F-734

IONOSPHERIC DATA IN JAPAN

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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

FEB. 2010

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	34	32	31	34	38	29		34	46	45	51	54	56	56	57	55	47		A		30	32	32	32
2	34	32	31	28	34	32	28	38	58	52	68	60	60	57	60	57	45	34	30	26	28	34	32	34
3	32	32	34	32	42	52	34	42	59	61	70	67	65	58	52	49	50	39	32	35	32	32	29	37
4	28	32	29	31	34	32	29	34	60	51	60	58	60	62	62	57	37	A	29	A	A	32	30	36
5	34	44	32	50	48	55	48	53	60	54	62	61	62	64	57	60	60	37	31	46	51	54	46	51
6	46	47	46	45	48	47		38	54	60	57	65	60	57	58	62	51	43	34	31	31	34	29	34
7	34	32	32	32	34	28	28	47	60	48	65	69	70	65	63	61	60	39	31	30	28	28	34	34
8	34	34	34	32	32	34	28	42	54	58		62	61	58	60	61	56	48	30	34	34	32	36	35
9	29	34	34	34	42	42	34	50	60	59	64	64	67	61	60	66	57	40		29	32	34	34	34
10	34	34	34	32	34	37	30	47	55	62	66	65	66	64	58	64	63	44		34	37	37	36	46
11	48	48	47	47	43	44	44	52	60	65	65	70	66	68	66	65	56	47	44	46	34	34	37	32
12	37	41	41	45	44	30	34	51	60	66	68	64	72		60	62	61	52	36	41	34	34	36	34
13	32	32	31	30	36	34	28	50	62	66	66	59	84	70	62	64	61	45		A	32	32	42	34
14	42	34	32	32	40	37	34	54	61	69	64	68	73	69	67	68	61	52	40	32	32	32	38	38
15	38	34	34	41	31	32	34	54	58	66	65	69	67	68	74	67	61	47	A	A			53	52
16	52	47	34	31	35	34	34	47	61	69			74	71	66	67	60	62	58	A	38	A	47	31
17	32	36	37	31	34	38	40	54	70	68	64	66			70	67	68	62	28	34	34	47	47	51
18	47	46	45	45	47	48	46	63	65	64	67	68	66	68	66	66	62	66	53	29	38	36	32	42
19	34	34	46	46	46	36	30		61	63	64	65	67	70	64	65	65	60	47	42	44	47	51	51
20	52	53	62	58	57	54	62	52	66	67	74	69		67	66	66	67	60	42	36	36	40	42	43
21	32	43	37	32	37	32	41	52	64	62	70	63	67	64	62	62	61	60	39	34	34	34	34	34
22	34	34	34	34	31	34	32	52	65	66	65	71	71	68	57	65	78	60	46	32	32	32	38	36
23	44	36	48	46	48	55	52	53	60	73	59	73	74	68	66	64	62	52	47	52	43	35	34	
24	31	44	44	34	42	42	43	48	67	64	65	68	68	66	67	62	64	58	A	29	A	34	36	31
25	32	36	35	30	36	34	37	52	65	67	67	67	68	65	62	61	62	56	44	30	34	41	37	26
26	34	34	38	34	34	38	43	64	70	70	71	64	62	65	62	62	62	61	43	40	37	36	28	
27	32	35	38	34	34	34	41	52	66	60	61	66	68	66	67	60	57	58	42		32	28	30	34
28	34	34	34	34	34	34	38		57	67	62	67	66	67	65	60	58	66	37	34	34	34	32	34
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	28	28	28	28	28	26	26	28	28	26	27	26	26	28	28	28	26	22	22	25	26	28	26
MED	34	34	34	34	36	35	34	52	60	64	65	66	67	66	62	62	61	52	40	34	34	34	36	34
U Q	40	43	42	45	43	43	43	53	65	67	67	68	70	68	66	65	62	60	44	40	37	36	40	42
L Q	32	34	33	32	34	33	30	47	58	59	62	63	62	62	60	60	56	44	31	30	32	32	32	34

HOURLY VALUES OF fEs AT Wakkanai

FEB. 2010

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	G	G	G	G	G	11	G		G	39	42	43	44	35	40	42	49	38	38	G	G	G	G	G
2	G	G	G	G	G	G	G		44	32	N	G	51	40	35	57	114	40	28	G	27	G	G	G
3	G	G	25	G	27	20	G		28	33	40	G	G	G	G	G	28	G	24	27	26	G	G	G
4	G	25	29	G	G	G	G	G		44	39	G	G	36	39	38	44	46	26	60		29	G	G
5	G	G	G	G	G	G	G	26	34	G	G	G	37	G	G	G	G	23	G	G	26	32	G	G
6	G	G	G	G	G	G		G	G		G	G	G	G	36	32	G	11	G	G	G	G	28	G
7	23	G	26	G	G	G	G	28	46	39	G	G	G	G	G	G	G	11	G	G	G	G	G	G
8	G	G	G	G	G	G	G		44	32	G	G	37	G	G	G	G	23	G	G	G	G	G	G
9	G	G	G	G	G	G	G	G			G	55	G	40	35	G	G	32		G	G	G	G	G
10	G	G	G	G	G	G	G		29		34	36	G	G	34	32	G	33	29	28	27	G	G	G
11	G	G	26	G	G	G	G		29	34	36	36	G	35	35	32	34	32	30	27	27	G	G	G
12	G	G	G	G	25	G	G		29	G	34	36	G	36	35	31	G	G	G	G	G	26	27	G
13	G	G	G	G	G	G	G	28	G	34	G	G	G		48	39	38	34	40	37	G	26	29	G
14	G	G	G	G	G	G	G		G	38	38	G	G	41	40	39	33	G	G	G	G	G	25	30
15	G	G	G	G	G	G	G	G	G	G	G	G	44	G	G	G	G	34	39	36	34	28	26	25
16	33	G	G	G	G	G	G		G	39	G	G	G	G	G	G	G	G	29	51	60	45	34	32
17	G	G	25	G	G	26	G	G	N	G	N	G	38	G	42	34	34	42	34	G	G	46	30	G
18	G	G	G	G	G	G	G	G	G	G	G	G	G	G		G	G	27	21	G	G	G	G	G
19	G	G	G	G	G	G	G	48	G	50	37	37	N	G	G	G	36	G	G	G	G	G	26	G
20	G	G	G	G	G	G	G		35	34		37		G	G	32	28	G	G	G	G	G	G	G
21	G	G	G	G	G	G	G		31	34	35	53	G	G	G	33	G	G	28	24	G	G	G	G
22	G	G	G	G	G	G	G	G	G	G	G		38	G	G	33	34	28	11	11	29	G	G	G
23	G	G	G	23	G	G	G	35	34	35	G	G	39	G	39	32	30	G	26	25	G	G	G	26
24	G	G	G	G	G	G	G	28	40	42	37	G	53	G	51	39	33	40	72	39	36	27	24	25
25	G	26	G	G	G	G	G	G	39	38	G	38	38	41	G	G	29	G	G	34	29	33	28	31
26	26	26	G	G	G	G	G	26	34	35	G	G	37	38	50	G	G	G	G	28	25	G	G	33
27	26	26	G	G	G	G	G	27	32	34	36	G	37	G	G	G	30	G	11		G	G	G	G
28	26	G	G	G	G	G	G	29	33	35	G	G		G	37	G	33	G	G	G	G	G	G	G
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	28	28	28	28	28	27	17	25	25	25	27	25	27	27	28	28	28	27	27	27	28	28	28
MED	G	G	G	G	G	G	G	26	29	34	G	G	G	G	35	32	28	17	21	G	G	G	G	G
U Q	G	G	G	G	G	G	G	28	34	38	36	36	38	36	39	33	34	33	29	28	27	26	26	13
L Q	G	G	G	G	G	G	G	G	G	16	G	G	G	G	G	G	G	G	G	G	G	G	G	G

HOURLY VALUES OF fmin AT Wakkanai

FEB. 2010

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

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

HOURLY VALUES OF foF2 AT Kokubunji

FEB. 2010

LAT. 35°43.0′N LON. 139°29.0′E SWEEP 1.0MHz TO 30.0MHz AUTOMATIC SCALING

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1		27	27	41	34			37	54	45	59	54	61	62	66	54	49	39	28			30	30	27
2	27	30		28	28		23	37	44	59	59	72	58	59	58	59	54	42	27	27	27	30	34	32
3	31	34	27	34	44			44	54	56	68	80	96	71	61	58	59	42	32	28				24
4	27		26	26		30		39	55	55	57	67	81	68	62	58	58	37	A		A	34	41	32
5	30	27	27	32	36		30	44	44	52	51	71	80	74	69	60	51	42	A	A	42	41	45	52
6	44		42	54	45	31	32	44	54	53	66	55	72	61	59	61	64	44	34	32	27	26	27	32
7	25	27		30	32			44	56	62	59	76	82	85	77	60	59	44	32	32		27		27
8	32	28	30	28	34			45	59	46	59	66	60	61	57	62	55	51	37		36	31	28	21
9	34	32	30	32	39	26		46	59	59	55	62	74	76	81	65	52	41			28	31	32	32
10	31	30	32	34	34	30	26	46	61	59	72	69	67	76	74	64	54	49	36	34	36	33	34	21
11	31	34	31	34	39	30		44	55	61	72	74	93	75	69	63	57	53	34	30	32	32	31	32
12	34	32	34	34	37	28	28	47	63	61	73	62	86	87	72	64	60	55	45	31	28	27		28
13	30	28	30	28	32			49	58	67	71	75	80	85	76	66	58	56	39	34	38	27	31	34
14	34	34	34	34	34	27		51	53	69	86	62	67	86	82	68	69	58	42	30	27		27	32
15	32	27		32	27			59	66	62	66	67	80	78	76	75	60	49	39	42	41	31	42	45
16	38		27		27		28	63	62	66	80	93	97	82	82	77	66	58	51	54		36	32	36
17	32	A			36	27	32	52	71	78	87	76	73	96	78	66	66	59	47	A		43	34	44
18	46	42	42	43	44	42	44	59	72	68	66	68	78	69	69	68	74	67	44	39	32	30	34	
19	34	34	36	44	44	27	31	53	62	64	68	62	76	81	C	69	64	57	42	44	36		32	36
20	36	36	32	30	32	30	36	65	80	85	88	67	69	64	61	66	64	61	44	37	44		27	28
21	34	32	32	34	44	42	41	52	64	73	72	67	74	77	76	68	65	59	52	38	39		27	32
22	32	32	48	32	32	28	32	54	67	80	78	68	68	78	85	68	68	74	34		30		31	36
23	32	30	32	31	34	34	38	54	73	84	91	102	86	81	62	69	66	58	39	42	44	32	32	39
24	35	39	34	34	34	48	34	62	59	71	77	75	82	72	67	74	65	A	47	28	34	A	36	34
25	37	36	36	27	27	38			63	69	69	77	66	77	67	68	66	62	46	34	A	37	33	36
26	36	34	34	32	32	32	39	53	65	67	71	61	65	65	66	67	65	58	52	46	38	A		
27	30	32	32	30	32	32	36		62	64		58	66	69	67	68	57	61	55	34			28	30
28	32	30	30	28	31	27	34	52	62	65	67	66	77	75	69	65	58	55	49		A	32	26	34
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	27	24	24	26	27	19	17	26	28	28	27	28	28	28	27	28	28	27	25	20	19	19	24	26
MED	32	32	32	32	34	30	32	50	62	64	69	68	75	76	69	66	60	55	42	34	36	31	32	32
U Q	35	34	34	34	39	34	37	54	64	69	77	75	81	81	76	68	65	59	47	40	39	34	34	36
L Q	31	29	30	30	32	27	29	44	55	59	59	62	67	68	62	61	57	44	34	30	28	30	28	28

HOURLY VALUES OF fEs AT Kokubunji

FEB. 2010

LAT. 35°43.0′N LON. 139°29.0′E SWEEP 1.0MHz TO 30.0MHz AUTOMATIC SCALING

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	G	G	G	G			G	26	33	G	42	G	45	G	42	G	G	G	G		G	G	G	G
2	G	G		G	G	G	G	30	33	G	G	G	G	44	45	39	G	25	G	G	G	G	G	G
3	G	G	G	G		G	24	G		38	38	G	41	62	G	44	30	27	G	G		G	G	G
4	G		26	G	G	G	G	G		G	G	G	50	G	G	34	39	31	34	G	28	G	24	26
5	28	G	24	G	29	G	G	G	G	40	G	G	40	G	G	G	G	27	33	33	G	27	G	31
6	G		G	G	G	G	G	G	G	G	41		51	40	G	34	G	G	G	G	G	G	G	G
7	23	G	31	G	G		G	31	60	60	G	G	G	G	G	35	30	G	G	G		G	G	G
8	G	G	G	G	G		G	G	G	G	43	43	43	G	G	G	G	27	24	37	G	G	G	G
9	G	G	G	G	G	G		G	G	G	G	45	G	G	G	35	41	42	31		G	G	G	G
10	G	G	G	G	G	G	G	G	G	42	G	G	40	G	46	40	33	25	26	G	G	G	G	G
11	G	G	G	G	G	G		G	G	G	G	G	G	G	G	G	35	28	23	25	G	G	G	G
12	24	G	G	G	G	G	G		G	G	G	G	G	G	G	G	G	34	31	28	G	G	G	G
13	G	G	G	G	G	G	G	40	G	G	39	38	G	G	47	38	41	29	G	G	24	24	34	G
14	23	23	G	G	G	G	G	G	G	G	G	G	40	50	G		33	G	G	G	G		G	G
15	G	G	G	G	G		G	G	G	G	G	40	G	G	42	40	52	G	G	G	G	G	G	G
16	G	G	G		G	G	22	29	G	G	41	47	51	40	G	39	35	G	G	28	60	G	G	G
17	G	30	37	37	G	G	G	29	46	G	G	45	G	46	47	41	38	35	29	70	40	23	G	28
18	G	G	G	G	25	28	G	30	G	G	G	41	G	G	37	G	37	25	31	G	G	G	G	
19	G	G	G	G	G	G	G	G	G	36	48	52	50	40	C	53	40	35	29	G	24		G	G
20	G	G	G	G	G	G	G	G	G	35	G	40	40	G	G	G	G	G	G	G	25	G	G	G
21	G	G	G	G	G	G	G	26	57	G	G	G	G	G	G	G	31	35	35	27	29		24	G
22	25	25	24	G	G	G	G	29	G	G	G	45	40	39	44	42	36	26	35		G		G	G
23	G	G	G	G	G	24	G	G	33	G	G	G	G	G	G	42	G	33	G	G	G	G	23	G
24	25	G	24	G	G	25	G		G	G	G	G	G	G	G	43	53	70	43	31	58	69		33
25	24	G	G	24	G	G	G	G	38	G	G	G	41	G	G	G	G	G	20	G	33	G	G	28
26	G	G	G	G	23	G	G	G	33	G	G	41	G	G	G	47	38	36	34	G	G	37		
27	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	48	38	38	30	G			G	G
28	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	35	G	33	26	G	72	23	G	G
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	26	27	27	26	24	26	26	26	28	28	27	28	28	27	27	28	28	28	25	25	23	26	26
MED	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	35	33	27	25	G	G	G	G	G
U Q	12	G	G	G	G	G	G	29	33	G	19	41	41	39	42	42	38	34	31	27	28	23	G	G
L Q	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G

HOURLY VALUES OF fmin AT Kokubunji

FEB. 2010

LAT. 35°43.0′N LON. 139°29.0′E SWEEP 1.0MHz TO 30.0MHz AUTOMATIC SCALING

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

HOURLY VALUES OF foF2 AT Yamagawa

FEB. 2010

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	25	28	49	34	32				50	59	57	72	76	76	69	59	59	47	35	32	30	34	22	30
2	28	28	32	30	34			30	50	51	45	86	61	67	66	62	59	48	35	29	26	28	28	28
3	28	30	28	44	53			29	60	58	58	81	93	95	58	72	66	52	45	34	32	29	26	26
4	26			28	26	25		30	48	57	51	66	81	76	72	66	59	48	42	A			29	29
5		26	25	26	32			32	50	48	50	48	76	87	90	72	60	51	40	36	29	26	A	
6	28	25	31	32	29	34	36	45	60	56	57	66	66	70	66	60	62	57	42			A	A	
7		30	25	32	34			30	47	56	62	65	75			74	61	53	45		36	34	26	30
8	34	26	31	30	30	28		31	49	55	60		66	58	61	71	55	58	45	37	36	29	30	28
9	30	34	37	40	37			30	40	60	67	64	75	86	93	60	58	48	47	34	30	30	32	28
10		34	28	34	34	30		34	56	58	61	70	77	87	91	86	67	63	49	40	38	42	34	
11	28	30	30	32	37	34		36	52	55	69	87	75	81	72	68	71	61	54	38	41	40	31	30
12	32	A	34	33	41			34	54	58	58	72	81	84	85	72	62	55	57	40	34		26	29
13	30	30	29	30	32	34		37	50	64	72	78	78	81	91	82	69	61	54	36	36	33	34	
14	32	32		A		34	49	39	54	62	88	70	68	80	85	108	86	68	55	40	26	30	34	41
15	34	37	40	34	30	28	28	44	66	64	76	66	78	92	75	72	65	57	54	45	47	42	42	42
16	43	34			29	49	30	45	54	61	72	88	94	89	87	86	74	61	67		52	43	34	29
17	32	26	32	32	37	26		42	67	76	75	74	75		80	72	74	71	51	A	37	36		36
18		37		36	59		34	42	52	64	70	77	85	86	86	92	88	72	46	37	43		26	32
19	A	32	49	34	36	25		44	54	66	60	80	76	77	90	92	76	60	52	51	49	34	32	34
20	34	34	34		28	26	28	41	67	81	82	71	74	70	81	75	65	61	55	43	44	44	30	
21	30	28	32	28	34	34	31	41	61	63	70	70	74	81	95	92	81	63	56	54		34		
22			28	30	30		28	46	66	75	66	64	67	77	87		76	65	65	A	A	A	36	
23	32	32	32	32	34			43	63	92	88	81	80	68	72	81	71	64	55	37	34	43	37	33
24	41	38	32	34	34	32	28	42	54	66	77	81	74	81	71	76	73	64	59	40	36	37	34	38
25	34	34	32	32	38	30	34	45	54	65	78	90	71	80	78	78	75	63	58	54		37	37	36
26	37	37	34	34	34	32	30	46	67	68	77	71	62	65	75	72	71	65	61	52	A	A	38	28
27	32	30	34	34	31		28	45	60	64	72	74	63	68	70	76	76	70	53	52		A		26
28	30	34	26	28	29	30	28	46	54	58	67	77	87	90	87	85	76	53	51	A	42	41	42	42
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	22	25	24	25	27	17	13	27	28	28	28	27	28	26	27	27	28	28	28	21	21	21	23	21
MED	32	32	32	32	34	30	30	41	54	62	68	72	75	80	80	74	70	61	52	40	36	34	32	30
U Q	34	34	34	34	37	34	34	45	60	65	75	81	79	86	87	85	75	64	55	48	42	41	36	36
L Q	28	28	28	30	30	27	28	32	50	57	59	66	69	70	71	71	61	53	45	36	31	30	28	28

HOURLY VALUES OF fEs AT Yamagawa

FEB. 2010

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	G	G	G	G				G	30	32	42	45	49	G	60	39	G	G	G	G	G	G	G	G
2	G	G	G	G	G		G	G	30	33	43	38	38	46	42	50	42	30	32	29	G	G	G	G
3	G	G	G	G	11	22	G	G		G	41	43	41	42	40	40	43	43	G	G	G	G	G	G
4	G	G		G	G	G	G	G	G		G	45	50	50	44	42	36	30	28	33	33	24	G	G
5	25	25	G	G	G	11	G	24	G	G	40	44	G	44	G	37	34		G	29	G	G	48	39
6	G	G	G	G	G	G	G	G	G	36	53	45	42	40	G	G	39	35	33	38	24	40	39	49
7	32	25	G	G	G	G	G	32	46	68	54	48	54		G	48	36		G	G	G	G	G	G
8	G	G	G	G	G	G	G	G	32	39	38	45	44	G	G	36	42	28	G	G	G	G	G	G
9	G	G	G	G	G	G		G	29	33	G	G	40	G	38	G	34	33	G	G	G	G	G	29
10	28	G	G	G	G	G		G	G	G	G	41	43	46	41	44	42	33	27	G	G	G	G	27
11	30	G	G	G	G	G		G		34	36	G	44	46	50	42	37		11	G	G	G	G	G
12	G	35	28	G	G	G	G	24		G	G	48	48	45	49	G	41	N	33	28	G		G	G
13	G	G	G	G	G	G	G	G	29	38	47	53	57	53	42	40	35	G	G	28	26	24	G	27
14	G	G	34	50	36	G	G	G	G	41	41	40	44	50	48	48	48	36	35	28	G	G	G	G
15	G	G	G	G	G	G	G	G		40	G	53	45	40	48	49	37	40	26	G	G	G	G	G
16	G	G	G		G	G	G	G		35	42	44	G	G	41	43	76	50	37	32	G	G	G	G
17	G	G	G	G	G	G		G	32	G	G	39	48		44	41	42	44	40	41	G	G	29	G
18	G	G	G	G	G	G	G	34	35	52	41	G	41	40	G	45	43		49	26	G	G	24	G
19	34	26	G	G	G	G		G	46	40	G	39	48	50	38	50	48	40	39	G	G		24	G	G
20	G	G	G		G	G	G	26	G	G	G	G	42	G	39	39	G	33	49	29	G	G	G	
21	G	G	G	G	G	G	G	G	30	G	G	G	G	G	48	44	40	33	27	23		G	G	G
22	G		G	G	G		G	G	N	G	G	G	G	49	51	51	56	58	40	72	60	48	30	G
23	G	G	G	33	G	28	30	G	G	G	G		G			G	34	G	G	G	28	G	G	G
24	G	G	G	G	G	G	G	G	G	42	42	40	46	G	46	43	G	34	25	G	G	G	G	G
25	G	G	G	G	G	G	G	G	G	G	G	42	41	39	G	42	36	33	G	G	34	G	G	G
26	G	G	G	G	G	G	G	G	G	36	G	40	G	40	G	38	35	32	G	32	88	41	30	G
27	G	G	27	23	G	G	G	G	G	41	G	N	41	41	45	G	42	44	G	40	30	33	26	G
28	G	G	24	G	G	G	G	G	G	37	37	39	50	G	39	42	52	34		72	41	G	34	G
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	27	27	26	27	25	22	28	22	27	28	26	28	25	27	28	28	23	27	28	27	27	28	27
MED	G	G	G	G	G	G	G	G	G	34	18	40	42	40	41	42	40	33	26	27	G	G	G	G
U Q	G	G	G	G	G	G	G	G	30	40	41	45	48	46	48	44	42	40	35	32	28	24	25	G
L Q	G	G	G	G	G	G	G	G	G	G	G	38	39	G	G	37	35	30	G	G	G	G	G	G

HOURLY VALUES OF fmin AT Yamagawa

FEB. 2010

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	14	14	15	14	15			18	17	14	14	15	17	15	14	14	14	14	16	15	15	16	16	15
2	15	15	15	14	14		15	15	16	14	14	15	16	17	15	17	14	14	14	14	14	14	14	15
3	16	14	14	14	15	16	14	15	15	14	14	14	16	14	14	16	14	14	15	15	15	15	17	14
4	14	15		14	15	15	15	16	15	15	15	17	16	18	14	15	14	14	14	14	15	15	15	15
5	17	15	15	14	15	14	17	16	14	14	14	15	16	15	15	15	14	14	15	15	15	15	14	15
6	15	16	14	14	14	15	15	15	23	14	14	15	15	18	18	16	14	14	15	15	15	14	14	15
7	15	14	15	15	15	14	15	14	14	14	15	18	26		21	14	15	14	15	20	16	15	17	15
8	14	15	14	16	15	15	15	15	14	14	14	16	16	21	18	15	14	14	15	15	16	15	15	14
9	14	14	14	15	14	15		15	14	14	14	14	15	15	16	17	16	14	17	17	15	15	15	14
10	14	16	16	14	14	15		15	15	14	14	17	14	16	14	15	14	16	15	14	14	14	16	15
11	15	15	14	15	16	14		15	15	15	14	16	18	17	17	16	14	15	15	14	15	15	16	16
12	14	14	17	14	15	14	17	15	24	14	14	15	17	18	17	16	14	14	14	14	18		16	16
13	14	15	15	16	14	15	15	15	14	14	16	18	18	18	17	17	15	14	17	14	14	15	15	15
14	18	17	15	15	14	15	15	16	14	15	16	18	20	20	18	17	14	14	14	15	18	15	16	14
15	14	15	14	17	15	15	16	16	20	15	20	20	21	21	17	15	14	14	17	15	15	15	15	17
16	15	15	17		15	14	15	15	14	15	16	18	17	20	18	14	15	14	15	15	16	14	14	16
17	15	15	15	14	15	15		16	14	18	17	18	20		17	17	14	14	14	14	15	15	15	15
18	15	15	15	14	16	16	15	15	14	15	18	18	18	17	18	15	14	14	14	18	16	14	16	14
19	14	15	15	14	15	15		16	22	14	15	18	20	18	17	15	14	14	14	14	15	15	15	16
20	15	15	15		16	16	15	16	14	15	16	15	20	20	16	17	14	15	14	14	15	15	15	
21	15	16	16	15	14	14	15	16	15	15	15	20	34	15	17	16	14	14	14	16		14	17	15
22	16		15	14	14		15	16	14	14	14	17	16	42	17	14	15	14	14	14	14	14	15	18
23	15	15	18	14	16	15	15	16	14	14	14	15	16	15	16	14	14	14	17	15	15	14	15	16
24	14	15	15	14	15	15	15	15	14	14	14	17	18	18	16	14	14	14	16	14	18	15	14	15
25	15	16	14	14	14	15	15	15	14	16	16	17	18	18	16	15	14	14	15	15	14	14	15	15
26	15	20	15	18	15	14	16	16	14	15	14	20	20	18	17	16	15	14	23	14	14	14	15	15
27	20	16	16	14	17	14	15	16	14	14	14	15	17	16	18	16	14	14	16	14	15	14	15	17
28	15	15	15	15	15	14	15	16	14	14	14	17	17	17	17	17	14	15	14	14	14	15	14	15
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	27	27	26	28	25	22	28	28	28	28	28	28	26	28	28	28	28	28	28	27	27	28	27
MED	15	15	15	14	15	15	15	16	14	14	14	17	17	18	17	16	14	14	15	14	15	15	15	15
U Q	15	16	15	15	15	15	15	16	15	15	16	18	20	18	17	16	14	14	16	15	16	15	16	16
L Q	14	15	14	14	14	14	15	15	14	14	14	15	16	16	16	15	14	14	14	14	14	14	15	15

HOURLY VALUES OF foF2 AT Okinawa

FEB. 2010

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1		23	29	34					46	62	84	104	100	87	94	78	71	56	46	35	37	30	28	
2		30		34	47				51	39	58	98	88	76	68	70	62	56	38					
3		28		44					48	56	66	90	123	112	111	101	75	77	52	42	30			
4					34	26		28	50	58	62	59	87	97	96	84	66	54	52	34				
5					32				44	51	52	60	82	108	138	125	81	55	50	32				
6	30				29			36	54	58	57	64	82	88	96	98	76	67	61	48	44	A		A
7		30	30	34	34				44	56	65	A	84	107	123	130	121	98	72	52		53	40	A
8				29	29	28		23	46	55	60	66	67	65	67	75	61	61	55	36	40	36	32	30
9		31	34	41				28	55	61	72	82	97	126	108	102	87	65	62	43	29			
10	26		32	36	38			30	50	58	56	73	92	110	137	118	110	88	88	52		44	A	
11					31	25		30	53	62	78	90	87	82	87	98	90	77	62	46	42	52	34	34
12	28		29	34	46			34	54	54	65	68	90	92	101	90	70	63	61	48	36			
13				28	32	31		35	53	64	77	90	85	102	111	108	106	94	65	45	32			
14	29		34		34		32	45	69	66	75	84	101	111	143	150	142	113	88	64	52	42		52
15	46	54	64	47	47	41	34	43	66	71	81	84	85	102	87	76	71	67	60	54	53	47		
16	A	36						42	62	58	70	86	101	108	100	104	98	83	76	65	66	51	33	
17		32	32	32	32			34	64	71	75	90	80	100	105	84	77	72	66	58		42	A	36
18		31	32	34	40	41		37	61	66	67	96	111	121	141	145	144	108	84	43	52	54		
19			29	32	32			41	51	61	78	86	104	102	110	121	110	88	84	84	76	66	52	44
20	52	53	53	32	34	29		42	67	80	85	97	87	101	108	111	88	68	62	54	53		30	30
21						29		36	58	60	68	85	96	118	141	145	131	104	88	78		A	A	A
22	A	A	A	42	44	31		46	67	65	70	81	82	87	108	121	85	61	73	53	41	34	40	
23				43	34			32	70	80	94	93	77	78	78	102	90	78	58	45	43	44	52	
24	44	32	32	32	34			38	58	68	75	91	88	112	118	105	90	81	72	63	52	43	44	42
25	34	34	34					38	58	62	80	98	96	100	114	111	105	80	71	76	64	45	43	44
26	44	43	39	38	34	43		44	56	67	72	86	80	72	84	90	72	72	77	66	51	45	34	
27	32		29	31	37			36	61	61	78	99	112	90	108	109	120	105	88	80	87	84	76	
28		66	50	45	38	32		42	53	61	70	94	108	120	128	120	92	66	55	52	45	A		44
29																								
30																								
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	10	14	16	20	22	11	2	23	28	28	28	27	28	28	28	28	28	28	28	27	21	17	13	9
MED	33	32	32	34	34	31	33	36	54	61	71	86	88	102	108	104	89	74	64	52	45	45	40	42
U Q	44	43	36	41	38	41	34	42	61	66	78	94	100	110	120	120	108	88	76	64	53	52	48	44
L Q	29	30	29	32	32	28	32	32	50	58	65	81	83	87	95	90	73	64	56	43	38	42	32	32

HOURLY VALUES OF fEs AT Okinawa

FEB. 2010

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	G	G	G	G					29	G	G	G	G	48	G	G	38	34	28	G	28	G	G	
2	G	G		G	11			G	31	36	39	42	40	39	49	64	42	30	34			G	G	
3		G	G	G					G	G	G	G	G	G	41	42	39	G	G	G	G			
4					G	G		G	G	G	G	44	47	49	G	G	G	G	G	G				
5		G	G		G	23		G	G	G	36	44	G	G	G	G		G	G	G		G		G
6	G		G		G			G	G	38	G	74	41	42	G	G	G	51	31	G	G	56		39
7	G	G	G	G	G			28	49	72	84	88	67	74	68	79	48	G	28	33	38	G	G	32
8	29	G	24	G	G	G		G	34	36	44	51	48	G	40	44	G	G	31	G	G	G	G	G
9	G	G	G	11	G			G	G	G	G	G	43	40	G	38	G	G	G	G	G			G
10	G		G	G	G	G		G	G	39	G	39	50	G	G	48	G	G	G	19		G	47	
11	G	28	G	G	G	G	G	G	G	G	G	G	G	48	39	43	41	35	29	G	G	G	G	G
12	G		28	G	G			G	G	G	37	G	41	G	50	54	38	G	G	G	G			
13			G	G	G	26	G	G	G	34	G	G	48	62	54	51	48	48	49	28	33			
14	G		G		G		G	G	G	G	G	40	40	48	76	82	44	40	26	20	G	G		G
15	G	G	G	G	G	G	G	G	G	G	G	39	39	G	G	48	39	G	26	G	G	G		34
16	34	G				G		G	G	G	G	G	G	50	G	42	50	42	28	30	G	G	G	G
17		G	G	G	G			G	G	G	43	G	G	48	49	G	G	34	29	G	G	31	38	33
18		G	G	G	G	G		G	39	50	40	44	47	50	42	G	36	G	G	36	G	G		34
19	40	28	G	G	G	G		G	48	G	44	39	48	55	50	G	G	40	51	54	G	25	G	G
20	G	33	35	27	G	G		G	34	G	G	G	G	G	G	G	G	G	32	G	G	G	G	G
21				29	25	G		G		G	37	G	50	G	G	39	G		G	26	35	57	53	54
22	50	52	33	G	G	G		G	G	G	G	G	G	45	48	48	42	G	G	11	G	G	G	
23	28			G	G		25	30	32	G	G	G	40	G	G	G	G	G	G	G	G	G	G	G
24	G	G	G	G	G	G		G	G	G	40	G	G	40	G	G	G	G	G	G	G	G	G	G
25	G	G	G	G		G		G	G	G	G	G	G	G	G	G	G	G	G	G	32	30	G	G
26	G	G	G	G	G	G		G	G	35	G	G	G	48	G	49	50	45	37	G	G	31	26	
27	G		G	G	G			G	G	35	G	39	G	G	40	G	36	52	72	80	28	20	G	G
28	G	G	G	G	G	G	G	G	G		G	48	48	51	G	44	45	39	33	51	50	41	44	28
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	21	19	23	23	24	17	6	26	27	27	28	28	28	28	28	28	27	27	28	27	24	23	18	19
MED	G	G	G	G	G	G	G	G	G	G	G	G	40	41	G	40	36	G	27	G	G	G	G	G
U Q	14	G	G	G	G	G	G	G	31	35	38	43	47	48	48	48	42	40	31	28	28	30	26	33
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

