F-726

IONOSPHERIC DATA IN JAPAN

FOR JUNE 2009

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

NATIONAL INSTITUTE OF INFORMATION
AND COMMUNICATIONS TECHNOLOGY
TOKYO, JAPAN

INTRODUCTION

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

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

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

A. IONOSPHERE

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

A1. Automatic Scaling

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

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

a. Characteristics of Ionosphere

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

b. Descriptive Letters

The following descriptive letters are used in the tables.

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

C Impossible measurement because of any failure in observation.

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

N Impossible automatic scaling because of complex echoes.

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

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

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

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

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

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

d. Reliability of Automatic Scaling

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

e. Summary Plot

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

A2. Manual Scaling

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

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

a. Characteristics of Ionosphere

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

b. Symbols

(i) Descriptive Letters

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

A Measurement influenced by, or impossible because of, the presence of a lower thin layer, for example *Es*.
B Measurement influenced by, or impossible because of, absorption in the vicinity of *fmin*.
C Measurement influenced by, or impossible because of, any non-ionospheric reason.
D Measurement influenced by, or impossible because of, the upper limit of the normal frequency range in use.
E Measurement influenced by, or impossible because of, the lower limit of the normal frequency range in use.
F Measurement influenced by, or impossible because of, the presence of spread echoes.
G Measurement influenced by, or impossible because the ionization density of the layer is too small to enable it to be made accurately.
H Measurement influenced by, or impossible because of, the presence of a stratification.
K Presence of particle *E* layer.
L Measurement influenced or impossible because the trace has no sufficiently definite cusp between layers.
M Interpretation of measurement questionable because the ordinary and extraordinary components are not distinguishable.
N Conditions are such that the measurement cannot be interpreted.
O Measurement refers to the ordinary component.
P Man-made perturbations of the observed parameter; or spur type spread *F* present.
Q Range spread present.
R Measurement influenced by, or impossible because of, attenuation in the vicinity of a critical frequency.
S Measurement influenced by, or impossible because of, interference or atmospherics.
T Value determined by a sequence of observations, the actual observation being inconsistent or doubtful.
V Forked trace which may influence the measurement.
W Measurement influenced or impossible because the echo lies outside the height range recorded.
X Measurement refers to the extraordinary component.
Y Lacuna phenomena, severe layer tilt.
Z Third magneto-electronic component present.

(ii) Qualifying Letters

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

A Less than. Used only when *fbEs* is deduced from *foEs* because total blanketing of higher layer is present.
D Greater than.
E Less than.
I Missing value has been replaced by an interpolated value.
J Ordinary component characteristic deduced from the extraordinary component.
M Mode interpretation uncertain.
O Extraordinary component characteristic deduced from the ordinary component. (Used for x-characteristics only.)
T Value determined by a sequence of observations, the actual observation being inconsistent or doubtful.
U Uncertain or doubtful numerical value.
Z Measurement deduced from the third magneto-electronic component.

(iii) Description of Types of *Es*

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

The types are:

f An *Es* trace which shows no appreciable increase of height with frequency.
l A flat *Es* trace at or below the normal *E* layer minimum virtual height or below the part *E* layer minimum virtual height.
c An *Es* trace showing a relatively symmetrical cusp at or below *foE*. (Usually a daytime type.)
h An *Es* trace showing a discontinuity in height with the normal *E* layer trace at or above *foE*. The cusp is not symmetrical, the low frequency end of the *Es* trace lying clearly above the high frequency end of the normal *E* trace. (Usually a daytime type.)
q An *Es* trace which is diffuse and non-blanketing over a wide frequency range.
r An *Es* trace showing an increase in virtual height at the high frequency end similar to group retardation.
a An *Es* trace having a well-defined flat or gradually rising lower edge with stratified and diffuse traces present above it.
s A diffuse *Es* trace which rises steadily with frequency and usually emerges from another type *Es* trace.
d A weak diffuse trace at heights below 95 km as-sociated with high absorption and large *fmin.*
n The designation 'n' is used to denote an *Es* trace which cannot be classified into one of the standard types.
k The designation 'k' is used to show the presence of particle *E*. When *foEs* > *foE* (particle *E*) the *Es* type precedes k.

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

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

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

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

B. SOLAR RADIO EMISSION

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

B1. Outstanding Occurrences at Hiraiso

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

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

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

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

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

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

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

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

B2. Summary Plots of F10.7 at Hiraiso

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

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

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

HOURLY VALUES OF foF2 AT Wakkanai

JUN. 2009

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	37	35	34	34	37	45	51	59	A	A	A	A	A	A	A	A	A	A	A	A	A	54	54	A
2	A		42	A		A	A	A	A	A	A	A	A	A	A	A	A	A	A		55	55	A	43
3	41		44	47	47	52	48	54	A	A	A	A	A	A	A			57	56	A	64	63	43	38
4		36	32	34	36	46		56	A	A	A	A	A	A	A		60	63	66	66	66	63		50
5	54	52	48	46	45	47	54	53	60	A	A	A				54	61	51	61	66	66	A	54	52
6	41	36	34	34	34		57	63	55	A	A				A	A	A	A	A	A	A	A	A	44
7	34	42	40	41	A	A	A	A	A	A	A	A	A	A			A	A	A	A	38	39	52	51
8	44	43	31	37	41	44	51	58	60	60	A	A	A	A	A	A	A		56	61	66	54	39	48
9	48	44	34	41	45	A	A	A	A	A	A	A	A		A	A			46	44	53	52	54	51
10	42	43	38	40	43	46		A	A	57	A	A	A	A	A	A	47	A	A	A	A	54	A	54
11	A	32	37	36		44	A	A	56	A	A	A		A	49	A	A	A	47	A	60	60	54	54
12	47	38	37	36	38	48	54				60	61	A	A	A		50	47	51	60	62	53	53	52
13	49	37	42	37	44	48	A	A	A	A		A	A	A	A	A	A	48	A	58	52	54	54	A
14		45		44	48	28	A	A	A	58	53	A	A	A			47	34	48	53	58	57	52	52
15	48	45	34	32	37	40	39	A	A	A	A	A	A			41		A	47	A	52	A	A	47
16	A		A	A	40	A	A	A	A	A	A	A	A	A	A	A	A	A	51	48	A	A	A	54
17	A	A		34	A	A	A	A	A	A	A	A		A	A	A		A	A	58	62	58	60	54
18	45		34	34	37	A	47	A	A	A	A	A	A	A	A	A		A	A	A	A	A	63	A
19	A	A	A	32	44	A	A	A	A		A	A	A	A	A		A	A	A	A	61	62	54	43
20	A	A	A	A	32	46	A	A	A	A	A	A	A	A	A	A	A	A	A		63	59	52	A
21	43	44	38	47	34	52	52	A	A		A	A	A	A	A	A	A	A	A		A	65	54	A
22	A	A	45	46	45	48	A	A	A	A	A	A	A	A	A	A		A	47	52	A	60	54	37
23	40	38	32	36	42	36	A	A	A	A			A		A	A	A	A	A	A	64	62	53	A
24	A	A	A			36	A	A	A	A	A	A	A	A	A	A	A		50		63	63	52	A
25	42	32	40	37	36	A	52	47		A	A		A	A	A	A	A	50	46	46	44	51	50	46
26	44	43	45	36	40	38	A	A	A	A	A	A	A	A	34	A	A	A	A	A	61	54	45	47
27	37	43	35	42	44	50	53	A	52	A		A			A	A		44	42	41	59	57	54	A
28	A	31	38	41	38	46	A	A	A	A	A	A	A	A	A	69	A	A		A	54	54	A	
29	A	37	36	32	32	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	63	60
30	54	55	51	61	54	A	A	A	A		A	A	A	A	A	A	A	A	A	A	56	58	A	A
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	18	21	24	26	25	19	11	7	5	3	2	1			2	3	5	8	14	12	22	24	22	20
MED	44	42	38	37	40	46	52	56	56	58	56	61			42	54	50	49	49	56	60	57	54	50
U Q	48	44	42	42	44	48	54	59	60	60	60	30			49	69	60	54	56	60	63	61	54	53
L Q	41	36	34	34	36	40	48	53	53	57	53	30			34	41	47	45	47	47	54	54	52	45

HOURLY VALUES OF fEs AT Wakkanai

JUN. 2009

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	G	28	G	G	G	33	42	60	82	82	70	80	70	70	81	98	85	75	55	125	72	60	56	60
2	71	40	84	57	53	73	74	78	112	120	138	76	52	47	69	58	68	51	57	40	35	26	59	30
3	G	40	35	28	28	37	43	51	70	56	62	51	64	54	54	G		50	68	83	52	58	39	34
4	40	30	G	G	28	38	48	55	75	70	57	52	41	53	43		37	G	32	G	36	44	39	29
5	40	30	G	G	26	38	52	40	48	51	49	61	G	G	G	44	G		36	50	33	60	39	33
6	34	G	G	G	30	37	39	53	51	62	59	G	G	40	52	50	50	104	70	92	61	66	59	33
7	24	32	30	52	58	50	72	70	72	65	63	46	45	55	G	40	50	50	60	52	40	41	26	25
8	32	G	G	G	28	41	42	54	57	56	67	76	54	58	102	44	51	50	51	44	37	35	34	28
9	32	29	32	G	28	48	82	75	91	55	113	58	48	G	38	48	38	39	40	38	60	37	56	29
10	34	25	G	G		32	42	58	50	52	61	58	59	40	61	50	43	59	65	70	68	36	71	53
11	71	40	33	32		45	48	67	51	61	52	40	G	42	48	83	62	60	42	65	30	40	34	28
12	32	25	G	G	G	35	43	54	53	49	55	52	50	51	40	G	38	43	38	35	30	26	G	30
13	G	25	G	G	G	34	54	68	59	57	49	41	51	62	50	57	59	37	70	59	55	49	40	72
14	52	43	41	32	26	36	66	53	61	52	39	73	53	45	39	G	36	39	41	38	33	36	40	G
15	34	G	G	26	G	38	41	60	68	74	64	51	46	G	G	G		44	43	71	50	71	70	39
16	56	38	54	48	G	42	62	84	91	86	180	117	90	127	82	85	83	103	64	52	71	103	72	84
17	65	58	49	38	59	60	117	72	60	64	88	71	G	50	59	59	44	49	61	56	54	G	G	G
18	30	37	29	34	34	48	47	72	68	95	97	133	83	61	49	68		80	128	81	81	71	69	60
19	58	70	49	40	43	59	72	112	113	129	86	87	103	61	46	G	38	65	69	72	51	38	48	46
20	69	43	59	44	32	37	62	60	72	104	110	48	66	59	43	65	62	61	62	60	41	37	59	103
21	34	36	36	35	29	39	38	51	71	40	58	50	62	70	46	86	106	92	129	56	69	34	92	83
22	56	58	38	32	30	32	73	71	80	112	88	62	89	61	48	38	42	49	48	35	59	57	24	27
23	25	G	G	G	G	34	57	58	56	74	54	61	49	G	58	101	123	70	81	68	70		58	48
24	51	51	40	34	38	39	72	72	92	123	97	77	60	52	68		40	38	43	60	G	36	35	59
25	32	G	31	27	40	59	39	41	G	53	102	49	49	49	42	73	52	43	G	36	39	33	39	38
26	40	25	26	G	24	35	43	59	84	58	72	62	57	62	G	44	73	60	94	103	34	31	G	36
27	28	G	G	G	G		42	46	51	50	40	65	41	G	50	52	36	37	29	26	31	36	38	59
28	44	37	28	32	G	39	64	72	58	91	112	54	68	100	74	70	54	104	79	101	48	28	44	34
29	71	32	34	33	23	38	88	61	67	69	80	54	65	54	82	122	76	93	78	94	103	92	58	46
30	48	28	36	31	42	82	108	93	128		50	61	72	91	72	61	69	88	74	86	37	55	69	65
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	28	29	30	30	30	29	30	30	30	30	30	28	27	29	30	30	30	29	30	30
MED	37	31	30	30	28	38	53	60	68	64	66	60	54	54	50	54	51	51	60	60	49	38	42	37
U Q	56	40	38	34	36	48	72	72	82	88	97	73	66	61	68	71	69	77	70	81	61	59	59	59
L Q	32	25	G	G	G	35	42	54	56	54	55	51	46	42	42	42	38	43	42	40	35	34	35	29

HOURLY VALUES OF fmin AT Wakkanai

JUN. 2009

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	15	15	14	14	14	14	15	16	14	14	14	14	14	14	14	14	14	14	14	14	14
2	14	15	14	14	14	14	14	14	14	22	15	18	14	14	15	16	14	14	14	14	15	15	14	14
3	15	14	14	14	14	14	14	14	14	16	15	16	20	17	15	14		14	14	14	14	14	14	14
4	14	14	14	14	14	14	14	14	14	16	14	17	14	15	15	14	14	14	14	15	14	15	14	15
5	14	14	14	14	14	14	14	14	14	17	16	15	14	15	17	14	15	14	17	14	14	14	14	14
6	14	14	15	14	14	14	14	14	14	14	15	18	14	14	14	14	14	14	14	14	14	14	14	14
7	14	14	14	14	14	14	14	14	14	14	18	14	18	15	14	14	14	14	14	14	14	14	14	15
8	14	14	14	14	14	14	14	14	14	14	15	14	14	14	14	14	14	14	14	14	14	14	14	14
9	14	14	14	14	14	14	16	14	14	18	17	18	17	15	14	14	14	14	14	14	14	14	14	14
10	14	14	14	14	15	15	14	14	14	14	15	30	15	15	14	14	14	14	14	14	14	15	14	15
11	14	14	14	14		14	14	14	14	15	14	15	28	15	14	14	14	14	15	14	14	14	14	14
12	14	14	14	14	15	14	14	14	14	15	14	14	14	15	15	16	14	14	14	14	14	15	15	14
13	14	14	14	14	14	14	14	14	14	15	16	17	20	14	15	14	14	14	14	14	14	14	14	14
14	14	14	14	14	15	14	14	14	14	14	15	15	14	15	14	14	14	14	14	14	14	14	14	14
15	14	14	14	14	14	14	14	14	14	14	14	14	15	14	16	15		14	14	14	14	14	14	14
16	15	14	14	14	14	14	14	14	14	14	16	18	15	18	14	15	14	14	14	14	14	14	14	14
17	14	15	14	14	14	14	14	14	14	14	14	14	14	15	17	14	14	14	14	14	14	15	14	14
18	14	14	14	14	14	14	14	14	14	14	15	14	18	14	14	14		14	14	14	14	14	14	14
19	14	14	14	14	14	14	14	14	14	16	15	15	16	15	14	15	14	14	14	14	14	14	14	14
20	14	14	14	14	14	14	14	14	15	16	16	18	17	15	15	15	14	14	14	14	14	15	14	14
21	14	15	14	14	14	14	14	14	14	14	14	15	14	17	17	14	14	14	14	14	14	14	15	14
22	14	14	14	14	14	14	14	14	14	15	15	15	15	15	14	14	14	14	14	14	14	15	16	15
23	14	14	14	14	15	14	14	14	14	14	18	16	15	15	15	14	14	14	14	14	14	14	14	14
24	14	14	14	14	14	14	14	14	14	15	14	15	16	15	17	18	14	14	14	14	14	15	14	14
25	14	14	14	14	14	14	14	14	14	14	15	17	15	20	15	14	15	14	14	14	14	14	14	14
26	14	14	14	14	15	14	14	14	15	17	14	16	15	17	17	16	14	14	14	14	14	15	15	14
27	14	15	16	14	18	14	14	14	14	15	14	18	15	15	15	14	14	14	14	14	14	14	15	15
28	14	14	14	14	14	14	14	14	14	14	15	15	14	14	15	14	14	14	14	14	14	14	14	14
29	14	15	14	14	14	14	14	14	14	14	14	15	15	14	14	14	16	14	14	14	14	15	14	14
30	14	14	14	14	14	14	14	14	14		14	15	16	17	18	16	14	14	14	14	14	14	14	14
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	29	30	30	30	30	29	30	30	30	30	30	30	27	30	30	30	30	30	30	30
MED	14	14	14	14	14	14	14	14	14	15	15	15	15	15	15	14	14	14	14	14	14	14	14	14
U Q	14	14	14	14	14	14	14	14	14	16	16	17	16	15	15	15	14	14	14	14	14	15	14	14
L Q	14	14	14	14	14	14	14	14	14	14	14	15	14	14	14	14	14	14	14	14	14	14	14	14

HOURLY VALUES OF foF2 AT Kokubunji

JUN. 2009

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	A	A	A	A	A	A	A	52	56	A	A	A		A	54	63	56	A	43	54	A	52	49	A
2	A	A	A		32	38	47	A	A	A	A	A	A	A	A		A	58	46	48	53	A	A	A
3	A	A	30	A	44		49	61	A	A		A	A	A	A	A	102		58	74		A	A	A
4	A	A	A	A				A	62	54	A	A		A		76	76	74	76	74	54	44	52	49
5	45	44	41	36	35		A	A	A	A	A	A	A	A	54	67	74	83	80	85	81	A	34	A
6	A	31	28	30		43	62	64	A	A	A	A	A	A		A	A	A		80	A	A	A	A
7	A	30	27	28	A	32	45	53	A	A	A	A	A	A		A	A	53		54	47	53	39	
8	42			36	30	37	51	52	60	A	A	A	A	A	A	A		56	51	A	A	A	47	A
9	A	A	34	42	32		A	A	A	A	A	A	A	101	116	A	A	A	49	52	54	49		37
10	39	A	21	28	A	A	A	A	A	A	A	A	A	A			A				53	53		A
11	A	A	A	A	A	A	A	A	A	A	108	102	A	A	A	A	56	A	47	A	51	54	53	A
12	A	A	A	A		A	45	57	A	101	A	A	A	A	A	A	A	51		A	A	A	44	A
13	42	43	41	37	36	41	46	54	48	52	48	A	A	A	A	A	A	A	59	A	A	A	A	A
14		37	36	A	30		A	A	67	A	A	A	A	A	56	A	A	58	A	55	53	44		36
15	28		36	A	25	39	A	A	A	A	A	A	A	A	A	A	A	A	61	58	45	35	42	34
16	34	34	37	30		31	A	A	54	A	A		A	A	A		A	56	A	63	51	44	48	A
17	A	A	A		A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	54	52	52	54	A
18	A	A	A	A	A	41	A	A	A	A	A	A	A	A	A	A	A	A	A	62	65	A	A	A
19	A	A		28	A		A	A	55	A	A	A	A	A	A	A	A	A	A	61	41	53	A	A
20	A	A	A	A	A	39		A	A	A	A	A	A	A	A	A	A	A	A	A	64	A	A	A
21	A	32	A	A	A	A	A	38		A		A	A	A	A	A	A	A	A	A	76	48	A	A
22	A	27			A	A	45	A	A	A	A	A	A	A	A	A	48	A	51	A	A	A	A	A
23	A	A	32	27	A	A	A	A	A	A	A	A	A	A	A	A		A	A	58	A	A	A	A
24	A	A	A	A		36	A	A	A	A	A	A		A	A	A	A	A	62	80	62	45	43	A
25	A	A	A			38	42	A	A	48	64	A	A	A	38	62	59		44	A	53		A	A
26	A	A	A	A	A		A	A		A	A	A	A	A	A	54	52	A	47	58	A	47	A	A
27	A	A	A	39	A	A	A	56	A	48	A	A	A	38	54	A	A	46	A	A	A	52	52	A
28	A	A	A	A	A	A	A		A	A	A	A	A	A		A	A	A		A	A	A	A	A
29	A	A	A	A	A	A	A	A	A	A	A	A				57		55	57	62	56	51	43	43
30	42	42	38	41	42	44		A	58	A	A	A	A	A					A	55	A	A	A	A
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	7	9	12	12	9	12	9	9	8	5	3	1		2	6	6	8	10	15	19	18	16	13	5
MED	42	34	35	33	32	38	46	54	57	52	64	102		70	54	62	58	56	51	58	53	50	47	37
U Q	42	42	37	38	39	41	50	59	61	77	108	51		101	56	67	75	58	61	74	62	52	52	46
L Q	34	30	29	28	30	36	45	52	54	48	48	51		38	54	57	54	53	47	54	51	44	42	35

HOURLY VALUES OF fEs AT Kokubunji

JUN. 2009

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	57	85	59	54	68	53	71	35	37	72	152	107		73	48	G	G	81	60	31	79	33	45	59
2	57	40	41	36	50		40	112	82	49	143	82	70	113	46	58	71	52	37	41	60	92	90	72
3	83	59	41	49	60	36	53	59	57	70		60	67	67	121	129	92	84	82	35	58	60	71	59
4	58	57	41	33	25	35	47	80	61	57	113	81	48	54		48	43	35	40	G	G	28	32	35
5	49	43	37	G	G	30	60	80	84	81	51	83	85	67	G	52	60	48	46	51	45	53	35	40
6	51	27	32	31	38	33	42	78	124	124	109	59	65	74	47	73	134	142	104	61	60	60	50	54
7	33	26	30	30	47	36	34	52	114	84	127	102	86	87	G	72	56	33		G	60	40	30	49
8	32	34	36	31	G	49	42	42	64	68	63	93	78	68	80	86	62	43	53	64	84	77	40	59
9	58	57	35	29	G	33	57	60	117	115		163	50	81	128	150	155		49	40	43	59	45	34
10	33	52		50	33	42	71	82	112	152	84	54	102	82	61	104	87	61	51	72	50	48	70	78
11	54	45	80	71	58	58	79	87	62	79	91	99	84	50	52	41	47	49	50	53	49	60	55	57
12	57	51	59	51	33	31	50	51	72	94	95	96	112	73	83	113	81	53		94	72	67	49	84
13	33	33	31	36	G	27	35	50	63	53	40	56	123	111	116	160	173	94	41	51	107	79	91	70
14	51	49	26	49	25	36	58	84	70	104	84	51	50	42	43	67	58	58	82	45	39	40	39	G
15	29	38	107	51	G	G	58	80	106	105	113	69	84	64	85	76	79	67	33	40	28	29	27	32
16	33	36	31	28	34	28	45	95	57	103	113		107	72	82	68	57	52	64	54	43	43	56	51
17	41	34	49	49	41	52	52	58	71	115	176	65	110	72	82	84	69	77	78	47	39	37	41	58
18	51	71	61	72	45	43	53	112	102	123	175		78	134	86	111	72	71	73	35	29	107	52	55
19	72	68	37	27	36	40	45	78	66	108	142	104	107	162		140	133	124	78	49	28	102	56	72
20	59	79	53	47	33	27		82		116	84	137	93	110	155	124	96	152	108	69	70	87	72	59
21	53	39	55	82	34	59	80	50	100	149	104	101	104	131	176	180		151	80	111	59	40	71	57
22	58	29	32	36	50	62	52	67	67	82	83	60	81	60	139	110	38	55	40	132	70	113	108	70
23	50	30	29	29	33	58	51	57	70	102		72	112	70	63	62	86	109	114	70	112	72	68	52
24		81	78	51	G	36	56	70	93	84	110	118		108	114	100	62	84	39	G	70	G	31	43
25	49	45	50	45	32	G	51	53	50	52	75	65	51	59	G	54	G	52		80	51	39	40	60
26	58	49	45	44	28	46	60	51	102	80	89	150	125	80	66	70	65	61	45	29	77	32	107	107
27	78	59	53	30	69	59	60	51	43	40	62	66	56	49	50	61	61	G	50	53	60	27	32	58
28	89	70	59	48	34	72	83	80	82	85	57	78	97	96	47	53	85	83	87	59	109	84	72	80
29	67	50	48	47	36	32	56	77	79	96	62	106	44		60	G	48	46	47	33	G	29	G	G
30	G	37	26	G	G	34	53	72	49	71	103	61	58	50		G	G	34	62	57	79	71	69	87
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	29	29	30	29	30	27	28	28	29	27	30	29	29	27	30	30	30	30	30
MED	53	47	41	44	34	36	53	71	71	84	95	82	84	73	66	72	65	61	53	51	60	56	51	58
U Q	58	59	57	50	45	52	60	80	101	108	113	103	105	102	114	111	86	84	80	64	72	77	71	70
L Q	37	36	32	30	25	31	46	52	61	71	75	63	61	62	47	54	52	48	45	35	43	37	39	49

HOURLY VALUES OF fmin AT Kokubunji

JUN. 2009

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

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

HOURLY VALUES OF foF2 AT Yamagawa

JUN. 2009

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	A	A	A	A	A	A	A	50	A	A	A	A	A	A	57	57	56	60	58		64	54	A	A
2	37		A		29	32	A	48	56	54	A	A	A	A	A	A	60	58	54	A	A	A	A	A
3	A	A	A	A		25		A	A	A	A		A	A	A	68	81	85	81	67	54	A	A	29
4	A	A	A	25			A	A	A	A	A	A	A	A	A	81	88	78	72	74	52	50	48	48
5	46		44	42	32		47	58	60	A	A	A	A	A	A	66	A	90	88	90	78	52	47	40
6		A	32		30	36	58	55	51		49	A	A	A	A			A	A	84	A	A	A	A
7		32	32	28	30	A	A	48	56	A	49	A	A		A	A	58	A	A	A		A	A	A
8	A		A			35	45	42	58	A	A	A	A	A	A	67	71	A	55	51	A	A	45	40
9	A		44	40	34	34		45	A	A	A	A	A	A	A	A	A	A	A	43	A	A		A
10	A	A	A	30	A	30	A	A		A	A	A	A	A	A	72	74	73	66	66	70	66	41	29
11	32			28	28	26	44	42	52	A		A	A	A	A	A	A	A	55	55	54	A	63	A
12	A	A	A			A	A	A	A	A	A	A	A	A	A	A	A		A	A	A		A	A
13	A	A		A	A	A	A	48		A	A	A	A	A	A	53	60	66		52	42	50	A	A
14		A	A	A	29		A	A	A	A	A	A	A	A	A	A	58	A	A	A	50	44	43	42
15	44	41	41	37	30		44	52	A	A	A		A	A	A	58	63	72	75	66	52	48	48	48
16	44	44	41	34	34	30	38	48	A	A	53	A	A	A	A		61	64	53	57		A	A	A
17	A	A	A		A	A	42	50	44	A	A	A	A	A	A	A	A	A	A	A	A	72	A	A
18	A	A	A	A	A	28	A	A	A	A	A	A	A	A	A	A		72	75	66	69	47	A	
19	A	A	26	A	A		37	A	A	A	A	A	A	A	A	A	A	A	A	41	54	54		A
20				A	29	34	29	37	A	52	109	A	A	A	A	A	A	A	A	47	54	A	A	A
21	A	A	A	A	A	A		A	A	A	A	A	A	A	A	A	A	A	A	73		53	A	A
22	34	34	A	A	26	31	40	A	A	A	A	A	A	A	A	A		49	46	A	61	52	A	A
23	A	A		A		A	A	A	A	A	A	A	A	A	A	A	A	A	A	61	54	47	A	A
24	A	A	A	A	A	A		A	A	A	A	A	A	A	A	A	A	A	76	77				
25	38	37	36	A	32	25	45	44	52	59	A	A	A	A	56	A	A	53	39	56	54	40	A	
26		A	A	A	A	26		48	A	A	A	A	A	A	A	A	47	A	A	75	54	A	A	A
27	A	A	A	A			41	48	A	A	A	A	A	A	A	A	A		A	A	52	64		26
28	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	62	42		A
29	A	A	A	A	A	32		A	A	A	A	A	A	A	A	A	56		49	58	53	50	44	
30	42	43	40		36	34	22	44	A	A	A	A	A	A		A		A	54	61	48	A	45	
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	6	9	8	13	15	13	17	8	3	4				2	8	13	12	16	21	20	17	9	8
MED	40	39	40	32	30	31	42	48	54	54	51				56	66	60	69	56	61	54	50	45	40
U Q	44	43	42	38	33	34	45	50	57	59	81				57	70	72	75	75	73	61	54	48	45
L Q	35	34	32	28	29	26	37	44	51	52	49				56	57	57	59	53	53	52	47	43	29

HOURLY VALUES OF fEs AT Yamagawa

JUN. 2009

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	49	70	85	58	80	55	59	42	75		85	115	144	123	50	46	G	36	36	32	G	34	44	48
2	33	48	56	31	28	55	54	40	52	61	69	123	120	100	62	61	37	54	49	66	70	72	81	82
3	58	46	56	56	46	32	71	72	162	115	57		66	84	56	52	G	G	33	G	24	38	32	27
4	52	45	30	G	34	G	40	58	85	95	64	62	59	109	86	81	60	61	44	28	G	G	27	27
5	45		G	G	G	33	37	39	50	58	88	71	58	55	52	52	93	77	56	58	33	33	G	34
6	37	46	30	46	33		32	41	62	51	G	58	56	62	58		54	91		93	72	60	46	53
7	33	28	G	G	34	59	59	35	G	85	104	52	48	62	62	61	50	90	81	94	34	59	39	40
8	41	35	37	29	32	30	34	50	48	72	116	72	78	91	84	61	70	84	69	41	50	60	40	51
9	72	48	32	24	G	38	40	37	124	108	128	84	94		118	132	100	85	116	73	72	54	50	59
10	71	59	71	41	51	32	58	89		179	94	96	109	85	67	53	42	36	34	25	32	G	33	G
11	34	40	40	28	G	G	33	46	50	52	51	78	68	58	100	52	57	53	45	45	49	60	82	59
12	70	72	59	33	37	64	49	51	85	81	79	58	70	64	73	86	156	99	95	92	84	59	102	59
13	89		59	85	49	57	60	44	92	70	79	73	72	51	60	52	42	G	35	39	60	33	60	59
14	49	59	72	49	28	36	52	91	110	104	133	152	120	69	67	50	52	94	85	80	43	37	G	25
15	32	G	33	29	36	45	39	40	51	67	71		172	71	49	G	52	G	34	41	49	26	33	28
16	27	G	G	G	G	G	G	40	76	86	70	67	70	82	66		G	37	41	35		86	68	57
17	59	59	43	34	40	51	33	40	70	91	152	159	150	120	86	81	122	87	93	131	92	59	90	70
18	71	60	60	39	35	23	80	116	111	150	131	50	78	70	56	58	70	50	41	G	23	40	46	
19	45	33	28	44	40	40	36	69	117	79	138	77	114	71	54	50	56	74	61	46	40	34	44	71
20	38	40	36	46	G	G	34	40	67	56	115	115	178	122	119	117	76	91	71	42	65	60	41	70
21	103	79	57	43	58	59	44	73	60	58	101	95	117	82	64	67	108	92	91	52	60	46	57	59
22	34	30	40	36	34	51	72	82	61	125	116	62	84	106	77	74	56	44	35	60	44	41	58	84
23	72	59	50	60	35	54	69	106	116	153	82	95	158	51	66	69	82	74	85	38	38	43	58	50
24	72	69	51	49	33	34	35	70	115	71	174	97	132	75	63	79	94	82	77	32	70	49	46	39
25	33	29	31	50	34	G	40	36	43	45	48	61	52	72	42	64	54	49	33	32	34	33	58	33
26	33	46	40	39	37	G	50	54	88	150	165	116	81	123	133	65	G	113	116	143	40	70	92	70
27	46	82	50	35	33	34	31	39	62	82	92	49	48	50	65	67	81	42	50	60	43	40		24
28	38	60	40	78	60	60	51	91	92	117	88	101	151	78	54	50	60	84	58	82	70	43	36	72
29	80	49	59	52	50	36	38	58	64	52	41	50	67	49	95	56	47		32	27	55	50	36	49
30	33	33	35	39	33	29	31	36	48	49	80	90	83	51	G	64	G	49	49	37	31	32	30	26
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	28	30	30	30	29	30	30	29	29	30	28	30	29	30	28	30	29	29	30	29	30	29	29
MED	46	47	40	39	34	36	40	48	70	81	88	78	82	72	64	61	56	74	50	44	44	43	46	51
U Q	71	59	57	49	40	54	58	72	101	111	116	99	120	95	84	71	81	88	83	73	67	59	59	64
L Q	34	34	32	29	32	26	34	40	51	58	70	61	67	60	56	52	42	43	35	32	33	34	34	30

HOURLY VALUES OF fmin AT Yamagawa

JUN. 2009

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

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

HOURLY VALUES OF foF2 AT Okinawa

JUN. 2009

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	A	A	A	A	A	A	A	A	A	A		A	A	65			56	64	72	77	66	51	47	40
2	37	A	36	A	A	A	A	70	A	A	A	A	A	A	A		A	A	A	A	A	A	A	A
3	A	A	A	A	A	A		A	65	A	A	A	A	A	A		A	A	82	78	66	52	36	
4	A		28		A	A	34	46	A	A	A	A	A	A	75	93	88	87	85	76	55	45	43	
5	42	44	44	36	32	32	42	58	A	A	A	A	A	A	64	72	78	90	106	102	79	54	44	43
6	42	42	A	29	29	29	42	50	58	A	58	54	A		A		56		80	78	50	32	42	40
7	34	34	35	34	34		40	52	45	A		A		70	70	78	67	68	73	76	72	A	A	A
8	A		A	A			37	51	54	54		A	A	A	A	72	92	71		A	55	60	54	48
9	44		42	34	30		24	48	68	A	61	A	A	A	A	A	A	72	72	66	A	A	A	A
10		A	A		A	A	A	A	A	A	A	A	A	A	92	89	98	106	105	94	84	60	A	A
11	32	32	29		A		42	58	45	54	70	58	A	A	A	A	A	A	67	A	72	83	A	A
12	A		A	A	A	A	39	A	A	A	A	A	A	A	A	59	A	67	56	53	53	51	51	A
13	A	A	A	A	A	A	A	52	57	A	A	A	A	A	A		68	68	71	58		45	A	32
14		A	A		A	A	A	70	A	A	A	A	A	A	A	67	A	72	81	76	54	44		41
15		34	41	34			39		A		A	A		A		71	71	85	94	86	74	51		
16	46	34	36				38	41	50	A	A	A	A	A	A	A	70	61	57	53	55		A	A
17	A	A	A	A	A	A	40	A	A	A	A	A	A	A	A	56	58	A	66	72	77	79	A	A
18	A	A					37	51		68	49	A	A	A		56	68	80	84	72	66	34	30	31
19		A	A	28		A	A	A	A	A	A	A	A	A			A	84	80	A		A	A	A
20		30	30		A	A	A	48	A	A	A	A	A	A	A	A	A	77	70	A	A	50	40	32
21	A	A	A	A	A	A	A	A	A	49	A	A	A			A	A	A	63	76	81	A	A	A
22	A	A			29	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	71	A	A	A
23		A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	65	A	62	64	41	A	A
24	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A		A	A	A	A		A	A
25	A	A	31	30	A	A	A	A	54	66	A	A	A		A	A	A	66	77	64	42	36	A	
26	A	A	A				A	A	A	A		A	A	A	A		54		77	54	45	A	A	A
27		A				A	41	36	A	A	A	A	A	A	A	A	A	A	60	66	66	A	A	A
28	A	A	A	A	A	A		39	A	A	A		A			A	A		56	A	66			
29	A	A	A	A	A	A	37		A	A	A	A	A	A	A	A		47	54	52	51	45	47	32
30	34	32	A	31	29	30	A	41	46	A	A	A	A	A				57	71	45	45	A		42
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	8	10	8	6	3	14	16	10	5	4	2		2	4	10	13	19	25	22	24	18	10	10
MED	40	34	36	32	30	30	39	50	54	54	60	56		68	72	72	68	71	72	72	66	50	44	40
U Q	43	38	41	34	32	32	41	55	58	67	65	58		70	83	78	83	84	81	77	72	54	47	42
L Q	34	32	30	29	29	29	37	43	46	51	53	54		65	67	59	57	65	64	58	53	44	40	32

HOURLY VALUES OF fEs AT Okinawa

JUN. 2009

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	58	68	70	116	58	51	49	59	93	137	83	74	62	52	48	G	G	G	33	28	G	36	32	31
2	27	34	48	71	40	48	60	82	116	74	52	150	115	126	97	56	83	161	136	135	108		72	72
3	56	72	80	57	72	40	36	83	72	58	76	76	95	70	74	98	114	89	46	32	27	29	G	
4	34	38	G		32	29	25	49	124	95	145	78	88	56	72	74	76	56	32	G	49	G	G	
5	G	33	28	37	29	G	35	51	84	50	50	57	87	54	60	65	56	44	39	39	36	32	36	24
6	G	36	51	26	G	G	G	37	36	49	G	42	86	51	60	47	61	81	69	32	31	24	35	G
7	39	36	G	G	28	28	39	48	48	62	43	52	48	78	G	49	62	34	35	40	92	81	54	53
8	58	43	58	30			28	36	G	49	51	69	130	104	83	70	61	71	42	86	42	50	49	35
9	31		G	G	G	26	32	45	58	63	80	72	115	80	94	121	85	49	36	31	50	59	40	49
10	39	78	58	28	59	34	46	64	84	63	82	106	114	83	54	50	45	34	G	30	31	38	31	39
11	G	29	28	38	34	G	40	51	37	G	49	48	59	82	48	66	68	63	63	71	40	40	50	49
12	57	36	38	63	31	31	46	62	81	84	115	115	76	92	77	49	68	58	84	36	40	40	59	90
13	70	70	50	46	36	56	56	59	57	96	125	79	70	59	84	52	47	57	44	38		47	67	33
14	37	46	34		36	49	49	60	90	92	133	141	77	96	114	95	93	60	32	38	37	34	26	G
15		G	28	G	G	29	37		70	50	51	70	68	76	81	G	52	56	55	40	44	33	36	36
16	G	G	G			G	G	32	G	56	89	54	65	71	65	67	50	36	50	36	35	27	29	59
17	59	35	48	70	36	44	29	147	111	125	68	58	115	65		41	41	85	72	90	55	84	104	84
18	71	34	30				41	39	44	70	G	63	90	80	41	G	81	G	G	G	G	G	28	27
19	36	49	27	G		34	32	59	58	106	92	80	99	82	56	68	94	77	65	78	69	57	52	36
20	37	33	G		39	49	55	40	67	66	83	152	114	106	145	124	81	40	50	50	45	34	59	
21	84	77	83	50	43	43	51	111	90	G	39	49	60			63	102	89	72	72	60	105	71	43
22	41	34			32	51	56	60	62	84	150	95	80	88	72	86	69	67	79	73	68	50	39	59
23	79	70	59	39	40	61	44	136	132		100	91	61	50	55	74	76	84	138	86	72	59	58	49
24	40	41	52	39	35	51	57	82	88	105	92	113	122	97	147	84	97	154	134	148	70	67	70	66
25	67	30	G	G	72	41	50	56	50	62	66	66	116	58	51	69	70	43	48	34	38	30	50	
26	36	34	36	G			56	89	108	149	160	152	81	94	70		G	91	76	39	82	67	71	59
27	28	41	27		G	28	G	31	51	76	59	84	135	54	76	91	74	57	60	51	49		66	72
28	80	40	32	32	38	29	29	41	72	128	91	G	63		46	50	53	63	108	154	68	37	30	27
29	34	53	53	28	35	38	28	37	60	50	55	66	54	58	78	72	46	G	44	26	45	G	27	28
30	G	G	48	G	30	26	41	53	91	73	90	83	88	60	G		G	G	35	50	35	71	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	29	29	23	25	27	30	29	30	29	30	30	30	28	28	28	30	30	30	30	29	28	30	26
MED	39	36	36	32	35	34	40	56	71	70	81	75	86	77	71	66	68	58	50	40	45	39	44	41
U Q	58	51	52	50	40	49	50	73	90	95	92	95	114	90	82	79	81	81	72	73	68	59	59	59
L Q	29	33	27	G	29	28	29	40	51	53	51	58	65	58	52	49	50	40	36	32	35	31	30	28

HOURLY VALUES OF fmin AT Okinawa

JUN. 2009

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	14	14	15	15	15	14	15	14	14	21	22	34	35	36	33	45	21	27	14	14	15	15	14	14
2	15	14	15	15	14	14	14	14	23	23	28	29	29	27	28	26	29	17	14	20	15	14	15	15
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31																								
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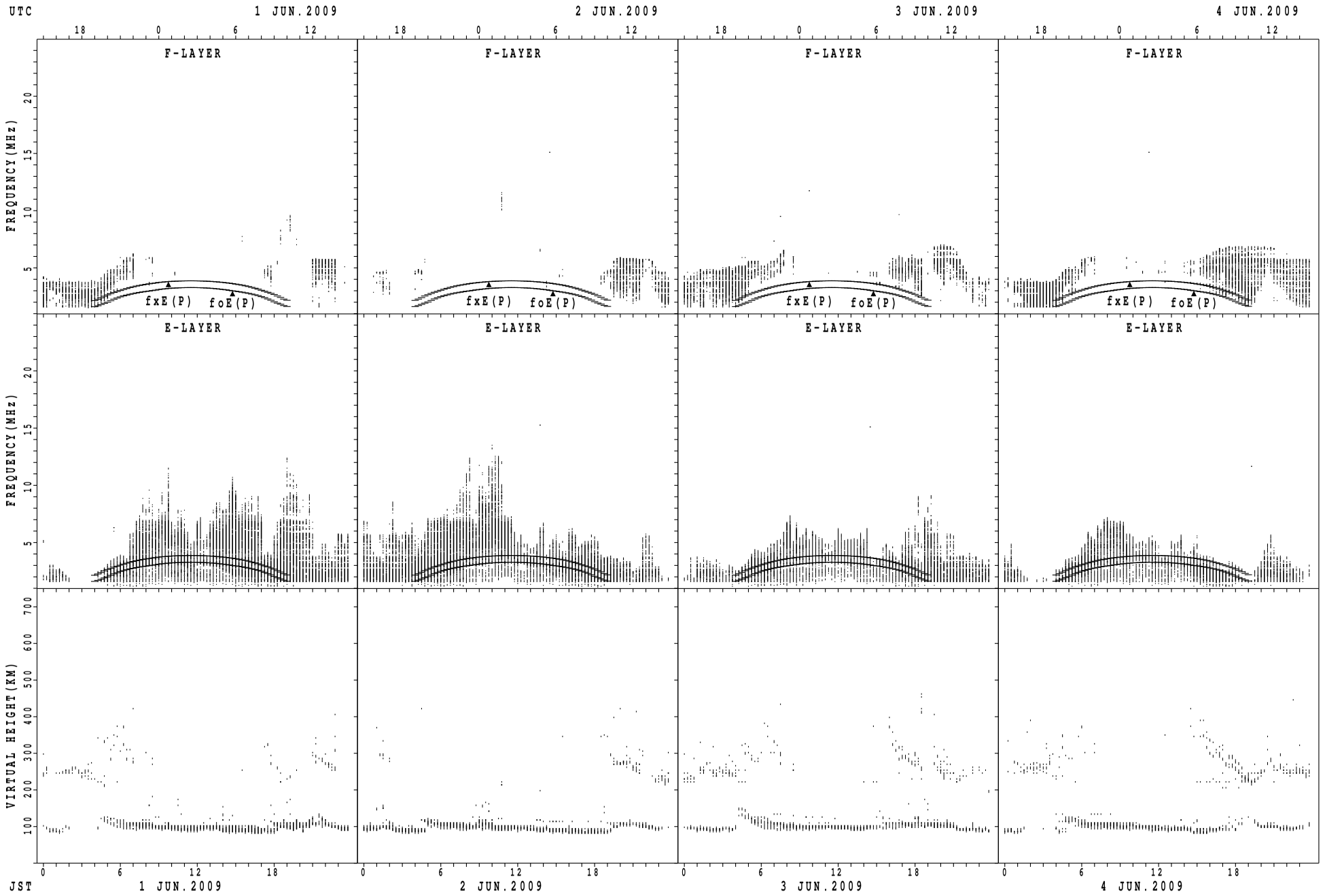
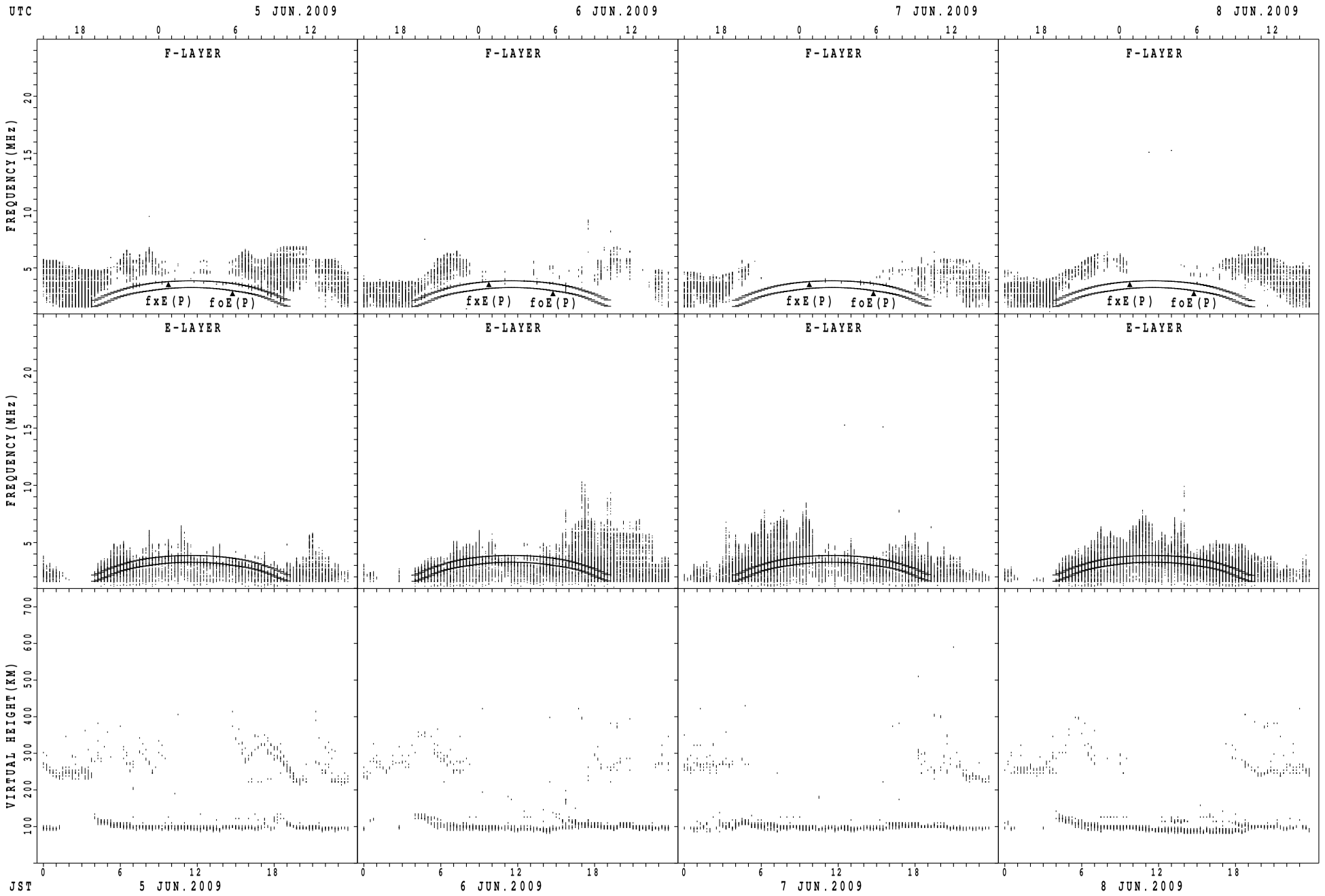
CNT	29	29	29	23	25	27	30	29	30	30	30	30	30	28	29	28	30	30	30	30	29	30	30	27
MED	15	14	15	15	15	15	14	14	16	23	28	30	32	30	29	28	22	17	14	14	14	15	15	15
U Q	15	15	15	15	16	15	15	14	20	23	29	32	34	35	33	33	27	20	15	15	15	15	15	15
L Q	14	14	14	14	14	14	14	14	15	21	24	29	29	29	28	26	21	15	14	14	14	14	14	14

