F-755

IONOSPHERIC DATA IN JAPAN

FOR NOVEMBER 2011

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

NATIONAL INSTITUTE OF INFORMATION
AND COMMUNICATIONS TECHNOLOGY
TOKYO, JAPAN

INTRODUCTION

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

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

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

A. IONOSPHERE

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

A1. Automatic Scaling

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

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

a. Characteristics of Ionosphere

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

b. Descriptive Letters

The following descriptive letters are used in the tables.

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

C Impossible measurement because of any failure in observation.

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

N Impossible automatic scaling because of complex echoes.

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

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

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

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

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

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

d. Reliability of Automatic Scaling

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

e. Summary Plot

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

A2. Manual Scaling

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

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

a. Characteristics of Ionosphere

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

b. Symbols

(i) Descriptive Letters

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

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

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

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

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

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

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

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

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

K Presence of particle *E* layer.

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

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

N Conditions are such that the measurement cannot be interpreted.

O Measurement refers to the ordinary component.

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

Q Range spread present.

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

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

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

V Forked trace which may influence the measurement.

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

X Measurement refers to the extraordinary component.

Y Lacuna phenomena, severe layer tilt.

Z Third magneto-electronic component present.

(ii) Qualifying Letters

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

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

D Greater than.

E Less than.

I Missing value has been replaced by an interpolated value.

J Ordinary component characteristic deduced from the extraordinary component.

M Mode interpretation uncertain.

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

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

U Uncertain or doubtful numerical value.

Z Measurement deduced from the third magneto-electronic component.

(iii) Description of Types of *Es*

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

The types are:

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

B. SOLAR RADIO EMISSION

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

B1. Outstanding Occurrences at Hiraiso

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

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

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

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

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

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

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

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

B2. Summary Plots of F10.7 at Hiraiso

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

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

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

HOURLY VALUES OF foF2 AT Wakkanai

NOV. 2011

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	50	46	43	A	A	34	58	67	88	59	89	121	70	59	121	119	90	67	67	63	54	48	46	37
2	34		36	A	34	35	32	66	60	89		89	93	71	91	90	70	65	47	44	34	34	32	36
3	34	32	34	35	34	34	50	67	59	109	59	59	92	70		94		63	51	A	A	31	34	30
4	A	40	34	43	44	37	54	70	91	59	92	100	101	68	93	91	59	64	55	47	42	41	43	A
5	43	44	A	44	47	50	54	66	107	59	59	89	96	A	96	106	59	66	61	52	52	47	38	34
6	41	43	34	36	46	47	36	69	84	81	69	91	110	62	94	93	91	61	58	52	44	32	34	44
7	35	34	34	46	34	34	52	58	58	N	96	69	59		92		C	66	59	54	43	34	32	38
8	43	42	32	38	43	37	41	67		C	C	C	C	C	C	C	C	C	52	46	40	A	42	42
9	34	34	34	43	44	29	A	65	88	C	C	N	96	93	91	90	71	65	50	52	47	34	32	41
10	A	43	41	A	A	32	31	65	91	89	94		60	91	91	93	59	58	54	48	34	36	34	34
11	32	34	42	42	43	43	34	66	91	88	91	95	59	65	91	92	68	61	53	52	30	42	37	34
12	33	41	37	42	42	36	42	65	66	70	94	N			91	83	68	61	47	47	44	47	32	43
13	42	34	37	38	44	42	50	66	67	85	79	59	89		59	91	65	52	48	46	37	32	36	31
14	34	41	34	40	37	38	37	65	88	85	N	92	95		99	89	67	63	53	48	34	37	37	34
15	36	22	34	42	44	42	32	67	N	88	90	90	65	86	59	91	70	56	44	41	34	32	34	34
16	32	31	A	A	29	A	A	66	N	90	62	97	92	86	93	93	70	63	48	48	40	34	30	36
17	34	37	36	38	38	37	34	66	87	89	86	96	81	87		91	66	64	50	36	38	35	A	32
18	32	37	37	36	32	37	34	66	N	62	90	108	104		100		68	54	58	38	34	32	30	A
19	34	34	36	34	38	38	29	62	72	70	96	91	90	91	81	70	90	58	46	34	34	A	29	31
20	A	32	34	34	34	34	40	62	85	87	88	91	69	77	87	71	67	54	41	40	34	32	30	37
21	37	32	34	32	32	44	44	66	67	72	91	105	95	90	71	70	71	64	48	46	34	34	32	29
22	35	32	32	31	37	40	27	64	90	79	95	92	96	71	91	92	64	63		43	41	32	32	34
23	A	32	34	32	34	40	34	66	80	97	N	122	90	93		90	68	55	34	29	38	31	34	34
24	34	34	34	32	36	34	36	60	67	90	69	64	59	81	96	84	67	18	38	37		32	34	32
25	36	36	34	35	34	34	37	66	87	99	66	97		92	64	89	66	51	42	34	36	31	32	28
26	34	34	30	34	34	34	34	61	67	59	91	90	87	91	N	68	61	53	47	32	29	A	32	34
27	37	34	34	34	37	43	42	61	68	67	95	66	84	82	68	84	66	46	43	42	38	28	34	32
28	34	28	34	34	34	34	26	62	85	88	81	71	71	92	59	67	66	44	41	36	34	34	34	29
29	34	34	34	30	30	38	36	64	64	68	90	94	61	92	79	N	68	48	48	53	44	30	59	A
30	A	31	34	37	32	34	24	53	67	C	C	C	C	C	C	C	62	29	32	37	34	34	31	30
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	25	29	28	26	28	29	28	30	26	26	24	25	26	22	24	25	27	29	29	29	28	27	29	27
MED	34	34	34	36	36	37	36	66	82	85	90	91	90	86	91	90	67	61	48	46	38	34	34	34
U Q	37	40	36	42	43	41	43	66	88	89	93	97	95	91	93	92	70	64	53	50	42	36	36	37
L Q	34	32	34	34	34	34	33	62	67	68	74	80	69	71	75	83	65	52	43	37	34	32	32	31

HOURLY VALUES OF fEs AT Wakkanai

NOV. 2011

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

HD \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	33	26	32	43	35	G	32	28	34	G	55	41	G	38	39	34	34	37	37	26	34	26	G	26
2	25	G	G	30	G	32	G	44	40	42		G	G	49	41	38	31	G	26	32	39	30	G	G
3	G	G	G	30	25	24	G	46	34	G	46	50	39	G		32		45	50	58	39	35	32	G
4	46	26	G	G	29	30	32	28	38	G	G	G	G	G	G	35	G	11	38	G	G	33	30	56
5	40	35	41	26	G	33	34	31	36	G	50	60	54	74	52	39	G	25	26	26	25	G	G	G
6	G	G	G	G	G	G	G	G	G	G	G	G	G	40	44	41	38	38	30	29	G	G	G	G
7	G	G	G	G	G	G	G	G	33	G	G	G	G		40		C	11	G	G	G	G	G	G
8	G	G	G	G	G	G	G	32		C	C	C	C	C	C	C	C	C	G	G	26	54	35	35
9	33	G	G	G	G	29	41	39	G	C	C	38	45	50	41	51	G	29	G	40	G	G	G	G
10	36	36	26	54	38	34	33	39	49	37	55		50	G	G	35	G	27	G	29	G	26	G	G
11	G	G	G	G	G	G	G	45	G	G	39	46	G	G	G	G	G	39	40	33	26	G	G	G
12	G	G	G	G	G	G	26	48	34	35	N	G			35	36	G	G	G	G	G	G	G	G
13	G	G	G	G	G	G	G	48	34	G	G	38	G		G	31	G	G	G	G	G	G	G	G
14	G	G	G	G	G	G	G	G	G	G	37	G	G		35	32	29	G	28	G	G	G	G	G
15	G	G	G	G	G	G	G	48	33	36	39	G	G	37	36	G	G	11	G	G	G	25	G	G
16	G	27	40	35	35	32	24	30	34	G	G	G	G	40	38	33	G	19	G	24	G	24	25	G
17	G	G	G	G	G	G	G	G	32	35	38	G	G	G		G	G	G	G	G	G	G	33	G
18	G	G	G	G	G	G	G	34	33	G	G	38	38		38		G	G	G	G	G	G	G	34
19	G	25	26	G	25	26	29	27	33	G	G	50	50	40	39	38	40	G	26	30	32	28	26	26
20	26	G	30	23	G	G	G	48	34	G	39	G	G	G	36	31	G	G	G	34	G	G	G	G
21	G	G	G	G	G	G	G	26	31	G	36	G	55	38	35	37	39	G	G	G	G	G	G	G
22	G	G	G	G	G	G	G	G	35	36	40	40	G	G	34	32	G	G		31	G	G	G	27
23	28	G	G	G	G	G	G	27	G	G	54	G	59	36		34	40	G	32	28	26	G	G	G
24	G	G	G	G	27	G	G	48	G	40	G	G	G	G	38	G	G	24	G	G		24	G	G
25	G	G	G	G	G	G	G	G	G	G	G	G		40	36	G	G	G	G	G	G	G	G	G
26	G	G	G	G	G	G	G	41	G	35	36	38	G	G	34	G	32	G	G	28	33	39	G	G
27	G	G	G	G	G	G	G	G	G	G	37	G	36	G	34	35	G	G	G	G	26	G	G	G
28	G	G	G	33	G	G	G	30	33	36	47	40	G	37	G	G	G	G	G	25	G	G	G	G
29	23	26	G	G	G	31	G	G	59	36	37	G	G	37	40	29	G	G	G	G	28	40	34	38
30	30	G	G	G	G	G	G	39	35	C	C	C	C	C	C	C	30	G	G	25	25	30	25	24
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	30	30	30	30	30	30	30	29	27	25	27	26	23	25	26	27	29	29	30	29	30	30	30
MED	G	G	G	G	G	G	G	30	33	G	37	G	G	37	36	32	G	G	G	24	G	G	G	G
U Q	26	G	G	23	G	26	24	44	34	36	43	40	39	40	39	36	31	24	27	29	26	28	25	24
L Q	G	G	G	G	G	G	G	G	G	G	G	G	G	G	34	G	G	G	G	G	G	G	G	G

HOURLY VALUES OF fmin AT Wakkanai

NOV. 2011

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

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

HOURLY VALUES OF foF2 AT Kokubunji

NOV. 2011

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	43	A	A	A	43	43	53	101	114	120	118	125	122	120	125	122	114	105	78	65	55	53		A
2	46	43	A	A	A		52	80	114	131	133	137	117	108	108	111	104	74	53	A	A	A	A	A
3	A		N	N	N	31	47	93	117	114	126	126	118	117	115	110	104	78	52	A	A	A	A	A
4	A	A	A	A	39	36	53	82	105	106	115	118	115	107	122	116	105	85	54	49		44	43	
5	41	39	32	28	34		52	88	102	104	110	122	124	116	118	115	106	90	67	53	44	43	44	43
6	39	42		32	41		52	88	104	106	111	107	101	111	117	114	101	91	74		43	42	42	38
7	42	N	N	N	43	N	54	86	105	110	112	117	105	116	117	110	102	86	67	53	53	44	44	46
8	43	36	42	44	46	26	47	79	101	111	106	110	110	118	122	112	98	78	54	51	47	45	43	
9	23	A	28	43	N		44	78	105	110	116	111	117	110	120	120	104	87	64	54	39	42		36
10	30	30	34	44			45	76	87	107	105	103	100	108	115	97	96	74	51	52	31		44	42
11	44	N		N		27	43	72	98	114	110	111	111	111	104	104	98	78	52	47	A	A		
12		34		36	38	34	45	85	96	104	105	C	C	C	C	C	C	C	C	C				
13	34		31		32	37	43	76	100	106	116	110	106	117	117	107	96	66	46	46	53	44	37	
14		N	N	42	38	28	43	80	90	111	116	108	107	111	116	100	87	74	54	52	50	41	28	N
15	36	N	31	39	42		39	72	87	97	105	102	104	110	108	108	99	57	47	42	44	N	N	48
16			N	N	31	N	30	65	100	102	112	111	102	106	114	107	100	88	54	46	A			
17		27		34	31	37		78	100	100	103	100	107	117	124	108	91	71	53	A	44	42	30	31
18		N	31	A			39	73	85	86	91	95	110	117	106	102	101	68	52	51	A	A	A	A
19			35	30	42		42	73	81	88	96	104	96	118	118	106	93	80	52	52	A	A		A
20	A			N	28	28	37	73	87	106	108	108	82	96	102	94	81	71	43	42	A		36	
21	N		34	32	38	38	43	76	85	91	105	106	101	97	97	101	90	77	52		44	28	32	30
22	28	28	28	N	38	N	46	66	87	100	112	107	106	105	102	90	83	66	52	46		28		
23		30	N		29	N		66	97	101	117	110	108	102	100	97	88	55	46		32			
24					N		37	67	88	104	116	107	102	93	95	91	87	63	46	28				
25		26	32	N	32	N	N	81	88	93	102	105	99	98	104	93	77	49	A	A	39	36		N
26	N			32	31	N	32	65	94	93	105	96	95	97	92	N	74	58	44	44		N		28
27		N			32	32	32	69	98	86	107	90	94	90	84	83	84	45	44		38		30	28
28		27	27	N	28	25	32	65	88	101	99	106	91	94	90	94	77	54	36	39	44	34	28	
29	N	31	28			32	28	77	98	97	91	98	102	96	94	84	78	59	44			42	N	
30		28	28	30	31	28	27	73	87	85	97	96	101	110	112	81	86	N	27	38	A	34	N	N
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	12	13	14	13	22	15	27	30	30	30	30	29	29	29	29	28	29	28	28	20	16	16	13	10
MED	40	30	31	34	36	32	43	76	98	104	109	107	105	110	112	105	96	74	52	48	44	42	37	37
U Q	43	37	34	42	41	37	47	81	102	110	116	111	110	116	117	110	101	82	54	52	48	44	43	43
L Q	32	27	28	31	31	28	37	72	87	97	105	102	100	97	101	94	85	61	46	43	39	35	30	30

HOURLY VALUES OF fEs AT Kokubunji

NOV. 2011

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	23	36	31	35	27	G	G	G	G	G	G	57	62	71	82	68	40	40	50	43	29	28		29
2	G	33	51	39	44		G	30	57	G	55	50	57	53	49	52	51	57	51	64	51	70	69	59
3	39		G	G	G	G	G	G	G	G	53	G	84	79	67	46	46	29	26	50	40	37	59	36
4	32	29	32	34	G	G	G	G	G	G	G	G	61	G	50	57	32	34	G	26	G	G	G	G
5	G	G	G	G	G		G	G	G	G	G	G	G	G	G	G	35	28	G	G	G	G	G	G
6	G	G	G	G	G		G	G	G	G	G	G	G	G	G	G	G	G	33		G	G	G	G
7	G	G	G	G	G	G	G	47	G	G	G	G	50	82	G	G	G	G	G	G	G	G	G	G
8	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	26	G	G	
9	G	39	G	29	G		G	G	G	G	G	G	50	52	49	43	G	G	G	G	G	G		G
10	G	G	G	G			G	G	G	G	G	G	G	G	G	G	G	11	G	G	G		G	G
11	G	G		G	G	G	G	G	G	G	G	G	51	50	G	34	G	G	29	34	33	26		
12	G	G		G	G	G	G	G	G	G	G	C	C	C	C	C	C	C	C	C				
13	G	G	G		G	G	G	G	G	G	G	G	51	40	G	G	G	11	29	G	G	G	G	
14	G	G	G	G	G	G	G	G	G	G	G	50	56	G	G	G	G	G	G	G	G	G	G	G
15	G	G	G	G	G		G	G	G	G	G	G	G	G	G	G	G	G	G	24	G	G	G	G
16			G	24	G	G	G	G	G	G	G	50	G	53	51	48	38	49	26	28	34	G		
17		G		G	G	G	G	G	G	G	G	G	G	G	G	G	G	34	29	34	G	26	G	G
18		G	G	29			G	29	G	G	47	G	43	G	39	G	G	30	28	77	52	33	56	29
19	G		G	G	G		G	G	G	G	G	G	G	G	51	48	41	37	46	36	35	33		30
20	25		G	24	G	G	G	G	G	G	G	G	G	G	52	G	G	29	G	29	28		G	
21	G		G	G	G	G	24	G	G	G	G	51	G	G	G	G	43	50	G		G	G	G	G
22	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	25	26	26		G		
23		G	G		G	G		G	G	G	G	G	G	G	G	40	G	G	G	G	G			
24					G		G	G	G	G	G	G	G	G	G	G	G	G	G	G				
25		G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	31	G	31	28	G	G		G
26	G			G	G	G	G	G	G	G	G	G	G	G	G	G	29	G	G	G		G		G
27		G			G	G	G	43	G	G	G	G	G	G	G	G	G	28	G		G		G	G
28		G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	34	G	G	G	28	G	G	
29	G	G	G			G	G	G	G	G	G	G	G	G	G	G	G	G	G	G		G	G	
30		G	G	G	G	G	G	G	47	G	G	G	G	G	56	G	G	11	G	G	28	G	G	G
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	21	23	24	25	27	21	29	30	30	30	30	29	29	29	29	29	29	29	29	26	25	24	19	19
MED	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	11	G	12	G	G	G	G
U Q	G	G	G	24	G	G	G	G	G	G	G	G	50	45	49	41	34	32	29	34	31	26	G	29
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

NOV. 2011

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

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

HOURLY VALUES OF foF2 AT Yamagawa

NOV. 2011

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	44	46	42	43	45	42	47	N	89	115	69	96	95	97	93	79	98	94	76	44	67	54	54	52
2	53	42	34	53	52	A	54	66	99	144	79	N	79	90	110	88	107	75	75	62	67	54	53	40
3	A	A	A	A	38	34	40	76	89	126	96	86	85	143	96	96	109	89	72	67	66	39	54	50
4	37	A	A		40	34	38	65	87	115	89	108	117	96	89	92	N	59	67	53	66	54	54	48
5	43	42	34	38	37	34	36	66	89	88	100	116	109	69	98	107	107	92	77	67	54	52	53	52
6	47	48	43	34	37	34	36	N	87	N	113	69	94	69	97	108	109	88	87	67	71	66	54	54
7	52	52	45	42	43	42	43	77	86	46		79	114	97	59	88	96	88	76	69	66	54	52	51
8	50	47	47	46	52	34	30	65	87	94	N	78	91	97	94	112	98	89	68	54	54	67	49	42
9	40	37	41	43	43	A	A	74	88	90	111	87	N	84	89	N	80	89	N	67	54	52	52	51
10	48	43	44	43	45	29	30	64	78	N	69	92	73	79	89	89	92	N	74	53	54	54	52	47
11	42	35	40	41	42	34	30	66	82	90	79	97	76	73	91	89	75	87	73	66	54	53	53	49
12	44	43	42	41	42	28	32	64	78	68	90	94	91	92	96	95	93	N	74	63	N	52	52	42
13	42	40	34	37	37	37	B	64	78	80	59	96	90	88	86	98	109	N	67	54	53	53	58	42
14	43	44	42	61	45	B	30	64	86	64	52	92	110	77	90	93	78	79	66	44	52	67	53	46
15	42	36	34	36	40	N	26	64	84	88	96	92	76	N	69	108	92	87	73	52	54	67	42	38
16	37	36	38	40	42	29	28	58	87	91	92	99	69	90	93	93	95	74	62	67	67	53	54	47
17	38	28	32	34	34	31	32	54	87	85	102	92	89	97	N	114	113	85	72	58	66	66	54	34
18	34	30	32	32	34	32	34	61	76	90	96	60	93	N	108	108	89	83	66	72	N	52	N	44
19	36	34	34	36	42	35	29	54	80	78	N	88	82	N	99	95	90	77	77	67	54	51	47	37
20	34	34	37	34	36	34	29	54	79	90	94	N	N	96	96	98	91	74	70	63	54	66	53	44
21	36	34	34	34	34	34	34	54	78	87	79	N	95	96	60	96	90	84	74	54	66	62	50	42
22	38	40	38	37	40	B	41	64	84	76	N	98	94	96	90	93	87	77	73	53	54	64	42	29
23	89	28	26	36	38	B	26	58	88	89	N	N	N	69	114	94	84	84	67	51	52	54	54	34
24	34	34	34	32	34	34	29	54	80	87	81	99	90	69	63	88	90	86	66	58	53	52	54	44
25	38	40	41	40	40	B	29	50	78	94	90	69	69	97	79	90	94	77	63	64	54	49	44	34
26	29	26	34	32	42	B	B	53	66	81	88	92	94	90	N	86	91	N	68	50	54	48	B	28
27	28	29	32	28	32	32	28	53	76	59	89	92	78	57	84	86	94	78	55	52	54	51	42	41
28	32	32	29	32	37	28	28	53	87	90	50	97	96	110	96	96	97	78	57	54	54	54	40	29
29	29	29	26	32	37	29	28	54	81	92	86	89	94	88	71	95	91	76	55	54	54	53	40	29
30	34	32	44	44	47		28	64	74	93	74	84	88	93	81	93	88	88	52	44	42	52	47	34
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	29	28	28	28	30	21	27	28	30	28	25	26	27	27	28	29	29	26	29	30	28	30	28	30
MED	38	36	36	37	40	34	30	64	84	90	89	92	91	90	90	94	92	84	70	56	54	54	52	42
U Q	44	42	42	42	43	34	36	65	87	92	96	97	95	97	96	98	98	88	74	67	66	62	54	48
L Q	34	32	34	34	37	30	28	54	78	80	76	86	79	77	82	89	89	77	66	53	54	52	47	34

HOURLY VALUES OF fEs AT Yamagawa

NOV. 2011

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

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

HOURLY VALUES OF fmin AT Yamagawa

NOV. 2011

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

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

HOURLY VALUES OF foF2 AT Okinawa

NOV. 2011

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	52	A	48	42	43		42	86	106	106	110	110	108	126	131	131	141	131	130	130		129	108	80
2	66	67	67	52	64	62	74	105	126	138	143	136	130	131	129	134	131	128	126	108	108	109	86	64
3	48	47	46	49		38	43	88	104	119	131	131	131		N	147	146		106	109	109	131	108	76
4	64			A	43			82	88	108	131	134	130	144	147	142	N	144	129	109	109	114	88	
5	52	52	50	43	43	31		73	104	106	122	130	131	131	129	142	128	110	108	88	87	88	78	74
6	70	53	57		38	N	30	64	88	100	118	118	108	130	134	132	136	131	131	129	132	79	108	89
7	52	83	54	54	45	38	40	76	101	105	128	131	120	131	134	131		130	109	114	118	108	87	66
8	76	67	66	60	67	40		66	101	107	115	121	117	126	131	134	131	132	106	89	87	87	76	52
9			48	52	29		A	71	108	111	126	130	131	149	131	143	143	136	129	129	108	87	86	86
10		78	73	73	67	34		67	86	110	124	119	110	131	144	143	131	131	130	106	106	108	87	74
11	53	57	52	54	52	30		72	101	108	118	126	118	126	126	131	131	120	107	87	83	86	80	67
12	66	54	52	52	52	N		64	88	101	116	128	130	131	131	131	132	116	88	88	87	86	67	66
13	66	51	46	30	46	37		60	101	126	143	131	122	131	130	134	132	108	108	88	82	87	87	67
14	52	N	63	67	52			66	88	114	131	127	132	132	131	142	145		129	108	108	106	N	86
15	72	53	46	48	44			65	85	102	110	110	119	126	135	142	132	130	108	86	86	86	67	53
16	52		51	44	50	40		60	87	106	103	118	127	128	132	146	143	134	133		119		109	86
17	52	52	46	47	47		34	67	81	98	104	90	107	120	118	134	131	109	108	89	107	87	87	52
18	46	41		36	40	34		60	87	101	115	110	126	132	130	142	128	128	108	109	108	110	87	67
19	52	52	50	48	52			53	80	86	90	110	108	118	128	131	126	110	107	108	106	101	67	52
20	47	44	43	43	44			51	93	87	107	101	93	107	111	109	106	108	88	79	85	87	86	73
21	53	44		46	44	29		58	81	89	113	107	107	108	108	108	102	106	67	82	88	99	80	53
22	50	51	50				59	64	87	107	126	131	123	116	126	128	121	118	88	88	86	87	67	47
23	50	47			42		36	63	99	107	120	117	131	130	126	121	117	107	108	78	80	81	67	
24	34		44		43	32		54	88	102	124	128	131	134	134	131	128	109	108	104	106	88	82	67
25	51	52	42	44	52			54	88	107	128	130	120	120	120	127	129	131	108	88	104	83	72	52
26	42	38		44	59			55	87	88	108	129	121	127	110	90	110	98	88	77	71	72	52	
27	32	30	34	34	38			52	74	100	N	112	120	117	104	118	114	108	86	72	74	54	52	53
28	51	30	34	38	47			52	86	117	93	118	128	132	142	148	131	117	108	89	54	83	63	47
29	N				47	28		51	94	107	106	115	117	106	89	117	125	108	94	60	66	76	51	38
30	40	42	45	46	50			54	92	88	108	105	118	127	124	117	111	112	88	54	54	84	54	53
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	27	23	24	24	28	13	8	30	30	30	29	30	30	29	29	30	28	28	30	29	29	29	29	27
MED	52	52	49	46	46	34	41	64	88	106	118	120	120	128	130	132	131	118	108	89	88	87	80	66
U Q	64	54	53	52	52	39	51	71	101	108	127	130	130	131	133	142	132	131	126	108	108	107	87	74
L Q	48	44	45	43	43	30	35	54	87	100	108	110	117	120	122	127	123	108	94	84	82	83	67	52

HOURLY VALUES OF fEs AT Okinawa

NOV. 2011

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	G	33	G	G	G		G	G	G	G	G	G	G	64	62	47	42	39	52	49		G	G	G
2	G	G	G	G	G	G	G	G	G	G	64	68	49	76	60	46	49	36	28	G	G	G	G	G
3	G	G	36	G	G	G	27	G	G	G	52	G	G		48	47	42		43	G	G	G	26	G
4	G	G		38	26			G	G	G	G	G	G	G	54	67	64	55	50	G	G	G	G	
5	G	G	G	G	G	G		G	G	G	G	G	G	G	G	G	44	29	G	G	G	G	G	G
6	G	G	G		G	G	G	G	G	G	G	G	58	53	52	G	G	G	G	G	G	G	G	G
7	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G		G	G	G	G	39	G	G
8	G	G	G	G	G	G		G	G	G	G	G	49	52	57	G	G	G	G	G	G	G	G	G
9	G		G	G	G		28	G	G	G	G	G	G	50	G	G	66	34	G	G	G	G	G	G
10		G	G	G	G	G		G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
11	G	G	G	G	G	G		G	G	G	G	G	68	54	G	G	36	41	27	G	G	G	G	G
12	G	G	G	G	G	G		G	G	G	G	G	46	G	G	G	56	35	G	G	G	G	G	G
13	G	G	G	G	G	G		G	G	G	G	G	G	G	59	57	51	36	G	G	G	G	G	G
14	G	G	G	G	G			G	G	G	50	51	52	56	G	G	G		38	45	G	31	24	G
15	G	G	G	G	G			G	G	G	G	54	58	G	60	54	66	65	79	34	26	G	G	G
16	G	G	G	G	G	G		G	G	G	G	G	G	G	G	G	G	G	27		G		G	G
17	G	G	G	G	G		G	G	G	G	55	G	51	G	G	G	G	G	36	25	G	G	G	G
18	G	G		G	G	G		G	G	G	G	G	G	G	50	54	64	44	G	G	G	G	G	G
19	G	G	G	G	G	G		G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
20	G	G	G	G	G			G	G	68	G	G	G	G	G	57	44	40	39	G	G	G	G	G
21	G	G		G	G	G		G	G	G	G	G	G	G	G	G	G	G	39	G	G	G	G	G
22	G	G	G		G		G	G	G	G	G	G	G	G	G	G	50	G	G	G	G	G	G	G
23	G	G			G		G	G	G	G	G	48	G	G	G	G	G	G	G	G	G	G	G	
24	G	G	G		G	G		G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
25	G	G	G	G	G			G	G	G	G	G	G	43	G	G	G	G	G	G	G	G	G	G
26	G	G		G	G			G	G	G	G	G	G	51	G	51	G	G	G	11	G	G	G	
27	G	G	G	G	G	G		G	G	G	G	G	G	G	42	38	35	28	34	26	G	G	G	G
28	G	G	G	G	G			G	37	G	G	G	G	G	G	G	G	G	G	11	G	G	G	G
29	G				G	G		G	G	G	G	G	G	G	G	G	G	34	G	G	G	G	G	G
30	G	G	G	G	G			28	41	G	51	G	50	G	48	G	41	G	G	G	G	G	G	G
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	29	28	24	25	30	17	9	30	30	30	30	30	30	29	30	30	29	28	30	29	29	29	30	27
MED	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	35	G	G	G	G	G	G	G
U Q	G	G	G	G	G	G	14	G	G	G	G	G	49	50	50	47	49	36	36	6	G	G	G	G
L Q	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G

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HOURLY VALUES OF fmin AT Okinawa

NOV. 2011

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	16	14	14	17	21		16	22	30	39	40	44	48	40	35	35	21	15	14	15		18	16	17
2	18	18	16	33	18	20	20	24	30	39	37	39	40	36	38	27	23	20	15	20	20	17	18	39
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4	15	22		15	17			30	34	40	49	49	49	49	36	28	21	20	17	21	38	42	23	
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7	20	18	18	20	17	22	16	21	38	42	43	46	42	50	42	40		26	20	17	36	18	20	20
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9	26		18	20	17		16	23	28	39	20	42	46	50	43	42	27	17	15	20	15	15	17	27
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11	17	15	22	17	17	16		36	35	20	42	42	40	38	42	39	26	21	16	20	21	18	21	20
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13	16	16	21	18	18	17		26	39	38	43	49	48	51	40	38	28	18	18	20	26	42	17	21
14	17	23	18	20	17			22	29	40	42	43	39	39	43	42	38		15	17	18	15	15	20
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17	40	42	18	42	17		21	36	39	40	39	51	40	48	40	48	40	16	18	15	20	21	20	15
18	28	18		18	18	20		26	18	39	44	43	44	43	42	38	24	17	22	23	23	16	21	20
19	21	26	20	20	20	26		22	29	39	40	43	42	49	64	42	38	22	16	16	17	15	18	22
20	18	21	21	16	15			20	35	40	43	45	45	49	42	32	22	18	17	18	15	18	15	15
21	17	20		18	16	20		20	38	20	38	42	44	44	44	42	39	29	16	16	30	15	15	42
22	27	20	22		17		20	21	20	39	40	40	40	42	40	39	21	23	16	15	28	16	18	28
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24	17	21	18		16	15		20	20	38	43	40	43	40	39	38	30	16	20	32	18	20	17	20
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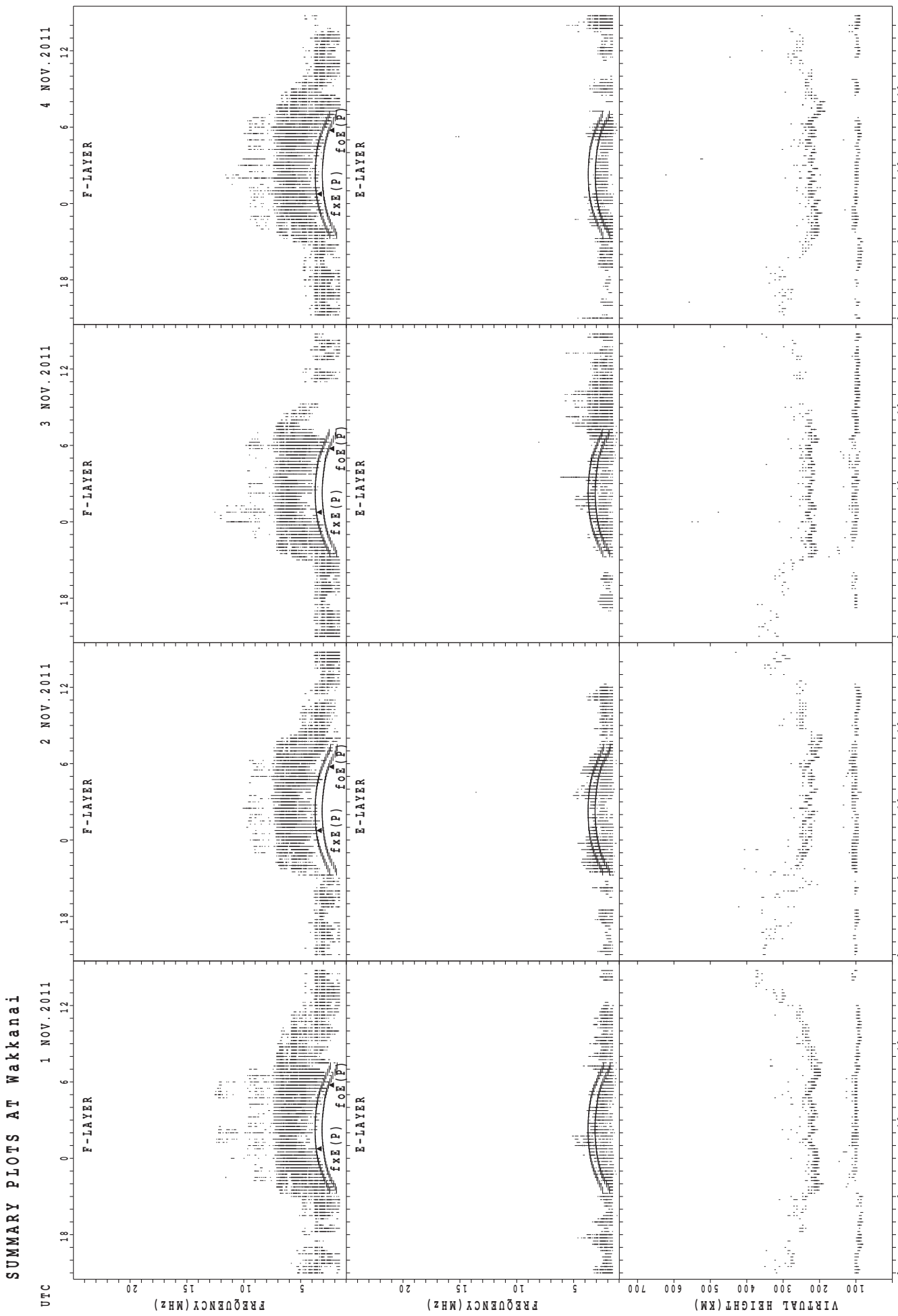
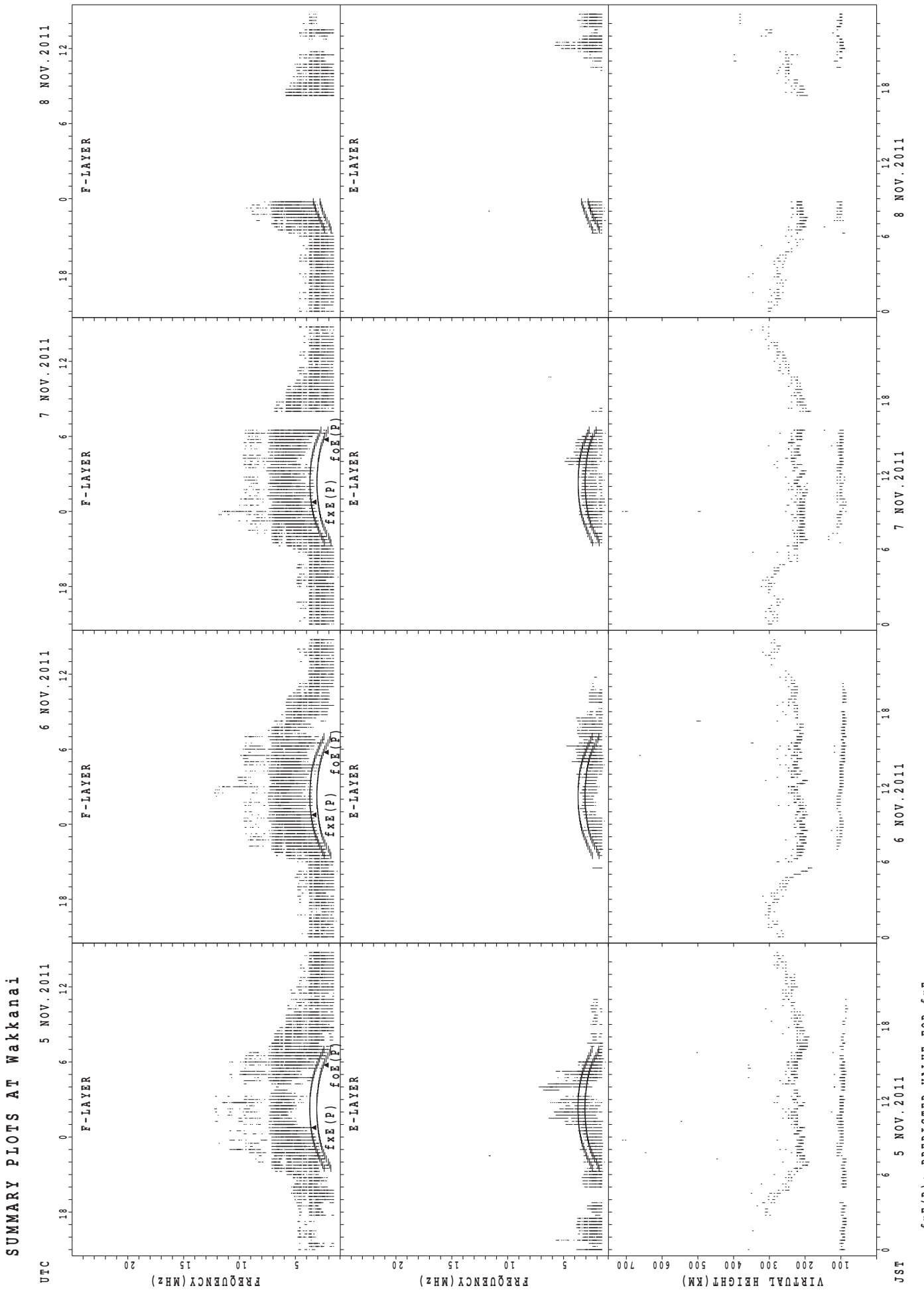
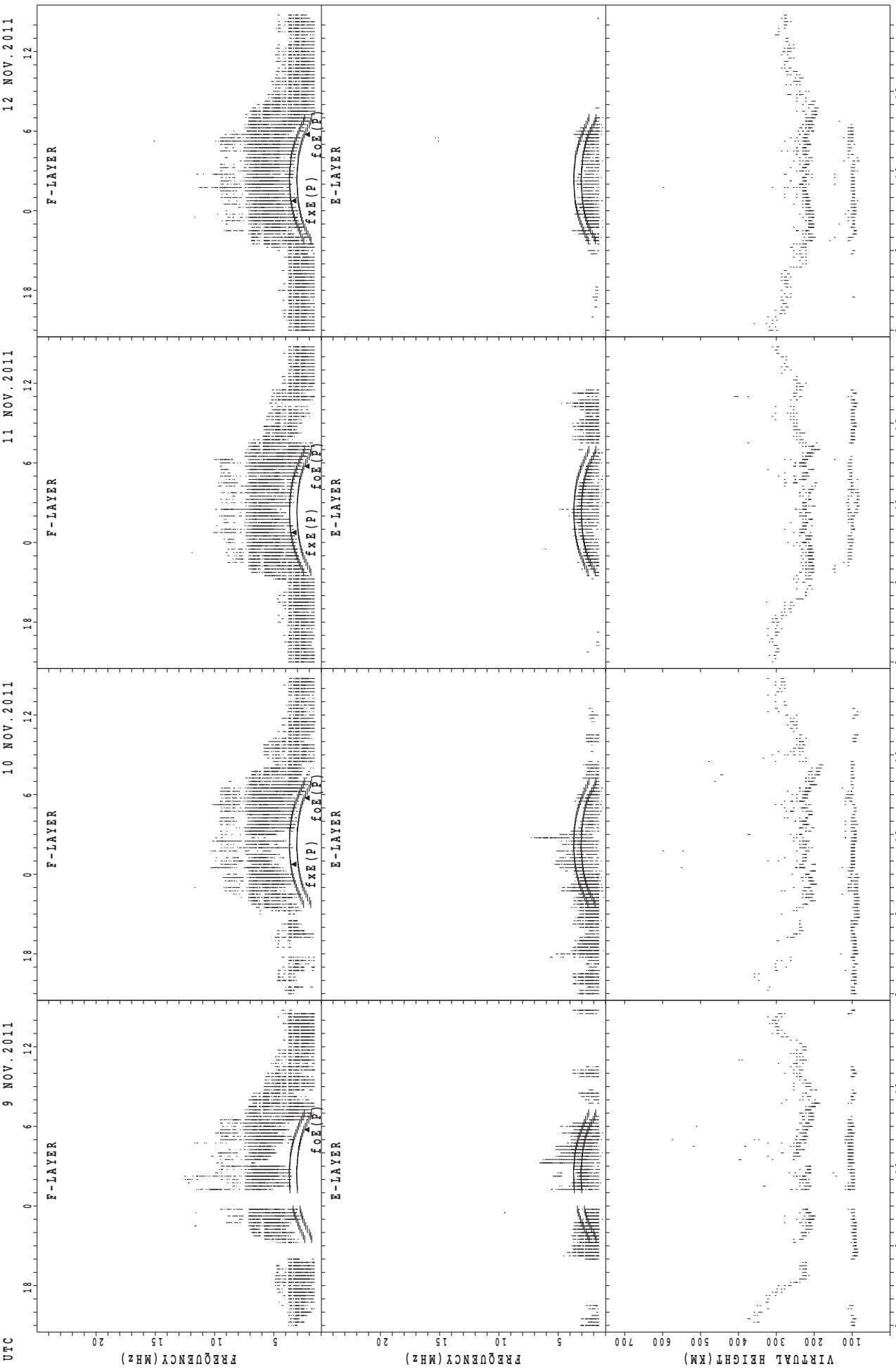
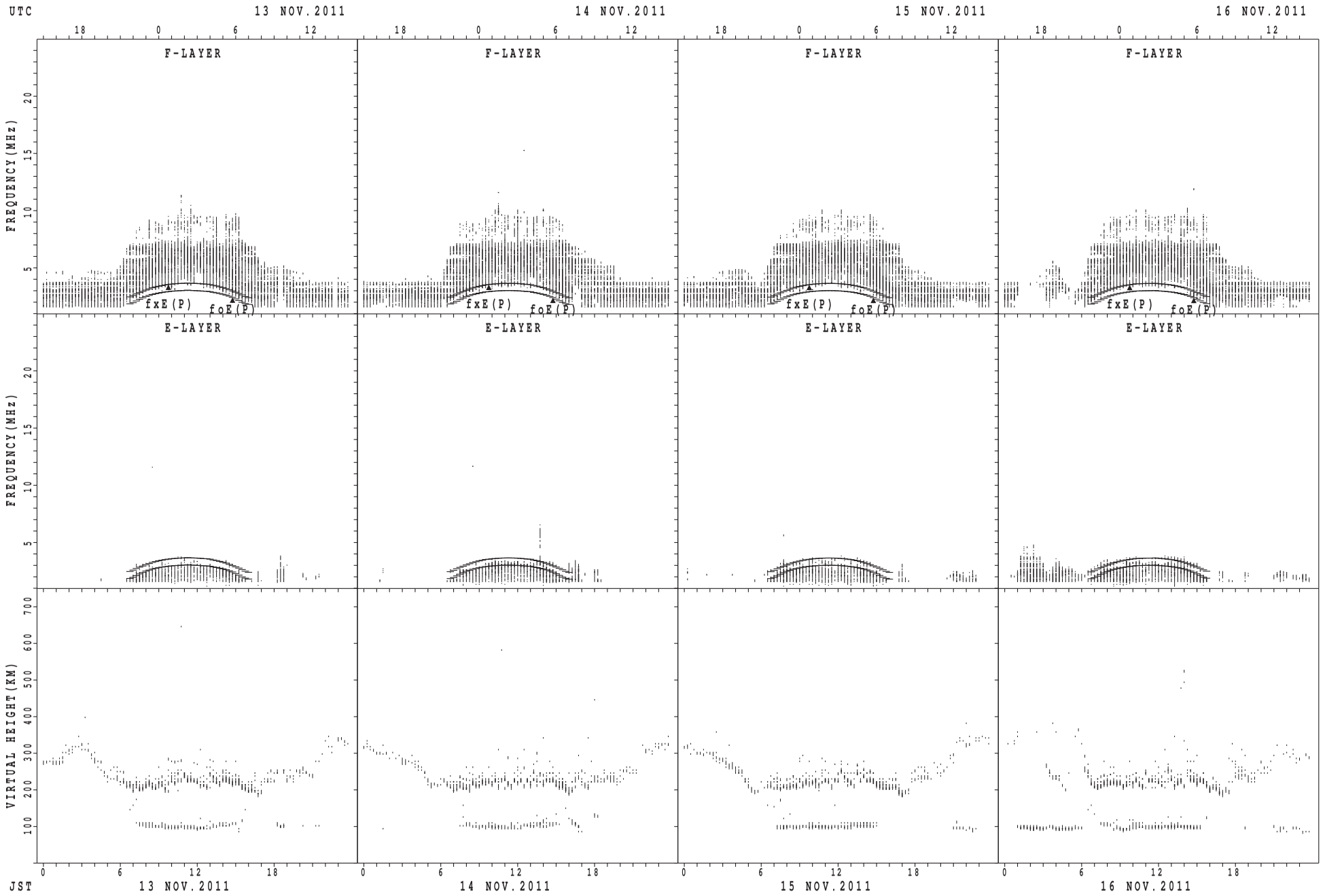
26	20	16		21	17			18	17	18	40	42	42	43	42	33	30	17	17	17	21	38	21	
27	18	15	18	16	20	17		21	30	16	37	40	48	42	33	20	20	38	17	15	40	15	42	15
28	18	20	17	18	18			18	15	21	22	40	42	43	42	45	33	22	17	15	18	18	15	17
29	20				18	17		20	15	20	42	42	43	43	42	40	20	22	16	16	20	17	16	20
30	21	20	17	18	20			18	26	20	36	39	40	43	21	34	21	16	20	20	20	17	17	18
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	29	28	24	25	30	17	9	30	30	30	30	30	30	29	30	30	29	28	30	29	29	29	30	27
MED	20	19	18	18	18	18	17	22	30	39	41	43	43	43	42	39	26	21	17	20	20	18	18	20
U Q	21	21	20	20	20	20	20	26	35	40	43	44	46	49	43	42	34	26	20	20	27	19	20	21
L Q	17	16	17	17	17	16	16	20	20	21	39	40	40	41	40	34	21	17	16	16	18	16	16	17