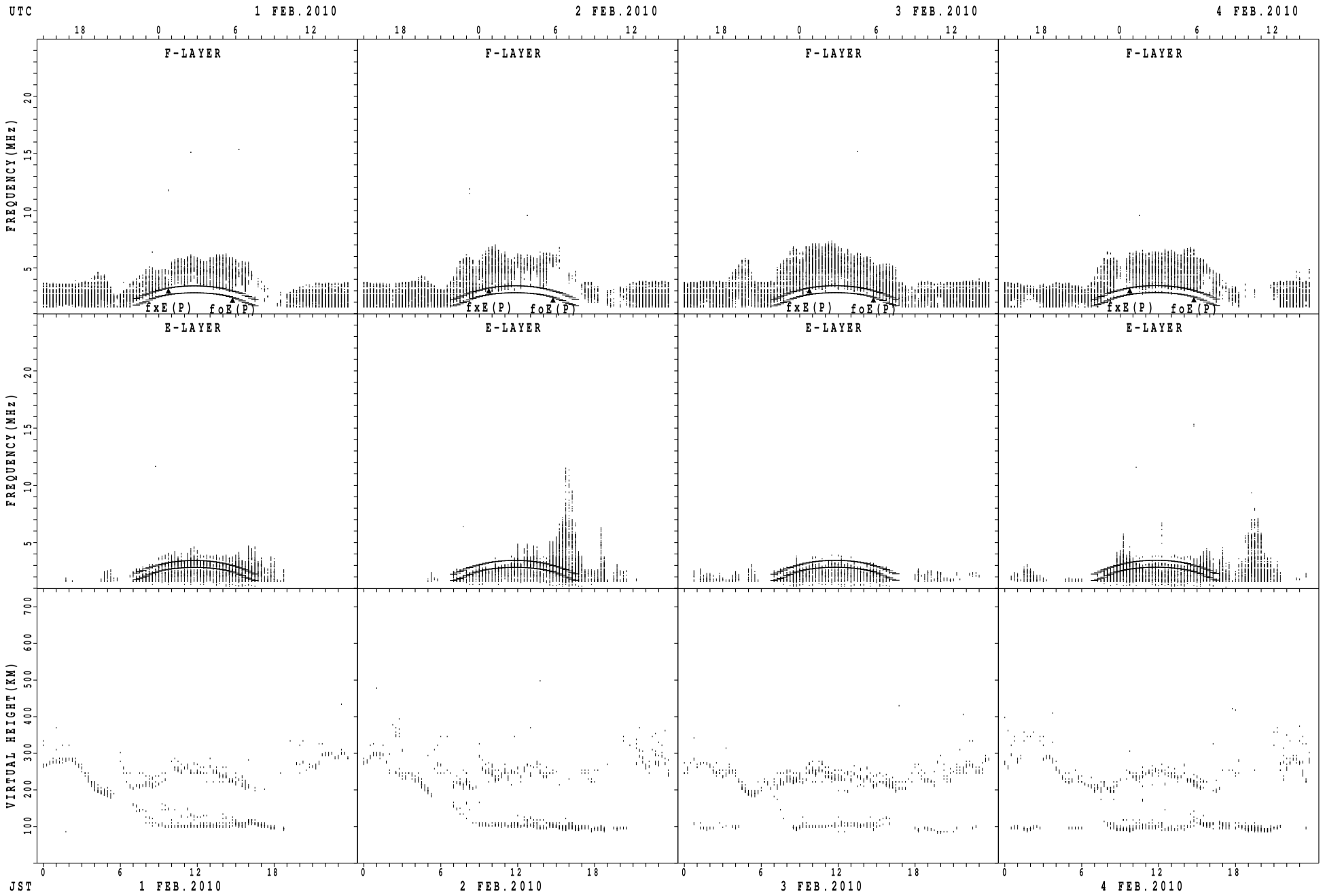
HOURLY VALUES OF fmin AT Okinawa

FEB. 2010

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

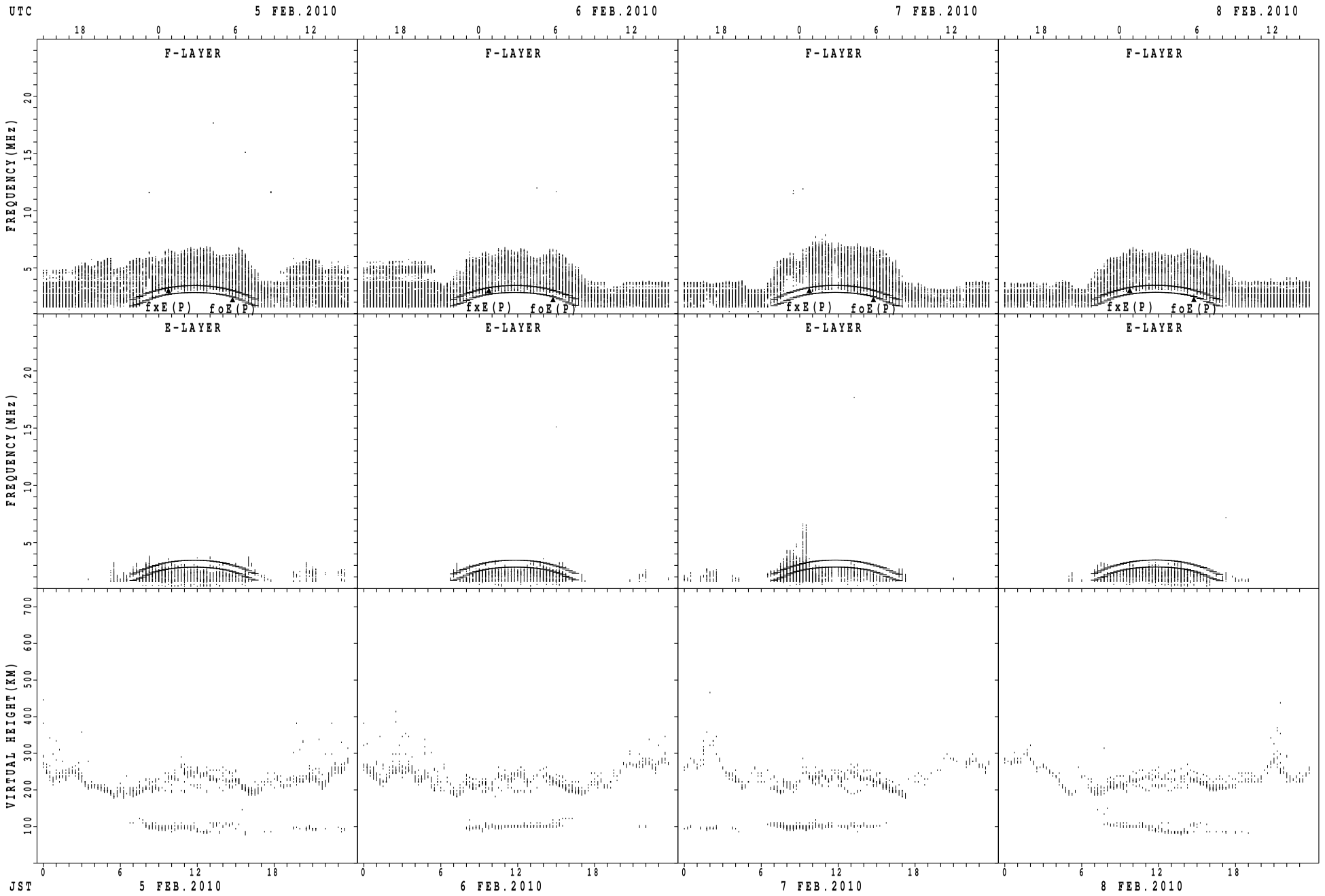
D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	18	21	16	15					24	14	18	22	24	18	26	21	15	14	15	15	14	14	18	
2	22	17		16	15			15	14	14	15	21	20	33	21	18	14	14	14			15	21	
3		15	15	15					22	14	18	20	21	22	17	27	21	15	17	15	16			
4					14	15		21	23	15	18	16	20	33	26	23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

SUMMARY PLOTS AT Wakkanai



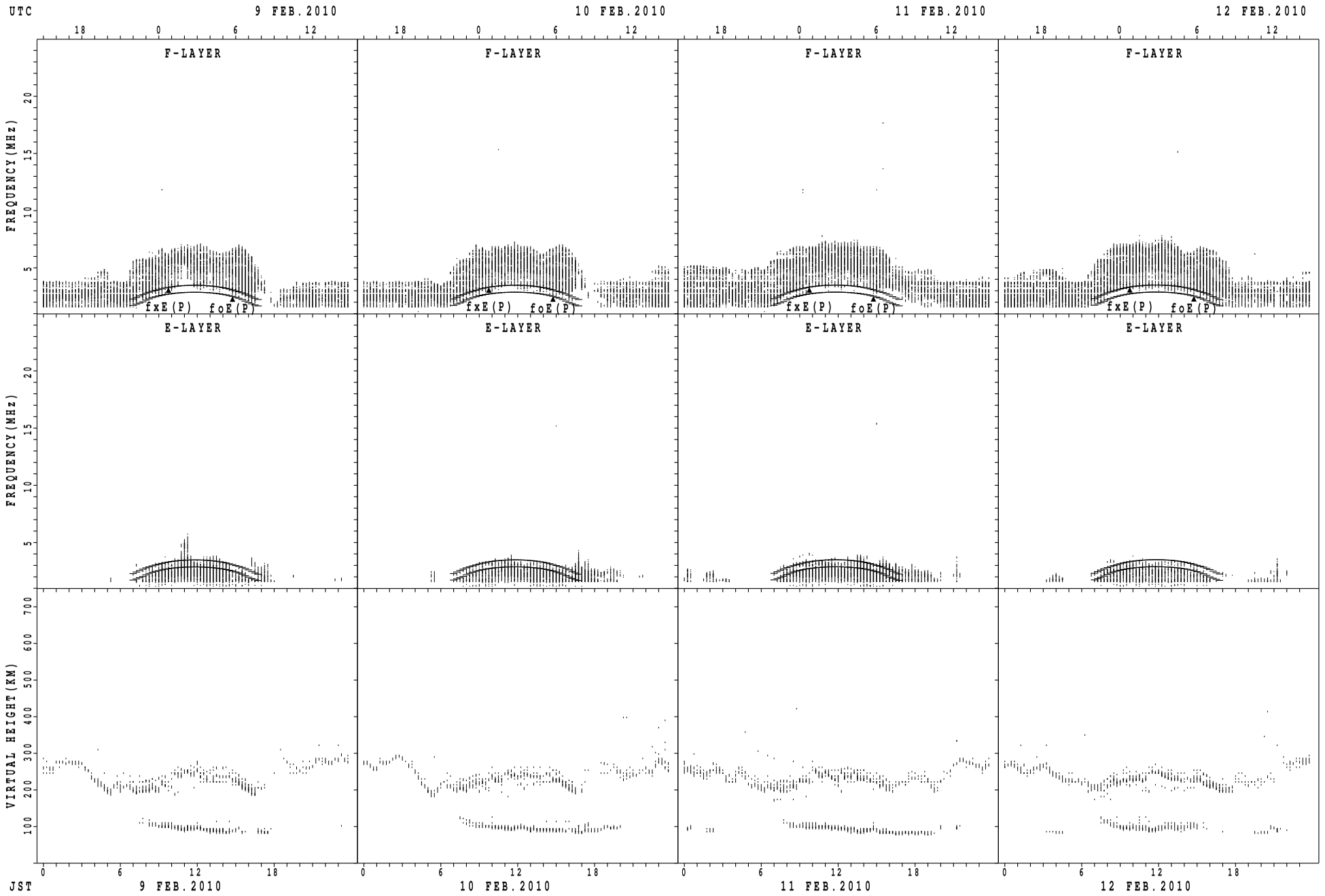
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



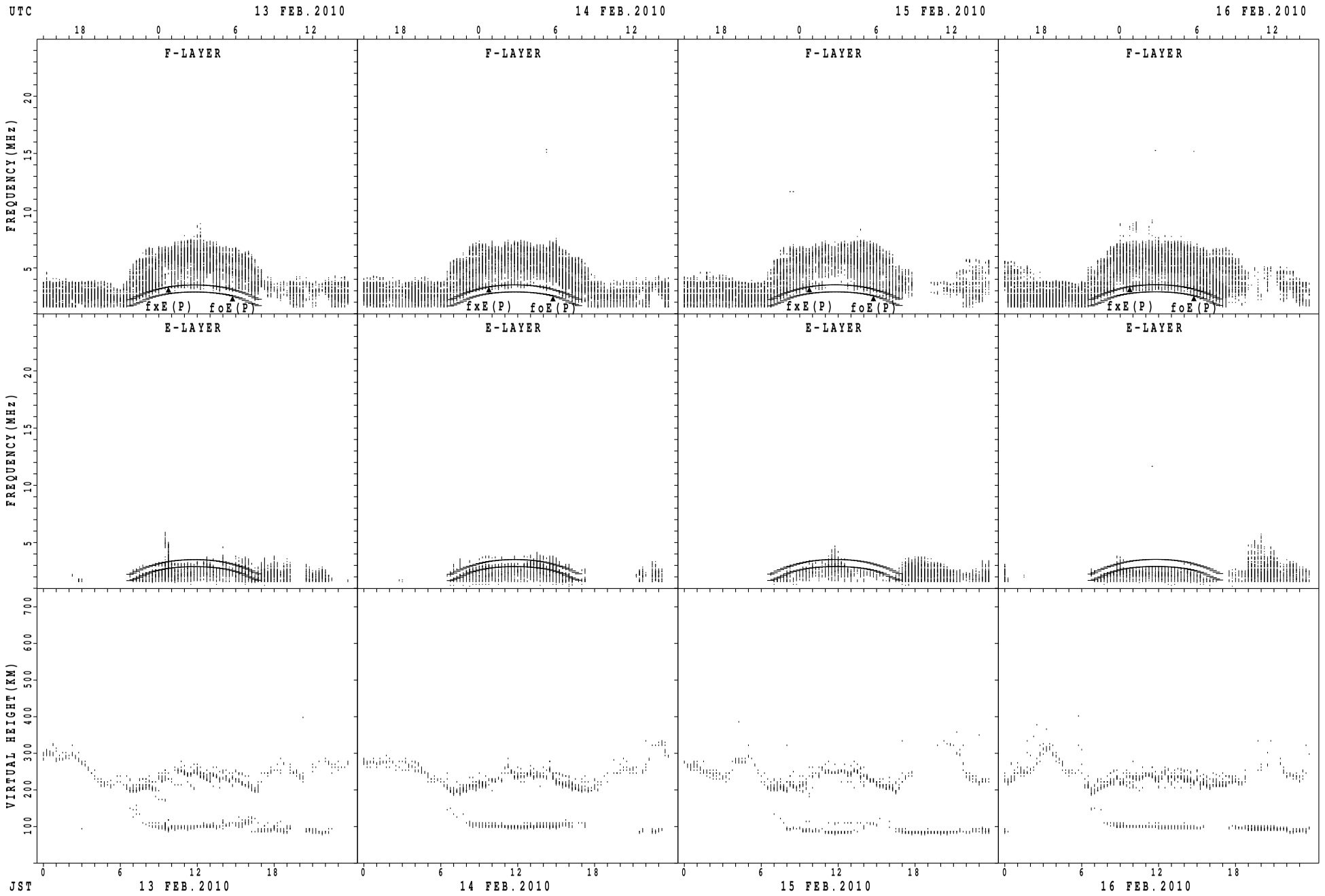
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



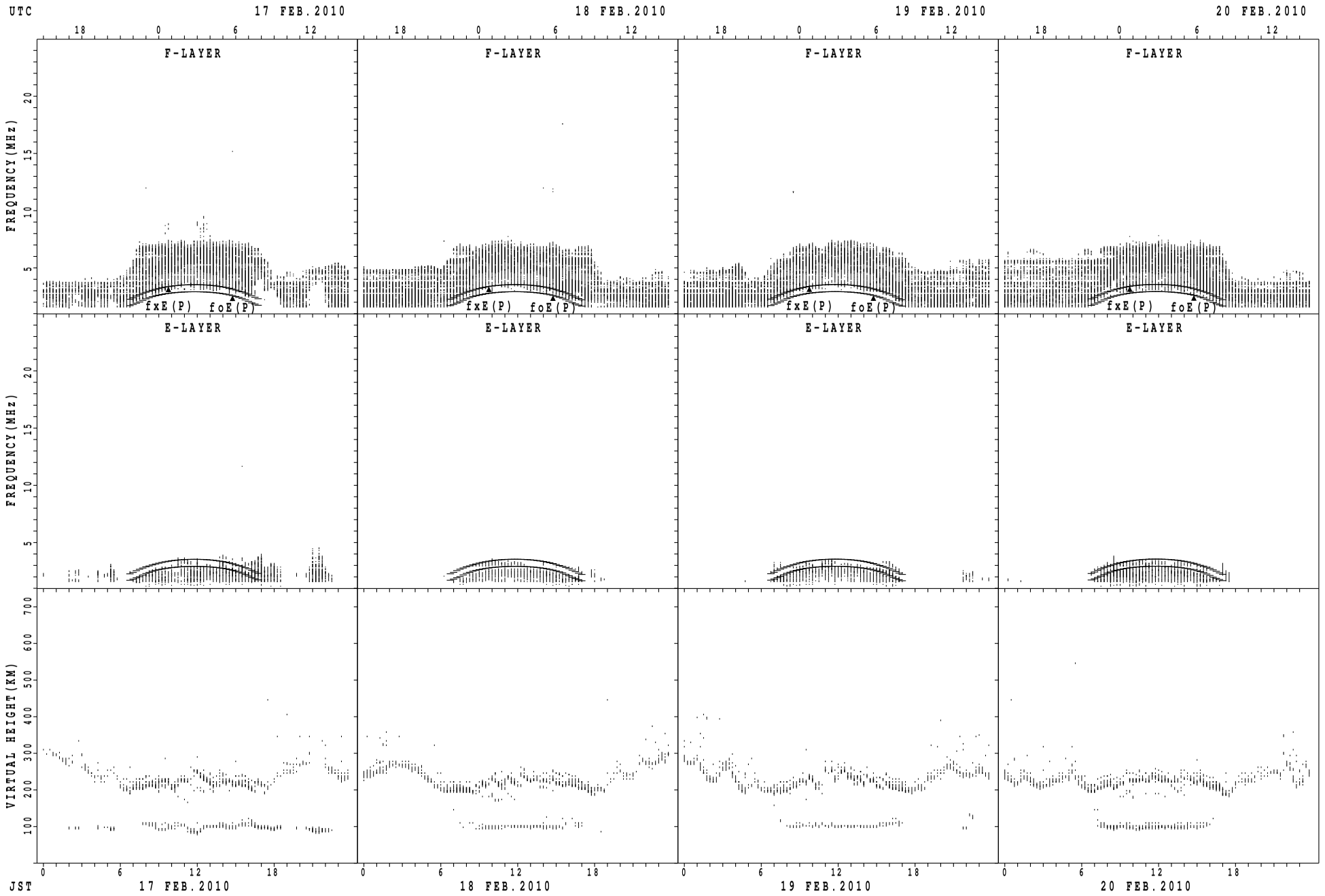
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



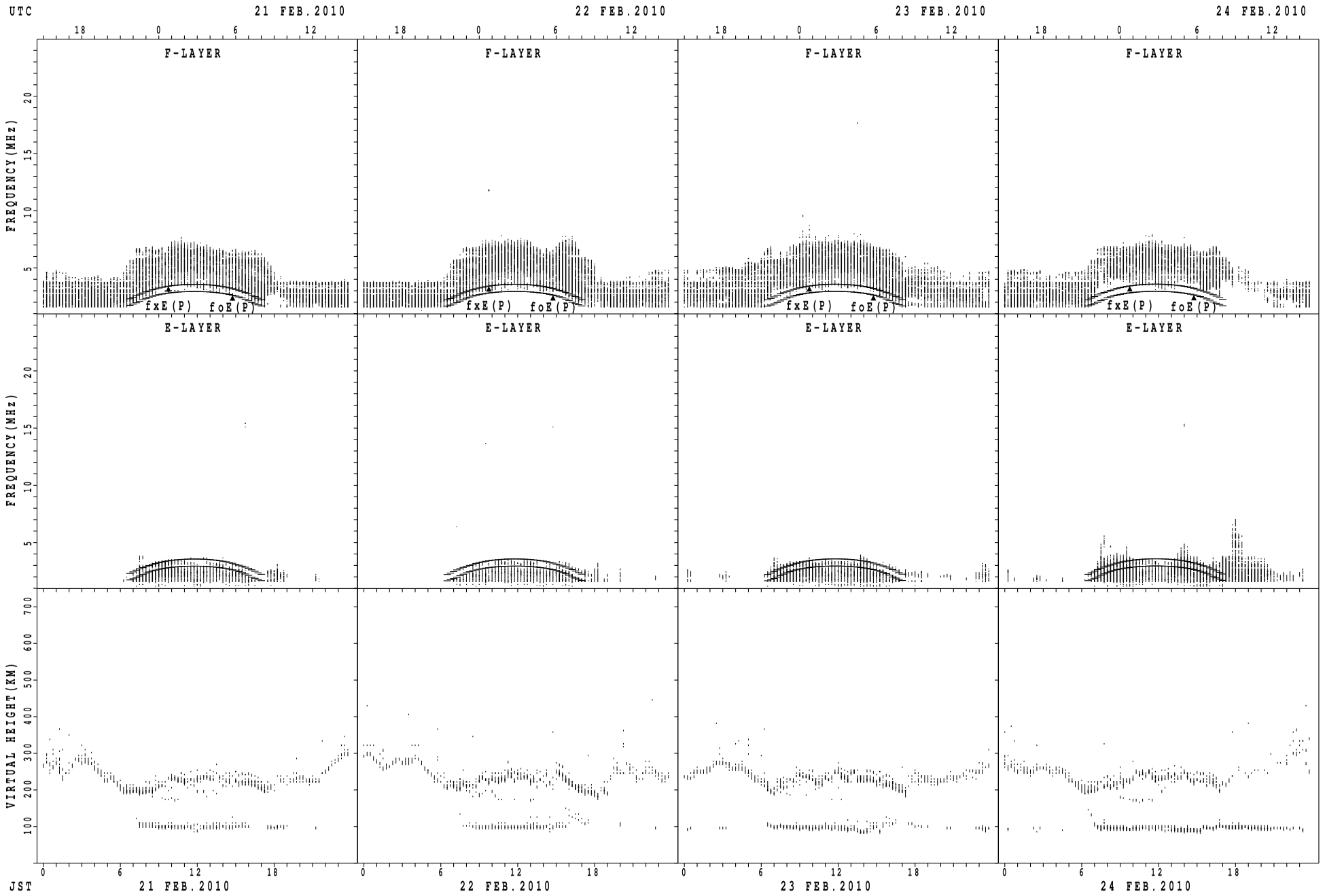
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



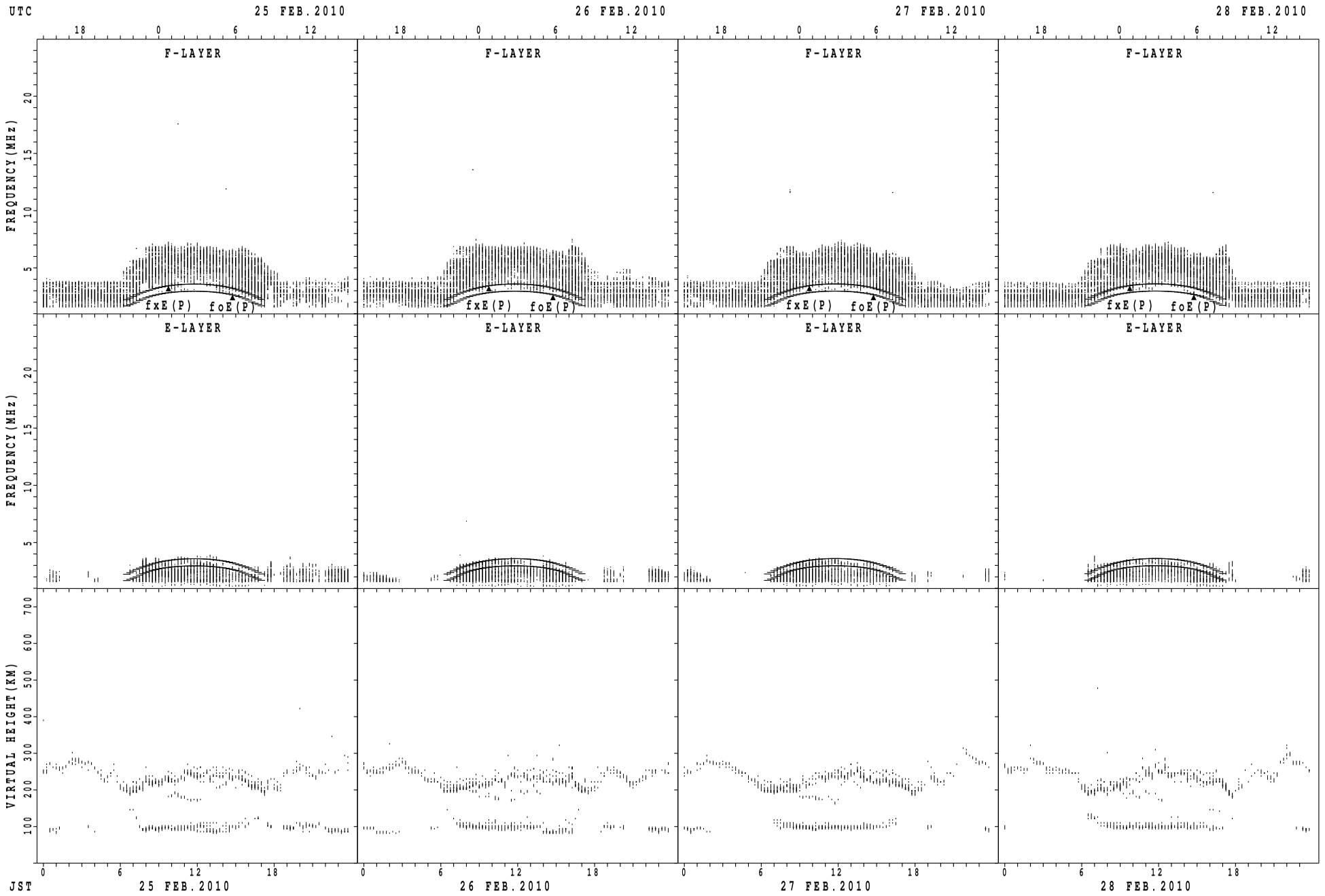
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



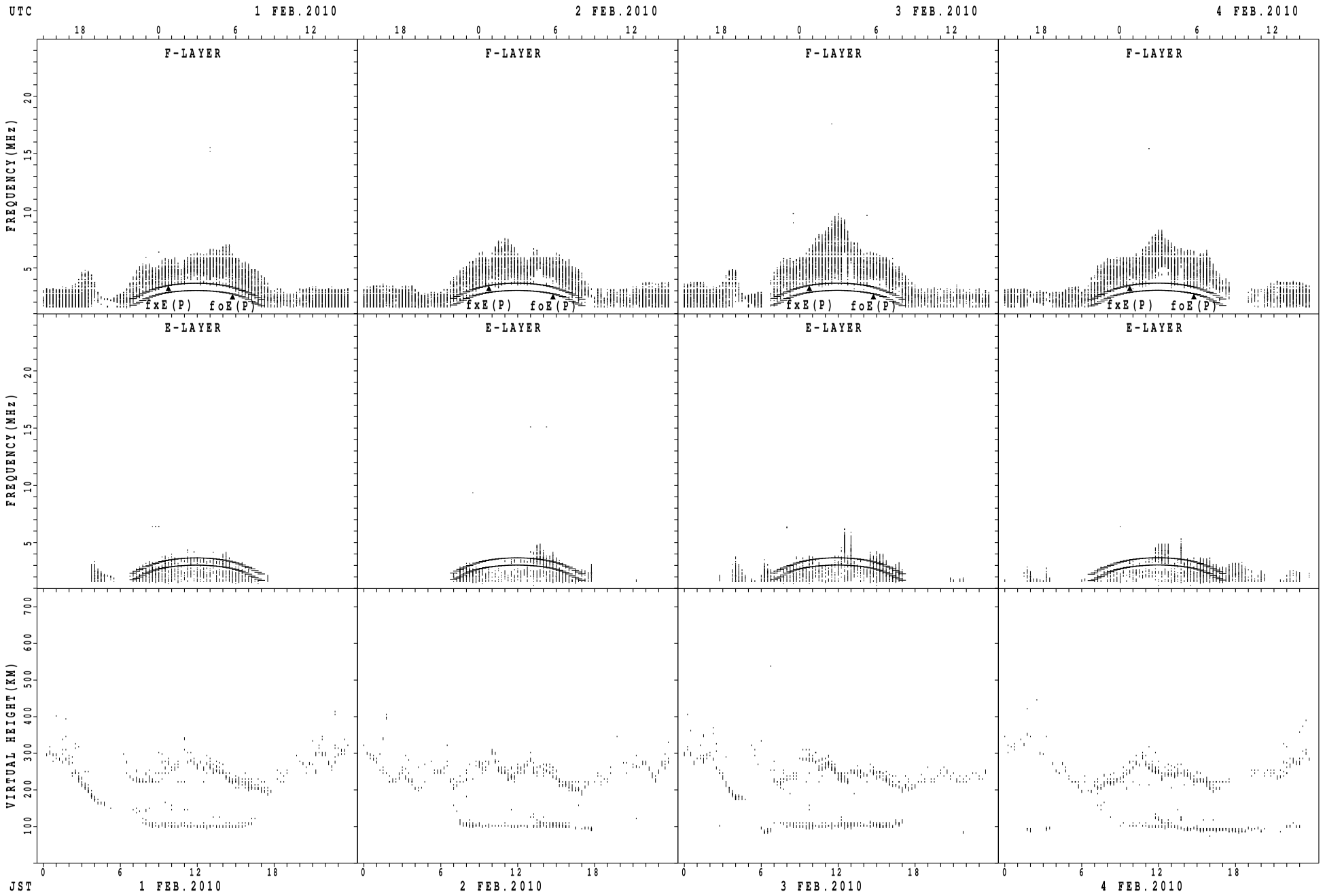
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



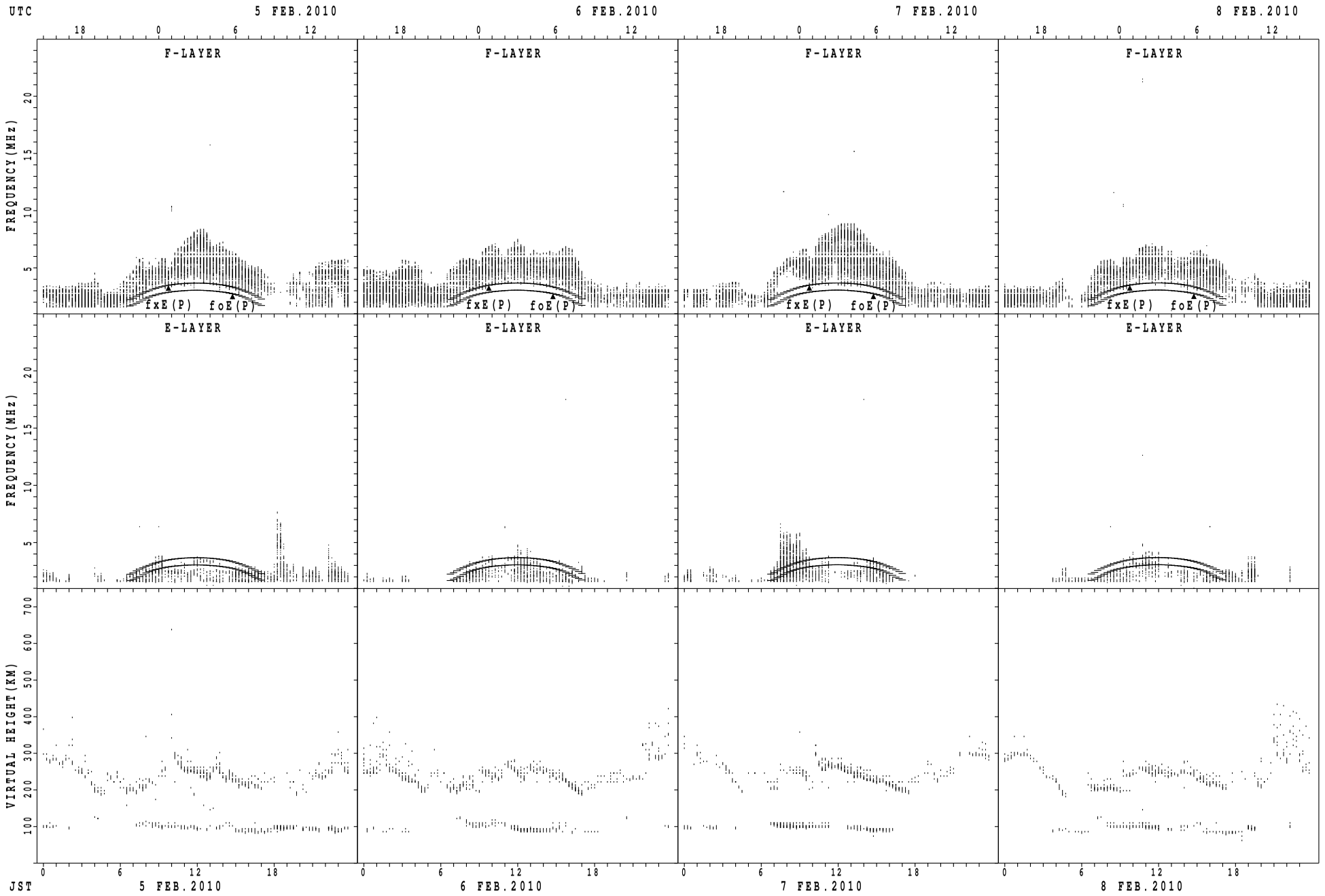
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



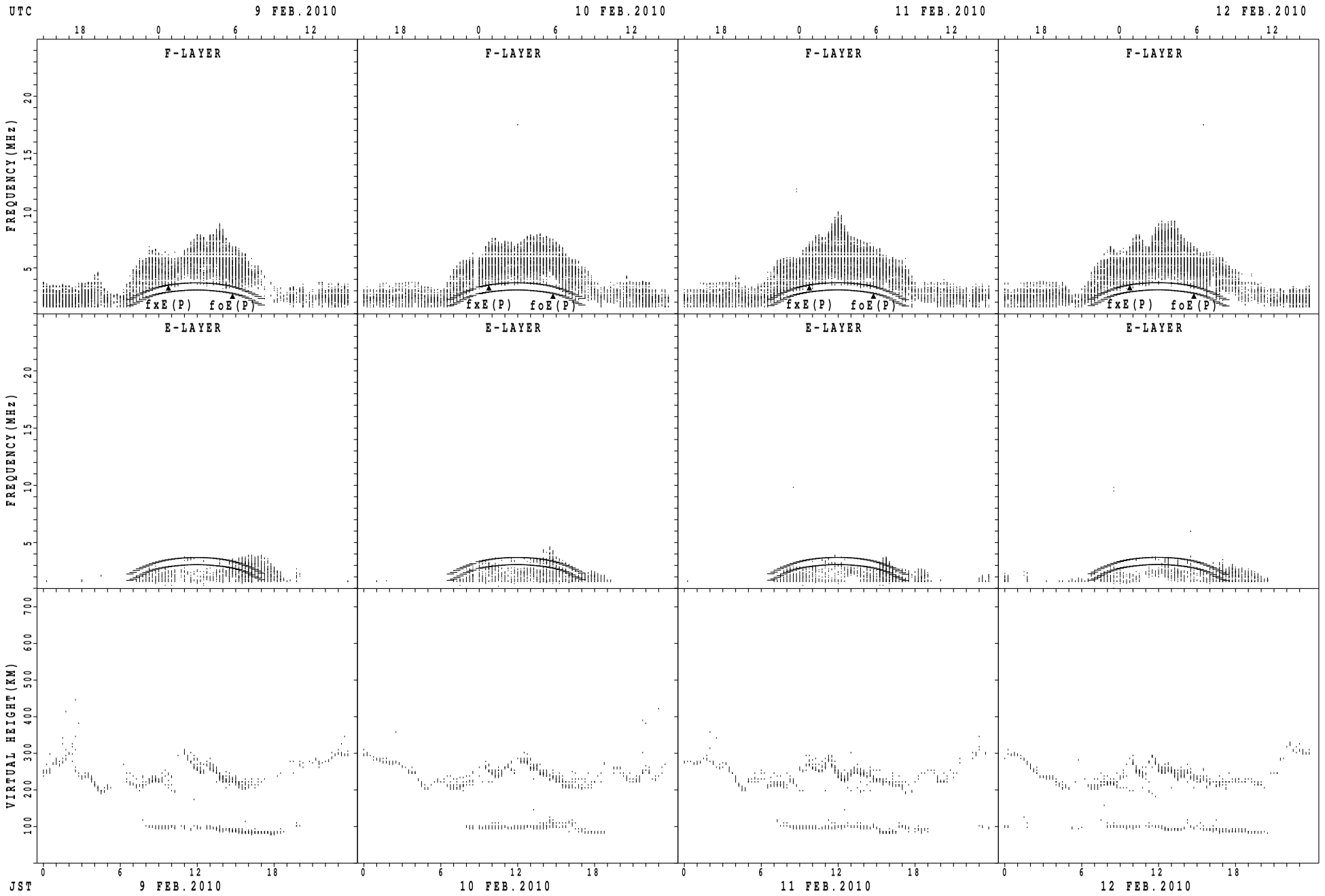
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



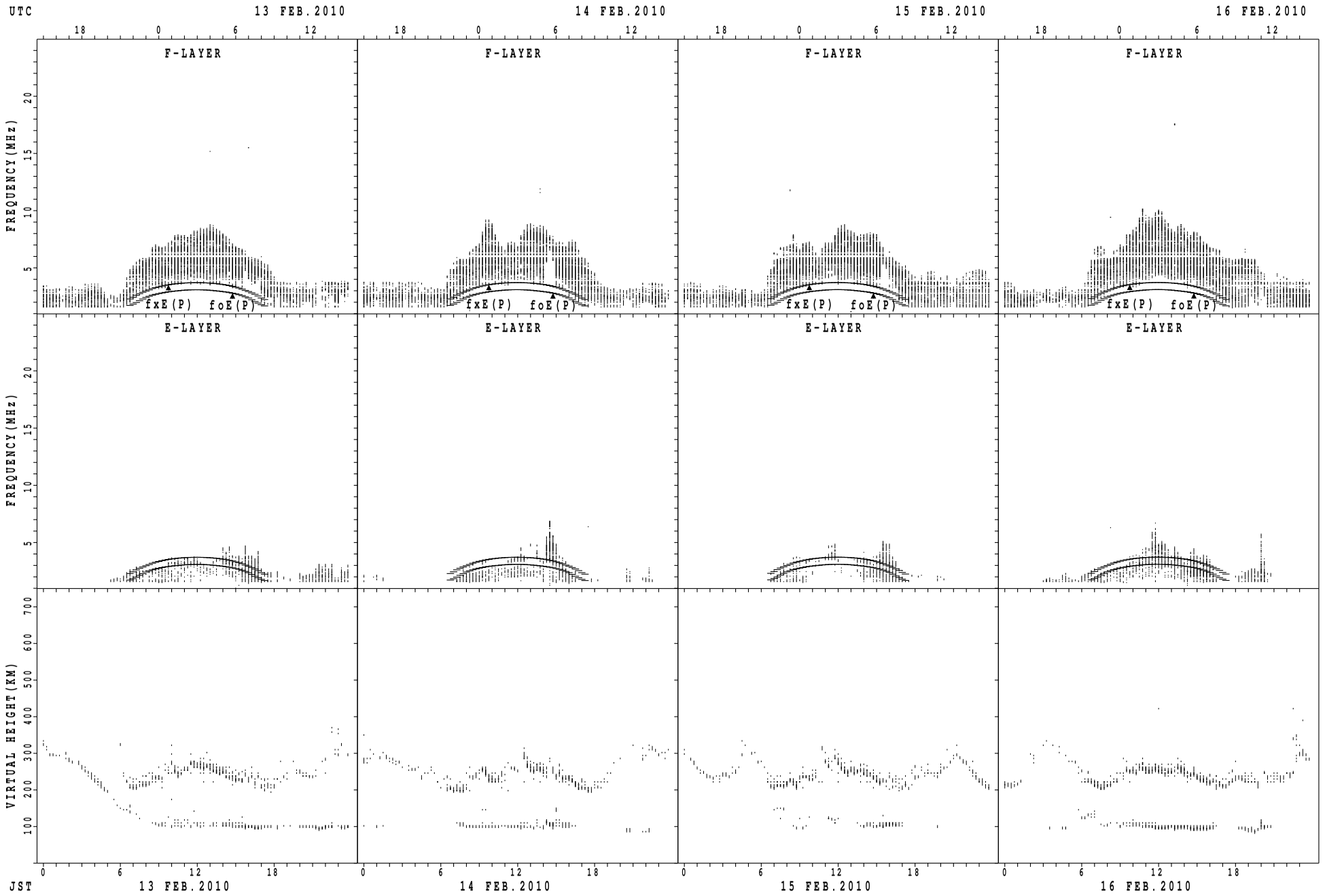
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



