F-757

IONOSPHERIC DATA IN JAPAN

FOR JANUARY 2012

VOL. 64 NO. 1

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

NATIONAL INSTITUTE OF INFORMATION
AND COMMUNICATIONS TECHNOLOGY
TOKYO, JAPAN

INTRODUCTION

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

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

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

A. IONOSPHERE

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

A1. Automatic Scaling

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

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

a. Characteristics of Ionosphere

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

b. Descriptive Letters

The following descriptive letters are used in the tables.

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

C Impossible measurement because of any failure in observation.

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

N Impossible automatic scaling because of complex echoes.

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

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

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

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

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

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

d. Reliability of Automatic Scaling

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

e. Summary Plot

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

A2. Manual Scaling

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

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

a. Characteristics of Ionosphere

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

b. Symbols

(i) Descriptive Letters

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

A Measurement influenced by, or impossible because of, the presence of a lower thin layer, for example *Es*.

B Measurement influenced by, or impossible because of, absorption in the vicinity of *fmin*.

C Measurement influenced by, or impossible because of, any non-ionospheric reason.

D Measurement influenced by, or impossible because of, the upper limit of the normal frequency range in use.

E Measurement influenced by, or impossible because of, the lower limit of the normal frequency range in use.

F Measurement influenced by, or impossible because of, the presence of spread echoes.

G Measurement influenced by, or impossible because the ionization density of the layer is too small to enable it to be made accurately.

H Measurement influenced by, or impossible because of, the presence of a stratification.

K Presence of particle *E* layer.

L Measurement influenced or impossible because the trace has no sufficiently definite cusp between layers.

M Interpretation of measurement questionable because the ordinary and extraordinary components are not distinguishable.

N Conditions are such that the measurement cannot be interpreted.

O Measurement refers to the ordinary component.

P Man-made perturbations of the observed parameter; or spur type spread *F* present.

Q Range spread present.

R Measurement influenced by, or impossible because of, attenuation in the vicinity of a critical frequency.

S Measurement influenced by, or impossible because of, interference or atmospherics.

T Value determined by a sequence of observations, the actual observation being inconsistent or doubtful.

V Forked trace which may influence the measurement.

W Measurement influenced or impossible because the echo lies outside the height range recorded.

X Measurement refers to the extraordinary component.

Y Lacuna phenomena, severe layer tilt.

Z Third magneto-electronic component present.

(ii) Qualifying Letters

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

A Less than. Used only when *fbEs* is deduced from *foEs* because total blanketing of higher layer is present.

D Greater than.

E Less than.

I Missing value has been replaced by an interpolated value.

J Ordinary component characteristic deduced from the extraordinary component.

M Mode interpretation uncertain.

O Extraordinary component characteristic deduced from the ordinary component. (Used for x-characteristics only.)

T Value determined by a sequence of observations, the actual observation being inconsistent or doubtful.

U Uncertain or doubtful numerical value.

Z Measurement deduced from the third magneto-electronic component.

(iii) Description of Types of *Es*

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

The types are:

f An *Es* trace which shows no appreciable increase of height with frequency.

l A flat *Es* trace at or below the normal *E* layer minimum virtual height or below the part *E* layer minimum virtual height.

c An *Es* trace showing a relatively symmetrical cusp at or below *foE*. (Usually a daytime type.)

h An *Es* trace showing a discontinuity in height with the normal *E* layer trace at or above *foE*. The cusp is not symmetrical, the low frequency end of the *Es* trace lying clearly above the high frequency end of the normal *E* trace. (Usually a daytime type.)

q An *Es* trace which is diffuse and non-blanketing over a wide frequency range.

r An *Es* trace showing an increase in virtual height at the high frequency end similar to group retardation.

a An *Es* trace having a well-defined flat or gradually rising lower edge with stratified and diffuse traces present above it.

s A diffuse *Es* trace which rises steadily with frequency and usually emerges from another type *Es* trace.

d A weak diffuse trace at heights below 95 km as-sociated with high absorption and large *fmin.*

n The designation 'n' is used to denote an *Es* trace which cannot be classified into one of the standard types.

k The designation 'k' is used to show the presence of particle *E*. When *foEs* > *foE* (particle *E*) the *Es* type precedes k.

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

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

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

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

B. SOLAR RADIO EMISSION

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

B1. Outstanding Occurrences at Hiraiso

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

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

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

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

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

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

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

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

B2. Summary Plots of F10.7 at Hiraiso

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

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

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

HOURLY VALUES OF foF2 AT Wakkanai

JAN. 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	34	A	30	32	38	38	34	34	63	66	98	59	62	68	70	66	58	40	46	32		35	32	32
2	32	31	34	30	34	34	32	40	64	81	78	68	87	67	68	67	52	A	32	30	30	34	37	34
3	34	42	42	45	32	37	34	43	67	82	92	59	74	67	71	66	63	42	34	34	29	34	37	A
4	34	32	34	31	34	29	26	34	60	68	69	84		87	81	70	54	34	A	A	A	A	A	A
5	A	A	A	31	29	30	29	43	66	65	65		77	68	69	70	60	43	36	29	A	A	A	A
6	31	37	36	37	30	A	29	54	67	71	70	72	70	68	87	67	52	34		26	A	A	A	34
7	34	34	35	34	37	36	32	50	62	79	N	N	68	88	66	67	62	A	34	34	A	32	43	32
8	32	42	34	43	47	45	32	50	72	69	68	70	84	67	68	58	64	51		34	34	25	34	34
9	34	32	32		40	43	42	45	71	66	85	84	67	84	70	62	61	54	55	34	28	32	A	32
10	32	29	37	35	30	40	36	54	66	70	81	59	70	72	71	65	62	55	43	28		32	34	32
11	34	38	37	38	34	34	34	43	64	76	86		70	66	67	66	58	51	45	A		A	31	32
12	32	31	28	34	37	32	32	47	66	67	63	65	67	70	65	64	50	47	40	32	29	29	34	29
13	37	30	34	34	34	28	29	32	45	85	89	67	68	68	67	67	55	44	34	30	28	28	31	A
14	30	32	31	32	34	32		46	66	67	86	71	64	68	N	70	66	49	31	30	34	37	40	40
15	38	38	40	31	34	36	31	47	66	67	71	69	67	72	70	61	61	52	52	32	34	44	34	48
16	47	34	35	44	44	38	29	20	64	67	74	69	70		64	70	63	54	46	42	34	37	32	34
17	43	47	53	34	30	30	28	42	65	67	76	67	72	68	64	65	61	46	38	34	34	N	34	34
18	31	34	34	34	36	38	34	58	73	69	71	75	67	68	69	70	56	42	37	32	25	32	33	34
19	37	34	36	47	44	40	34	48	66	88	61	91	71	69	67	67	58	55	57	55	44	31	34	34
20	34	34	38	47	30	32	30	50	65	67	70	59	59	63	66	62	61	48	31	34	31	42	42	42
21	44	44	35	37	42	34	34	53	66	87	83	N	82	70	67	70	65	54	40	34	32	34	32	32
22	40	34	42	41	32	28	28	47	66	73	79	87		81		70	56	46	40	28	34	34	34	42
23	31	37	32	28	30	32	29	54	67	69		59	N	59	92	70	67	53	51	52	48	52	54	52
24	51	52	53	53	29	23	31	54	66	91	81	81	94	62	86	71	64	47	A	A	34	32	38	42
25	35	40	34	31	34	30	26	54	73	75	70	95	115		90	72	82	66	63	55	53	54	A	58
26	54	32	34	30	34	A	35	50	67	N	86	59		81	84	74	68	51	46	30	A	A	A	A
27	36	32	31	30	32	A	34	48	70	88	73	86	92	91	74	79	56	61	53	44	A	A	A	A
28	34	35	43	45	31	A	A	49	64	67	70	67	71	68	70	70	60	50	34	A	A	A	34	A
29	47	51	52	53	50	45	A	52	71	86	59	59	N	70	69	68	68	53	29	A	32	A	A	34
30	A	A	32	38	38	37	37	54	63	67	80	69	82	64	68	70	61	53	A	32		A	A	A
31	A	30	31	38	32	34	38	53	65	71	66	66	91	62	70	72	70	55	42	32	38	32	34	34
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	28	30	30	31	27	28	31	31	30	29	27	26	29	29	31	31	29	26	26	20	21	22	23
MED	34	34	34	34	34	34	32	48	66	70	74	69	70	68	69	68	61	51	40	32	34	34	34	34
U Q	39	39	38	43	38	38	34	53	67	81	84	81	82	72	72	70	64	54	46	34	34	37	37	42
L Q	32	32	32	31	31	30	29	43	64	67	69	59	67	67	67	66	56	45	34	30	29	32	33	32

HOURLY VALUES OF fEs AT Wakkanai

JAN. 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	33	34	G	G	G	29	30	G	G	34	51	40	G	G	G	G	35	31	34	G		G	G	G
2	G	G	G	29	34	G	28	G	G	35	G	41	G	36	34	G	G	33	G	G	G	G	G	G
3	G	G	G	G	G	G	G	24	40	35	44	36	37	G	G	G	G	G	G	G	G	G	33	34
4	G	26	25	29	G	G	G	G	38	38	36	G		G	G	G	G	33	46	53	60	72	40	40
5	39	50	40	24	G	G	G	G	40	52	G		G	G	40	33	G	59	G	G	29	38	57	46
6	27	35	G	G	G	40	28	32	G	34	59	58	G	G	G	G	G	G		G	52	35	58	26
7	G	G	G	G	G	G	G	G	34	G	G	37	G	G	G	G	45	43	34	26	27	G	G	28
8	28	26	32	G	26	24	G	G	48	37	G	G	G	G	38	G	G	G		G	G	G	G	G
9	G	G	30		G	27	11	G	34	G	G	G	G	G	G	G	G	33	G	29	G	G	28	27
10	G	G	26	G	27	G	G	28	58	33	G	G	G	39	36	G	G	G	G	G		G	G	G
11	G	G	32	36	34	30	G	26	35	40	38		36	40	39	43	36	38	32	28		29	G	G
12	G	33	24	29	G	G	G	30	G	34	G	G	G	G	G	G	G	G	G	G	G	G	G	G
13	G	G	G	G	G	G	G	G	29	34	G	G	G	G	35	G	40	28	26	25	G	G	27	26
14	G	G	G	G	G	G		24	44	G	G	41	G	G	G	36	G	35	29	31	27	28	G	G
15	34	26	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	36	28	G	23	G
16	26	G	G	G	G	G	G	23	44	G	G	G	G		G	G	G	G	G	G	G	G	G	G
17	G	G	G	38	G	G	G	34	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
18	G	G	G	G	G	G	G	28	G	G	G	G	G	G	G	G	G	G	G	G	G	G	34	29
19	G	G	G	G	G	G	G	G	52	G	G	G	G	G	G	G	G	G	G	G	G	G	28	G
20	G	G	G	G	G	G	G	G	44	G	G	G	G	G	G	G	G	G	G	G	G	G	G	25
21	G	G	G	G	G	G	G	G	50	39	G	G	G	G	G	G	G	G	37	33	G	G	G	24
22	G	25	G	26	G	G	G	G	48	50	G	G		37		41	33	34	27	G	G	25	G	G
23	25	G	G	G	G	G	G	G	G	34		G	G	G	G	G	34	36	30	G	G	28	G	G
24	G	G	G	G	G	G	G	24	G	G	G	G	G	G	G	35	31	30	36	61	38	39	28	G
25	G	G	G	G	G	G	G	28	35	40	47	38	G		G	38	G	28	55	38	28	28	40	32
26	G	G	G	G	28	38	G	G	G	48	G	G		G	36	34	36	32	32	34	38	49	65	34
27	32	30	G	G	G	39	33	25	38	44	39	G	38	G	G	42	72	83	56	40	38	60	41	46
28	23	G	24	71	56	38	49	31	G	G	70	G	G	59	35	38	28	24	26	68	58	36	G	37
29	33	32	G	G	G	34	58	G	G	42	49	G	G	G	G	G	G	28	36	70	70	71	41	32
30	44	40	28	29	33	26	G	31	39	53	51	52	G	37	G	G	34	32	59	G		28	40	38
31	42	27	34	G	27	G	G	G	32	57	63	G	44	62	G	G	G	30	G	G	G	G	G	G
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	30	31	31	30	31	31	31	30	29	28	29	30	31	31	31	29	31	27	31	31	31
MED	G	G	G	G	G	G	G	G	34	34	G	G	G	G	G	G	G	28	26	G	G	G	G	24
U Q	28	27	25	26	26	27	G	28	44	40	44	36	G	18	34	34	34	33	35	34	38	35	40	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 Wakkanai

JAN. 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	15	15	16	15	14	14	14	15	15	17	20	21	22	29	28	23	14	14	14	15		14	14	14
2	15	15	16	14	14	14	15	15	14	14	14	14	14	14	14	17	16	14	15	15	17	15	14	15
3	15	14	15	14	14	14	14	15	14	14	15	14	14	14	14	14	18	14	15	15	15	14	14	14
4	14	15	14	14	15	14	15	14	14	14	14	15		15	14	14	17	14	14	14	14	14	15	14
5	14	14	14	14	15	15	14	15	14	14	15		16	15	15	15	14	15	14	15	14	14	14	15
6	15	14	14	15	14	14	15	15	14	15	16	17	15	16	14	14	14	14		15	14	15	14	14
7	14	15	15	14	14	14	15	15	15	15	16	15	16	15	17	14	14	15	14	15	14	16	14	15
8	14	15	14	14	14	15	15	14	20	15	16	15	16	15	14	14	15	14		14	15	20	15	14
9	15	14	14		14	15	14	14	14	18	20	22	22	18	16	15	20	15	14	14	17	14	15	14
10	16	15	17	15	16	15	15	14	14	14	14	15	17	15	15	14	14	17	14	15		15	14	14
11	14	15	14	14	14	14	15	15	14	14	14		15	14	14	14	14	14	14	16		14	14	14
12	15	15	15	14	14	14	15	14	14	14	14	14	14	15	14	14	18	14	14	15	14	14	15	14
13	15	14	15	14	15	15	16	15	14	14	14	14	16	14	15	14	14	14	16	14	15	15	14	14
14	18	15	15	14	15	14		15	14	14	15	14	17	17	15	14	14	14	14	15	15	15	15	15
15	14	16	14	15	15	14	16	15	15	14	15	18	21	18	16	15	20	15	14	14	15	14	14	14
16	14	26	14	15	15	14	15	14	15	15	18	18	18		14	14	20	14	15	14	15	15	16	17
17	14	14	15	14	15	14	21	14	14	17	22	33	22	38	28	26	14	15	14	14	14	14	14	14
18	14	14	14	14	15	14	15	14	23	20	32	43	42	33	30	26	18	15	15	15	15	14	14	15
19	14	14	16	14	15	14	14	15	14	14	15	18	20	17	14	14	21	17	15	14	14	14	15	15
20	14	16	14	15	15	15	14	15	15	15	15	21	18	20	15	14	20	14	14	14	14	14	14	14
21	14	14	14	14	15	14	15	15	14	14	14	15	16	14	15	15	20	15	14	15	16	14	14	14
22	14	15	14	14	15	15	16	15	14	14	14	14		15		14	14	14	15	14	15	14	14	14
23	14	14	15	14	14	16	15	17	14	14		14	20	54	21	14	14	14	15	14	14	14	14	14
24	15	14	15	14	14	14	15	14	20	14	14	14	15	16	15	14	14	14	14	14	14	14	14	15
25	14	15	15	14	14	15	14	14	15	14	15	16	18		15	15	14	14	14	14	14	14	14	15
26	14	14	14	14	15	14	14	14	14	15	20	22		20	26	22	18	14	14	14	14	14	14	14
27	14	15	15	16	15	14	14	16	15	16	17	15	22	21	18	16	14	14	14	14	14	14	14	14
28	14	15	14	14	14	14	14	14	14	14	15	17	17	16	15	20	14	14	14	15	14	14	15	14
29	15	14	16	15	15	14	15	17	15	16	20	15	16	18	23	15	14	14	14	15	14	14	15	14
30	14	14	14	14	15	14	14	14	14	14	14	14	14	14	14	14	14	14	14	15		15	14	14
31	14	15	14	14	15	14	14	16	14	15	14	14	14	14	16	14	14	15	21	15	15	15	15	15
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	30	31	31	30	31	31	31	30	29	28	29	30	31	31	31	29	31	27	31	31	31
MED	14	15	14	14	15	14	15	15	14	14	15	15	16	16	15	14	14	14	14	15	14	14	14	14
U Q	15	15	15	15	15	15	15	15	15	15	17	18	20	19	17	15	18	15	15	15	15	15	15	15
L Q	14	14	14	14	14	14	14	14	14	14	14	14	15	14	14	14	14	14	14	14	14	14	14	14

HOURLY VALUES OF foF2 AT Kokubunji

JAN. 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								45	73	81	86	91	91	93	80	77	66	52		47		31	27	A
2	A	45	42	58	N	N	N	53	64	80	95	100	83	77	77	81	59	44						
3	27		36		N	28	N	52	72	88	107	107	87	87	85	74	66	53		A		N		
4							28	52	82	80	105	109	98	80	102	100	66	A	A				A	A
5	A	A	A	A				45	67	103	90	78	A	73	64	73	55	55	48	39				A
6	A	39	A	22	A	32		53	76	66	91	76	77	83	72	90	72	52					30	
7		A						53	66	86	81	82	67	72	87	80	52	52	44	A			A	
8	A		28					46	64	85	114	104	101	88	88	86	59	55	54	N				
9		N				N		46	54		86	81	73	90	87	82	67	53	53	53	34	A		
10						A		38	58	76	103	94	82	78	81	80	72	44	A	45		N		A
11	28				N		31	44	64	75	81	97	104	84	82	74	68	54	44		36			
12	A		27	N			N	47	52	88	86	75	67	A	78	82	55	39				N	N	N
13	28		N				N	51	69	86	101	94	75	75	81	81	N	53	44	A	41	42	38	A
14	A	N			N	30	58	49	64	84	87	81	68	66	81	80	66	53	36		N		28	A
15				34		N	N	49	61	66	84	78	68	72	73	65	53	53	30	39	30			
16		A		28	N	N	N	53	66	64	79	72	77	79	82	75	69	55	52	N				
17		34	27					44	78	87	97	94	94	87	80	66	57	58	54	43	N			
18			28		N	N	26	54	69	C	C	C	C	C	80	71	69	55	39	A	37	31		N
19	32					N		53	62	83	100	87	88	86	76	72	61	49		54	44		41	37
20	34		36	N		28		53	72	68	77	86	81	76	80	69	63	55	28					
21		36	37		N	32	39	54	80	86	111	106	81	77	80	81	66	53	44			N		N
22	28	37	42					54	68	64	87	107	112	87	74	67	66	56	28		28	38	34	A
23	38	45	N	N		N		67	80	86	99	121	108		106	82	76	64	53	53	42		45	30
24	42	44	51	53	28	28	36	59	76	86	112	114	101	101	105	87	64	53	44	N	34	31		A
25	32		N				37	52	65	81	94	102	98	101	92	87	75	66	67	N			A	
26						28		N	90	92	106	100	95	94	91	86	69	62	44	51	28			A
27	A			A	A		28	54	75	86	113	97	96	89	83	85	81	55	53	54	47			A
28	A	A	A	A	A			58	66	65	83	100	82	75	76	82	68	A		44		A	A	A
29	A	A	A	A	N		N	54	67	67	77	98	97	88	63	81	76	58	32	34	30	N		N
30	A	A	A	A	A		N	51	72	80	78	90	98	86	77	67	69	58	A	A				
31	N				A	28	A	58	80	82	95	91	80	92	76	73	76	66	A					28
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	9	7	10	5	1	8	8	30	31	29	30	30	29	28	31	31	30	29	20	12	12	5	7	3
MED	32	39	36	34	28	28	34	52	68	82	92	94	87	85	80	80	66	54	44	46	35	31	34	30
U Q	36	45	42	55	14	31	38	54	76	86	103	102	98	88	87	82	69	57	53	53	41	40	41	37
L Q	28	36	28	25	14	28	28	47	64	71	84	82	77	76	76	73	61	52	37	41	30	31	28	28

HOURLY VALUES OF fEs AT Kokubunji

JAN. 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	31
2	48	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G						
3	G		G		G	G	G	G	G	G	G	G	G	G	G	G	G	G		30		G		
4		G			G		G	G	G	47	61	60	69	G	72	42	46	69	43				50	50
5	29	89	34	31				G	G	52	86	50	104	G	G	G	G	G	G	G				58
6	51	G	27	G	23	G		G	G	50	51	45	G	59	58	G	G	38					G	
7		52						G	31	G	G	43	G	G	G	G	31	34	28	25			34	
8	24		G					G	G	G	G	G	G	G	G	G	G	G	G	G				
9		G				G		G	G		G	G	G	G	G	G	G	29	27	24	28	27		
10						27		G	G	38	G	G	G	G	G	G	G	G	28	G		G	G	34
11	G				G		G	G	N	G	43	G	G	G	G	G	G	G	G		G			
12	35		G	G			G	G	G	G	G	G	G	56	43	G	G	G				G	G	G
13	G		G				G	G	33	G	G	G	G	G	G	G	G	26	G	30	G	G	G	27
14	29	G			G	G	G	G	G	G	G	45	G	G	52	52	34	G	G		G		G	29
15				G		G	G	G	G	G	G	G	G	G	G	G	G	G	27	G	G			
16		27		G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G			G	
17		G	G					G	G	G	G	G	G	G	G	G	G	G	G	G	G		G	
18			G		G	G	G	G	G	C	C	C	C	C	G	37	G	G	G	34	G	G		G
19	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		G	G		G	G	G	G	G	G	G	G	G	G	G	G	G	G	G			G		G
22	G	G	G					G	G	G	G	48	G	G	G	45	G	G	G		G	G	G	33
23	G	G	G	G		G		G	G	G	G	G	G		G	G	G	G	G	G	G		G	G
24	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G		37
25	G	G	G		G		G	G	40	55	49	G	G	G	G	G	G	37	G	G			40	
26						G		27	G	53	G	G	G	G	60	G	61	G	G	35	G			40
27	47			25	27		G	G	G	G	G	48	G	G	G	G	G	29	29	G	G			35
28	39	36	26	45	26			G	G	G	G	G	G	68	55	G	G	41		G		41	29	36
29	34	28	28	28	G		G	G	G	G	49	G	G	40	57	49	G	29	G	G	G	G		G
30	50	49	36	26	29	G	G	G	G	G	44	G	52	43	52	49	53	52	71	29		G		
31	G				27	G	27	30	G	G	G	G	G	G	G	50	G	G	35					G
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	20	17	19	13	16	17	17	31	30	29	30	30	30	29	31	31	31	31	24	21	14	14	16	18
MED	12	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	30
U Q	37	32	26	27	24	G	G	G	G	G	G	G	G	G	43	G	G	29	27	27	G	G	15	36
L Q	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G

HOURLY VALUES OF fmin AT Kokubunji

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

HOURLY VALUES OF foF2 AT Yamagawa

JAN. 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	29	29	28	31	29	29	30	62	68	73	59	86	N	79	77	77	78	72	54	46	53		42	40
2	37	40	38	34	29	30	28	41	67	76	59	99	59	80	76	86	87	71	53	32	46	44	32	32
3	38	28	59	32	30	32	B	34	64	78	70	N	77	94	N	77	75	77	54	50	46	42	B	B
4	28	32	28	29	B	28	30	40	73	75	80	69	54	69	A	80	80	63	47	42	43	B	32	34
5	35	89	37	37	32	B	B	37	66	67	101	77	79	75	72	76	60	63	54	48	38	32	34	32
6	B	A	A	40	29	28	29	42	67	72	79	96	81	74	76	78	40	79	53	37		34	N	35
7	34	34	28	A	A	A	28	37	71	74	77	90	77	77	78	84	74	57	55	48	34	A	34	34
8	28	28	28	32	40	B	30	40	66	73	77	84	58	N	92	80	89	81	64	54	54	31	B	B
9	B	29	28	B	34	B	N	38	66	77	77	77	77	80	88	69	78	75	A	47	50		44	34
10		A	A	37		34	34	36	33	60	N	59	97	100	94	81	85	73	50	53	45	32	32	43
11	48	41	B	B	29	30	N	37	64	80	72	79	69	N	69	59	86	72	N	50	44	42	37	30
12		29	34	59	28	29	29	38	67	68	94	51	71	68	77	90	78	60	44	42	42	A	A	A
13	B	29	29	30	29	26	32	38	74	64	69	69	78	76	80	79	78	65	54	53	49	29	36	N
14	B	29	32	36	B	29	31	38	52	72	69	79	75	N	74	N	77	73	52	44	34	34	34	31
15	34	32	N	32	32	B	29	40	53	60	76	76	69	76	72	77	70	58	52	54	40	36	A	A
16	34	26	29	32	29	29	34	42	66	74	73	79	78	69	66	79	N	76	70	54	53	44	47	43
17	42	41	43	28	B	B	B	37	65	78	76	66	80	90	88	78	72	68	40	59	43	42	40	
18	30	32	34	29	34	34	28	41	61	69	78	78	80	76	77	96	78	92	38	37	41	41	34	34
19	32	36	42	28		B	B	79	61	73	81	72	78	78	74	73	71	66	48	46	53	53	42	B
20	32	37	44	36	B	30	32	41	67	78	86	79	77	86	82	78	72	66	67	48	51	48	36	36
21	B	36	A	34	N	N	26	36	69	83	91	69	98	79	N	56	84	62	52	53	53	50	34	34
22	36	37	41	34	N	N	59	40	68	72	74	N	69	93	78	77	75	72	52	44	46	42	42	48
23	43	53	31	N	A	24	31	43	81	78	80	55	69	B	80	69	78	74	68	54	51	42	47	30
24	32	28	42	43	36	34	40	50	67	76	70	N	N	69	79	59	74	64	55	42	43	44	42	42
25	A	A	A	36	34	N	B	42	52	64	76	78	77	86	78	81	78	71	54	53	43	54	46	42
26	28	N		28	29	28	34	44	92	78	65	69	69	80	80	77	77	78	54	51	52	42	42	34
27	A	36	36	34	A	34	34	43	74	77	77	69	69	69	85	78	87	82	72	N	67	34	A	42
28	36	43	B	A	27	B	B	40	53	74	78	69	59	69	N	79	78	77	46	N	49	43	35	32
29	28	34	34	A	34	26	B	40	68	78	72	78	83	69	81	64	82	77	57	42	48	52	43	34
30	36	36	A	34	32	A	59	40	67	78	79	64	69	60	74	76	86	76	50	38	43	42	34	29
31	B	32	37	38	34	34	32	42	66	78	N	78	77	62	92	77	77	76	67	43	37	43	44	41
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	21	27	22	25	20	19	22	31	31	31	29	28	29	27	27	30	30	31	29	29	30	26	25	24
MED	34	34	34	34	31	29	31	40	67	74	77	77	77	76	78	78	78	72	54	48	46	42	37	34
U Q	36	37	41	36	34	34	34	42	68	78	79	79	78	80	82	80	82	77	56	53	51	44	42	41
L Q	29	29	29	30	29	28	29	38	64	72	71	69	69	69	74	76	74	65	50	42	43	34	34	32

HOURLY VALUES OF fEs AT Yamagawa

JAN. 2012

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

HD	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	37	39	G	G	G	G	G	G	G	G	G	G	G	G	G
2	G	G	32	G	G	G	G	G	G	G	42	44	46	48	43	39	34	G	11	G	G	G	G	G
3	G	G	G	G	G	G	B	G	G	G	39	G	46	41	46	G	39	28	21	26	G	G	B	B
4	G	G	G	G	B	G	G	G	G	G	42	62	G	68	82	60	33	35	26	G	G	B	G	G
5	G	G	30	27	G	B	B	G	G	G	77	50	G	44	65	68	52	38	33	31	28	G	G	G
6	B	49	58	G	G	G	G	G	G	40	48	84	64	48	G	60	37	G	19	G	G	G	G	G
7	G	G	G	59	48	28	G	G	G	36	49	62	63	61	G	40	38	G	G	28	G	40	G	G
8	G	26	G	G	G	B	G	G	G	34	G	G	42	43	40	G	34	G	25	25	G	G	B	B
9	B	G	G	B	G	B	G	G	N	35	G	G	47	49	52	38	G	G	40	G	G	G	G	G
10	G	34	35	G	G	G	G	G	G	38	44	64	41	G	G	40	34	28	G	G	G	G	G	G
11	G	G	B	B	G	G	G	G	G	37	41	G	51	45	G	G	35	G	G	G	G	G	G	G
12	G	G	G	31	G	G	G	G	G	G	G	G	46	43	51	53	G	31	34	G	G	49	39	48
13	B	G	G	G	G	G	G	36	38	40	52	61	64	46	G	G	34	48	G	G	G	28	G	G
14	B	G	G	G	B	G	G	G	31	35	48	49	47	47	45	58	56	35	36	G	G	G	G	G
15	G	G	G	G	G	B	G	G	30	37	40	G	44	40	43	40	41	32	24	31	32	29	33	33
16	G	G	G	G	G	G	G	G	G	35	G	G	G	G	G	G	34	G	G	G	G	G	G	G
17	G	G	G	G	B	B	B	G	33	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
18	G	G	G	G	G	G	G	G	G	G	G	42	G	G	G	46	40	G	G	11	G	G	G	G
19	G	G	G	G	G	B	B	G	33	35	G	G	G	G	G	G	G	G	G	G	G	G	G	B
20	G	G	G	G	B	G	G	G	G	G	40	G	G	G	G	G	G	G	37	37	26	G	G	G
21	B	G	38	G	G	G	G	G	33	G	40	46	G	G	G	G	G	34	G	G	G	G	G	G
22	G	G	G	G	G	G	G	G	G	G	N	G	44	54	49	46	45	G	36	G	G	G	G	G
23	G	G	G	G	30	G	G	G	G	G	G	G	60	B	45	51	35	G	G	G	G	G	G	G
24	G	G	G	G	G	G	G	G	30	36	G	G	G	47	43	40	35	G	G	G	G	G	G	24
25	38	40	26	48	20	G	B	24	36	43	65	74	72	48	54	39	G	46	35	G	G	G	G	G
26	G	G	G	G	G	G	G	G	G	G	G	49	G	G	G	40	39	G	34	26	G	G	G	G
27	67	29	30	26	33	23	G	G	G	43	45	41	G	G	48	46	G	50	34	36	33	30	27	G
28	G	G	B	23	G	B	B	G	G	G	G	44	50	G	G	61	39	G	G	G	G	G	G	G
29	G	G	G	34	35	G	B	G	G	41	50	47	54	48	43	40	G	G	G	G	G	G	29	G
30	G	G	30	G	G	28	G	G	30	G	G	G	G	G	G	50	G	G	32	32	G	G	G	G
31	B	G	G	G	32	G	G	25	48	G	G	G	47	G	46	G	G	G	31	G	G	G	G	G
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	25	31	29	29	27	24	24	31	30	31	30	31	31	30	31	31	31	31	31	31	31	30	29	28
MED	G	G	G	G	G	G	G	G	G	34	40	G	44	42	40	40	34	G	19	G	G	G	G	G
U Q	G	G	28	12	G	G	G	G	30	37	45	49	50	48	46	50	39	32	34	26	G	G	G	G
L Q	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G

HOURLY VALUES OF fmin AT Yamagawa

JAN. 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	20	15	16	14	16	18	17	15	15	14	16	16	23	24	24	22	17	15	17	15	17	66	14	14
2	15	15	14	14	15	15	17	14	24	29	14	17	20	22	20	16	16	22	15	16	16	15	15	16
3	15	16	20	18	17	14	B	15	22	15	16	18	20	17	16	14	14	14	18	16	16	15	B	B
4	18	17	17	17	B	21	15	16	23	17	16	18	21	17	17	17	17	16	14	17	15	B	24	20
5	16	18	16	15	17	B	B	18	22	32	17	20	20	20	20	20	18	16	14	16	15	22	15	20
6	B	14	14	16	66	15	15	15	17	15	17	18	20	18	20	16	15	26	18	18	26	15	17	15
7	16	15	16	15	14	17	20	15	15	16	15	22	24	18	21	15	15	21	17	15	18	15	15	15
8	21	16	15	14	17	B	18	16	24	18	18	18	22	21	20	15	14	23	15	16	15	17	B	B
9	B	20	15	B	17	B	18	16	14	16	16	30	34	22	21	21	14	22	15	15	17	24	16	17
10	71	14	15	15	22	15	15	15	14	15	15	18	18	17	17	14	17	14	14	15	14	17	16	16
11	17	14	B	B	20	17	17	15	15	15	17	20	18	20	27	17	18	22	15	21	16	16	16	15
12	71	16	15	14	20	20	16	15	23	30	18	18	18	18	16	14	14	14	14	15	15	14	15	15
13	B	16	16	15	16	15	15	14	14	14	15	17	23	24	21	17	15	22	17	15	17	14	17	15
14	B	17	15	14	B	16	15	16	15	15	18	20	20	21	18	16	15	14	15	15	16	15	15	23
15	15	18	21	15	18	B	16	15	14	16	17	20	26	22	22	17	16	14	15	14	15	14	15	14
16	16	22	21	17	17	15	15	15	18	17	20	20	26	30	28	21	15	23	22	18	18	15	16	16
17	17	16	15	15	B	B	B	15	15	17	20	23	23	42	45	23	16	24	15	16	15	15	15	18
18	15	16	17	16	17	15	15	15	23	15	17	17	18	18	21	15	17	23	15	15	15	15	18	14
19	16	15	15	15	66	B	B	17	14	15	16	20	18	26	20	18	18	23	15	15	15	15	15	B
20	15	15	14	15	B	17	16	15	14	16	17	16	20	21	17	18	15	22	14	15	15	14	16	16
21	B	15	14	15	16	18	16	15	14	14	16	15	18	18	20	18	15	16	15	15	15	16	18	15
22	15	14	14	14	15	17	66	14	14	17	16	18	36	24	20	17	14	14	15	18	15	15	14	16
23	15	15	14	15	15	66	15	15	22	14	16	18	36	B	44	22	14	14	15	15	15	15	16	21
24	18	15	14	16	16	18	18	15	15	15	20	21	20	20	21	18	17	14	16	17	15	15	14	16
25	15	16	15	14	15	66	B	15	14	16	17	21	18	20	18	17	14	14	14	15	15	15	15	15
26	15	20	66	17	16	17	15	15	24	30	35	40	42	42	42	29	18	17	14	15	17	16	15	14
27	16	15	14	15	14	15	16	15	26	17	20	24	28	24	27	23	18	15	15	15	15	15	15	18
28	17	15	B	15	16	B	B	15	15	18	24	36	34	35	18	15	17	24	17	17	22	15	17	15
29	18	16	15	14	15	15	B	15	16	17	17	20	21	20	21	18	14	14	15	15	15	16	16	17
30	15	17	15	15	15	16	15	15	14	16	17	17	24	21	22	18	14	14	14	14	15	15	15	15
31	B	15	15	16	15	17	15	14	14	14	16	17	18	27	20	18	16	14	14	16	15	16	16	16
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	25	31	29	29	27	24	24	31	31	31	31	31	31	30	31	31	31	31	31	31	31	30	29	28
MED	16	16	15	15	16	17	16	15	15	16	17	18	21	21	20	17	15	16	15	15	15	15	15	16
U Q	18	17	16	16	17	18	17	15	22	17	18	21	26	24	22	20	17	22	16	16	17	16	16	17
L Q	15	15	14	14	15	15	15	15	14	15	16	17	18	18	18	16	14	14	14	15	15	15	15	15

HOURLY VALUES OF foF2 AT Okinawa

JAN. 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	36	34		N		28			72	76	93	99	102	110	112	101	105	88	72	48	54	64	42	
2			34			29		40	80	81	106	96	111	114	127	131	130	119	81	52	67	78	74	52
3	52	51		31	32			A	77	88	119	128	132	134		122	110	108	88	77	81	73		
4	46	50	59	A				37	76	86	97	116	131	132	134	134	134	125	73	63	72	60	34	
5		B	39	41		B	B		75	80	86	108	95	96	88	89	88	88	51	A	67	53	47	43
6	32	B	34		29	B	B	40	67	75	96	N	102	107	N	118	134	144	131	83	74	65		50
7	44	31	B	32	B	B	A	35	77	84	97	96	110	116	97	100	107	84	A	59	52	47	44	40
8	28	B	B	B	40	B	B	37	82	78	87	102	126	118	134	144	143	142	109	88	106	83	49	40
9		36		32	41	B	B	37	80	79	80	77	108	128	N	133	140	131	108	52	N	75	38	46
10	44	40	37		A	B	B		76	88	93	110	134	131	145	143	132	136	107	76	90	73	47	
11	B	52	B	B	B	B	B	32	78	88	90	115	131	134	134	N	131	119	89	78	A	A	60	
12	32		34	32	31	B	B	34	72	72	81	82	78	90	108	118	110	105	66	52	54	73	36	31
13	A	B	B	30	B	B	29	38	72	75	70	114	134	145	131	130	132	124	88	106	107	87	58	54
14	42	B	B	N	B	B	28	37	67	65	81	116	119	122	108	125	145	142	88	77	80	N	65	52
15	48	42	32	30	34	B	B	36	66	77	75	88	119	134	129	131	131	105	80	80	76	54	54	53
16	44		46		34	B	B	38	80	72	82	88	108	137	142	143	138	N	120	89	108	88	63	54
17	63	67	54	46	B	B	B	37	84	77	97	112	120	134	141	130	117	108	77	71	70	54	52	40
18	B	B				B	B	34	74	72	96	110	111	117	138	127	131	140	129	78	54	54	54	53
19	B		44	B	38	B	B	34	75	77	94	92	91	94	98	107	118	110	79	61	82	86	67	44
20	26	30	36	31		B	B	34	67	80	88	122	120	118	125	107	102	97	88	71	73	86	74	52
21		48	43	38	B	B	B	59	76	101	118	118	131	135	131	135	124	100	81	74	84	72	67	49
22	43	54	47	29		B	B	36	76	81	87	106	131	127	106	102	106	88	81	52	B	70	62	54
23	58	67	37		B	B	B	36	83	84	81	102	122	B	105	110	83	81	84	71	54	49	51	N
24	N	32	37	30	B	B	29	44	81	88	114	120	110	108	126	127	108	89	86	67	71	73	73	59
25	47	43	40	31	34	B	B	42	53	75	102	96	97	97	111	106	110	102	88	89	108	109	87	N
26	48	B	B	B	B	B	B	36	84	80	86	96	110	100	100	88	91	89	85	51	54	64	66	51
27		B	38	A	A	A	31	40	76	88	88	90	110	126	131	120	119	128	119	88	91	87	73	64
28	52	67	34	31	32	B		37	70	81	93	110	128	134	147	131	121	110	88	67	83	83	54	38
29	B	36	34	29	A	A	A	A	67	87	88	81	114	124	119	142	145	143	127	88	75	80	67	54
30	52	48	44	40		41	31	37	64	85	105	126	103	110	123	N	132	110	88	51	54	73	A	B
31	31		32		N	B	29	34	63	81	101	94	86	87	106	103	101	87	83	64	53	52	54	52
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	20	18	21	16	10	3	6	26	31	31	31	30	31	30	28	29	31	30	30	30	28	29	28	23
MED	44	46	37	31	34	29	29	37	76	80	93	104	111	120	126	125	121	109	88	71	74	73	56	52
U Q	50	52	44	35	38	41	31	38	80	86	97	115	128	134	134	132	132	128	107	80	83	83	67	54
L Q	34	36	34	30	32	28	29	35	67	76	86	94	103	108	107	106	107	89	81	59	54	57	48	43

HOURLY VALUES OF fEs AT Okinawa

JAN. 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	G	G		G		G		G	G	G	41	42	G	G	G	G	G	G	G	G	G	G	G	
2			G		G	G		G	G	G	G	48	48	52	G	G	35	G	G	G	G	G	G	G
3	G	26		G	27			25	G	G	G	45	G	54		G	52	G	G	G	28	G		G
4	G	G	G	25				G	G	35	G	G	G	G	G	G	G	G	11	G	G	G	G	
5	G	B	G	G	G	B	B	G	G	G	G	75	G	G	81	53	62	62	59	50	29	G	G	G
6	G	B	G	G	26	B	B	G	G	42	78	67	52	58	G	G	G	35	19	G	G	G	G	G
7	G	G	B	G	B	B	32	G	G	G	G	50	66	69	63	91	48	G	62	49	G	G	G	G
8	G	B	B	B	G	B	B	G	G	G	G	G	G	G	42	G	G	G	27	27	G	24	G	G
9	G	G	G	G	G	B	B	G	G	G	G	G	G	G	G	G	G	G	G	G	32	G	G	G
10	G	G	G	G	26	B	B	G	G	G	43	62	54	56	50	G	G	G	11	G	36	G	G	G
11	B	G	B	B	B	B	B	G	G	35	G	G	G	56	66	46	36	G	G	G	88	58	G	G
12	G	G	G	G	G	B	B	G	G	G	G	G	G	46	43	48	59	67	39	28	G	G	36	G
13	26	B	B	G	B	B	G	G	G	35	G	52	51	60	90	41	54	37	39	G	34	G	G	32
14	G	B	B	G	B	B	G	25	G	G	G	G	58	58	72	47	46	51	32	G	36	33	G	G
15	G	G	G	G	G	B	B	G	G	35	47	G	48	49	50	46	42	51	36	27	G	28	33	25
16	G	G	G	G	25	B	B	G	G	41	52	G	50	G	G	41	G	G	G	G	51	G	G	G
17	G	G	G	G	B	B	B	G	G	G	41	G	G	46	G	G	36	G	G	G	28	G	G	G
18	B	B	G	G	G	B	B	G	G	G	G	G	G	G	G	G	G	G	G	42	G	G	G	G
19	B	G	G	B	G	B	B	G	G	38	44	46	G	G	G	G	G	G	G	G	G	34	G	G
20	G	G	G	G	G	B	B	G	G	G	G	44	G	44	G	45	40	36	34	30	26	28	G	G
21	G	G	G	G	B	B	B	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
22	G	G	G	G	G	B	B	G	G	G	G	G	G	46	G	G	G	34	G	G	B	G	G	G
23	G	G	G	G	B	B	B	G	G	G	G	G	G	B	G	49	G	G	G	G	G	G	G	G
24	G	G	G	G	B	B	G	G	G	G	43	G	48	50	49	42	G	G	G	G	G	G	G	G
25	G	G	G	G	G	B	B	G	35	43	46	50	50	78	82	40	44	G	35	G	G	G	G	G
26	11	B	B	B	B	B	B	G	G	G	G	G	G	50	G	G	52	61	36	G	G	26	G	G
27	G	B	34	48	36	28	G	31	G	G	48	54	G	G	53	65	52	44	49	40	40	24	31	37
28	G	G	G	G	G	B	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
29	B	G	G	G	26	57	36	32	G	45	G	53	49	56	62	66	G	G	36	36	36	28	G	G
30	G	G	G	G	G	G	G	G	G	G	G	47	G	G	G	G	G	G	G	G	G	G	36	B
31	G	G	G	G	G	B	G	G	G	G	44	G	G	48	49	48	43	G	G	G	G	G	G	G
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	26	22	23	26	20	5	9	31	31	31	31	31	31	30	30	31	31	31	31	31	30	31	30	28
MED	G	G	G	G	G	G	G	G	G	G	G	G	G	46	G	G	G	G	G	G	G	G	G	G
U Q	G	G	G	G	25	42	16	G	G	35	43	50	49	56	53	47	46	36	36	27	32	24	G	G
L Q	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G

