F-758

IONOSPHERIC DATA IN JAPAN

FOR FEBRUARY 2012

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CONTENTS

≪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. 2012

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	32	42	44	44	42	34	29	52	60	68	76	59	59	87	70	64	67	62	44	34	A	32	32	40
2	38	42	42	37	37	37	34	58	60	65	61	70	69	72	70	68	68	66	A	A	A	A	A	A
3	34	34	37	38	34	34	33	54	70	70	66	76	70	73	68	65	68	53	A	A	A	A	32	34
4	34	34	30	34	36	29	N	46	68	73	71	74	91	85	67	66	56	51	52	34	A	A	43	40
5	47	32	44	46	43	34	42	63	68	91	N	69	74	70	68	69	65	63	44	A	28	31	32	34
6	29	33	34	37	34	31	29	50	58	68	74	91	88	69	67	74	62	58	40	34		30	32	34
7	34	34	34	34	34	34	34	50	65	74	68	91	N	91	71	70	71	63	37	32		32	46	46
8	32	38	37	31	30	31	N	53	65	79	71	91	59	68	74	82	65	66	63	58	54	52	52	54
9	62	52	62	64	57	47	40	54	67	N	70	59	59	59	67	68	66	56	44	52	50	44	47	45
10	45	47	46	44	34	34	30	54	66	71	69	85	63	66	74	70	N	58	40	34	29	32	32	34
11	34	34	34	34	37	28	A	60	67	64	72	70	88	69	65	75	68	64	34	36		32	28	34
12	22	32	37	34	42	42		58	66	68	59	90	86	59	74	64	67	67	62	A	34	44	52	32
13	34	53	48	51	52	60	52	58	68	67	66	92	92	85	70	68	67	56	47	52	34		51	52
14	34	34	34	34	44	36	36	54	65	67	59	107	N	N	71	68	67	66	54	34	34	32	34	32
15	34	34	34	32	34	32	32	53	70	81	91	59	91	86	87	81	87	70	58	36	N		34	34
16		37	32	34	34	34	22	58		A	90	85	100	90	47	78	60	72	64	53	A	31		32
17	32	34	34	34	34	32	30	60	67	85	70	82	54	91	74	84	70	61	A	34	32	A	A	34
18	34	34	32	28	32	34	43	58	64	66	69	96	91	64	71	74	66	64	54	44	34	32	32	34
19	32	34	32	32	32	34	37	61	67	67	84	67	79	91	92	91	81	68	50	30	32	34	34	A
20	34	32	34	34	34	34	34	62	64	59	91	87	91	90	91	82	62	70	57	A	34	N		34
21	34	35	34	34	34	34	32	46	61	65	67	59	88	81	70	70	65	62	54	38	35	37	32	34
22	34	34	34	42	41	38	N	58	64	66	73	60	91	91	68	72	78	67	55	34	34	34	34	32
23	32	40	34	32	32	34	59	64	64	67	89	69	86		87	67	N	66	48	34	34	29	32	31
24	29	32	34	32	32	34	34	62	66	66	66	93	60	83	58	80	67	65	50	43	34	A	36	34
25	34	34	37	34	34	34	36	65	66	69	67	96	91	96	80	74	69	67	64	35	42	34	A	A
26	34	A	54	20	34	34		62	67	69			59	88	70	70	70	66	57	34	34	38		37
27	32	32	34	32	34	34	34	71	74	48	74	59	91	N	68	59	66	65	35	58	34	34	34	32
28	34	34	34	32	34	N	32	58	65	74	59	89	94	110	88	88	67	67	63	62	54	54	34	61
29	60	52	55	53	63	53	54	66	82	59	89	94	79		87	59	70	74	61	27	34	35	34	34
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	29	29	29	28	23	29	28	27	27	28	27	25	29	29	27	29	26	24	20	21	23	26
MED	34	34	34	34	34	34	34	58	66	68	70	84	86	85	70	70	67	65	53	34	34	34	34	34
U Q	34	39	43	40	41	35	40	62	67	73	76	91	91	90	77	79	70	67	58	48	34	37	43	40
L Q	32	34	34	32	34	34	32	53	64	66	66	68	63	69	68	67	65	61	44	34	34	32	32	34

HOURLY VALUES OF fEs AT Wakkanai

FEB. 2012

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	G	G	G	G	26	G	G	44	48	G	50	50	42	G	39	G	G	G	26	G	70	G	36	26
2	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	35	37	37	59	40	37	34	34	34
3	G	25	G	G	G	G	G	G	G	G	G	G	40	G	36	63	39	36	40	50	44	37	G	G
4	26	G	G	G	G	G	G	30	38	52	61	G	G	G	G	38	38	G	G	26	50	39	36	33
5	26	G	G	G	G	G	G	39	50	37	37	G	G	G	G	G	36	33	34	34	G	G	G	27
6	33	27	26	24	G	G	G	G	30	34	40	38	G	39	G	G	G	G	G	G		G	26	27
7	26	28	G	G	G	G	G	G	32	35	G	G	G	G	G	36	G	27	G	G		G	G	G
8	G	G	G	G	G	G	23	28	G	G	G	G	G	G	39	G	44	54	28	G	G	G	32	G
9	G	G	G	G	G	G	G	G	40	G	50	G	G	G	G	G	31	30	31	33	G	G	26	G
10	G	G	G	G	32	26	25	G	G	G	G	G	G	G	G	G	45	27	G	G	G	G	G	G
11	G	G	G	G	G	G	28	G	G	G	G	G	G	38	G	44	42	G	G	G		G	G	G
12	G	G	G	G	G	G		35	G	G	G	G	G	G	39	40	43	35	40	42	33	35	33	32
13	29	G	G	G	G	G	G	G	G	39	G	G	G	G	G	G	G	G	G	G	G		G	G
14	24	G	24	G	G	G	G	G	32	G	46	G	G	G	G	G	48	G	G	G	G	G	G	G
15	G	G	G	G	G	G	G	G	32	38	G	G	G	G	G	38	30	28	29	24	28		G	G
16		G	G	G	G	G	25	35		73	57	G	40	50	G	G	G	G	36	30	30	31		G
17	27	24	27	G	G	G	G	G	G	G	38	G	N	G	G	G	G	32	44	36	35	44	40	G
18	G	G	G	G	G	G	G	G	G	50	53	41	40	G	G	G	G	G	36	33	39	G	G	G
19	G	G	G	G	G	32	G	G	G	G	G	G	G	G	G	G	33	G	G	G	G	G	G	29
20	G	G	G	G	G	G	G	G	36	37	58	G	G	G	G	G	G	35	35	84	30	G		26
21	G	G	G	G	G	G	G	G	G	40	60	G	G	G	G	G	G	G	G	G	G	G	30	G
22	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	27	G	G	25	G	G
23	G	G	G	G	G	G	G	G	G	G	40	G	G		G	G	G	G	G	G	G	G	G	G
24	G	G	G	G	G	G	G	G	G	G	57	G	G	G	G	G	38	G	33	G	G	28	28	G
25	28	G	G	G	G	G	G	G	G	G	G	G	G	G	G	63	38	32	50	40	30	36	49	83
26	28	39	27	26	28	G		30	40	67			G	41	G	G	36	26	25	G	G	39		25
27	G	G	G	G	G	G	G	G	G	39	G	G	G	G	G	G	G	G	28	26	G	G	G	G
28	G	G	G	G	G	G	G	29	35	51	G	G	G	G	G	G	G	G	G	27	G	G	G	28
29	28	G	G	24	27	G	G	33	36	38	39	G	G		G	35	G	32	31	G	G	G	G	G
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	29	29	29	29	29	27	29	28	29	28	28	28	27	29	29	29	29	29	29	26	27	26	29
MED	G	G	G	G	G	G	G	G	G	G	19	G	G	G	G	G	30	G	28	G	G	G	G	G
U Q	26	G	G	G	G	G	G	29	35	39	50	G	G	G	G	35	38	32	35	33	33	34	32	27
L Q	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G

HOURLY VALUES OF fmin AT Wakkanai

FEB. 2012

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	16	15	15	15	14	14	15	17	18	14	14	14	15	16	15	18	22	14	14	15	14	14	14	15
2	14	14	16	14	15	15	15	16	18	15	15	15	20	18	32	24	18	14	14	14	14	14	14	14
3	15	15	14	15	15	17	14	15	17	28	33	38	20	20	27	17	14	14	14	14	15	14	15	14
4	14	15	14	14	14	14	18	14	15	14	15	14	14	14	14	14	15	15	14	15	14	14	14	14
5	14	14	15	15	14	15	14	16	14	14	14	14	14	14	14	14	14	14	15	14	15	17	14	15
6	14	14	15	15	15	14	14	20	14	14	14	14	14	14	14	14	20	14	14	14		14	14	14
7	14	14	15	15	15	14	15	17	14	14	14	14	14	14	14	14	14	14	16	15		15	14	14
8	16	15	14	14	14	14	20	14	15	14	16	16	14	14	15	14	14	14	14	14	15	15	14	14
9	15	15	14	14	14	15	14	16	14	15	21	41	23	22	29	17	17	14	14	14	14	15	14	14
10	14	14	14	14	14	14	16	18	18	14	15	16	14	15	15	15	15	14	14	14	14	15	17	14
11	15	15	14	15	15	15	15	18	15	15	17	15	15	14	14	14	14	15	15	15		15	15	15
12	16	14	14	15	14	14		20	14	16	15	16	15	15	15	15	15	14	14	15	14	15	14	14
13	14	14	14	15	14	14	14	15	29	15	15	15	15	14	15	14	14	16	15	15	15		15	15
14	14	14	14	14	14	15	14	18	14	14	17	16	14	15	15	14	15	15	15	14	15	15	14	15
15	14	15	14	14	14	15	15	20	15	15	16	15	16	15	15	14	15	14	14	15	14		15	14
16		15	15	14	15	16	15	14		14	15	16	15	14	14	14	14	14	14	14	14	15		14
17	14	14	14	15	14	15	15	18	14	15	15	17	16	16	15	14	17	15	14	14	14	14	14	14
18	15	14	14	14	14	14	14	18	14	15	15	15	15	15	15	14	14	16	14	14	14	15	14	15
19	15	14	15	14	14	14	14	18	15	15	16	16	15	14	14	14	14	17	15	20	15	15	15	15
20	15	15	15	14	14	14	15	20	14	14	14	17	17	18	18	14	14	14	14	14	18	20		15
21	15	14	15	15	15	15	15	14	15	14	16	16	15	16	16	15	14	18	15	15	17	17	14	14
22	14	14	15	15	15	15	14	20	14	15	14	15	15	16	17	15	17	16	15	15	15	15	15	15
23	15	14	14	18	15	14	15	20	14	15	14	16	15		16	15	14	18	14	15	14	15	15	15
24	14	14	15	15	15	14	16	21	14	15	15	15	15	16	15	14	15	16	14	14	15	15	14	15
25	14	15	14	15	14	14	14	15	14	18	15	17	16	15	14	14	15	14	14	14	14	14	14	15
26	14	14	14	15	14	14		14	15	14			16	14	14	14	14	14	14	14	15	15		15
27	15	15	15	14	14	15	14	14	14	14	17	16	16	15	17	15	14	20	16	15	15	15	16	15
28	14	15	14	14	15	16	15	14	14	15	15	16	17	15	15	14	14	17	14	15	15	14	15	15
29	15	14	14	14	15	15	14	14	14	15	14	15	15		15	14	14	14	14	15	15	14	15	15
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	29	29	29	29	29	27	29	28	29	28	28	29	27	29	29	29	29	29	29	26	27	26	29
MED	14	14	14	15	14	14	15	17	14	15	15	16	15	15	15	14	14	14	14	14	15	15	14	15
U Q	15	15	15	15	15	15	15	19	15	15	16	16	16	16	16	15	15	16	15	15	15	15	15	15
L Q	14	14	14	14	14	14	14	14	14	14	14	15	14	14	14	14	14	14	14	14	14	14	14	14

HOURLY VALUES OF foF2 AT Kokubunji

FEB. 2012

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	31	34		38	47			52	71	71	81	82	94	92	90	80	74	67						A
2		31	30		32	N	N	53	73	84	81	73	83	88	94	104	82	73	49					
3	A	37	A	42	A		N	54	80	75	90	75	91	100	98	80	67	66	52	32	A		A	A
4	A	A	A	34	A			54	77	77	86	81	85	88	78	75	66	58	A	A	A			A
5	A	A	A	A	41	A	N	69	81	96	121	110	110	97	91	76	63	54	54	44	43	N	A	
6		N	A	A	A	A		53	74	80	84	83	96	84	84	72	71	56	A			N	28	
7	A		28	N	N	27		61	72	80	86	88	100	86	91	86	68	54						
8	28		N			N		53	81	77	97	77	91	88	86	76	75	58	45		44	A	34	
9	34				44	30	27	59	76	78	73	82	88	90	76	77	66	57	A	A	A	46		
10		N	43	46	46		A	53	66	71	81	90	86	100	81	74	69	65	49		28	A		
11	28	N	A	N			30	53	76	95	82	80	85	82	87	71	73	66	46		A	A		
12		A	34	36	N			54	62	76	81	90	105	98	76	72	68	64	52	53	A	A		44
13	44	44	44	53	52	A	44	64	76	72	82	87	87	101	81	77	66	69	44		A		A	A
14	A	N	32	28	42	N	36	54	85	92	98	82	96	88	81	75	74	62	54	53			N	
15		N	43	36	N	32	43	59	66	81	114	101	98	96	85	84	87	76	77		34	N	28	28
16	42			38			32	67	75	97	N	106	98	82	104	95	97	80	73	46	A	A	A	A
17	28		38	32	36	28	37	66	80	89	98	98	83	101	100	101	86	76	44	46	43	N		34
18				28	N	N	N	54	74	90	84	92	107	112	98	81	75	72	A	44	41		N	32
19	28	27	27	28	N		N	59	81	87	92	91	100	102	101	101	85	76	62			43		
20				43	44		N	61	80	80	93	105	114	96	81	91	87	67	64	52	38			
21	A	A			43		N	61	78	105	107	120	101	88	83	81	76	72	45	56	44			A
22	A	32	36		36	N	32	59	66	81	85	91	106	96	96	78	84	78	53	A	A		A	38
23	32		N	30	28			54	79	88	94	104	91	100	97	94	81	74	A	A	A	A	N	N
24	32	N	N			26	36	54	69	77	80	85	101	86	98	A	85	77	A	A	44		A	N
25	38	39		N	32	A		67	84	88	81	90	110	110	98	85	76	73	63	A	A		A	A
26	A	A	37			28		54	88	87	90	102	111	111	92	76	67	67	66		44	A		42
27		43	A	43	A	N	N	66	81	88	96	100	98	87	80	80	80	78	52					28
28		A		37				73	64	87	103	102	124	117	118	96	80	81	53	45	45	44	42	
29	30	44		44		28	44	75	89	90	95	97	A	112	104	95	91	82	66	47	46		36	
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	12	9	11	17	13	7	10	29	29	29	28	29	28	29	29	28	29	29	21	11	12	3	5	7
MED	32	37	36	37	42	28	36	59	76	84	88	90	98	96	91	80	75	69	53	46	44	44	34	34
U Q	36	43	43	43	45	30	43	65	81	89	96	101	105	101	98	92	84	76	63	53	44	46	39	42
L Q	28	31	30	31	34	27	32	54	71	77	81	82	89	88	81	76	68	63	47	44	39	43	28	28

HOURLY VALUES OF fEs AT Kokubunji

FEB. 2012

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	G	G	G	G	G	G	G	G						29
2		G	G		G	G	G	G	G	G	G	G	G	G	G	G	G	G	G					
3	28	27	34	24	31		G	G	G	G	G	G	G	G	G	G	G	G	30	G	30		53	59
4	27	33	31	28	35			G	G	G	G	G	G	69	G	G	45	30	53	54	55			50
5	29	37	31	36	25	24	G	G	G	G	G	G	G	G	G	G	G	29	33	27	28	G	34	
6		G	33	34	29	39		G	G	G	G	G	G	G	55	47	G	36	41	G		26	G	
7	26		G	G	G	G		G	G	G	G	G	G	G	G	G	32	G		G				G
8	G	G	G			G		G	G	G	G	G	G	G	G	G	G	G	G		G	30	G	
9	G				G	G	G	44	G	G	G	G	G	44	49	53	71	43	35	34	30	G	G	
10	G	G	G	G	G		29	31	G	G	G	G	G	G	G	G	G	G	G		G	29		
11	G	G	69	G			23	G	G	G	G	G	G	G	G	45	G	G	G		38	29	G	
12		35	G	31	G			G	G	G	G	G	G	G	G	G	42	G	G	28	34	36		G
13	G	30	G	G	G	27	G	47	G	G	G	G	G	G	G	G	G	G	G		40		37	25
14	30	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	34	G			G	
15		G	G	G	G	G	G	G	G	G	G	G	57	48	G	G	G	G	G		G	G	G	G
16	G		G	G			G	G	G	49	50	69	73	64	G	G	37	37	35	G	56	31	50	43
17	G		25	G	G	G	G	G	G	G	G	G	G	51	51	G	G	G	G	G	G	G		G
18				G	G	G	G	G	G	G	N	G	G	G	G	G	35	29	27	G	G		G	G
19	G	G	G	G	G		G	G	G	G	G	G	G	G	G	G	G	G	G			G		
20				G	G		G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G		
21	34	28	G		G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G			28
22	32	G	G		G	G	G	G	G	G	G	G	G	G	G	G	G	G	27	35	33		33	G
23	G		G	G	G			G	G	G	49	50	52	G	G	G	48	G	90	37	50	34	G	G
24	G	G	G		G	G	G	G	G	G	G	G	G	G	G	96	57	60	57	31	23		32	G
25	G	G		G	G	35		G	G	G	G	48	G	60	50	51	52	60	47	50	30		49	36
26	28	25	G			G	G	G	G	G	G	G	G	G	G	45	41	45	33		G	24		G
27		26	33	26	26	G	G	G	G	G	G	G	G	G	G	G	G	G	G					G
28		27		G		G		G	G	G	G	49	G	G	G	G	G	G	G	G	G	G	G	
29	G	G		26	G	G	G	G	G	G	G	G	68	47	53	G	G	46	42	34	33		G	
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	21	22	22	22	24	19	20	29	29	29	28	29	29	29	29	29	29	29	27	19	22	15	17	17
MED	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	27	G	29	24	G	G
U Q	28	27	31	26	G	G	G	G	G	G	G	G	G	22	G	G	39	33	35	34	34	30	35	32
L Q	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G

HOURLY VALUES OF fmin AT Kokubunji

FEB. 2012

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	20	17		20	18			21	35	39	39	42	42	40	38	36	34	40						15
2		20	15		13	18	14	21	38	38	37	42	45	44	40	40	35	33	38					
3	15	17	15	17	13		15	21	39	43	54	44	43	56	55	43	39	35	13	15	22		18	14
4	17	14	15	14	18			33	40	44	44	42	56	39	42	40	28	14	14	14	17			15
5	17	15	15	14	14	15	15	21	36	39	40	42	42	43	43	20	15	14	15	18	17	20	13	
6		17	14	14	15	14		21	35	17	40	42	43	42	36	14	17	17	14	17		15	21	
7	18		15	14	18	18		33	31	39	42	40	44	17	40	15	14	37		20				18
8	15	22	14			15		15	39	40	42	39	45	40	40	36	34	22	15		17	13	22	
9	21				18	17	21	17	36	40	40	54	43	44	33	35	22	14	17	14	14	17	33	
10	17	14	18	15	17		13	15	17	40	44	44	42	43	40	20	33	23	18		17	15		
11	17	14	17	18			15	39	37	40	44	43	44	44	43	31	15	14	14		14	13	13	
12		14	20	20	14			15	37	38	42	44	44	43	35	40	22	13	14	13	15	14		17
13	14	14	15	20	18	14	17	33	18	40	48	43	44	44	21	37	14	15	20		20		15	15
14	14	20	17	15	14	15	15	37	14	20	44	42	43	43	40	21	17	22	14	14			15	
15		21	21	17	18	15	14	35	39	39	42	42	40	40	44	39	36	20	14		15	20	14	20
16	18		21	14			14	33	40	17	39	35	35	25	42	42	15	14	14	14	18	14	14	13
17	18		13	17	17	20	14	36	18	39	40	43	43	33	36	22	35	33	14	17	14	21		18
18				17	14	14	14	36	37	40	20	40	43	44	43	21	17	14	17	14	20		20	17
19	18	14	18	17	15		18	34	38	40	20	43	44	43	38	39	37	36	18			15		
20				14	15		18	36	18	18	43	46	44	74	40	39	39	23	14	17	18	30		
21	15	14	23		20	20	15	38	39	39	43	42	46	42	43	44	17	35	43	14	15			13
22	22	18	14		18	21	18	34	39	18	40	44	43	43	44	47	35	33	14	18	17		14	18
23	17		21	20	17			33	33	40	40	39	34	39	40	41	30	14	37	15	25	14	15	18
24	17	14	20		15	15	14	34	18	40	44	44	53	40	45	18	14	14	14	13	13		15	20
25	18	18		22	14	15		33	17	38	40	34	49	35	31	20	33	24	20	14	14		14	14
26	14	15	20			18	17	36	14	21	42	43	44	42	20	40	17	17	15		17	14		17
27		14	14	13	15	15	15	35	39	20	44	44	52	42	45	40	35	21	15					17
28		15		20		22		34	37	39	42	33	43	43	40	35	17	24	14	21	42	21	15	
29	15	15		14	15	18	17	38	21	38	43	42	38	43	36	21	15	14	21	14	14		20	
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	21	22	22	22	24	19	20	29	29	29	29	29	29	29	29	29	29	29	27	19	22	15	17	17
MED	17	15	16	17	15	15	15	33	36	39	42	42	43	43	40	36	22	21	15	14	17	15	15	17
U Q	18	18	20	20	18	18	17	36	39	40	44	44	44	43	43	40	35	33	18	17	18	20	20	18
L Q	15	14	15	14	14	15	14	21	18	29	40	41	42	40	36	21	16	14	14	14	14	14	14	14

HOURLY VALUES OF foF2 AT Yamagawa

FEB. 2012

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	34	36	38	42	41	35	30	40	58	73	75	69	77	88	79	N	79	78	55	47	43	51	40	N
2	31	34	32	29	18	32	30	40	67	78	78	76	73	78	69	79	N	77	69	44	42	34	34	34
3	32	32	N	34	32	31	30	40	67	77	80	69	69	79	69	77	77	71	75	52	43	B	A	A
4	A	A	A	A	34		N	36	66	77	70	75	69	69	76	77	63	64	63	A	A	B	A	B
5		34	34	32	37	29	31	38	64	76	69	69	69	79	62	81	77	76	57	53	43	26	B	B
6	A	B	31	32	34	B	B	32	67	78	77	78	N	75	69	59	77	67	54	A	A		34	N
7	N	A	36	34	29	B	28	42	67	81	78	69	61	59	114	78	76	67	52	43	B	29	34	37
8	34	34	37	42	B	B	B	37	63	75	65	77	65	78	79	78	73	72	60	52	44	34		B
9	B	A	34	N	34	29	29	44	N	67	72	78	77	69	78	72	A	A	59	A	A	47	29	34
10	34	34	34	34	34	32	29	49	67	58	71	77	69	77	N	78	77	72	51	43	32	28	32	B
11	34	59	34	38	34	30	29	42	63	77	N	77	79	76	N	76	76	66	58	50	A	40	29	A
12	A	A	28	A	34	28	B	42	54	74	74	76	78	69	N	78	57	67	64	46	43	32	30	
13	A	A	34	31	36	29	30	43	58	66	78	59	59	59	82	N	89	67	64	44	43	44	31	A
14	A	A	34	40	44	34	B	45	67	C	C	C	C	C	C	C	C	66	67	53	50	40	A	34
15	34	40	42	44	46	37	37	58	72	75	65	78	74	78	60	77	C	78	76	51	41	44	44	36
16	34	39	42	47	31	B	29	52	67	C	C	C	C	C	C	C	C	79	72	52	47	119	N	30
17	31	A	A	34	34	29	59	44	69	C	90	69	63	69	115	89	N	N	77	48	44	44	N	N
18	B		59	34	A	A	28	45	67	49	76	76	76	79	61	79	78	81	A	44	37	32	29	26
19	34	32	32	32	36	31	29	44	N	74	78	59	N	69	65	79	N	76	77	55	36	47	43	32
20	34	31	37	42	A	29	30	52	66	78	64	69	58	78	77	82	N	N	71	54	52	52	43	34
21	32	34	34	36	45	28	B	47	70	76	69	74	80	77	77	86	77	71	78	52	51	38	29	30
22	32	31	29	37	43	36	B	43	62	73	78	N	N	78	60	74	80	77	67	40	44	44	43	36
23	A	34	32	32	37	34	29	47	72	75	86	88	69	98	74	57	N	87	74	53	42	46	32	26
24	32	34	38	40	48	30	B	47	69	68	72	77	69	N	59	94	86	85	72	46	43	30	A	34
25	34	A	A	36	40	B	30	52	67	78	94	88	87	69	69	69	61	89	74	39	42	41	43	37
26	43	40	44	38	B	B	N	53	74	70	69	92	N	69	69	N	78	72	74	67	49	36	28	34
27	34	32	40	40	40	B	B	51	77	58	74	86	75	80	76	89	77	77	66	47	N	51	44	42
28	42	34	A	35	A	38	32	54	67	73	73	69	69	69	N	N	79	76	71	54	54	53	51	38
29	40	40	42	34	34	34	34	52	72	76	77	86	79	69	60	97	N	84	78	65	47	48	37	36
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	19	19	24	26	24	20	19	29	27	26	26	26	23	26	23	23	19	26	28	26	23	26	21	18
MED	34	34	34	36	35	31	30	44	67	75	74	76	69	76	69	78	77	76	68	50	43	42	34	34
U Q	34	39	39	40	40	34	31	51	69	77	78	78	77	78	78	82	79	78	74	53	47	47	43	36
L Q	32	32	33	34	34	29	29	41	64	70	70	69	69	69	62	76	76	67	59	44	42	34	29	32

HOURLY VALUES OF fEs AT Yamagawa

FEB. 2012

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	G	G	G	G	G	G	G	G	G	G	N	G	46	49	46	41	39	G	G	G	G	G	G	G
2	G	G	G	28	G	G	G	G	G	G	G	G	41	G	G	G	G	G	G	G	G	G	G	G
3	G	G	G	G	G	25	G	G	G	G	G	G	G	G	G	G	G	G	G	27	28	B	27	38
4	34	53	37	27	G	G	G	23	G	G	46	52	54	55	55	56	52	G	34	36	36	B	32	B
5	G	G	G	G	G	G	G	G	G	40	120	G	G	G	G	40	41	32	G	G	G	36	B	B
6	26	B	G	G	G	B	B	G	G	G	G	G	49	G	G	45	36	50	35	44	39	G	G	G
7	G	32	28	G	G	B	G	G	G	G	40	G	49	56	G	G	43	44	40	G	B	G	G	G
8	G	G	G	G	B	B	B	25	G	G	G	G	G	53	G	G	G	G	G	G	G	G	G	B
9	B	26	31	G	G	G	G	28	50	G	G	G	44	49	48	61	88	70	28	53	33	G	30	32
10	24	G	G	G	G	G	G	G	33	44	44	42	G	G	G	45	G	G	20	30	27	25	G	B
11	31	G	G	G	G	G	G	G	34	G	G	G	G	G	G	46	37	G	G	G	45	59	33	36
12	49	30	32	40	G	G	B	32	39	42	G	54	71	52	G	G	G	34	G	G	G	G	G	G
13	40	38	34	28	G	G	30	26	G	G	40	G	42	G	G	40	42	G	28	30	28	32	24	33
14	49	46	G	G	G	G	B	G	32	C	C	C	C	C	C	C	C	37	G	G	G	G	39	G
15	G	G	G	G	G	G	G	G	52	G	G	G	G	60	52	40	C	34	G	40	24	G	24	27
16	G	30	G	G	32	B	G	26	33	C	C	C	C	C	C	C	C	72	55	32	G	G	G	G
17	G	40	41	27	G	G	G	28	33	C	51	47	51	54	49	42	37	45	35	29	G	G	G	G
18	B	G	G	G	33	36	G	G	G	G	39	G	G	50	G	G	43	41	42	28	G	G	G	G
19	G	G	G	24	G	G	G	G	G	G	G	G	G	G	G	G	G	38	G	32	G	G	G	G
20	G	G	G	G	29	27	G	G	G	G	G	G	G	G	G	G	G	G	G	27	G	G	G	G
21	G	G	G	25	27	G	B	G	48	G	G	G	G	G	G	G	G	G	G	G	G	23	G	G
22	G	G	G	G	G	G	B	G	G	42	G	G	G	G	G	G	G	G	G	G	29	32	40	G
23	35	G	G	G	G	G	G	G	G	G	44	50	46	48	73	G	G	32	37	11	G	26	G	G
24	G	G	G	G	G	G	B	G	55	N	G	G	44	52	56	48	G	G	G	G	G	32	46	G
25	24	33	28	G	G	B	G	G	52	40	G	50	58	56	54	58	51	51	42	38	G	35	G	G
26	G	G	G	36	B	B	24	34	G	G	G	G	G	G	G	43	39	35	G	G	G	G	G	G
27	G	G	G	32	32	B	B	G	G	G	G	G	G	G	G	G	G	G	G	G	27	32	G	26
28	32	G	38	G	40	G	G	G	34	G	G	G	G	44	G	G	G	G	28	G	G	G	G	G
29	G	G	G	G	G	G	G	26	33	G	G	G	G	G	G	G	38	34	28	28	40	31	G	G
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	29	29	27	22	21	29	29	25	26	27	27	27	27	27	26	29	29	29	28	27	28	25
MED	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	18	32	G	11	G	G	G	G
U Q	31	30	28	26	G	G	G	25	34	G	40	G	46	52	48	45	41	39	34	31	28	32	25	13
L Q	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G

HOURLY VALUES OF fmin AT Yamagawa

FEB. 2012

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	15	15	15	16	15	15	15	15	22	15	16	18	21	20	18	23	16	16	17	16	18	17	16	20
2	16	17	16	15	18	15	16	16	23	14	17	36	24	26	20	18	16	22	17	18	18	18	16	15
3	15	16	15	15	15	15	16	15	14	18	40	46	43	54	45	52	26	26	28	15	15	B	15	14
4	15	15	15	16	16	17	17	15	18	33	18	26	23	27	29	21	18	15	16	16	14	B	15	B
5	22	66	16	15	15	15	15	16	14	17	18	42	42	44	22	17	17	14	15	18	17	17	B	B
6	15	B	20	18	16	B	B	18	14	14	17	20	20	23	20	17	15	24	14	15	15	26	17	21
7	15	18	16	16	15	B	15	16	14	15	16	18	24	16	18	17	14	14	15	17	B	18	15	16
8	15	15	15	17	B	B	B	17	15	18	18	39	44	21	36	18	18	23	17	15	15	15	71	B
9	B	18	15	15	15	15	17	14	20	17	35	41	36	20	24	17	15	14	15	14	15	16	15	14
10	15	16	20	14	15	15	16	16	15	16	20	23	23	21	21	18	14	15	17	15	15	17	17	B
11	14	18	14	15	14	16	17	17	14	15	16	24	35	44	17	18	20	15	17	16	15	15	17	14
12	15	16	15	14	14	66	B	15	15	16	15	26	18	18	22	17	15	20	16	15	15	14	17	17
13	14	14	15	16	15	16	17	17	14	14	15	17	20	18	22	18	15	15	14	14	15	14	15	15
14	14	15	16	15	16	14	B	17	15	C	C	C	C	C	C	C	C	14	17	15	15	15	16	17
15	16	16	20	15	15	15	16	17	14	16	16	18	18	18	24	20	C	15	17	15	17	15	16	15
16	15	15	15	16	15	B	17	17	14	C	C	C	C	C	C	C	C	14	14	14	16	15	14	15
17	15	14	14	14	15	15	15	15	14	C	17	22	20	22	18	16	18	16	15	18	17	15	18	20
18	B	66	15	15	15	16	18	17	15	14	21	18	20	20	20	18	16	14	14	14	16	15	17	16
19	15	15	16	15	15	17	15	15	16	18	20	21	21	26	18	17	15	15	17	15	16	17	15	15
20	16	16	15	16	14	14	20	18	16	17	18	22	20	24	27	18	15	14	18	16	17	15	15	15
21	15	15	15	16	15	15	B	18	16	17	20	18	20	24	20	18	17	15	17	15	15	15	16	15
22	18	16	20	14	14	14	B	17	14	15	18	18	17	18	21	21	17	14	18	15	14	14	15	15
23	15	15	17	18	17	15	15	18	14	14	17	20	23	18	18	20	16	14	14	14	15	15	18	15
24	15	15	15	14	15	15	B	20	15	16	17	21	21	24	23	18	16	15	18	18	16	16	14	17
25	15	15	15	14	15	B	15	17	15	16	18	20	20	20	18	17	16	15	14	15	18	15	18	16
26	18	16	15	14	B	B	16	15	14	17	18	21	20	26	20	16	17	14	18	16	14	15	21	20
27	15	20	15	16	15	B	B	21	18	16	18	26	44	42	14	14	18	15	20	17	17	15	15	16
28	14	15	14	15	14	16	14	20	15	15	18	18	46	27	20	21	15	14	14	15	15	15	15	16
29	15	16	15	18	15	15	15	18	14	17	20	23	26	27	18	15	15	14	14	14	14	14	17	15
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	29	29	27	22	21	29	29	26	27	27	27	27	27	27	26	29	29	29	28	27	28	25
MED	15	16	15	15	15	15	16	17	15	16	18	21	21	23	20	18	16	15	17	15	15	15	16	15
U Q	15	16	16	16	15	16	17	18	16	17	20	26	35	27	23	20	17	15	17	16	17	17	17	17
L Q	15	15	15	14	15	15	15	15	14	15	17	18	20	20	18	17	15	14	14	15	15	15	15	15

HOURLY VALUES OF foF2 AT Okinawa

FEB. 2012

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	B	B	B	40	42	29	B	34	71	70	81	93	96	101	108	124	120	130	108	86	67	83	66	
2		B	38	41	34	30	B	41	67	71	88	88	93	96	108	130	127	131	110	107	87	73	63	52
3	B	B	32	B	32	B	B	36	72	88	100	111	119	121	128	142	130	120	108	108	86	54	51	B
4	34	40	42	41	A	B	B	34	67	78	88	88	90	103	113	98	86	75	A	58	45		52	44
5	41		34	B	34	29	B	59	70	88	108	126	131	134	133	148	131	124	90	74	A	52		
6	B		59	42	34	B	A		64	101	102	98	118	128	128	131	119	97	66	54	67	A	B	A
7	B	B	B	B	B	B	B	40	72	115	106	102	99	110	133	133	95	88	66	52	53	51	B	54
8	44		B	42	B	B	B		67	93	96	84	79	102	103	118	98	85	76	52	53	44	A	B
9	N		34	41	36	B	B	38	53	66	73	114	90	106	120	94	82	82	82	52	42	51	A	34
10	A	B	32	29	B	B	34	44	59	78	83	92	100	118	131	128	90	97	70	61	A	52	A	43
11	32	34	B	36		B	B		81	86	82	98	117	126	131	128	100	87	67	66	47	44	A	A
12	A			38	B	A		41	61	68	82	90	102	110	128	131	118	94	76	53	53	53	38	B
13	A	B	B		30	30	N	43	63	68	88	106	106	121	137	132	134	95	87	71	53	54	44	
14	B	B	A	34	40	N	B	41	66	84	90	96	100	104	107	98	84	87	88	60	53		31	N
15	29		B	36	38	B	B		80	84	106	102	85	96	117	117	111	113	103	81	54	77	54	51
16	52	51	B	47		B	B	46	67	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	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	6	3	7	12	9	4	1	12	16	15	15	15	15	15	15	15	15	15	14	15	13	12	8	6
MED	38	40	34	40	34	30	34	41	67	84	88	98	100	110	128	128	111	95	84	61	53	52	52	48
U Q	44	51	42	41	39	30	17	43	71	88	102	106	117	121	131	132	127	120	103	81	67	63	58	52
L Q	32	34	32	36	33	29	17	37	63	70	82	90	90	102	108	117	90	87	70	53	50	51	41	43

HOURLY VALUES OF fEs AT Okinawa

FEB. 2012

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	B	B	B	G	G	G	B	G	G	G	G	G	50	50	58	51	46	37	G	27	31	46	G	G
2	G	B	G	G	G	G	B	G	G	G	G	G	G	G	52	46	G	G	G	G	G	G	G	G
3	B	B	G	B	G	B	B	G	G	G	G	G	G	G	G	G	G	G	59	50	36	G	G	B
4	G	G	G	G	48	B	B	G	G	G	48	52	51	52	57	70	60	49	68	G	G	G	G	G
5	G	G	G	B	G	G	B	G	G	G	G	G	48	G	46	G	G	G	G	G	49	G	G	G
6	B	G	G	G	G	B	25	G	G	38	G	G	50	50	G	49	G	36	G	34	36	78	B	27
7	B	B	B	B	B	B	B	G	G	G	43	45	47	G	44	61	48	G	G	G	G	G	B	G
8	G	G	B	G	B	B	B	G	G	G	G	G	G	52	G	G	G	G	G	G	26	26	30	B
9	G	G	G	G	G	B	B	G	G	G	G	G	51	G	G	G	48	G	32	28	G	G	28	G
10	36	B	24	G	B	B	G	23	G	G	43	58	G	48	G	G	G	G	28	34	40	G	38	G
11	G	G	B	G	G	B	B	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	48	39
12	33	G	G	27	B	32	G	25	G	41	53	54	56	54	48	47	41	33	G	G	G	27	24	B
13	34	B	B	G	G	G	G	G	G	43	47	G	G	G	G	G	G	G	G	G	G	G	G	G
14	B	B	54	G	G	G	B	G	G	G	G	G	G	G	G	46	G	G	G	G	G	G	G	G
15	G	G	B	G	G	B	B	G	G	G	G	G	G	56	52	55	56	52	33	G	G	G	G	G
16	G	26	B	G	G	B	B	G	G	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	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
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	11	9	9	13	12	6	4	16	16	15	15	15	15	15	15	15	15	15	15	15	15	15	13	12
MED	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	46	G	G	G	G	G	G	G	G
U Q	33	G	12	G	G	G	13	G	G	G	43	45	50	52	52	51	48	36	32	28	36	26	29	G
L Q	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G

