F-810

IONOSPHERIC DATA IN JAPAN

FOR JUN 2016
VOL. 68 NO. 6

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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.

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.

HOURLY VALUES OF foF2 AT Wakkanai

JUN. 2016

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	58	59	54	53	50	63	61	55	107	79	106	A	A	A	A	108	A	A	A	60	A	64	51	61
2	62	58	60	57	56	66	66	58	57	58	A	49	99	61	66	66	61	58	60	67	72	72	67	65
3	65	62	56	57	57	61	66	58	63	58	A	A	53	58	57		65	67	66	62	70	62	67	62
4	62		56	58	61	51	58	64	66	65	A	59	A	67	A	61	62	57	62	72	71	68	66	67
5	66	63	50	58	58	62	73	79	59	64	60	59	59	57	60	65	66	66	70	80	70	66	50	65
6	63	69	50	63	55	58	91	109	169	90	A	108	126	A	56	58	65	66	A	62	A	A	A	62
7	50	48	A	47	A	A	A	86	89	A	A	54	56	A		55	A	55	A	51	51	A	A	58
8	54	54	51		45	47	52	51	52	A	A	A	A	56	58	A	61	59	58	55	66	65	65	62
9	54	54	55	54	57	63	66	62	59	55	55	56	A	58	62	53	57	60	62	62	66	64	65	61
10	62	56	42	54	52	48	A	60	58	A	A	109	60	A	A	A	A	90	87	86	A	70	A	58
11	61	61	52	42	49	A	48	A	89	A	A	A	A	103	A	51	158	60	89	88	102	A	64	42
12	54	43	52	47	36	44	87	89	114			104	A		A	51	51	48	56	62	60	56	A	57
13	52	A	52	48	42	51	58	159				169	58		114	156	107	A	A	155	63	67	64	54
14	54	50	52	51	53	51	51	55	A	159		88	106	N	54	A	61	64	64	63	66	66	A	A
15	42	A	42	89	A	A	A	A	106				110	169	A	A	49	56	62	61	C	C	C	C
16	C	C	C	C	C	C	C	C	C	C	C	C	129	136	A	A	108	129	164		62	A	49	42
17	53	51	A	48	44	48	51	55	A	A	58	A	46	85	51	52	A	66	A		67	70	64	60
18	49	52	51	44	43	45	53	A	A	A	108	79	46		44	49	50	51	A	60	54	63	62	54
19	53	53	50	42	53	42	55	51	A	110	109		189	A	54	A	A	85	A	51	58	65	50	53
20	58	52	47	47	43	45	A	A	A		A	A	A	A	A	A		A	A	139	A	62	46	62
21	50	48	48	46	49	56	60	55	110	65	64	58		A	45	54	53	54	52	56	66	66	65	A
22	A	A	50	A	52	45	A	108	107	A	110		A	A	55		54	A	54	58	65		66	64
23	55	51	50	51	49	51	57	A	A	C	C	C	C	C	C	C	C	68	99	A	83	A	A	A
24	A	49	51	46	42	51	51	51	55	C	C	C	C	C	C	C	A	111		109	169	A	45	60
25	46	51	39	52	50	44	111	61	A	110	139	A	62	48	A	55	59	A	A	58	72	67	A	64
26	52	50	51	50	51	51	54	107	108	54	56	58	A	A	A	A	89	54	62	65	66	A	53	51
27	51	51	46	42	40	48	A	A	A	79	88	54	A	A	52	54	87	109	118	71		A	84	A
28	A	45	47	47	45	47	41	A	54			A	55	A	A	41	A		55	62	74	64	A	A
29	A	A	C	C	C	C	C	C	C	C	C	C	A	A	A	59	A	A	45	A	62	A	A	56
30	42	39	41	40	42	50	A	A	A	A	A	A	A	55	A	54	51	51	48	56	56	64	62	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	25	24	26	26	26	25	21	20	18	13	11	14	15	12	14	18	20	23	20	26	24	19	20	23
MED	54	52	50	49	50	51	58	60	78	65	88	59	60	60	56	54	61	60	62	62	66	65	64	60
U Q	61	57	52	54	53	57	66	87	107	100	109	104	110	94	60	61	76	68	78	72	71	67	65	62
L Q	50	49	47	46	43	46	51	55	58	58	58	56	55	56	52	52	53	55	55	58	62	64	50	54

HOURLY VALUES OF fEs AT Wakkanai

JUN. 2016

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	35	26	G	G	60	60	69	72	74	70	70	108	73	69	71	112	58	50	80	56	57	44
2	G	23	G	G	G	G	45	52	52	52	62	58	66	52	61	40	G	G	G	G	28	24	G	25
3	G	126	26	25	24	G	40	40	G	45	67	61	42	182	56		83	56	G	G	G	G	29	40
4	38		G	G	G	G	39	43	49	49	63	48	90	82	70	40	G	39	49	G	32	G	G	24
5	G	26	G	23	G	36	43	55	60	54	54	47	115	48	49	52	G	G	46	G	36	26	G	G
6	G	G	G	G	G	39	76	96	128	95	108	125	118	165	G	G	G	46	57	33	62	72	60	33
7	25	40	54	116	50	60	63	75	93	116	54	49	G	109		47	84	55	69	54	44	56	70	46
8	44	33	31		G	33	128	43	47	58	65	73	69	48	60	64	42	35	41	61	69	53	40	26
9	G	24	G	G	G	34	G	G	45	126	58	48	53	45	48	41	38	G	34	G	G	38	25	28
10	27	26	34	44	40	36	69	84	77	105	88	78	56	167	94	111	75	63	73	133	124	46	72	49
11	53	39	37	27	G	45	42	61	92	76	69	110	60	70	76	G	96	72	65	108	114	59	48	49
12	36	28	32	58	24	46	87	52	84			134	52	G	48	41	40	39	38	52	70	34	39	40
13	36	68	43	26	G	33	52	108				159	152		61	134	92	155	117	169	50	55	54	32
14	28	36	40	39	40	84	40	G	94	130		61	96	91	44	74	51	56	49	76	44	57	50	108
15	204	136	134	90	69	79	54	70	71				137	142	50	46	46	44	40	53	C	C	C	C
16	C	C	C	C	C	C	C	C	C	C	C	C	152	74	46	56	76	97	120		46	70	37	36
17	28	43	34	43	34	G	G	45	62	58	47	46	G	58	G	G	57	81	58		60	36	25	29
18	30	41	34	32	G	36	74	61	62	52	70	85	G	G	G	G	G	51	71	48	52	G	23	G
19	G	G	G	G	G	59	G	54	61	124	110		93	43	94	162	92	69	112	G	40	45	46	71
20	37	43	25	G	G	39	51	69	69		84	140	84	90	78	46		97	100	160	136	52	27	40
21	34	27	G	G	G	44	43	58	92	G	91	63	G	46	43	59	49	46	G	39	48	42	57	69
22	71	60	43	49	116	33	86	80	98	118	63		58	96	50	G	49	58	44	44	46		29	G
23	G	G	45	38	G	38	48	72	152	C	C	C	C	C	C	C	C	54	84	107	115	48	116	125
24	125	41	39	40	37	46	38	51	46	C	C	C	C	C	C	C	70	92		116	178	147	88	40
25	32	37	38	41	35	63	72	59	144	72	79	50	52	66	68	101	G	65	53	39	37	49	114	49
26	28	G	34	35	25	40	57	94	116	51	132	83	95	81	64	62	53	50	45	35	59	58	84	41
27	38	31	32	36	27	32	46	44	58	70	94	160	71	44	42	50	60	107	91	114		71	92	72
28	104	58	30	35	36	G	38	48	117			65	55	74	61	G	54		54	28	44	26	58	55
29	48	58	C	C	C	C	C	C	C	C	C	C	68	59	65	85	50	55	37	61	90	68	70	44
30	25	32	28	32	G	46	54	59	59	71	67	56	88	48	51	48	47	47	43	G	43	43	52	52
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	29	28	28	27	28	28	28	28	27	21	21	23	28	27	27	27	28	29	29	28	28	28	29	29
MED	30	34	33	32	G	37	50	58	69	71	69	65	68	70	56	48	50	55	53	49	49	48	50	40
U Q	41	43	38	41	35	46	66	71	94	110	89	110	94	96	68	69	73	76	72	91	75	57	70	50
L Q	G	26	13	G	G	32	40	46	58	52	62	50	52	48	46	40	39	45	40	14	41	35	28	28

HOURLY VALUES OF fmin AT Wakkanai

JUN. 2016

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

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

HOURLY VALUES OF foF2 AT Kokubunji

JUN. 2016

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	52	A	52	55	58	58	58	A	A	A	A	A	99	124	N	149		N	67	67	65	A	A
2	A	A	54	52	50	62	57	66	61	A	A	102	A	79	A	A	A	A	81	A	A	55	66	72
3	67	64	55	51	54	57	66	75	65	48	A	A	A	A	A	75	85	82	59	67	54	64	65	67
4	61	52	54	46	52	57	67	62	64	56	A			73	82	81	78	A	109	A	31	A	65	61
5	61	54	52	51	51	55	72	72	65	56	A	99	A	67	76	81	A	85	87	84	54	54	A	63
6	61	58	52	54	76	47	A	A		A	A	99	A	A	A	A	58	71		A	A	66	72	76
7	72	52	51	45	48	52	A	A	A	A	A	A	A	A	63	66	62	61	61	50	44	53	54	52
8	52	52	51	A	42	47	56	53	A	A	A	A	A	89	A	99	A	A	75	74	A	55	61	63
9	52	52	54	54	52	57	66	66	A	109	A	A	79	64	A	A	67	48	72		73	66	59	61
10	64	55	54	A	A	52	63	A	54	A	A	A	A	58	A	A	A	67	74	81	A	72	71	65
11	62	57	58	52	51	50	56	A	A	A	A		48	A	A	60	98		147	80	72	A	A	A
12	A	52	44	42	42	24	A	A	A	A	A	A	A	99	A	53	A	56	61	71	66	51		44
13	45	44	45	48	42	A	A	59	67	79	A			A	A		A	48	52	58	67	59	52	A
14	49	49	47	46	46	47	51	54	54	56	A	A	A	62	A	66	A	119	64	A	A	52	54	54
15	A	A	45	45	A	42	A	99	69	60	A	A	A	A	A	A	62	A	115	A	52	52	54	54
16	52	A	52	39	42	32	57	65	62	64		A	A	A	A	A	52	54	54	52	A	54	A	A
17	52	48	44	47	44	42	48	56	60	66	A	A	A	51	57	A	A	A	57	59	54	54	54	65
18	52	54	49	42	45	45	A	A	58	A	A	A	A	A	A	53	55	56	58	62	64	54	54	54
19	A	A	46	51	52	47	51	A	A	A	A	A	59			53	51	53	55	63	63	54	A	50
20	52	52	51	A	44	45	47	45	A	A	A	A	A	A	A		55	61	52	54	A	54	52	51
21	52	49	42	47	42	44	A	56	56	68	63	62	A	A	A	A	A	A	A	A	75	67	A	A
22	A	42	N	44	44	45	51	62	81	119	A	109	A	A	A	69	A		85	64	67	66	54	54
23	A	A	54	51	46	50	52	76	A	101	A	A	A	79	72	72	82	86	80	63	54	55	54	52
24	50	59	63	62	57	53	43	A	57	54	55	A	A	A	A	105	89	A	97	A	A	A	54	53
25	54	A	A	43	43	54	64	A	110	A	149	109	A	A	A	A	66	55	59	67	54	64	A	A
26	51	A	A	A	46	51	50	A	53	56	A	A	54	A	A	58	60	59	62	72	52	52	49	51
27	48	49	50	44	38	42	41	A	A	A	A	A	A	61	62	60	57	63	A	75	54	A	42	38
28	A	A	A	40	30	A	A	55	52	A	A	A	A	A	A	106	A	105	65	77	71	44	37	38
29	38	38	36	38	34	42	52	55	A	A	A	A	A	62	61	A	48	A	46	51	63	A	42	A
30	45	42	41	42	36	43	48	52	A	62	A	A	A	A	A	97	100	63	64	54	58	49	A	49
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	22	22	25	26	28	28	22	19	17	15	3	6	4	13	8	17	19	19	26	22	22	25	21	23
MED	52	52	51	46	46	47	54	59	61	62	63	100	56	67	68	69	62	61	64	66	60	54	54	54
U Q	61	54	54	51	51	53	63	66	66	79	149	109	69	84	79	89	85	82	81	74	67	64	63	63
L Q	50	49	45	43	42	43	50	55	55	56	55	99	51	61	61	59	55	55	58	58	54	52	52	51

HOURLY VALUES OF fEs AT Kokubunji

JUN. 2016

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	72	57	59	29	G	G	42	47	79	150	101	128	98	68	115	148	152		43	35	57	53	105	111
2	57	69	50	53	38	35	37	61	64	88	83	94	85	90	86	82	120	94	71	90	60	49	42	90
3	G	23	G	41	44	30	43	50	59	53	70	68	63	76	62	55	50	60	70	50	45	60	56	31
4	26	26	29	32	G	27	39	43	50	58	60			43	44	74	50	125	104	85	53	80	78	53
5	32	35	41	48	37	38	50	52	62	58	82	103	80	58	59	66	86	68	45	40	57	59	70	40
6	49	33	27	25	27	35	59	115		168	150	104	140	144	78	94	52	49		112	84	40	69	57
7	29	51	26	38	49	31	61	64	84	112	146	81	63	83	65	47	G	35	31	40	29	70	65	71
8	51	66	30	52	39	36	40	57	115	60	56	68	70	86	72	82	118	81	34	76	95	60	42	34
9	58	41	46	32	32	42	39	G	130	70	83	82	74	61	70	105	69	65	58		50	50	36	G
10	24	27	G	60	51	30	39	66	58	57	90	62	59	57	80	106	156	G	33	26	92	47	59	78
11	39	50	37	71	34	35	60	87	76	180	106		50	102	99	56	92		136	103	71	70	72	69
12	68	42	33	40	G	28	57	114	87	99	110	84	91	80	118	50	50	50	41	60	34	30	G	38
13	34	39	31	32	34	69	61	50	61	75	60	G	G	72	69		84	82	50	47	55	53	52	60
14	52	50	45	32	31	27	G	G	G	51	70	75	96	42	42	51	152	117	96	94	57	35	33	28
15	59	118	129	54	58	30	61	94	60	53	61	51	47	43	75	90	68	76	117	91	58	50	50	43
16	42	89	45	33	31	34	39	40	47	G	G	53	100	90	89	86	G	42	51	67	91	59	72	81
17	57	56	52	39	33	G	33	G	49	47	66	107	90	G	65	60	82	82	53	70	G	53	34	39
18	G	G	G	27	26	45	60	59	59	57	50	59	56	62	57	49	G	41	52	51	39	26	38	39
19	59	49	40	34	31	G	41	59	104	102	113	78	51	G	G	G	43	37	30	34	28	G	60	50
20	80	37	59	58	45	G	34	G	50	51	50	49	45	62	53	G	43	111	35	35	59	49	29	37
21	41	46	33	31	27	30	59	50	52	54	51	43	55	55	62	67	81	70	92	59	49	58	82	70
22	53	50	52	47	37	32	35	59	87	113	127	116	169	102	85	49	135		92	42	72	51	57	39
23	69	82	65	41	35	53	G	73	84	93	150	173	120	G	43	42	93	35	32	35	33	29	G	46
24	36	51	49	39	25	42	40	44	55	48	53	116	78	101	109	85	104	78	115	128	110	80	128	50
25	52	59	60	34	27	34	42	55	107	114	106	109	69	137	122	69	62	40	50	65	59	47	85	84
26	55	70	59	49	28	35	52	52	73	43	55	62	48	53	58	55	43	39	32	27	G	G	30	45
27	34	43	31	32	33	30	G	57	93	73	84	54	101	53	51	51	48	50	61	70	50	43	34	26
28	68	52	57	37	34	53	50	46	51	83	69	51	57	77	68	114	91	96	61	47	34	30	33	28
29	G	32	G	27	G	28	39	G	70	61	57	69	73	48	44	63	55	44	38	33	38	60	60	59
30	40	36	79	60	52	32	36	43	130	102	70	76	73	126	84	61	90	54	51	59	40	29	60	47
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	30	30	30	30	30	30	30	29	30	30	28	29	30	30	29	30	27	29	29	30	30	30	30
MED	50	50	43	38	33	32	40	52	64	66	70	76	73	65	68	63	75	60	51	59	54	50	56	46
U Q	58	57	57	49	38	36	57	61	87	102	106	103	93	90	85	85	93	82	81	80	60	59	70	69
L Q	34	36	30	32	27	28	37	43	53	53	57	56	55	53	57	50	50	41	36	37	38	35	34	38

HOURLY VALUES OF fmin AT Kokubunji

JUN. 2016

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

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

HOURLY VALUES OF foF2 AT Yamagawa

JUN. 2016

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	54	55	51	60	54	50	54	52	58		A	75	A	77	90	96	A	A	A	A	A	54	53
2	52	A	47	49	51	55	44	A	A	A	A	A	A	A	A	A	64	97	A	78	A	72	67	55
3	A	53	54	58	58	57	78	72	A	A	A	A	A	68	73	86	81	81	74	68	54	52	62	54
4	52	52	52	52	45	46	60	58	60	59	61		63	78	80	78	77	77	80	72	55	72	66	52
5	66	66	66	63	58	51	61	64	72	A	A	62	72	80	81	A	86	90	86	A	A	A	A	A
6	48	48	A	47	53	A	44	63	60	A		A	66	72	77	A	A	80	77	72	73	A	67	67
7	75	A	53	A	57	63	63	A	A	A	A	A	A	A	A	67	A	67	58	A	A	A	52	51
8	52	45	50	46	44	46	47	56	56	A	A	A	A	61	57	A	82	86	90	88	73	30	66	53
9	67	67	69	64	58	47	54	54	55	A	A	A	A	A	A	A	A	A	A	A	A	40	54	54
10	53	52	52	54	54	48	46	64	61	62	A	58	A	A	64	72	78	78	78	80	78	78	52	63
11	52	52	45	46	50	48	51	54	87	A	A	A	A	A	A	70	68	71	76	A	A	A	A	48
12	44	51	54	47	A	45	46	50	A	A	A	A	A	A	A	A	A	60	45	66	64	51	44	44
13	41	47	44	45	A	A	A	A	A	109	A	A	A	A	A	A	A	A	58	66	54	48	A	A
14	A	50	58	46	A	41	51	56	55	57	A	63	54	59	A	72	86	79	61	A	A	A	45	51
15	A	51	A	43	42	A	A	A	68	A	A	A	A	B	62	A	A	68	A	A	A	A	A	54
16	52	52	52	42	A	34	47	64	66	59	A	A	B	B		58	62	58	57	A	53	52	46	48
17	A	A	50	47	42	36	48	58	60	65	A	A			62	A	59	53	68	67	58	A	A	54
18	52	54	51	51	46	41	47	51	A	A	A	A	A	A	A	A	60	63	A	A	51	53	53	50
19	A	A	42	46	42	40	47	53	57	A	A	66	A	A	A	49		58	68	68	55	A	54	52
20	49	A	48	48	46	49	50	51	50		A		A	A			62	62	A	A	60	54	A	53
21	51	52	51	50	41	36	43	53	49	A	A	A	A	A	A	A	67	75	73	73	77	78	A	A
22	A	54	46	38	36	41	46	58	63	A	A	A	A	A	A	71	71	A	A	73	73	54	A	A
23	42	47	42	42	42	44	57	53	A	A	61	A		62	72	74	80	80	80	71	N	64	54	54
24	52	54	55	44	34	35	42	49	68	A	A	A	A	80	76	70	72	A	75	82	A	A	A	51
25	A	52	52	52	52	54	60	56	58	57	A	89	A	66	A	81	75	63	63	54	52	53	52	52
26	53	50	47	43	43	41	46	52	71	61	56	A	A	A	A	70	84	80	78	67	54	52	52	50
27	34	53	52	48	45	40	47	55	48	53	A	A			74	67	63	71	78	73	52	A	48	50
28	50	46	50	48	32	30	46	60	A	54	57	A	A	A	A	A	A	66	81	86	A	A	48	46
29	41	47	53	42	49	29	48	46	52	55	65	A	A	A	85	61	A	A	60	71	65	50	50	48
30	54	52	51	50	44	40	46	47	58	60	A	A	A	A	A	57	71	73	74	A	A	52	52	48
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	22	25	28	29	26	27	28	26	22	13	5	5	5	9	13	17	21	24	23	19	18	18	21	26
MED	52	52	52	47	46	44	47	54	59	59	61	63	66	68	74	70	72	72	74	72	56	52	52	52
U Q	53	53	53	51	53	49	52	58	66	61	63	77	73	79	78	76	81	80	78	78	73	64	58	54
L Q	48	49	47	44	42	40	46	52	55	56	56	60	58	61	63	64	63	63	61	67	54	51	49	50

HOURLY VALUES OF fEs AT Yamagawa

JUN. 2016

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	89	54	28	G	G	G	G	48	52	56	G	68	68	88	56	59	90	163	115	118	96	85	50	47
2	70	69	57	49	40	39	44	64	78	94	69	96	81	108	92	130	117	82	94	55	77	40	G	40
3	69	48	52	58	47	49	34	65	67	65	86	64	69	77	65	76	51	76	58	41	28	G	34	38
4	40	G	G	30	26	G	30	42	62	64	42	G	56	72	50	46	G	42	66	43	32	30	45	41
5	36	53	49	44	33	G	37	57	62	96	72	62	48	65	64	82	76	77	94	94	117	58	83	60
6	44	49	58	27	41	34	39	57	54	56	G	52	48	50	74	70	75	50	56	33	31	58	52	50
7	55	69	51	52	54	30	36	64	70	78	78	78	46	66	63	41	71	57	44	82	108	130	41	40
8	26	50	30	G	G	26	32	38	53	117	155	82	92	G	48	54	60	74	45	25	57	37	27	33
9	26	40	24	G	G	G	32	G	46	111	73	65	88	169	111	77	88	67	94	126	85	53	44	30
10	40	37	46	47	40	G	G	G	51	68	58	58	66	54	G	G	53	69	46	49	57	50	41	29
11	33	34	55	72	64	29	46	48	59	84	117	180	169	122	100	64	G	60	56	73	152	92	79	43
12	29	G	34	37	38	G	G	43	93	58	79	89	113	77	122	103	86	39	G	33	34	33	28	28
13	G	34	29	39	32	29	49	61	80	90	65	57	53	63	43	54	48	56	44	36	34	38	49	50
14	59	46	26	32	40	32	40	44	40	40	49	53	51	55	113	60	73	64	57	47	50	40	32	32
15	59	34	73	58	62	63	58	84	70	55	76	150	81	B	56	70	95	62	67	80	92	67	70	46
16	40	33	G	G	39	G	34	37	49	47	62	56	B	B	G	44	49	46	48	56	46	49	58	49
17	58	71	39	38	38	36	31	37	G	50	50	50	G	G	G	41	G	G	46	36	40	40	53	59
18	48	46	33	34	26	G	40	48	83	96	66	66	54	80	56	65	G	128	72	92	70	G	G	58
19	59	58	36	32	28	G	38	42	43	50	103	65	111	94	56	G	G	41	39	34	31	58	36	59
20	84	114	48	30	24	29	38	35	39	G	50	G	66	50	G	G	G	G	53	57	35	57	57	46
21	34	53	52	55	36	30	34	51	G	77	85	79	64	47	77	71	61	54	61	55	40	60	92	56
22	58	58	35	28	26	G	28	40	55	72	47	60	73	46	101	48	72	118	108	56	41	33	54	49
23	45	28	35	35	57	34	41	38	38	58	59	52	G	51	G	52	G	54	G	36	27	38	44	49
24	30	36	34	30	29	G	34	45	55	59	62	58	75	61	66	41	48	48	61	52	61	82	60	49
25	59	51	29	26	30	G	36	44	48	47	58	106	126	62	56	52	50	54	40	26	33	30	29	30
26	29	29	G	G	G	G	G	33	G	42	51	81	89	109	82	82	73	51	35	56	36	31	29	G
27	25	32	G	G	G	G	27	G	G	G	48	71	G	G	50	44	47	56	70	84	40	56	43	36
28	26	28	49	33	31	27	38	39	50	51	48	56	52	95	94	91	70	60	62	93	81	49	53	36
29	G	G	33	G	G	G	G	33	43	52	59	67	65	68	80	51	70	73	37	47	28	24	25	G
30	G	28	34	33	70	30	30	G	G	G	76	120	66	46	59	46	47	48	39	58	56	23	G	G
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	30	30	30	30	30	30	30	30	30	30	30	29	28	30	30	30	30	30	30	30	30	30	30
MED	40	43	34	32	32	14	34	42	52	58	62	65	66	64	61	54	56	56	56	55	44	44	44	42
U Q	59	53	49	44	40	30	39	51	62	78	76	81	84	84	82	71	73	73	67	80	77	58	54	49
L Q	29	32	29	26	26	G	30	37	40	50	50	56	51	50	50	44	47	48	44	36	34	33	29	32

HOURLY VALUES OF fmin AT Yamagawa

JUN. 2016

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	15	15	15	15	15	15	22	17	17	20	21	36	39	34	34	30	18	17	15	14	15	16	15	14
2	15	14	16	14	14	15	14	14	16	20	27	35	37	35	36	30	20	16	14	15	15	15	14	14
3	14	14	14	15	14	17	14	14	17	21	18	21	28	28	28	18	18	17	14	14	14	16	14	14
4	14	15	15	15	15	16	15	15	16	22	28	30	33	21	35	32	20	14	15	14	16	14	14	14
5	14	14	14	14	14	14	15	14	15	22	20	23	26	22	23	23	17	16	14	14	15	14	14	14
6	15	15	14	15	15	15	14	14	14	18	21	27	29	38	34	20	18	17	14	14	15	14	15	15
7	15	14	15	14	15	14	14	14	15	17	18	33	29	27	24	26	20	16	14	15	14	14	14	15
8	15	14	14	16	17	16	14	15	17	22	28	34	38	49	33	33	18	15	14	16	15	15	14	15
9	15	14	15	15	15	14	16	14	18	20	18	26	29	30	21	29	18	22	14	14	15	15	14	15
10	15	15	15	15	14	16	18	14	16	18	17	22	33	33	52	22	18	17	14	14	15	14	14	15
11	14	15	14	14	14	14	14	14	17	20	23	28	27	30	30	21	20	16	14	15	16	14	14	14
12	15	16	14	14	14	16	22	14	22	23	34	32	30	34	29	20	18	17	14	14	14	16	14	15
13	16	15	15	15	14	14	15	15	17	23	28	22	30	28	30	36	21	17	14	15	15	14	15	14
14	15	14	14	15	15	14	14	16	18	20	22	26	36	35	32	28	20	17	14	14	15	15	14	14
15	14	15	15	15	15	16	15	14	15	22	26	28	27	B	37	24	20	16	14	15	15	15	15	15
16	15	14	18	16	15	15	14	16	16	16	22	18	B	B	91	21	34	17	14	14	14	14	15	15
17	15	14	15	14	14	14	14	14	16	18	23	38	81	48	48	26	21	18	15	14	14	14	14	15
18	15	14	15	14	15	18	15	14	16	21	35	34	26	21	33	27	18	15	14	14	15	15	16	15
19	15	14	15	15	14	14	14	14	29	17	35	29	33	38	27	22	17	16	15	14	14	14	15	14
20	14	15	16	14	15	15	14	14	16	20	23	23	38	26	66	24	18	14	14	14	14	14	14	14
21	15	14	14	15	14	15	20	15	14	20	23	28	21	26	24	26	20	16	14	15	14	15	14	14
22	14	15	14	14	15	15	14	15	16	18	21	29	32	26	30	26	22	15	14	15	14	14	14	15
23	15	14	14	14	15	14	14	14	17	20	22	34	66	27	48	27	20	17	14	14	15	15	15	14
24	14	15	14	15	14	15	16	14	14	17	23	23	26	27	33	21	18	16	14	14	15	14	14	15
25	14	15	14	14	14	16	16	15	20	20	20	20	30	33	30	28	18	15	14	15	15	14	15	14
26	14	15	15	16	15	16	17	14	15	20	23	28	30	30	21	22	18	14	14	15	16	14	14	15
27	15	14	15	15	14	16	16	14	16	18	21	36	66	24	26	18	18	16	14	14	15	14	14	15
28	14	15	15	14	14	14	14	14	16	20	21	36	34	32	22	20	18	15	14	14	14	15	15	14
29	15	15	14	17	15	18	21	14	18	18	20	22	28	29	28	21	22	16	14	15	15	14	14	15
30	16	14	14	14	15	15	15	14	16	18	18	22	23	28	28	24	18	17	14	14	14	15	14	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	29	28	30	30	30	30	30	30	30	30	30	30
MED	15	14	15	15	15	15	15	14	16	20	22	28	30	30	30	24	18	16	14	14	15	14	14	15
U Q	15	15	15	15	15	16	16	15	17	21	26	34	36	34	35	28	20	17	14	15	15	15	15	15
L Q	14	14	14	14	14	14	14	14	16	18	20	23	27	26	27	21	18	15	14	14	14	14	14	14

HOURLY VALUES OF foF2 AT Okinawa

JUN. 2016

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	52	62	61	63	52	45	A	A	A	62	68	84	80	92	103	116	124	120	85	A	62	65	60
2	62	61	54	54	50	50	52	56	A	A	A	A	A	64	78	A	A	110	A	105	A	A	A	77
3	76	74	66	67	57	60	81	60	A	A	A	A	A	62	88	92	A	A	A	A	72	72	54	54
4	63	52	62	58	A	48	55	58	55	56	A	A	A	86	88	A	A	A	A	86	86	84	76	66
5	66	52	66	66	58	54	52	73	A	A	A	A	85	97	102	107	108	98	A	76	A	A	A	A
6	A	A	46	50	34	130	45	A	66	A	A	A	76	84	86	86	76	A	A	77	81	83	66	54
7	53	72	A	60	A	65	71	A	A	A	A	79	A	A	A	A	86	78	75	61	52	A	51	A
8	51	47	47	51	47	40	47	60	57	A	A	A	A	A	A	A	A	101	98	110	83	67	72	70
9	67	66	66	77	52	42	52	69	60	A	62	60	A	A	64	72	77	85	87	100	A	76	72	68
10	67	64	63	64	58	42	54	65	66	58	A	A	62	72	78	82	88	90	90	90	85	77	66	67
11	63	54	51	48	50	44	44	63	88	60	A	A	A	66	74	87	88	90	88	84	78	72	54	50
12	52	54	52	48	46	40	51	70	44	A	A	A	A	A	A	A	66	71	71	70	67	50	A	47
13	52	52	47	38	A	N	42	62	57	A	A	A	A	A	B		57	60	71	74	64	46	47	46
14	48	A	49	A	A		51	49	51	58	62	A	A	A	A	A	A	A	A	A	54	54	52	52
15	52	A	47	44	A	36	54	67	61	A	A	A	A	58	71	49	64	72	A	A	A	42	49	A
16	A	48	42	40	A	29	45	62	62	58	A		A	89	A	67	68	58	57	48	50	51	52	47
17	A	50	46	A	A	A	45	58	64	64	48			63	67	63	60	41	72	74	A	52	54	52
18	44	A	46	44	42	A	46	46	A	A	A	A	A	A	A	A	66	80	78	62	54	A	52	50
19	A	54	52	42	32	30	41	52	47	A	A	A	A	61	B	52	A	A	94	77	64	54	54	44
20	54	A	45	42	45	44	56	58	51	52	A	A	A	B	61	68	76	A	66	A	72	52	55	A
21	52	51	51	52	45	40	A	62	A	A	A	A	A	62	71	71	80	83	A	83	84	78	67	62
22	64	52	52	50	46	38	41	61	55	58	A	A	A	B	74	78	A	90	88	85	89	A	A	54
23	51	51	48	45	45	42	51	57	56	49	58	A		71	83	80	88	90	92	85	71	66	67	61
24	48	64	64	40	36	34	50	71	64	A	A	A	A	87	80	80	85	85	85	91	83	A	A	54
25	52	51	52	52	51	52	58	54	54	63	59	A	67	A	87	A	88	88	78	68	60	52	54	54
26	53	51	47	51	43	42	40	62	66	59	A	A	A	A	78	86	96	106	85	73	67	67	52	51
27	52	54	67	B	43	40	51	59	46	52	54	A	A	68	85	83	78	86	94	72	51	51	51	51
28	A	52	51	41	40	35	A	51	53	58	62	A	A	A	64	68	71	81	101	81	A	51	48	48
29	46	46	52	40	B	B	42	56	56	57	66	A	64	84	87	86	76	86	88	102	62	48	48	52
30	52	46	49	46	44	40	38	51	62	58		A	A	A	A	67	82	88	67	58	52	51	42	46
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	24	25	29	27	22	25	28	27	23	15	9	3	6	17	21	21	23	24	22	26	23	24	25	26
MED	52	52	51	50	46	42	50	60	57	58	62	68	72	71	78	80	78	86	86	79	67	54	54	53
U Q	63	57	62	58	51	51	53	63	64	59	62	79	84	85	87	86	88	90	92	86	83	72	66	61
L Q	51	51	47	42	43	39	44	56	53	56	56	60	64	62	71	67	68	79	72	72	54	51	51	50

HOURLY VALUES OF fEs AT Okinawa

JUN. 2016

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	59	39	41	G	G	G	G	65	73	121	G	G	50	73	78	86	79	69	95	95	82	56	59	45
2	34	34	24	G	24	G	G	40	68	115	93	100	73	G	61	138	109	151	117	93	106	106	115	58
3	78	49	49	26	60	52	92	55	56	72	60	67	60	61	76	82	110	94	94	76	46	28	G	26
4	49	28	G	29	49	48	38	42	48	49	58	93	85	79	56	179	127	158	125	66	33	33	28	G
5	30	49	39	G	G	G	32	51	92	104	96	92	85	72	78	96	65	60	92	148	151	104	89	72
6	59	70	47	34	34	54	48	79	78	127	174	169	72	60	G	42	72	88	77	46	49	47	30	25
7	26	40	58	56	72	72	61	80	143	106	168	103	150	80	85	69	42	38	G	30	33	58	85	70
8	50	44	38	G	24	G	36	41	58	82	180	78	93	185	115	136	114	81	68	G	36	50	G	G
9	G	G	G	G	G	G	G	G	47	60	42	47	60	65	62	48	G	54	94	60	105	68	49	53
10	49	34	30	25	41	G	35	36	44	53	57	58	61	54	55	53	47	38	33	27	35	G	G	G
11	G	G	G	G	29	G	27	52	49	46	76	53	96	56	53	78	42	43	40	48	28	40	G	G
12	G	G	G	G	G	G	31	39	36	61	74	62	101	136	67	65	47	38	G	58	G	28	29	G
13	G	26	G	34	32	33	G	34	42	66	62	70	50	59	B	G	G	42	46	36	32	G	G	50
14	34	57	42	44	24		G	G	36	51	52	63	155	86	102	86	164	96	108	94	39	34	G	32
15	36	59	64	70	115	50	53	59	80	116	79	54	45	G	G	50	51	53	83	92	52	50	41	59
16	73	86	58	27	37	G	36	42	50	55	64	G	45	G	47	G	48	49	43	31	G	48	27	G
17	92	49	50	54	54	53	27	37	43	39	G	G	G	G	44	G	46	47	56	65	58	48	54	44
18	40	81	59	34	23	55	32	38	48	53	77	78	90	65	76	67	G	45	48	29	28	69	33	G
19	71	49	34	G	25	G	28	58	57	81	80	104	150	59	B	51	60	66	57	58	48	30	46	36
20	36	59	28	59	49	28	40	36	46	50	63	51	47	B	51	G	45	73	52	57	36	36	41	49
21	28	33	38	83	45	G	39	46	84	73	55	97	94	48	58	G	40	84	80	37	60	41	39	40
22	44	28	27	G	G	G	G	37	40	53	66	79	85	B	G	72	84	45	42	30	32	85	49	33
23	26	G	G	G	35	G	G	56	51	51	G	50	G	G	G	43	64	42	37	G	25	G	26	32
24	G	G	G	G	G	G	29	39	46	94	108	73	92	76	G	49	G	50	51	54	73	82	90	39
25	54	55	34	37	31	G	32	42	36	43	51	106	79	133	86	138	87	91	52	32	34	G	G	G
26	G	G	G	G	G	G	G	34	41	50	50	70	66	60	52	44	G	40	36	38	40	41	35	G
27	G	27	28	B	G	G	G	G	47	42	52	52	79	65	49	54	52	41	81	30	40	34	40	36
28	53	26	G	26	28	G	44	36	48	52	50	53	51	67	49	G	41	39	55	59	59	56	47	29
29	26	25	G	G	B	B	G	35	44	43	57	82	58	65	66	58	55	42	54	29	G	28	28	G
30	G	G	G	41	35	39	27	36	G	G	G	57	162	97	58	G	51	54	36	28	G	G	26	G
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	30	30	29	29	28	30	30	30	30	30	30	30	28	28	30	30	30	30	30	30	30	30	30
MED	35	34	29	26	29	G	30	40	48	54	61	68	76	65	57	54	51	52	54	47	38	41	34	32
U Q	53	49	42	39	43	43	38	52	58	82	79	92	93	77	76	82	79	81	83	65	58	56	49	45
L Q	G	25	G	G	G	G	G	36	43	50	51	53	51	55	48	42	42	42	42	30	32	28	26	G

HOURLY VALUES OF fmin AT Okinawa

JUN. 2016

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	14	17	17	15	22	15	28	22	48	52	36	36	34	30	26	20	15	14	16	15	14	15
2	14	15	16	14	15	16	16	16	28	18	34	36	38	52	36	32	24	18	18	14	15	14	14	14
3	14	15	15	18	14	14	17	17	21	27	27	22	33	29	29	27	22	20	14	16	14	14	14	15
4	15	15	14	15	16	14	15	14	20	22	30	32	34	36	30	20	21	20	16	20	14	15	14	16
5	14	15	15	14	14	16	15	14	17	22	29	32	30	29	27	23	22	18	14	14	15	14	16	15
6	14	14	14	14	14	14	14	14	17	18	32	36	36	38	52	43	18	17	14	14	14	14	20	14
7	18	15	14	16	14	14	15	16	20	21	21	29	29	30	28	27	20	17	18	14	14	14	15	14
8	15	14	14	15	14	14	15	15	17	21	24	32	35	34	34	30	21	18	14	18	14	14	15	20
9	16	15	20	15	15	15	21	14	17	20	28	29	33	34	30	30	45	18	14	14	14	14	15	14
10	14	15	15	14	14	15	17	14	16	22	28	33	32	34	34	30	20	20	16	14	15	14	15	14
11	16	16	16	15	14	14	14	14	18	24	32	22	32	30	29	27	22	20	14	14	16	15	17	27
12	26	16	17	15	15	17	16	15	21	23	29	34	30	33	30	32	23	21	14	14	16	14	15	16
13	15	15	14	16	16	14	20	17	21	21	28	28	33	32	B	71	23	18	18	14	14	30	20	14
14	14	15	14	14	15		21	26	20	35	26	36	28	32	33	29	23	18	14	15	14	15	18	14
15	15	15	14	14	15	14	16	16	18	22	26	29	81	91	49	26	24	18	16	14	14	15	15	15
16	18	15	15	15	15	16	16	15	17	18	22	81	33	42	91	48	33	17	15	15	20	15	14	15
17	14	14	16	15	14	15	14	15	18	21	27	28	29	52	49	46	47	20	14	17	15	14	14	14
18	14	14	14	14	14	15	14	14	18	22	32	34	35	35	33	30	24	15	14	14	14	14	14	15
19	15	15	15	14	14	14	14	15	21	22	33	34	36	36	B	38	20	17	14	14	14	15	14	14
20	14	14	15	14	15	14	18	14	18	20	26	30	40	B	28	27	21	17	14	14	14	14	14	15
21	14	14	15	14	15	20	17	15	17	20	27	32	28	32	27	47	22	17	15	14	16	14	14	15
22	15	14	14	15	15	15	21	15	18	20	24	28	29	B	27	33	20	23	14	14	14	15	14	14
23	15	14	16	16	14	14	20	14	16	20	28	27	29	29	28	28	23	20	14	20	18	18	17	15
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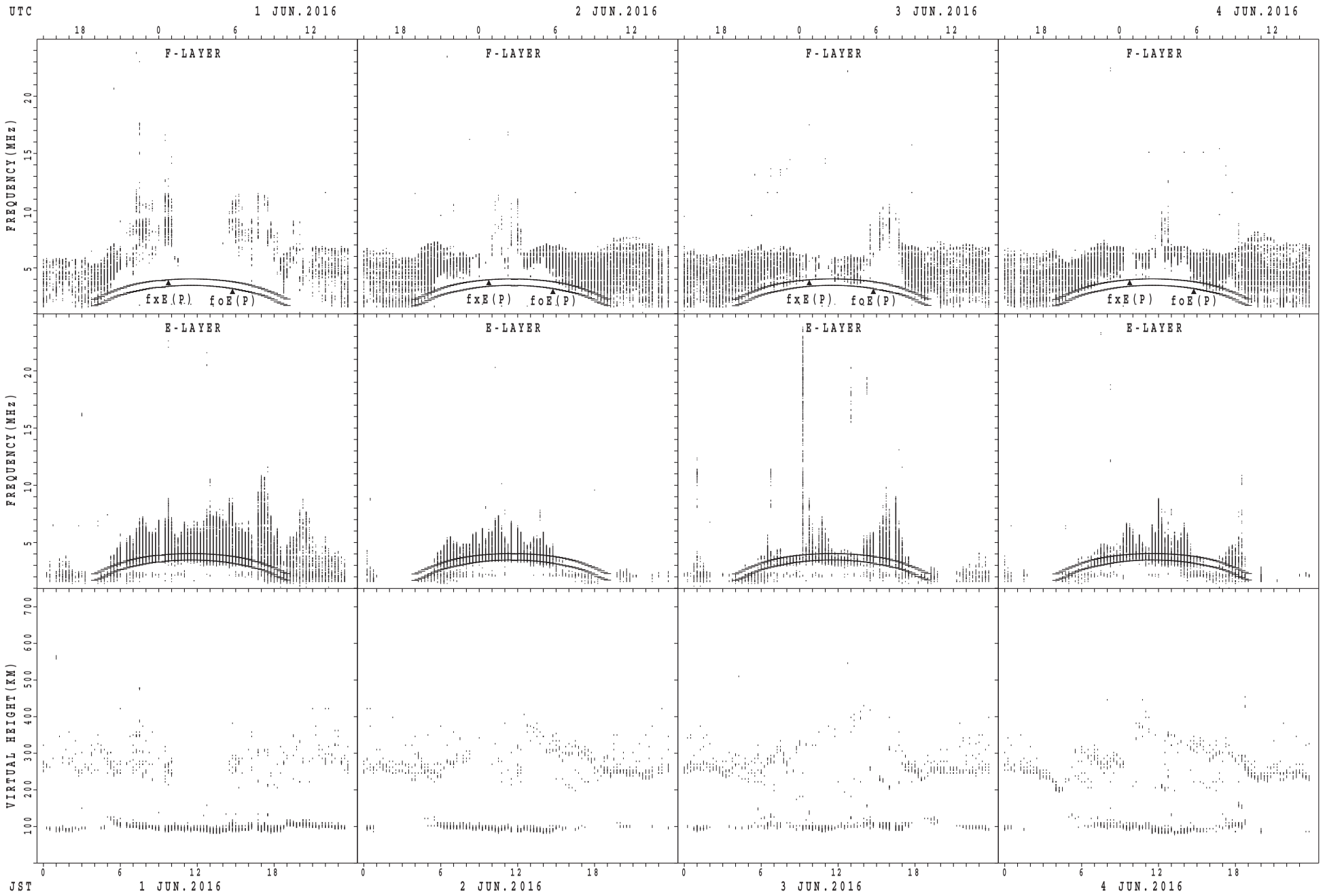
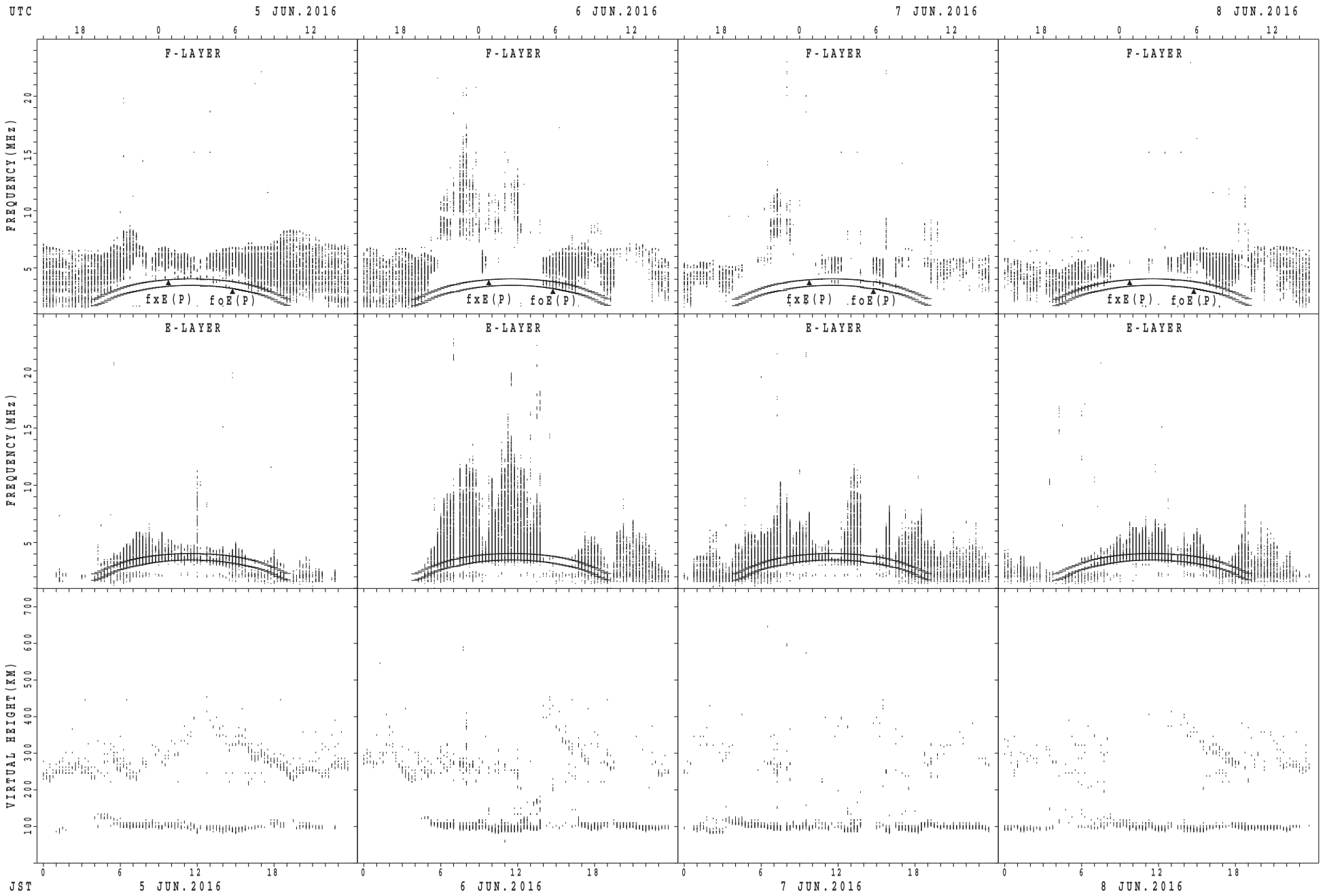
26	16	21	17	18	17	16	20	14	20	24	26	32	28	28	28	28	21	16	14	14	15	16	14	15
27	15	14	15	B	15	21	20	14	17	21	27	32	24	32	29	24	17	18	14	14	15	14	14	14
28	14	15	14	14	14	15	15	14	20	21	24	34	38	34	27	22	18	17	14	14	14	14	14	15
29	14	15	17	17	B	B	15	14	16	21	28	30	34	29	30	26	22	18	14	14	15	14	14	15
30	16	15	16	14	15	14	14	14	17	21	45	35	28	32	28	24	23	18	14	14	18	18	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	29	29	28	30	30	30	30	30	30	30	28	28	30	30	30	30	30	30	30	30	30
MED	15	15	15	15	15	15	16	14	18	21	28	32	33	32	30	28	22	18	14	14	15	14	14	15
U Q	15	15	16	16	15	15	20	15	20	22	30	34	35	36	34	32	23	20	15	14	15	15	15	15
L Q	14	14	14	14	14	14	15	14	17	20	26	29	29	29	28	26	20	17	14	14	14	14	14	14

SUMMARY PLOTS AT Wakkanai



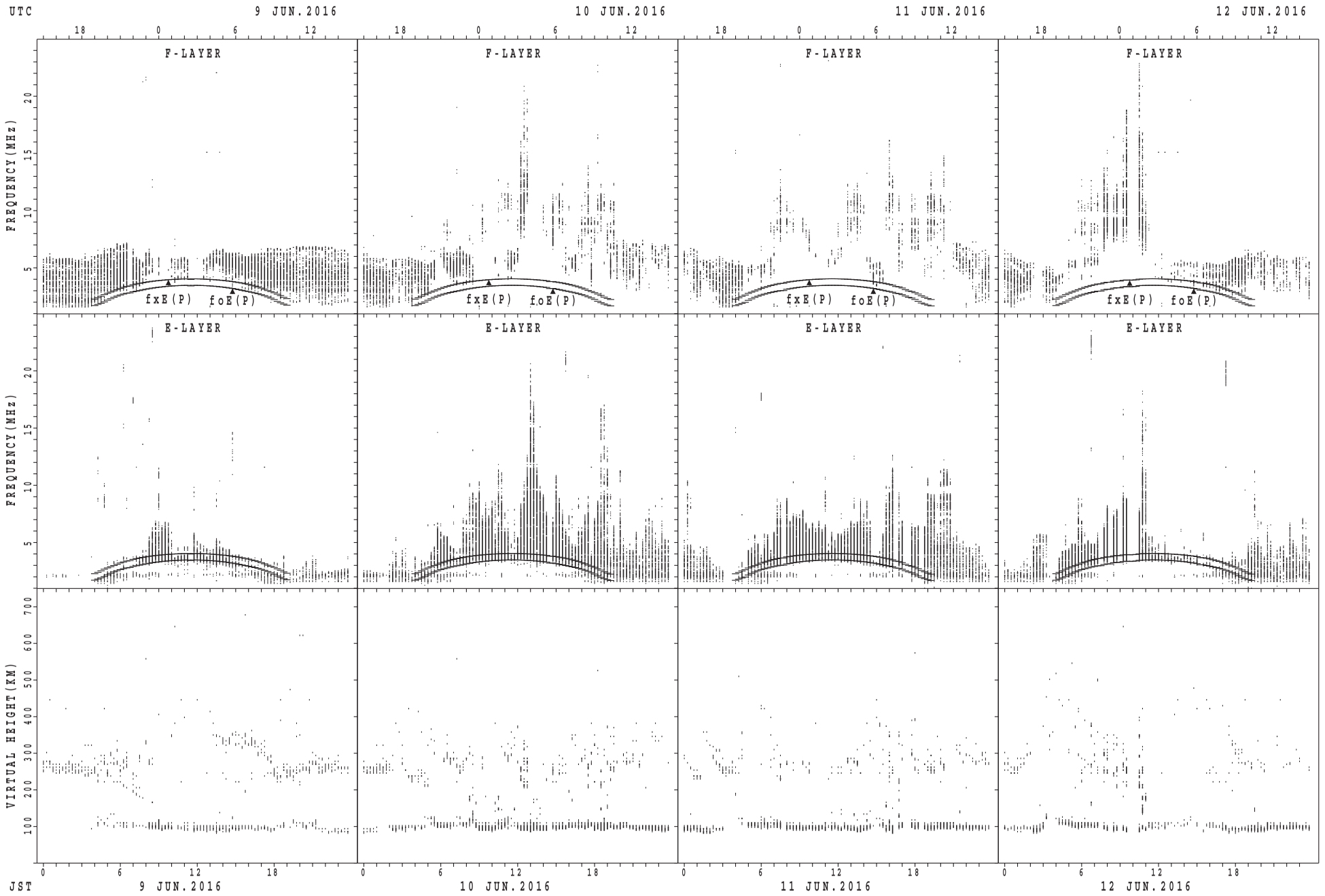
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