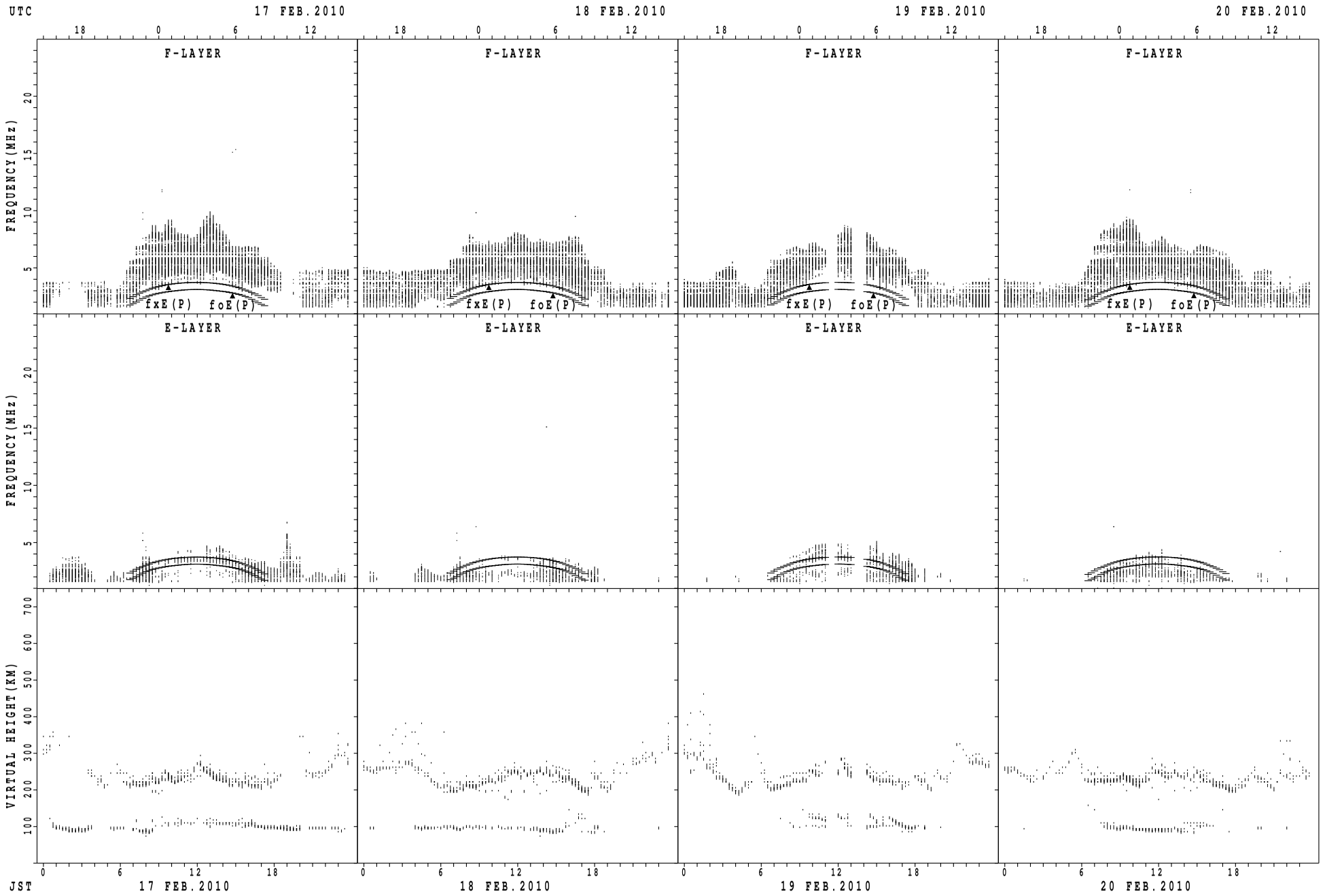
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



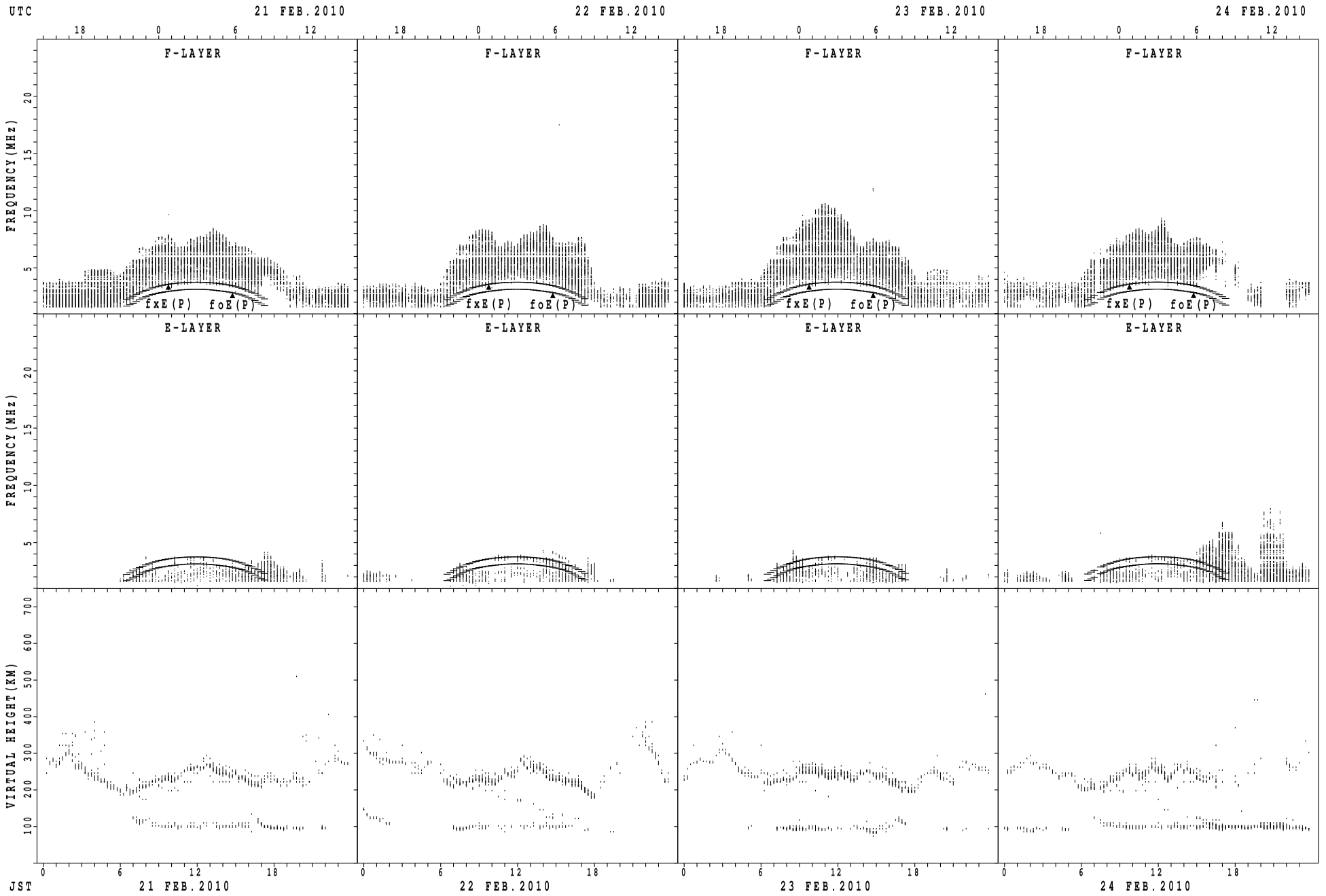
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



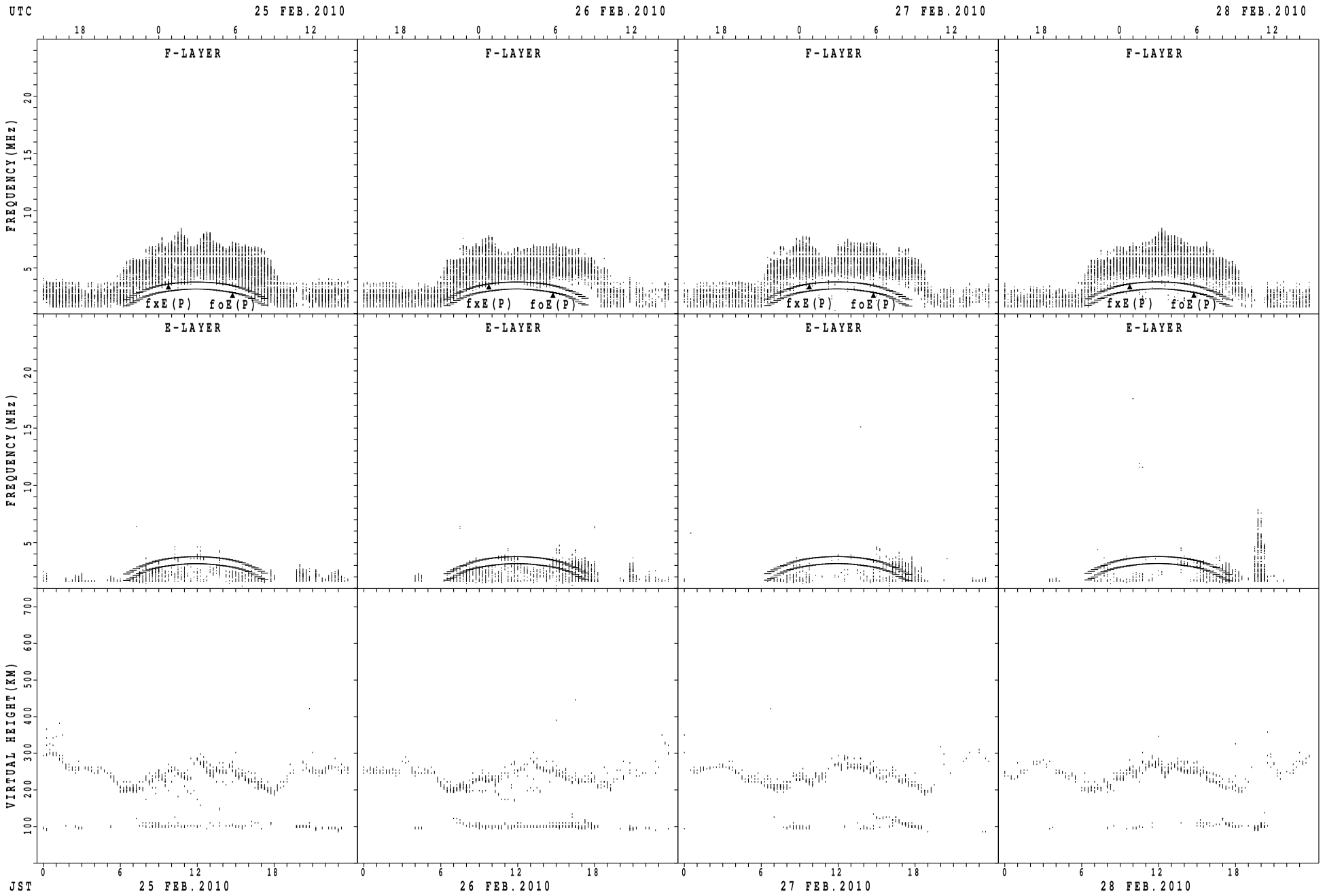
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



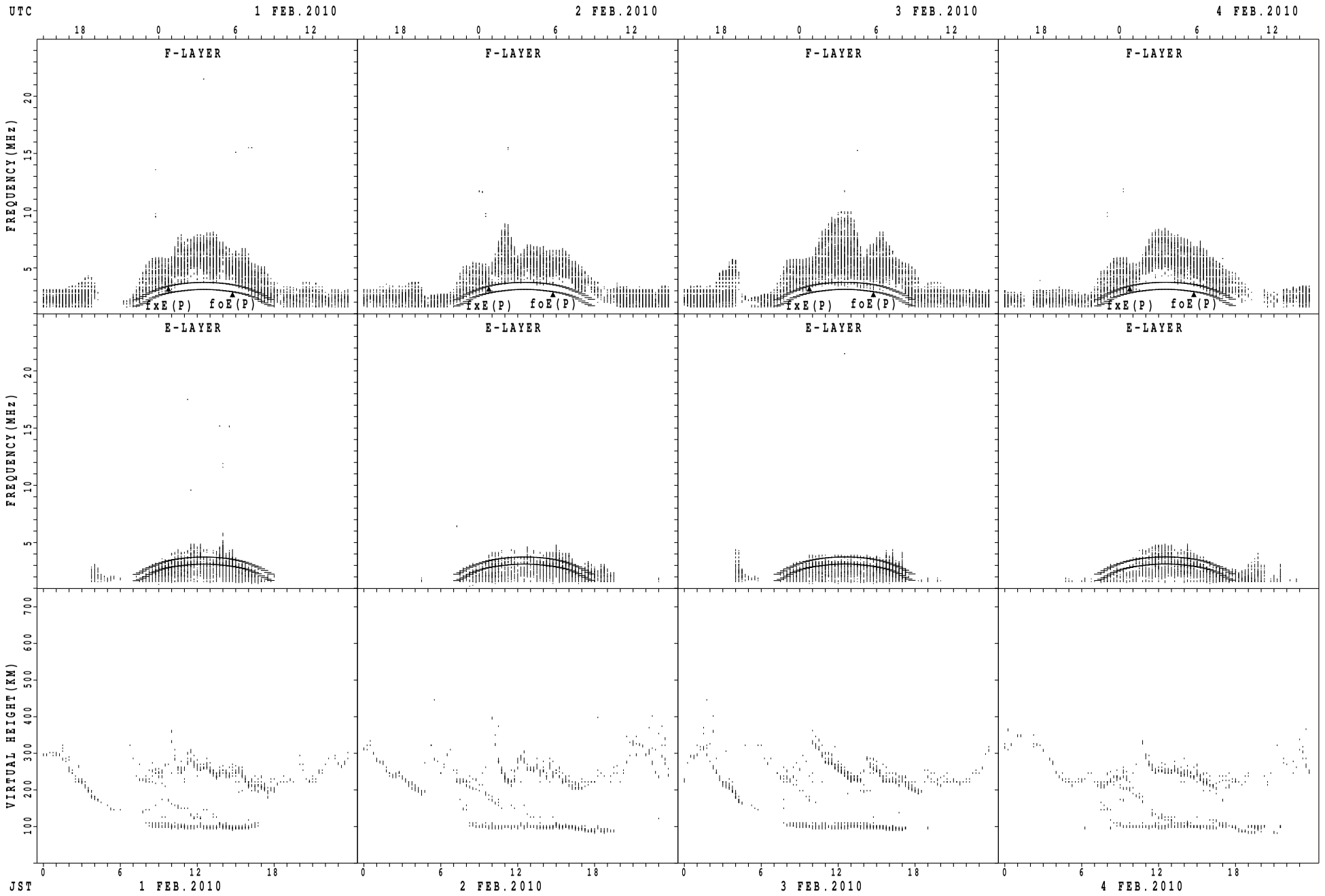
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



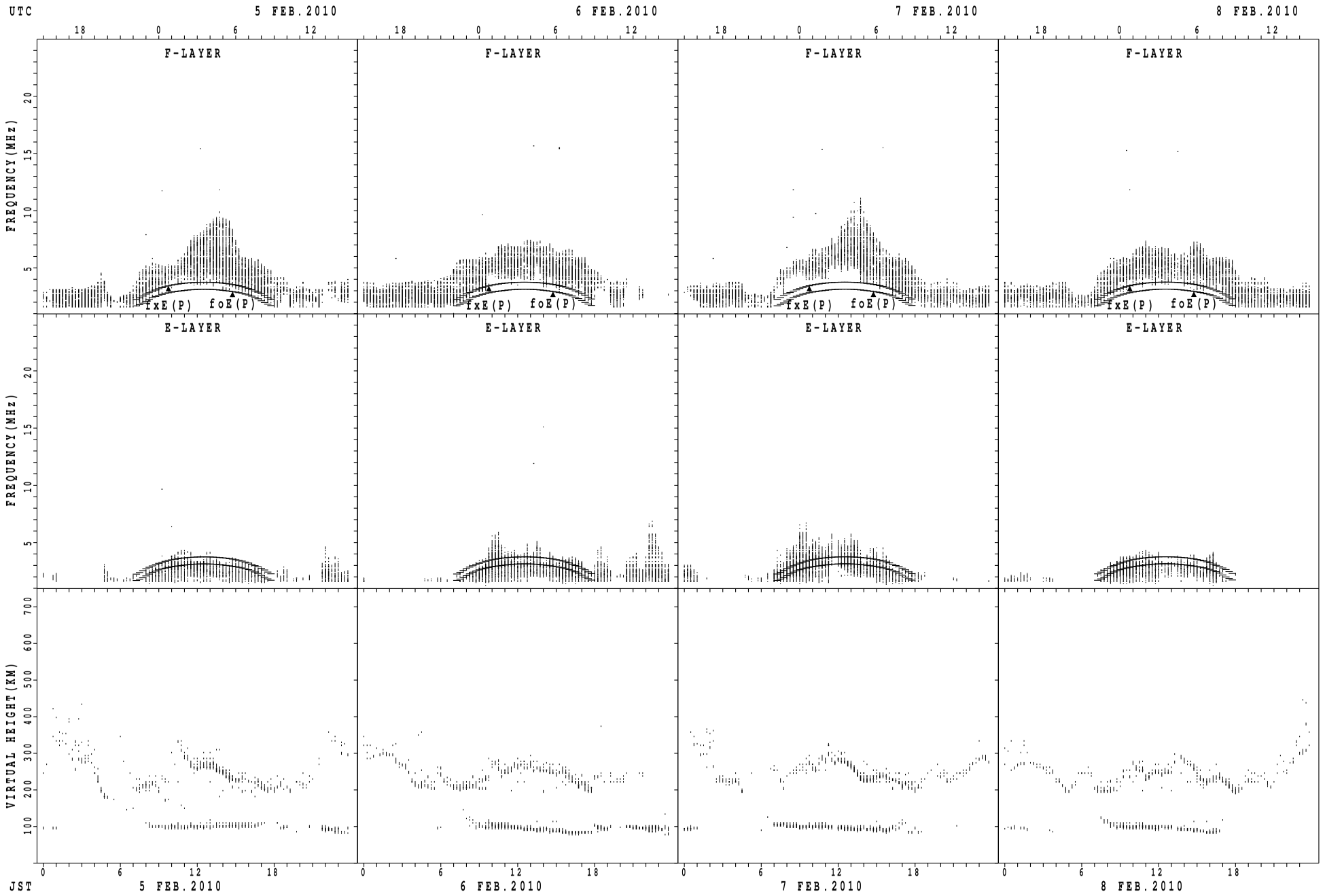
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



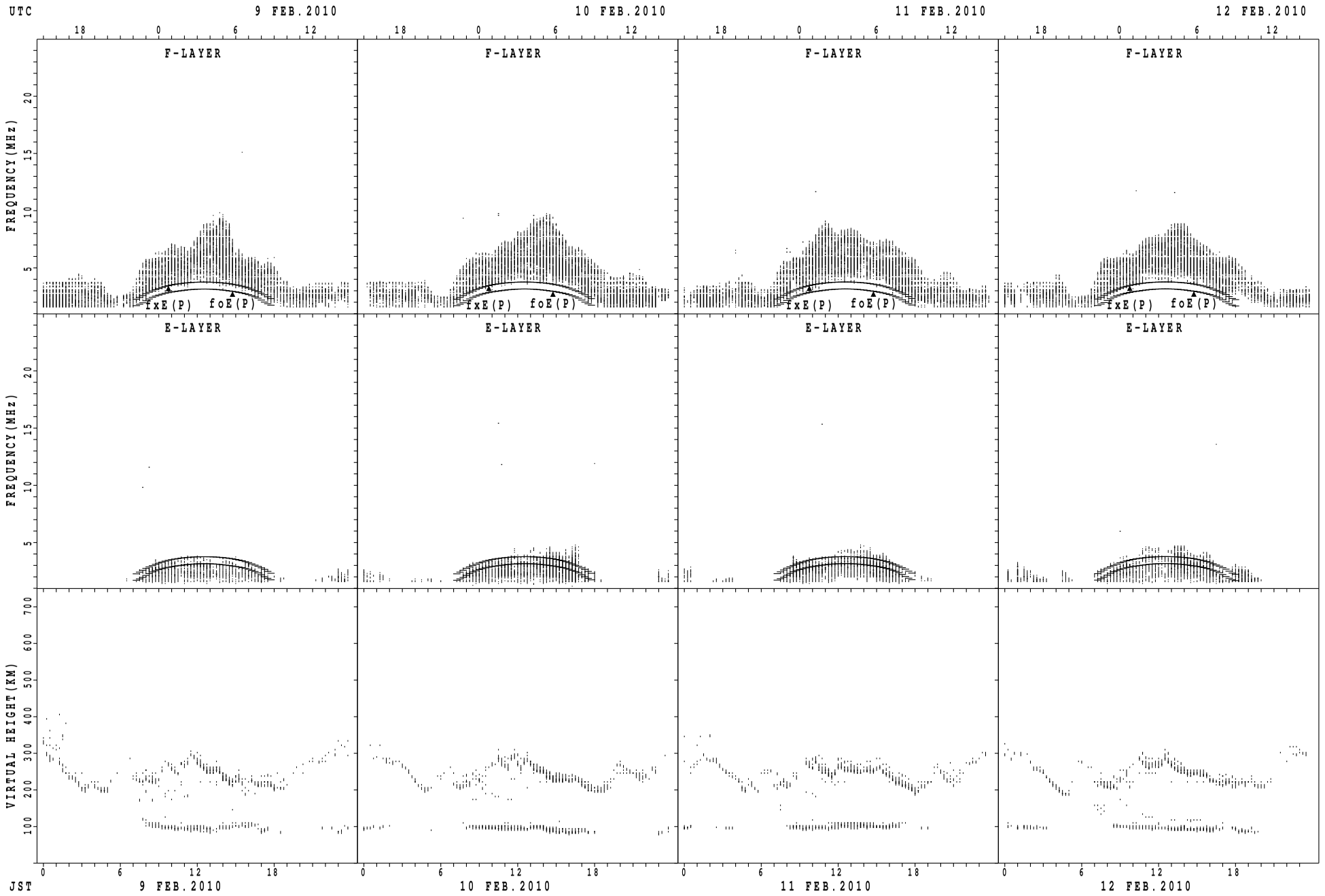
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



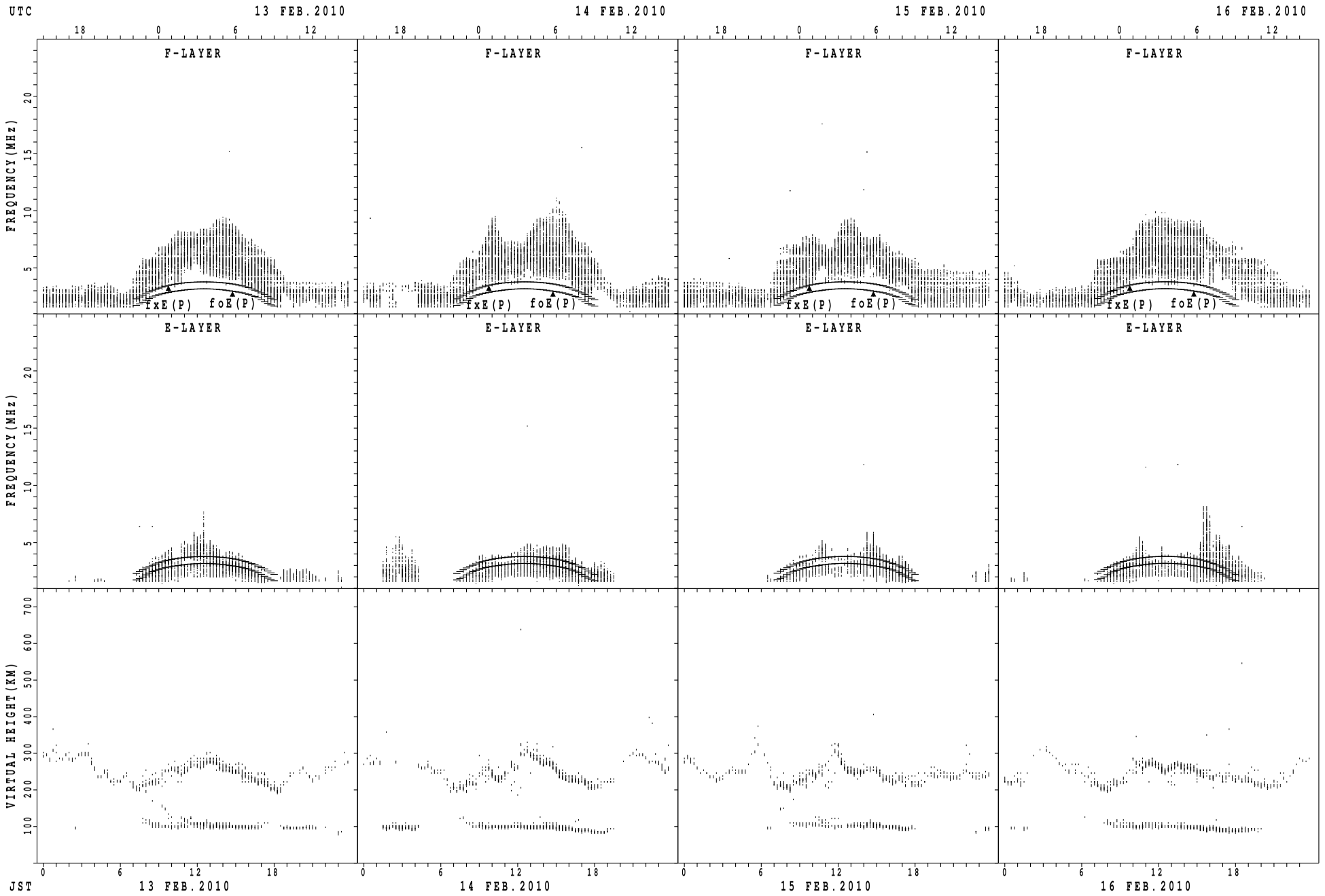
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



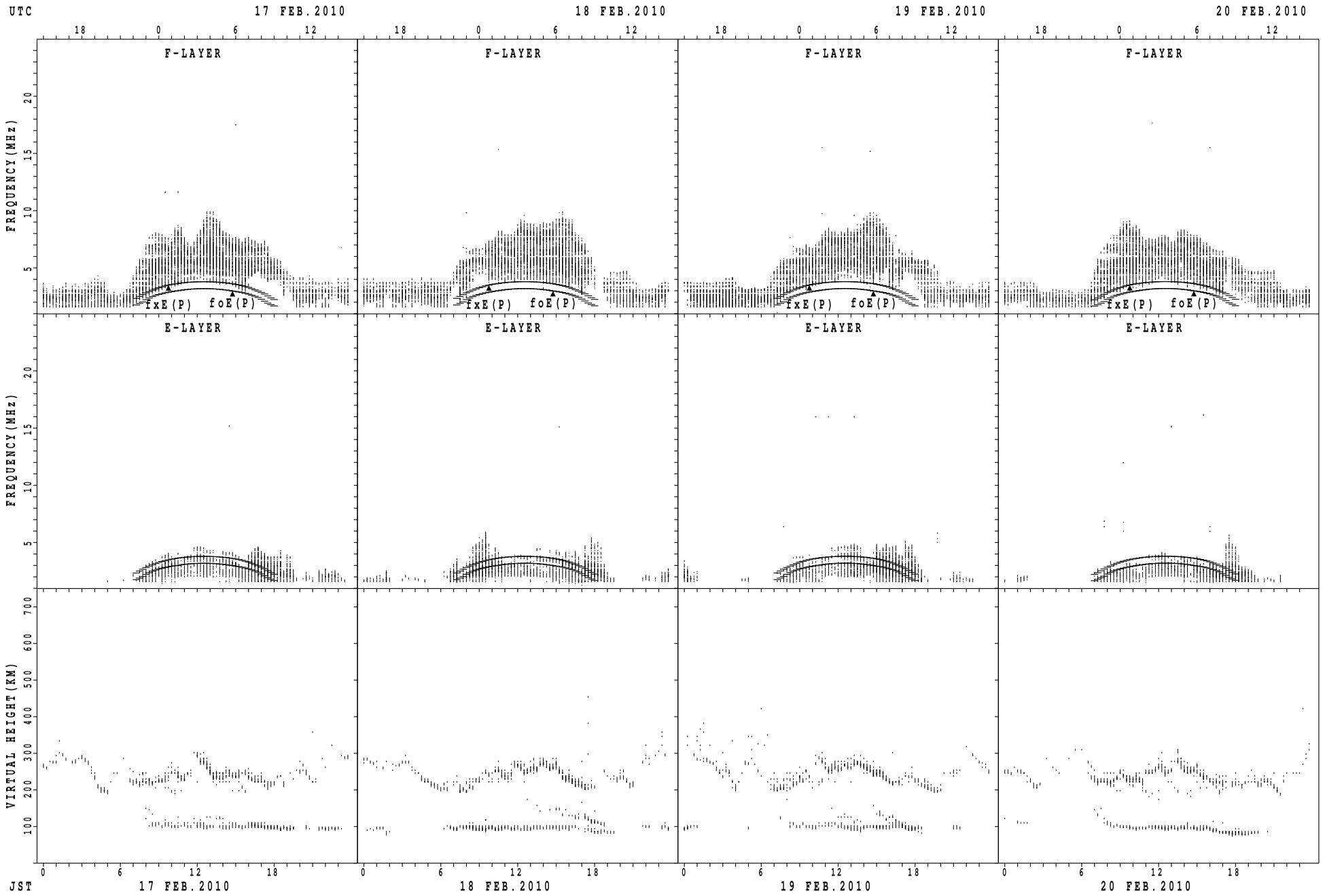
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



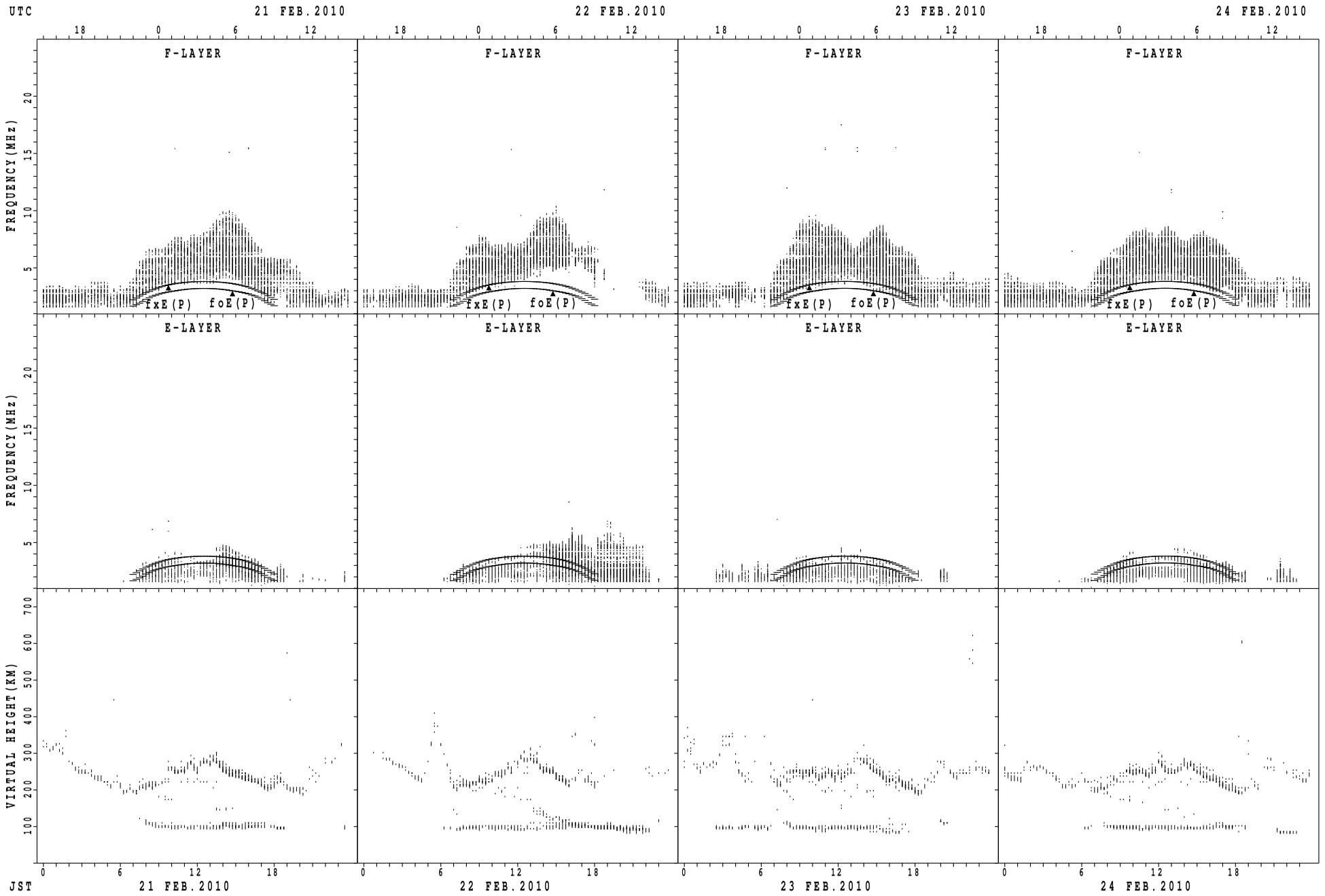
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



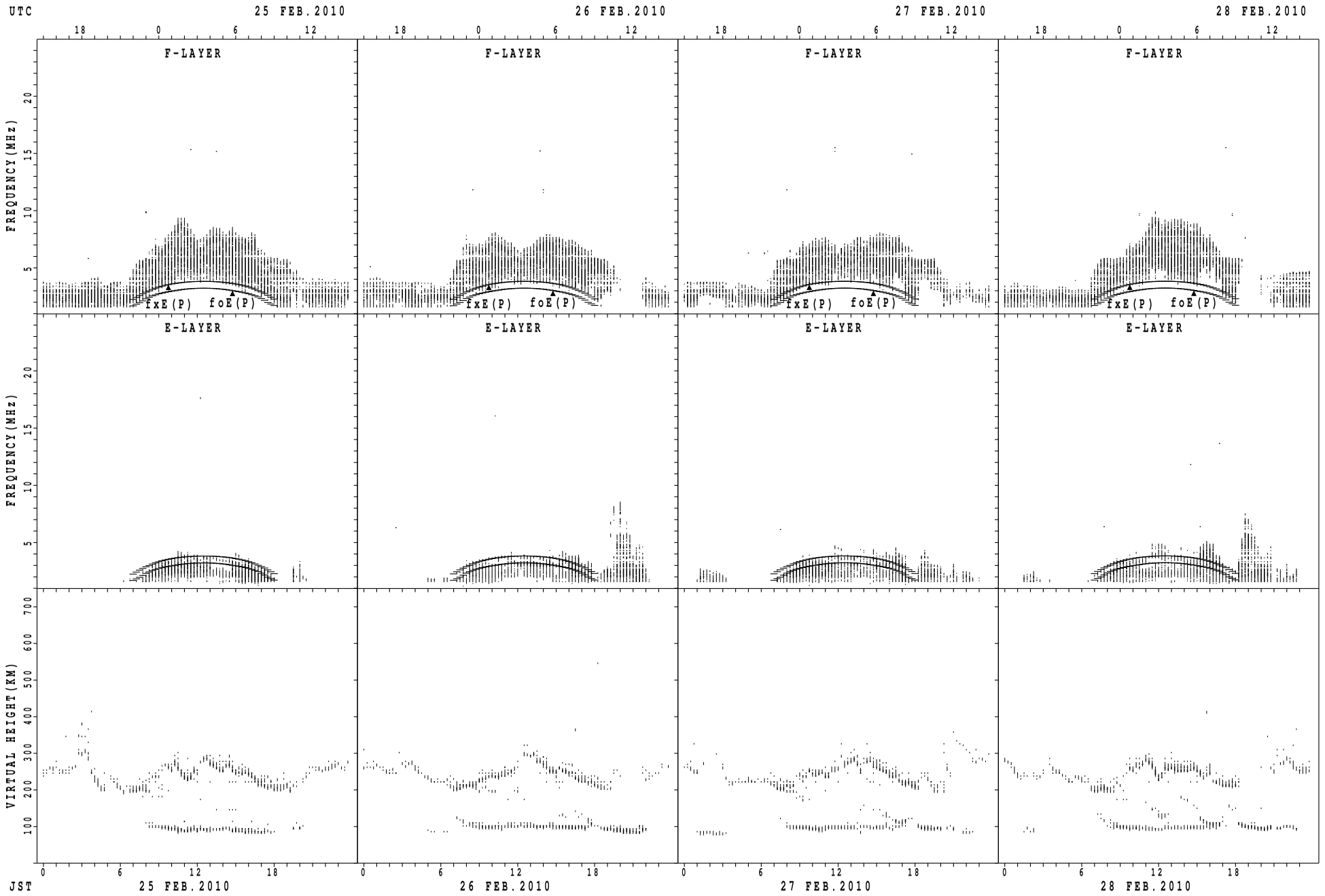
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