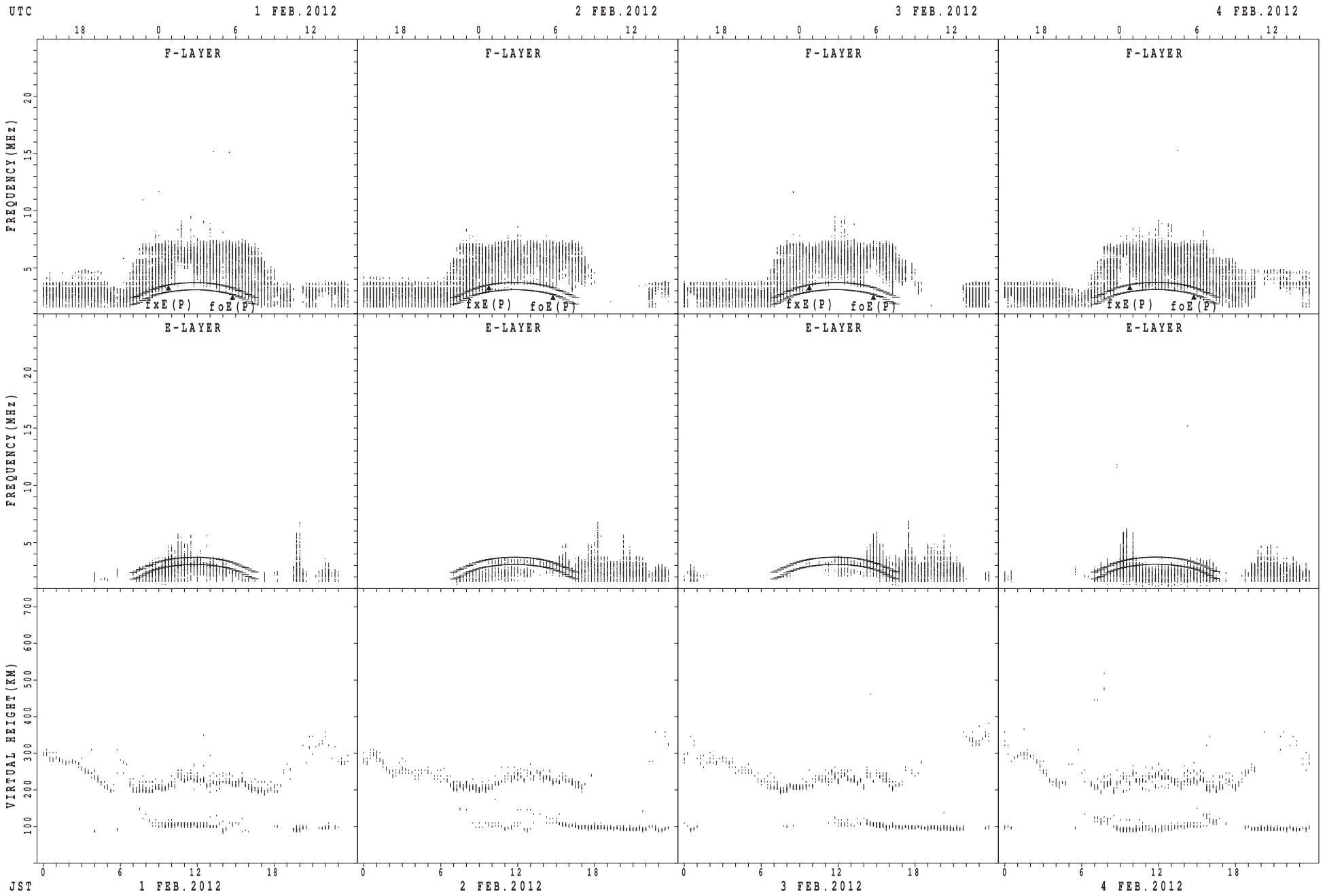
HOURLY VALUES OF fmin AT Okinawa

FEB. 2012

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

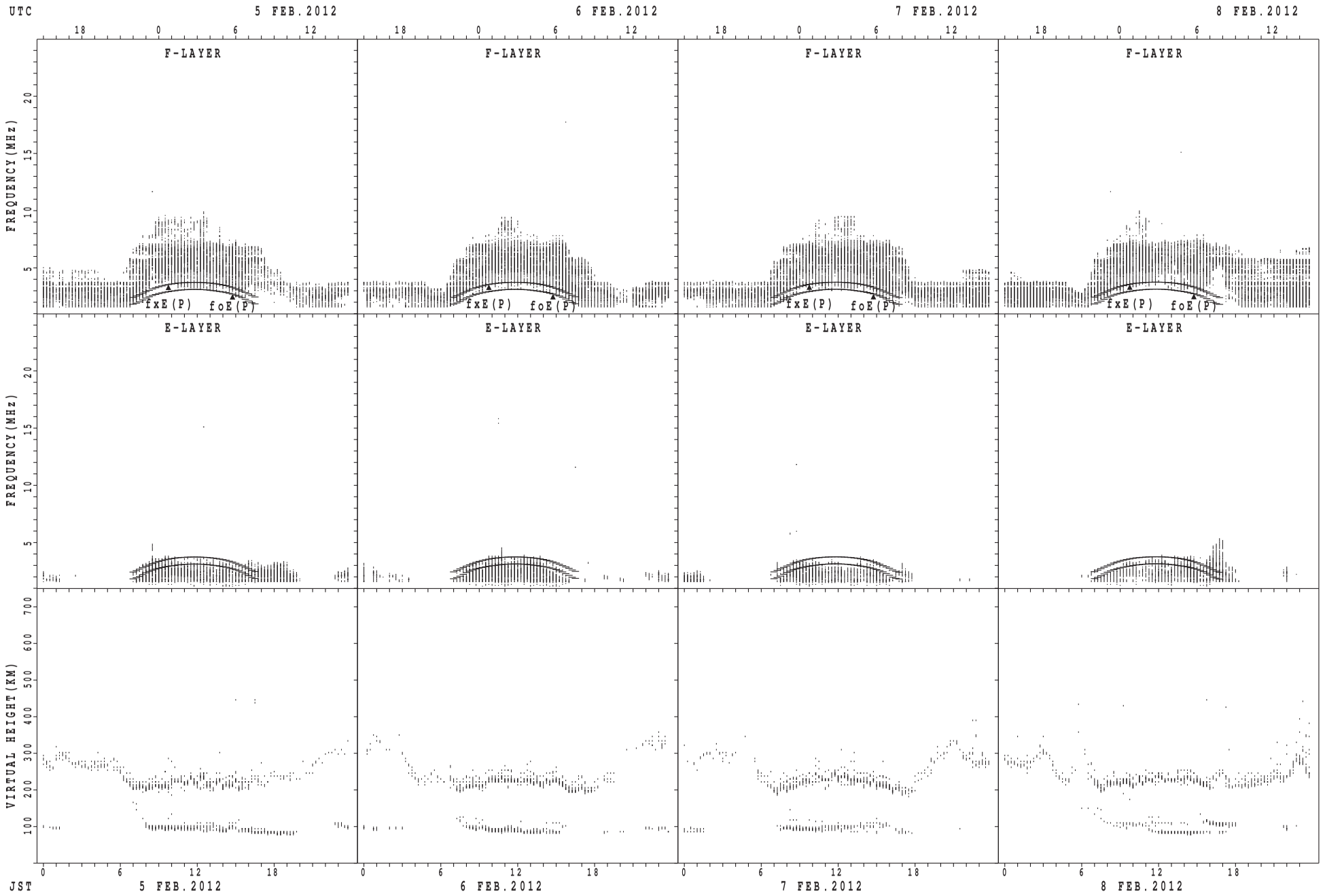
D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	B	B	B	29	15	20	B	15	23	20	22	40	38	36	38	32	40	18	14	15	16	16	20	66
2	66	B	20	17	18	18	B	22	26	18	41	42	26	45	38	41	22	32	24	22	17	20	22	21
3	B	B	18	B	17	B	B	20	24	39	40	44	44	45	45	42	42	32	18	15	42	18	39	B
4	66	20	17	15	15	B	B	17	38	39	40	39	42	40	38	33	26	21	21	16	30	66	21	27
5	21	21	17	B	21	18	B	17	26	39	40	43	43	45	32	42	22	28	27	20	22	28	66	71
6	B	71	66	16	15	B	66	66	23	16	22	43	43	45	44	21	18	14	15	17	15	17	B	17
7	B	B	B	B	B	B	B	17	28	17	29	29	33	53	30	35	29	29	18	30	21	28	B	22
8	20	66	B	18	B	B	B	71	29	39	44	54	47	44	53	40	39	29	21	20	17	18	15	B
9	20	66	18	15	26	B	B	18	27	38	40	44	42	50	45	42	21	14	14	15	21	30	18	20
10	15	B	16	17	B	B	20	15	28	39	30	38	46	32	43	43	39	38	15	17	15	71	15	21
11	16	17	B	18	23	B	B	66	26	39	42	44	45	44	46	42	21	32	22	24	18	18	18	16
12	17	66	66	15	B	15	66	14	28	14	38	37	43	36	47	28	27	18	22	17	16	17	18	B
13	16	B	B	66	15	18	20	17	15	39	30	42	45	52	45	43	38	20	22	18	17	20	14	66
14	B	B	18	20	20	18	B	18	26	39	42	43	46	48	43	22	40	16	18	27	22	71	22	17
15	20	66	B	17	14	B	B	28	28	40	40	43	46	40	36	30	22	21	20	20	24	20	18	15
16	23	15	B	18	66	B	B	20	28	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	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
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	11	9	9	13	12	6	4	16	16	15	15	15	15	15	15	15	15	15	15	15	15	15	13	12
MED	20	66	18	17	18	18	43	18	26	39	40	43	43	45	43	40	27	21	20	18	18	20	18	21
U Q	23	66	43	19	22	18	66	25	28	39	41	44	46	48	45	42	39	32	22	22	22	30	22	46
L Q	16	18	17	15	15	18	20	17	25	18	30	39	42	40	38	30	22	18	15	16	16	18	16	17

SUMMARY PLOTS AT Wakkanai



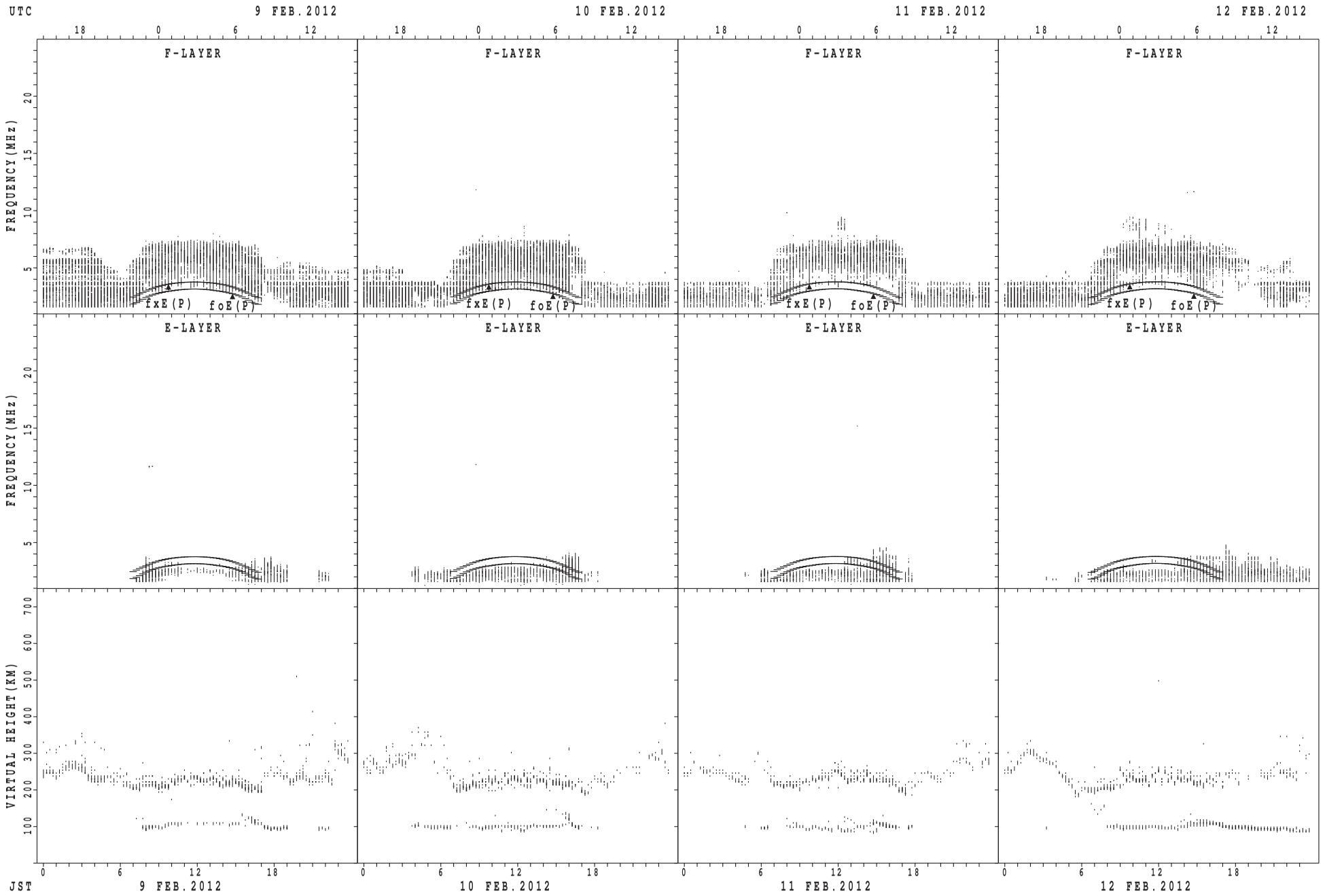
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



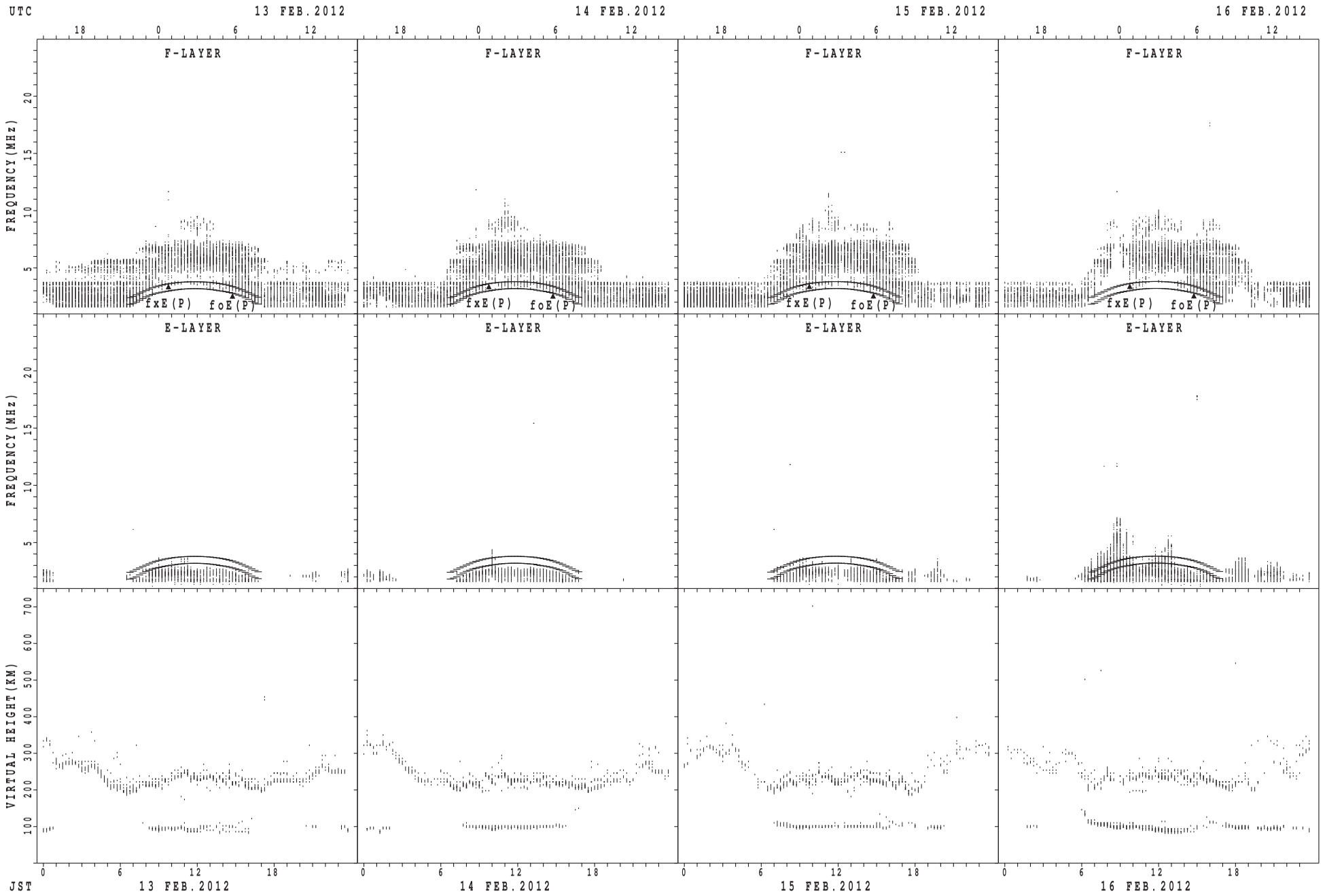
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



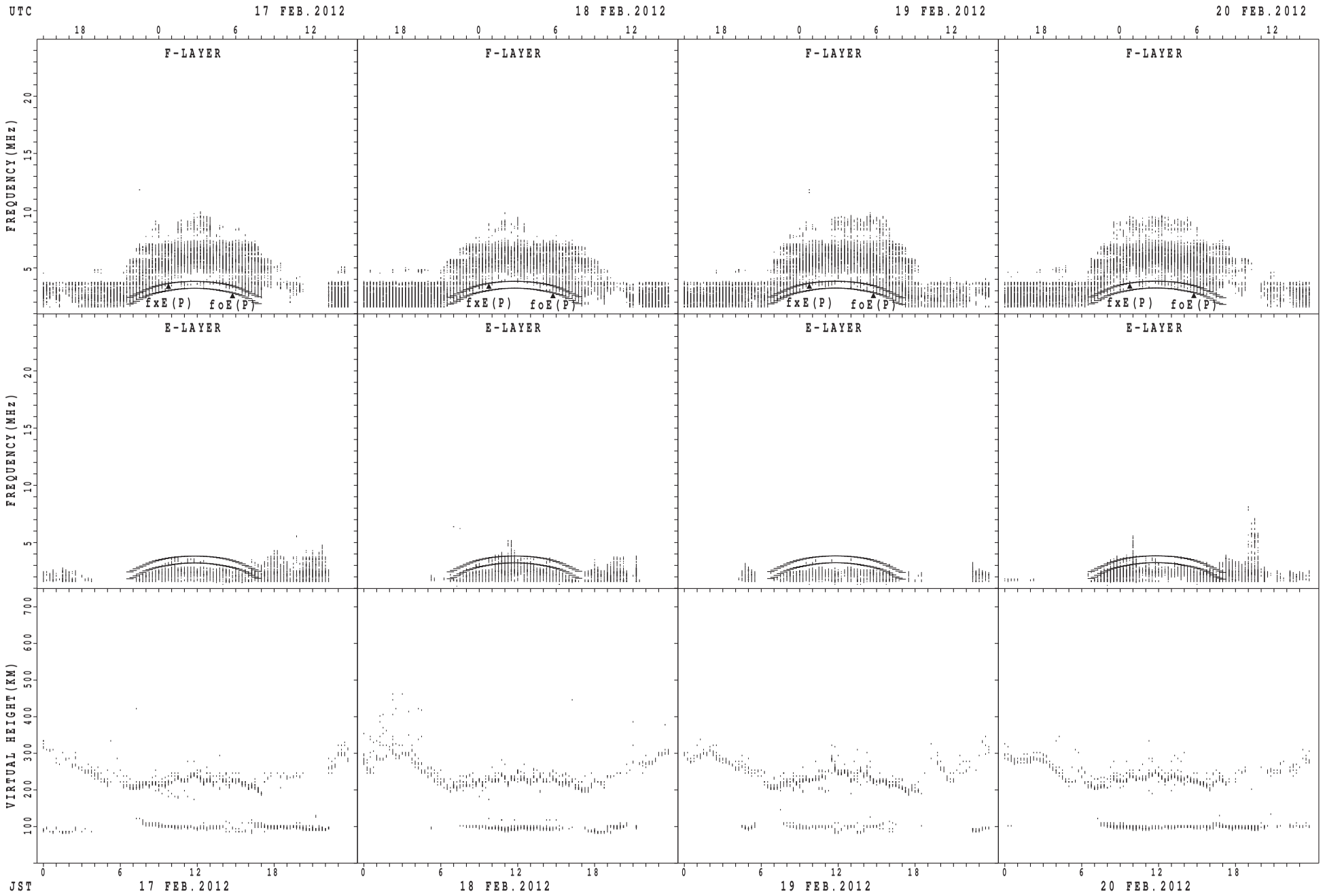
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



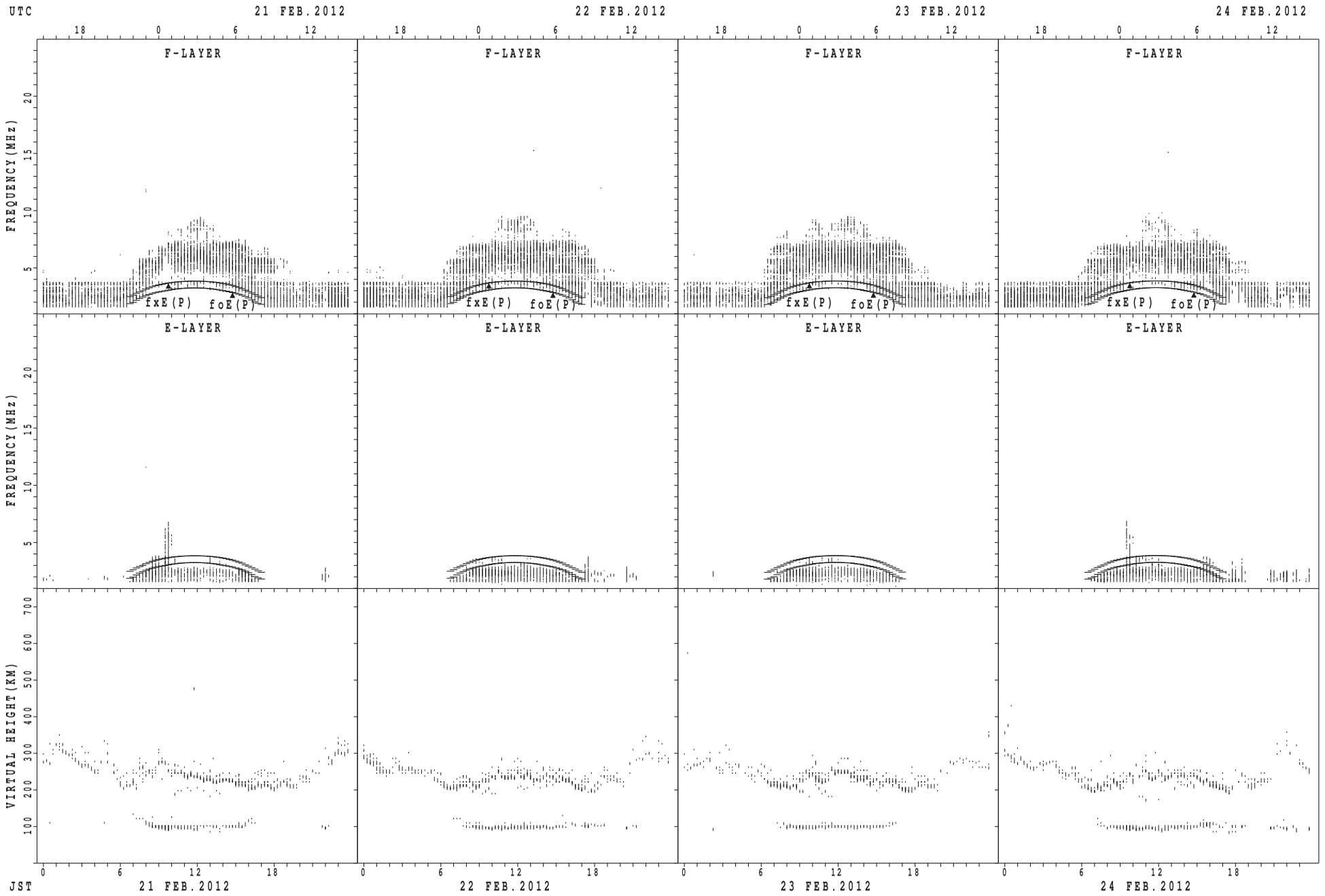
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



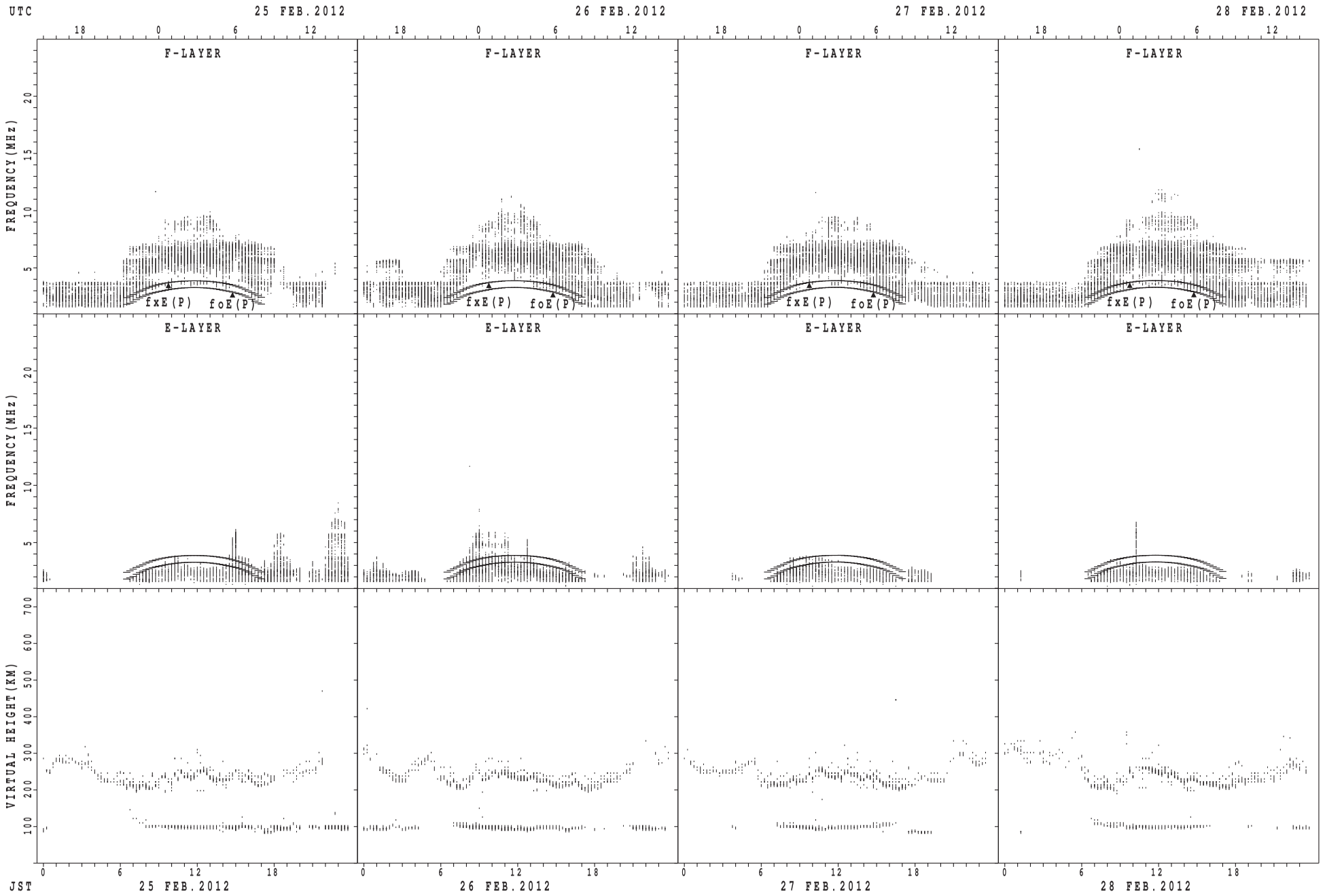
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



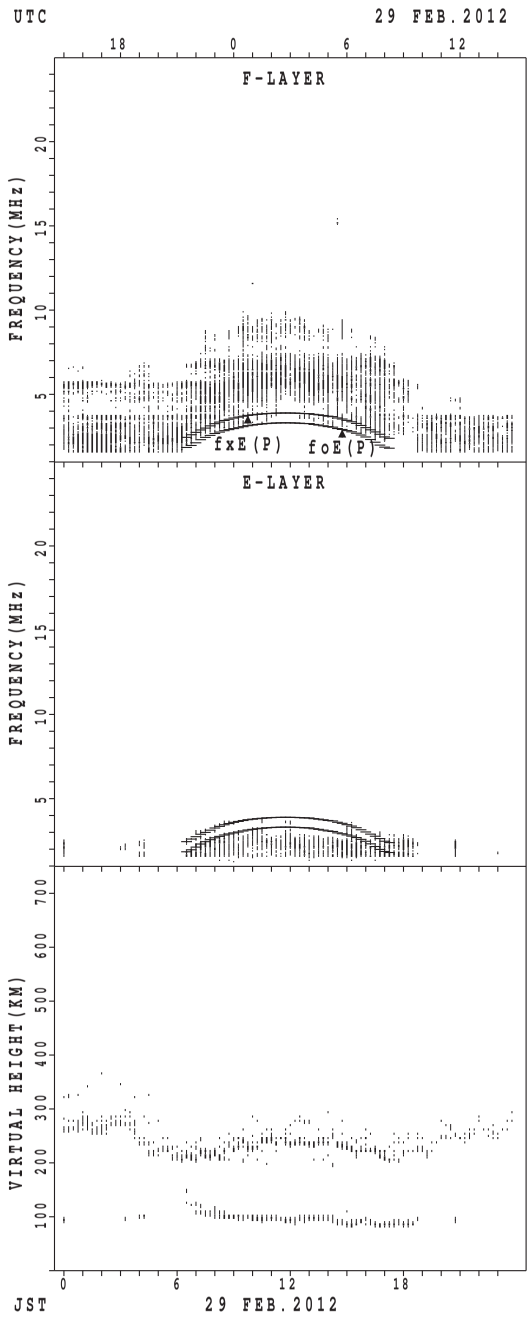
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



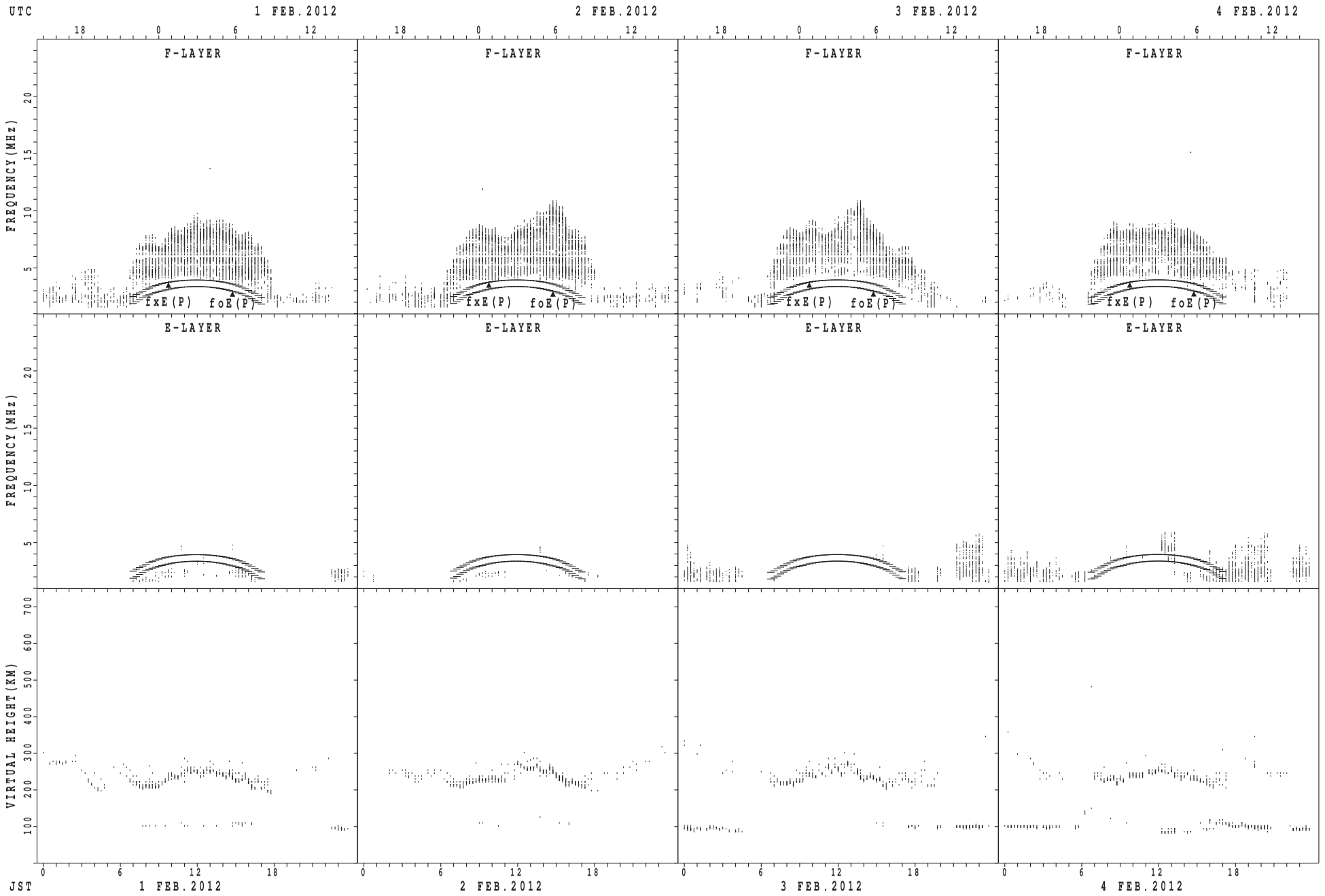
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



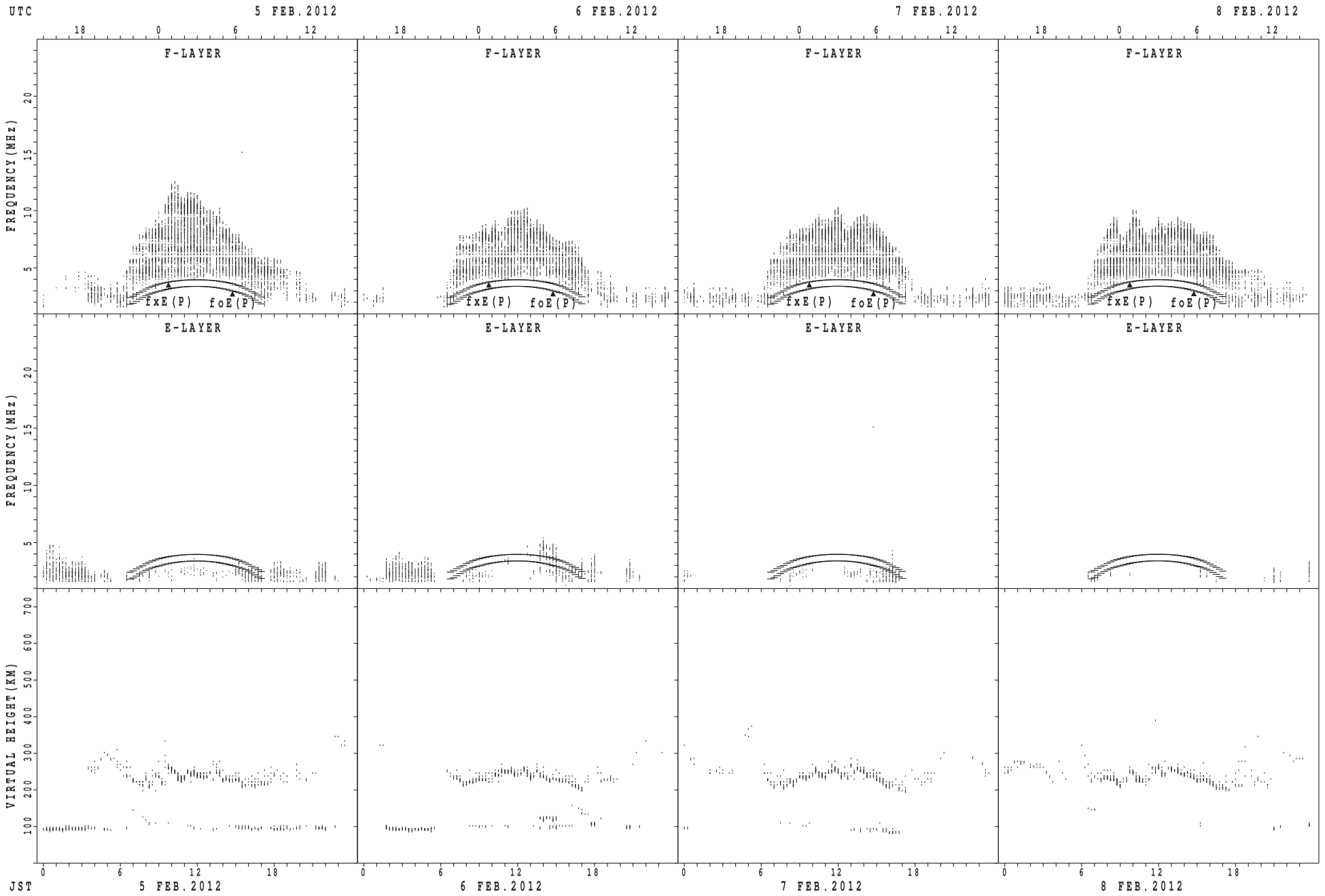
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



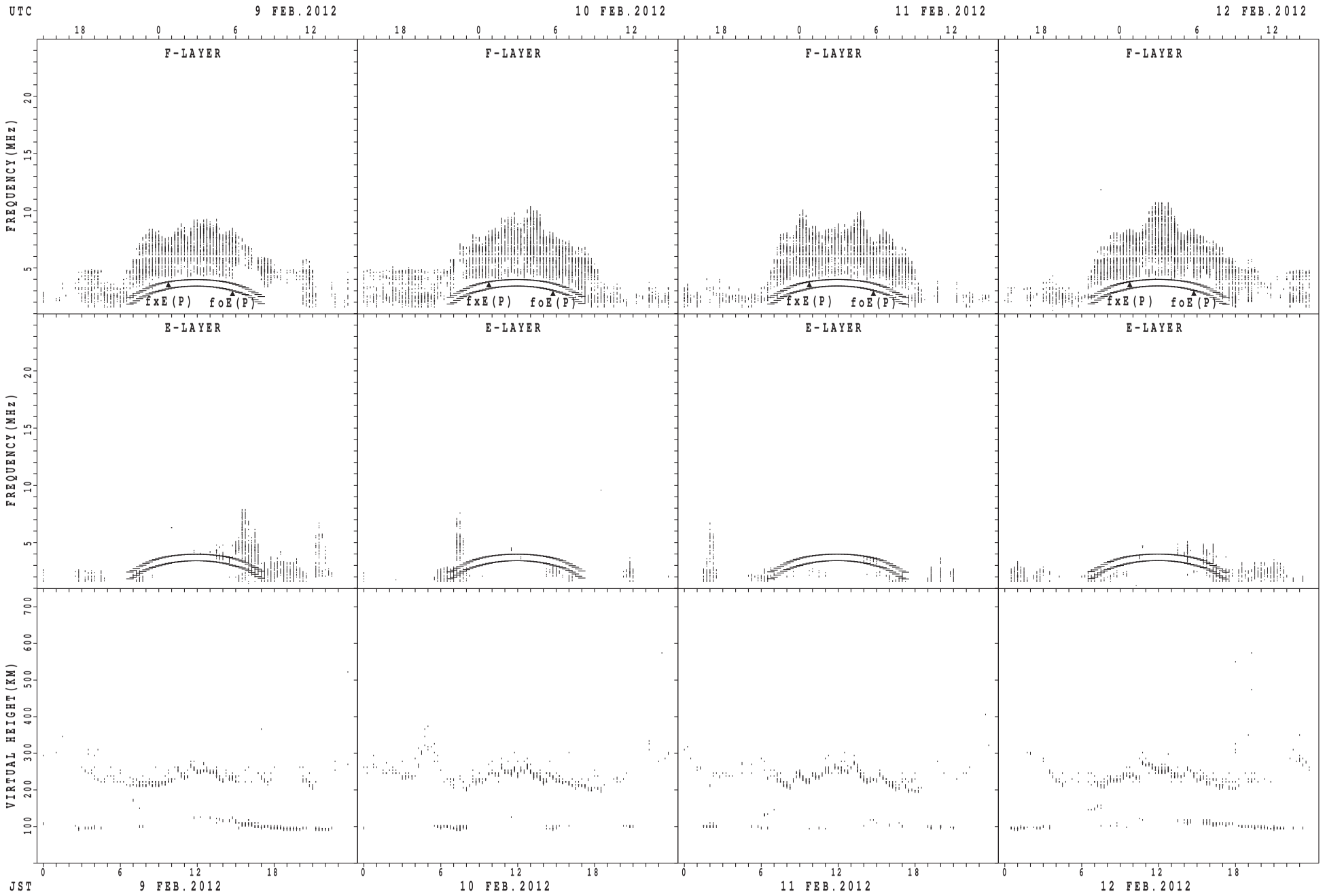
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



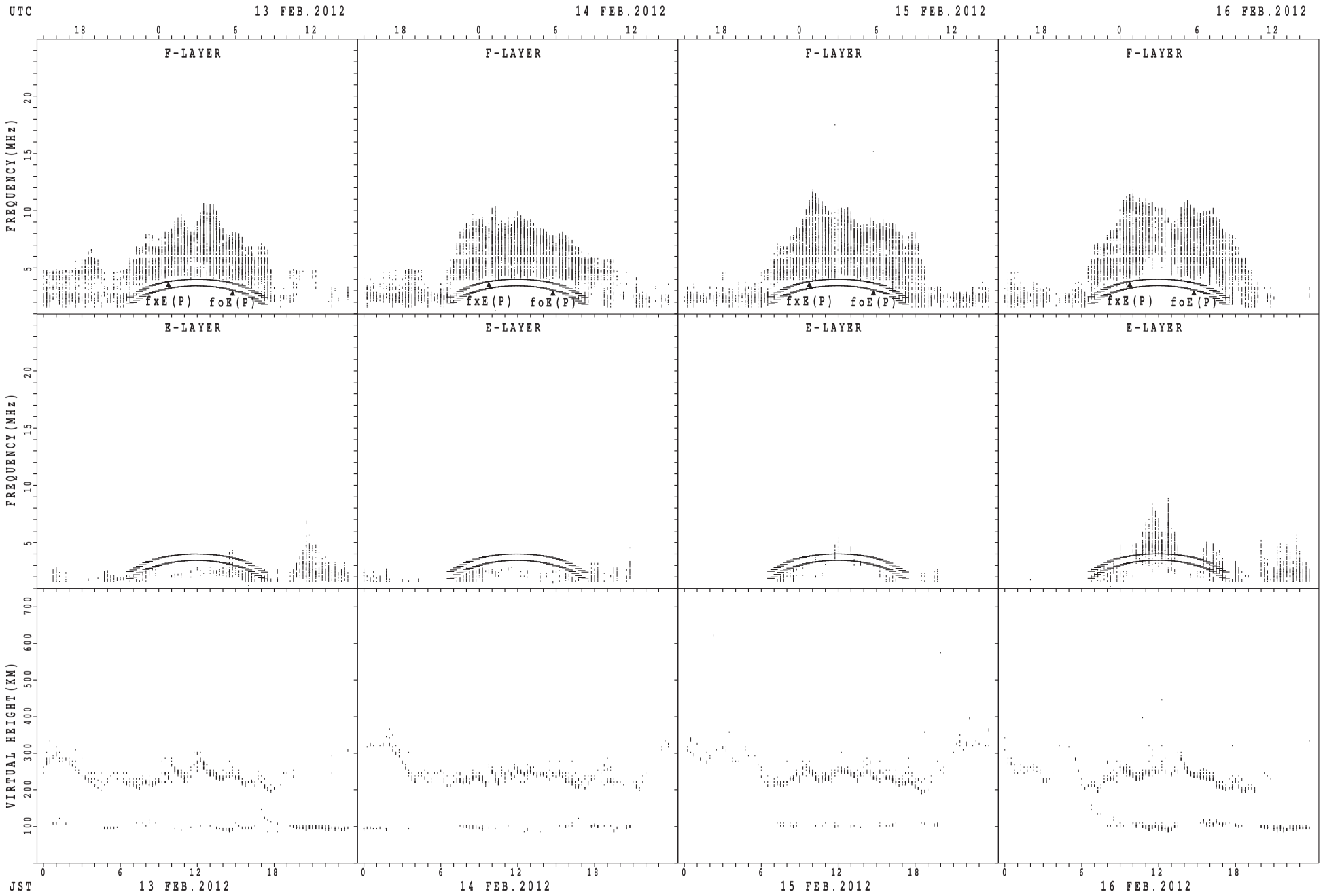
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