HOURLY VALUES OF fmin AT Okinawa

JAN. 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	27	18		16		16		30	26	18	26	21	44	42	40	39	39	34	22	18	15	16	18	
2			15		18	15		17	24	16	22	30	24	36	44	42	16	30	22	15	22	38	15	20
3	21	20		18	16			17	24	20	23	22	42	21		16	17	18	17	18	15	20		26
4	20	15	21	17				29	27	20	21	43	41	22	44	40	40	34	17	21	18	20	20	
5	66	B	32	20	66	B	B	66	29	30	22	39	42	44	24	21	21	18	16	15	18	38	20	20
6	18	B	28	66	17	B	B	22	27	18	21	29	30	27	43	43	38	20	22	28	29	21	66	18
7	17	20	B	20	B	B	15	15	17	18	20	32	38	30	22	20	39	15	17	16	20	21	15	15
8	15	B	B	B	21	B	B	17	26	21	40	44	45	44	41	22	17	14	15	15	34	17	20	20
9	66	18	71	16	15	B	B	15	24	21	21	52	44	45	40	40	21	18	30	29	16	36	20	66
10	20	29	18	71	18	B	B	71	26	29	21	32	30	29	23	21	20	23	21	16	18	17	23	21
11	B	17	B	B	B	B	B	66	27	17	42	45	44	38	36	29	18	15	21	23	18	18	40	66
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13	18	B	B	17	B	B	16	17	24	18	39	33	41	30	29	21	20	14	15	15	16	20	15	14
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18	B	B	24	71	66	B	B	17	28	15	20	40	40	43	42	18	40	18	21	18	20	17	16	21
19	B	26	22	B	17	B	B	17	27	18	28	30	46	43	42	40	39	15	16	15	16	17	16	21
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21	21	16	21	14	B	B	B	17	28	20	42	47	44	49	45	43	39	39	18	21	17	17	15	20
22	20	15	15	16	16	B	B	15	28	20	40	44	48	48	42	40	34	20	27	16	B	27	20	20
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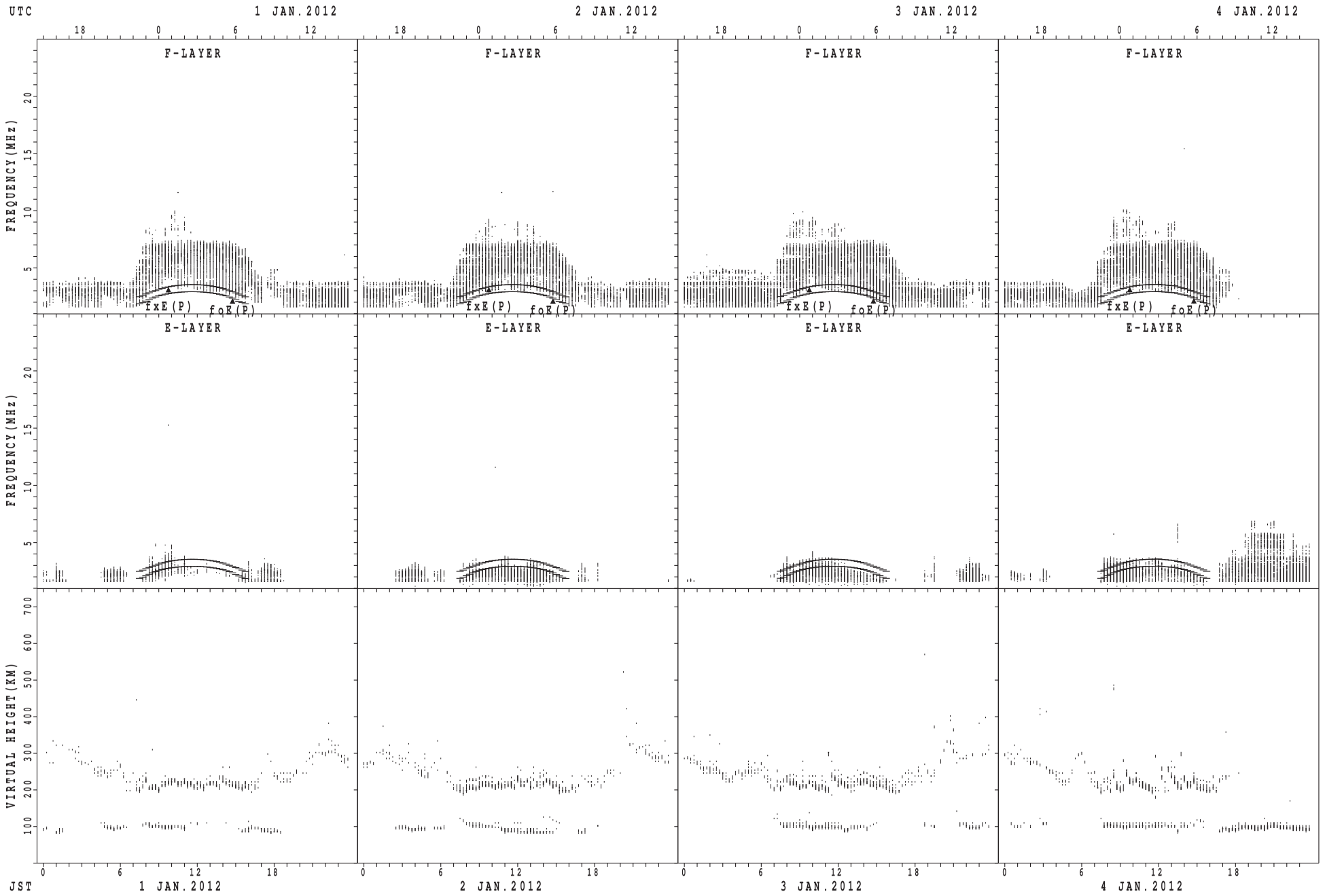
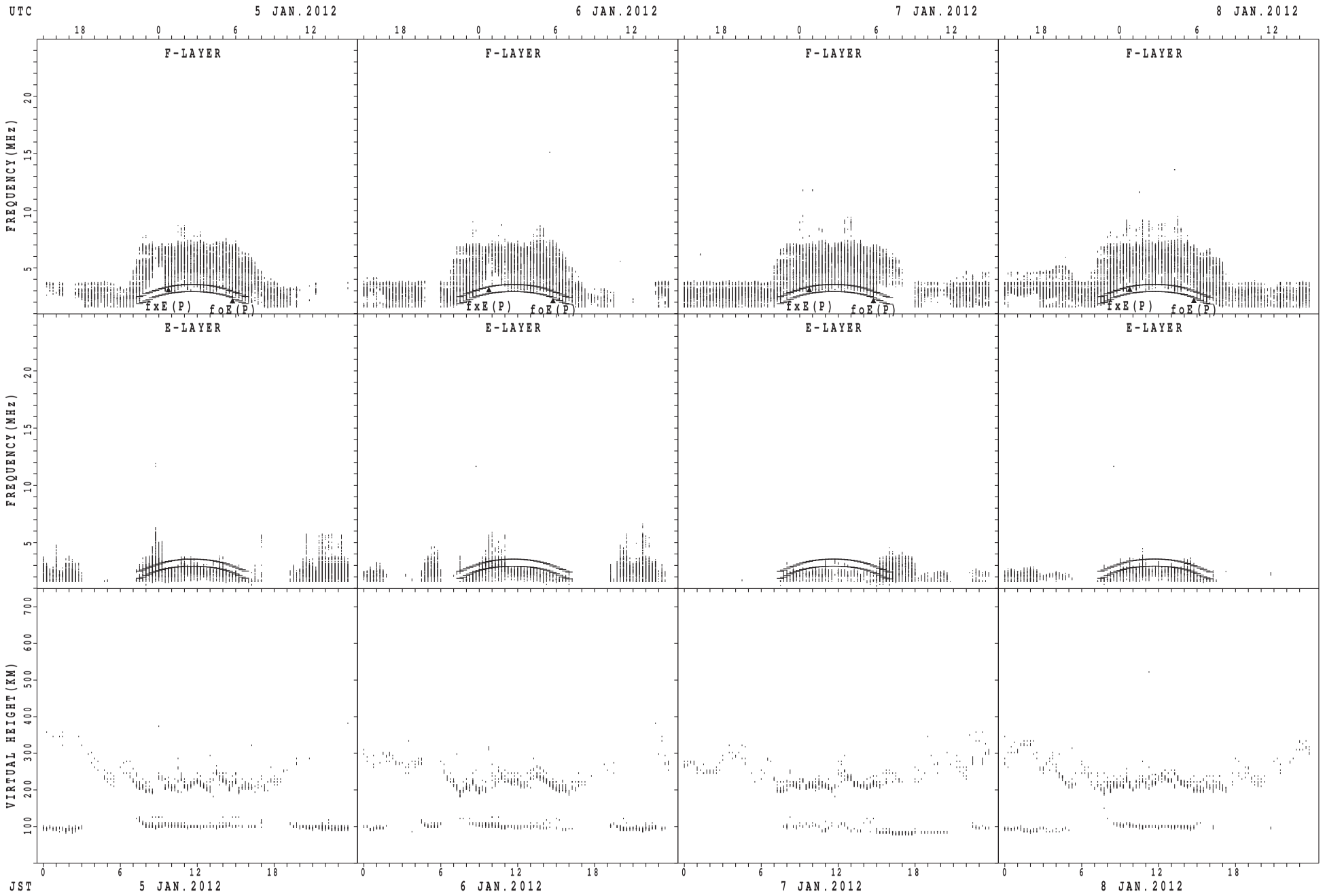
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	26	22	23	26	20	5	9	31	31	31	31	31	31	30	30	31	31	31	31	31	30	31	30	28
MED	19	18	18	17	17	15	17	17	26	20	26	39	43	38	40	30	23	18	18	18	18	20	18	20
U Q	21	20	21	20	18	17	20	20	28	22	39	43	45	44	43	40	39	26	21	21	21	23	20	21
L Q	17	15	16	16	16	15	16	15	24	18	21	32	40	32	33	22	20	15	17	15	16	17	16	16

SUMMARY PLOTS AT Wakkanai



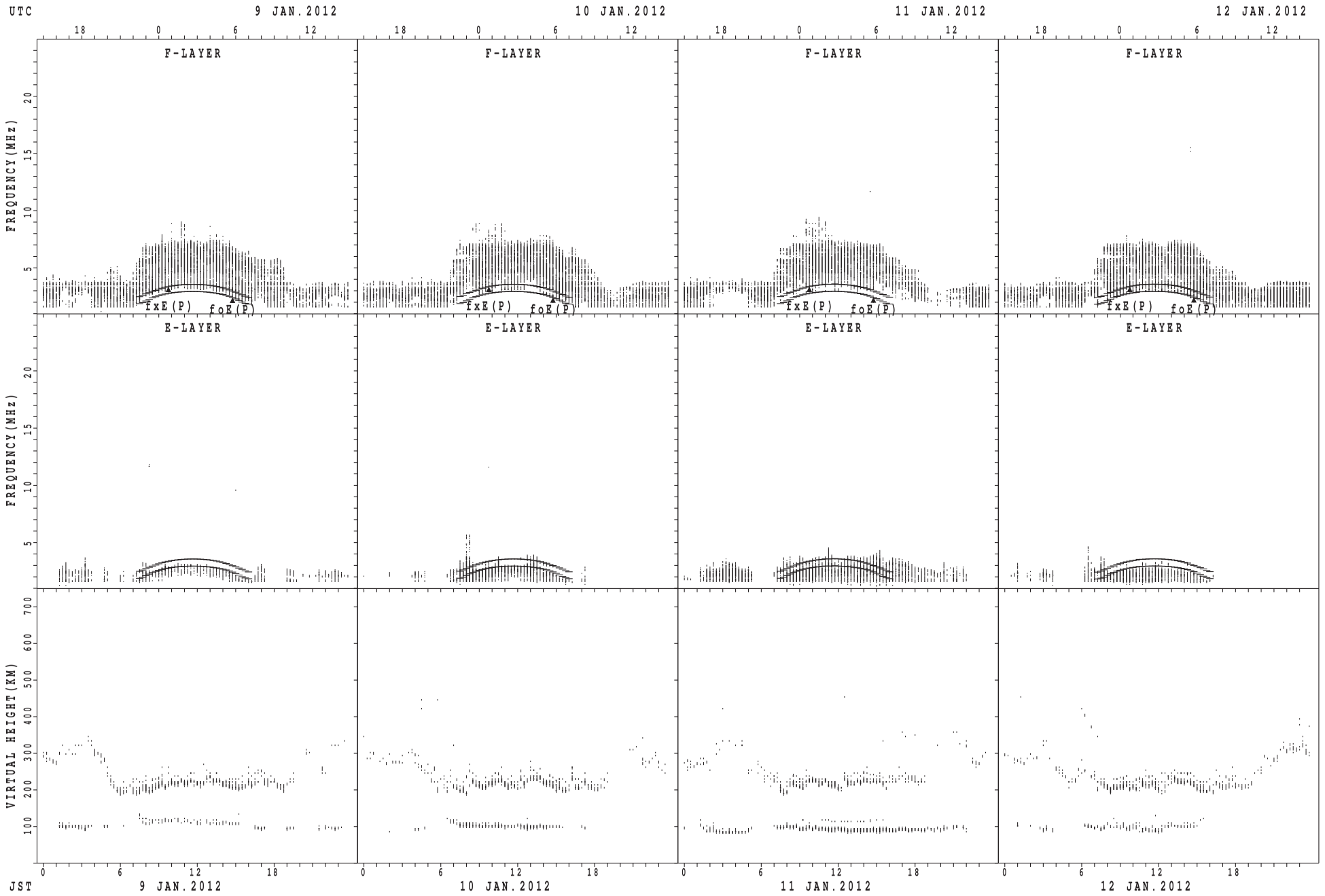
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



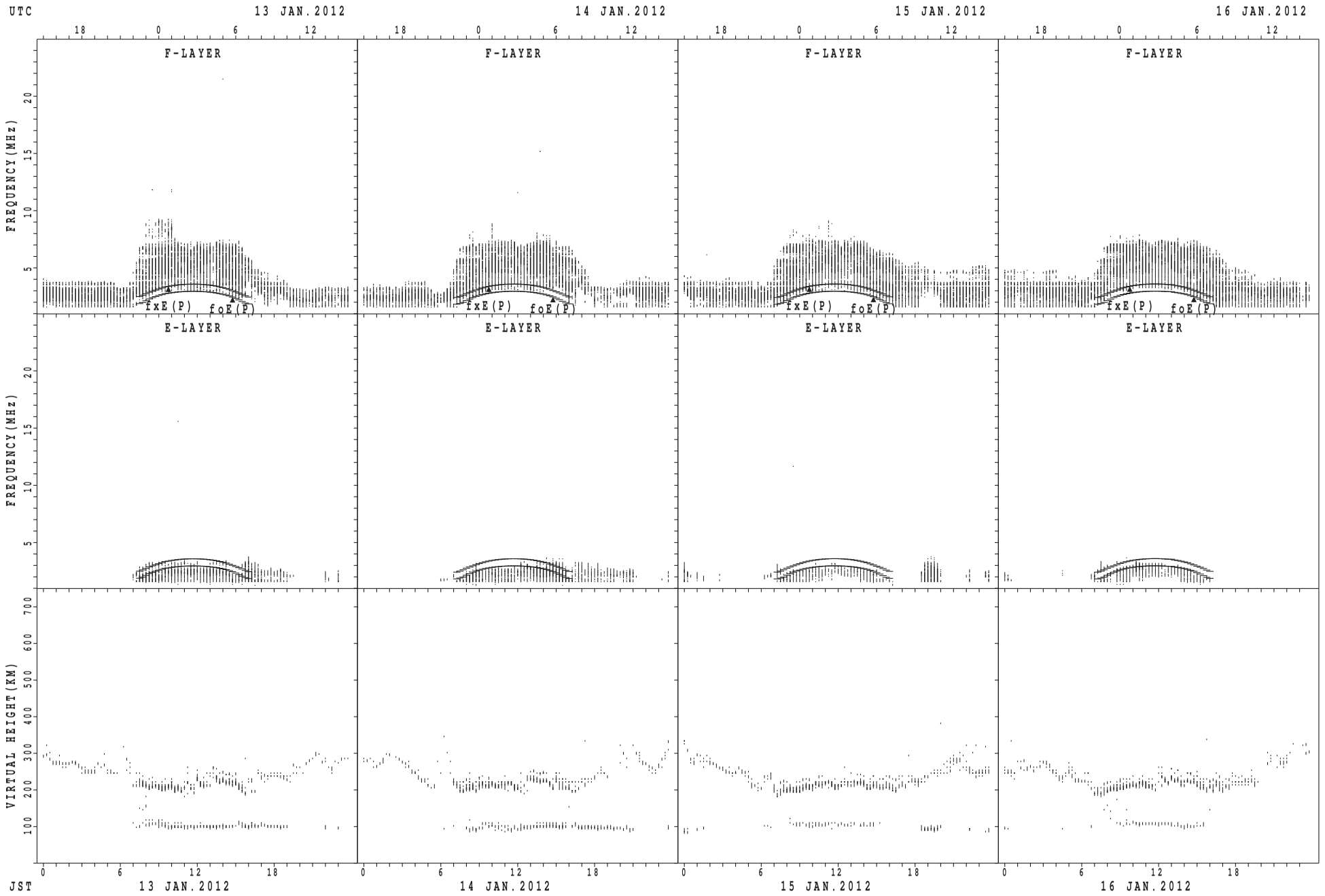
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



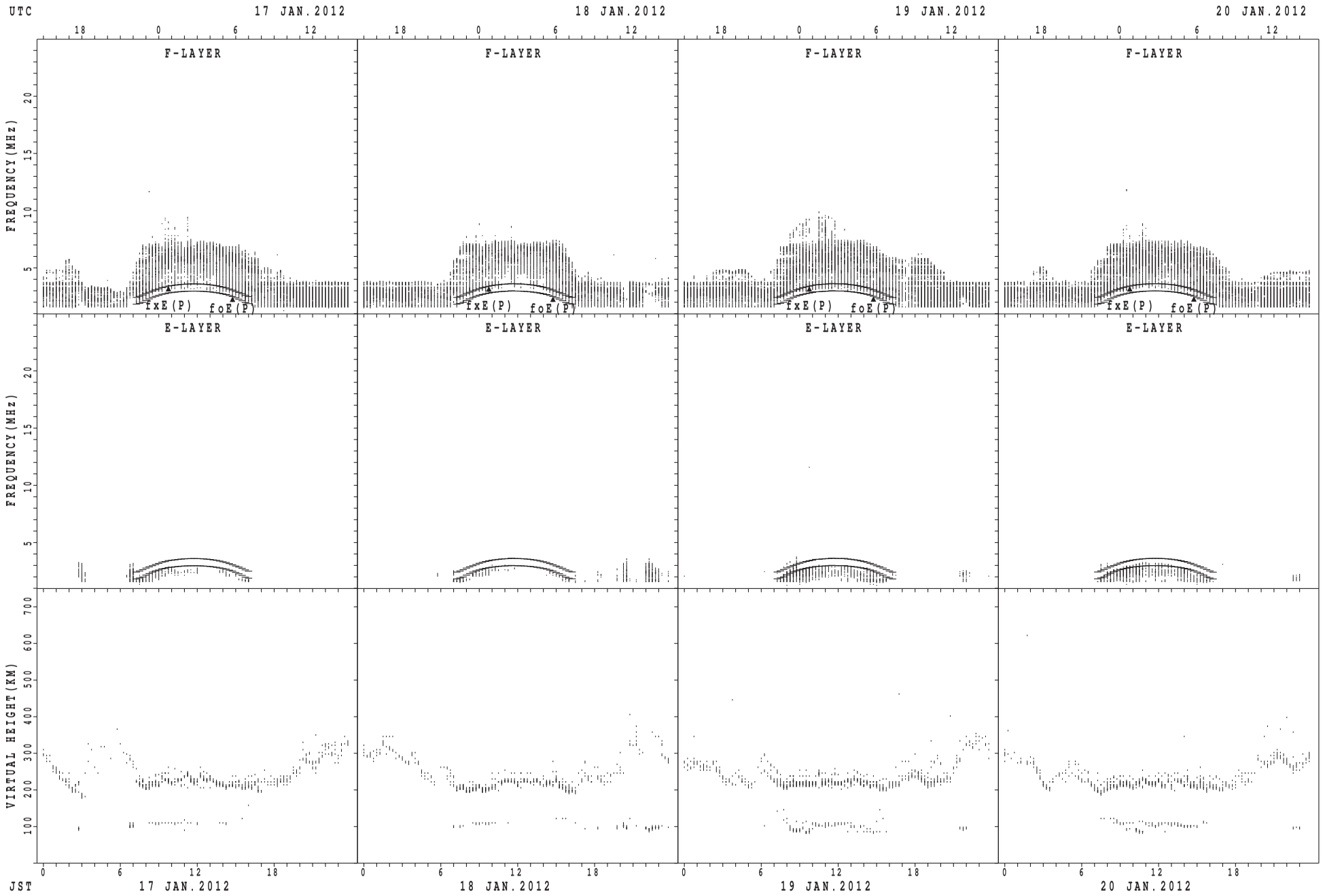
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



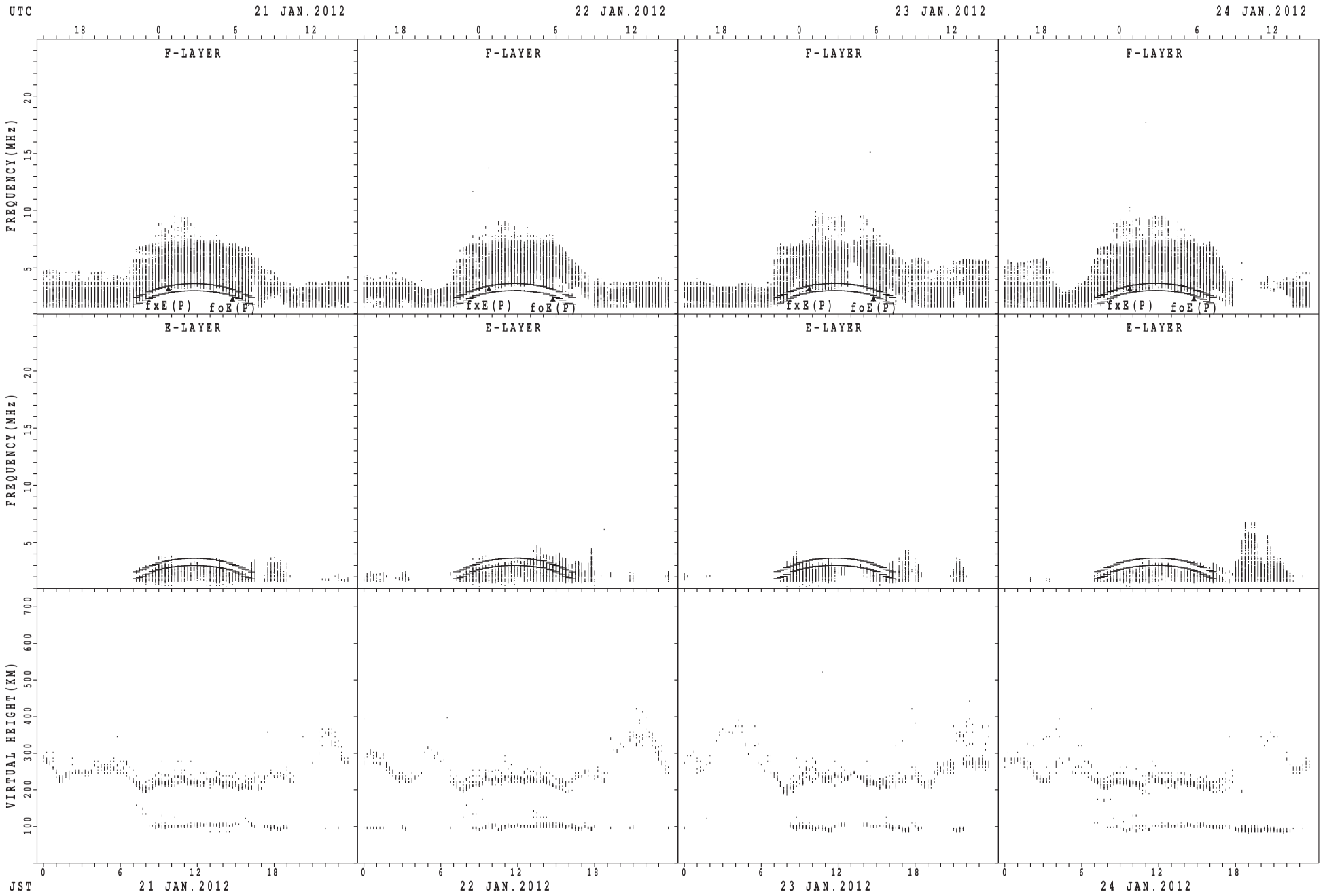
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



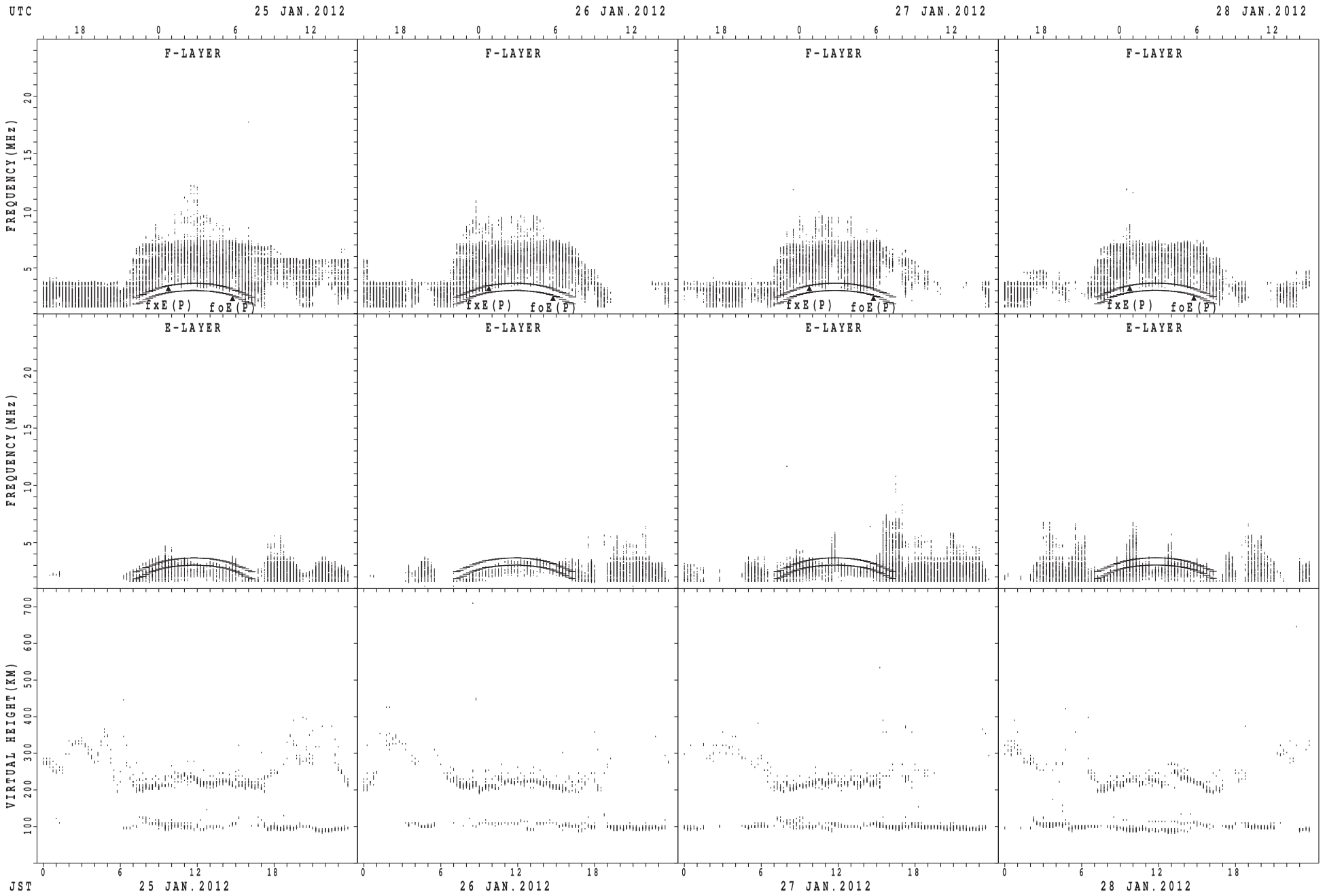
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



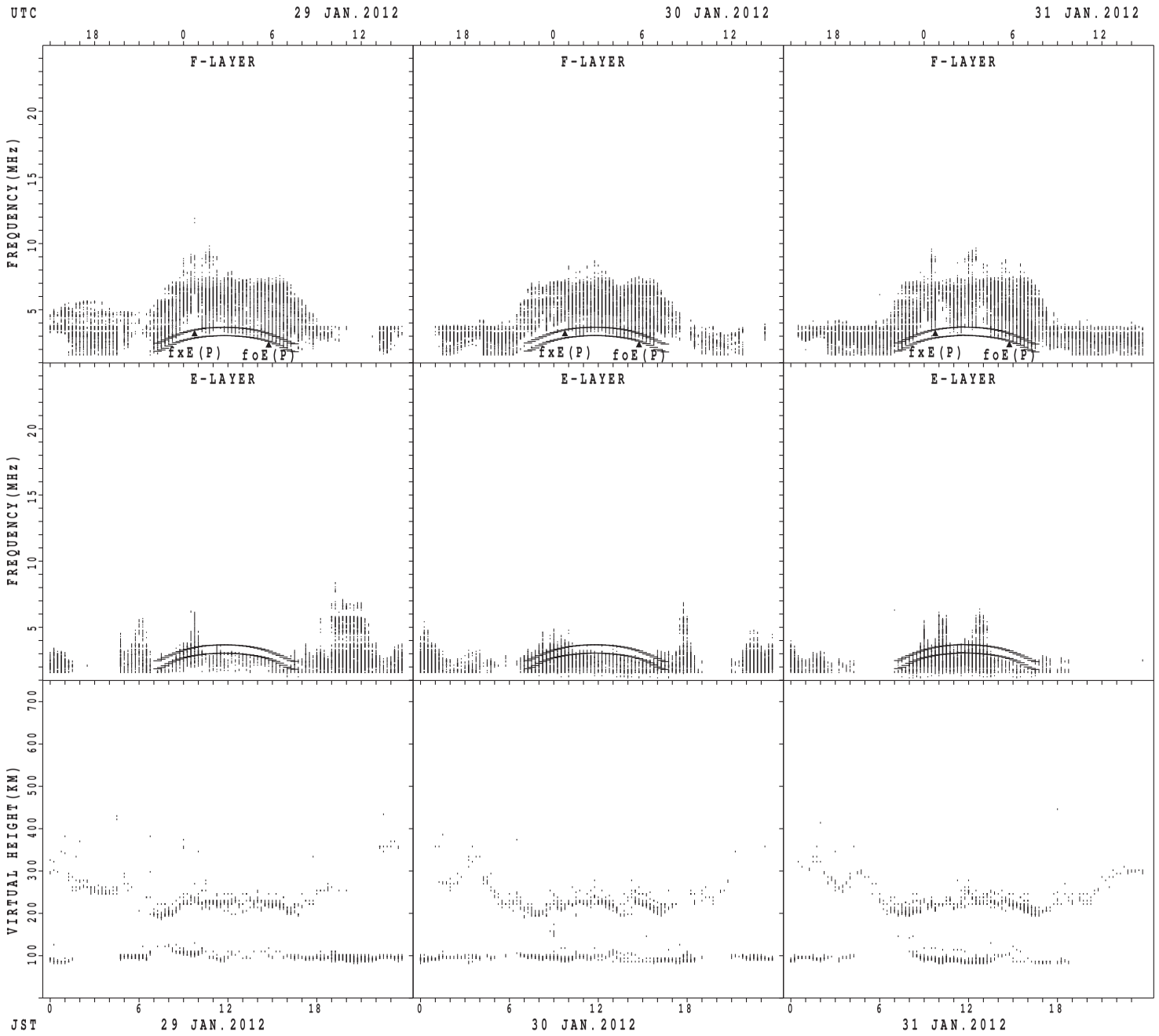
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



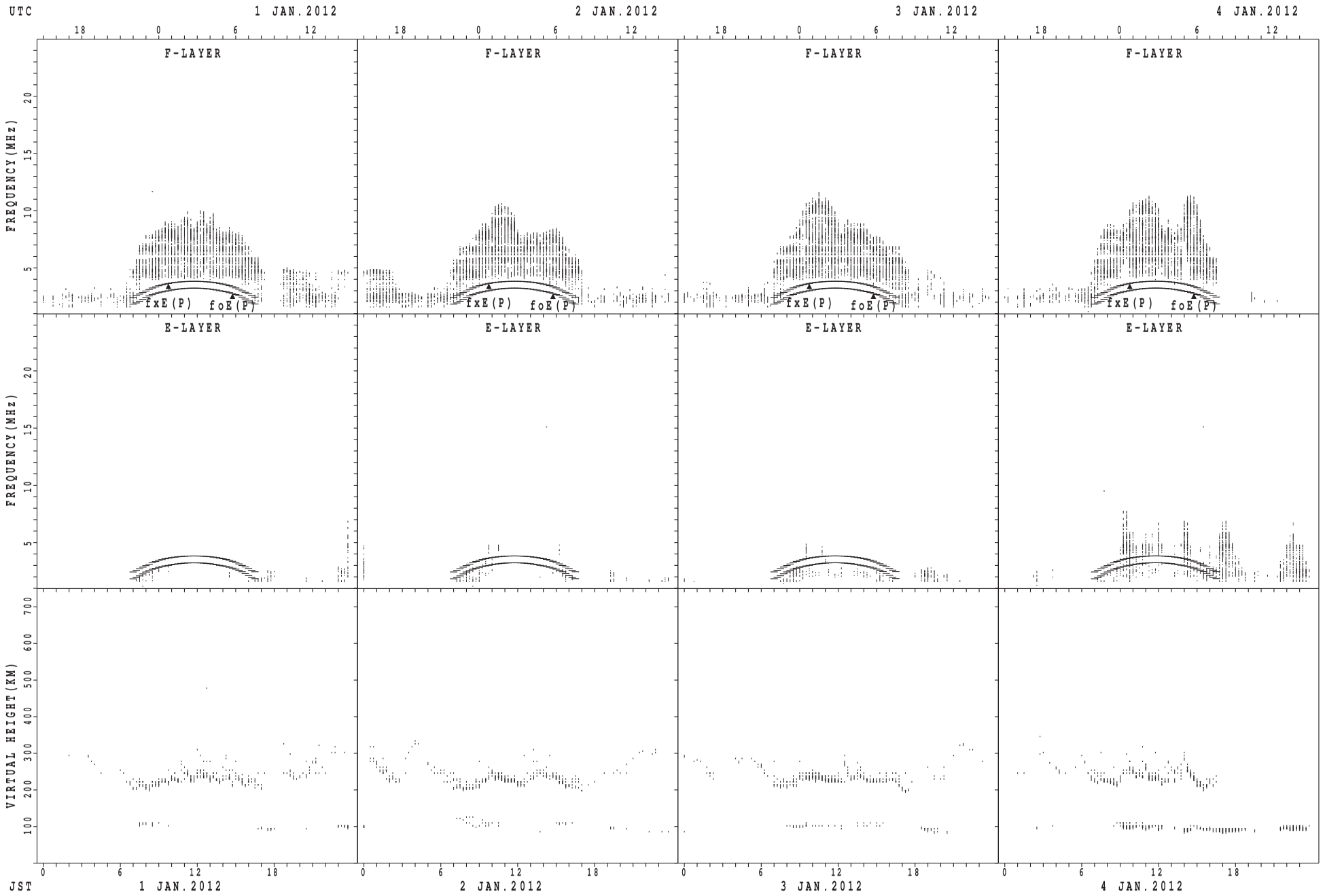
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



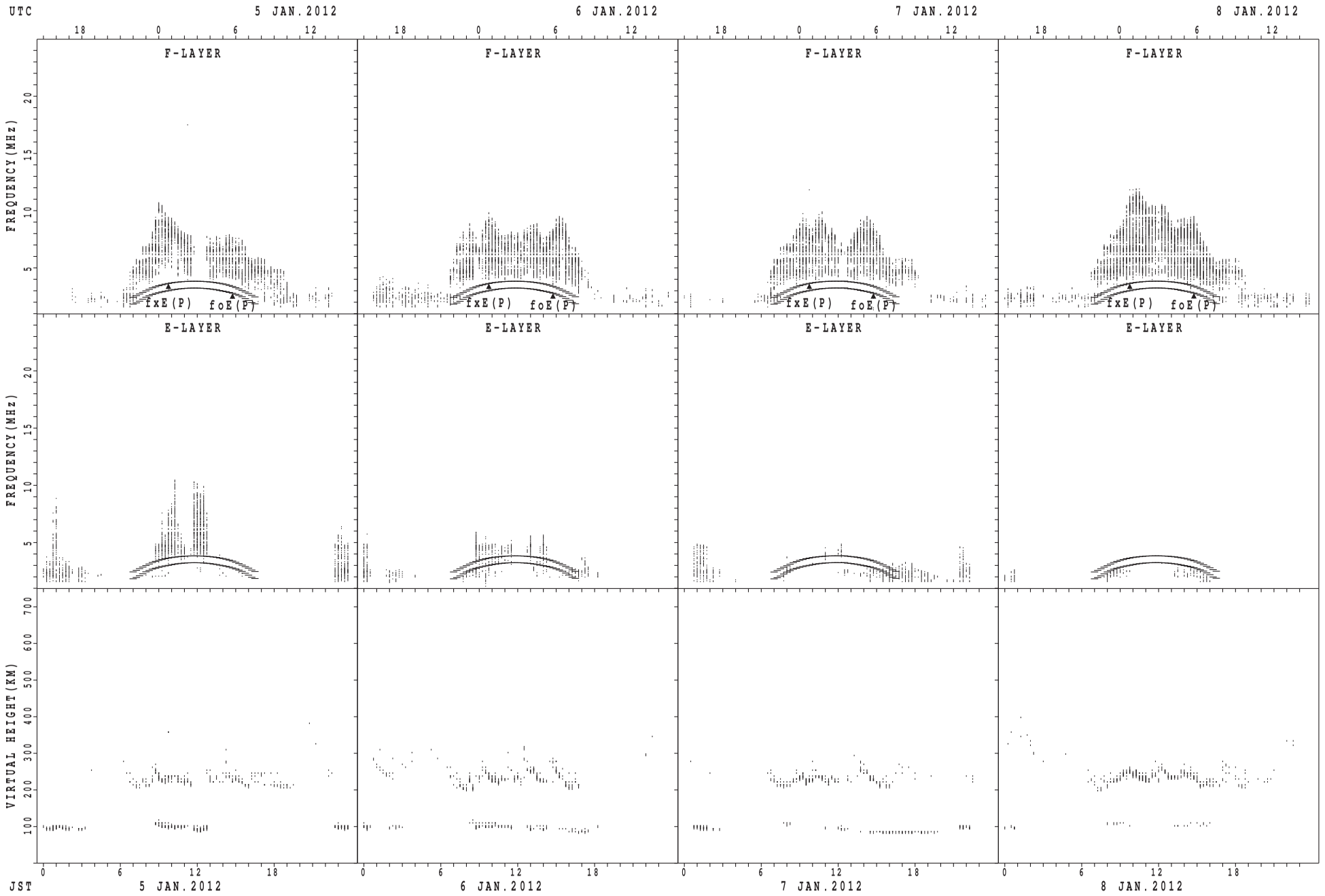
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



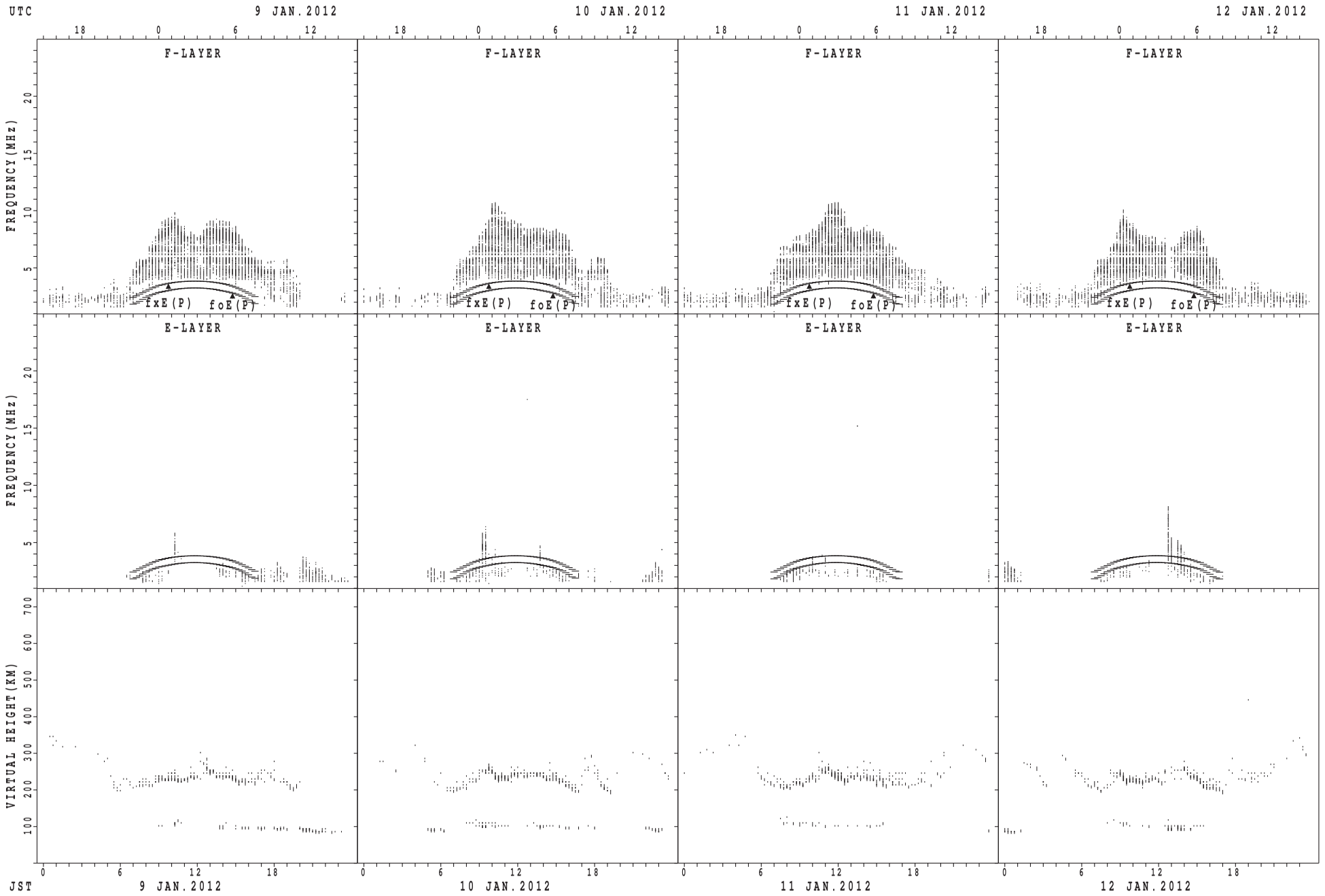
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