SUMMARY PLOTS AT Wakkanai



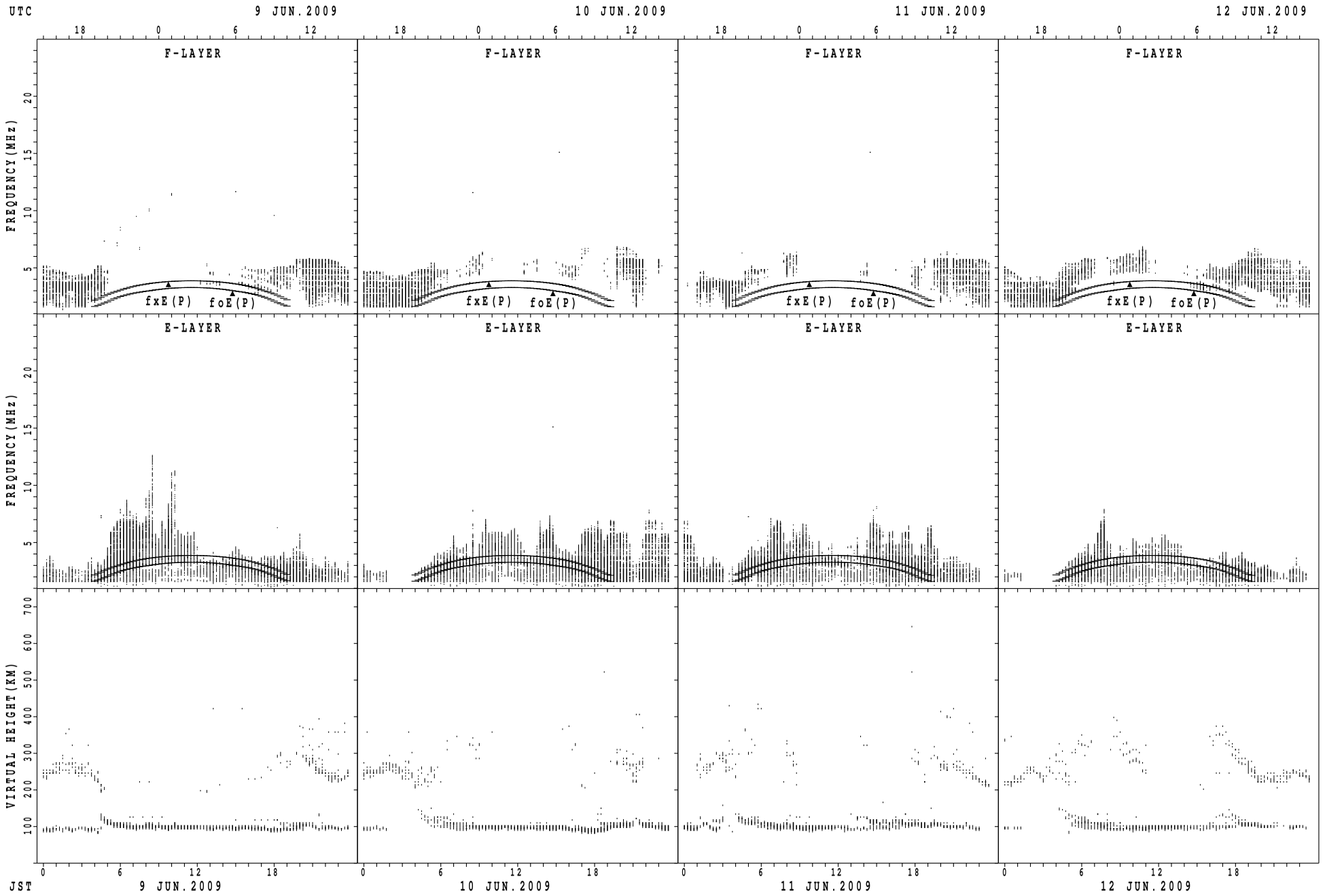
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



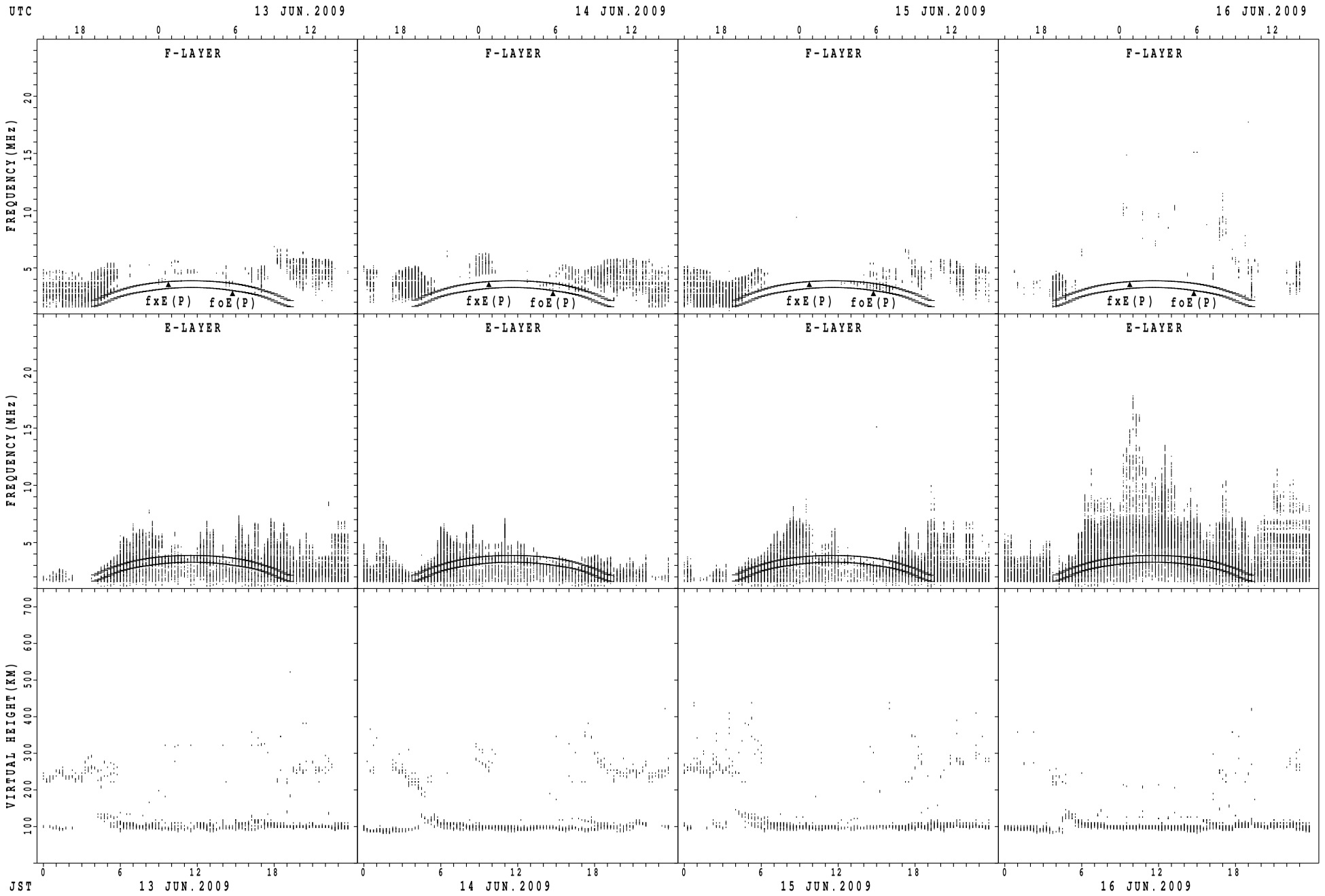
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



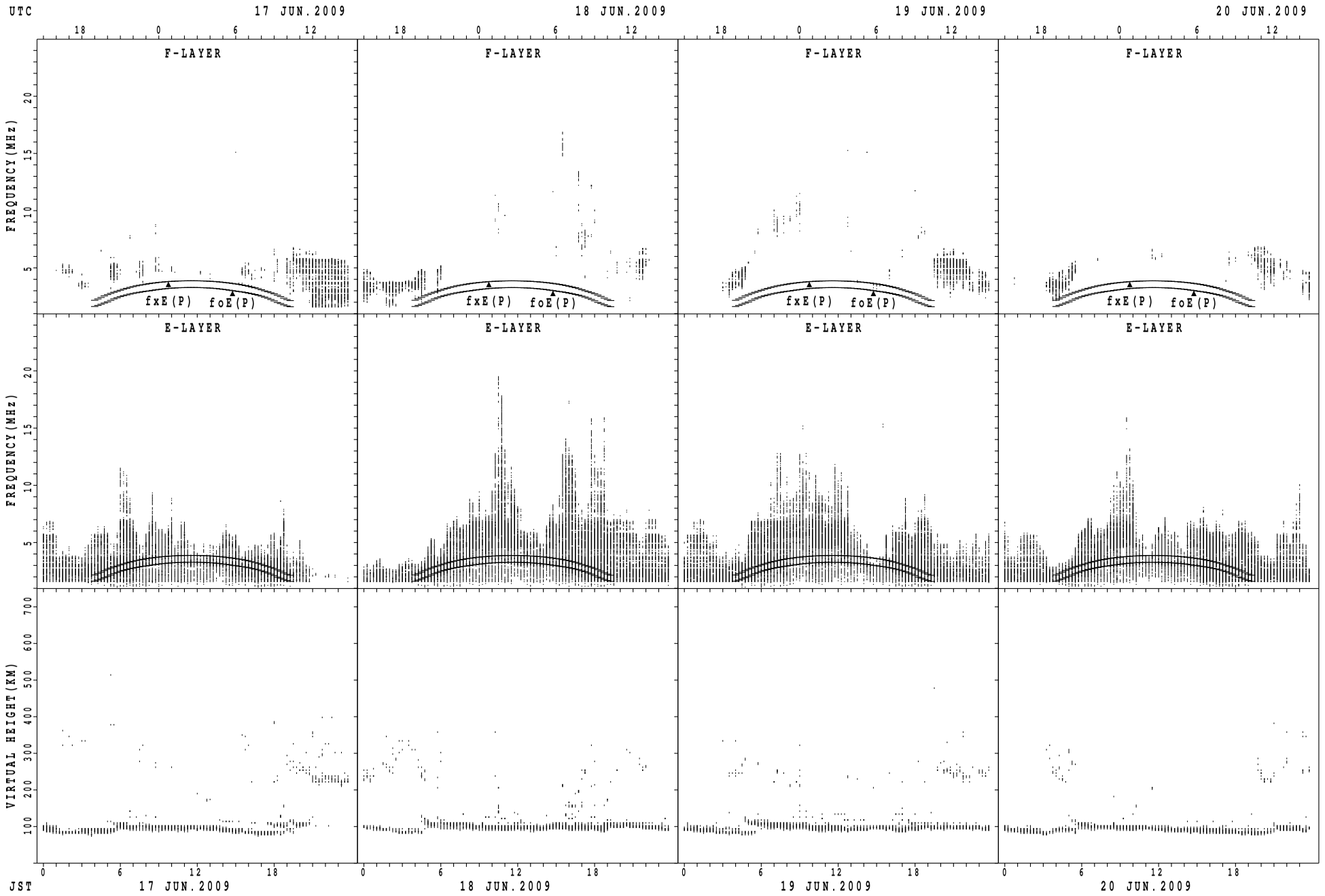
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



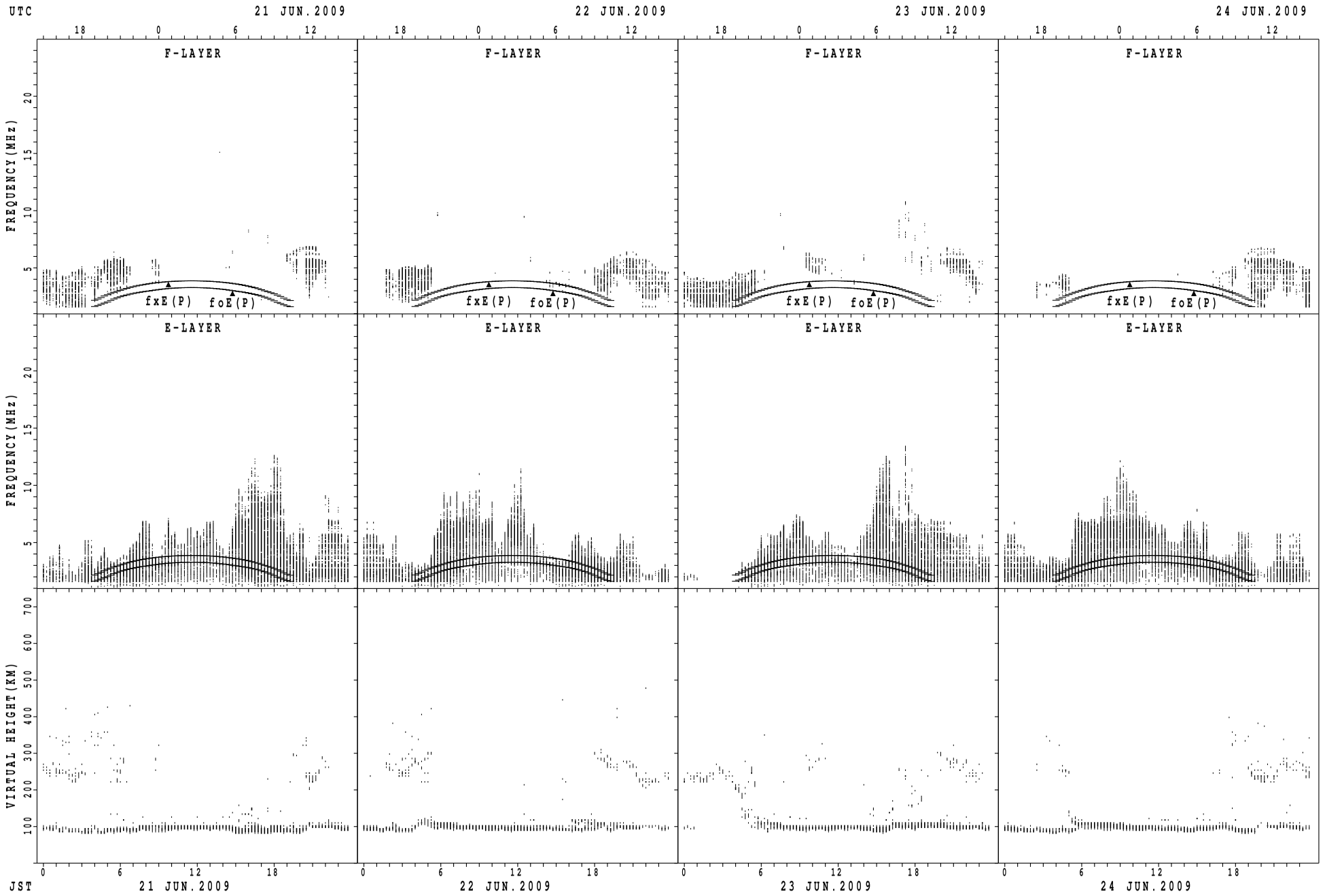
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



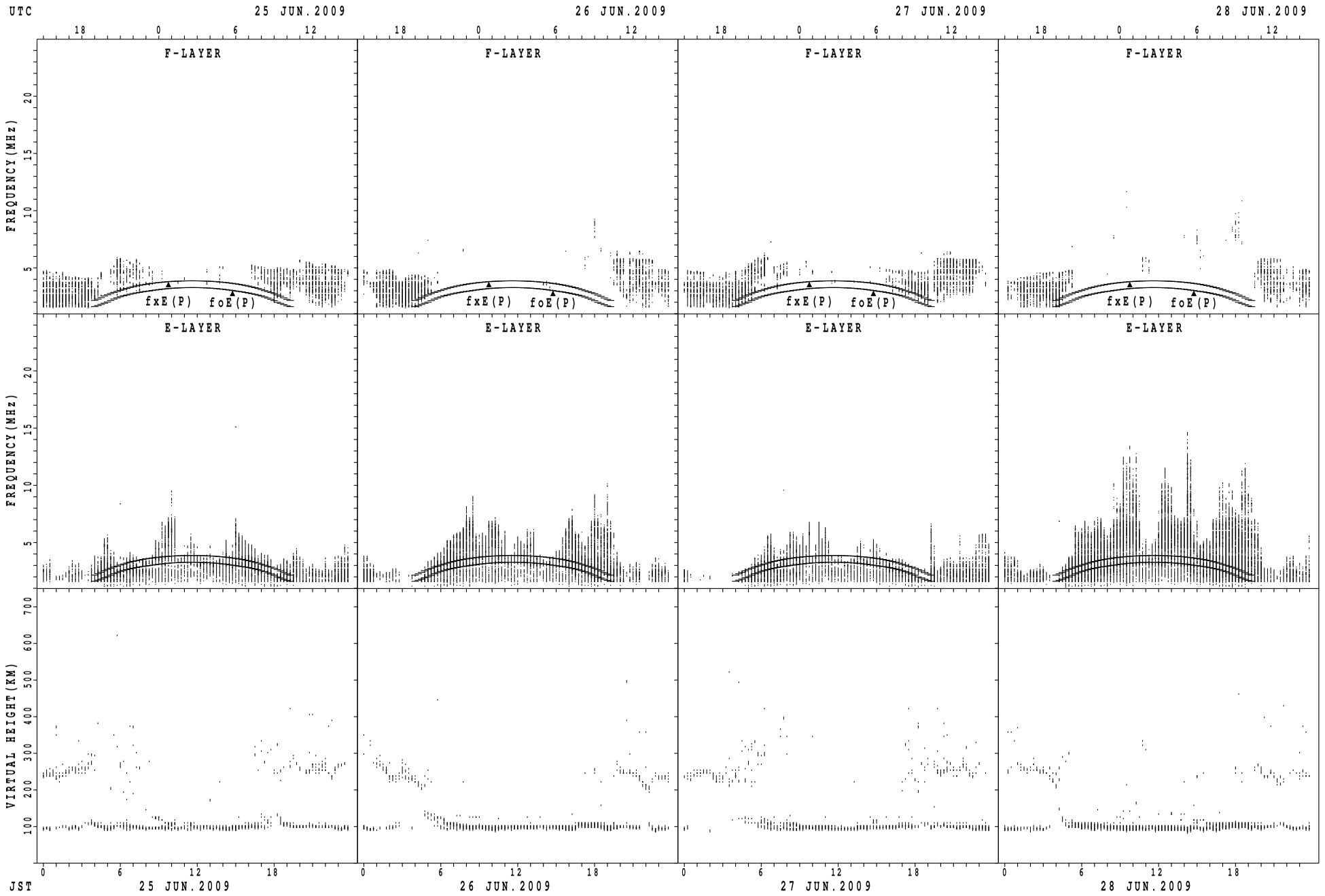
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



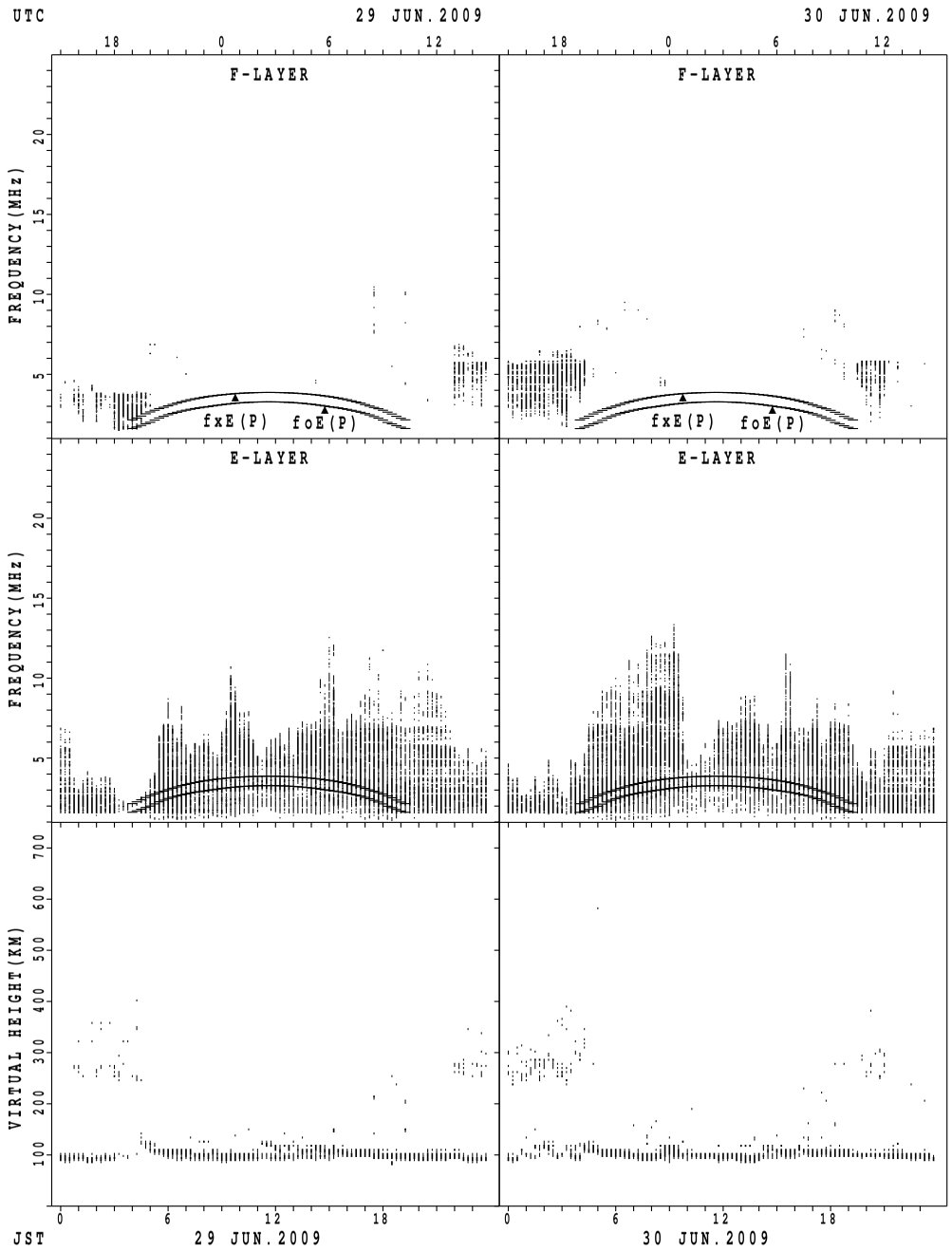
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



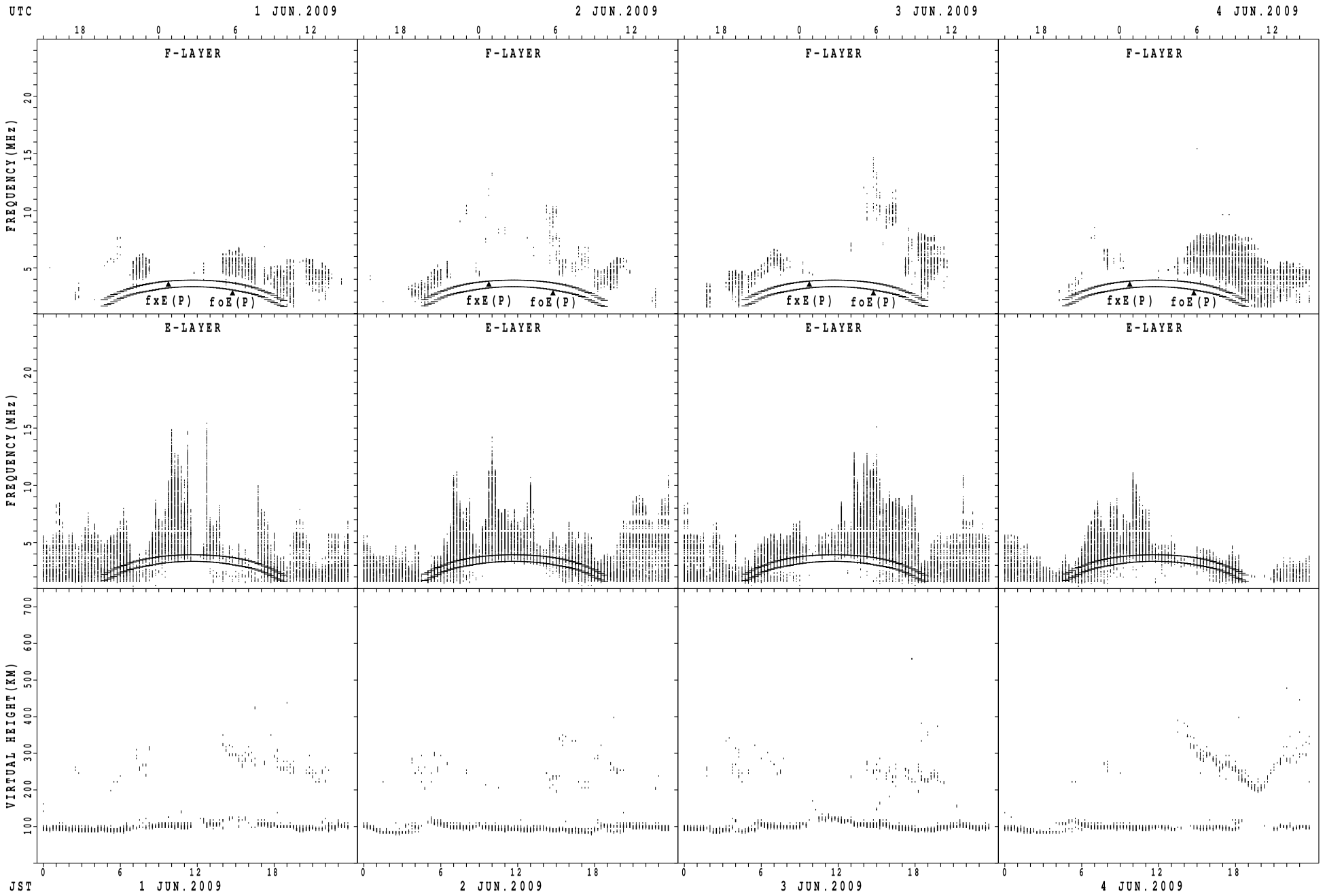
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



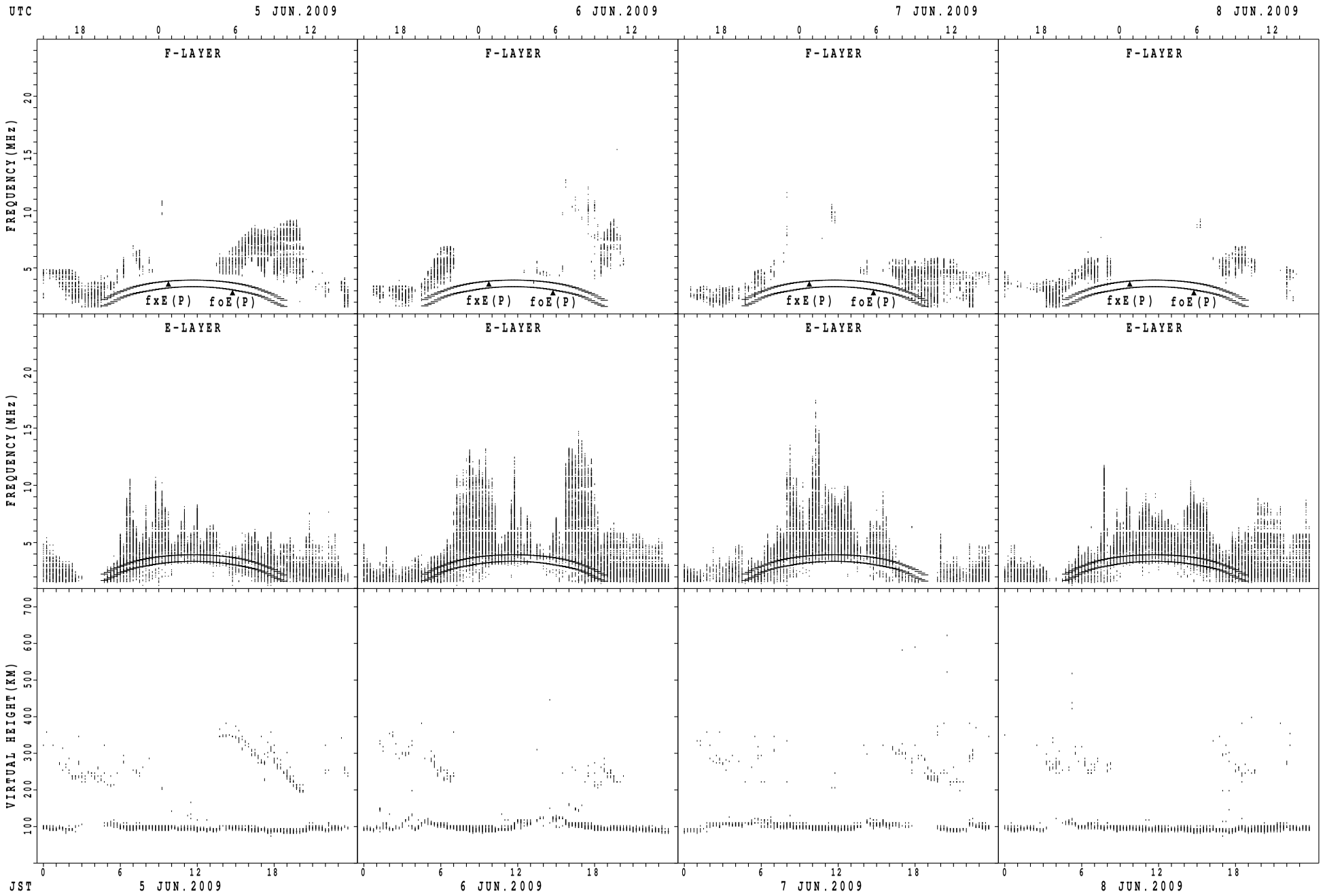
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



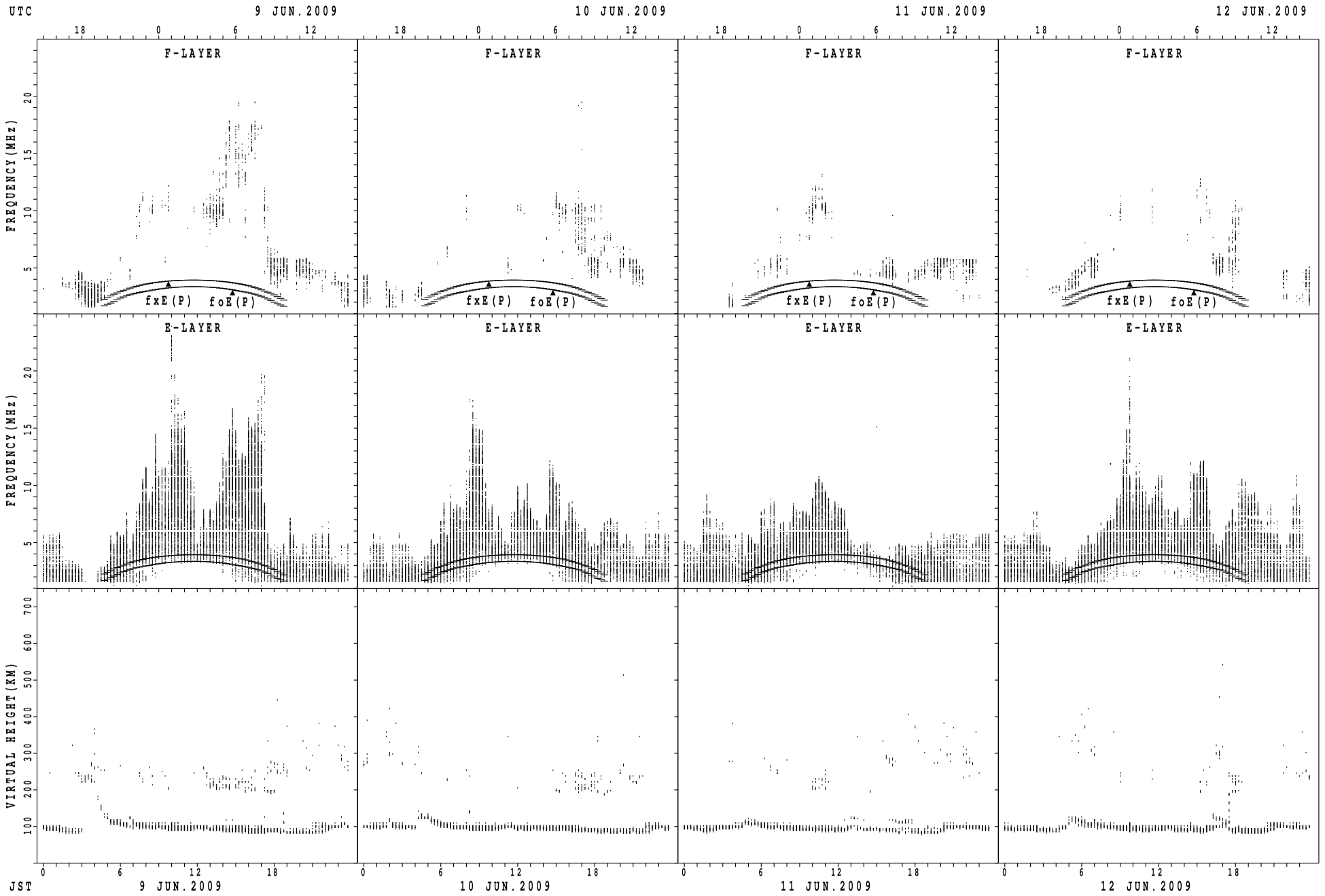
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



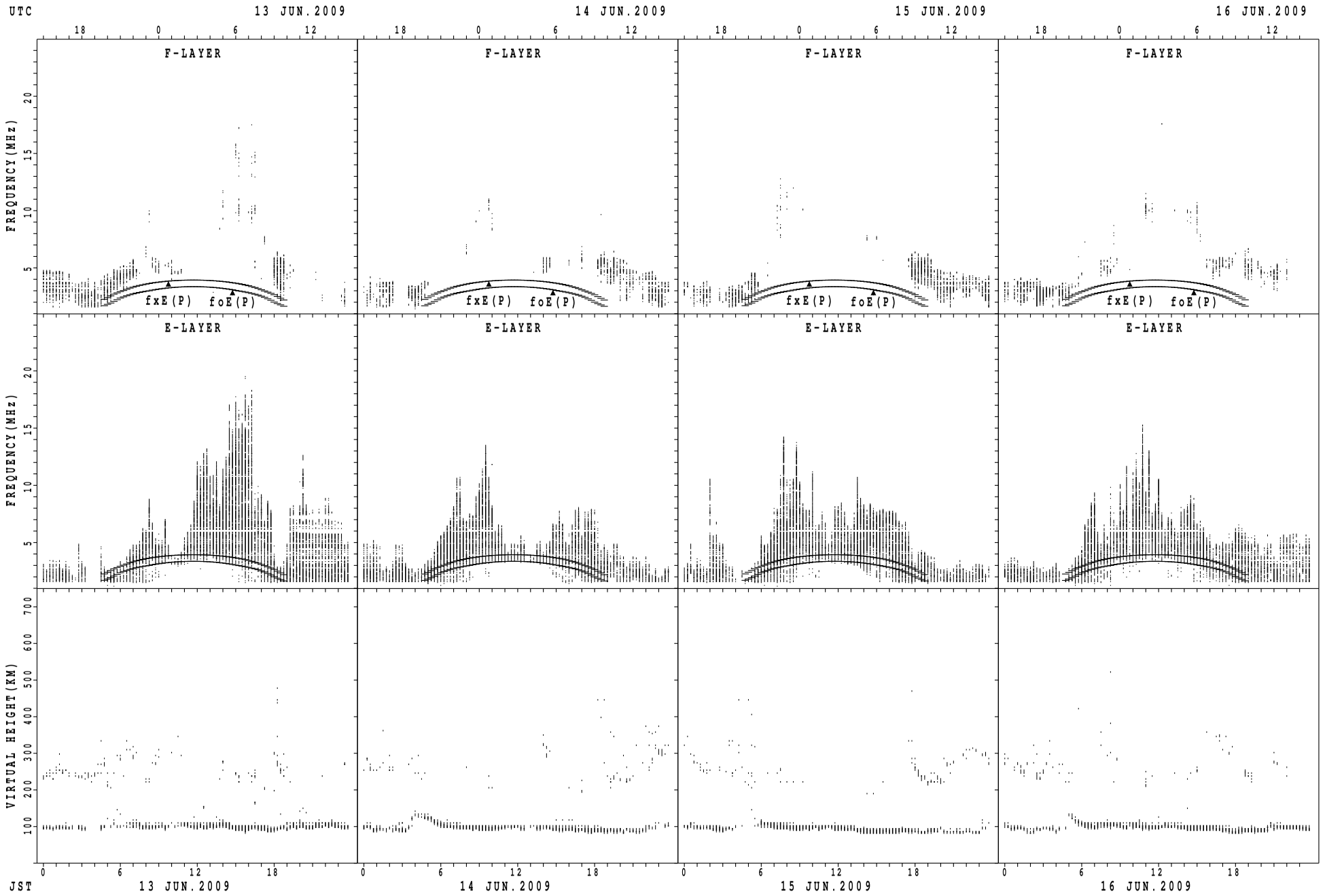
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



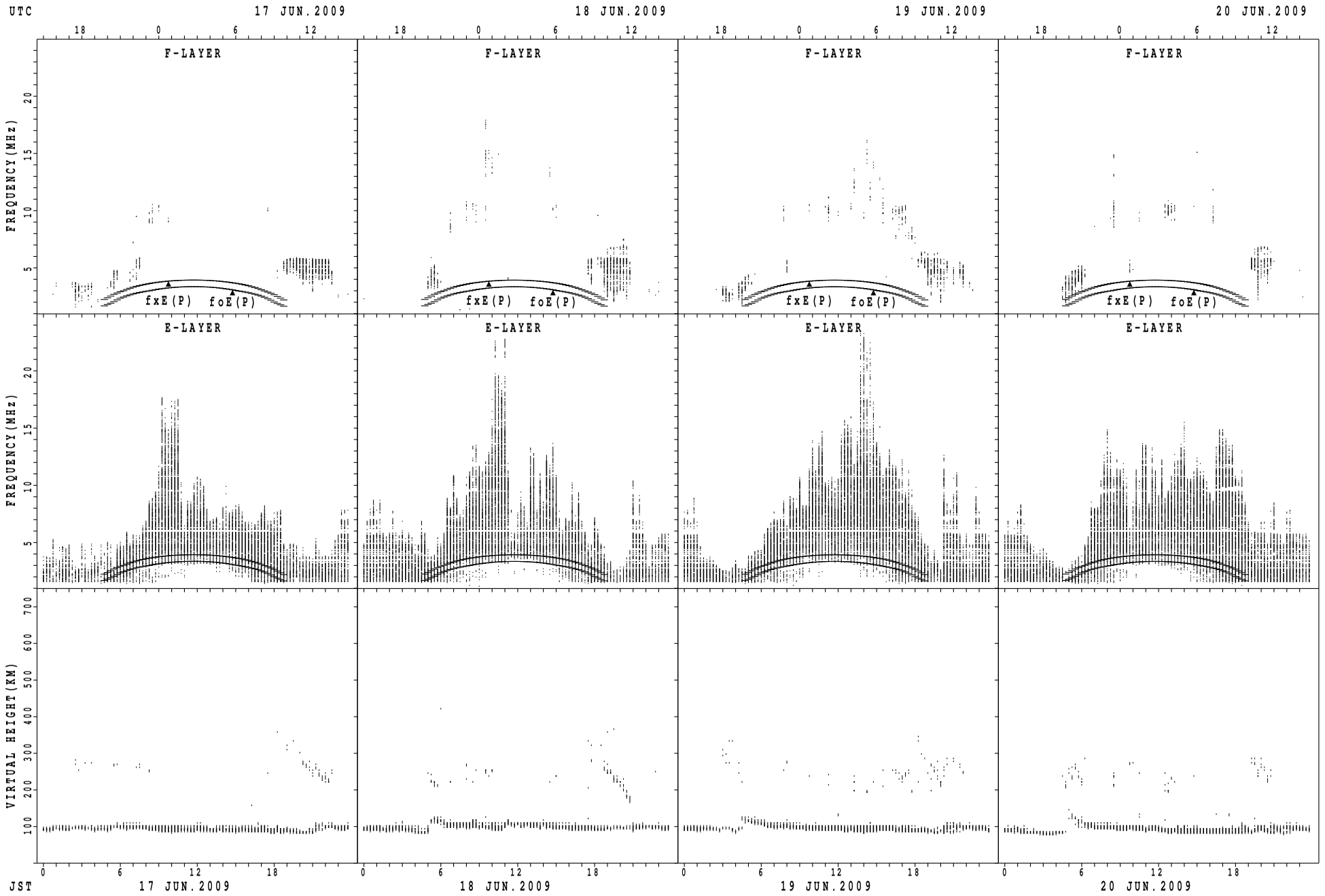
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