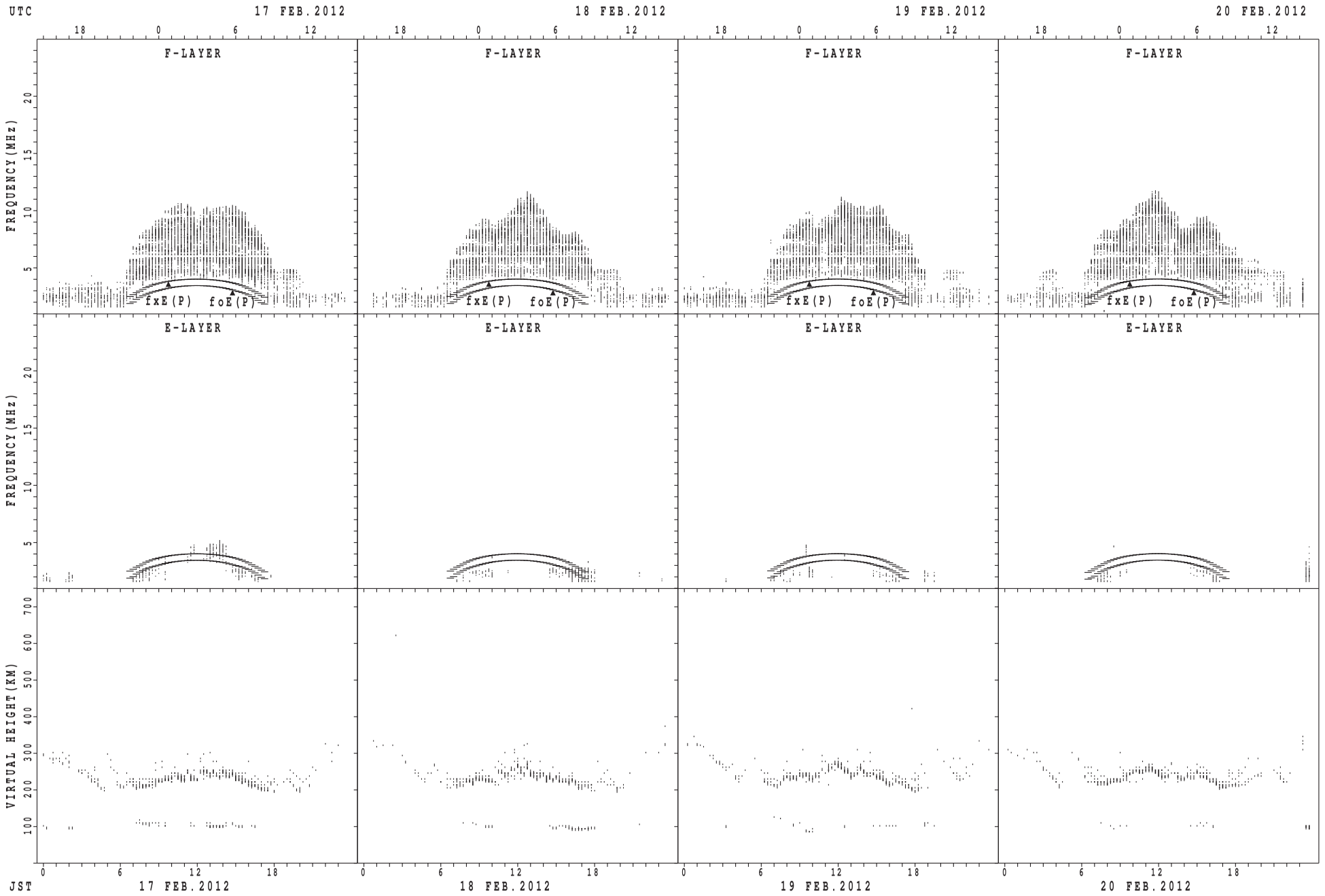
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



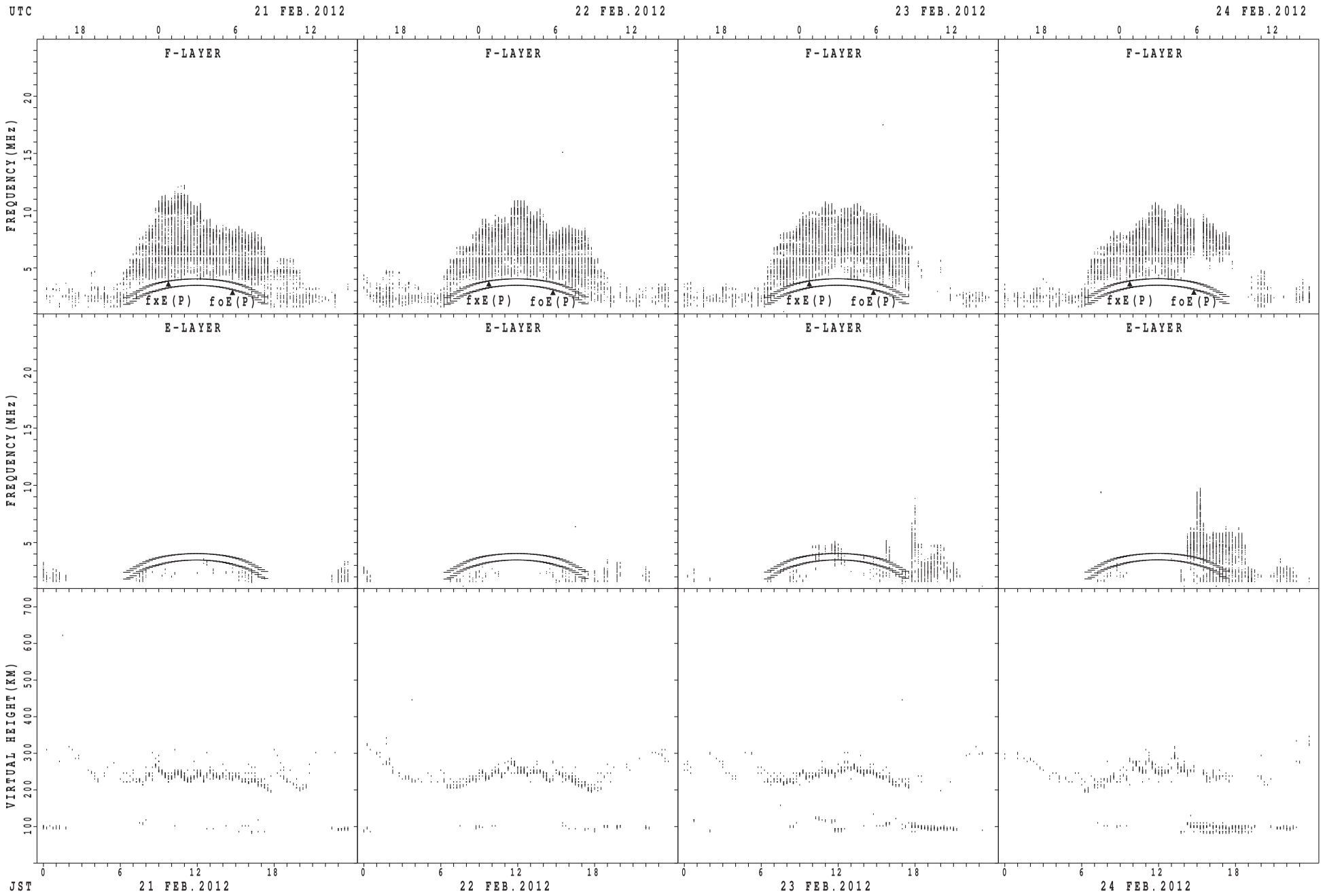
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



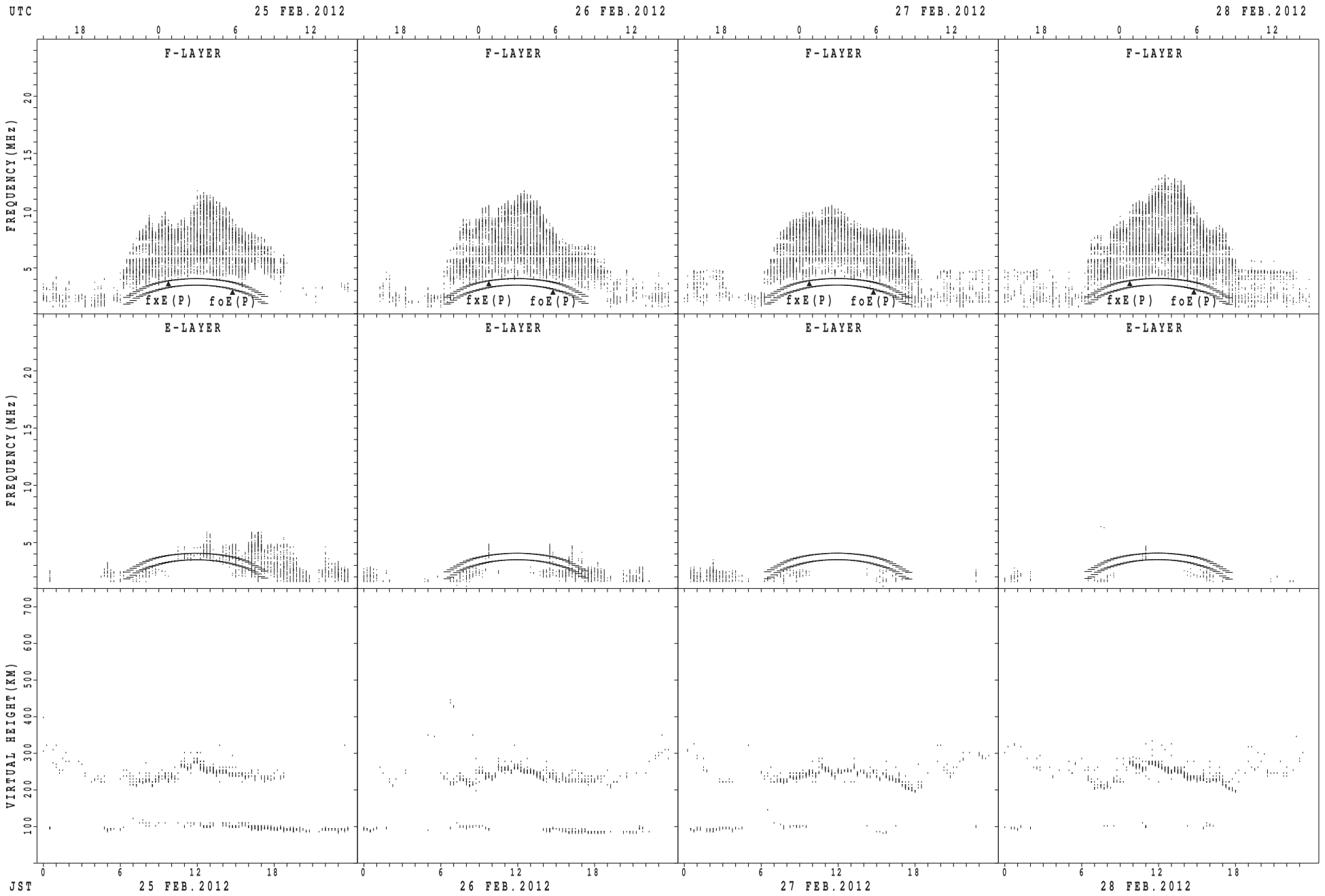
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



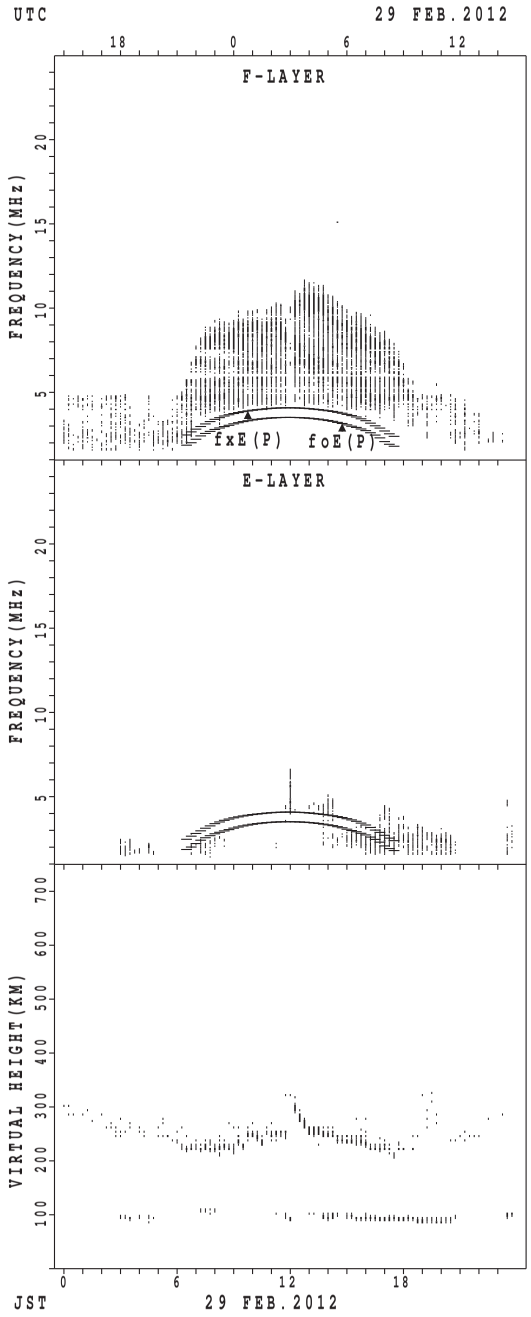
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



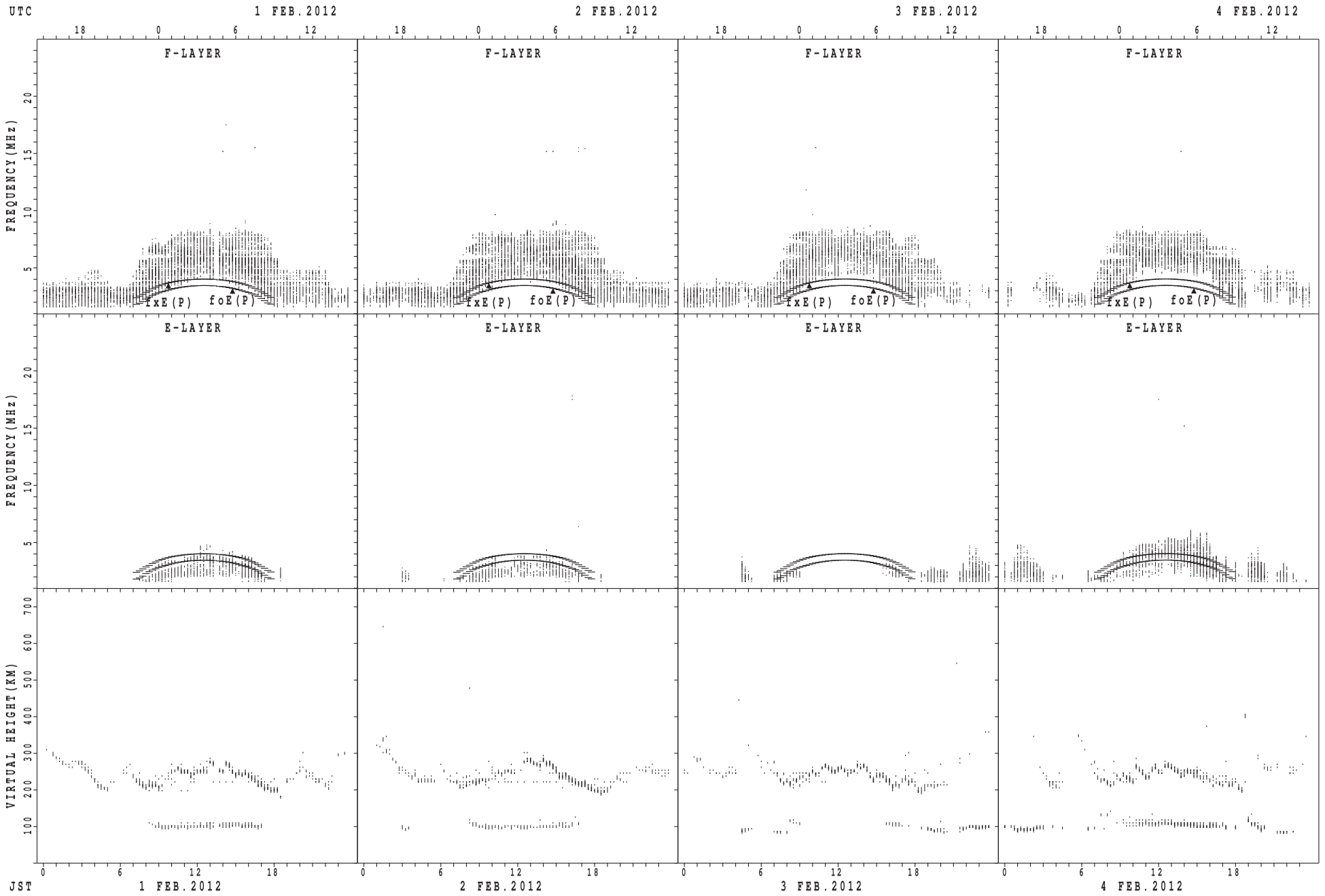
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



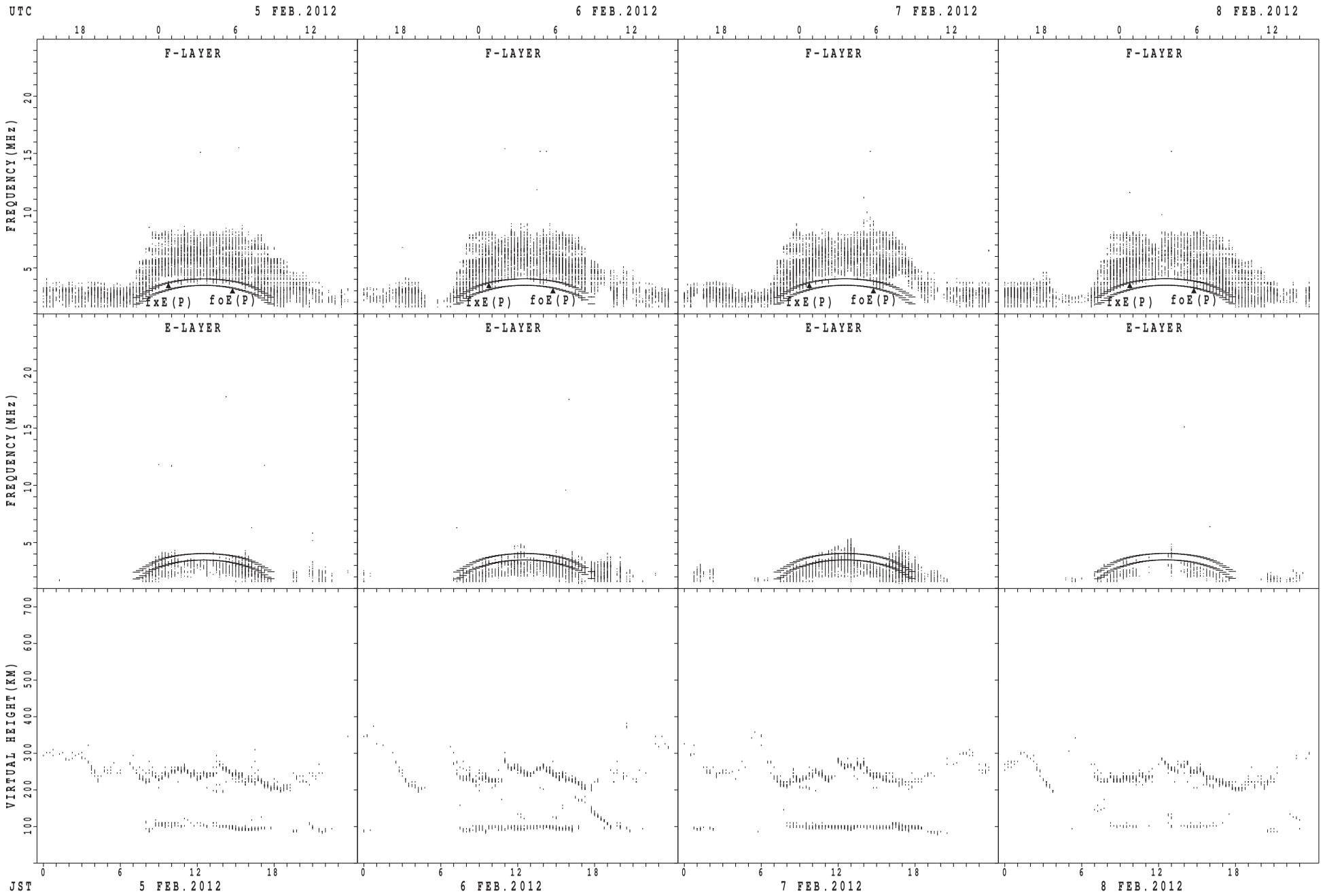
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



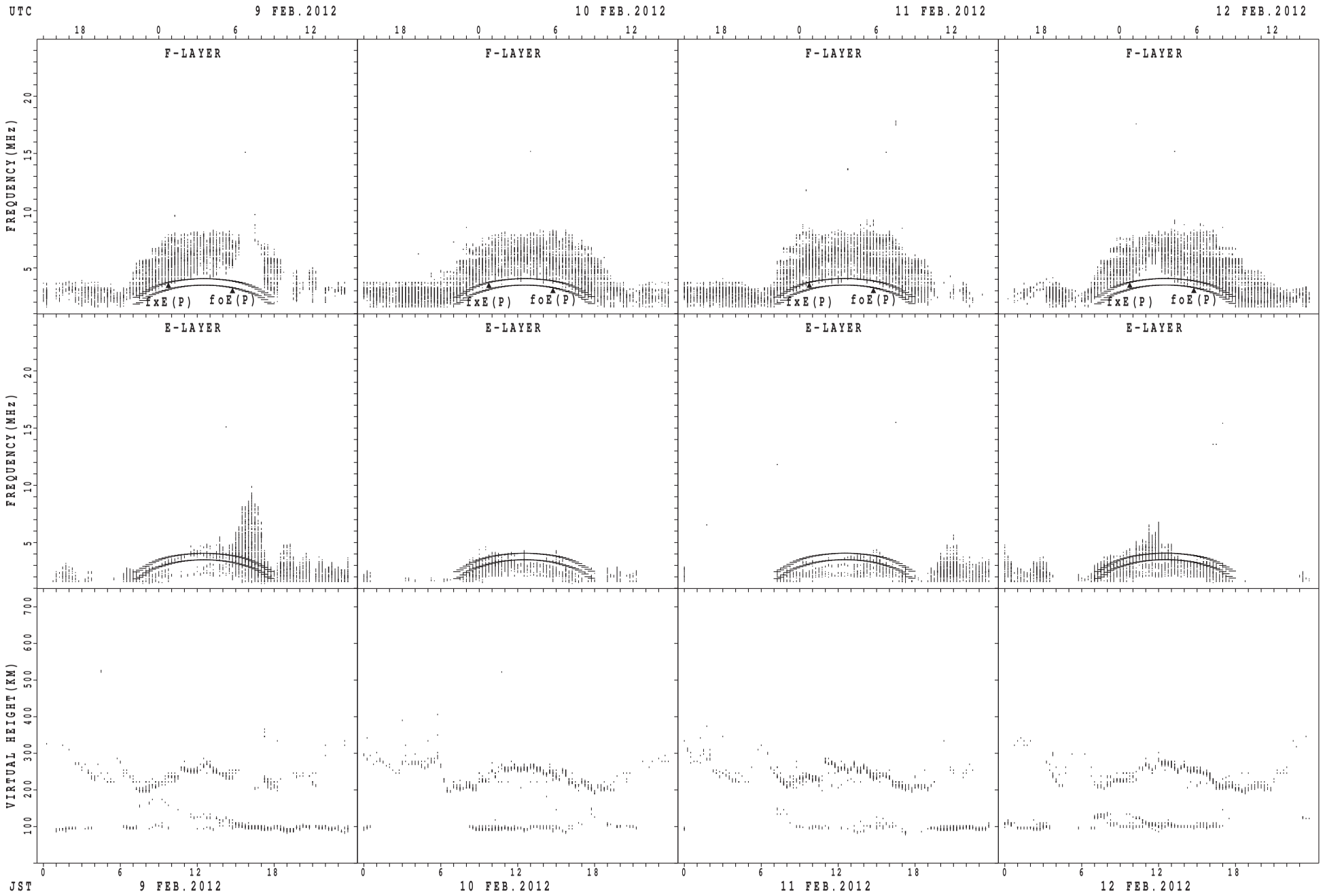
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



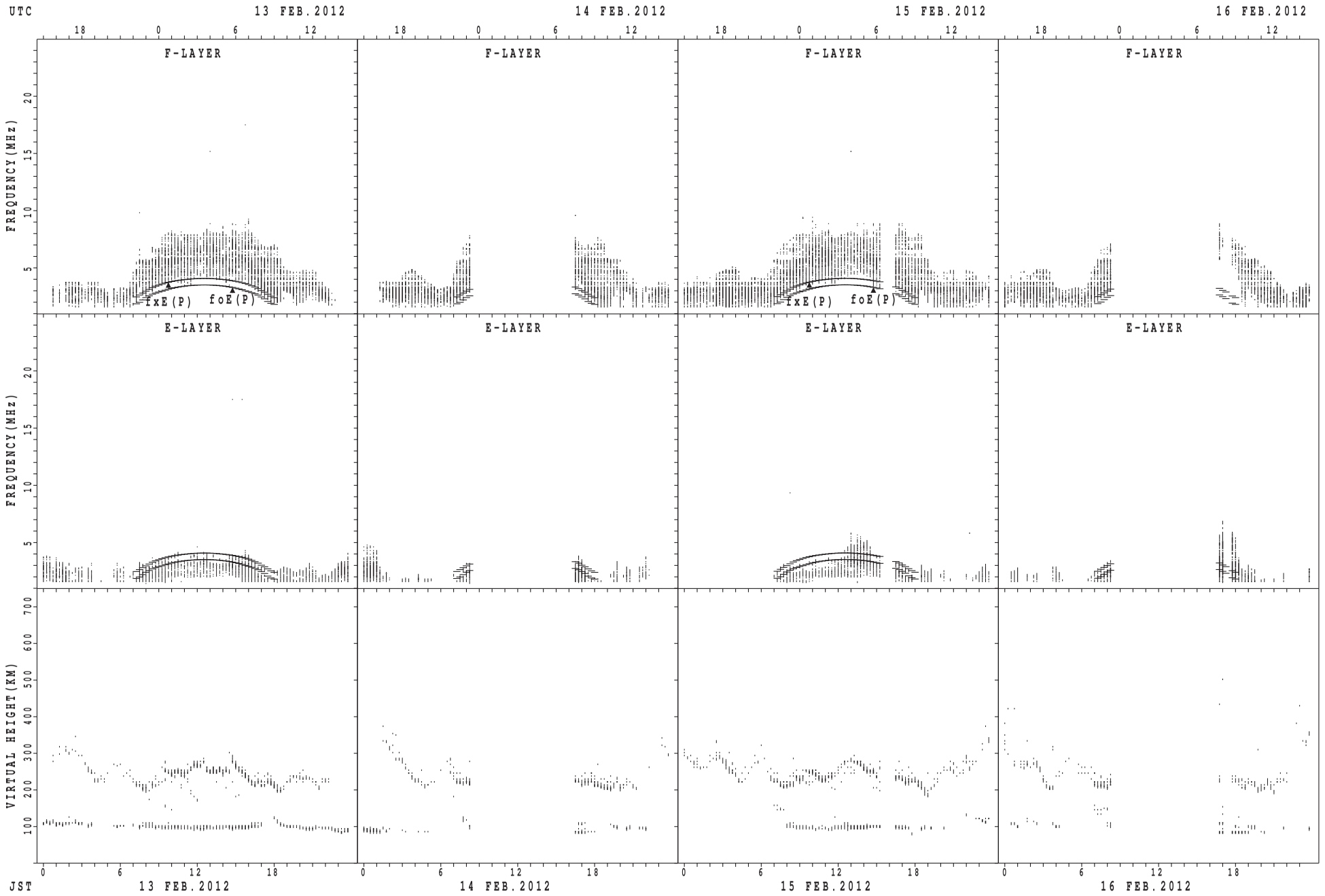
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



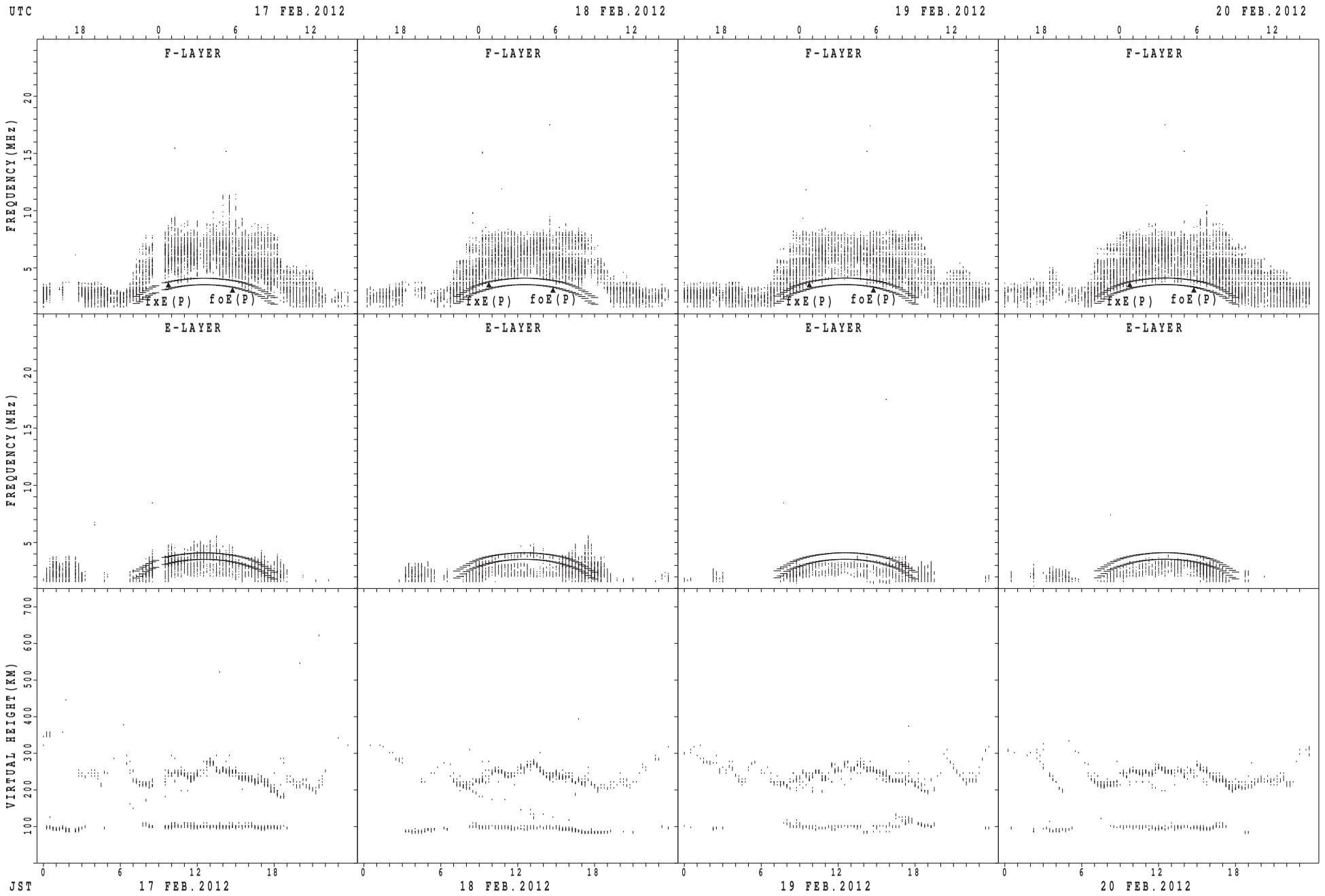
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



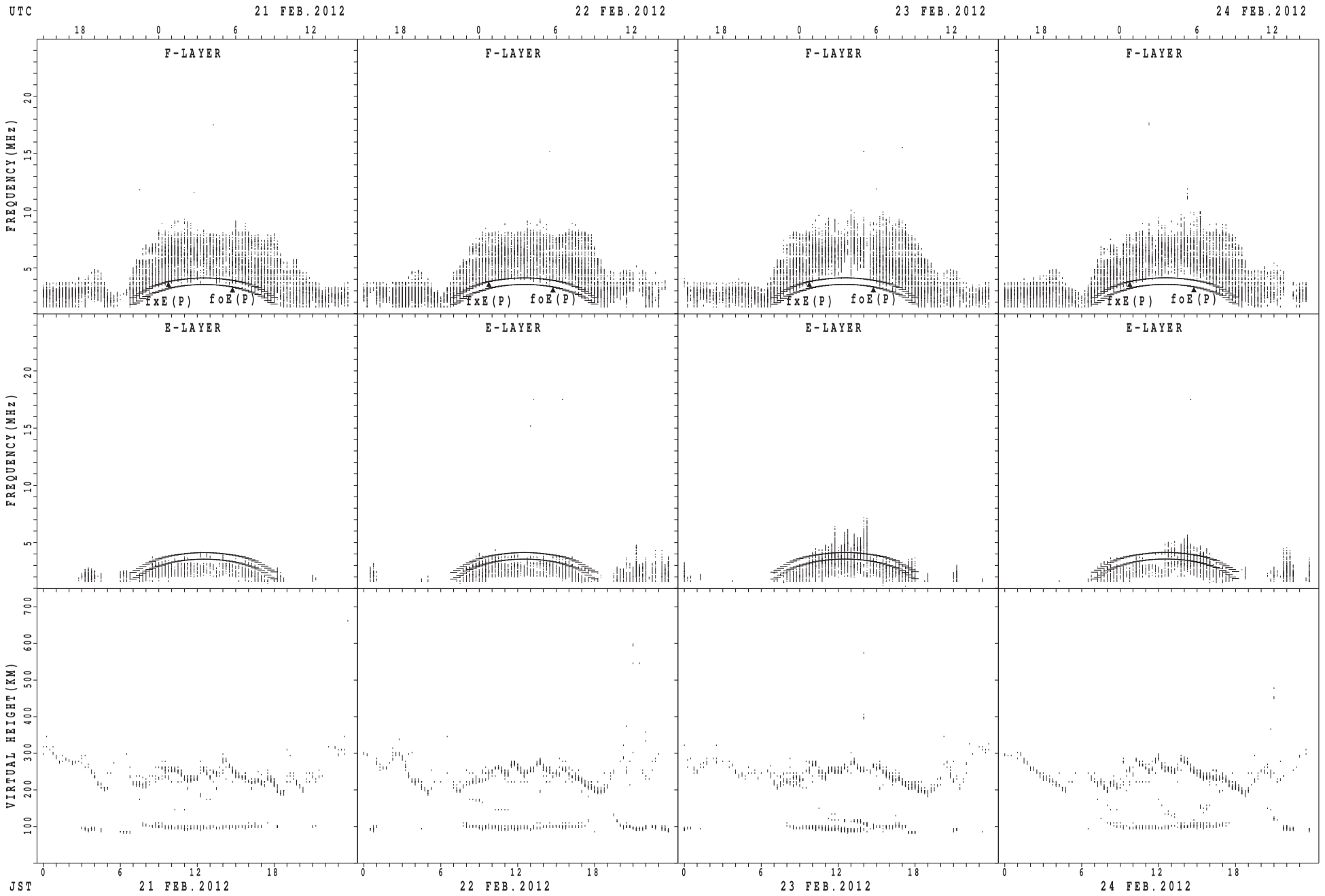
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



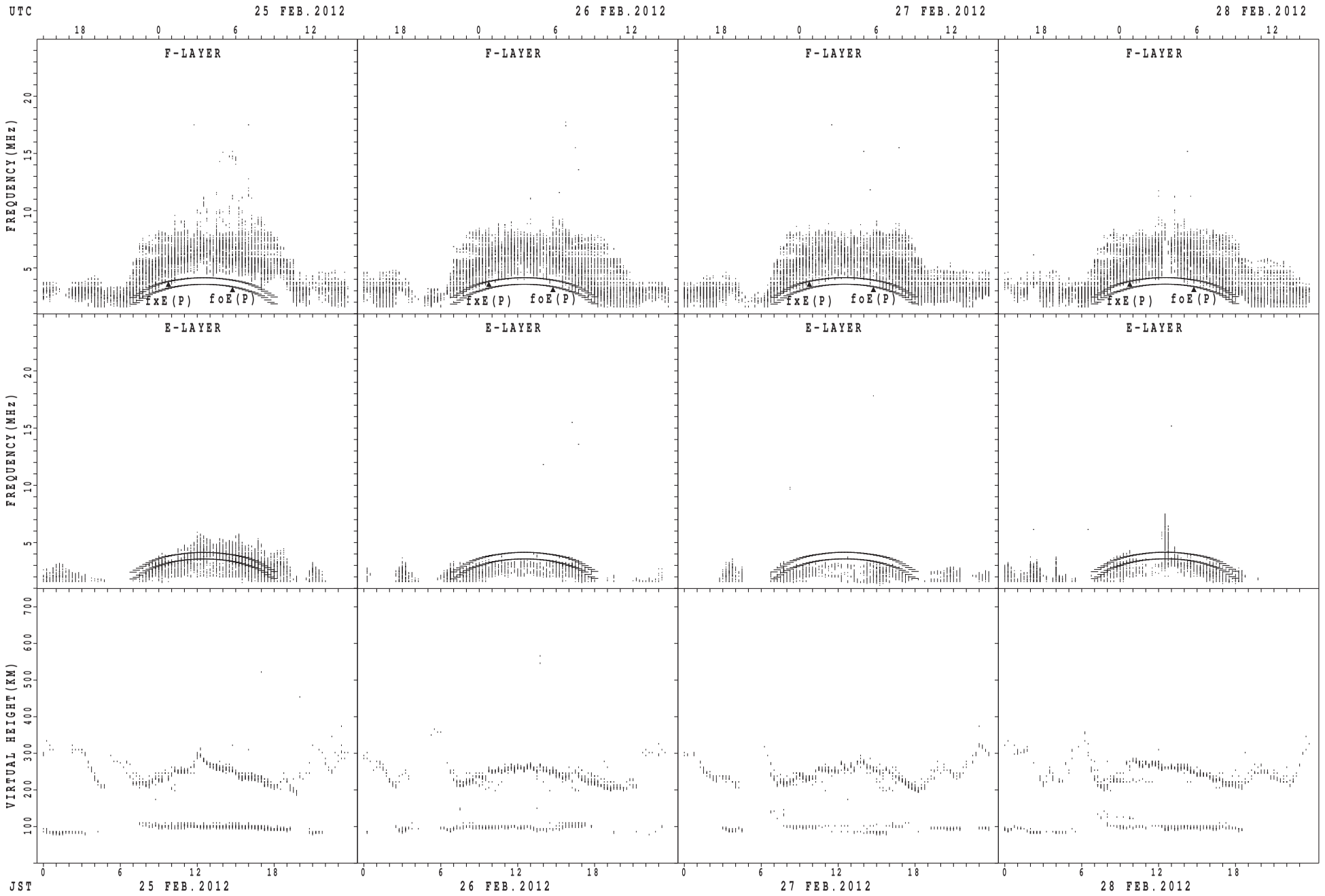
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa

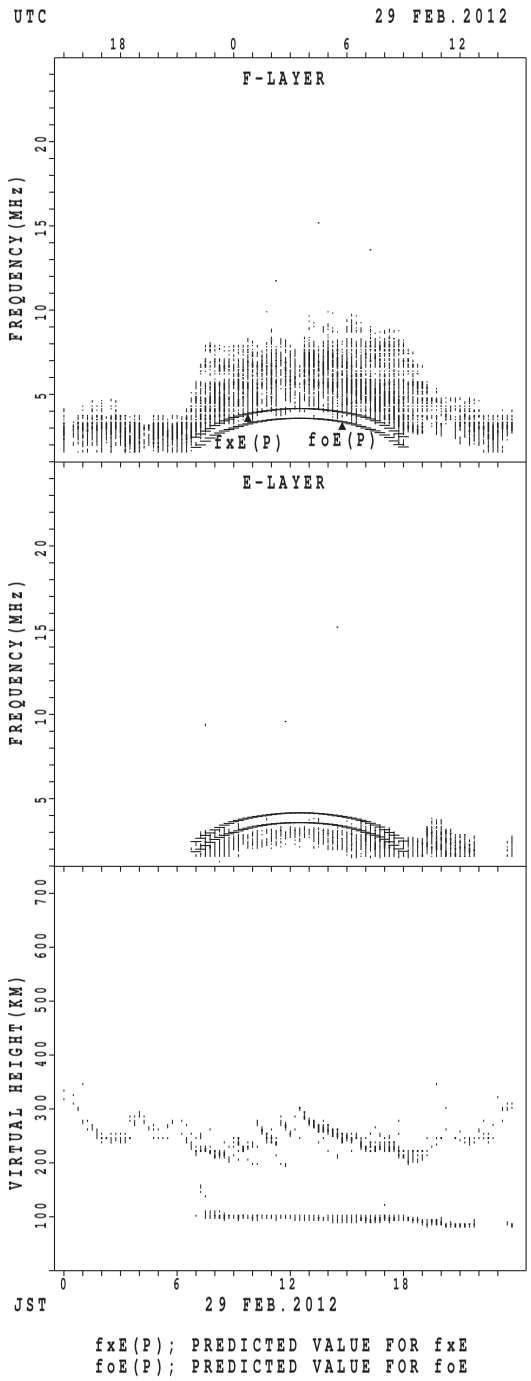


fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

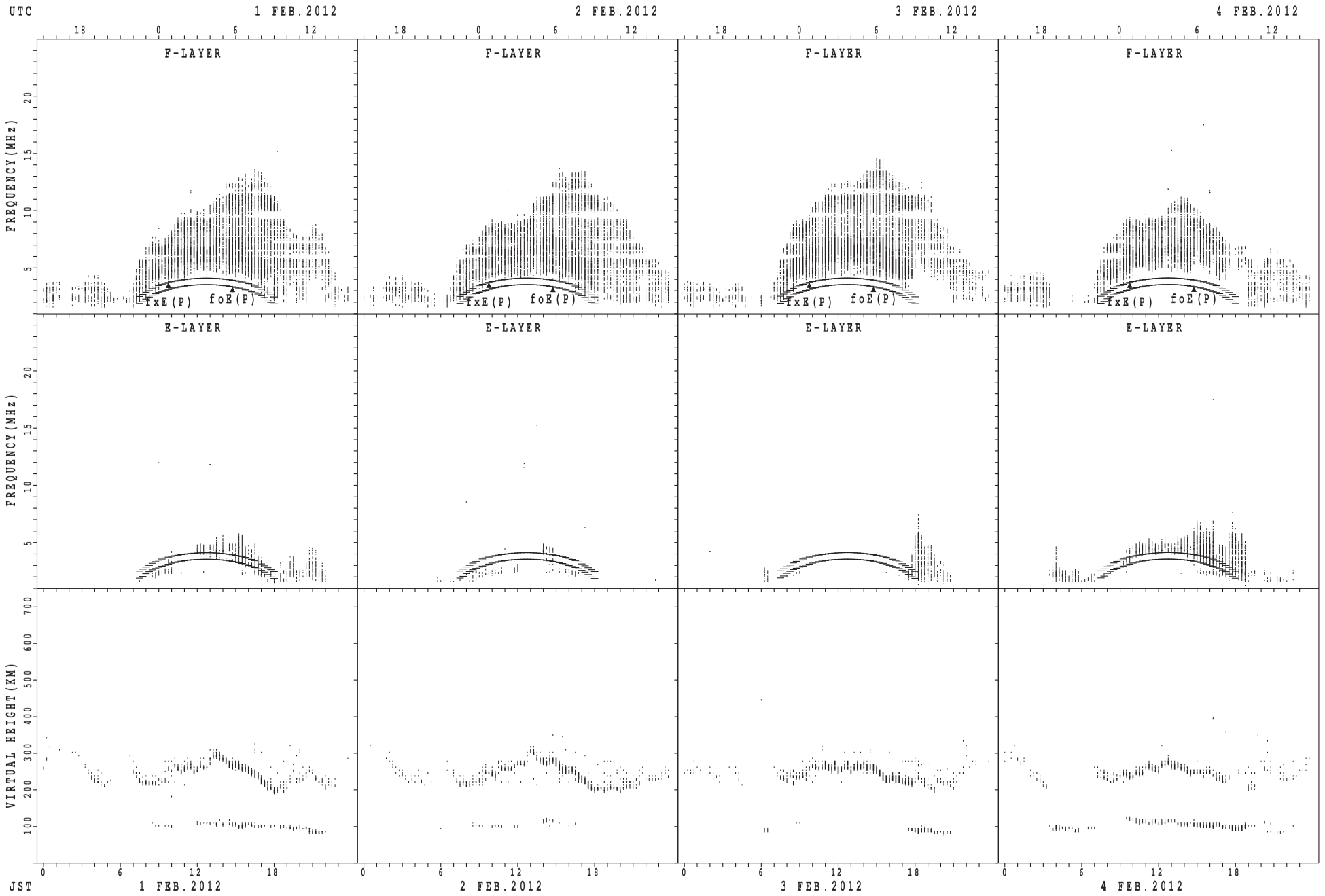
SUMMARY PLOTS AT Yamagawa



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

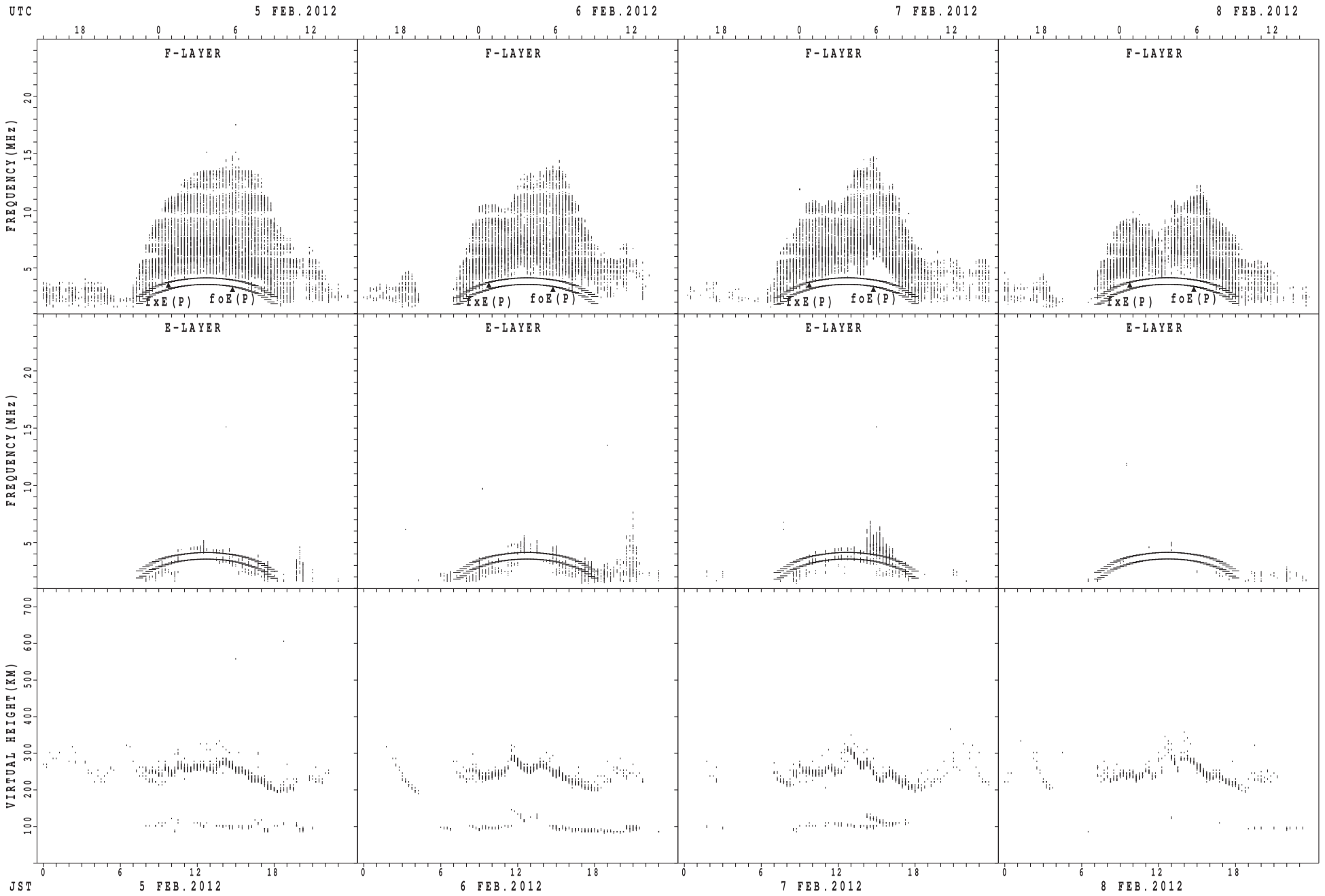

SUMMARY PLOTS AT Yamagawa
UTC
29 FEB.2012
18
0
6
12
F-LAYER
FREQUENCY(MHz)
5
10
15
20
fxE(P)
foE(P)
E-LAYER
FREQUENCY(MHz)
5
10
15
20
VIRTUAL HEIGHT(KM)
100
200
300
400
500
600
700
0
6
12
18
JST
29 FEB.2012
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



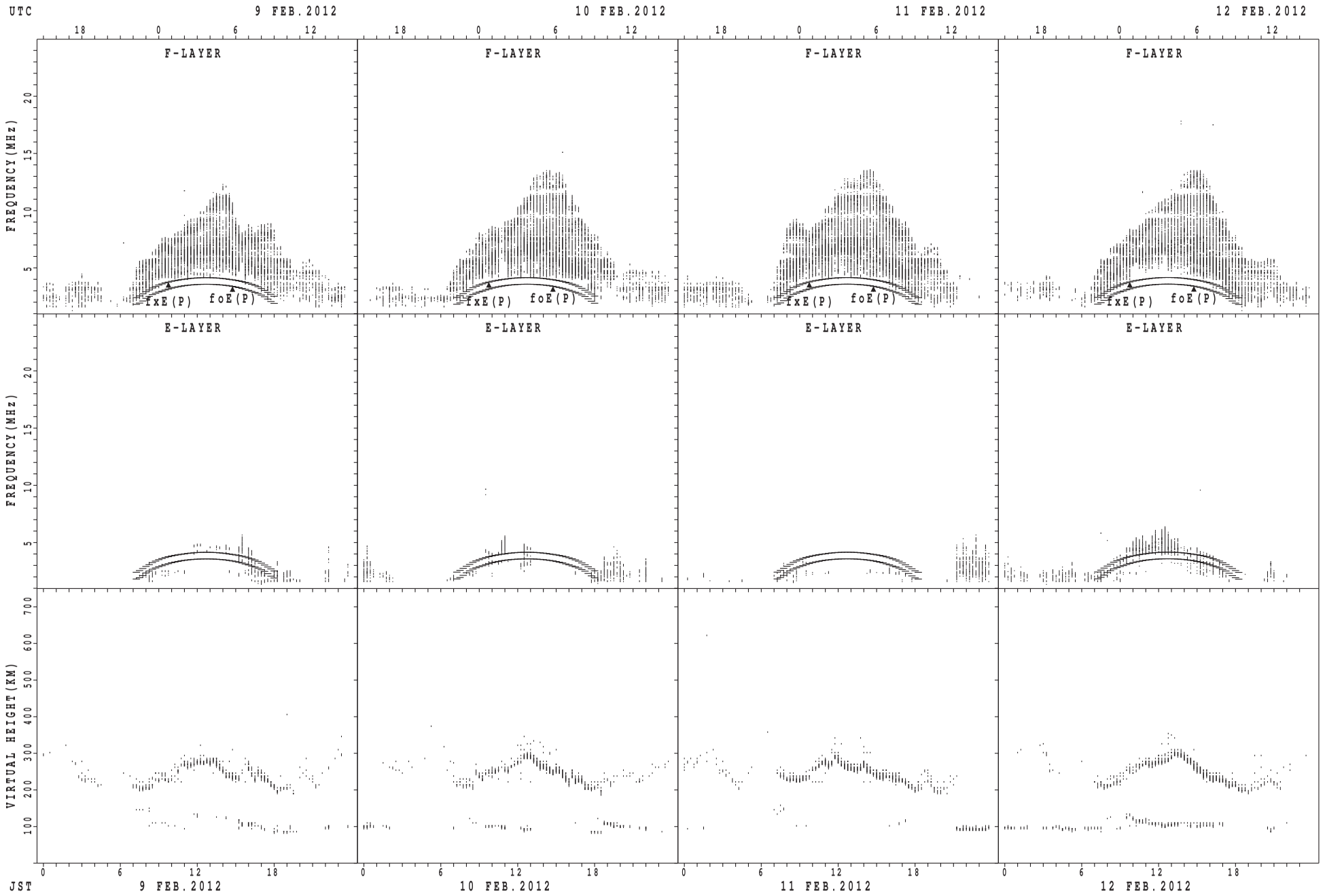
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



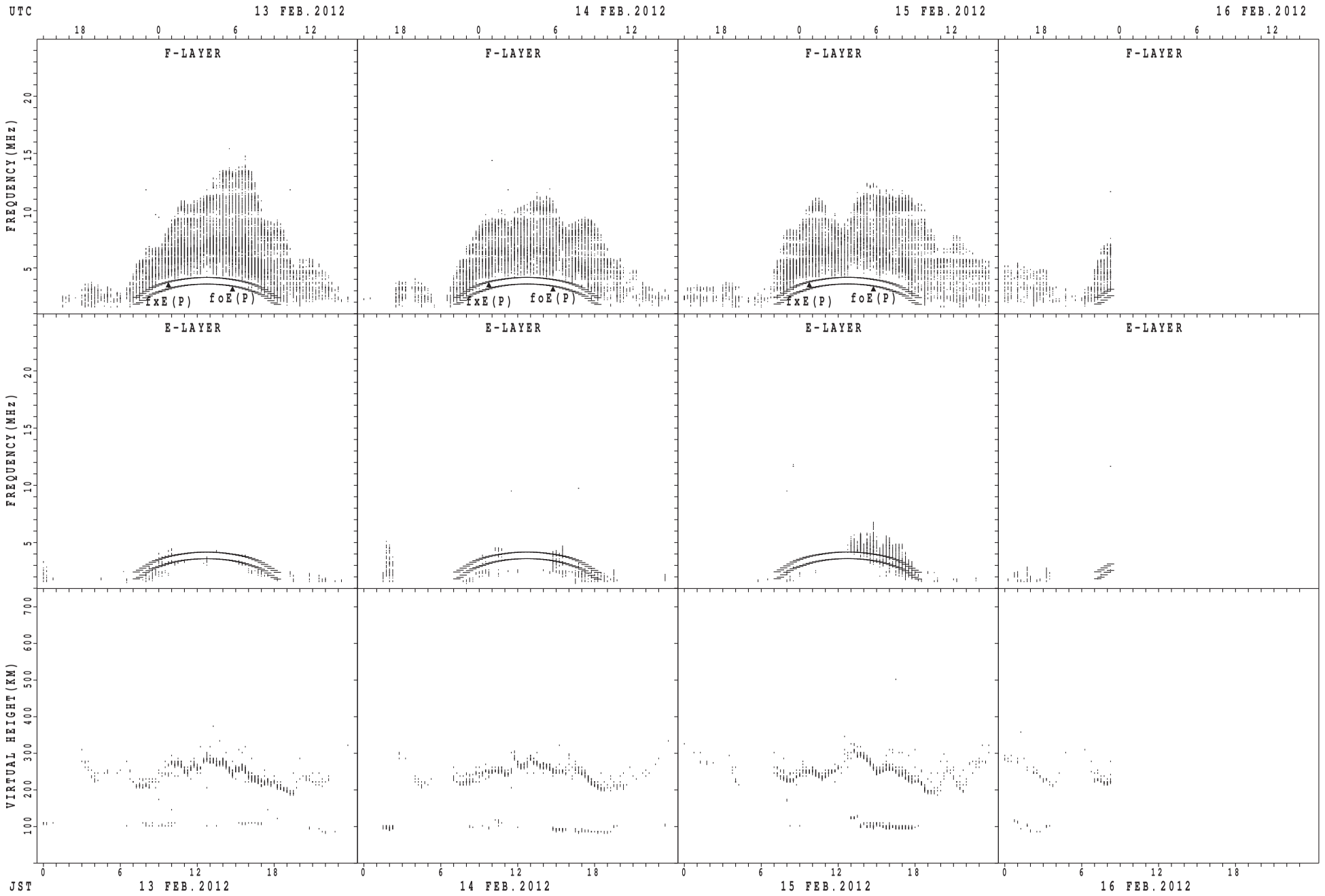
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



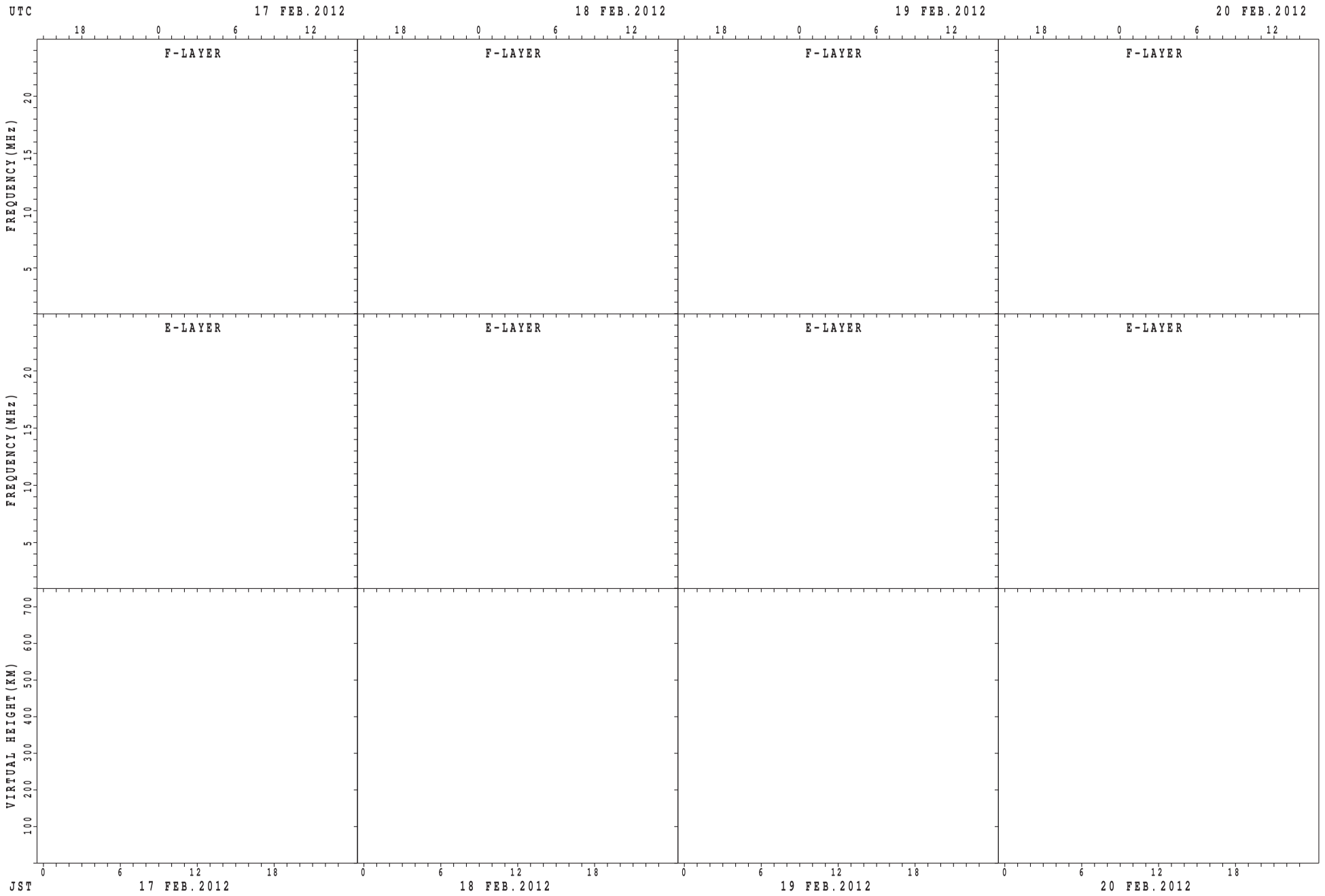
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



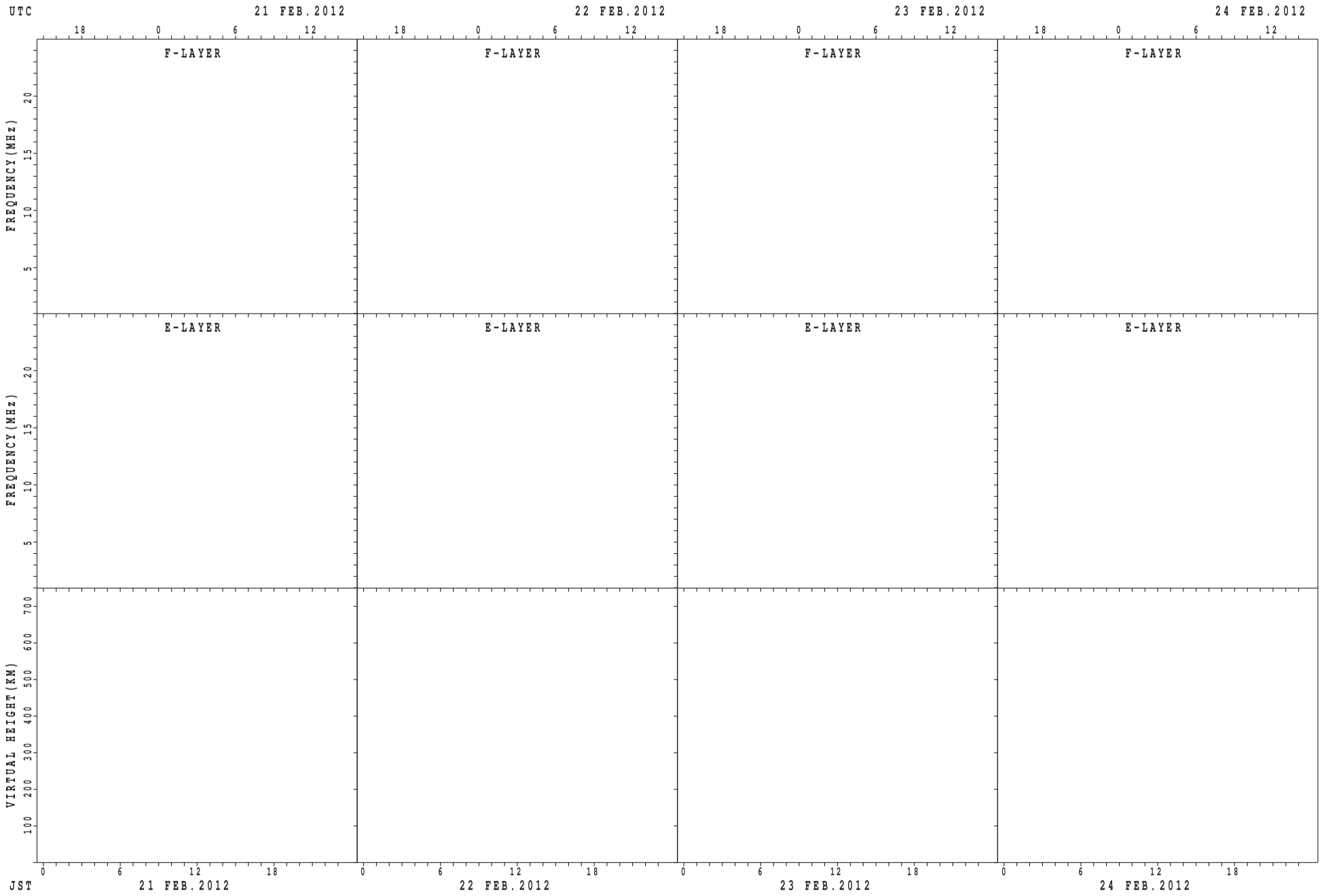
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



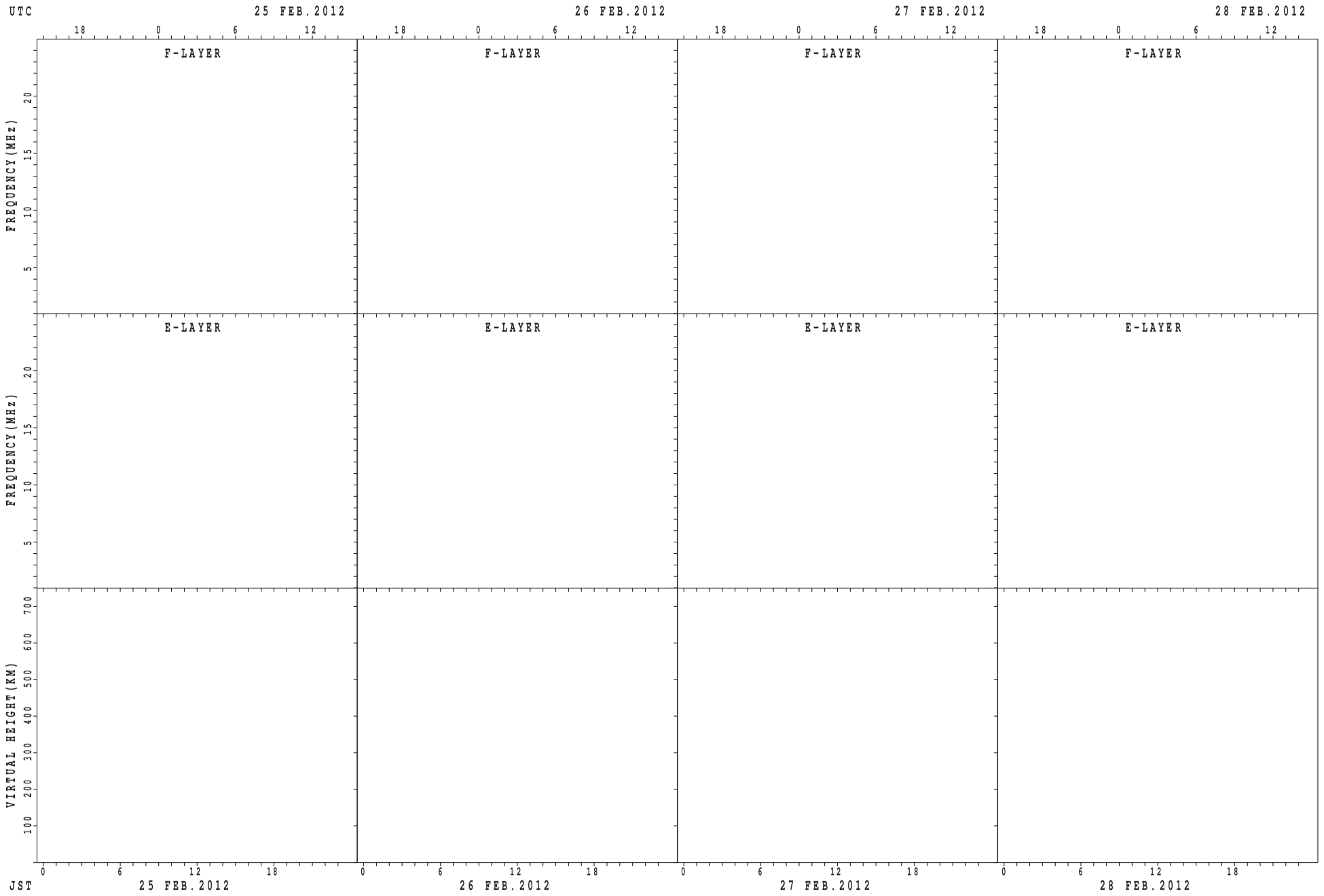
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



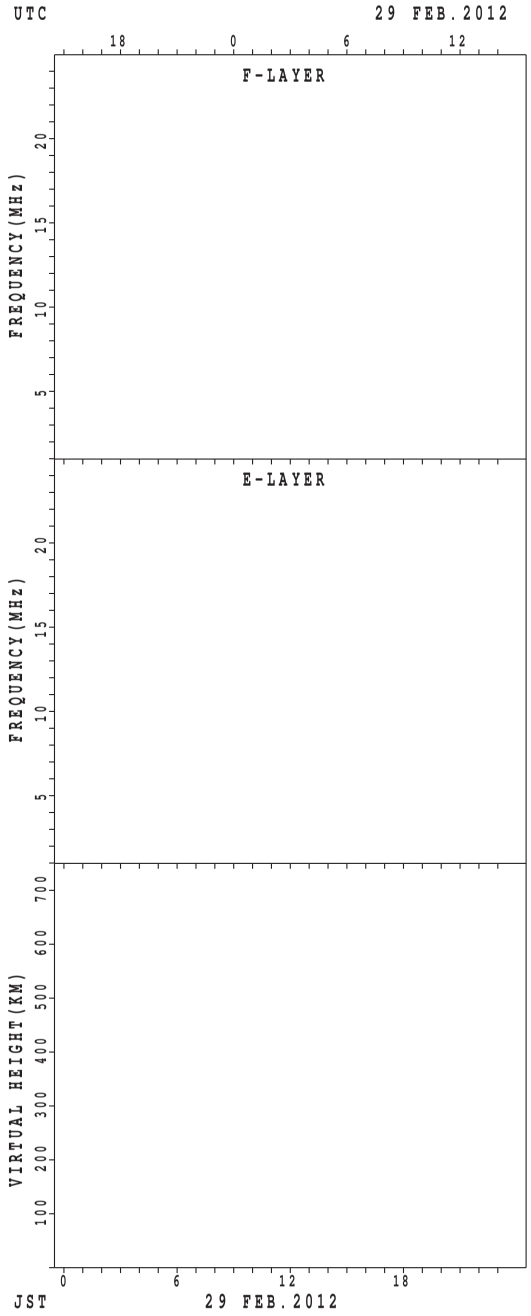
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



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

SUMMARY PLOTS AT Okinawa



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

MONTHLY MEDIANS OF h′F AND h′Es

FEB.2012 135E MEAN TIME(UTC+9H) AUTOMATIC SCALING

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

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								5	24	28	28	20	17	22	29	29	25	17	3					
MED								230	226	230	235	235	230	232	238	234	230	232	240					
U Q								238	235	237	238	241	240	238	242	240	238	240	264					
L Q								230	222	214	230	230	226	230	228	229	224	230	230					

h′Es

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	10	5	4	3	4	2	4	9	12	14	14	3	4	4	4	9	15	14	18	14	11	10	11	11
MED	95	95	96	95	99	100	125	121	105	101	107	95	99	95	98	107	107	101	99	97	97	97	95	99
U Q	99	100	98	101	103	103	151	157	119	103	129	107	105	101	111	114	113	105	105	99	99	99	97	103
L Q	91	93	92	95	93	97	101	112	104	97	97	93	93	91	88	100	99	97	95	95	95	95	95	93

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								10	26	28	24	8	2	9	29	28	26	22	3					
MED								235	232	240	242	247	259	254	244	238	236	239	238					
U Q								248	240	246	248	256	272	259	250	246	240	244	250					
L Q								230	228	233	237	241	246	246	237	232	228	228	236					

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	9	7	7	5	4	2	3		1	2	4	4	7	5	6	10	10	14	9	13	8	7	7
MED	97	97	97	97	95	94	100	175		113	122	104	97	103	107	108	105	98	99	97	99	97	97	97
U Q	99	101	103	103	100	96	101	175		56	131	112	102	105	119	115	113	107	105	100	103	101	97	99
L Q	96	96	95	95	92	93	99	97		56	113	102	95	97	101	103	97	95	95	93	96	96	97	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									19	23	27	13			11	27	24	22	13	1				
MED									232	238	252	254			262	242	234	231	228	240				
U Q									238	246	254	267			266	252	244	236	240	120				
L Q									224	230	238	236			246	238	231	224	218	120				

h′Es

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	10	9	8	9	6	3	2	9	13	5	8	6	11	13	8	13	13	15	13	14	11	11	9	6
MED	95	95	95	97	93	95	103	109	149	107	101	105	109	103	105	107	103	101	97	96	97	97	97	96
U Q	103	100	98	99	95	95	107	151	161	151	125	111	129	123	111	119	105	119	112	109	101	103	102	97
L Q	93	91	90	96	89	95	99	97	120	100	98	97	103	100	103	103	95	97	95	93	95	93	94	95

MONTHLY MEDIANS OF h′F AND h′Es

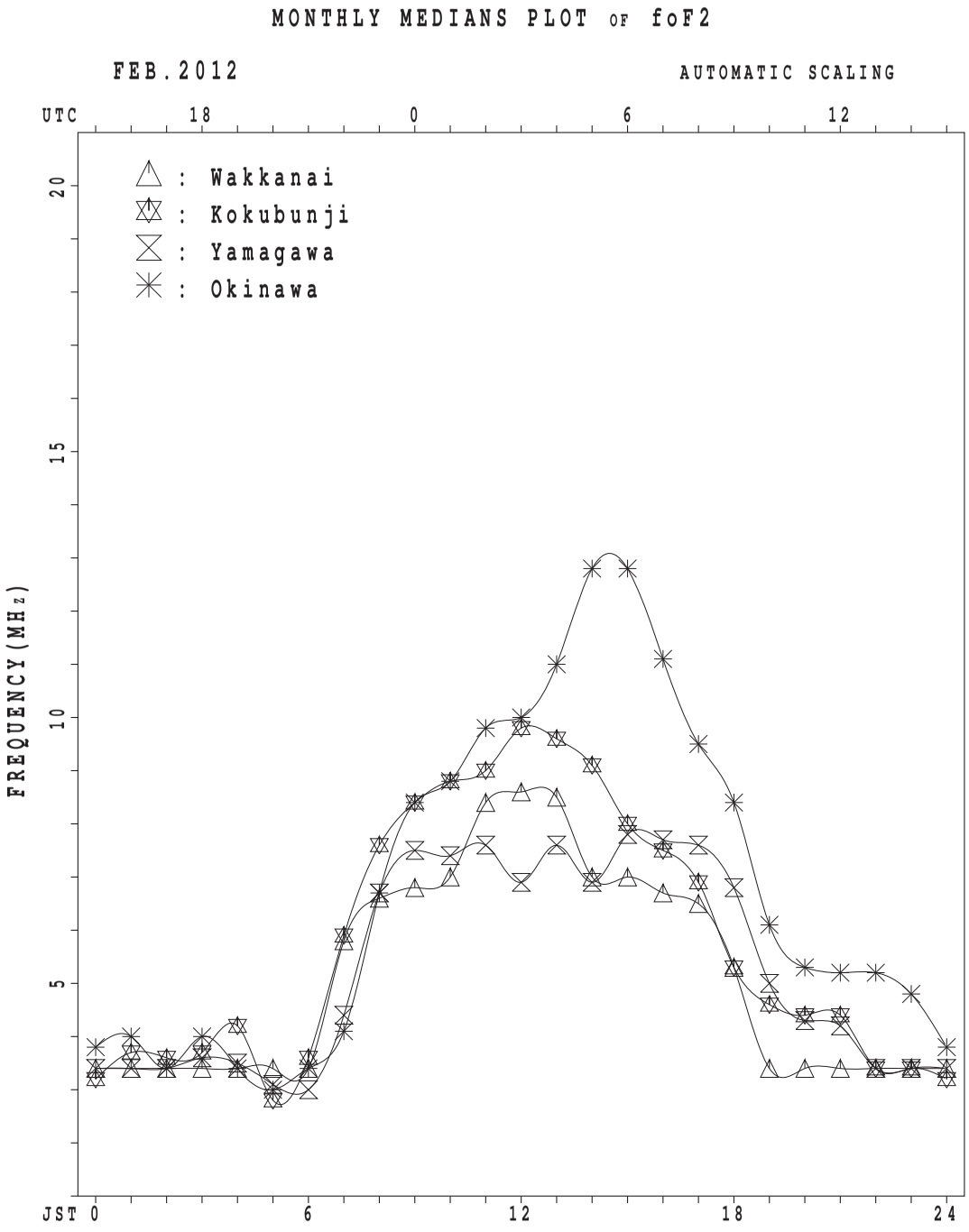
FEB.2012 135E MEAN TIME(UTC+9H) AUTOMATIC SCALING

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									11	14	15	11				15	15	15	12	6	2	2	1	
MED									234	244	248	254				252	238	222	225	222	228	250	242	
U Q									256	256	256	264				254	250	238	230	230	232	260	121	
L Q									230	238	240	254				238	230	222	213	216	224	240	121	

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	3	1	2	1	1	1	1	2		3	5	4	7	7	7	8	6	5	5	5	6	4	5	2
MED	101	115	98	99	97	97	99	97		105	121	110	113	119	107	106	108	99	91	91	96	97	97	93
U Q	113	57	99	49	48	48	49	97		145	137	114	131	131	115	115	111	105	99	105	99	98	109	95
L Q	97	57	97	49	48	48	49	97		95	106	103	113	107	105	103	103	95	89	89	91	93	96	91


MONTHLY MEDIANS PLOT OF foF2
FEB.2012
AUTOMATIC SCALING
UTC
18
0
6
12
△ : Wakkanai
⊠ : Kokubunji
⧖ : Yamagawa
✳ : Okinawa
FREQUENCY(MHz)
20
15
10
5
JST 0
6
12
18
24

IONOSPHERIC DATA STATION Kokubunji

FEB. 2012 fxI (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	X 44	X 46	X 47	X 50	X 53	X 37	X 37												X 44	X 43	X 46	X 44	X 43	X 42
2	X 47	X 46	X 48	X 50	X 46	X 42	X 41											X 80	X 57	X 43	X 42	X 41	X 42	X 41
3	X 42	X 44	X 45	X 49	X 46	X 40	X 37												X 58	X 51	X 42	X 36	A	A
4	X 39	X 42	X 44	X 46	X 37	X 28	X 29												X 48	X 55	X 56	X 53	X 52	A
5	X 43	X 48	X 46	X 48	X 47	X 45	X 46												X 62	X 54	X 48	X 39	A	X 36
6	X 38	X 37	X 41	X 42	X 42	A	X 29												X 50	X 48	X 42	X 36	X 37	X 38
7	X 39	X 41	X 42	X 41	X 36	X 35	X 37												X 48	X 42	X 38	O X 38	X 41	X 42
8	X 44	X 44	X 46	X 44	X 38	X 34	X 31												X 58	X 57	X 53	X 42	X 44	X 46
9	X 45	X 44	X 48	X 47	57	50	X 44												X 56	X 52	X 59	X 52	A	X 46
10	X 50	X 52	X 54	X 58	X 54	54	X 56												X 58	X 44	X 40	X 37	X 42	X 43
11	X 42	X 43	X 48	X 43	X 39	X 38	X 39												X 54	X 37	X 46	X 48	X 42	O X 41
12	X 40	X 42	X 42	X 42	X 45	X 39	X 35												X 62	X 59	X 53	X 47	X 47	54
13	58	X 54	X 56	X 60	X 64	X 45	X 49												X 52	X 52	X 53	X 56	X 43	X 42
14	49	50	50	54	54	50	X 42												X 66	X 66	X 55	X 48	X 36	X 42
15	X 44	X 46	X 48	X 48	X 47	X 45	X 49												X 84	X 46	X 44	X 41	X 44	X 44
16	X 48	X 48	X 45	X 48	X 35	X 39	X 44												X 79	X 59	A	X 36	A	A
17	X 40	X 42	X 45	X 46	X 47	X 42	X 44												X 57	X 54	X 49	X 35	X 35	X 39
18	X 40	X 39	X 42	X 41	X 42	X 39	X 41												X 57	X 55	X 48	X 32	X 35	X 39
19	X 38	X 38	X 41	X 41	X 42	X 37	X 40												X 69	X 48	X 48	X 56	X 48	X 43
20	X 43	X 47	X 46	X 49	X 51	X 40	X 44												X 71	X 60	X 59	X 55	X 44	X 41
21	X 44	X 46	X 45	X 45	X 50	X 41	X 43												X 57	X 63	X 53	X 41	X 41	A
22	X 49	X 49	X 48	X 47	X 44	X 41	X 42												X 65	X 47	X 48	X 45	X 44	X 45
23	X 44	X 40	X 40	X 44	X 42	X 36	X 41												A	X 44	X 51	A	X 39	X 38
24	X 40	X 40	X 43	X 44	X 42	X 40	X 41												A	X 48	X 52	X 42	X 42	X 44
25	X 45	X 47	X 46	X 46	X 47	X 43	X 48												X 70	X 57	X 43	X 42	A	X 43
26	X 45	X 49	X 48	X 39	O X 36	X 37	X 44												X 71	X 57	X 52	X 50	X 49	X 49
27	X 46	X 50	X 53	X 49	X 37	X 36	X 42												X 61	X 49	X 56	X 53	X 51	X 54
28	X 53	X 54	X 55	X 50	X 50	X 50	X 46												X 63	X 59	X 61	X 59	X 56	X 52
29	X 54	X 55	X 55	X 54	X 51	X 46	X 52												X 72	X 54	X 58	X 53	X 46	X 43
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	29	29	29	29	29	28	29											1	27	29	28	28	24	25
MED	X 44	X 46	X 46	X 47	X 46	X 40	X 42											X 80	X 58	X 52	X 50	X 43	X 43	X 43
U Q	X 48	X 49	X 48	X 50	X 50	X 45	X 45												X 69	X 57	X 54	X 52	X 46	X 46
L Q	X 40	X 42	X 44	X 44	X 40	X 37	X 38												X 56	X 46	X 45	X 38	X 41	X 41

IONOSPHERIC DATA STATION Kokubunji

FEB. 2012 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	38	40	40	44	47	31	31	56	74	71	83	82	94	90	89	79	80	67	37	36	40	38	37	36
2	41	40	42	43	40	36	35	58	74	84	83	72	85	89	95	105	83	74	51	37	35	35	36	35
3	36	38	39	43	40	34	31	57	79	81	89	81	90	99	99	80	67	65	52	45	36	30	A	A
4	33	36	38	40	31	22	22	55	77	80	86	84	86	88	80	75	67	60	42	49	49	46	46	A
5	37	41	40	42	41	38	40	66	82	95	119	111	109	98	92	76	64	58	56	48	42	33	A	30
6	32	31	34	36	36	A	23	54	74	80	84	91	96	90	84	71	70	58	43	42	36	30	31	32
7	33	34	36	35	30	29	31	62	74	80	86	90	100	86	93	84	69	54	42	36	32	32	34	36
8	38	38	40	38	34	28	25	54	81	75	97	77	92	87	86	76	74	58	52	51	46	35	38	40
9	39	37	42	41	F	F	38	59	77	79	73	83	90	90	76	77	66	60	50	46	53	46	A	40
10	44	46	48	52	48	F	50	60	66	73	82	90	90	100	80	74	70	63	52	38	34	30	36	36
11	36	36	42	37	33	32	33	58	76	94	83	81	83	84	88	72	74	65	48	31	40	42	36	35
12	34	36	36	36	39	32	29	56	70	76	81	90	104	98	76	78	69	66	56	53	47	41	41	F
13	F	48	50	54	58	39	43	63	76	70	84	88	87	102	81	78	66	70	46	46	47	50	37	35
14	F	F	F	F	F	F	36	60	85	92	98	88	96	88	82	74	73	62	60	58	49	42	30	36
15	38	40	42	42	41	39	42	61	70	83	114	100	97	96	85	84	87	76	78	40	38	35	38	38
16	42	42	38	42	29	33	37	68	75	96	114	106	97	89	104	95	96	82	73	53	A	30	A	A
17	34	36	39	40	40	36	38	66	80	90	98	98	93	100	100	100	86	75	51	48	43	28	29	33
18	34	33	34	35	36	32	35	60	75	88	86	93	107	114	98	81	75	72	51	49	42	26	29	32
19	32	32	35	35	36	31	34	60	83	89	92	92	100	103	100	101	85	78	63	42	42	50	42	37
20	37	40	40	43	45	34	37	66	80	85	94	105	114	97	84	91	87	70	64	54	53	48	38	35
21	38	39	39	39	43	35	37	60	79	106	107	119	101	90	84	82	77	73	51	57	47	35	35	A
22	43	43	42	41	38	35	36	61	71	83	84	90	105	94	95	78	83	79	59	41	42	39	38	39
23	38	34	34	38	36	30	35	65	77	91	94	103	96	100	98	93	82	74	A	37	45	A	33	34
24	34	34	37	37	36	34	35	62	70	78	82	V 89	102	92	98	A	85	77	A	42	46	36	36	38
25	39	40	40	40	41	37	42	68	83	88	88	90	108	110	100	85	77	73	64	51	37	36	A	37
26	39	43	42	33	30	31	38	65	92	94	97	103	112	112	92	76	68	70	64	51	46	44	43	43
27	40	44	47	43	31	30	36	65	82	91	97	98	98	88	84	80	81	77	55	42	50	47	45	48
28	47	48	49	44	44	44	40	73	71	87	103	106	124	124	118	94	80	82	57	53	55	53	50	46
29	48	49	49	48	45	40	46	74	90	92	94	98	100	114	105	97	91	84	66	48	52	47	40	37
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	25	29	29	29	29	29	29	29	29	29	28	29	29	27	29	28	28	24	24
MED	38	40	40	40	39	34	36	61	77	85	89	90	97	96	92	80	77	70	52	46	44	37	37	36
U Q	40	42	42	43	43	36	39	66	82	92	98	102	104	101	98	92	84	76	63	51	48	46	40	38
L Q	34	36	38	37	34	31	32	58	74	80	84	86	91	89	84	76	69	62	50	40	39	32	34	35

