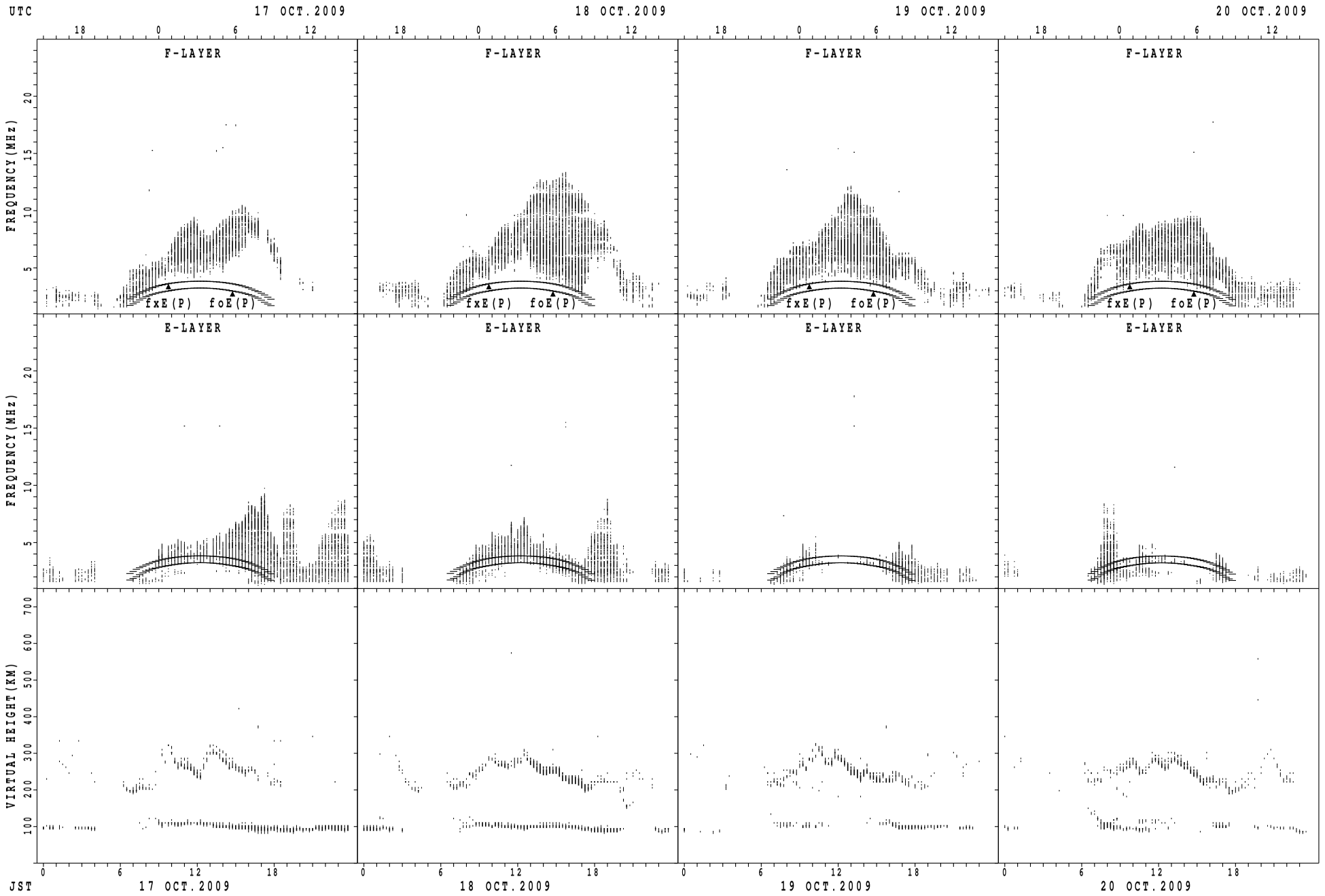
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



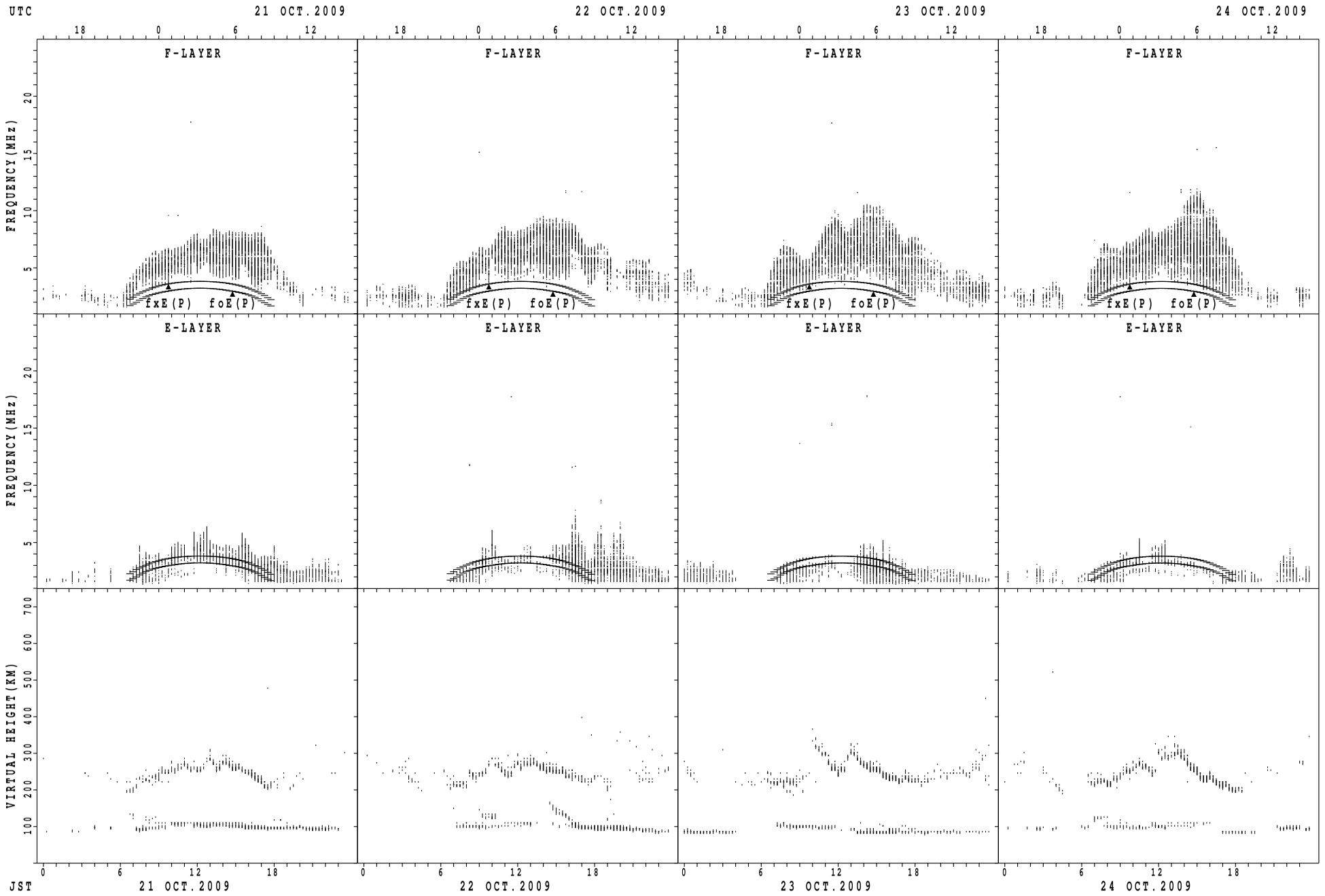
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



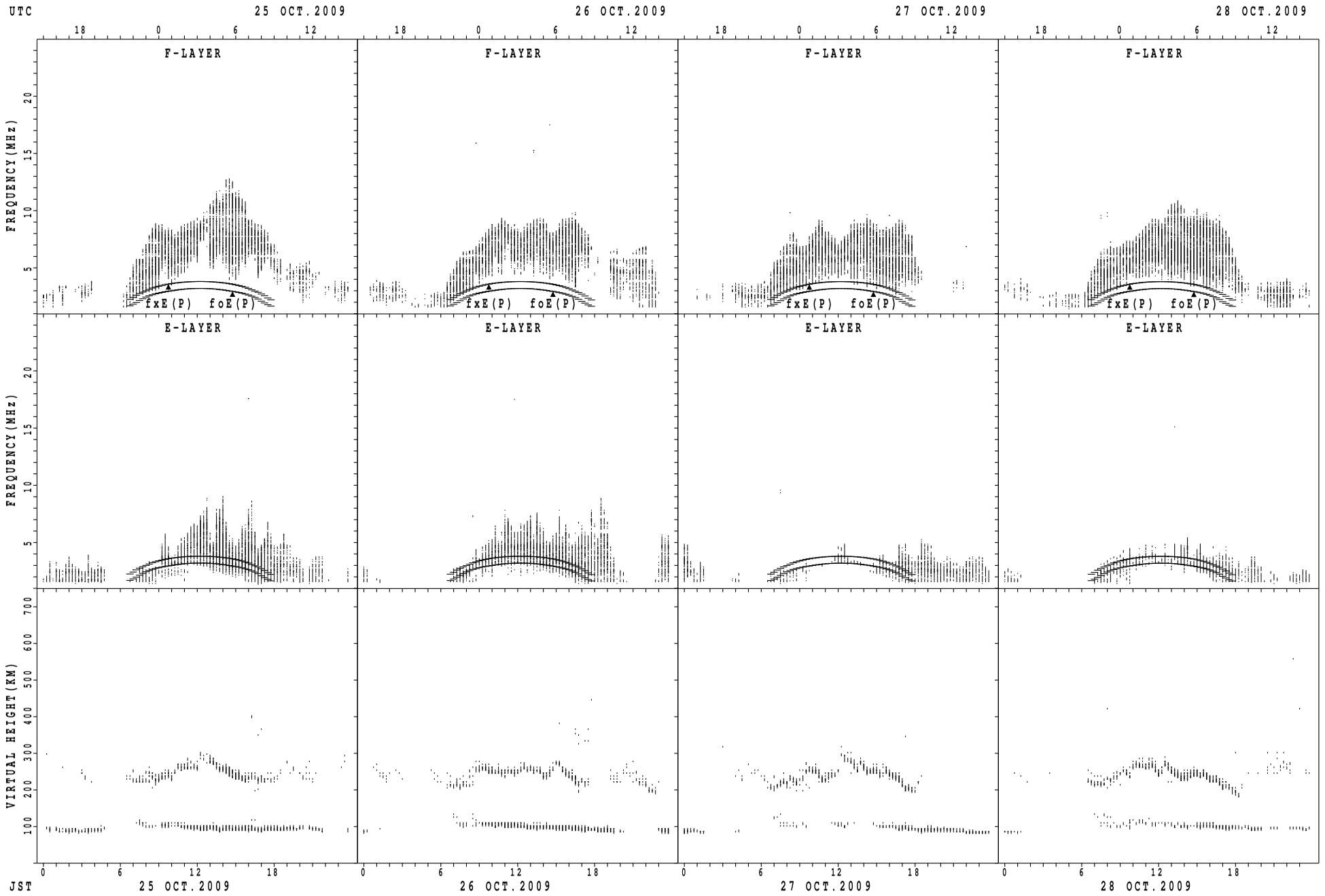
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



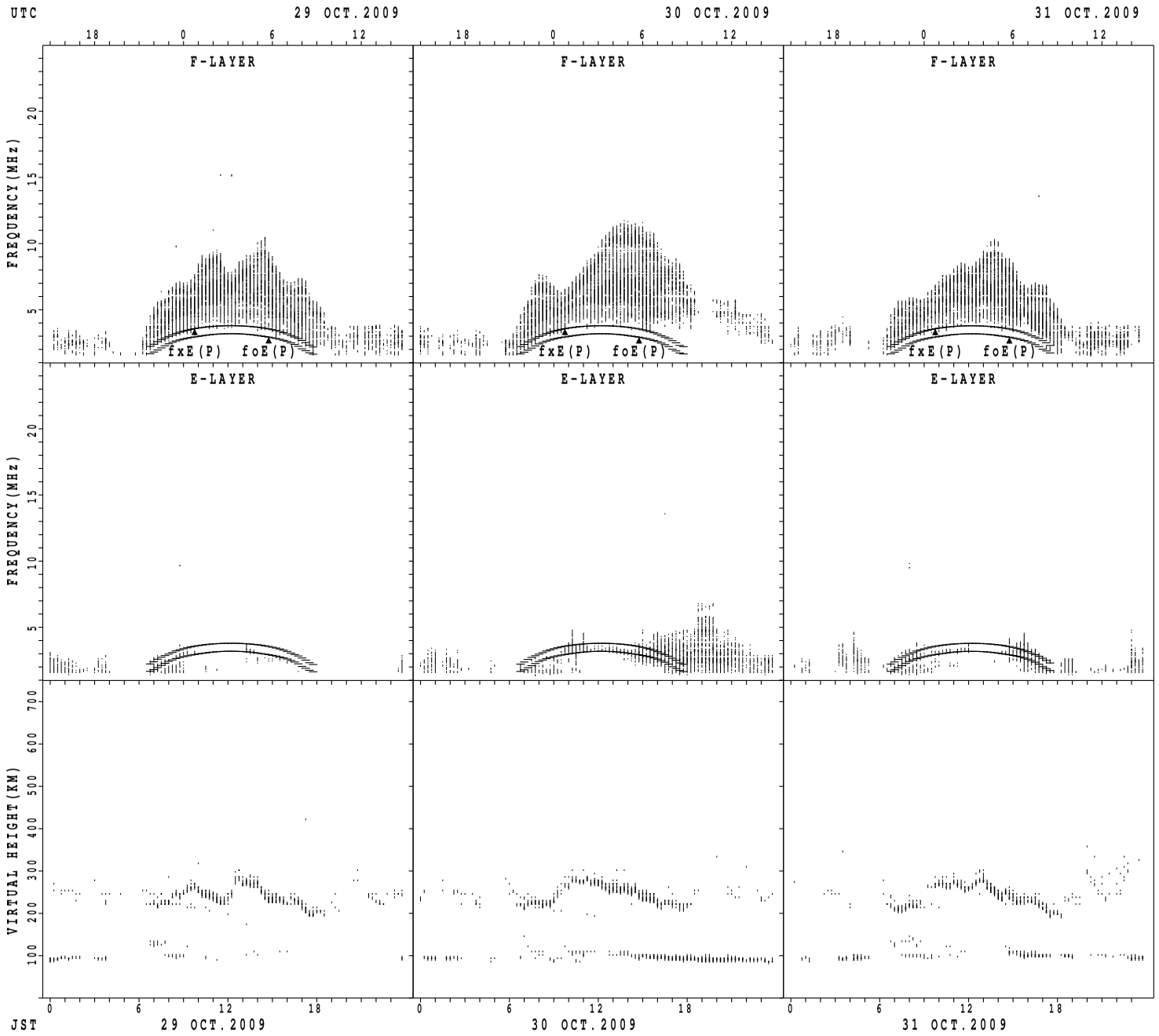
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

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

OCT.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		10	11	1			3	2	7	3	1						
MED							224		240	238	230			244	263	238	240	232						
U Q							112		246	248	115			254	280	254	240	116						
L Q							112		228	236	115			240	246	236	230	116						

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	10	10	12	9	9	12	12	23	22	21	21	16	13	14	20	22	23	19	16	14	16	15	10	10
MED	97	95	97	91	95	94	95	123	107	105	103	97	99	97	95	95	95	95	94	98	96	97	93	97
U Q	97	99	98	95	103	96	95	143	119	107	105	99	100	103	103	101	97	99	95	105	100	99	97	97
L Q	95	91	94	89	89	89	92	113	103	103	99	96	94	95	89	89	89	91	90	89	91	89	91	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	16	8					11	13	7	2						
MED								231	239	249					260	250	238	229						
U Q								239	254	258					264	265	240	230						
L Q								222	227	232					246	241	236	228						

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	13	7	8	5	12	20	15	17	17	14	11	12	13	11	16	22	18	18	18	20	14	13
MED	95	95	95	91	95	95	134	111	109	105	103	103	101	99	101	101	103	103	99	100	98	97	97	95
U Q	97	98	98	103	97	104	151	151	115	109	105	105	107	106	110	105	111	105	103	103	99	99	99	98
L Q	92	93	89	87	89	91	98	105	99	100	98	101	95	93	94	95	95	97	97	97	97	95	95	94

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								1	11	18						16	18	10	1	1				
MED								228	230	243						248	235	229	224	216				
U Q								114	240	256						255	244	236	112	108				
L Q								114	224	238						243	232	218	112	108				

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	14	11	8	12	6	10	24	25	20	19	19	20	19	16	17	22	25	24	19	24	23	21	19
MED	95	94	89	94	93	91	95	128	107	105	103	99	101	97	103	99	101	97	96	95	95	97	97	97
U Q	99	95	91	95	95	95	101	133	119	110	105	103	105	107	103	104	105	112	99	97	97	101	100	103
L Q	90	91	89	89	89	89	89	100	107	100	99	95	95	95	100	95	95	95	89	91	91	93	91	95

MONTHLY MEDIANS OF h′F AND h′Es

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

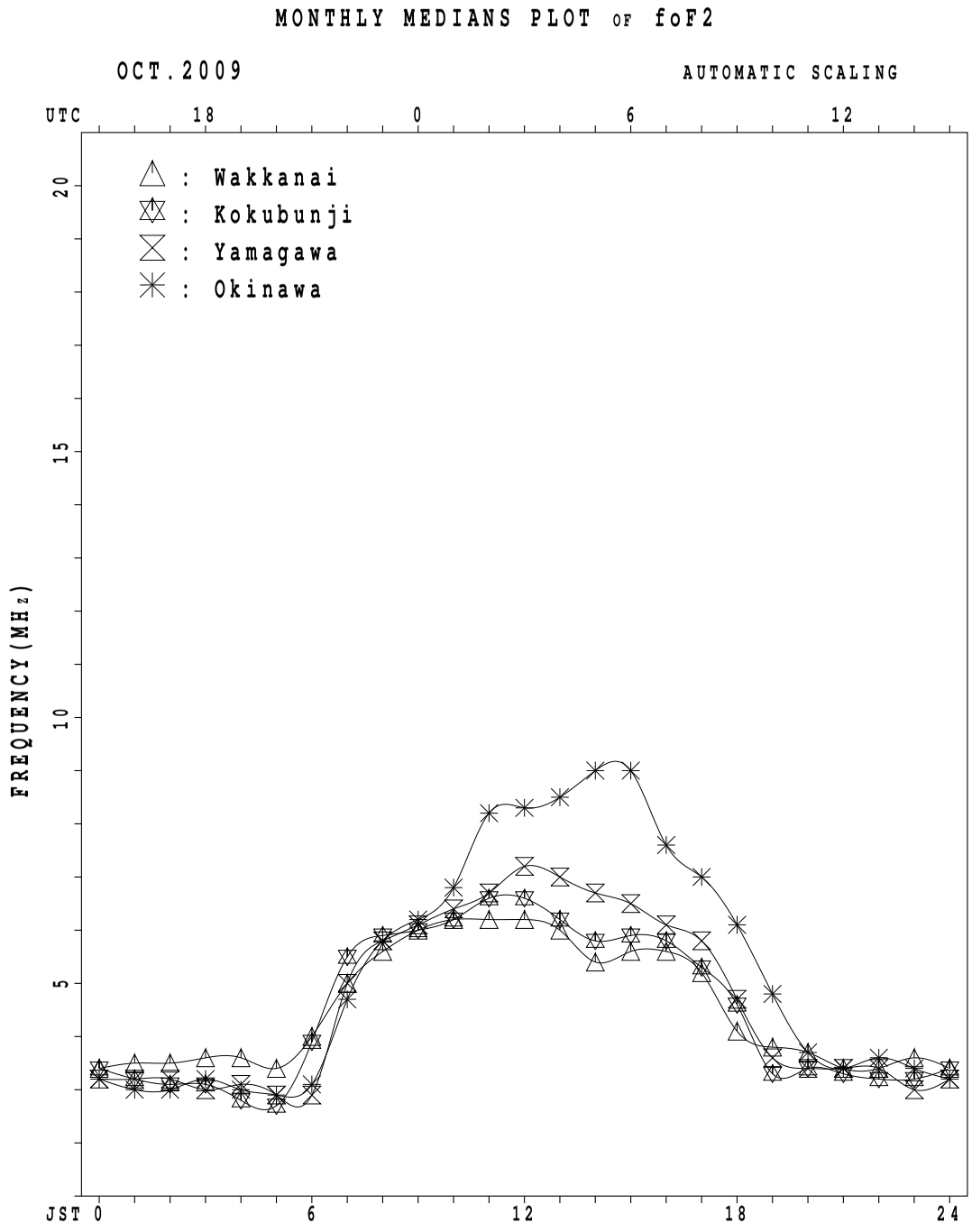
h′F

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									14	19						13	25	23	10	3			1	
MED									244	256						240	238	230	220	214			240	
U Q									248	264						250	253	238	238	240			120	
L Q									236	244						232	222	222	212	214			120	

h′Es

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	11	9	6	5	3	1	1	16	17	18	17	16	12	14	13	14	20	23	23	18	17	16	14	16
MED	95	95	94	89	97	97	95	125	107	110	107	103	104	104	101	101	102	97	97	97	97	95	96	97
U Q	97	97	97	96	99	48	47	130	113	113	114	107	105	109	104	105	107	103	101	103	101	98	99	98
L Q	89	94	89	88	93	48	47	119	105	105	103	100	101	101	95	97	96	95	93	95	92	93	93	89


MONTHLY MEDIANS PLOT OF foF2
OCT.2009
AUTOMATIC SCALING
UTC
18
0
6
12
△ : Wakkanai
⊠ : Kokubunji
⧖ : Yamagawa
✳ : Okinawa
FREQUENCY(MHz)
20
15
10
5
JST 0
6
12
18
24

IONOSPHERIC DATA STATION Kokubunji

OCT. 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 41	X 39	X 37	X 36	X 34	X 33													X 62	X 53	X 46	X 46	X 47	X 45
2	X 46	X 46	X 44	46	X 40	X 35													X 66	X 52	X 43	X 42	X 40	X 40
3	X 40	X 40	X 40	X 34	X 30	X 32													X 57	X 42	X 39	X 39	X 38	X 40
4	X 40	X 40	X 40	X 37	X 34	X 33												X 64	X 51	X 38	X 38	X 39	X 38	X 39
5	X 40	X 35	X 36	X 36	X 35	X 36													X 61	X 46	X 45	X 44	X 42	X 41
6	X 40	X 40	X 38	X 36	X 35	X 34													X 45	X 34	X 36	X 37	X 36	X 37
7	X 36	X 37	X 36	X 37	X 38	X 29													X 50	X 40	X 37	X 36	X 37	38
8	X 38	X 39	X 36	X 35	X 39	X 27													X 50	X 38	X 39	X 40	42	38
9	43	X 37	X 35	X 36	X 37	X 26													X 55	X 48	X 44	X 47	X 49	52
10	52	50	50	49	50	44													X 53	X 46	X 45	X 36	X 36	X 32
11		X 35	X 36	X 34	X 35	X 25					C	C	C	C	C	C	C		X 55	A	X 40	X 37	A	X 40
12	X 41	X 41	X 41	X 36	X 34	X 34													X 54	X 36	X 35	X 36	X 35	X 36
13	X 36	X 38	X 38	X 41	X 27	X 24													X 54	X 37	X 41	X 38	X 38	X 38
14	41	40	42	X 38	X 36	X 36													X 58	X 44	X 44	X 41	X 41	X 40
15	X 41	X 40	X 40	X 36	X 34	X 29													X 53	X 38	X 39	X 39	X 39	X 39
16	X 38	X 38	X 40	X 39	X 34	X 34												X 64	X 52	X 39	X 40	X 37	X 39	X 40
17	X 40	X 40	X 38	X 39	X 30	X 28													X 54	A	X 46	A	X 38	X 40
18	A	X 38	X 36	X 38	X 34	X 30												X 60	X 56	X 46	X 45	X 42	44	X 42
19	X 39	X 40	X 40	X 40	X 32	X 31													X 47	X 36	X 40	X 40	X 38	X 39
20	X 40	X 39	X 37	X 39	X 40	X 28													X 40	A	X 40	X 40	X 40	X 38
21	X 39	X 38	42	41	X 34	X 28													X 46	A	X 39	X 39	41	39
22	39	X 38	X 36	X 38	X 38	X 28													A	X 35	X 39	X 41	X 39	X 42
23	X 42	X 42	X 34	X 36	X 37	X 33	X 48											X 62	X 54	X 52	X 47	X 44	X 44	X 46
24	X 42	38	X 38	X 40	X 41	X 32													X 41	X 37	X 36	A	X 35	A
25	X 34	X 35	X 32	X 39	X 29	X 29											X 69		X 48	X 46	X 47	X 44	X 44	X 46
26	X 44	X 44	X 34	X 39	X 36	X 35												X 52	X 53	X 46	44	48	42	X 40
27	X 39	42	40	X 40	X 40	X 34													X 37	X 36	X 38	X 40	X 39	X 37
28	X 38	38	X 36	X 36	X 35	X 25													X 37	X 35	X 40	X 41	X 36	X 40
29	42	X 44	X 40	X 39	X 41	X 34												X 50	X 40	X 42	X 42	44	X 41	X 40
30	X 40	X 40	X 41	X 41	X 42	X 31	X 42												X 42	X 42	X 47	X 42	X 42	X 42
31			X 37	X 44	X 41	X 31													X 42	X 38	X 37	X 37	40	X 41
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	30	31	31	31	31	2										1	6	30	27	31	29	30	30
MED	X 40	X 40	X 38	X 38	X 35	X 31	X 45										X 69	X 61	X 52	X 40	X 40	X 40	X 40	X 40
U Q	X 42	X 40	X 40	X 40	X 40	X 34												X 64	X 55	X 46	X 45	X 43	X 42	X 41
L Q	X 39	X 38	X 36	X 36	X 34	X 28												X 52	X 45	X 37	X 39	X 38	X 38	X 38