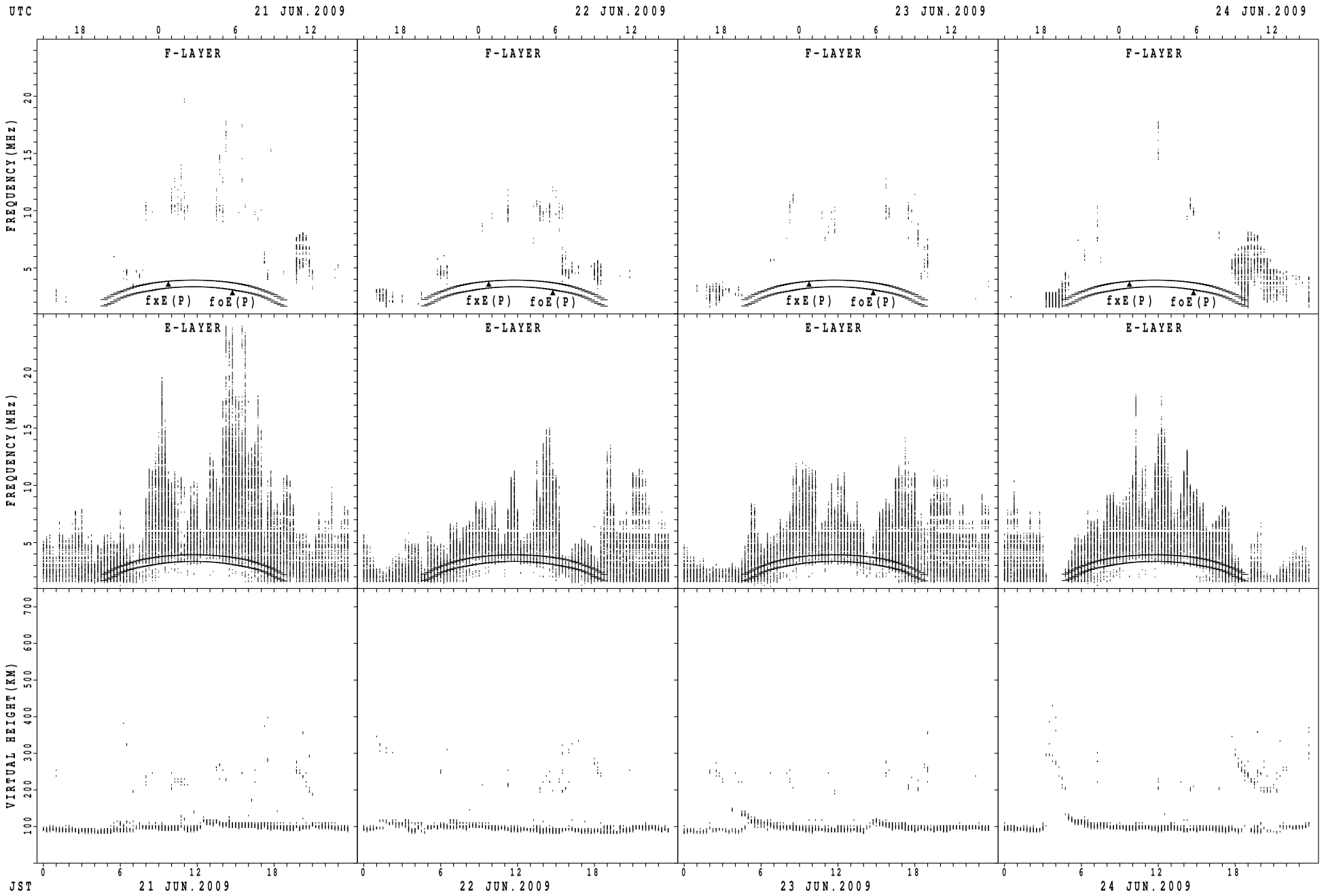
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



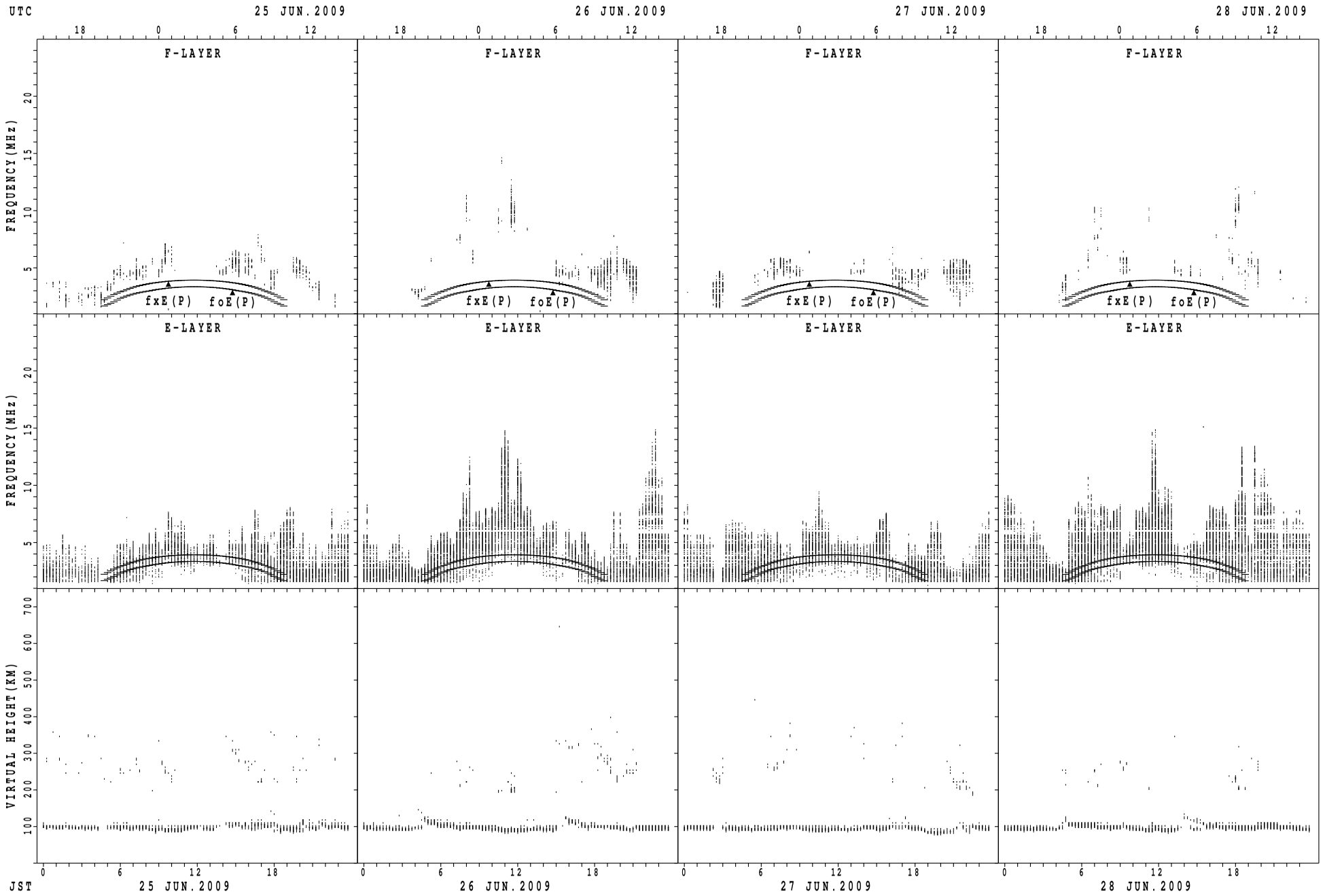
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



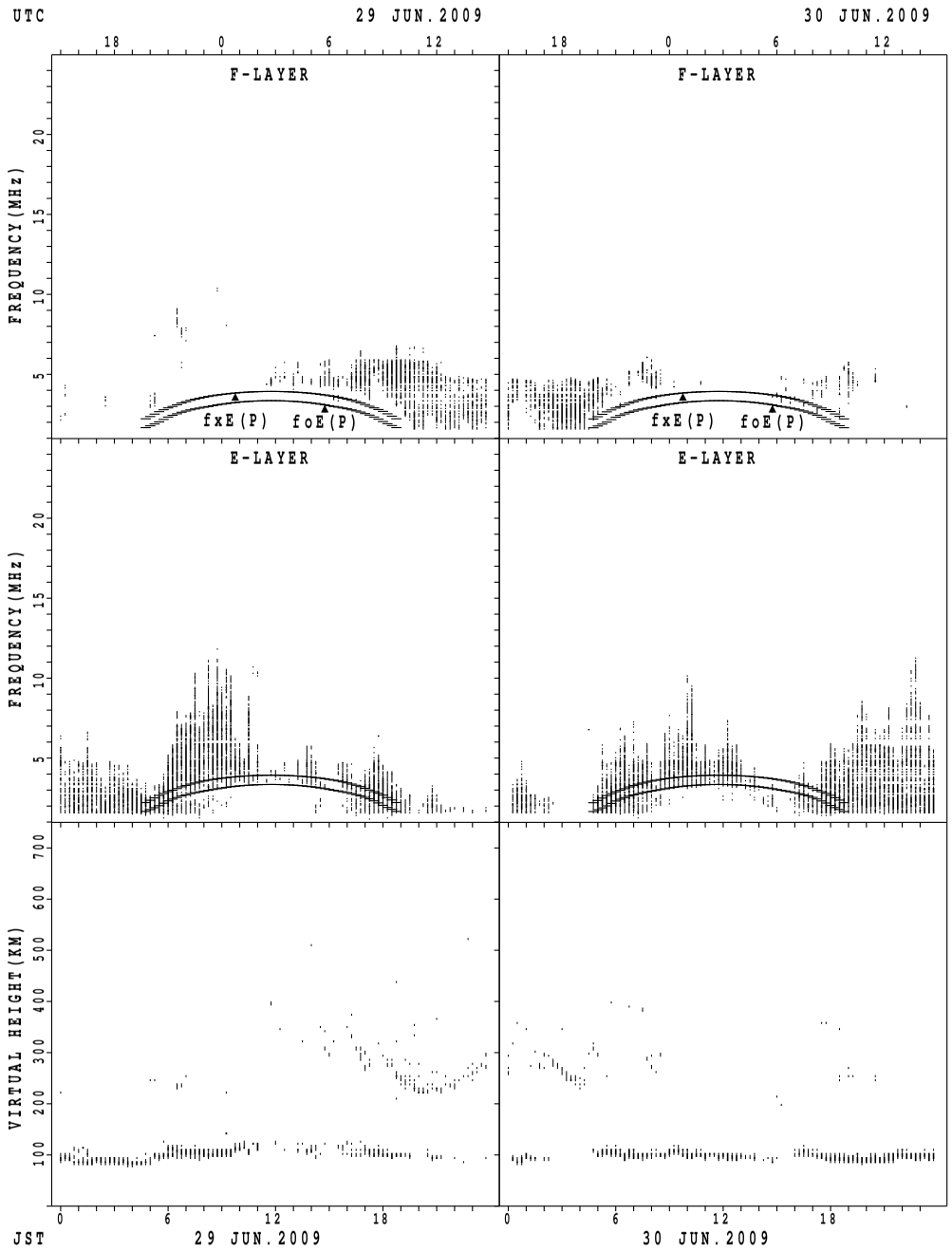
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



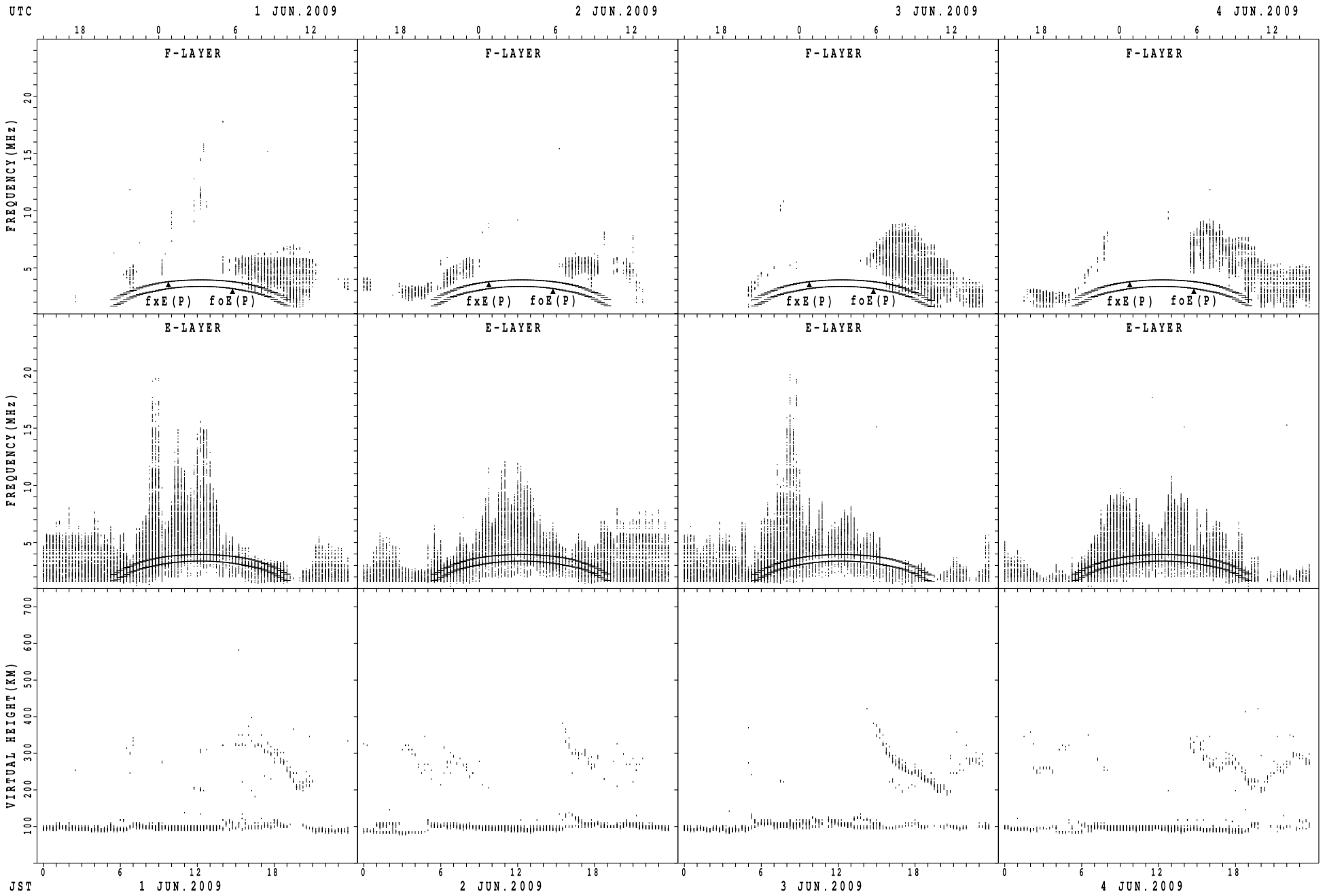
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



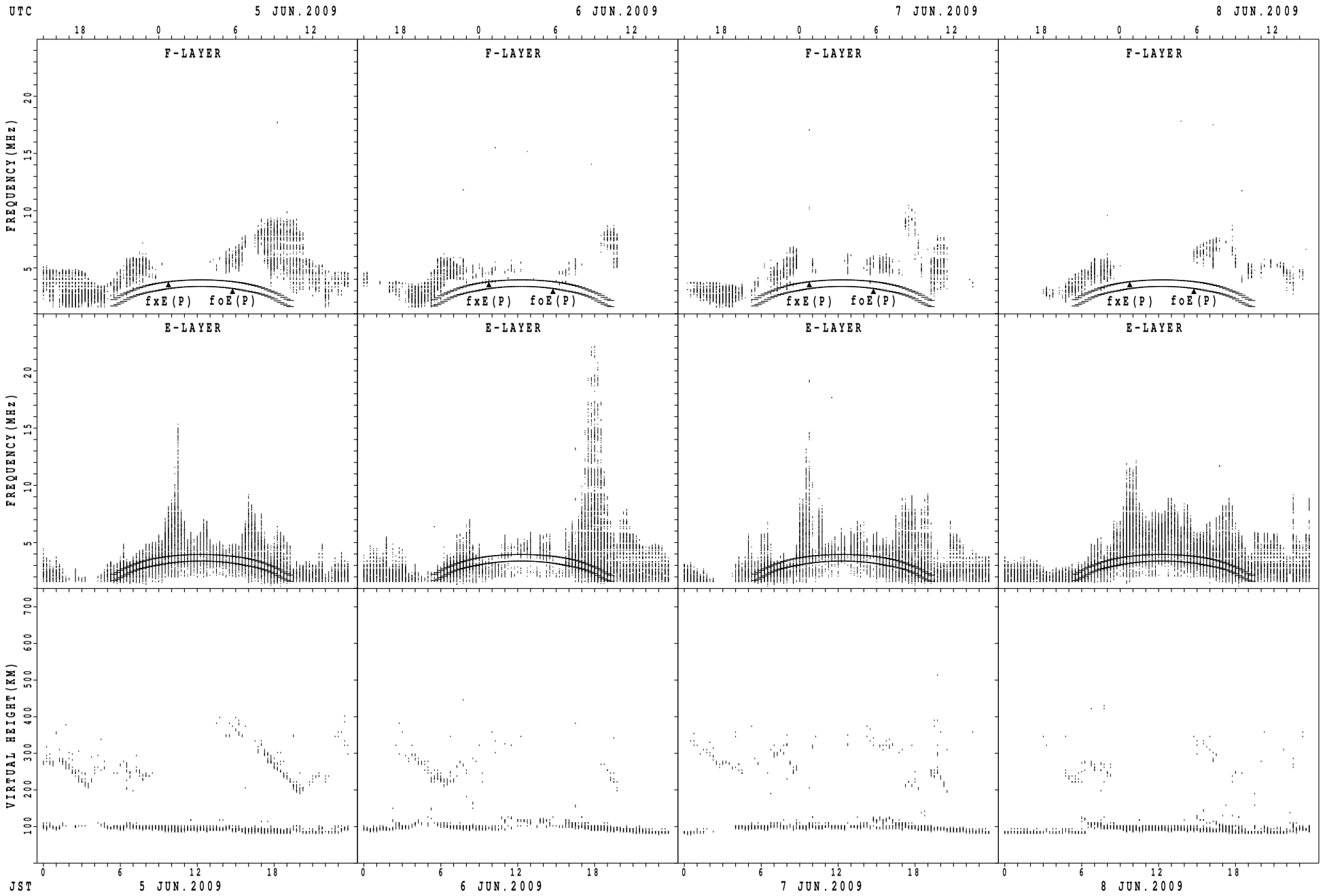
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



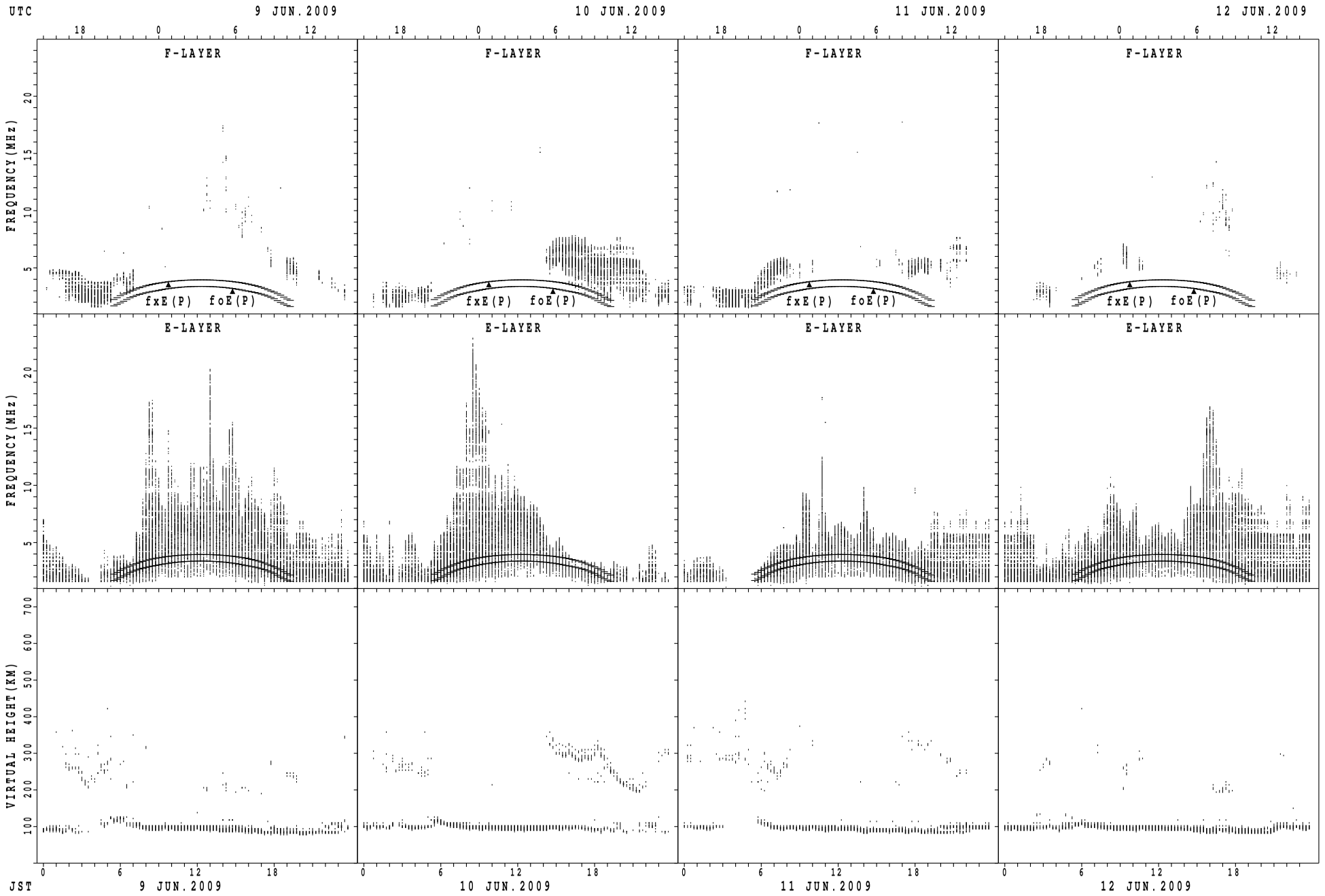
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



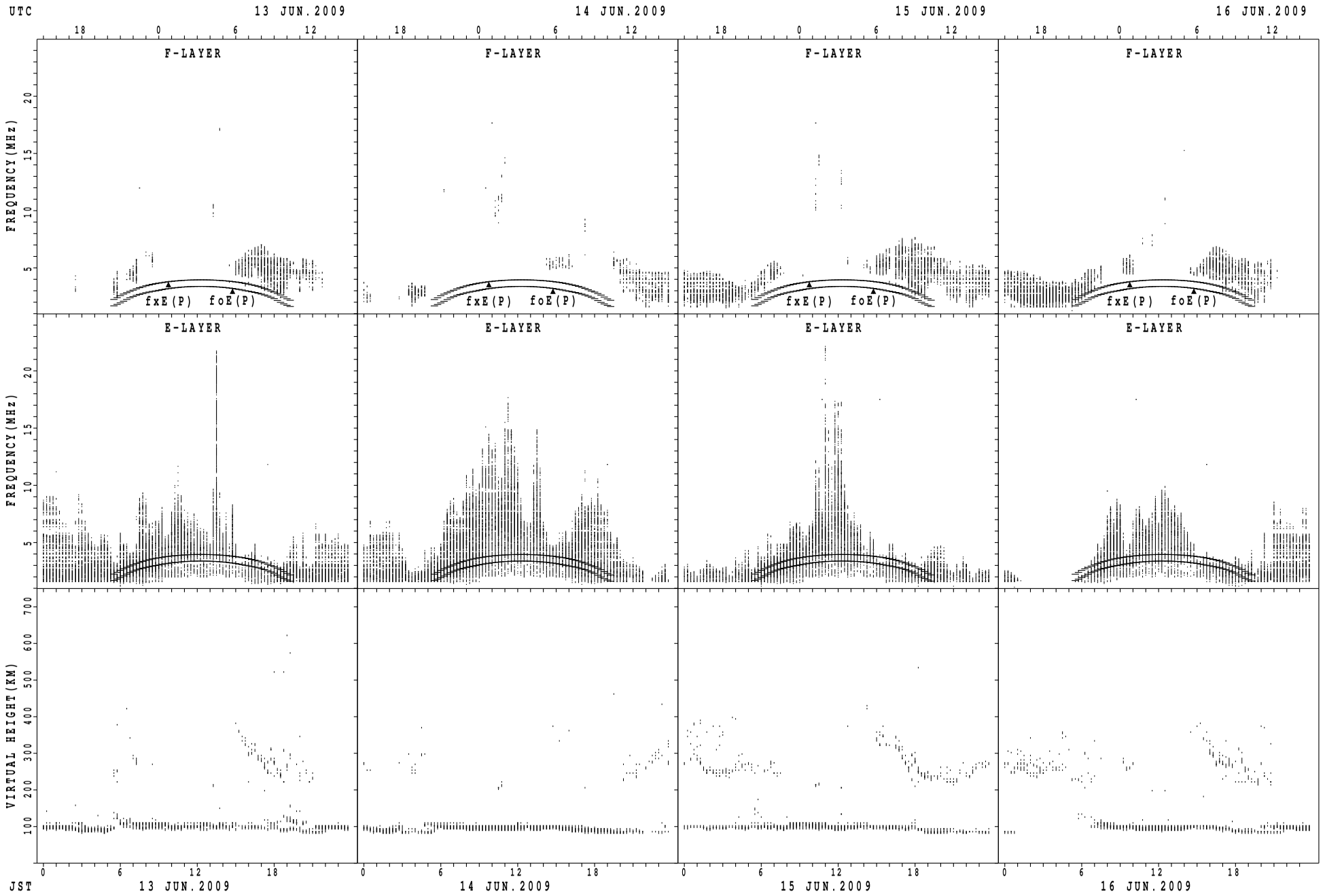
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



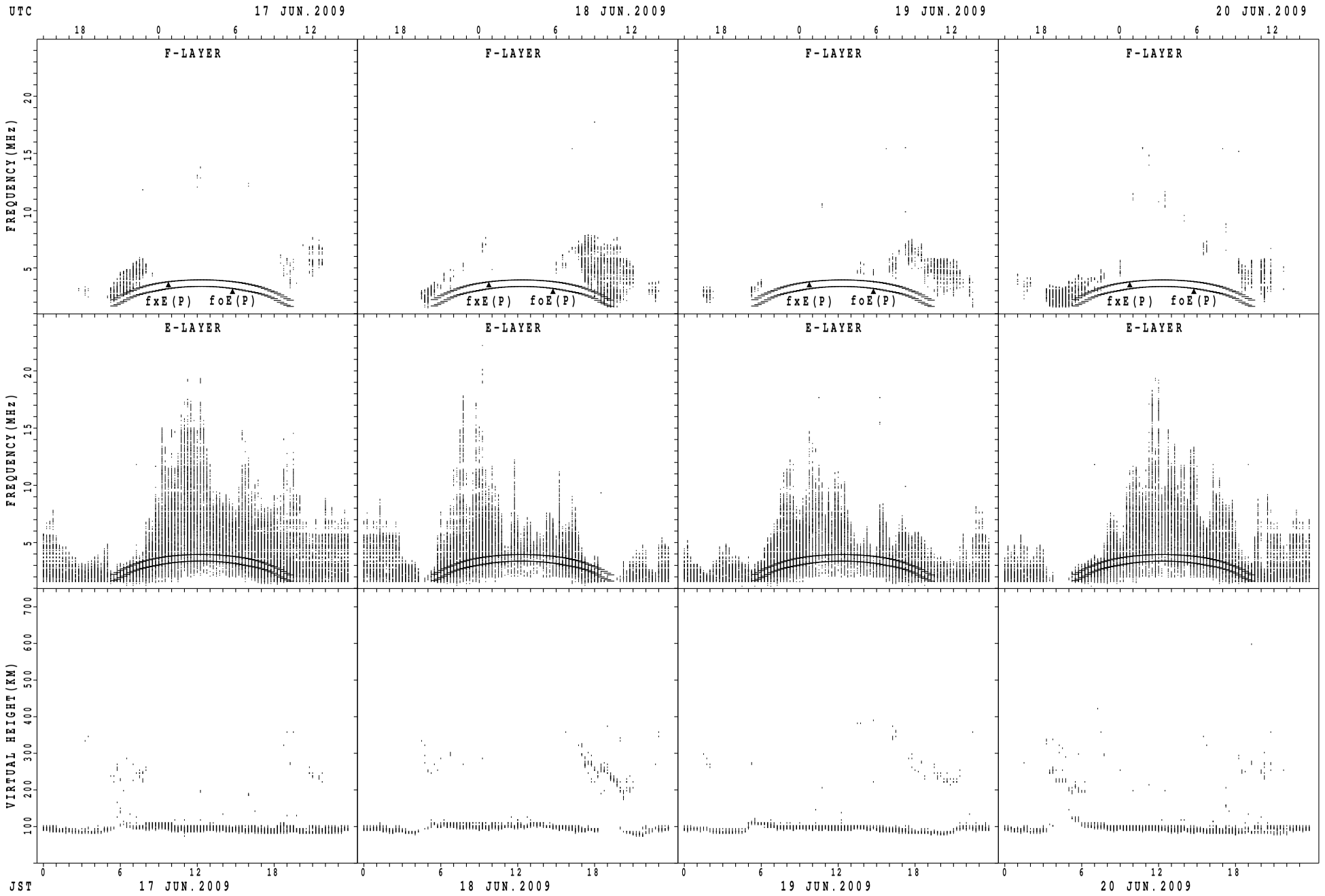
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



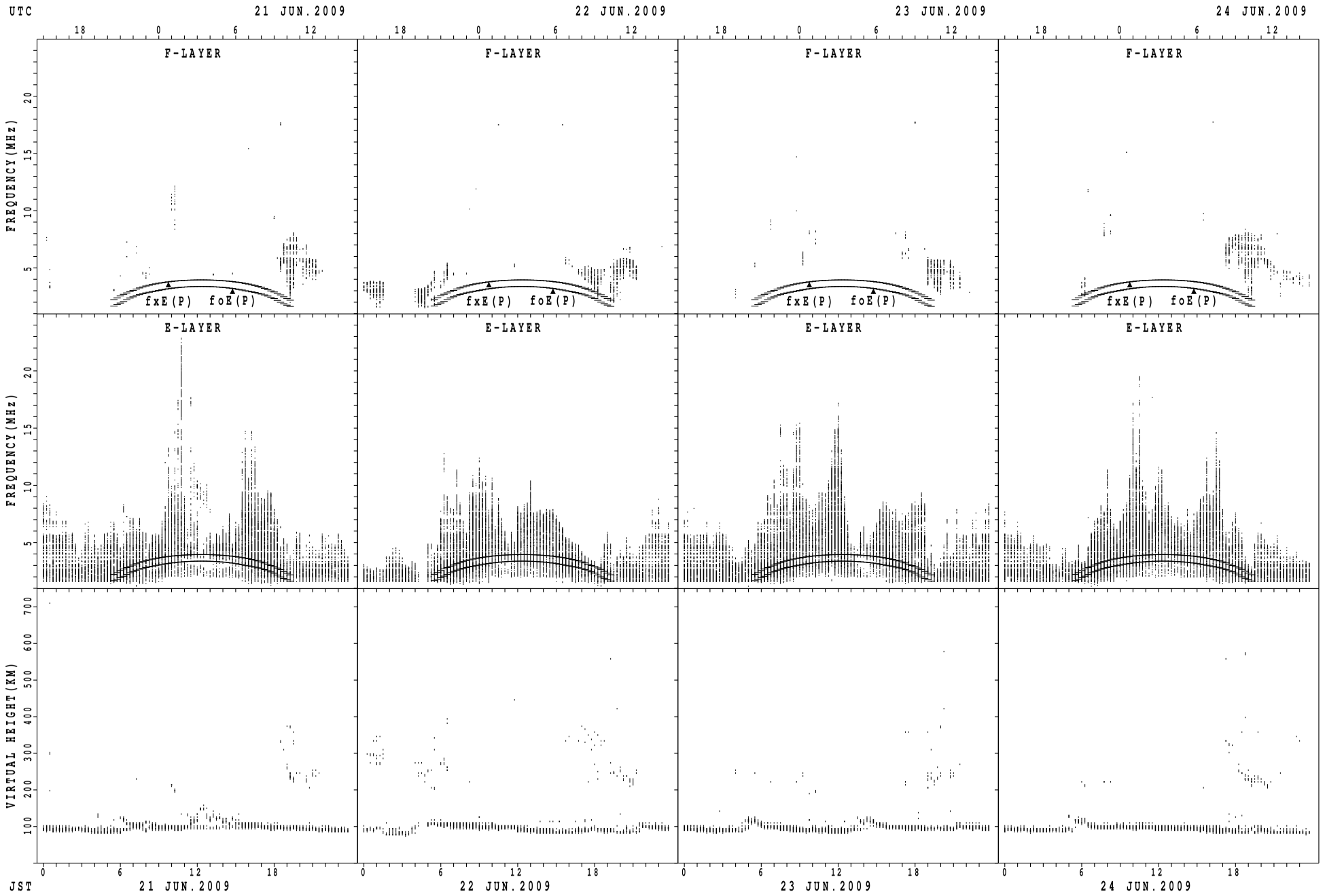
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



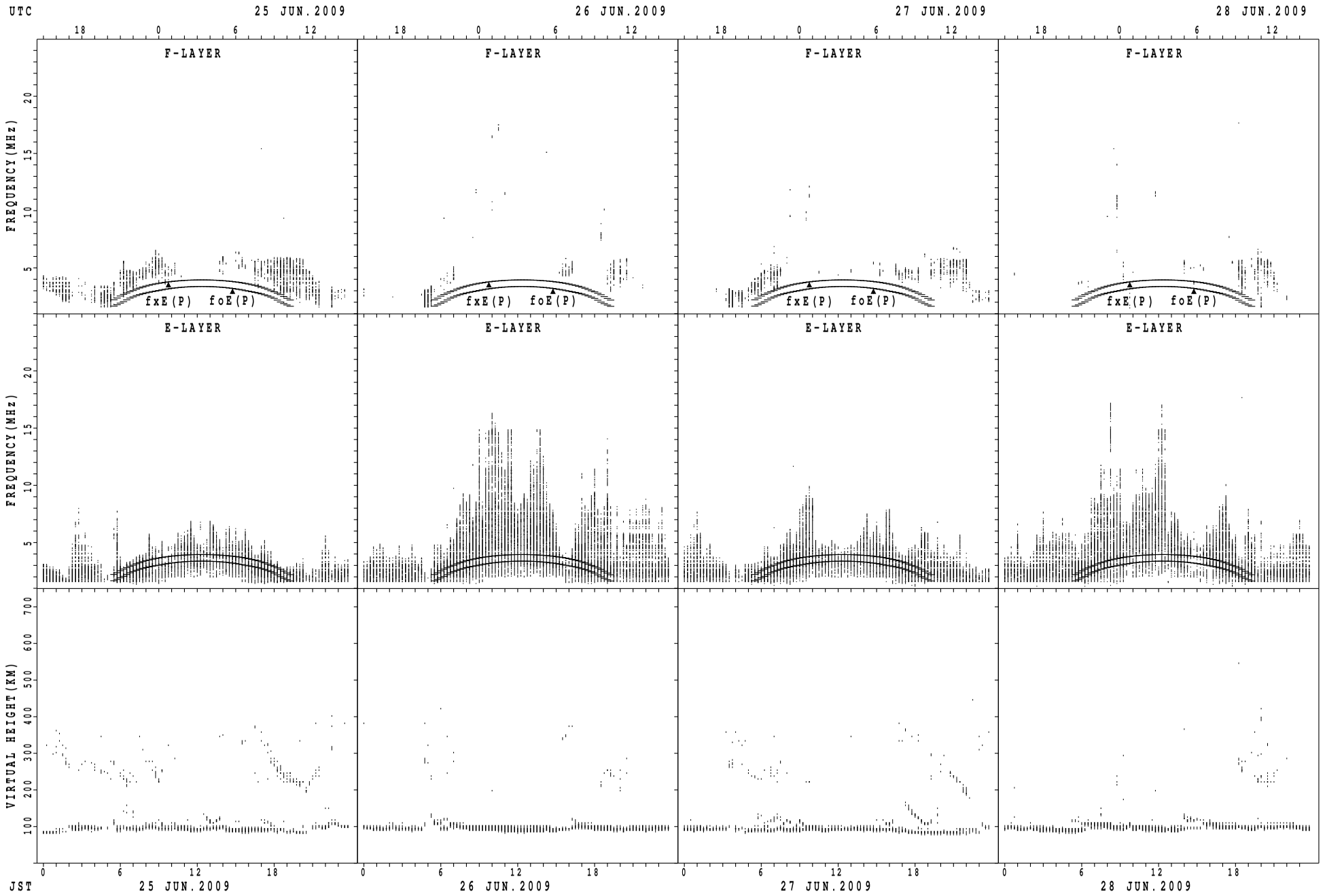
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



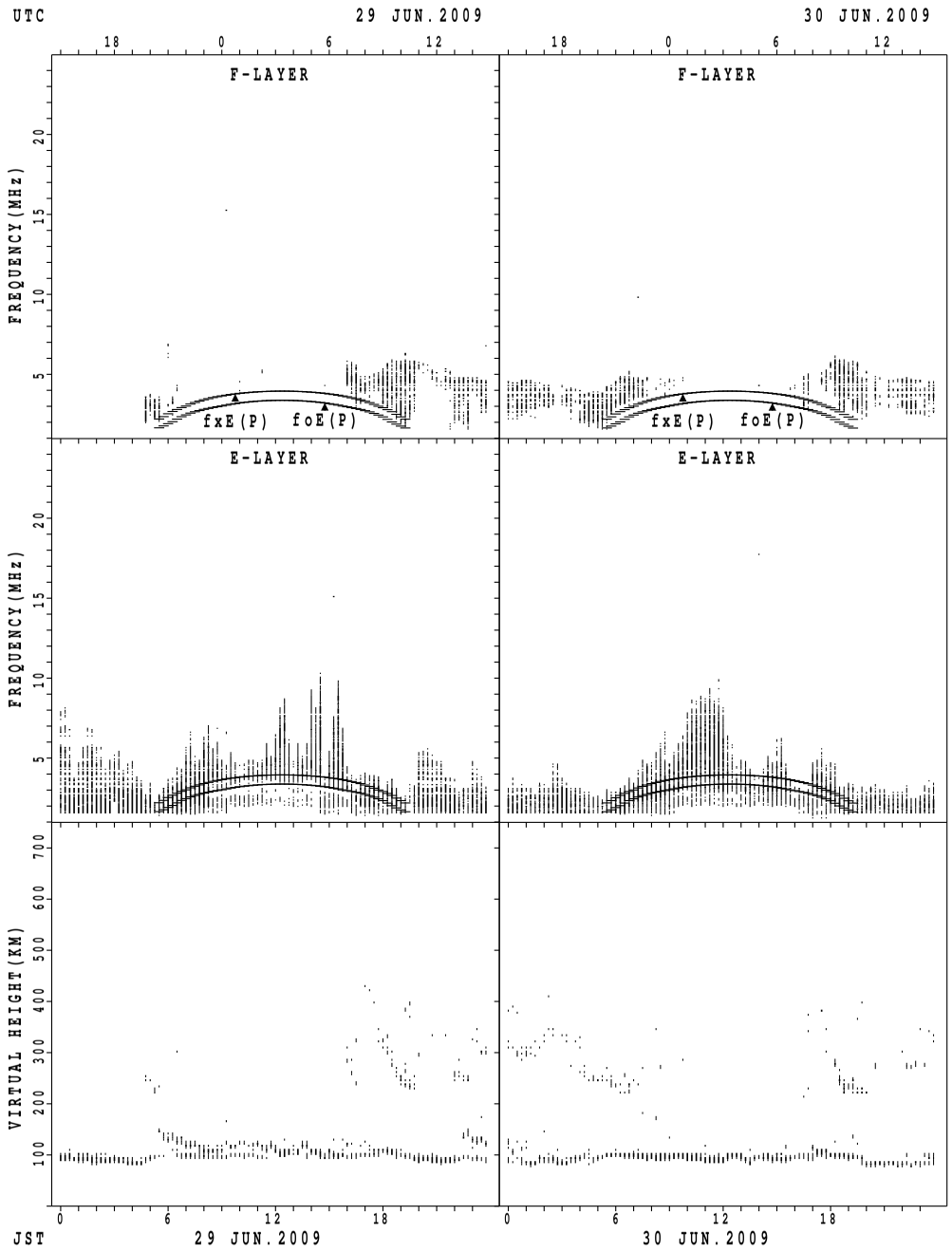
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



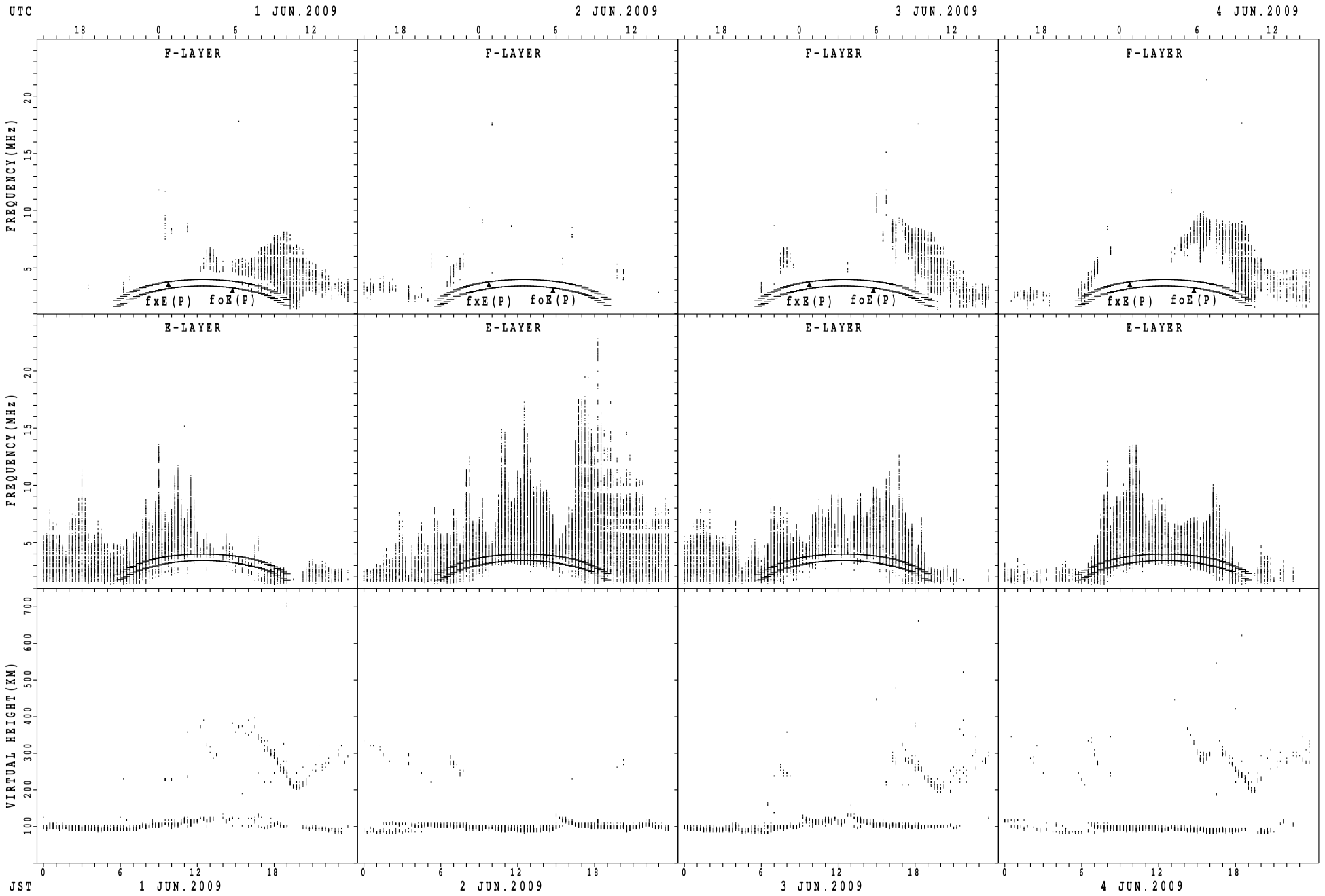
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



