F-745

IONOSPHERIC DATA IN JAPAN

FOR JANUARY 2011

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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. 2011

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

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

HOURLY VALUES OF fEs AT Wakkanai

JAN. 2011

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	27	G	G	G	G	23		G	39	36	33	34	36	30	29	35		G	G	58	59	25	G	G
2	33	25	27	G	G	37	G	25	23	44	40	39	37		23	G	G	28	32	36		29	30	G
3	G	G	26	40	32	41	52	28	28	25	49	29	G	27	35	24	21	G	38	33	38	G	G	G
4	G	G	G	G	G	G	G	G	30	38	40	48	43	49	G	G	G	G	40	39	G	G	28	35
5	38	31	G	G	G	G	G	G		27	25				G		15	33	44	48	36	34	34	28
6	G	G	G	26	28	34	G	G		67	40	27			26	G	G	G	G		40	31	28	30
7	30	G	G	G	G	G	G	23	23	40	30	28	26	N	36	27	G	34	27	35	51	52	35	26
8	28	26	G	G	G	26	35	57	39	24	26	27	27	26	24	32	73	35	G	30	26	G	33	38
9	30	30	26	33	28	G	G	G	38	39	52	27		26		G	28	40	G	28	50	60	56	32
10	39	29	G	G	G	G		24	34	36	48	27	27	26	G	21	32	33	G	G	G	28	28	27
11	28	G	G	G	G	G	G	G	25	26	26		49	G	25	24	G	G	G	G	34	29	G	32
12	G	G	G	G	G	G	G	67	38	41	48	34	G	G	G	G	G	G	G	40	40	33	28	32
13	34	28	G	G	G	G	G		G	G	G	G	G	G	G	G	G	G	G	G	31	27	35	40
14	32	32	G	33	G	G	27	28	33	67	36	G	62	G	G	33	G	G	G		G	G	36	59
15	29	37	G	27	32	32	G	24	G	G	G	G	G	G	G	G	G	41	28		38	40	36	26
16	28	33	28	G	G	G	G	G	39	58	48	G	G	G	G	G	G	G	34	38	34	G	G	G
17	G	G	G	G	G	G	32	32	36	G	G	G	G	G	34	34	G	G	G	G	33		G	G
18	33	28	G	G		G		11	35	43	G	G	G	G	33	40	32	G	G	34	G	G	G	G
19	G	G	G	G	G	G	G	G		36	33	G	48	41	34	38	25	27	G	G	25	G	29	30
20	G	G	26	G	34	27	G		32	39	38	G	35	36	38	34	G	G		G	G	G	G	G
21	G	G	G	G	G	G	G	G	45	33	35	35	G	34	34	43	G	G	G	G	G	G	G	G
22	26	G	G	G	24	G	G	G	G	43	36	G	58	G	35	60	36	36		G	G		G	G
23	G	G	G	G		G		G	G	34	G	G	G	G	G	G	G	G	G	29	32	34	G	G
24	G	G	G	G	G	G	G	26	G	N	G	67	G	G	39	36	36	66	G	26	24	40	40	40
25	28	G	G	G	G			11	43	35	34	35	G	G	G	G	G	G	G	G	G	G	G	G
26	G	G	G	G	G	G	G		40	G		G	G	36	34	31	G	35	G	32	33	29	G	27
27	G	G	G	G	G	G	G			33	G	G	G	G	G	G	G	G	G	G	G	G	G	G
28	G	G	G	G	G	G		29	36	36	G	45	G	34	G	34	39	26	32	G	G	G	G	G
29	G	G	G	G	G	G	G		33	G	44	G	36	G	G	G	45	36		54	G	G	G	G
30	33	G	G	G	G	G	G	G	G	35	49	G	G	G	G	G	G	G	G	G		G	G	G
31	G	G	G	G	G	G	G		G	48	G	G	49	G	G	G	34	42	60	50		G	23	G
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	29	30	25	25	27	30	30	29	28	27	30	30	30	31	28	28	28	29	31	31
MED	26	G	G	G	G	G	G	11	33	36	34	G	G	G	12	22	G	G	G	28	28	G	G	G
U Q	30	28	G	G	G	G	G	27	38	41	40	34	36	30	34	34	32	35	30	37	37	32	33	32
L Q	G	G	G	G	G	G	G	G	G	26	G	G	G	G	G	G	G	G	G	G	G	G	G	G

HOURLY VALUES OF fmin AT Wakkanai

JAN. 2011

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

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

HOURLY VALUES OF foF2 AT Kokubunji

JAN. 2011

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

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

HOURLY VALUES OF fEs AT Kokubunji

JAN. 2011

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	28	26	28	23	G	G	G	26	G	31	29	32	29	27	26		32	G	28	34	23	G		30
2	34	46	48	34	46	27	G	26		G	28	27	35	48	50	50	G		G	30	G	24	29	G
3	G	34	G	G	G		G	G	G	31		G	G	25	26	26	G	G	G	29	30	G	G	49
4	G	G	G	G	G	G	G	11	29	26	31	49	26	28		G	G	26	35	28	26	34	34	32
5	34	26	G	25	31	23	26	G		28	29	27	28	29	24	38	G	30	45	33	34	26	34	34
6	28	G	28	G	24	G	G	G	28	28		27	26	G	26		30	29	G	50		34	26	23
7	G	36	30	22	24	G	G	45	30	29		62	45	23	G	40	G	50	73	48	26	30	G	
8	G	G	26	34	29	29	26	G	35	28	27	41	G	31	40	29	27	71	59	43	86	G	29	24
9	27	27	25	29	G	G	G	11	47	39	52	38	G	G			G	G	26	29	40	31	33	28
10	G	G	24		29	G	G	G	29	52	39	27	28	29	45	G	34	G	29	51	59	51	50	32
11	27	26	G			G		24	33	27	38	26	G	30	31	36	G	G	27	33	G	33	31	
12	G	28	G	G	G	G	G		34	47	29	27	G	G	G	G	G	26	24	G		28	38	33
13	29	G	G	G	23			G	29	G	G	51	39	G	G	35	36	34	34	34	G	G	49	59
14	40	30	G		G	G	G	G	G	G	G	G	50	G	G	G	45	29	29	29	24	78	33	26
15	28	32	G	G	34	31	G	G	G	44	46	G	G	G	45	34	38	G	36	33	34	46	30	29
16	31	28	24	G	G			G	30	G	G	G	62	50	58	G	G	28	G	G	G	G		
17			G	23	G			G	G	N	36	G	G	G	G	G	G	G	G	G	G	G	G	G
18	G	G	G	G	G		G	G	G	G	38	G	G	G	G	G	28		G	G	G	G	G	G
19	G	G	G	G	G		G	G	G	G	G	G	G	G	G	32	29	29	53	30	G	G	32	28
20	26	28	29	27	G	28	G	G	29	G	G	G	G	G	G		G	44	25	28	29		G	23
21	G	G	G	G	G		G	G	G	G	G	G	47	G	70	53	49	30	52	34	29	G	28	29
22	G	G	G	G	24			G	G	G	G	42	45	G	G	G	G	G	G	27	24	G	G	G
23	G	G	G	G				26	34	G	44	G	62	G	G	G	47	G	G		37	G	G	
24	G		G	23	G	24	33	28	G	G	G	G	G	G	G	G	G	G	G	G	G	34	28	G
25	G	G	G		G			38	G	G	G	G	G	G	G	G	G	G	G	G	G			G
26	G	G	G	G	G	G	G	G	G	G	G	44	G	G	G	G	G	11	G	G	G	G	G	G
27	G	G	G	G	G	G	23	G	G	G	43	G	G	G	G	G	G	32		G	G	G	G	G
28	G	G	G	G	G	G	G	G	G	G			38	G	39	G	G	26	G	G	G			G
29	G	G	G	G	G	G	G	G	G	G	G	G	G	39	G	G	31	24	26	25	G	33	G	27
30	26	G	G	G	G	24	G	G	G	G	G	G	G		G	G	G	G		G	G	24	24	24
31	G	G	G	G	G	G	G	G	G	G	G		G	G	G	G	31	29		25	33	28	34	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	30	29	31	27	29	21	24	30	29	30	27	29	31	30	29	27	31	29	28	30	29	28	27	27
MED	G	G	G	G	G	G	G	G	G	G	27	G	G	G	G	G	G	26	26	28	23	24	28	24
U Q	28	28	24	23	24	24	G	11	29	28	38	35	38	28	35	34	31	29	34	33	31	33	33	30
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. 2011

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

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

HOURLY VALUES OF foF2 AT Yamagawa

JAN. 2011

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

HOURLY VALUES OF fEs AT Yamagawa

JAN. 2011

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	27	28	34	29	G	G		24	30	31	40	86	41	44	41	38	32	32	32	48	28	G	G	34
2	45	27	39	33	G		28	G	26	28	34	41	66	41	40			G	G	G	G	23	G	G
3	24	32	G	G	G	G		G		38	60	46	45	52	59	38	33	35	44	36	G	28	59	30
4	G	G	34	G	G		G	G	41	N	34	40	59	51	36	41	51	G	G	G	28	33	32	38
5	30	32	26	32	34	28	G	G		35	41	40	48	44	47	42	34	28	32	29	G	G	26	G
6		G	24	26	30		30	G	24	26	39	35	56	60	48	50	47	34	G	G	41	49	46	36
7	59	29	G	33	28			G	29	32	34	29	35	30	34	36	36	G	32	27	G	G	G	G
8	G	28	29	G	G	30	24	39	26	32	40		42		41	39		G	33	40	40	34	G	G
9	31	25	25	G	G			G	23	33	35	34	36	40	44	40	61	42	60	49	45	27	24	26
10	26	24		G			G	G	29	33	37	46	42	46	36	35	38	34	G	41	43	59	48	51
11	43		49	43	34	28	26	26	32	32	30	34	49		41	36	52	52	G	40	33	36	G	G
12	33	24	G	G	G	G		G	43	33	30	36	44	G	43	39	G	G	G	G	34	26	29	37
13	33	29	29	36	27	24	G	G	32	34	35	G	39	38	G	G	41	71	70	57	50	34	G	
14	G	36	29	G	G	G	G	G	29	36	39	37	G	G	G	G	36	40	38		G		57	
15	34	58	26	G	G			G		42	57	40	G	G	G	G	G	G	G	35	50	35	29	26
16	G	29	G	24	24			G	32		51	40	46	40	45	37	32	37	26	40	33	40	33	
17				G	G		G	G	G	33	36	G	40	G	G		G	29	G	G	G	G	G	G
18	G	G	G	G	G	G		G	G	34	G	41	G	44	G	36	33	32	29		27	G	28	
19		G	G	G	G	G	G	G	31	34	40	G	44	G	G	G	33	G	G	G	G	G	G	G
20	G	G	G	G		G	G	G	30	32	36	49	44	46	44	36	35	30	25	27	25	G	26	G
21	G	G	G	G	G	G		G	32	36	G	42	47	42	44	G	32	G	25	30		29	28	29
22	29			27	30	26	22	G	28	61	52	42	50	40	38	35	36	G	G	34	33	30	32	G
23	G	G	G	G	G			G		39	42	42	47	41	G	38	37	28	23		G	G	G	G
24	34	G		G	G	G		23	35	42	43	42	G	G	G	G	C	G	G		G	G	27	G
25		G	G		G	G		G	G	C	C	G	G	47	C	C	C	33	33	G	29	27	29	49
26	G	26	G	G	G	G		G		C	C	46	G		52	43		G	G	G	G	G	G	
27	G	G	G	G	G	G		G	46	G	G	46	42	G	44	G	38		28	G	G	G	G	G
28	G	G	G	G	G	G	G	G	43	35		47	G	43	42	G	37	30	24	G	G	G	G	G
29	G	G	G		G	G	G	G	G	G	44	G	48	G	G	39	34	G	G	G	28	G	G	33
30		G		32	G	24		G	28	G	36	G	43	47	56	46	34	28	G	G	G	G	G	32
31	G	G	G	G	G	G	G	G			38	39	G	G	G	G	33		11	G	34	26	40	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	28	26	29	29	21	16	31	25	26	28	30	31	28	30	28	26	29	31	27	30	30	31	26
MED	12	12	G	G	G	G	G	G	29	33	38	40	42	40	40	36	34	28	23	27	28	24	26	G
U Q	33	28	29	28	12	24	23	G	32	36	41	42	47	45	44	39	38	34	32	40	34	33	32	33
L Q	G	G	G	G	G	G	G	G	25	32	34	34	G	G	G	G	33	G	G	G	G	G	G	G

HOURLY VALUES OF fmin AT Yamagawa

JAN. 2011

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

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

HOURLY VALUES OF foF2 AT Okinawa

JAN. 2011

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			28						54	66	75	65	66	92	80	90	88	103	130	78	71	87	89	
2		41	44	44		A		29	54	63	76	A	84	81	81	72	67	64	46			42	34	
3			A		41				59	74	65	62	63	80	87	72	63	67	48	32	46	53	A	
4		29		32	34			32	54	54	62	75	80	87	78	70	74	85	50	32	52			A
5	A			28		31		29	72	70	66	62	82	87	90	71	56	76	56		36	42		26
6									56	51	57	61	76	76	66	67	62	55	41	A	50	44	44	
7			A	A		A	A	A	55	65	74	77	82	74	70	52	66	77	77	A	47	A		
8			31	29				28	71	78	78	76	87	82	81	78	72	62	51		54		A	
9		32	42	34				30	56	72	84	108	106	126	126	90	84	67	48	53	67			
10		30						28	58	64	69	67	71	82	78	74	76	66	57	46	42		34	A
11	A		44	29					60	59	57	70	71	72	65	69	81	62	46	A	34		A	A
12		28	32	45					46	50	56	84	82	67	61	71	74	51	47	36	37	A	A	
13	28	29		29					58	54	61	79	75	81	74	A	67	72	62	46	51	28	28	A
14	A			A	A				43	62	74	67	77	87	57	62	72	57	A	A	A	A		A
15		A							58	A	69	80	71	70	70	67	60	58	50	52	47	49	29	
16	A	A	29	49					50	67	98	131	117	107	105	83	68	54	A	A	A	53		
17								59	52	57	57	56	72		74	64	54	50	42	34			29	
18									49	55	67	68		77	102	97	66	47	34	34			29	
19				32					54	58	81	88	108	116	91	78	68	66	62	44	34	A		
20		34	32	34				29	50	C	C	C	C	C	C	C	C	C	55	51		54	52	
21	44	50	34	34	26				54	C	C	C	C	92	122	91	68	60	58	44	A		34	
22			30	44	22	A			46	54	66	77	77	104	101	88	65	A	A			32	28	
23					29				48	52	72	100	62	61	83	91	76	62	47	34				
24			29	32					43	57		65		71	68	62	58	59	52	34		A	34	
25				28	30			28	47	50	55	81	101	88	107	121	91	90	104	53	A	A	A	32
26			34	32	42				47	52	55	59		88	83	88	85	85	61	31	31		32	
27					34				45	51	53	55	68		95	96	88	88	84	54	34	43	30	
28	31		26					28	42	47			72	71	64	78	86	94	62	32		34	41	34
29	29							29	46	52	60	64	66	81	86	68	74	80	85	52		34	A	
30		32						30	47	54	56	57	67		65	58	78	92	67	43		37	34	
31		31	32					30	52	59	57	57	65	88	67	61	56	66	67		53	53	40	
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	4	10	14	16	8	1		13	31	28	27	27	26	27	30	29	30	29	28	21	17	15	17	3
MED	30	32	32	32	32	31		29	52	57	66	68	76	82	80	72	70	66	56	44	47	43	34	32
U Q	37	34	34	39	37	15		30	56	64	74	80	82	88	91	89	78	82	64	52	52	53	40	34
L Q	28	29	29	29	27	15		28	47	52	57	62	68	74	68	67	65	58	47	34	35	34	29	26

HOURLY VALUES OF fEs AT Okinawa

JAN. 2011

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		28				G	28	34	49	60	44	38	37	32	G	G	34		41	34	
2		29	G	32	27	27		G	G	30	36	57	48	50	42	35	30	G			G	G	G	G
3			32		G				25	28	40	51	76	41	46	36	48	24	26	29	39	34	40	G
4	30	G	G	G	G			G	23	G	28	37	42	37	40	48	27	G	11	G	G			40
5	27	34		30	27	G		G	30		32	39	35	36	40	40	35	34	G		28	30		G
6		24							40		35	36	48	40	41	38	36	32	32	58	36	30	34	
7	27		39	40	29	28	28	41	24	28	30		24	G	39	34	39	48	68	40	G	36		
8			G	26				G	G	30	24	36	37	44	44	34	29	G	G	39	40	39	39	G
9		G	G	G				G	G	G	34	35	50	52	51	31	33	34	35	26	G			G
10		G	29					G	G	34	35	45	42	33	50	28	28	28	26	11	G		36	37
11	57	49	40	31					36	32	38	29	31	38	36	34	51	35	28	68	32	39	30	28
12		G	G	G					G	G	38	34	G	G	G	G	G	G	35	32	48	34	33	G
13	G	G		G					G	35	40	58	G	G	G	69	51	82	38	29	G	G	G	30
14	28			34	36				G	32	36	42	G	G	G	G	38	32	90	59	71	73		36
15		40	34						G	68	49	52	52	52	G	44	G	32	27	29	32	G	G	
16	39	38	26	G					G	G	38	G	40	40	G	G	G	43	40	57	83	G	G	
17								G	G	33	G	38	G	G	G	G	G	G	G	G	G		G	G
18			G					G	G	33	36	G	38	G	G	G	G	G	G	G			G	
19			G	G	G				G	G	41	G	39	G	G	G	36	G	G	28	34	39	33	31
20	47	49	48	29			G	G	30	C	C	C	C	C	C	C	C	C	G	27		31	G	29
21	30	G	G	G	G				G	C	C	C	C	74	53	44	62	35	G	G	48		G	28
22			G	G	G	28			28	34	40	48	48	G	47	G	58	108	94	29	27	G	G	
23				G	G			G	30	G	G	58	46	40	47	G	G	G	G	G		G		
24			G	G				G	G	G		G	G	G	G	G	G	G	G	G		54	G	
25	25		29	G	G			G	G	G	38	50	49	G	G	38	39	G	28	11	40	43	40	29
26	28		G	G	G	G			G	G	G	G		50	G	G	G	G	G	G	G		G	G
27				G	G			G		36	38	38	60		G	G	G	G	G	G	G	G	G	
28	G		G				G	G	G	G			49	48	G	39	G	30	27	26	29	30	G	G
29	G				G	G		26	G	G	G	G	G	G	G	G	37	34	32	28	34	29	66	
30		G			40	G		G	G	G	G	43	39	G	G	G	38	34	G	G	G	G	G	27
31	G	G	G	G		G	G	G	G	G	G	43	G	G	G	G	G	G	30	36	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	14	15	22	21	16	8	4	18	30	27	27	27	28	29	30	30	30	30	30	29	26	24	25	20
MED	28	G	G	G	G	G	G	G	G	28	35	38	40	36	G	30	31	26	26	28	28	30	G	14
U Q	30	38	29	29	27	27	14	G	24	33	38	49	48	44	42	38	38	34	32	35	39	39	34	29
L Q	G	G	G	G	G	G	G	G	G	G	24	29	12	G	G	G	G	G	G	G	G	G	G	G

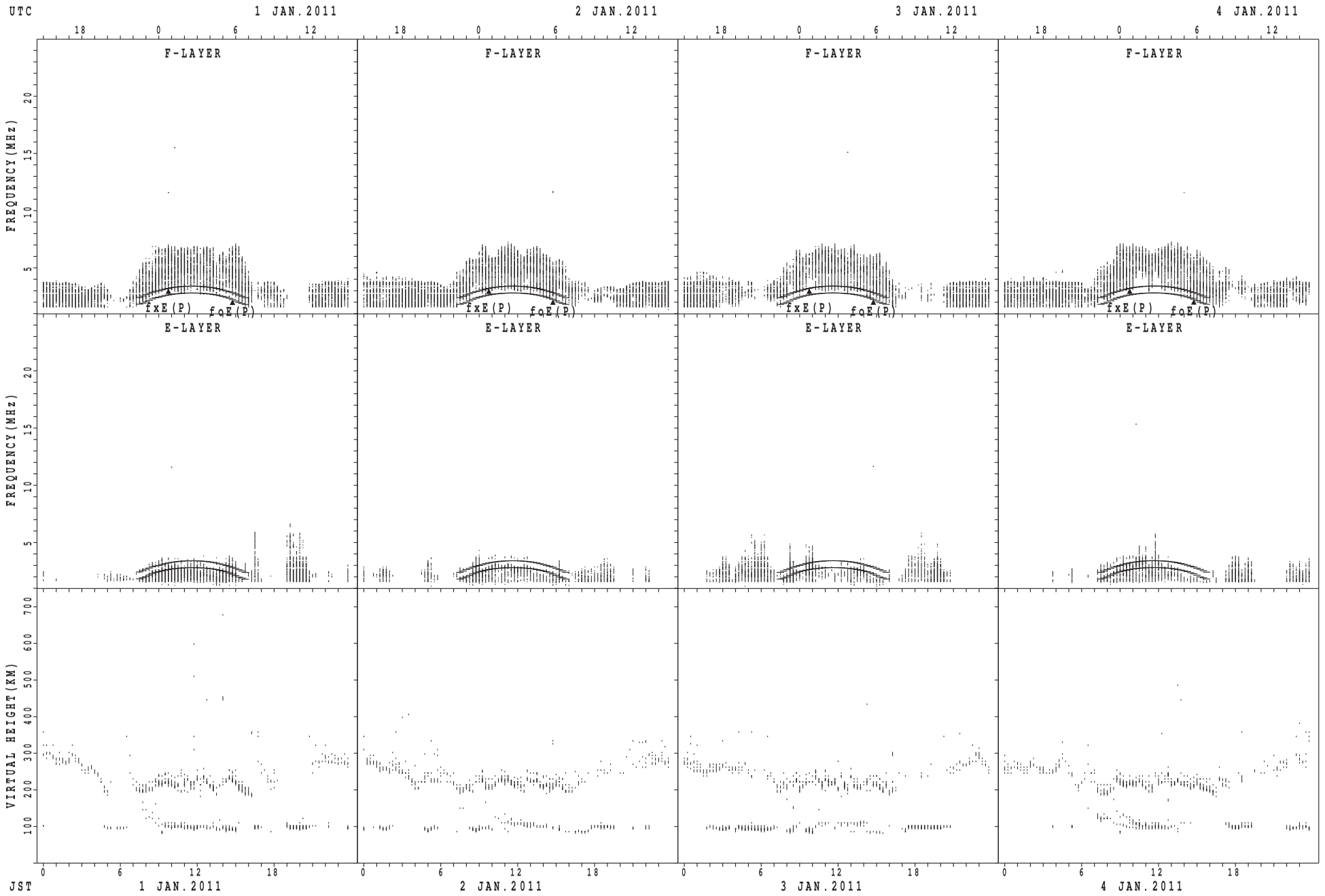
HOURLY VALUES OF fmin AT Okinawa

JAN. 2011

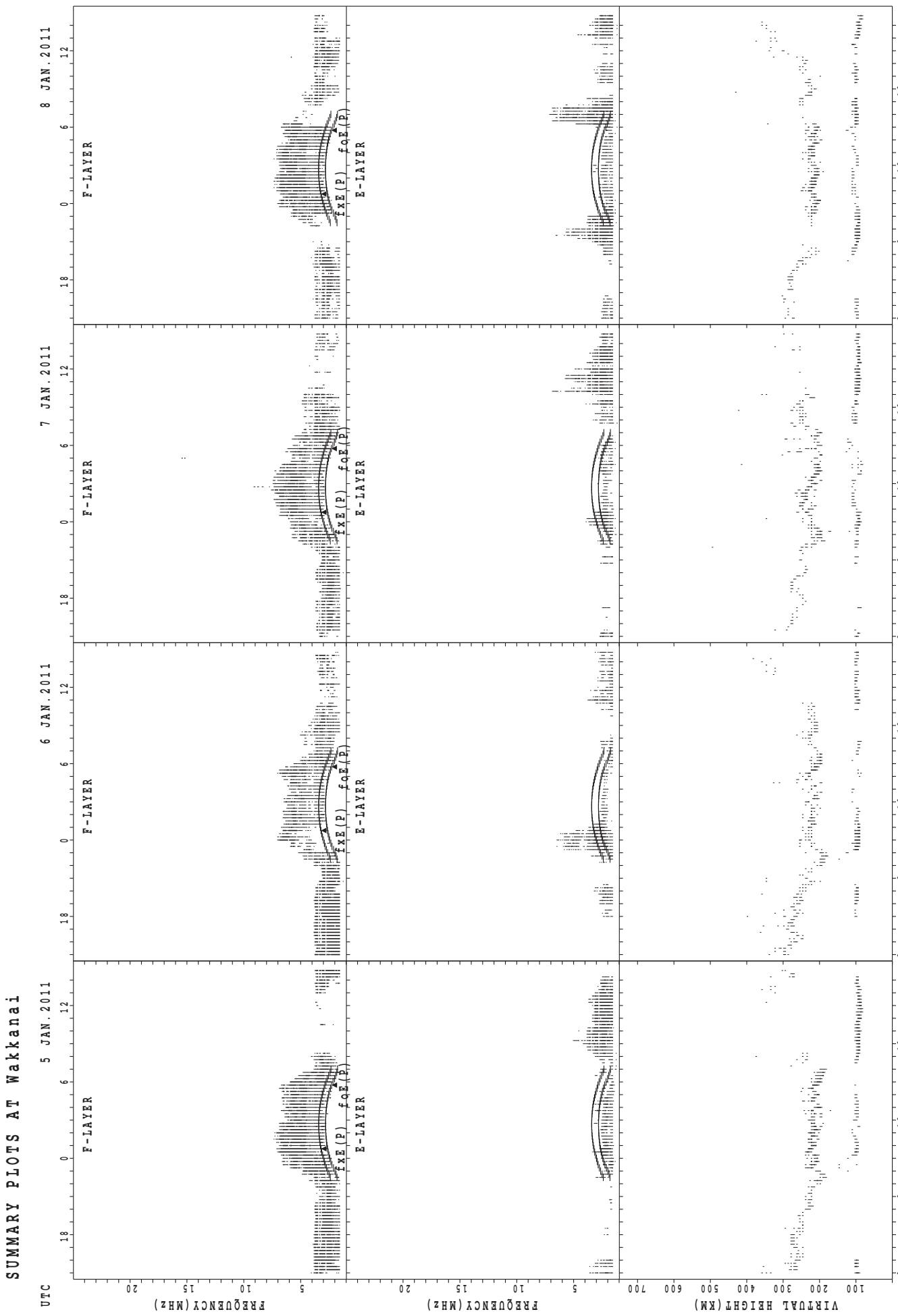
LAT. 26°41.0′N LON. 128°09.0′E SWEEP 1.0MHz TO 30.0MHz AUTOMATIC SCALING

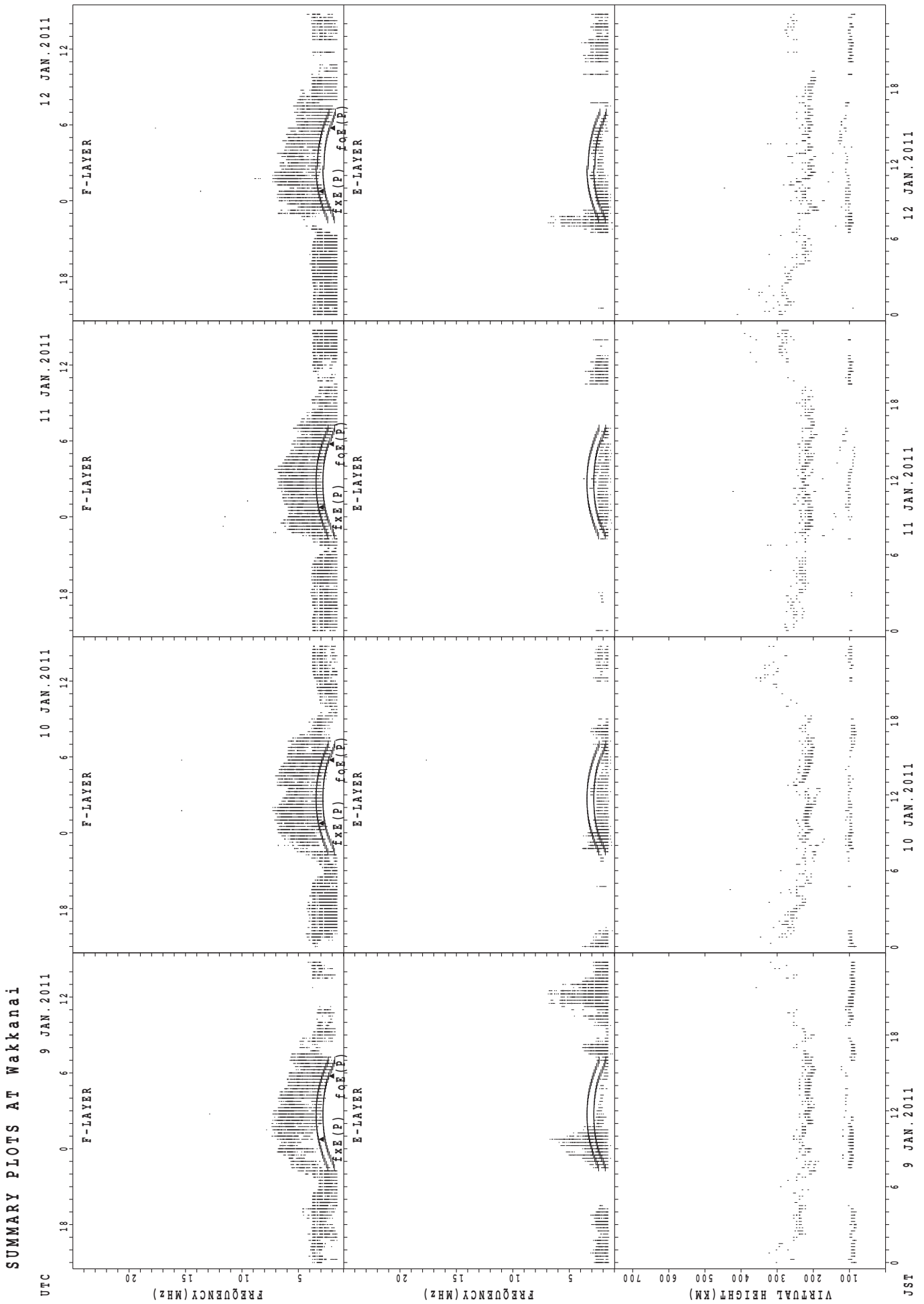
D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1			21		18				15	14	32	30	29	28	27	21	15	14	21	20	15	15	17	
2		15	18	21	15	15		15	24	16	18	32	32	26	27	22	16	23	15		17	15	15	20
3			15		15				23	17	27	28	28	28	29	23	22	15	15	15	16	16	15	22
4	15	15	22	15	15			15	23	18	18	29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

SUMMARY PLOTS AT Wakkanai

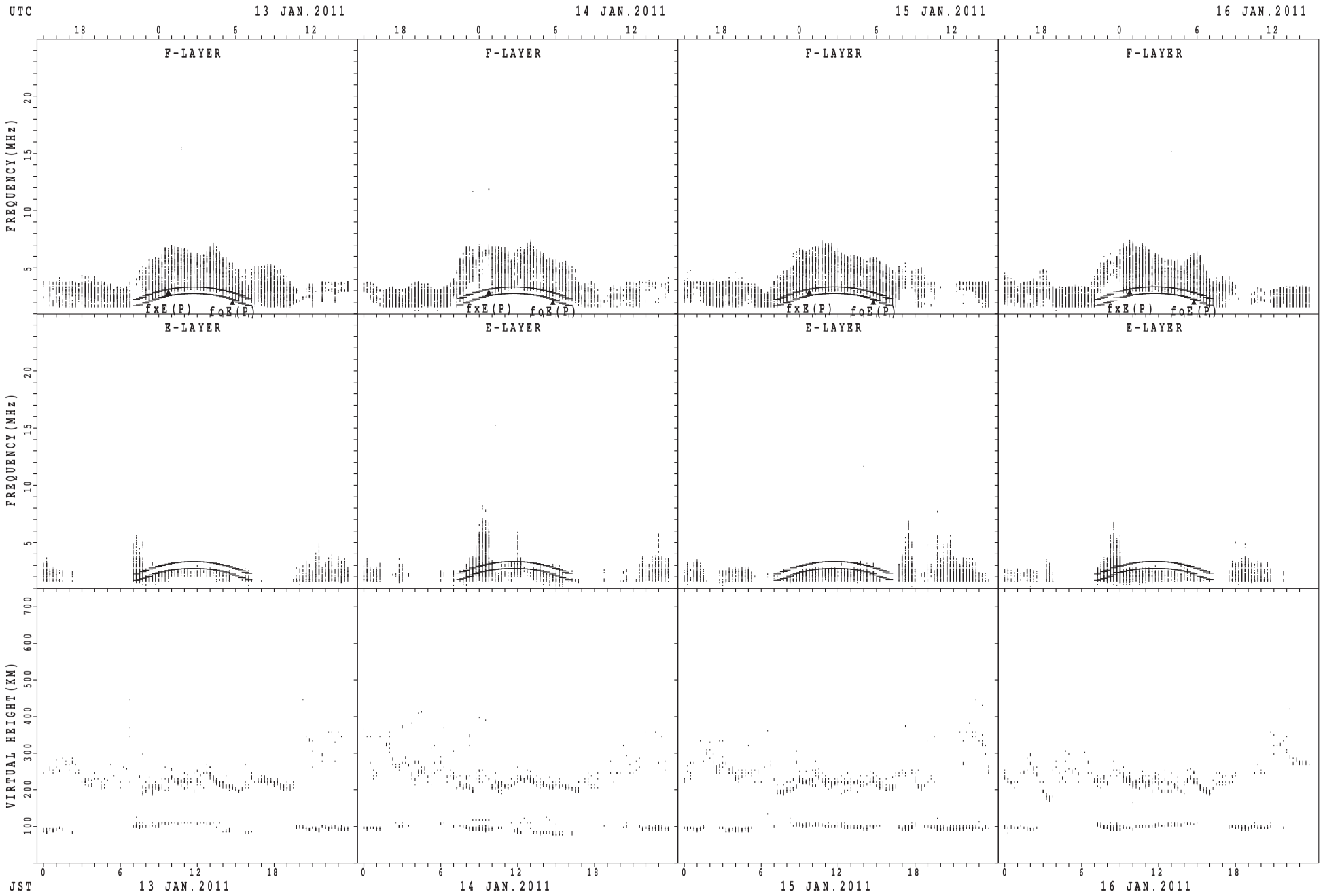


fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE


SUMMARY PLOTS AT Wakkanai
UTC
JST
5 JAN.2011
6 JAN.2011
7 JAN.2011
8 JAN.2011
F-LAYER
E-LAYER
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
fxE(P) foE(P)
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

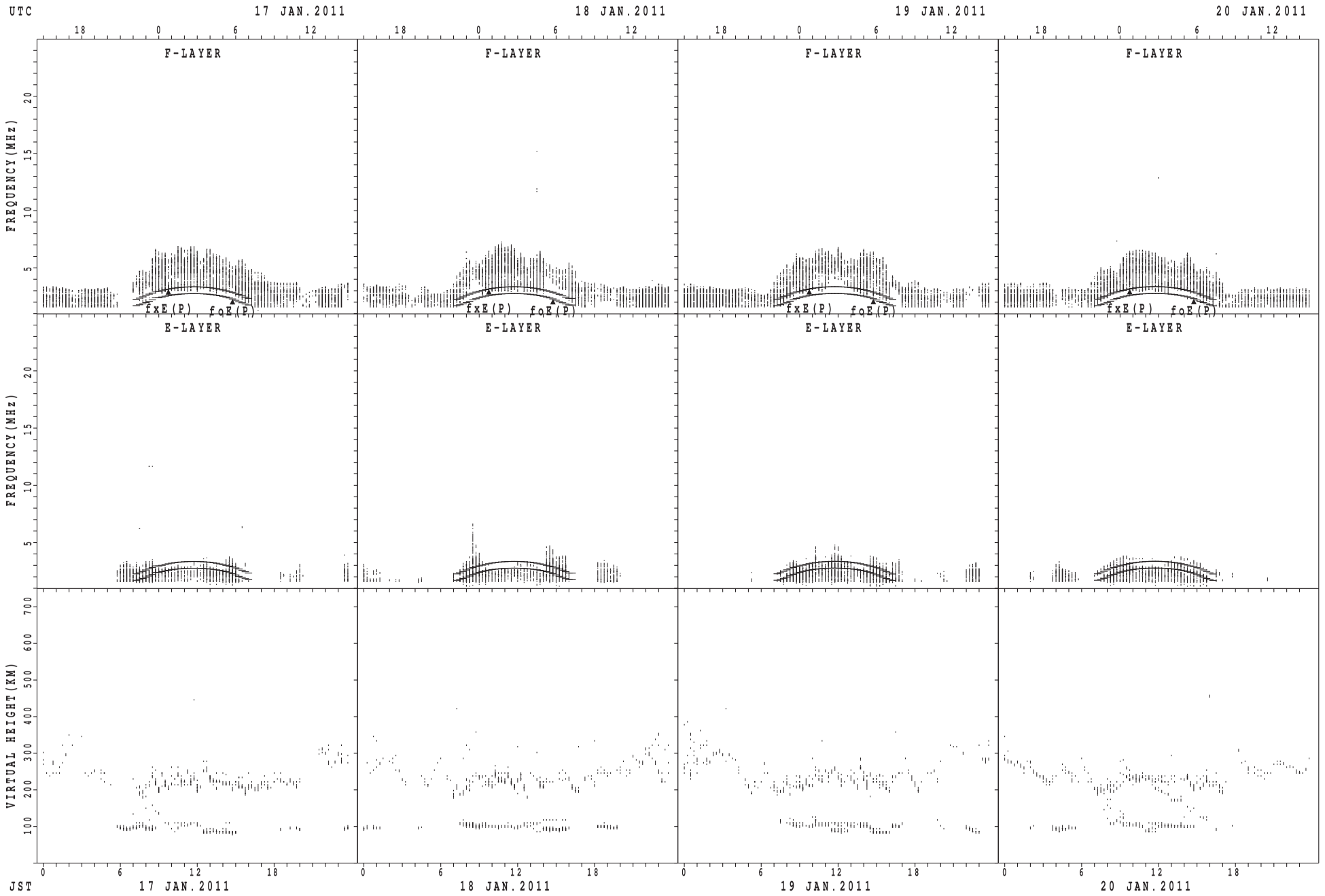

SUMMARY PLOTS AT Wakkanai
UTC
JST
9 JAN.2011
10 JAN.2011
11 JAN.2011
12 JAN.2011
F-LAYER
E-LAYER
fxE(P)
foE(P)
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