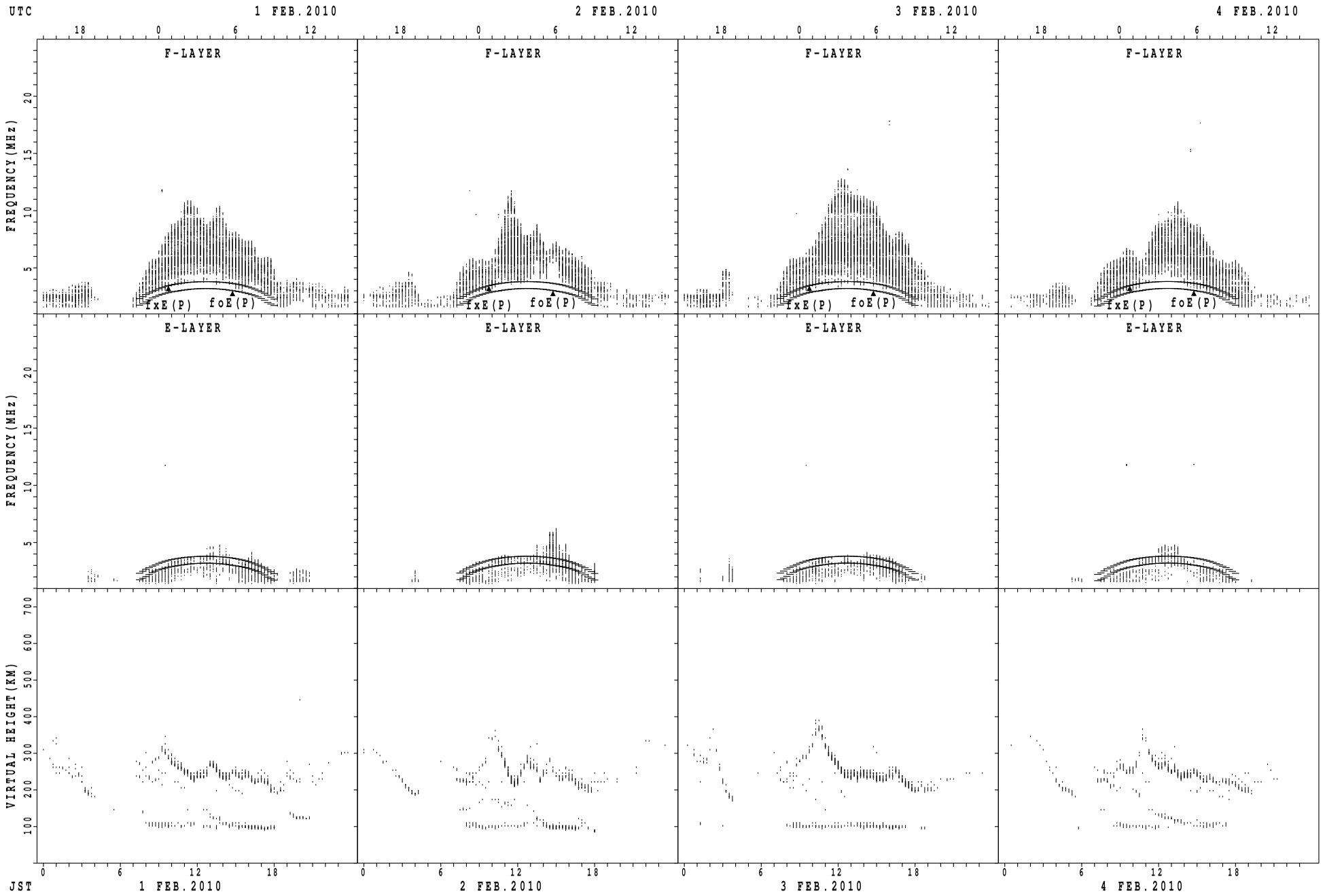
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



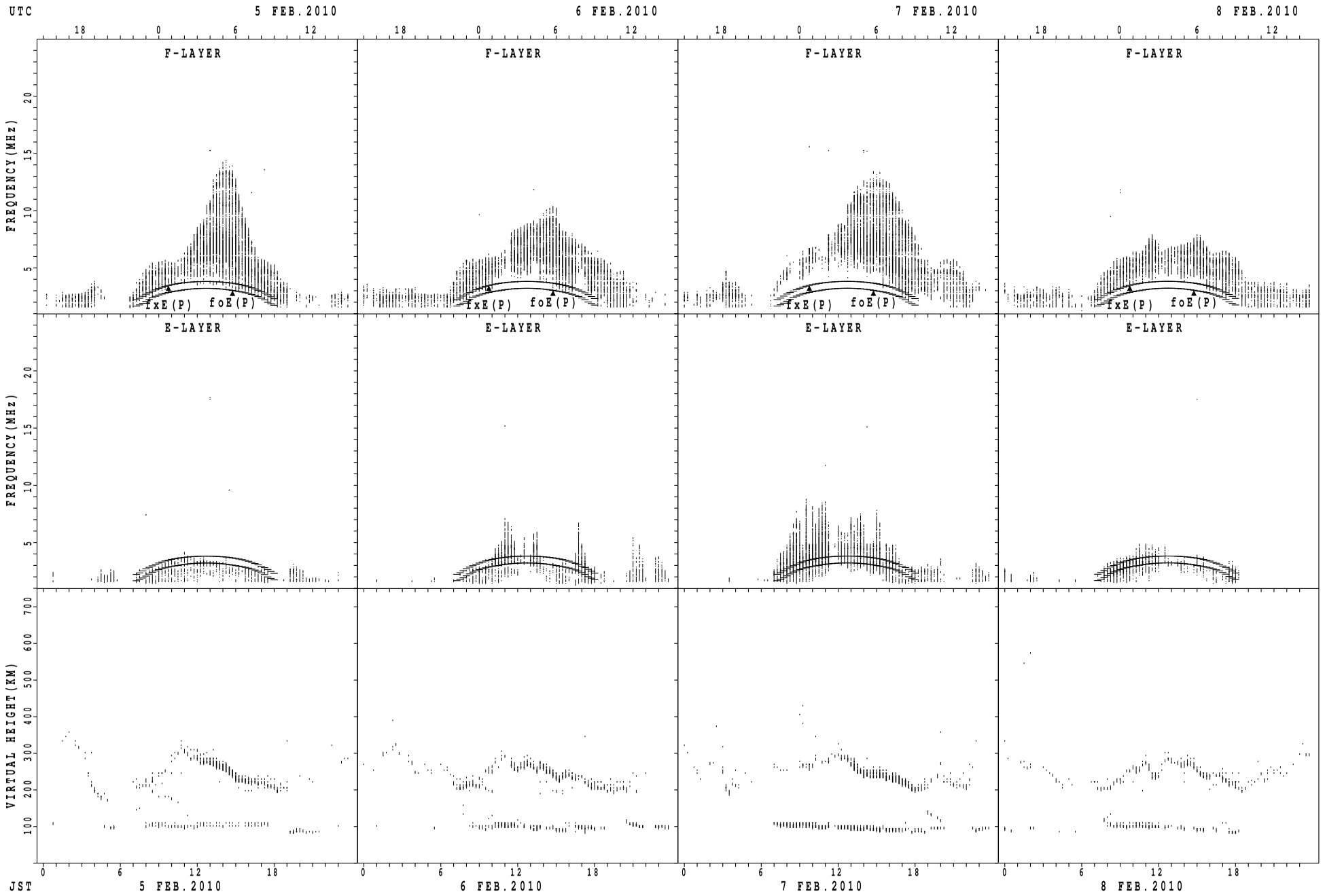
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



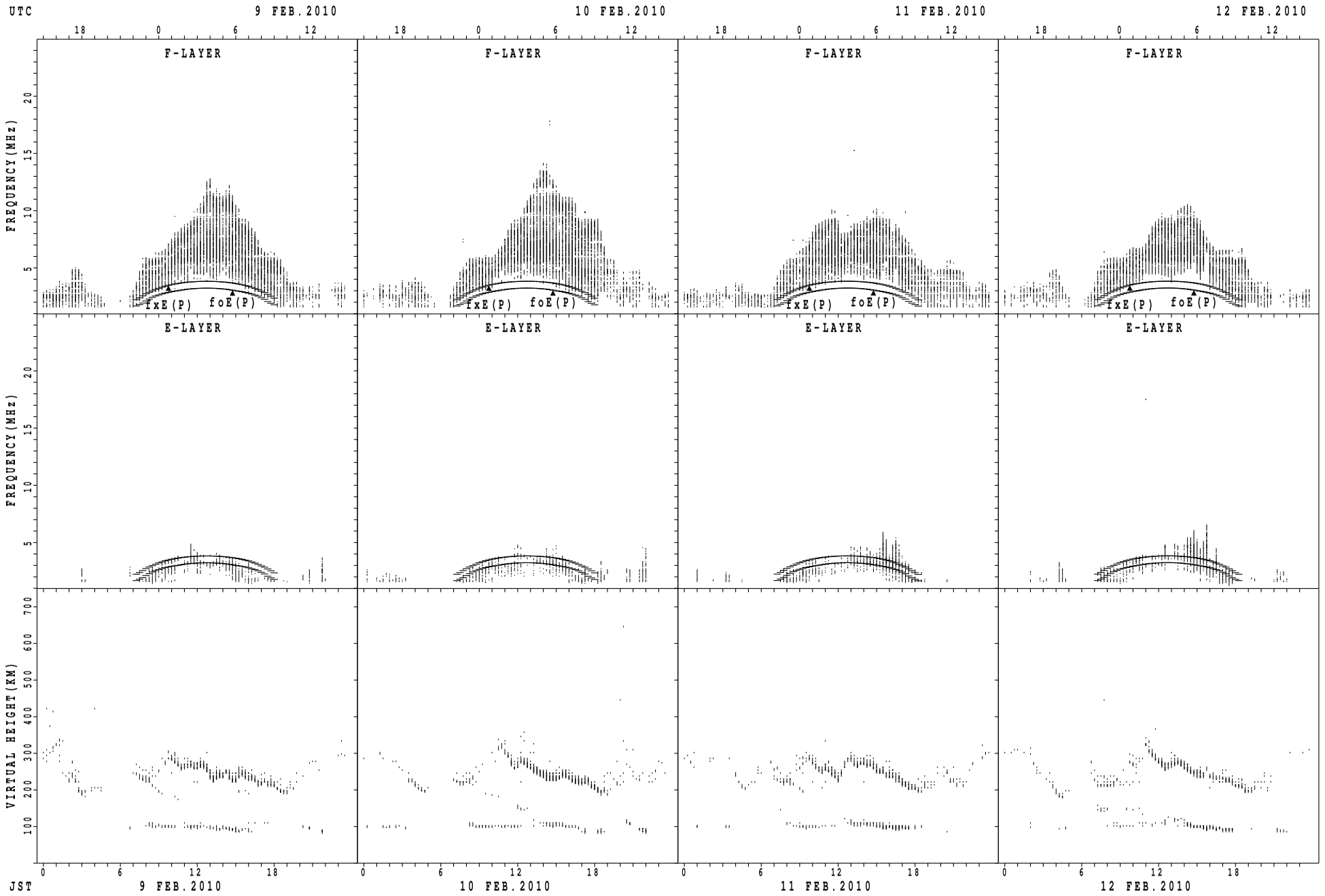
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



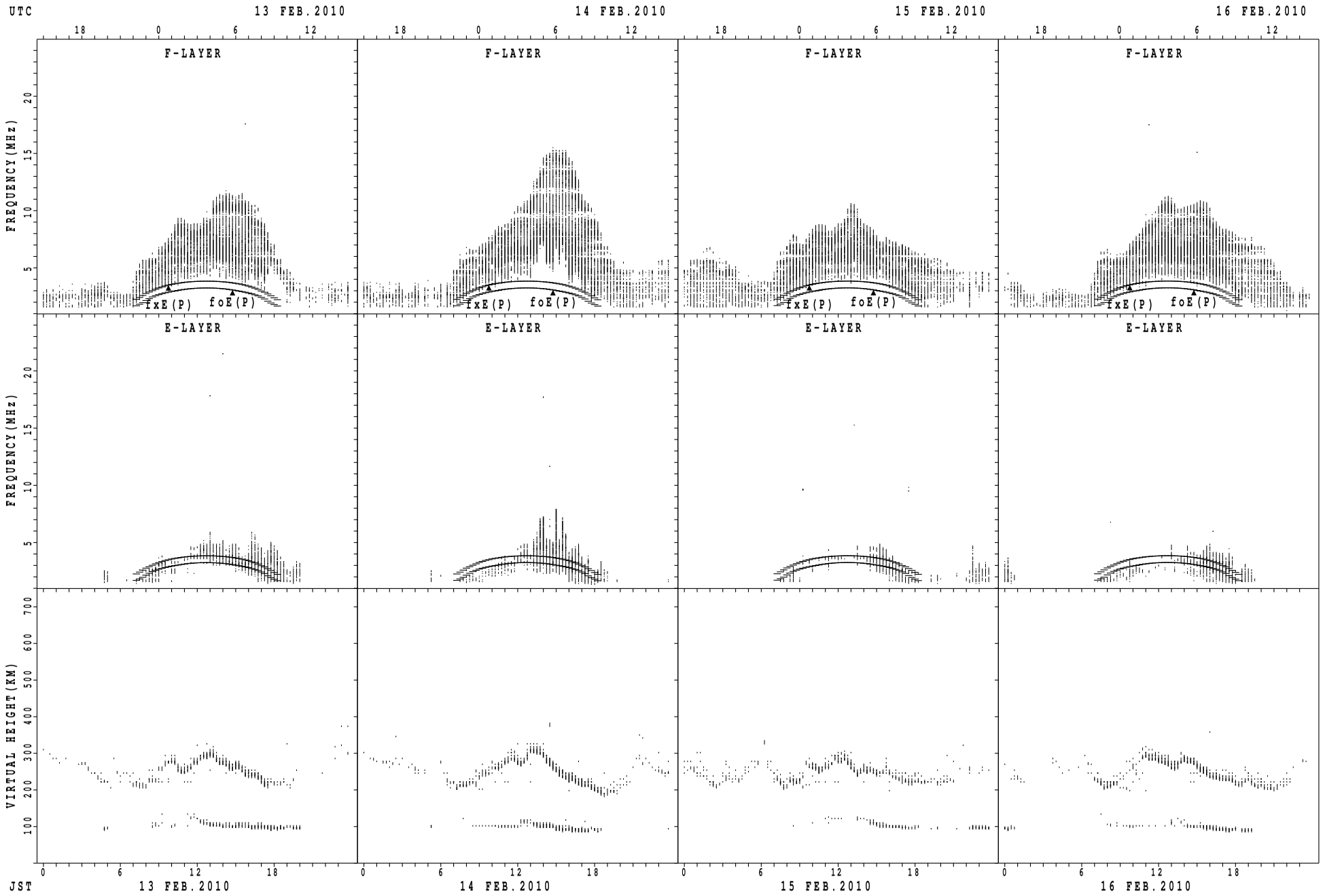
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



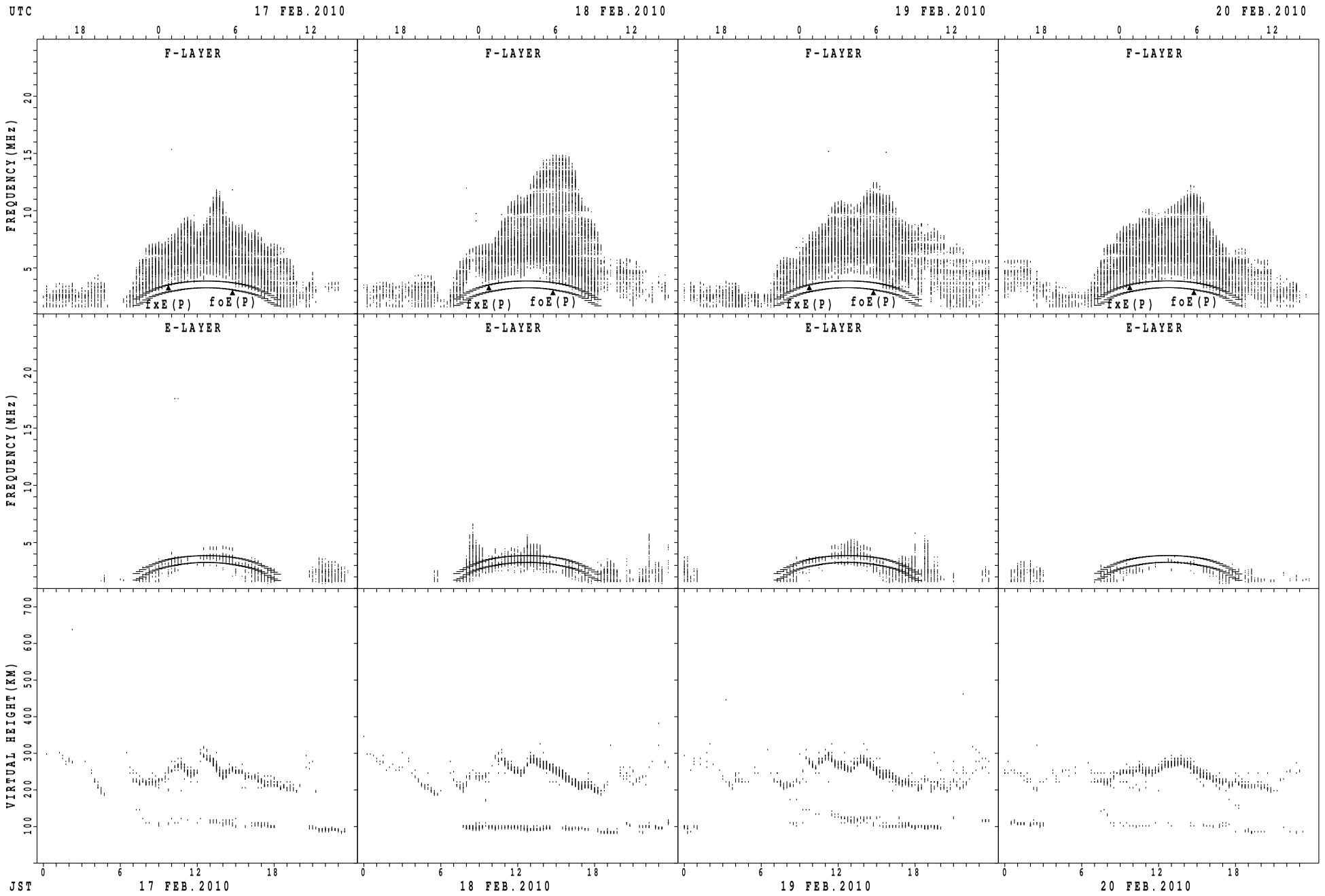
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



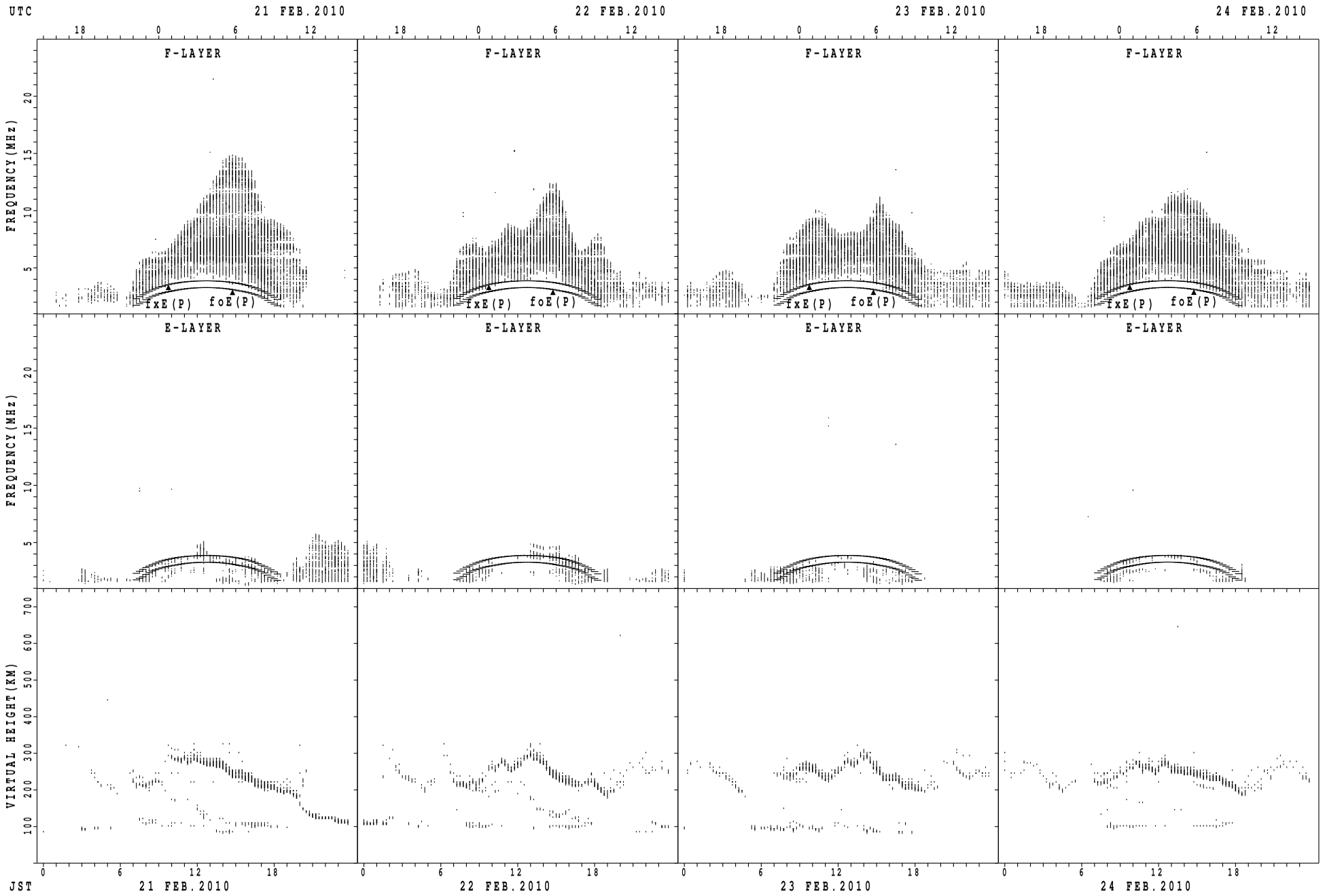
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



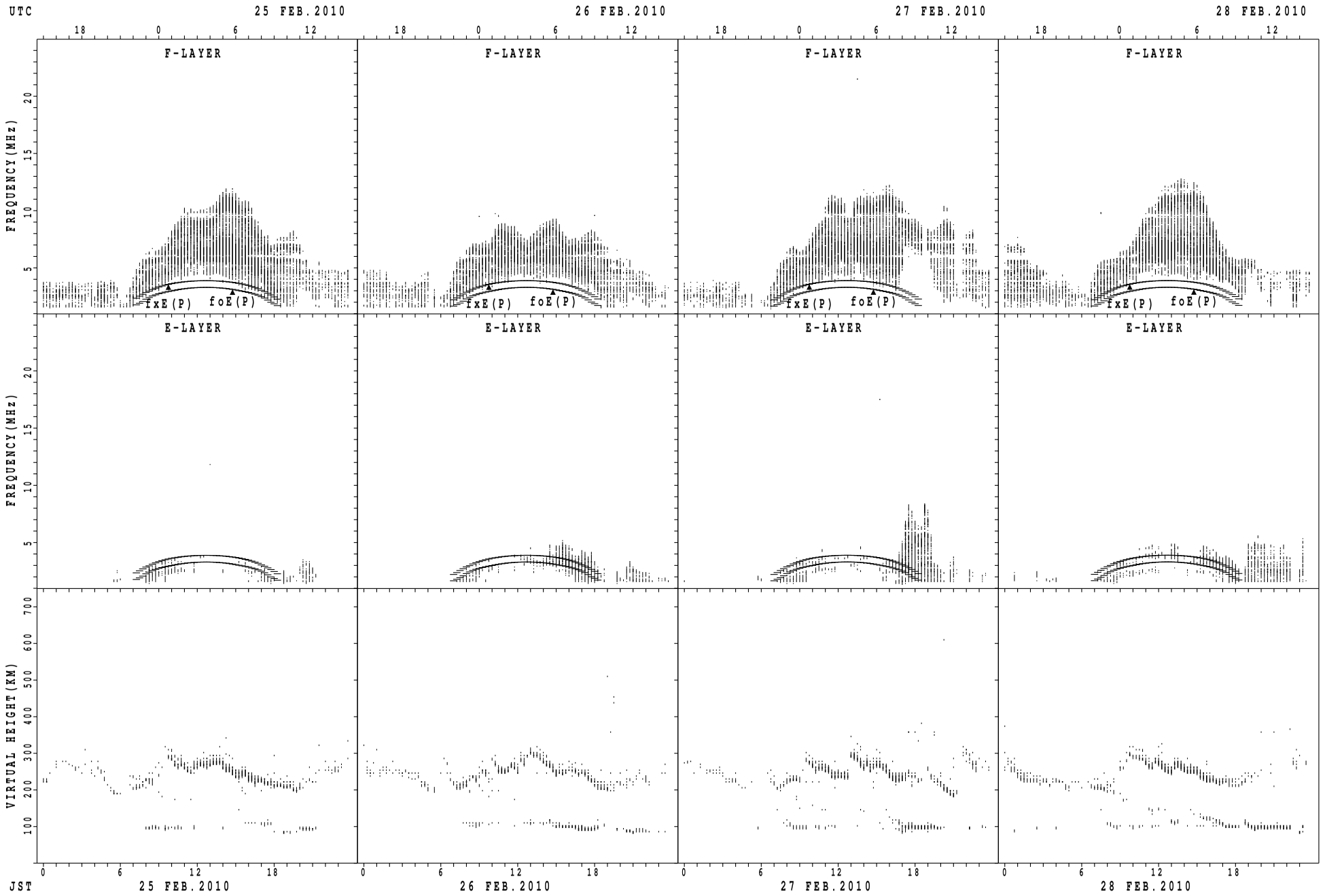
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

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

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

h′F STATION Wakkanai LAT. 45°10.0′N LON. 141°45.0′E

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT									13	21	14	5	2	5	16	20	7	3						
MED									228	236	250	262	255	254	247	244	228	236						
U Q									232	240	260	265	262	268	257	248	240	242						
L Q									221	227	234	244	248	248	241	237	222	230						

h′Es

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	5	4	5	1	2	2		9	16	19	11	9	12	9	15	15	16	14	14	12	11	9	10	7
MED	93	92	97	99	94	107		123	112	103	101	107	117	101	109	107	110	96	95	98	99	95	95	91
U Q	97	98	98	49	99	113		131	120	119	131	178	174	117	125	113	116	103	99	103	101	97	97	95
L Q	91	88	94	49	89	101		110	99	101	101	97	101	92	91	103	106	87	93	92	95	90	91	89

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	9	18					6	23	14	3						
MED								227	226	247					263	246	240	216						
U Q								242	240	256					264	256	244	230						
L Q								218	222	230					238	236	232	214						

h′Es

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	7	3	6	2	3	3	2	9	8	6	7	11	13	8	8	18	18	20	16	8	10	6	4	5
MED	103	101	96	94	101	97	113	123	107	162	113	119	121	113	113	106	105	102	95	98	101	98	99	93
U Q	109	127	101	97	129	97	129	152	159	177	151	179	174	121	123	115	109	109	99	99	105	103	102	100
L Q	97	99	91	91	93	95	97	98	100	103	103	105	97	106	109	97	97	92	89	92	97	95	95	91

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									5	11	6					13	19	8	1					
MED									230	246	263					248	234	233	246					
U Q									248	272	264					258	246	239	123					
L Q									218	230	246					239	230	226	123					

h′Es

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	5	4	4	3	1	2	1	5	10	17	14	20	22	17	20	23	25	20	15	16	9	7	8	5
MED	95	99	95	97	97	135	101	149	116	113	107	125	112	113	107	107	101	96	95	95	97	97	95	87
U Q	97	102	99	101	48	167	50	159	147	153	167	156	133	155	125	125	112	103	101	101	100	99	100	94
L Q	93	97	90	83	48	103	50	103	111	102	105	104	101	106	101	97	94	90	89	91	95	89	93	84

MONTHLY MEDIANS OF h′F AND h′Es

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

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

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT		1	1						6	13	13					1	28	22	14	4	2	1	1	
MED		274	264						236	260	276					242	238	230	223	238	228	206	310	
U Q		137	132						248	278	281					121	246	238	232	250	234	103	155	
L Q		137	132						232	245	262					121	229	220	214	224	222	103	155	

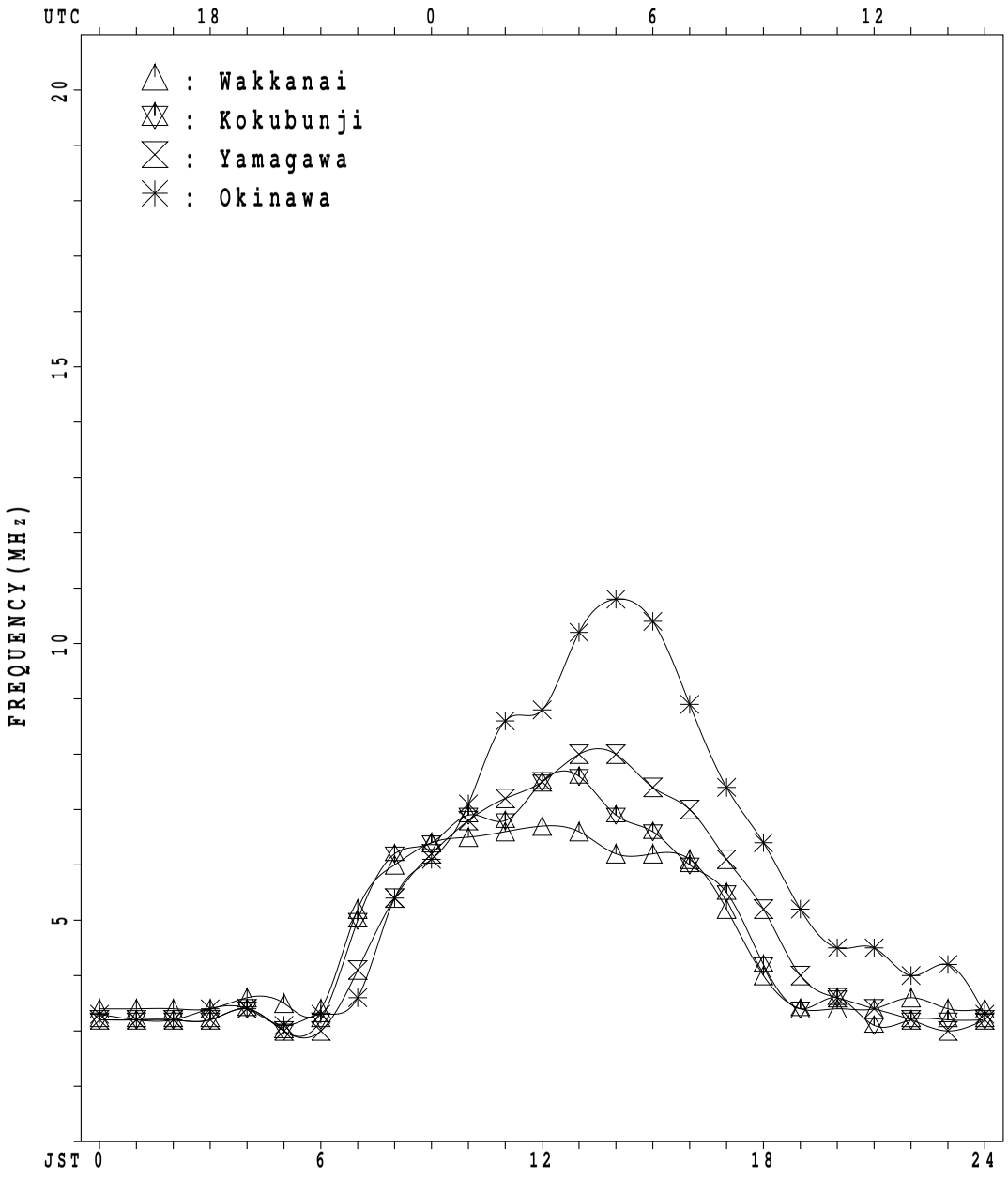
h′Es

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	5	4	4	2	1	2	1	2	8	9	10	13	16	17	13	16	15	12	16	9	7	7	5	7
MED	99	108	106	102	97	135	97	103	143	147	142	139	120	115	109	103	101	99	97	101	101	99	93	97
U Q	107	116	118	109	48	175	48	111	154	174	177	158	143	119	118	107	105	107	100	104	127	129	111	103
L Q	96	102	100	95	48	95	48	95	112	107	107	104	105	102	100	95	97	97	96	95	99	95	91	91

MONTHLY MEDIANS PLOT OF foF2

FEB.2010

AUTOMATIC SCALING



IONOSPHERIC DATA STATION Kokubunji

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

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

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

FEB. 2010 fxI (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

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

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	28	27	F	F	F	23	21	39	49	50	54	54	61	62	64	54	49	39	28	25	28	29	29	F
2	28	29	31	F	28	F	F	39	48	58	60	73	59	59	57	59	53	41	28	26	27	30	F	32
3	F	F	F	33	F	21	23	43	53	55	67	78	94	70	60	58	53	41	32	30	29	32	30	29
4	25	28	26	25	24	29	26	41	53	55	56	67	80	68	61	57	58	38	A	29	32	32	F	F
5	F	F	F	F	36	F	28	42	47	52	54	71	80	71	68	59	51	44	35	39	42	40	F	F
6	F	F	F	F	F	F	28	50	54	52	65	58	70	60	59	60	64	43	34	33	30	32	32	F
7	F	F	F	34	F	23	21	42	54	60	58	76	84	84	76	62	57	46	33	33	35	30	29	F
8	F	30	29	30	34	22	22	46	53	52	54	66	62	60	56	61	54	51	38	39	34	31	F	F
9	33	31	F	32	39	26	23	46	57	59	54	60	74	76	80	64	52	44	32	28	30	32	34	33
10	33	32	32	33	34	30	25	47	55	59	71	68	67	75	72	68	56	49	36	35	36	38	33	30
11	31	34	34	35	40	30	33	48	55	60	72	72	95	74	69	62	55	52	37	38	40	32	32	32
12	33	33	34	35	36	29	26	46	62	61	72	67	85	87	72	63	60	54	45	40	35	29	28	30
13	29	30	31	31	33	22	24	49	57	65	70	73	79	84	76	64	57	52	40	34	38	36	35	36
14	35	34	34	34	34	31	28	51	54	69	85	63	67	84	82	68	69	57	42	31	30	32	33	33
15	34	35	36	33	30	27	27	52	66	63	65	68	81	80	76	76	56	50	40	43	41	37	42	46
16	38	28	27	29	29	30	30	60	60	66	81	92	96	82	82	76	64	59	58	61	43	41	36	35
17	35	35	35	34	37	29	30	58	74	77	88	76	76	96	79	66	64	59	49	A	42	44	47	48
18	F	F	F	F	F	F	F	57	71	68	67	69	78	70	70	68	73	66	49	41	33	32	33	30
19	34	F	F	F	43	F	30	54	60	63	68	62	74	80	C	70	64	58	43	43	36	31	34	35
20	36	35	35	33	34	32	F	65	78	84	87	68	71	64	61	64	64	60	45	38	44	38	38	37
21	35	F	F	F	F	F	F	54	64	72	71	67	72	78	74	68	64	59	52	42	38	27	F	32
22	30	31	32	32	32	28	30	55	70	79	77	70	69	79	83	69	68	74	36	30	31	29	F	F
23	32	31	31	30	34	35	38	59	72	82	92	102	93	81	68	68	70	58	41	42	46	40	38	40
24	41	39	37	35	35	34	37	60	62	70	77	77	83	71	68	72	65	62	49	33	34	A	36	34
25	35	36	37	35	34	34	41	58	62	70	70	75	68	76	67	68	64	63	46	35	37	37	35	36
26	36	35	35	32	34	34	40	59	65	68	72	61	63	64	65	66	64	59	54	46	38	38	34	34
27	37	34	35	36	34	32	37	60	62	71	66	56	65	69	67	68	57	60	58	38	28	29	30	31
28	34	31	30	30	32	30	34	55	60	64	67	68	78	74	70	64	64	60	50	36	A	F	39	34
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	22	21	19	21	22	22	24	28	28	28	28	28	28	28	27	28	28	28	27	27	27	26	22	21
MED	34	32	34	33	34	30	28	52	60	64	69	68	75	74	69	65	62	56	41	36	35	32	34	34
U Q	35	35	35	34	36	32	34	58	64	70	74	74	82	80	76	68	64	60	49	41	40	38	36	36
L Q	31	30	31	30	32	26	24	46	54	58	62	64	68	68	64	62	56	45	35	31	30	30	32	32