OCT. 2009 fxI (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

OCT. 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	34	33	30	30	28	27	47	58	67	56	60	57	71	64	65	66	56	54	55	47	40	40	41	38
2	40	40	38	F	34	29	44	55	68	54	58	60	74	69	56	56	58	52	60	46	37	36	34	34
3	34	34	34	28	24	26	46	50	54	56	58	61	66	55	54	56	58	54	51	36	33	33	32	34
4	34	34	33	31	28	27	44	57	62	62	58	71	62	54	57	64	65	58	45	32	32	33	32	33
5	34	28	29	30	29	30	50	55	59	58	60	66	62	65	61	54	53	47	54	40	39	38	36	35
6	34	34	32	30	28	27	43	54	54	52	53	64	67	68	49	53	57	58	38	28	30	31	30	31
7	30	31	30	31	31	23	41	47	56	52	52	62	63	59	53	57	67	54	43	34	31	30	31	F
8	32	33	30	29	32	21	37	47	A	50	A	A	55	57	64	52	49	52	43	32	33	34	F	F
9	F	31	29	30	31	20	38	44	54	54	54	63	66	52	48	53	52	52	49	42	37	41	42	F
10	F	F	F	F	F	F	51	54	58	55	64	64	70	62	56	55	52	55	46	40	39	30	31	26
11	36	29	30	29	29	18	37	47	50	57	C	C	C	C	C	C	C	A	48	A	34	31	A	34
12	35	34	35	30	28	28	43	52	51	58	61	75	70	62	61	58	50	57	48	29	29	30	29	30
13	30	32	32	35	21	18	36	49	49	60	62	63	64	51	53	53	47	56	48	31	34	32	32	32
14	F	F	F	33	30	30	42	52	62	64	58	65	64	54	54	54	54	65	52	37	38	35	35	34
15	34	34	34	30	28	22	39	55	65	71	58	58	56	53	53	62	54	56	47	31	32	32	33	33
16	32	32	33	32	28	28	43	51	50	58	63	58	56	57	56	62	66	58	45	33	34	30	32	34
17	33	34	32	33	24	22	37	52	50	54	58	58	64	60	70	60	58	52	48	A	39	A	32	34
18	A	31	30	32	28	24	40	51	56	A	62	84	86	64	57	58	56	54	50	39	39	36	F	36
19	33	34	33	34	26	25	40	58	57	73	67	72	73	65	59	56	54	55	41	30	32	34	31	32
20	34	33	31	33	34	22	40	50	58	63	64	61	56	57	64	54	50	47	33	A	34	34	34	32
21	33	32	F	F	28	22	38	54	55	56	54	60	64	55	58	57	53	45	40	A	33	33	F	F
22	F	32	30	32	32	22	36	52	60	60	55	66	64	56	56	60	64	53	A	29	33	35	33	35
23	36	36	28	30	31	27	42	65	74	50	68	88	67	71	68	71	66	56	48	46	41	38	38	40
24	36	F	32	34	35	26	38	64	72	79	68	77	70	69	76	72	75	62	35	31	29	A	29	A
25	28	29	26	33	23	22	37	56	61	77	72	70	77	72	77	71	63	54	42	40	41	38	38	40
26	38	38	28	33	30	29	39	55	62	65	76	72	71	68	65	65	57	46	47	40	F	F	F	35
27	33	F	F	34	33	27	40	62	62	62	72	68	65	62	61	67	57	50	31	30	32	34	33	31
28	32	F	30	30	29	19	34	54	61	62	66	68	78	65	61	64	58	51	31	29	34	34	29	34
29	F	38	34	33	35	28	38	54	57	63	74	78	72	55	57	55	59	44	33	35	36	F	35	34
30	34	34	34	35	35	25	36	61	66	56	64	70	81	79	75	65	54	44	36	36	41	36	36	36
31	B	30	31	37	35	25	40	52	55	64	69	78	65	62	56	62	66	56	36	31	31	30	F	35
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	24	26	27	28	30	30	31	31	30	30	29	29	30	30	30	30	30	30	30	27	30	27	25	26
MED	34	33	31	32	29	25	40	54	58	58	62	66	66	62	58	58	57	54	46	34	34	34	33	34
U Q	34	34	33	33	32	27	43	56	62	63	68	72	71	65	64	64	63	56	48	40	39	36	36	35
L Q	32	31	30	30	28	22	37	51	54	55	58	61	64	55	56	55	53	51	38	31	32	31	31	32

IONOSPHERIC DATA STATION Kokubunji

OCT. 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	L	U L 428	U L 464	U L 428	U L 428	U L 432	L	L							
2									A	L	U L 432	456	U L 408	408	L	U L 392	L							
3									L	L	U L 436	420	428	A	U L 424	A	A							
4								A	L	U L 424	440	U L 428	U L 436	U L 424	424	L								
5									L	L	U L 424	428	436	U L 408	L	A	A							
6									A	L	U L 412	U L 432	U L 428	412	U L 412	L	A							
7										L	U L 436	432	428	420	L	L	A							
8									A	A	A	A	424	A	A	L								
9									L	L	A	U L 408	U L 392	L	U L 344	U L 368								
10										L	412	L	432	424	L	L	A							
11										A	C	C	C	C	C	C	C	A						
12										A	L	U L 428	420	A	L	L								
13										L	U L 420	L	428	L	L	L								
14										L	L	A	416	L	A	L								
15									L	A	U L 424	U L 420	U L 436	L	L	L								
16										A	420	U L 440	428	L	L	L	A							
17								A			416	U L 428	L	A	L	A								
18										A	A	A	L	L	A	L								
19									L	U L 400	L	U L 444	U L 424	L	L	L								
20									L	L	U L 420	U L 420	L	L	U L 412									
21										L	A	A	A	U L 444		A								
22										A	U L 428	424	L	U L 416	L									
23										A	A	A	A	A	L									
24								A	A	L	L	A	L	A	L	L								
25										A	A	A	U L 416	L	L	L								
26										A	A	A	A	A	L	A								
27										A	L	U L 424	L	L	A									
28										A	A	U L 444	A	L	L									
29										L	U L 428	U L 416	L											
30										L	L	L	L	A	L									
31	B	308								L	A	U L 424	A	L	A									
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT		1								2	15	19	17	9	6	2								
MED		308								U L 412	U L 424	U L 428	428	U L 420	U L 418	U L 380								
U Q											U L 432	U L 440	U L 430	U L 426	U L 424									
L Q											420	U L 420	U L 418	410	U L 412									

OCT. 2009 foF1 (0.01MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

OCT. 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							A	A	A	A	A	A	A	R	A	A	R	B						
2							B	A	A	A	A	A	A	R	R	R	U R 256	B						
3							B	244	272	R	A	A	R	A	A	A	A	B						
4							192	244	R	R	R	R	R	R	320	A	244							
5							B	U R 244	R	R	R	R	R	R	A	A	A	B						
6							B	248	284	R	R	324	A	R	A	A	A	B						
7							B	232	A	A	A	R	R	A	A	A	A	B						
8							B	236	A	A	A	A	A	A	A	A	U R 236	B						
9							B	232	A	R	A	A	R	304	R	R	R	B						
10							B	R	R	R	A	R	R	R	A	A	A	B						
11	120						B	A	A	A	C	C	C	C	C	C	C	A						
12							B	A	R	A	A	R	A	A	A	R	U R 232	B						
13							B	U A 224	A	A	R	R	R	R	R	R	U R 208	B						
14							B	244	A	A	A	A	R	A	A	R	216	B						
15							B	216	A	A	A	A	A	A	A	U A 252	A	A						
16							B	224	A	A	A	A	A	A	R	A	A							
17							B	236	A	A	A	A	A	A	A	A	A	B						
18							B	A	A	A	A	A	R	A	A	A	A							
19							B	A	A	A	A	A	R	R	R	R	A	B						
20							B	A	A	A	A	R	R	R	R	R	A	B						
21							B	U A 228	A	A	A	A	A	R	A	A	A	B						
22							B	208	A	A	R	316	324	312	296	256	A	B						
23								216	A	A	A	A	A	A	A	A	A							
24							B	A	A	A	A	A	A	A	A	A	U A 204	B						
25							B	A	A	A	A	A	A	R	A	A		B						
26							B	A	A	A	A	A	A	A	A	A	A							
27							B	192	U R 284	A	A	A	A	A	A	R	A	B						
28							B	220	A	A	A	A	A	A	R	R	A	B						
29							B	220	U A 256	R	R	R	R	R	R	R	192							
30								208	U A 260	A	A	A	R	A	R	A	A	B						
31	B	A 268					B	228	256	A	A	R	A	A	A	A	A	B						
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	1	1					1	20	6			2	1	2	2	2	8							
MED	120	A 268					192	228	266			320	324	308	308	254	U 224							
U Q								240	284								U R 240							
L Q								218	256								U 206							

OCT. 2009 foE (0.01MHz)

IONOSPHERIC DATA STATION Kokubunji

OCT. 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	20	E B 15	E B 15	22	E B 15	E B 16	23	J A 32	32	35	38	J A 43	J A 41	G 31	36	J A 33	G 20	22	J A 25	J A 20	J A 22	J A 26	J A 17	22
2	J A 23	J A 24	J A 51	J A 74	J A 97	J A 47	J A 46	J A 37	J A 61	J A 44	38	J A 45	34	G 28	25	G 23	G	E B 16	J A 24	J A 28	21	20	E B 15	21
3	21	J A 20	J A 38	J A 28	J A 37	J A 24	J A 28	29	32	G 20	36	36	G	J A 47	34	J A 38	J A 40	J A 53	J A 23	J A 23	22	E B 16	E B 16	19
4	E B 15	E B 16	E B 15	20	E B 14	J A 24	G 19	32	G 22	G 28	G	G 28	G 28	G 27	37	31	28	22	E B 16	E B 15	21	E B 15	E B 15	E B 15
5	E B 15	E B 15	E B 15	E B 16	E B 15	E B 14	23	J A 28	G 25	G 27	G 27	G 28	G 28	G 29	36	33	30	J A 25	J A 21	J A 21	20	J A 20	19	E B 16
6	E B 16	E B 15	E B 15	18	E B 15	21	20	29	35	G 26	G	40	39	G 23	38	35	J A 33	J A 21	21	18	J A 18	E B 16	J A 21	20
7	21	J A 22	20	20	E B 15	20	19	G 20	35	36	38	G 29	G	37	34	33	29	J A 22	J A 28	21	21	J A 24	20	20
8	E B 16	E B 16	E B 15	21	J A 20	E B 14	J A 24	J A 40	J A 52	J A 46	J A 62	J A 68	J A 41	J A 75	J A 42	34	G	J A 34	E B 15	20	J A 26	J A 27	21	J A 17
9	J A 17	E B 14	J A 16	E B 14	E B 14	J A 18	J A 28	29	34	G 30	J A 59	36	G 28	38	G 23	G 19	G 20	22	E B 15	J A 33	J A 28	J A 18	18	22
10	20	20	E B 15	20	J A 19	21	E B 15	G	G 23	G 26	J A 38	G 27	G	G 26	33	J A 29	J A 48	E B 17	J A 25	J A 38	J A 30	J A 23	J A 24	J A 22
11	32	J A 30	J A 24	J A 21	19	20	19	J A 28	33	J A 51	C	C	C	C	C	C	C	J A 80	J A 58	J A 58	J A 32	J A 28	J A 36	J A 32
12	J A 23	J A 20	E B 14	E B 15	E B 15	E B 14	21	29	G 24	J A 55	J A 39	G 23	37	J A 42	35	G 20	G 20	J A 21	E B 20	E B 15	J A 31	J A 32	J A 24	J A 20
13	J A 23	E B 15	20	E B 14	E B 15	E B 16	21	29	36	J A 38	G 30	G 27	G 28	G 24	G 23	G 22	G 20	19	J A 22	J A 24	E B 15	E B 16	E B 15	E B 15
14	J A 17	J A 24	J A 20	E B 15	E B 14	E B 15	E B 15	G 20	30	36	37	40	G 28	37	34	G 23	28	J A 27	J A 19	E B 15	E B 15	E B 15	E B 14	E B 16
15	J A 30	J A 21	E B 14	J A 18	18	18	18	28	36	38	39	36	35	33	J A 35	30	29	40	J A 26	J A 23	J A 22	J A 24	23	E B 14
16	E B 16	E B 14	E B 14	E B 16	20	E B 15	20	28	34	36	36	J A 40	J A 43	J A 39	G 26	32	J A 33	J A 26	J A 20	J A 22	J A 32	J A 34	J A 28	J A 24
17	J A 27	J A 20	J A 20	J A 18	J A 18	18	24	28	J A 43	37	38	39	38	38	33	37	29	23	J A 28	J A 37	J A 30	J A 45	J A 43	23
18	J A 59	J A 26	J A 26	22	22	19	E B 15	J A 30	J A 44	J A 55	J A 55	J A 41	G 32	J A 37	J A 46	J A 34	25	J A 22	21	18	E B 15	E B 15	E B 15	19
19	21	18	E B 15	E B 15	E B 15	E B 15	J A 20	28	J A 45	37	J A 44	41	G	G 24	G 24	G 21	J A 32	19	J A 27	J A 32	J A 44	J A 30	J A 29	J A 30
20	20	19	20	20	J A 21	J A 19	19	J A 30	J A 32	J A 40	J A 38	G 26	G 24	G 29	G 26	G 24	26	J A 22	J A 28	J A 30	J A 44	J A 29	J A 28	J A 18
21	J A 17	J A 18	J A 33	J A 28	J A 21	J A 22	J A 25	29	J A 33	37	42	J A 44	J A 43	G 27	33	32	26	J A 31	J A 63	J A 66	J A 28	20	21	J A 21
22	19	J A 24	J A 23	21	20	19	J A 22	27	J A 32	J A 50	G 28	38	38	36	36	32	J A 39	J A 46	J A 66	J A 33	J A 25	20	22	23
23	20	J A 30	J A 22	J A 21	J A 20	J A 20	J A 24	25	30	J A 44	J A 49	J A 58	J A 53	J A 50	J A 43	29	J A 27	J A 24	22	20	20	E B 16	E B 15	E B 16
24	J A 23	J A 19	E B 15	20	J A 21	E B 14	J A 17	J A 39	J A 48	J A 50	J A 44	J A 79	J A 53	J A 75	J A 31	J A 62	23	J A 28	J A 22	J A 27	J A 36	J A 68	J A 35	J A 53
25	J A 33	J A 23	J A 30	J A 23	J A 43	22	J A 20	26	J A 37	J A 40	J A 44	J A 56	J A 44	G 28	J A 33	30	J A 29	J A 27	J A 38	J A 27	J A 22	J A 24	21	22
26	20	E B 15	E B 15	E B 15	E B 14	21	J A 17	24	36	J A 54	J A 65	J A 77	J A 64	J A 54	34	36	44	J A 34	J A 53	J A 24	J A 23	E B 15	E B 16	20
27	J A 21	E B 15	20	22	J A 22	20	J A 18	23	G 24	38	36	35	34	36	J A 41	G 24	24	J A 31	J A 36	J A 25	J A 29	J A 28	J A 30	J A 20
28	18	22	J A 21	21	J A 19	J A 20	19	30	34	J A 42	J A 44	J A 39	J A 42	J A 32	G 22	G 23	J A 25	J A 34	J A 26	J A 29	J A 30	J A 19	J A 20	J A 60
29	J A 24	J A 24	24	20	E B 15	E B 14	B J A 20	25	32	G 26	G G 31	G 22	G 23	G 24	G 24	G 22	23	20	20	E B 15	E B 15	E B 16	19	20
30	J A 18	J A 24	J A 20	J A 30	J A 29	J A 20	J A 17	28	30	35	35	34	G J A 28	J A 38	J A 30	J A 30	22	E B 14	E B 15	B J A 27	J A 24	J A 37	J A 29	J A 20
31	B	J A 20	J A 50	J A 35	J A 22	20	E B 15	27	31	32	38	G 26	J A 42	J A 53	J A 44	32	J A 35	J A 55	J A 33	J A 29	J A 46	J A 20	J A 30	J A 37
	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	31	31	31	31	31	31	31	31	31	30	30	30	30	30	30	30	31	31	31	31	31	31	31
MED	20	J A 20	20	20	19	19	20	28	33	37	38	38	34	36	34	30	28	J A 24	J A 24	J A 24	J A 24	J A 20	J A 21	20
U Q	J A 23	J A 24	J A 24	J A 22	J A 21	21	J A 23	J A 30	J A 36	J A 44	J A 44	J A 43	J A 42	J A 39	J A 36	33	J A 32	J A 34	J A 28	J A 30	J A 30	J A 28	J A 28	J A 23
L Q	E B 17	E B 15	E B 15	E B 16	E B 15	E B 15	18	26	G 30	G 32	G 36	G 28	G 28	G 28	G 26	G 23	G 23	21	20	20	21	E B 16	E B 16	E B 18

OCT. 2009 foEs (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

OCT. 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	E B 15	E B 15	E B 15	E B 15	E B 16	20	29	30	31	35	38	37	G 29	34	30	G 19	20	19	E B 15	19	18	E B 15	E B 15
2	18	17	16	E B 16	16	16	26	30	48	32	36	38	33	G 28	G 25	G 22	G	E B 16	16	20	15	16	E B 15	16
3	E B 15	E B 16	18	16	18	E B 16	18	27	30	G 20	35	33	G	44	33	34	35	31	17	E B 15	E B 15	E B 16	E B 16	E B 15
4	E B 15	E B 16	E B 15	17	E B 14	20	G 18	30	G 21	G 27	G	G 26	G 28	G 26	36	28	27	21	E B 16	E B 15	E B 15	E B 15	E B 15	E B 15
5	E B 15	E B 15	E B 15	E B 16	E B 15	E B 14	20	G 19	G 25	G 26	G 27	G 27	G 26	G 28	34	30	29	19	16	16	E B 15	E B 15	E B 15	E B 16
6	E B 16	E B 15	E B 15	E B 14	E B 15	E B 15	18	26	32	G 24	G	36	38	G 22	36	32	30	19	E B 15	E B 15	E B 16	E B 16	E B 15	E B 15
7	E B 15	E B 16	E B 15	E B 15	E B 15	E B 16	17	G 19	33	33	34	G 26	G	35	32	30	29	18	17	E B 15	E B 15	16	E B 16	E B 15
8	E B 16	E B 16	E B 15	E B 16	19	E B 14	20	34	A A 52	44	A A 62	A A 68	36	47	36	30	G	23	E B 15	E B 15	20	18	E B 16	E B 15
9	E B 15	E B 14	E B 15	E B 14	E B 14	E B 16	22	26	30	G 27	40	34	G 27	35	G 22	G 17	G 19	18	E B 15	20	E B 15	E B 15	E B 15	E B 15
10	E B 16	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	G	G 20	G 24	35	G 27	G	G 24	30	27	31	E B 17	17	18	19	18	16	E B 15
11	16	18	18	E B 15	E B 15	E B 15	18	24	31	37	C	C	C	C	C	C	C	A A 80	38	A A 58	17	17	A A 36	22
12	20	E B 15	E B 14	E B 15	E B 15	E B 14	20	24	G 22	40	34	G 22	34	40	33	G 19	G 19	16	18	E B 15	18	22	E B 16	E B 15
13	17	E B 15	E B 15	E B 14	E B 15	E B 16	18	27	31	30	G 27	G 26	G 27	G 23	G 22	G 20	G 20	18	18	E B 15	E B 15	E B 16	E B 15	E B 15
14	E B 16	E B 15	E B 15	E B 15	E B 14	E B 15	E B 15	G 20	30	31	34	38	G 27	33	33	G 21	26	20	E B 15	E B 15	E B 15	E B 15	E B 14	E B 16
15	18	E B 14	E B 14	E B 16	16	15	16	26	33	35	37	35	33	31	33	29	26	35	22	18	E B 16	19	E B 15	E B 14
16	E B 16	E B 14	E B 14	E B 16	E B 15	E B 15	17	25	31	33	35	34	35	34	G 25	29	28	19	18	18	18	18	20	19
17	21	E B 15	E B 16	E B 15	16	E B 15	19	26	36	34	35	37	36	37	31	32	26	20	25	A A 37	18	A A 45	18	18
18	A A 59	E B 16	E B 15	E B 15	E B 16	E B 16	E B 15	26	30	A A 55	48	37	G 30	34	41	29	22	16	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15
19	E B 15	E B 14	E B 15	E B 15	E B 15	E B 15	E B 15	24	29	32	34	36	G	G 22	G 22	G 20	28	17	20	25	17	18	E B 15	E B 16
20	E B 15	E B 15	E B 15	E B 15	16	E B 14	17	26	28	34	35	G 25	G 23	G 28	G 25	G 24	24	18	27	A A 30	19	E B 14	21	14
21	E B 14	E B 16	22	17	E B 15	17	20	26	29	34	40	41	39	G 24	32	30	22	26	30	A A 66	16	E B 15	18	16
22	E B 15	18	17	E B 15	E B 15	E B 15	17	24	28	45	G 25	36	36	34	34	31	36	33	A A 66	23	18	E B 15	17	18
23	E B 15	17	16	17	E B 15	E B 15	17	24	29	39	44	50	46	44	31	27	21	16	16	E B 16	E B 16	E B 16	E B 15	E B 16
24	18	E B 15	E B 15	E B 15	E B 16	E B 14	E B 15	33	34	34	35	43	32	40	29	27	22	18	18	22	18	A A 68	16	A A 53
25	19	16	23	E B 15	E B 14	16	18	24	32	38	36	39	34	G 27	31	24	22	18	19	E B 15	E B 15	E B 16	16	E B 15
26	E B 16	E B 15	E B 15	E B 15	E B 14	E B 15	E B 15	22	33	40	46	54	41	41	33	35	36	23	20	E B 15	E B 15	E B 15	E B 16	E B 15
27	E B 15	E B 15	E B 15	E B 16	E B 15	E B 15	E B 15	23	G 24	35	34	33	32	33	32	G 21	23	19	25	E B 16	E B 16	E B 19	E B 15	E B 15
28	E B 16	E B 16	E B 16	E B 15	16	E B 15	17	26	33	35	40	35	35	30	G 21	G 23	22	22	19	20	17	16	15	E B 16
29	20	18	19	E B 15	E B 15	E B 14	17	24	30	G 25	G 27	G 22	G 22	G 22	G 24	G 22	21	18	E B 15	E B 15	E B 15	E B 16	E B 15	E B 16
30	16	19	E B 15	22	18	E A 16	E B 15	26	28	32	33	34	G 26	36	24	24	20	E B 14	E B 15	19	20	28	16	E B 15
31	B	G 15	E B 15	17	E B 16	E B 15	E B 15	24	29	30	35	G 26	38	34	34	30	26	41	23	E B 16	20	E B 15	E B 15	19
	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	31	31	31	31	31	31	31	31	31	30	30	30	30	30	30	30	31	31	31	31	31	31	31
MED	E B 16	E B 15	E B 15	E B 15	E B 15	E B 15	17	26	30	33	35	35	32	33	32	28	24	19	18	E B 16	16	E B 16	E B 15	E B 15
U Q	18	16	16	16	16	16	19	26	33	37	37	38	36	36	34	30	28	23	22	20	18	18	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	24	G 28	G 30	G 34	G 27	G 28	G 27	G 25	G 22	G 21	18	E B 16	E B 15	E B 15	E B 15	E B 15	E B 15