IONOSPHERIC DATA STATION Kokubunji

FEB.2012 foF1 (0.01MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1											L	L	L	L	L									
2									L		L	L	L	L	L									
3											L	L	L	A										
4												L	L	L	L									
5										L	U L 524	L	A	L	L	L								
6										L		L	L	A	A	A								
7										L	L	L	L	L	L									
8											L		U L 460	L	L	A								
9												A	A	A	A	A								
10												L	L	U L 456	L	A								
11											L	L	L	L	A									
12											L	L	L	L	A	A								
13											U L 520	L	L	L	L									
14										L	L	L	L	L	L	L								
15											L	A	L	A	A	L								
16										A	A	A	A	A	U L 472	L								
17												L	A	L	L	A								
18										L	L		L	A	L	L								
19									L	L	A	L	U L 484	L	L	L								
20											L	L	L	L		L								
21										L	L	L	L	L	L									
22											L	L	U L 480	L	L	L	L							
23										L	A	A	A	L	A	A	A							
24											L	L	L	L	L	A								
25										L	U L 460	U L 512	516	A	A	A								
26										L	L	L	L	U L 440	L	A								
27											L	L	L	L	L	L								
28											L	L	L	L	L	L								
29											L		A	L	A	A								
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											3	1	4	2	1									
MED											U L 520	U L 512	U L 482	U L 448	U L 472									
U Q											U L 524		500											
L Q											U L 460		U L 470											

FEB.2012 foF1 (0.01MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

FEB. 2012 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	R	R	R	A	A	A	A	A	U R 252	B						
2								B	R	R	R	R	R	R	R	R	A							
3								B	R	R	R	R	R	A	R	A	R	B						
4								B	R	A	A	A	R	A	R	R	A	B						
5								B	A	R	A	R	A	R	R	A	A	B						
6								B	U R 264	R	R	A	R	A	A	A	248	B						
7								B	R	R	R	R	A	R	R	R	A	B						
8								176	R	R	R	R	R	R	R	A	R	B						
9								B	276	R	344	R	A	A	A	A	A	B						
10								B	A	R	R	R	R	R	R	A	A	B						
11								204	R	A	R	R	R	R	A	A	R	B						
12								B	R	R	A	R	A	A	A	A	A	B						
13								B	R	R	R	R	A	A	A	R	R	176						
14								B	256	R	A	R	R	R	R	R	R	B						
15								B	R	A	A	A	A	A	A	A	R	B						
16								B	U R 256	A	A	A	A	A	R	R	A	B						
17								U R 216	A	A	A	A	A	A	A	A	R	U R 180						
18								U R 208	R	R	R	R	R	A	R	A	A	B						
19								U R 212	R	R	A	R	R	A	R	R	A	B						
20								188	R	R	A	R	A	R	R	R	R	U R 180						
21								U R 196	R	R	R	R	A	A	A	R	R	U R 196						
22								B	R	R	R	R	R	R	R	R	R	B						
23								184	260	R	A	A	A	A	328	A	A	B						
24								U R 184	R	A	R	R	A	A	A	A	A	A						
25								208	R	R	A	A	A	A	A	A	A	B						
26								208	R	A	A	R	R	R	R	A	A	B						
27								220	R	R	R	R	R	A	R	R	R	U A 176						
28								U R 224	R	R	R	A	R	R	R	R	R	R						
29								224	R	A	R	A	A	A	A	A	A	B						
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	5		1				1		2	5						
MED								208	260		344				328		250	U R 180						
U Q								216	270									U R 188						
L Q								188	256									176						

FEB. 2012 foE (0.01MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

FEB. 2012 foEs (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E B 14	E B 15	E B 16	E B 15	E B 14	E B 14	E B 16	20	G 22	G	G 25	41	40	40	J A 38	J A 38	G	E B 16	E B 15	E B 14	E B 14	E B 16	22	J A 30
2	J A 26	J A 22	E B 15	E B 15	J A 23	21	E B 14	21	G	G 28	G 26	G 26	G	G 32	G	G 28	27	J A 22	E B 15	E B 15	E B 15	E B 14	E B 14	E B 14
3	J A 46	J A 24	J A 29	J A 22	32	J A 22	J A 20	E B 15	G	G	G	G	G	45	G	43	G	E B 14	J A 26	E B 14	J A 29	J A 19	J A 60	J A 60
4	J A 32	J A 30	J A 29	J A 23	J A 37	21	J A 19	25	G	45	39	42	G	J A 66	G 26	G 26	J A 40	J A 31	J A 50	J A 55	J A 51	E B 14	E B 15	J A 44
5	J A 40	J A 36	J A 33	J A 45	J A 22	J A 19	19	22	36	G 25	40	G 32	J A 39	G 26	G	J A 38	J A 28	J A 26	J A 32	J A 31	J A 28	J A 21	28	22
6	22	22	J A 34	J A 38	J A 29	J A 47	E B 15	E B 18	G	G 23	G 28	J A 42	G 31	42	J A 52	J A 43	30	J A 34	J A 36	19	E B 14	E B 29	E B 15	E B 14
7	J A 26	J A 17	E B 15	20	E B 15	E B 15	E B 14	22	G	G 27	G 29	G	35	G 27	G 26	G 24	J A 32	25	J A 21	E B 14	E B 16	E B 14	E B 15	E B 15
8	E B 15	E B 14	E B 15	E B 14	E B 14	E B 14	20	24	G	G	G	G	G	G	G	38	G 21	E B 15	E B 14	E B 15	E B 14	E B 23	E B 14	21
9	J A 24	E B 16	E B 15	J A 22	J A 22	20	E B 15	E B 15	35	G	40	G	42	45	44	J A 50	J A 68	44	J A 38	J A 30	J A 29	J A 43	J A 46	21
10	J A 20	E B 15	E B 14	21	18	21	J A 25	J A 39	J A 42	G	G	G	G	G 27	G 28	36	28	E B 14	E B 15	J A 21	J A 21	J A 33	E B 14	E B 15
11	21	18	J A 64	20	E B 15	24	J A 18	26	G	41	G 30	G 31	G	G	41	40	G	J A 29	E B 15	J A 22	J A 38	J A 23	E B 15	E B 15
12	J A 16	J A 29	22	J A 33	20	21	22	24	G 21	G 25	40	G	41	39	43	41	39	J A 23	J A 21	J A 22	J A 29	J A 37	22	20
13	20	J A 35	21	19	E B 15	J A 22	21	E B 15	G	G 25	G 24	G 28	36	40	39	G	G 25	24	19	J A 18	41	J A 62	J A 39	J A 20
14	J A 33	21	20	20	18	E B 16	E B 14	E B 15	36	G 27	J A 38	G 28	G	G	G 26	G 26	G 21	E B 15	37	E B 15	J A 22	24	21	E B 15
15	E B 15	18	E B 14	E B 16	E B 15	E B 15	E B 15	E B 15	G	36	38	J A 42	J A 63	J A 44	40	30	G 21	E B 15	E B 15	E B 15	18	E B 15	E B 15	19
16	E B 15	19	18	E B 15	E B 15	E B 14	E B 14	25	G 21	J A 45	J A 45	J A 67	J A 68	J A 63	G	G 24	J A 36	J A 37	J A 29	J A 18	J A 87	J A 29	J A 44	J A 44
17	J A 20	21	J A 19	E B 15	E B 15	E B 15	E B 16	G	30	J A 39	40	40	41	J A 46	J A 47	40	G	G	J A 22	E B 14	E B 16	21	19	E B 15
18	E B 15	E B 15	E B 15	E B 14	E B 15	E B 15	E B 15	G	G	G 25	G 27	G	G	42	G	J A 39	J A 32	J A 32	J A 24	E B 14	E B 14	21	22	21
19	E B 16	E B 15	E B 15	18	E B 15	E B 14	E B 15	G	G 22	G 28	42	G	G	38	G	G 28	31	21	E B 15	J A 18	E B 14	E B 14	E B 15	E B 14
20	E B 15	E B 14	E B 15	E B 14	E B 14	E B 14	E B 15	G	G	G 23	38	G	41	G	G	G 28	G 24	G	E B 15	E B 15	E B 20	J A 15	E B 14	E B 15
21	J A 42	J A 26	J A 22	E B 15	E B 15	E B 15	E B 14	G	G 23	G	G 29	G	39	36	39	G 24	G 23	G	E B 14	E B 15	E B 15	E B 14	E B 15	J A 25
22	J A 27	21	E B 15	E B 15	E B 14	E B 15	E B 15	E B 14	G	G 26	G 29	G	E B 18	G	G	G 24	G 22	J A 24	28	J A 43	J A 30	J A 15	J A 29	J A 20
23	J A 20	E B 15	21	20	E B 14	E B 15	19	25	34	G 30	42	J A 46	J A 60	41	41	40	J A 44	27	J A 94	J A 32	J A 56	J A 30	E B 14	E B 14
24	E B 14	E B 14	E B 14	E B 15	E B 14	E B 15	E B 15	25	G 24	J A 39	G 23	G	41	39	42	J A 91	J A 52	J A 56	J A 60	J A 28	J A 18	J A 20	J A 31	21
25	22	J A 22	E B 14	E B 14	E B 15	J A 44	J A 22	G	G 20	G 26	37	J A 44	J A 44	J A 54	J A 45	J A 47	J A 48	J A 57	J A 42	J A 56	J A 25	J A 20	J A 48	J A 32
26	J A 26	J A 28	J A 24	E B 15	21	J A 18	22	G	G 27	40	36	G	G	G 29	G 28	J A 41	42	J A 39	J A 36	J A 22	J A 21	J A 23	20	E B 14
27	E B 15	J A 23	J A 42	J A 24	J A 25	J A 21	J A 18	28	G 27	G 28	G 26	G	G	38	G	G 24	G	22	E B 15	E B 14	E B 15	E B 15	22	J A 20
28	22	J A 24	J A 22	20	E B 14	E B 14	E B 14	G	G	G	G	J A 44	G	G 32	G 28	G 26	G 22	G	E B 15	E B 15	E B 15	J A 18	19	E B 14
29	E B 15	E B 14	E B 14	J A 22	20	E B 15	E B 15	26	G 21	38	G	43	J A 62	J A 42	J A 50	39	37	J A 42	J A 39	J A 30	J A 32	22	E B 14	E B 15
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	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29
MED	20	21	18	19	E B 15	E B 15	E B 15	G	G	G	G	G	35	39	G	38	28	24	J A 22	J A 18	J A 21	J A 21	19	20
U Q	J A 26	J A 24	J A 23	J A 22	J A 22	J A 21	20	25	G	37	40	J A 42	J A 41	J A 43	42	J A 40	J A 38	J A 33	J A 36	J A 29	J A 30	J A 26	J A 28	J A 22
L Q	E B 15	E B 15	E B 15	E B 15	E B 14	E B 15	E B 15	G	G 24	G 26	G 28	G	G	G	G	G 26	G 24	G	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15

FEB. 2012 foEs (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

FEB. 2012 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 14	E B 15	E B 16	E B 15	E B 14	E B 14	E B 16	19	G 20	G	G 24	36	37	37	36	31	G	E B 16	E B 15	E B 14	E B 14	E B 16	E B 15	17
2	18	E B 15	E B 15	E B 15	E B 15	E B 15	E B 14	20	G	G 25	G 25	G 26	G	G 30	G	G 24	23	19	E B 15	E B 15	E B 15	E B 14	E B 14	E B 14
3	E B 15	18	23	15	28	18	E B 15	E B 15	G	G	G	G	G	41	G	39	G	E B 14	20	E B 14	21	16	A A 60	A A 60
4	E B 15	20	23	18	18	E B 16	E B 15	22	G	36	34	37	G	38	G 25	G 22	34	22	20	37	34	E B 14	E B 15	A A 44
5	16	23	20	26	18	E B 15	E B 15	20	32	G 23	36	G 32	37	G 24	G	30	24	20	18	17	20	15	A A 28	E B 15
6	E B 15	E B 14	23	24	24	A A 47	E B 15	E B 18	G	G 20	G 26	36	G 30	40	46	39	30	28	34	E B 16	E B 14	E B 14	E B 15	E B 14
7	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	E B 14	20	G	G 25	G 27	G	32	G 24	G 24	G 24	26	20	E B 15	E B 14	E B 16	E B 14	E B 15	E B 15
8	E B 15	E B 14	E B 15	E B 14	E B 14	E B 14	E B 15	22	G	G	G	G	G	G	G	34	G 20	E B 15	E B 14	E B 15	E B 14	20	E B 14	E B 14
9	18	E B 16	E B 15	18	E B 15	E B 14	E B 15	E B 15	31	G	39	G	39	41	41	44	35	38	28	25	22	E B 14	A A 46	E B 15
10	E B 15	E B 15	E B 14	E B 15	E B 15	E B 14	22	31	33	G	G	G	G	G 24	G 26	31	26	E B 14	E B 15	E B 14	E B 15	20	E B 14	E B 15
11	E B 15	E B 16	23	E B 15	E B 15	20	17	24	G	39	G 27	G 28	G	G	39	37	G	26	E B 15	19	22	20	E B 15	E B 15
12	14	22	E B 15	E B 15	E B 15	E B 15	16	23	G 21	G 23	38	G	39	38	42	37	36	20	E B 15	19	26	21	16	E B 15
13	E B 15	18	E B 15	E B 15	E B 15	18	E B 15	E B 15	G	G 24	G 24	G 26	32	36	32	G	G 25	22	18	E B 16	37	32	28	16
14	18	E B 15	E B 14	E B 15	E B 16	E B 16	E B 14	E B 15	35	G 26	36	G 26	G	G	G 23	G 24	G 20	E B 15	25	E B 15	19	20	E B 15	E B 15
15	E B 15	E B 15	E B 14	E B 16	E B 15	E B 15	E B 15	E B 15	G	32	35	39	38	38	35	28	G 20	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15
16	E B 15	E B 14	E B 16	E B 15	E B 15	E B 14	E B 14	23	G 20	40	41	51	54	43	G	G 23	30	30	28	A A 15	A A 87	20	A A 44	A A 44
17	E B 15	20	E B 15	E B 15	E B 15	E B 15	E B 16	G	26	34	36	38	36	40	36	36	G	G	E B 16	E B 14	E B 16	E B 14	E B 15	E B 15
18	E B 15	E B 15	E B 14	E B 15	E B 15	E B 15	E B 15	G	G	G 24	G 27	G	G	40	G	30	30	26	20	E B 14	E B 14	E B 15	E B 15	E B 15
19	E B 16	E B 15	E B 15	E B 15	E B 15	E B 14	E B 15	G	G 20	G 28	39	G	G	36	G	G 26	28	20	E B 15	E B 15	E B 14	E B 14	E B 15	E B 14
20	E B 15	E B 14	E B 15	E B 14	E B 14	E B 15	E B 15	G	G	G 22	G 35	G	36	G	G	G 26	G 22	G	E B 15	E B 15	E B 16	E B 15	E B 14	E B 15
21	19	18	E B 15	E B 15	E B 15	E B 15	E B 14	G	G 22	G	G 26	G	38	33	35	G 23	G 23	G	E B 14	E B 15	E B 15	E B 14	E B 15	A A 25
22	E B 22	E B 15	E B 15	E B 15	E B 14	E B 15	E B 15	E B 14	G	G 25	G 26	G	E B 18	G	G	G 23	G 22	19	24	20	17	E B 15	16	E B 16
23	E B 15	E B 15	E B 15	E B 14	E B 14	E B 15	E B 15	22	30	G 29	40	42	53	35	38	33	37	26	A A 94	20	34	A A 30	E B 14	E B 14
24	E B 14	E B 14	E B 14	E B 15	E B 14	E B 15	E B 15	22	G 22	34	G 21	G	36	38	38	A A 91	44	44	A A 60	24	E B 15	15	17	E B 15
25	19	E B 15	E B 14	E B 14	E B 15	26	18	G	G 18	G 23	35	39	40	41	40	43	43	48	38	45	22	E B 15	A A 48	25
26	20	19	18	E B 15	E B 16	E B 15	E B 15	G	G 26	36	35	G	G	G 27	G 26	36	37	28	24	19	18	18	E B 14	E B 14
27	E B 15	E B 15	34	E B 15	18	E B 16	E B 14	24	G 26	G 27	G 24	G	G	37	G	G 21	G	21	E B 15	E B 14	E B 15	E B 15	E B 15	18
28	E B 15	19	E B 15	E B 15	E B 14	E B 14	E B 14	G	G	G	G	40	G	G 28	G 28	G 25	G 22	G	E B 15	E B 15	E B 15	E B 16	E B 15	E B 14
29	E B 15	E B 14	E B 14	E B 15	E B 15	E B 15	E B 15	24	G 20	35	G	37	59	35	39	35	32	36	30	23	22	E B 16	E B 14	E B 15
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	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29
MED	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	G	G	G	G	G	32	36	G	30	G	20	18	E B 15	E B 16	E B 15	E B 15	E B 15
U Q	17	18	17	15	16	16	15	22	G	33	36	37	38	39	38	36	33	27	26	20	22	20	A A 16	16
L Q	E B 15	E B 15	E B 15	E B 15	E B 14	E B 14	E B 14	G	G 22	G 24	G 26	G	G	G	G	G 24	G 23	G	E B 15	E B 14	E B 15	E B 14	E B 14	E B 14

FEB. 2012 fbEs (0.1MHz)

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IONOSPHERIC DATA STATION Kokubunji

FEB. 2012 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	14	15	16	15	14	14	16	14	14	14	15	19	18	18	20	16	14	16	15	14	14	16	15	14
2	15	16	15	15	14	14	14	16	15	20	14	17	19	19	20	16	15	14	15	15	15	14	14	14
3	15	14	13	14	13	15	15	15	15	18	17	23	18	18	16	18	13	14	14	14	14	14	14	15
4	15	14	15	14	14	16	15	16	15	21	16	18	19	16	14	16	12	14	15	14	15	14	15	13
5	14	15	15	15	16	15	15	14	17	14	14	15	17	18	18	15	14	15	15	15	15	15	15	15
6	15	14	15	14	14	15	15	18	17	14	18	16	16	15	16	14	14	14	16	16	14	14	15	14
7	15	15	15	15	15	15	14	14	14	14	15	18	16	19	14	15	14	14	15	14	16	14	15	15
8	15	14	15	14	14	14	15	15	17	15	18	16	16	18	15	13	13	15	14	15	14	14	14	14
9	15	16	15	15	14	14	15	15	15	17	19	20	20	18	18	16	13	14	14	14	14	14	15	15
10	15	15	14	15	15	14	16	15	15	14	17	19	18	16	18	12	13	14	15	14	15	14	14	15
11	15	16	14	15	15	13	16	14	13	16	18	17	22	17	18	17	16	14	15	14	15	14	15	15
12	14	16	15	15	15	15	15	16	13	14	16	21	15	18	14	18	13	14	15	14	14	14	15	15
13	15	14	15	15	15	15	15	15	15	15	14	15	13	17	14	16	13	15	15	16	15	14	15	14
14	15	15	14	15	16	16	14	15	14	14	14	18	18	15	15	15	14	15	15	15	14	14	15	15
15	15	15	14	16	15	15	15	15	15	14	16	16	16	17	20	16	12	15	15	15	15	15	15	15
16	15	14	16	15	15	14	14	15	14	13	10	17	20	17	15	13	14	14	14	14	15	15	15	14
17	15	15	15	15	15	15	16	15	14	14	19	17	17	23	20	16	16	14	14	14	16	14	15	15
18	15	15	15	14	15	15	15	15	17	12	14	19	18	17	16	15	17	14	15	14	14	15	15	15
19	16	15	15	15	15	14	15	15	13	16	15	19	19	18	16	16	14	13	15	15	14	14	15	14
20	15	14	15	14	14	15	15	15	16	14	16	15	18	18	17	15	14	14	15	15	16	15	14	15
21	15	15	15	15	15	15	14	14	14	16	17	17	17	15	22	14	13	14	14	15	15	14	15	14
22	22	15	15	15	14	15	15	14	16	12	18	21	18	17	20	14	14	14	15	13	14	15	15	16
23	15	15	15	14	14	15	15	14	13	14	16	20	18	16	14	16	13	13	14	13	16	15	14	14
24	14	14	14	15	14	15	15	15	13	15	14	23	16	18	14	13	13	13	14	14	15	15	13	15
25	16	15	14	14	15	15	15	14	14	15	18	22	19	22	16	18	17	14	18	13	15	15	14	14
26	15	14	14	15	16	15	15	15	12	16	15	17	17	19	14	14	14	14	14	15	15	14	14	14
27	15	15	15	15	15	16	14	14	15	14	16	16	20	18	17	15	13	14	15	14	15	15	15	16
28	15	15	15	15	14	14	14	14	14	16	19	20	20	17	17	16	16	14	15	15	15	16	15	14
29	15	14	14	15	15	15	15	15	13	15	20	22	22	16	16	17	12	12	15	15	14	16	14	15
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	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29
MED	15	15	15	15	15	15	15	15	14	14	16	18	18	18	16	16	14	14	15	14	15	14	15	15
U Q	15	15	15	15	15	15	15	15	15	16	18	20	19	18	18	16	14	14	15	15	15	15	15	15
L Q	15	14	14	14	14	14	14	14	14	14	14	16	16	16	14	14	13	14	14	14	14	14	14	14

IONOSPHERIC DATA STATION Kokubunji

FEB. 2012 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	311	317	315	323	370	312	328	358	370	367	348	333	346	335	340	352	363	365	352	327	317	330	311	306
2	298	312	327	322	330	325	330	363	350	359	358	341	331	328	327	345	353	356	367	344	316	330	311	308
3	302	305	305	335	342	326	327	354	365	355	358	329	343	327	338	357	357	349	361	339	325	307	A	A
4	295	314	318	354	361	278	309	342	356	347	355	336	348	346	354	356	370	354	332	302	309	331	326	A
5	298	293	292	307	308	304	334	358	364	337	338	332	339	328	345	356	347	345	340	343	347	337	A	300
6	296	297	284	334	367	A	316	341	365	350	334	343	329	353	362	361	352	385	327	338	354	324	292	306
7	303	314	343	328	320	277	317	375	352	364	348	342	348	334	344	362	366	375	338	337	310	299	290	316
8	324	325	308	312	310	338	312	344	359	379	353	347	351	341	348	361	363	372	332	331	346	295	305	298
9	304	303	316	322	F	F	329	371	366	375	351	354	351	344	356	372	365	349	343	328	341	358	A	308
10	311	310	311	328	313	F	315	364	377	364	344	350	352	352	373	352	357	356	350	342	349	330	318	315
11	289	328	336	334	324	319	321	359	373	352	347	342	344	329	365	334	368	357	357	317	322	335	325	308
12	304	295	304	320	347	327	334	362	353	350	349	333	343	349	338	339	354	363	347	343	365	288	295	F
13	F	299	303	325	362	328	322	365	370	362	344	353	323	348	346	347	344	368	343	321	335	344	332	325
14	F	F	F	F	F	F	320	354	345	365	354	335	342	343	352	350	356	358	336	337	341	339	329	312
15	289	302	298	288	309	297	326	366	347	334	351	347	336	346	323	336	344	342	358	346	316	304	290	297
16	290	311	326	353	281	293	361	378	328	335	351	337	328	333	338	333	348	365	357	346	A	340	A	A
17	316	330	308	325	350	305	351	375	367	355	339	343	339	323	344	350	361	375	351	330	367	344	302	303
18	275	296	296	301	323	314	354	367	363	362	358	326	334	349	356	359	346	367	338	343	362	347	297	296
19	289	292	304	326	343	310	342	377	355	341	353	340	321	334	331	329	346	338	340	351	302	328	319	295
20	302	297	298	324	354	311	325	363	369	344	331	324	345	335	327	342	357	362	342	316	316	314	319	291
21	301	305	295	319	352	316	339	352	341	336	331	348	348	342	347	342	347	360	315	339	354	284	317	A
22	298	283	313	333	340	337	326	373	364	345	346	333	336	341	349	335	352	359	358	327	306	313	296	291
23	315	317	308	324	342	310	334	351	355	340	349	336	327	325	335	352	363	354	A	341	331	A	319	296
24	306	310	305	331	346	352	360	379	343	351	327	V 325	336	297	343	A	353	362	A	310	339	312	321	313
25	307	322	311	312	338	322	333	359	356	349	342	331	329	327	333	340	339	346	342	355	311	310	A	297
26	308	307	363	324	306	289	317	364	373	343	343	322	324	331	342	363	350	343	353	348	312	313	299	283
27	290	304	333	353	377	310	312	351	356	358	341	336	335	332	337	347	347	356	334	305	306	315	295	297
28	280	283	293	312	308	311	301	358	341	329	318	313	319	317	339	339	339	352	337	300	304	306	314	291
29	287	287	308	316	302	309	334	357	355	337	336	325	289	324	334	326	347	357	356	306	325	322	318	307
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	25	29	29	29	29	29	29	29	29	29	28	29	29	27	29	28	28	24	24
MED	301	305	308	324	340	311	327	362	356	350	347	336	336	334	343	348	353	357	343	337	325	323	312	302
U Q	307	314	317	332	352	326	334	369	366	362	352	343	346	345	350	356	362	365	356	343	346	336	319	308
L Q	290	296	300	318	310	304	317	354	351	340	338	330	328	328	336	339	347	350	337	319	312	308	296	296

IONOSPHERIC DATA STATION Kokubunji

FEB.2012 M(3000)F1 (0.01) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1											L	L	L	L	L									
2									L		L	L	L	L	L									
3											L	L	L	A										
4												L	L	L	L									
5										L	U L 323	L	A	L	L	L								
6										L		L	L	A	A	A								
7										L	L	L	L	L	L									
8											L		U L 373	L	L	A								
9												A	A	A	A	A								
10												L	L	U L 371	L	A								
11											L	L	L	L	A									
12											L	L	L	L	A	A								
13											U L 369	L	L	L	L									
14										L	L	L	L	L	L	L								
15											L	A	L	A	A	L								
16										A	A	A	A	A	U L 363	L								
17												L	A	L	L	A								
18										L	L		L	A	L	L								
19									L	L	A	L	U L 380	L	L	L								
20											L	L	L	L		L								
21										L	L	L	L	L	L									
22											L	L	U L 382	L	L	L	L							
23										L	A	A	A	L	A	A	A							
24											L	L	L	L	L	A								
25										L	U L 410	U L 368	360	A	A	A								
26										L	L	L	L	U L 402	L	A								
27											L	L	L	L	L	L								
28											L	L	L	L	L	L								
29											L		A	L	A	A								
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											3	1	4	2	1									
MED											U L 369	U L 368	U L 376	U L 386	U L 363									
U Q											U L 410		U L 381											
L Q											U L 323		366											

FEB.2012 M(3000)F1 (0.01)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

FEB. 2012 h'F2 (KM) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1											244	258	250	258	254									
2									234		240	240	278	264	256									
3											244	248	256	254										
4												252	256	254	242									
5										248	260	234	246	250	226	238								
6										238		252	252	234	244	228								
7										242	252	244	256	272	254									
8											254		260	260	246	228								
9												238	248	252	226	228								
10												254	240	252	226	226								
11											246	258	258	266	226									
12											244	272	258	242	242	234								
13											268	230	262	246	236									
14										238	256	254	250	252	256	252								
15											250	232	256	244	242	248								
16										270	246	248	246	248	264	236								
17												238	234	244	254	236								
18										240	224		266	248	244	234								
19									246	244	240	260	270	236	262	248								
20											250	258	246	246		252								
21										258	236	232	240	250	252									
22											252	258	248	250	242	254	250							
23										252	242	256	248	264	248	242	232							
24											264	254	250	266	256	A								
25										240	240	272	276	254	248	244								
26										254	232	258	260	248	236	232								
27											248	266	256	256	254	248								
28											274	266	274	252	242	238								
29											258		E A 254	260	246	244								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT									2	11	24	26	29	29	27	20	2							
MED									240	244	247	254	256	252	246	238	241							
U Q										254	255	258	260	259	254	248								
L Q										240	241	240	248	247	242	233								

FEB. 2012 h'F2 (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

FEB. 2012 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 288	E B 260	E B 262	E B 246	206	200	232	216	210	208	202	212	204	210	208	222	220	200	190	E B 250	E B 242	E B 238	E B 254	E A 312
2	E A 306	E B 264	E B 236	E B 240	224	226	E B 226	212	190	220	208	196	212	198	210	236	216	208	196	222	E B 234	E B 236	E B 258	E B 258
3	E B 270	E A 286	E A 292	E A 240	E A 254	226	E B 240	212	214	218	208	208	208	A	230	224	212	214	200	206	E A 236	E A 266	A	A
4	E B 312	E A 288	E A 270	228	224	E B 304	E B 318	232	218	224	240	192	198	212	194	224	212	212	232	E A 292	E A 286	228	E B 234	A
5	E A 258	E A 316	E A 306	E A 298	E A 242	E B 270	E B 252	222	228	202	188	196	A	216	202	206	208	208	222	214	226	228	A	E B 304
6	E B 306	E B 306	E A 348	E A 266	E A 236	A	E B 288	230	212	196	206	198	202	A	A	A	218	202	E A 296	224	E B 212	E B 244	E B 294	E B 278
7	E B 284	E B 260	E B 236	E B 242	E B 240	E B 328	E B 258	208	208	206	210	206	186	200	214	226	210	200	222	222	E B 240	E B 290	E B 310	E B 266
8	E B 240	E B 250	E B 260	E B 246	206	204	E B 268	230	226	216	210	210	208	208	208	A	218	202	208	E B 216	214	228	E B 274	E B 260
9	E A 280	E B 282	E B 264	E A 256	228	214	216	208	208	212	218	A	A	A	A	A	210	220	212	E A 240	228	206	A	E B 248
10	E B 248	E B 254	E B 236	230	228	E B 300	E A 244	212	206	218	226	212	206	214	202	A	212	212	200	202	214	E A 290	E B 246	E B 274
11	E B 282	E B 250	E A 252	E B 228	216	E A 268	E A 258	228	208	E A 238	200	206	198	198	A	226	216	214	192	E A 278	E A 268	E A 230	224	E B 246
12	E B 284	E A 296	E B 280	E B 266	220	214	E A 266	216	214	220	200	206	204	214	A	A	220	210	202	220	212	224	E A 238	E B 258
13	E B 238	E A 286	E B 268	E B 238	212	212	224	H 176	216	214	194	204	198	198	202	220	218	222	198	228	E A 260	E A 246	E A 244	E A 240
14	E A 292	E B 302	E B 314	E B 268	E B 214	218	E B 226	210	218	206	212	194	210	204	200	206	214	208	224	214	208	220	216	E B 286
15	E B 294	E B 284	E B 270	E B 308	E B 266	E B 266	E B 228	208	216	222	204	A	208	A	A	202	226	214	208	E B 192	E B 248	E B 268	E B 298	E B 314
16	E B 286	E B 242	E B 242	220	E B 264	E B 282	210	206	226	A	A	A	A	A	216	196	226	206	210	198	A	E A 232	A	A
17	E B 278	E A 278	E B 262	E B 236	218	E B 266	208	212	210	212	214	194	A	206	208	A	214	204	196	222	200	210	E B 284	E B 288
18	E B 300	E B 294	E B 294	E B 268	E B 246	E B 234	224	212	212	206	H 178	208	E A 236	A	208	204	214	206	196	208	198	216	E B 270	E B 278
19	E B 306	E B 320	E B 286	E B 252	232	E B 260	232	208	204	204	A	208	208	208	212	210	216	212	194	202	E B 284	E B 238	228	E B 272
20	E B 292	E B 286	E B 274	E B 252	216	E B 258	E B 248	H 192	218	216	204	204	194	198	218	214	222	208	210	214	228	E B 232	206	E B 276
21	E A 310	E A 290	E B 298	E B 258	224	E B 232	228	216	218	216	210	200	202	200	200	226	218	214	196	220	198	E B 236	E B 266	A
22	E B 296	E B 282	E B 264	224	218	E B 224	E B 222	206	212	224	214	206	218	208	200	196	214	212	200	230	E A 256	E B 238	E A 272	E B 284
23	E B 258	E B 244	E B 266	E B 254	E B 222	E B 266	E B 232	224	220	212	A	A	A	190	A	A	A	218	A	224	E A 274	A	E B 268	E B 280
24	E B 282	E B 286	E B 268	E B 246	226	220	218	208	214	220	214	206	202	218	218	A	224	222	A	E A 256	220	224	E A 266	E B 260
25	E A 296	E B 248	E B 258	E B 260	226	E A 280	228	216	218	196	182	206	210	A	A	A	230	E A 234	226	E A 262	E A 254	E B 274	A	E A 342
26	E A 294	E A 270	216	220	E B 258	E B 308	E B 240	222	218	212	192	194	192	184	192	A	220	220	218	218	222	226	E B 248	E B 274
27	E B 282	E B 272	E A 266	208	204	E B 274	E B 246	214	222	E A 234	204	202	212	206	198	202	216	212	198	214	E B 256	E B 228	E B 286	E A 284
28	E B 282	E A 304	E B 270	E B 248	E B 230	E B 250	E B 256	208	210	214	198	218	202	196	190	198	216	216	198	E B 252	E B 252	E B 232	E B 230	E B 262
29	E B 286	E B 276	E B 248	E B 246	E B 254	E B 226	226	220	218	218	194	224	A	214	A	A	232	220	214	E A 238	E A 256	E B 230	E B 226	E B 260
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	29	29	29	29	29	28	29	29	29	28	26	25	23	22	21	18	28	29	27	29	28	28	24	25
MED	E B 286	E B 282	E B 266	E B 246	220	E B 254	E B 232	212	214	214	205	206	204	206	208	212	216	212	201	218	E 235	E 232	E B 256	E B 274
U Q	E B 296	E 292	E B 283	E B 259	E B 241	E B 272	E B 254	221	218	220	212	208	210	212	213	224	220	217	218	E A 239	E A 256	E B 241	E B 273	E B 285
L Q	E B 279	E B 260	E B 255	233	217	222	225	208	210	207	198	197	198	198	200	202	214	207	196	214	214	227	232	E B 260

FEB. 2012 h′F (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

FEB. 2012 h′E (KM) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1								B	122	116	116	A	A	A	A	A	120	B						
2								B	112	120	120	120	118	120	120	124	A							
3								B	124	126	120	126	122	122	124	A	126	B						
4								B	120	124	114	118	128	A	112	116	118	B						
5								B	116	118	120	118	A	112	116	A	A	B						
6								B	118	118	116	A	120	120	120	120	118	B						
7								B	118	118	120	120	A	116	114	114	A	B						
8								120	116	118	120	122	132	120	118	A	118	B						
9								B	122	122	124	124	126	128	120	120	A	B						
10								B	A	118	120	120	118	118	118	A	122	B						
11								128	122	A	112	116	120	118	112	114	118	B						
12								B	120	120	120	120	120	120	120	116	116	B						
13								B	118	118	118	112	A	A	A	114	116	118						
14								B	118	118	A	116	116	112	112	116	116	B						
15								B	114	A	A	A	A	A	A	A	114	B						
16								B	116	A	A	A	A	A	110	118	A	B						
17								118	A	A	A	A	A	A	A	A	122	124						
18								118	122	126	118	122	122	A	118	A	A	B						
19								122	120	122	A	120	118	118	114	122	122	B						
20								120	120	118	A	118	A	124	124	118	118	124						
21								124	122	120	120	116	A	A	A	114	116	118						
22								B	116	114	116	112	116	118	118	116	120	B						
23								120	118	118	118	118	A	A	120	128	A	B						
24								128	120	A	120	124	A	A	124	A	A	A						
25								116	114	114	A	A	A	A	A	A	A	B						
26								112	120	A	A	122	118	122	118	A	A	B						
27								122	124	118	120	118	120	A	114	118	116	118						
28								118	112	118	118	A	120	120	120	118	118	118						
29								118	120	A	120	A	A	A	A	A	A	B						
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	27	22	21	21	16	16	22	17	18	6						
MED								120	120	118	120	120	120	120	118	118	118	118						
U Q								122	122	120	120	122	122	121	120	120	120	124						
L Q								118	116	118	117	117	118	118	114	115	116	118						

FEB. 2012 h′E (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

FEB. 2012 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	B	B	B	B	B	B	B	148	104	G	104	108	106	108	108	108	G	B	B	B	B	B	100	94
2	98	98	B	B	102	100	B	158	G	106	104	104	G	104	G	106	106	90	B	B	B	B	B	B
3	96	96	96	96	94	92	98	B	G	G	G	G	G	122	G	108	G	B	102	B	102	124	102	102
4	104	102	100	100	98	102	142	136	G	120	120	116	G	92	94	100	114	112	108	104	100	B	B	98
5	96	94	94	94	96	96	94	148	134	108	114	104	100	102	G	104	102	100	100	96	96	100	98	100
6	104	100	100	96	96	96	B	B	G	102	106	106	106	122	122	122	150	142	108	98	B	104	B	B
7	98	106	B	96	B	B	B	144	G	106	106	G	100	98	96	96	88	88	90	B	B	B	B	B
8	B	B	B	B	B	B	146	142	G	G	G	G	G	G	G	106	104	B	B	B	B	96	B	126
9	108	B	B	96	98	102	B	B	144	G	142	G	126	120	114	118	108	98	100	100	98	104	96	98
10	92	B	B	108	110	110	100	104	98	G	G	G	G	100	106	100	128	B	B	112	110	106	B	B
11	104	114	102	102	B	152	94	150	G	94	96	94	G	G	122	116	G	102	B	102	102	102	B	B
12	102	100	102	102	102	102	110	148	100	106	128	G	122	116	116	128	116	108	108	104	102	98	96	94
13	94	106	112	98	B	94	92	B	G	106	98	96	96	98	98	G	100	142	118	108	96	96	96	96
14	98	94	94	94	94	B	B	B	160	100	98	100	G	G	92	102	104	B	104	B	98	112	110	B
15	B	100	B	B	B	B	B	B	G	106	108	104	104	104	106	106	104	B	B	B	108	B	B	134
16	B	110	108	B	B	B	B	142	104	108	104	106	102	96	G	100	108	110	110	106	106	100	100	100
17	100	100	98	B	B	B	B	G	106	108	106	108	110	106	104	106	G	G	104	B	B	98	102	B
18	B	B	B	B	B	B	B	G	G	108	100	G	G	102	G	98	104	98	98	B	B	110	112	112
19	B	B	B	108	B	B	B	G	108	108	94	G	G	116	G	104	118	124	B	106	B	B	B	B
20	B	B	B	B	B	B	B	G	G	104	104	G	110	G	G	104	106	G	B	B	96	B	B	B
21	98	98	98	B	B	B	B	G	108	G	102	G	104	98	102	104	104	G	B	B	B	B	B	96
22	90	98	B	B	B	B	B	B	G	106	102	G	B	G	G	102	102	98	96	104	104	B	102	102
23	102	B	92	94	B	B	96	158	152	104	124	122	94	94	158	122	106	114	102	102	94	96	B	B
24	B	B	B	B	B	B	B	164	102	102	102	G	102	104	116	102	100	96	94	98	98	98	98	98
25	98	98	B	B	B	98	98	G	106	102	108	104	110	104	104	104	104	100	100	100	96	92	94	96
26	94	94	94	B	100	94	102	G	104	106	102	G	G	104	98	98	92	92	94	92	94	92	92	B
27	B	92	98	94	96	98	102	142	100	100	100	G	G	102	G	98	G	126	B	B	B	B	102	108
28	102	94	100	104	B	B	B	G	G	G	G	104	G	102	102	104	100	G	B	B	B	96	94	B
29	B	B	B	92	94	B	B	136	106	110	G	100	100	102	96	100	98	94	92	94	92	92	B	B
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	19	19	15	16	12	13	12	14	16	22	24	15	16	24	19	28	24	19	18	16	18	19	16	16
MED	98	98	98	96	97	98	99	146	106	106	104	104	104	103	104	104	104	100	101	102	98	98	99	99
U Q	102	102	102	102	101	102	106	150	121	108	108	108	110	107	116	107	108	114	108	105	102	104	102	105
L Q	96	94	94	94	95	95	95	142	103	102	101	100	100	99	98	100	101	96	96	98	96	96	96	96

