F-722

IONOSPHERIC DATA IN JAPAN

FOR FEBRUARY 2009

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

NATIONAL INSTITUTE OF INFORMATION
AND COMMUNICATIONS TECHNOLOGY
TOKYO, JAPAN

INTRODUCTION

This Series contains data on ionosphere (I) and solar radio emission (S) obtained at the following stations under the National Institute of Information and Communications Technology , Japan.

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

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

A. IONOSPHERE

Ionospheric observations are carried out at the above four stations in Japan by means of vertical sounding using ionosondes. The ionosonde produces ionograms, which are recorded digitally on a computer storage medium. The digitally-recorded ionograms are collected from each station by the central computer and reduced to numerical values and Summary Plots by the automatic processing system. The ionograms obtained at Kokubunji are manually scaled by experienced specialists to supplement automatically-scaled parameters.

A1. Automatic Scaling

Digital ionograms are automatically scaled by the pattern recognition method. The following five characteristics of the ionospheric are listed below. The reliability of these factors has been ascertained by comparison of the automatically-scaled parameters with the manually-scaled values of large amounts of test ionograms.

The published data consist of tabulations of hourly values of three factors (*foF2, fEs*, *fmin*) and monthly medians of two factors (*h'Es* ,*h'F*), daily Summary Plots and monthly medians plot of *foF2*.

a. Characteristics of Ionosphere

foF2	Ordinary wave critical frequency for the ***F2*** layer
fEs	Highest frequency of the ***Es*** layer whether it may be ordinary or extraordinary
fmin	Lowest frequency which shows vertical iono-spheric reflections
h'Es ***h'F***	Minimum virtual height on the ordinary wave for the ***Es*** and ***F*** layers, respectively

b. Descriptive Letters

The following descriptive letters are used in the tables.

A Impossible measurement because of the presence of a lower thin layer, for example *Es* (for *foF2*).

C Impossible measurement because of any failure in observation.

G Impossible automatic scaling because of very small ionization density of the layer (for *fEs*).

N Impossible automatic scaling because of complex echoes.

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

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

Median count (**CNT**) is the number of numerical values from which the median has been computed. In addition to numerical values, the count may include a descriptive letter G.

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

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

If CNT is less than 10, there are blank spaces left.

d. Reliability of Automatic Scaling

The results of the comparison between automatically-scaled values and manually-scaled ones showed that hourly values of *foF2 , fEs* and *fmin* were scaled within a difference of 1 MHz from about 90, 90 and 99%, respectively of the test ionograms.

e. Summary Plot

Daily Summary Plots which are made from quarter-hourly digital ionograms are published to present general ionosphere conditions. The upper and middle parts of a Summary Plot show the diurnal variation of the frequency range of the echoes reflected from the *F* and *E* regions, respectively. The two solid arcing lines indicate the predicted values of *fxE* and *foE* calculated by the method described in the CCIR report 340. The lower part shows the diurnal variation of the virtual height where the echo traces become horizontal.

A2. Manual Scaling

The published data consist of tabulations of hourly values of the ionospheric characteristics and figures of daily *f*-plot.

All symbols and terminology in the tables or figures of ionospheric data are used in accordance with the "URSI Hand-book of Ionogram Interpretation and Reduction (Second Edition) 1972 " and its revision of chapters I-4, published in July 1978.

a. Characteristics of Ionosphere

fxI	Top frequency of spread ***F*** trace
foF2 ***foF1*** ***foE*** ***foEs***	Ordinary wave critical frequency for the ***F2***, ***F1***, ***E,*** and ***Es*** (including particle type ***E)*** layers, respectively
fbEs	Blanketing frequency of the ***Es*** layer, e.g. the lowest ordinary wave frequency visible through ***Es***
fmin	Lowest frequency that shows vertical ionospheric reflections
M(3000)F2 ***M(3000)F1***	Maximum usable frequency factor for a path of 3000 km for transmission by the ***F2*** and ***F1*** layers, respectively
h'F2 ***h'F*** ***h'E*** ***h'Es***	Minimum virtual height on the ordinary wave for the ***F2,*** whole ***F, E*** and ***Es*** layers, respectively
Types of ***Es***	See below b. (iii)

b. Symbols

(i) Descriptive Letters

The following letters are entered after, or used to replaced a numerical value on the monthly tabulation sheets, if necessary.

A Measurement influenced by, or impossible because of, the presence of a lower thin layer, for example *Es*.
B Measurement influenced by, or impossible because of, absorption in the vicinity of *fmin*.
C Measurement influenced by, or impossible because of, any non-ionospheric reason.
D Measurement influenced by, or impossible because of, the upper limit of the normal frequency range in use.
E Measurement influenced by, or impossible because of, the lower limit of the normal frequency range in use.
F Measurement influenced by, or impossible because of, the presence of spread echoes.
G Measurement influenced by, or impossible because the ionization density of the layer is too small to enable it to be made accurately.
H Measurement influenced by, or impossible because of, the presence of a stratification.
K Presence of particle *E* layer.
L Measurement influenced or impossible because the trace has no sufficiently definite cusp between layers.
M Interpretation of measurement questionable because the ordinary and extraordinary components are not distinguishable.
N Conditions are such that the measurement cannot be interpreted.
O Measurement refers to the ordinary component.
P Man-made perturbations of the observed parameter; or spur type spread *F* present.
Q Range spread present.
R Measurement influenced by, or impossible because of, attenuation in the vicinity of a critical frequency.
S Measurement influenced by, or impossible because of, interference or atmospherics.
T Value determined by a sequence of observations, the actual observation being inconsistent or doubtful.
V Forked trace which may influence the measurement.
W Measurement influenced or impossible because the echo lies outside the height range recorded.
X Measurement refers to the extraordinary component.
Y Lacuna phenomena, severe layer tilt.
Z Third magneto-electronic component present.

(ii) Qualifying Letters

The following letters are entered in the first column before a numerical value on the monthly tabulation sheets, if necessary.

A Less than. Used only when *fbEs* is deduced from *foEs* because total blanketing of higher layer is present.
D Greater than.
E Less than.
I Missing value has been replaced by an interpolated value.
J Ordinary component characteristic deduced from the extraordinary component.
M Mode interpretation uncertain.
O Extraordinary component characteristic deduced from the ordinary component. (Used for x-characteristics only.)
T Value determined by a sequence of observations, the actual observation being inconsistent or doubtful.
U Uncertain or doubtful numerical value.
Z Measurement deduced from the third magneto-electronic component.

(iii) Description of Types of *Es*

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

The types are:

f An *Es* trace which shows no appreciable increase of height with frequency.
l A flat *Es* trace at or below the normal *E* layer minimum virtual height or below the part *E* layer minimum virtual height.
c An *Es* trace showing a relatively symmetrical cusp at or below *foE*. (Usually a daytime type.)
h An *Es* trace showing a discontinuity in height with the normal *E* layer trace at or above *foE*. The cusp is not symmetrical, the low frequency end of the *Es* trace lying clearly above the high frequency end of the normal *E* trace. (Usually a daytime type.)
q An *Es* trace which is diffuse and non-blanketing over a wide frequency range.
r An *Es* trace showing an increase in virtual height at the high frequency end similar to group retardation.
a An *Es* trace having a well-defined flat or gradually rising lower edge with stratified and diffuse traces present above it.
s A diffuse *Es* trace which rises steadily with frequency and usually emerges from another type *Es* trace.
d A weak diffuse trace at heights below 95 km as-sociated with high absorption and large *fmin.*
n The designation 'n' is used to denote an *Es* trace which cannot be classified into one of the standard types.
k The designation 'k' is used to show the presence of particle *E*. When *foEs* > *foE* (particle *E*) the *Es* type precedes k.

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

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

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

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

B. SOLAR RADIO EMISSION

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

B1. Outstanding Occurrences at Hiraiso

The table is a list of outstanding occurrences of solar radio emission bursts observed at 200, 500 and 2800 MHz during a month.

Listed in the table are the date, frequencies, the type of event, the start time and the time of maximum, both in U.T. expressed in hours, minutes and tenths of a minute, the duration in minutes, the peak and mean flux densities in 10^{-22} Wm^{-2} Hz^{-1} unit, and the polarization.

The type of event is expressed by a combination of a numerical code and a letter symbol in accordance with the "Descriptive Text of Solar Geophysical Data, NOAA" as defined by H. Tanaka in the "Instruction Manual for Monthly Report of Solar Radio Emission, WDC-C2" in January 1975:

SGD Code	Letter Symbol	Morphological Classification
1	S	Simple 1
2	S/F	Simple 1F
3	S	Simple 2
4	S/F	Simple 2F
5	S	Simple
6	S	Minor
7	C	Minor+
8	S	Spike
20	GRF	Simple 3
21	GRF	Simple 3A
22	GRF	Simple 3F
23	GRF	Simple 3AF
24	R	Rise
25	R	Rise A
26	FAL	Fall
27	RF	Rise and Fall
28	PRE	Precursor
29	PBI	Post Burst Increase
30	PBI	Post Burst Increase A
31	ABS	Post Burst Decrease
32	ABS	Absorption
40	F	Fluctuations
41	F	Group of Bursts
42	SER	Series of Bursts
43	NS	Onset of Noise Storm
44	NS	Noise Storm in progress
SGD Code	Letter Symbol	Morphological Classification
45	C	Complex
46	C	Complex F
47	GB	Great Burst
48	C	Major
49	GB	Major+

The polarization is expressed by the polarization degree and sense as follows:

R or L	right or left-handed polarization,
W, M or S	weak, moderate or strong polarization,
0	almost zero or unable to detect polarization due to small increase of flux,
00	polarization degree of less than 1

One of the following symbols may be attached after numerical values, if necessary.

D	greater than, or later than,
E	less than or earlier than,
U	approximate, or uncertain.

B2. Summary Plots of F10.7 at Hiraiso

The 10.7 cm solar radio flux at Hiraiso is plotted over a one month period. The 10.7 cm flux ($F_{10.7}$) is determined by adjusting the 10.7 cm radio flux measured at Hiraiso to the Pentincton 10.7 cm radio flux. The figure on the right-hand side shows the $F_{10.7}$ index estimated at Hiraiso.

The following symbols are used in the $F_{10.7}$ index:

*	Measurement made not at 3h U.T..
B	Measurement affected by bursts.

HOURLY VALUES OF foF2 AT Wakkanai

FEB. 2009

LAT. 45°23.5′N LON. 141°41.2′E SWEEP 1.0MHz TO 30.0MHz AUTOMATIC SCALING

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	31	28	28	28	28			35	56	65	56	57	58	53	49	50	42		34		A	A		30
2	31	30	29	28	28	28		20	40	50	52	52	54	46	47	43		35	35	32	32	32	32	31
3	31	32	34	32	31	32		32		48		51	48	44	40	48	42	35		28	30	31	34	25
4	32	30	26	29	30	30	26	36	40	56	57	52	48	48	48	C	C	C	C	C	C	C	C	C
5	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
6	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
7	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
8	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
9	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
10	C	C	C	C	C	C	C	C	C	C	C							C	C	C	C	C	C	C
11	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
12	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
13	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
14	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
15	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
16	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
17	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
18	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
19	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
20	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
21	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
22	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
23	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
24	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
25	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
26	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
27	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
28	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
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	4	4	4	4	4	3	1	4	3	4	3	4	4	4	4	3	2	2	2	2	2	2	2	3
MED	31	30	28	28	29	30	26	34	40	53	56	52	51	47	48	48	42	35	34	30	31	32	33	30
U Q	31	31	31	30	30	32	13	35	56	60	57	54	56	50	48	50	42	35	35	32	32	32	34	31
L Q	31	29	27	28	28	28	13	26	40	49	52	51	48	45	43	43	42	35	34	28	30	31	32	25

HOURLY VALUES OF fEs AT Wakkanai

FEB.2009

LAT.45°23.5′N LON.141°41.2′E SWEEP 1.0MHz TO 30.0MHz AUTOMATIC SCALING

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

HOURLY VALUES OF fmin AT Wakkanai

FEB. 2009

LAT. 45°23.5′N LON. 141°41.2′E SWEEP 1.0MHz TO 30.0MHz AUTOMATIC SCALING

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

HOURLY VALUES OF foF2 AT Kokubunji

FEB. 2009

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	28	30	30					41	55	58	72	75	58	52	52	54	49	39		30	34	30	28	28
2	30	30		26				38		46	41	49	59	59	53	45	42	36	28	36	30			
3		30	27	32	26			39	A	49	51	51	56	47	52	52	33		A	A	28	26		28
4	27	27	25		26			A	A	48		67	55		A	A	A	A	A	A		A		
5		30	27	28	30	28		39	39	A	64	72	71	67	63	51	42	A	42	28	30	A		30
6		27				34		45	49	47	56	55	59	56	49	56	52	51	A	28	34			
7		28	30	28				41	54	56	55	54	51	52	52	54	54	47	A	25	38		26	26
8		27	27					53	52	62	59	58	54	51	47	48	48	44	34	A	A	36		28
9		A		26				44	75	62	59	55	49	45	48	47	47	A	A	34	36		A	30
10	A	A	27		A	A		43	66	72	66	53	53	60	52	45	A		A	A	26			
11		27	28	30	27			41	55	72	55	53	52	46	51	46	51	49	A	A	A	28	A	
12	28			27	26	A	28	47	51	60	55	57	56	56	51	57	54	A	A	A	A	A	A	A
13	A						A	A	A	55	66	59	62	59	A	44	44	A	A	A	A		A	
14	A	A	A	N	A			46	49	54	56	47	48	54	52	56	51	51	A	A	A	37	31	
15			26	27	A	A	A	A	A	47	59	62	58	63	A	49	51	A	A	A		34	28	26
16	27	30	30	30				45	56	62	45	62	60	55	55	51	53	45	35	32	A	A	30	
17					27			42	A	A	A	48	A		62	56	51	43	34		37	30		
18	28	A	A	30	30	25	22	45	51	56	55	55	64	62	52	51	49	A	A	A			32	34
19			28		27	26	28	47	50	54	53	46	A	A	59	46	37	54	28		36		28	27
20	27	26		26	32			44	49	44	44	55	48	49	47	45	51	48		33	39	30	27	30
21	27	32	28	32	32		30	47	53	63	72	61	46	60	56	58	56	49	36	32	36	36	30	30
22	30	30	30	27	30			47	48	59	51	53	62	54	52	50	43	48	A	31	34	34	34	34
23		34			32	26	26	49	64	56	C	C	56	61	57	47	47	A	A	A	39	30	30	32
24	31	30	34	32	34	27	30	53	64	54	53	57	56	61	54	52	54	51	44		A	39	33	36
25	28	27	30	34	32	28	25	54	48	51	61	56	69		63	59	52	51	A	A				
26	32	30	30	32	30		30	47	54	56	54	62	62	70	62	59	54	47	39	24	30	A	27	
27	32	30	32	32	30			47	45	59	45	57	56	65	54	59	53	46	39	34	32	A	28	27
28	31	28	26	27				44	46	61	69	56	54	56	54	56		48	43	30	34	34	26	30
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	14	19	18	18	16	7	8	25	22	26	25	27	26	24	25	27	25	18	11	13	17	13	15	16
MED	28	30	28	29	30	27	28	45	52	56	55	56	56	56	52	51	51	48	36	31	34	34	28	30
U Q	31	30	30	32	32	28	30	47	55	61	62	61	60	61	56	56	53	51	42	33	36	36	31	31
L Q	27	27	27	27	27	26	25	41	49	51	52	53	53	52	51	47	45	45	34	28	30	30	27	27

HOURLY VALUES OF fEs AT Kokubunji

FEB. 2009

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	G	G	G	G			G	G	G	37	G	G	G	G	G	G	G	25		30	G	25	23	G
2	G	G	G	G		G	G	G	30	G	G	G	G	G	G	G	G	G	G	G	G	G	26	G
3	G	G	G	23	37	29	G	G	60	G	G	G	G	G	G	G	G	35	41	61	33	G		G
4	G	G	G	G	G		22	60	53	34	37	G	G	47	54	78	73	68	95	52	34	33	31	26
5	29	26	24	G	G	G	G	31	60	125	49	50	G	G	G	33	38	60	33	29	G	36	29	27
6	26	G				G	G	G	41	43	G	37	G	G	40	39	39	45	47	35	32	26		G
7		G	G	G	G	G	G	G	G	G	45	G	G	G	45	48	45	55	35	G	G	G	G	G
8		G	G		G	G	30	G	G	G	G	G	G	G	G	G	37	34	27	24	40	34	27	G
9		29	32	23	G	28	30	28	30	G	36	G	G	G	37	35	40	43	33	26	G		78	26
10	46	36	26	26	34	42	30	28	G	G	G	G	G	G	40	41	53	45	29	71	28	33		G
11	G	G	G	G	G	G	25	G	G	G	G	40	40	38	G	40	42	51	55	80	37	27	35	G
12	G			G	G	35	G	33	47	40	G	G	G	44	44	48	51	61	60	78	59	59	45	31
13	37		G		G	32	43	58	60	82	79	59	65	59	68	38	37	60	79	45		33	36	25
14	33	32	30	27	30	G	24	G	31	G	G	40	G	39	52	40	39	40	48	69	79	33	26	
15		G	29	G	36	34	73	80	50	44	62	58	46	68	68	G	49	72	109	91	49	33	23	G
16	G	23	26	24	31	26			G	G	G	G	G	G	37	35	G	G	G	G	92	91	25	G
17	26		G	27	G	25	G	34	65	59	58	115	83	64	44	G	36	34	32	28	28	24	29	28
18	24	45	49	G	G	G	46	27	G	35	G	G	46	49	44	G	40	55	59	49	36	36	26	22
19	26	G	26	G	G	G	G	29	33	G	45	G	57	62	39	64	31	27	34	39	G		G	G
20	G	G	G	G	G		G	G	N	G	G	G	G	G	43	47	43	37	29	28	G	26	G	G
21	G	G	G	G	G		G		G	36	G	G	G	G	G	41	37	29	23	G	G	G	G	G
22	G	G	G	G	G	G		G	G	G	44	G	44	45	G	45	46	30	35	25	33	G	29	G
23	37	34	36	34	G	G	G	29	G	G	C	C	50	60	49	60	47	55	47	42	27	G	28	29
24	30	26	25	25	24	G	G	G	G	G	G	G	G	G	G	G	32	36	34	34	40	G	G	G
25	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	36	41	41	50	G	G	30	33
26	G	32	27	G	G	G	G	G	G	37	G	40	G	G	G	38	34	28	24	G	48	39	G	33
27	G	G	G	G	G		G	G	G	G	G	40	G	42	41	34	36	33	27	32	28	31	G	G
28	G	G	G	G	G		G	G	33	36	G	G	G	G	G	G	49	31	33	25	G	G	23	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	24	25	26	25	25	22	26	26	27	28	27	27	28	28	28	28	28	28	27	28	27	26	25	27
MED	G	G	G	G	G	G	G	G	G	G	G	G	G	G	38	36	38	38	34	33	28	26	26	G
U Q	27	27	26	23	12	28	25	29	47	37	44	40	42	46	44	43	45	55	48	51	40	33	29	26
L Q	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	35	30	29	25	G	G	G	G

HOURLY VALUES OF fmin AT Kokubunji

FEB. 2009

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

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

HOURLY VALUES OF foF2 AT Yamagawa

FEB. 2009

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

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

HOURLY VALUES OF fEs AT Yamagawa

FEB. 2009

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	G	G	G	G	G			24	G	G	G	G	G	G	G	35	39	45	39	G	G	G	G	27
2	G	G	G	G	G			24	G		35	G	G	43	62	44	38	32	34	29	G	G		G
3	G	G	G	G	G	G		G	32	34	56		G	42	48	42	G	G	34	26	36	48	38	44
4	54	43	G		G	G		G		48	53	84	89	116	63	74	38	34	40		72	57	80	72
5	72	33	30	23	G	35	G	32	49	34	48	43	94	72	50	47	48	58	32	82	60	66	25	G
6	41	34	28	36	G	G	31	G	34	40	43	50	54	39	G	40	49	46	72	32	G	G	G	G
7	G	G	G	G	G	G	G	G		G	G	37	40	40	47	48	49	71	42	48	39	G	G	G
8		24	24	26	25	G	C	G	28	39	G	G	G	40	37	41	39	36	34	36	34	30	G	
9	G	28		G			G	27	28	33	G	G	40	38	44	47	52	51	39	30	G	28	G	G
10	G	G	G	G		25	33	50	45	71	44	G	G	45	44	42	40	40	44	50	32	G	26	
11		G	G	G	G	G	33	30				42	41	40	46	46	49	41	54	51		31	70	47
12	43	37	26	24	26	33	G	22	39	G	G	G	39	38	44	46	51	45	51	41	88	G	39	39
13	28	25	30	41	46	58	51	47	36	39	40	G	G	38	40	G	46	39	43	60	48	50	40	33
14	38	29	27	24	33	29		G	29	G	G	G	G	46	46	42	39	42	39	47	59	38	48	54
15	G	G	G	G	24	40	G	152	45	38	46	72	68	46	45	43	42	42	29	40		58	95	36
16	39	G	32	24	34	34	27	24	31	34	G	46	G	40	38	40	48	32	34	35	39	39	28	46
17	G	26	27	47	31	32	G	32	40	55	48	50	52	59	74	154	88	77	70	77	81	39	46	46
18	24	G	48	G	27	G	G	G	30	39	50	C	59	61	59	61	35	54	48	43	35	48	33	44
19	G	G	23	27	31	28	G	G	30	36	48	48	45	50	61	101	68	40	35	37	27	24	G	G
20	G	G	G		G	G	G	G	29	39	41	41	G	G	G	42	45	58	42	52		33	28	G
21	G	G	G	G	G	G		G	G	39	39	G	G	44	52	49	41	37	26	G	25	34	22	34
22	35	G	G	G	G	G		28	G	34	48	49	63	64	70	83	83	56	G	G	G	G	G	G
23	31	33	29	G	G	G	G	G	G	G	37	50	49	48	49	60	41		G	G	G	G	G	G
24	28	G	G	G	G	G		G	G	G	44	43	G	G	42	46	G	34	G	G	G	40	49	48
25		24	G	G	G	G	G	G	G	38	G	G	G	G	G	40	35		32	48	G	23	33	26
26	33	G	26	G	G	G			34	G	44	G	44	C	47	52	47	38	27	34	34	26	27	33
27	28	33	36	G	G	G		28	G	40	44	38		G	40	42	39	37	G	25	G	G	30	30
28	29	32	G	G	G			24	G	G	G	G	39	43	47	50	41	52	55	48	24	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	25	28	27	26	26	24	16	27	25	26	27	26	27	27	28	28	28	26	28	27	25	28	26	26
MED	28	G	G	G	G	G	G	22	29	35	41	38	39	42	46	46	42	42	37	37	32	29	28	32
U Q	36	30	28	24	26	30	29	28	35	39	48	48	52	48	51	51	49	52	43	48	43	39	40	44
L Q	G	G	G	G	G	G	G	G	G	G	G	G	G	38	40	42	39	37	30	26	G	G	G	G

HOURLY VALUES OF fmin AT Yamagawa

FEB. 2009

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

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

HOURLY VALUES OF foF2 AT Okinawa

FEB. 2009

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1								29	47		52	86	117	95	84	71	55	46	34		A	A		29
2	31	28	32	31					42	46	50	42	60	A	A	A	51	52	37	A	A	23		
3				A					42	46		53	66	84	90	86	67	51	42	A	A	A	A	A
4	A						A	A	42		A	A	A	A	A	A	A	62	45		A	A	A	A
5		30	36		30			30	56	62	76	90	106	110	85	70	54	A		A	A	A	A	A
6	30		30	A	A	A		30	50	55	65	63	81	87	85	90	81	92	75	52	45	32	30	
7						28		32	48	56	56	54		58	62	62	66	77	71	50				
8					A			28	51	59	64	68	85	84	68	47	A	61	67	A	A		A	A
9	A	A	A	A					48	67	92	83	72	54			47	A	52				29	
10									50	62	85	88	78	66	61	59	53	56	A	A	A			
11								A	51	61	72	90	90	74	71	72	A	54	48		A	A	A	A
12	A			A	A	A	A	A	53	63	75	80		98	80	79	57	59	A	A	A	A		
13							A	A	48	56	65	82		87	80	71		57	52	36	A	A	A	A
14	A		A				A		57	56	52	58	66	60	60	66	66	56	44			36		A
15	A			A	A	A	A	A	47	A	A	75	80	77	70	60	52	51	45	37		30	34	
16	A	A				A	A	A	36	57	A	76	90	A	103	94	70	56	47	42	42			
17		A	A	A	A		A		46	51		61	67	68	69	67			A	34				A
18								26	47	52	57	70	93	106	116	118	85	82	66	66	51	A	A	
19	42	42	43	44	46	29		36	58	58	54	58	62	64	70	80	56	A	55	36	A		30	
20			29	29	30	29		32	47	46	51	60	64	58	56	A	A	A	48	34		36	32	
21	29	28						30	52	60	58	66	66	77	80	88	94	56	48	28	A	A		
22		30	30		31				40	52	44	55	67	64	70	76	62	52	46	35	31	30	31	30
23	30							32	42	54	53	57	57	63	77	75	78	58	62	47	30		30	29
24					28			36	50	56	58	59	62		A	58	66	67	51	36	30		A	30
25					A		A	A	51	48	56	70	82	88	81	74	74	60	47	37	28		29	
26		A						42	45		56	67	83	83	98	88	80	A	51		A	29		
27	28	31		30	28			36	48	56	60	71	74	86	102	100	76	65		42	A	A	A	
28	30							26	30	59	70	65	57	56	61	64	63	56	51		A	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	7	6	6	4	6	3		14	28	24	23	27	24	24	24	24	22	22	23	15	7	7	8	4
MED	30	30	31	30	30	29		31	48	56	58	67	73	77	78	73	66	56	48	37	31	30	30	30
U Q	31	31	36	37	31	29		36	51	59	70	80	84	87	85	87	76	62	55	47	45	36	31	30
L Q	29	28	30	29	28	28		29	43	52	53	58	65	63	68	65	55	54	45	35	30	29	29	29

HOURLY VALUES OF fEs AT Okinawa

FEB. 2009

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1		G	G					G	27	34	G	G	G	G	G	G	G	40	29	28	51	30		G
2	G	G	G	G	G			G	29	34	G	G	G	68	61	65	G	52	G	86	28	G		
3				33	G			G	G	34	41	46	49	40	68	50	39	G	33	40	43	48	39	58
4	48	G	G	G			28	29	51		62	60	96	87	76	81	59	48	30		66	48	80	72
5		G	G		G	G	G	G	G	G	G	45	42	48	70	47	55	108	61	93		48	33	68
6	G		G	39	40	28		G	30	G	51	59	58	64	50	50	65	61	44	33	33	29	G	
7			G		G	G	G	G	G	G	G	G		G	G	45	36	35	34	29				
8				42	34			G	G	G	G	G	G	G	G	G	51	62	51	83	58	34	48	35
9	40	36	29	28				G	G	G	G	G	G	G	46	55	42	59	36				G	
10	G					23			G	34	37	G	G	G	G	46	52	58	107		67	G		
11	G	G			G			27	G	G	G		G	42	48	49	59	48	36	35	40	48	59	29
12	56	G		32	30	27	25	34	34	36	G	G	G	G	G	G	42	54	58	60	52	46		
13		G			26	48	36	67	33	35	G	G		G	G	G	G	47	48	36	44	50	36	40
14	34		33				29	G	29	36	38	G	G	G	G	50	36	38	31	29	G	30	29	40
15	59	37	G	47	26	33	38	80	30	87	52	65	59	68	52	38	57	45	30	29		G	28	
16	47	34	32	29	30	34	28	52	38	41	66	67	78	96	47	49	37	G	31	29	G	28		
17		70	52	35	37	27	28	29	42	41	40	40	61	67	56	67	61	52	54	36	26	G		36
18	29	28			28	G	G	G	32	42	44	51	53	60	71	85	44	39	40	40	47	50	58	G
19	G	27	G	G	G	G	32	G	G	G	G	49	49	48	52	58	60	71	52	34	27		G	
20			28	G	G	G		G		43	47	G	48	48	47	71	62	71	33	29		40	30	G
21	G	G						G	G	36	G	G	46	54	59	57	56	52	46	28	38	35		
22		G	29	33	33			G		37	45	50	50	G	49	67	61	61	G	32	G	G	G	G
23	G			27	29	32	G	G	G	35	39	51	56	57	52	49	41	35	27	G	G		G	G
24		G			G	G		G	G		48	G	G		62	52	G	G	G	G	G		29	G
25				27	33	24	60	40		G	G	G	45	G	54	45	46	36	25	G	G	29	27	G
26	28	24		26	G	G		G	34	40	G	G	G	G	52	50	68	59	37	36	39	G	30	
27	G	G		G	G	G		G	30	39	38	50	G	48	G	44	52	38		G	34	37	49	28
28	G	29	G					G	G	G	G	G	G	40	48	47	36	50	38	36	43	50	23	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	17	19	15	17	21	17	13	27	25	26	28	27	26	27	28	28	28	28	27	25	23	23	20	17
MED	G	G	G	28	26	23	28	G	27	34	19	G	44	42	50	50	48	49	36	33	38	34	30	28
U Q	43	29	29	34	31	30	34	29	32	39	44	50	53	60	57	57	59	59	48	38	47	48	43	40
L Q	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	45	36	38	30	28	G	G	12	G

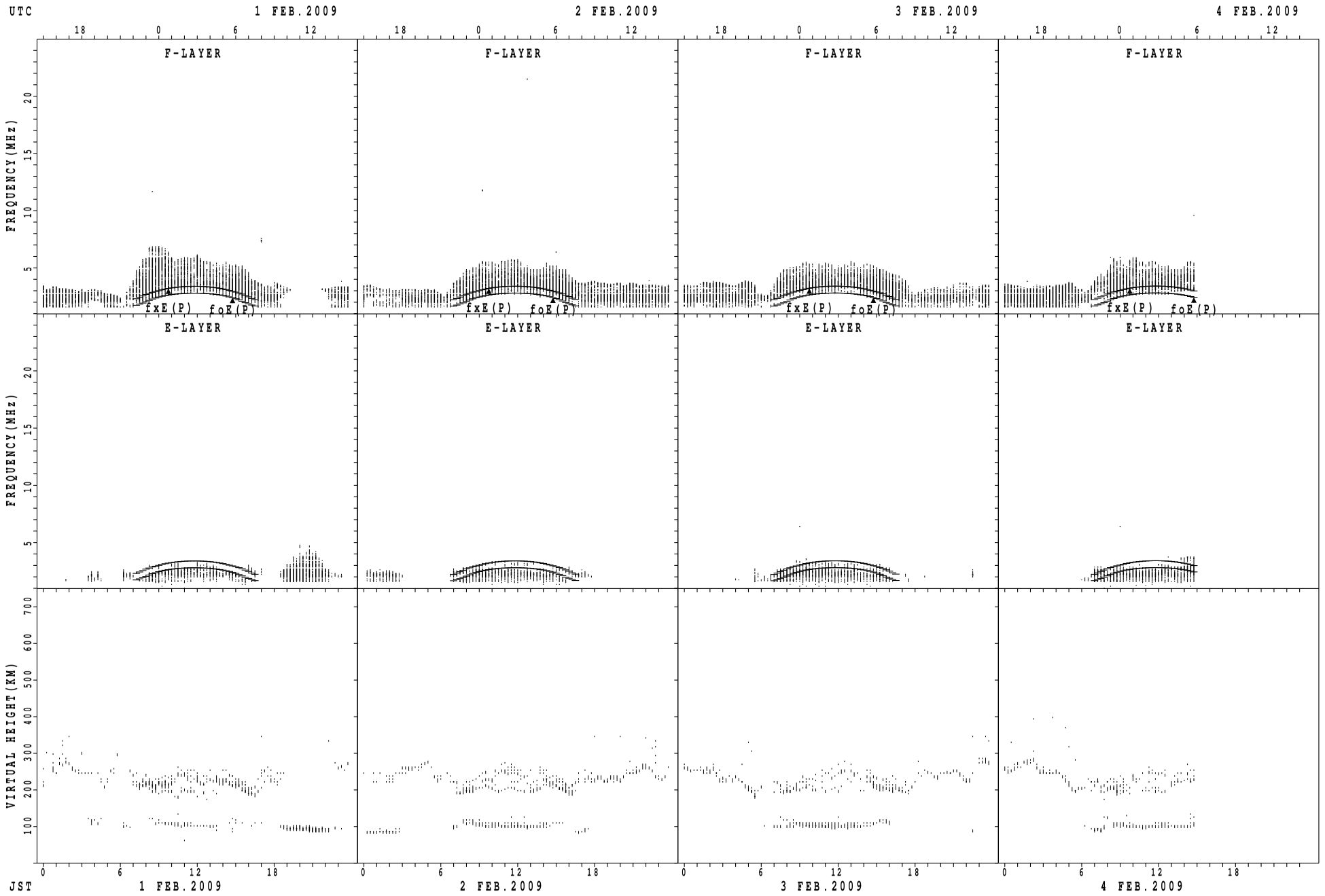
HOURLY VALUES OF fmin AT Okinawa

FEB. 2009

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

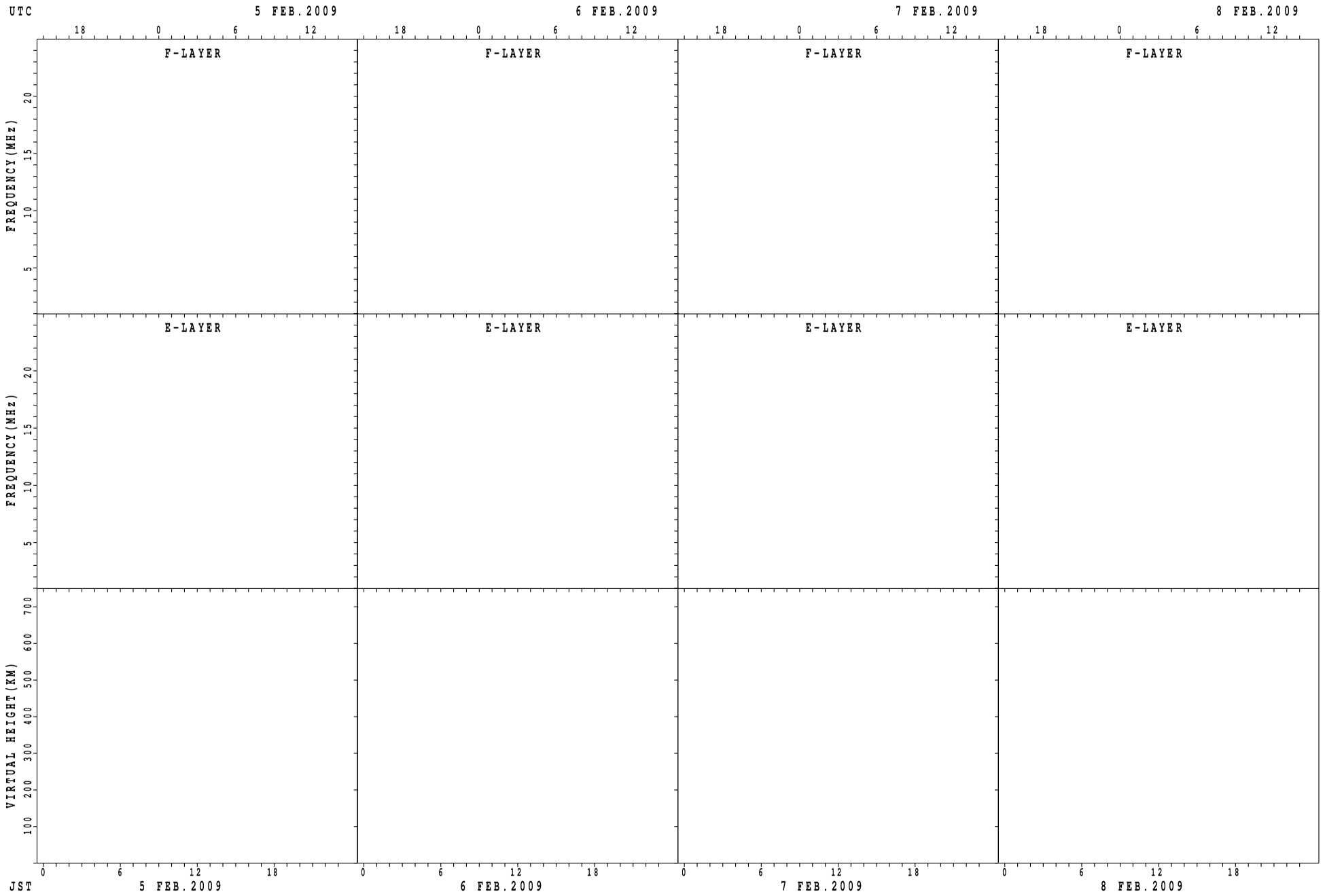
D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1		16	17					14	15	18	30	43	44	43	43	17	14	14	16	14	15	15		17
2	17	16	21	14	15			15	14	14	21	21	44	32	30	28	20	14	21	14	14	15		
3				15	15			17	20	18	15	26	23	28	14	17	14	18	14	15	17	16	15	14
4	14	15	15	16			15	15	14		16	29	30	30	29	20	15	14	14		14	15	15	14
5		20	17		14	21	20	21	17	15	21	23	28	27	27	20	15	14	14	15	15	17	18	20
6	23		14	17	15	14		21	14	16	17	27	27	20	28	21	15	14	14	14	17	15	18	
7			17		20	15	15	15	14	16	28	40		43	43	20	17	14	14	15				
8				15	16			15	20	27	20	21	44	43	42	18	27	20	14	15	15	17	15	15
9	15	15	15	15				16	21	36	42	20	43	43	30	21	17	14	16				14	
10	15					16			28	17	14	17	17	43	42	20	21	14	14	14	15	17		
11	18	16			15			15	14	14	39	30	44	45	35	30	17	15	14	15	17	14	15	16
12	20	15		14	14	15	15	14	14	14	15	42		46	45	42	27	14	14	15	14	15		
13		17			15	15	15	14	14	14	15	20		52	46	42	36	22	14	15	16	15	18	16
14	15		16				14	15	15	16	30	40	45	44	45	22	27	16	14	14	22	18	14	15
15	14	15	15	16	16	15	14	14	14	22	29	32	21	33	29	28	26	15	14	14		14	14	
16	14	17	15	16	15	15	15	14	15	14	15	28	29	29	28	27	23	15	15	14	22	14		
17		16	15	15	15	14	14	14	23	18	32	34	32	29	30	32	22	20	14	15	17	18		14
18	15	17			14	17	17	15	15	22	23	32	32	33	20	20	16	15	14	18	14	14	20	21
19	21	15	15	16	20	20	15	18	15	16	17	42	35	36	32	29	17	14	15	15	17		17	
20			16	15	16	16		14	15	14	29	30	34	34	32	30	22	14	14	15		15	16	15
21	15	17						15	28	20	18	44	38	36	32	29	24	14	14	14	15	14		
22		17	15	14	14			17	15	29	32	36	36	45	34	21	16	14	15	15	21	15	17	15
23	16			16	15	16	17	18	14	28	38	33	34	30	26	20	17	14	16	16	16		15	15
24		14			15	14		21	18	16	18	41	40		32	29	35	14	22	15	15		14	18
25				14	14	16	14	15	15	30	45	44	35	52	33	29	18	14	18	15	16	15	15	20
26	17	16		15	15	16		23	18	24	40	45	52	39	34	30	24	14	14	15	15	15	15	
27	15	21		15	16	15		17	14	30	44	34	55	33	45	26	22	18		15	18	15	16	14
28	20	16	21					15	14	14	18	44	43	42	36	34	28	16	14	15	14	15	15	17
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	17	19	15	17	21	17	13	27	28	27	28	28	25	27	28	28	28	28	27	26	24	23	20	17
MED	15	16	15	15	15	15	15	15	15	17	22	32	35	36	32	26	20	14	14	15	16	15	15	15
U Q	19	17	17	16	16	16	16	17	18	24	32	41	44	43	42	29	25	15	15	15	17	16	17	17
L Q	15	15	15	14	14	15	14	14	14	14	17	26	29	30	29	20	16	14	14	14	15	15	15	14