IONOSPHERIC DATA STATION Kokubunji

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

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1										U L 408	L	420	420	392	U L 392	L	L							
2										U L 404	U L 424	412	L	U L 424	A	A	L							
3									L	L	L	U L 424	L	A	L	A								
4											L	420	A	412	L	L								
5									L		U L 416	424	404	A	U L 412	L								
6										L	L	U L 444	U L 424	L	L	L								
7										L	L	U L 448	440	U L 436	L	L	L							
8											L	U L 440	L	L	L	L								
9											L	U L 452	U L 440	U L 440		L								
10										L	L	L	L	U L 436	A	L								
11										L	L	U L 448	440	L	U L 416	L								
12										L	U L 464	L	412	U L 448	L	L								
13										L	L	L	U L 456	L	L									
14											A	L	L	L	L	A	L							
15											L	U L 464	464	L	L	L								
16											L		L	L	L	L								
17										L	U L 444	L	L	L	A									
18									L		L	L	U L 460	L	L	L								
19											A	A	A	U L 432	C	A								
20										L		L	U L 452	L	L	L								
21										L	L	L	U L 456	L	L	L								
22										L	U L 436	U L 472	U L 448	U L 460	A	A	A							
23										L	U L 452	L	L	L	L	A								
24									L	L	L	U L 468	L	A	L									
25									L	L	L	L	U L 452	U L 448	L	L								
26										L	L	L	U L 468	L	L	A	A							
27										L	L	A	472	A	L	A	A							
28									A	L	L	L	U L 444	U L 424	L	A	A							
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT										2	6	13	17	11	3									
MED										U L 406	U L 440	U L 444	U L 448	U L 436	U L 412									
U Q											U L 452	U L 458	U L 458	U L 448	U L 416									
L Q											U L 424	422	432	424	U L 392									

FEB. 2010 foF1 (0.01MHz)

IONOSPHERIC DATA STATION Kokubunji

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

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1								B	220	268	328	328	A	A	U A 276	A	A	B						
2								B	244	R	R	324	U A 328	A	A	A	A	B						
3								B	U R 248	268	A	A	A	A	A	A	A	B						
4								B	228	R	320	332	A	A	A	A	A	B						
5								B	A	292	296	A	A	300	276	U A 256	A	B						
6								180	A	R	A	R	A	A	R	R	R 228	B						
7								A	A	A	A	A	A	R	R	A	A	B						
8								180	U R 256	A	A	A	A	R	R	R	R	B						
9								B	U R 252	292	A	R	A	R	R	A	A	B						
10								B	U R 236	U R 276	320	R	336	320	A	A	A	B						
11								B	240	U R 296	R 320	A	A	A	R	R	A	B						
12								B	232	R	A	R	A	R	A	A	A	B						
13								B	252	R	340	A	A	R	A	A	A	B						
14								180	256	300	A	A	A	A	A	A	A	B						
15								B	232	296	A	A	A	R	A	A	A	B						
16								A	R	U R 320	A	A	A	A	A	A	A	B						
17								A	A	A	A	A	A	A	A	A	A	B						
18								A	U R 264	R	R	R	R	R	308	U R 308	240	B						
19								B	R	320	A	A	A	A	C	A	U A 236	B						
20								168	256	R	R	A	A	R	U R 332	R	R	B						
21								B	264	U R 332	A	A	A	332	316	U R 284	248	A						
22								A	U R 272	R	R	U R 336	R	380	320	A	A	B						
23								U R 200	U R 272	A	U R 312	R	R	312	R	A	U R 248	A						
24								208	272	A	R	R	356	336	A	A	A	B						
25								176	268	296	320	R	R	320	312	R	A	U R 184						
26								208	A	R	A	A	A	R	R	A	A	A						
27								B	R	R	A	A	R	A	R	A	A	A						
28								U R 212	A	R	A	R	R	R	A	284	U A 264	B						
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								9	19	12	8	4	3	7	7	4	6	1						
MED								180	252	296	320	330	336	320	312	U 284	244	U R 184						
U Q								208	U R 264	310	324	334	356	336	320	U R 296	U 248							
L Q								178	236	284	316	326	U A 328	312	276	270	236							

FEB. 2010 foE (0.01MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

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

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E S 15	E B 14	E B 15	E B 16	E B 14	E B 14	E B 15	20	28	31	37	38	38	36	35	32	25	E B 15	E B 14	19	E B 15	E B 15	E B 14	E B 15
2	E B 15	E B 15	18	E B 15	E B 15	E B 15	E B 15	19	27	G 25	G 27	37	38	38	J A 42	32	23	19	J A 24	19	E B 15	18	E B 15	E B 15
3	E B 15	E B 16	E B 15	E B 15	E B 15	20	22	20	G 32	36	38	35	J A 59	33	J A 39	J A 26	J A 23	E B 15	20	E B 14	20	20	18	
4	19	E B 15	J A 21	22	21	E B 15	E B 15	21	26	G 21	37	36	J A 44	36	35	34	J A 33	J A 27	J A 31	J A 24	J A 24	20	J A 22	J A 23
5	J A 24	21	22	E B 14	J A 23	E B 14	E B 14	20	26	36	33	36	J A 38	37	34	30	28	J A 22	J A 42	J A 28	J A 20	J A 24	J A 23	J A 28
6	23	20	21	J A 20	22	E B 15	E B 15	20	32	G 22	38	G 30	J A 47	J A 39	G 26	G 22	G 20	E B 14	21	E B 15	E B 15	E B 14	E B 14	E B 15
7	J A 18	20	J A 28	J A 20	22	20	E B 15	J A 27	J A 57	J A 56	34	38	35	G 26	G 27	34	24	E B 16	J A 21	E B 14	20	E B 15	E B 15	E B 15
8	19	19	E B 14	E B 15	21	21	20	G	G	31	J A 38	J A 38	J A 38	G 26	G 28	G 25	G 25	J A 24	J A 22	J A 39	E B 15	E B 15	B J 29	A E 15
9	E B 14	E B 16	E B 15	19	E B 15	E B 15	E B 15	E B 15	G 20	33	35	G 27	36	G 27	G 26	35	J A 36	J A 38	J A 28	22	J A 21	E B 15	E B 15	E B 14
10	E B 14	E B 16	19	E B 15	E B 15	E B 13	E B 15	E B 16	G 21	G 24	37	G 27	37	37	39	34	26	J A 22	J A 25	21	E B 15	E B 14	E B 14	E B 15
11	E B 15	E B 15	E B 16	E B 15	E B 15	E B 15	E B 15	E B 16	G 19	G 25	G 28	37	37	37	G 26	G 27	J A 30	J A 24	J A 24	J A 20	20	E B 15	E B 15	20
12	J A 22	E B 14	E B 16	E B 15	E B 15	18	21	21	27	G 22	34	G 26	36	G 26	36	32	33	J A 28	J A 27	J A 24	J A 20	E B 15	E B 15	E B 15
13	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	23	29	G 26	38	39	40	G 28	40	34	J A 36	J A 23	20	21	J A 19	J A 19	J A 30	21
14	J A 20	J A 20	20	E B 14	E B 15	E B 15	E B 15	23	32	36	36	37	41	37	36	36	26	E B 15	J A 18	20	19	21	J A 25	E B 15
15	E B 16	E B 15	E B 15	E B 14	E B 15	E B 15	21	22	30	35	37	40	38	G 28	39	34	J A 46	22	E B 14	E B 15	19	E B 15	E B 15	E B 16
16	E B 15	E B 15	E B 15	20	20	J A 19	20	22	21	G 26	37	J A 42	J A 52	J A 38	J A 36	J A 38	J A 32	E B 15	22	J A 30	J A 65	E B 14	E B 15	E B 15
17	E B 15	J A 26	J A 36	J A 31	J A 19	21	21	J A 26	J A 43	32	37	40	38	41	40	36	32	35	J A 24	J A 74	J A 45	22	22	J A 24
18	E B 15	J A 18	E B 16	E B 13	J A 22	J A 23	20	J A 28	G 23	G 23	G 24	G 27	G 26	G 26	36	G 25	31	22	J A 25	22	E B 15	E B 15	E B 15	B J 19
19	E S 15	E S 14	E B 16	E B 15	E B 16	E B 14	E B 15	21	G 18	35	41	J A 46	43	40	C	J A 47	38	J A 30	J A 23	E B 14	J A 20	E B 15	E B 16	E B 14
20	E B 15	E B 12	18	18	E B 15	E B 16	E B 14	22	31	G 28	G 28	40	J A 40	G 26	G 28	G 27	G 22	20	19	E B 14	J A 20	22	22	22
21	E B 16	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	19	34	G 24	34	35	36	36	35	G 22	31	J A 29	J A 30	J A 21	J A 22	E B 14	J A 19	E B 15
22	J A 22	J A 20	J A 18	E B 14	19	18	E B 15	J A 24	G 23	G 24	G 24	G 27	G 27	44	38	36	30	20	20	21	E B 16	E B 14	E B 15	E B 15
23	E B 15	E B 16	E B 14	20	E B 15	J A 19	E B 16	G 18	G 25	J A 31	G 28	G 25	G 25	37	G 23	J A 38	G 22	25	21	E B 14	J A 23	20	22	E B 15
24	J A 24	J A 18	J A 24	22	18	J A 24	E B 14	G	G 24	33	G 28	G 30	40	38	37	37	J A 47	J A 66	J A 41	J A 26	J A 54	J A 69	J A 61	J A 34
25	J A 22	E B 15	21	J A 19	18	20	20	22	G 21	36	36	G 26	G 28	38	37	G	28	J A 23	20	E B 15	J A 30	20	20	J A 23
26	19	E B 15	E B 16	E B 15	22	E B 15	E B 15	23	28	G 28	36	35	36	G 29	G 28	J A 42	J A 37	39	J A 29	E B 15	20	J A 34	22	22
27	21	E B 15	E B 15	E B 14	E B 15	E B 14	E B 15	22	G 22	G 28	36	40	G 29	39	G 24	J A 44	35	J A 39	J A 24	22	E B 14	E B 14	E B 15	22
28	E B 15	E B 15	20	19	20	E B 14	E B 14	G	40	G 23	G 26	G 26	G	G	39	36	31	J A 28	J A 24	22	J A 82	J A 19	E B 15	E B 14
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	28	28	28	28	28	28	28	28	28	28	28	28	28	27	28	28	28	28	28	28	28	28	28
MED	E 16	E B 15	E B 16	E B 15	E B 16	E B 15	E B 15	21	26	G 28	36	36	38	37	35	34	30	J A 23	J A 24	21	20	E B 15	E B 16	E B 15
U Q	J A 20	18	20	20	20	20	20	22	30	33	37	38	40	38	38	J A 36	J A 34	J A 28	J A 26	J A 23	J A 22	20	J A 22	J A 22
L Q	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	G	G 22	G 24	G 28	G 27	G 35	G 28	G 28	G	26	E B 20	20	E B 15	E B 15	E B 15	E B 15	E B 15

FEB. 2010 foEs (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

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

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E S 15	E B 14	E B 15	E B 16	E B 14	E B 14	E B 15	18	26	30	35	35	36	34	33	30	24	E B 15	E B 14	E B 15	E B 15	E B 15	E B 14	E B 15
2	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	18	26	G 22	G 24	35	35	36	37	30	21	16	E B 15	E B 15	E B 15	E B 14	E B 15	E B 15
3	E B 15	E B 16	E B 15	E B 15	E B 15	E B 16	E B 15	19	G	32	34	34	32	40	30	36	23	18	E B 15	E B 15	E B 14	E B 15	E B 15	E B 15
4	E B 15	E B 15	16	E B 15	E B 15	E B 15	E B 15	19	26	G 20	34	35	41	33	33	29	29	21	A A 31	18	19	15	E B 15	E B 15
5	16	E B 15	E B 15	E B 14	16	E B 14	E B 14	18	25	32	32	33	35	35	32	27	27	20	18	20	17	16	E B 16	18
6	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	20	28	G 22	34	G 29	33	35	G 23	G 20	G 16	E B 14	E B 15	E B 15	E B 15	E B 14	E B 14	E B 15
7	E B 14	E B 15	E B 16	E B 15	E B 15	E B 15	E B 15	20	35	33	33	34	34	G 25	G 26	29	22	E B 16	E B 15	E B 14	E B 15	E B 15	E B 15	E B 15
8	E B 16	E B 15	E B 14	E B 15	E B 15	E B 15	E B 15	G	G	29	32	34	34	G 26	G 26	G 22	G 18	19	17	17	E B 15	E B 15	E B 15	E B 15
9	E B 14	E B 16	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	G 20	32	32	G 26	34	G 26	G 25	29	28	34	20	16	17	E B 15	E B 15	E B 14
10	E B 14	E B 16	E B 15	E B 15	E B 15	E B 13	E B 15	E B 16	G 20	G 23	35	G 26	36	36	37	31	25	17	17	E B 15	E B 15	E B 14	E B 14	E B 15
11	E B 15	E B 15	E B 16	E B 15	E B 15	E B 15	E B 15	E B 16	G 18	G 23	G 26	35	35	34	G 24	G 25	26	19	16	E B 16	15	E B 15	E B 15	E B 15
12	E B 14	E B 14	E B 16	E B 15	E B 15	E B 15	E B 15	20	26	G 20	32	G 24	33	G 26	35	30	29	19	19	16	16	E B 15	E B 15	E B 15
13	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	21	27	G 23	37	36	36	G 26	37	29	32	19	E B 15	E B 15	16	E B 15	20	E B 15
14	E B 15	E B 15	E B 15	E B 14	E B 15	E B 15	E B 15	21	30	33	34	36	39	36	35	34	24	E B 15	16	E B 16	E B 15	E B 15	E B 15	E B 15
15	E B 16	E B 15	E B 15	E B 14	E B 15	E B 15	E B 16	20	27	32	36	39	36	G 26	37	32	28	19	E B 14	E B 15	E B 15	E B 15	E B 15	E B 16
16	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	20	G 20	G 25	33	37	36	34	30	27	25	E B 15	E B 15	E B 15	E B 15	E B 14	E B 15	E B 15
17	E B 15	17	20	E B 15	E B 15	E B 14	E B 16	19	28	30	36	37	36	38	38	34	28	32	18	A A 74	20	E B 15	E B 15	E B 15
18	E B 15	E B 15	E B 16	E B 13	17	17	E B 15	19	G 20	G 22	G 23	G 25	G 25	G 24	36	G 21	29	21	19	E B 15	E B 15	E B 15	E B 15	E B 15
19	E S 15	E S 14	E B 16	E B 15	E B 16	E B 14	E B 15	20	G 16	35	40	43	42	38	C	43	36	26	20	E B 14	E B 16	E B 15	E B 16	E B 14
20	E B 15	E B 12	E B 15	E B 14	E B 15	E B 16	E B 14	22	30	G 22	G 25	37	35	G 24	G 25	G 24	G 21	19	E B 15	E B 14	E B 15	E B 15	E B 15	15
21	E B 16	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	18	32	G 22	32	32	34	36	35	G 21	29	26	27	17	19	E B 14	E B 14	E B 15
22	E B 15	E B 15	E B 15	E B 14	E B 15	E B 15	E B 15	20	G 20	G 21	G 24	G 26	G 25	40	36	34	30	19	E B 15	E B 15	E B 16	E B 14	E B 15	E B 15
23	E B 15	E B 16	E B 14	E B 16	E B 15	15	E B 16	G 16	G 23	30	G 25	G 24	G 22	36	G 22	31	G 22	24	16	E B 14	E B 15	E B 15	E B 16	E B 15
24	16	E B 15	16	E B 15	E B 14	16	E B 14	G	G 23	31	G 26	G 26	38	38	35	34	41	52	34	20	16	A A 69	E B 15	17
25	E B 16	E B 15	E B 15	16	E B 15	E B 15	E B 15	20	G 19	33	34	G 25	G 26	36	35	G	28	G 16	E B 15	E B 15	24	E B 15	E B 15	E B 16
26	E B 16	E B 15	E B 16	E B 15	E B 15	E B 15	E B 15	22	27	G 28	33	34	34	G 28	G 27	36	32	33	26	E B 15	E B 15	19	E B 15	E B 15
27	E B 16	E B 15	E B 15	E B 14	E B 15	E B 14	E B 15	20	G 21	G 25	35	38	G 26	37	G 22	41	32	32	21	E B 15	E B 14	E B 14	E B 15	E B 15
28	E B 15	E B 15	E B 15	E B 15	E B 15	E B 14	E B 14	G	G 37	G 22	G 23	G 26	G	G	36	34	30	24	19	E B 16	A A 82	E B 15	E B 15	E B 14
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	28	28	28	28	28	28	28	28	28	28	28	28	28	27	28	28	28	28	28	28	28	28	28
MED	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	19	26	G 26	33	34	34	34	33	30	28	19	16	E B 15	E B 15	E B 15	E B 15	E B 15
U Q	E B 16	E B 15	E B 16	E B 15	E B 15	E B 15	E B 15	20	28	32	34	36	36	36	36	34	30	25	20	16	16	15	E B 15	E B 15
L Q	E B 15	E B 15	E B 15	E B 14	E B 15	E B 14	E B 15	G	G 20	G 22	G 26	G 26	G 32	G 26	G 26	G	24	E B 16	E B 15	E B 15	E B 15	E B 14	E B 15	E B 15

FEB. 2010 fbEs (0.1MHz)

IONOSPHERIC DATA STATION Kokubunji

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

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

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

IONOSPHERIC DATA STATION Kokubunji

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

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	316	308	F	F	F	468	308	347	378	335	357	333	355	362	372	380	396	375	338	329	315	327	304	F
2	298	313	338	F	396	F	F	381	365	354	327	353	358	343	369	369	389	407	321	335	321	331	F	308
3	F	F	F	360	F	318	324	353	363	328	317	334	354	361	358	370	379	391	358	343	334	350	339	341
4	308	308	298	311	341	342	387	374	376	370	358	344	352	359	357	373	397	359	A	344	355	335	F	F
5	F	F	F	F	382	F	378	377	394	351	297	352	354	351	376	384	384	381	368	347	370	318	F	F
6	F	F	F	F	F	F	347	392	361	336	381	337	373	356	365	361	378	393	349	352	360	347	326	F
7	F	F	F	307	F	344	330	384	368	369	333	345	336	355	364	378	382	378	341	326	334	325	316	F
8	F	302	312	339	370	354	353	381	392	338	359	360	361	370	357	354	368	371	331	345	360	298	F	F
9	322	317	F	336	380	381	324	364	363	373	368	341	345	350	381	384	385	374	349	328	340	309	304	297
10	295	312	315	323	336	360	360	382	369	356	362	352	327	354	360	369	384	378	349	308	333	348	312	322
11	317	304	320	308	352	350	321	358	367	345	348	333	354	351	359	357	364	380	354	320	337	330	308	301
12	310	306	325	341	368	368	355	379	368	367	340	323	347	349	359	356	372	370	341	352	365	320	299	308
13	293	304	307	328	348	352	326	386	383	371	340	337	325	343	348	365	366	362	355	324	329	336	301	297
14	311	302	310	320	338	337	381	378	353	347	371	337	325	352	353	359	359	366	358	331	308	290	315	305
15	288	315	327	334	324	306	317	375	374	362	358	341	337	339	355	370	373	353	324	315	312	297	308	350
16	362	345	321	293	307	322	340	388	380	338	328	343	339	341	357	369	350	352	324	354	335	326	334	290
17	295	298	321	315	348	355	332	365	373	369	369	350	324	352	374	369	369	378	347	A	316	325	314	300
18	F	F	F	F	F	F	F	394	375	381	378	339	359	353	355	351	365	390	338	362	307	319	304	330
19	294	F	F	F	391	F	332	384	382	375	361	324	336	356	C	372	362	392	328	353	346	289	314	314
20	317	328	342	331	327	308	F	355	367	363	380	366	357	343	362	350	365	366	345	324	347	377	335	324
21	316	F	F	F	F	F	F	373	383	368	382	353	344	334	358	354	376	375	350	355	374	318	F	301
22	297	316	311	315	329	317	340	364	366	376	384	342	313	340	360	359	378	378	408	324	329	317	F	F
23	330	313	316	302	320	329	334	358	355	342	338	349	352	365	342	370	383	382	354	310	332	332	311	320
24	307	320	317	314	327	329	351	386	373	363	346	343	325	354	338	365	383	372	369	316	317	A	322	331
25	312	293	319	309	338	332	382	399	359	364	332	356	323	364	341	355	363	373	376	320	311	328	331	320
26	319	345	324	315	323	320	355	394	395	364	380	352	357	329	351	368	352	368	348	360	332	322	321	326
27	311	331	315	314	332	340	349	394	381	369	383	370	357	342	361	368	352	367	355	369	315	322	316	303
28	335	340	317	321	314	337	368	387	399	374	374	354	332	338	356	354	358	355	363	344	A	F	305	314
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	22	21	19	21	22	22	24	28	28	28	28	28	28	28	27	28	28	28	27	27	27	26	22	21
MED	311	313	317	315	338	338	344	380	373	364	358	344	346	352	358	368	372	374	349	335	333	325	314	314
U Q	317	324	324	332	368	354	358	386	382	370	376	352	356	356	364	370	383	380	358	352	347	332	322	325
L Q	297	304	312	310	327	322	328	364	366	346	339	337	330	342	355	356	364	366	338	324	316	318	305	301

IONOSPHERIC DATA STATION Kokubunji

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

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1										U L 380	L	401	365	394	U L 383	L	L							
2										U L 370	U L 388	384	L	U L 378	A	A	L							
3									L	L	L	U L 393	L	A	L	A								
4											L	398	A	397	L	L								
5									L		U L 403	367	428	A	U L 387	L								
6										L	L	U L 398	U L 411	L	L	L								
7										L	L	U L 372	373	U L 375	L	L	L							
8											L	U L 387	L	L	L	L								
9											L	U L 393	U L 385	U L 362		L								
10										L	L	L	L	U L 375	A	L								
11										L	L	U L 397	378	L	U L 389	L								
12										L	U L 368	L	407	U L 380	L	L								
13										L	L	L	U L 388	L	L									
14											A	L	L	L	L	A	L							
15											L	U L 384	377	L	L	L								
16											L		L	L	L	L								
17										L	U L 383	L	L	L	A									
18									L		L	L	U L 389	L	L	L								
19											A	A	A	U L 401	C	A								
20										L		L	U L 410	L	L	L								
21										L	L	L	U L 382	L	L	L								
22										L	U L 406	U L 393	U L 414	U L 378	A	A	A							
23										L	U L 380	L	L	L	L	A								
24									L	L	L	U L 389	L	A	L									
25									L	L	L	L	U L 422	U L 373	L	L								
26										L	L	L	U L 383	L	L	A	A							
27										L	L	A	370	A	L	A	A							
28									A	L	L	L	U L 395	U L 394	L	A	A							
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT										2	6	13	17	11	3									
MED										U L 375	U L 386	U L 393	U L 388	U L 378	U L 387									
U Q											U L 403	398	U L 410	U L 394	U L 389									
L Q											U L 380	384	378	U L 375	U L 383									

FEB.2010 M(3000)F1 (0.01)

IONOSPHERIC DATA STATION Kokubunji

FEB. 2010 h′F2 (KM) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1										286	254	308	264	268	248	228	230							
2										264	304	246	246	278	244	240	220							
3									240	280	288	264	244	234	242	240								
4											264	272	252	242	244	232								
5									220		338	252	246	236	240	228								
6										248	236	270	248	254	252	238								
7										258	258	260	260	244	232	230	226							
8											248	256	250	242	252	242								
9											246	300	262	258		228								
10										242	252	260	282	260	250	226								
11										258	260	262	240	246	246	234								
12										242	280	252	258	254	238	238								
13										240	274	258	272	266	254									
14											228	260	264	258	256	238	238							
15											240	274	268	258	256	232								
16											264		260	246	252	244								
17										230	226	244	274	252	228									
18									226		226	254	244	246	248	254								
19											254	248	244	240	C	230								
20										238		226	250	246	244	250								
21										238	232	258	266	270	252	250								
22										230	220	254	262	266	250	232	226							
23										260	248	240	238	234	250	238								
24									228	236	252	240	258	238	262									
25									244	242	258	244	284	244	256	258								
26										236	230	248	258	278	260	246	232							
27										234	218	242	266	266	256	240	232							
28									218	244	244	258	270	262	260	252	226							
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT									6	19	27	27	28	28	26	25	8							
MED									227	242	252	256	259	253	250	238	228							
U Q									240	258	264	262	266	264	256	245	232							
L Q									220	236	232	246	247	243	244	231	226							

IONOSPHERIC DATA STATION Kokubunji

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

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E B 276	E B 284	E B 274	212	178	166	E B 278	224	222	220	214	218	E A 248	218	220	202	192	192	214	E B 236	E B 258	E B 256	E B 278	E B 280
2	E B 312	E B 276	224	E B 240	206	E B 238	E B 238	208	218	190	206	E A 224	206	222	A	A	194	190	204	210	E B 258	E B 240	E B 262	E B 236
3	E B 288	E B 262	E B 284	226	180	E B 294	E B 248	216	H 186	224	E A 228	200	214	A	202	A	224	198	202	220	214	222	214	E B 222
4	E B 302	E B 298	E A 304	E B 296	E B 256	224	194	212	220	222	206	202	A	198	204	196	204	202	A	E A 242	E A 230	218	E B 234	E B 264
5	E A 278	E B 268	E B 270	E B 238	202	192	210	194	178	226	186	198	190	A	192	200	206	208	210	226	202	224	E B 224	E A 268
6	E B 242	E B 236	E B 250	E B 226	214	202	214	210	202	192	196	198	176	196	194	210	212	192	198	210	208	E B 216	E B 228	E B 274
7	E B 288	E B 284	E B 272	E B 250	210	E B 242	E B 236	200	222	218	200	212	202	204	198	194	194	202	208	E B 234	226	E B 226	E B 280	E B 288
8	E B 278	E B 278	E B 274	E B 240	220	204	E B 230	206	204	196	178	204	200	202	200	200	210	202	208	212	202	E B 298	E B 268	E B 280
9	E B 234	E B 256	E B 288	226	218	196	E B 230	H 186	H 182	226	198	182	176	202	218	190	202	210	224	230	E A 234	E B 254	E B 258	E B 284
10	E B 292	E B 278	E B 270	E B 264	E B 234	204	208	H 178	188	186	208	198	200	218	A	206	200	194	202	E B 258	E B 236	210	E B 248	E B 216
11	E B 264	E B 260	E B 270	E B 258	E B 230	208	224	H 160	H 178	202	198	194	204	196	190	198	210	206	200	E B 238	210	E B 220	E B 262	E B 288
12	E B 272	E B 280	E B 262	E B 234	216	202	228	206	218	204	196	198	180	206	204	206	218	210	208	212	206	E B 234	E B 270	E B 290
13	E B 302	E B 288	E B 276	E B 256	222	194	E B 264	206	214	210	208	204	198	208	222	222	218	202	202	212	E A 236	220	E A 276	E B 288
14	E B 278	E B 280	E B 274	E B 244	E B 240	228	196	196	206	228	A	200	212	214	216	A	198	206	200	212	E B 248	E B 290	E B 268	E B 282
15	E B 288	E B 252	E B 226	E B 218	228	E B 286	E A 260	206	214	206	200	200	214	212	218	A	210	202	224	E B 234	E B 244	E B 266	E B 262	214
16	204	208	E B 262	E B 276	E B 290	E B 264	E B 218	218	212	202	200	244	220	202	204	208	204	210	226	214	198	214	230	E B 286
17	E B 284	E B 300	E A 262	E B 256	222	204	222	214	206	194	188	212	202	214	A	218	212	208	204	A	E A 244	226	E B 232	E B 274
18	E B 256	E B 246	E B 248	E B 246	E A 250	226	202	200	184	202	196	184	H 182	188	214	212	E A 222	200	202	200	E B 240	E B 248	E B 270	E B 266
19	E B 286	E B 274	E B 254	222	192	206	E B 244	202	214	220	A	A	A	210	C	A	224	210	220	202	222	E B 248	E B 282	E B 264
20	E B 254	E B 240	214	224	E B 244	E B 264	E B 238	214	218	208	216	186	182	208	198	198	216	210	194	202	222	200	E B 230	E B 234
21	228	E B 256	E B 294	E B 254	224	210	192	H 174	204	204	194	190	182	202	220	206	218	210	214	202	212	216	E B 256	E B 264
22	E B 270	E B 272	E B 266	E B 266	E B 236	E B 250	E B 240	208	212	204	190	180	178	E A 232	A	A	A	208	184	206	222	E B 250	E B 318	E B 260
23	222	E B 264	E B 264	E B 296	E B 260	228	E B 226	H 196	214	198	194	188	176	206	186	A	218	200	196	E B 244	E B 234	210	E B 248	E B 248
24	E A 242	E B 250	E A 260	E B 252	E B 236	220	196	202	184	186	186	198	218	A	210	232	224	E A 232	220	E A 234	E A 260	A	E B 252	E A 254
25	E B 274	E B 284	E B 250	E B 262	E A 240	E B 238	E B 202	204	174	200	204	204	H 186	216	222	226	218	210	192	214	E A 278	E B 242	E B 242	E B 252
26	E B 248	E B 242	E B 242	E B 258	E B 238	E B 236	210	204	194	188	198	170	172	196	204	A	A	210	208	208	E B 232	E A 250	E B 240	E B 246
27	E B 270	E B 248	E B 256	E B 256	E B 244	E B 216	216	202	212	200	190	A	208	A	212	A	A	216	206	192	E B 270	E B 244	E B 260	E B 294
28	E B 242	224	E B 254	E B 266	E B 242	E B 230	206	202	A	196	204	198	190	196	208	A	A	210	206	200	A	E B 252	E B 234	E B 252
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	28	28	28	28	28	28	28	27	28	26	26	26	24	23	18	24	28	27	27	27	27	28	28
MED	E B 273	E B 266	E B 263	E B 251	229	U 210	U 209	204	206	203	198	198	196	206	204	206	210	206	206	207	E 232	E B 234	E B 257	E B 265
U Q	E B 287	E B 280	E B 274	E B 260	E B 241	E B 238	E B 238	209	214	219	206	204	208	214	218	212	218	210	214	E B 234	E B 244	E B 250	E B 269	E B 283
L Q	E 245	E B 249	E B 252	230	215	204	207	H 198	186	196	194	190	182	200	198	198	203	201	200	206	212	218	E B 234	E B 250

FEB.2010 h'F (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

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

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1								B 114	118	122	120	120	118	120	120	120		B						
2								B 122	122	124	118	122	118	A	A	A	A	B						
3								B 112	116	120	A	A	A	A	A	A	A	B						
4								B 116	120	126	118	118	116	118	A	A	A	B						
5								B 126	126	122	A	A	118	118	116		A	B						
6								E B 132	116	120	118	124	A	A	112	116	118	B						
7								A	A	A	A	A	A	122	122	A	A	B						
8								124	124	118	A	A	A	118	118	122	112	B						
9								B 122	114	A	118		A	116	112	A	A	B						
10								B 118	120	118	118	122	124	122	122	110	B							
11								B 114	120	120	A	A	122	122	122	A	B							
12								B 116	120	118	118	116	116	116	116	A	B							
13								B 120	122	120	118	A	120	A	A	A	B							
14								120	126	122	122	120	120	116	116	116	A	B						
15								B 120	122	124	124	122	126	120	120	A	B							
16								124	124	124	A	A	A	A	A	A	A	B						
17								A	A	114	114	112	114	114	A	A	A	B						
18								A 120	124	122	120	116	116	112	110	116	B							
19								B 112	112	120	118	118	118	C	118	120	B							
20								124	116	114	120	A	A	118	110	118	116	B						
21								B 122	124	116	118	A	120	120	122	120	114							
22								A 114	118	118	114	118	122	120	122	122	B							
23								122	122	A	116	118	118	118	110	A	122	124							
24								124	122	A	122	118	124	118	120	122	A	B							
25								114	124	118	118	118	118	114	116	122	120	120						
26								120	122	122	A	A	A	124	120	A	A	A						
27								B 122	122	122	122	122	A	124	118	118	A							
28								120	128	118	118	122	122	124	126	124	126	B						
29																								
30																								
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								10	26	25	23	20	16	24	22	18	13	3						
MED								122	121	120	120	118	119	118	119	120	120	120						
U Q								124	122	122	122	120	122	122	120	122	121	124						
L Q								120	116	118	118	118	118	116	116	116	116	114						

IONOSPHERIC DATA STATION Kokubunji

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

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	S	B	B	B	B	B	B	140	146	150	144	142	130	126	120	116	132	B	B	90	B	B	B	B
2	B	B	114	B	B	B	B	148	168	104	104	140	132	122	108	102	100	96	98	98	B	132	B	B
3	B	B	B	B	B	106	104	156	G	160	130	108	104	104	104	104	104	106	B	116	B	98	94	94
4	94	B	94	100	100	B	B	160	152	108	166	140	118	118	124	98	96	96	92	92	90	96	96	106
5	108	102	102	B	126	B	B	170	124	160	148	104	100	146	148	122	94	88	98	98	98	98	96	94
6	94	92	92	92	90	B	B	136	128	106	116	108	98	94	90	94	98	B	88	B	B	B	B	B
7	102	98	102	100	94	100	B	106	104	100	104	104	94	102	102	96	92	B	102	B	90	B	B	B
8	102	100	B	B	92	92	92	G	G	116	102	104	98	98	100	G 104	90	86	84	100	B	B	114	B
9	B	B	B	100	B	B	B	B	104	152	106	100	100	102	94	92	86	86	86	86	102	B	B	B
10	B	B	102	B	B	B	B	B	102	102	158	102	154	146	124	116	112	98	92	90	B	B	B	B
11	B	B	B	B	B	B	B	B	106	102	102	106	104	126	106	104	90	100	102	96	96	B	B	104
12	104	B	B	B	B	96	98	152	156	102	118	106	114	96	120	110	100	94	92	92	92	B	B	B
13	B	B	B	B	B	B	B	136	142	106	158	120	106	106	108	108	104	100	102	102	104	102	100	102
14	106	106	106	B	B	B	B	154	162	160	126	120	120	118	122	114	104	B	96	94	92	94	92	B
15	B	B	B	B	B	B	94	140	146	138	122	120	120	108	118	116	104	104	B	B	100	B	B	B
16	B	B	B	100	96	102	128	128	110	104	106	106	104	104	100	98	96	B	96	92	104	B	B	B
17	B	104	94	94	96	100	96	96	92	114	116	114	114	114	106	102	104	104	102	96	96	96	94	96
18	B	94	B	B	98	98	98	96	102	102	102	100	100	98	142	90	136	128	102	94	B	B	B	102
19	S	S	B	B	B	B	B	148	98	150	124	120	126	122	C	114	120	108	100	B	102	B	B	B
20	B	B	98	96	B	B	B	142	164	98	98	94	94	94	94	100	106	138	92	B	100	100	96	96
21	B	B	B	B	B	B	B	116	160	106	116	114	104	162	168	104	146	110	100	100	94	B	102	B
22	146	130	110	B	102	102	B	100	96	102	102	100	104	144	134	120	118	120	94	92	B	B	B	B
23	B	B	B	102	B	102	B	108	98	98	100	98	98	152	100	92	104	114	114	B	108	100	92	B
24	96	96	96	96	96	96	B	G	106	106	106	106	150	134	126	122	108	108	100	100	104	104	112	98
25	98	B	102	102	102	106	104	136	106	154	142	102	106	152	146	G	116	100	96	B	102	108	100	94
26	102	B	B	B	96	B	B	138	110	104	102	102	102	106	104	102	104	120	100	B	100	96	96	96
27	94	B	B	B	B	B	B	128	102	100	118	132	102	102	106	122	122	108	106	90	B	B	B	98
28	B	B	96	96	102	B	B	G	122	102	108	104	G	G	112	150	132	120	108	106	100	112	B	B
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	12	9	13	11	13	11	8	22	26	28	28	28	27	27	27	27	28	23	25	20	19	13	13	12
MED	102	100	102	100	96	100	98	137	110	106	116	106	104	114	108	104	104	104	98	95	100	100	96	97
U Q	105	105	104	100	102	102	104	148	146	144	128	120	120	134	124	116	117	114	102	100	102	106	101	102
L Q	95	95	95	96	95	96	95	116	102	102	103	102	100	102	102	98	97	96	92	92	94	96	94	95

