F-721

IONOSPHERIC DATA IN JAPAN

FOR JANUARY 2009

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

NATIONAL INSTITUTE OF INFORMATION
AND COMMUNICATIONS TECHNOLOGY
TOKYO, JAPAN

INTRODUCTION

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

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

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

A. IONOSPHERE

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

A1. Automatic Scaling

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

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

a. Characteristics of Ionosphere

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

b. Descriptive Letters

The following descriptive letters are used in the tables.

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

C Impossible measurement because of any failure in observation.

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

N Impossible automatic scaling because of complex echoes.

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

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

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

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

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

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

d. Reliability of Automatic Scaling

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

e. Summary Plot

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

A2. Manual Scaling

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

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

a. Characteristics of Ionosphere

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

b. Symbols

(i) Descriptive Letters

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

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

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

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

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

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

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

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

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

K Presence of particle *E* layer.

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

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

N Conditions are such that the measurement cannot be interpreted.

O Measurement refers to the ordinary component.

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

Q Range spread present.

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

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

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

V Forked trace which may influence the measurement.

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

X Measurement refers to the extraordinary component.

Y Lacuna phenomena, severe layer tilt.

Z Third magneto-electronic component present.

(ii) Qualifying Letters

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

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

D Greater than.

E Less than.

I Missing value has been replaced by an interpolated value.

J Ordinary component characteristic deduced from the extraordinary component.

M Mode interpretation uncertain.

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

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

U Uncertain or doubtful numerical value.

Z Measurement deduced from the third magneto-electronic component.

(iii) Description of Types of *Es*

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

The types are:

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

B. SOLAR RADIO EMISSION

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

B1. Outstanding Occurrences at Hiraiso

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

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

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

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

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

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

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

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

B2. Summary Plots of F10.7 at Hiraiso

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

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

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

HOURLY VALUES OF foF2 AT Wakkanai

JAN. 2009

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

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

HOURLY VALUES OF fEs AT Wakkanai

JAN. 2009

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

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

HOURLY VALUES OF fmin AT Wakkanai

JAN. 2009

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

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

HOURLY VALUES OF foF2 AT Kokubunji

JAN. 2009

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1		89						38	45	47	52	55	61		59	58	59	34	A	28			31	
2								39	59	42	50	59	59	57	44	52	52	24			30	26		
3		27	30	30	27			42	47	59	49	52	81	52	46	52	44	30		30			26	
4	28							42	46	53	54	66	54	54	56	44	47	30			30	A		25
5			26	27				41	45		46	52	60	55	54	47			A	32	30		30	
6				25				42	44	54		54	67	64	46	62		28			25	27		
7		27	27		28				47	49	51	47	65	52	56	49	40				34			
8	30	A	28					42	45	47	51	56	58	60	59	45				38	36			
9			27					39		47	C	C	C	C	C	C	48		28	28	34			
10								38	45	48	45	47	56	52	48	51	51		28	31	30	28	28	34
11	32	39	41	40	41	42	35	39	43	46	49	44	62	59	49	55	62	36		32	34	30		
12		27						31	45	45	44	55		62	49	52					32			
13								36	42	47		53	57	44	52	40	44	39	34	28	28	A		
14				28	27			34	42	48	54	59	58	49	54	62	47	35	A	32	32	34	30	
15	28	25		23				39	52	49	55	60	56	48	47	59	56	41	A	A	34			
16			25	27	28			39	44	47	53	54	62	62	59	54	56	34	28	32	27	30		
17	26	27		36				38	44	47	41	62	52	52	49	56	45	36					28	27
18		28		32	27			44	44	A	A		71	52	51	60	46	34					27	27
19		26	28	27				41	44	45		61	66	58	64	66	45				30		26	27
20								39	44	45	C	C	C	C	C	C	47	28		27	27	28	20	A
21	A	27		27			A	37	45	46	52	57	55	55		47	45	38	30		32	30	28	
22		28	34		27	28	27	38	40	34	59	62	45		54	61	52	41	30	A		30		30
23	27	26	27		28			37	44		54		42	44	51	52	45	34		27	26	30		
24			21					33	43		40	46				46	44	32		27	30	26		
25								34	42	49	54		46	46	47	44	45	A			28			A
26	26	30		A					41		52	51	48	46	47	45	42	34	A	A	28	30	30	30
27	32	31			27	26		39	42	49	65	66	45	56	49	49	44	34	A			34	27	A
28	27	30	28	30	28			34	45	A	55	54	49	52	44	53	46	A	A	A	A	A	30	
29		26	28			A	A	34	45	43		48	51	54	40	46	44	A	A	A	30	30	28	27
30	27	27					A	44	48	49	52	59	58	55	56	41	42	A	A	37	39	28	27	30
31	30	28	34	28	28	28	28	45	41	47	44	54	54	47	45	A	58	A	A	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	11	18	14	13	11	4	3	29	30	25	24	26	27	26	27	28	27	19	6	14	23	15	15	10
MED	28	27	28	28	28	28	28	39	44	47	52	54	57	53	49	52	46	34	29	30	30	30	28	27
U Q	30	30	30	31	28	35	35	41	45	49	54	59	62	57	56	57	52	36	30	32	34	30	30	30
L Q	27	27	27	27	27	27	27	36	43	45	47	52	51	49	47	46	44	30	28	28	28	28	27	27

HOURLY VALUES OF fEs AT Kokubunji

JAN. 2009

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1		G					G	G		G	G	44	46	G	41	55	34	26	53	G	29		G	
2				G	G			G	G	G	G	G	G	G	G	G	G	G			G	G		
3	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G		G	24		G	
4	G					G		G	31	34	G	G	G	37	G	G	G	G			G	31	26	28
5	39	G	G	G	G		G	G	G		47	51	G	G	G	G	G	33	28	G	30	25	27	29
6	28	G	G	G	G		G	G	33	G	40	40	G	G	G	G	G	G	G	G	G	G	G	G
7	G	G	G	G	G	G			G	G	36	40	G	G	G	G	G				G	G	G	
8	G	27	G		29	G		G	G	G	G	G	G	G	G	G	G			G	G			
9	G	G	G	G	G		G	G	G	G	C	C	C	C	C	C	29	G	G	G	G	G		G
10	G		G	G	G			G	30	36	35	39	G	G	G	G	G	G	G	G	G	G	G	G
11	G	G	G	G	G	G	G	G		G	G	36	44	G	G	G	G	35		G	G	G		G
12	G	G	G		G			27	31	G	G	G		G	G	G	G			G	G		G	
13	G	G	G		G			G	G	40	40	G	G	G	G	G	G	G	G	G	G	27		G
14				G	G			24	G	G	39	G	G	G	37	34	G	30	29	G	G	25	G	33
15	29	G		G	G		G	G	G	G	49	G	G	G	G	G	G	G	45	31	36	26	27	G
16	G	24	G	G	28			G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	25
17	G	G	G	G	G			28	34	G	G	G	G	G	G	33	G	G			G	33	G	G
18		G		G	G		G	G	G	43	57		G	G	G	G	G	G	G	G			G	G
19	G	G	G	G				23	29	G		42	G	G	G	G	29				G		G	G
20	G	G	G	G			G	29	G	47	C	C	C	C	C	C	G	G	G	G	G	G	G	28
21	31	27	G	G	G		32	27	G	40	39	G	G	G	G	G	G	G	G	G	G	G	G	
22	G	G	G	26	G	G	G	G	G	G	G	G	43		G	G	G	G	G	45	29	G		G
23	G	G	G	G	G			G	G	G	G		G	G	G	G	G	G		G	G	G		G
24	G	G	G	G	G			25	35	39	G	G		G		37	36	G	G	G	G	G		
25	G	G	G		G		G	G	39	G	G	G	G	37	G	G	G	31			G	G		32
26	31	G	26	29	G	G		25	G		35	45	49	45	G	41	34	33	40	38	G	23	24	G
27	G	G	G	G	28	G	G	G	33	G	G	G	G	42	46	45	43	31	34	29	27	G	G	33
28	G	G	G	23	29	G		24	41	76	45	40	G	G	G	G	31	53	50	34	45	38	30	
29	G	G	G		G	35	35	29	G	G	G	44	45	51	51	57	36	45	60	41	29	G	G	G
30	G	G		G	G	G	44	24	G	G	G	G	G	G	G	G	40	41	63	29	G	G	G	G
31	G	G	G	G	G	G	G	G	G	36	G	G	G	G	60	97	71	52	51	55	26			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	27	27	24	24	27	12	16	30	29	29	28	27	27	28	28	29	31	27	20	25	30	24	21	22
MED	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	14	G	G	G	G	G
U Q	G	G	G	G	G	G	G	24	31	36	39	40	G	G	G	33	31	33	47	30	26	25	12	28
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. 2009

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

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

HOURLY VALUES OF foF2 AT Yamagawa

JAN. 2009

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

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

HOURLY VALUES OF fEs AT Yamagawa

JAN. 2009

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	G	G	33	26	G	G	G	G		35	G	36	G	40	39	40	36	36		26	26		G	G
2	G				G			G	G	44	G	G	42	G	42	G	G	G	G	G	29	26	25	28
3					G	G	27	27	29	G	40	G	G	G	G	G	G	G	33	G	24	G	G	G
4	G		G	24	G	G		G	G	G	G	38	38	G	G	G	G	33	G		G		G	G
5	G	G	26	G		G	26	28			G	45	50	40	41	35	46	40	30	48	52	49	G	36
6	33	33	25	24	G			G	29	35	39	42	G	39	G	G	33	G	23	33	24	G	G	G
7	G	G	G	G	G	32	28	G	G	33	49		49	40	C	37	C	G			G	G		
8		G	G	G	G			G	G	G	G	42	G	G	40	G	G	G	G	G	G	G		
9	G	G	34	25	G	G		G	G	34	36	56	46	45	52	46	54	33	33	27	30	G	G	
10	G		G	G	33	24		G	28	34	35	G	43	44	36	G	G	29	29	25	G	G		G
11	G	G	G	G	G	11	G	G	39	36	G	G	G	G	G	35	34	26	G	G	G	G	25	
12			G	28	27	24		G	31	G	G	G	G	G	G	G	G	G		G	G		G	G
13		G				G	G	G	31	G	39	40	40	G	G	G	G	G	22	24	G	G	G	G
14			G	G	G	G		G	31	C	C	C	C	C	C	C	44	44	44	36	27	G	G	24
15	G	G	G	G	G	G		G	G	33	G	G	G	G	G	G	32	46	32	35		G	G	G
16	32	G	G	G	28			G	33	37	38	38	70	50	G	G	32	G	G	G	G	G	G	G
17		G	G	G	27	26		G	41	35	38	41	G	G	G	43	35	G	G		G	G	G	
18	G	28	29	27	27			G	G	G	G	68	55	54	G	G	G	G	36	42	31	37	36	33
19	34	G		G	G			G	G	38	G	44	G	37	40	G	G	G	G		G		G	
20	G	G	G	G		G	G	G	G	34	G	46	44	40	G	G	G	G	G	G	G	G	G	G
21	28	G	G	G	27		33	G	G	G	44	G	40	39	G	42	G	G	25		G	G	G	G
22	G	G	G	G	27	28	G	G	G	43	G	G	37	G	G	G	37	39	38	50	43	40		
23			G	G	G			G	41	38	41	G	G	G	G	G	33	G	29	G	G	G		
24			G	G					33	39	43	G	G	G	44	43	37	G	11		G	G	G	G
25	G	G	G	G					27	N	35	G	G	43	50	G	37	32	G					G
26		29	G	G	G			28	32	39	44	44	G	G	41	40	42	39	56	26		G	G	
27	G	G	G	G	24	36	35	33	G	G	G	51	52	G	44	49	40	42	34	68	58	34	34	23
28	G	G	G	26	26		27	35	33	G	G	G	G	38	G	G	44	30	G	G		G	G	G
29	G	G	G	G		G	29	35	33		G	42	49	49	56	52	63	69	56	42	36	30	23	G
30	G	G	G	G	G	G	G	G	46	G	36	42	45	G	44	40	36	44	28	33	40	58	26	G
31	G		G	G	G	G		G	G	33	G	G	41	50	46	49	48	82	92	50	52	28	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	22	22	27	28	25	19	13	29	29	27	30	29	30	30	29	30	30	31	28	24	27	26	25	21
MED	G	G	G	G	G	G	26	G	28	34	G	38	38	19	G	G	34	26	26	26	G	G	G	G
U Q	G	G	G	12	27	24	28	G	33	37	39	43	45	40	43	40	40	39	33	39	31	28	12	12
L Q	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G

HOURLY VALUES OF fmin AT Yamagawa

JAN. 2009

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

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

HOURLY VALUES OF foF2 AT Okinawa

JAN. 2009

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	34	30	29	29	30	28			42	51	58	52	57	74	67	78	65	62	A		31			
2					28				48	52	55	56	46	60	82	88	78	83	53	35	A			
3									40	47	54	64	61	82	90	98	81	65	65		30	30	28	
4							A		47		67	62	70	57	62	60	64	63	51	A	A		41	29
5				26					43	52	64	62	53	56	86	75	84	85	66	46		42	A	
6			A						50	56	64	67	39	78	90	84	75	67	50	36	34	46		A
7				29	41				48	50	56	59	54	74	84	81	76	80	A	A				
8									43	47	52	52	61	59	55	81	68	64	44			47		
9			A	A	29				49	50	50	56	61	64	65	64	72	72		A	A	48	37	
10						29			48	51	48	42	57	79	66	52	52	51	39	27	32	29		
11					30				46	46	51	62	53	50	71	60	56	66	47	34	30	36	30	
12	A				25		A		41	48	51	44		53	56	58	50	47	41	34				
13									40	52		52	42	60	61	70	76	58	43	A		34	28	
14					29	26			41	48	58	52	57	84	78	58	53	A	44			29		
15	A		A		31	28			47		46	57	72	65	55	58	52	56	56		28	32		
16				29		A	A		42	C	C	C	C	C	C	C	90	57	34	35		32		
17				30	30				43	50	58	62	57	66	68	63	51	56	47	A		32	32	
18				26		A	A		46	51	46	70	96	118	107	101	86	80	60	A	A	A	A	
19		30							44	50	56	56	65	90		89	97	67	51	34	31	30		
20		30	32	A						44	47	61	62	70	96	86	84	67						
21									44	48	48	54	67	63	63	66	55	60	36	28		A		
22									47	47	48	68	66	54	49	62	73	67	34		A	A		
23									46	48	44	71	63	72		57	59	58	45	37		A	28	
24									42	47	51	54		51		48	47	46	45					
25									42	51	69	98	77		47	53	51	48	30	A	A			
26			26		A				41	52	75	84	76	60	56	48			43			30	34	
27		30	29	31			A		A	56	83	114	94	64	52	50	52	46	A	A	A	A	26	29
28	30	29				A	A	A	41	57	98	81	54		50		46	48	46	42				
29	30	26	26	26					42	48	65	98	107	97	76	62	56	47	A	A	A			31
30	31	30	30	30					50	44	A	86	110	96	61	53	40	42	35	A	32	28		
31										50	54	63	94	80	68	70	62	A	46	A	32	34	36	
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	4	7	6	9	9	4			28	28	28	30	28	28	27	29	30	28	25	11	9	16	10	3
MED	30	30	29	29	30	28			44	50	54	62	62	66	66	63	63	61	45	35	31	32	31	29
U Q	32	30	30	30	30	28			47	51	64	70	74	79	82	81	76	67	51	37	32	39	36	31
L Q	30	29	26	26	28	27			42	47	49	54	55	59	56	57	52	49	40	34	30	30	28	29

HOURLY VALUES OF fEs AT Okinawa

JAN. 2009

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	G	G	G	G	G	G			29	G	G	G	47	39	44	G	38	42	56	29	29	29		
2			G	G	G			G	G	G	G	44	41	G	39	51	49	30	27	28	44	30		
3						G	G	G		32	G	G	G	44	G	G	G	G	11	G	G	G	G	
4				G			26		G	G	G	42	G		G	37	38	36	35	30	32	G	G	G
5			G	G	G				G	G	G	48	42	60	64	50	36	38	26	20	G		38	25
6		28	36			G			27	36	G	G	G	44	43	36	36	34	43	G	26	G	34	30
7			G	G	11			G	G	32	42	60	72	80	38	G	G	32	72	52		G		
8								G	G	G	G	48	45	G	G	G	G	G	G			G	G	
9	G	G	36	35	G	G			G	34	42	52	52	42	G	G	G	32		36	35	34	29	
10			G	G		G		G		G	38	40	56	50	G	G	G	G	G	G	G	G		
11			G	G	G	G		G	G	G	G	G	43	G	G	G	G	G	G	G	G	G	G	G
12	26		28	G	G	26	28		29	35	G	G	G	G	G	G	36	G	G	G				
13						G		G	29	35		G		50	48	G	G	G	32	30		G	G	
14					G	G			G	36	G	43	43	42	50	52	50	57	41	28		G	28	
15	29	30	31	30	G	G		G	42		36	37	G	G	46	42	38	33	G	G	G	G		G
16			G	G		30	35	28	30	C	C	C	C	C	C	C	G	G	G	G		G		
17				G	G				G	G	G	48	39	39	38	G	G	30	32	31	28	G	G	26
18			G	G	G	28	28		G	G	G	44	50	61	56	G	G	29	33	36	50	49	36	
19		G			G				42	G	G	38	48	G	44	36	G	G	G	G	G	G		
20		G	G	11						G	40	43	51	39	G	G	G	G	11				G	G
21	G	28		G	G				34	37	35	G	41	G	G	51	G	30	G	G		25		
22			G					G	G	G	G	G	G	G	G	G	G	G	29		28	38		
23		G							G	G	G	G	G	48	39	44	35	G	28	27	29	24	G	
24			G	G	G				33	35	G	G		G	40	41	G	G	G				G	G
25			G							G	36	G	G		G	44	43	41	40	36	30			
26			G	G	28				G	G	G	G	G	G	40	38	46	50	40	31	29	G	G	G
27		G	G	G		24	39	30	36	59	G	60	49	G	G	51	68	50	42	50	59	36	G	G
28	G	G	G	G	G	28	27	28	G	G	G	51	65		G		G	36	G	G				G
29	G	G	G	G	G				28	G	G	G	G	39	38	G	55	57	82	70	30			G
30	G	G	G	G	G				G	36	51	G	G	G	38	G	G	G	30	27	G	G		
31		G	G						31	G	38	48	38	G	G	39	50	66	43	28	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	8	13	22	21	18	14	7	12	27	29	29	30	28	27	30	29	31	31	30	27	21	24	17	13
MED	G	G	G	G	G	G	28	G	G	G	G	38	41	39	38	G	G	30	28	28	28	G	G	G
U Q	13	14	G	G	G	26	35	14	30	35	36	48	48	44	43	43	38	38	40	31	31	27	28	13
L Q	G	G	G	G	G	G	26	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G

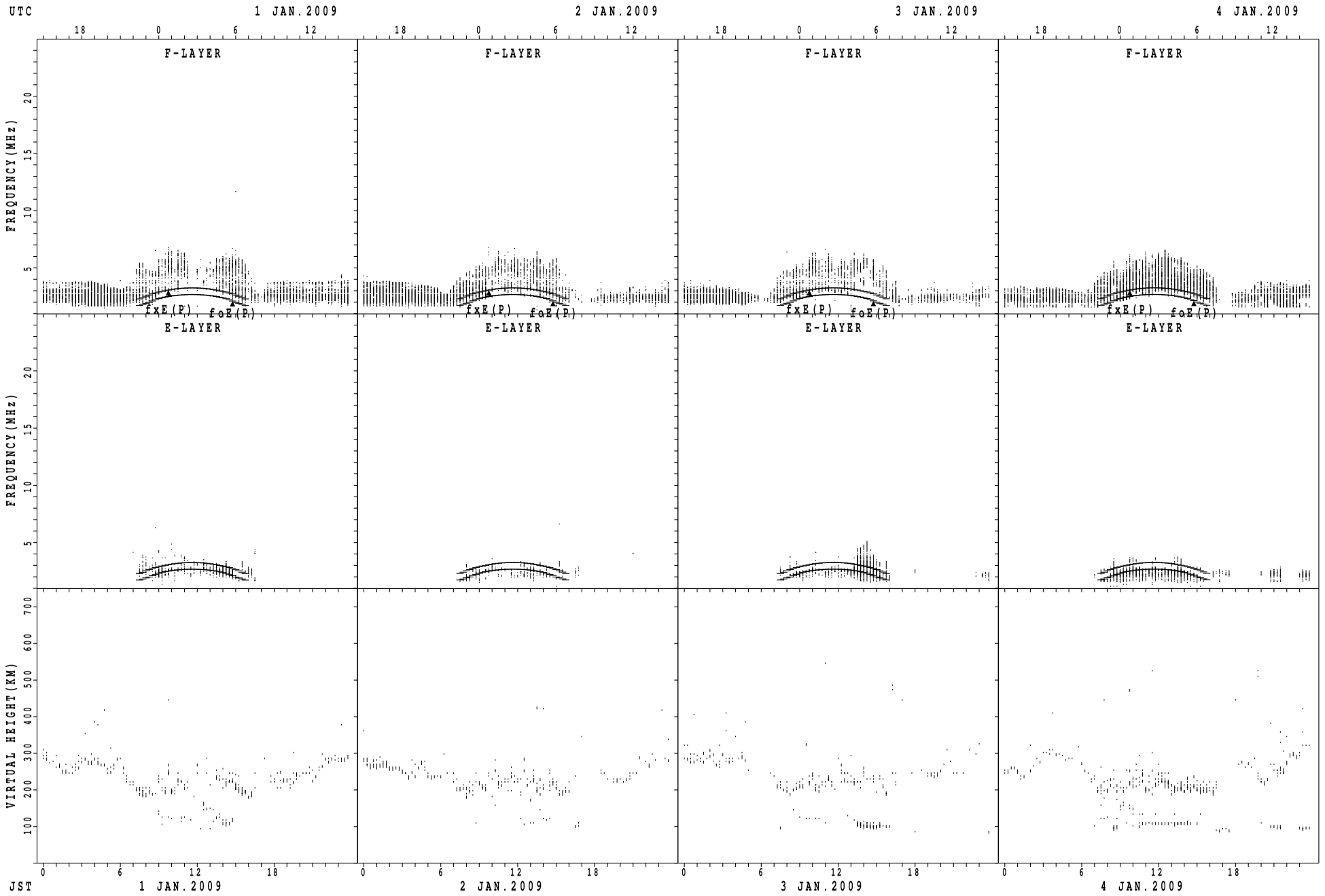
HOURLY VALUES OF fmin AT Okinawa

JAN. 2009

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

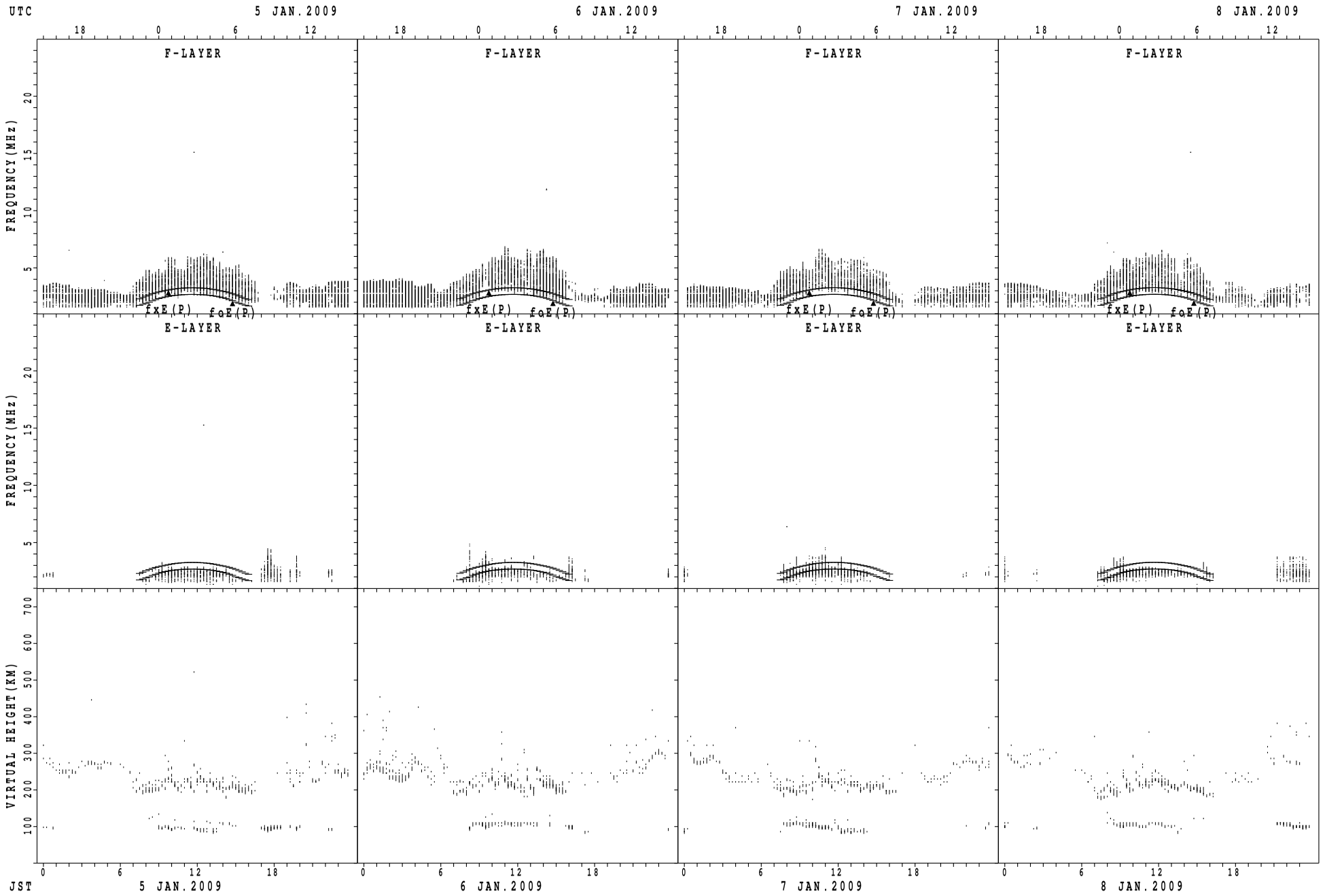
D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	14	15	15	14	15	15			15	15	18	41	32	31	20	36	15	15	14	14	14	14		
2			18	15	15			17	17	15	18	22	21	21	20	15	14	14	14	15	14	15		
3						20	16	15	17	14	16	18	21	18	17	20	15	21	14	21	16	17	20	
4				15			15		21	15	15	17	18	16	38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

SUMMARY PLOTS AT Wakkanai



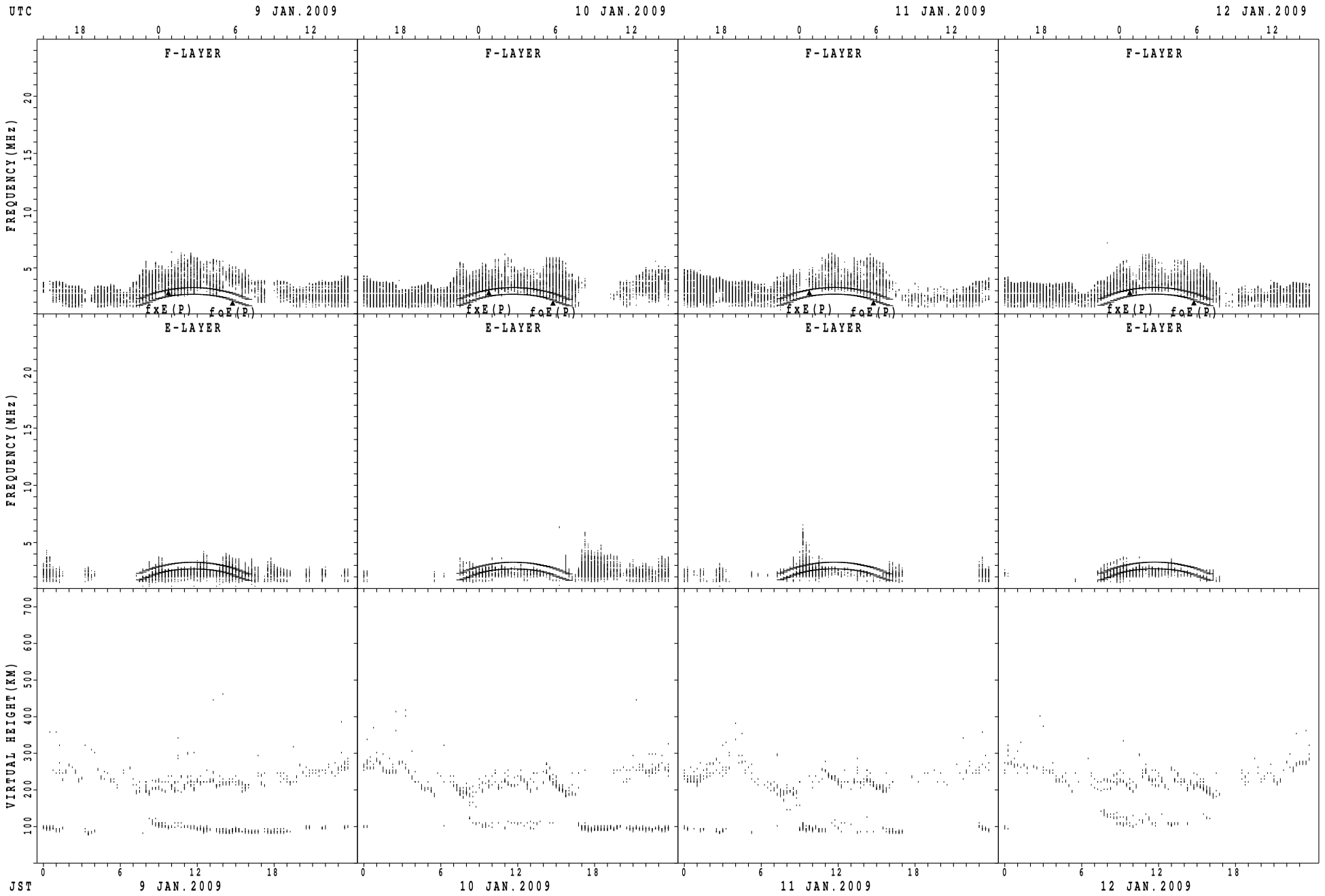
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



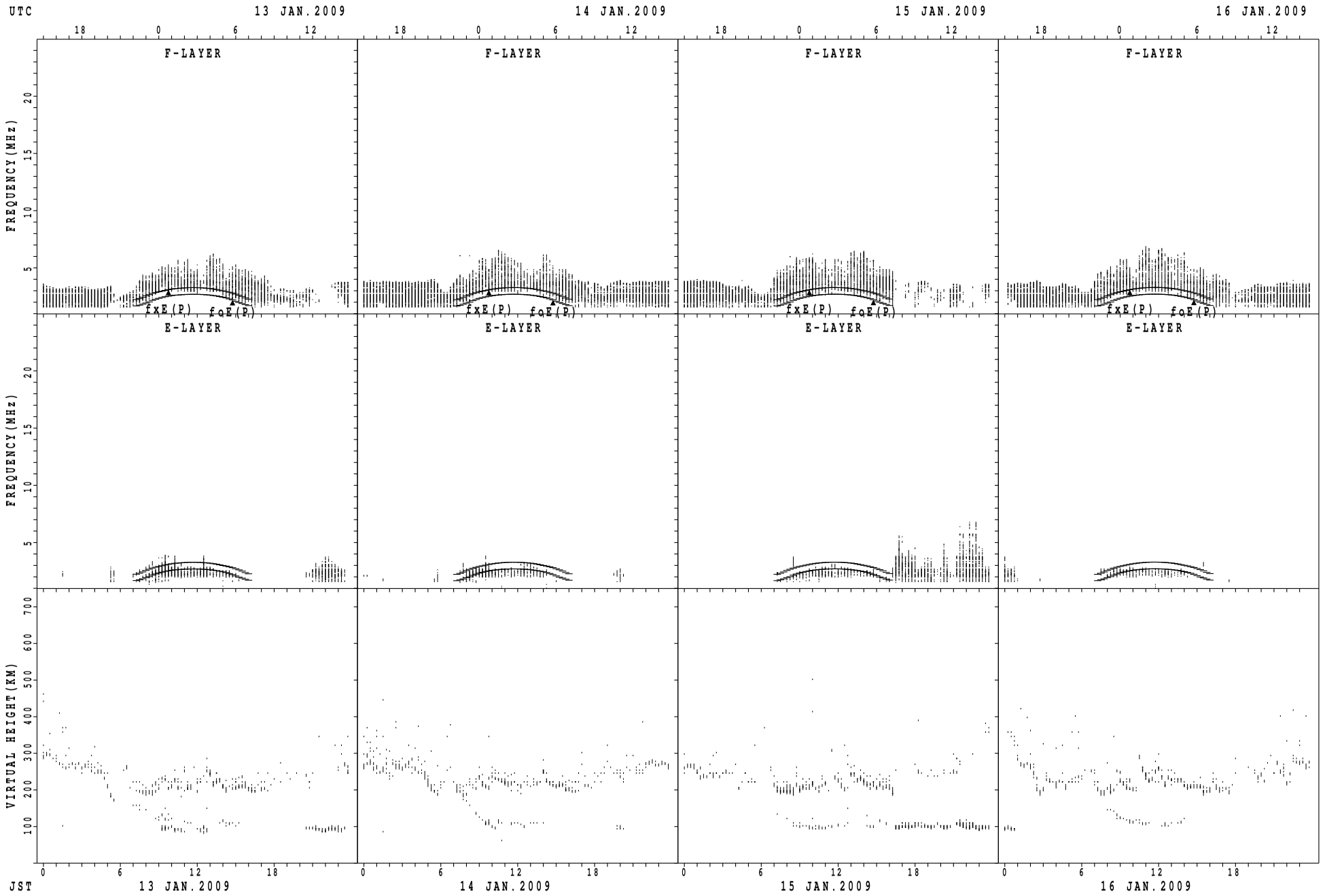
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



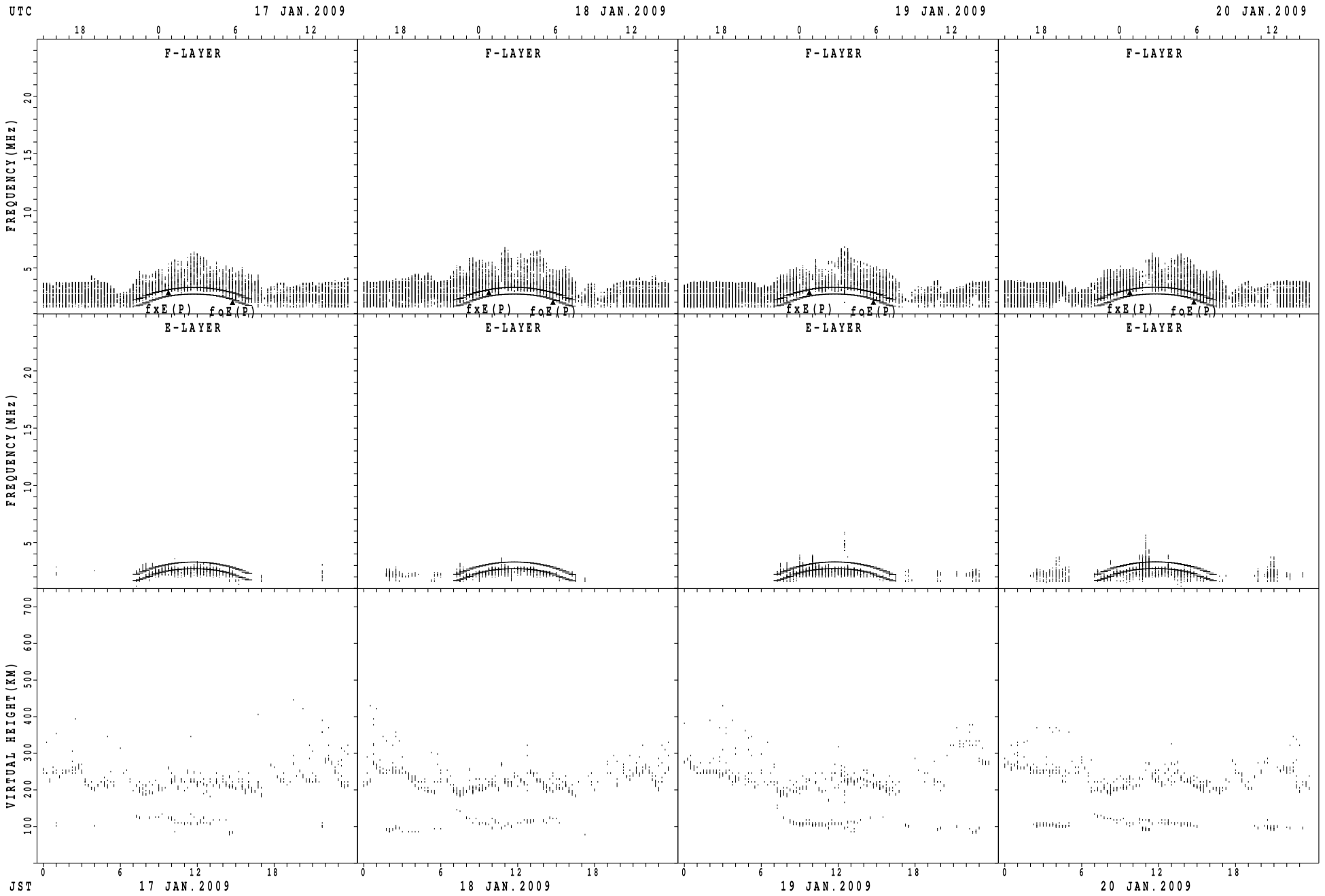
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