SUMMARY PLOTS AT Wakkanai



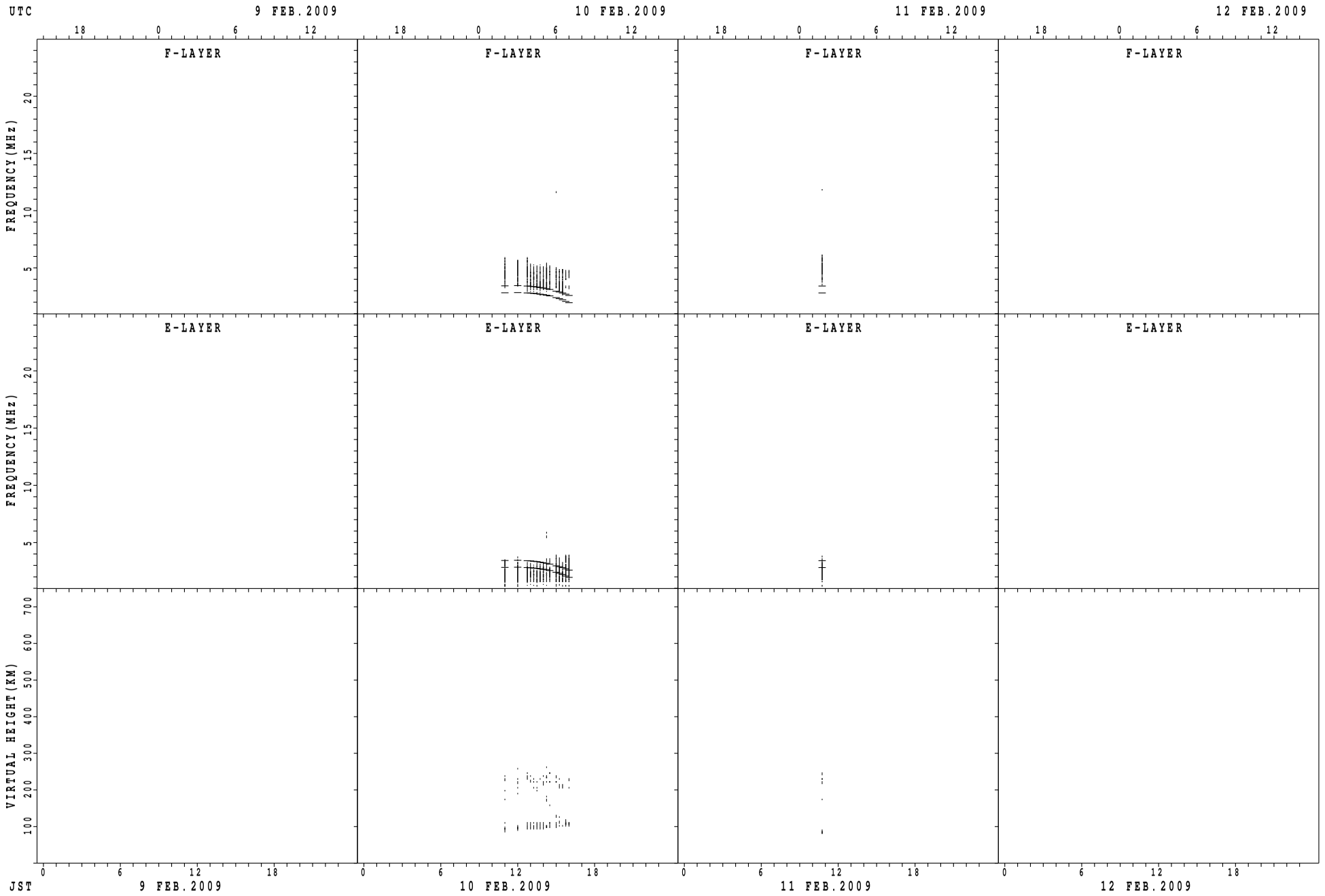
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



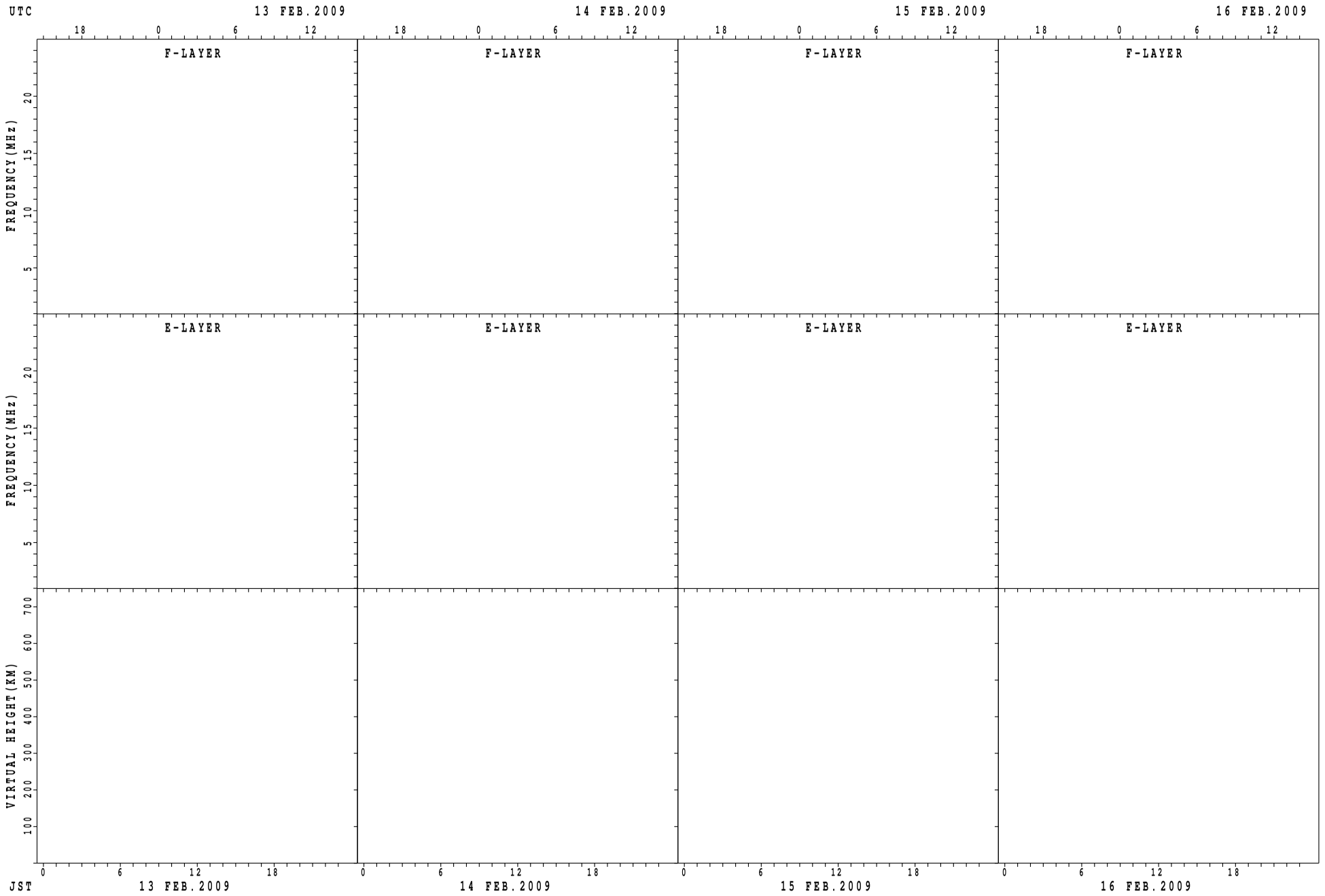
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



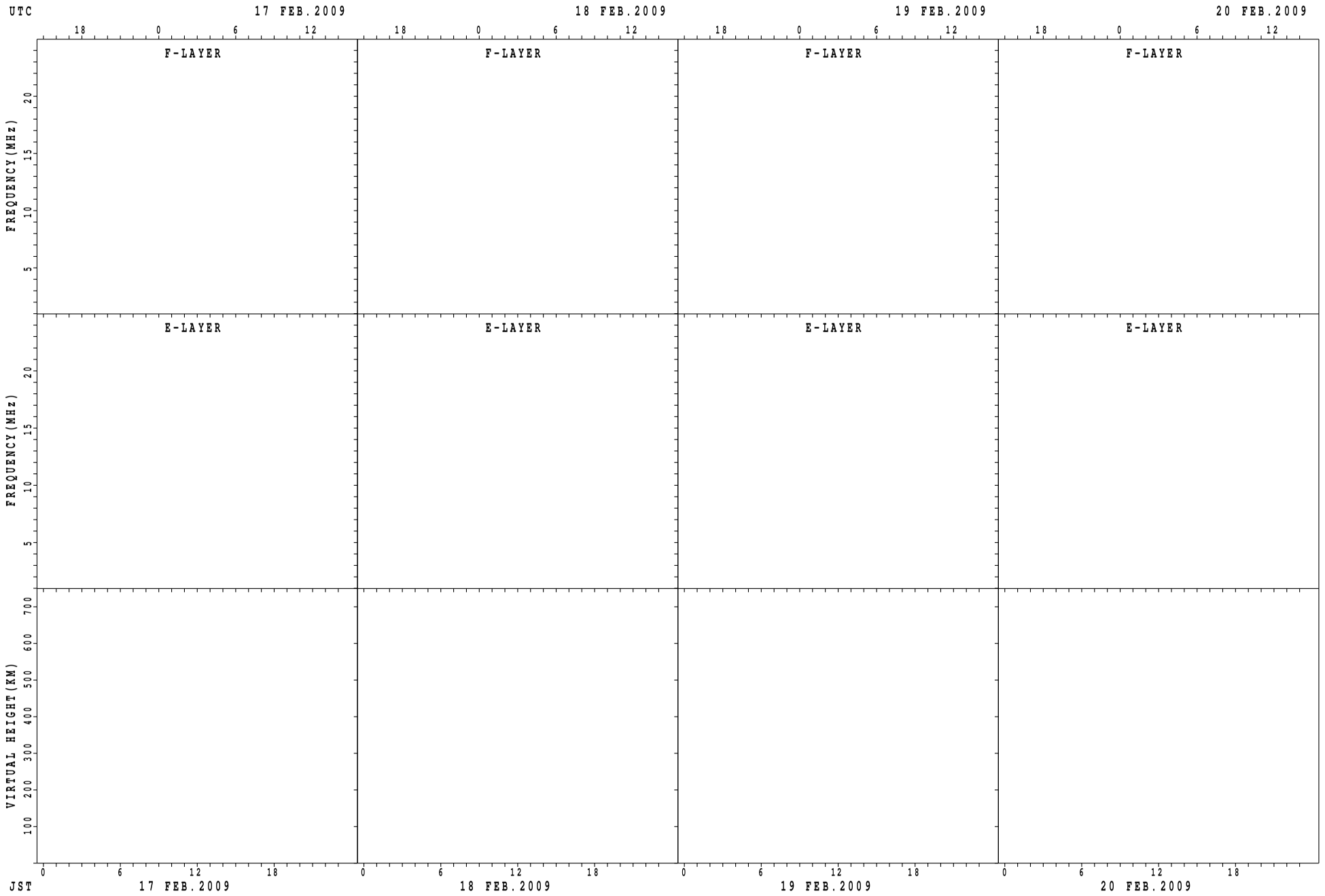
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



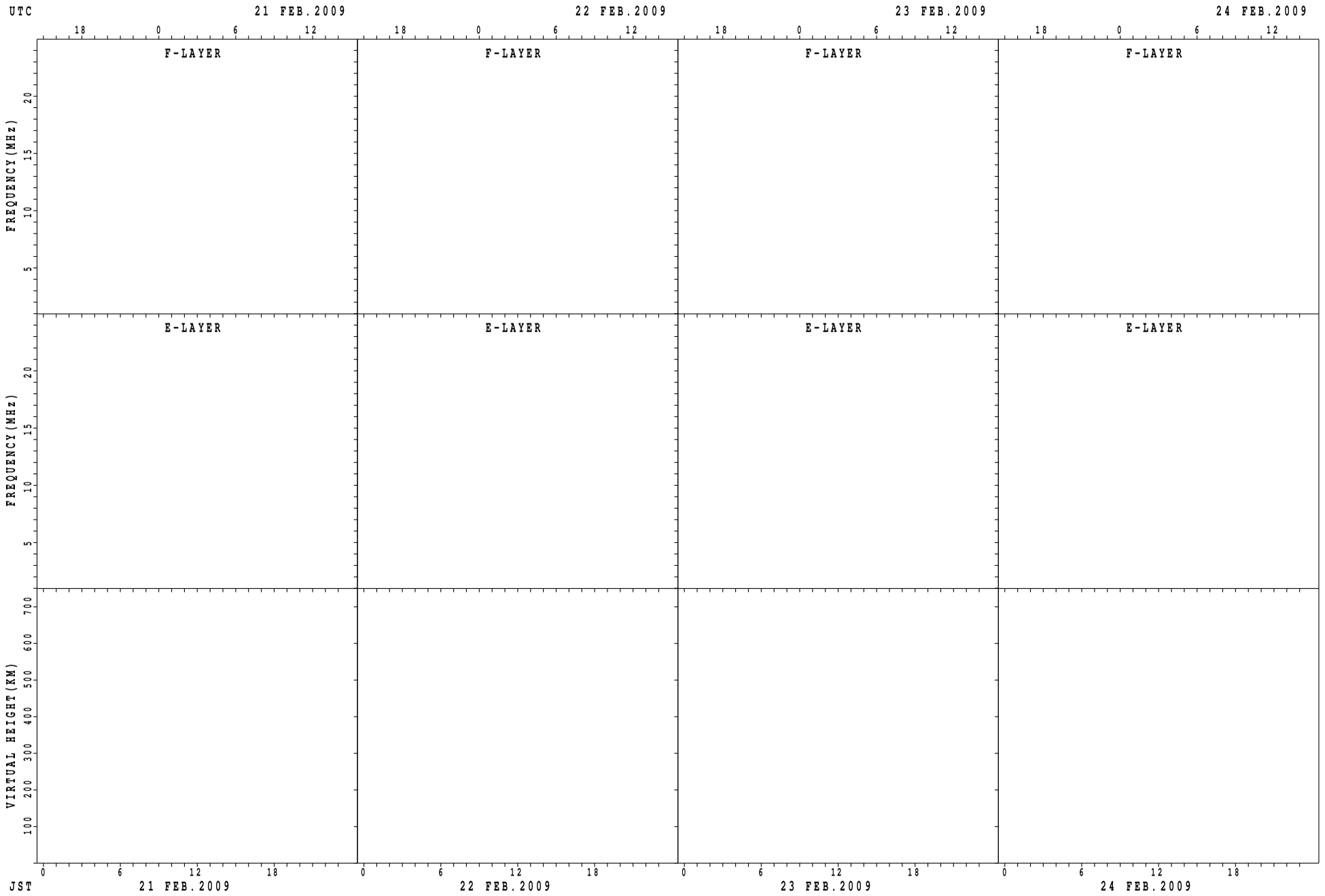
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



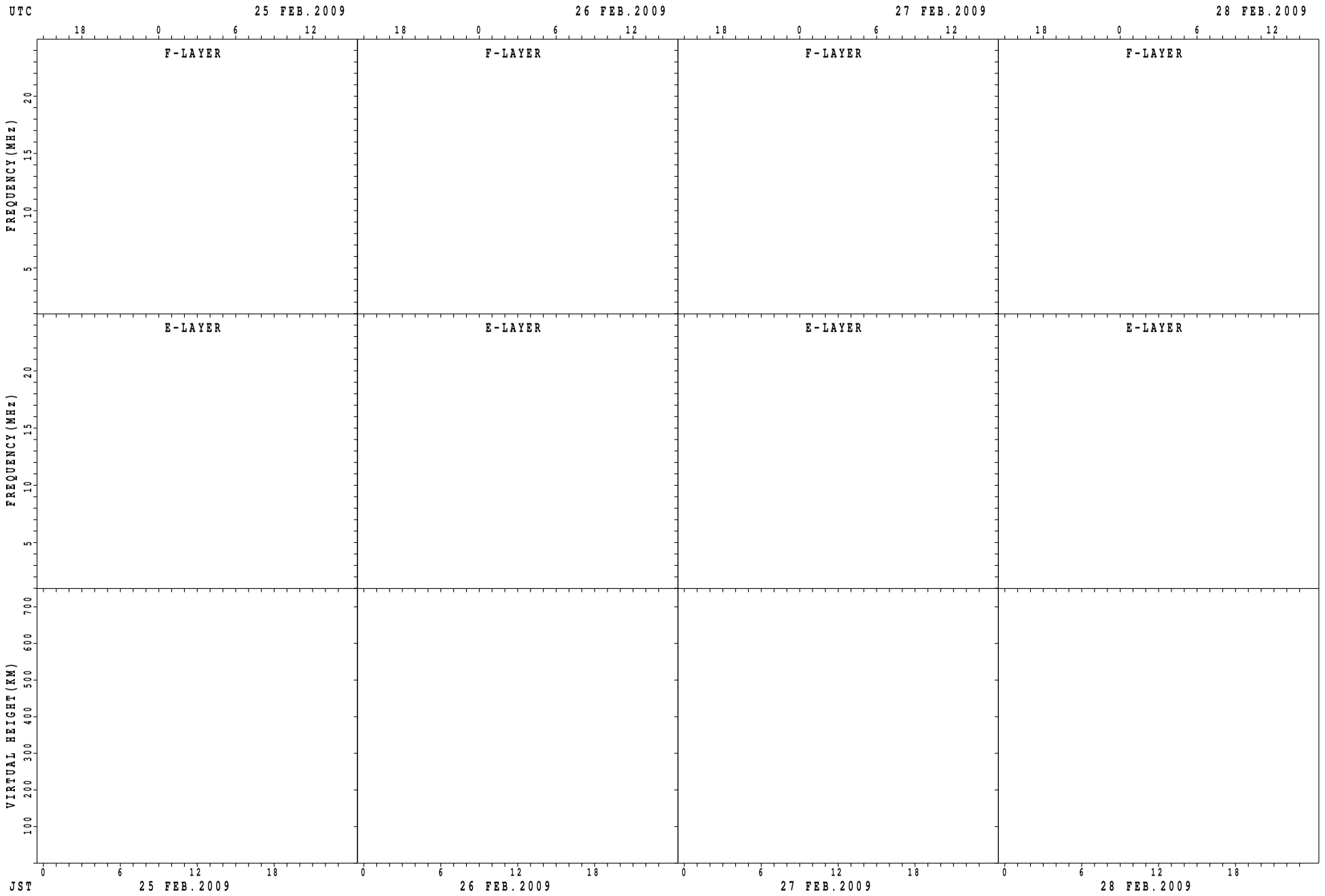
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



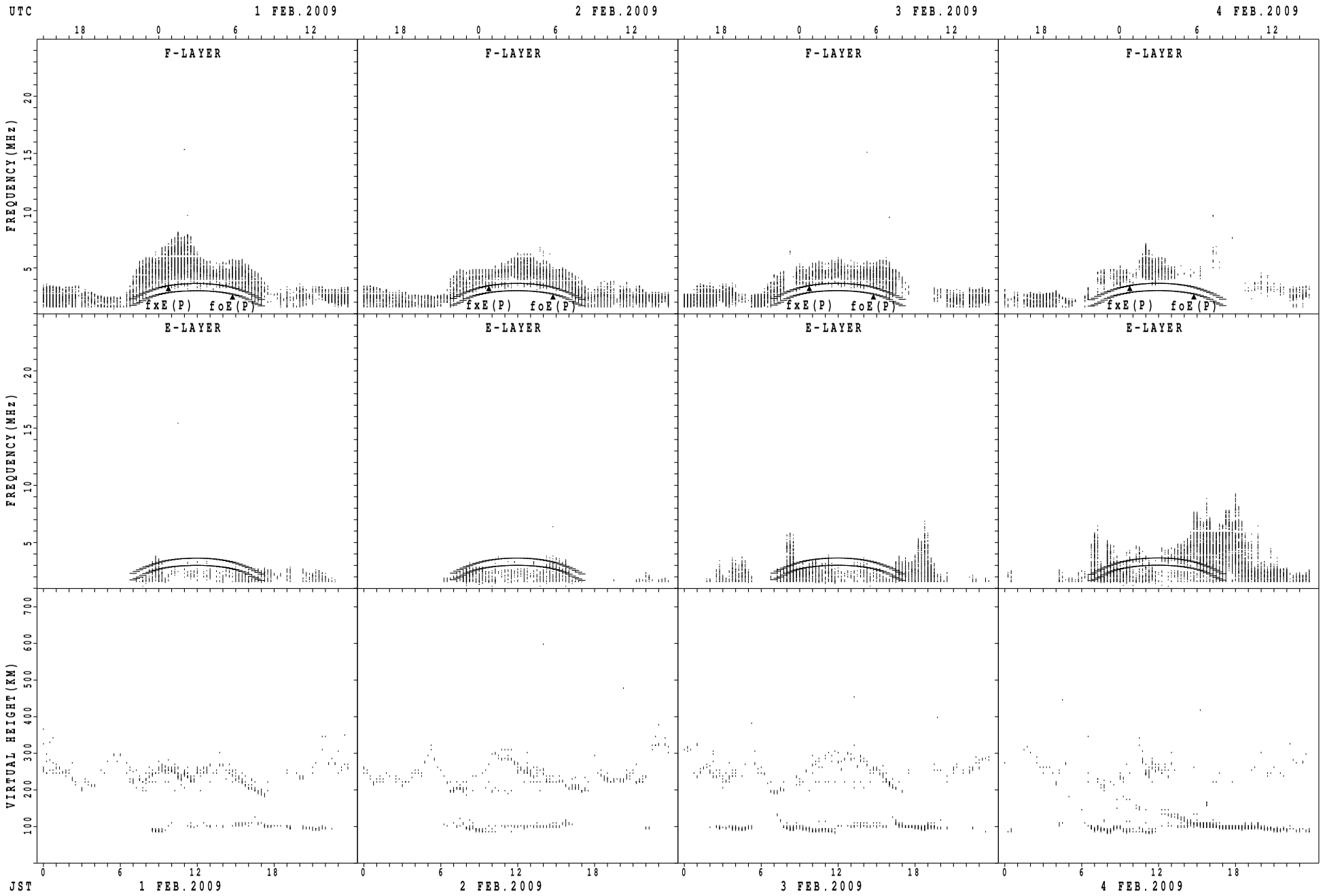
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



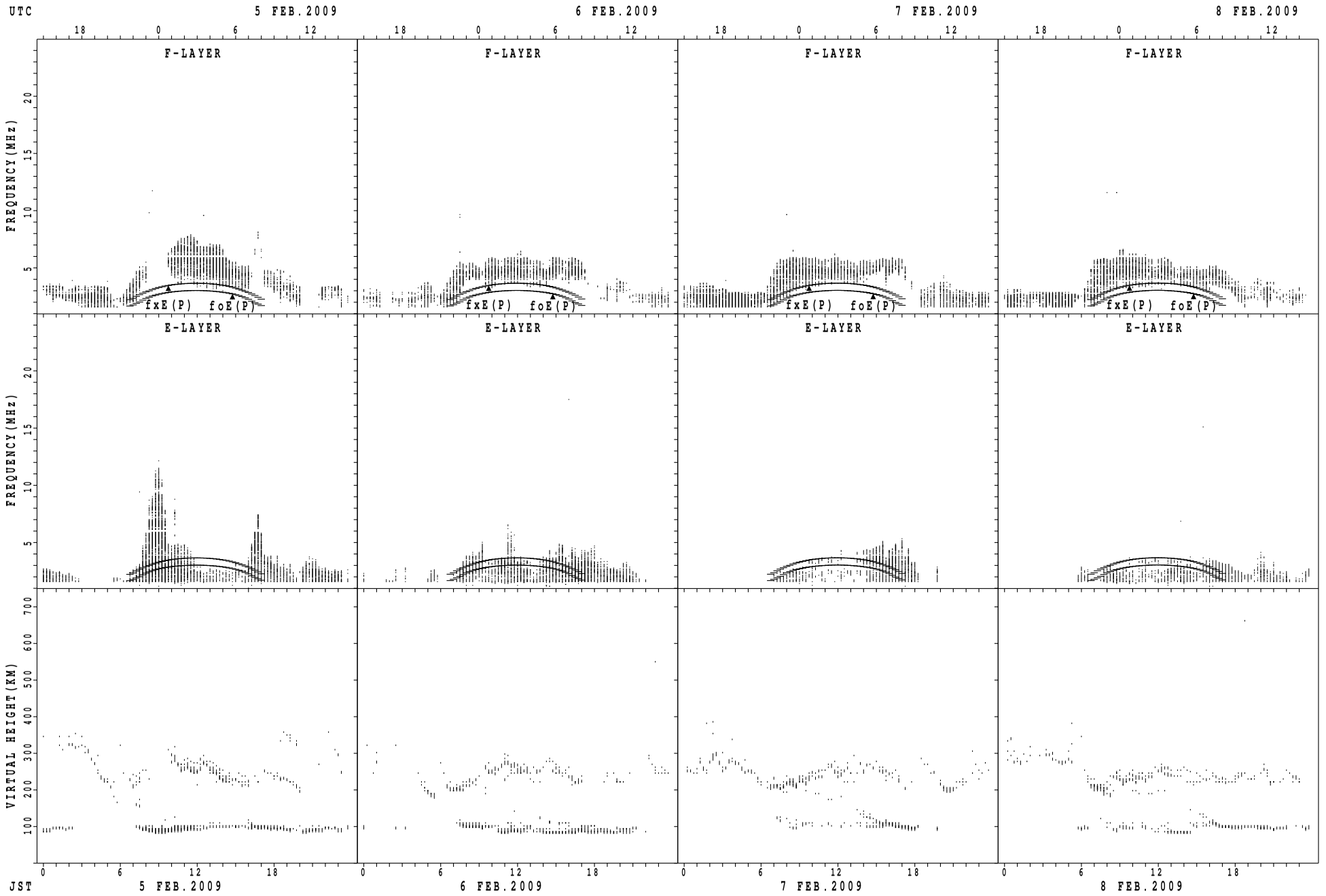
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



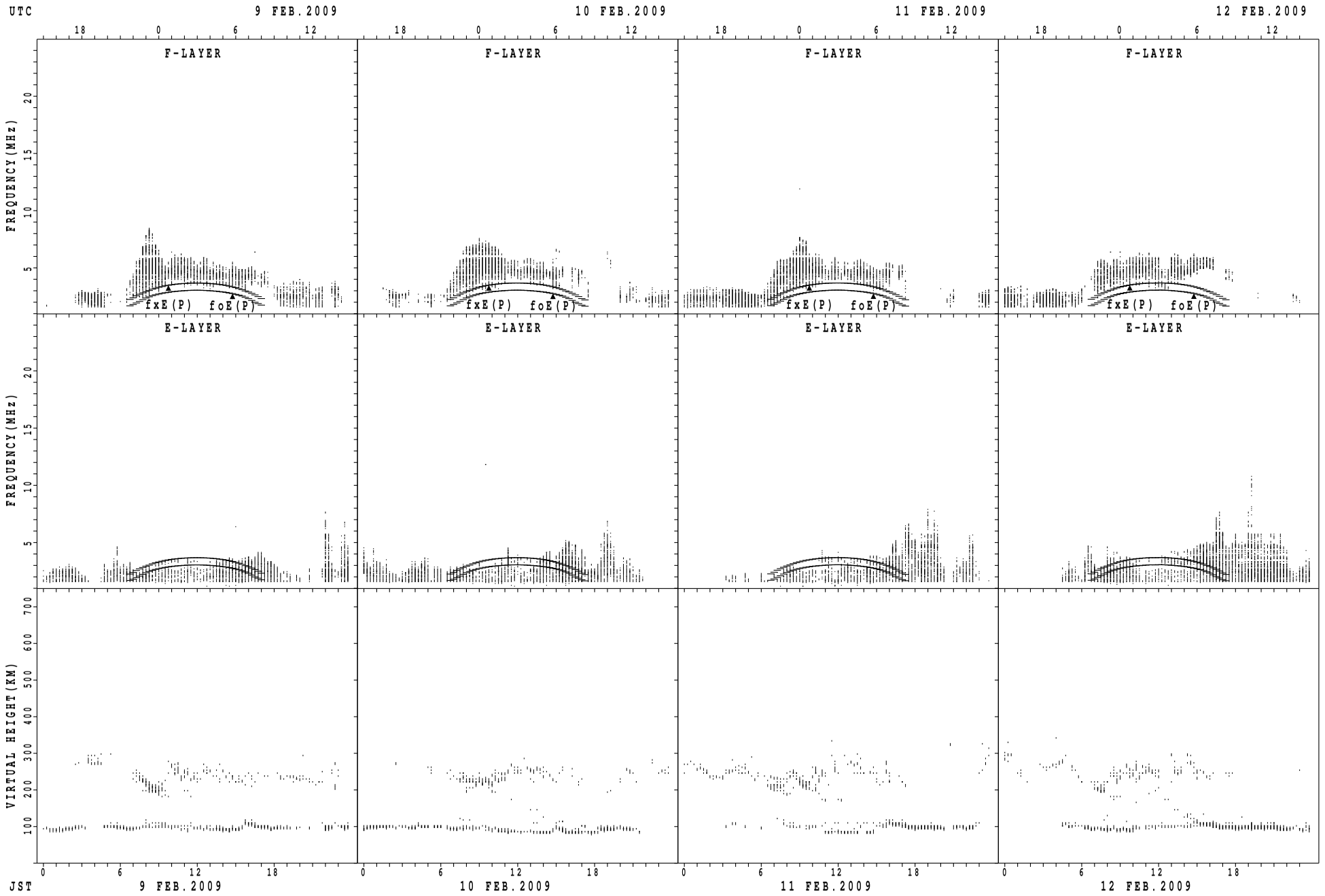
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



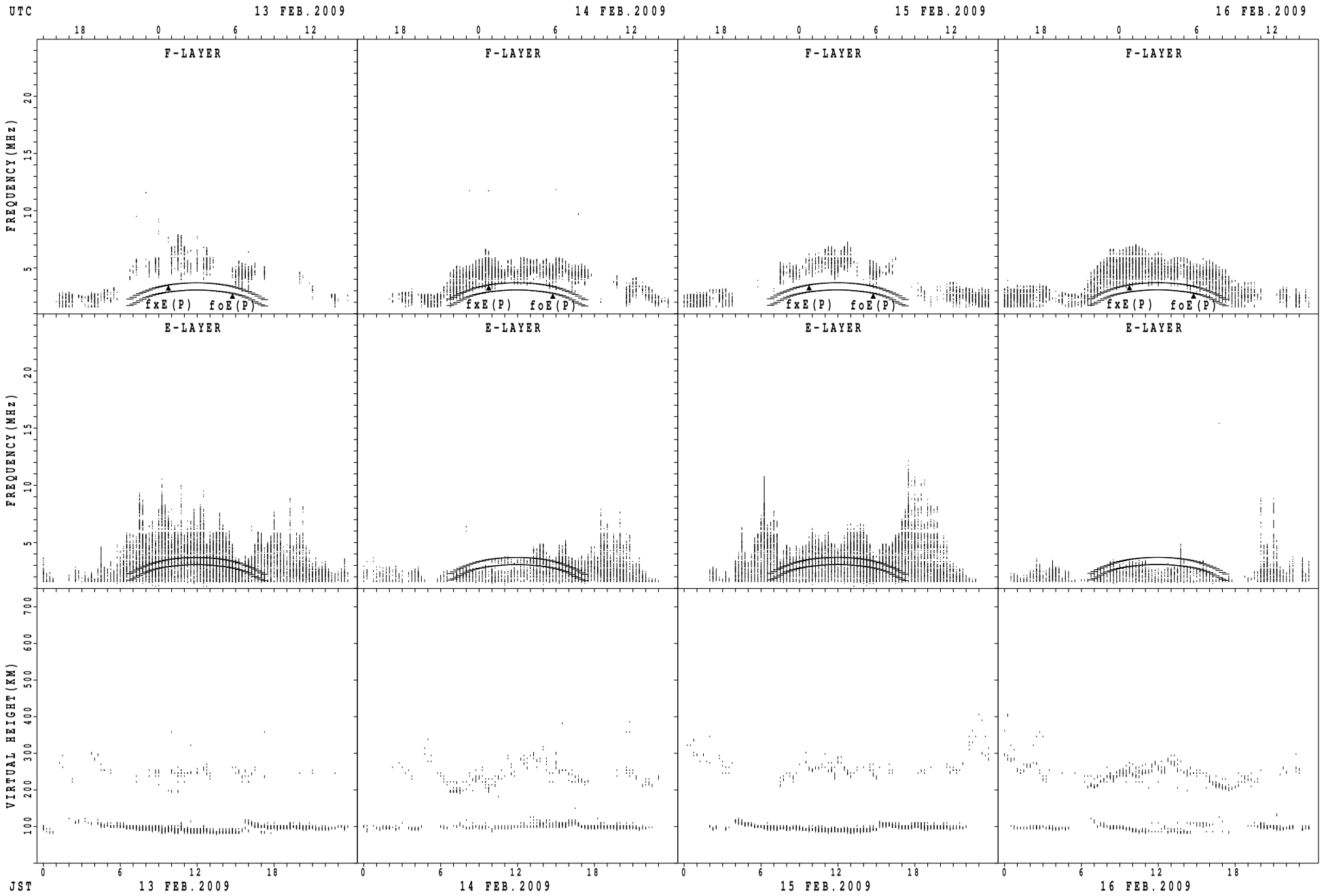
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