IONOSPHERIC DATA STATION Kokubunji

FEB. 2012 TYPES OF Es 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1								H 1	L 2		L 1	L 2	L 2	L 2	L 1	L 1							F 1	F 2
2	F 2	F 2			F 1	F 1		H 2		L 1	L 2	L 1		L 1		L 2	L 1	L 2						
3	F 2	F 2	F 3	F 2	F 3	F 2	F 1							C 1		L 1			F 3		F 3	F 2	F 3	F 5
4	F 2	F 2	F 3	F 4	F 3	F 2	F 1	H 2		C 2	C 2	C 2		L 2	L 2	L 2	CL 22	C 2	F 4	F 4	F 3			F 3
5	F 2	F 4	F 2	F 3	F 3	F 2	F 2	H 2	C 2	L 2	CL 11	L 2	L 2	L 2		L 2	L 2	L 2	F 2	F 2	F 3	F 1	F 4	F 2
6	F 2	F 1	F 3	F 4	F 5	F 3				L 2	L 2	L 2	L 2	CL 21	C 2	CL 22	HL 22	H 2	F 5	F 2		F 1		
7	F 2	F 1		F 2				H 2		L 2	L 2		L 2	L 2	L 2	L 2	L 2	L 1	F 1					
8							F 1	H 2								L 2	L 2					F 2		F 1
9	F 2			F 3	F 2	F 1			HL 12		HL 22		C 1	C 2	C 2	CL 21	L 3	L 3	F 3	F 5	F 3	F 2	F 3	F 1
10	F 2			F 1	F 1	F 1	F 3	L 2	L 2					L 2	L 2	L 2	CL 11			F 1	F 1	F 3		
11	F 1	F 1	F 3	F 1		F 2	F 2	H 2		L 2	L 2	L 2			CL 12	C 2		L 2		F 3	F 3	F 4		
12	F 2	F 4	F 2	F 2	F 1	F 2	F 2	H 2	L 2	L 2	CL 22		CL 22	CL 11	C 2	C 2	C 2	L 2	F 2	F 3	F 3	F 2	F 4	F 2
13	F 2	F 3	F 1	F 1		F 3	F 1			L 2	L 2	L 2	L 2	L 2	L 2		L 1	HL 11	FF 22	F 1	F 3	F 3	F 3	F 2
14	F 3	F 2	F 2	F 1	F 1				HL 12	L 2	L 2	L 2			L 2	L 2	L 2		F 4		F 2	F 2	F 2	
15		F 1								L 2	L 2	L 2	L 2	L 2	L 2	L 2	L 2				F 1			F 1
16		F 2	F 1					H 2	L 2	L 2	L 2	L 2	L 2	L 2		L 1	L 2	L 3	F 3	F 3	F 3	F 3	F 3	F 3
17	F 2	F 2	F 2						L 2	L 2	L 2	L 2	L 2	L 2	L 2	L 2			F 3			F 2	F 1	
18										L 2	L 2			L 2		L 2	L 3	L 2	F 4			F 2	F 1	F 1
19				F 1					L 2	L 2	L 2			C 1		L 2	CL 12	C 2		F 2				
20										L 1	L 2		L 2			L 2	L 2				F 1			
21	F 3	F 3	F 2						L 2		L 2		L 2	L 2	L 2	L 2	L 2							F 4
22	F 2	F 2								L 2	L 1					L 2	L 1	L 2	F 3	F 2	F 2		F 2	F 2
23	F 1		F 2	F 1			F 1	H 2	H 1	L 2	CL 22	CL 22	L 2	L 2	HL 12	CL 12	L 2	CL 12	F 3	F 4	F 3	F 4		
24								H 2	L 2	L 2	L 2		L 2	L 2	CL 12	L 3	L 3	L 3	F 3	F 2	F 1	F 2	F 3	F 2
25	F 1	F 1				F 3	F 2		L 2	L 2	L 2	L 2	L 2	L 2	L 2	L 2	L 3	L 2	F 3	F 4	F 5	F 2	F 3	F 4
26	F 3	F 3	F 2		F 1	F 1	F 3		L 2	L 2	L 2			L 2	L 1	L 2	L 2	L 2	F 3	F 2	F 2	F 3	F 1	
27		F 2	F 4	F 2	F 2	F 2	F 1	HL 21	L 2	L 2	L 2			L 1		L 2		C 1					F 1	F 1
28	F 3	F 2	F 1	F 1								L 2		L 2	L 2	L 2	L 2					F 3	F 1	
29				F 2	F 1			H 2	L 2	L 2		L 2	L 2	L 1	L 2	L 2	L 2	F 2	F 3	F 4	F 3	F 2		
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. 2012 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

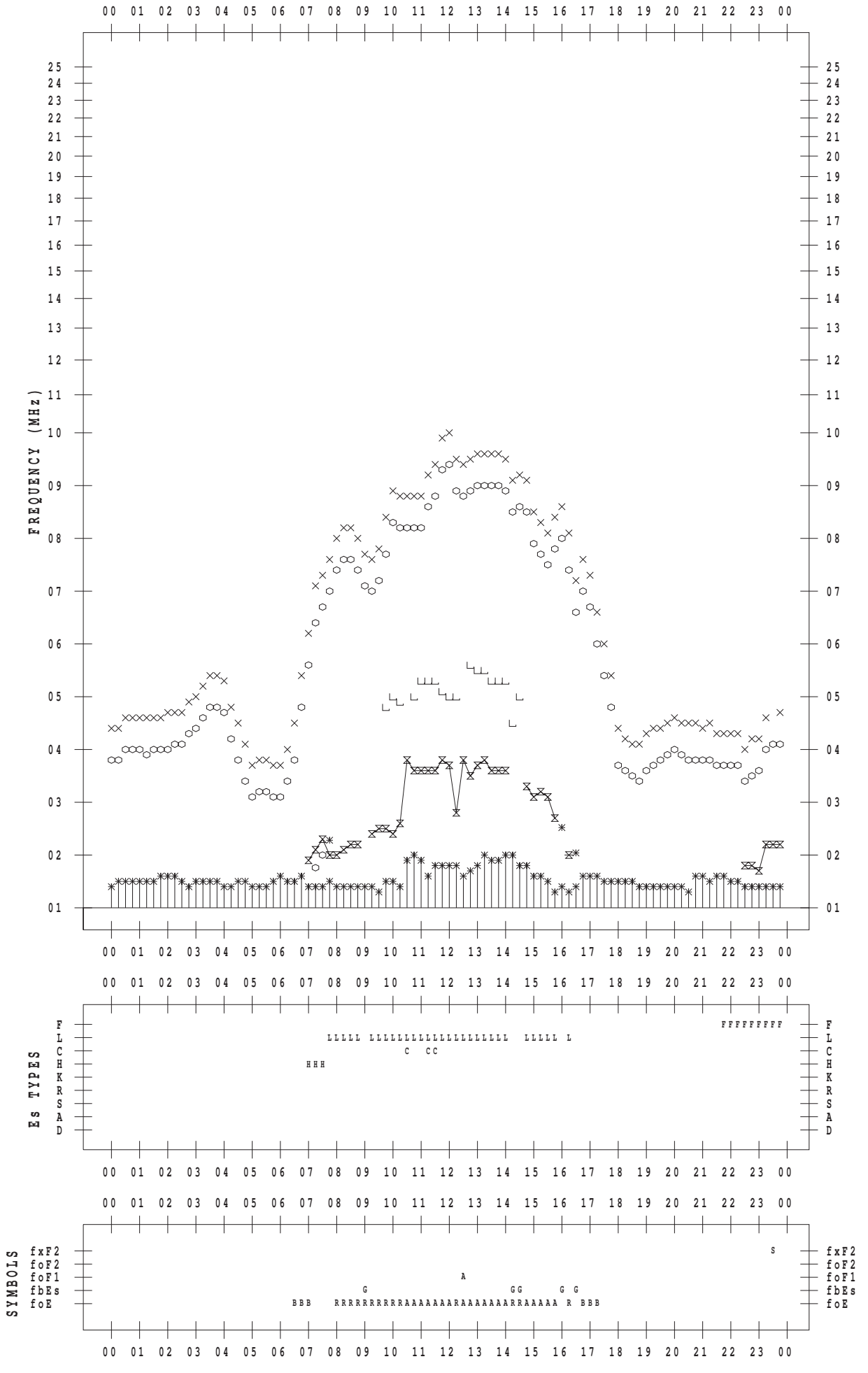
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2012/ 2/ 1

135 °E MEAN TIME



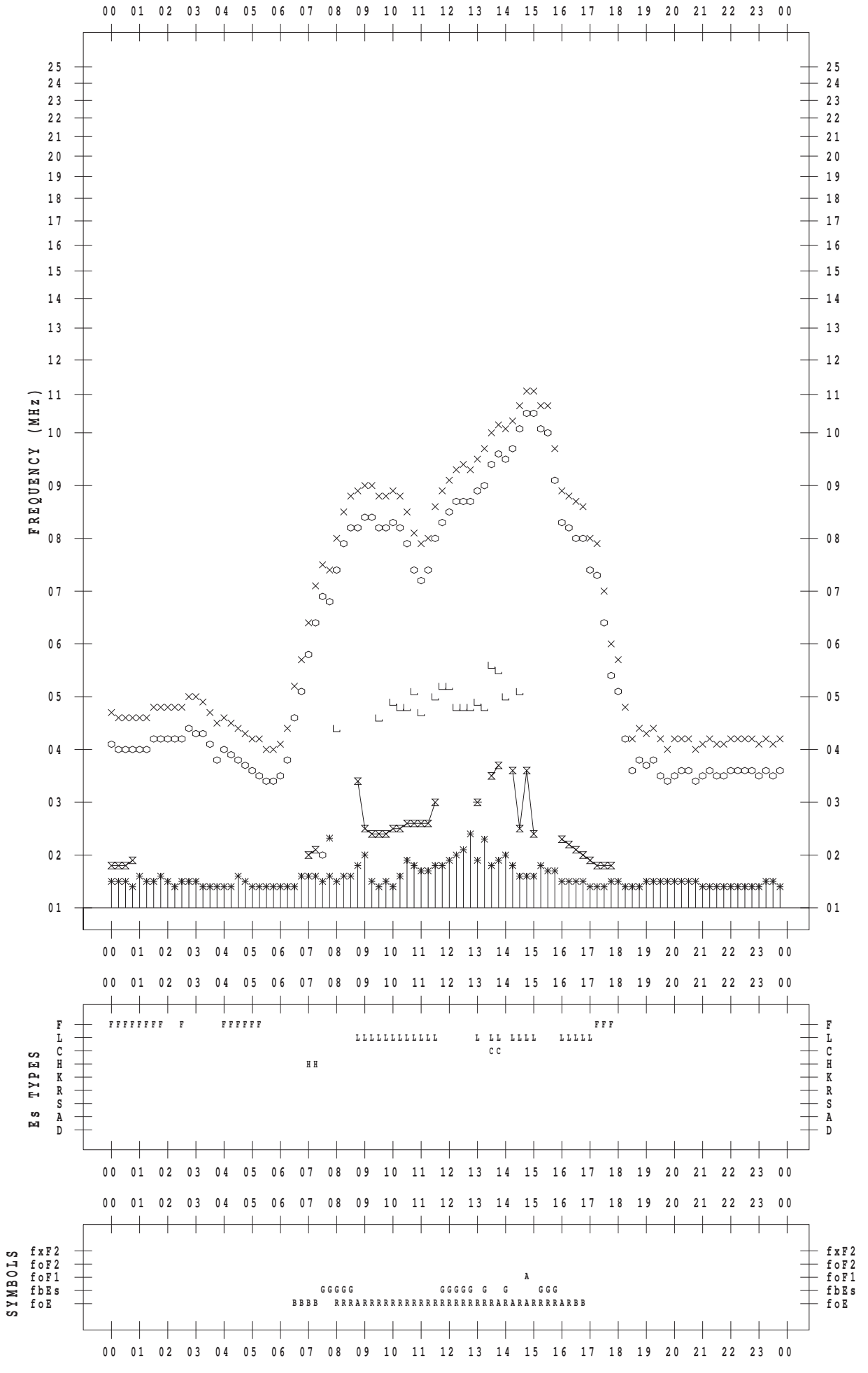
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2012/ 2/ 2

135 °E MEAN TIME



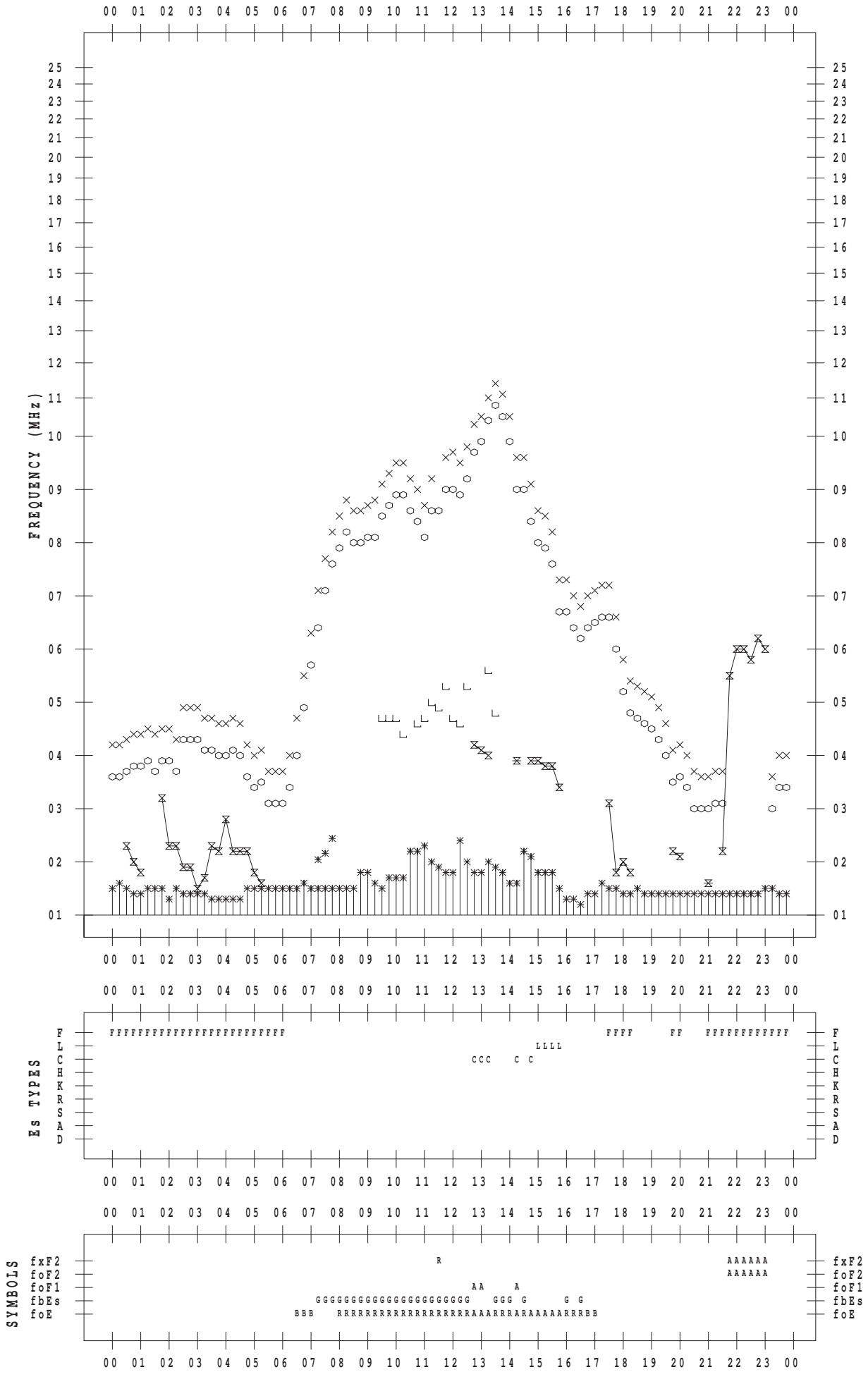
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2012/ 2/ 3

135 °E MEAN TIME



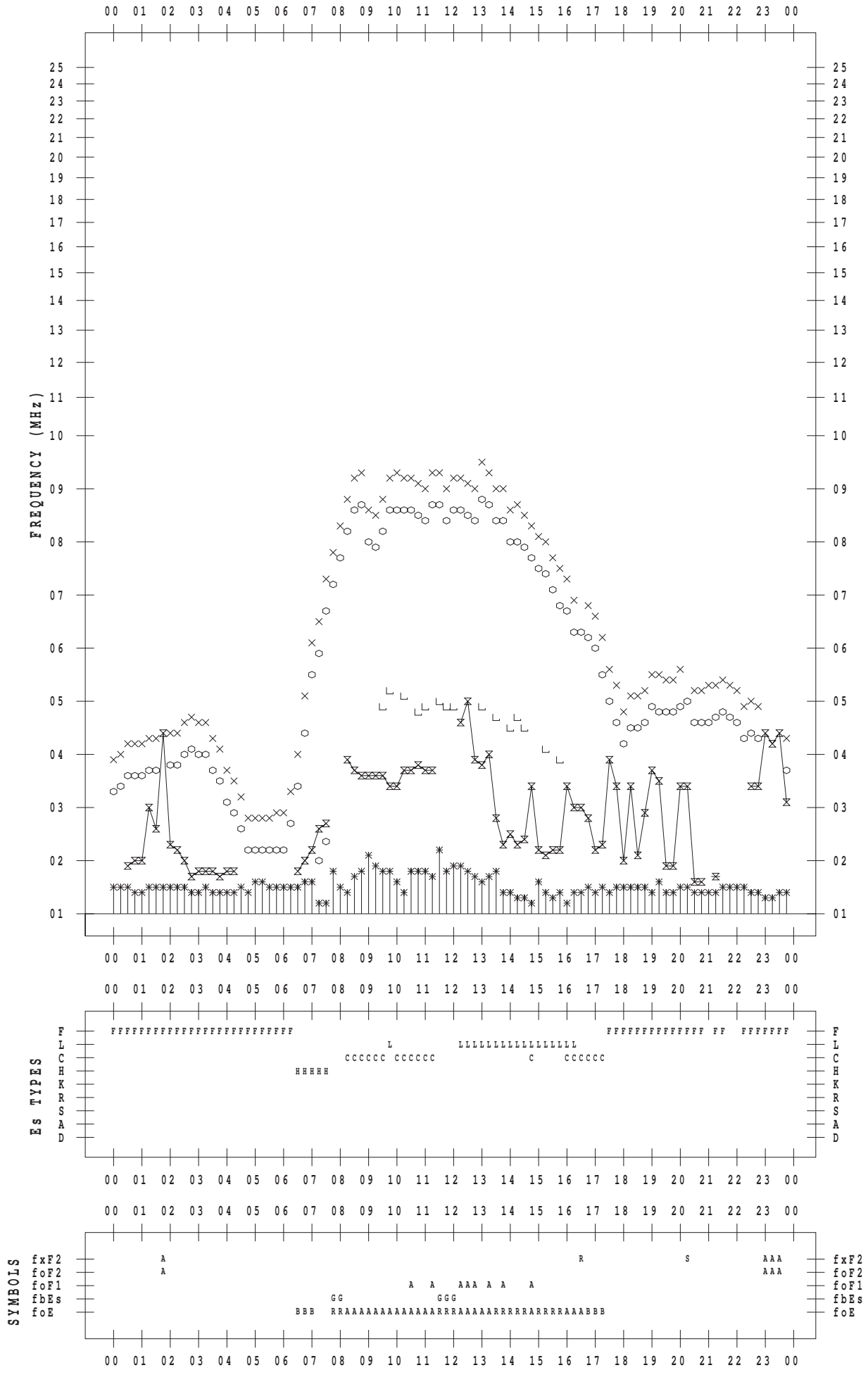
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2012/ 2/ 4

135 °E MEAN TIME



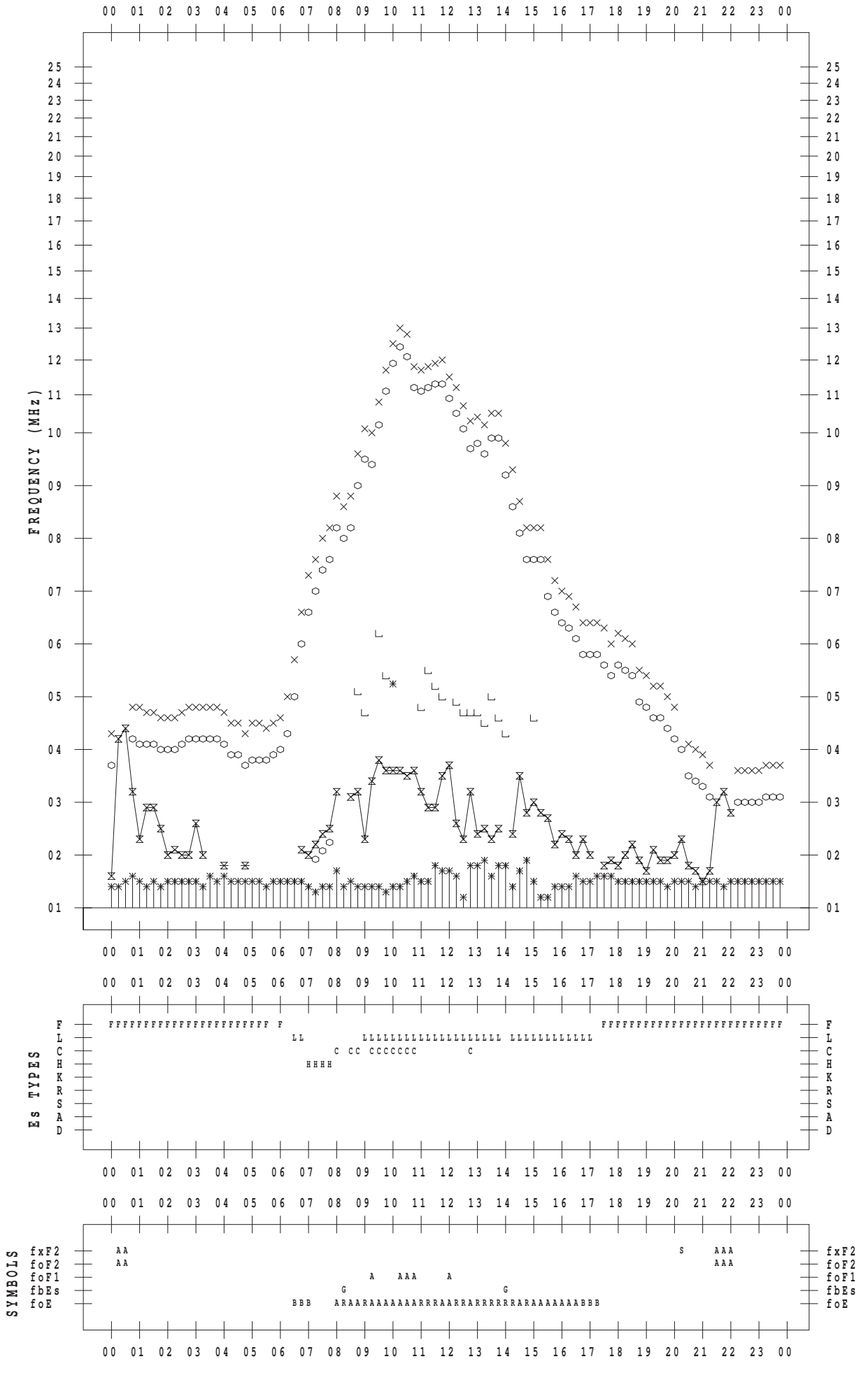
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2012/ 2/ 5

135 °E MEAN TIME



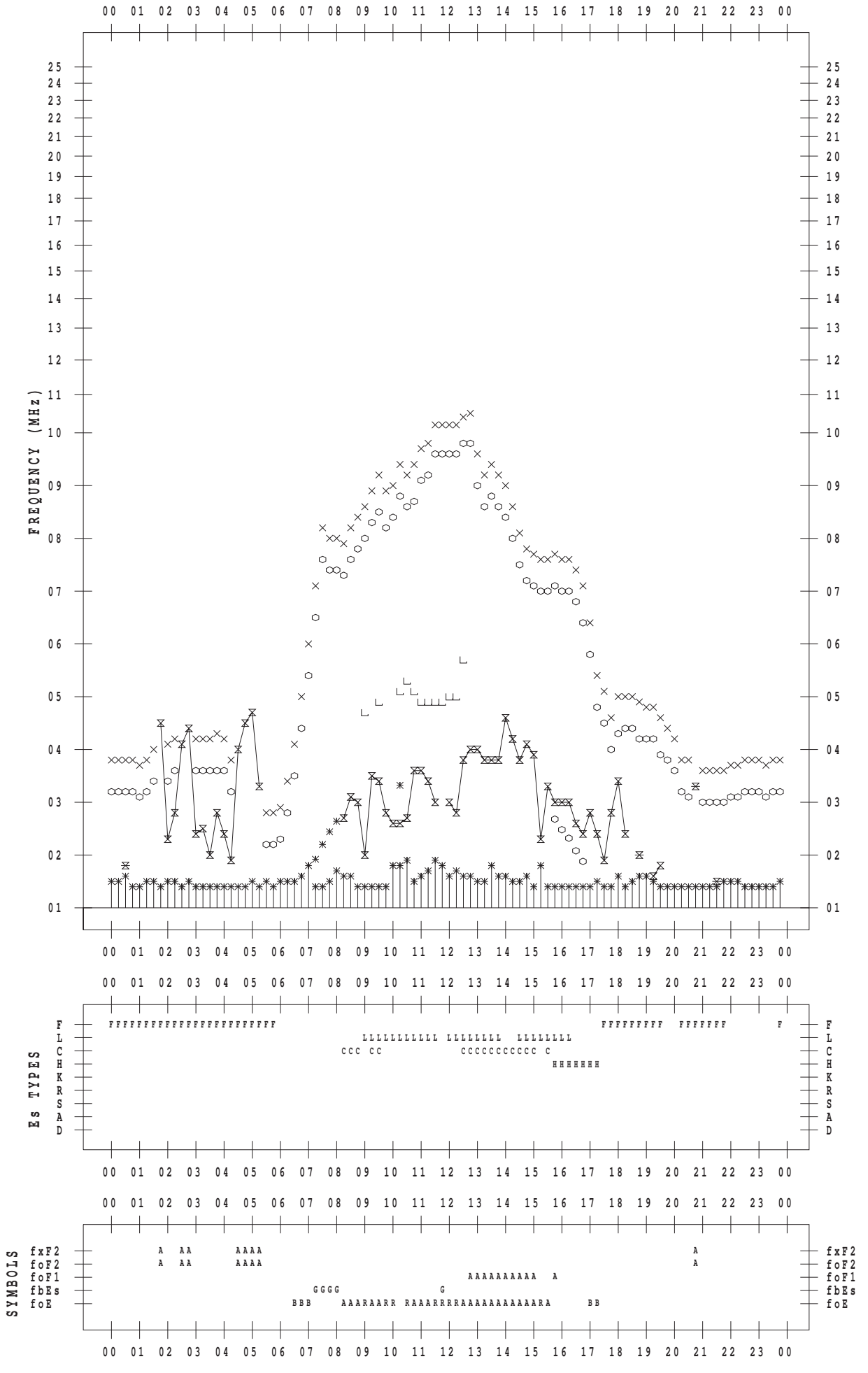
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2012/ 2/ 6

135 °E MEAN TIME



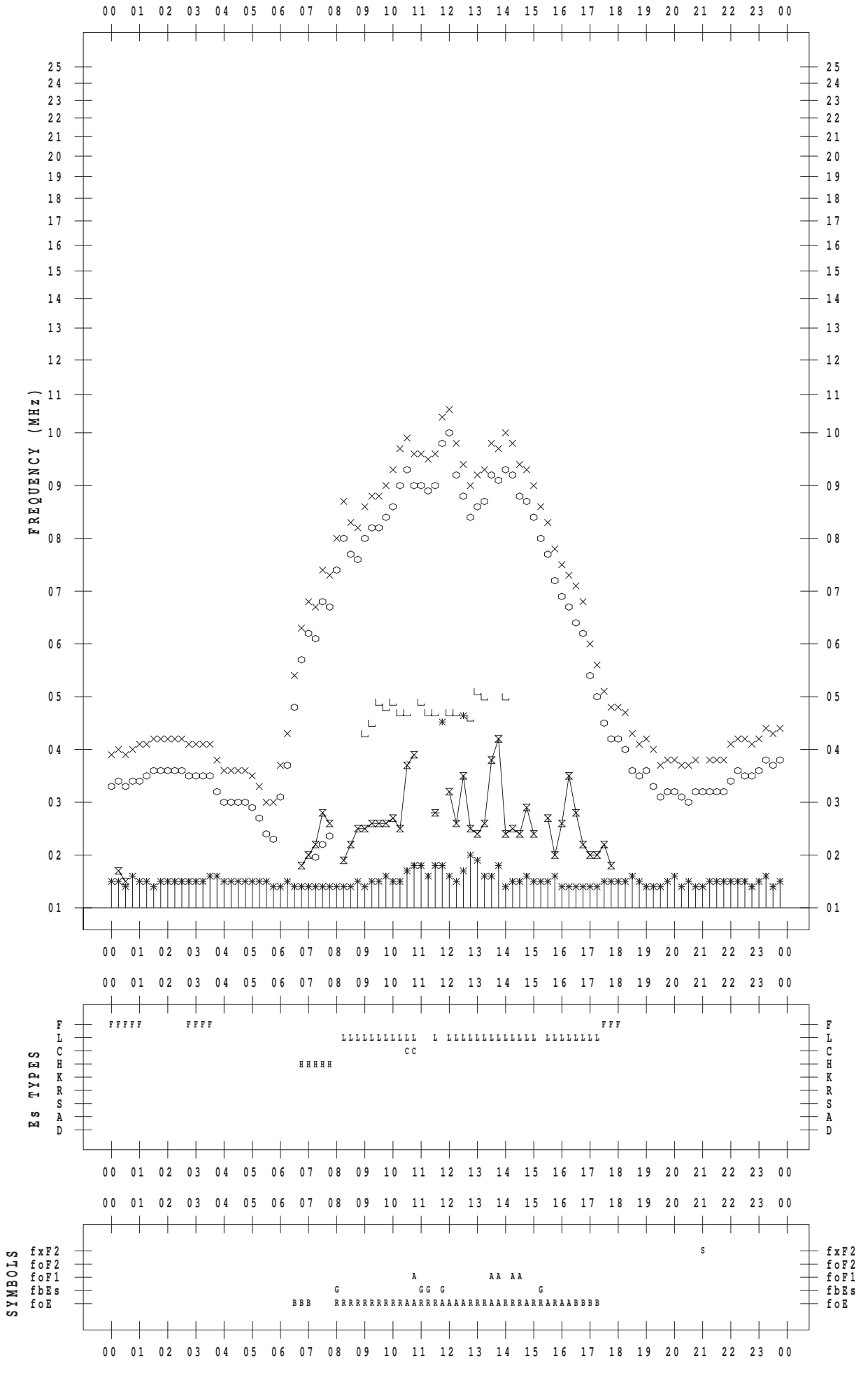
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2012/ 2/ 7

135 °E MEAN TIME



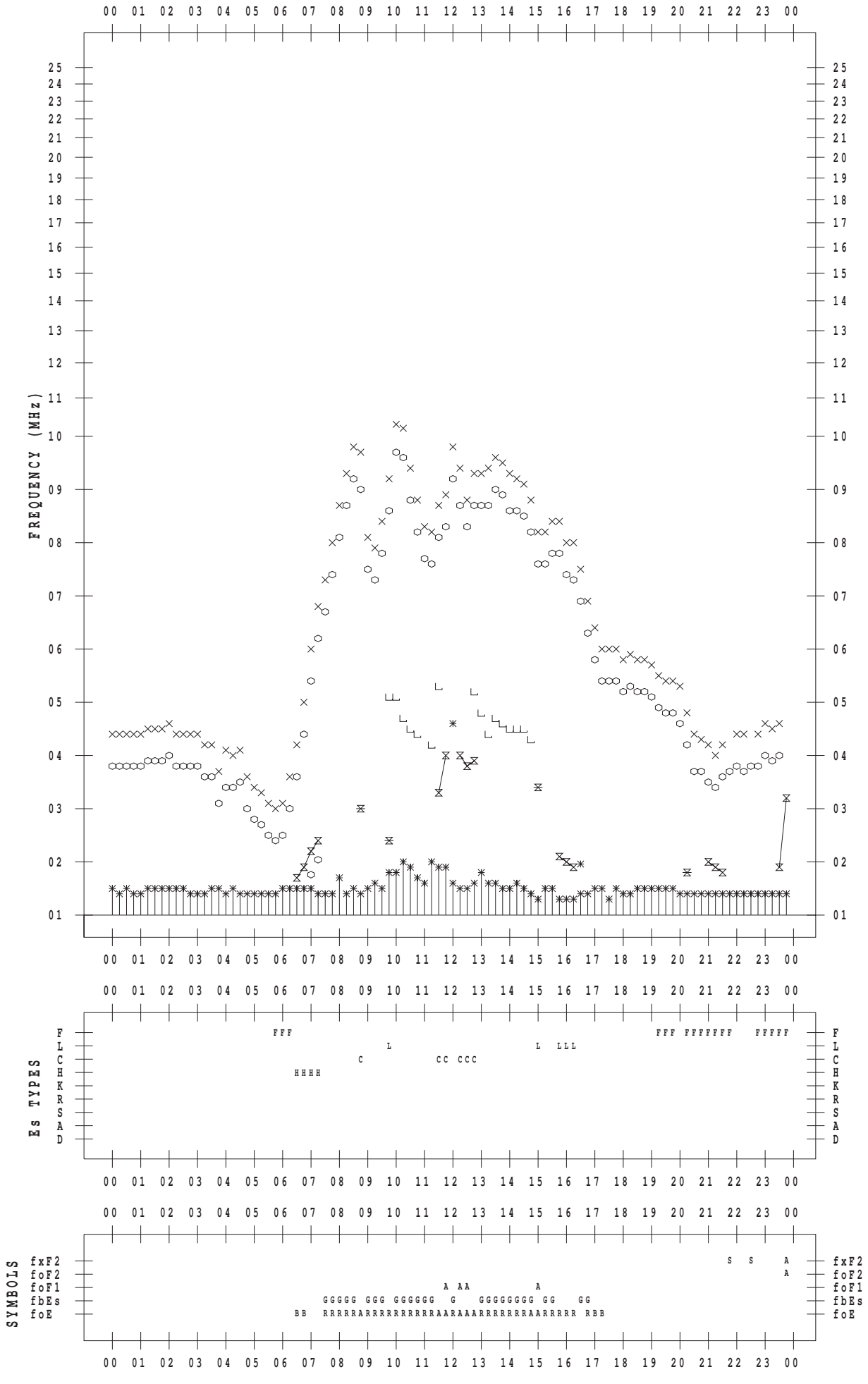
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2012/ 2/ 8

135 °E MEAN TIME



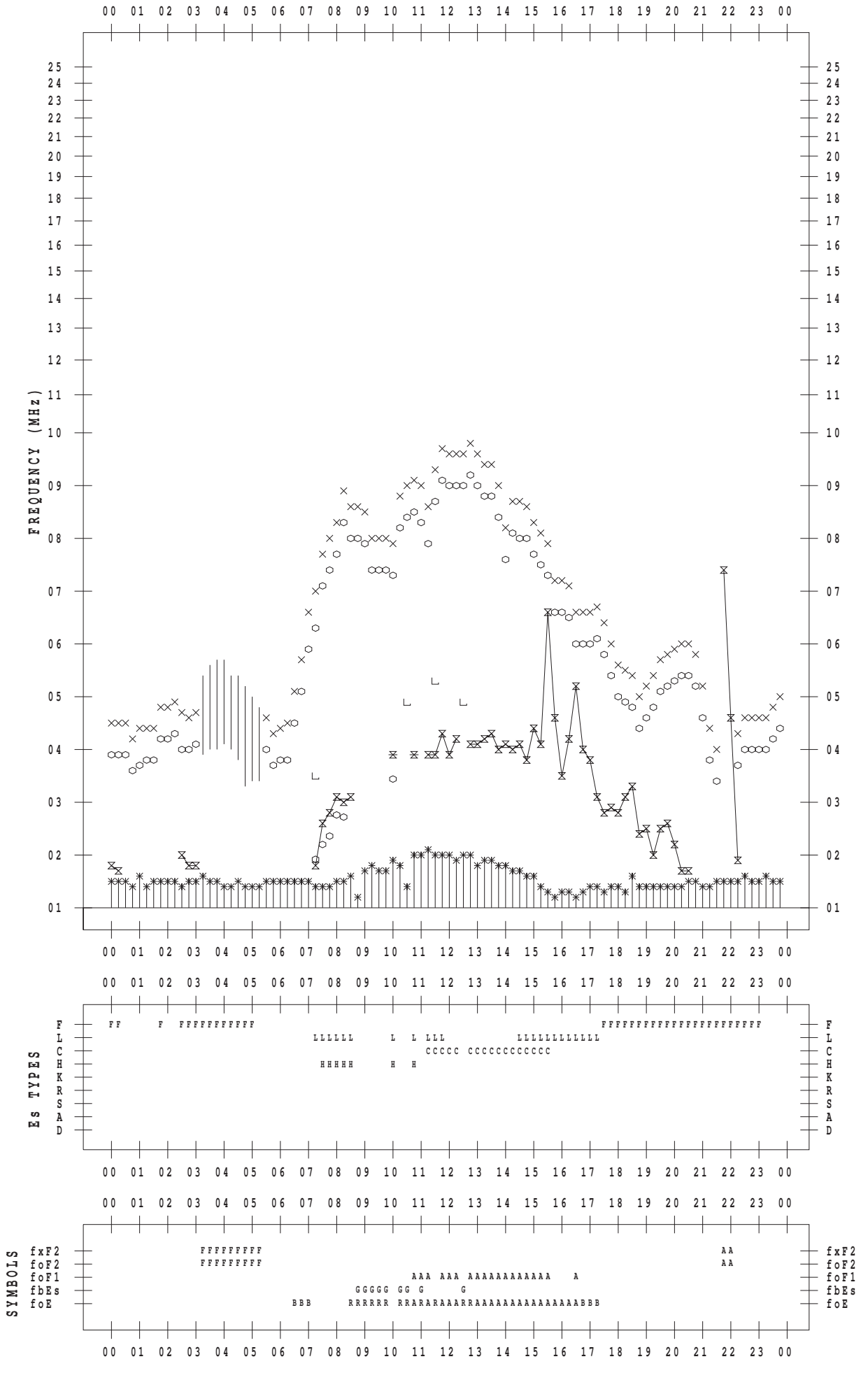
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2012/ 2/ 9

135 °E MEAN TIME



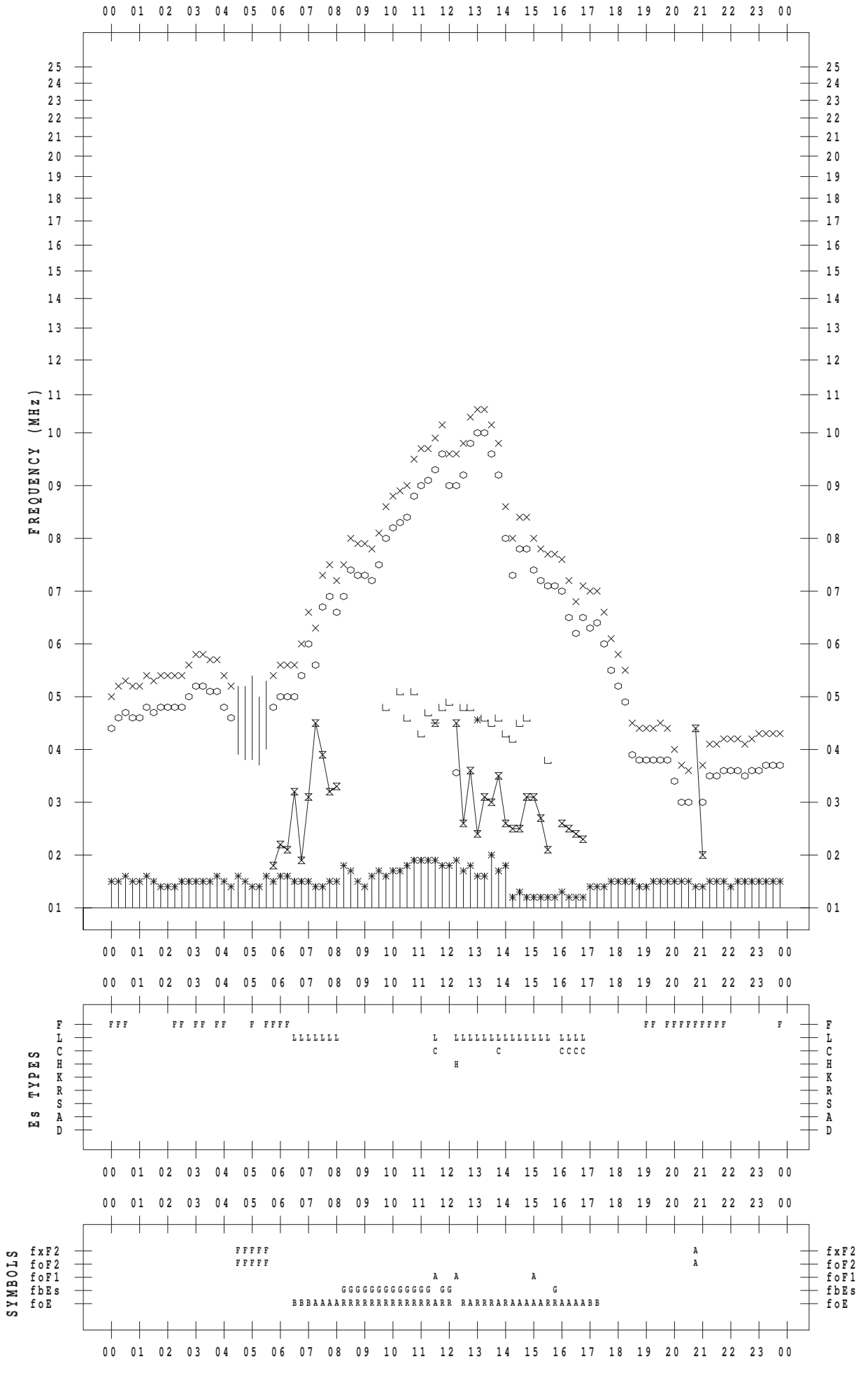
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2012/ 2/10