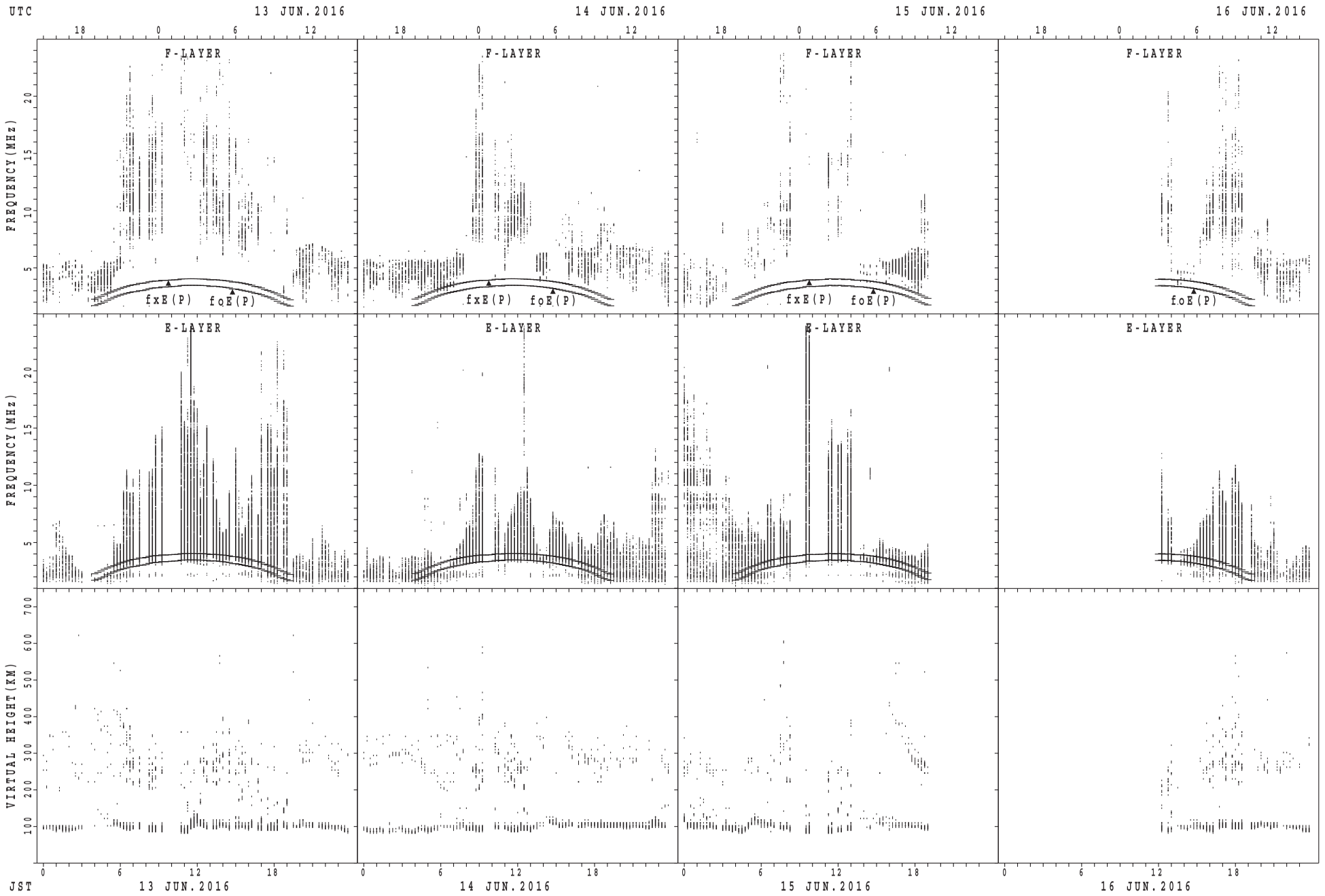
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



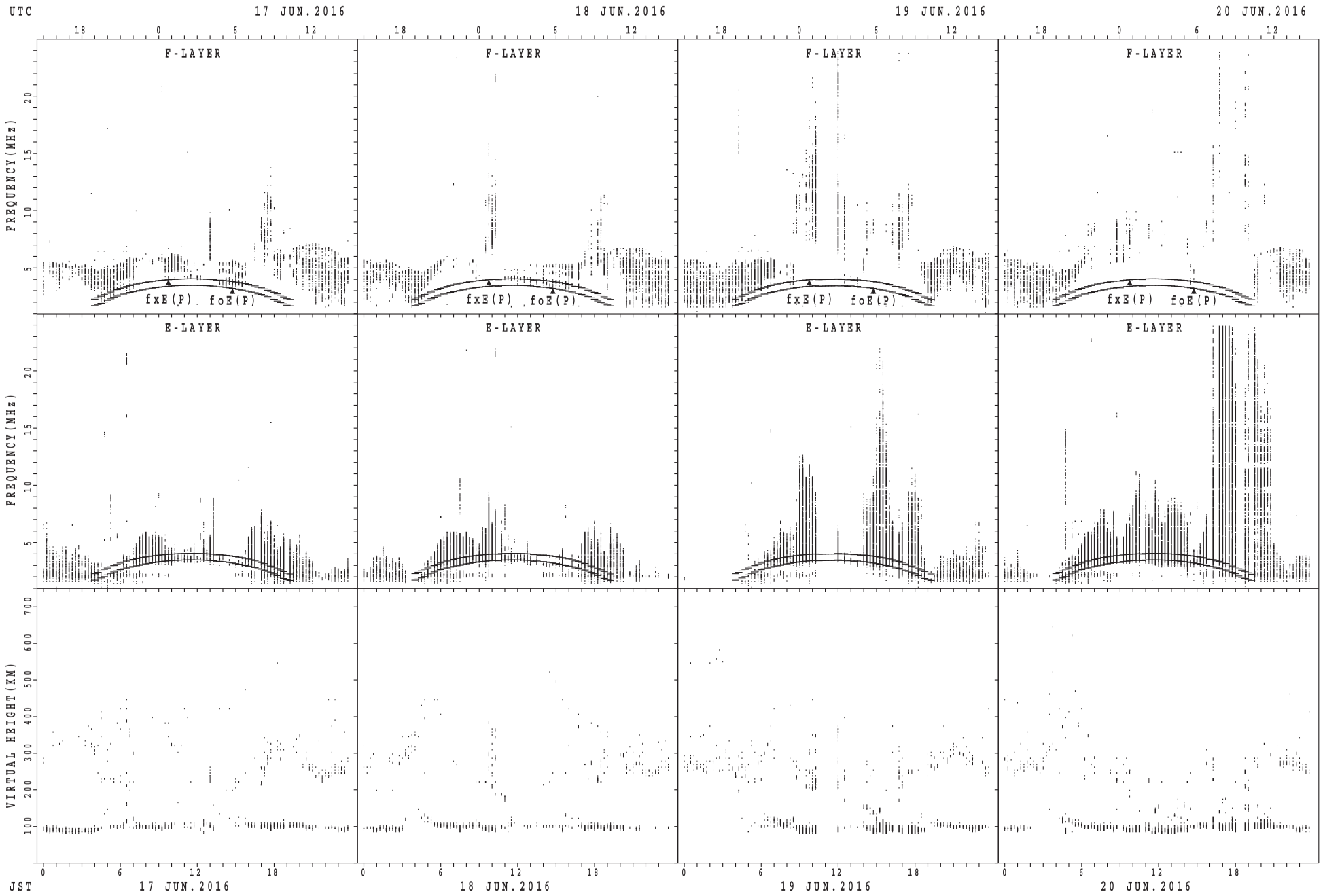
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



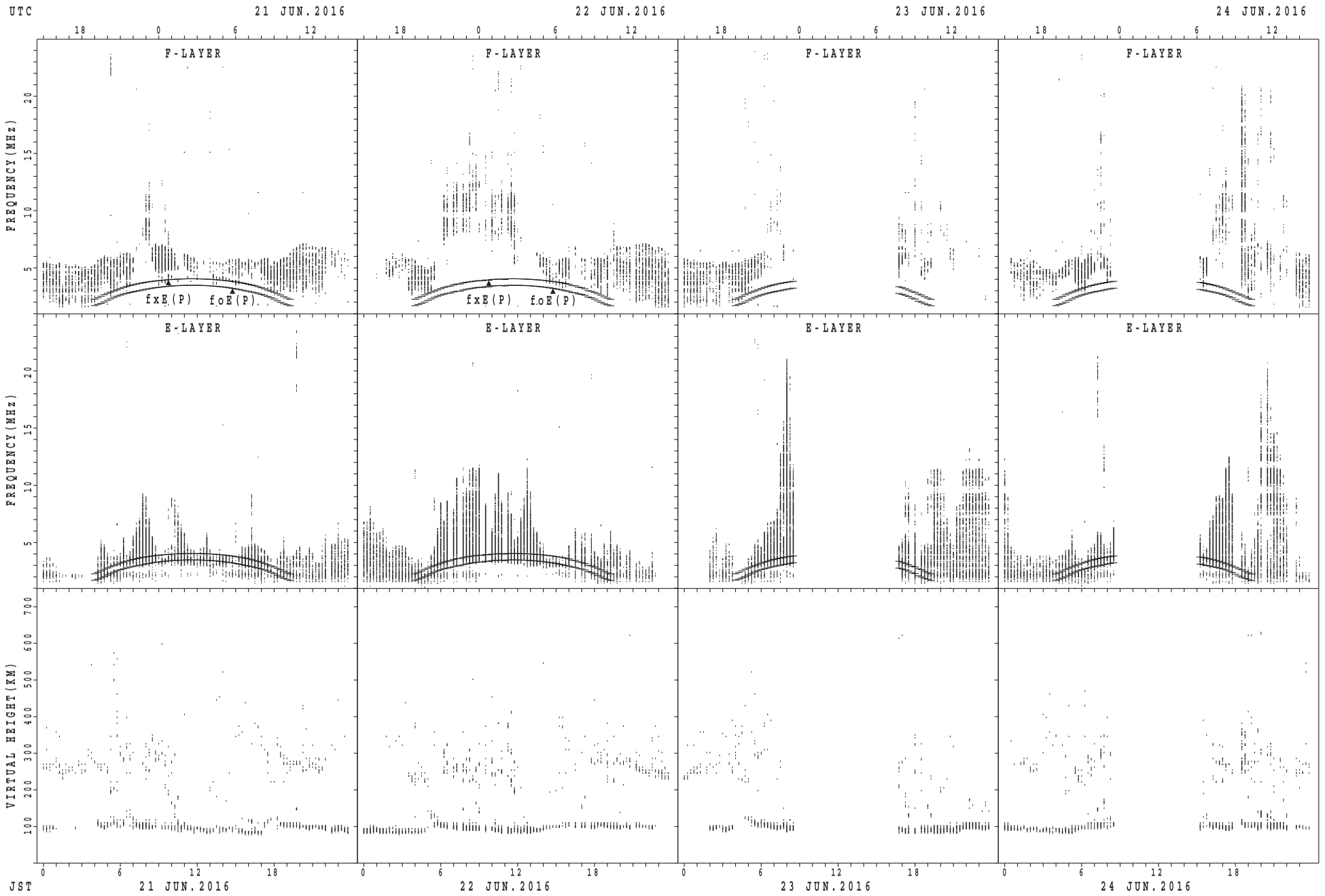
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



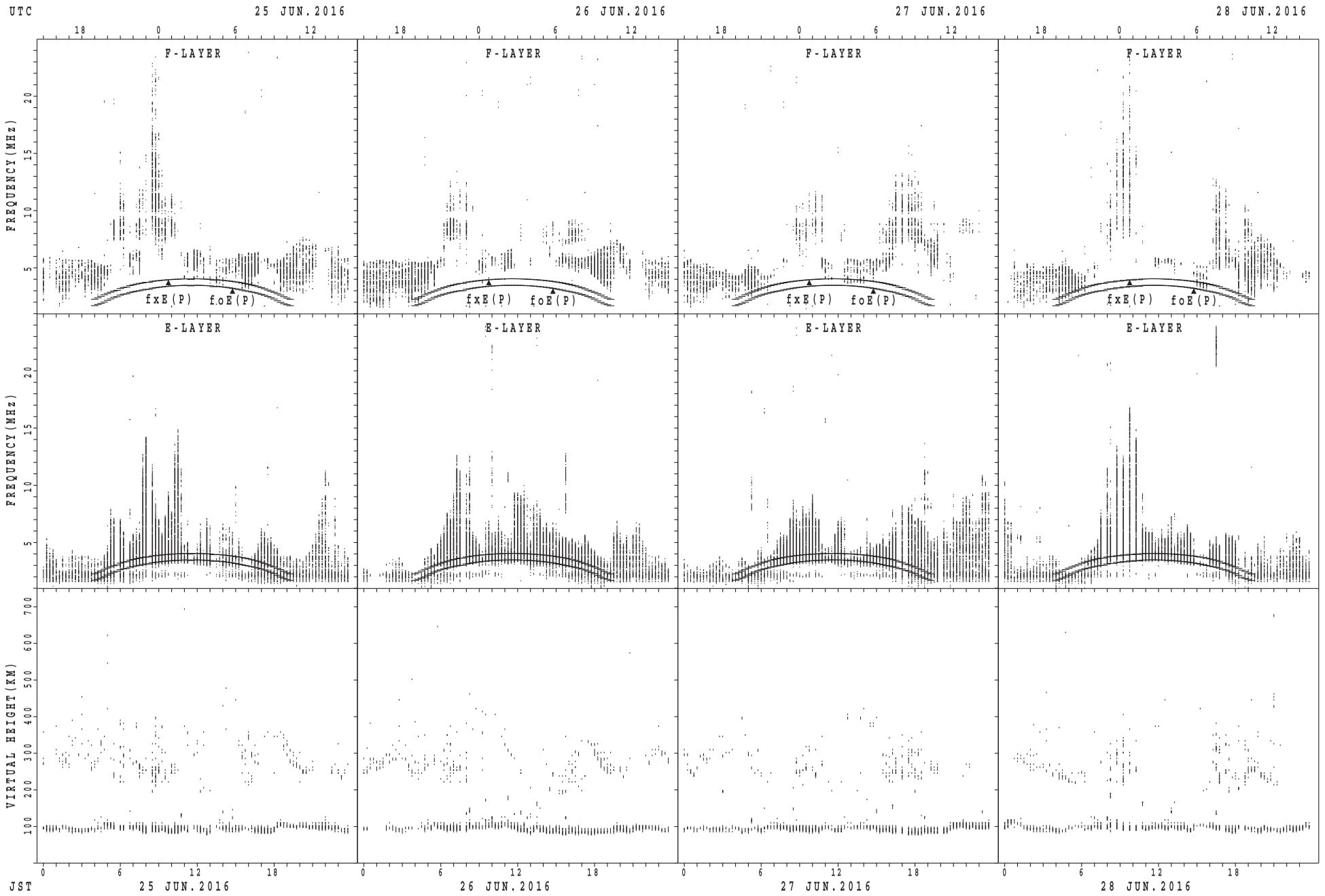
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



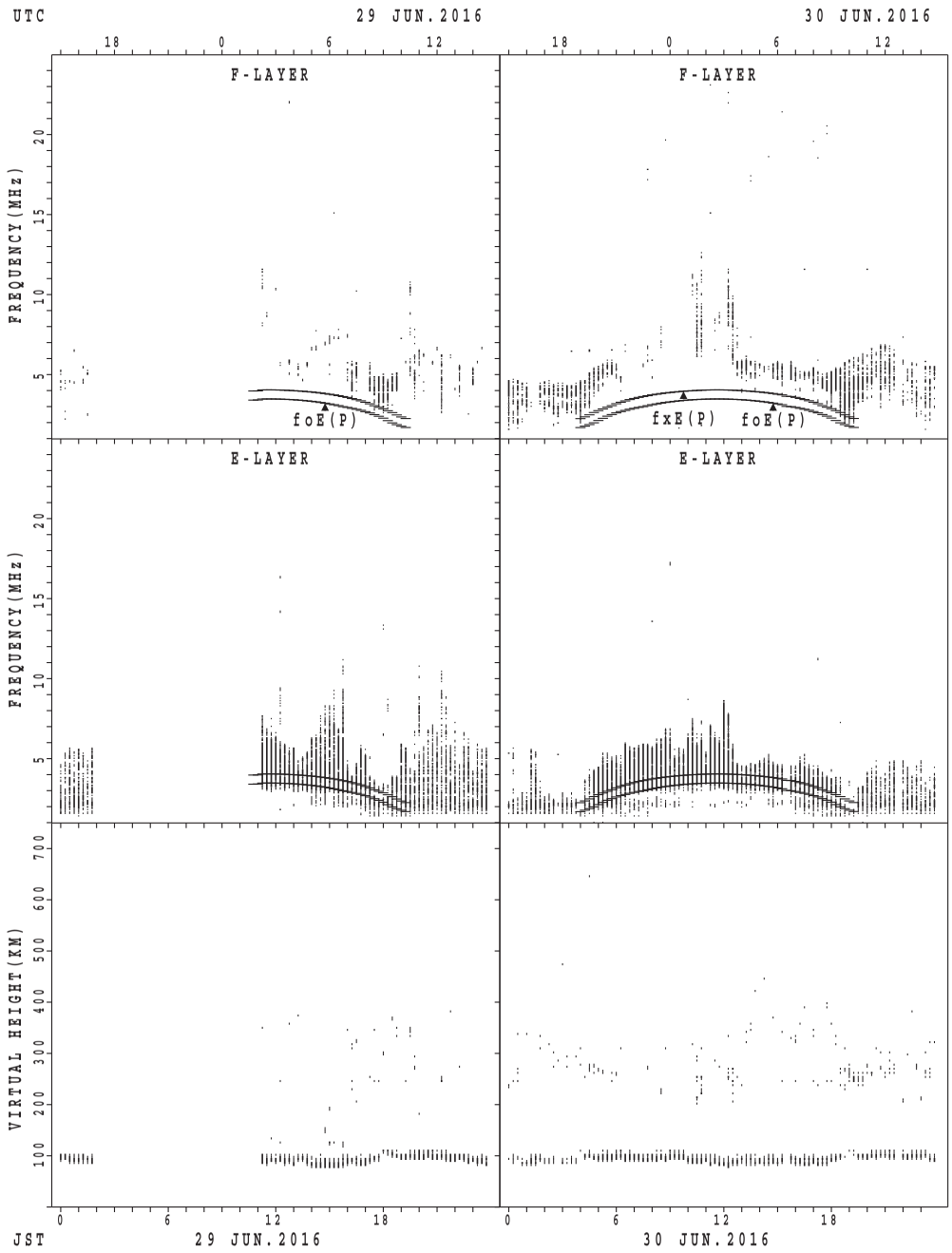
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



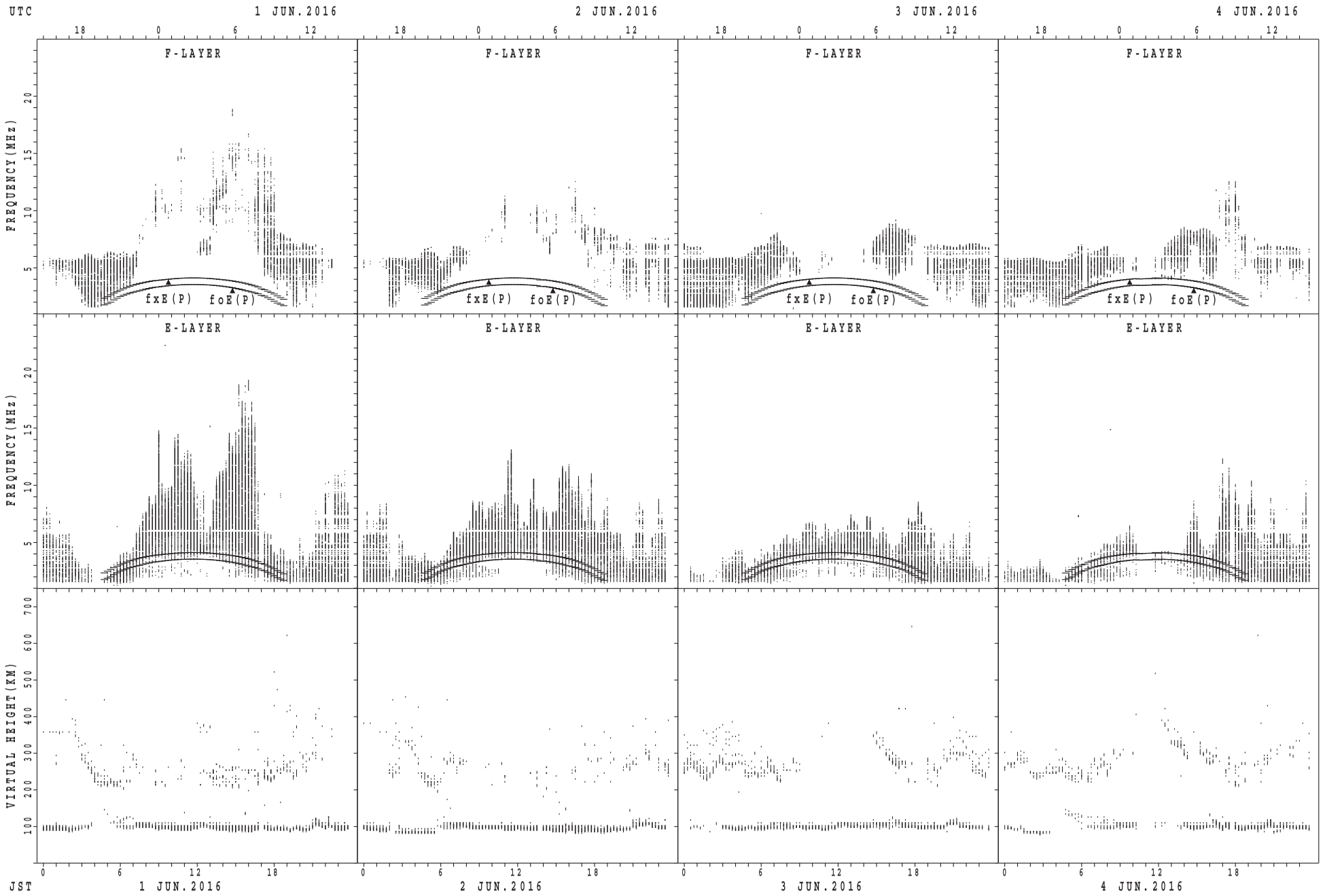
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



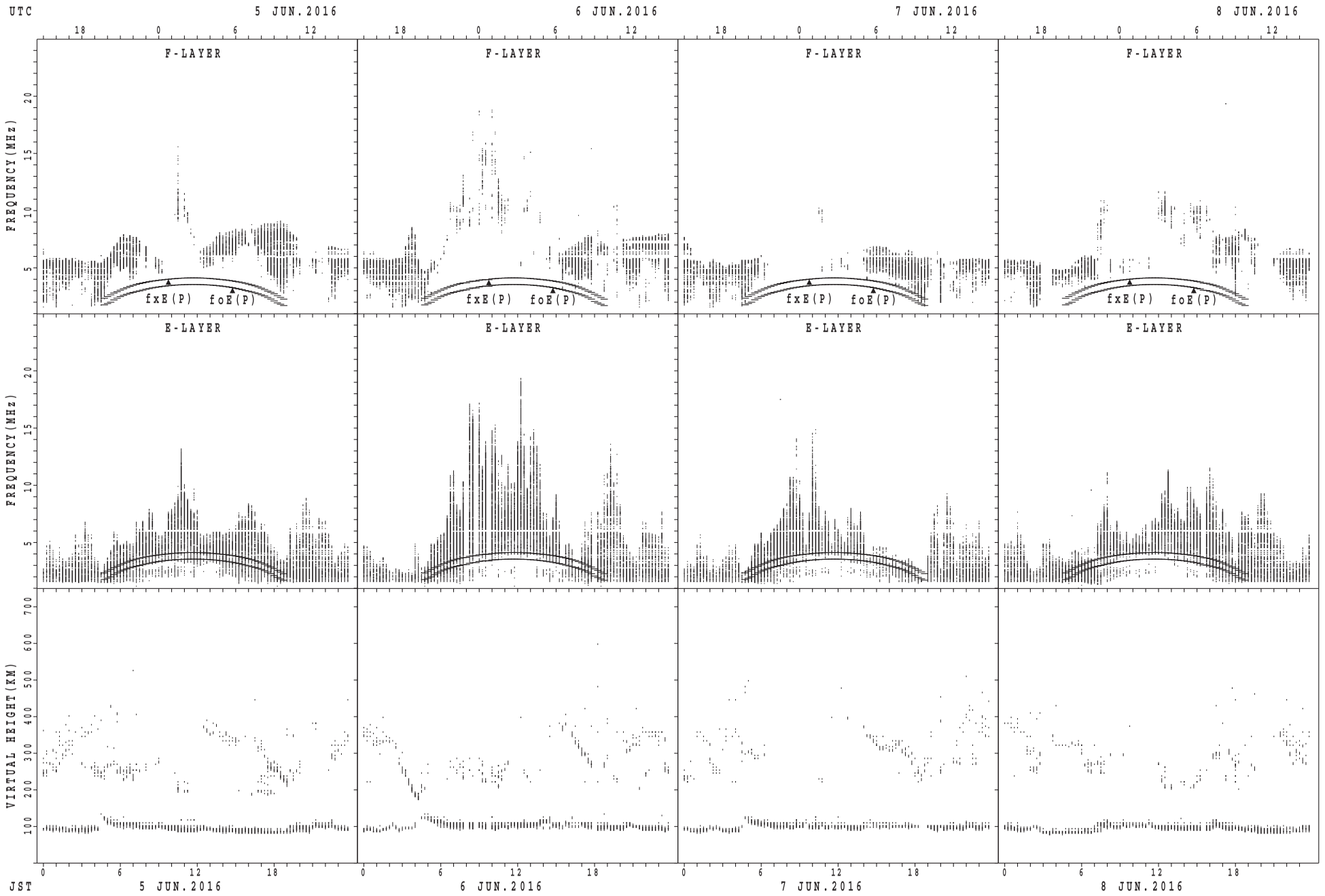
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



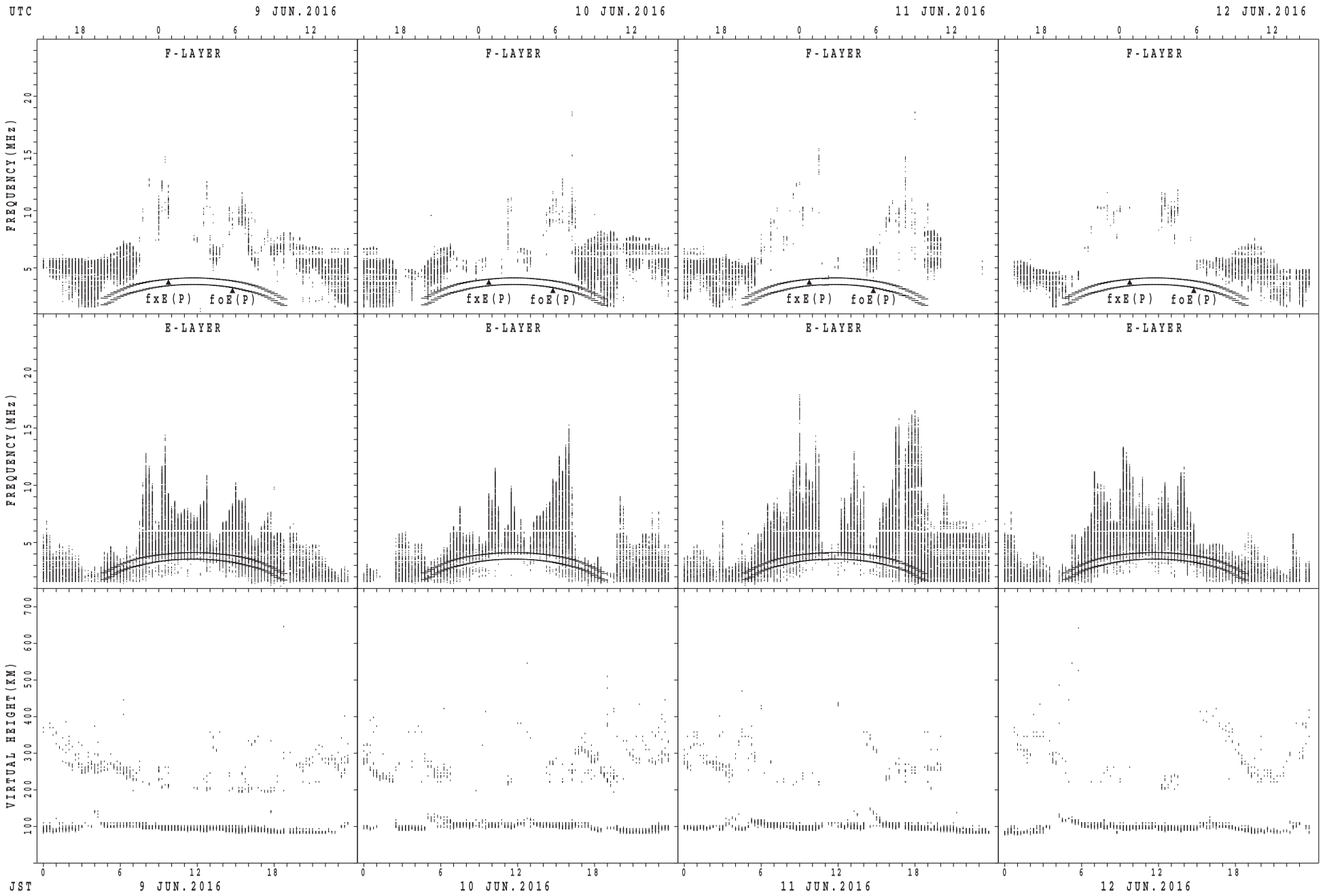
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



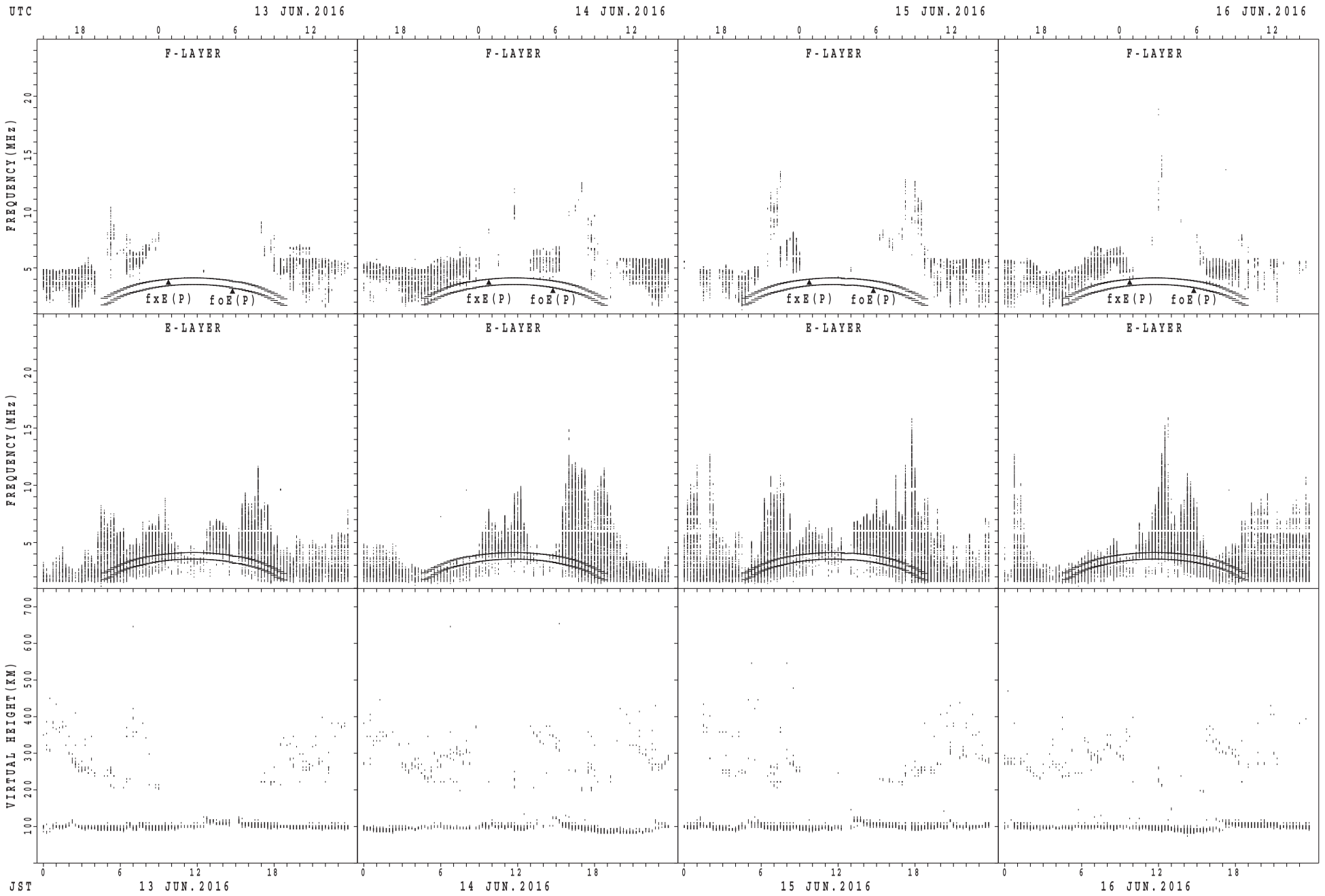
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



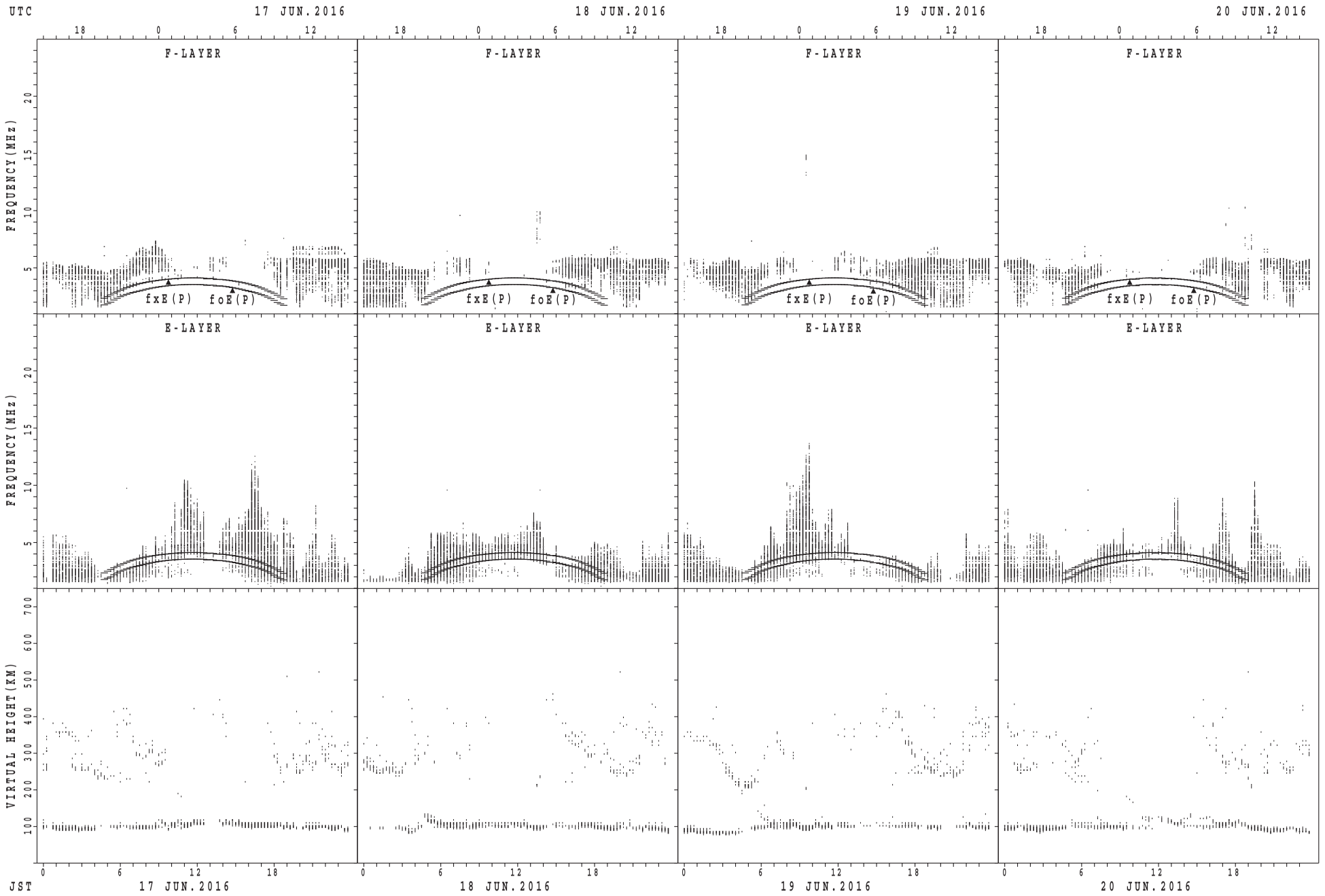
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



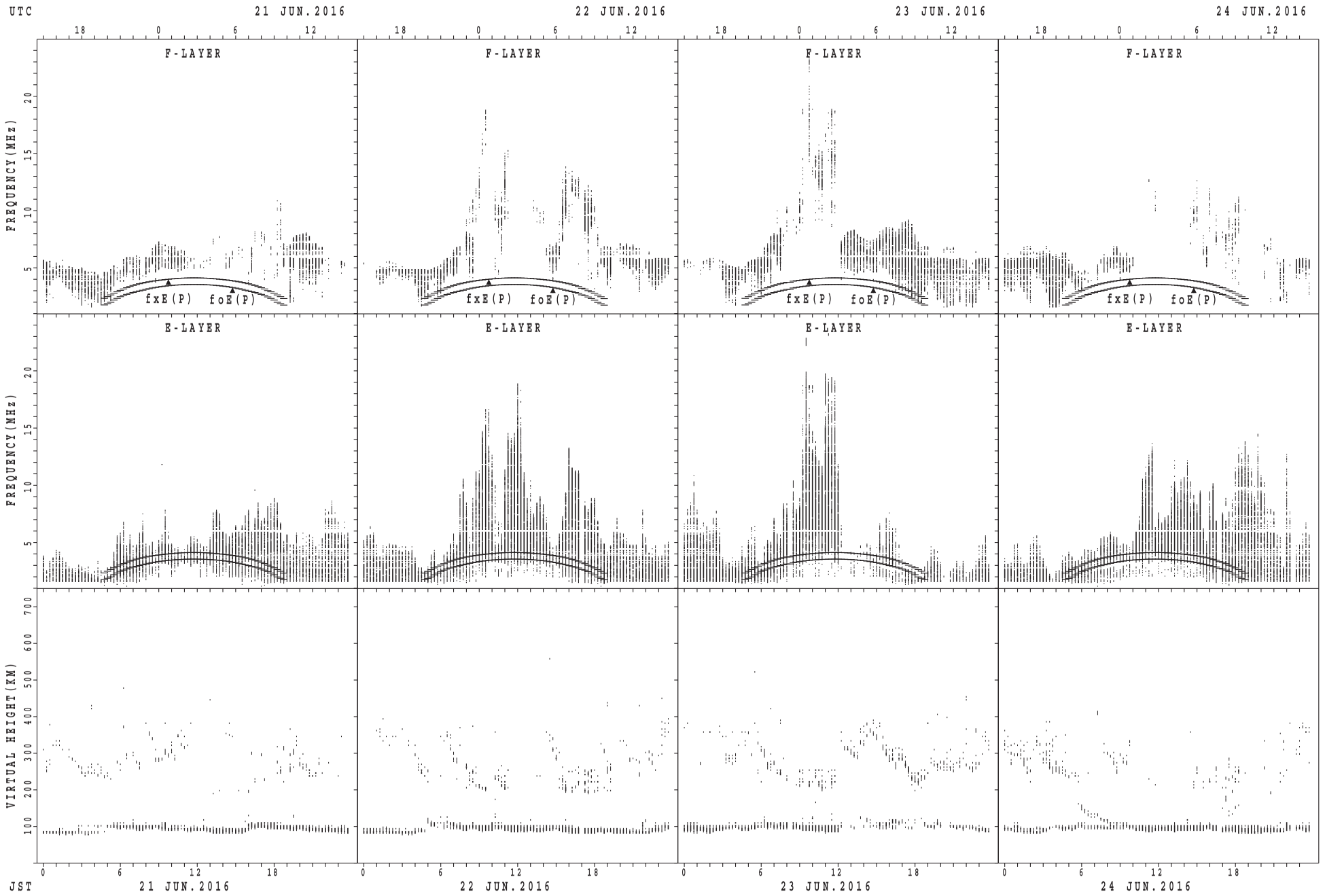
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



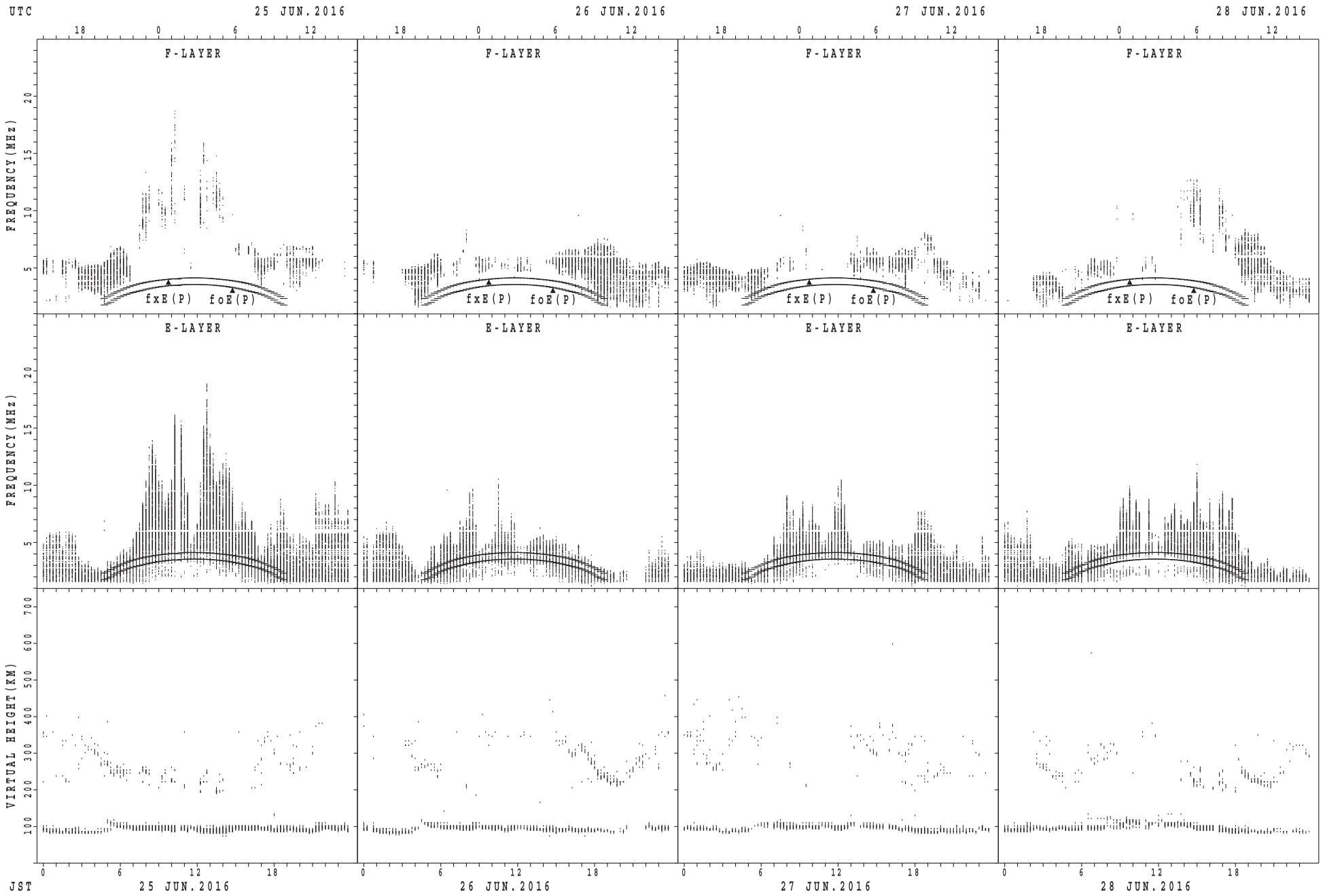
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



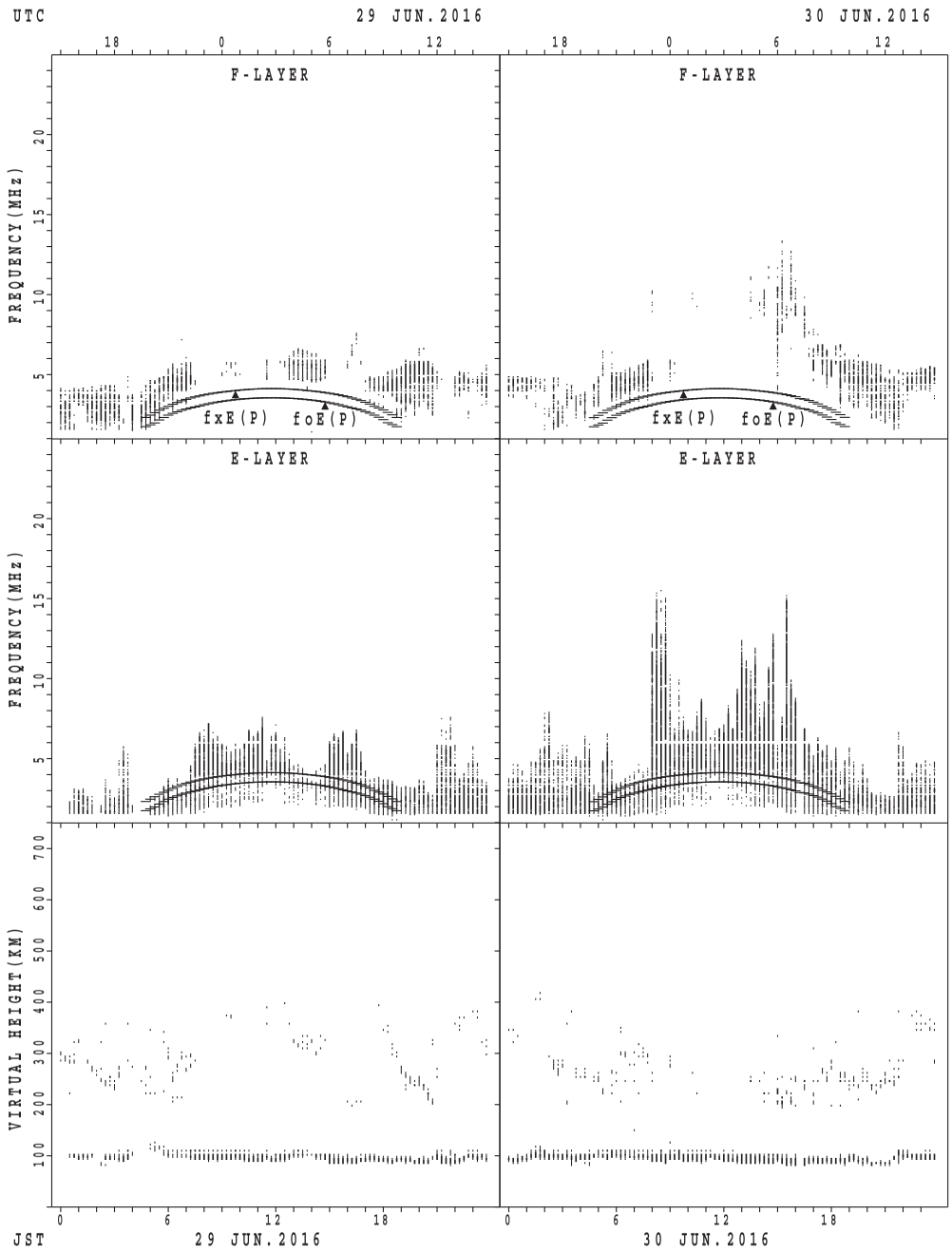
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



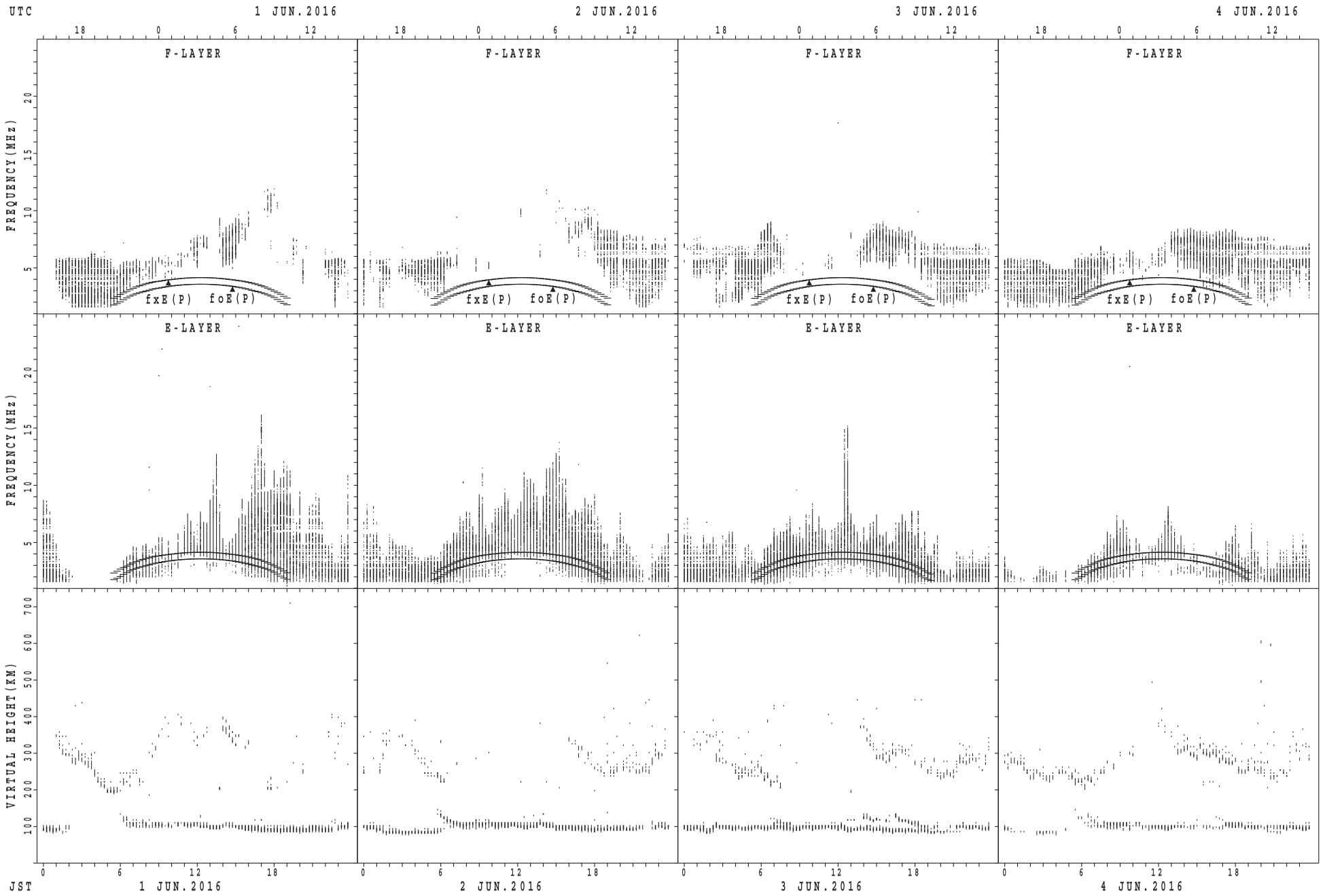
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



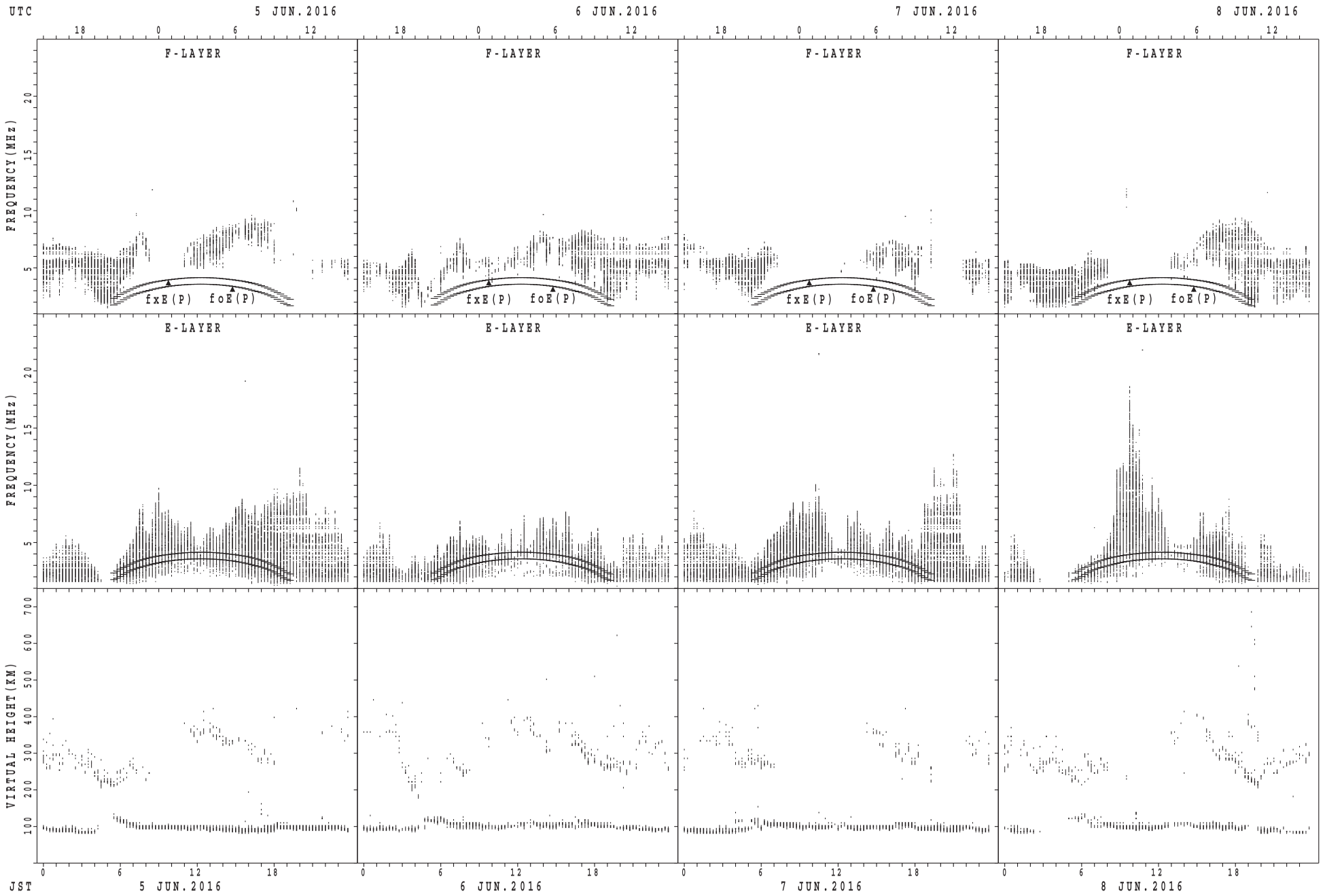
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