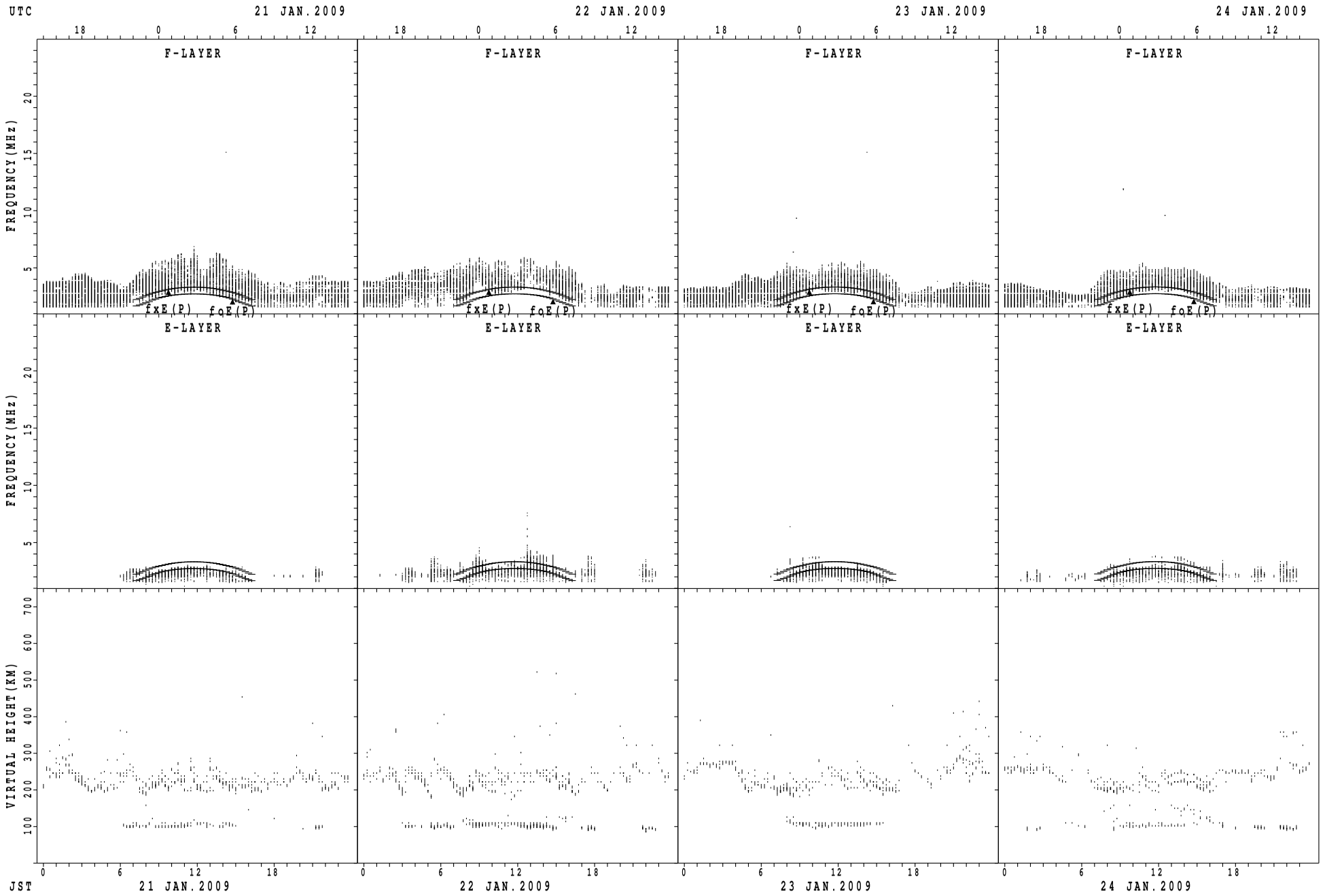
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



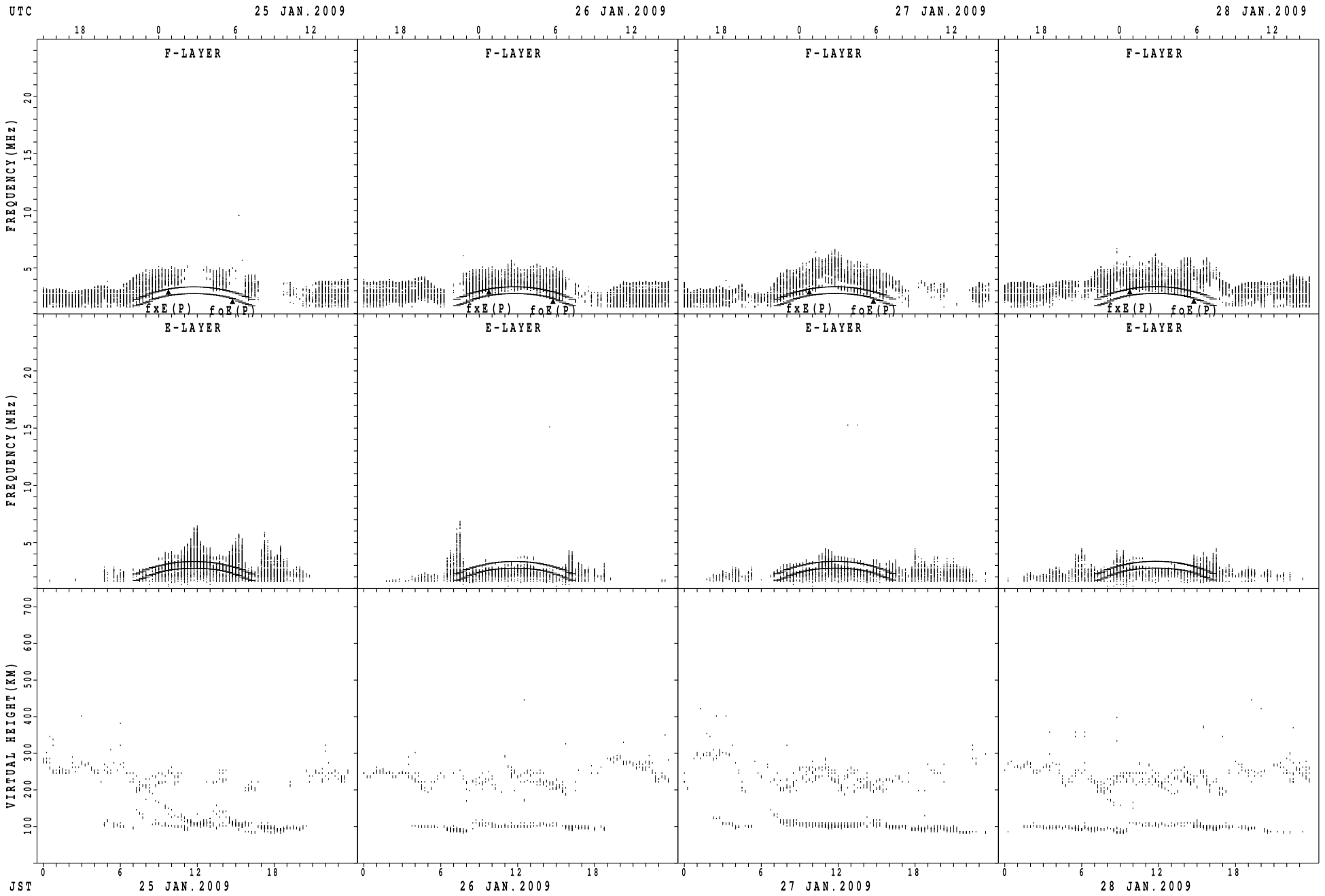
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



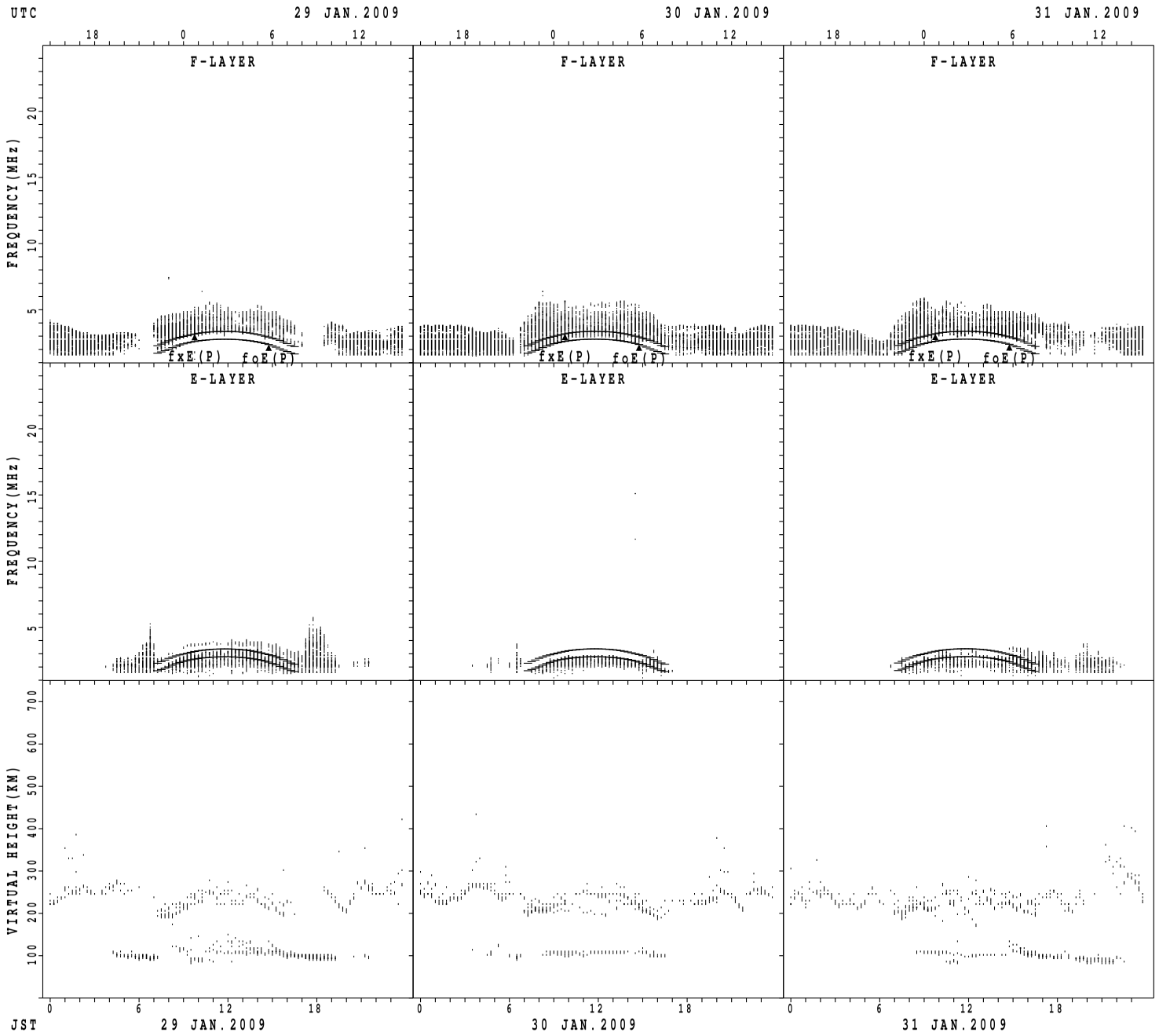
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



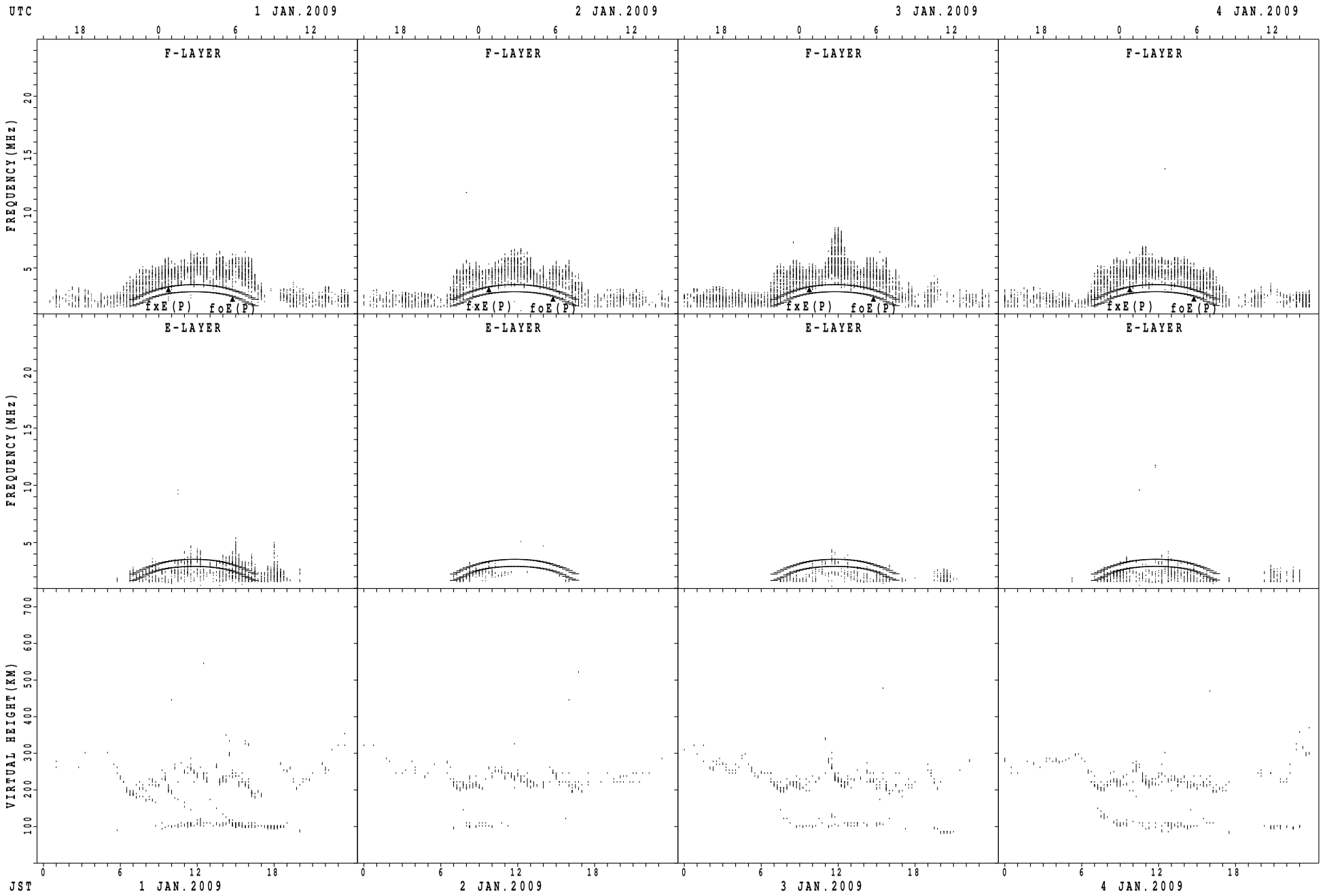
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



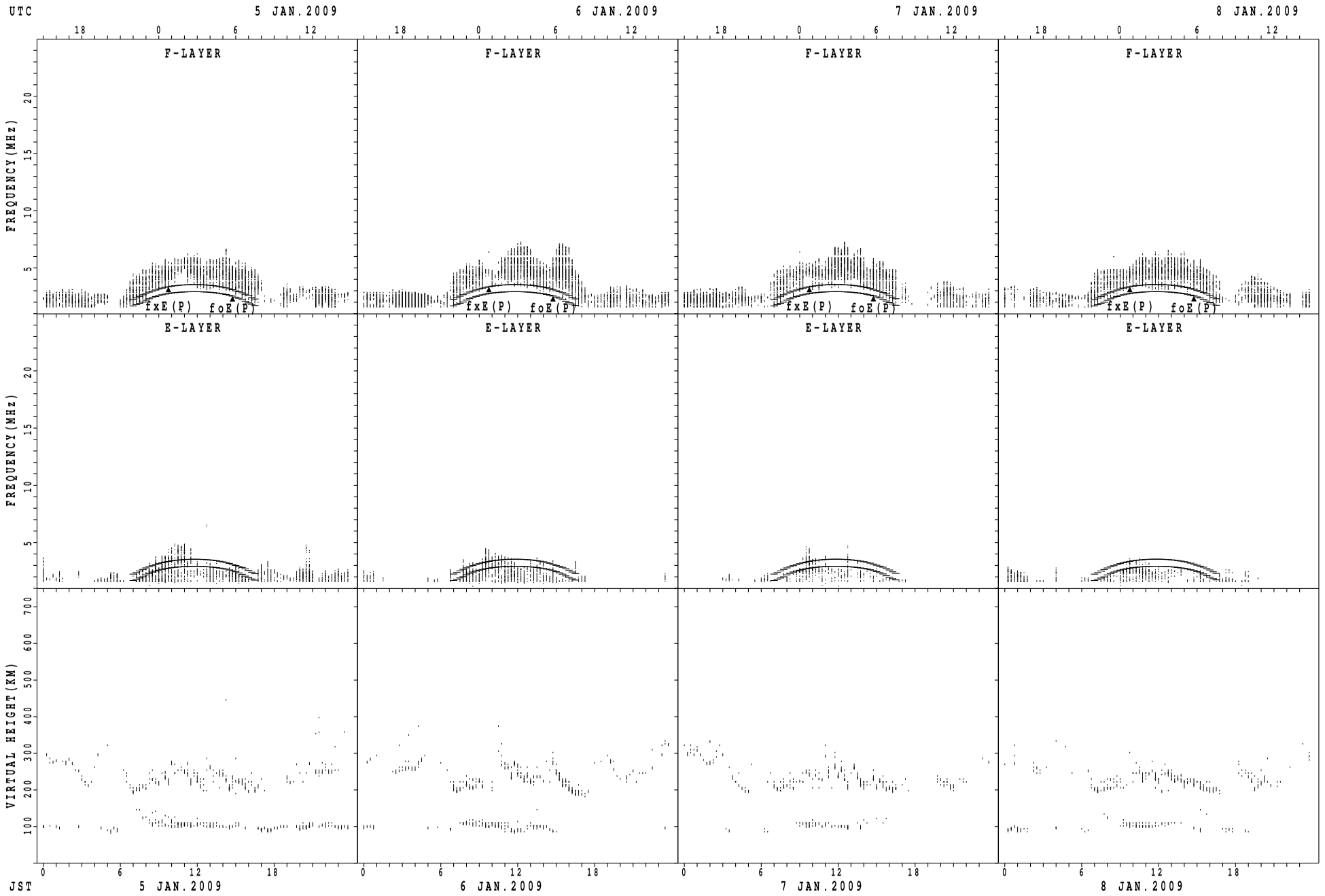
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



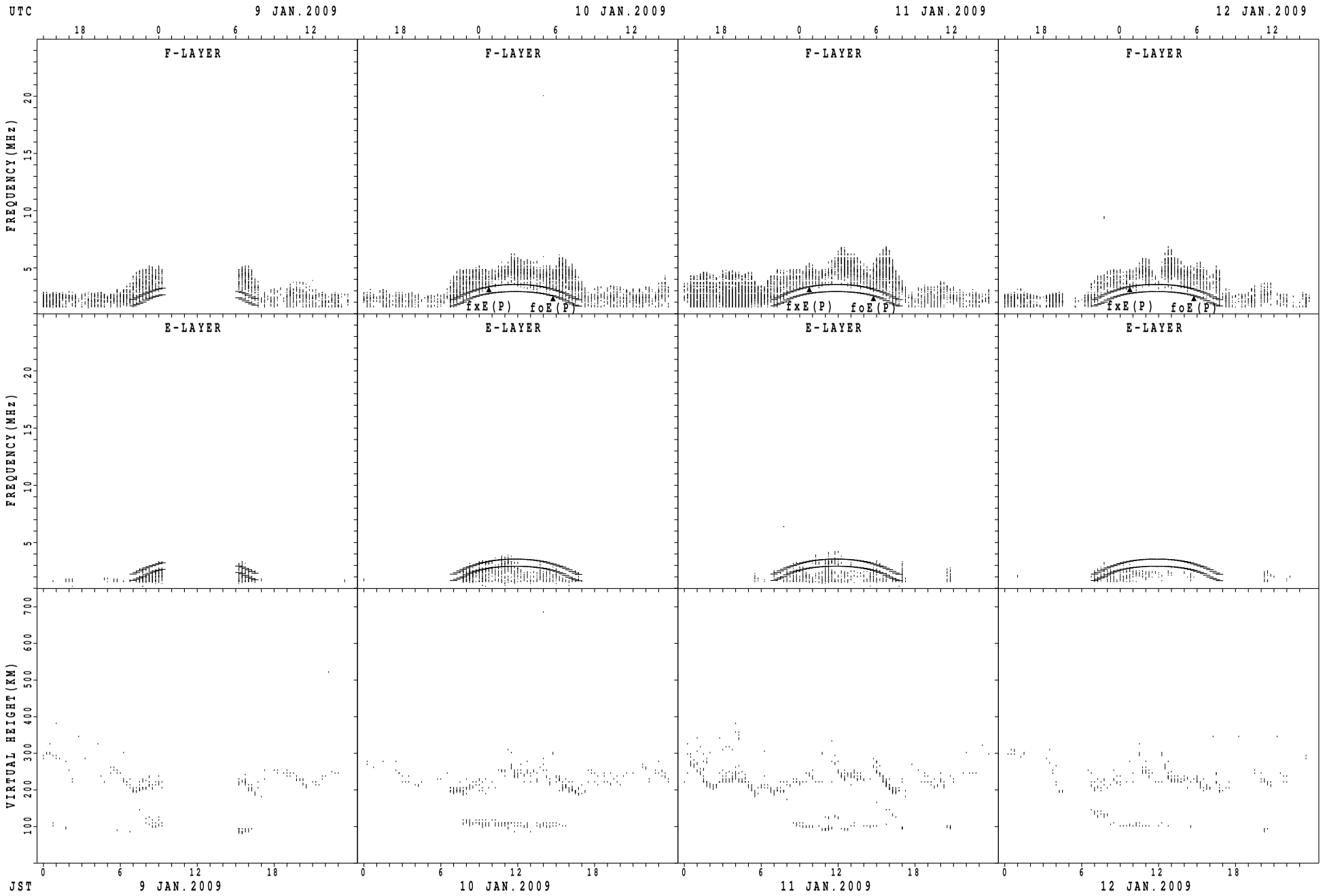
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



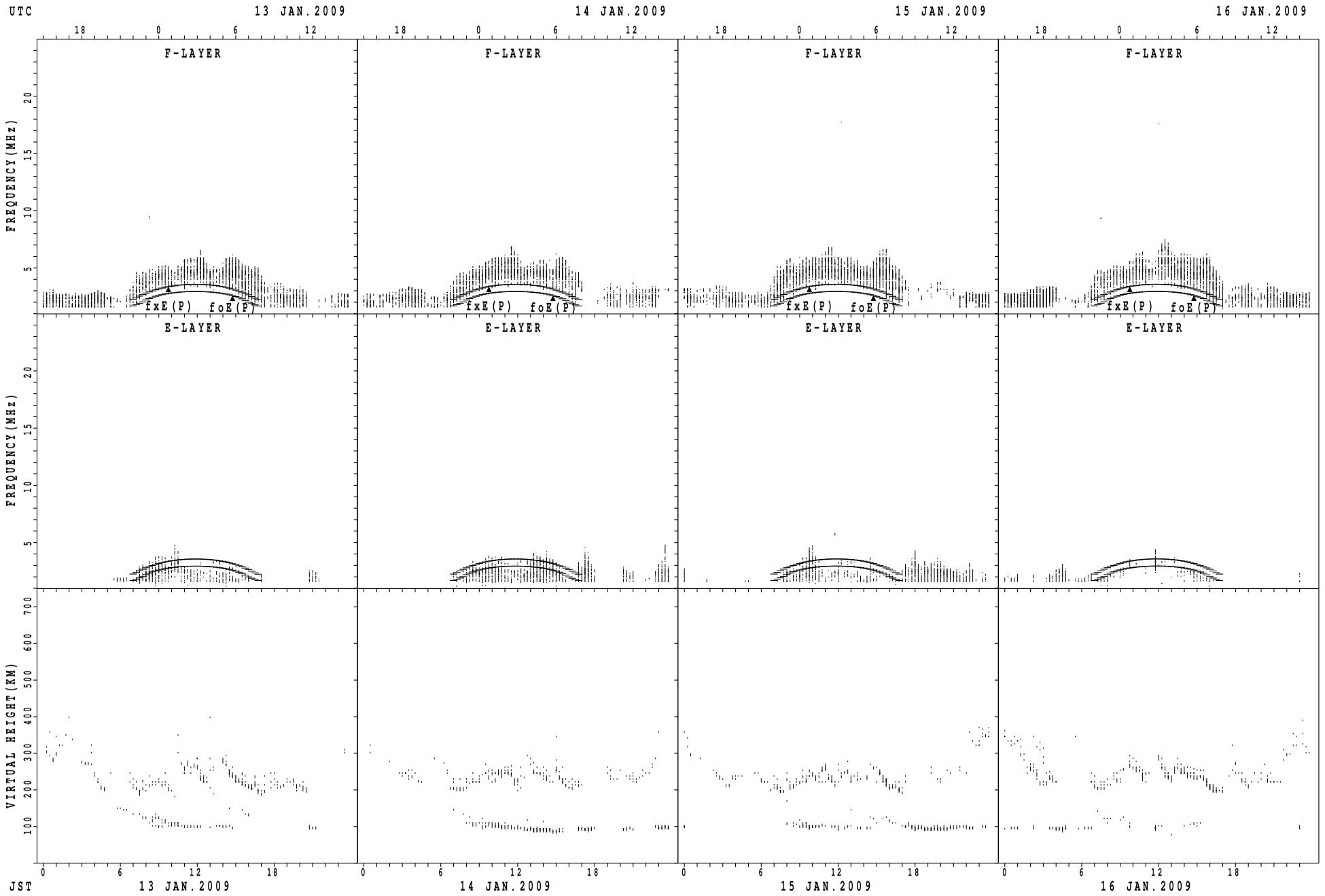
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



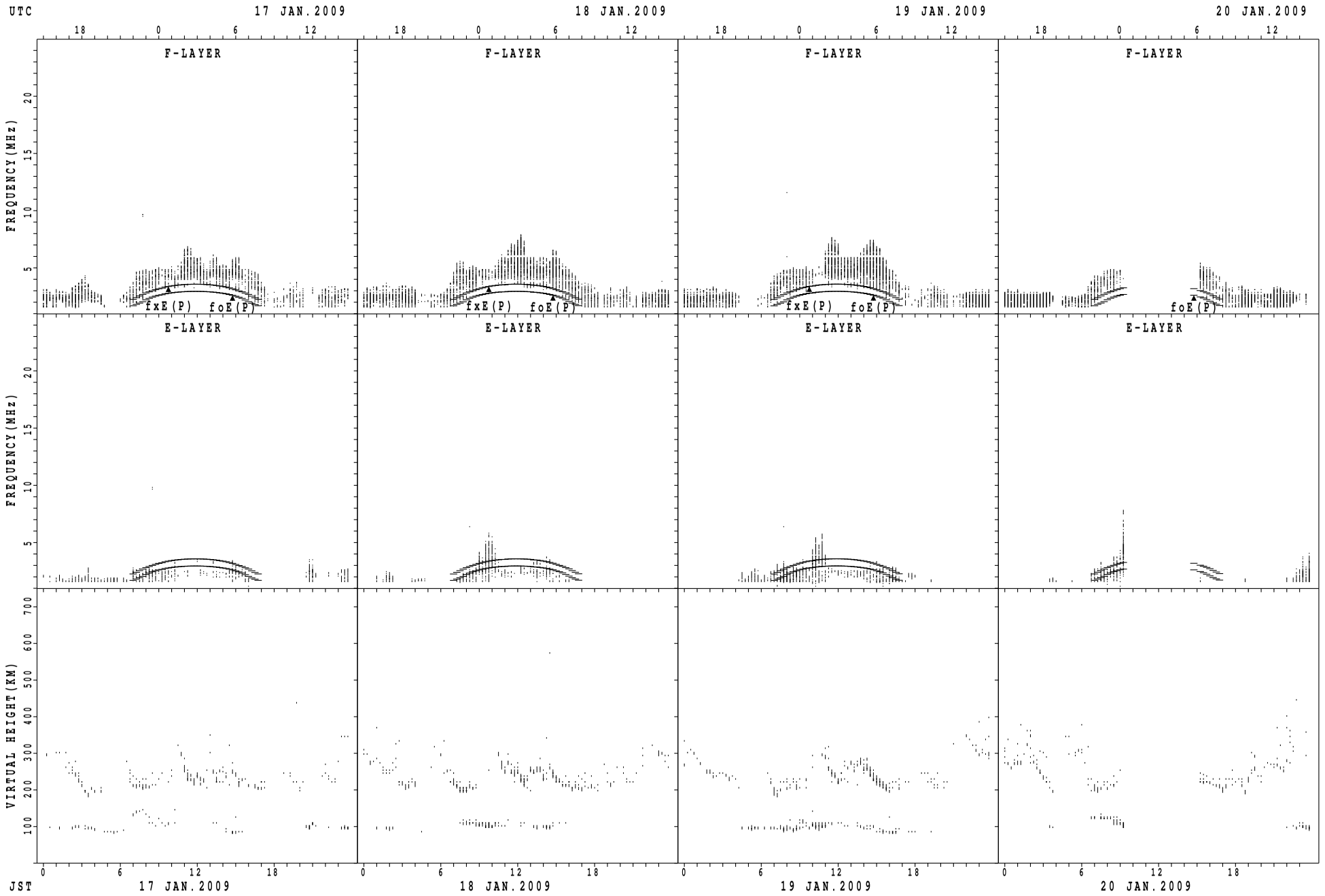
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



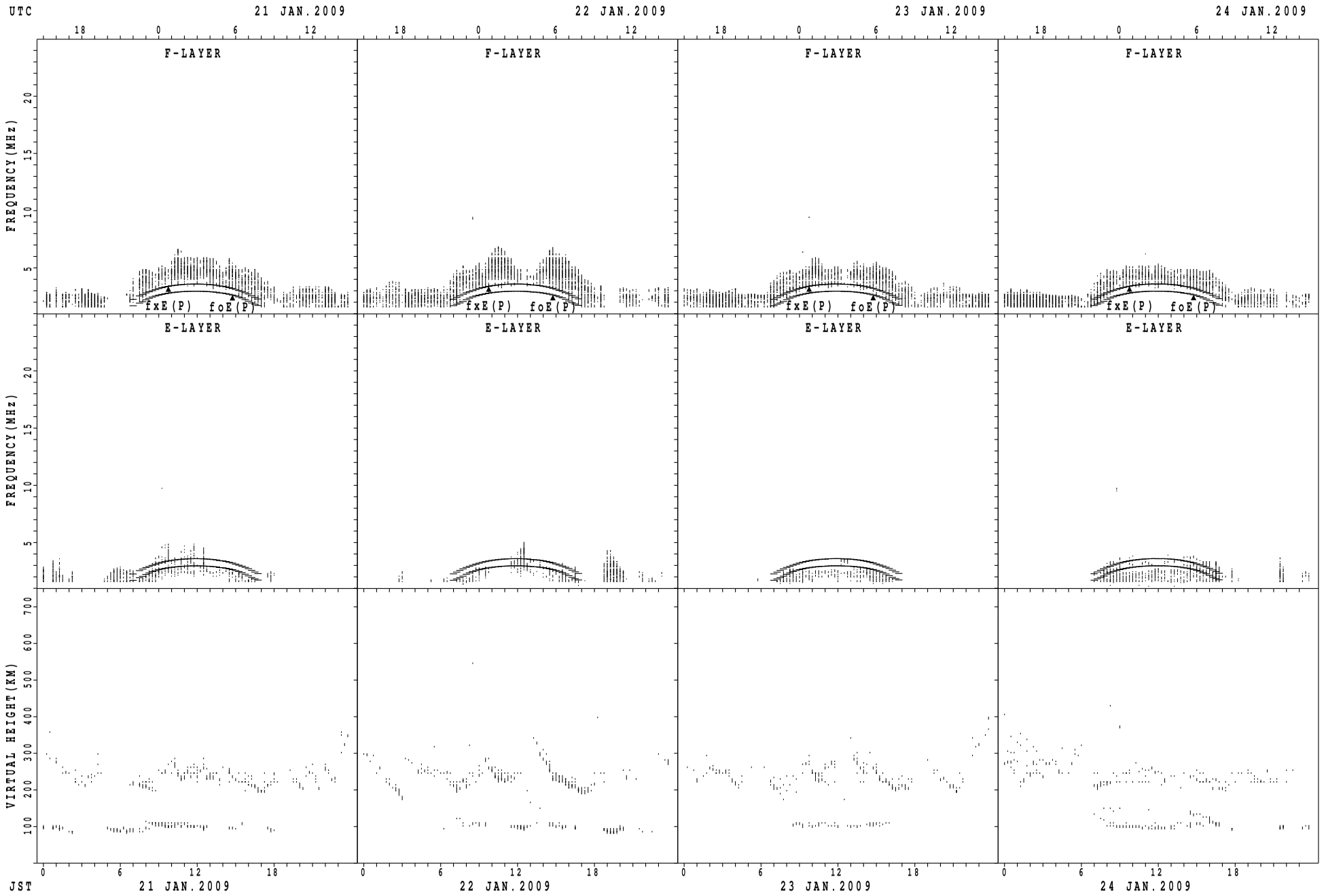
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



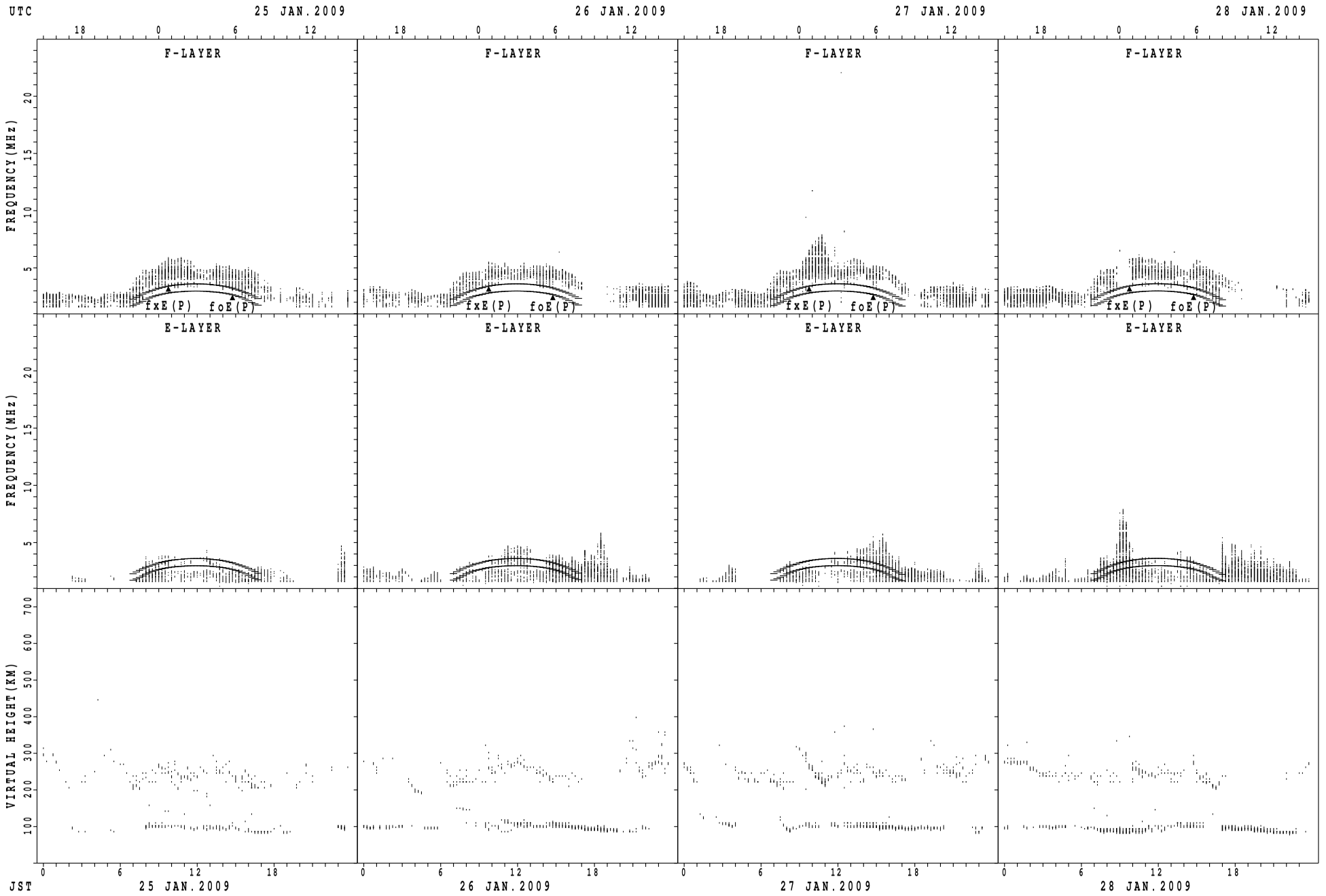
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



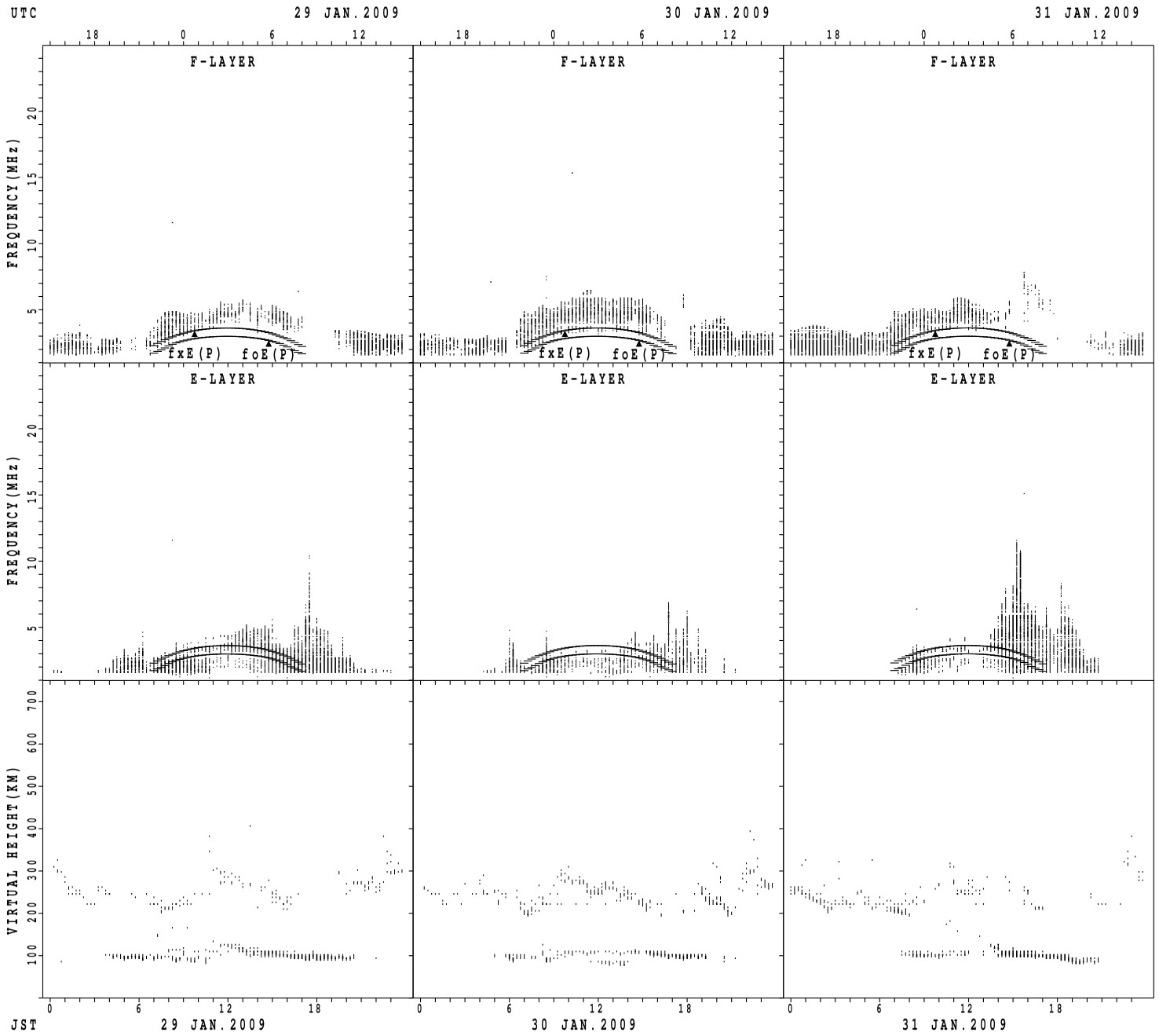
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