SUMMARY PLOTS AT Wakkanai
UTC
JST
1 NOV.2011
2 NOV.2011
3 NOV.2011
4 NOV.2011
F-LAYER
E-LAYER
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
fxE(P)
foE(P)
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

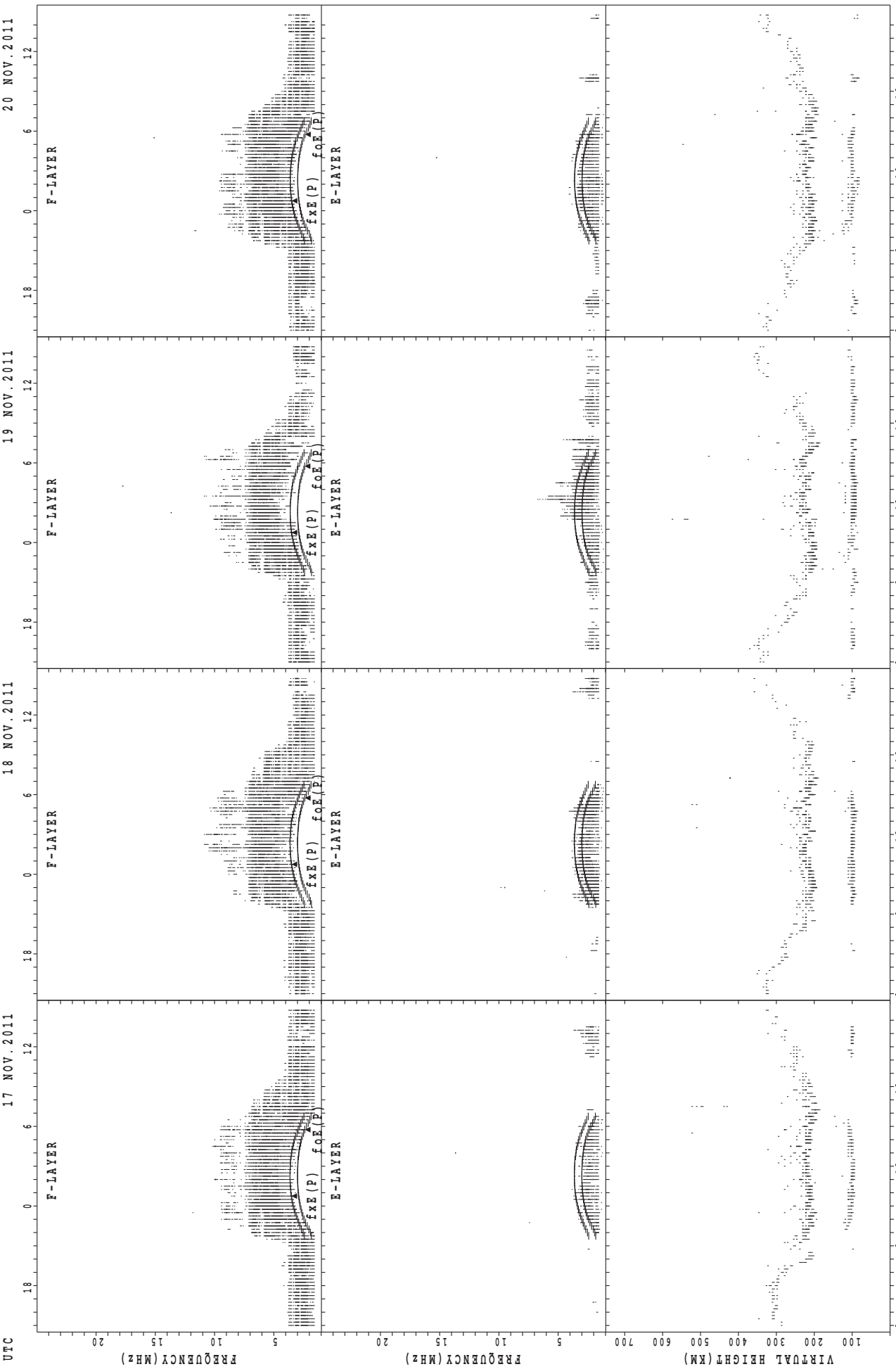

SUMMARY PLOTS AT Wakkanai
UTC
JST
5 NOV.2011
6 NOV.2011
7 NOV.2011
8 NOV.2011
F-LAYER
E-LAYER
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
fxE(P)
foE(P)
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

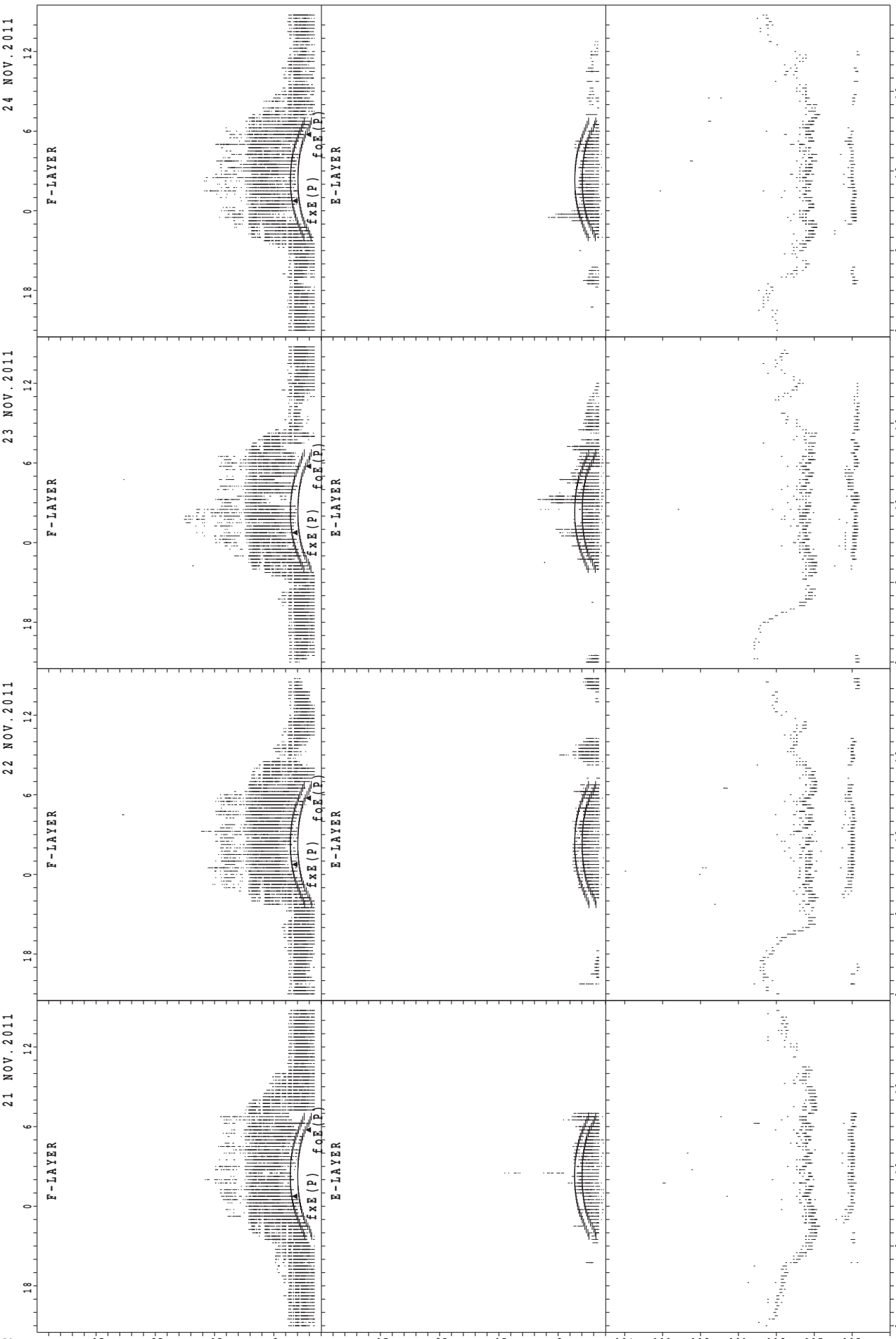

SUMMARY PLOTS AT Wakkanai
UTC
JST
9 NOV.2011
10 NOV.2011
11 NOV.2011
12 NOV.2011
F-LAYER
E-LAYER
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
fxE(P)
foE(P)
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

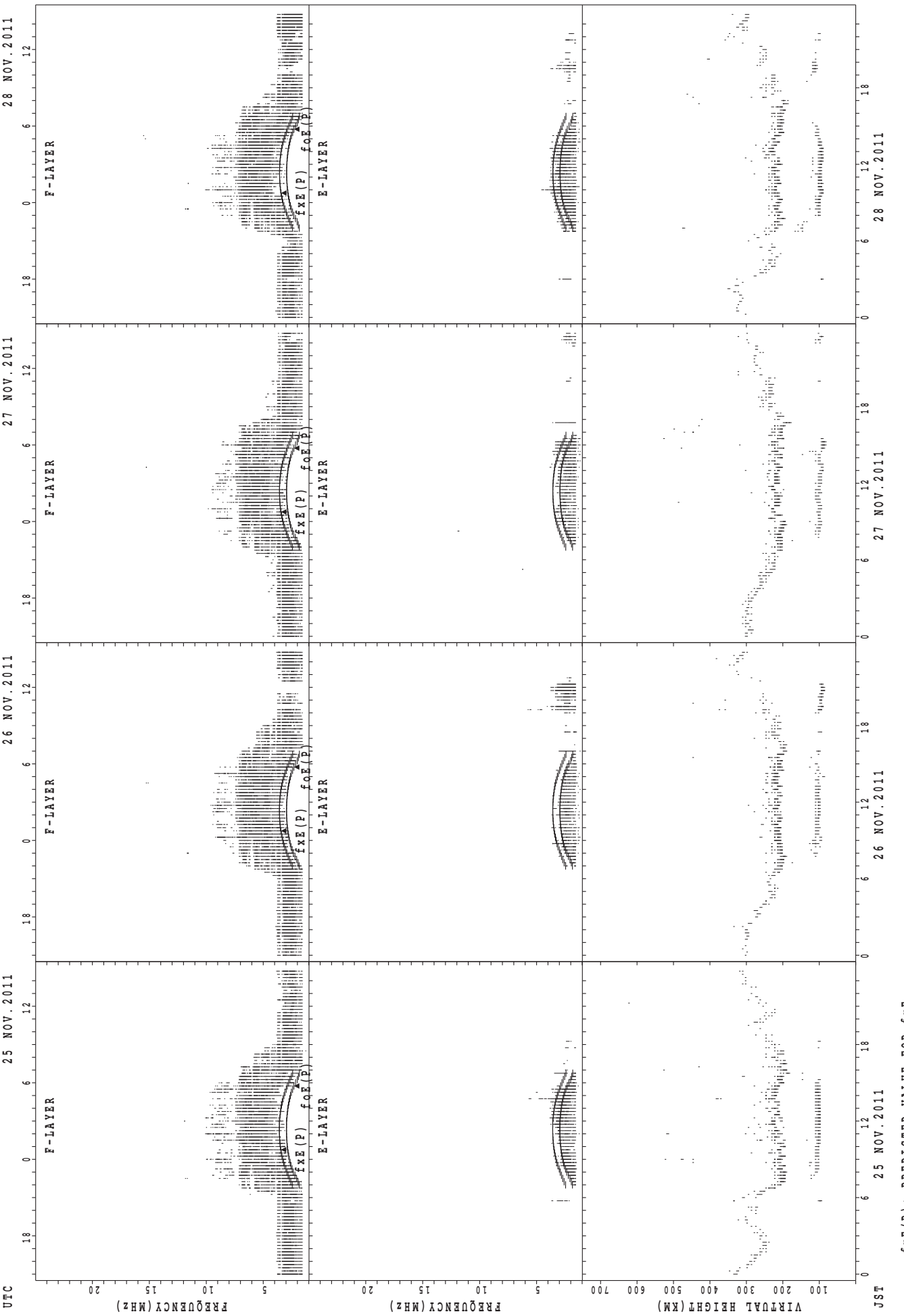
SUMMARY PLOTS AT Wakkanai



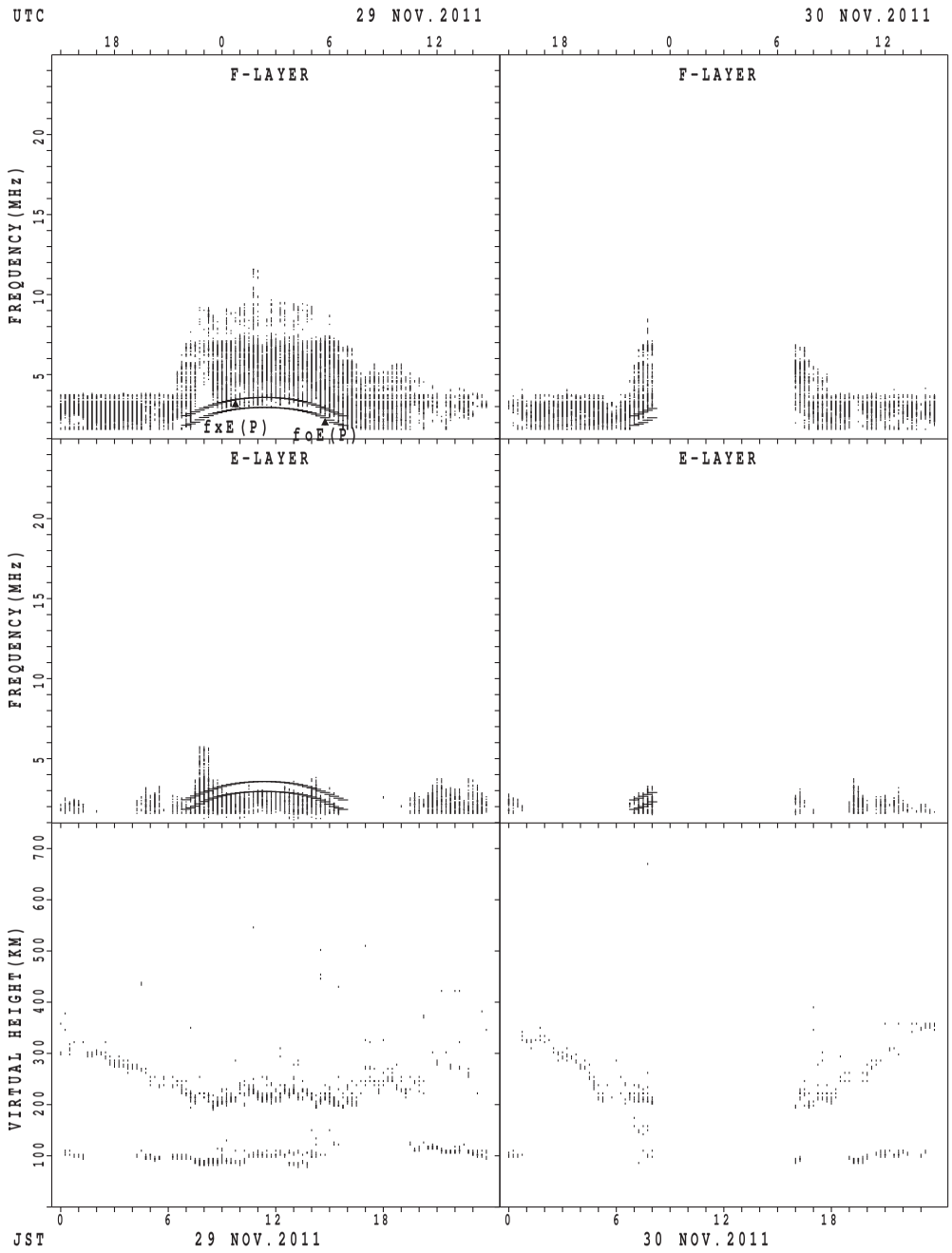
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE


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


SUMMARY PLOTS AT Wakkanai
UTC
JST
21 NOV.2011
22 NOV.2011
23 NOV.2011
24 NOV.2011
F-LAYER
E-LAYER
fxE(P)
foE(P)
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

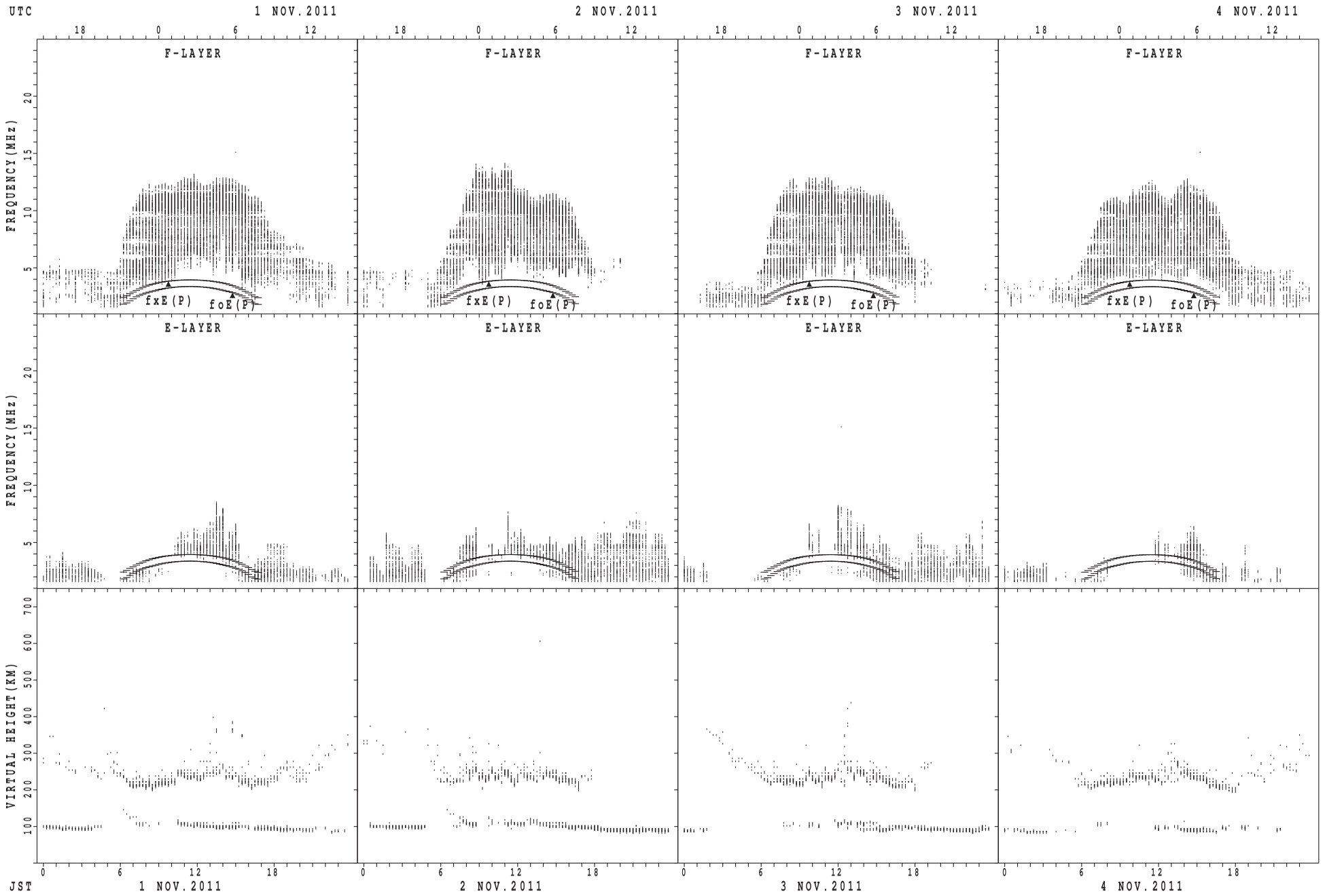

SUMMARY PLOTS AT Wakkanai
UTC
JST
25 NOV.2011
26 NOV.2011
27 NOV.2011
28 NOV.2011
F-LAYER
E-LAYER
fxE(P)
foE(P)
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



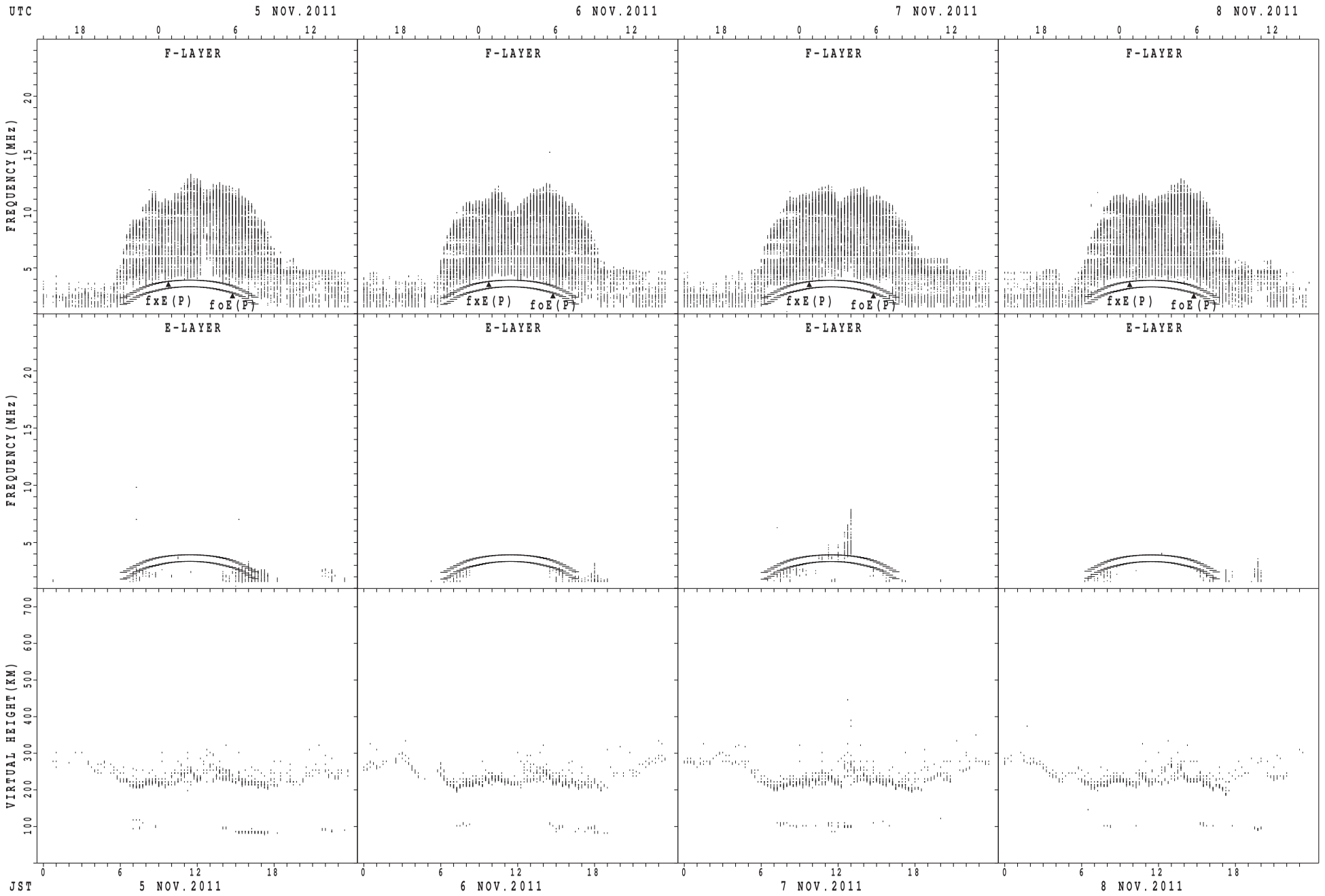
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



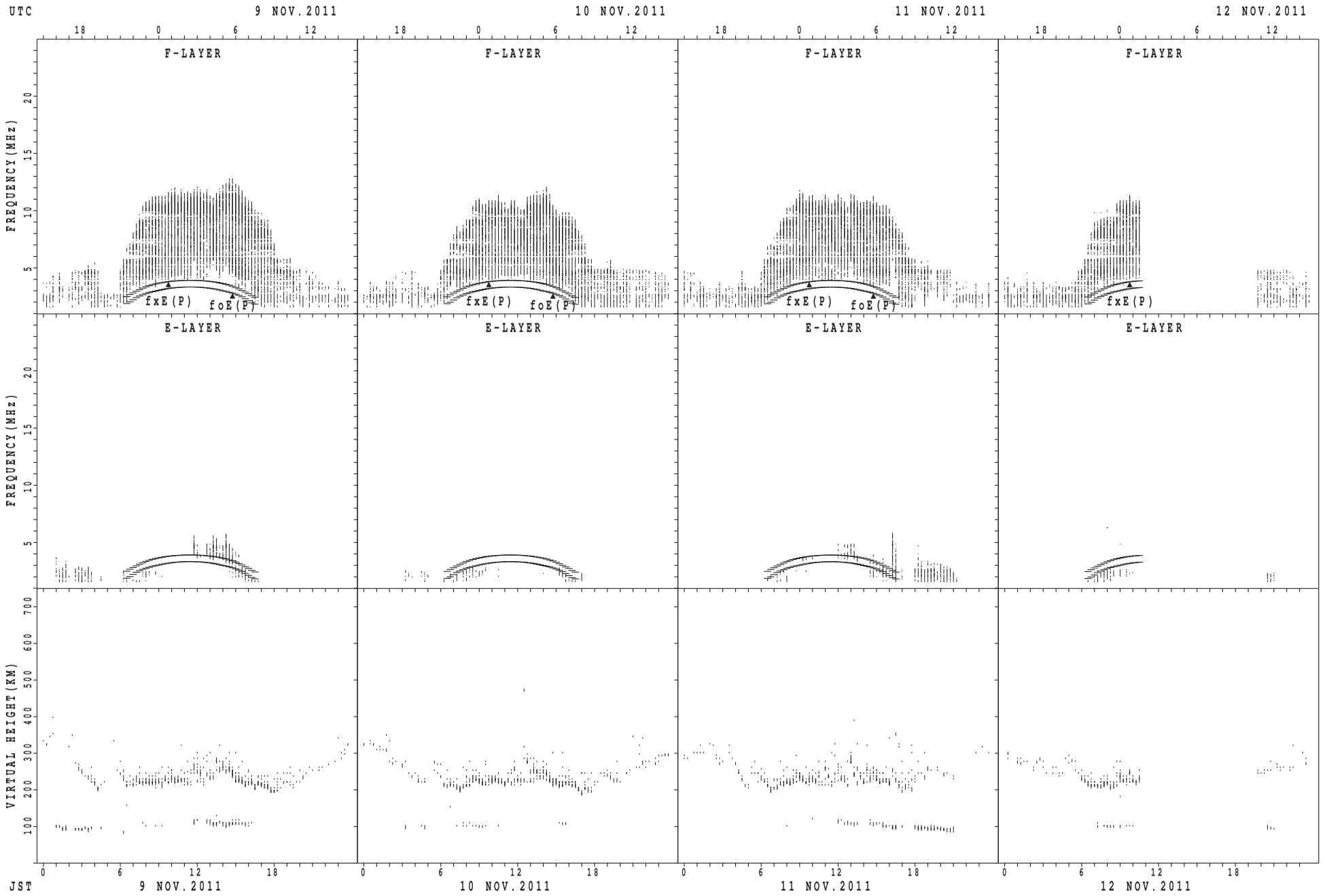
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



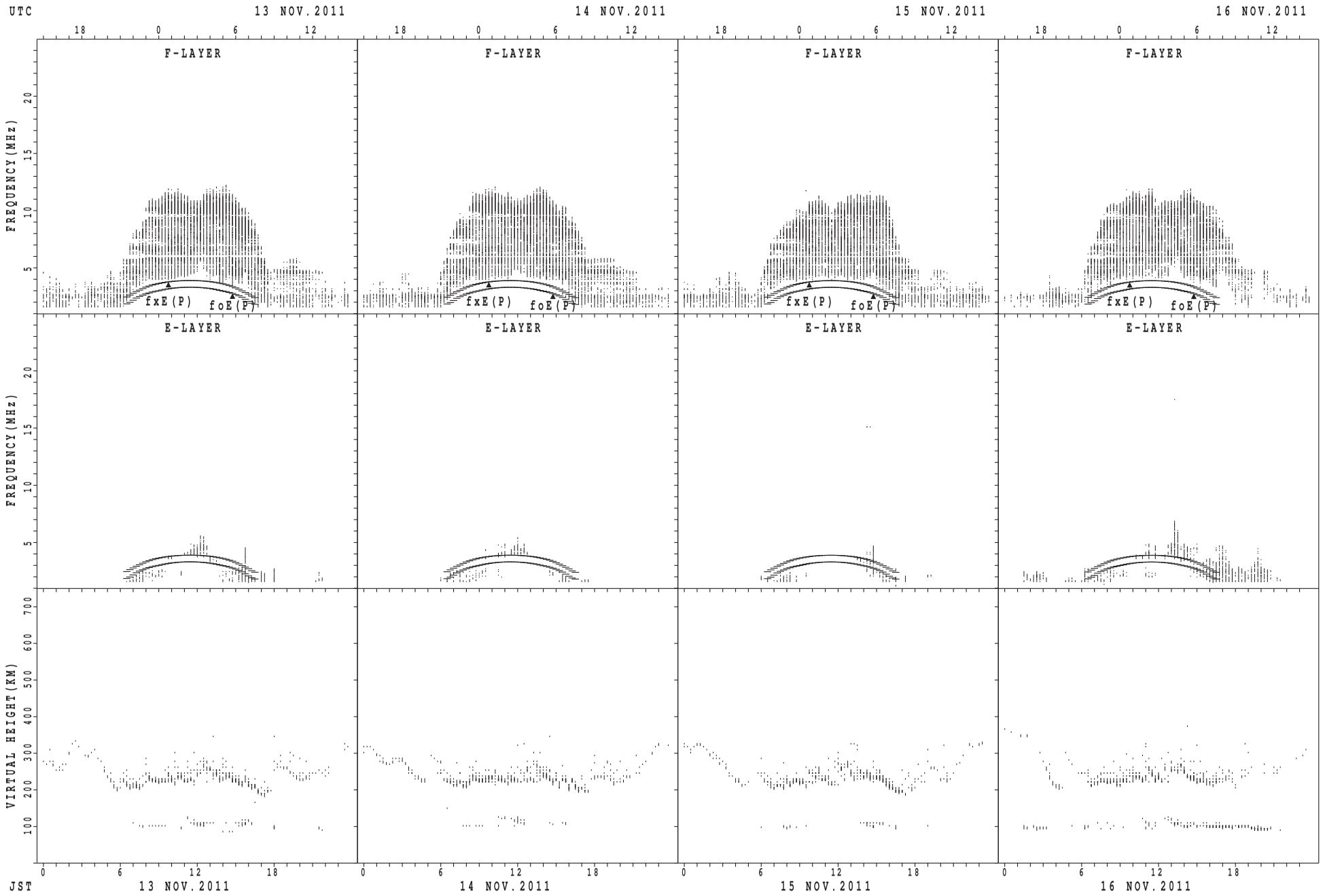
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



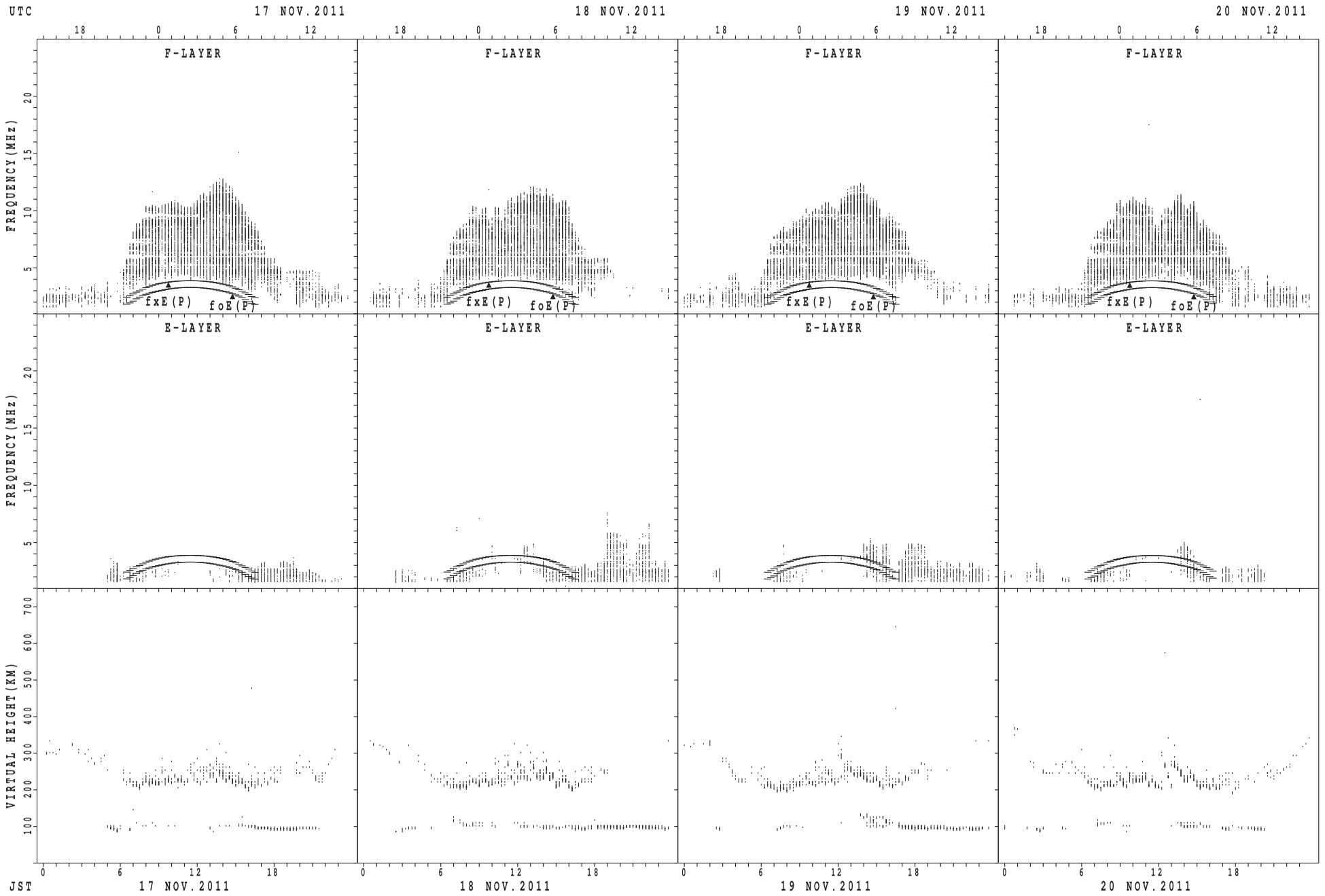
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