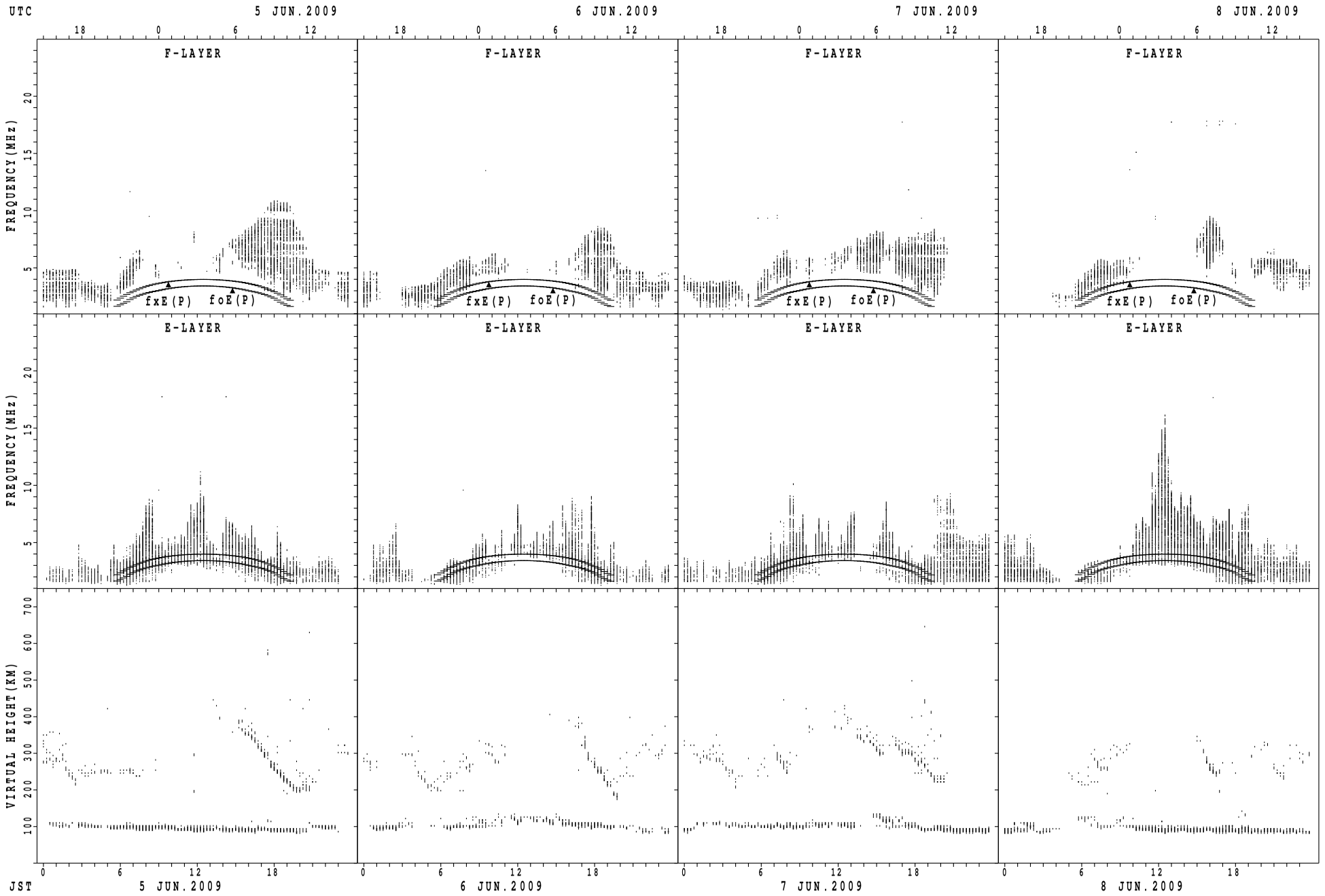
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



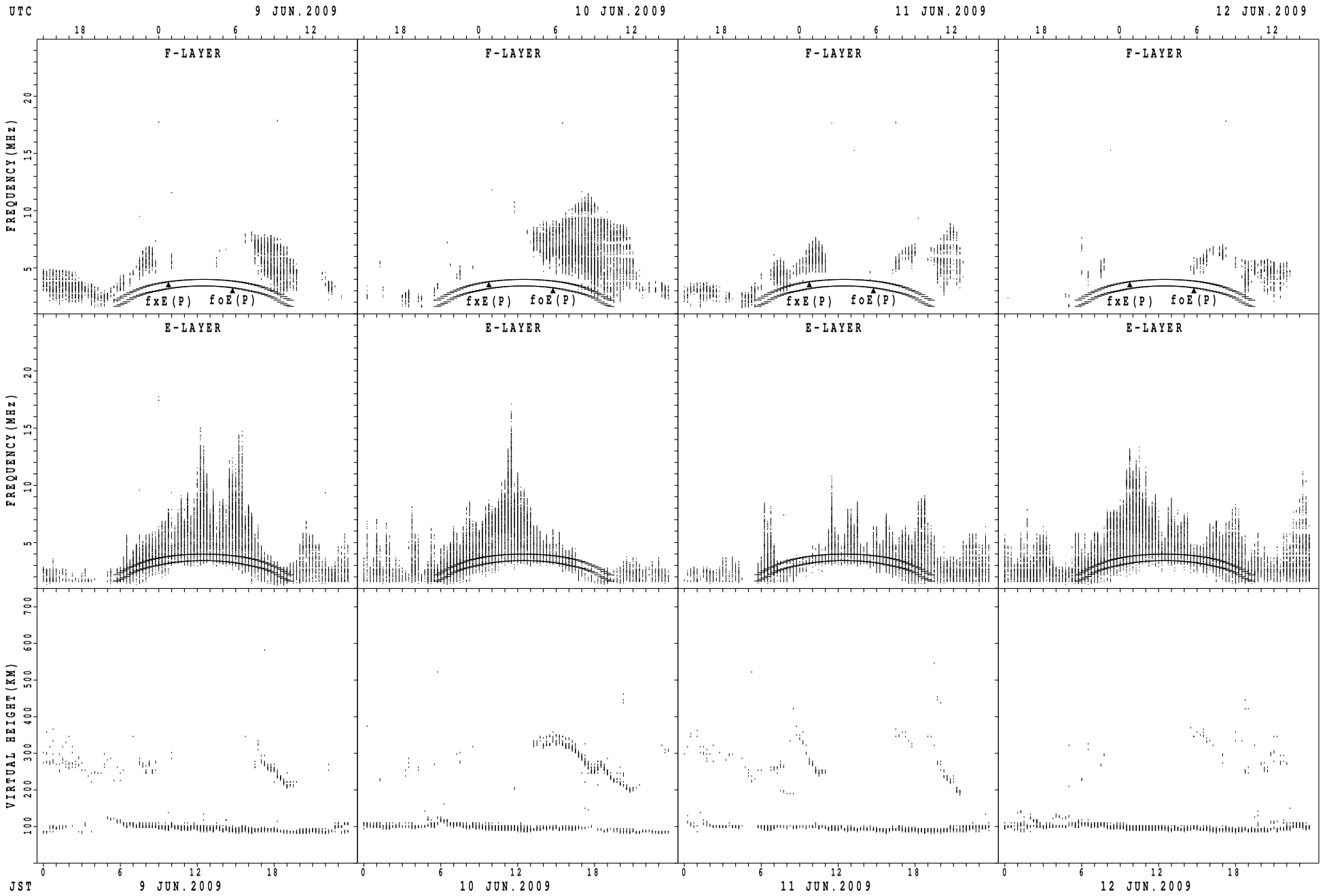
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



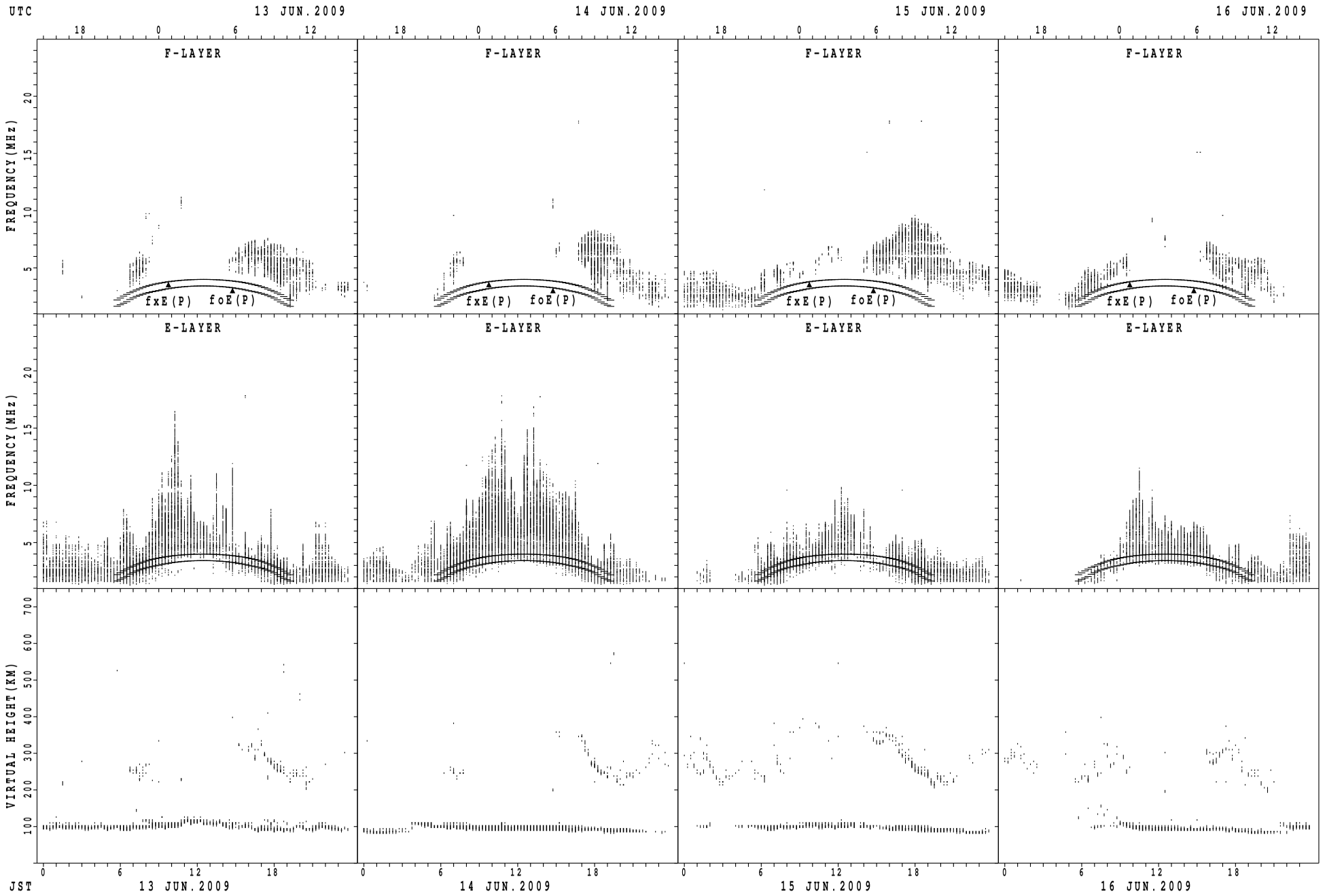
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



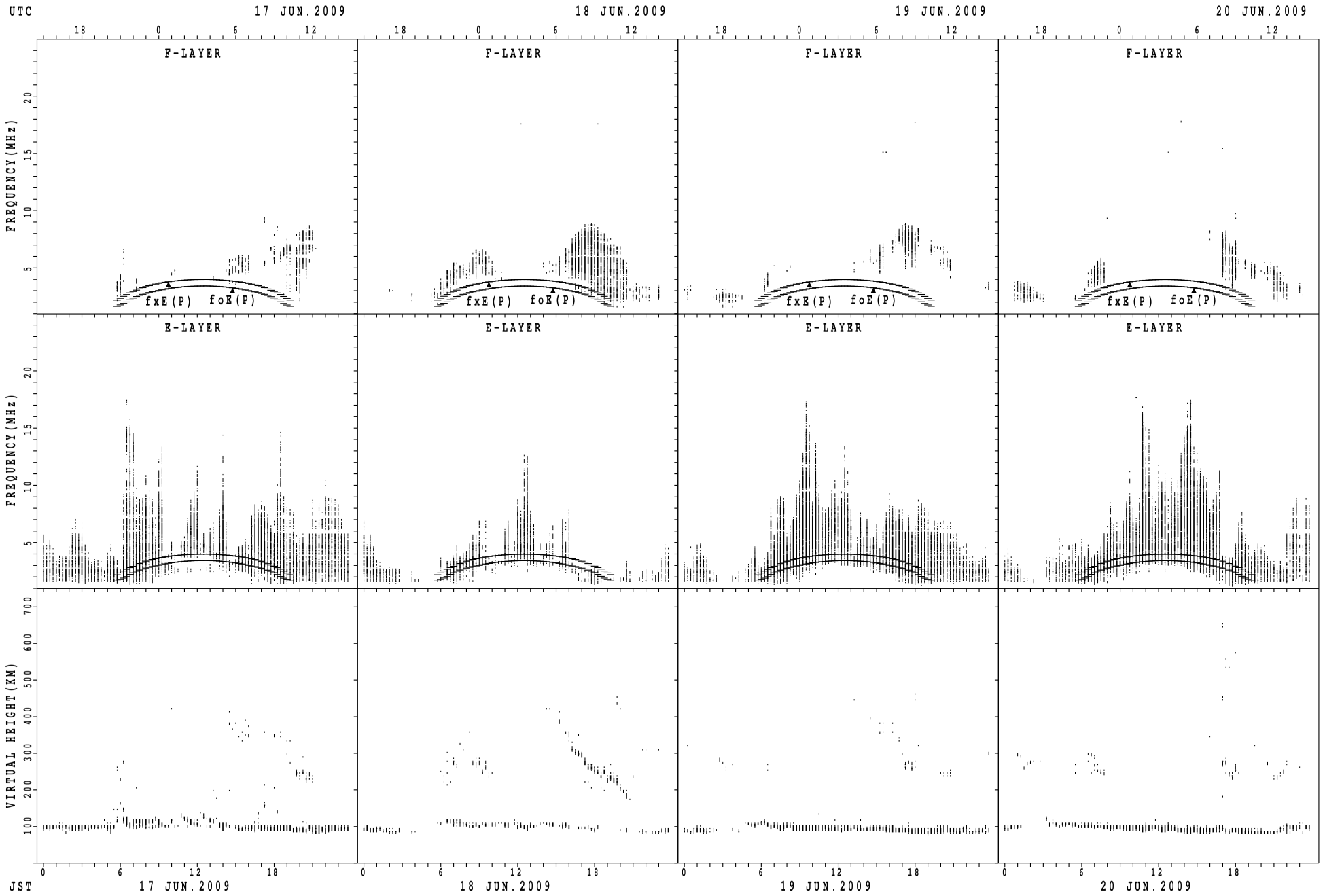
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



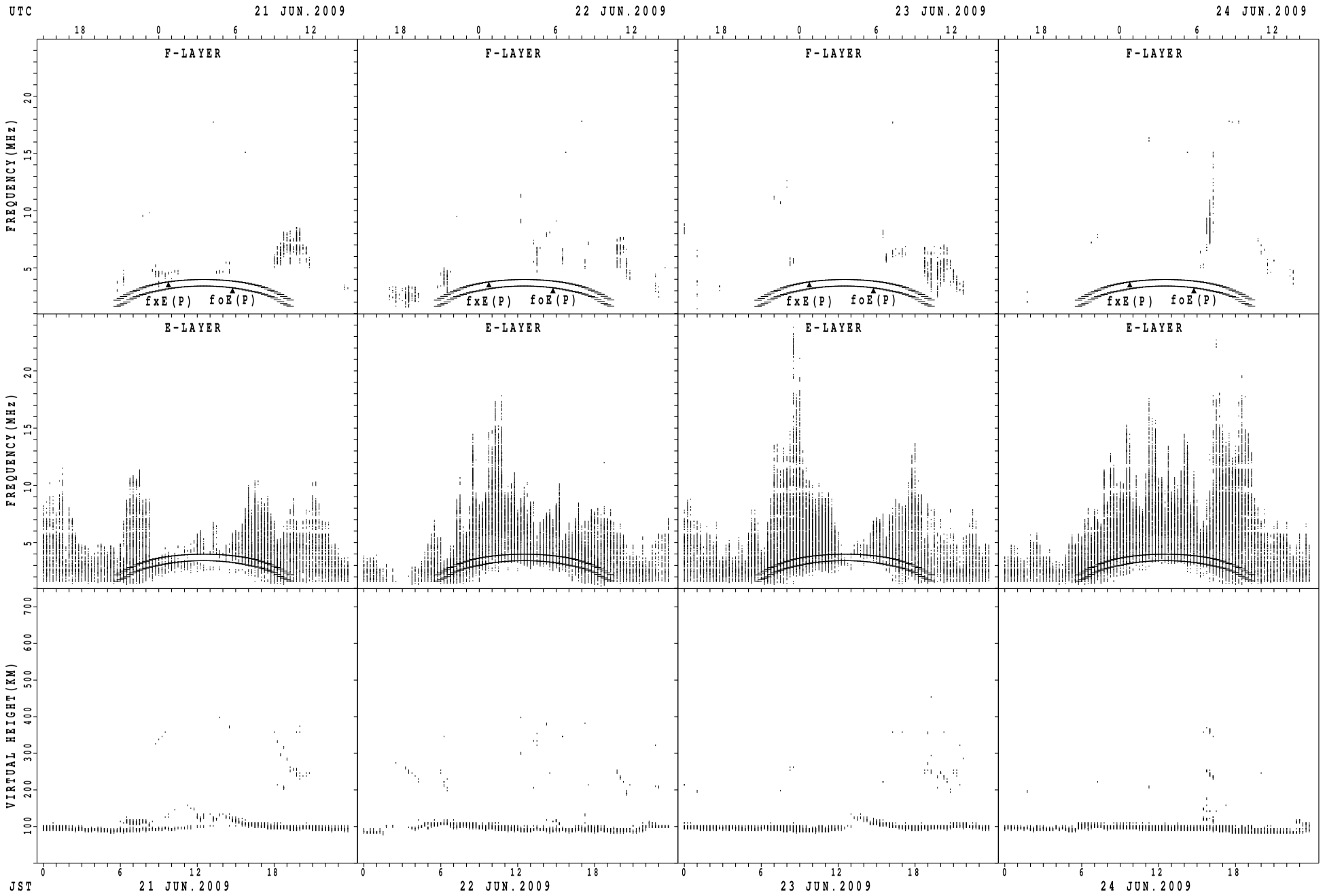
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



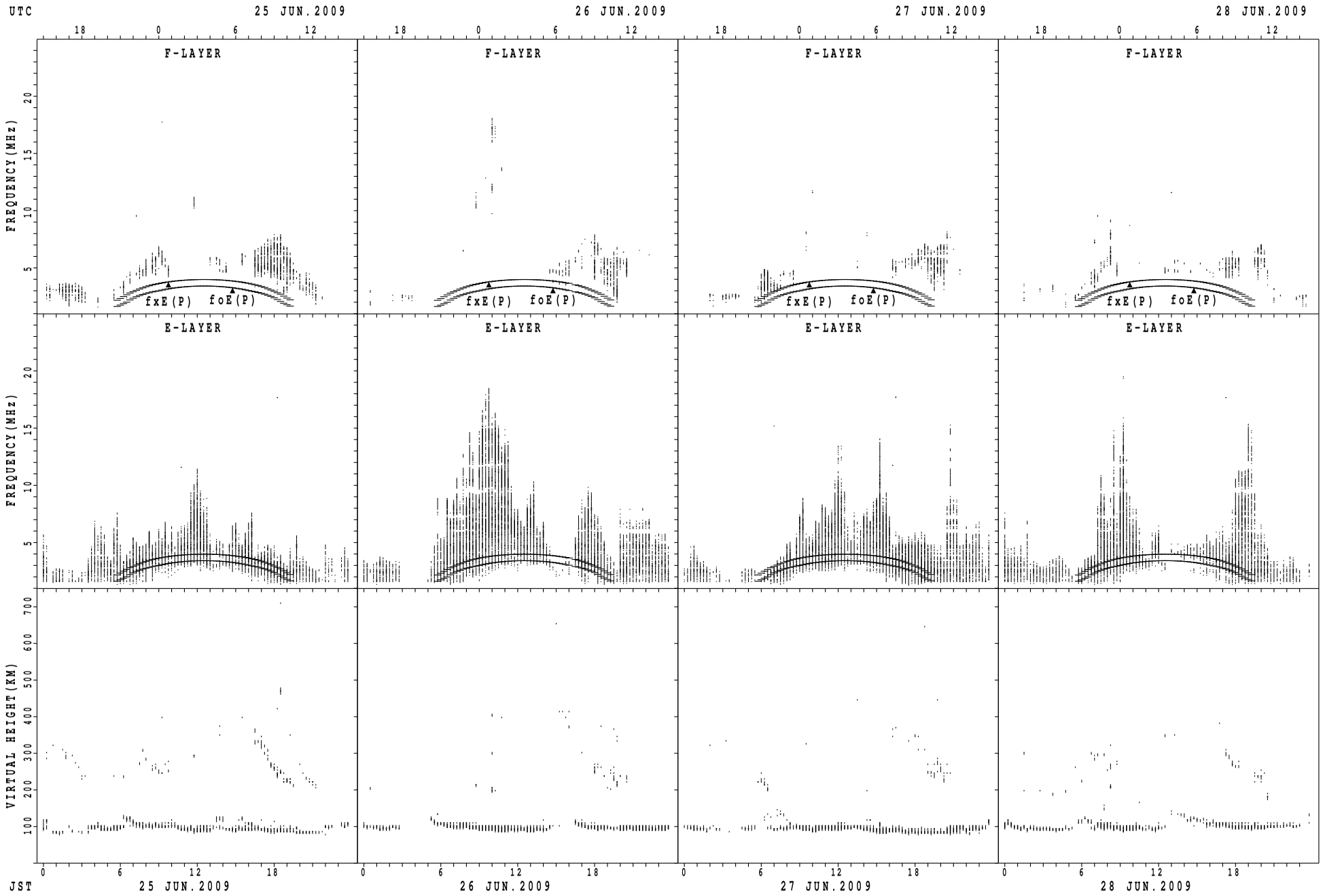
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



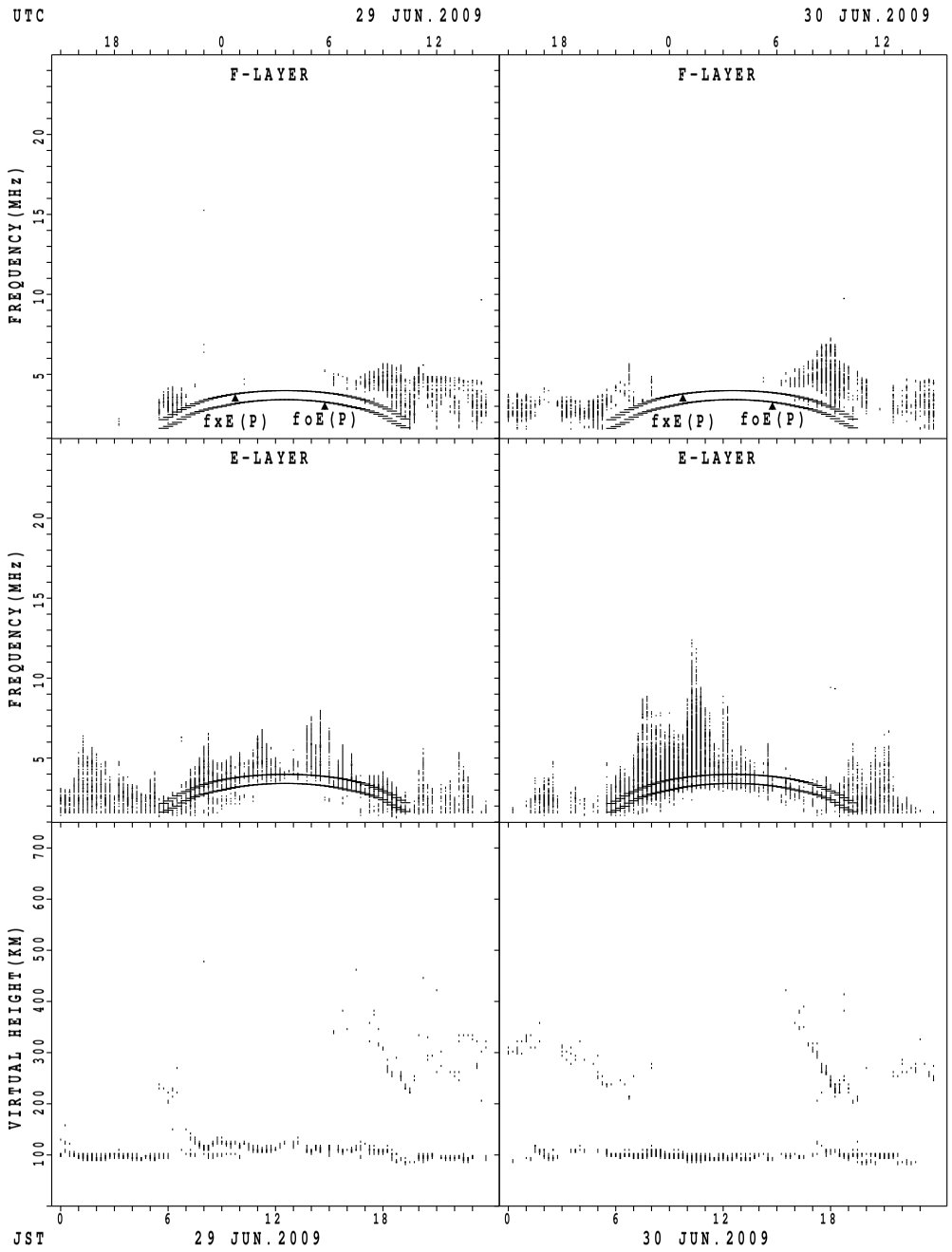
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



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

SUMMARY PLOTS AT Okinawa



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

MONTHLY MEDIANS OF h′F AND h′Es

JUN.2009 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							1											1	3	1	4	2		
MED							294											304	242	234	269	268		
U Q							147											152	264	117	279	288		
L Q							147											152	218	117	256	248		

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	27	24	19	18	20	29	30	30	29	29	30	29	26	25	26	23	26	28	29	29	29	28	27	28
MED	97	95	95	94	99	117	111	106	103	103	103	101	99	99	97	101	103	104	103	105	103	104	103	101
U Q	101	97	101	99	110	120	113	111	107	106	107	103	107	114	107	113	111	112	107	111	107	106	107	103
L Q	95	95	91	89	92	111	107	105	103	103	99	97	97	95	95	95	95	97	97	102	103	101	99	95

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

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT							1	1										6	7	7	4			
MED							280	254										221	248	254	247			
U Q							140	127										270	270	266	261			
L Q							140	127										216	208	208	225			

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	28	30	29	28	23	27	29	30	29	30	27	28	28	29	24	27	26	28	27	27	28	29	29	28
MED	97	97	95	97	95	111	107	103	103	101	97	95	98	97	99	95	97	98	95	95	97	97	103	101
U Q	102	99	97	101	101	121	113	107	105	103	105	103	103	106	109	105	107	107	101	99	101	103	105	104
L Q	95	95	92	93	89	95	103	99	99	97	95	94	95	95	95	95	93	93	91	91	90	95	96	97

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									3									7	5	6	5	1	1	
MED									256									288	272	238	232	240	276	
U Q									356									300	284	272	239	120	138	
L Q									250									262	261	234	220	120	138	

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	30	26	27	26	25	23	29	30	28	29	29	28	30	29	29	27	25	26	29	28	27	28	27	28
MED	97	95	97	95	95	97	107	107	102	101	101	96	99	97	97	97	95	96	99	95	95	93	97	99
U Q	99	99	99	97	95	105	113	111	108	105	107	99	105	107	108	109	110	105	104	102	99	98	103	103
L Q	95	95	91	89	89	95	102	103	99	97	97	95	95	95	95	93	91	91	90	90	89	89	89	90

MONTHLY MEDIANS OF h′F AND h′Es

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

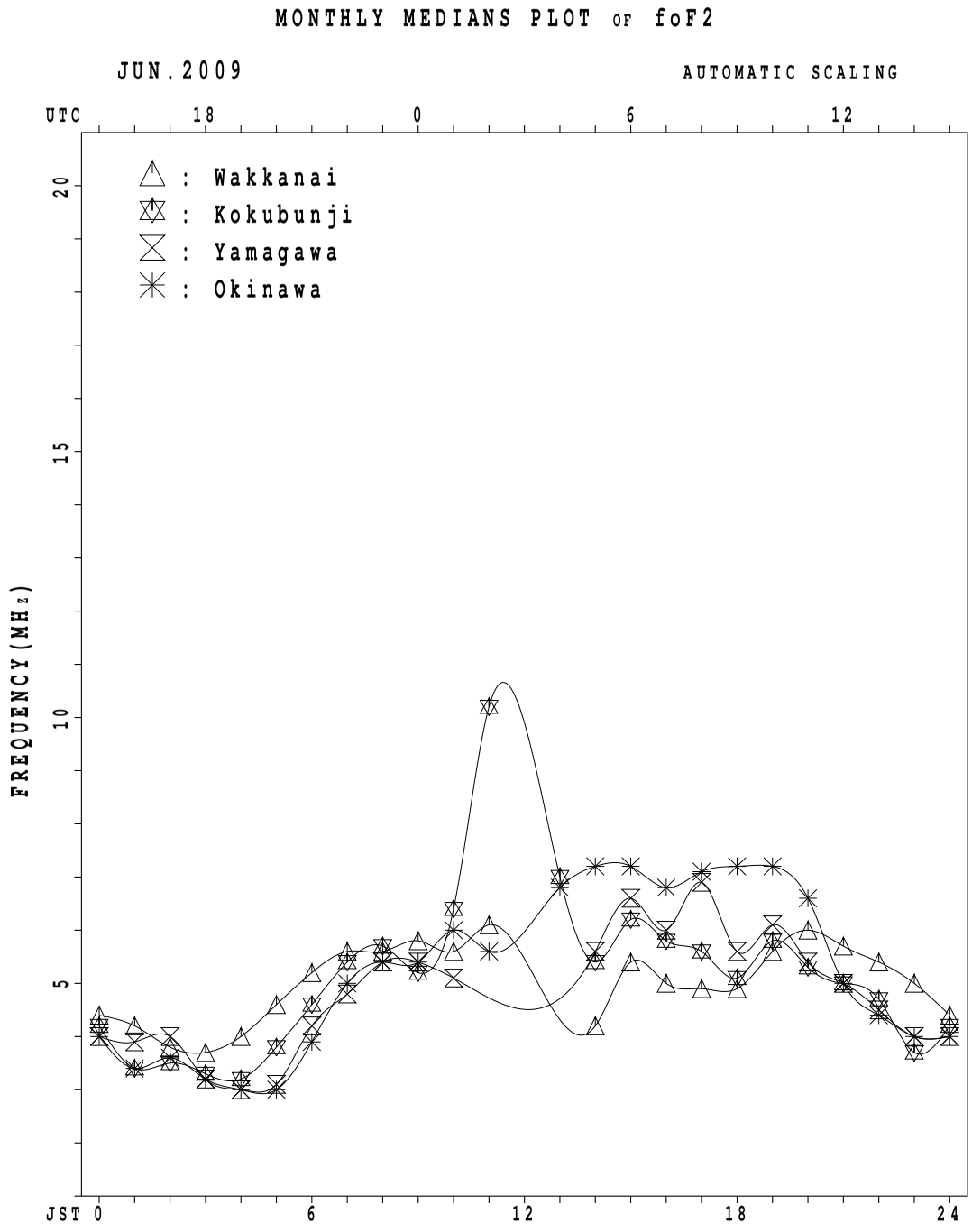
h′F

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

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	1						1	2										13	17	10	9	2		
MED	216						230	232										296	262	250	240	229		
U Q	108						115	248										338	278	262	249	234		
L Q	108						115	216										283	255	230	238	224		

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	24	26	23	16	21	23	27	29	28	27	28	29	30	28	26	25	27	26	28	28	27	25	27	23
MED	98	97	97	100	101	99	103	103	105	103	102	99	99	98	99	99	97	97	97	94	91	95	97	97
U Q	104	101	103	104	106	109	111	108	107	105	107	110	109	110	109	111	111	107	103	100	101	100	105	103
L Q	91	95	95	96	96	97	101	101	102	97	97	95	95	95	95	95	93	95	92	91	89	91	89	89


MONTHLY MEDIANS PLOT OF foF2
JUN.2009
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

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

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	A	A	A	X 41	A															X 60	X 65	X 62	X 55	49
2	A	47	42	42	40															X 54	X 66	A	A	A
3	A	A	39	A	50	47														X 78	X 73	A	A	A
4	A	A	A	A	X 31															X 79	X 66	X 56	X 57	56
5	57	54	53	X 44	X 40															X 98	X 88	X 54	X 46	47
6	X 39	X 37	41	X 37	X 34															X 88	X 81	A	A	A
7	39	X 35	X 35	X 34	X 34															X 61	O X 66	X 60	50	52
8	50	50	46	43	43															X 72	A	A	X 53	A
9	50	52	51	50	40											A				X 63	X 60	X 55	54	51
10	49	46	43	38	X 34															A	X 72	X 66	X 48	A
11	A	A	A	A	X 34															X 60	X 63	66	65	X 53
12	52	51	A	A	X 37															A	X 62	X 51	52	A
13	52	X 48	X 47	X 42	X 42															X 63	A	X 54	A	A
14	50	47	46	45	X 34															X 69	X 61	X 54	X 50	49
15	44	50	42	X 33	37															X 64	X 50	X 47	51	51
16	44	46	46	39	X 35															X 67	X 58	X 54	X 54	A
17	45	46	A	X 40	X 37															X 59	X 64	X 63	X 64	A
18	A	A	A	A	A															X 68	X 72	A	A	A
19	A	A	44	38	38															X 66	X 66	X 61	51	A
20	A	A	A	A	A															X 64	X 70	X 59	A	A
21	A	43	A	A	40															A	X 81	X 59	A	A
22	A	36	X 32	X 33	X 31													X 56		A	X 61	A	A	A
23	A	X 37	X 38	40	X 37															X 77	A	A	A	A
24	A	A	A	32	35															X 85	X 78	X 58	X 50	50
25	47	49	42	X 34	X 35															A	X 58	47	47	A
26	A	40	A	A	34															X 63	A	X 52	A	A
27	A	46	51	50	A															X 54	X 59	X 64	X 57	A
28	A	A	A	A	X 35															X 60	A	A	A	A
29	A	49	A	A	A															X 69	X 69	X 60	X 54	X 49
30	50	51	52	50	50															X 60	66	A	A	A
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	14	21	18	20	25	1												1		25	25	21	18	10
MED	50	47	44	40	X 37	47												X 56		X 64	X 66	X 58	X 52	50
U Q	50	50	47	44	40															X 74	X 72	X 62	X 55	52
L Q	44	42	X 41	X 36	X 34															X 60	X 61	X 54	X 50	49

JUN. 2009 fxI (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

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

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	A	A	A	34	A	A	A	49	56	A	A	A	49	A	58	61	56	A	48	54	59	55	49	F
2	A	F	F	F	F	38	46	A	A	50	A	A	A	A	47	51	54	50	44	48	59	A	A	A
3	A	A	F	A	F	F	49	60	55	A	46	A	A	A	A	A	A	82	A	72	67	A	A	A
4	A	A	A	A	25	34	42	A	62	60	A	A	44	53	61	75	76	75	75	73	60	50	51	F
5	F	F	F	38	34	38	A	66	A	A	47	A	A	A	58	66	80	82	80	92	82	48	40	F
6	33	31	F	30	28	42	61	63	A	A	A	A	A	58	49	A	A	A	66	82	75	A	A	A
7	F	29	29	28	28	39	45	51	A	A	A	A	A	A	54	A	51	53	51	55	60	54	F	F
8	F	F	F	F	F	36	49	53	57	A	A	A	A	A	A	A	58	56	66	65	A	A	47	A
9	F	F	F	F	F	38	A	A	A	A	A	A	51	A	A	A	A	A	55	56	54	49	F	F
10	F	F	F	F	28	A	A	A	56	A	A	54	A	A	59	A	A	51	50	A	66	60	41	A
11	A	A	A	A	27	A	A	A	53	A	A	A	A	A	48	40	56	A	45	54	57	F	F	47
12	F	F	A	A	31	37	48	56	A	A	A	A	A	A	A	A	58	57	57	A	55	45	F	A
13	F	42	41	36	35	43	48	53	A	56	54	A	A	A	A	A	A	A	55	57	A	47	A	A
14	F	F	F	F	28	34	A	A	69	A	A	A	R 49	48	56	A	49	52	55	63	55	48	43	F
15	F	F	F	26	F	39	A	A	A	A	A	A	A	A	A	A	A	A	57	58	44	41	F	F
16	F	F	F	F	29	33	42	A	54	A	A	A	A	A	A	A	53	55	57	61	52	48	48	A
17	F	F	A	33	31	35	A	45	A	A	A	A	A	A	A	A	54	A	A	53	57	57	58	A
18	A	A	A	A	A	40	40	A	A	A	A	A	A	A	A	A	A	54	A	61	66	A	A	A
19	A	A	F	F	F	39	A	A	54	A	A	A	A	A	A	A	A	A	A	60	59	55	F	A
20	A	A	A	A	A	39	49	A	A	A	52	A	A	A	A	A	A	A	A	58	64	52	A	A
21	A	F	A	A	F	A	A	49	A	A	A	A	A	A	A	A	A	A	62	A	75	53	A	A
22	A	F	26	26	25	A	48	A	A	A	A	A	A	54	A	A	52	50	50	A	55	A	A	A
23	A	31	32	F	30	A	A	A	A	A	A	A	A	A	A	A	A	A	A	71	A	A	A	A
24	A	A	A	F	F	41	A	A	A	A	A	A	A	A	A	A	A	A	60	79	72	52	43	F
25	F	F	F	28	29	37	48	A	48	53	67	A	A	A	51	62	60	43	43	A	52	F	F	A
26	A	F	A	A	F	A	A	A	A	A	A	A	A	A	A	54	52	A	48	57	A	46	A	A
27	A	F	F	F	A	A	42	56	52	53	60	A	A	51	53	A	49	44	45	48	53	57	51	A
28	A	A	A	A	29	A	A	A	A	63	52	A	A	A	47	48	A	A	A	54	A	A	A	A
29	A	F	A	A	A	34	A	A	A	A	A	A	53	53	50	56	50	58	58	63	63	54	48	43
30	F	F	F	F	F	44	44	A	57	A	A	A	A	A	A	R	44	44	44	54	F	A	A	A
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	4	4	9	15	20	15	11	12	6	7	1	5	6	13	9	17	16	23	25	24	19	11	2
MED	33	31	30	30	29	38	48	53	56	54	52	54	49	53	53	56	54	54	55	58	59	52	48	45
U Q		36	36	35	31	40	49	60	57	60	60		52	54	58	64	58	58	60	68	66	55	51	
L Q		30	28	27	28	36	42	49	54	53	47		46	51	48	50	50	50	48	54	55	48	43	

JUN. 2009 foF2 (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

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

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1						A	A	392	400	A	A	A	UL 428	A	428	416	388	A	UL 320					
2							UL 380	A	A	A	A	A	A	A	UL 416	A	A	A	A					
3							A	A	A	A	UL 428	A	A	A	A	A	A	A	A					
4							A	A	A	A	A	A	A	A	UL 420	A	416	368						
5							A	UL 668	A	A	A	A	A	A	UL 424	UL 420	A	A	A					
6						L	A	A	A	A	A	A	A	A	A	A	A	A	A					
7							UL 372	A	A	A	A	A	A	A	UL 420	A	UL 396	368	L					
8							A	UL 392	412	A	A	A	A	A	A	A	A	A	A					
9							A	A	A	A	A	A	A	A	A		A	A	A					
10						A	A	A	A	A	A	A	A	A	A	A	A	A	A					
11						A	A	A	A	A	A	A	A	A	A	A	A	A	A					
12						UL 316	A	A	A	A	A	A	A	A	A	A	A	A	A					
13							UL 356	A	A	UL 456	448	A	A	A	A	A	A	A	A					
14						A	A	A	A	A	A	A	UL 428	UL 424	A	A	408	A	A					
15							A	A	A	A	A	A	A	A	A	A	A	A	L					
16							A	A	A	A	A	A	A	A	A	A	A	A	A					
17							A	A	A	A	A	A	A	A	A	A	A	A	A					
18								A	A	A	A	A	A	A	A	A	A	A	A					
19						A	A	A	A	A	A	A	A	A	A	A	A	A	A					
20							L	A	A	A	A	A	A	A	A	A	A	A	A					
21						A	A	UL 392	A	A	A	A	A	A	A	A	A	A	A					
22						A	A	A	A	A	A	A	A	A	A	A	UL 404		A					
23						A	A	A	A	A	A	A	A	A	A	A	A	A	A					
24							A	A	A	A	A	A	A	A	A	A	A	A	320					
25								A	UL 404	A	A	A	A	A	UL 424	A	L	A	L					
26						A	A	A	A	A	A	A	A	A	A	A	392	A	A					
27						A	A	A	UL 428	UL 424	A	A	A	A	A	A	A	UL 376	UL 328					
28						A	A	A	A	A	A	A	A	A	UL 432	A	A	A	A					
29							A	A	A	A	A	A	A	UL 436	432	UL 404	A	364	A					
30						A	UL 356	A	UL 412	A	A	A	A	A	A	428	UL 392	360	A					
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	4	4	5	2	2		2	2	8	4	7	5	3					
MED						UL 316	UL 364	UL 392	UL 412	UL 440	438		UL 428	UL 430	UL 424	418	396	368	UL 320					
U Q							UL 376	UL 530	UL 420						430	424	408	372	UL 328					
L Q							UL 356	392	402						UL 420	410	392	362	320					

JUN. 2009 foF1 (0.01MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

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

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1						A	A	R	A	A	A	A	R	A	A	A	A	A	B					
2						U R 204	A	A	A	A	A	A	A	A	A	A	A	A	A					
3						A	A	A	A	A	R	A	A	A	A	A	A	A	B					
4						B	A	A	A	A	A	A	A	A	U R 336	A	A	A	A					
5						B	A	A	A	A	A	A	A	A	R	A	A	A	A					
6						A	A	A	A	A	A	A	A	A	A	U A 320	A	A	A					
7						A	A	A	A	A	A	A	A	A	A	A	A	A	R					
8						B	A	A	A	A	A	A	A	A	A	A	A	A	A					
9						A	A	A	A	A	A	A	A	A	A		A	A	A					
10						U A 200	A	A	A	A	A	A	A	A	A	A	A	A	A					
11						A	A	A	A	A	A	A	A	A	A	A	A	A	A					
12						A	A	A	A	A	A	A	A	A	A	A	A	A	A					
13						A	A	A	A	A	A	A	A	A	A	A	A	A	A					
14						A	A	A	A	A	A	A	A	A	A	A	A	A	A					
15						B	A	A	A	A	A	A	A	A	A	A	A	A	A					
16						A	A	A	A	A	A	A	A	A	A	A	A	A	A					
17						B	A	A	A	A	A	A	A	A	A	A	A	A	A					
18						A	A	A	A	A	A	A	A	A	A	A	A	A	A					
19						A 176	A	A	A	A	A	A	A	A	A	A	A	A	A					
20						B	A	A	A	A	A	A	A	A	A	A	A	A	A					
21						A	A	A	A	A	A	A	A	A	A	A	A	A	A					
22						A	A	A	A	A	A	A	A	A	A	A	A	A	A					
23						176	A	A	A	A	A	A	A	A	A	A	A	A	A					
24						U A 180	A	A	A	A	A	A	A	A	A	A	A	A	A					
25						A	A	A	A	A	A	A	A	A	A	A	A	U A 248	A					
26						A	A	A	A	A	A	A	A	A	A	A	U A 272	A	A					
27						A	A	A	A	A	A	A	A	A	A	A	A	A	A					
28						A	A	A	A	A	A	A	A	A	R	A	A	A	A					
29						A	A	A	A	A	A	A	A	A	A	A	A	A	A					
30						A	A	A	A	A	A	A	A	A	A	R	A	A	A					
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						5									1	1	1	1						
MED						U A 180									U R 336	U A 320	U A 272	U A 248						
U Q						U 202																		
L Q						176																		