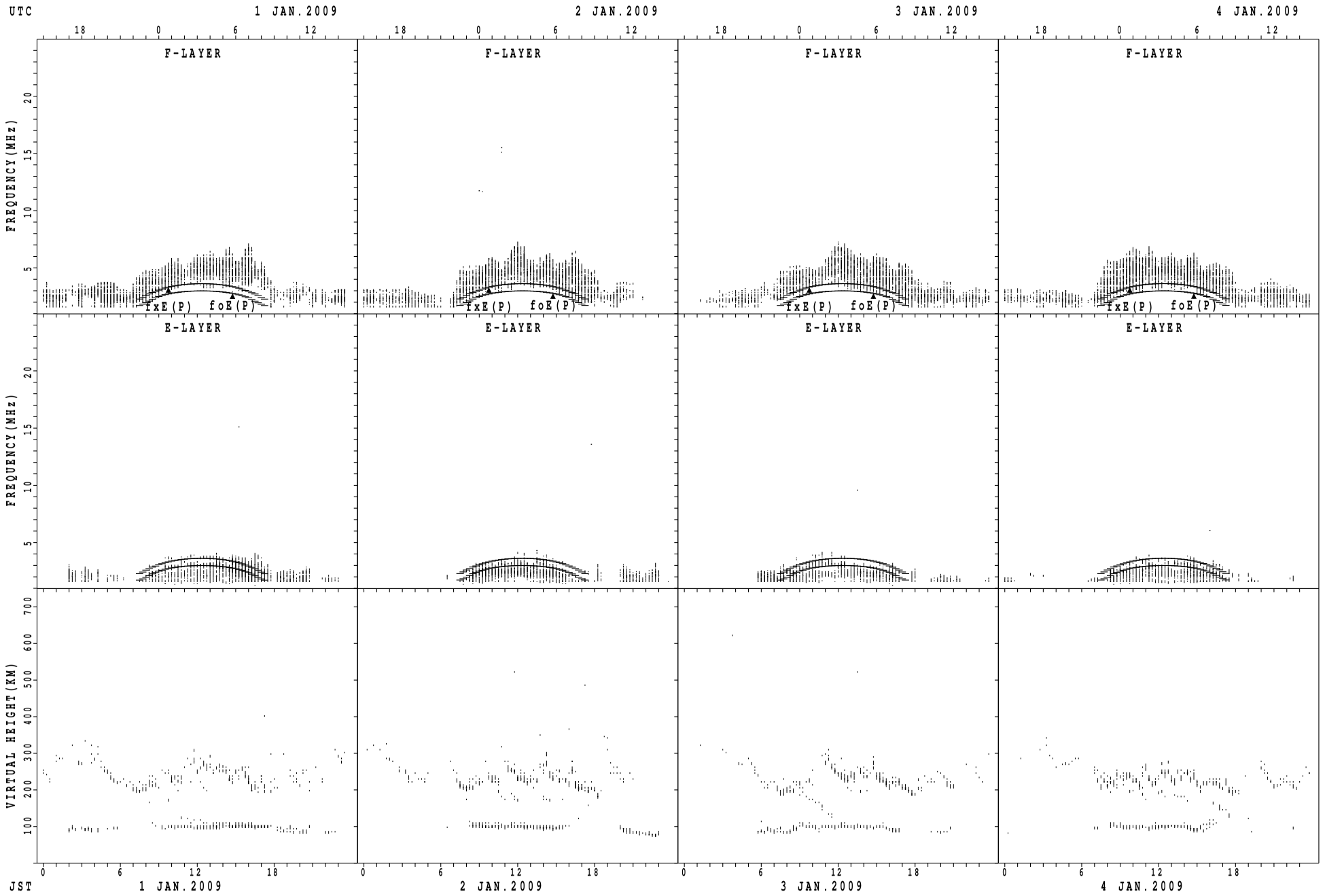
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



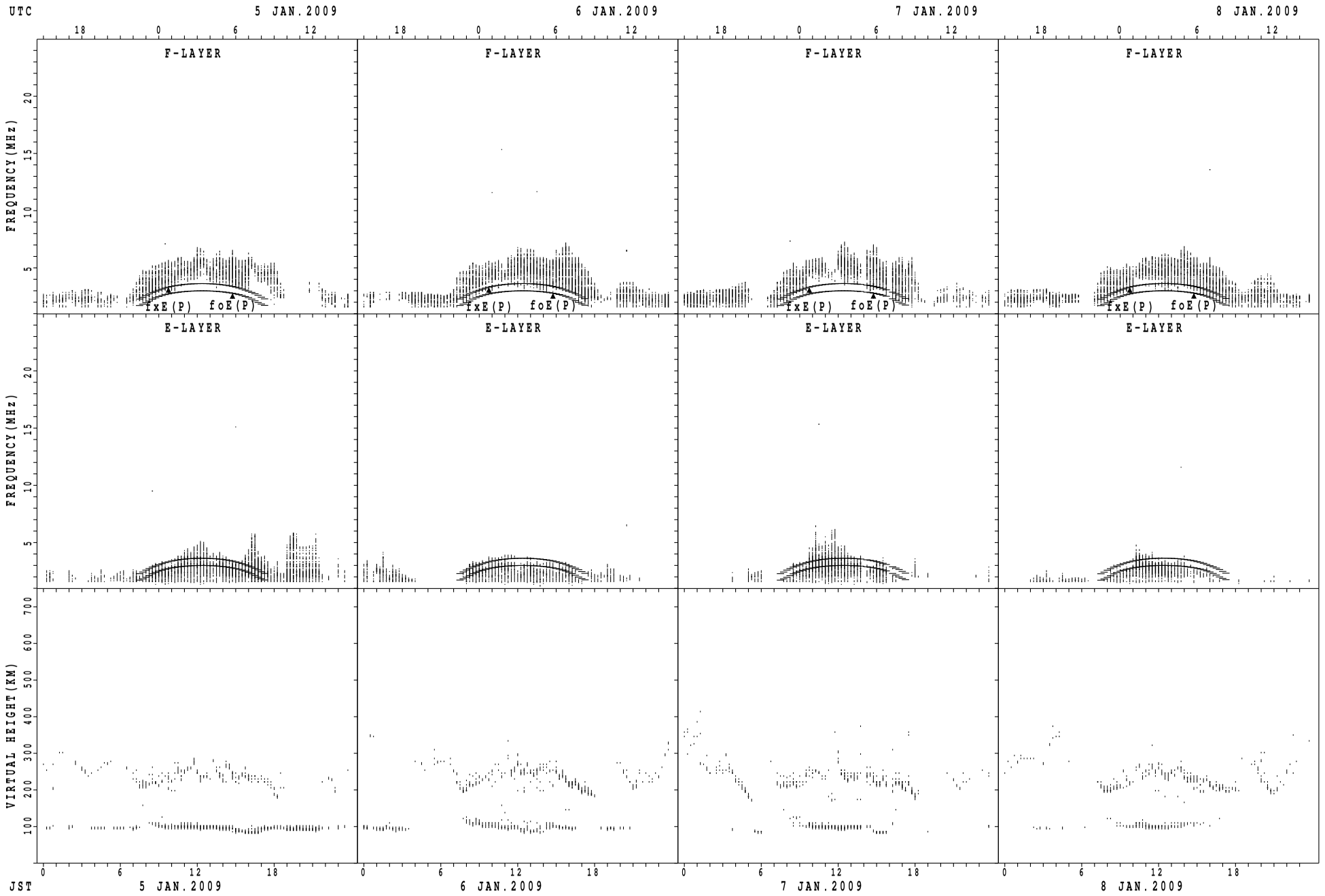
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



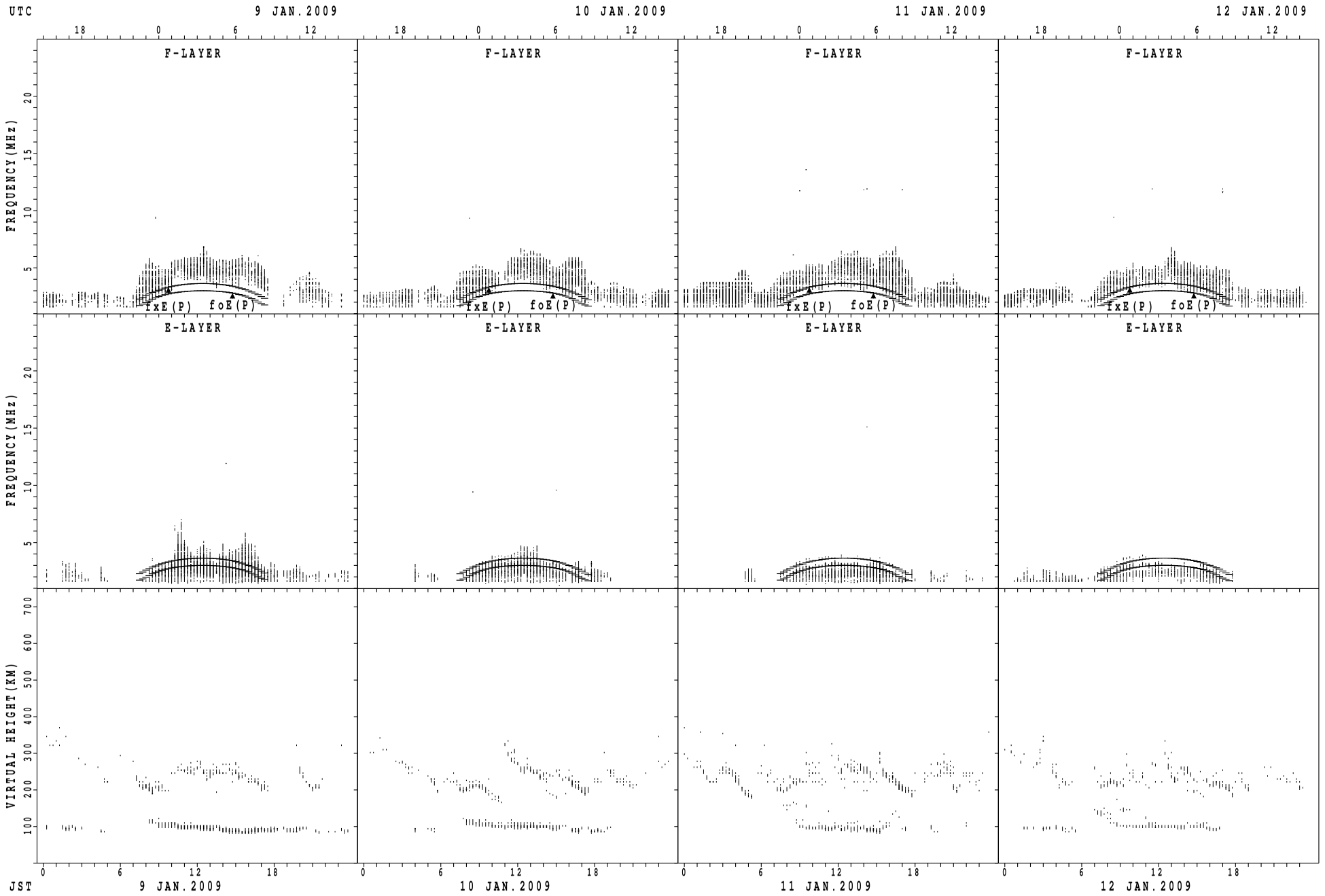
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



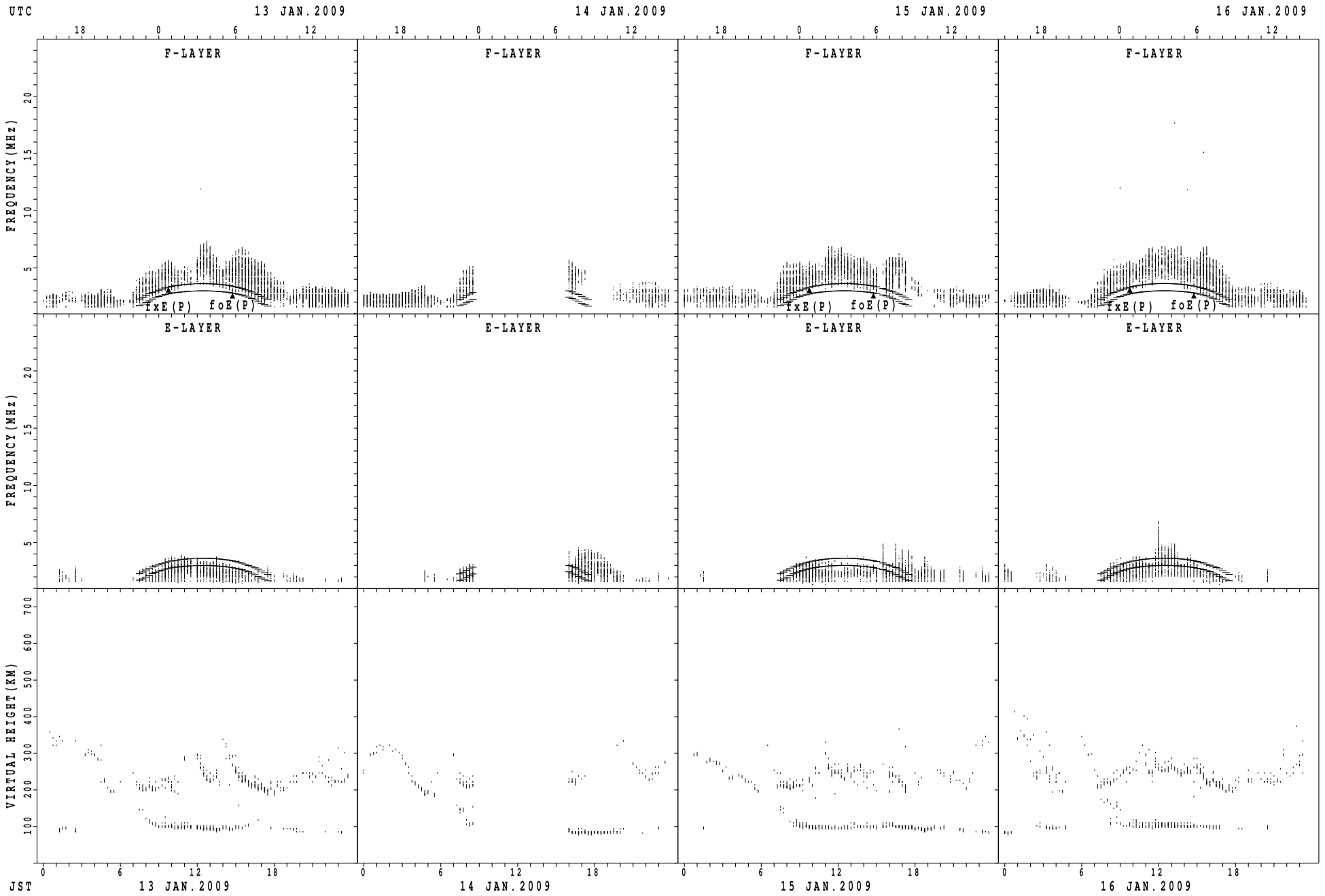
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



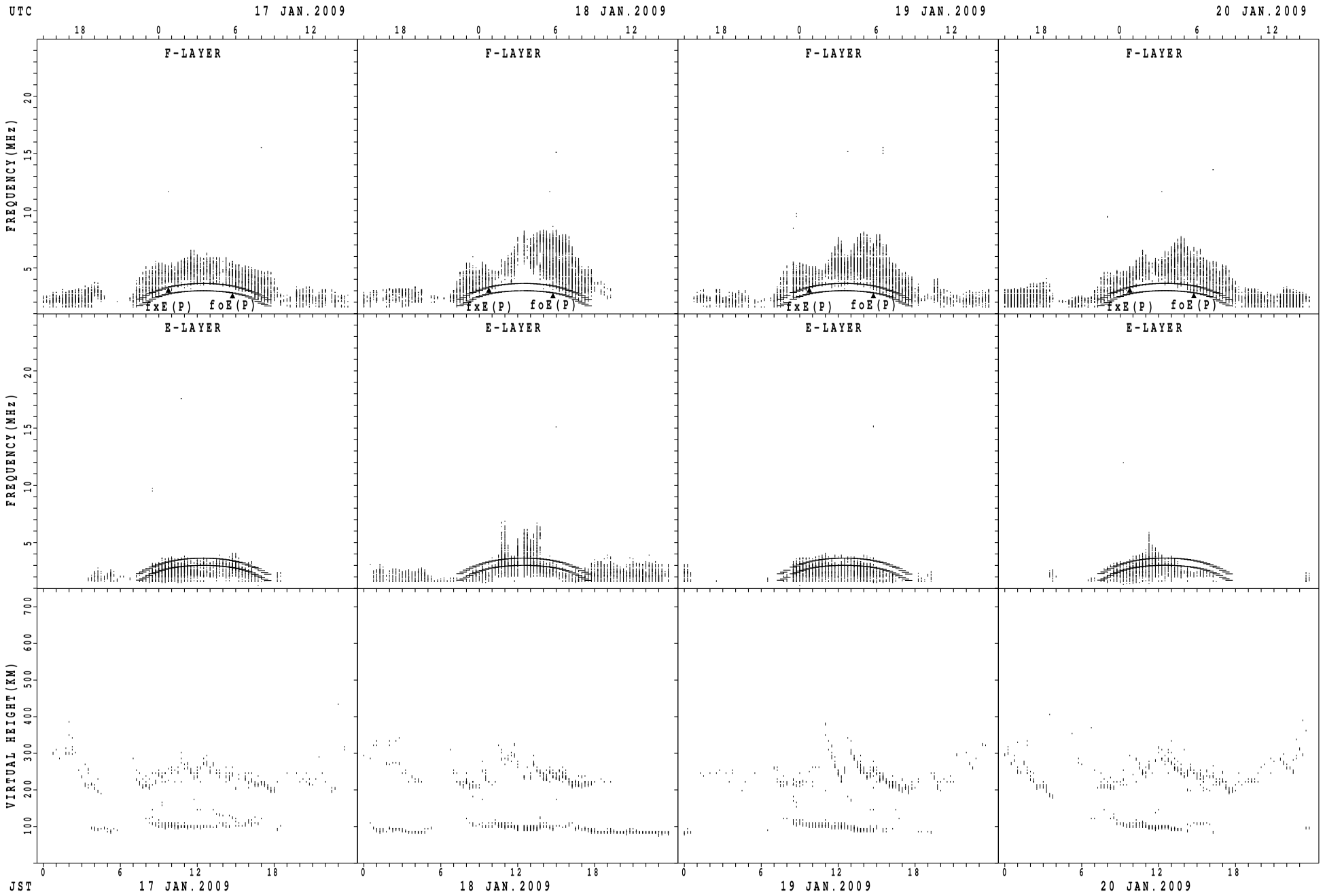
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



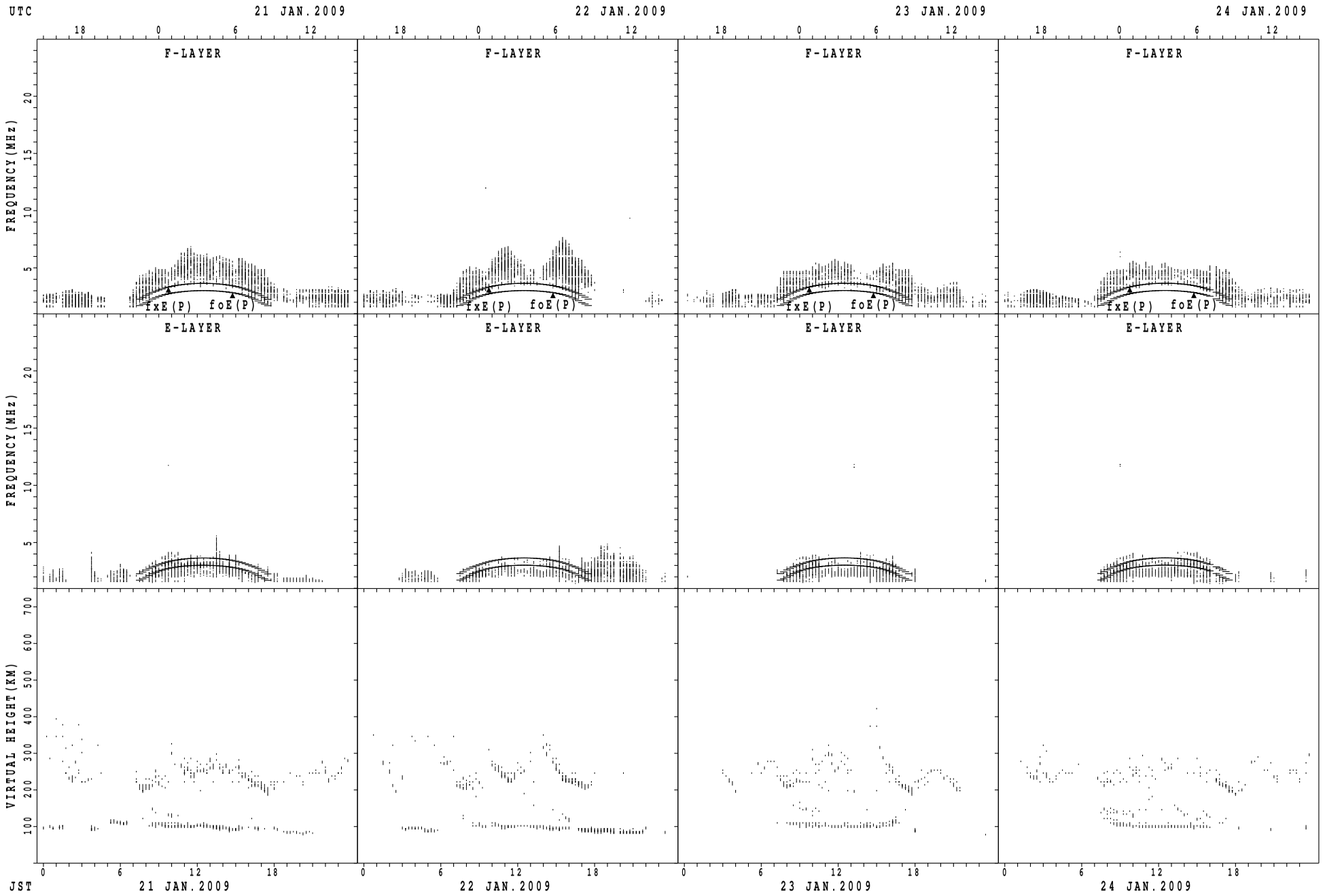
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



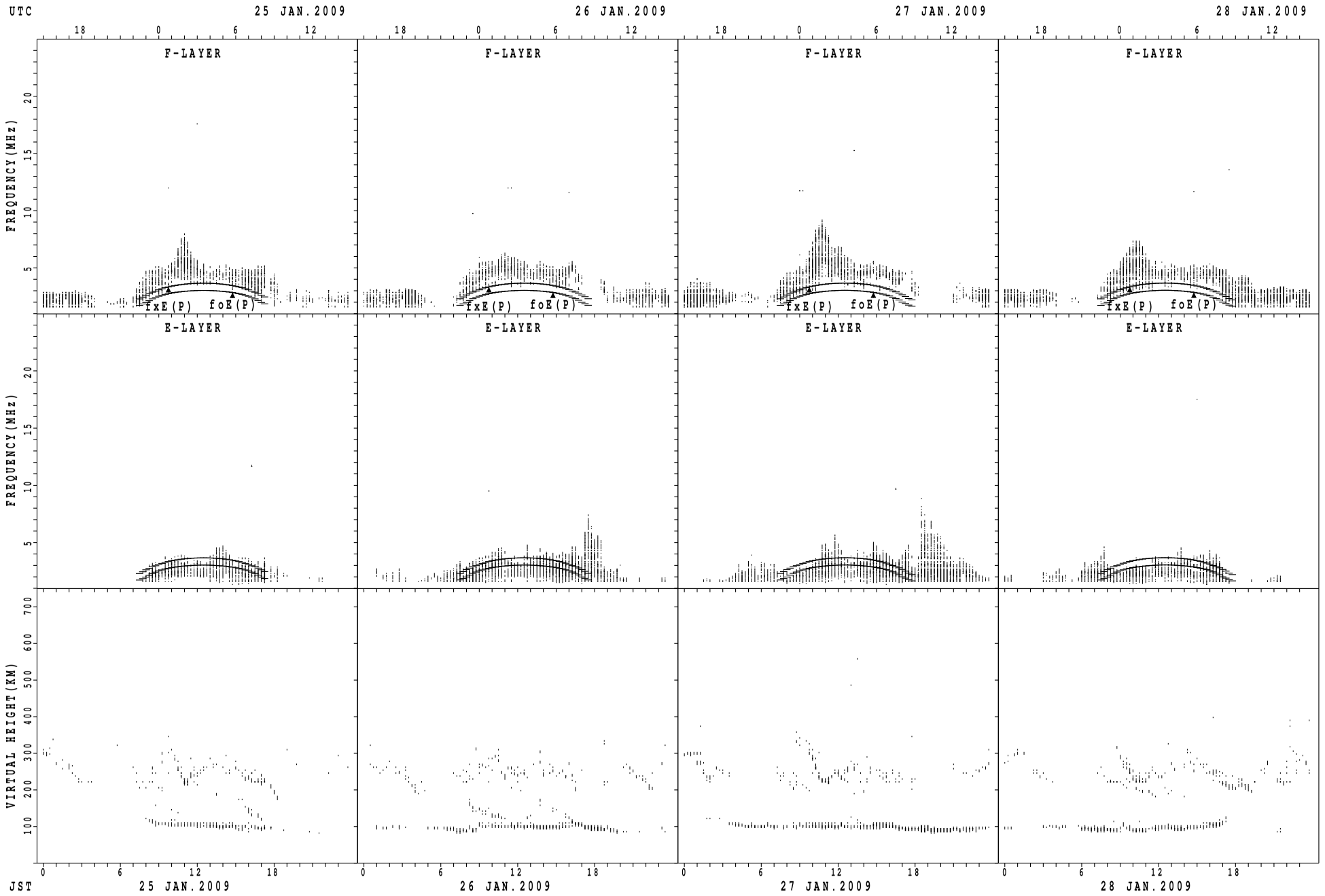
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



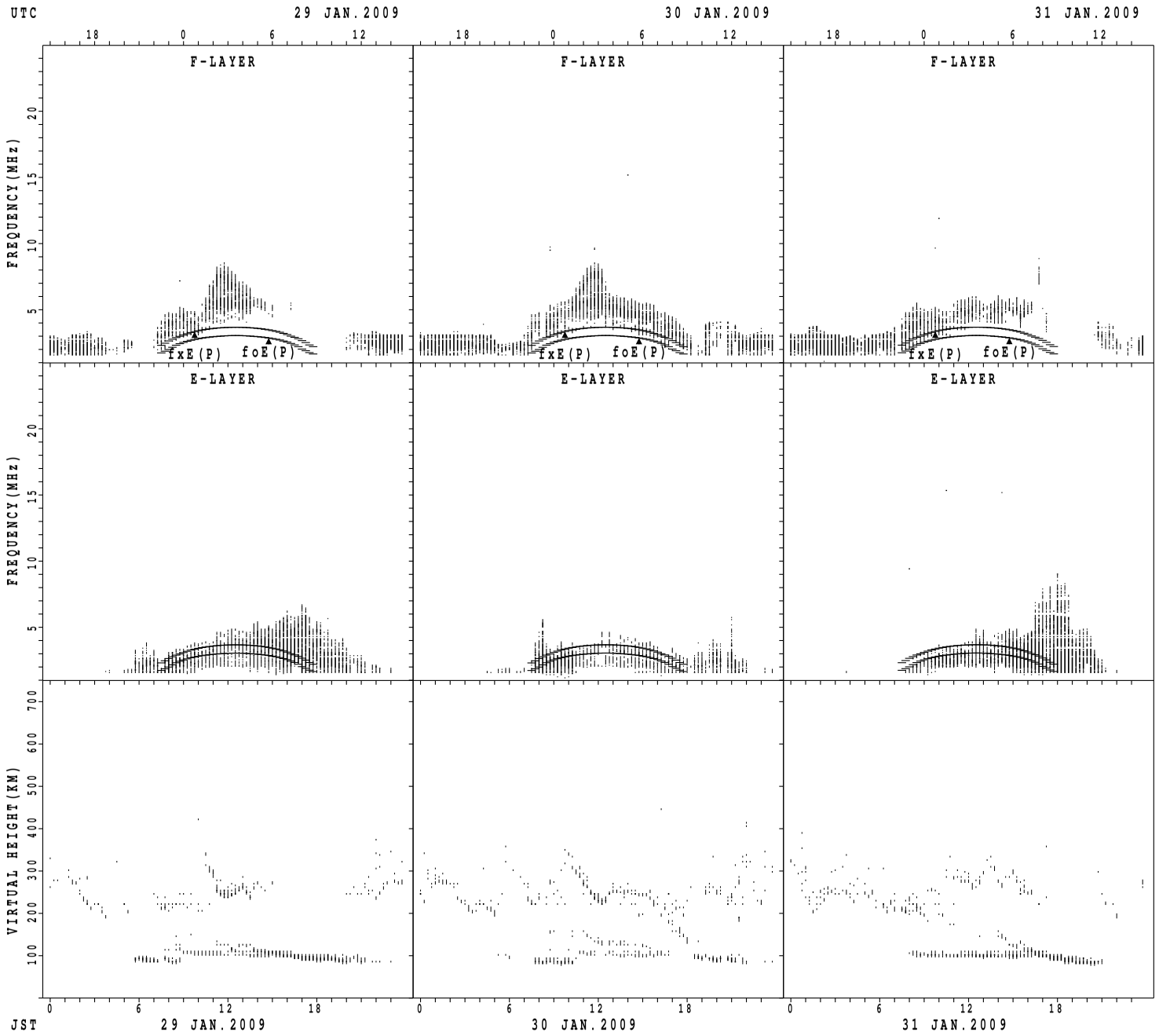
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



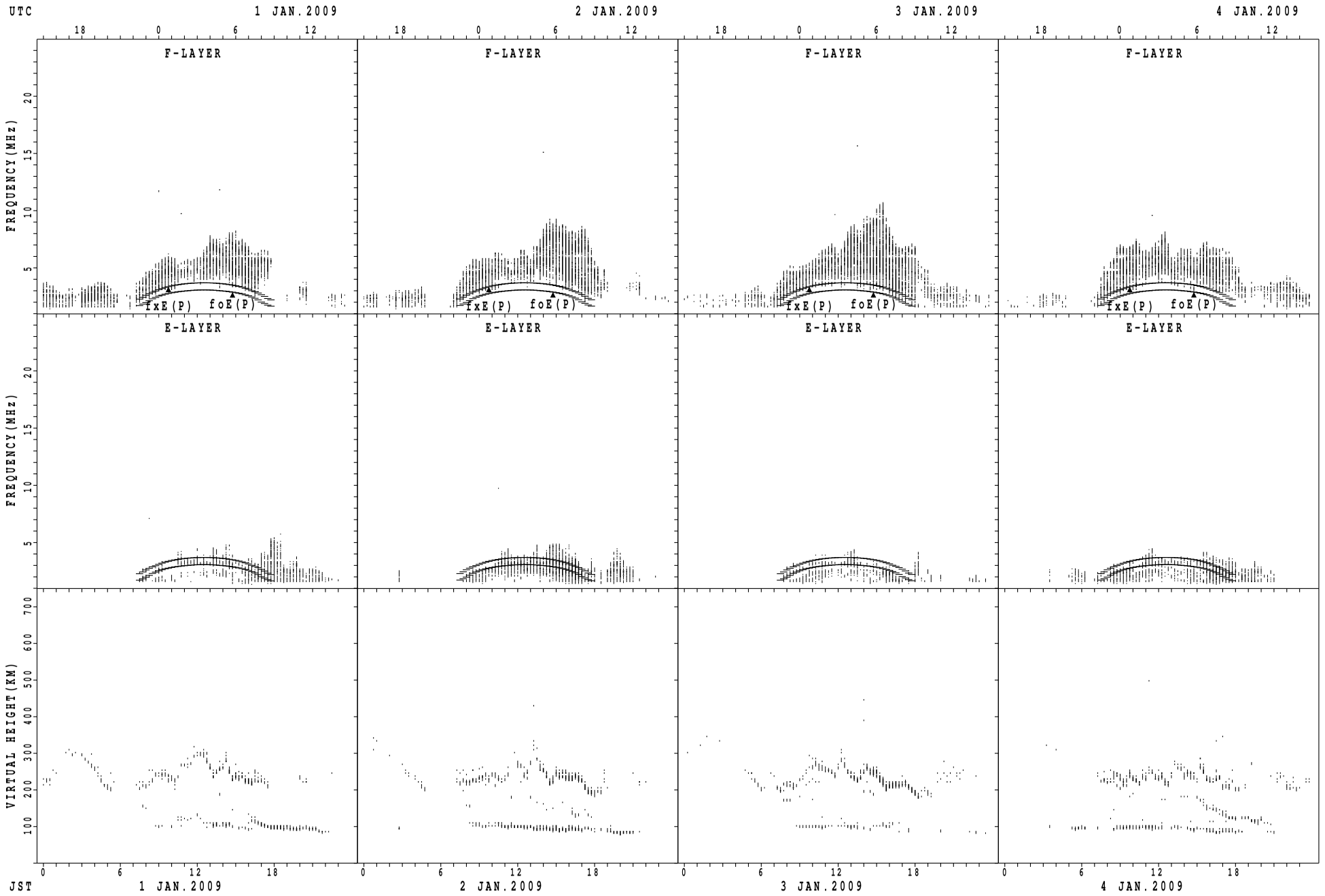
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



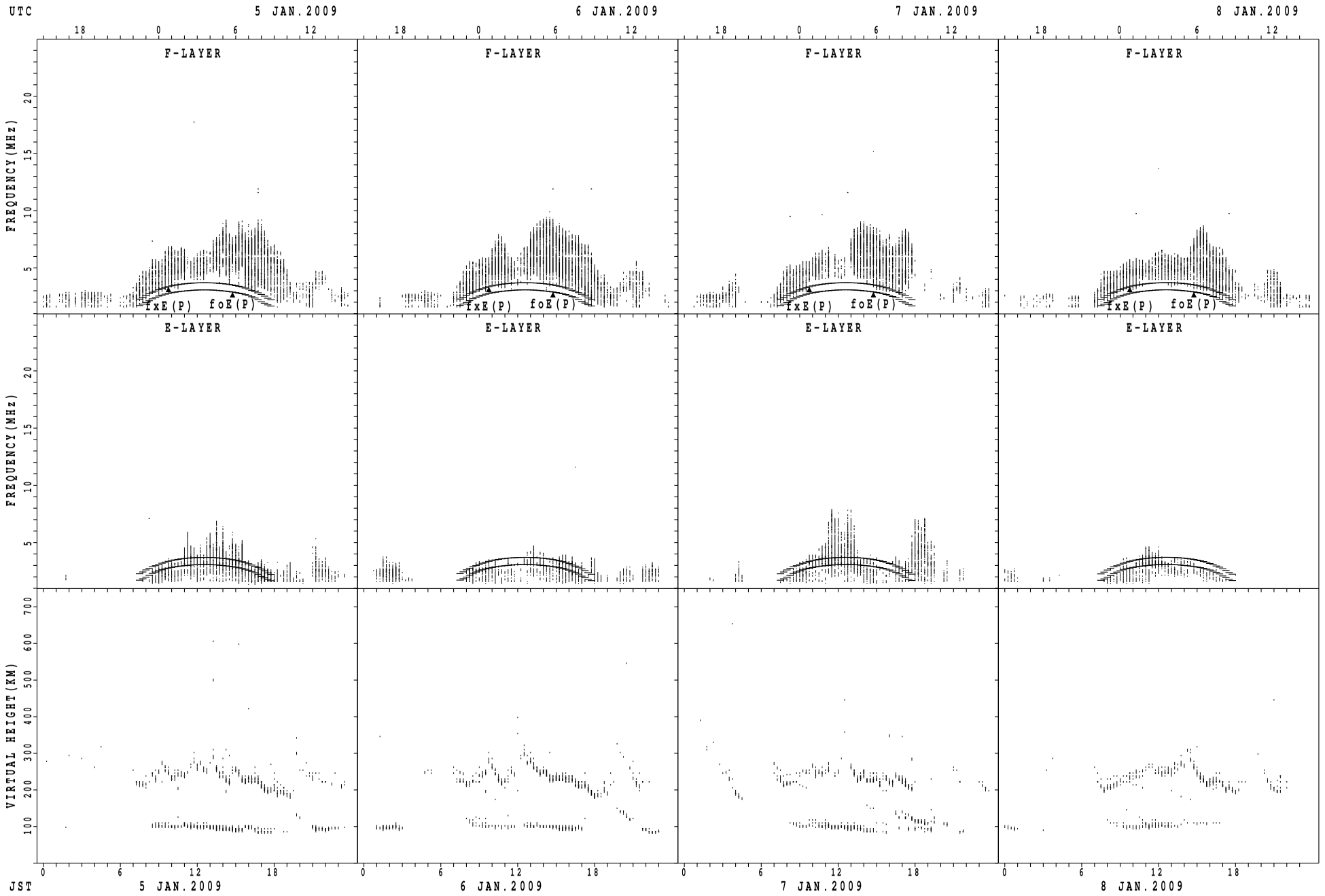
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



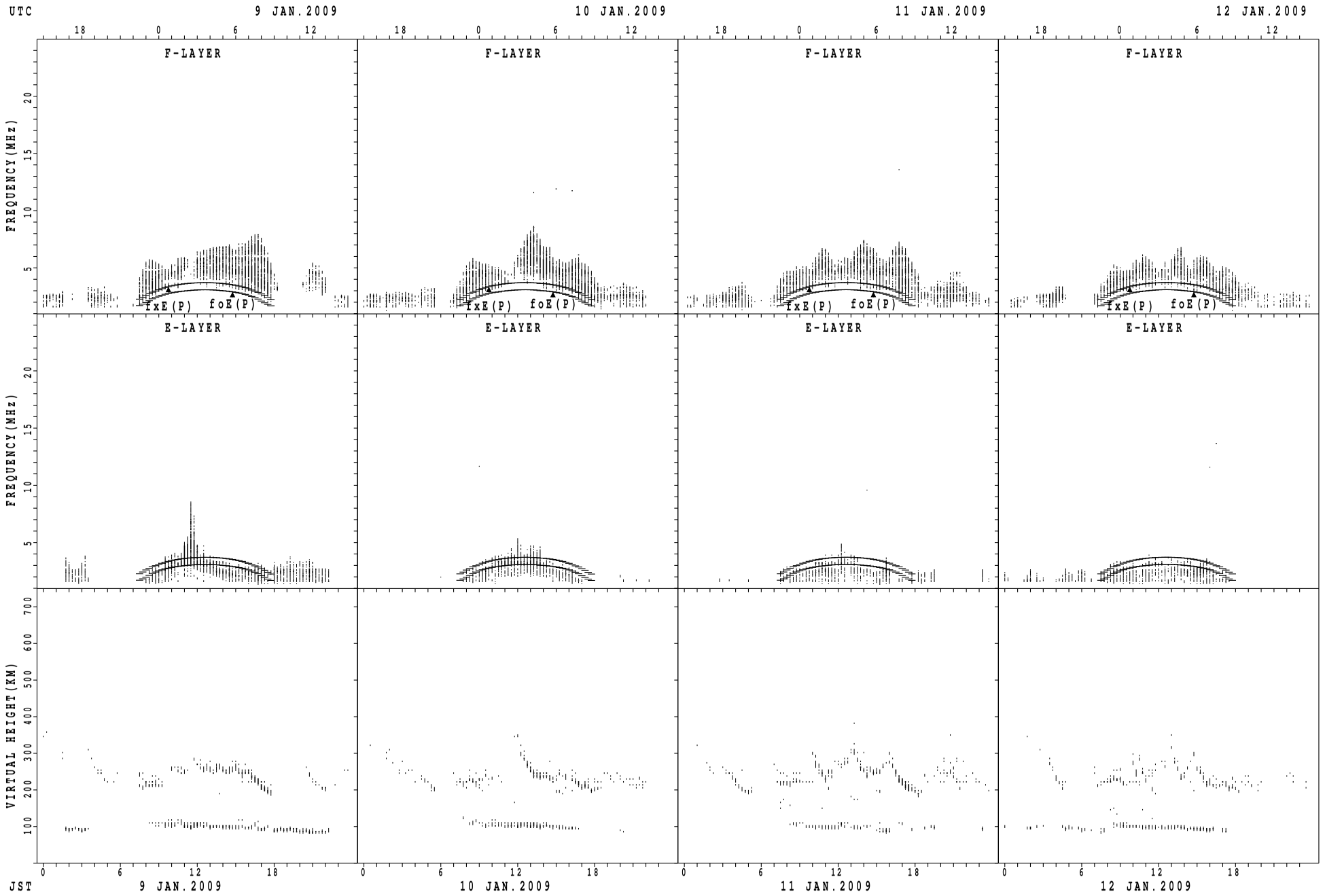
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