IONOSPHERIC DATA STATION Kokubunji

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

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

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

FEB. 2010 TYPES OF Es

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

f-PLOTS OF IONOSPHERIC DATA

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

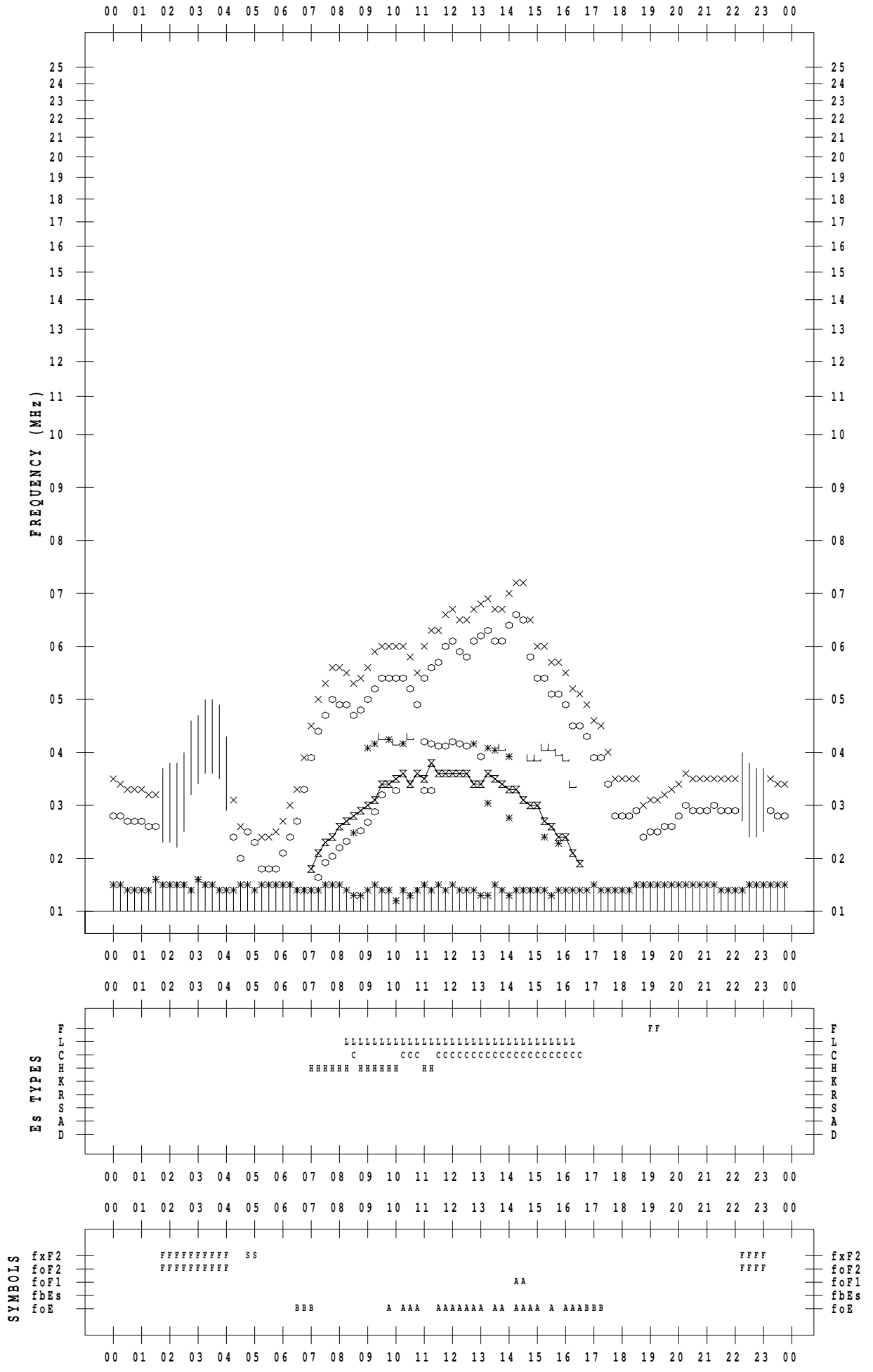
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2010/ 2/ 1

135 °E MEAN TIME



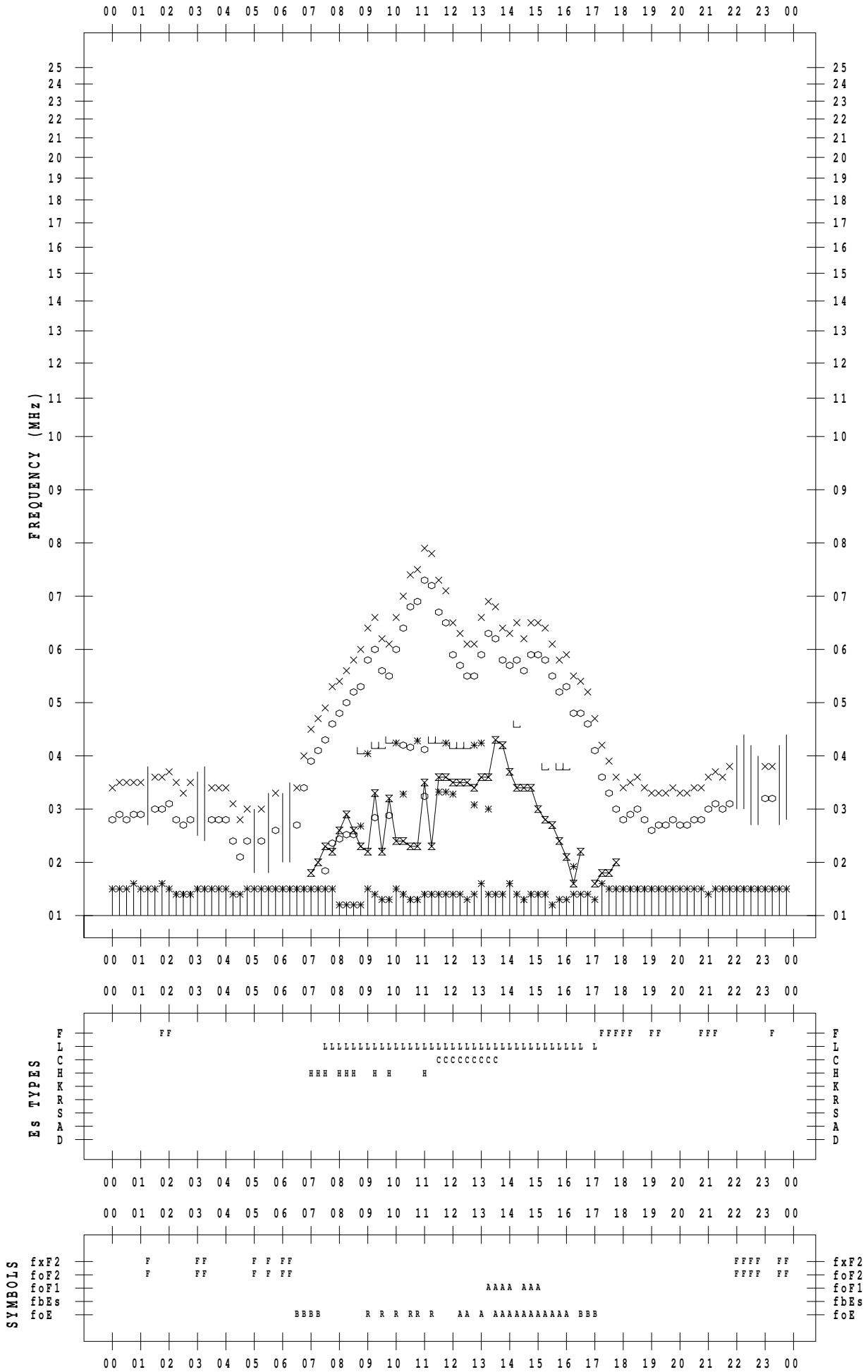
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2010/ 2/ 2

135 °E MEAN TIME



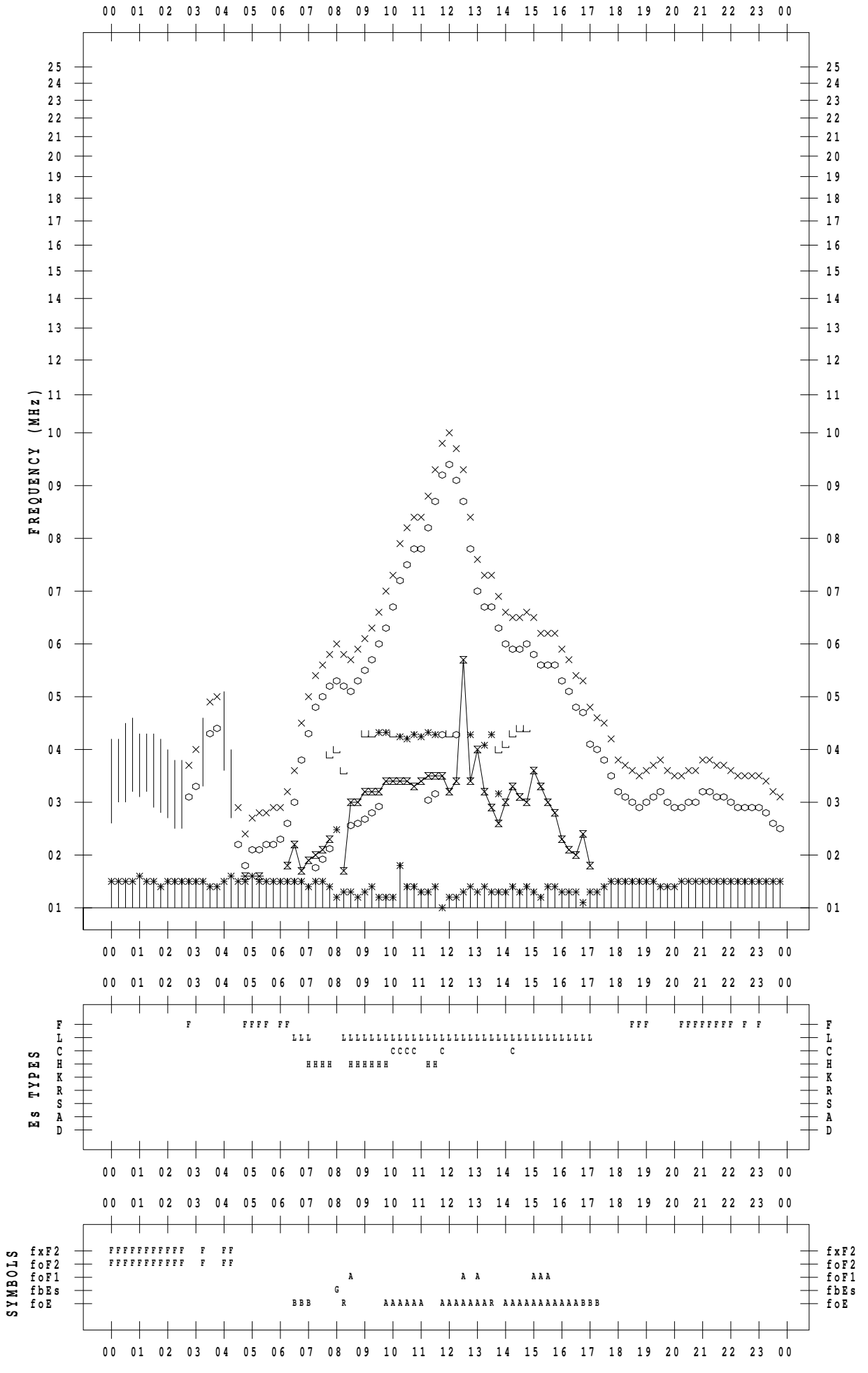
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2010/ 2/ 3

135 °E MEAN TIME



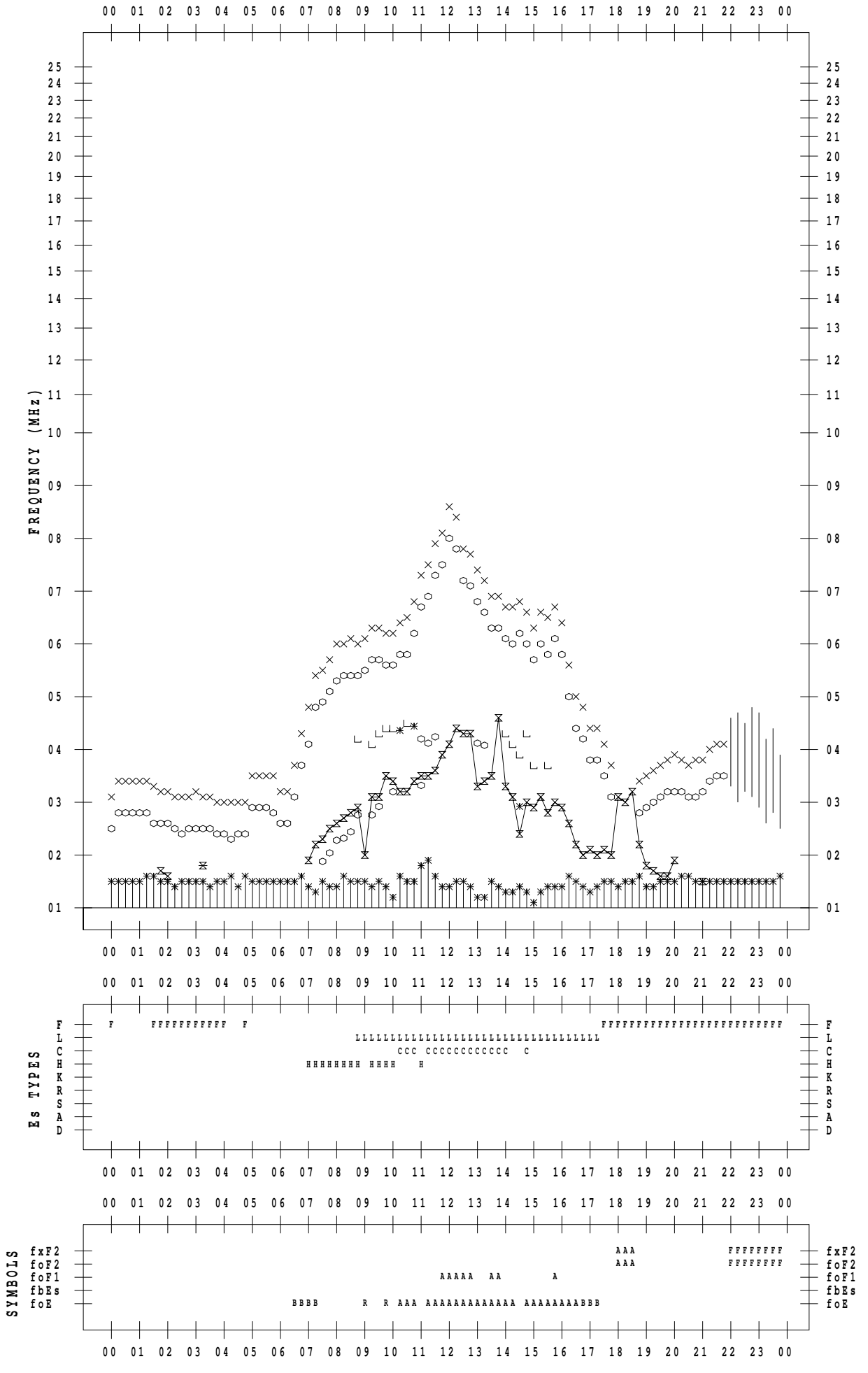
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2010/ 2/ 4

135 °E MEAN TIME



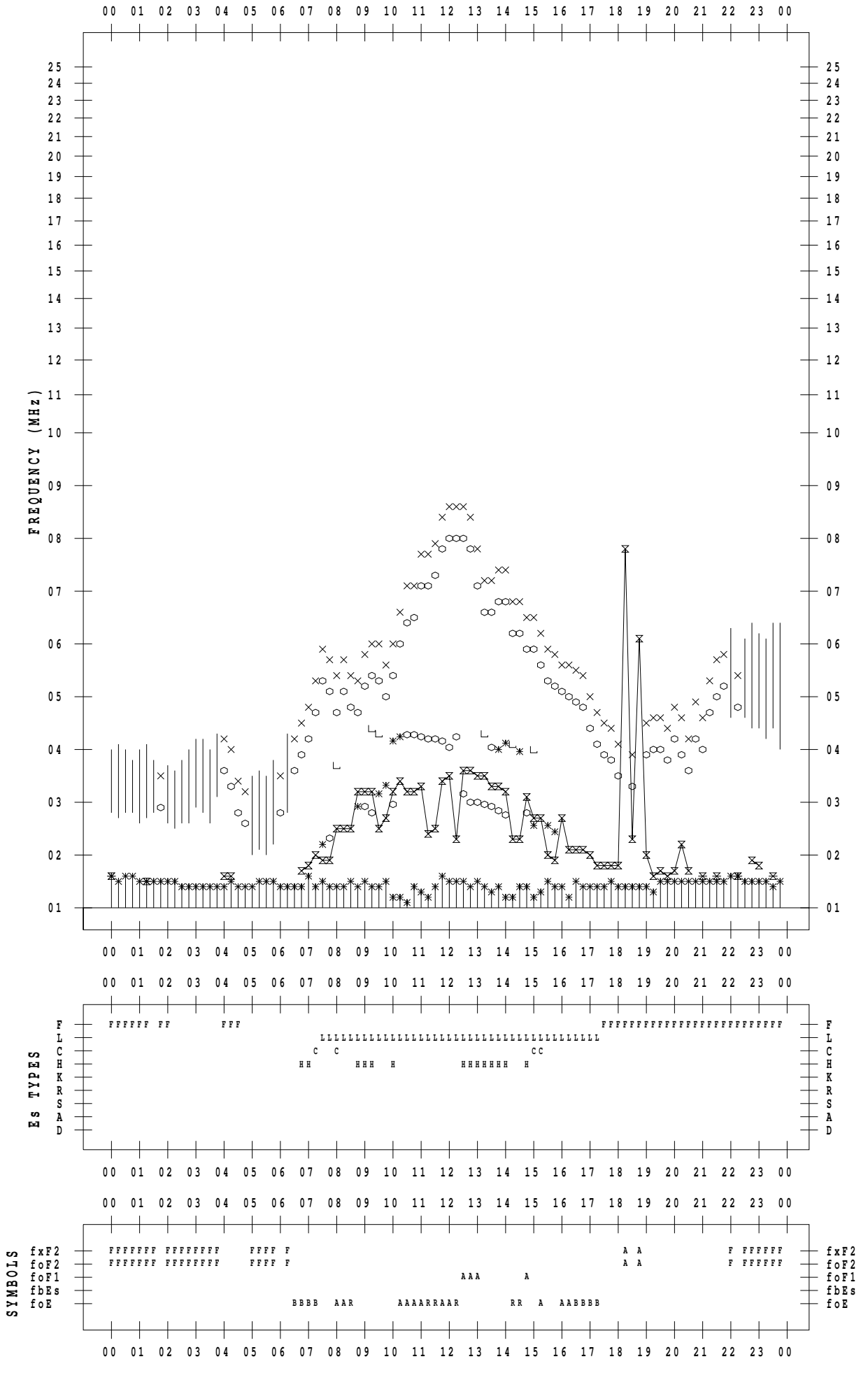
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2010/ 2/ 5

135 °E MEAN TIME



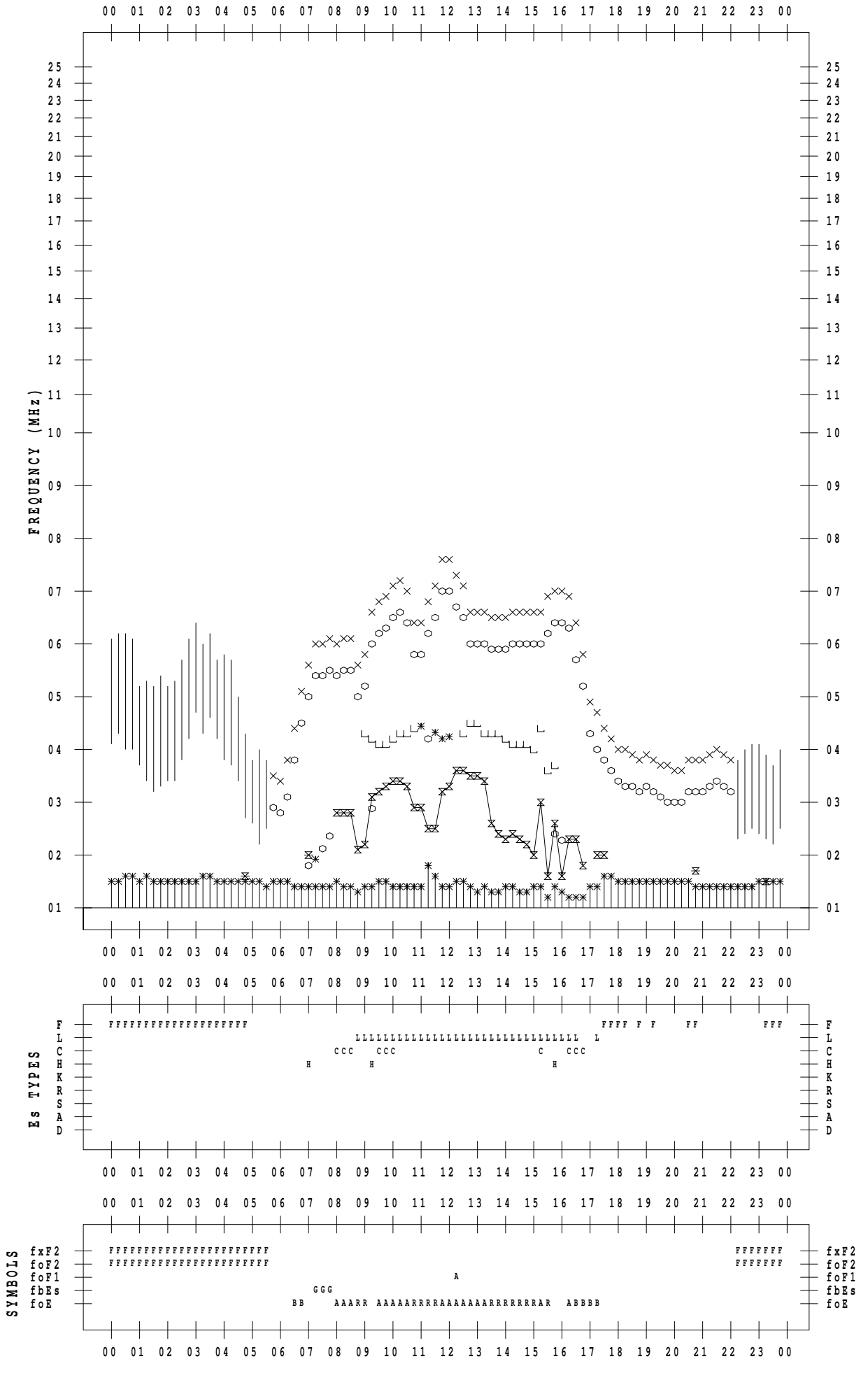
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2010/ 2/ 6

135 °E MEAN TIME



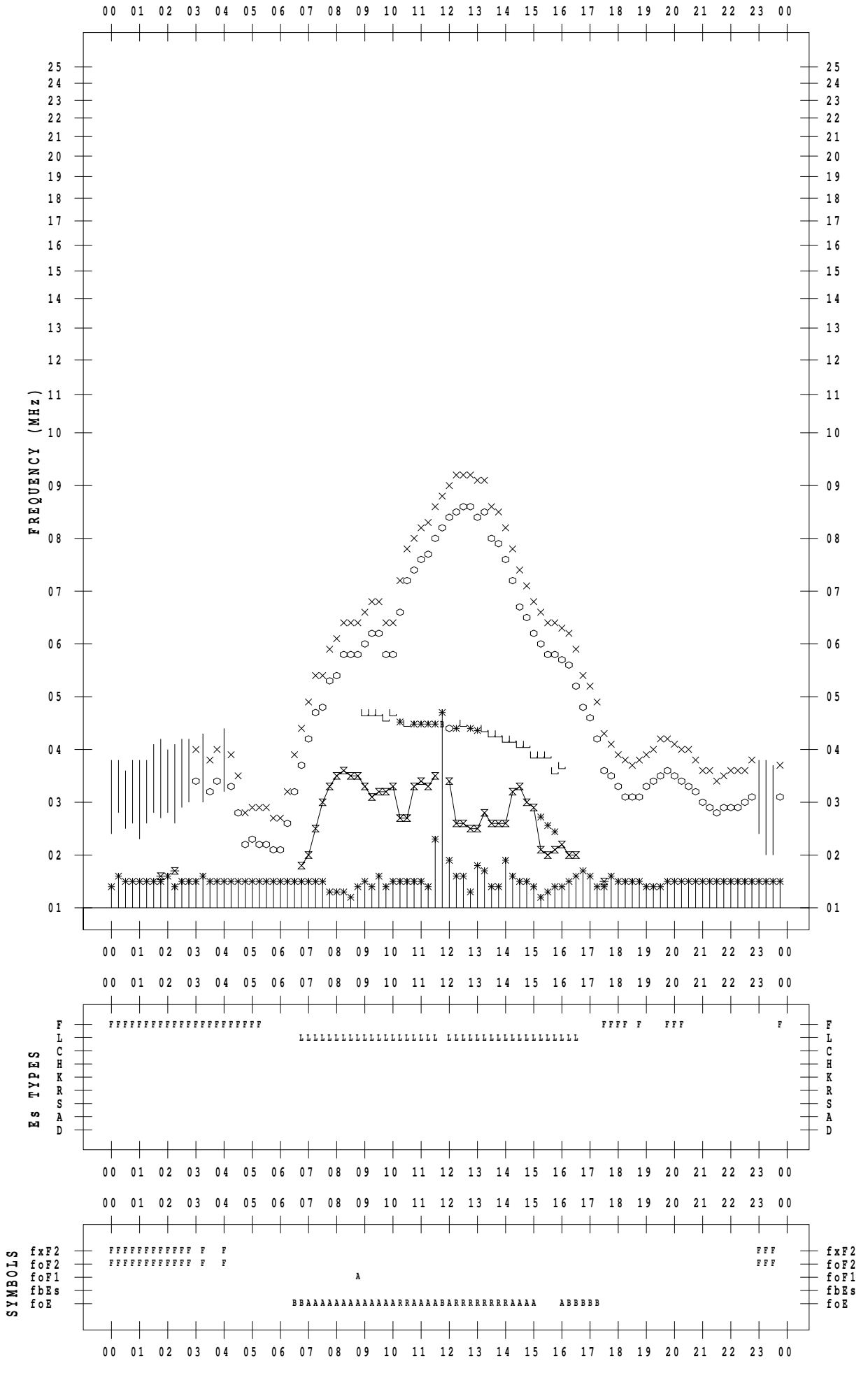
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2010/ 2/ 7

135 °E MEAN TIME



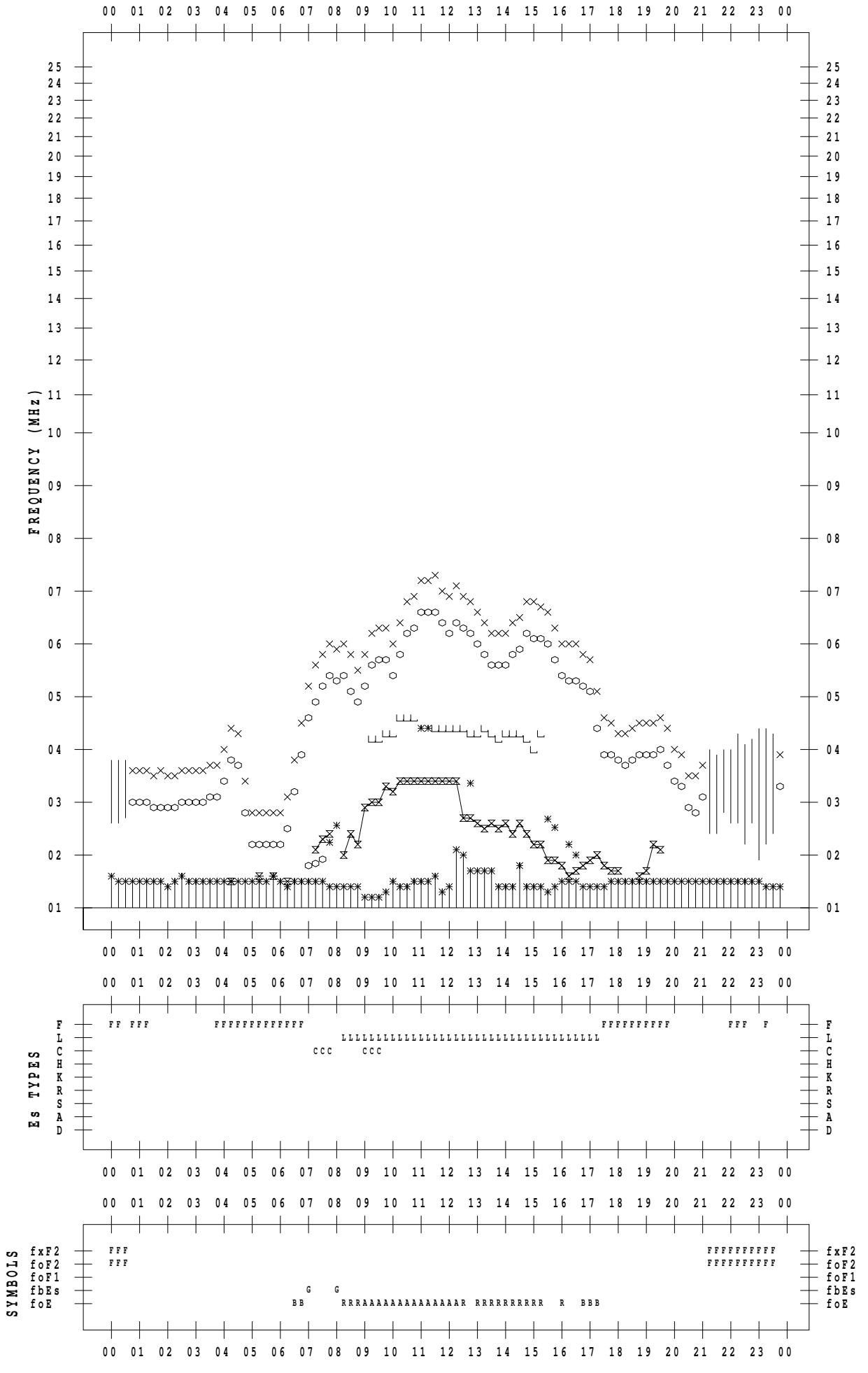
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2010/ 2/ 8

135 °E MEAN TIME



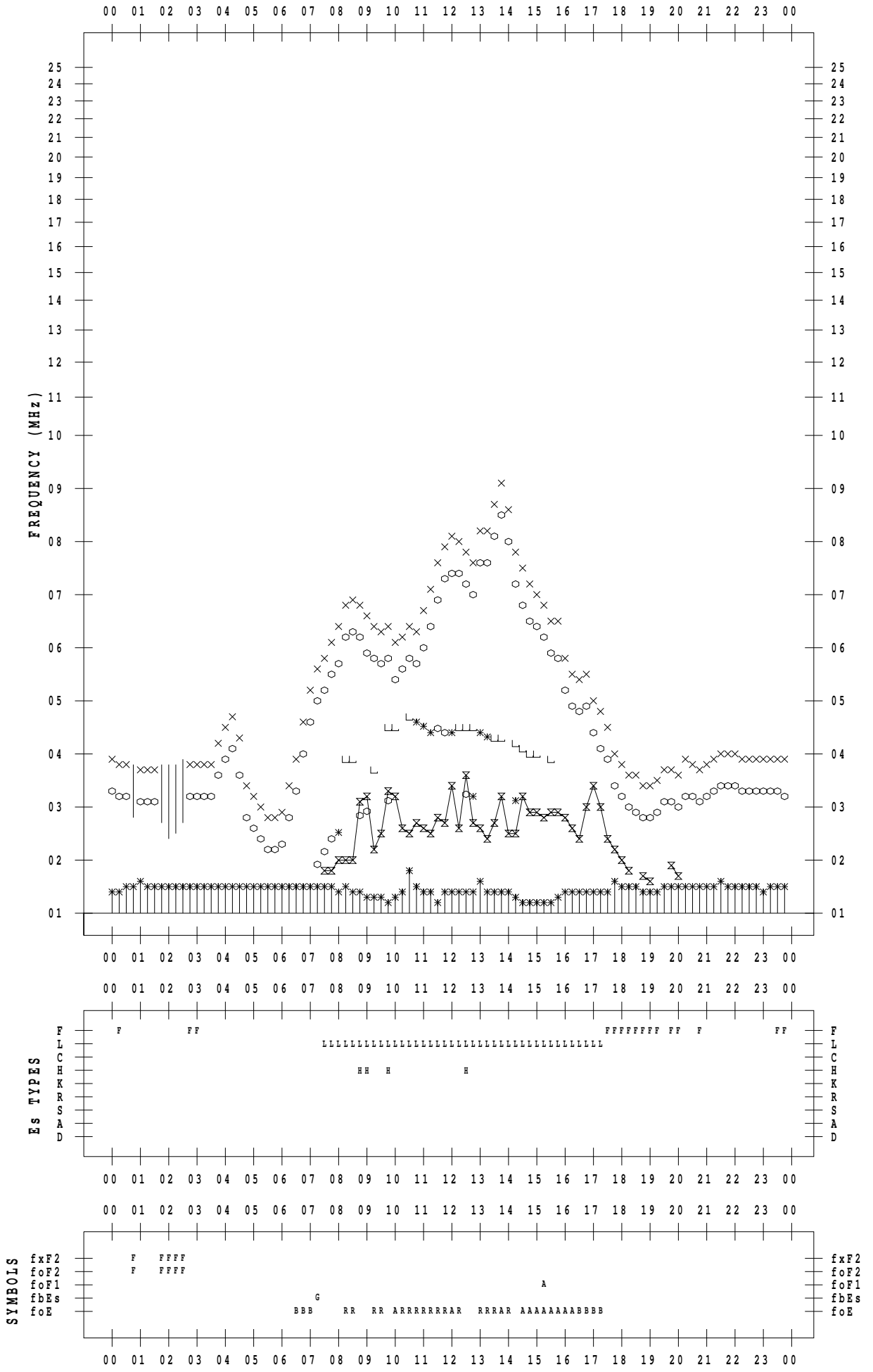
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2010/ 2/ 9

135 °E MEAN TIME



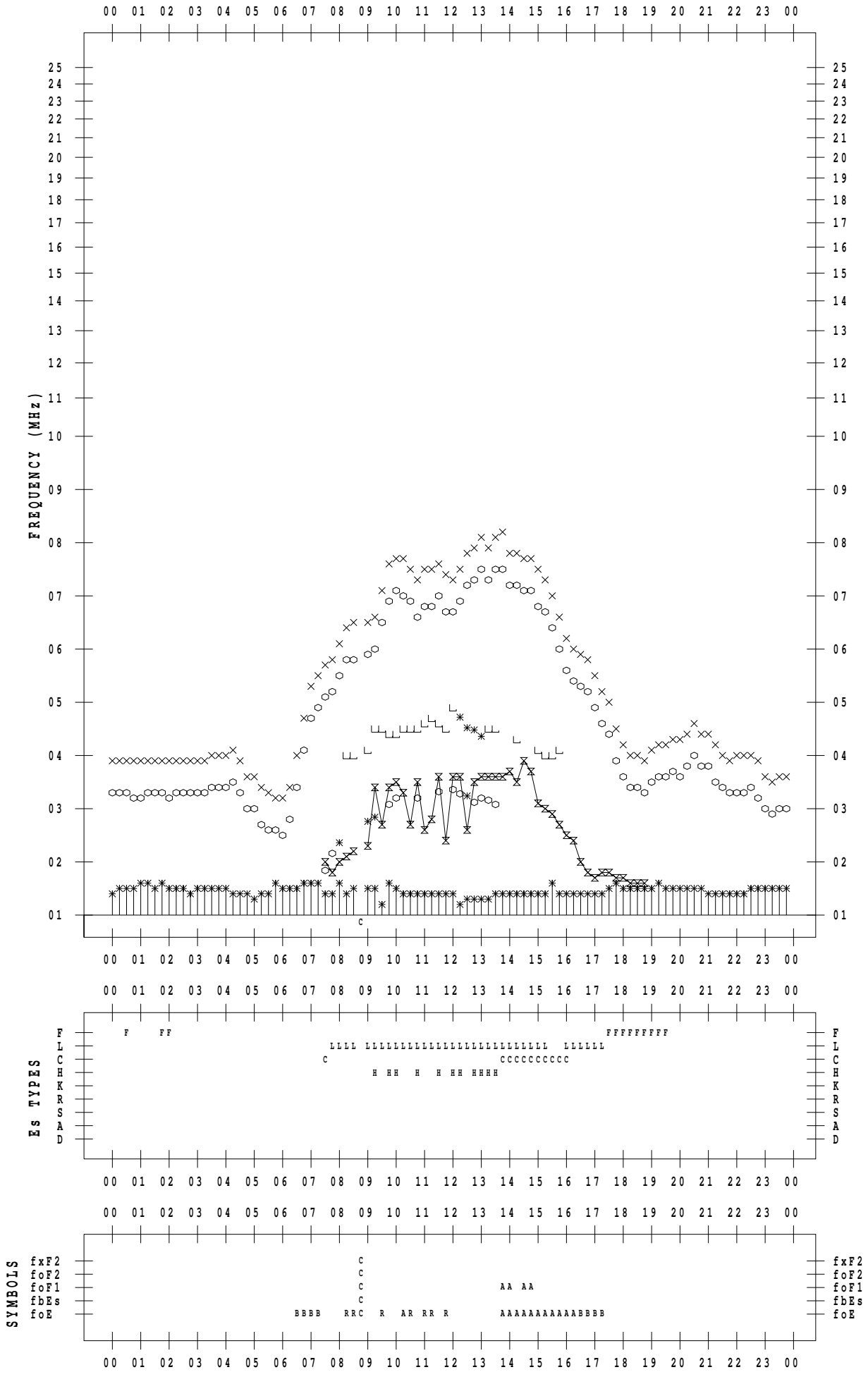
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2010/ 2/10