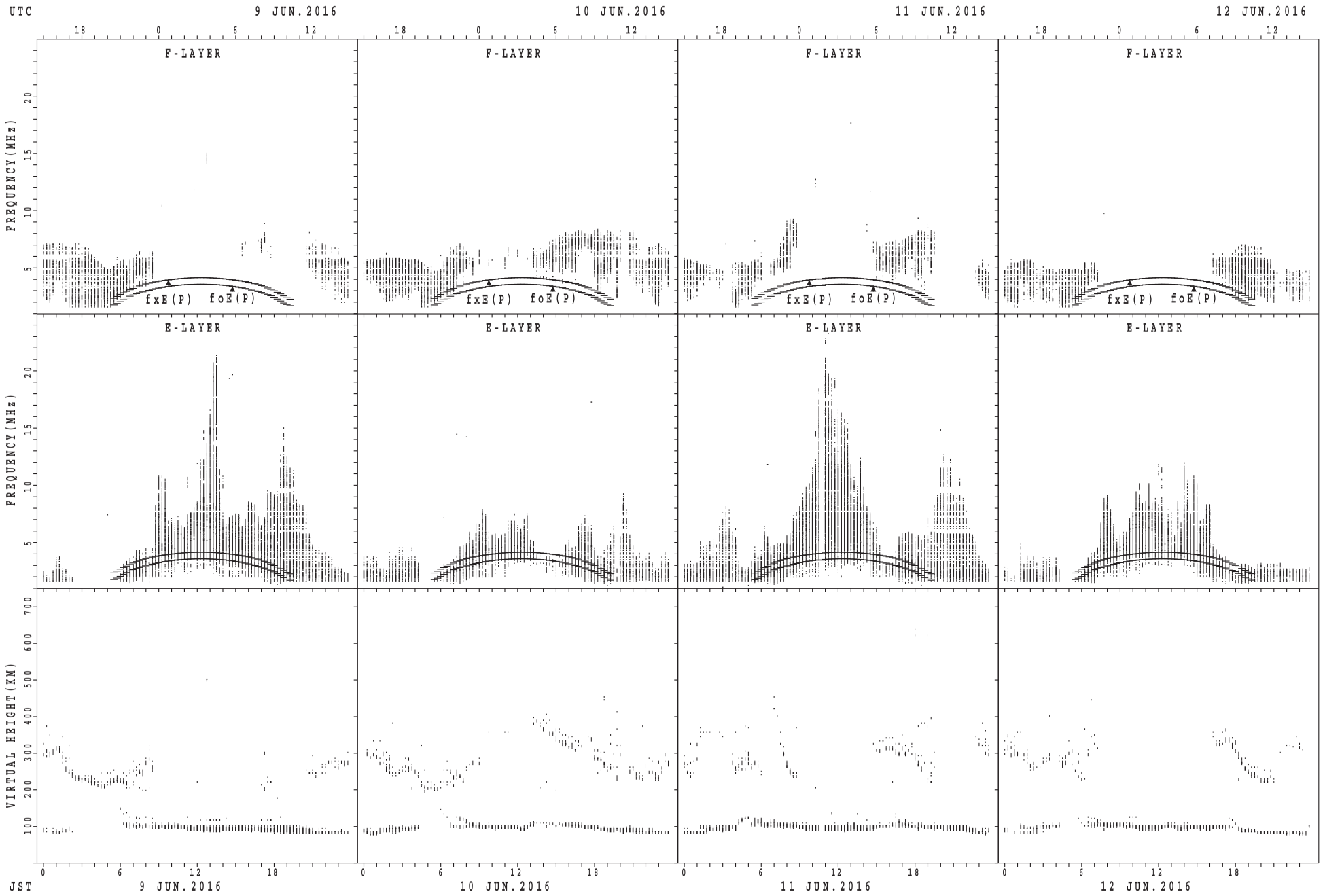
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



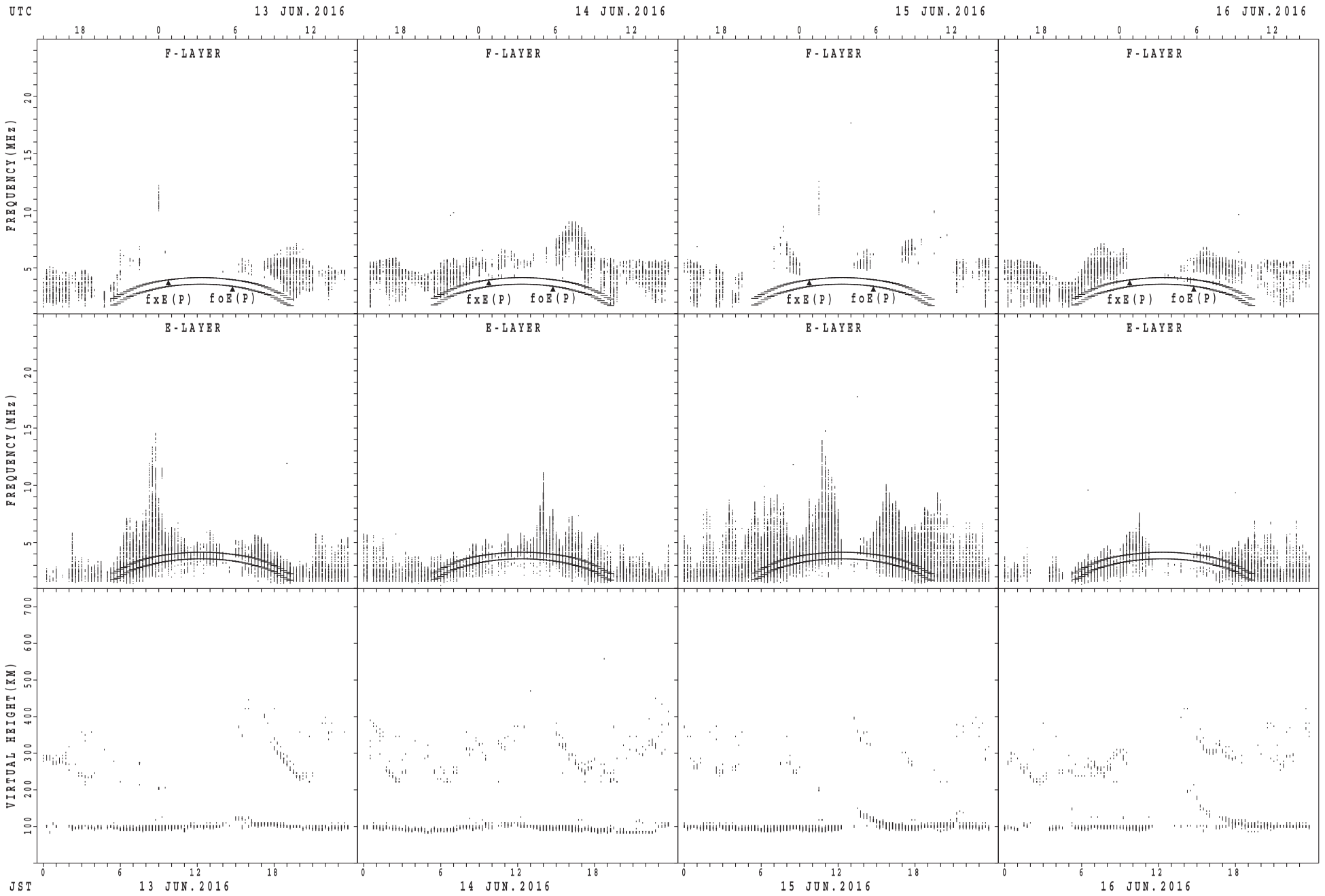
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



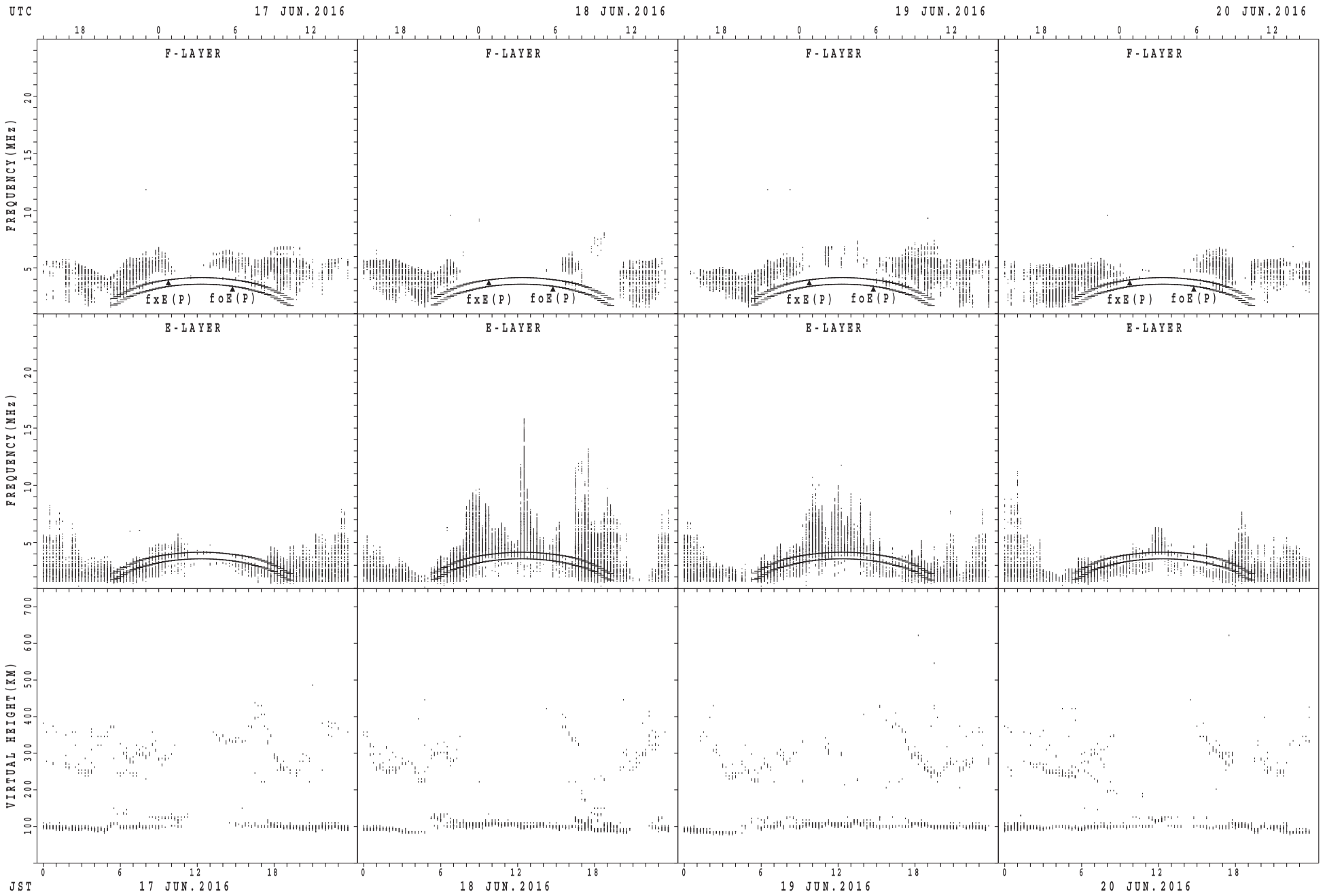
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



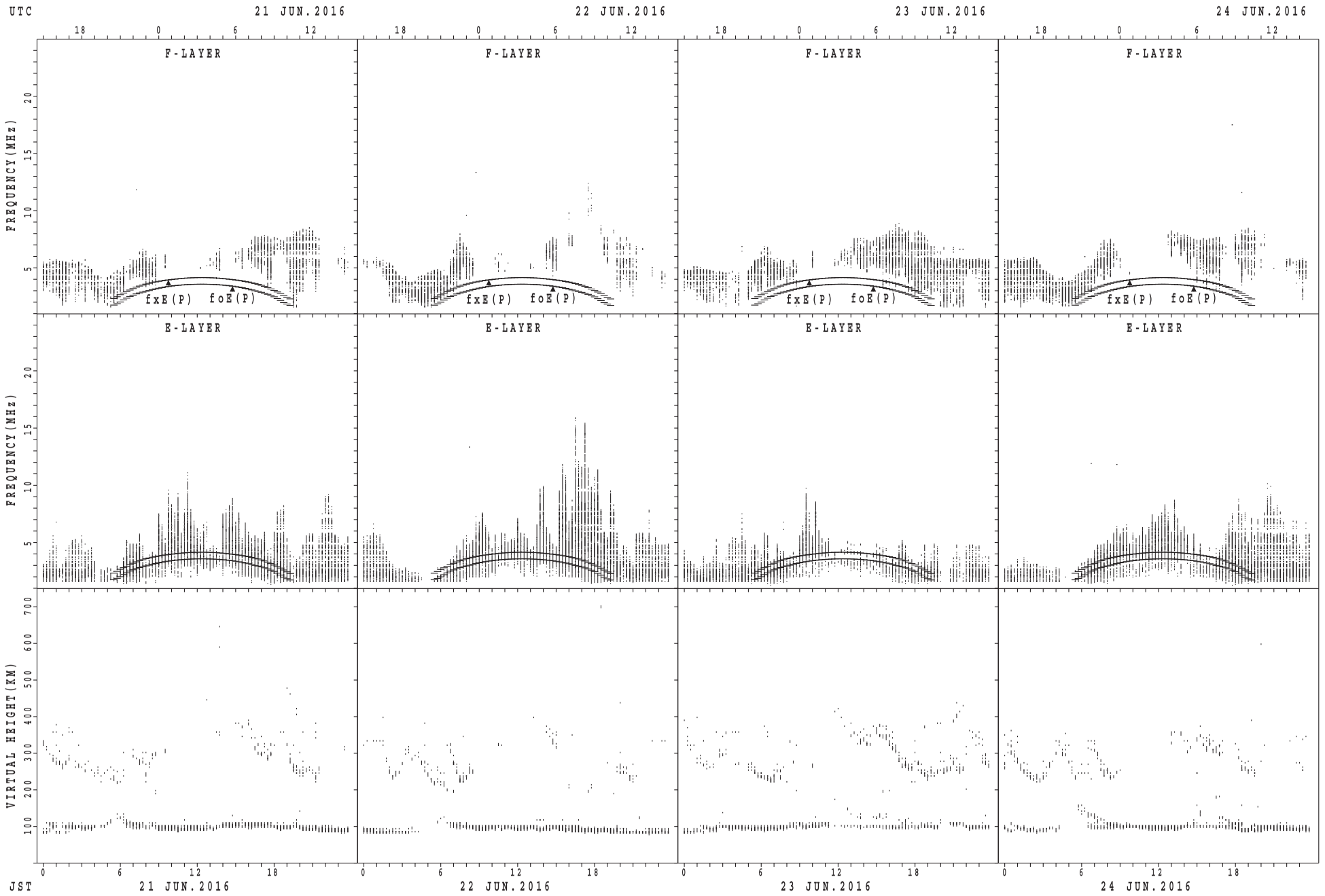
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



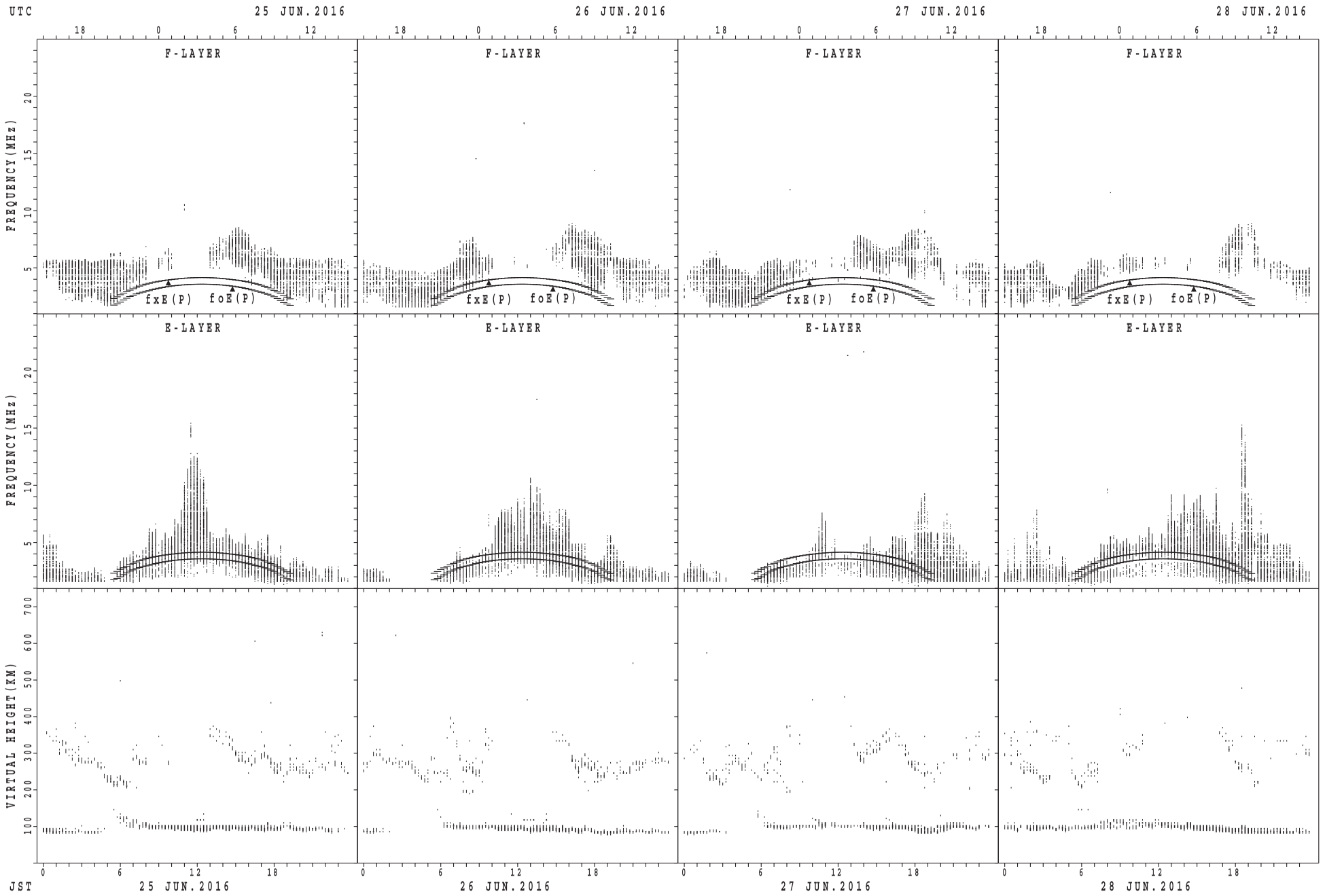
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



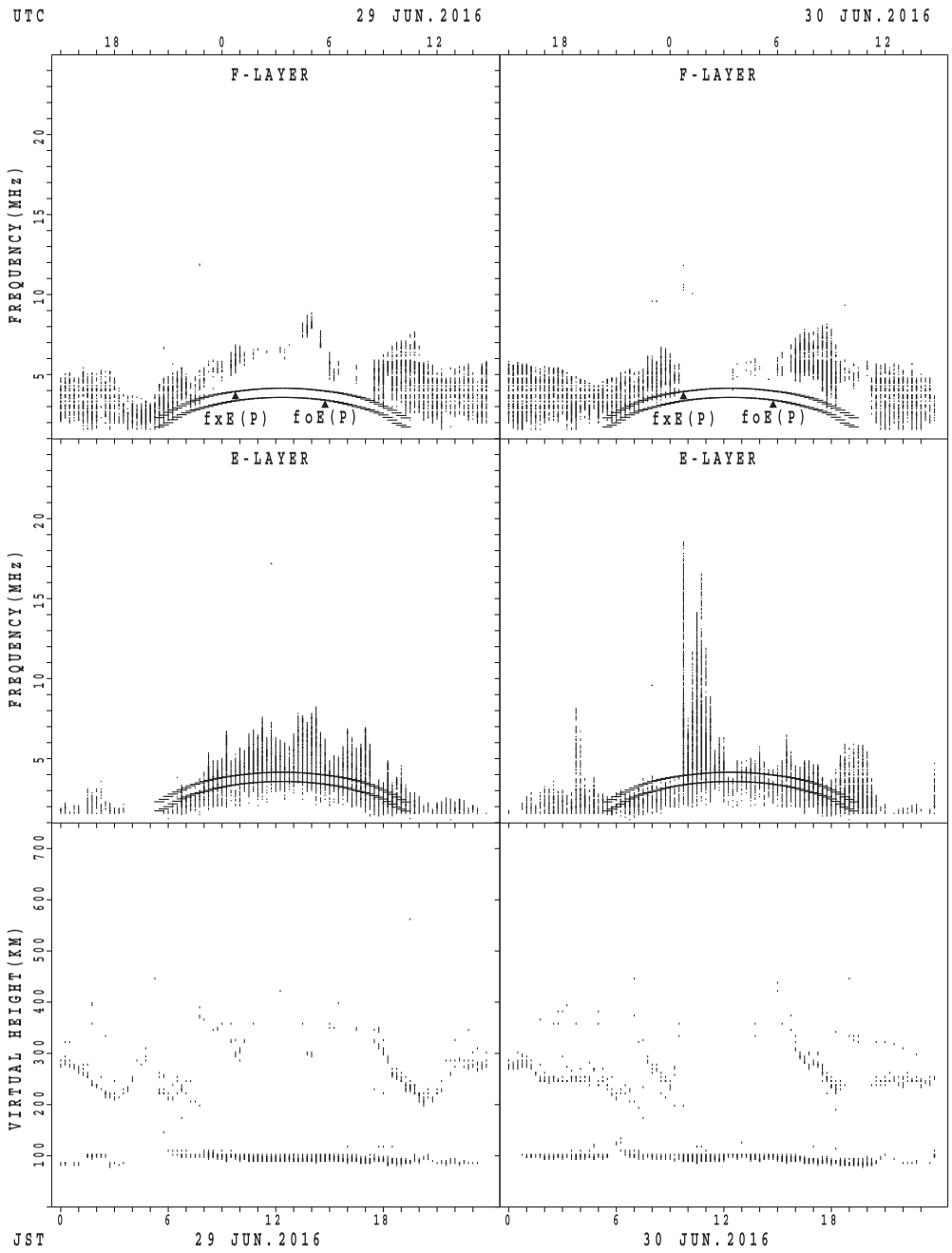
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



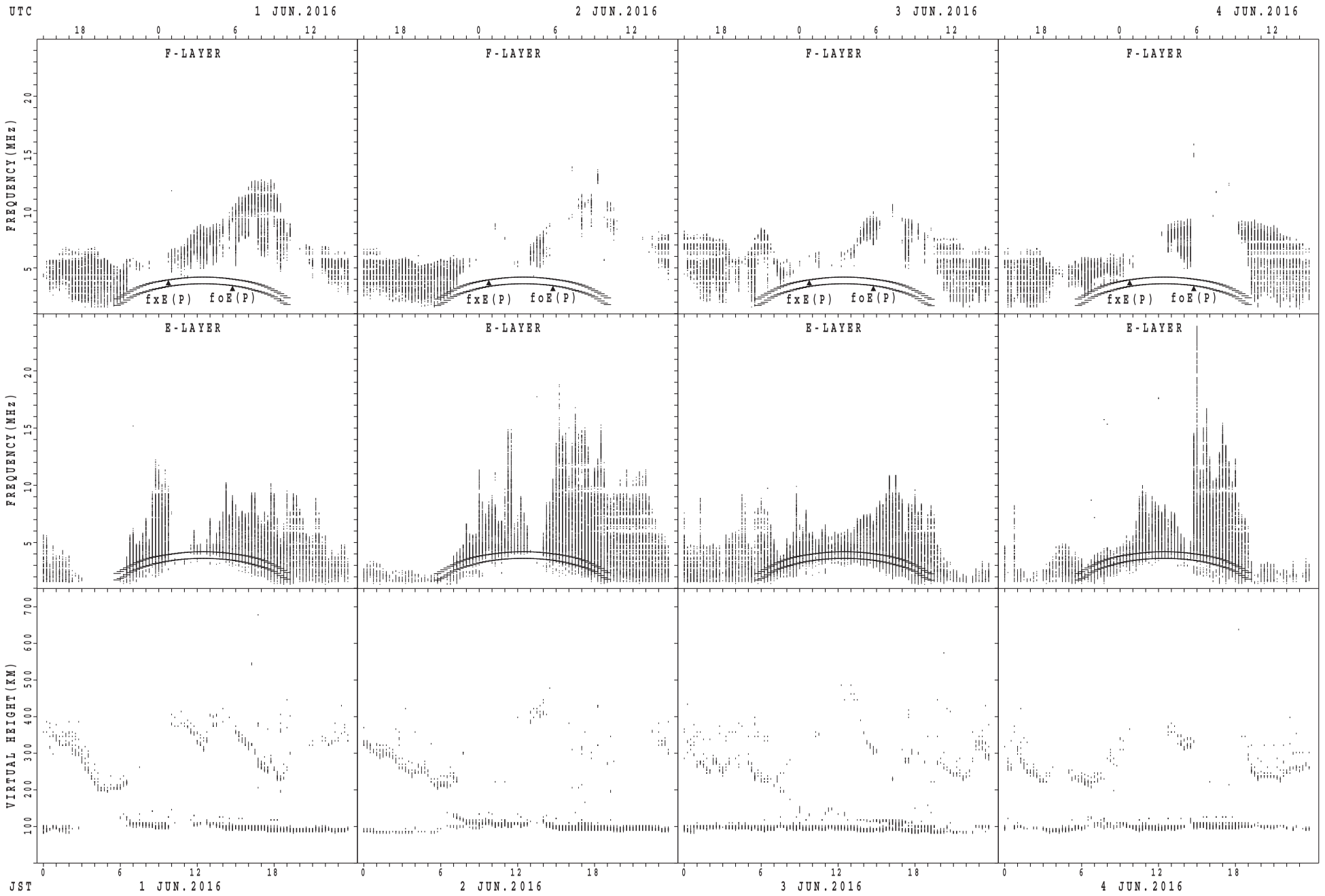
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



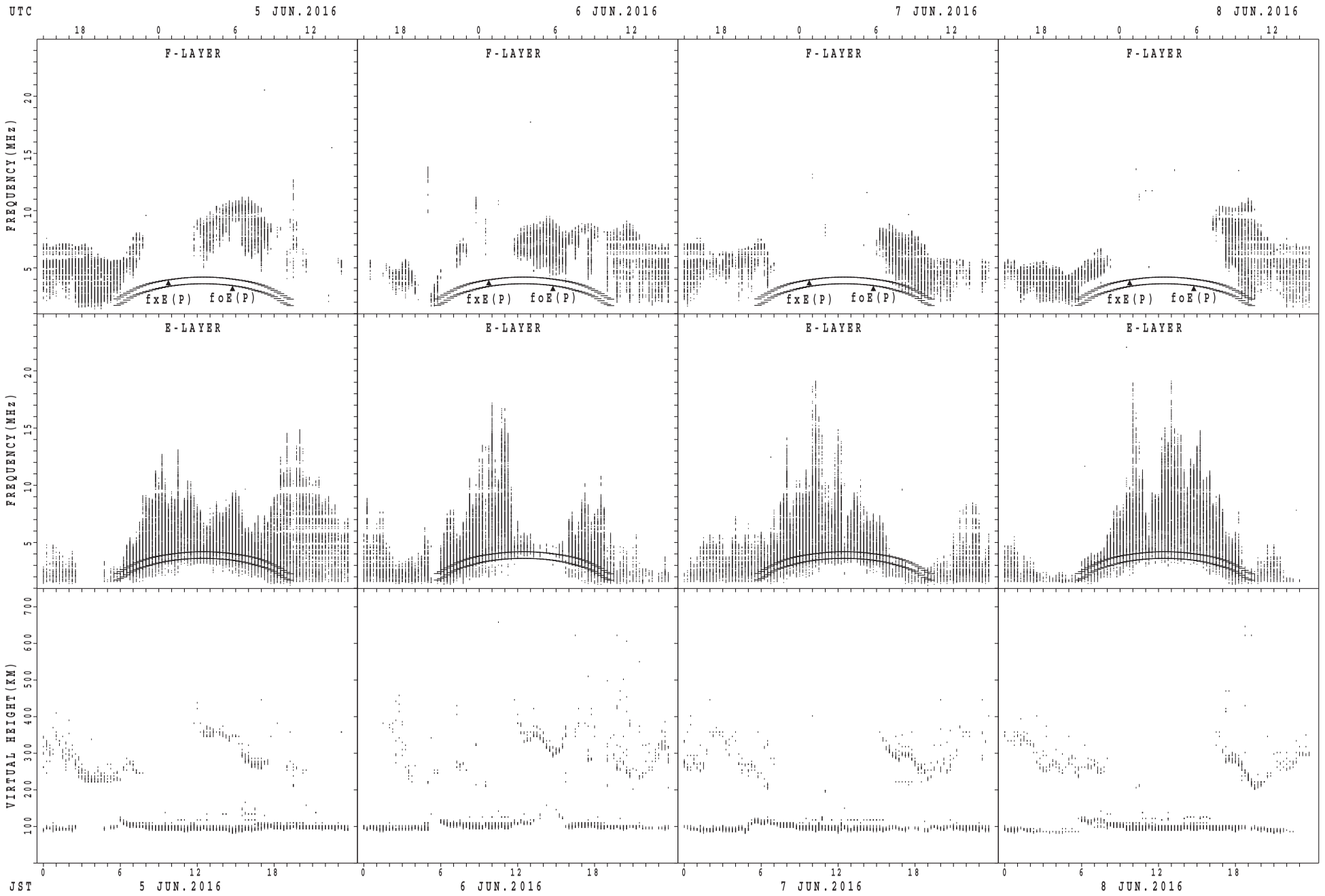
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



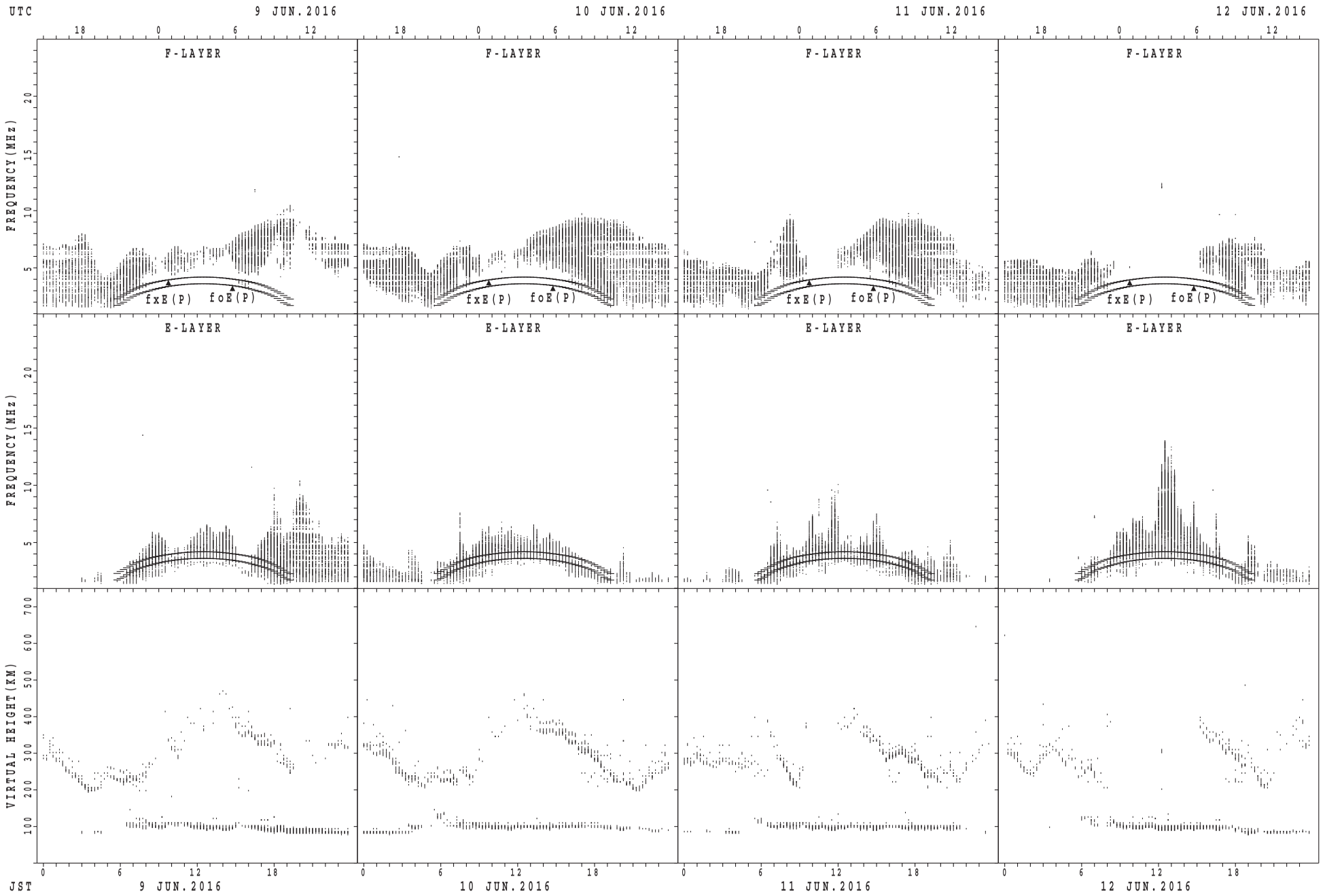
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



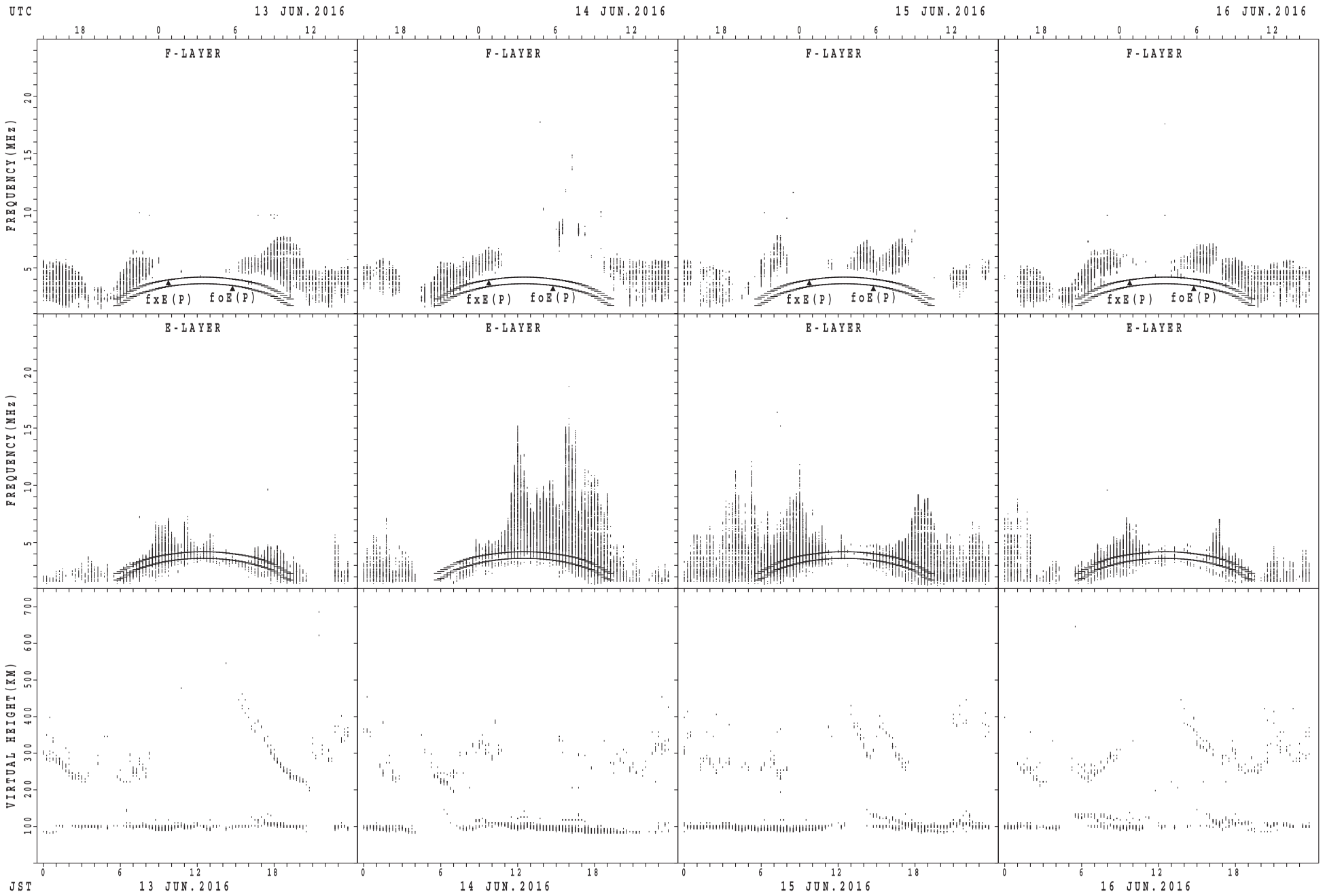
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



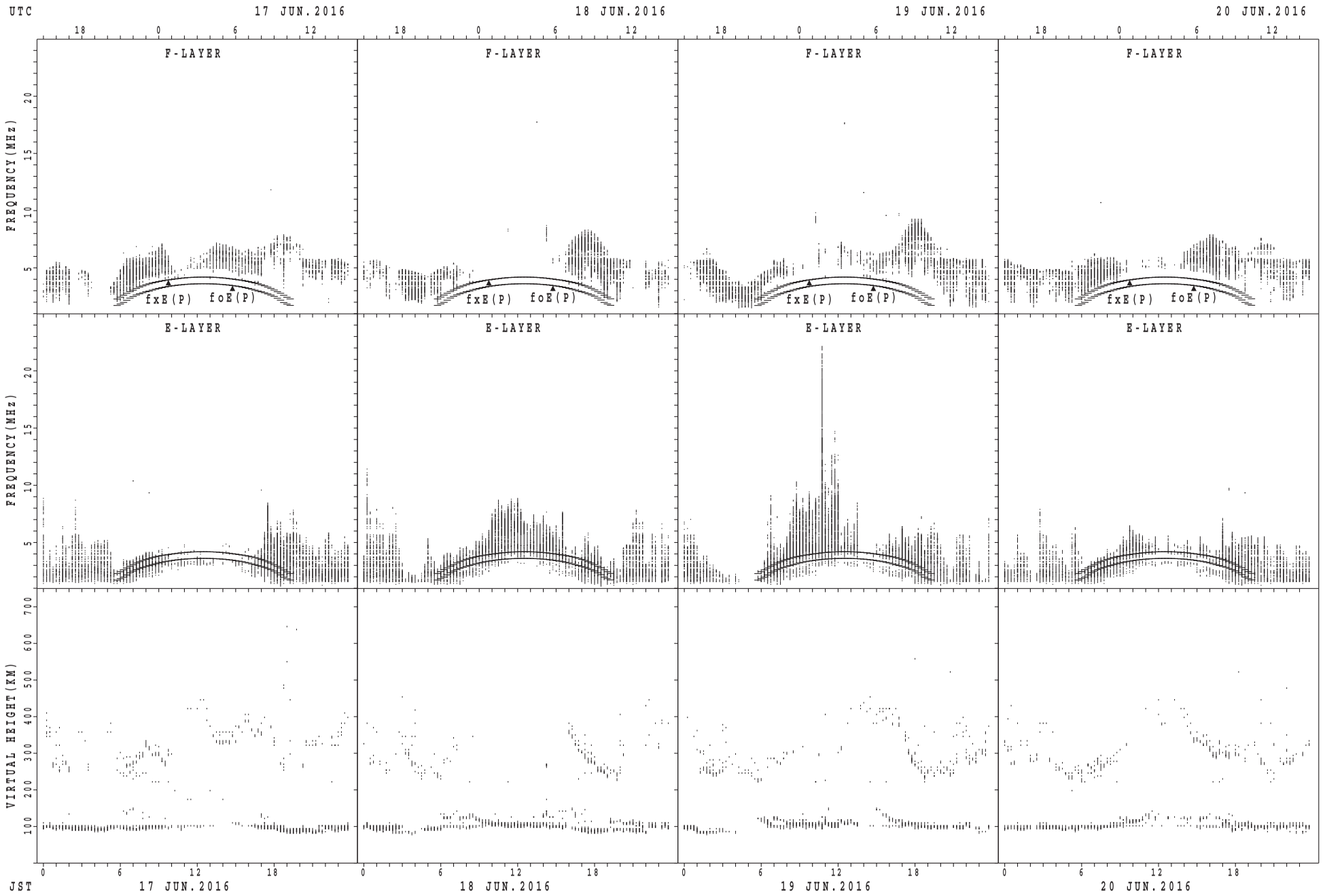
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



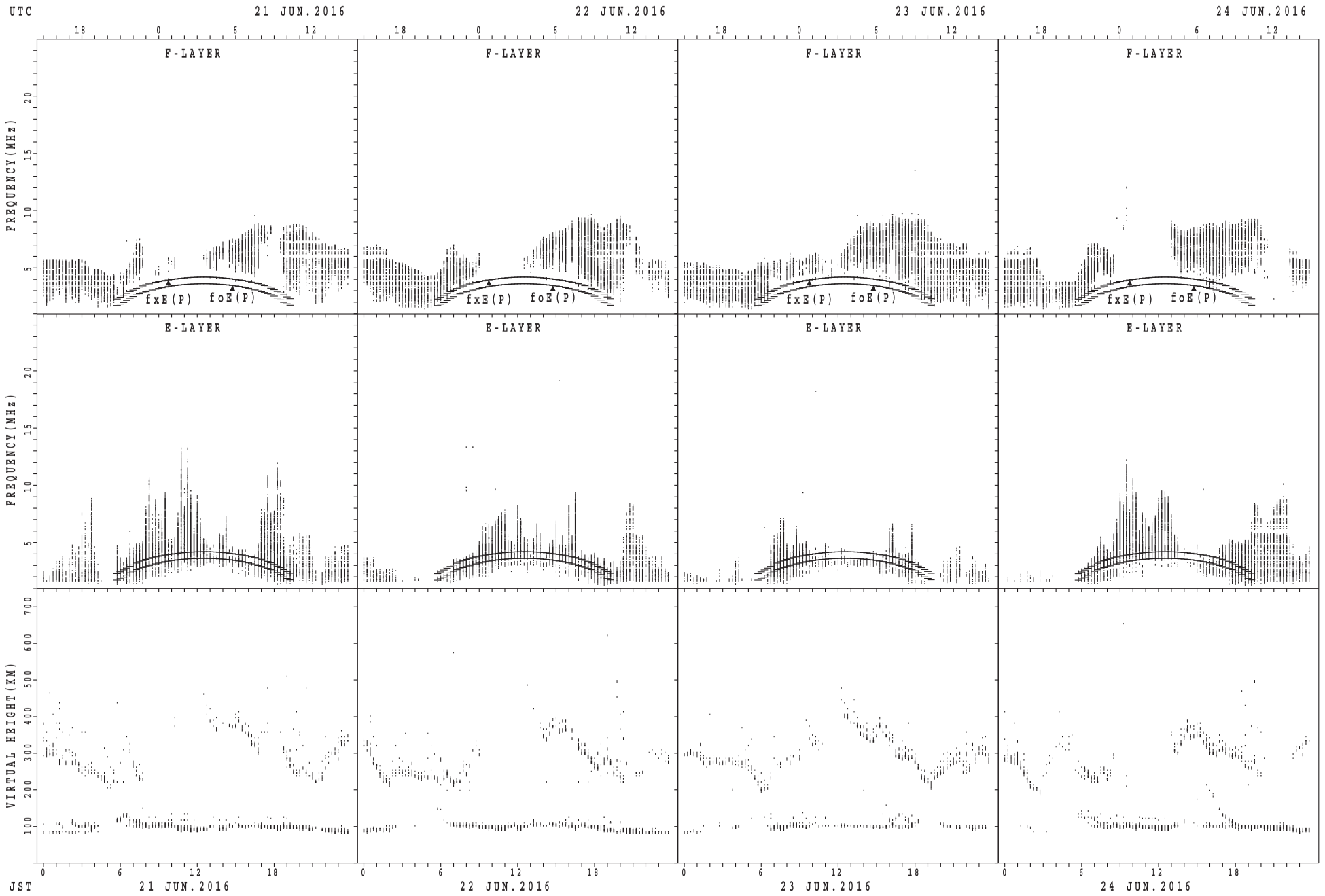
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



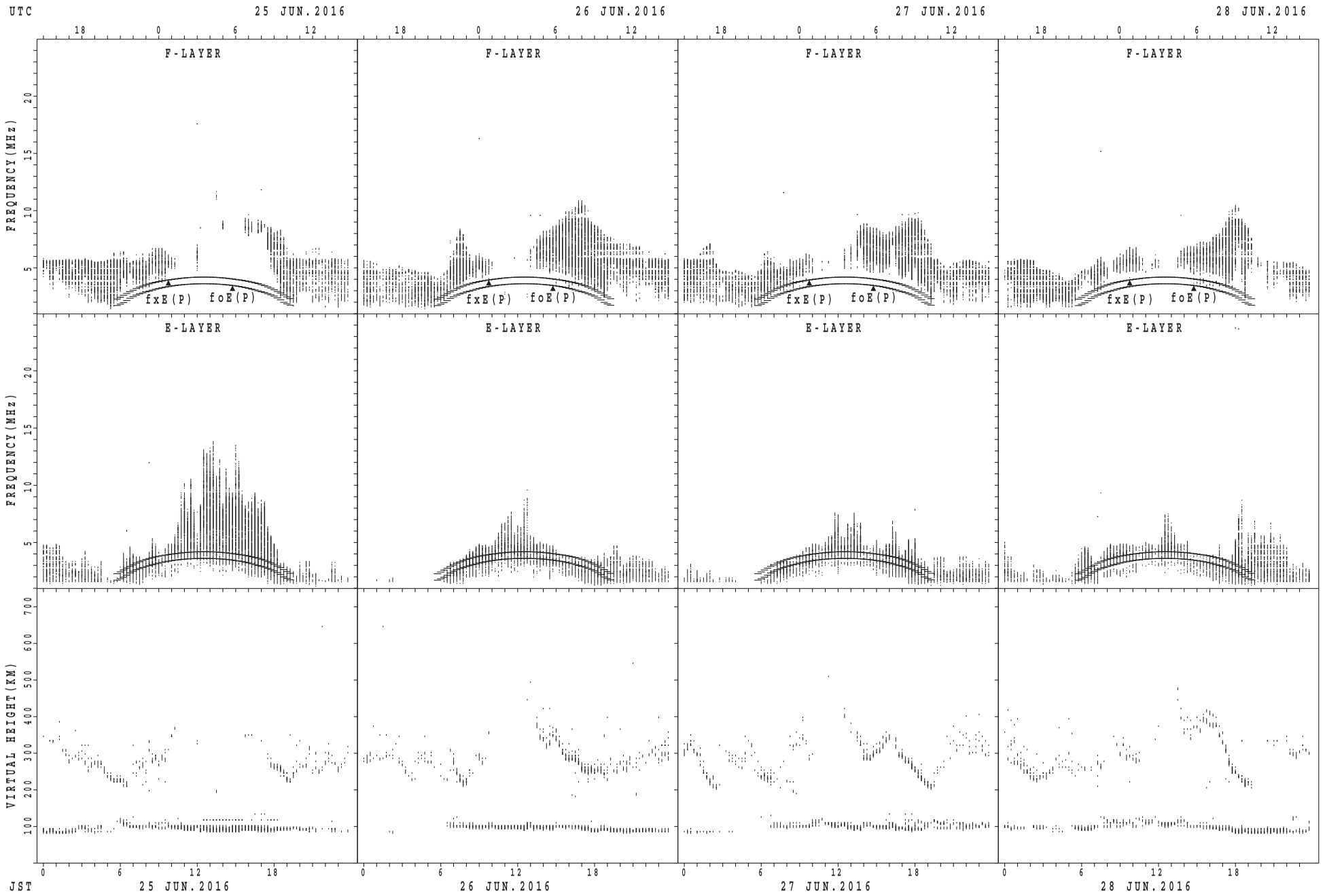
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



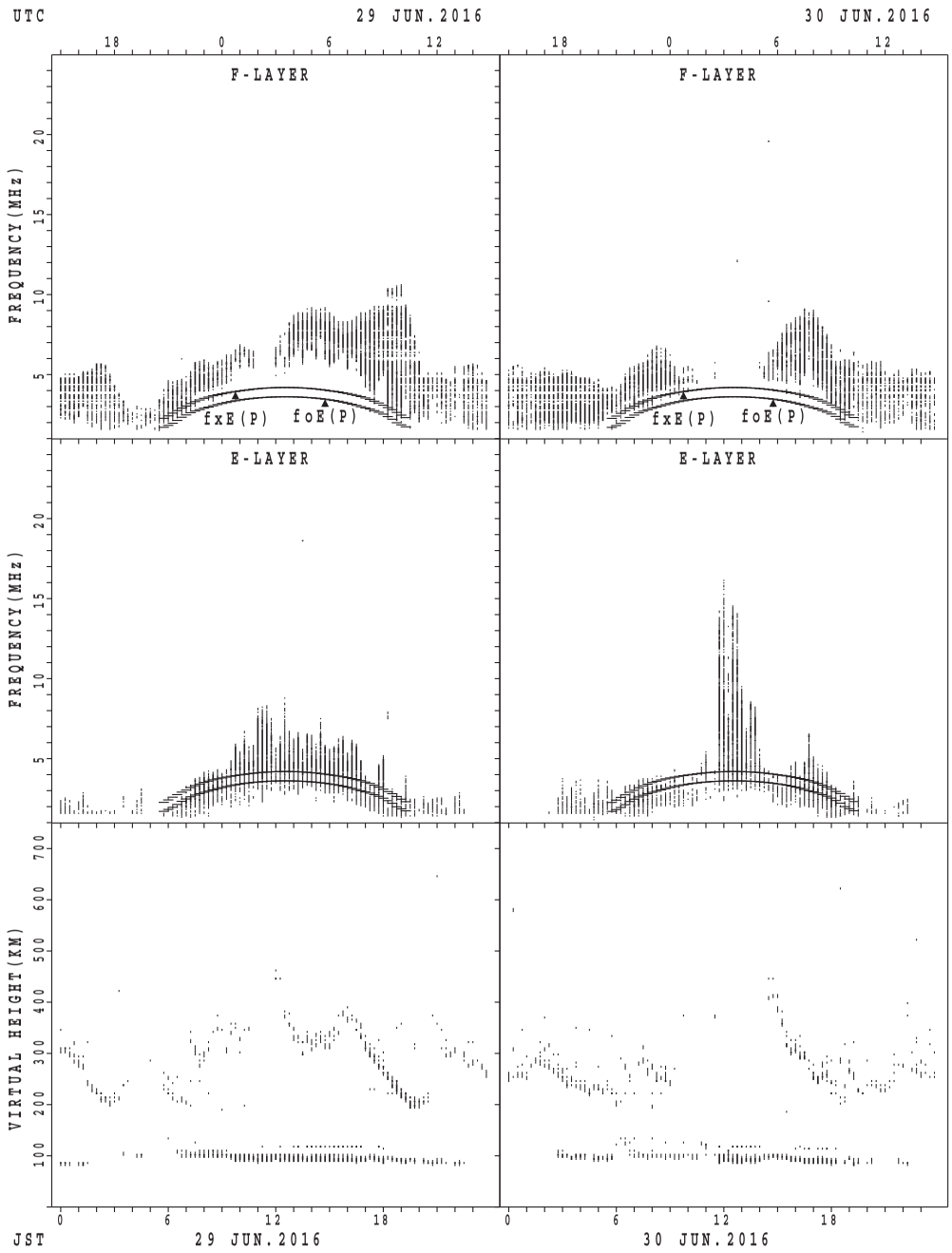
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

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.2016 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		1	1	1	7											11	6	9	6	1	4	
MED	324	306		220	192	290	260											238	257	248	282	340	330	
U Q	162	153		110	96	145	272											312	274	279	302	170	341	
L Q	162	153		110	96	145	224											218	224	212	266	170	275	

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	21	24	21	20	13	22	25	26	26	20	21	23	24	25	24	21	22	25	26	21	26	25	26	26
MED	95	94	95	93	95	115	107	106	101	101	97	101	95	99	98	103	104	101	99	105	105	103	101	99
U Q	97	97	98	98	109	121	116	113	111	106	101	113	99	127	110	109	107	106	105	128	113	109	111	103
L Q	93	93	91	89	91	105	103	103	99	95	92	95	93	95	91	93	97	93	95	97	99	99	99	97

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

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	1				1	1	3	9									8	10	13	10	5	2	2	1
MED	400				198	352	264	242									222	216	218	246	302	324	322	368
U Q	200				99	176	286	296									280	286	250	256	314	352	324	184
L Q	200				99	176	256	224									209	200	202	230	251	296	320	184

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	29	26	30	26	26	27	25	28	29	29	27	28	27	29	27	27	26	29	29	28	28	28	29
MED	97	97	95	95	97	103	107	107	103	103	101	99	99	103	103	99	103	102	97	97	97	98	103	99
U Q	101	103	97	97	99	117	113	113	107	107	108	103	107	111	111	107	111	107	103	103	101	104	105	103
L Q	95	91	89	89	91	97	103	103	101	99	96	95	95	97	95	95	95	95	92	95	92	91	93	95

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

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	1	1	2		1		3	3	8									13	14	7	3	1		
MED	316	368	300		292		278	250	265									286	288	266	280	258		
U Q	158	184	310		146		282	268	291									309	322	280	316	129		
L Q	158	184	290		146		242	226	255									252	280	248	270	129		

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	27	26	23	24	15	25	26	25	27	28	28	26	25	25	27	23	28	28	30	30	28	27	27
MED	95	95	94	95	96	97	115	111	107	103	103	99	99	101	103	101	97	102	103	100	95	96	97	95
U Q	99	99	99	99	99	111	128	113	111	107	106	105	105	105	110	115	107	111	106	103	101	102	103	99
L Q	91	89	89	89	89	95	97	105	101	99	97	97	95	96	96	97	95	95	95	93	91	89	89	87