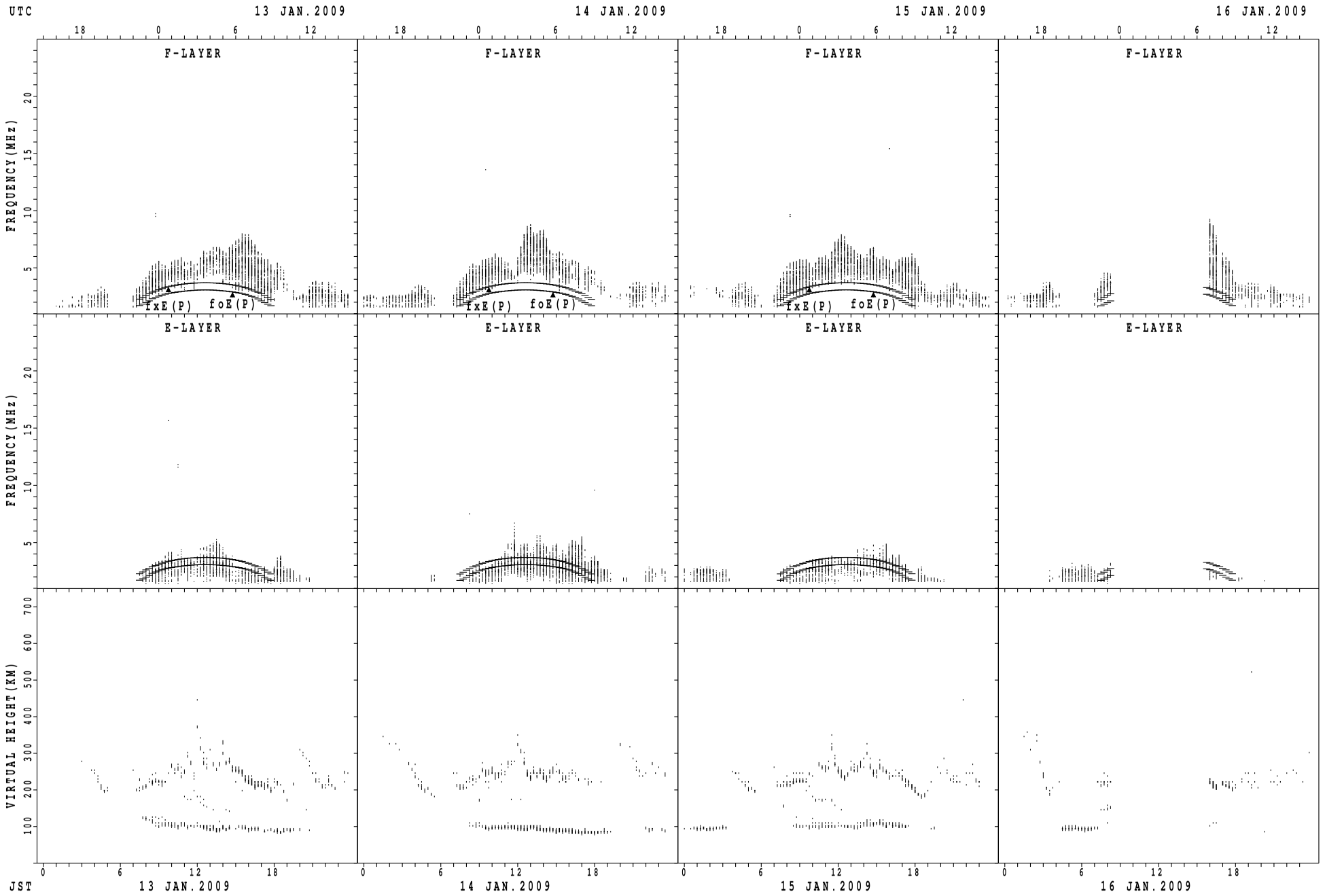
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



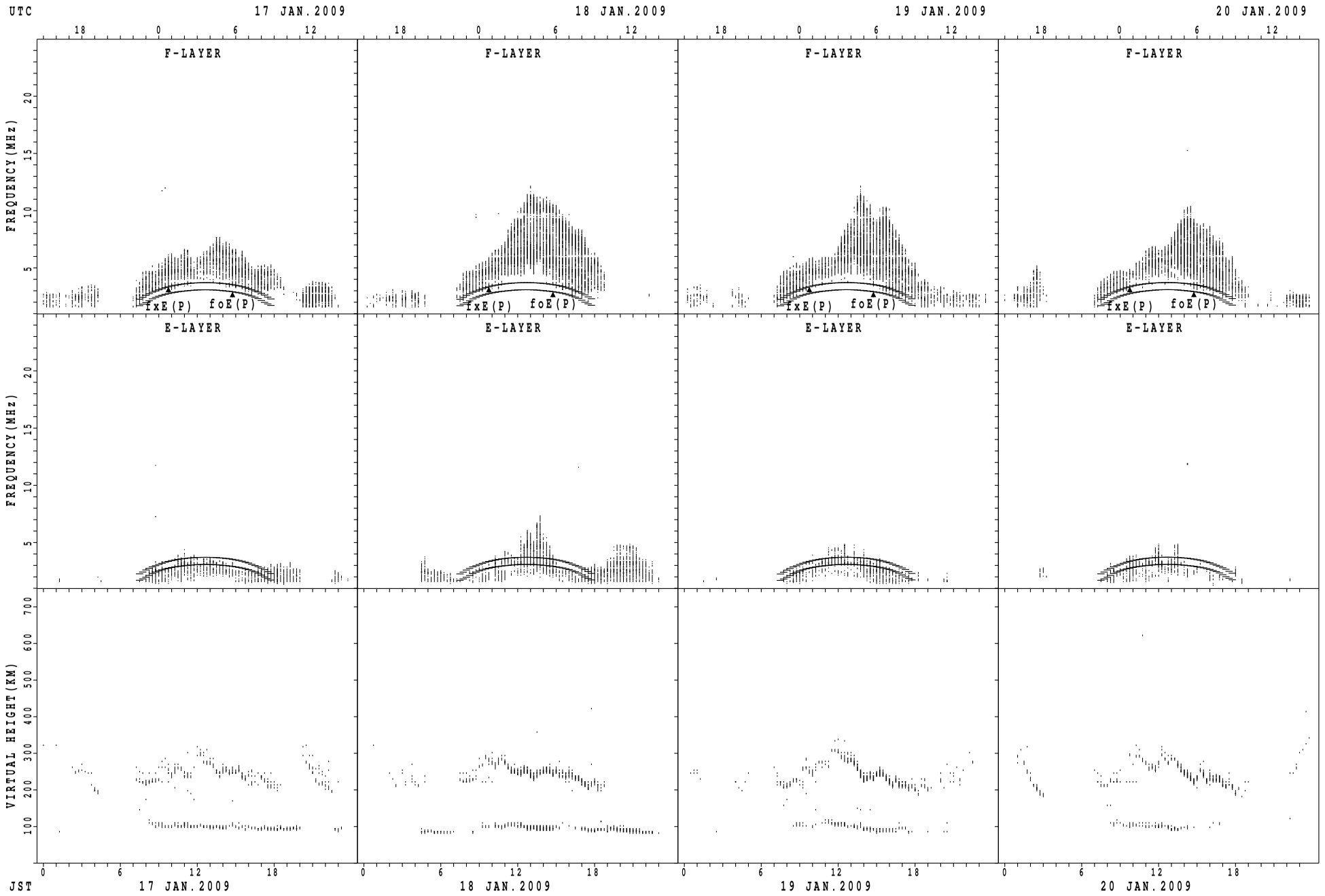
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



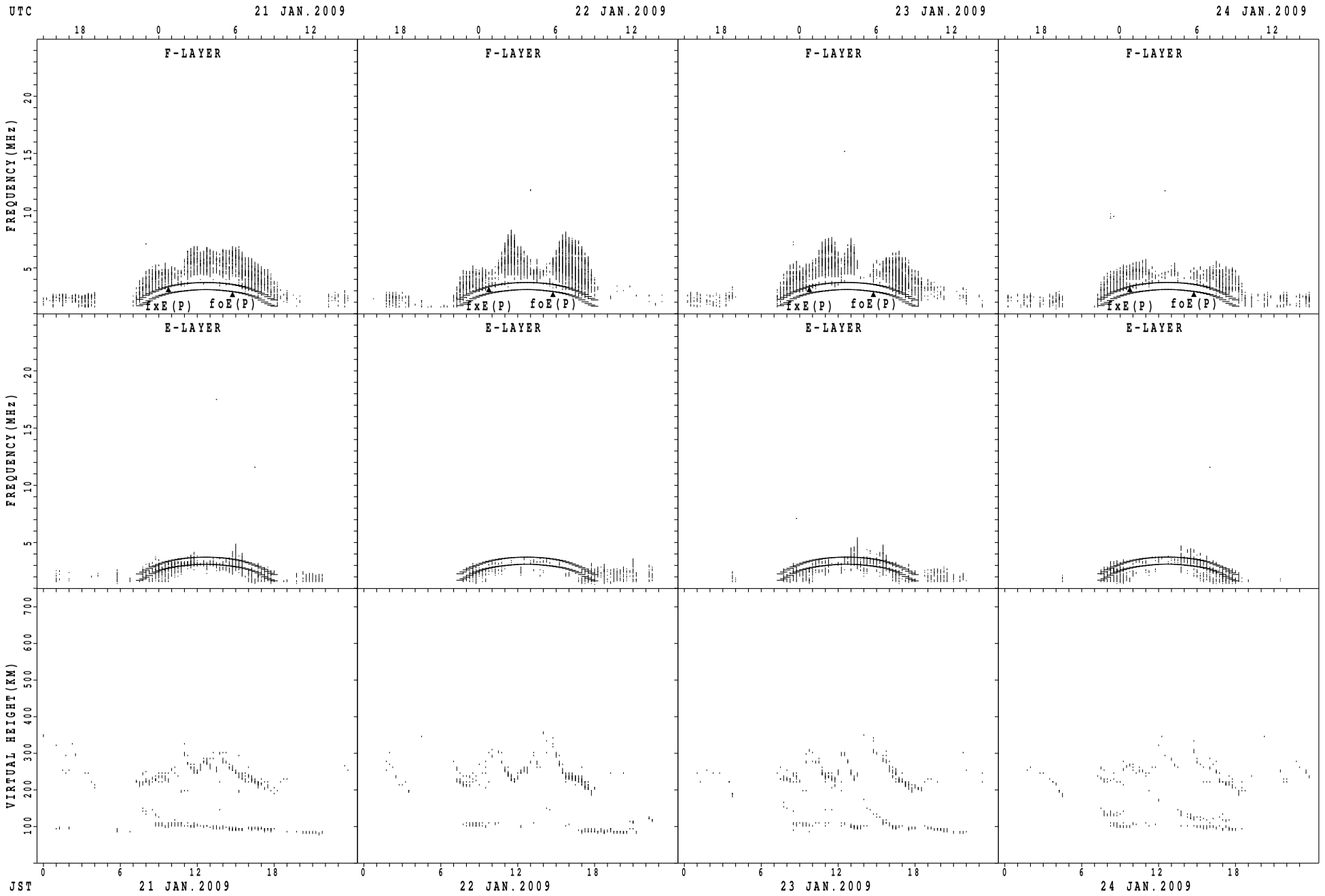
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



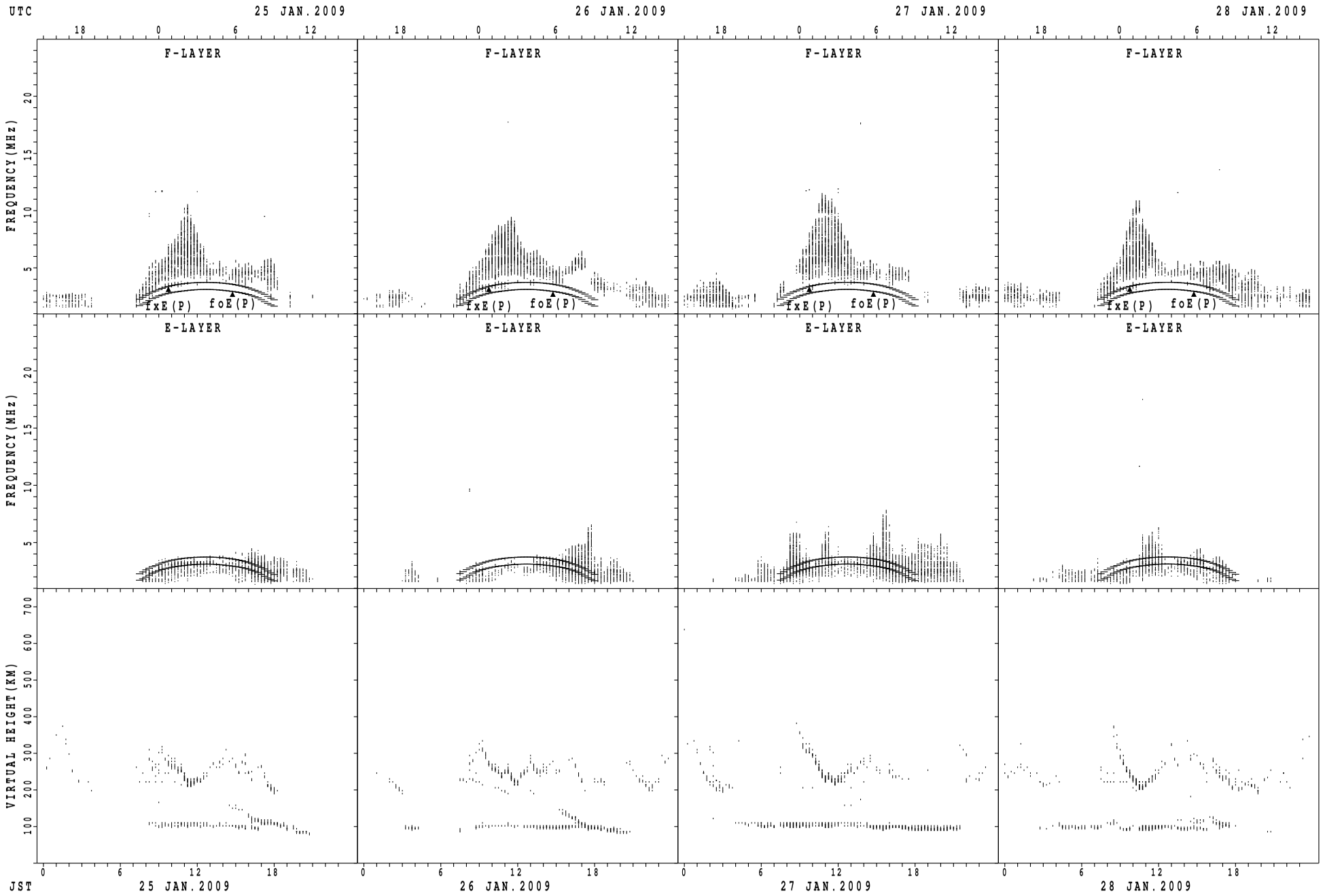
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



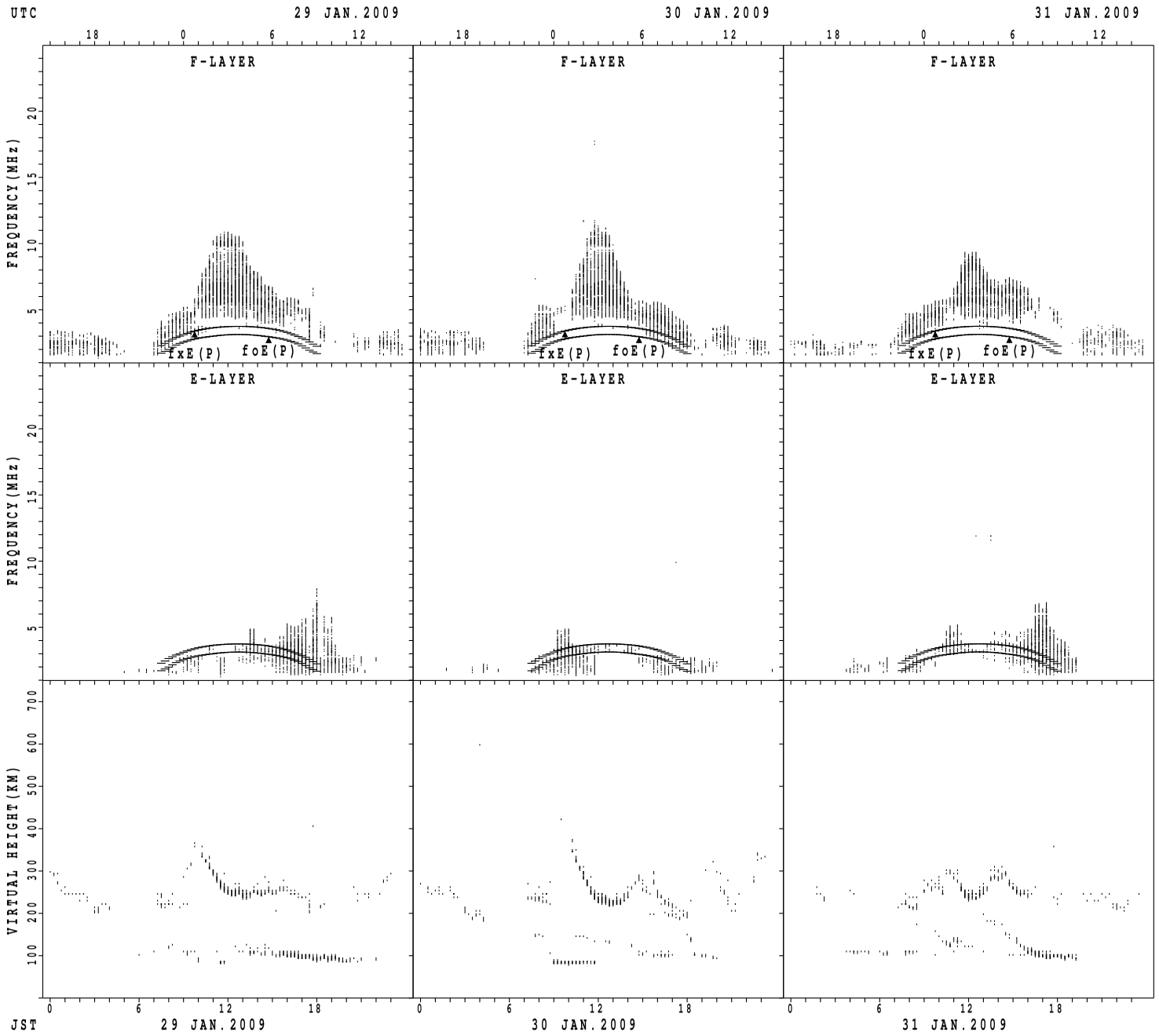
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



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

SUMMARY PLOTS AT Okinawa



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

MONTHLY MEDIANS OF h′F AND h′Es

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

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

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT											7	11	8	4	5	1								
MED											256	232	239	253	234	222								
U Q											270	248	246	268	238	111								
L Q											232	222	234	233	226	111								

h′Es

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	8	2	2	5	6	7	6	8	11	16	11	11	7	9	8	10	12	13	11	6	10	7	12	7
MED	98	100	97	99	101	105	101	101	115	116	127	119	111	115	112	108	100	99	97	97	100	95	97	97
U Q	100	107	103	110	105	107	105	106	159	164	153	169	149	175	128	115	104	104	97	101	103	103	101	101
L Q	96	93	91	91	91	101	97	95	107	105	105	103	97	103	102	99	97	98	95	95	97	93	91	97

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	2	2	5	3	4	3							
MED											276	237	234	244	260	242	220							
U Q											276	252	246	251	270	252	256							
L Q											276	222	222	231	232	236	212							

h′Es

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	5	3	1	3	4	1	3	11	10	9	11	10	5	5	5	8	10	11	10	8	9	8	5	7
MED	103	97	101	103	99	97	97	135	112	107	107	109	119	113	117	104	104	97	97	95	93	97	101	101
U Q	103	103	50	179	104	48	97	149	125	112	111	117	122	138	123	112	107	105	99	96	96	106	103	103
L Q	101	93	50	103	97	48	91	97	95	104	103	105	105	106	99	96	101	95	95	91	91	92	92	99

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											4				4	7	7							
MED											239				251	248	228							
U Q											268				269	266	248							
L Q											234				246	236	222							

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	4	3	5	7	9	6	7	6	16	17	14	15	16	15	14	13	19	16	16	15	13	8	6	5
MED	90	97	97	97	95	95	95	94	127	137	107	105	103	103	112	107	107	97	95	95	89	89	89	95
U Q	97	101	99	101	100	103	105	97	152	154	119	131	106	105	151	114	119	109	100	97	96	95	91	98
L Q	84	95	94	95	92	91	91	91	93	110	103	103	99	95	101	89	103	95	91	93	89	87	87	82

MONTHLY MEDIANS OF h′F AND h′Es

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

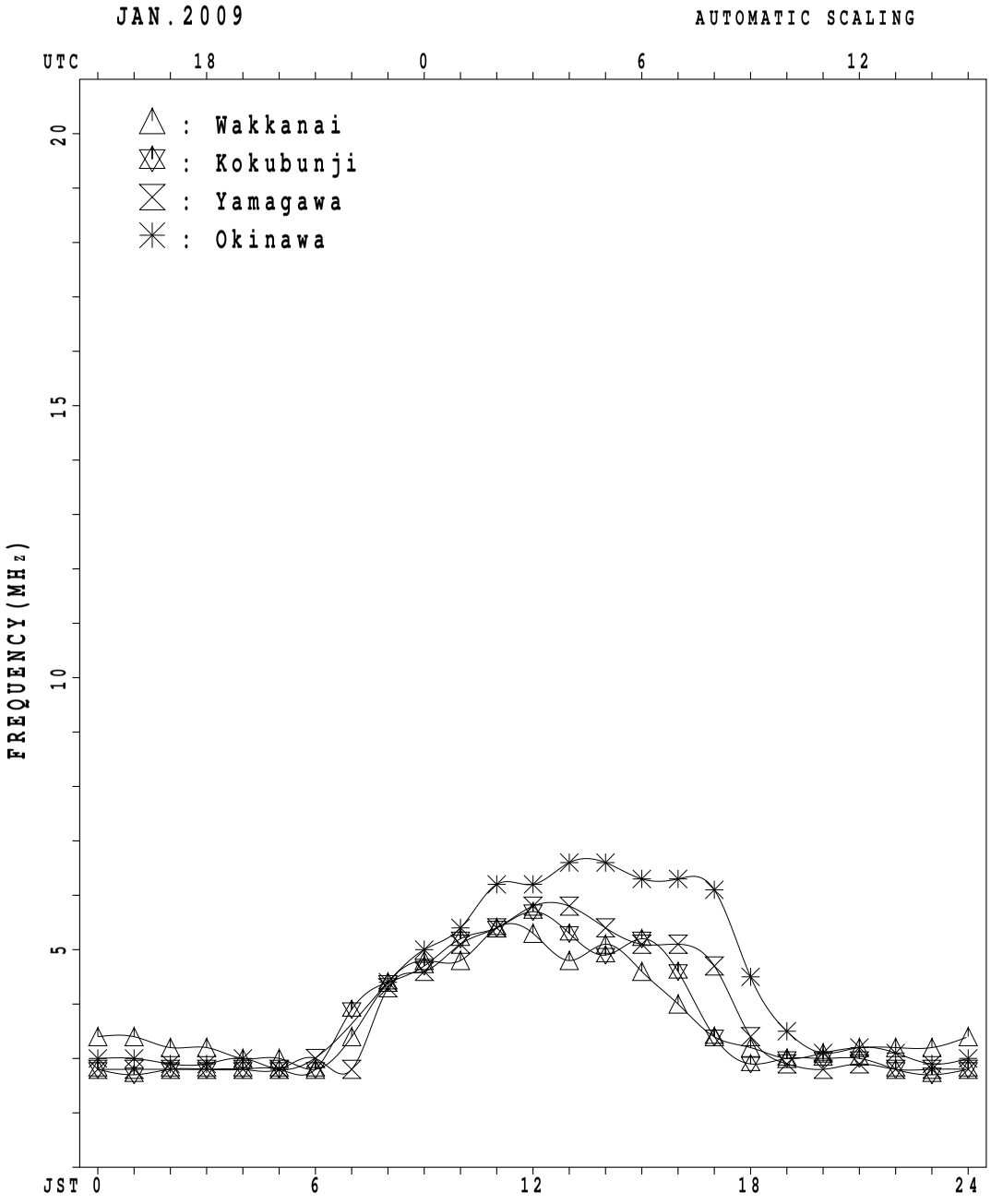
h′F STATION Okinawa LAT. 26°41.0′N LON. 128°09.0′E

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT										2	10					18	17	12	2					
MED										281	255					250	236	228	226					
U Q										316	274					262	247	230	232					
L Q										246	240					240	224	224	220					

h′Es

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	2	3	4	2	1	5	6	3	12	11	9	16	17	14	16	14	14	18	18	17	13	8	5	3
MED	98	97	96	94	97	97	97	99	137	125	109	105	105	99	104	100	106	100	96	97	95	89	93	93
U Q	103	101	98	97	48	105	101	103	154	137	128	108	112	105	134	115	119	105	111	100	97	97	96	99
L Q	93	93	94	91	48	93	95	97	119	107	106	102	103	97	97	95	97	95	91	91	89	87	88	91

MONTHLY MEDIANS PLOT OF foF2



IONOSPHERIC DATA STATION Kokubunji

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

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

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

JAN. 2009 fxI (0.1MHz)

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

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	28	29	29	28	26	23	29	38	45	47	50	53	59	46	58	57	58	35	24	30	31	26	30	28
2	26	28	27	26	25	24	20	38	51	48	49	58	61	54	48	52	53	36	26	29	30	27	28	27
3	28	28	29	29	28	25	25	41	46	51	50	52	81	53	48	50	44	32	29	32	32	25	27	27
4	30	29	30	28	26	24	20	41	46	52	54	65	53	54	56	46	48	32	21	26	30	32	24	26
5	26	26	25	27	22	22	20	40	43	48	52	55	58	54	57	V 52	43	36	23	32	29	28	28	25
6	24	24	25	25	F	22	20	42	50	52	43	56	66	62	50	62	64	34	24	30	32	28	23	24
7	26	26	27	25	27	21	22	42	47	51	50	52	64	54	57	50	46	37	28	28	35	33	24	26
8	28	30	28	27	25	26	20	42	45	45	50	54	57	62	57	50	42	28	28	37	36	30	24	26
9	F 26	25	27	25	24	22	F	40	45	47	C	C	C	C	C	C	47	29	31	33	34	30	24	23
10	26	29	26	26	25	20	23	40	45	47	44	48	54	52	48	51	51	35	30	32	30	28	31	34
11	37	F	F	F	F	F	F	39	41	45	49	49	61	58	51	54	61	36	29	34	34	30	24	24
12	26	27	F	F	F	18	F	36	44	44	45	54	48	62	49	52	41	33	21	26	34	28	23	23
13	25	F	F	F	24	18	17	34	41	46	43	53	59	46	52	56	48	40	34	28	30	21	22	23
14	24	23	25	28	26	21	21	36	42	48	54	58	57	51	52	54	48	34	26	33	34	34	30	28
15	28	28	30	32	26	24	25	39	52	49	55	61	57	57	50	56	54	39	A	30	35	26	24	F
16	F	F	F	F	27	A	20	39	44	48	52	52	63	61	58	54	54	35	29	34	30	30	24	24
17	26	26	27	36	24	18	21	37	45	47	47	62	60	52	50	54	44	35	25	32	34	29	28	28
18	28	29	31	30	26	23	23	42	46	44	47	58	70	58	57	60	46	35	30	28	28	28	26	27
19	F	28	28	26	24	18	19	41	43	45	46	61	68	58	63	65	45	31	26	30	29	22	25	F
20	F	F	F	22	15	F	19	40	43	43	C	C	C	C	C	C	46	36	31	26	26	F	F	F
21	F	F	23	24	21	18	A	36	45	46	51	58	55	55	48	48	44	39	28	28	31	30	28	21
22	26	28	33	28	26	28	26	40	45	51	59	61	47	46	54	60	52	40	30	A	30	30	28	29
23	28	28	25	25	26	22	22	36	42	44	54	46	48	48	50	51	45	34	26	27	33	32	22	23
24	F	F	F	F	F	20	18	35	44	40	46	48	49	44	42	45	43	34	27	29	29	27	26	21
25	22	22	22	20	18	F	F	34	43	49	54	52	48	46	48	46	46	38	28	29	28	26	27	26
26	27	29	26	24	26	21	F	34	41	43	51	49	48	47	48	43	41	34	A	31	30	F	F	F
27	30	31	22	25	26	25	23	40	44	50	66	68	50	53	50	49	43	35	24	26	31	33	26	A
28	F	28	28	28	27	25	23	36	44	50	53	54	50	52	44	52	46	41	34	23	28	29	29	27
29	25	26	27	24	24	A	23	36	44	43	44	49	51	53	48	50	44	40	A	A	32	F	F	27
30	26	26	25	23	22	F	25	43	48	49	52	57	57	53	55	55	42	A	A	36	37	30	27	29
31	F	F	F	F	27	27	27	44	46	47	49	55	54	46	47	A	A	A	36	38	34	31	26	F
	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	24	24	25	27	25	25	31	31	31	29	29	29	29	29	28	30	29	27	29	31	28	28	25
MED	26	28	27	26	26	22	22	39	45	47	50	54	57	53	50	52	46	35	28	30	31	29	26	26
U Q	28	29	28	28	26	24	24	41	46	49	54	58	61	58	56	56	51	38	30	32	34	30	28	28
L Q	26	26	25	24	24	20	20	36	43	45	46	52	50	48	48	50	44	34	25	28	30	27	24	24

JAN. 2009 foF2 (0.1MHz)

IONOSPHERIC DATA STATION Kokubunji

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

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1									L	A	A	A	A	UL 380	A	A								
2											L	L	UL 388	L	L	L								
3										L	L	UL 408	A	L	L	L								
4											L	A	L	L	L									
5											A	A	L	L	L	L								
6												376	UL 380		L	A								
7										L	L	UL 392	388		A									
8											L	L	L	L	L									
9											C	C	C	C	C	C								
10									L	L	UL 380	A	A	L	L	L								
11									L	A	A	A	A	L	L									
12										A	A	UL 384	UL 412	UL 392	L	L								
13												UL 396	UL 400		A	A								
14											L	L	UL 396	UL 392		L								
15										L	L	L	UL 420	A	A	L								
16											L	L	UL 408	L	L	L								
17											L	UL 388	392	420	L	L								
18												UL 404	404	L	L	L								
19										L	A	UL 412	UL 408	UL 408	L									
20											C	C	C	C	C	C								
21											A	L	UL 404	L	UL 380	L								
22										L	388	UL 404	L	UL 408	A	L								
23									L	UL 388	UL 380	L	L	UL 396	L	L								
24											L	A	L	UL 376										
25										L	L	UL 404	L	UL 384	L	L								
26											UL 388	A	A	A	A									
27										UL 400	UL 400	UL 416	A	L	A	A								
28										A	UL 400	404	UL 404	L		L								
29												UL 412	A	A	L	A								
30										L	UL 400	404	400	UL 404	L	A		A						
31									L	L	UL 400	404	400	UL 408	A	A	A	A						
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT										2	8	15	15	11	1									
MED										UL 394	UL 394	UL 404	UL 400	UL 396	UL 380									
U Q											UL 400	UL 408	UL 408	UL 408										
L Q											UL 384	UL 392	392	UL 384										

JAN. 2009 foF1 (0.01MHz)

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IONOSPHERIC DATA STATION Kokubunji

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

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1								B	U R 180	252	280	296	A	A	A	A	A							
2								B	236	A	304	288	A	R	A	A	188							
3									200	244	A	300	A	A	R	U R 232	B							
4								B	U A 204	A	A	304	A	A	U R 288	R	R							
5									U R 224	A	A	A	A	U R 296	R	A	U R 184							
6								B	A	U R 264	A	A	R	R	R	228	176	B						
7								B	228	A	A	A	A	R	264	232	A	B						
8								B	R	U R 268	A	R	R	R	R	236	B	B						
9								B	228	A	C	C	C	C	C	C	A							
10								B	A	A	R	A	A	R	R	U R 240	U R 176	B						
11								B	212	252	296	A	A	A	R	248	176	B						
12								B	U A 196	R	A	R	A	U R 316	R	R	U R 228							
13								B	A	A	A	R	R	R	272	236	208	B						
14								B	208	R	292	R	R	A	A	A	R	B						
15								B	228	R	A	288	R	296	264	A	R	B						
16								B	R	A	A	A	A	A	A	R	R	B						
17								B	A	R	A	R	R	U R 316	A	R	U A 180							
18								B	R	A	A	320	R	R	A	U R 252	R	B						
19								B	A	R	A	A	R	A	U R 288	232	A	B						
20								B	A	A	C	C	C	C	C	C	R							
21									U R 236	A	A	A	A	R	R	R	U R 212							
22								B	U R 244	A	R	R	A	R	R	R	U R 208	B						
23								B	U R 216	R	R	R	R	R	R	U R 260	U R 204	B						
24								B	240	272	292	A	R	296	288	A	A	B						
25								B	A	272	A	A	R	R	R	R	212	B						
26								B	208	264	308	A	A	A	A	A	A	B						
27								B	A	A	R	A	A	A	A	A	A	B						
28								B	A	A	U R 304	A	A	R	A	244	192	B						
29								B	224	268	A	A	A	A	A	A	A	B						
30								B	216	R	R	R	R	A	A	A	A	B						
31								B	U R 236	A	R	A	A	U A 292	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									19	9	7	6		6	6	11	13							
MED									224	264	296	298		U 296	280	236	U 192							
U Q									U R 236	270	304	304		U R 316	U R 288	U R 248	U R 210							
L Q									U 208	252	292	288		296	264	232	178							

JAN. 2009 foE (0.01MHz)

IONOSPHERIC DATA STATION Kokubunji

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

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E B 15	E B 14	E B 15	E B 14	E B 15	E B 16	E B 14	E B 14	G	32	34	40	J A 41	35	36	J A 50	J A 30	J A 21	J A 53	J A 19	J A 22	E B 15	E B 14	E B 15
2	E B 15	E B 14	E B 14	E B 14	E B 14	E B 14	E B 15	J A 18	J A 26	32	34	35	J A 27	G	34	22	22	E B 14	J A 18	J A 22	E B 15	E B 14	E B 15	E B 15
3	E B 14	E B 15	20	E B 15	E B 16	E B 14	E B 15	E B 15	24	28	30	36	35	33	G 25	G 21	21	E B 15	21	19	J A 26	J A 20	E B 14	E B 14
4	E B 14	E B 15	E B 15	E B 15	E B 15	E B 14	E B 15	E B 15	26	30	33	34	36	31	G 26	G 21	G	E B 15	18	E B 15	E B 15	J A 28	J A 20	J A 22
5	J A 38	22	E B 15	E B 15	19	21	20	E B 14	G 18	32	J A 41	J A 45	36	G 21	G 26	27	20	J A 27	J A 22	J A 18	J A 25	J A 20	J A 22	J A 23
6	J A 24	J A 22	20	E B 14	E B 14	20	20	E B 13	J A 31	G 23	J A 35	34	J G 27	G 28	G 24	30	22	E B 15	E B 15	E B 14	E B 14	E B 14	E B 14	E B 15
7	J A 19	20	E B 15	20	20	19	J A 19	21	G	30	32	33	33	G 25	31	27	22	20	J A 22	E B 15	E B 14	E B 16	E B 16	E B 14
8	E B 15	J A 25	20	20	J A 24	E B 16	22	E B 15	G	G 21	36	G 27	G 27	G 23	G	28	22	19	J A 21	21	19	22	E B 15	E B 16
9	E B 16	E B 15	20	20	E B 15	20	E B 15	20	25	30	C	C	C	C	C	C	J A 27	J A 22	E B 16	22	22	E B 15	E B 14	E B 14
10	20	E B 15	J A 19	20	E B 14	E B 14	E B 15	E B 15	24	J A 31	G 26	37	35	G 26	G 25	G 23	G	E B 14	E B 14	E B 15	E B 15	E B 15	21	E B 15
11	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	19	G	29	36	38	37	34	G 23	31	25	J A 30	E B 14	E B 16	E B 14	J A 26	E B 15	E B 15
12	E B 14	J A 20	E B 15	E B 15	E B 15	E B 15	E B 15	20	29	G 22	35	G 25	35	G 27	G 25	G	G 19	E B 13	E B 15	B 14	J A 18	J A 21	22	20
13	J A 20	E B 15	E B 15	E B 15	E B 14	E B 15	E B 16	20	30	33	34	G 28	G 26	G 22	34	28	G	E B 14	E B 15	E B 15	E B 15	B J A 23	21	E B 15
14	20	E B 15	E B 15	E B 15	E B 15	E B 16	E B 15	18	28	G 23	34	G 28	G 28	J A 33	J A 32	J A 28	G 18	J A 26	J A 28	E B 15	E B 16	B J A 23	21	J A 27
15	J A 31	22	J A 22	E B 14	E B 15	19	E B 15	E B 15	27	G 22	J A 43	33	G 28	36	33	30	G 20	J A 21	J A 45	J A 27	J A 35	J A 24	J A 23	J A 22
16	J A 20	J A 19	E B 14	E B 15	J A 22	J A 22	20	J A 18	G	30	33	34	33	32	32	G 21	G	E B 15	E B 15	20	20	E B 15	E B 15	B J A 19
17	J A 18	J A 18	21	22	20	J A 17	20	J A 23	J A 31	G	37	G 29	G 22	G 27	G 33	G 26	24	22	E B 14	20	E B 15	B J A 38	E B 15	J A 19
18	J A 17	J A 20	J A 23	E B 14	20	22	20	E B 15	G 20	J A 40	J A 58	G 27	G 29	G 28	J A 32	G 22	G	E B 16	E B 14	20	21	20	E B 16	E B 14
19	E B 15	E B 15	E B 15	E B 15	E B 14	22	20	J A 20	J A 30	G 20	J A 42	J A 39	G 26	33	G 21	30	24	J A 20	J A 20	E B 15	18	E B 14	E B 15	E B 15
20	E B 16	E B 15	E B 14	E B 15	E B 14	18	20	J A 23	29	J A 43	C	C	C	C	C	C	G	E B 15	E B 15	E B 15	E B 16	E B 14	20	J A 30
21	J A 25	J A 31	21	E B 14	E B 15	23	J A 26	J A 21	G 21	J A 36	38	J A 44	J A 36	G 26	G	G 20	G	E B 16	J A 19	E B 15	E B 15	E B 15	E B 15	E B 14
22	E B 15	E B 15	E B 16	E B 14	E B 16	E B 15	20	E B 16	G 20	33	G	G	J A 38	G	G 30	G 27	G	E B 14	J A 18	J A 42	J A 29	E B 16	J A 22	J A 24
23	E B 16	E B 14	E B 15	E B 15	E B 15	E B 14	20	E B 15	G	G 24	G 23	G 26	G 22	G 21	G 24	G 24	G	E B 15	E B 14	E B 16	E B 14	E B 15	E B 14	E B 15
24	E B 15	E B 16	E B 15	E B 16	E B 15	E B 15	E B 15	18	29	32	33	36	G 24	G 24	34	32	28	J A 17	J A 18	E B 14	E B 15	E B 15	B J A 20	E B 14
25	E B 16	E B 16	E B 15	19	E B 15	20	J A 26	E B J A 15	33	33	35	38	G 27	G 26	G 23	G 20	26	J A 26	J A 26	22	E B 15	E B 15	E B 15	B J A 29
26	J A 29	J A 19	J A 20	J A 24	19	21	E B 15	19	27	31	36	40	J A J A 43	40	34	J A 37	J A J A 30	J A 28	J A 39	J A 33	J A 18	J A 21	J A 20	E B 14
27	E B 15	E B 15	20	21	J A 24	E B 15	E B 16	J A 18	J A 30	32	G 24	37	40	38	J A 41	J A 39	J A 37	J A 25	J A 32	J A 30	J A 23	20	J A 18	J A 40
28	J A 17	E B 15	19	21	J A 23	J A 20	20	20	J A 41	J A 72	J A 43	J A 38	36	G 26	32	29	25	J A 54	J A 48	J A 32	J A 46	J A 35	J A 30	24
29	20	20	E B 15	E B 15	20	J A J A 30	J A 29	J A 24	26	31	36	38	41	J A 46	J A 49	J A 52	J A J A 31	J A 44	J A J A 64	J A 45	J A 28	20	22	20
30	20	E B 15	E B 15	E B 15	19	20	J A 43	J A 21	25	G 22	G 27	G 26	G 20	35	34	33	J A 34	J A 44	J A 63	J A 30	19	E B 15	E B 14	E B 15
31	E B 15	E B 15	E B 15	E B 14	E B 14	E B 15	E B 14	E B 14	G J A 22	G 32	29	32	35	37	J A 54	J A 93	J A J A 65	J A 58	J A 44	J A 58	J A 24	J A 21	E B 15	E B 15
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	31	31	31	31	31	29	29	29	29	29	29	31	31	31	31	31	31	31	31
MED	E B 16	E B 15	E B 15	E B 15	E B 15	17	19	18	26	31	34	34	33	G	32	28	22	20	J A 19	19	18	20	E B 16	E B 15
U Q	J A 20	J A 20	20	20	20	20	20	J A 20	J A 29	J A 32	J A 36	38	36	34	34	J A 32	J A 27	J A 26	J A 32	27	J A 23	J A 22	21	J A 22
L Q	E B 15	E B 15	E B 15	E B 14	E B 15	E B 15	E B 15	E B 15	G	G 24	G 31	G 28	G 27	G 26	G 25	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. 2009 foEs (0.1MHz)