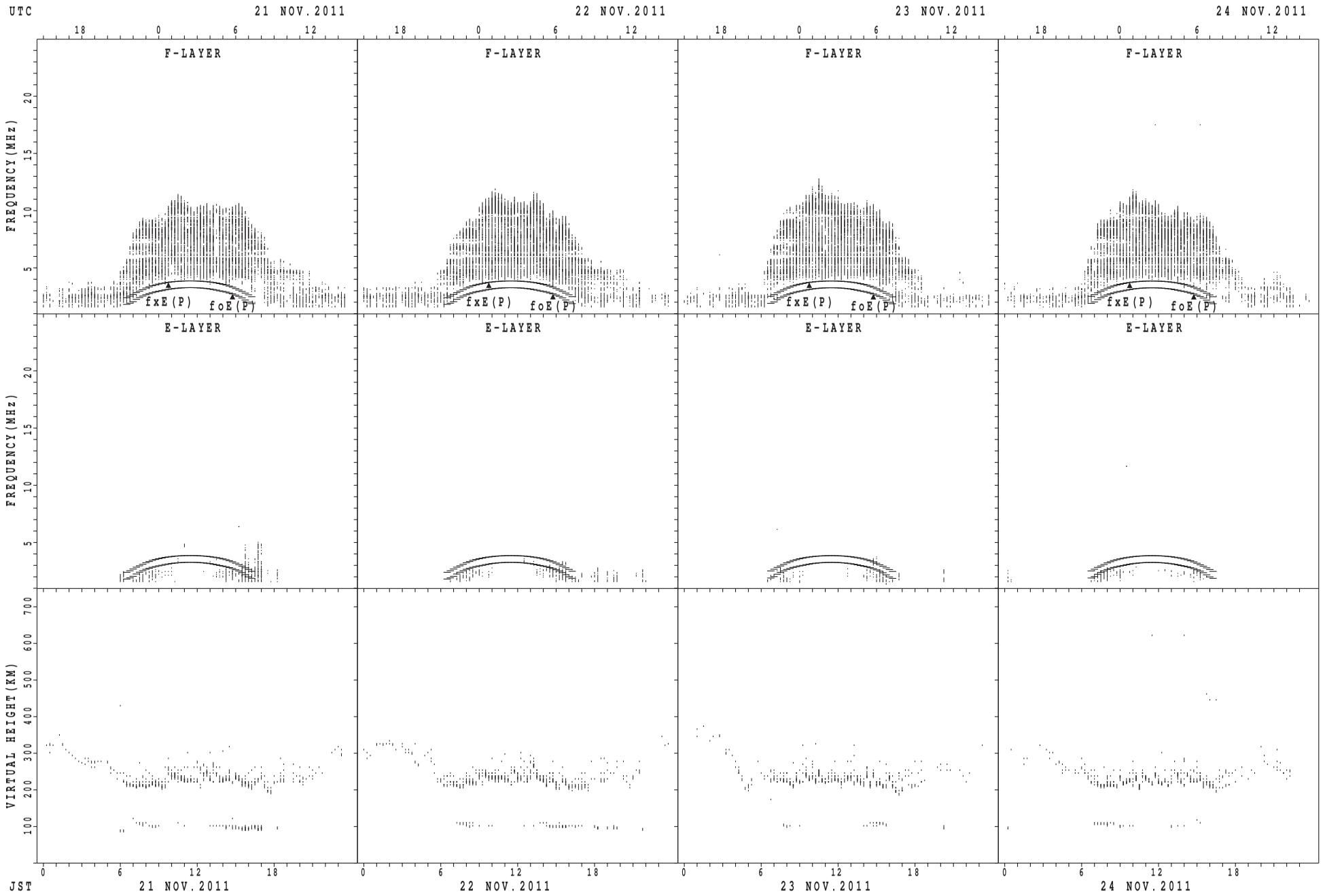
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



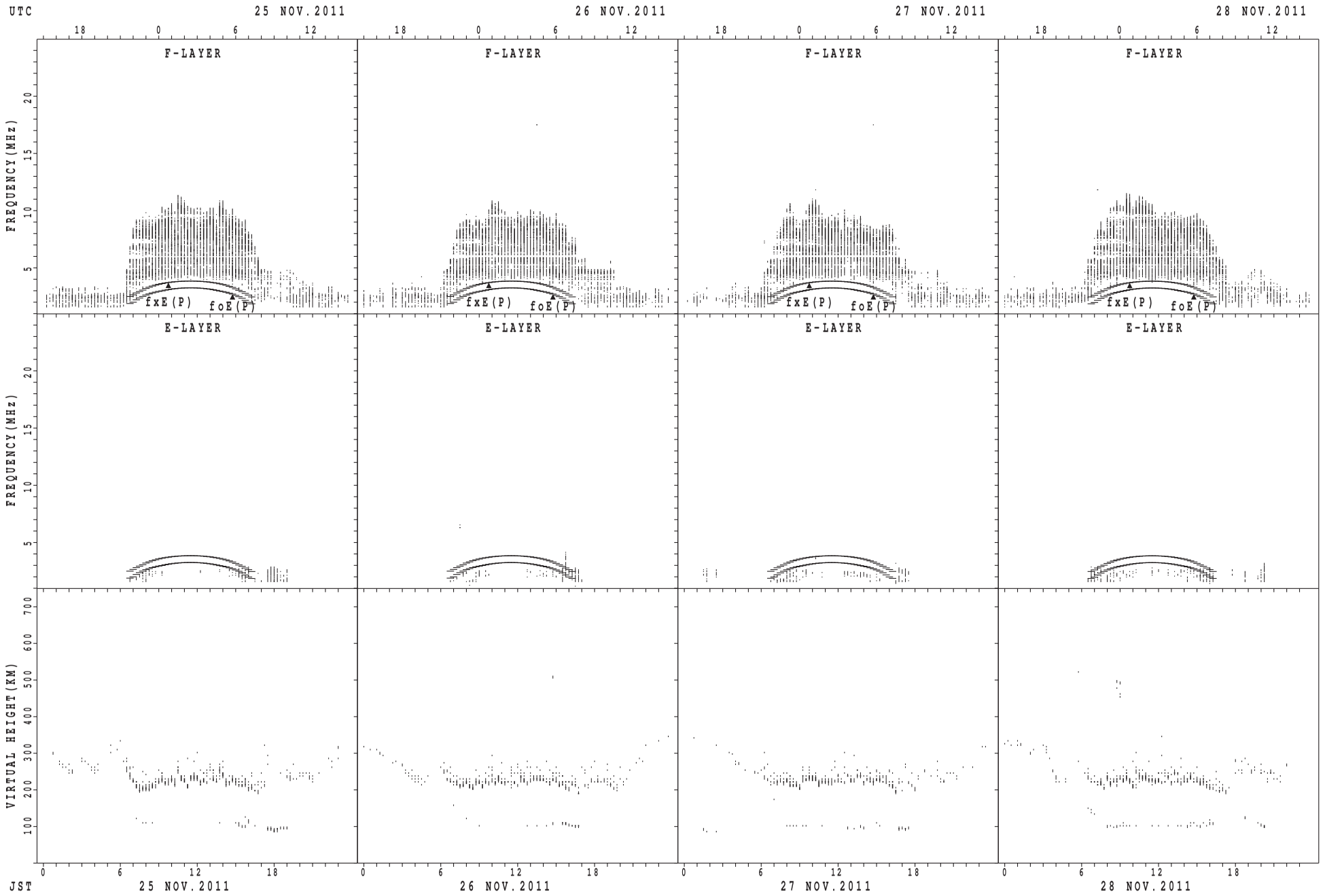
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



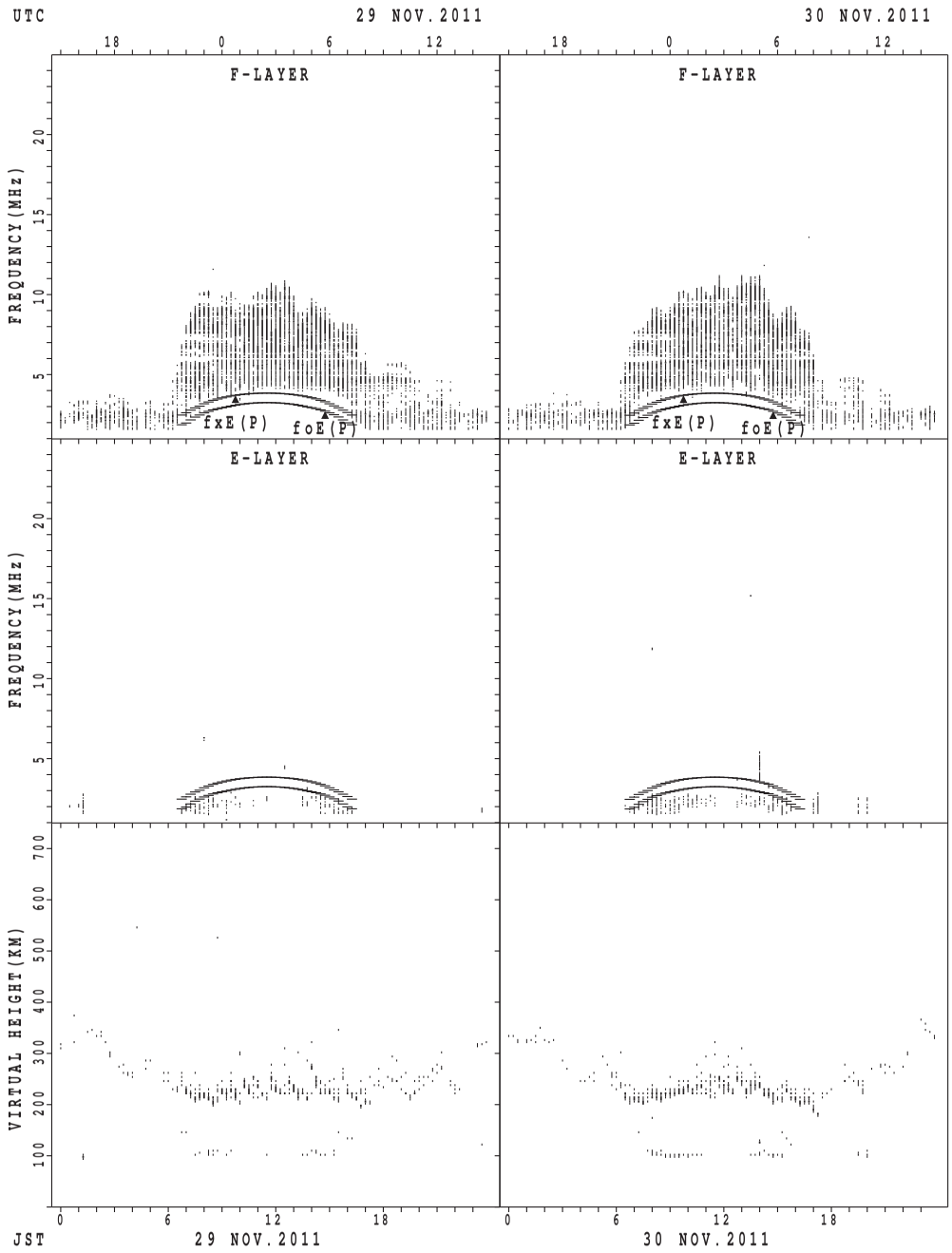
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



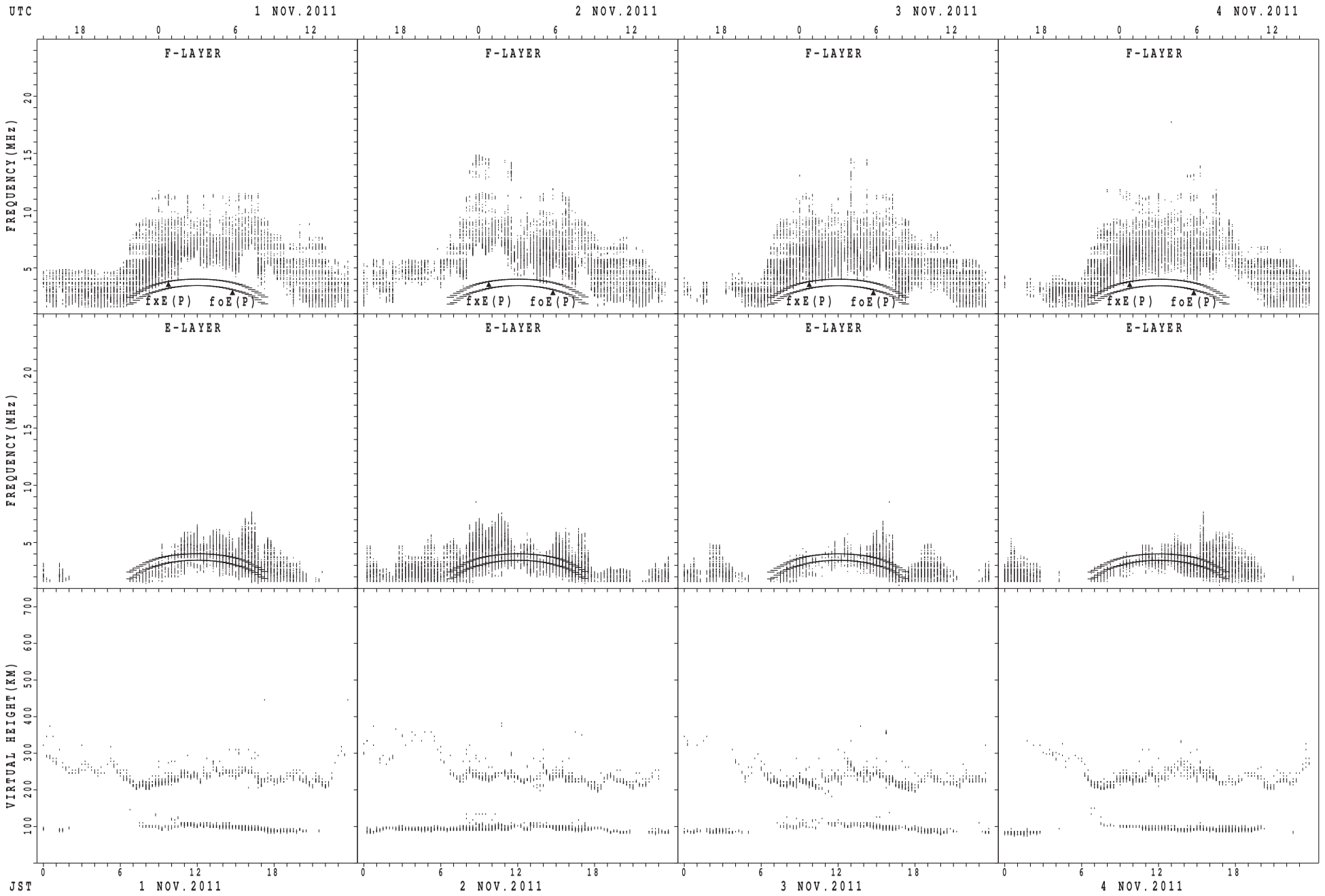
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



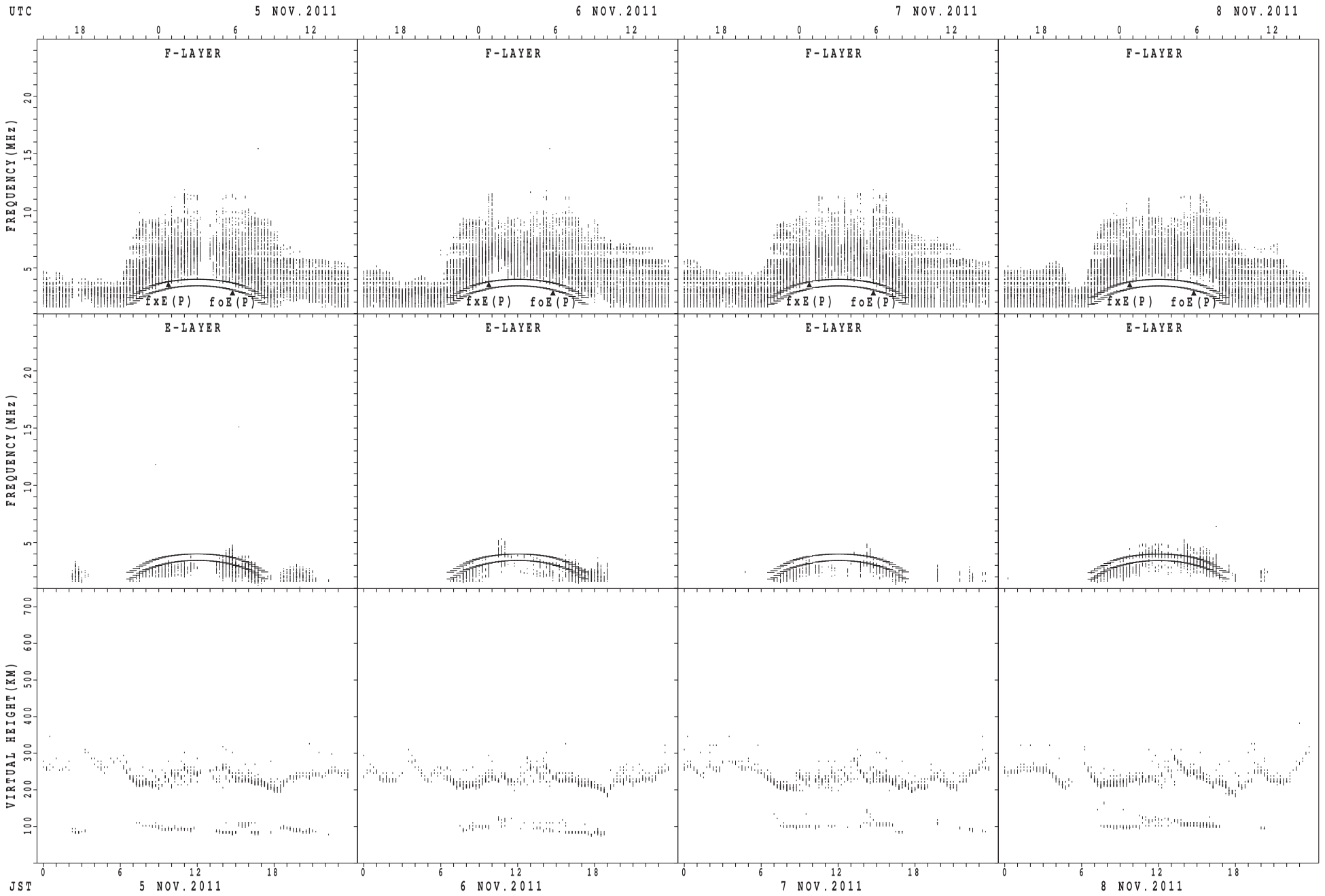
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



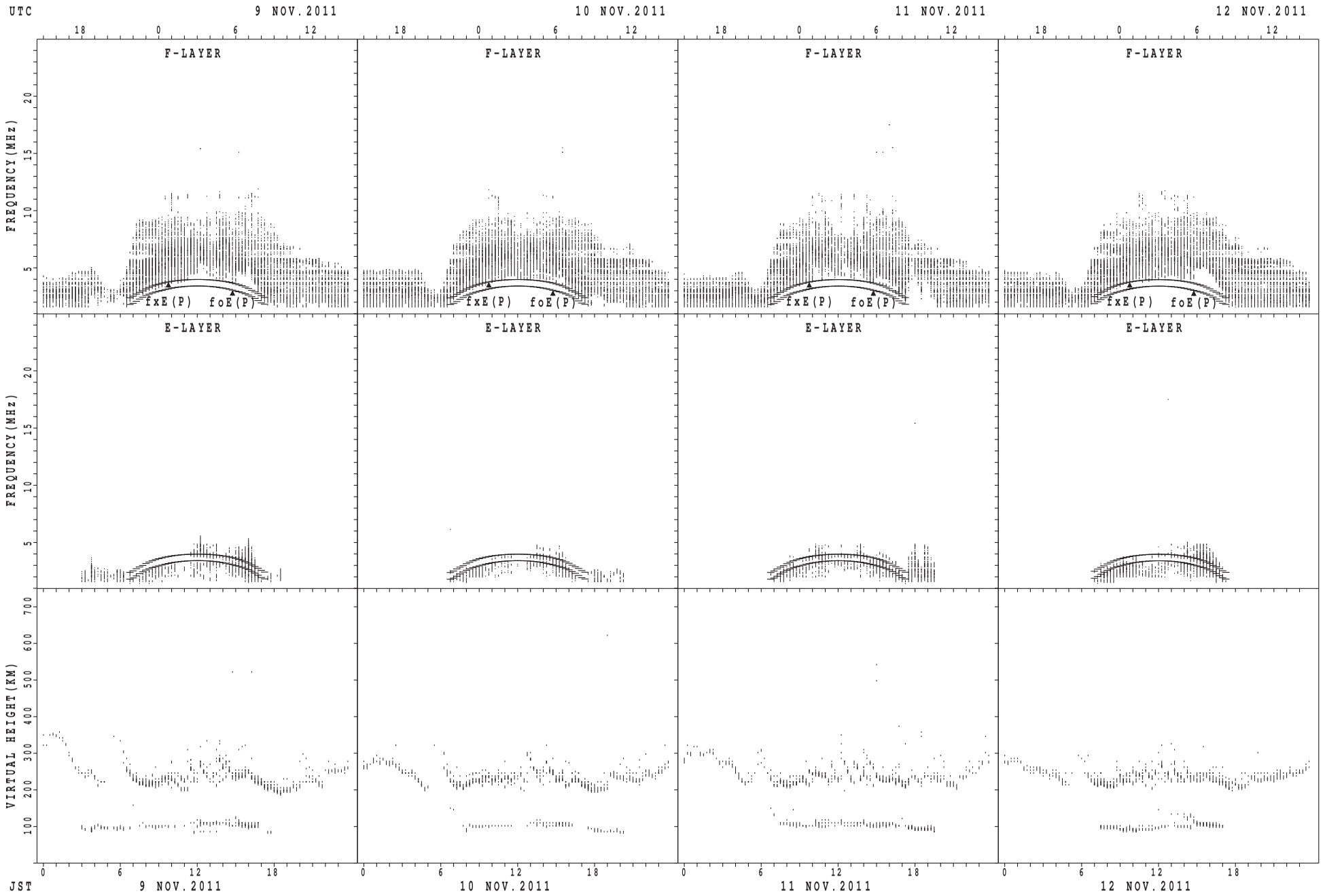
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



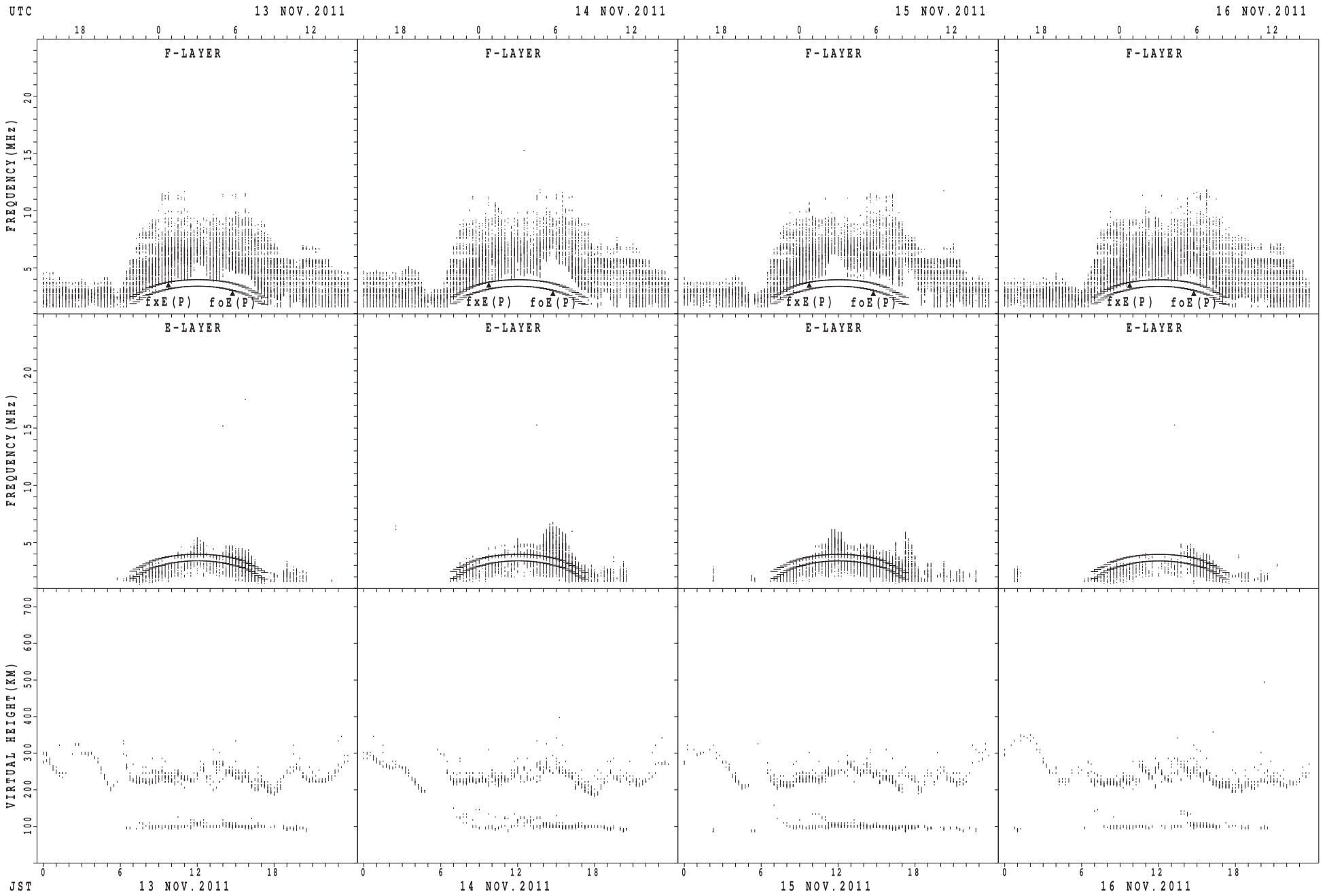
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa

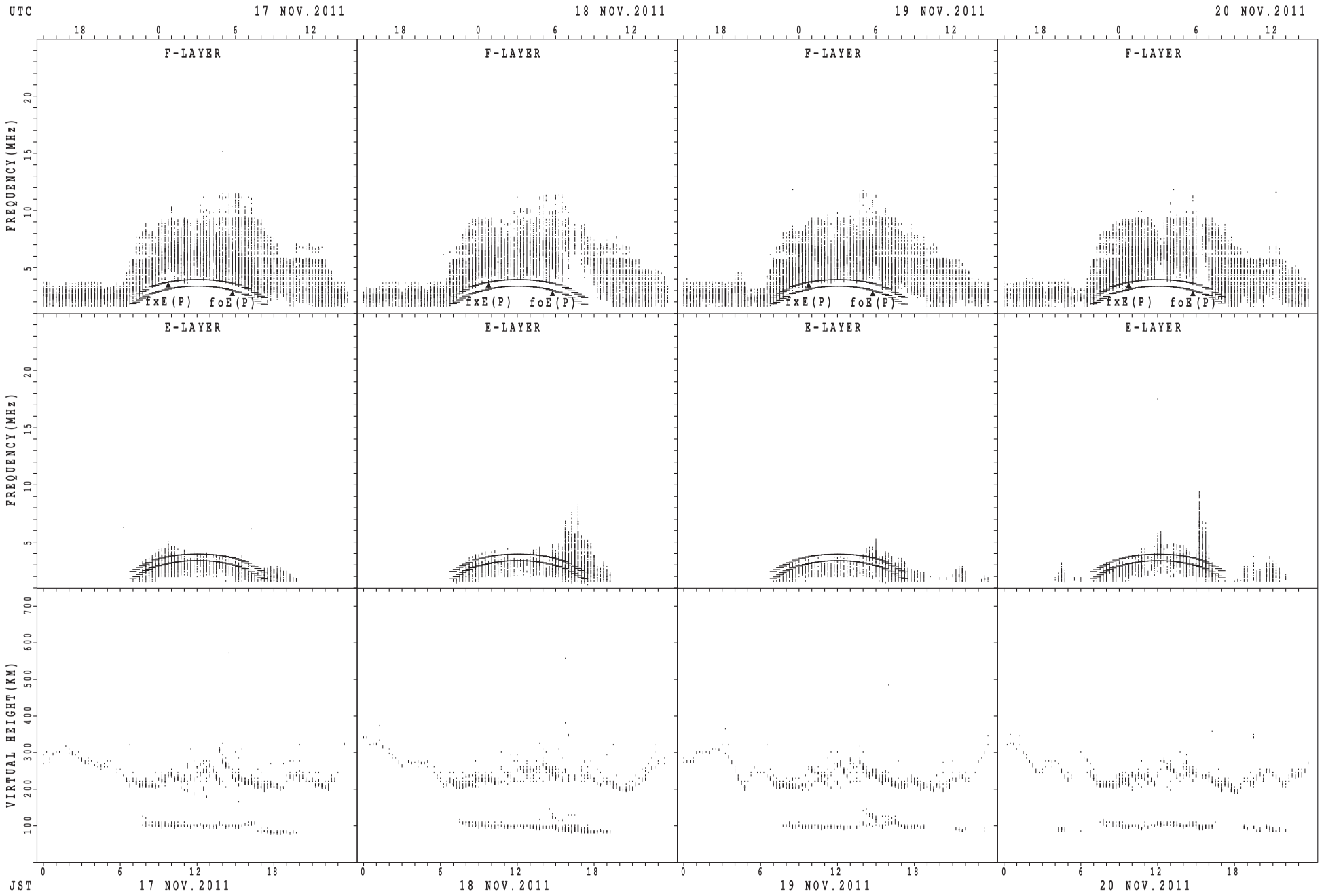


fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

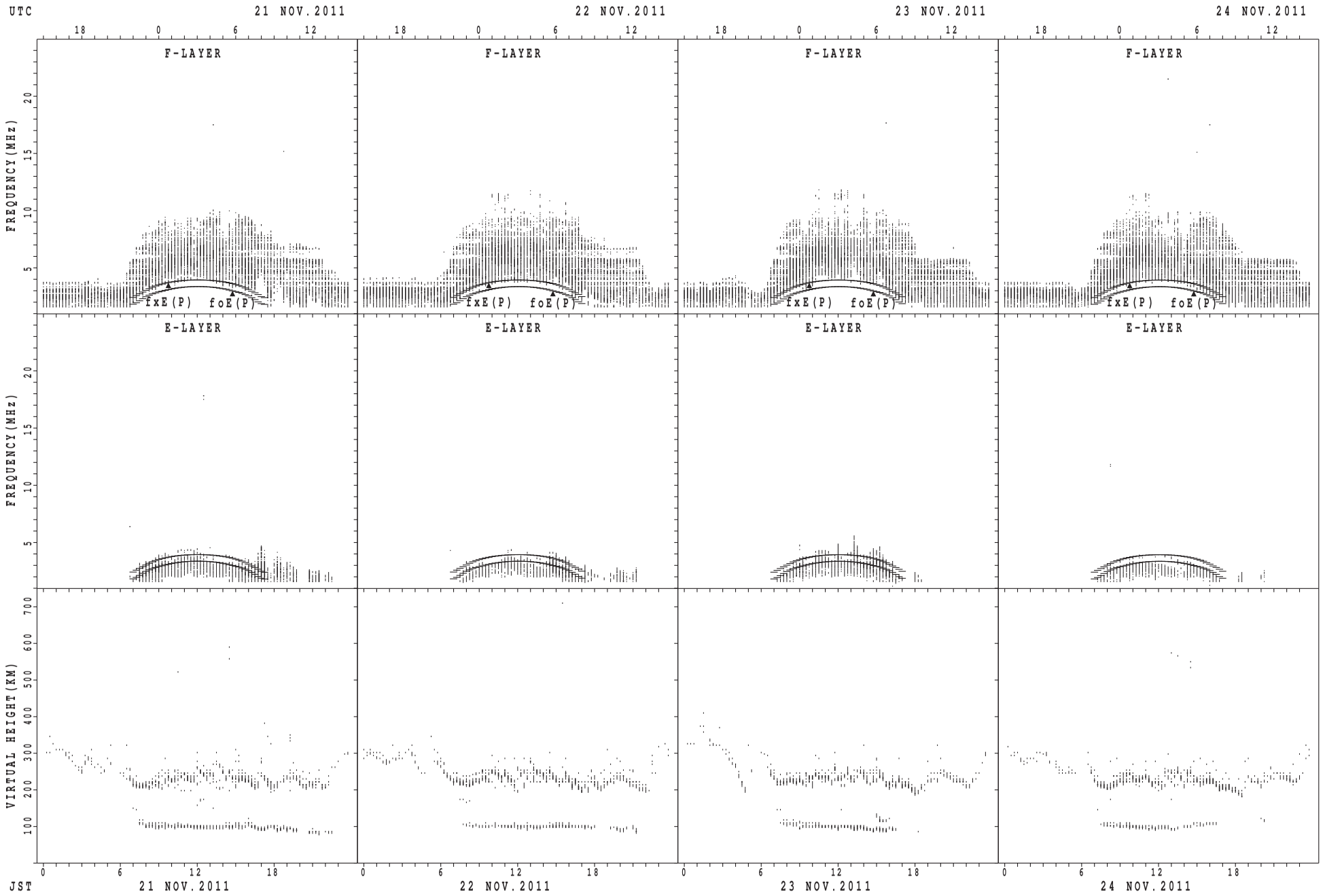
SUMMARY PLOTS AT Yamagawa



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

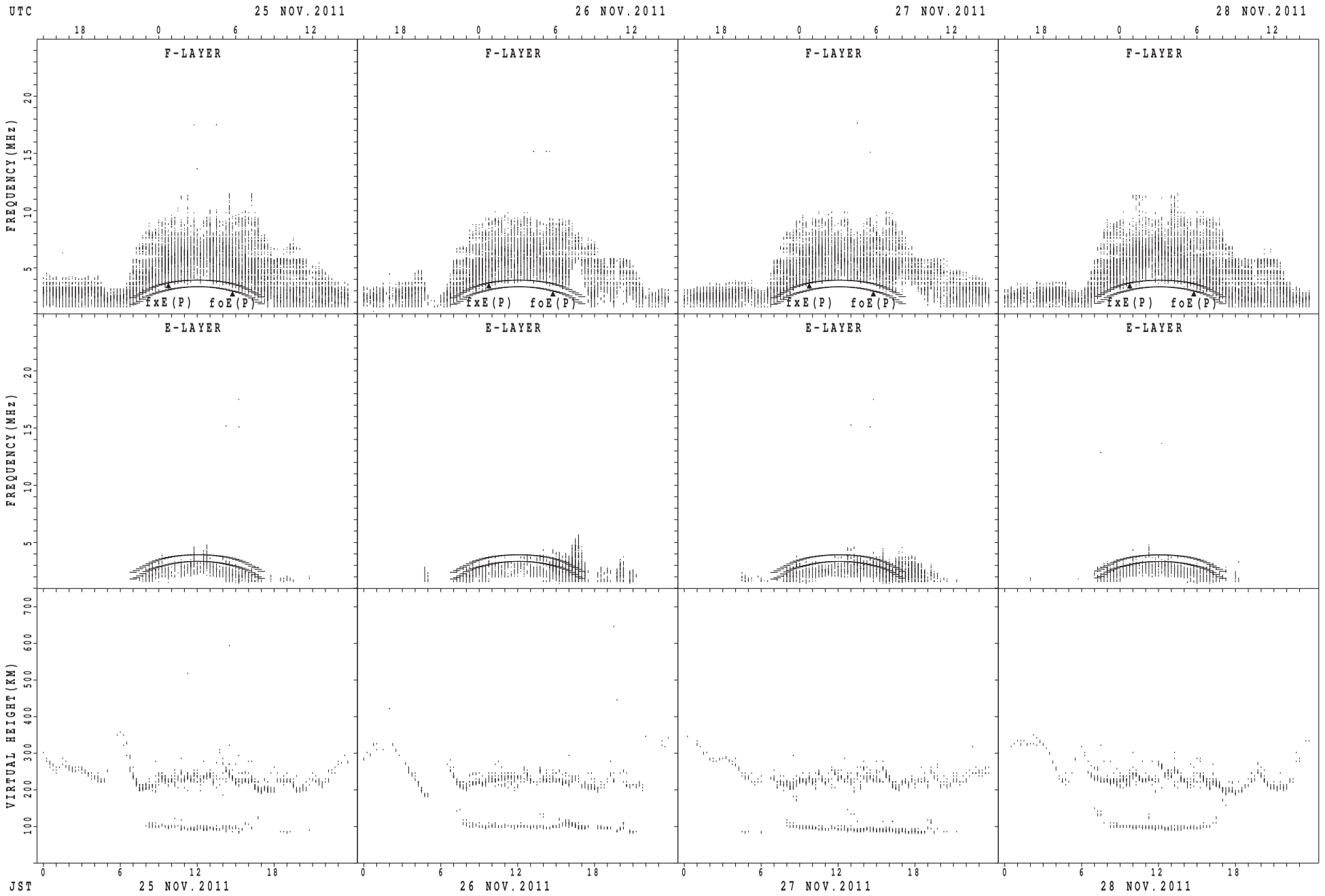

SUMMARY PLOTS AT Yamagawa
UTC
17 NOV.2011
18 NOV.2011
19 NOV.2011
20 NOV.2011
F-LAYER
E-LAYER
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
fxE(P)
foE(P)
JST
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa

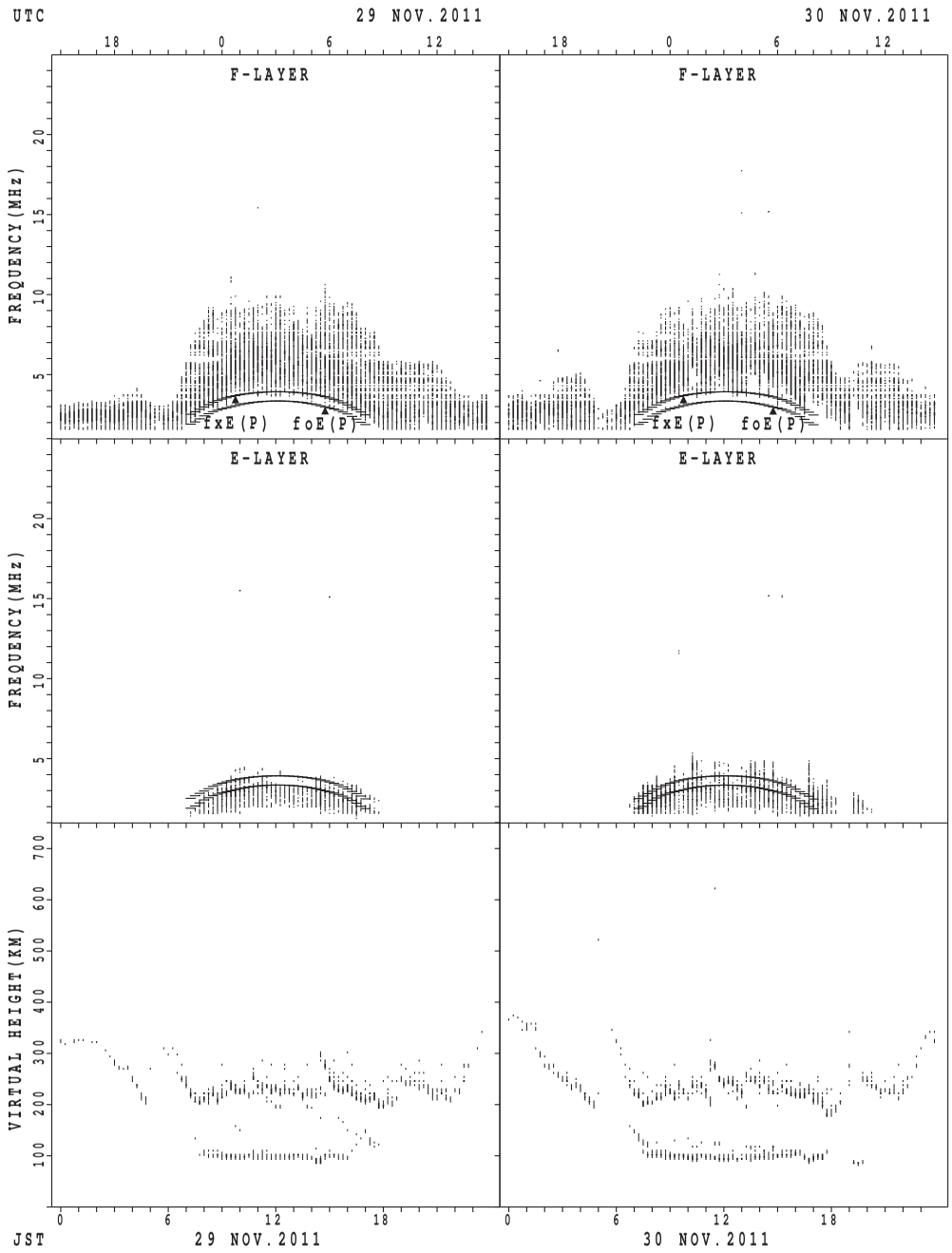


fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

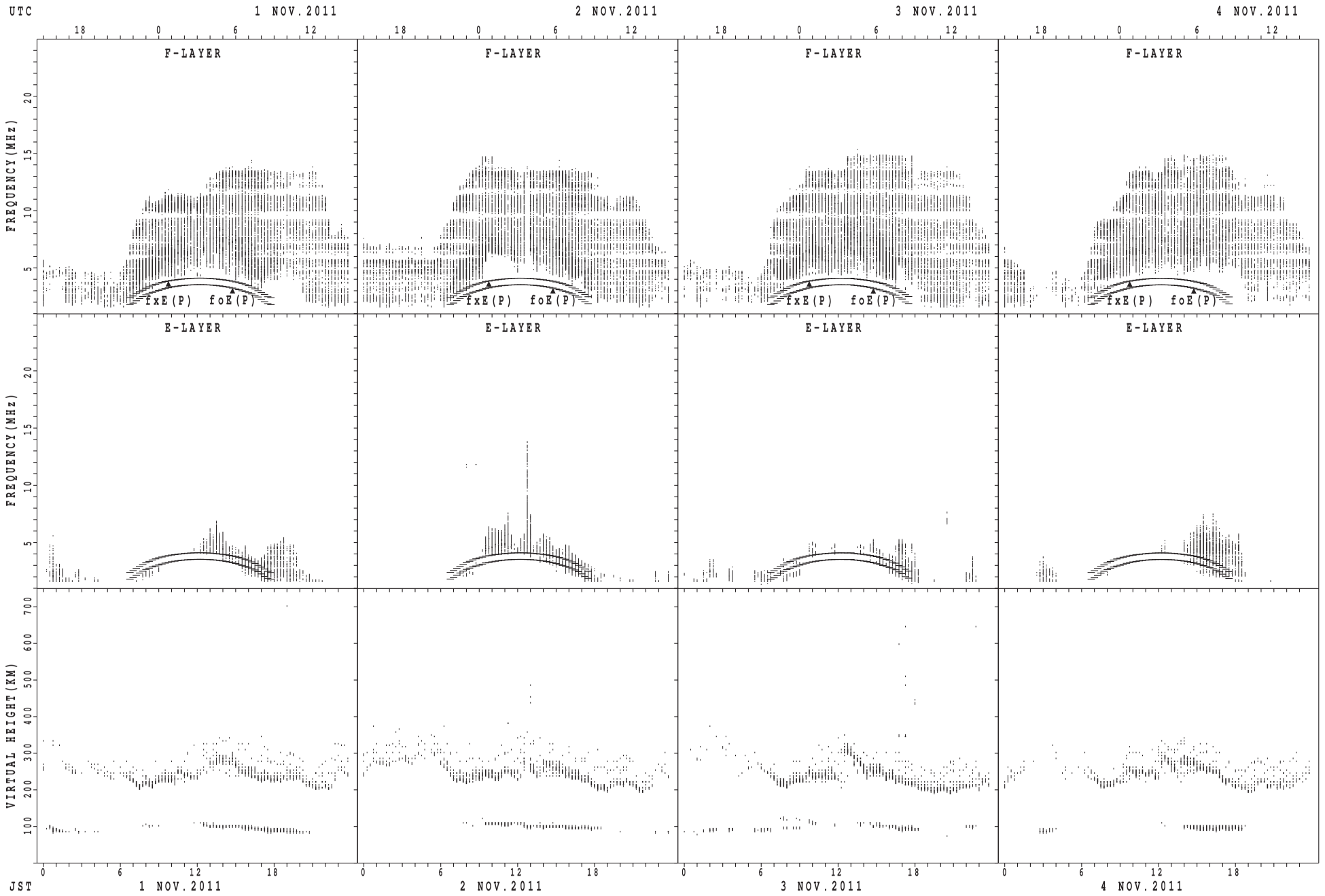
SUMMARY PLOTS AT Yamagawa



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

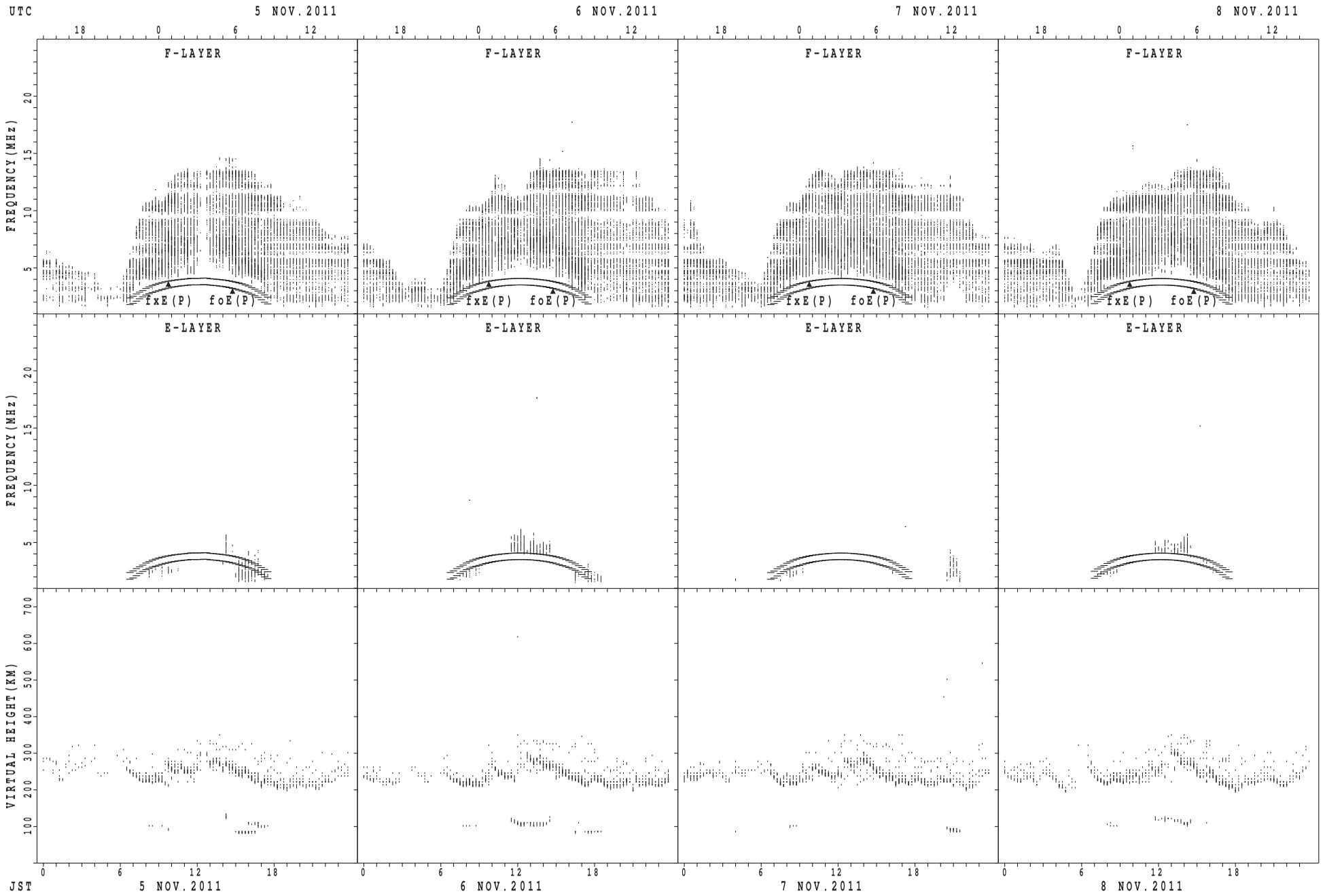

SUMMARY PLOTS AT Yamagawa
UTC
29 NOV.2011
30 NOV.2011
18
0
6
12
F-LAYER
FREQUENCY(MHz)
5
10
15
20
fxE(P)
foE(P)
E-LAYER
VIRTUAL HEIGHT(KM)
100
200
300
400
500
600
700
JST
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



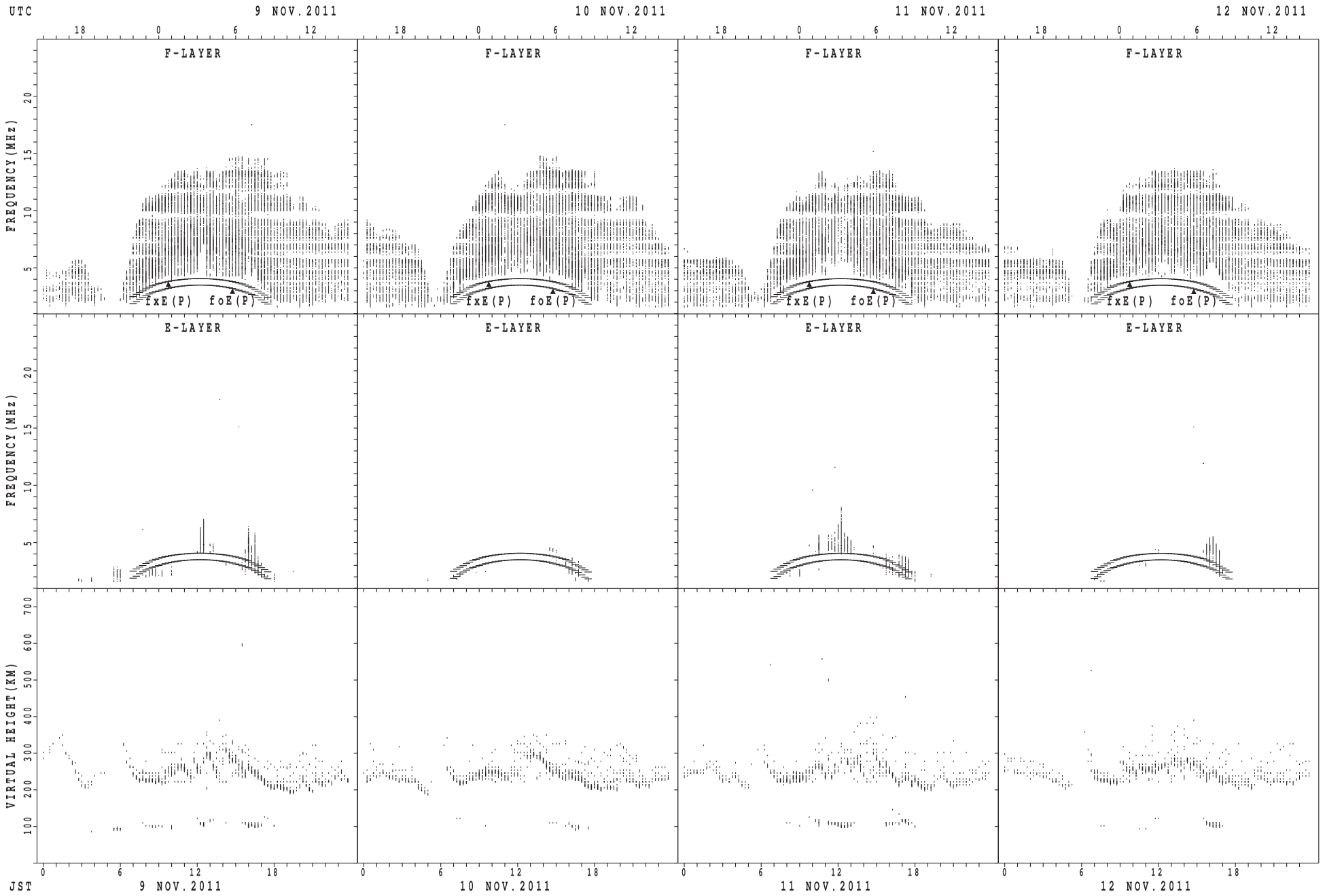
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



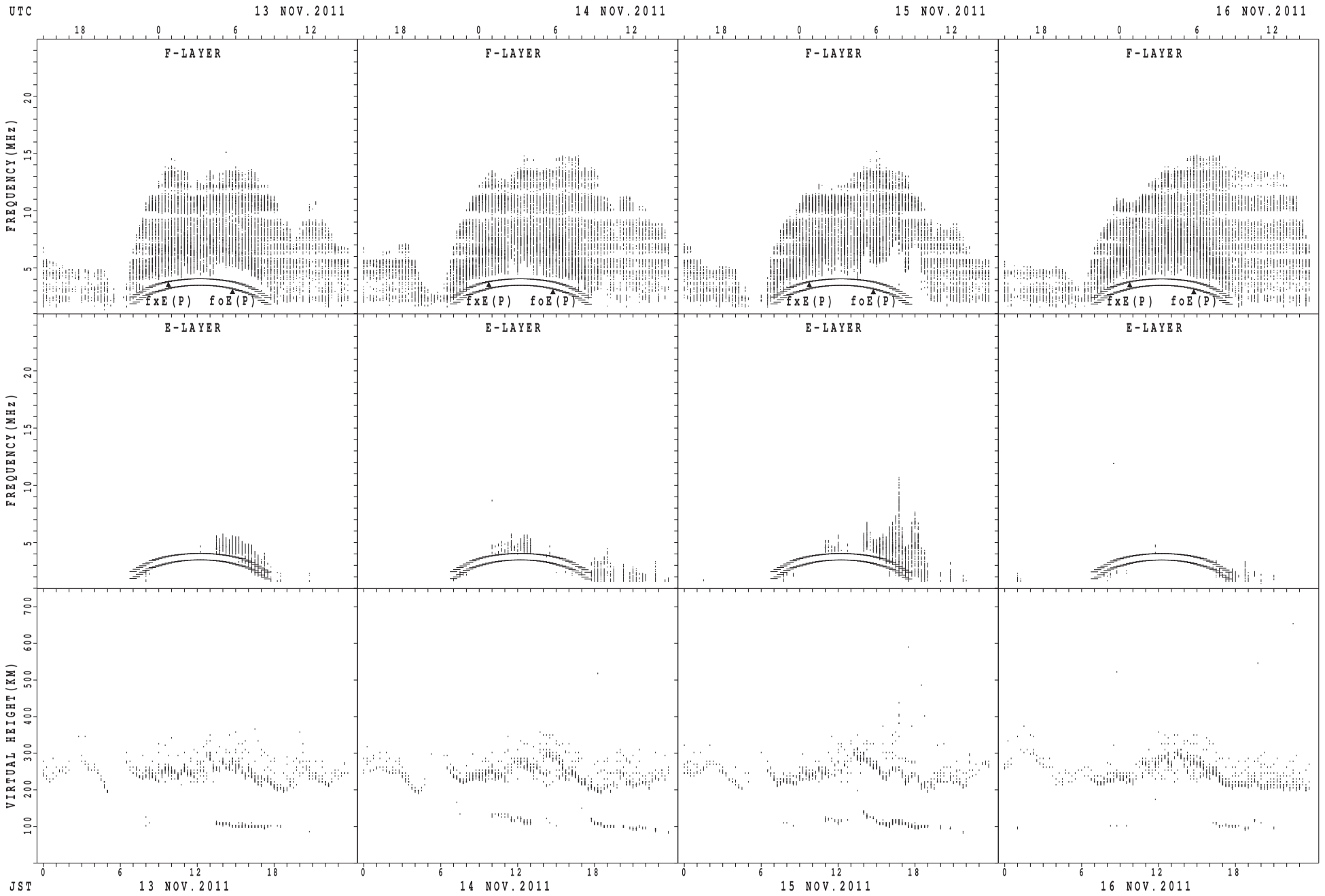
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



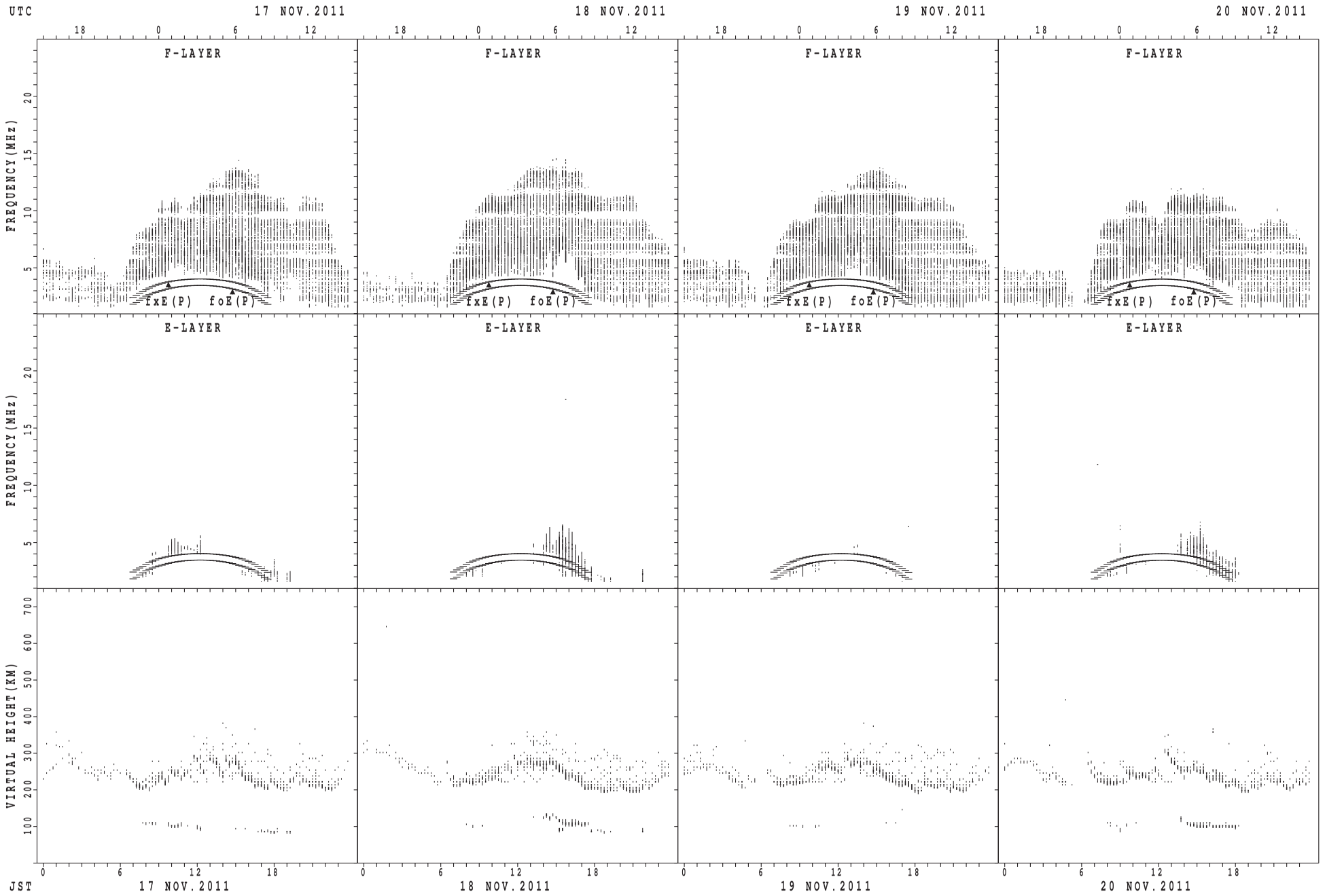
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



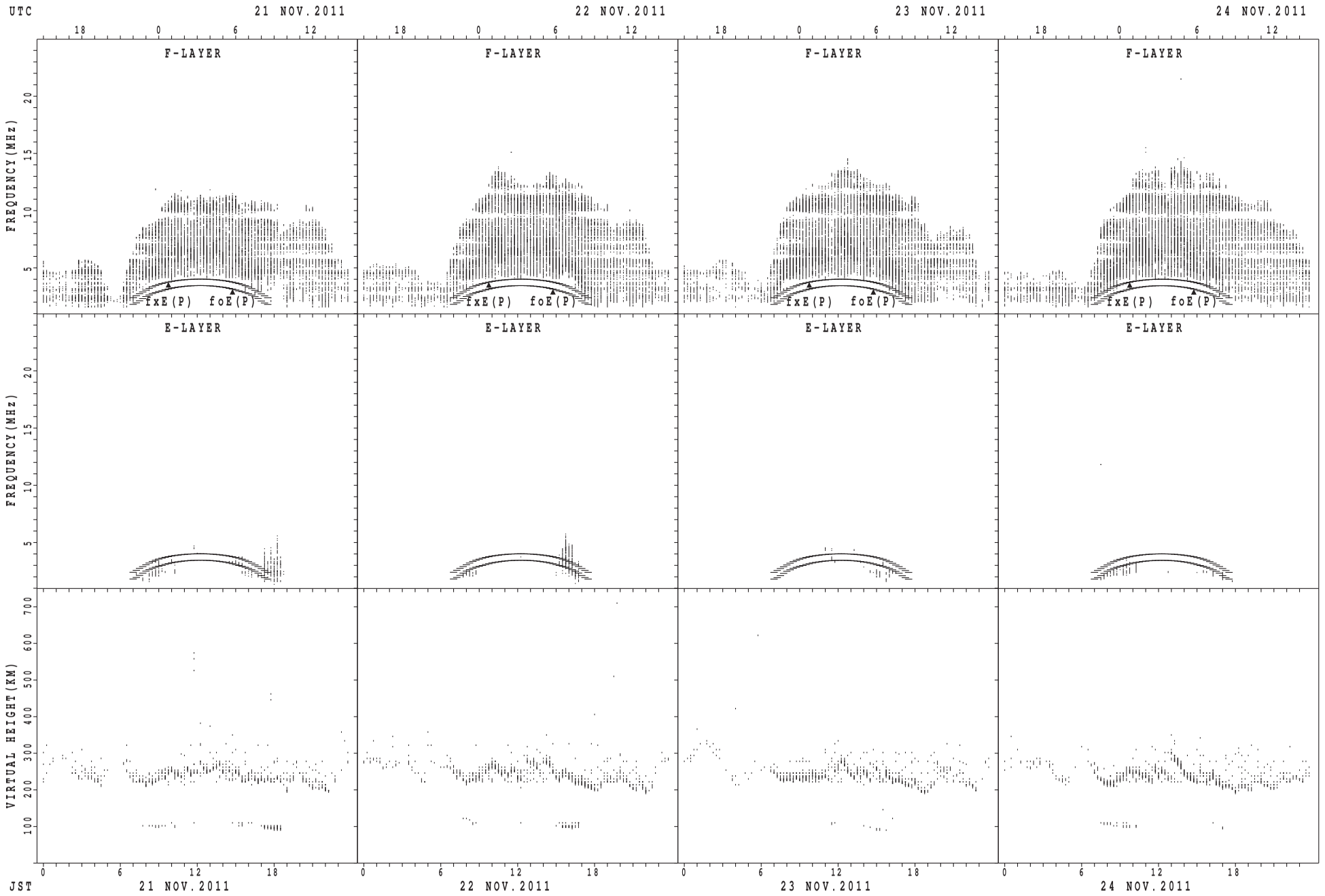
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



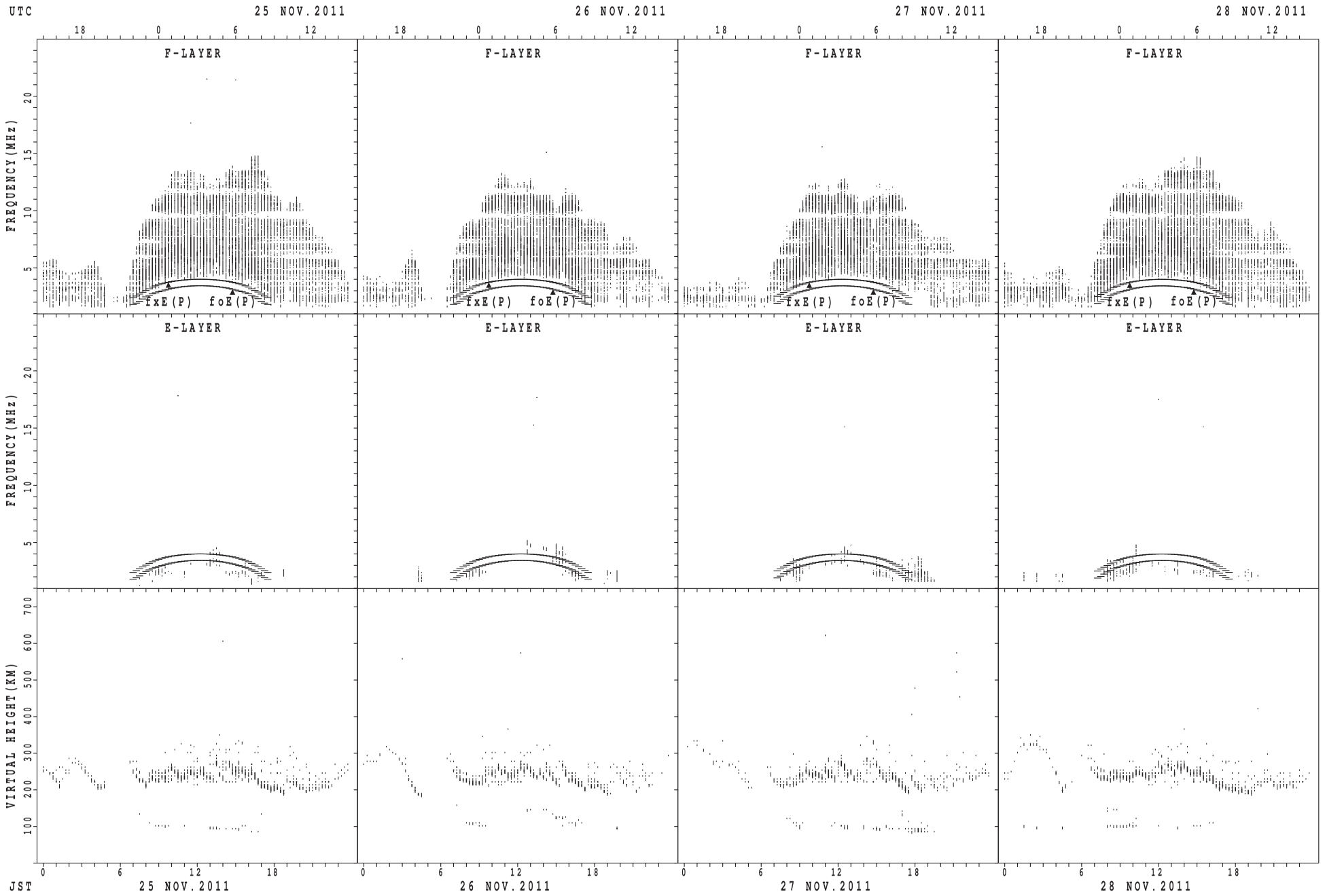
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



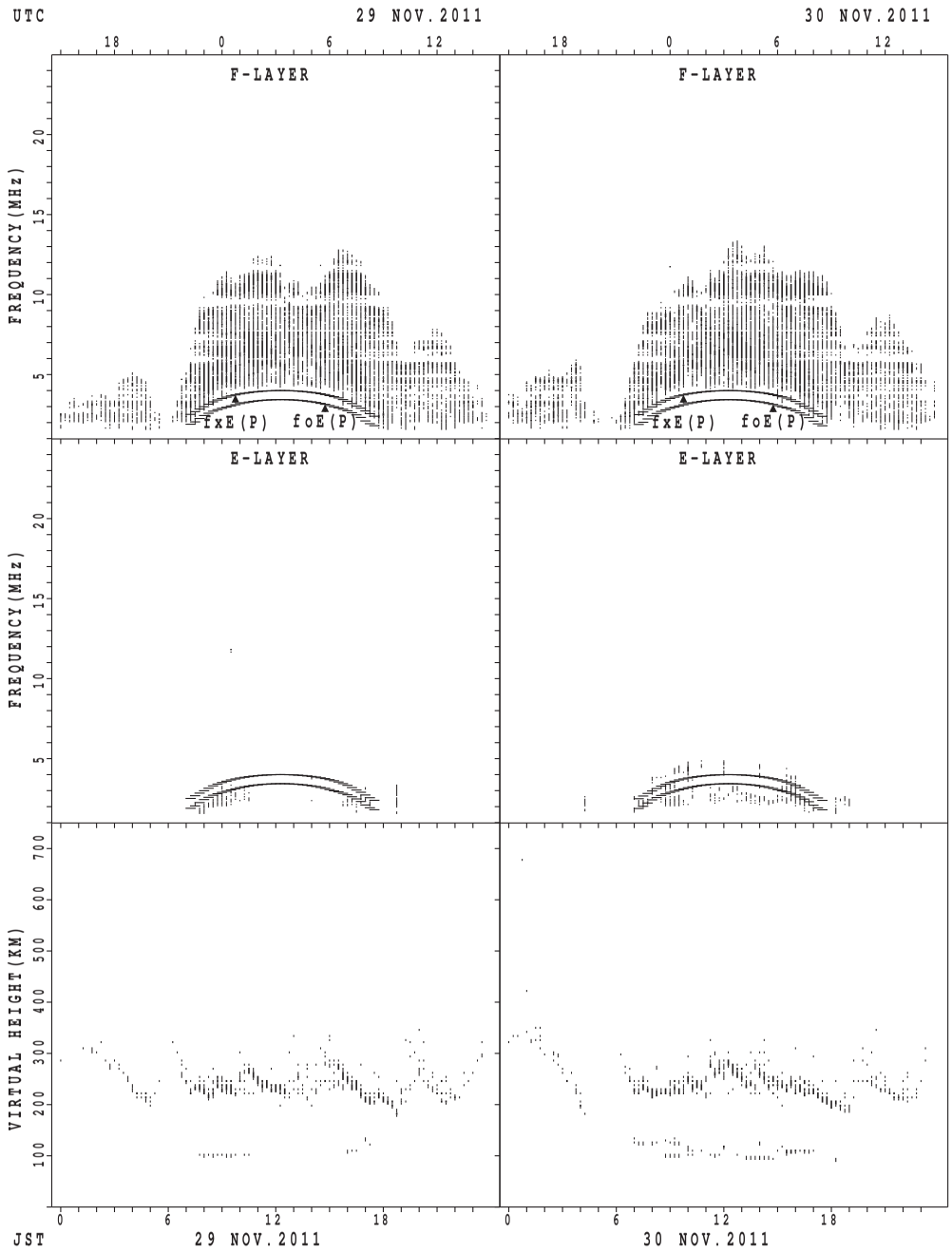
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

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

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

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

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								22	29	27	26	27	26	22	25	26	21	3	1					
MED								230	220	218	224	230	230	228	232	226	224	238	266					
U Q								240	223	230	230	232	232	230	236	232	231	282	133					
L Q								222	212	214	216	222	222	220	225	220	214	228	133					

h′Es

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	10	7	6	8	7	9	8	22	20	10	16	11	9	13	20	19	9	8	10	16	12	13	8	8
MED	98	101	94	95	95	101	92	146	107	106	101	101	101	105	103	101	95	99	96	96	96	97	102	105
U Q	103	103	95	98	103	104	95	161	116	107	109	109	109	107	107	107	104	101	99	99	106	99	111	107
L Q	95	95	91	95	95	94	89	103	102	103	99	99	95	99	101	95	92	97	93	94	95	94	98	98

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								27	30	30	30	18	18	29	29	29	28	15	3	1				
MED								240	222	225	233	229	236	252	240	232	224	238	238	282				
U Q								242	230	230	242	236	248	256	251	238	231	248	266	141				
L Q								228	222	222	230	224	230	238	235	225	222	232	232	141				

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	4	3	7	2		1	4	2		3	5	10	8	10	9	11	13	12	13	11	7	3	5
MED	95	101	97	97	101		93	153	144		107	111	108	111	105	107	97	97	99	97	95	93	97	91
U Q	102	104	103	101	103		46	172	177		111	119	113	112	109	112	111	99	103	103	101	97	99	98
L Q	90	96	87	93	99		46	129	111		107	107	105	107	99	99	95	95	96	95	95	91	97	90

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								10	29	30	29	17	8	15	30	30	30	30	22	1	8	3		
MED								240	224	232	232	238	234	246	254	238	230	225	235	298	261	256		
U Q								246	232	238	238	244	239	268	262	250	240	232	244	149	268	274		
L Q								230	216	230	227	230	230	234	242	234	224	222	228	149	257	256		

h′Es

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	3	4	4	3	3	3	2	6	14	10	11	16	14	15	18	21	27	18	19	17	15	7	1	1
MED	87	91	92	97	95	97	97	143	108	105	107	108	111	107	113	103	103	95	97	95	95	91	95	87
U Q	97	91	96	99	99	97	99	153	137	107	137	121	121	113	119	111	107	103	105	97	97	97	47	43
L Q	85	87	87	89	91	87	95	133	107	103	103	103	105	103	101	99	99	91	91	90	89	89	47	43

MONTHLY MEDIANS OF h′F AND h′Es

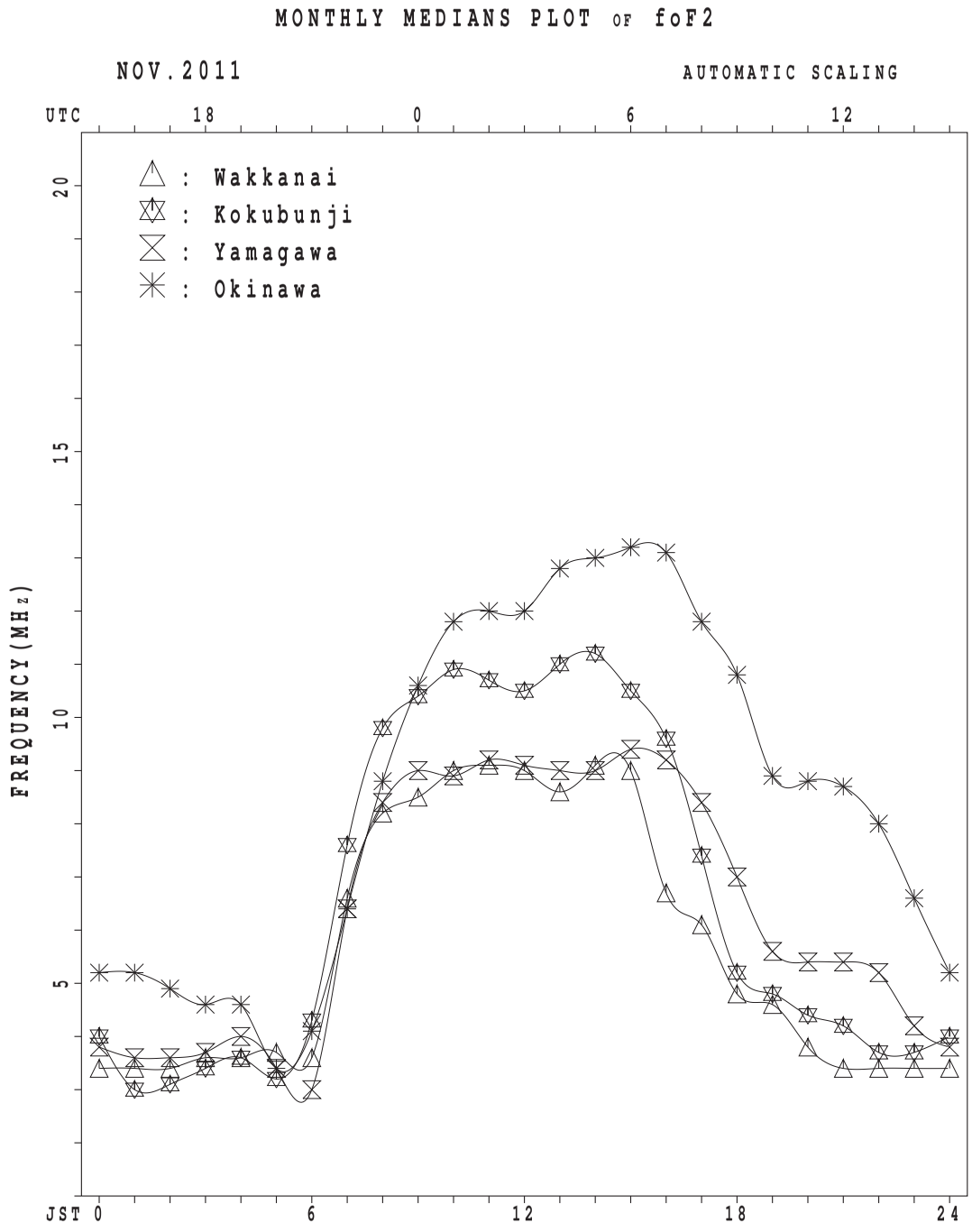
NOV.2011 135E MEAN TIME(UTC+9H) AUTOMATIC SCALING

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

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	2	1	1	1	1			11	30	30	30	12			27	30	29	28	30	25	21	28	21	8
MED	264	260	292	268	252			254	229	233	246	242			266	255	240	227	231	232	240	240	240	252
U Q	264	130	146	134	126			264	232	240	254	247			278	266	249	232	240	248	264	255	250	274
L Q	264	130	146	134	126			248	222	230	238	238			250	250	233	222	220	222	233	230	228	239

h′Es

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT		1	1	1	1		2	1	2	1	5	4	9	9	11	10	15	13	12	5	1	2	2	
MED		93	91	89	95		94	133	137	95	111	115	113	109	107	104	103	105	98	91	103	95	99	
U Q		46	45	44	47		95	66	145	47	123	126	122	121	125	117	107	115	102	104	51	97	103	
L Q		46	45	44	47		93	66	129	47	108	108	109	103	99	103	97	102	93	89	51	93	95	


MONTHLY MEDIANS PLOT OF foF2
NOV.2011
AUTOMATIC SCALING
UTC
18
0
6
12
△ : Wakkanai
✡ : Kokubunji
⧖ : Yamagawa
✳ : Okinawa
FREQUENCY(MHz)
20
15
10
5
JST 0
6
12
18
24

IONOSPHERIC DATA STATION Kokubunji

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

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	X 55	X 57	X 58	X 57	X 56	X 52												X 110	X 90	X 80	X 74	X 64	X 58	X 53
2	X 56	X 55	A	X 53	X 50	X 49												X 81	X 62	A	X 66	X 56	A	A
3	A	X 41	X 41	X 43	X 45	X 44												X 87	X 65	X 59	X 48	X 49	A	X 42
4	X 42	X 42	X 43	X 44	X 45	X 44												X 90	X 62	X 55	X 55	X 50	X 53	X 47
5	X 46	X 45	X 44	X 44	X 45	X 44												X 98	X 73	X 64	X 57	X 55	X 56	X 50
6	X 48	X 48	X 47	X 46	X 48	X 42												X 99	X 79	X 58	X 56	X 56	X 51	X 50
7	X 50	X 48	X 47	X 47	X 48	X 49												X 97	X 76	X 64	X 64	X 57	X 56	X 52
8	X 50	X 50	X 50	X 51	X 52	X 43												X 84	X 62	X 57	X 58	X 60	X 48	X 49
9	X 49	X 45	X 50	X 55	X 58	X 34												X 101	X 76	X 62	X 52	X 50	X 46	X 45
10	X 43	X 45	X 47	X 51	X 50	X 37												X 81	X 58	X 59	X 54	X 52	X 53	X 50
11	X 51	X 47	X 47	X 45	X 50	X 38												X 84	X 65	X 61	X 56	X 50	X 44	X 45
12	X 46	X 46	X 46	X 47	X 46	X 44						C	C	C	C	C	C	C	C	C	X 54	X 52	X 52	X 47
13	X 49	X 49	X 47	X 48	X 47	X 51												X 72	X 53	X 60	X 59	X 52	X 47	X 43
14	X 46	X 47	X 46	X 48	X 46	X 38												X 80	X 62	X 64	X 58	X 51	X 42	X 43
15	X 44	X 44	X 45	X 46	X 49	X 34												X 71	X 54	X 50	X 54	X 46	X 40	X 41
16	X 41	X 42	X 43	X 46	X 42	X 36												X 95	X 70	X 55	X 56	X 51	X 44	X 42
17	X 41	X 40	X 41	X 42	X 42	X 44												X 80	X 62	X 53	X 51	X 53	X 42	X 39
18	X 40	X 41	X 42	X 41	X 42	X 42												X 76	X 65	X 67	X 51	X 42	A	X 40
19	X 40	X 42	X 41	X 44	X 47	X 38												X 86	X 65	X 60	X 48	X 44	X 38	X 37
20	X 39	X 39	X 42	X 42	X 39	X 36												X 77	X 57	X 55	X 50	X 49	X 42	X 41
21	X 41	X 42	X 43	X 43	X 44	X 44												X 84	X 60	X 60	X 58	X 49	X 42	X 42
22	X 42	X 42	X 44	X 44	X 44	X 44												X 73	X 60	X 54	X 51	X 44	X 37	X 37
23	X 40	X 42	X 41	X 41	X 45	X 40												X 70	X 54	X 48	X 46	X 48	X 45	X 39
24	X 41	X 43	X 41	X 41	X 43	X 42												X 71	X 53	X 42	X 42	X 48	X 43	X 36
25	X 40	X 42	X 43	X 40	X 38	X 37												X 57	X 53	X 53	X 47	X 45	X 40	X 37
26	X 39	X 40	X 42	X 43	X 42	X 36												X 63	X 58	X 57	X 43	X 36	X 36	X 36
27	X 36	X 38	X 39	X 39	X 41	X 40												X 60	X 50	X 50	X 52	X 46	X 41	X 38
28	X 40	X 41	X 41	X 40	X 41	X 37												X 63	X 43	X 48	X 52	X 46	X 37	X 35
29	X 37	X 37	X 38	X 40	X 41	X 39												X 64	X 56	X 61	X 49	X 48	X 48	X 41
30	X 39	X 41	X 41	X 43	X 45	X 39												X 70	X 42	X 52	O X 52	X 46	X 44	X 44
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	29	30	29	30	30	30												29	29	28	30	30	27	29
MED	X 42	X 42	X 43	X 44	X 45	X 41												X 80	X 62	X 58	X 53	X 50	X 44	X 42
U Q	X 48	X 47	X 47	X 47	X 48	X 44												X 88	X 65	X 61	X 57	X 52	X 51	X 47
L Q	X 40	X 41	X 41	X 42	X 42	X 37												X 70	X 54	X 53	X 50	X 46	X 41	X 38