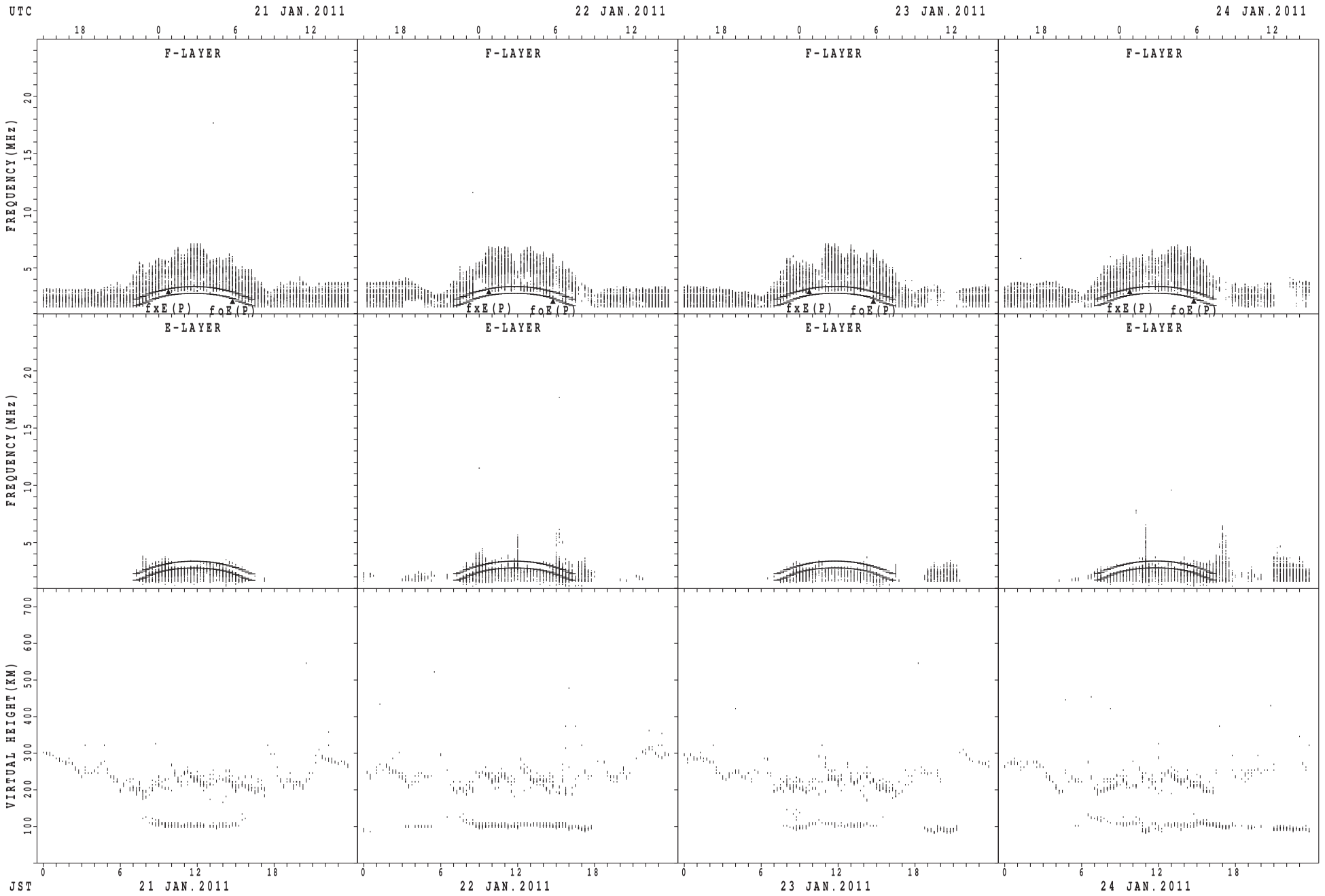
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai

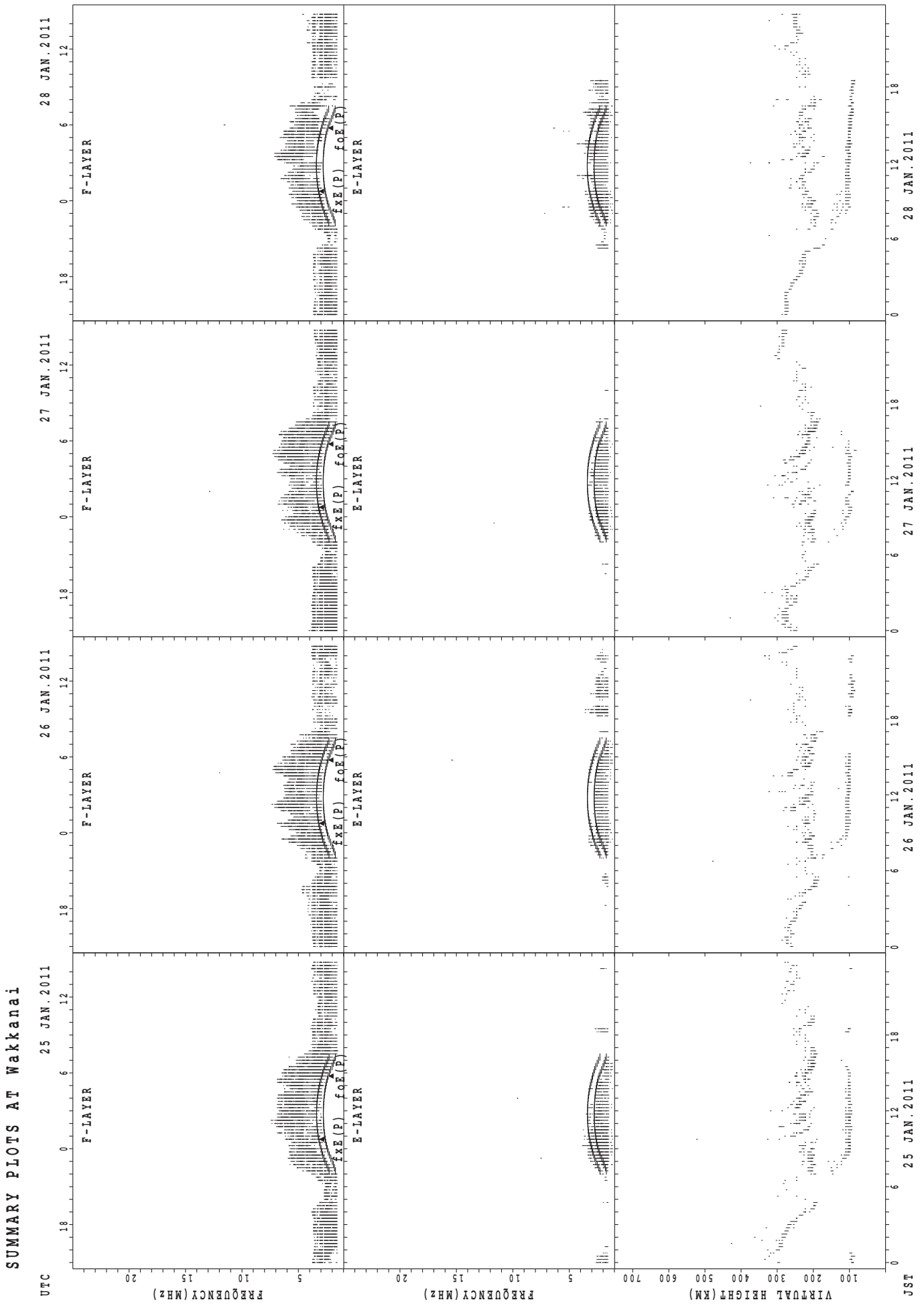


fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

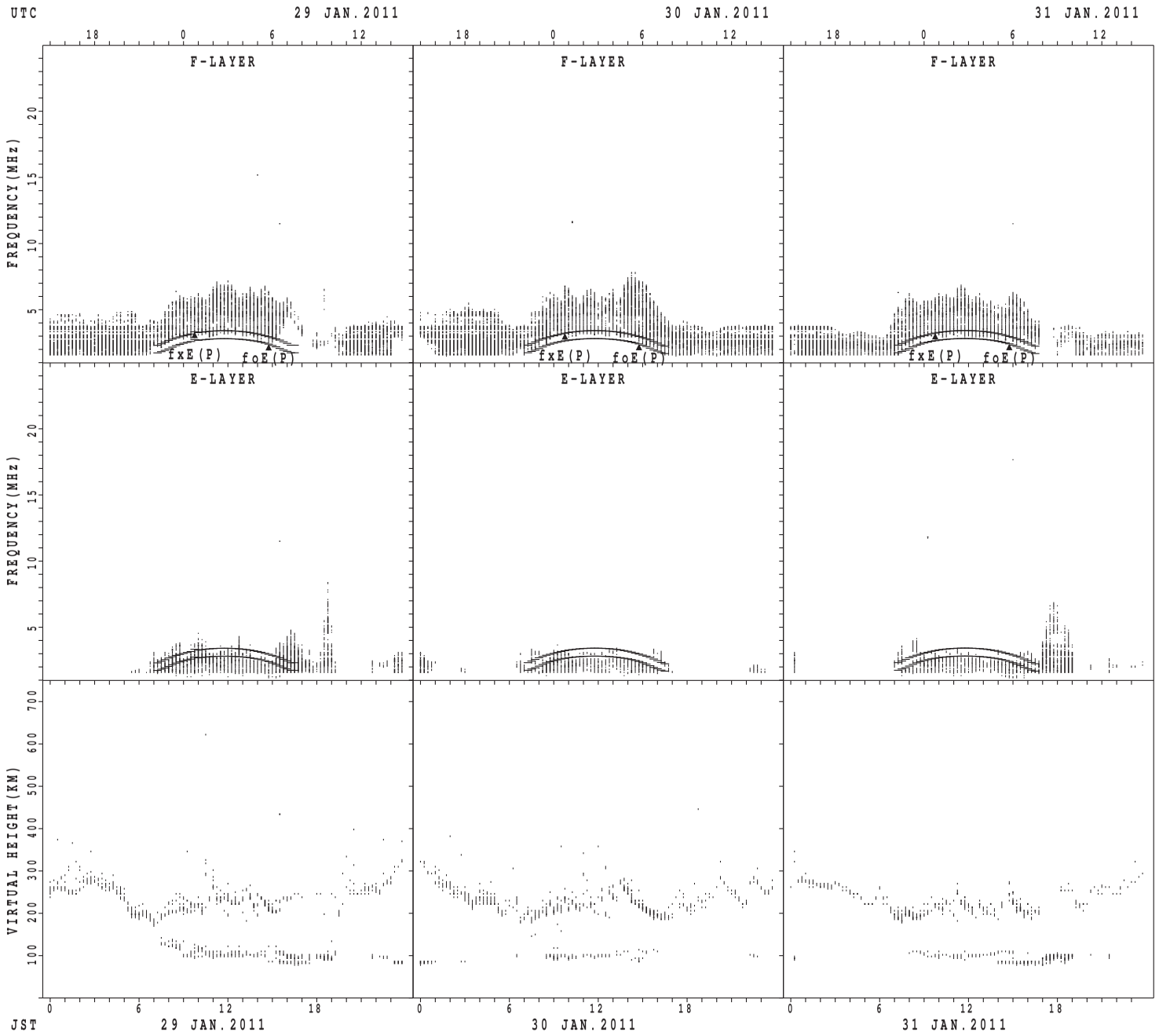
SUMMARY PLOTS AT Wakkanai



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

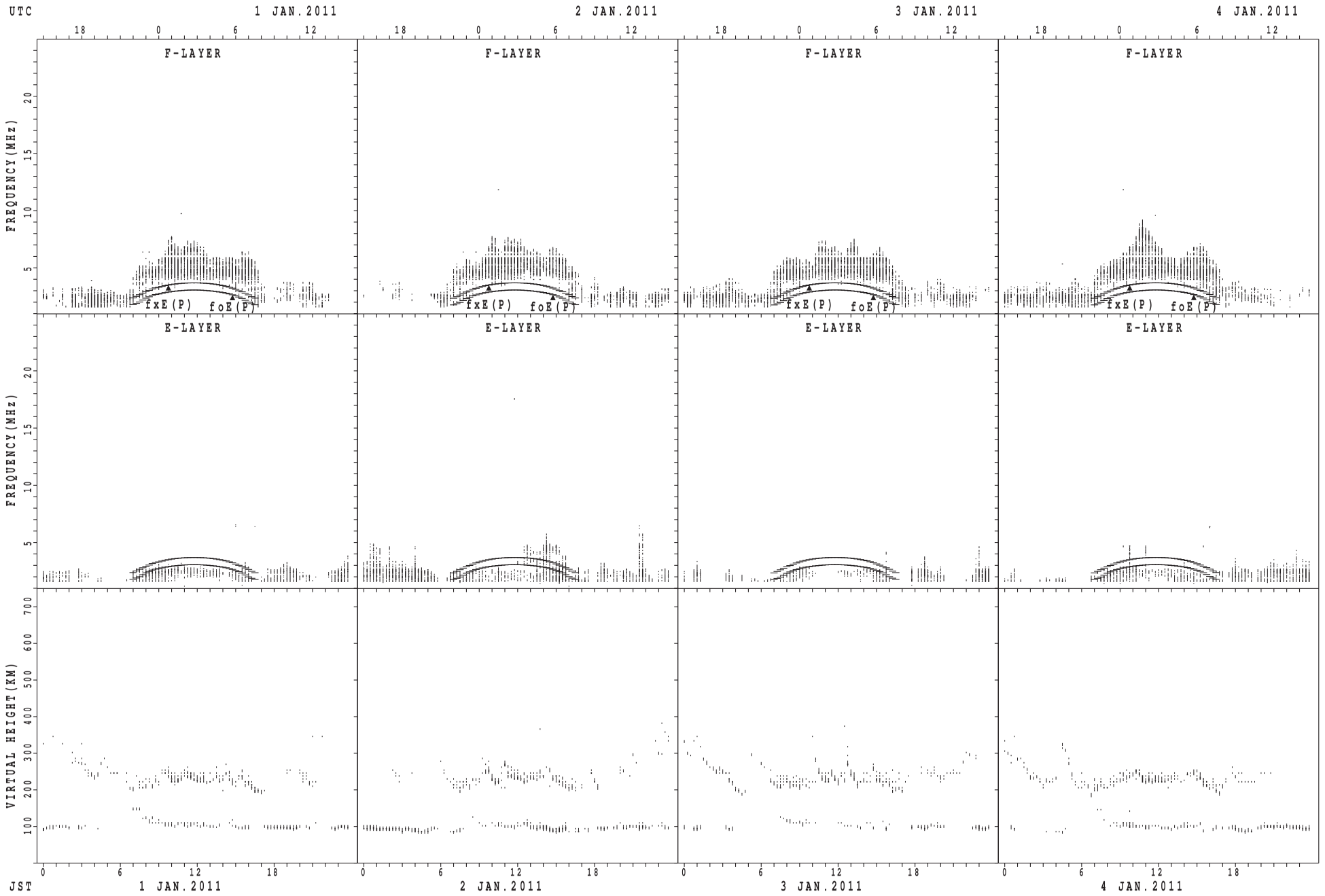

SUMMARY PLOTS AT Wakkanai
UTC
JST
25 JAN.2011
26 JAN.2011
27 JAN.2011
28 JAN.2011
F-LAYER
E-LAYER
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
fxE(P) foE(P)
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



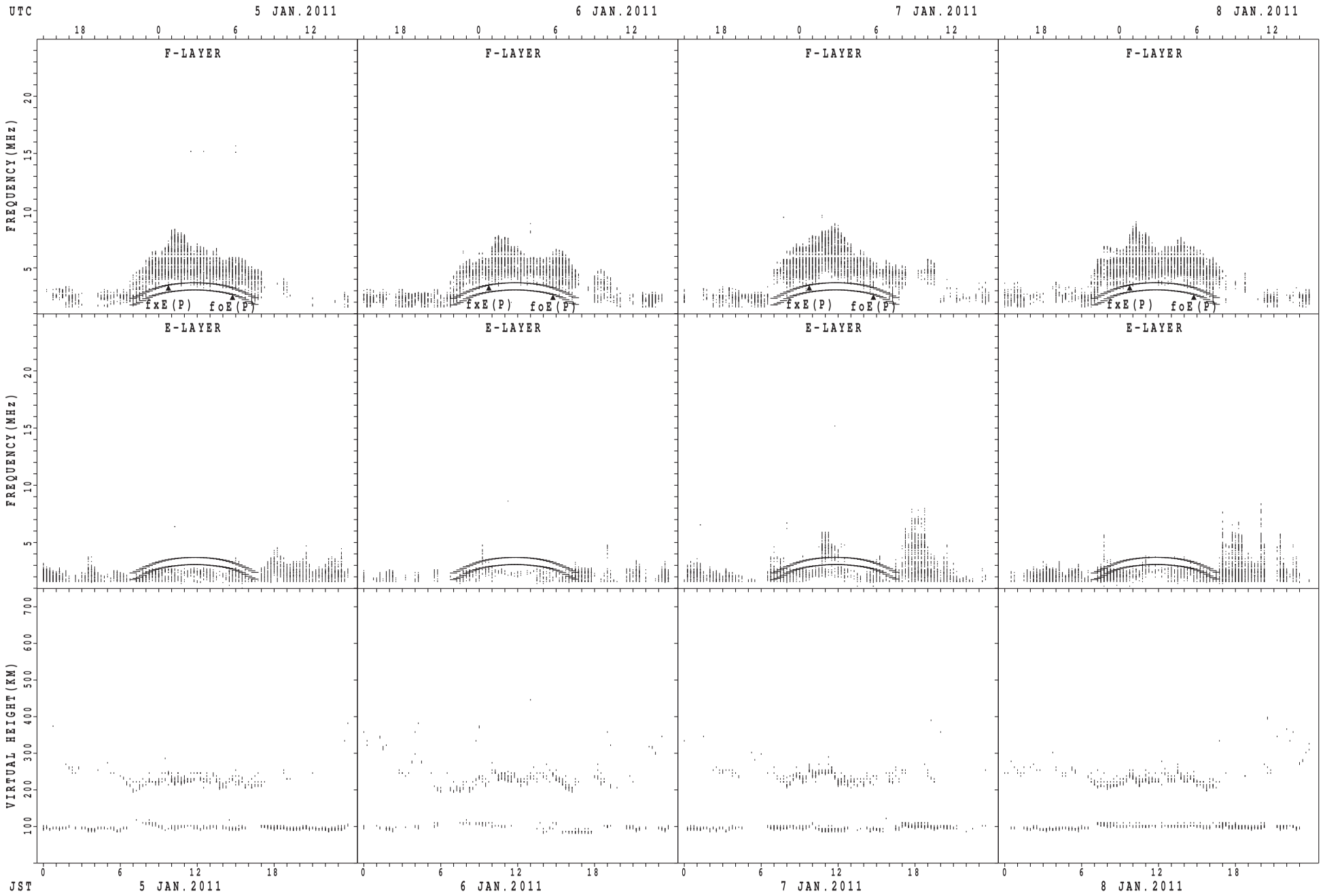
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



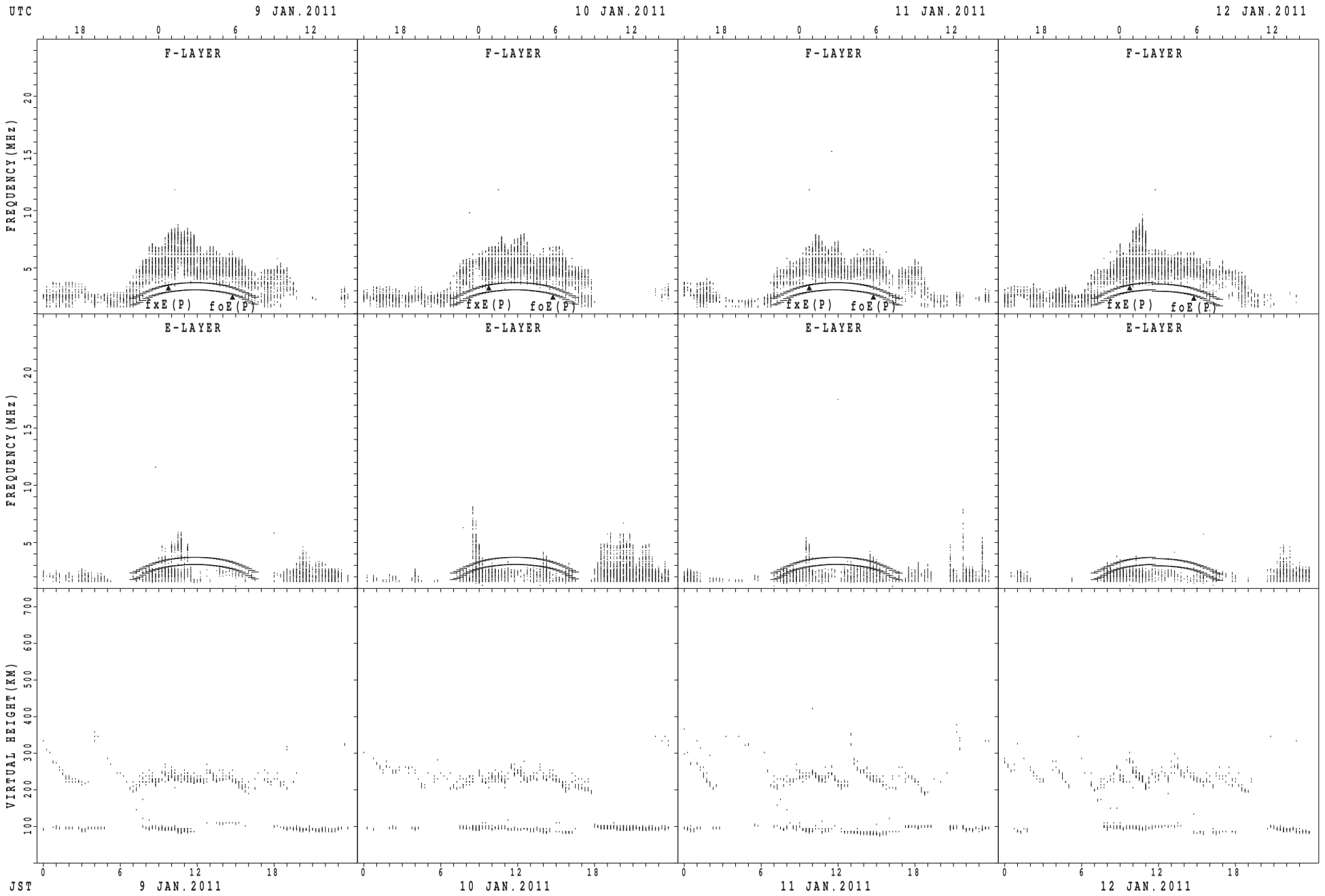
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



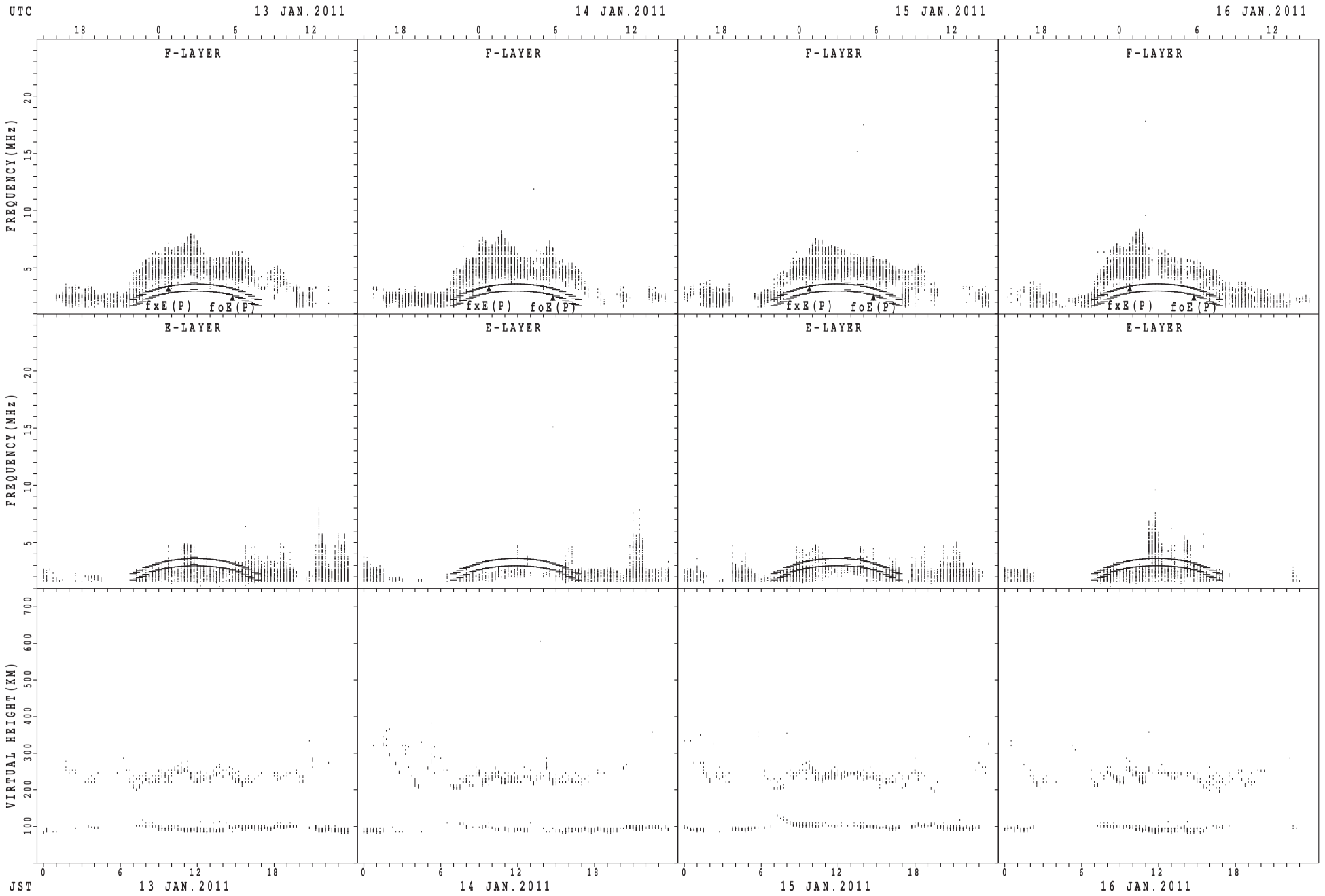
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



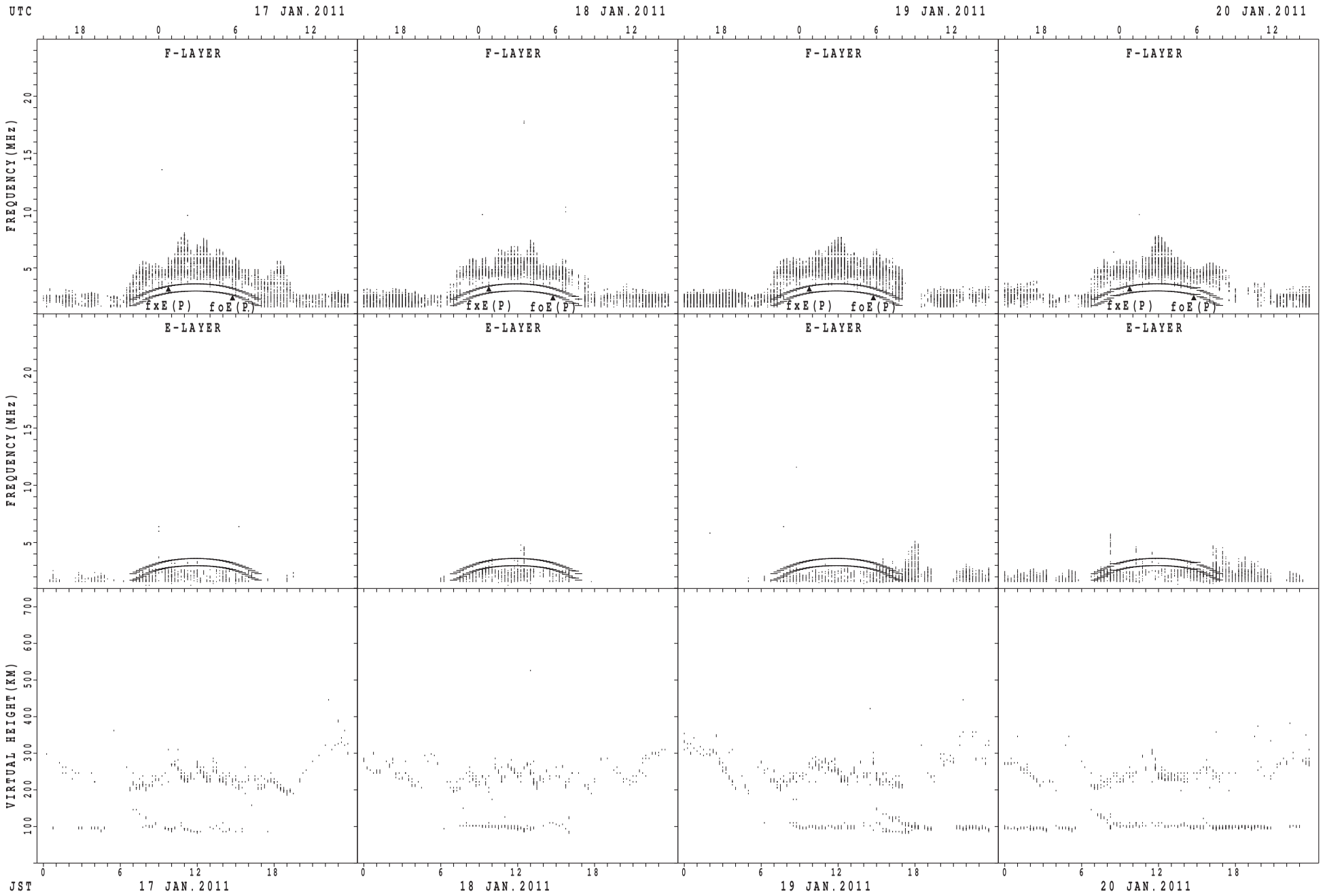
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



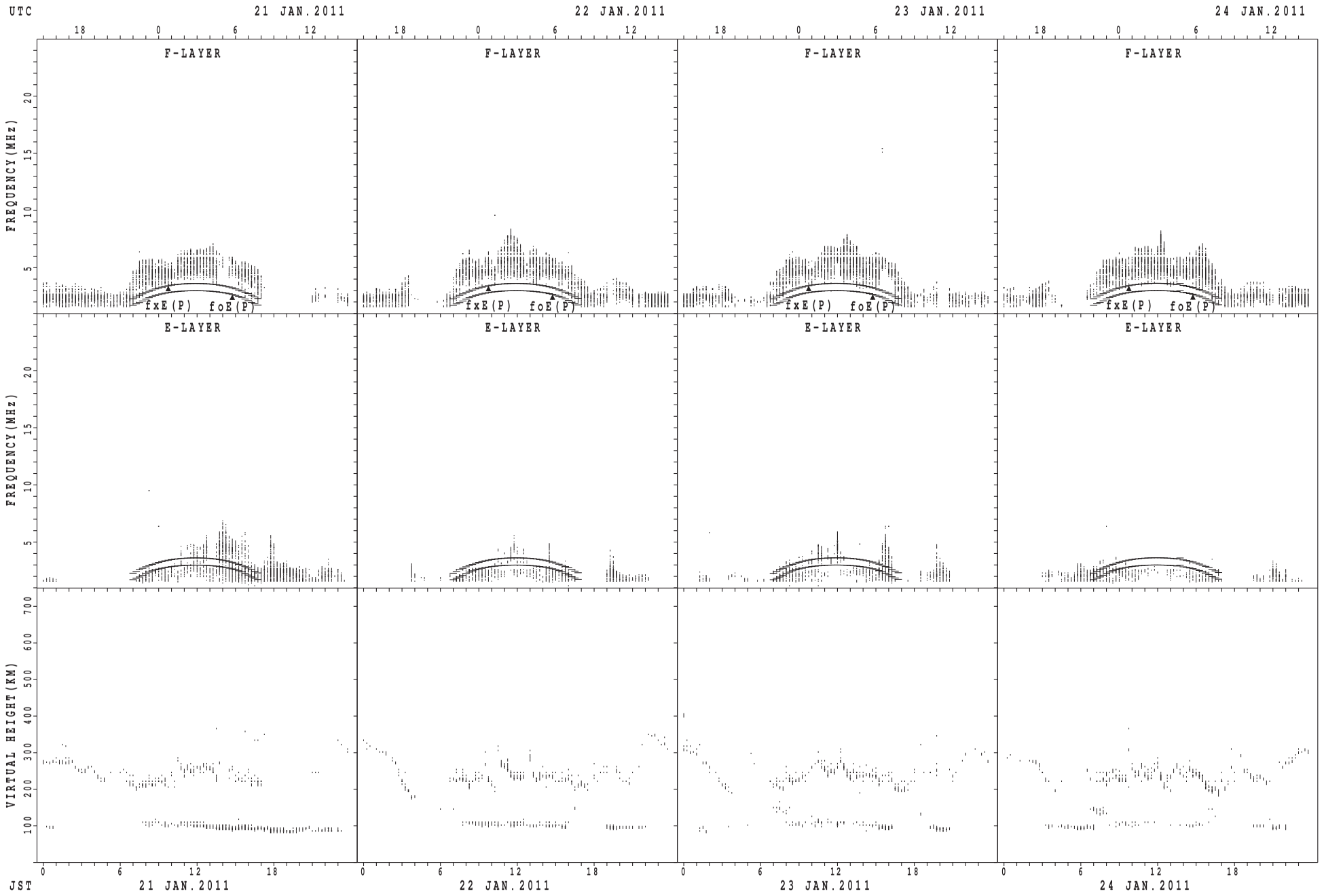
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



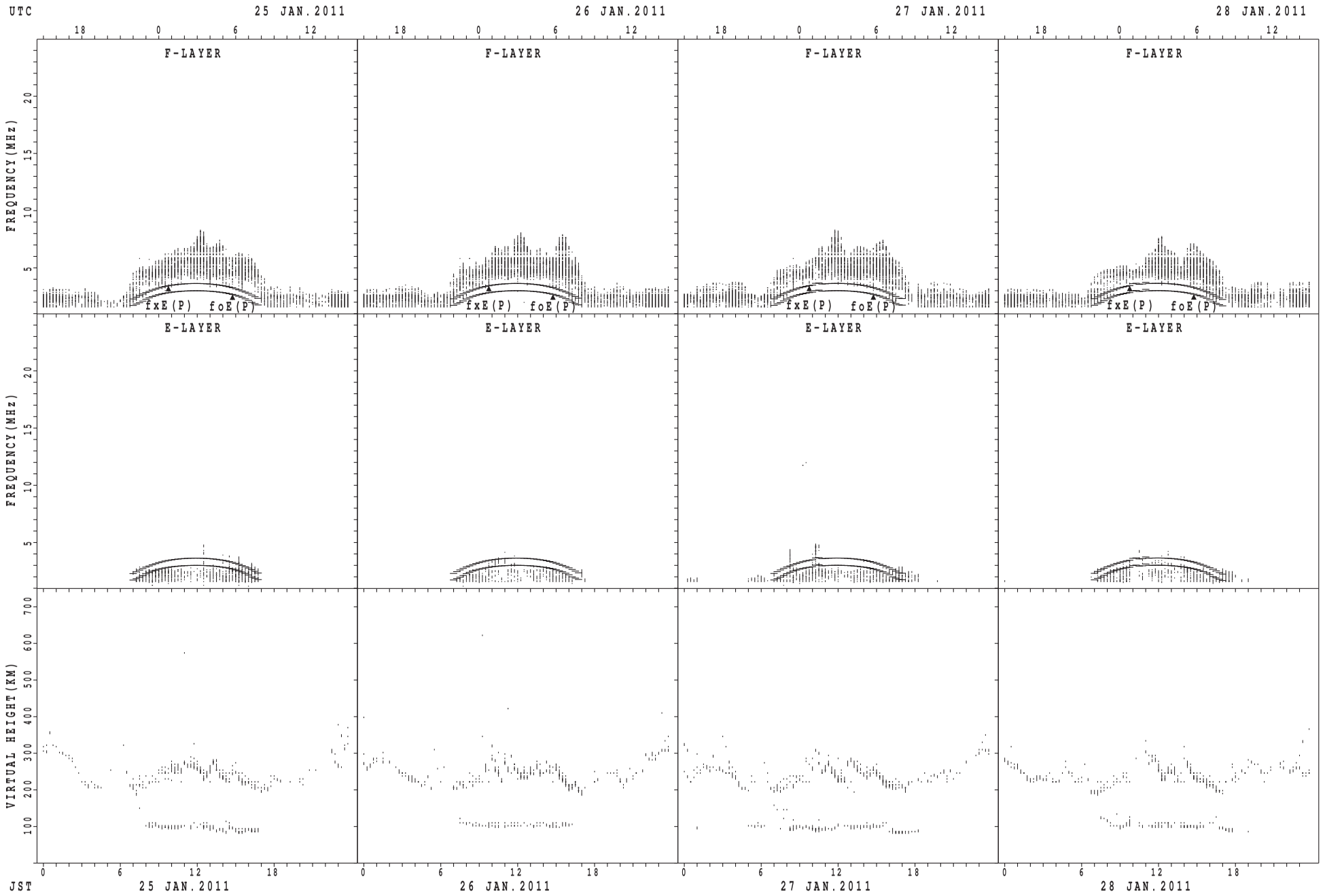
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



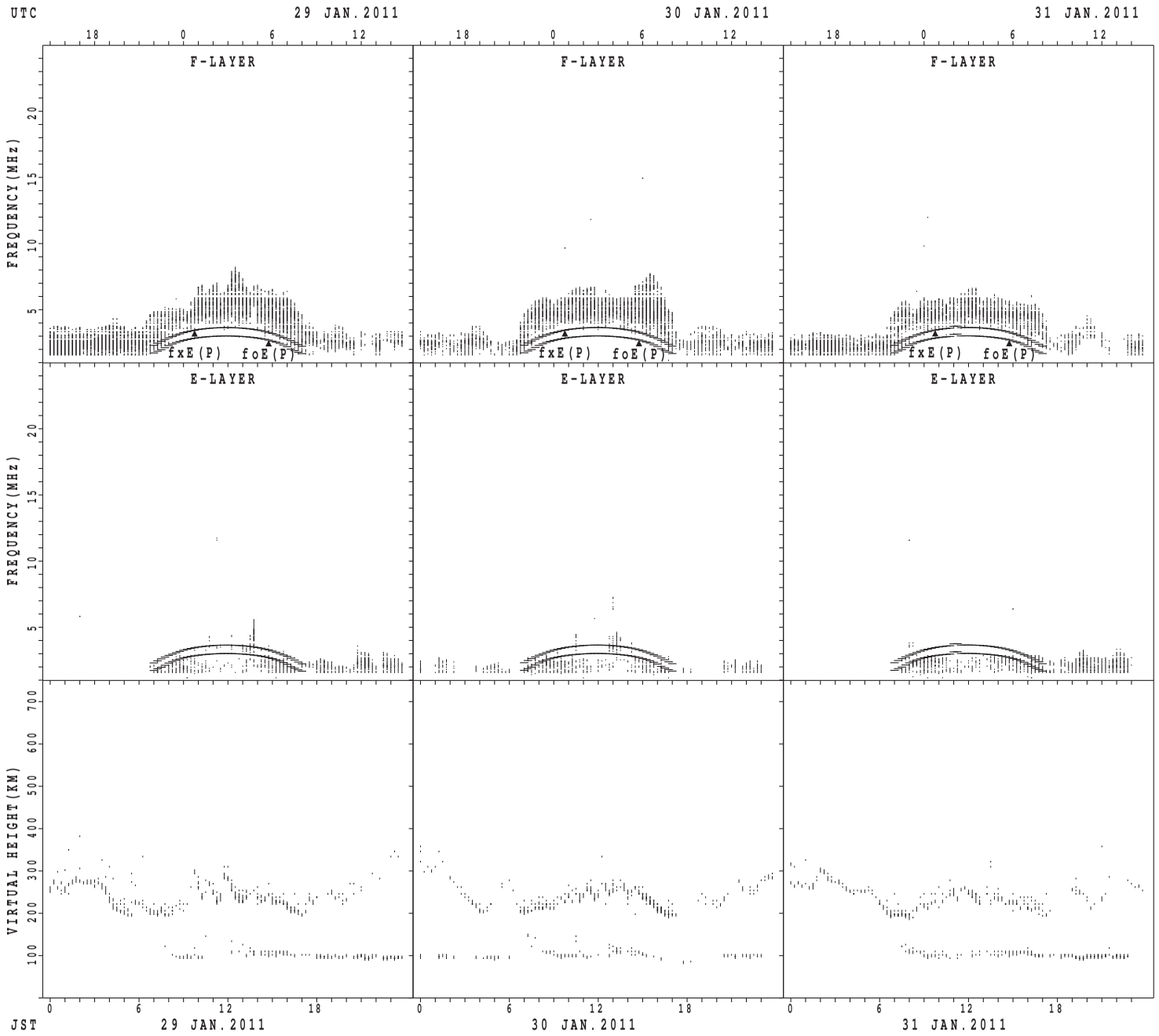
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