135 °E MEAN TIME



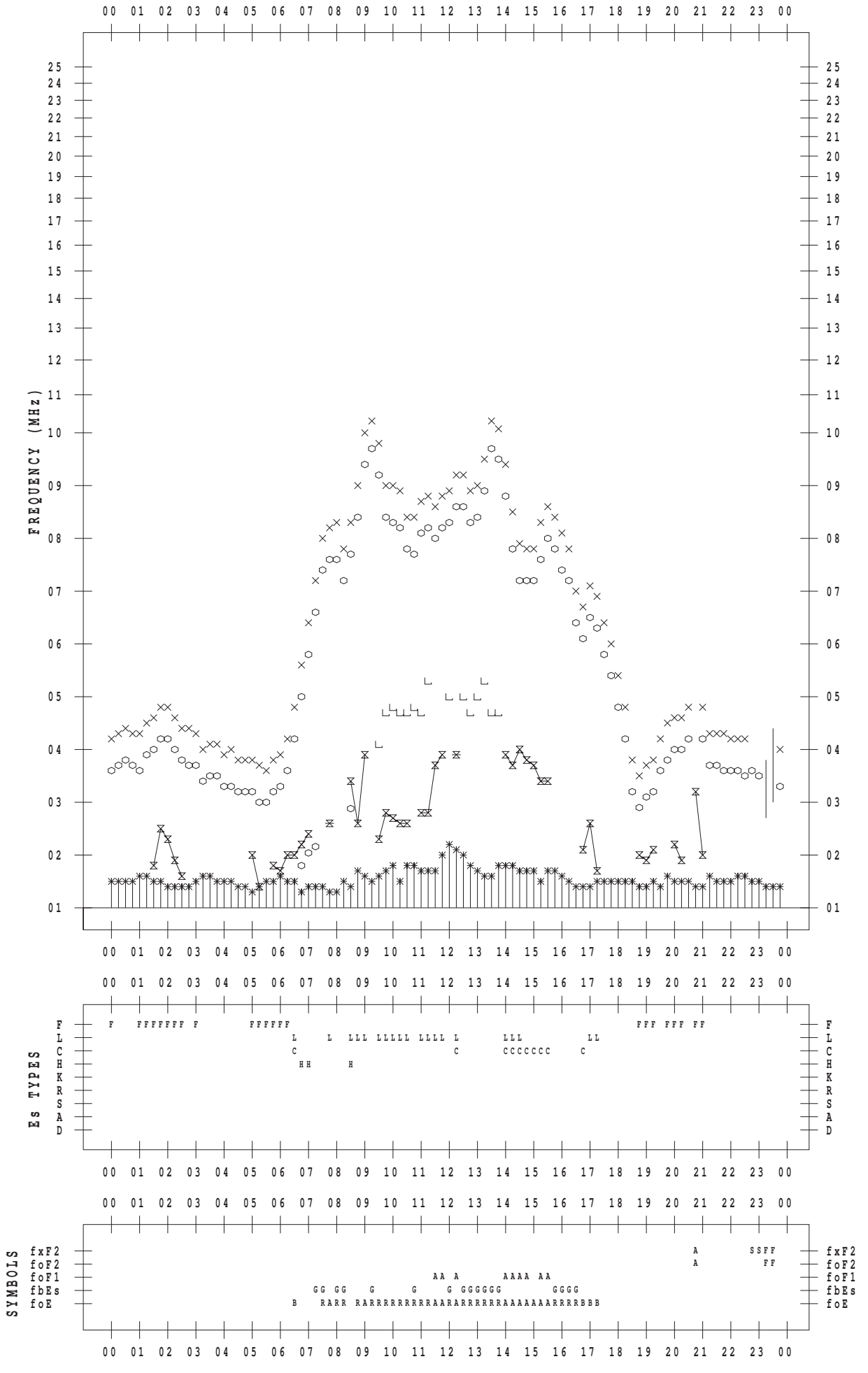
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2012/ 2/11

135 °E MEAN TIME



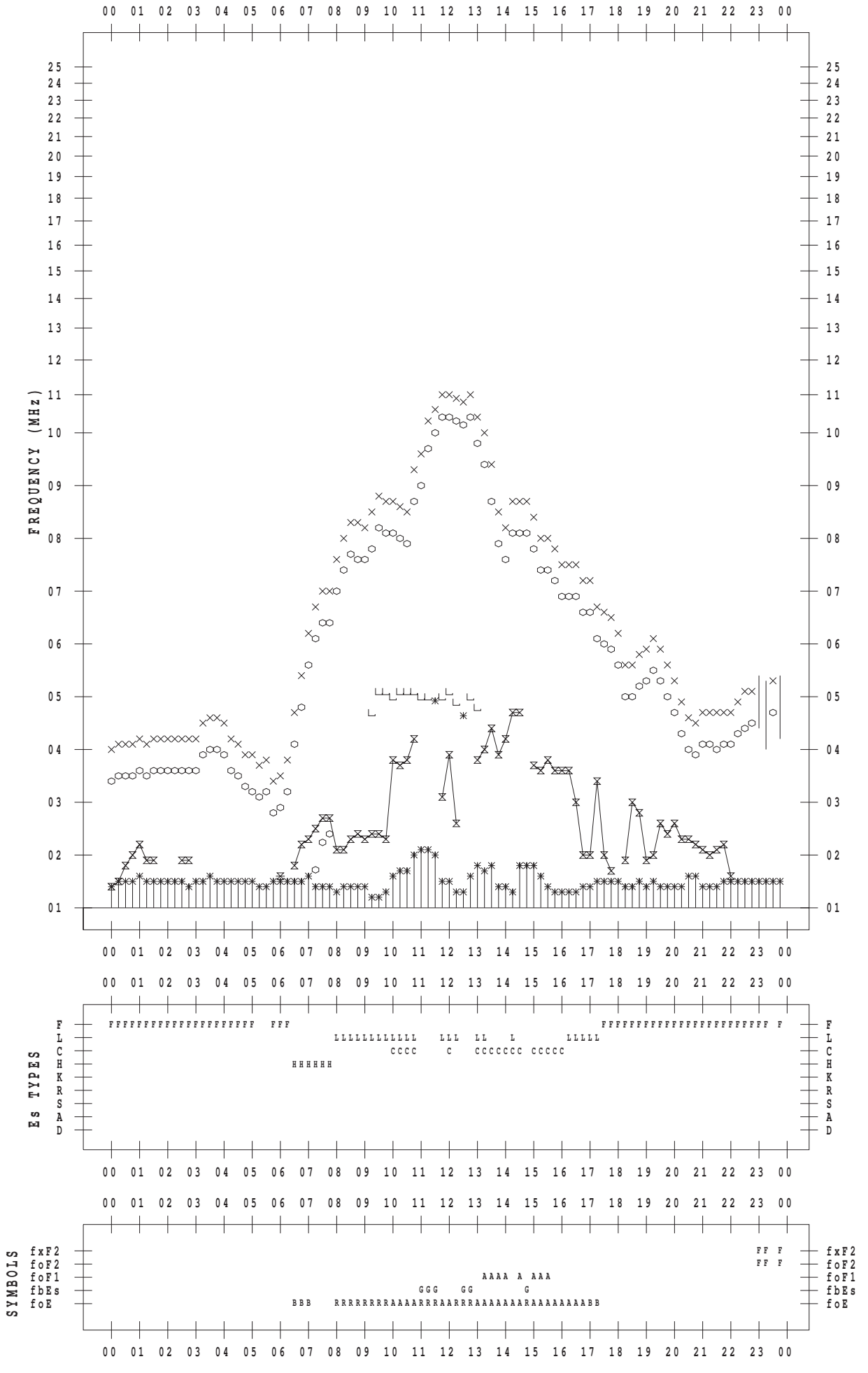
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2012/ 2/12

135 °E MEAN TIME



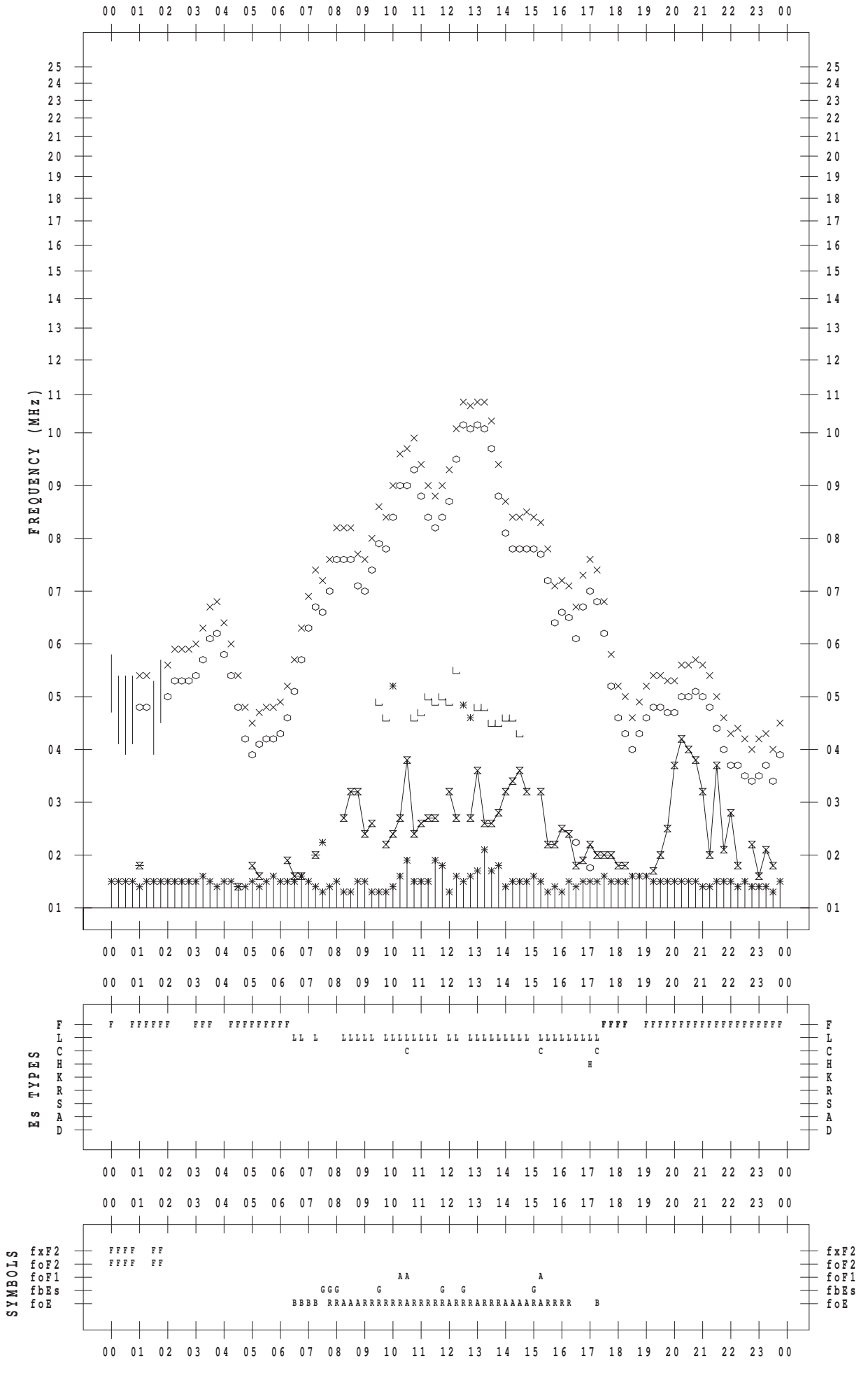
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2012/ 2/13

135 °E MEAN TIME



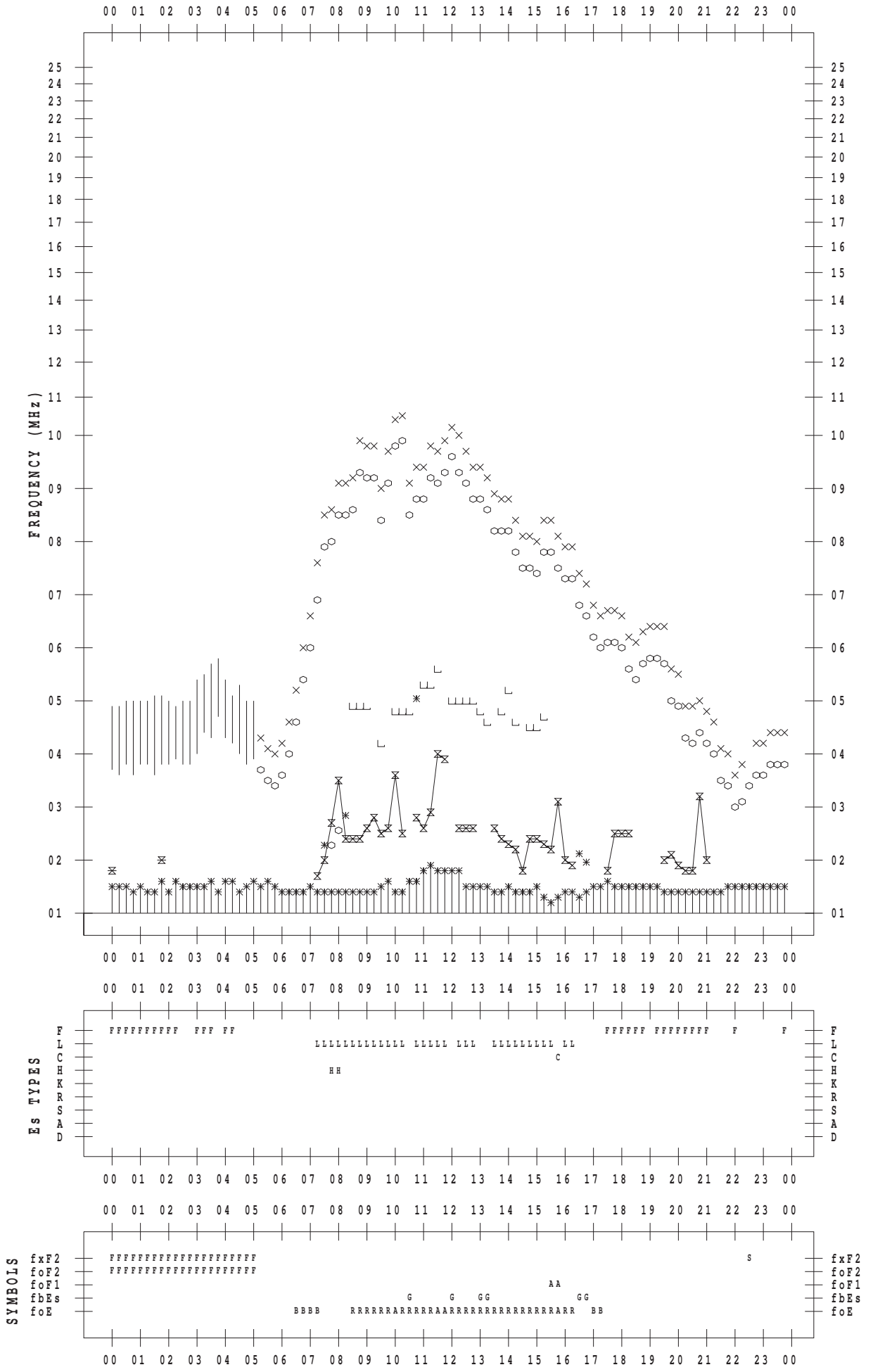
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2012/ 2/14

135 °E MEAN TIME



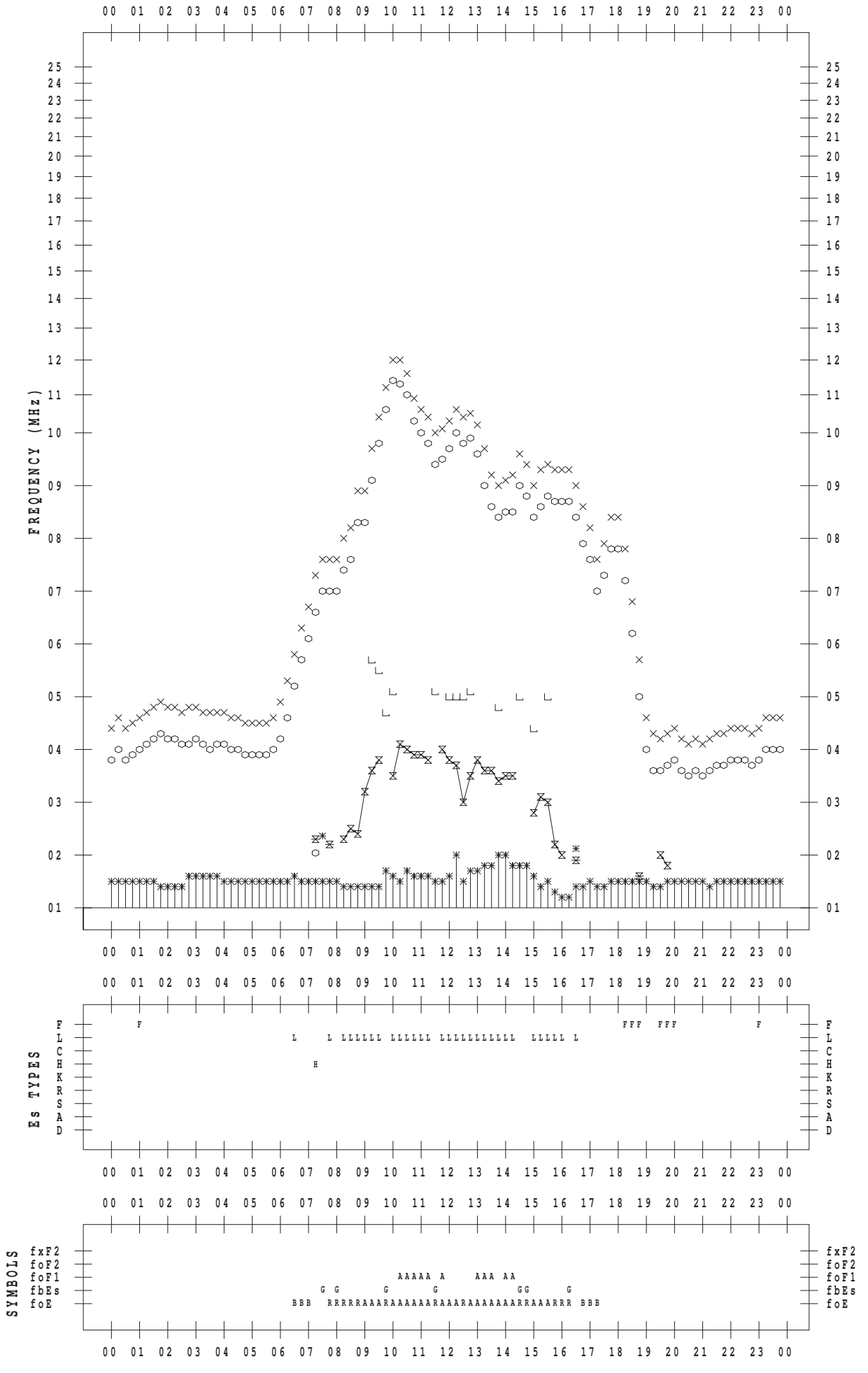
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2012/ 2/15

135 °E MEAN TIME



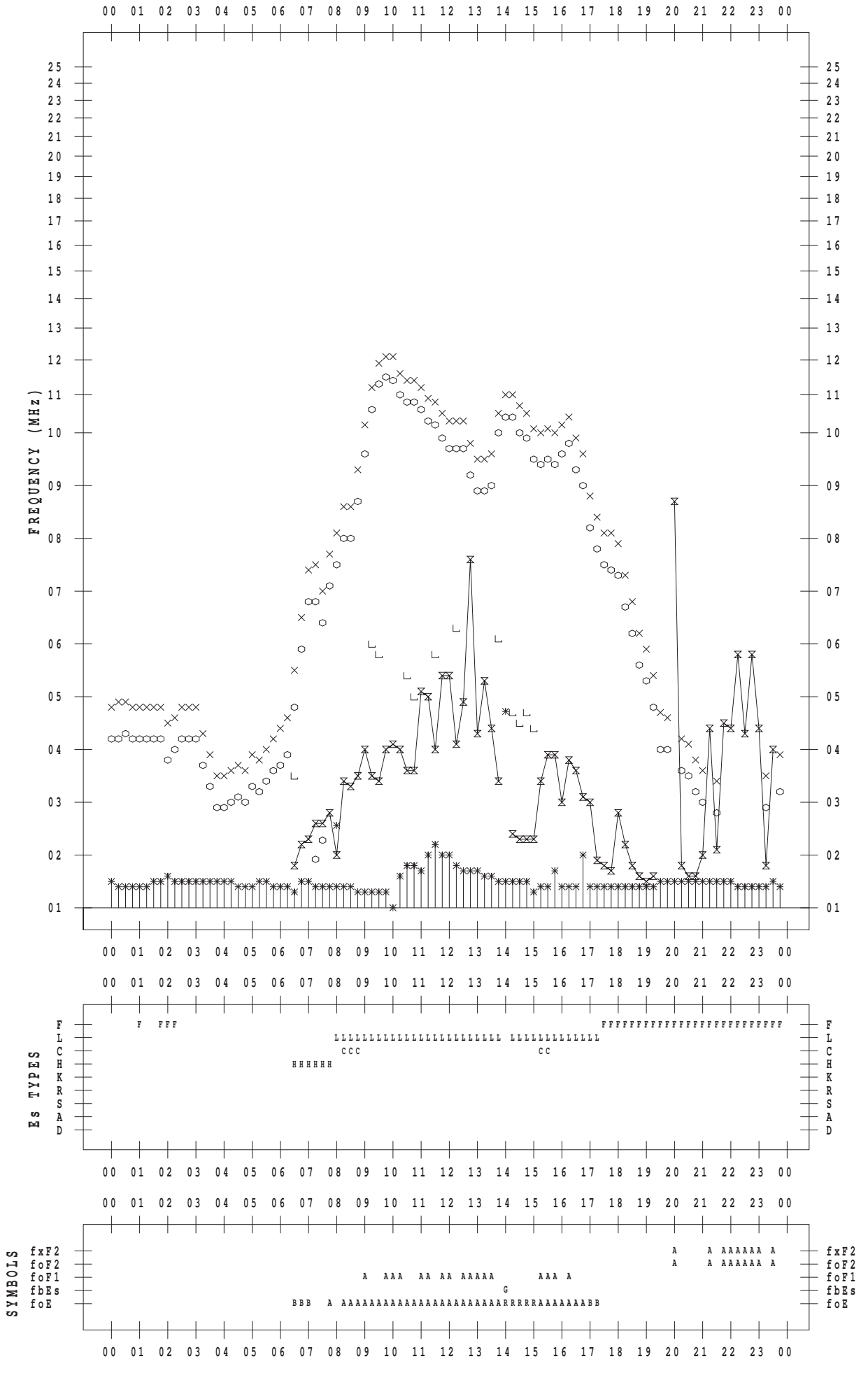
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2012/ 2/16

135 °E MEAN TIME



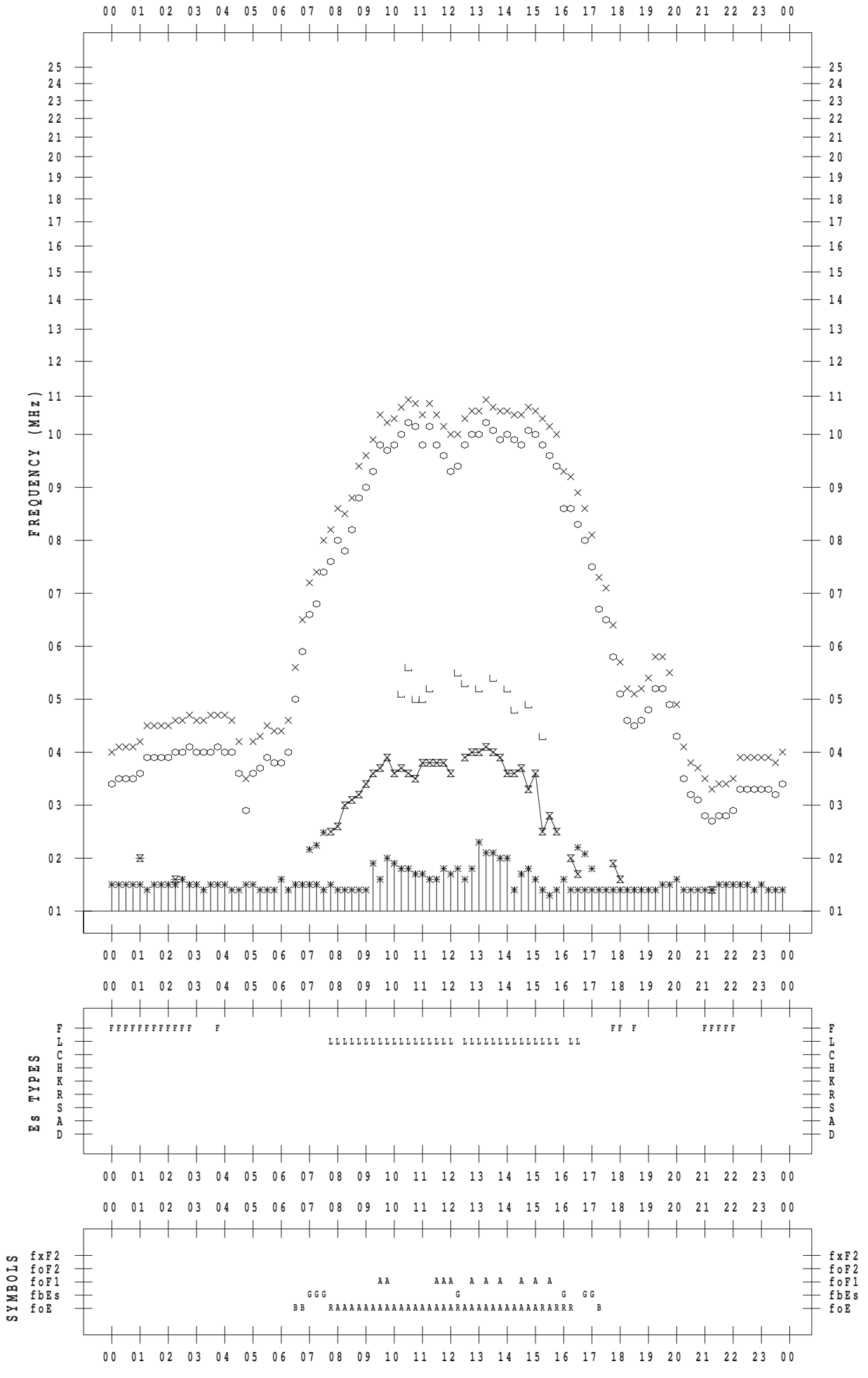
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2012/ 2/17

135 °E MEAN TIME



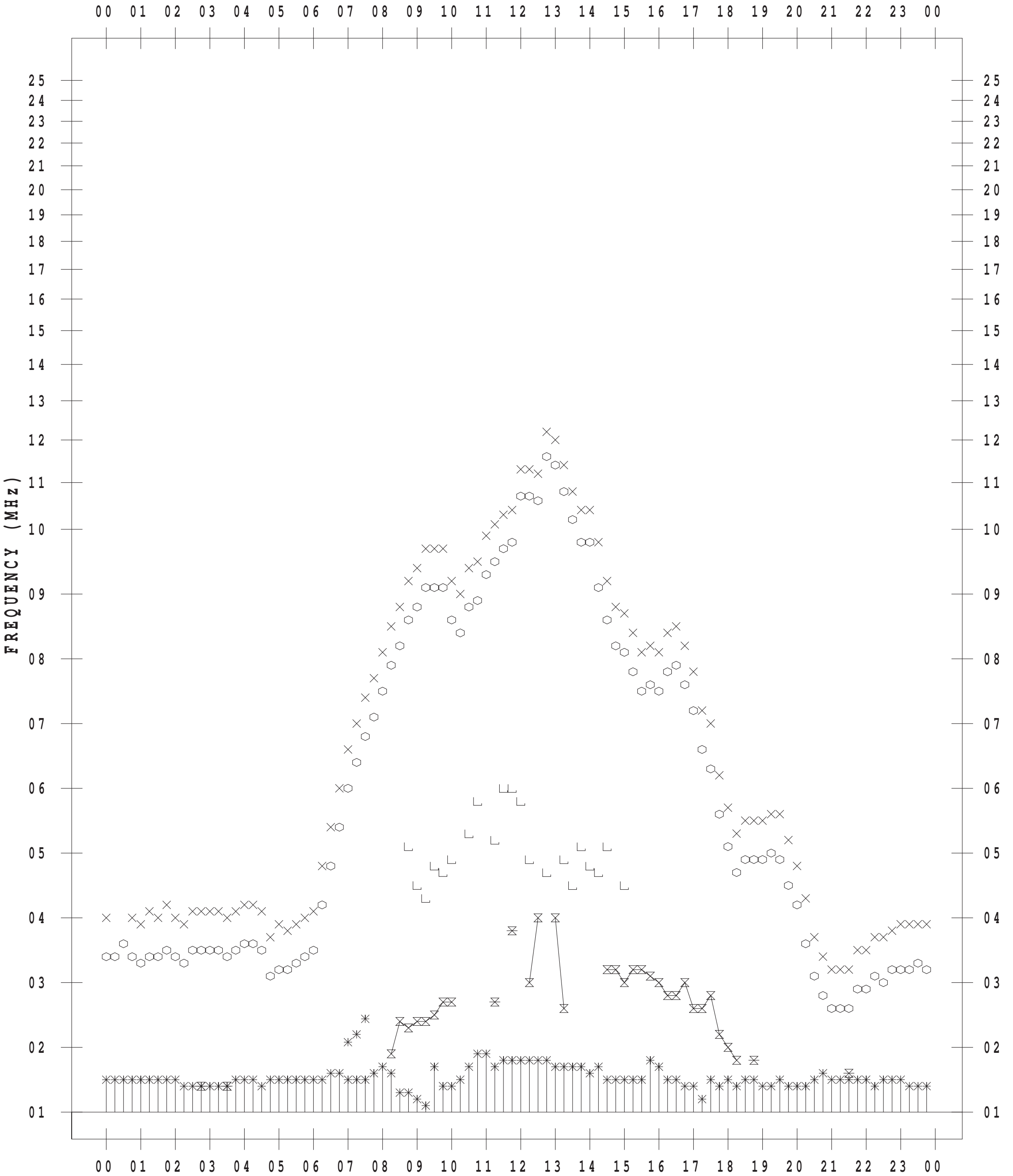
f-PLOT DATA

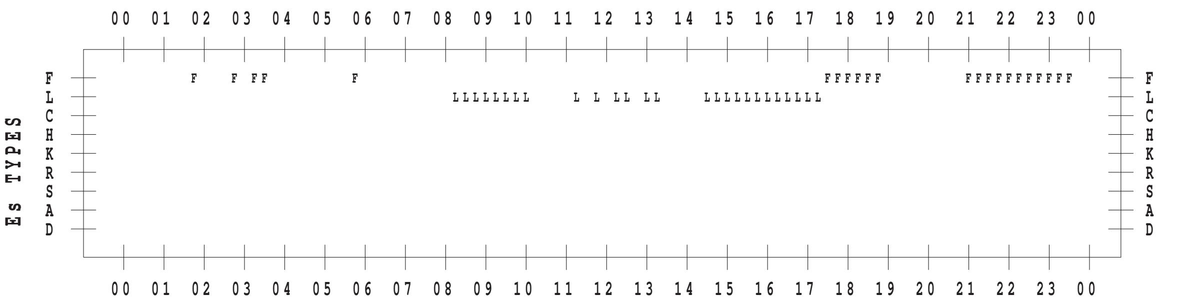
SCALER : I.NISHIMUTA

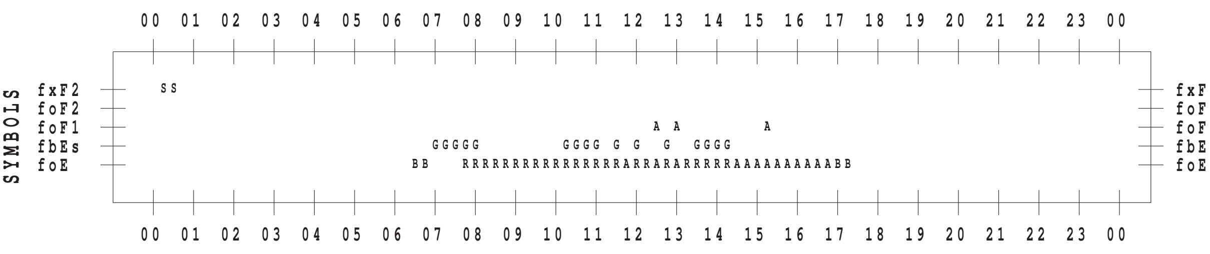
STATION : Kokubunji

DATE : 2012/ 2/18

135 °E MEAN TIME







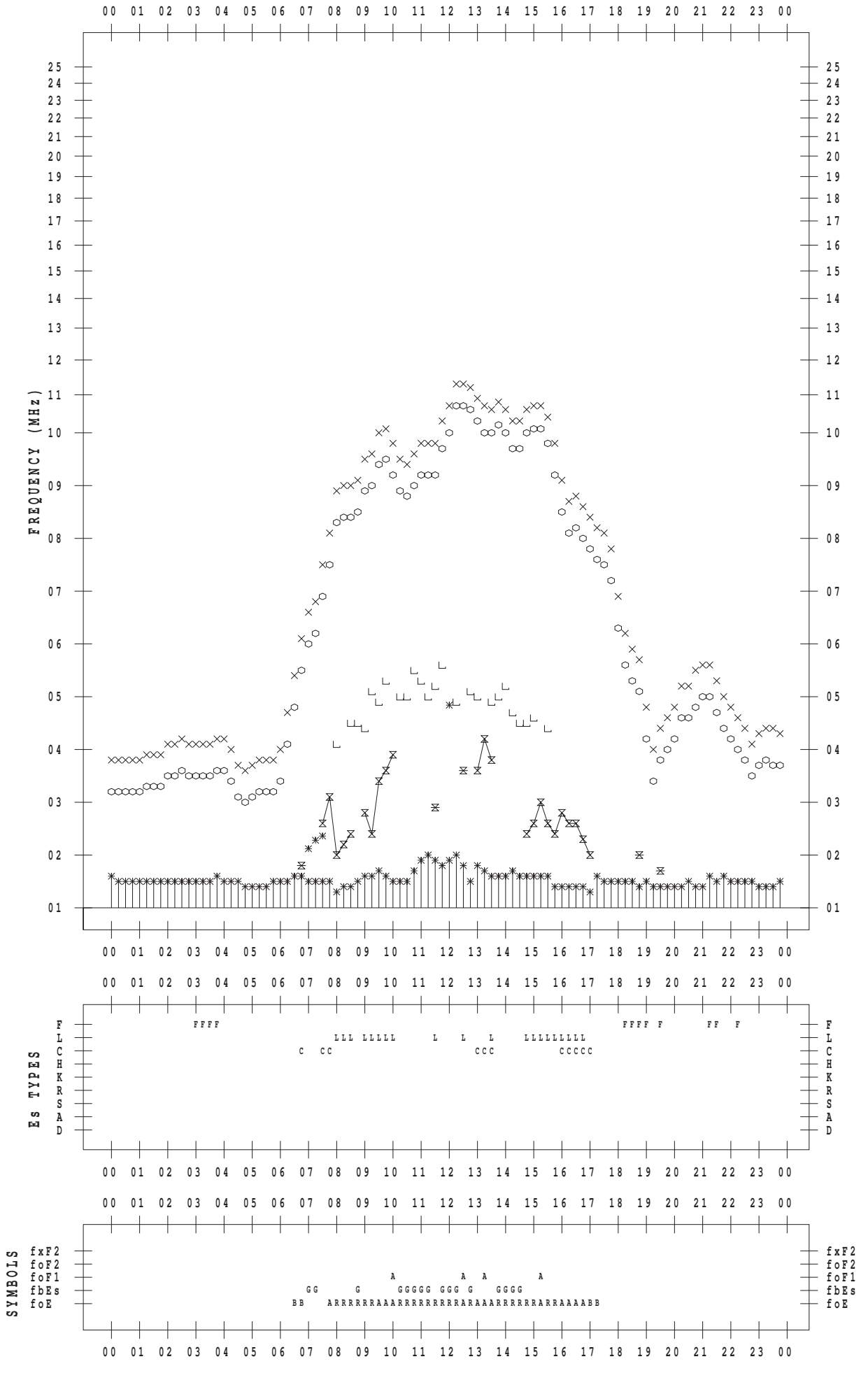
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2012/ 2/19

135 °E MEAN TIME



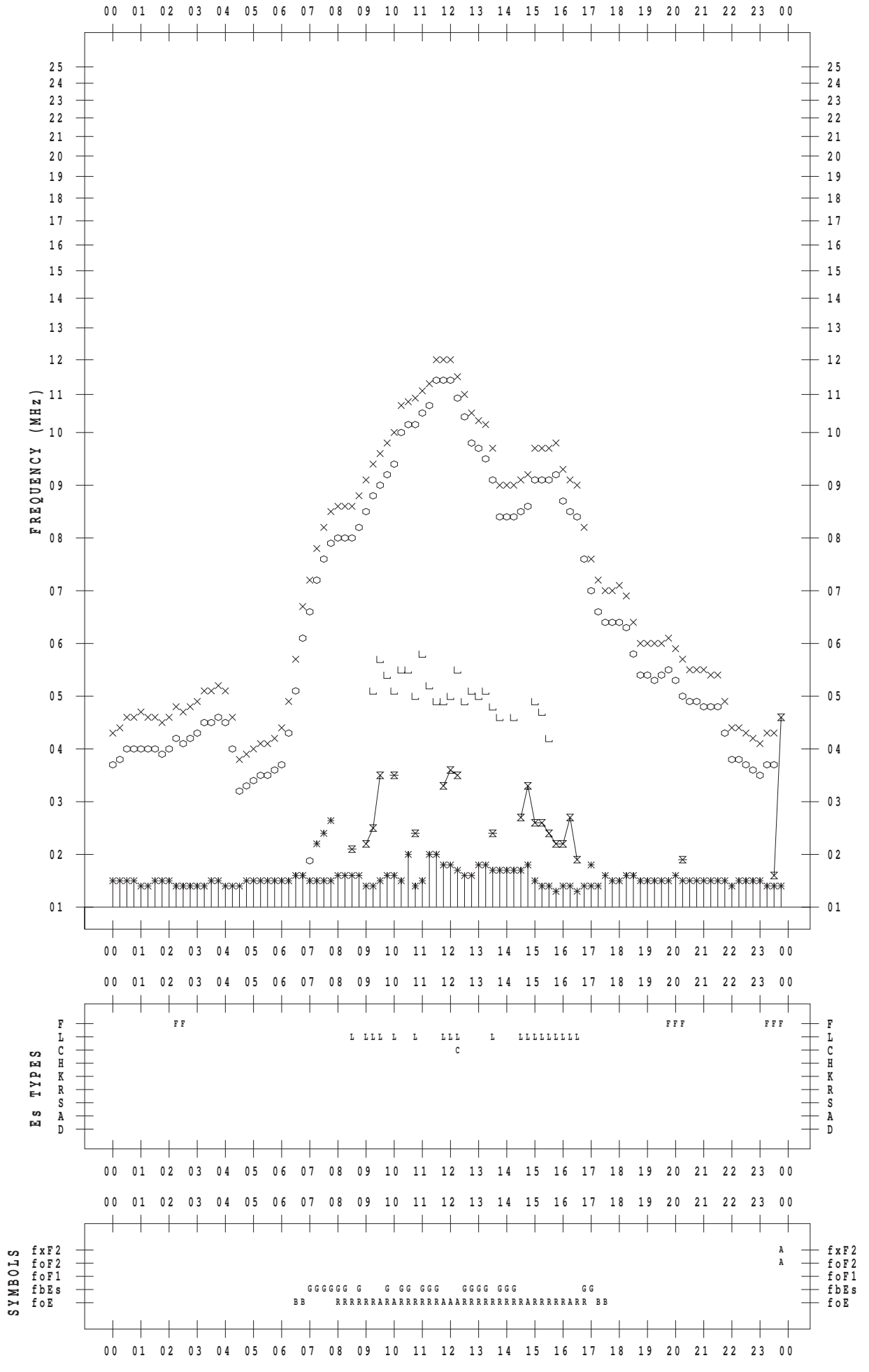
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2012/ 2/20