JUN. 2009 foE (0.01MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

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

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	J A 60	J A 85	J A 55	J A 53	J A 67	J A 48	J A 67	G 27	38	J A 72	J A 170	J A 115	G	J A 67	J A 44	36	J A 40	J A 77	J A 55	J A 37	J A 79	J A 46	J A 57	J A 62
2	J A 76	J A 42	J A 38	J A 31	J A 46	G	J A 36	J A 106	78	J A 44	J A 148	J A 77	J A 65	J A 107	J A 41	J A 55	J A 64	J A 53	J A 37	J A 36	J A 56	J A 98	J A 94	J A 73
3	J A 88	J A 73	J A 44	J A 46	J A 56	J A 31	J A 48	J A 54	J A 52	J A 66	G 25	J A 55	J A 61	J A 64	J A 117	J A 127	J A 85	J A 79	J A 77	J A 32	J A 59	J A 70	J A 75	J A 66
4	J A 60	J A 52	J A 39	J A 35	J A 21	J A 31	J A 44	J A 74	J A 59	J A 53	J A 106	J A 77	J A 43	J A 57	37	J A 42	J A 40	30	J A 35	E B 16	E B 14	J A 22	J A 30	J A 37
5	J A 51	J A 40	J A 34	22	E B 14	23	J A 54	J A 75	J A 79	J A 76	45	J A 77	J A 78	J A 61	G 34	J A 47	J A 57	J A 42	45	J A 47	J A 42	J A 60	J A 31	J A 38
6	J A 54	J A 23	J A 28	J A 28	J A 32	J A 28	J A 39	J A 73	J A 128	J A 118	J A 111	J A 55	J A 62	J A 74	44	J A 68	J A 128	J A 141	J A 99	J A 56	J A 73	J A 59	J A 55	J A 52
7	J A 34	J A 24	J A 34	J A 25	J A 42	J A 32	31	J A 55	J A 102	J A 80	J A 122	J A 100	J A 80	J A 82	38	J A 78	J A 49	32	G E 19	B 14	J A 60	J A 37	J A 36	J A 45
8	J A 31	J A 34	J A 39	J A 44	J A 17	J A 44	J A 36	J A 36	J A 62	J A 66	J A 58	J A 89	J A 73	J A 61	J A 74	J A 80	J A 58	J A 40	J A 48	J A 61	J A 98	J A 78	J A 44	J A 62
9	J A 56	J A 56	J A 32	J A 27	E B 15	J A 31	J A 56	J A 60	J A 112	J A 114	J A 260	J A 160	44	J A 74	J A 131	J A 144	J A 155	J A 210	J A 44	J A 35	J A 40	J A 75	J A 48	J A 35
10	J A 29	J A 54	J A 47	J A 58	J A 30	J A 38	J A 69	J A 78	J A 131	J A 148	J A 81	J A 51	J A 98	J A 77	J A 57	J A 98	J A 81	J A 60	J A 45	J A 69	J A 61	J A 42	J A 86	J A 79
11	J A 57	J A 46	J A 85	J A 74	J A 58	J A 54	J A 74	J A 84	J A 62	J A 73	J A 86	J A 94	J A 81	J A 48	J A 46	J A 38	J A 40	J A 43	J A 44	J A 48	J A 44	J A 63	J A 54	J A 59
12	J A 54	J A 54	J A 60	J A 60	J A 34	J A 26	J A 46	J A 46	J A 69	J A 90	J A 99	J A 92	J A 107	J A 72	J A 78	J A 108	J A 79	J A 48	J A 68	J A 100	J A 73	J A 80	J A 45	J A 83
13	J A 30	J A 37	J A 25	J A 34	J A 28	J A 22	30	J A 44	J A 58	J A 53	41	J A 52	J A 117	J A 112	J A 110	J A 176	J A 171	J A 88	J A 42	J A 56	J A 109	J A 82	J A 91	J A 80
14	J A 63	J A 54	J A 24	J A 48	J A 19	J A 30	J A 52	J A 78	J A 66	J A 99	J A 79	J A 44	J A 45	J A 40	J A 42	J A 62	J A 44	J A 51	J A 80	J A 40	J A 38	J A 34	J A 34	J A 21
15	J A 24	J A 32	J A 101	J A 46	J A 21	J A 20	J A 51	J A 77	J A 116	J A 99	J A 107	J A 66	J A 80	J A 58	J A 78	J A 70	J A 72	J A 62	J A 30	J A 34	J A 25	J A 24	J A 20	J A 28
16	J A 34	J A 32	J A 28	J A 26	J A 29	J A 24	J A 40	J A 89	J A 54	J A 98	J A 115	J A 94	J A 101	J A 72	J A 78	J A 62	J A 55	J A 46	J A 59	J A 50	J A 43	J A 40	J A 53	J A 58
17	J A 40	J A 31	J A 49	J A 43	J A 40	J A 55	J A 46	J A 52	J A 66	J A 116	J A 171	J A 63	J A 105	J A 68	J A 82	J A 79	J A 64	J A 72	J A 74	J A 44	J A 40	J A 32	J A 42	J A 52
18	J A 49	J A 77	J A 75	J A 73	J A 51	J A 43	J A 52	J A 106	J A 102	J A 118	J A 173	J A 229	J A 75	J A 128	J A 91	J A 105	J A 70	J A 67	J A 68	J A 30	J A 26	J A 115	J A 57	J A 53
19	J A 66	J A 78	J A 33	J A 21	J A 30	J A 35	J A 40	J A 76	J A 61	J A 103	J A 141	J A 98	J A 100	J A 172	J A 254	J A 144	J A 127	J A 119	J A 71	J A 44	J A 24	J A 110	J A 56	J A 86
20	J A 61	J A 78	J A 54	J A 44	J A 28	22	31	J A 79	J A 172	J A 110	J A 100	J A 132	J A 104	J A 104	J A 151	J A 121	J A 90	J A 147	J A 113	J A 64	J A 63	J A 82	J A 75	J A 54
21	J A 54	J A 45	J A 63	J A 86	J A 47	J A 55	J A 74	J A 45	J A 96	J A 148	J A 101	J A 116	J A 101	J A 127	J A 170	J A 192	J A 170	J A 170	J A 74	J A 108	J A 53	J A 39	J A 79	J A 55
22	J A 61	J A 24	J A 46	J A 44	J A 55	J A 63	J A 46	J A 68	J A 61	J A 75	J A 78	J A 58	J A 76	J A 56	J A 142	J A 106	J A 34	J A 49	J A 34	J A 130	J A 80	J A 107	J A 114	J A 76
23	J A 52	J A 43	J A 24	J A 28	J A 32	J A 59	J A 45	J A 58	J A 67	J A 96	J A 139	J A 67	J A 107	J A 65	J A 58	J A 56	J A 85	J A 109	J A 109	J A 64	J A 107	J A 73	J A 67	J A 60
24	J A 81	J A 78	J A 79	J A 55	E B 14	J A 29	J A 56	J A 66	J A 87	J A 84	J A 105	J A 114	J A 170	J A 110	J A 108	J A 93	J A 58	J A 79	J A 33	J A 20	J A 65	J A 20	J A 26	J A 39
25	J A 55	J A 40	J A 52	J A 44	J A 34	J A 25	J A 46	J A 49	J A 45	J A 46	J A 74	J A 74	J A 53	J A 56	J A 38	J A 50	J A 35	J A 47	J A 41	J A 77	J A 48	J A 46	J A 39	J A 65
26	J A 57	J A 47	J A 40	J A 44	J A 23	J A 44	J A 58	J A 44	J A 106	J A 74	J A 88	J A 144	J A 118	J A 74	J A 62	J A 74	J A 61	J A 56	J A 40	J A 25	J A 73	J A 36	J A 109	J A 107
27	J A 75	J A 55	J A 56	J A 28	J A 66	J A 54	J A 66	J A 45	J A 36	J A 42	J A 56	J A 65	J A 59	J A 45	J A 47	J A 56	J A 59	J A 32	J A 46	J A 47	J A 60	J A 28	J A 35	J A 65
28	J A 99	J A 72	J A 57	J A 56	J A 36	J A 67	J A 79	J A 77	J A 76	J A 80	J A 54	J A 72	J A 104	J A 94	42	J A 48	J A 82	J A 77	J A 84	J A 56	J A 112	J A 95	J A 74	J A 84
29	J A 62	J A 45	J A 43	J A 45	J A 39	J A 34	J A 52	J A 78	J A 75	J A 98	J A 76	J A 101	45	39	J A 55	37	40	J A 42	J A 41	34	19	J A 22	J A 24	19
30	J A 20	J A 38	J A 22	E B 15	E B 15	J A 28	J A 49	J A 73	J A 54	J A 72	J A 103	J A 58	J A 58	J A 46	36	G 24	34	28	J A 60	J A 57	J A 72	J A 84	J A 65	J A 93
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	30	30	30	30	30	30	30	30	30	30	30	30	30
MED	J A 56	J A 46	J A 44	J A 44	J A 32	J A 32	J A 48	J A 70	J A 68	J A 82	J A 100	J A 77	J A 79	J A 70	J A 60	J A 72	J A 62	J A 58	J A 47	J A 47	J A 60	J A 60	J A 54	J A 60
U Q	J A 62	J A 56	J A 56	J A 53	J A 46	J A 48	J A 56	J A 78	J A 102	J A 103	J A 122	J A 101	J A 104	J A 94	J A 108	J A 106	J A 85	J A 79	J A 74	J A 61	J A 73	J A 82	J A 75	J A 76
L Q	J A 40	J A 37	J A 33	J A 28	21	26	J A 40	J A 49	J A 59	J A 72	J A 76	J A 63	J A 59	J A 57	42	J A 50	44	43	J A 41	34	J A 40	J A 36	36	J A 45

JUN. 2009 foEs (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

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

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	A A 60	A A 85	A A 55	20	A A 67	A A 48	A A 67	G 24	35	A A 72	A A 170	A A 115	G	A A 67	38	36	32	A A 77	22	21	37	E B 15	E B 15	31
2	A A 76	28	25	24	15	G	29	A A 106	A A 78	41	A A 148	A A 77	A A 65	A A 107	38	40	44	38	30	34	34	A A 98	A A 94	A A 73
3	A A 88	A A 73	E B 16	A A 46	16	24	41	48	48	A A 66	G 25	A A 55	A A 61	A A 64	A A 117	A A 127	A A 85	62	A A 77	22	30	A A 70	A A 75	A A 66
4	A A 60	A A 52	A A 39	A A 35	17	23	36	A A 74	46	48	A A 106	A A 77	40	44	36	42	36	28	30	E B 16	E B 14	18	24	16
5	28	22	19	E B 16	E B 14	22	A A 54	52	A A 79	A A 76	44	A A 77	A A 78	A A 61	G 33	36	48	38	40	42	34	40	19	21
6	18	E B 15	E B 16	E B 15	E B 15	24	34	42	A A 128	A A 118	A A 111	A A 55	A A 62	54	42	A A 68	A A 128	A A 141	34	44	54	A A 59	A A 55	A A 52
7	22	E B 15	E B 15	E B 15	20	20	29	40	A A 102	A A 80	A A 122	A A 100	A A 80	A A 82	36	A A 78	31	30	G 18	E B 14	32	22	19	18
8	21	17	18	16	E B 15	20	34	32	35	A A 66	A A 58	A A 89	A A 73	A A 61	A A 74	A A 80	45	38	42	48	A A 98	A A 78	20	A A 62
9	39	20	23	E B 15	E B 15	23	A A 56	A A 60	A A 112	A A 114	A A 260	A A 160	43	A A 74	A A 131	A A 144	A A 155	A A 210	35	24	20	18	26	19
10	E B 15	E B 15	E B 15	17	17	A A 38	A A 69	A A 78	51	A A 148	A A 81	46	A A 98	A A 77	53	A A 98	A A 81	46	42	A A 69	38	36	30	A A 79
11	A A 57	A A 46	A A 85	A A 74	20	A A 54	A A 74	A A 84	44	A A 73	A A 86	A A 94	A A 81	A A 48	43	35	38	A A 43	33	44	31	32	32	39
12	36	33	A A 60	A A 60	17	23	41	38	A A 69	A A 90	A A 99	A A 92	A A 107	A A 72	A A 78	A A 108	40	46	52	A A 100	49	23	34	A A 83
13	16	E B 15	17	E B 15	E B 14	19	28	39	A A 58	38	38	A A 52	A A 117	A A 112	A A 110	A A 176	A A 171	A A 88	33	27	A A 109	31	A A 91	A A 80
14	19	E B 15	E B 16	21	17	24	A A 52	A A 78	60	A A 99	A A 79	A A 44	40	36	41	A A 62	36	47	48	34	30	22	24	E B 14
15	19	18	17	17	E B 16	18	A A 51	A A 77	A A 116	A A 99	A A 107	A A 66	A A 80	A A 58	A A 78	A A 70	A A 72	A A 62	23	31	18	18	E B 15	20
16	20	18	16	16	22	22	37	A A 89	41	A A 98	A A 115	A A 94	A A 101	A A 72	A A 78	A A 62	42	38	48	36	27	27	32	A A 58
17	30	21	A A 49	18	20	24	A A 46	40	A A 66	A A 116	A A 171	A A 63	A A 105	A A 68	A A 82	A A 79	43	A A 72	A A 74	36	32	25	28	A A 52
18	A A 49	A A 77	A A 75	A A 73	A A 51	19	31	A A 106	A A 102	A A 118	A A 173	A A 229	A A 75	A A 128	A A 91	A A 105	A A 70	48	A A 68	21	20	A A 115	A A 57	A A 53
19	A A 66	A A 78	19	16	20	28	A A 40	A A 76	41	A A 103	A A 141	A A 98	A A 100	A A 172	A A 254	A A 144	A A 127	A A 119	A A 71	34	18	33	23	A A 86
20	A A 61	A A 78	A A 54	A A 44	A A 28	21	28	A A 79	A A 172	A A 110	43	A A 132	A A 104	A A 104	A A 151	A A 121	A A 90	A A 147	A A 113	35	37	29	A A 75	A A 54
21	A A 54	17	A A 63	A A 86	22	A A 55	A A 74	32	A A 96	A A 148	A A 101	A A 116	A A 101	A A 127	A A 170	A A 192	A A 170	A A 170	54	A A 108	36	25	A A 79	A A 55
22	A A 61	E B 15	18	17	E B 16	A A 63	37	A A 68	A A 61	A A 75	A A 78	A A 58	A A 76	48	A A 142	A A 106	32	41	29	A A 130	29	A A 107	A A 114	A A 76
23	A A 52	18	E B 15	17	20	A A 59	A A 45	A A 58	A A 67	A A 96	A A 139	A A 67	A A 107	65	A A 58	56	A A 85	A A 109	A A 109	45	A A 107	A A 73	A A 67	A A 60
24	A A 81	A A 78	A A 79	E B 15	E B 14	27	A A 56	A A 66	A A 87	A A 84	A A 105	A A 114	A A 170	A A 110	A A 108	A A 93	A A 58	A A 79	22	17	32	18	19	20
25	16	22	17	E B 15	E B 15	19	34	A A 49	34	41	48	A A 74	A A 53	A A 56	35	44	34	37	25	A A 77	19	20	18	A A 65
26	A A 57	19	A A 40	A A 44	18	A A 44	A A 58	A A 44	A A 106	A A 74	A A 88	A A 144	A A 118	A A 74	62	42	34	A A 56	33	19	A A 73	18	A A 109	A A 107
27	A A 75	E B 16	18	15	A A 66	A A 54	36	37	34	36	46	A A 65	A A 59	41	40	A A 56	40	30	24	30	37	20	17	A A 65
28	A A 99	A A 72	A A 57	A A 56	20	A A 67	A A 79	A A 77	A A 76	46	46	A A 72	A A 104	A A 94	38	40	A A 82	A A 77	A A 84	38	A A 112	A A 95	A A 74	A A 84
29	A A 62	26	A A 43	A A 45	A A 39	20	A A 52	A A 78	A A 75	A A 98	A A 76	A A 101	44	36	35	35	38	30	38	32	E B 15	16	E B 15	E B 15
30	E B 14	17	E B 15	E B 15	E B 15	24	24	A A 73	36	A A 72	A A 103	A A 58	A A 58	A A 46	36	G 23	32	28	31	29	40	A A 84	A A 65	A A 93
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	30	30	30	30	30	30	30	30	30	30	30	30	30
MED	A A 50	20	19	17	17	24	41	A A 63	A A 66	A A 82	A A 100	A A 77	A A 79	A A 68	A A 60	A A 69	44	48	36	34	33	28	31	A A 56
U Q	A A 61	A A 52	A A 54	A A 44	A A 20	A A 44	A A 56	A A 78	A A 96	A A 103	A A 122	A A 101	A A 104	A A 94	A A 108	A A 106	A A 85	A A 79	A A 54	A A 44	A A 40	A A 70	A A 74	A A 76
L Q	20	E B 17	E B 16	E B 15	E B 15	20	34	40	44	66	58	A A 63	59	54	38	42	36	38	30	24	27	20	19	21

JUN. 2009 fbEs (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

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

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	15	14	15	14	15	15	14	12	14	15	15	23	21	18	13	12	14	14	14	15	16	15	15	14
2	16	14	15	15	14	13	14	15	14	12	17	15	27	17	20	16	14	14	14	15	15	14	15	15
3	16	14	16	15	15	14	12	14	13	14	18	19	20	16	15	12	13	14	14	14	13	15	15	15
4	15	15	15	15	14	14	14	14	14	15	18	19	17	20	19	16	14	12	13	16	14	14	14	15
5	15	15	15	16	14	14	14	14	13	14	11	18	19	16	12	15	14	13	13	15	13	15	15	14
6	15	15	16	15	15	15	14	14	15	13	15	19	19	17	17	14	14	15	14	14	15	14	15	15
7	16	15	15	15	15	14	14	13	12	14	16	17	29	27	13	17	14	14	13	14	15	15	14	15
8	15	15	14	14	15	15	13	14	13	14	17	19	19	16	15	14	13	14	14	14	15	15	15	14
9	15	16	15	15	15	15	15	14	16	14	26	21	24	32	20	15	15	14	14	14	15	14	16	15
10	15	15	15	14	14	13	14	14	15	20	16	17	20	16	21	16	14	15	13	15	15	15	14	15
11	15	14	14	15	14	12	13	14	13	14	20	18	24	18	19	14	13	14	14	15	13	13	14	15
12	15	15	14	15	14	13	12	14	13	15	12	16	20	25	19	14	13	12	14	14	15	15	15	15
13	14	15	16	15	14	13	14	13	13	13	14	16	18	18	20	19	14	14	13	14	14	15	14	15
14	15	15	16	15	14	14	14	13	13	24	18	18	17	21	16	12	12	15	14	14	14	14	15	14
15	15	15	15	15	16	15	12	13	14	15	19	18	18	18	16	14	15	14	13	12	14	14	15	15
16	19	15	14	15	14	14	13	13	14	19	23	26	19	18	16	13	14	14	14	14	15	14	15	15
17	16	15	15	14	14	15	13	13	14	14	18	13	20	22	24	16	16	14	15	16	14	14	14	14
18	14	15	15	15	14	15	14	14	16	14	26	22	23	20	17	17	14	13	14	13	15	14	15	15
19	15	15	15	14	15	13	14	15	14	13	20	33	29	31	22	19	16	14	15	14	14	14	15	14
20	15	14	15	15	14	15	14	14	13	14	14	21	21	18	18	14	14	14	14	14	15	14	15	14
21	15	15	15	16	14	14	14	12	15	14	20	19	21	20	16	16	14	15	13	15	15	15	15	14
22	15	15	15	15	16	14	14	14	13	17	20	16	17	18	18	15	15	14	14	14	15	15	15	15
23	15	14	15	14	14	14	13	13	14	17	19	16	29	18	17	14	18	14	14	15	14	15	15	15
24	15	16	15	15	14	13	14	13	14	13	18	18	22	15	22	18	14	15	14	12	14	15	15	14
25	14	15	15	15	15	14	15	14	13	12	18	16	19	18	18	19	13	14	14	15	15	15	15	15
26	15	14	15	15	14	14	13	14	14	15	16	29	20	24	20	15	12	15	13	14	15	14	15	15
27	16	16	15	15	16	15	14	12	16	15	19	16	12	14	18	15	14	13	14	15	15	14	15	15
28	15	15	16	14	14	13	14	14	14	14	19	24	18	19	18	14	13	15	13	15	15	16	15	15
29	16	14	15	15	14	13	12	14	13	12	16	15	16	15	14	16	14	14	15	15	15	13	15	15
30	14	14	15	15	15	15	14	14	12	11	19	16	17	16	19	13	13	14	14	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	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30
MED	15	15	15	15	14	14	14	14	14	14	18	18	20	18	18	15	14	14	14	14	15	14	15	15
U Q	15	15	15	15	15	15	14	14	14	15	19	21	22	20	20	16	14	14	14	15	15	15	15	15
L Q	15	14	15	15	14	13	13	13	13	13	16	16	18	16	16	14	13	14	13	14	14	14	15	14

IONOSPHERIC DATA STATION Kokubunji

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

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	A	A	A	343	A	A	A	325	369	A	A	A	269	A	315	328	333	A	322	312	322	337	344	F
2	A	F	F	F	F	336	324	A	A	336	A	A	A	A	264	298	325	331	335	316	367	A	A	A
3	A	A	F	A	F	F	347	352	378	A	360	A	A	A	A	A	A	323	A	346	368	A	A	A
4	A	A	A	A	334	346	305	A	356	386	A	A	300	296	295	320	303	322	332	341	349	309	307	F
5	F	F	F	343	344	354	A	325	A	A	317	A	A	A	306	294	304	313	311	334	376	338	332	F
6	315	307	F	302	316	326	338	393	A	A	A	A	A	293	313	A	A	A	323	354	405	A	A	A
7	F	302	312	322	331	338	346	330	A	A	A	A	A	A	325	A	317	327	324	328	338	362	F	F
8	F	F	F	F	F	352	327	351	369	A	A	A	A	A	A	A	334	323	336	351	A	A	307	A
9	F	F	F	F	F	352	A	A	A	A	A	A	289	A	A	A	A	A	342	351	310	316	F	F
10	F	F	F	F	343	A	A	A	328	A	A	315	A	A	322	A	A	328	304	A	337	365	376	A
11	A	A	A	A	319	A	A	A	355	A	A	A	A	A	305	333	350	A	307	325	300	F	F	345
12	F	F	A	A	303	302	326	332	A	A	A	A	A	A	A	A	326	326	332	A	333	315	F	A
13	F	330	342	330	342	350	349	334	A	342	340	A	A	A	A	A	A	A	329	334	A	332	A	A
14	F	F	F	F	356	345	A	A	364	A	A	A	R 317	288	325	A	321	344	340	339	341	331	304	F
15	F	F	F	362	F	346	A	A	A	A	A	A	A	A	A	A	A	A	355	358	333	314	F	F
16	F	F	F	F	335	355	299	A	333	A	A	A	A	A	A	A	322	331	339	338	326	319	346	A
17	F	F	A	339	318	337	A	299	A	A	A	A	A	A	A	A	327	A	A	307	317	341	375	A
18	A	A	A	A	A	373	379	A	A	A	A	A	A	A	A	A	A	325	A	332	363	A	A	A
19	A	A	F	F	F	384	A	A	352	A	A	A	A	A	A	A	A	A	A	333	343	326	F	A
20	A	A	A	A	A	366	399	A	A	A	370	A	A	A	A	A	A	A	A	312	321	380	A	A
21	A	F	A	A	F	A	A	279	A	A	A	A	A	A	A	A	A	A	305	A	346	402	A	A
22	A	F	313	334	320	A	377	A	A	A	A	A	A	310	A	A	325	335	347	A	327	A	A	A
23	A	330	331	F	372	A	A	A	A	A	A	A	A	A	A	A	A	A	A	346	A	A	A	A
24	A	A	A	F	F	387	A	A	A	A	A	A	A	A	A	A	A	A	317	342	351	351	318	F
25	F	F	F	310	324	343	366	A	363	326	385	A	A	A	306	328	358	350	321	A	356	F	F	A
26	A	F	A	A	F	A	A	A	A	A	A	A	A	A	A	321	327	A	321	322	A	311	A	A
27	A	F	F	F	A	A	295	356	359	325	350	A	A	321	351	A	325	313	341	300	323	363	396	A
28	A	A	A	A	315	A	A	A	A	355	340	A	A	A	287	310	A	A	A	355	A	A	A	A
29	A	F	A	A	A	379	A	A	A	A	A	A	310	297	283	330	309	337	310	330	333	333	329	312
30	F	F	F	F	F	310	290	A	350	A	A	A	A	A	A	R	261	277	319	338	F	A	A	A
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	4	4	9	15	20	15	11	12	6	7	1	5	6	13	9	17	16	23	25	24	19	11	2
MED	315	318	322	334	331	348	338	332	358	339	350	315	300	296	306	321	325	326	324	334	338	333	332	328
U Q		330	336	343	343	360	366	352	366	355	370		314	310	324	329	330	333	339	346	354	362	375	
L Q		304	312	316	318	338	305	325	351	326	340		279	293	291	304	313	322	317	324	324	316	307	

IONOSPHERIC DATA STATION Kokubunji

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

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1						A	A	391	406	A	A	A	UL 418	A	393	388	409	A	UL 351					
2							UL 375	A	A	A	A	A	A	A	UL 395	A	A	A	A					
3							A	A	A	A	UL 451	A	A	A	A	A	A	A	A					
4							A	A	A	A	A	A	A	A	UL 406	A	385	388						
5							A	UL 376	A	A	A	A	A	A	UL 424	UL 379	A	A	A					
6						L	A	A	A	A	A	A	A	A	A	A	A	A	A					
7							UL 380	A	A	A	A	A	A	A	UL 421	A	UL 386	362	L					
8							A	UL 395	398	A	A	A	A	A	A	A	A	A	A					
9							A	A	A	A	A	A	A	A	A		A	A	A					
10						A	A	A	A	A	A	A	A	A	A	A	A	A	A					
11						A	A	A	A	A	A	A	A	A	A	A	A	A	A					
12						UL 344	A	A	A	A	A	A	A	A	A	A	A	A	A					
13							UL 374	A	A	UL 378	423	A	A	A	A	A	A	A	A					
14						A	A	A	A	A	A	A	UL 438	UL 424	A	A	360	A	A					
15							A	A	A	A	A	A	A	A	A	A	A	A	L					
16							A	A	A	A	A	A	A	A	A	A	A	A	A					
17							A	A	A	A	A	A	A	A	A	A	A	A	A					
18								A	A	A	A	A	A	A	A	A	A	A	A					
19						A	A	A	A	A	A	A	A	A	A	A	A	A	A					
20							L	A	A	A	A	A	A	A	A	A	A	A	A					
21						A	A	UL 438	A	A	A	A	A	A	A	A	A	A	A					
22						A	A	A	A	A	A	A	A	A	A	A	UL 390		A					
23						A	A	A	A	A	A	A	A	A	A	A	A	A	A					
24							A	A	A	A	A	A	A	A	A	A	A	A	371					
25								A	UL 384	A	A	A	A	A	UL 411	A	L	A	L					
26						A	A	A	A	A	A	A	A	A	A	A	370	A	A					
27						A	A	A	UL 386	UL 406	A	A	A	A	A	A	A	UL 380	UL 337					
28						A	A	A	A	A	A	A	A	A	UL 392	A	A	A	A					
29							A	A	A	A	A	A	A	UL 401	380	UL 352	A	366	A					
30						A	UL 361	A	UL 405	A	A	A	A	A	A	389	UL 377	380	A					
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	4	4	5	2	2		2	2	8	4	7	5	3					
MED						UL 344	UL 374	UL 393	UL 398	UL 392	437		UL 428	UL 412	UL 400	384	385	380	UL 351					
U Q							UL 378	UL 416	406						UL 416	388	390	384	371					
L Q							UL 368	384	UL 385						392	UL 366	370	364	UL 337					

JUN. 2009 M(3000)F1 (0.01)

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IONOSPHERIC DATA STATION Kokubunji

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

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1						A	A	326	240	A	A	A	450	A	326	288	290	A	294					
2							296	A	A	294	A	A	A	A	478	364	306	290	282					
3							280	260	E A 246	A	300	A	A	A	A	A	A	E A 288	A					
4							E A 358	A	248	240	A	A	E A 372	378	356	292	294	264						
5							A	364	A	A	E A 352	A	A	A	342	338	300	274	276					
6						300	254	220	A	A	A	A	A	E A 398	352	A	A	A	272					
7							292	302	A	A	A	A	A	A	322	A	328	300	284					
8							296	256	252	A	A	A	A	A	A	A	E A 272	286	250					
9							A	A	A	A	A	A	394	A	A		A	A	E A 262					
10						A	A	A	E A 330	A	A	342	A	A	E A 346	A	A	E A 316	E A 338					
11						A	A	A	280	A	A	A	A	A	E A 384	E A 370	272	A	342					
12						356	E A 318	292	A	A	A	A	A	A	A	A	294	E A 294	E A 332					
13							286	286	A	286	294	A	A	A	A	A	A	A	272					
14						E A 258	A	A	E A 260	A	A	A	356	416	320	A	328	E A 314	E A 298					
15							A	A	A	A	A	A	A	A	A	A	A	A	264					
16							E A 392	A	286	A	A	A	A	A	A	A	E A 320	288	E A 296					
17							A	E A 378	A	A	A	A	A	A	A	A	E A 304	A	A					
18								A	A	A	A	A	A	A	A	A	A	E A 322	A					
19						244	A	A	270	A	A	A	A	A	A	A	A	A	A					
20							232	A	A	A	266	A	A	A	A	A	A	A	A					
21						A	A	364	A	A	A	A	A	A	A	A	A	A	E A 344					
22						A	234	A	A	A	A	A	A	E A 352	A	A	300		264					
23						A	A	A	A	A	A	A	A	A	A	A	A	A	A					
24							A	A	A	A	A	A	A	A	A	A	A	A	298					
25								A	282	320	232	A	A	A	372	298	258	308	332					
26						A	A	A	A	A	A	A	A	A	A	E A 310	314	A	304					
27						A	376	256	294	314	274	A	A	334	284	A	E A 336	348	286					
28						A	A	A	A	272	E A 306	A	A	A	396	344	A	A	A					
29							A	A	A	A	A	A	352	352	400	294	344	270	E A 274					
30						292	400	A	270	A	A	A	A	A	A		470	408	290					
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						5	13	11	12	6	7	1	5	6	13	9	17	15	22					
MED						292	288	289	268	290	U 280	342	372	358	349	304	302	291	280					
U Q						328	367	364	284	314	E A 306		422	398	390	354	328	316	304					
L Q						251	267	256	250	272	266		354	352	324	293	292	286	272					

JUN. 2009 h′F2 (KM)

IONOSPHERIC DATA STATION Kokubunji

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

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	A	A	A	E A 242	A	A	A	200	204	A	A	A	204	A	222	228	198	A	222	E A 244	E A 276	208	214	E A 304
2	A	E A 290	E A 288	E A 276	222	218	218	A	A	A	A	A	A	A	E A 252	A	A	A	A	E A 276	222	A	A	A
3	A	A	E B 244	A	222	E A 232	A	A	A	A	192	A	A	A	A	A	A	A	A	212	214	A	A	A
4	A	A	A	A	E A 266	E A 226	A	A	A	A	A	A	A	A	198	A	228	206	E A 252	216	198	E A 254	E A 276	E A 274
5	E A 292	E A 268	E A 236	212	222	212	A	214	A	A	A	A	A	A	220	228	A	A	A	228	196	E A 272	222	E A 316
6	E A 262	E B 270	E B 278	E B 272	E B 290	E A 244	A	A	A	A	A	A	A	A	A	A	A	A	A	230	212	A	A	A
7	E A 312	E B 294	E B 258	E B 260	E A 276	220	220	A	A	A	A	A	A	A	202	A	216	212	202	230	218	206	E A 272	E A 300
8	E A 270	E A 290	E A 312	E A 278	E B 244	214	A	206	204	A	A	A	A	A	A	A	A	A	A	E A 232	A	A	E A 270	A
9	E A 346	E A 246	E A 266	214	206	226	A	A	A	A	A	A	A	A	A	A	A	A	A	218	226	222	E A 294	E A 288
10	E B 246	E B 282	E B 290	E A 250	E A 254	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	E A 232	212	216	A
11	A	A	A	A	E A 304	A	A	A	A	A	A	A	A	A	A	A	A	A	A	E A 282	E A 298	E A 286	E A 264	E A 260
12	E A 302	E A 312	A	A	E A 258	E A 236	A	A	A	A	A	A	A	A	A	A	A	A	A	A	E A 298	E A 232	E A 314	A
13	200	224	224	220	216	210	226	A	A	212	198	A	A	A	A	A	A	A	A	228	A	E A 256	A	A
14	E A 238	E B 242	E B 246	E A 314	E A 242	A	A	A	A	A	A	A	220	194	A	A	E A 262	A	A	E A 234	222	210	E A 294	E B 294
15	E A 292	E A 236	E A 240	E A 244	E B 246	208	A	A	A	A	A	A	A	A	A	A	A	A	230	208	212	E A 254	E B 262	E A 264
16	E A 252	228	E A 252	224	E A 276	212	A	A	A	A	A	A	A	A	A	A	A	A	A	228	E A 244	E A 260	E A 256	A
17	E A 314	E A 274	A	E A 266	E A 244	E A 224	A	A	A	A	A	A	A	A	A	A	A	A	A	E A 292	E A 270	E A 232	218	A
18	A	A	A	A	A	E A 230	E A 236	A	A	A	A	A	A	A	A	A	A	A	A	E A 248	206	A	A	A
19	A	A	E A 238	E A 262	E A 258	A	A	A	A	A	A	A	A	A	A	A	A	A	A	E A 234	204	E A 264	222	A
20	A	A	A	A	A	218	208	A	A	A	A	A	A	A	A	A	A	A	A	E A 276	E A 252	204	A	A
21	A	222	A	A	E A 302	A	A	188	A	A	A	A	A	A	A	A	A	A	A	A	220	190	A	A
22	A	E B 290	E A 296	E A 284	E B 272	A	A	A	A	A	A	A	A	A	A	A	204	E A 278	A	A	E A 242	A	A	A
23	A	E A 276	218	206	226	A	A	A	A	A	A	A	A	A	A	A	A	A	A	E A 238	A	A	A	A
24	A	A	A	E B 306	E B 272	200	A	A	A	A	A	A	A	A	A	A	A	A	202	228	214	204	E A 240	E A 248
25	E A 282	E A 290	E A 262	E B 260	E B 258	216	214	A	218	A	A	A	A	A	210	A	204	A	E A 230	A	200	E A 238	E A 254	A
26	A	E A 304	A	A	E A 272	A	A	A	A	A	A	A	A	A	A	A	E A 240	A	A	E A 268	A	E A 230	A	A
27	A	E B 276	E A 268	208	A	A	A	A	222	198	A	A	A	A	A	A	A	230	222	E A 278	E A 274	216	196	A
28	A	A	A	A	E A 290	A	A	A	A	A	A	A	A	A	214	A	A	A	A	E A 240	A	A	A	A
29	A	E A 294	A	A	A	216	A	A	A	A	A	A	A	206	212	E A 226	A	E A 230	A	E A 238	218	218	222	E B 248
30	E B 258	E A 268	E B 258	E B 258	226	A	220	A	200	A	A	A	A	A	A	214	208	204	A	E A 250	E A 238	A	A	A
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	14	21	18	20	25	18	7	4	5	2	2		2	2	8	4	8	6	7	25	25	21	18	10
MED	E A 276	E A 276	E A 258	E 259	E 258	214	219	203	204	205	195		212	200	212	227	208	213	212	E A 234	U 211	E A 230	E A 255	E A 281
U Q	E A 302	E A 290	E A 278	E A 274	E A 274	E A 226	226	210	220						221	228	E A 234	230	230	E 259	E A 248	E A 255	E A 272	E A 300
L Q	E 252	244	E A 240	222	226	212	214	194	202						206	220	204	206	202	228	212	209	222	E A 260

JUN. 2009 h'F (KM)

IONOSPHERIC DATA STATION Kokubunji

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

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1						A	A	118	116	A	A	A	114	A	114	114	118	120	B					
2						116	114	A	A	A	A	A	A	A	A	A	A	A	A					
3						A	A	A	A	A	112	124	126	A	A	A	A	A	B					
4						B	A	A	A	A	A	A	A	A	116	A	A	A	116					
5						B	A	A	A	A	A	A	A	A	120	A	A	A	A					
6						A	A	A	A	A	A	A	A	116	122	114	114	A	A					
7						A	120	122	A	A	A	A	A	A	116	A	A	A	124					
8						B	A	A	A	A	A	A	A	A	A	A	A	A	A					
9						126	A	118	A	A	A	A	A	A	A		A	A	A					
10						122	A	A	A	A	A	A	A	A	A	A	A	A	A					
11						114	A	A	A	A	A	A	A	A	A	A	A	118	A					
12						A	120	A	A	A	A	A	A	A	A	A	A	120	A					
13						118	120	120	A	A	A	A	A	A	A	A	A	A	A					
14						124	A	A	A	A	A	A	A	A	A	A	A	A	A					
15						B	124	A	A	A	A	A	A	A	A	A	A	A	A					
16						122	A	A	A	A	A	A	A	A	A	A	A	A	A					
17						B	A	A	A	A	A	A	A	A	A	A	A	A	A					
18						A	118	A	A	A	A	A	A	A	A	A	A	A	A					
19						120	116	A	A	A	A	A	A	A	A	A	A	A	A					
20						B	120	A	A	A	A	A	A	A	A	A	A	A	A					
21						A	A	112	A	A	A	A	A	114	A	A	A	A	A					
22						A	A	112	A	A	A	A	A	A	A	A	A		A					
23						118	120	A	A	A	A	A	A	A	A	120	A	A	A					
24						120	A	A	A	A	A	A	A	A	A	A	A	A	A					
25						A	A	A	A	A	A	A	A	A	118	A	A	114	A					
26						122	A	A	A	A	A	A	A	A	A	A	120	A	A					
27						A	A	A	A	A	A	A	A	A	A	A	A	120	A					
28						A	A	A	A	A	A	A	A	A	110	110	A	A	A					
29						A	116	A	A	A	118	116	116	116	A	116	116	114	A					
30						A	A	A	A	A	A	A	A	A	A	110	108	A	A					
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT						11	10	6	1		2	2	3	3	7	6	5	6	2					
MED						120	120	118	116		115	120	116	116	116	114	116	119	120					
U Q						122	120	120					126	116	120	116	119	120						
L Q						118	116	112					114	114	114	110	111	114						

JUN. 2009 h'E (KM)

IONOSPHERIC DATA STATION Kokubunji

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

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	100	98	94	92	92	92	92	102	118	104	106	104	G	106	118	128	118	112	104	102	96	100	98	100
2	100	94	88	84	104	G	116	98	100	104	100	96	96	96	94	94	86	86	92	106	106	106	102	102
3	98	98	94	92	114	94	106	102	104	102	102	120	122	118	106	106	102	100	92	92	98	104	104	102
4	98	92	92	88	86	116	104	102	102	104	100	96	98	100	148	100	96	96	114	B	B	100	102	102
5	100	96	94	102	B	102	102	102	102	100	132	94	98	96	98	98	94	90	88	88	88	98	92	96
6	96	96	94	100	96	108	104	100	100	94	94	94	110	114	120	120	112	104	98	96	96	96	96	96
7	88	92	104	104	108	104	114	116	102	104	98	98	96	96	108	102	108	108	104	B	98	96	90	104
8	100	94	98	96	106	112	104	100	100	100	100	94	98	98	98	92	98	88	92	100	98	94	98	98
9	100	94	92	94	B	120	108	120	102	104	100	98	104	96	100	98	92	94	94	110	86	110	112	104
10	102	102	114	104	102	128	106	102	102	94	102	100	96	100	98	94	98	98	92	88	90	90	96	102
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30	92	96	96	B	B	102	104	100	100	104	104	100	98	98	92	92	114	102	96	90	90	94	102	100
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	29	26	29	30	30	30	30	30	30	29	30	30	30	30	30	30	28	29	30	30	30
MED	98	96	94	96	96	112	106	103	102	101	100	98	98	99	98	98	98	99	97	96	96	97	101	102
U Q	100	98	98	100	102	120	116	106	104	104	102	102	102	106	108	104	104	104	104	100	100	102	104	102
L Q	96	94	92	92	92	98	104	102	102	98	98	94	96	96	94	94	96	96	92	91	91	94	96	98

IONOSPHERIC DATA STATION Kokubunji

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

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	F6	F4	F5	F4	F5	L4	L4	L2	CL22	L3	L3	L2		L3	CL11	CL11	CL21	CL32	L4	F3	F5	F3	F3	F5
2	F5	F4	F4	F4	FF24		C3	L3	L3	L2	L3	L3	L3	L3	L2	L3	L3	L3	L3	F5	FF33	F6	F4	F5
3	F4	F5	F6	F5	FF23	L4	L3	L3	L3	L2	L2	CL22	CL22	CL22	L3	L3	L3	L3	L4	F4	F4	F4	F5	F4
4	F5	F4	F4	F4	F2	CL32	L3	L3	L2	L3	L3	L3	L2	L2	HL12	L3	L2	L2	CL23			F6	F5	F4
5	F5	F5	F4	F2		L3	L5	L4	L4	L3	CL22	L3	L3	L3	L2	L2	L3	L3	L4	F3	F3	F5	F6	F4
6	F3	F2	F2	F2	F2	L2	L3	L3	L3	L3	L3	L3	L2	CL22	CL12	CL32	CL32	L3	L4	F4	F5	F5	F4	F3
7	F3	F2	F2	F3	F3	L3	CL22	CL22	L3	L3	L3	L3	L2	L3	CL11	L3	L2	L2	L2		F3	F5	F2	F4
8	F3	F2	F2	F3	F2	C2	L2	L2	L2	L3	L3	L2	L2	L3	L3	L3	L3	L3	L3	F4	F4	F4	F4	F5
9	F6	F5	F3	F3		C3	L4	CL42	L3	L3	L3	L3	L2	L2	L3	L4	L4	L4	L3	FF45	F5	FF24	F3	F4
10	F2	F3	F3	F2	F5	C3	L4	L4	L3	L3	L3	L2	L3	L3	L2	L3	L3	L5	L3	F4	F7	F5	F3	F5
11	F4	F5	F4	F3	F4	C3	L3	L3	L3	L3	L3	L3	L3	CL22	L3	L2	CL22	CL42	CL22	F4	FF24	F5	F7	F7
12	F4	F5	F6	F4	F3	C3	CL32	L2	L3	L3	L3	L3	L3	L3	L3	L3	L2	CL32	CL42	F4	F5	F3	F7	F7
13	F4	F3	F3	F2	F1	C2	CL22	CL22	L3	L2	L2	L2	L2	L2	L3	L3	L3	L3	L4	FF33	F5	F3	F4	F5
14	F3	F5	F2	F3	F3	C4	L4	L3	L3	L3	L3	L3	L2	L2	L2	L3	L3	L3	L4	F6	F4	F4	FF34	F2
15	F6	F7	F4	F4	F2	HL22	CL32	L4	L3	L3	L2	L2	L2	L2	L3	L3	L4	L4	L3	F3	F4	F3	F4	F3
16	F2	F4	F3	F3	F4	C3	L2	L3	L2	L3	L3	L2	L3	L3	L3	L3	L2	L4	L3	F3	F3	F4	F5	F5
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19	F5	F3	F3	F2	F4	C4	C3	L4	L2	L3	L2	L3	L3	L4	L4	L5	L5	L6	L4	F4	F3	F3	F4	F3
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23	F4	F4	F2	F2	FF21	CL42	CL32	L3	L3	L3	L3	L3	L3	L2	L2	CL22	L3	L3	L4	F4	F4	F4	F5	F6
24	F4	F4	F5	F4		C6	L3	L3	L3	L3	L3	L3	L4	L2	L3	L3	L4	L3	L3	F2	FF23	F2	F3	F5
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30	F2	F2	F2			L3	L2	L2	L2	L2	L2	L2	L3	L2	L2	L2	CL11	L2	L3	F3	F5	F3	F5	F4
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																								

f-PLOTS OF IONOSPHERIC DATA

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

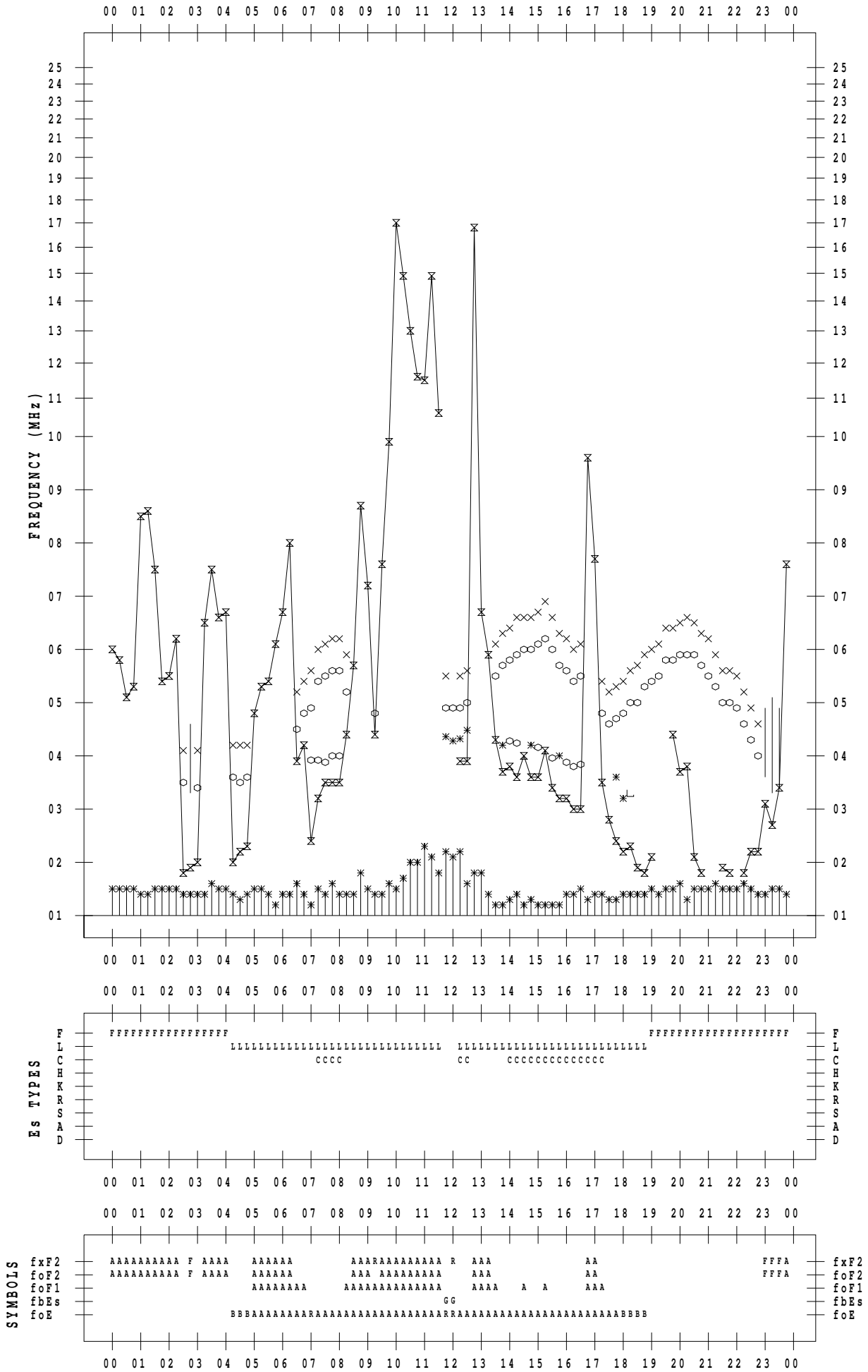
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2009/ 6/ 1