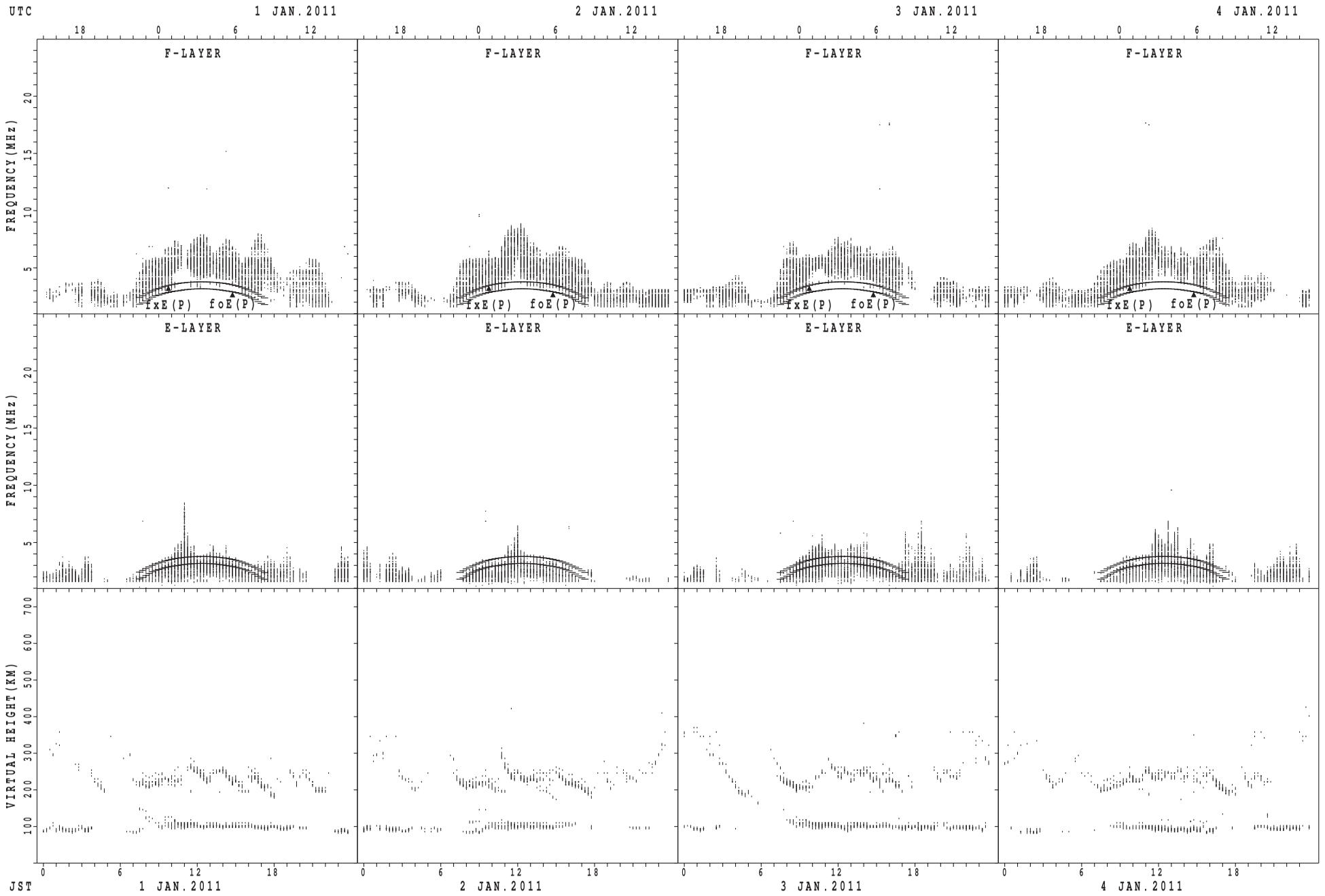
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



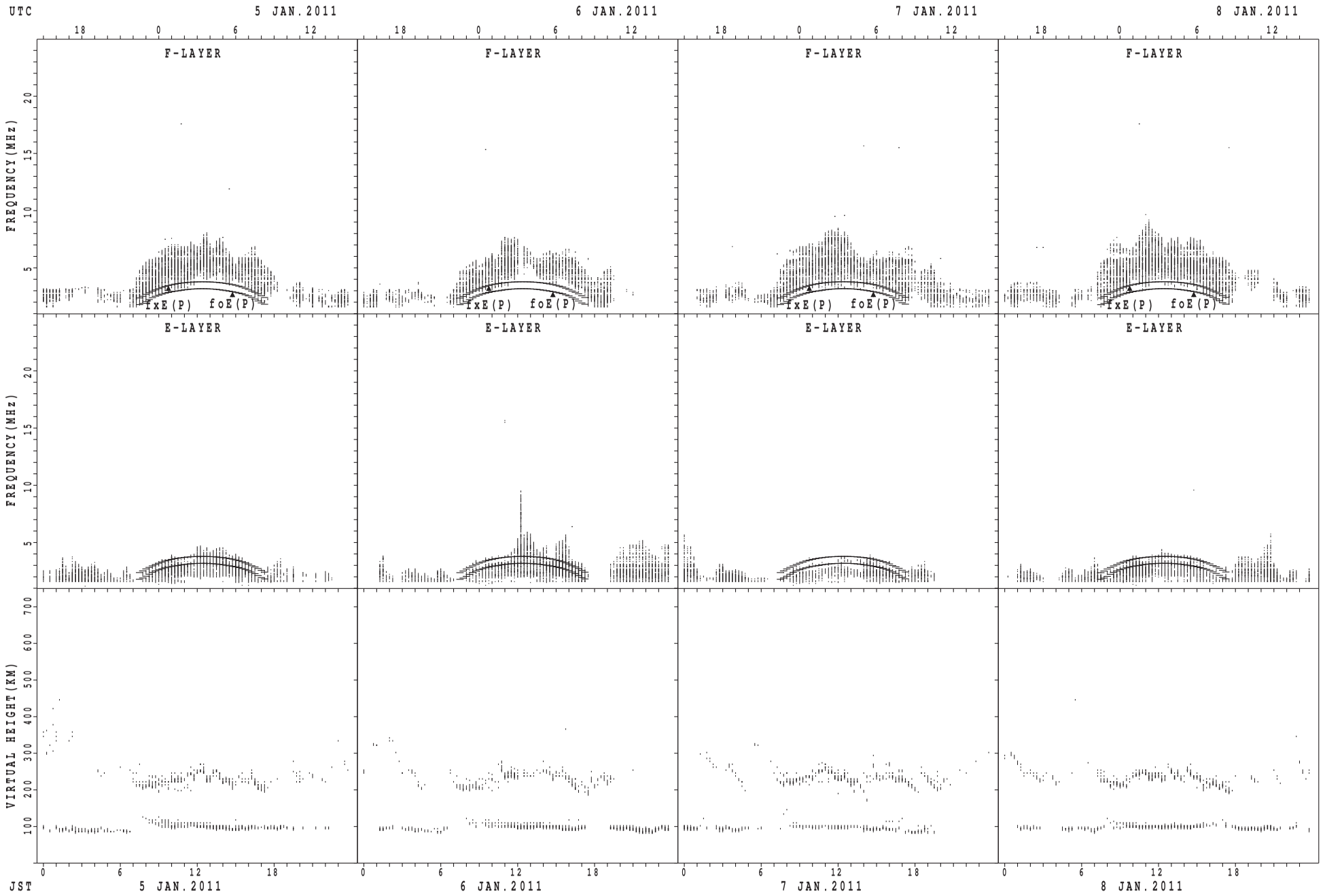
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



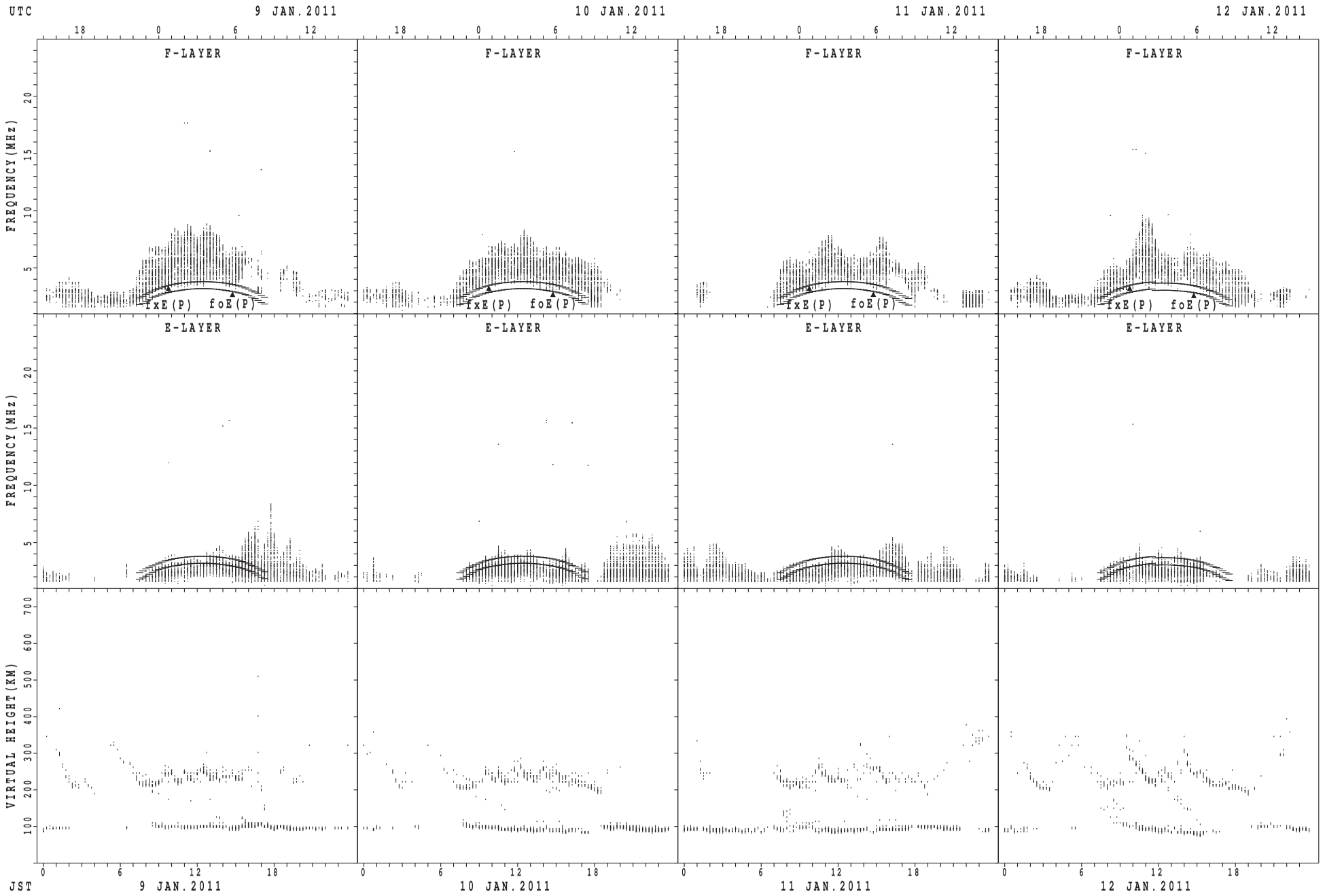
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



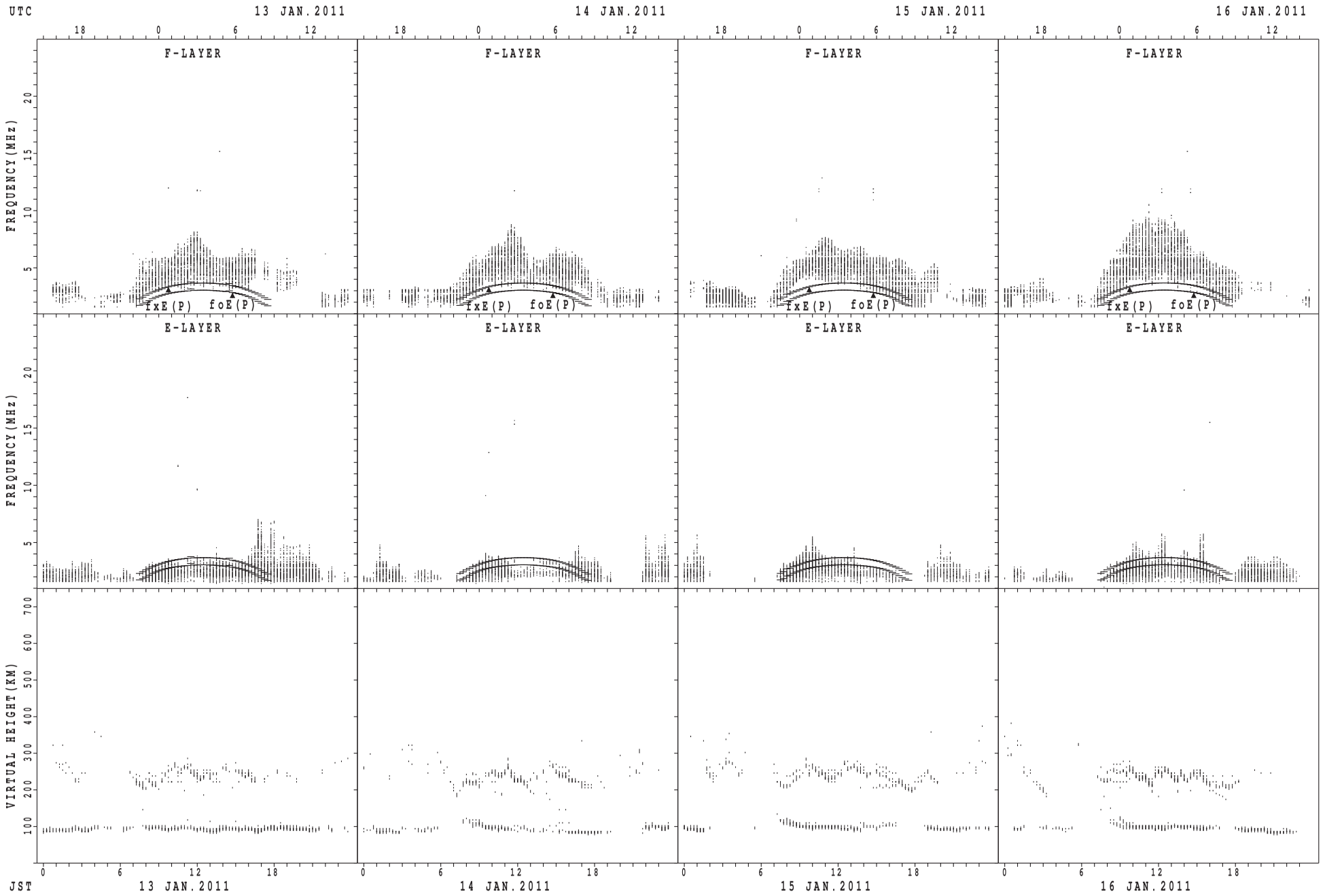
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa

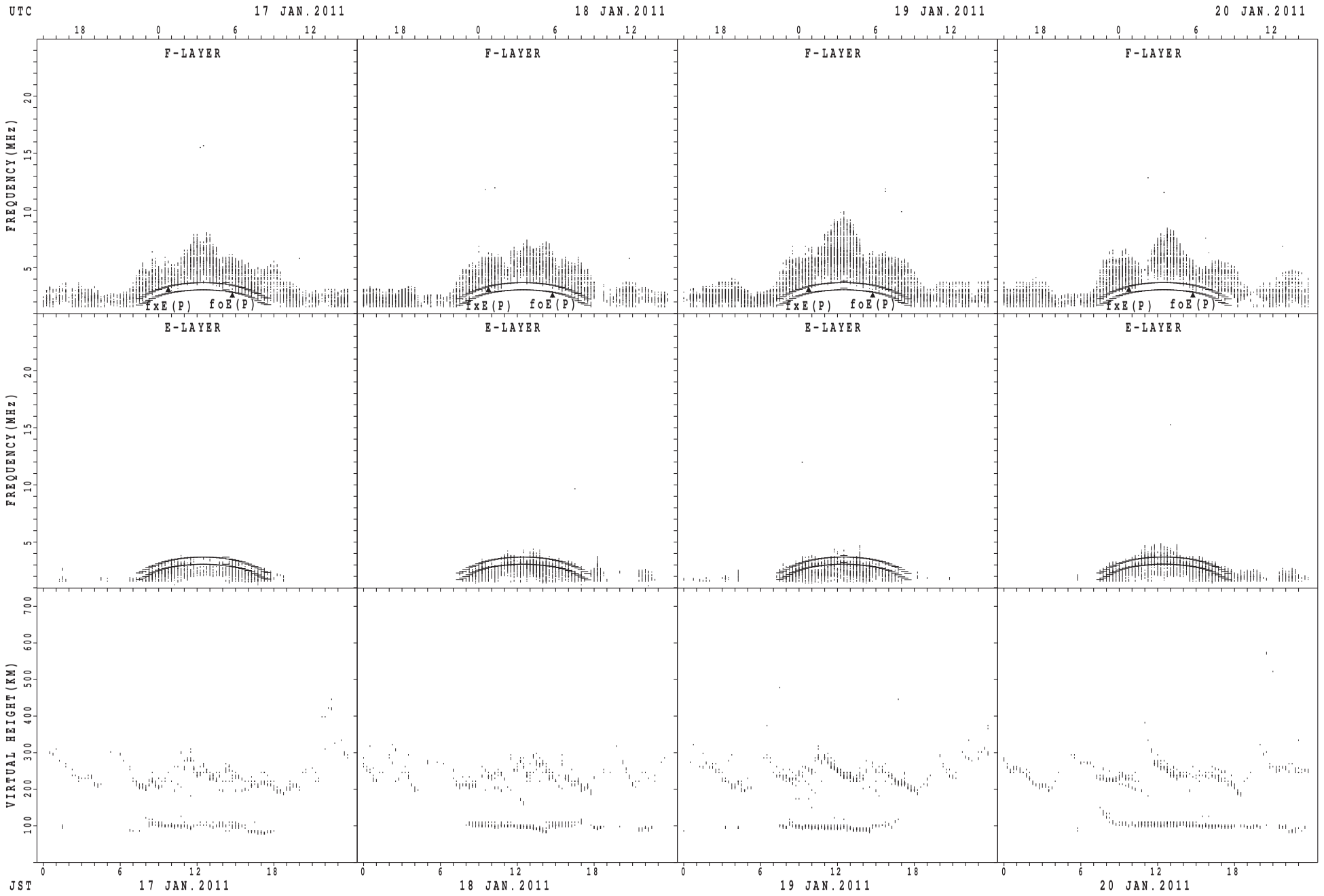


fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

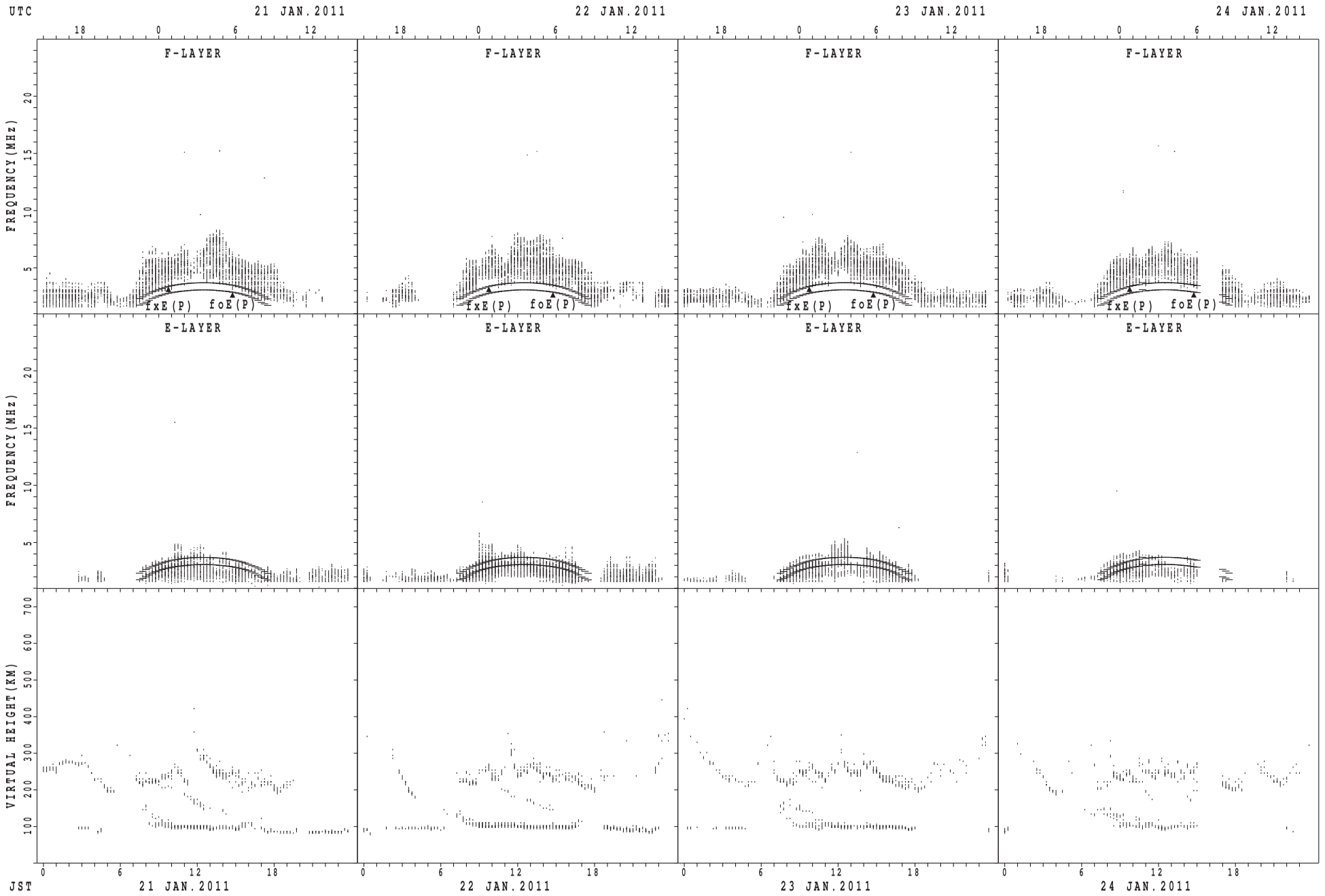
SUMMARY PLOTS AT Yamagawa



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

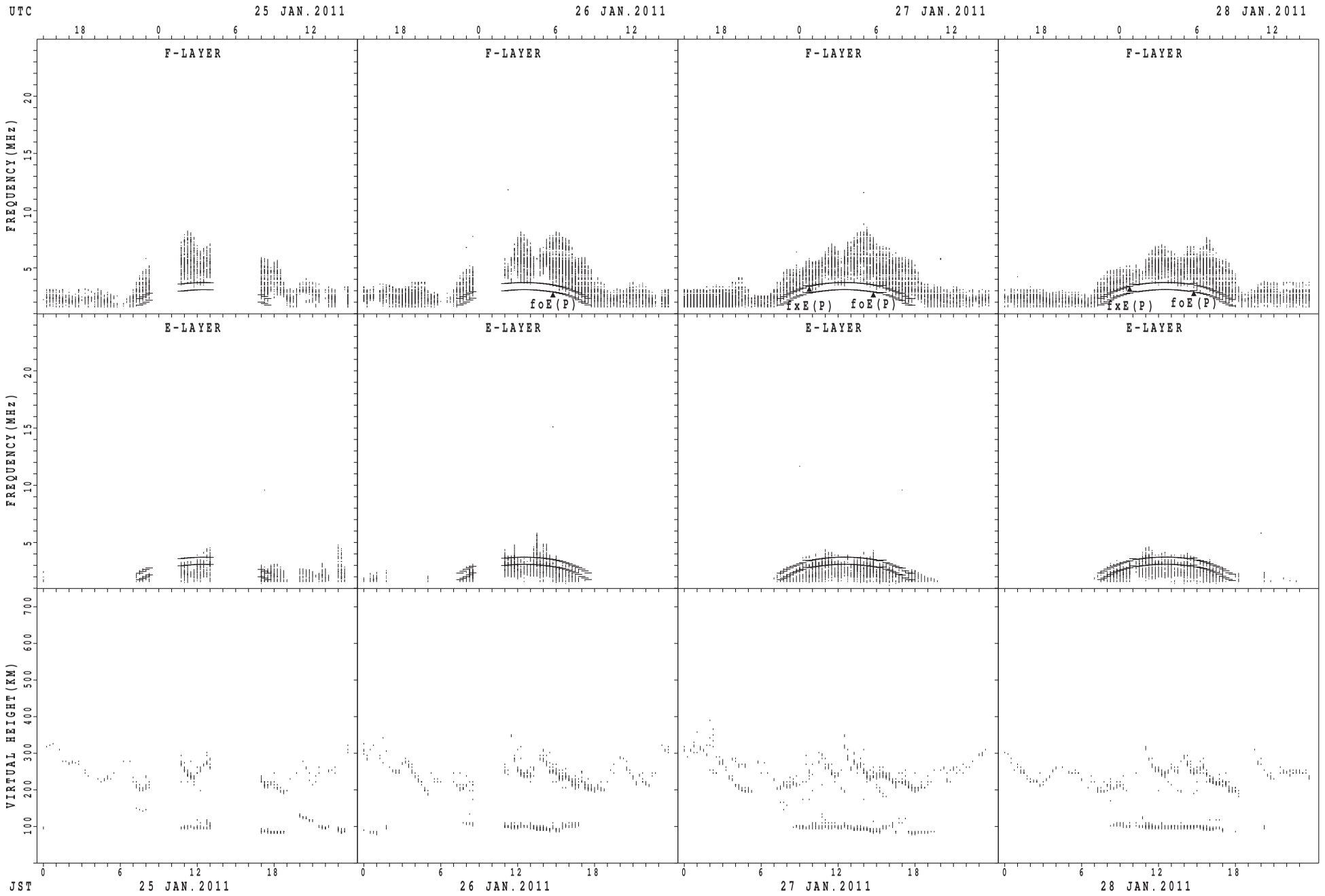

SUMMARY PLOTS AT Yamagawa
UTC
17 JAN.2011
18 JAN.2011
19 JAN.2011
20 JAN.2011
F-LAYER
E-LAYER
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
fxE(P) foE(P)
JST
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



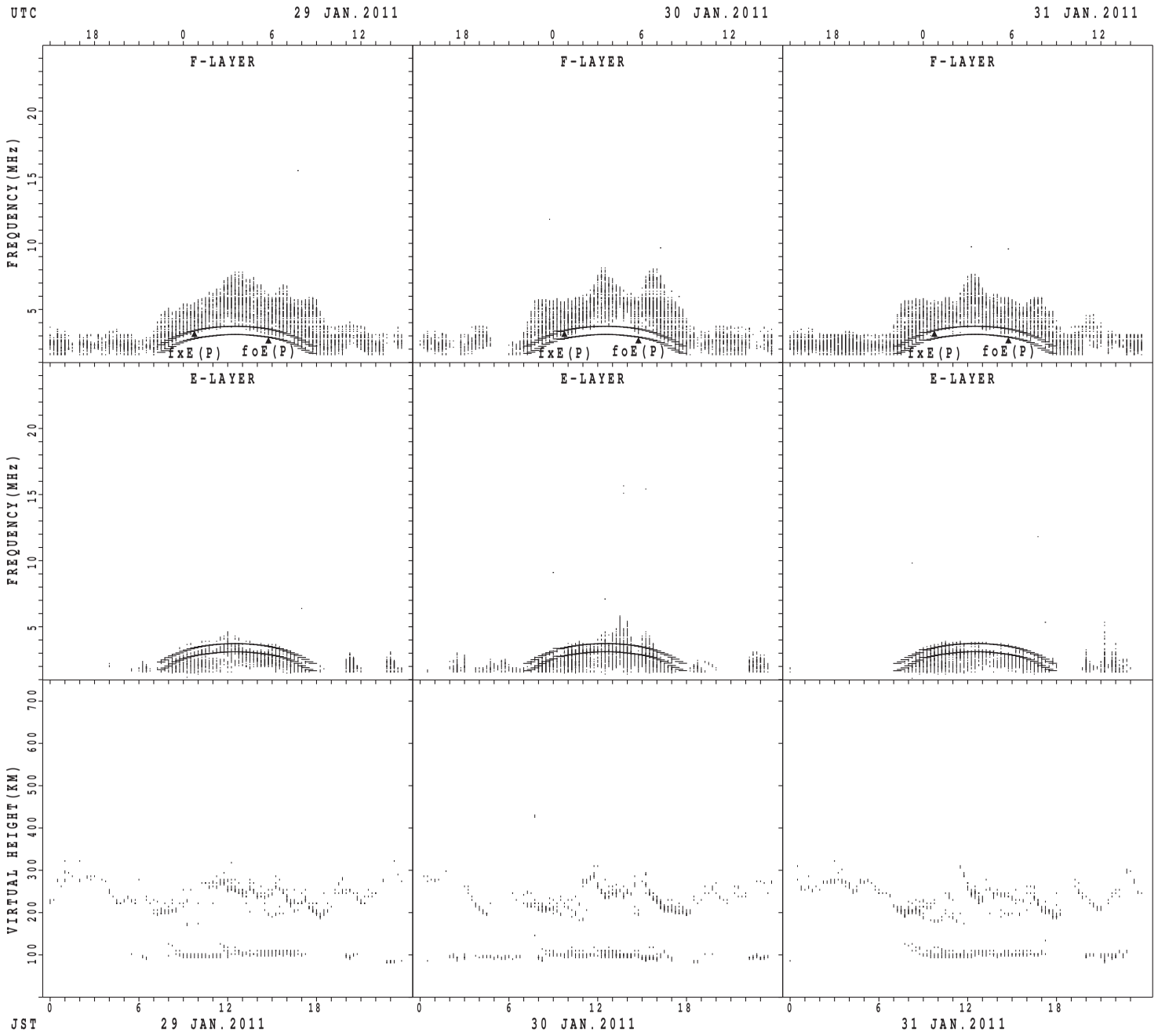
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



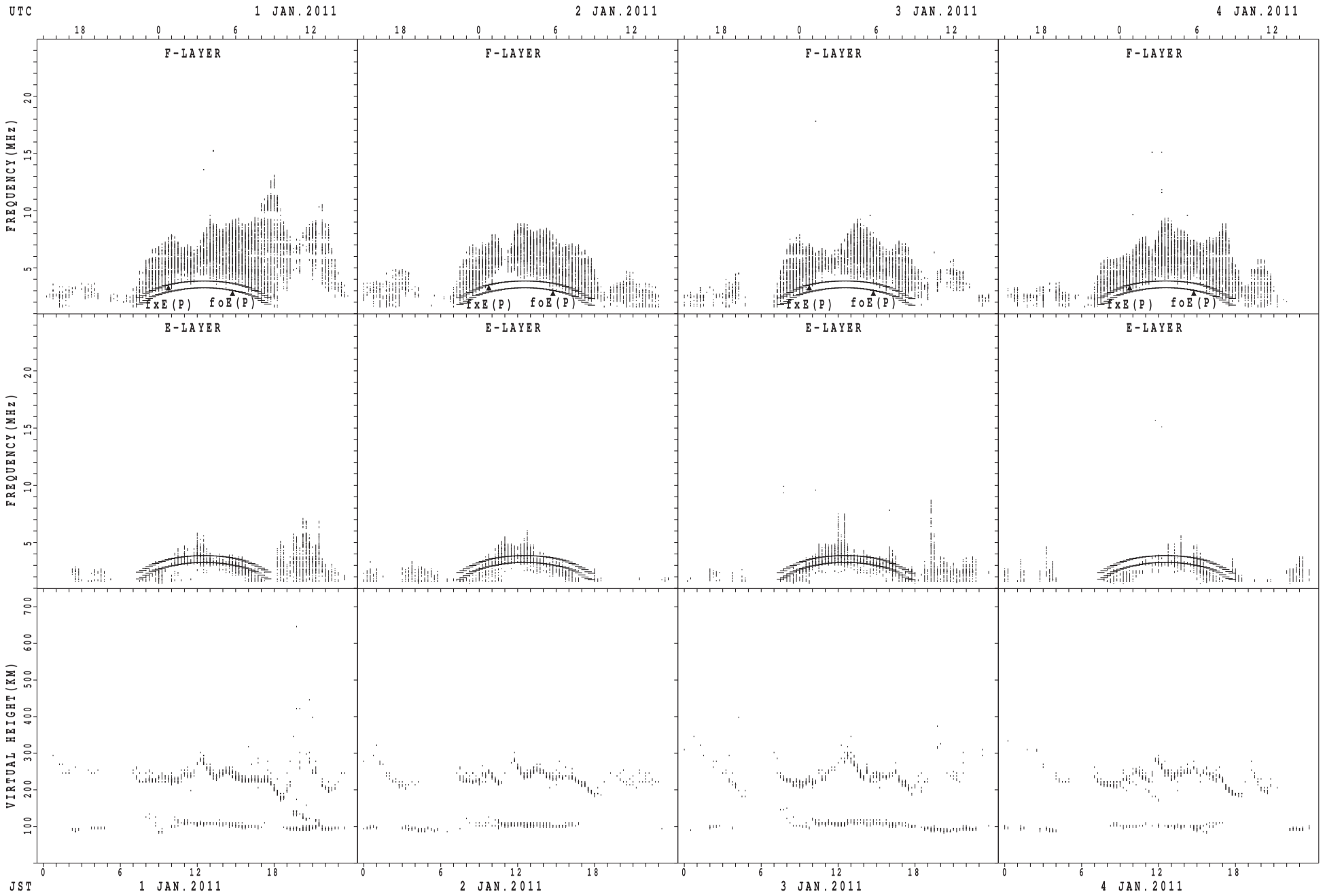
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



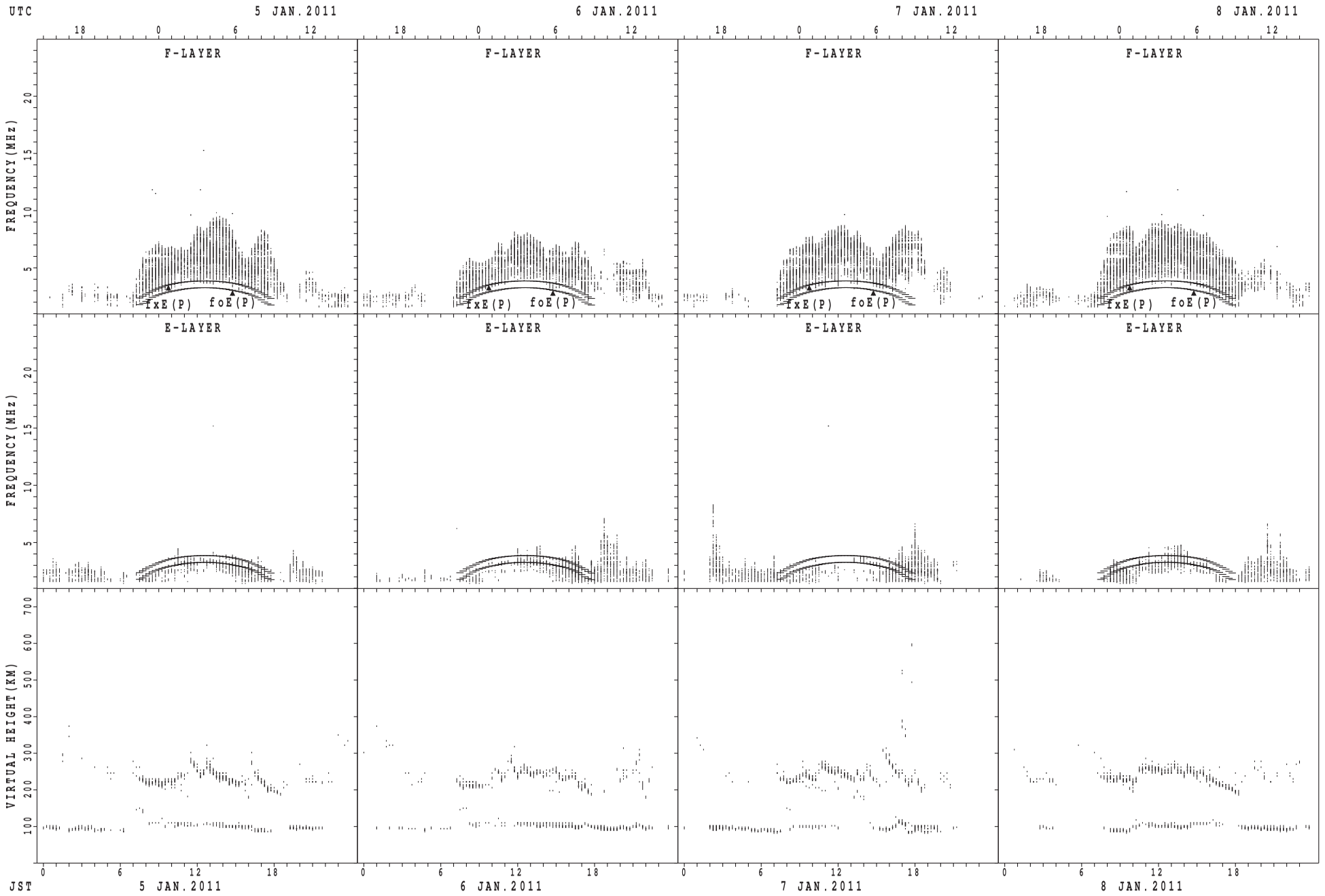
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