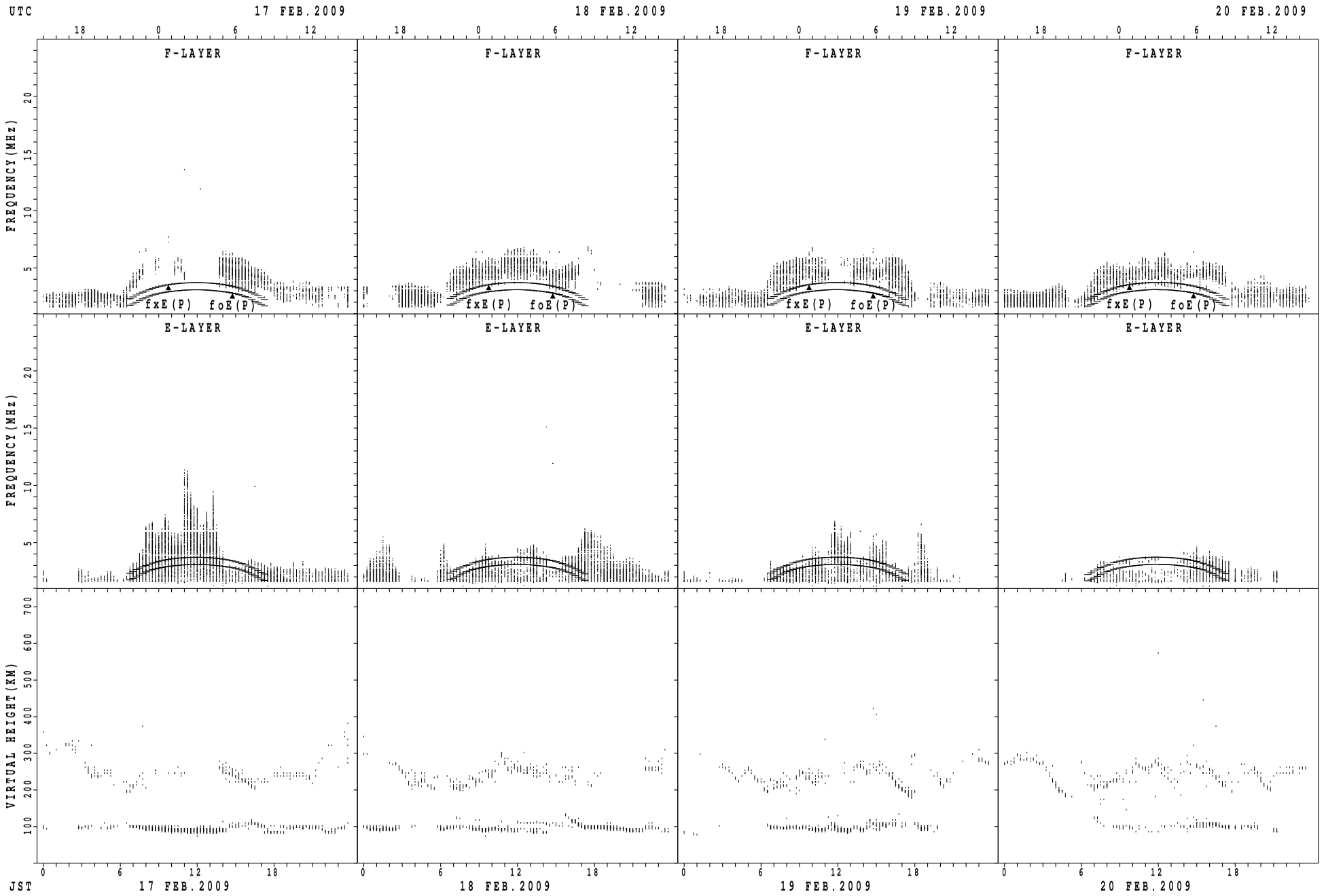
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



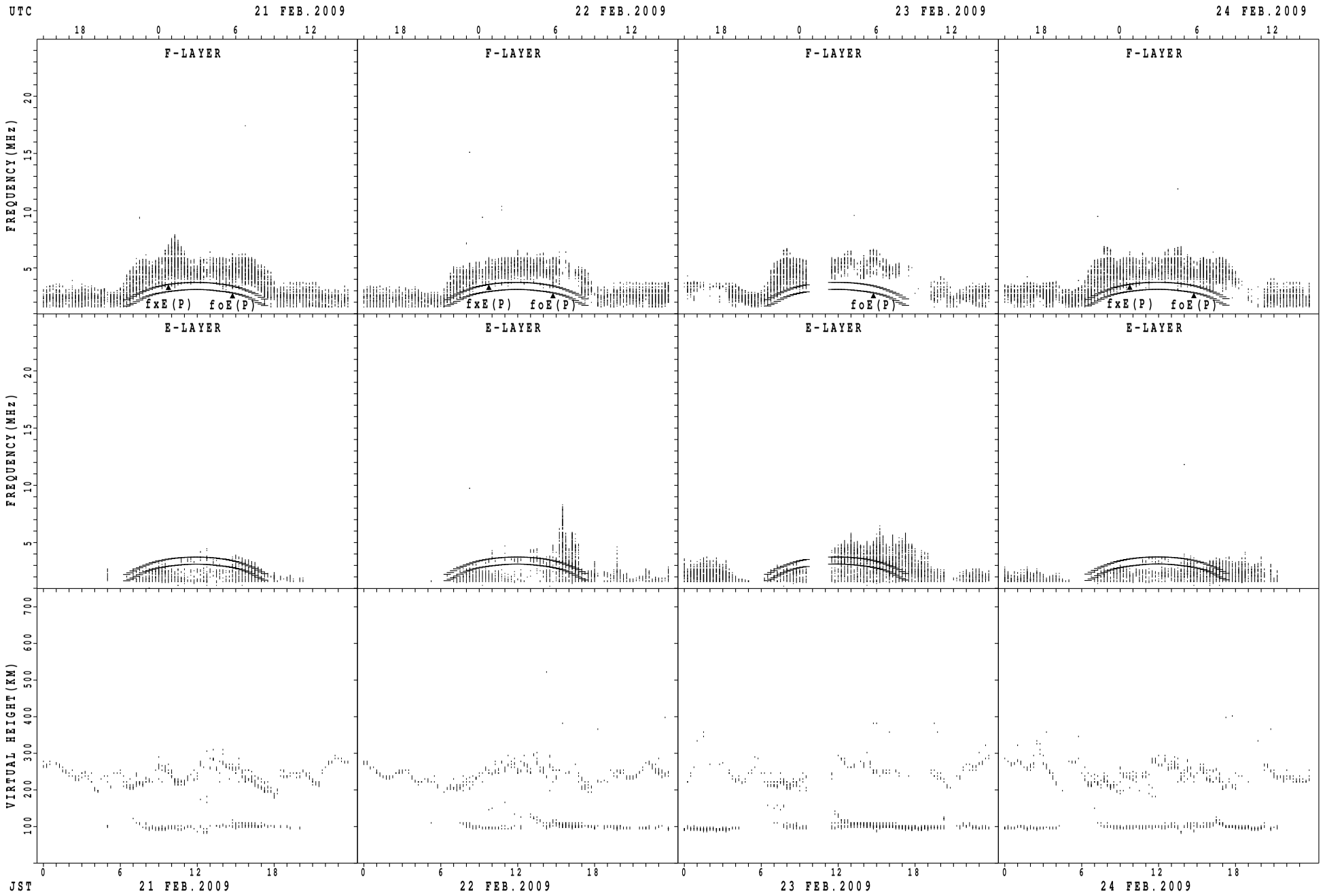
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



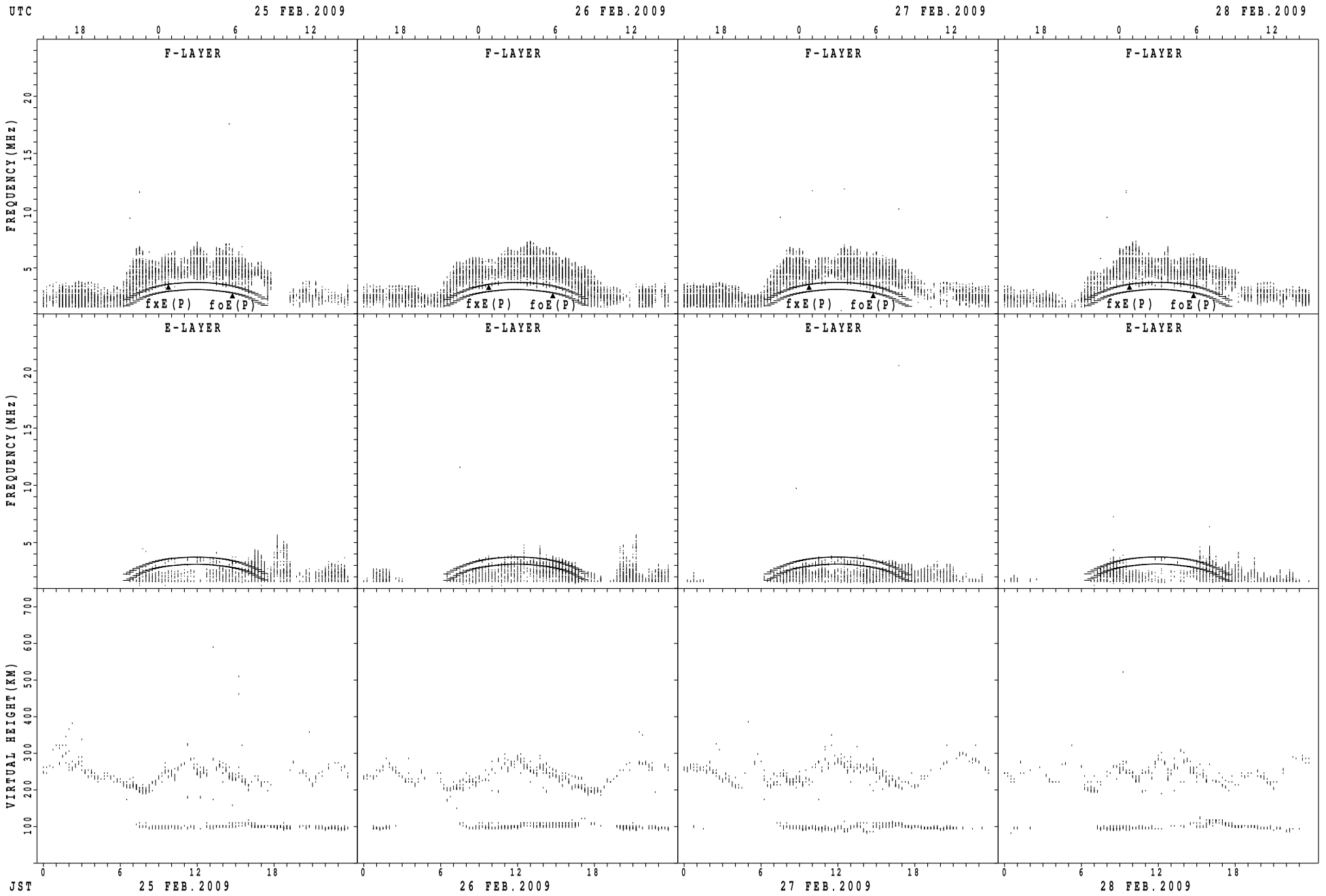
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



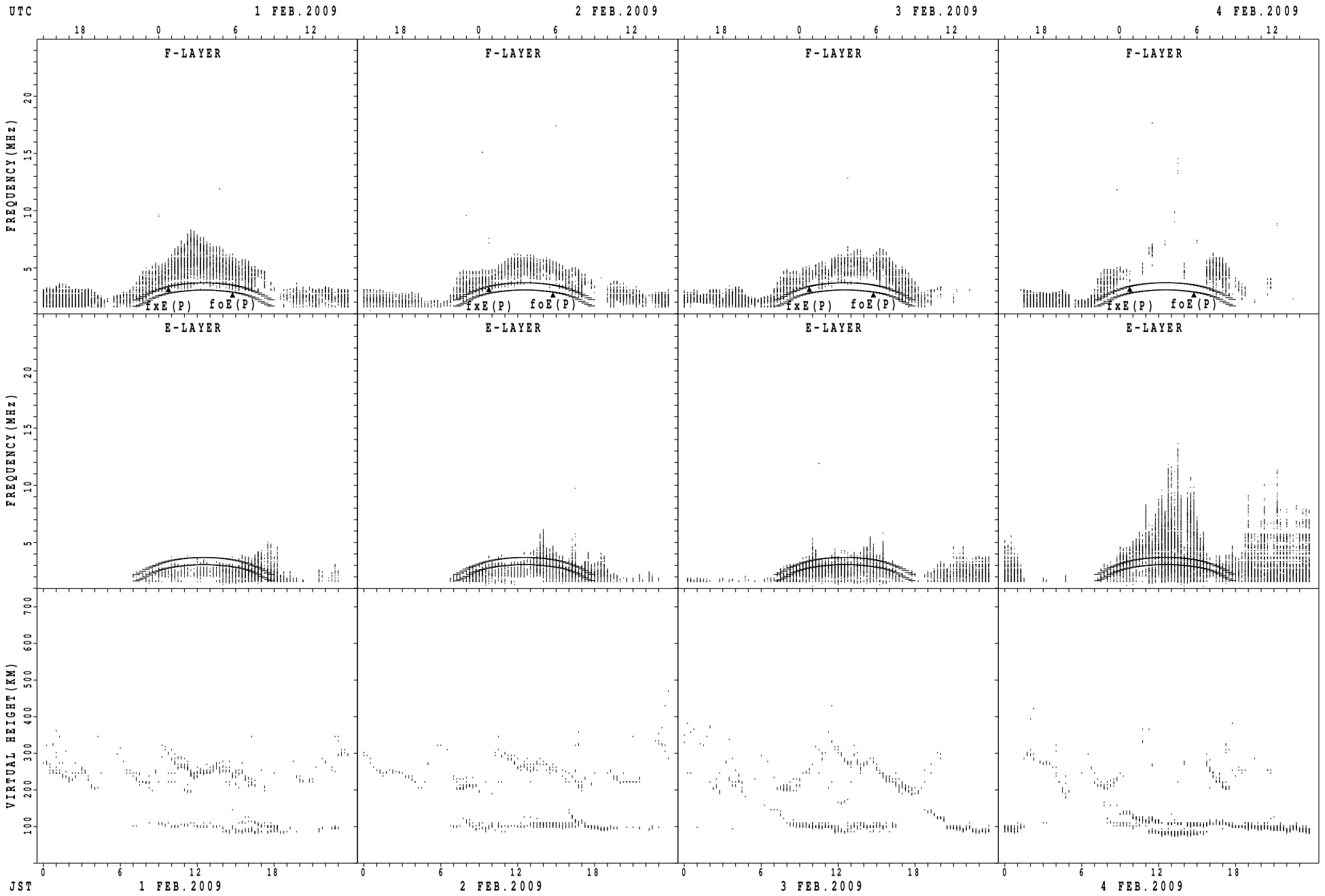
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



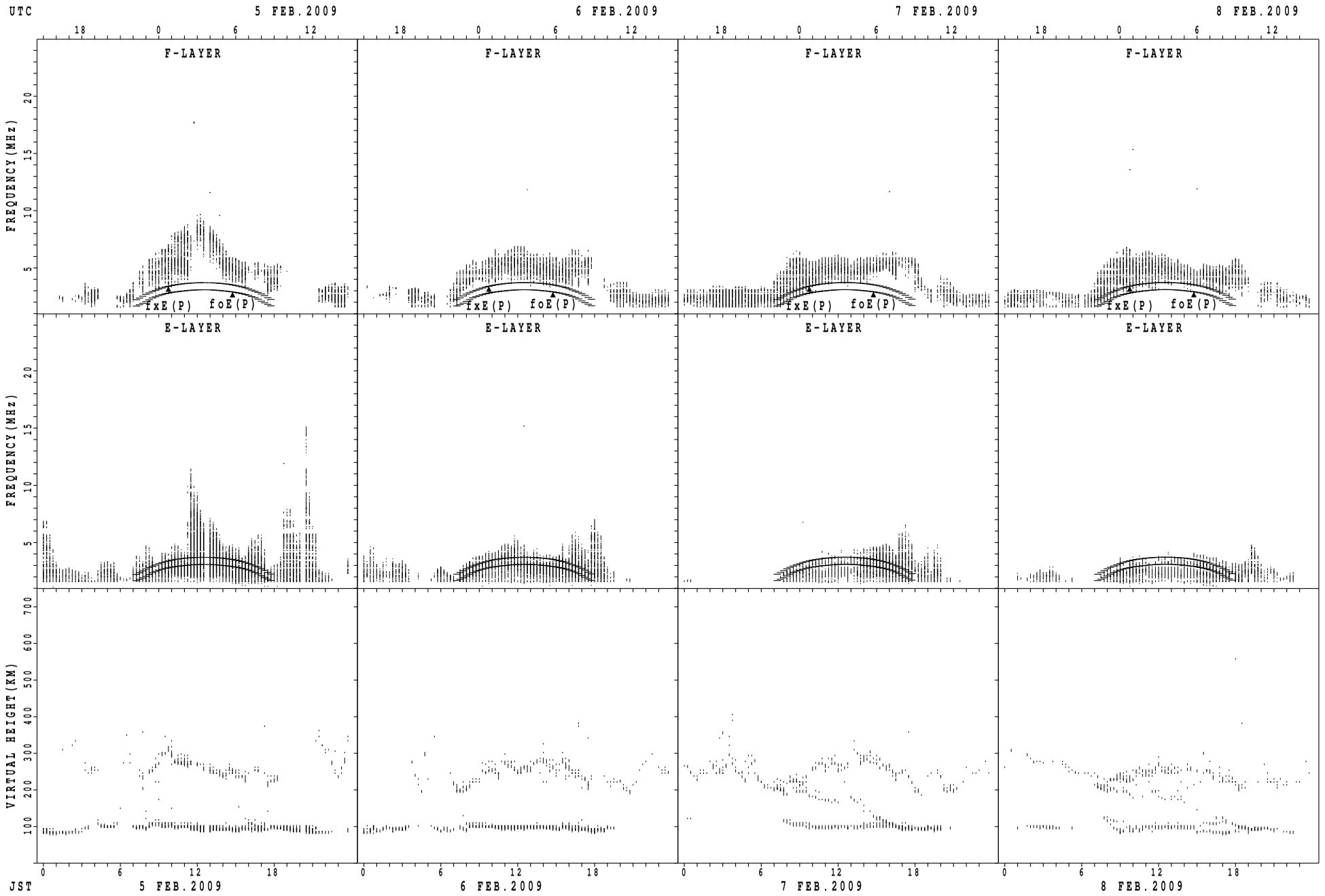
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



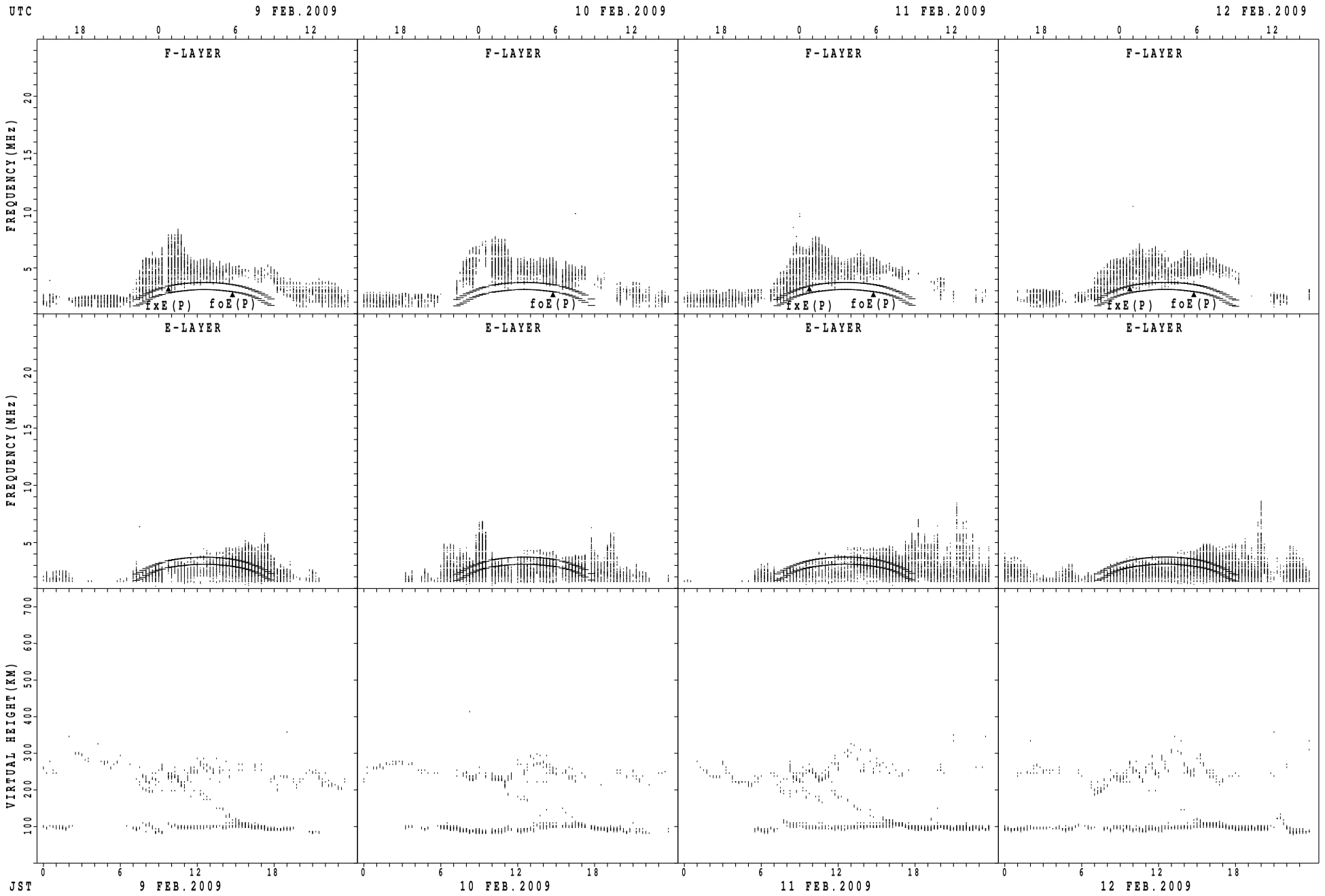
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



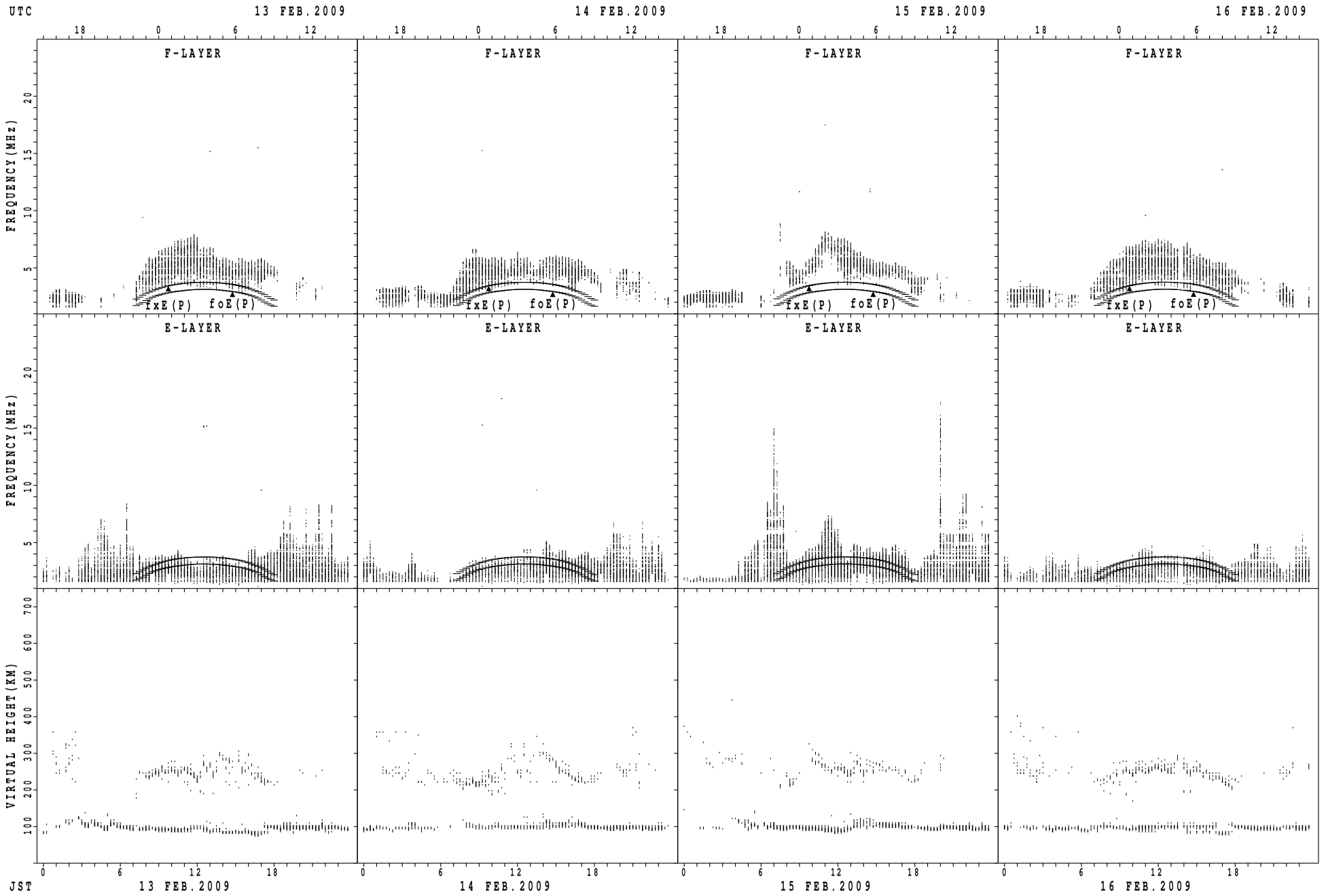
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



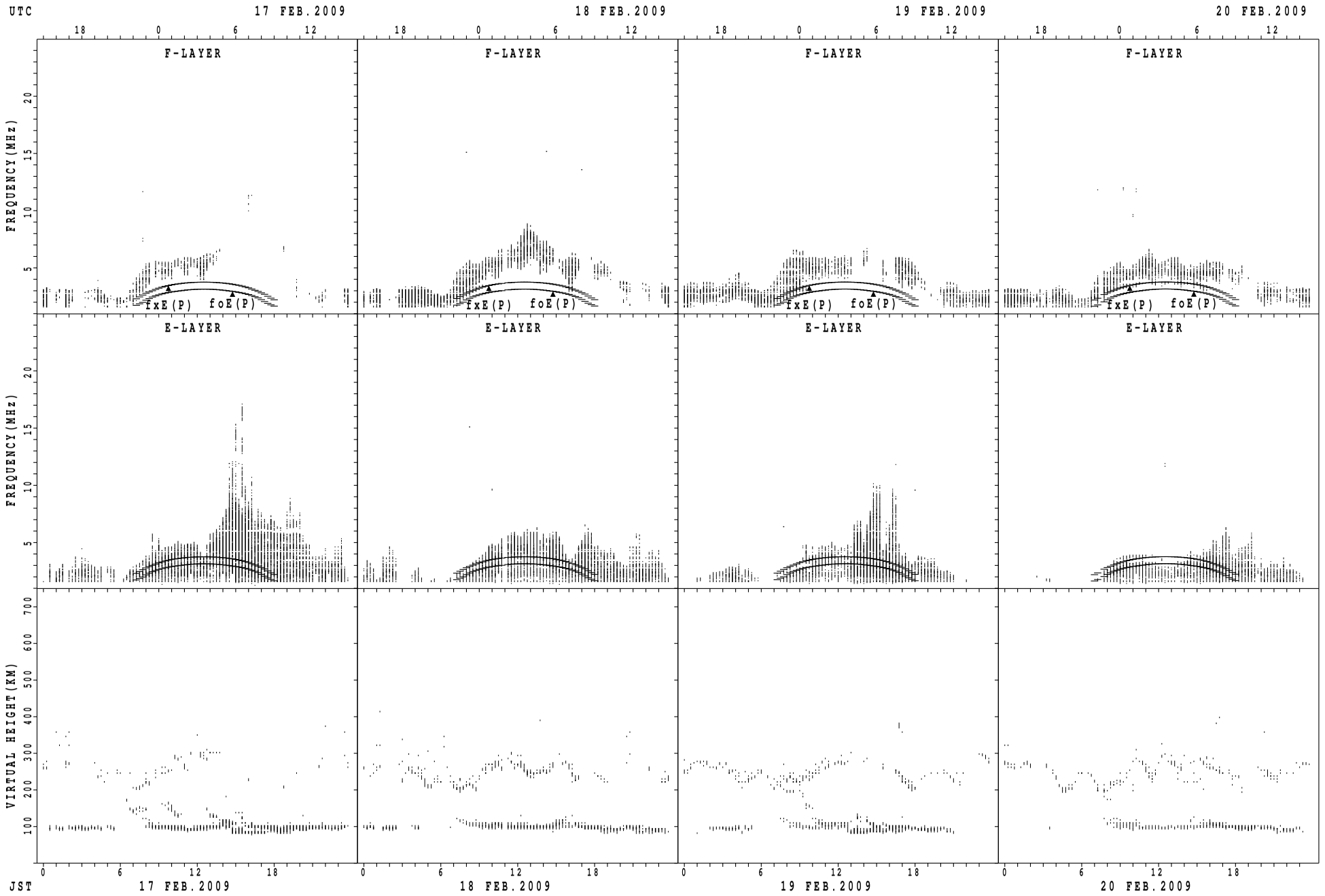
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



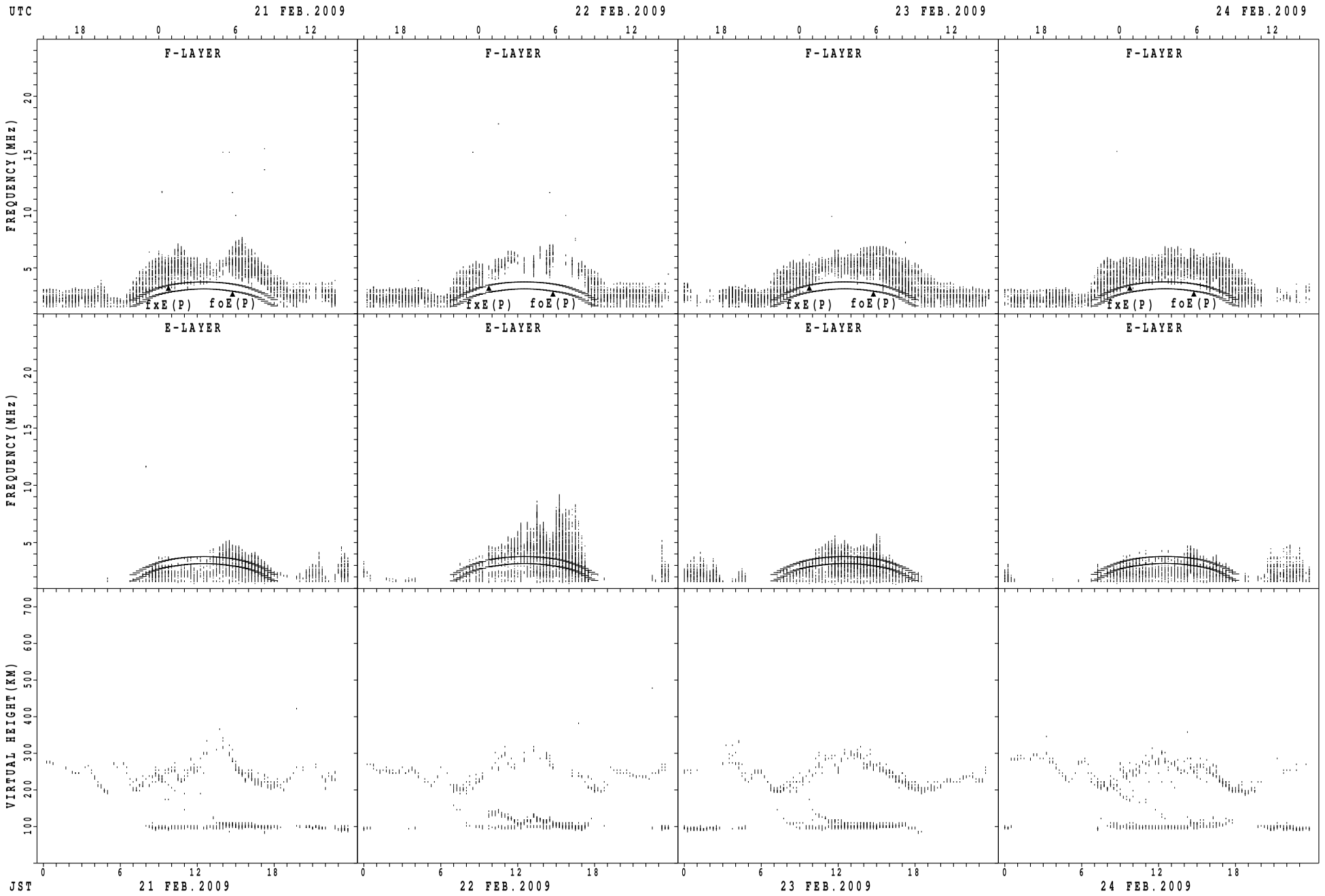
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



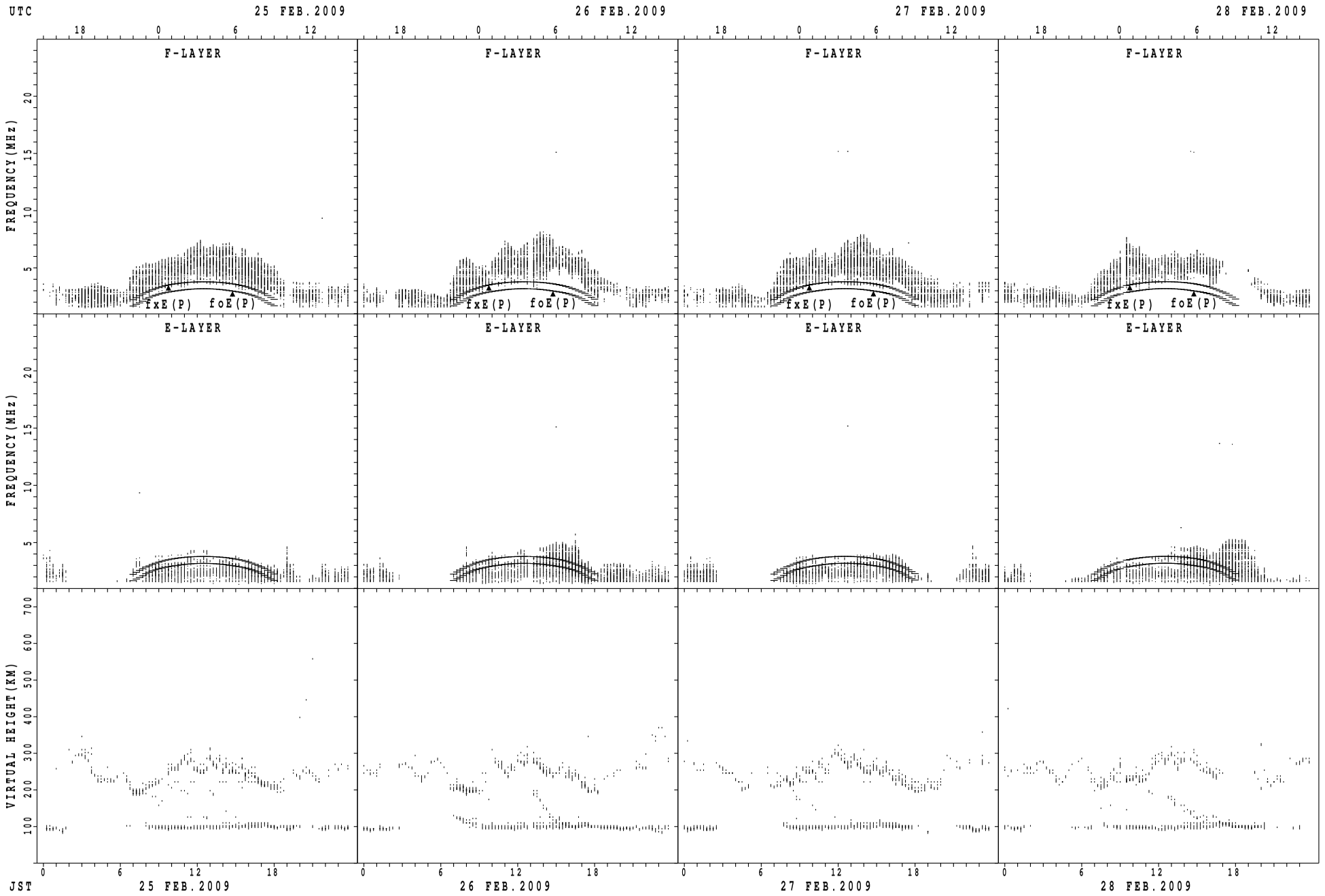
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