MONTHLY MEDIANS OF h'F AND h'Es

JUN.2016 135E MEAN TIME(UTC+9H) AUTOMATIC SCALING

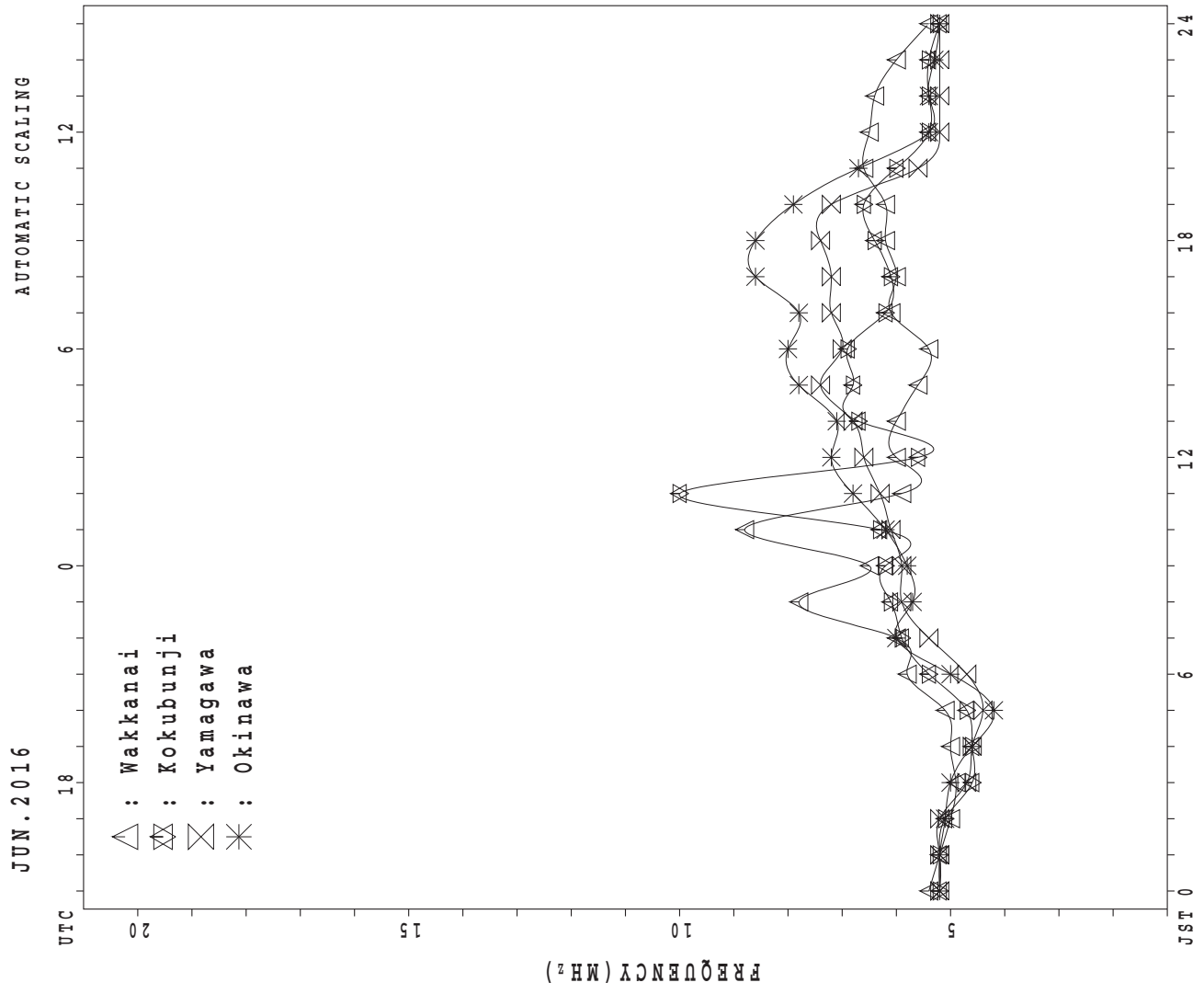
h'F

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

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	4	3	2	3		2	2	9	8									20	18	15	8	7	3	3
MED	335	308	296	332		252	282	258	255									296	278	262	259	288	326	354
U Q	344	340	346	346		282	358	276	276									308	296	282	280	326	362	374
L Q	327	296	246	256		222	206	244	248									258	262	238	243	266	294	336

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	22	23	19	16	21	10	20	27	29	29	26	27	28	23	23	23	25	30	28	28	26	25	23	19
MED	96	97	95	99	97	98	116	113	105	105	103	103	104	101	101	101	103	103	102	97	97	95	97	97
U Q	103	103	99	102	101	99	121	125	112	109	111	113	110	105	107	107	109	109	107	103	103	104	103	103
L Q	91	89	89	96	89	95	101	103	103	101	99	99	97	95	95	97	95	95	93	92	93	90	89	89


MONTHLY MEDIANS PLOT OF foF2
JUN.2016
AUTOMATIC SCALING
: Wakkanai
: Kokubunji
: Yamagawa
: Okinawa
UTC
18
0
6
12
JST 0
6
12
18
24
5
10
15
20
FREQUENCY(MHz)

IONOSPHERIC DATA STATION Wakkanai

JUN. 2016 fxI (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

LAT.45°10.0'N LON.141°45.0'E SWEEP 1.0MHz TO 30.0MHz IN 15.0SEC IN MANUAL SCALING

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	X 63	X 62	X 59						95									A	X 61	X 66	X 73	X 67	70	70
2	X 67	X 65	X 65																			X 79	X 75	X 73
3	X 71	X 65	X 62																			X 75	X 72	X 69
4	X 65	X 65	X 62																			X 76	X 77	X 75
5	X 69	X 69	67																			X 80	X 76	X 73
6	X 67	X 67	X 60																			A	X 70	X 67
7	X 56	X 53	X 55																			X 61	X 61	X 67
8	X 61	X 61	X 54																			X 69	X 68	X 63
9	70	X 61	X 58																			X 68	X 68	X 66
10	X 65	X 59	X 59																			X 75	A	X 74
11	X 68	X 67	X 55																			X 70	X 68	X 67
12	X 62	X 60	X 57																			X 61	X 59	X 63
13	X 53	X 55	X 58	54			64															X 72	X 65	X 64
14	X 57	X 53	X 53	56																X 68		X 69	X 67	X 66
15	X 68	X 66	X 57																		C	C	C	C
16	C	C	C	C	C	C	C	C	C	C	C	C										A	X 64	X 60
17	X 57	X 54																				X 75	X 69	X 63
18	X 61	X 55	X 55																			X 67	X 67	X 60
19	X 60	X 59	X 55	X 54																		X 67	X 63	X 63
20	X 63	X 55	X 55																			X 69	X 67	X 67
21	X 59	X 53	X 53																			X 70	X 69	X 65
22	A	A	X 59	65																		X 72	X 71	X 63
23	X 61	X 57	X 57	56	56					C	C	C	C	C	C	C	C					X 67	A	A
24	A	X 60	58	X 50						C	C	C	C	C	C	C						X 80	X 67	X 63
25	X 59	58	58	58	58																	X 73	A	X 67
26	X 58	X 55	X 55		56																	A	X 65	X 59
27	X 55	X 54	X 50																			X 60	A	A
28	A	X 50	X 49	56																		X 69	X 48	X 46
29	56	57	C	C	C	C	C	C	C	C	C	C										A	X 64	X 54
30	X 49	X 41	X 42																			X 69	X 67	X 58
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	26	28	27	8	3		1		1										1	2	1	25	25	27
MED	X 61	X 58	X 57	56	56		64		95										X 61	X 67	X 73	X 69	X 67	X 65
U Q	X 67	X 64	X 59	57	58																	X 75	X 70	X 67
L Q	X 57	X 54	X 55	X 54	56																	X 67	X 64	X 63

JUN. 2016 fxI (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

JUN. 2016 foF2 (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

LAT.45°10.0'N LON.141°45.0'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	56	55	52	51	47	59	56	52	F 82	A	J R 105	A	54	56	58	A	55	A	54	59	66	60	F 58	F 60
2	60	58	58	56	55	65	62	58	57	57	57	53	A	60	64	64	60	58	59	64	70	72	68	66
3	64	58	55	55	54	57	62	58	63	57	56	50	51	56	55	60	62	67	64	58	67	68	65	62
4	58	R 58	55	54	58	49	55	60	63	63	55	58	A	64	63	59	60	57	60	71	74	69	70	68
5	62	62	F 57	59	56	60	69	74	58	60	58	58	54	57	60	62	64	64	66	76	77	73	69	66
6	60	60	53	61	52	54	A	A	A	62	A	A	A	56	55	59	63	65	57	60	64	A	63	60
7	49	46	48	45	44	A	A	A	A	A	48	52	54	51	51	52	52	54	50	50	50	54	54	59
8	54	54	47	46	41	45	51	48	52	A	A	A	A	54	57	62	60	58	56	53	62	62	61	56
9	F 54	54	51	54	52	60	63	59	56	54	54	55	52	57	60	57	56	57	61	58	62	61	61	59
10	58	52	52	52	52	46	56	59	57	A	A	58	58	A	60	60	57	56	56	66	A	68	A	67
11	61	60	48	52	46	44	47	58	A	A	59	54	R	A	53	50	A	A	56	A	A	63	S 61	S 60
12	55	53	50	46	36	44	50	44	A	A	A	A	E G 45	48	R 58	51	49	49	54	57	59	54	52	56
13	46	J R 48	51	F 42	38	50	F 54	A	A	A	A	A	A	A	A	A	A	A	47	50	60	65	58	56
14	50	46	46	F 46	46	R 52	48	57	R 60	A	52	55	A	A	59	55	61	61	R 66	62	61	62	S 60	59
15	61	59	50	44	41	A	49	A	60	59	A	A	A	A	R	48	50	53	59	59	C	C	C	C
16	C	C	C	C	C	C	C	C	C	C	C	C	A	52	50	A	A	A	A	A	60	A	57	54
17	50	47	47	43	43	45	50	53	54	55	56	52	46	E G 46	51	52	E G 50	54	54	54	61	68	62	56
18	54	48	48	42	41	43	51	50	E G 46	A	A	E G 44	R	R	46	R 48	49	50	51	58	60	60	60	53
19	53	52	48	47	51	48	55	52	48	A	A	A	A	R	53	A	A	A	A	51	57	60	56	56
20	56	48	48	42	41	42	48	A	A	A	A	A	A	A	55	E G 44	A	A	49	51	J R 59	62	60	60
21	52	46	46	V 44	46	53	58	53	A	63	62	56	52	R 51	47	53	53	53	49	55	65	63	62	58
22	A	A	52	F 53	48	42	A	A	A	A	59	A	E G 56	57	55	53	53	52	52	57	65	J R 65	64	56
23	54	50	50	F 46	F 46	49	55	58	61	C	C	C	C	C	C	C	C	64	56	51	A	60	A	A
24	A	53	F 50	43	39	48	51	51	51	C	C	C	C	C	C	C	A	A	63	63	63	73	60	56
25	53	F 47	F 46	F 45	F 47	43	A	55	A	50	A	55	59	52	52	52	56	54	49	57	71	66	A	60
26	51	48	48	46	F 43	47	47	A	A	52	55	59	56	R	A	49	50	50	58	64	69	A	58	52
27	48	47	43	40	37	47	R	44	52	56	54	52	52	52	52	52	53	A	56	69	67	53	A	A
28	A	43	42	F 42	42	45	E G 39	47	A	A	A	A	52	52	A	47	A	A	52	60	73	62	41	39
29	F 39	F 44	C	C	C	C	C	C	C	C	C	C	A	53	A	A	49	A	44	47	58	A	58	47
30	42	34	35	38	39	47	45	48	52	46	A	52	A	53	50	52	48	46	47	54	61	62	60	51
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	26	28	28	28	28	26	23	21	17	13	14	16	14	19	23	23	22	20	28	28	26	25	25	27
MED	54	51	49	46	46	48	51	53	57	57	56	54	52	53	55	52	54	55	56	58	62	62	60	58
U Q	58	56	52	52	52	53	56	58	60	61	59	57	56	57	59	59	60	60	59	62	67	68	62	60
L Q	50	47	47	43	41	45	48	49	52	53	54	52	52	52	51	50	50	52	50	54	60	60	58	56

IONOSPHERIC DATA STATION Wakkanai

JUN. 2016 foF1 (0.01MHz) 135°E MEAN TIME (G.M.T. + 9 H)

LAT.45°10.0'N LON.141°45.0'E SWEEP 1.0MHz TO 30.0MHz IN 15.0SEC IN MANUAL SCALING

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1					L	352	L	L		A		A	A	A	A	A	L							
2				L	L	L 352	L 392	U L 428	L 440	460	A	A	A	L 464	A	436	L 424	L 404	U L 356	L				
3					L	L	396	424	432	468	464	L	U L 448	U L 456	444	A	A	A	L					
4						L 280	408	408	456	456	A	L 456	A	L	L	448	412	404	A					
5					A	L	L	A	L	A	L	L	L 480	L	A 436	436	416	396	A	L				
6							A	A	A	A	A	A	A	A	432	L	436	L	A	A	A			
7				L	A	A	A	A	A	A	A	L	L	L	424	L	L	L	A	A	A			
8				A	L 288	308	368	404	432	A	A	A	A	428	436	A	L	392	A	A	A			
9					L	L	L	424	424	452	L	L	L	444	L	L 448	412	L	308					
10							A	L 424	L	A	A	L	A	A	A	A	L	A	A	A	A			
11							L	A	A	A	A	A	L	A	A	L	A	A	A	A	A			
12					L	A	A	A	A	A	A	A	448	L	L	L	404	384	L	L				
13					L	348	U A 388	A	A	A	A	A	A	A	A	A	A	A	L	A	A			
14						412	400	L 416	560	A	A	L	A	A	400	A	L	400						
15						A	A	A	A	A	A	A	A	A	L	428	L 412	384	356		C			
16				C	C	C	C	C	C	C	C	C	A	432	440	A	A	A	A	A				
17					L	320	372	404	A	A	L	L	408	456	436	464	500	A						
18				L	248	324	A	A	464	A	A	440	L	436	424	L	L	A	A					
19					B	L	372	416	L	A	A	A	A	L	432	A	A	A	A	L				
20					L	L	A	A	A	A	A	A	A	A	L	440	A	A	L	A	A			
21					L		L	A	A	L	L	460	L	L	L	428	L	400						
22						L 372	A	A	A	A	A	A	556	A	L	L	A	A	A					
23						A	A	A	A	C	C	C	C	C	C	C	C	A	A	A	A			
24					L	A	L	L	L	C	C	C	C	C	C	C	A	A		L	A			
25						A	A	L	A	A	A	444	444	460	436	L	432	388	L	L				
26						A	A	A	A	L	L	432	A	L	A	L	A	L	348					
27				A	A	324	392	L	A	A	L	L	A	L	440	L	A	A	A	A	A			
28						A	388	A	A	A	A	A	L	A	A	L	A	A		280				
29				C	C	C	C	C	C	C	C	C	A	A	A	A	392	A	352	L				
30					L	A	A	A	A	440	A	A	A	448	L	A	404	380	340	L				
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					2	10	10	9	7	5	1	5	6	9	12	8	11	10	6	1				
MED					268	336	390	416	440	456	464	444	448	448	436	438	412	394	350	280				
U Q						L 352	396	L 424	464	464		458	480	L 458	438	448	432	400	356					
L Q						320	372	406	432	446		436	444	434	428	432	404	384	340					

JUN. 2016 foF1 (0.01MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

JUN. 2016 foE (0.01MHz) 135°E MEAN TIME (G.M.T. + 9 H)

LAT.45°10.0'N LON.141°45.0'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				196	B	216	256	292	324	336	344	340	A	308	484	312	312							
2				B	B	212	276	300	324	332	332	332	A	320	A	A	Y	Y	220	B	A			
3				A	A	216	248	320	308	312	336	A	A	A	336	UR 328	288	244	204	A	A			
4				B	180	216	260	288	312	356	A	348	UA 324	A	A	A	R 252	268	212	UR 196	A			
5				B	A	204	260	296	UR 320	336	UR 344	344	344	320	A	A	UR 296	UR 280	204	204	256			
6				B	B	228	256	296	316	340	340	316	B	A	332	UR 308	284	256	228	A	A			
7				204	A	196	256	288	304	328	336	336	328	A	368	308	240	224	A	156	A			
8				A	B	208	240	288	312	340	356	356	348	348	308	A	A	236	212	A	A			
9				B	184	200	260	280	328	328	328	328	328	A	A	A	308	A	A	A	A			
10				224	A	204	292	300	328	340	340	A	360	344	332	324	300	280	220	A 348	A			
11				220	192	204	260	300	312	340	340	UR 340	A	340	312	UR 300	A	280	224	A	A			
12				220	220	220	268	304	B	340	340	B	340	332	348	304	248	216	A	A	A			
13				324	A	204	280	304	320	A 944	A	A	A	352	352	336	320	272	208	A	A			
14				220	A	A	236	304	308	340	340	340	A	340	324	340	296	296	216		A			
15				A	A	288	264	292	316	324	324	324	UR 328	R 332	UR 336	312	312	260	216	A	C			
16				C	C	C	C	C	C	C	C	C	A	316	B	328	A	264	232	A	A			
17			A	A	A	200	UR 308	292	312	320	B	UR 320	328	348	B	320	300	280	224	A	A			
18				A	B	208	256	292	316	332	344	320	B	348	332	336	UR 304	288	232	A	A			
19					B	208	268	300	324	324	324	324	A	368	368	A	308	A	A	200	A			
20				A	180	212	248	292	312	328	328	A	A	A	A	368	308	A	A	A	A			
21				B	R 188	A	UR 292	308	324	352	340	360	284	340	348	348	A	A	236	A	228			
22				A	A	204	264	288	324	324	UR 324	A	312	A	A	352	312	272	A	A	A			
23				216	A	224	292	292	308	C	C	C	C	C	C	C	C	A	A	A	A			
24					A	A	276	304	328	C	C	C	C	C	C	C	300	276	232	A	A			
25				212	212	208	244	288	300	320	328	UR 312	B	UR 364	UR 324	A	A	A	A	216	A			
26				R 216	200	228	292	276	292	328	380	356	A	A	A	A	A	A	A	A	A			
27				A	A	216	A	288	308	308	324	A	A	308	304	A	A	A	A	A	A			
28				A	184	204	232	288	320	320	336	B	336	324	B	296	296	228	A	A	A			
29				C	C	C	C	C	C	C	C	C	B	308	A	A	A	A	264	A	A			
30				A	208	204	272	300	300	324	344	332	B	A	A	A	A	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				10	10	25	27	28	27	26	23	18	12	19	16	17	19	18	17	6	2			
MED				218	190	208	260	292	316	330	340	334	328	340	334	324	300	270	220	202	242			
U Q				220	208	216	276	300	324	340	344	344	342	348	350	338	308	280	232	216				
L Q				212	184	204	256	288	308	324	328	324	326	320	324	308	288	244	212	196				

JUN. 2016 foE (0.01MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

JUN. 2016 foEs (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

LAT.45°10.0'N LON.141°45.0'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	JA 45	32	37	26	EB 17	26	JA 56	JA 53	70	72	JA 67	70	JA 65	EB 21	JA 67	JA 62	JA 64	JA 106	58	48	JA 74	60	JA 57	48
2	EB 17	24	EB 16	EB 16	EB 16	G 24	JA 39	JA 45	JA 45	JA 45	JA 56	JA 52	63	JA 48	61	38	Y	Y	G 18	EB 17	27	23	EB 15	JA 19
3	26	JA 126	25	25	JA 32	26	32	37	36	38	JA 61	JA 54	JA 39	40	JA 52	JA 63	JA 90	56	24	28	JA 25	23	JA 26	JA 43
4	JA 35	EB 16	EB 16	EB 15	G	25	31	36	40	JA 62	JA 59	41	JA 83	JA 45	JA 65	40	G	31	JA 44	G	32	EB 16	EB 16	26
5	20	JA 19	23	24	G 21	28	35	JA 49	JA 55	JA 50	JA 48	39	JA 108	40	JA 41	51	37	G 31	42	JA 23	35	26	22	22
6	EB 14	EB 14	EB 14	19	19	27	70	94	119	JA 88	108	117	JA 110	JA 157	39	G	36	40	JA 58	JA 28	JA 57	72	JA 53	34
7	JA 18	JA 32	JA 49	JA 133	JA 44	59	JA 58	JA 67	JA 89	69	JA 47	42	38	JA 98	JA 79	39	JA 77	53	JA 61	54	43	JA 53	JA 41	JA 45
8	JA 41	JA 35	JA 25	JA 30	EB 17	26	JA 31	35	39	55	64	JA 69	64	JA 46	JA 56	JA 58	JA 35	36	JA 37	62	JA 69	JA 51	40	27
9	EB 15	23	23	EB 14	G	27	G	33	37	JA 107	JA 46	41	JA 46	JA 51	JA 43	JA 34	38	38	JA 28	29	28	39	26	28
10	28	26	JA 33	JA 42	JA 32	27	70	39	70	95	JA 80	64	JA 48	208	JA 85	JA 106	JA 68	JA 59	74	JA 140	JA 119	JA 40	JA 65	JA 47
11	JA 49	46	JA 40	29	24	44	40	61	94	72	JA 62	65	59	70	67	G 35	95	71	65	JA 101	JA 107	JA 53	49	48
12	35	JA 28	JA 33	JA 52	G	45	JA 75	JA 44	84	JA 88	JA 131	60	JA 46	39	42	40	39	34	JA 32	JA 45	JA 63	47	JA 52	43
13	JA 62	67	JA 49	G 26	26	26	58	96	JA 167	136	170	158	JA 164	198	JA 54	JA 126	96	JA 211	JA 109	82	JA 47	JA 50	JA 50	32
14	JA 48	38	42	39	39	45	JA 35	36	64	130	57	63	95	JA 84	40	JA 73	49	56	JA 49	JA 69	42	58	50	116
15	JA 197	JA 130	JA 143	JA 93	JA 70	JA 71	53	JA 63	JA 65	JA 249	134	JA 109	136	JA 156	42	42	38	36	JA 33	54	C	C	C	C
16	C	C	C	C	C	C	C	C	C	C	C	C	JA 167	48	40	JA 50	76	98	118	67	49	69	37	38
17	JA 61	JA 47	50	JA 48	JA 30	24	38	JA 40	60	57	40	39	35	JA 50	EB 35	G	JA 50	JA 87	JA 53	JA 77	JA 53	36	24	29
18	JA 28	40	JA 27	JA 31	EB 17	28	53	60	62	JA 45	70	41	G 38	42	G	G 37	G	49	JA 63	JA 53	52	22	22	24
19	21	EB 16	EB 16	EB 17	EB 16	JA 56	G	JA 52	JA 56	JA 121	109	127	JA 65	45	49	66	79	69	JA 103	G	40	JA 41	48	72
20	37	JA 37	25	22	G	JA 31	50	JA 61	JA 63	68	85	JA 79	JA 83	JA 70	62	G 44	JA 99	260	JA 187	79	JA 143	JA 60	30	40
21	38	34	24	24	G	JA 42	36	JA 53	JA 85	G	JA 43	42	41	47	G 46	JA 61	46	39	G	40	47	JA 45	JA 61	JA 63
22	68	60	43	JA 43	38	27	86	79	JA 94	116	61	87	57	JA 88	51	38	41	52	JA 37	45	48	31	34	EB 16
23	EB 16	EB 16	JA 50	JA 38	32	30	JA 46	72	JA 206	C	C	C	C	C	C	C	C	56	62	51	JA 107	48	JA 95	JA 118
24	JA 118	JA 39	38	39	38	46	40	JA 47	40	C	C	C	C	C	C	C	70	93	JA 72	36	72	JA 157	66	45
25	32	40	39	40	JA 35	JA 47	72	57	142	JA 66	JA 70	JA 44	JA 45	JA 60	JA 44	JA 87	G 37	64	JA 47	38	JA 31	48	JA 105	50
26	28	23	JA 30	JA 37	26	38	59	JA 87	82	JA 45	JA 124	45	JA 87	53	JA 57	JA 55	54	50	42	JA 29	59	60	47	42
27	39	32	33	JA 39	32	JA 27	46	38	JA 50	JA 69	JA 87	48	64	38	38	50	60	82	70	JA 58	JA 75	JA 73	JA 85	JA 65
28	JA 97	JA 51	JA 28	JA 28	JA 37	JA 31	38	40	JA 109	116	JA 148	65	JA 49	JA 53	60	G 40	54	64	52	JA 29	JA 43	26	39	55
29	58	58	C	C	C	C	C	C	C	C	C	C	JA 61	58	64	70	47	53	39	60	54	68	68	44
30	28	JA 27	30	29	26	46	53	55	57	JA 64	64	JA 49	JA 81	JA 40	50	JA 42	46	44	JA 38	JA 35	42	43	JA 51	JA 49
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	28	28	28	28	28	28	28	26	26	26	28	28	28	28	28	29	30	30	29	29	29	29
MED	35	34	32	30	26	29	46	52	64	69	JA 66	57	JA 64	50	50	G	50	56	JA 50	46	49	48	48	43
U Q	JA 54	46	JA 41	JA 40	JA 34	45	58	62	JA 92	107	108	70	JA 85	JA 77	62	JA 62	73	76	65	62	JA 70	60	JA 59	50
L Q	24	24	24	24	G	26	36	40	52	JA 55	JA 57	42	46	44	42	40	38	40	JA 37	29	41	34	28	28

JUN. 2016 foEs (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

JUN. 2016 fbEs (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

LAT.45°10.0'N LON.141°45.0'E SWEEP 1.0MHz TO 30.0MHz IN 15.0SEC IN MANUAL SCALING

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E B 15	20	20	E B 15	E B 17	26	34	44	48	A A 72	52	A A 70	A	E B 21	E A 50	A A 62	37	A A 106	E A 41	31	E A 55	29	E B 16	E B 16
2	E B 17	E B 16	E B 16	E B 16	E B 16	G 22	36	40	41	41	47	47	A	41	52	35	Y	Y	G 18	E B 17	19	E B 16	E B 15	E B 16
3	E B 16	30	E B 15	E B 16	21	23	30	G 32	36	36	42	38	39	37	36	42	51	42	22	22	16	E B 15	21	20
4	21	E B 16	E B 16	E B 15	G	23	31	34	36	38	50	40	A A 83	42	37	32	G	28	33	G	22	E B 16	E B 16	E B 16
5	E B 16	E B 16	E B 16	E B 14	G 18	25	31	45	41	43	41	38	36	38	38	37	30	G 29	32	G 19	26	E B 14	E B 14	E B 14
6	E B 14	E B 14	E B 14	15	E B 15	24	A A 70	A A 94	A A 119	45	A A 108	A A 117	A A 110	A	35	G	30	36	35	26	21	A A 72	20	20
7	E B 15	19	A 31	G 16	E A 34	A A 59	A A 58	A A 67	A A 89	A A 69	45	39	36	44	G 36	36	35	35	33	E A	26	30	32	26
8	29	22	20	20	E B 17	24	28	32	38	A A 55	A A 64	A A 69	A A 64	39	35	E A 42	34	28	33	34	32	30	23	15
9	E B 15	E B 15	E B 15	E B 14	G	24	G	31	34	40	41	41	41	36	40	34	G 31	32	25	28	23	21	18	18
10	18	E B 16	E B 16	30	27	27	42	37	37	A A 95	A A 80	39	A	A A 208	52	E A 52	E A 41	A E 42	43	G 30	A A 119	30	A A 65	E A 37
11	33	19	19	E B 13	G 19	35	30	45	A A 94	A A 72	50	E A 49	51	A A 70	46	G 34	A A 95	A A 71	52	A A 101	A A 107	E A 48	41	20
12	27	22	20	G 22	G	32	39	A	A A 84	A A 88	A A 131	A A 60	39	37	38	34	32	29	28	28	26	23	31	21
13	19	28	28	G 22	22	24	38	A A 96	A A 167	A A 136	A A 170	A A 158	A A 164	A A 198	A A 54	A A 126	A A 96	A A 211	E A 33	E A 31	E A 31	37	35	20
14	15	19	18	G 20	26	27	30	34	48	A A 130	A	41	A A 95	A A 84	40	48	42	32	35	48	29	26	34	29
15	E B 20	19	20	23	35	A A 71	45	A A 63	E A 48	51	A A 134	A A 109	A A 136	A A 156	40	36	36	33	30	35	C	C	C	C
16	C	C	C	C	C	C	C	C	C	C	C	C	A A 167	36	38	A A 50	A A 76	A A 98	A A 118	A A 67	36	A A 69	E B 16	16
17	18	20	30	29	20	U Y 24	G 30	32	48	48	38	38	34	41	E B 35	G	41	51	34	21	21	25	19	19
18	19	30	19	19	E B 17	27	36	43	43	A A 45	A A 70	39	G 36	36	G	G 34	G	40	36	30	30	E B 14	E B 14	E B 16
19	E B 16	E B 16	E B 16	E B 17	E B 16	G 20	G	34	38	A A 121	A A 109	A A 127	A A 65	38	G 36	A A 66	A A 79	A A 69	A A 103	G	31	33	27	21
20	30	15	E B 15	E B 15	G	24	37	A A 61	A A 63	A A 68	A A 85	A A 79	A A 83	A A 70	35	G 34	A A 99	A A 260	30	37	34	40	20	27
21	21	16	E B 16	E B 15	G	30	33	44	A A 85	G	40	40	37	38	G 35	G 35	35	36	G	31	27	22	36	31
22	A A 68	A A 60	28	28	26	25	A A 86	A A 79	A A 94	A A 116	53	A A 87	50	43	36	G 35	A	44	30	24	20	20	20	E B 16
23	E B 16	E B 16	22	27	17	28	42	48	50	C	C	C	C	C	C	C	C	46	44	36	A A 107	36	A A 95	A A 118
24	A A 118	29	25	28	29	37	29	36	36	C	C	C	C	C	C	C	A A 70	A A 93	31	20	45	42	22	14
25	17	22	19	22	G 19	35	A A 72	37	A A 142	46	A A 70	40	38	G 36	33	32	G 31	32	27	G 21	22	30	A A 105	E B 16
26	E B 16	E B 16	E B 16	E A 20	G 18	30	40	A A 87	A A 82	37	G 38	38	46	36	A A 57	36	42	33	30	29	28	A A 60	28	26
27	25	19	20	27	22	23	29	31	46	49	40	38	43	34	34	37	46	A A 82	34	34	29	30	A A 85	A A 65
28	A A 97	18	18	22	19	27	29	37	A A 109	A A 116	A A 148	A A 65	39	47	A A 60	G 34	A A 54	A A 64	34	19	24	22	22	21
29	21	28	C	C	C	C	C	C	C	C	C	C	A A 61	48	A A 64	A A 70	30	A A 53	G 26	30	30	A A 68	22	20
30	E B 15	20	18	E B 15	G 15	24	37	43	44	39	A A 64	41	A A 81	33	37	36	36	29	27	16	31	24	38	27
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	28	28	28	28	28	27	28	26	25	26	25	27	28	28	27	29	30	29	29	29	29	29
MED	18	19	18	20	G	26	35	43	48	50	53	41	50	39	38	E G 36	36	42	32	G	28	30	22	20
U Q	26	22	20	22	22	30	41	A A 61	A A 87	A A 88	A A 96	A A 70	A A 83	A A 48	A 48	A A 45	A A 54	A A 70	35	34	33	A 38	36	26
L Q	E B 16	E B 16	E B 16	E B 15	E B 17	24	G	34	40	41	42	39	38	36	36	34	G	32	28	22	22	E B 22	E B 18	E B 16

JUN. 2016 fbEs (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

JUN. 2016 fmin (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

LAT.45°10.0'N LON.141°45.0'E SWEEP 1.0MHz TO 30.0MHz IN 15.0SEC IN MANUAL SCALING

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

IONOSPHERIC DATA STATION Wakkanai

JUN. 2016 M(3000)F2 (0.01) 135°E MEAN TIME (G.M.T. + 9 H)

LAT.45°10.0'N LON.141°45.0'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	300	291	282	299	285	306	344	315	F 355	A	R	A	270	295	295	A	304	A	311	302	245	287	F 284	F 273
2	299	293	294	290	285	311	349	328	336	304	324	304	A	307	310	311	321	313	311	305	304	302	287	284
3	290	300	291	309	299	325	348	328	333	315	322	334	273	305	282	289	306	320	321	299	292	294	305	300
4	299	R 302	303	314	349	298	321	303	331	343	286	293	A	306	300	315	324	296	298	311	312	298	301	310
5	314	302	F 298	302	309	296	325	342	336	305	327	303	272	286	290	303	302	302	306	312	307	298	302	280
6	296	297	256	307	308	343	A	A	A	281	A	A	A	284	278	287	298	312	305	289	291	A	295	311
7	305	270	291	305	283	A	A	A	A	A	265	288	295	275	285	293	287	306	310	312	295	288	286	274
8	291	309	294	278	314	290	319	298	356	A	A	A	A	294	295	293	310	318	323	303	298	290	303	305
9	F 287	282	298	293	323	329	334	356	311	303	318	314	293	284	311	315	302	298	329	318	312	296	296	301
10	295	306	278	289	321	310	316	320	332	A	A	302	308	A	307	242	293	300	252	308	A	303	A	277
11	298	315	288	291	304	326	268	305	A	A	330	285	R	A	297	293	A	A	236	A	A	302	S 310	S 273
12	303	293	263	278	266	276	325	279	A	A	A	A	G	273	R 268	279	306	270	307	317	307	285	298	298
13	311	J R 297	293	F 307	275	281	F 273	A	A	A	A	A	A	A	A	A	A	A	225	294	291	294	308	306
14	296	313	300	F 298	322	R 270	343	299	R 283	A	248	294	A	A	311	293	287	309	R 272	302	320	302	S 300	299
15	278	297	320	332	296	A	261	A	284	287	A	A	A	A	R	259	278	281	302	301	C	C	C	C
16	C	C	C	C	C	C	C	C	C	C	C	C	A	295	287	A	A	A	A	A	304	A	291	300
17	287	308	296	304	299	321	288	328	301	299	323	279	375	G	283	282	G	317	307	312	298	305	306	304
18	289	294	295	298	292	279	290	270	G	A	A	G	R	R	239	R 259	282	294	285	315	305	296	300	297
19	295	294	300	301	337	294	321	303	301	A	A	A	A	R	303	A	A	A	A	302	306	298	290	284
20	272	281	276	299	310	300	316	A	A	A	A	A	A	A	280	G	A	A	297	304	R	305	288	287
21	291	286	316	V 298	310	345	322	323	A	328	334	302	296	R 237	266	304	302	307	293	294	304	308	316	307
22	A	A	297	F 299	337	306	A	A	A	A	331	A	G	309	321	274	324	324	312	308	300	R	302	335
23	326	306	323	F 276	F 279	299	312	290	213	C	C	C	C	C	C	C	C	323	324	314	A	313	A	A
24	A	302	F 303	305	318	317	338	339	305	C	C	C	C	C	C	C	A	A	320	301	301	309	339	304
25	304	F 285	F 295	F 285	F 302	279	A	330	A	312	A	297	319	320	285	291	291	344	308	285	309	308	A	311
26	295	297	272	284	F 317	333	298	A	A	293	290	312	326	R	A	288	282	283	303	314	336	A	283	276
27	293	299	297	296	307	328	R	268	300	308	300	311	267	285	290	294	304	A	311	309	348	305	A	A
28	A	286	305	F 306	307	348	G	304	A	A	A	A	305	317	A	297	A	A	273	298	321	357	314	275
29	F 298	F 266	C	C	C	C	C	C	C	C	C	C	A	315	A	A	313	A	309	289	303	A	308	323
30	313	309	303	302	310	335	316	334	357	314	A	288	A	306	305	327	333	335	303	317	310	299	289	298
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	26	28	28	28	28	26	23	21	17	13	13	16	14	19	23	23	22	20	28	28	25	24	25	27
MED	296	297	296	299	308	308	319	315	311	305	322	300	294	295	290	293	302	308	306	304	304	300	300	299
U Q	303	304	302	305	318	328	334	329	336	314	328	308	308	307	305	303	310	319	311	312	311	305	307	306
L Q	291	288	290	290	294	294	290	298	292	296	288	288	270	284	282	279	287	297	295	300	298	295	290	280

JUN. 2016 M(3000)F2 (0.01)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

JUN. 2016 M(3000)F1 (0.01) 135°E MEAN TIME (G.M.T. + 9 H)

LAT.45°10.0'N LON.141°45.0'E SWEEP 1.0MHz TO 30.0MHz IN 15.0SEC IN MANUAL SCALING

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1					L	333	L	L		A		A	A	A	A	A	L							
2				L	L	L 359	L 373	U L 363	E A 341	367	A	A	A	L 365	A	366	L 367	L 344	U L 363	L				
3					L	L	363	375	386	339	385	L	U L 401	U L 403	394	A	A	A	L					
4						L 416	348	391	363	385	A	L 432	A	L	L	352	380	355	A					
5					A	L	L	A	L	A	L	L	L 368	L	A 388	370	360	353	A	L				
6							A	A	A	A	A	A	A	A	370	L	330	L	A	A	A			
7				L	A	A	A	A	A	A	A	L	L	L	404	L	L	L	A	A	A			
8				A	L 341	370	380	373	383	A	A	A	A	387	362	A	L	343	A	A	A			
9					L	L	L	394	433	405	L	L	L	388	L	L 347	375	L	370					
10							A	L 386	L	A	A	L	A	A	A	A	L	A	A	A	A			
11							L	A	A	A	A	A	L	A	A	L	A	A	A	A	A			
12					L	A	A	A	A	A	A	A	410	L	L	L	371	353	L	L				
13					L	334	A	A	A	A	A	A	A	A	A	A	A	A	L	A	A			
14						338	364	L 354	305	A	A	L	A	A	402	A	L	344						
15						A	A	A	A	A	A	A	A	A	L	360	L 356	348	355		C			
16				C	C	C	C	C	C	C	C	C	A	392	386	A	A	A	A	A				
17					L	371	352	362	A	A	L	L	436	390	400	360	289	A						
18				L	326	360	A	A	251	A	A	420	L	399	384	L	L	A	A					
19					B	L	375	364	L	A	A	A	A	L	381	A	A	A	A	L				
20					L	L	A	A	A	A	A	A	A	A	L	308	A	A	L	A	A			
21					L		L	A	A	L	L	390	L	L	L	370	L	327						
22						L 360	A	A	A	A	A	A	289	A	L	L	A	A	A					
23						A	A	A	A	C	C	C	C	C	C	C	C	A	A	A	A			
24					L	A	L	L	L	C	C	C	C	C	C	C	A	A		L	A			
25						A	A	L	A	A	A	385	413	363	384	L	356	380	L	L				
26						A	A	A	A	L	L	408	A	L	A	L	A	L	336					
27				A	A	343	364	L	A	A	L	L	A	L	376	L	A	A	A	A	A			
28						A	352	A	A	A	A	A	L	A	A	L	A	A		336				
29				C	C	C	C	C	C	C	C	C	A	A	A	A	393	A	354	L				
30					L	A	A	A	A	389	A	A	A	369	L	A	378	356	355	L				
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					2	10	9	9	7	5	1	5	6	9	12	8	11	10	6	1				
MED					334	360	364	373	363	385	385	408	406	388	385	360	367	350	355	336				
U Q						370	374	388	386	397		426	413	396	397	368	378	355	363					
L Q						338	352	L 362	305	353		388	368	367	378	350	356	344	354					

IONOSPHERIC DATA STATION Wakkanai

JUN. 2016 h'F2 (KM) 135°E MEAN TIME (G.M.T. + 9 H)

LAT.45°10.0'N LON.141°45.0'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					306	296	270	330		A		A	426	368	352	A	326							
2				284	274	268	250	274	294	336	322	376	A	348	318	318	296	298	274	264				
3					286	262	252	286	260	330	320	308	310	358	402	372	342	282	266					
4						240	306	300	272	276	A	360	A	336	324	322	294	308	288					
5					A	276	266	250	264	308	298	346	400	384	362	338	316	310	280	260				
6							A	A	A	332	A	A	A	374	396	374	326	304	300	276	A			
7				278	A	A	A	A	A	A	E A 446	392	374	432	402	366	E A 428	308	E A 308	E A 336	298			
8				292	294	346	294	354	272	A	A	A	A	372	364	336	310	300	250	266	272			
9					282	272	272	248	346	348	320	356	390	382	342	334	332	328	258					
10							A	292	290	A	A	340	330	A	A	496	344	310	470	272	A			
11							418	342	A	A	300	394	R	A	368	396	A	A	A	A	A			
12					386	346	290	418	A	A	A	A	G	300	390	410	354	406	312	286				
13					310	338	364	A	A	A	A	A	A	A	A	A	A	A	556	292	292			
14						402	282	332	400	A	482	376	A	A	324	372	332	296						
15						A	E A 460	A	346	E A 356	A	A	A	A	R	472	396	356	294		C			
16				C	C	C	C	C	C	C	C	C	A	378	398	A	A	A	A	A				
17					302	280	366	304	E A 328	A 350	332	400	240	G	416	406	G	366						
18				292	318	400	354	E A 374	G	A	A	G	R	R	560	E B 470	406	344	A					
19					244	260	262	290	368	A	A	A	A	R	356	A	A	A	A	292				
20					304	380	324	A	A	A	A	A	A	A	426	G	A	A	294	294	A			
21					282		304	302	A	298	292	338	382	382	436	346	334	332						
22						356	A	A	A	A	300	A	G	326	328	392	306	306	260					
23						A	A	338	A	C	C	C	C	C	C	C	C	276	A	262	A			
24					356	A	244	252	338	C	C	C	C	C	C	C	A	A		264	336			
25						378	A	280	A	A	A	342	314	308	E A 336	372	350	272	272	308				
26						254	E A 350	A	A	386	354	330	306	A	A	398	378	380	300					
27				306	306	280	A	478	322	326	346	336	448	402	364	384	328	A	334	262	238			
28						244	G	316	A	A	A	A	344	340	A	388	A	A		288				
29				C	C	C	C	C	C	C	C	C	A	A	A	A	314	A	314	334				
30					288	220	A	A	A	332	A	398	A	364	374	312	308	324	334	268				
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	15	20	20	20	14	12	12	16	14	18	22	23	22	20	19	17	5			
MED				292	302	280	292	302	316	332	320	358	378	370	366	373	331	309	294	274	292			
U Q				299	310	351	359	340	346	349	350	393	426	382	402	406	354	338	314	293	317			
L Q				281	282	261	268	283	272	317	300	339	314	340	342	338	314	299	272	264	255			

JUN. 2016 h'F2 (KM)

IONOSPHERIC DATA STATION Wakkanai

JUN. 2016 h'F (KM) 135°E MEAN TIME (G.M.T. + 9 H)

LAT.45°10.0'N LON.141°45.0'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	256	262	280	254	254	242	242	216	250	A	246	A	A	A	A	A	240	A	A	256	A	274	Q 278	310
2	264	262	248	260	224	228	232	E A 276	E A 306	A 256	A	A	A	232	A	220	200	232	206	244	252	238	230	258
3	258	260	266	252	252	218	222	200	194	190	232	228	218	194	204	A	A	A	202	248	258	258	258	256
4	276	Q 248	254	252	212	192	226	198	218	206	A	182	A	226	200	198	202	218	A	256	240	244	252	252
5	246	246	Q 260	262	A	E A 216	E A 226	A	A 250	A	218	198	198	212	204	204	210	A 228	A	E A 248	244	256	246	286
6	286	280	316	268	246	250	A	A	A	A	A	A	A	A	190	198	232	A 252	A	A	A	A	232	232
7	240	302	308	204	A	A	A	A	A	A	A	232	198	230	192	220	240	200	A	A	A	298	Q 310	Q 288
8	294	260	260	A	258	230	206	202	200	A	A	A	A	230	208	A	224	220	A	A	A	220	256	260
9	E B 246	256	270	270	246	246	218	202	184	218	224	198	204	194	224	202	194	230	204	260	260	268	268	268
10	268	Q 268	Q 268	Q 270	230	224	A	216	196	A	A	196	A	A	A	A	278	A	A	A	A	278	A	A
11	274	238	292	250	262	252	252	A	A	A	A	A	230	A	A	206	A	A	A	A	A	E A 304	268	254
12	268	254	270	296	296	A	A	A	A	A	A	A	214	188	234	212	202	220	E A 252	204	268	250	256	256
13	250	296	296	208	256	256	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	282	240	240
14	264	258	268	286	248	234	210	222	328	A	A	252	A	A	A	A	A 240	240	268	294	250	278	244	242
15	250	278	240	230	362	A	A	A	A	A	A	A	A	A	282	238	238	238	A 242	252	C	C	C	C
16	C	C	C	C	C	C	C	C	C	C	C	C	A	218	204	A	A	A	A	A	276	A	260	262
17	274	286	296	278	242	A 238	222	202	A	A	188	196	180	224	190	210	258	A	246	238	254	252	248	246
18	256	290	264	248	286	238	A	A	A	A	A	194	192	192	210	210	210	A	A	270	256	260	250	250
19	268	268	258	248	B	224	224	218	A	A	A	A	A	212	198	A	A	A	A	240	270	286	286	300
20	280	270	270	270	240	250	A	A	A	A	A	A	A	A	202	202	A	A	238	A	A	278	274	260
21	256	270	244	256	234	234	206	A	A	196	236	198	H 174	174	174	220	230	A	206	272	262	264	272	266
22	A	A	298	264	202	214	A	A	A	A	A	A	A	A	194	200	A	A	A	258	268	252	Q 252	232
23	232	246	262	288	278	A	A	A	A	C	C	C	C	C	C	C	C	A	A	A	A	278	A	A
24	A	Q 282	262	270	254	A	216	228	206	C	C	C	C	C	C	C	A	A	262	230	A	274	228	242
25	268	280	262	266	242	A	A	234	A	A	A	210	188	208	198	198	218	224	202	A 246	258	252	A	248
26	248	268	282	274	262	A	A	A	A	228	206	194	A	204	A	288	A	254	E A 290	264	218	A	282	286
27	286	246	278	A	A	222	212	224	A	A	A 228	198	A	200	196	A	A	A	A	A	A	246	A	A
28	A	266	260	246	238	A	220	A	A	A	A	A	228	A	A	216	A	A	308	248	240	218	218	304
29	316	326	C	C	C	C	C	C	C	C	C	C	A	A	A	A	196	A	228	236	238	A	222	222
30	224	246	286	276	220	A	A	A	A	196	A	A	A	224	214	A	210	210	216	224	246	246	E A 288	272
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	26	28	28	26	24	19	15	13	10	7	8	13	11	17	19	17	18	13	15	20	18	25	25	26
MED	264	267	268	263	247	234	221	216	208	206	226	198	198	212	202	210	221	228	U 227	248	255	259	254	257
U Q	274	280	284	270	260	246	226	226	A 250	228	234	219	218	225	210	220	240	239	262	259	262	278	273	272
L Q	250	255	260	250	236	222	212	202	196	196	212	195	188	194	194	201	202	219	206	239	244	248	242	246

JUN. 2016 h'F (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

JUN. 2016 h'E (KM) 135°E MEAN TIME (G.M.T. + 9 H)

LAT.45°10.0'N LON.141°45.0'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	B	110	110	110	108	106	106	106	106	94	102	102	104							
2				B	B	112	112	104	104	108	108	104	A	102	A	A	100	100	108	B	A			
3				A	A	108	110	112	110	110	110	A	A	A	106	112	112	112	118	A	A			
4				B	132	116	100	108	108	108	A	108	102	A	A	A	102	102	102	114	A			
5				B	A	124	124	112	112	112	112	104	104	104	A	A	102	110	114	114	114			
6				B	B	122	116	116	116	116	116	110	B	A	122	118	118	118	118	A	A			
7				108	A	122	108	110	110	112	102	102	102	A	120	108	104	106	A	110	A			
8				A	B	120	118	110	110	102	110	110	110	110	110	A	A	102	114	A	A			
9				B	122	122	110	110	110	110	102	102	102	A	A	A	116	A	A	A	A			
10				116	A	116	116	116	116	108	108	126	114	114	104	116	116	108	114	A	A			
11				108	126	108	122	110	110	106	106	110	A	110	106	106	A	108	108	A	A			
12				118	138	116	116	116	B	116	108	B	108	E 116	B 104	110	110	110	A	A	A			
13					A	118	118	108	108	A	A	A	A	112	112	112	116	112	114	A	A			
14				114	A	A 114	114	114	114	104	104	112	A	112	112	112	112	112	120		A			
15				A	A	106	112	112	118	104	104	104	104	112	110	110	110	112	112	A	C			
16				C	C	C	C	C	C	C	C	C	A	98	B	102	A	102	112	A	A			
17			A	A	A	112	112	112	112	108	B	104	108	112	B	112	112	108	112	A	A			
18				A	B	116	116	114	104	112	106	106	B	116	116	120	114	114	114	A	A			
19					B	114	114	114	112	112	106	106	A	112	120	A	120	A	A	120	A			
20				A	130	130	126	112	112	112	108	A	A	A	A	108	108	A	A	A	A			
21				B	108	A	110	110	110	110	110	110	98	98	104	104	A	A	114	A	114			
22				A	A	114	114	114	106	106	110	A	102	A	A	106	106	106	A	A	A			
23				116	A	116	120	108	108	C	C	C	C	C	C	C	C	A	A	A	A			
24					A	A 112	112	112	C	C	C	C	C	C	C	112	112	112	A	A				
25				112	140	112	112	112	112	102	104	104	B	104	112	A	A	A	A	128	A			
26				112	112	112	114	114	114	114	114	114	A	A	A	A	A	A	A	A	A			
27				A	A	114	A	114	108	108	108	A	A	108	108	A	A	A	A	A	A			
28				A	110	110	96	112	106	114	114	B	114	114	B	114	112	112	A	A	A			
29				C	C	C	C	C	C	C	C	C	B 252	104	A	A	A	A	118	A	A			
30				A	118	106	116	116	116	116	108	B	98	A	A	A	A	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				9	10	25	27	28	27	25	23	18	15	19	16	17	20	19	17	5	2			
MED				112	124	114	114	112	110	110	108	106	104	110	110	110	112	110	114	114	114			
U Q				116	132	119	116	114	112	112	110	110	110	112	114	113	115	112	116	124				
L Q				108	112	111	110	110	108	106	106	104	102	104	105	106	105	106	112	112				

JUN. 2016 h'E (KM)

IONOSPHERIC DATA STATION Wakkanai

JUN. 2016 h'Es (KM) 135°E MEAN TIME (G.M.T. + 9 H)

LAT.45°10.0'N LON.141°45.0'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	114	102	102	98	B	130	114	116	114	106	106	106	106	B	104	104	106	106	106	114	114	114	114	112
2		98	B	B	B	124	116	110	108	112	108	108	102	104	102	102	Y	Y	100	B	114	114	B	104
3	104	104	102	90	96	138	124	116	116	108	108	108	106	108	120	120	112	108	148	126	120	98	108	108
4	100	B	B	B	G	134	128	118	112	98	108	108	94	98	106	98	G	118	114	G	100	B	B	100
5	100	96	96	96	124	124	124	118	118	112	112	110	96	104	100	100	108	108	118	118	108	108	108	108
6	B	B	B	94	94	118	118	118	114	114	108	112	112	128	118	G	232	118	118	118	112	112	112	112
7	100	100	116	122	122	118	114	108	108	110	110	104	100	124	120	106	102	102	102	116	110	110	110	110
8	108	104	104	98	B	122	126	118	112	112	112	108	104	114	116	100	100	112	112	106	106	106	100	104
9	B	100	100	B	G	124	G	118	110	112	114	102	102	102	102	102	102	118	98	122	110	110	96	96
10	96	98	106	106	106	124	114	114	116	104	104	112	108	130	110	106	118	118	112	116	112	110	110	106
11	106	106	100	100	132	116	116	120	106	104	104	104	100	100	104	118	114	114	114	114	114	114	104	104
12	102	104	104	112	G	124	112	112	110	110	106	106	110	110	112	116	108	104	104	106	106	110	110	110
13	110	108	108	108	108	134	118	110	110	102	102	102	132	106	124	124	114	126	108	114	120	114	114	106
14	112	104	108	106	100	100	134	134	110	106	112	112	112	104	124	124	124	118	118	118	118	116	116	116
15	124	120	120	114	114	114	124	114	114	116	104	104	102	108	130	124	120	116	110	110	C	C	C	C
16	C	C	C	C	C	C	C	C	C	C	C	C	132	104	104	116	106	114	110	112	114	114	106	106
17	106	110	100	100	104	142	116	122	112	112	112	114	114	114	B	G	114	112	112	120	120	108	108	108
18	106	106	106	106	B	126	120	114	114	114	110	110	112	108	G	114	G	110	110	110	110	110	106	106
19	106	B	B	B	B	96	G	126	116	104	104	100	104	108	108	100	106	102	102	G	120	110	110	106
20	106	106	106	106	G	126	116	114	114	102	102	112	116	108	108	108	114	114	114	110	122	114	114	102
21	102	102	106	102	G	116	116	126	110	G	104	114	104	94	102	102	96	96	G	114	114	110	104	104
22	98	96	96	96	96	100	112	112	112	104	104	102	102	102	106	124	112	112	112	110	110	110	110	B
23	B	B	104	104	118	118	124	112	104	C	C	C	C	C	C	C	C	104	100	100	100	102	116	112
24	112	106	106	104	98	98	112	120	118	C	C	C	C	C	C	C	122	112	126	120	110	120	100	106
25	106	106	106	98	98	114	114	114	106	106	106	106	106	98	110	104	104	104	104	114	114	114	114	110
26	100	108	108	92	98	108	112	110	110	110	120	120	108	98	106	106	100	100	98	98	108	108	104	104
27	102	102	102	102	102	102	94	116	104	104	104	104	104	104	104	104	104	104	98	100	104	120	120	112
28	112	120	102	102	102	102	112	112	114	114	112	112	114	114	114	114	114	110	100	102	102	102	102	102
29	104	104	C	C	C	C	C	C	C	C	C	C	104	102	96	96	108	102	116	110	110	110	104	104
30	104	96	102	102	120	108	112	110	110	110	110	110	98	98	102	102	102	102	102	108	108	108	108	108
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	25	25	24	24	18	28	26	28	28	25	26	26	28	27	26	26	26	29	29	27	29	28	27	28
MED	106	104	104	102	103	118	116	115	112	110	108	108	105	104	107	106	108	110	110	114	110	110	108	106
U Q	109	106	106	106	118	125	124	118	114	112	112	112	112	110	116	116	114	115	114	118	114	114	114	110
L Q	101	100	102	98	98	108	112	112	110	104	104	104	102	102	104	102	104	104	102	108	108	108	104	104