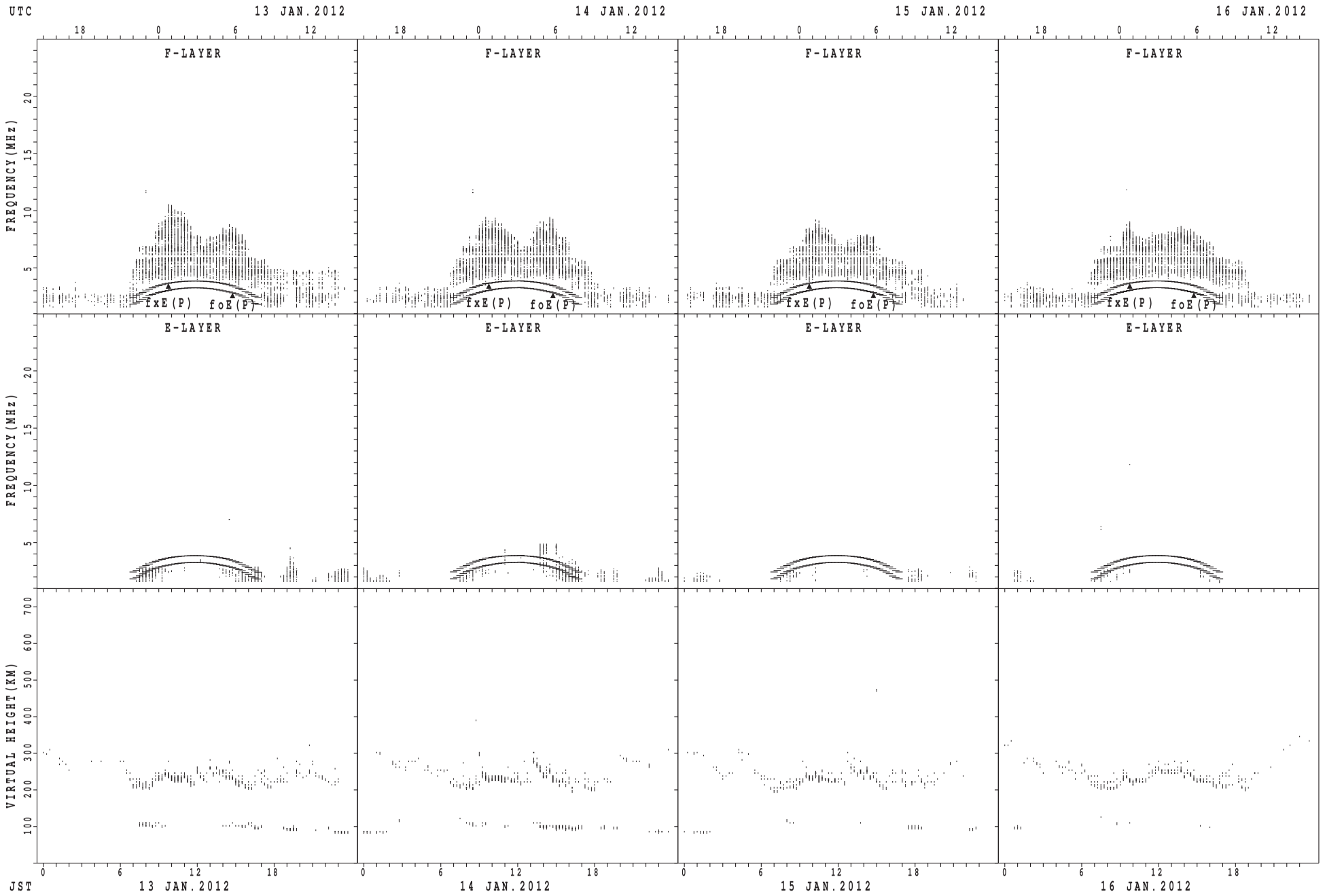
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



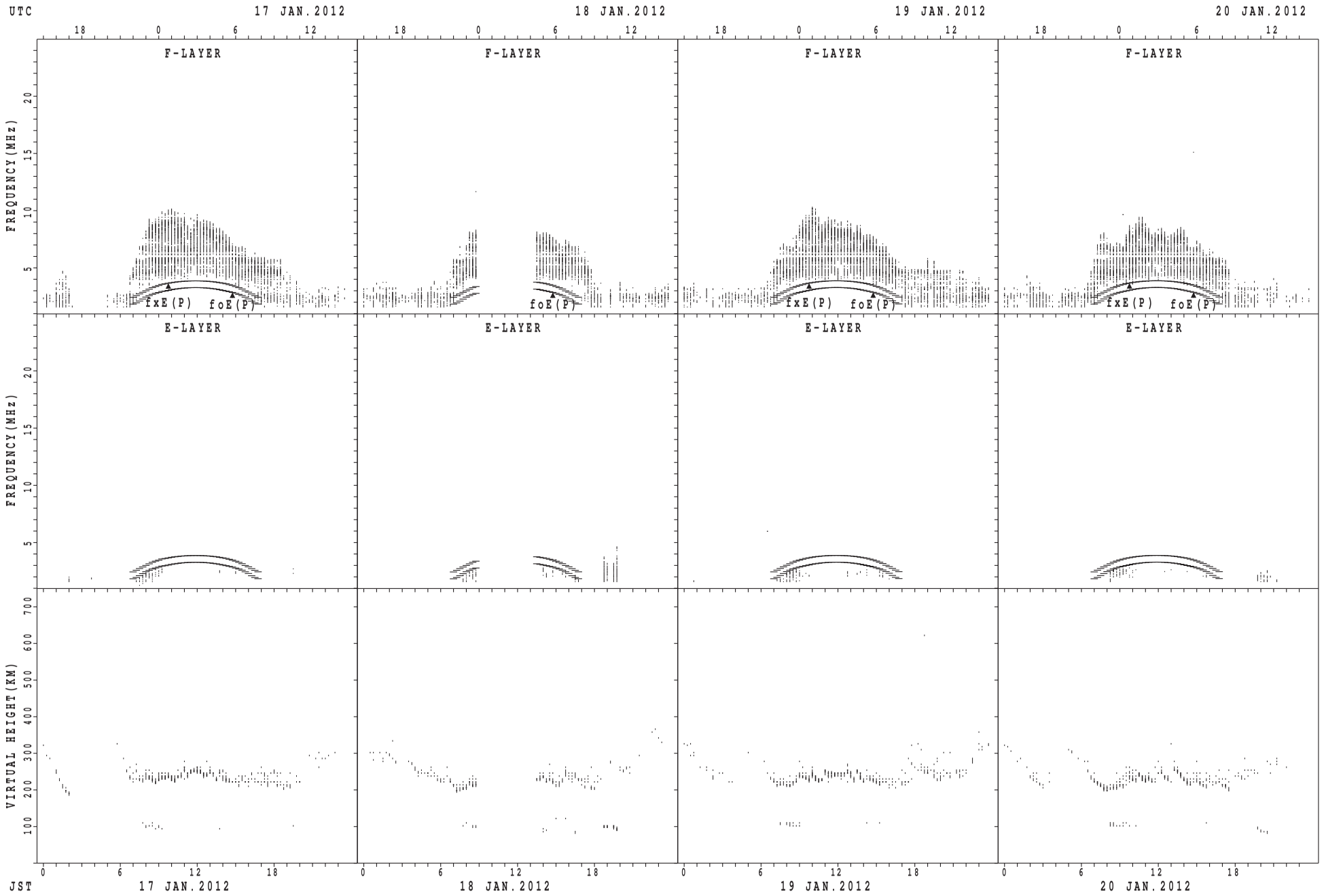
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



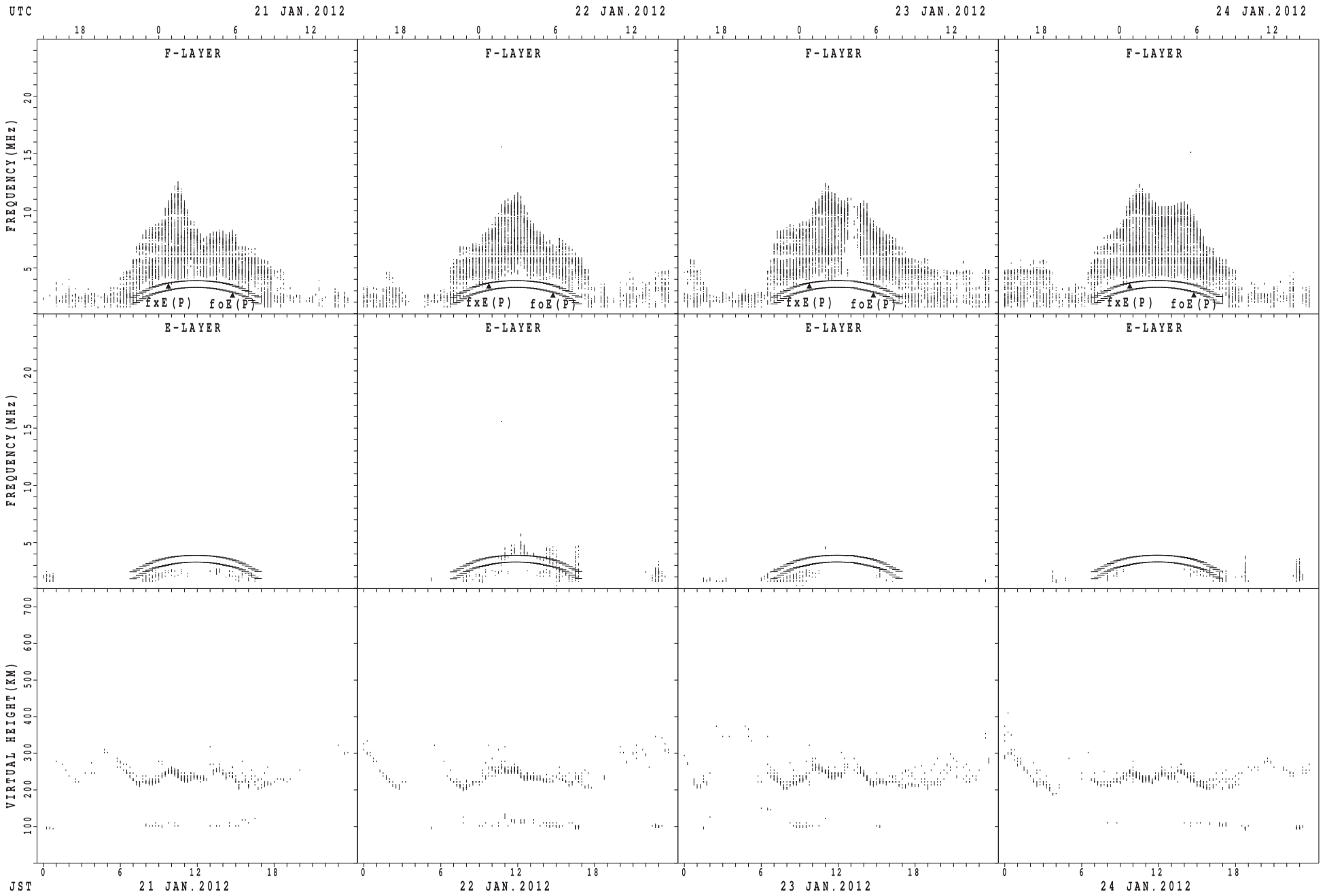
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



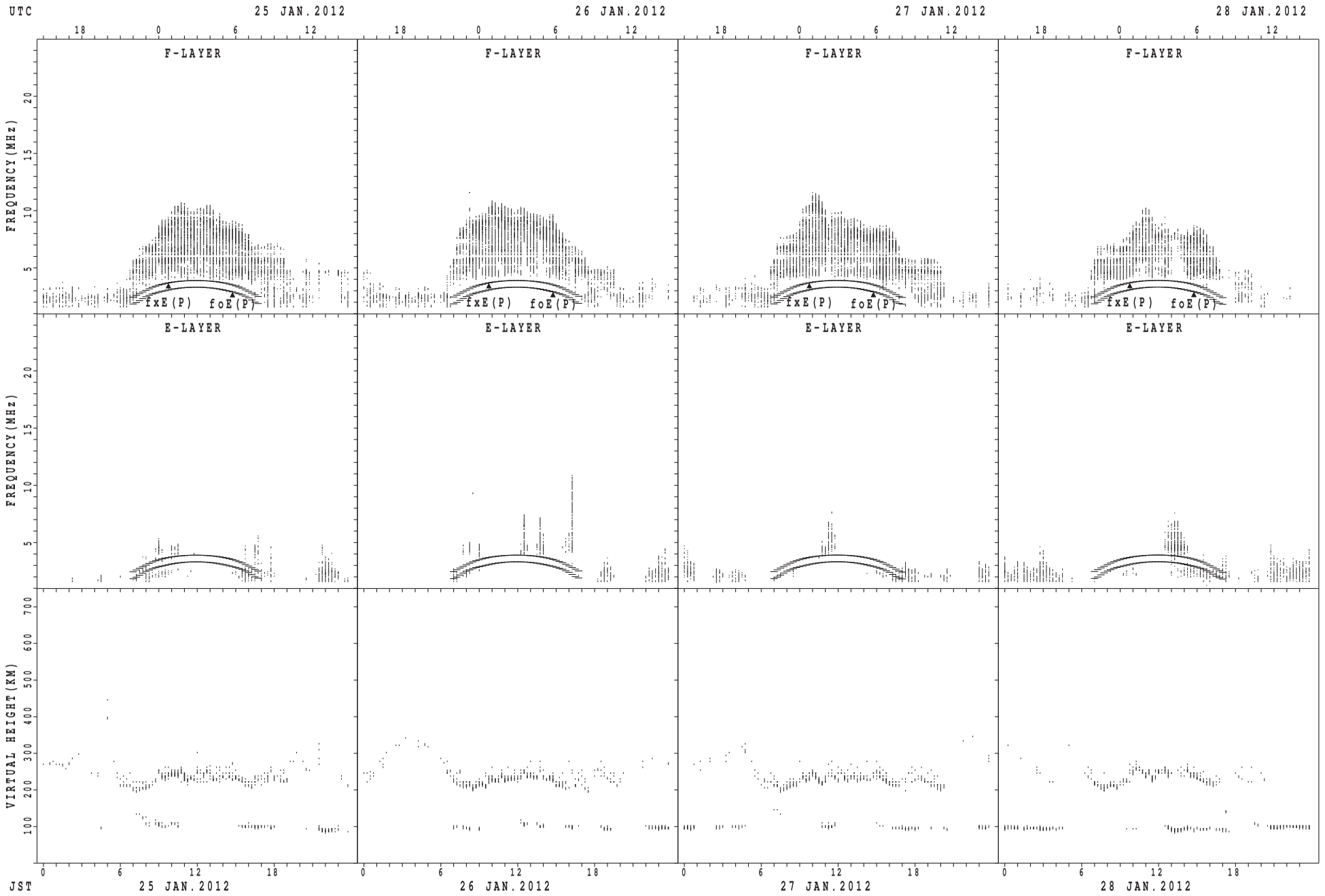
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



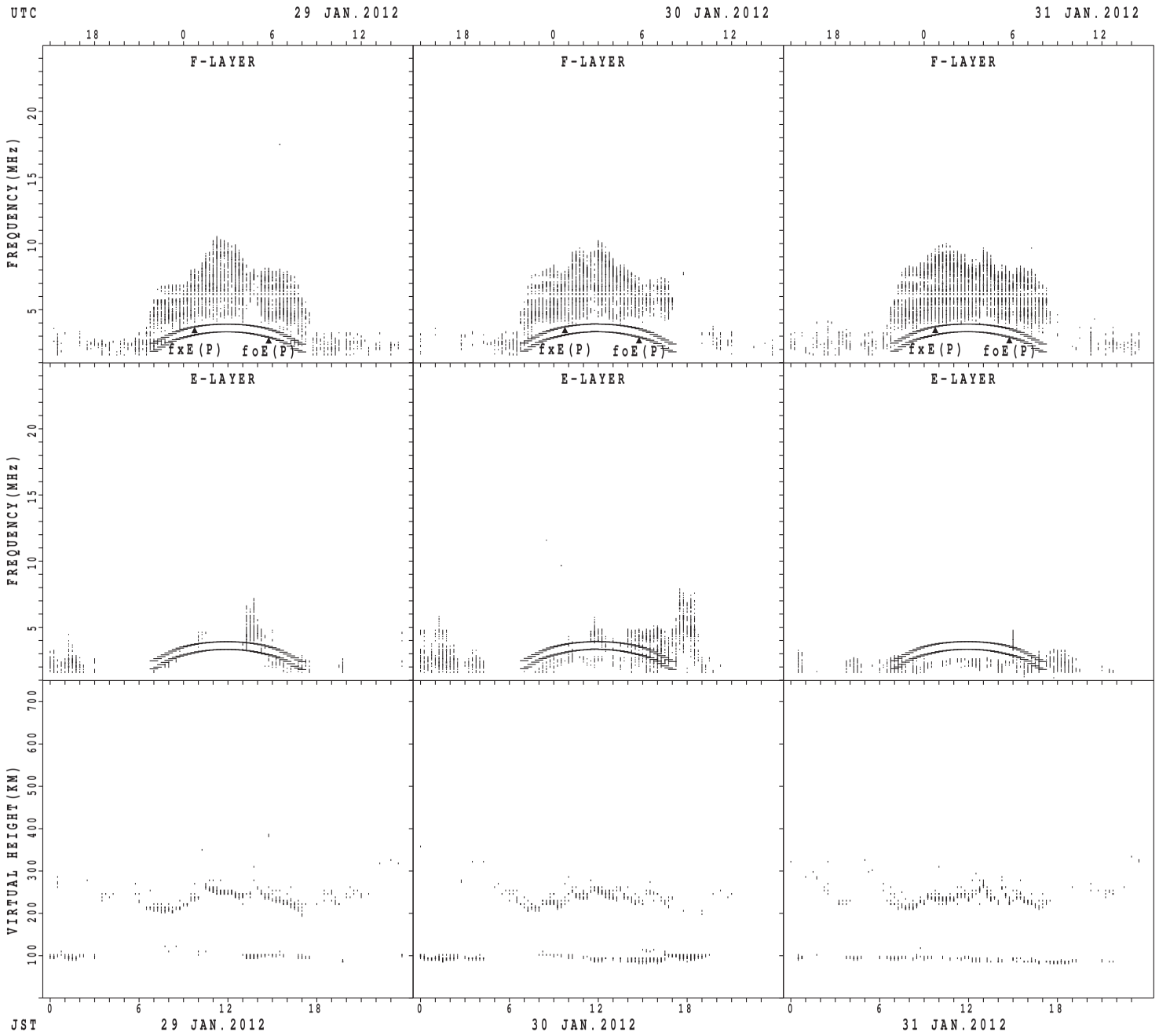
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



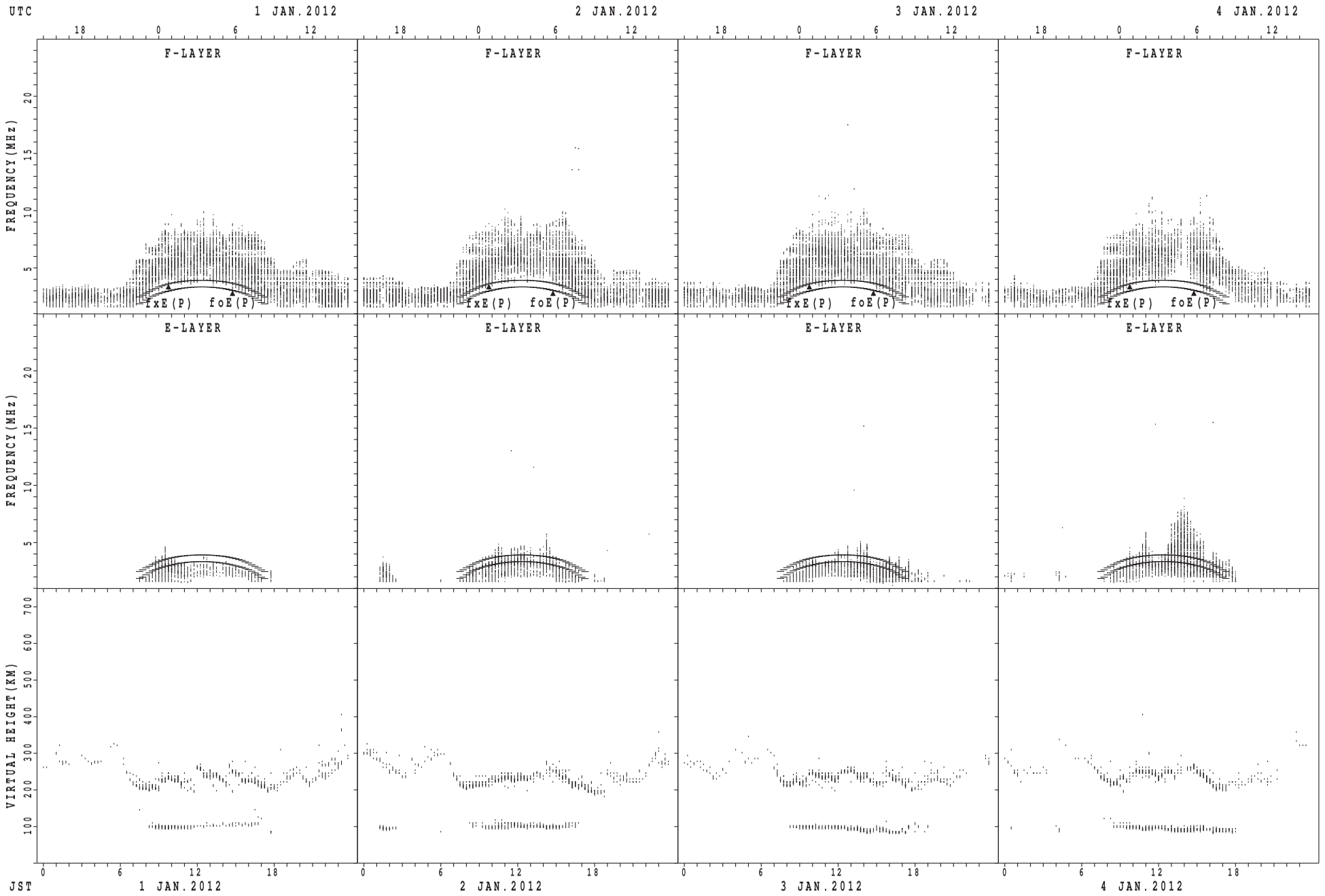
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



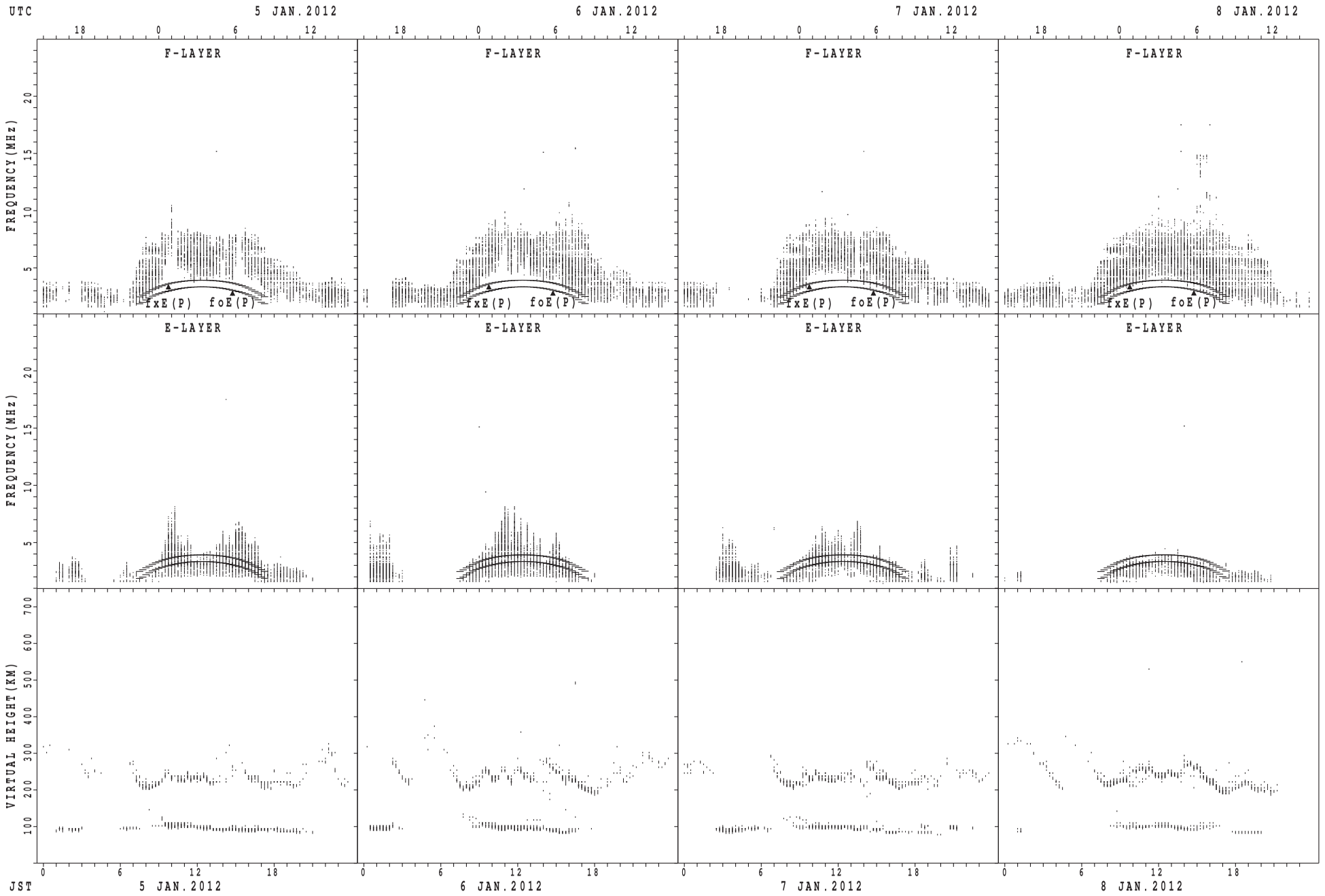
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



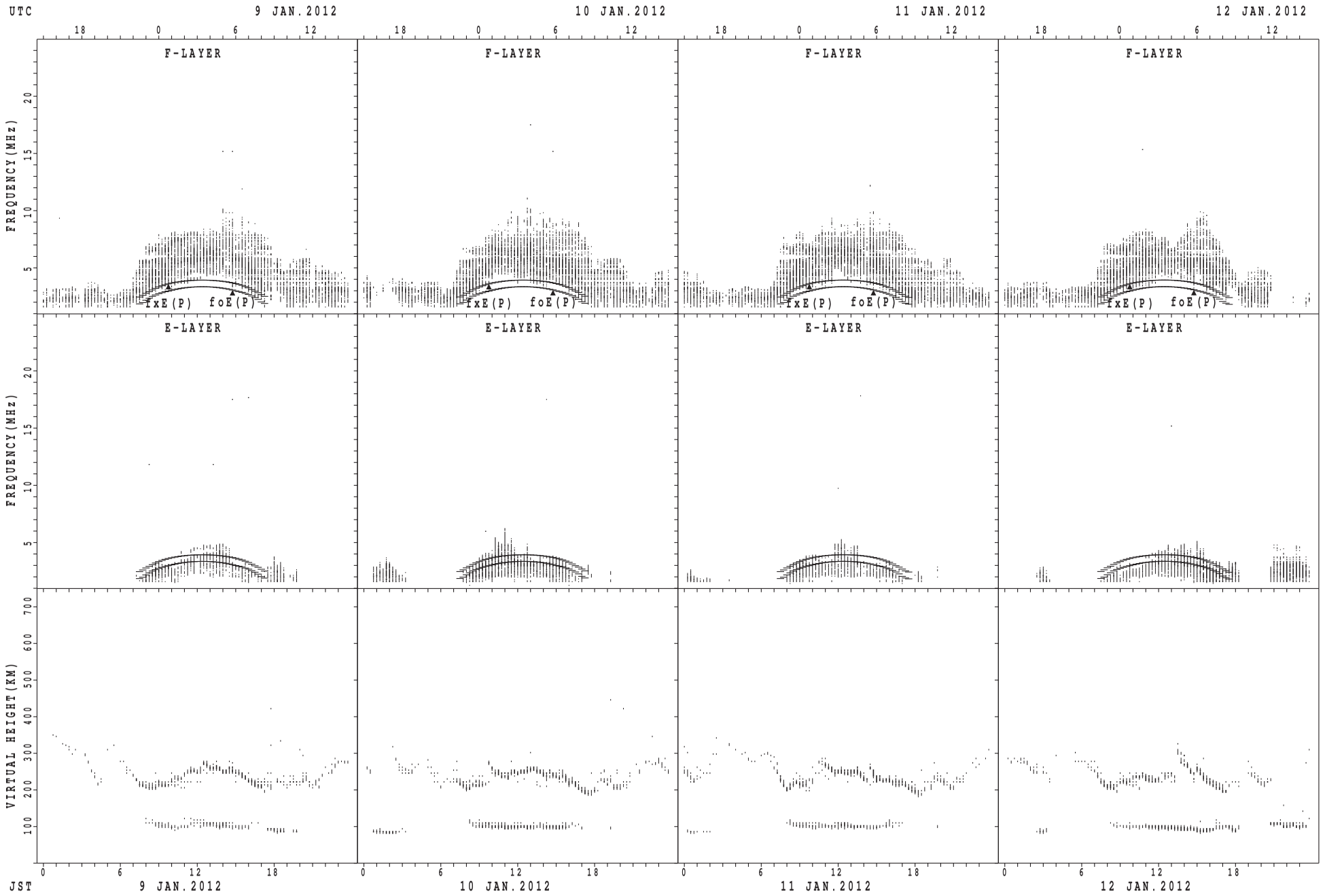
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



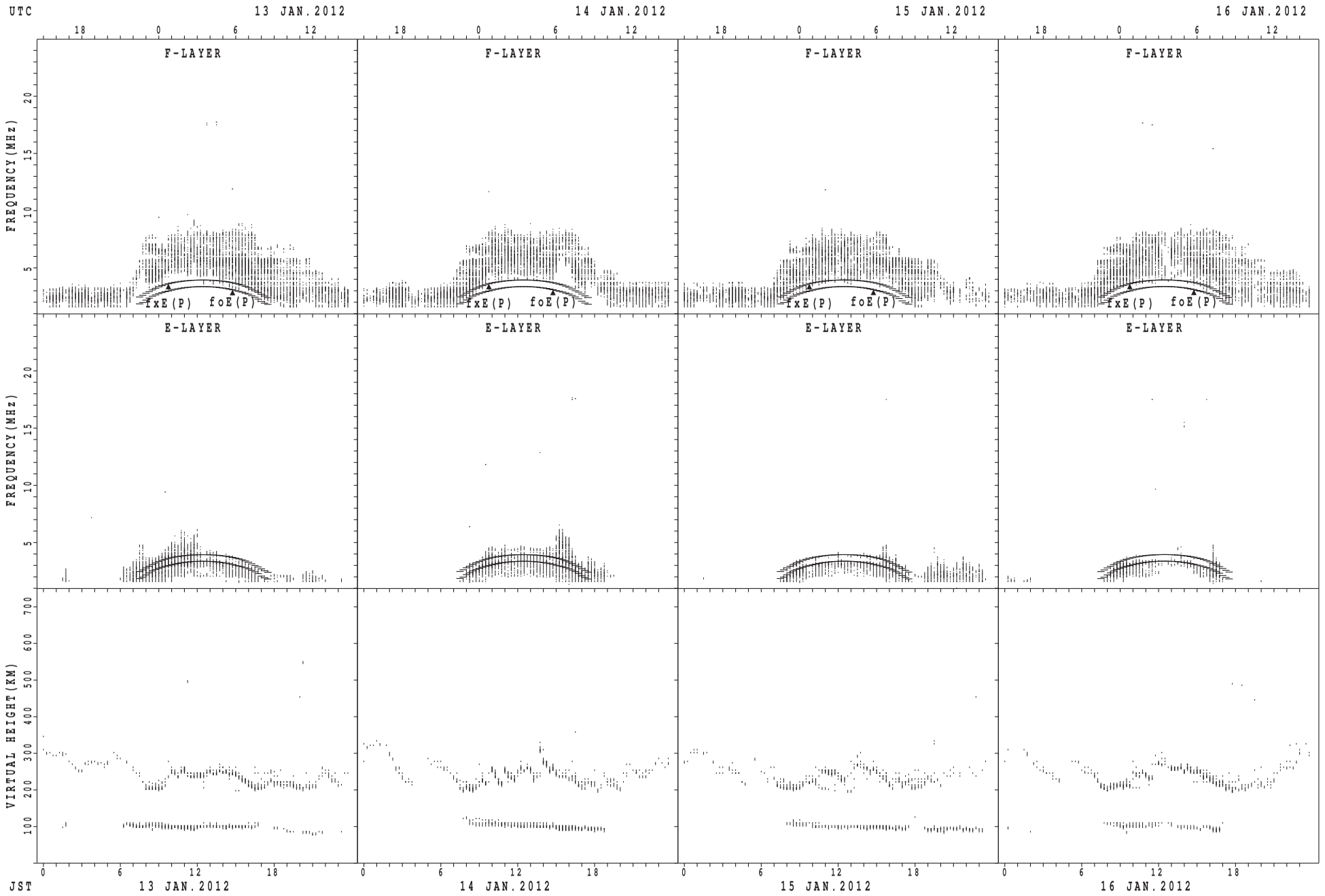
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



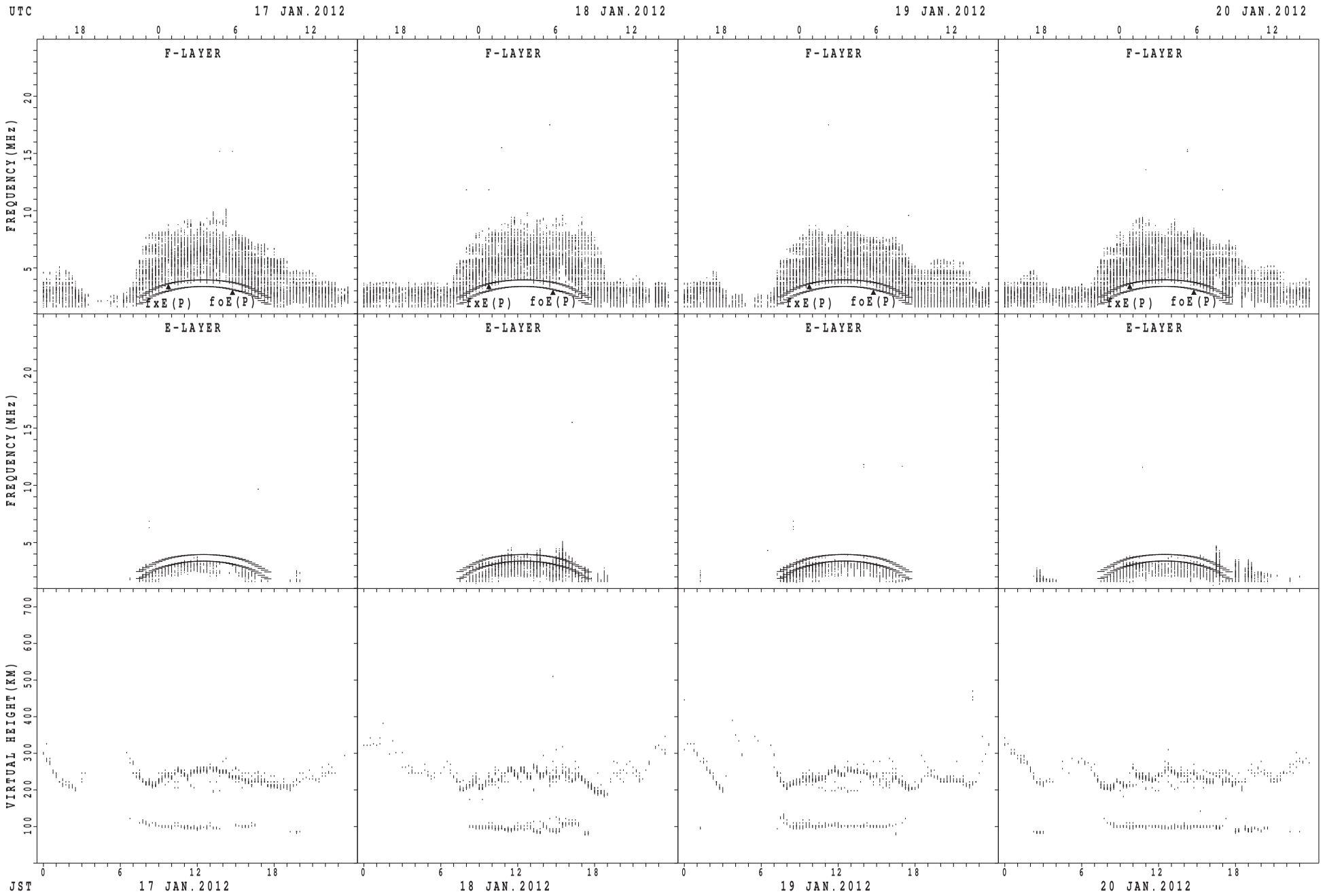
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



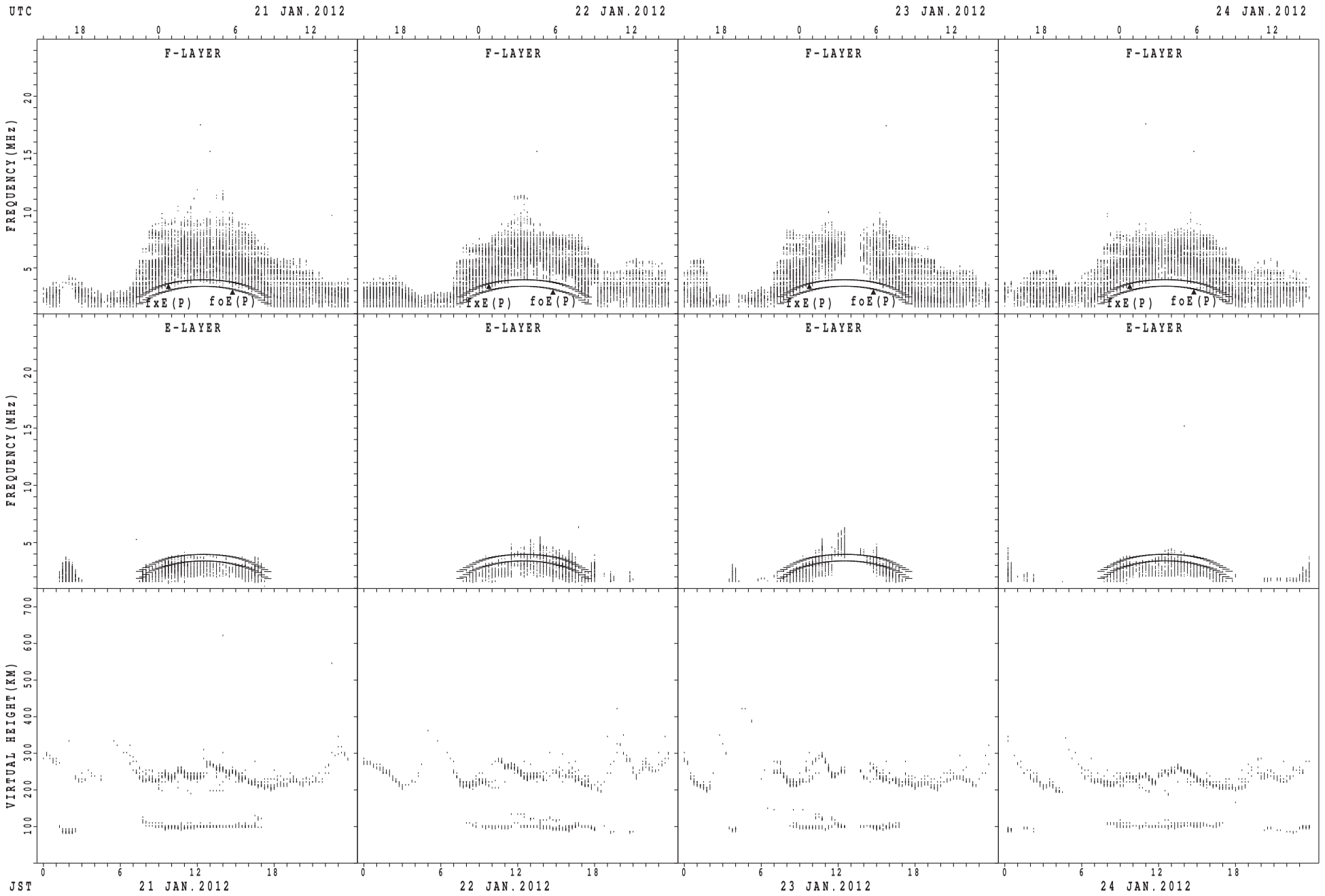
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