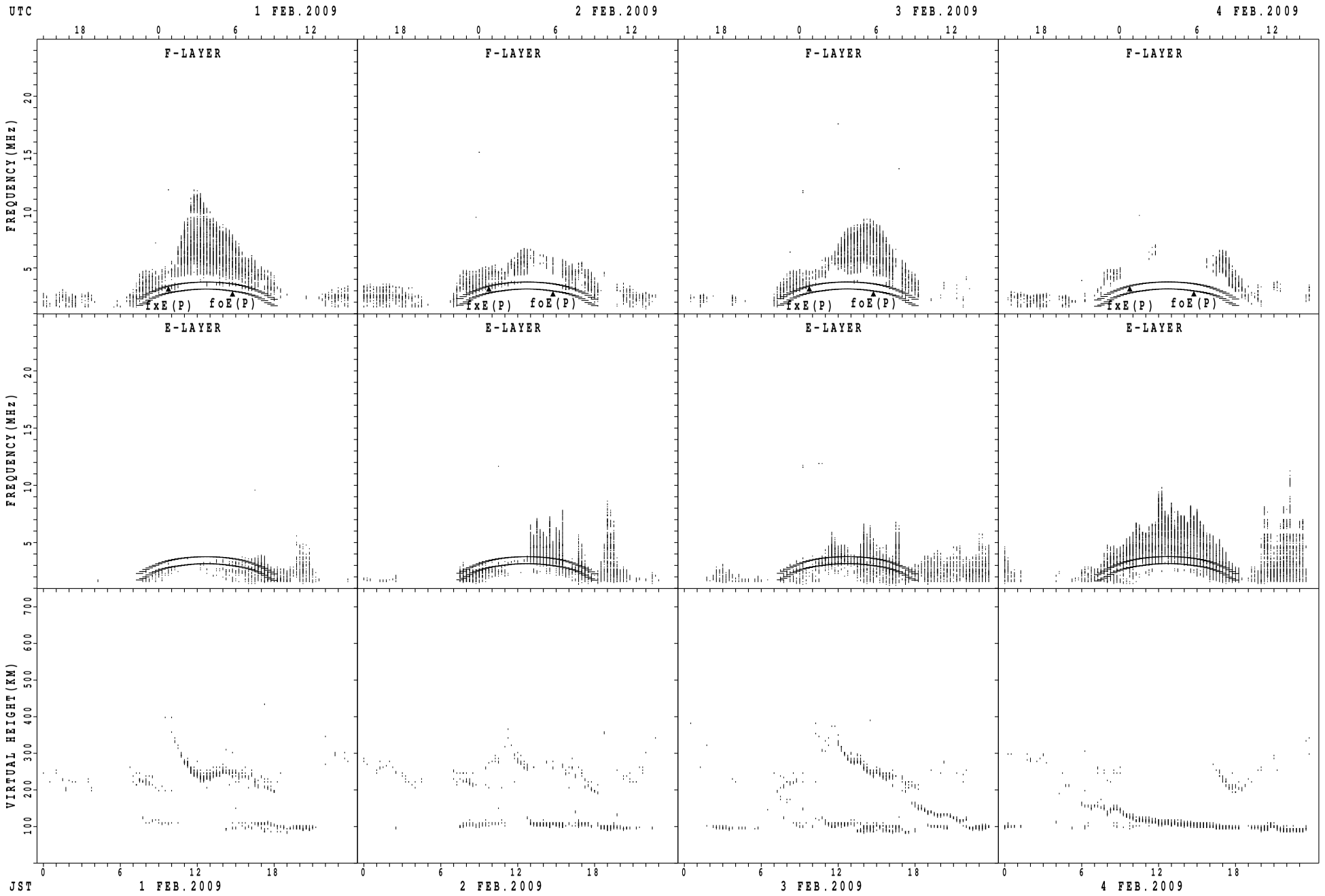
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



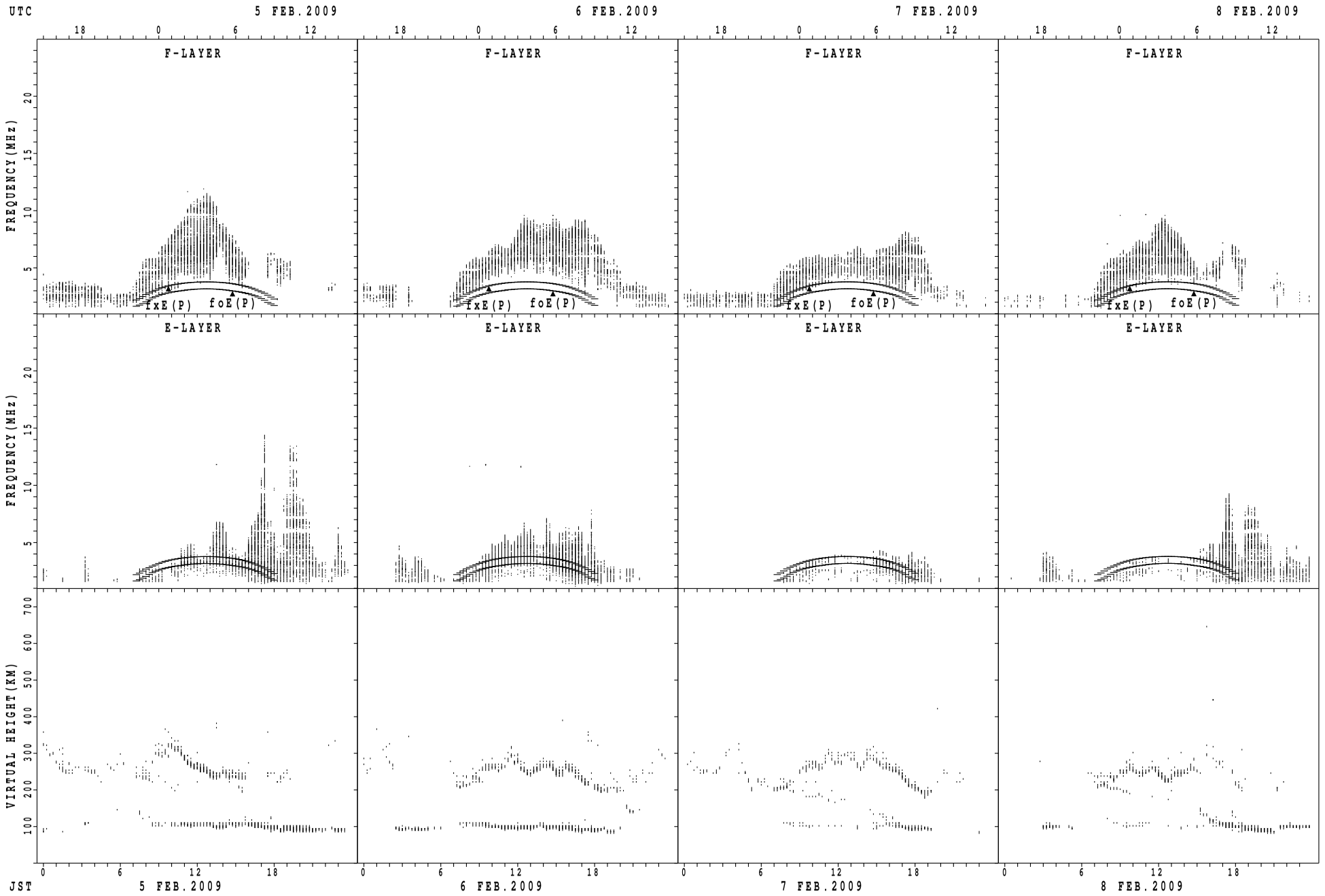
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



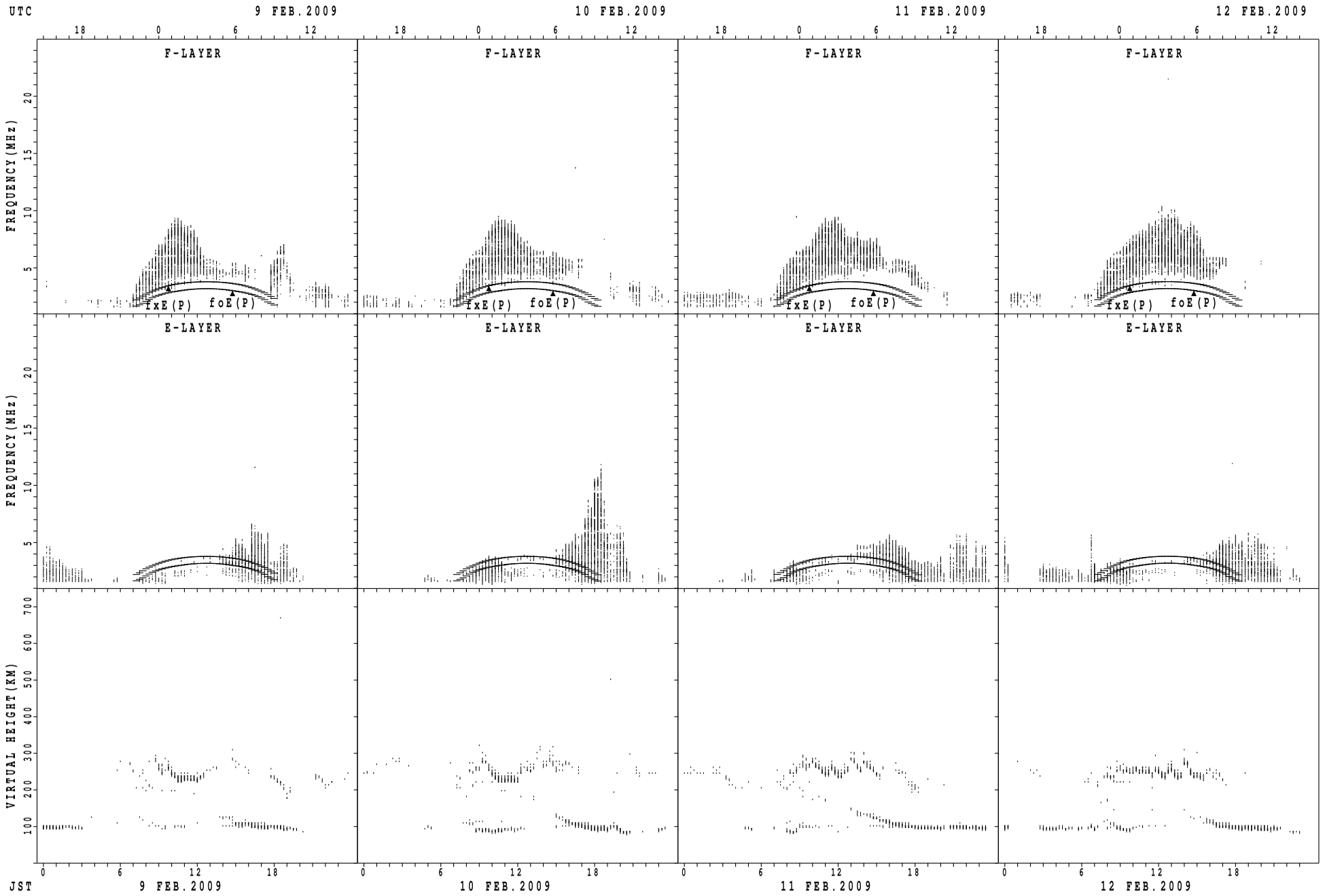
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



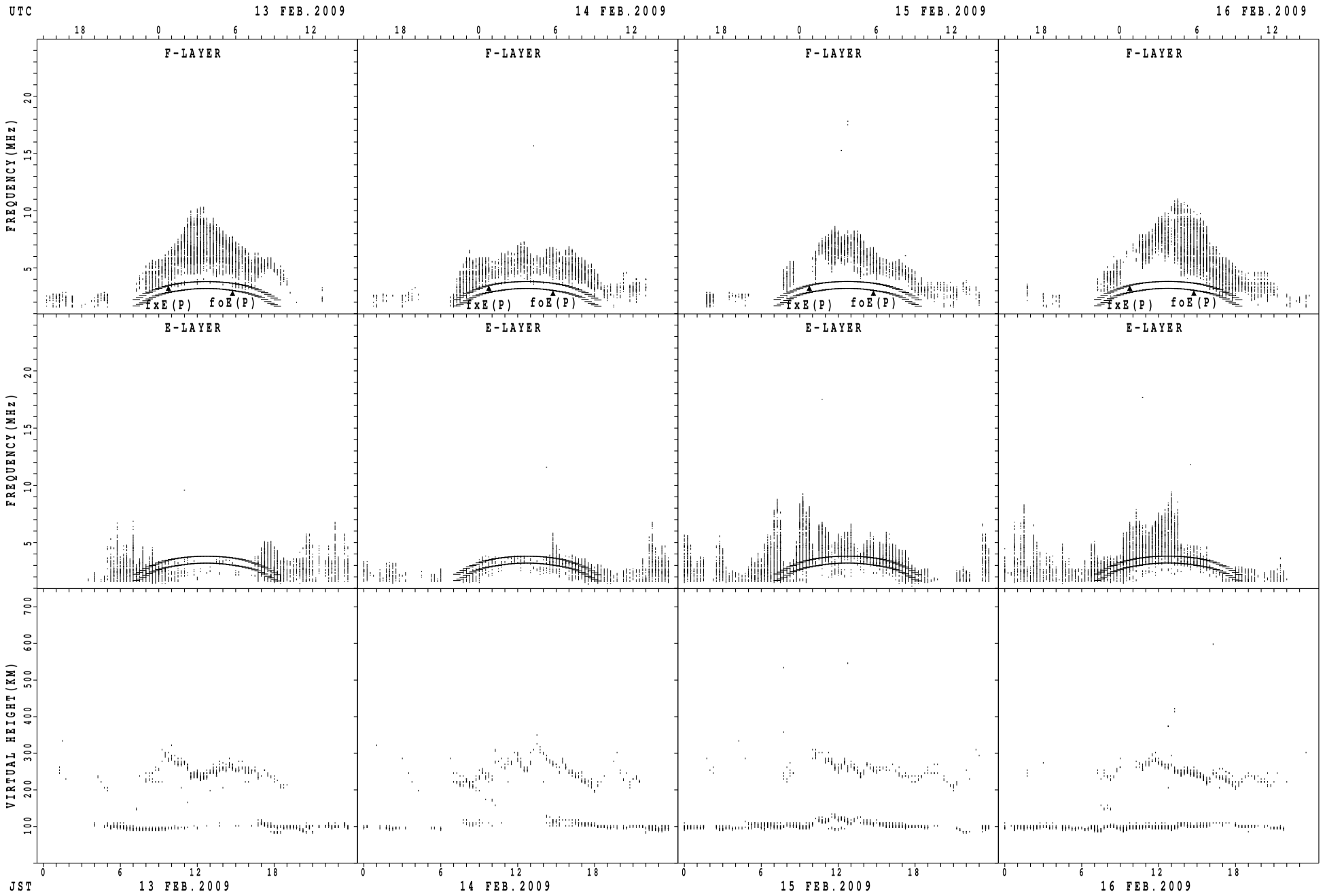
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



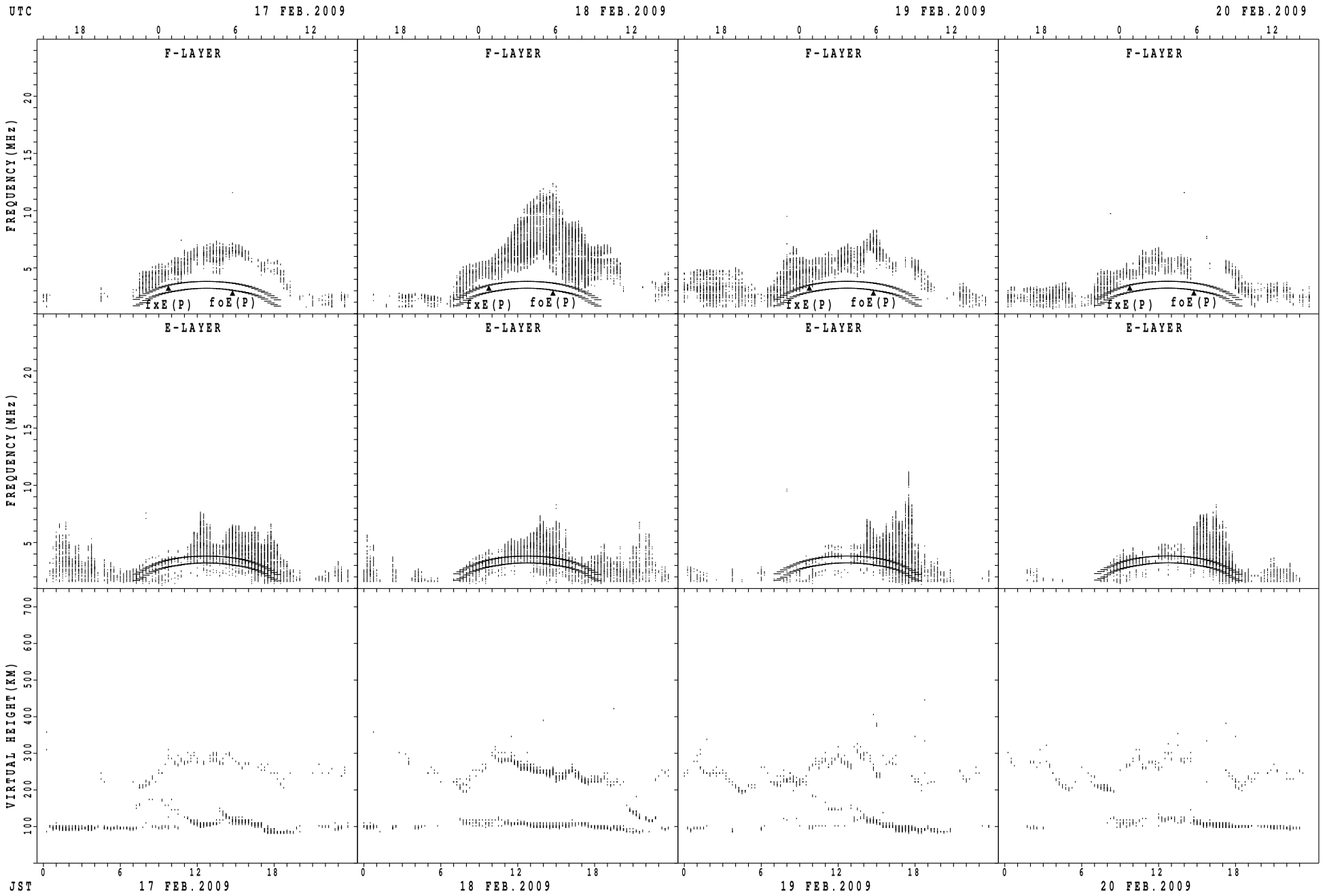
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



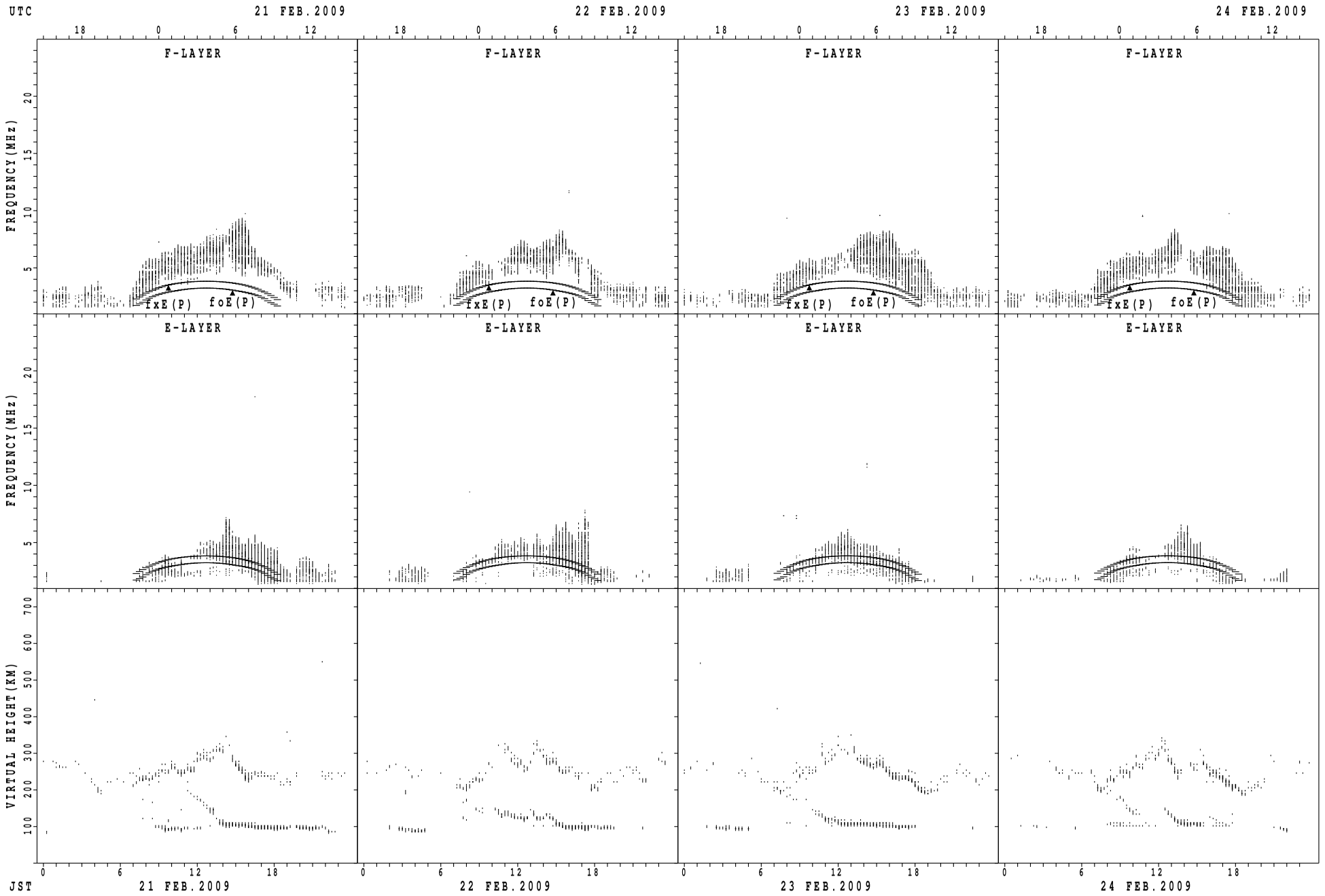
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



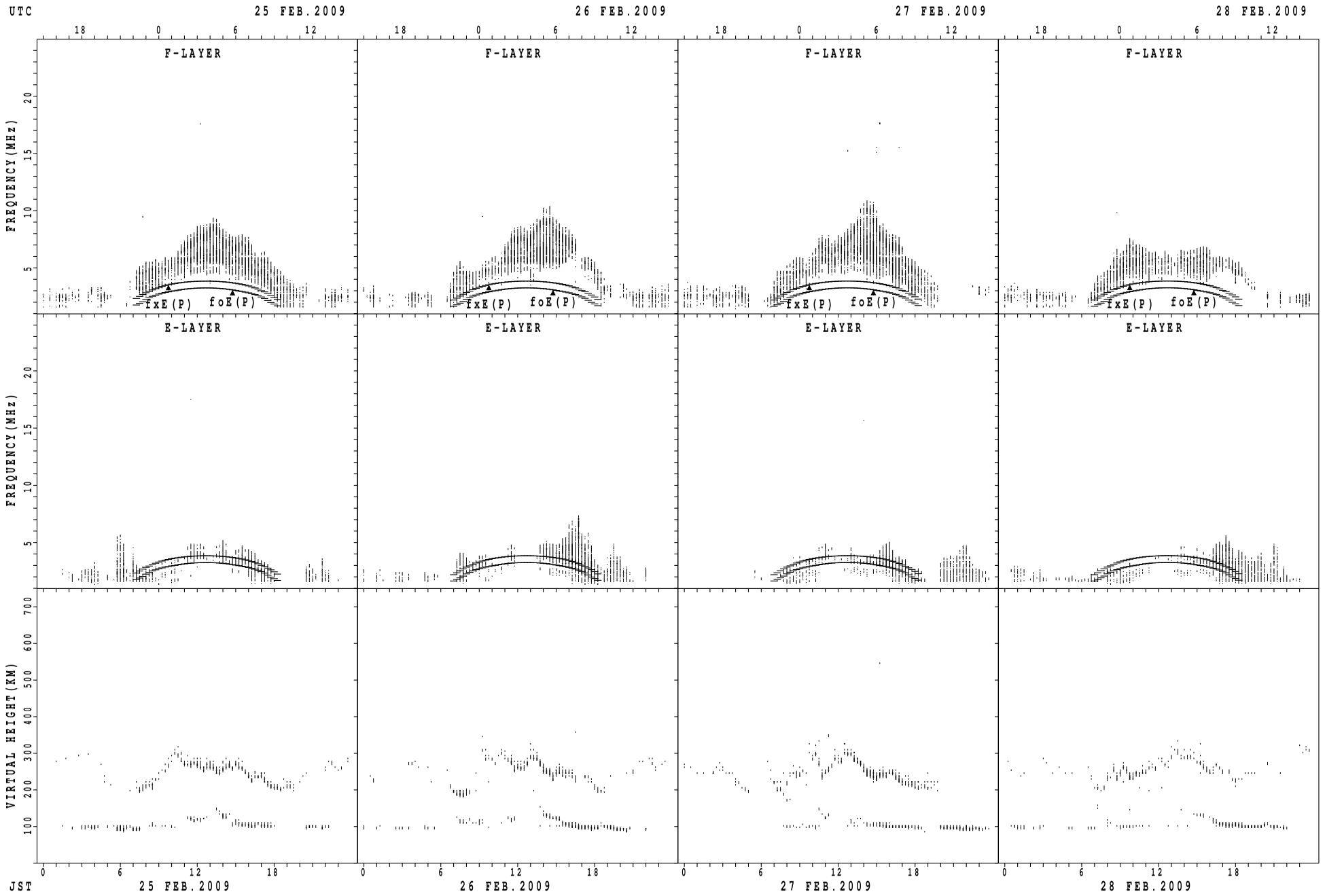
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

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

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

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT									1	1		1	1											
MED									246	232		264	244											
U Q									123	116		132	122											
L Q									123	116		132	122											

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		1	1					3	1	2	1	1		1	1	1	1	2		1	1	1	1	1
MED		89	87					101	125	110	107	103		103	125	113	111	101		97	97	93	91	97
U Q		44	43					105	62	113	53	51		51	62	56	55	113		48	48	46	45	48
L Q		44	43					93	62	107	53	51		51	62	56	55	89		48	48	46	45	48

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									5	8	1				1	8								
MED									230	227	254				244	257								
U Q									234	251	127				122	261								
L Q									217	220	127				122	256								

h′Es

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	10	9	11	8	6	8	9	11	13	12	8	9	8	12	16	18	24	26	25	23	17	17	18	10
MED	97	97	97	101	97	103	103	99	97	95	99	99	104	112	98	110	108	103	99	101	99	97	96	95
U Q	99	97	103	105	97	104	103	103	102	103	161	177	131	132	115	113	112	105	103	103	103	99	97	97
L Q	95	95	95	97	97	98	97	97	95	95	93	90	91	93	91	103	104	99	97	97	97	94	95	95

h′F STATION Yamagawa LAT. 31°12.0′N LON. 130°37.0′E

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT									1	5	8					2	4	1						
MED									240	248	249					283	256	224						
U Q									120	256	269					288	259	112						
L Q									120	234	242					278	254	112						

h′Es

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	14	13	13	9	9	9	5	14	16	18	18	14	15	22	24	27	26	25	24	22	16	18	18	16
MED	97	97	97	97	99	97	95	101	110	106	108	113	113	119	117	113	107	103	99	97	98	97	97	95
U Q	99	99	99	102	104	104	103	105	119	125	147	155	167	161	137	115	113	107	101	101	101	99	99	97
L Q	93	94	95	95	96	95	90	97	97	99	105	101	103	105	103	103	103	98	97	95	95	95	91	93

MONTHLY MEDIANS OF h′F AND h′Es

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

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

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT									1	5	5					1	14	7	3	1				
MED									240	260	246					246	250	230	216	232				
U Q									120	269	306					123	258	238	224	116				
L Q									120	246	243					123	238	226	214	116				

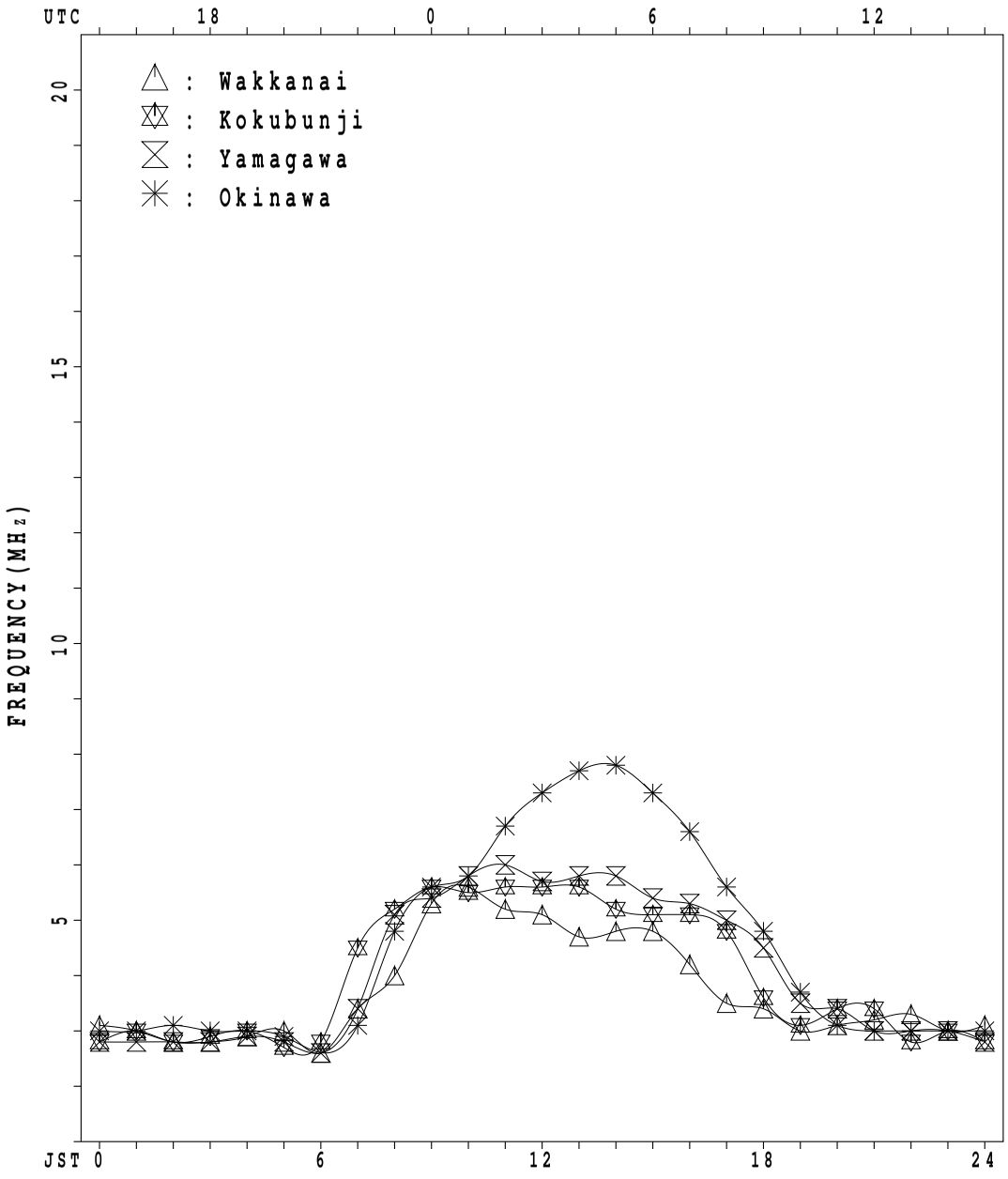
h′Es

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	8	8	6	12	11	9	9	8	13	17	14	12	14	16	20	24	24	25	24	21	17	17	15	9
MED	99	100	100	97	97	97	97	96	115	113	118	119	112	111	112	111	107	103	101	97	97	101	97	97
U Q	103	103	101	99	99	101	100	101	158	154	151	130	127	133	128	118	113	106	103	100	99	105	103	102
L Q	99	97	97	95	97	97	96	95	109	98	103	112	109	107	106	106	103	100	96	96	95	97	93	94

MONTHLY MEDIANS PLOT OF foF2

FEB.2009

AUTOMATIC SCALING



IONOSPHERIC DATA STATION Kokubunji

FEB. 2009 fxI (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

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

FEB. 2009 fxI (0.1MHz)

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IONOSPHERIC DATA STATION Kokubunji

FEB. 2009 foF2 (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

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

IONOSPHERIC DATA STATION Kokubunji

FEB. 2009 foF1 (0.01MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1									L	U L 392	U L 416	420	L	L	L	L								
2											U L 400	U L 408	404	U L 408	U L 388	L								
3									A		U L 408	U L 420	400	U L 408	U L 404	L								
4								A	A	A	U L 420	A	A	A	A	A	A	A						
5										A	U L 412	U L 412	U L 420	404	L	L		A						
6											L	L	L	L	A	A	A							
7									L	L	L	L	A	A	A	A								
8									L	L	L	U L 400	U L 416	L	A									
9									L	L	U L 412	L	U L 400	U L 420	U L 400									
10									L	L	L	L	U L 416	L	L		A							
11									L	U L 388	L	U L 408	U L 408	A	A									
12										A	A	U L 436	L	416	L	A		A						
13										A	A	416	A	A	A	L		A						
14									L	L	L	U L 408	432	U L 416	A	U L 380								
15								A			A	A	U L 416	A	A	A		A						
16									L	L	U L 424	L	U L 428	U L 412	L	L								
17									A	A	A	U L 424	A	408	U L 404	L	A							
18										L	L	U L 420	416	A	A	L								
19										U L 396	A	L	A	U L 412	400	A	U L 316							
20										L	U L 412	420	400	L	A	L	A							
21									L	L	416	420	U L 412	A	404	L								
22										L	A	U L 416	A	A	L	A								
23									A	L	C	C	U L 432	A	A	A	A							
24									L	U L 408	L	428	424	L	L									
25										U L 392	U L 408	U L 424	U L 416	452	U L 408	L								
26										L	U L 416	U L 428	U L 432	424	U L 408	L								
27										U L 408	U L 420	U L 428	420	U L 424	L	L								
28									L	376	U L 420	424	U L 424	L	U L 412	L	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										7	13	19	19	12	9	1	1							
MED										U L 392	U L 416	U L 420	U L 416	U L 414	U L 404	U L 380	U L 316							
U Q										U L 408	U L 420	U L 424	U L 424	422	U L 408									
L Q										388	U L 410	U L 412	408	408	U L 400									

FEB. 2009 foF1 (0.01MHz)

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IONOSPHERIC DATA STATION Kokubunji

FEB. 2009 foE (0.01MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1								B	U R 228	A	R	R	R	R	R	R	220	B						
2								B	R 232	R	R	R	324	A	A	A	A	B						
3								B	A	R	A	R	R	A	A	A	U R 212	B						
4								B	A	292	328	356	320	A	A	A	A	B						
5								B	A	A	A	A	R	R	R	R	A	B						
6								B	A	A	R	R	A	296	A	A	A							
7								164	232	R	A	A	352	324	A	A	A	B						
8								B	U R 236	R	R	R	R	U R 300	U R 296	A	A	B						
9									236	R	R	R	R	A	A	A	A	B						
10									U R 244	R	R	U R 332	A	316	A	U A 260	A	B						
11								U R 172	236	R	R	R	R	336	296	A	A	B						
12								B	A	328	328	R	R	324	A	A	A	B						
13								A	A	A	A	A	A	A	A	A	A	B						
14								176	U R 244	R	R	R	320	A	A	A	A	B						
15								A	A	A	A	A	A	A	A	A	A	B						
16								U R 192	R	U R 284	A	R	R	R	A	A	R	B						
17								B	A	A	A	A	A	A	A	A	U A 220	B						
18								B	U R 268	R	A	A	A	A	A	R	236	B						
19								B	A	R	A	R	A	A	A	A	252	B						
20								180	252	R	R	R	R	308	A	A	A	B						
21								172	R	R	R	R	R	308	R	A	A	B						
22								192	U R 260	R	A	316	328	A	A	A	A	B						
23								168	236	U R 284	C	C	A	A	A	A	A	B						
24								B	252	U R 288	312	R	R	R	A	R	A	B						
25								176	U R 244	R	R	R	R	R	R	A	A	B						
26								196	U R 264	A	A	A	A	A	A	A	A	168						
27								192	R	R	R	R	R	A	A	U R 284	A	A						
28								U R 200	R	A	R	R	R	R	R	A	A	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	15	5	3	3	5	8	2	2	5	1						
MED								178	U R 244	U R 288	328	332	324	312	296	U 272	220	168						
U Q								192	U R 252	310	328	356	340	324			244							
L Q								172	236	U R 284	312	316	320	304			216							

FEB. 2009 foE (0.01MHz)

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IONOSPHERIC DATA STATION Kokubunji