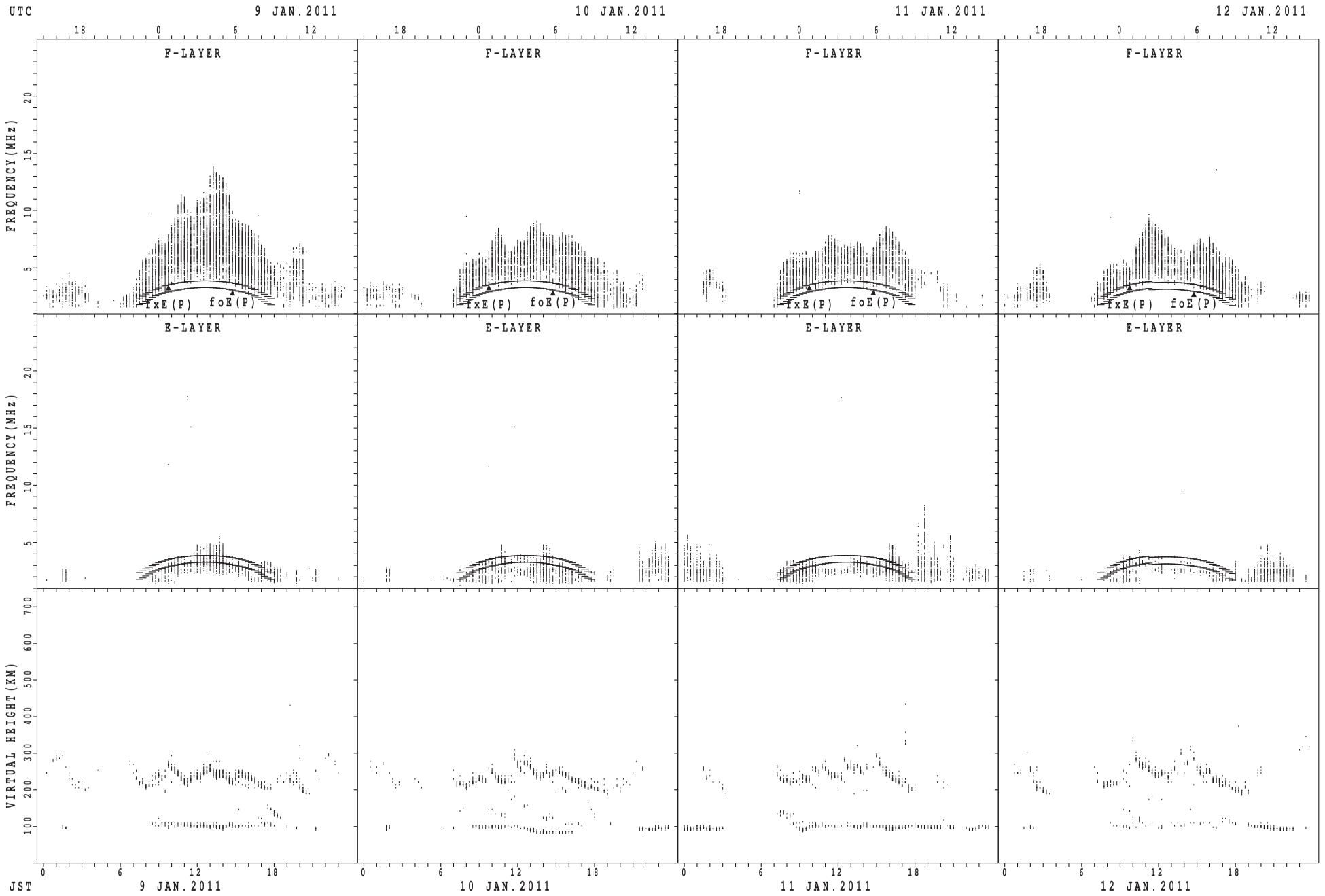
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



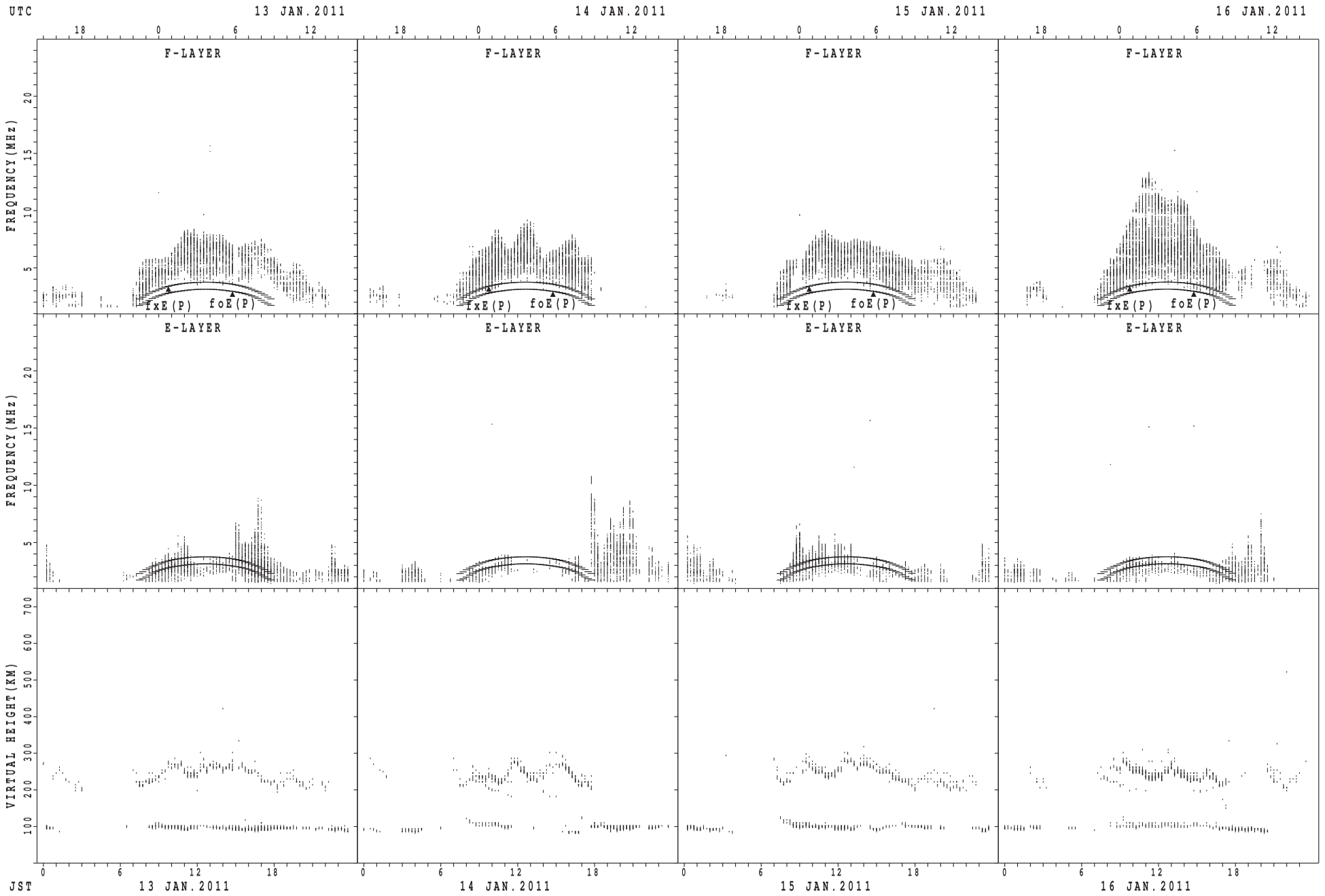
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



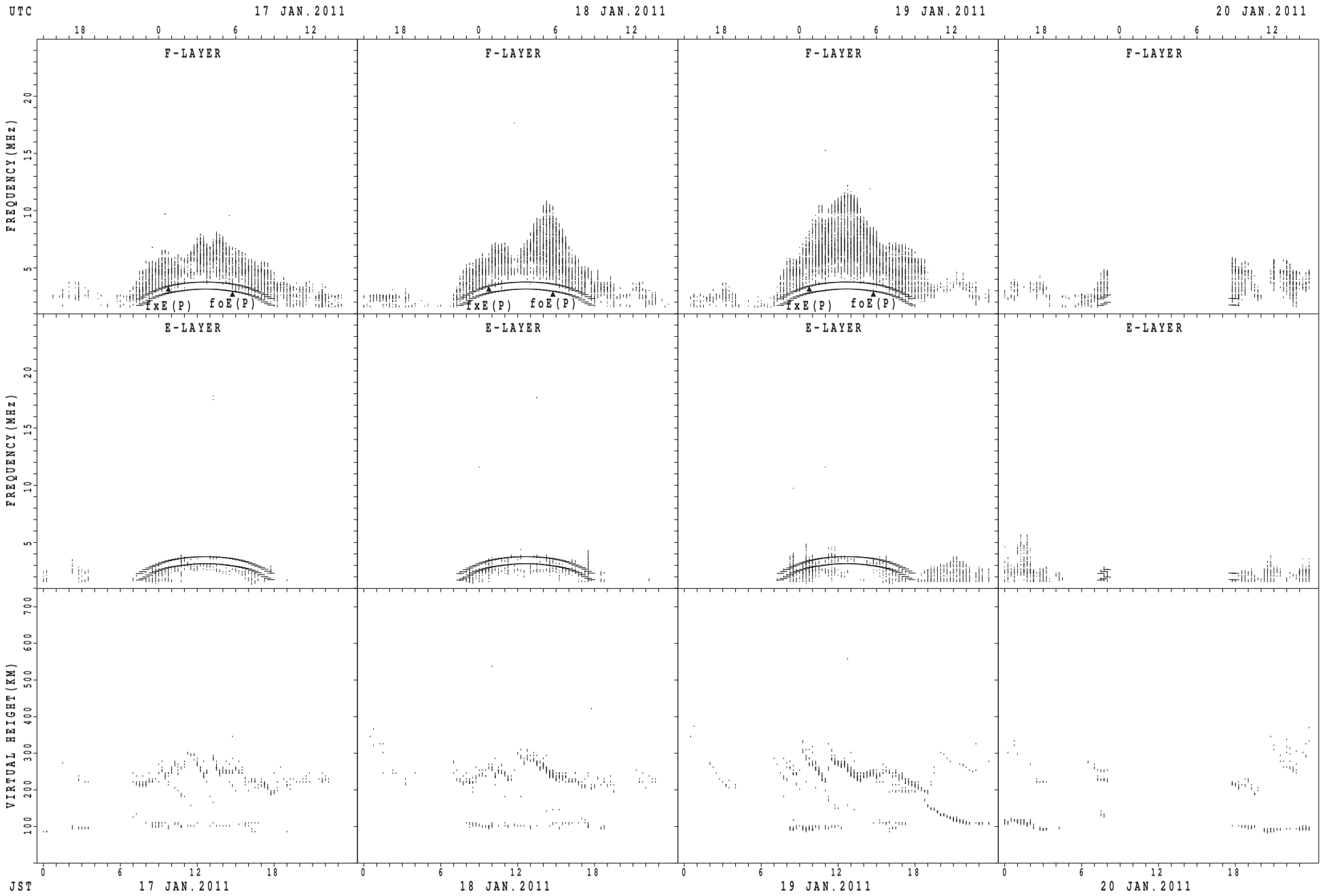
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



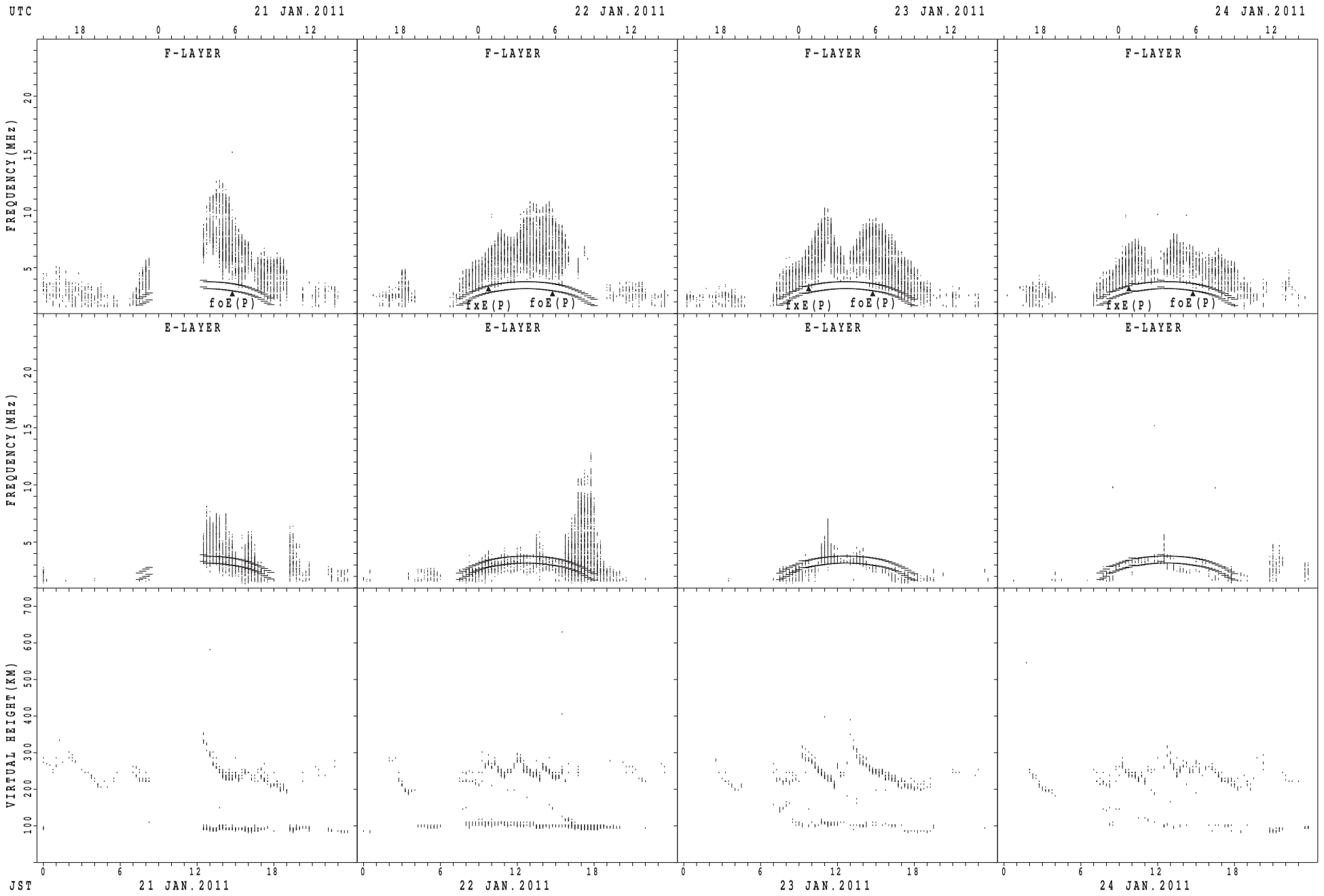
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



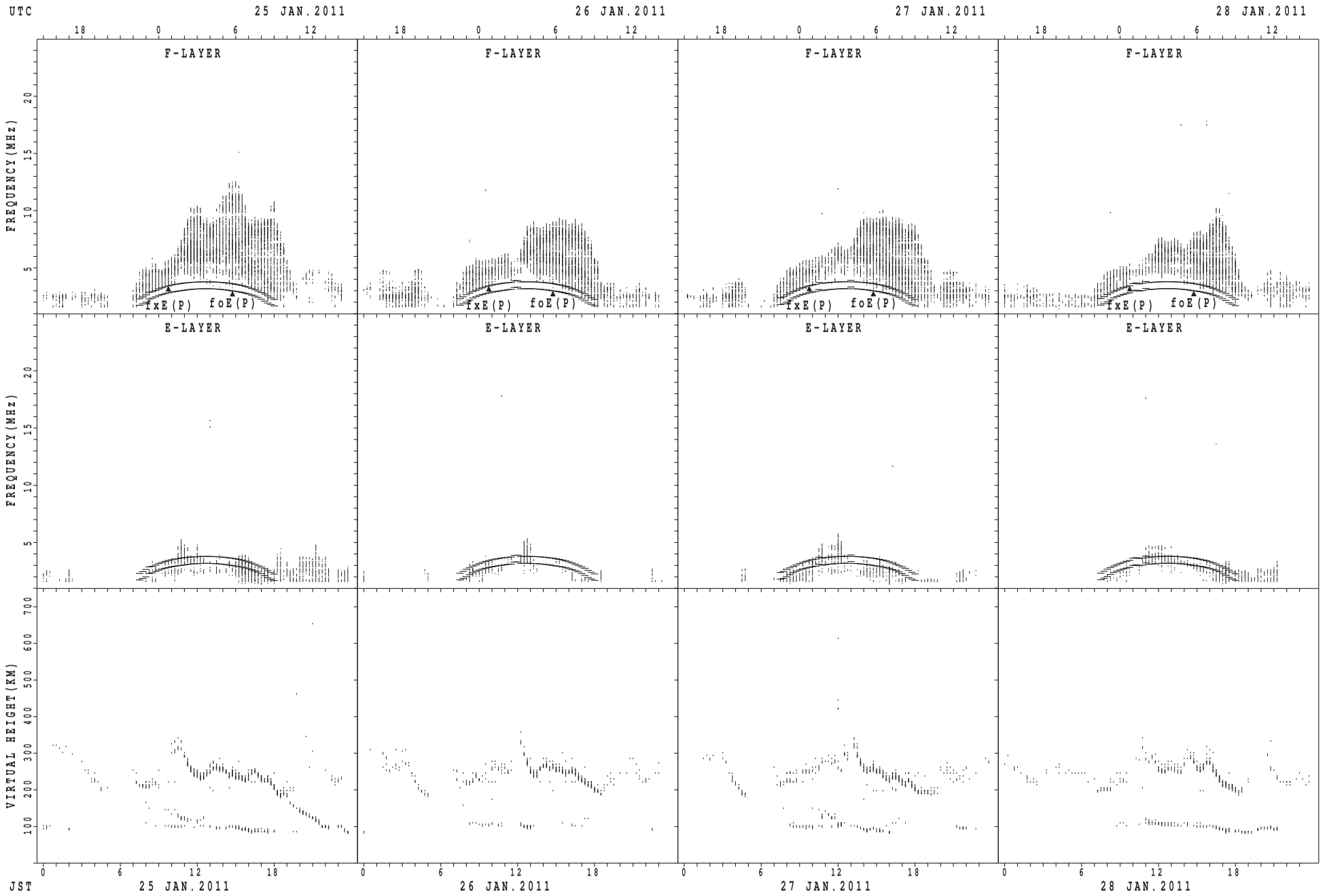
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



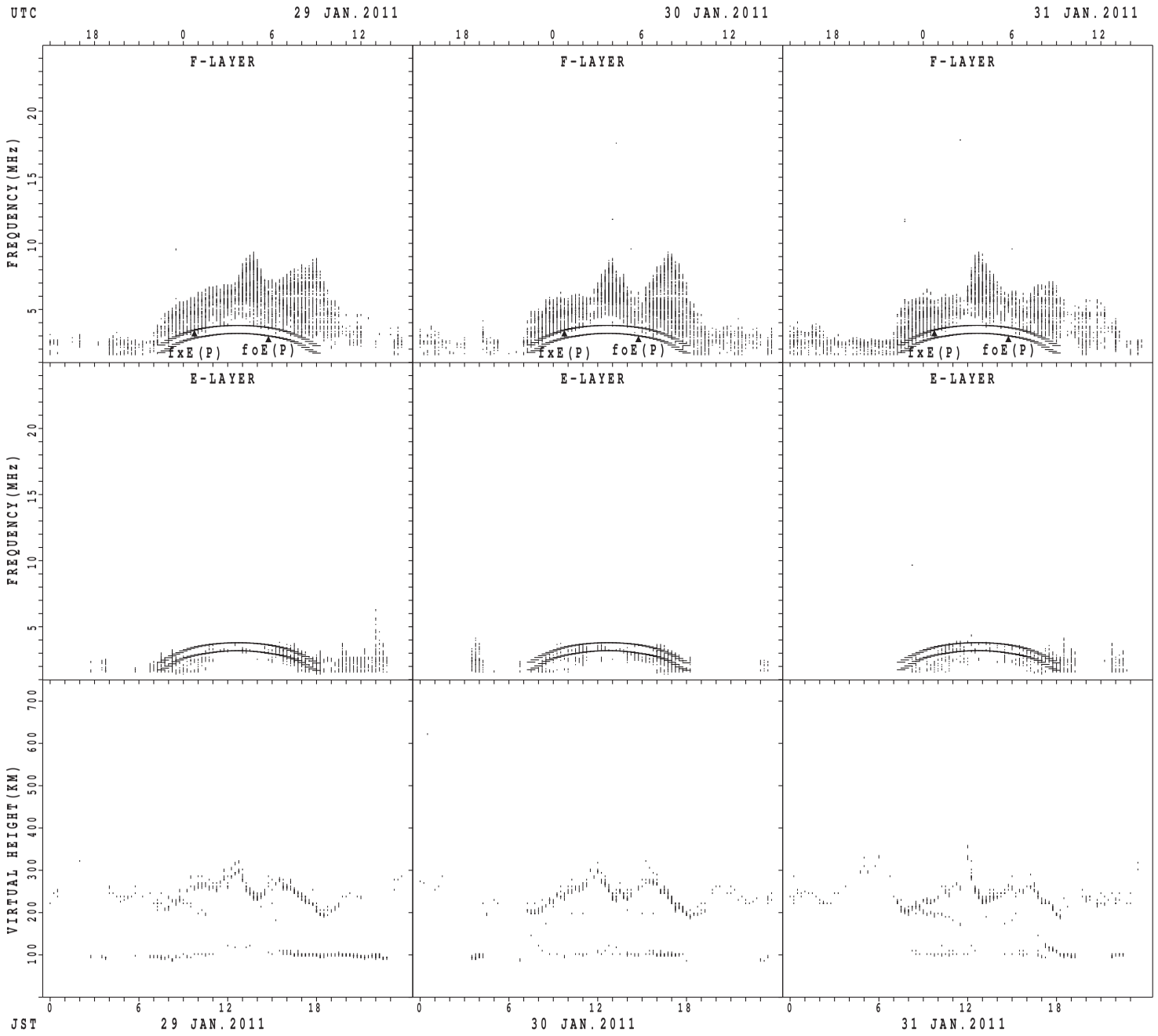
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

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. 2011 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									4	13	16	25	17	20	11	7								
MED									232	230	238	240	232	241	240	240								
U Q									241	247	250	249	240	255	248	240								
L Q									219	224	228	221	226	230	232	232								

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	16	10	5	5	6	7	4	11	20	25	20	14	13	11	15	16	12	14	9	16	17	14	15	15
MED	97	97	99	95	94	97	98	105	115	107	110	105	107	105	105	109	96	96	101	101	97	97	97	95
U Q	97	97	101	105	103	99	105	127	143	144	131	119	113	163	109	115	104	103	108	103	105	97	99	101
L Q	91	95	97	91	91	91	96	103	97	97	103	101	101	105	97	93	91	89	96	97	95	95	97	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									2	10	13	12	11	7	7	12	5							
MED									235	239	244	230	240	244	256	246	232							
U Q									244	248	252	244	242	246	264	251	238							
L Q									226	236	232	225	228	238	242	242	218							

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	9	9	9	7	4	7	12	12	14	14	14	11	12	10	13	16	16	20	15	15	17	17
MED	96	95	97	95	95	95	97	105	115	104	102	102	103	101	98	97	97	98	102	99	99	99	97	97
U Q	97	97	97	101	97	97	100	147	147	109	109	105	105	107	103	101	103	103	103	103	103	101	101	99
L Q	95	94	95	93	94	95	94	97	101	100	95	95	95	91	93	93	90	94	96	95	95	97	94	95

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

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT										5	15	10	11	9	8	9	12	1						
MED										246	248	252	240	232	258	256	246	232						
U Q										261	258	260	246	243	274	264	258	116						
L Q										232	234	234	234	227	239	250	232	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	13	14	11	10	7	6	5	4	21	23	25	24	23	19	20	19	23	17	16	14	17	16	17	12
MED	93	96	93	94	93	94	95	92	131	113	107	105	103	101	100	99	101	97	97	97	99	97	97	95
U Q	97	97	95	97	99	97	95	116	147	125	122	107	107	103	113	103	105	101	101	99	100	98	99	96
L Q	89	91	89	89	91	91	89	88	112	103	101	99	97	97	96	95	95	91	88	95	95	92	91	90

MONTHLY MEDIANS OF h′F AND h′Es

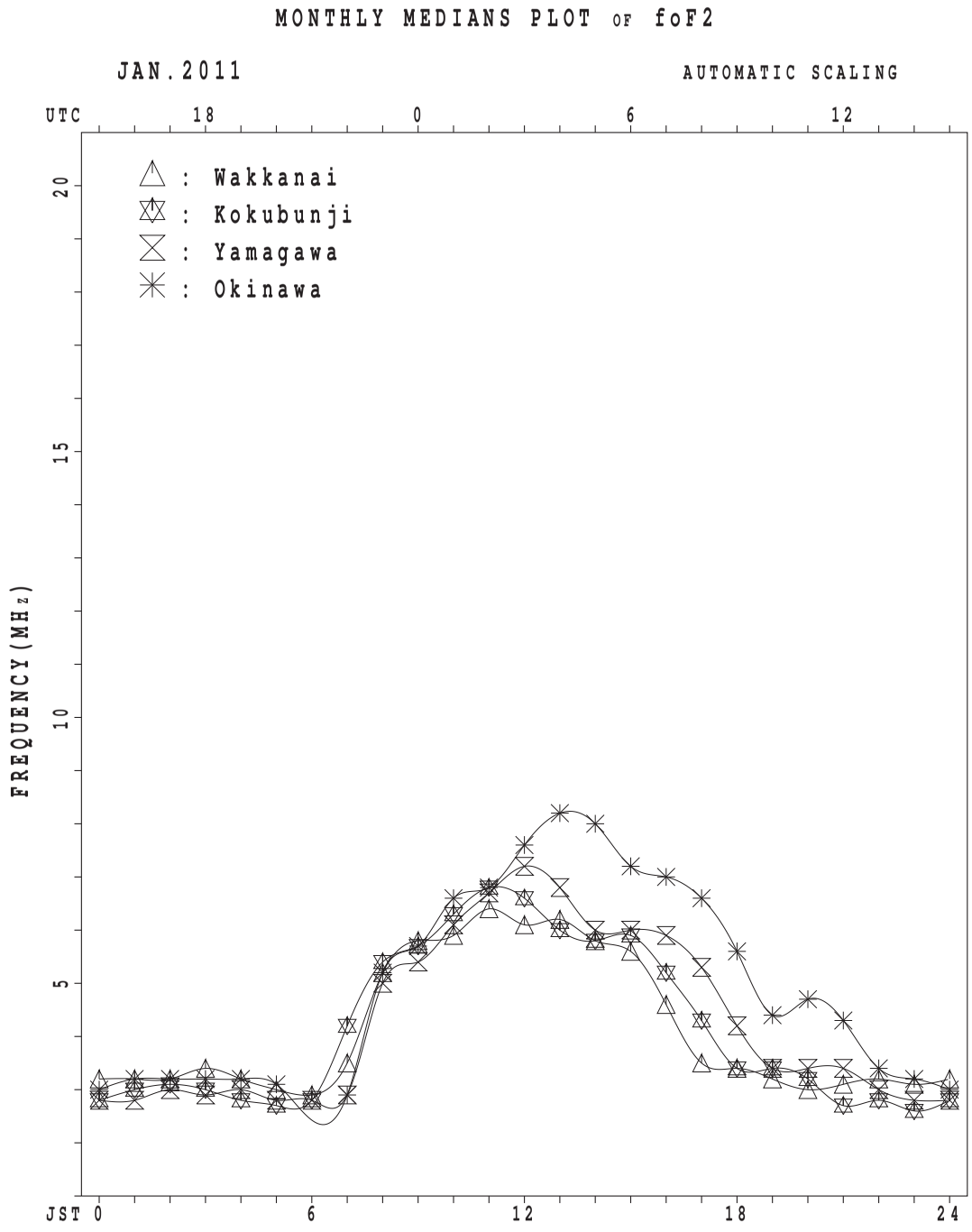
JAN.2011 135E MEAN TIME(UTC+9H) AUTOMATIC SCALING

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									4	11	19	10	9	11	10	26	21	15	7	1	2	1	1	
MED									254	246	258	250	254	246	242	247	254	232	216	224	256	256	210	
U Q									257	248	264	260	265	264	248	264	267	244	220	112	278	128	105	
L Q									246	236	230	232	237	240	238	232	239	224	210	112	234	128	105	

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	7	8	7	6	3	1	2	9	13	21	21	21	15	14	16	19	16	16	18	15	15	10	10
MED	98	95	98	97	97	97	93	93	153	105	107	107	107	105	105	103	103	104	103	99	97	97	96	96
U Q	99	103	101	99	97	99	46	97	160	113	127	116	111	111	107	105	107	111	110	103	103	105	101	103
L Q	95	95	95	95	93	97	46	89	126	101	104	104	105	103	103	95	95	98	99	97	95	95	95	95


MONTHLY MEDIANS PLOT OF foF2
JAN.2011
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. 2011 fxI (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

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

IONOSPHERIC DATA STATION Kokubunji

JAN. 2011 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	29	29	30	29	28	26	22	37	49	54	73	66	68	52	53	54	60	38	27	35	35	33	24	27
2	28	A	32	34	A	22	24	45	54	50	73	71	69	60	56	65	48	34	37	26	28	25	25	F
3	28	28	31	32	37	24	26	42	58	52	54	69	62	69	57	60	54	36	30	35	35	29	30	A
4	29	30	31	34	29	30	30	40	48	56	65	81	65	56	59	64	56	38	38	33	30	25	27	30
5	29	28	30	27	28	28	28	40	53	58	79	74	67	57	54	55	49	43	A	37	A	24	28	27
6	26	26	26	27	24	25	23	38	53	60	65	72	67	55	54	62	54	36	41	40	26	25	26	27
7	27	28	29	30	28	25	25	47	61	69	73	78	84	66	60	51	50	50	48	53	28	30	32	34
8	33	34	34	32	34	32	30	49	64	62	83	78	59	64	68	61	54	44	41	A	31	27	29	30
9	32	34	35	35	21	25	27	41	60	63	80	79	67	66	56	61	45	43	46	46	A	27	28	28
10	30	31	31	29	31	24	24	38	55	58	66	68	72	61	64	64	49	48	33	28	A	A	A	F
11	33	34	34	23	18	19	18	40	49	57	71	64	70	53	62	57	43	47	53	28	24	24	28	28
12	29	30	31	28	29	F	24	42	49	65	78	79	61	59	56	54	52	52	44	32	23	26	31	31
13	33	33	32	32	28	25	24	42	54	58	61	68	69	55	56	59	50	39	47	37	32	28	33	A
14	A	32	28	F	F	F	23	42	56	69	67	72	64	58	R	58	51	43	28	27	31	A	32	F
15	F	32	F	F	A	A	F	35	45	52	68	67	65	59	57	53	51	45	48	46	29	A	31	29
16	31	32	34	28	23	20	22	37	54	70	73	67	62	59	53	53	46	36	31	34	27	26	25	26
17	29	29	28	25	26	20	20	40	53	49	58	77	69	58	62	56	45	41	49	40	26	23	25	28
18	28	28	27	26	33	22	22	38	49	50	50	60	64	71	50	51	47	A	29	29	32	29	28	30
19	F	26	28	28	25	23	24	44	54	54	58	62	73	56	55	60	54	46	24	30	29	29	28	F
20	F	F	33	28	20	22	23	44	51	53	53	55	74	60	50	45	50	45	29	30	34	30	29	30
21	32	32	30	30	28	25	24	44	54	52	51	61	62	64	57	52	50	41	A	26	30	32	29	27
22	28	28	28	36	19	23	18	38	59	54	54	71	69	62	57	54	49	39	30	33	37	26	24	25
23	F	29	29	31	21	19	18	40	54	55	52	65	64	69	56	60	52	37	24	30	35	27	25	25
24	29	29	29	32	30	18	A	35	53	58	56	66	67	54	56	62	54	38	25	34	34	29	30	30
25	28	27	28	30	24	20	18	42	46	53	60	64	76	64	65	56	59	40	32	30	30	26	24	F
26	F	29	29	30	30	25	22	40	44	49	60	65	74	62	58	67	64	40	31	29	35	33	28	29
27	32	28	32	34	34	24	20	40	47	48	54	60	78	61	64	67	59	47	31	36	33	30	28	29
28	F	30	32	30	28	25	20	38	44	48	49	56	72	60	58	64	54	38	32	30	34	30	31	F
29	32	F	34	33	36	F	F	44	47	46	64	66	69	70	64	61	60	42	30	34	31	30	28	29
30	30	29	28	31	35	22	22	43	54	51	59	60	57	58	58	69	67	44	30	35	35	28	31	29
31	31	30	29	29	29	27	28	45	51	55	54	58	62	54	55	50	50	44	28	35	42	29	26	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	24	28	30	29	28	27	28	31	31	31	31	31	31	31	30	31	31	30	29	30	28	28	30	23
MED	29	29	30	30	28	24	23	40	53	54	61	67	67	60	57	59	51	42	31	34	31	28	28	29
U Q	32	32	32	32	30	25	24	44	54	58	73	72	72	64	60	62	54	45	42	36	34	30	30	30
L Q	28	28	28	28	24	22	21	38	49	51	54	62	64	56	55	54	49	38	29	30	28	26	26	27

IONOSPHERIC DATA STATION Kokubunji

JAN. 2011 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											A	L	L	L	L									
2											L	U L 440	A	A	A	A								
3											468	A		L	L									
4											L	A	L	L	L									
5											U L 384	L	L	L	L									
6											L	L	L		L									
7								A		L	L	A	424	L	L									
8										L	L	U L 428	L	A										
9											L	U L 428	L	L	L	L								
10											L	L	L	L	A	L								
11										L	L	L	L	U L 440	U L 404	A								
12										A	384	U L 412	L	U L 460		A								
13											L	A	A	L	L									
14											L	L	A	L	L	L								
15											L	L	L	L	A	A								
16											L	420	A	A	A	A								
17											U L 432	L	U L 428	L	L	L								
18											U L 420	L	L	392				A						
19									L	L	L	U L 440	U L 432	L	L	A								
20											L	U L 424	A	L	L	L								
21												U L 428	L	A	A									
22												L	L	U L 424	L	L								
23										A	L	424	A	L	L	L								
24											L	408	U L 428	L	L	L		L						
25											L	L	U L 432	L	U L 392									
26											416	420	U L 428	U L 408	L	U L 368								
27										L	U L 448	U L 420	L	U L 436	404	L								
28										L		U L 432	400	L	U L 424	L								
29											420	A	412	A	L	L								
30											L	L	L	L	L	L								
31										L	L	U L 420	U L 436	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											8	14	9	6	4	1								
MED											420	U L 424	U L 428	U L 430	U L 404	U L 368								
U Q											U L 440	U L 428	U L 432	U L 440	U L 414									
L Q											400	420	418	408	398									

JAN. 2011 foF1 (0.01MHz)

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IONOSPHERIC DATA STATION Kokubunji

JAN. 2011 foE (0.01MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1								B	224	272	A	A	R	R	R	R	A	B						
2								B	A	R	R	R	A	A	A	A	A	B						
3								B	R	A	A	A	R	R	R	R	A	B						
4								B	224	268	A	A	R	R	R	R	180	B						
5							B	B	U R 224	R	R	R	R	R	R	A	A							
6								B	240	R	R	R	A	R	R	R	A	B						
7								A	A	A	R	A	A	R	R	A	R	B						
8								B	A	U R 276	R	A	A	A	A	A	A	B						
9								B	228	A	A	A	R	R	R	R	R	B						
10								B	U R 236	A	A	R	R	A	A	U R 240	A	B						
11								B	240	R	R	R	R	R	A	A	A	B						
12								B	A	A	A	R	R	R	A	240	A	A						
13								B	232	U R 284	U R 304	A	A	A	A	A	A							
14								B	U R 256	R	R	R	A	R	R	R	A	B						
15								B	232	A	A	A	A	R	A	A	A	B						
16								B	A	U R 288	R	A	A	A	A	A	U R 204	B						
17								B	248	292	U R 340	R	A	R	R	R	A	B						
18								B	236	U R 284	R	R	A	A	296	R	A	B						
19								B	224	R	R	A	R	R	R	256	U A 196	B						
20								B	A	A	A	R	A	R	R	R	204	B						
21									224	A	A	A	A	A	A	A	A	B						
22								B	244	A	A	A	A	A	R	A	216	B						
23								B	216	A	A	A	A	R	R	R	A	B						
24								B	216	R	R	A	R	296	R	R	204	B						
25								B	240	R	U A 300	R	R	A	R	A	A	A						
26								B	U A 232	R	A	A	A	R	R	R	U R 220	B						
27								B	212	R	A	R	A	R	R	R	U R 216	B						
28								B	A	A	A	A	A	A	A	R	208	B						
29								B	R	R	312	320	R	A	A	A	A	B						
30								B	228	288	312	R	R	A	A	R	R	B						
31								B	U R 244	U R 288	U A 304	A	R	A	A	A	A	B						
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT									22	9	6	1		1	1	3	9							
MED									232	U R 284	U 308	320		296	296	240	204							
U Q									240	U R 288	312					256	U R 216							
L Q									224	274	U A 304					240	200							