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IONOSPHERIC DATA STATION Kokubunji

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

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E B 15	E B 14	E B 15	E B 14	E B 15	E B 16	E B 14	E B 14	G	30	31	37	38	30	33	30	20	16	E B 15	E B 15	17	E B 15	E B 14	E B 15
2	E B 15	E B 14	E B 14	E B 14	E B 14	E B 14	E B 15	E B 14	G 20	31	32	32	24	G	30	21	20	E B 14	E B 16	E B 15	E B 15	E B 14	E B 15	E B 15
3	E B 14	E B 15	E B 15	E B 15	E B 16	E B 14	E B 15	E B 15	23	26	28	34	34	32	G 24	G 20	20	E B 15	E B 16	E B 15	17	E B 15	E B 14	E B 14
4	E B 14	E B 15	E B 15	E B 15	E B 15	E B 14	E B 15	E B 15	23	27	30	32	34	30	G 22	G 21	G	E B 15	E B 14	E B 15	E B 15	17	E B 15	16
5	16	E B 16	E B 15	E B 15	16	E B 15	E B 15	E B 14	G 18	30	39	43	32	G 20	G 24	25	G 17	22	16	E B 15	17	17	16	17
6	E B 15	E B 15	E B 15	E B 14	E B 14	E B 15	E B 15	E B 13	24	G 21	32	31	G 24	G 27	G 22	27	21	E B 15	E B 15	E B 14	E B 14	E B 14	E B 14	E B 15
7	E B 15	E B 14	E B 15	E B 14	E B 15	E B 15	E B 15	E B 15	G	28	31	32	30	G 22	30	25	19	E B 16	17	E B 15	E B 14	E B 16	E B 16	E B 14
8	E B 15	17	E B 16	E B 15	16	E B 16	E B 15	E B 15	G	G 20	30	G 24	G 25	G 22	G	25	22	18	16	18	16	17	E B 15	E B 16
9	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	28	C	C	C	C	C	C	21	E B 15	E B 16	E B 15	E B 15	E B 15	E B 14	E B 14
10	E B 15	E B 15	E B 15	E B 14	E B 14	E B 14	E B 15	E B 15	21	27	G 24	34	33	G 25	G 24	G 22	G	E B 14	E B 14	E B 15	E B 15	E B 15	E B 16	E B 15
11	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	E B 14	G	28	33	36	35	32	G 22	28	22	20	E B 14	E B 16	E B 14	E B 15	E B 15	E B 15
12	E B 14	E B 16	E B 15	E B 15	E B 15	E B 15	E B 15	E B 19	26	G 20	33	G 25	32	G 27	G 23	G	G 17	E B 13	E B 15	E B 14	E B 16	14	E B 16	E B 16
13	E B 16	E B 15	E B 15	E B 15	E B 14	E B 15	E B 16	18	26	31	31	G 28	G 24	G 21	31	27	G	E B 14	E B 15	E B 15	E B 15	15	E B 15	E B 15
14	E B 16	E B 15	E B 15	E B 15	E B 15	E B 16	E B 15	17	24	G 20	33	G 27	G 25	30	30	26	G 17	20	20	E B 15	E B 16	E B 15	E B 14	18
15	E B 15	E B 16	E B 16	E B 14	E B 15	E B 15	E B 15	E B 15	26	G 22	32	33	G 26	33	31	28	G 20	19	A A 45	23	22	17	E B 15	E B 16
16	E B 15	E B 16	E B 14	E B 15	E B 16	A A 22	16	E B 16	G	28	33	32	31	30	30	G 20	G	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	E B 16
17	E B 16	E B 15	E B 15	E B 15	E B 14	E B 15	E B 15	18	28	G	34	G 24	G 22	G 25	G 31	G 25	22	E B 16	E B 14	E B 15	E B 15	E B 15	E B 15	E B 15
18	E B 15	E B 15	E B 15	E B 14	E B 15	E B 15	E B 15	E B 15	G 19	30	34	G 26	G 28	G 26	G 30	G 20	G	E B 16	E B 14	E B 15	E B 15	E B 15	E B 16	E B 14
19	E B 15	E B 15	E B 15	E B 15	E B 14	E B 14	E B 15	16	24	G 18	35	34	G 25	32	G 20	30	22	18	17	E B 15	E B 14	E B 14	E B 15	E B 15
20	E B 16	E B 15	E B 14	E B 15	E B 14	E B 15	E B 14	20	27	32	C	C	C	C	C	C	G	E B 15	E B 15	E B 15	E B 15	E B 16	E B 14	E B 15
21	16	15	E B 15	E B 14	E B 15	17	A A 26	18	G 20	31	34	34	33	G 25	G	G 20	G	E B 16	E B 15	E B 15	E B 15	E B 15	E B 15	E B 14
22	E B 15	E B 15	E B 16	E B 14	E B 16	E B 15	E B 15	E B 16	G 19	30	G	G	32	G	G 28	G 26	G	E B 14	E B 15	A A 42	E B 15	E B 16	17	16
23	E B 16	E B 14	E B 15	E B 15	E B 15	E B 14	E B 15	E B 15	G	G 23	G 22	G 25	G 22	G 21	G 21	G 21	G	E B 15	E B 14	E B 16	E B 14	E B 15	E B 14	E B 15
24	E B 15	E B 16	E B 15	E B 16	E B 15	E B 15	E B 15	E B 17	26	32	32	34	G 22	G 23	32	30	27	E B 16	E B 15	E B 14	E B 15	E B 15	E B 15	E B 14
25	E B 16	E B 16	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	22	31	33	34	G 26	G 26	G 21	G 20	24	22	18	19	E B 15	E B 15	E B 15	19
26	E B 15	E B 16	E B 15	19	E B 14	E B 14	E B 15	18	26	29	33	37	38	37	32	30	24	23	A A 39	22	E B 15	E B 15	E B 16	E B 14
27	E B 15	E B 15	E B 16	E B 15	E B 15	E B 15	E B 16	E B 15	27	28	G 24	33	40	34	38	30	30	20	18	E B 15	E B 16	E B 15	E B 15	A A 40
28	E B 16	E B 15	E B 15	16	17	E B 15	15	20	26	43	G 25	33	34	G 25	31	27	22	21	23	17	20	20	18	E B 15
29	E B 16	E B 15	E B 15	E B 15	E B 14	A A 30	18	19	25	30	34	36	38	41	31	31	21	30	A A 64	A A 45	E B 15	E B 15	E B 15	E B 15
30	E B 16	E B 15	E B 15	E B 15	E B 14	E B 15	18	17	23	G 22	G 24	G 26	G 19	34	33	31	32	A A 44	A A 63	E B 15	E B 15	E B 15	E B 14	E B 15
31	E B 15	E B 15	E B 15	E B 14	E B 14	E B 15	E B 14	E B 14	G 20	28	G 27	30	34	35	42	A A 93	A A 65	A A 58	29	34	E B 15	16	E B 15	E B 15
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	31	31	31	31	31	29	29	29	29	29	29	31	31	31	31	31	31	31	31
MED	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	23	28	32	32	31	G	30	G	20	E B 16	E B 16	E B 15	E B 15	E B 15	E B 15	E B 15
U Q	E B 16	E B 16	E B 15	E B 15	15	E B 15	15	18	26	30	33	34	34	32	31	30	22	20	18	17	16	16	E B 16	16
L Q	E B 15	E B 15	E B 15	E B 14	E B 14	E B 15	E B 15	E B 15	G	G 23	G	G 28	G 24	G 25	G 24	G 21	G	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15

JAN. 2009 fbEs (0.1MHz)

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IONOSPHERIC DATA STATION Kokubunji

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

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

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

IONOSPHERIC DATA STATION Kokubunji

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

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	291	323	342	319	314	325	352	411	383	401	399	363	379	372	364	380	384	385	307	318	374	342	331	302
2	298	312	323	336	351	340	346	381	391	408	375	383	370	411	405	384	377	375	339	346	342	365	333	323
3	326	308	328	309	335	327	341	373	379	394	371	315	381	369	360	404	402	358	355	330	369	304	317	310
4	309	329	327	324	322	317	318	382	384	396	366	387	376	378	373	391	380	363	315	323	357	364	369	296
5	310	313	333	359	334	307	341	396	397	392	358	378	385	358	359	V 359	391	386	347	355	366	352	340	337
6	322	317	336	337	F	303	339	389	396	391	409	353	372	396	361	367	393	395	337	306	341	357	358	334
7	300	314	320	308	354	371	334	370	381	383	359	337	374	350	386	390	393	381	313	316	369	374	380	321
8	328	323	335	338	316	324	342	375	400	409	369	373	393	380	400	376	393	397	336	340	348	352	354	327
9	F	307	346	318	327	318	F	388	396	397	C	C	C	C	C	C	401	376	326	335	341	354	349	352
10	328	328	319	357	377	348	362	397	399	405	375	376	376	373	368	357	374	376	357	358	390	342	340	327
11	338	F	F	F	F	F	F	382	399	378	391	353	360	368	373	359	404	373	313	348	352	360	334	320
12	311	316	F	F	F	331	F	404	372	399	359	371	319	382	386	373	385	398	308	334	342	380	366	317
13	329	F	F	F	348	422	367	389	403	386	405	373	354	334	345	386	387	374	363	351	375	305	320	328
14	316	310	324	340	339	366	347	394	396	388	368	354	395	353	378	366	390	390	329	337	310	363	346	308
15	288	319	332	365	353	329	353	365	367	378	369	354	331	387	350	342	378	369	A	351	375	388	319	F
16	F	F	F	F	359	A	322	372	381	372	355	365	335	380	367	367	400	367	340	373	349	362	328	304
17	316	326	324	386	404	362	335	391	404	377	387	369	385	337	365	372	393	388	342	346	371	355	344	323
18	308	329	344	366	365	331	354	361	403	389	343	362	366	356	373	385	392	361	365	369	329	336	324	306
19	F	315	340	340	360	401	331	396	395	381	364	337	391	350	359	381	386	399	325	354	344	316	293	F
20	F	F	F	359	436	F	364	396	394	383	C	C	C	C	C	C	377	373	356	345	355	F	F	F
21	F	F	340	376	351	344	A	374	401	346	343	375	379	376	361	378	382	374	371	339	380	339	328	319
22	313	334	367	380	324	334	344	384	402	370	366	384	377	294	348	363	383	389	362	A	338	350	316	312
23	335	351	331	338	386	338	334	382	386	340	375	367	381	313	373	373	379	372	350	327	350	371	327	316
24	F	F	F	F	F	348	337	368	387	374	386	384	382	395	366	379	378	368	345	341	359	363	372	332
25	316	328	388	376	384	F	F	368	383	353	380	387	387	347	368	393	388	390	373	332	348	341	344	317
26	317	346	320	350	397	365	F	371	382	360	372	385	356	359	374	383	403	378	A	371	337	F	F	F
27	328	334	309	325	335	359	363	356	361	317	355	396	400	360	407	397	393	362	371	326	320	334	363	A
28	F	327	329	337	370	357	338	376	360	358	355	378	375	386	371	366	382	371	366	357	314	339	339	337
29	297	353	345	358	346	A	395	356	396	389	348	339	350	382	359	383	389	394	A	A	336	F	F	298
30	327	344	344	345	340	F	347	396	360	349	346	350	372	367	379	393	407	A	A	310	353	361	308	324
31	F	F	F	F	355	354	348	386	376	391	358	355	371	375	334	A	A	A	338	368	348	359	357	F
	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	23	24	24	25	27	25	25	31	31	31	29	29	29	29	29	28	30	29	27	29	31	28	28	25
MED	316	324	332	340	351	340	344	382	391	383	368	369	376	369	368	378	388	376	342	341	349	354	340	320
U Q	328	332	343	362	370	360	354	394	399	394	378	380	384	381	376	386	393	390	362	354	369	363	356	328
L Q	308	314	324	330	335	326	336	371	381	370	356	354	363	352	360	366	382	370	326	328	341	340	326	309

IONOSPHERIC DATA STATION Kokubunji

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

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1									L	A	A	A	A	U L 426	A	A								
2											L	L	U L 392	L	L	L								
3										L	L	U L 390	A	L	L	L								
4											L	A	L	L	L									
5											A	A	L	L	L	L								
6												424	U L 415		L	A								
7										L	L	U L 401	409		A									
8											L	L	L	L	L									
9											C	C	C	C	C	C								
10									L	L	U L 417	A	A	L	L	L								
11									L	A	A	A	A	L	L									
12										A	A	U L 405	U L 383	U L 382	L	L								
13												U L 386	U L 400		A	A								
14											L	L	U L 431	U L 421		L								
15										L	L	L	U L 387	A	A	L								
16											L	L	U L 384	L	L	L								
17											L	U L 427	436	393	L	L								
18												U L 387	388	L	L	L								
19										L	A	U L 357	U L 389	U L 398	L									
20											C	C	C	C	C	C								
21											A	L	U L 395	L	U L 401	L								
22										L	390	U L 401	L	U L 426	A	L								
23									L	U L 388	U L 406	L	L	U L 406	L	L								
24											L	A	L	U L 445										
25										L	L	U L 406	L	U L 454	L	L								
26											U L 391	A	A	A	A									
27										U L 369	U L 375	U L 394	A	L	A	A								
28										A	U L 393	417	U L 412	L		L								
29												U L 376	A	A	L	A								
30										L	U L 374	385	408	U L 400	L	A		A						
31									L	L	U L 416	437	411	U L 397	A	A	A	A						
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT										2	8	15	15	11	1									
MED										U L 378	U L 392	U L 401	U L 400	U L 406	U L 401									
U Q											U L 411	417	U L 412	U L 426										
L Q											U L 382	U L 386	U L 388	U L 397										

JAN. 2009 M(3000)F1 (0.01)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

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

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1									206	214	198	256	242	236	232	222								
2											244	246	244	214	218	240								
3										218	246	334	228	246	244	210								
4											252	220	242	230	244									
5											272	236	228	266	244	230								
6												260	244		238	246								
7										246	246	288	238		210									
8											248	232	220	238	218									
9											C	C	C	C	C	C								
10									218	228	236	230	242	244	254	240								
11									208	220	238	258	254	240	238									
12										218	236	250	312	232	234	224								
13												250	262		274	230								
14											260	246	220	262		252								
15										234	244	256	272	224	234	260								
16											268	244	288	236	250	238								
17											246	260	238	296	250	248								
18												252	248	260	234	228								
19										232	264	288	224	268	254									
20											C	C	C	C	C	C								
21											262	240	236	238	256	242								
22										246	252	234	254	396	282	240								
23									224	294	248	264	246	336	250	246								
24											248	238	254	238										
25										266	238	238	246	280	246	238								
26											250	246	278	252	242									
27										306	260	218	234	258	216	238								
28										E A 270	258	252	242	234		246								
29												302	274	250	258	232								
30										266	284	272	248	264	242	228		A						
31									232	238	268	276	244	262	E A 302	A	A	A						
	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	25	29	29	26	26	21								
MED									218	236	248	250	244	248	244	238								
U Q									228	266	261	262	254	264	254	246								
L Q									207	220	244	238	237	236	234	229								

JAN. 2009 h′F2 (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

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

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E B 308	E B 258	E B 250	E B 252	E B 284	E B 296	226	192	H 172	A	A	A	A	178	A	A	204	186	216	224	200	206	E B 244	E B 290
2	E B 308	E B 280	E B 256	E B 228	E B 234	216	E B 242	204	214	208	198	202	194	196	188	196	214	196	E B 226	E B 240	216	218	228	E B 264
3	E B 276	E B 276	E B 250	E B 258	E B 244	E B 262	232	216	204	190	184	202	A	204	200	H 184	194	186	198	E B 244	200	E B 294	E B 264	E B 276
4	E B 270	E B 240	E B 258	E B 258	E B 270	E B 282	E B 286	212	198	214	190	A	196	194	192	H 180	210	200	E B 242	E B 262	E B 232	218	206	E A 298
5	E A 298	E B 260	E B 264	224	E A 266	E B 284	E B 264	196	204	214	A	A	206	186	202	186	190	198	E A 270	216	224	218	E B 234	228
6	E B 268	E B 270	E B 250	E B 250	E B 254	E B 278	E B 270	206	210	204	198	188	182	220	188	A	200	190	E B 254	E B 278	212	E B 226	216	E B 272
7	E B 290	E B 286	E B 256	E B 260	216	194	E B 252	206	H 184	204	202	200	194	196	A	204	204	210	E A 286	E B 264	210	202	200	E B 278
8	E B 256	E A 266	E B 256	E B 230	E A 276	E B 238	E B 262	202	206	202	210	202	196	198	190	214	198	198	E A 254	E A 232	206	208	206	E B 270
9	E B 280	E B 278	E B 236	228	E B 250	E B 234	E B 232	200	206	218	C	C	C	C	C	C	210	186	E B 246	E B 232	214	206	216	224
10	E B 264	E B 248	E B 266	220	200	E B 250	212	194	182	194	182	A	A	210	194	188	H 166	192	216	214	208	220	218	E B 238
11	210	E B 246	208	212	226	206	196	192	168	A	A	A	A	208	194	248	202	200	218	212	216	208	214	E B 264
12	E B 282	E B 278	E B 286	E B 270	208	180	276	204	202	A	A	198	204	212	194	202	210	192	E B 260	E B 248	216	196	214	E B 266
13	E B 260	E B 272	E B 286	E B 270	E B 232	188	E B 250	206	194	206	194	188	204	202	A	A	206	194	208	206	200	E A 282	E B 250	E B 262
14	E B 284	E B 284	E B 260	226	226	206	E B 240	202	206	208	212	204	190	178	218	204	208	200	E A 278	E B 236	E B 238	218	224	E A 294
15	E B 296	E B 282	E B 246	220	222	E B 244	212	204	224	180	194	212	186	A	A	210	208	196	A	E A 256	212	208	E B 232	E B 306
16	E B 320	E B 296	E B 248	212	204	A	E A 298	210	208	214	214	204	200	198	208	202	206	194	E B 236	212	218	210	E B 244	E B 314
17	E B 276	E B 274	E B 246	212	188	216	E B 272	208	206	200	206	194	184	200	208	214	210	200	E B 252	E B 232	196	214	E B 230	224
18	E B 262	E B 260	E B 236	208	212	E B 270	E B 252	216	200	204	216	208	218	198	206	186	208	202	202	E B 220	E B 240	E B 216	E B 270	E B 282
19	E B 246	E B 266	E B 226	E B 240	220	E B 236	E B 278	192	200	194	A	E A 234	208	194	220	220	198	196	E A 286	212	204	E B 268	E B 312	E B 290
20	E B 262	E B 264	E B 270	E B 232	184	E B 284	E B 270	202	204	206	C	C	C	C	C	C	210	200	200	210	210	E B 244	E B 272	E B 292
21	E A 262	E A 268	E B 236	214	216	E A 322	A	210	208	E A 240	A	218	208	180	194	200	214	200	212	222	202	222	E B 252	206
22	E B 276	E B 238	210	180	E B 248	E B 240	E B 232	212	210	198	202	208	200	H 170	A	218	208	192	194	A	E B 234	222	E A 264	E A 290
23	E B 256	220	E B 232	E B 236	210	E B 226	E B 254	204	H 178	200	196	206	202	192	208	200	H 198	212	202	E B 254	E B 220	206	E B 246	E B 304
24	E B 260	228	E B 240	E B 232	E B 256	E B 236	E B 284	210	218	212	214	A	208	202	204	220	216	202	210	220	208	208	220	E B 266
25	E B 278	E B 264	208	210	212	E B 232	E B 250	206	212	214	210	196	188	184	202	198	218	200	204	228	202	E B 216	E B 236	E A 278
26	E B 256	E B 236	E B 262	E A 258	192	204	E B 248	210	210	206	E A 230	A	A	A	A	208	210	210	A	E A 234	E B 234	E B 288	218	E B 260
27	E B 250	210	E B 294	E B 266	E B 246	216	228	220	210	214	200	182	A	208	A	A	208	208	212	E B 242	E B 244	E B 232	214	A
28	E B 254	E B 266	E B 258	232	214	216	226	214	230	A	196	198	200	210	202	212	218	206	214	218	E A 298	E A 280	E A 236	E B 242
29	E B 280	E B 260	E B 234	212	E B 232	A	212	208	208	214	214	232	A	A	210	A	208	208	A	A	220	E B 260	E B 248	E B 286
30	E B 260	E B 236	E B 208	E B 246	E B 254	204	226	204	198	H 174	226	210	190	202	212	A	202	A	A	E B 244	214	194	E B 260	E B 242
31	E B 242	E B 232	E B 222	200	206	208	204	204	196	202	192	H 176	194	214	A	A	A	A	E A 274	E A 262	E B 230	212	192	E B 298
	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	29	30	31	31	27	23	22	22	26	21	22	30	29	27	29	31	31	31	30
MED	E B 268	E B 264	E B 250	E 230	U 207	E B 234	E B 249	206	206	205	201	202	198	198	202	203	208	200	U 206	E 232	209	213	E 232	E B 274
U Q	E B 282	E B 276	E B 260	E B 252	E B 250	E B 266	E B 270	210	210	214	214	208	204	208	208	214	210	202	E A 254	E B 246	E B 230	E B 232	E B 250	E B 290
L Q	E B 256	E B 240	E B 234	212	210	207	226	202	198	200	194	196	190	192	194	196	202	193	208	217	206	208	216	260

JAN. 2009 h′F (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

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

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1								B	112	120	124	120	120	118	120	A	A							
2								B	122	122	124	120	A	110	122	A	128							
3									124	112	116	116	118	114	122	116	B							
4								B	120	120	116	118	114	A	120	122	118							
5									124	126	126	A	126	122	118	118	112							
6								B	A	124	A	A	116	130	118	120	122	B						
7								B	122	120	122	A	A	118	118	126	114	B						
8								B	122	120	A	120	118	114	118	114	B	B						
9								B	112	122	C	C	C	C	C	C	A							
10								B	120	A	128	120	118	120	118	124	112	B						
11								B	116	120	126	116	114	110	116	124	110	B						
12								B	116	122	122	118	124	118	118	124	124							
13								B	126	122	116	126	116	114	118	120	126	B						
14								B	110	124	122	124	118	A	A	A	118	B						
15								B	128	128	A	124	116	120	114	122	128	B						
16								B	122	114	A	A	A	A	A	122	118	B						
17								B	128	118	122	128	124	132	124	112	112							
18								B	122	A	A	122	122	124	A	122	116	B						
19								B	A	122	A	A	122	120	114	112	114	B						
20								B	128	A	C	C	C	C	C	C	124							
21									116	A	A	A	A	116	114	112	120							
22								B	114	120	118	116	A	110	122	118	114	B						
23								B	116	124	120	120	112	116	118	124	112	B						
24								B	118	116	114	114	114	120	118	122	118	B						
25								B	A	120	120	114	122	116	120	116	116	B						
26								B	114	120	120	116	A	A	116	A	A	B						
27								B	A	118	120	A	A	A	A	A	A	B						
28								B	A	A	118	A	118	124	A	122	120	B						
29								B	110	124	120	116	114	116	A	A	A	B						
30								B	118	114	122	120	114	104	116	118	A	B						
31								B	126	A	120	A	A	118	116	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									26	25	22	20	21	24	23	22	22							
MED									120	120	120	120	118	118	118	121	118							
U Q									124	123	122	121	122	120	120	122	122							
L Q									116	119	118	116	114	114	116	116	114							

JAN. 2009 h′E (KM)

IONOSPHERIC DATA STATION Kokubunji

JAN. 2009 h'Es (KM) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	B	B	B	B	B	B	B	B	G	166	140	154	122	126	132	104	104	106	102	102	92	B	B	B
2	B	B	B	B	B	B	B	98	116	128	140	150	98	G	114	114	148	B	94	96	B	B	B	B
3	B	B	94	B	B	B	B	B	164	154	118	150	126	116	104	104	126	B	92	94	90	90	B	B
4	B	B	B	B	B	B	B	B	128	126	122	158	126	104	106	106	G	B	100	B	B	98	102	100
5	102	96	B	B	104	100	96	B	108	128	124	104	116	106	106	122	98	92	94	100	96	106	106	104
6	100	98	102	B	B	100	94	B	108	104	106	102	94	108	98	138	144	B	B	B	B	B	B	B
7	102	100	B	96	94	94	98	94	G	120	120	104	104	98	154	134	110	90	90	B	B	B	B	B
8	B	98	92	96	98	B	92	B	G	102	106	102	104	100	G	142	128	92	90	90	90	98	B	B
9	B	B	94	94	B	94	B	90	152	118	C	C	C	C	C	C	92	98	B	90	94	B	B	B
10	84	B	102	96	B	B	B	B	124	106	108	124	128	102	104	106	G	B	B	B	B	B	110	B
11	B	B	B	B	B	B	B	96	G	156	148	126	126	120	102	158	140	96	B	B	B	104	B	B
12	B	96	B	B	B	B	B	138	132	100	124	108	120	108	102	G	106	B	B	B	92	92	98	90
13	92	B	B	B	B	B	B	130	130	122	116	104	104	100	156	144	G	B	B	B	B	94	94	B
14	94	B	B	B	B	B	B	142	148	108	142	102	98	94	92	90	108	98	96	B	B	90	96	98
15	102	92	92	B	B	96	B	B	162	100	98	158	98	136	136	118	110	104	96	96	98	96	100	118
16	98	96	B	B	98	96	98	98	G	126	104	106	96	98	108	108	G	B	B	94	88	B	B	96
17	96	96	102	102	98	92	90	128	128	G	112	120	100	110	134	90	122	90	B	88	B	106	B	98
18	98	98	94	B	94	96	98	B	106	108	104	108	106	108	98	104	G	B	B	94	96	96	B	B
19	B	B	B	B	B	102	98	98	96	94	106	102	104	128	100	138	120	94	90	B	92	B	B	B
20	B	B	B	B	B	98	140	126	130	108	C	C	C	C	C	C	G	B	B	B	B	B	98	106
21	104	100	92	B	B	96	90	90	94	104	100	106	100	98	G	98	G	B	90	B	B	B	B	B
22	B	B	B	B	B	B	98	B	104	112	G	G	100	G	108	102	G	B	100	94	94	B	92	96
23	B	B	B	B	B	B	100	B	G	104	102	106	102	98	100	108	G	B	B	B	B	B	B	B
24	B	B	B	B	B	B	B	126	144	148	140	124	100	104	138	124	114	108	96	B	B	B	102	B
25	B	B	B	92	B	90	108	B	106	150	132	128	94	102	102	100	138	90	90	90	B	B	B	100
26	102	100	98	102	100	102	B	148	150	148	132	114	106	106	134	106	104	102	96	90	90	92	98	B
27	B	B	126	112	108	B	B	116	94	124	104	108	104	104	102	102	98	96	98	98	94	96	96	90
28	104	B	104	102	98	102	100	152	94	92	94	90	132	100	106	152	142	100	96	92	92	90	86	88
29	98	94	B	B	108	102	98	98	148	154	134	124	122	120	108	106	106	102	100	100	98	98	98	98
30	88	B	B	B	104	104	102	100	154	96	108	104	96	126	122	120	102	104	98	98	98	B	B	B
31	B	B	B	B	B	B	B	B	104	104	104	104	102	124	120	104	104	104	94	90	86	90	B	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	15	12	12	9	11	16	16	18	25	30	28	28	29	27	27	28	22	18	20	18	17	16	14	13
MED	98	97	96	96	98	97	98	108	128	115	114	108	104	106	106	107	110	98	96	94	92	96	98	98
U Q	102	99	102	102	104	102	100	130	148	128	132	125	121	120	132	129	128	104	98	98	96	98	102	102
L Q	94	96	93	95	98	95	95	98	105	104	104	104	99	100	102	104	104	92	91	90	90	91	96	93

IONOSPHERIC DATA STATION Kokubunji

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

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1										HL 11	HL 11	HL 21	CL 22	CL 22	CL 11	L 2	L 2	F 3	F 3	F 2	F 2			
2								L 2	L 2	CL 11	HL 11	HL 11	L 2		CL 11	L 2	H 1		F 2	F 2				
3			F 1						H 2	H 1	CL 11	HL 11	CL 22	CL 22	L 2	L 2	C 2		F 1	F 1	F 3	F 2		
4									C 2	C 2	CL 22	HL 22	CL 11	L 2	L 2	L 2			F 1			F 3	F 2	F 2
5	F 4	F 2			F 1	F 2	F 2		L 2	CL 22	CL 22	L 2	CL 22	L 2	L 2	CL 22	L 2	F 4	F 3	F 2	F 2	F 3	F 3	F 2
6	F 2	F 1	F 1			F 2	F 2		L 2	L 2	L 2	L 2	L 2	L 2	L 2	HL 12	H 2							
7	F 1	F 1		F 1	F 1	F 1	F 1	L 1		CL 11	CL 11	L 2	L 2	L 2	HL 12	HL 11	C 2	L 2	F 2					
8		F 2	F 1	F 1	F 2		F 2			L 1	L 2	L 2	L 2	L 2		HL 12	CL 11	L 1	F 2	F 2	F 2	F 1		
9			F 2	F 1		F 2		L 1	H 1	CL 12							L 2	L 2		F 2	F 1			
10	F 1		F 1	F 1					C 2	L 2	L 2	CL 11	CL 11	L 2	L 2	L 2							F 1	
11								L 1		HL 11	HL 21	CL 22	CL 12	CL 22	L 2	HL 11	HL 21	L 2				F 1		
12		F 1						H 2	C 2	L 2	CL 21	L 2	CL 12	L 2	L 2		L 2				F 2	F 2	F 1	F 2
13	F 2							H 2	C 2	CL 21	CL 11	L 2	L 2	L 2	HL 21	HL 11						F 2	F 1	
14	F 1							H 2	H 2	L 2	HL 22	L 2	L 2	L 2	L 2	L 3	L 2	L 3	F 3			F 3	F 2	F 3
15	F 2	F 1	F 1			F 2			HL 22	L 2	L 2	HL 12	L 2	HL 22	HL 12	CL 22	L 2	L 3	F 4	F 6	F 3	F 2	F 2	F 1
16	F 3	F 2			F 3	F 3	F 1	L 1		C 1	L 2	L 2	L 2	L 2	L 2	L 2				F 1	F 1			F 2
17	F 2	F 1	F 2	F 1	F 1	F 2	F 2	C 2	C 2		CL 12	L 2	L 1	L 1	CL 11	L 2	CL 11	L 1		F 1		F 1		F 2
18	F 2	F 2	F 2		F 2	F 1	F 1		L 2	L 2	L 2	L 2	L 2	L 2	L 2	L 2				F 1	F 1	F 1		
19						F 3	F 2	L 2	L 2	L 2	L 2	L 2	L 2	CL 11	L 2	HC 21	CL 22	L 2	F 2		F 1			
20						F 2	F 1	C 2	C 2	L 2													F 2	F 2
21	F 2	F 4	F 2			F 2	F 4	L 3	L 2	L 2	L 2	L 2	L 2	L 1		L 1			F 2					
22							F 2		L 2	CL 22			L 2		L 2	L 2			F 1	F 4	F 2		F 2	F 1
23							F 1			L 2	L 2	L 2	L 2	L 2	L 1	L 2								
24								C 2	H 2	HL 22	HL 22	CL 11	L 2	L 2	HL 12	CL 22	C 2	C 3	F 2				F 1	
25				F 2		F 1	F 2		LH 31	HL 22	CL 22	CL 22	L 2	L 2	L 2	L 2	HL 12	L 3	F 3	F 2				F 3
26	F 2	F 2	F 2	F 5	F 1	F 3		H 1	H 2	HL 22	HL 22	CL 22	L 2	L 2	CL 22	L 2	L 3	L 3	F 4	F 4	F 2	F 2	F 2	
27			F 2	F 3	F 3			C 1	L 3	CL 22	L 2	L 2	L 2	L 2	L 2	L 3	L 3	L 3	F 3	F 2	F 2	F 1	F 1	F 3
28	F 2		F 3	F 4	F 3	F 2	F 2	HL 22	L 3	L 3	L 3	L 2	CL 22	L 2	L 2	HL 12	HL 12	L 3	F 3	F 2	F 4	F 3	F 4	F 1
29	F 1	F 1			F 2	F 5	F 3	L 3	HL 11	HL 11	CL 11	CL 11	CL 11	CL 21	L 2	L 3	L 3	L 3	F 3	F 3	F 2	F 1	F 2	F 1
30	F 1				F 1	F 1	F 3	L 1	HL 11	L 2	L 1	L 1	L 1	CL 11	CL 22	CL 11	L 2	L 3	F 3	F 2	F 1			
31									L 2	L 2	L 2	L 2	L 2	CL 11	CL 21	L 3	L 3	L 4	F 4	F 4	F 2	F 2		
	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. 2009 TYPES OF Es

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

f-PLOTS OF IONOSPHERIC DATA

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

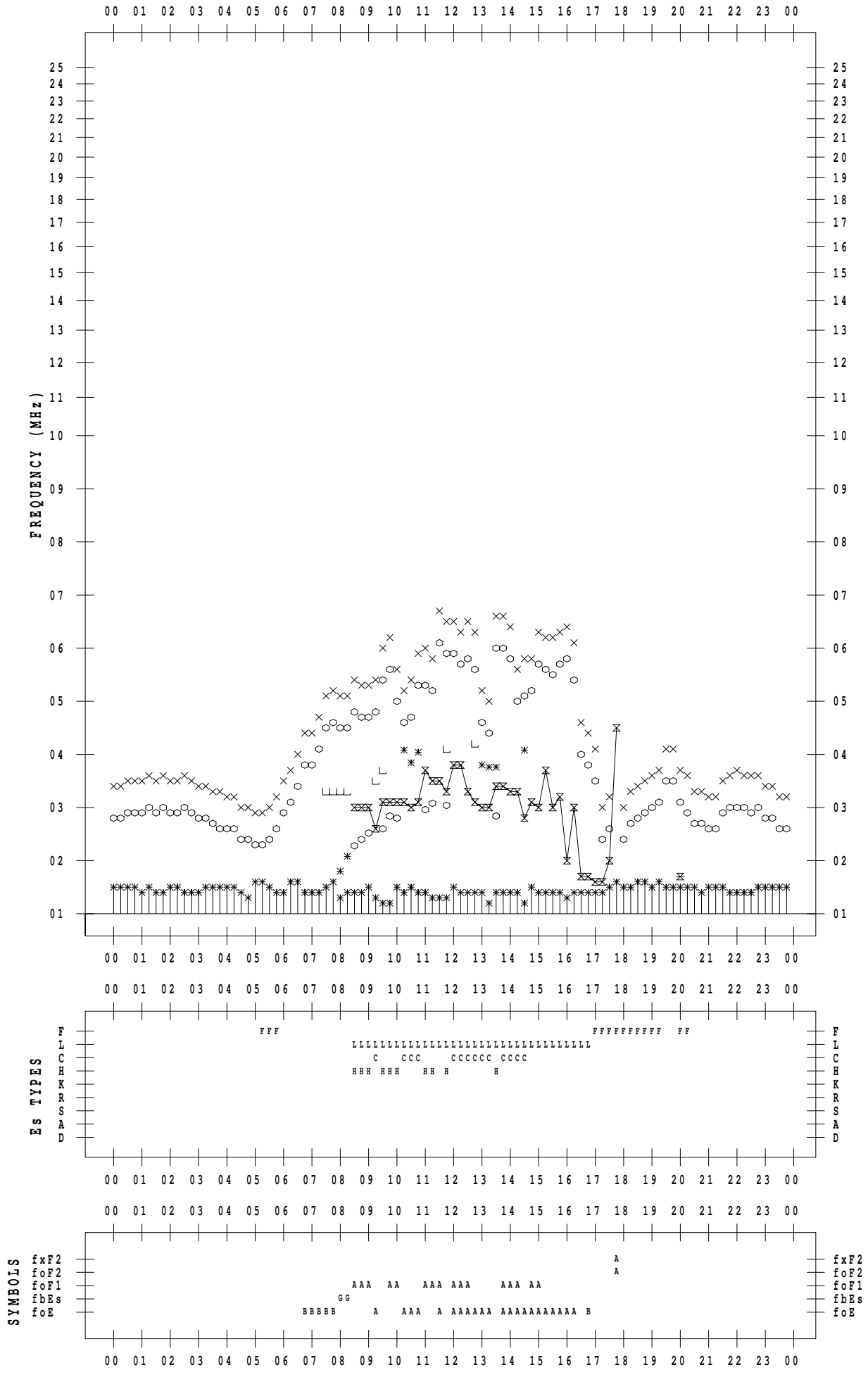
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2009/ 1/ 1