NOV. 2011 fxI (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

NOV. 2011 foF2 (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	49	51	52	51	50	46	61	98	115	118	118	124	124	120	125	124	114	104	84	74	68	58	52	47
2	50	49	A	46	44	43	53	81	114	137	135	138	116	109	108	112	103	75	56	A	60	50	A	A
3	A	35	35	37	38	38	52	94	117	115	126	126	119	117	113	112	104	81	59	53	42	41	A	36
4	36	36	37	37	39	37	52	82	104	106	115	118	114	106	122	116	105	84	56	49	49	44	47	41
5	40	39	38	37	39	37	53	89	101	104	106	122	124	116	118	115	106	92	66	58	51	49	50	44
6	43	42	40	40	42	36	54	91	102	106	112	108	100	112	117	114	101	92	73	52	49	50	44	44
7	43	41	40	41	43	43	55	86	105	109	113	118	104	116	117	110	102	90	70	58	58	51	50	46
8	44	44	44	45	46	37	50	79	100	110	106	109	110	118	123	112	98	78	55	51	52	54	42	43
9	43	36	44	49	51	28	46	77	104	109	115	113	116	110	120	118	105	94	70	56	46	44	40	39
10	37	39	41	44	44	31	45	76	89	106	104	101	98	109	115	96	95	75	52	53	48	46	47	44
11	45	41	41	39	44	32	44	72	98	113	111	111	111	111	104	103	97	78	58	54	50	44	38	39
12	40	40	40	41	40	38	50	86	95	106	105	C	C	C	C	C	C	C	C	C	48	46	46	41
13	43	42	40	42	41	45	45	76	99	105	114	111	106	116	116	106	95	66	47	54	52	46	41	37
14	40	41	40	42	40	32	43	80	92	112	116	109	107	110	116	102	87	74	56	58	51	45	36	36
15	37	38	39	40	43	28	40	73	87	97	104	102	104	109	108	109	99	65	48	44	48	39	34	35
16	35	36	37	40	36	30	38	71	99	102	113	110	101	105	114	105	100	88	63	49	50	45	38	36
17	35	34	35	36	36	38	42	78	98	100	106	100	107	118	123	109	92	74	56	47	45	47	35	33
18	34	35	36	35	36	36	39	74	85	95	91	96	110	117	114	104	99	70	59	61	45	35	A	34
19	34	36	35	38	41	32	42	72	80	88	96	104	96	118	119	106	93	80	59	54	42	37	32	30
20	32	32	36	36	33	30	38	72	88	106	108	107	84	V 100	102	94	82	71	51	49	43	43	36	35
21	35	36	37	37	38	38	45	76	92	92	104	106	98	97	98	101	91	78	54	54	52	43	36	36
22	36	36	38	38	38	38	47	72	87	100	114	107	105	105	102	91	86	67	54	48	45	38	31	31
23	34	36	34	35	39	34	36	75	96	99	118	110	108	102	99	96	90	64	48	42	40	42	39	33
24	35	37	35	35	37	36	39	74	94	104	116	106	102	93	95	92	88	65	47	36	36	42	37	30
25	34	36	37	34	32	30	32	82	89	94	102	105	98	98	105	93	82	51	46	48	40	39	34	31
26	33	34	35	37	35	30	34	71	94	92	105	97	96	97	93	94	72	57	52	51	37	30	30	30
27	30	32	33	33	35	34	36	71	98	86	108	90	93	89	84	83	85	54	44	43	45	40	35	31
28	34	34	35	34	35	31	34	72	95	100	101	106	89	V 94	91	94	77	56	37	42	46	40	31	29
29	30	31	32	34	35	32	38	76	98	95	92	97	101	96	92	85	79	58	50	55	42	42	40	35
30	33	35	35	37	39	33	36	72	88	91	97	98	102	108	108	82	86	64	36	46	46	40	38	38
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	29	30	29	30	30	30	30	30	30	30	30	29	29	29	29	29	29	29	29	28	30	30	27	29
MED	36	36	37	38	39	35	44	76	97	104	108	107	104	109	113	104	95	74	55	52	47	44	38	36
U Q	43	41	40	41	43	38	50	82	101	109	115	112	110	116	118	112	102	82	59	54	51	46	44	41
L Q	34	35	35	36	36	31	38	72	89	95	104	102	98	99	100	94	86	64	48	48	43	40	35	32

NOV. 2011 foF2 (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

NOV. 2011 foF1 (0.01MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

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

NOV. 2011 foF1 (0.01MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

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

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							B	U A 212	A	R	A	A	A	A	A	A	A							
2							B	240	A	A	A	A	A	A	A	A	A							
3							B	R	R	R	A	R	A	A	A	A	A							
4							B	R	A	R	R	R	A	A	A	A	A							
5							B	A	R	R	A	A	R	R	R	R	A							
6							B	R	R	R	R	R	R	R	A	A	R							
7							B	228	R	A	R	R	A	A	R	R	U R 228							
8							B	220	R	R	R	R	A	R	R	R	U R 228							
9							B	232	R	R	R	R	A	A	A	A	A							
10							B	U R 236	R	R	A	R	R	R	R	R	R							
11							B	R	R	R	A	R	A	A	A	A	A							
12							B	U R 212	R	R	R	C	C	C	C	C	C							
13							B	224	R	R	A	A	A	A	A	R	R							
14							B	212	U R 300	332	A	A	A	A	R	R	U R 220							
15							B	212	R	R	R	R	A	R	A	A	R							
16							B	200	R	R	R	A	A	A	A	A	A							
17							B	208	A	R	R	R	R	R	R	R	B							
18							B	212	U R 312	A	A	R	A	A	A	A	A							
19							B	180	R	R	R	R	A	R	A	A	A							
20							B	U R 196	R	R	A	A	A	R	A	A	A							
21							B	U R 192	R	R	A	A	R	A	R	R	A							
22							B	U R 184	R	A	R	R	A	A	A	A	A							
23							B	200	R	R	R	R	R	R	R	A	A							
24							B	A	A	A	R	R	R	R	R	R	R							
25							B	184	A	R	R	A	R	R	R	A	B							
26							B	B	R	R	R	R	A	R	R	R	A							
27							B	B	R	R	R	R	A	R	R	R	192							
28							B	188	272	R	R	A	R	R	A	R	A							
29							B	180	A	R	R	R	R	A	A	R	160							
30							B	180	268	A	R	R	R	R	A	A	B							
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								22	4	1							5							
MED								210	286	332							U R 220							
U Q								220	U R 306								U R 228							
L Q								188	270								176							

NOV. 2011 foE (0.01MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

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

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	J A 24	J A 38	J A 27	J A 40	J A 25	22	19	29	35	G 29	J A 44	J A 56	J A 58	J A 67	J A 76	J A 62	J A 44	J A 39	J A 52	J A 45	J A 25	J A 33	J A 18	J A 24
2	E B 16	J A 29	J A 55	J A 40	J A 45	J A 21	E B 14	30	J A 52	42	J A 52	J A 50	J A 52	J A 50	J A 44	J A 47	J A 46	J A 51	J A 56	J A 61	J A 51	J A 64	J A 69	J A 56
3	J A 35	J A 24	21	E B 15	19	19	J A 18	G	G 25	G 27	J A 56	G	J A 77	J A 74	J A 62	J A 42	J A 48	J A 31	J A 58	J A 55	J A 39	J A 46	J A 59	J A 44
4	J A 29	J A 25	J A 28	J A 29	22	21	19	G	34	G	G	G	J A 57	J A 46	J A 45	55	J A 36	31	22	26	22	22	E B 15	E B 14
5	E B 15	19	E B 15	E B 15	E B 15	E B 15	J A 21	26	G 23	G 23	39	40	G	G	G 24	G 25	J A 29	J A 25	J A 17	20	E B 14	E B 15	J A 23	J A 18
6	J A 18	19	E B 16	E B 14	E B 14	B J A 21	E B 15	G 20	G 25	G 30	G	G	G	G 31	37	33	G 19	J A 25	J A 40	20	E B 15	E B 15	E B 15	E B 15
7	E B 15	E B 15	E B 14	E B 15	E B 15	E B 16	E B 15	28	G 27	40	G	39	J A 45	J A 78	G	G	G	J A 21	E B 15	E B 14	J A 22	E B 14	E B 14	E B 15
8	E B 15	E B 15	E B 15	E B 15	E B 15	E B 14	E B 16	27	G 26	G 27	G	G	46	G	G	G	G 20	E B 14	J A 28	J A 24	J A 32	E B 14	E B 15	E B 15
9	E B 14	J A 34	J A 22	J A 27	J A 16	E B 14	E B 16	32	G 23	G 29	G	G	J A 46	J A 48	J A 44	J A 38	28	E B 16	E B 15	E B 14	E B 16	E B 16	E B 14	E B 15
10	E B 15	20	E B 15	E B 15	B J A 28	J A 21	E B 14	G	G 24	G 26	36	G	G	G	G 29	G	G 19	E B 14	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15
11	J A 18	E B 15	E B 14	E B 15	E B 15	E B 14	E B 14	G	G 23	G	40	G	J A 47	J A 45	36	35	J A 30	J A 41	J A 23	J A 30	J A 28	E B 20	E B 15	E B 15
12	E B 14	E B 15	E B 15	E B 15	E B 14	E B 15	E B 15	G	G 26	G 28	G 27	C	C	C	C	C	C	C	C	C	E B 15	E B 19	E B 15	E B 14
13	E B 15	E B 15	E B 15	E B 14	E B 16	E B 14	E B 15	G	G 25	G 26	40	42	J A 49	40	37	G	G	E B 14	J A 22	E B 15	E B 15	E B 15	20	E B 14
14	E B 15	E B 15	E B 15	E B 14	E B 15	20	22	26	G 23	39	42	44	50	42	G	G	G	20	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15
15	E B 15	E B 14	E B 14	E B 14	19	E B 14	J A 19	26	G 22	G	G 30	G	42	G	J A 38	J A 36	G 20	E B 15	E B 14	B J A 20	E B 16	E B 15	E B 15	E B 15
16	J A 17	E B 15	20	J A 20	19	J A 20	20	25	G 24	G 24	G 27	44	41	J A 49	J A 47	J A 48	J A 37	J A 45	J A 20	J A 24	J A 36	J A 18	E B 16	E B 16
17	E B 14	E B 14	E B 14	E B 15	E B 14	B J A 21	25	27	36	G	G 28	G	G	27	G	G 27	J A 26	34	J A 24	J A 30	J A 20	J A 24	20	J A 21
18	J A 21	E B 15	E B 15	B J A 26	J A 22	20	E B 15	26	G 25	41	J A 46	G 35	41	J A 43	44	34	23	J A 26	J A 30	J A 72	J A 53	J A 45	J A 66	J A 27
19	E B 14	E B 15	E B 15	B J A 21	J A 22	E B 14	E B 14	23	G 23	G 30	G 34	G 32	38	G 32	J A 46	J A 46	J A 38	J A 32	J A 42	J A 38	J A 37	J A 28	J A 19	J A 25
20	J A 23	E B 15	B J A 21	J A 23	E B 16	B J A 17	E B 14	27	G 22	34	39	39	38	G 28	J A 48	30	J A 30	J A 23	J A 20	J A 26	A J A 22	E B 15	E B 15	E B 14
21	E B 14	E B 15	E B 15	E B 15	E B 15	E B 15	B J A 19	G	G 25	G 26	J A 38	49	G	37	G 28	G 25	J A 46	J A 54	E B 15	E B 15	E B 15	E B 15	20	E B 15
22	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	G	G 24	37	G 31	G	38	42	J A 38	J A 33	J A 27	J A 20	J A 22	J A 21	J A 17	J A 17	J A 22	20
23	E B 16	E B 15	E B 15	E B 13	E B 15	E B 15	E B 15	24	G 22	G 23	G	G	G	G	G J A 26	38	23	E B 15	E B 15	E B 15	E B 15	E B 14	E B 14	B J A 17
24	E B 15	E B 15	E B 15	E B 14	E B 14	E B 15	E B 15	24	32	36	G 27	G	G 26	G 28	G 27	G	G	J A 19	E B 14	E B 14	E B 14	E B 15	E B 14	E B 15
25	E B 15	E B 14	E B 15	E B 15	E B 15	E B 15	E B 14	22	36	G	G	41	G	G	G	36	34	J A 25	A J A 31	A E B 22	E B 15	E B 15	E B 14	E B 15
26	E B 14	E B 15	E B 15	E B 16	E B 15	E B 15	E B 14	23	G	G	G 26	G	44	G 30	G 26	G 21	J A 34	J A 24	E B 15	E B 15	E B 15	E B 15	E B 14	E B 15
27	E B 15	J A 20	J A 24	J A 20	E B 15	E B 15	E B 19	22	G	G 27	G 27	G 30	41	G 27	G 25	G 20	24	J A 23	E B 15	E B 14	E B 14	E B 14	E B 14	E B 16
28	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	E B 14	26	38	G 24	G 31	42	G 32	G 24	38	G 24	J A 31	J A 22	J A 18	J A 17	J A 29	E B 15	E B 15	E B 15
29	E B 14	J A 17	E B 15	E B 15	E B 15	E B 15	E B 14	23	36	G 26	G 26	G	G	40	34	G 22	22	E B 16	E B 15	E B 15	E B 14	E B 14	E B 14	22
30	E B 15	E B 15	E B 14	E B 14	E B 15	E B 14	E B 14	22	32	42	G 30	G 33	G 31	G 32	56	35	E B 14	E B 15	E B 15	E B 14	J A 25	21	18	E B 11
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	30	30	30	30	30	30	30	30	30	30	29	29	29	29	29	29	29	29	29	30	30	30	30
MED	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	24	G 25	G 30	G	G	41	G	37	33	27	J A 23	A J A 20	A J A 20	16	E B 15	E B 15	E B 15
U Q	J A 17	J A 19	J A 20	J A 20	A J A 19	J A 20	19	26	32	34	39	42	J A 46	J A 46	J A 44	J A 38	J A 35	J A 32	J A 29	J A 28	J A 28	J A 21	J A 20	J A 20
L Q	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	E B 14	G	G 23	G 26	G 30	G	G	G 32	G	G	G	E B 16	E B 15	E B 15	E B 15	E B 15	E B 14	E B 15

NOV. 2011 foEs (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

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

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E B 15	20	21	30	E B 15	E B 15	E B 15	25	32	G 28	38	45	44	43	73	59	34	22	29	24	19	21	E B 16	21
2	E B 16	24	A A 55	33	33	E B 15	E B 14	28	41	36	45	41	44	43	40	41	39	47	30	A A 61	40	44	A A 69	A A 56
3	A A 35	17	E B 15	E B 15	E B 15	E B 15	E B 15	G	G 24	G 25	41	G	74	54	59	34	31	26	20	31	33	30	A A 59	26
4	22	17	22	20	E B 16	E B 15	17	G	33	G	G	G	47	39	38	42	29	27	E B 15	E B 15	17	E B 15	E B 15	E B 14
5	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	16	25	G 22	G 22	36	37	G	G	G 22	G 22	23	20	E B 15	E B 15	E B 14	E B 15	20	E B 15
6	E B 15	E B 15	E B 16	E B 14	E B 14	18	E B 15	G 19	G 24	G 28	G	G	G	G 29	34	32	G 18	18	30	E B 15	E B 15	E B 15	E B 15	E B 15
7	E B 15	E B 15	E B 14	E B 15	E B 15	E B 16	E B 15	25	G 25	33	G	36	39	42	G	G	G	18	E B 15	E B 14	19	E B 14	E B 14	E B 15
8	E B 15	E B 15	E B 15	E B 15	E B 15	E B 14	E B 16	25	G 24	G 26	G	G	41	G	G	G	G 19	E B 14	E B 14	E B 15	23	E B 14	E B 15	E B 15
9	E B 14	17	E B 15	19	E B 15	E B 14	E B 16	29	G 22	G 29	G	G	42	44	39	34	24	E B 16	E B 15	E B 14	E B 16	E B 16	E B 14	E B 15
10	E B 15	E B 16	E B 15	E B 15	E B 15	E B 15	E B 14	G	G 22	G 24	36	G	G	G	G 28	G	G 19	E B 14	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15
11	E B 16	E B 15	E B 14	E B 15	E B 15	E B 14	E B 14	G	G 22	G	38	G	44	40	34	31	29	E B 14	19	24	22	17	E B 15	E B 15
12	E B 14	E B 15	E B 15	E B 15	E B 14	E B 15	E B 15	G	G 25	G 28	G 26	C	C	C	C	C	C	C	C	C	E B 15	E B 15	E B 15	E B 14
13	E B 15	E B 15	E B 15	E B 14	E B 16	E B 14	E B 15	G	G 23	G 24	38	40	46	38	35	G	G	E B 14	19	E B 15	E B 15	E B 15	E B 15	E B 14
14	E B 15	E B 15	E B 15	E B 14	E B 15	E B 14	E B 16	25	G 22	37	40	42	48	42	G	G	G	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15
15	E B 15	E B 14	E B 14	E B 14	E B 14	E B 14	E B 15	26	G 21	G	G 30	G	40	G	34	30	G 19	E B 15	E B 14	E B 15	E B 16	E B 15	E B 15	E B 15
16	E B 15	E B 15	E B 16	16	E B 15	E B 15	E B 15	23	G 21	G 23	G 25	41	40	45	41	34	32	40	16	E B 15	25	E B 16	E B 16	E B 16
17	E B 14	E B 14	E B 14	E B 15	E B 14	E B 15	22	23	33	G	G 28	G	G	G 26	G	G 24	22	30	21	25	16	17	E B 15	E B 15
18	E B 15	E B 15	E B 15	20	17	E B 16	E B 15	24	G 25	35	37	G 34	38	37	38	33	22	20	E B 16	33	35	19	A A 66	18
19	E B 14	E B 15	E B 15	E B 15	E B 16	E B 14	E B 14	22	G 23	G 28	G 32	G 28	35	G 30	42	39	28	28	36	30	20	23	16	22
20	17	E B 15	17	16	E B 16	E B 15	E B 14	22	G 20	28	34	38	37	G 26	42	29	20	20	E B 15	19	20	E B 15	E B 15	E B 14
21	E B 14	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	G	G 24	G 25	36	36	G	35	G 27	G 22	24	21	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15
22	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	G	G 23	34	G 28	G	37	37	32	29	21	16	16	18	E B 15	E B 15	E B 15	E B 15
23	E B 16	E B 15	E B 15	E B 13	E B 15	E B 15	E B 15	23	G 20	G 21	G	G	G	G	G 25	36	22	E B 15	E B 15	E B 15	E B 15	E B 14	E B 14	E B 14
24	E B 15	E B 15	E B 15	E B 14	E B 14	E B 15	E B 15	22	28	32	G 27	G	G 26	G 26	G 26	G	G	E B 16	E B 14	E B 14	E B 14	E B 15	E B 14	E B 15
25	E B 15	E B 14	E B 15	E B 15	E B 15	E B 15	E B 14	21	33	G	G	39	G	G	G	32	31	16	23	19	E B 15	E B 15	E B 14	E B 15
26	E B 14	E B 15	E B 15	E B 16	E B 15	E B 15	E B 14	21	G	G	G 23	G	37	G 26	G 24	G 20	29	17	E B 15	E B 15	E B 15	E B 15	E B 14	E B 15
27	E B 15	16	19	E B 14	E B 15	E B 15	E B 15	22	G	G 26	G 25	G 24	38	G 25	G 24	G 20	20	20	E B 15	E B 14	E B 14	E B 14	E B 14	E B 16
28	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	E B 14	24	38	G 24	G 31	40	G 30	G 24	36	G 22	26	E B 15	15	E B 15	20	E B 15	E B 15	E B 15
29	E B 14	E B 15	E B 15	E B 15	E B 15	E B 15	E B 14	21	31	G 24	G 24	G	G	36	32	G 21	21	E B 16	E B 15	E B 15	E B 14	E B 14	E B 14	E B 14
30	E B 15	E B 15	E B 14	E B 14	E B 15	E B 14	E B 14	20	31	38	G 30	G 28	G 30	G 29	53	29	E B 14	E B 15	E B 15	E B 14	E B 15	E B 15	E B 15	E B 11
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	30	30	30	30	30	30	30	30	30	30	29	29	29	29	29	29	29	29	29	30	30	30	30
MED	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	22	G 24	G 28	G	G	37	G	34	29	22	17	E B 15	E B 15	E B 16	E B 15	E B 15	E B 15
U Q	E B 15	15	15	16	E B 15	E B 15	E B 15	25	31	G	36	38	43	41	40	34	29	22	20	22	20	16	15	15
L Q	E B 15	E B 15	E B 15	E B 14	E B 15	E B 14	E B 14	G	G 22	G 25	G 28	G	G	G 29	G	G	G	E B 15	E B 15	E B 15	E B 15	E B 15	E B 14	E B 15

NOV. 2011 fbEs (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

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

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

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

NOV. 2011 fmin (0.1MHz)

IONOSPHERIC DATA STATION Kokubunji

NOV. 2011 M(3000)F2 (0.01) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	294	296	320	315	323	298	331	363	350	347	337	330	326	310	320	316	334	343	327	320	318	304	288	266
2	272	287	A	266	272	278	312	342	325	339	332	337	328	334	332	343	357	341	333	A	334	338	A	A
3	A	278	282	286	302	312	328	343	348	351	343	327	321	327	330	317	348	351	331	325	310	315	A	334
4	289	281	285	299	312	307	336	355	358	353	343	331	323	311	319	322	337	343	336	304	327	304	311	293
5	297	304	302	299	311	310	321	366	346	365	333	321	319	319	314	324	333	336	336	321	305	309	325	317
6	304	308	311	295	319	314	333	375	362	351	341	335	323	314	320	323	320	336	358	309	307	306	297	289
7	303	303	308	300	302	304	332	360	344	346	343	332	322	320	328	330	334	332	331	322	322	307	311	300
8	290	288	296	311	341	291	335	351	351	344	335	336	310	314	322	321	337	342	303	299	308	322	325	297
9	268	283	282	330	361	286	316	347	355	342	336	323	315	310	313	324	329	337	354	326	318	312	306	294
10	284	285	298	306	330	306	334	349	343	356	347	328	337	317	322	338	338	329	328	313	305	304	309	297
11	289	294	274	296	310	332	324	344	351	346	341	334	322	321	300	331	346	324	315	319	312	305	289	291
12	296	295	309	313	317	298	327	359	361	347	346	C	C	C	C	C	C	C	C	C	314	304	311	298
13	297	302	278	290	299	320	317	354	332	335	342	327	315	327	313	335	344	344	299	303	327	322	312	292
14	287	294	299	303	315	300	324	349	340	343	333	319	318	304	321	337	341	341	312	318	314	309	315	294
15	289	286	288	311	344	316	330	361	352	337	338	336	312	314	318	330	354	338	320	294	319	319	282	285
16	273	286	282	311	358	319	318	348	345	332	331	325	322	313	322	321	315	335	336	304	313	305	312	292
17	299	297	287	299	314	317	324	351	357	347	327	319	309	309	323	323	331	332	331	312	316	324	319	290
18	278	290	300	288	300	320	340	360	347	350	341	292	318	314	313	328	354	336	321	330	326	316	A	290
19	290	286	273	302	345	325	335	376	363	344	330	325	302	321	333	349	335	333	333	336	324	313	306	296
20	295	265	307	326	319	327	318	358	355	361	347	350	308	V 291	346	343	348	354	311	328	293	312	319	294
21	292	273	303	306	309	308	325	357	359	358	333	348	328	314	326	333	344	336	323	315	326	322	292	292
22	296	288	281	280	314	300	340	360	351	332	325	335	328	315	353	333	364	334	318	323	320	341	303	291
23	282	262	281	289	320	342	309	345	353	344	333	341	337	335	310	337	347	346	332	309	314	312	325	287
24	305	304	287	290	307	306	317	341	357	355	339	348	337	335	328	330	347	330	353	336	301	319	335	281
25	295	309	326	320	334	301	301	358	365	343	354	338	332	331	349	347	354	347	319	333	321	322	313	301
26	285	296	303	307	357	338	320	349	360	371	350	345	332	334	345	345	343	333	327	346	341	325	284	288
27	284	284	301	294	312	316	314	340	352	335	361	357	352	338	336	340	355	337	330	308	344	327	302	300
28	289	280	298	285	352	329	322	352	362	359	339	346	348	V 317	336	346	351	348	325	319	341	342	332	291
29	298	288	283	306	313	318	323	363	364	356	328	342	349	350	335	346	345	342	309	333	326	298	350	282
30	300	293	288	319	328	305	339	372	356	351	349	337	333	327	348	329	358	360	339	322	321	304	311	267
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	29	30	29	30	30	30	30	30	30	30	30	29	29	29	29	29	29	29	29	28	30	30	27	29
MED	290	288	296	301	316	311	324	354	352	347	339	335	323	317	323	331	344	337	328	320	318	312	311	292
U Q	297	296	303	311	334	320	333	360	359	355	343	342	332	329	336	342	352	344	334	327	326	322	319	297
L Q	284	284	282	290	310	301	318	348	347	343	333	326	316	314	318	324	334	334	318	309	312	305	302	288

NOV. 2011 M(3000)F2 (0.01)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

NOV. 2011 M(3000)F1 (0.01) 135°E MEAN TIME (G.M.T. + 9 H)

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

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

NOV. 2011 M(3000)F1 (0.01)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

NOV. 2011 h'F2 (KM) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1																								
2									268	246		264												
3												258	246	260	242									
4											254			268										
5												254		268										
6											242	230	250	266	262									
7											238		228	272	268									
8												240		276										
9												258	268		278	232								
10											246		248											
11										254	246	268	270	278										
12												C	C	C	C	C	C							
13											236	234	258	268										
14															254									
15											258	242	286	258	244									
16													238		264									
17										238														
18													276	280										
19																								
20														272	230	222								
21											252		274											
22													252	272	228									
23																								
24																								
25												232	246	258										
26											256		264	254										
27										222														
28												238	230											
29										240		240	246		274									
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT									1	5	9	12	16	14	10	2								
MED									268	240	246	241	251	268	258	227								
U Q										250	255	258	269	272	268									
L Q										230	240	236	246	260	242									

NOV. 2011 h'F2 (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

NOV. 2011 h'F (KM) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E B 270	E A 276	E A 258	E A 264	E B 238	E B 246	238	210	210	212	210	228	222	220	E A 254	230	218	210	224	E A 244	218	E A 238	E B 270	E A 324
2	E B 306	E A 308	A	E A 366	E A 382	E B 292	216	220	234	216	234	226	224	228	230	228	218	226	218	A	E A 258	E A 292	A	A
3	A	E A 330	E B 330	E B 314	E B 264	E B 250	236	218	218	216	224	196	A	A	A	218	212	204	204	E A 256	E A 298	E A 294	A	E A 288
4	E A 310	E A 308	E A 326	E A 306	E B 266	E B 260	214	208	216	212	210	222	220	218	234	232	210	202	196	E B 224	228	E B 238	E B 256	E B 244
5	E B 274	E B 264	E B 262	E B 278	E B 248	E B 244	220	212	212	214	210	196	218	222	222	220	218	206	204	216	208	226	E A 244	226
6	E B 242	E B 254	E B 262	E B 276	E B 242	E B A 248	238	212	212	212	206	192	178	210	210	218	210	210	212	202	220	226	E B 256	E B 270
7	E B 268	E B 260	E B 256	E B 276	E B 264	E B 258	214	206	206	212	200	216	A	220	222	222	218	210	200	218	232	216	E B 244	E B 254
8	E B 266	E B 268	E B 268	E B 256	E B 230	214	222	212	216	228	214	202	218	224	228	222	214	206	212	E B 230	E A 264	E B 224	E B 230	E B 280
9	E B 310	E A 330	E B 308	E B A 242	216	214	236	210	214	214	220	206	216	232	228	A	216	208	194	204	E B 212	E B 230	E B 244	E B 264
10	E B 304	E B 302	E B 278	E B 254	E B 232	210	230	210	210	214	192	212	202	222	228	216	216	194	206	E B 232	216	E B 238	E B 250	E B 266
11	E B 280	E B 278	E B 302	E B 264	E B 254	202	224	202	216	214	204	204	226	220	224	230	220	198	218	E A 246	E A 244	228	E B 266	E B 290
12	E B 290	E B 270	E B 248	E B 254	E B 242	E B 260	232	214	212	218	220	C	C	C	C	C	C	C	C	C	E B 238	E B 260	E B 250	E B 272
13	E B 264	E B 244	E B 272	E B 296	E B 274	228	202	206	212	220	A	A	A	214	222	224	212	194	E A 246	E B 244	226	224	E B 238	E B 288
14	E B 296	E B 284	E B 262	E B 270	E B 232	E B 236	E B 242	214	210	226	222	218	222	224	208	220	202	200	224	222	212	232	E B 256	E B 294
15	E B 296	E B 296	E B 290	E B 262	228	208	236	206	208	222	212	210	214	206	A	222	216	196	196	230	224	220	E B 276	E B 290
16	E B 326	E B 326	E B 320	E B A 262	206	E B 250	230	212	220	218	218	222	A	234	A	218	216	214	202	230	E A 262	E B 240	E B 258	E B 266
17	E B 270	E B 268	E B 292	E B 282	E B 262	E B 252	218	212	220	192	210	208	196	228	232	222	202	210	216	E A 254	E A 240	E A 236	220	E B 278
18	E B 324	E B 302	E B 292	E B A 306	E A 290	E B 242	206	212	212	212	216	208	198	218	228	212	212	208	212	232	E A 258	E A 272	A	E A 308
19	E B 304	E B 286	E B 316	E B 274	230	224	214	206	202	210	218	216	210	232	234	228	216	210	E A 236	232	228	E A 266	E A 262	E A 340
20	E A 306	E B 342	E B A 274	240	E B 240	E B 242	232	210	214	226	216	226	208	204	A	A	212	208	196	226	E A 232	224	E B 246	E B 284
21	E B 304	E B 300	E B 282	E B 262	E B 260	E B 260	224	210	212	214	206	226	218	234	222	224	214	208	210	E B 212	220	E B 232	E B 236	E B 284
22	E B 288	E B 296	E B 310	E B 298	E B 270	E B 278	214	H 184	216	214	228	218	210	222	A	212	208	208	220	220	E B 248	222	E B 242	E B 290
23	E B 310	E B 332	E B 326	E B 312	E B 254	204	236	228	224	212	226	218	224	224	216	216	228	196	208	E B 248	E B 252	E B 238	222	E B 282
24	E B 282	E B 270	E B 280	E B 300	E B 264	E B 236	E B 254	214	214	218	214	234	218	218	208	218	214	202	202	208	E B 264	E B 250	224	E B 304
25	E B 292	E B 274	E B 246	E B 256	E B 248	E B 284	E B 292	220	202	212	216	A	204	206	236	222	202	198	E A 250	232	228	224	E B 242	E B 276
26	E B 296	E B 290	E B 270	E B 254	218	210	E B 246	212	216	220	208	218	208	206	232	220	206	202	216	218	210	224	E B 298	E B 298
27	E B 312	E A 320	E A 304	E B 314	E B 264	230	226	220	224	188	226	214	220	216	218	232	214	192	198	E B 236	E B 224	E B 224	E B 238	E B 268
28	E B 296	E B 306	E B 290	E B 298	220	206	238	220	224	228	212	A	200	214	220	222	208	196	230	E B 250	236	E B 216	230	E B 284
29	E B 288	E B 302	E B 316	E B 276	E B 250	E B 258	234	226	220	202	196	208	208	230	202	218	220	204	E B 226	228	218	E B 244	226	E B 274
30	E B 302	E B 312	E B 302	E B 278	E B 242	E B 250	220	212	214	214	224	222	224	236	236	208	210	192	206	238	218	E B 248	E B 244	E B 332
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	29	30	29	30	30	30	30	30	30	30	29	26	25	28	24	27	29	29	29	28	30	30	27	29
MED	E B 296	E B 296	E B 290	E B 276	E B 248	E B 243	226	212	214	214	214	216	216	221	224	222	214	204	209	224	220	E 232	E B 244	E B 284
U Q	E B 306	E 308	E B 309	E B 298	E B 264	E B 258	236	214	218	218	221	222	221	228	232	224	217	209	222	E 241	E A 248	E A 244	E B 256	E B 292
L Q	E B 277	E B 270	E B 265	E B 262	232	214	218	210	212	212	209	208	206	215	219	218	210	197	202	219	218	224	236	E B 269

NOV. 2011 h'F (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

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

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							B	118	118	120	120	A	A	A	A	A	A							
2							B	116	A	A	118	114	A	118	A	A	A							
3							B	118	116	118	A	120	A	A	A	114	A							
4							B	118	A	116	126	120	A	A	A	A	A							
5							B	120	118	118	118	A	118	120	116	116	A							
6							B	126	120	120	114	114	124	126	A	A	116							
7							B	114	120	A	116	118	A	A	122	118	120							
8							B	118	122	126	116	116	A	122	122	120	120							
9							B	116	122	116	116	116	126	A	A	A	A							
10							B	114	120	120	A	134	128	124	124	116	124							
11							B	122	122	122	122	122	A	A	A	A	A							
12							B	118	120	122	118	C	C	C	C	C	C							
13							B	112	122	116	118	118	118	A	118	114	116							
14							B	120	118	126	122	120	120	120	120	122	120							
15							B	126	122	120	120	120	120	120	116	A	118							
16							B	118	122	118	118	116	A	112	A	A	A							
17							B	118	126	124	118	114	114	110	116	122	A							
18							B	116	116	124	A	124	A	A	A	118	118							
19							B	122	120	120	122	118	A	116	118	122	126							
20							B	126	124	124	A	120	120	122	A	A	A							
21							B	126	124	118	118	A	118	A	120	120	A							
22							B	120	118	A	122	122	122	A	A	A	A							
23							B	118	114	116	116	118	120	120	118	A	118							
24							B	A	A	A	120	120	114	114	120	122	120							
25							B	114	120	116	118	118	118	118	116	116	B							
26							B	B	118	116	122	116	116	118	124	124	A							
27							B	B	118	122	120	122	A	116	116	118	118							
28							B	116	116	120	122	122	118	118	A	116	A							
29							B	118	118	120	122	120	120	122	A	122	114							
30							B	120	128	A	124	120	120	120	126	A	B							
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								27	27	25	26	26	18	19	16	17	13							
MED								118	120	120	119	120	120	120	119	118	118							
U Q								120	122	122	122	120	120	122	122	122	120							
L Q								116	118	117	118	116	118	116	116	116	117							

NOV. 2011 h′E (KM)

IONOSPHERIC DATA STATION Kokubunji

NOV. 2011 h'Es (KM) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	102	102	96	94	96	98	96	122	122	106	120	108	108	102	100	98	98	98	98	94	92	92	92	92
2	B	104	100	100	100	108	B	132	110	106	118	110	106	114	108	104	102	102	102	96	92	92	92	92
3	92	92	92	B	108	106	104	G	100	102	108	G	104	104	106	114	96	100	100	98	98	90	90	92
4	94	94	88	88	90	90	152	G	106	G	G	G	102	100	96	94	90	94	102	102	98	98	B	B
5	B	92	B	B	B	B	100	118	106	100	116	104	G	G	94	94	88	88	88	88	B	B	90	90
6	92	94	B	B	B	94	B	106	106	104	G	G	G	100	104	100	96	94	96	82	B	B	B	B
7	B	B	B	B	B	B	B	150	104	100	G	106	102	102	G	G	G	102	B	B	124	B	B	B
8	B	B	B	B	B	B	B	154	104	102	G	G	110	G	G	G	102	B	102	104	100	B	B	B
9	B	100	98	94	100	B	B	156	106	104	G	G	122	110	104	106	106	B	B	B	B	B	B	B
10	B	96	B	B	100	102	B	G	104	102	104	G	G	G	106	G	104	B	B	B	B	B	B	B
11	90	B	B	B	B	B	B	G	104	G	124	G	106	106	108	106	104	102	100	98	94	90	B	B
12	B	B	B	B	B	B	B	G	106	106	102	C	C	C	C	C	C	C	C	C	B	90	B	B
13	B	B	B	B	B	B	B	G	104	104	126	124	114	106	120	G	G	B	102	B	B	B	96	B
14	B	B	B	B	B	102	102	156	104	146	128	124	114	120	G	G	G	88	B	B	B	B	B	B
15	B	B	B	B	104	B	102	160	102	G	98	G	124	G	114	108	106	B	B	102	B	B	B	B
16	102	B	100	96	98	100	96	158	96	100	100	120	104	118	108	100	104	98	102	100	98	96	B	B
17	B	B	B	B	B	98	98	142	136	G	104	G	G	96	G	108	102	102	100	94	94	94	94	96
18	102	B	B	92	100	98	B	158	104	126	104	106	104	102	102	126	122	98	102	102	100	102	98	98
19	B	B	B	96	106	B	B	152	98	104	104	104	106	106	128	128	124	102	100	100	100	100	98	96
20	98	B	98	96	B	94	B	138	110	104	106	114	118	106	106	102	104	98	98	98	98	B	B	B
21	B	B	B	B	B	B	94	G	108	104	114	104	G	104	102	102	98	96	B	B	B	B	98	B
22	B	B	B	B	B	B	B	G	106	106	104	G	124	108	106	104	102	102	104	100	100	90	96	96
23	B	B	B	B	B	B	B	166	104	104	G	G	G	G	104	106	122	B	B	B	B	B	B	102
24	B	B	B	B	B	B	B	110	106	106	106	G	106	104	106	G	G	96	B	B	B	B	B	B
25	B	B	B	B	B	B	B	150	126	G	G	124	G	G	G	124	120	100	94	90	B	B	B	B
26	B	B	B	B	B	B	B	150	G	G	104	G	110	102	106	106	108	106	B	B	B	B	B	B
27	B	94	94	94	B	B	100	168	G	108	104	106	110	100	102	104	126	94	B	B	B	B	B	B
28	B	B	B	B	B	B	B	132	152	100	110	128	100	102	108	106	108	106	142	130	104	B	B	B
29	B	104	B	B	B	B	B	142	122	106	106	G	G	128	110	100	142	B	B	B	B	B	B	100
30	B	B	B	B	B	B	B	148	146	104	106	104	108	106	130	102	B	B	B	B	100	90	90	B
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	8	10	8	9	10	11	10	22	28	24	23	15	21	23	24	23	24	21	17	17	15	12	11	10
MED	96	95	97	94	100	98	100	150	106	104	106	108	108	104	106	104	104	98	100	98	98	92	94	96
U Q	102	102	99	96	104	102	102	156	110	106	116	124	114	108	108	108	114	102	102	102	100	97	98	98
L Q	92	94	93	93	98	94	96	132	104	102	104	104	104	102	103	100	100	95	98	94	94	90	90	92