OCT. 2009 fbEs (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

OCT. 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	15	15	16	14	15	14	14	16	19	23	18	16	15	14	15	15	14	14	15	15	15
2	14	16	15	16	16	15	15	14	13	14	13	15	16	13	14	14	13	16	14	15	14	14	15	15
3	15	16	15	15	14	16	15	16	13	14	11	19	23	17	15	14	14	14	16	15	15	16	16	15
4	15	16	15	15	14	15	15	16	15	15	20	21	16	16	14	12	15	16	16	15	15	15	15	15
5	15	15	15	16	15	14	14	14	14	13	15	15	19	17	15	14	14	13	14	14	15	15	15	16
6	16	15	15	14	15	15	15	13	12	15	13	22	14	15	15	14	13	13	15	15	16	16	15	15
7	15	16	15	15	15	16	14	13	14	18	14	19	24	18	16	15	15	16	15	15	15	16	16	16
8	16	16	15	16	13	14	15	15	15	14	15	21	15	15	14	13	13	15	15	15	14	15	16	15
9	15	14	15	14	14	16	14	12	13	14	16	14	19	12	14	12	14	14	15	14	15	15	15	15
10	16	15	15	15	15	15	15	14	14	14	18	12	20	18	14	15	14	17	15	14	14	14	15	15
11	12	16	15	15	15	15	15	14	14	14	C	C	C	C	C	C	C	13	14	16	15	14	14	14
12	16	15	14	15	15	14	13	14	12	12	14	13	15	14	16	14	14	14	14	15	14	16	15	15
13	15	15	15	14	15	16	15	14	13	15	11	16	14	15	17	13	14	14	15	15	15	16	15	15
14	16	15	15	15	14	15	15	15	15	17	18	15	17	16	17	14	14	15	15	15	15	15	14	16
15	15	14	14	16	15	14	15	15	15	12	14	14	16	15	14	13	13	14	15	14	16	15	15	14
16	16	14	14	16	15	15	15	14	14	16	12	13	18	17	14	14	14	14	15	14	16	12	14	15
17	15	15	16	15	15	15	16	15	15	12	14	17	14	15	12	13	14	14	14	15	15	14	15	14
18	14	16	15	15	16	16	15	15	13	14	13	17	18	15	15	13	14	15	15	15	15	15	15	15
19	15	14	15	15	15	15	15	14	13	14	20	17	19	15	14	14	14	14	14	15	15	15	15	16
20	15	15	14	15	15	14	15	14	14	12	14	12	15	14	13	13	13	14	15	15	15	14	14	14
21	14	15	16	14	14	15	15	14	12	13	16	14	18	17	14	13	12	14	14	15	14	15	15	15
22	15	15	14	15	15	15	14	14	14	14	14	14	12	15	17	15	14	14	15	14	15	15	16	16
23	15	15	15	15	15	15	16	14	13	14	14	14	14	14	14	14	14	14	15	16	16	16	15	16
24	16	15	15	15	16	14	15	13	13	13	16	14	15	15	12	13	14	14	15	14	15	15	15	15
25	14	15	15	15	14	16	15	14	15	13	14	14	18	15	14	13	14	14	15	15	15	16	15	15
26	16	15	15	15	14	15	15	15	15	14	13	21	16	15	15	15	15	15	15	15	15	15	16	15
27	15	15	15	16	15	15	15	14	13	14	15	14	13	16	15	14	14	15	14	15	16	14	15	15
28	16	16	16	15	15	15	15	14	15	14	15	12	15	14	15	14	14	14	15	15	15	15	14	16
29	15	15	15	15	15	14	15	14	11	15	14	13	15	13	12	13	15	15	15	15	15	16	15	16
30	15	15	15	15	15	15	15	14	14	12	16	17	14	14	14	12	13	14	15	15	14	14	16	15
31	B	226	15	16	16	15	15	14	14	14	14	11	13	14	15	13	14	15	15	16	15	15	16	16
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	31	31	31	31	31	30	30	30	30	30	30	30	31	31	31	31	31	31	31
MED	15	15	15	15	15	15	15	14	14	14	14	14	16	15	14	14	14	14	15	15	15	15	15	15
U Q	16	16	15	15	15	15	15	15	15	14	16	17	18	16	15	14	14	15	15	15	15	16	15	16
L Q	15	15	15	15	14	15	15	14	13	13	14	14	14	14	14	13	14	14	14	14	15	14	15	15

OCT. 2009 fmin (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

OCT. 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	338	324	320	317	335	330	380	364	386	374	365	315	332	347	350	364	365	366	361	369	306	306	300	327
2	320	321	317	F	361	339	366	373	364	349	338	347	372	367	351	335	372	336	366	366	341	334	310	323
3	321	339	351	343	351	322	394	384	374	350	374	379	379	376	359	373	377	369	378	374	307	324	314	321
4	322	338	341	341	371	345	381	382	368	386	347	368	362	352	339	359	383	369	387	345	316	298	297	317
5	339	336	322	335	341	345	385	404	369	362	350	365	347	362	362	382	367	350	338	348	320	324	325	313
6	330	332	321	336	345	354	380	395	399	359	353	355	368	393	384	355	368	395	379	312	310	319	308	317
7	316	316	359	337	378	335	403	388	385	386	325	365	372	352	355	355	372	349	371	374	335	316	305	F
8	327	328	346	340	401	334	392	392	A	377	A	A	363	326	359	371	372	376	359	338	339	327	F	F
9	F	315	338	347	379	354	384	401	396	384	370	365	388	383	374	364	359	360	376	333	336	336	334	F
10	F	F	F	F	F	F	379	386	386	355	352	363	365	367	382	375	376	363	372	365	350	344	322	309
11	498	311	329	320	379	318	392	385	371	359	C	C	C	C	C	C	C	A	390	A	321	328	A	321
12	324	322	357	308	350	347	370	385	369	349	330	368	367	352	360	368	370	397	394	320	308	320	299	305
13	295	315	334	374	381	303	376	381	351	374	353	382	364	384	349	362	359	371	371	329	323	313	317	304
14	F	F	F	337	343	310	377	389	380	372	373	374	362	335	350	378	351	375	366	328	309	322	321	310
15	308	319	331	351	353	337	364	378	384	386	382	371	366	342	345	369	358	376	395	324	331	335	305	306
16	311	320	338	343	342	329	388	397	380	401	367	367	359	350	337	360	367	380	363	338	344	314	321	322
17	313	334	338	351	381	355	374	394	396	354	360	344	355	336	363	361	365	375	361	A	326	A	315	312
18	A	326	340	343	355	348	380	395	391	A	348	362	370	364	372	362	381	369	372	347	340	351	F	330
19	328	339	351	362	363	324	390	380	362	381	353	340	355	367	370	386	369	385	375	384	327	318	333	308
20	319	339	322	351	411	324	368	383	385	380	375	370	378	323	365	388	377	384	378	A	318	341	323	302
21	324	332	F	F	374	335	390	377	404	378	375	355	373	349	360	377	378	375	352	A	332	338	F	F
22	F	321	323	331	377	342	379	379	381	377	369	359	374	355	352	343	373	379	A	309	318	321	325	336
23	334	338	331	332	362	337	377	376	374	384	329	359	330	344	353	358	368	364	341	343	332	330	329	331
24	376	F	307	330	357	336	369	371	375	377	344	339	358	344	350	363	377	383	374	357	337	A	320	A
25	337	314	311	365	357	322	363	373	375	366	381	335	352	345	354	369	374	368	359	326	307	320	315	320
26	324	376	318	342	328	338	361	383	378	371	366	365	353	358	375	358	379	363	359	336	F	F	F	315
27	310	F	F	345	327	320	368	385	383	382	389	378	366	356	365	378	375	378	352	312	327	337	324	305
28	329	F	338	345	425	326	357	379	389	368	364	351	379	373	368	362	372	370	362	334	311	325	313	331
29	F	350	335	321	359	304	371	390	367	366	365	373	373	351	360	364	378	388	351	318	326	F	320	322
30	308	330	351	339	369	321	356	379	394	390	366	343	341	360	354	377	361	360	352	301	317	331	327	320
31	B	340	294	348	354	321	364	396	372	368	370	358	348	352	369	361	369	391	369	356	336	322	F	342
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	24	26	27	28	30	30	31	31	30	30	29	29	30	30	30	30	30	30	30	27	30	27	25	26
MED	324	329	334	342	360	334	377	384	380	374	365	363	364	352	360	364	372	373	368	338	326	324	320	318
U Q	332	338	341	348	378	342	385	392	386	382	372	369	372	367	368	375	377	380	376	357	336	335	324	323
L Q	314	320	321	334	350	322	368	379	371	362	349	349	355	345	351	360	367	364	359	324	316	319	309	309

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OCT. 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	L	U L 414	U L 409	U L 428	U L 423	U L 371	L	L							
2									A	L	U L 423	434	U L 455	435	L	U L 396	L							
3									L	L	U L 405	439	428	A	U L 387	A	A							
4								A	L	U L 408	415	U L 421	U L 384	U L 407	388	L								
5									L	L	U L 412	404	400	U L 407	L	A	A							
6									A	L	U L 429	U L 385	U L 392	390	U L 408	L	A							
7										L	U L 407	406	401	403	L	L	A							
8									A	A	A	A	414	A	A	L								
9									L	L	A	U L 403	U L 456	L	U L 445	U L 384								
10										L	409	L	386	390	L	L	A							
11										A	C	C	C	C	C	C	C	A						
12										A	L	U L 403	401	A	L	L								
13										L	U L 393	L	403	L	L	L								
14										L	L	A	418	L	A	L								
15									L	A	U L 410	U L 429	U L 404	L	L	L								
16										A	390	U L 407	407	L	L	L	A							
17								A			421	U L 406	L	A	L	A								
18										A	A	A	L	L	A	L								
19									L	U L 383	L	U L 406	U L 412	L	L	L								
20									L	L	U L 406	U L 423	L	L	U L 377									
21										L	A	A	A	U L 373		A								
22										A	U L 407	377	L	U L 408	L									
23										A	A	A	A	A	L									
24								A	A	L	L	A	L	A	L	L								
25										A	A	A	U L 401	L	L	L								
26										A	A	A	A	A	L	A								
27										A	L	U L 401	L	L	A									
28										A	A	U L 389	A	L	L									
29										L	U L 388	U L 419	L											
30										L	L	L	L	A	L									
31	B	395								L	A	U L 396	A	L	A									
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT		1								2	15	19	17	9	6	2								
MED		395								U L 396	U L 409	U L 406	404	U L 407	U L 388	U L 390								
U Q											415	U L 421	U L 423	U L 416	U L 408									
L Q											U L 405	U L 401	400	390	U L 377									

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OCT. 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								244	226	234	252	340	276	240	272	248	248							
2									254	252	280	286	230	240	264	258	236							
3									242	250	264	242	234	236	254	246	230							
4								230	236	232	282	246	248	268	292	254								
5									242	236	274	252	268	250	252	224	232							
6									204	268	270	260	250	222	252	254	226							
7										234	304	254	254	272	254	258	224							
8									A	246	A	A	240	E 300	A 250	254								
9									232	240	248	250	224	240	242	260								
10										248	260	246	244	260	234	244	224							
11										264	C	C	C	C	C	C	C	A						
12										242	272	242	240	266	254	250								
13										244	256	236	258	242	264	240								
14										232	244	244	246	246	238	240								
15									234	218	224	242	236	262	278	256								
16										220	262	252	268	260	268	250	230							
17								210			258	260	256	262	246	242								
18										A	272	240	232	240	242	252								
19									260	232	242	262	250	240	242	228								
20									232	238	230	250	236	284	242									
21										246	242	268	236	274		228								
22										220	256	258	236	262	262									
23										228	276	240	E A 250	264	260									
24								228	228	230	230	242	236	264	246	250								
25										238	214	254	248	246	254	234								
26										238	238	238	258	240	236	238								
27										222	234	228	238	266	244									
28										244	242	262	230	244	240									
29										252	242	234	240											
30										226	256	254	246	236	250									
31	B									244	234	246	230	252	232									
	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	29	29	29	30	29	28	22	8							
MED								229	234	238	256	250	241	251	251	249	230							
U Q								237	242	246	271	259	250	265	261	254	234							
L Q								219	228	231	240	242	236	240	242	240	225							

OCT. 2009 h′F2 (KM)

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OCT. 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	230	E B 248	E B 258	E B 250	E B 234	E B 258	208	210	208	192	190	198	184	166	202	212	208	216	210	196	E A 248	E A 270	E B 266	E B 244
2	E A 242	E A 250	E A 258	214	208	E A 244	210	212	A	194	194	186	178	H 180	206	190	206	220	210	202	220	E A 232	E B 270	E A 270
3	E B 258	230	236	218	E A 256	E B 280	206	212	200	200	190	184	184	A	184	A	A	212	196	188	E B 264	E B 250	E B 256	E B 252
4	E B 250	E B 238	E B 238	204	202	248	202	A	206	194	190	178	188	184	210	216	218	200	200	E B 196	E B 242	230	E B 274	E B 270
5	226	E B 240	E B 248	E B 248	E B 222	E B 242	210	200	192	182	174	182	182	192	206	A	A	208	208	204	E B 246	226	E B 234	E B 254
6	E B 242	E B 238	E B 230	224	224	228	198	204	A	196	180	198	218	192	202	220	A	202	190	E B 240	E B 258	E B 266	E B 282	E B 280
7	E B 276	E B 266	E B 256	E B 238	202	226	194	198	218	200	202	210	180	198	200	208	A	200	184	198	E B 248	E A 262	E B 284	E B 274
8	E B 240	E B 246	E B 232	216	196	234	198	214	A	A	A	A	194	A	A	212	214	214	208	208	E A 252	E A 252	E B 268	E B 260
9	E B 270	E B 264	E B 256	E B 236	198	E B 234	204	192	190	204	A	184	178	214	188	198	218	218	190	216	228	222	232	E B 254
10	230	E B 250	E B 254	224	204	198	204	200	220	190	196	196	190	204	204	196	A	218	206	214	222	222	260	E B 302
11	282	E A 284	E A 262	E B 248	204	E B 332	200	208	206	A	C	C	C	C	C	C	C	A	206	A	E A 242	E A 234	A	E A 272
12	E A 248	E B 272	222	E B 272	206	214	204	212	212	A	186	178	204	A	206	204	216	202	200	212	E A 274	E A 304	E B 314	E B 260
13	E A 308	E B 250	E B 238	208	192	E B 340	208	210	212	202	210	192	200	196	184	190	208	212	196	E B 238	E B 242	E B 234	E B 236	E B 264
14	E B 272	E B 262	E B 264	E B 232	220	E B 244	206	212	210	204	198	A	184	192	A	212	214	208	200	214	E B 266	E B 254	240	E B 270
15	E A 278	E B 264	E B 242	220	206	E B 252	214	214	210	A	204	186	192	182	172	232	224	212	196	E A 236	E B 242	E A 262	E B 260	E B 256
16	E B 268	E B 256	E B 240	222	212	E B 252	200	204	202	A	204	198	186	222	214	216	A	202	194	226	224	E A 268	E A 294	E A 274
17	E A 248	E B 238	232	218	190	218	204	A	212	208	198	206	208	A	218	A	212	202	210	A	E A 266	A	E A 260	E A 250
18	A	E B 250	E B 254	228	206	226	208	204	212	A	A	A	202	198	A	206	212	206	200	212	218	222	E B 270	E B 236
19	232	E B 236	E B 232	220	E B 196	E B 242	198	206	196	198	196	200	180	176	192	202	206	202	204	E A 240	E A 248	E A 252	E B 236	E B 238
20	E B 238	222	E B 238	E B 230	178	E B 268	206	212	204	204	200	184	192	190	212	212	202	200	228	A	E A 272	224	E A 274	E B 266
21	E B 248	224	E A 308	E A 250	192	E A 274	202	208	208	212	A	A	A	192	222	A	220	210	E A 236	A	E A 246	E B 230	E A 264	E A 244
22	E B 246	E A 274	E A 276	E B 248	202	E B 238	206	212	218	A	186	E A 230	202	194	216	222	220	214	A	E A 330	E A 284	246	E A 244	E A 250
23	E B 238	216	222	E A 248	200	E B 246	216	216	212	A	A	A	A	A	212	224	216	208	212	214	224	E B 238	E B 244	E B 240
24	202	E B 272	E B 278	E B 248	224	E B 234	198	A	A	200	192	A	202	A	196	210	220	200	200	E A 254	E A 238	A	E A 276	A
25	E A 248	E A 266	E A 358	220	E B 230	E B E A 260	218	220	220	A	A	A	204	218	214	198	218	208	210	E B 234	E B 236	E B 236	E A 266	E B 244
26	E B 242	204	E B 248	220	226	216	212	206	224	A	A	A	A	A	204	A	212	204	210	212	E B 284	E B 250	E B 242	E B 248
27	E B 242	E B 240	E B 244	226	E B 236	E B E A 250	218	208	208	A	206	192	184	190	A	220	204	200	222	E B 242	E B 252	E B 242	E A 244	E B 268
28	E B 252	E B 238	E B 242	E B 218	188	E B 296	216	204	214	A	A	194	A	200	208	220	212	202	208	E A 248	E A 270	E A 236	E A 258	E B 244
29	E A 260	226	228	E B 234	214	218	216	208	212	204	204	198	198	204	216	214	208	196	218	E B 252	E B 256	E B 256	E B 240	E B 246
30	E A 274	E A 246	E B 240	E A 252	200	E A 258	216	210	212	196	196	192	184	A	212	214	210	198	200	E A 296	E A 252	E A 272	E A 242	E B 242
31	B	234	E B 282	E A 236	212	E B 252	222	202	212	204	A	192	A	200	A	228	220	210	200	214	E A 248	E B 258	E B 258	E A 240
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	29	31	31	31	31	31	31	28	27	19	21	22	25	22	25	25	24	30	30	27	31	29	30	30
MED	E B 248	E B 246	E B 244	E 228	204	E B 244	206	208	212	200	196	192	190	193	206	212	213	207	204	205	E 248	E 246	E B 260	E B 254
U Q	E 269	E B 264	E 258	E B 248	E 222	E B 258	214	212	212	204	203	198	202	200	213	220	218	212	210	E A 240	E A 264	E A 260	E B 270	E B 270
L Q	239	236	236	220	198	228	202	204	206	194	190	184	184	190	198	203	208	202	200	208	238	231	E B 242	E B 244

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OCT. 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							128	118	118	A	A	A	A	118	A	A	120	B						
2							B	A	A	A	A	A	A	120	116	116	120	B						
3							B	120	116	112	112	110	122	A	A	A	A	B						
4							132	116	120	120	118	120	122	120	116	118	118							
5							B	120	120	120	120	112	122	120	116	108	112	B						
6							B	124	124	114	110	116	112	112	116	118	A	B						
7							B	124	128	124	122	122	124	A	122	122	122	B						
8							B	120	118	A	A	A	A	A	A	A	114	B						
9							B	118	122	122	A	A	118	112	116	112	120	B						
10							B	118	116	114	A	118	114	112	A	A	A	B						
11	98						B	A	A	A	C	C	C	C	C	C	C	A						
12							B	116	116	A	A	114	112	A	A	118	128	B						
13							B	120	108	A	124	120	120	114	114	116	116	B						
14							B	124	126	118	A	A	118	A	A	114	114	B						
15							B	122	126	114	A	A	A	A	A	116	116	A						
16							B	122	124	120	A	A	A	A	116	120	112							
17							B	114	A	116	120	112	108	A	A	A	A	B						
18							B	120	A	A	A	A	124	A	A	A	A							
19							B	116	A	114	A	A	114	116	118	114	A	B						
20							B	A	A	A	A	124	116	116	118	122	A	B						
21							B	120	A	A	A	A	A	116	A	A	A	B						
22							B	110	A	A	116	118	120	114	116	114	118	B						
23								116	120	A	A	A	A	A	A	114	A							
24							B	A	A	A	A	A	A	A	A	A	122	B						
25							B	128	A	A	A	A	A	118	A	A		B						
26							B	118	118	A	A	A	A	A	A	A	A							
27							B	114	120	118	A	A	A	A	A	118	A	B						
28							B	124	120	114	A	A	A	A	116	118	A	B						
29							B	122	120	120	114	114	116	114	116	120	110							
30								116	116	114	A	A	120	A	116	A	A	B						
31	B	122					B	120	114	116	A	116	A	A	A	118	A	B						
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	1	1					2	27	21	17	9	13	17	14	14	19	15							
MED	98	122					130	120	120	116	118	116	118	116	116	118	118							
U Q								122	123	120	121	120	122	118	116	118	120							
L Q								116	116	114	113	113	114	114	116	114	114							

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OCT. 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	82	B	B	90	B	B	132	124	124	106	98	104	104	102	98	96	104	116	106	106	96	96	96	98
2	92	108	110	102	104	104	106	100	106	104	102	100	98	98	98	100	G	B	102	92	92	86	B	86
3	104	104	102	104	100	92	94	140	126	88	118	122	G	106	108	106	104	104	102	104	96	B	B	92
4	B	B	B	106	B	106	140	132	104	102	G	106	106	102	154	110	140	126	B	B	98	B	B	B
5	B	B	B	B	B	B	122	96	106	102	106	104	104	100	130	122	118	110	104	104	104	100	98	B
6	B	B	B	98	B	102	144	150	146	96	G	138	126	98	124	112	104	98	100	96	96	B	98	96
7	90	92	90	86	B	102	136	106	140	124	122	104	G	106	126	114	130	106	102	102	116	114	116	110
8	B	B	B	90	92	B	148	128	120	108	104	104	102	100	100	94	G	96	B	84	88	94	96	106
9	96	B	100	B	B	98	132	150	114	106	102	100	104	138	100	88	106	110	B	104	102	100	96	98
10	94	94	B	90	90	92	B	G	102	104	102	104	G	98	96	96	96	B	108	102	106	98	96	96
11	100	92	88	88	88	94	148	108	104	102	C	C	C	C	C	C	C	92	90	92	88	90	86	88
12	102	92	B	B	B	B	128	112	106	104	102	98	110	104	104	108	104	114	108	B	102	98	96	94
13	94	B	94	B	B	B	138	132	122	104	102	98	102	94	98	98	98	132	102	98	B	B	B	B
14	102	100	96	B	B	B	B	104	116	114	104	104	98	98	100	96	144	128	118	B	B	B	B	B
15	92	92	B	94	94	92	140	138	118	116	106	104	98	100	102	140	132	96	94	96	94	98	92	B
16	B	B	B	B	102	B	96	146	130	116	104	98	104	106	108	118	112	104	102	102	96	102	102	96
17	94	94	94	94	96	96	94	150	106	112	116	112	110	106	104	92	86	108	102	100	100	96	94	94
18	94	96	94	94	94	88	B	120	106	102	98	104	104	98	94	100	102	96	96	100	B	B	B	100
19	96	94	B	B	B	B	140	116	104	116	100	96	G	96	102	96	106	102	102	100	100	100	98	100
20	98	98	98	98	94	94	126	92	102	102	102	104	102	104	106	104	104	108	100	96	100	100	98	100
21	98	100	94	92	90	90	98	126	102	104	102	102	102	104	106	106	102	98	96	94	98	96	92	94
22	94	94	92	90	94	98	154	148	106	100	98	144	148	150	146	128	120	110	98	98	94	96	96	94
23	96	94	94	92	92	90	92	150	128	100	98	96	94	98	94	110	94	90	86	90	90	B	B	B
24	92	94	B	96	102	B	148	108	104	98	102	98	98	96	96	98	136	104	100	108	108	106	98	98
25	98	96	88	94	90	94	140	128	106	104	102	104	100	100	100	102	96	98	100	98	100	96	94	100
26	96	B	B	B	B	98	146	120	114	104	104	102	102	102	102	100	102	100	100	102	106	B	B	102
27	100	B	96	100	96	98	100	130	100	112	104	106	104	106	104	102	96	96	94	98	96	94	96	98
28	100	90	90	86	86	84	138	132	126	116	102	106	100	96	96	108	104	102	96	94	100	96	96	92
29	94	90	90	96	B	B	144	144	136	92	96	96	98	98	102	108	158	92	90	B	B	B	100	98
30	92	92	92	96	94	94	92	134	128	120	106	106	102	100	96	94	102	B	B	100	98	94	92	94
31	B	94	94	94	92	92	B	148	144	120	108	102	96	94	94	118	96	102	102	110	104	106	104	100
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	25	21	19	23	19	21	27	30	31	31	28	30	26	30	30	30	28	28	27	27	27	22	23	25
MED	96	94	94	94	94	94	136	129	114	104	102	104	102	100	102	103	104	103	100	100	98	97	96	98
U Q	99	97	96	98	96	98	144	144	126	114	105	106	104	104	106	110	119	110	102	102	102	100	98	100
L Q	93	92	90	90	90	92	100	112	104	102	102	100	98	98	98	96	100	97	96	96	96	96	94	94

OCT. 2009 h'Es (KM)