JAN. 2011 foE (0.01MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

JAN. 2011 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	J A 23	J A 21	J A 24	J A 21	20	21	E B 15	19	26	33	41	39	G 25	G 27	G 26	G	J A 30	19	J A 23	J A 35	21	J A 21	E B 15	J A 27
2	J A 30	J A 44	J A 46	J A 34	J A 45	J A 22	20	J A 21	G	G	G 26	G 23	36	J A 44	J A 45	J A 47	J A 24	J A 22	J A 19	J A 24	J A 30	J A 23	J A 26	J A 30
3	J A 24	J A 33	E B 14	19	21	E B 15	E B 15	18	G	32	33	36	G 25	G 26	G 26	G 21	22	20	J A 19	J A 35	J A 28	20	20	J A 52
4	J A 17	E B 16	E B 15	E B 15	20	20	J A 20	E B 14	28	32	J A 47	J A 45	G 28	G 26	G	G 22	G	J A 21	J A 35	J A 25	J A 30	J A 34	J A 29	J A 32
5	J A 32	J A 23	J A 22	J A 21	J A 27	J A 19	J A 20	E B 16	G	G 27	G 26	G 26	G 28	G 25	G 23	J A 34	21	J A 27	J A 44	J A 28	J A 42	J A 21	J A 29	J A 32
6	J A 23	21	J A 22	22	J A 24	18	J A 24	E B 15	30	G 25	G 28	G 28	G 26	G 23	G 25	G	J A 26	J A 29	J A 23	J A 53	E B 14	J A 29	J A 22	22
7	20	J A 31	J A 28	22	J A 21	21	E B 14	J A 45	J A 31	J A 36	G	J A 57	J A 40	G 24	G 23	J A 41	G	J A 55	J A 77	J A 63	J A 24	J A 29	J A 20	J A 20
8	20	E B 15	J A 22	J A 34	J A 27	J A 22	J A 25	E B 16	J A 35	G 25	G 26	J A 36	35	38	J A 40	35	J A 30	J A 81	J A 72	J A 50	E B 97	J A 14	E B 36	J A 20
9	J A 24	J A 25	J A 21	J A 24	J A 20	19	E B 15	E B 15	29	J A 43	J A 48	J A 38	G 22	G 21	G	G	G	E B 15	J A 20	J A 23	J A 42	J A 30	J A 33	J A 23
10	21	20	J A 21	E B 15	J A 22	E B 15	E B 16	E B 14	J A 28	J A 47	J A 40	G 25	G 27	37	J A 41	G 20	J A 30	E B 14	J A 25	J A 63	J A 61	J A 56	J A 52	J A 30
11	J A 23	J A 24	22	21	20	18	20	19	29	G 24	J A 40	G 26	G 21	G 23	31	J A 34	J A 24	J A 22	J A 24	J A 34	E B 15	J A 34	J A 37	J A 23
12	J A 18	J A 22	J A 20	E B 15	E B 15	E B 14	E B 15	E B 17	29	36	34	G 26	G 28	G 26	35	34	25	J A 25	J A 30	E B 14	20	J A 23	J A 39	J A 30
13	J A 31	J A 24	21	J A 22	23	20	E B 14	E B 16	26	G 26	J A 35	J A 46	J A 42	35	J A 32	J A 33	J A 38	J A 32	J A 32	J A 40	20	J A 42	J A 50	J A 59
14	J A 44	J A 25	20	22	19	E B 15	E B 16	E B 15	J A 29	G 22	G 25	G 24	J A 44	G	G 25	G 24	J A 41	J A 27	J A 25	J A 27	J A 24	J A 79	J A 35	J A 21
15	J A 25	J A 30	E B 16	J A 20	J A 36	J A 28	J A 18	19	28	J A 40	J A 41	J A 41	33	G 29	J A 42	J A 38	J A 35	J A 23	J A 31	J A 50	J A 43	J A 60	J A 30	J A 28
16	J A 30	J A 22	J A 22	J A 21	19	E B 14	E B 15	E B 14	J A 30	G 26	G 26	J A 36	J A 64	J A 44	J A 53	J A 42	G	J A 30	E B 15	22	E B 14	E B 15	E B 15	J A 27
17	E B 16	J A 22	E B 15	J A 22	J A 22	J A 21	E B 14	21	30	37	J A 36	G 29	37	G 26	G 22	G 20	22	E B 15	E B 14	E B 16	E B 15	E B 14	E B 14	E B 15
18	E B 15	E B 15	E B 15	E B 14	E B 14	E B 16	J A 20	20	G 21	G 25	G 30	G 27	J A 37	34	34	G 24	28	J A 23	E B 15	E B 15	E B 15	E B 15	E B 14	E B 14
19	E B 16	20	E B 15	E B 15	E B 15	E B 14	19	E B 15	G	G 21	G 25	40	G 24	G 25	G 25	35	31	J A 26	J A 60	E B 25	15	21	J A 29	J A 23
20	J A 26	J A 22	J A 24	J A 22	20	J A 24	22	20	28	33	35	G 29	36	G 26	G 26	G 24	25	J A 41	J A 24	J A 35	J A 27	E B 16	J A 21	22
21	18	20	E B 15	E B 15	E B 16	E B 15	E B 14	E B 17	27	32	34	J A 39	J A 48	J A 48	J A 68	J A 53	J A 46	J A 29	J A 56	J A 33	J A 25	J A 23	J A 25	J A 28
22	E B 15	E B 16	E B 15	E B 15	E B 14	E B 15	E B 16	20	28	33	36	38	J A 44	J A 36	G 24	31	26	E B 15	E B 15	E B 24	J A 23	22	20	E B 16
23	20	J A 20	21	E B 16	J A 19	20	E B 15	20	28	32	37	39	J A 57	G 27	G 28	G 26	J A 41	E B 15	21	J A 21	J A 45	J A 22	E B 15	E B 15
24	J A 16	E B 15	E B 18	J A 22	J A 27	J A 19	J A 29	24	31	G 25	G 21	36	G 30	36	G 24	G 22	24	E B 14	E B 14	22	20	J A 30	J A 23	20
25	E B 16	20	E B 15	E B 15	E B 15	E B 14	E B 15	20	G 21	G 25	35	G 27	G 32	36	J G 29	31	33	J A 28	E B 14	E B 15	E B 14	E B 15	E B 15	E B 15
26	E B 16	E B 15	E B 15	E B 14	E B 15	E B 15	E B 15	E B 15	26	G 25	35	37	38	G 25	G 29	G 23	G	E B 14	E B 15	E B 16	E B 15	E B 14	E B 14	E B 14
27	E B 16	20	E B 15	E B 14	E B 15	20	21	20	25	G 23	J A 39	G 27	36	G 27	G 25	G 26	G 19	J A 28	27	E B 14	E B 15	E B 15	E B 15	E B 15
28	19	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	27	33	37	J A 40	J A 38	35	33	G 27	26	J A 22	J A 19	19	E B 16	E B 15	E B 14	E B 14
29	E B 15	E B 15	E B 15	E B 15	E B 15	19	E B 15	E B 15	G	G 22	36	39	G 26	38	34	30	25	J A 20	J A 22	J A 21	22	J A 29	22	J A 29
30	J A 22	J A 18	J A 25	E B 15	20	J A 21	21	E B 16	28	G	38	37	G 27	38	34	G 26	G 22	E B 14	22	E B 15	J A 19	J A 23	J A 20	19
31	E B 15	E B 15	E B 15	E B 15	E B 15	E B 16	E B 15	E B 15	G 23	G 25	35	35	G 23	38	33	32	25	J A 24	J A 22	J A 21	J A 31	J A 24	J A 32	J A 30
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31
MED	J A 20	J A 20	20	19	20	19	E B 16	E B 17	28	G	35	36	33	G 29	G	G	25	J A 23	J A 23	J A 24	J A 22	J A 23	J A 22	J A 23
U Q	J A 24	J A 24	J A 22	J A 22	J A 22	J A 21	J A 20	20	29	33	J A 38	J A 39	J A 38	37	J A 34	J A 34	J A 30	J A 28	J A 31	J A 35	J A 30	J A 30	J A 32	J A 30
L Q	E B 16	E B 16	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	G	G 25	G 28	G 27	G 26	G 26	G 25	G 24	G	E B 15	E B 19	E B 19	E B 15	E B 15	E B 15	E B 16

JAN. 2011 foEs (0.1MHz)

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IONOSPHERIC DATA STATION Kokubunji

JAN. 2011 fbEs (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E B 15	E B 14	16	16	E B 15	E B 15	E B 15	17	24	30	35	33	G 24	G 24	G 23	G	23	17	18	18	E B 15	E B 15	E B 15	20
2	19	A A 44	24	20	A A 45	18	E B 15	18	G	G	G 24	G 22	34	37	40	38	20	18	E B 15	17	E B 15	E B 15	E B 15	E B 15
3	E B 16	19	E B 14	E B 15	E B 14	E B 15	E B 15	17	G	28	30	34	G 23	G 26	G 24	G 19	20	E B 15	E B 14	E B 14	E B 15	E B 15	E B 15	A A 52
4	E B 16	E B 16	E B 15	E B 15	E B 15	E B 15	E B 15	E B 14	25	30	34	41	G 26	G 24	G	G 20	G	16	17	20	18	16	18	19
5	20	E B 15	E B 15	17	18	E B 15	17	E B 16	G	G 21	G 26	G 25	G 26	G 24	G 22	28	19	20	A A 44	24	A A 42	15	21	20
6	E B 15	E B 15	19	E B 15	E B 16	E B 15	E B 15	E B 15	28	G 24	G 28	G 26	G 24	G 22	G 23	G	23	22	16	E B 16	E B 14	E B 16	E B 15	E B 15
7	E B 15	21	20	E B 16	E B 15	E B 15	E B 14	34	23	30	G	44	35	G 22	G 22	36	G	20	35	21	17	20	E B 14	18
8	E B 15	E B 15	16	18	18	16	16	E B 16	26	G 23	G 23	35	32	34	32	28	20	34	19	A A 50	18	E B 14	E B 15	E B 15
9	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	27	30	34	34	G 19	G 20	G	G	G	E B 15	16	18	A A 42	19	18	16
10	E B 15	E B 16	E B 15	E B 15	18	E B 15	E B 16	E B 14	G 21	28	32	G 23	G 26	35	36	G 17	25	E B 14	19	18	A A 61	A A 56	A A 52	17
11	16	17	E B 15	19	E B 16	E B 16	E B 15	16	26	G 24	22	G 24	G 20	G 22	28	31	23	18	E B 15	E B 15	E B 15	17	17	E B 15
12	E B 15	17	E B 15	E B 15	E B 15	E B 14	E B 15	E B 17	28	31	32	G 25	G 27	G 24	33	30	22	21	22	E B 14	16	E B 16	19	19
13	22	18	E B 15	E B 16	E B 14	E B 16	E B 14	E B 16	25	G 24	G 23	37	37	31	29	28	22	21	20	18	E B 14	E B 15	18	A A 59
14	A A 44	20	E B 16	E B 15	E B 15	E B 15	E B 16	E B 15	G 21	G 21	G 22	G 22	39	G	G 23	G 22	25	20	19	19	16	A A 79	20	E B 16
15	17	20	E B 16	E B 15	A A 36	A A 28	E B 16	18	26	32	33	33	32	G 27	37	31	27	E B 15	20	37	17	A A 60	16	17
16	18	E B 15	E B 15	E B 15	E B 15	E B 14	E B 15	E B 14	25	G 25	G 24	31	40	37	41	29	G	17	E B 15	E B 16	E B 14	E B 15	E B 15	18
17	E B 16	17	E B 15	E B 15	E B 16	E B 14	E B 14	18	29	34	G 26	G 26	34	G 25	G 21	G 20	21	E B 15	E B 14	E B 16	E B 15	E B 14	E B 14	E B 15
18	E B 15	E B 15	E B 15	E B 14	E B 14	E B 16	E B 15	E B 16	G 20	G 24	G 28	G 24	30	30	32	G 23	25	A A 23	E B 15	E B 15	E B 15	E B 15	E B 14	E B 14
19	E B 16	E B 16	E B 15	E B 15	E B 15	E B 14	E B 16	E B 15	G	G 20	G 22	33	G 22	G 23	G 25	33	28	18	18	19	E B 15	E B 16	16	18
20	E B 15	E B 14	E B 16	E B 16	E B 15	E B 15	E B 15	E B 18	26	29	34	G 27	G 35	G 25	G 25	G 22	24	35	18	18	18	E B 16	E B 15	E B 16
21	E B 16	E B 15	E B 15	E B 15	E B 16	E B 15	E B 14	E B 17	25	29	32	34	37	39	42	37	26	18	A A 56	19	21	E B 16	17	E B 15
22	E B 15	E B 16	E B 15	E B 15	E B 14	E B 15	E B 16	E B 18	27	30	32	34	34	32	G 23	27	24	E B 15	E B 15	E B 16	E B 16	E B 15	E B 15	E B 16
23	E B 15	E B 16	16	E B 16	E B 15	E B 15	E B 15	E B 18	26	30	36	36	54	G 25	G 28	G 25	38	E B 15	E B 15	E B 15	18	E B 15	E B 15	E B 15
24	16	E B 15	E B 18	E B 15	E B 15	A A 29	22	28	G 21	G 21	34	G 26	34	G 23	G 21	24	E B 14	E B 14	E B 16	E B 15	E B 17	E B 15	E B 15
25	E B 16	E B 16	E B 15	E B 15	E B 15	E B 14	E B 15	E B 18	G 19	G 22	33	G 25	G 30	33	25	28	27	17	E B 14	E B 15	E B 14	E B 15	E B 15	E B 15
26	E B 16	E B 15	E B 15	E B 14	E B 15	E B 15	E B 15	E B 15	24	G 23	33	35	32	G 24	G 27	G 22	G	E B 14	E B 15	E B 16	E B 15	E B 14	E B 14	E B 14
27	E B 16	E B 16	E B 15	E B 14	E B 15	E B 15	E B 15	E B 18	24	G 22	34	G 22	34	G 26	G 25	G 24	G 17	22	22	E B 14	E B 15	E B 15	E B 15	E B 15
28	E B 16	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	23	30	35	36	35	32	32	G 24	24	20	16	E B 15	E B 16	E B 15	E B 14	E B 14
29	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	G	G 22	35	37	G 23	36	29	28	23	17	16	18	E B 16	17	E B 15	16
30	16	E B 15	E B 16	E B 15	E B 15	E B 16	E B 15	E B 16	27	G	35	35	G 26	37	31	G 24	G 20	E B 14	E B 15	E B 15	E B 15	E B 15	18	E B 15
31	E B 15	E B 15	E B 15	E B 15	E B 15	E B 16	E B 15	E B 15	G 20	G 22	34	31	G 21	34	29	30	23	20	17	17	18	17	17	17
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31
MED	E B 16	E B 16	E B 15	E B 15	E B 15	E B 15	E B 15	E B 16	25	G	32	33	30	G 27	G	G	23	18	16	17	E B 16	E B 15	E B 15	E B 16
U Q	16	17	16	16	16	16	E B 16	18	26	30	34	35	35	34	32	30	25	20	19	19	18	17	18	18
L Q	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	G	G 22	G 24	G 25	G 24	G 24	G 23	G 22	G	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15

JAN. 2011 fbEs (0.1MHz)

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IONOSPHERIC DATA STATION Kokubunji

JAN. 2011 fmin (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

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

IONOSPHERIC DATA STATION Kokubunji

JAN. 2011 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	305	318	324	326	346	323	350	372	381	359	384	343	380	381	365	354	374	395	308	333	346	359	324	286
2	303	A	343	386	A	326	340	368	374	376	371	342	362	359	374	370	377	379	357	340	343	326	332	F
3	303	310	324	325	378	322	329	366	379	404	323	379	382	362	354	371	385	407	338	347	370	338	315	A
4	298	304	357	362	328	324	358	366	401	374	350	384	380	380	342	356	370	377	354	358	344	323	284	306
5	313	301	334	318	335	322	362	370	351	376	381	384	371	377	374	361	362	391	A	370	A	342	321	287
6	299	315	314	352	317	323	398	392	374	374	342	370	397	368	372	371	390	336	347	364	380	360	335	314
7	297	313	328	345	335	317	313	351	381	372	359	355	370	382	357	377	358	338	321	349	361	314	307	328
8	332	331	327	327	341	333	335	363	386	374	361	362	383	369	379	375	364	368	351	A	344	307	273	310
9	300	325	343	382	319	328	350	367	370	364	363	362	364	358	373	355	392	329	341	388	A	311	301	301
10	317	317	331	321	337	345	345	369	373	368	377	368	362	371	363	367	381	363	369	349	A	A	A	F
11	310	322	361	407	331	310	330	378	370	369	352	389	394	327	349	373	407	349	372	385	348	300	327	306
12	325	319	327	347	328	F	322	390	368	384	357	385	380	327	335	390	371	357	373	400	299	321	307	303
13	325	300	324	336	346	317	345	386	376	368	348	358	384	376	365	366	364	341	341	359	339	317	310	A
14	A	306	330	F	F	F	350	372	371	359	363	381	365	372	R	368	370	359	355	335	313	A	296	F
15	F	320	F	F	A	A	F	389	355	351	366	365	358	369	376	369	374	352	344	361	305	A	310	340
16	293	325	352	372	372	312	318	359	356	364	355	379	363	378	370	377	375	366	332	339	364	332	342	302
17	316	321	329	353	369	325	350	360	386	374	345	380	346	383	389	376	371	355	359	398	345	339	316	302
18	299	323	310	332	364	341	344	386	364	385	318	340	381	369	368	366	376	A	340	328	353	356	352	343
19	F	331	330	336	359	378	337	365	374	370	342	337	363	356	382	373	358	388	379	340	310	314	312	F
20	F	F	355	372	369	315	336	381	392	393	372	357	378	375	384	372	358	378	340	317	337	342	319	308
21	314	310	321	329	345	333	351	369	387	390	375	374	319	364	388	395	358	379	A	322	323	349	312	318
22	297	304	313	369	441	291	289	350	376	372	387	350	364	344	366	379	363	350	359	317	344	352	332	292
23	F	305	331	375	384	296	336	376	358	385	350	365	363	365	367	358	367	370	372	344	336	354	313	317
24	322	319	325	333	392	342	A	360	383	390	356	378	334	387	368	371	400	365	339	337	348	327	328	291
25	292	314	313	365	385	339	332	378	388	342	358	350	336	345	381	360	385	390	347	347	358	331	294	F
26	F	315	315	340	347	364	402	401	385	373	347	356	349	344	352	351	396	378	356	337	350	327	306	282
27	327	334	328	336	329	387	338	384	375	387	365	354	385	337	363	360	387	378	343	343	340	357	321	302
28	F	319	347	346	359	347	381	401	403	376	324	329	357	366	324	369	378	399	354	318	337	323	329	F
29	307	F	318	317	330	F	F	392	403	377	352	373	333	379	371	373	384	362	358	336	344	353	315	328
30	310	297	323	346	384	327	347	392	378	376	367	354	359	359	369	356	392	373	320	342	357	330	339	319
31	311	332	295	313	328	324	363	401	410	389	356	369	375	331	383	381	374	382	319	323	362	381	325	330
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	24	28	30	29	28	27	28	31	31	31	31	31	31	31	30	31	31	30	29	30	28	28	30	23
MED	308	318	328	345	346	325	344	372	376	374	357	365	364	368	368	370	374	369	347	342	344	332	316	306
U Q	316	322	334	367	370	341	350	389	386	385	367	379	380	377	376	375	385	379	358	359	355	352	328	319
L Q	299	308	321	328	330	317	334	366	370	368	348	354	358	356	363	360	364	355	340	335	337	322	307	301

IONOSPHERIC DATA STATION Kokubunji

JAN. 2011 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

H / D	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1											A	L	L	L	L									
2											L	U L 369	A	A	A	A								
3											400	A		L	L									
4											L	A	L	L	L									
5											U L 422	L	L	L	L									
6											L	L	L		L									
7								A		L	L	A	393	L	L									
8										L	L	U L 390	L	A										
9											L	U L 395	L	L	L	L								
10											L	L	L	L	A	L								
11										L	L	L	L	U L 383	U L 380	A								
12										A	407	U L 404	L	U L 383		A								
13											L	A	A	L	L									
14											L	L	A	L	L	L								
15											L	L	L	L	A	A								
16											L	397	A	A	A	A								
17											U L 375	L	U L 388	L	L	L								
18											U L 413	L	L	403				A						
19									L	L	L	U L 380	U L 375	L	L	A								
20											L	U L 405	A	L	L	L								
21												U L 390	L	A	A									
22												L	L	U L 394	L	L								
23										A	L	398	A	L	L	L								
24											L	410	U L 394	L	L	L		L						
25											L	L	U L 390	L	U L 397									
26											383	391	U L 389	U L 389	L	U L 385								
27										L	U L 375	U L 392	L	U L 394	408	L								
28										L		U L 374	417	L	U L 392	L								
29											383	A	403	A	L	L								
30											L	L	L	L	L	L								
31										L	L	U L 418	U L 393	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											8	14	9	6	4	1								
MED											392	U L 394	U L 393	U L 392	U L 394	U L 385								
U Q											U L 410	U L 404	398	394	402									
L Q											U L 379	U L 390	U L 388	U L 383	U L 386									

JAN. 2011 M(3000)F1 (0.01)

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IONOSPHERIC DATA STATION Kokubunji

JAN. 2011 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											228	254	232	236	234									
2											236	276	236	236	230	230								
3											344	230		246	234									
4											262	228	228	226	246									
5											234	228	246	226	220									
6											268	240	230		240									
7								246		240	244	248	226	226	220									
8										226	234	232	228	234										
9											238	232	228	250	238	232								
10											242	236	252	228	240	234								
11										250	252	232	218	324	256	228								
12										230	250	212	236	274		222								
13											248	252	224	238	244									
14											234	226	226	238	288	226								
15											250	238	246	250	228	230								
16											244	228	242	240	244	228								
17											270	232	262	230	230	232								
18											320	238	238	246				A						
19									226	242	268	280	248	254	244	238								
20											244	258	242	232	232	234								
21												242	264	256	230									
22												272	234	276	246	226								
23										236	262	254	E 264	A 238	246	242								
24											258	240	262	236	240	244		230						
25											262	270	262	254	242									
26											282	276	248	250	248	256								
27										232	270	254	228	280	244	244								
28										230		304	254	250	294	232								
29											264	248	282	230	244	234								
30											246	246	248	252	240	248								
31										226	266	244	250	284	234									
	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	9	28	31	30	30	28	19		1						
MED								246	226	232	251	242	241	243	240	232		230						
U Q										241	267	254	252	254	245	242								
L Q										228	243	232	228	234	233	228								

JAN. 2011 h′F2 (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

JAN. 2011 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 292	E B 284	E A 270	E A 272	228	E B 244	220	200	204	210	A	204	208	196	196	212	216	192	E A 294	E A 248	E B 236	208	E B 290	E A 342
2	E A 316	A	E A 268	208	A	E A 278	E B 256	208	214	212	222	204	A	A	A	A	204	202	220	220	E B 242	E B 246	E B 242	E B 284
3	E B 290	E A 308	E B 252	E B 244	200	194	E B 246	216	220	212	206	A	210	208	198	226	208	196	E B 236	E B 226	214	222	E B 266	A
4	E B 286	E B 276	226	204	222	E B 264	202	202	196	226	214	A	190	194	190	220	204	194	218	220	222	E A 236	E A 332	E A 308
5	E A 306	E B 304	E B 254	E A 256	E A 268	E B 254	216	200	214	214	198	202	204	196	192	212	208	200	A	220	A	220	E A 298	E A 352
6	E B 304	E B 308	E A 302	E B 238	E B 280	E B 254	198	196	206	222	202	204	200	210	190	226	204	212	E B 234	212	202	202	E B 260	E B 290
7	E B 316	E A 306	E A 278	E B 246	E B 238	E B 276	E B 268	A	214	214	202	A	206	196	188	216	216	222	E A 290	228	202	E A 284	E B 254	E A 280
8	E B 244	E B 244	E A 250	E A 244	E A 254	E A 236	E A 230	216	208	202	188	194	188	A	226	214	208	228	E A 232	A	E A 232	E B 260	E B 296	E B 268
9	E B 300	E B 258	222	198	E B 306	E B 264	E B 236	202	214	222	210	194	178	194	206	206	192	220	222	202	A	E A 302	E A 298	E A 316
10	E B 290	E B 266	E B 250	E B 246	E A 238	226	224	208	206	200	198	198	212	200	A	182	200	210	194	222	A	A	A	E A 292
11	E A 278	E A 254	210	202	E B 280	E B 316	E B 320	210	214	208	208	202	200	180	190	A	200	226	214	192	E B 206	E A 330	E A 274	E B 290
12	E B 270	E B 256	E A 250	E B 222	E B 246	204	E B 244	198	208	A	198	188	194	180	E A 234	A	212	218	208	190	E A 234	E B 268	E B 296	E A 332
13	E A 292	E A 280	E B 242	218	212	E B 256	E B 236	210	212	216	206	A	A	194	196	222	214	220	E A 230	212	224	E B 262	E A 308	A
14	A	E A 276	E B 284	E B 236	212	E B 246	E B 254	210	212	226	204	196	A	192	196	186	232	204	216	E A 264	E A 282	A	E A 290	E B 288
15	E A 278	E A 284	216	220	A	A	E B 258	204	208	214	210	208	194	202	A	A	214	214	228	216	E A 236	A	E A 262	E A 262
16	E A 276	E B 258	228	202	210	E B 292	E B 284	212	E A 234	218	206	208	A	A	A	A	192	206	220	208	220	E B 236	E B 262	E B 310
17	E B 276	E A 268	E B 226	E B 238	212	E B 276	E B 254	214	206	206	202	204	210	202	196	198	192	206	216	196	E B 206	E B 248	E B 286	E B 298
18	E B 270	E B 238	E B 248	E B 230	212	E B 264	E B 238	200	212	214	188	186	188	194	198	236	214	A	212	E B 262	232	216	E B 218	E B 276
19	E B 284	E B 278	E B 250	E B 254	208	200	E B 242	222	174	190	214	212	214	200	198	A	216	208	204	E A 240	E B 246	E B 264	E A 322	E A 276
20	E B 272	E B 268	E B 230	208	202	E B 290	E B 248	210	210	210	206	200	A	200	196	190	228	226	E A 230	E A 282	E A 250	218	E B 262	E B 268
21	E B 264	E B 270	E B 270	E B 242	E B 246	224	E B 242	210	210	212	208	202	200	A	A	214	216	200	A	E A 280	E A 280	E B 240	E A 262	E B 278
22	E B 284	E B 288	E B 278	218	178	390	E B 346	228	222	212	210	216	210	204	198	192	224	212	226	E B 234	220	218	E B 252	E B 320
23	E B 294	E B 282	E A 236	210	218	212	286	210	228	A	206	218	A	208	196	208	208	194	206	E B 240	230	222	E B 260	E B 280
24	E A 250	E B 274	E B 270	E B 238	194	208	A	210	214	224	208	198	198	194	192	200	202	178	212	E B 234	212	228	E B 254	E B 290
25	E B 300	E B 304	E B 284	224	206	E B 254	E B 300	206	198	210	222	216	216	212	182	228	214	198	206	224	214	224	E B 296	E B 256
26	E B 264	E B 262	E B 264	E B 236	E B 220	206	204	204	200	222	206	210	212	198	200	190	204	190	212	E B 236	216	E B 222	E B 268	E B 284
27	E B 248	232	E B 244	E B 236	222	192	E B 260	202	202	202	202	206	198	208	200	184	186	208	200	216	216	222	224	E B 250	E B 290
28	E B 276	E B 254	E B 226	E B 216	214	228	214	192	200	194	200	218	184	220	194	200	208	194	216	222	E B 238	228	E B 246	E B 252
29	E B 250	E B 246	E B 268	E B 258	222	200	E B 206	194	202	194	206	A	196	A	202	196	220	198	204	E A 232	210	E A 230	E B 268	E A 278
30	E A 292	E B 292	E B 274	E B 238	204	224	E B 246	206	210	206	204	194	202	212	208	216	208	196	224	E B 224	212	E B 240	E B 248	E A 266
31	E B 270	E B 258	E B 274	E B 272	E B 252	E B 246	214	196	192	188	198	180	178	188	198	204	210	198	E A 250	E A 258	218	210	E A 274	E A 252
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	30	31	31	29	30	30	30	31	29	30	26	25	26	26	25	31	30	29	30	28	28	30	29
MED	E B 281	E B 272	E B 250	E B 236	212	E 246	E B 243	207	209	212	206	202	200	199	196	208	208	203	215	U 209	215	E 229	E B 267	E B 284
U Q	E B 292	E B 284	E B 270	E B 244	E B 246	E B 264	E B 258	210	214	217	208	208	210	204	198	218	216	214	E A 230	E A 240	E 236	E B 254	E B 296	E A 303
L Q	E B 270	E B 258	230	216	209	212	220	200	202	204	202	196	192	194	192	194	204	196	212	216	213	221	E B 254	E B 272

JAN. 2011 h′F (KM)

IONOSPHERIC DATA STATION Kokubunji

JAN. 2011 h′E (KM) 135°E MEAN TIME (G.M.T. + 9 H)

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

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

JAN. 2011 h′E (KM)

IONOSPHERIC DATA STATION Kokubunji

JAN. 2011 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	94	96	100	100	100	100	B	134	142	132	120	106	106	106	106	G	100	100	100	102	102	102	B	100
2	100	100	98	92	92	92	92	92	G	G	110	104	110	106	102	92	98	94	100	100	102	102	98	104
3	98	100	B	114	102	B	B	142	G	116	110	122	108	106	104	100	106	106	104	98	104	108	100	98
4	100	B	B	B	92	96	98	B	132	144	104	100	102	98	G	108	G	96	98	90	100	104	106	100
5	100	98	98	92	90	94	92	B	G	106	98	102	100	102	102	98	100	102	102	100	98	98	98	98
6	100	106	96	102	102	102	108	B	148	110	110	104	110	98	94	G	92	90	96	102	B	98	100	98
7	102	98	98	96	96	96	B	102	102	102	G	92	92	100	102	98	G	106	104	104	102	100	92	94
8	100	B	98	98	98	98	98	B	108	106	104	102	100	104	106	106	104	106	106	102	100	B	100	98
9	94	98	94	96	94	102	B	B	168	100	98	94	94	94	G	G	G	B	104	94	100	96	96	92
10	96	96	100	B	100	B	B	B	100	100	102	102	94	94	94	94	94	B	104	102	100	100	100	92
11	98	96	104	96	98	102	106	104	144	102	96	92	92	92	88	88	90	92	106	104	B	100	98	98
12	102	94	92	B	B	B	B	B	100	124	132	100	104	104	126	136	112	88	88	B	94	98	96	92
13	92	90	102	102	102	102	B	B	156	100	98	98	98	92	96	96	96	98	96	102	106	108	92	92
14	88	92	94	92	96	B	B	B	100	104	102	100	98	G	98	98	92	94	94	92	90	96	96	98
15	98	96	B	96	96	96	98	132	160	106	106	106	106	106	100	100	100	104	108	104	104	102	100	98
16	98	94	94	94	94	B	B	B	104	102	102	100	94	94	96	94	G	102	B	102	B	B	B	94
17	B	102	B	102	92	98	B	150	150	156	96	98	90	104	96	92	118	B	B	B	B	B	B	B
18	B	B	B	B	B	B	96	98	106	106	106	104	102	96	142	106	126	92	B	B	B	B	B	B
19	B	98	B	B	B	B	118	B	G	100	104	104	104	102	102	144	128	116	106	100	B	100	100	98
20	98	98	100	98	102	100	96	136	130	124	120	106	108	104	108	106	144	100	100	100	100	B	106	104
21	100	94	B	B	B	B	B	B	150	118	122	110	108	102	100	96	94	94	92	92	90	90	92	92
22	B	B	B	B	B	B	B	136	148	118	106	106	108	110	104	104	166	B	B	100	100	100	98	B
23	98	98	88	B	100	104	B	144	140	134	122	118	106	108	104	104	100	B	110	130	96	98	B	B
24	90	B	B	106	106	100	98	138	140	110	102	130	108	134	110	108	142	B	B	106	98	100	96	98
25	B	100	B	B	B	B	B	154	108	106	130	104	104	126	96	116	96	98	B	B	B	B	B	B
26	B	B	B	B	B	B	B	B	146	108	106	106	106	108	108	108	G	B	B	B	B	B	B	B
27	B	102	B	B	B	102	102	144	140	100	96	94	102	104	102	108	96	90	90	B	B	B	B	B
28	96	B	B	B	B	B	B	B	124	124	120	118	104	108	104	102	138	96	94	94	B	B	B	B
29	B	B	B	B	B	100	B	B	G	102	142	138	108	124	106	106	108	108	108	104	94	100	98	98
30	100	98	98	B	100	94	96	B	144	G	140	130	108	118	116	108	98	B	90	B	104	104	106	102
31	B	B	B	B	B	B	B	B	108	102	118	116	100	112	106	108	108	106	106	106	100	102	102	102
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	22	22	16	16	20	18	13	14	26	29	30	31	31	30	29	28	26	23	24	24	21	22	22	23
MED	98	98	98	97	98	100	98	136	140	106	106	104	104	104	102	104	100	98	101	102	100	100	98	98
U Q	100	100	100	102	101	102	104	144	148	121	120	110	108	108	106	108	118	106	106	104	102	102	100	100
L Q	96	96	94	95	94	96	96	104	108	102	102	100	98	98	97	97	96	94	95	99	97	98	96	94

JAN. 2011 h'Es (KM)

IONOSPHERIC DATA STATION Kokubunji

JAN. 2011 TYPES OF Es 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	F2	F2	F2	F2	F1	F1		H3	H2	H2	C2	L2	L2	L2	L2		L3	L2	F4	F3	F2	F2		F2
2	F4	F4	F4	F4	F4	F3	F1	L3			L2	L2	CL22	L2	L2	L3	L2	L2	F2	F3	F2	F2	F3	F2
3	F1	F3		F1	F3			H2		C2	L2	CL22	L2	L2	L2	L2	L2	L3	F3	F3	F1	F1	F2	F3
4	F1				F2	F2	F1		C2	H1	L2	L2	L2	L2		L2		L3	F3	F5	F3	F2	F2	F3
5	F3	F2	F2	F3	F4	F2	L3			L2	L2	L2	L2	L2	L2	L2	L2	F4	F4	F3	F4	F2	F4	F3
6	F2	F1	F5	F2	F2	F1	F2		H3	L2	L2	L2	L2	L2	L2		L2	L2	F1	F2		F2	F2	F1
7	F2	F4	F3	F2	F2	F2		L5	L3	L2		L2	L2	L2	L2	L2		L3	F3	F2	F3	F3	F1	F2
8	F2		F2	F3	F3	F5	F4		L2	L2	L2	L2	L2	L2	L2	L2	L3	L3	F2	F3	F3		F2	F2
9	F2	F2	F3	F3	F2	F2			HL23	L2	L2	L3	L2	L2					F3	F2	F4	F4	F3	F2
10	F1	F2	F3		F3				L2	L3	L3	L2	L2	L2	L2	L2	L2		F4	F3	F4	F4	F4	F2
11	F2	F2	F1	F1	F2	F1	F2	L2	HL22	L2	L2	L3	L2	L2	L2	L2	L2	L2	F2	F2		F3	F2	F2
12	F1	F3	F2						L3	CL22	CL12	L2	L2	L1	CL11	HL11	CL22	L2	F2		F1	F2	F3	F2
13	F2	F2	F2	F1	F2	F1			HL12	L2	L2	L2	L2	L2	L3	L2	L2	F2	F4	F2	F1	F2	F3	F3
14	F3	F3	F2	F1	F1				L2	L1	L1	L2	L2		L1	L2	L2	L2	F2	F2	F2	F2	F3	F2
15	F3	F3		F1	F4	F5	F1	HL21	H2	L2	L2	L2	L2	L2	L2	L2	L2	L3	F3	F3	F2	F4	F2	F2
16	F2	F2	F2	F1	F1				L3	L2	L2	L2	L2	L2	L2	L2		L2		F1				F2
17		F1		F2	F2	F1		H2	HL22	HL22	L2	L2	L2	L2	L2	L2	C2							
18							F2	L1	L2	L2	L2	L1	L2	L2	HL12	L2	CL22	L2						
19		F1					F1			L2	L2	L2	L2	L2	L2	HL21	CL32	CL32	FF22	F4		F2	F2	F2
20	F2	F2	F2	F4	F1	F2	F1	H2	C2	CL22	CL22	L2	L2	L2	L2	L2	HL21	L3	F3	F3	F3		F2	F2
21	F2	F2							H2	CL12	CL22	L2	L2	L2	L3	L2	L2	L2	F3	F3	F2	F2	F1	F2
22								H2	H2	CL22	L2	L2	L2	L2	L2	L2	HL11			F3	F2	F2	F1	
23	F1	F1	F2		F1	F2		H2	H2	C2	CL22	CL22	L2	L2	L2	L2	L3		F1	F2	F2	F2		
24	F2			F1	F2	F2	F4	CL22	HL22	L2	L2	CL22	L2	HL12	L2	L2	H2			F1	F2	F3	F2	F1
25		F1						H2	L2	L2	CL22	L2	L2	CL22	L2	CL22	L2	L2						
26									H3	L2	L2	L2	L2	L2	L2	L2								
27		F2				F2	F1	H1	H2	L2	L2	L2	L2	L2	L2	L2	L3	L3	F2					
28	F1								C2	CL12	CL12	CL22	L2	L2	L2	L2	H2	L2	F2	F1				
29						F1				L2	HL22	HL22	L2	CL22	L2	L2	L3	L1	F2	F3	F2	F3	F3	F2
30	F3	F1	F2		F1	F3	F2		H2		HL12	CL22	L2	CL22	CL22	L2	L2		F2		F2	F2	F2	F3
31									L2	L2	CL12	CL11	L2	L2	L2	L2	L1	L3	F2	F2	F3	F2	F2	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. 2011 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

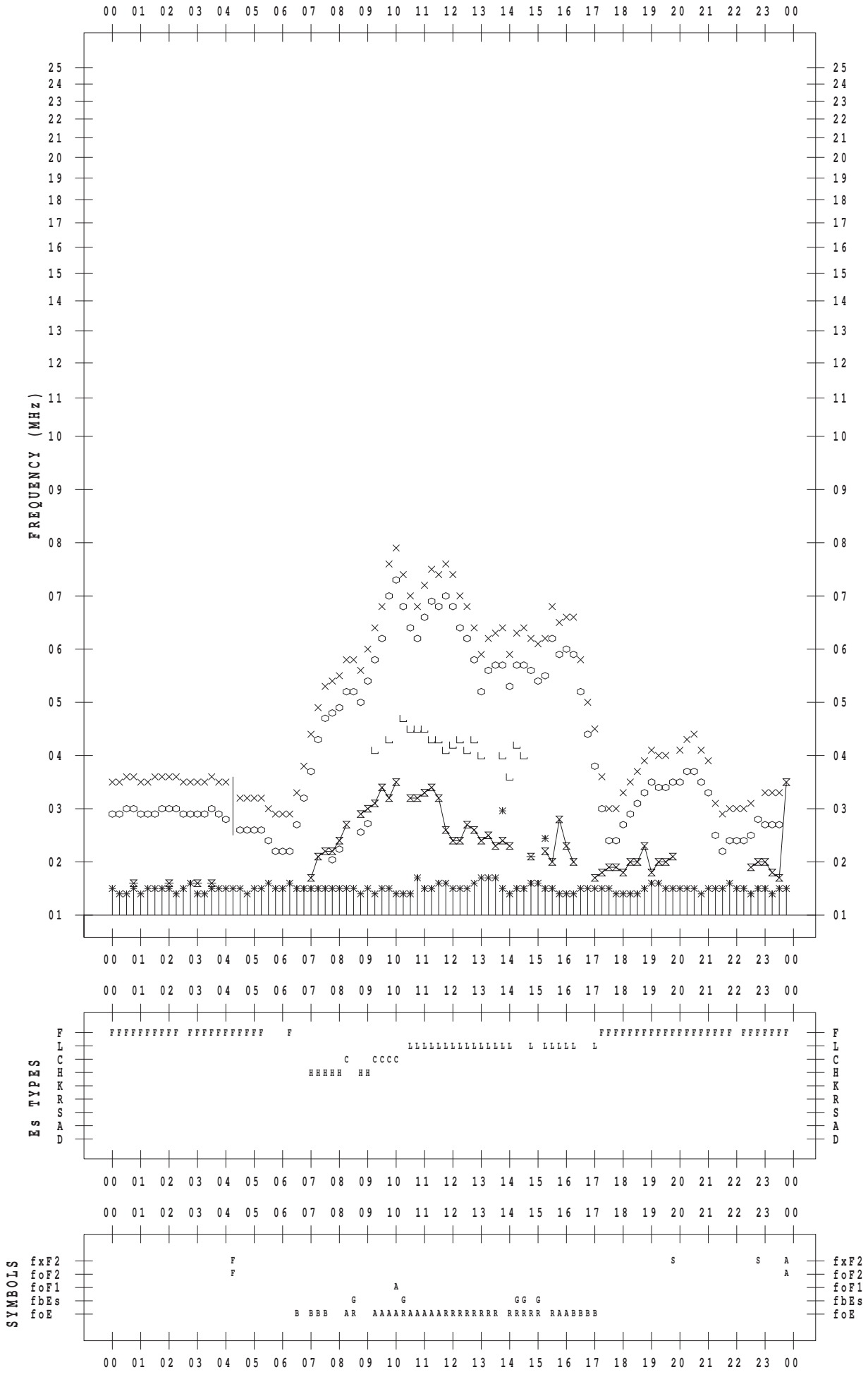
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2011/ 1/ 1