NOV. 2011 h'Es (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

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

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	F3	F3	F4	F3	F2	F1	L1	C2	CL21	L2	CL21	L2	L2	L2	L3	L3	L2	F3	F4	F4	F3	F3	F2	F4
2		F7	F4	F4	F4	F1		HL11	L2	L2	C2	L2	L2	CL12	L2	L2	L4	F5	F3	F4	F4	F4	F3	F4
3	F4	F3	F2		F1	F1	L1		L2	L2	L2		L3	L2	L2	CL32	L2	F3	F2	F3	F5	F4	F2	F3
4	F3	F2	F4	F3	F2	F2	HL11		L2				L2	L2	L2	L2	L2	F2	F3	F2	F2	F2		
5		F2					L2	CL11	L1	L2	CL11	L2			L2	L2	L3	F3	F1	F2			F3	F2
6	F1	F1				F2		L1	L1	L2				L1	L2	L2	L1	F3	F2	F1				
7								H2	L2	L2		L2	L2	L2				F2			F1			
8								H2	L2	L2			L2				L2		F1	F1	F3			
9		F2	F2	F3	F3			H2	L2	L2			C2	L2	L2	L2	L2							
10		F1			F1	F2			L2	L2	L2				L2		L2							
11	F2								L2		C2		L2	L2	L2	L2	L2	F2	F4	F3	F4	F4		
12									L2	L2	L1											F2		
13									L2	L2	CL22	CL11	CL22	L2	CL12				F2				F2	
14						F1	L2	H2	L2	HL22	CL22	CL22	CL22	CL22				F1						
15					F1		L1	H2	L2		L2		C1		C2	L2	L2			F2				
16	F2		F2	F2	F1	F1	L2	H1	L2	L2	L2	CL22	L2	CL11	L2	L2	L3	F4	F4	F2	F3	F3		
17						F2	L5	HL12	CL12		L2			L2		L2	L2	F4	F4	F6	F2	F3	F2	F2
18	F1			F2	F2	F2		H2	L2	CL12	L2	L2	L2	L2	L2	CL22	CL12	F4	F2	F3	F2	F3	F3	F2
19				F1	F1			HL22	L2	L2	L2	L1	L2	L2	CL22	CL22	CL22	F3	F4	F3	F3	F3	F3	F4
20	F2		F2	F2		F2		H1	L1	L1	L2	CL11	CL12	L2	L2	L2	L2	F3	F2	F2	F4			
21							L3		L2	L2	CL22	L2		L2	L2	L2	L2	F2					F2	
22									L2	L2	L2		CL12	L2	L2	L3	L2	F2	F3	F2	F2	F2	F2	F2
23								H1	L2	L2					L2	L2	C2							F2
24								L2	L2	L2	L2		L2	L2	L2			F1						
25								H2	C2			C2				C2	CL22	F3	F4	F2				
26								H2			L2		CL12	L2	L2	L2	L3	F2						
27		F1	F2	F1			L1	HL22		L2	L2	L2	L2	L2	L2	L2	H2	F4						
28								H3	H2	L2	L2	CL11	L2	L2	L1	L2	L2	F2	F1	F1	F3			
29		F1						H3	CL21	L2	L2			C2	L1	L1	HL12							F1
30								H2	HL22	L2	L2	L2	L1	L1	CL22	L3					F1	F1	F2	
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT																								
MED																								
U Q																								
L Q																								

NOV. 2011 TYPES OF Es

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

f-PLOTS OF IONOSPHERIC DATA

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

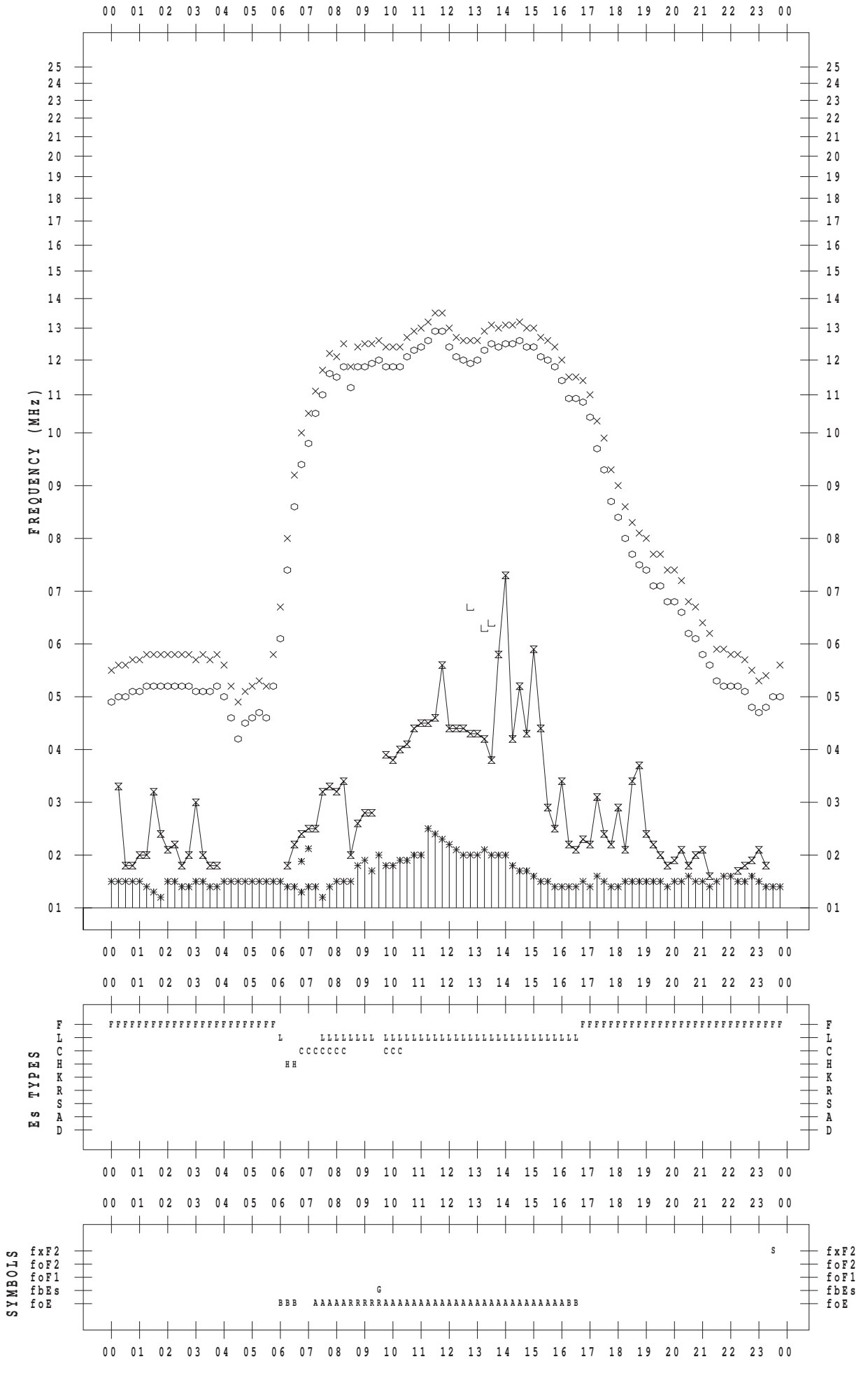
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2011/11/ 1

135 °E MEAN TIME



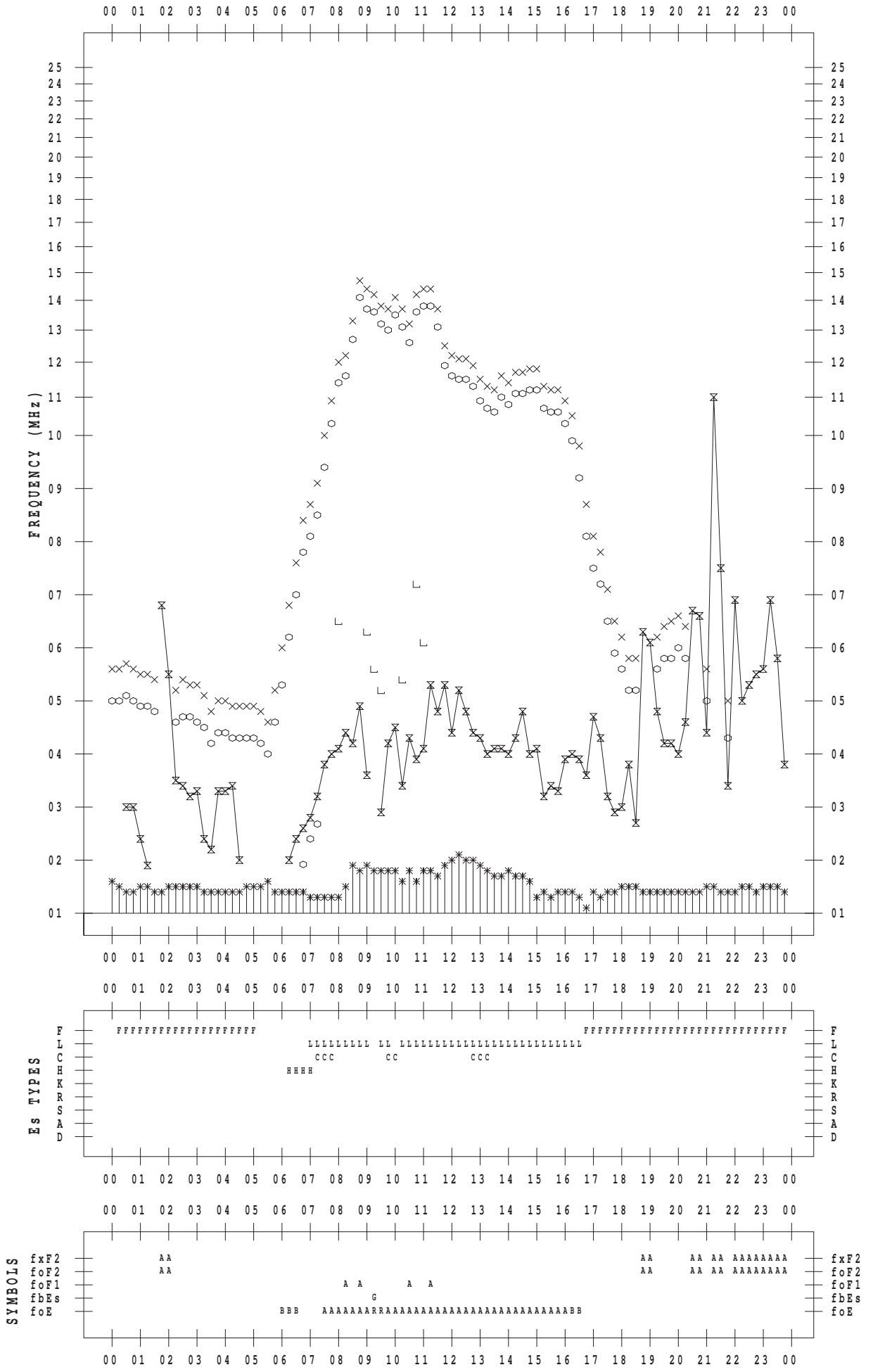
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2011/11/ 2

135 °E MEAN TIME



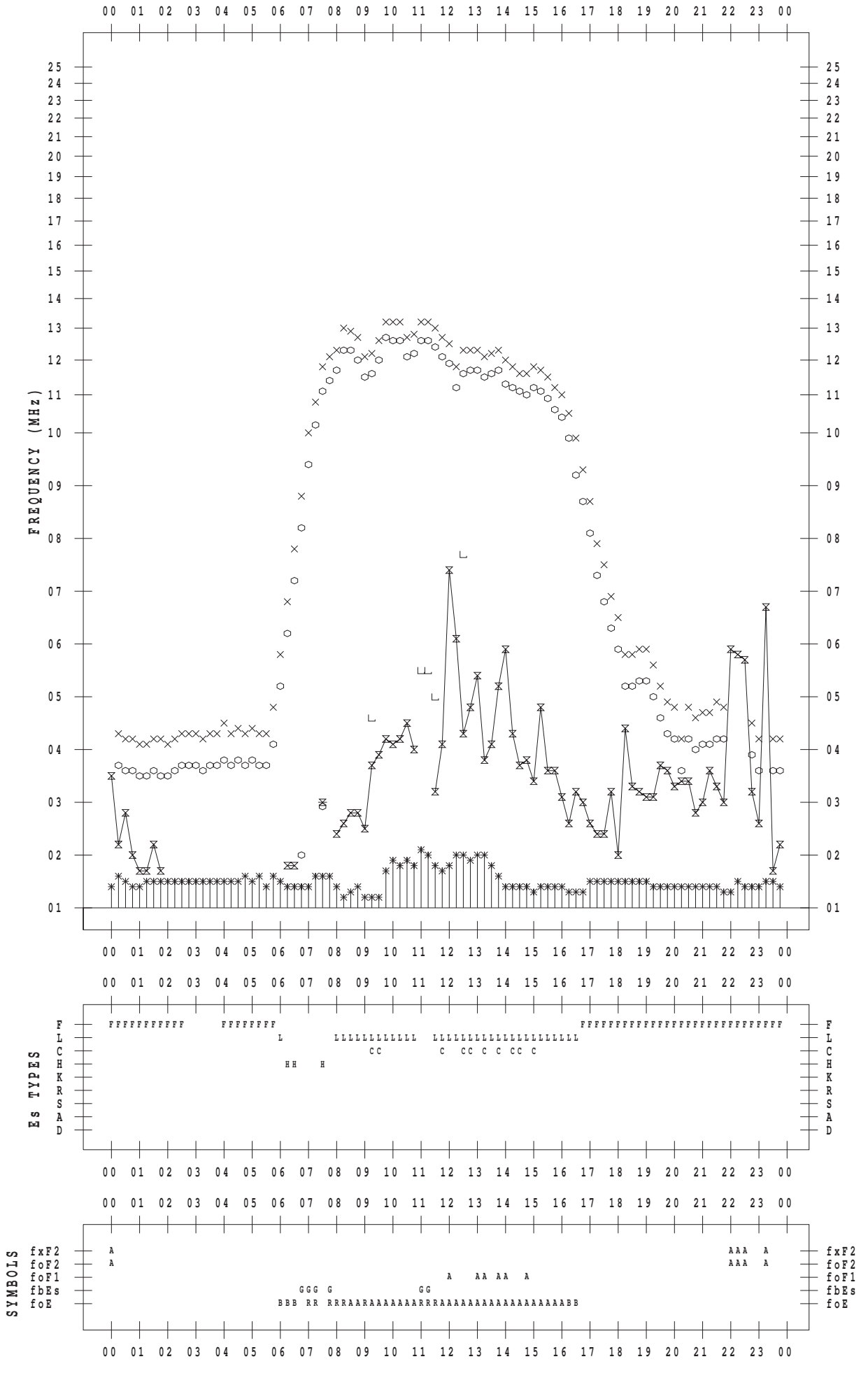
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2011/11/ 3

135 °E MEAN TIME



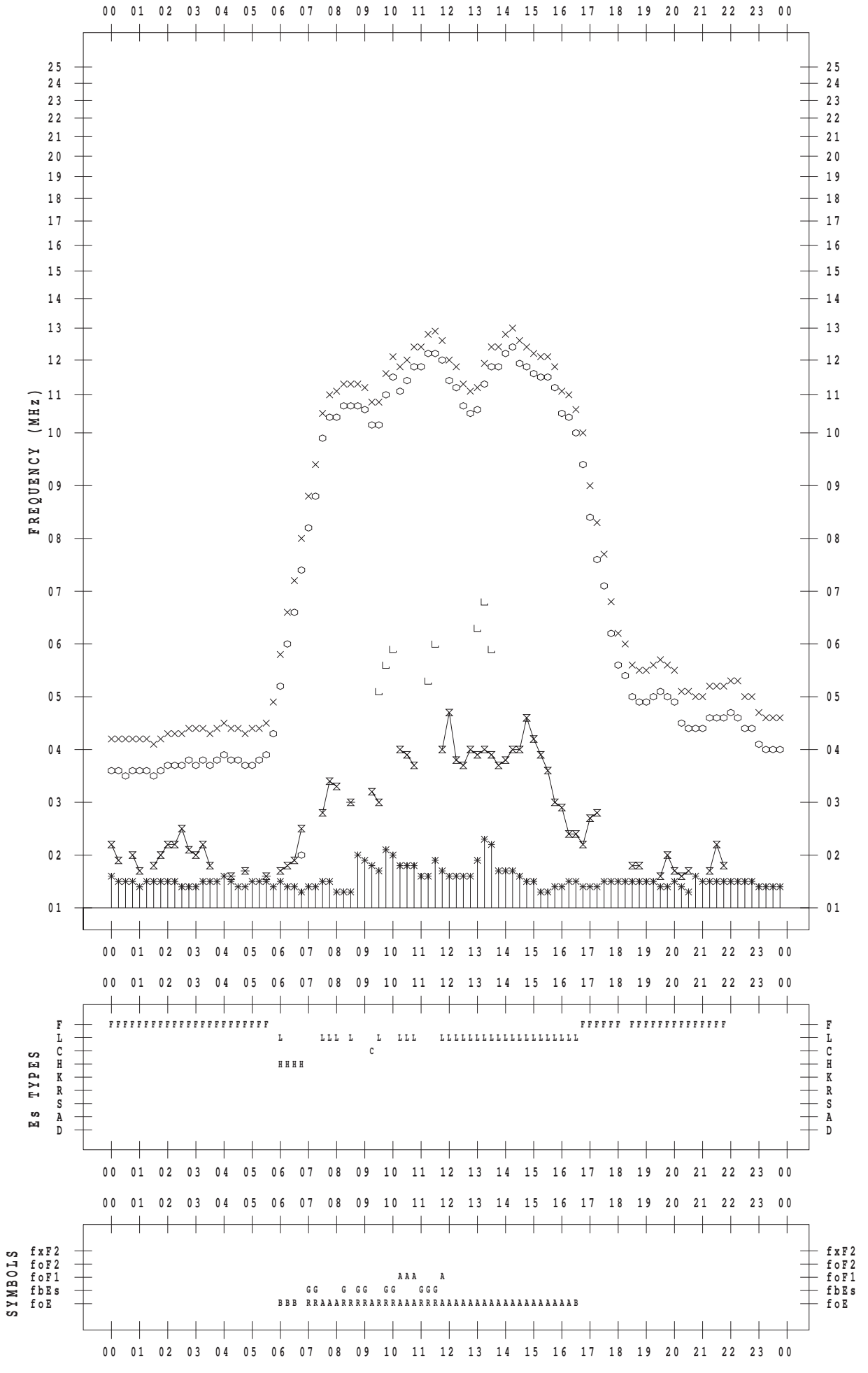
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2011/11/ 4

135 °E MEAN TIME



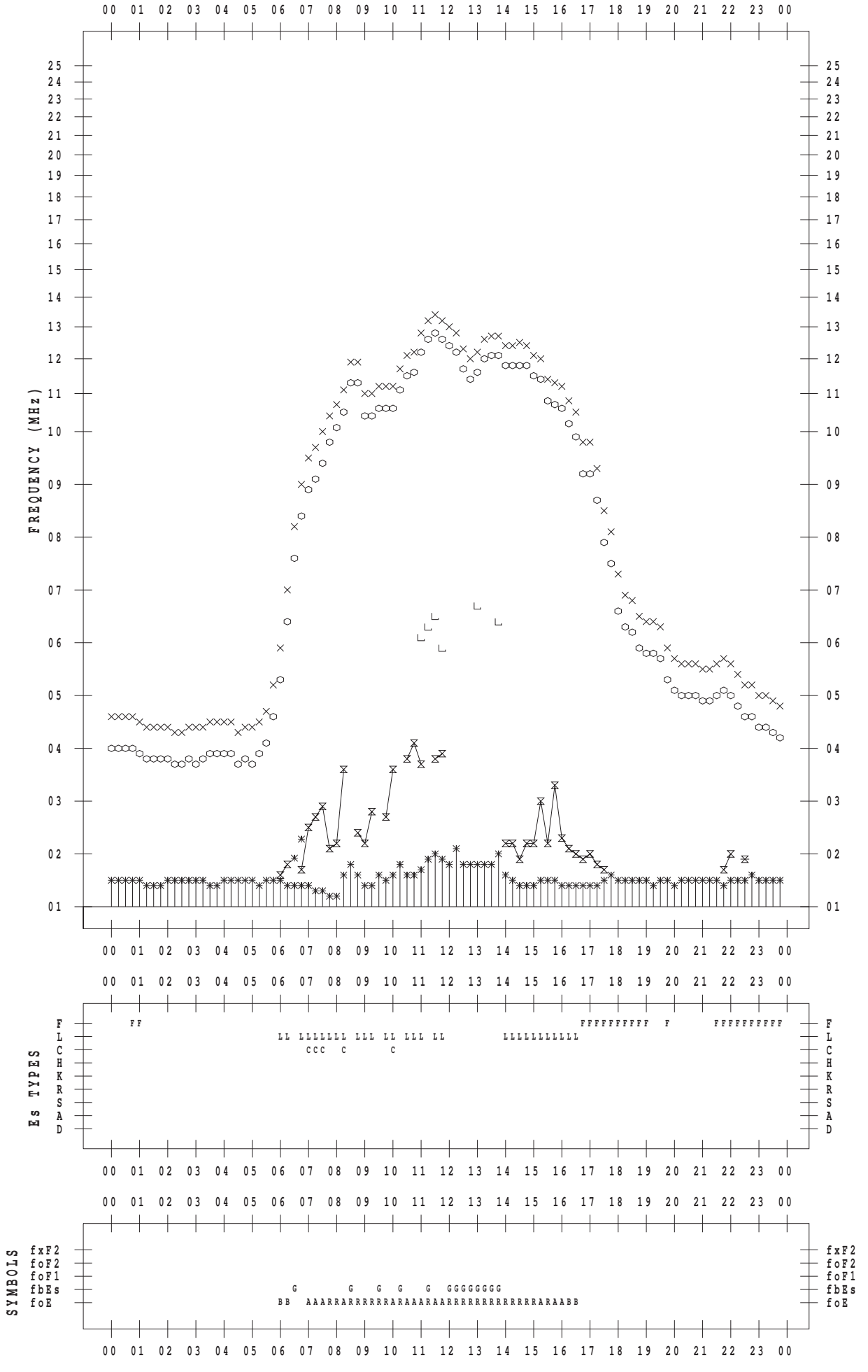
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2011/11/ 5

135 °E MEAN TIME

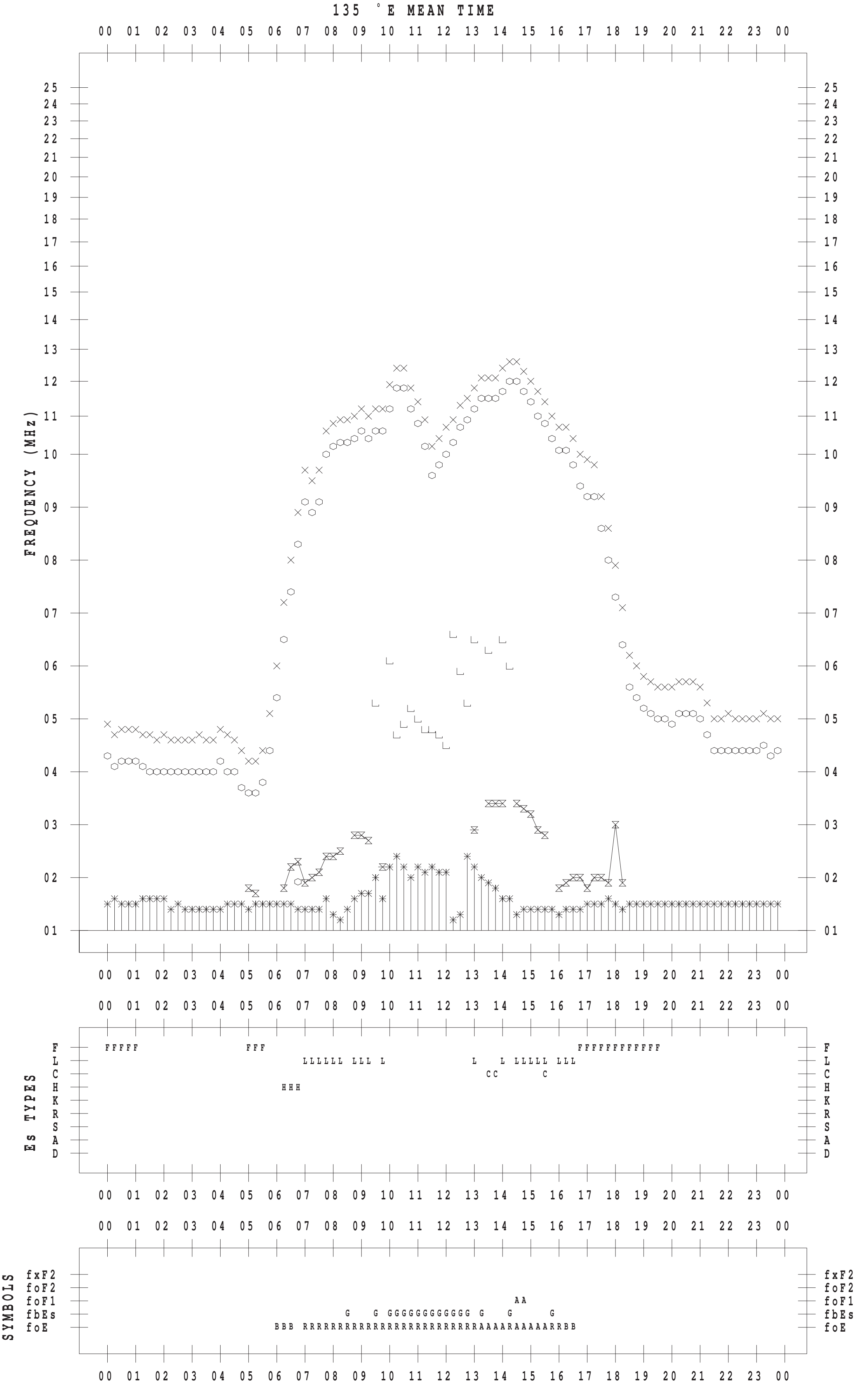


f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2011/11/ 6



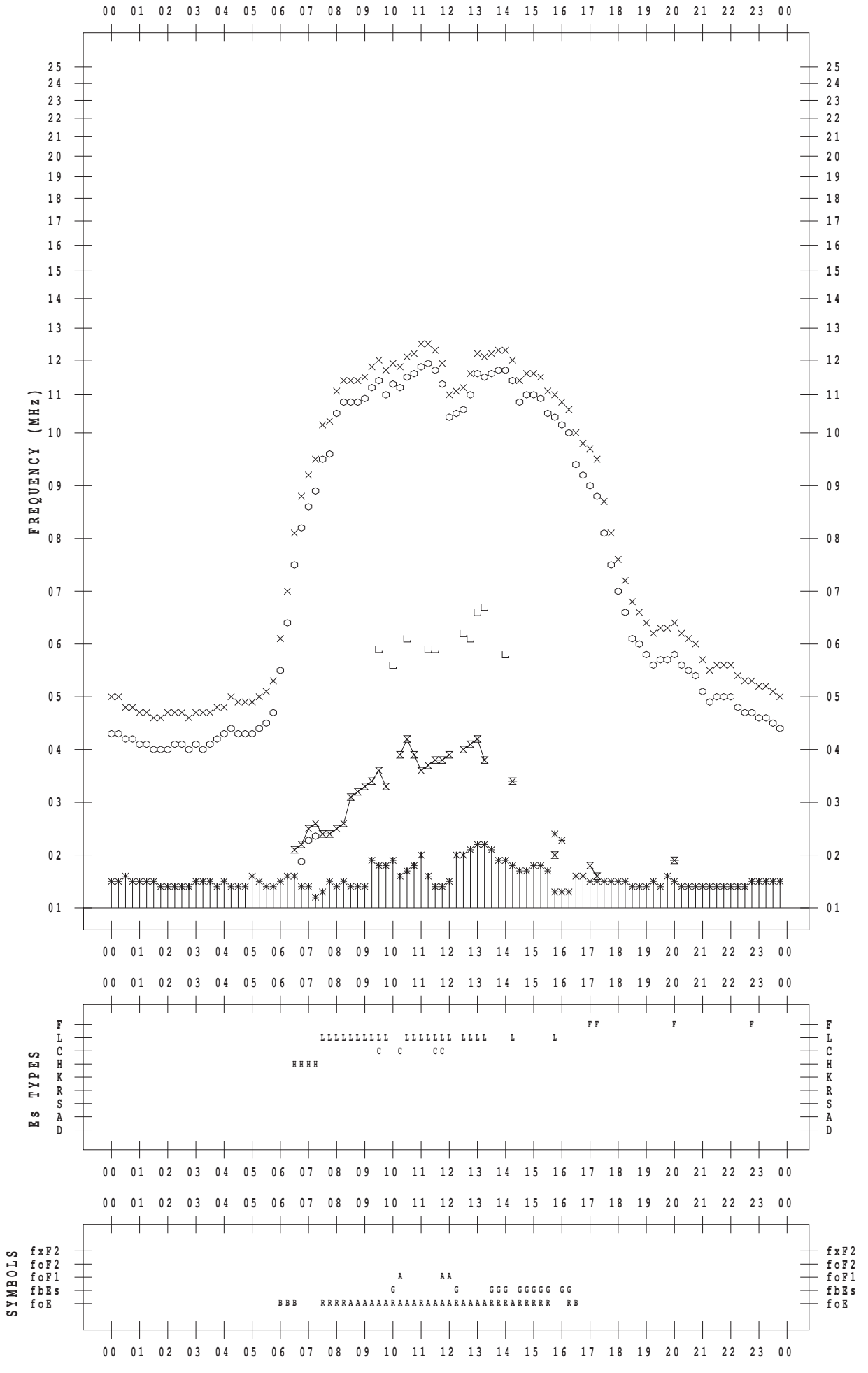
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2011/11/ 7

135 °E MEAN TIME



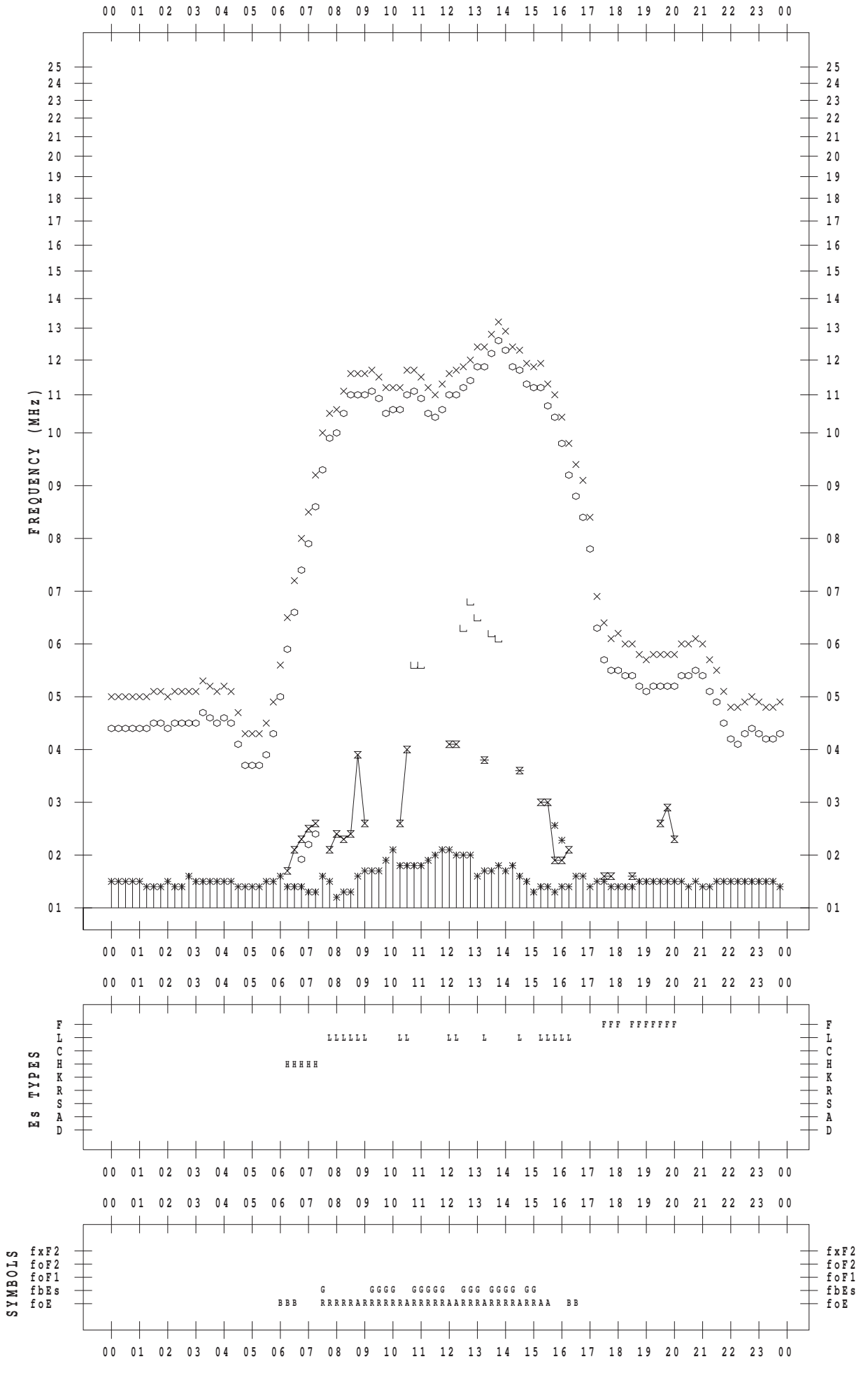
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2011/11/ 8

135 °E MEAN TIME



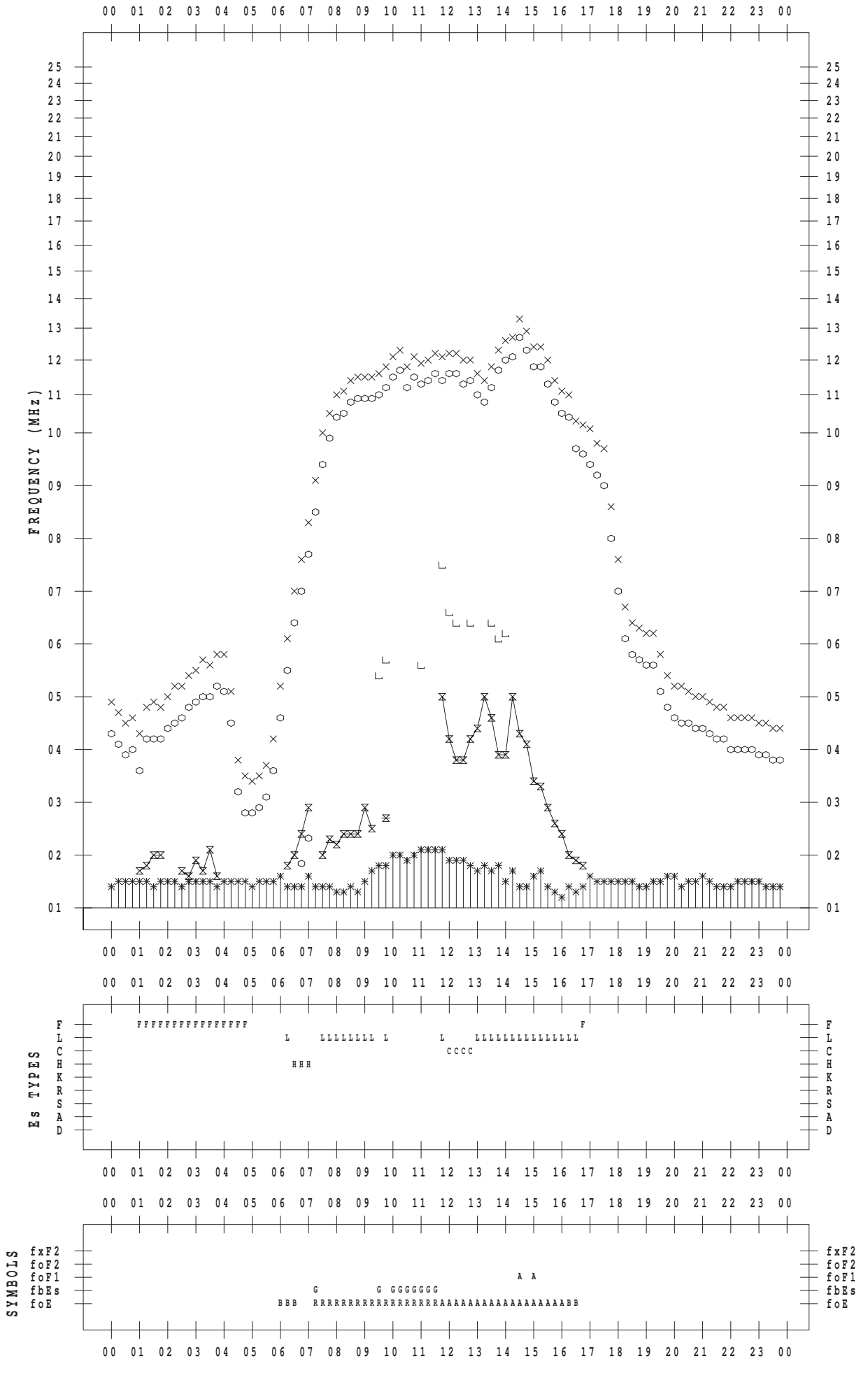
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2011/11/ 9

135 °E MEAN TIME



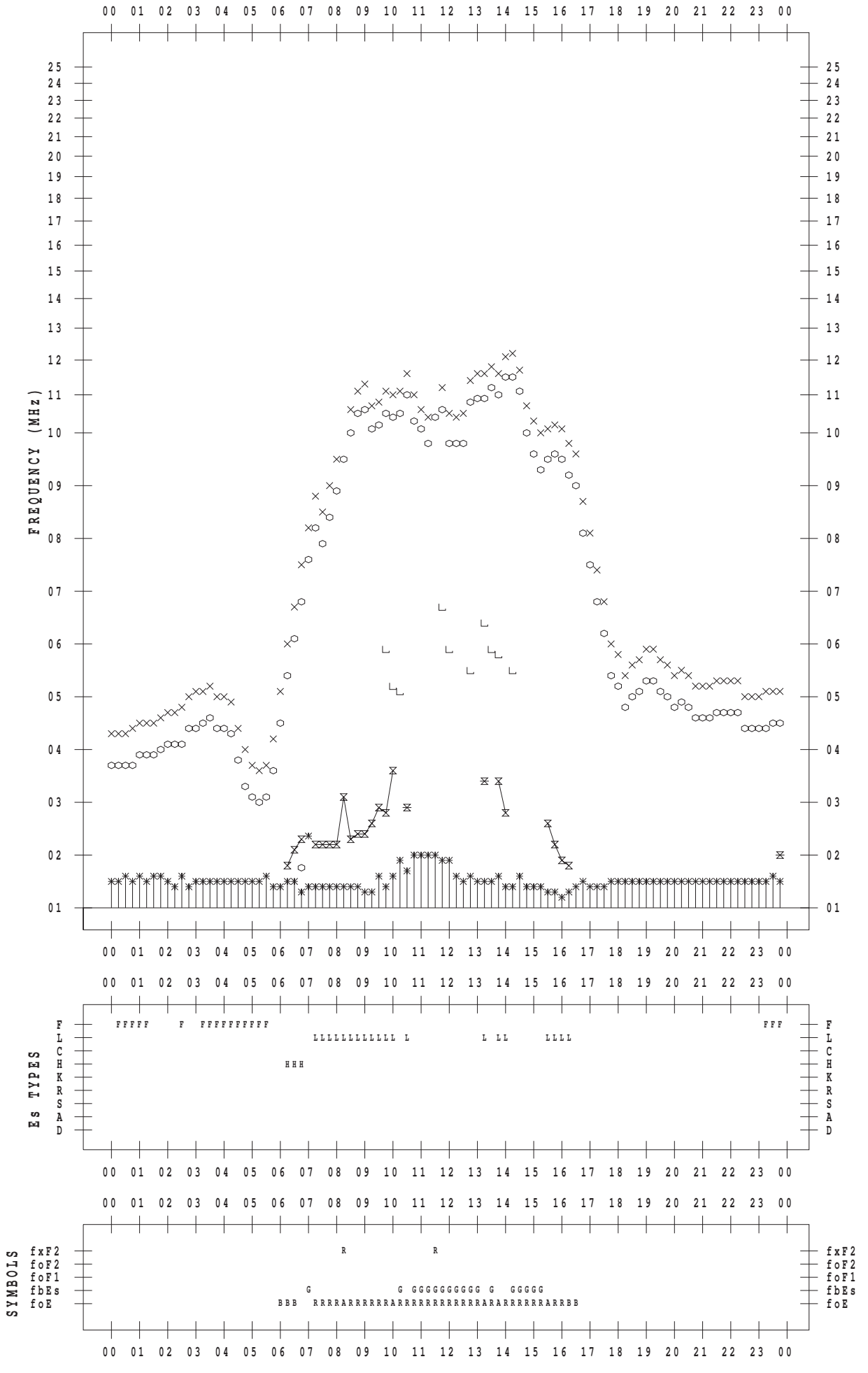
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2011/11/10