FEB. 2009 foEs (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	20	E B 15	E B 14	E B 15	E B 14	E B 14	E B 14	E B 16	G	J A 33	G 26	G 25	G 24	G 24	G 24	G 22	26	J A 19	J A 19	J A 30	J A 19	J A 20	23	20
2	20	E B 16	E B 15	E B 15	E B 15	E B 15	E B 16	J A 19	J A 27	G 24	G 22	G 24	36	35	34	32	25	18	E B 15	E B 15	E B 15	E B 14	J A 20	20
3	E B 16	E B 15	20	22	J A 32	J A 27	E B 15	E B 16	J A 46	G 22	35	G 26	G 24	35	36	30	G 20	J A 29	J A 39	J A 67	J A 19	19	E B 14	E B 14
4	20	J A 19	E B 15	E B 15	E B 15	J A 23	22	J A 54	J A 48	36	38	40	39	J A 42	J A 48	J A 72	J A 67	J A 61	J A 97	J A 48	J A 45	J A 32	J A 26	J A 21
5	J A 29	J A 23	J A 20	21	E B 15	E B 15	E B 14	21	J A 57	J A 120	J A 43	J A 45	G 26	G 22	G 21	G 26	J A 34	J A 54	J A 30	J A 30	L 31	J A 32	J A 30	J A 27
6	J A 24	J A 22	J A 20	J A 24	E B 15	E B 15	E B 16	23	43	J A 37	G 26	G 30	37	35	39	38	J A 36	J A 39	J A 45	J A 29	J A 31	J A 21	19	E B 15
7	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	E B 14	G	G 18	G 20	34	34	39	38	38	J A 42	J A 38	J A 51	J A 29	E B 15	E B 16	19	E B 15	E B 15
8	E C 23	E B 16	E B 15	E B 14	E B 14	E B 15	E B J A 26	E B 15	G 18	G 21	G 22	G 24	G J G 20	26	36	32	30	34	J A 22	J A 19	J A 46	J A 28	J A 24	20
9	J A 26	J A 24	J A 28	J A 22	E B 14	J A 22	J A 42	J A 23	26	G 22	G 22	G 21	G 25	33	J A 34	J A 33	J A 34	J A 36	J A 27	J A 21	22	21	J A 78	J A 37
10	J A 42	J A 33	J A 25	J A 23	J A 31	J A 46	J A 26	J A 24	J A 18	G 20	G 22	G 26	35	37	37	34	J A 48	J A 40	J A 30	J A 71	J A 30	J A 30	J A 20	E B 15
11	E B 16	E B 15	E B 14	J A 19	22	J A 22	J A 20	G	G	G 20	G 24	G 22	G 21	39	36	34	36	J A 45	J A 49	J A 84	J A 39	J A 25	J A 55	J A 38
12	E B 15	E B 15	E B 15	E B 14	E B 15	B J A 32	20	33	J A 40	39	38	G 22	G 21	38	39	J A 43	J A 45	J A 56	J A 54	J A 78	J A 67	J A 62	J A 43	J A 32
13	J A 44	E B 15	J A 19	J A 23	21	J A 29	J A 49	J A 60	J A 54	J A 76	J A 79	J A 52	J A 66	J A 56	J A 62	J A 35	32	J A 54	J A 74	J A 50	J A 93	J A 51	J A 36	J A 24
14	J A 33	J A 30	J A 28	J A 22	J A 26	18	J A 20	20	G 19	G 22	G 22	G 22	37	39	J A 46	34	32	J A 35	J A 45	J A 66	J A 87	J A 53	J A 24	E B 16
15	E B 15	E B 15	J A 28	21	J A 38	J A 32	J A 87	J A 73	J A 45	J A 40	J A 57	J A 52	J A 41	J A 63	J A 63	34	J A 42	J A 66	J A 110	J A 110	J A 56	J A 29	21	E B 15
16	E B 15	22	J A 22	J A J A 23	J A J A 26	J A 21	19	G	G 23	G 26	34	J A 32	G 20	G 27	J A 36	30	G 22	21	18	21	J A 100	J A 101	J A 21	J A 32
17	J A 26	22	20	J A 22	20	J A 21	20	J A 28	J A 59	J A 55	J A 52	J A 124	J A 78	J A 62	J A 38	32	30	J A 28	J A 27	J A 24	J A 24	J A 21	J A 28	J A 29
18	J A 20	J A 44	J A 46	18	J A 19	20	J A 43	21	G 22	G 26	36	36	J A 41	J A 43	J A 38	G 23	34	J A 53	J A 57	J A 45	J A 33	J A 42	J A 27	22
19	J A 23	21	J A 22	20	20	E B 14	E B 14	29	32	G 24	J A 42	J A G 29	J A 52	J A 59	J A 33	J A 60	G 21	J A 24	J A 44	J A 43	21	J A 22	20	20
20	E B 15	E B 14	E B 15	E B 15	E B 14	E B 14	E B 14	G	28	G 23	G 24	G 25	G 20	35	37	38	J A 38	J A 34	J A 23	J A 34	21	J A 20	E B 14	E B 15
21	18	E B 15	E B 14	E B 14	E B 15	J A 57	E B 14	22	G J A 22	35	G 27	G 26	G 22	39	G 24	34	J A 31	J A 24	J A 17	20	22	E B 16	E B 15	E B 15
22	E B 14	E B 15	E B 14	E B 15	E B 14	E B 16	E B 15	22	G 20	G 23	39	38	38	40	35	39	J A 40	J A 26	J A 30	J A 20	J A 29	20	J A 25	21
23	J A 32	J A 32	J A 33	J A 34	21	18	E B 15	23	29	G 21	C	C	J A 44	J A 54	J A 43	J A 60	J A 45	J A 50	J A 41	J A 38	J A 25	20	J A 22	J A 23
24	J A 26	J A 21	J A 22	J A 21	J A 20	19	E B 14	22	G 21	G 22	36	G 22	G 22	G 29	36	G 26	30	J A 31	J A 29	J A 28	J A 35	21	E B 14	E B 15
25	E B 16	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	22	G 20	G 23	G 24	G 23	G 21	G 20	G 24	34	30	J A 36	J A 46	J A 47	J A 22	20	J A 30	J A 34
26	20	J A 26	J A 23	21	E B 15	E B 14	E B 14	G	G 20	32	34	J A 38	J A 37	36	39	J A 34	28	21	J A 20	19	J A 45	J A 52	22	J A 28
27	J A 26	22	E B 15	E B 14	E B 15	E B 14	E B 15	23	G 22	G 24	G 26	G 26	G 23	36	36	G 22	31	J A 28	J A 23	J A 26	J A 23	J A 26	J A 20	19
28	19	22	21	20	E B 15	E B 15	E B 15	G	J G 25	J A 36	G 26	G 25	G 23	G 24	G 26	36	J A 43	26	J A 28	J A 20	20	21	22	21
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	27	27	28	28	28	28	28	28	28	28	28	28	28	28
MED	20	20	20	20	E B 15	18	E B 16	22	G	G 24	34	G 26	30	36	36	34	33	J A 34	J A 30	J A 30	J A 30	J A 22	J A 22	20
U Q	J A 26	J A 22	J A 22	J A 22	J A 21	J A 22	J A 21	J A 24	J A 42	J A 36	J A 38	J A 38	J A 39	J A 41	J A 39	J A 38	J A 39	J A 50	J A 46	J A 49	J A 45	J A 32	J A 28	J A 28
L Q	E B 16	E B 15	E B 15	E B 15	E B 15	E B 15	E B 14	G	G 20	G 22	G 24	G 24	G 22	G 31	G 34	G 31	30	26	J A 23	20	22	20	E B 20	E B 15

FEB. 2009 foEs (0.1MHz)

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IONOSPHERIC DATA STATION Kokubunji

FEB. 2009 fbEs (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E B 15	E B 15	E B 14	E B 15	E B 14	E B 14	E B 14	E B 16	G	29	G 26	G 25	G 23	G 23	G 22	G 21	25	17	16	E B 15	E B 15	E B 15	E B 15	E B 15
2	E B 16	E B 16	E B 15	E B 15	E B 15	E B 15	E B 16	E B 15	G 22	G 23	G 20	G 23	35	33	33	31	23	17	E B 15	E B 15	E B 15	E B 14	E B 15	E B 15
3	E B 16	E B 15	E B 16	E B E B 16	16	17	E B 15	E B 16	A A 46	G 20	32	G 23	G 24	32	31	30	G 19	24	A A 39	20	E B 15	14	E B 14	E B 14
4	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	15	A A 54	A A 48	34	37	39	36	39	41	40	A A 67	A A 61	A A 97	21	E B 15	19	18	E B 15
5	19	E B 15	E B 15	E B 16	E B 15	E B 15	E B 14	20	31	A A 120	34	35	G 25	G 22	G 21	G 24	31	A A 54	21	17	E B 15	20	E B 15	16
6	E B 14	15	E B 15	E B 15	E B 15	E B 15	E B 16	E B 15	38	33	G 26	G 26	33	33	34	36	34	26	23	20	19	18	E B 15	E B 15
7	E B 15	E B 15	E B 15	E B E B 15	E B 15	E B 15	E B 14	G	G 18	G 18	31	32	37	36	37	38	32	38	20	E B 15	E B 16	E B 14	E B 15	E B 15
8	E C 23	E B 16	E B 15	E B 14	E B 14	E B 15	E B 16	E B 15	G 17	G 20	G 21	G 22	G 18	G 23	34	30	29	32	18	E B 15	19	E B 14	17	E B 15
9	E B 16	18	E B 16	E B 15	E B 14	17	E B 15	18	25	G 22	G 20	G 20	G 23	32	32	29	31	32	20	E B 15	E B 15	E B 15	E B 16	E B 15
10	E C 24	E B 15	17	17	19	18	E B 16	18	G 17	G 18	G 20	G 24	33	34	35	32	A A 48	36	A A 30	A A 71	16	19	E B 15	E B 15
11	E B 16	E B 15	E B 14	E B E B 15	E B 15	16	16	G	G	G 20	G 22	G 21	G 20	38	34	32	30	33	A A 49	A A 84	E B 16	E B 15	E B 15	E B 15
12	E B 15	E B 15	E B 15	E B E B 14	E B 15	18	E B 16	29	26	37	35	G 22	G 19	36	36	38	42	A A 56	A A 54	24	E B 16	A A 62	A A 43	E B 15
13	A A 44	E B 15	16	16	E B 15	18	A A 49	40	49	41	42	35	41	41	A A 62	30	30	A A 54	A A 74	22	18	16	16	E B 16
14	E B 15	18	20	16	17	E B 15	E B 15	G 17	G 17	G 21	G 20	G 22	35	35	40	31	28	29	31	17	16	17	E B 16	E B 16
15	E B 15	E B 15	E B 14	E B E B 15	A A 38	A A 32	A A 87	A A 73	42	37	39	40	35	45	39	33	39	A A 66	17	18	16	E B 15	E B 15	E B 15
16	E B 15	E B 15	E B E B 15	17	18	E B 15	E B 15	G	G 22	G 24	31	25	G 18	G 22	32	28	G 20	19	E B 15	E B E B 15	16	18	E B 15	E B E B 15
17	E B 16	E B 14	E B 15	E B E B 15	E B 15	E B 16	E B 15	24	A A 59	48	48	35	45	35	32	30	28	24	20	20	E B 14	E B 15	21	E B 15
18	E B 15	20	E B 15	E B E B 14	E B 15	E B 15	E B 15	20	G 20	G 25	32	34	38	41	37	G 22	32	47	36	17	E B 15	20	E B 14	E B E B 15
19	17	E B 15	E B 15	E B E B 15	E B 15	E B 14	E B 14	25	26	G 22	35	G 26	44	35	32	38	G 21	18	E B 14	E B E B 15	E B 16	E B 15	E B 16	E B 15
20	E B 15	E B 14	E B 15	E B E B 15	E B E B 14	E B E B 14	E B 14	G	27	G 22	G 23	G 20	G 19	33	35	32	32	27	19	E B 15	E B E B 15	17	E B 14	E B E B 15
21	E B 16	E B 15	E B 14	E B 14	E B 15	E B 15	E B 14	20	G 19	23	G 21	G 26	G 20	36	G 22	32	27	19	E B 15	E B E B 15	E B E B 15	E B 16	E B 15	E B E B 15
22	E B 14	E B 15	E B 14	E B 15	E B 14	E B 16	E B 15	21	G 19	G 23	37	36	38	37	32	35	34	19	26	16	E B 16	E B 15	E B 16	16
23	25	17	18	20	15	E B 15	E B 15	22	28	G 21	C	C	39	44	40	43	37	45	A A 41	18	E B 15	E B 14	17	E B 16
24	E B 16	E B 16	E B 15	E B E B 15	E B 15	E B 15	E B 14	19	G 19	G 21	34	G 22	G 20	G 28	34	G 24	27	26	26	15	18	E B 15	E B 14	E B 15
25	E B 16	E B 15	E B 15	E B E B 15	E B E B 15	E B E B 15	E B 15	22	G 20	G 22	G 23	G 22	G 20	G 19	G 23	32	28	27	31	A A 47	E B 15	E B 15	19	16
26	E B 16	E B 15	E B 15	E B E B 15	E B E B 15	E B E B 14	E B 14	G	G 20	30	32	34	34	34	32	30	25	19	17	E B 16	16	20	E B 15	E B E B 15
27	E B 15	E B 14	E B 15	E B E B 14	E B 15	E B 14	E B 15	22	G 21	G 23	G 24	G 24	G 22	35	32	G 21	27	23	19	20	18	20	E B 15	E B E B 14
28	E B 15	E B 15	E B 15	E B E B 15	E B E B 15	E B E B 15	E B 15	G	G 22	30	G 26	G 23	G 21	G 22	G 25	32	35	24	16	16	E B 14	E B 15	E B E B 15	E B E B 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	28	28	28	28	27	27	28	28	28	28	28	28	28	28	28	28	28	28
MED	E B 16	E B 15	E B 15	E B E B 15	E B E B 15	E B E B 15	E B 15	18	G	G 23	31	G 25	29	34	34	32	30	27	20	17	E B 16	E B 15	E B E B 15	E B E B 15
U Q	16	16	15	16	15	16	E B 16	22	30	32	35	34	36	36	36	34	34	A A 42	A A 34	20	16	18	16	E B 15
L Q	E B 15	E B 15	E B 15	E B E B 15	E B E B 15	E B E B 15	E B 14	G	G 20	G 21	G 22	G 22	G 20	G 30	G 32	G 30	27	21	17	E B 15	E B 15	E B E B 15	E B E B 15	E B E B 15

FEB. 2009 fbEs (0.1MHz)

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IONOSPHERIC DATA STATION Kokubunji

FEB. 2009 fmin (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

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

IONOSPHERIC DATA STATION Kokubunji

FEB. 2009 M(3000)F2 (0.01) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	F	F	349	385	381	331	327	365	374	340	347	359	361	361	354	377	397	389	318	346	341	344	312	F
2	333	355	346	371	355	321	346	388	396	381	330	349	363	378	382	379	386	385	325	357	352	345	327	F
3	F	354	F	F	F	346	F	411	A	388	359	352	353	334	348	360	387	398	A	341	358	340	332	317
4	344	336	322	330	403	371	334	A	A	390	302	376	359	353	366	341	A	A	A	342	337	352	328	321
5	298	326	F	F	F	349	344	368	351	A	333	345	347	355	379	382	394	A	345	352	364	322	F	330
6	354	338	320	331	329	396	349	394	408	374	367	352	355	361	346	360	366	391	355	366	383	395	310	329
7	332	309	F	333	323	F	377	389	383	392	386	366	377	377	377	365	359	390	409	331	364	347	357	341
8	334	320	315	316	318	F	F	387	390	384	385	394	354	384	366	366	368	370	346	349	365	375	342	376
9	342	343	335	337	F	325	322	360	386	406	351	384	384	373	369	395	365	361	344	335	343	363	353	F
10	344	325	322	334	343	343	326	355	381	378	394	383	368	375	384	381	A	399	A	A	332	352	312	337
11	335	336	346	350	348	355	355	382	378	384	366	368	377	353	382	378	384	390	A	A	391	282	S 293	353
12	F	354	368	324	335	369	383	403	389	380	375	360	377	344	351	376	388	A	A	373	353	A	A	353
13	A	F	358	360	F	363	A	398	402	367	371	382	367	384	A	362	365	A	A	341	F	352	352	318
14	334	330	369	338	335	F	F	408	383	384	390	400	317	346	323	364	366	375	388	300	334	353	394	361
15	300	323	330	317	A	A	A	A	384	358	364	357	352	385	354	376	365	A	350	316	345	332	F	F
16	F	F	F	356	366	350	332	393	365	364	368	367	367	360	368	362	375	385	361	348	350	F	332	F
17	F	324	299	F	352	360	383	416	A	373	360	380	365	349	366	366	385	386	350	350	343	368	327	331
18	F	340	345	F	F	F	367	389	395	384	380	352	367	355	373	383	367	376	398	335	325	331	326	339
19	329	324	331	341	373	340	365	394	384	363	394	388	334	353	361	362	365	401	390	322	369	330	319	324
20	321	315	329	335	377	419	358	403	395	380	373	372	365	358	355	361	369	401	351	328	349	340	325	332
21	326	320	336	330	373	366	348	383	384	356	375	405	390	366	354	367	375	376	380	339	329	357	329	316
22	316	322	347	332	352	358	345	394	377	381	375	364	366	371	362	388	380	384	357	338	328	339	311	329
23	F	F	F	F	F	346	338	386	399	366	C	C	346	367	362	379	384	379	A	344	359	329	330	325
24	F	F	F	F	372	333	F	377	392	365	392	375	341	346	358	369	374	385	386	374	329	342	344	356
25	324	339	F	F	335	334	355	388	415	360	370	353	371	333	358	378	373	380	375	A	336	354	332	318
26	338	356	317	350	374	337	354	382	382	385	372	351	319	361	349	373	383	385	392	350	344	305	F	F
27	F	F	F	F	F	313	336	394	385	407	366	357	340	353	328	364	390	392	392	332	324	311	310	313
28	334	331	339	336	380	302	358	398	357	372	386	374	356	365	345	374	370	375	373	345	342	370	322	308
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	18	22	20	20	20	23	22	26	25	27	27	27	28	28	27	28	26	23	21	25	27	26	24	22
MED	334	330	336	336	354	346	348	389	384	380	371	367	362	360	361	371	374	385	361	342	344	344	328	330
U Q	338	340	346	350	374	363	358	398	395	384	385	382	368	372	369	378	385	391	389	350	359	354	337	341
L Q	324	323	322	330	335	333	336	382	380	365	360	353	350	353	351	363	366	376	348	334	334	331	316	318

IONOSPHERIC DATA STATION Kokubunji

FEB. 2009 M(3000)F1 (0.01) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1									L	U L 376	U L 380	387	L	L	L	L								
2											U L 397	U L 397	382	U L 383	U L 409	L								
3									A		U L 384	U L 379	413	U L 385	U L 387	L								
4								A	A	A	U L 379	A	A	A	A	A	A	A						
5										A	U L 370	U L 393	U L 388	375	L	L		A						
6											L	L	L	L	A	A	A							
7									L	L	L	L	A	A	A	A								
8									L	L	L	U L 419	U L 408	L	A									
9									L	L	U L 407	L	U L 415	U L 398	U L 402									
10									L	L	L	L	U L 418	L	L		A							
11									L	U L 393	L	U L 439	U L 435	A	A									
12										A	A	U L 386	L	404	L	A		A						
13										A	A	409	A	A	A	L		A						
14									L	L	L	U L 435	408	U L 389	A	U L 392								
15								A			A	A	U L 411	A	A	A		A						
16									L	L	U L 374	L	U L 375	U L 394	L	L								
17									A	A	A	U L 422	A	404	U L 368	L	A							
18										L	L	U L 405	427	A	A	L								
19										U L 412	A	L	A	U L 399	403	A	U L 441							
20										L	U L 410	428	437	L	A	L	A							
21									L	L	380	420	U L 432	A	393	L								
22										L	A	U L 406	A	A	L	A								
23									A	L	C	C	U L 388	A	A	A	A							
24									L	U L 392	L	403	426	L	L									
25										U L 417	U L 425	U L 407	U L 423	391	U L 377	L								
26										L	U L 412	U L 407	U L 396	381	U L 404	L								
27										U L 388	U L 422	U L 403	423	U L 391	L	L								
28									L	397	U L 364	403	U L 412	L	U L 381	L	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										7	13	19	19	12	9	1	1							
MED										U L 393	U L 384	U L 406	U L 413	U L 391	U L 393	U L 392	U L 441							
U Q										U L 412	U L 411	U L 420	426	398	U L 404									
L Q										U L 388	U L 376	U L 397	U L 396	384	U L 379									

FEB. 2009 M(3000)F1 (0.01)

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IONOSPHERIC DATA STATION Kokubunji

FEB. 2009 h′F2 (KM) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1									236	258	256	240	242	268	268	234								
2											280	290	256	242	244	236								
3									A		268	296	274	296	288	260								
4								A	A	232	376	246	256	EA 252	EA 268	EA 256	A	A						
5										A	280	258	254	258	236	238		A						
6											250	274	260	262	250	248	242							
7									224	222	236	254	240	246	250	252								
8									212	236	232	226	256	244	232									
9									228	208	266	238	236	260	260									
10									226	220	220	230	256	250	254		A							
11									232	224	246	246	254	EA 274	246									
12										240	240	250	238	296	270	234		A						
13										242	250	226	248	232	A	256		A						
14									226	234	222	220	352	288	300	262								
15								A			250	260	276	242	260	238		A						
16									246	244	246	248	262	270	252	244								
17									A	EA 256	EA 268	244	EA 276	280	258	242	220							
18										238	236	280	254	260	242	242								
19										244	224	232	EA 286	262	260	246	234							
20										234	248	262	270	260	242	258	240							
21									234	262	236	218	234	262	268	258								
22										240	246	252	248	246	254	236								
23									216	234	C	C	290	252	268	240	226							
24									222	246	226	236	264	266	250									
25										240	240	270	246	304	246	230								
26										238	260	272	286	250	250	242								
27										230	268	282	280	264	262	254								
28									242	248	240	248	288	240	278	252	228							
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	23	27	27	28	28	27	23	6							
MED									227	238	246	248	256	260	254	243	231							
U Q									235	244	266	270	276	269	268	256	240							
L Q									223	232	236	236	248	248	246	238	226							

FEB. 2009 h′F2 (KM)

IONOSPHERIC DATA STATION Kokubunji

FEB. 2009 h′F (KM) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E B 246	E B 238	E B 234	198	204	E B 260	E B 268	218	198	186	210	206	186	200	206	198	206	194	228	228	218	E B 238	E B 282	E B 254
2	E B 248	212	218	210	E B 236	E B 272	E B 248	198	188	202	198	196	210	214	206	200	204	196	E B 252	222	214	220	210	E B 296
3	E B 296	228	E B 246	206	208	E A 250	222	196	A	212	198	210	202	208	204	216	210	194	A	E A 248	216	E B 232	E B 250	E B 248
4	E B 256	E B 272	E B 272	E B 244	206	E B 236	E B 286	A	A	A	E A 254	A	A	A	A	A	A	A	A	E A 248	E B 236	214	220	E B 250
5	E A 294	E B 274	E B 280	E B 298	E B 260	216	E B 272	206	222	A	E A 230	218	210	236	212	204	212	A	216	214	190	E A 304	E B 298	E A 248
6	226	E B 234	E B 270	E B 290	E B 250	194	E B 234	200	204	206	194	218	216	218	A	A	A	208	224	220	208	206	E B 270	E B 234
7	E B 232	224	E B 272	E B 244	E B 266	E B 242	206	210	190	198	180	182	A	A	A	A	222	208	206	E B 248	210	190	206	214
8	E C 254	E B 272	E B 274	E B 282	E B 278	E B 268	E B 260	202	180	188	194	186	H 186	186	A	218	230	218	206	212	224	204	220	208
9	E B 240	E A 256	E B 260	E B 264	E B 262	E A 258	E B 276	220	194	186	182	196	180	186	202	222	216	E A 238	218	220	214	206	214	204
10	E C 284	E B 270	E A 266	E A 278	E A 274	E A 250	E B 254	216	202	190	196	198	186	214	220	220	A	210	A	A	210	228	E B 258	218
11	E B 226	E B 242	226	E B 224	E B 234	E A 248	E A 242	208	188	196	194	184	180	A	A	226	224	210	A	A	192	E B 304	230	212
12	E B 264	216	216	E B 244	E B 250	E A 276	204	210	196	A	A	206	188	208	224	A	216	A	A	220	214	A	A	E B 246
13	A	E B 256	214	E A 244	E B 268	E A 236	A	212	226	A	A	198	A	A	A	206	218	A	A	E A 250	222	196	228	E B 226
14	E B 284	E A 308	E A 244	E A 238	226	E B 278	216	194	188	192	194	184	202	214	A	208	E A 234	212	214	E A 306	E A 292	224	204	208
15	E B 308	E B 276	E B 266	E B 252	A	A	A	A	220	E A 230	A	A	200	A	A	A	E A 238	A	224	222	224	E B 234	E B 248	E B 302
16	E B 284	E B 238	E B 252	224	E A 244	E B 254	E B 244	208	210	194	188	194	206	202	202	196	H 198	206	202	214	216	E A 262	226	E B 236
17	E B 318	E B 278	E B 280	E B 282	E B 230	222	214	194	A	A	A	196	A	204	E A 232	210	A	202	210	226	212	210	E A 284	E B 250
18	E B 280	E A 270	E B 232	E B 242	208	206	212	204	H 182	200	192	190	206	A	A	200	E A 228	E A 256	216	218	E B 254	E B 252	E B 254	E B 244
19	E A 256	E B 294	E B 256	E B 252	224	E B 246	208	210	196	196	A	194	A	198	198	A	198	206	182	E B 244	212	E B 246	E B 262	E B 270
20	E B 260	E B 276	E B 278	E B 262	208	192	E B 240	206	208	184	174	170	188	214	A	214	A	206	210	E B 242	E B 222	208	E B 240	E B 242
21	E B 258	E B 258	E B 236	E B 232	204	204	218	202	202	186	198	192	178	A	200	226	220	210	190	220	226	216	E B 248	E B 268
22	E B 260	E B 242	E B 224	E B 236	218	214	198	206	208	194	A	200	A	A	214	A	224	208	E A 236	220	E B 234	222	E B 248	230
23	E A 256	E A 260	E A 246	E A 262	220	220	E B 234	212	A	198	C	C	226	A	A	A	A	226	A	226	214	214	E A 240	E B 258
24	E B 270	E B 268	E B 250	E B 268	208	E B 260	E B 236	208	198	196	204	186	182	206	212	222	226	204	198	202	E A 264	E B 234	224	212
25	E B 238	E B 246	E B 256	E B 252	226	220	214	206	198	184	186	188	182	186	214	202	202	202	E A 232	A	E B 246	212	E A 254	E A 244
26	E B 230	220	E B 250	222	206	E B 242	222	204	196	200	192	186	182	188	208	204	218	210	190	196	E A 234	E A 274	E B 258	E B 282
27	E B 252	E B 248	E B 244	214	202	216	E B 238	218	226	204	200	186	178	206	208	214	212	208	200	224	E A 254	E A 290	E B 276	E B 266
28	E B 234	218	E B 240	E B 248	212	E B 280	226	198	194	214	204	200	198	200	192	216	A	214	200	222	222	198	E B 240	E B 270
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	28	28	28	27	27	26	26	24	23	21	25	22	19	17	20	21	23	21	25	28	27	27	28
MED	E B 256	E B 256	E B 250	E B 244	U 215	E 242	E 234	206	198	196	194	194	188	206	207	212	215	208	208	220	216	U 210	E B 248	E B 245
U Q	E B 284	E B 272	E B 268	E B 263	E B 250	E B 260	E B 248	210	208	202	202	200	206	214	214	219	225	212	224	E A 243	E 234	E A 246	E B 258	E B 262
L Q	E B 240	236	235	228	208	216	214	202	192	188	190	186	182	198	202	203	208	204	200	219	213	208	224	222

FEB. 2009 h′F (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

FEB. 2009 h′E (KM) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1								B	116	A	122	120	116	116	116	118	122	B						
2								B	112	114	112	112	112	114	112	118	110	B						
3								B	A	122	A	110	110	A	A	114	124	B						
4								B	A	118	114	110	112	120	118	118	A	B						
5								B	A	A	A	A	120	112	118	116	116	B						
6								B	A	A	120	110	A	122	A	A	A							
7								120	116	118	120	120	118	124	120	114	A	B						
8								B	122	118	114	116	116	112	110	110	112	B						
9									114	114	114	114	114	A	A	A	A	B						
10									122	118	114	116	A	112	A	116	A	B						
11								124	114	118	116	114	114	120	116	116	118	B						
12								B	A	116	120	114	110	118	116	118	A	B						
13								A	A	A	A	A	A	A	A	A	112	B						
14								120	118	118	114	116	120	120	118	120	120	B						
15								A	A	A	A	A	A	A	A	122	A	B						
16								114	122	120	A	114	114	110	A	A	122	B						
17								B	A	A	A	A	A	A	A	114	114	B						
18								B	126	118	A	116	116	116	112	114	110	B						
19								B	A	124	A	112	A	A	A	116	124	B						
20								124	122	118	114	114	110	120	116	122	116	B						
21								118	120	116	120	118	114	116	114	114	A	B						
22								114	122	114	114	114	114	118	116	116	A	B						
23								128	124	118	C	C	120	A	A	A	A	B						
24								B	120	116	120	118	118	122	116	120	120	B						
25								118	122	120	116	116	110	116	114	120	116	B						
26								120	122	A	A	A	A	A	A	A	A	112						
27								114	116	116	114	118	112	112	110	114	A	A						
28								118	122	A	122	116	114	114	114	122	120	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	19	20	18	22	21	20	17	22	16	1						
MED								119	122	118	115	115	114	116	116	116	117	112						
U Q								122	122	118	120	116	117	120	117	120	121							
L Q								116	116	116	114	114	112	113	113	114	113							

FEB. 2009 h′E (KM)

IONOSPHERIC DATA STATION Kokubunji

FEB. 2009 h′Es (KM) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	92	B	B	B	B	B	B	B	G	90	104	102	104	108	104	104	150	106	104	100	100	90	94	92
2	92	B	B	B	B	B	B	106	102	92	92	100	150	126	120	120	124	132	B	B	B	B	100	100
3	B	B	100	98	100	100	B	B	104	98	98	94	98	104	108	132	104	106	98	102	94	106	B	B
4	90	88	B	B	B	116	142	96	90	162	152	150	144	126	120	112	104	98	98	98	96	98	90	88
5	92	92	94	96	B	B	B	154	98	92	92	96	96	100	102	102	118	102	100	96	94	96	100	96
6	94	96	96	96	B	B	B	118	110	106	102	94	100	146	88	86	112	96	92	90	86	92	88	B
7	B	B	B	B	B	B	B	G	102	100	120	118	164	152	122	118	106	106	98	B	B	96	B	B
8	C	B	B	B	B	B	96	B	104	102	98	100	88	92	148	128	118	104	102	100	96	96	96	102
9	94	94	92	96	B	100	102	100	156	102	106	98	98	98	98	94	106	102	100	98	98	90	98	110
10	96	100	104	100	100	106	106	98	102	98	98	92	92	144	124	118	92	106	104	98	96	94	90	B
11	B	B	B	112	108	104	100	G	G	104	102	90	90	162	140	118	114	104	102	100	100	100	98	116
12	B	B	B	B	B	110	100	100	96	170	162	98	96	150	124	118	106	102	100	102	98	96	94	96
13	98	B	116	114	112	108	100	100	98	96	96	96	94	92	88	88	110	100	98	100	98	102	100	100
14	102	100	96	108	98	102	108	100	96	102	98	100	154	122	118	118	112	104	104	102	98	102	98	B
15	B	B	102	102	116	110	106	98	98	96	96	96	92	94	94	120	104	100	104	100	104	100	98	B
16	B	100	98	106	96	98	100	G	104	100	94	92	90	90	90	106	102	116	90	100	102	102	98	108
17	98	92	96	98	98	98	114	104	98	94	94	92	90	96	94	120	116	100	100	98	98	98	90	88
18	100	96	92	100	104	104	100	126	102	98	98	108	112	114	114	106	122	108	100	102	98	90	92	96
19	90	86	94	98	100	B	B	102	102	102	98	98	102	94	94	112	108	108	108	96	100	96	90	94
20	B	B	B	B	B	B	B	G	150	104	96	98	94	144	124	118	112	100	106	102	100	94	B	B
21	90	B	B	B	B	98	B	152	100	98	102	102	98	150	104	110	104	102	102	106	104	B	B	B
22	B	B	B	B	B	B	B	162	100	100	124	134	128	122	118	116	104	104	100	98	102	100	98	100
23	98	94	94	94	94	104	B	154	152	102	C	C	128	106	106	102	102	102	100	96	98	98	102	104
24	98	100	100	100	100	100	B	138	106	102	146	100	98	106	118	108	134	112	104	102	102	100	B	B
25	B	B	B	B	B	B	B	152	104	98	110	98	96	100	108	136	122	100	102	100	102	104	96	92
26	104	98	96	104	B	B	B	G	100	102	104	104	100	108	106	104	106	122	112	106	104	102	102	98
27	104	106	B	B	B	B	B	154	102	100	100	94	94	114	110	100	108	104	102	98	96	96	94	98
28	88	94	100	118	B	B	B	G	100	100	100	102	100	100	104	120	122	112	106	104	104	96	90	96
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	18	15	16	17	12	15	12	19	26	28	27	27	28	28	28	28	28	28	27	26	26	26	23	19
MED	95	96	96	100	100	104	101	106	102	100	100	98	98	108	108	114	109	104	102	100	98	97	96	98
U Q	98	100	100	107	106	108	107	152	104	102	106	102	108	135	120	119	118	107	104	102	102	100	98	102
L Q	92	92	94	97	98	100	100	100	98	98	96	94	94	99	100	104	104	101	100	98	96	96	90	94

IONOSPHERIC DATA STATION Kokubunji

FEB. 2009 TYPES OF Es 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	F1									L3	L2	L2	L2	L2	L2	L2	HL12	L2	F2	F2	F1	F3	F2	F2
2	F2							L1	L2	L2	L2	L2	HL11	CL11	CL11	CL11	CL22	C2					F2	F1
3			F2	F1	F4	F4			L4	L2	L3	L2	L2	L2	L2	CL11	L2	L3	F5	F4	F3	F1		
4	F2	F2				F2	F2	L5	L3	HL22	HL22	HL12	HL11	CL11	CL21	CL32	L4	L5	F4	F3	F2	F3	F3	F3
5	F2	F2	F2	F1				HL22	L4	L3	L2	L2	L2	L1	L2	L2	CL22	L5	F3	F4	F2	F3	F2	F2
6	L2	F1	F2	F1				C1	L3	L2	L2	L2	L2	HL12	L2	L3	CL22	F3	F3	F4	F5	F3	F2	
7									L2	L2	CL22	CL12	HL11	HL11	CL22	CL22	L4	L3	F4			F2		
8							F2		L1	L2	L1	L2	L2	L2	HL22	CL12	CL22	L3	F3	F2	F3	F2	F2	F1
9	F2	F3	F3	F2		F3	F2	L3	HL12	L2	L2	L2	L2	L2	L2	L2	L2	L7	F3	F2	F2	F1	F2	F2
10	F3	F4	F3	F2	F3	F3	F3	L3	L2	L2	L2	L2	L2	HL12	CL23	CL22	L3	L4	FF23	F5	F5	F2	F2	
11				F1	F1	F2	F3			L1	L2	L2	L2	HL12	HL12	CL22	C2	F3	F4	F3	F3	F2	F3	F2
12						F3	F1	L5	L3	HL22	HL12	L2	L2	HL11	CL21	CL31	L2	L4	F5	F4	F4	F3	F4	F2
13	F2		F1	F2	F2	F4	F4	L4	L3	L3	L3	L3	L2	L2	L3	L3	CL22	L4	FF42	F3	F4	F3	F3	F2
14	F2	FF22	F2	F1	F2	F1	F2	L2	L2	L2	L2	L2	HL11	CL11	CL22	CL12	CL22	L4	F4	F3	F3	F3	F1	
15			F2	F2	F5	F7	F6	L4	L3	L3	L2	L2	L2	L3	L2	CL11	L3	L5	F3	F4	F3	F3	F2	
16		F2	F2	F2	F3	F3	F1		L3	L3	L2	L2	L2	L2	L2	L2	L2	CL22	F1	F1	F3	F5	F3	F2
17	F2	F1	F1	F2	F2	F2	F1	L3	L4	L3	L3	L3	L3	L2	L3	CL22	CL21	L3	FF23	FF22	F2	F2	F2	F2
18	F1	F3	F3	F1	F1	F1	F4	CL22	L2	L2	L2	CL12	CL12	CL22	CL22	L2	CL22	C5	F5	F3	F3	F3	F2	F1
19	F2	F2	F1	F1	F2			L4	L3	L2	L2	L2	L2	L2	L2	CL22	L2	L2	F2	F2	F1	F2	F1	F1
20									HL12	L2	L2	L2	L1	HL11	CL11	CL21	CL21	L3	F3	F2	F1	F4		
21	F1					F3		H2	L2	L2	L2	L2	L2	HL12	L1	CL22	L2	L2	F1	F1	F2			
22								H2	L2	L2	CL11	HL11	CL11	CL11	CL11	CL11	L3	L4	F2	F2	F2	F2	F3	F4
23	F5	F3	F3	F3	F3	F1		H3	HL22	L2			CL11	L2	L2	L3	L3	L3	F5	F4	F2	F2	F3	F3
24	F3	F2	F2	F2	F3	F2		H2	L2	L2	HL12	L1	L1	L2	CL11	L2	CL11	C4	F5	F3	F4	F3		
25								H2	L2	L2	L1	L1	L2	L1	L2	CL21	CL21	L4	F4	F3	F1	F1	F3	F3
26	F1	F2	F2	F1					L2	L2	L1	L1	L1	L1	L1	L2	L2	C2	F2	F2	F3	F3	F2	F2
27	F2	F1						H3	L2	L2	L1	L2	L1	CL11	CL11	L2	L2	L3	F3	F4	F3	F5	F2	F2
28	F2	F2	F2	F1					L3	L2	L1	L2	L2	L2	L2	CL11	CL22	C3	F2	F2	F3	F2	F3	F1
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. 2009 TYPES OF Es