135 °E MEAN TIME



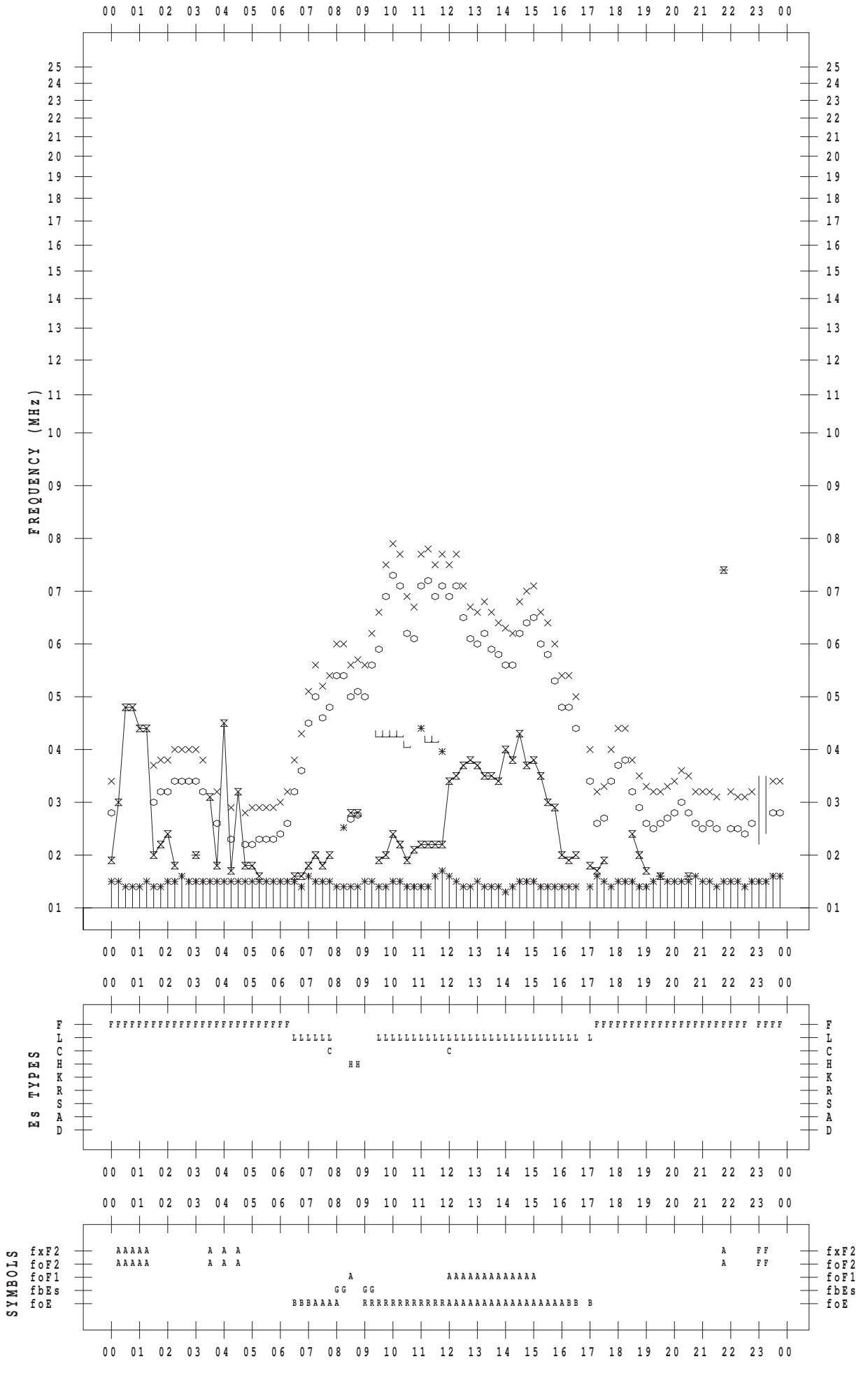
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2011/ 1/ 2

135 °E MEAN TIME



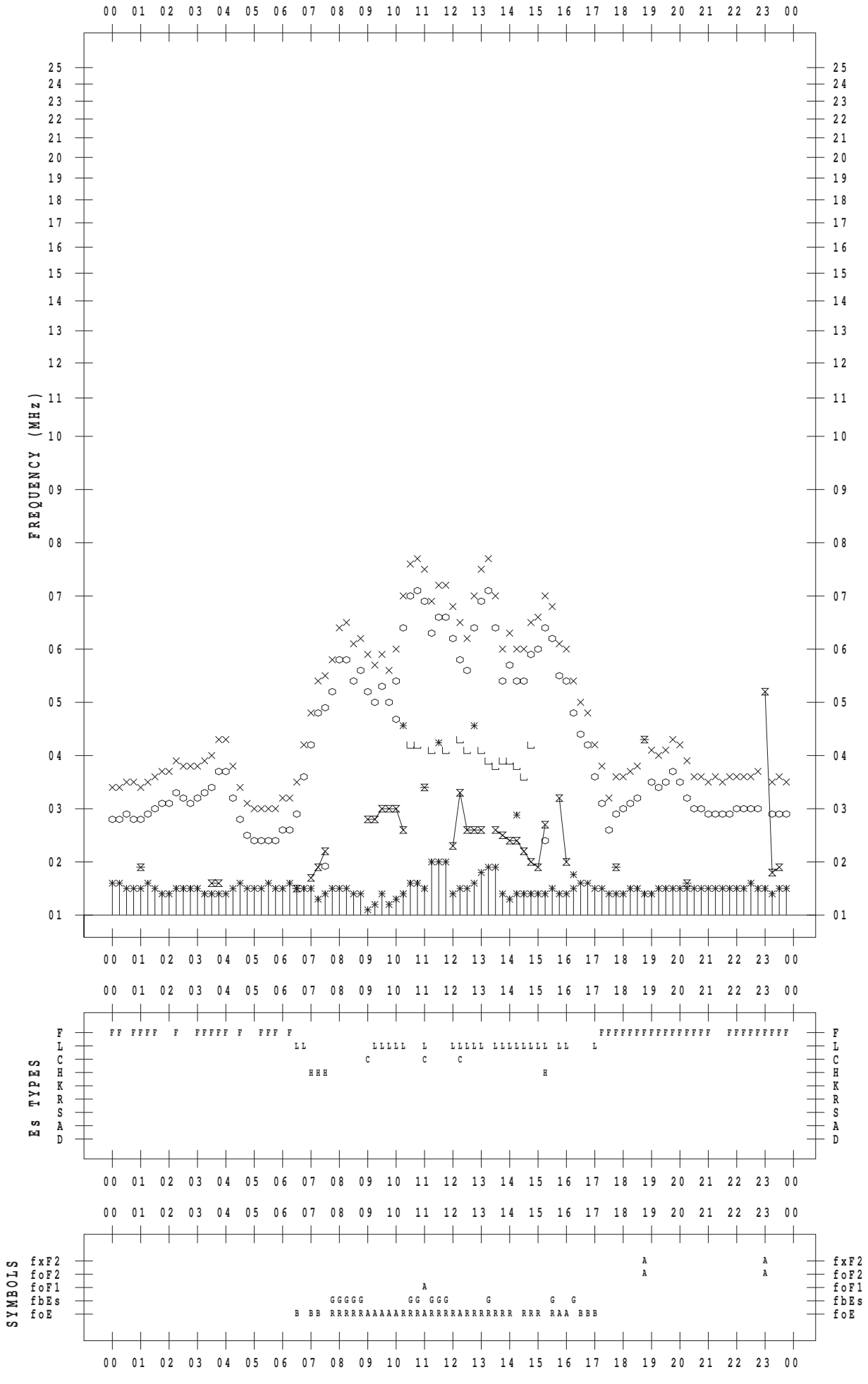
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2011/ 1/ 3

135 °E MEAN TIME



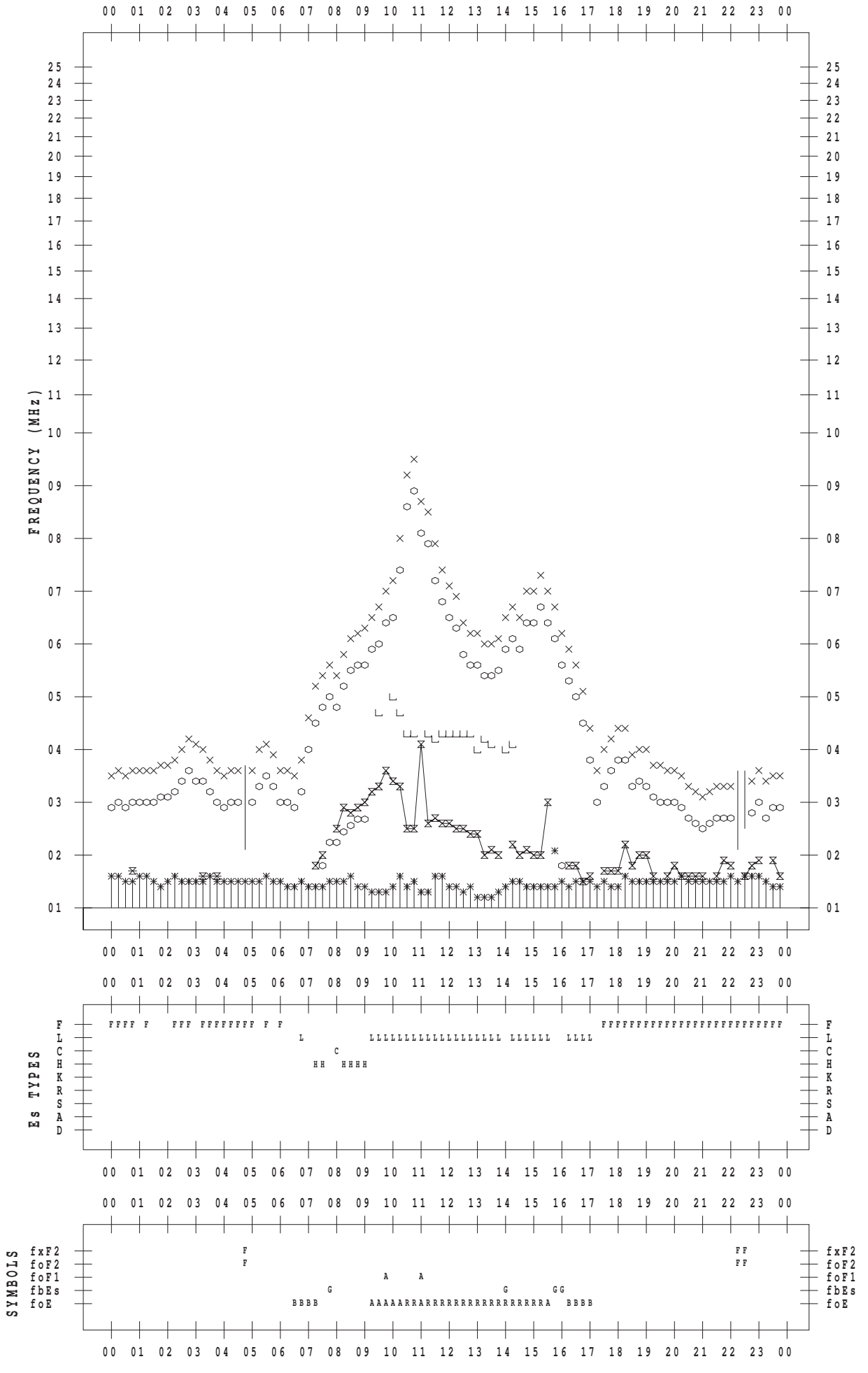
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2011/ 1/ 4

135 °E MEAN TIME



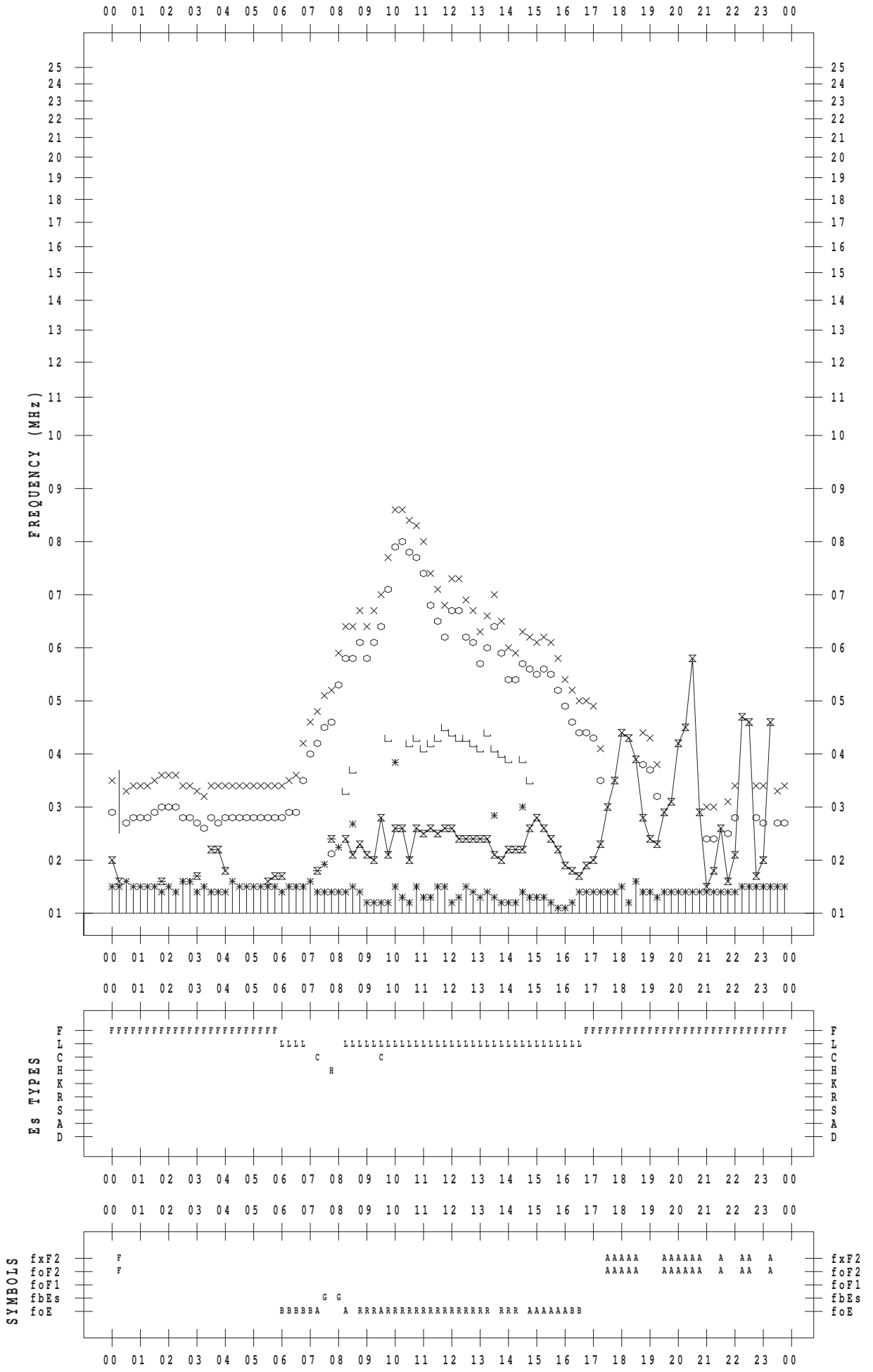
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2011/ 1/ 5

135 °E MEAN TIME



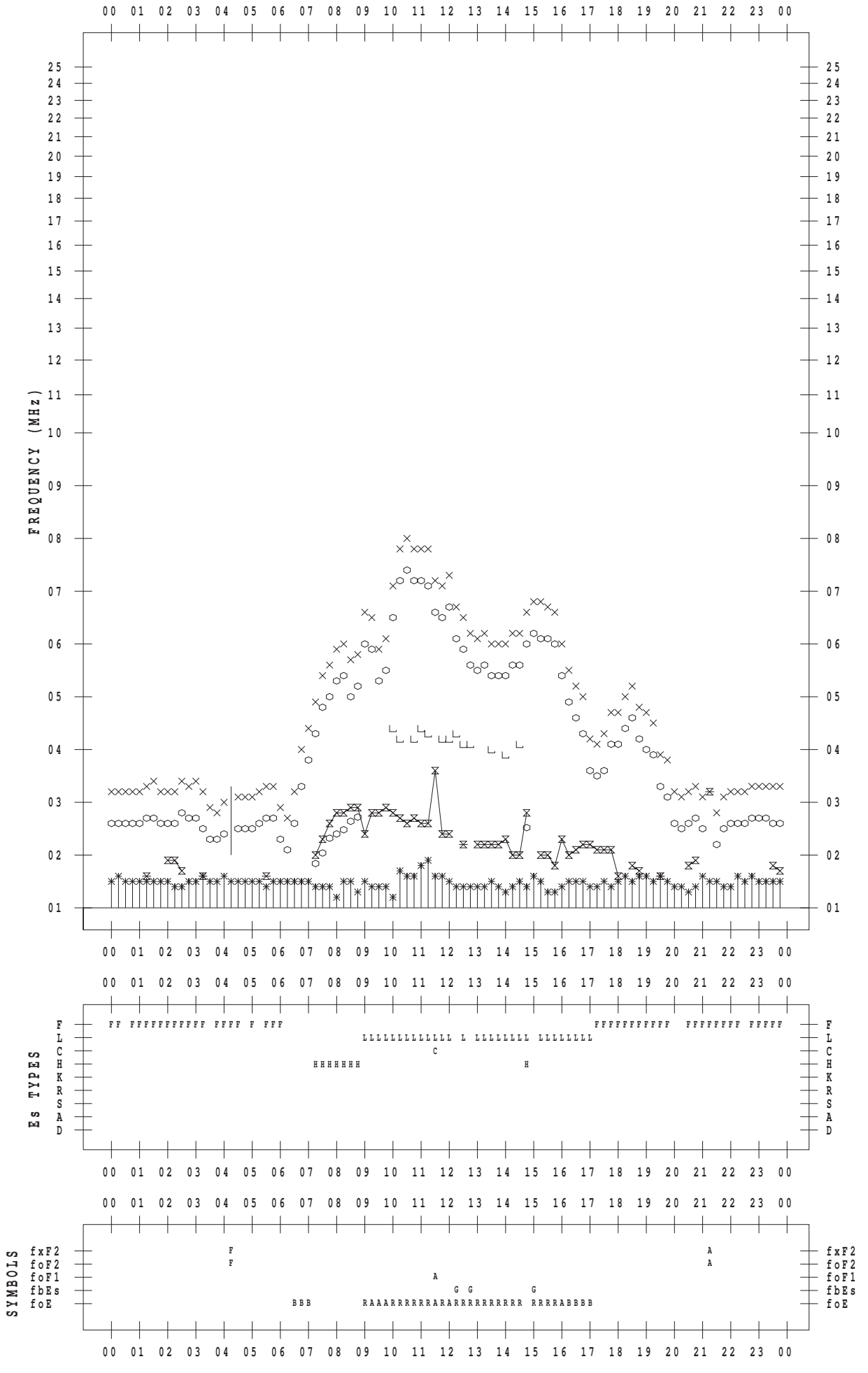
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2011/ 1/ 6

135 °E MEAN TIME



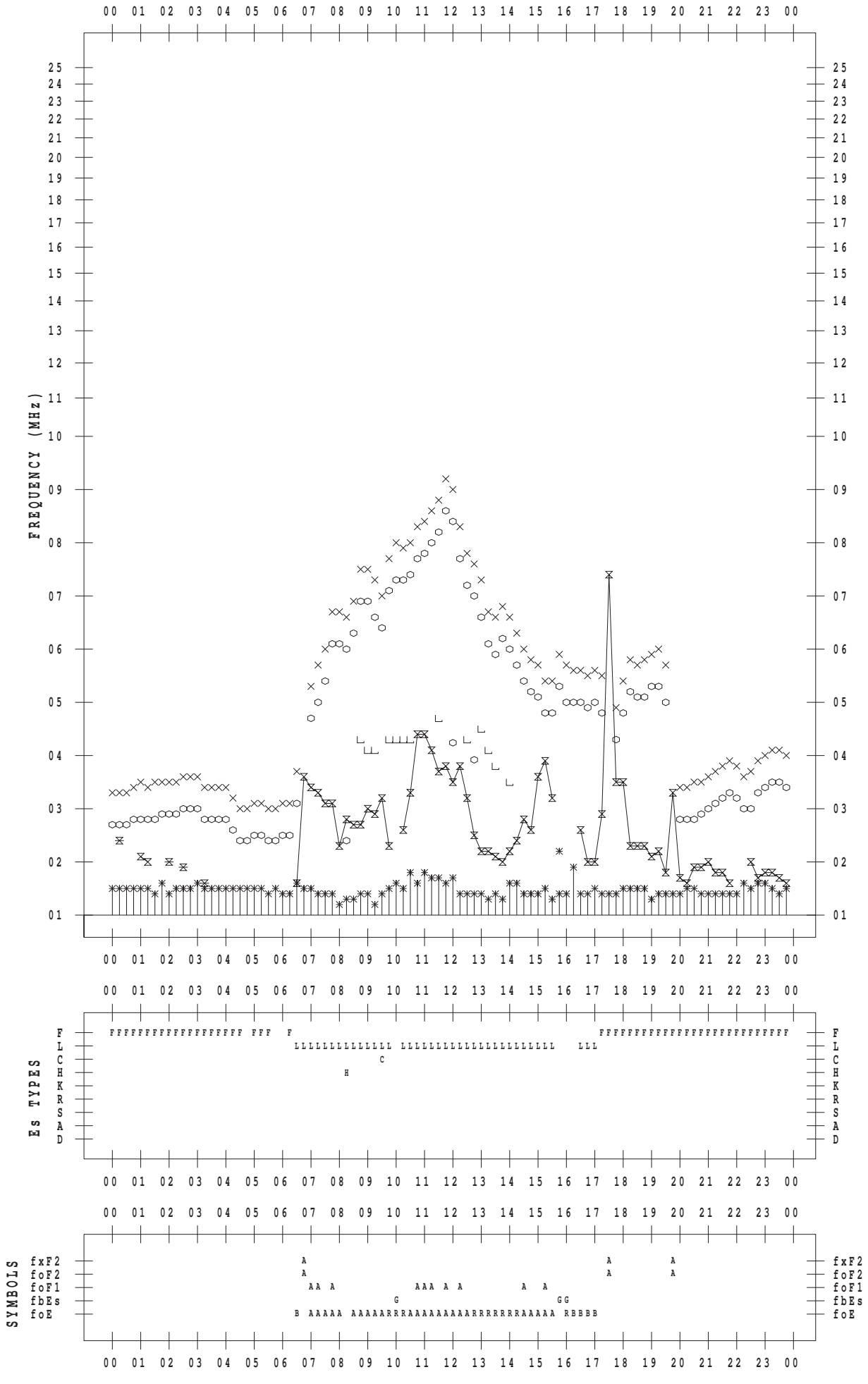
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2011/ 1/ 7

135 °E MEAN TIME



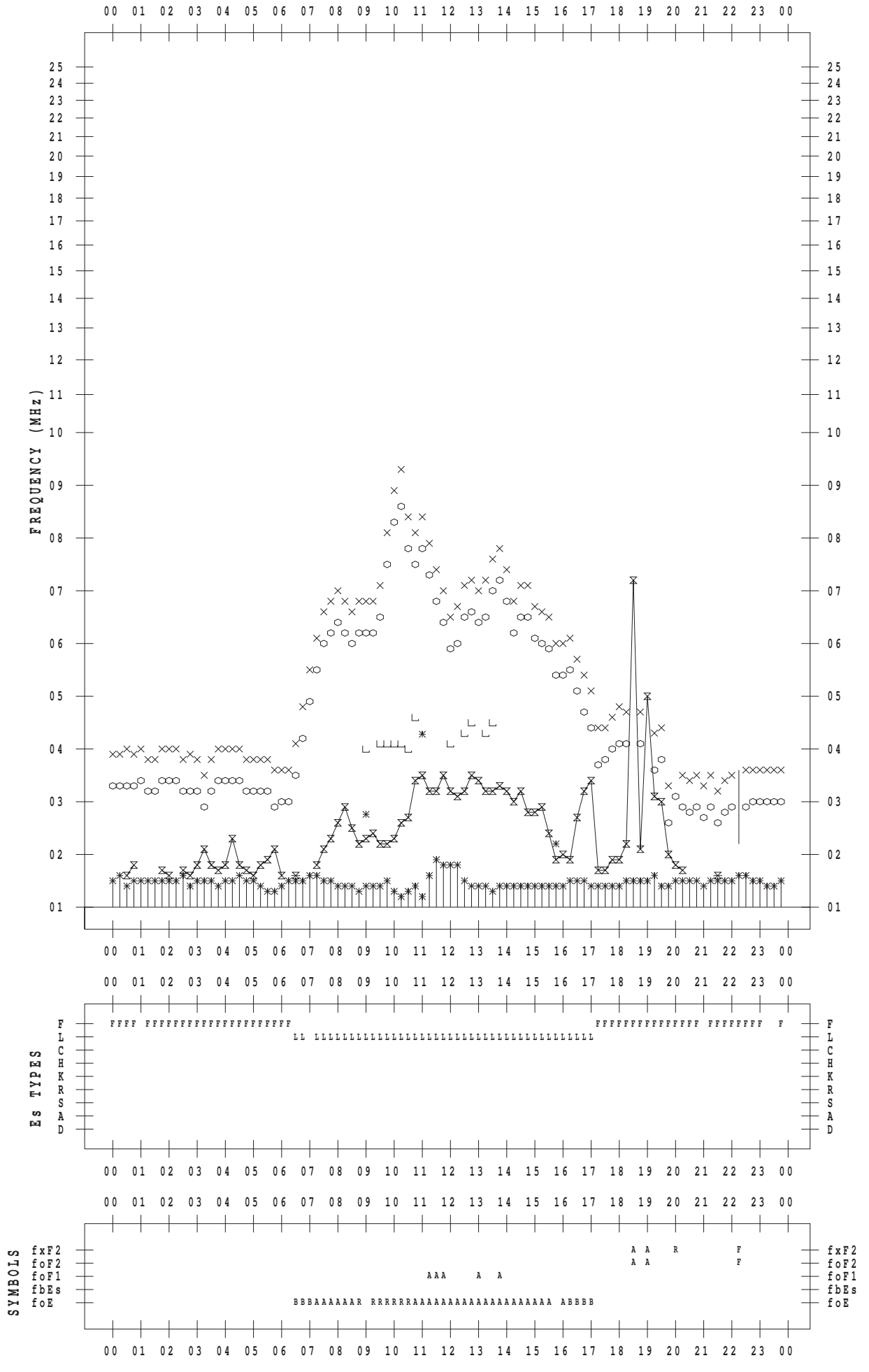
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2011/ 1/ 8

135 °E MEAN TIME



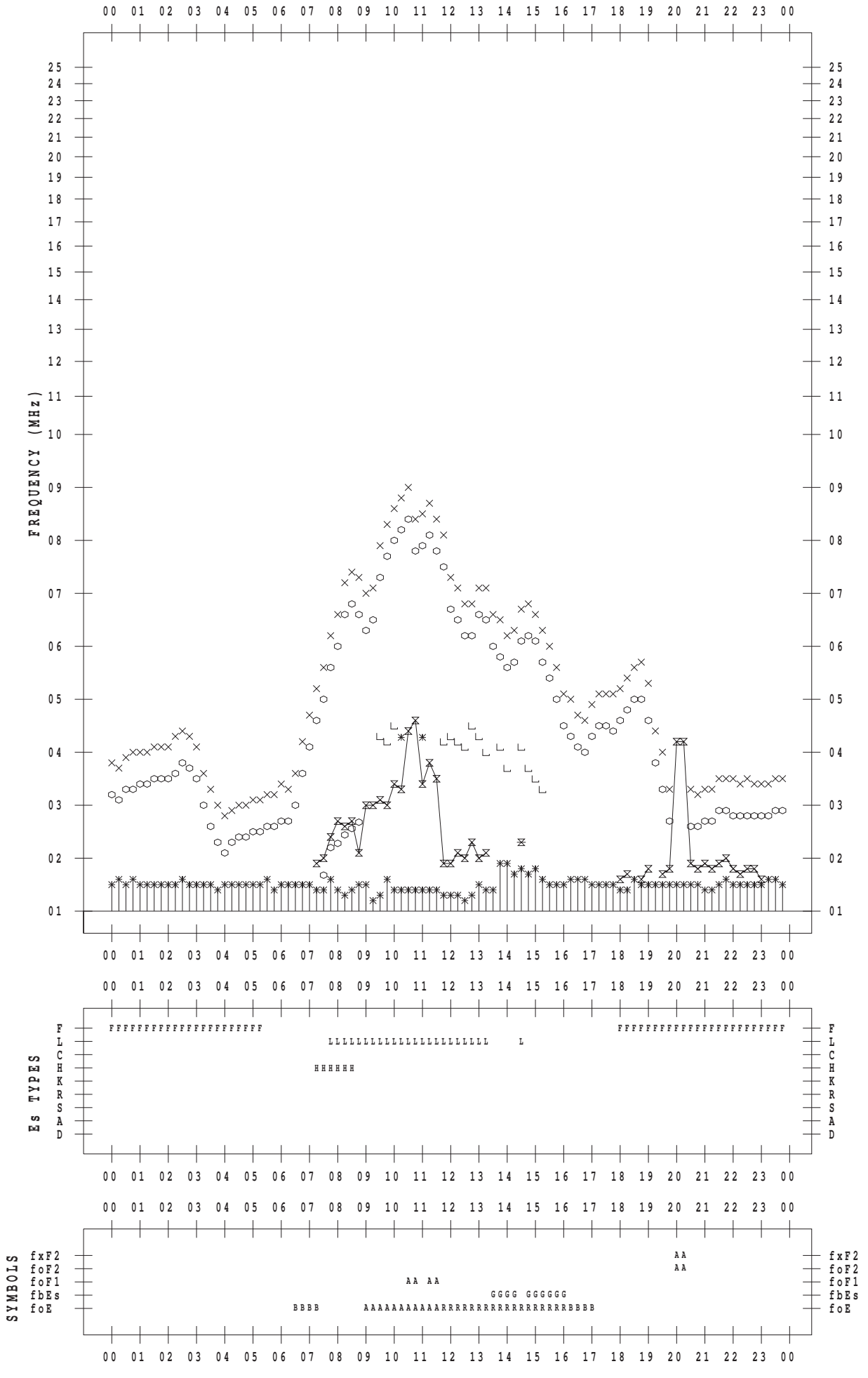
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2011/ 1/ 9

135 °E MEAN TIME



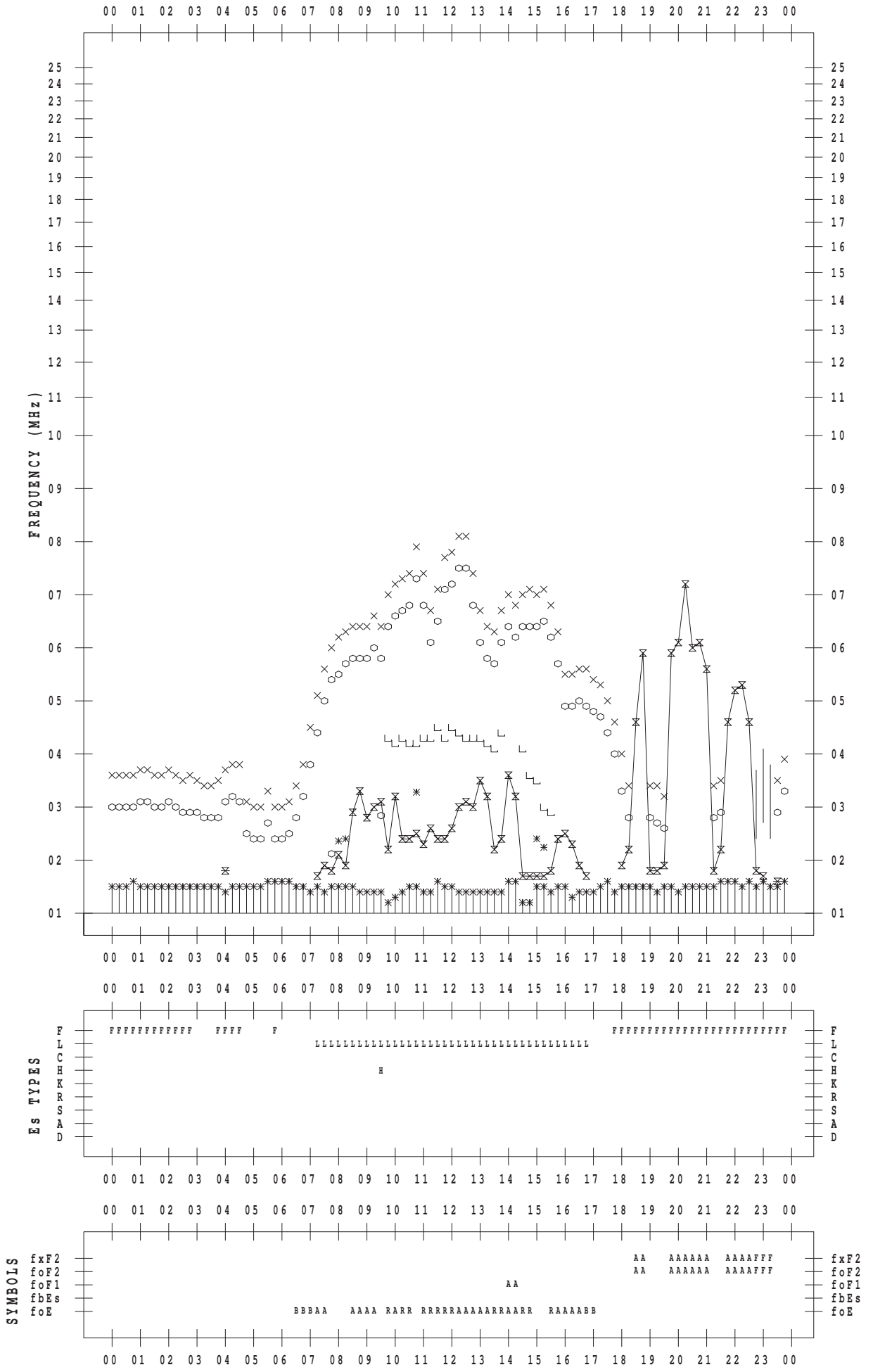
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2011/ 1/10

135 °E MEAN TIME



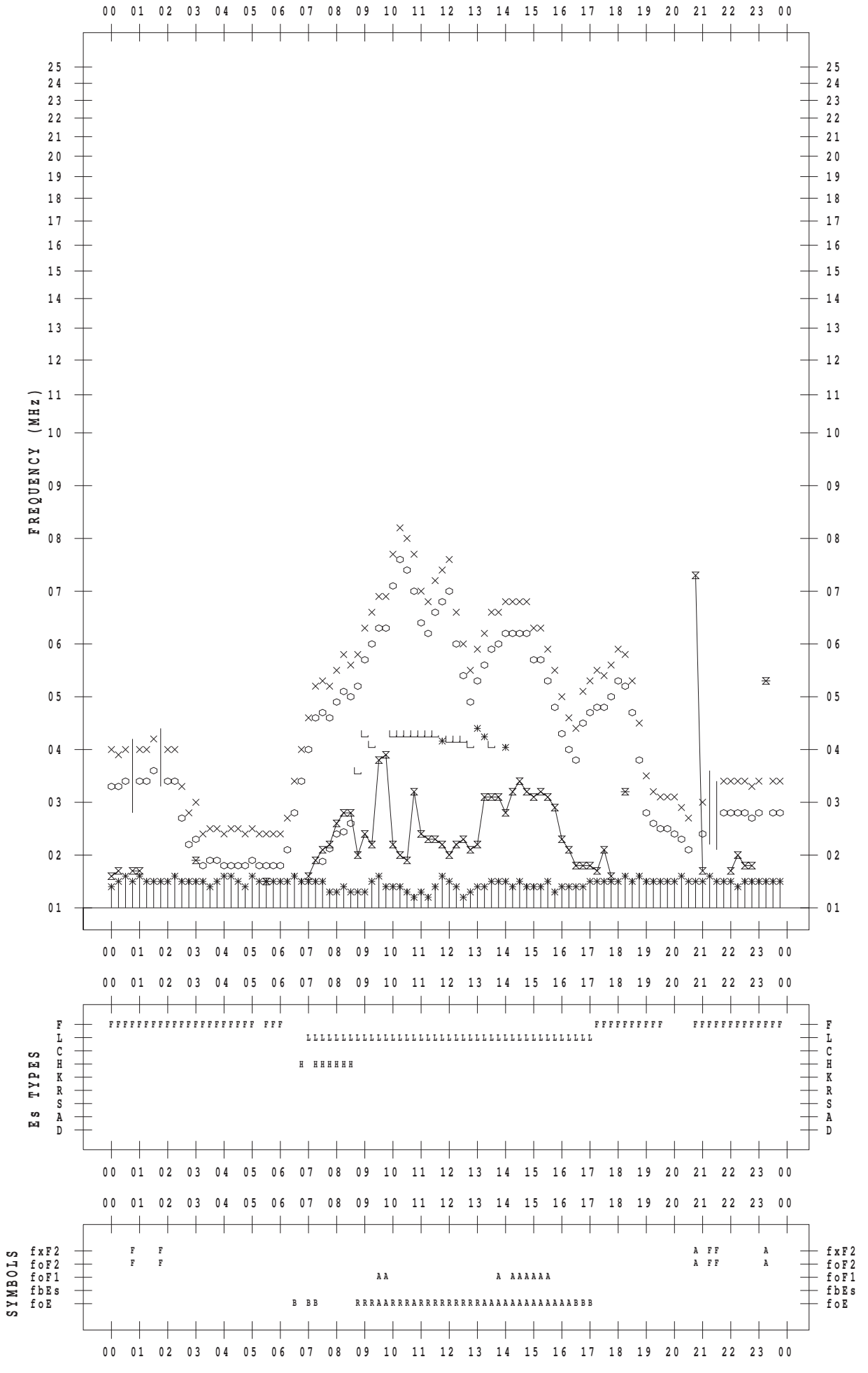
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2011/ 1/11