IONOSPHERIC DATA STATION Wakkanai

JUN. 2016 TYPES OF Es 135°E MEAN TIME (G.M.T. + 9 H)

LAT.45°10.0'N LON.141°45.0'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	F1	F2	F3	C2		C1	C4	C2	C3	C3	C3	C2	C2		L3	C3	L3	L4	L3	L4	L6	F6	F2	F3
2		F2				C2	C3	C2	C2	C2	C3	C2	L2	C3	L2	L1	L1	C1	C1		C1	F2		F3
3	F1	F3	F1	L1	L1	C1	C1	C1	C1	C1	C2	L2	L1	L1	C1	C2	C3	C2	C1	C1	C1	F1	F3	F3
4	F3					C1	C1	C1	C1	LC11	L3	C1	L5	LH31	LF21	L1		C1	C2		L2			F2
5	F1	F2	F1	L1	C1	C1	C2	C2	C2	C2	C2	C2	C1	C2	L2	L2	C1	C1	C2	C2	C2	F2	F1	F1
6				L1	C1	C2	C4	C6	C4	C2	C5	C3	C4	CC12	C1		C1	C2	C4	L3	L5	F6	F5	F3
7	F3	F3	FF13	CL11	L3	C4	C3	C6	C5	C3	C2	C2	C1	L2	C1	C2	C3	C2	L4	C3	L3	F2	F3	F3
8	F3	F5	F3	L2		C2	C1	C1	C2	C2	C2	C2	C2	C2	LC12	L2	L2	C1	C2	L3	L5	F5	F5	F3
9		F1	F1			C2		C1	C1	C2	C2	C2	C1	L1	L2	L1	L1	C2	L2	L1	L3	F3	F2	F2
10	F2	F2	F1	C2	L2	C2	C3	C1	C1	C3	C3	L1	C2	LL15	L3	C4	C4	C2	C5	L3	L6	F3	F6	F4
11	F3	F3	F2	C1	C1	C2	C1	C3	C3	C2	C2	C2	L2	C2	C2	C1	L3	L3	C3	L6	L6	F5	F6	F3
12	F2	F2	F2	L2		C3	C2	C2	L4	C4	CQ31	C2	C2	C1	C1	C1	C1	C1	L2	L4	L2	F3	F3	F4
13	F2	F2	F3	L2	L2	C1	C3	C3	C4	L5	L8	L5	L3	CQ41	CQ21	CQ31	CQ42	CQ52	CQ42	CQ51	L3	F5	F7	F3
14	F3	F3	F2	C1	L2	L2	C1	C1	C3	C5	C1	C2	L4	L5	C1	C3	C2	C3	C5	L4	L2	F3	F4	F3
15	F1	F3	FF21	L2	L3	C3	C2	C4	C4	C4	C3	C5	C5	C4	C2	C1	C2	C2	C2	L3				
16													LQ22	LQ11	L2	C2	L3	C7	C6	L5	L6	F6	F2	F3
17	F3	F3	F4	L4	L2	C1	C1	C1	C2	C2	C1	C2	C1	C2			C2	C3	C3	C3	L6	F3	F3	F4
18	F2	F5	F3	L2		C2	C4	C3	C2	C2	C4	C1	C1	C1		C1		C3	C5	L3	L5	F1	F1	F2
19	F1					C1		C1	C2	C3	C3	C4	C2	C2	C1	CQ21	CQ51	CQ51	LQ41		L5	F3	F3	F3
20	F3	F2	F1	L1		C2	C4	C3	C3	C3	C3	L2	L2	L2	LQ11	C1	C4	LQ32	LQ22	L3	L3	F3	F3	F3
21	F2	F1	F1	L1		L2	C2	C2	C2		C2	C2	C1	C1	C1	C1	L2	LL11		L2	C2	F5	F4	F3
22	F6	F6	F3	L2	L2	LC11	CQ51	CQ41	CQ31	CQ42	C3	C4	C2	L2	L1	C1	C2	C2	C2	L2	C2	F2	F2	
23			F2	C3	L1	C2	C2	C3	C3									L5	L4	L4	L3	F5	F5	F6
24	F3	F3	F3	L5	L2	L5	LC11	C2	C2								C4	C6	CQ42	L4	L7	F5	F5	F3
25	F3	F3	F2	C2	C2	C2	C6	C4	C5	C3	C4	C2	L2	L2	C1	L1	L1	L2	L2	C2	L4	F5	F3	F2
26	F3	F1	F1	C2	C1	C2	C3	C3	C2	C2	C1	C1	C2	C2	L2	L2	L4	L2	L3	L2	L2	F3	F4	F4
27	F4	F3	F3	L4	L2	L3	L2	C2	C3	C3	C3	C2	L2	C2	C1	LL31	L3	L5	L5	L5	L4	F3	F6	F6
28	F5	F2	F2	L3	L2	C2	C2	C2	C2	C4	C6	C3	C2	C2	C2	C1	C2	C3	C2	C2	L3	F3	F3	F3
29	F3	F3											L2	L3	L4	L4	L2	L3	C2	L6	L5	F6	F5	F7
30	F2	F3	F2	L2	C1	C2	C3	C4	C3	C2	C3	C2	C5	L2	L2	L2	L3	L2	L2	L1	L3	F4	F4	F3
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																								

JUN. 2016 TYPES OF Es

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

JUN. 2016 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	71	X 63	X 58	64	X 60															X 80	X 74	X 70	X 68	67
2	71	73	67	64	62														X 87	X 85	X 76	X 73	76	81
3	74	74	X 64	66	62															X 74	X 70	X 71	X 73	X 73
4	X 66	X 65	X 64	X 57	X 56															X 79	X 75	X 71	74	73
5	71	70	65	63	58		78												X 90	X 92	X 72	68	71	X 68
6	70	67	X 60	X 65	X 81															X 73	X 75	X 76	X 79	82
7	79	X 58	X 56	X 56	X 54															X 62	X 66	X 60	66	65
8	66	X 58	X 58	57	53															X 82	A	X 68	X 68	X 67
9	68	66	X 61	X 60	X 57															X 82	X 80	X 72	X 68	X 69
10	71	X 68	X 60	X 54	X 49															X 85	X 78	X 78	80	77
11	70	71	71	67	X 55															X 84	X 79	X 60	A	68
12	A	66	X 54	55	X 47															X 77	X 73	X 60	X 49	X 51
13	54	53	53	X 54	X 46															X 64	X 71	X 66	X 63	X 57
14	X 56	X 55	X 53	X 52	X 52															A	X 63	X 62	X 61	X 61
15	X 59	A	56	X 55	X 47															X 72	X 60	X 58	X 60	X 61
16	X 59	X 59	62	X 46	X 48		X 56													X 60	A	66	X 60	X 60
17	68	63	55	X 53	X 48															X 67	X 72	X 69	74	X 70
18	X 63	X 61	X 56	X 53	X 50															X 68	X 70	X 60	X 61	67
19	63	65	57	X 55	60															X 68	X 68	X 68	X 72	68
20	66	69	X 56	52	52															X 60	X 67	X 64	X 61	X 58
21	X 58	X 55	X 52	X 52	X 48															X 73	X 80	X 75	X 67	X 61
22	X 57	57	59	58	54															X 75	X 73	X 74	X 67	67
23	66	64	66	63	56															X 70	X 68	X 70	X 69	X 63
24	66	70	71	69	66															A	A	A	67	69
25	68	62	65	56	56															X 72	X 71	71	64	65
26	65	X 56	60	58	56															X 78	X 65	X 56	X 55	X 57
27	X 52	64	X 55	54	X 44															X 83	X 64	X 54	X 47	X 46
28	A	X 43	X 44	52	X 40															X 84	X 77	X 55	X 46	X 44
29	X 43	X 42	47	46	48															X 59	X 71	X 57	56	54
30	60	56	52	51	X 44															X 66	X 64	X 58	X 53	X 55
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	28	29	30	30	30		2												2	28	27	29	29	30
MED	66	63	58	56	X 54		67												X 88	X 74	X 71	X 68	X 67	X 66
U Q	70	68	64	63	57															X 82	X 75	X 71	72	69
L Q	X 59	X 56	55	53	X 48															X 68	X 67	X 60	X 60	X 58

IONOSPHERIC DATA STATION Kokubunji

JUN. 2016 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	F	57	51	F	54	56	56	56	A	A	A	A	70	72	A	A	A	80	80	73	68	63	64	F
2	F	F	F	F	F	60	52	66	62	A	A	A	A	A	A	77	A	82	80	79	70	66	F	F
3	F	F	57	F	F	56	64	74	64	54	A	59	A	A	62	73	84	81	68	68	64	65	67	67
4	60	58	58	51	50	56	66	62	64	57	55	56	59	72	81	80	79	78	A	73	69	65	F	F
5	F	F	F	F	F	55	F	72	64	55	A	A	60	68	77	80	78	82	84	86	66	F	F	62
6	F	F	54	59	75	46	A	A	A	A	A	A	A	A	69	A	64	70	71	67	69	70	73	F
7	F	52	50	50	48	50	56	A	A	A	A	A	A	A	63	65	62	59	58	56	60	54	F	F
8	F	52	52	F	F	46	55	53	A	56	54	56	A	A	A	A	78	73	74	76	A	62	62	61
9	F	F	55	54	51	56	65	65	A	A	A	A	A	64	66	A	65	A	70	76	74	66	61	63
10	F	62	54	48	43	50	61	61	53	56	A	57	60	62	A	A	A	67	74	79	72	72	F	F
11	F	F	F	F	49	50	55	A	72	A	A	49	54	A	62	63	A	A	A	78	73	54	A	F
12	A	F	48	F	40	39	44	A	A	A	A	A	A	A	A	53	53	54	60	71	66	54	43	45
13	F	F	F	48	40	A	52	58	67	A	A	R 54	A	A	A	52	A	A	52	58	65	60	57	51
14	50	49	47	46	45	46	56	60	59	56	A	A	A	60	62	66	A	A	63	A	57	56	55	54
15	53	A	F	49	41	41	A	A	68	62	A	A	A	53	A	A	A	A	A	66	54	52	54	55
16	53	52	F	40	42	41	50	64	60	64	53	A	A	A	A	52	53	54	54	53	A	F	53	54
17	F	F	F	47	42	42	48	56	62	64	56	A	54	56	55	A	A	A	58	61	66	62	F	64
18	57	55	50	47	44	44	A	56	56	A	50	A	49	A	44	53	56	56	55	62	64	54	55	F
19	F	F	F	49	F	49	50	52	60	A	55	A	58	60	55	54	52	53	55	62	62	62	65	F
20	F	F	50	F	F	44	46	50	50	A	49	50	51	50	A	50	55	61	50	54	61	58	55	52
21	52	49	46	46	42	43	56	56	58	68	64	62	56	56	A	A	A	66	68	66	74	68	61	55
22	51	F	F	F	F	44	50	62	80	A	57	A	A	A	A	68	A	A	A	69	67	67	61	F
23	F	F	F	F	F	50	56	74	A	A	A	A	66	78	71	72	83	84	77	64	62	64	63	57
24	F	F	F	F	F	52	42	46	58	62	55	A	A	66	A	A	64	A	71	A	A	A	F	F
25	F	F	F	F	F	53	62	48	A	A	A	65	A	A	A	64	66	56	60	66	65	F	F	F
26	F	50	F	F	F	49	54	50	59	54	57	57	55	55	52	58	62	61	71	71	59	50	49	51
27	46	F	49	F	38	41	47	A	A	A	A	53	52	61	61	61	57	64	64	77	58	48	41	40
28	A	37	38	F	34	A	42	53	52	A	A	55	A	A	A	A	A	A	67	78	71	49	40	38
29	37	36	F	F	F	40	50	54	A	54	54	A	A	62	60	58	52	45	46	53	65	51	F	F
30	F	F	F	F	38	42	47	51	54	55	A	A	A	A	A	57	A	62	63	60	58	52	47	48
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	9	12	15	13	18	28	26	24	20	14	12	12	13	16	15	20	18	21	26	28	27	26	20	17
MED	52	52	50	48	42	48	53	56	60	56	55	56	56	62	62	62	63	64	66	68	65	61	56	54
U Q	55	56	54	50	49	52	56	63	64	62	56	58	60	67	69	70	78	79	71	76	69	65	62	62
L Q	48	49	48	46	40	42	48	52	57	55	54	54	53	56	55	54	55	56	58	62	61	54	51	50

IONOSPHERIC DATA STATION Kokubunji

JUN. 2016 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								UL 440	A	A	A	A	A	A	A	A	A	A	A					
2							L	A	A	A	A	A	A	A	A	A	A	A						
3							L	A	A	A	A	A	A	A	A	A	A	A	A					
4							L	L	A	A	468	UL 472	488	456	456	A	440	A	A					
5								A	A	A	A	A	A	A	A	A	A	A						
6							A	A	A	A	A	A	A	A	A	A	A	A	A					
7						L	A	A	A	A	A	A	A	A	A	440	428	392	L					
8						A	UL 376	UL 420	A	A	A	A	A	A	A	A	A	A	L					
9						A	L	UL 408	A	A	A	A	A	A	A	A	A	A	A					
10						L	L	A	A	A	A	A	A	A	A	A	A	UL 404	L					
11							A	A	A	A	A	UL 460	UL 464	A	A	A	A	A	A					
12						UL 304	A	A	A	A	A	A	A	A	A	A	A	A	A					
13						A	A	A	A	A	A	UL 476	A	A	A	UL 448	A	A	A					
14							UL 392	UL 428	436	A	A	A	A	UL 468	448	A	A	A	A					
15							A	A	A	A	A	A	A	UL 452	A	A	A	A	A					
16						A		396	432	UL 424	468	A	A	A	A	UL 432	416	396	A					
17							UL 396	UL 412	428	UL 452	UL 460	A	UL 460	UL 460	A	A	A	A	A					
18						A	A	A	A	A	UL 456	A	L	A	A	UL 464	412	396	A					
19							A	A	A	A	A	A	468	444	UL 456	420	UL 428	UL 404	L					
20						UL 308	372	UL 400	UL 440	A	UL 456	UL 452	UL 484	UL 460	A	UL 440	A	A	UL 336					
21							A	UL 416	436	A	460	468	A	460	A	A	A	A	A					
22							UL 388	A	A	A	A	A	A	A	A	A	A	A	A					
23							UL 396	A	A	A	A	A	A	UL 464	UL 464	448	408	UL 416	L					
24								UL 424	A	448	A	A	A	A	A	A	A	A	A					
25						L	A	A	A	A	A	A	A	A	A	A	A	UL 412	A					
26						A	A	UL 428	A	448	A	UL 468	UL 472	A	A	A	UL 408	A	UL 340					
27							UL 392	A	A	A	A	A	UL 520	A	A	A	A	UL 372	A					
28						A	UL 388	A	A	A	A	UL 452	A	A	A	A	A	A	A					
29							UL 368	396	A	A	A	A	A	A	UL 444	A	A	A	UL 372					
30								UL 408	A	A	A	A	A	A	A	420	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						2	9	12	5	4	6	7	7	8	5	8	7	8	3					
MED						UL 306	UL 388	UL 414	436	448	460	UL 468	UL 472	UL 460	UL 456	440	416	UL 400	UL 340					
U Q							UL 394	UL 426	438	450	468	UL 472	488	UL 462	UL 460	UL 448	428	UL 408	UL 372					
L Q							UL 374	404	430	436	UL 456	UL 452	UL 464	454	446	426	408	394	UL 336					

JUN. 2016 foF1 (0.01MHz)

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IONOSPHERIC DATA STATION Kokubunji

JUN. 2016 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						176	A	A	A	A	A	A	A	A	A	A	A	A	B					
2						A	A	A	A	A	A	A	A	A	A	A	A	A						
3						A	A	A	A	A	A	A	A	A	A	A	A	A	A					
4						188	A	A	A	A	A	A	A	R	A	A	320	A	A					
5						A	A	A	A	A	A	A	A	A	A	A	A	A						
6						A	A	A	A	A	A	A	A	A	A	A	A	A	A					
7						A	A	A	A	A	A	A	A	A	A	A	A	A	B					
8						A	A	A	A	A	A	A	A	A	A	A	A	A	A					
9						B	A	A	A	A	A	A	A	A	A	A	A	A	A					
10						U A 160	A	A	A	A	A	A	A	A	A	A	A	R	A					
11						A	A	A	A	A	A	U R 392	A	A	A	A	A	A	B					
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	260	U R 296	A	A	A	A	A	A	A	336	A	A	A					
15						196	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					
17						192	A	U R 288	A	A	A	A	A	R	A	A	A	A	A					
18						A	A	A	A	A	A	A	A	A	A	A	R	A	A					
19						B	252	A	A	A	A	A	A	R	R	R	A	A	A					
20						172	A	A	A	A	A	A	A	A	A	U A 328	A	A	A					
21						B	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						A	A	A	A	A	A	A	A	R	A	A	A	A	A					
24						A	252	U A 288	A	A	A	A	A	A	A	A	A	A	A					
25						B	A	A	A	A	A	A	A	A	A	A	A	A	A					
26						A	A	A	A	A	A	A	A	A	A	A	A	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	A	A	A	A	B					
29						B	A	A	A	A	A	A	A	A	A	A	A	A	B					
30						B	A	A	A	A	A	A	A	A	A	A	A	A	B					
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT						6	3	3				1				2	1							
MED						182	252	U R 288				U R 392				332	320							
U Q						192	260	U R 296																
L Q						172	252	U A 288																

JUN. 2016 foE (0.01MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

JUN. 2016 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 67	J A 66	J A 54	J A 31	E B 15	26	J A 36	J A 42	J A 74	J A 144	J A 95	J A 130	J A 114	J A 64	J A 109	J A 143	J A 188	J A 62	J A 38	J A 40	J A 53	J A 52	J A 109	J A 124
2	J A 62	J A 73	J A 61	J A 57	J A 36	J A 34	30	J A 56	J A 60	J A 82	J A 80	J A 88	J A 81	J A 84	J A 67	J A 76	J A 115	J A 92	J A 69	J A 86	J A 56	J A 56	J A 38	J A 96
3	J A 30	J A 19	21	J A 40	J A 41	J A 24	J A 39	J A 44	J A 54	J A 48	J A 65	J A 62	J A 57	J A 72	J A 58	J A 50	J A 46	J A 58	J A 65	J A 44	J A 39	J A 58	J A 51	J A 26
4	J A 28	J A 20	J A 27	J A 30	20	26	32	37	43	J A 54	J A 59	42	42	G	J A 42	J A 69	39	J A 83	J A 99	J A 79	J A 46	J A 80	J A 76	J A 52
5	J A 28	J A 36	J A 38	J A 52	J A 42	J A 34	J A 45	J A 46	J A 58	J A 52	J A 77	J A 100	J A 75	J A 54	J A 55	J A 61	J A 80	J A 64	J A 41	J A 33	J A 75	J A 74	J A 81	J A 34
6	J A 43	J A 29	J A 23	J A 22	J A 23	29	J A 54	J A 109	J A 107	J A 168	J A 148	J A 101	J A 134	J A 139	J A 74	J A 89	J A 47	J A 41	J A 80	J A 110	J A 123	J A 40	J A 63	J A 61
7	J A 27	J A 46	J A 29	J A 40	J A 43	J A 27	J A 55	J A 58	J A 79	J A 106	J A 141	J A 78	J A 66	J A 77	J A 60	41	36	J A 32	24	J A 36	J A 28	J A 72	J A 75	J A 66
8	J A 46	J A 79	J A 29	J A 48	J A 39	J A 34	J A 45	35	J A 110	J A 57	J A 55	J A 63	J A 66	J A 82	J A 66	J A 80	J A 116	J A 74	J A 30	J A 71	J A 99	J A 60	J A 40	J A 30
9	J A 62	J A 39	J A 42	J A 30	J A 29	J A 38	J A 35	35	J A 124	J A 65	J A 80	J A 76	J A 68	J A 59	J A 65	J A 98	J A 64	J A 60	J A 53	J A 52	J A 49	J A 46	J A 34	22
10	J A 20	J A 22	18	J A 57	J A 44	23	33	J A 60	J A 55	J A 56	J A 84	J A 58	J A 54	J A 52	J A 74	J A 100	J A 155	G	J A 28	J A 22	J A 89	J A 46	J A 61	J A 76
11	J A 40	J A 55	J A 33	J A 65	J A 39	24	J A 58	J A 84	J A 73	J A 175	J A 102	G	J A 45	J A 100	J A 94	J A 50	J A 86	J A 108	J A 163	J A 107	J A 74	J A 74	J A 73	J A 66
12	J A 66	J A 39	J A 30	J A 38	E B 14	25	J A 51	J A 108	J A 81	J A 93	J A 105	J A 94	J A 86	J A 80	J A 114	J A 45	42	J A 44	42	J A 57	J A 32	J A 30	23	J A 38
13	J A 29	J A 35	J A 28	J A 27	J A 39	J A 72	J A 56	J A 44	J A 55	J A 71	J A 58	42	43	J A 66	J A 64	42	J A 80	J A 76	J A 43	J A 43	J A 52	J A 62	J A 48	J A 71
14	J A 53	J A 47	J A 45	J A 28	J A 25	21	30	36	36	J A 48	J A 69	J A 70	J A 92	J A 46	40	44	J A 157	J A 113	J A 95	J A 100	J A 55	30	29	J A 27
15	J A 53	J A 131	J A 125	J A 54	J A 54	27	J A 58	J A 99	J A 58	J A 49	J A 61	J A 48	J A 44	43	J A 70	J A 86	J A 64	J A 72	J A 116	J A 92	J A 69	J A 45	J A 49	J A 42
16	J A 43	J A 118	J A 50	J A 27	J A 27	J A 28	30	33	J A 45	40	41	J A 50	J A 94	J A 64	J A 91	J A 85	J A 33	35	J A 46	J A 74	J A 92	J A 66	J A 67	J A 84
17	J A 63	J A 55	J A 55	J A 37	J A 28	G	26	34	J A 44	J A 46	J A 60	J A 101	J A 88	G	J A 63	J A 56	J A 76	J A 80	J A 52	J A 67	22	J A 66	J A 28	J A 47
18	J A 25	20	21	J A 22	J A 26	J A 39	J A 55	J A 56	J A 55	J A 52	J A 46	J A 55	J A 55	J A 57	J A 55	J A 44	G	J A 36	J A 47	J A 47	J A 38	24	J A 35	J A 36
19	J A 72	J A 54	J A 36	J A 31	J A 31	24	34	J A 58	J A 71	J A 96	J A 127	J A 98	J A 45	G	G	G	37	31	24	J A 40	J A 23	20	J A 61	J A 58
20	J A 87	J A 36	J A 54	J A 52	J A 40	21	30	34	J A 44	J A 46	40	47	48	J A 60	J A 52	40	37	J A 105	27	J A 33	J A 59	J A 49	J A 26	J A 32
21	J A 36	J A 42	J A 30	J A 26	J A 25	J A 28	J A 61	J A 49	J A 56	J A 48	J A 47	J A 42	J A 51	J A 53	J A 58	J A 62	J A 80	70	J A 89	J A 53	J A 49	J A 56	J A 79	J A 72
22	J A 58	J A 52	J A 48	J A 43	J A 38	J A 26	30	J A 55	J A 82	J A 114	J A 123	J A 114	J A 188	J A 102	J A 83	J A 44	J A 128	J A 94	J A 87	J A 39	J A 74	J A 50	J A 78	J A 38
23	J A 66	J A 89	J A 80	J A 44	J A 32	J A 47	29	J A 69	J A 83	J A 88	J A 128	J A 195	J A 113	41	43	J A 43	J A 104	35	27	J A 29	J A 30	J A 24	J A 21	J A 47
24	J A 32	J A 46	J A 44	J A 36	J A 24	J A 38	32	38	J A 50	J A 43	J A 50	J A 113	J A 75	J A 101	J A 104	J A 83	J A 99	J A 72	J A 115	J A 126	J A 116	J A 76	J A 129	J A 45
25	J A 51	J A 56	J A 64	J A 30	J A 25	J A 31	J A 38	J A 50	J A 115	J A 112	J A 100	J A 112	J A 63	J A 150	J A 120	J A 68	J A 58	J A 38	J A 44	J A 65	J A 54	J A 44	J A 81	J A 88
26	J A 53	J A 65	J A 58	J A 50	J A 26	J A 29	J A 46	J A 47	J A 72	J A 41	J A 51	J A 59	J A 48	J A 49	J A 53	J A 51	J A 43	J A 36	J A 28	J A 21	J A 20	22	J A 25	J A 41
27	J A 31	J A 42	J A 28	J A 28	J A 29	J A 25	28	J A 51	J A 86	J A 68	J A 79	J A 49	J A 80	J A 49	J A 48	J A 46	J A 44	J A 43	J A 54	J A 70	J A 45	J A 42	J A 28	J A 27
28	J A 68	J A 58	J A 60	J A 33	J A 32	J A 53	J A 44	J A 41	J A 46	J A 82	J A 67	J A 47	J A 54	J A 71	J A 65	J A 116	J A 86	J A 91	J A 55	J A 43	J A 30	J A 24	J A 31	J A 24
29	E B 15	J A 28	J A 34	J A 30	23	22	J A 34	36	J A 66	J A 54	J A 55	J A 63	J A 68	J A 46	40	J A 56	J A 51	J A 39	J A 32	J A 28	J A 33	J A 93	J A 62	J A 56
30	J A 39	J A 37	J A 78	J A 62	J A 55	J A 27	J A 36	37	J A 124	J A 82	J A 64	J A 74	J A 69	J A 122	J A 81	J A 62	J A 84	J A 49	J A 47	J A 55	J A 36	J A 25	J A 65	J 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	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 44	J A 46	J A 40	J A 36	J A 30	J A 27	J A 36	J A 46	J A 63	J A 61	J A 68	J A 66	J A 67	J A 62	J A 64	J A 58	J A 70	J A 61	J A 47	J A 52	J A 50	J A 50	J A 56	J A 46
U Q	J A 62	J A 58	J A 55	J A 50	J A 39	J A 34	J A 51	J A 58	J A 82	J A 93	J A 100	J A 100	J A 86	J A 82	J A 81	J A 83	J A 99	J A 80	J A 80	J A 74	J A 74	J A 66	J A 75	J A 66
L Q	J A 30	J A 36	J A 29	J A 30	25	24	30	37	J A 54	J A 48	J A 55	49	J A 51	49	53	44	43	38	32	J A 39	J A 33	J A 30	J A 31	J A 34

JUN. 2016 foEs (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

JUN. 2016 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	39	28	31	16	E B 15	22	31	35	A A 74	A A 144	A A 95	A A 130	54	61	A A 109	A A 143	A A 188	40	34	29	36	26	24	31
2	30	36	E B 16	18	23	21	27	51	51	A A 82	A A 80	A A 88	A A 81	A A 84	A A 67	73	A A 115	50	54	58	33	22	20	20
3	E B 15	E B 15	E B 15	E B 15	20	21	30	39	48	43	A A 65	52	A A 57	A A 72	54	46	42	54	59	29	26	38	39	E B 15
4	E B 15	E B 15	E B 15	19	E B 14	24	29	33	40	44	42	38	42	G	40	44	36	67	A A 99	66	34	51	44	32
5	E B 15	16	19	21	E B 15	24	38	40	50	45	A A 77	A A 100	47	48	49	52	61	59	32	28	32	32	53	27
6	31	24	18	16	E B 15	26	A A 54	A A 109	A A 107	A A 168	A A 148	A A 101	A A 134	A A 139	58	A A 89	40	37	44	43	46	27	53	34
7	E B 15	32	E B 16	22	35	23	47	A A 58	A A 79	A A 106	A A 141	A A 78	A A 66	A A 77	49	37	32	28	22	32	E B 15	19	24	21
8	31	24	E B 15	36	28	24	29	31	A A 110	47	44	50	A A 66	A A 82	A A 66	A A 80	46	52	25	64	A A 99	39	24	22
9	26	24	E B 15	E B 15	E B 16	31	28	34	A A 124	A A 65	A A 80	A A 76	A A 68	51	59	A A 98	52	A A 60	45	41	39	37	23	E B 15
10	E B 16	E B 16	E B 15	35	33	22	30	54	47	46	A A 84	51	52	48	A A 74	A A 100	A A 155	G	23	16	41	21	36	40
11	22	28	21	19	E B 15	23	42	A A 84	64	A A 175	A A 102	G	39	A A 100	49	47	A A 86	A A 108	A A 163	38	32	33	A A 73	37
12	A A 66	30	23	23	E B 14	22	40	A A 108	A A 81	A A 93	A A 105	A A 94	A A 86	A A 80	A A 114	41	40	38	40	27	20	20	18	E B 16
13	21	25	E B 15	20	22	A A 72	45	40	47	A A 71	A A 58	39	A A 43	A A 66	A A 64	38	A A 80	A A 76	38	30	36	16	38	18
14	20	28	30	19	19	20	28	33	34	44	A A 69	A A 70	A A 92	39	38	43	A A 157	A A 113	41	A A 100	33	24	22	E B 16
15	40	A A 131	E B 15	20	22	23	A A 58	A A 99	52	44	A A 61	A A 48	A A 44	41	A A 70	A A 86	A A 64	A A 72	A A 116	31	17	31	18	E B 16
16	16	E B 15	22	E B 15	21	21	28	32	37	38	39	A A 50	A A 94	A A 64	A A 91	36	32	33	39	22	A A 92	26	32	E B 16
17	E B 15	20	E B 15	18	18	G	26	32	37	38	36	A A 101	38	G	44	A A 56	A A 76	A A 80	36	24	E B 15	E B 15	18	E B 15
18	15	E B 15	E B 15	E B 15	18	35	A A 55	42	42	A A 52	40	A A 55	40	A A 57	39	38	G	30	40	36	E B 16	18	25	20
19	E B 15	E B 15	28	23	18	20	32	44	53	A A 96	42	A A 98	40	G	G	G	35	29	22	25	E B 15	E B 15	44	28
20	17	E B 15	18	21	23	19	27	32	38	A A 46	35	43	43	39	A A 52	36	35	39	24	22	36	36	20	20
21	20	31	21	17	19	22	35	34	37	46	40	39	46	38	A A 58	A A 62	A A 80	60	60	49	36	22	34	41
22	33	30	34	34	19	23	29	40	54	A A 114	46	A A 114	A A 188	A A 102	A A 83	43	A A 128	A A 94	A A 87	33	46	36	38	21
23	40	32	31	23	E B 15	33	27	54	A A 83	A A 88	A A 128	A A 195	56	40	41	38	35	31	23	23	22	17	18	21
24	20	23	21	24	E B 15	31	31	36	44	40	44	A A 113	A A 75	47	A A 104	A A 83	52	A A 72	45	A A 126	A A 116	A A 76	18	31
25	30	40	32	18	18	19	32	44	A A 115	A A 112	A A 100	57	A A 63	A A 150	A A 120	56	52	34	38	32	22	32	37	24
26	25	35	34	33	E B 15	21	41	37	44	37	43	39	40	42	43	42	35	32	25	16	17	E B 15	18	E B 15
27	E B 15	18	16	20	20	20	28	A A 51	A A 86	A A 68	A A 79	46	44	44	44	42	41	30	50	56	30	17	18	E B 16
28	A A 68	24	21	16	19	A A 53	28	38	42	A A 82	A A 67	39	A A 54	A A 71	A A 65	A A 116	A A 86	A A 91	45	38	24	E B 15	E B 15	E B 15
29	E B 15	18	E B 15	E B 15	E B 16	20	29	31	A A 66	48	47	A A 63	A A 68	44	38	52	43	36	28	24	30	E B 15	27	32
30	21	20	E B 16	E B 15	22	22	26	34	46	44	A A 64	A A 74	A A 69	A A 122	A A 81	38	A A 84	40	43	34	20	18	26	33
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	20	24	18	19	18	22	30	40	50	A A 50	A A 64	A A 60	A A 55	54	58	46	52	45	40	32	32	23	24	21
U Q	31	30	23	23	22	24	40	A A 51	A A 79	A A 93	A A 84	A A 98	A A 69	A A 80	A A 74	A A 80	A A 84	A A 72	50	43	36	33	38	31
L Q	E B 15	E B 16	E B 15	E B 16	E B 15	21	28	34	42	44	43	46	43	41	44	38	36	33	28	25	20	E B 17	18	E B 16

JUN. 2016 fbEs (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

JUN. 2016 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	16	14	14	15	13	14	14	19	17	19	18	20	20	19	18	19	16	15	13	14	14	14	14
2	16	14	16	14	14	14	12	13	13	18	17	17	19	21	17	15	18	14	12	14	12	15	15	14
3	15	15	15	15	14	15	14	14	14	16	21	22	18	20	19	14	14	14	14	14	15	16	15	15
4	15	15	15	14	14	13	13	12	14	17	18	19	18	18	17	15	14	14	14	14	16	16	15	15
5	15	15	15	15	15	13	13	14	14	17	16	20	18	24	20	18	14	14	15	14	16	15	15	15
6	15	15	15	14	15	13	15	13	14	20	18	18	20	21	16	15	16	15	14	15	15	15	15	16
7	15	14	16	15	15	14	12	12	15	17	16	18	17	17	18	16	15	14	14	14	14	15	16	15
8	15	15	15	15	15	14	13	12	13	13	17	18	18	17	18	18	16	16	13	15	16	16	16	15
9	15	14	15	15	16	14	13	12	14	18	18	17	19	20	19	18	16	14	14	14	15	15	15	15
10	16	16	15	15	15	14	13	15	13	15	20	16	19	15	18	20	14	13	12	16	14	15	14	15
11	15	14	14	15	15	14	13	12	16	18	18	21	19	21	18	19	16	14	14	15	16	15	15	15
12	15	15	15	15	14	13	13	14	20	18	21	16	18	19	20	17	13	15	12	15	14	15	16	16
13	15	16	15	14	14	14	12	18	14	17	18	15	13	16	17	20	18	14	13	14	16	14	16	15
14	16	15	16	16	14	15	14	15	15	16	17	20	18	17	19	17	15	15	13	14	15	16	15	16
15	15	16	15	14	14	13	13	14	15	14	17	16	15	18	18	17	16	12	14	14	15	16	16	16
16	14	15	14	15	15	14	13	14	14	17	17	16	19	17	17	18	16	14	15	16	15	15	15	16
17	15	15	14	14	15	14	14	15	14	18	17	19	19	25	18	15	19	14	14	14	15	15	15	15
18	15	15	15	15	16	15	15	13	14	14	17	15	17	17	20	18	16	14	14	14	16	15	15	15
19	15	15	15	14	15	16	13	13	13	13	17	18	23	15	18	17	16	14	14	14	15	15	15	16
20	15	15	15	15	16	13	13	14	14	16	18	18	18	18	17	17	14	14	14	15	15	15	14	15
21	14	14	15	15	15	14	14	14	16	14	15	20	19	19	19	18	12	16	12	13	14	15	15	15
22	14	14	14	14	14	14	14	14	13	14	16	16	16	20	22	14	12	14	14	13	14	14	16	15
23	15	15	14	14	15	14	14	14	14	16	17	22	18	18	18	15	16	15	14	15	15	16	15	15
24	16	15	15	15	15	15	15	14	14	16	16	18	18	18	18	17	17	16	14	16	15	16	16	14
25	16	14	15	15	15	16	15	14	14	16	16	18	16	21	22	19	14	14	14	14	16	16	15	15
26	15	16	15	15	15	15	13	12	12	17	16	17	17	16	17	18	16	15	14	15	16	15	14	15
27	15	15	14	14	15	12	13	12	15	15	16	19	17	19	20	18	12	14	12	15	14	15	15	16
28	15	15	16	14	13	15	15	15	15	12	19	19	18	18	20	18	14	13	14	14	15	15	15	15
29	15	15	15	15	16	14	14	18	14	18	19	19	21	19	20	16	15	14	14	15	15	15	15	15
30	15	15	16	15	15	15	15	15	14	14	14	15	20	18	18	19	14	13	14	14	15	15	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	15	14	13	14	14	16	17	18	18	18	18	18	16	14	14	14	15	15	15	15
U Q	15	15	15	15	15	15	14	14	15	17	18	19	19	20	20	18	16	15	14	15	16	16	15	15
L Q	15	15	15	14	14	13	13	13	14	14	16	16	17	17	18	16	14	14	13	14	14	15	15	15

IONOSPHERIC DATA STATION Kokubunji

JUN. 2016 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	F	306	272	F	310	346	353	331	A	A	A	A	297	291	A	A	A	306	296	314	305	281	290	F
2	F	F	F	F	F	358	340	325	341	A	A	A	A	A	A	288	A	300	310	316	322	317	F	F
3	F	F	304	F	F	333	335	350	361	370	A	320	A	A	291	297	313	320	327	309	302	282	292	303
4	302	298	307	303	313	337	359	340	371	349	340	305	268	299	308	305	322	291	A	321	310	284	F	F
5	F	F	F	F	F	323	F	366	357	356	A	A	287	287	283	304	298	306	315	331	313	F	F	285
6	F	F	270	312	404	348	A	A	A	A	A	A	A	A	310	A	277	295	318	301	282	276	282	F
7	F	287	292	294	281	305	326	A	A	A	A	A	A	A	292	308	309	317	314	303	319	295	F	F
8	F	274	285	F	F	307	321	321	A	335	315	314	A	A	A	A	295	308	313	340	A	290	271	275
9	F	F	291	296	300	334	340	371	A	A	A	A	A	305	306	A	312	A	310	299	301	306	300	312
10	F	320	338	297	312	333	352	372	354	322	A	287	301	308	A	A	A	299	296	317	295	307	F	F
11	F	F	F	F	301	286	277	A	329	A	A	302	284	A	297	319	A	A	A	319	329	288	A	F
12	A	F	304	F	307	298	274	A	A	A	A	A	A	A	A	286	289	305	293	316	319	309	312	285
13	F	F	F	322	351	A	275	285	300	A	A	R 277	A	A	A	281	A	A	289	292	310	298	297	291
14	289	297	299	304	304	310	343	327	319	321	A	A	A	300	303	315	A	A	326	A	286	281	285	294
15	311	A	F	321	303	282	A	A	326	352	A	A	A	276	A	A	A	A	A	349	304	277	273	268
16	292	291	F	301	298	333	322	319	316	338	294	A	A	A	A	292	303	319	319	309	A	F	298	280
17	F	F	F	323	326	293	286	308	328	345	347	A	283	299	305	A	A	A	310	302	304	301	F	287
18	294	302	304	307	305	310	A	307	301	A	258	A	253	A	304	287	303	302	316	309	315	287	273	F
19	F	F	F	324	F	365	338	307	344	A	320	A	311	329	288	315	300	293	297	302	304	301	281	F
20	F	F	306	F	F	318	339	317	333	A	287	281	290	272	A	282	314	334	329	305	311	304	302	286
21	287	310	309	320	342	344	339	326	294	326	324	319	301	283	A	A	A	305	298	301	302	316	307	306
22	289	F	F	F	F	342	322	336	358	A	331	A	A	A	A	336	A	A	A	313	297	314	315	F
23	F	F	F	F	F	302	310	340	A	A	A	A	296	310	289	285	311	310	336	301	298	297	298	302
24	F	F	F	F	F	354	355	278	336	333	333	A	A	297	A	A	293	A	309	A	A	A	F	F
25	F	F	F	F	F	328	354	276	A	A	A	324	A	A	A	312	330	313	322	322	310	F	F	F
26	F	302	F	F	F	341	338	297	341	314	310	310	293	322	289	314	318	307	313	343	302	293	293	287
27	274	F	290	F	278	295	307	A	A	A	A	323	262	309	307	332	326	319	317	345	312	293	313	294
28	A	281	277	F	380	A	322	351	351	A	A	307	A	A	A	A	A	A	301	340	346	300	300	295
29	298	299	F	F	F	304	327	351	A	305	302	A	A	316	315	334	302	303	292	308	331	347	F	F
30	F	F	F	F	335	342	352	338	363	360	A	A	A	A	A	340	A	318	320	329	321	314	302	291
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	9	12	15	13	18	28	26	24	20	14	12	12	13	16	15	20	18	21	26	28	27	26	20	17
MED	292	298	299	307	308	330	336	326	338	336	318	308	290	300	303	306	306	306	313	314	310	298	298	291
U Q	300	304	306	322	335	342	343	345	356	352	332	320	299	310	307	317	314	318	319	326	319	307	302	298
L Q	288	289	285	299	301	304	321	308	322	322	298	294	276	289	289	288	298	301	298	302	302	287	284	285

JUN. 2016 M(3000)F2 (0.01)

IONOSPHERIC DATA STATION Kokubunji

JUN. 2016 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								UL 376	A	A	A	A	A	A	A	A	A	A	A					
2							L	A	A	A	A	A	A	A	A	A	A	A						
3							L	A	A	A	A	A	A	A	A	A	A	A	A					
4							L	L	A	A	385	UL 407	393	411	400	A	361	A	A					
5								A	A	A	A	A	A	A	A	A	A	A						
6							A	A	A	A	A	A	A	A	A	A	A	A	A					
7						L	A	A	A	A	A	A	A	A	A	384	365	359	L					
8						A	UL 359	UL 388	A	A	A	A	A	A	A	A	A	A	L					
9						A	L	UL 411	A	A	A	A	A	A	A	A	A	A	A					
10						L	L	A	A	A	A	A	A	A	A	A	A	UL 353	L					
11							A	A	A	A	A	UL 428	UL 404	A	A	A	A	A	A					
12						UL 376	A	A	A	A	A	A	A	A	A	A	A	A	A					
13						A	A	A	A	A	A	UL 400	A	A	A	UL 372	A	A	A					
14							UL 361	UL 362	390	A	A	A	A	UL 400	425	A	A	A	A					
15							A	A	A	A	A	A	A	UL 425	A	A	A	A	A					
16						A		380	410	UL 429	388	A	A	A	A	UL 387	368	352	A					
17							UL 345	UL 366	401	UL 404	UL 410	A	UL 440	UL 418	A	A	A	A	A					
18						A	A	A	A	A	UL 349	A	L	A	A	UL 335	376	353	A					
19							A	A	A	A	A	A	434	394	UL 380	418	UL 349	UL 352	L					
20						UL 347	377	UL 386	UL 393	A	UL 457	UL 418	UL 368	UL 412	A	UL 384	A	A	UL 361					
21							A	UL 392	408	A	389	393	A	391	A	A	A	A	A					
22							UL 361	A	A	A	A	A	A	A	A	A	A	A	A					
23							UL 347	A	A	A	A	A	A	UL 423	UL 432	377	392	UL 349	L					
24								UL 344	A	426	A	A	A	A	A	A	A	A	A					
25						L	A	A	A	A	A	A	A	A	A	A	A	UL 355	A					
26						A	A	UL 366	A	413	A	UL 409	UL 395	A	A	A	UL 386	A	UL 356					
27							UL 340	A	A	A	A	A	UL 288	A	A	A	A	UL 361	A					
28						A	UL 356	A	A	A	A	UL 326	A	A	A	A	A	A	A					
29							UL 379	401	A	A	A	A	A	A	UL 394	A	A	A	UL 331					
30								UL 394	A	A	A	A	A	A	A	384	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						2	9	12	5	4	6	7	7	8	5	8	7	8	3					
MED						UL 362	UL 359	UL 383	401	420	388	UL 407	UL 395	UL 412	UL 400	384	368	UL 353	UL 356					
U Q							UL 369	UL 393	409	428	UL 410	UL 418	434	UL 420	428	UL 386	386	UL 357	UL 361					
L Q							UL 346	UL 366	392	408	385	393	UL 368	397	UL 387	UL 374	361	UL 352	UL 331					

JUN. 2016 M(3000)F1 (0.01)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

JUN. 2016 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								292	A	A	A	A	E A 348	E A 356	A	A	A	282	252					
2							242	E A 268	E A 266	A	A	A	A	A	A	E A 414	A	308						
3							268	256	242	254	A	E A 334	A	A	E A 378	336	284	E A 258	E A 310					
4							256	276	242	292	294	356	440	334	304	308	278	E A 348	A					
5								236	E A 248	266	A	A	374	350	332	312	E A 316	E A 294						
6							A	A	A	A	A	A	A	A	E A 334	A	370	300	258					
7						314	E A 290	A	A	A	A	A	A	A	E A 356	324	312	304	276					
8						310	296	276	A	E A 298	334	E A 364	A	A	A	A	304	E A 304	278					
9						246	266	236	A	A	A	A	A	E A 340	E A 348	A	E A 304	A	E A 280					
10						282	252	242	E A 276	324	A	E A 398	E A 366	336	A	A	A	312	286					
11							E A 338	A	E A 336	A	A	364	436	A	354	306	A	A	A					
12						354	E A 458	A	A	A	A	A	A	A	A	406	372	326	E A 316					
13						A	E A 406	332	320	A	A	336	A	A	A	416	A	A	E A 326					
14							268	282	302	326	A	A	A	368	334	314	A	A	E A 264					
15							A	A	E A 284	250	A	A	A	430	A	A	A	A	A					
16						230		294	324	298	384	A	A	A	A	400	348	304	286					
17							364	330	294	266	288	A	428	372	362	A	A	A	288					
18						E A 310	A	334	326	A	466	A	518	A	E A 450	400	334	332	292					
19							274	E A 344	E A 294	A	326	A	350	302	370	344	372	358	298					
20						318	294	330	330	A	420	450	424	458	A	428	322	280	286					
21							262	294	362	280	304	318	362	420	A	A	A	E A 308	E A 374					
22							320	282	258	A	300	A	A	A	A	286	A	A	A					
23							304	264	A	A	A	A	E A 356	304	330	338	286	292	234					
24								428	300	282	312	A	A	350	A	A	E A 336	A	288					
25						278	240	E A 434	A	A	A	E A 302	A	A	A	E A 342	E A 286	292	284					
26						266	252	364	284	342	330	348	380	322	392	324	304	308	268					
27							340	A	A	A	A	326	476	338	334	292	310	292	E A 308					
28						A	332	262	276	A	A	356	A	A	A	A	A	A	E A 296					
29							298	272	A	E A 358	E A 356	A	A	326	324	E A 324	E A 312	E A 296	346					
30								286	268	268	A	A	A	A	A	298	A	288	E A 270					
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						10	22	24	20	14	12	12	13	16	15	20	18	21	24					
MED						288	U 280	282	284	280	324	344	380	342	341	327	310	300	280					
U Q						314	332	331	322	324	370	364	438	370	370	400	336	310	E A 303					
L Q						266	262	266	267	266	302	330	359	330	332	310	304	292	273					

JUN. 2016 h'F2 (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

JUN. 2016 h'F (KM) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E A 324	E A 264	E A 318	E A 284	222	216	214	216	A	A	A	A	A	A	A	A	A	A	A	E A 236	E A 266	E A 288	E A 260	E A 266
2	E A 284	E A 332	E B 244	E A 288	E A 274	214	192	A	A	A	A	A	A	A	A	A	A	A	E A 274	E A 274	E A 260	E A 246	E A 292	E A 244
3	E B 242	E B 262	232	E B 270	E A 268	230	214	A	A	A	A	A	A	A	A	A	A	A	A	E A 242	E A 240	E A 282	E A 294	E B 246
4	E B 248	E B 264	E B 248	222	E B 242	232	222	214	A	A	226	202	194	184	194	A	222	A	A	E A 326	E A 246	E A 336	E A 310	E A 306
5	E B 238	E A 252	E A 272	E A 264	226	E A 238	E A 238	A	A	A	A	A	A	A	A	A	A	A	E A 260	216	218	E A 302	E A 352	E A 288
6	E A 324	E A 312	E A 316	E A 252	192	E A 236	A	A	A	A	A	A	A	A	A	A	A	A	A	E A 284	E A 340	E A 310	E A 340	E A 316
7	228	E A 310	E B 266	E A 268	E A 342	244	A	A	A	A	A	A	A	A	A	220	210	224	218	E A 262	E B 232	E A 258	E A 330	E A 256
8	E A 330	E A 310	E B 252	E A 298	E A 296	A	E A 234	196	A	A	A	A	A	A	A	A	A	A	224	E A 268	A	E A 294	E A 302	E A 274
9	E A 302	E A 302	E B 258	E B 242	E B 244	A	218	194	A	A	A	A	A	A	A	A	A	A	A	E A 252	E A 260	E A 258	E A 268	E B 254
10	E B 264	E B 232	226	E A 312	E A 290	E A 238	216	A	A	A	A	A	A	A	A	A	A	214	218	222	E A 256	E A 262	E A 288	E A 276
11	E A 266	E A 292	E A 270	E A 250	E B 234	E A 246	A	A	A	A	A	194	208	A	A	A	A	A	A	E A 254	E A 234	E A 298	A	E A 340
12	A	E A 296	E A 276	E A 300	E B 272	216	A	A	A	A	A	A	A	A	A	A	A	A	A	E A 250	222	220	E A 270	E B 276
13	E A 318	E A 350	E B 298	E A 252	218	A	A	A	A	A	A	196	A	A	A	228	A	A	A	E A 284	E A 278	E A 244	E A 284	E A 280
14	E A 270	E A 290	E A 298	E A 264	E A 260	220	214	214	192	A	A	A	A	202	190	A	A	A	A	A	E A 296	E A 292	E A 282	E B 256
15	E A 292	A	E B 258	E A 236	E A 258	E A 240	A	A	A	A	A	A	A	220	A	A	A	A	A	228	230	E A 300	E A 286	E B 284
16	E A 270	E B 258	E A 244	E B 236	E A 254	A	E A 240	218	212	214	214	A	A	A	A	208	206	230	A	E A 254	A	E A 290	E A 328	E B 284
17	E B 254	E A 278	E B 276	E A 254	E A 238	226	220	230	208	208	198	A	176	192	A	A	A	A	A	E A 254	E B 248	232	E A 284	E B 240
18	E B 258	E B 250	E B 248	E B 240	E A 262	A	A	A	A	A	E A 290	A	196	A	A	224	210	220	A	E A 264	222	E A 246	E A 314	E A 314
19	E B 256	E B 266	E A 292	E A 258	218	208	A	A	A	A	A	A	184	186	222	192	E A 246	204	224	E A 250	230	E B 234	E A 332	E A 322
20	E A 294	E B 248	E A 240	E A 282	E A 286	228	216	198	222	A	174	210	228	196	A	208	A	A	204	E A 258	E A 272	E A 270	E A 252	E A 284
21	E A 270	E A 302	E A 276	E A 244	E A 242	226	A	212	202	A	202	200	A	216	A	A	A	A	A	E A 310	E A 272	226	E A 280	E A 292
22	E A 302	E A 312	E A 286	E A 290	E A 272	214	202	A	A	A	A	A	A	A	A	A	A	A	A	E A 248	E A 308	E A 266	E A 264	E A 250
23	E A 324	E A 256	E A 292	E A 286	E B 278	E A 290	214	A	A	A	A	A	A	194	188	214	202	206	198	220	E A 256	E A 254	E A 268	E A 260
24	E A 294	E A 280	E A 248	E A 272	E B 254	212	228	E A 258	A	196	A	A	A	A	A	A	A	A	A	A	A	A	E A 236	E A 282
25	E A 288	E A 358	E A 270	E A 250	E A 282	E A 234	A	A	A	A	A	A	A	A	A	A	A	228	A	E A 242	E A 238	E A 276	E A 330	E A 324
26	E A 304	E A 306	E A 328	E A 312	E B 256	A	A	E A 252	A	190	A	196	216	A	A	A	204	A	222	228	204	E B 234	E A 278	E B 256
27	E B 298	E A 272	E A 270	E A 254	E A 308	E A 262	230	A	A	A	A	A	E A 292	A	A	A	A	224	A	E A 254	E A 238	214	E A 280	E B 278
28	A	E A 336	E A 316	E A 262	216	A	214	A	A	A	A	E A 272	A	A	A	A	A	A	A	230	212	196	E B 248	E B 278
29	E B 278	E A 292	E A 258	E B 228	E B 266	220	224	202	A	A	A	A	A	A	220	A	A	A	E A 246	E A 260	E A 240	202	E A 300	E A 338
30	278	E A 308	E B 290	E B 266	E A 238	222	212	214	A	A	A	A	A	A	A	E A 234	A	A	A	E A 234	220	E A 240	E A 282	E A 304
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	28	29	30	30	30	23	19	13	5	4	6	7	8	8	5	8	7	8	10	28	27	29	29	30
MED	E A 281	E A 292	E A 270	E A 263	E A 257	221	215	213	208	202	204	198	198	195	194	214	208	222	217	E A 253	E A 240	E A 258	E A 284	E A 279
U Q	E A 302	E A 310	E A 292	E A 284	E A 274	E A 238	E A 228	224	217	211	226	210	222	209	221	226	222	226	E A 246	E A 263	E A 266	E A 291	E A 312	E A 304
L Q	E B 261	E B 263	E 248	E 250	238	216	214	200	197	193	198	196	189	189	189	208	204	210	218	235	230	234	E A 269	E B 256

JUN. 2016 h'F (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

JUN. 2016 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						116	114	112	A	A	A	A	A	A	A	A	A	A	B					
2						A	112	110	A	A	A	A	A	A	A	A	A	A						
3						A	A	A	A	A	A	A	A	A	A	112	A	A	A					
4						116	114	112	110	A	A	A	A	112	A	A	112	A	A					
5						114	114	A	A	A	A	A	A	A	A	A	A	A						
6						122	116	A	A	A	A	A	A	A	112	A	A	112	A					
7						116	116	114	A	A	A	A	A	A	A	A	A	A	B					
8						A	A	A	A	A	A	A	A	A	A	A	A	A	A					
9						B	A	A	A	A	A	A	A	A	A	A	A	A	A					
10						110	114	A	A	A	A	A	A	110	A	A	A	112	A					
11						112	116	A	A	A	A	114	A	A	A	112	A	A	B					
12						112	A	A	A	A	A	A	A	A	A	A	112	A	A					
13						A	A	A	A	A	A	A	A	112	A	118	A	A	A					
14						A	116	110	114	114	A	A	A	A	110	110	A	A	A					
15						116	114	A	A	A	A	A	A	116	112	A	A	A	A					
16						A		A	A	A	A	A	A	A	A	A	A	110	A					
17						110	A	110	A	110	A	A	A	112	112	112	A	A	A					
18						126	116	116	112	A	110	A	110	A	A	A	110	A	A					
19						B	110	A	A	A	A	A	A	112	112	108	110	110	A					
20						110	A	A	A	A	A	110	116	116	114	108	110	A	110					
21						B	A	112	A	A	A	A	A	A	A	A	A	A	A					
22						112	112	A	A	A	A	A	A	A	A	A	A	A	A					
23						A	122	A	A	A	A	A	A	110	110	114	A	114	114					
24						A	114	114	112	112	A	A	A	A	A	A	A	A	A					
25						B	110	A	A	A	A	A	A	A	A	A	A	A	A					
26						A	A	A	A	A	A	A	A	A	A	A	A	A	A					
27						A	118	A	A	A	A	A	A	A	A	A	A	A	A					
28						A	A	A	112	A	112	110	110	A	A	A	A	A	B					
29						B	110	110	A	A	A	A	A	A	A	A	A	A	B					
30						B	A	110	A	A	A	A	A	A	A	A	A	A	B					
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT						13	18	11	5	3	2	3	3	8	7	8	5	5	2					
MED						114	114	112	112	112	111	110	110	112	112	112	110	112	112					
U Q						116	116	114	113	114		114	116	114	112	113	112	113						
L Q						111	112	110	111	110		110	110	111	110	109	110	110						