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

f-PLOTS OF IONOSPHERIC DATA

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

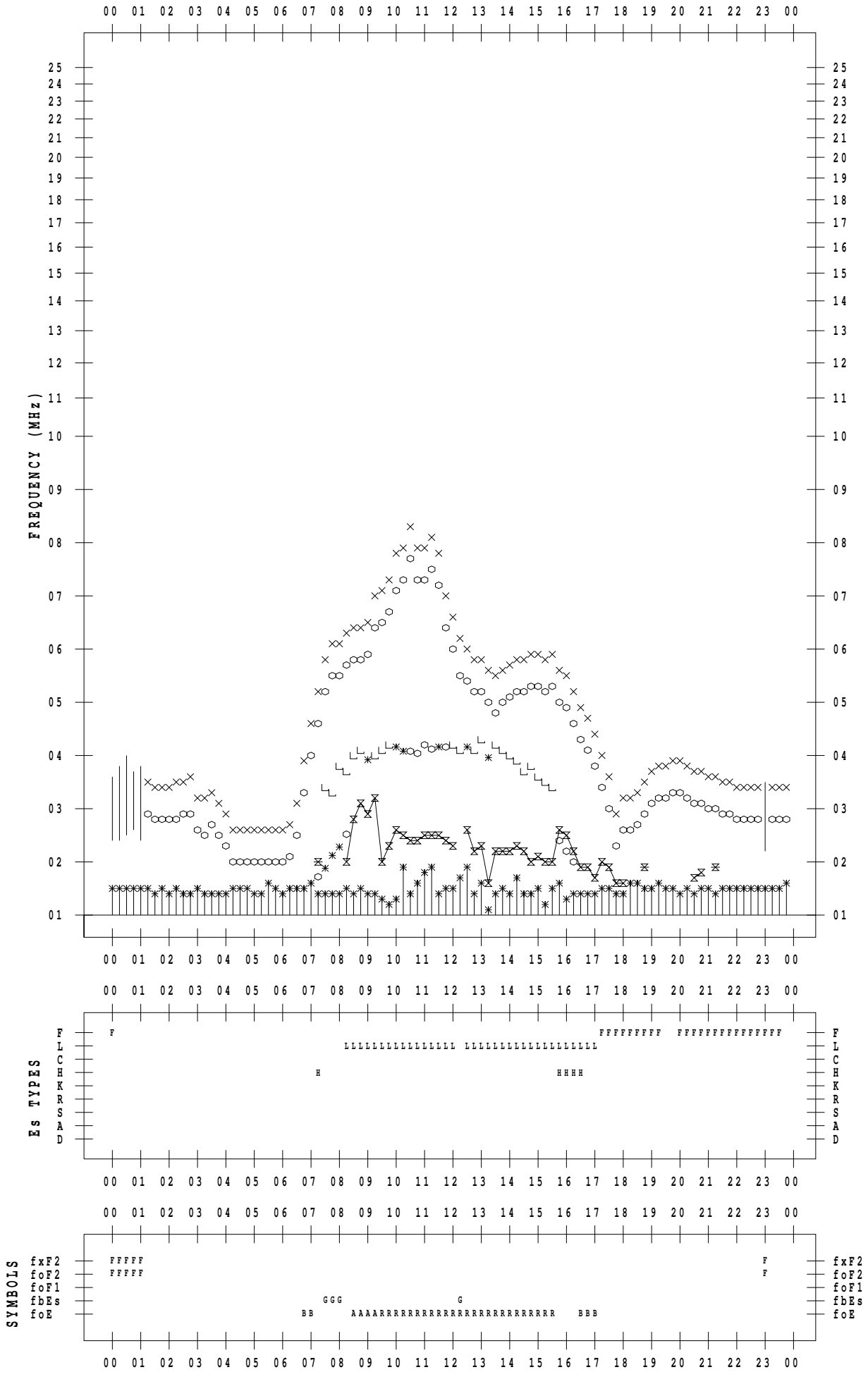
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2009/ 2/ 1

135 °E MEAN TIME



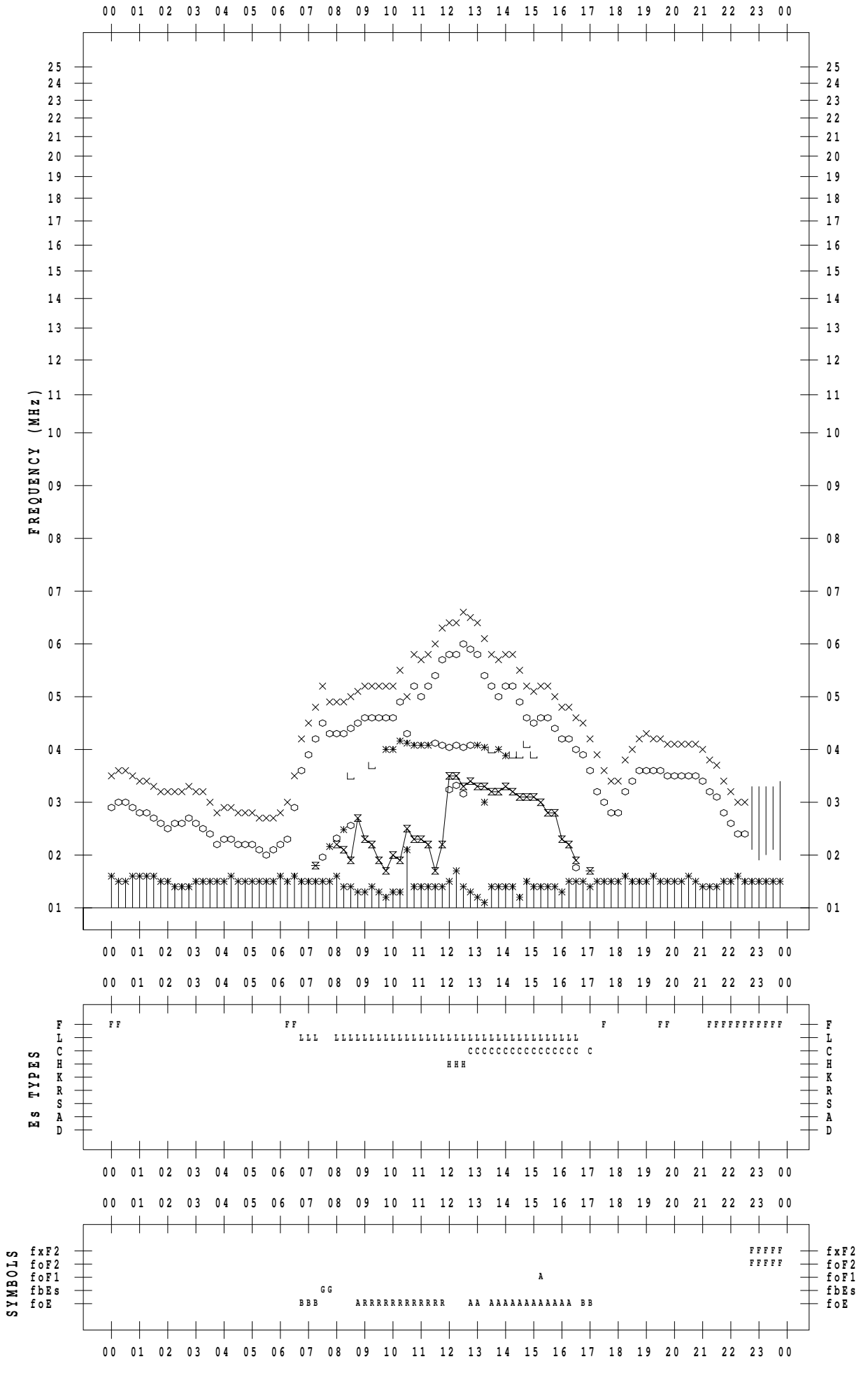
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2009/ 2/ 2

135 °E MEAN TIME



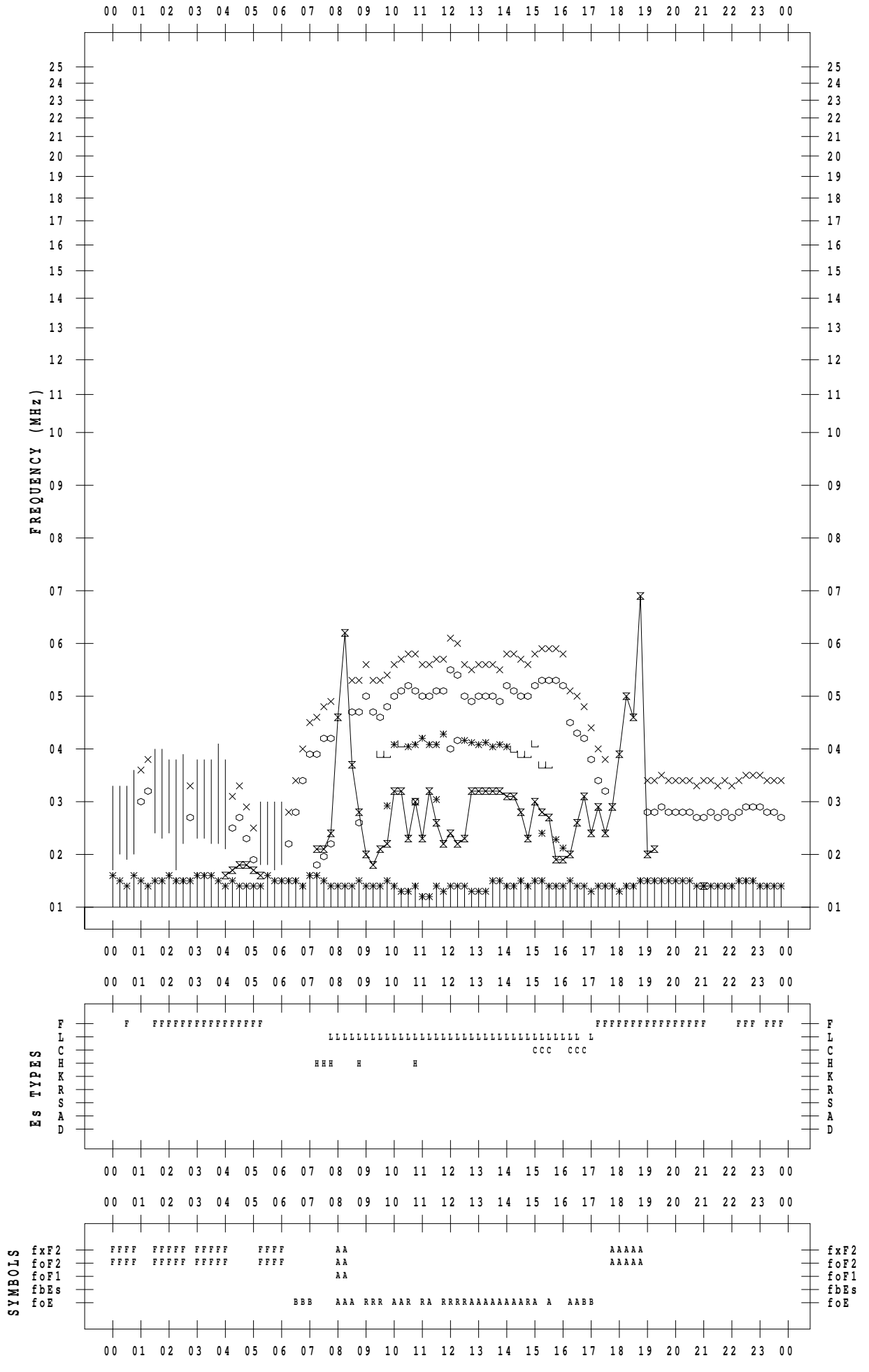
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2009/ 2/ 3

135 °E MEAN TIME



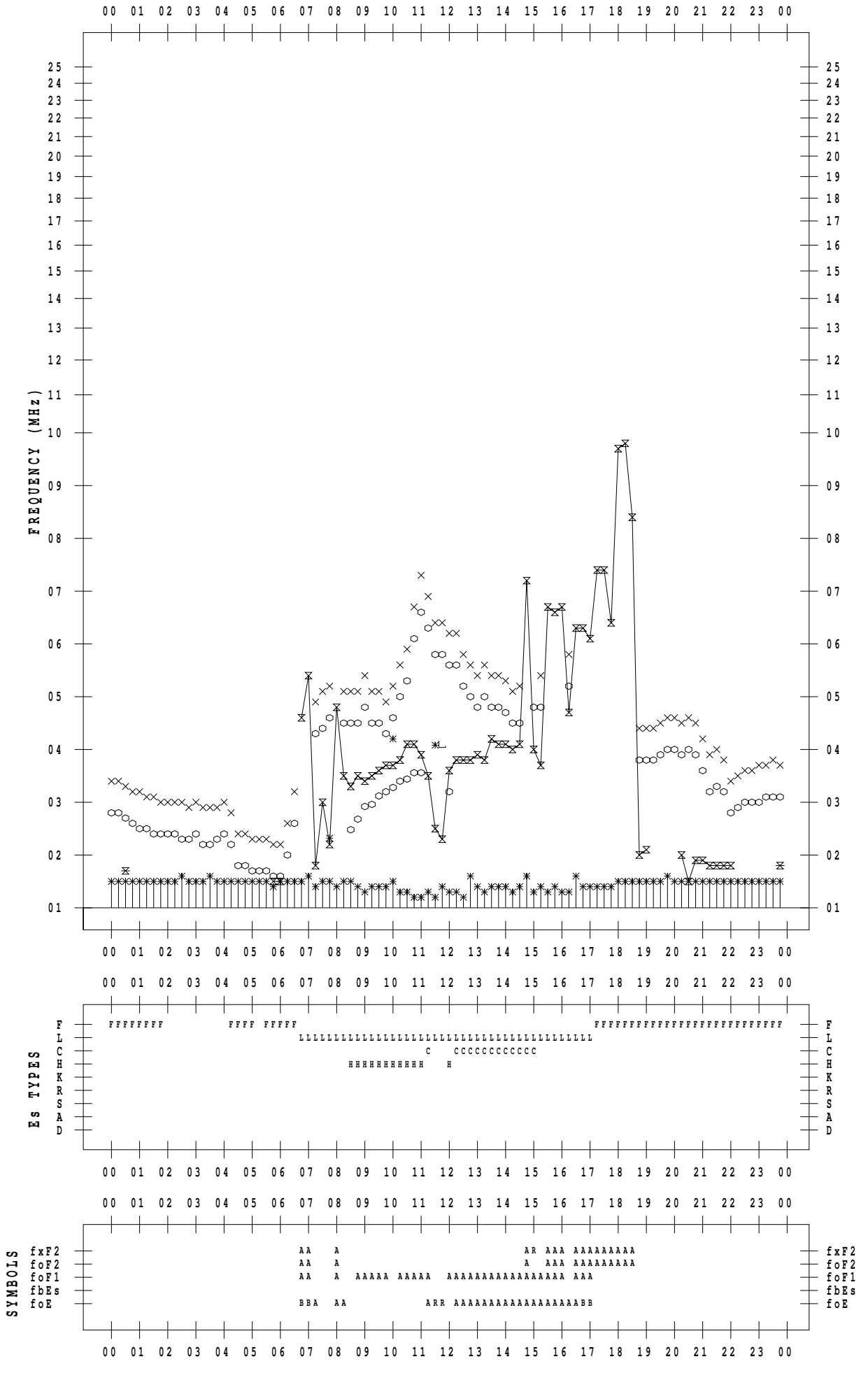
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2009/ 2/ 4

135 °E MEAN TIME



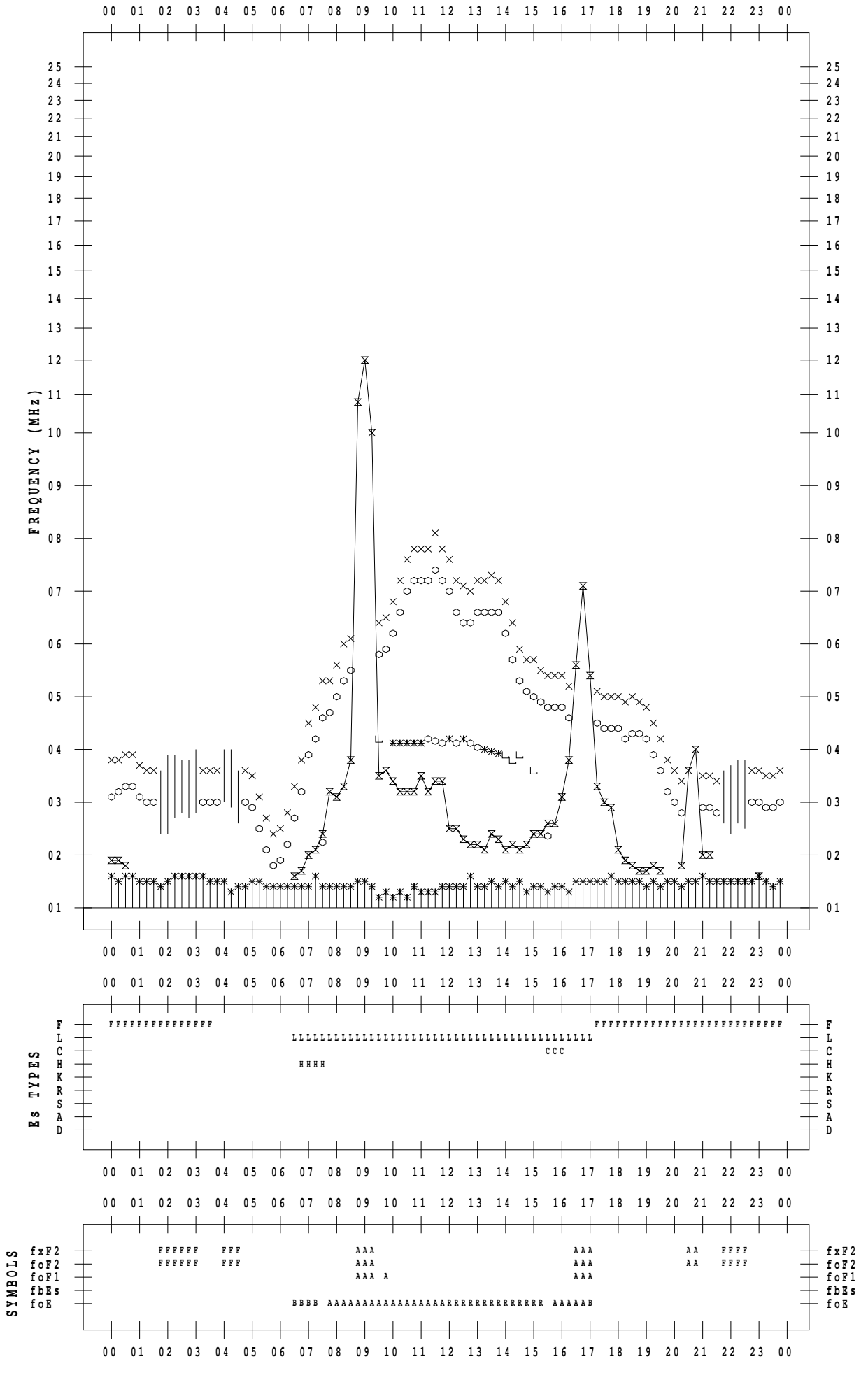
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2009/ 2/ 5

135 °E MEAN TIME



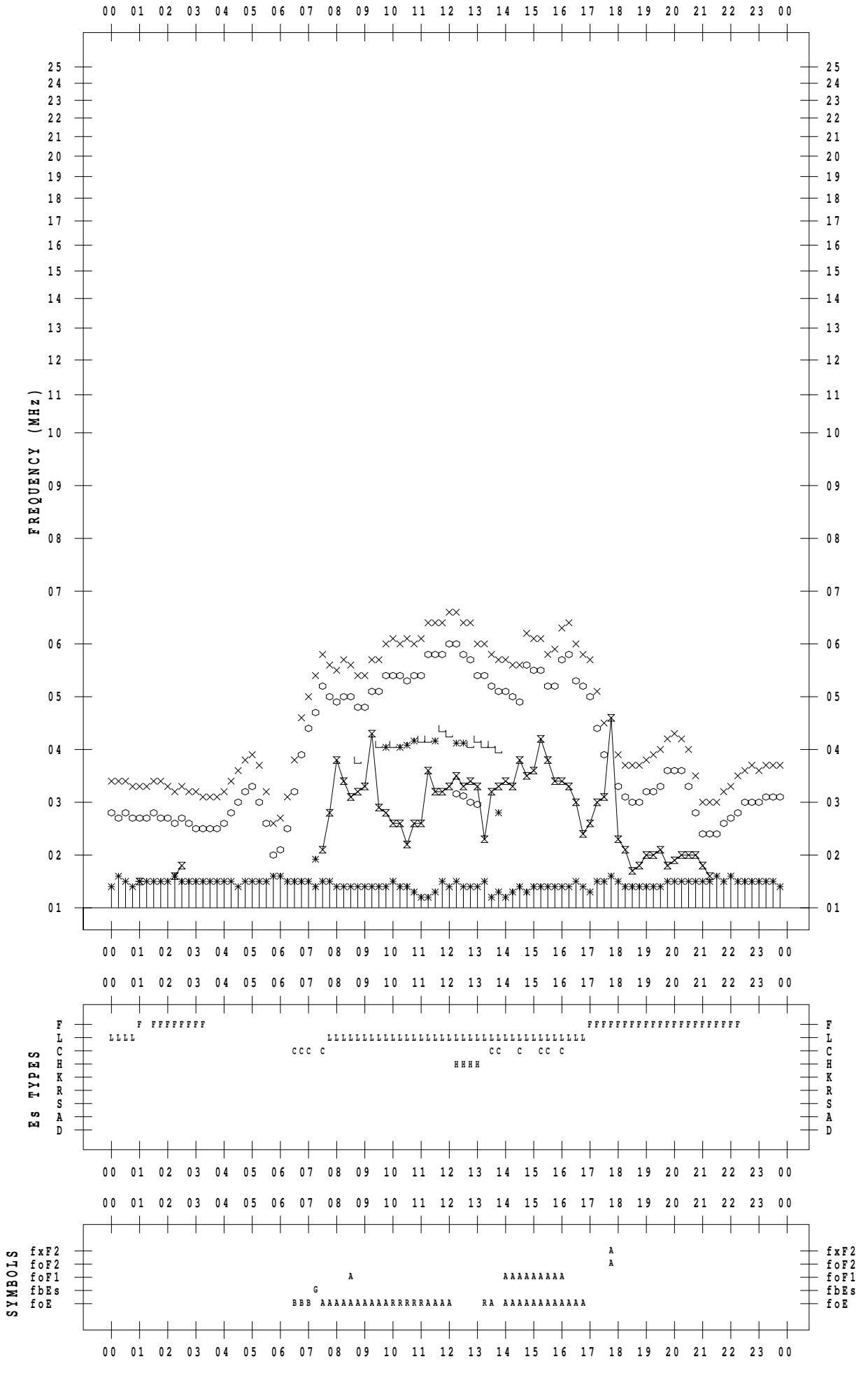
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2009/ 2/ 6

135 °E MEAN TIME



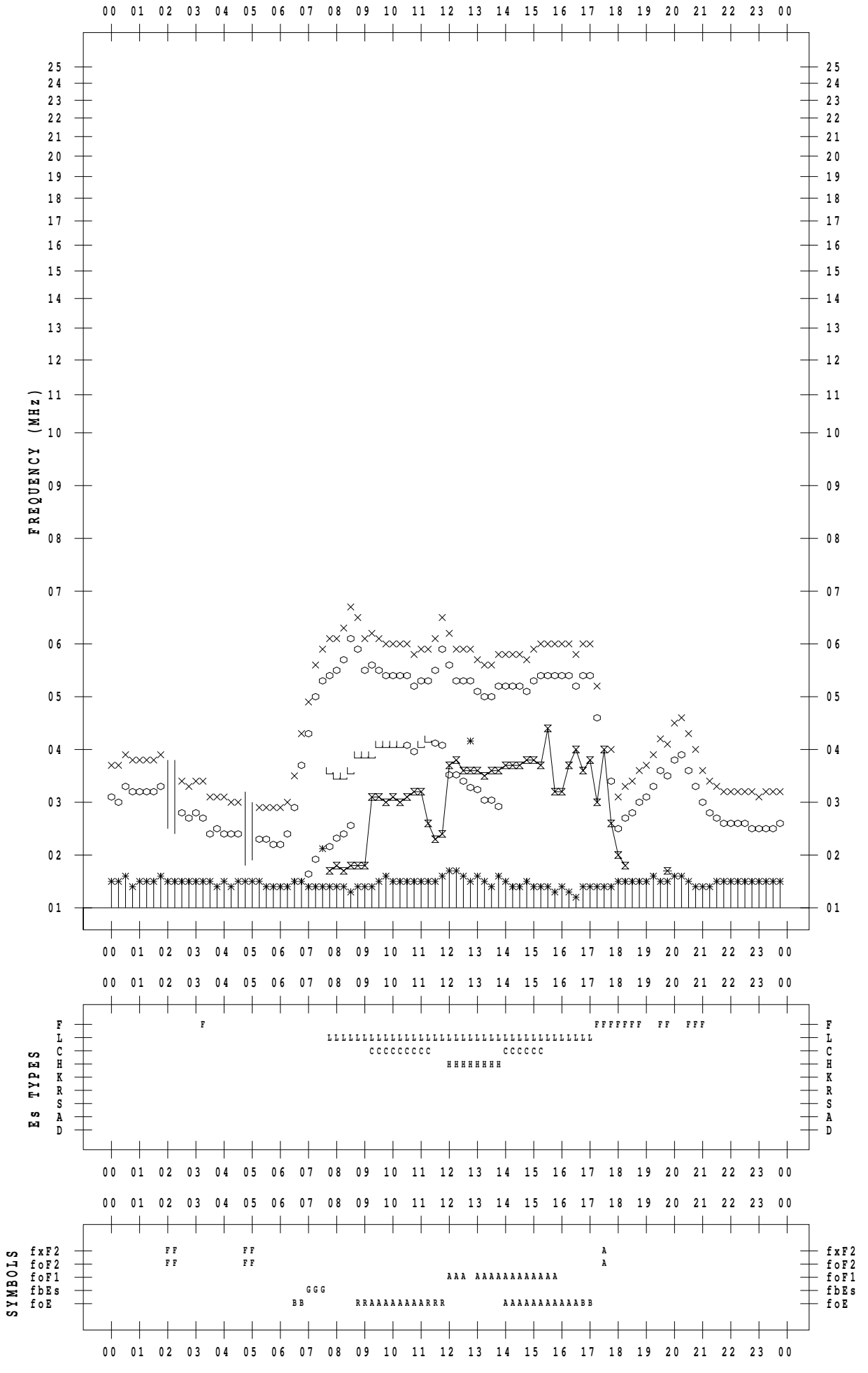
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2009/ 2/ 7

135 °E MEAN TIME



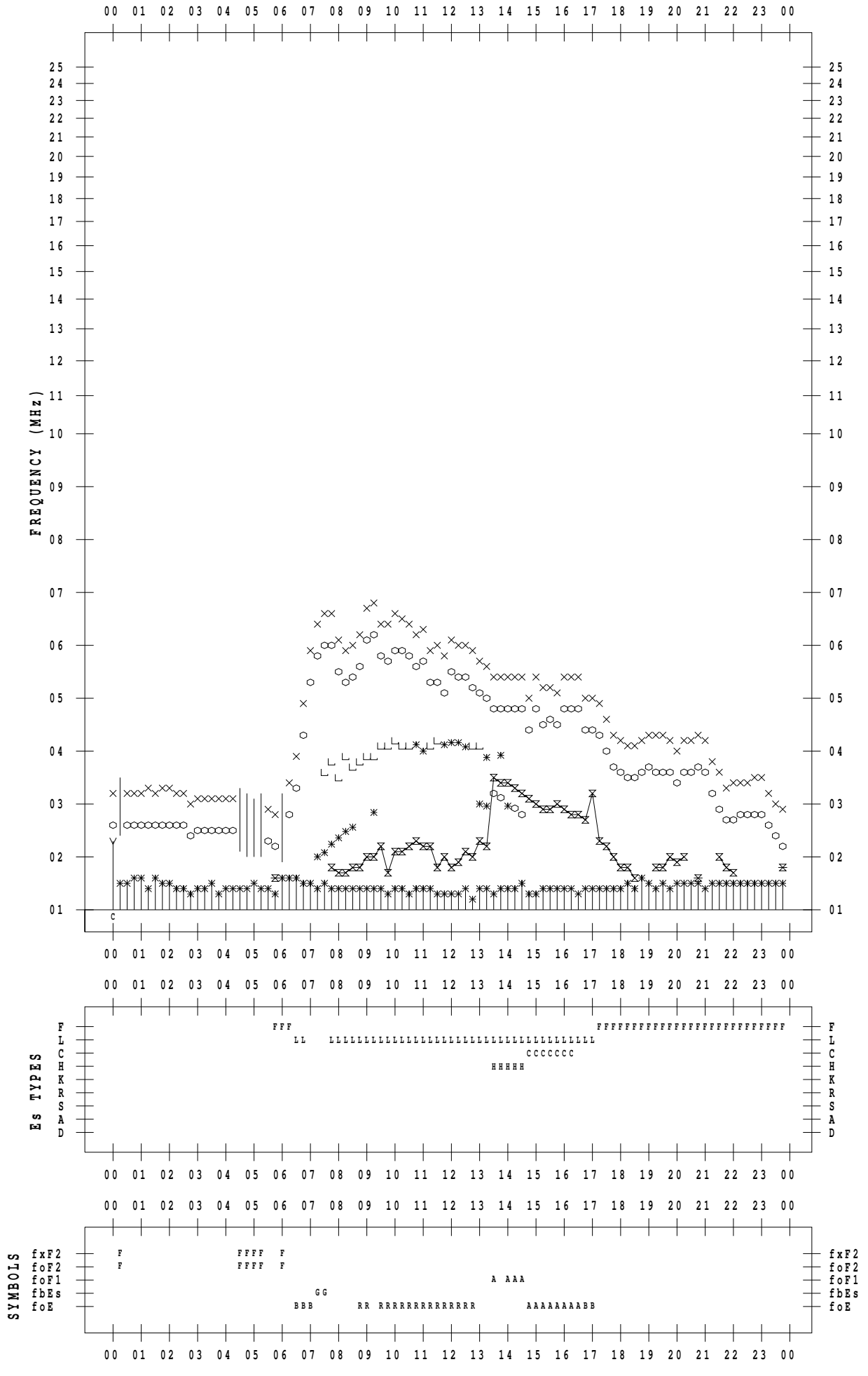
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2009/ 2/ 8

135 °E MEAN TIME



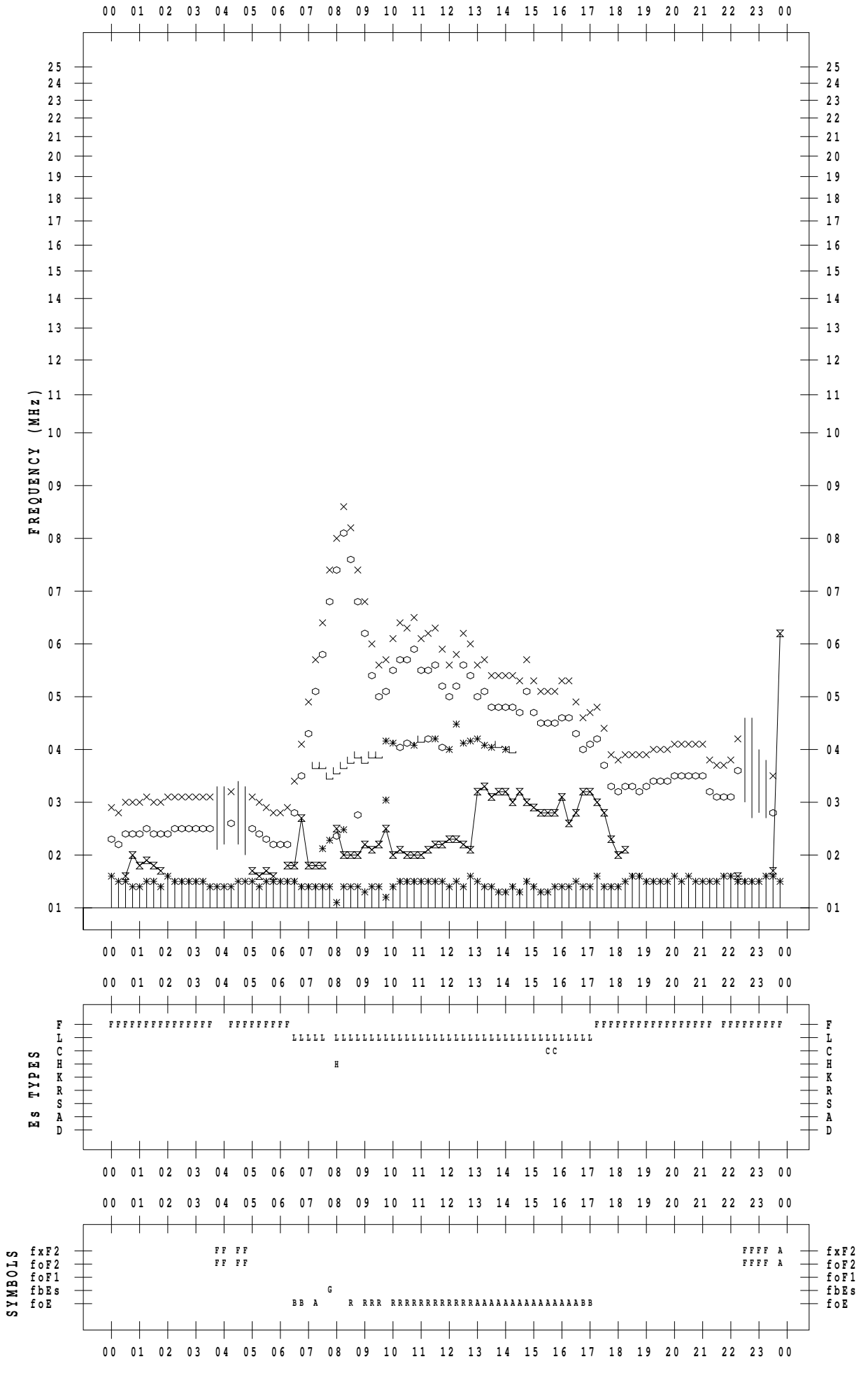
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2009/ 2/ 9

135 °E MEAN TIME



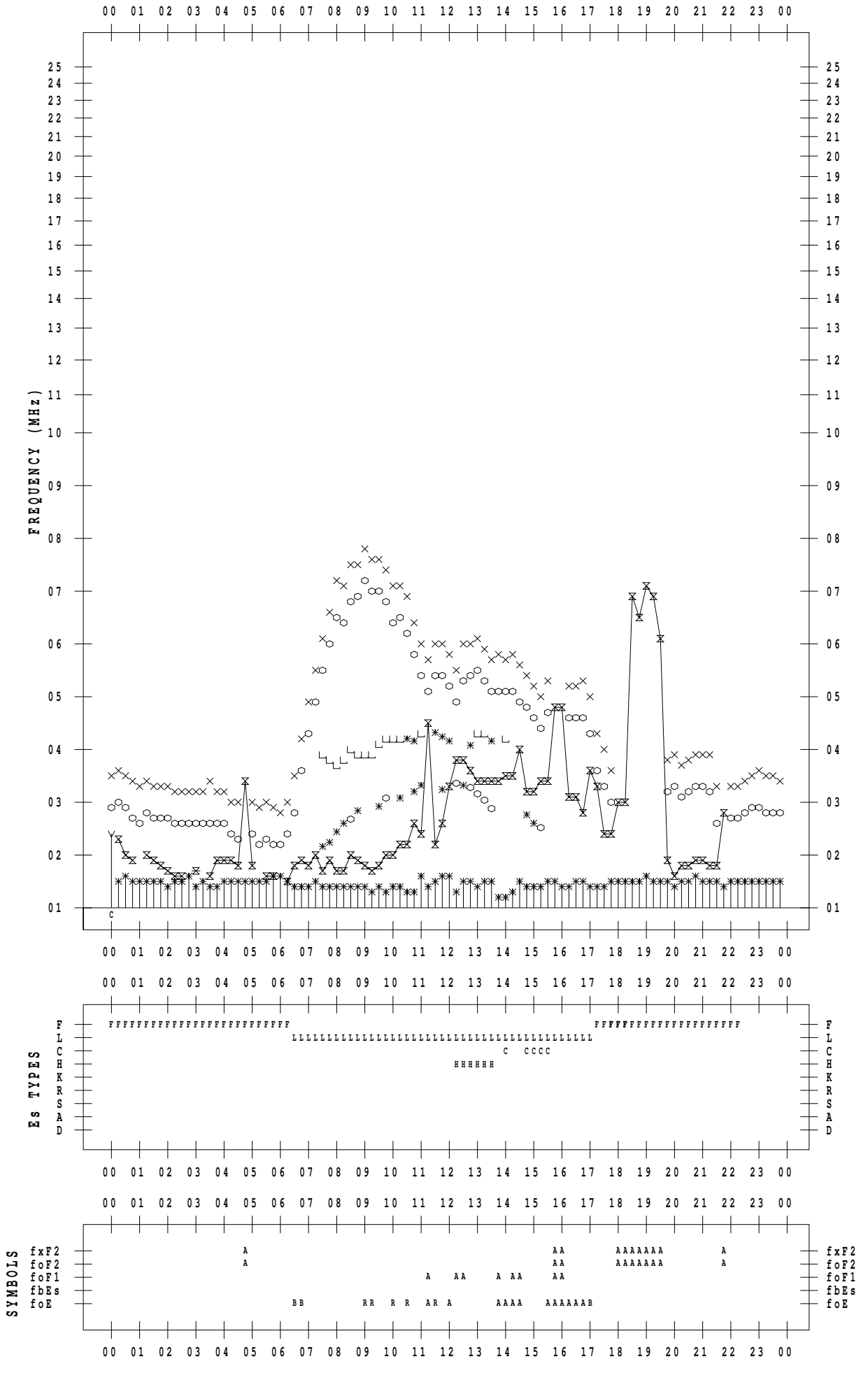
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2009/ 2/10