135 °E MEAN TIME



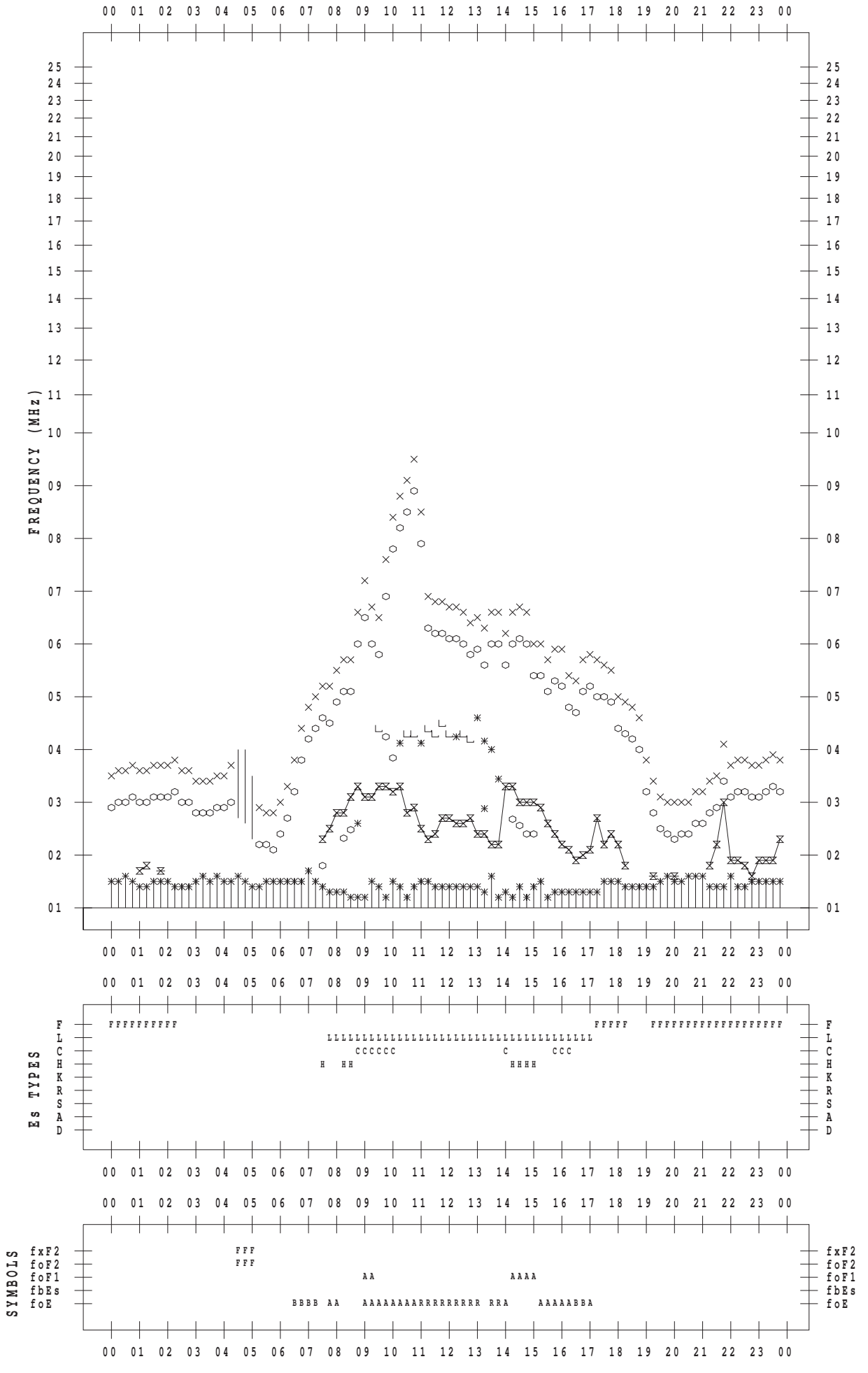
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2011/ 1/12

135 °E MEAN TIME



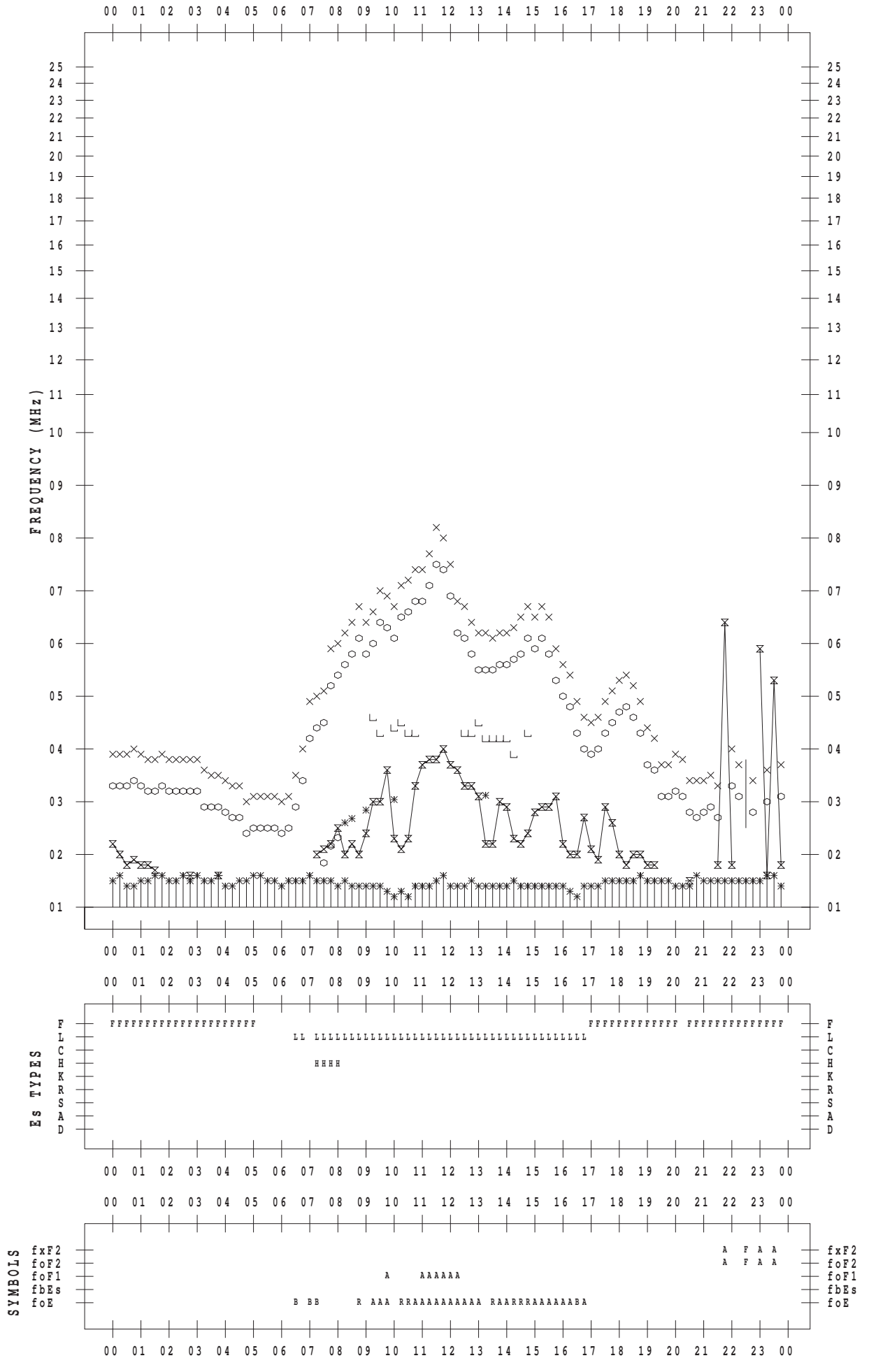
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2011/ 1/13

135 °E MEAN TIME



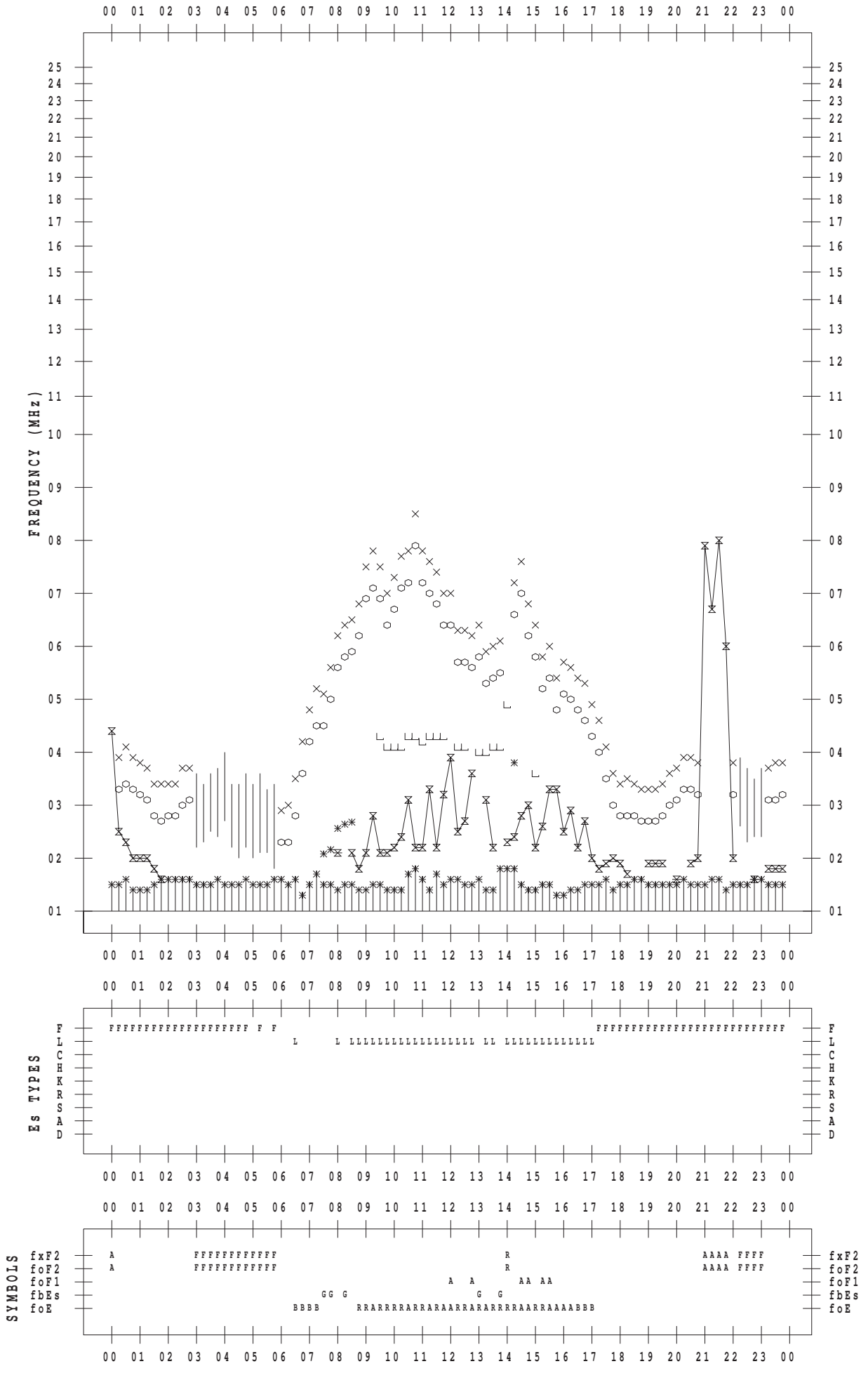
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2011/ 1/14

135 °E MEAN TIME



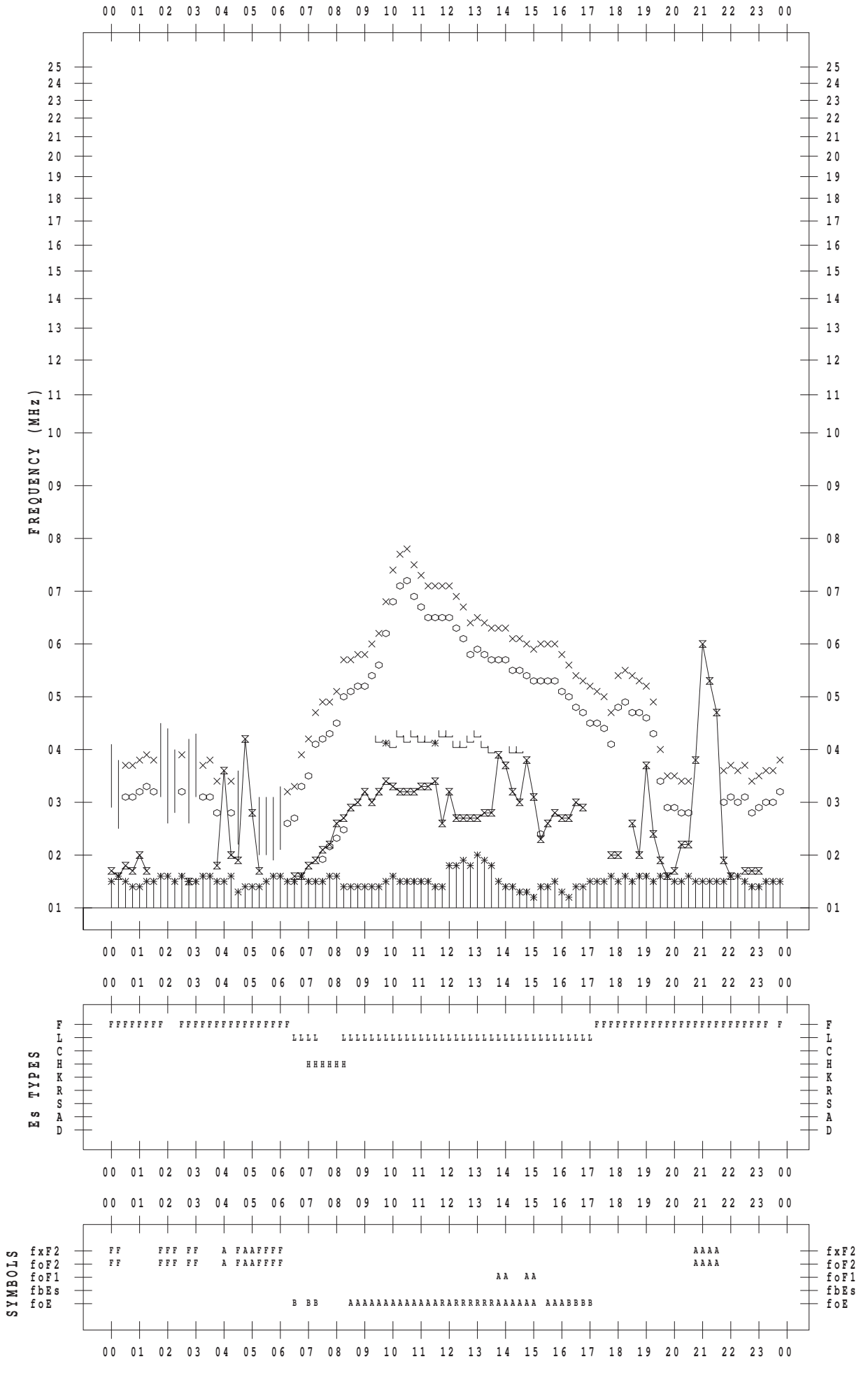
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2011/ 1/15

135 °E MEAN TIME



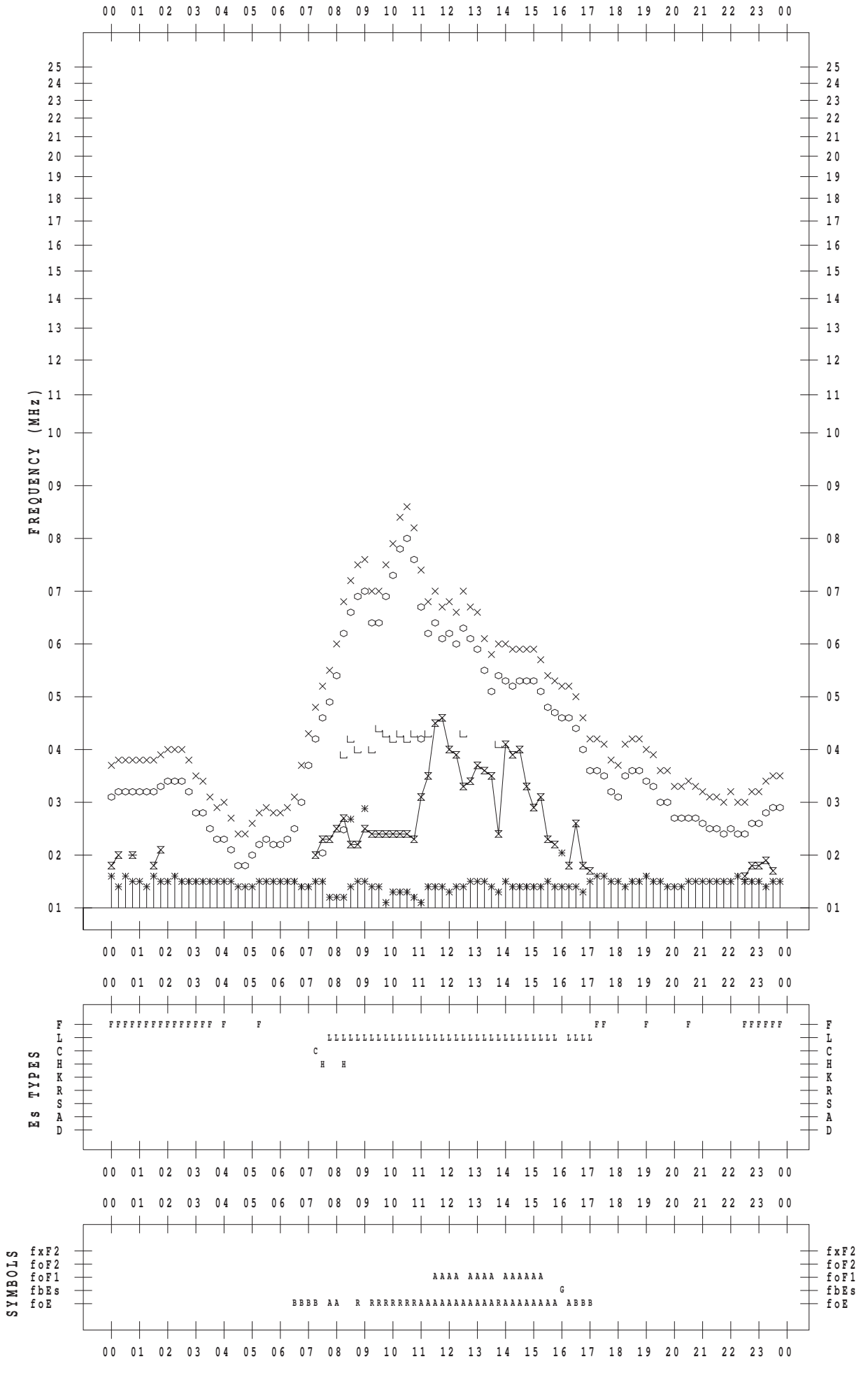
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2011/ 1/16

135 °E MEAN TIME



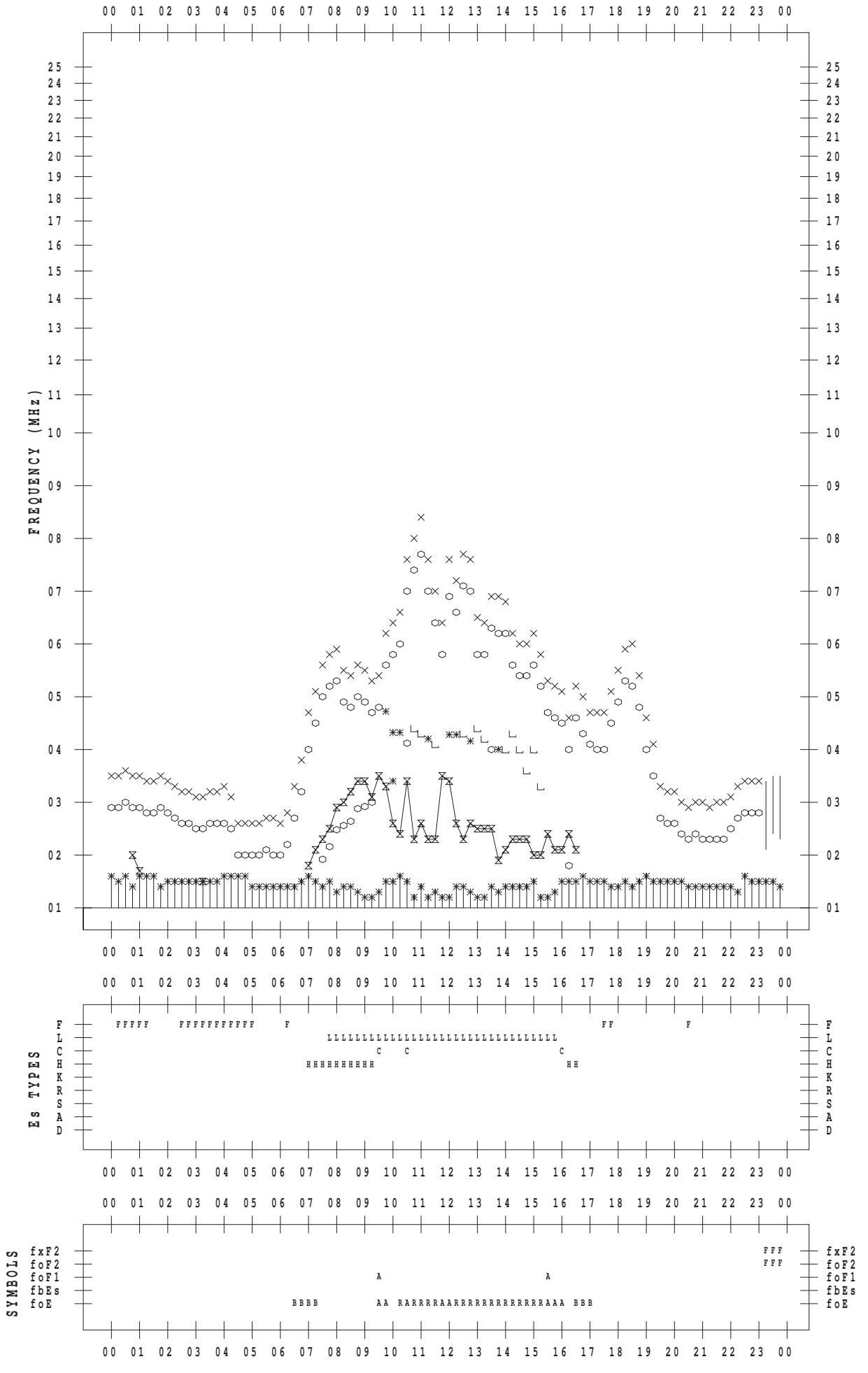
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2011/ 1/17

135 °E MEAN TIME



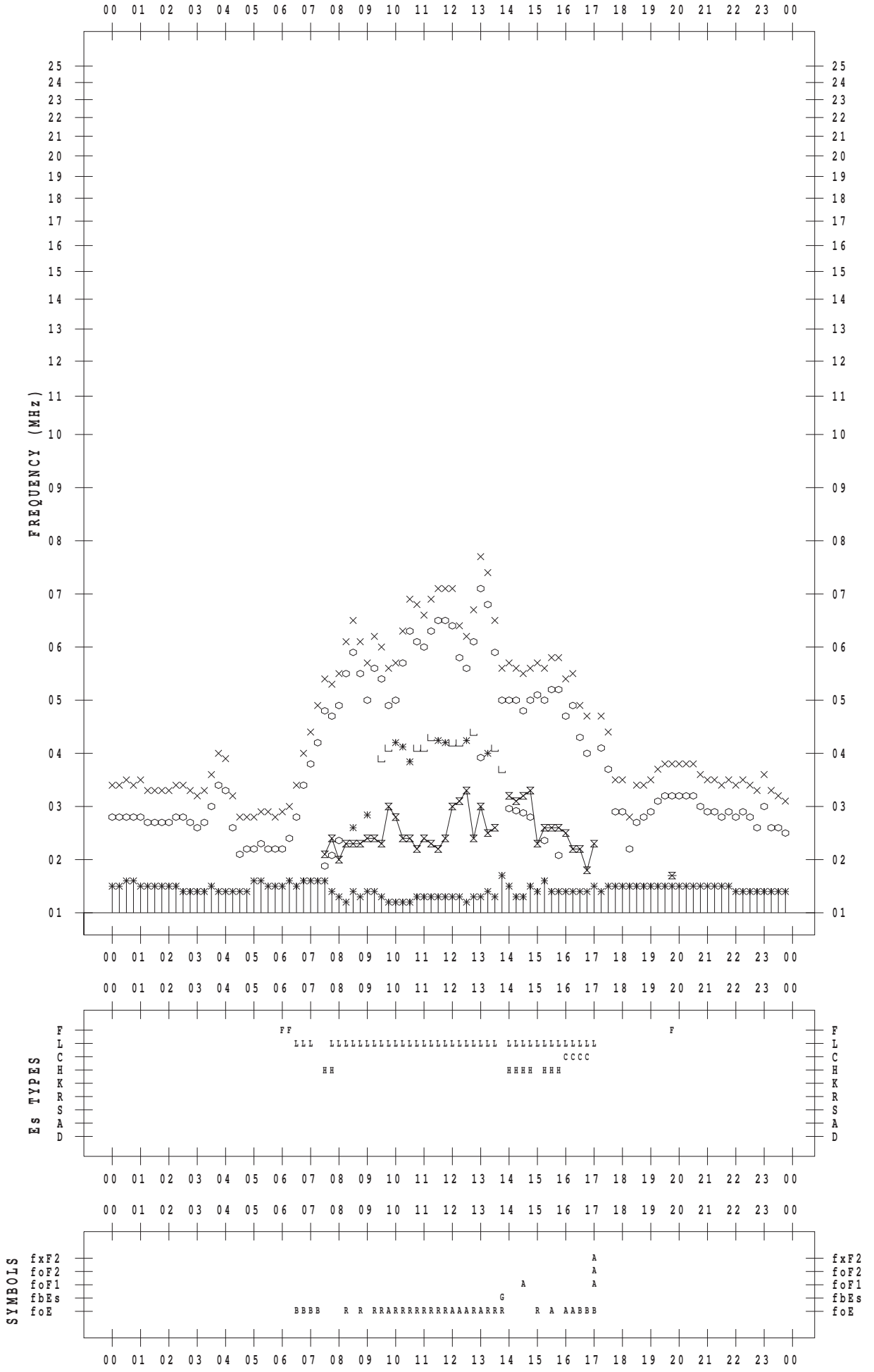
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2011/ 1/18

135 °E MEAN TIME



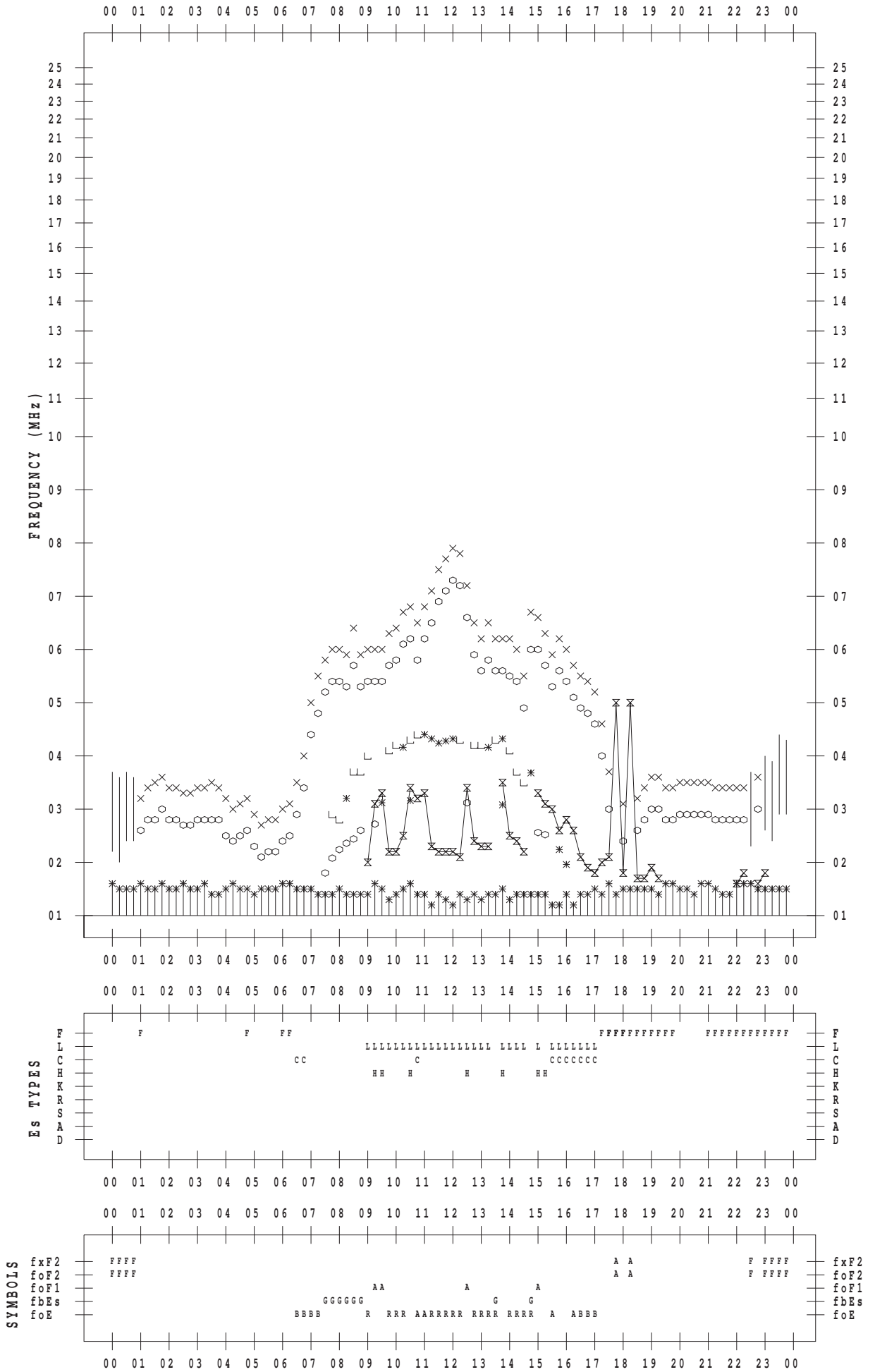
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2011/ 1/19

135 °E MEAN TIME



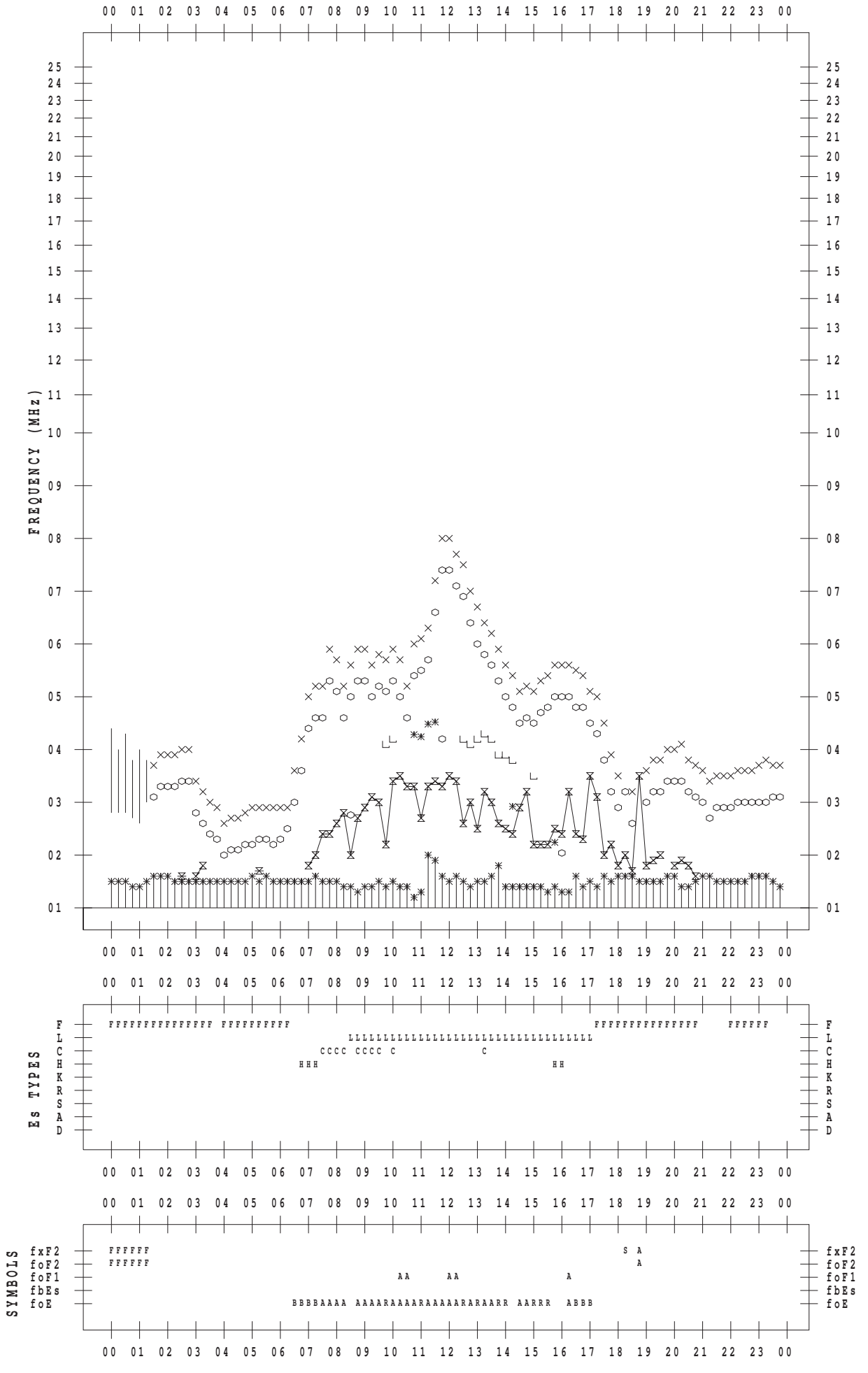
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2011/ 1/20

135 °E MEAN TIME



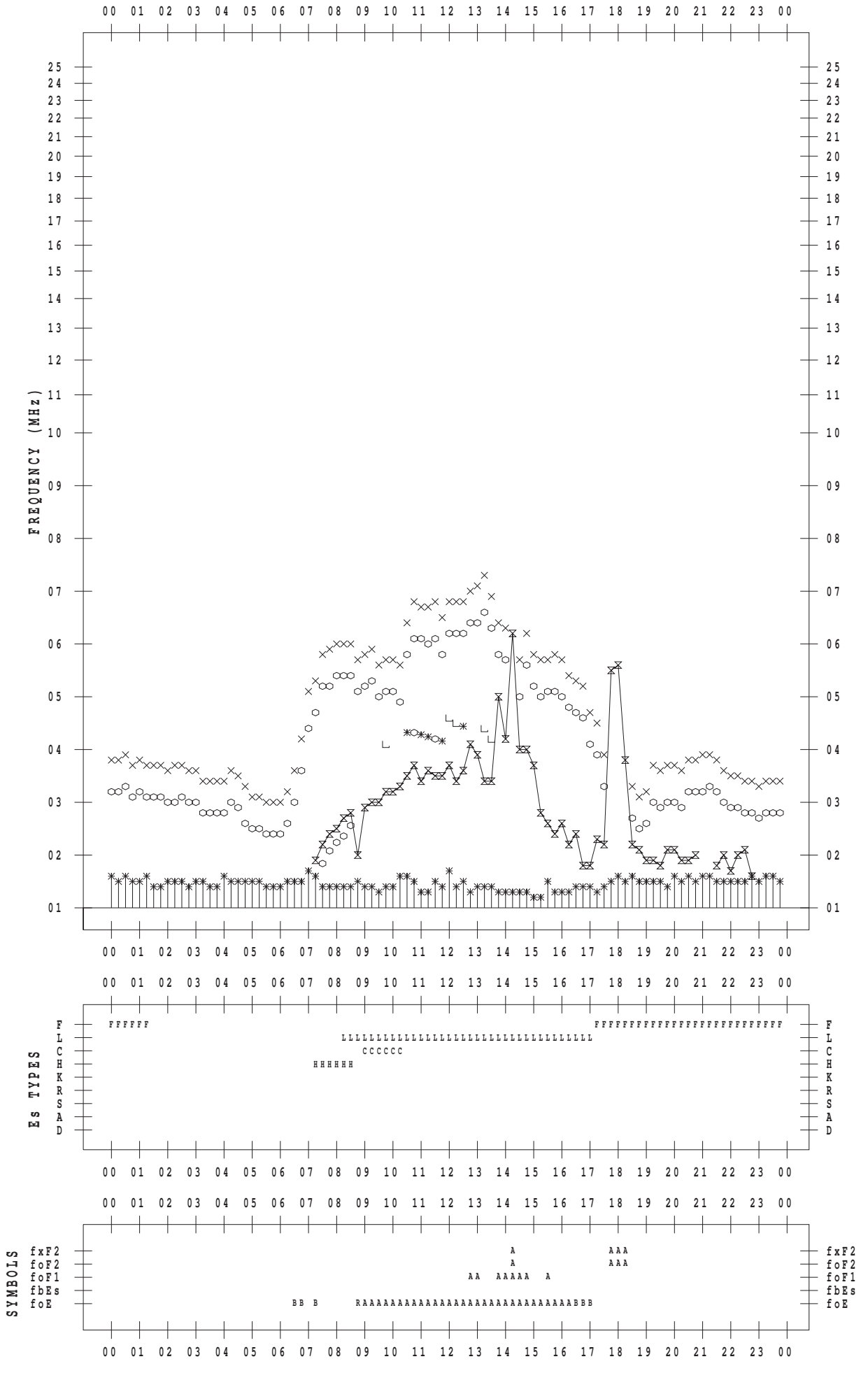
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2011/ 1/21

135 °E MEAN TIME



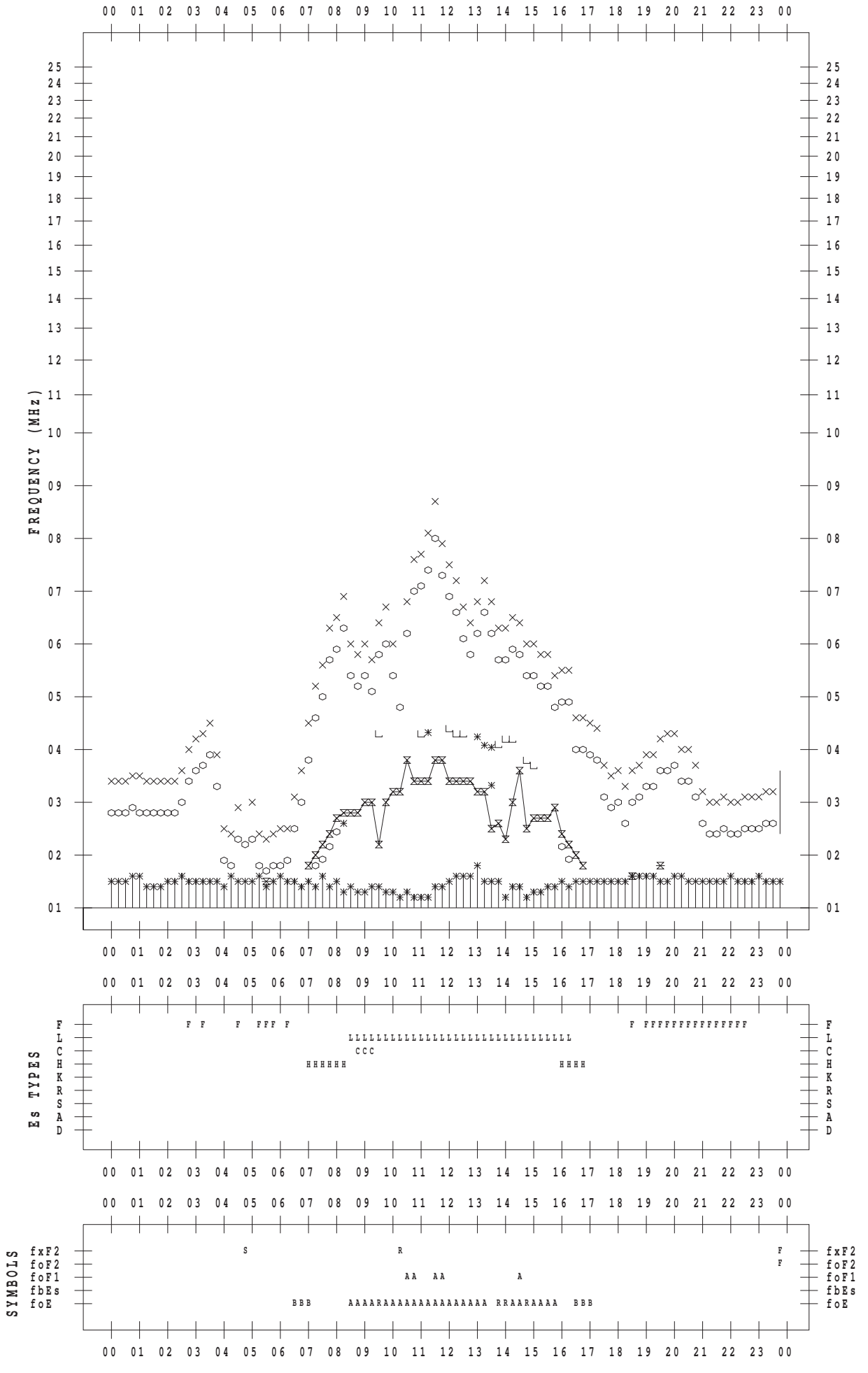
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2011/ 1/22