135 °E MEAN TIME



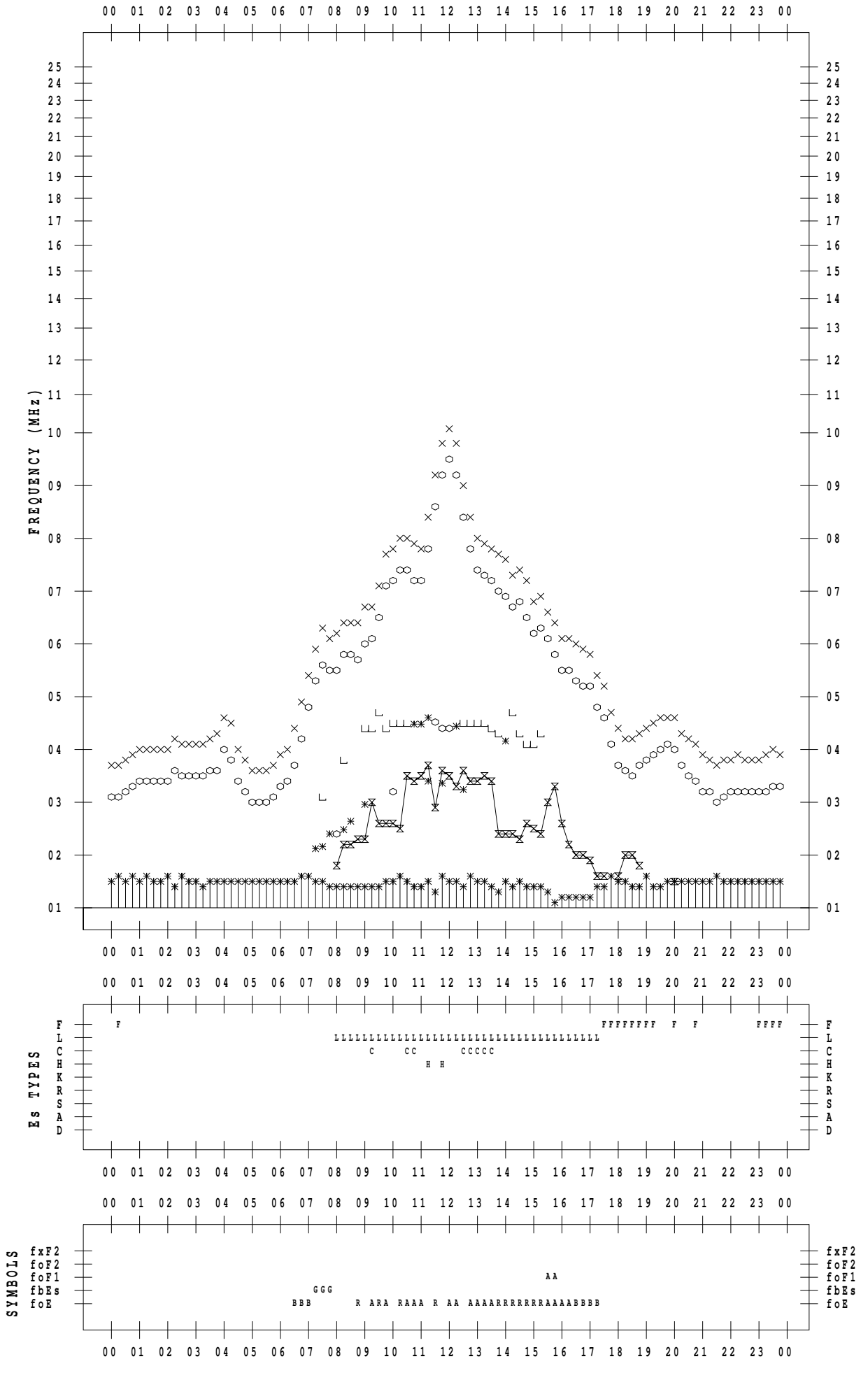
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2010/ 2/11

135 °E MEAN TIME



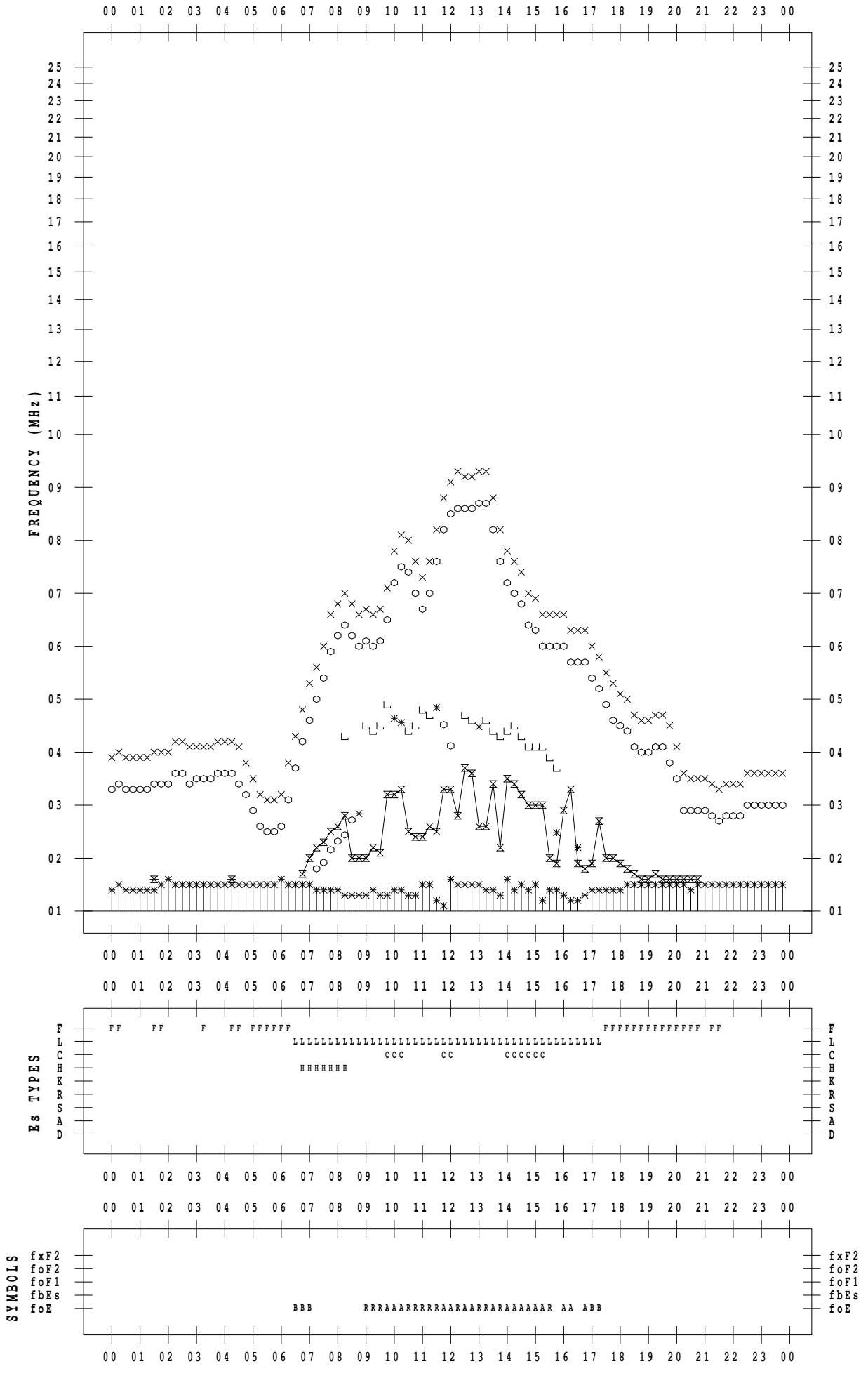
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2010/ 2/12

135 °E MEAN TIME



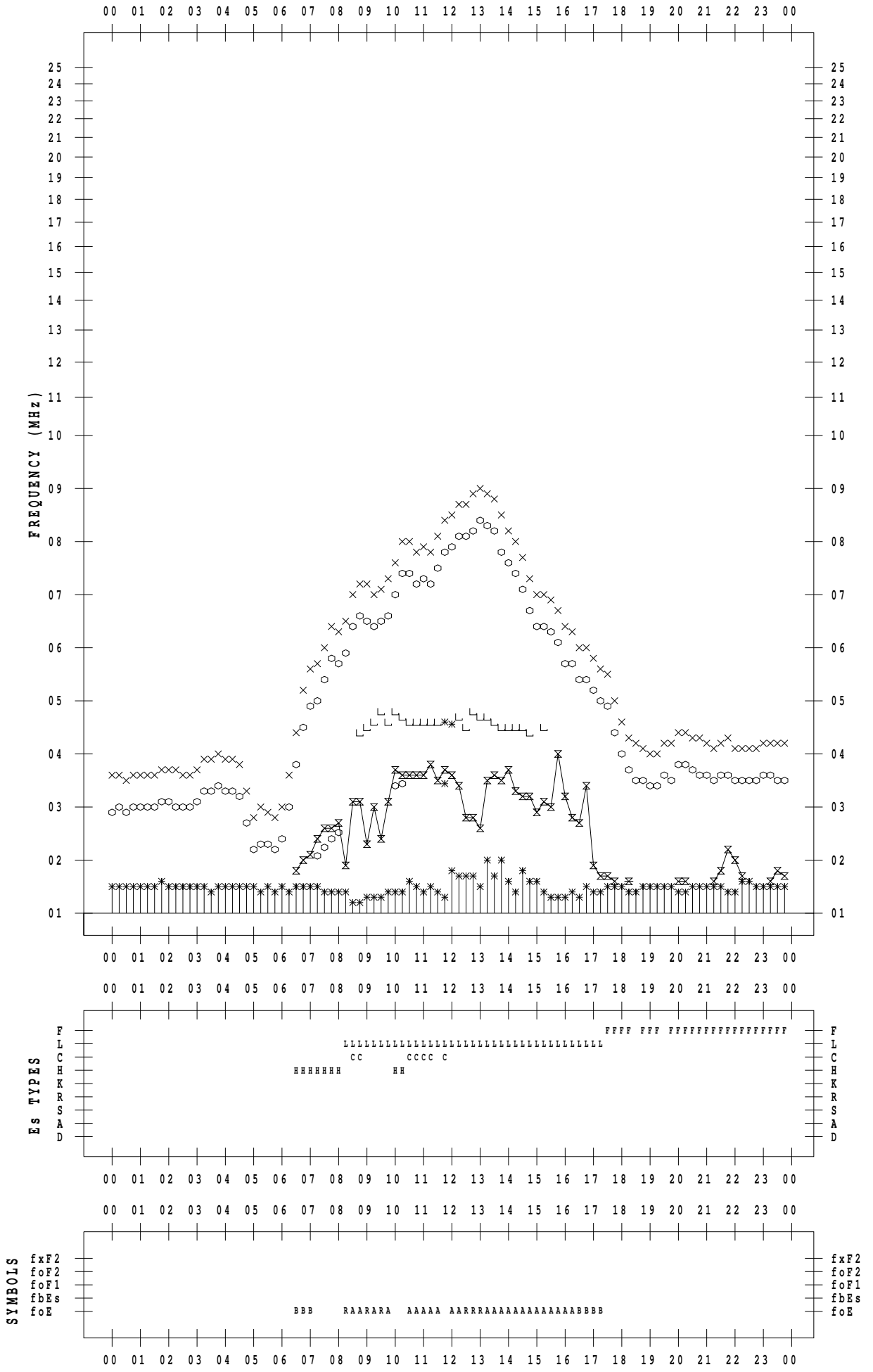
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2010/ 2/13

135 °E MEAN TIME



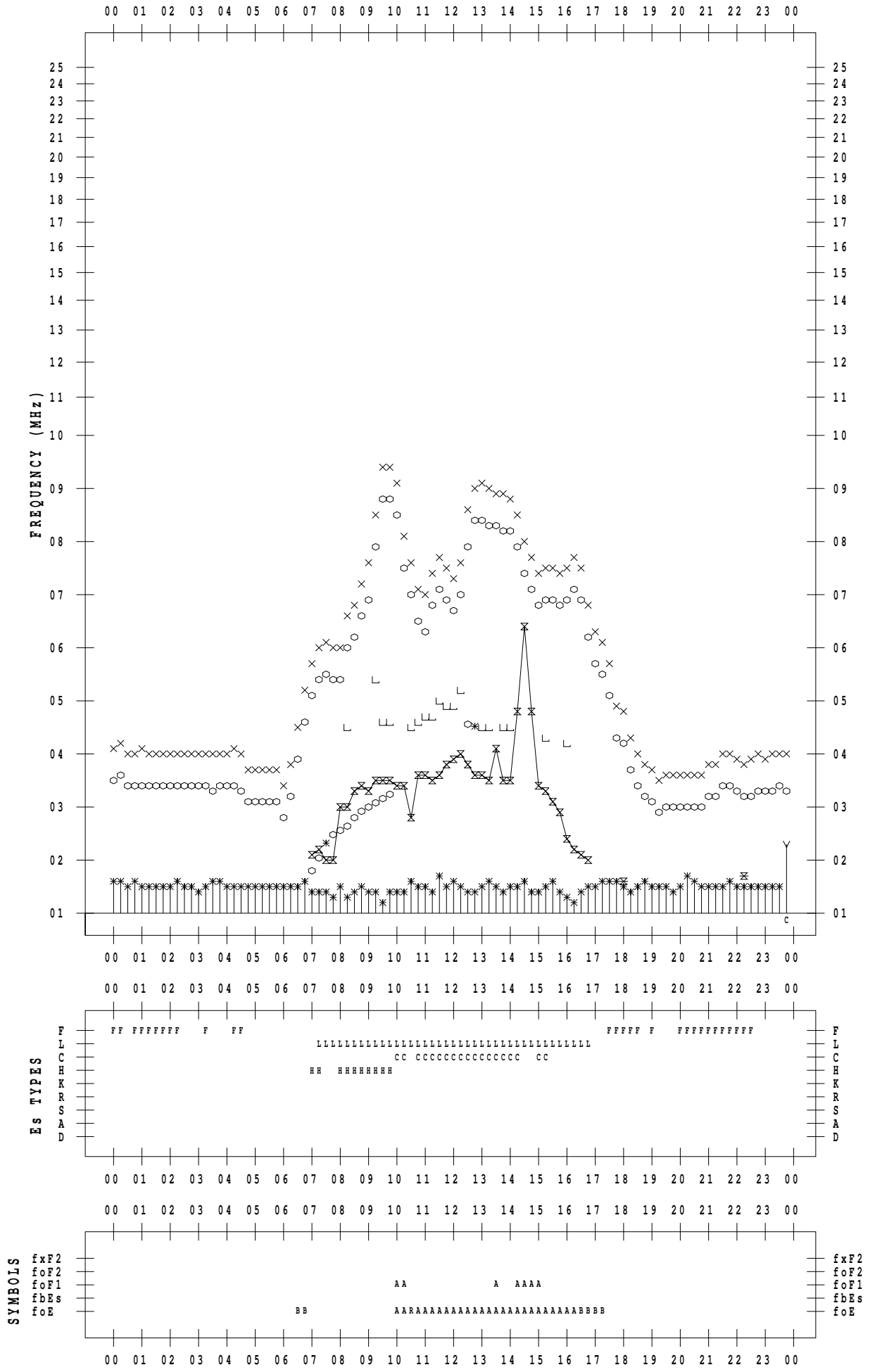
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2010/ 2/14

135 °E MEAN TIME



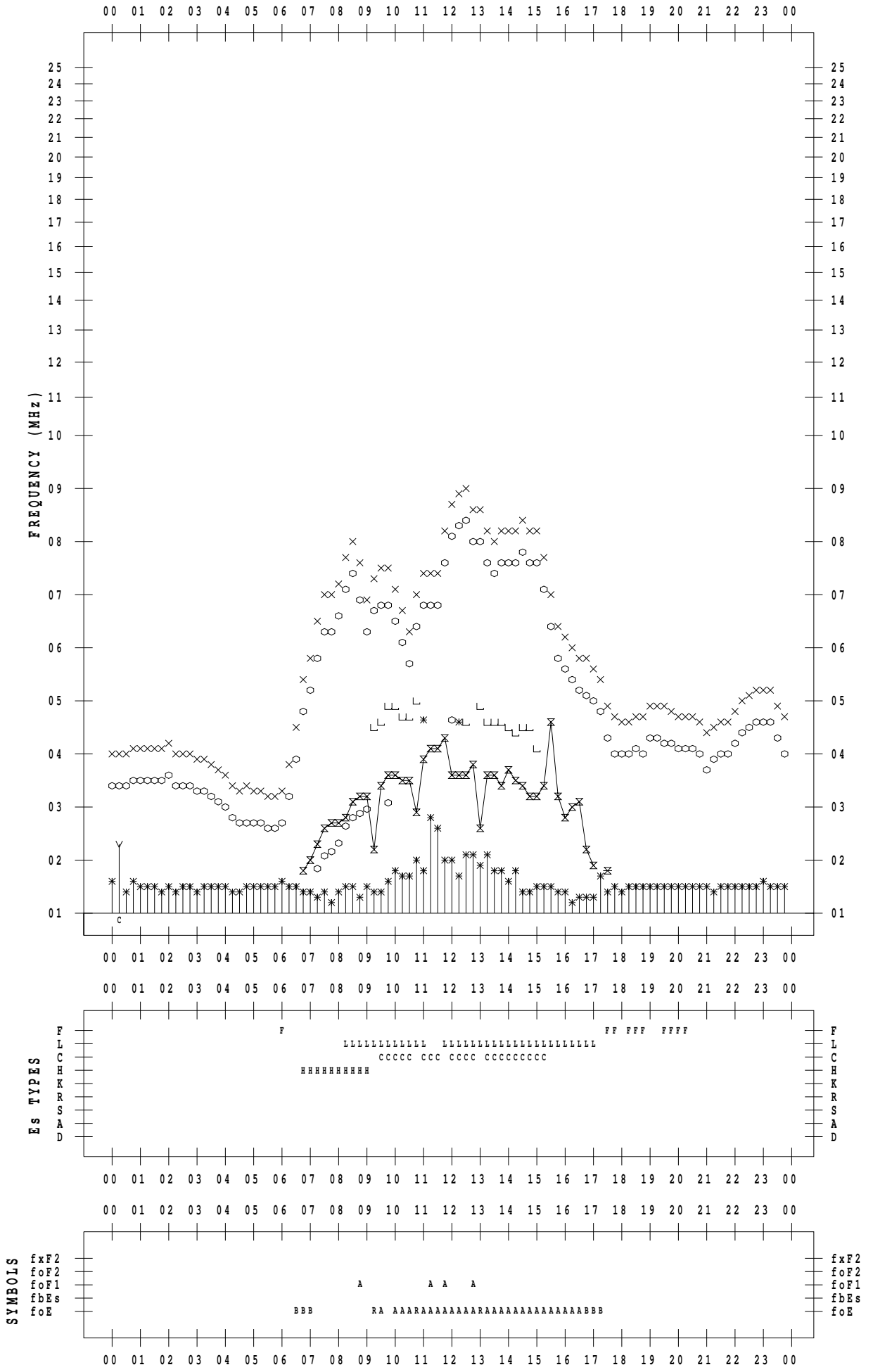
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2010/ 2/15

135 °E MEAN TIME



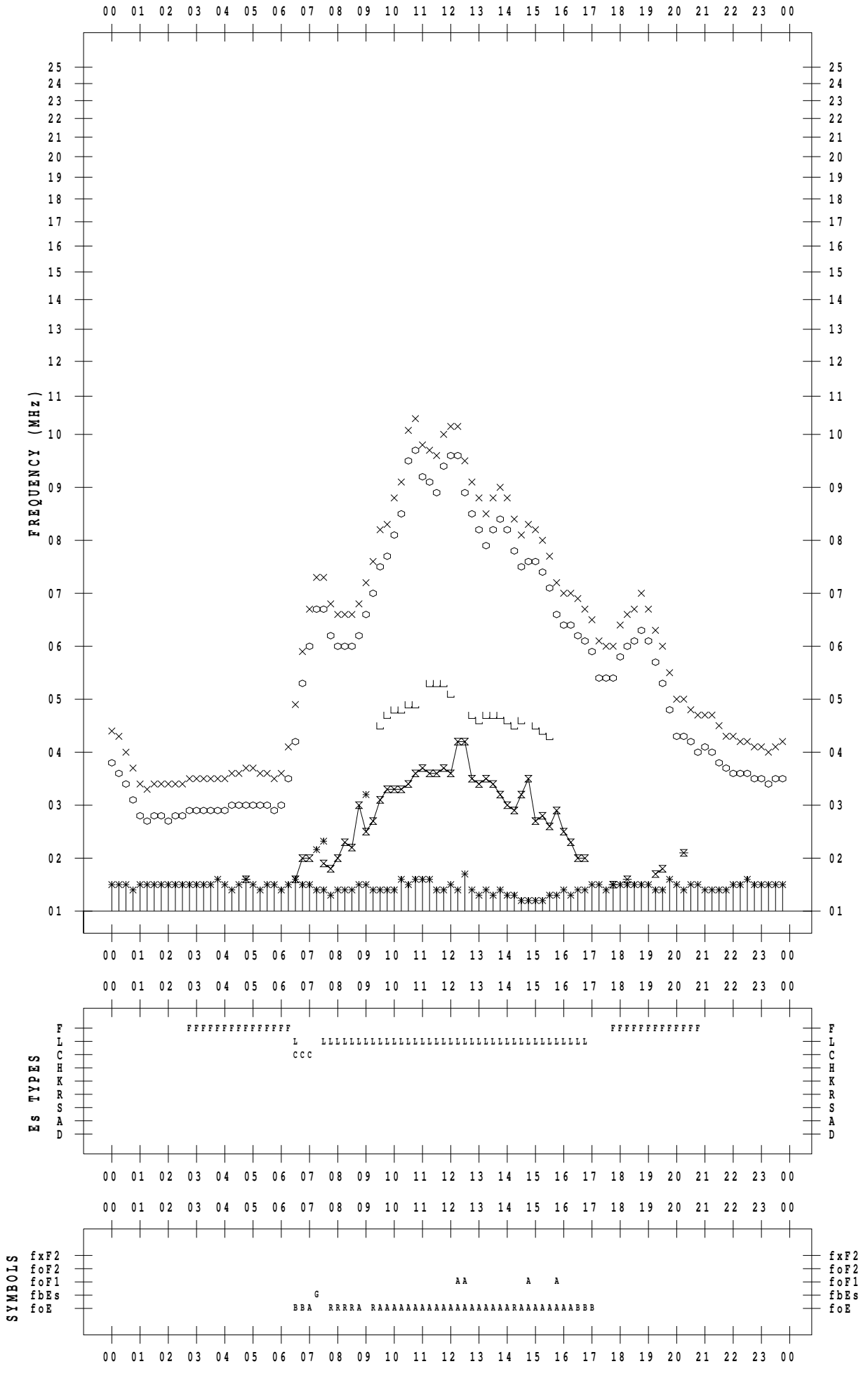
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2010/ 2/16

135 °E MEAN TIME



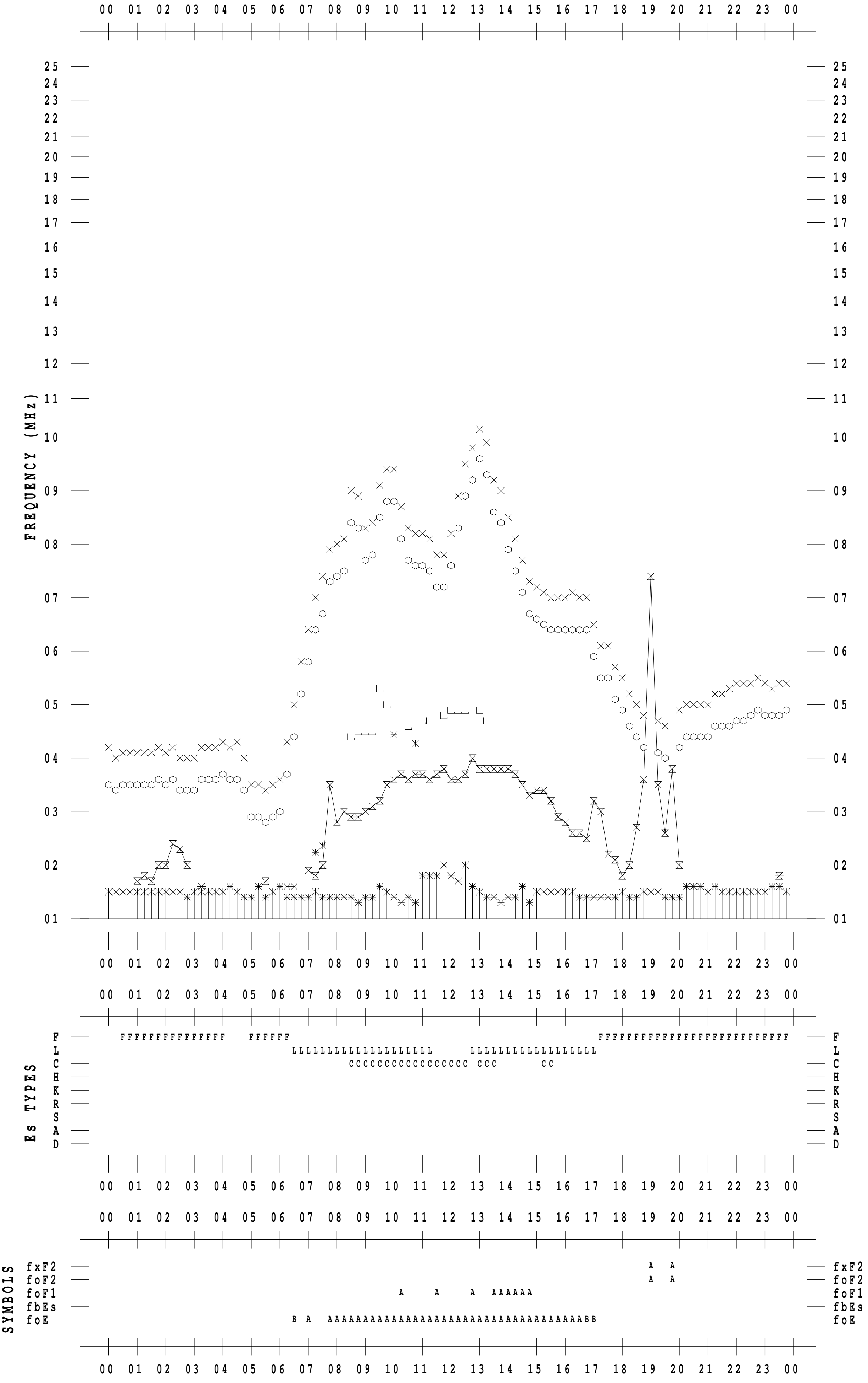
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2010/ 2/17

135 °E MEAN TIME



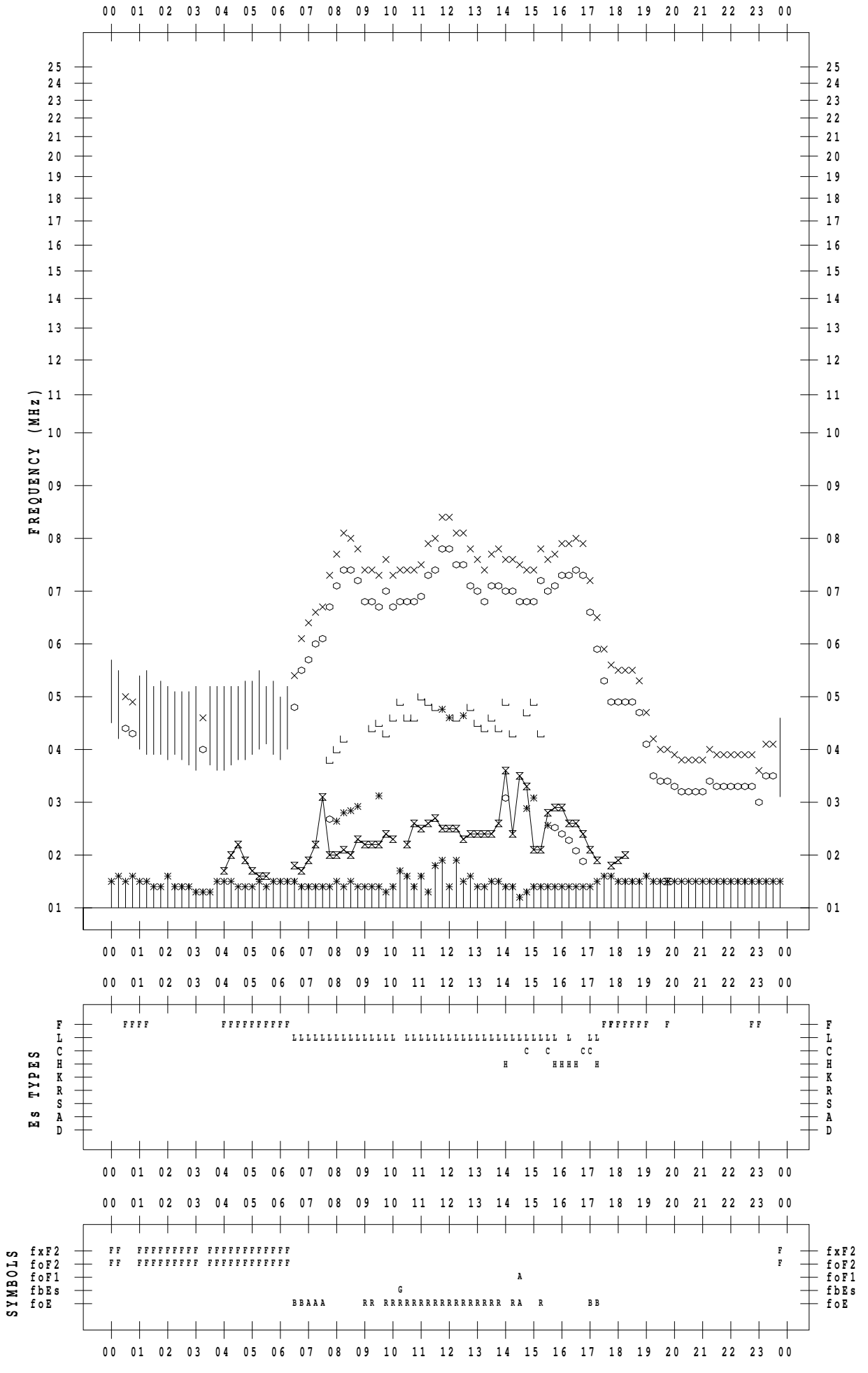
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2010/ 2/18

135 °E MEAN TIME



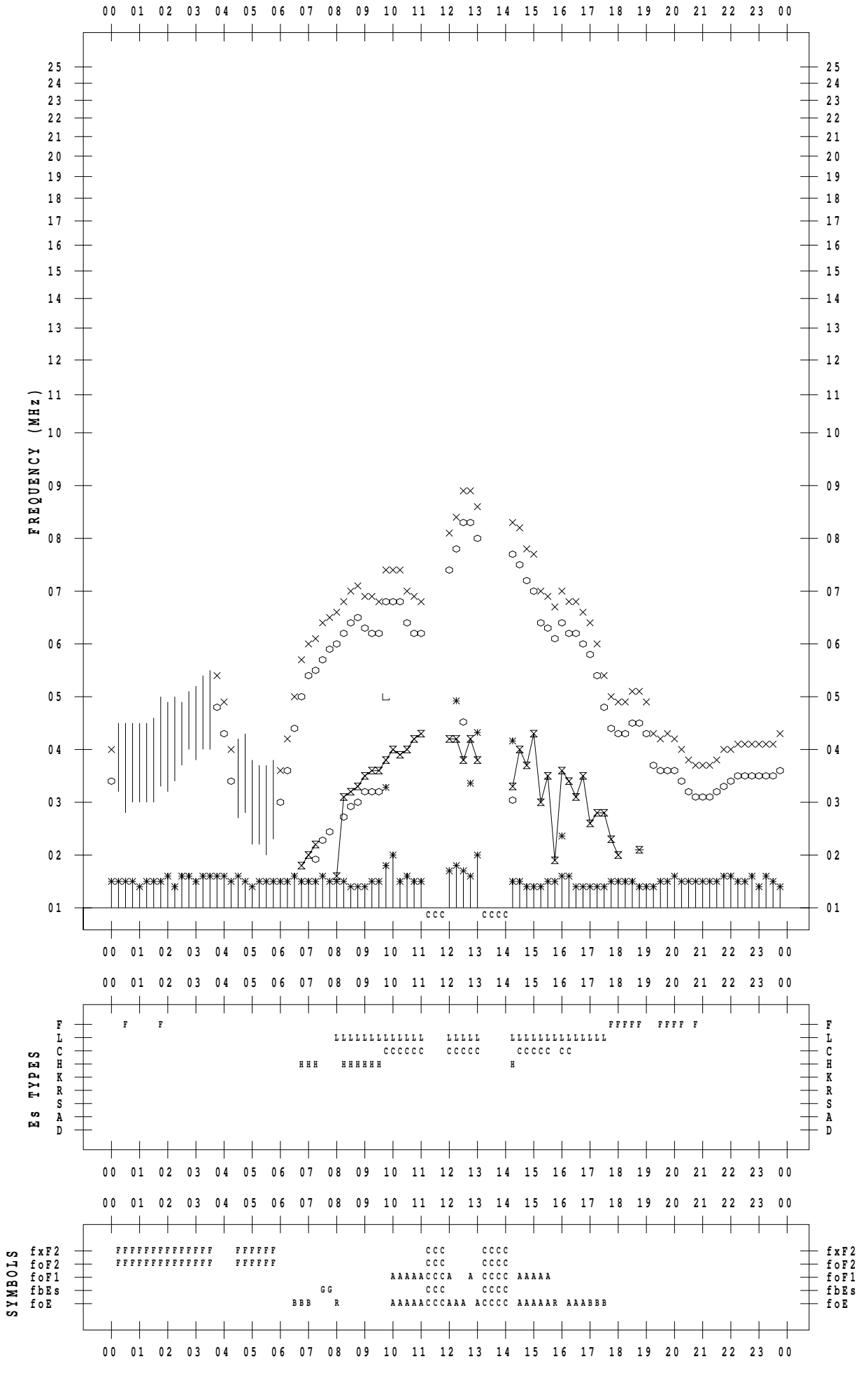
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2010/ 2/19

135 °E MEAN TIME



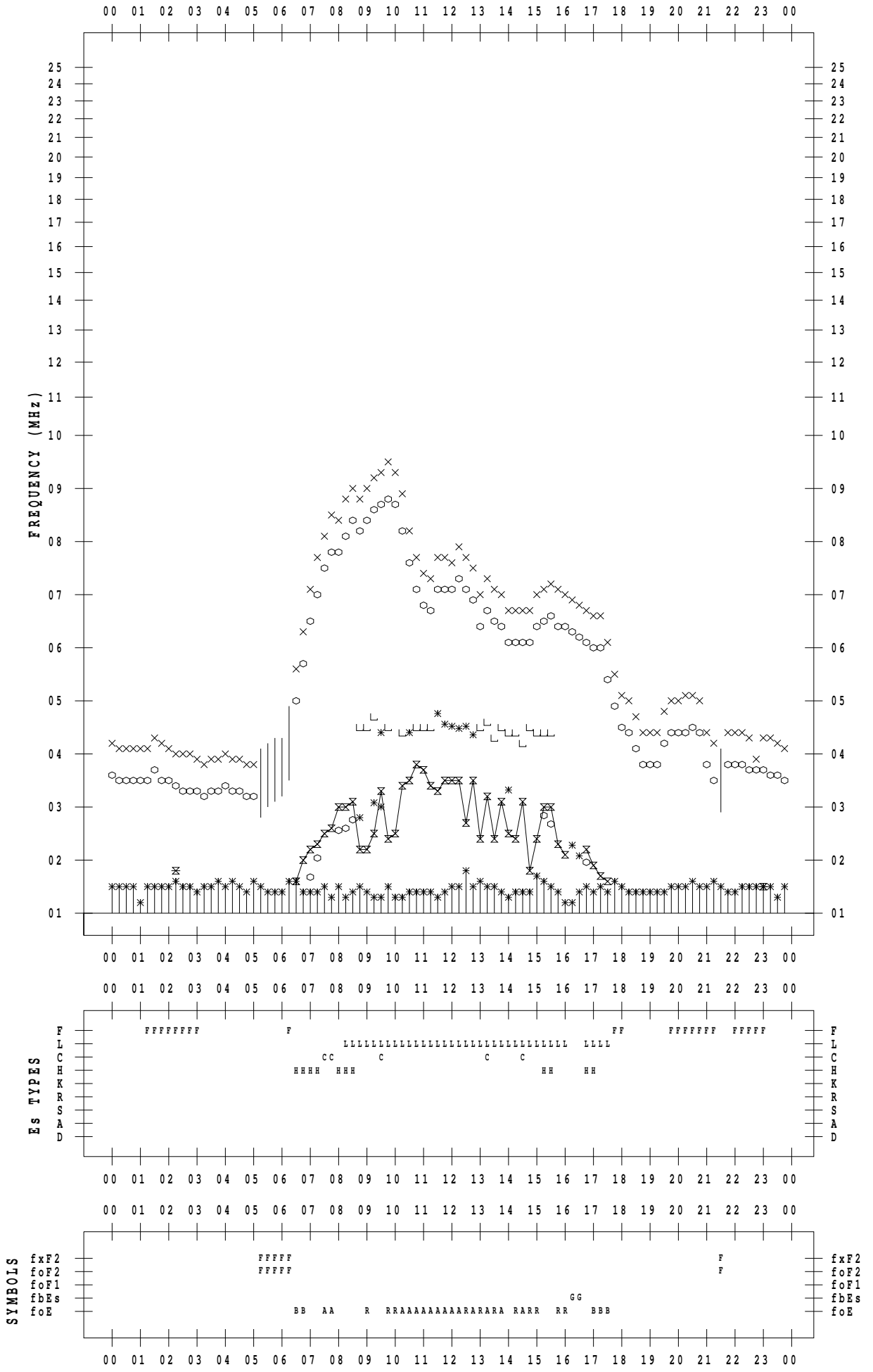
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2010/ 2/20