135 °E MEAN TIME



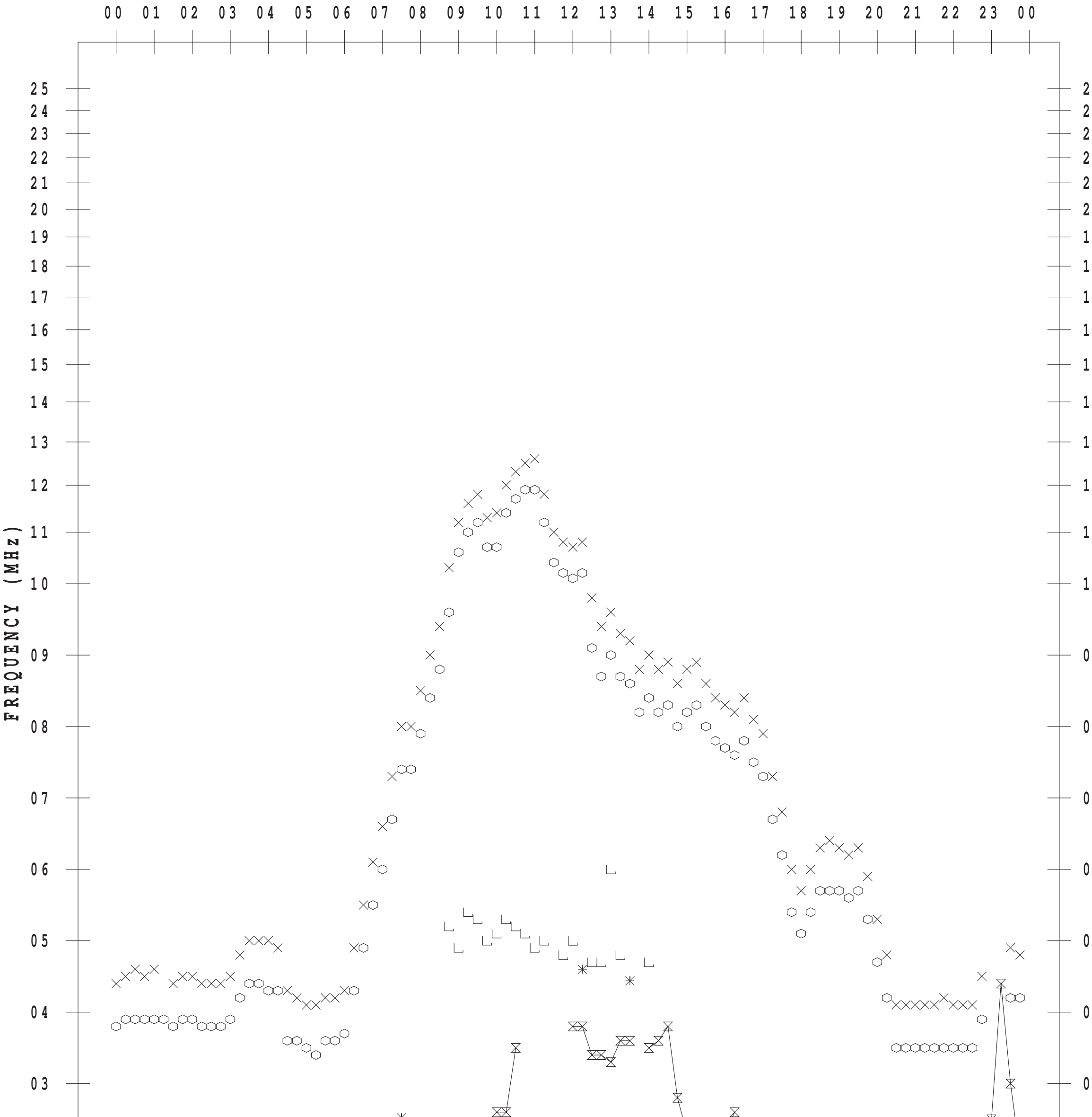
f-PLOT DATA

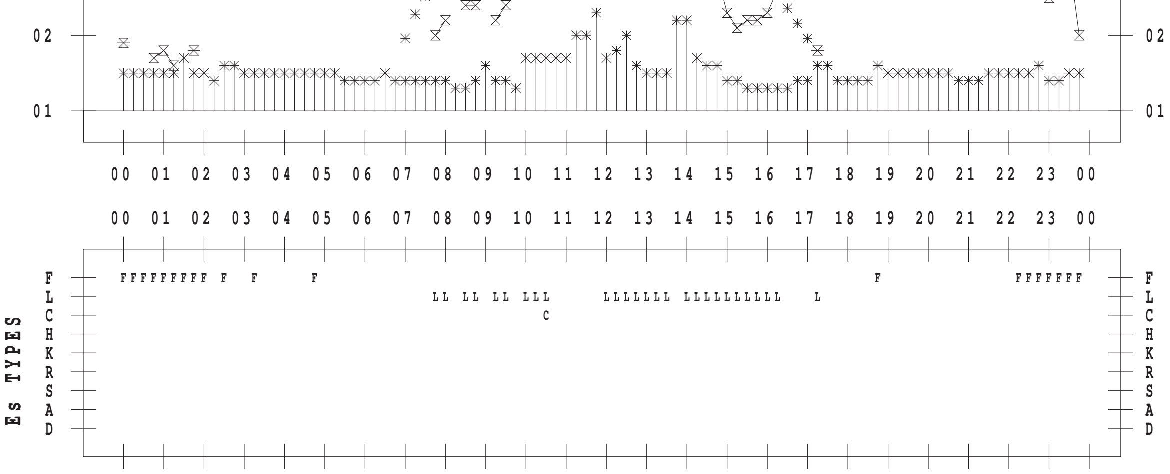
SCALER : I.NISHIMUTA

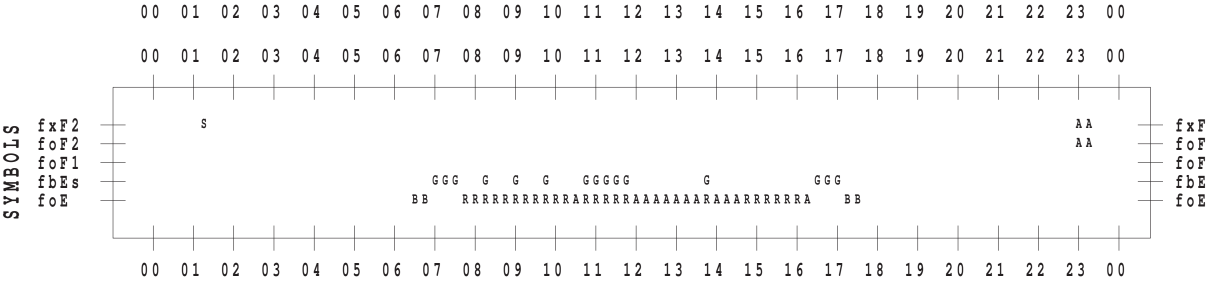
STATION : Kokubunji

DATE : 2012/ 2/21

135 °E MEAN TIME





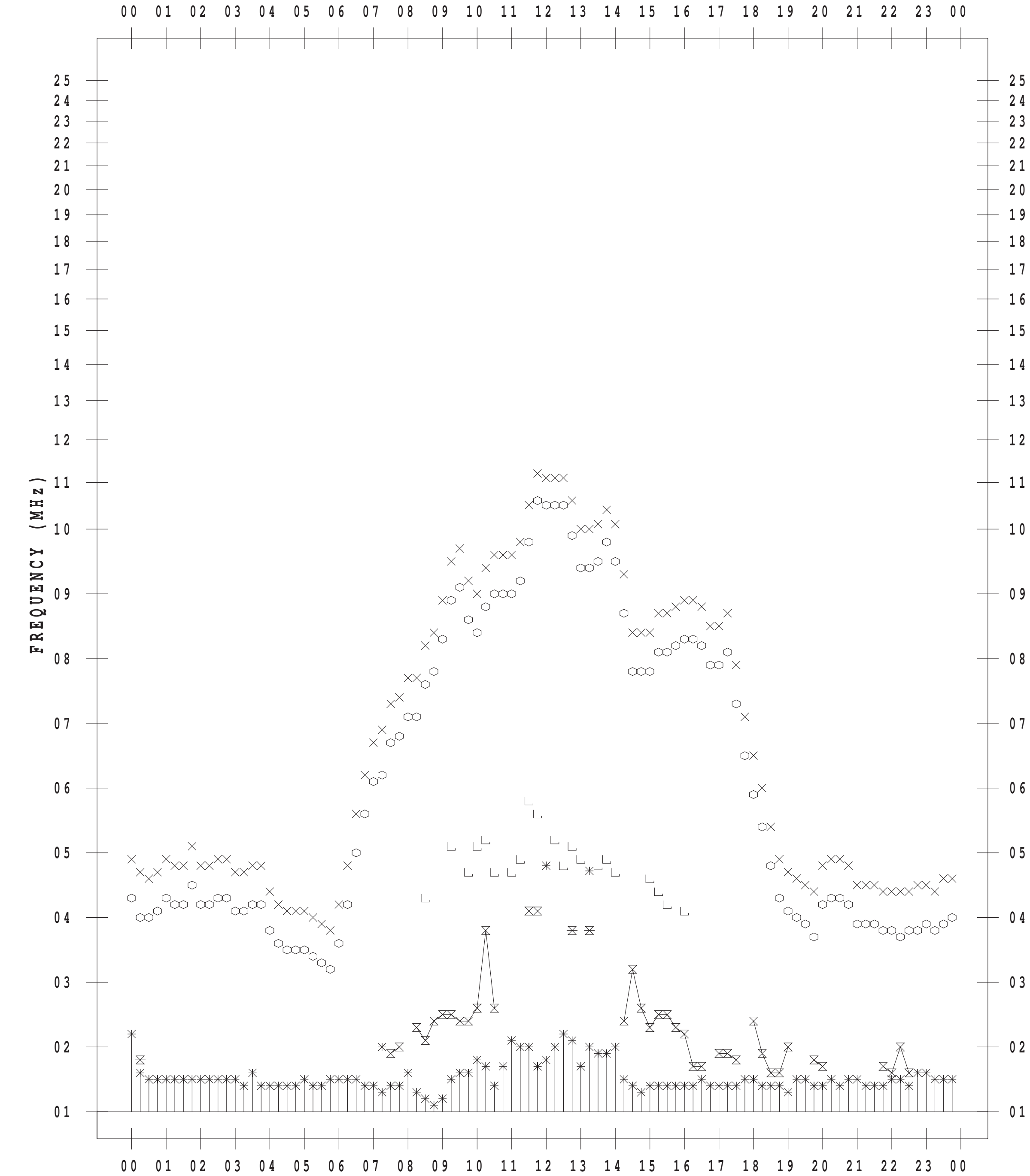


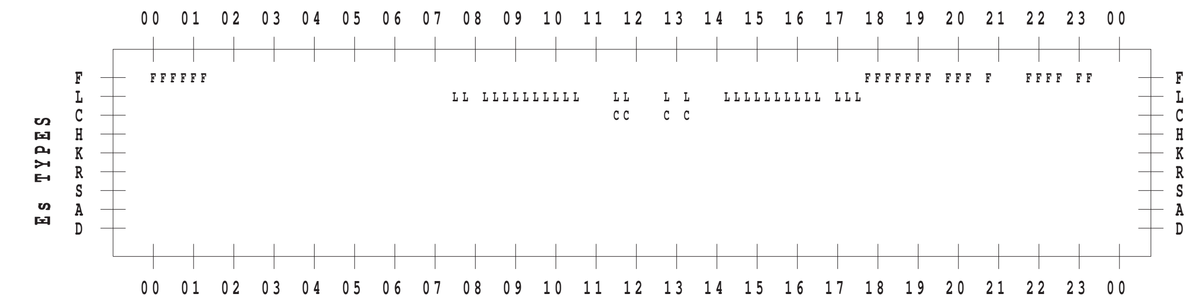
f-PLOT DATA

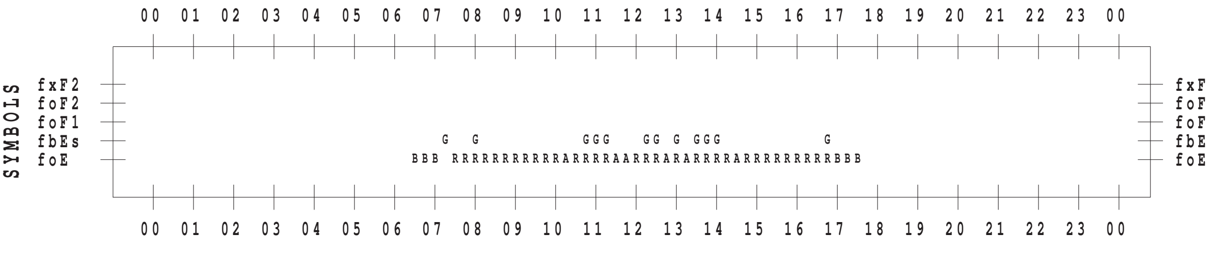
SCALER : I.NISHIMUTA

STATION : Kokubunji DATE : 2012/ 2/22

135 °E MEAN TIME







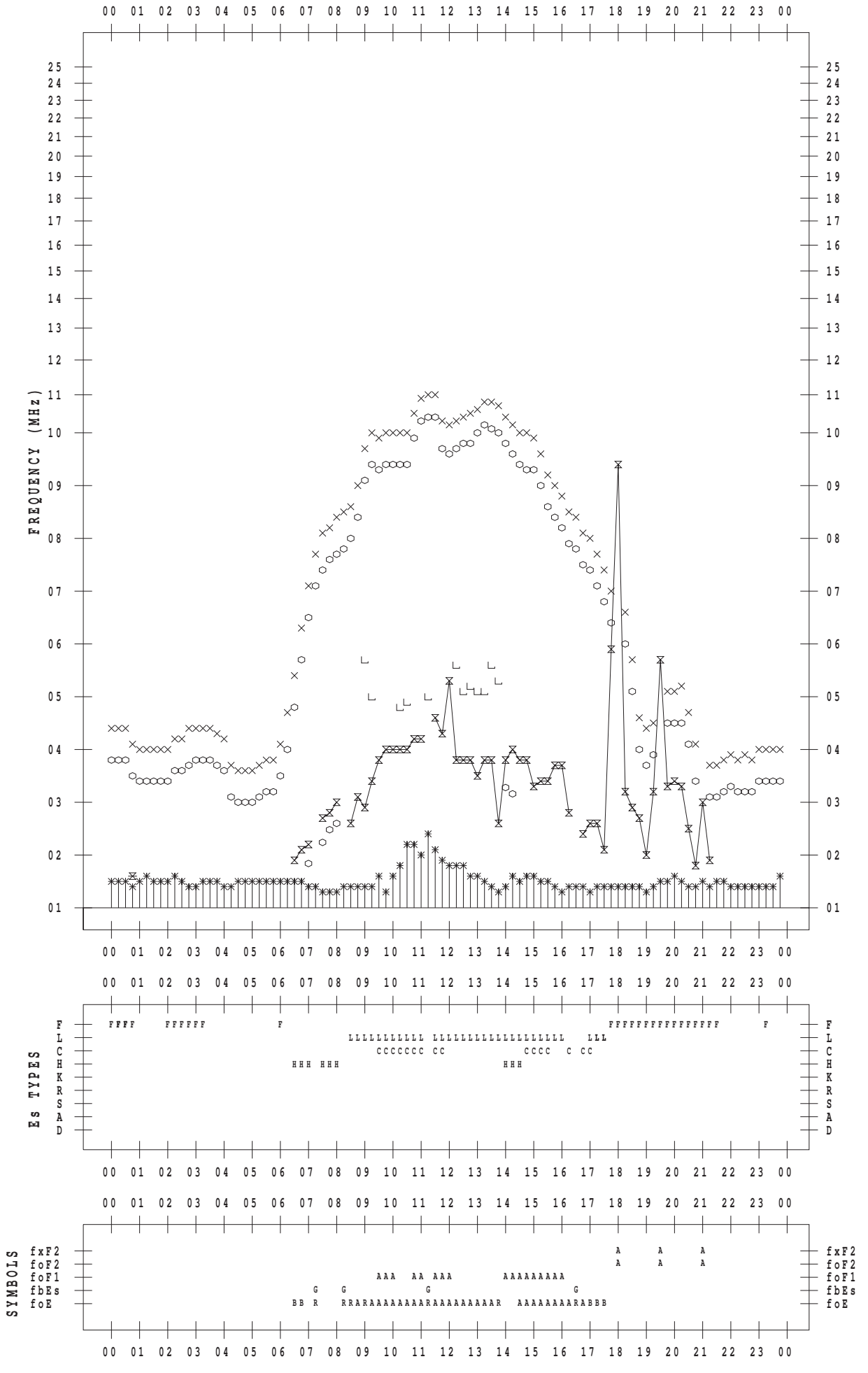
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2012/ 2/23

135 °E MEAN TIME



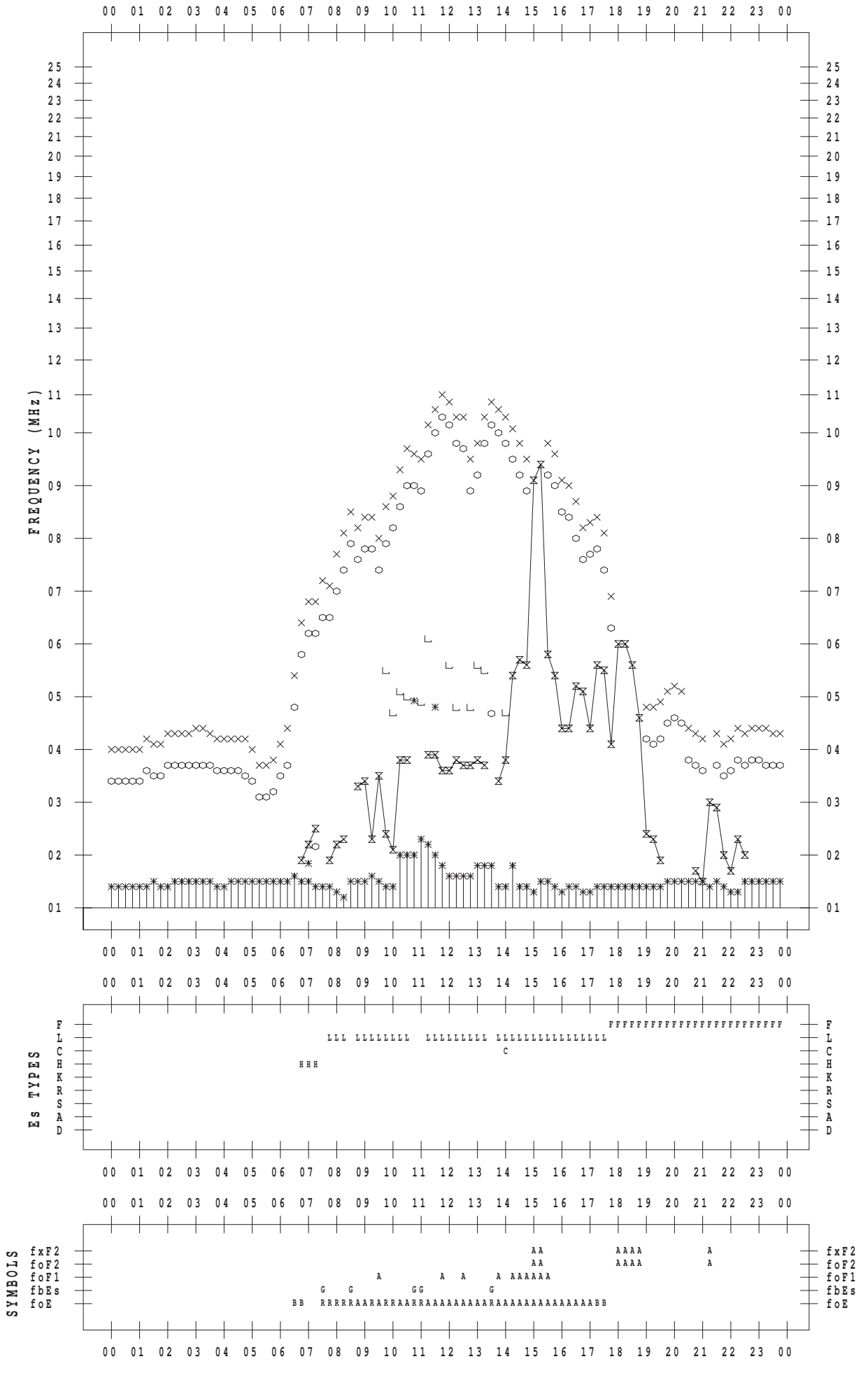
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2012/ 2/24

135 °E MEAN TIME



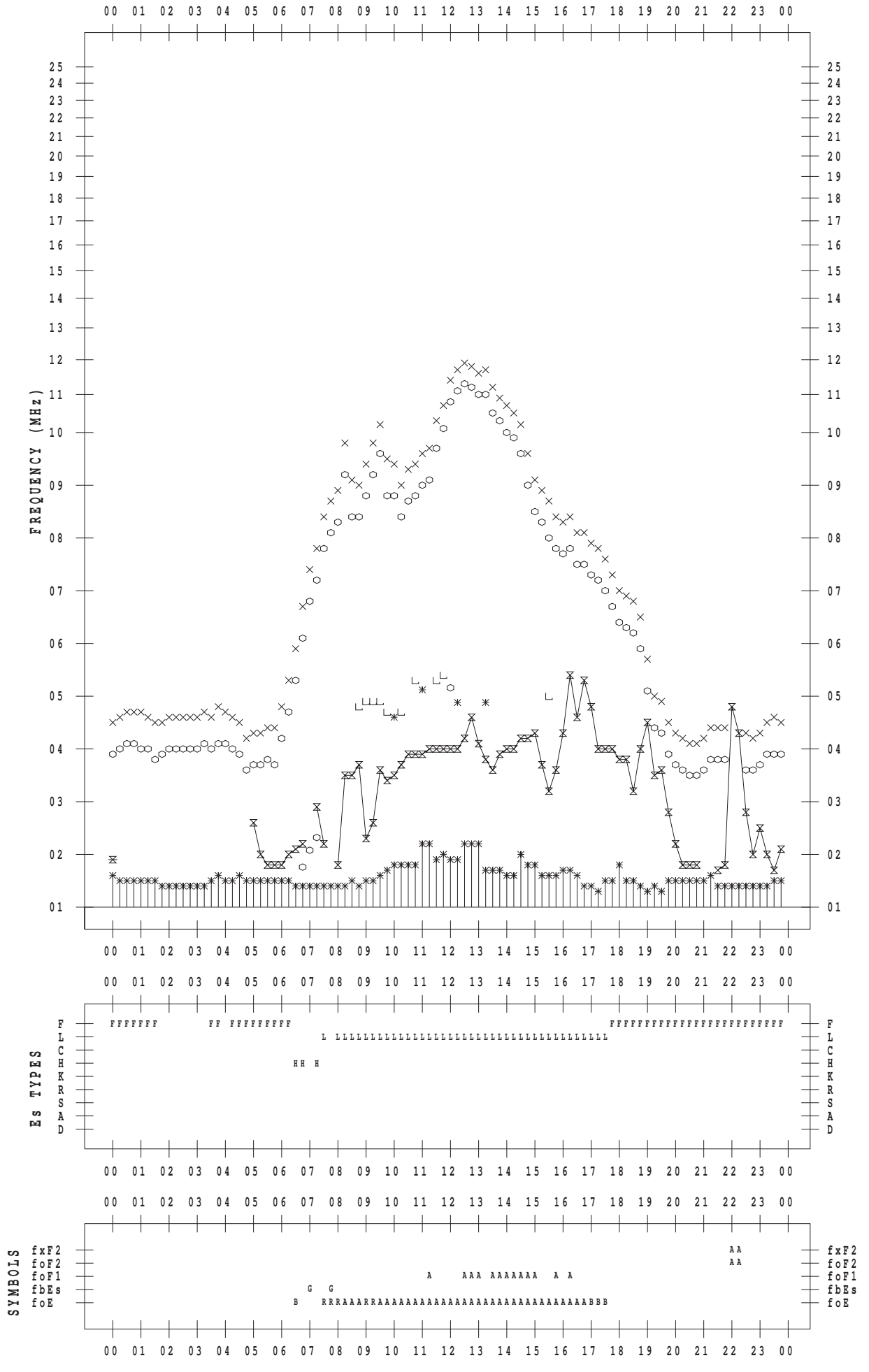
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2012/ 2/25

135 °E MEAN TIME



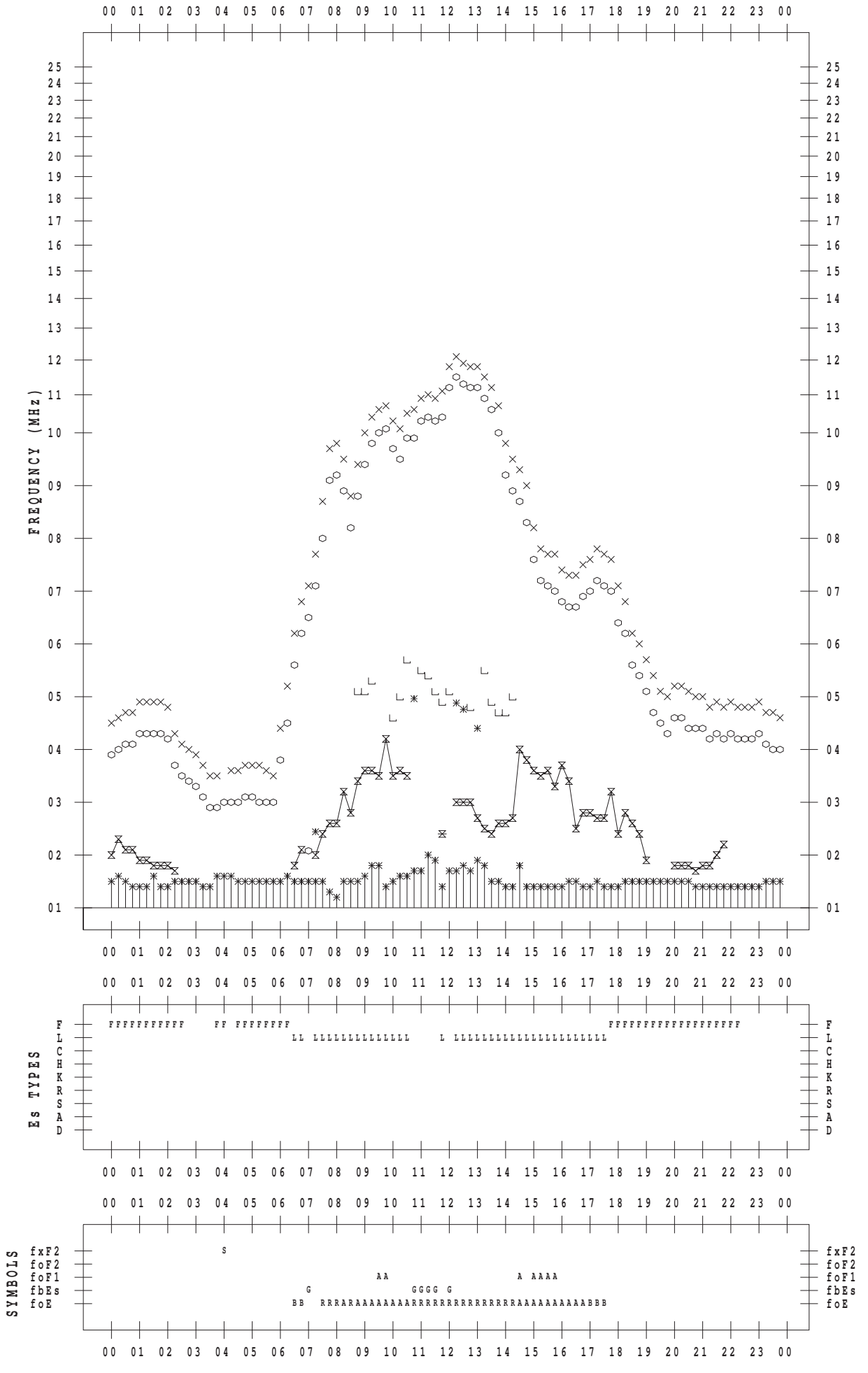
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2012/ 2/26

135 °E MEAN TIME



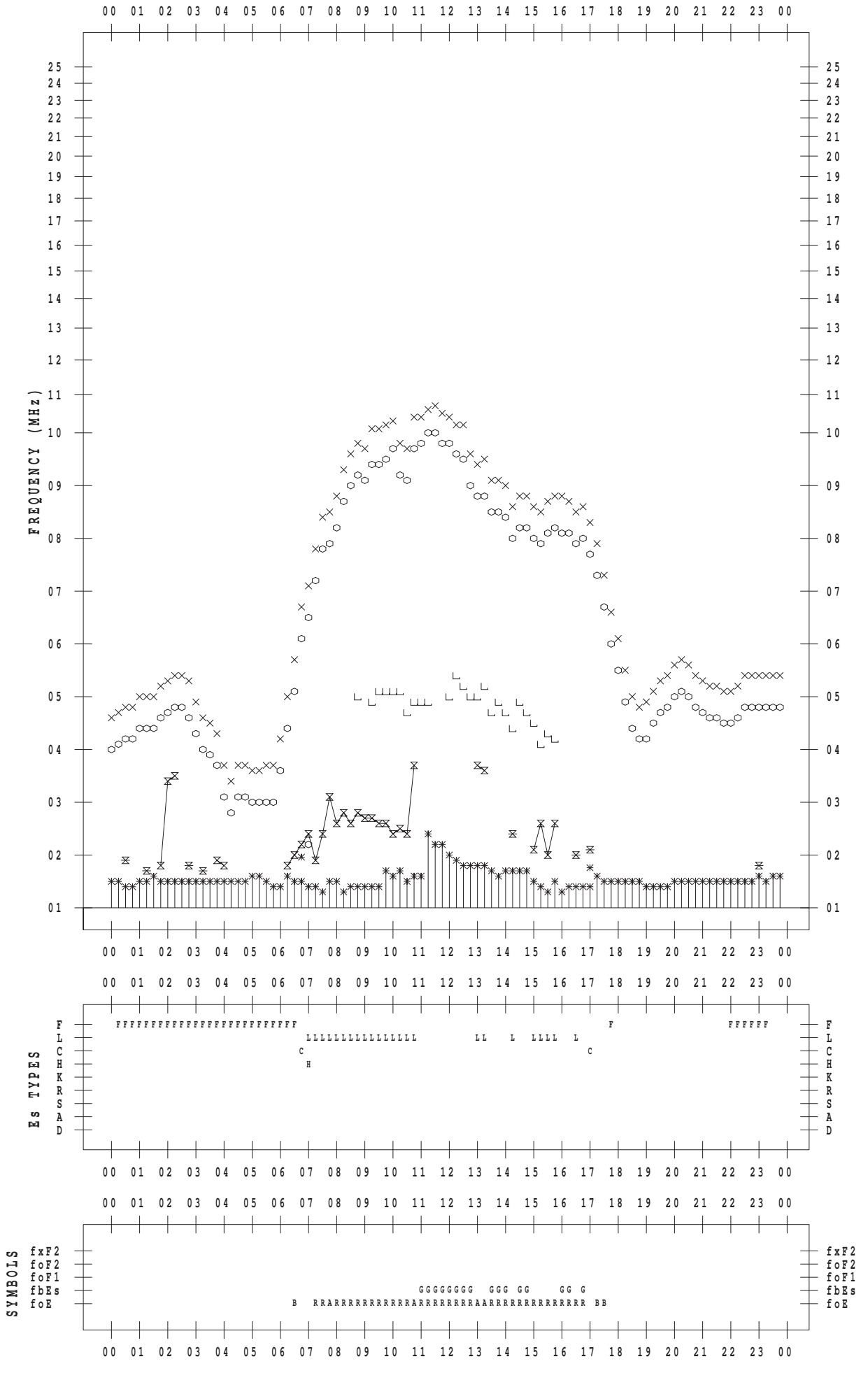
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2012/ 2/27

135 °E MEAN TIME



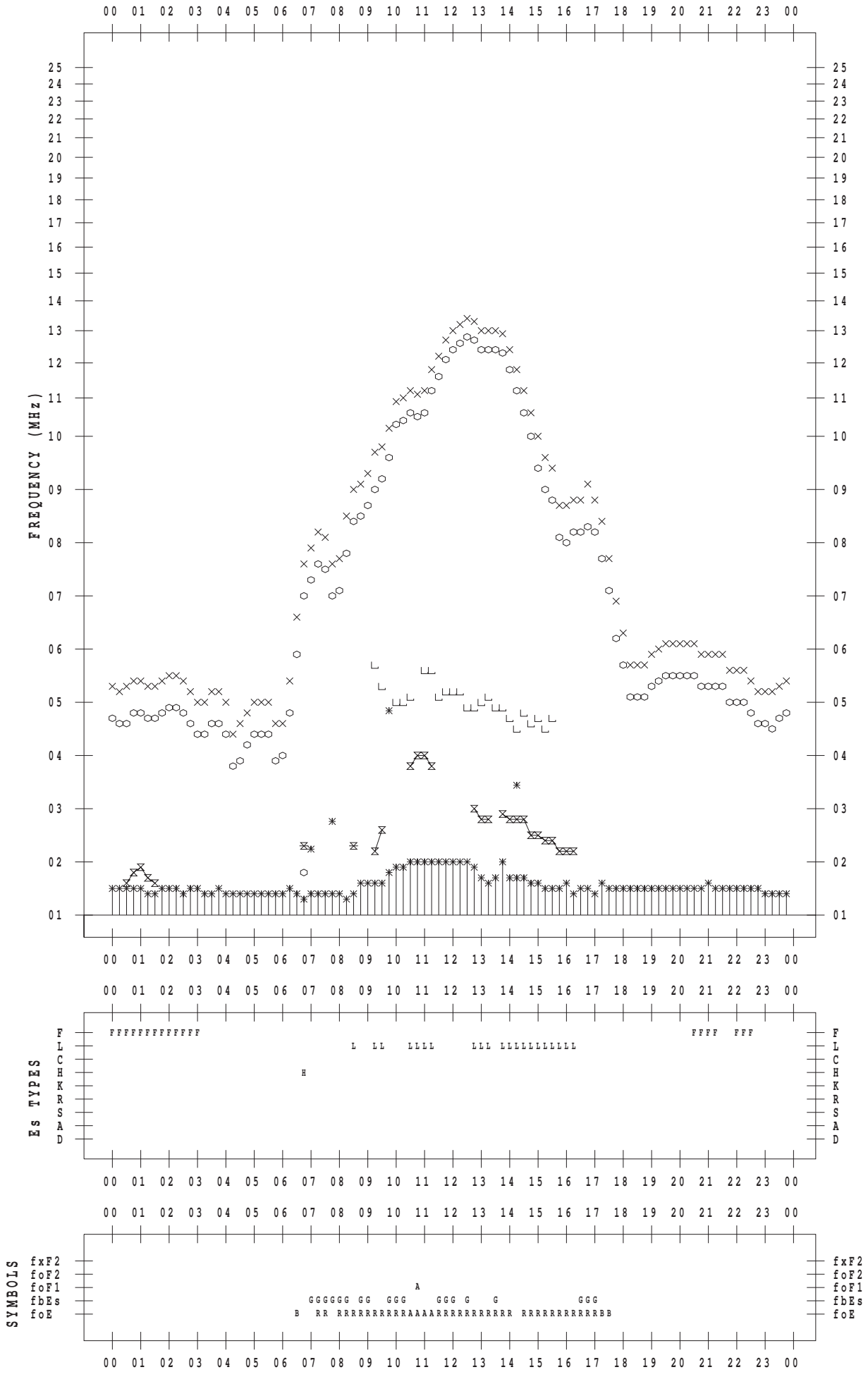
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2012/ 2/28

135 °E MEAN TIME



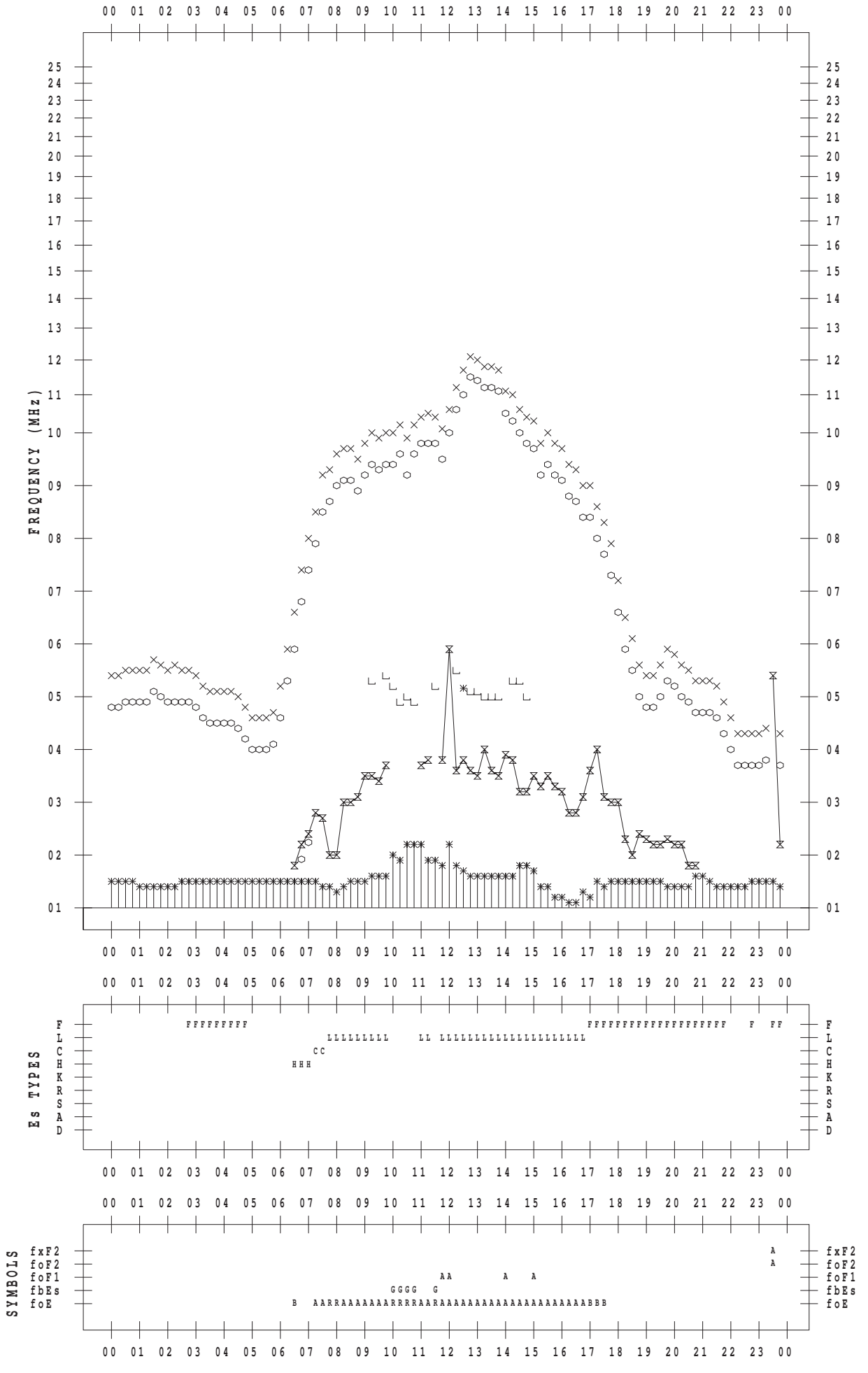
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2012/ 2/29

135 °E MEAN TIME



B. Solar Radio Emission

B1.Outstanding Occurrences at Hiraiso

Hiraiso February 2012

Single-frequency observations

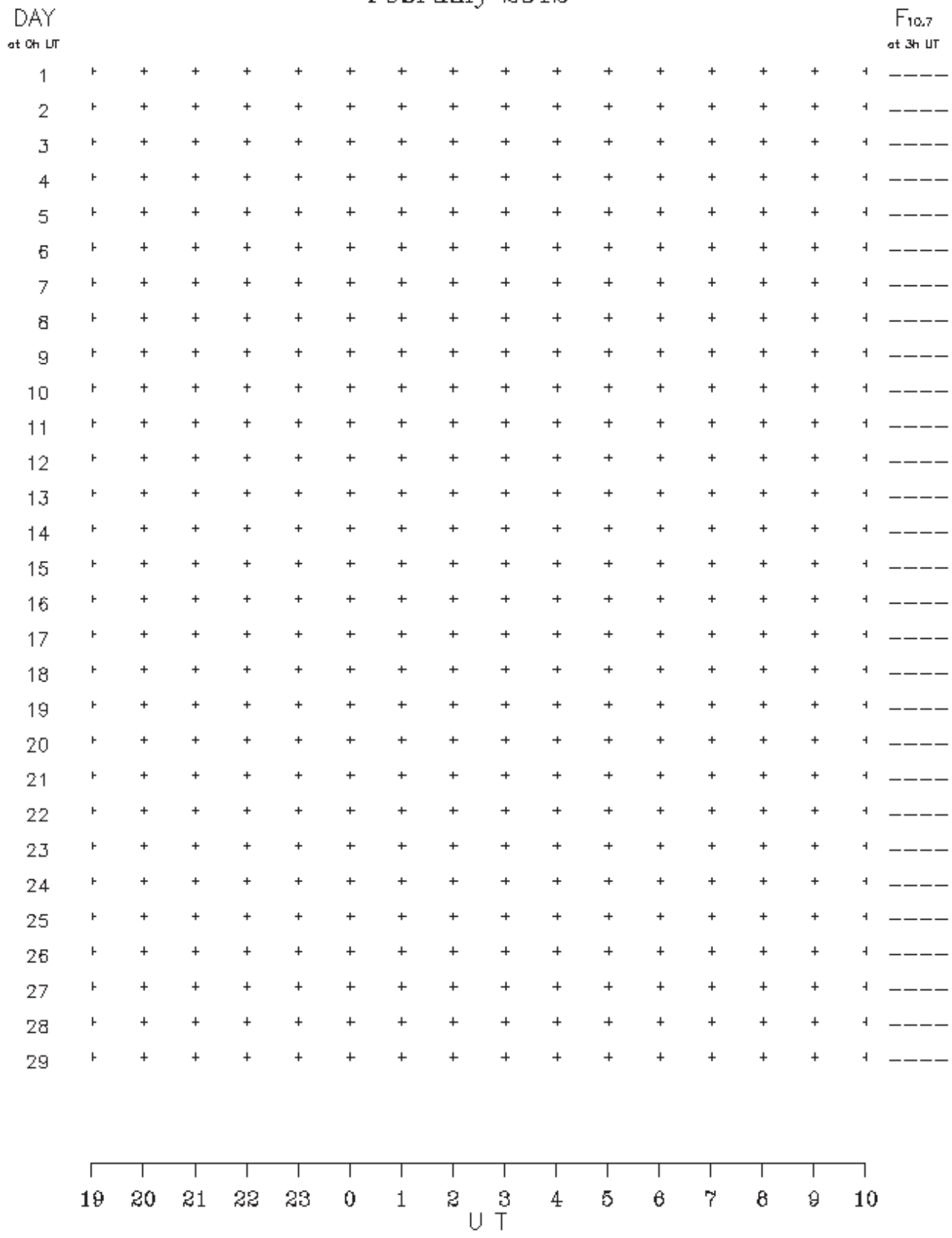
Normal observing period: 2120 - 0820 U.T. (sunrise to sunset)

FEB. 2012	FREQ. (MHz)	TYPE	START TIME (U.T.)	TIME OF MAXIMUM (U.T.)	DUR. (MIN.)	FLUX DENSITY (10^{-22} W m^{-2} Hz^{-1}) PEAK	FLUX DENSITY (10^{-22} W m^{-2} Hz^{-1}) MEAN	POLARIZATION REMARKS

B.Solar Radio Emission

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

Februaly 2012



Note: A vertical grid space corresponds to a 100 sfu.
Elevation angle range ≧ 6°
A link to the daily plot data directory : http://sunbase.nict.go.jp/solar/denpa/hirasDB/2012/02/