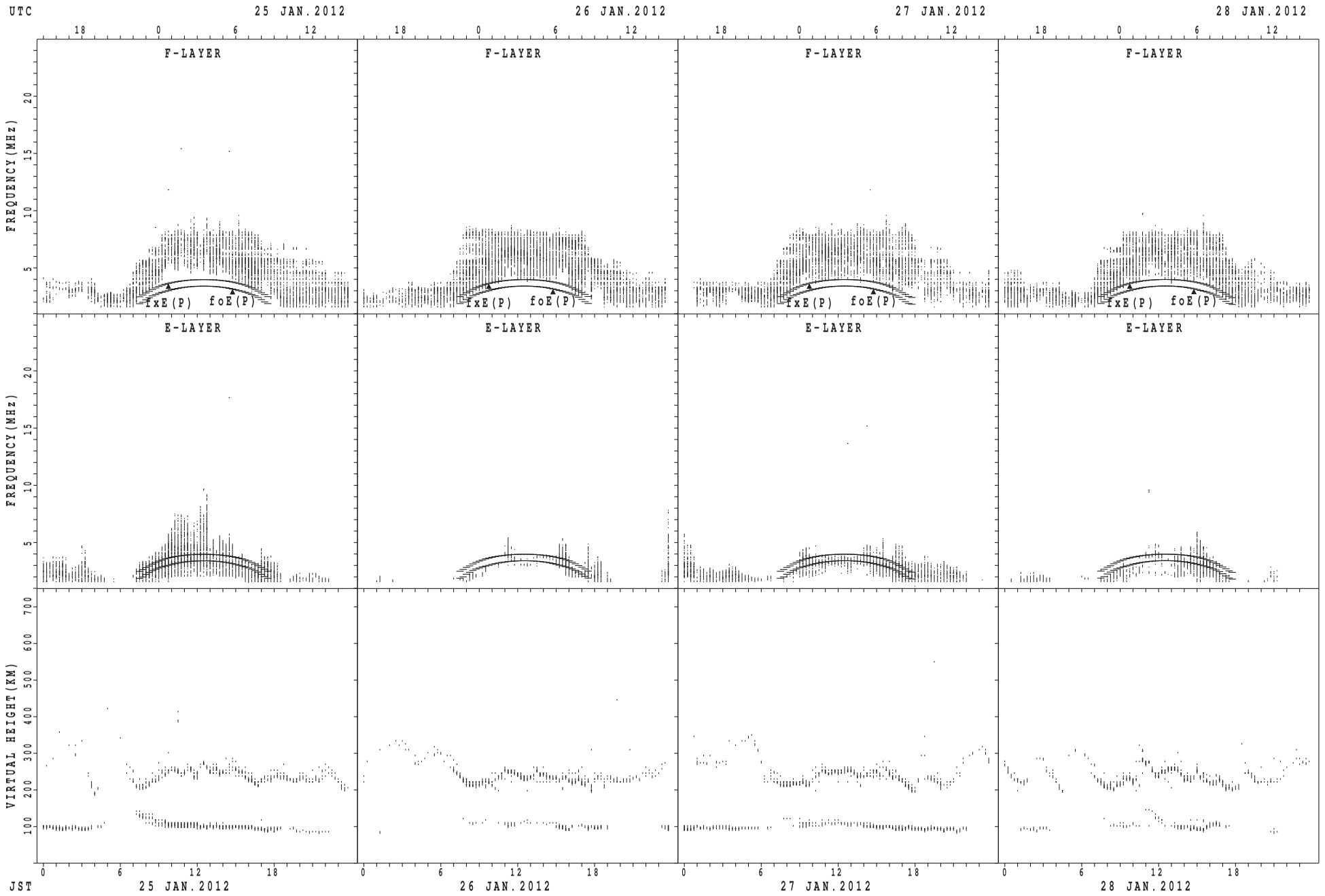
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



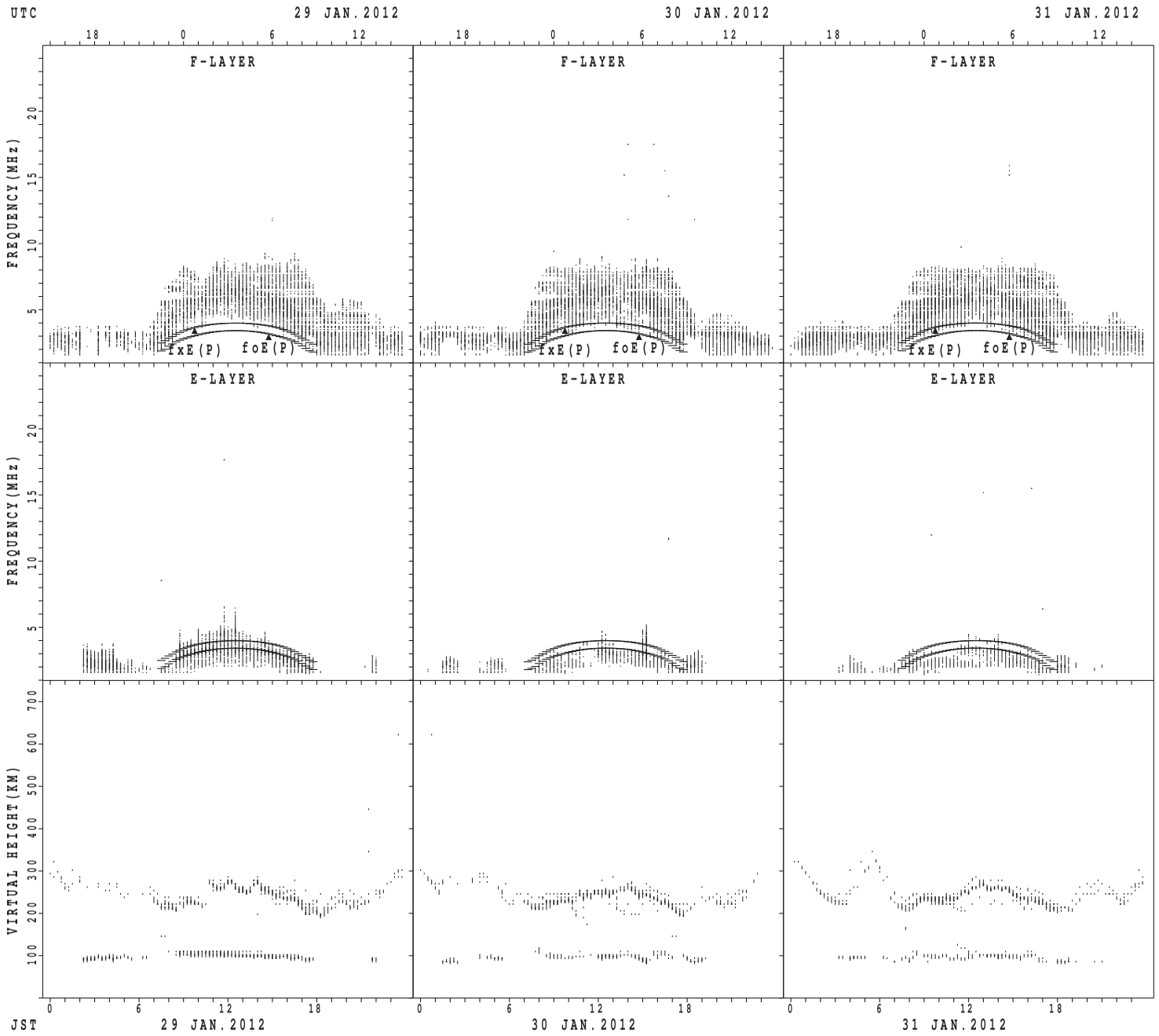
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



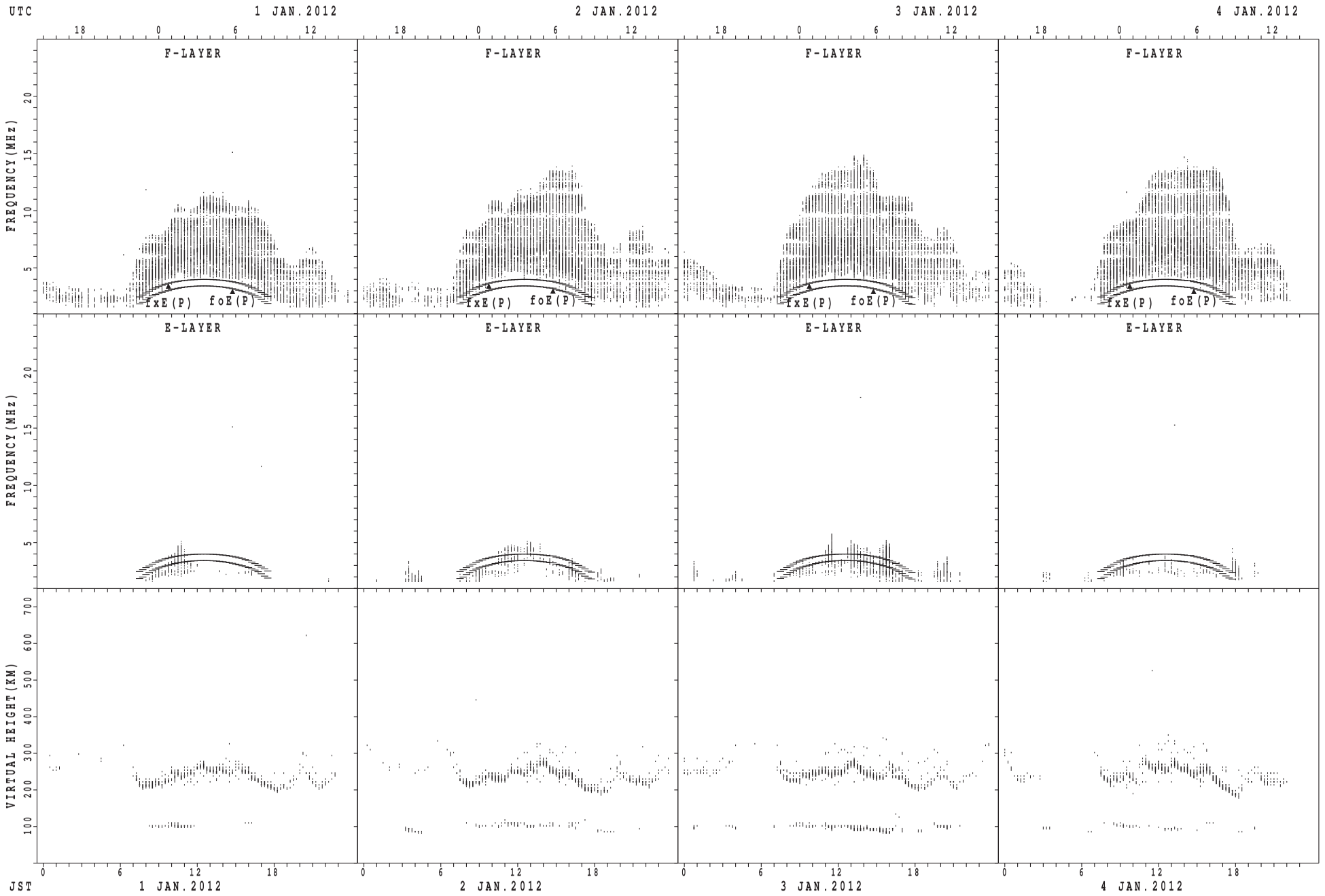
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



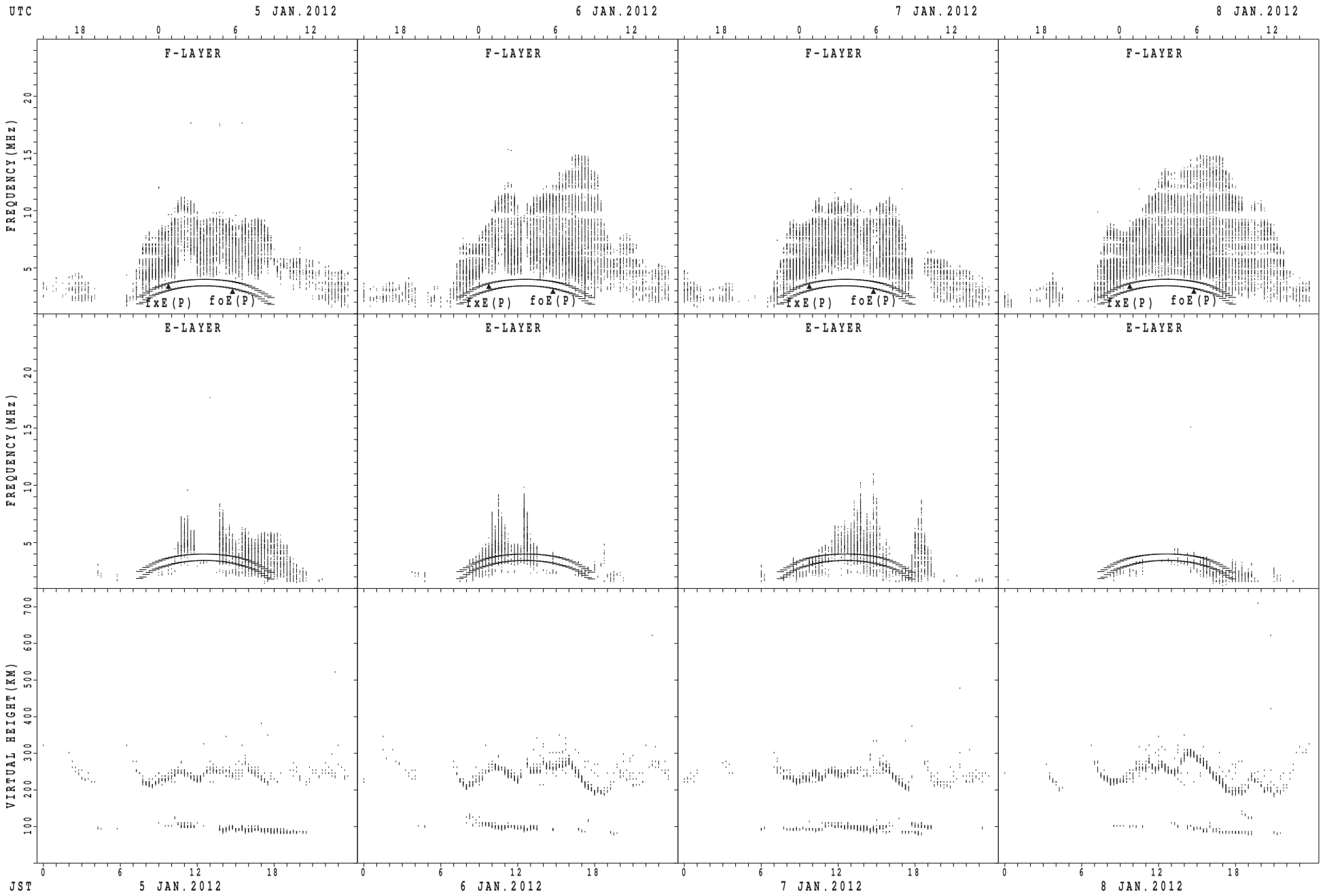
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



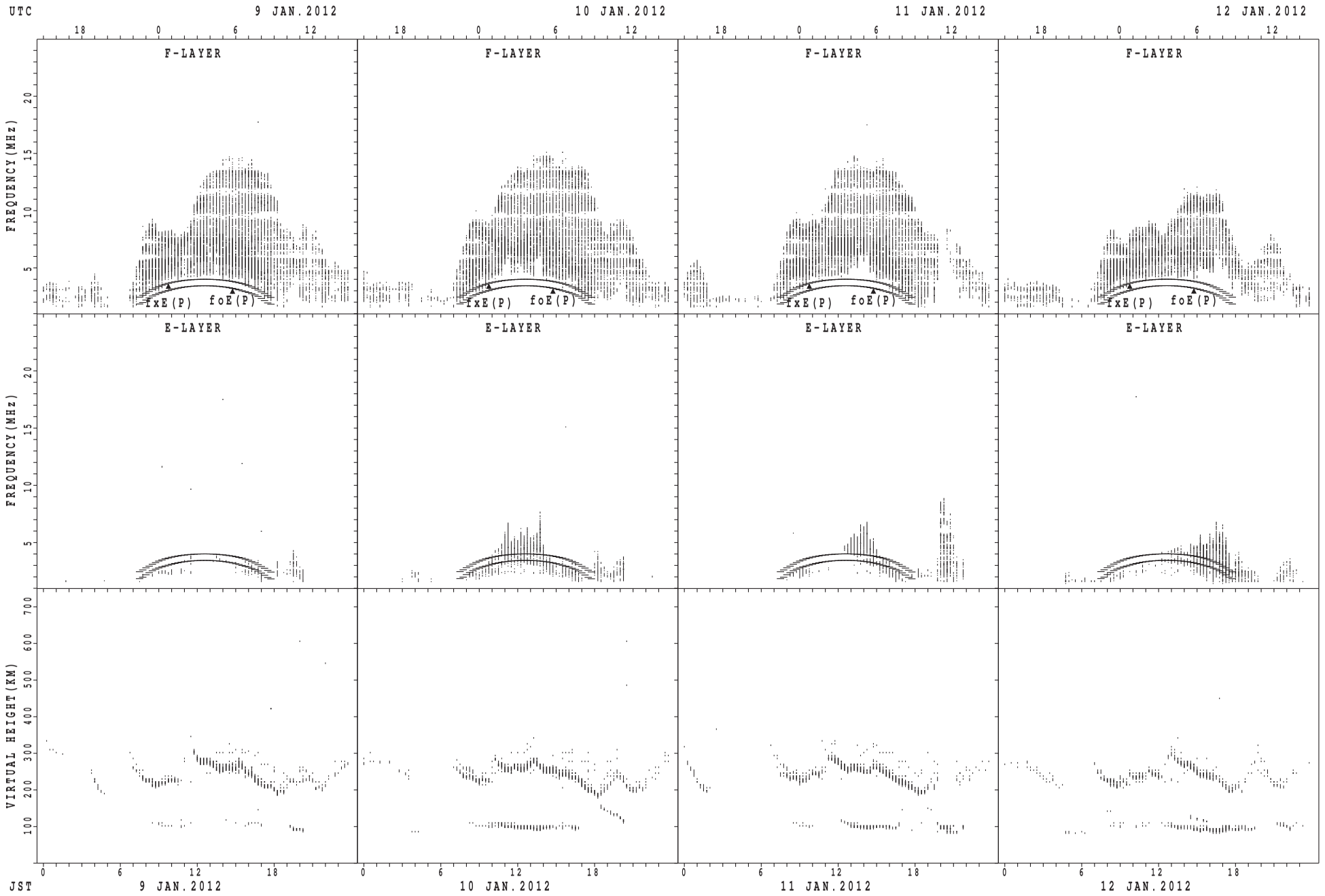
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



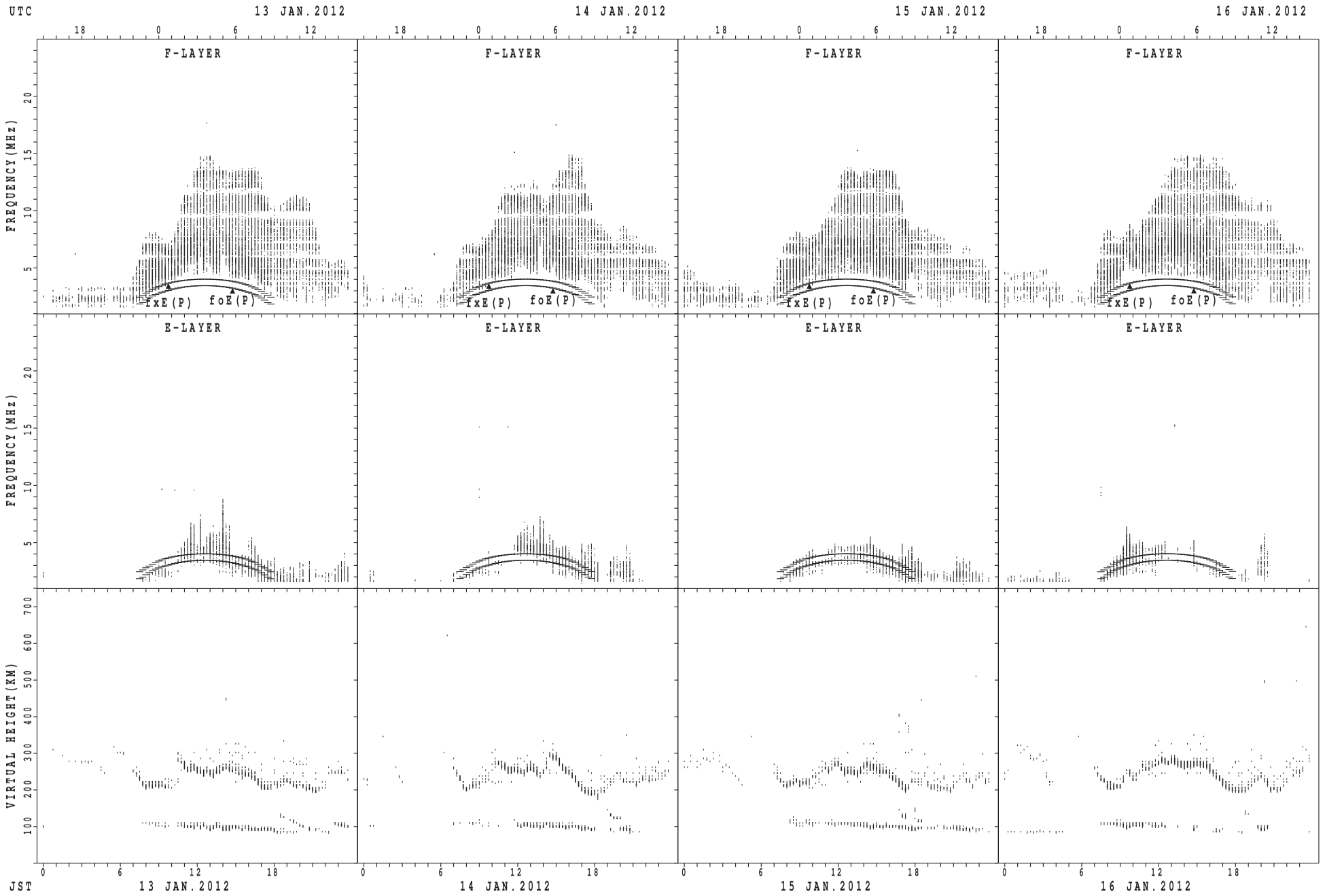
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



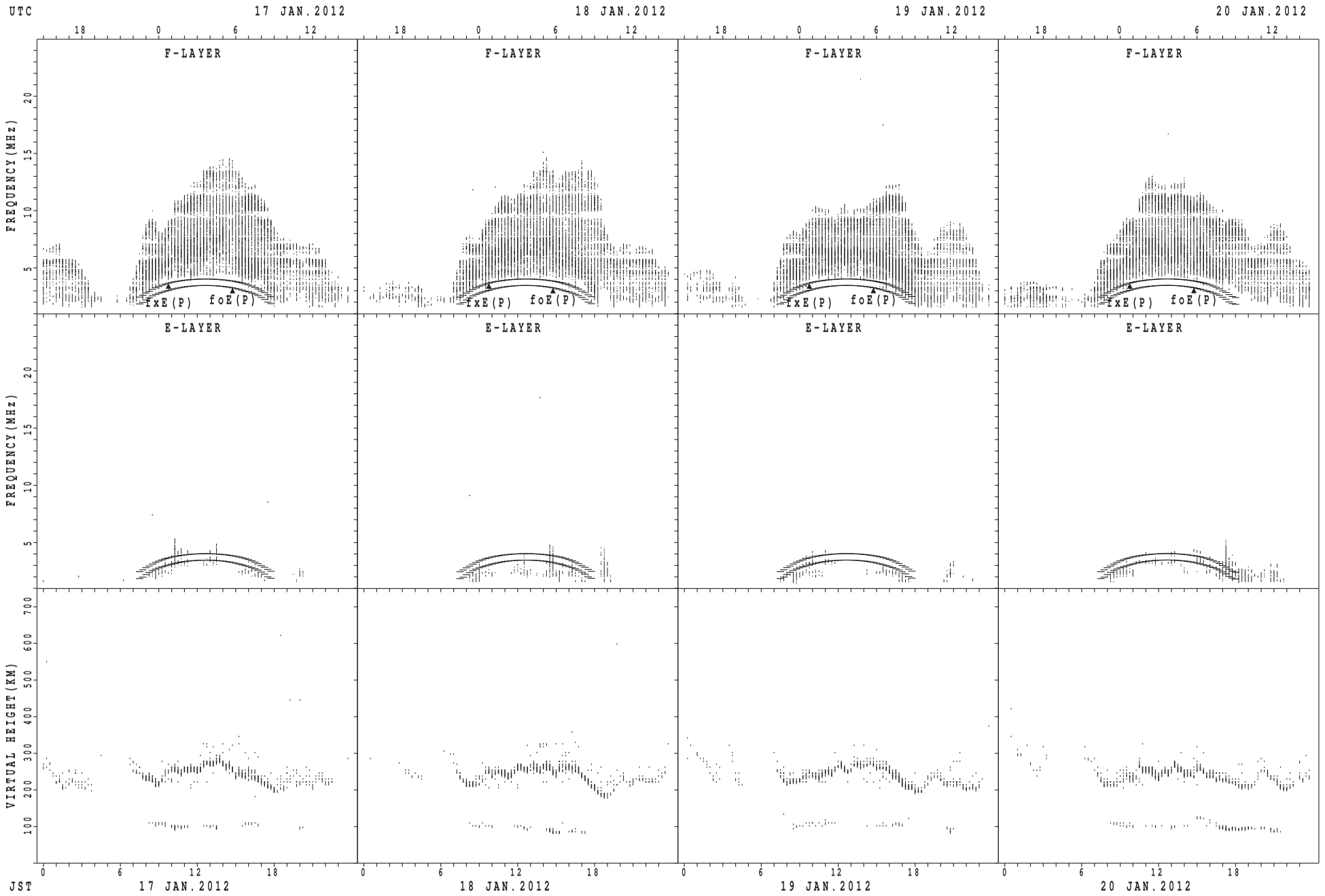
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



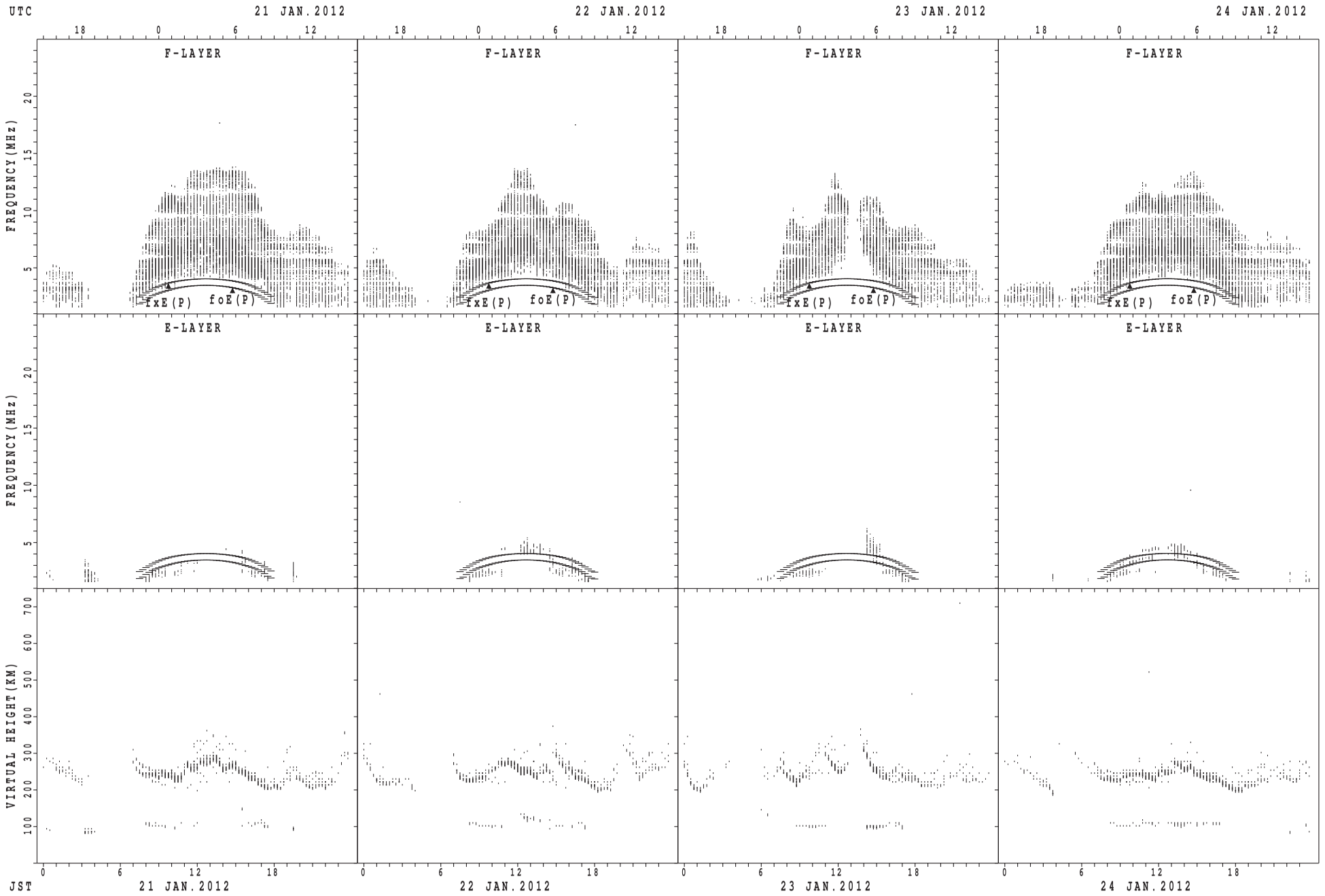
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



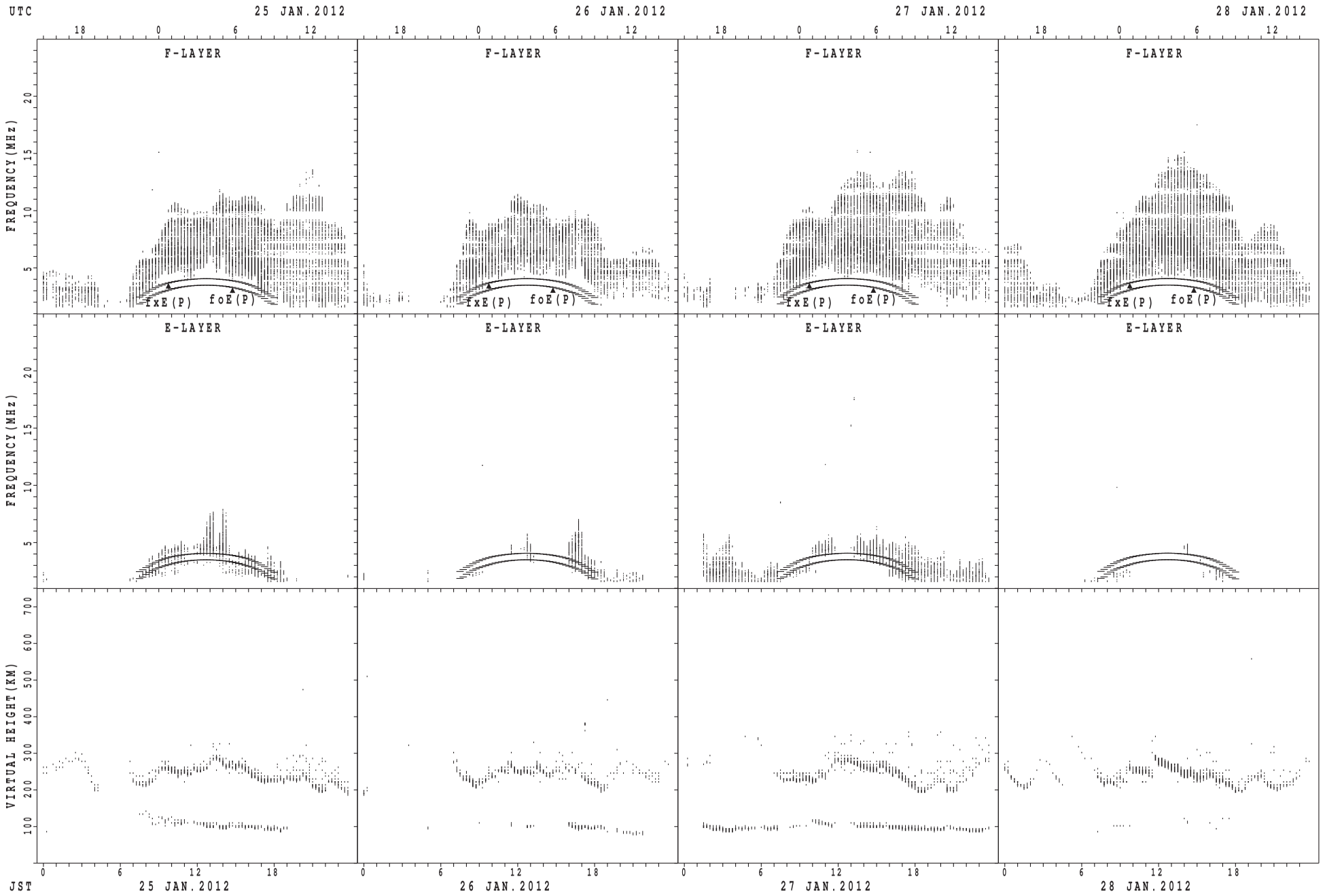
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



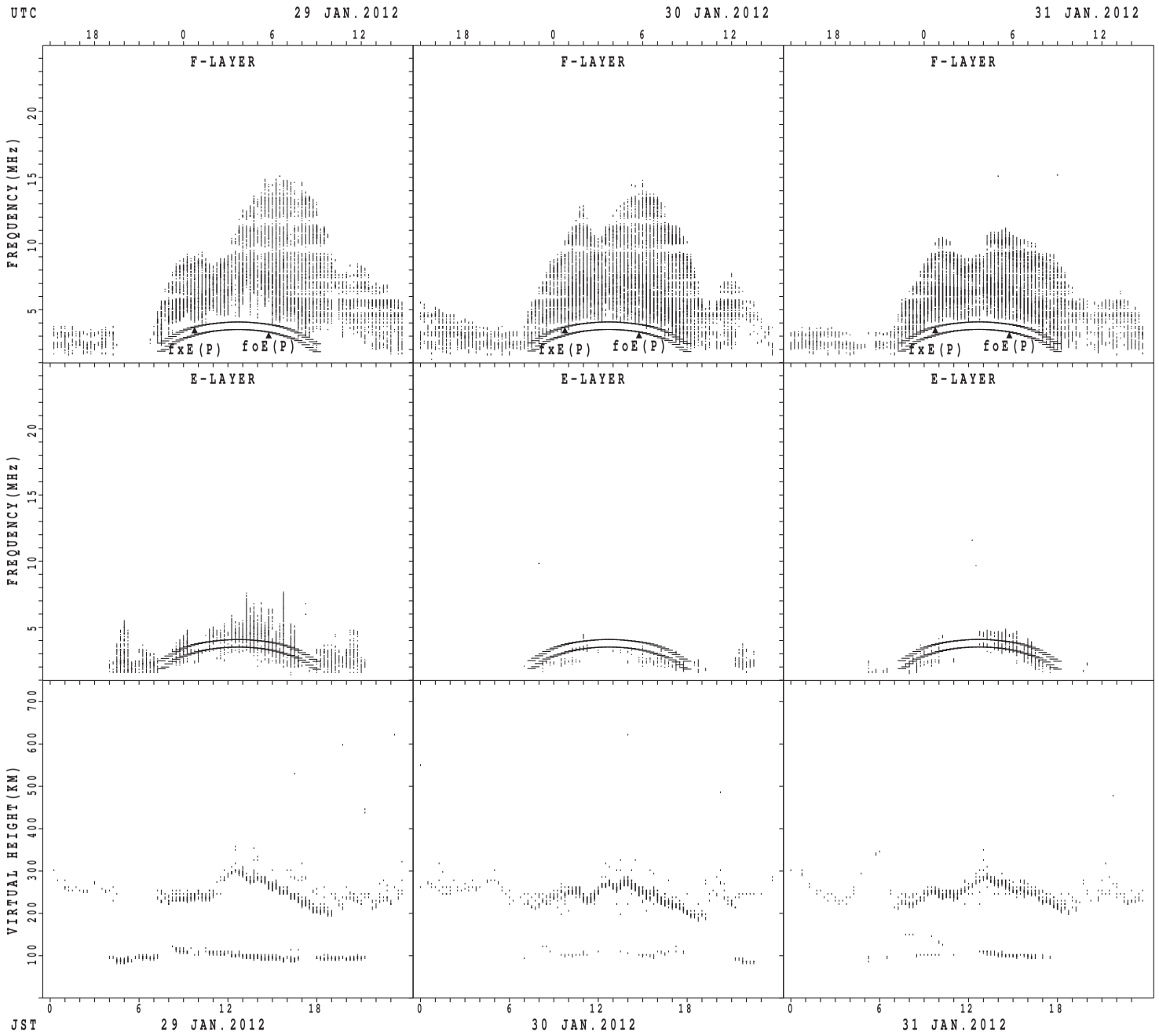
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



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

SUMMARY PLOTS AT Okinawa



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

MONTHLY MEDIANS OF h′F AND h′Es

JAN.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									26	31	30	29	28	28	30	25	9	1						
MED									222	222	222	222	228	233	231	230	224	230						
U Q									230	230	230	231	238	248	240	236	242	115						
L Q									214	214	218	215	222	230	226	223	222	115						

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	12	12	10	9	8	10	6	14	19	20	11	8	4	7	8	9	11	19	16	14	12	14	15	16
MED	95	97	95	97	96	97	99	106	113	107	97	100	98	93	100	105	99	95	101	99	99	97	97	97
U Q	96	97	103	119	105	103	105	113	155	112	107	138	102	103	102	110	101	103	105	105	103	99	105	97
L Q	94	95	93	92	92	97	97	103	105	103	93	94	91	89	93	103	89	93	95	95	97	97	95	95

h′F STATION Kokubunji LAT. 35°43.0′N LON. 139°29.0′E

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								1	23	26	30	30	28	25	30	29	17	1						
MED								258	226	240	238	233	243	246	243	238	238	250						
U Q								129	230	248	246	248	248	258	254	255	246	125						
L Q								129	222	230	230	226	234	238	238	230	231	125						

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	6	5	5	5	1	1	2	3	6	7	7	3	5	8	7	5	10	8	7	1	2	4	11
MED	98	98	97	97	99	97	97	98	107	106	105	103	97	95	96	101	97	95	96	95	95	95	100	97
U Q	103	99	100	103	101	48	48	101	115	107	111	105	97	100	101	107	101	101	98	99	47	99	103	101
L Q	97	97	95	97	96	48	48	95	107	105	99	99	93	94	93	95	91	91	92	93	47	91	93	91

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

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT		1							19	27	31	31	26	24	30	31	29	22	3	2	1			
MED		252							230	232	238	242	241	250	250	246	234	231	238	261	232			
U Q		126							232	248	254	252	248	254	268	252	248	240	242	274	116			
L Q		126							224	224	230	232	236	241	240	238	224	222	214	248	116			

h′Es

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	2	5	8	7	6	3		3	10	16	17	15	18	17	16	20	19	11	16	9	4	5	4	3
MED	99	97	95	97	95	97		105	113	107	105	105	105	105	101	98	95	95	94	91	92	97	95	97
U Q	101	101	96	97	95	99		141	125	110	108	109	111	105	105	101	103	97	95	96	95	104	100	101
L Q	97	90	88	95	93	97		89	111	105	100	97	101	97	95	96	95	95	91	90	90	88	94	93

MONTHLY MEDIANS OF h′F AND h′Es

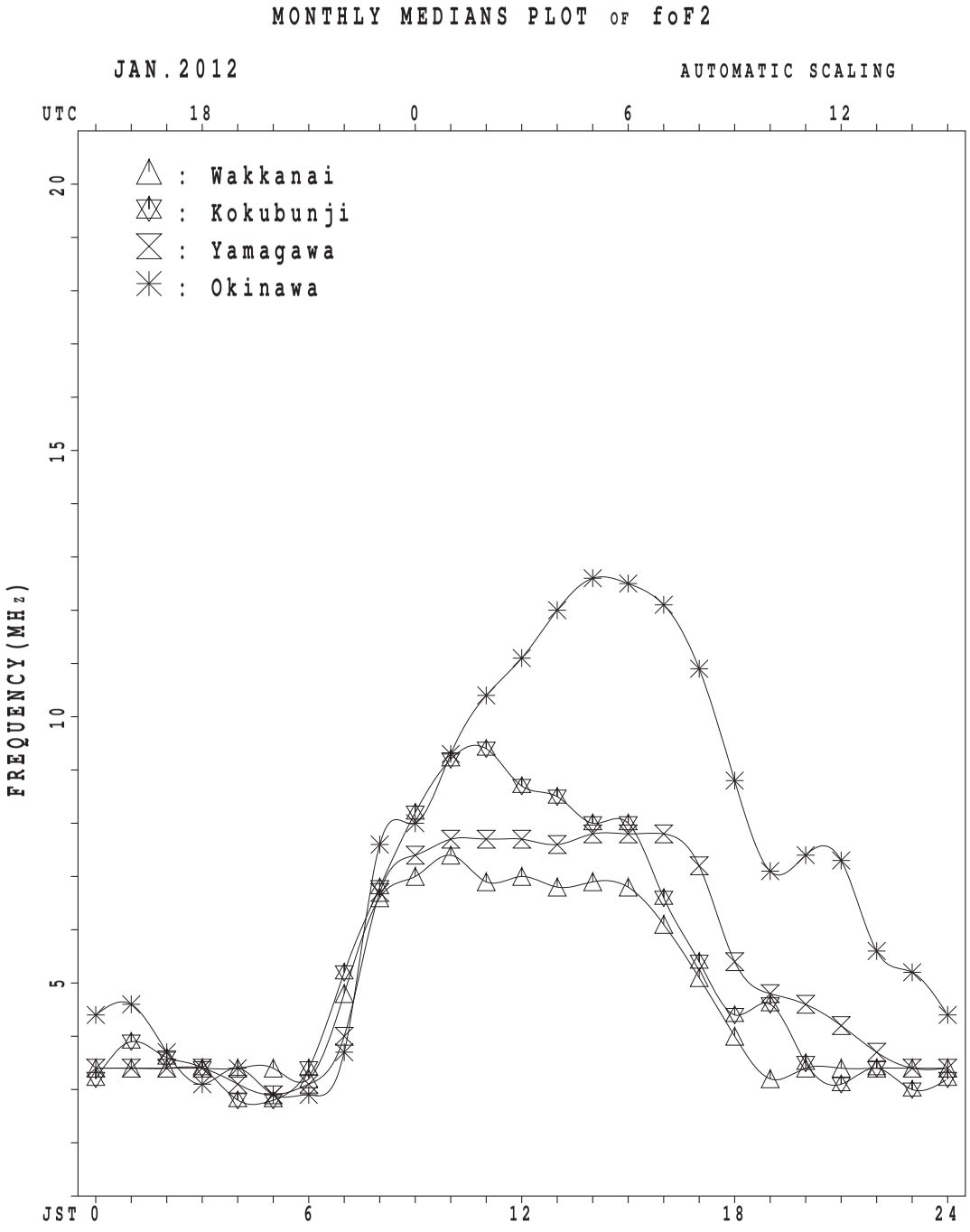
JAN.2012 135E MEAN TIME(UTC+9H) AUTOMATIC SCALING

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		2							27	31	31	31	16	13	28	30	31	31	28	18	13	18	5	1
MED		256							232	232	242	246	254	256	260	255	246	222	225	247	252	243	264	234
U Q		264							244	242	248	262	266	267	270	262	254	232	236	258	266	252	268	117
L Q		248							224	222	236	238	243	248	252	246	238	216	212	230	240	224	236	117

h′Es

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	1	1	1	2	6	2	2	4	1	9	11	14	11	18	14	15	15	10	12	9	12	9	4	3
MED	105	105	99	97	96	92	96	101	143	107	113	107	109	103	101	103	101	96	95	95	96	95	95	93
U Q	52	52	49	99	101	95	97	109	71	115	115	111	113	105	103	105	107	101	97	99	104	97	100	109
L Q	52	52	49	95	89	89	95	97	71	107	105	103	103	99	99	99	97	91	93	92	94	89	92	91


MONTHLY MEDIANS PLOT OF foF2
JAN.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