135 °E MEAN TIME

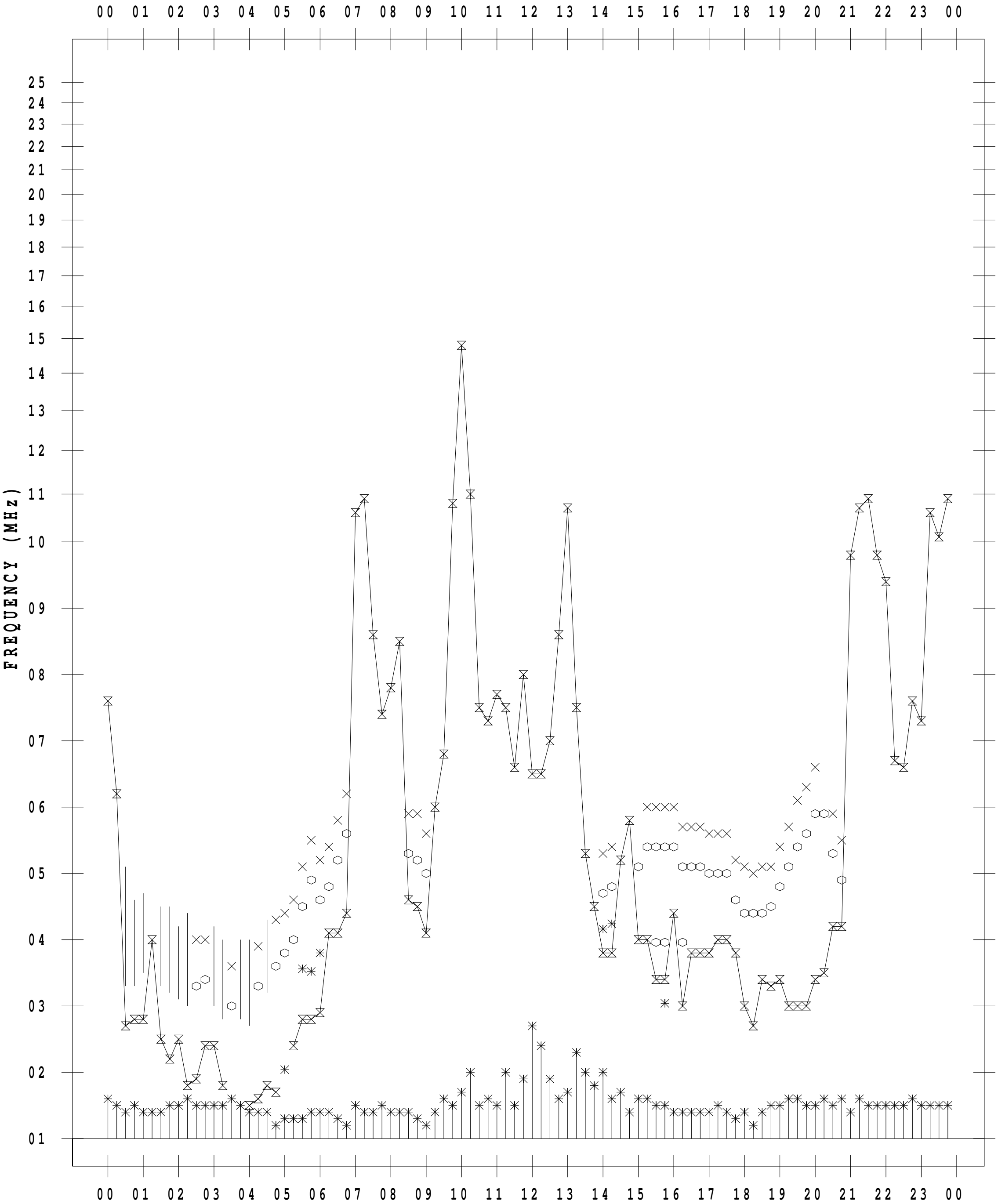


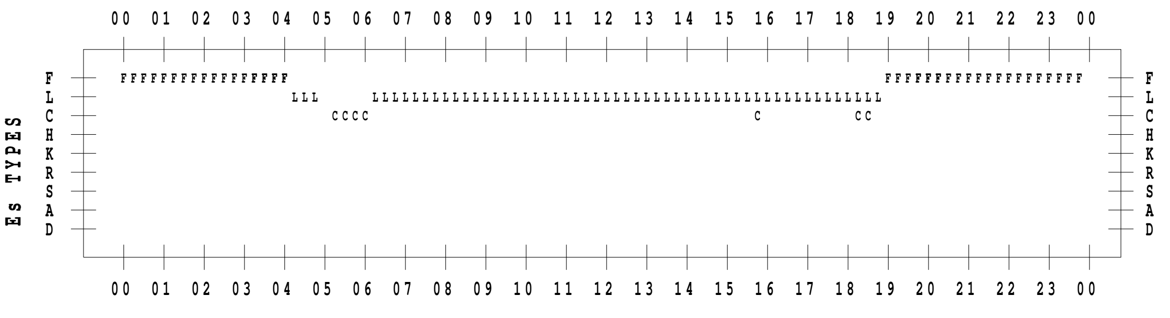
f-PLOT DATA

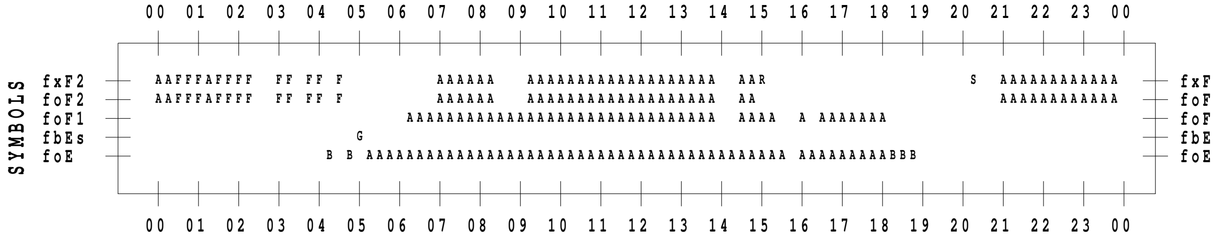
SCALER : I.NISHIMUTA

STATION : Kokubunji DATE : 2009/ 6/ 2

135 °E MEAN TIME







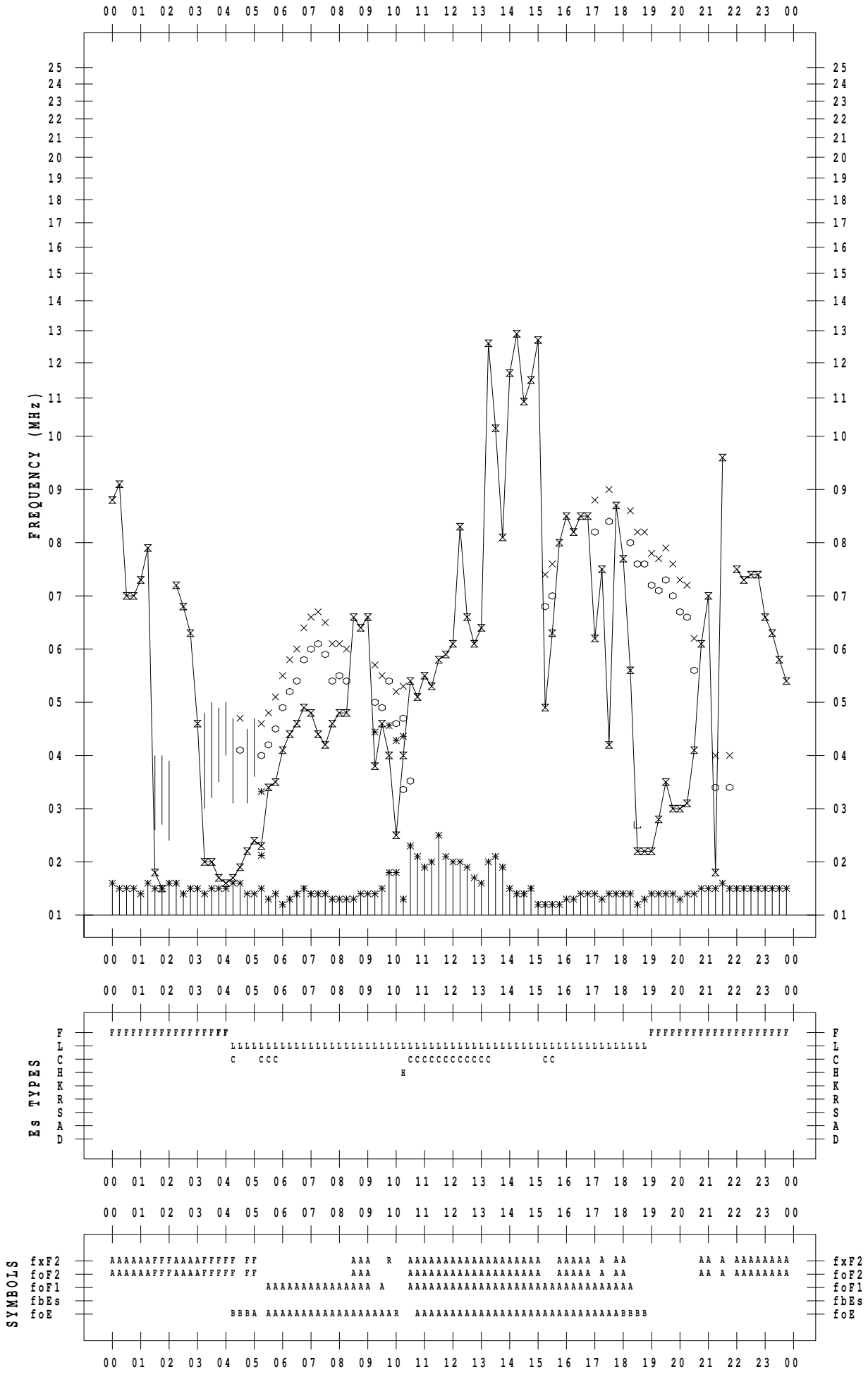
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2009/ 6/ 3

135 °E MEAN TIME



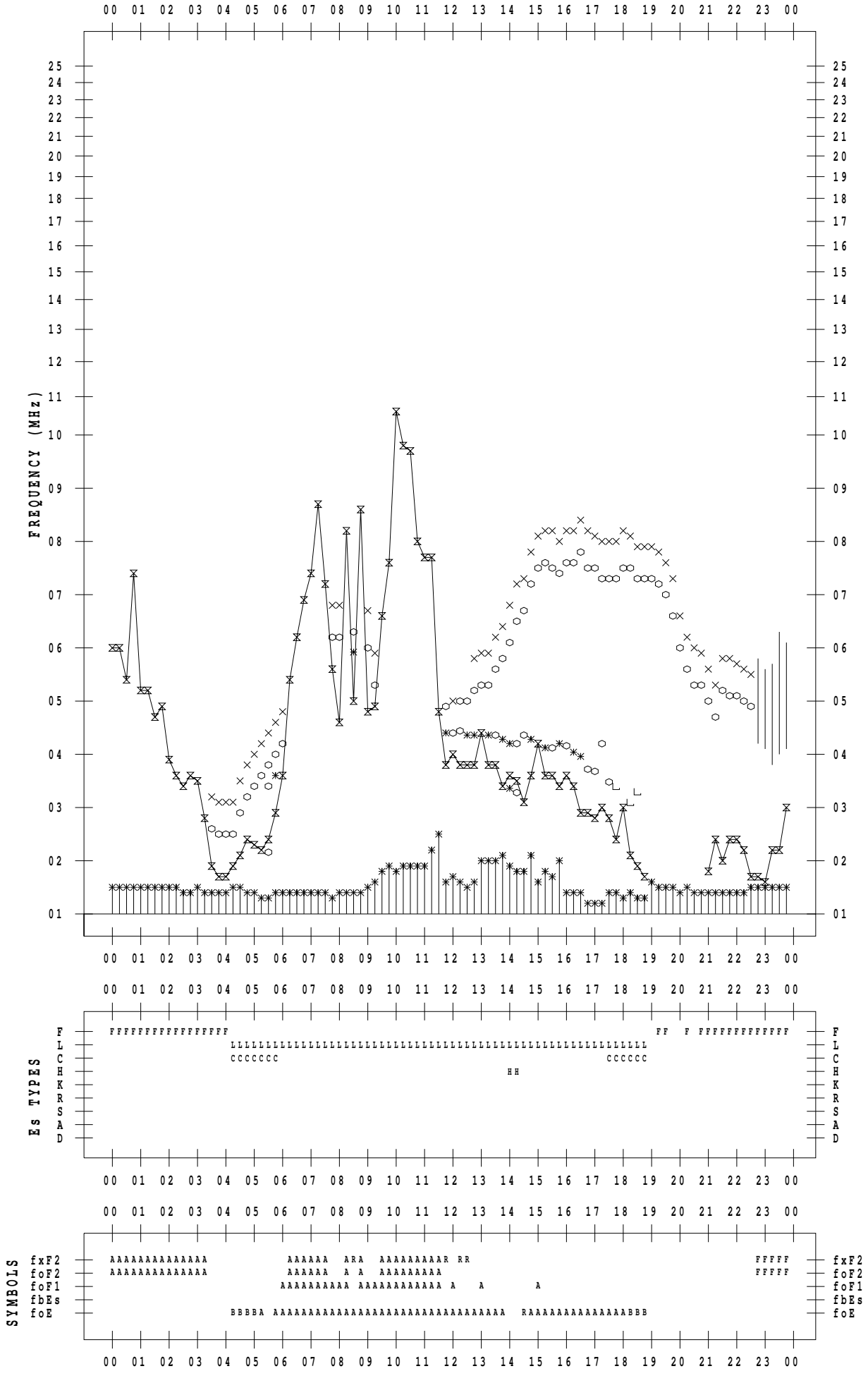
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2009/ 6/ 4

135 °E MEAN TIME

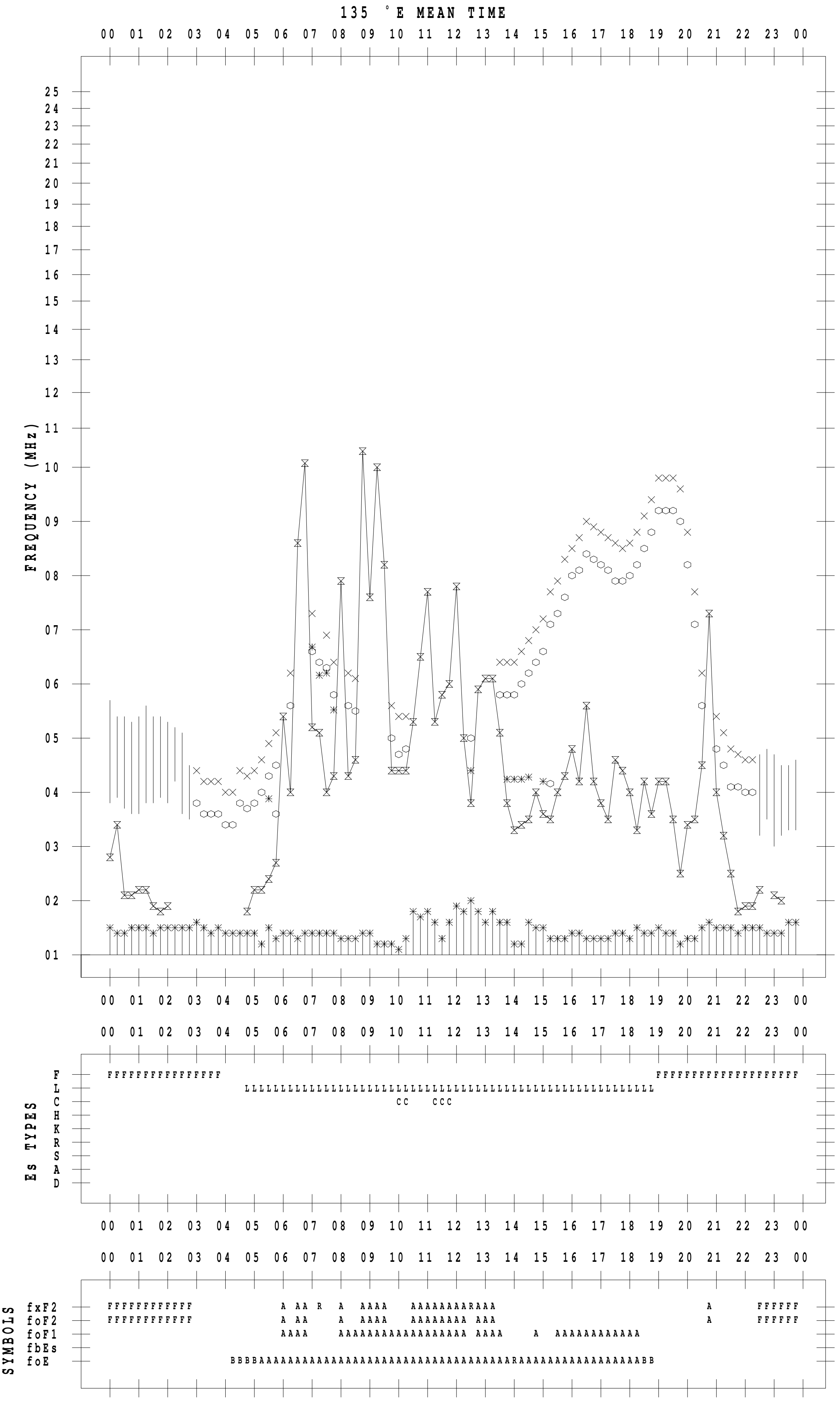


f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2009/ 6/ 5



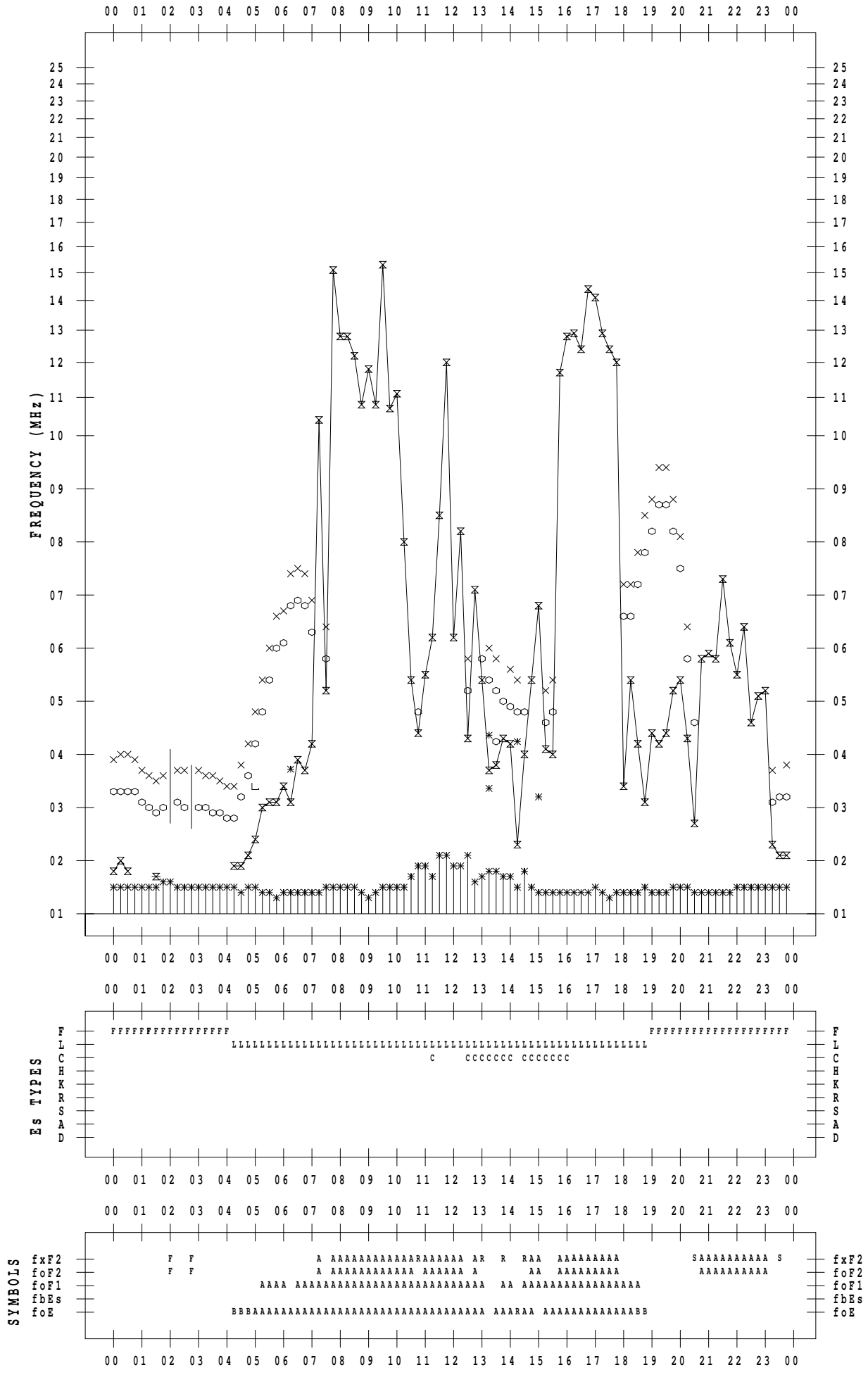
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2009/ 6/ 6

135 °E MEAN TIME



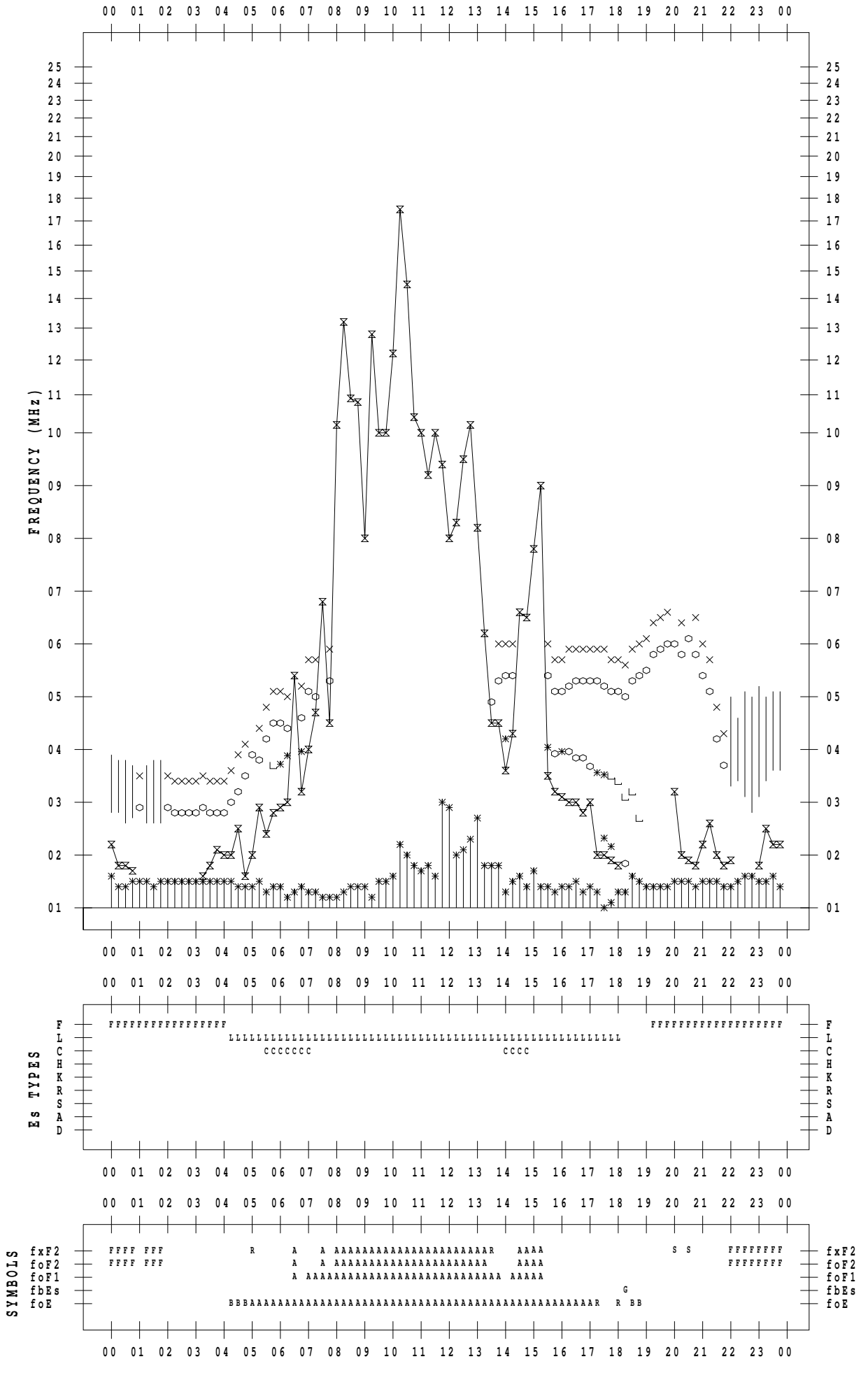
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2009/ 6/ 7

135 °E MEAN TIME

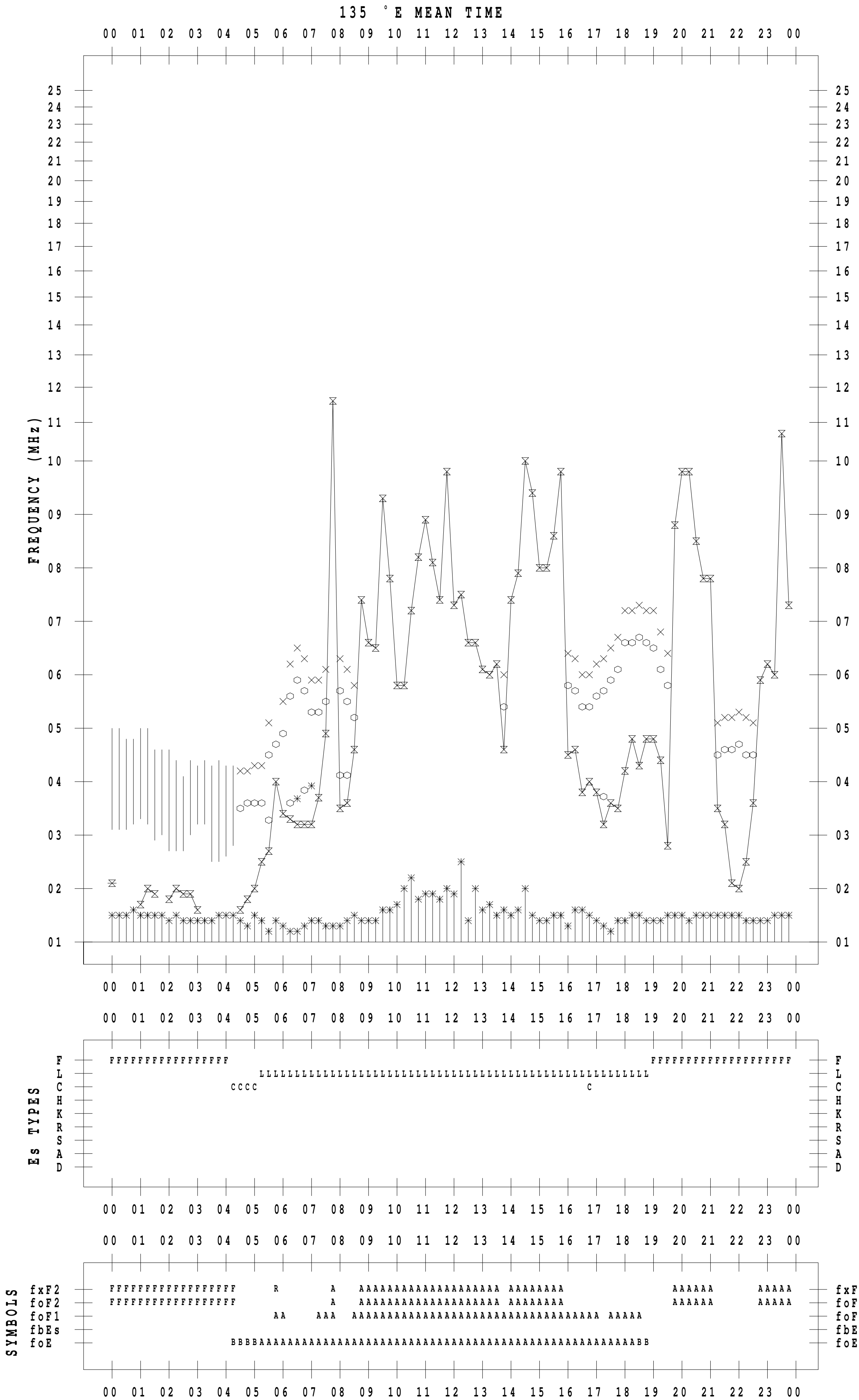


f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

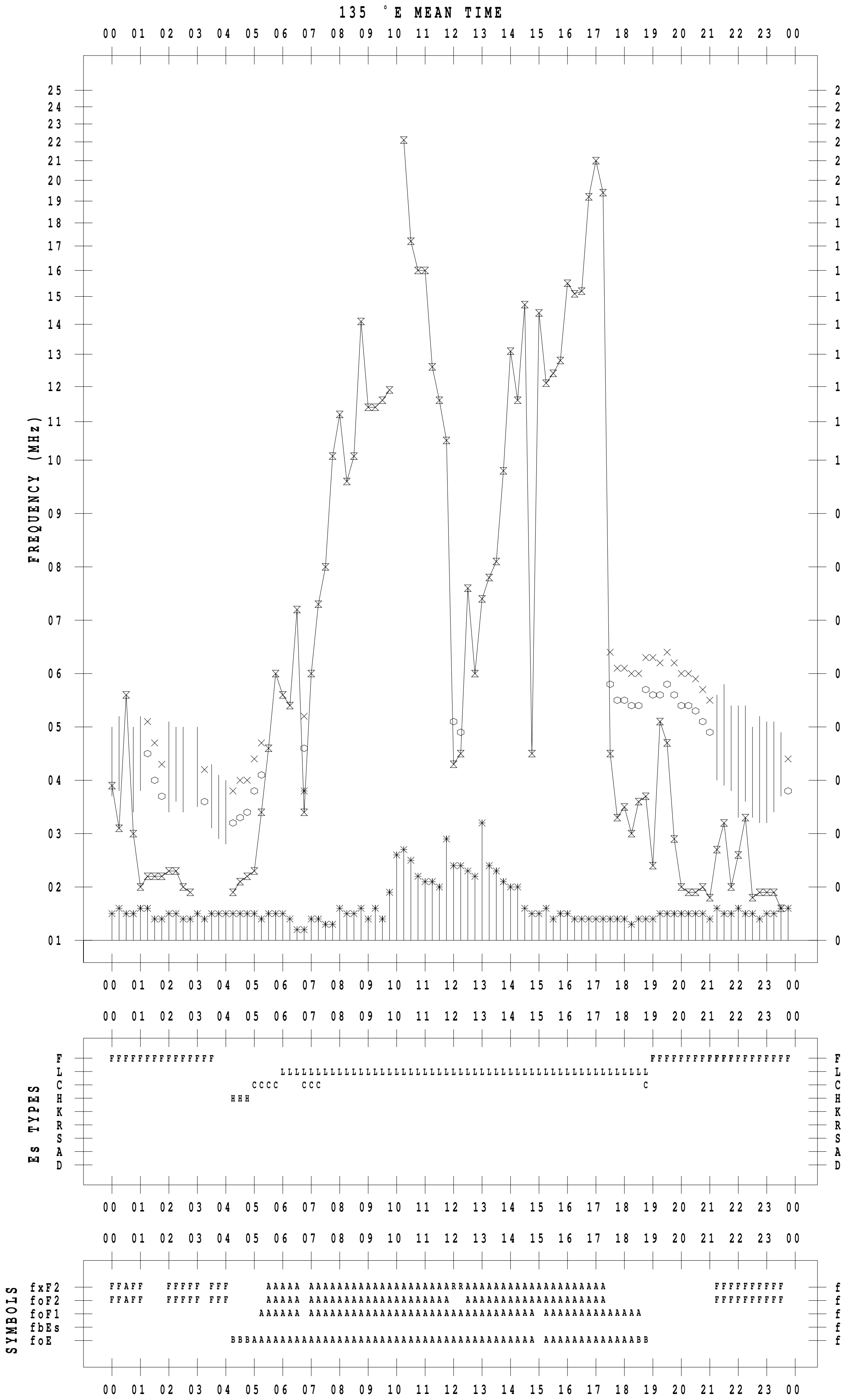
DATE : 2009/ 6/ 8



f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji DATE : 2009/ 6/ 9



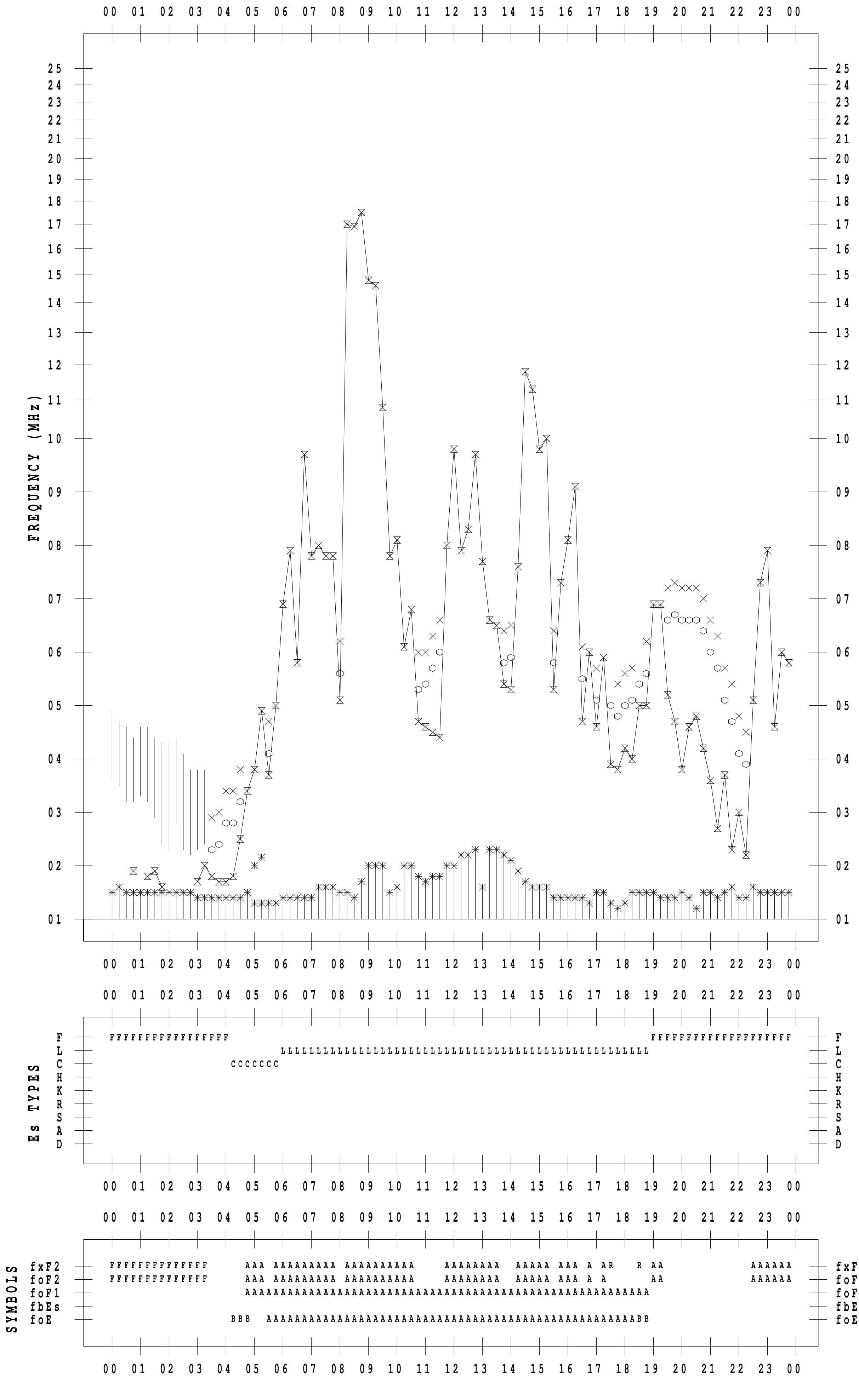
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2009/ 6/10

135 °E MEAN TIME



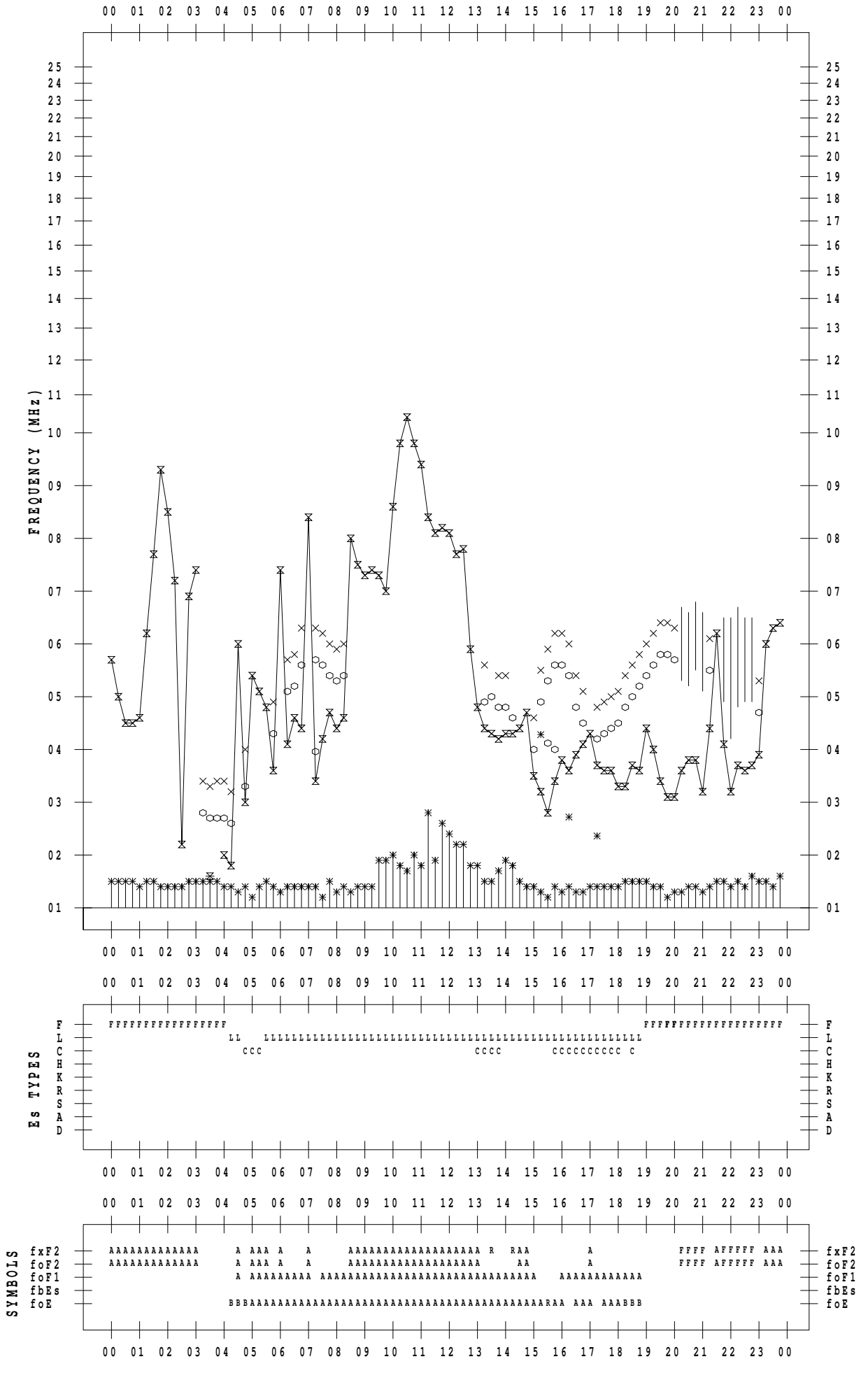
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2009/ 6/11