JUN. 2016 h'E (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

JUN. 2016 h'Es (KM) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	102	102	98	98	B	134	120	120	106	104	100	96	102	104	100	94	92	100	98	96	100	106	106	100
2	100	100	94	94	94	92	120	114	106	102	98	100	100	98	100	98	102	94	94	96	94	108	110	100
3	136	100	100	106	102	98	102	106	102	102	102	102	106	104	104	114	106	104	104	104	102	106	104	104
4	100	96	90	90	90	138	126	120	112	106	104	106	106	G	104	100	132	102	104	100	100	106	106	102
5	102	96	96	94	98	118	116	106	102	102	100	96	96	96	94	94	90	90	88	90	96	100	102	98
6	96	92	100	100	106	124	118	104	104	104	104	104	104	106	116	106	106	118	102	100	98	106	98	98
7	98	96	96	96	92	124	114	112	104	104	104	104	102	100	100	106	106	104	104	104	104	98	100	100
8	102	98	98	90	90	88	88	92	106	106	106	106	106	102	100	100	100	106	102	102	94	94	94	96
9	96	94	94	100	140	110	102	104	102	102	100	96	96	96	96	92	92	94	92	92	92	92	92	92
10	106	102	100	102	104	126	122	108	106	104	106	102	106	116	106	104	100	G	96	96	96	96	92	96
11	104	100	100	98	104	126	118	104	104	102	102	G	106	102	102	126	104	104	102	102	100	100	96	92
12	86	86	86	94	B	118	104	104	102	102	100	102	102	100	100	98	114	104	104	94	92	92	92	106
13	104	102	102	106	102	102	98	102	106	100	100	102	102	118	114	120	104	102	104	102	102	102	100	98
14	98	94	94	94	96	102	156	130	126	116	106	106	102	102	122	124	104	102	98	88	94	90	94	110
15	104	104	108	100	96	122	110	102	102	100	98	98	98	134	120	106	106	106	102	102	104	112	108	102
16	106	98	102	102	100	102	100	100	104	102	106	102	96	94	90	90	92	120	106	108	104	112	102	102
17	102	102	98	96	96	G	104	162	98	120	108	106	106	G	112	114	106	104	100	104	100	100	104	96
18	126	96	96	94	94	124	118	118	116	104	116	100	112	104	102	102	G	104	106	100	104	96	106	102
19	92	94	90	86	86	88	134	108	104	104	102	104	104	G	G	G	116	116	110	100	104	104	104	106
20	94	98	98	98	98	168	106	108	104	100	100	112	126	116	114	130	120	102	112	106	100	96	96	92
21	90	86	86	90	90	106	106	114	104	104	104	100	96	94	92	92	106	104	104	104	104	100	98	98
22	94	94	94	92	92	114	120	108	102	100	98	100	96	96	94	96	96	96	90	94	92	92	112	94
23	100	100	98	98	104	104	124	104	106	104	100	98	98	124	124	118	108	116	116	110	104	104	102	94
24	100	100	96	94	102	100	152	126	120	118	104	98	98	98	98	98	104	100	98	94	94	94	94	98
25	94	94	90	90	90	116	114	102	102	98	98	96	96	94	90	98	98	96	96	96	92	90	100	100
26	98	96	92	92	92	104	106	102	98	102	100	98	100	96	96	94	92	92	90	90	90	100	100	100
27	100	100	98	94	92	92	118	106	102	102	102	104	102	110	108	102	100	94	94	90	90	90	92	90
28	96	96	96	98	100	98	100	104	124	106	118	118	114	104	106	100	100	98	92	90	88	96	94	92
29	B	100	108	96	106	120	118	118	102	100	100	98	100	104	104	96	94	94	98	94	92	102	98	106
30	98	98	104	104	98	104	108	134	98	98	102	102	100	96	96	100	96	94	94	94	94	94	104	104
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	30	30	28	29	30	30	30	30	30	29	30	27	29	29	29	29	30	30	30	30	30	30
MED	100	98	97	96	97	110	115	107	104	102	102	102	102	102	102	100	104	102	101	98	97	100	100	99
U Q	103	100	100	100	102	124	120	118	106	104	104	104	106	106	110	110	106	104	104	102	102	104	104	102
L Q	96	94	94	94	92	101	104	104	102	102	100	98	98	96	96	96	96	95	94	94	92	94	94	96

IONOSPHERIC DATA STATION Kokubunji

JUN. 2016 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	F5	F4	F4	F2		H2	C2	C2	L3	L3	L3	L3	L2	L2	L3	L3	L3	L2	L3	F4	F2	F4	F4	F4
2	F4	F6	F5	F4	F3	L2	C2	C3	L3	L3	L3	L2	L3	L2	L3	L3	LL34	L3	L4	F5	F5	F4	F3	F4
3	F1	F2	F1	F3	F4	L3	L3	L2	L3	L2	L3	L2	L2	L3	L3	C2	L2	L4	L5	F5	F3	F5	F5	F2
4	F3	F2	F3	F3	F2	H2	C2	C1	C2	L2	L2	L2	L2		L2	L2	H2	L4	L4	F5	F6	F6	F4	F4
5	F3	F4	F3	F4	F3	C3	C3	L2	L3	L2	L2	L3	L2	L3	L3	L3	L4	L4	L3	F4	F3	F3	F7	F7
6	F5	F6	F5	F3	F3	C3	C4	L4	L4	L3	L2	L2	L3	L2	C3	L3	L2	C2	L4	F3	F4	F7	F5	F5
7	F4	F4	F2	F5	F5	C2	C3	C3	L3	L3	L2	L2	L2	L3	L2	L1	L1	L2	L2	F2	F2	F3	F3	F3
8	F6	F4	F3	F4	F2	L2	L3	L2	L3	L2	L2	L2	L2	L2	L3	L3	L3	L2	L3	F5	F5	F5	F3	F4
9	F4	F3	F2	F3	F1	C3	L2	L1	L3	L3	L3	L3	L3	L2	L3	L3	L3	L3	L4	F6	F6	F5	F3	F2
10	F2	F1	F1	F5	F5	C2	C2	L3	L2	L2	L2	L2	L2	C2	L2	L3	L3		L2	F3	F4	F4	F5	F3
11	F4	F5	F4	F3	F2	CL22	C3	L5	L3	L3	L3		L2	L2	L2	C2	L3	L4	L3	F3	F4	F3	F4	F4
12	F4	F3	F2	F3		C2	L3	L4	L3	L3	L2	L2	L2	L3	L3	L2	C2	L3	L3	F4	F4	F4	F2	F6
13	F3	F3	F2	F4	F6	L4	L3	L2	L2	L3	L2	L2	L2	C2	C2	C2	L3	L3	L3	F3	F4	F3	F5	F3
14	F4	F4	F4	F4	F3	L2	H1	C1	CL12	CL12	L3	L3	L2	L2	C1	C2	L2	L4	L4	F4	F4	F3	F3	F2
15	F6	F5	F3	F3	F5	C1	C3	L4	L2	L3	L2	L2	L2	C2	C2	L3	L3	L3	L4	F3	F3	F6	F3	F3
16	F2	F2	F3	F2	F3	L3	L3	L2	L2	L2	L2	L3	L3	L3	L3	L3	L2	CL22	L3	F3	F4	F3	F5	F4
17	F3	F3	F2	F3	F4		L2	H1	L3	C1	L2	L2	L2		C2	C2	L2	L2	L3	F5	F1	F2	F4	F3
18	F1	F2	F2	F2	F2	C4	C5	C2	C2	L2	C2	L2	C2	L3	L2	L2		L2	L3	F4	F2	F3	F5	F4
19	F2	F2	F2	F3	F3	L2	H2	L2	L3	L2	L2	L2	L2				C1	C1	L2	F5	F2	F1	F4	F4
20	F3	F2	F2	F2	F3	H1	L2	L1	L2	L2	L2	C1	C2	C1	C2	C2	C1	L3	C2	F3	F4	F8	F2	F2
21	F4	F4	F2	F2	F2	L2	L3	C2	L2	L2	L2	L2	L2	L2	L2	L3	LL23	L3	L3	F6	F5	F4	F5	F4
22	F4	F4	F4	F4	F3	C3	C1	L2	L3	L3	L2	L3	L3	L2	L3	L2	L3	L5	L3	F3	F4	F4	FF13	F3
23	F3	F3	F3	F4	F2	L3	C2	L3	L3	L3	L3	L3	L2	C1	C1	C2	L2	C1	C1	F3	F2	F3	F3	F4
24	F4	F5	F3	F3	F2	L3	H2	C1	C2	C1	L2	L3	L3	L2	L4	L4	L4	L5	L4	F4	F6	F6	F3	F5
25	F6	F6	F5	F4	F4	CL21	C2	L3	L3	L3	L3	L3	L3	L3	L3	L3	L4	L3	L3	F3	F4	F4	F4	F5
26	F4	F3	F4	F2	F2	L3	L2	L2	L3	L2	L2	L2	L2	L2	L2	L3	L3	L3	L2	F3	F2	F1	F3	F3
27	F2	F2	F2	F3	F2	L2	C1	L2	L3	L2	L3	L2	L2	L2	L2	L2	L2	L2	L4	F5	F3	F4	F3	F2
28	F4	F5	F4	F3	F5	L5	L4	L3	CL22	L3	C2	C2	C2	L2	L2	L3	L3	L4	L4	F5	F4	F1	F2	F3
29		F3	F2	F4	F2	C2	C3	C1	L4	L2	L2	L3	L2	L2	L2	L3	L2	L3	L3	F4	F3	F2	F6	F4
30	F3	F2	F3	F2	F4	L3	L2	CL11	L3	L3	L2	L3	L3	L3	L3	L2	L3	L3	L3	F4	F3	F3	F4	F5
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																								

JUN. 2016 TYPES OF Es

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

JUN. 2016 fxI (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

LAT.31°12.0'N LON.130°37.0'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	X 66	X 64	X 62	X 61																A	X 68	X 67	X 61
2	X 68	X 66	X 54	X 55	X 59																X 84	X 78	X 80	X 76
3	X 77	X 78	X 73	X 68	X 69																X 74	X 71	X 68	75
4	X 68	X 62	X 59	X 57	X 49																X 81	X 77	X 72	X 73
5	X 74	X 76	X 73	X 70	X 67																A	X 67	A	X 66
6	X 60	X 57	X 56	X 54	X 62																X 80	X 70	X 73	X 73
7	X 83	X 71	X 66	X 64	X 63	61															A	A	X 60	X 57
8	X 56	X 55	X 55	X 52	X 49																X 80	X 72	X 72	X 72
9	X 73	X 73	X 76	X 70	X 64																X 92	X 82	X 73	X 70
10	X 65	X 66	X 66	X 58	X 59																X 87	X 86	X 71	X 75
11	X 64	X 58	X 54	X 52	X 58																55	X 54	A	X 57
12	X 58	X 56	X 59	X 53	X 50																X 70	X 57	X 52	X 52
13	X 53	X 52	X 48	X 49	X 37																X 72	X 56	X 53	X 55
14	X 58	X 58	X 64	X 51	X 48																X 59	X 61	X 58	X 58
15	X 58	X 56	X 54	X 48	X 47																A	X 57	X 62	X 62
16	X 60	X 60	X 57	X 49	X 44																X 58	X 58	X 57	X 53
17	65	X 62	X 57	X 54	X 46																X 69	X 64	62	X 68
18	X 68	X 66	X 58	X 56	X 52																X 64	X 60	X 59	63
19	X 58	X 53	X 52	X 51	X 48																X 69	X 63	X 62	63
20	X 60	X 49	X 55	X 55	X 53																X 64	X 70	X 58	X 56
21	X 56	X 57	X 56	X 55	X 46																X 85	X 84	A	X 70
22	X 67	X 62	X 56	X 45	X 41																X 80	X 74	X 63	X 53
23	X 50	X 52	X 50	X 46	X 48																X 69	X 69	X 64	X 64
24	62	X 60	X 64	X 48	X 44																X 78	X 70	X 65	X 62
25	X 59	X 59	X 58	X 57	X 57																X 64	X 62	X 63	X 61
26	X 59	X 55	X 53	X 50	X 50																X 65	X 64	X 60	X 56
27	X 53	X 52	X 67	X 54	X 50																X 64	X 55	X 57	X 56
28	X 56	X 54	X 55	X 53	X 37																O X 70	X 57	X 54	X 51
29	X 52	X 53	X 54	X 50	X 38															X 76	X 74	X 57	X 57	X 58
30	X 60	X 58	X 57	X 55	X 48																X 64	X 60	X 59	X 53
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	29	30	30	30	30	1														1	26	29	27	30
MED	X 60	X 58	X 57	X 54	X 50	61														X 76	X 70	X 64	X 62	X 62
U Q	X 68	X 66	X 64	X 57	X 59																X 80	X 72	X 68	X 70
L Q	X 57	X 55	X 54	X 50	X 46																X 64	X 58	X 58	X 56

JUN. 2016 fxI (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

JUN. 2016 foF2 (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

LAT.31°12.0'N LON.130°37.0'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 60	58	56	55	54	48	52	54	59	53	64	76	A 79	92	103	A	A	A	A	62	59	55		
2	R 62	60	48	49	53	54	59	56	A	A	62	A	A	A	A	A	94	96	94	83	78	72	74	70
3	71	72	67	62	63	62	74	73	A	52	A	R 58	A	A	73	88	81	81	75	68	68	65	62	68
4	62	56	53	51	43	45	58	59	60	56	60	U R 55	64	78	81	80	78	80	79	73	75	71	66	67
5	68	70	67	64	61	57	59	68	72	A	54	62	73	80	88	87	91	90	85	78	A	61	A	60
6	54	51	50	F 47	56	30	44	62	59	54	56	57	66	72	79	70	75	80	77	70	74	64	67	67
7	F 76	65	60	58	57	55	61	60	A	A	A	A	R	58	62	68	71	68	60	A	A	A	54	V 51
8	50	49	49	46	43	45	47	57	53	A	A	A	A	61	58	68	82	86	88	90	74	66	R 66	R 66
9	67	67	70	64	58	46	53	55	57	A	54	A	A	A	61	A	A	72	A	A	86	76	67	64
10	59	60	60	52	53	47	47	62	60	62	54	61	64	64	66	73	78	80	79	80	81	80	R 65	V 69
11	58	52	48	46	V 52	F 47	50	54	87	A	A	A	A	A	A	70	68	70	77	82	R	R 48	A	51
12	52	50	53	47	44	44	44	50	A	A	A	A	A	R	A	A	A	60	64	66	64	51	46	46
13	47	46	42	43	31	28	44	60	54	A	A	R	52	E G 45	49	54	52	52	57	64	66	50	47	V 49
14	52	52	58	45	42	40	50	54	55	58	57	64	59	57	A 75		87	82	66	56	53	U R 55	52	V 52
15	52	50	48	42	41	A	A 69		V 61	51	A	A	A	54	62	A	A	66	66	A	A	51	56	56
16	54	54	51	43	38	34	47	63	63	59	54	E G 45	E G 44	E G 45	55	59	62	57	53	52	52	52	51	47
17	56	56	51	48	40	36	47	56	59	64	54	E G 47	54	58	62	60	56	55	64	66	63	58	54	F 59
18	F 60	60	52	50	46	40	46	R 52	A	A	A	A	A	A	J R 52	55	60	63	A	A	58	54	53	55
19	52	47	V 46	45	42	38	46	52	58	59	56	66	A	64	56	54	56	59	66	67	63	R 57	56	54
20	54	U R 43	49	49	47	47	49	51	49	50	47	52	A	50	51	57	63	62	52	50	R 58	64	52	50
21	50	51	50	49	40	37	42	52	62	A	R 59	A	53	57	A	62	68	74	73	74	79	78	A	64
22	61	56	Z 50	V 39	35	38	44	61	66	55	53	55	A	55	A	73	77	A	A	74	74	68	57	47
23	44	46	44	40	42	42	60	56	49	52	61	53	59	70	75	R 74	80	84	78	71	63	63	V 58	V 58
24	F 62	54	58	42	38	32	41	54	67	55	A	A	64	80	78	71	72	71	75	82	R 72	64	59	56
25	53	53	52	51	51	53	58	54	57	57	59	A	A	67	72	82	74	62	62	54	59	56	57	55
26	53	49	47	44	44	42	46	52	70	61	57	58	A	A	61	69	84	81	78	67	59	58	54	50
27	47	46	V 61	48	44	V 41	47	53	50	53	52	52	54	64	74	66	64	70	80	73	58	49	R 51	50
28	50	F 46	49	47	31	30	46	54	49	54	57	58	58	R 51	A	A	A	64	80	89	U R 64	51	48	45
29	46	V 47	48	44	32	28	44	46	52	55	64	63	62	71	85	62	A	A	60	70	68	51	51	52
30	54	52	51	49	42	40	45	47	58	60	A	A	54	R	58	58	70	72	76	53	58	54	53	47
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	30	30	30	29	29	30	25	20	20	17	16	21	23	25	25	27	26	25	25	29	27	30
MED	54	52	51	48	44	42	47	54	58	56	56	58	59	61	62	69	74	71	75	70	64	58	56	55
U Q	62	60	58	51	53	47	56	60	62	59	59	62	64	70	78	74	82	81	79	79	74	66	62	64
L Q	51	49	48	44	40	36	44	52	54	54	54	52	54	54	58	60	64	62	64	65	58	52	52	50

IONOSPHERIC DATA STATION Yamagawa

JUN. 2016 foF1 (0.01MHz) 135°E MEAN TIME (G.M.T. + 9 H)

LAT.31°12.0'N LON.130°37.0'E SWEEP 1.0MHz TO 30.0MHz IN 15.0SEC IN MANUAL SCALING

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							L	332	L	A	L	A	A	A	472	A	A	A	A	A				
2								A	A	A	A	A	A	A	A	A	A	A	A					
3							L	A	A	L	A	480	A	A	A	480	A	A	A					
4							L	L	L	A	464	488	476	A	464	444	444	UL 428	A	L				
5							L	A	A	A	L	460	468	A	A	A	A	A	A	A				
6								A	A	L 452	460	460	476	472	A	A	A	400	UL 372	L				
7							L	A	A	A	A	A	UR 444	A	A	UR 444	A	A	UL 372	A				
8							L	UL 372	L	A	A	A	A	456	464	A	L 440	A	UL 384	L				
9							240	UL 388	UL 436	A	A	A	A	A	A	A	A	A	A	A				
10								L	UL 420	A	A	R 476	A	A	460	448	A	A	L 376					
11								412	A	A	A	A	A	A	A	456	440	A	384	A				
12								380	A	A	A	A	A	444	A	A	A	400	368	L				
13							A	UL 404	436	A	A	448	456	448	UR 448	456	424	A	A					
14							L	L	UL 432	L 448	R 464	460	460	472	A	A	UR 440	A	A					
15						A	A		A	UL 440	A	A	A	460	A	A	A	A	A	A				
16							L	L	L	436	A	452	444	448	448	436	424	408	A	A				
17						L	L	L 408	428	436	460	R 468	464	460	460	440	L 440	420	A					
18							L	A	A	A	A	A	A	A	A	A	420	A	A	A				
19								L	L	496	A	A	A	A	L	444	440	436	UL 396	L				
20							UL 344	L 392	416	440	440	444	A	R 456	R 444	432	420	408	R 420					
21							A	A	420	A	A	A	A	468	A	A	A	A	A	A				
22							220	L 384	412	A	UR 468	468	A	UR 452	A	436	A	A	A	A				
23							L	L	L	L 452	A	A	UR 456	456	452	A	424	A	L	L				
24								384	A	A	A	A	A	A	A	452	440	A	A					
25							L	UL 384	UL 408	444	A	A	A	A	456	436	424	412	UL 368	L				
26							L	408	420	444	L 456	A	A	A	A	452	A	416	UL 396	A				
27							L	L 400	L 412	436	444	452	448	UR 456	448	432	UR 428	A	372	A				
28								L	460	444	444	A	448	A	A	A	A	A	A					
29							L	UL 380	416	A	A	A	A	A	A	440	A	A	372					
30							L	L 300	408	432	A	A	448	448	A	R 432	A	408	356	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							3	15	14	13	9	12	12	14	11	17	14	10	13					
MED							240	L 384	420	444	460	460	456	456	456	444	434	410	L 372					
U Q							UL 344	404	432	L 450	R 464	472	466	460	464	452	440	420	UL 390					
L Q							220	380	412	436	444	452	448	448	448	436	424	408	370					

JUN. 2016 foF1 (0.01MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

JUN. 2016 foE (0.01MHz) 135°E MEAN TIME (G.M.T. + 9 H)

LAT.31°12.0'N LON.130°37.0'E SWEEP 1.0MHz TO 30.0MHz IN 15.0SEC IN MANUAL SCALING

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1						B	220	252	300	324	344	360	A 376	364	R 352	324	A	A	A	A				
2						A	A 244	A 280	308	332	344	360	360	356	360	A 340	A	A	A	256				
3						A	A	312	A	A	A	A	A	A	A	A	A	A	240	A				
4						A	212	260	308	332	352	A	U A 336	A	R 352	336	312	284	A 232	B				
5						B	208	A 272	A 308	A 324	A	A	A	A	A	A	A	A	388	A				
6						B	216	264	300	324	A 312	A	A	364	344	328	A 312	292	240	B				
7						A	U A 216	A 256	292	332	A 332	A	A	A	A	A	A	284	A	A				
8						B	U A 188	252	304	324	A	A	A	A	R 348	332	U A 304	A	A	A				
9						B	180	U A 264	A 304	A 328	A	A	A	A	A	A	A	A	A	A				
10						A	A 216	268	A 320	A 336	336	A	A	A	R 344	A 344	324	284	A	A				
11						B	U A 204	A 268	A 316	A 332	U A 344	A	A	A	A	A	336	300	A 224	A				
12						B	A	272	320	344	360	A	A	A	A	A	A	A	236	A				
13						A	A	A	A	A	A	A	A	A	384	R 360	R 320	288	240	A				
14						A	A	A	324	A 332	352	360	364	348	A	A	A	A	A	A				
15						A	A	A	A	A	A	A	A	384	372	344	A	284	236	A 164				
16						B	A	U A 228	A	340	A	A	R	340	332	324	320	284	244	176				
17						A	U A 208	A 288	320	320	340	U R 364	U R 348	396	380	R 352	320	288	228	A				
18						A	220	A 260	U A 304	U A 328	U R 344	352	U A 360	348	A 348	U A 312	324	324	248	A				
19						A	U A 184	A 276	304	U A 364	352	U A 356	A 376	U A 372	U A 368	352	324	280	240	B				
20						A	A	A 264	A 280	332	348	360	372	R 368	352	U R 340	320	284	236	B				
21						B	188	256	292	U A 312	A	A	A	R 368	U A 380	348	A 332	288	228	A				
22						B	212	A 260	292	A	A	A	A	A	A	A	A	A	A	A				
23						A	A	A 220	A 256	324	A 352	A 364	R 372	360	364	348	312	280	U A 236	B				
24						184	224	264	300	312	332	R 340	A	A	A	348	332	284	232	A				
25						A	188	256	296	328	A 340	A	A	A	A	A	A	A	A	A				
26						B	184	264	304	316	332	A	A	A	A	A	A	A	A	A				
27						B	216	A 252	284	316	340	352	356	U A 356	A 356	A	344	U A 280	A	A				
28						A	A 208	260	296	316	324	352	352	352	A	A	A	A	A	A				
29						B	R 184	260	296	A 316	A 336	A	A	A	A	A	A	A	A					
30						A	A 188	256	304	336	A	A	A	392	A	A	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						1	22	27	26	26	20	11	11	15	16	16	15	16	16	3				
MED						184	208	260	304	328	342	360	360	364	354	342	320	284	236	176				
U Q							216	A 268	308	A 332	350	360	A 372	372	370	348	332	288	240	256				
L Q							188	256	296	320	334	352	U 352	352	348	330	312	284	232	A 164				

JUN. 2016 foE (0.01MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

JUN. 2016 foEs (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

LAT.31°12.0'N LON.130°37.0'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	JA 83	JA 50	JA 22	20	EB 16	EB 16	23	JA 44	JA 46	JA 50	41	JA 63	JA 73	JA 82	JA 49	JA 54	JA 87	JA 157	JA 109	JA 110	JA 98	JA 97	JA 50	JA 52
2	JA 84	JA 78	JA 62	JA 44	JA 38	JA 37	JA 48	JA 57	JA 72	JA 98	JA 65	JA 89	JA 75	JA 102	JA 86	JA 136	JA 122	JA 76	JA 88	JA 66	JA 74	JA 40	JA 23	JA 39
3	JA 66	JA 45	JA 52	JA 60	JA 44	JA 44	JA 29	JA 60	JA 65	JA 61	JA 83	JA 64	JA 65	JA 71	JA 58	JA 70	JA 47	JA 70	JA 54	JA 36	JA 23	JA 17	JA 32	JA 36
4	JA 41	22	21	JA 28	JA 28	JA 23	28	36	JA 56	JA 58	41	JA 44	JA 49	JA 66	JA 48	40	34	34	JA 59	JA 43	32	JA 24	JA 48	JA 44
5	JA 34	JA 51	JA 44	JA 48	JA 30	JA 28	30	JA 52	JA 62	JA 88	JA 70	JA 60	JA 46	JA 60	JA 60	JA 76	JA 76	JA 72	JA 88	JA 106	JA 110	JA 73	JA 79	JA 64
6	JA 41	JA 45	JA 62	JA 23	JA 36	JA 33	JA 34	JA 53	JA 47	JA 50	JA 36	JA 53	JA 44	JA 44	JA 67	70	JA 69	JA 46	JA 50	JA 32	JA 26	JA 72	JA 46	JA 48
7	JA 60	JA 74	JA 48	JA 52	JA 49	JA 24	JA 32	JA 58	JA 64	JA 71	JA 75	JA 71	JA 40	JA 61	JA 61	JA 41	JA 65	JA 50	JA 52	JA 79	JA 110	JA 139	JA 43	JA 39
8	JA 23	JA 62	JA 27	19	19	19	25	30	JA 49	JA 110	JA 188	JA 78	JA 105	JA 41	42	JA 51	JA 58	68	JA 42	JA 38	JA 53	JA 41	JA 20	JA 27
9	JA 23	JA 37	JA 20	EB 16	EB 16	EB 16	20	32	37	JA 105	JA 74	JA 62	JA 116	JA 166	JA 118	70	JA 81	62	JA 88	JA 141	JA 95	50	40	25
10	JA 40	JA 34	JA 40	JA 41	JA 42	JA 22	25	30	JA 49	JA 63	JA 52	JA 64	JA 62	50	36	36	JA 48	JA 63	JA 42	JA 42	JA 57	JA 48	JA 40	JA 27
11	JA 30	JA 64	JA 52	JA 81	JA 60	JA 23	JA 39	JA 46	JA 52	JA 79	JA 116	JA 243	JA 167	JA 134	JA 94	JA 66	35	JA 54	JA 52	JA 68	JA 151	JA 110	JA 82	JA 46
12	JA 27	JA 16	JA 34	JA 34	JA 31	EB 16	JA 27	36	JA 87	JA 52	JA 76	JA 84	JA 118	JA 75	JA 142	JA 97	JA 83	JA 32	25	JA 28	JA 28	JA 34	JA 23	JA 22
13	JA 18	JA 31	JA 27	JA 33	JA 29	JA 24	JA 51	JA 73	JA 87	JA 106	JA 59	JA 53	JA 55	JA 63	42	46	41	JA 49	JA 38	JA 31	JA 34	JA 38	JA 44	JA 52
14	JA 63	JA 42	JA 38	JA 31	JA 39	JA 31	JA 33	JA 37	36	40	42	JA 49	JA 56	JA 48	JA 107	JA 54	JA 104	JA 63	JA 52	JA 50	JA 46	JA 35	JA 30	JA 28
15	JA 56	JA 29	JA 78	JA 62	JA 73	JA 72	JA 64	JA 109	JA 70	JA 49	JA 100	JA 154	JA 75	42	49	JA 64	JA 89	JA 55	JA 61	JA 73	JA 88	JA 62	JA 71	JA 44
16	JA 42	JA 28	JA 31	18	JA 38	JA 16	JA 28	JA 30	JA 42	39	JA 63	JA 54	G	G	G	G	42	40	JA 41	JA 50	JA 40	JA 44	JA 60	JA 49
17	JA 60	JA 67	JA 79	JA 39	JA 32	JA 42	JA 28	JA 32	34	44	43	46	38	43	40	40	40	31	JA 40	JA 31	JA 37	JA 40	JA 52	JA 72
18	JA 43	JA 46	JA 34	JA 32	JA 21	JA 16	JA 34	JA 42	JA 77	JA 99	JA 60	JA 61	46	JA 76	JA 57	JA 57	34	JA 125	JA 71	JA 85	JA 77	21	EB 16	JA 54
19	JA 58	JA 58	JA 33	JA 28	JA 26	JA 28	JA 33	35	40	JA 51	JA 109	73	JA 108	JA 97	JA 51	40	35	JA 43	32	JA 28	JA 28	JA 81	JA 32	JA 76
20	JA 104	JA 114	JA 52	JA 30	JA 28	JA 26	JA 32	JA 32	JA 34	37	44	43	JA 60	44	39	36	38	31	JA 46	JA 51	JA 40	JA 60	JA 51	JA 42
21	JA 29	JA 52	JA 51	JA 51	JA 31	JA 24	29	JA 45	32	JA 72	JA 80	JA 86	JA 64	JA 53	JA 71	JA 68	JA 54	JA 48	JA 55	JA 49	JA 47	JA 61	JA 106	JA 51
22	JA 70	JA 53	JA 33	JA 28	JA 20	21	23	36	JA 52	JA 66	JA 43	JA 56	JA 66	40	JA 95	48	JA 100	JA 110	JA 109	JA 50	JA 39	JA 31	JA 52	JA 45
23	JA 48	JA 26	JA 34	JA 39	JA 54	JA 34	JA 40	JA 32	JA 36	JA 51	JA 53	JA 47	JA 40	JA 46	JA 41	JA 45	JA 33	JA 48	JA 27	JA 45	JA 26	JA 34	JA 45	JA 48
24	JA 30	JA 32	JA 28	JA 24	JA 24	JA 22	JA 26	JA 38	JA 48	JA 53	JA 58	JA 56	JA 72	JA 56	JA 60	JA 41	JA 41	JA 44	JA 56	JA 46	JA 62	JA 84	JA 66	JA 51
25	JA 62	JA 51	Z 30	25	JA 31	JA 20	JA 29	JA 36	JA 48	JA 46	JA 52	JA 110	JA 152	JA 60	JA 50	JA 50	JA 53	JA 52	JA 37	JA 28	JA 30	JA 26	JA 24	JA 25
26	JA 24	JA 24	22	20	EB 16	EB 16	23	29	G	36	JA 45	JA 74	JA 95	JA 104	JA 107	JA 84	JA 68	JA 52	JA 28	JA 52	JA 39	JA 25	JA 28	JA 19
27	JA 20	JA 28	JA 19	JA 18	18	EB 16	23	28	31	34	40	JA 64	38	42	JA 44	JA 43	40	JA 51	JA 72	JA 88	JA 39	JA 74	JA 39	JA 30
28	JA 26	JA 28	JA 50	JA 76	JA 28	JA 23	24	31	42	44	43	50	45	JA 94	JA 89	JA 92	JA 65	JA 60	JA 58	JA 108	JA 76	JA 49	JA 48	JA 32
29	JA 16	JA 19	JA 28	22	20	EB 16	G	28	37	JA 48	JA 53	JA 61	JA 59	JA 66	JA 74	JA 46	JA 67	JA 69	JA 31	JA 42	JA 22	JA 18	JA 19	JA 17
30	19	JA 22	JA 31	JA 30	JA 75	JA 25	22	28	34	35	JA 143	JA 143	JA 61	48	JA 53	JA 43	48	JA 42	JA 38	JA 51	JA 51	JA 17	21	21
31																								

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	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	JA 41	JA 44	JA 34	JA 30	JA 30	JA 23	28	JA 36	JA 48	JA 52	JA 58	JA 62	JA 62	JA 60	JA 58	JA 50	JA 54	JA 52	JA 52	JA 50	JA 43	JA 42	JA 44	JA 43
U Q	JA 60	JA 53	JA 51	JA 44	JA 39	JA 28	JA 33	JA 46	JA 62	JA 72	JA 76	JA 78	JA 75	JA 76	JA 86	JA 70	JA 76	JA 68	JA 61	JA 73	JA 76	JA 72	JA 52	JA 51
L Q	JA 26	JA 28	JA 28	23	21	EB 16	24	31	36	44	43	JA 53	46	44	44	41	40	44	JA 38	38	JA 32	JA 31	JA 28	JA 27

JUN. 2016 foEs (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

JUN. 2016 fbEs (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

LAT.31°12.0'N LON.130°37.0'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 83	31	E B 16	E B 16	E B 16	E B 16	23	32	42	48	38	56	48	A A 82	46	52	75	A A 157	A A 109	A A 110	A A 98	53	32	E B 16
2	E B 16	22	26	32	28	23	30	52	A A 72	A A 98	60	A A 89	A A 75	A A 102	A A 86	A A 136	57	62	64	31	33	25	E B 16	20
3	42	19	32	18	20	25	26	56	A A 65	45	A A 83	42	A A 65	A A 71	56	48	45	67	49	34	19	16	E B 16	23
4	23	E B 16	E B 16	20	17	E B 16	24	33	36	45	39	40	42	54	41	39	33	33	55	19	27	20	27	27
5	22	33	20	29	16	E B 16	29	42	50	A A 88	46	43	39	54	48	71	60	48	52	65	A A 110	28	A A 79	42
6	28	40	18	E B 16	20	25	29	47	46	40	35	38	41	43	63	65	44	36	30	19	22	44	36	42
7	30	52	35	30	25	19	29	51	A A 64	A A 71	A A 75	A A 71	38	54	47	38	63	46	29	A A 79	A A 110	A A 139	20	23
8	E B 16	21	18	E B 16	E B 16	19	23	30	39	A A 110	A A 188	A A 78	A A 105	40	40	47	39	41	26	17	44	20	E B 16	23
9	20	27	E B 16	E B 16	E B 16	E B 16	20	30	35	A A 105	52	A A 62	A A 116	A A 166	54	A A 70	A A 81	56	A A 88	A A 141	73	42	28	21
10	26	28	18	21	21	E B 16	23	29	38	52	48	39	54	48	U Y 36	36	43	58	36	37	53	35	32	16
11	20	24	32	17	E B 16	E B 16	25	36	48	A A 79	A A 116	A A 243	A A 167	A A 134	A A 94	41	35	44	37	54	49	42	A A 82	20
12	E B 16	E B 16	19	20	27	E B 16	22	31	A A 87	A A 52	A A 76	A A 84	A A 118	42	A A 142	A A 97	A A 83	30	24	21	20	18	21	20
13	E B 16	E B 16	E B 16	20	20	20	36	32	37	A A 106	A A 59	43	42	40	41	46	40	48	36	28	22	23	22	39
14	43	30	16	23	26	22	23	33	34	36	41	45	40	44	A A 107	51	38	46	45	28	40	28	24	E B 16
15	32	E B 16	33	E B 16	E B 16	A A 72	A A 64	44	45	43	A A 100	A A 154	A A 75	42	48	A A 64	A A 89	55	58	A A 73	A A 88	21	34	36
16	20	21	18	E B 16	22	E B 16	26	28	41	37	51	38	G	G	G	G	41	38	36	47	32	20	18	26
17	22	20	19	18	20	16	24	29	G 32	42	38	40	U Y 38	42	40	40	35	30	39	31	22	32	20	42
18	31	22	20	20	E B 16	E B 16	30	38	A A 77	A A 99	A A 60	A A 61	A A 46	A A 76	48	46	33	54	A A 71	A A 85	22	E B 16	E B 16	E B 16
19	43	21	20	23	19	E B 16	28	32	34	40	51	48	A A 108	58	47	36	33	32	32	24	24	20	19	36
20	33	20	E B 16	17	E B 16	18	24	28	32	36	41	42	A A 60	42	U Y 39	U Y 36	35	30	35	23	26	47	29	28
21	25	19	21	23	21	21	29	44	30	A A 72	53	A A 86	48	40	A A 71	53	50	42	53	46	E B 16	43	A A 106	43
22	44	41	18	17	E B 16	E B 16	G 19	30	36	53	38	42	A A 66	38	A A 95	44	54	A A 110	A A 109	48	27	23	40	29
23	28	18	18	E B 16	E B 16	20	25	28	28	42	49	47	40	45	40	44	32	46	26	20	18	27	35	20
24	E B 16	20	20	20	17	E B 16	25	35	44	46	A A 58	A A 56	59	51	56	38	39	41	54	23	48	36	28	23
25	34	33	20	20	20	E B 16	28	32	38	39	47	A A 110	A A 152	49	46	44	34	38	28	18	22	21	E B 16	20
26	18	18	E B 16	E B 16	E B 16	E B 16	22	29	G	35	44	50	A A 95	A A 104	55	45	47	30	24	37	28	23	21	18
27	18	19	E B 16	E B 16	E B 16	E B 16	G 22	28	30	34	38	37	37	42	42	37	38	48	32	45	29	E B 16	25	E B 16
28	E B 16	E B 16	16	E B 16	19	E B 16	23	30	41	44	40	45	45	49	A A 89	A A 92	A A 65	44	35	66	47	38	36	22
29	E B 16	E B 16	E B 16	17	E B 16	E B 16	G	26	35	44	50	57	59	61	72	43	A A 67	A A 69	28	30	19	E B 16	E B 16	E B 16
30	E B 16	E B 16	22	16	E B 16	E B 16	20	26	33	35	A A 143	A A 143	44	43	48	36	43	40	28	34	36	E B 16	E B 16	E B 16
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	22	20	18	18	17	E B 16	24	32	38	45	50	49	51	48	48	44	43	45	36	34	28	24	24	22
U Q	32	28	20	20	20	20	29	38	A A 46	A A 72	A A 60	A A 78	A A 75	A A 61	A A 71	A A 53	A A 60	55	54	A A 54	48	38	34	29
L Q	E B 16	E B 18	E B 16	E B 16	E B 16	E B 16	23	29	34	40	41	42	41	42	41	38	35	38	29	23	22	20	E B 18	E B 18

JUN. 2016 fbEs (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

JUN. 2016 fmin (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

LAT.31°12.0'N LON.130°37.0'E SWEEP 1.0MHz TO 30.0MHz IN 15.0SEC IN MANUAL SCALING

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

JUN. 2016 fmin (0.1MHz)

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IONOSPHERIC DATA STATION Yamagawa

JUN. 2016 M(3000)F2 (0.01) 135°E MEAN TIME (G.M.T. + 9 H)

LAT.31°12.0'N LON.130°37.0'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	273	F 298	F 295	329	374	365	357	303	318	318	284	305	A	275	289	308	A	A	A	A	302	293	273
2	R 333	F 320	F 295	F 306	306	325	381	350	A	A	319	A	A	A	A	A	297	317	333	308	318	314	308	296
3	323	F 298	F 298	F 313	F 351	325	341	394	A	301	A	R 287	A	A	282	311	313	320	320	320	313	309	F 319	309
4	295	300	339	334	329	325	374	359	329	346	337	U R 286	286	298	303	314	306	307	322	312	321	314	333	286
5	F 308	F 307	309	F 310	F 327	328	346	346	386	A	286	288	287	277	298	297	311	323	319	334	A	314	A	293
6	275	F 294	F 275	F 313	379	336	366	342	374	305	276	296	302	287	309	288	290	286	314	303	301	325	285	286
7	F 311	308	292	F 286	304	F 300	F 334	363	A	A	A	A	R	280	289	291	295	327	314	A	A	A	F 297	F 296
8	314	308	F 305	F 311	F 295	342	314	363	365	A	A	A	A	306	279	269	287	315	312	327	331	314	R 291	R 303
9	296	300	323	334	346	335	365	358	336	A	309	A	A	A	294	A	A	295	A	A	329	323	309	310
10	317	310	307	319	336	350	327	375	351	362	321	306	312	285	293	293	292	309	305	311	311	325	R 315	V 318
11	F 334	293	F 312	301	F 321	F 320	367	276	339	A	A	A	A	A	A	318	317	303	314	328	R	R 316	A	F 289
12	273	290	319	307	292	294	344	320	A	A	A	A	A	R	A	A	A	305	310	320	337	308	286	284
13	304	300	326	352	361	309	307	328	309	A	A	R	289	G	247	285	280	291	309	314	337	317	284	V 282
14	F 295	F 287	339	322	315	328	339	347	317	324	286	324	293	280	A	285	321	338	335	346	306	U R 296	298	F 284
15	F 299	F 302	F 296	342	F 314	A	A	336	V 338	378	A	A	A	263	299	A	A	325	355	A	A	276	268	283
16	299	299	329	337	327	330	328	349	359	334	340	G	G	G	284	312	327	328	329	337	300	290	303	F 275
17	282	307	308	F 330	323	301	326	342	335	341	354	G	290	295	302	310	305	277	323	311	301	312	288	F 326
18	F 292	F 325	F 317	325	313	F 313	317	R 352	A	A	A	A	A	A	R	281	299	311	A	A	300	294	282	F 309
19	314	F 310	F 297	336	338	338	351	337	349	346	293	324	A	322	285	276	282	297	300	332	319	R 312	297	301
20	311	U R 281	F 312	F 315	F 322	F 340	336	329	341	315	234	290	A	276	270	294	332	333	307	323	R 309	330	310	294
21	F 297	F 325	316	333	334	347	365	344	369	A	R 370	A	290	277	A	294	288	307	303	293	312	337	A	F 310
22	320	319	F 333	F 330	314	F 347	364	350	359	335	278	294	A	280	A	298	307	A	A	316	319	324	321	308
23	F 288	314	F 310	F 314	F 310	F 332	371	384	F 379	320	362	261	275	291	283	R 280	287	325	299	335	311	311	317	300
24	F 281	F 304	349	321	305	301	321	328	361	378	A	A	270	297	303	296	302	312	298	329	R 312	324	297	318
25	310	308	302	306	304	337	370	341	349	309	337	A	A	301	303	318	331	333	342	304	308	310	299	296
26	315	299	307	314	321	314	322	303	350	379	318	299	A	A	285	301	311	329	333	335	320	306	306	303
27	302	302	V 345	334	300	V 295	340	327	303	319	279	288	283	294	330	329	302	301	332	334	320	294	R 295	293
28	F 297	F 305	F 334	F 361	318	320	379	357	301	293	323	319	306	R 289	A	A	A	295	312	353	U R 368	306	303	295
29	309	318	338	365	335	305	361	360	316	308	339	320	266	283	340	295	A	A	321	337	350	324	306	310
30	307	303	328	333	F 329	338	361	329	360	394	A	A	307	R 274	314	277	311	314	361	317	327	315	320	332
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	29	30	30	30	30	29	29	30	25	20	20	17	16	22	22	25	25	27	26	25	25	29	27	30
MED	304	304	312	322	322	328	346	346	349	329	318	290	290	284	294	294	305	312	316	323	318	314	299	296
U Q	314	310	329	334	334	338	366	358	360	354	338	312	304	295	303	310	312	325	332	334	328	324	310	309
L Q	295	299	F 302	F 311	310	311	328	329	323	312	286	285	279	277	283	285	291	301	309	312	308	306	291	286

JUN. 2016 M(3000)F2 (0.01)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

JUN. 2016 M(3000)F1 (0.01) 135°E MEAN TIME (G.M.T. + 9 H)

LAT.31°12.0'N LON.130°37.0'E SWEEP 1.0MHz TO 30.0MHz IN 15.0SEC IN MANUAL SCALING

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							L	426	L	A	L	A	A	A	343	A	A	A	A	A				
2								A	A	A	A	A	A	A	A	A	A	A	A					
3							L	A	A	L	A	422	A	A	A	A	A	A	A					
4							L	L	L	A	399	394	405	A	399	394	374	UL 366	A	L				
5							L	A	A	A	L	409	413	A	A	A	A	A	A	A				
6								A	A	L 378	H 388	398	396	378	A	A	A	352	UL 349	L				
7							L	A	A	A	A	A	UR 422	A	A	UR 379	A	A	UL 363	A				
8							L	UL 393	L	A	A	A	A	417	374	A	L 348	A	UL 365	L				
9							472	UL 396	UL 397	A	A	A	A	A	A	A	A	A	A	A				
10								L	UL 404	A	A	R 428	A	A	414	410	A	A	A					
11								362	A	A	A	A	A	A	A	367	370	A	A	A				
12								371	A	A	A	A	A	384	A	A	A	383	357	L				
13							A	UL 361	392	A	A	393	419	442	UR 377	A	365	A	A					
14							L	L	UL 400	L 397	R 397	308	433	369	A	A	UR 388	A	A					
15						A	A		A	A	A	A	A	378	A	A	A	A	A	A				
16							L	L	L	396	A	446	454	443	404	471	A	360	A	A				
17						L	L	L 370	H 373	A	404	R 414	382	369	391	396	L 357	353	A					
18							L	A	A	A	A	A	A	A	A	A	381	A	A	A				
19								L	L	355	A	A	A	A	L	405	364	353	UL 360	L				
20							UL 375	L 382	404	425	445	464	A	R 416	R 396	402	393	H 366	R 354					
21							A	A	H 404	A	A	A	A	404	A	A	A	A	A	A				
22							449	L 392	413	A	UR 420	355	A	UR 448	A	A	A	A	A	A				
23							L	L	L	L 352	A	A	UR 448	A	390	A	405	A	L	L				
24								366	A	A	A	A	A	A	A	370	328	A	A					
25							L	UL 383	UL 377	406	A	A	A	A	A	A	391	373	UL 371	L				
26							L	378	414	389	L 357	A	A	A	A	A	A	385	UL 365	A				
27							L	L 371	L 397	399	425	421	413	UR 394	368	402	UR 404	A	360	A				
28								L	347	A	372	A	A	A	A	A	A	A	A					
29							L	UL 402	390	A	A	A	A	A	A	A	A	A	370					
30							L	L 450	H 391	396	A	A	E A 305	318	A	R 426	A	A	368	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							3	15	14	10	9	12	11	13	10	11	13	9	11					
MED							449	L 382	397	396	399	412	413	394	390	402	374	366	UL 363					
U Q							472	L 396	404	399	422	425	433	430	399	410	392	378	368					
L Q							UL 375	370	390	L 378	380	394	396	374	374	379	360	353	357					

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JUN. 2016 h'F2 (KM) 135°E MEAN TIME (G.M.T. + 9 H)

LAT.31°12.0'N LON.130°37.0'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							226	228	328	322	330	396	318	A	364	322	304	A	A	A				
2								290	A	A	370	A	A	A	A	A	314	296	254					
3							252	216	A	398	A	402	A	A	370	288	282	302	266					
4							222	232	274	288	292	420	374	330	308	286	294	286	274	256				
5							250	260	220	A	384	384	334	358	322	340	300	268	266	286				
6								276	238	362	H 382	384	334	362	314	402	342	304	274	266				
7							260	252	A	A	A	A	R	430	370	354	356	280	276	A				
8							312	244	250	A	A	A	A	354	414	404	324	280	280	230				
9							220	252	270	A	390	A	A	A	380	A	A	334	A	A				
10								230	236	266	342	360	336	352	362	336	316	302	286					
11								418	262	A	A	A	A	A	A	308	312	312	286	266				
12								324	A	A	A	A	A	R	A	A	A	328	302	248				
13							332	278	332	A	A	R	424	G	552	404	412	386	312					
14							256	256	312	324	398	312	372	414	A	352	284	254	268					
15						A	A		274	258	A	A	A	470	356	A	A	306	264	A				
16							296	266	258	304	314	G	G	G	410	342	302	306	288	308				
17						316	302	276	290	284	288	G	412	378	350	332	358	404	292					
18							300	266	A	A	A	A	A	A	494	412	354	334	A	A				
19								274	274	298	398	314	A	326	408	430	404	362	294	252				
20							278	302	304	362	618	408	A	454	466	374	298	288	342					
21							218	292	244	A	268	A	410	428	A	366	358	296	304	306				
22							216	266	226	322	456	H 354	A	432	A	316	320	A	A	264				
23							236	224	216	332	264	476	418	348	336	358	322	264	276	228				
24								304	244	244	A	A	444	328	316	334	328	300	320					
25							226	280	272	342	286	A	A	344	322	298	280	290	258	244				
26							310	352	252	240	320	366	A	A	396	328	300	266	264	250				
27							272	304	370	328	440	416	418	368	278	304	332	316	256	238				
28								254	386	392	318	328	352	422	A	A	A	340	276					
29							240	250	338	352	284	330	462	378	282	348	A	A	300					
30							234	H 208	262	232	A	A	366	408	332	420	308	280	238	234				
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	21	29	25	20	20	17	16	22	23	25	25	27	26	15				
MED						316	252	266	270	322	336	384	392	378	362	342	316	302	276	252				
U Q							298	291	308	347	394	418	421	430	408	388	348	328	294	266				
L Q							226	247	244	275	290	342	344	352	322	319	300	280	266	238				

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JUN. 2016 h'F (KM) 135°E MEAN TIME (G.M.T. + 9 H)

LAT.31°12.0'N LON.130°37.0'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	338	282	278	240	190	198	218	246	A	H 186	A	A	A	330	A	A	A	A	A	A	346	294	308
2	234	272	296	328	276	232	222	A	A	A	A	A	A	A	A	A	A	A	A	246	254	258	250	284
3	258	296	300	272	238	236	244	A	A	268	A	196	A	A	A	A	A	A	A	240	232	232	268	256
4	272	264	234	230	242	230	214	214	200	A	200	192	220	A	214	218	218	226	A	232	248	222	228	280
5	276	276	274	260	234	220	218	A	A	A	310	222	H 178	A	A	A	A	A	A	A	A	246	A	338
6	344	360	292	264	194	276	220	A	A	236	H 188	212	H 210	246	A	A	A	304	262	252	252	288	312	310
7	256	296	300	310	260	278	256	A	A	A	A	A	186	A	A	H 216	A	A	H 238	A	A	A	300	282
8	246	296	256	248	266	236	212	202	246	A	A	A	A	192	242	A	274	A	232	224	230	240	252	272
9	286	296	242	222	214	218	150	208	184	A	A	A	A	A	A	A	A	A	A	A	280	236	238	254
10	282	280	260	240	238	202	206	212	222	A	A	162	A	A	198	194	A	A	A	250	286	246	250	230
11	254	282	330	286	240	248	214	258	A	A	A	A	A	A	A	252	222	A	A	A	256	330	A	284
12	278	288	254	268	304	296	226	242	A	A	A	A	A	264	A	A	A	220	226	232	216	222	298	314
13	276	268	244	222	204	296	A	234	220	A	A	254	206	174	252	A	280	A	A	268	224	218	288	354
14	334	334	236	232	284	266	224	222	196	196	220	A	H 186	260	A	A	216	A	A	234	304	280	308	296
15	300	256	288	214	246	A	A	280	A	A	A	A	A	250	A	A	A	A	A	A	A	326	352	326
16	288	272	236	222	254	248	236	H 138	A	214	A	188	168	184	198	176	A	270	A	A	290	272	284	352
17	304	272	254	234	252	274	238	216	H 190	A	200	198	260	262	220	238	230	H 210	A	264	244	254	286	298
18	338	252	250	256	242	250	272	A	A	A	A	A	A	A	A	A	222	A	A	A	246	250	294	268
19	330	300	280	252	226	240	232	222	216	222	A	A	A	A	388	202	212	202	230	246	232	254	264	312
20	284	322	266	252	238	238	228	210	192	186	186	182	A	216	224	210	204	H 204	268	278	278	270	268	292
21	306	260	280	256	238	244	A	A	H 174	A	A	A	A	204	A	A	A	A	A	A	222	242	A	306
22	294	288	244	252	276	238	190	H 184	198	A	186	266	A	170	A	A	A	A	A	A	246	222	244	312
23	314	268	256	278	252	248	214	214	208	304	A	A	184	A	H 234	A	190	A	214	210	H 238	268	290	282
24	256	280	226	230	280	264	242	270	A	A	A	A	A	A	A	240	308	A	A	222	270	250	294	262
25	318	300	278	274	270	224	224	214	242	200	A	A	A	A	A	A	196	262	218	210	250	240	250	278
26	252	286	268	260	244	222	224	216	196	184	300	A	A	A	A	A	A	218	210	A	236	258	262	270
27	270	278	228	212	276	278	228	224	192	H 182	190	174	192	228	276	212	212	A	254	A	218	258	294	292
28	286	284	246	210	290	268	210	220	274	A	254	A	A	A	A	A	A	A	A	246	218	296	310	304
29	268	258	222	210	240	274	216	214	212	A	A	A	A	A	A	A	A	A	222	242	200	206	268	262
30	262	272	244	230	226	218	206	188	H 184	206	A	A	A	378	A	188	A	A	220	A	260	234	234	238
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	30	30	30	29	27	23	19	11	11	11	10	13	11	11	13	9	12	17	26	29	27	30
MED	282	281	256	252	243	244	222	216	200	206	200	196	189	228	234	212	218	220	228	242	246	250	284	288
U Q	305	296	280	268	270	271	232	224	222	236	254	222	210	261	276	238	252	266	246	251	260	271	294	310
L Q	260	272	244	230	238	227	212	210	H 192	186	186	182	184	188	214	194	208	H 207	219	228	230	235	250	270