JAN. 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 38	X 39	X 38	X 38	X 40	X 41	X 37												X 40	X 52	X 50	49	51	52
2	X 58	59	54	35	X 36	38	X 36												X 39	X 42	X 37	X 37	X 37	X 40
3	X 41	X 44	X 45	X 38	X 40	X 42	X 42												X 42	X 51	X 44	X 39	O X 39	X 43
4	X 44	X 41	X 35	X 39	X 42	X 40	X 38												A	X 41	X 33	X 32	A	X 50
5	X 37	A	X 38	X 39	X 37	X 35	X 33												X 55	X 49	X 34	X 37	X 41	A
6	A	X 45	X 46	X 41	X 41	X 41	X 41												X 44	X 38	X 37	X 37	X 38	X 37
7	X 42	A	X 41	X 36	O X 35	X 36	X 36	X 62											X 57	X 42	X 40	X 41	X 42	X 35
8	X 38	X 38	X 38	X 40	X 39	X 38	X 37												X 62	X 44	X 43	X 31	X 34	X 34
9	X 36	X 36	X 37	X 36	X 39	X 41	X 35												X 61	X 61	X 40	X 36	X 38	X 38
10	X 39	X 40	X 42	X 37	X 36	X 40	X 32											X 50	X 67	X 61	X 32	X 36	X 36	X 39
11	X 37	X 32	X 34	X 34	X 34	X 36	X 41												X 52	X 46	X 42	X 39	O X 36	X 37
12	A	X 40	X 41	X 41	X 35	X 39	X 41												X 46	X 44	X 38	X 34	X 35	X 36
13	X 37	X 39	X 42	X 42	X 36	X 36	X 36												X 52	X 53	X 52	X 48	X 51	X 47
14	X 38	X 39	X 39	X 38	X 38	X 39	X 35												X 45	X 37	X 36	X 38	X 41	X 39
15	X 44	X 40	X 41	X 40	X 35	X 38	X 37												X 47	X 46	X 37	O X 40	O X 42	X 36
16	X 37	X 39	X 39	X 40	X 38	X 38	X 37												X 59	X 47	X 38	X 38	X 38	X 36
17	X 39	X 45	X 37	X 26	X 26	X 31	X 35												X 62	X 50	X 40	X 37	X 40	X 41
18	X 41	X 42	X 40	X 40	X 42	X 43	X 41			C	C	C	C	C					X 46	A	X 42	X 39	X 38	X 39
19	X 40	X 42	X 42	X 40	X 34	X 35	X 35												X 56	X 60	X 55	X 52	X 48	X 44
20	X 42	X 43	X 45	X 38	X 32	X 35	X 36												X 45	X 43	X 43	X 42	X 44	X 40
21	X 41	X 44	X 45	X 37	X 37	X 40	X 47	X 64											X 52	X 48	X 40	X 39	X 39	X 40
22	X 42	X 44	X 49	X 34	X 30	X 29	X 33												X 44	X 46	X 46	X 49	X 50	X 48
23	X 54	X 60	X 33	X 35	X 34	X 37	X 33												X 62	X 62	X 51	X 57	X 60	X 51
24	X 56	X 57	X 63	X 60	X 40	X 38	X 42												X 51	X 46	X 46	X 47	X 50	X 45
25	X 43	X 44	X 42	X 42	X 40	X 38	X 43												X 77	X 63	X 59	X 59	X 56	X 55
26	X 52	X 43	X 42	X 40	X 40	X 40	X 40											X 68	X 52	X 57	X 43	X 42	X 47	X 45
27	X 47	X 45	X 44	X 44	X 43	X 45	X 42												X 61	X 67	X 56	X 35	X 37	X 39
28	X 42	X 41	X 44	X 47	X 31	X 32	X 34											X 56	X 50	X 52	X 43	X 35	X 36	A
29	X 40	X 40	X 40	X 42	X 40	X 37	X 39												X 45	X 47	X 43	X 42	X 35	X 37
30	X 38	X 42	A	X 40	X 39	X 41	X 40												A	X 45	X 43	X 39	X 35	X 38
31	X 40	X 41	X 43	X 46	X 40	X 38	X 39												X 50	X 43	X 46	X 47	X 44	X 42
	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	30	31	31	31	31	2										3	29	30	31	31	30	29
MED	X 41	X 42	X 42	X 40	X 38	X 38	X 37	X 63										X 56	X 52	X 47	X 43	X 39	X 40	X 40
U Q	X 44	X 44	X 44	X 41	X 40	X 40	X 41											X 68	X 60	X 53	X 46	X 47	X 47	X 45
L Q	X 38	X 40	X 38	X 37	X 35	X 36	X 35											X 50	X 45	X 44	X 38	X 37	X 37	X 37

JAN. 2012 fxI (0.1MHz)

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IONOSPHERIC DATA STATION Kokubunji

JAN. 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	32	33	32	32	34	35	31	54	75	81	87	94	92	94	80	78	66	52	34	46	44	F	F	F
2	51	F	F	F	29	F	30	52	70	81	94	99	84	78	78	81	62	49	33	36	31	30	30	34
3	35	38	39	32	34	36	36	56	71	88	108	108	90	87	85	73	66	61	36	45	38	33	33	37
4	38	35	29	32	36	34	32	56	84	80	104	111	98	85	102	102	64	A	A	35	27	26	A	44
5	31	A	32	33	31	29	27	50	67	102	89	78	A	72	68	73	60	58	49	43	27	31	35	A
6	A	39	39	35	35	35	35	59	72	72	91	75	77	84	71	90	78	53	38	32	31	30	32	31
7	36	A	35	30	29	30	30	56	70	88	84	90	75	72	88	79	57	58	51	36	33	35	36	29
8	32	32	32	34	33	32	31	54	72	84	114	106	98	89	90	86	61	55	56	38	37	25	28	28
9	30	30	31	30	32	35	29	45	60	82	92	82	72	88	88	83	65	54	55	55	34	30	32	32
10	33	34	36	30	30	33	26	41	59	74	102	94	89	81	81	81	72	44	61	55	26	29	30	33
11	31	26	28	28	28	30	35	49	65	75	80	96	102	84	82	80	67	55	46	40	35	33	30	31
12	A	34	35	35	29	33	35	48	58	90	85	75	66	65	78	82	62	39	40	38	32	28	29	30
13	31	33	36	35	30	29	30	50	67	86	101	92	75	74	82	81	62	54	46	47	46	42	45	41
14	32	33	33	32	32	33	29	50	71	84	88	80	68	71	87	82	72	55	39	31	30	32	34	33
15	38	34	35	34	29	32	31	50	60	67	86	85	67	70	73	70	54	53	41	40	31	34	36	30
16	31	32	33	34	32	32	30	52	62	70	78	71	76	79	82	73	68	56	53	41	32	32	31	30
17	33	39	30	20	20	25	29	50	80	92	97	94	93	88	80	67	60	58	56	43	34	31	34	35
18	35	35	34	34	36	37	35	56	68	C	C	C	C	C	79	71	70	62	40	A	35	33	32	33
19	34	36	36	33	28	29	29	53	69	84	99	87	89	87	75	71	61	52	50	54	49	46	42	37
20	36	37	39	32	26	28	30	56	72	68	87	86	81	76	79	70	64	57	39	37	37	36	37	34
21	34	38	39	30	31	34	41	59	79	85	113	106	81	78	79	76	64	54	46	41	34	33	32	34
22	36	38	43	28	24	23	27	55	65	70	87	106	112	87	76	66	64	57	38	40	40	43	44	42
23	47	54	27	28	28	30	27	68	79	85	98	122	108	107	105	84	76	65	56	56	45	51	54	44
24	50	50	57	54	34	32	36	59	74	87	114	114	100	100	103	88	64	56	45	40	39	41	44	39
25	37	38	36	36	34	32	36	52	71	83	96	102	98	101	88	87	75	66	70	57	53	53	50	49
26	46	36	36	34	34	34	33	64	92	94	106	100	97	95	91	86	70	62	46	51	36	36	41	38
27	41	39	38	38	37	38	36	60	73	88	109	97	96	89	84	85	80	62	55	61	50	28	31	33
28	36	35	37	41	25	26	28	56	66	70	83	98	84	84	75	82	70	50	44	46	37	29	30	A
29	34	34	34	36	34	31	33	56	66	69	78	99	98	88	73	78	74	59	39	41	37	36	28	30
30	32	36	A	34	33	35	34	58	72	81	84	92	97	85	77	65	70	63	A	39	37	33	29	32
31	34	35	37	40	34	32	33	60	80	82	95	92	86	94	79	74	76	65	44	37	40	41	38	36
	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	28	29	30	31	30	31	31	31	30	30	30	29	30	31	31	31	30	29	30	31	30	29	28
MED	34	35	35	34	32	32	31	55	71	82	93	94	89	85	80	80	66	56	46	41	36	33	33	34
U Q	38	38	38	35	34	34	35	58	74	87	102	102	98	89	88	84	72	61	54	47	40	36	40	38
L Q	32	34	32	30	29	30	29	50	66	74	86	86	76	78	77	73	62	53	39	38	32	30	30	31

IONOSPHERIC DATA STATION Kokubunji

JAN. 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											
2											L													
3																								
4												L		L	A	A		A						
5										A		L	A			L								
6											L	L	L	A	A									
7															L									
8											L	L	L		L									
9														L	L									
10											L			A										
11											L		A											
12										L		L	L	A	L									
13												L	L	L	L	L								
14												A	L		A	A								
15											L	L		L										
16													L	L	L									
17											L	L	L	L	L									
18										C	C	C	C	C	A									
19											L	L	L											
20											L	L	L	L		L								
21											L	L	A	L	A	A								
22											L	L	A	A	A									
23											L	A	L											
24											L	L		L	L									
25											L	A	L	L	L									
26												L	L	L										
27											L	A		L	L									
28												L	L		A	A	L							
29												L	L	A	A	A								
30												A	A	L	A	A	L							
31											L	L	L	L										
	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																								

JAN. 2012 foF1 (0.01MHz)

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IONOSPHERIC DATA STATION Kokubunji

JAN. 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								U R 172	R	R	R	A	R	R	R	R	R	B						
2								B	R	A	A	R	R	R	R	A	A	B						
3								B	A	A	A	A	A	R	A	R	U R 208	B						
4								B	R	A	A	A	A	A	A	A	A	B						
5								B	R	A	A	A	A	A	A	R	R	B						
6								B	A	A	A	A	A	A	A	R	A	B						
7									A	R	A	A	A	R	A	R	A	B						
8								B	R	A	R	R	R	R	R	R	R	B						
9								B 228		R	A	A	A	R	A	A	A	B						
10								B	R	A	A	A	A	A	A	R	A							
11								B 256		A	A	A	A	R	A	R	R	B						
12								B 244	R	R	R	R	R	A	A	R	U R 204	B						
13								B	A	R	R	R	R	R	R	R	A	B						
14								B	U R 260	R	A	A	R	A	A	A	A	B						
15								B	R	R	R	R	R	R	R	R	R	B						
16								B 252		R	R	R	R	R	R	R	R	B						
17								B	R	A	R	R	R	R	R	R	U A 216	B						
18								B	R	C	C	C	C	C	A	A	R	B						
19								B 248		R	A	R	R	R	R	R	U R 220	B						
20								B	R	R	A	R	R	R	R	R	U R 208	B						
21									R	R	A	R	A	R	A	A	R	B						
22								B	U A 252	R	A	A	A	A	A	A	R	B						
23								176	R	R	R	A	R	R	R	R	R	B						
24								B	R	R	R	R	A	A	R	R	A	B						
25								B	A	A	A	A	A	R	R	R	A	B						
26								B	A	A	R	R	R	R	A	R	A							
27								B	R	R	R	A	R	R	R	R	R	B						
28								B	R	A	R	R	R	A	A	A	A							
29								B	R	A	A	R	R	A	A	A	R	B						
30								B	U R 256	R	A	A	A	A	A	A	A	B						
31								B	R	R	R	R	R	R	R	A	A	B						
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								2	8								5							
MED								174	252								U R 208							
U Q									U R 256								U 218							
L Q									246								U R 206							

JAN. 2012 foE (0.01MHz)

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IONOSPHERIC DATA STATION Kokubunji

JAN. 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	22	E B 15	E B 15	E B 14	E B 15	E B 15	18	G	G 24	G 26	G	39	G	G	G	G	G	J A 24	J A 24	E B 15	E B 15	E B 14	20	J A 26
2	J A 43	E B 14	J A 16	E B 15	E B 14	E B 15	E B 14	E B 14	G 20	34	J A 41	G	G	G	G 24	36	J A 26	E B 14	E B 15	J A 21	22	E B 14	20	20
3	20	19	E B 15	E B 14	E B 15	E B 16	E B 14	E B 16	29	38	38	J A 40	41	G 26	34	G 24	G	E B 15	J A 22	J A 33	J A 22	20	E B 16	E B 15
4	E B 14	E B 14	E B 14	E B 15	E B J A 23	22	20	E B 16	G 21	J A 47	J A 59	J A 58	J A 63	42	J A 69	J A 43	J A 44	J A 74	J A 46	J A 26	J A 23	21	J A 52	J A 51
5	J A 30	J A 88	J A 40	J A 28	J A 23	22	E B 15	E B 15	G	J A 51	J A 82	J A 46	J A 100	J A 49	35	G	G	E B 14	E B 14	22	E B 15	20	E B 14	J A 73
6	J A 58	E B 15	J A 26	J A 22	J A 22	E B 13	E B 14	E B 16	34	J A 44	J A 54	J A 44	J A 48	J A 56	J A 54	G	30	J A 39	J A 26	22	E B 17	E B 15	E B 15	E B 15
7	E B 15	J A 64	J A 33	J A 25	J A 22	E B 14	E B 14	E B 15	J A 35	36	39	J A 46	J A 44	G	26	G 28	J A 32	J A 37	J A 25	J A 20	22	20	J A 39	J A 21
8	J A 28	J A 22	E B 15	E B 14	E B J A 22	20	E B 15	E B 15	G 22	37	G 27	G	G	G	G 25	G 25	G 20	E B 15	E B 14	E B 15	E B 14	E B 14	E B 14	E B 15
9	E B 15	E B 14	E B 14	E B 14	E B 14	E B 15	E B 14	J A 20	30	G 22	36	42	40	G	J A 40	J A 33	26	J A 25	J A 24	J A 20	J A 39	J A 43	J A 24	J A 18
10	20	E B 15	E B 15	E B 15	E B 15	E B J A 23	J A 22	E B 15	G	36	J A 38	36	39	41	41	G	29	J A 24	J A 29	E B 14	E B 14	E B 14	E B J A 17	J A 30
11	E B 14	E B 15	18	E B 14	E B J A 20	E B 15	E B 15	E B 17	32	38	J A 39	J A 44	38	G 29	39	G 23	G	E B 14	E B 14	E B 14	E B 14	E B 15	E B 15	E B 15
12	J A 35	J A 26	E B 15	E B 15	E B 14	E B 15	E B 15	E B 16	G	G	G 30	G 30	G	J A 51	J A 40	G 23	G	E B 14	E B 15	E B 20	E B 15	E B 16	E B 15	E B 15
13	E B 14	E B 15	E B 14	E B 15	E B 14	E B 15	E B 14	E B 15	J A 36	G 28	G	G	G	G 30	G 29	G 24	24	J A 21	E B 16	J A 26	J A 18	18	J A 24	J A 23
14	J A 27	J A 19	20	J A 25	E B 14	E B 15	E B 15	E B 15	G	G 28	42	J A 42	G	41	J A 46	J A 46	J A 32	28	E B 14	J A 22	19	E B 15	20	J A 26
15	J A 22	J A 19	J A 19	E B 15	E B 15	E B 15	E B 16	E B 16	G	G	G	G	J A 42	G	G	G	G	E B 15	J A 26	J A 24	E B 14	J A 24	J A 30	20
16	J A 20	J A 23	J A 17	19	E B 14	20	E B 14	E B 15	30	G	G	G	G	G	G	G	G	E B 15	E B 14	E B 14	E B 15	E B 15	E B 15	E B 15
17	E B 14	E B 14	E B 14	E B 15	20	20	21	19	G 21	34	G	G	G	G	G	G	28	E B 16	E B 16	E B 14	E B 15	E B 14	E B 14	E B 14
18	E B 16	E B 14	E B 14	E B 14	E B 15	E B 14	E B 15	E B 16	G 20	C	C	C	C	C	J A 38	37	G	E B 13	E B 14	E B J A 30	E B 15	E B 15	E B 15	E B 15
19	J A 20	J A 18	E B 16	E B 14	E B 14	E B 15	E B 15	E B 16	G	G 25	40	G	G	G	G	G	G 20	E B 15	E B 15	E B 14	E B 14	E B 14	E B 15	E B 15
20	E B 14	E B 15	E B 15	E B 16	E B 14	E B 14	E B 14	E B 16	G	G 26	35	G 32	G 32	G 30	G	G	G	E B 15	E B 14	E B J A 21	J A 23	A E 14	E B 14	E B 14
21	J A 23	J A 19	E B 14	E B 14	E B 15	E B 16	E B 15	E B 15	G	G 22	38	G	41	G 28	38	38	G	E B 15	E B 14	E B 15	E B 14	E B 15	E B 15	E B 15
22	E B 15	E B 14	E B 15	E B 14	E B 15	22	E B 15	E B 16	33	G	36	42	46	41	38	J A 41	G	J A 20	19	E B 14	E B 15	E B 15	E B J A 29	34
23	E B 14	E B 15	20	J A 21	E B 15	E B 15	20	22	G	G 24	G 25	42	G	G	G	G 28	G	E B 13	E B 15	E B 15	E B 14	E B 15	E B 15	E B 15
24	E B 15	E B 15	E B 16	E B 14	E B 14	E B 14	E B 16	E B 16	G	G	G	G	43	37	G	G 25	J A 29	J A 28	21	J A 21	E B 14	E B 15	E B J A 15	J A 37
25	E B 14	E B 15	19	E B 16	E B J A 28	E B 15	E B 16	22	35	J A 50	J A 43	38	41	G	G	G 25	J A 38	J A J A 45	J A J A 30	J A 20	J A 18	20	J A 50	J A 29
26	21	19	E B 14	E B 14	E B 15	E B 14	E B 15	J A 31	40	J A 49	G	G	G	G	J A 58	G	J A 67	J A 26	J A 20	J A J A 41	E B 14	E B 15	E B J A 22	J A 36
27	J A 45	E B 16	22	J A 20	J A J A 23	22	E B 14	22	G	G	G	J A 51	G	G	G	G 28	G	J A 32	J A 24	J A J A 19	J A 18	J A 21	A E 14	E B J A 42
28	J A 36	J A 30	J A 34	J A 40	J A J A 21	20	20	21	G 21	40	G 30	G 28	G	J A 66	J A 52	37	J A 33	J A 39	J A 30	E B 14	E B 15	E B J A 45	J A 29	J A 45
29	J A 42	J A 43	J A 25	J A 26	A E 14	E B 14	E B 15	20	G	J A 37	J A 48	G	G	40	J A J A 59	J A 45	G	J A 22	J A 31	20	20	E B 15	E B 15	E B 15
30	J A 69	J A 60	J A 47	J A 23	J A 30	E B 15	E B 15	E B 15	G	G 27	J A 39	39	J A 51	J A 40	J A 47	J A 47	J A 48	J A 46	J A 67	J A 42	J A 21	J A 19	A E 19	B 15
31	E B 15	J A 26	J A 21	E B 14	J A 22	J A 19	J A 21	J A 25	G 20	G 27	G 26	G 29	G 28	G 30	G 26	J A 43	26	30	J A 30	J A 23	J A 21	A 17	20	E B 15
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	31	31	31	31	30	30	30	30	30	31	31	31	31	31	31	31	31	31	31
MED	20	E B 16	E B 16	E B 15	E B 15	E B 15	E B 15	E B 16	G	G	36	G	G	G	34	G	G	21	20	20	E B 15	E B 15	E B 16	18
U Q	J A 30	J A 23	J A 21	J A 21	J A J A 22	20	16	20	30	J A 38	J A 40	J A 42	J A 42	41	J A 41	J A 37	J A 30	J A 31	26	23	J A 21	20	24	30
L Q	E B 15	E B 15	E B 15	E B 14	E B 14	E B 15	E B 14	E B 15	G 24	G 27	G	G	G	G	G	G 28	G	E B 15	E B 14	E B 14	E B 14	E B 15	E B 15	E B 15

JAN. 2012 foEs (0.1MHz)

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IONOSPHERIC DATA STATION Kokubunji

JAN. 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 16	E B 15	E B 15	E B 14	E B 15	E B 15	E B 15	G	G 22	G 25	G	37	G	G	G	G	G	19	20	E B 15	E B 15	E B 14	E B 15	18
2	24	E B 14	E B 15	E B 15	E B 14	E B 15	E B 14	E B 14	G 18	31	37	G	G	G	G 22	32	23	E B 14	E B 15	18	E B 15	E B 14	E B 16	17
3	E B 15	E B 15	E B 15	E B 14	E B 15	E B 16	E B 14	E B 16	25	34	36	35	37	G 24	29	G 22	G	E B 15	E B 15	21	17	E B 16	E B 16	E B 15
4	E B 14	E B 14	14	15	E B 14	19	E B 15	E B 16	G 20	35	40	39	44	36	64	30	30	A A 74	A A 46	22	18	16	A A 52	30
5	E B 15	A A 88	19	20	E B 15	E B 15	E B 15	E B 15	G	38	47	38	A A 100	34	32	G	G	E B 14	E B 14	E B 15	E B 15	E B 15	E B 14	A A 73
6	A A 58	E B 15	18	E B 15	E B 15	E B 13	E B 14	E B 16	31	39	31	33	36	42	44	G	27	36	22	20	E B 17	E B 15	E B 15	E B 15
7	E B 15	A A 64	17	17	18	E B 14	E B 14	E B 15	32	31	35	42	37	G	25	G 27	29	30	22	20	E B 15	E B 15	16	E B 14
8	E B 15	E B 14	E B 15	E B 14	E B 14	E B 15	E B 15	E B 15	G 21	33	G 25	G	G	G	G 24	G 22	G 19	E B 15	E B 14	E B 15	E B 14	E B 14	E B 14	E B 15
9	E B 15	E B 14	E B 14	E B 14	E B 14	E B 15	E B 14	17	28	G 21	32	37	37	G	34	27	23	20	20	E B 15	16	21	20	15
10	E B 15	E B 15	E B 15	E B 15	E B 15	19	17	E B 15	G	34	35	33	36	36	38	G	22	E B 15	19	E B 14	E B 14	E B 14	E B 14	E B 15
11	E B 14	E B 15	E B 14	E B 14	E B 15	E B 15	E B 15	E B 17	28	33	34	38	36	G 26	35	G 21	G	E B 14	E B 14	E B 14	E B 14	E B 15	E B 15	E B 15
12	A A 35	19	E B 15	E B 15	E B 14	E B 15	E B 15	E B 16	G	G	G 27	G 29	G	48	30	G 21	G	E B 14	E B 15	E B 15	E B 15	E B 16	E B 15	E B 15
13	E B 14	E B 15	E B 14	E B 15	E B 14	E B 15	E B 14	E B 15	29	G 27	G	G	G	G 30	G 28	G 22	22	17	E B 16	18	E B 15	E B 15	17	18
14	20	E B 15	E B 15	E B 15	E B 14	E B 15	E B 15	E B 15	G	G 26	36	39	G	36	43	40	21	21	E B 14	E B 15	E B 16	E B 15	E B 15	E B 16
15	18	E B 15	E B 15	E B 15	E B 15	E B 15	E B 16	E B 16	G	G	G	G	37	G	G	G	G	E B 15	17	E B 15	E B 14	16	19	E B 16
16	E B 16	17	E B 15	E B 15	E B 14	E B 15	E B 14	E B 15	28	G	G	G	G	G	G	G	G	E B 15	E B 14	E B 14	E B 15	E B 15	E B 15	E B 15
17	E B 14	E B 14	E B 14	E B 15	E B 15	E B 15	E B 15	17	G 21	32	G	G	G	G	G	G	24	E B 16	E B 16	E B 14	E B 15	E B 14	E B 14	E B 14
18	E B 16	E B 14	E B 14	E B 14	E B 15	E B 14	E B 15	E B 16	G 19	C	C	C	C	C	33	36	G	E B 13	E B 14	A A 30	E B 15	E B 15	E B 15	E B 15
19	E B 15	E B 14	E B 16	E B 14	E B 14	E B 15	E B 15	E B 16	G	G 23	36	G	G	G	G	G	G 20	E B 15	E B 15	E B 14	E B 14	E B 14	E B 15	E B 15
20	E B 14	E B 15	E B 15	E B 16	E B 14	E B 14	E B 14	E B 16	G	G 24	31	G 32	G 30	G 28	G	G	G	E B 15	E B 14	E B 14	E B 18	E B 15	E B 14	E B 14
21	E B 15	E B 15	E B 14	E B 14	E B 15	E B 16	E B 15	E B 15	G	G 20	34	G	38	G 27	33	36	G	E B 15	E B 14	E B 15	E B 14	E B 15	E B 15	E B 15
22	E B 15	E B 14	E B 15	E B 14	E B 15	E B 16	E B 15	E B 16	31	G	34	40	42	38	36	34	G	18	E B 15	E B 14	E B 15	E B 15	E B 16	19
23	E B 14	E B 15	E B 14	E B 16	E B 15	E B 15	E B 15	20	G	G 23	G 24	40	G	G	G	G 26	G	E B 13	E B 15	E B 15	E B 14	E B 15	E B 15	E B 15
24	E B 15	E B 15	E B 16	E B 14	E B 14	E B 14	E B 16	E B 16	G	G	G	G	38	36	G	G 24	25	18	E B 15	18	E B 14	E B 15	E B 15	32
25	E B 14	E B 15	E B 15	E B 16	E B 15	E B 15	E B 16	20	32	46	36	37	36	G	G	G 24	29	20	E B 14	E B 15	E B 15	17	16	23
26	E B 14	E B 15	E B 14	E B 14	E B 15	E B 14	E B 15	19	35	42	G	G	G	G	51	G	30	20	E B 15	23	E B 14	E B 15	16	23
27	34	E B 16	E B 15	E B 15	E B 14	E B 15	E B 14	20	G	G	G	44	G	G	G	G 26	G	22	20	E B 16	E B 15	E B 15	E B 14	19
28	27	28	17	30	E B 15	E B 15	E B 15	18	G 20	34	G 29	G 27	G	43	43	34	28	34	18	E B 14	E B 15	20	20	A A 45
29	E B 15	17	18	18	E B 14	E B 14	E B 15	19	G	32	38	G	G	38	52	40	G 20	20	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15
30	E B 15	22	A A 47	16	21	E B 15	E B 15	E B 15	G	G 26	38	37	43	34	43	40	39	43	A A 67	28	19	E B 15	E B 16	E B 15
31	E B 15	E B 15	E B 16	E B 14	E B 15	17	20	22	G 20	G 23	G 24	G 27	G 27	G 28	G 25	39	24	24	26	22	E B 16	E B 14	E B 15	E B 15
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	31	31	31	31	30	30	30	30	30	31	31	31	31	31	31	31	31	31	31
MED	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	E B 16	G	G	32	G	G	G	29	G	G	17	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15
U Q	16	16	16	16	E B 15	E B 15	E B 15	17	28	34	36	38	37	36	38	34	25	21	20	20	16	15	16	19
L Q	E B 14	E B 14	E B 14	E B 14	E B 14	E B 15	E B 14	E B 15	G 22	G 26	G	G	G	G	G	G 26	G	E B 15	E B 14	E B 14	E B 14	E B 15	E B 15	E B 15

JAN. 2012 fbEs (0.1MHz)

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IONOSPHERIC DATA STATION Kokubunji

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

IONOSPHERIC DATA STATION Kokubunji

JAN. 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	311	304	297	321	323	327	356	377	357	354	349	332	326	334	344	361	359	307	333	332	F	F	F
2	293	F	F	F	307	F	334	355	371	344	352	356	365	337	338	355	369	351	331	347	347	304	289	308
3	306	313	332	301	323	310	333	340	363	350	349	357	352	337	344	338	342	357	333	330	325	308	312	315
4	302	340	303	299	330	330	302	336	360	338	337	340	348	326	319	362	352	A	A	356	340	301	A	285
5	292	A	304	308	335	317	316	358	368	373	383	370	A	355	328	356	370	348	352	353	292	295	319	A
6	A	328	340	320	295	303	313	346	355	341	372	355	350	337	358	339	347	344	352	313	306	300	305	295
7	301	A	328	312	287	290	311	348	366	351	346	377	368	308	339	370	379	340	355	336	324	313	338	318
8	297	301	291	320	320	296	327	351	363	351	349	347	331	337	336	355	354	331	364	339	361	357	294	303
9	283	297	320	306	288	313	369	356	375	356	360	361	339	340	332	353	348	332	323	346	358	310	319	319
10	293	306	322	321	300	339	361	381	361	342	350	351	345	342	350	358	376	314	328	355	319	293	312	324
11	343	305	317	299	308	287	342	366	380	366	346	317	363	346	338	330	360	343	342	355	335	296	300	331
12	A	311	314	346	313	340	348	353	353	359	376	363	374	353	348	364	363	374	326	338	342	319	318	283
13	303	306	341	338	324	298	335	368	376	349	361	365	347	347	345	353	362	341	325	351	300	317	336	343
14	303	301	325	321	309	330	327	371	369	345	359	372	351	310	342	349	358	351	357	359	318	327	330	317
15	304	312	313	330	317	309	360	371	379	375	356	365	356	342	345	375	341	346	319	353	333	312	345	307
16	300	308	340	309	323	333	341	362	378	330	372	353	342	334	347	350	358	344	327	344	325	323	312	288
17	298	341	410	310	280	296	340	342	347	360	358	347	343	344	347	351	346	330	347	362	337	319	303	298
18	302	314	308	303	334	344	344	358	365	C	C	C	C	C	349	339	346	354	355	A	351	316	284	281
19	283	333	351	333	303	309	310	347	371	350	352	345	348	346	359	348	365	336	311	322	318	323	304	287
20	290	307	341	370	291	311	315	353	382	371	350	362	345	329	363	351	351	348	324	330	329	327	303	305
21	305	322	333	348	308	304	318	356	359	336	343	360	349	328	347	350	376	340	330	341	329	315	302	295
22	287	323	359	368	318	304	316	360	373	337	329	331	345	351	359	331	341	358	322	319	290	296	289	266
23	302	348	352	282	295	274	328	352	342	356	329	324	331	328	341	345	350	341	328	330	314	328	324	310
24	286	298	330	350	378	293	321	351	359	341	337	343	329	324	346	359	354	344	334	314	312	330	312	318
25	326	315	310	309	316	264	378	371	367	346	341	356	334	338	345	348	357	336	335	344	297	305	290	304
26	337	319	289	281	287	313	309	351	369	355	357	352	337	345	346	362	352	348	325	349	340	318	307	320
27	313	322	308	299	289	300	346	364	379	337	346	354	323	337	338	334	351	344	315	351	368	290	284	300
28	306	304	313	349	309	323	325	375	380	339	340	351	348	334	326	348	359	341	328	357	337	303	287	A
29	302	305	308	321	346	303	351	369	388	355	336	339	340	357	340	337	353	370	325	331	332	333	310	301
30	293	311	A	297	301	318	325	353	373	369	336	347	345	353	351	356	352	361	A	341	345	339	314	290
31	290	306	324	339	337	298	325	359	370	344	350	341	330	331	317	326	345	352	352	323	302	329	315	299
	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	28	29	30	31	30	31	31	31	30	30	30	29	30	31	31	31	30	29	30	31	30	29	28
MED	302	311	322	316	309	309	327	356	369	350	350	352	345	337	345	350	354	344	328	342	329	316	310	304
U Q	306	322	340	338	323	323	344	366	377	357	358	361	350	346	348	356	362	352	350	353	340	327	318	318
L Q	292	306	308	301	295	298	316	351	361	341	341	345	336	329	338	339	348	340	324	330	314	303	297	292

JAN. 2012 M(3000)F2 (0.01)

IONOSPHERIC DATA STATION Kokubunji

JAN. 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											
2											L													
3																								
4												L		L	A	A		A						
5										A		L	A			L								
6											L	L	L	A	A									
7															L									
8											L	L	L		L									
9														L	L									
10											L			A										
11											L		A											
12										L		L	L	A	L									
13												L	L	L	L	L								
14												A	L		A	A								
15											L	L		L										
16													L	L	L									
17											L	L	L	L	L									
18										C	C	C	C	C	A									
19											L	L	L											
20											L	L	L	L		L								
21											L	L	A	L	A	A								
22											L	L	A	A	A									
23											L	A	L											
24											L	L		L	L									
25											L	A	L	L	L									
26												L	L	L										
27											L	A		L	L									
28												L	L		A	A	L							
29												L	L	A	A	A								
30												A	A	L	A	A	L							
31											L	L	L	L										
	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																								

JAN. 2012 M(3000)F1 (0.01)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

JAN. 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												254	256											
2											258													
3																								
4												262		246	E A 284	220		A						
5										240		226	A			246								
6											228	244	238	252	226									
7															248									
8											248	238	244		258									
9														246	248									
10											258			246										
11											246		236											
12										250		234	234	244	262									
13												244	260	264	256	232								
14												226	242		242	224								
15											238	238		276										
16													264	256	242									
17											236	258	252	246	238									
18										C	C	C	C	C	240									
19											244	250	248											
20											242	234	246	274		244								
21											252	238	236	268	248	232								
22											268	264	250	236	232									
23											276	252	246											
24											254	240		252	252									
25											250	240	248	258	256									
26												236	242	242										
27											248	224		244	240									
28												240	252		238	234	232							
29												258	250	246	E A 256	242								
30												242	254	242	238	224	246							
31											242	240	238	264										
	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	16	23	20	19	19	9	2							
MED										245	248	240	247	246	245	232	239							
U Q											256	252	252	264	256	243								
L Q											242	236	240	244	238	224								

JAN. 2012 h′F2 (KM)

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IONOSPHERIC DATA STATION Kokubunji

JAN. 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 258	E B 272	E B 270	E B 278	E B 246	E B 250	E B 232	208	210	218	220	208	206	218	216	216	214	208	E A 274	E B 242	220	E B 238	E B 244	E A 298
2	E A 288	E B 260	220	E B 210	E B 282	E B 258	E B 232	204	204	210	206	218	216	202	206	228	210	198	208	232	228	E B 250	E A 274	E A 280
3	E B 276	E B 264	E B 240	228	E B 258	E B 266	E B 236	214	210	224	232	228	212	218	206	224	222	202	208	E A 250	226	E B 250	E B 280	E B 276
4	E B 248	E B 230	E B 256	E B 282	E B 240	238	E B 264	222	222	218	246	218	230	210	A	A	210	A	A	E A 238	E A 244	E A 308	A	E A 276
5	E B 282	A	E A 292	E A 282	E B 234	E B 234	E B 262	212	208	A	218	204	A	212	220	216	212	218	210	204	E B 256	E B 314	E B 260	A
6	A	E B 254	E B 232	E B 256	E B 282	E B 298	E B 280	218	200	218	208	202	196	A	A	236	208	214	224	E A 244	E B 260	E B 258	E B 276	E B 278
7	E B 274	A	232	E A 266	E A 312	E B 284	E B 268	220	214	228	214	222	218	202	208	218	210	230	212	226	E B 236	E B 242	238	224
8	E B 286	E B 312	E B 316	E B 260	E B 238	E B 272	E B 250	214	212	224	212	210	204	214	204	226	218	226	214	204	214	E B 218	E B 292	E B 284
9	E B 300	E B 310	E B 282	E B 288	E B 270	E B 266	200	212	210	220	222	220	228	206	212	226	214	210	228	208	212	E A 302	E A 296	E A 286
10	E B 280	E B 274	E B 250	E B 248	E B 294	E A 250	224	198	206	220	230	214	220	A	236	228	212	204	E A 240	194	E B 256	E B 278	E B 272	E B 268
11	E B 224	E B 236	E B 270	E B 276	E B 286	E B 298	E B 232	210	210	214	204	E A 240	A	234	220	218	222	208	E B 206	204	E B 226	E B 252	E B 280	E B 268
12	A	E A 302	E B 260	218	E B 280	E B 256	220	H 186	206	230	218	200	186	A	208	222	202	196	E B 240	216	214	E B 236	E B 256	E B 308
13	E B 282	E B 274	E B 252	E B 230	E B 254	E B 268	E B 256	206	206	214	226	204	208	214	212	208	206	220	E B 212	210	228	E B 242	224	210
14	E A 266	E B 284	E B 264	E B 240	E B 266	E B 248	E B 230	212	200	218	228	A	202	220	A	A	214	214	196	212	E B 262	E B 256	E B 250	E B 268
15	E A 300	E B 282	E B 262	E B 222	E B 232	E B 274	220	198	202	208	202	202	212	194	228	220	208	220	210	212	216	E A 246	E A 232	E B 258
16	E B 282	E A 292	E B 264	E B 242	E B 258	E B 246	E B 240	214	200	204	214	220	204	206	208	224	220	210	E B 214	202	228	E B 250	E B 284	E B 316
17	E B 296	E B 248	190	E B 324	E B 372	E B 312	E B 250	224	228	216	206	212	204	200	202	218	210	214	216	206	214	E B 256	E B 262	E B 286
18	E B 282	E B 282	E B 278	E B 264	E B 242	E B 234	220	212	206	C	C	C	C	C	A	212	226	214	202	A	E B 244	E B 238	E B 310	E B 320
19	E B 306	E B 256	E B 242	220	216	E B 258	E B 262	222	214	228	210	198	206	234	222	220	208	216	E B 238	E B 240	E B 222	226	226	E B 286
20	E B 304	E B 276	232	206	E B 252	E B 280	E B 264	220	206	214	204	200	200	216	222	200	222	214	206	224	E A 244	E A 248	E B 236	E B 266
21	E B 286	E B 276	E B 228	208	E B 236	E B 276	E B 258	224	220	216	206	206	A	200	A	A	210	208	210	212	228	E B 254	E B 278	E B 304
22	E B 288	E B 260	218	200	E B 256	E B 288	E B 272	220	204	216	210	216	A	A	A	220	212	212	208	224	E B 294	E B 276	E B 284	E A 324
23	E B 282	206	212	E B 322	E B 310	E B 334	212	228	210	218	216	A	212	212	228	214	218	206	E B 210	204	212	E B 234	218	E B 226
24	E B 278	E B 268	E B 226	212	188	E B 270	E B 228	226	210	210	206	200	212	200	206	216	202	206	206	E A 236	E B 236	E B 246	E B 242	E A 276
25	E B 248	E B 254	E B 252	E B 280	218	E B 362	212	204	204	E A 242	210	A	210	204	200	226	212	216	226	216	E B 270	E A 248	E A 262	E A 264
26	212	E B 240	E B 268	E B 304	E B 308	E B 290	E B 266	224	208	212	210	196	206	206	226	216	206	210	214	222	E B 204	E B 252	E A 264	E A 270
27	E A 318	E B 258	E B 260	E B 278	E B 290	E B 280	210	212	202	214	212	A	212	200	194	224	218	206	218	216	204	E B 264	E B 318	E A 320
28	E A 298	E A 336	E A 276	E A 284	200	E B 274	E B 256	218	206	210	220	200	210	240	A	A	188	226	E A 246	216	222	E A 302	E A 338	A
29	E B 278	E B 258	E A 304	E A 250	E A 224	E B 264	E B 222	206	210	208	222	200	206	A	A	A	220	206	212	220	E B 222	228	E B 252	E B 298
30	E B 286	E A 282	A	E A 270	E A 318	E B 252	226	216	210	222	220	A	A	194	A	A	192	216	A	E A 266	E A 232	222	E B 272	E B 318
31	E B 298	E B 276	E B 262	E B 230	216	E A 298	E A 264	214	214	218	206	204	202	206	220	212	224	214	224	E A 260	E B 264	E B 234	E B 242	E B 282
	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	30	31	31	31	31	31	31	29	30	25	25	25	22	25	31	30	29	30	31	31	30	29
MED	E B 282	E B 272	E B 258	E B 256	E B 256	E B 270	E B 236	214	208	217	213	205	208	206	212	220	212	213	211	212	E 228	E B 250	E B 263	E B 280
U Q	E B 297	E B 282	E B 270	E B 280	E B 286	E B 288	E B 262	220	210	221	220	218	212	217	222	225	218	216	E 225	E A 236	E B 244	E B 258	E B 280	E B 301
L Q	E B 275	E B 255	232	222	234	E B 252	222	208	204	213	206	200	204	201	206	216	208	206	208	208	216	E B 238	242	E B 268

JAN. 2012 h′F (KM)

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IONOSPHERIC DATA STATION Kokubunji

JAN. 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								120	120	124	124	A	122	124	122	122	112	B						
2								B	128	122	A	118	120	126	112	A	A	B						
3								B	116	A	A	A	A	122	A	124	122	B						
4								B	118	A	A	A	A	A	A	A	A	B						
5								B	122	A	A	A	A	A	A	120	118	B						
6								B	122	A	A	A	A	A	A	114	A	B						
7									A	122	A	A	A	122	A	110	A	B						
8								B	120	A	124	124	124	122	116	118	124	B						
9								B	116	120	A	A	118	116	A	A	A	B						
10								B	118	A	A	A	A	A	A	116	A							
11								B	116	A	A	A	A	122	A	120	118	B						
12								B	116	116	116	116	110	A	A	118	118	B						
13								B	A	126	122	114	128	118	118	118	118	B						
14								B	122	126	A	A	116	A	A	A	A	B						
15								B	124	120	122	130	114	118	118	120	114	B						
16								B	124	124	122	122	126	128	124	120	120	B						
17								B	116	A	114	116	116	124	126	116	124	B						
18								B	124	C	C	C	C	C	A	118	120	B						
19								B	114	116	A	118	118	112	124	128	122	B						
20								B	116	120	A	120	120	120	120	122	122	B						
21									118	116	A	122	122	120	A	116	118	B						
22								B	120	120	118	120	122	118	118	A	118	B						
23								126	122	122	122	122	122	124	128	114	116	B						
24								B	116	116	122	118	126	124	112	116	A	B						
25								B	112	A	A	A	116	120	126	122	A	B						
26								B	A	A	120	122	126	126	A	128	A							
27								B	122	122	124	A	126	126	122	122	120	B						
28								B	120	112	116	116	120	A	A	A	A							
29								B	112	118	A	124	124	A	A	A	118	B						
30								B	116	120	A	A	A	A	A	A	A	B						
31								B	116	112	110	110	110	112	112	A	A	B						
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								2	28	20	14	17	22	21	15	22	18							
MED								123	118	120	122	120	121	122	120	119	118							
U Q									122	122	122	122	124	124	124	122	122							
L Q									116	116	116	116	116	118	116	116	118							

JAN. 2012 h′E (KM)