IONOSPHERIC DATA STATION Kokubunji

OCT. 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	F2			F2			C2	C2	CL22	L2	L2	L2	L2	L2	L2	L2	L2	C2	F3	F3	F5	F4	F2	F3
2	F3	FF13	F3	F4	F3	F3	LC33	L3	L3	L2	L2	L2	L2	L2	L2	L2			F2	F2	F2	F2		F2
3	F1	F2	F3	F2	F3	F2	L2	HL22	CL12	L2	CL12	CL12		L2	L2	L2	L4	L3	F2	F2	F1			F2
4				F1		F3	HL22	C2	L2	L2		L2	L2	L2	HL12	CL12	HL22	C2			F1			
5							C3	L2	L2	L2	L2	L2	L2	L2	CL12	CL22	CL22	C3	F3	F2	F3	F1	F1	
6				F1		F2	HL12	HL22	HL22	L2		HL11	CL11	L2	CL12	CL22	L3	L3	F1	F1	F2		F2	F2
7	F2	F3	F2	F2		F2	H3	L1	HL21	CL21	CL22	L2		L2	CL11	CL11	CL21	L2	F3	F2	F2	F2	F2	F1
8				F2	F2		H3	HL22	CL42	L3	L3	L3	L2	L2	L2	L2		L2		F1	F3	F1	F1	F1
9	F2		F1			F1	C2	H2	CL22	L2	L2	L2	L2	H2	L2	L2	L1	L4		F3	F2	F1	F1	F1
10	F2	F1		F1	F2	F1			L2	L2	L1	L2		L2	L2	L2	L2		F2	F2	F2	F3	F2	F2
11	F3	F5	F5	F2	F2	F2	H2	L2	L2	L2								L4	F3	F3	F3	F2	F3	F3
12	FF22	F1					H2	C2	L2	L2	L2	L2	C2	L2	L2	L2	L2	C2	F2		F3	F4	F2	F3
13	F3		F1				H2	H2	C2	L2	L2	L2	L2	L2	L2	L2	L2	H2	F3	F2				
14	F1	F2	F1					L2	CL22	CL22	L2	L2	L2	L2	L2	L2	HL22	C2	F1					
15	F3	F3		F4	F3	F2	HL21	HL22	CL22	CL12	L2	L2	L2	L2	L3	HL13	CL23	L2	F2	F2	F2	F2	F2	
16					F1		L2	HL21	CL21	CL21	L2	L2	L2	L2	L2	CL12	CL22	L3	F2	F3	F3	F3	F3	F4
17	F6	F3	F2	F3	F2	F2	L3	HL22	L2	CL22	CL22	CL22	CL22	L2	L2	L3	L3	L2	F4	F4	F3	F5	F4	F5
18	F5	F3	F2	F2	F2	F1		C2	L2	L3	L3	L2	L2	L2	L3	L2	L3	L2	F1	F1				F1
19	F2	F1					H1	C2	L2	C2	L2	L2		L1	L2	L2	L2	L2	F4	F4	F4	F6	F3	F3
20	F2	F1	F2	F2	F2	F1	CL21	L3	L3	L2	L2	L2	L2	L2	L2	L1	L2	L3	F6	F5	F3	F3	F5	F2
21	F2	F3	F7	F4	F2	F2	L3	CL23	L3	L2	L2	L2	L2	L1	L2	L2	L3	L4	F4	F4	F4	F3	F2	F3
22	F2	F4	F5	F2	F2	F1	H3	H2	L3	L2	L2	HL12	HL12	HL12	HL12	CL12	C3	C3	F3	F4	F3	F3	F3	F3
23	F3	F3	F3	F3	F2	F2	L3	HL22	CL22	L2	L3	L3	L3	L3	L2	CL12	L2	L2	F1	F1	F1			
24	F3	F2		F1	F1		H2	L3	L2	L2	L2	L2	L2	L2	L2	L2	CL12	L3	F2	F3	F3	F6	F3	F4
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26	F1					F2	H2	C2	CL22	L3	L3	L2	L2	L2	L2	L2	L3	L3	F3	F2	F2			F1
27	F2		F1	F1	F2	F1	F1	CL22	L2	CL22	L2	L2	L2	L2	L2	L2	L2	L2	F3	F2	F2	F3	F2	F2
28	F1	F2	F2	F2	F2	F2	H2	H2	CL22	CL22	L2	L2	L2	L2	L2	L2	L3	L3	F3	F3	F2	F3	F2	F3
29	F3	F3	F2	F2			HL11	HL32	CL22	L2	L2	L2	L2	L2	L2	L2	H1	L2	F2				F1	F3
30	F4	F3	F2	F3	F3	F2	L2	H3	CL21	CL21	L2	L2	L2	L2	L2	L2	L2			F4	F4	F4	F2	F2
31		FF22	F2	F2	F2	F1		H2	HL22	CL11	L2	L2	L2	L2	L2	CL22	L2	L5	F2	F2	F3	F2	F2	F3
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT																								
MED																								
U Q																								
L Q																								

OCT. 2009 TYPES OF Es

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

f-PLOTS OF IONOSPHERIC DATA

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

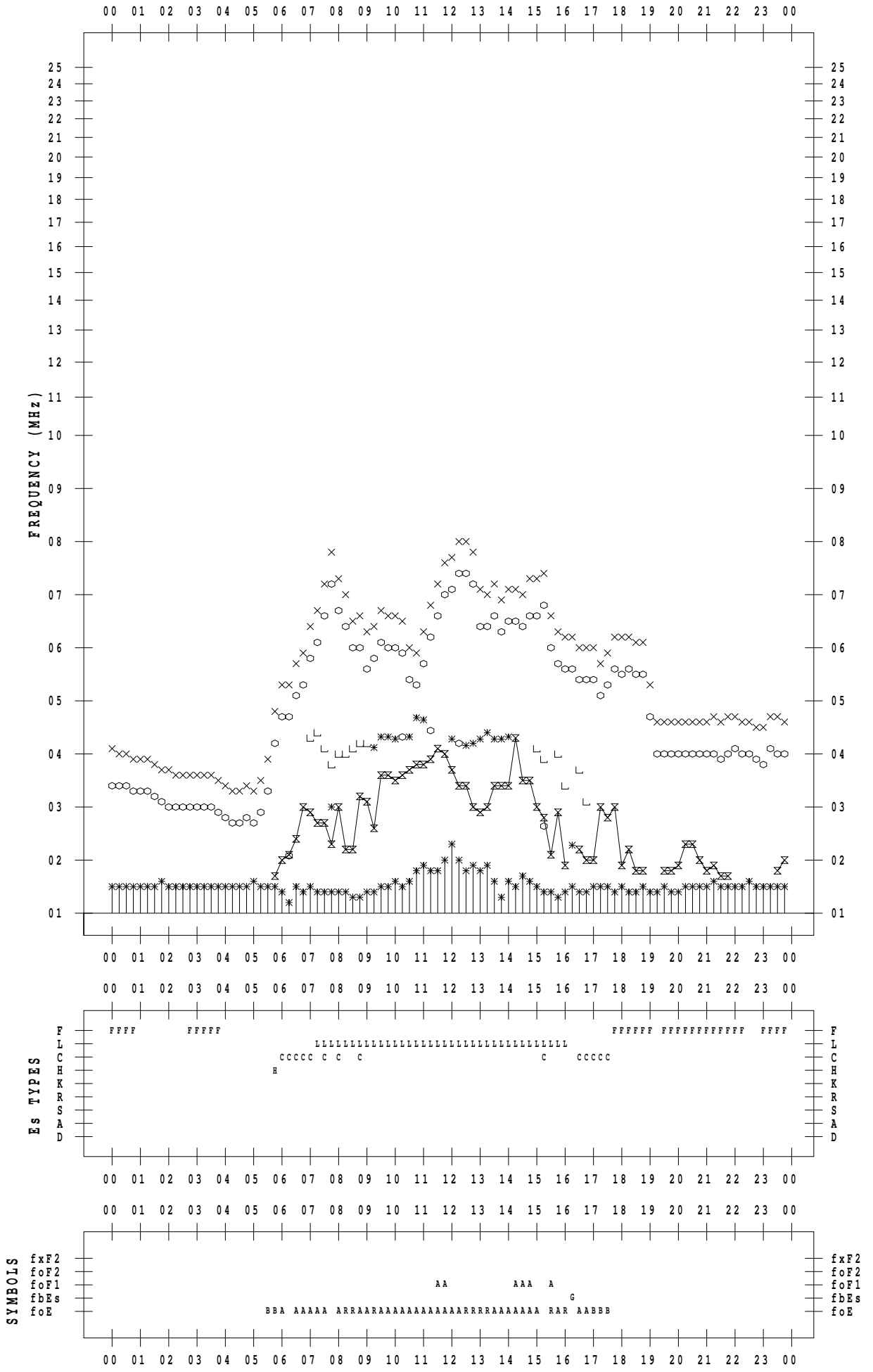
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2009/10/ 1

135 °E MEAN TIME



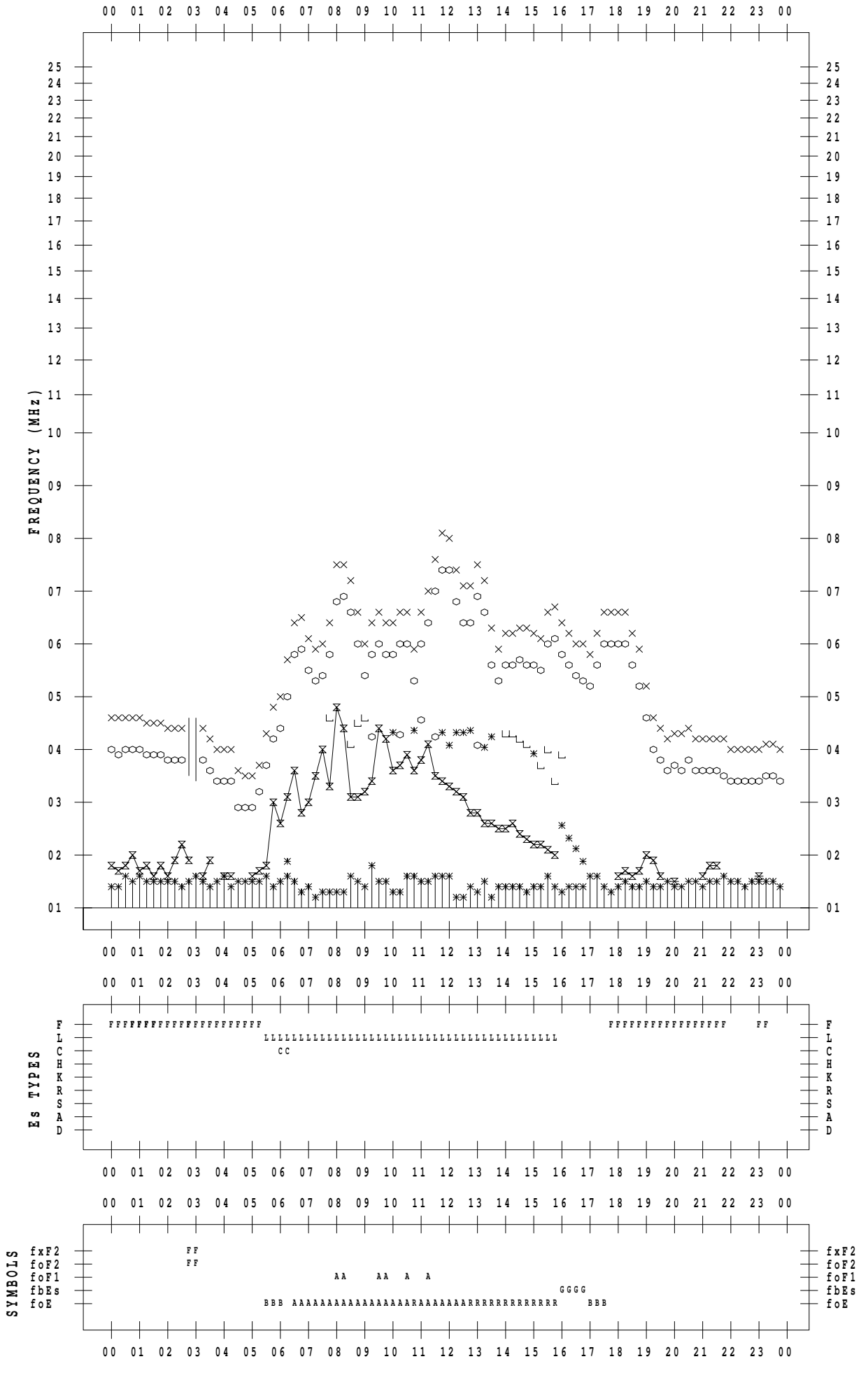
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2009/10/ 2

135 °E MEAN TIME



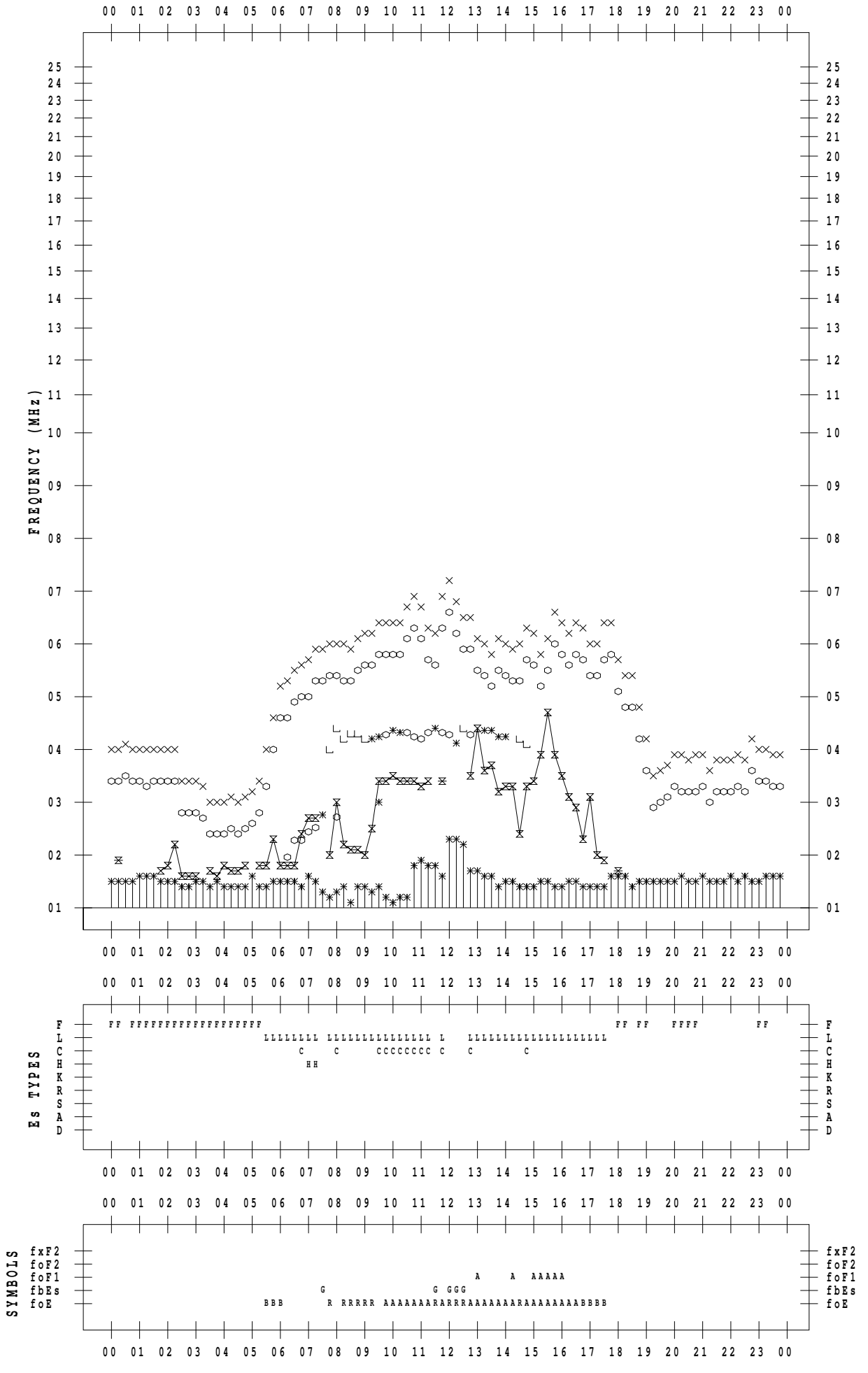
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2009/10/ 3

135 °E MEAN TIME



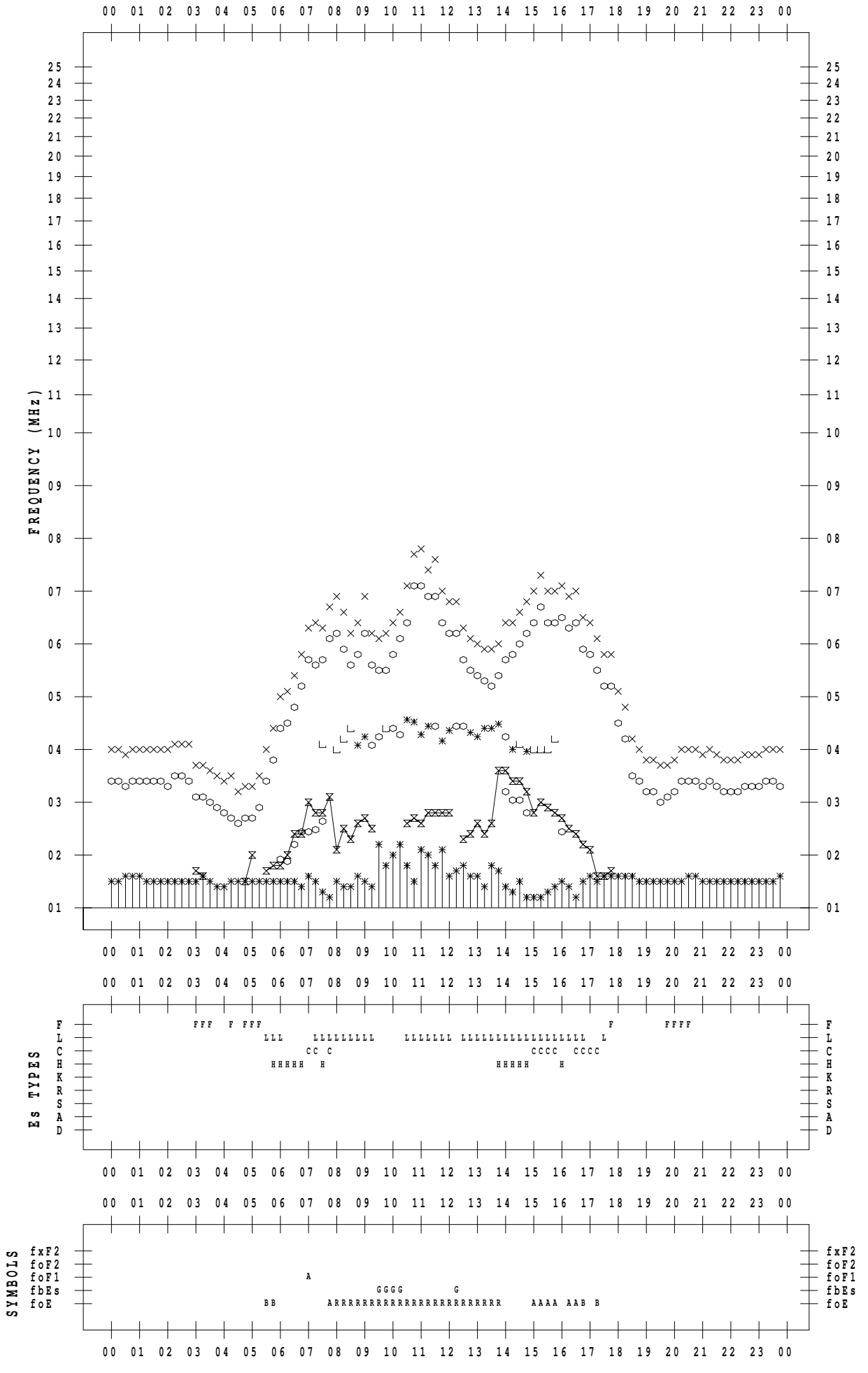
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2009/10/ 4

135 °E MEAN TIME



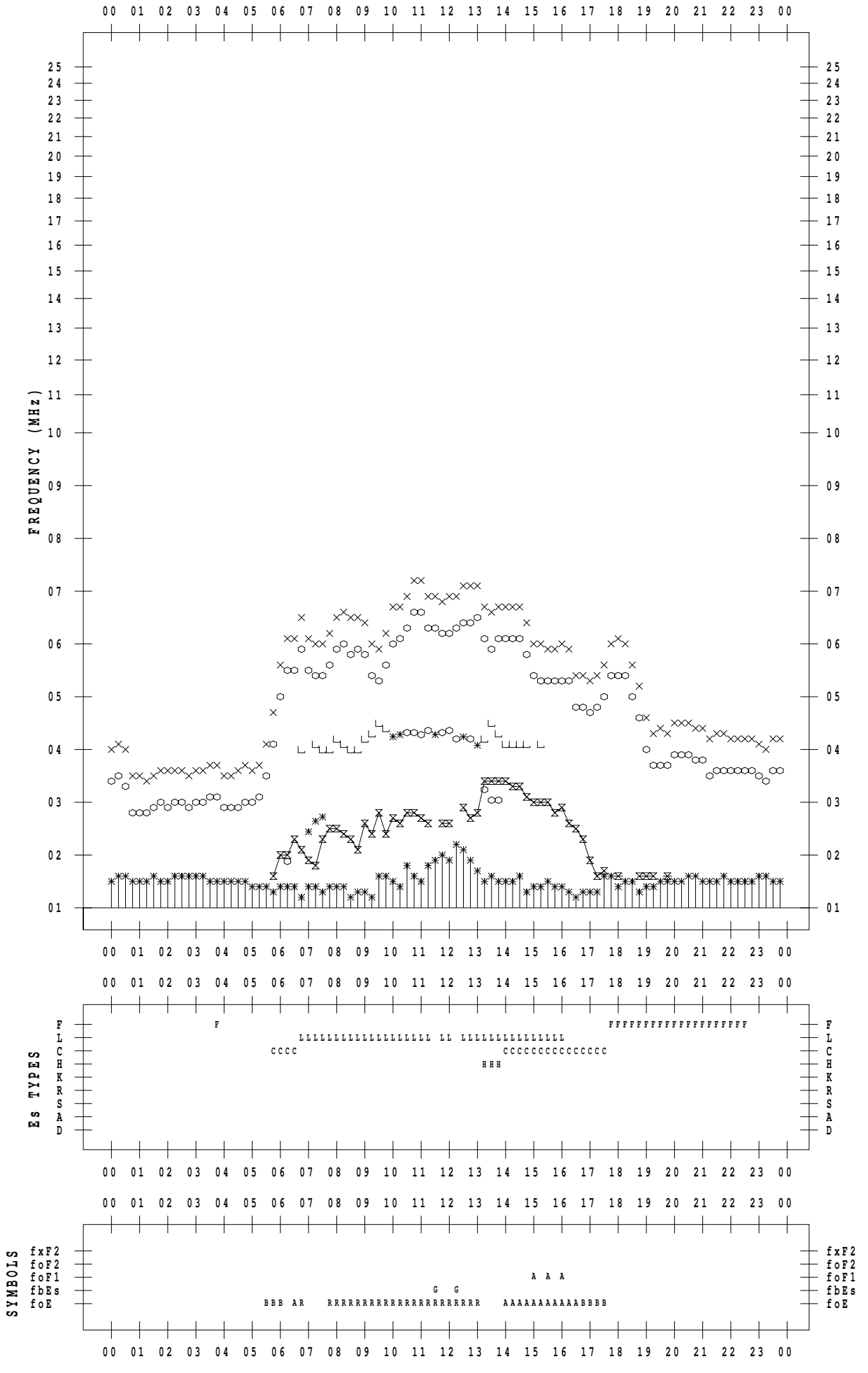
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2009/10/ 5

135 °E MEAN TIME



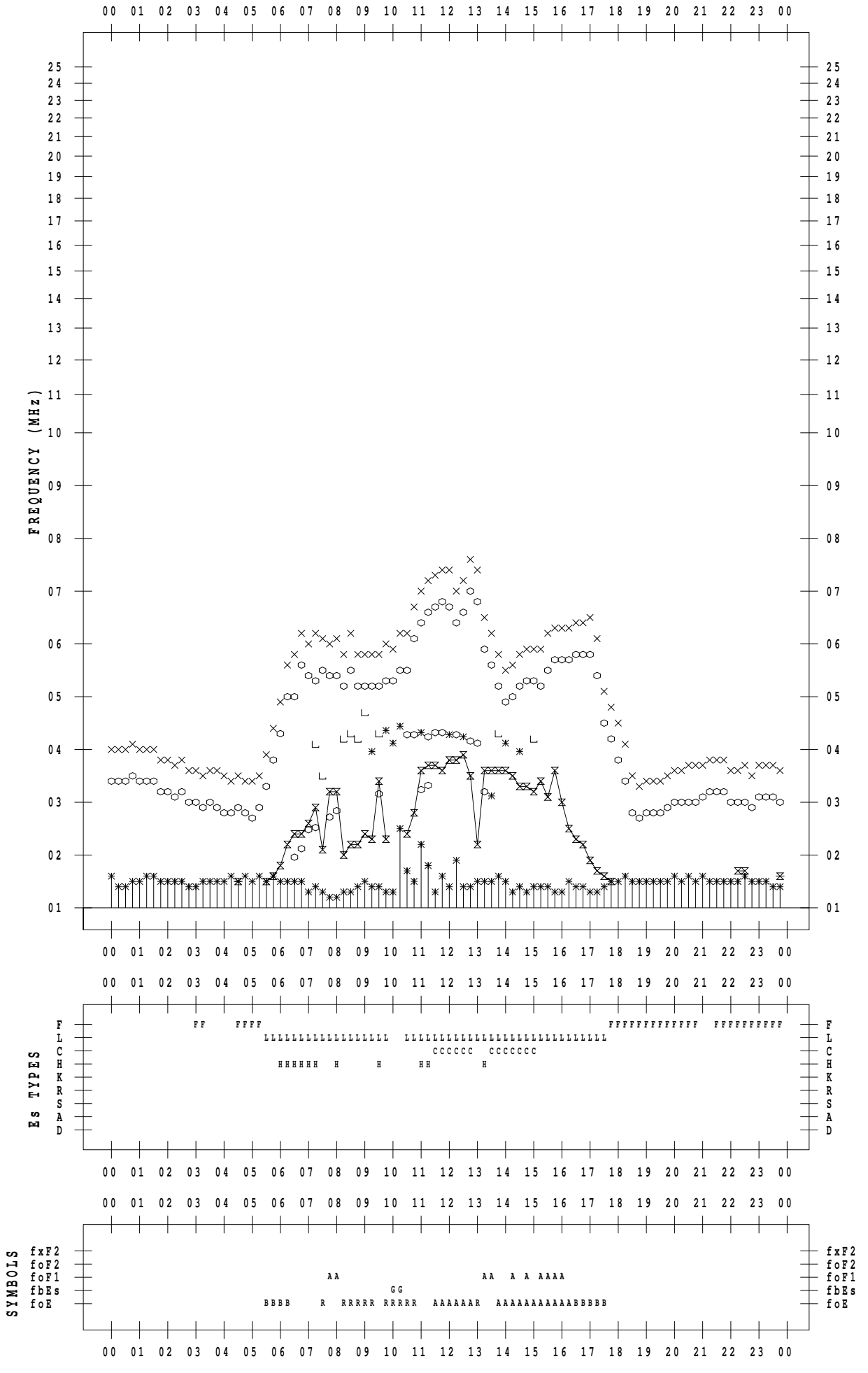
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2009/10/ 6