JUN. 2016 h'F (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

JUN. 2016 h'E (KM) 135°E MEAN TIME (G.M.T. + 9 H)

LAT.31°12.0'N LON.130°37.0'E SWEEP 1.0MHz TO 30.0MHz IN 15.0SEC IN MANUAL SCALING

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1						B	110	102	98	100	100	100	98	96	100	100	A	A	A	A				
2						A	H 126	100	96	96	100	96	96	96	94	98	A	A	A	118				
3						A	A	A	A	A	A	A	A	A	A	A	A	A	114	A				
4						A	106	104	94	98	98	98	98	A	98	98	104	94	104	B				
5						B	116	98	96	98	A	A	98	A	A	A	A	A	A	A				
6						B	116	98	98	96	94	A	94	96	96	96	100	100	104	B				
7						A	124	104	96	96	94	A	A	A	A	98	A	98	A	A				
8						B	112	100	100	98	A	A	A	A	100	100	96	A	A	A				
9						B	108	100	98	96	A	A	A	A	A	A	A	A	A	A				
10						A	114	98	98	98	94	A	A	A	104	100	102	100	A	A				
11						B	112	100	98	96	96	A	A	A	A	A	100	100	102	A				
12						B	A	100	102	102	102	A	A	A	A	A	A	A	108	A				
13						A	A	A	A	A	A	A	A	A	A	104	100	100	102	A				
14						A	A	A	A	102	96	96	96	98	A	A	A	A	A	A				
15						A	A	A	A	A	A	A	A	98	100	100	A	A	106	B				
16						B	A	100	A	96	A	A	96	96	96	96	104	100	100	B				
17						A	130	122	98	98	98	96	102	106	98	102	102	102	102	A				
18						A	120	100	98	98	100	98	100	98	100	102	96	A	108	A				
19						A	114	100	98	96	100	102	96	100	100	100	112	98	102	B				
20						A	A	118	96	100	100	98	102	100	104	100	96	96	108	B				
21						B	120	102	98	98	A	A	A	112	98	100	98	98	98	A				
22						B	112	98	98	A	A	A	A	A	A	A	A	A	A	A				
23						A	A	94	96	96	100	96	100	100	A	A	98	112	112	B				
24						100	132	120	96	96	96	96	A	A	A	98	98	98	A	A				
25						A	106	98	98	96	96	A	A	A	A	A	A	A	A	A				
26						B	B	100	96	96	96	A	A	A	A	A	A	A	A	A				
27						B	110	120	116	112	98	98	98	98	98	A	96	98	A	A				
28						A	A 138	118	98	98	98	98	100	96	A	A	A	A	A	A				
29						B	108	104	96	96	96	A	A	A	A	A	A	A	A					
30						A	110	100	100	96	A	A	A	96	A	A	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						1	21	26	25	26	20	12	14	15	14	16	15	14	14	1				
MED						100	114	100	98	97	98	98	98	98	99	100	100	99	104	118				
U Q							122	104	98	98	100	98	100	100	100	100	102	100	108					
L Q							110	100	96	96	96	96	96	96	98	98	96	98	102					

JUN. 2016 h'E (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

JUN. 2016 h'Es (KM) 135°E MEAN TIME (G.M.T. + 9 H)

LAT.31°12.0'N LON.130°37.0'E SWEEP 1.0MHz TO 30.0MHz IN 15.0SEC IN MANUAL SCALING

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	94	94	96	92	B	B	130	106	108	106	110	106	108	100	104	102	94	94	94	92	90	94	102	112
2	118	94	98	86	86	88	128	112	106	108	108	104	104	100	106	100	118	94	94	116	96	96	100	108
3	102	102	90	100	98	98	98	112	112	96	98	104	106	94	126	120	128	114	106	104	88	90	96	98
4	98	88	86	122	82	108	120	114	110	108	108	102	100	98	106	110	142	116	102	102	102	100	96	114
5	98	94	94	90	90	136	114	106	102	100	98	98	102	92	92	92	110	106	106	98	100	116	98	100
6	96	96	96	92	92	122	120	110	110	108	106	104	104	110	104	104	102	106	106	108	98	98	96	94
7	92	92	88	88	112	90	114	108	106	102	102	98	96	98	96	104	96	108	116	108	102	94	102	92
8	110	114	90	90	92	114	116	116	106	102	112	98	122	104	108	104	100	98	124	100	88	90	86	84
9	106	86	90	B	B	B	148	122	118	100	98	98	94	94	108	96	94	94	104	108	112	86	88	86
10	96	100	96	96	98	108	128	122	116	102	100	130	98	108	112	116	106	100	98	92	92	90	86	88
11	88	118	94	94	94	124	112	112	104	102	96	96	96	96	94	100	140	110	102	100	100	100	100	86
12	104	86	92	104	104	B	96	114	106	106	100	98	98	106	100	98	96	98	98	90	84	84	82	82
13	110	110	106	98	98	98	98	96	96	126	98	90	98	114	132	114	114	106	106	100	100	96	102	114
14	98	98	114	92	92	88	92	92	120	108	108	106	106	102	96	96	120	92	92	90	88	88	106	102
15	102	98	100	100	100	118	94	94	94	96	118	94	94	160	124	116	108	108	102	102	104	108	104	102
16	98	122	106	74	96	108	98	102	98	124	98	96	G	G	G	G	130	118	112	102	106	102	102	106
17	100	98	108	96	92	100	100	100	130	118	122	122	172	164	192	158	122	136	104	100	98	102	106	104
18	96	96	104	88	88	88	118	114	110	106	110	106	104	102	106	102	168	114	108	106	114	96	B	120
19	92	92	88	106	86	94	96	108	120	118	106	116	104	106	114	126	148	90	106	104	102	102	98	98
20	106	102	102	104	120	98	94	108	106	122	116	124	116	120	140	154	128	132	108	106	114	100	104	88
21	88	104	104	98	100	108	128	112	112	96	96	108	96	128	106	106	108	108	102	98	100	94	94	94
22	94	88	88	88	88	118	148	108	104	96	98	98	94	98	92	98	102	92	92	92	88	88	88	86
23	88	90	98	100	98	98	98	98	102	106	104	106	158	136	130	120	144	112	118	104	112	108	98	100
24	96	98	92	90	90	100	144	122	108	104	104	102	98	98	100	144	174	126	112	106	102	100	106	94
25	94	90	90	102	84	90	120	112	110	110	98	96	112	94	98	98	98	98	98	100	92	94	90	90
26	90	92	90	94	B	B	126	122	G	102	102	96	138	94	104	100	92	88	88	86	90	88	88	88
27	100	86	104	90	90	B	142	142	132	132	116	104	110	110	104	98	100	100	100	94	102	108	102	98
28	100	122	102	102	96	94	142	134	112	112	116	106	106	102	98	98	96	96	92	100	90	106	88	88
29	88	88	102	86	88	B	G	150	108	100	98	96	96	96	96	96	94	94	94	92	92	90	90	90
30	90	100	98	100	100	100	126	126	152	172	108	100	98	102	98	98	96	90	90	86	88	104	88	90
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	27	24	29	30	29	30	30	30	29	29	29	29	30	30	30	30	30	30	29	30
MED	97	96	96	94	92	100	118	112	108	106	104	102	104	102	104	102	108	103	102	100	99	96	98	94
U Q	102	102	102	100	98	111	128	122	114	112	110	106	109	110	113	116	128	112	106	104	102	102	102	102
L Q	92	90	90	90	88	94	98	106	105	102	98	98	97	97	98	98	96	94	94	92	90	90	88	88

JUN. 2016 h'Es (KM)

IONOSPHERIC DATA STATION Yamagawa

JUN. 2016 TYPES OF Es 135°E MEAN TIME (G.M.T. + 9 H)

LAT.31°12.0'N LON.130°37.0'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	FQ 51	F 4	FF 21	FF 11			H 2	C 2	C 3	C 3	C 1	C 2	C 1	C 2	L 2	C 3	L 3	L 5	L 5	L 9	F 5	F 8	FF 14	FFF 13
2	FF 12	FQ 31	FF 13	F 5	FQ 31	L 4	CL 33	C 5	C 4	C 3	C 2	C 4	C 3	C 4	C 2	C 3	CL 14	L 3	LC 61	CL 14	F 3	F 3	F 2	F 6
3	FQ 31	FQ 21	FQ 21	F 3	F 4	L 4	LC 31	CL 52	CL 33	L 3	L 2	C 1	CL 22	L 4	CL 12	CLH 12	CL 12	CL 34	CL 53	CL 56	F 4	F 2	FQ 21	FF 71
4	F 3	F 1	F 1	FFF 13	FF 31	C 1	C 2	C 3	C 3	C 2	C 1	C 1	C 2	L 2	C 1	C 1	HL 11	C 2	C 3	C 3	FF 42	FF 33	FF 32	FF 17
5	FQ 51	FQ 41	FQ 31	FQ 31	FQ 21	HL 11	C 5	C 5	C 3	C 5	L 2	L 2	C 1	L 3	L 3	L 5	CL 24	CL 23	CL 55	L 8	FF 61	FF 15	F 5	FF 71
6	F 7	F 5	F 3	F 3	F 3	CC 71	C 4	C 4	C 2	C 2	C 1	C 1	C 1	C 1	C 3	C 3	C 3	C 3	C 3	C 4	F 3	F 5	FF 31	F 7
7	F 6	FF 41	F 3	FQ 21	FFF 35	LQ 41	CL 22	C 5	C 4	C 3	C 3	L 2	L 1	L 3	L 2	C 1	L 4	C 6	CL 13	CL 16	FF 14	FF 42	FQ 41	F 4
8	FF 12	FF 14	FQ 21	F 1	F 1	C 3	CL 21	C 2	CL 31	C 4	CL 13	L 3	CLH 13	C 1	C 1	C 2	C 2	L 4	CL 13	L 2	F 6	F 4	F 2	F 5
9	FF 13	F 5	F 2				H 1	C 2	C 1	C 4	L 2	L 3	L 6	L 8	CC 12	L 5	L 6	L 7	CL 66	CL 57	FF 16	F 8	F 4	F 4
10	FF 23	FF 15	FF 31	FF 42	FF 31	C 1	CL 21	C 1	C 1	C 3	C 2	CL 11	L 2	C 2	C 1	C 1	C 2	C 4	C 2	L 3	F 5	F 9	F 9	F 4
11	F 4	FFF 11	F 4	F 3	F 2	C 1	CC 41	C 2	C 3	C 4	L 5	L 3	LQ 21	LQ 31	L 4	LC 11	H 1	C 3	C 3	L 9	F 5	F 5	F 3	F 3
12	FF 12	F 1	FF 22	FF 31	F 6		LH 12	C 2	C 3	C 2	C 3	L 3	L 3	CC 21	LQ 21	L 2	L 4	L 2	L 1	LC 41	F 3	F 3	F 4	F 4
13	FF 11	FF 12	FF 11	FF 21	F 3	L 5	L 5	L 5	L 2	CL 24	L 2	LC 11	LC 11	CL 11	HC 11	C 1	CL 11	C 3	C 4	L 5	F 5	FF 41	FF 24	FF 14
14	FFF 41	FF 71	FF 13	F 5	F 4	LQ 21	LC 21	L 3	CL 11	CL 11	C 1	C 2	C 1	C 2	L 3	L 2	CL 12	L 4	L 6	L 4	F 5	F 4	FF 24	FF 21
15	F 7	F 3	F 4	F 3	FF 31	CL 19	LH 71	L 5	L 5	L 2	CL 23	L 3	L 2	H 1	C 2	C 2	CL 52	CL 52	CL 82	C 8	FF 52	FF 61	FF 51	FF 61
16	F 3	FFF 16	F 2	F 1	F 4	C 1	LC 31	C 1	L 2	C 1	L 3	L 1					C 1	C 2	C 4	CL 71	FFF 52	FFF 31	F 4	FQ 51
17	F 4	FF 31	FF 13	FF 41	F 3	LC 22	LC 22	LC 31	CC 11	C 2	C 1	C 1	H 1	H 1	H 1	H 1	C 1	H 1	C 3	L 7	F 4	FF 64	FF 33	F 5
18	FF 71	FQ 51	FFF 14	FF 31	F 2	L 2	CL 42	C 3	C 4	C 5	C 2	C 2	C 2	C 2	C 3	C 2	H 1	CHC 31	CLH 43	CL 55	FF 14	F 2		FFF 22
19	F 4	F 2	FF 21	FF 22	FQ 21	L 1	LCH 22	C 2	C 1	C 2	CH 31	CQ 11	C 2	C 2	C 2	CC 11	HHL 11	LC 11	C 2	C 6	F 6	F 3	F 3	FQ 41
20	FF 26	F 5	F 3	FF 15	FF 12	L 2	L 3	CH 21	C 2	C 1	C 1	C 1	C 1	C 1	H 1	H 1	C 1	H 1	CL 42	CL 64	FF 24	F 4	FF 24	F 5
21	F 4	FF 23	FF 41	F 5	FF 21	C 2	C 3	C 4	C 1	L 3	L 3	CL 13	L 2	CL 11	C 3	C 2	C 3	C 3	C 7	L 5	FFF 31	F 6	F 4	F 4
22	F 5	F 5	FQ 31	F 3	F 2	C 1	H 1	C 3	C 2	L 3	L 1	L 2	L 3	L 1	L 4	L 2	CL 25	LC 41	L 6	L 8	F 4	F 6	F 6	F 6
23	F 4	F 4	FF 22	FF 21	F 3	L 4	L 6	L 3	C 1	C 2	C 2	C 2	H 1	H 1	CL 11	CL 11	H 1	CL 32	CL 22	C 2	F 3	FF 51	FF 61	FQ 41
24	FF 21	F 4	F 3	F 3	F 2	C 1	H 3	CL 31	C 3	C 4	C 2	C 2	L 2	L 2	L 3	H 1	H 1	CH 21	CL 44	CLC 92	FF 73	FF 54	FF 25	FF 32
25	F 7	F 5	F 5	FF 23	FF 21	L 1	C 5	C 2	C 2	C 2	LL 31	L 4	LLL 23	L 2	L 2	L 2	L 1	L 4	LC 41	LQ 11	F 4	F 4	F 4	FF 42
26	FF 42	FF 32	FF 11	F 1			CC 22	C 2		C 1	C 2	LH 31	HL 12	L 3	CL 13	CL 13	L 3	L 2	L 4	L 5	F 6	F 4	F 2	F 2
27	FF 13	F 5	FF 12	FF 11	F 1		H 1	HC 22	HC 12	HC 11	C 1	C 2	C 1	C 1	C 1	L 1	C 2	C 4	L 4	L 6	FFF 34	FFF 31	FF 41	F 2
28	FF 41	FF 12	F 3	F 2	F 4	L 2	HLL 32	HL 22	C 2	C 1	C 1	C 2	C 1	C 3	L 4	L 3	L 4	L 4	L 7	CL 19	F 4	FF 18	F 7	F 4
29	F 2	F 2	FF 21	F 2	F 1			H 1	C 2	C 3	L 2	L 4	L 2	L 2	L 5	L 2	L 3	L 4	L 4	L 4	F 1	F 2	F 2	F 2
30	F 2	F 3	F 4	F 4	FF 31	L 2	C 2	C 3	H 1	HC 11	CLH 23	LH 31	L 3	CL 11	L 2	L 1	L 3	L 3	L 6	L 5	F 3	FF 21	F 2	F 2
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																								

JUN. 2016 TYPES OF Es

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

JUN. 2016 fxI (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

LAT.26°41.0'N LON.128°09.0'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	65	68	72	71	71	60															X 79	X 71	X 70	X 65
2	71	70	66	65	56	55															X 89	A	X 87	87
3	86	88	81	77	70	67	87														X 78	X 78	X 69	70
4	70	69	68	X 64	X 53																X 92	X 90	X 80	X 76
5	X 73	80	76	76	68	63	61														X 89	X 76	A	71
6	68	60	57	60	49																X 87	X 91	X 80	X 71
7	X 79	X 78	68	67	68	71															X 64	X 62	63	67
8	66	60	61	59	54	48															X 90	X 75	X 79	X 76
9	X 74	X 71	X 74	X 83	X 61																X 99	X 87	X 78	X 75
10	76	76	76	75	66																X 94	X 87	X 77	X 76
11	X 68	X 62	X 56	56	X 54																X 85	X 80	X 61	X 55
12	X 57	X 60	X 64	56	X 53																X 76	X 57	X 54	X 54
13	X 58	61	56	45	37	33															X 71	X 53	X 53	54
14	56	59	59	X 42	X 40	42															X 66	X 67	X 59	60
15	63	X 60	57	54	A															A	A	X 52	56	63
16	60	58	53	X 45	X 35	35															X 56	X 57	60	X 54
17	56	66	54	51	X 40																X 74	X 63	X 62	66
18	64	64	56	54	49																X 60	X 63	62	59
19	67	66	68	54	46	40															X 71	X 64	X 60	X 61
20	63	X 56	54	54	52	50															X 78	X 71	X 61	X 62
21	X 62	63	60	63	54	47															X 92	X 84	X 72	73
22	72	76	68	57	56	46															X 100	X 82	X 64	X 62
23	59	60	56	55	52																X 77	X 74	X 72	X 66
24	67	69	71	47	X 40	40															X 90	X 72	A	X 66
25	64	66	66	64	60																X 68	X 70	X 65	X 64
26	X 59	X 57	X 54	X 56	50	49															X 74	X 72	X 67	X 65
27	65	67	76	X 51	X 50																X 56	X 56	63	66
28	63	65	64	53	48	43															X 64	61	X 56	X 54
29	54	56	X 60	X 45	41																X 66	X 55	X 58	X 59
30	X 59	X 55	56	58	56	51															X 62	X 58	X 56	56
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	17	2														29	29	28	30
MED	64	64	62	56	53	48	74														X 77	X 71	X 63	X 65
U Q	70	69	68	64	58	58															X 90	X 79	X 72	X 71
L Q	59	60	56	53	47	41															X 66	X 60	X 60	X 59

JUN. 2016 fxI (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

JUN. 2016 foF2 (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

LAT.26°41.0'N LON.128°09.0'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	F 56	F 58	F 64	F 63	F 64	F 51	46	53	A	54	62	69	84	83	90	104	116	124	122	92	73	65	64	59
2	F 62	F 56	F 54	F 54	F 50	F 49	53	56	A	A	A	61	62	69	80	A	102	110	107	106	82	A	81	F 77
3	F 73	F 77	F 72	F 69	F 58	F 59	F 80	59	55	53	59	A	A	66	88	93	A	91	A	76	72	72	63	F 62
4	F 62	F	F 61	58	47	49	56	58	55	57	58	61	74	86	90	92	A	A	A	87	86	84	74	70
5	67	F	F	F 65	F 56	F 52	F 51	72	A	A	60	A	88	99	102	107	109	98	85	86	83	70	A	F 61
6	F	F 54	F	F 49	F 40	A	44	62	68	A	A	A	77	84	91	86	78	84	82	77	81	85	74	65
7	73	72	F 59	F 61	F 61	F 65	70	50	A	A	A	A	A	A	67	76	86	78	73	59	58	56	F 50	F
8	F	F 50	F 48	F 50	F 47	F 40	48	59	56	A	A	A	A	A	A	A	A	100	99	110	84	69	73	70
9	68	65	68	77	55	42	51	63	58	54	62	60	62	65	66	73	80	85	91	100	93	81	72	69
10	F 69	F 64	F 63	F 67	F 56	F 41	52	64	66	58	58	60	64	74	80	84	89	92	91	91	88	81	71	71
11	62	56	50	F 49	48	42	44	61	88	60	A	53	64	67	76	87	88	90	89	84	79	74	55	49
12	V 51	54	58	F 49	47	45	50	58	50	A	A	A	A	A	A	59	66	70	71	70	70	51	48	48
13	52	F 53	F 47	F 37	27	24	42	61	62	56	52	A	E G 45	A	51	53	57	59	70	73	65	47	47	F 46
14	F 49	F 51	F 50	36	34	F 34	51	50	53	58	62	60	A	A	A	82	A	A	A	A	60	61	53	F 52
15	F 51	54	F 48	F 42	A	39	54	68	61	A	50	57	52	59	70	58	63	73	A	A	A	46	F 50	F 55
16	F 53	F 50	F 47	39	29	29	45	61	62	59	56	52	51	51	58	66	68	58	56	48	50	51	F 54	48
17	F 46	F 51	F 46	F 43	34	33	44	58	56	64	52	52	56	64	67	64	63	64	72	75	68	57	56	F 55
18	F 53	F	F 48	F 47	F 40	39	45	47	45	48	A	A	A	A	53	55	67	80	78	62	54	57	F 53	F 49
19	F	F 59	F 61	F 44	F 35	F 31	41	52	52	A	A	64	70	64	63	57	61	74	H 93	77	65	58	54	55
20	F 53	50	F 46	F 45	F 46	F 42	49	58	56	52	A	53	56	55	60	69	76	70	66	63	72	65	55	56
21	56	F 54	F 52	F 54	F 47	F 40	42	61	A	49	55	A	55	62	71	73	81	84	76	83	86	78	66	F 64
22	F 66	F 66	F 58	F 50	F 46	F 38	Z 48	65	55	58	58	A	A	59	74	80	85	93	89	84	94	76	58	56
23	F 50	F 50	F 49	F 47	F 44	41	H 51	51	54	55	58	53	56	72	84	83	89	92	93	85	71	68	66	60
24	F 61	F 60	F 64	40	34	F 33	48	69	63	A	A	A	A	88	80	83	86	86	84	90	84	J R 66	A	60
25	F 56	F 56	F 57	F 52	F 51	53	60	53	55	64	57	A	68	A	88	A	89	87	77	64	62	64	59	58
26	53	51	48	50	F 42	F 41	40	61	67	58	51	53	57	62	79	85	96	105	84	74	68	66	J R 61	58
27	F 54	F 57	69	45	44	39	50	52	49	55	54	53	55	68	85	82	79	87	96	V 72	50	50	F 53	F 52
28	F 52	F	F 52	F 45	F 41	F 35	43	51	49	58	63	54	56	53	64	69	72	82	100	82	58	F 51	50	48
29	F 47	F 48	V 54	39	F 28	28	43	45	55	57	66	A	65	83	89	86	80	87	96	102	60	49	52	53
30	53	49	F 50	F 49	F 42	F 40	38	52	62	58	51	51	A	A	57	67	82	88	65	57	56	52	50	F 48
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	27	26	28	30	29	29	30	30	25	21	20	17	21	22	27	27	26	28	26	28	29	29	28	29
MED	F 54	F 54	F 53	F 49	F 46	F 40	48	58	56	57	58	54	62	66	76	80	80	86	84	80	71	65	56	56
U Q	F 62	F 59	F 61	F 54	F 50	F 47	51	61	62	58	61	60	69	83	88	86	89	92	93	88	84	73	66	63
L Q	F 52	F 51	F 48	44	38	34	44	52	54	54	53	53	56	62	64	66	68	76	73	71	60	52	52	50

JUN. 2016 foF2 (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

JUN. 2016 foF1 (0.01MHz) 135°E MEAN TIME (G.M.T. + 9 H)

LAT.26°41.0'N LON.128°09.0'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	R 468	480	472	472	A	A	A	A	A						
2								L	A	A	A	A	A	460	464	A	A	A	A					
3									A	A	A	A	A	U A 480	A	A	A	A	A					
4								L		U L 464	U L 484	A	A	A	U A 480	A	A	A	A					
5								L	A	A	A	A	A	A	A	A	A	A						
6						A			A	A	A	A	472	A	448	L 464	A	A						
7									A	A	A	A	A	A	A	A	416	416	L					
8								L	A	A	A	A	A	A	A	A	A	A	U L 388					
9								L	L 416	A	448	464	A	A	A	444	424	U A 432	A					
10								L	L	U L 452	464	A	456	464	A	460	432	424	L 384					
11								A	416	448	A	476	464	464	460	432	448	416	U L 400	L				
12							L	L	412	A	A	A	A	A	A	A	420	400	L 368					
13								L	352	U A 448	A	A	452	A	U R 424	A	428	412	U A 372	A				
14								U L 360	U L 432	L	448	A	A	A	A	A	A	A	A	A				
15							A	A	L 420	A	A	456	456	R 452	444	448	428	A	A					
16								L	L	A	U A 456	464	464	456	A	432	432	L 412	U L 392					
17								L	432	440	456	452	452	456	A	436	428	L 408	A					
18								L 392	412	A	A	A	A	A	A	A	404	412	360					
19								L	L	A	A	460	464	452	480	456	452	A	A					
20								L 388	416	U L 436	A	464	464	464	452	432	420	A	380					
21								L	A	L	L 452	A	A	460	A	436	424	A	A	L				
22								L 356	U L 416	440	A	A	A	456	464	448	A	408	372	L				
23							L		U L 416	444	452	L 468	468	R 448	448	436	456	408	376	L				
24								372	L	A	A	A	A	U A 484	460	444	428	412	A					
25									L	444	L 472	A	448	A	A	A	A	A	A					
26								L 384	L 416	444	L	R 464	448	452	U A 472	440	428	408	L 356					
27										424	A	460	A	U A 472	U A 452	448	U A 444	408	A					
28										416	U A 436	A	452	460	440	440	432	400	A					
29								U L 400	L 416	428	A	A	U A 472	A	A	A	U A 460	392	A	224				
30								L	412	420	436	456	A	A	U A 456	432	U A 428	388	360	L				
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	14	15	12	12	15	16	15	17	20	17	12	1				
MED								L 384	416	444	454	464	464	460	456	440	428	408	374	224				
U Q								L 392	L 416	U 448	468	466	468	U A 464	464	448	438	414	U L 386					
L Q								L 360	412	428	448	458	452	454	448	434	424	404	364					

JUN. 2016 foF1 (0.01MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

JUN. 2016 foE (0.01MHz) 135°E MEAN TIME (G.M.T. + 9 H)

LAT.26°41.0'N LON.128°09.0'E SWEEP 1.0MHz TO 30.0MHz IN 15.0SEC IN MANUAL SCALING

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1						B	180	U A 248	288	A	A	360	376	368	356	324	312	A	A	A				
2						B	192	224	300	332	348	356	R 360	A	376	A	A	A	A	A				
3						A	A	A	A	A	A	A	A	A	A	A	A	A	A	A				
4						A	A	244	296	A	A	A	A	A	340	356	316	284	A	A				
5						B	A	A	A	A	A	A	A	A	A	A	A	A	A	A				
6						A	176	244	312	324	324	352	352	360	U R 364	336	308	280	264	A				
7						A	A	244	292	A	A	A	A	A	A	A	A	A	224	A				
8						B	A	240	292	324	A	A	A	A	A	A	A	A	A	188				
9						B	A	240	A	A	A	A	A	A	A	324	308	A	A	A				
10						B	208	A	A	A	A	A	A	A	A	A	A	A	A	A				
11						B	A	240	A	A	A	A	A	A	A	A	A	A	A	A				
12						B	A	256	308	336	A	352	352	A	356	A	A	A	236	A				
13						B	188	A	A	A	A	A	A	A	A	A	316	292	236	A				
14						B	200	244	A	A	348	364	A	364	340	A	A	A	A	A				
15						A	A	A	A	A	A	A	A	R 388	380	A	316	284	236					
16						B	176	244	292	A	A	368	A	A	A	356	328	284	244	A				
17						B	212	244	A	320	340	A	A	R 348	352	360	344	A	A	A				
18						A	A	256	288	328	360	360	364	364	A	A	328	296	A	A				
19						B	A	A	288	340	340	A	A	372	348	360	324	292	240	A				
20						B	A	268	A	A	360	372	380	380	364	352	324	288	244	A				
21						B	A	260	328	332	368	A	A	A	A	A	A	288	220	A				
22						B	172	240	A	A	A	A	A	368	392	340	312	284	A	A				
23						B	A	A	A	A	356	360	364	A	A	A	320	280	216	B				
24						B	A	236	288	316	336	344	332	U A 344	356	344	324	292	224	A				
25						B	A	256	308	A	324	344	A	A	A	A	A	A	A	A				
26						B	A	268	268	A	A	A	A	A	A	A	A	A	A	A				
27						B	184	A	A	328	A	360	U A 368	A	A	A	A	A	228	A				
28						B	A	240	280	312	340	352	368	U A 380	352	A	A	A	A	A				
29						B	A	256	U A 292	A	A	A	A	A	A	A	A	A	A	A				
30							A	228	A	U A 344	348	364	A	A	A	A	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							10	22	16	12	13	14	10	11	13	10	14	12	12	1				
MED							186	244	292	328	348	360	364	368	356	348	318	286	236	188				
U Q							200	256	304	334	358	364	368	380	370	356	324	292	242					
L Q							176	240	288	322	338	352	352	360	350	336	312	284	224					

IONOSPHERIC DATA STATION Okinawa

JUN. 2016 foEs (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

LAT.26°41.0'N LON.128°09.0'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 63	J A 38	J A 38	J A 21	18	E B 14	21	J A 58	J A 69	J A 118	J A 91	G	49	J A 66	J A 76	J A 82	J A 74	J A 71	J A 91	J A 91	J A 76	J A 53	J A 60	J A 42
2	J A 30	J A 31	J A 27	J A 23	J A 25	J A 17	J A 41	34	J A 62	J A 109	J A 87	J A 98	J A 74	45	J A 56	J A 132	J A 153	J A 163	J A 113	J A 107	J A 108	J A 110	J A 134	J A 60
3	J A 84	J A 50	J A 60	J A 49	J A 61	J A 51	J A 87	J A 50	J A 48	J A 70	J A 58	J A 63	J A 53	J A 57	J A 70	J A 76	J A 104	J A 89	J A 87	J A 72	J A 41	J A 22	J A 18	J A 24
4	J A 46	J A 37	J A 16	J A 28	J A 44	J A 46	J A 31	36	41	J A 43	J A 54	J A 94	J A 79	J A 75	J A 50	J A 285	J A 134	J A 164	J A 119	J A 58	J A 26	J A 29	J A 25	J A 19
5	J A 30	J A 47	J A 43	18	E B 13	J A 21	J A 27	J A 44	J A 87	J A 104	J A 91	J A 84	J A 78	J A 68	J A 73	J A 92	J A 59	J A 59	J A 86	J A 146	J A 147	J A 106	J A 84	J A 74
6	J A 64	J A 70	J A 50	J A 37	J A 42	J A 87	J A 51	J A 74	J A 72	J A 121	J A 168	J A 166	J A 66	J A 53	43	42	J A 66	J A 83	J A 75	J A 67	J A 69	J A 55	J A 32	J A 22
7	J A 28	J A 37	J A 67	J A 60	J A 78	J A 70	J A 58	J A 78	J A 137	J A 108	J A 185	J A 140	J A 148	J A 82	J A 62	J A 68	J A 43	J A 31	24	J A 24	J A 28	J A 61	J A 83	J A 83
8	J A 58	J A 42	J A 34	J A 21	J A 20	J A 20	30	36	J A 54	J A 77	J A 188	J A 72	J A 87	J A 189	J A 110	J A 130	J A 108	J A 74	J A 64	G 18	J A 33	J A 49	21	20
9	18	E B 13	E B 13	20	J A 21	J A E B 13	20	30	J A 43	J A 54	J A 41	J A 42	J A 58	J A 59	J A 56	J A 42	G	J A 48	J A 131	J A 57	J A 108	J A 71	J A 51	J A 60
10	J A 45	39	40	J A 27	J A 36	J A 28	28	34	39	J A 51	J A 50	J A 58	J A 57	J A 48	J A 49	J A 47	J A 41	32	26	J A 21	J A 28	18	J A 17	J A 18
11	21	19	J A 14	20	J A 30	J A E B 14	23	J A 46	J A 45	J A 42	J A 69	J A 52	J A 70	J A 57	J A 51	J A 76	J A 36	J A 38	J A 36	J A 45	J A 23	J A 41	J A 21	20
12	19	E B 13	E B 13	E B 13	19	E B 13	25	34	34	J A 55	J A 70	J A 56	J A 95	J A 139	J A 62	J A 59	J A 42	J A 32	J A 26	J A 54	J A 27	J A 22	J A 27	J A 22
13	J A 16	J A 30	J A 21	J A 37	J A 30	J A 27	22	28	35	J A 60	J A 56	J A 63	J A 44	J A 53	44	44	36	36	J A 39	J A 31	J A 27	20	J A 18	J A 48
14	J A 29	J A 76	J A 45	J A 43	J A 21	J A 16	G	G	36	44	J A 46	J A 57	J A 150	J A 82	J A 98	J A 80	J A 185	J A 115	J A 107	J A 94	J A 35	J A 32	J A 16	J A 34
15	J A 29	J A 60	J A 65	J A 96	J A 132	J A 49	J A 71	J A 66	J A 78	J A 119	J A 54	J A 52	44	44	42	43	44	J A 46	J A 76	J A 86	J A 46	J A 56	J A 44	J A 62
16	J A 75	J A 84	J A 82	J A 22	J A 41	J A 20	J A 32	35	43	J A 50	J A 62	42	J A 40	39	46	40	42	41	44	J A 24	J A 20	J A 50	J A 24	J A 38
17	J A 101	J A 71	J A 63	J A 55	J A 51	J A 58	J A 28	J A 31	J A 36	38	J A 40	40	44	G	44	38	39	40	J A 50	J A 60	J A 56	J A 47	J A 48	J A 44
18	J A 39	J A 80	J A 72	J A 32	J A 17	J A 50	J A 26	34	41	J A 47	J A 70	J A 72	J A 85	J A 62	J A 74	J A 64	J A 39	J A 41	J A 42	J A 24	J A 26	J A 66	J A 31	J A 41
19	J A 73	J A 58	J A 32	J A 22	J A 21	J A 15	J A 26	J A 73	J A 50	J A 76	J A 79	J A 138	J A 144	J A 54	G	J A 49	J A 53	J A 60	57	J A 52	J A 44	J A 26	J A 48	J A 33
20	J A 36	J A 72	J A 29	J A 79	J A 48	J A 23	J A 38	G 26	J A 40	J A 44	J A 57	J A 49	46	44	46	40	38	J A 68	J A 52	J A 51	J A 40	J A 49	J A 45	J A 50
21	J A 31	J A 36	J A 39	J A 99	J A 55	J A 43	J A 38	J A 43	J A 78	J A 72	J A 49	J A 79	J A 88	J A 42	J A 52	40	36	J A 82	J A 74	58	J A 62	J A 44	J A 38	J A 37
22	J A 45	J A 29	J A 30	J A 20	J A E B 16	13	22	30	J A 34	J A 47	J A 58	J A 74	J A 78	41	G	J A 66	J A 78	J A 39	J A 36	J A 24	J A 46	J A 81	J A 50	J A 32
23	J A 21	J A 17	J A 19	J A 22	J A 29	J A 17	20	J A 60	J A 50	J A 47	40	46	G	43	38	J A 37	J A 59	35	J A 37	E B 17	J A 28	J A 24	J A 20	J A 30
24	J A 20	J A 19	J A 19	J A 15	J A E B 16	13	24	32	J A 40	J A 88	J A 102	J A 66	J A 88	J A 71	42	43	34	J A 46	J A 49	J A 48	J A 99	J A 100	J A 88	J A 34
25	J A 52	J A 53	J A 29	J A 34	J A 29	J A 19	26	J A 36	33	36	J A 44	J A 100	J A 80	J A 143	J A 85	J A 136	J A 81	J A 87	J A 46	J A 27	J A 28	18	18	J A 24
26	18	20	21	19	E B 13	J A 21	20	G	34	J A 49	J A 43	J A 66	J A 60	J A 70	J A 50	J A 41	J A 36	J A 34	J A 30	J A 48	J A 44	J A 39	J A 31	J A 20
27	J A 20	J A 21	J A 29	J A 17	19	E B 14	20	26	J A 43	J A 36	46	47	J A 75	J A 58	48	J A 47	J A 47	J A 37	J A 49	J A 28	J A 37	J A 50	J A 36	J A 40
28	J A 51	J A 20	J A 22	J A 29	J A 25	J A 19	J A 42	30	J A 42	J A 46	44	46	J A 49	J A 64	J A 44	J A 42	J A 42	J A 34	J A 52	J A 58	J A 60	J A 56	J A 48	J A 24
29	J A 21	J A 21	20	J A 20	18	E B 13	21	28	38	J A 36	J A 52	J A 81	J A 54	J A 59	J A 60	J A 51	J A 49	J A 36	J A 48	J A 37	J A 32	J A 28	J A E B 25	E B 13
30	18	17	E B 13	J A 43	J A 38	J A 34	20	31	36	38	40	J A 51	J A 165	J A 92	J A 52	40	J A 47	J A 48	J A 28	J A 21	J A 22	J A 21	J A 21	18
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	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 30	J A 37	J A 30	J A 25	J A 27	J A 20	26	34	J A 42	J A 50	J A 56	J A 63	J A 72	J A 58	J A 50	J A 48	J A 46	J A 46	J A 50	J A 50	J A 38	J A 48	J A 32	J A 34
U Q	J A 52	J A 58	J A 45	J A 43	J A 42	J A 43	J A 38	J A 46	J A 54	J A 77	J A 79	J A 81	J A 87	J A 71	J A 62	J A 76	J A 74	J A 74	J A 76	J A 60	J A 60	J A 56	J A 48	J A 44
L Q	21	20	20	20	19	E B 14	21	30	36	44	46	49	49	45	44	42	39	J A 36	J A 37	J A 24	J A 28	J A 26	J A 21	22

JUN. 2016 foEs (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

JUN. 2016 fbEs (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

LAT.26°41.0'N LON.128°09.0'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	20	E B 13	E B 13	E B 13	E B 13	E B 14	20	47	A A 69	43	38	G	47	65	56	46	55	58	86	58	66	24	34	23
2	20	24	20	19	E B 13	E B 14	G 16	32	A A 62	A A 109	A A 87	55	50	43	44	A A 132	73	58	70	71	66	A A 110	68	23
3	29	20	16	E B 13	32	28	40	44	43	46	54	A A 63	A A 53	48	66	75	A A 104	70	A A 87	61	35	20	E B 13	E B 13
4	28	18	E B 13	E B 13	30	23	28	34	39	39	40	55	65	59	48	72	A A 134	A A 164	A A 119	51	23	24	16	E B 13
5	19	30	21	E B 13	E B 13	E B 13	25	37	A A 87	A A 104	55	A A 84	58	51	64	61	57	45	70	30	72	53	A A 84	34
6	40	29	19	16	17	A A 87	28	48	47	A A 121	A A 168	A A 166	45	51	43	41	64	74	58	35	24	44	19	E B 13
7	20	22	31	21	28	19	51	36	A A 137	A A 108	A A 185	A A 140	A A 148	A A 82	52	61	34	30	24	21	19	20	20	27
8	20	E B 13	23	E B 13	E B 13	E B 13	29	32	45	A A 77	A A 188	A A 72	A A 87	A A 189	A A 110	A A 130	A A 108	71	31	G 14	20	30	E B 13	E B 13
9	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	19	28	34	46	37	38	48	56	54	40	G	43	58	43	57	41	31	30
10	28	24	21	18	20	E B 13	27	30	33	41	45	48	43	44	49	44	38	31	25	19	24	E B 13	E B 13	16
11	E B 13	E B 13	E B 13	E B 13	E B 13	E B 14	21	38	32	36	A A 69	39	44	40	40	40	35	31	31	20	20	21	E B 13	E B 13
12	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	23	30	32	A A 55	A A 70	A A 56	A A 95	A A 139	A A 62	55	38	31	G 18	42	E B 13	21	22	20
13	E B 13	E B 13	E B 13	20	E B 13	E B 13	20	27	32	45	49	A A 63	40	A A 53	40	44	36	33	37	28	23	E B 13	E B 13	21
14	18	22	20	20	20	E B 14	G	G	36	43	43	55	A A 150	A A 82	A A 98	76	A A 185	A A 115	A A 107	A A 94	30	22	E B 13	20
15	17	32	E B 13	E B 13	A A 132	21	32	41	39	A A 119	48	39	44	44	42	43	41	46	A A 76	A A 86	A A 46	19	20	31
16	40	16	E B 13	E B 13	22	E B 13	29	35	38	47	46	42	38	38	46	39	41	39	30	20	E B 13	E B 13	20	E B 13
17	21	E B 13	16	23	22	E B 14	G 17	29	32	37	38	39	44	G	44	38	39	36	44	43	41	21	29	20
18	22	21	18	E B 13	E B 13	21	22	30	39	44	A A 70	A A 72	A A 85	A A 62	50	46	36	34	35	23	23	E B 13	20	E B 13
19	E B 13	18	22	20	E B 13	E B 13	22	30	40	A A 76	A A 79	40	45	42	G	40	41	58	53	44	34	19	22	18
20	E B 13	23	16	22	E B 13	E B 13	20	G 18	30	39	A A 57	43	42	43	42	39	37	53	34	43	22	20	E B 13	28
21	17	20	16	20	E B 13	E B 13	30	38	A A 78	38	40	A A 79	49	38	51	38	34	66	61	21	25	28	23	27
22	24	E B 13	E B 13	E B 13	E B 13	E B 13	21	29	32	39	46	A A 74	A A 78	40	G	42	78	36	34	22	20	60	38	22
23	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	19	29	35	42	38	44	G	39	38	36	34	31	28	E B 17	E B 13	E B 13	E B 13	18
24	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	22	32	39	A A 88	A A 102	A A 66	A A 88	48	40	43	33	36	42	46	52	35	A A 88	22
25	37	31	18	20	17	E B 13	23	G 22	32	36	43	A A 100	40	A A 143	60	A A 136	66	63	43	22	27	E B 13	E B 13	E B 13
26	E B 13	E B 13	E B 13	E B 13	E B 13	E B 14	20	G	32	39	38	44	42	37	47	36	33	34	25	30	31	25	27	E B 13
27	E B 13	19	16	E B 13	E B 13	E B 14	E B 13	25	30	34	44	45	52	47	45	42	44	34	48	23	25	E B 13	E B 13	E B 13
28	15	E B 13	E B 13	E B 13	19	E B 13	30	29	39	40	44	45	44	46	40	36	32	31	44	40	33	23	20	20
29	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	20	G 24	35	34	48	A A 81	47	54	56	49	46	35	44	20	E B 12	20	18	E B 13
30	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	19	28	31	36	36	46	A A 165	A A 92	46	38	43	35	25	18	E B 13	E B 13	E B 13	E B 13
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	18	17	14	E B 13	E B 13	E B 13	22	30	37	43	47	55	48	48	46	43	41	38	44	30	24	21	20	19
U Q	22	22	19	20	20	14	28	36	A A 43	A A 76	A A 70	A A 72	A A 78	A A 62	56	61	64	58	61	44	35	28	27	23
L Q	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	20	G 28	32	39	40	43	44	42	42	39	35	34	31	21	E B 20	E B 13	E B 13	E B 13

JUN. 2016 fbEs (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

JUN. 2016 fmin (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

LAT.26°41.0'N LON.128°09.0'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	13	13	13	13	13	14	14	15	19	19	31	28	30	30	30	24	21	20	14	13	13	13	12	13
2	13	13	13	13	13	14	14	15	19	18	21	30	34	36	24	22	21	16	14	14	13	13	13	13
3	13	13	13	13	13	13	14	16	20	21	21	21	31	25	30	27	19	17	14	14	13	13	13	13
4	13	13	13	13	13	13	14	14	20	20	20	23	30	29	24	20	20	20	15	14	13	13	13	13
5	13	13	13	13	13	13	14	14	16	21	22	24	25	27	21	21	20	15	14	12	13	13	13	13
6	13	13	13	13	13	13	14	14	16	19	20	20	24	30	30	23	16	15	13	14	13	13	13	13
7	13	13	13	13	13	13	14	15	14	18	20	31	24	32	24	21	19	15	13	12	13	13	13	13
8	13	13	13	13	13	13	14	14	16	21	22	28	35	30	23	23	21	16	14	12	13	13	13	13
9	13	13	13	13	13	13	14	14	17	20	21	22	26	26	30	25	20	16	14	13	13	13	13	13
10	13	13	13	13	13	13	14	14	15	16	20	30	24	29	32	24	19	15	17	14	13	13	13	13
11	13	13	13	13	13	14	14	12	16	22	20	23	28	24	24	24	20	17	12	13	13	13	13	13
12	13	13	13	13	13	13	14	15	20	21	21	29	24	29	24	20	19	16	14	13	13	13	13	13
13	13	13	13	13	13	13	13	14	20	17	24	26	30	31	29	29	17	18	16	14	13	13	13	13
14	13	13	13	13	13	14	14	14	16	20	22	24	24	26	24	21	17	16	13	14	13	13	13	13
15	13	13	13	13	13	13	14	14	15	20	21	29	31	30	30	21	22	18	14	13	13	13	13	13
16	13	13	13	13	13	13	14	14	16	14	20	18	24	22	30	22	21	16	14	13	13	13	13	13
17	13	13	13	13	13	14	14	15	18	20	24	22	30	30	30	24	20	20	14	14	14	13	13	13
18	13	13	13	13	13	13	14	13	15	21	23	31	31	32	28	20	20	14	12	12	13	13	13	13
19	13	13	13	13	13	13	14	15	16	16	21	24	24	24	26	22	20	14	13	14	13	13	13	13
20	13	13	13	13	13	13	14	14	14	20	22	22	31	30	24	21	20	17	13	13	13	13	13	13
21	13	13	13	13	13	13	14	14	15	18	23	23	24	27	24	22	22	14	15	14	13	13	13	13
22	13	13	13	13	13	13	14	15	16	15	24	25	24	24	22	21	20	20	14	12	13	13	13	13
23	13	13	13	13	13	13	15	14	14	20	22	21	22	22	25	21	21	20	14	17	13	13	13	13
24	13	13	13	13	13	13	14	12	14	17	21	24	29	21	30	21	21	15	14	13	13	13	13	13
25	13	13	13	13	13	13	14	13	15	19	20	22	22	24	21	22	19	19	14	13	14	13	13	13
26	13	13	13	13	13	14	14	14	15	16	21	21	21	26	24	20	20	14	13	12	13	13	13	13
27	13	13	13	13	13	14	13	13	15	16	22	21	22	25	25	21	17	18	12	14	13	13	13	13
28	13	13	13	13	13	13	14	14	16	20	21	23	22	21	21	20	17	15	14	14	13	13	13	13
29	13	13	13	13	13	13	14	14	14	17	20	21	24	27	30	23	21	15	14	12	12	13	13	13
30	13	13	13	13	13	13	14	14	14	17	20	24	24	21	25	21	22	15	13	12	13	13	13	13
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	13	13	13	13	13	13	14	14	16	19	21	24	24	27	25	22	20	16	14	13	13	13	13	13
U Q	13	13	13	13	13	13	14	15	17	20	22	28	30	30	30	23	21	18	14	14	13	13	13	13
L Q	13	13	13	13	13	13	14	14	15	17	20	22	24	24	24	21	19	15	13	12	13	13	13	13

IONOSPHERIC DATA STATION Okinawa

JUN. 2016 M(3000)F2 (0.01) 135°E MEAN TIME (G.M.T. + 9 H)

LAT.26°41.0'N LON.128°09.0'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	F 269	F 282	F 280	F	F 336	F 337	358	379	A	279	289	280	291	270	267	283	303	322	341	329	304	298	287	279
2	F 271	F 297	F 304	F 314	F 311	F 319	362	372	A	A	A	327	280	272	257	A	289	307	322	336	330	A	299	F 297
3	F 297	F 318	F 312	F 320	F 308	F 321	F 377	398	350	338	312	A	A	255	291	317	A	308	A	317	304	312	308	F 291
4	F 300	F	F 317	340	321	346	366	370	323	326	294	277	278	284	295	297	A	A	A	301	318	318	304	301
5	309	F	F	F 321	F 317	F 323	F 332	350	A	A	286	A	276	283	290	301	317	326	302	309	329	294	A	F 278
6	F	F 280	F	F 304	F 317	A	352	332	366	A	A	A	267	285	290	303	269	290	302	283	304	322	280	276
7	304	312	F 278	F 281	F 311	F 336	368	364	A	A	A	A	A	A	284	281	300	298	322	330	299	308	F 287	F
8	F	F 302	F 292	F 315	F 318	F 303	338	338	357	A	A	A	A	A	A	A	A	315	308	335	336	304	291	280
9	288	296	311	354	362	323	356	361	378	327	327	313	297	293	261	276	273	282	302	319	336	301	306	289
10	F 299	F 298	F 306	F 325	F 348	F 332	360	367	369	336	313	301	277	272	276	273	286	294	301	305	323	338	306	301
11	297	292	301	F 303	316	304	297	318	347	368	A	246	294	272	283	300	308	303	296	305	310	328	311	297
12	V 292	304	319	F 279	279	298	344	364	305	A	A	A	A	A	A	282	304	303	302	305	327	284	280	273
13	298	F 289	F 322	F 364	311	319	327	361	340	313	A 351	A	G	A	263	276	282	289	320	331	341	284	285	F 278
14	F 279	F 311	F 304	329	293	F 280	373	375	325	328	342	300	A	A	A	A 282	A	A	A	A	311	304	300	F 281
15	F 295	306	F 310	F 298	A	343	344	329	352	A	A 230	275	254	286	316	304	304	349	A	A	A	274	F 273	F 274
16	F 272	F 310	F 323	350	301	309	344	359	336	339	329	281	259	261	293	313	316	334	319	310	298	276	F 277	295
17	F 283	F 318	F 309	F 328	313	290	332	342	320	329	339	270	282	291	303	302	276	288	294	315	311	284	288	F 278
18	F 290	F	F 315	F 304	F 313	317	339	326	286	306	A	A	A	A	274	279	287	292	318	321	311	287	F 281	278
19	F	F 314	F 334	F 316	F 304	F 309	345	343	324	A	A	293	314	277	261	287	283	271	H 325	332	317	295	306	287
20	F 296	294	F 301	F 290	F 322	F 333	352	351	354	318	A	286	290	275	285	293	307	313	300	289	314	337	298	291
21	286	F 313	F 306	F 335	F 325	F 355	347	348	A	354	305	A	276	284	280	271	279	298	298	292	320	320	303	F 305
22	F 285	F 321	F 337	F 329	F 332	F 323	Z 335	372	355	341	321	A	A	272	290	275	280	298	312	294	338	343	305	303
23	F 294	F 298	F 306	F 317	F 313	301	H 384	350	336	352	322	292	263	269	278	274	284	309	313	333	315	298	300	288
24	F 302	F 308	F 360	302	303	F 292	339	362	370	A	A	A	A	294	283	275	298	290	294	310	344	J R 325	A	283
25	F 279	F 286	F 309	F 299	F 306	334	368	321	341	347	318	A	304	A	291	A	309	324	328	342	298	305	299	299
26	304	298	295	309	F 308	F 306	301	344	379	348	307	245	288	258	290	286	313	340	312	309	301	307	J R 304	295
27	F 281	F 298	349	286	291	299	345	341	326	323	336	285	265	283	318	302	279	303	335	V 350	300	275	F 276	F 284
28	F 285	F	F 348	F 326	F 320	F 315	350	337	328	335	341	283	305	253	291	281	267	282	344	360	308	F 297	297	294
29	F 292	F 306	V 339	360	F 308	314	356	309	337	313	327	A	261	293	303	292	269	294	314	366	356	282	291	295
30	316	312	F 301	F	F 337	F 338	384	347	349	371	316	269	A	A	277	275	305	337	323	319	316	329	306	F 315
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	27	26	28	28	29	29	30	30	25	21	20	17	21	22	27	27	26	28	26	28	29	29	28	29
MED	F 292	F 303	F 310	F 316	F 313	F 319	348	350	341	335	320	283	278	276	285	283	288	303	312	318	315	304	298	289
U Q	299	F 312	F 322	329	F 322	F 334	362	364	356	348	332	296	292	285	291	301	305	318	322	332	330	321	304	297
L Q	F 283	F 296	F 302	F 302	307	304	339	338	326	320	306	272	264	270	276	276	279	291	302	305	304	286	286	278

JUN. 2016 M(3000)F2 (0.01)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

JUN. 2016 M(3000)F1 (0.01) 135°E MEAN TIME (G.M.T. + 9 H)

LAT.26°41.0'N LON.128°09.0'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 365	A 388	408		A	A	A	A	A	A						
2								L	A	A	A	A	A	401	A 352	A	A	A	A					
3									A	A	A	A	A	A	A	A	A	A	A					
4								L	U L 386	U L 388	A		A	A	A	A	A	A	A					
5								L	A	A	A	A	A	A	A	A	A	A						
6						A			A	A	A	A	A	A	A	A	A	A						
7									A	A	A	A	A	A	A	A	395	351	L					
8								L	A	A	A	A	A	A	A	A	A	A	U L 354					
9								L	L 399	A	421	401	A	A	A	389	402	A	A					
10								L	L	U L 385	A	A	419	395	A	A	387	358	L 363					
11								A	378	411	A	421	A	399	398	398	366	367	U L 350	L				
12							L	L	387	A	A	A	A	A	A	A	366	373	L 353					
13								L	433	A	A	A	443	A	A	A	371	363	A	A				
14								U L 409	U L 398	L	A	A	A	A	A	A	A	A	A	A				
15							A	A	L 378	A	A	422	A	A	383	A	A	A	A					
16								L	L	A	A	416	438	415	A	389	A	A	U L 358					
17								L	374	407	413	448	A	429	A	402	374	L 350	A					
18								L 348	A 358	A	A	A	A	A	A	A	398	369	A					
19								L	L	A	A	424	A	440	408	355	341	A	A					
20								L 372	390	U L 399	A	385	389	A 372	410	393	398	A	344					
21								L	A	L	L 419	A	A	417	A	402	381	A	A	L				
22								L 408	U L 396	401	A	A	A	432	359	379	A	388	A	L				
23							L		U L 375	A	409	A	406	R 445	426	421	368	369	364	L				
24								401	L	A	A	A	A	A	401	A	382	362	A					
25									L	380	A	A	443	A	A	A	A	A	A					
26								L 361	L 397	397	L	A 376	434	411	A	397	399	368	L 375					
27										411	A	A	A	A	A	A 360	A 363	378	A					
28										A	A	A	A	A	398	396	388	359	A					
29								U L 367	L 378	413	A	A	A	A	A	A	A	380	A	408				
30								L	384	411	442	A	A	A	A	421	A	399	391	L				
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	14	12	7	9	7	11	9	13	16	15	9	1				
MED								L 372	386	400	413	416	434	415	398	396	382	368	L 358	408				
U Q								L 408	L 397	411	421	423	443	432	409	402	396	378	370					
L Q								L 361	378	386	388	393	406	399	371	384	367	359	L 352					