135 °E MEAN TIME



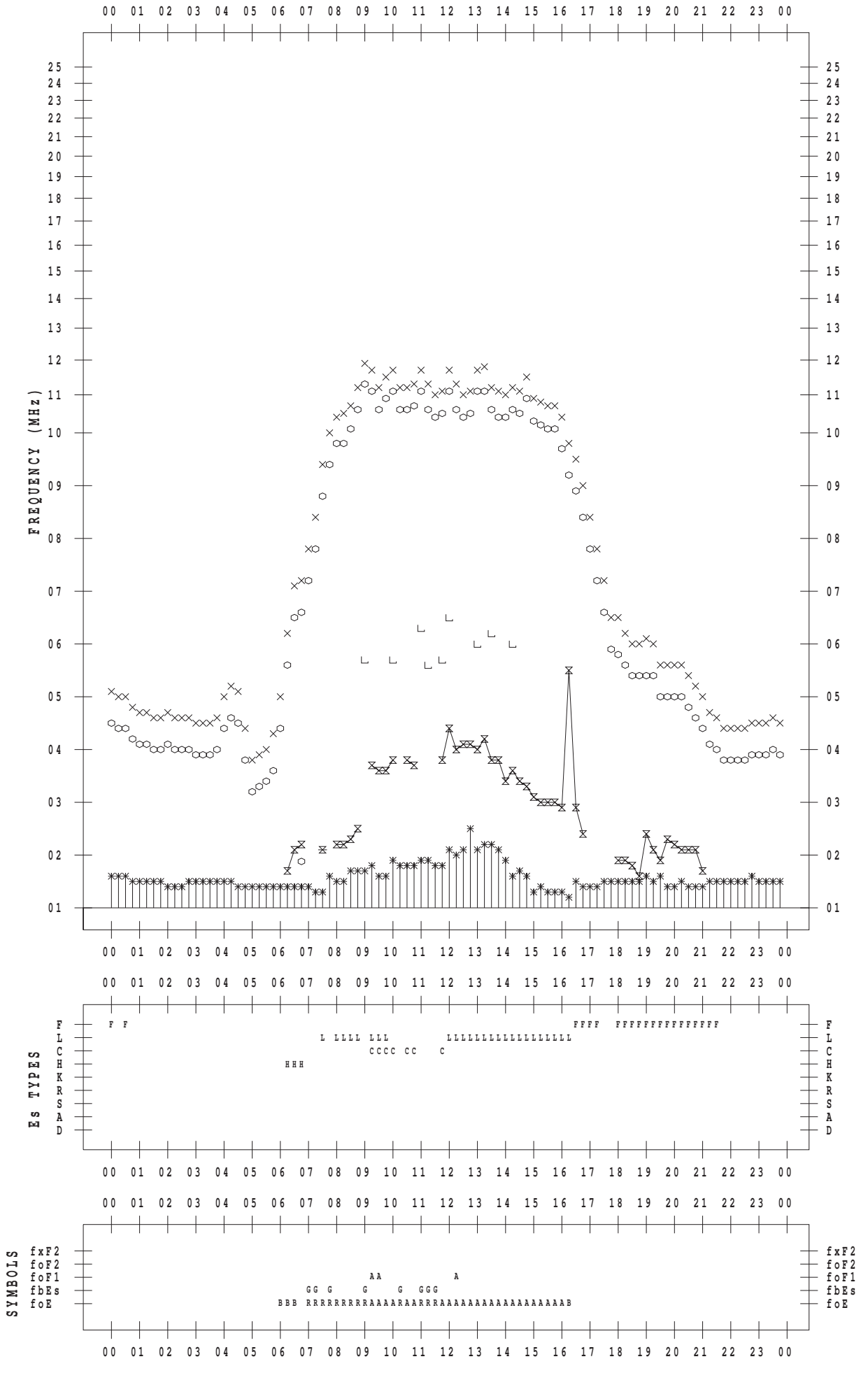
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2011/11/11

135 °E MEAN TIME



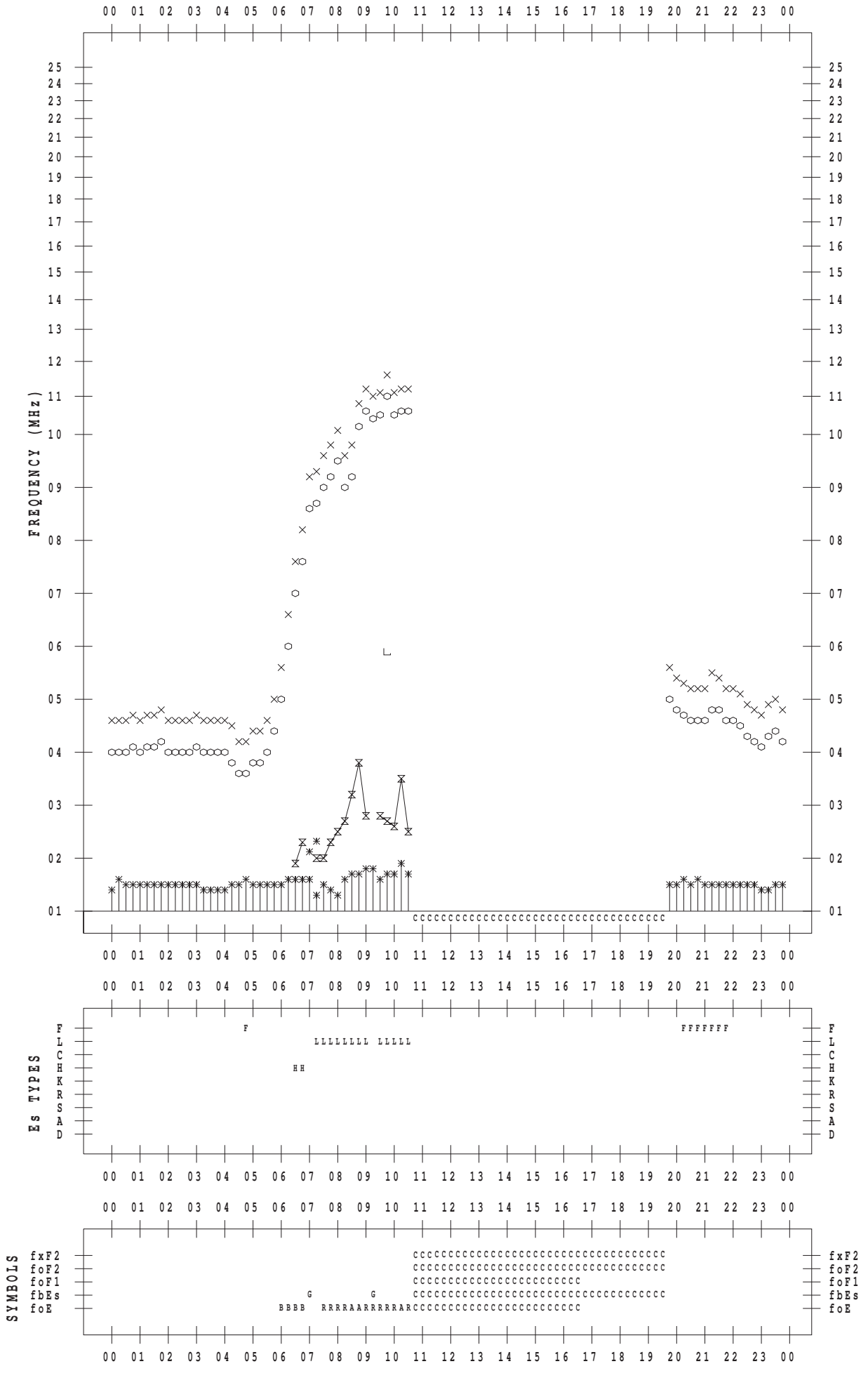
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2011/11/12

135 °E MEAN TIME

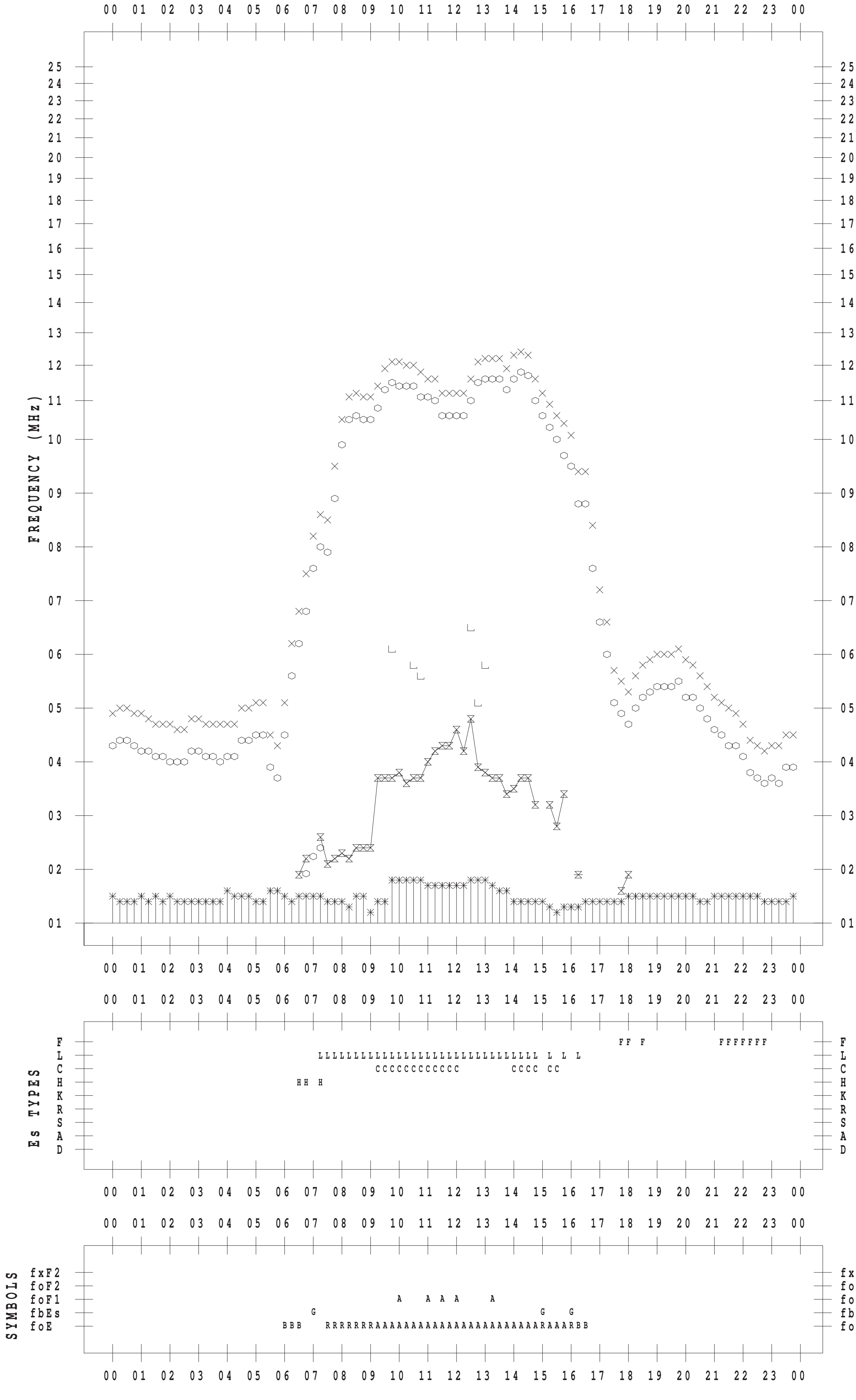


f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji DATE : 2011/11/13

135 °E MEAN TIME



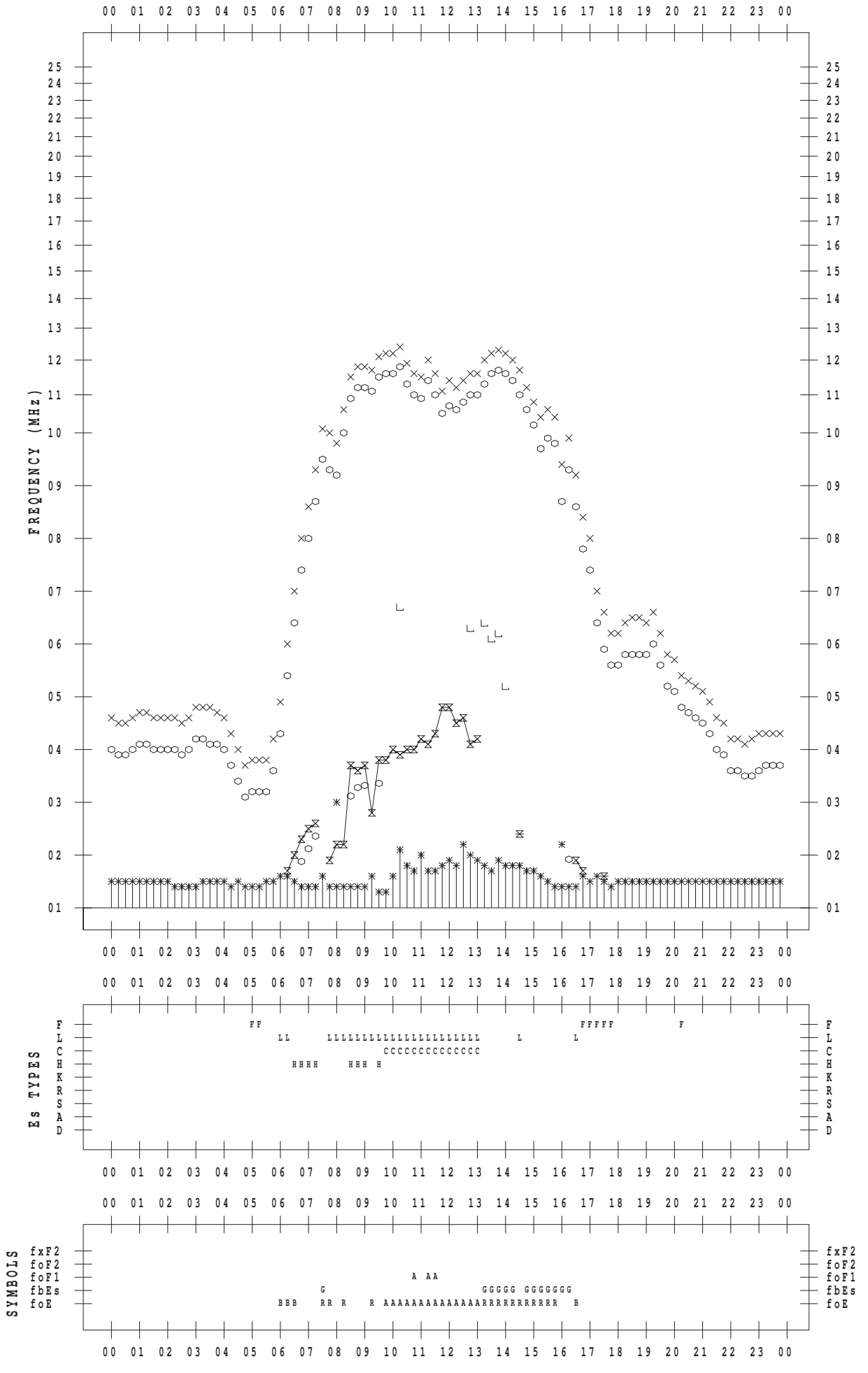
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2011/11/14

135 °E MEAN TIME



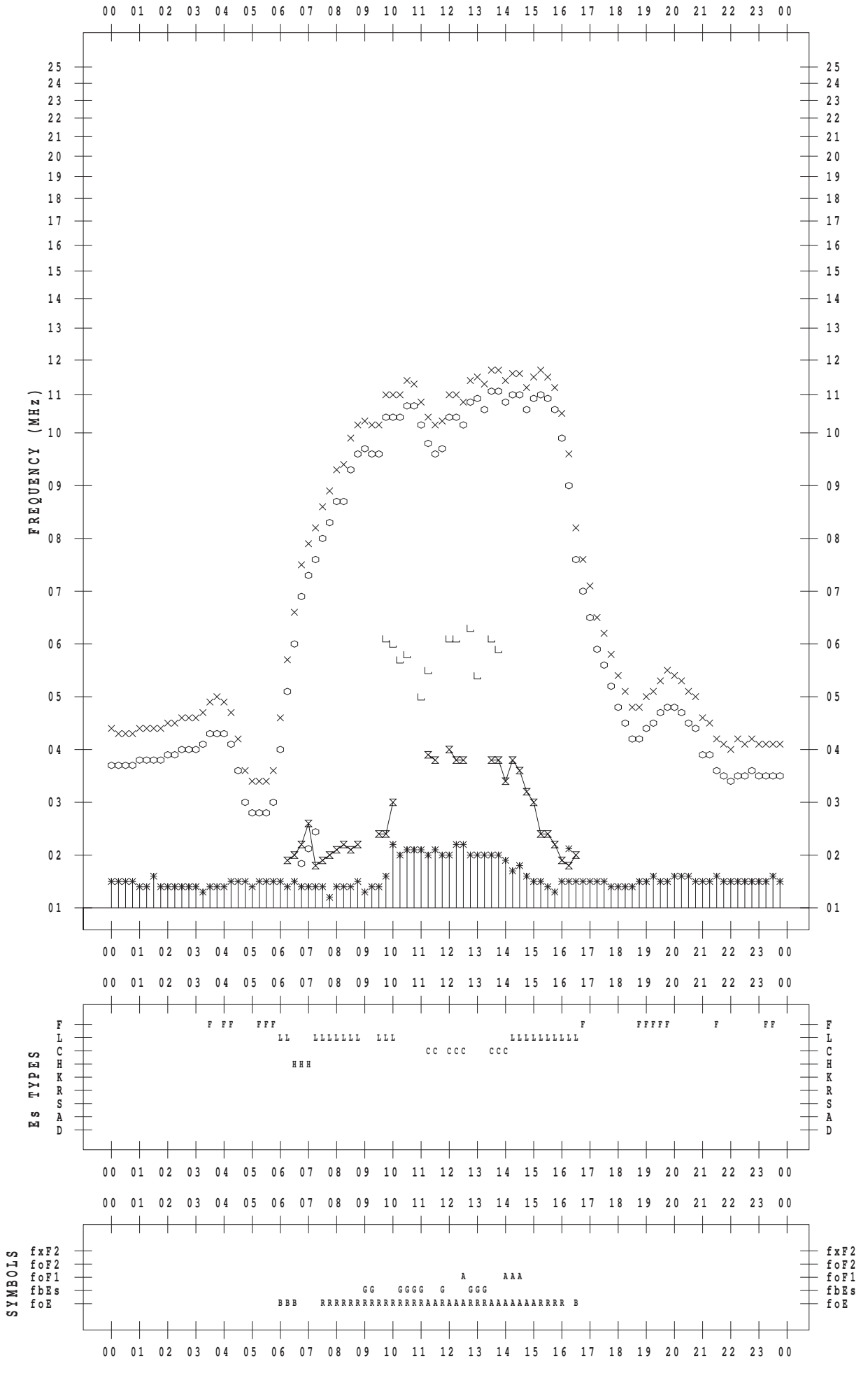
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2011/11/15

135 °E MEAN TIME



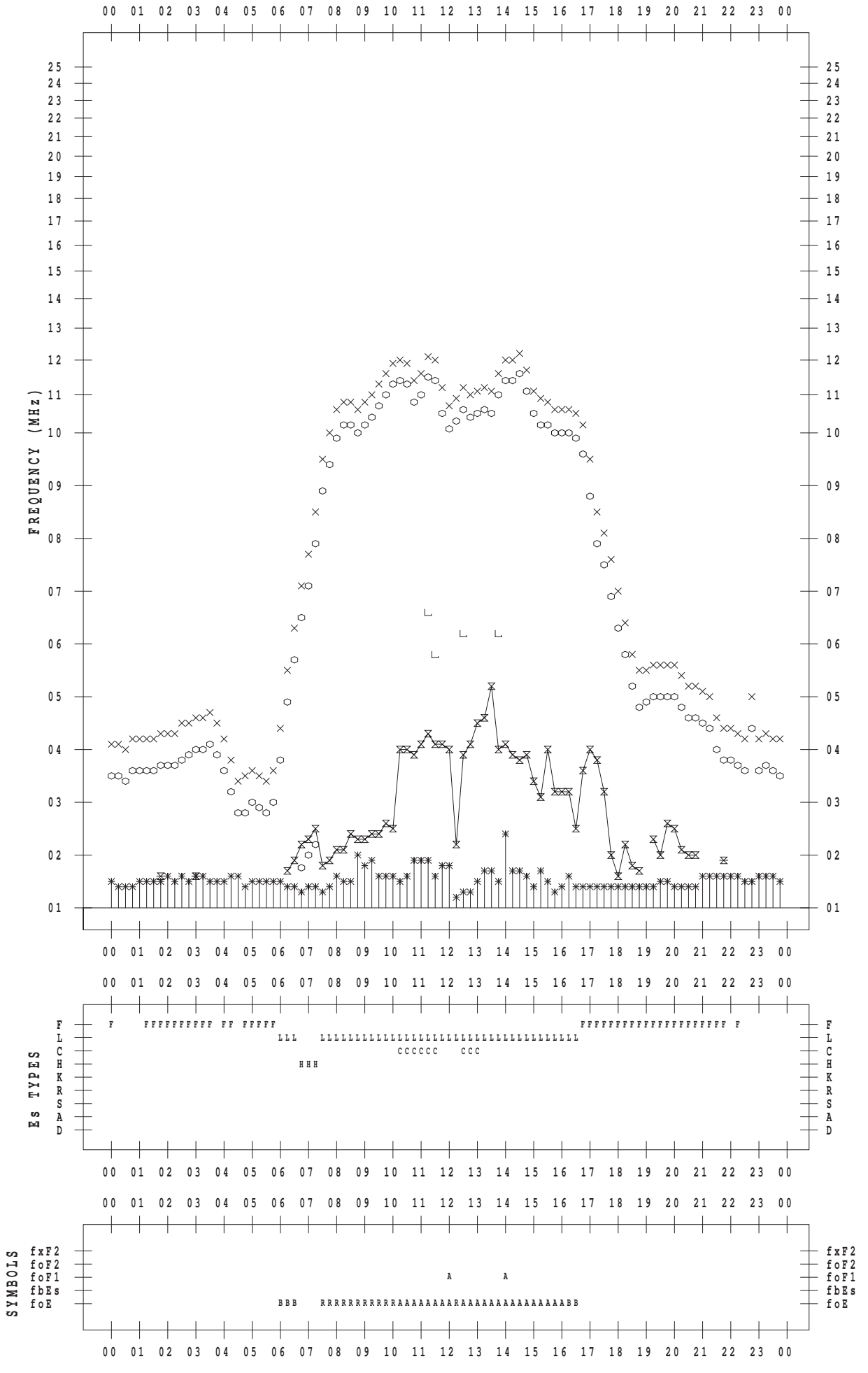
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2011/11/16

135 °E MEAN TIME



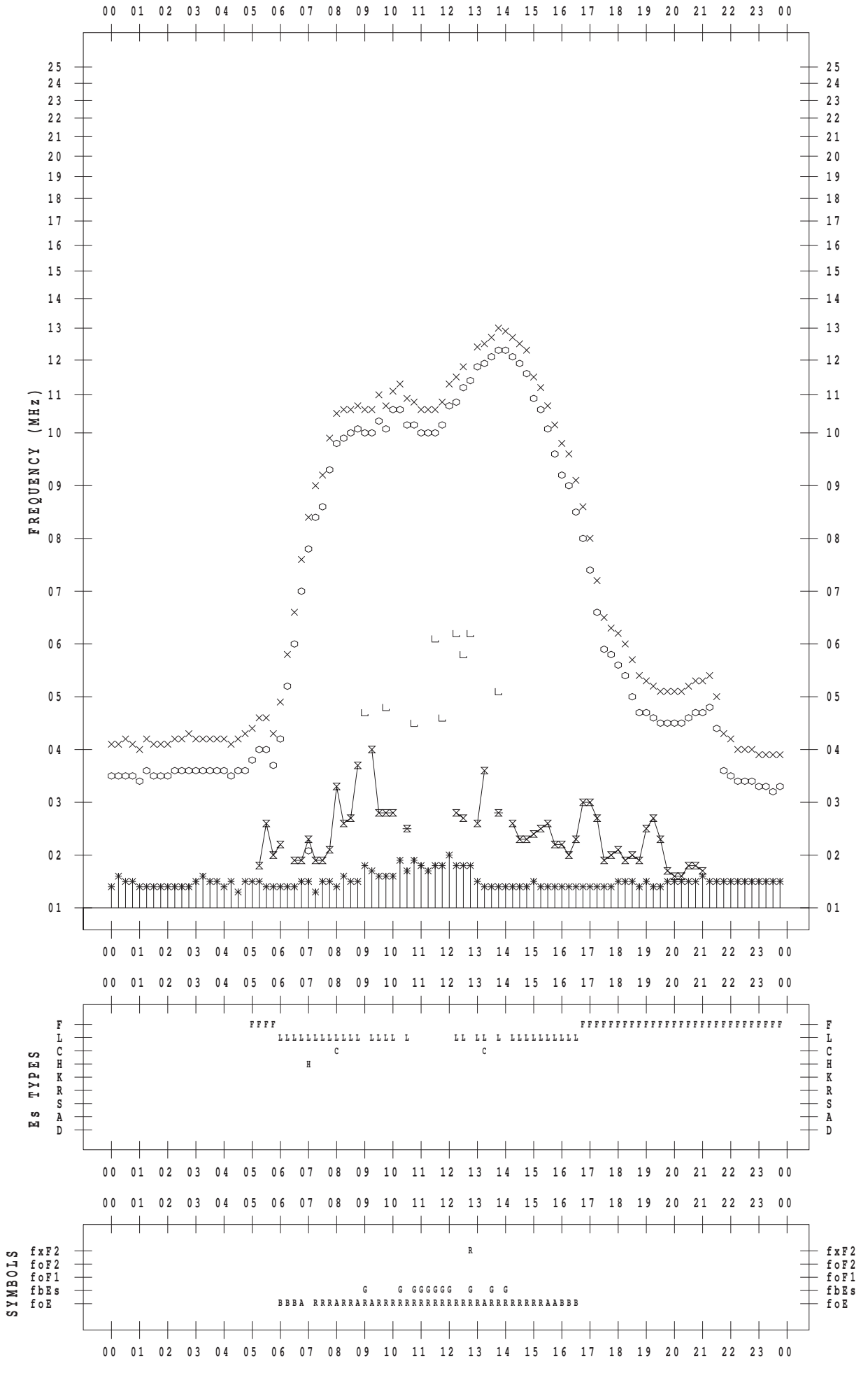
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2011/11/17

135 °E MEAN TIME



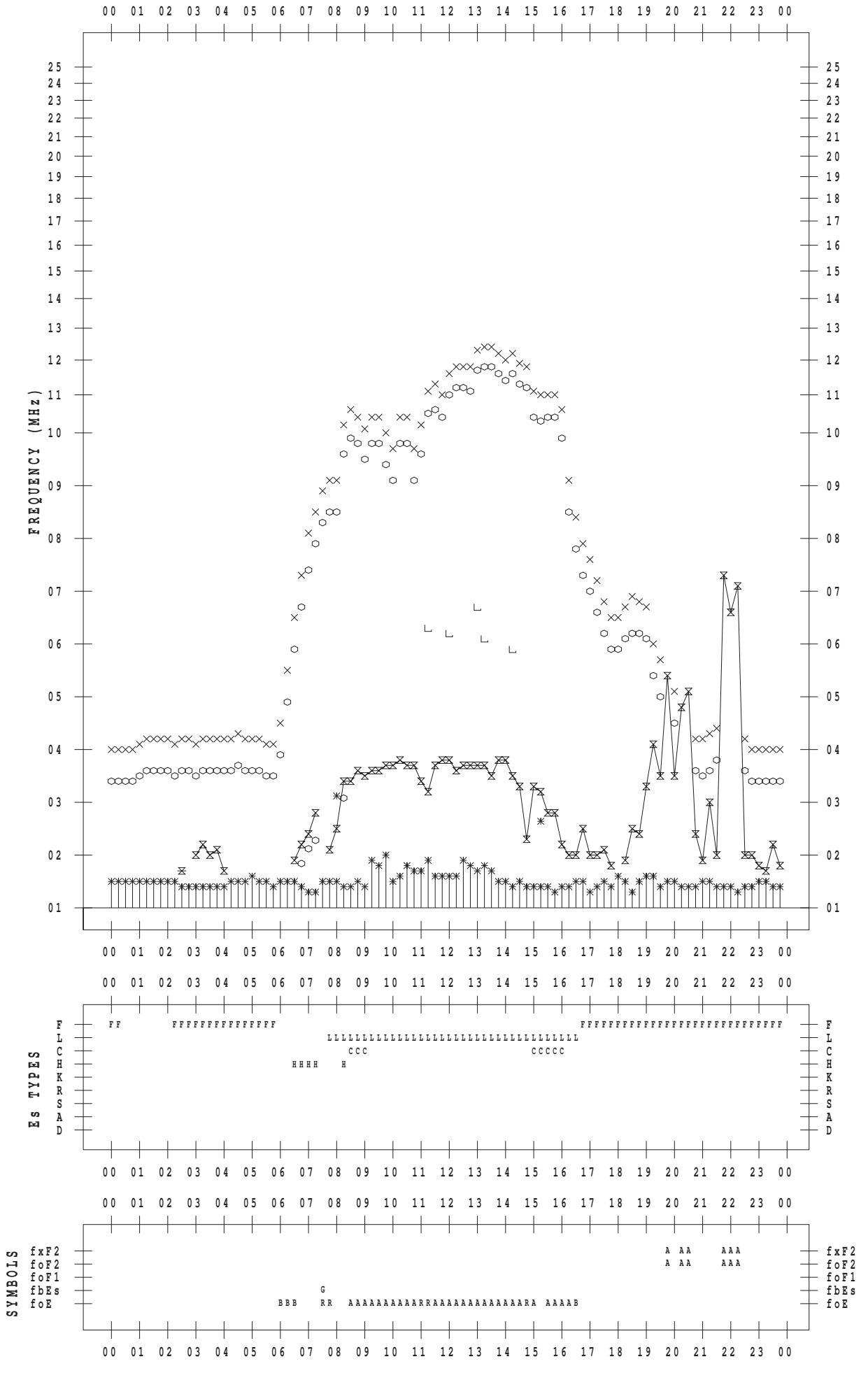
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2011/11/18

135 °E MEAN TIME



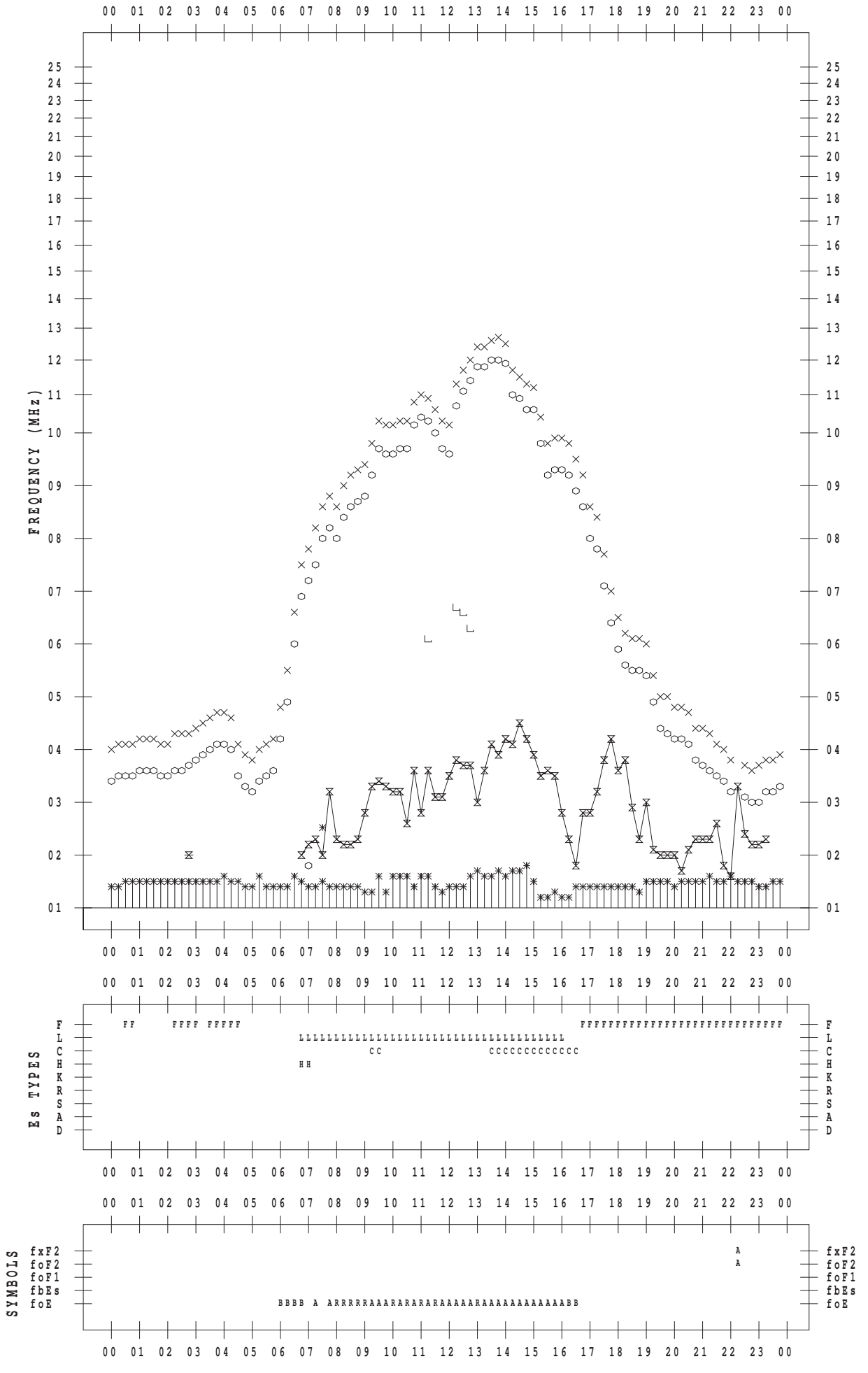
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2011/11/19

135 °E MEAN TIME



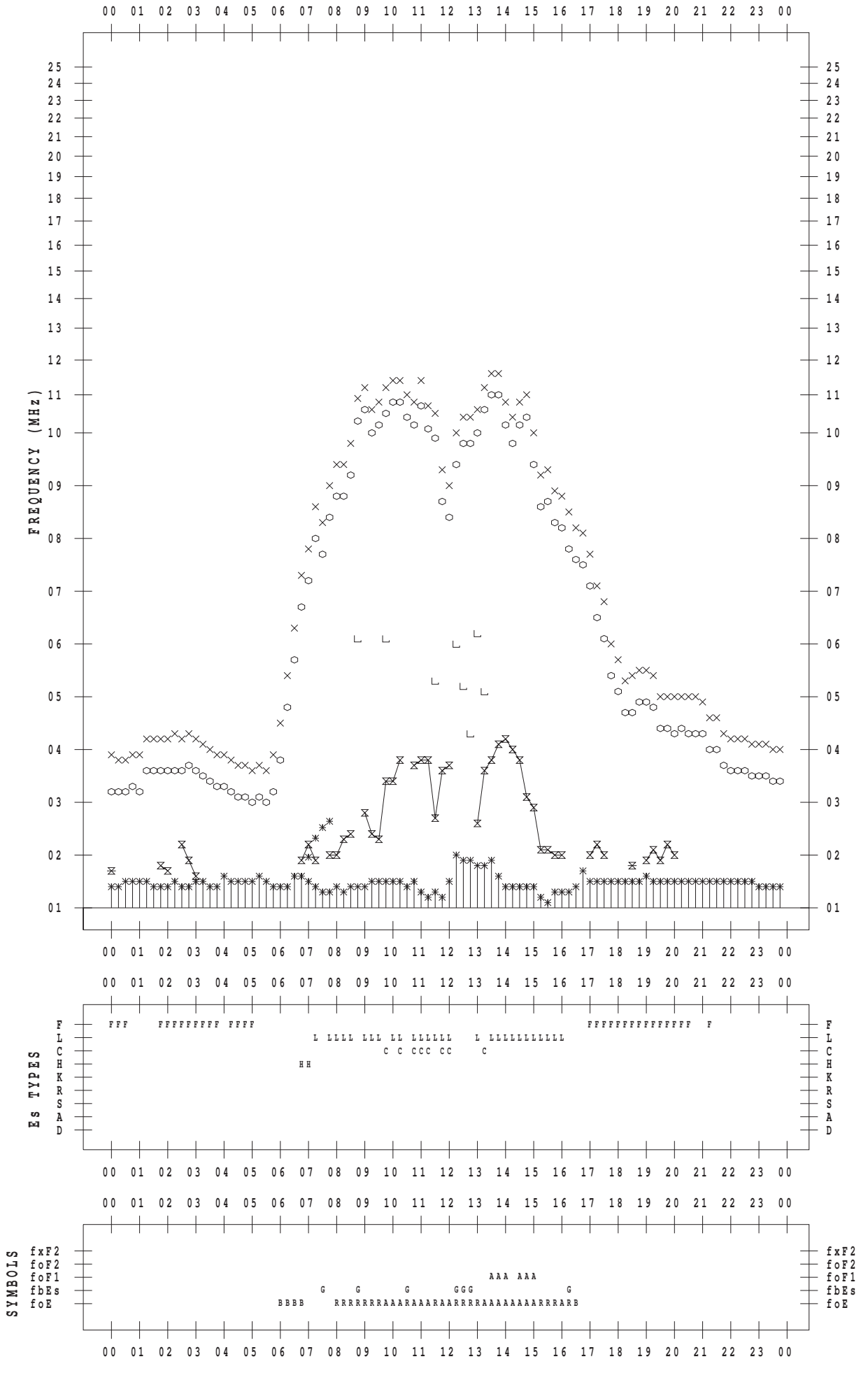
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2011/11/20

135 °E MEAN TIME



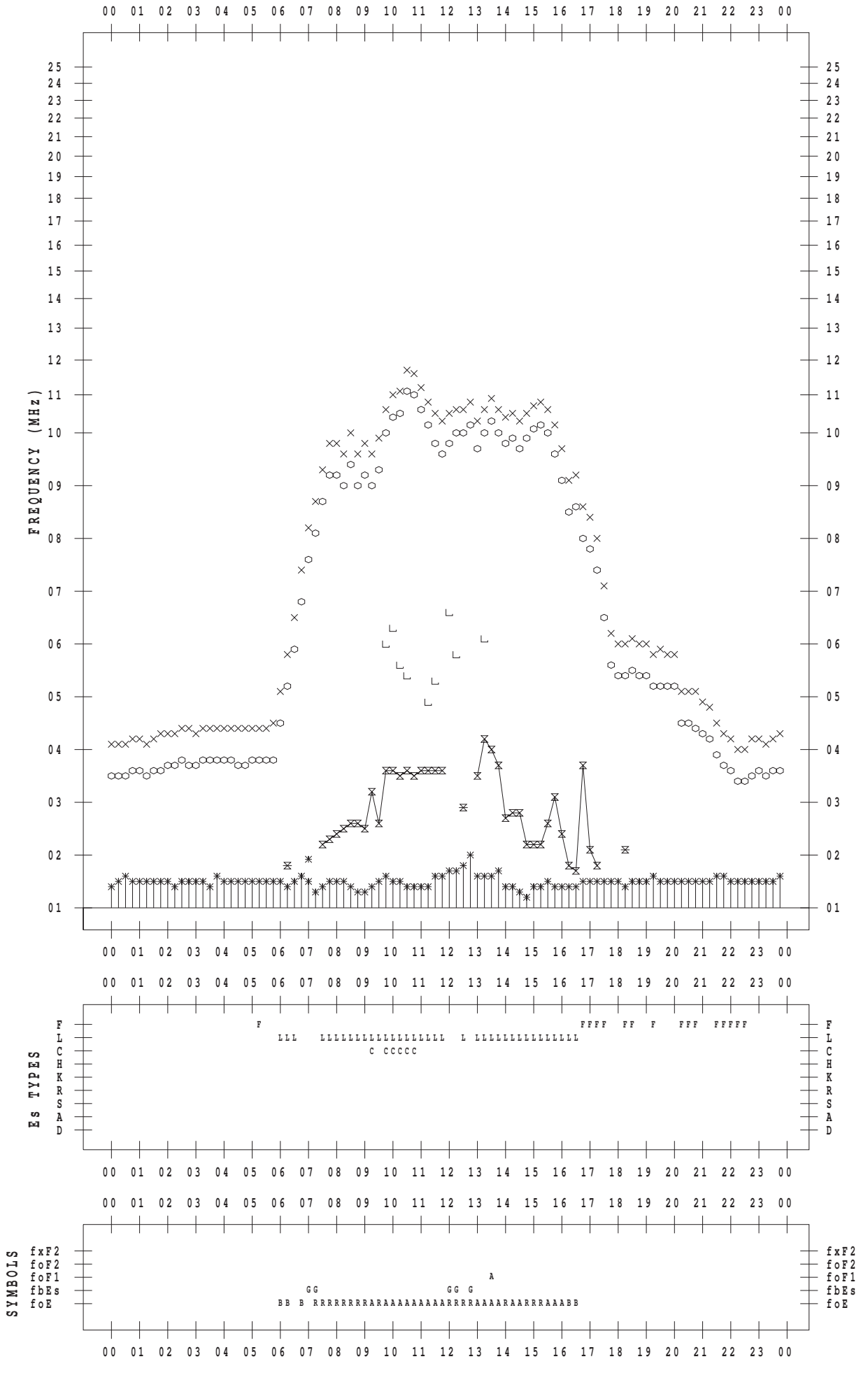
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2011/11/21