135 °E MEAN TIME



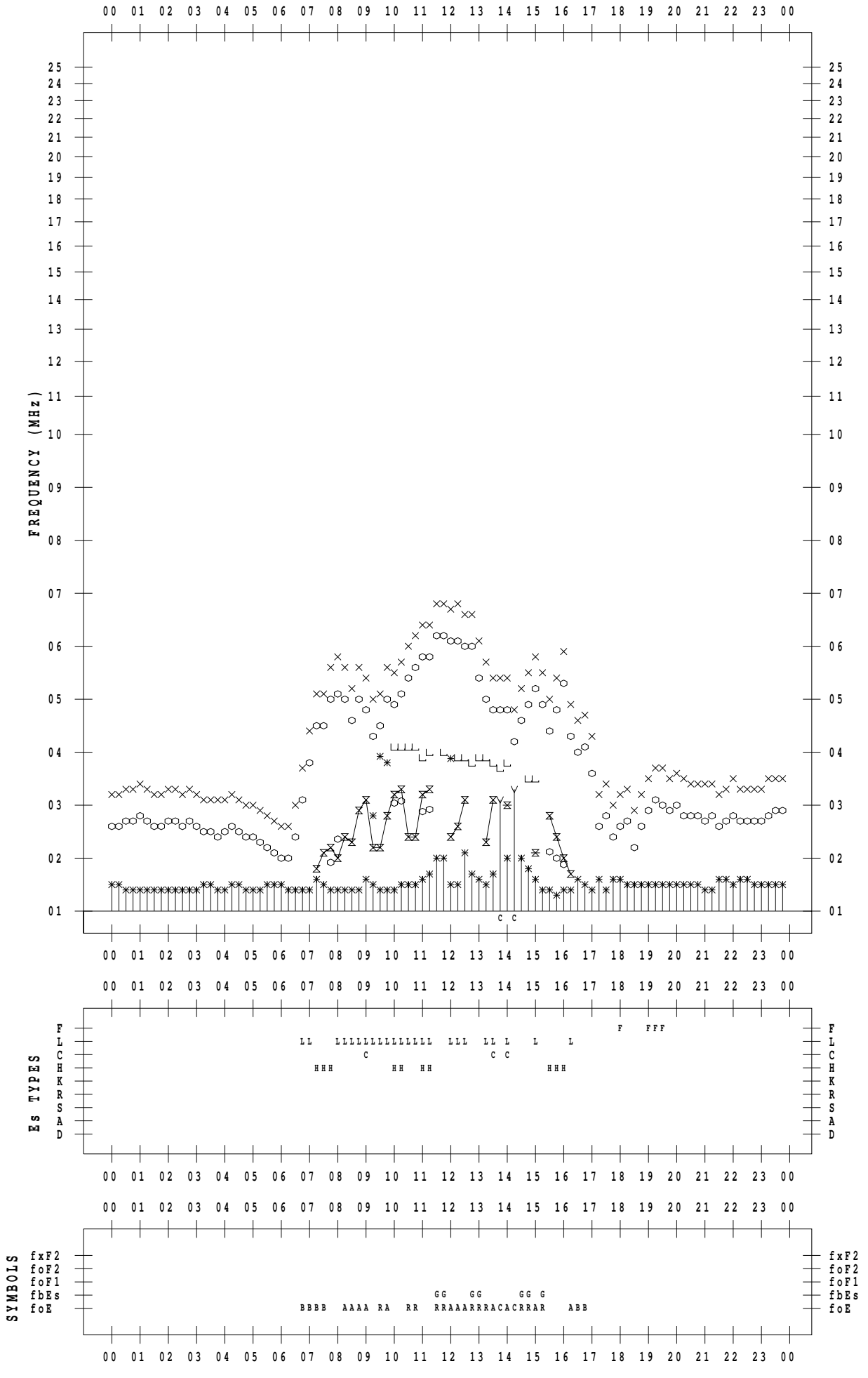
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2009/ 1/ 2

135 °E MEAN TIME



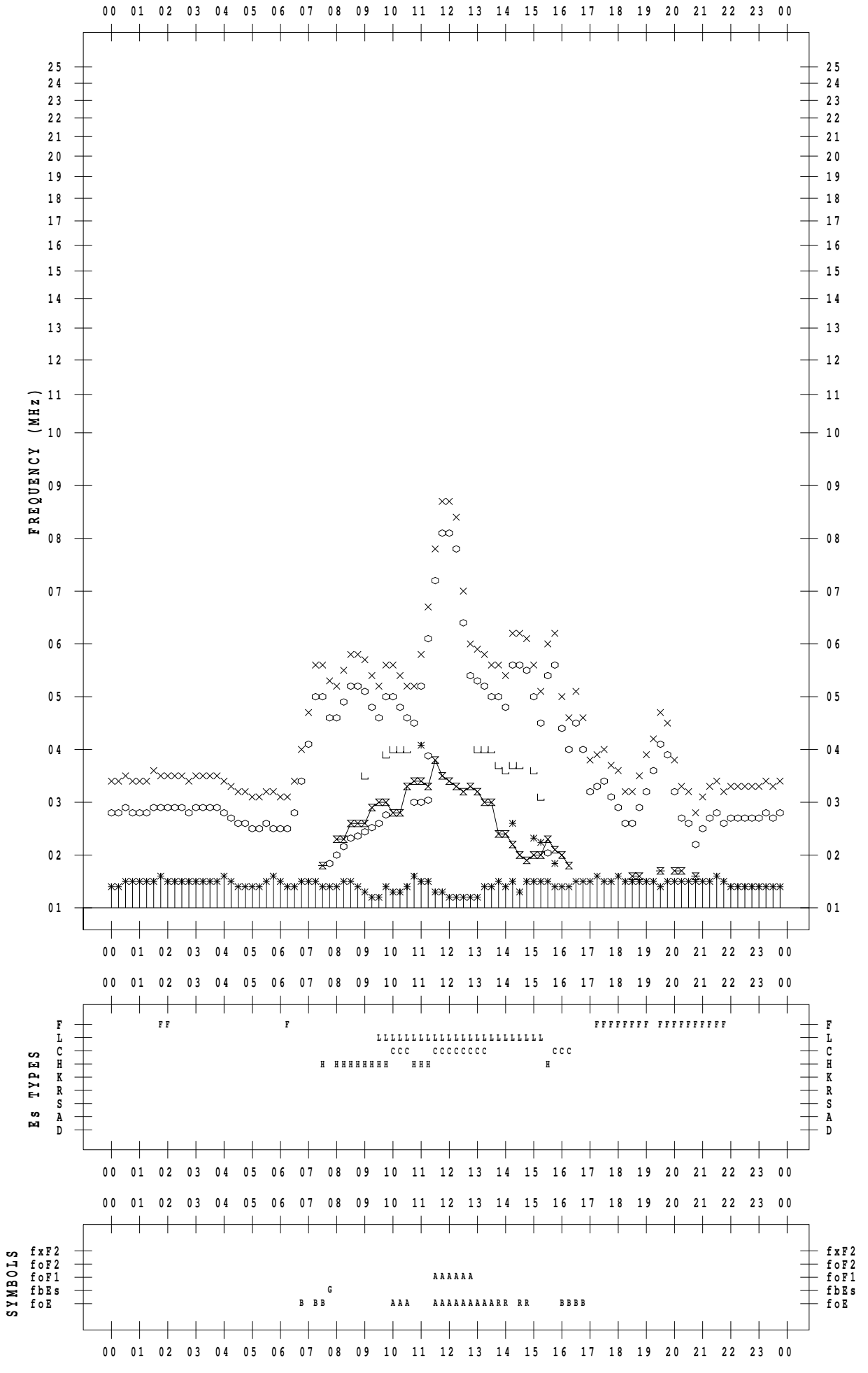
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2009/ 1/ 3

135 °E MEAN TIME



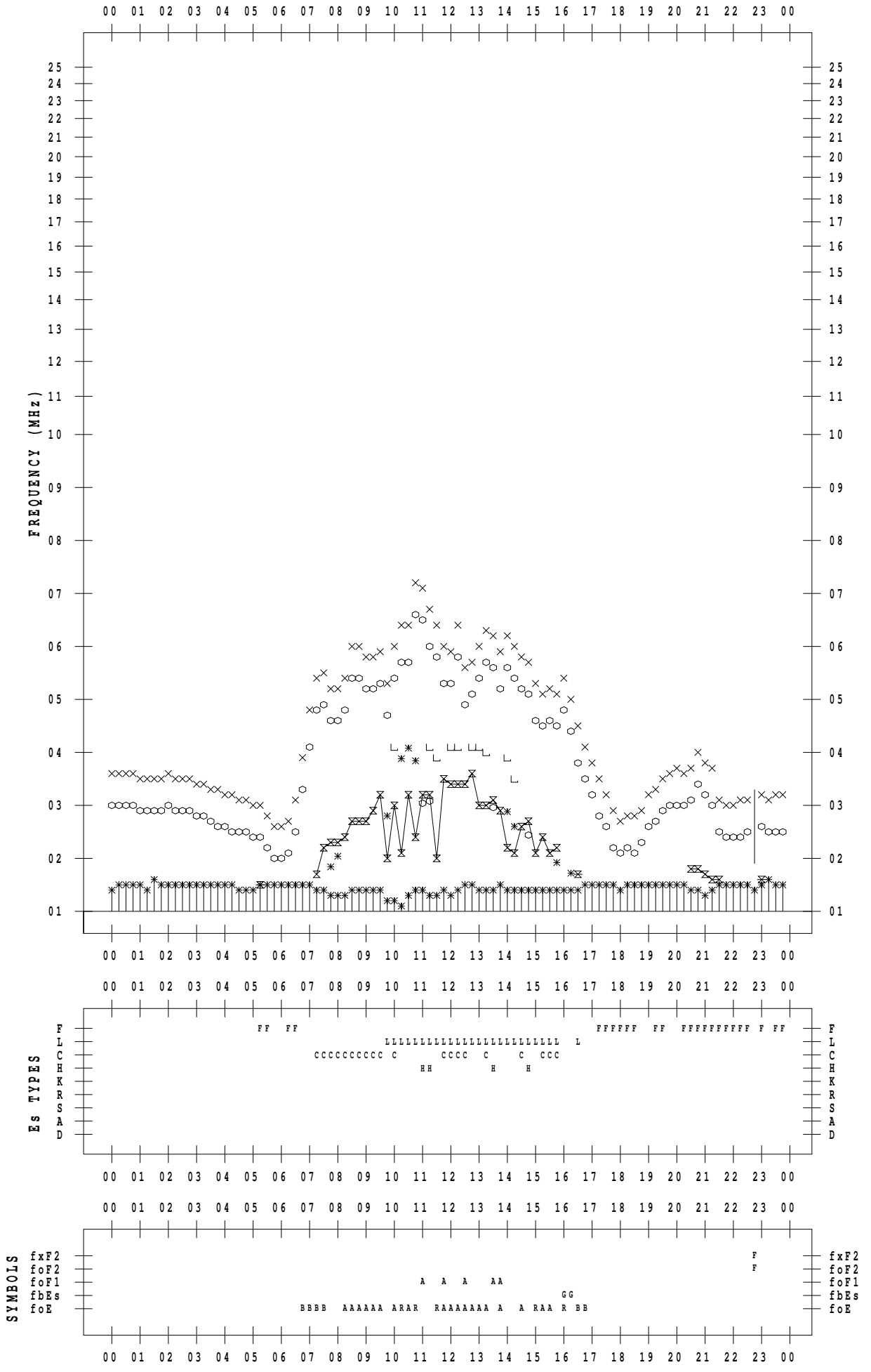
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2009/ 1/ 4

135 °E MEAN TIME



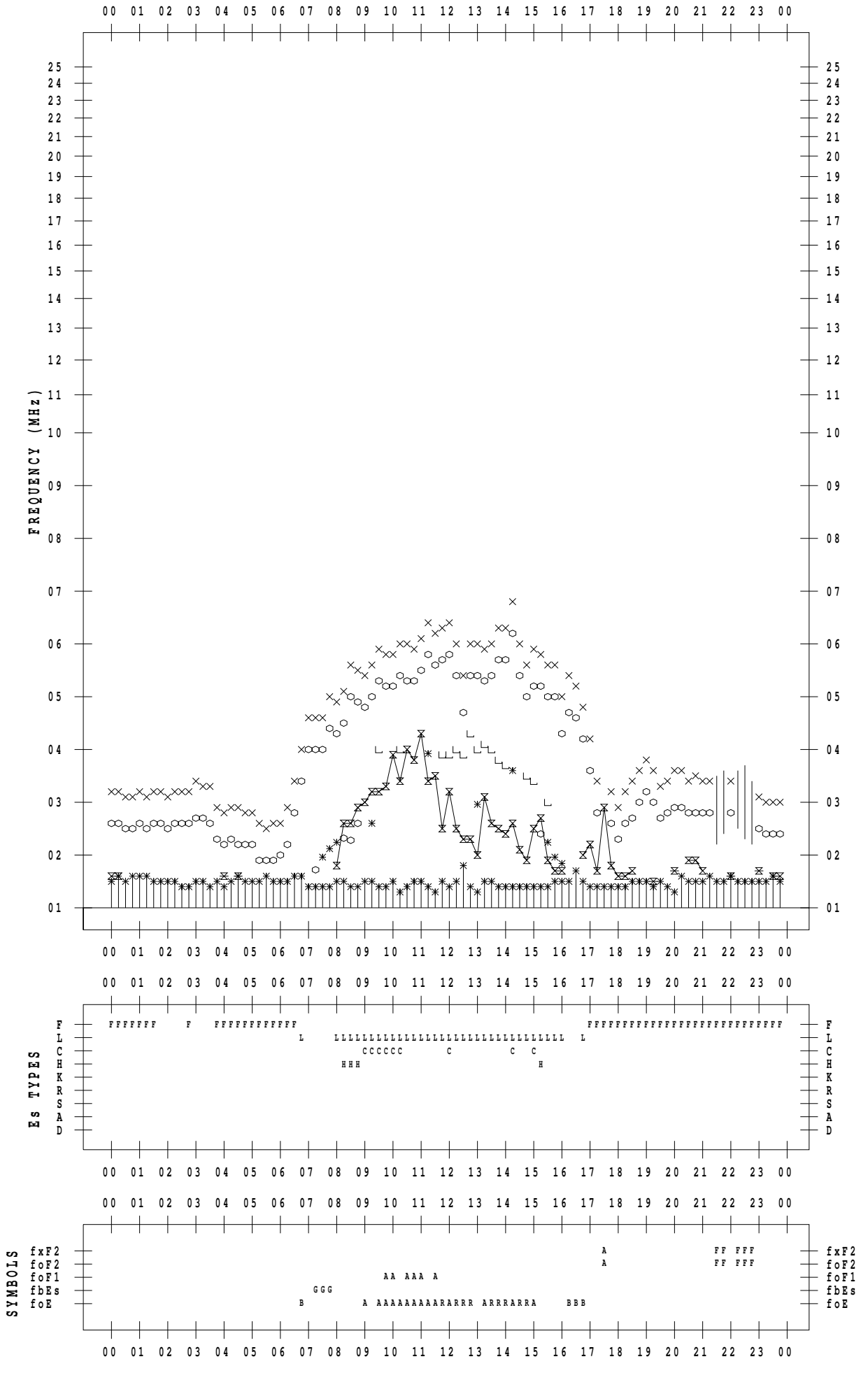
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2009/ 1/ 5

135 °E MEAN TIME



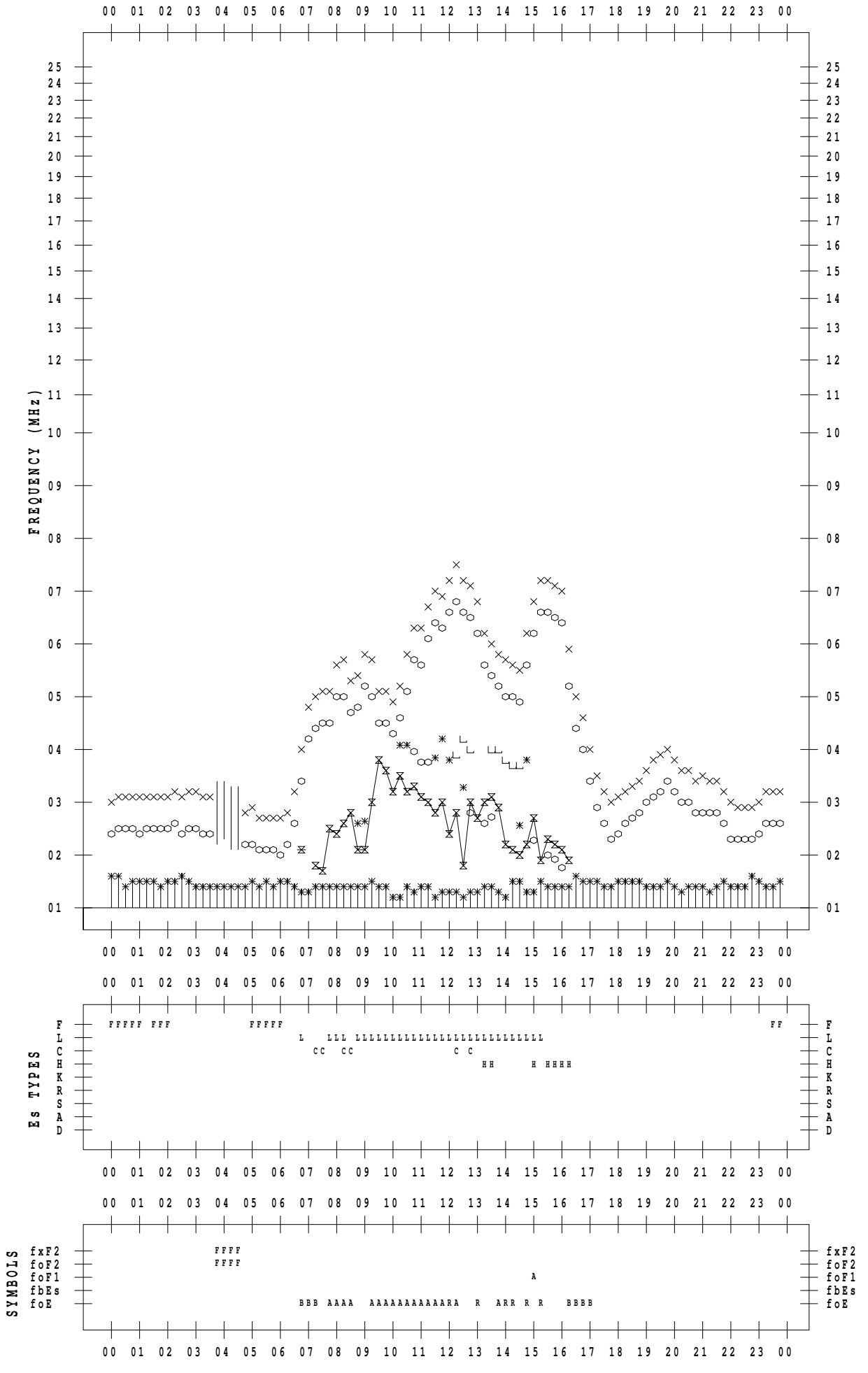
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2009/ 1/ 6

135 °E MEAN TIME



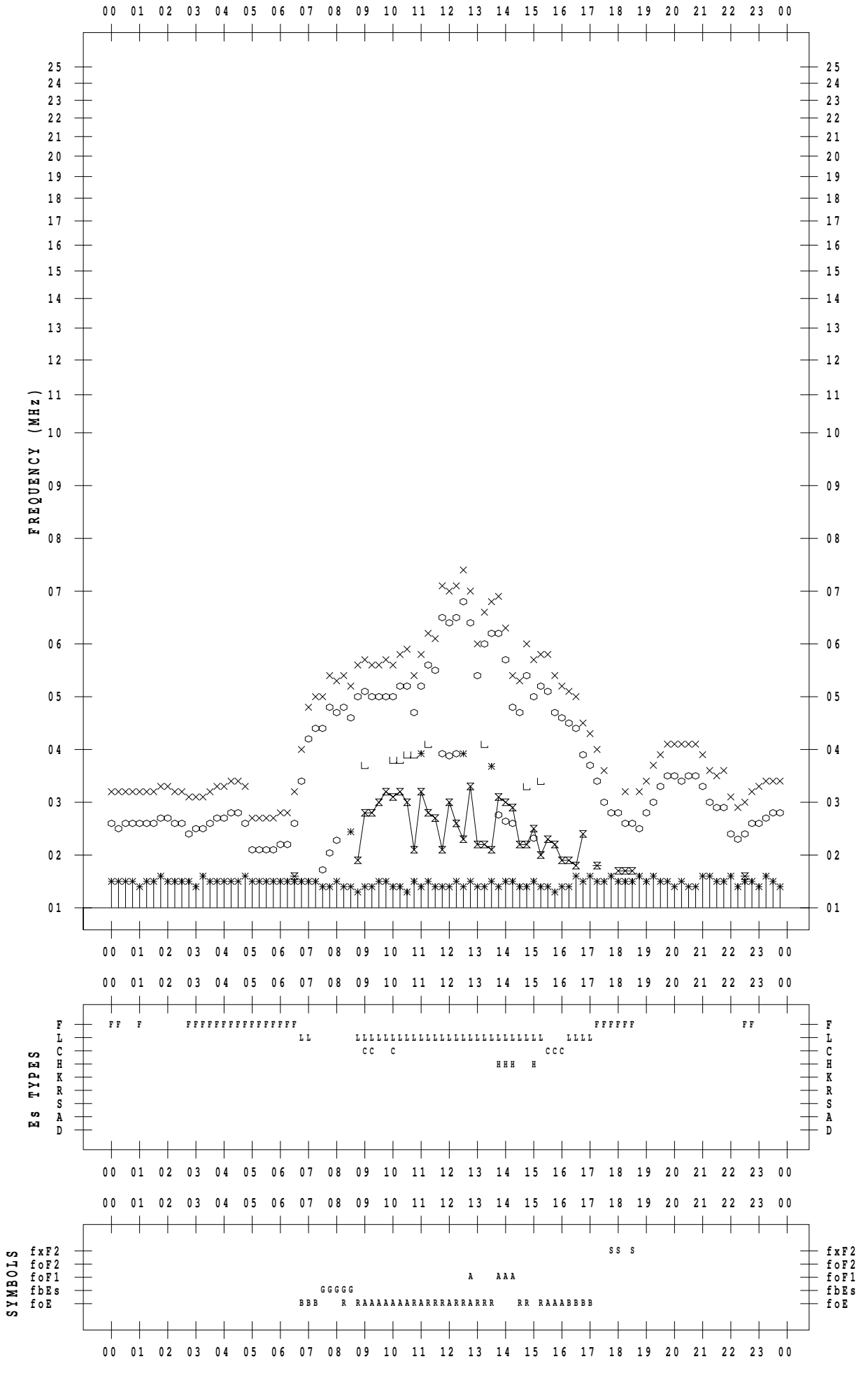
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2009/ 1/ 7

135 °E MEAN TIME



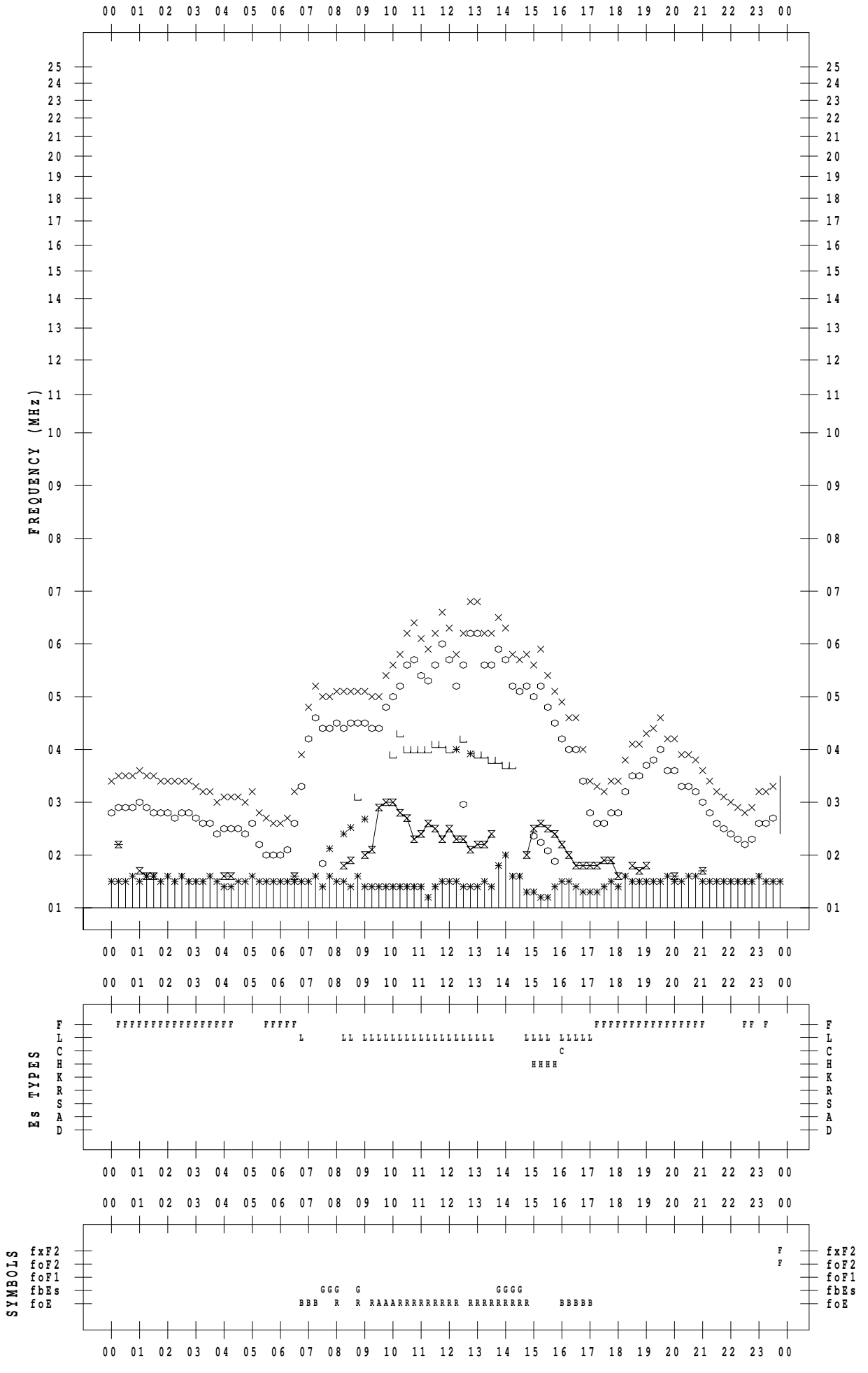
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2009/ 1/ 8

135 °E MEAN TIME



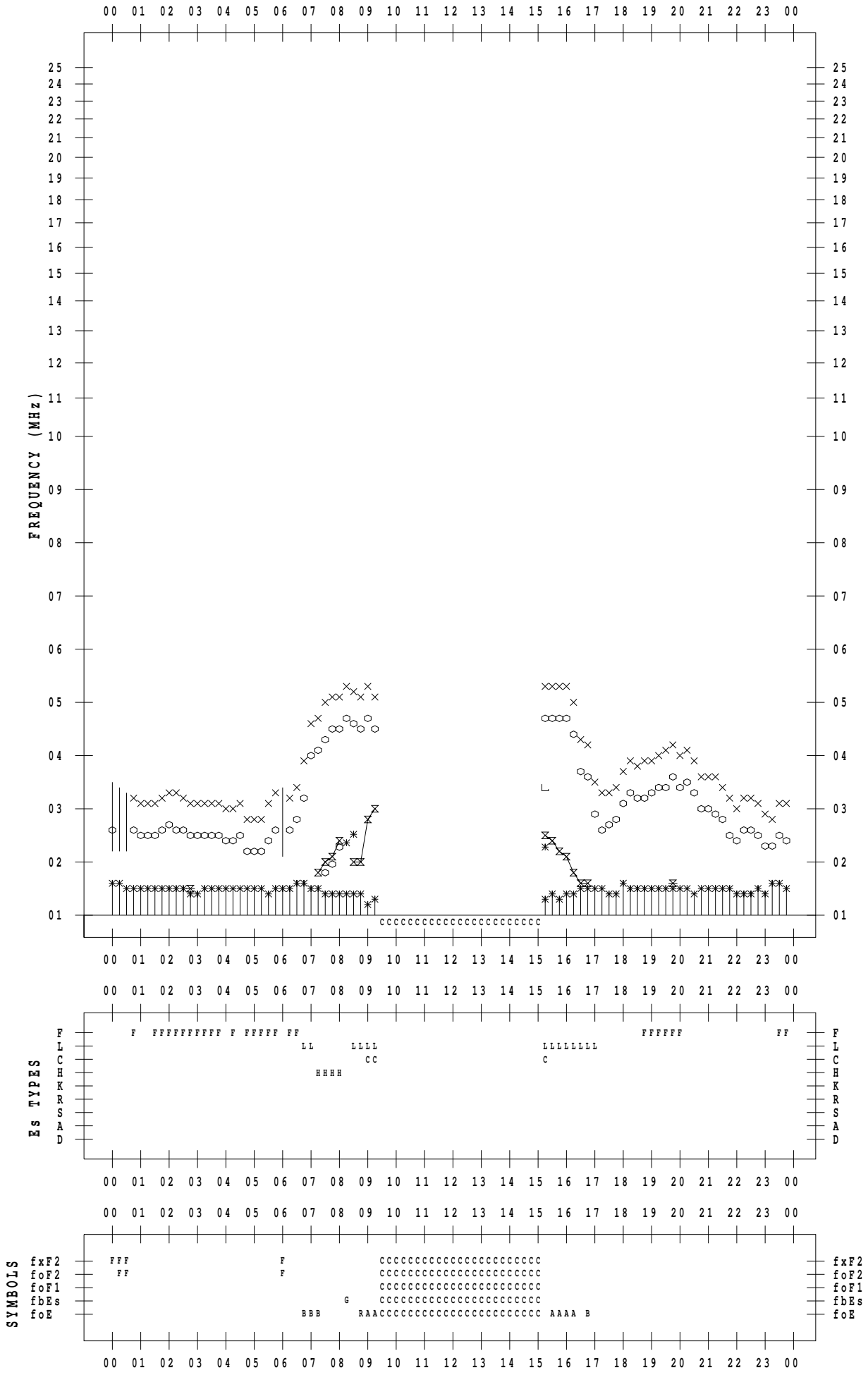
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2009/ 1/ 9

135 °E MEAN TIME



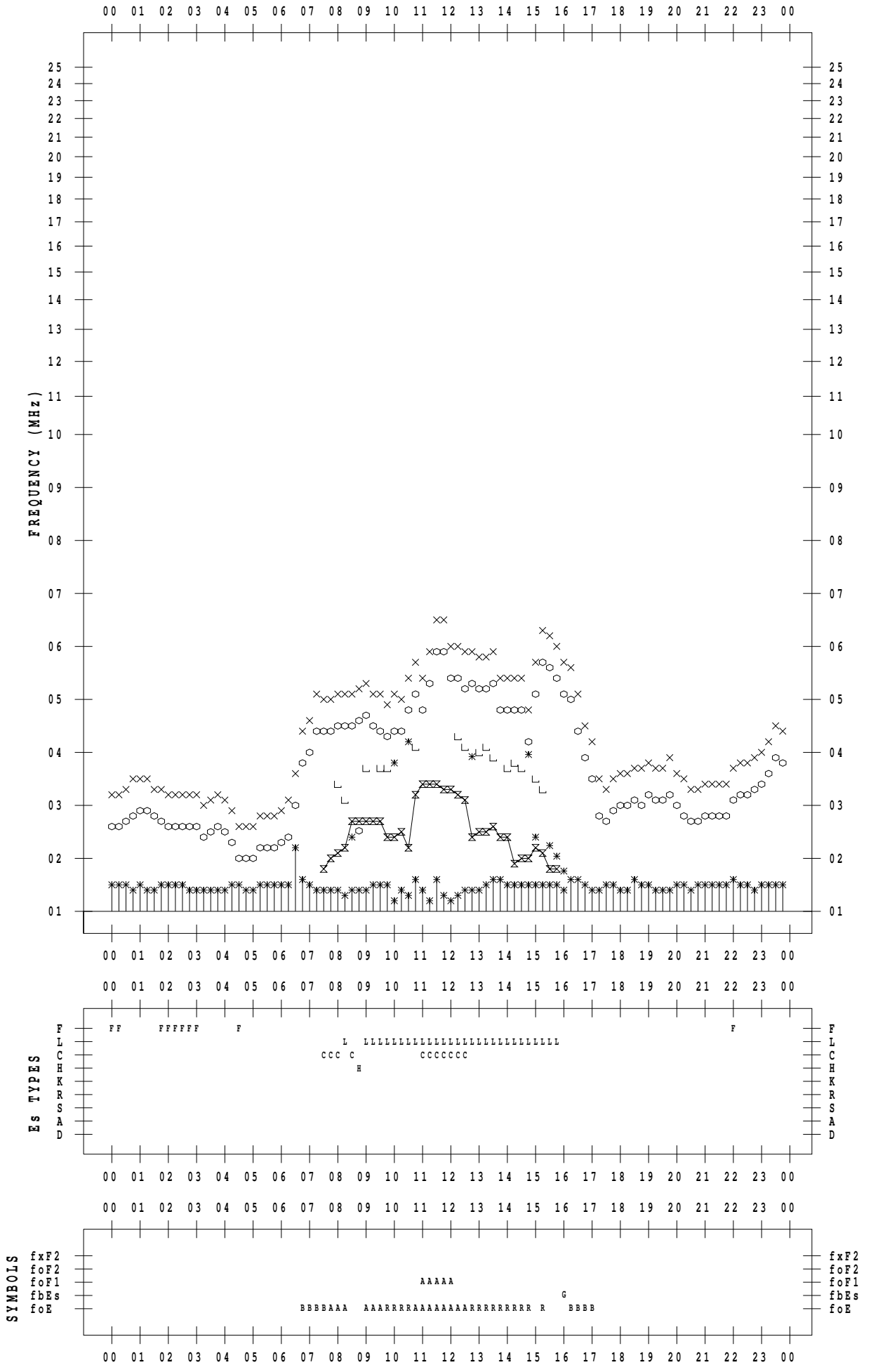
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2009/ 1/10

135 °E MEAN TIME



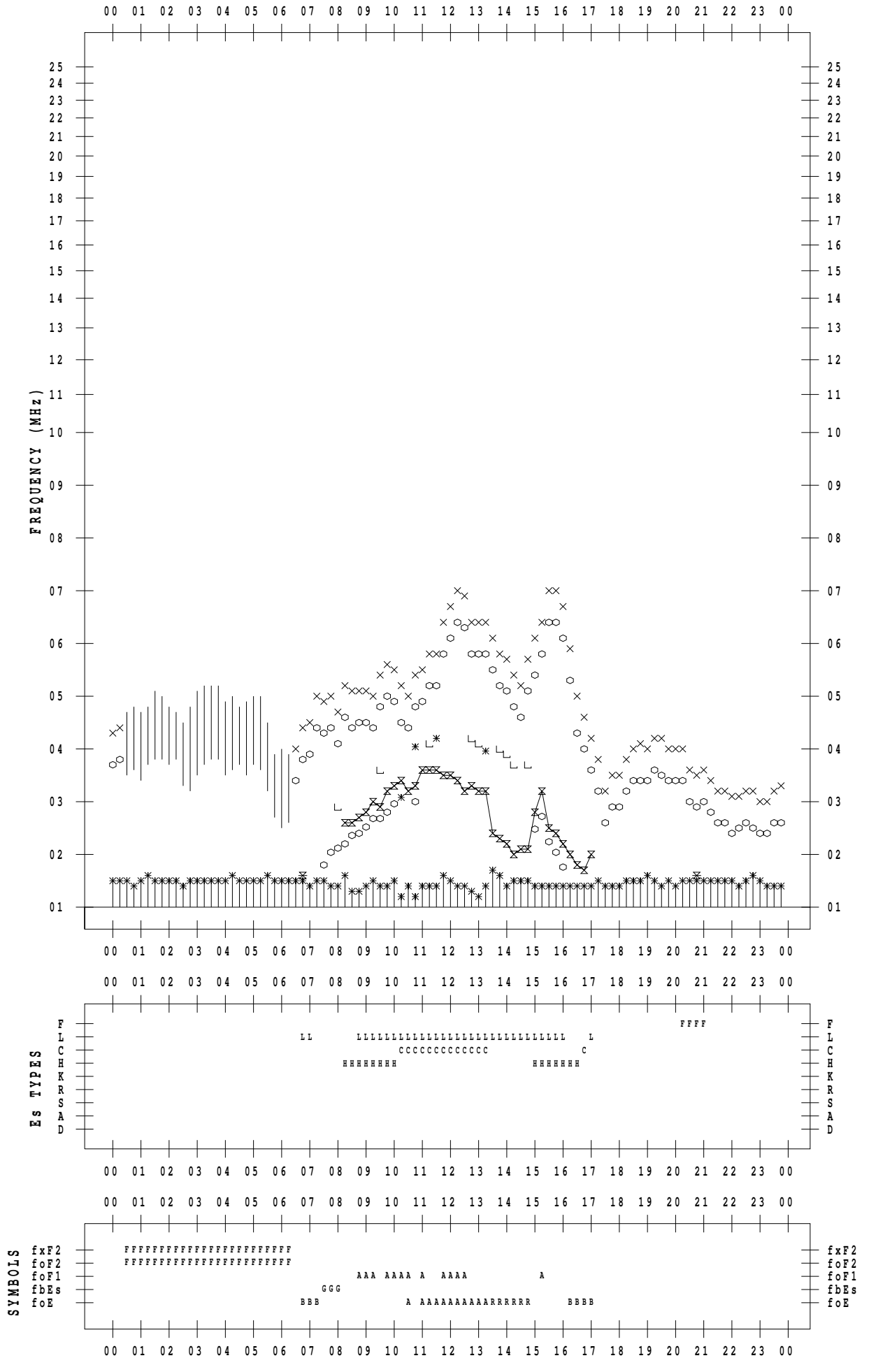
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2009/ 1/11