135 °E MEAN TIME



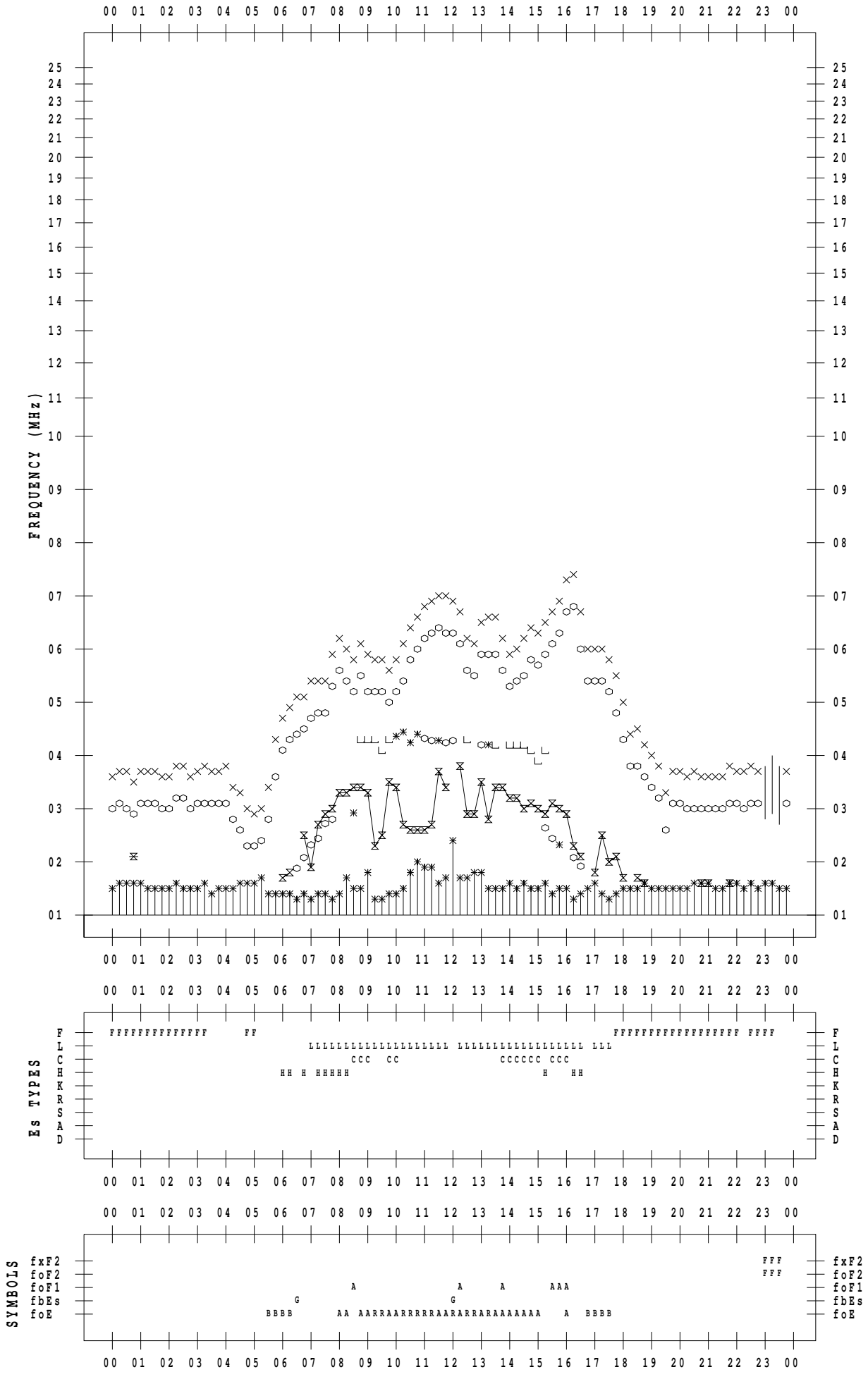
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2009/10/ 7

135 °E MEAN TIME



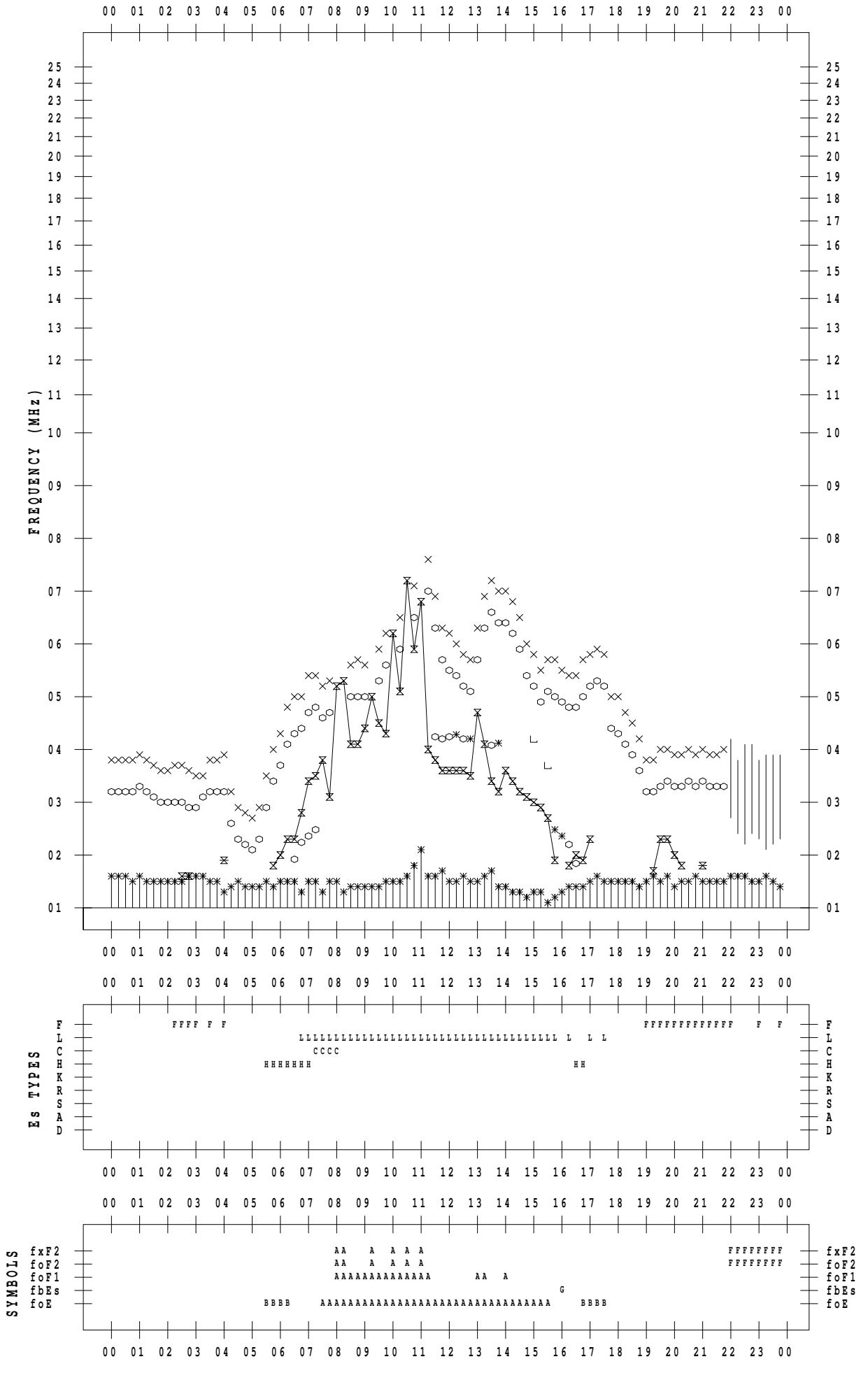
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2009/10/ 8

135 °E MEAN TIME



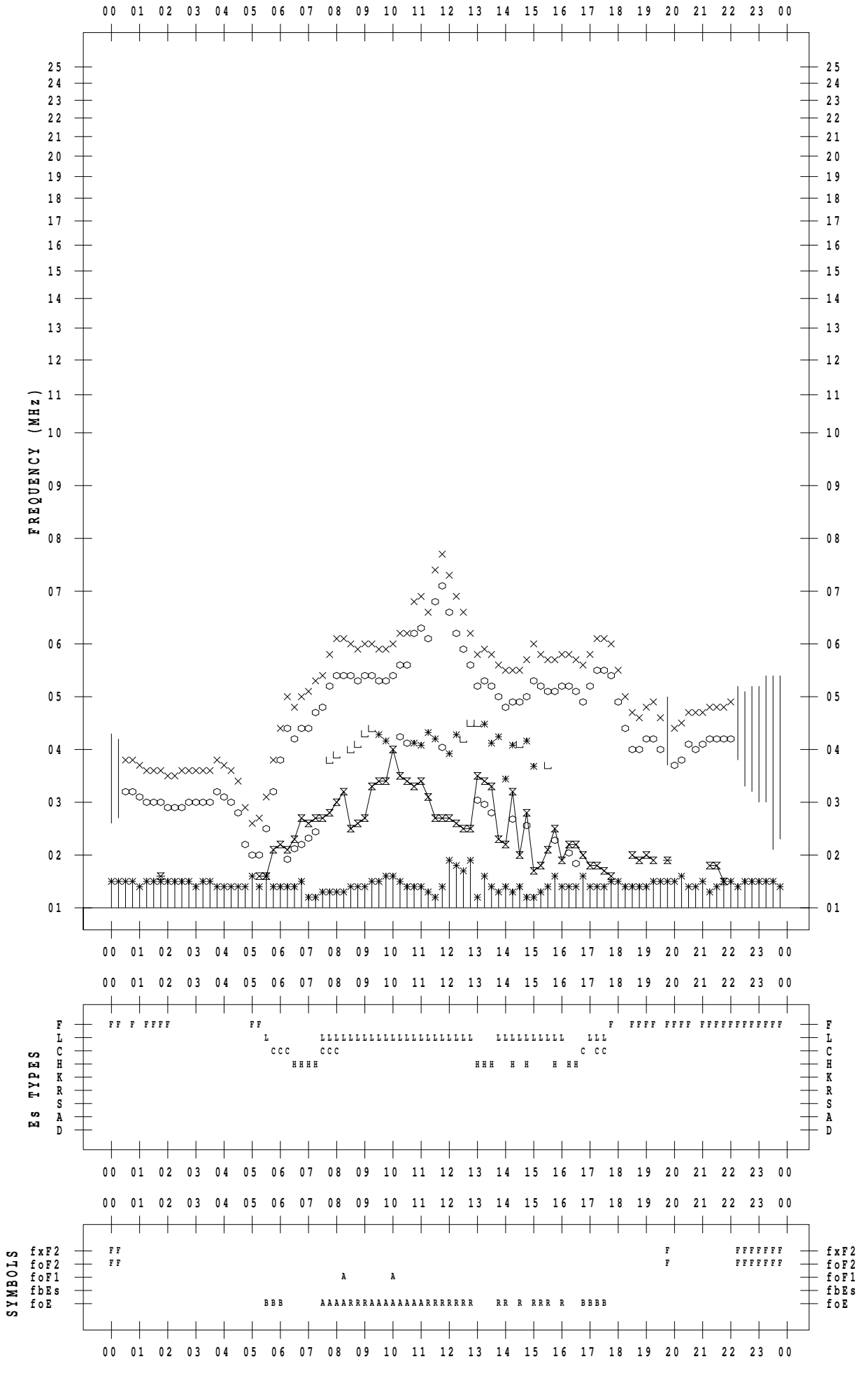
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2009/10/ 9

135 °E MEAN TIME



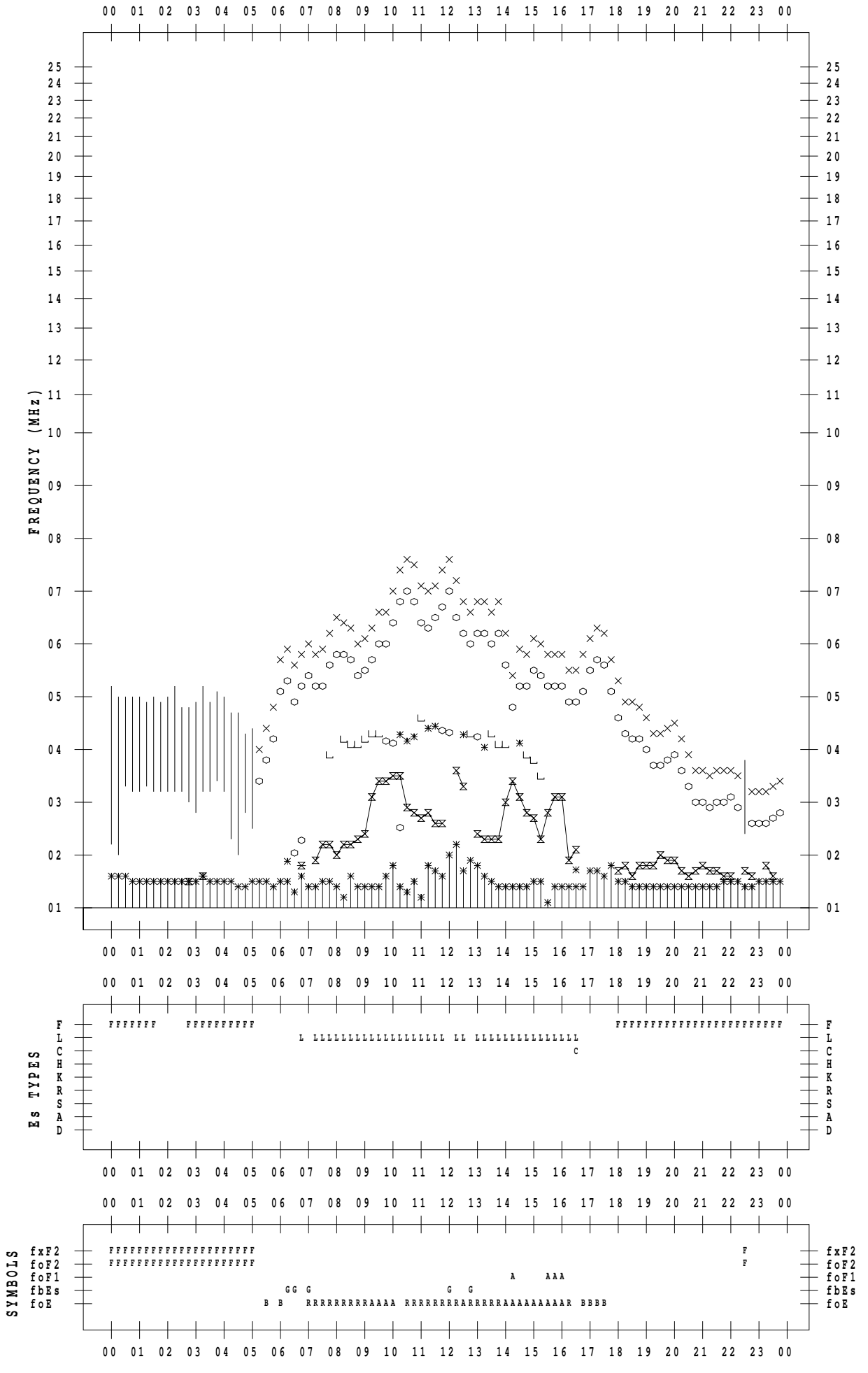
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2009/10/10

135 °E MEAN TIME



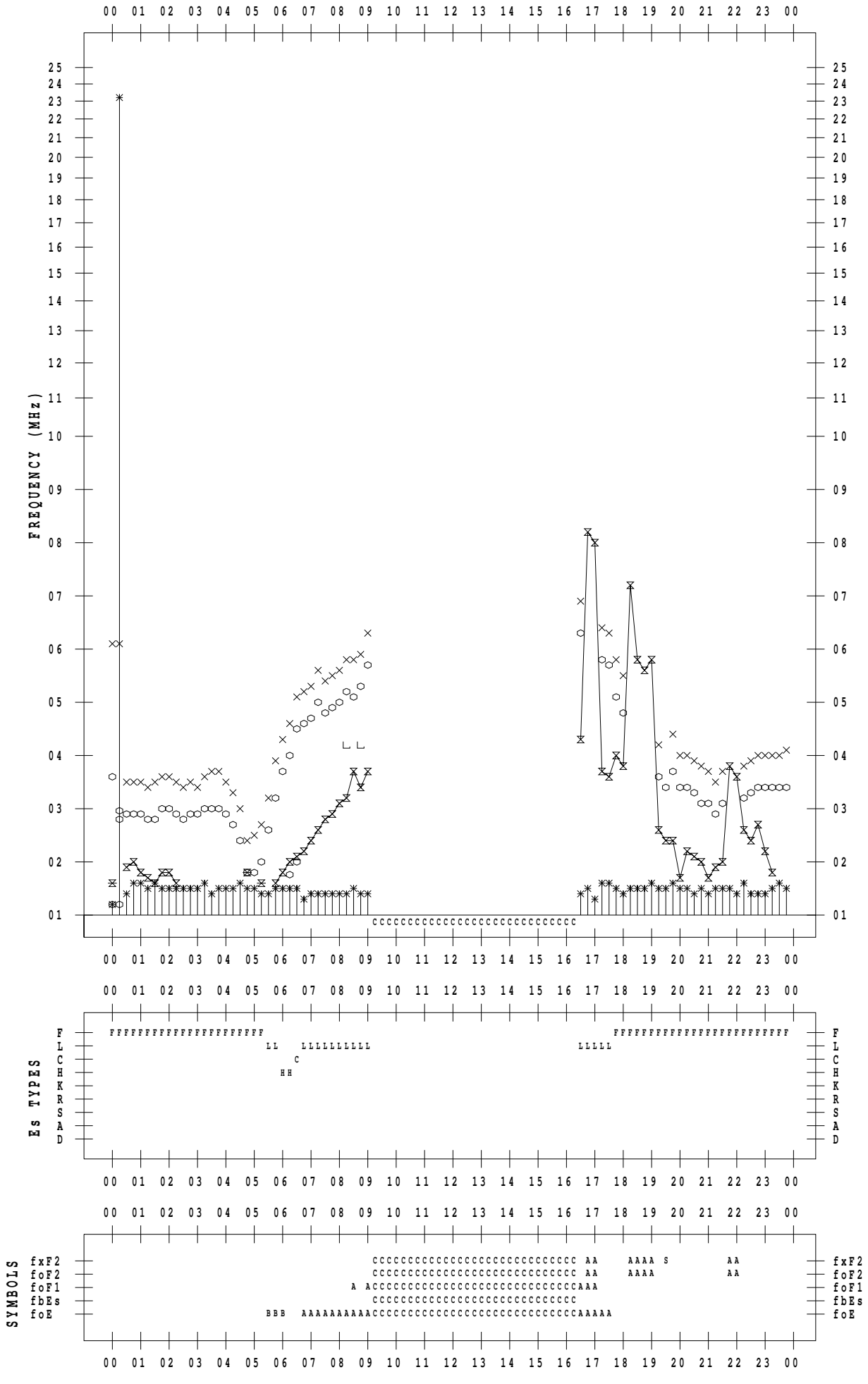
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2009/10/11

135 °E MEAN TIME



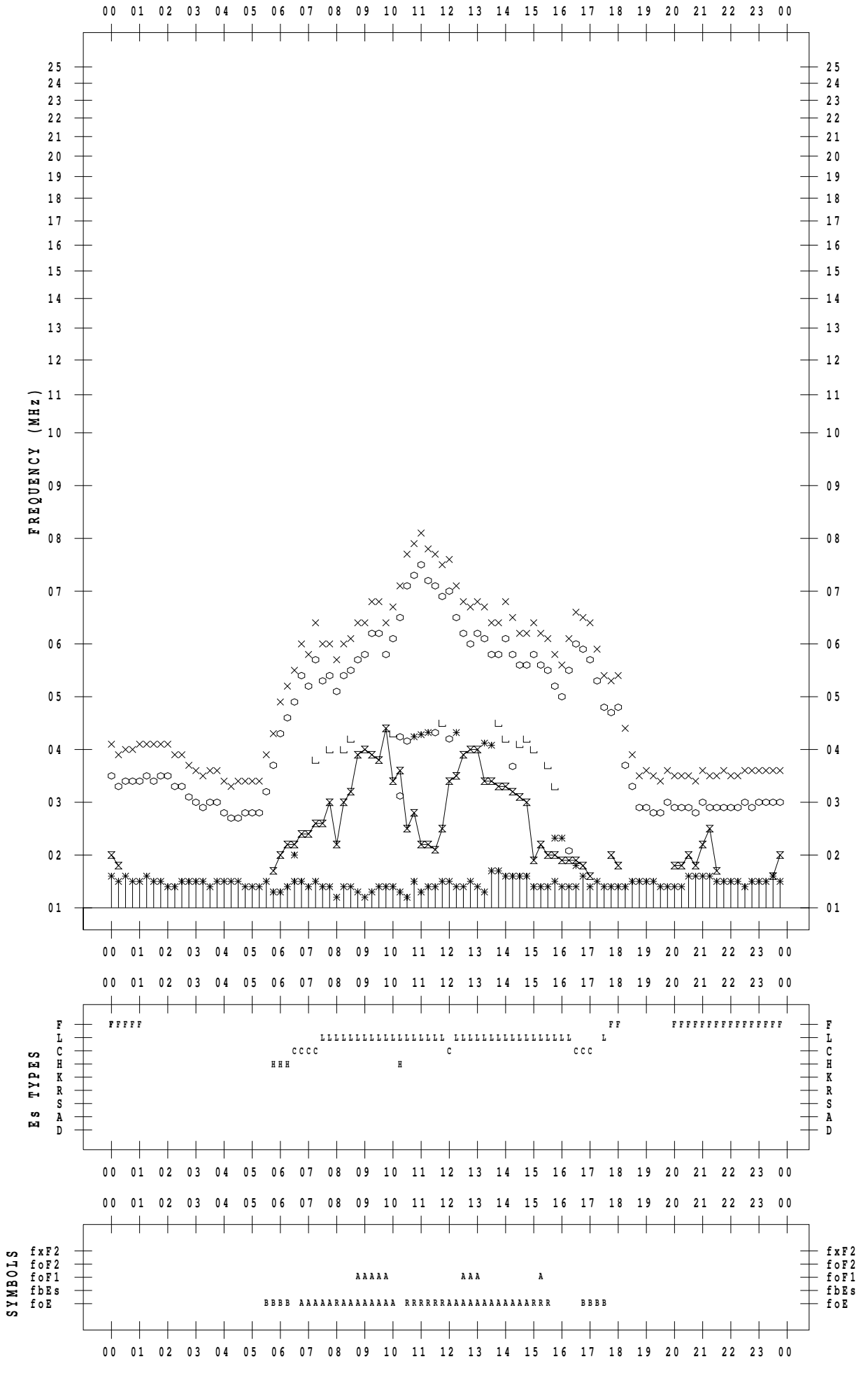
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2009/10/12

135 °E MEAN TIME



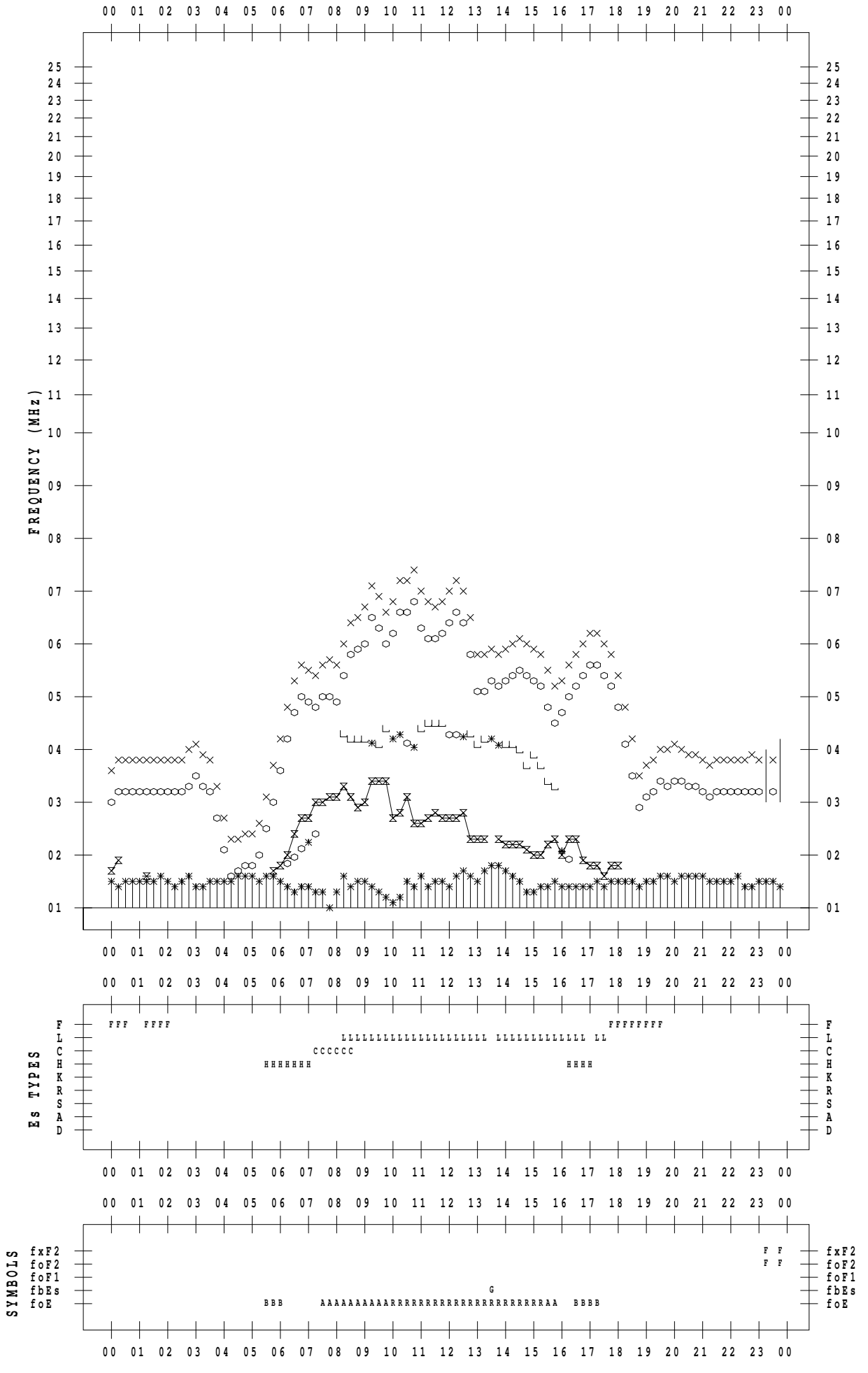
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2009/10/13