IONOSPHERIC DATA STATION Kokubunji

JAN. 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	92	B	B	B	B	B	116	G	108	106	G	98	G	G	G	G	G	94	94	B	B	B	98	106
2	102	B	96	B	B	B	B	B	110	112	106	G	G	G	88	110	108	B	B	98	94	B	94	94
3	88	88	B	B	B	B	B	B	112	106	106	100	106	100	112	104	G	B	98	96	88	86	B	B
4	B	B	B	B	104	106	98	B	104	108	104	102	98	98	94	100	96	94	94	94	96	96	96	98
5	100	100	100	98	98	102	B	B	G	108	106	104	98	102	100	G	G	B	B	100	B	94	B	106
6	104	B	98	100	100	B	B	B	124	106	106	106	102	98	96	G	92	90	96	104	B	B	B	B
7	B	100	100	98	90	B	B	B	104	108	102	98	98	G	90	88	88	90	84	84	88	88	100	102
8	102	100	B	B	102	98	B	B	108	108	104	G	G	G	102	106	106	B	B	B	B	B	B	B
9	B	B	B	B	B	B	B	98	156	102	106	108	118	G	98	102	98	98	98	94	94	94	94	94
10	86	B	B	B	B	94	92	B	G	102	104	106	106	106	100	G	104	102	98	B	B	B	94	94
11	B	B	92	B	96	B	B	B	150	106	104	108	106	104	100	102	G	B	B	B	B	B	B	B
12	88	92	B	B	B	B	B	B	G	G	108	106	G	100	94	104	G	B	B	96	B	B	B	B
13	B	B	B	B	B	B	B	B	108	106	G	G	G	104	104	104	114	100	B	92	98	98	96	90
14	92	88	88	116	B	B	B	B	G	104	108	104	G	106	102	100	98	100	B	98	100	B	94	90
15	96	96	92	B	B	B	B	B	G	G	G	G	126	G	G	G	G	B	100	100	B	98	98	96
16	96	100	100	102	B	96	B	B	156	G	G	G	G	G	G	G	98	B	B	B	B	B	B	B
17	B	B	B	B	140	132	118	118	104	102	G	G	G	G	G	G	128	B	B	B	B	B	B	B
18	B	B	B	B	B	B	B	B	106	C	C	C	C	C	96	126	G	B	B	106	B	B	B	B
19	102	98	B	B	B	B	B	B	G	104	108	G	G	G	G	G	110	B	B	B	B	B	B	B
20	B	B	B	B	B	B	B	B	G	104	104	108	108	108	G	G	G	B	B	B	92	90	B	B
21	100	94	B	B	B	B	B	B	G	104	102	G	114	108	108	120	G	B	B	B	B	B	B	B
22	B	B	B	B	B	94	B	B	136	G	120	122	120	118	114	104	G	102	90	B	B	B	108	102
23	B	B	118	98	B	B	146	150	G	104	102	124	G	G	G	102	G	B	B	B	B	B	B	B
24	B	B	B	B	B	B	B	B	G	G	G	G	134	122	G	106	106	106	106	100	B	B	B	100
25	B	B	112	B	114	B	B	136	120	106	108	108	124	G	G	108	106	100	98	102	102	98	86	94
26	90	94	B	B	B	B	B	102	96	96	G	G	G	G	102	G	106	106	102	100	B	B	98	96
27	96	B	102	100	100	102	B	144	G	G	G	104	G	G	G	108	G	100	96	94	94	90	B	100
28	100	98	94	98	94	96	98	162	108	118	96	96	G	100	98	94	98	94	136	B	B	98	100	104
29	102	102	100	98	B	B	B	130	G	118	108	G	G	106	104	104	104	98	98	98	B	B	B	B
30	100	98	98	100	98	B	B	B	G	106	100	100	96	96	96	94	108	104	100	98	100	100	96	B
31	B	100	102	B	98	100	100	100	96	96	96	96	96	96	92	96	94	92	90	90	92	92	90	B
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	18	15	15	10	12	10	7	9	18	24	22	19	16	17	21	21	19	17	17	19	12	13	15	16
MED	98	98	100	99	99	99	100	130	108	106	105	104	106	104	100	104	104	100	98	98	94	94	96	97
U Q	102	100	102	100	103	102	118	147	124	108	108	108	119	107	103	107	108	102	100	100	99	98	98	102
L Q	92	94	94	98	97	96	98	101	104	104	102	100	98	99	95	100	98	94	94	94	92	90	94	94

IONOSPHERIC DATA STATION Kokubunji

JAN. 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	F2						F1		L2	L2		L2						L3	F3				F1	F2
2	F4		F1						L2	CL22	L2				L2	L2	L2			F2	F2		F2	F2
3	F2	F2							C2	L2	L2	L2	L2	L2	L2	L2			F2	F2	F1	F1		
4					F2	F2	F2		L2	L2	L3	L2	L2	L2	L4	L2	L3	L3	F3	F2	F2	F1	F3	F3
5	F2	F3	F2	F2	F1	F1				L2	L2	L2	L2	L2	L2					F2		F1		F3
6	F3		F2	F2	F2				C2	L2	L2	L2	L2	L2	L2		L2	L2	F2	F1				
7		F3	F2	F2	F2				L2	L2	L2	L2	L2		L2	L2	L2	L2	F2	F3	F1	F2	F2	F1
8	F3	F2			F1	F1			L2	L2	L2				L2	L2	L2							
9								L1	H2	L2	L2	L2	CL11		L2	L2	L2	L3	F2	F2	F2	F3	F2	F2
10	F1					F2	F3			L2	L2	L1	L2	L2	L2		L2	L1	F2				F2	F2
11			F2		F2				H2	L2	L2	L2	L2	L2	L2	L2								
12	F3	F2									L2	L2		L3	L2	L2				F1				
13									L2	L1				L2	L2	L2	C2	L3		F4	F2	F1	F2	F3
14	F3	F2	F2	F2						L2	L2	L2		L2	L2	L2	L2	L2		F2	F1		F2	F3
15	F2	F2	F1										C2						F2	F2		F2	F2	F1
16	F2	F2	F2	F1		F2			H2								L2							
17					F2	F1	F1	C2	L2	L2							C1							
18									L3						L2	CL21				F4				
19	F1	F2								L2	L2						L2							
20										L2	L2	L2	L2	L2							F3	F2		
21	F1	F1								L2	L2		C2	L2	L2	CL21								
22						F3			C2		C2	CL11	CL11	CL21	CL21	L2		L2	F1				F1	F2
23			F2	F1			F1	H2		L2	L2	CL11				L1								
24													C1	C1		L2	L2	L3	F1	F3				F3
25			F1		F2			H1	C2	L2	L2	L2	CL22			L1	L2	L2	F2	F1	F2	F1	F3	F2
26	F1	F1						L2	L2	L2					L2		L2	F2	F2	F2			F2	F4
27	F2		F2	F2	F2	F2		H1				L2				L2		L2	F3	F3	F3	F2		F2
28	F4	F4	F3	F4	F2	F1	F2	H2	L2	C2	L2	L2		L2	L2	L2	L2	F2	F2	F1		F3	F3	F4
29	F3	F2	F2	F3				H2		C2	L2			L2	L2	L3	L1	L2	F2	F1				
30	F2	F3	F3	F2	F2					L1	L2	L2	L2	L2	L2	L2	CL12	L2	F4	F3	F2	F1	F1	
31		F2	F1		F3	F3	F3	L3	L2	L1	L2	L2	L2	L2	L2	L3	L2	L3	F3	F3	F1	F1	F2	
	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																								

JAN. 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

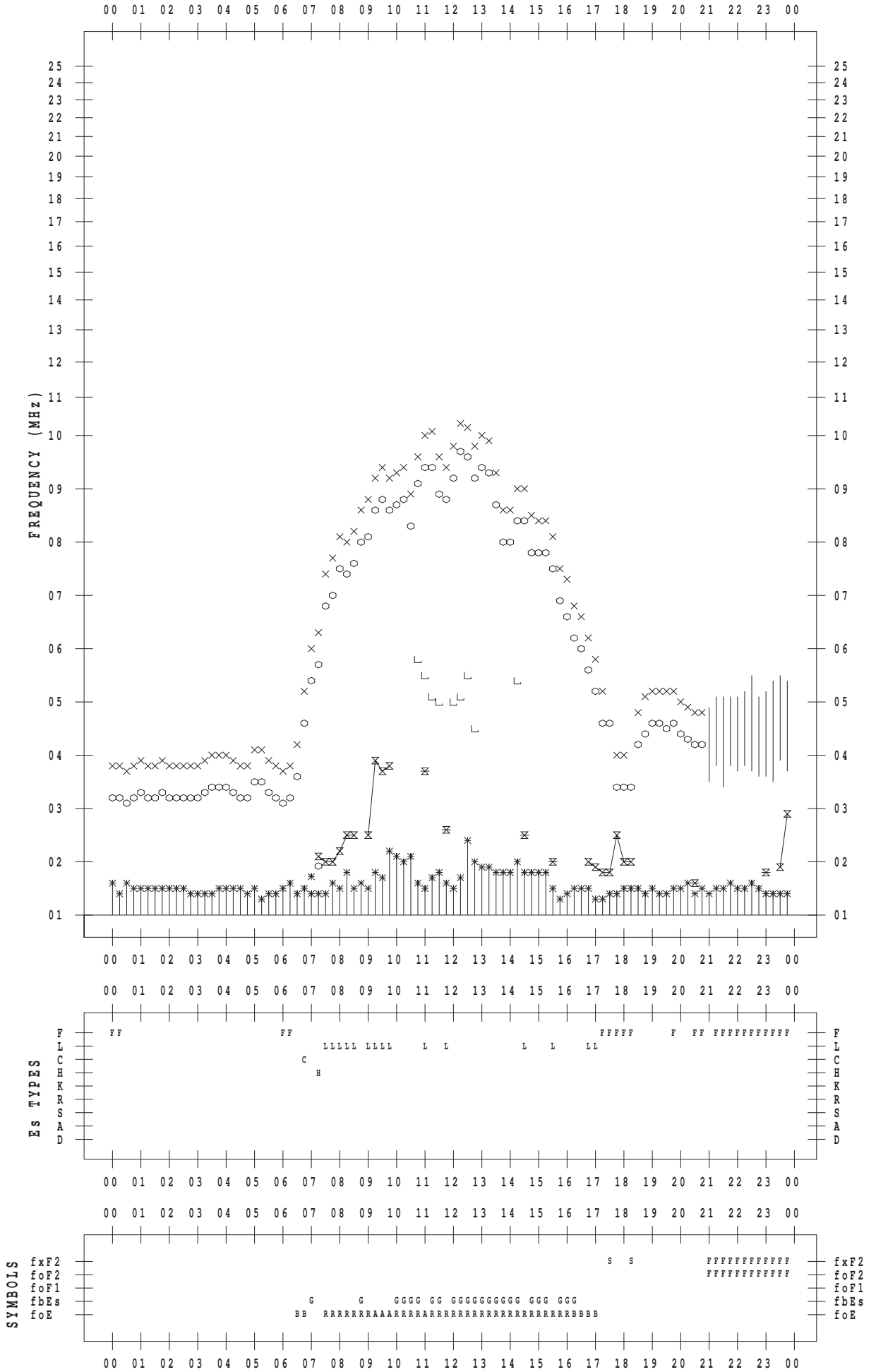
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2012/ 1/ 1

135 °E MEAN TIME



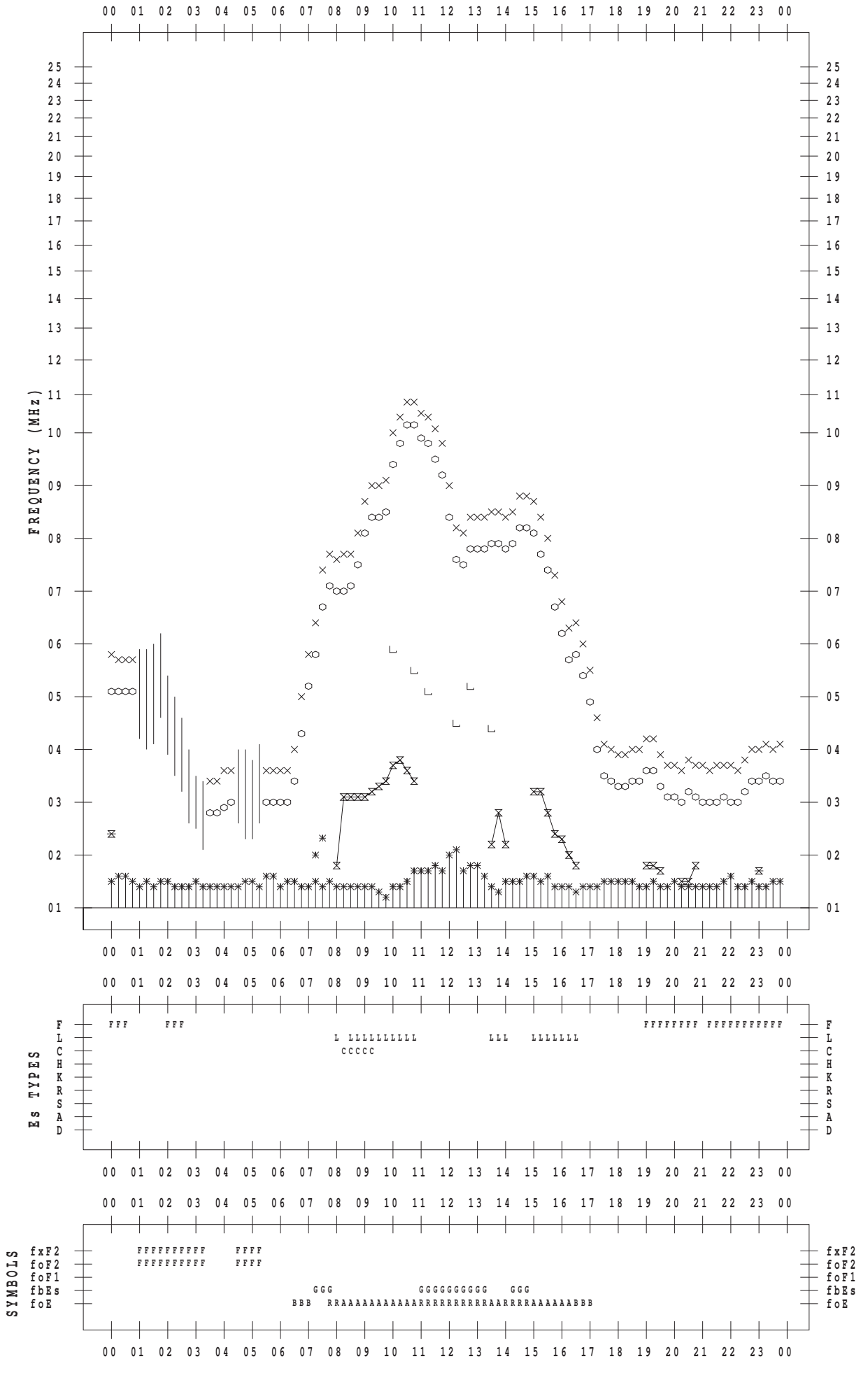
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2012/ 1/ 2

135 °E MEAN TIME



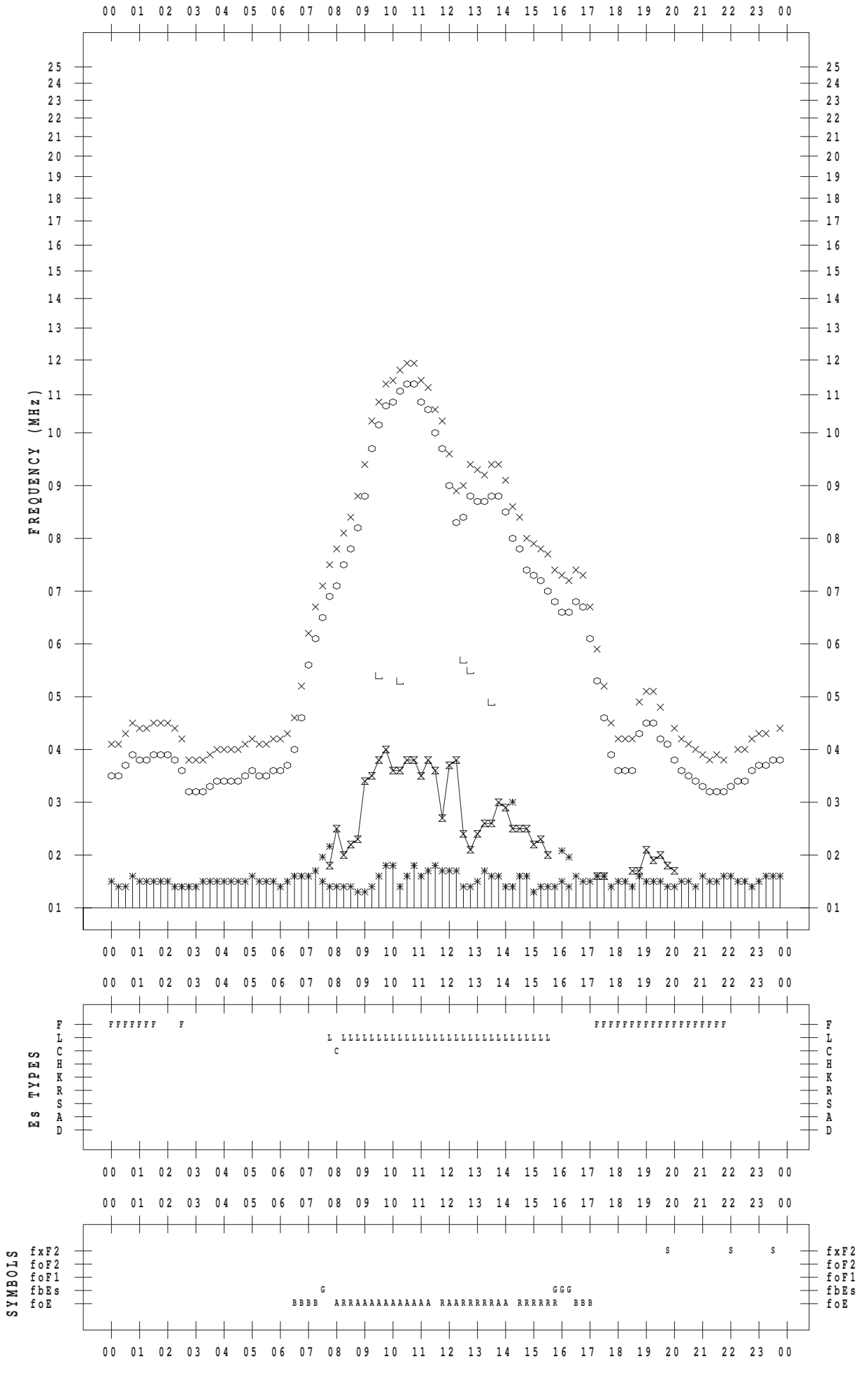
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2012/ 1/ 3

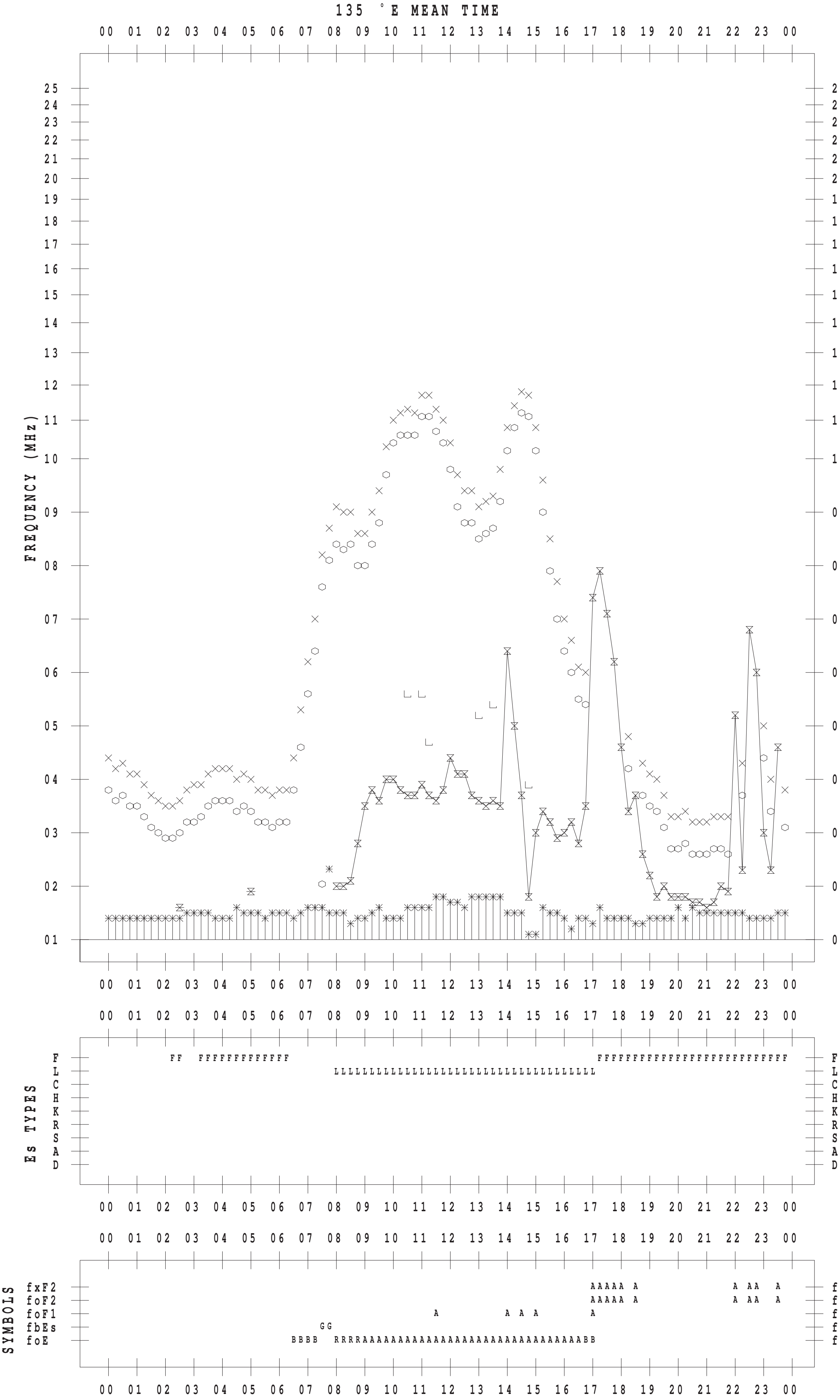
135 °E MEAN TIME



f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji DATE : 2012/ 1/ 4



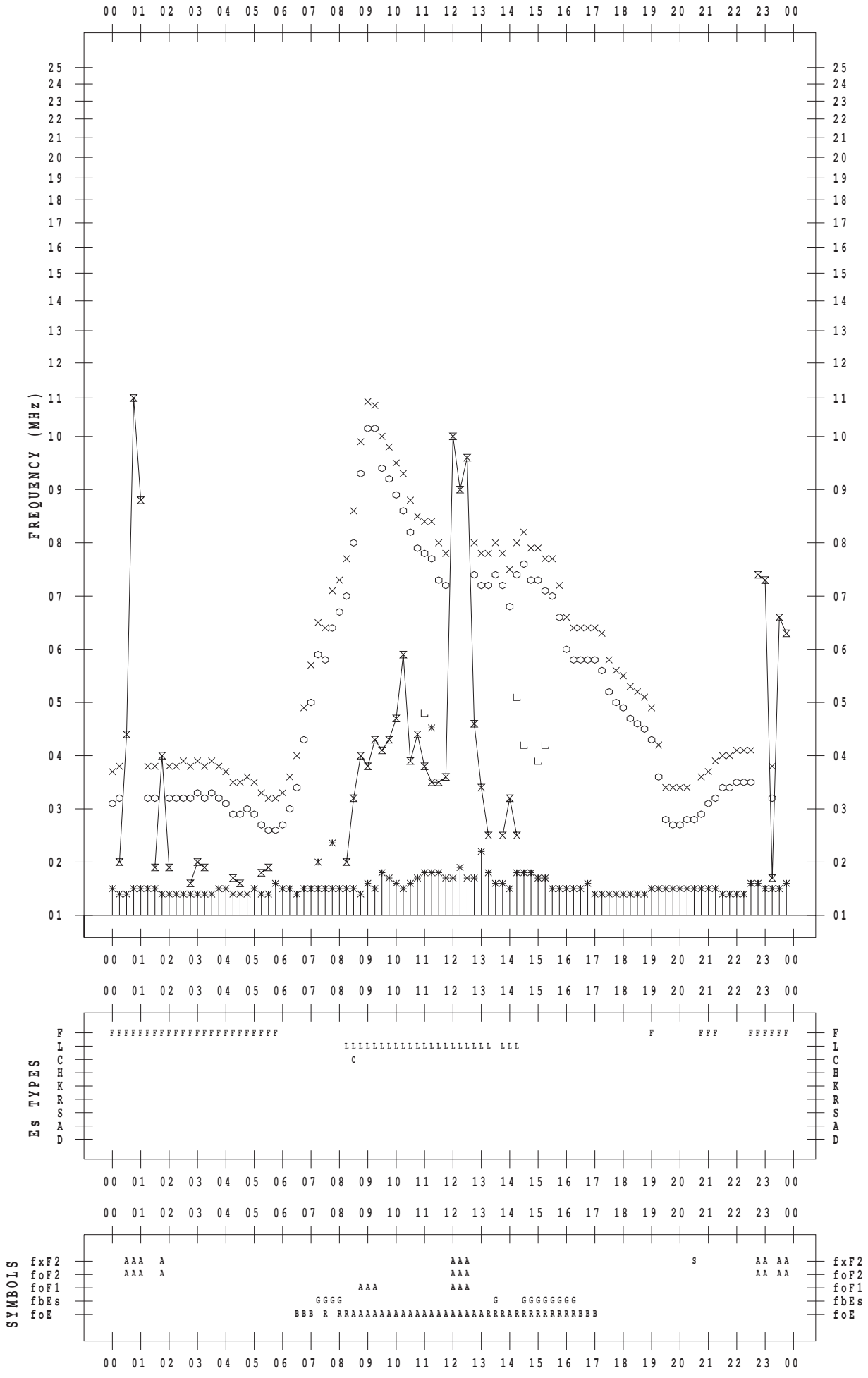
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2012/ 1/ 5

135 °E MEAN TIME



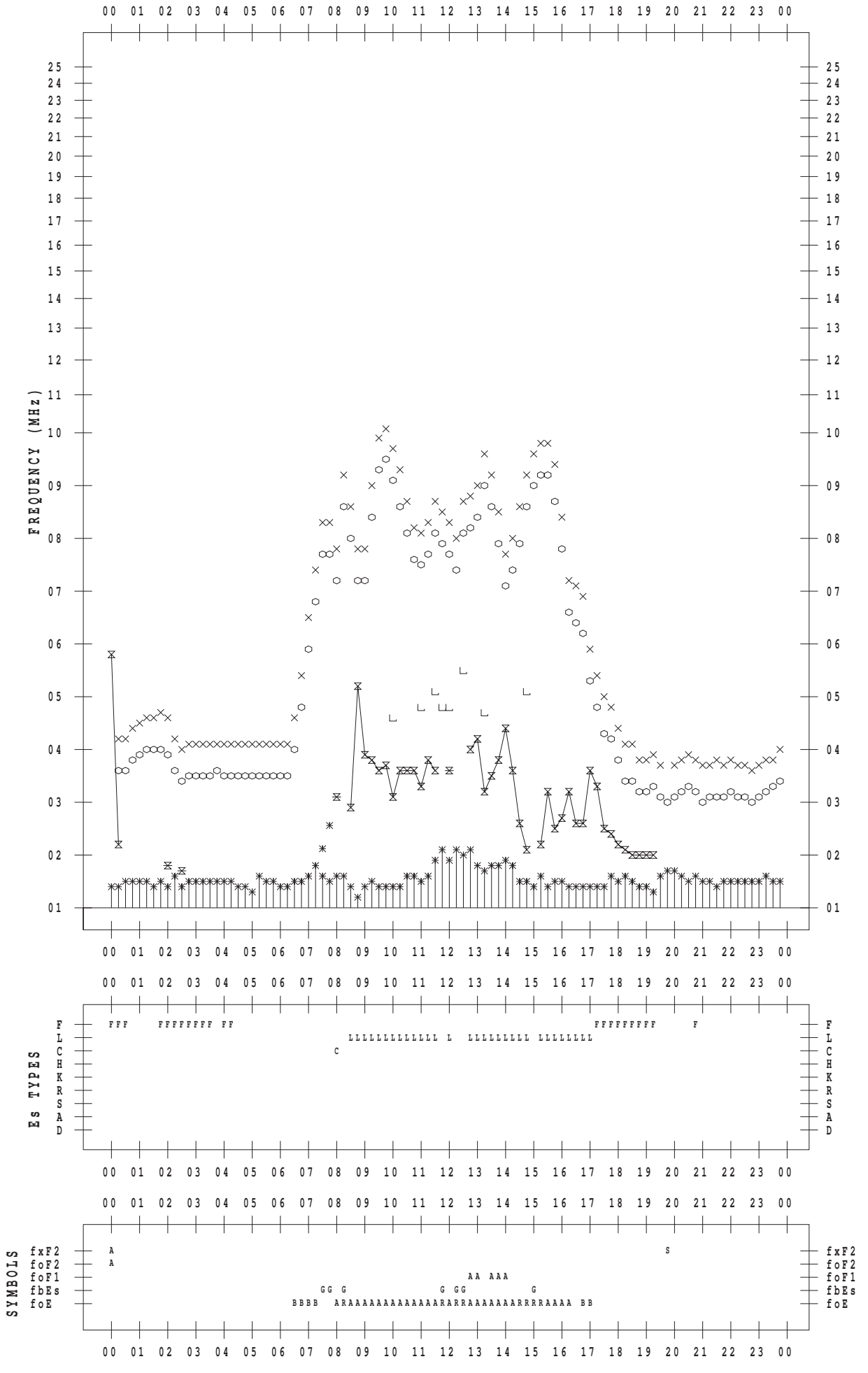
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2012/ 1/ 6

135 °E MEAN TIME



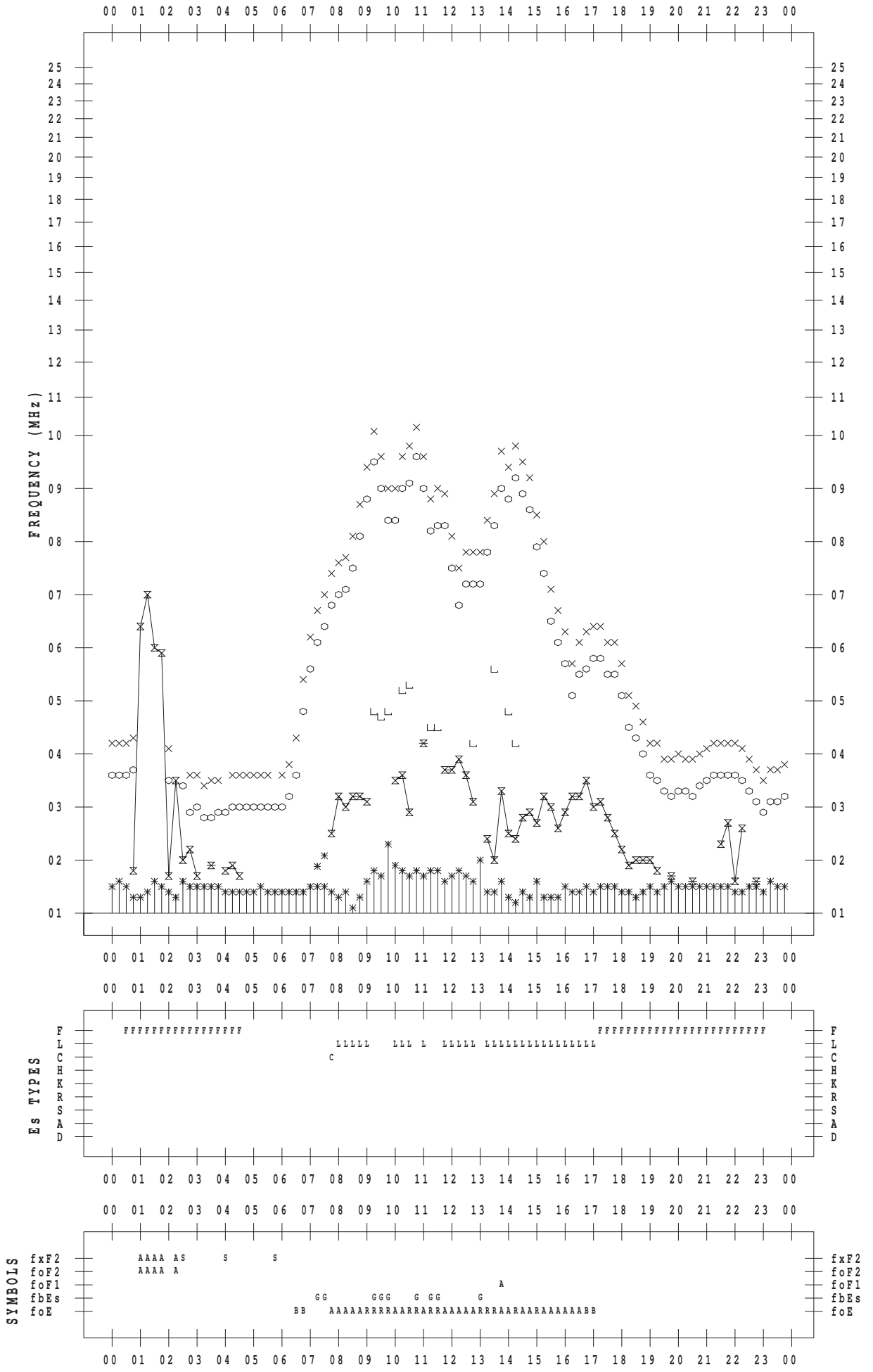
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2012/ 1/ 7

135 °E MEAN TIME



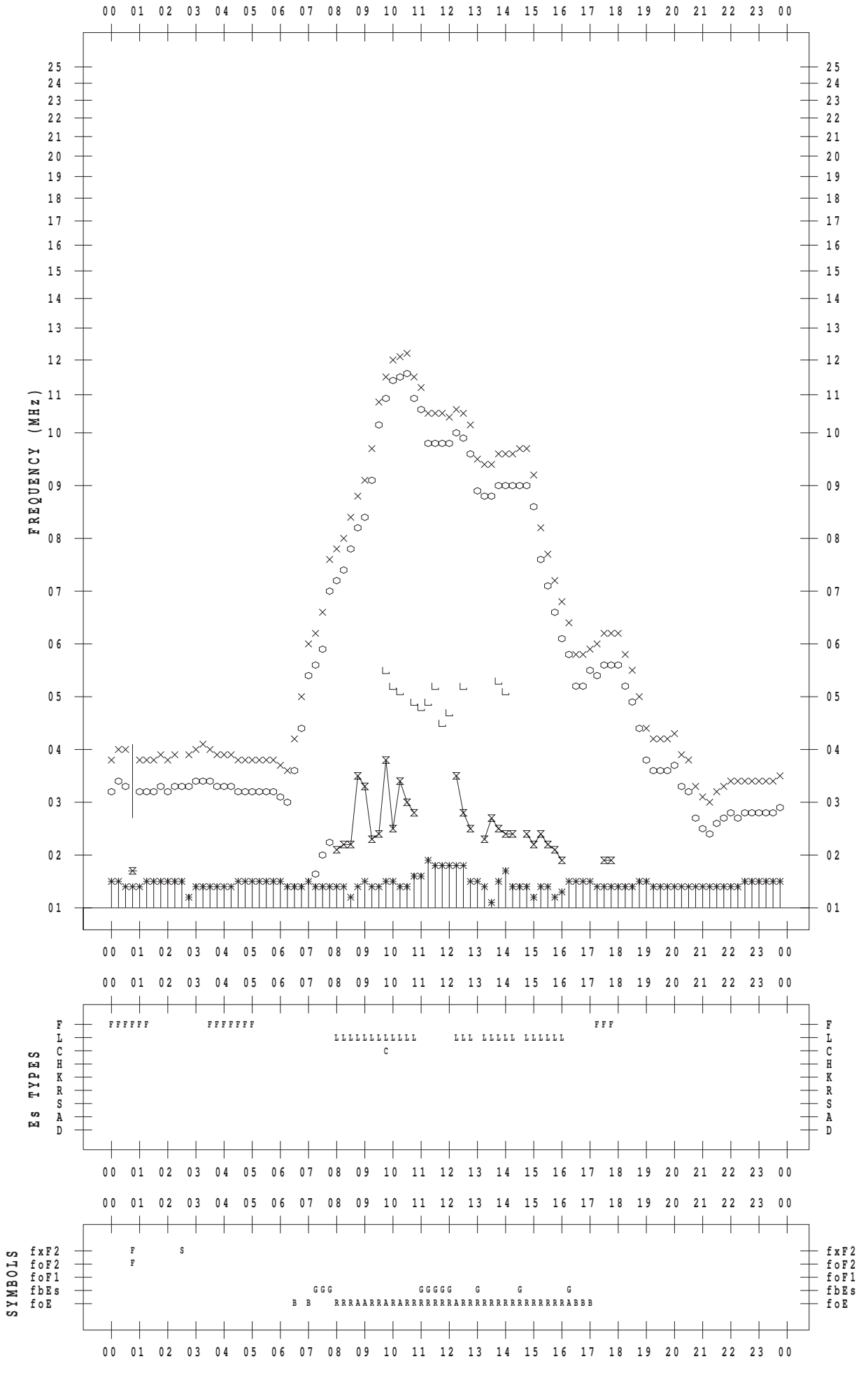
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2012/ 1/ 8

135 °E MEAN TIME



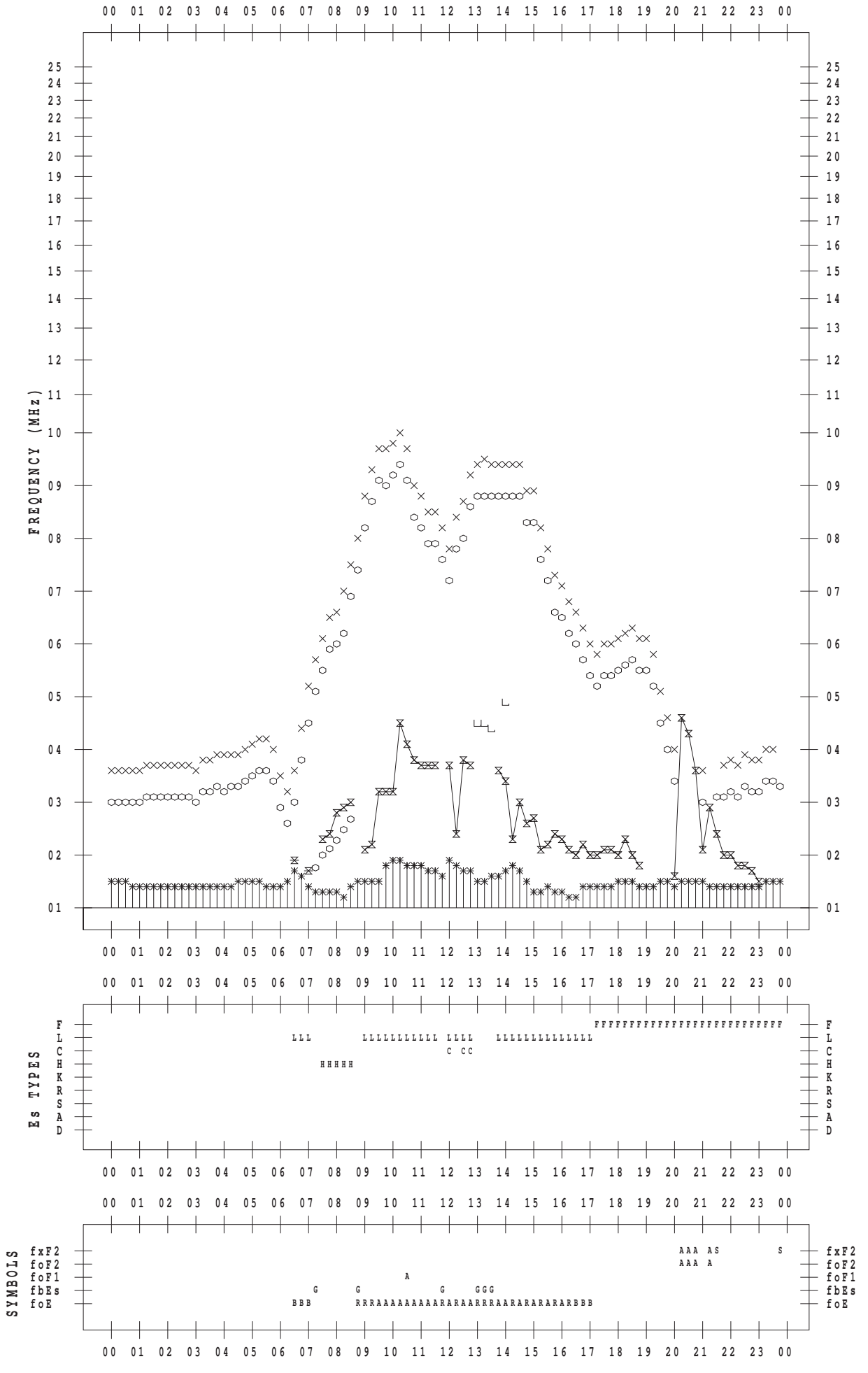
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2012/ 1/ 9

135 °E MEAN TIME



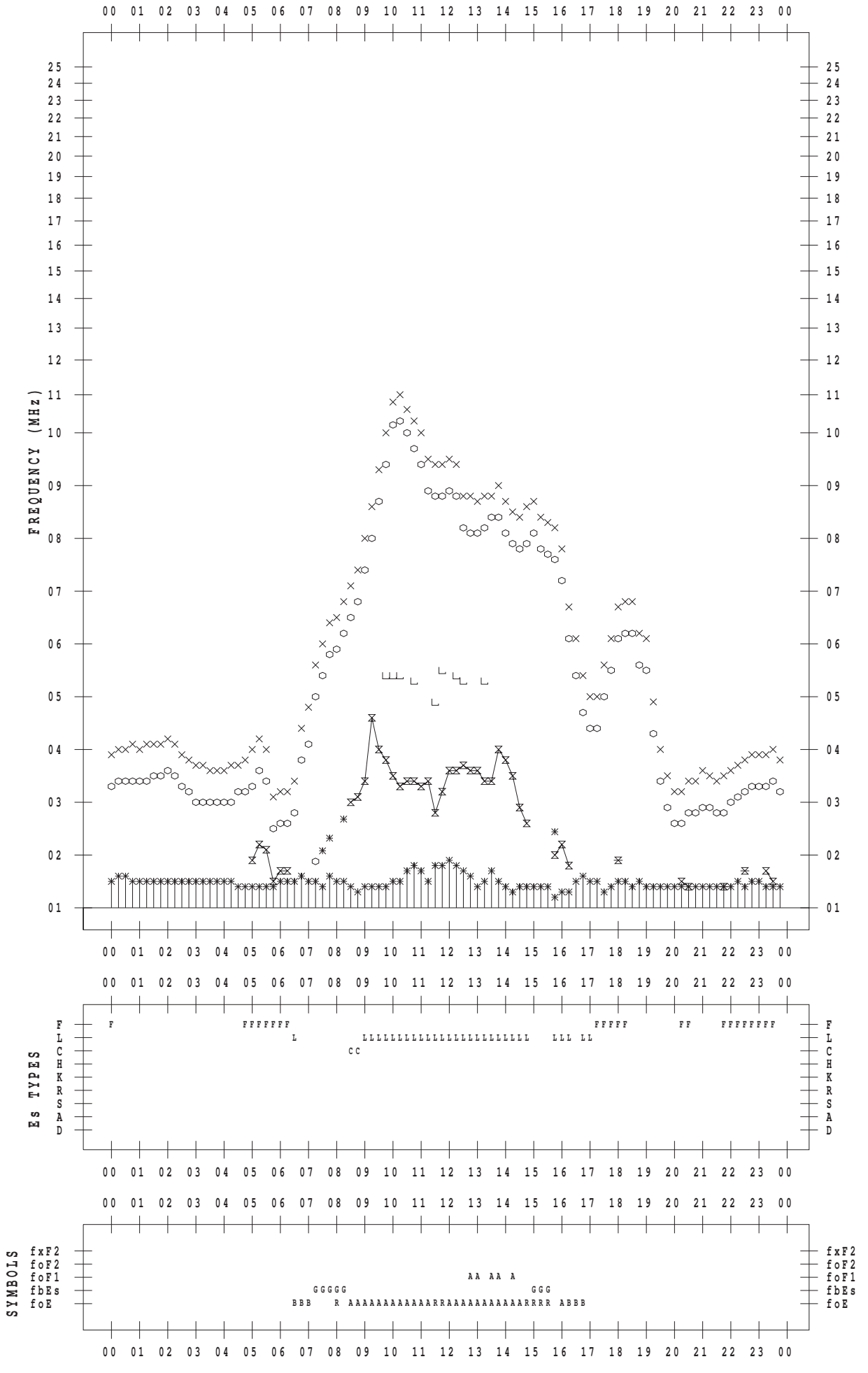
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2012/ 1/10