135 °E MEAN TIME



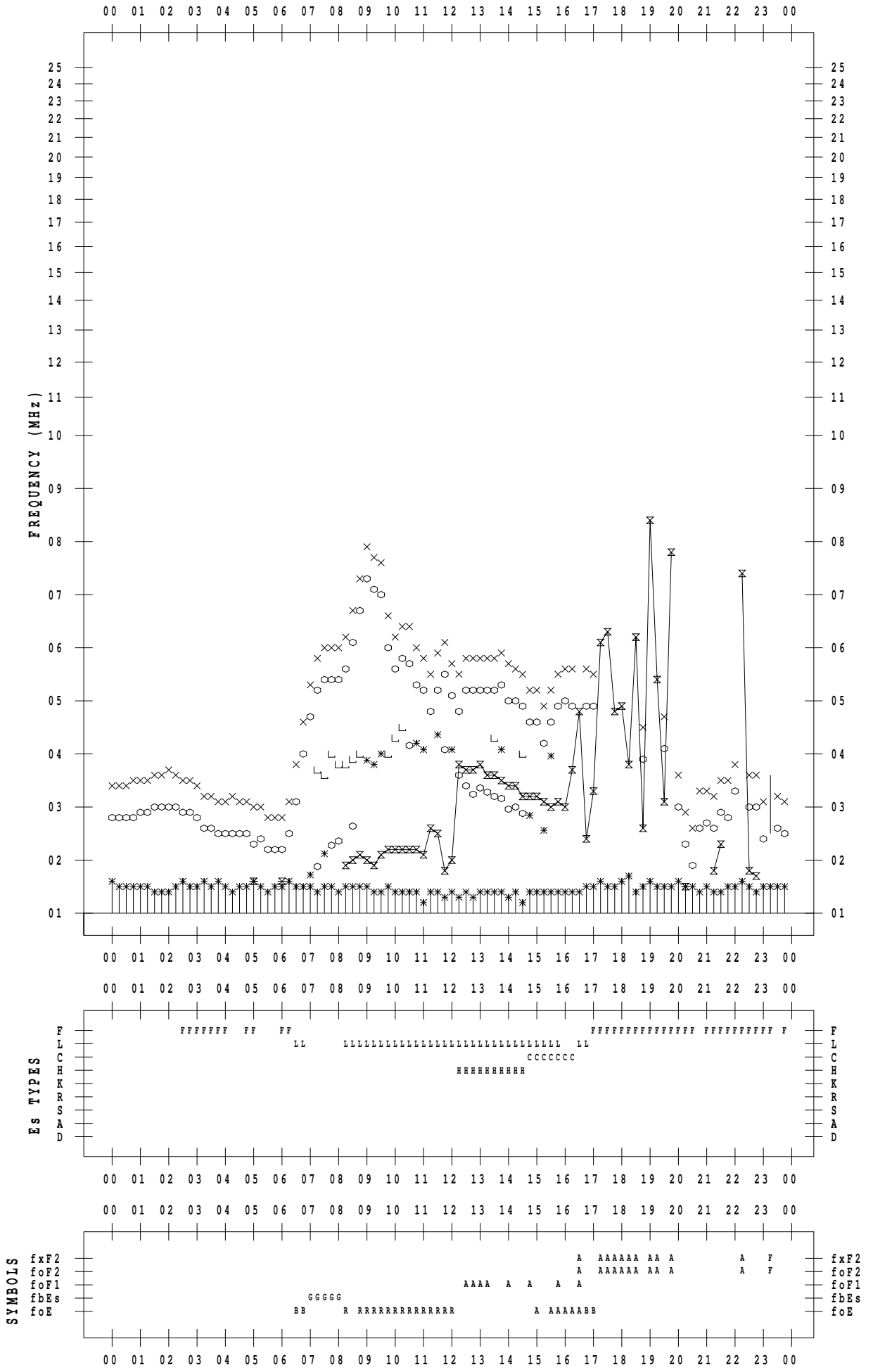
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2009/ 2/11

135 °E MEAN TIME



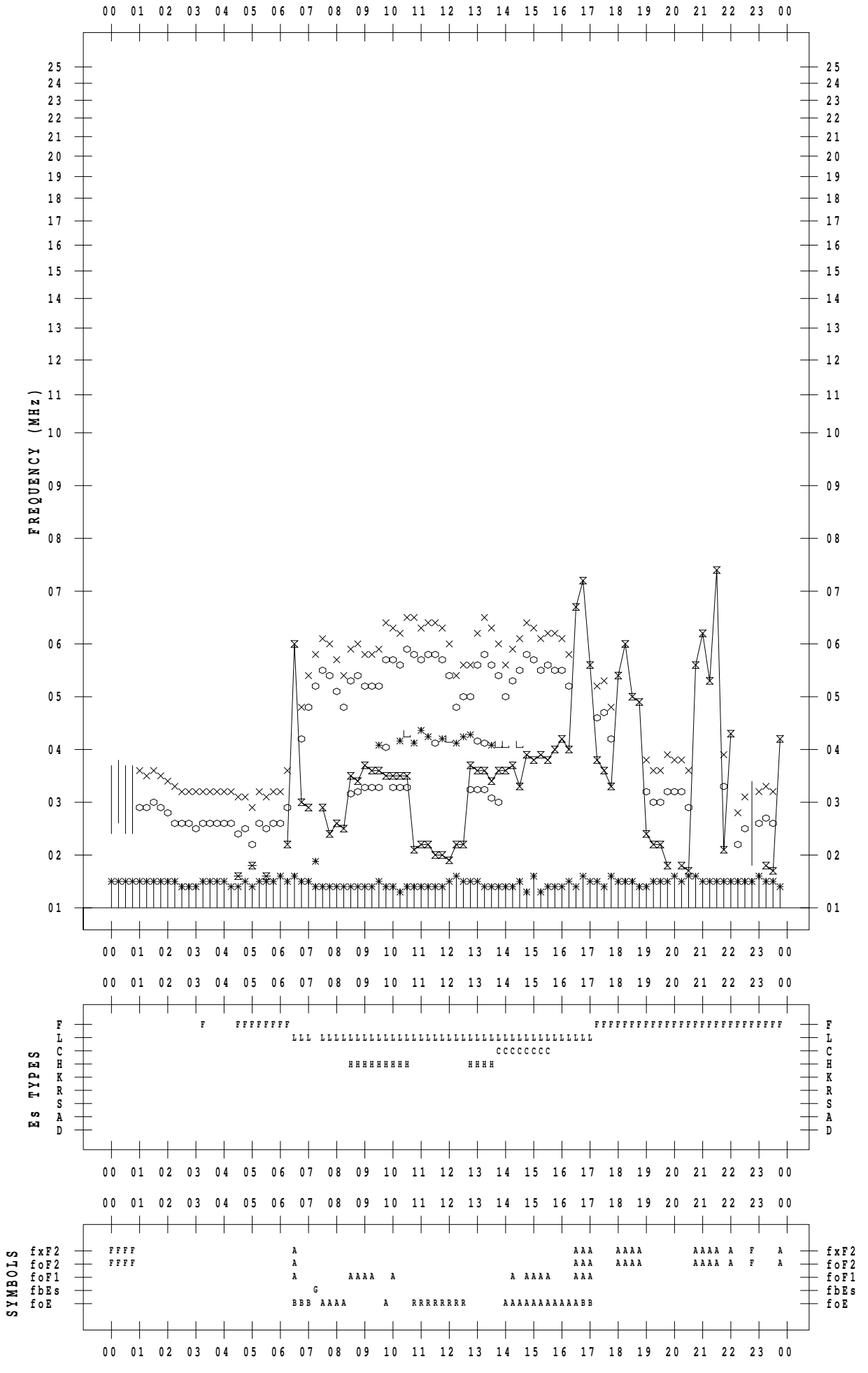
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2009/ 2/12

135 °E MEAN TIME



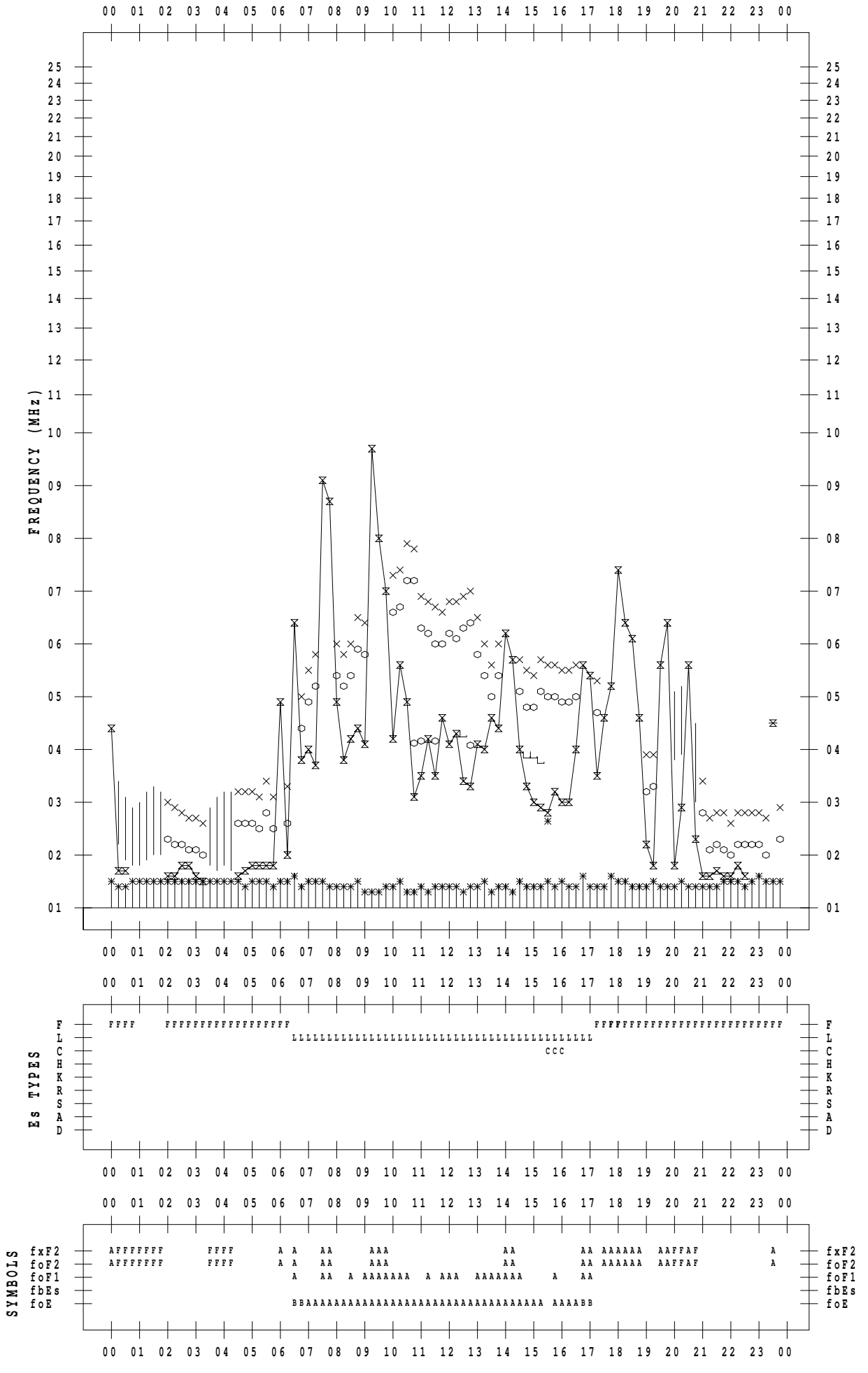
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2009/ 2/13

135 °E MEAN TIME



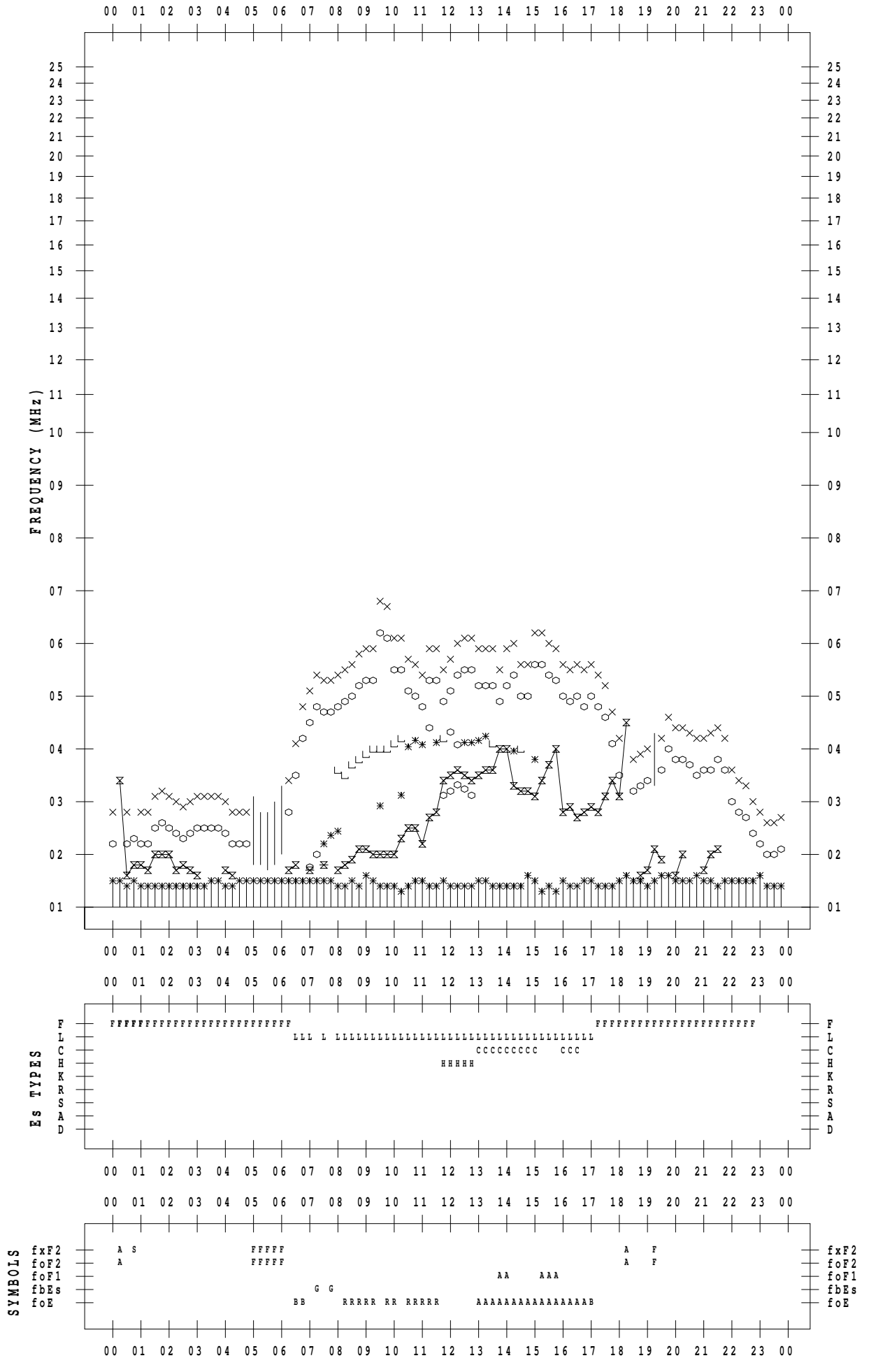
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2009/ 2/14

135 °E MEAN TIME



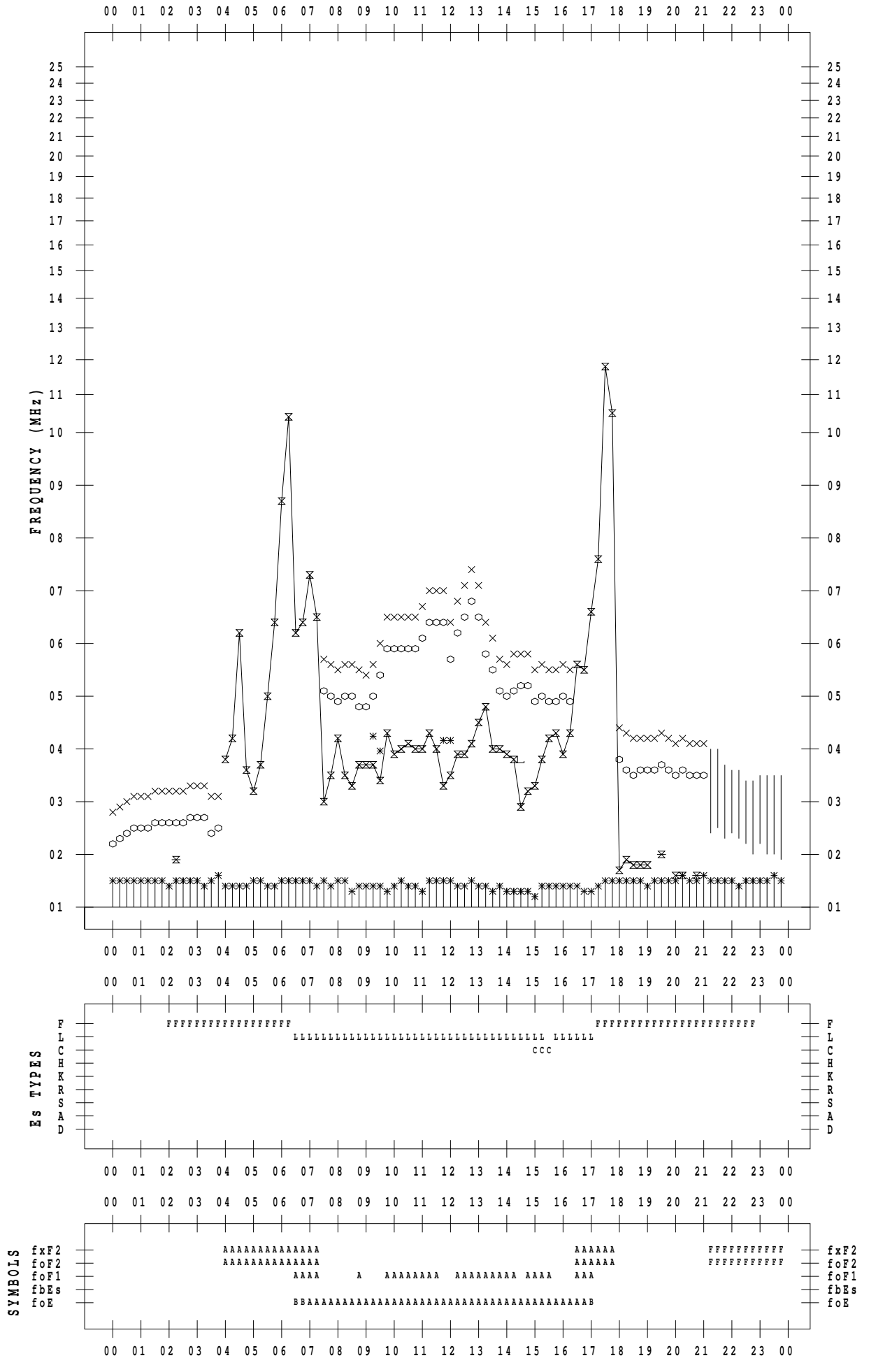
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2009/ 2/15

135 °E MEAN TIME



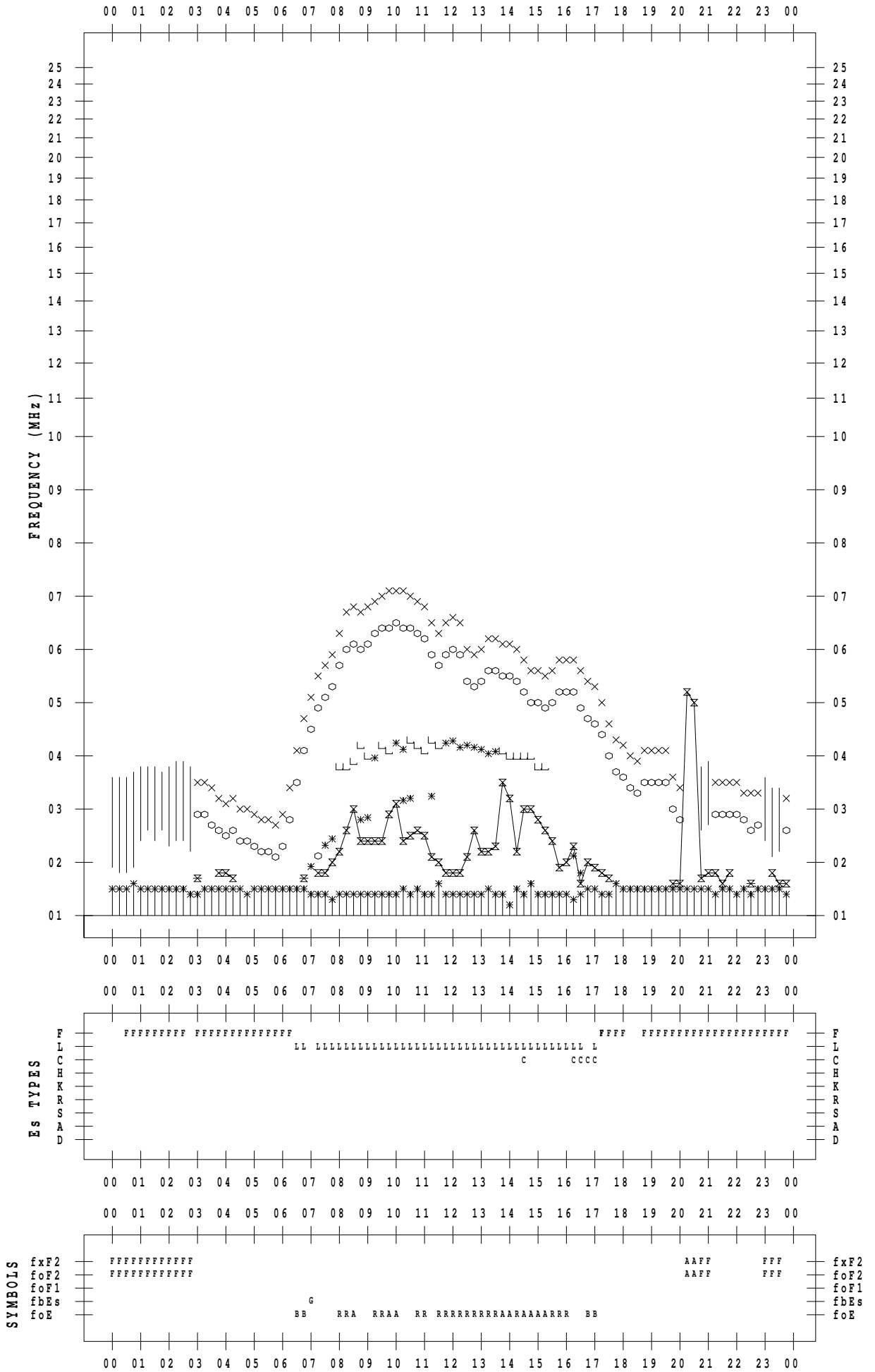
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2009/ 2/16

135 °E MEAN TIME



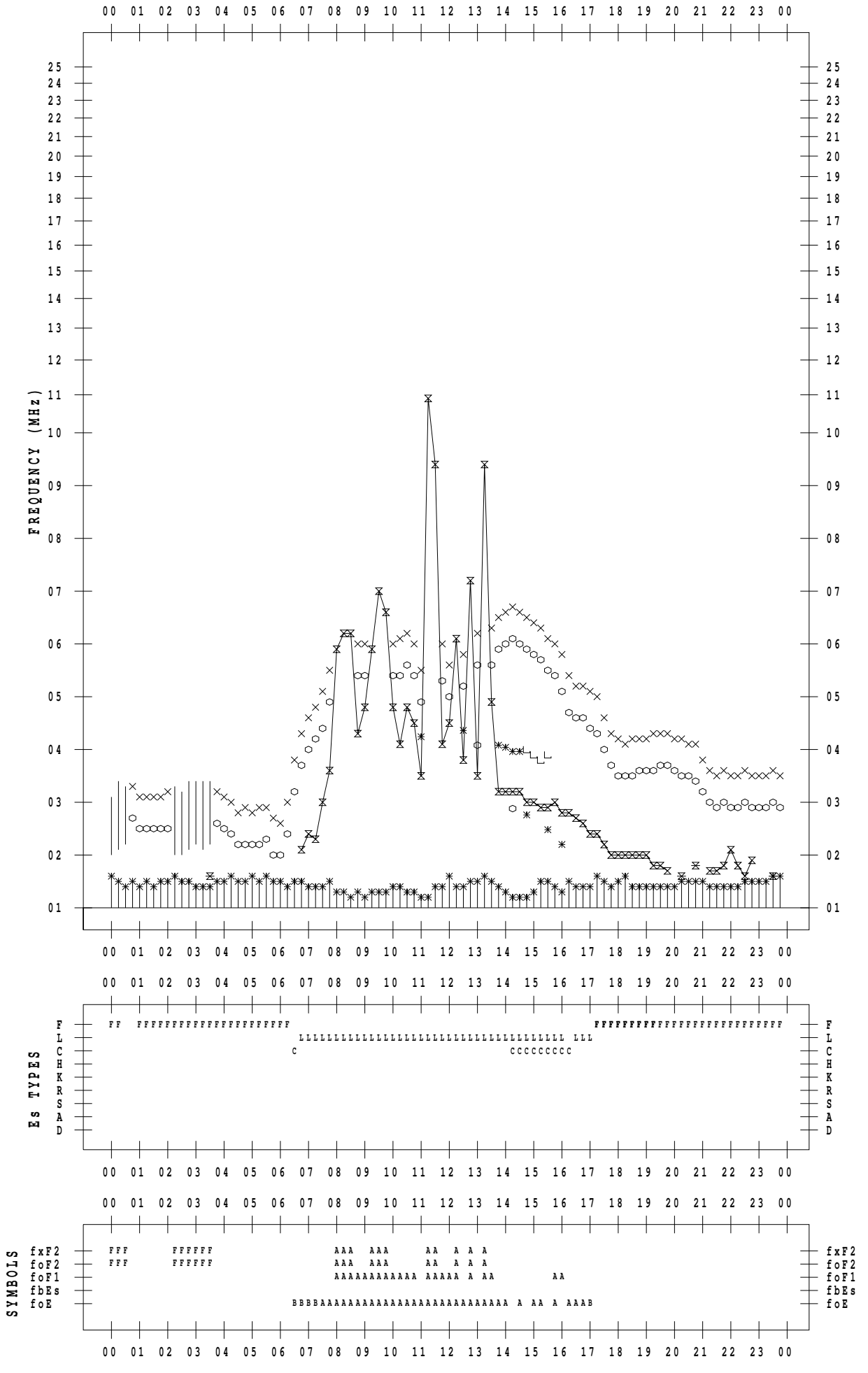
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2009/ 2/17

135 °E MEAN TIME



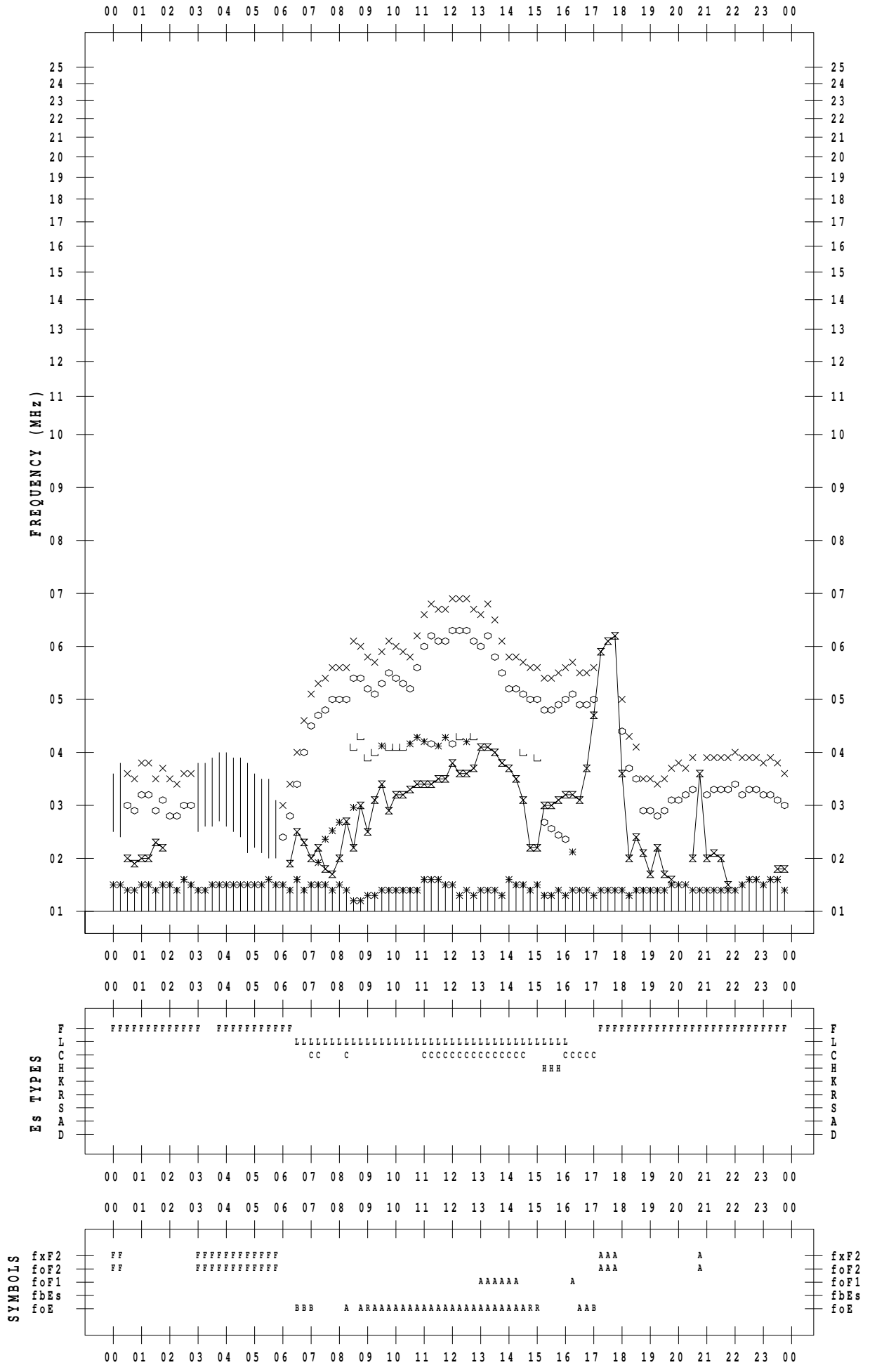
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2009/ 2/18

135 °E MEAN TIME



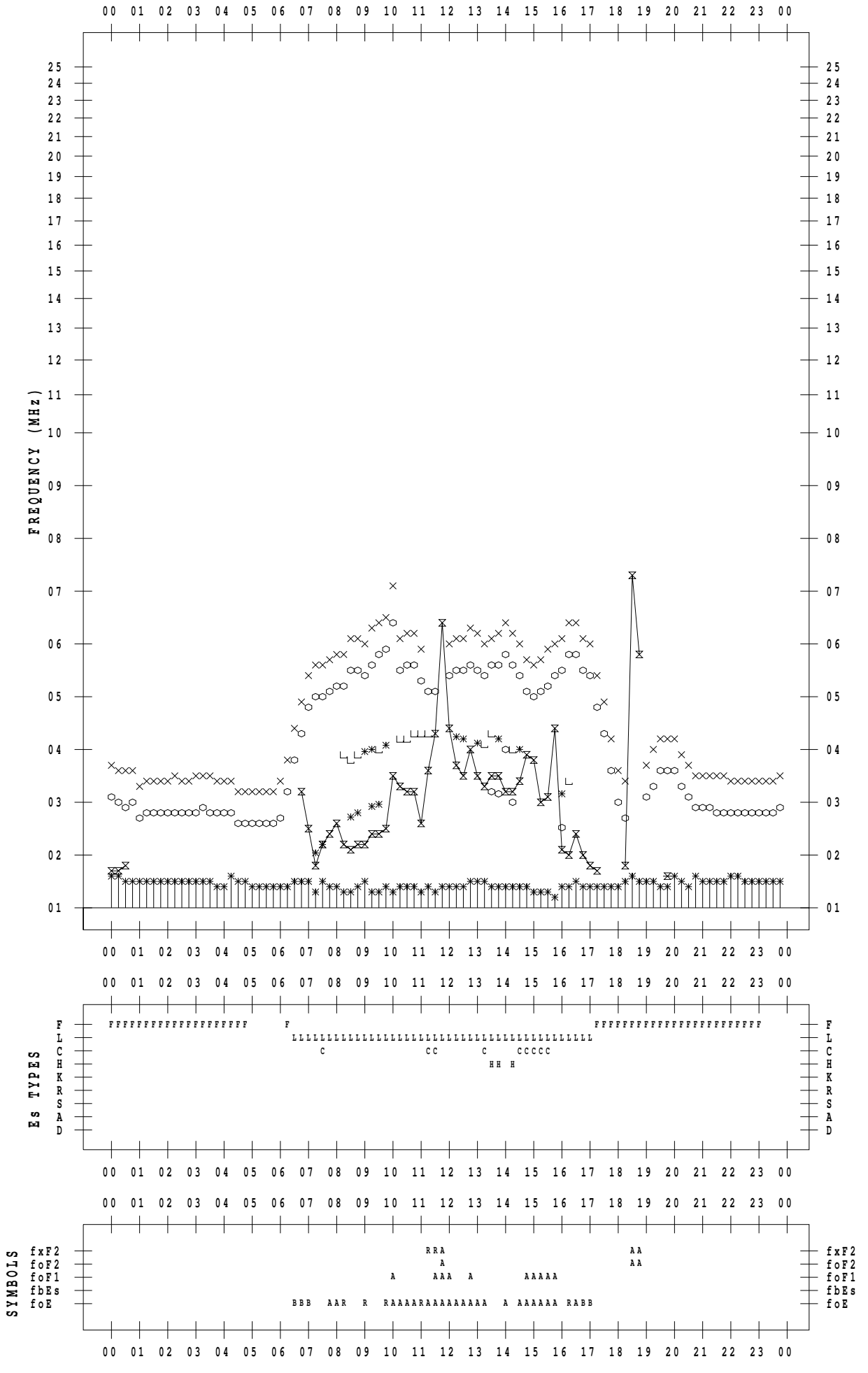
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2009/ 2/19