135 °E MEAN TIME



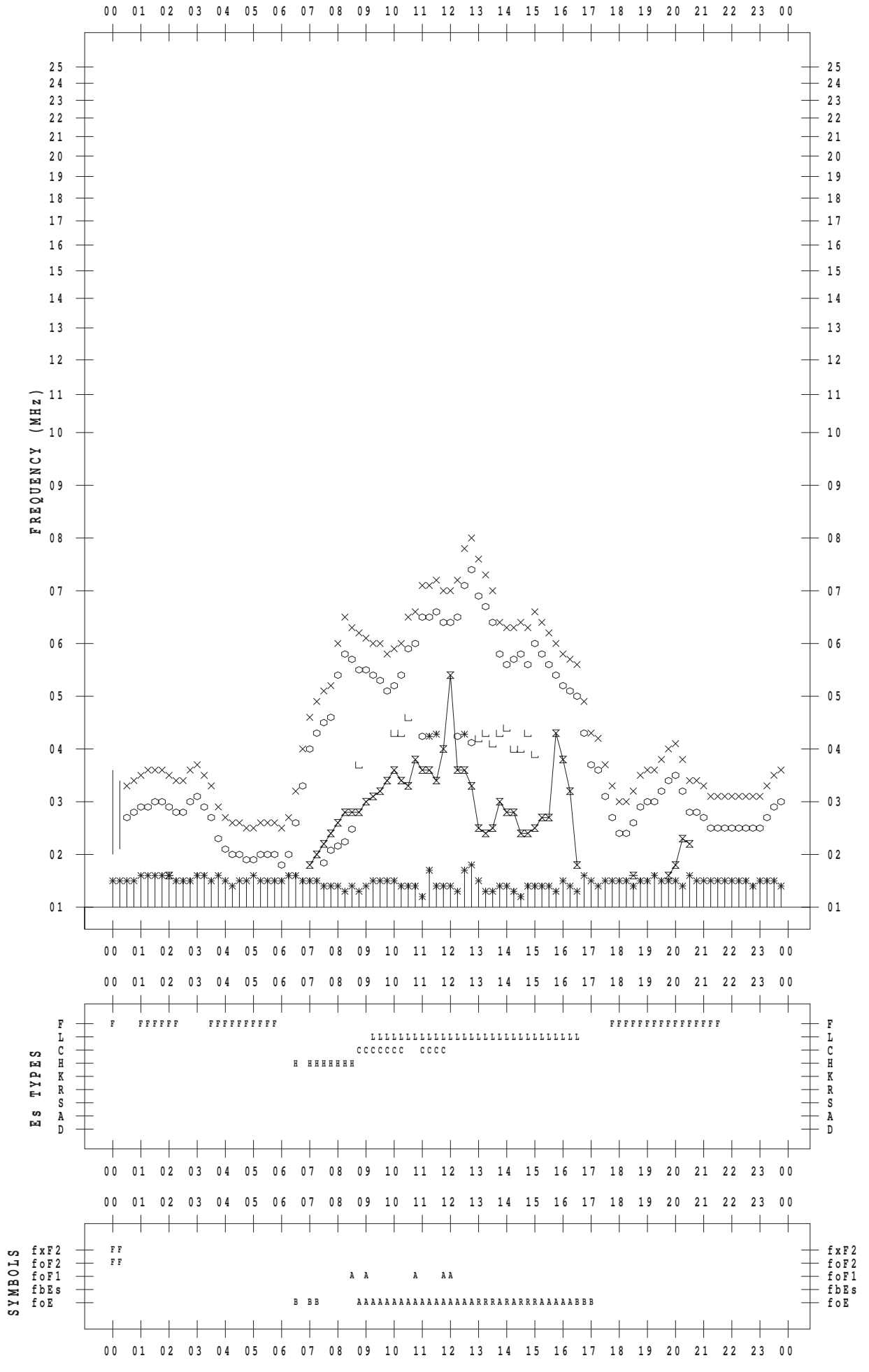
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2011/ 1/23

135 °E MEAN TIME



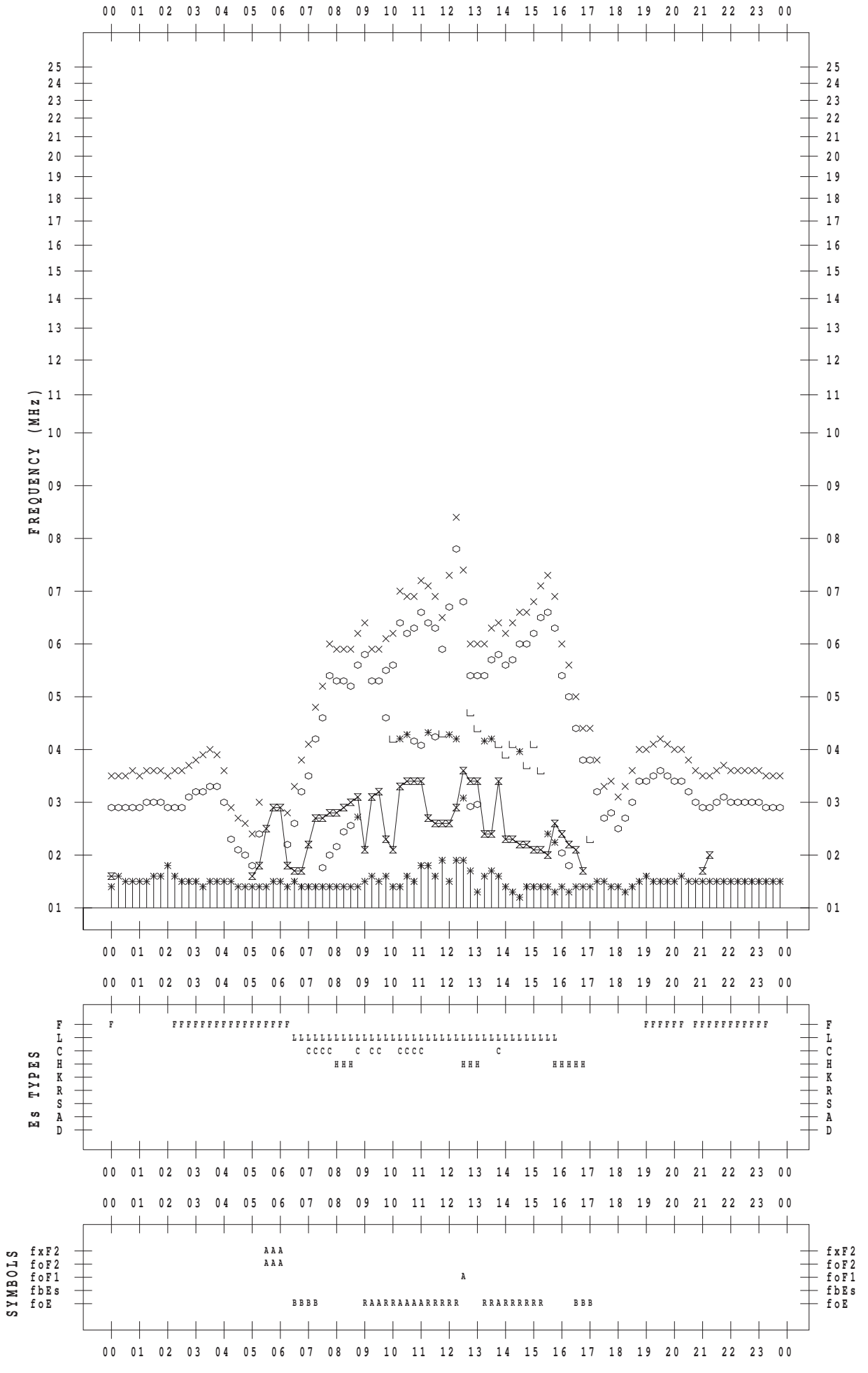
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2011/ 1/24

135 °E MEAN TIME



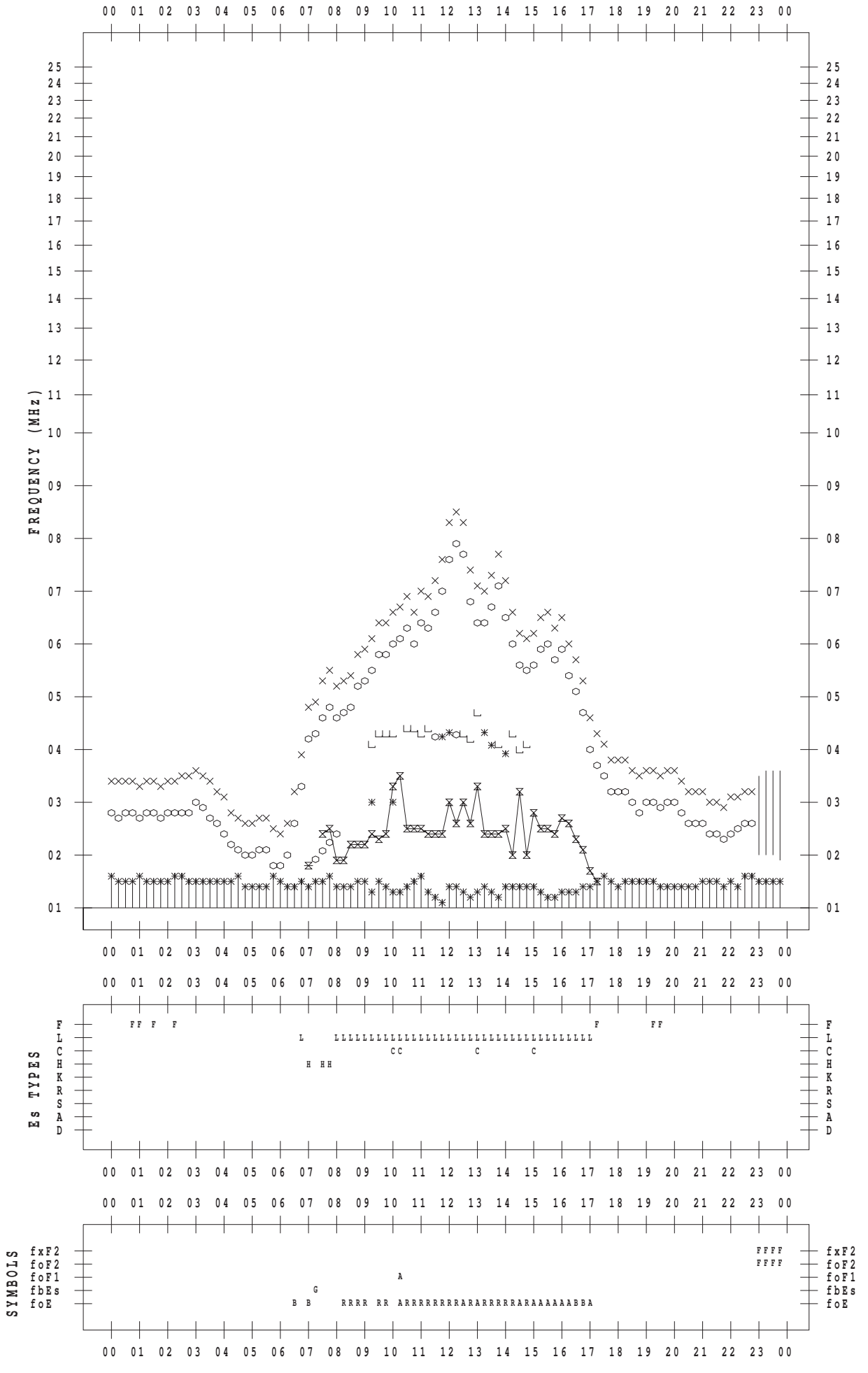
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2011/ 1/25

135 °E MEAN TIME



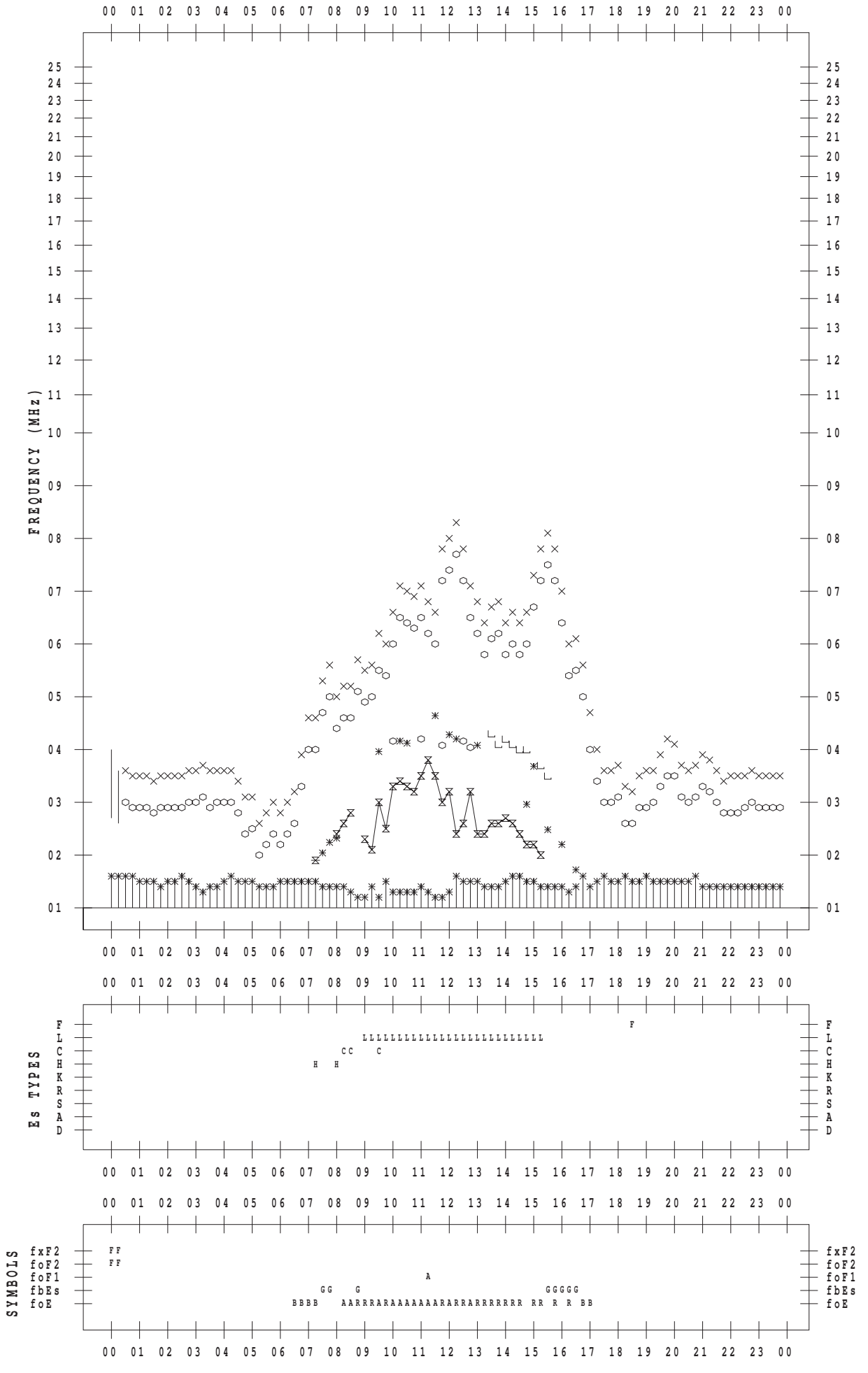
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2011/ 1/26

135 °E MEAN TIME



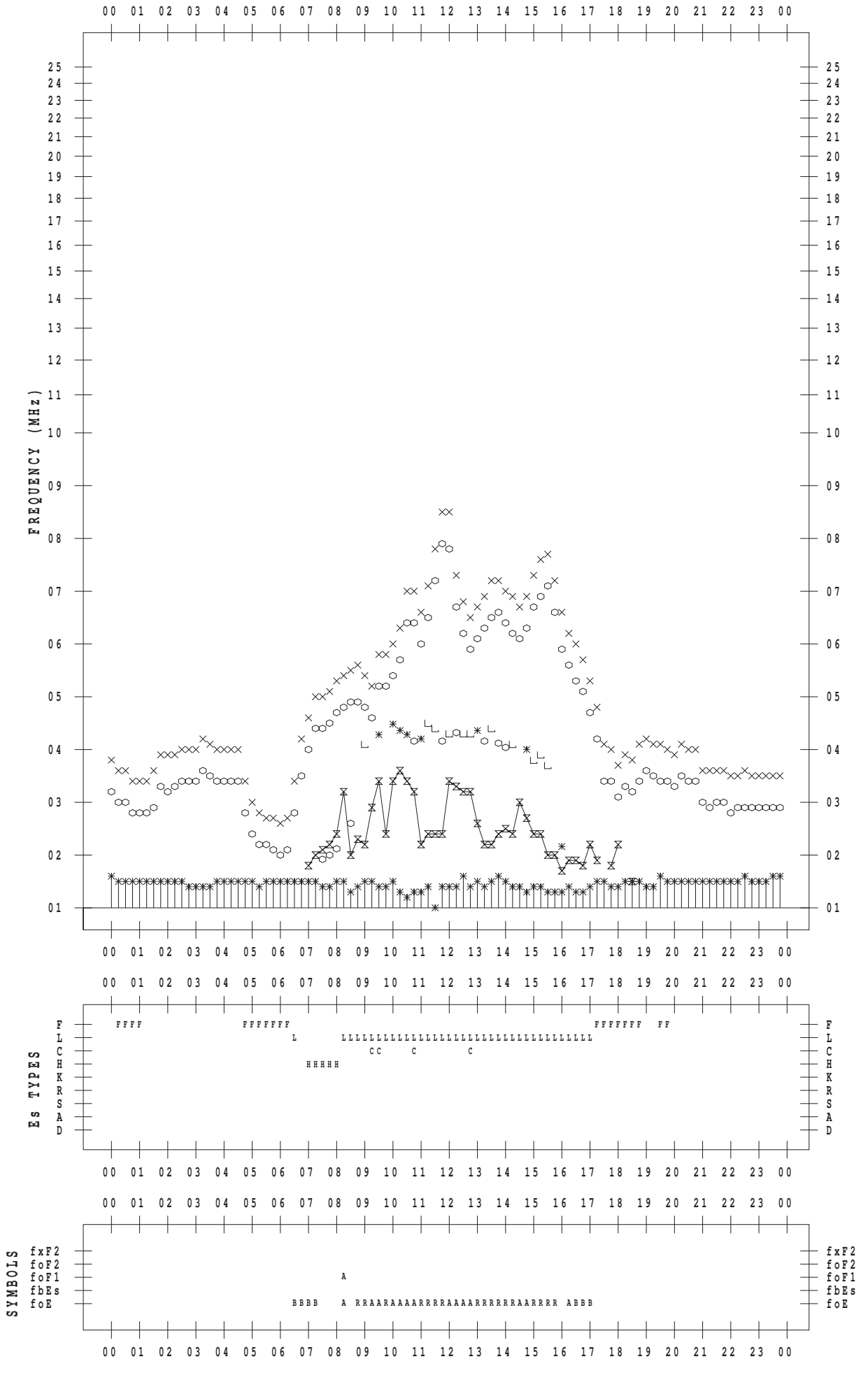
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2011/ 1/27

135 °E MEAN TIME



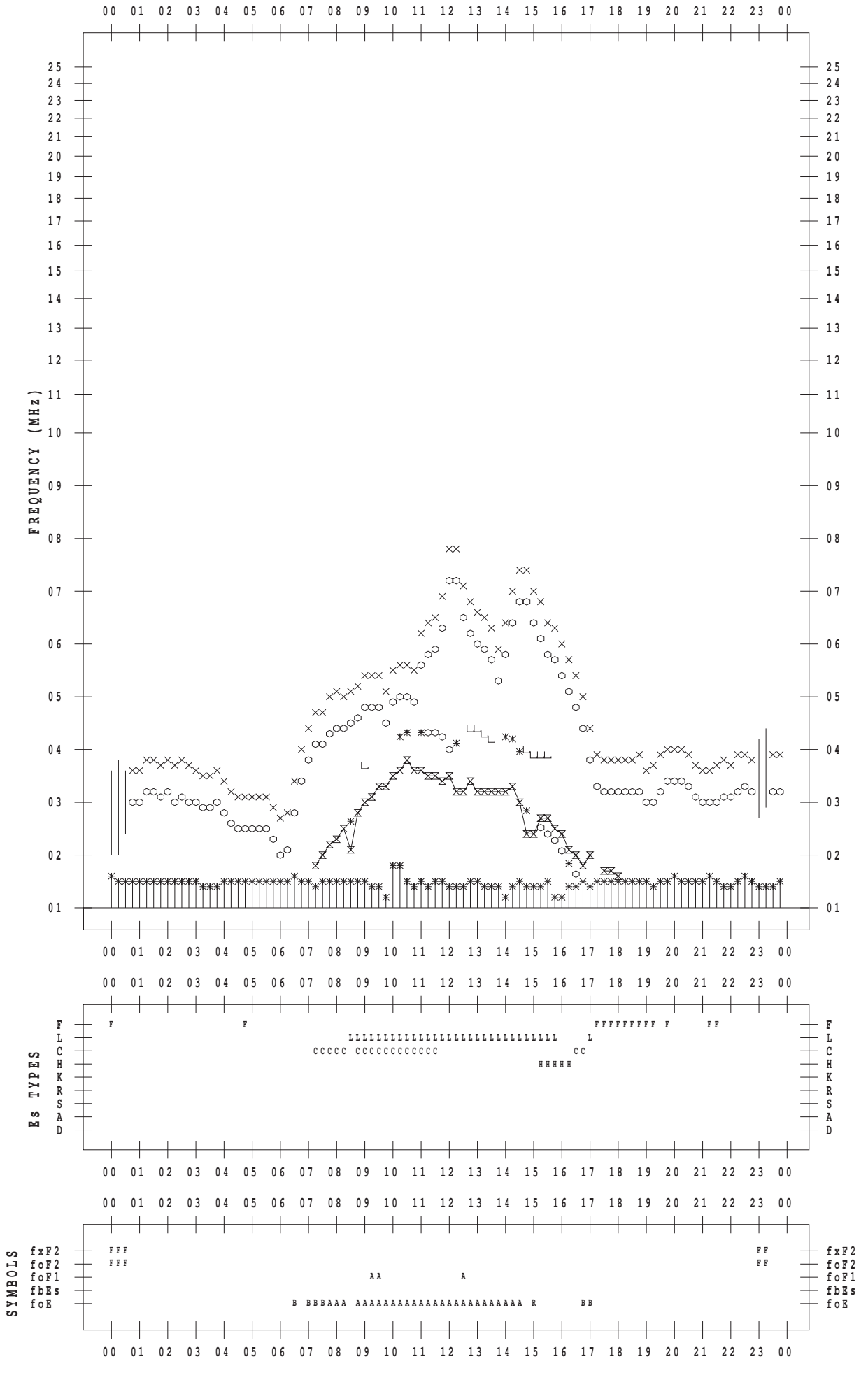
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2011/ 1/28

135 °E MEAN TIME



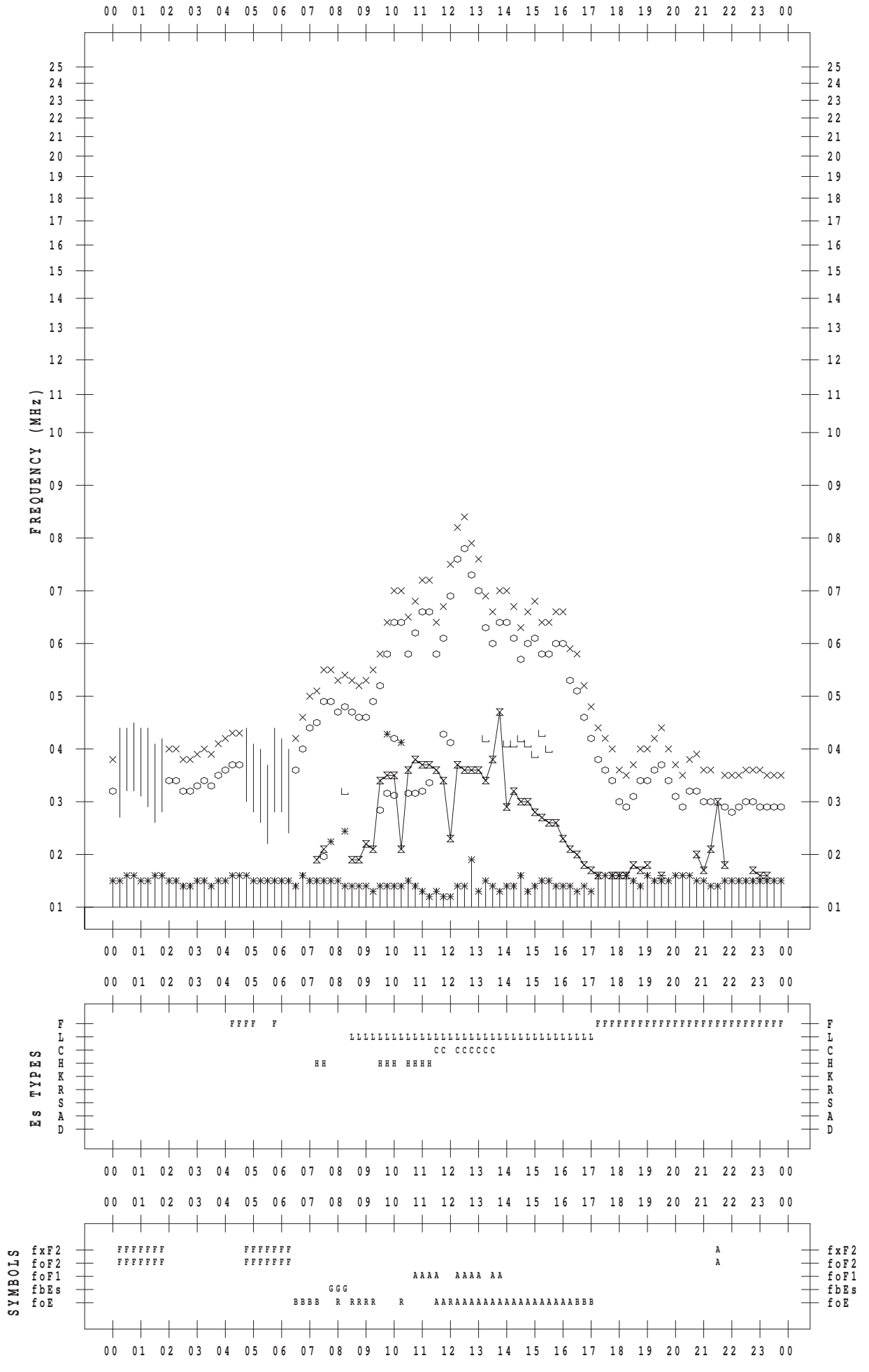
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2011/ 1/29

135 °E MEAN TIME



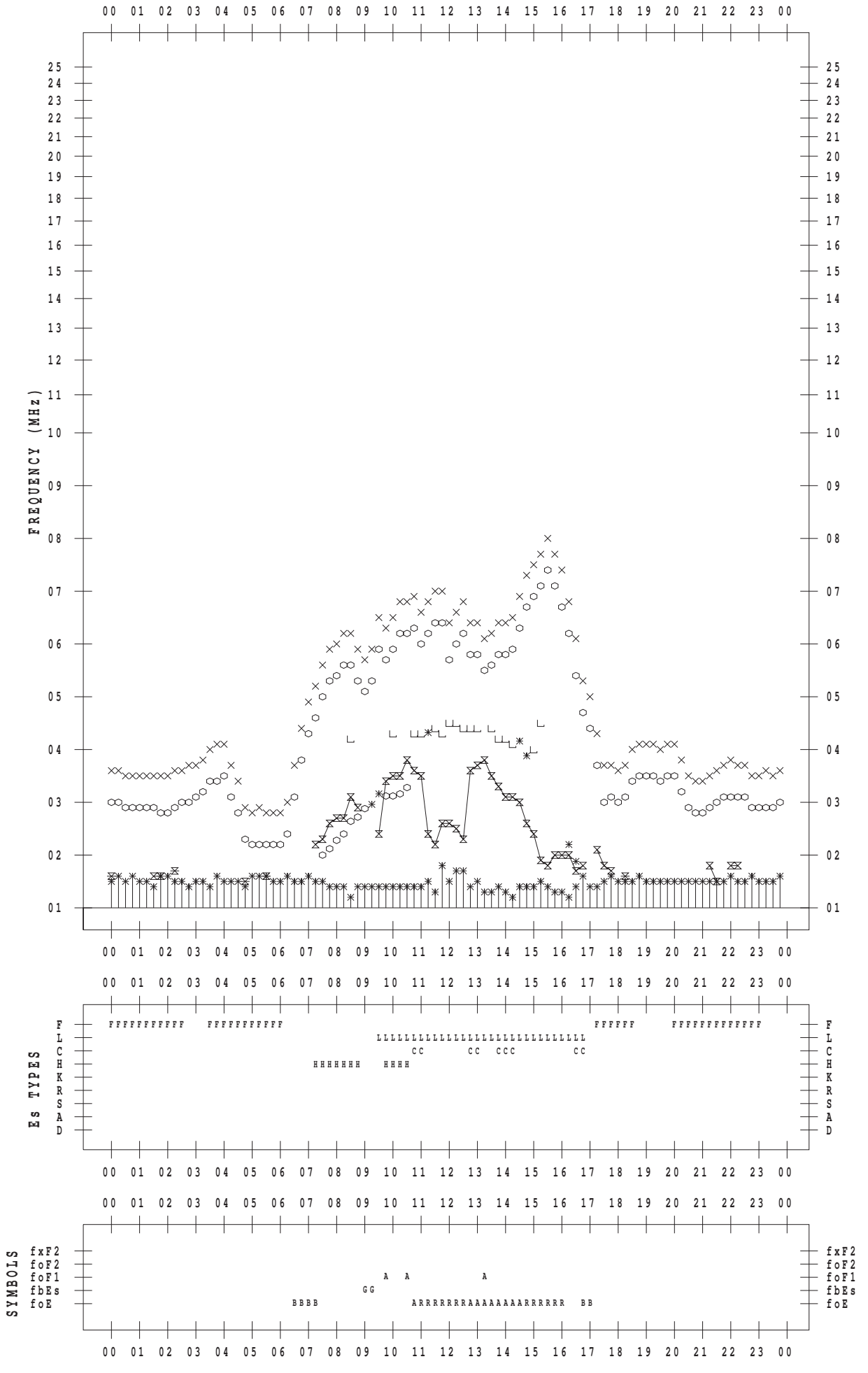
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2011/ 1/30

135 °E MEAN TIME



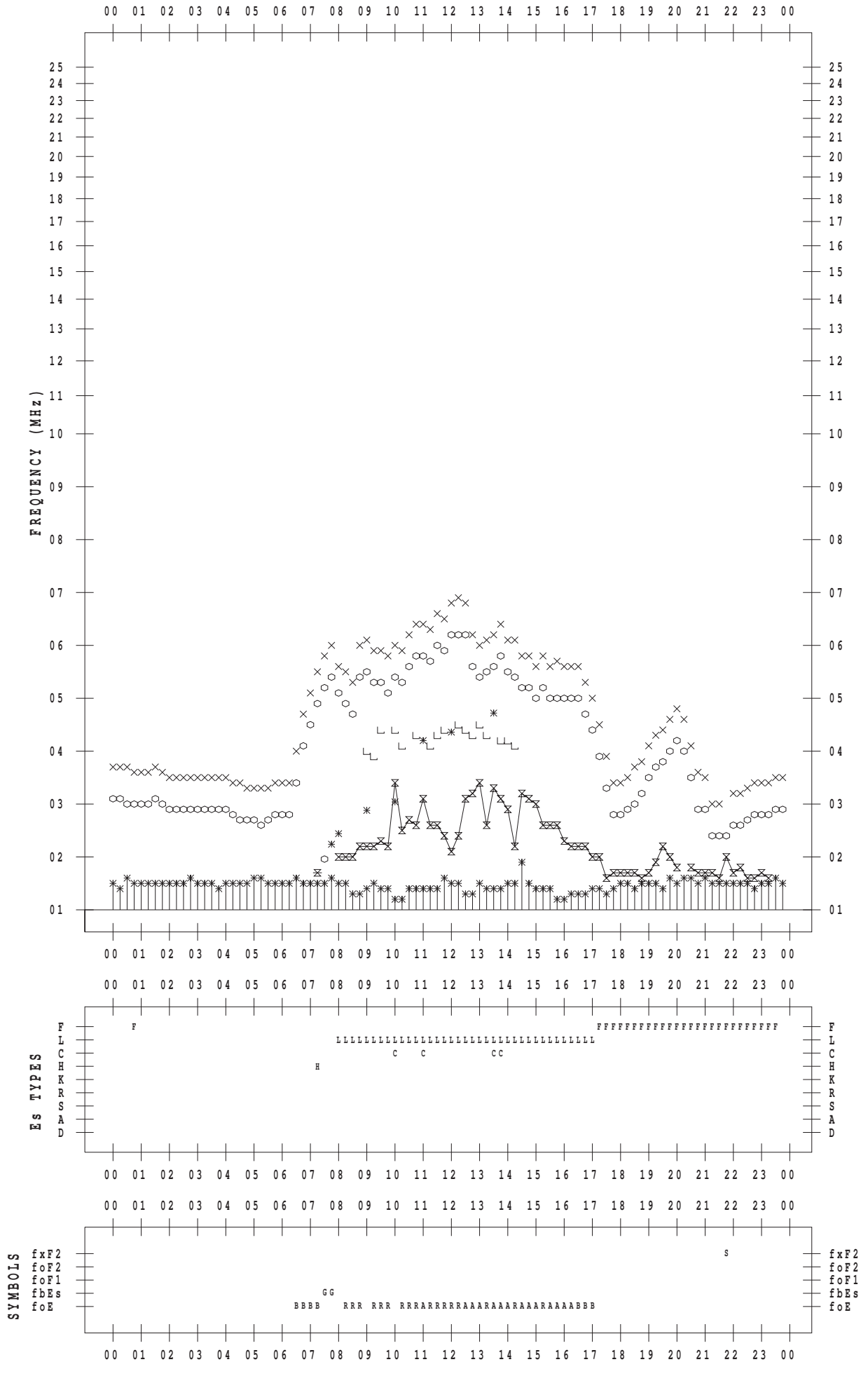
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2011/ 1/31

135 °E MEAN TIME



B. Solar Radio Emission

B1.Outstanding Occurrences at Hiraiso

Hiraiso January 2011

Single-frequency observations

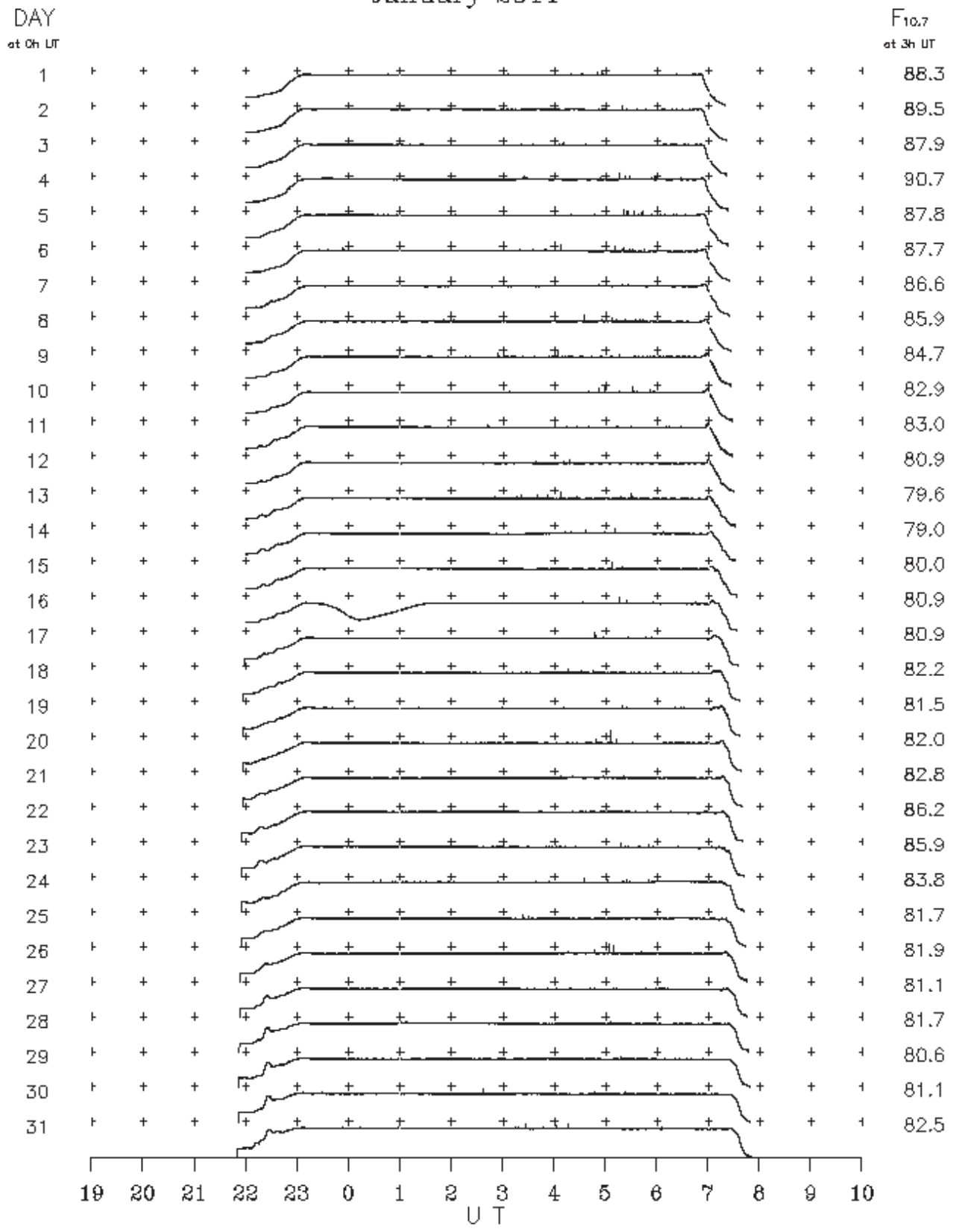
Normal observing period: 2145 - 0750 U.T. (sunrise to sunset)

JAN.	FREQ.	TYPE	START TIME	TIME OF MAXIMUM	DUR.	FLUX DENSITY (10^{-22} W m^{-2} Hz^{-1})		POLARIZATION
2011	(MHz)		(U.T.)	(U.T.)	(MIN.)	PEAK	MEAN	REMARKS
28	2800	7 C	0040.0	0108.0	23.0	5	-	

B.Solar Radio Emission

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

January 2011



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/2011/01/