135 °E MEAN TIME



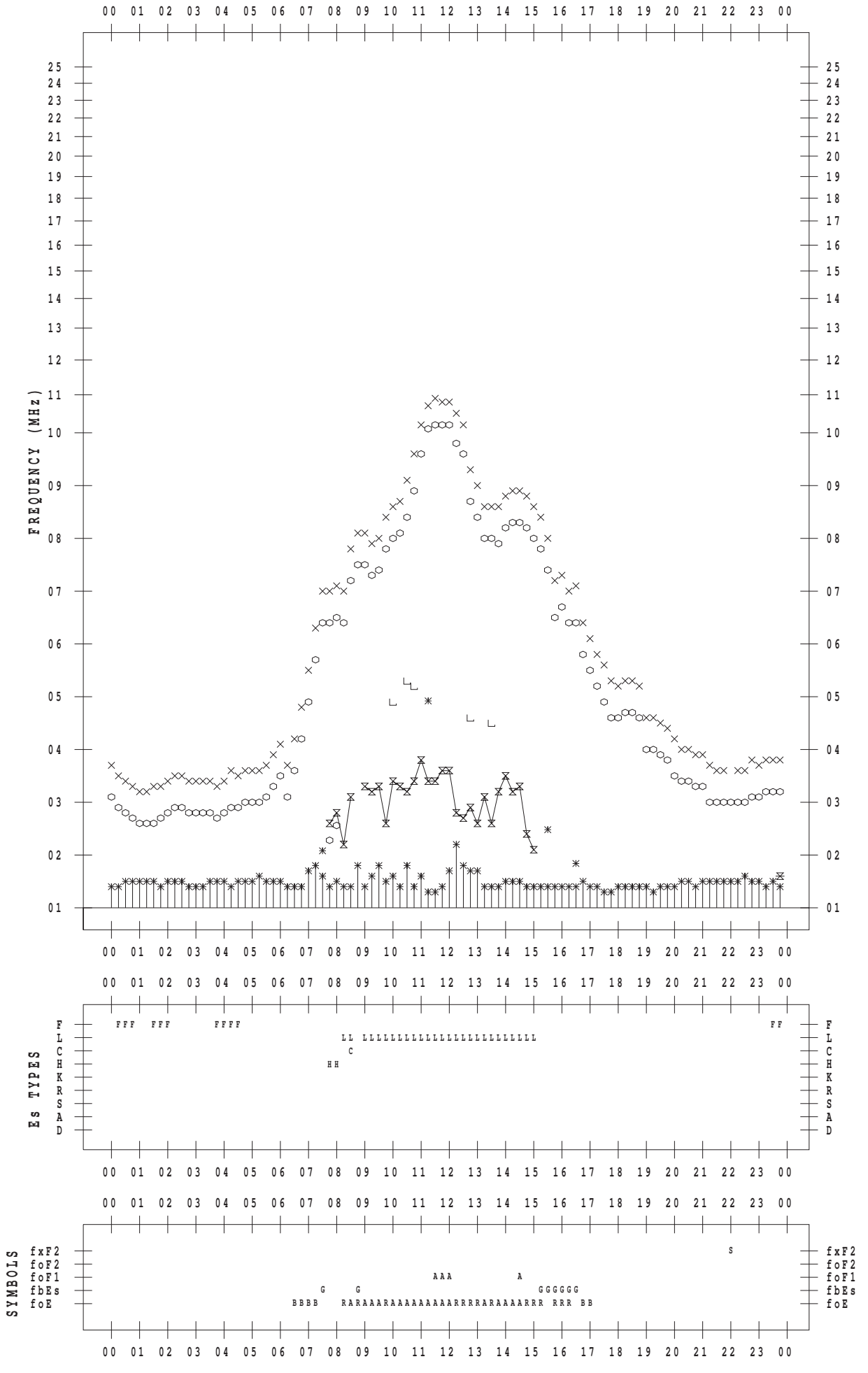
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2012/ 1/11

135 °E MEAN TIME



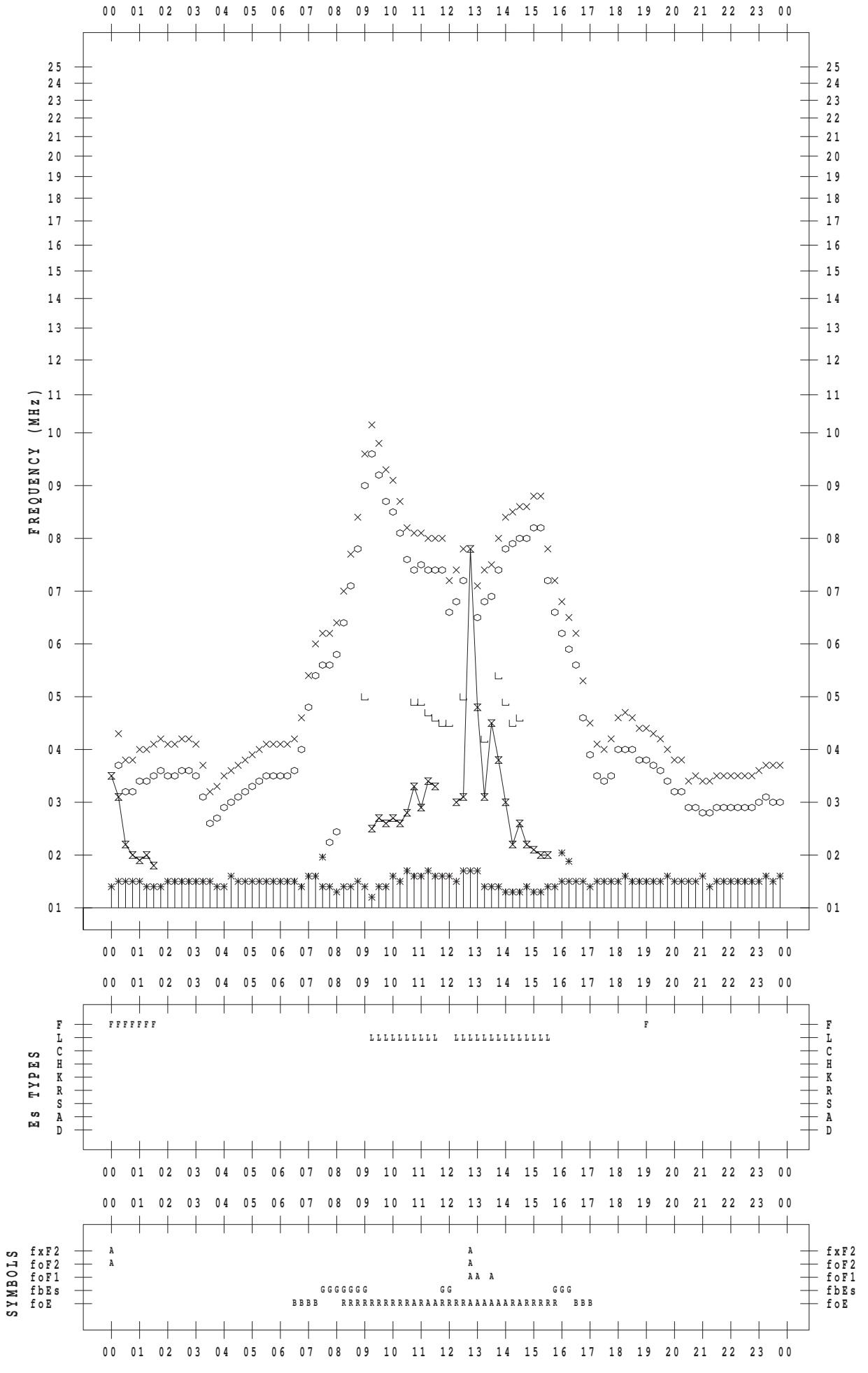
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2012/ 1/12

135 °E MEAN TIME



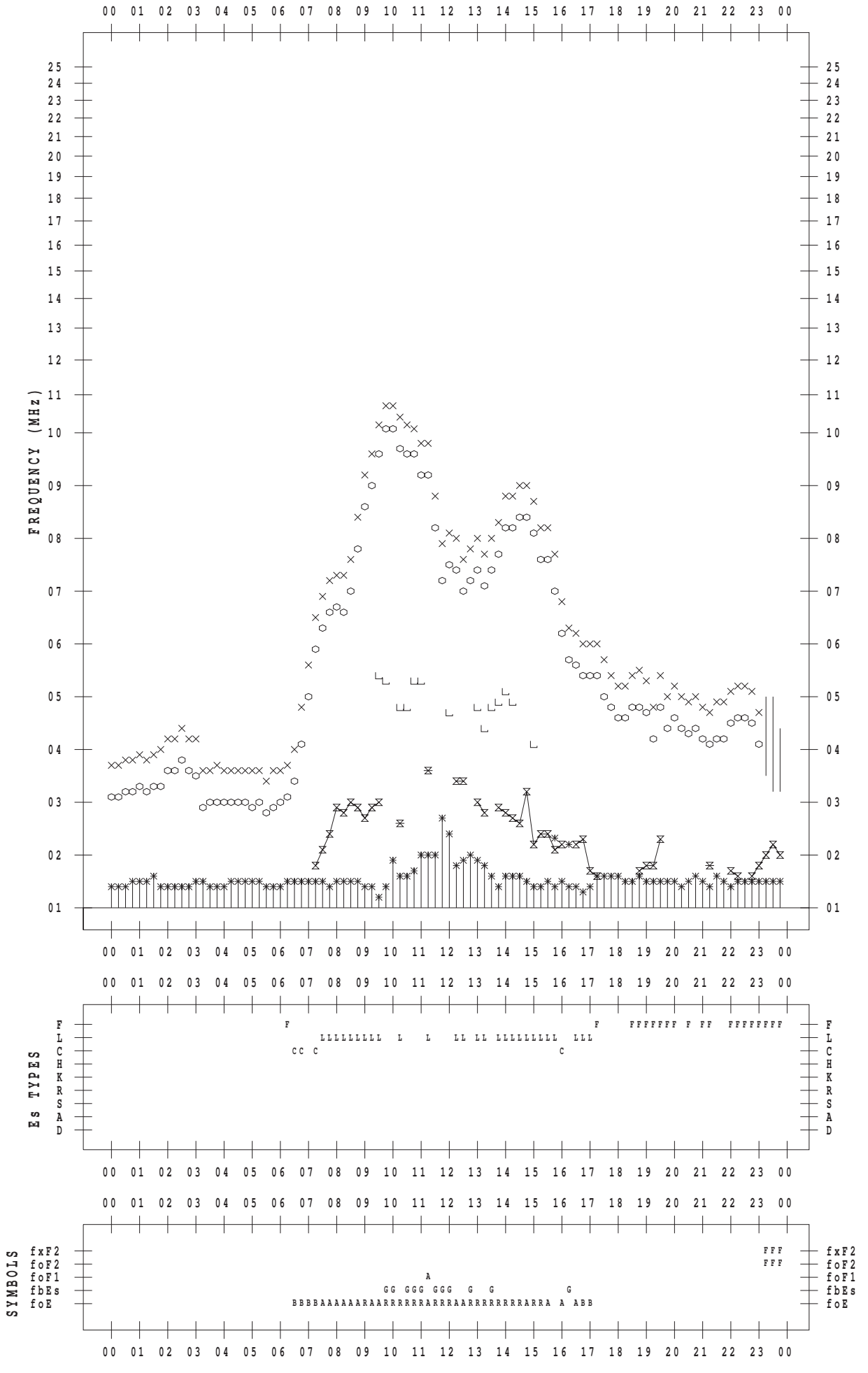
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2012/ 1/13

135 °E MEAN TIME



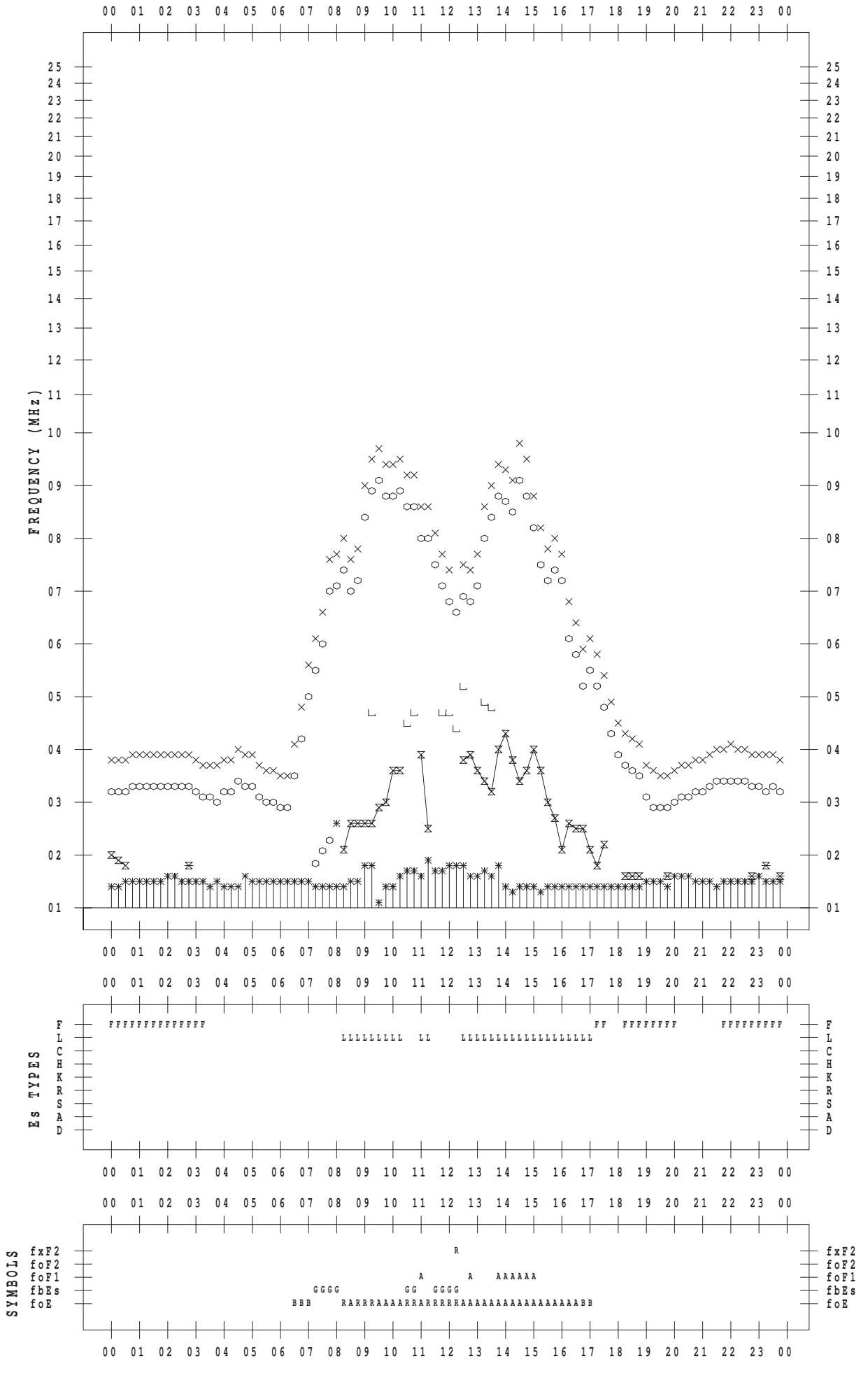
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2012/ 1/14

135 °E MEAN TIME



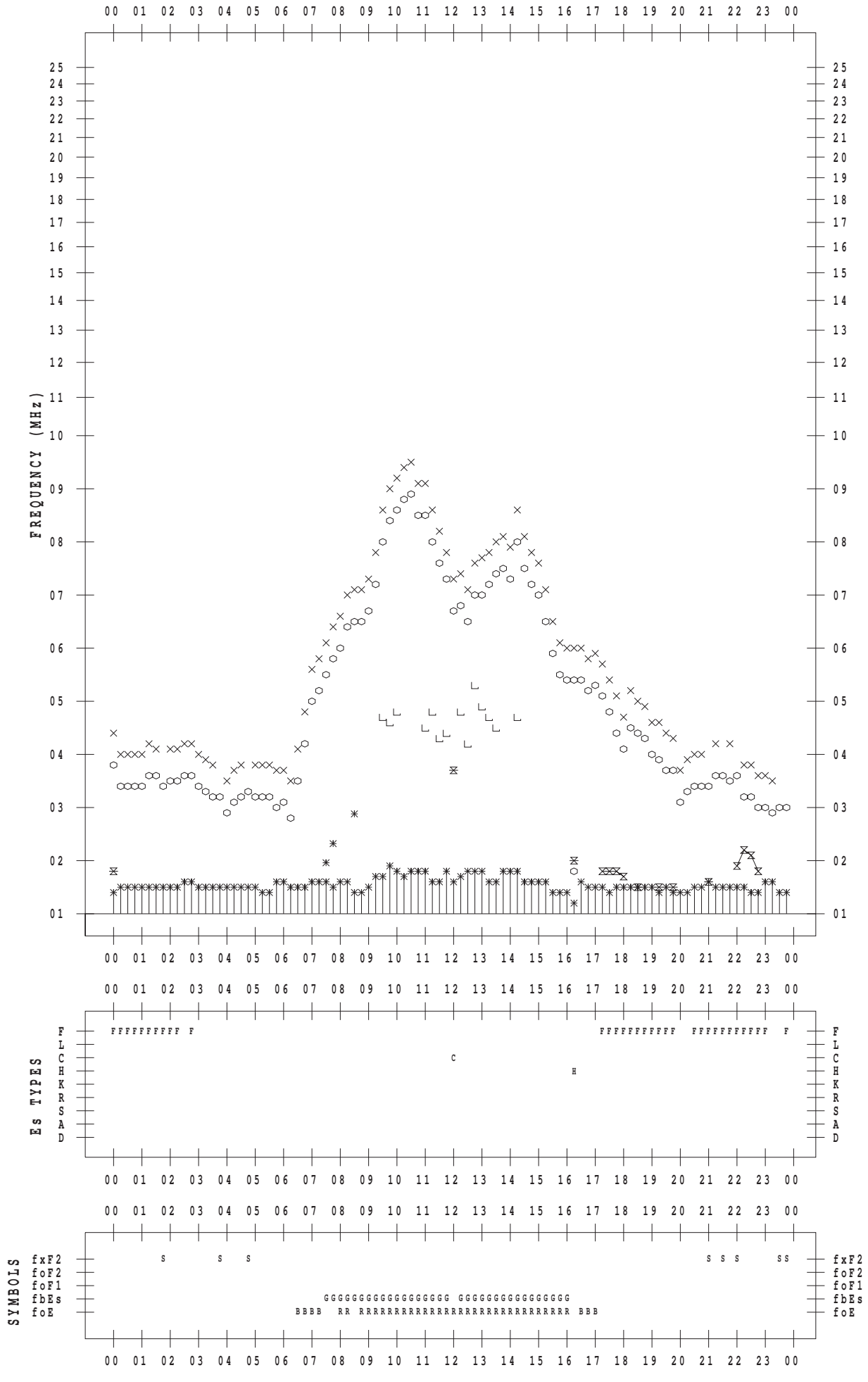
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2012/ 1/15

135 °E MEAN TIME



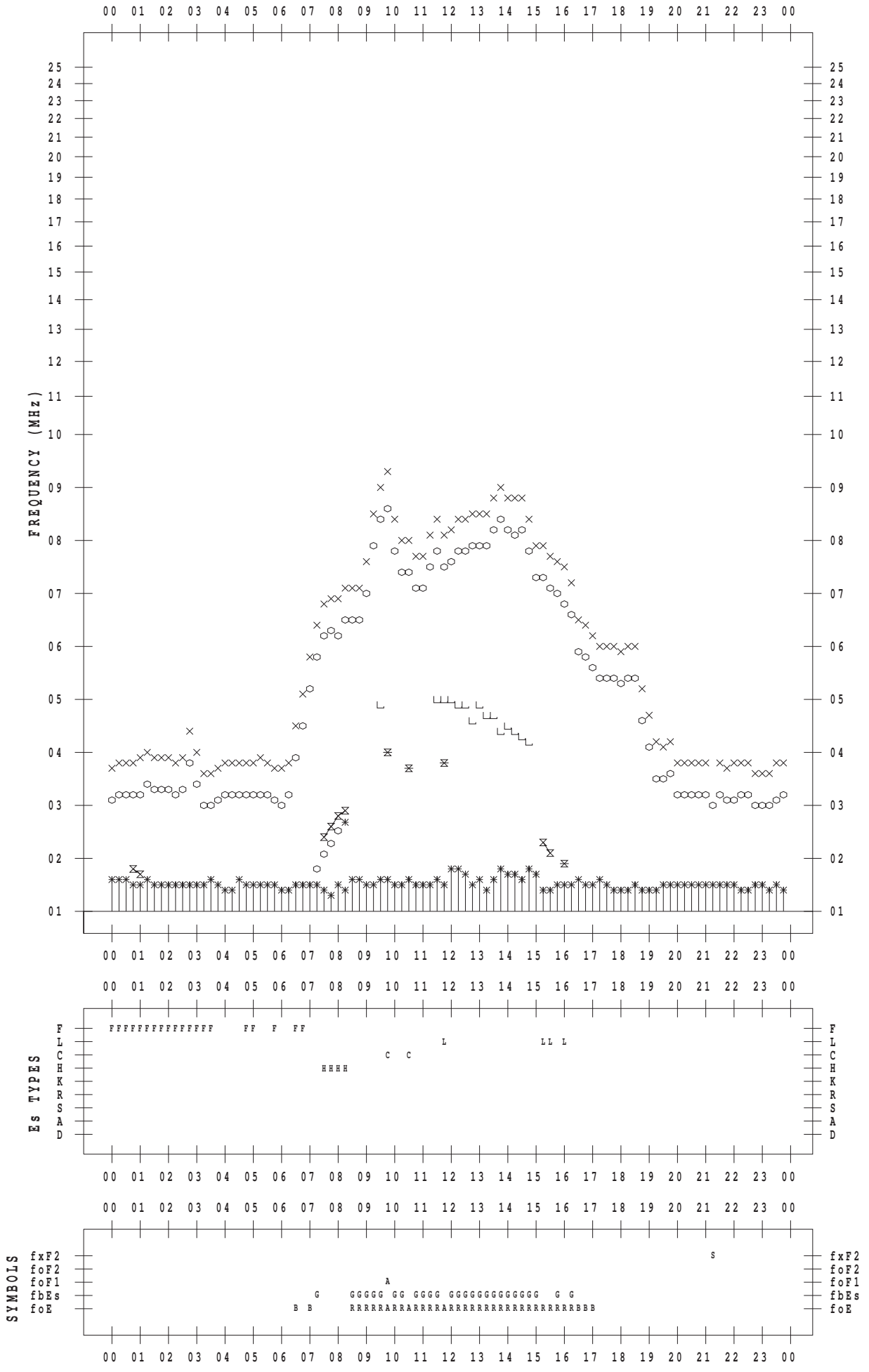
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2012/ 1/16

135 °E MEAN TIME



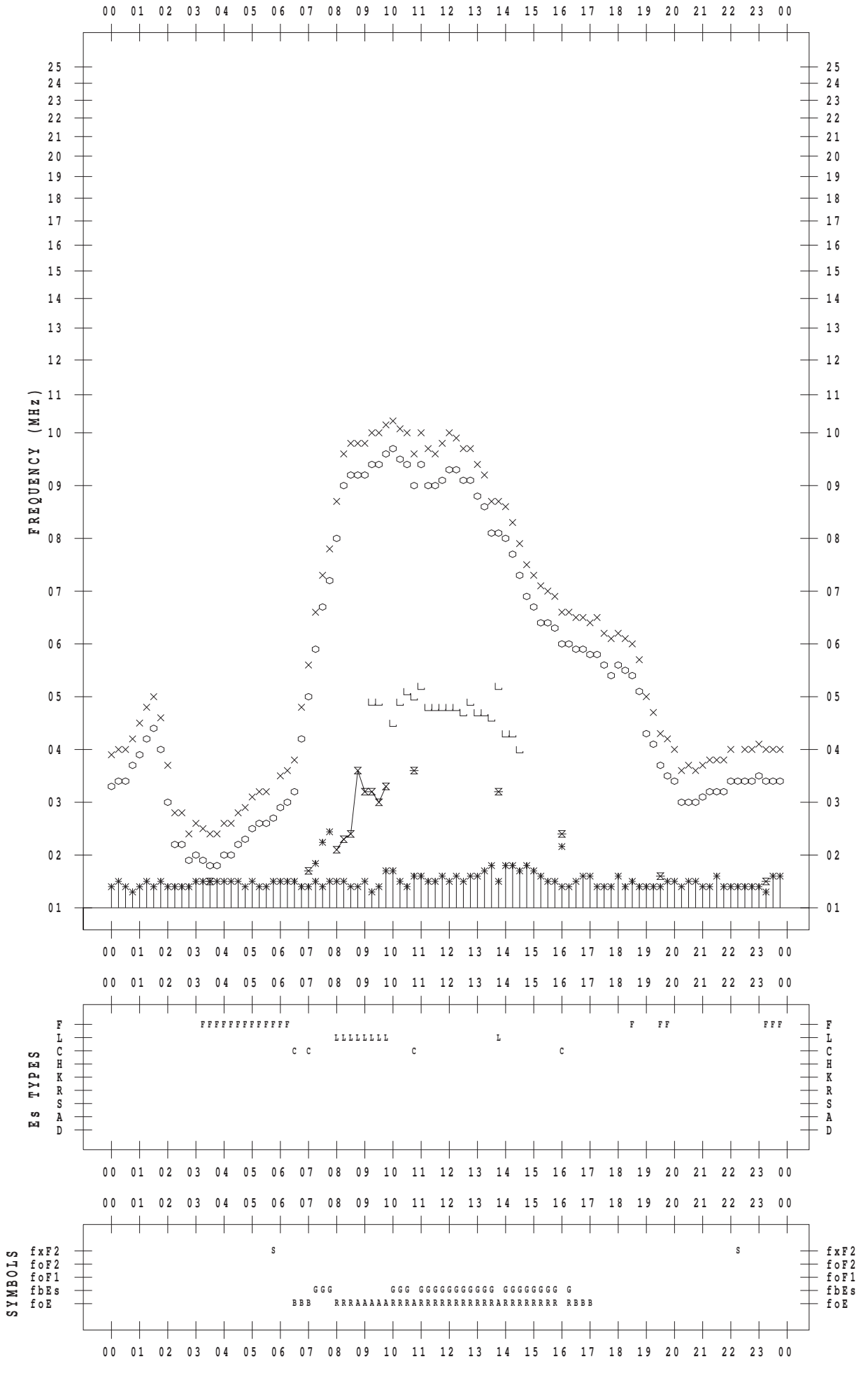
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2012/ 1/17

135 °E MEAN TIME



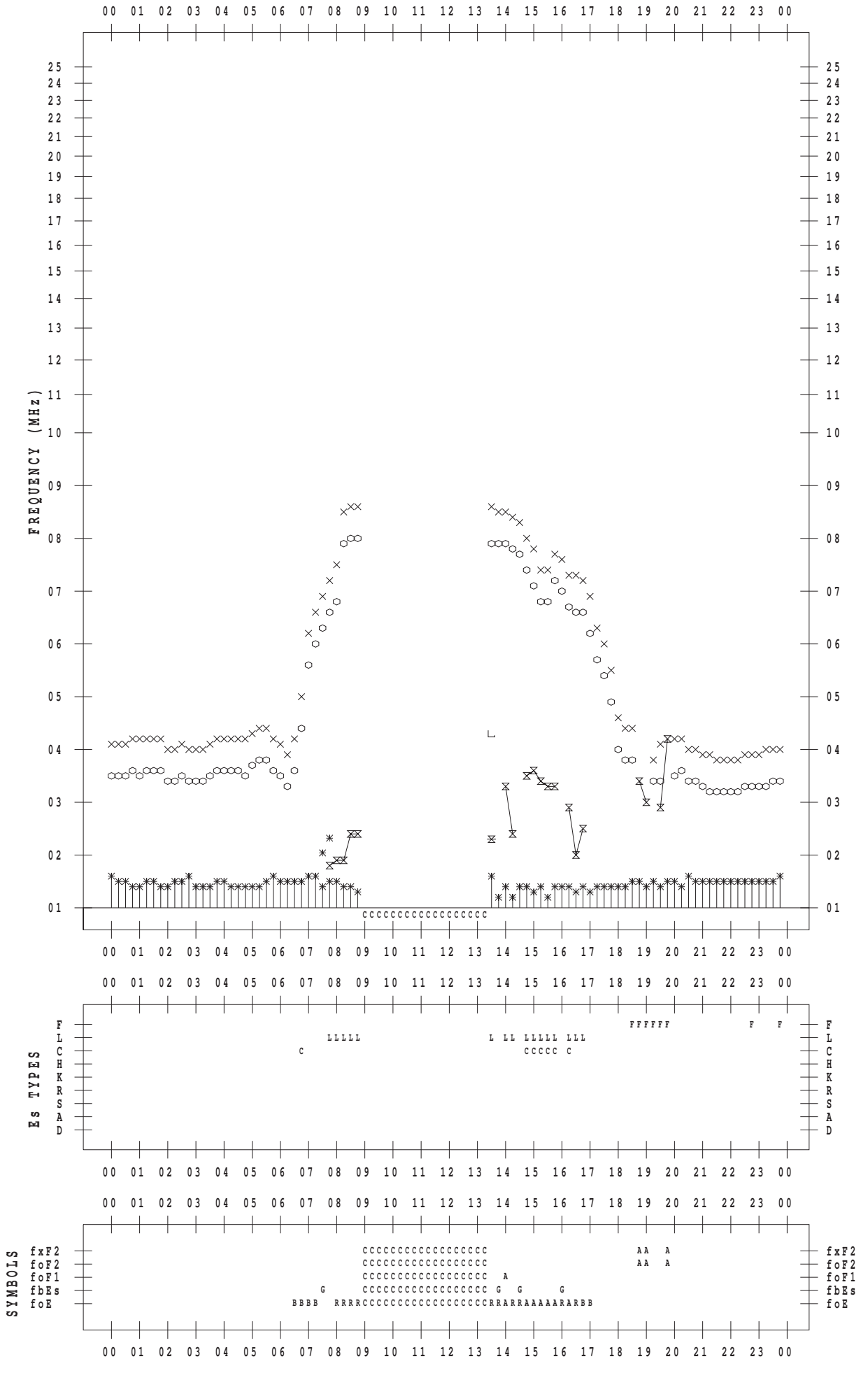
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2012/ 1/18

135 °E MEAN TIME



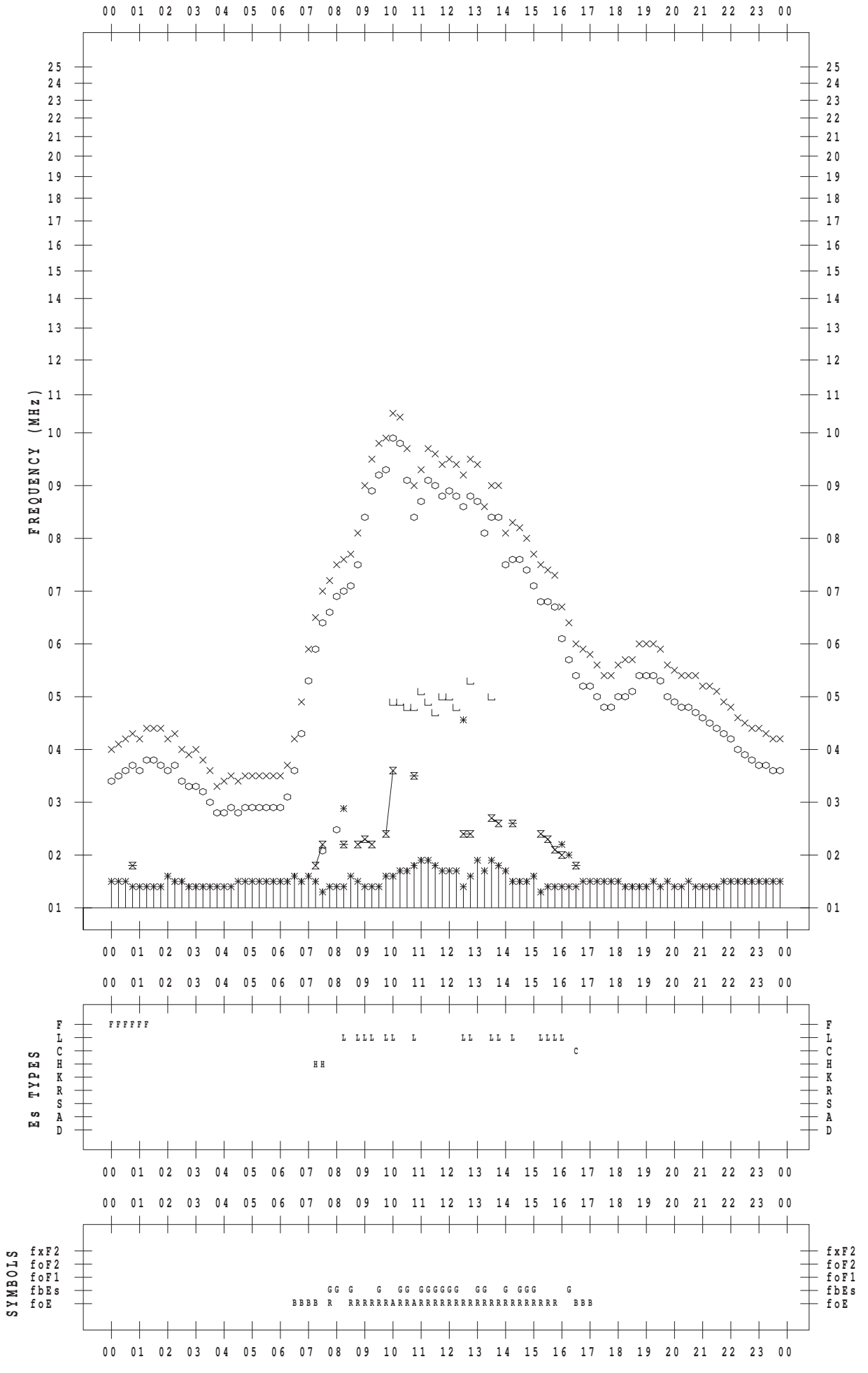
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2012/ 1/19

135 °E MEAN TIME



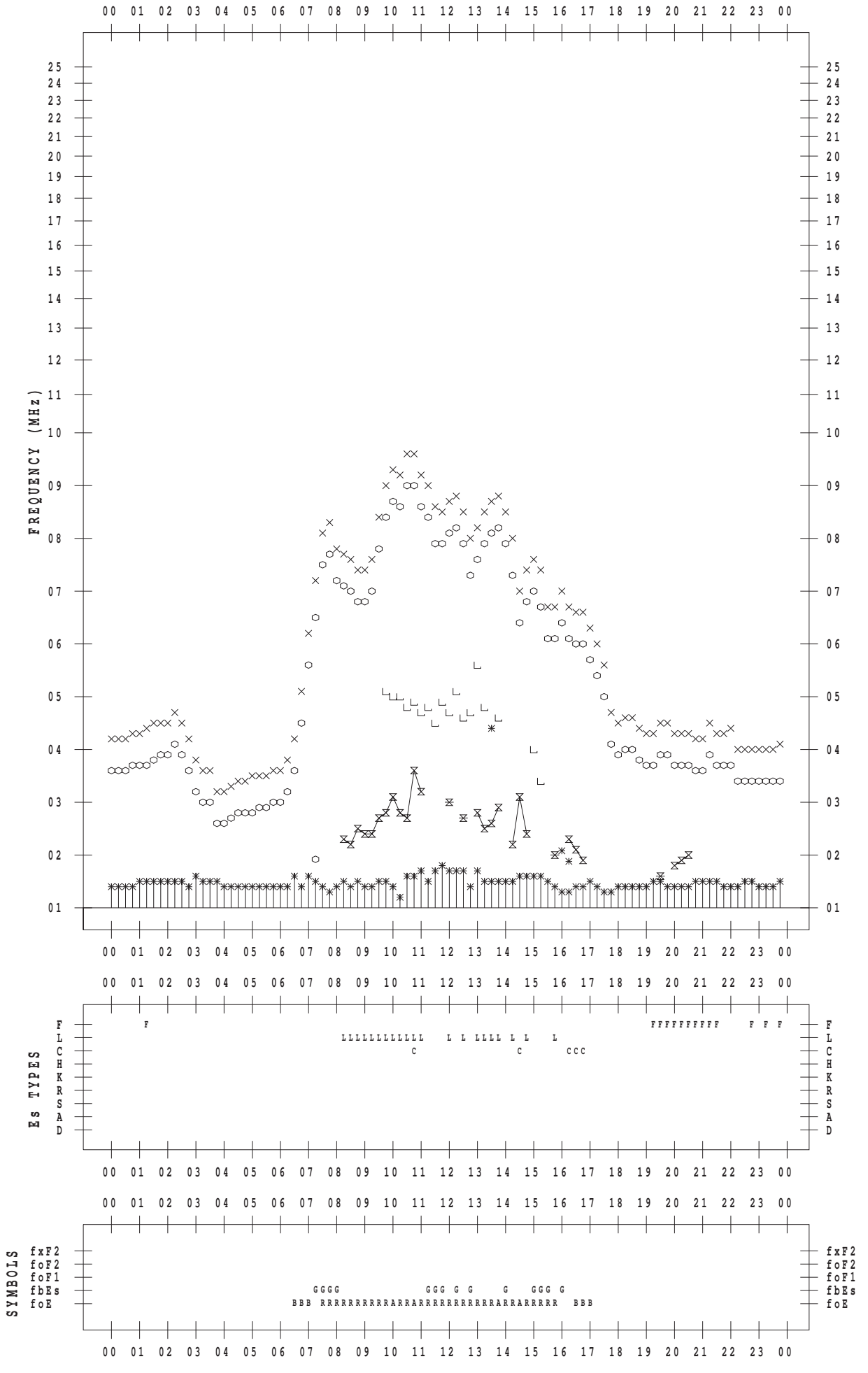
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2012/ 1/20

135 °E MEAN TIME



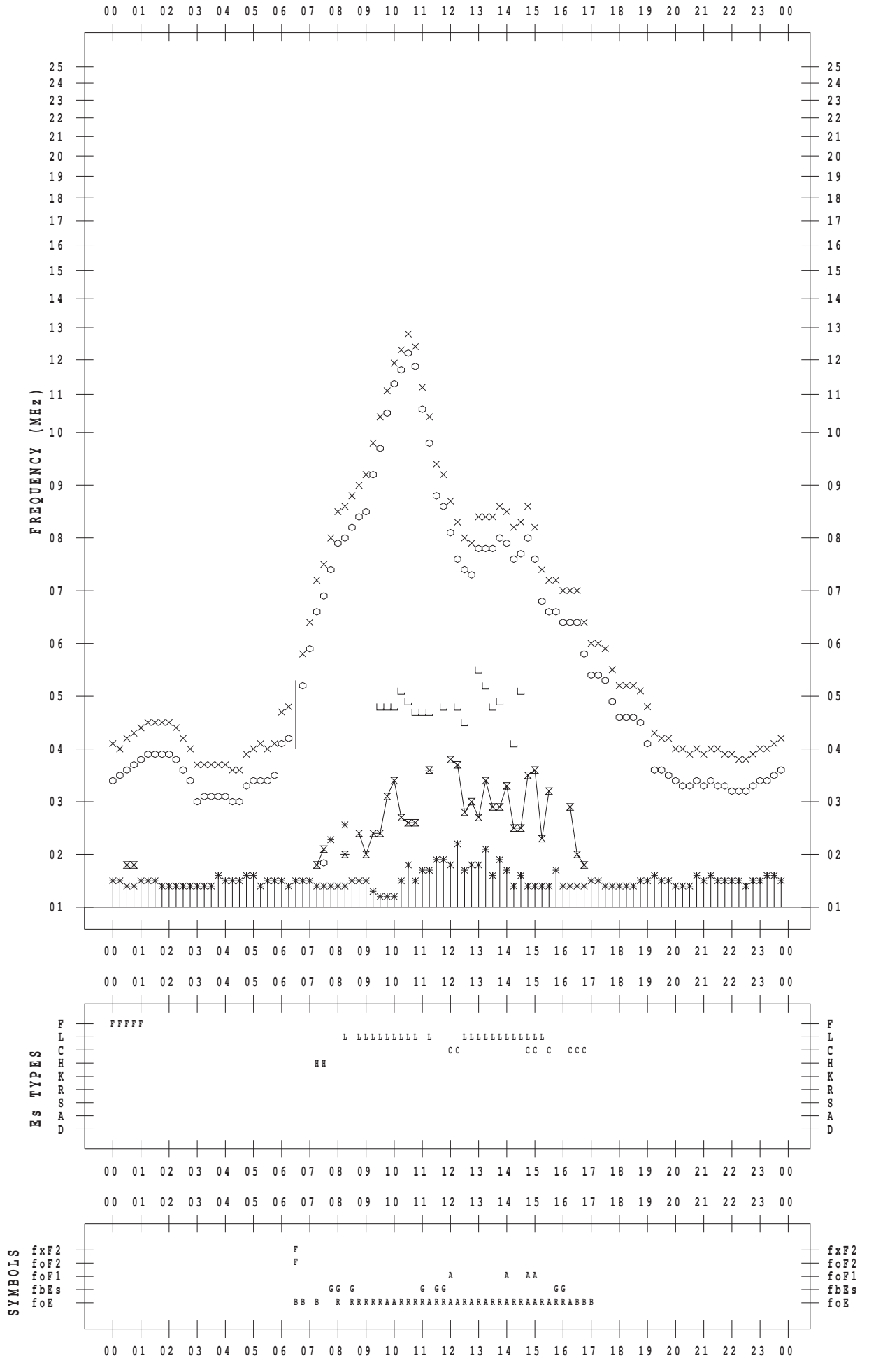
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2012/ 1/21