135 °E MEAN TIME



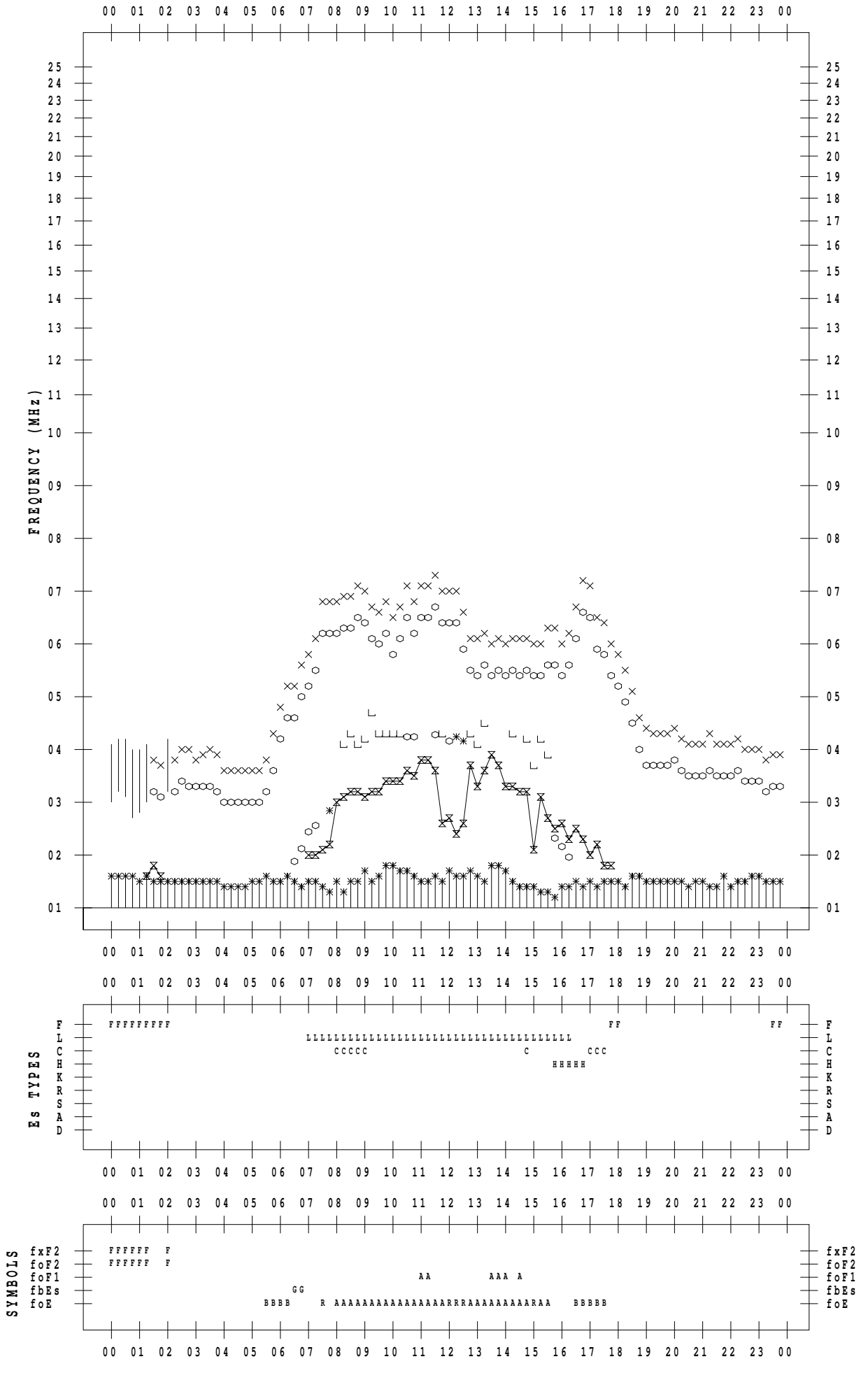
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2009/10/14

135 °E MEAN TIME



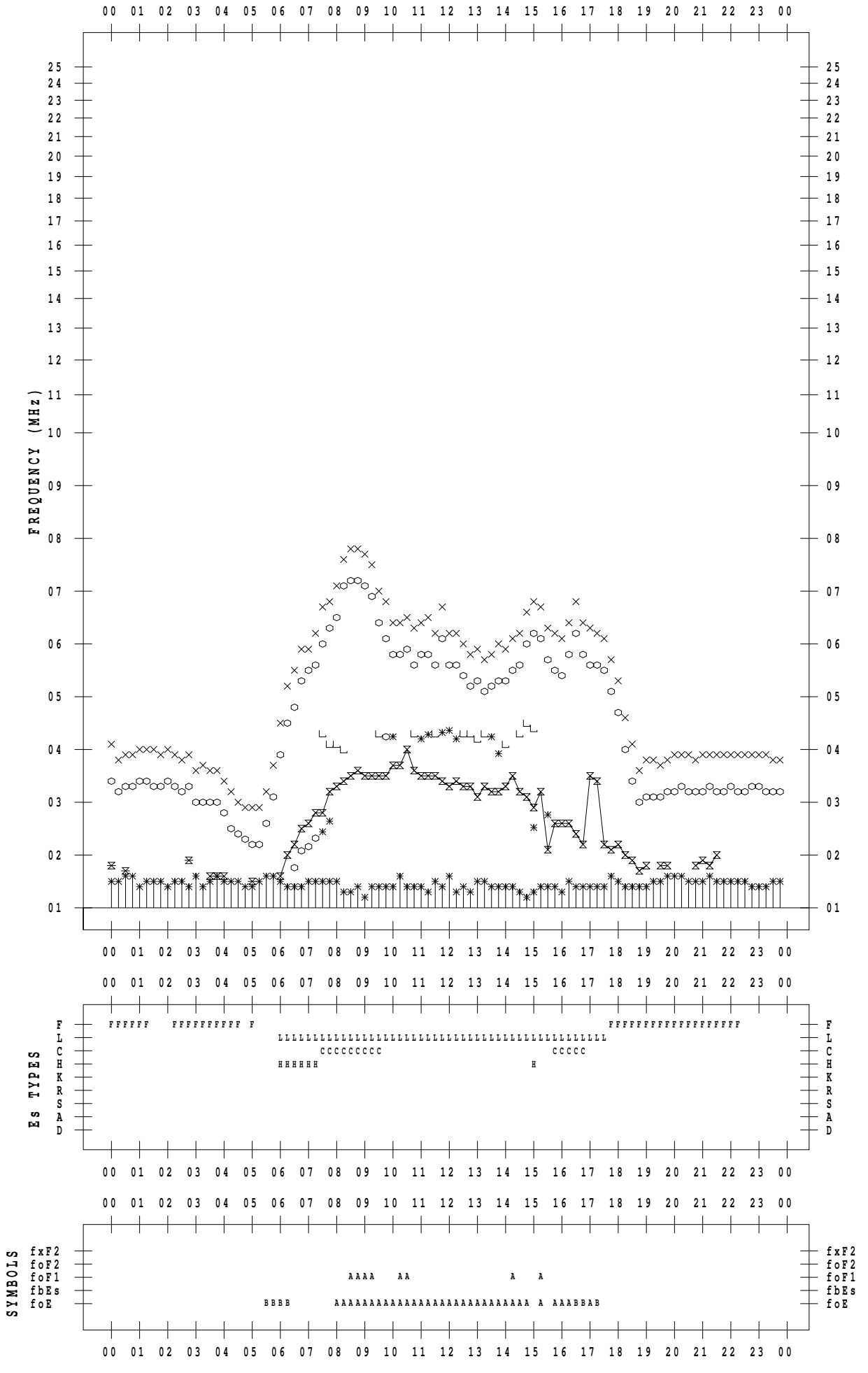
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2009/10/15

135 °E MEAN TIME



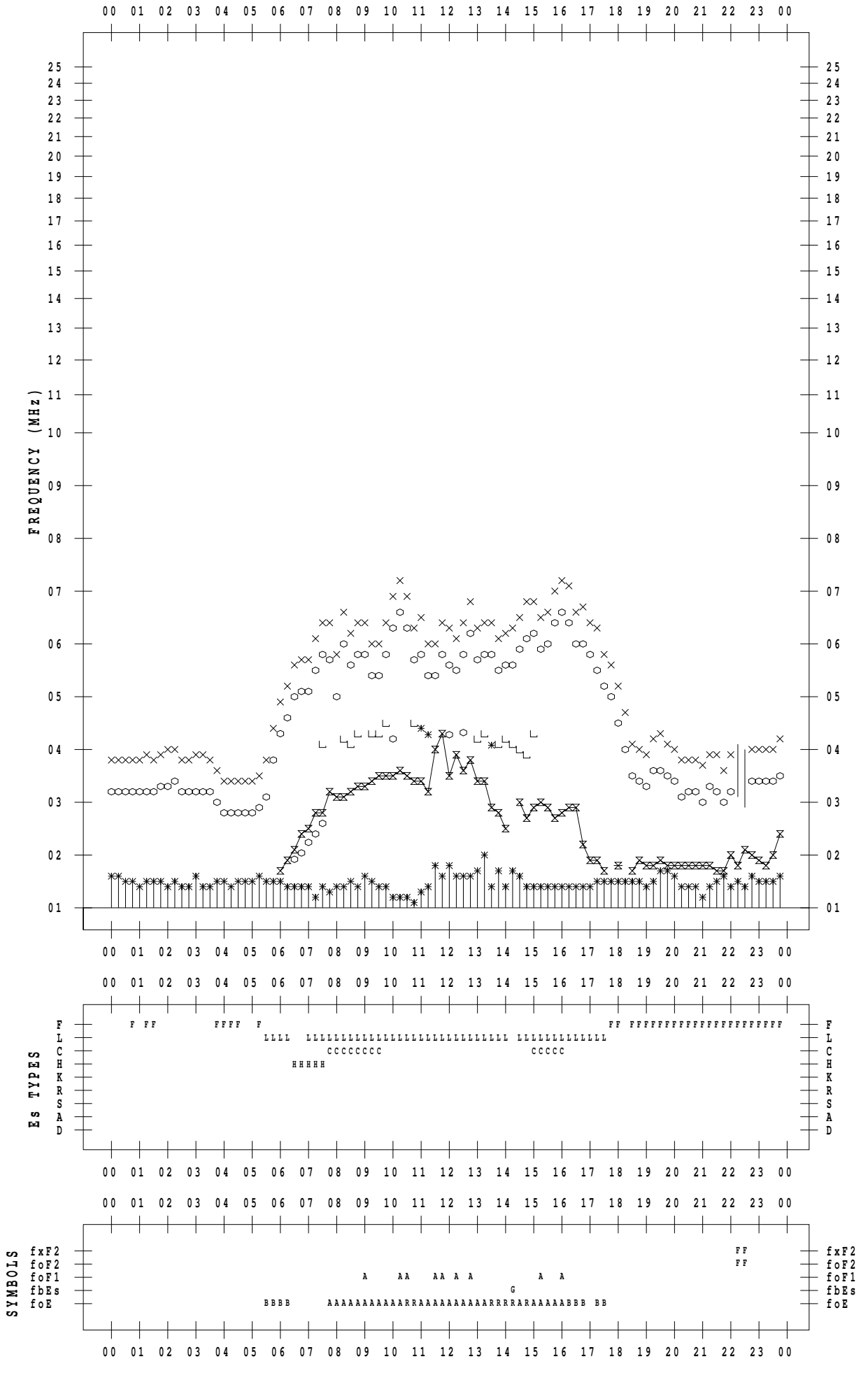
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2009/10/16

135 °E MEAN TIME



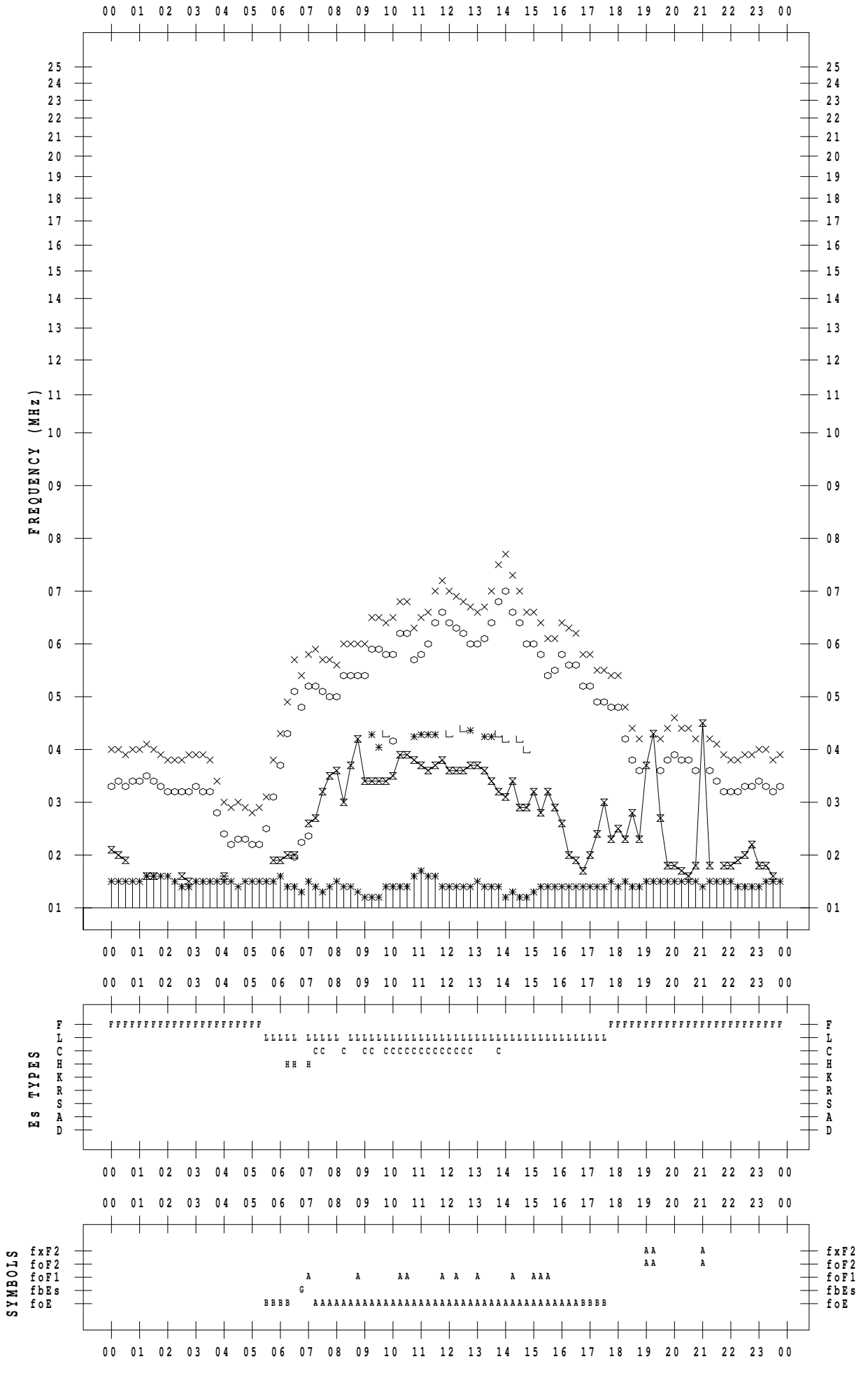
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2009/10/17

135 °E MEAN TIME



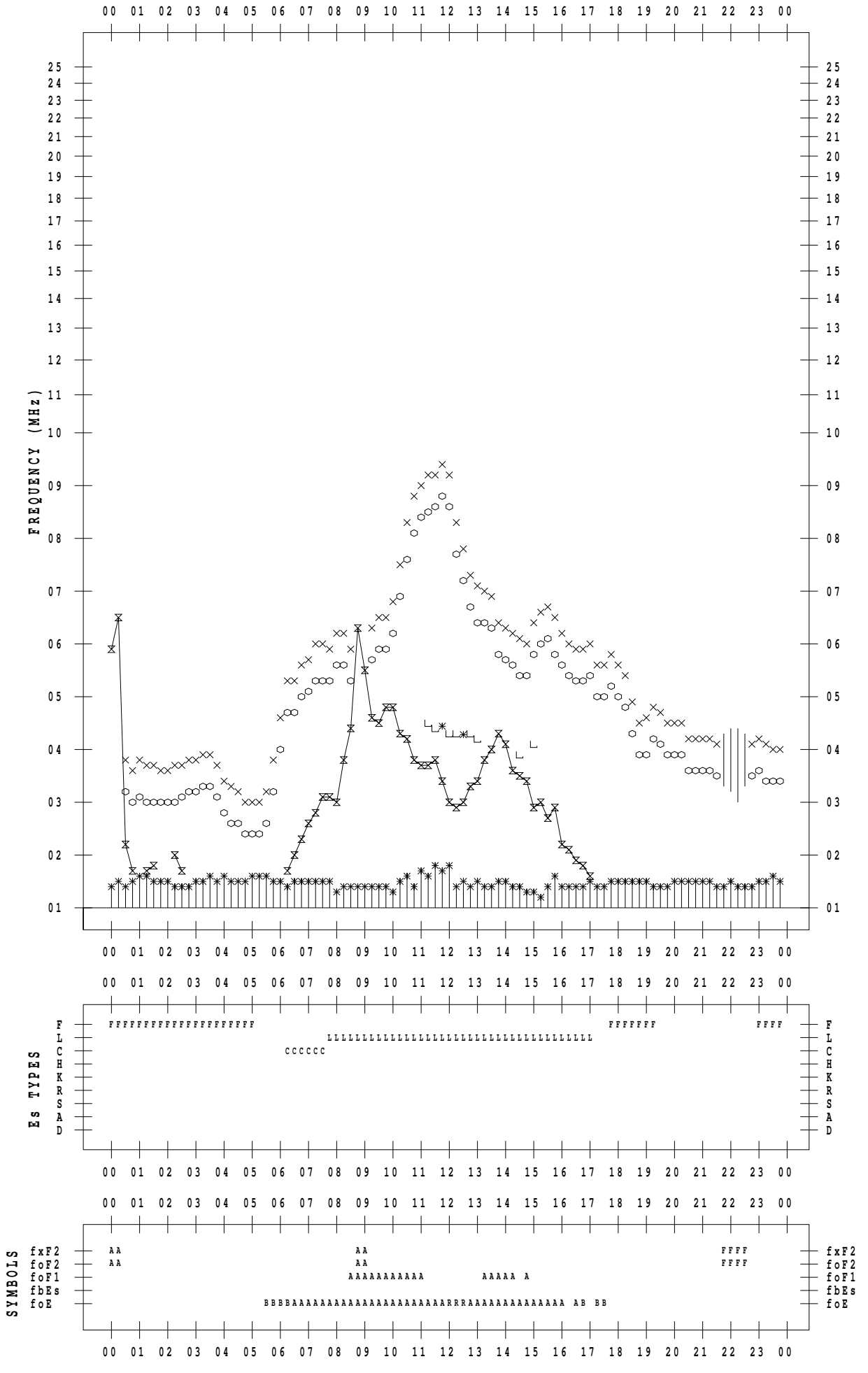
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2009/10/18

135 °E MEAN TIME



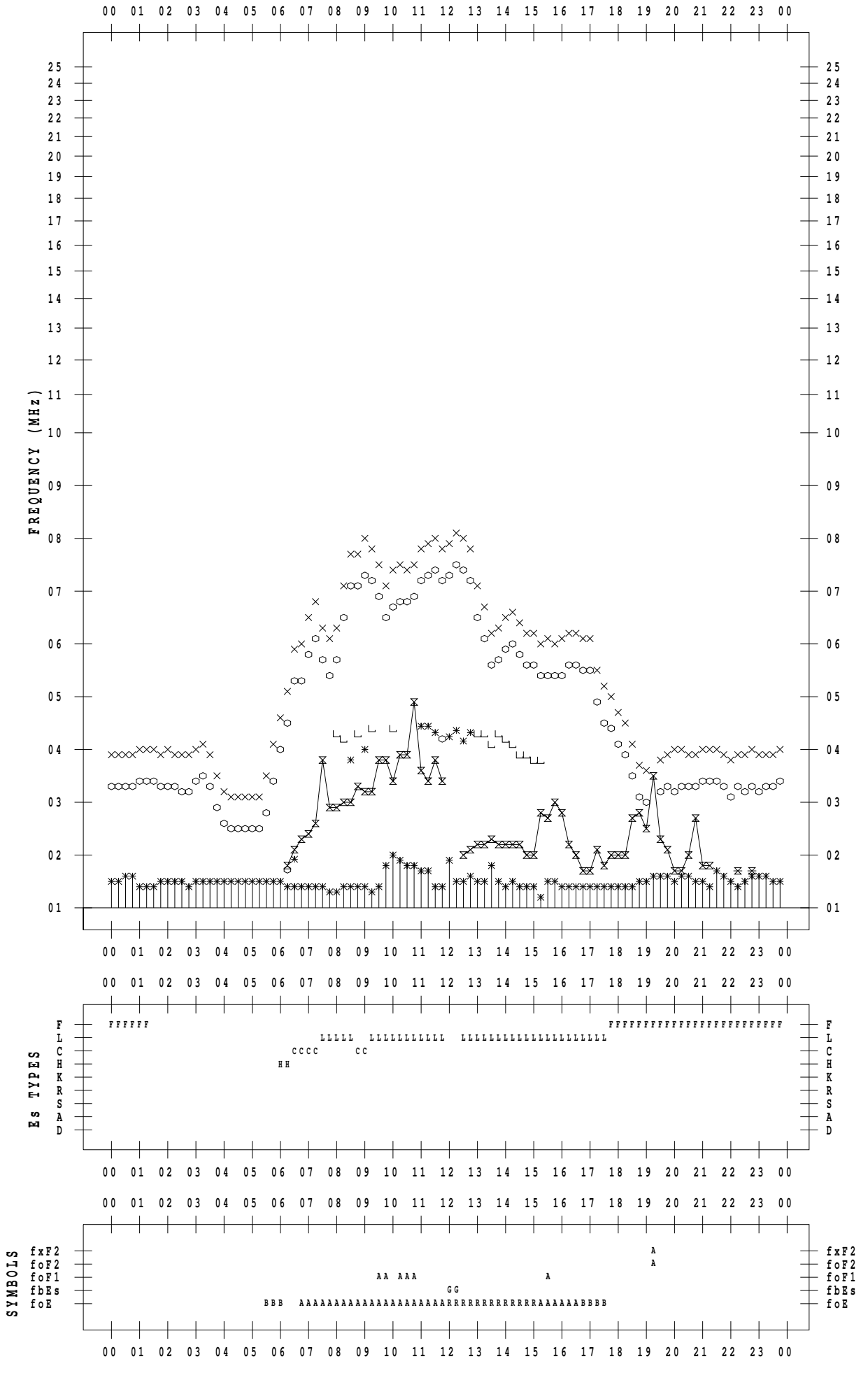
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2009/10/19