135 °E MEAN TIME



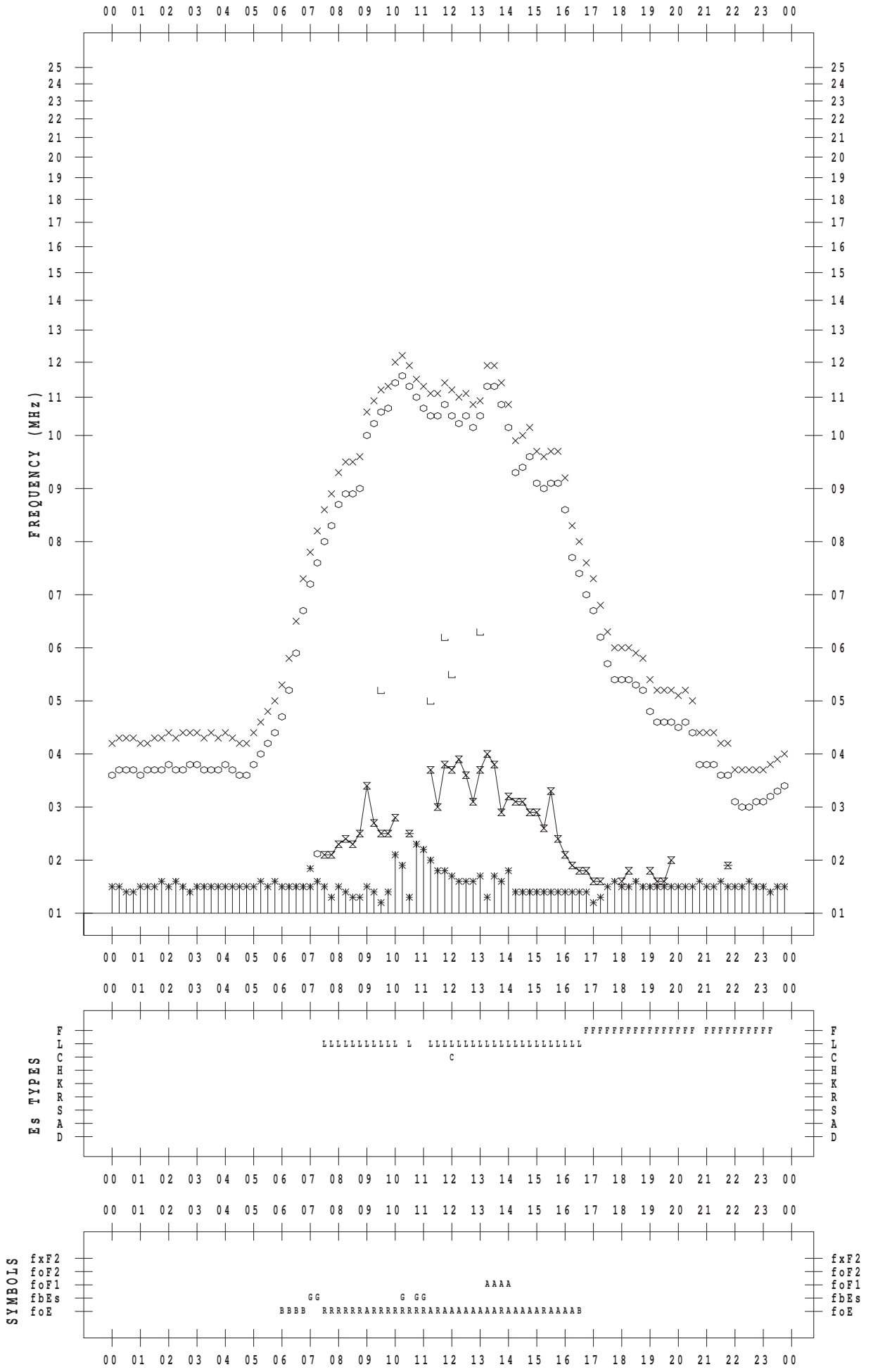
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2011/11/22

135 °E MEAN TIME



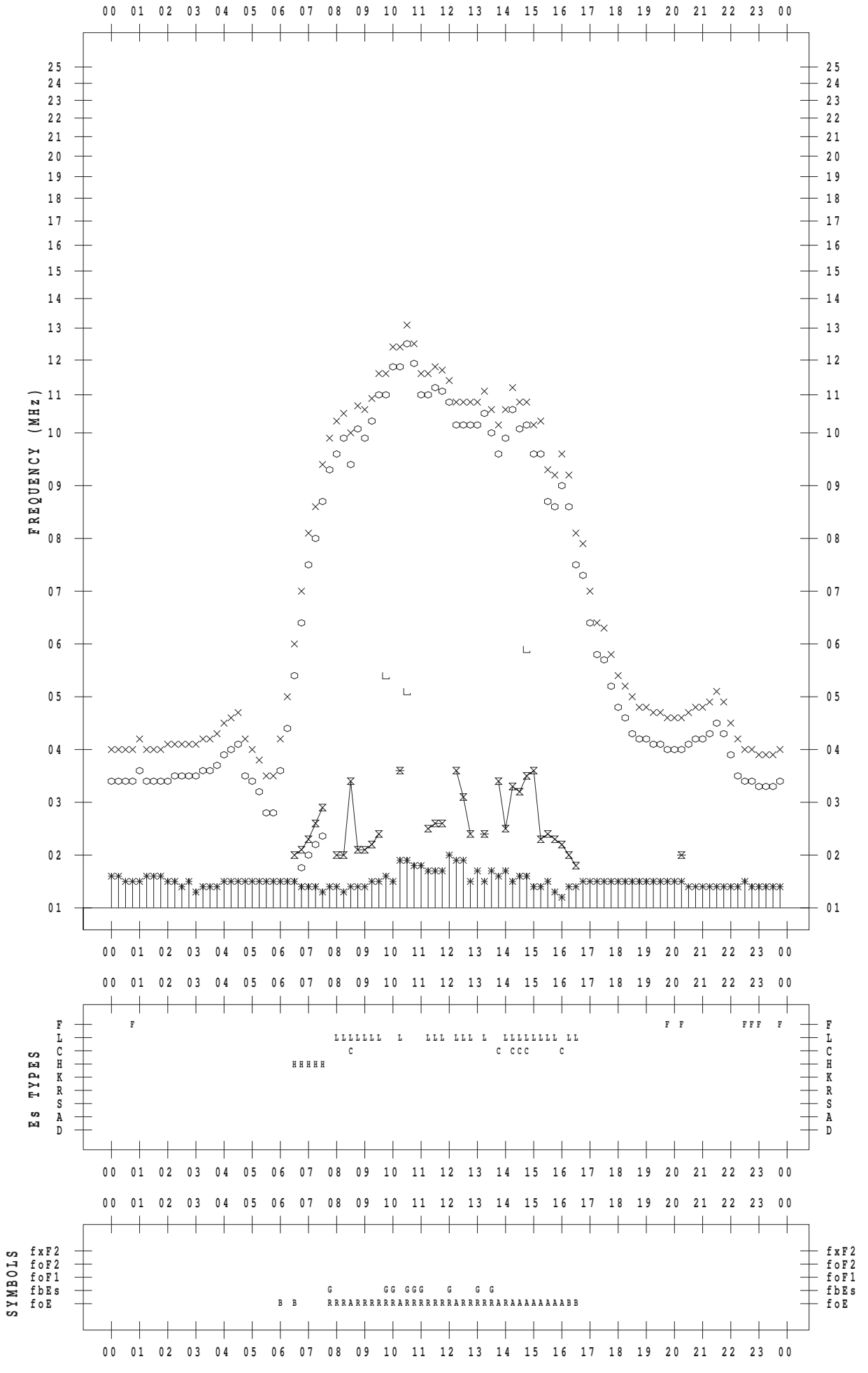
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2011/11/23

135 °E MEAN TIME



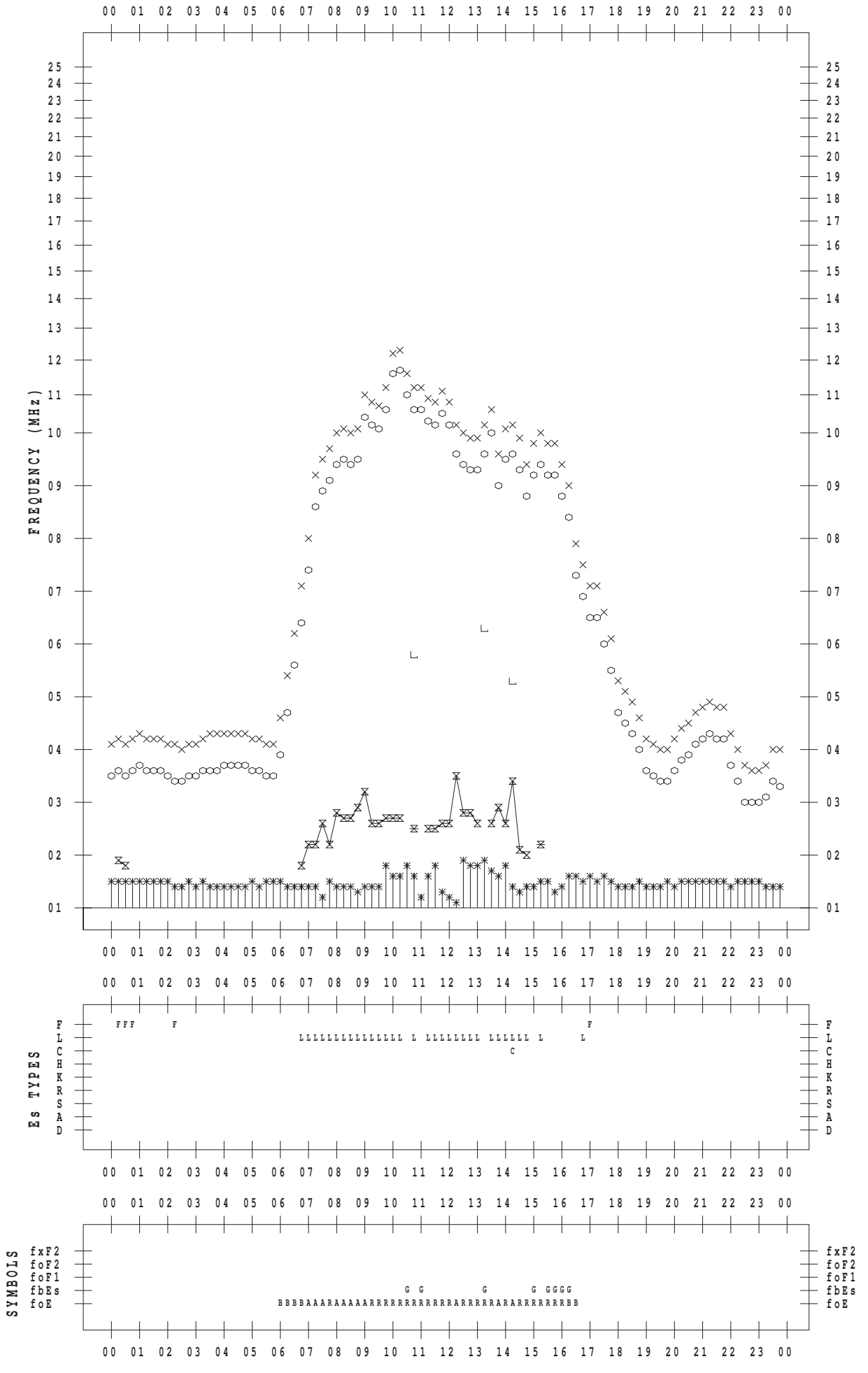
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2011/11/24

135 °E MEAN TIME



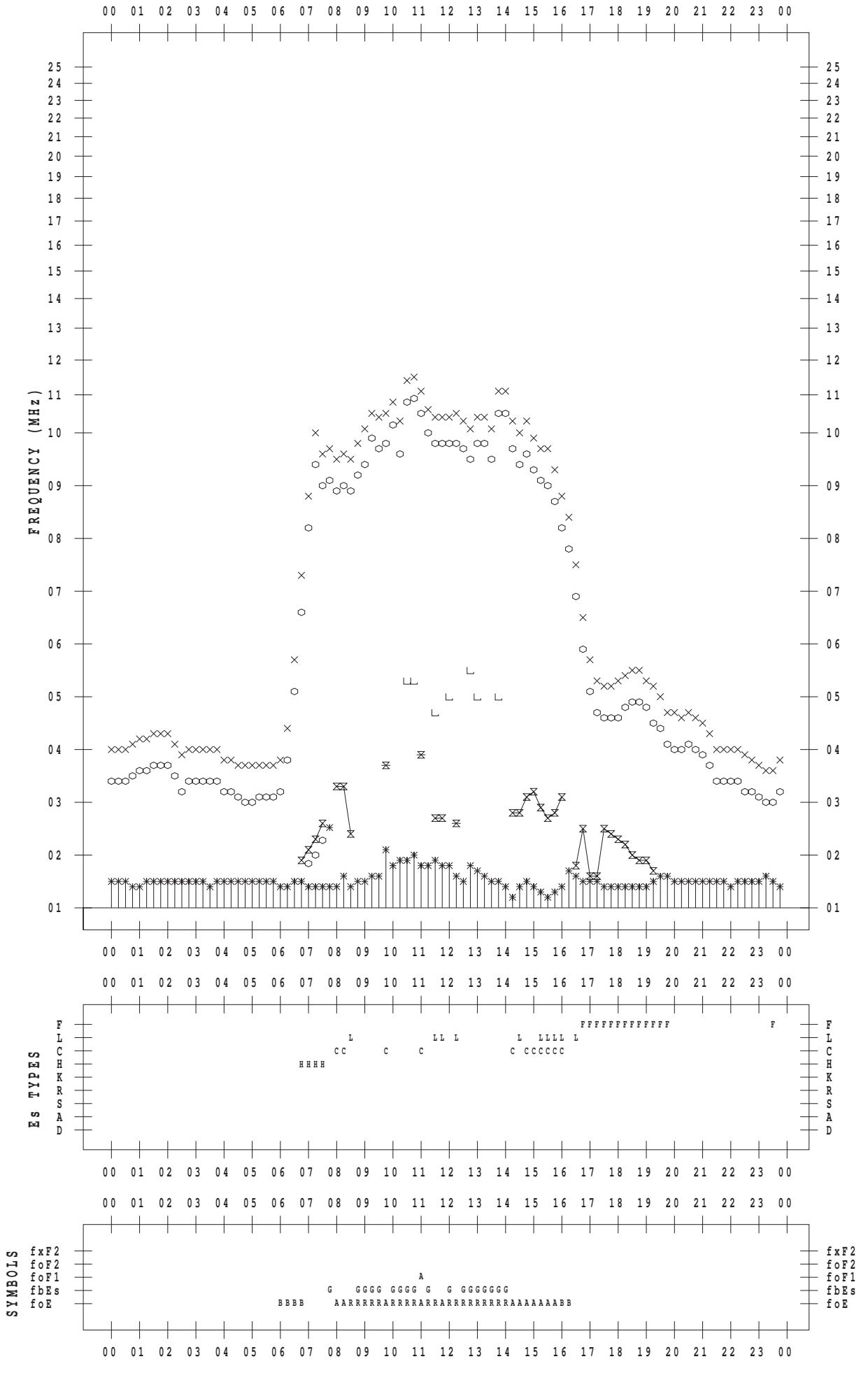
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2011/11/25

135 °E MEAN TIME



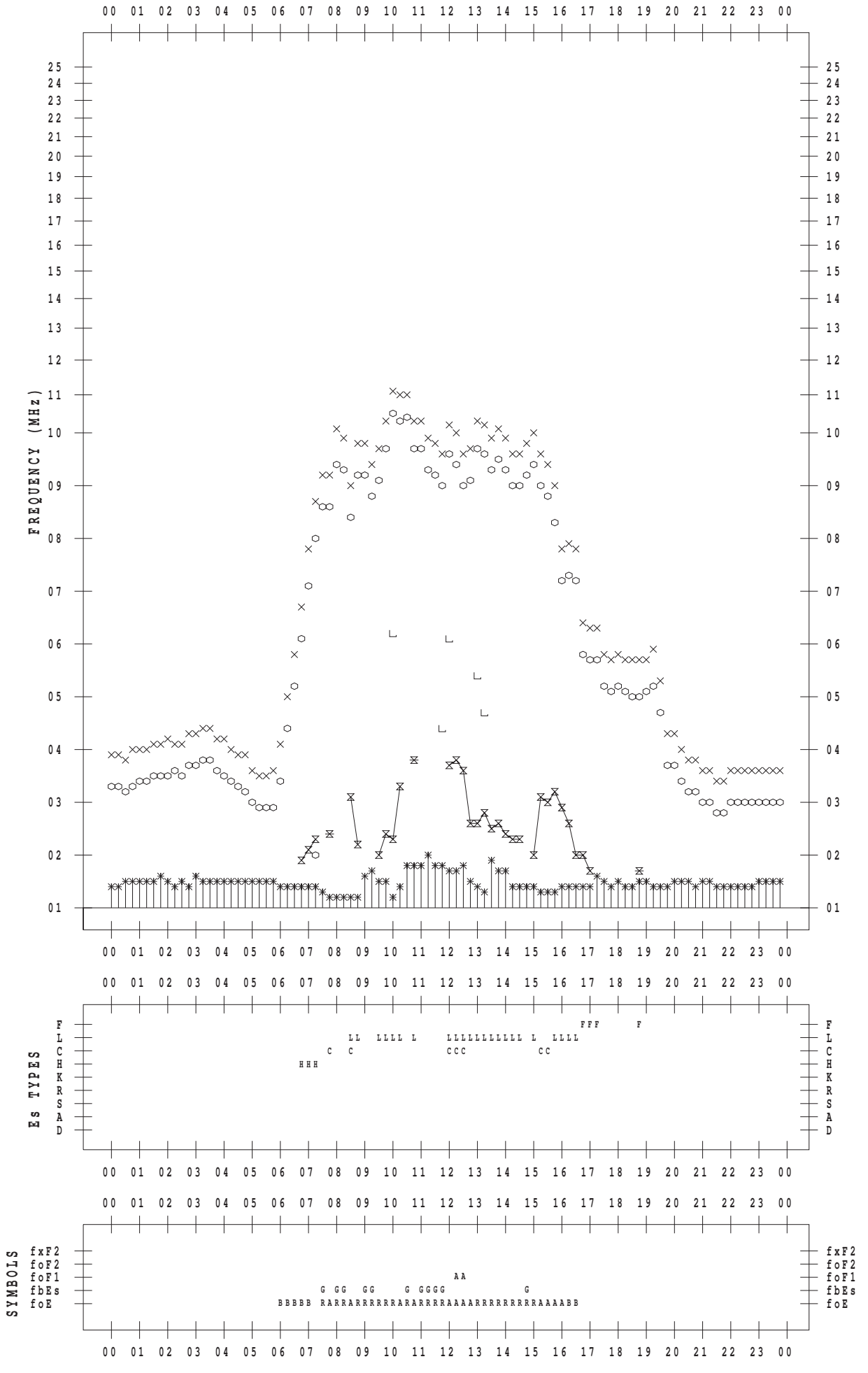
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2011/11/26

135 °E MEAN TIME



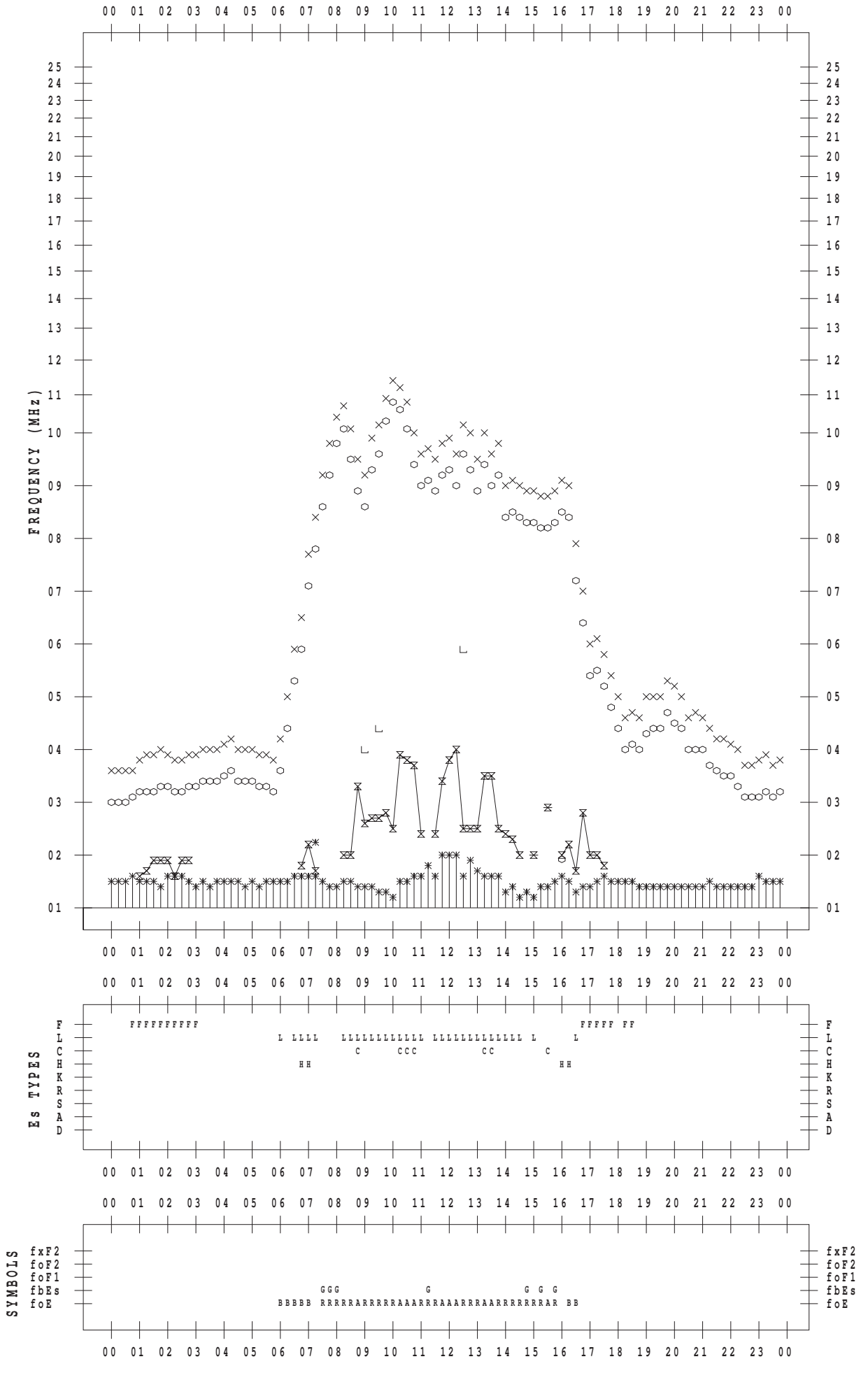
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2011/11/27

135 °E MEAN TIME



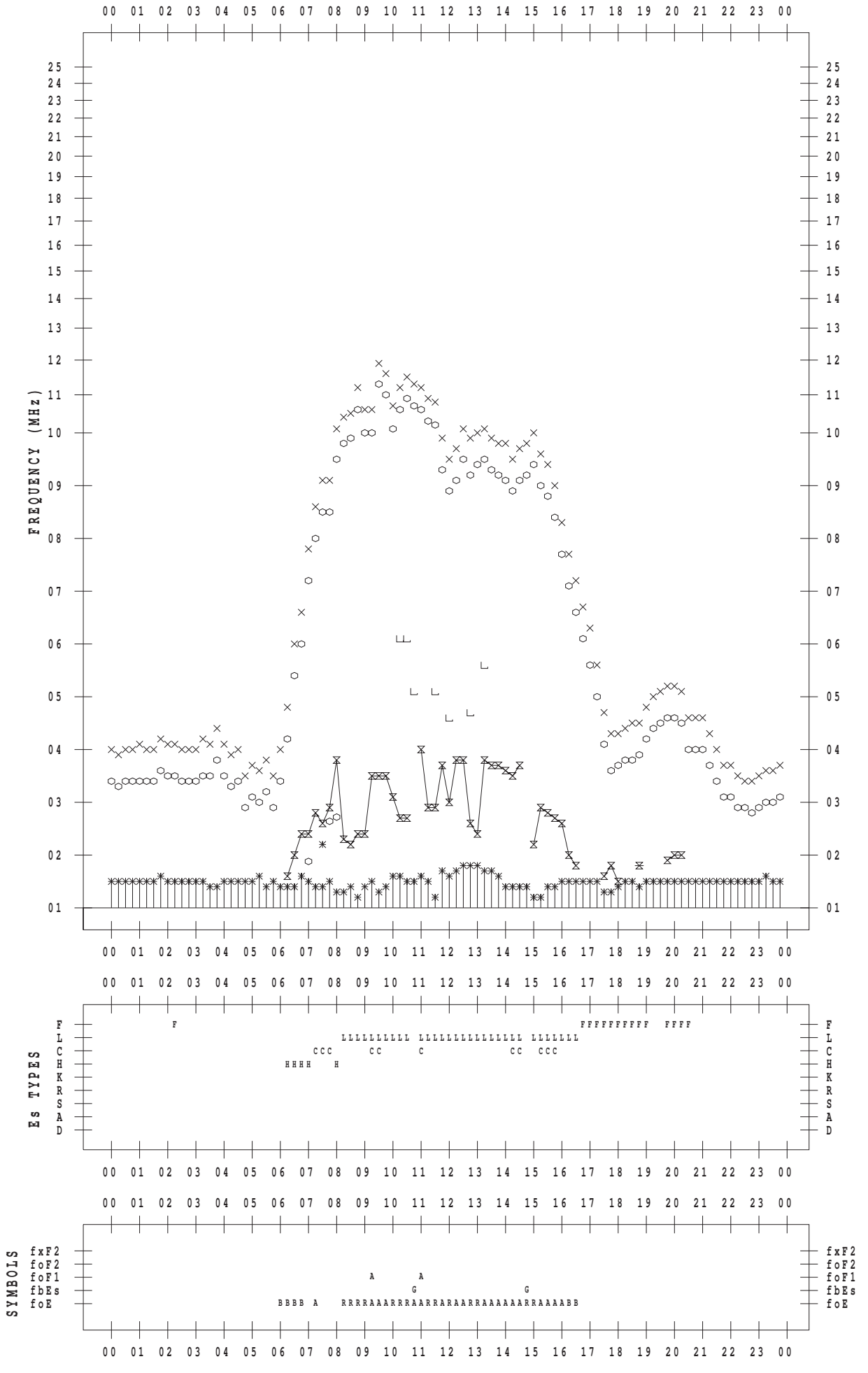
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2011/11/28

135 °E MEAN TIME



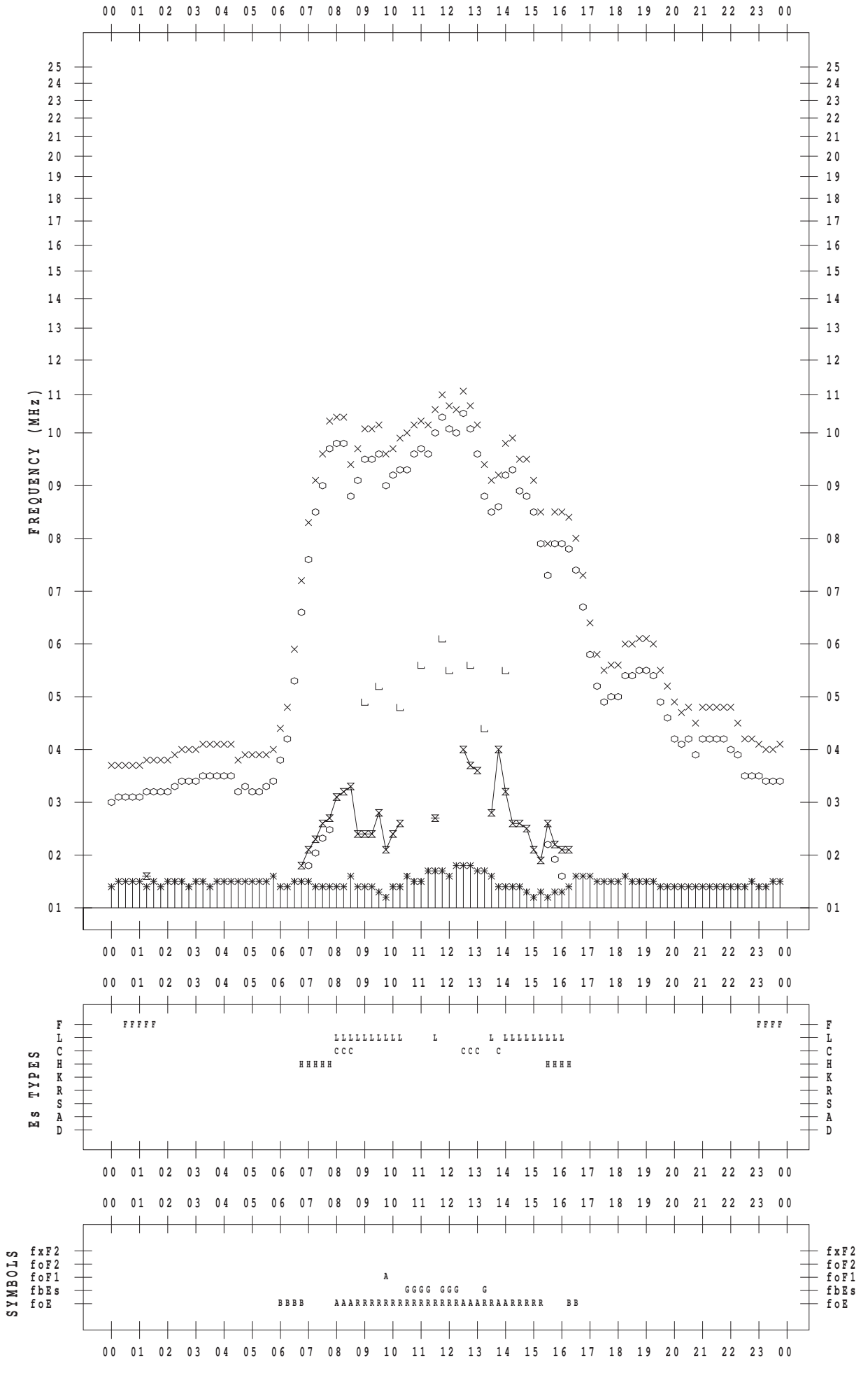
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2011/11/29

135 °E MEAN TIME



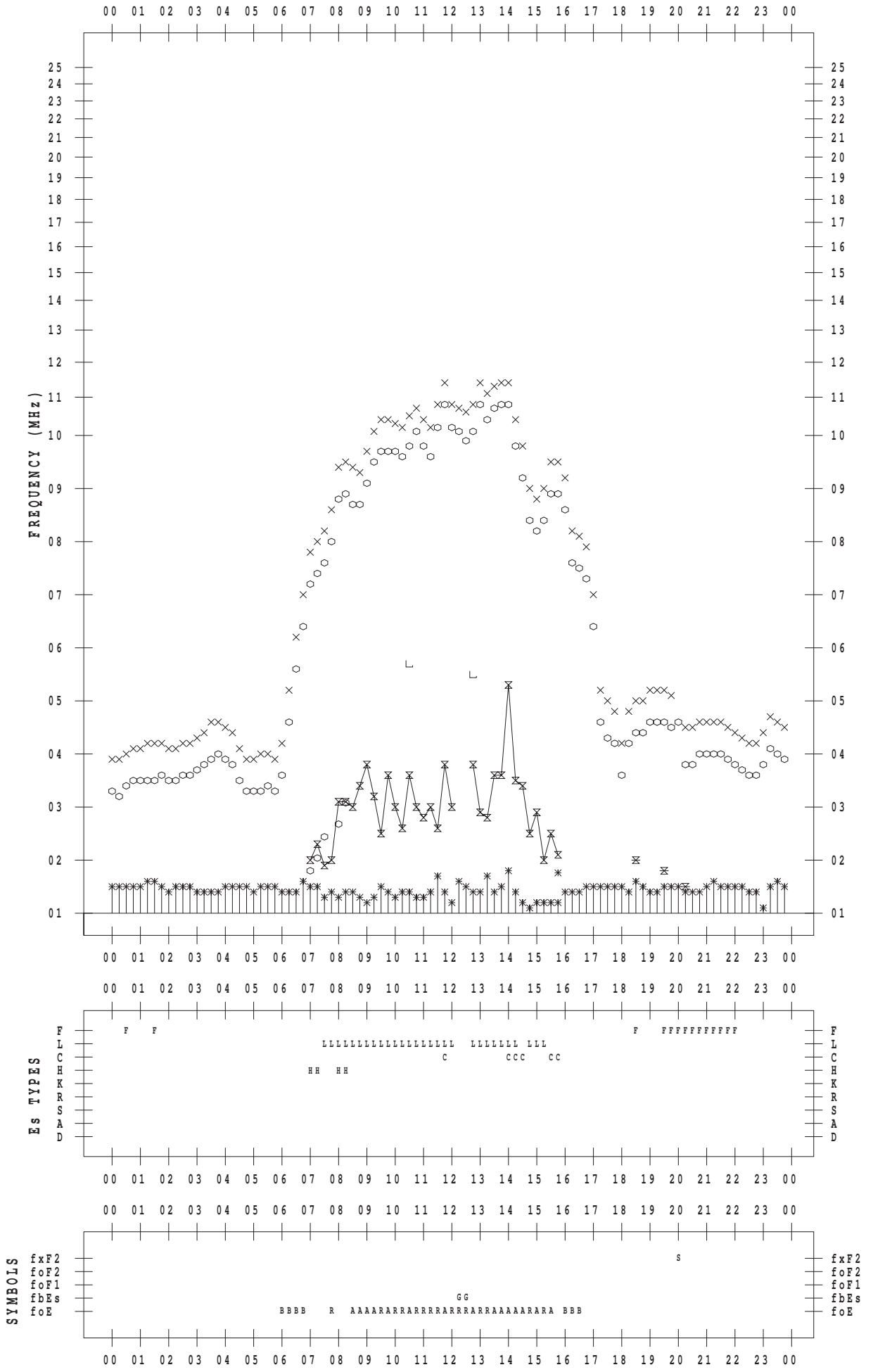
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2011/11/30

135 °E MEAN TIME



B. Solar Radio Emission

B1.Outstanding Occurrences at Hiraiso

Hiraiso November 2011

Single-frequency observations

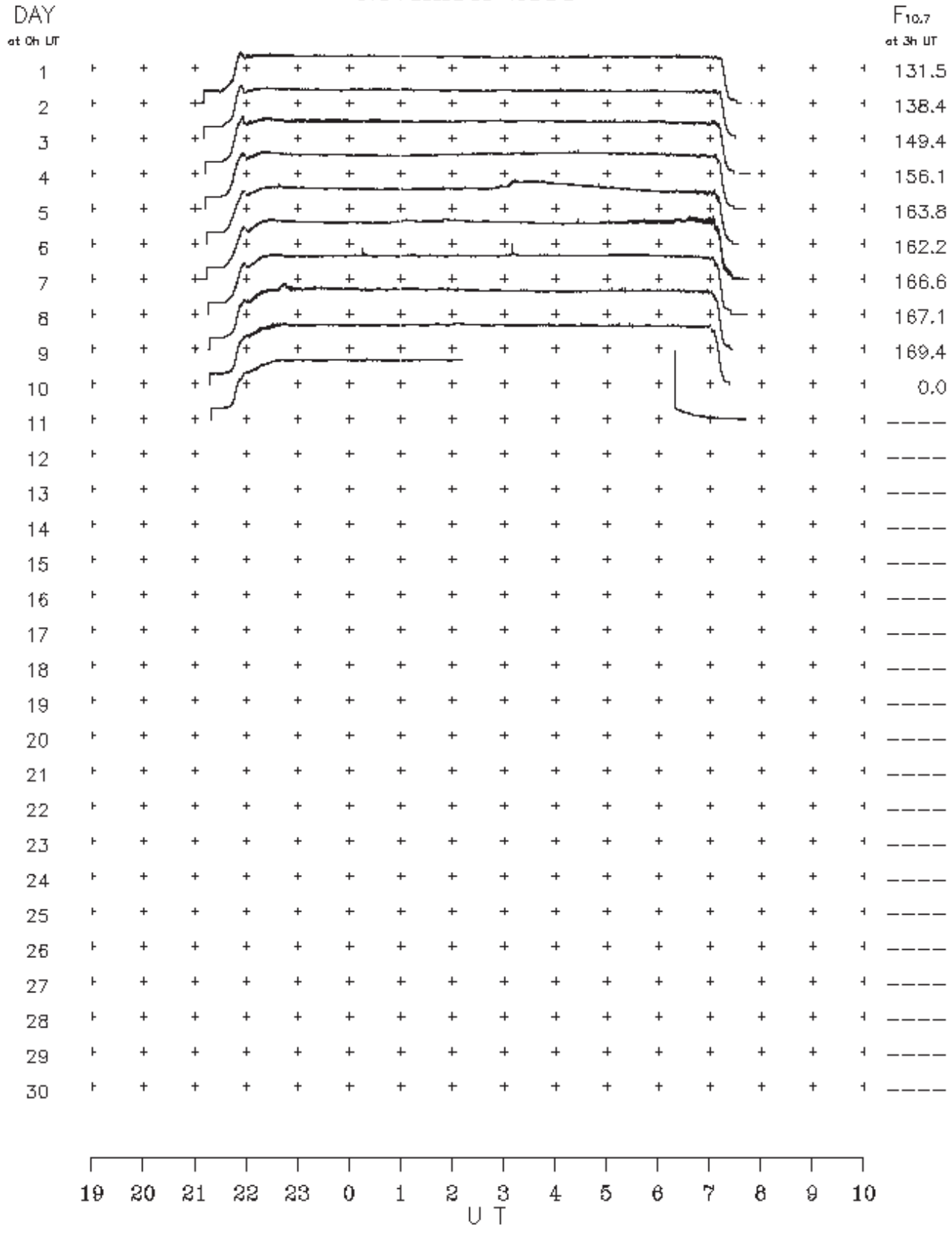
Normal observing period: 2110 - 0735 U.T. (sunrise to sunset)

NOV.	FREQ.	TYPE	START TIME	TIME OF MAXIMUM	DUR.	FLUX DENSITY (10^{-22} W m^{-2} Hz^{-1})		POLARIZATION
2011	(MHz)		(U.T.)	(U.T.)	(MIN.)	PEAK	MEAN	REMARKS
5	2800	20 GRF	0247.0	0314.0	196.0	20	-	
6	2800	20 GRF	0046.0	0107.0	32.0	5	-	
6	2800	1 S	0149.0	0151.0	5.0	5	-	
7	2800	8 S	0015.0	0015.0	4.0	15	-	
7	2800	8 S	0308.0	0309.0	3.0	25	-	

B.Solar Radio Emission

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

November 2011



Note: A vertical grid space corresponds to a 100 sfu.
Elevation angle range ≧ 6°.
A link to the daily plot data directory : http://sunbase.nict.go.jp/solar/denpa/hirasDB/2011/11/