135 °E MEAN TIME



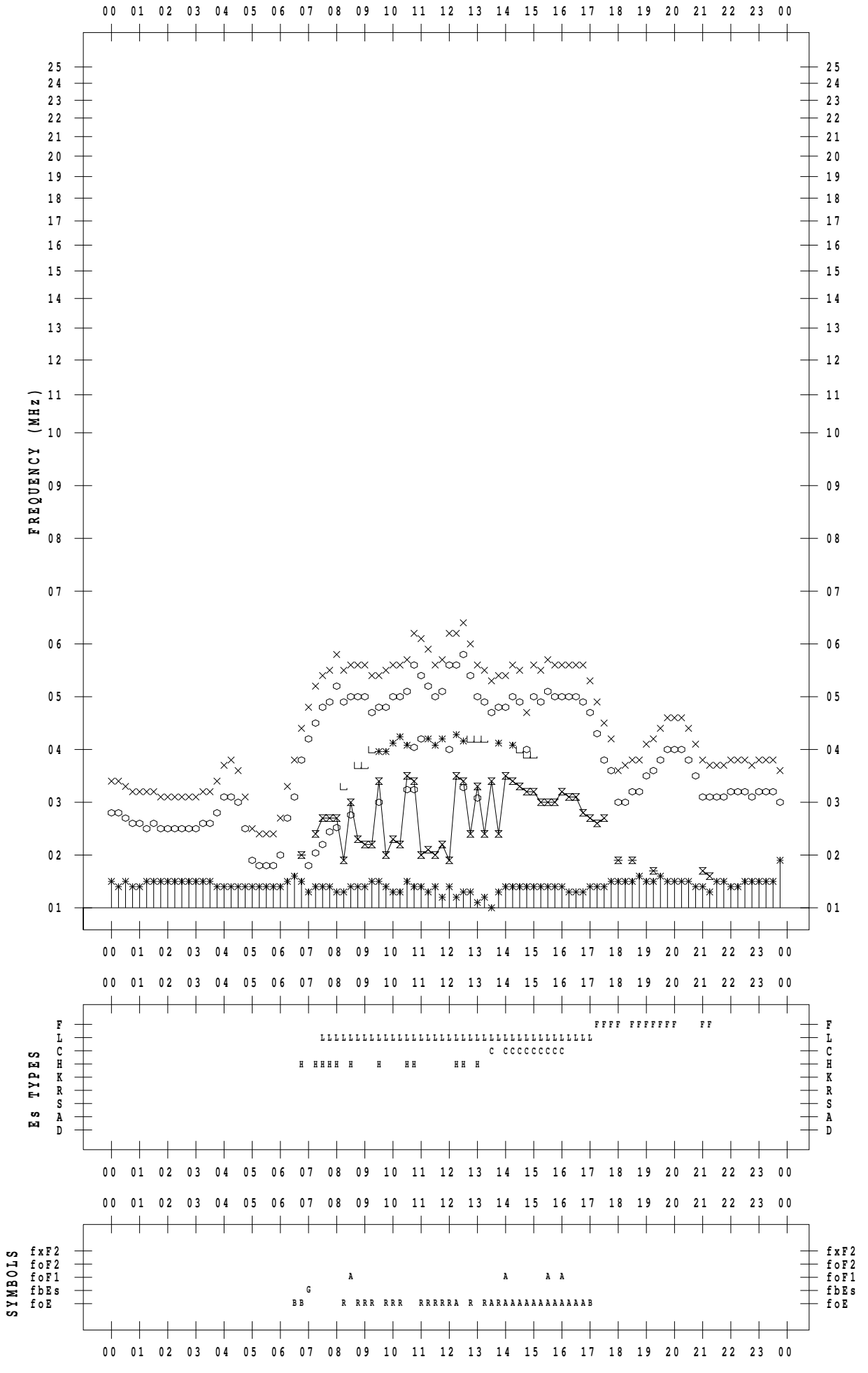
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2009/ 2/20

135 °E MEAN TIME



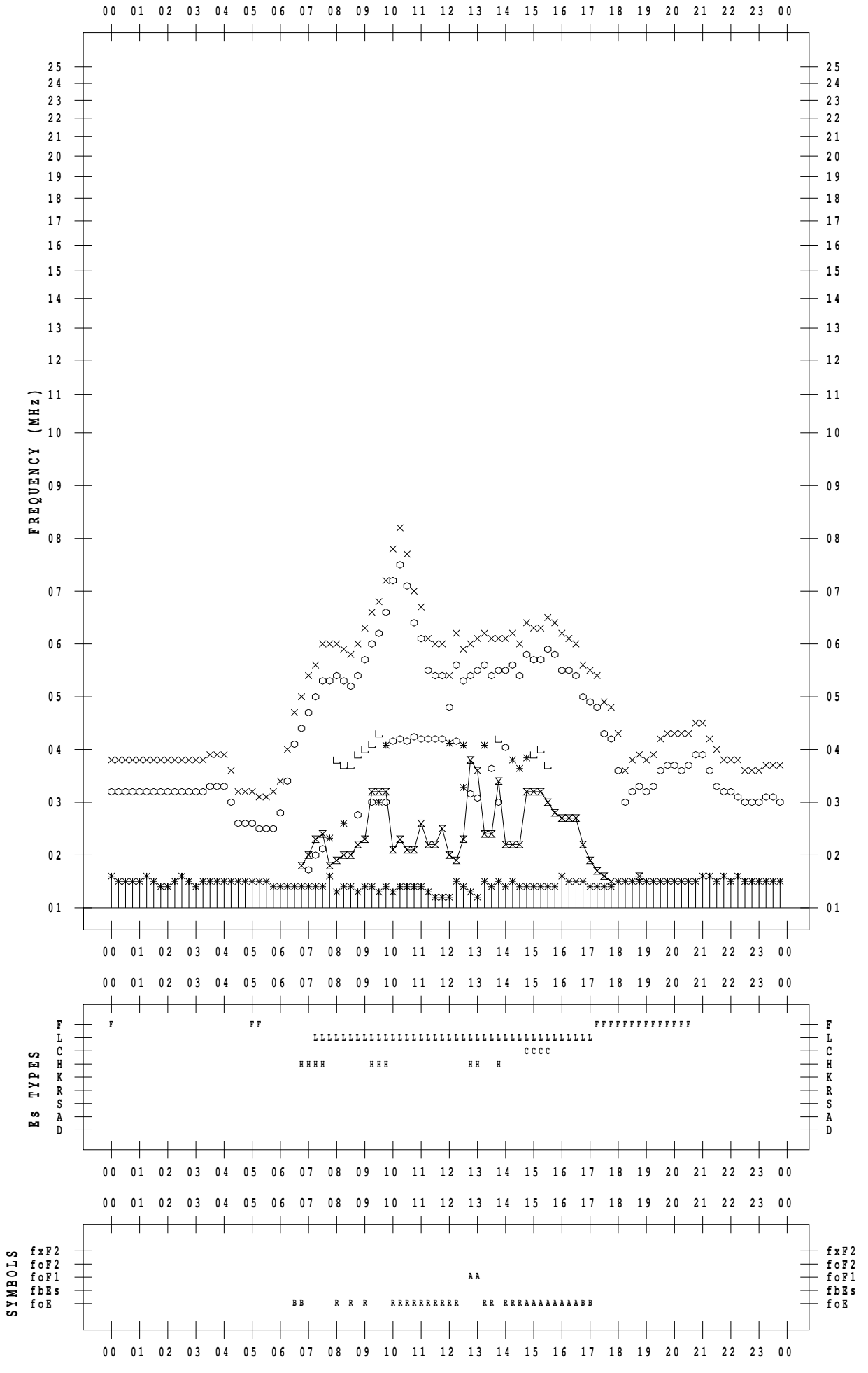
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2009/ 2/21

135 °E MEAN TIME



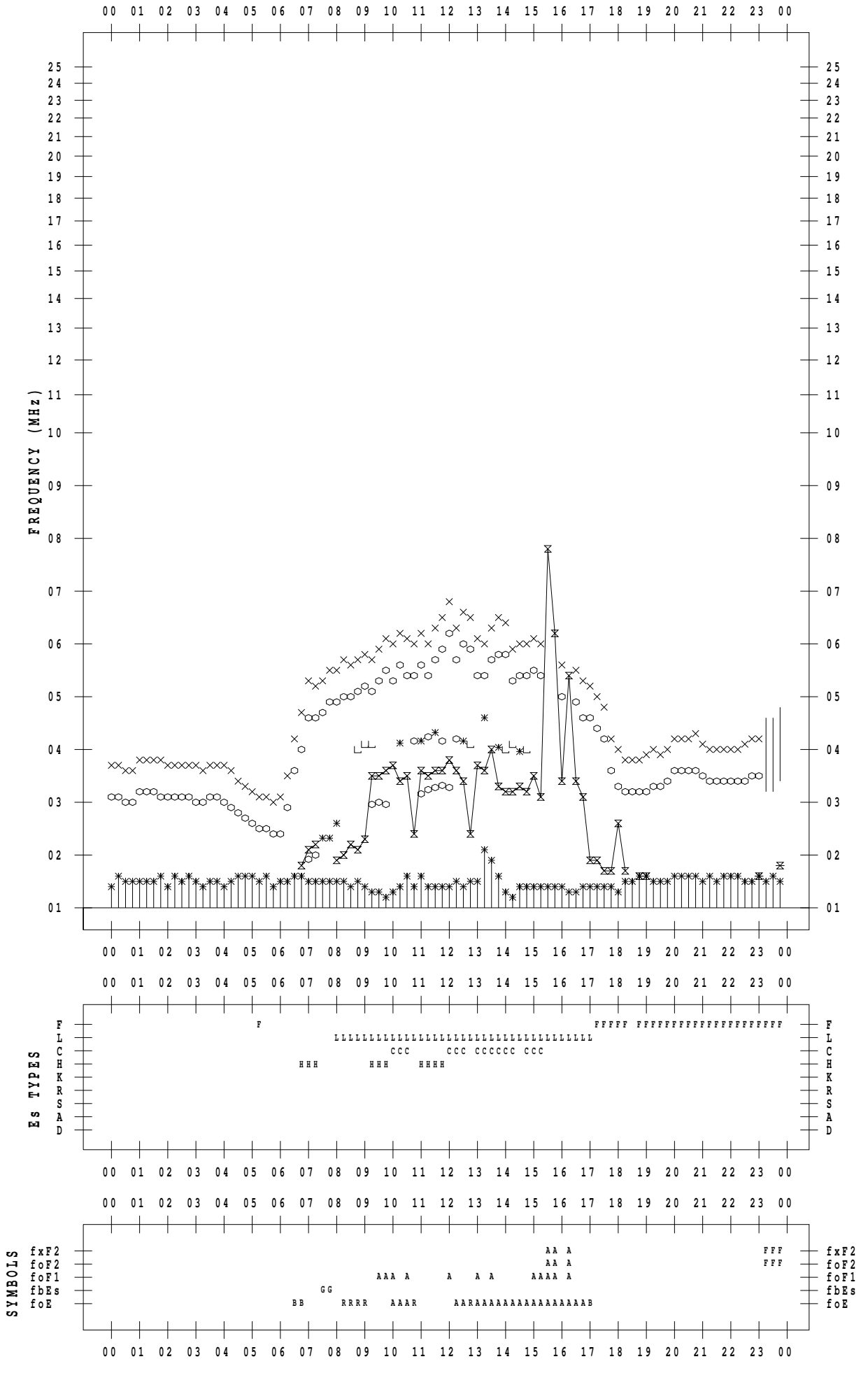
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2009/ 2/22

135 °E MEAN TIME



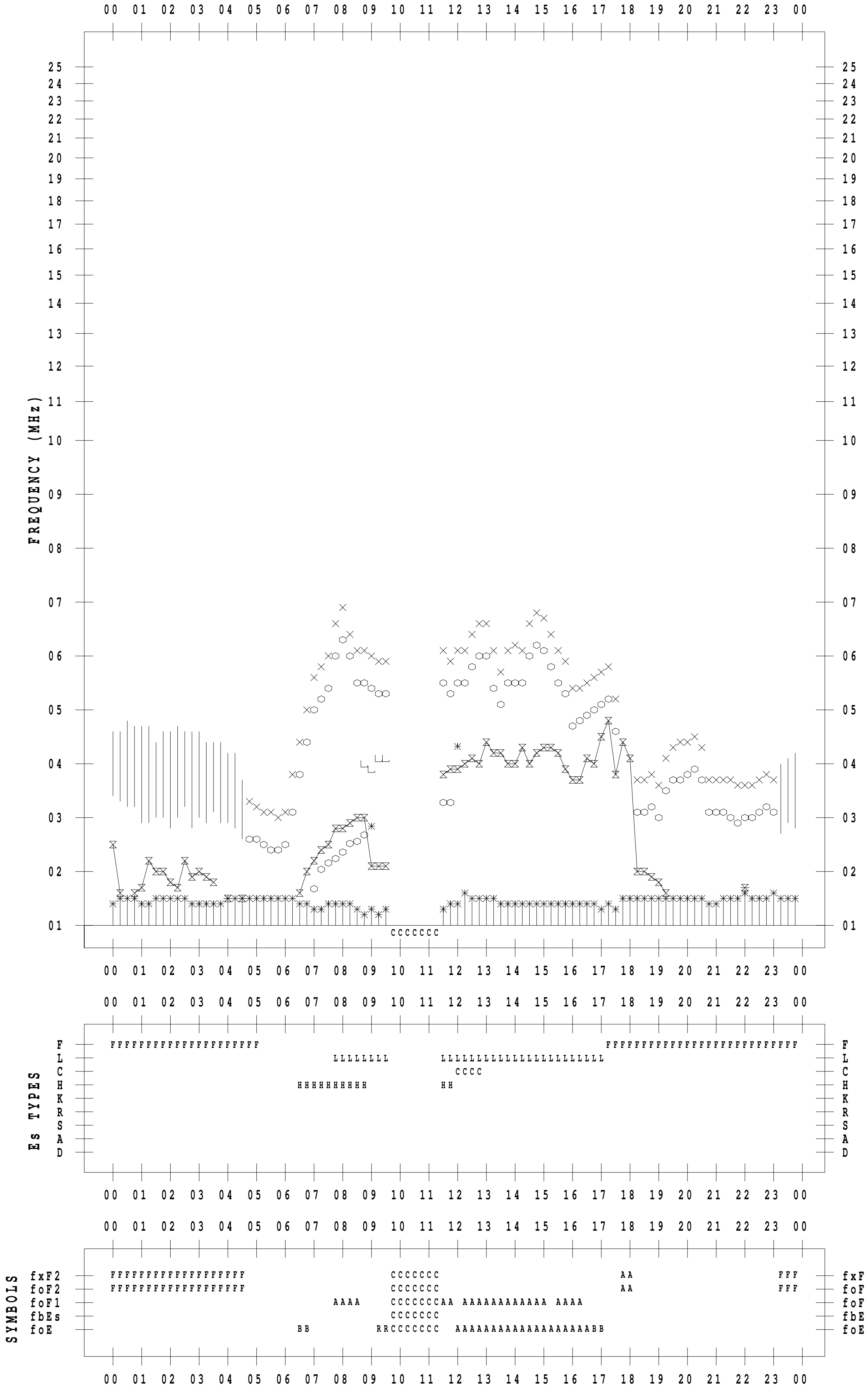
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2009/ 2/23

135 °E MEAN TIME



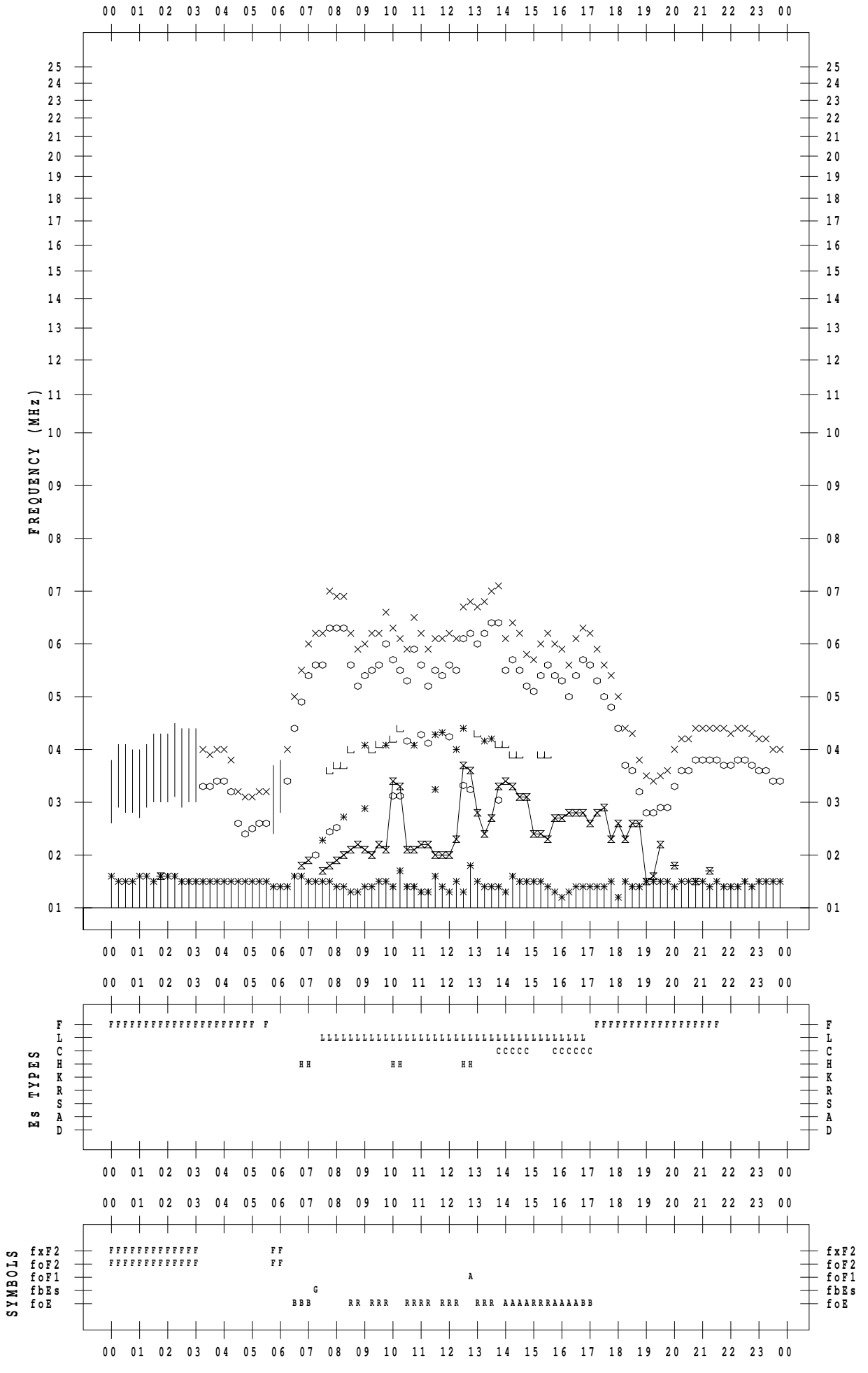
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2009/ 2/24

135 °E MEAN TIME



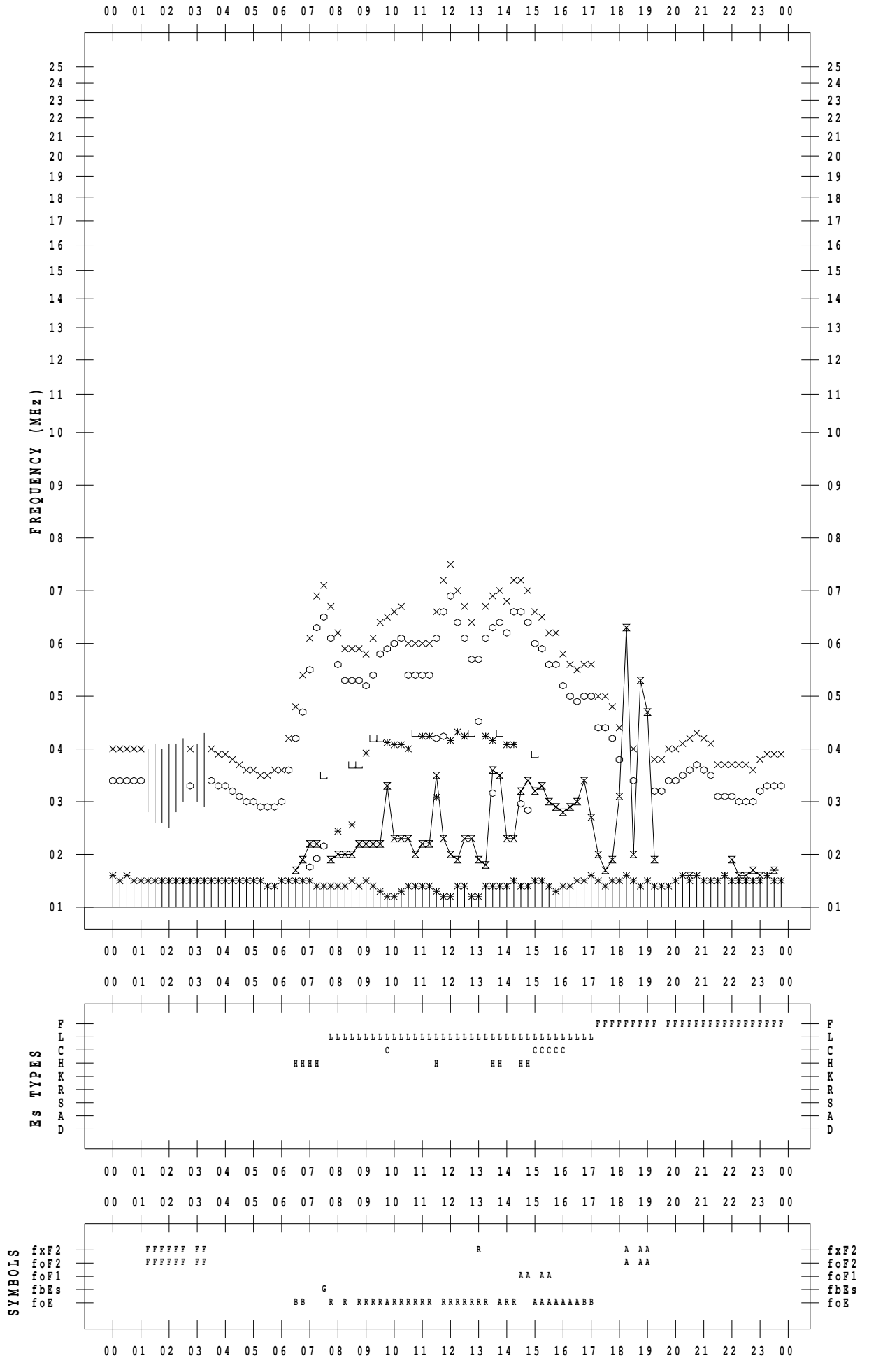
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2009/ 2/25

135 °E MEAN TIME



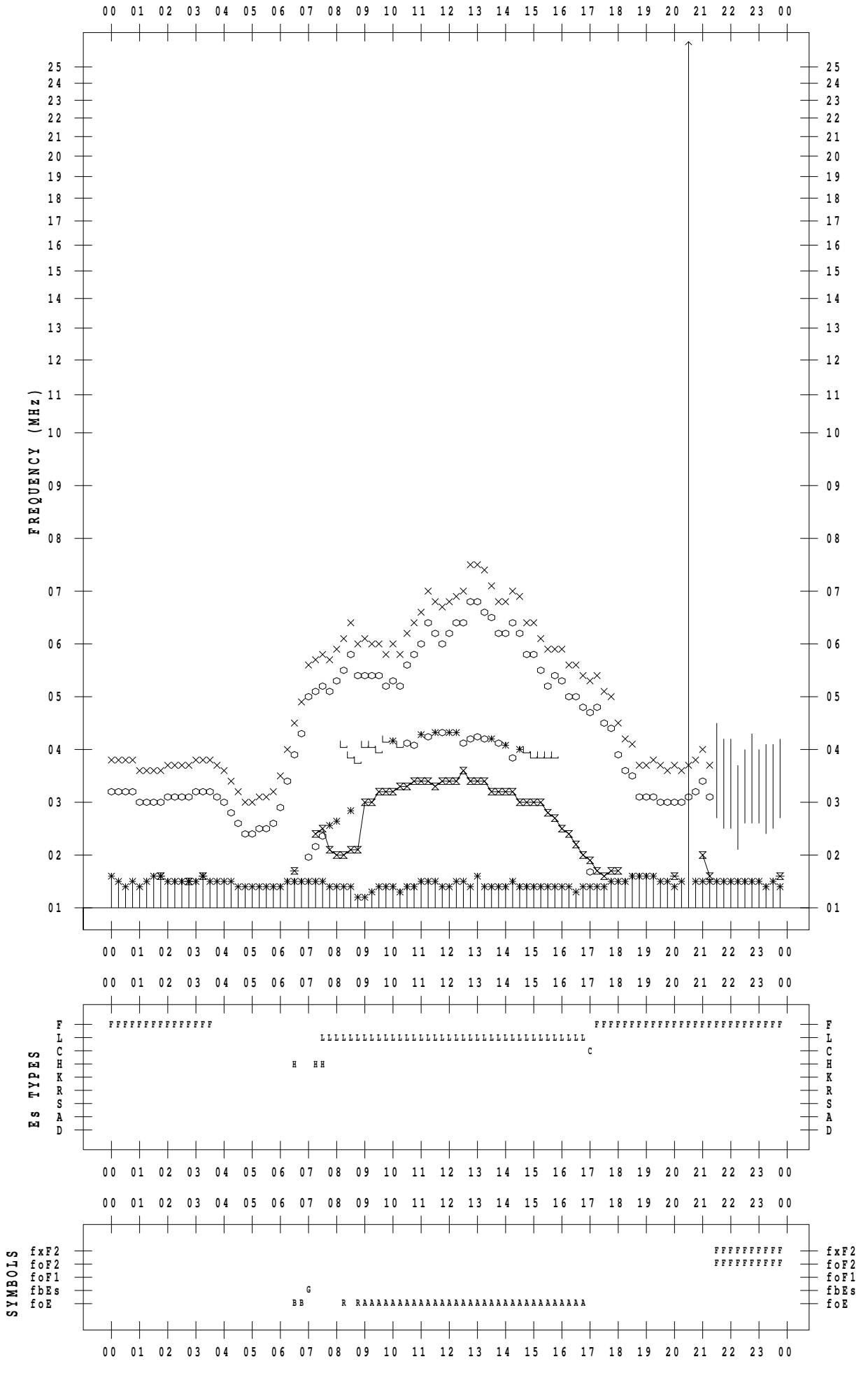
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2009/ 2/26

135 °E MEAN TIME



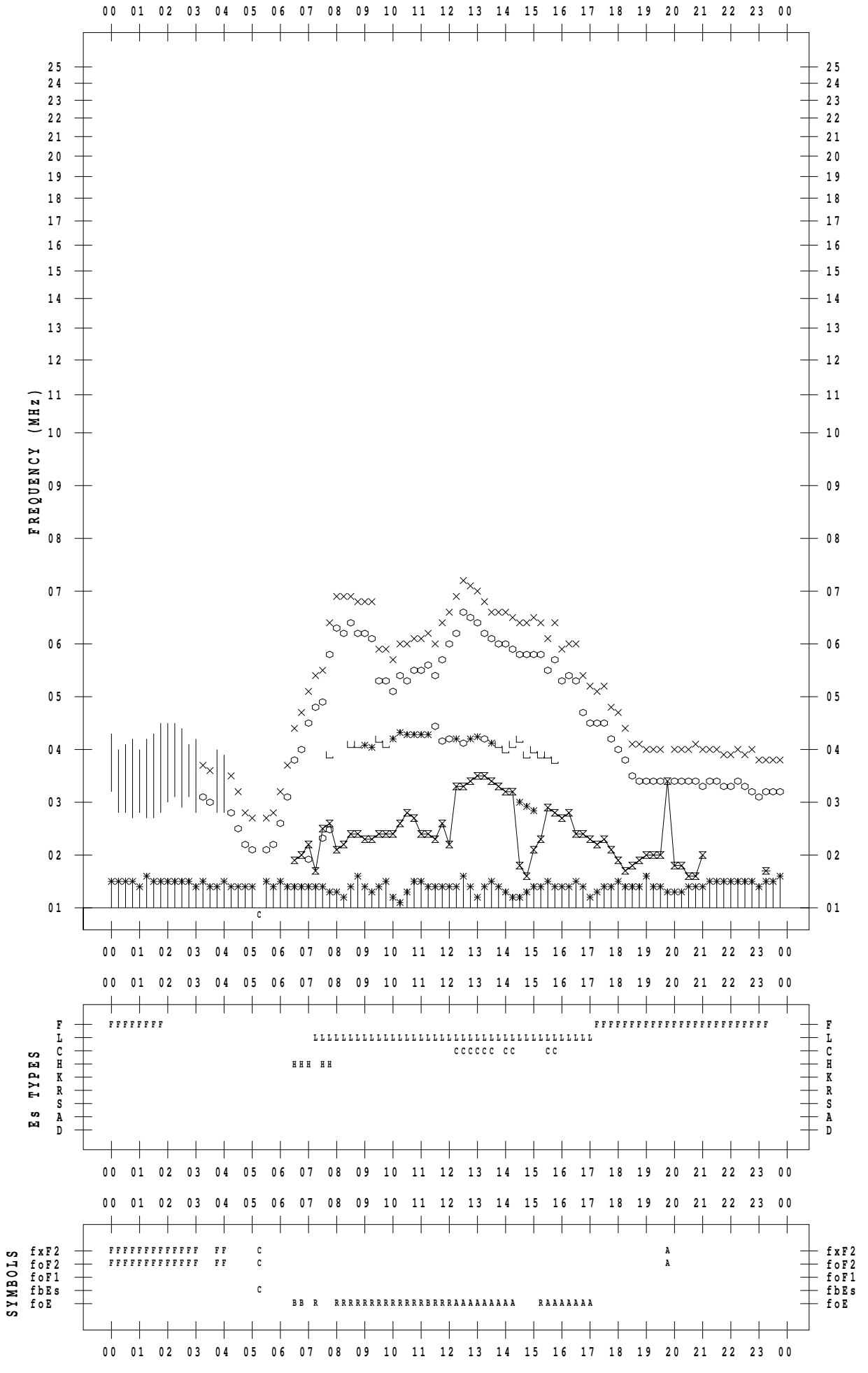
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2009/ 2/27

135 °E MEAN TIME



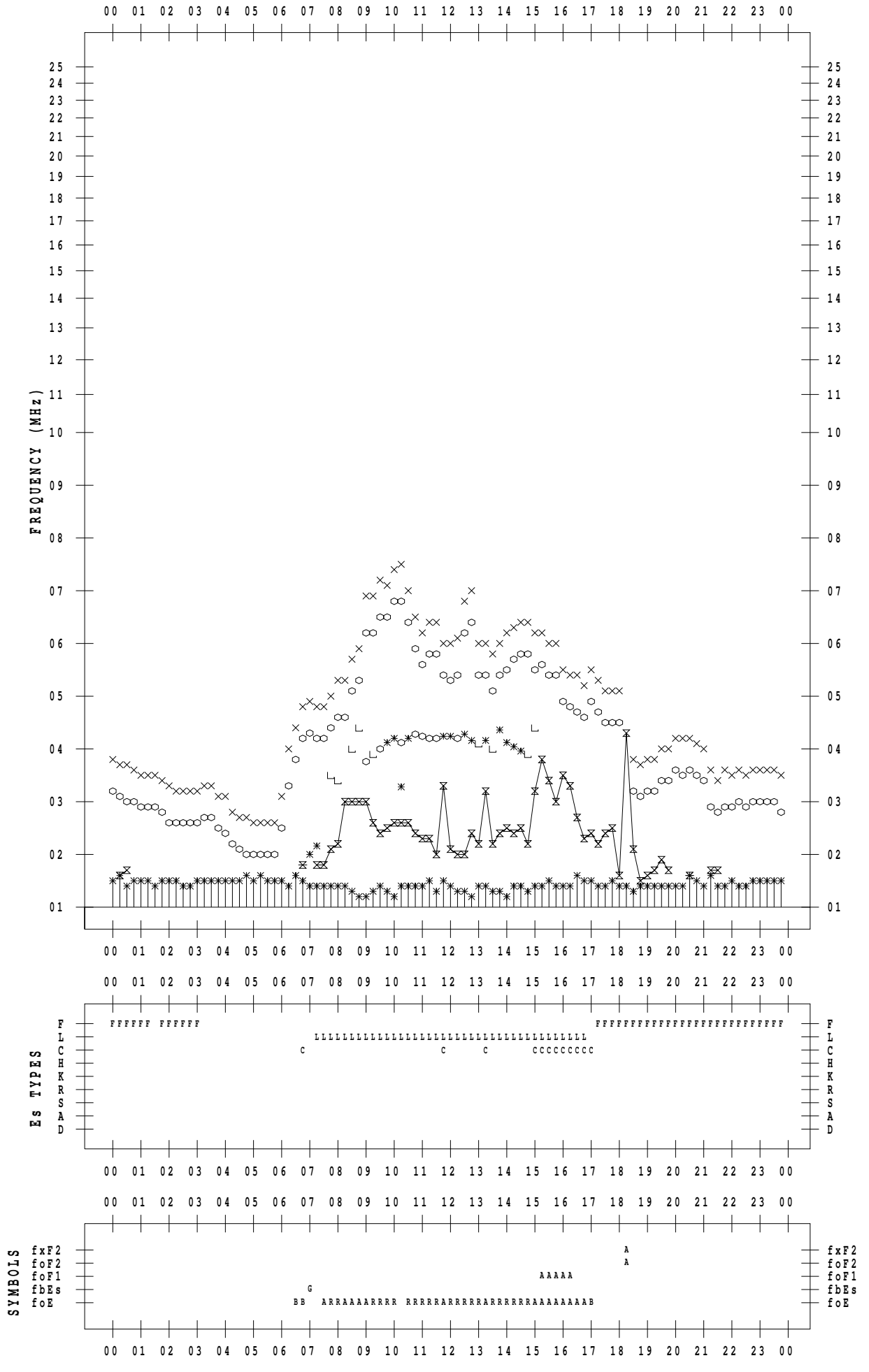
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2009/ 2/28

135 °E MEAN TIME



B. Solar Radio Emission
B1.Outstanding Occurrences at Hiraiso

Hiraiso February 2009

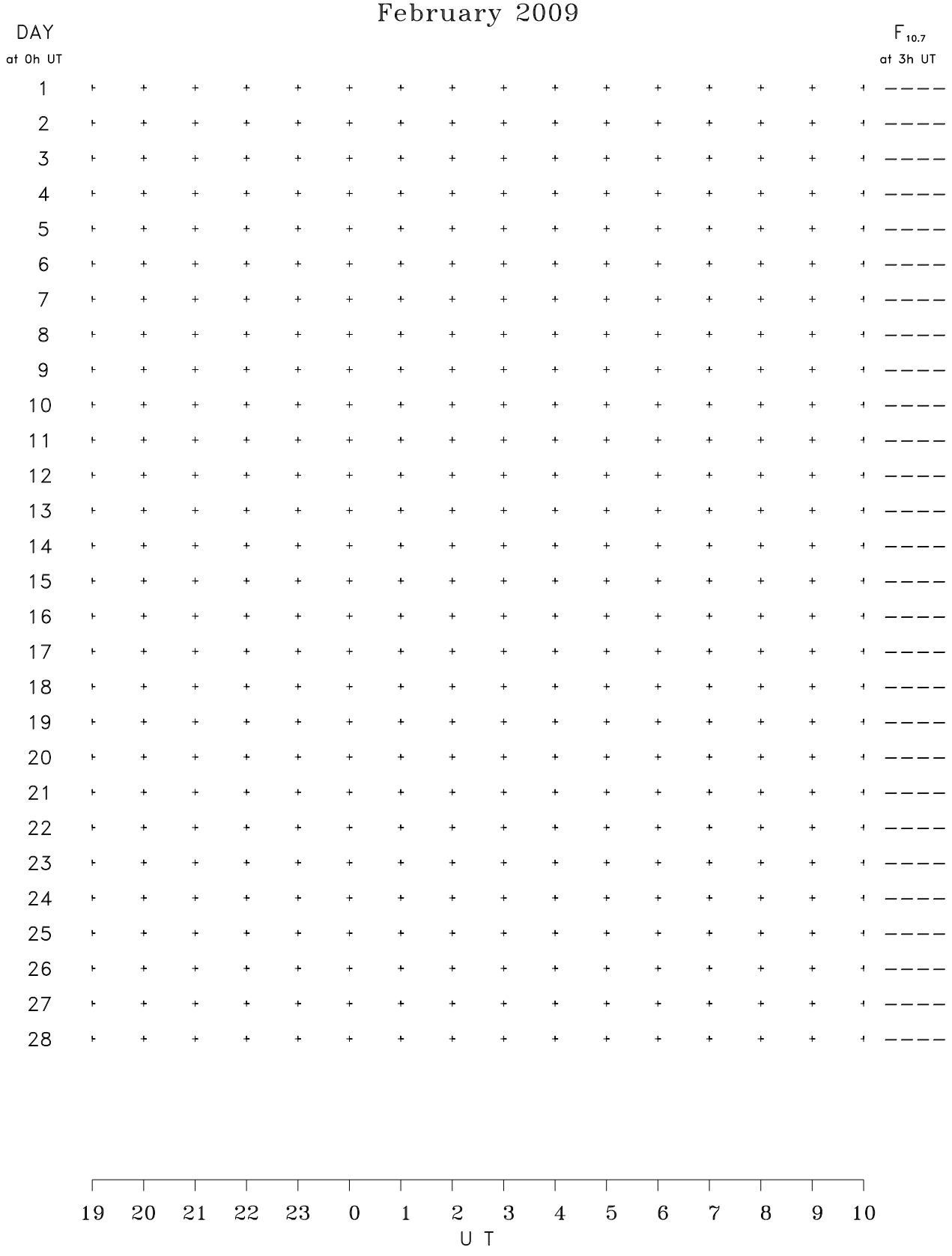
Single-frequency observations
Normal observing period: **** - **** U.T. (sunrise to sunset)

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

No data for the 2800MHz fixed-frequency observation are available due to system maintenance.

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

February 2009



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