135 °E MEAN TIME



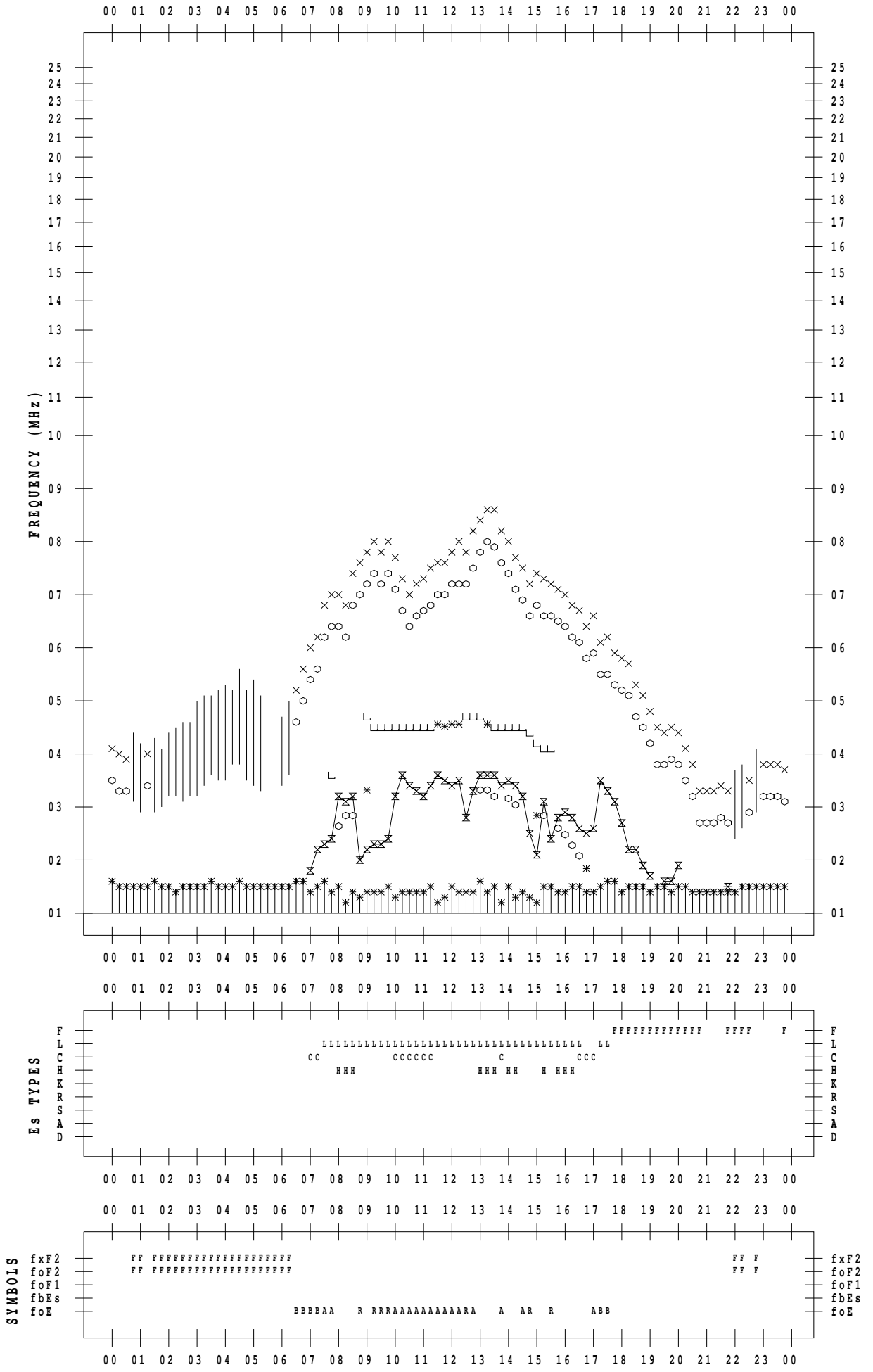
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2010/ 2/21

135 °E MEAN TIME



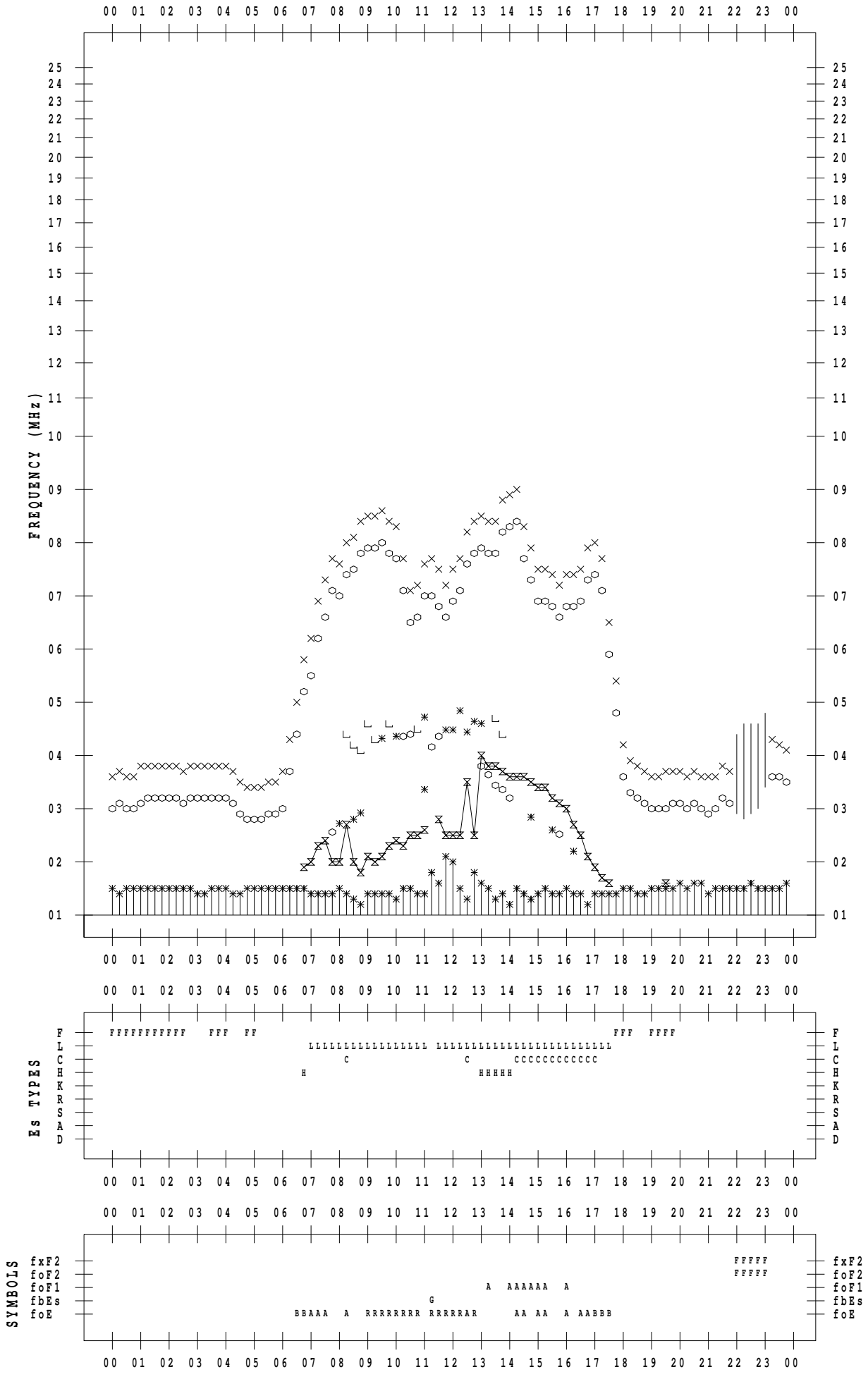
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2010/ 2/22

135 °E MEAN TIME



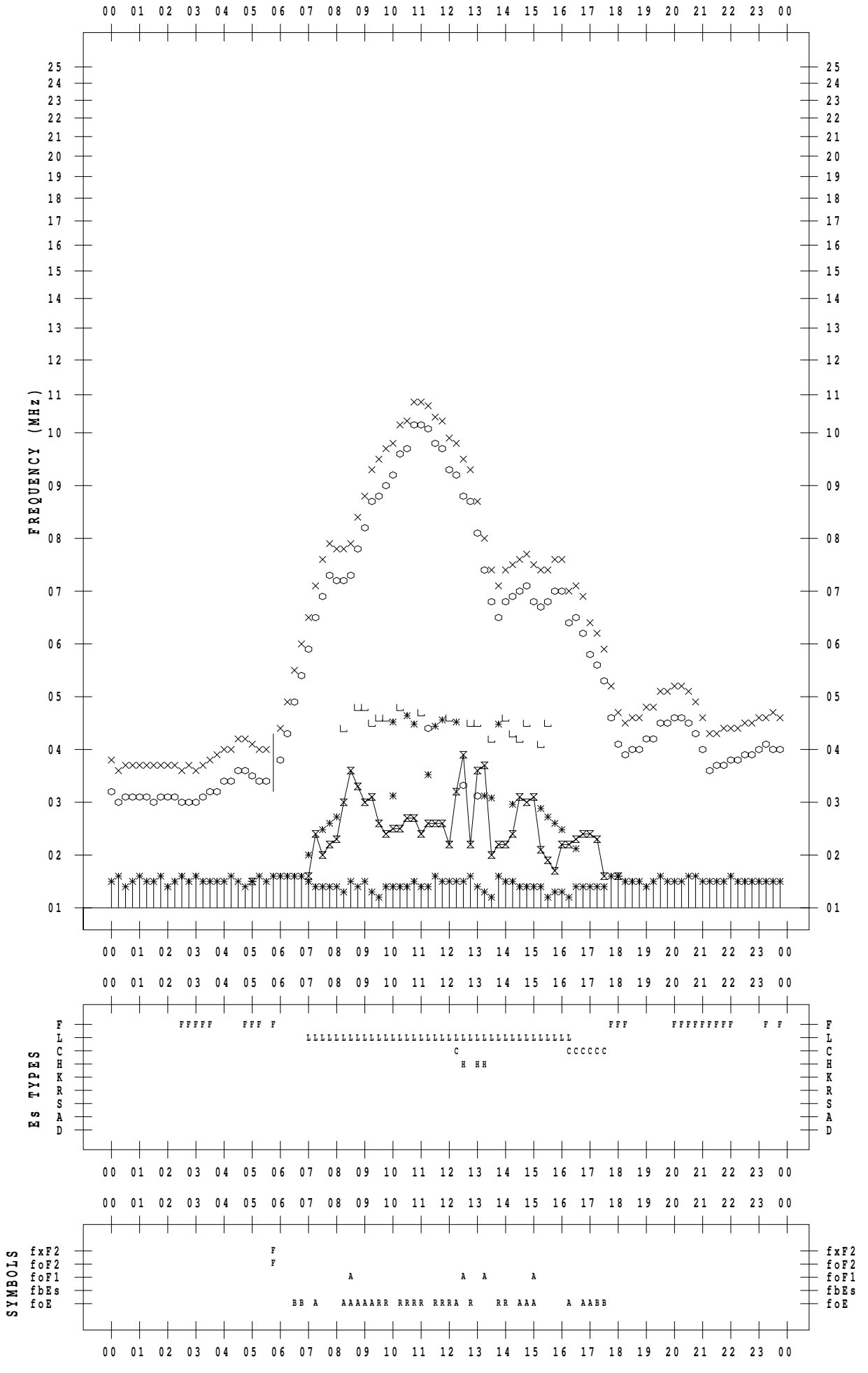
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2010/ 2/23

135 °E MEAN TIME



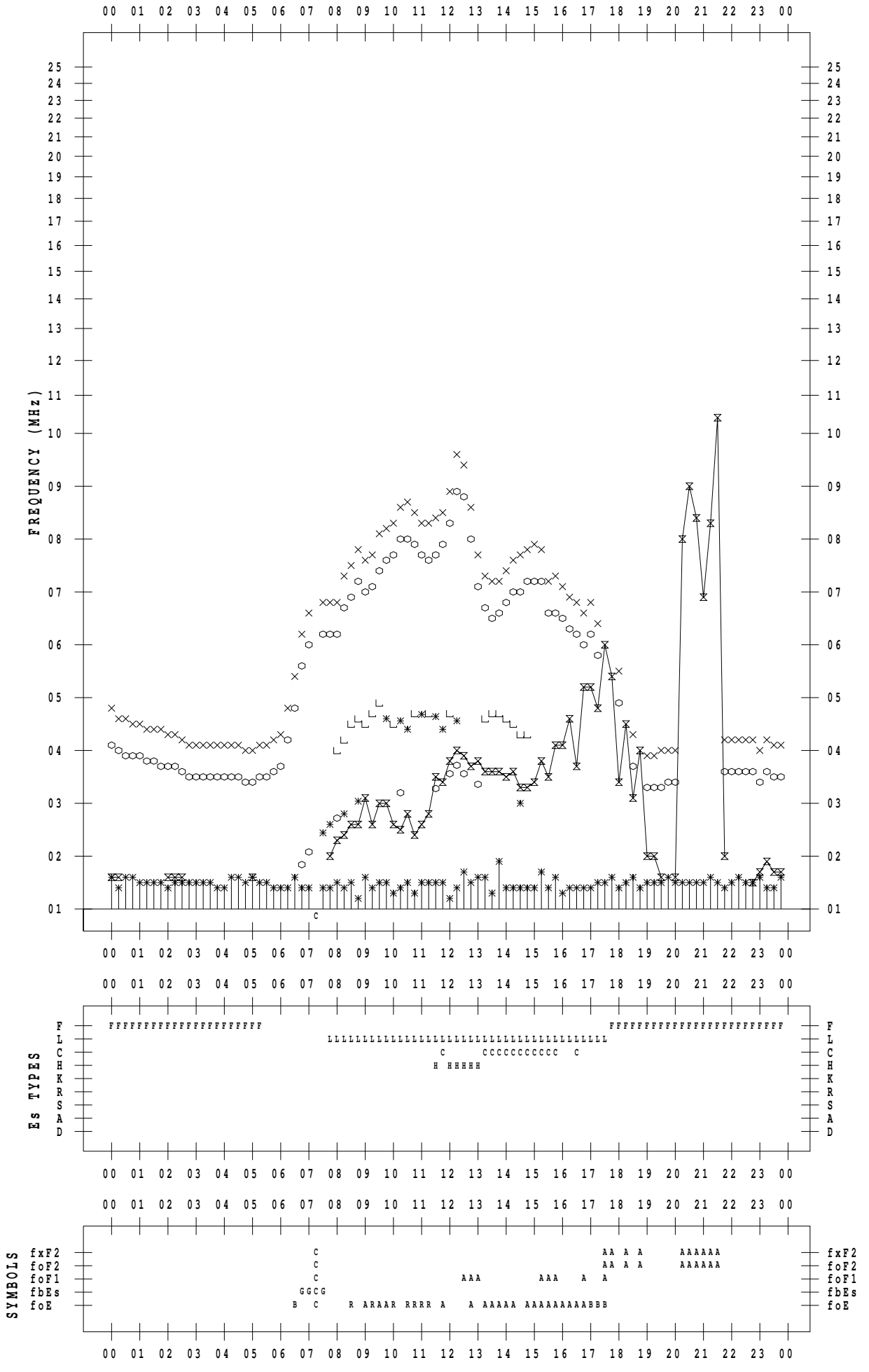
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2010/ 2/24

135 °E MEAN TIME



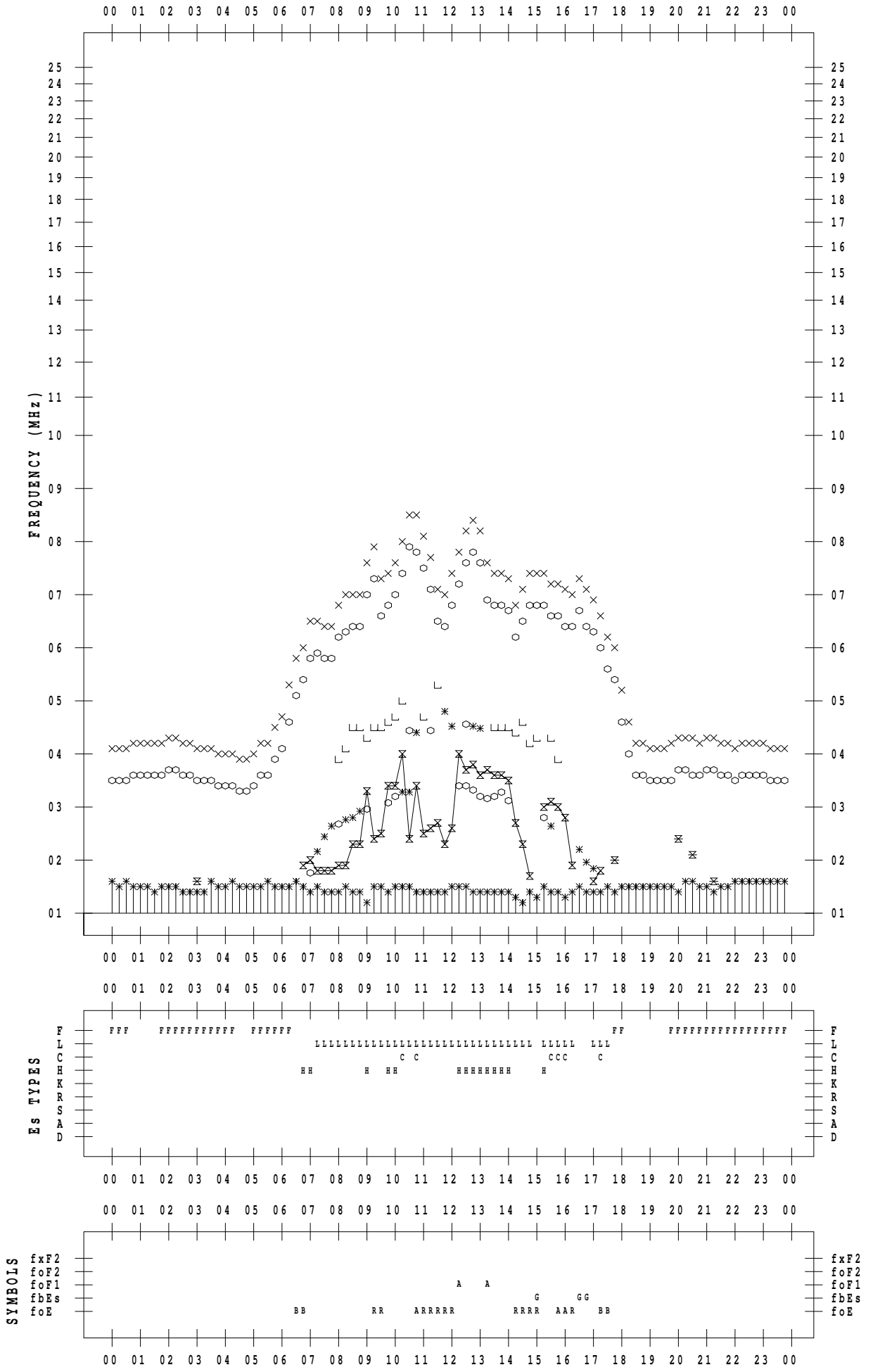
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2010/ 2/25

135 °E MEAN TIME



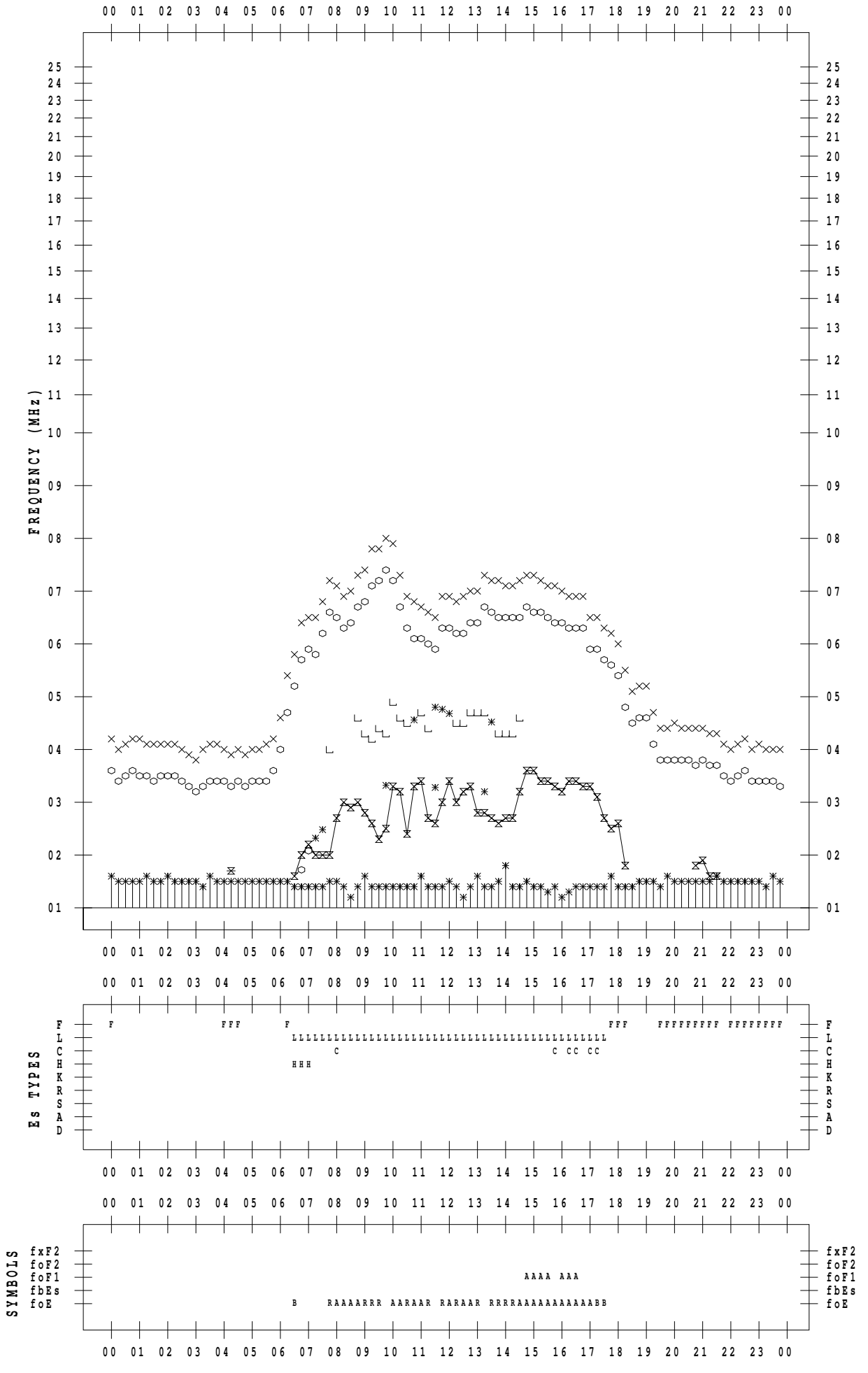
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2010/ 2/26

135 °E MEAN TIME



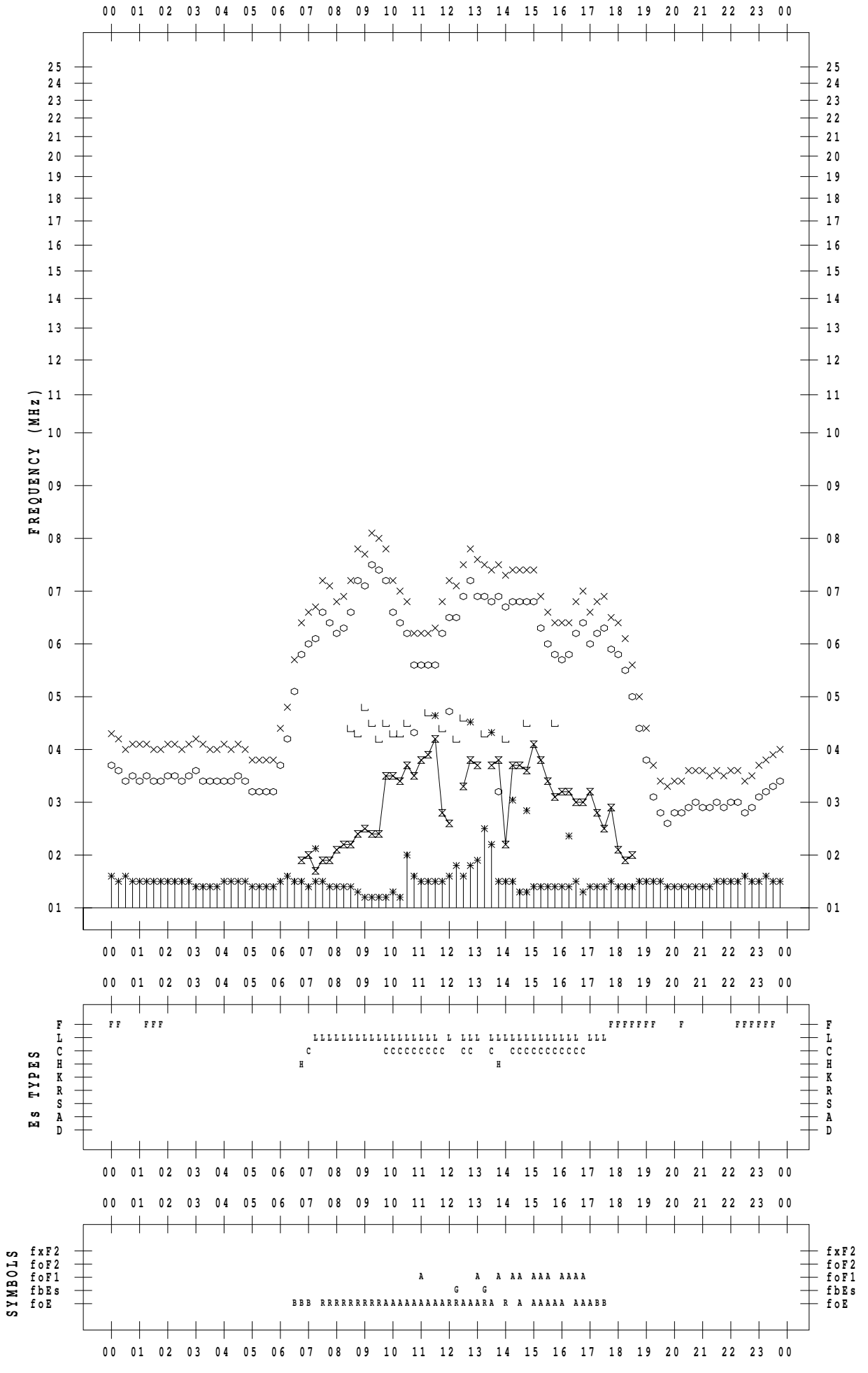
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2010/ 2/27

135 °E MEAN TIME



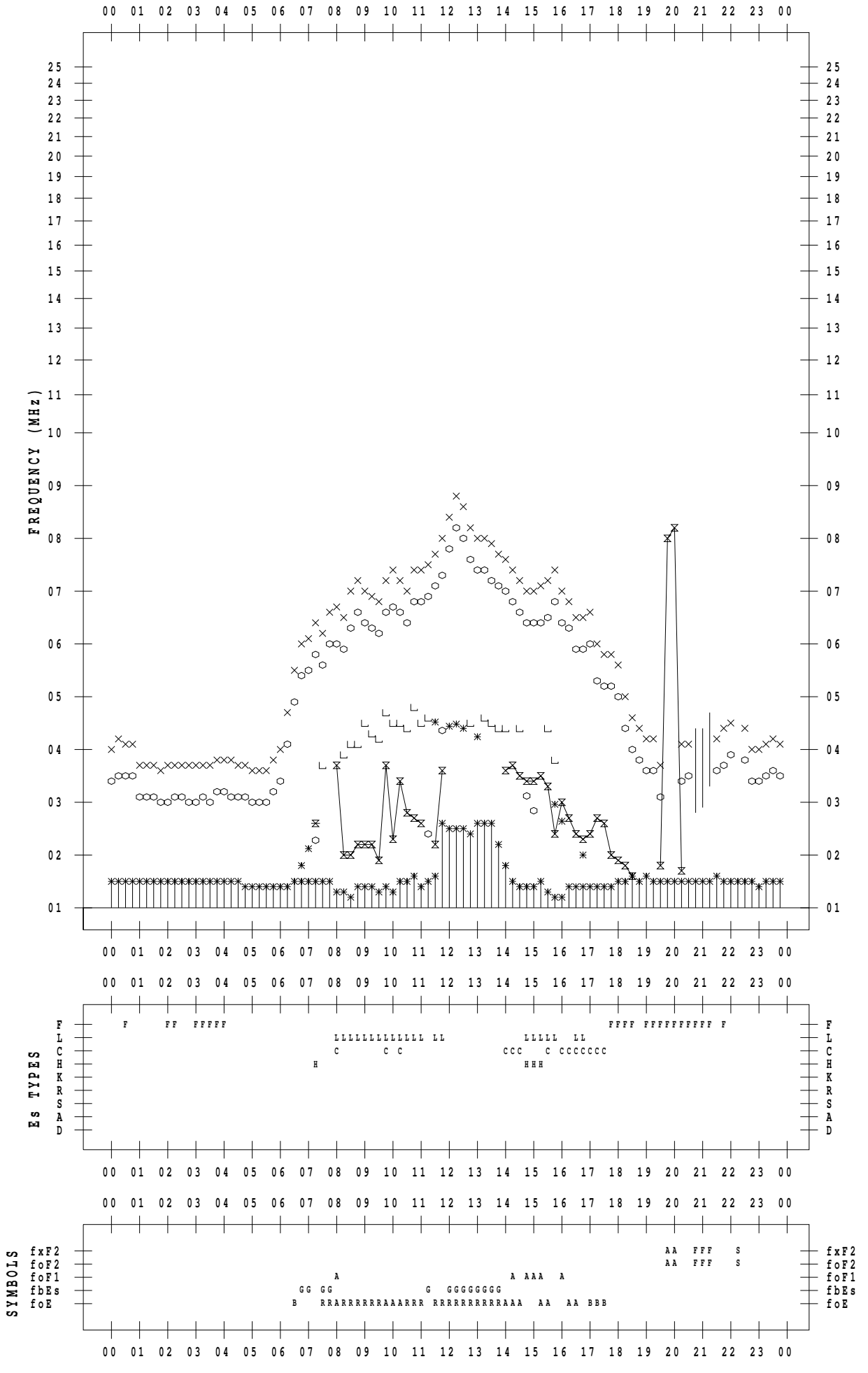
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2010/ 2/28

135 °E MEAN TIME



B. Solar Radio Emission

B1.Outstanding Occurrences at Hiraiso

Hiraiso February 2010

Single-frequency observations

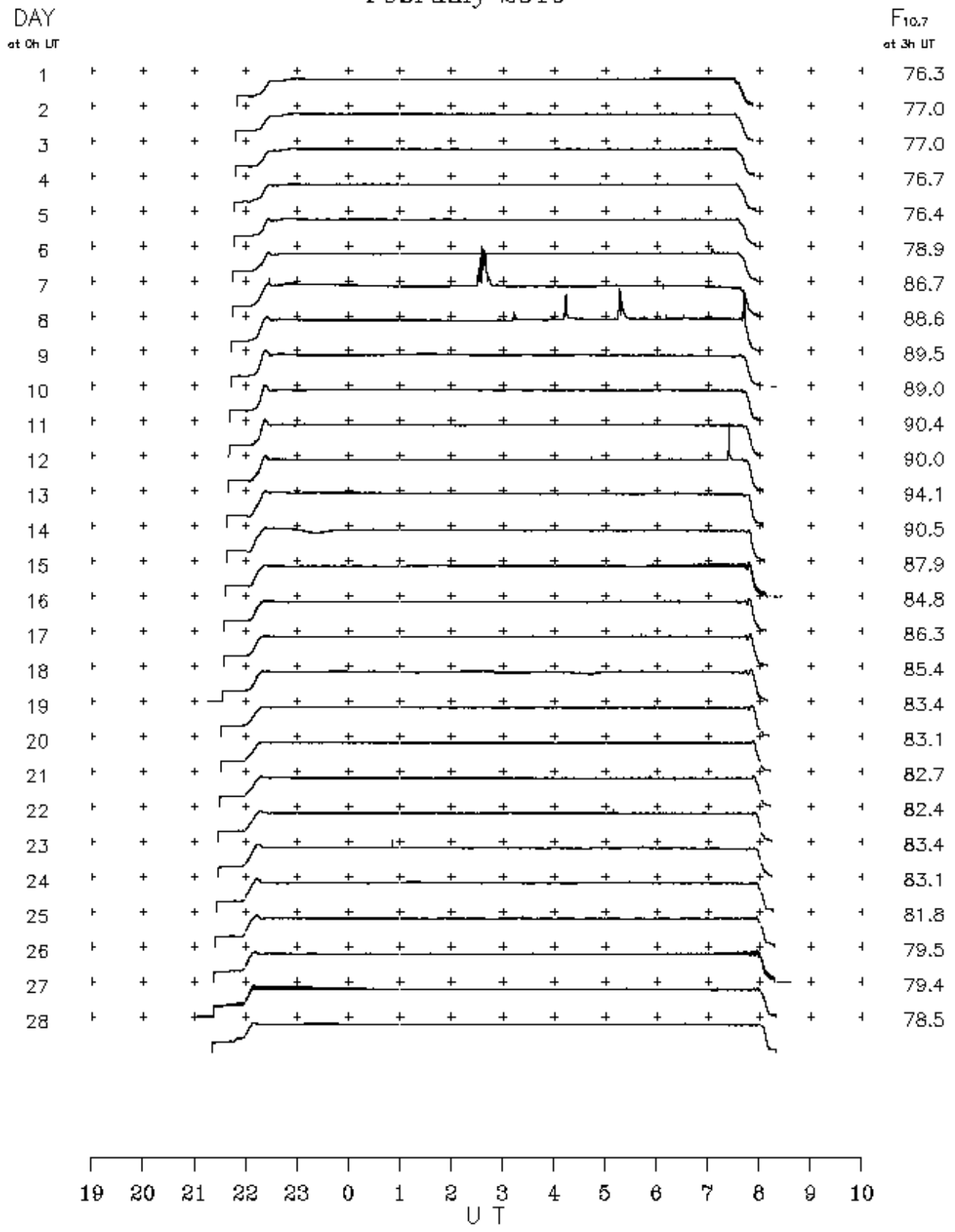
Normal observing period: 2120 - 0820 U.T. (sunrise to sunset)

FEB.	FREQ.	TYPE	START TIME	TIME OF MAXIMUM	DUR.	FLUX DENSITY (10^{-22} W m^{-2} Hz^{-1})		POLARIZATION
2010	(MHz)		(U.T.)	(U.T.)	(MIN.)	PEAK	MEAN	REMARKS
6	2800	1 S	0702.0	0704.0	6.0	10	-	
7	2800	7 C	0230.0	0236.0	24.0	110	-	
8	2800	4 S/F	0311.0	0312.0	6.0	20	-	
8	2800	4 S/F	0411.0	0414.0	7.0	70	-	
8	2800	7 C	0513.0	0515.0	12.0	80	-	
8	2800	1 S	0610.0	0610.0	1.0	10	-	
8	2800	1 S	0630.0	0630.0	1.0	10	-	
8	2800	7 C	0739.0	0740.0	3.0	75	-	
12	2800	8 S	0720.0	0723.0	5.0	90	-	

B.Solar Radio Emission

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

Februaly 2010



Note: A vertical grid space corresponds to a 100 sfu.
Elevation angle range ≧ 6°
A link to the daily plot data directory : http://sunbase.nict.go.jp/solar/denpa/hirasDB/2010/02/