135 °E MEAN TIME



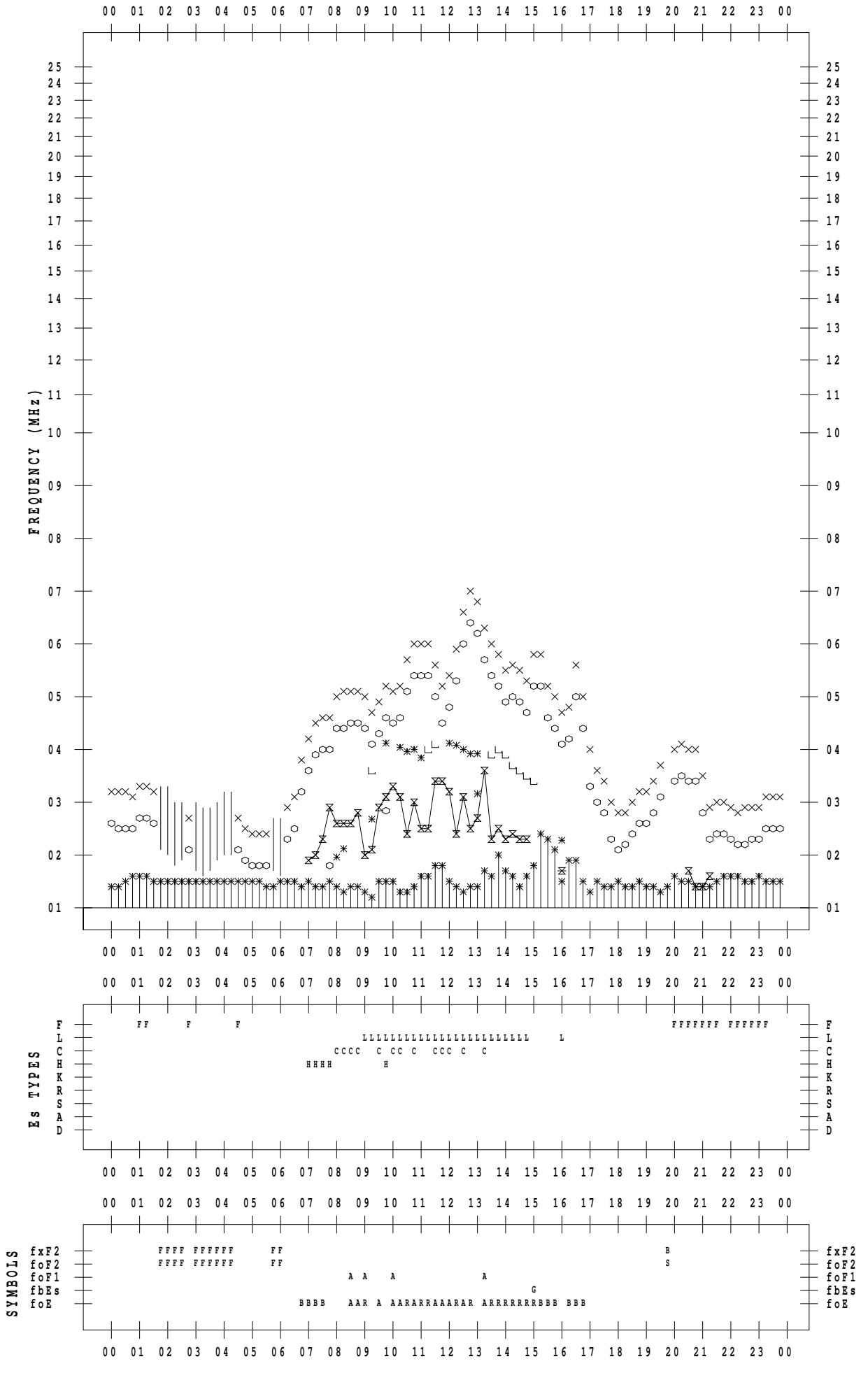
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2009/ 1/12

135 °E MEAN TIME



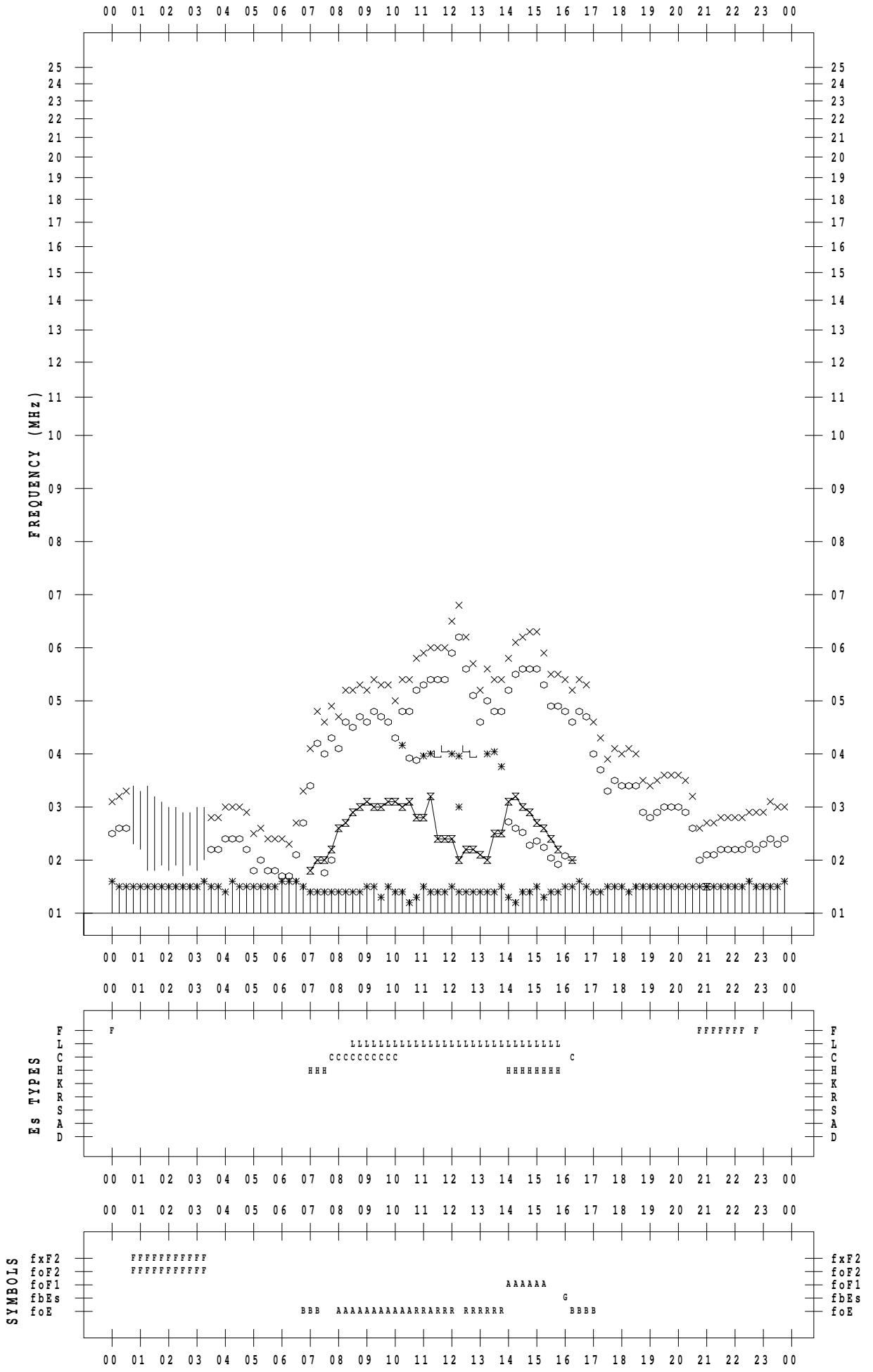
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2009/ 1/13

135 °E MEAN TIME



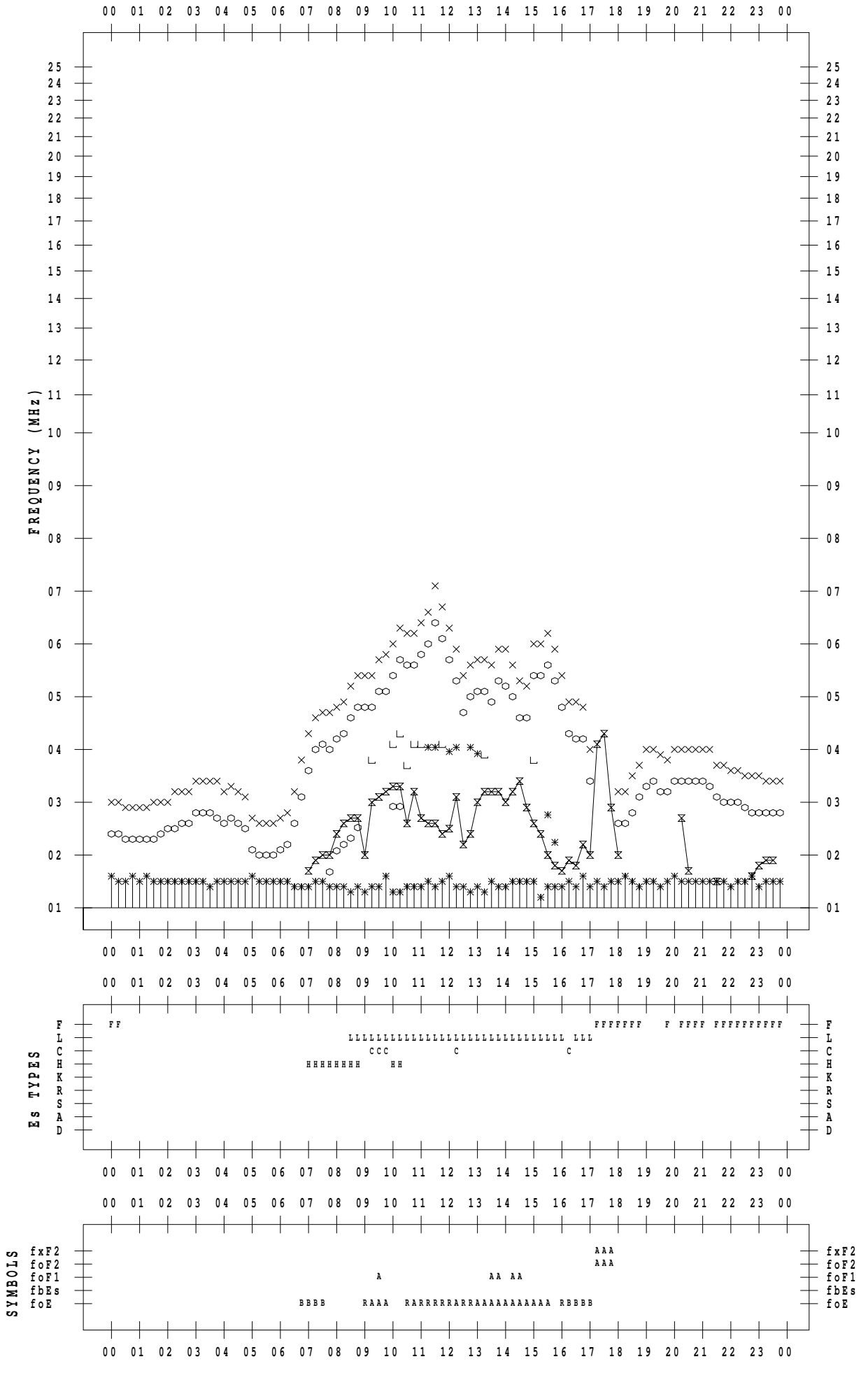
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2009/ 1/14

135 °E MEAN TIME



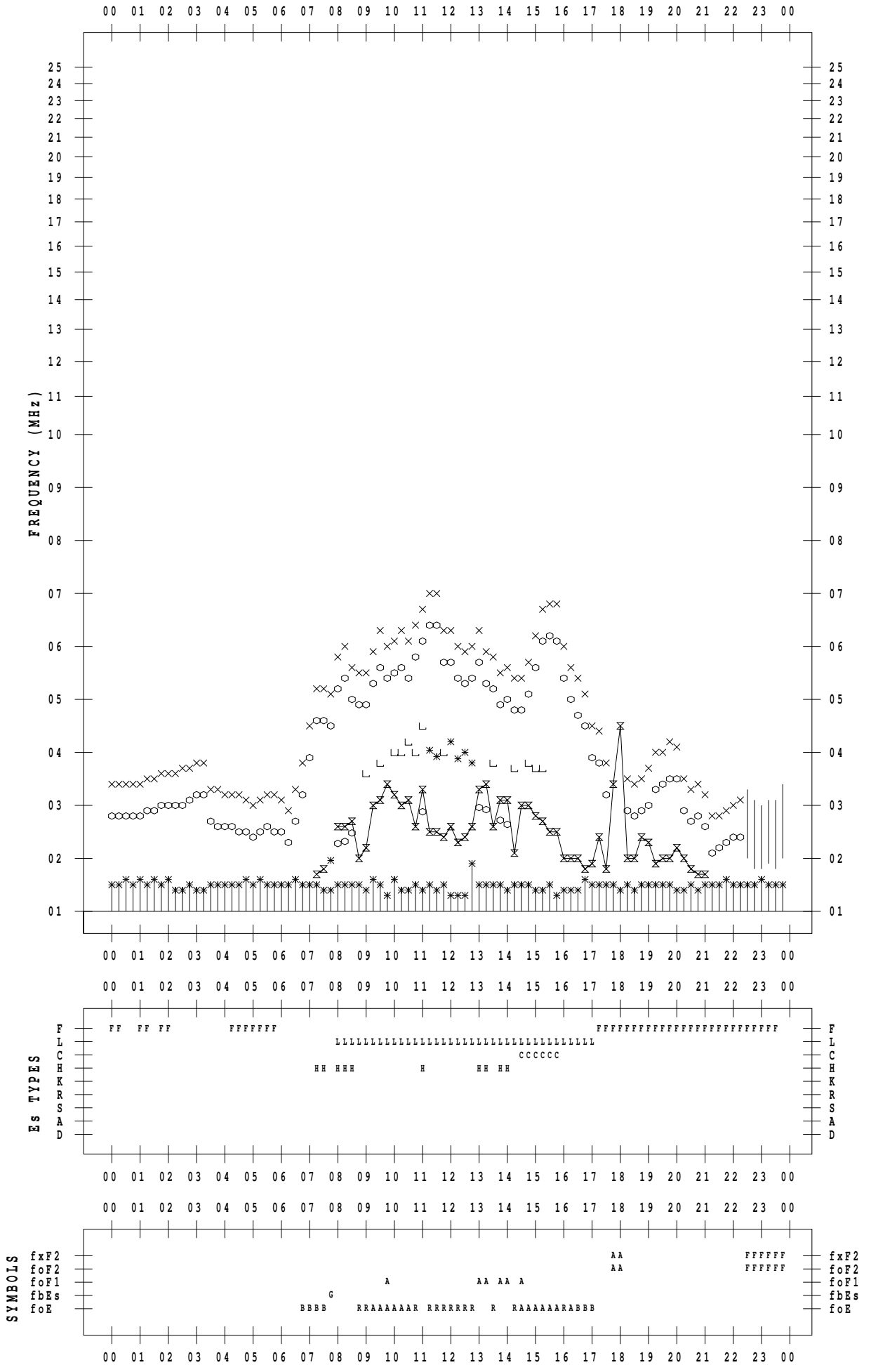
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2009/ 1/15

135 °E MEAN TIME



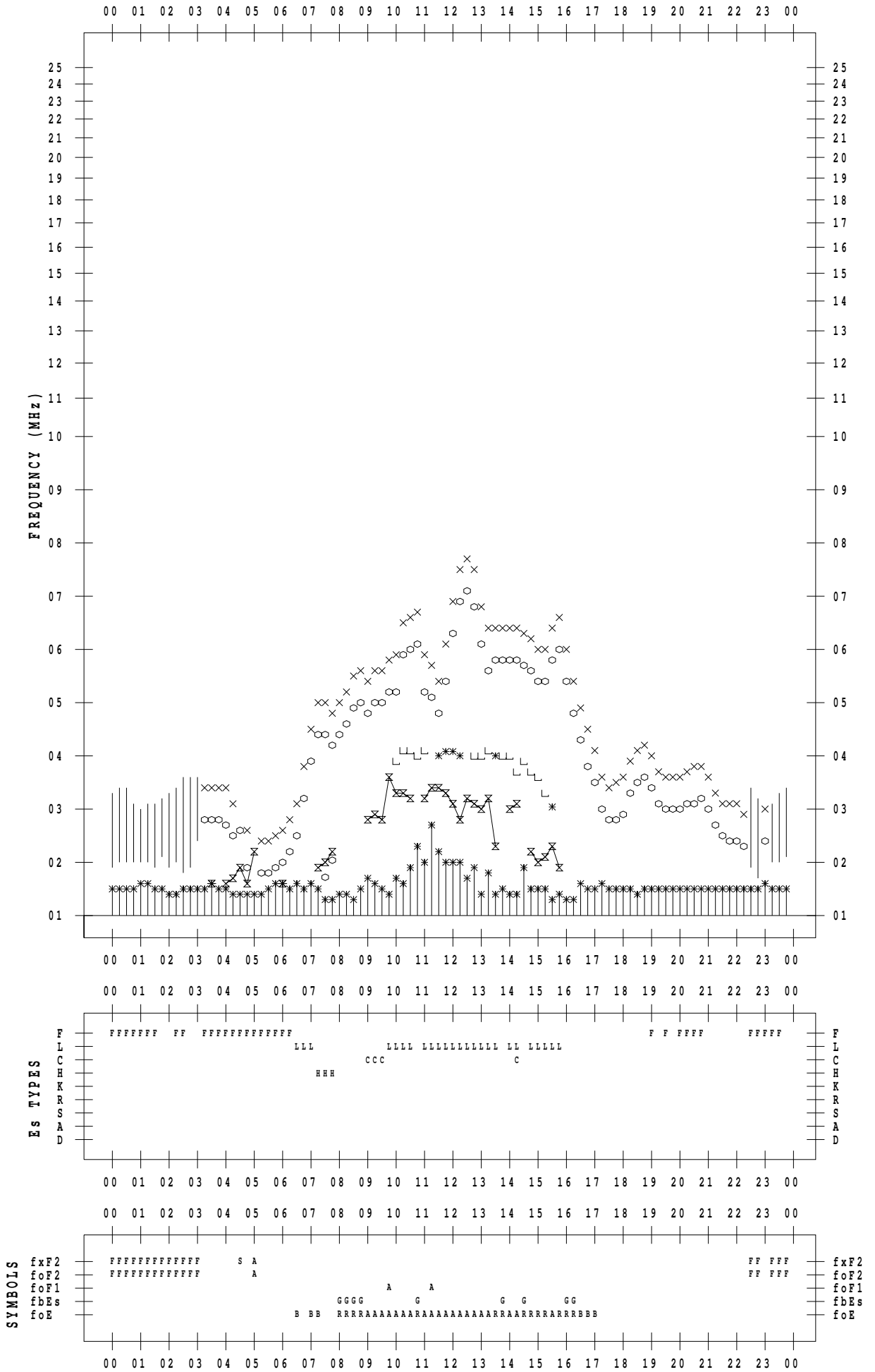
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2009/ 1/16

135 °E MEAN TIME



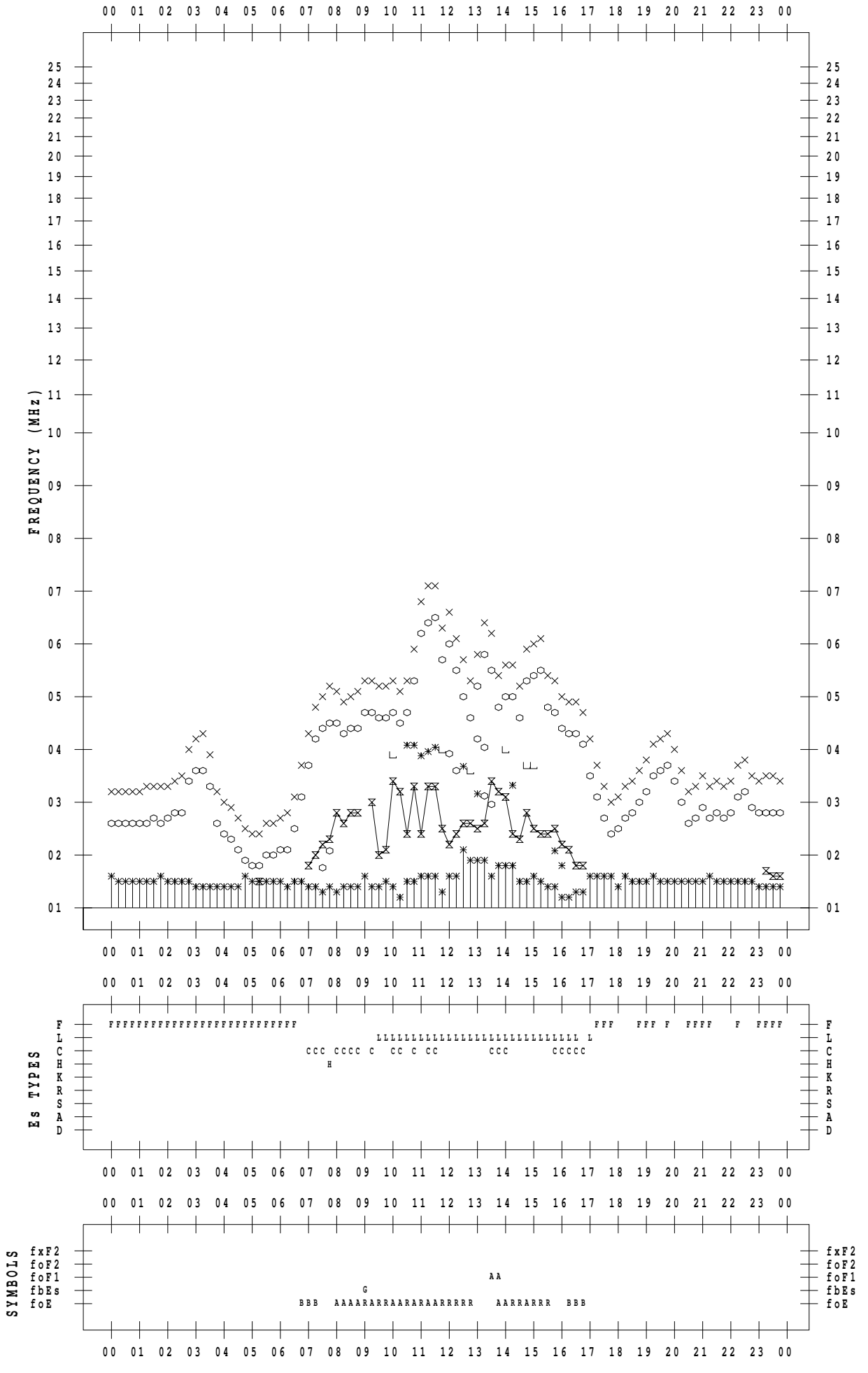
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2009/ 1/17

135 °E MEAN TIME



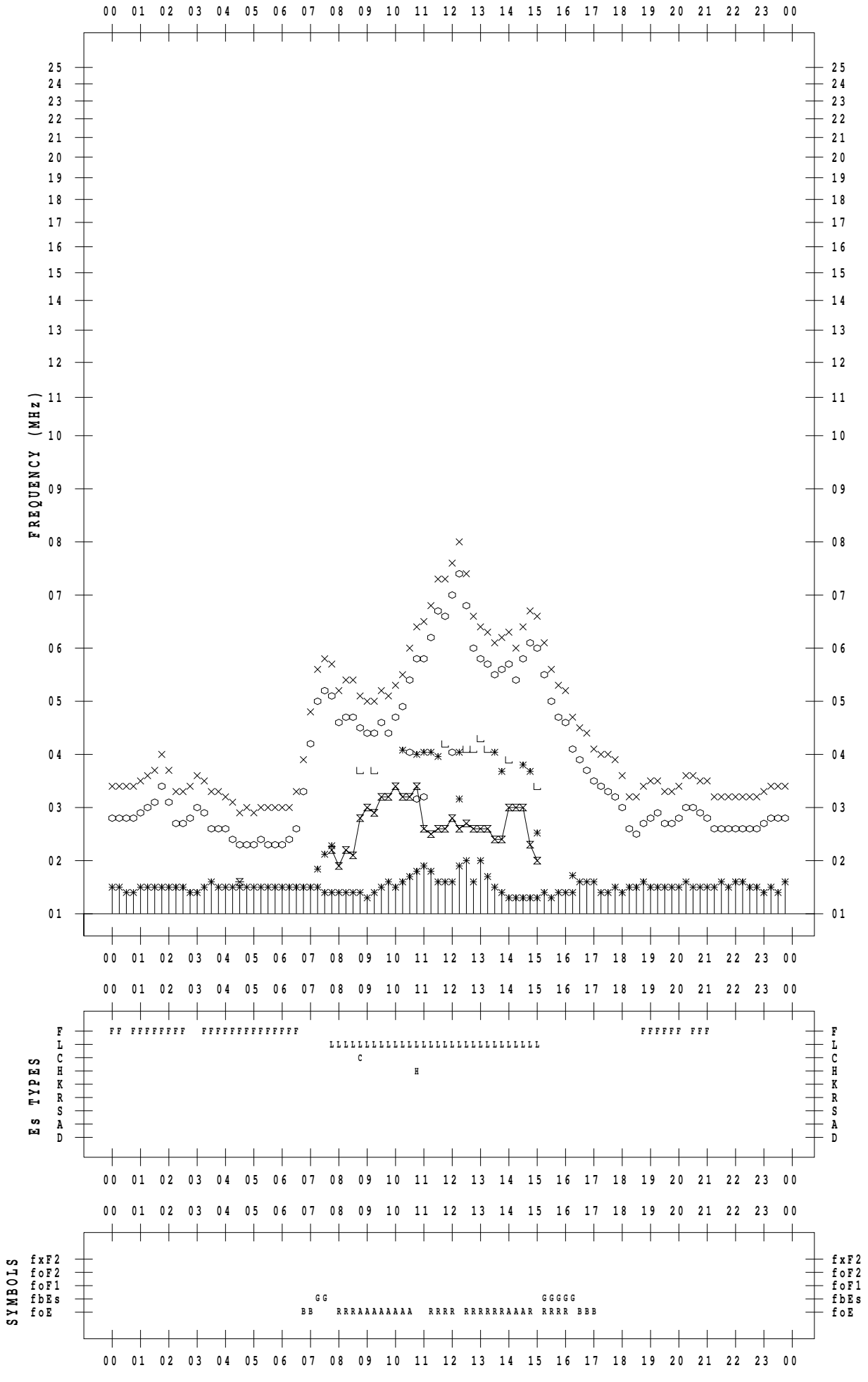
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2009/ 1/18

135 °E MEAN TIME



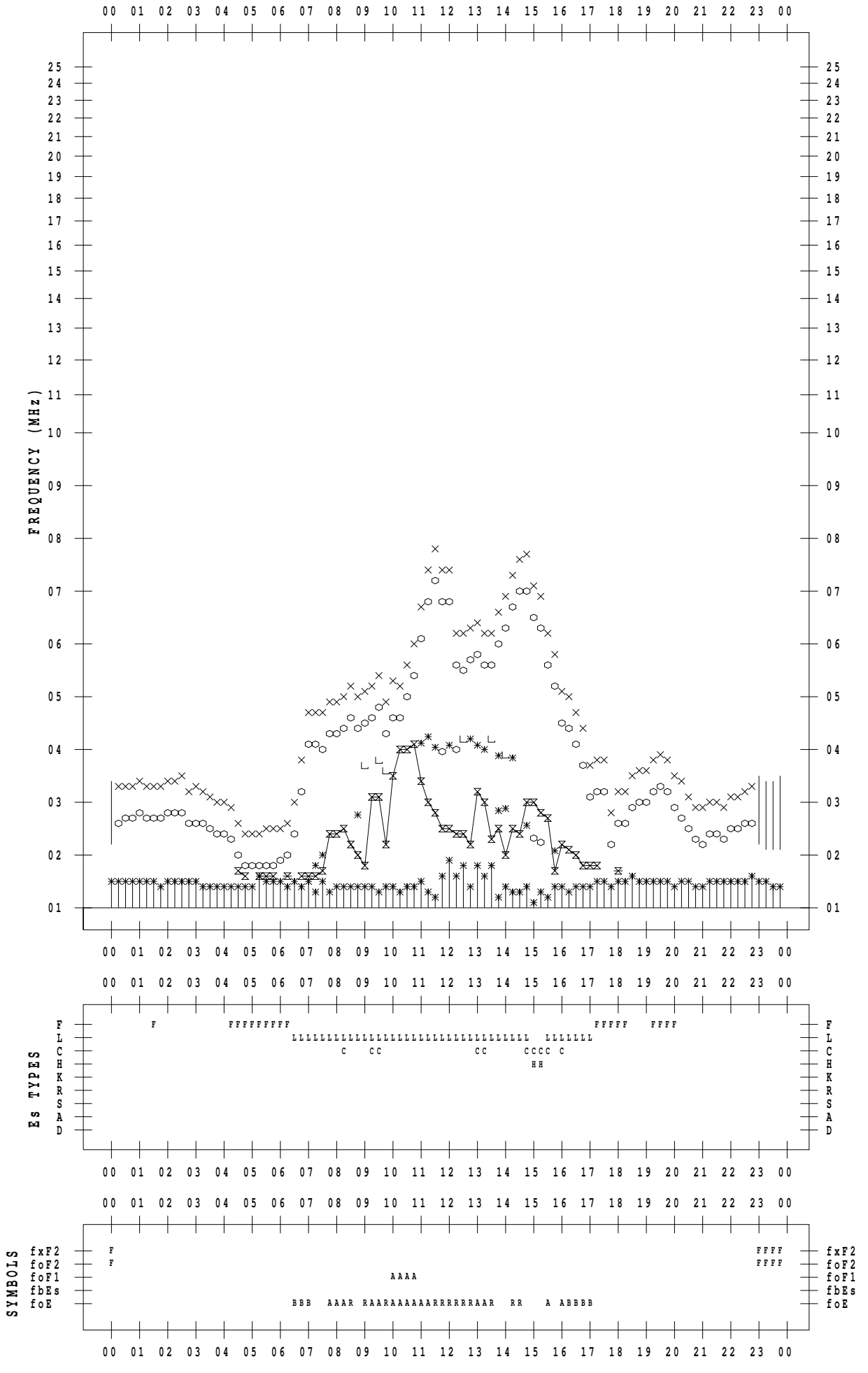
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2009/ 1/19

135 °E MEAN TIME



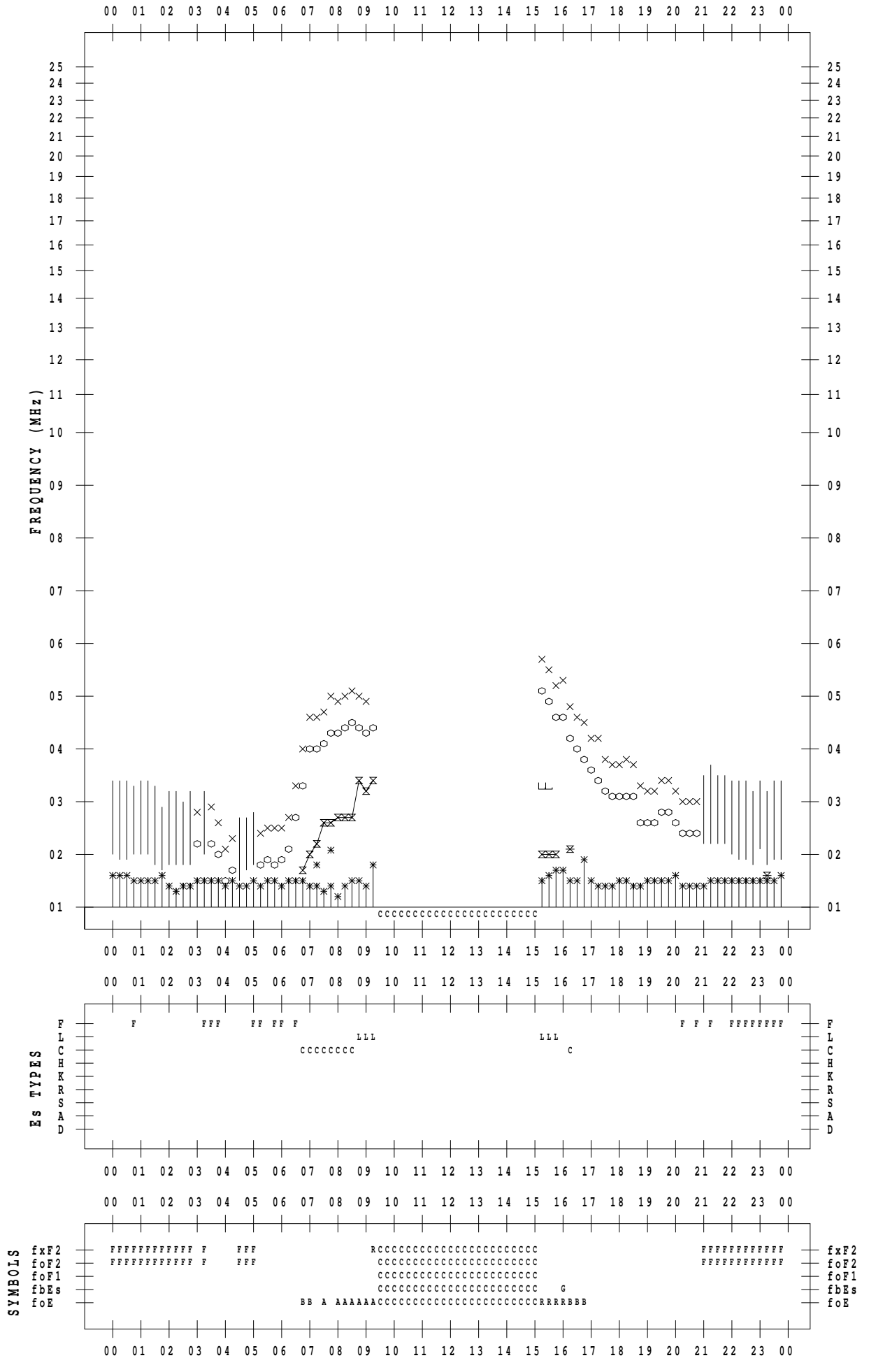
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2009/ 1/20

135 °E MEAN TIME



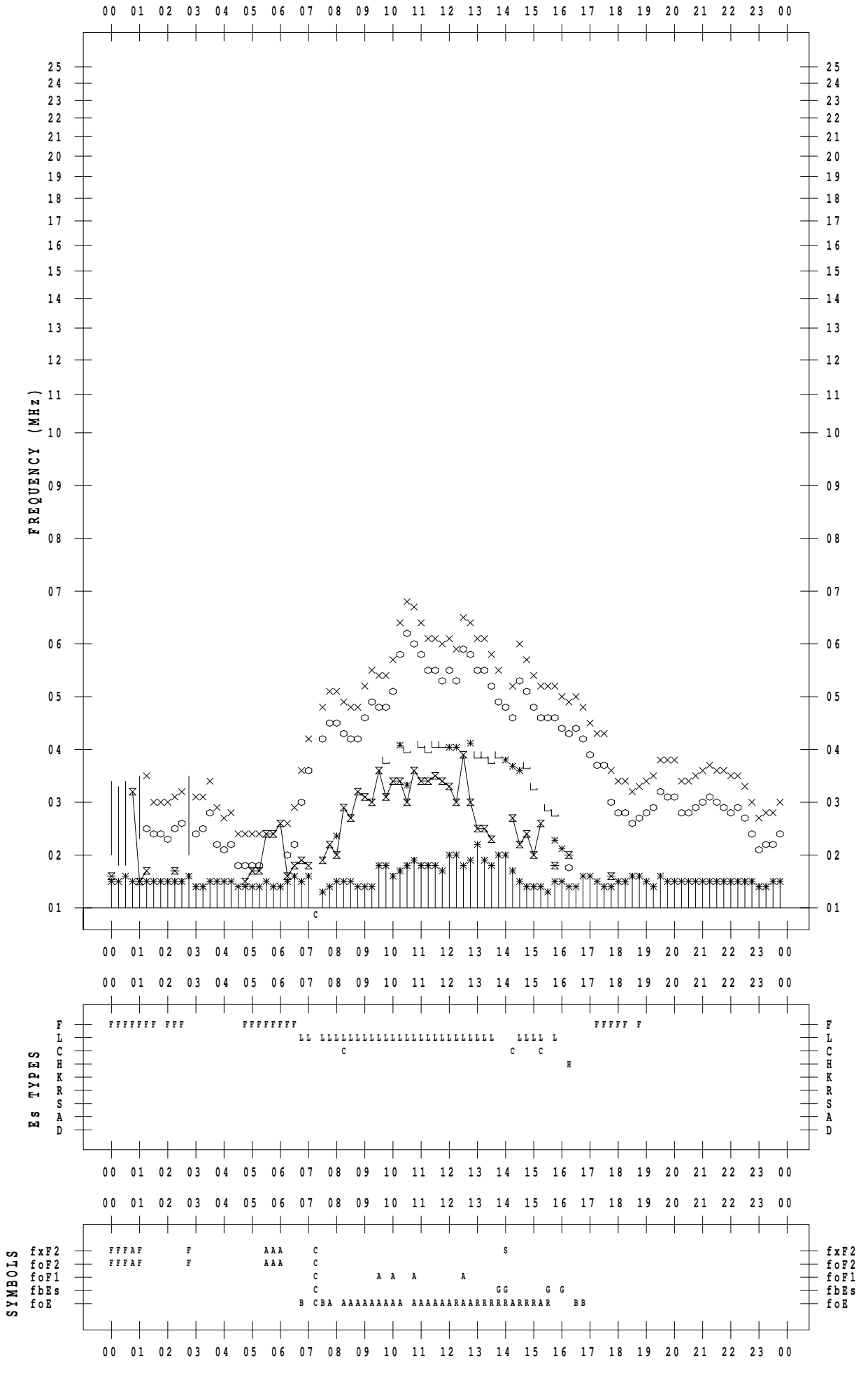
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2009/ 1/21

135 °E MEAN TIME



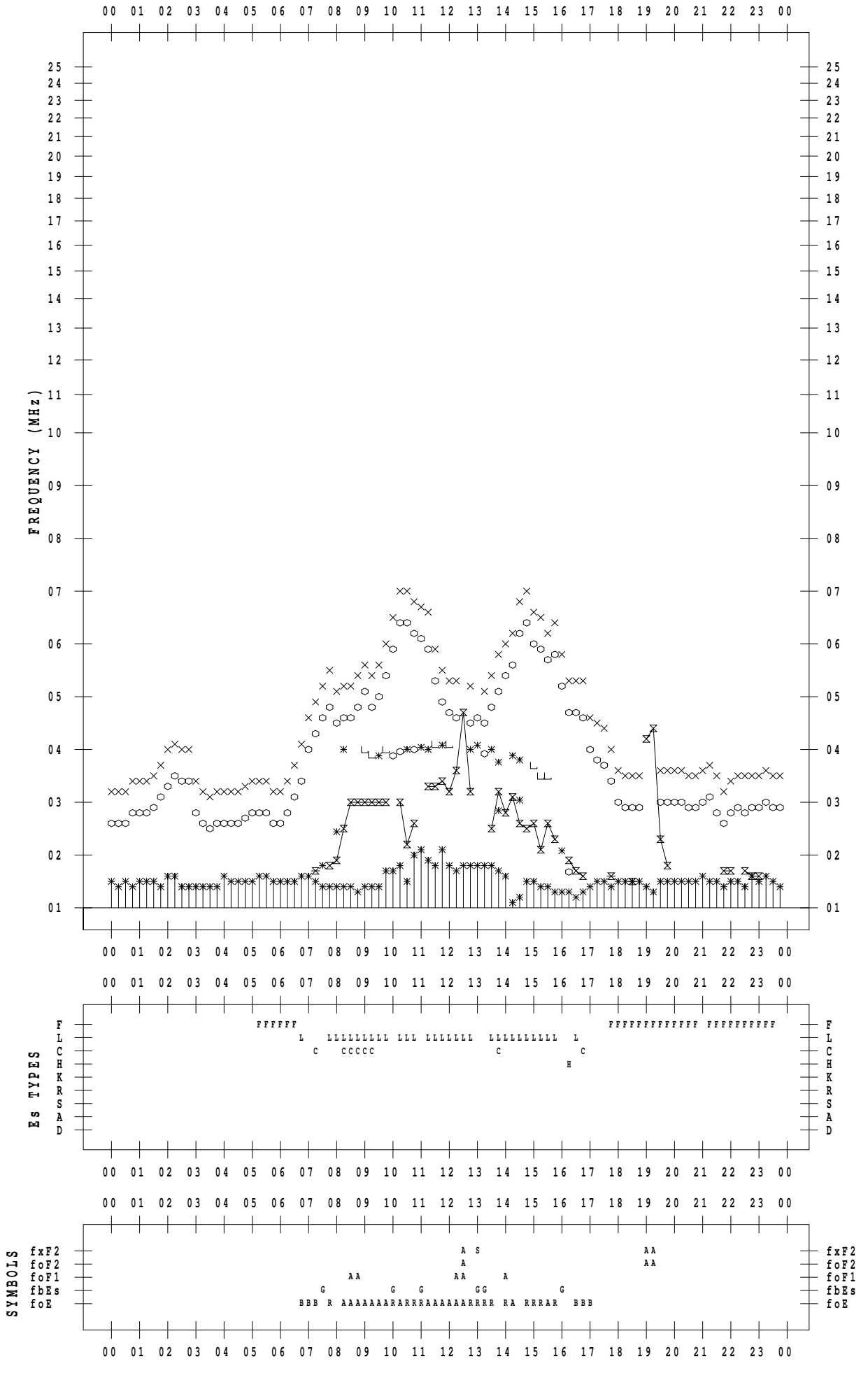
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2009/ 1/22