135 °E MEAN TIME



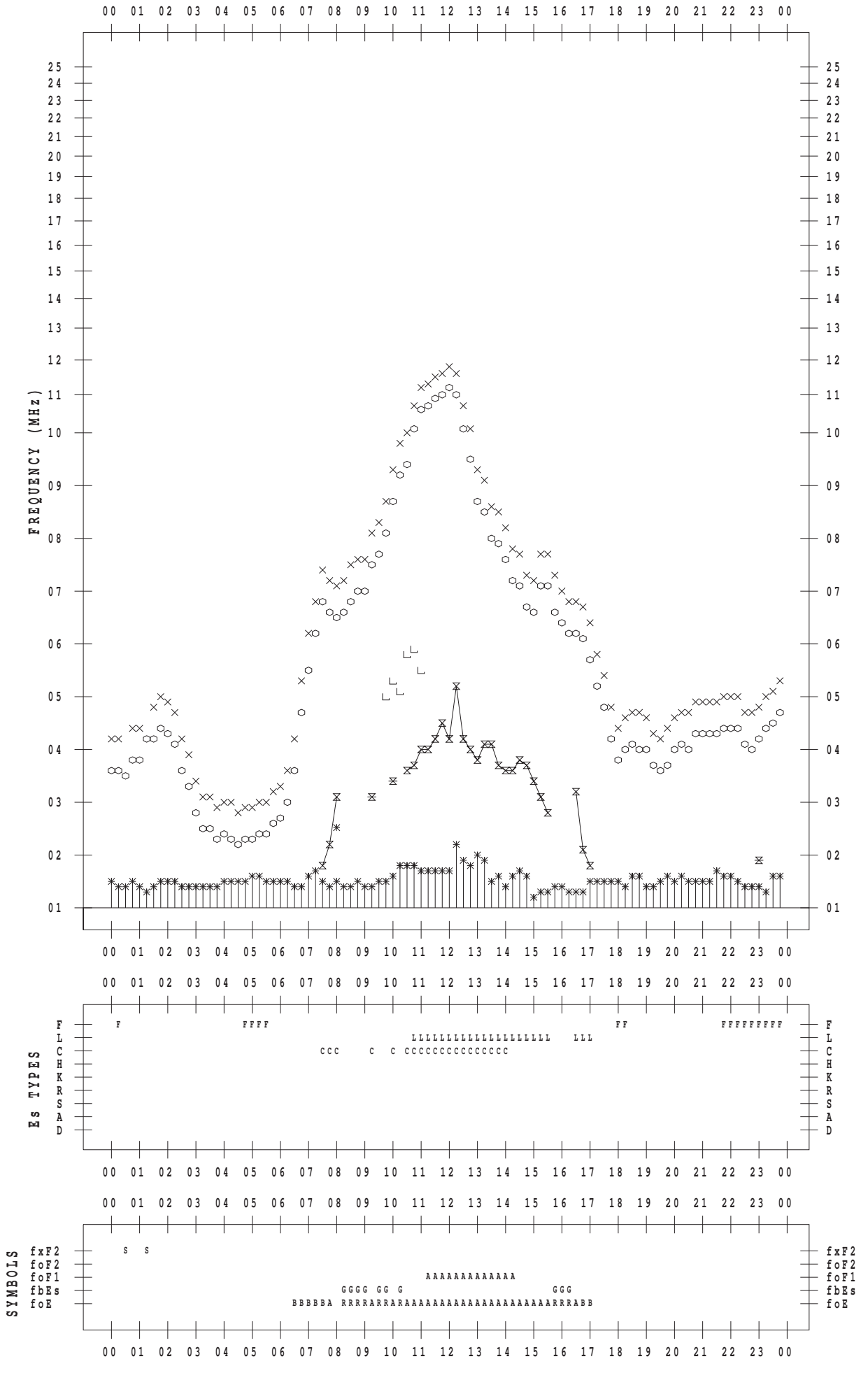
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2012/ 1/22

135 °E MEAN TIME



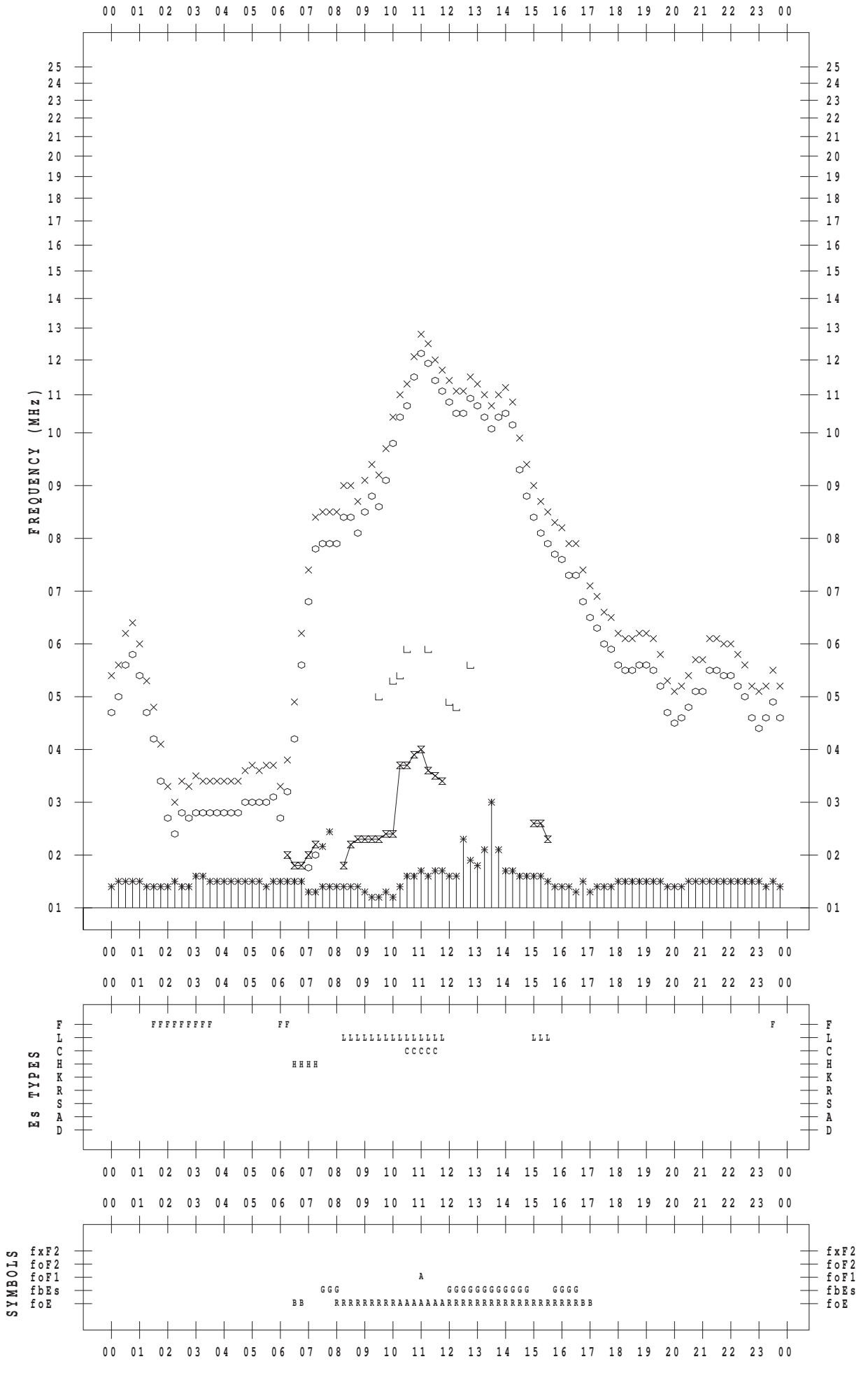
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2012/ 1/23

135 °E MEAN TIME



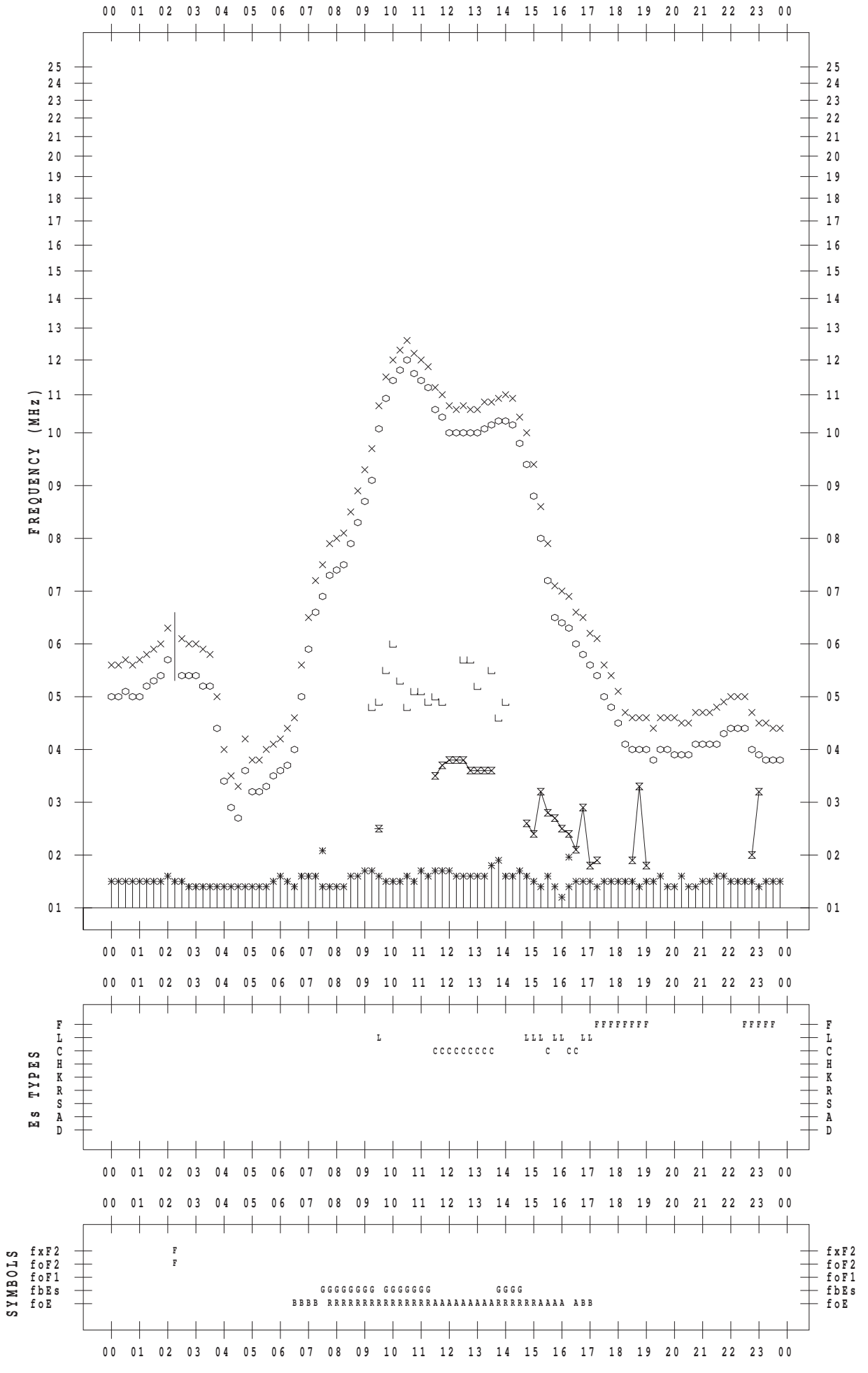
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2012/ 1/24

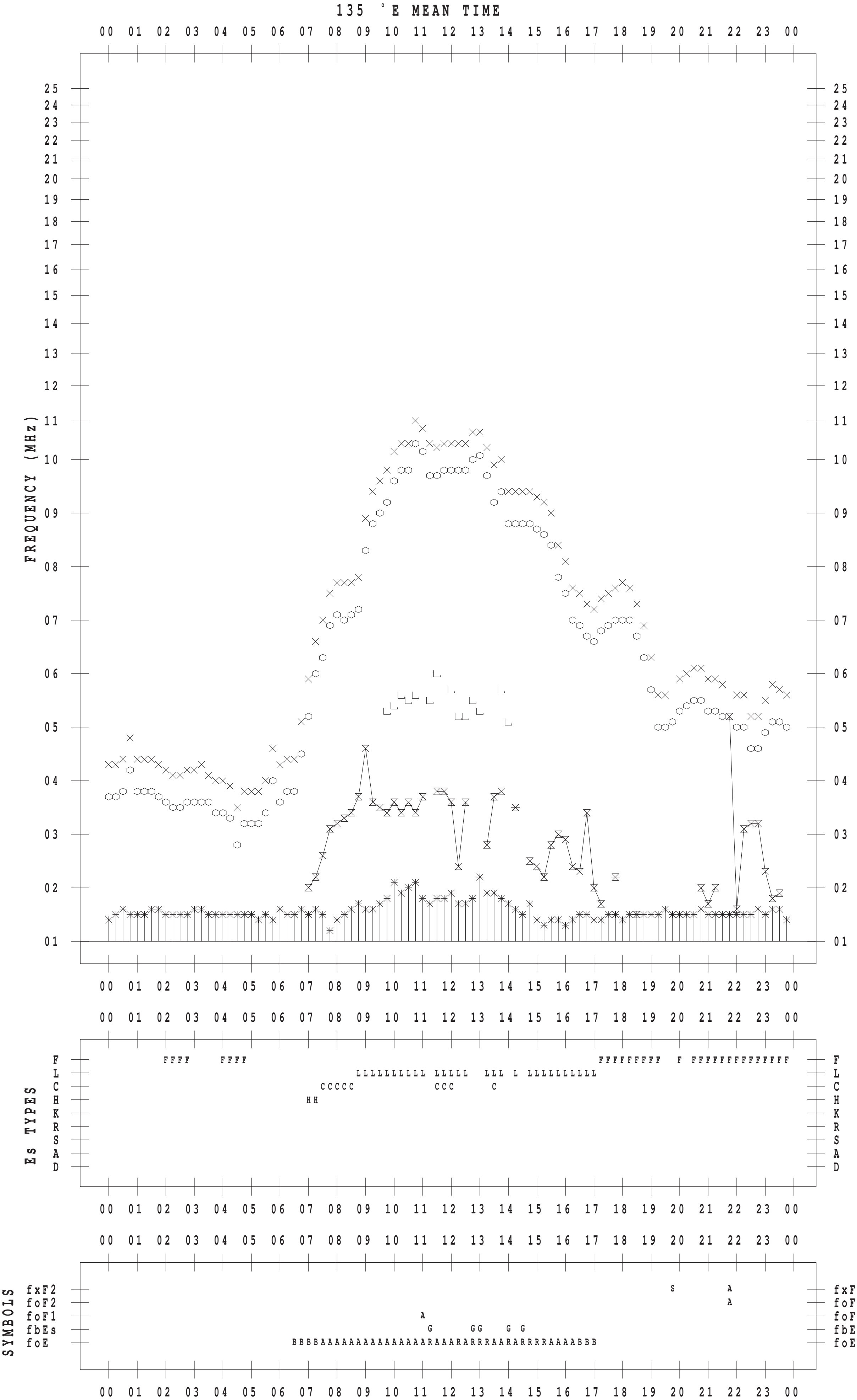
135 °E MEAN TIME



f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji DATE : 2012/ 1/25



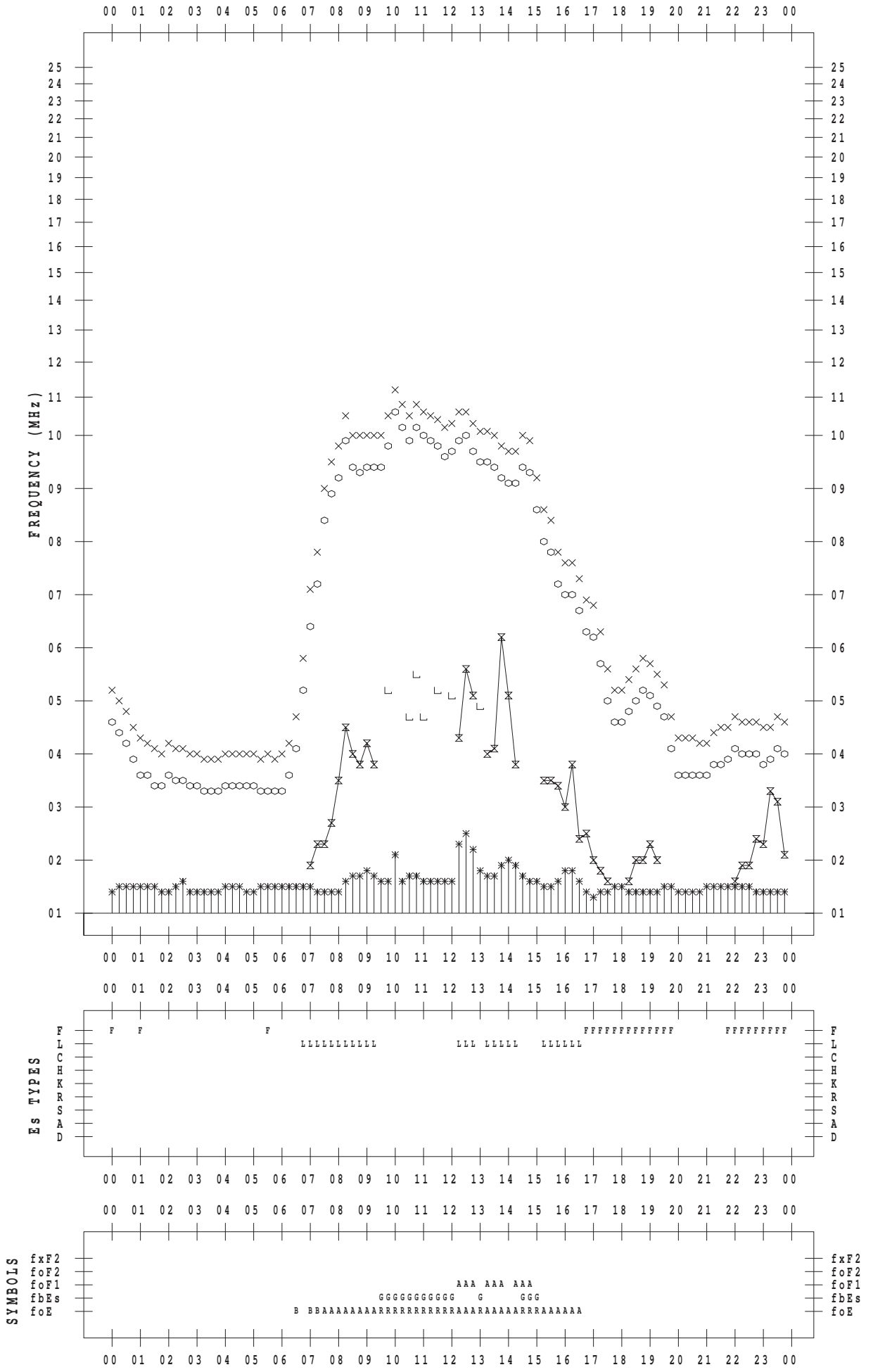
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2012/ 1/26

135 °E MEAN TIME



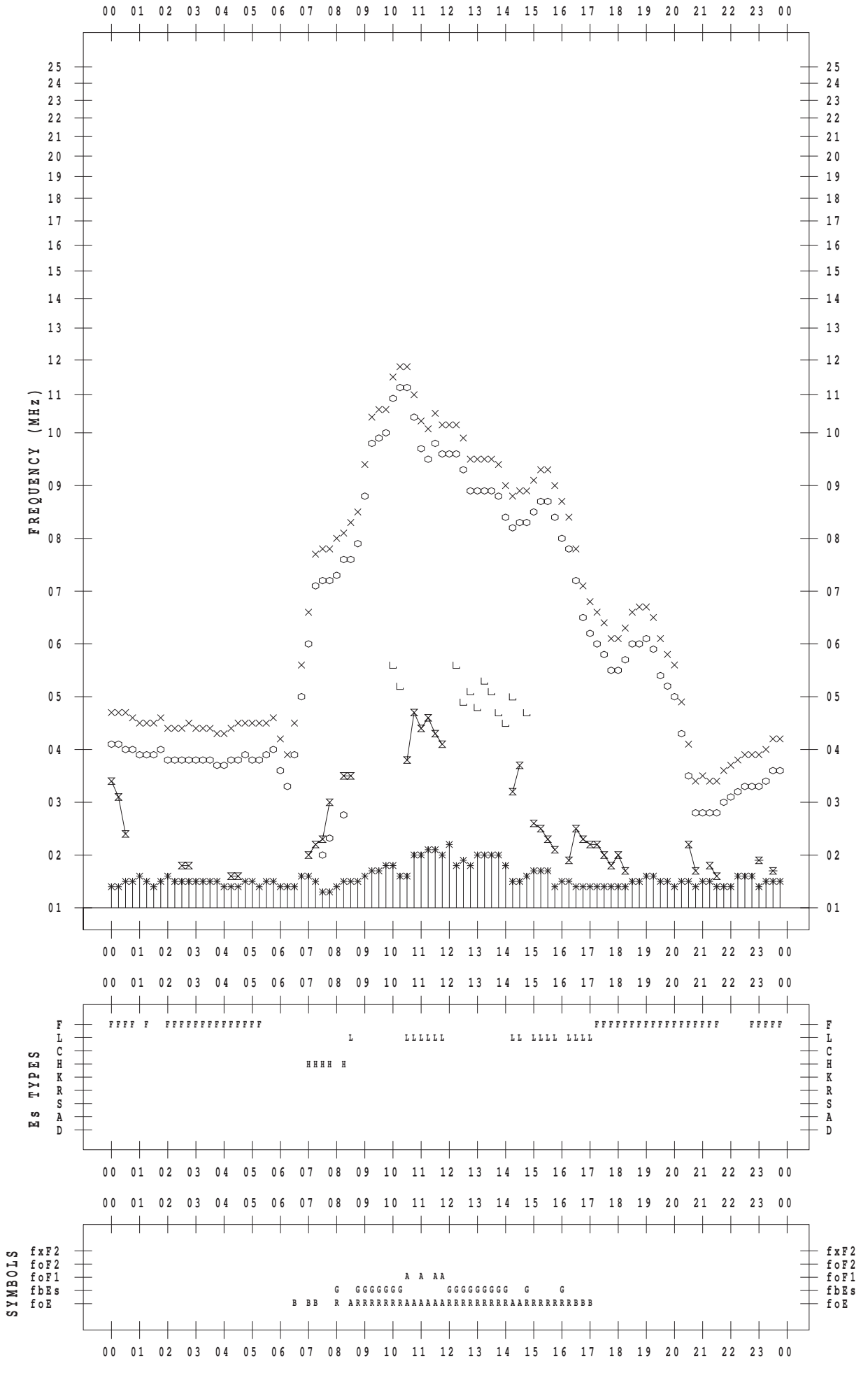
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2012/ 1/27

135 °E MEAN TIME



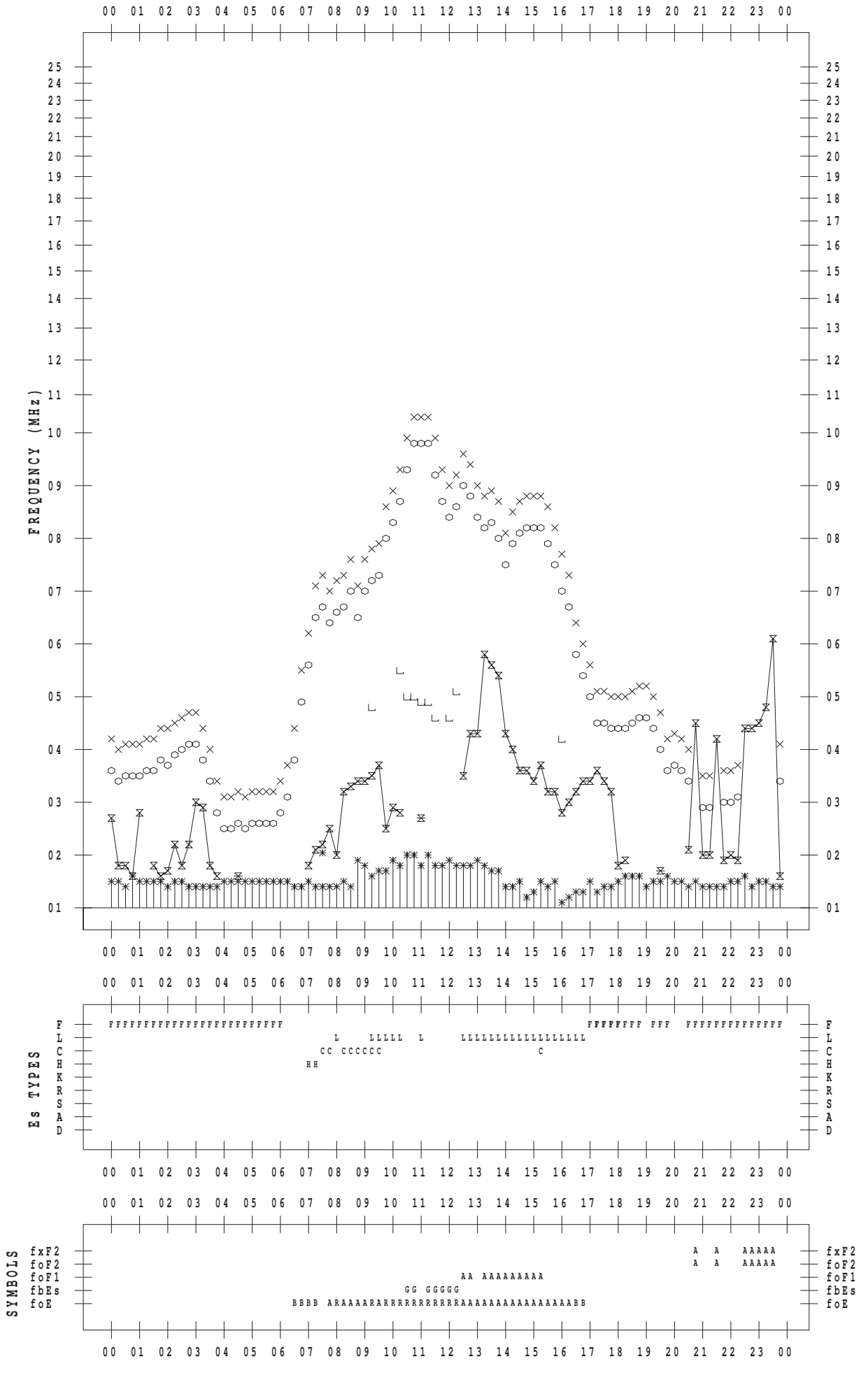
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2012/ 1/28

135 °E MEAN TIME



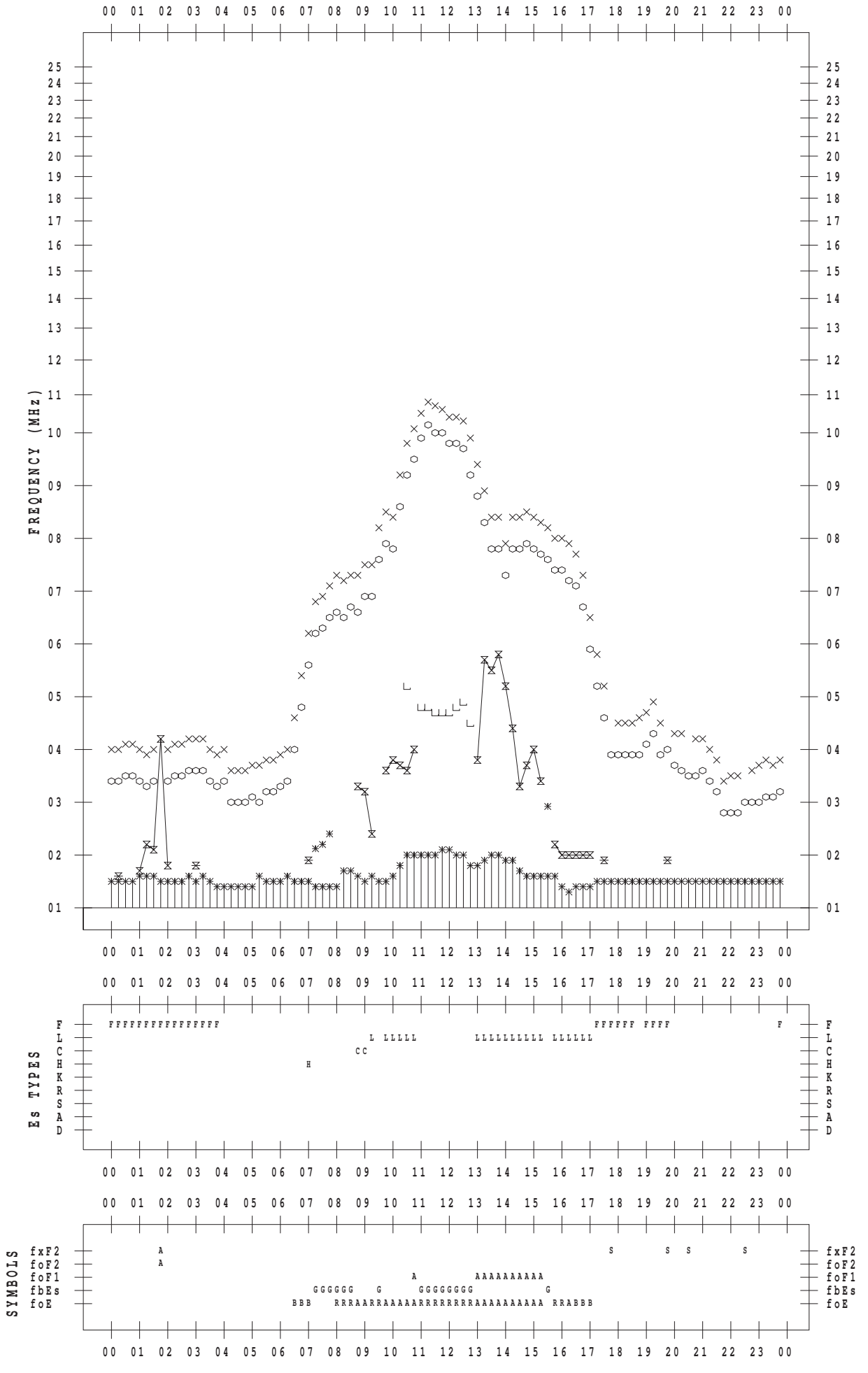
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2012/ 1/29

135 °E MEAN TIME



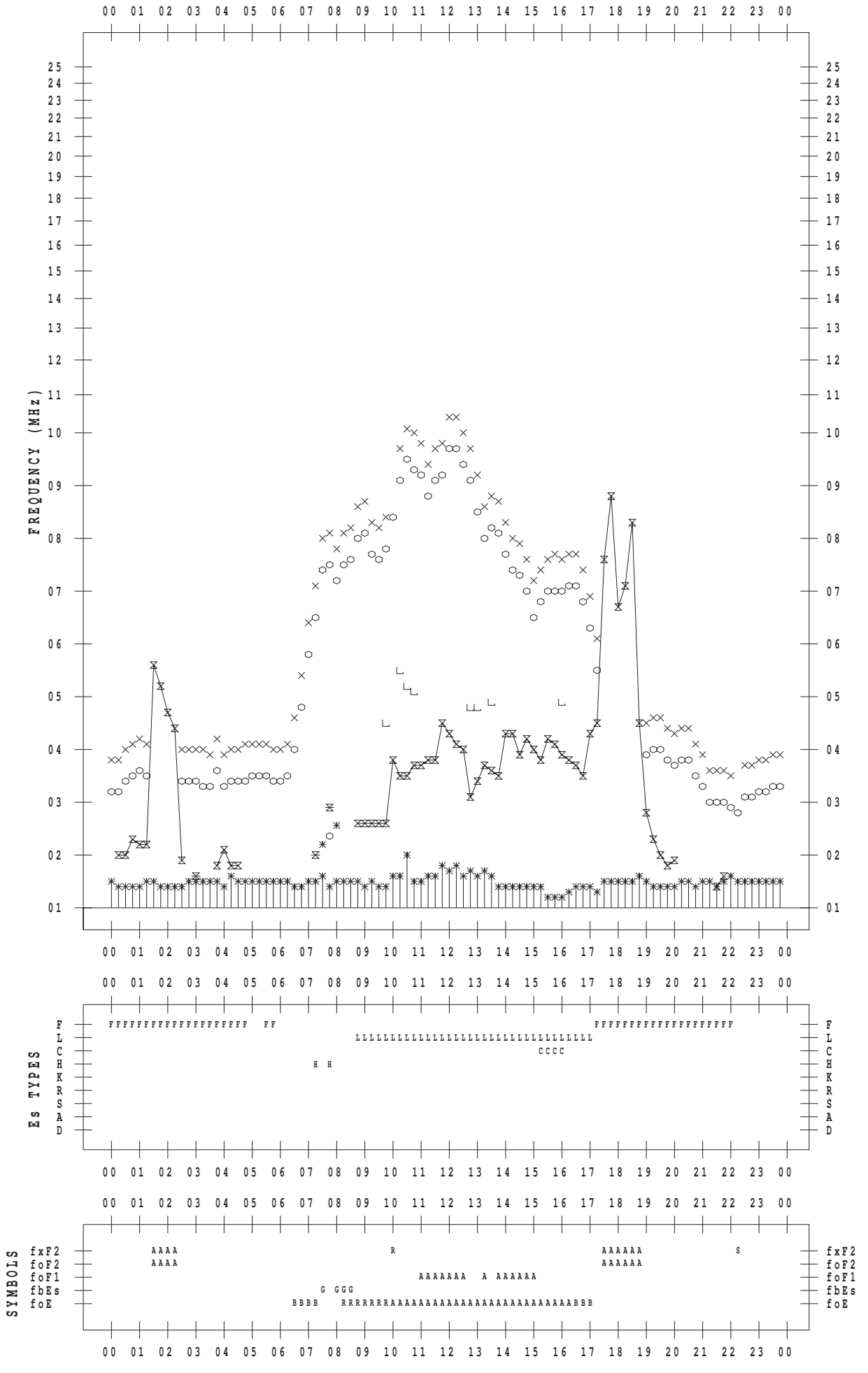
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2012/ 1/30

135 °E MEAN TIME



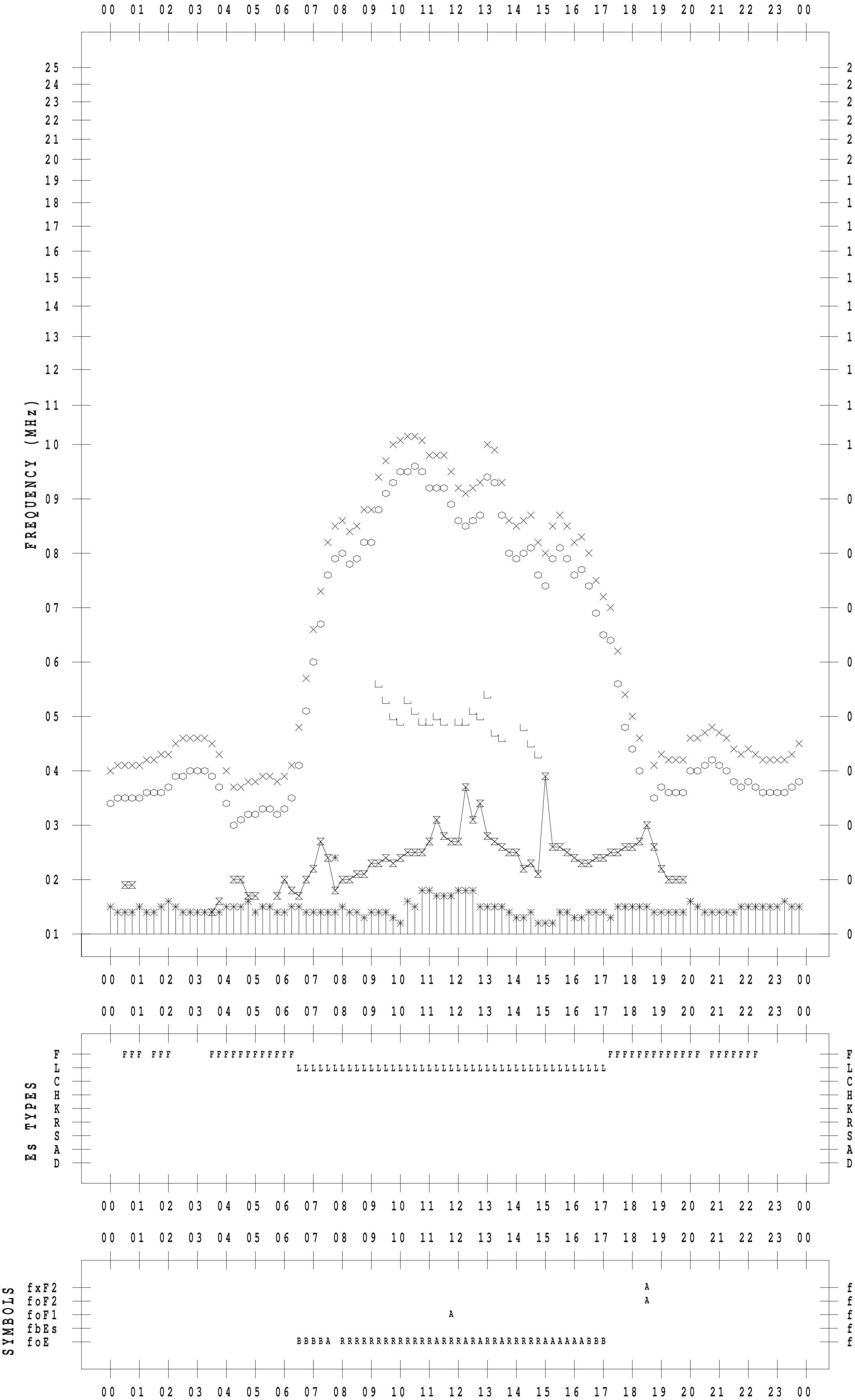
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2012/ 1/31

135 °E MEAN TIME



B. Solar Radio Emission

B1.Outstanding Occurrences at Hiraiso

Hiraiso January 2012

Single-frequency observations

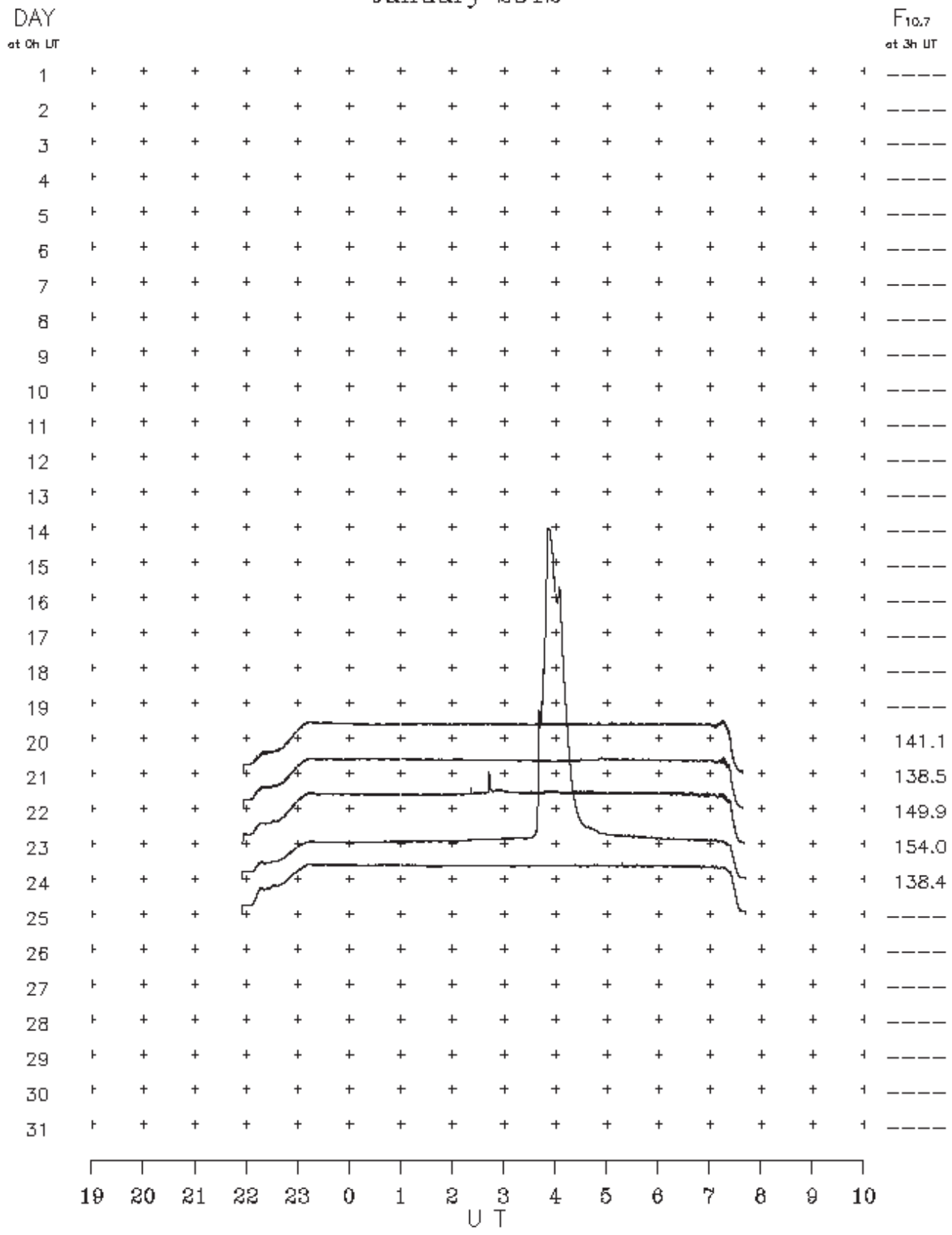
Normal observing period: 2140 - 0750 U.T. (sunrise to sunset)

JAN.	FREQ.	TYPE	START TIME	TIME OF MAXIMUM	DUR.	FLUX DENSITY (10^{-22} W m^{-2} Hz^{-1})		POLARIZATION
2012	(MHz)		(U.T.)	(U.T.)	(MIN.)	PEAK	MEAN	REMARKS
21	2800	1 S	0447.0	0453.0	11.0	5	-	
22	2800	8 S	0241.0	0243.0	5.0	50	-	
23	2800	47 GB	0333.0	0351.0	78.0	1090	-	

B.Solar Radio Emission

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

January 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/2012/01/