135 °E MEAN TIME



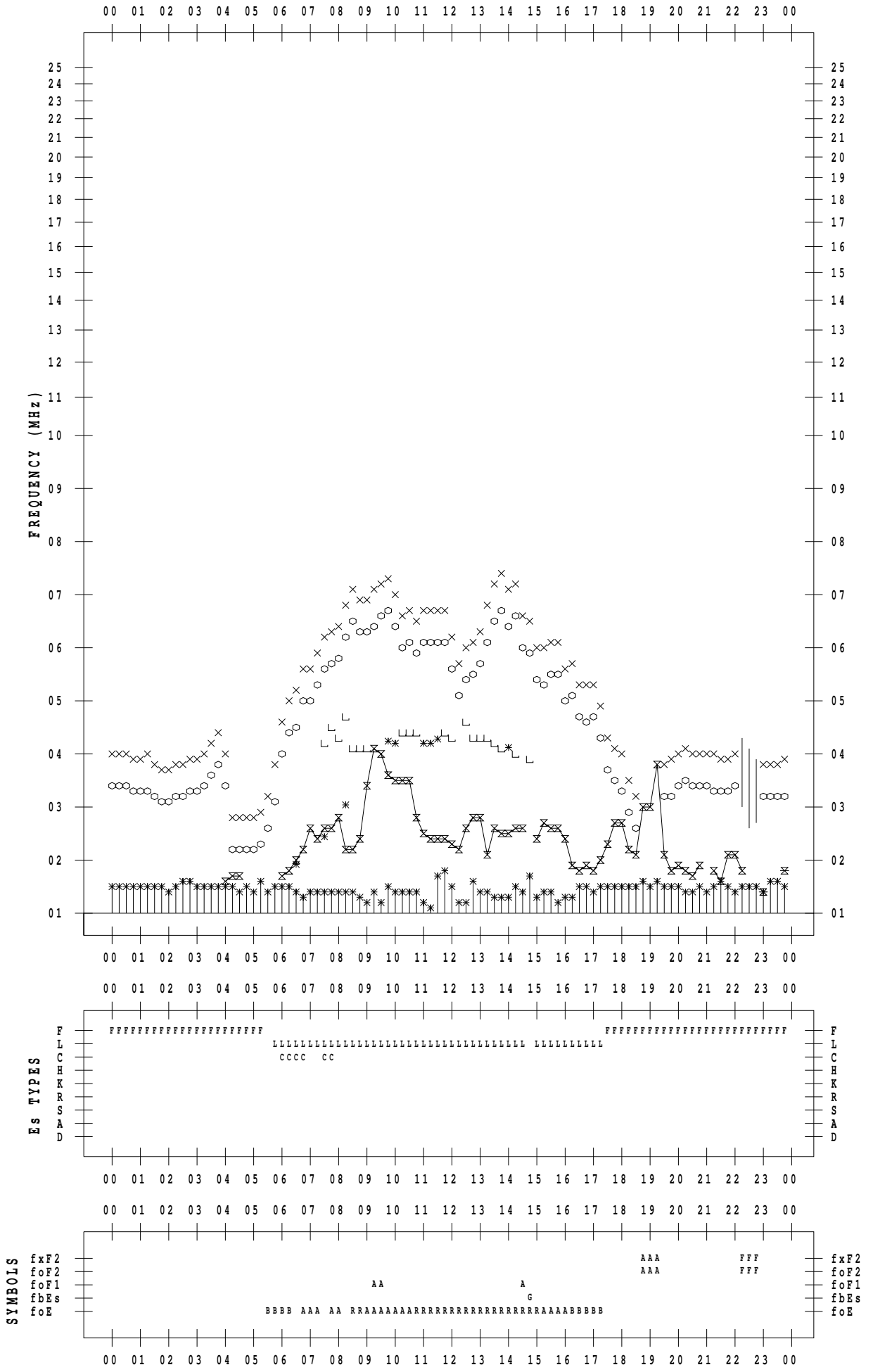
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2009/10/20

135 °E MEAN TIME



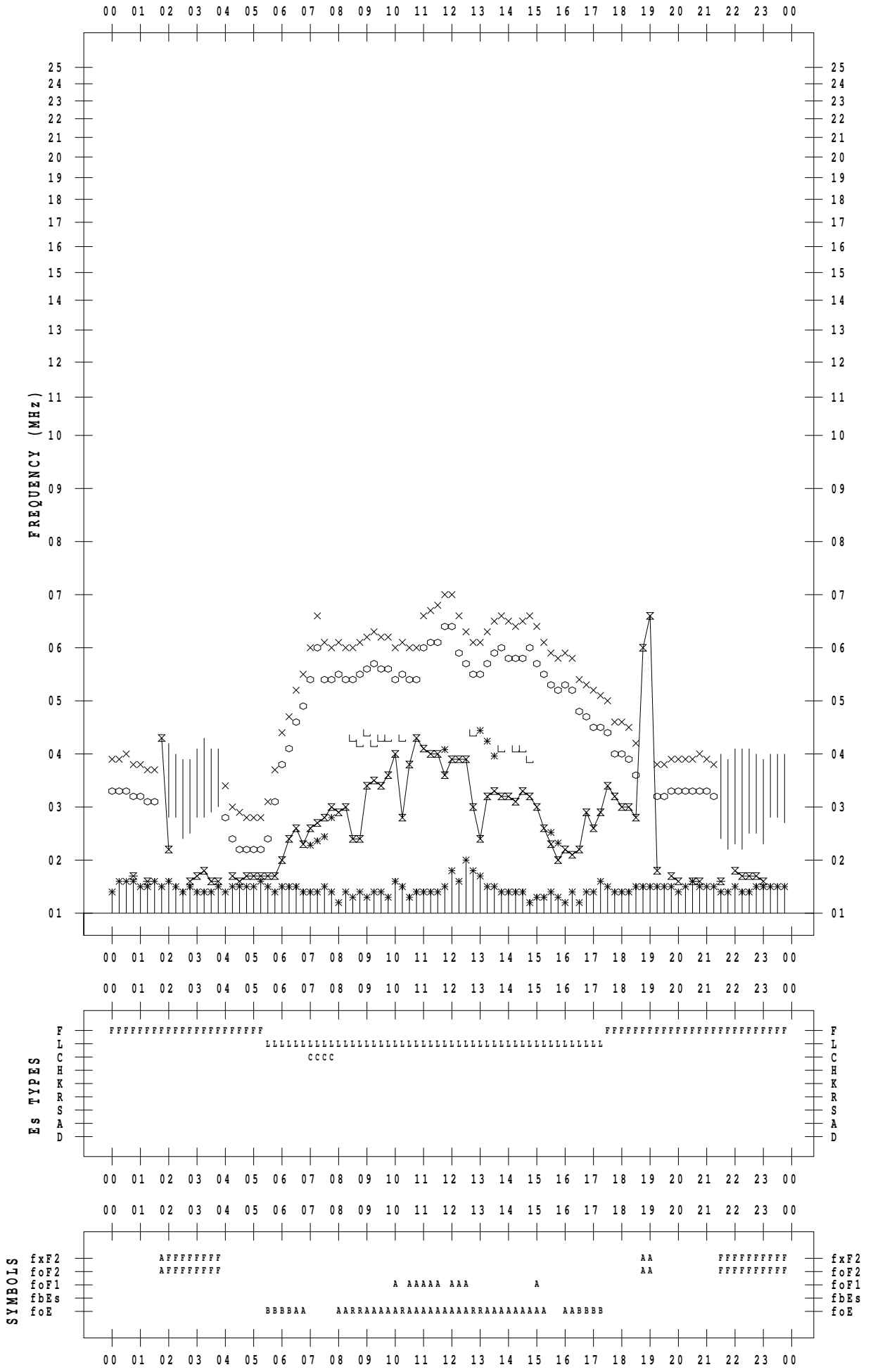
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2009/10/21

135 °E MEAN TIME



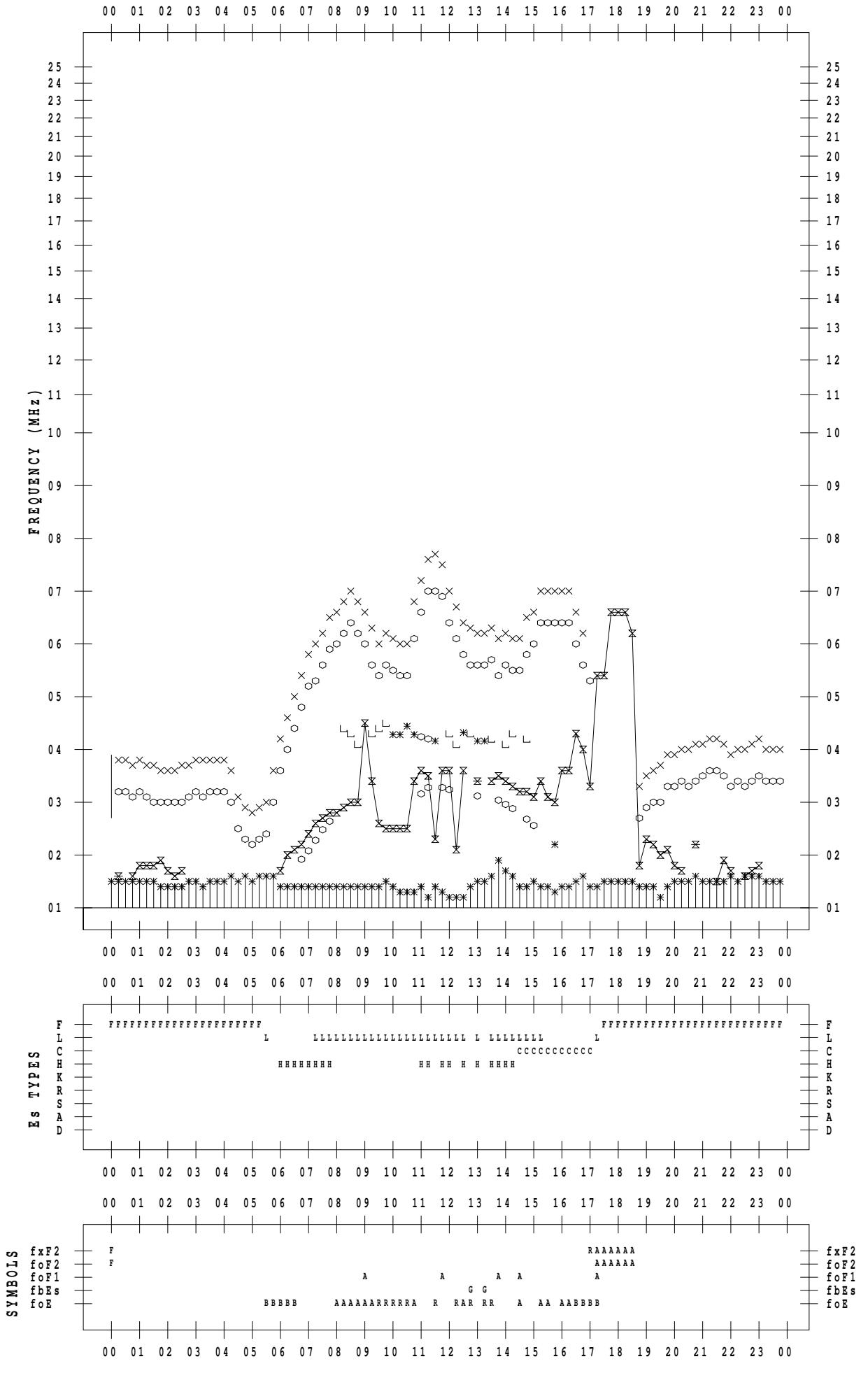
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2009/10/22

135 °E MEAN TIME



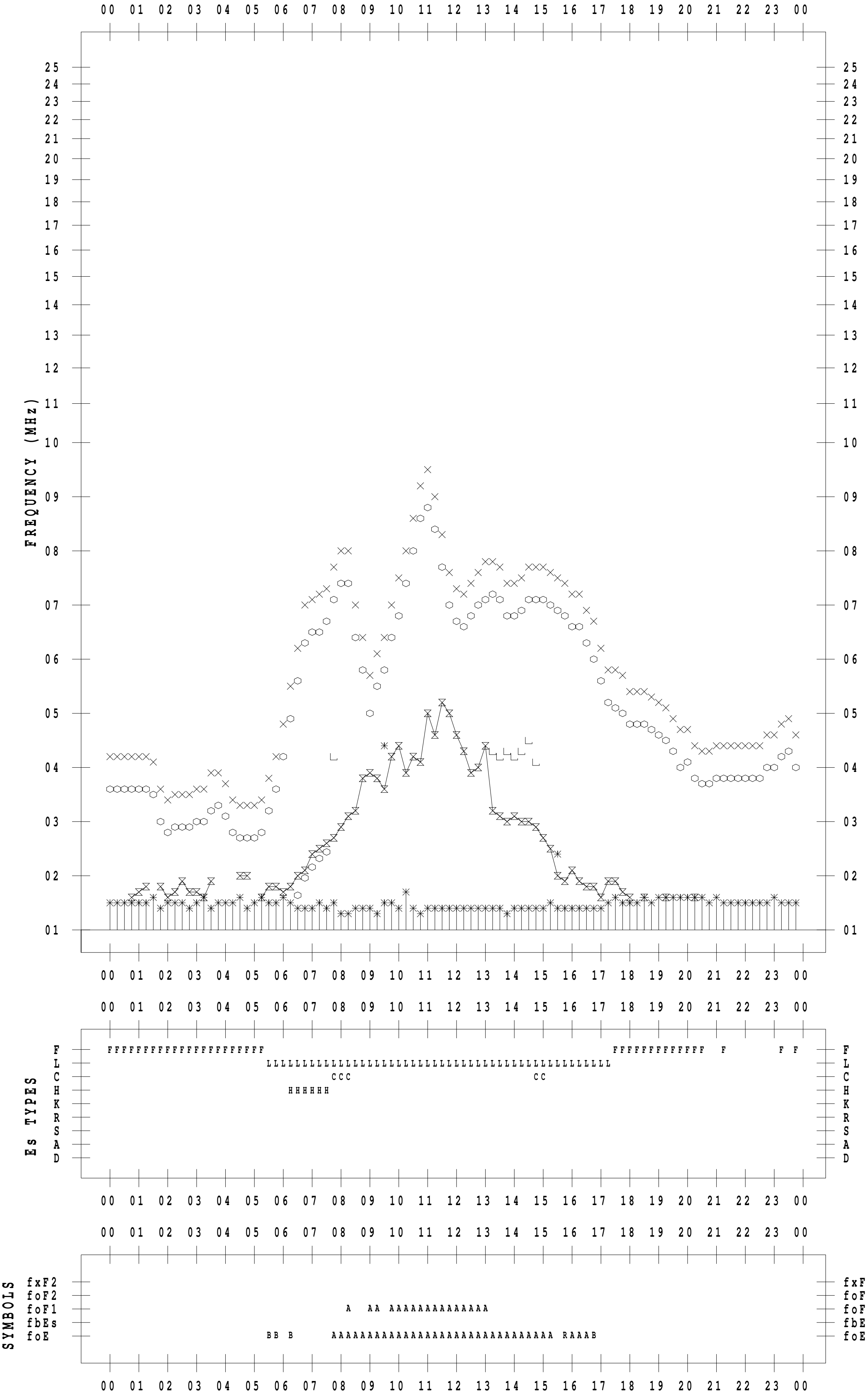
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2009/10/23

135 °E MEAN TIME



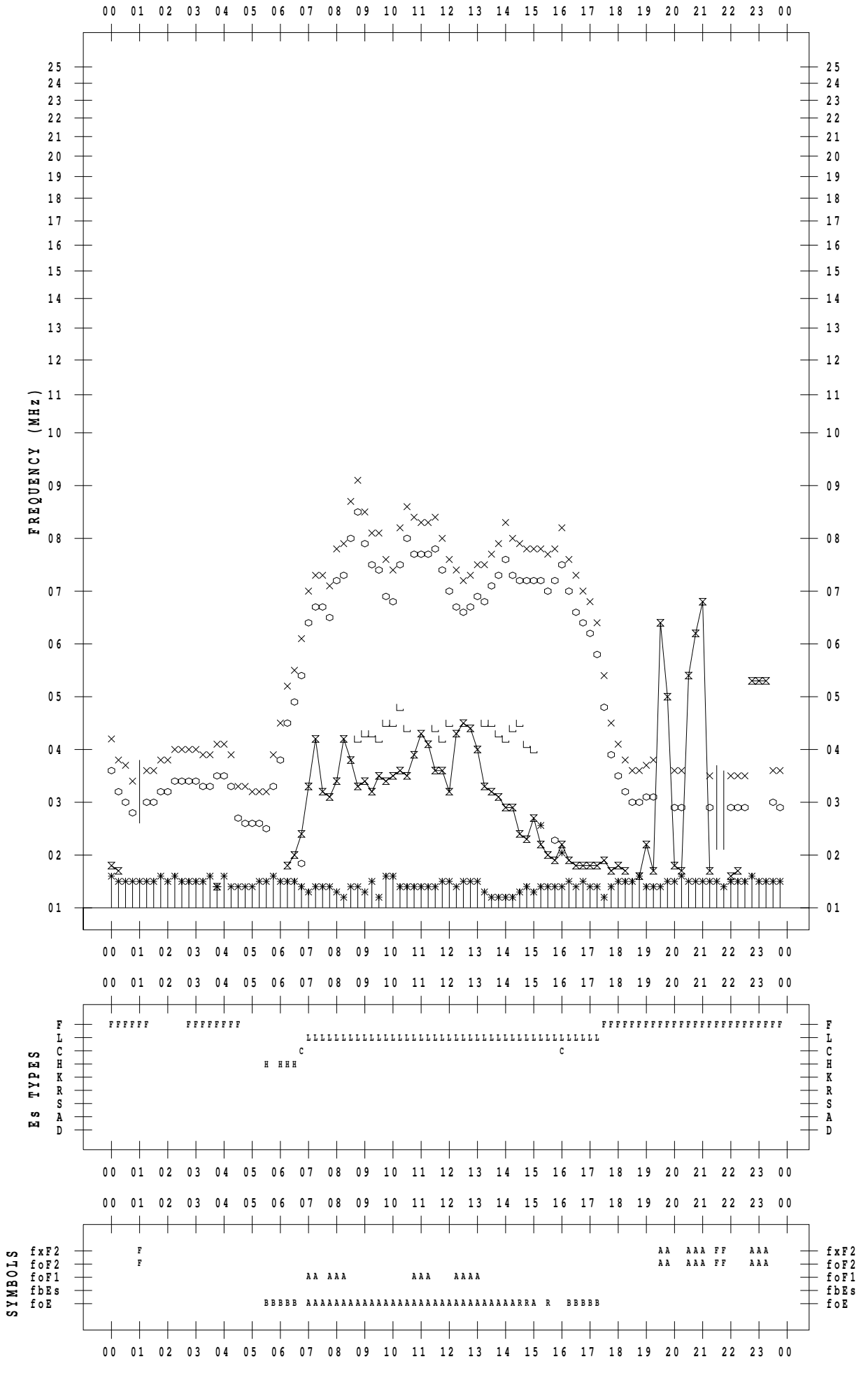
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2009/10/24

135 °E MEAN TIME



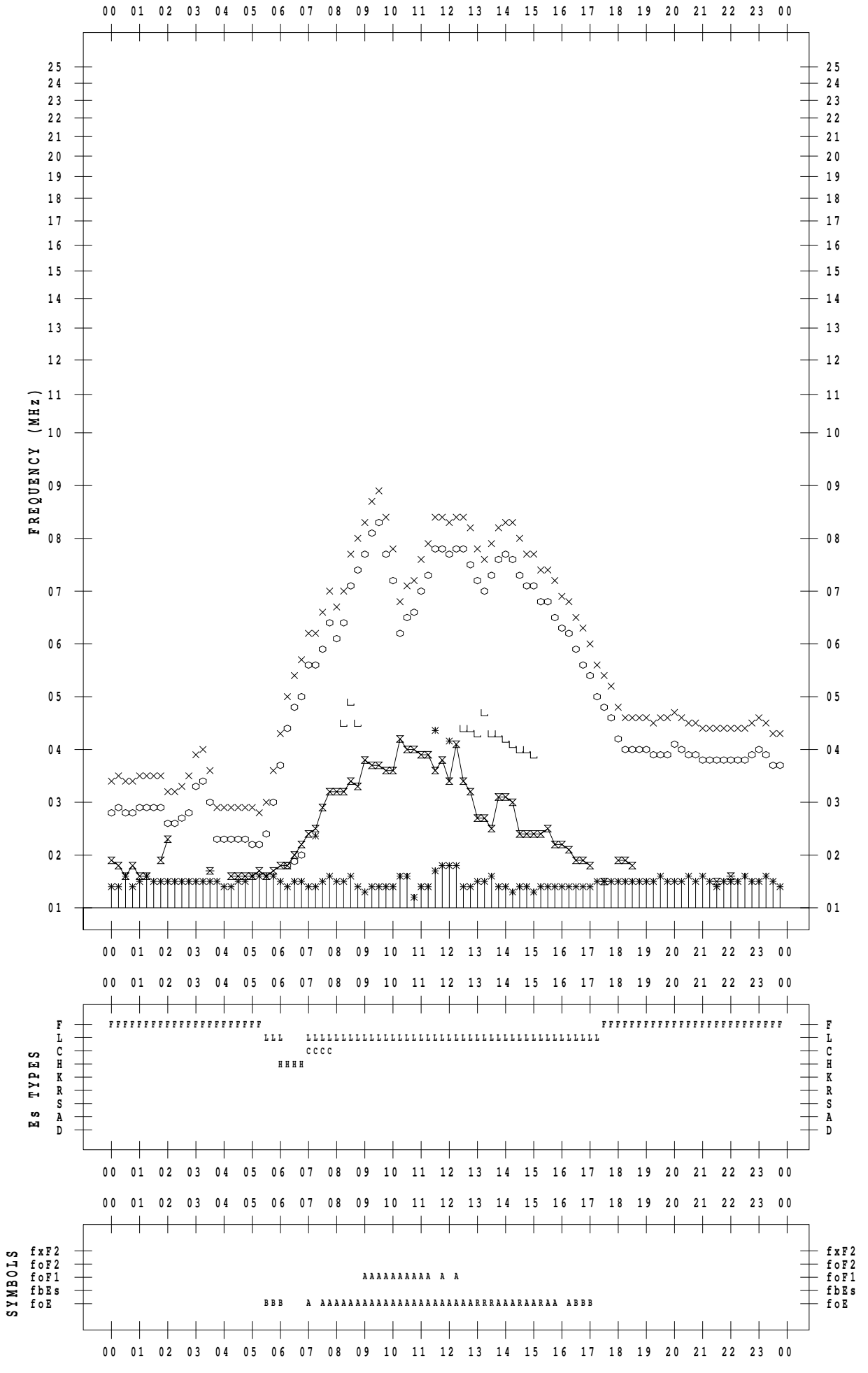
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2009/10/25

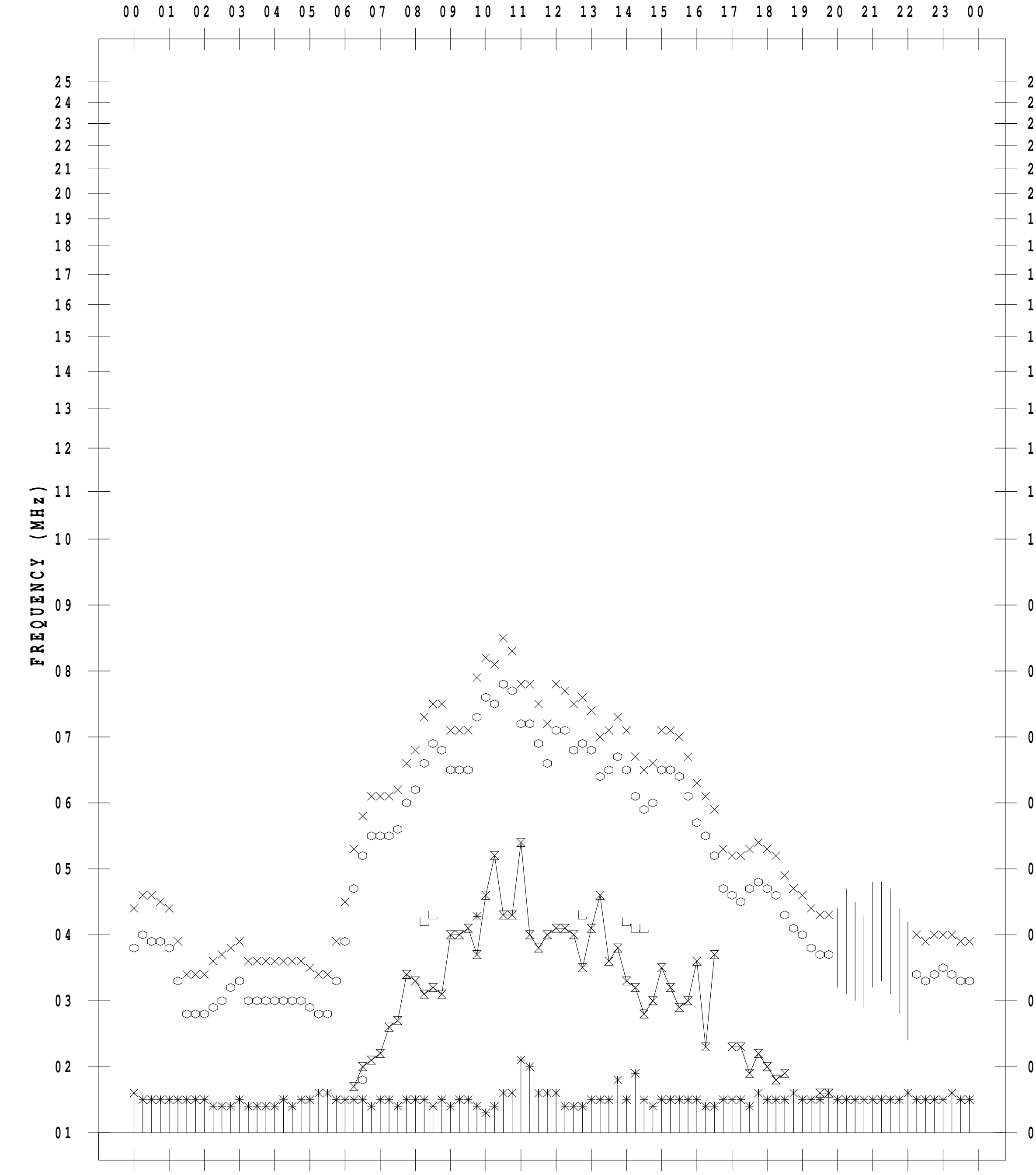
135 °E MEAN TIME

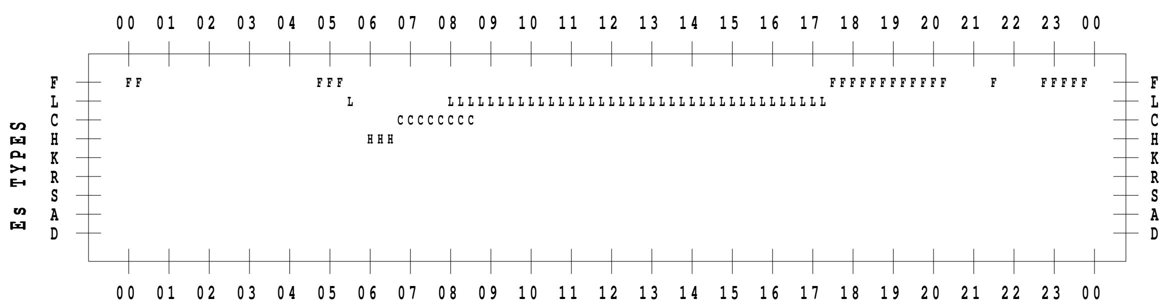


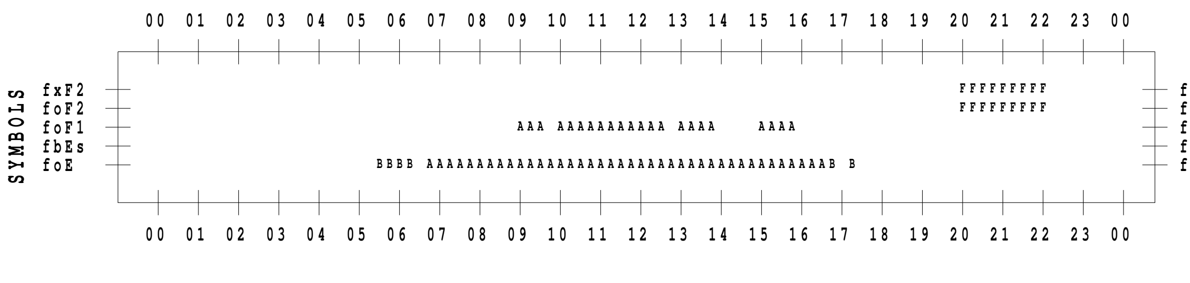
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji DATE : 2009/10/26