135 °E MEAN TIME

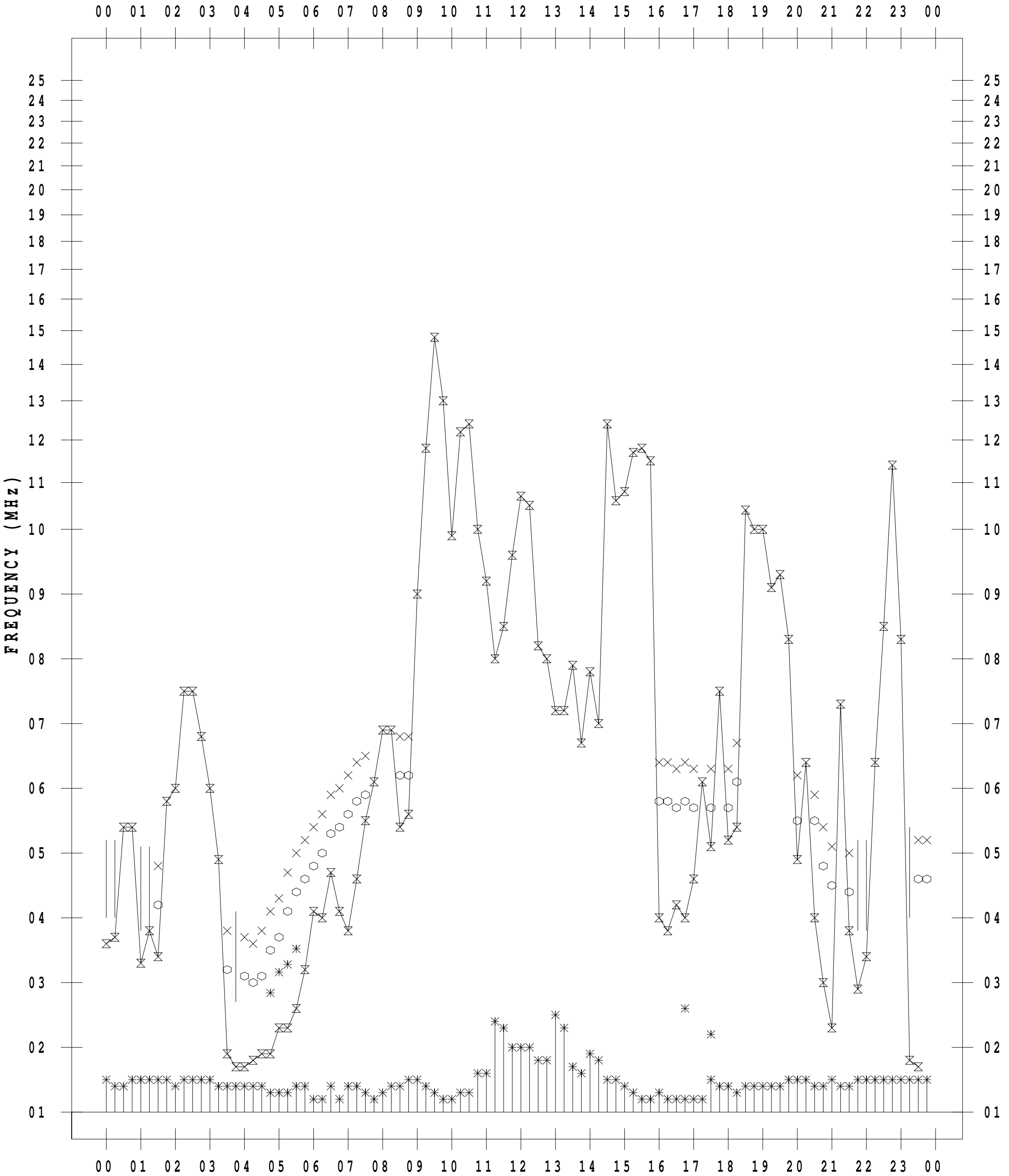


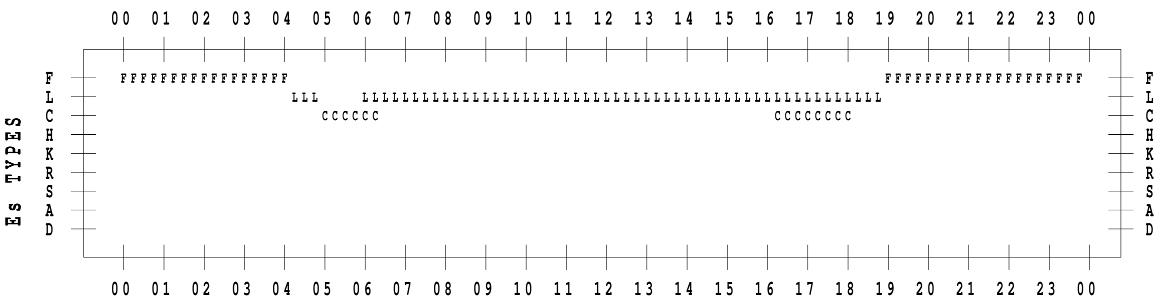
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji DATE : 2009/ 6/12

135 °E MEAN TIME





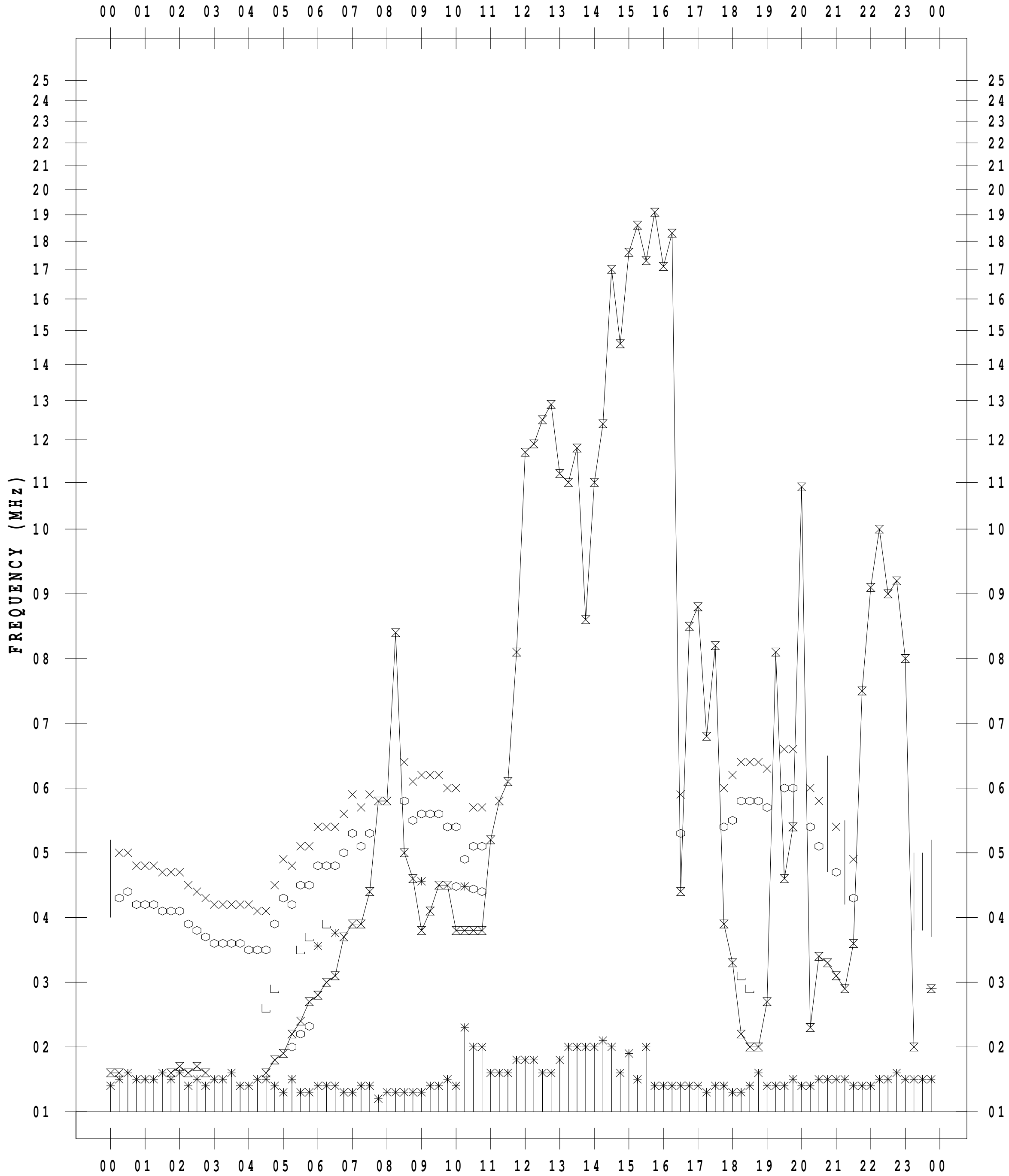
f-PLOT DATA

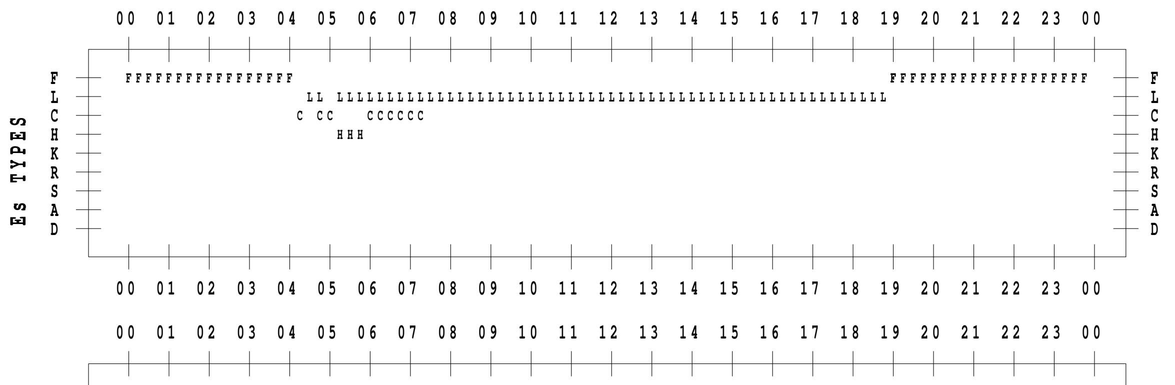
SCALER : I.NISHIMUTA

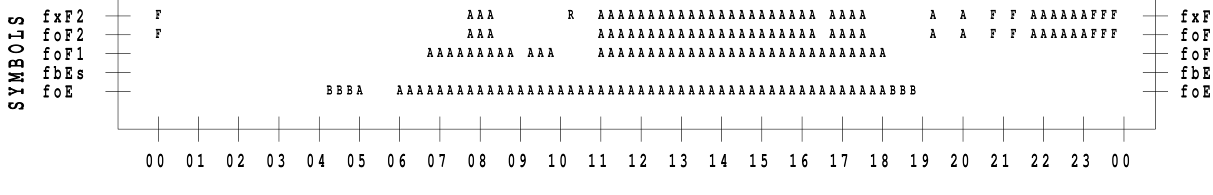
STATION : Kokubunji

DATE : 2009/ 6/13

135 °E MEAN TIME







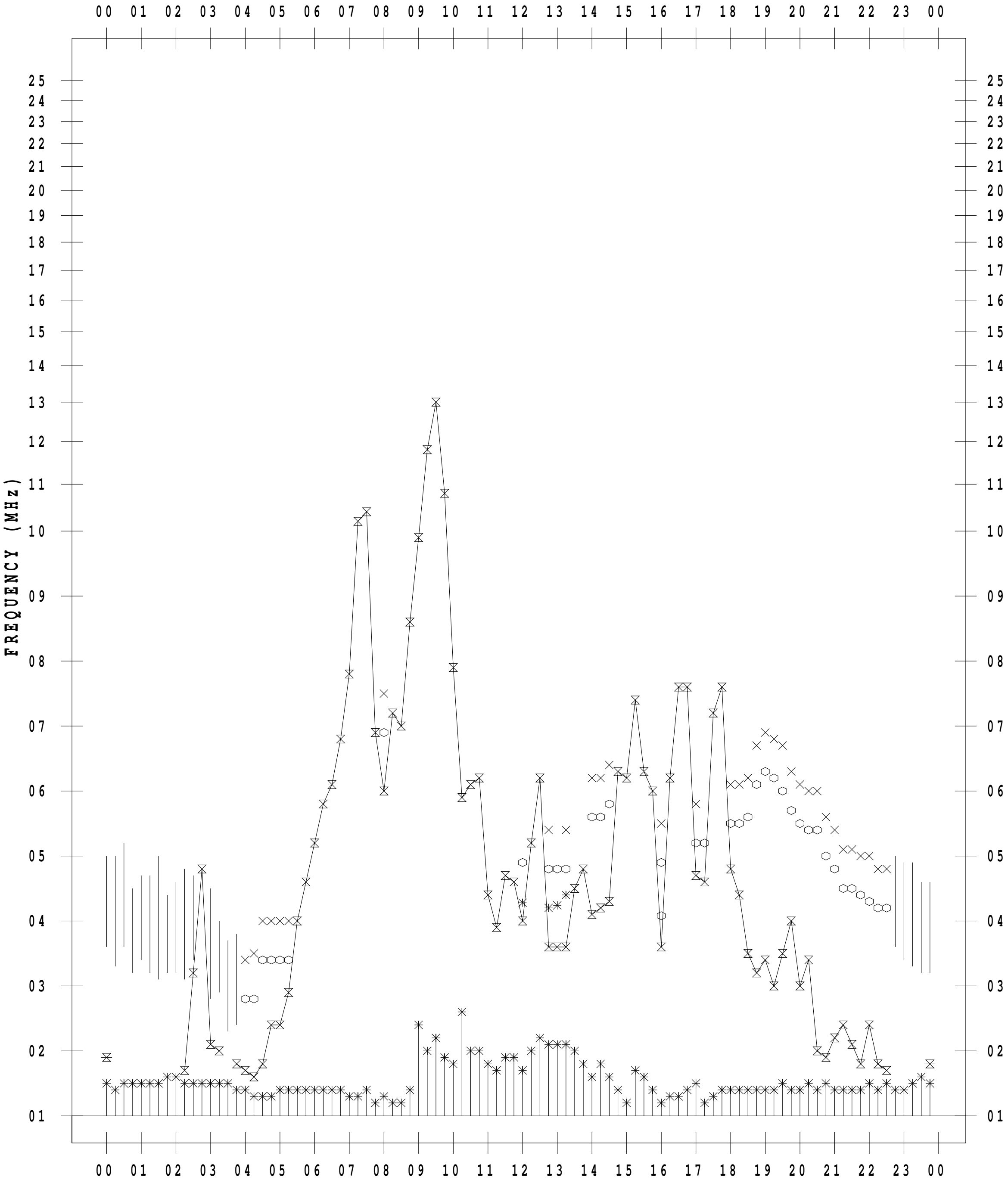
f-PLOT DATA

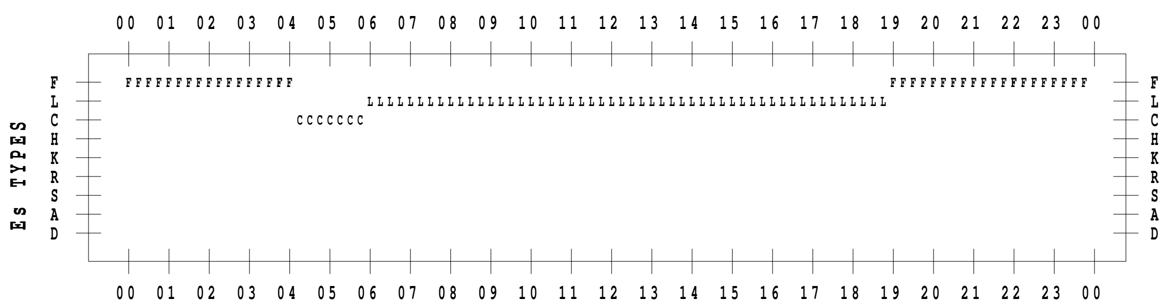
SCALER : I.NISHIMUTA

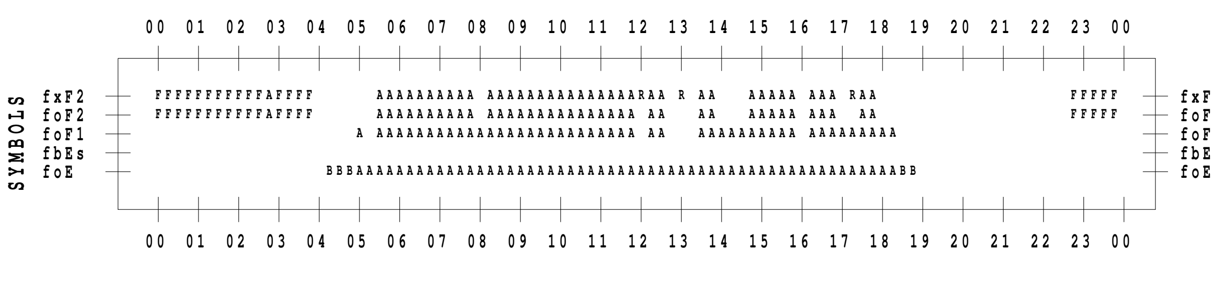
STATION : Kokubunji

DATE : 2009/ 6/14

135 °E MEAN TIME



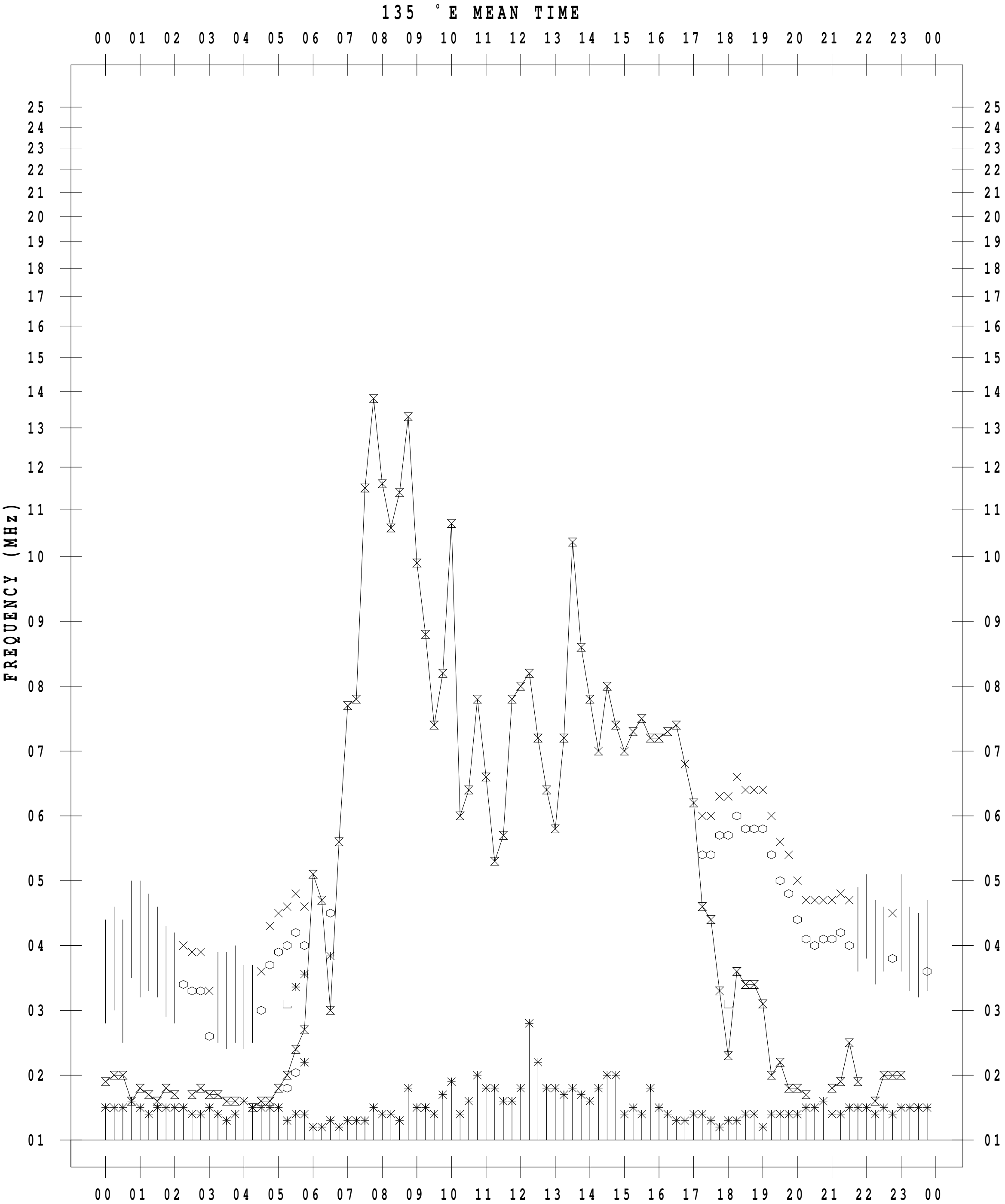


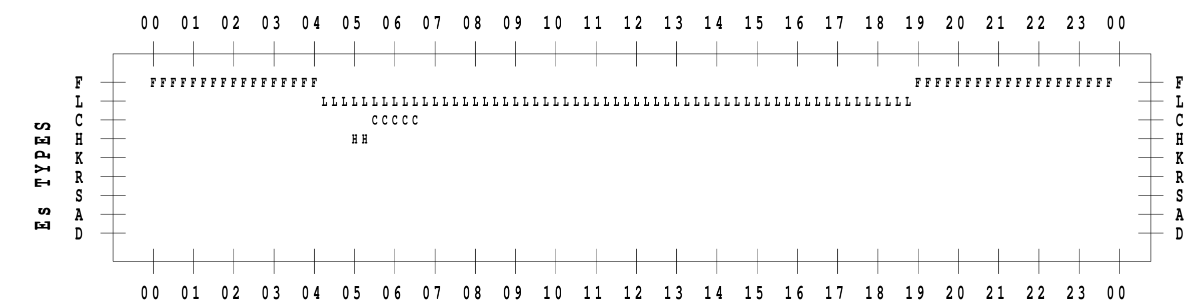


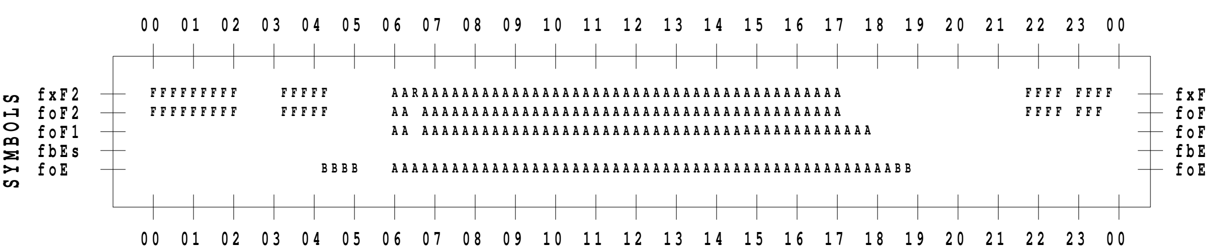
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji DATE : 2009/ 6/15







f-PLOT DATA

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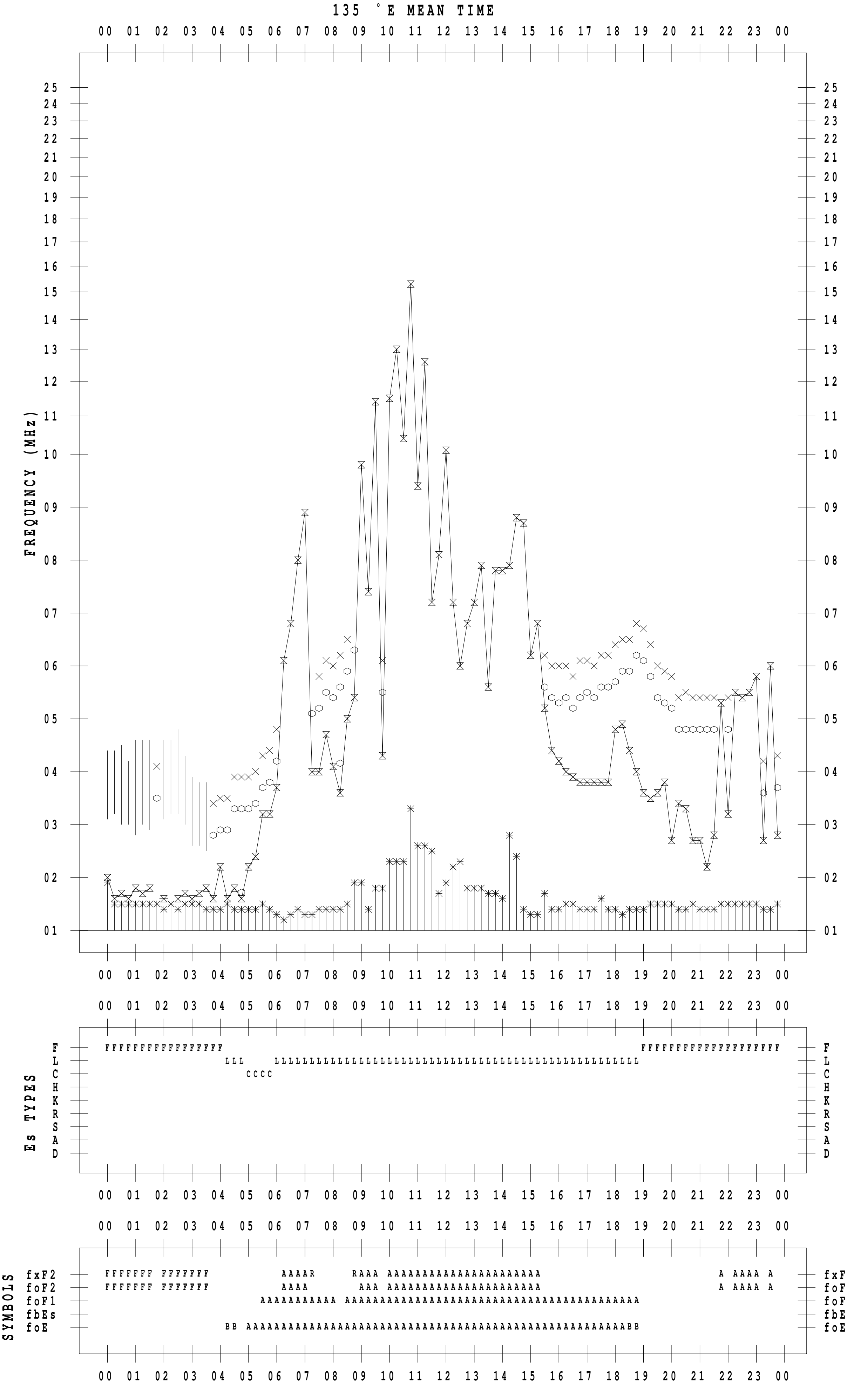
STATION : Kokubunji

DATE : 2009/ 6/16



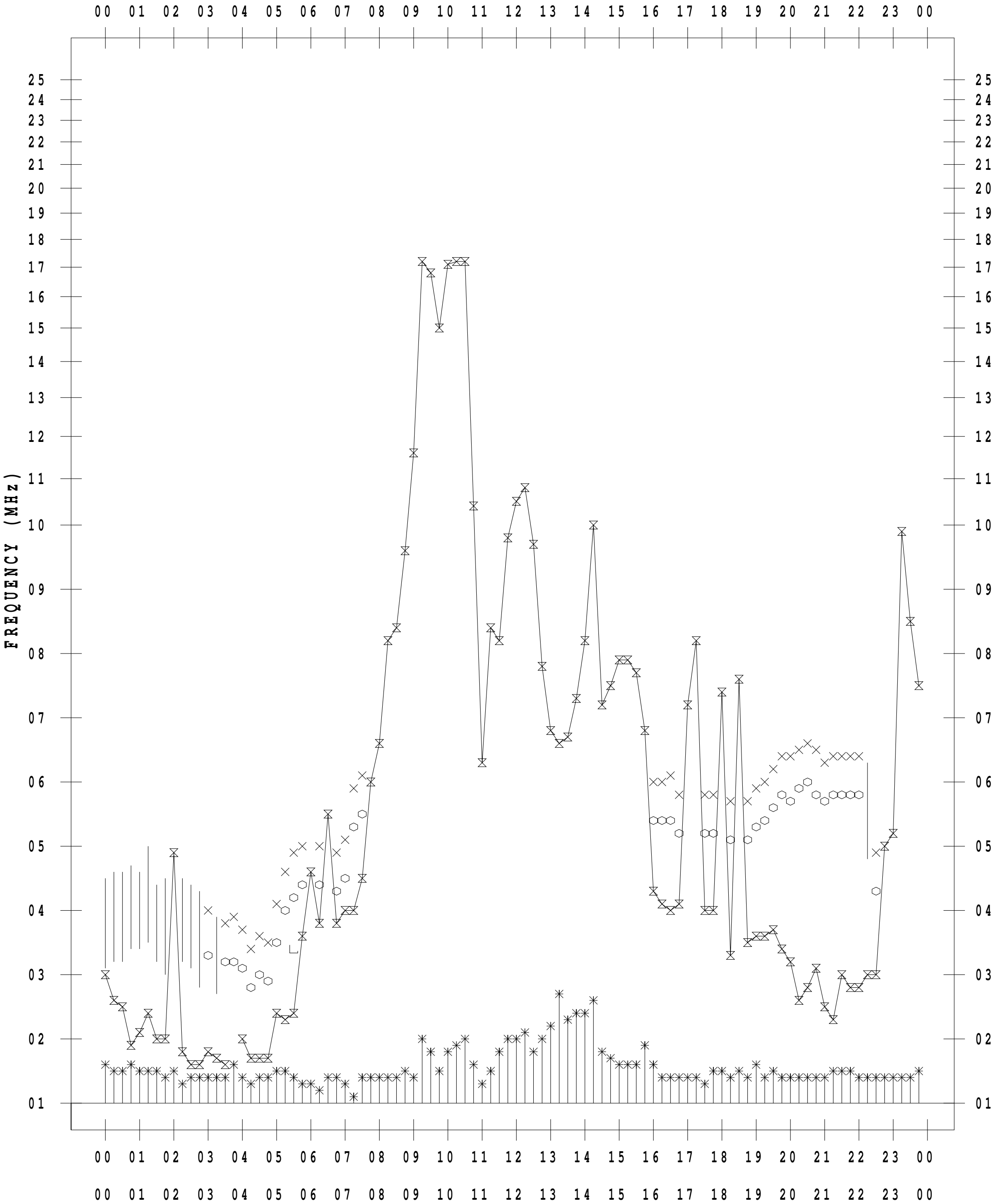
f-PLOT DATA

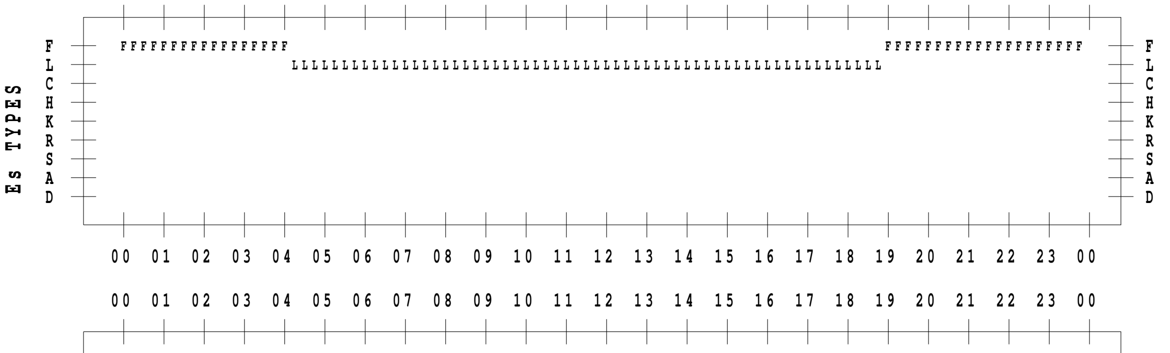
SCALER : I.NISHIMUTA

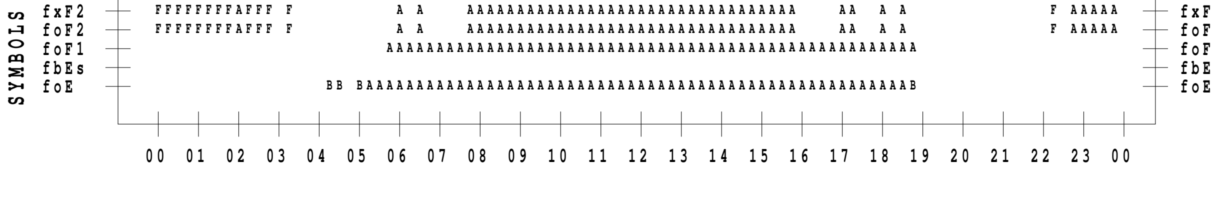
STATION : Kokubunji

DATE : 2009/ 6/17

135 °E MEAN TIME







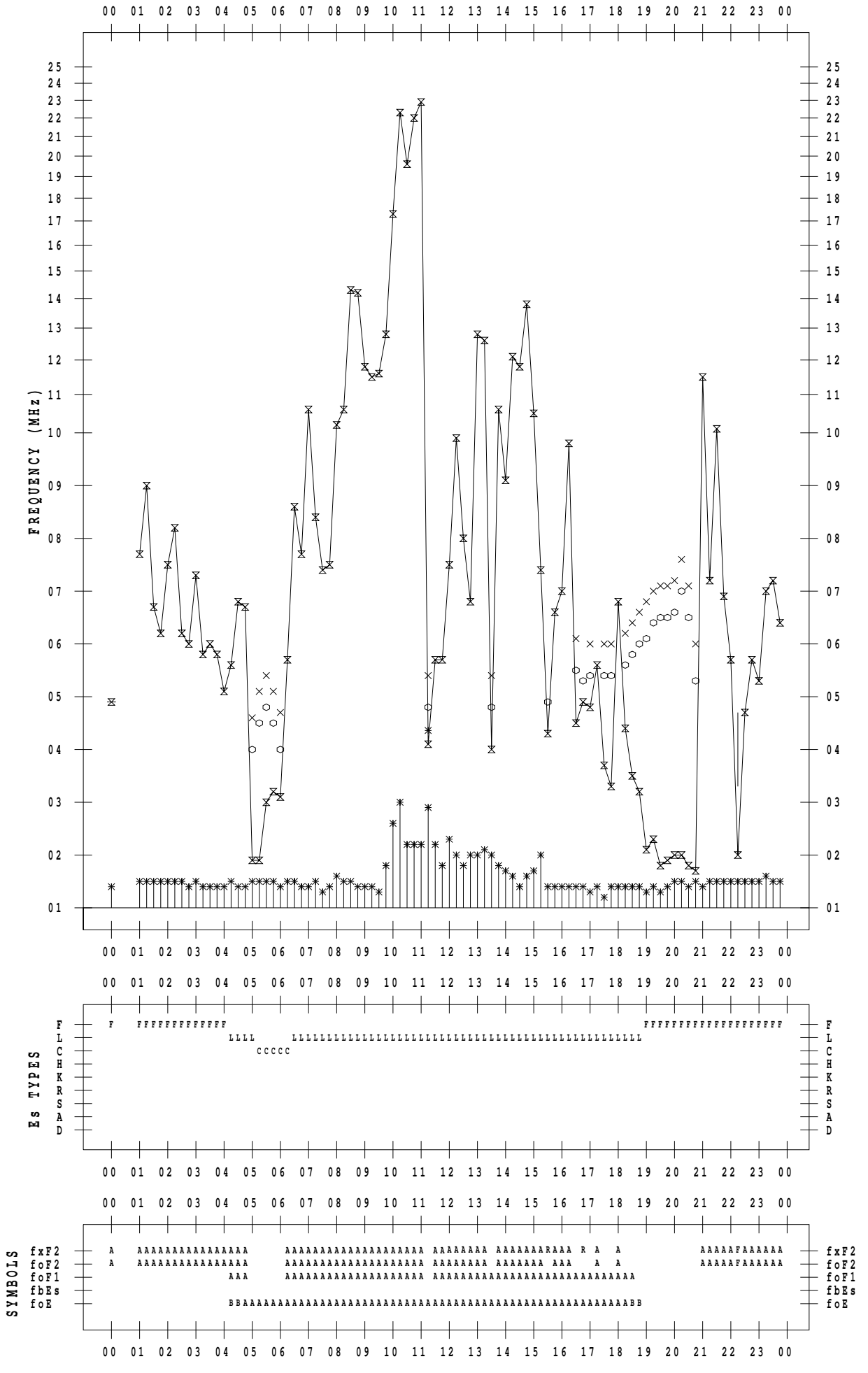
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2009/ 6/18

135 °E MEAN TIME



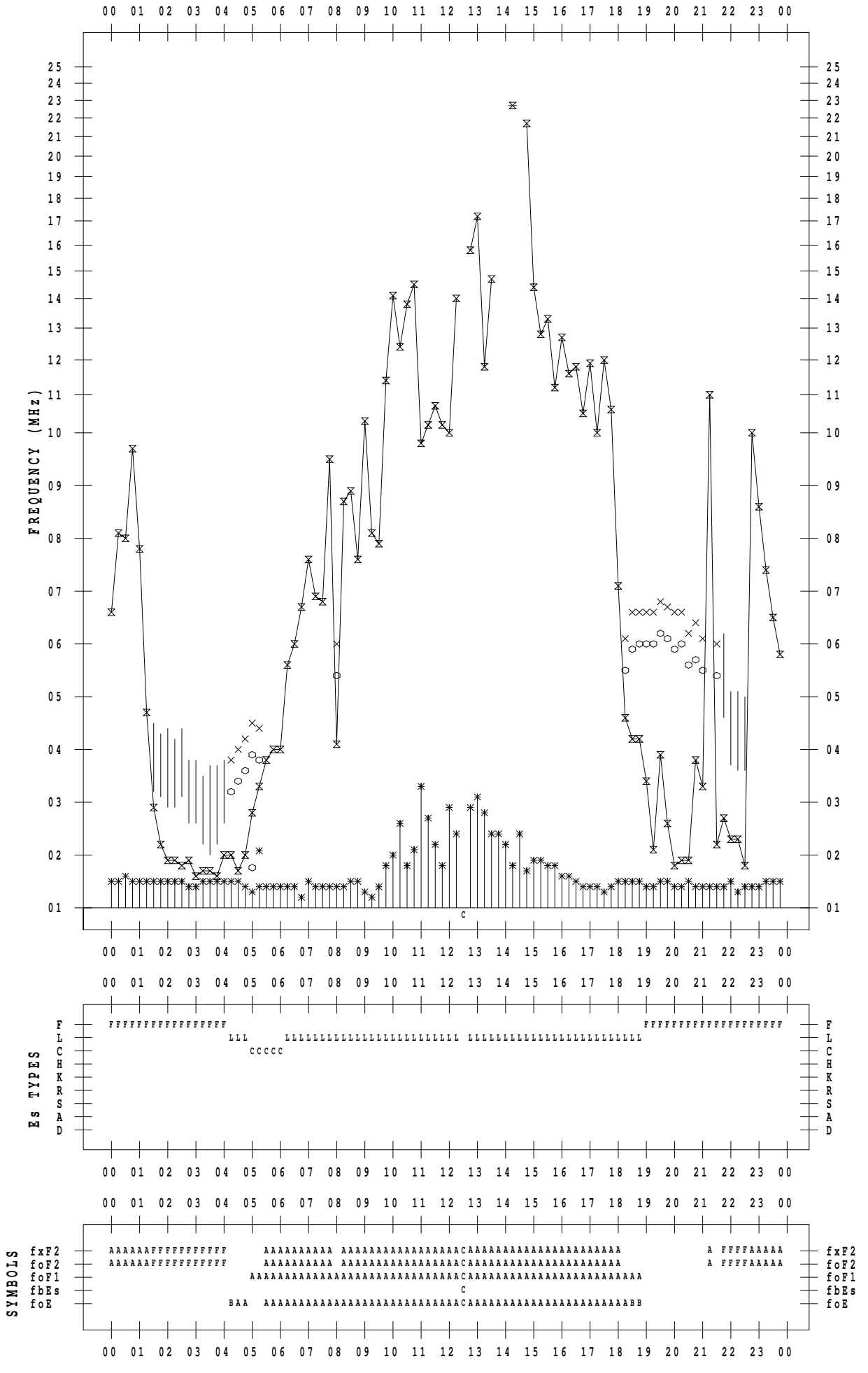
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2009/ 6/19

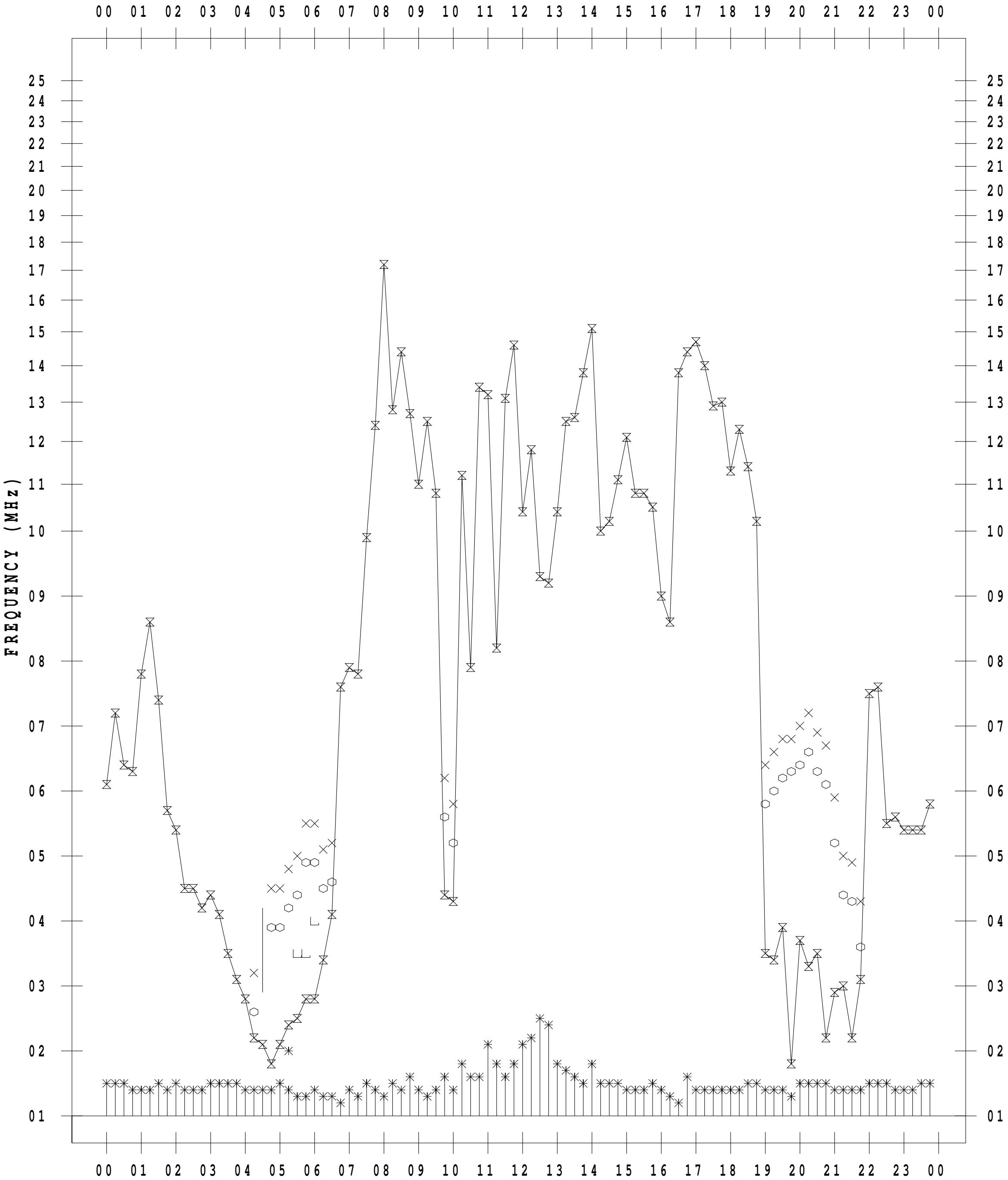
135 °E MEAN TIME

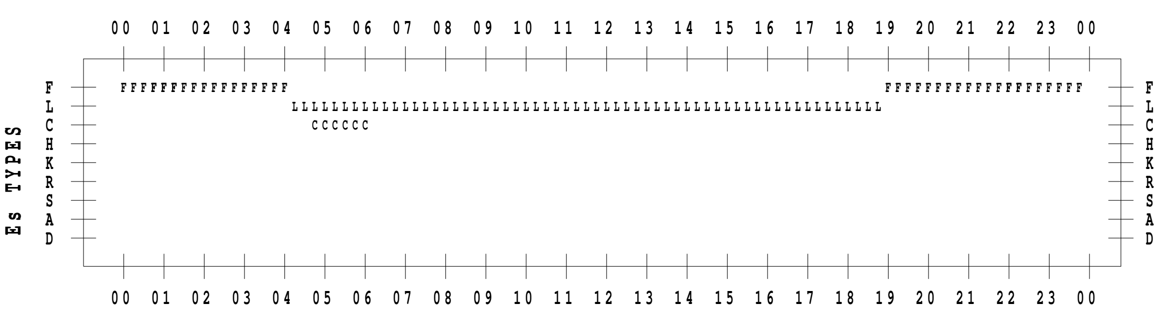


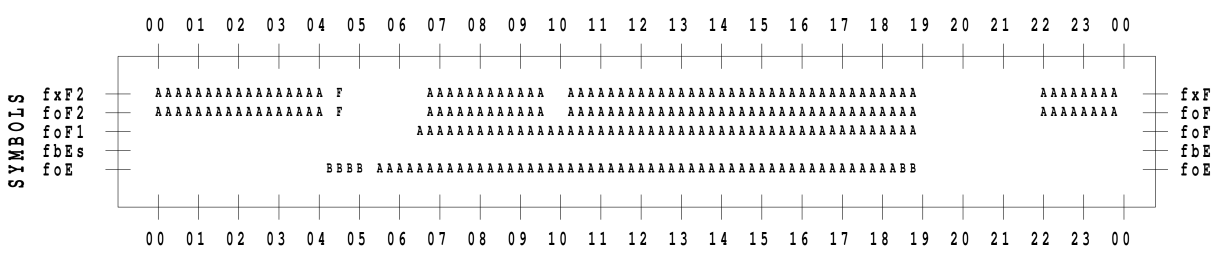
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji   DATE : 2009/ 6/20