135 °E MEAN TIME



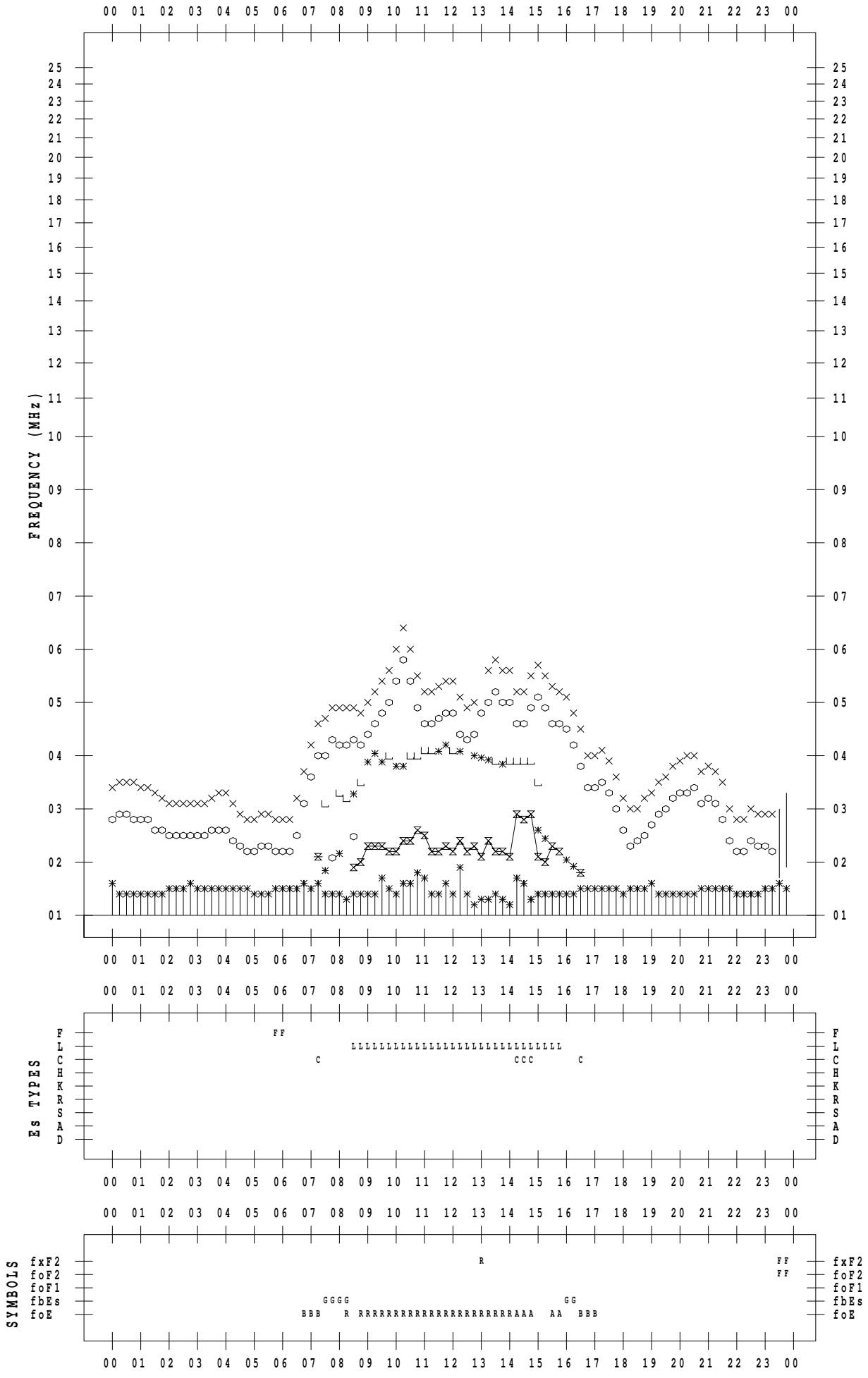
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2009/ 1/23

135 °E MEAN TIME



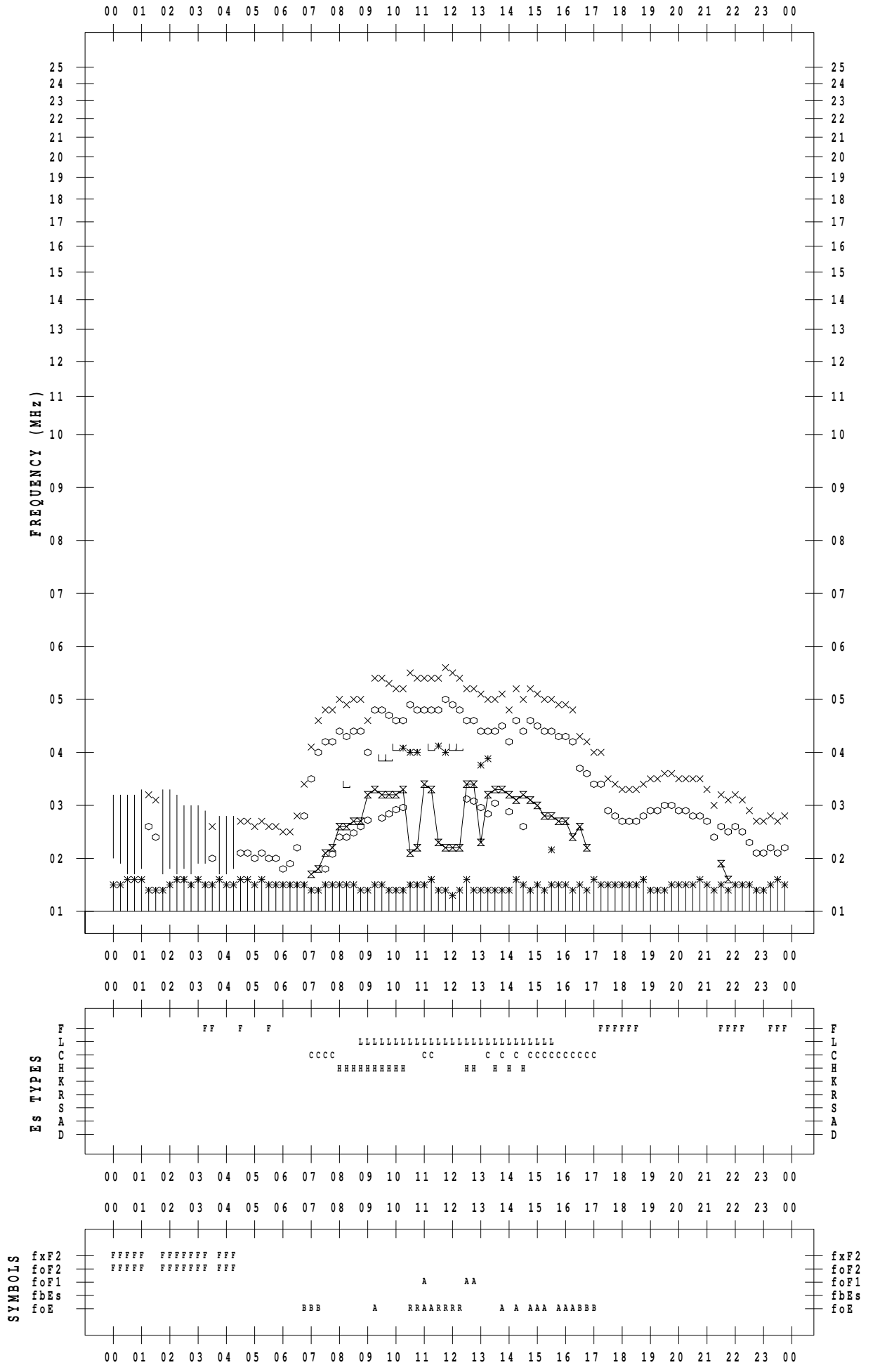
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2009/ 1/24

135 °E MEAN TIME



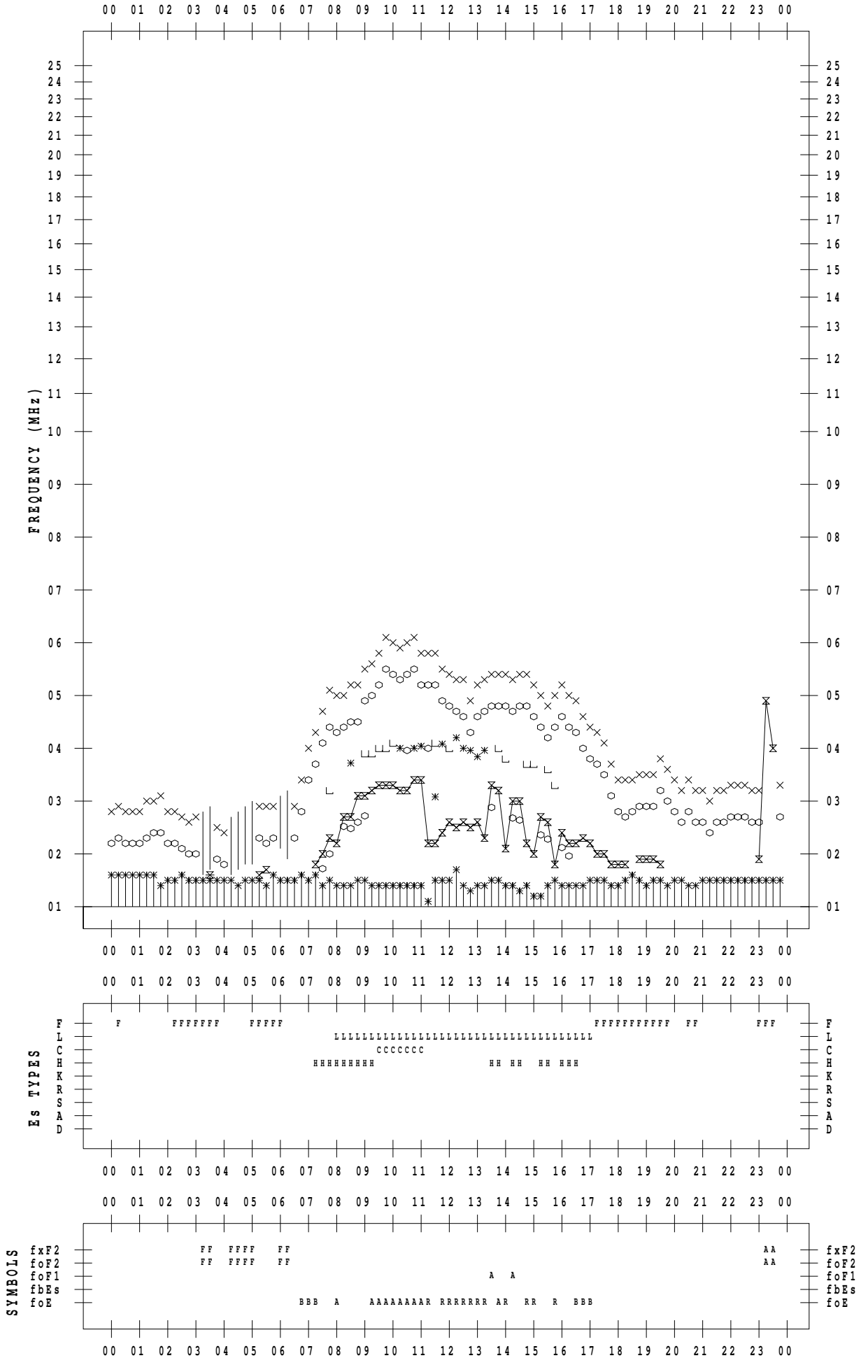
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2009/ 1/25

135 °E MEAN TIME



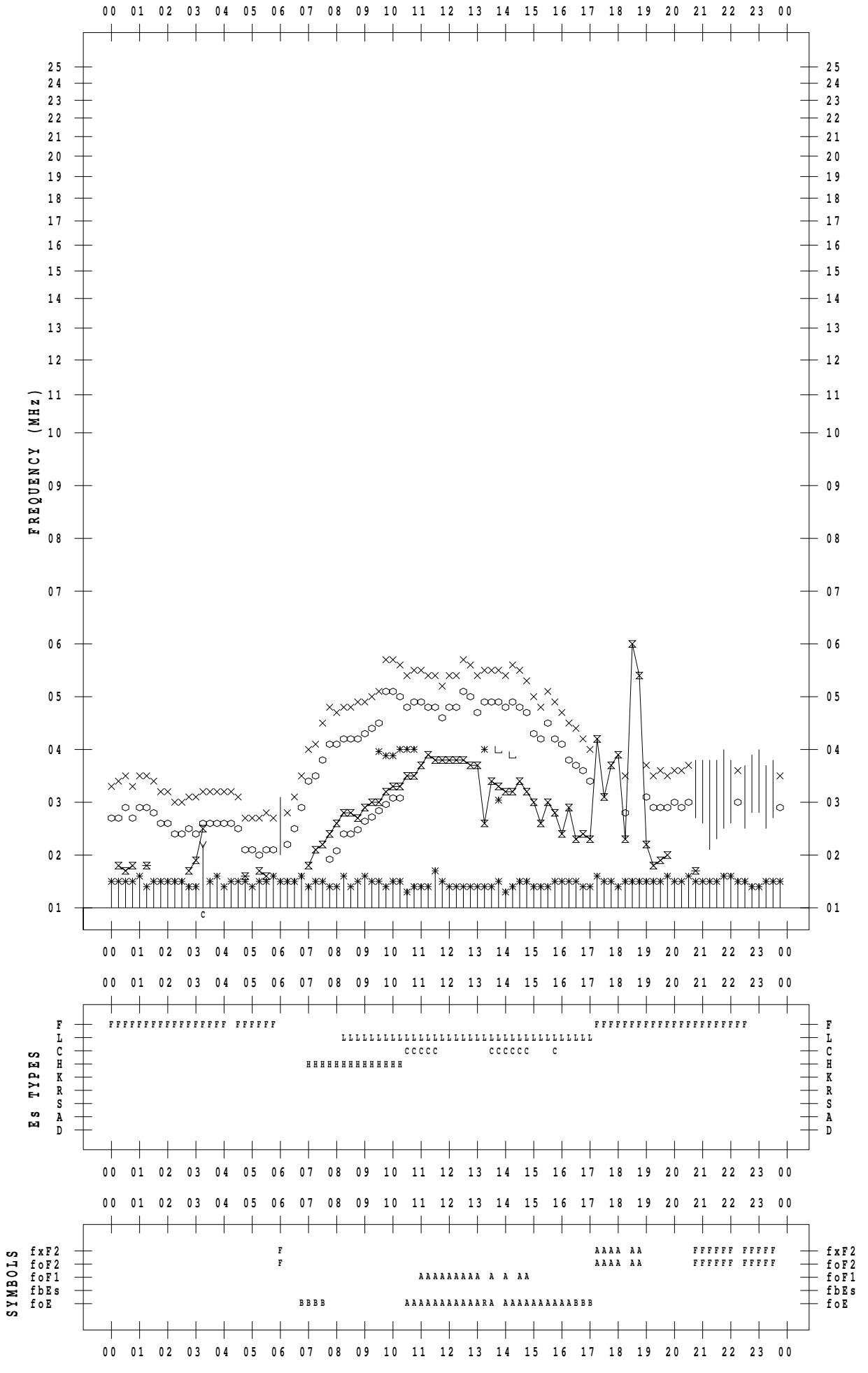
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2009/ 1/26

135 °E MEAN TIME



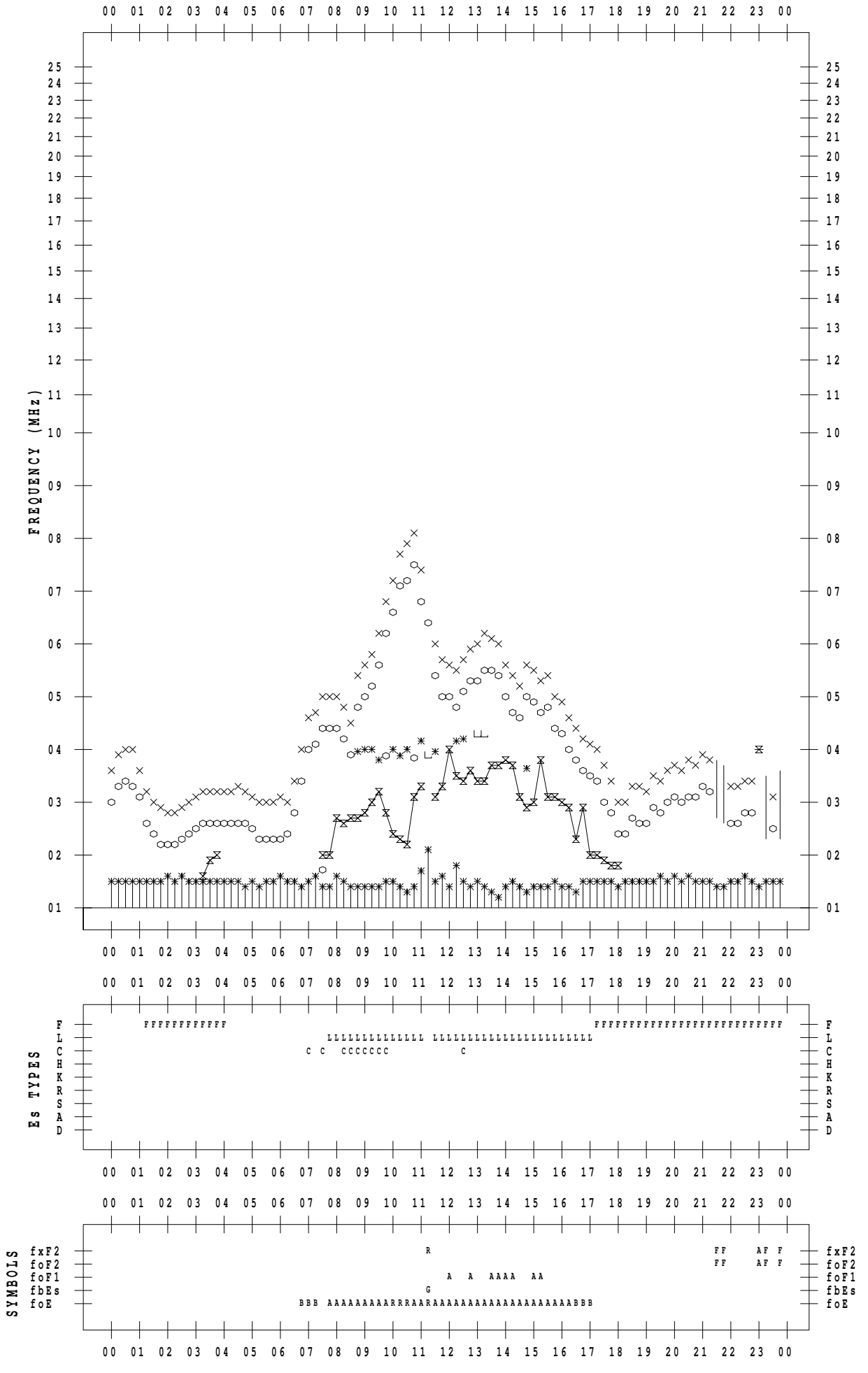
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2009/ 1/27

135 °E MEAN TIME



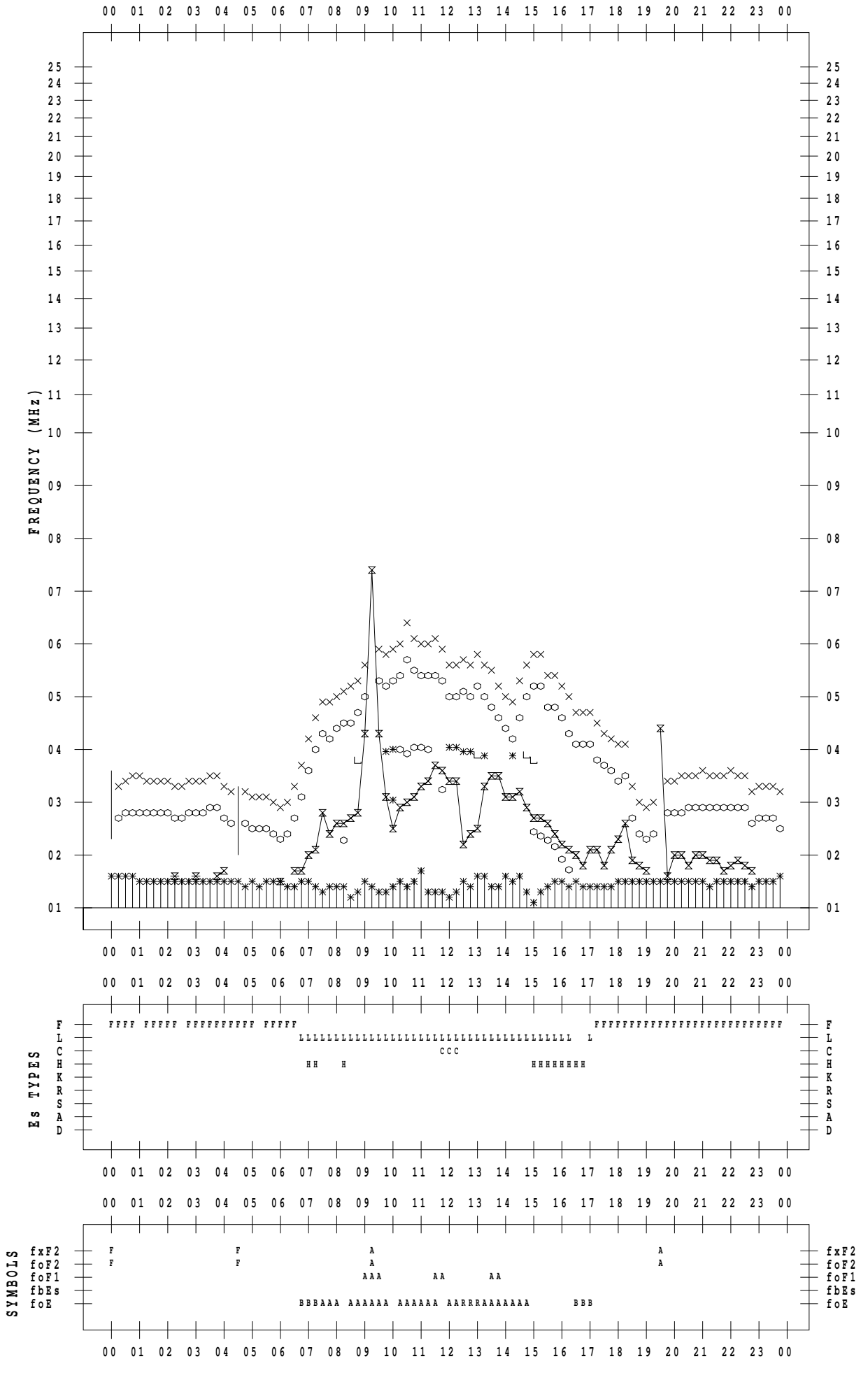
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2009/ 1/28

135 °E MEAN TIME



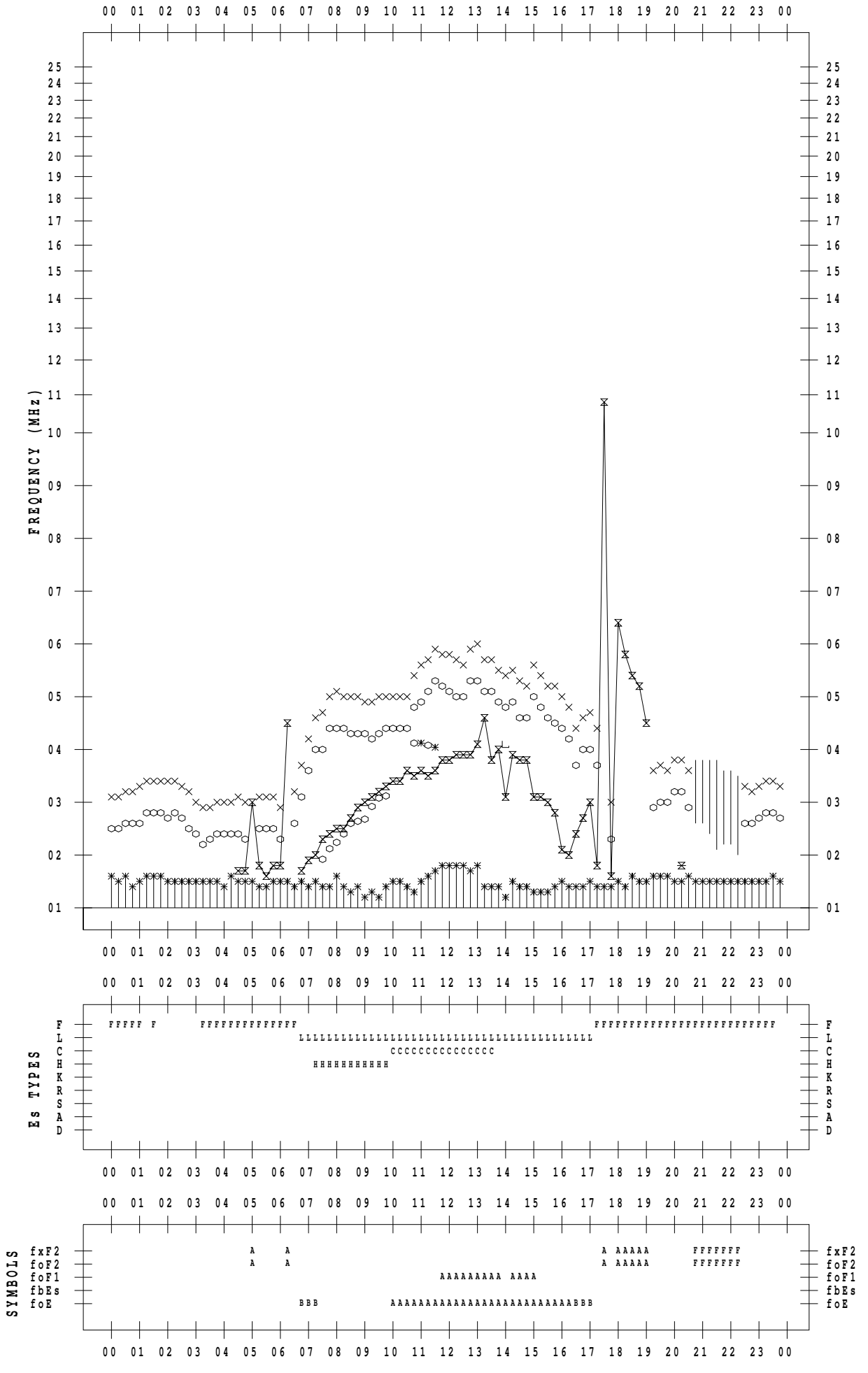
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2009/ 1/29

135 °E MEAN TIME



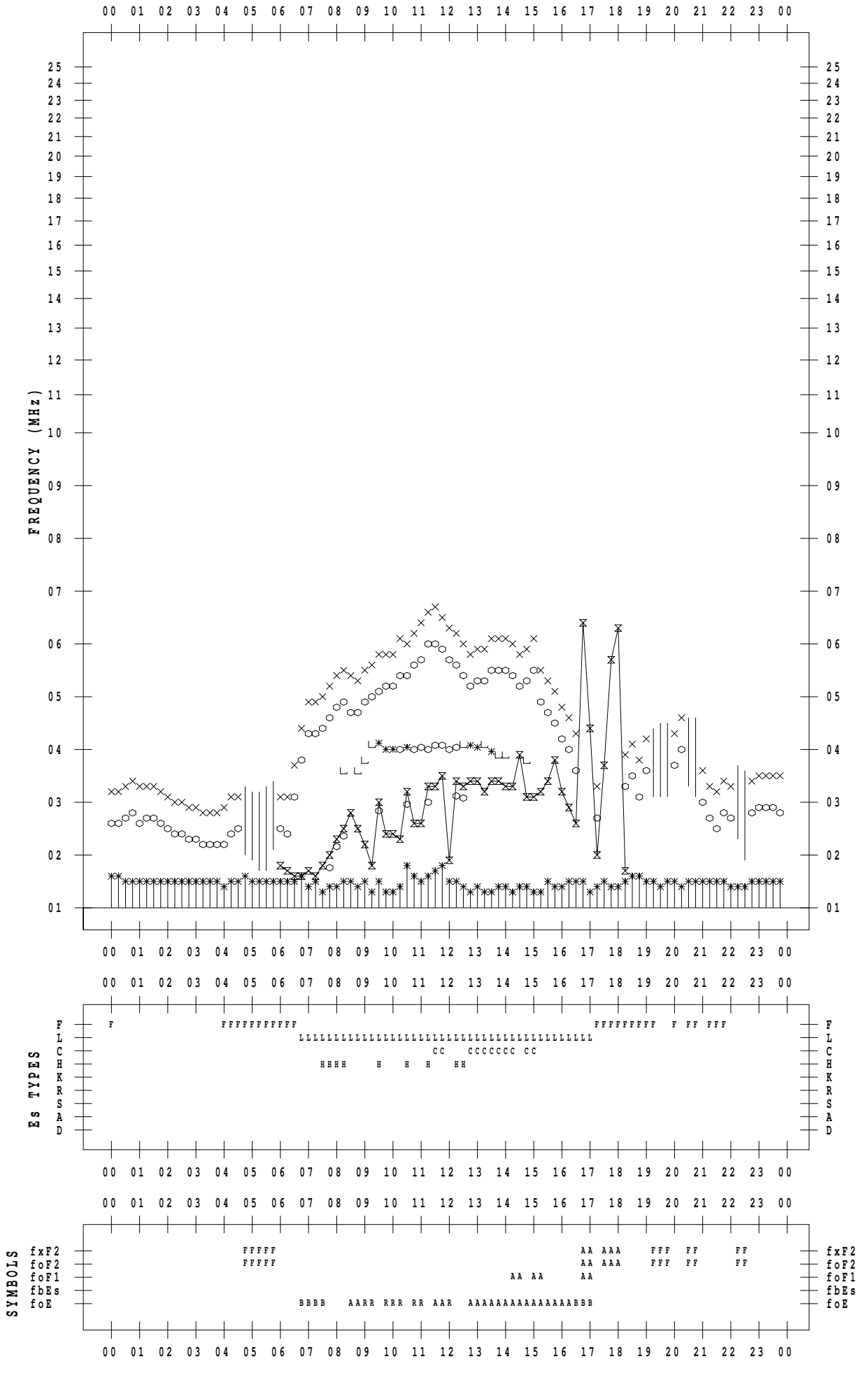
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2009/ 1/30

135 °E MEAN TIME



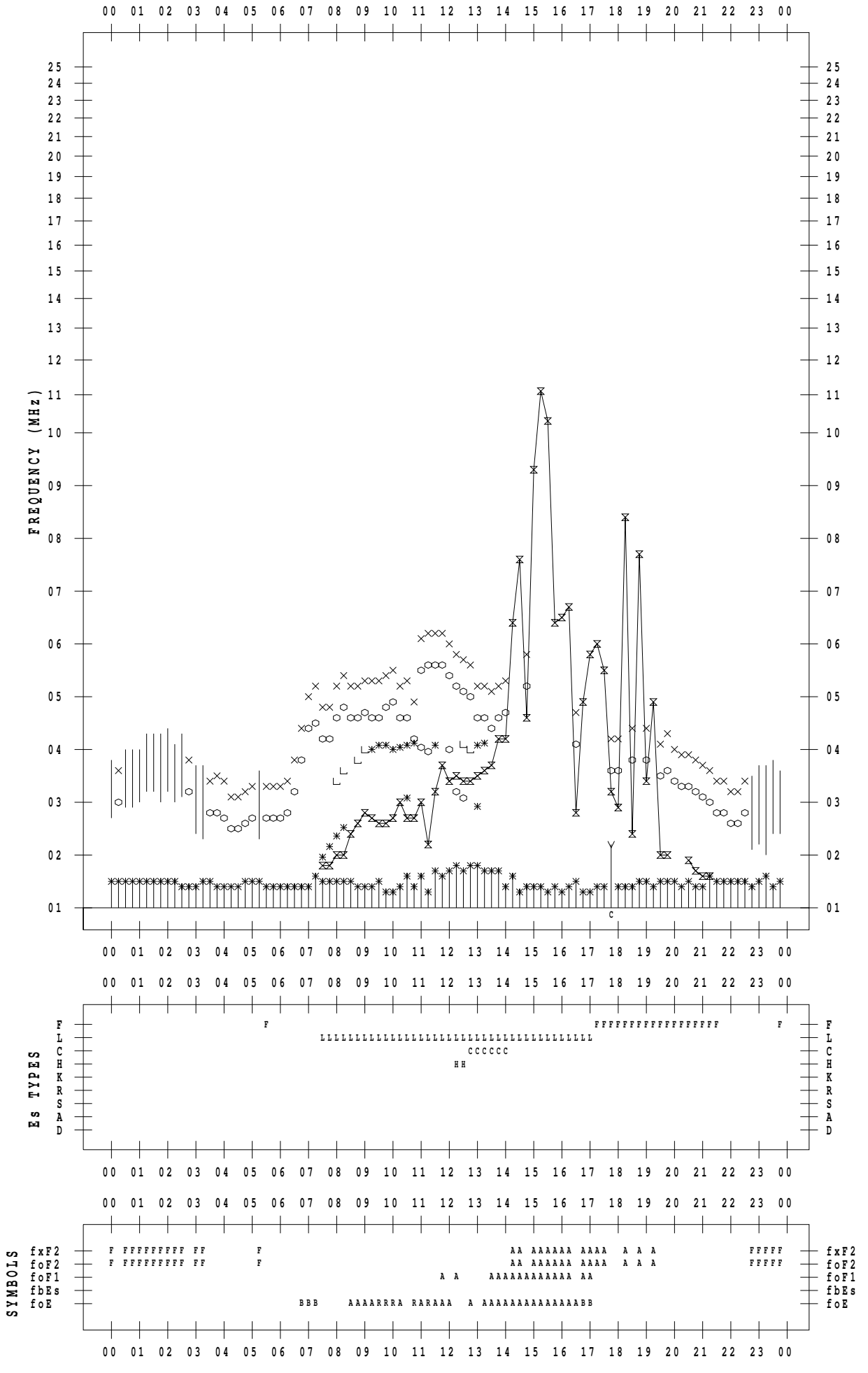
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2009/ 1/31

135 °E MEAN TIME



B. Solar Radio Emission
B1.Outstanding Occurrences at Hiraiso

Hiraiso January 2009

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

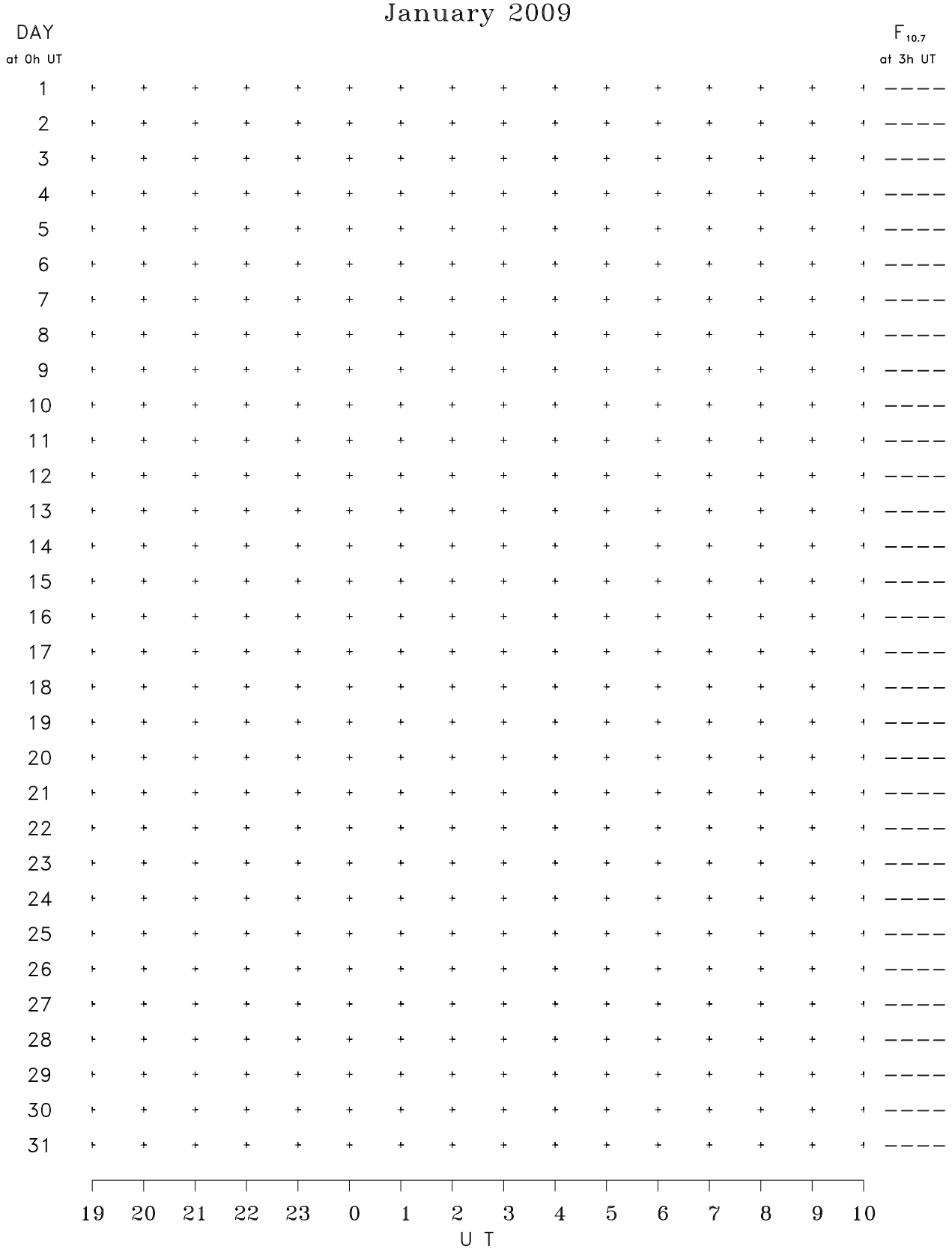
JAN. 2009	FREQ. (MHz)	TYPE	START TIME (U.T.)	TIME OF MAXIMUM (U.T.)	DUR. (MIN.)	FLUX DENSITY (10^{-22} W m^{-2} Hz^{-1}) PEAK	FLUX DENSITY (10^{-22} W m^{-2} Hz^{-1}) MEAN	POLARIZATION REMARKS

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

B. Solar Radio Emission

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

January 2009



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