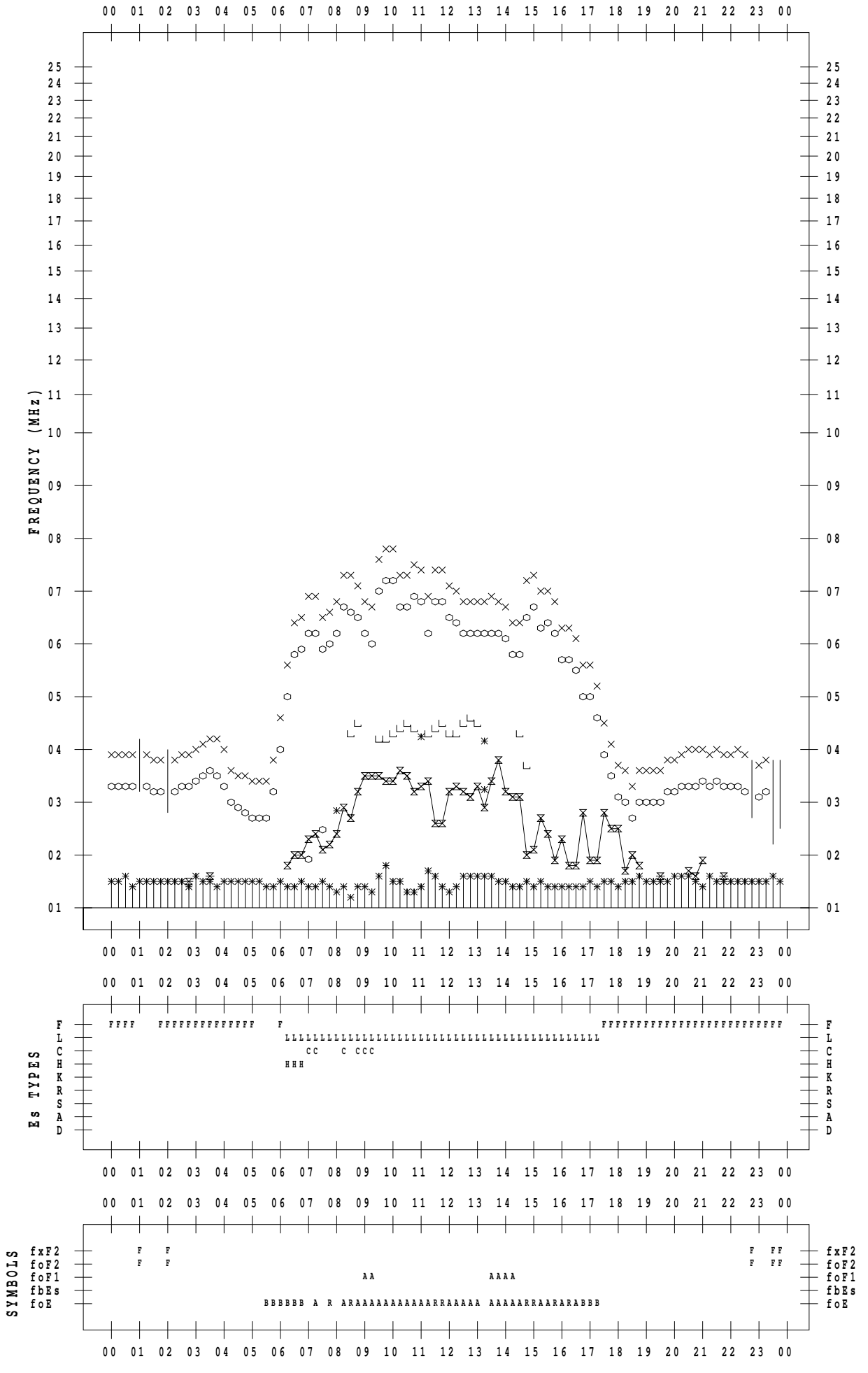
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2009/10/27

135 °E MEAN TIME



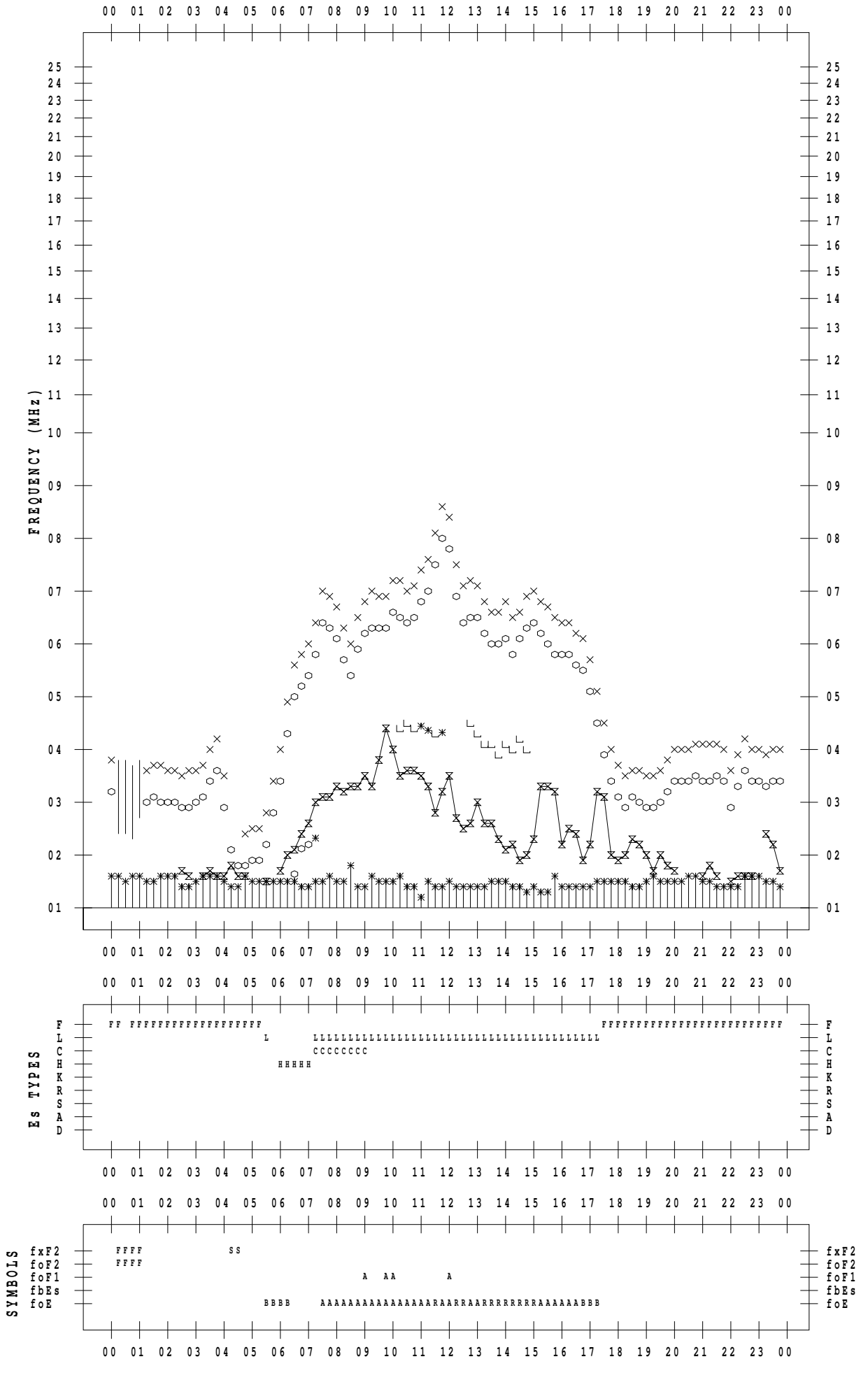
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2009/10/28

135 °E MEAN TIME



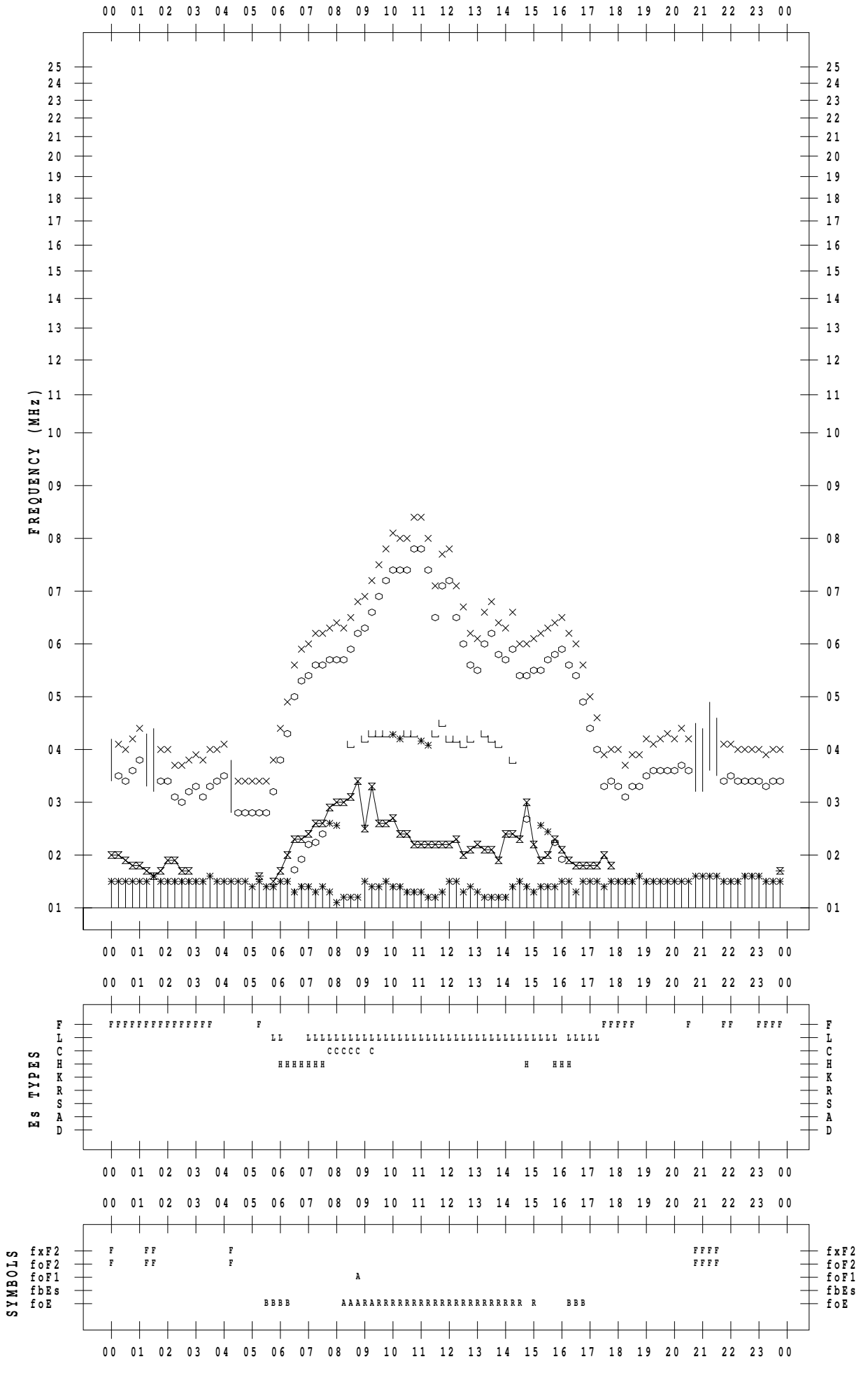
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2009/10/29

135 °E MEAN TIME



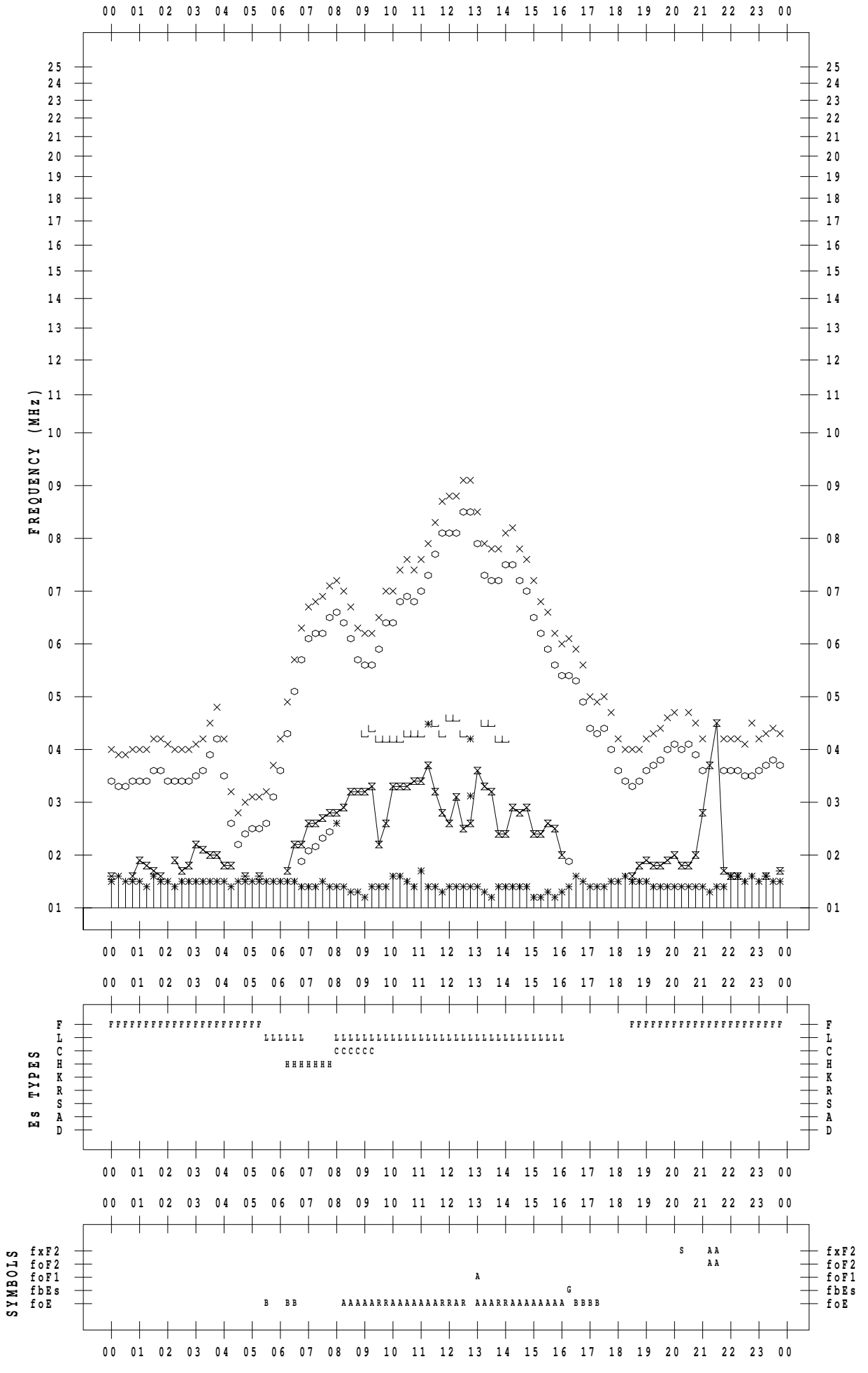
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2009/10/30

135 °E MEAN TIME



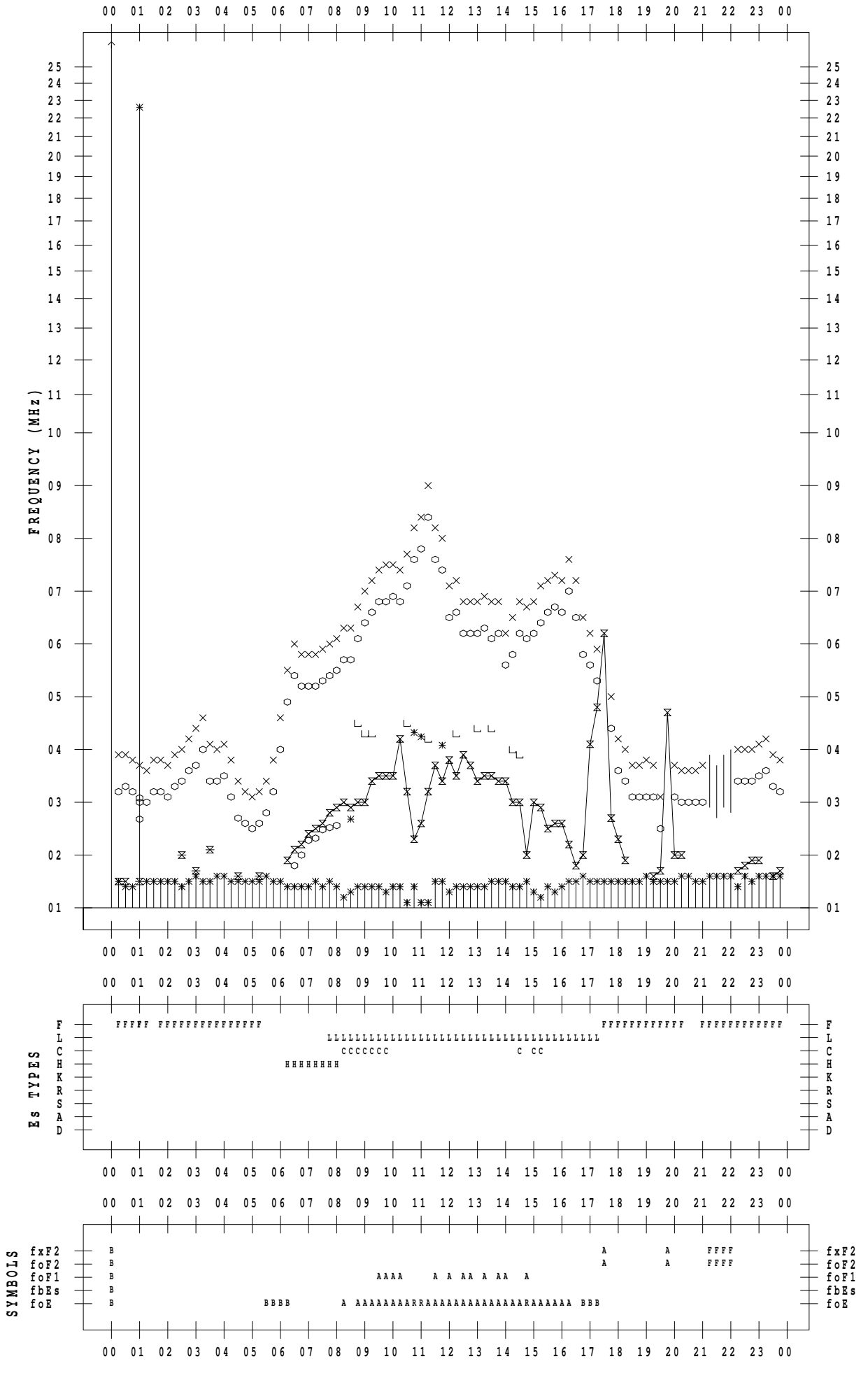
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2009/10/31

135 °E MEAN TIME



B. Solar Radio Emission

B1.Outstanding Occurrences at Hiraiso

Hiraiso October 2009

Single-frequency observations

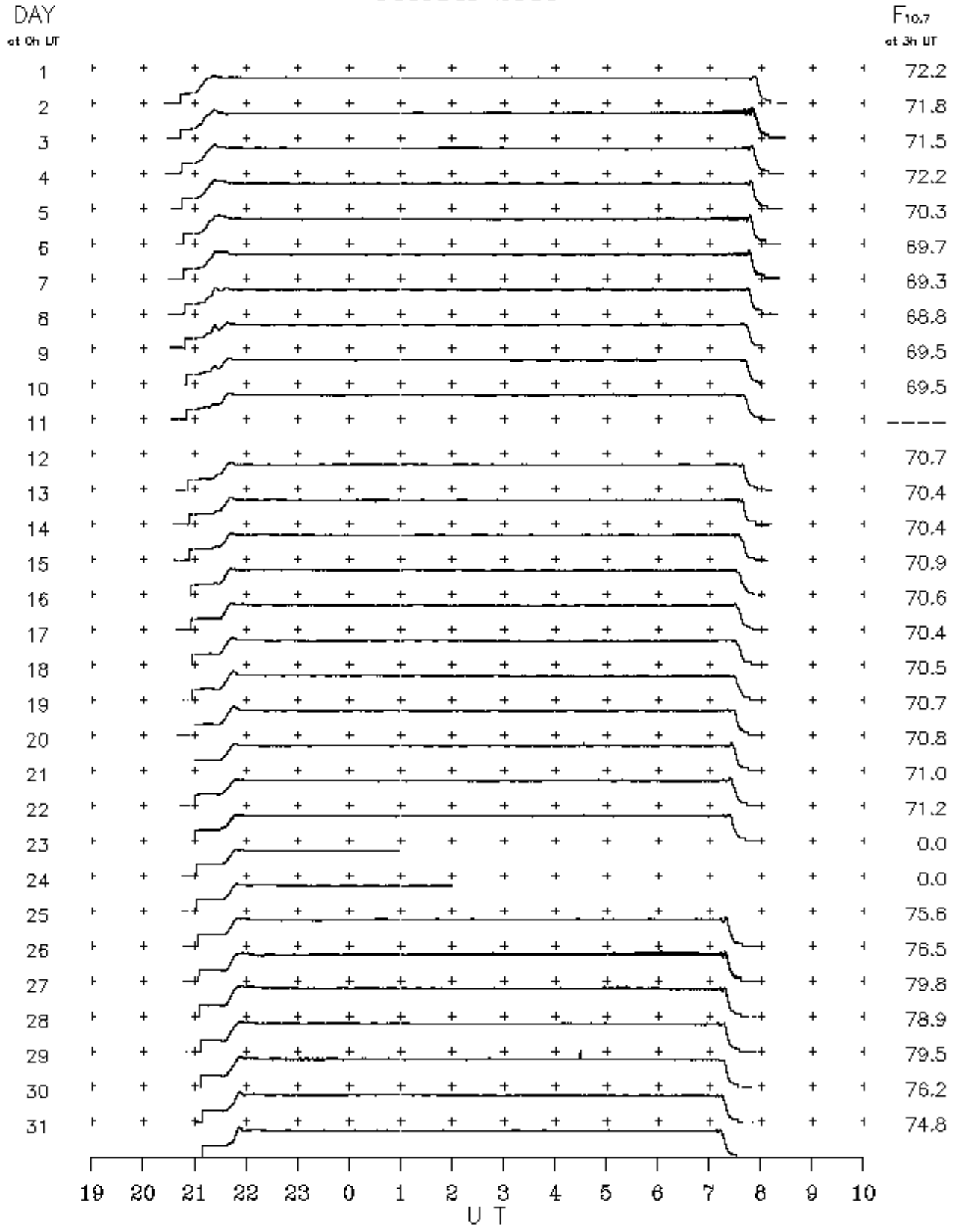
Normal observing period: 2040 - 0805 U.T. (sunrise to sunset)

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

B.Solar Radio Emission

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

October 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/2009/10/