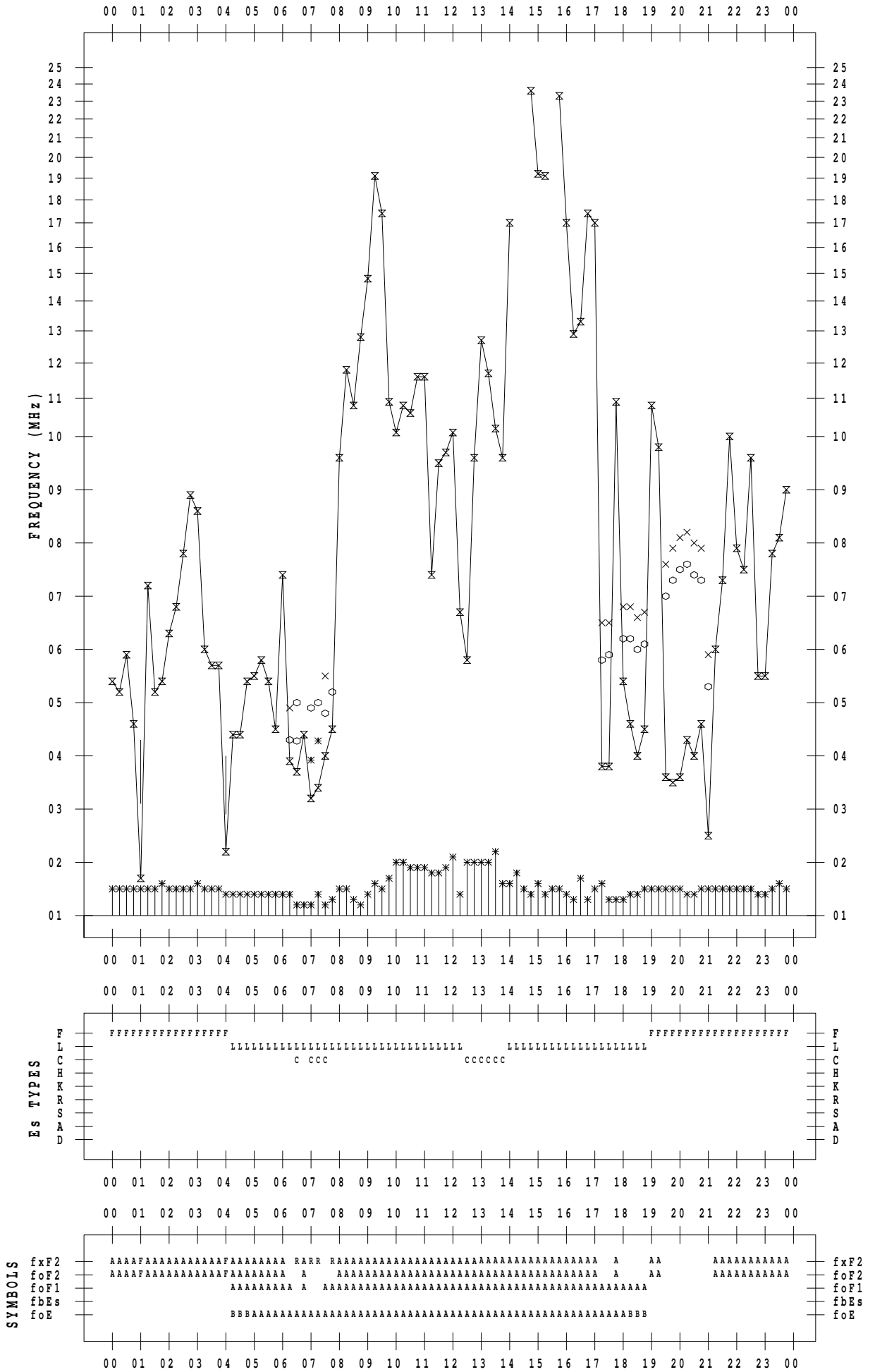
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2009/ 6/21

135 °E MEAN TIME



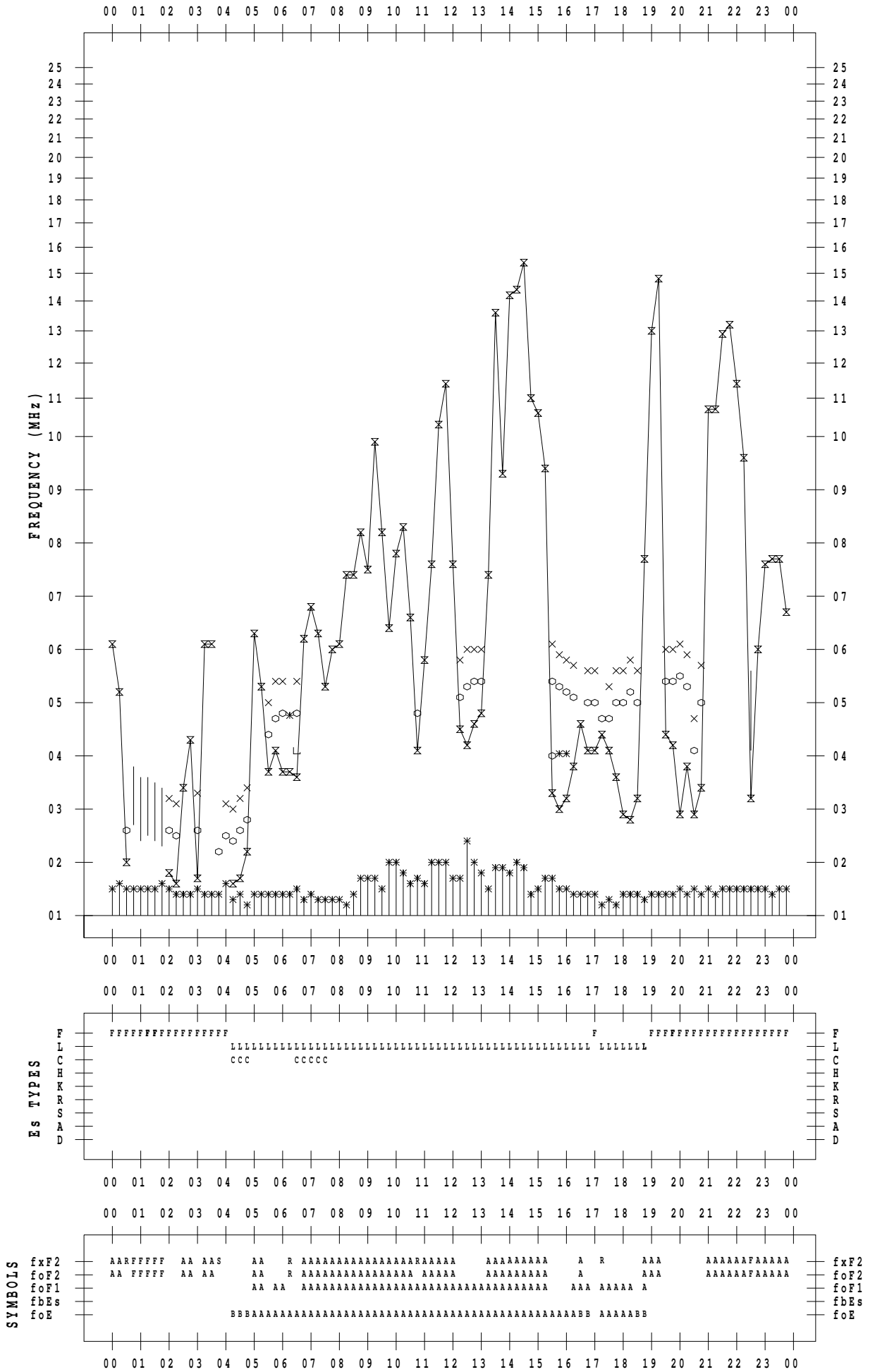
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2009/ 6/22

135 °E MEAN TIME

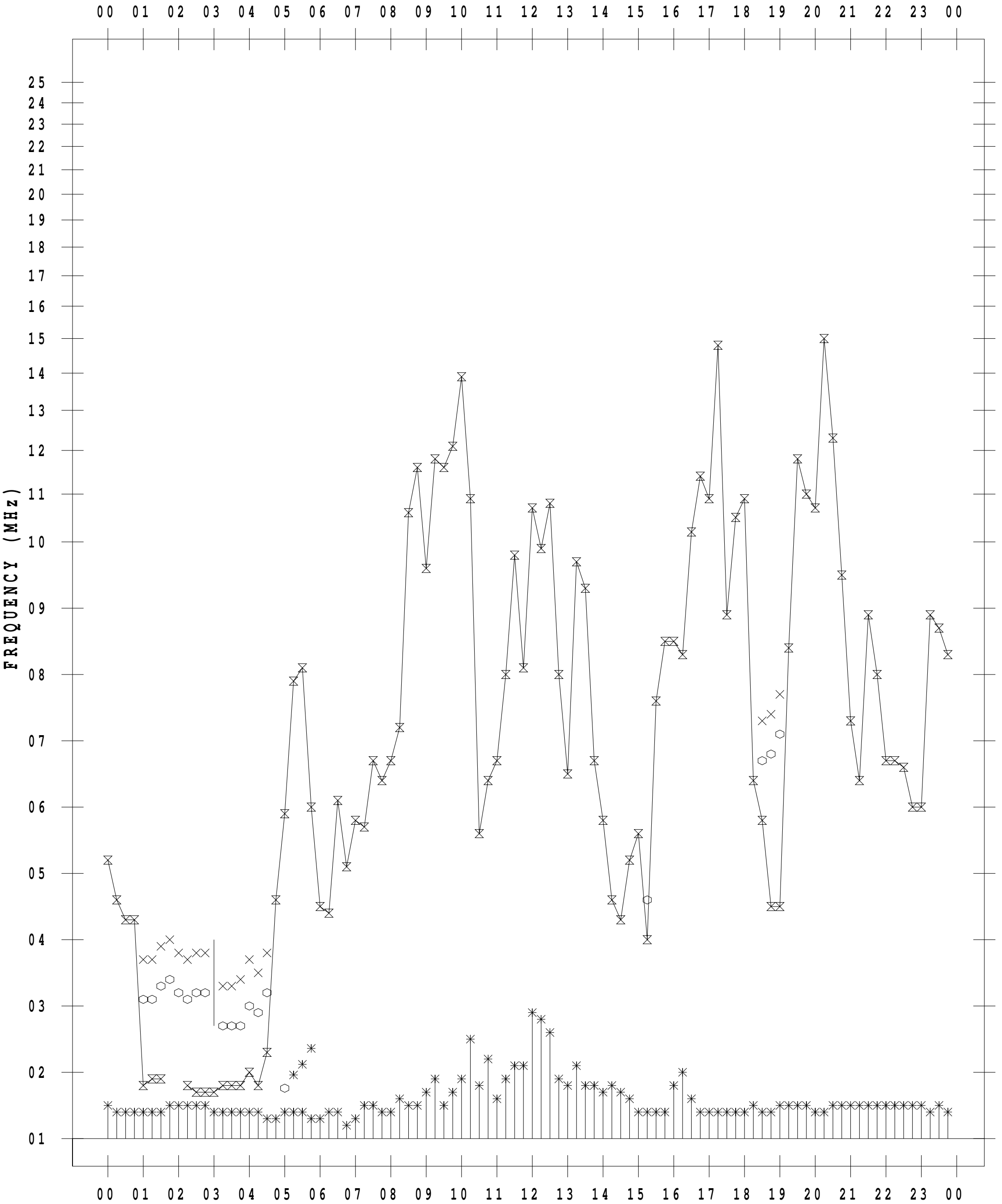


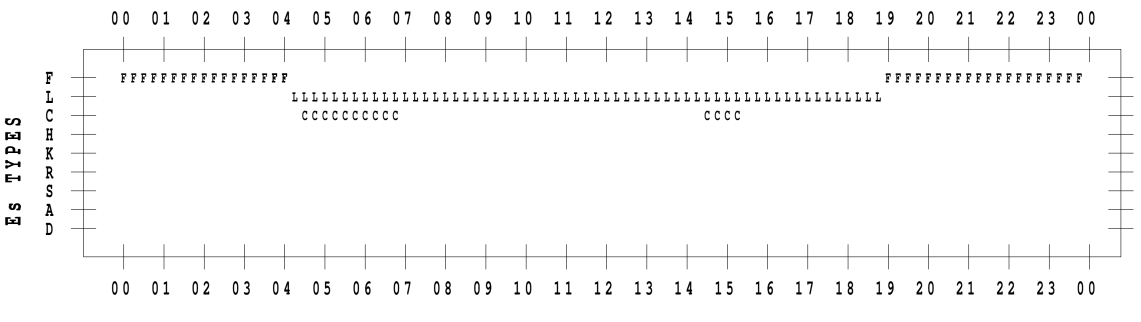
f-PLOT DATA

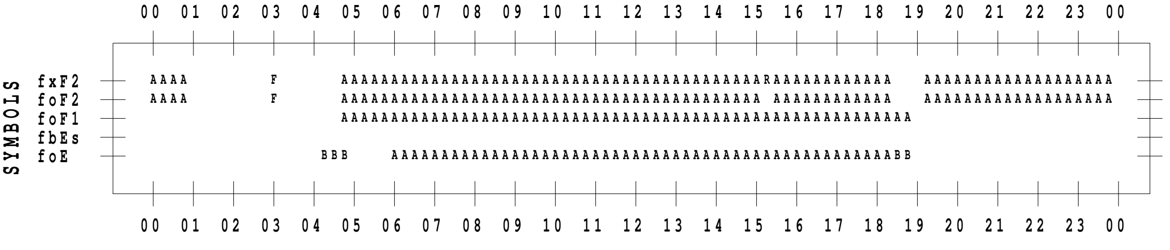
SCALER : I.NISHIMUTA

STATION : Kokubunji DATE : 2009/ 6/23

135 °E MEAN TIME





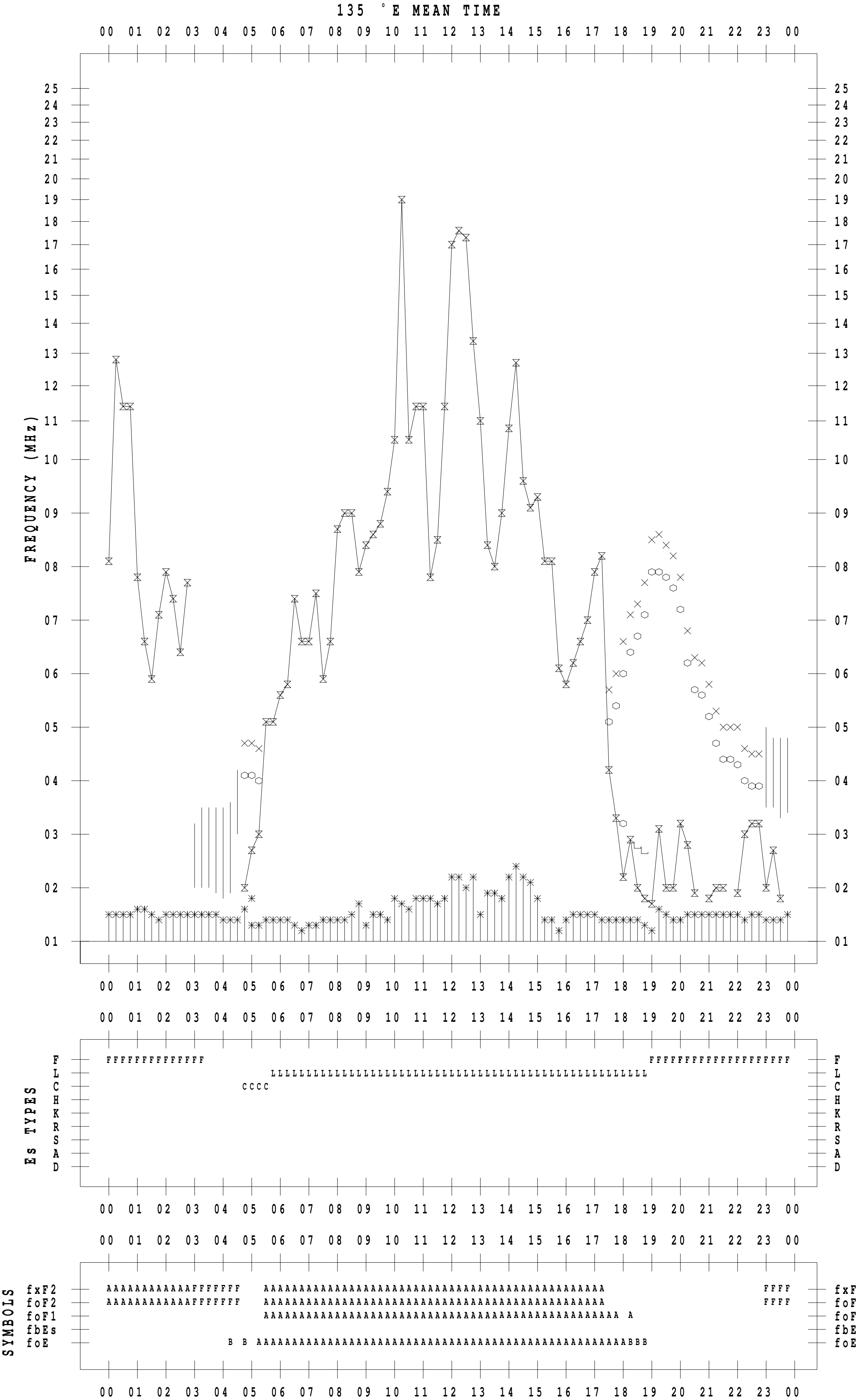


f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2009/ 6/24



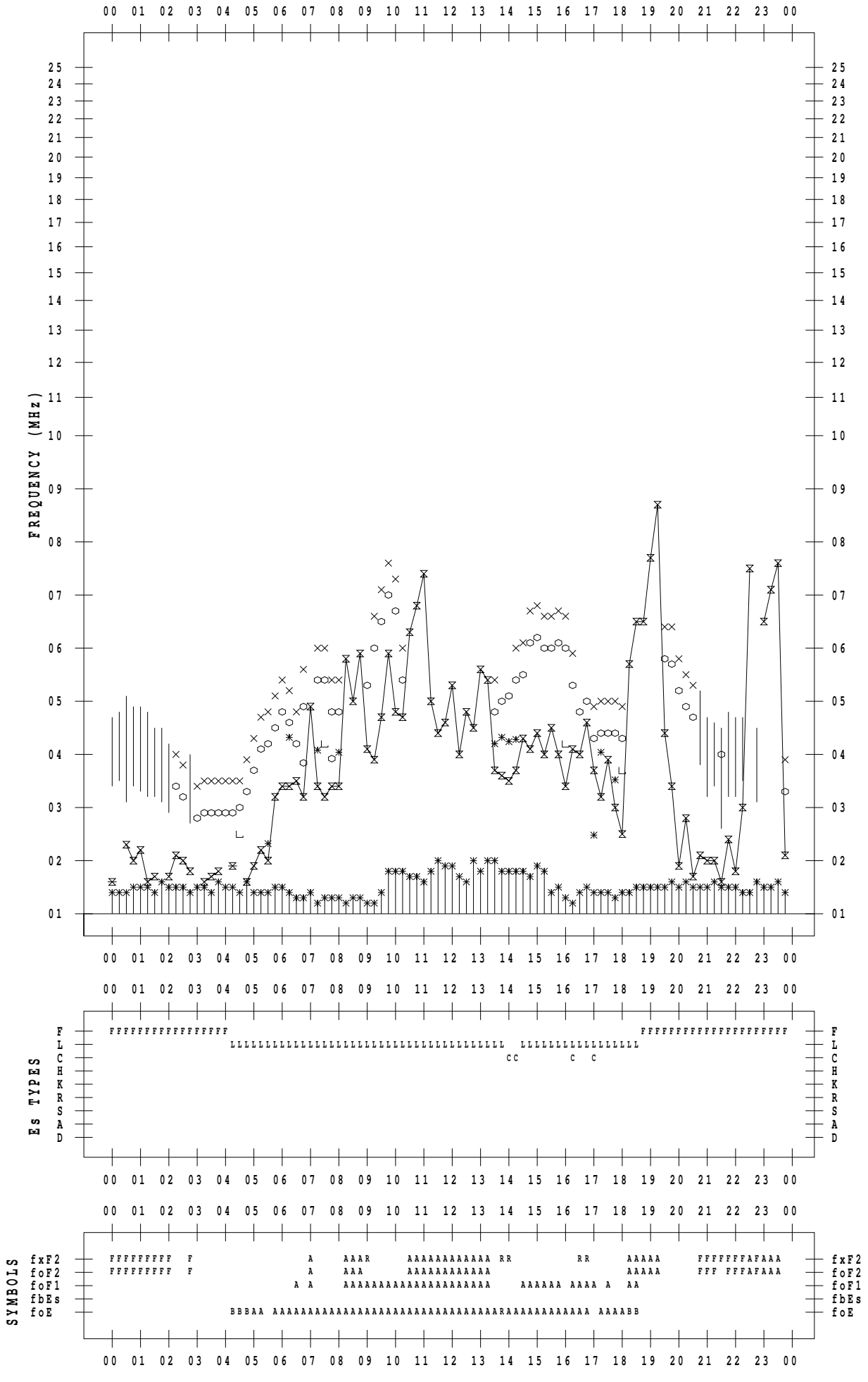
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2009/ 6/25

135 °E MEAN TIME



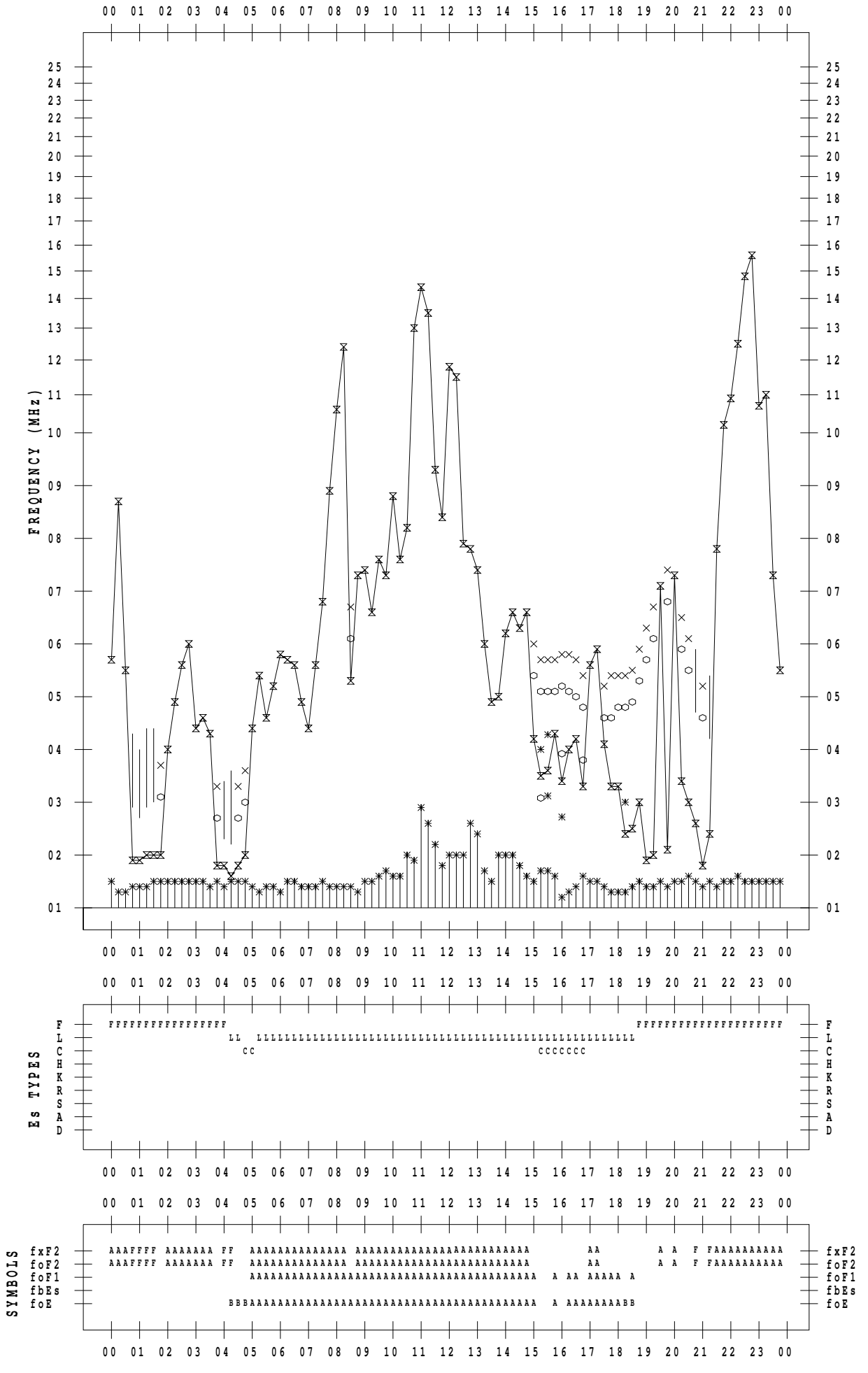
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2009/ 6/26

135 °E MEAN TIME



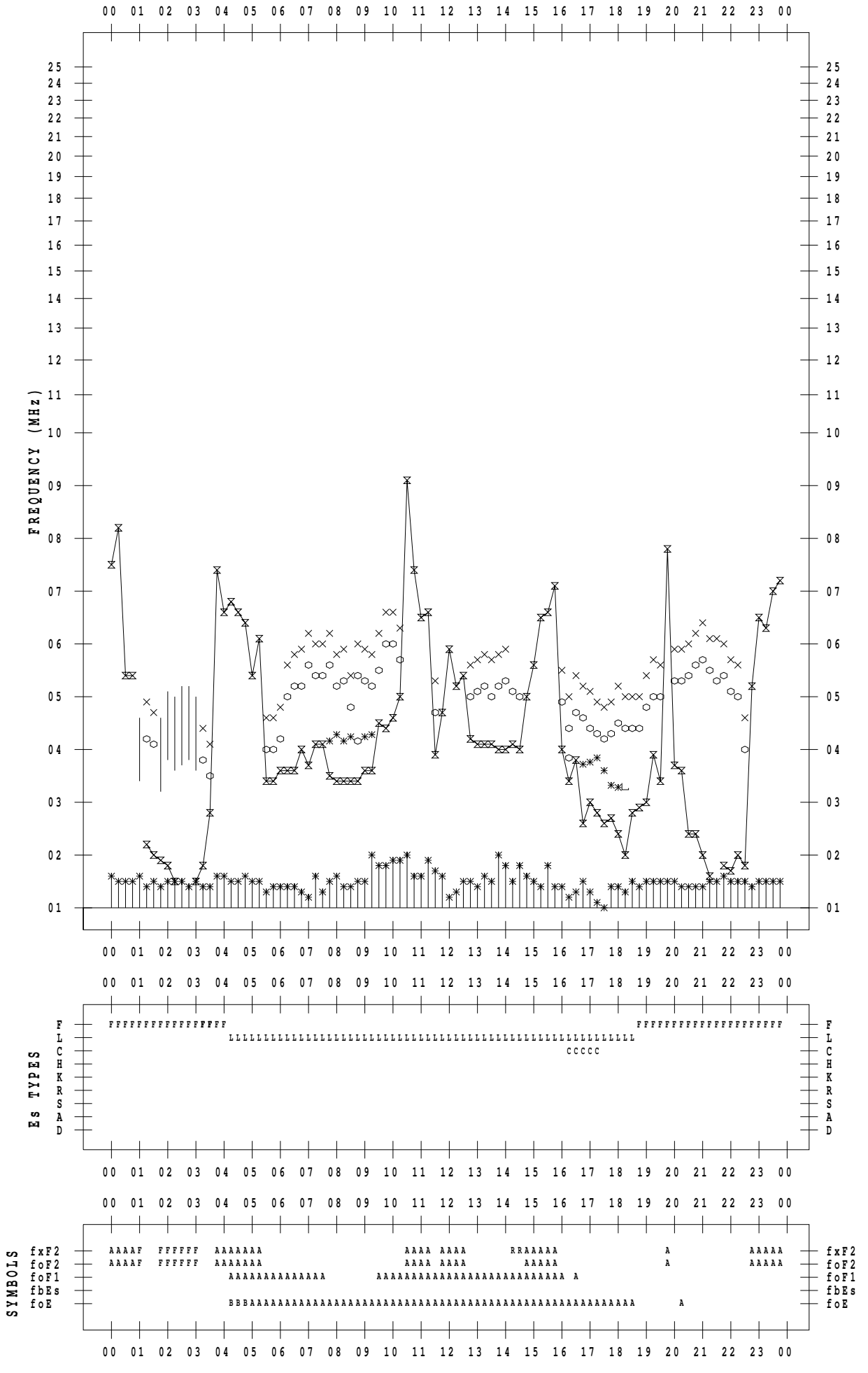
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2009/ 6/27

135 °E MEAN TIME

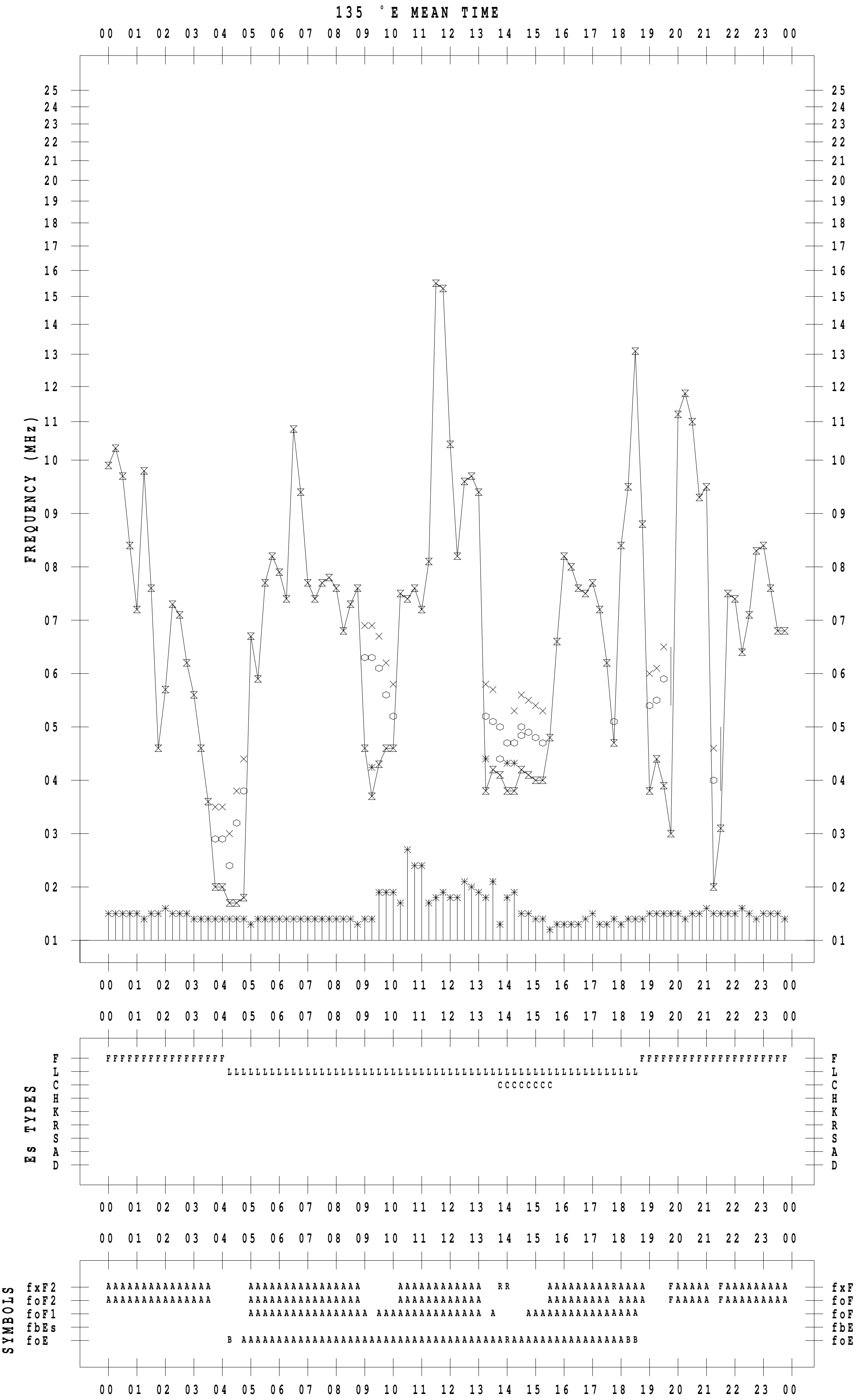


f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2009/ 6/28



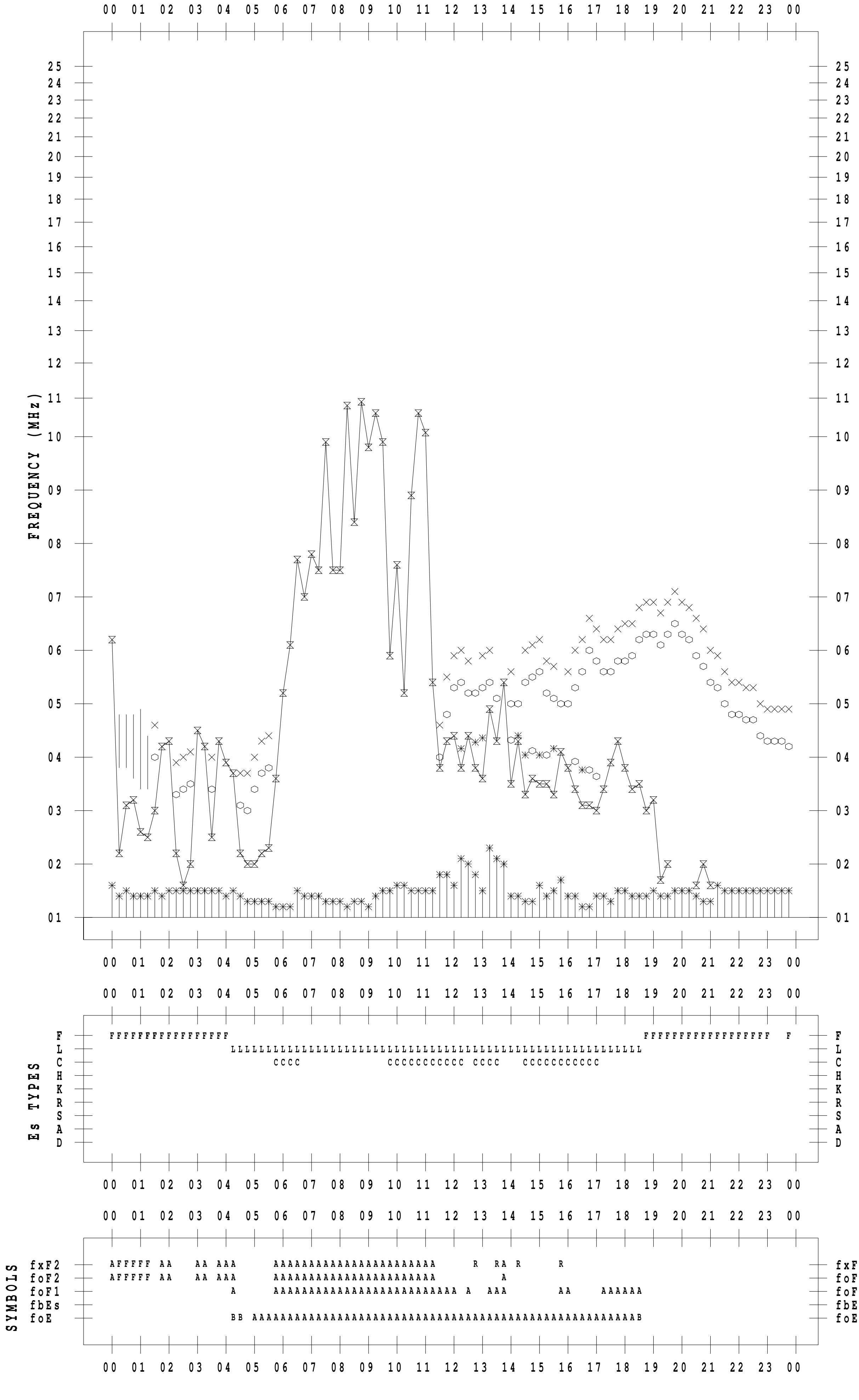
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2009/ 6/29

135 °E MEAN TIME



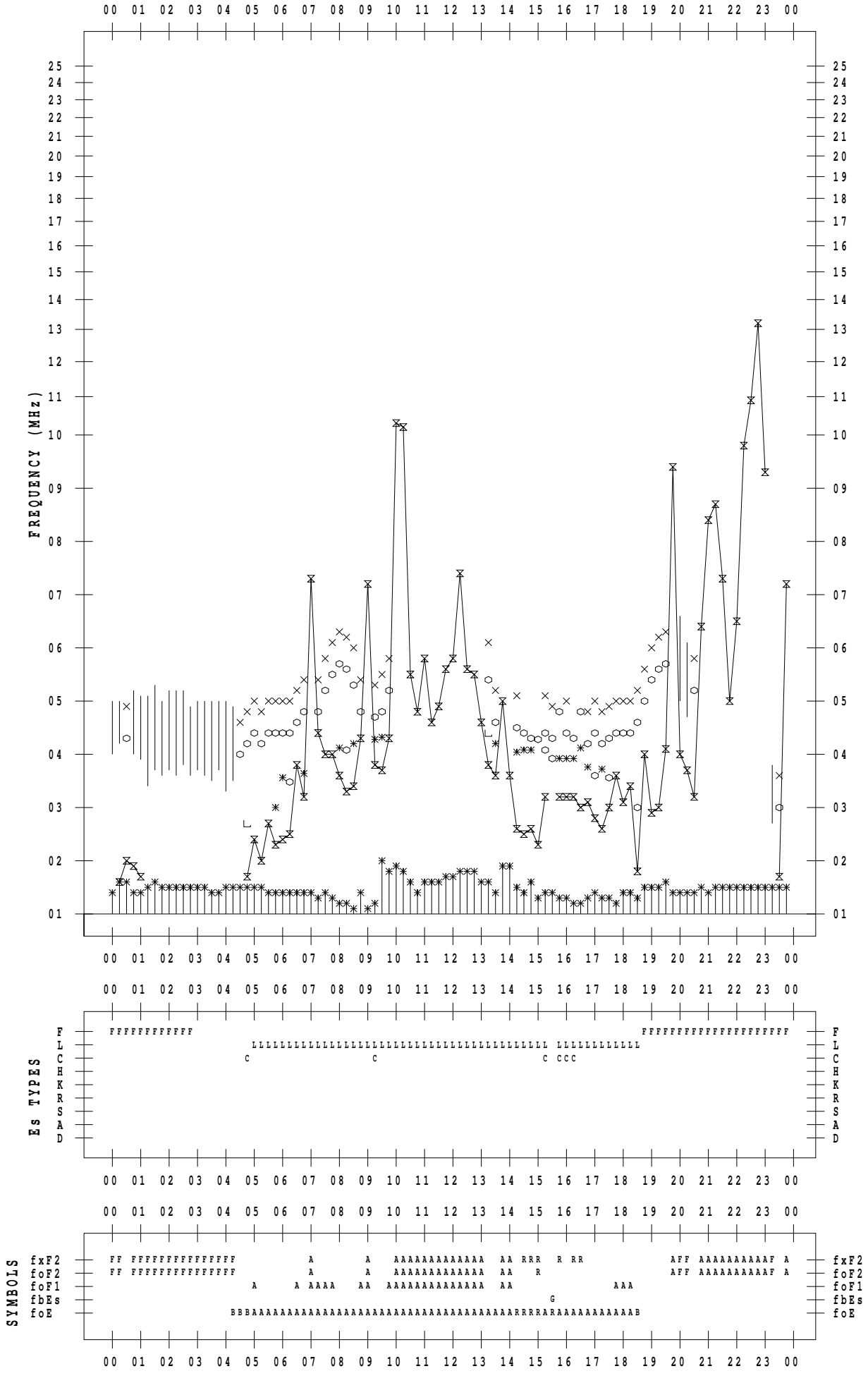
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2009/ 6/30

135 °E MEAN TIME



B. Solar Radio Emission
B1.Outstanding Occurrences at Hiraiso

Hiraiso June 2009

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

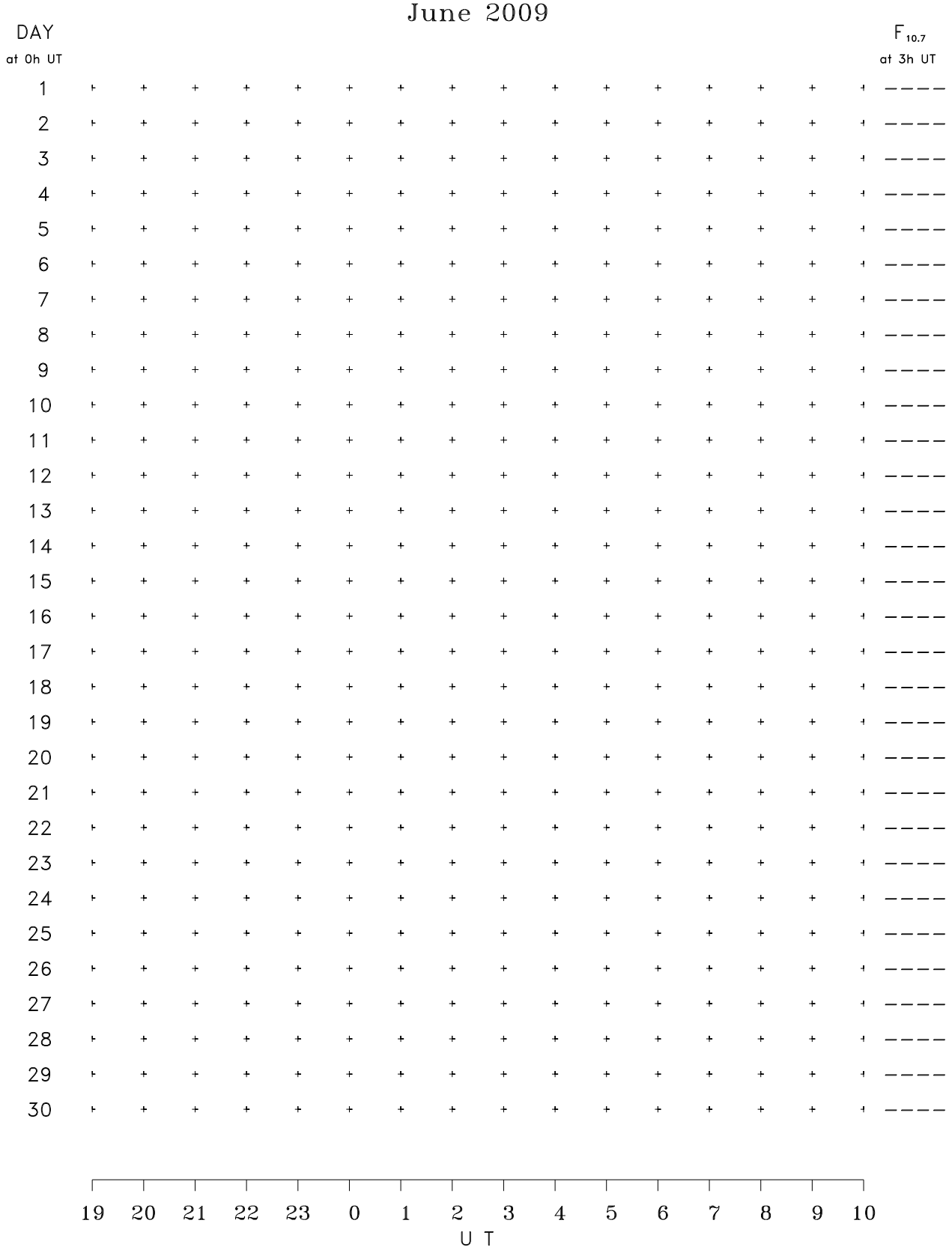
JUN. 2009	FREQ. (MHz)	TYPE	START TIME (U.T.)	TIME OF MAXIMUM (U.T.)	DUR. (MIN.)	FLUX DENSITY (10^{-22} W m^{-2} Hz^{-1}) PEAK	FLUX DENSITY (10^{-22} W m^{-2} Hz^{-1}) MEAN	POLARIZATION REMARKS

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

B. Solar Radio Emission

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

June 2009



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