JUN. 2016 M(3000)F1 (0.01)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

JUN. 2016 h'F2 (KM) 135°E MEAN TIME (G.M.T. + 9 H)

LAT.26°41.0'N LON.128°09.0'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										
									446	382	376	334	386	388	354	314	266							
2									A	A	A	A			A									
								236				316	396	388	410		346	298	270					
3											E A	A	A				A		A					
									268	300	352			448	340	300		310						
4												E A	E A				A	A	A					
								230		314	388	414	394	344	316	336								
5									A	A	A	A												
								260			394		372	346	344	314	282	266						
6						A				A	A	A					E A	E A						
									244				376	338	334	306	384	370						
7									A	A	A	A	A	A										
															376	354	308	300	272					
8										A	A	A	A	A	A	A	A	A						
								274	264									294	282					
9														A	A									
								232	238	284	318	336	366	356	434	376	362	330	310					
10																								
								234	242	286	344	366	388	368	358	354	328	308	284					
11											A													
								308	256	234		546	364	386	346	324	292	304	288	236				
12										A	A	A	A	A	A	E A								
							272	244	374							418	334	318	286					
13											E A	A	G	A										
								252	236	344	304				484	438	396	370	286	250				
14												E A	A	A	A	E A	A	A	A	A				
								240	300	316	290	378				428								
15										A									A					
							254	276	256		612	420	516	408	318	342	344	268						
16																								
								246	272	288	322	436	516	502	384	326	320	272	306					
17																								
								268	320	298	298	480	422	378	328	334	388	356	320					
18											A	A	A	A	E A									
								326	418	378					458	440	358	306	274					
19										A	A							E A						
								286	300			384	306	366	432	382	396	364	270					
20											A													
								256	276	312		412	406	444	404	336	314	306	300					
21									A	L		A						A	E A					
								266		288	368		442	390	382	372	352	316	340	288				
22												A	A				E A							
								216	248	298	310			430	346	362	414	306	268	290				
23																								
							204		292	286	326	400	466	388	348	348	344	286	278	228				
24										A	A	A	A											
								234	230					322	342	354	304	312	296					
25												A		A		A								
									262	268	346		330		322		308	282	270					
26											L	G												
								274	224	284	354	518	396	448	338	338	284	258	246					
27													E A											
										320	296	426	470	360	288	306	340	292	260					
28																								
										292	288	376	348	512	360	374	378	334	252					
29									L															
								348	288	338	306	A	438	328	306	316	368	312	268	220				
30													A	A										
								262	274	238	358	462			416	388	306	256	246	264				
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							3	22	22	21	20	17	21	22	27	27	26	28	23	7				
MED							254	258	266	298	330	406	395	386	347	348	336	304	276	250				
U Q							272	274	292	318	363	449	454	430	404	376	368	317	296	288				
L Q							204	236	244	285	305	376	365	356	334	326	308	284	268	228				

IONOSPHERIC DATA STATION Okinawa

JUN. 2016 h'F (KM) 135°E MEAN TIME (G.M.T. + 9 H)

LAT.26°41.0'N LON.128°09.0'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	300	298	Q 310	Q 270	214	196	210	E A 248	A	E A 268	192	178	A	A	A	A	A	A	248	248	E A 356	A 272	A 308	A 320
2	316	Q 282	Q 286	Q 254	236	238	218	A 220	A	A	A	A	A	222	E A 296	A	A	A	A	264	A 278	A	E A 348	A 276
3	274	258	246	Q 226	A 280	270	216	206	A	A	A	A	A	A	A	A	A	A	A	A 314	A 262	240	230	298
4	A 276	Q 300	242	220	E A 272	226	224	212	A 236	208	194	A	A	A	A	A	A	A	A	E A 286	236	236	238	250
5	250	Q 286	Q 266	Q 228	218	220	228	A	A	A	A	A	A	A	A	A	A	A	E A 330	254	E A 284	E A 322	A	E A 336
6	E A 390	E A 328	Q 302	272	188	A	254	A 278	A	A	A	A	E A 318	A	E A 312	E A 298	A	A	A 304	E A 280	252	256	242	270
7	266	258	E A 320	302	A 280	232	232	244	A	A	A	A	A	A	A	A	208	222	H 210	232	250	266	A 312	Q 316
8	Q 318	290	A 290	248	Q 252	262	238	230	A	A	A	A	A	A	A	A	A	A	248	234	208	258	254	284
9	278	276	242	218	198	238	228	216	196	A	186	182	A	A	A	A 234	202	A	A	260	252	260	264	296
10	292	Q 284	Q 280	240	Q 212	220	232	216	210	E A 234	E A 328	A	216	E A 244	A	E A 324	222	200	224	222	214	204	212	242
11	266	286	262	266	246	256	236	A	222	198	A	172	E A 326	206	208	232	236	204	228	224	220	234	254	272
12	292	276	238	286	Q 296	268	240	228	202	A	A	A	A	A	A	A	A 254	220	228	A 282	218	A 236	A 312	A 330
13	284	268	Q 240	210	270	272	228	212	190	A	A	A	178	A	A 226	A	222	232	A	A	220	258	288	E A 324
14	308	280	256	A 230	E A 296	282	222	194	208	A	E A 268	A	A	A	A	A	A	A	A	A	268	254	250	A 304
15	298	A 300	266	250	A	242	A	A	A	A	A	192	E A 280	E A 308	A 250	A	A	A	A	A	A	A 324	A 340	E A 360
16	E A 386	256	236	204	E A 314	264	236	238	A 254	A	A	204	H 168	H 202	A	A 238	A	A	240	228	246	282	304	280
17	Q 330	254	248	A 262	A 272	292	242	230	216	202	194	180	E A 284	186	A	216	258	E A 272	A	272	E A 266	274	A 326	288
18	A 304	A 288	244	284	Q 246	274	228	230	E A 292	A	A	A	A	A	A	A	226	234	A	238	246	290	A 300	Q 306
19	264	262	Q 246	Q 246	Q 254	240	228	220	246	A	A	186	E A 254	194	180	264	E A 288	A	A	248	250	238	282	282
20	Q 276	288	268	E A 300	252	226	224	216	210	224	A	244	232	E A 268	216	226	214	A	E A 284	A 300	256	206	260	302
21	284	274	266	228	228	206	A 240	A	A	196	198	A	A	196	A	204	194	A	A	246	236	228	256	Q 272
22	310	262	214	240	232	Q 230	216	204	178	218	A	A	A	186	258	260	A	222	A	234	234	A 256	E A 276	A 270
23	274	278	Q 262	262	258	248	196	214	226	A	184	E A 252	188	166	192	180	202	206	222	222	240	264	246	294
24	270	Q 268	208	200	294	304	236	212	A	A	A	A	A	A	206	A	200	A 244	A	258	234	E A 264	A	294
25	E A 334	E A 338	264	A 270	258	234	226	A 230	222	232	E A 280	A	174	A	A	A	A	A	A	230	A 262	246	254	250
26	274	278	270	258	222	270	240	H 202	H 210	204	188	E A 260	198	186	A	198	194	248	202	230	248	A 252	A 270	Q 270
27	Q 286	286	220	220	266	278	234	222	200	190	A	A	A	A	A	E A 274	A	206	A	214	E A 250	284	292	304
28	278	Q 260	Q 230	Q 220	Q 252	Q 248	242	218	E A 270	A	A	A	E A 310	A	220	196	198	218	A	216	262	300	282	286
29	294	272	220	202	240	244	222	202	222	192	A	A	A	A	A	A	A	242	A	218	194	A 292	286	274
30	246	252	Q 266	Q 242	Q 228	Q 224	202	218	192	196	H 168	A	A	A	A	196	A	222	202	210	238	216	256	252
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	29	29	26	20	13	11	10	13	12	11	15	15	15	13	27	29	29	28	30
MED	282	277	256	242	249	244	228	218	212	201	190	185	U 200	192	214	U 218	211	222	226	236	243	257	268	284
U Q	308	288	268	266	A 272	270	237	230	A 231	228	E A 268	E A 244	E A 297	E A 233	E A 258	E A 264	236	242	A 266	A 264	A 262	278	A 302	A 304
L Q	274	262	240	220	228	228	222	212	201	196	186	180	183	186	206	198	200	206	216	224	234	237	254	272

JUN. 2016 h'F (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

JUN. 2016 h'E (KM) 135°E MEAN TIME (G.M.T. + 9 H)

LAT.26°41.0'N LON.128°09.0'E SWEEP 1.0MHz TO 30.0MHz IN 15.0SEC IN MANUAL SCALING

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1						B	122	110	108	A	A	108	110	110	108	106	106	A	A	A				
2						B	124	108	108	118	108	112	112	A	110	A	A	A	A	A				
3						A	A	A	A	A	A	A	A	A	A	A	A	A	A	A				
4						A	A	108	108	A	A	A	A	A	108	122	108	106	A	A				
5						B	A	108	A	A	A	A	A	A	A	A	A	A	A	A				
6						A	118	106	104	104	104	104	106	110	112	108	106	106	110	A				
7						A	A	110	106	A	A	A	A	A	A	A	A	A	112	A				
8						B	A	112	112	108	A	A	A	A	A	A	A	A	A	112				
9						B	A	108	A	A	A	A	A	A	A	108	108	A	A	A				
10						B	134	110	108	A	A	A	A	A	A	A	A	A	A	A				
11						B	A	108	A	A	A	A	A	A	A	A	A	A	A	A				
12						B	A	110	110	108	A	112	108	A	108	A	A	A	108	A				
13						B	142	A	A	A	A	A	A	A	A	A	108	108	108	A				
14						B	124	106	A	A	106	108	A	108	108	A	A	A	A	A				
15						A	A	A	A	A	A	A	A	110	110	A	108	108	108					
16						B	132	108	108	A	A	108	A	A	A	108	108	112	112	A				
17						B	136	108	A	108	108	A	A	110	112	112	108	A	A	A				
18						A	A	108	108	110	110	110	110	110	A	A	110	106	A	A				
19						B	A	A	108	108	108	A	A	108	108	108	108	108	106	A				
20						B	A	114	A	A	108	108	108	108	108	106	106	106	106	A				
21						B	A	106	106	106	108	A	A	A	A	A	A	108	108	A				
22						B	118	108	A	A	A	A	A	110	110	108	108	108	A	A				
23						B	A	A	A	A	108	108	108	A	A	A	A	110	110	B				
24						B	A	108	114	108	108	108	108	108	110	108	108	112	114	A				
25						B	A	106	106	A	106	108		A	A	A	A	A	A	A				
26						B	A	108	106	A	A	A	A	A	A	A	A	A	A	A				
27						B	122	A	A	106	A	106	106	A	A	A	A	A	110	A				
28						B	A	108	108	108	108	108	108	106	106	A	A	A	A	A				
29						B	A	106	106	A	A	A	A	A	A	A	A	A	A	A				
30							A	110	A	108	108	106	A	A	A	A	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							10	24	17	12	13	14	10	11	13	10	13	12	12	1				
MED							124	108	108	108	108	108	108	110	108	108	108	108	109	112				
U Q							134	110	108	108	108	108	110	110	110	108	108	109	111					
L Q							122	108	106	107	107	108	108	108	108	108	107	106	108					

IONOSPHERIC DATA STATION Okinawa

JUN. 2016 h'Es (KM) 135°E MEAN TIME (G.M.T. + 9 H)

LAT.26°41.0'N LON.128°09.0'E SWEEP 1.0MHz TO 30.0MHz IN 15.0SEC IN MANUAL SCALING

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	102	100	100	110	92	B	124	118	110	106	122	G	110	112	106	104	102	102	100	98	98	98	98	96
2	96	92	92	92	102	92	98	126	114	116	114	114	110	116	120	106	104	124	104	104	98	102	102	100
3	106	106	104	108	104	104	100	104	102	104	126	102	104	104	100	120	118	118	112	108	94	94	92	108
4	104	104	100	98	96	98	102	114	114	114	102	102	102	104	104	112	110	110	110	108	104	104	102	102
5	98	98	100	90	B	104	118	112	108	106	104	100	102	102	116	100	100	116	108	106	106	106	106	106
6	104	104	104	102	104	128	122	114	114	108	110	108	114	114	164	142	110	112	110	106	124	106	100	100
7	102	96	96	100	98	108	116	116	112	108	104	110	98	102	104	102	102	98	120	94	102	102	100	100
8	100	98	98	94	92	92	120	116	114	112	106	106	102	104	104	106	106	106	100	100	98	96	96	94
9	94	B	B	92	92	B	166	122	118	108	110	110	106	104	104	108	G	100	126	96	96	96	94	92
10	92	92	92	92	102	104	128	122	118	108	104	104	108	108	104	104	106	106	106	102	98	98	98	98
11	96	92	92	92	92	B	148	108	110	110	102	110	102	104	104	102	104	104	112	110	106	106	96	96
12	96	B	B	B	96	B	122	118	132	112	108	106	106	102	104	104	104	102	98	94	106	92	92	94
13	94	108	108	108	106	102	138	146	108	100	100	100	110	100	106	104	132	120	116	108	106	104	104	106
14	106	106	102	100	92	96	G	G	156	118	114	112	106	108	106	102	102	102	98	94	94	94	92	110
15	110	106	106	108	106	102	110	110	102	100	102	104	152	164	146	130	120	116	112	110	106	112	112	114
16	104	104	104	104	102	90	130	122	122	122	104	128	108	106	178	142	128	116	114	112	98	110	110	136
17	104	104	132	100	100	102	104	136	132	126	136	156	180	G	168	170	162	132	104	96	94	94	106	106
18	106	100	100	102	92	100	100	130	122	120	116	114	110	110	132	106	116	98	96	126	118	118	92	120
19	104	100	94	94	94	104	122	128	118	116	112	118	112	118	G	146	124	118	112	108	108	106	114	102
20	100	110	104	104	102	100	104	102	104	124	118	134	132	128	122	132	130	116	116	114	108	108	108	108
21	108	108	90	106	106	106	124	122	112	112	114	100	100	102	100	106	106	110	104	148	102	102	98	96
22	96	96	96	100	104	B	140	108	108	108	104	102	102	122	G	110	108	110	108	98	108	96	94	94
23	94	92	106	106	100	118	130	100	110	116	120	122	G	106	104	104	122	126	114	B	108	108	102	102
24	102	96	96	96	98	B	130	118	116	110	108	106	102	104	116	168	164	136	118	108	146	120	104	96
25	96	92	92	100	100	94	114	108	170	110	108	106	104	102	102	102	104	104	100	100	100	96	98	112
26	92	92	92	98	B	124	134	G	102	104	108	104	104	110	106	108	108	104	98	138	96	96	96	96
27	92	92	92	92	92	B	96	132	104	104	116	112	108	108	112	104	112	118	114	102	116	136	108	108
28	108	102	102	102	98	94	104	126	120	116	112	110	118	114	116	112	114	100	100	96	96	96	96	94
29	90	90	92	90	106	B	134	138	110	106	106	102	102	104	102	100	100	100	100	98	96	96	94	B
30	94	108	B	108	98	98	128	124	128	126	136	118	104	100	100	104	100	98	96	96	94	94	94	94
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	27	29	28	22	29	28	30	30	30	29	29	29	28	30	29	30	30	29	30	30	30	29
MED	100	100	100	100	99	102	122	118	114	110	109	108	106	106	106	106	108	110	108	104	102	102	98	100
U Q	104	105	104	105	103	104	130	126	120	116	116	114	110	113	118	120	121	118	114	109	108	106	104	108
L Q	94	92	92	93	93	96	104	111	108	106	104	103	102	103	104	104	104	102	100	97	96	96	94	96

IONOSPHERIC DATA STATION Okinawa

JUN. 2016 TYPES OF Es 135°E MEAN TIME (G.M.T. + 9 H)

LAT.26°41.0'N LON.128°09.0'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	FF 23	F 3	FF 23	FF 12	F 1		C 1	C 5	C 5	CQ 21	CQ 11		C 1	C 2	C 2	L 2	L 5	L 5	L 7	L 9	F 9	F 4	F 5	F 7
2	F 3	F 3	F 2	FQ 21	F 2	L 1	L 1	C 2	C 2	CL 31	C 5	C 2	C 2	C 1	C 1	C 5	L 6	CLQ 23	LQ 71	L 8	FQ 51	FQ 61	FQ 51	FQ 51
3	FF 23	F 3	FQ 11	FQ 11	FQ 71	LQ 51	L 6	LH 21	L 2	LH 22	CL 13	LC 21	LC 21	LC 21	C 2	CL 22	CL 72	CL 52	CL 55	CL 87	F 5	F 5	F 2	FF 22
4	FQ 61	FQ 51	FQ 21	F 2	F 2	L 3	L 4	C 2	C 2	C 1	L 2	LQ 21	L 4	L 2	L 2	CL 21	C 6	C 8	C 8	C 9	F 3	F 2	F 3	F 1
5	F 3	F 2	FF 12	F 1		L 1	C 2	C 5	C 7	CQ 51	LQ 21	L 4	LQ 21	LQ 21	CLQ 23	LQ 41	LCQ 31	CL 41	C 5	LQ 81	F 4	F 4	F 7	F 9
6	F 9	F 5	FQ 41	FQ 31	FQ 31	CL 25	C 7	C 6	C 3	C 7	C 4	C 3	C 2	C 1	H 1	H 1	C 2	C 7	C 4	C 6	FF 24	F 9	F 4	F 2
7	F 4	F 5	F 5	F 5	FQ 31	CL 24	C 6	C 5	C 4	C 4	LQ 51	CL 13	LQ 31	L 2	LQ 21	L 3	L 2	L 1	CL 11	LC 21	F 3	FQ 31	FQ 41	FFQ 33
8	FQ 51	FQ 21	F 3	F 2	F 2	L 2	CL 31	CL 21	CL 21	C 4	C 5	CQ 31	LQ 21	LQ 41	L 5	C 4	C 4	C 8	LQ 51	L 1	F 6	F 5	F 2	F 2
9	F 1			F 2	F 2		H 1	C 1	C 2	C 3	C 1	C 1	C 2	L 2	L 2	C 1		L 3	CL 26	L 6	FQ 51	FQ 51	FQ 61	F 6
10	FQ 51	FQ 51	FQ 51	FQ 21	F 4	LH 11	C 2	C 1	C 1	C 2	L 2	L 2	C 2	C 1	L 2	L 2	C 1	C 1	C 1	L 1	F 2	F 1	F 2	F 3
11	F 2	F 1	F 2	F 2	F 4		HC 22	C 4	CH 11	C 1	L 2	CQ 11	LQ 11	L 1	LQ 11	LQ 21	L 1	L 1	CL 33	CL 43	FF 41	FQ 21	F 1	F 1
12	F 1				F 1		C 2	C 1	H 1	C 3	C 3	C 1	C 2	LQ 31	L 2	L 2	L 1	L 1	L 2	L 6	FF 12	F 5	F 4	F 2
13	F 1	FF 22	FF 11	F 4	F 3	L 2	HC 21	HC 12	C 1	L 3	L 3	L 2	C 1	L 1	L 1	L 1	H 1	C 1	C 4	C 2	F 2	FF 11	F 1	F 2
14	F 9	F 5	F 3	F 3	F 1	L 1			HL 12	CL 11	C 2	C 1	C 3	C 3	C 4	L 4	L 6	LQ 61	LQ 51	LQ 71	F 5	F 5	F 1	F 2
15	FF 21	F 6	F 2	F 3	FQ 41	LQ 61	CL 32	CL 13	LQ 31	LQ 31	LQ 21	L 1	HC 11	H 1	H 1	HL 11	C 2	CL 21	CL 61	FF 83	FF 91	FF 31	FFF 32	FF 26
16	F 4	F 6	F 3	F 4	F 3	L 1	H 2	C 2	C 1	CL 11	LCH 11	H 1	C 1	C 1	H 1	H 1	C 1	CL 21	C 3	CL 11	F 1	F 3	F 5	FF 21
17	FQ 31	F 3	FF 23	F 5	F 8	L 3	L 1	HL 11	HL 11	CL 11	HL 11	HL 11	HL 11		H 1	H 1	H 1	HL 12	L 4	LQ 51	F 6	FQ 31	FF 72	FF 42
18	FQ 31	FQ 51	FQ 31	FF 23	F 2	L 7	LHH 22	H 2	CL 21	C 2	C 3	C 3	C 4	C 4	HCH 22	C 2	CH 11	LH 32	L 3	CL 12	FF 13	FF 55	F 3	F 2
19	F 2	F 3	F 3	FQ 21	F 2	L 1	C 2	CL 21	C 3	C 4	C 3	CQ 21	CQ 21	C 1		H 1	C 2	CL 31	CL 41	C 4	F 7	F 9	F 4	FF 22
20	FQ 21	FF 14	F 4	F 5	F 3	L 1	L 2	L 2	LQ 11	C 1	C 2	H 1	H 1	C 1	C 1	H 1	C 1	C 5	CL 32	CL 81	F 7	FQ 61	FQ 21	F 3
21	FF 22	FF 22	FQ 21	F 2	FQ 21	C 1	C 3	C 3	C 6	C 2	CH 11	L 4	LQ 21	L 1	L 2	L 1	C 1	C 2	L 5	HL 13	F 7	F 6	F 4	F 6
22	F 5	F 2	F 2	F 1	F 1		H 1	C 2	C 1	C 2	L 4	L 3	L 2	C 1		C 1	C 2	C 1	CL 21	LC 22	FF 23	F 6	F 7	F 4
23	F 2	F 2	F 1	F 2	F 2	C 1	H 1	LQ 21	CQ 21	C 2	C 1	C 1		C 1	L 1	L 1	CL 11	CL 12	CL 11		FF 11	F 2	F 2	F 4
24	F 1	FQ 21	F 1	F 1	FF 21		H 2	C 1	CL 21	C 5	C 4	C 2	C 3	L 2	C 1	H 1	H 1	HL 21	CL 71	C 8	FF 18	FF 14	FQ 71	F 7
25	F 8	F 6	F 5	F 3	FF 32	L 2	C 3	C 4	H 1	C 1	C 1	C 3	L 1	L 4	L 4	L 7	L 7	LQ 61	L 4	L 3	F 3	F 2	F 2	FF 12
26	F 1	F 1	F 2	F 1		C 1	H 1		L 1	LQ 21	CQ 11	CQ 21	CQ 21	CQ 11	CQ 11	CQ 11	C 1	LH 11	L 2	HL 12	F 5	F 8	F 8	F 4
27	F 2	F 5	F 3	F 1	F 1		L 1	H 1	LQ 11	LH 11	CL 11	C 2	C 2	C 2	C 1	L 2	CL 21	CL 11	CL 22	LCH 12	FF 52	FF 12	FF 22	F 2
28	F 4	F 2	F 2	F 2	F 2	L 1	L 2	CL 11	C 2	C 2	C 1	C 1	C 1	C 2	C 1	C 1	C 1	L 2	L 5	L 5	F 6	F 5	F 6	F 4
29	F 3	F 5	F 1	F 2	F 1		H 1	H 1	C 2	C 1	C 2	L 5	L 2	L 2	L 2	L 2	L 2	L 2	L 4	L 2	F 3	F 4	F 4	
30	F 1	F 1		F 3	F 3	F 2	CL 21	C 1	C 1	C 1	H 1	C 1	LQ 41	LQ 31	L 2	L 1	L 2	LQ 31	LQ 41	LQ 21	FQ 11	F 1	F 4	F 1
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																								

JUN. 2016 TYPES OF Es

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

f-PLOTS OF IONOSPHERIC DATA

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

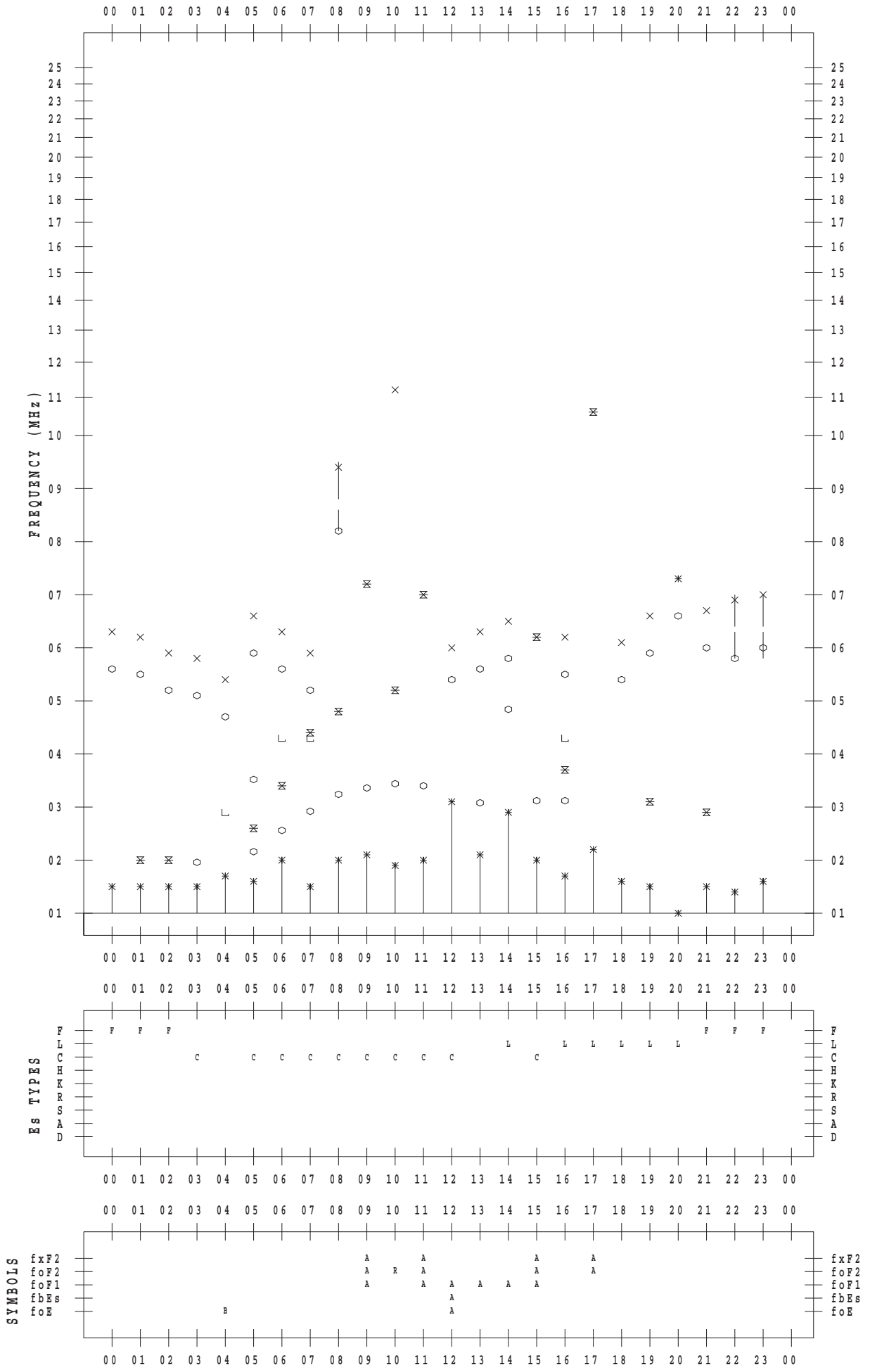
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2016/ 6/ 1

135 °E MEAN TIME



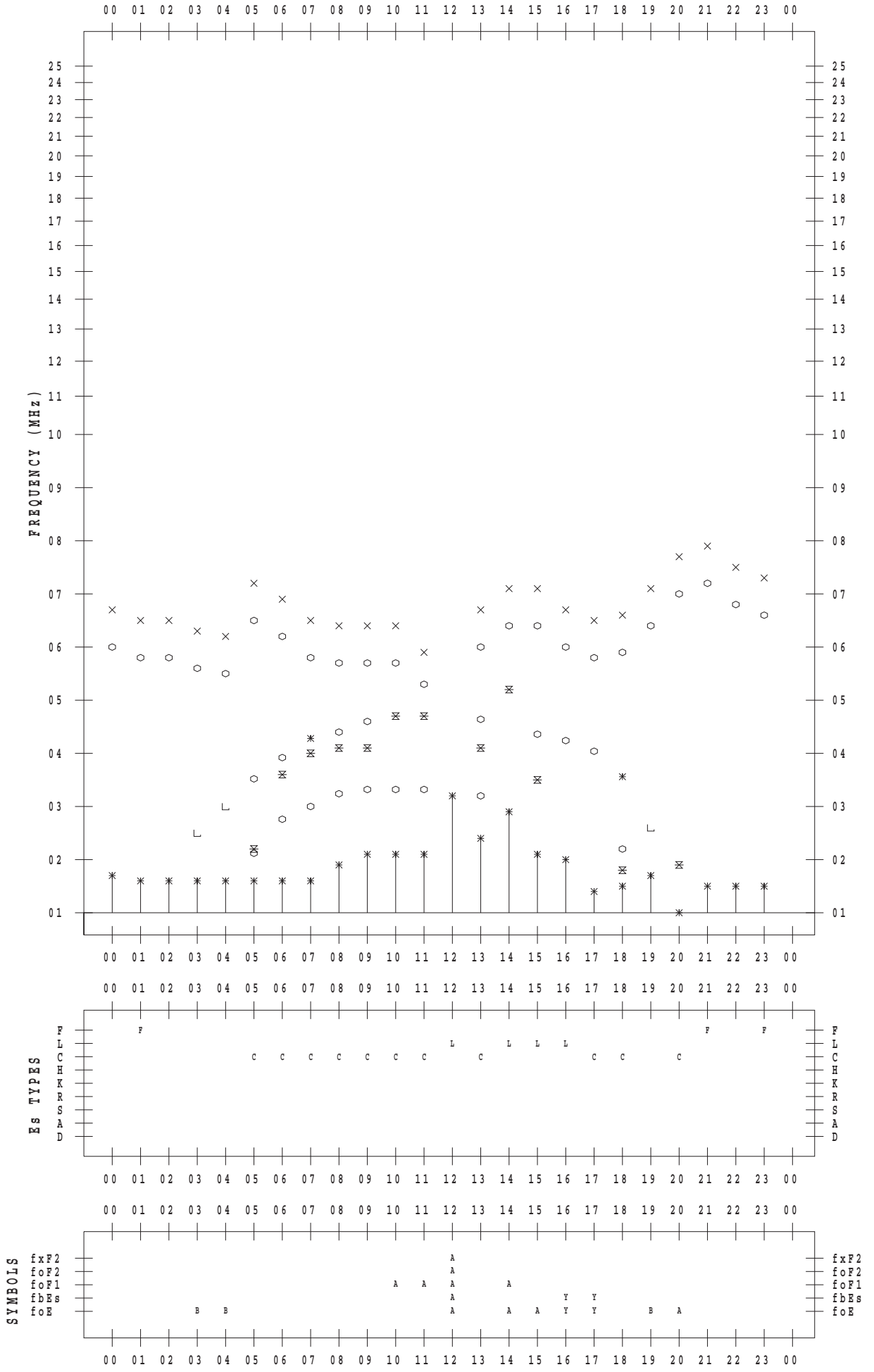
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2016/ 6/ 2

135 °E MEAN TIME



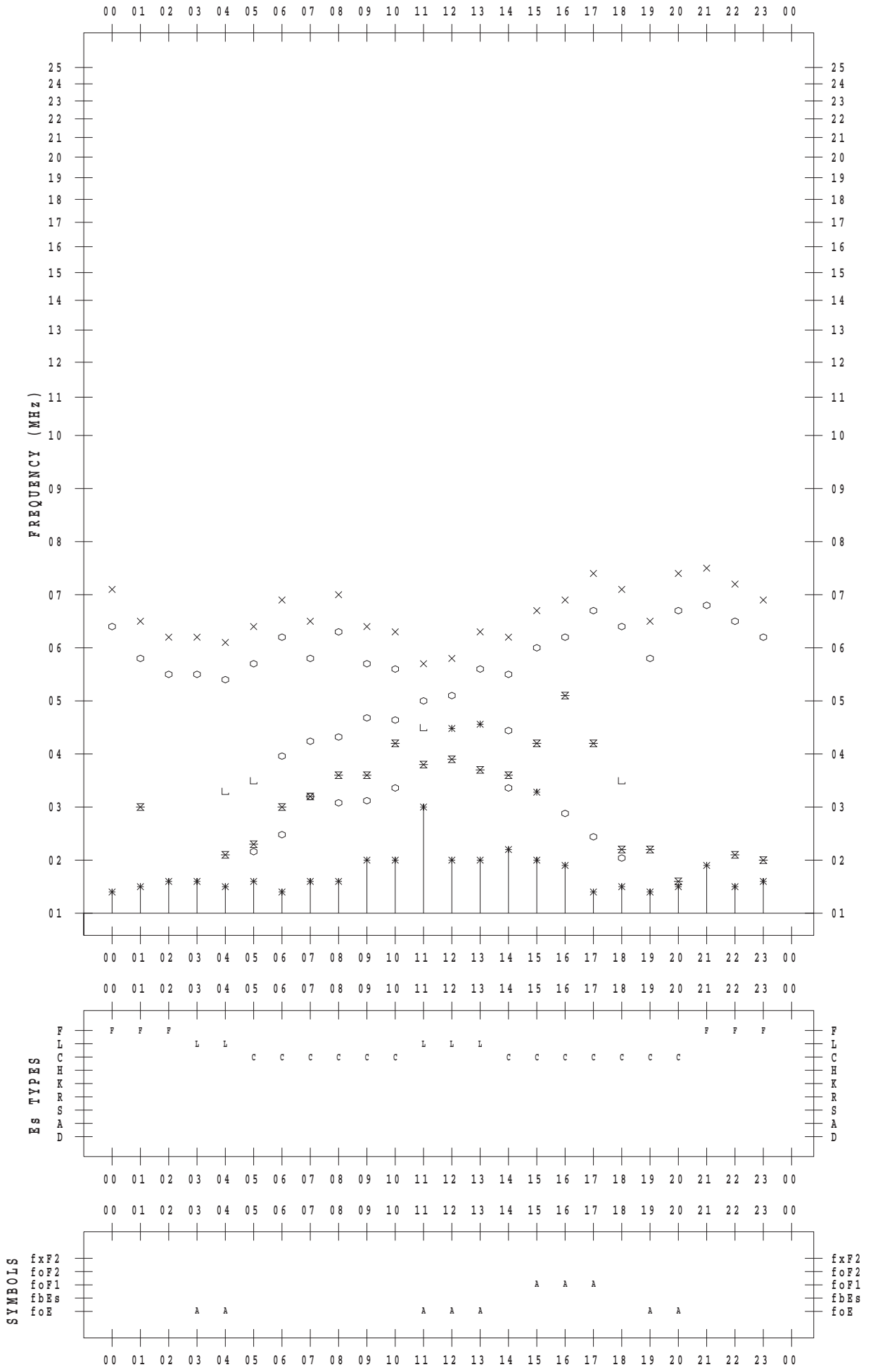
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2016/ 6/ 3

135 °E MEAN TIME



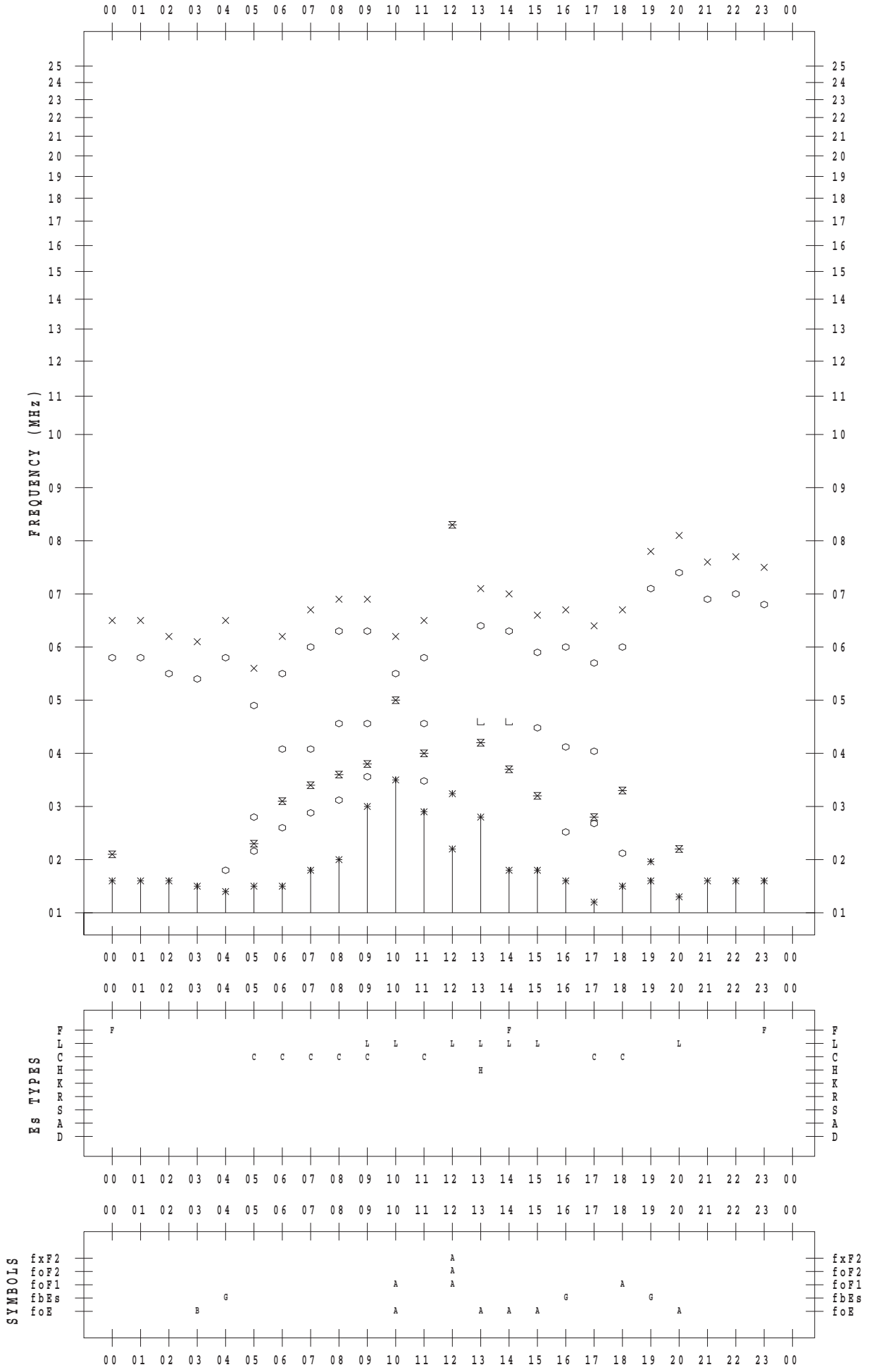
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2016/ 6/ 4

135 °E MEAN TIME



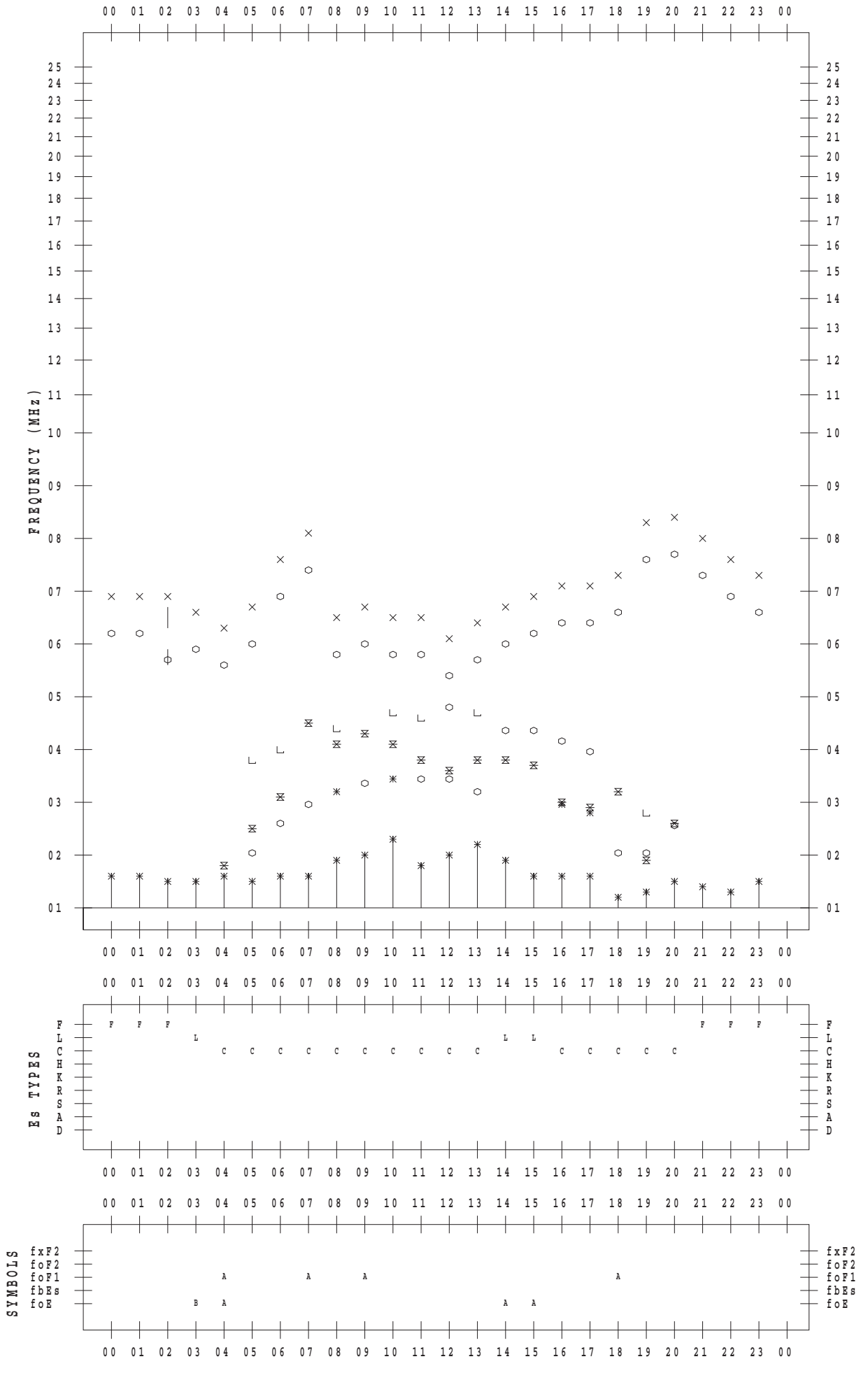
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2016/ 6/ 5

135 °E MEAN TIME



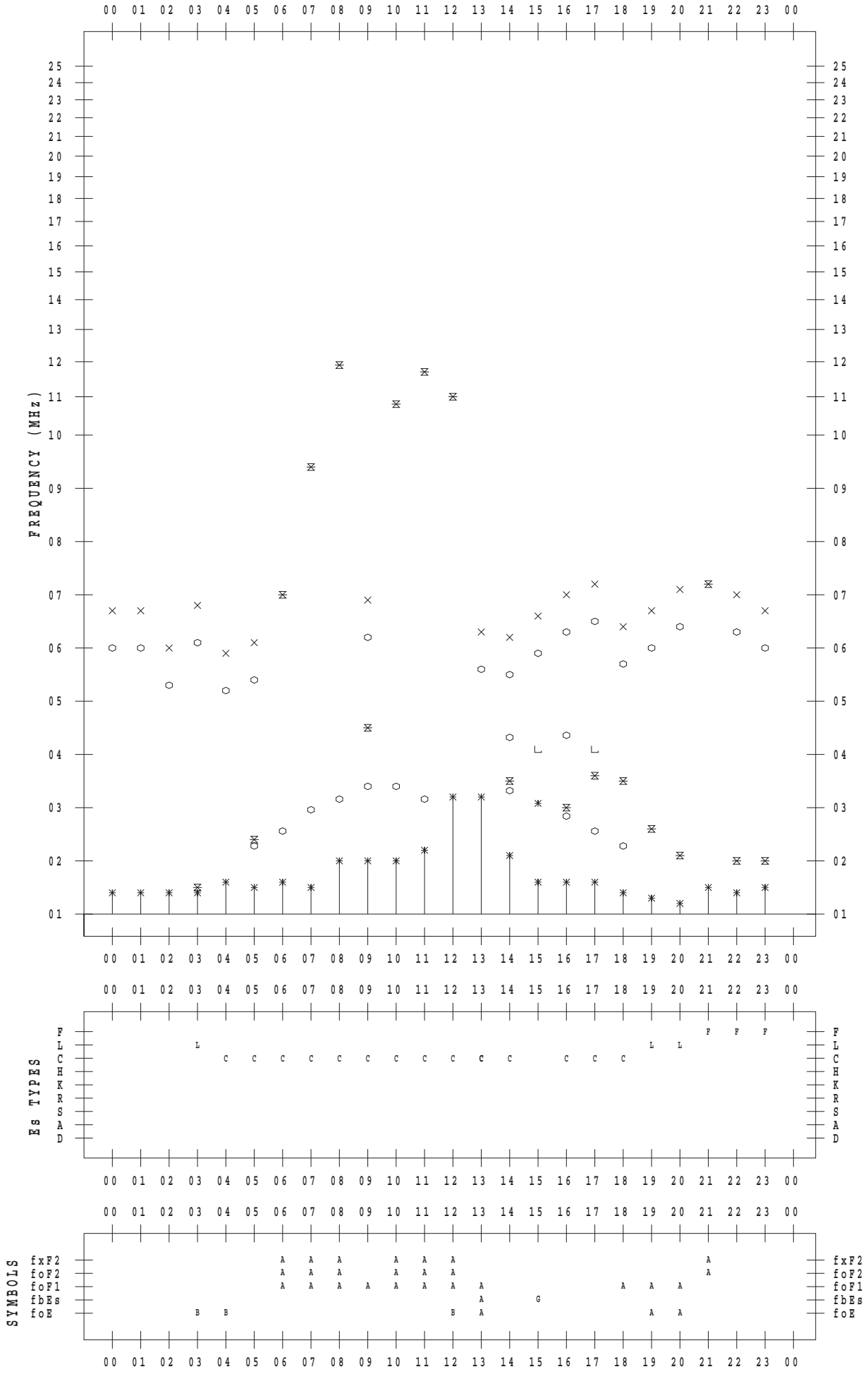
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2016/ 6/ 6

135 °E MEAN TIME



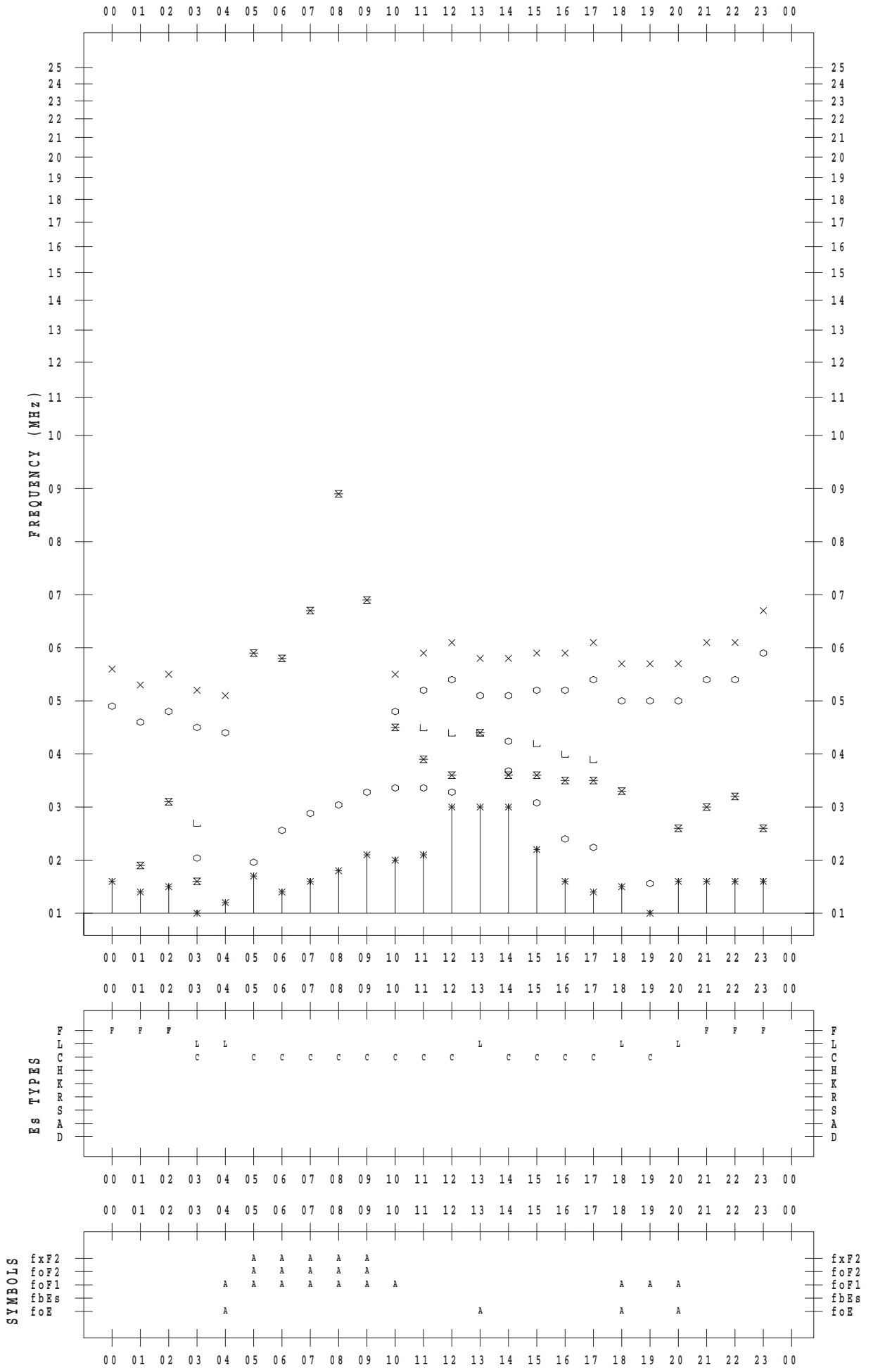
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2016/ 6/ 7

135 °E MEAN TIME



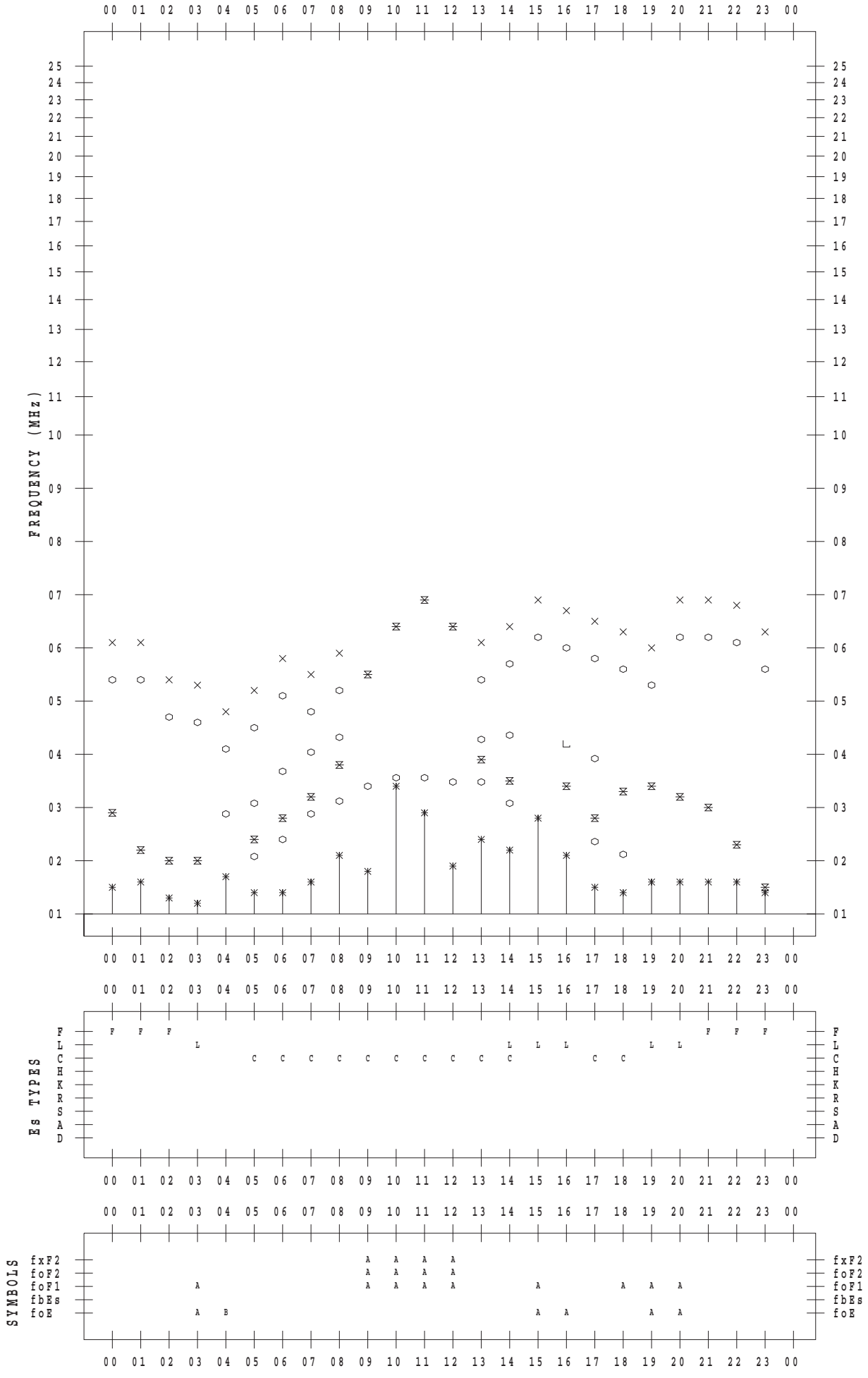
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2016/ 6/ 8

135 °E MEAN TIME



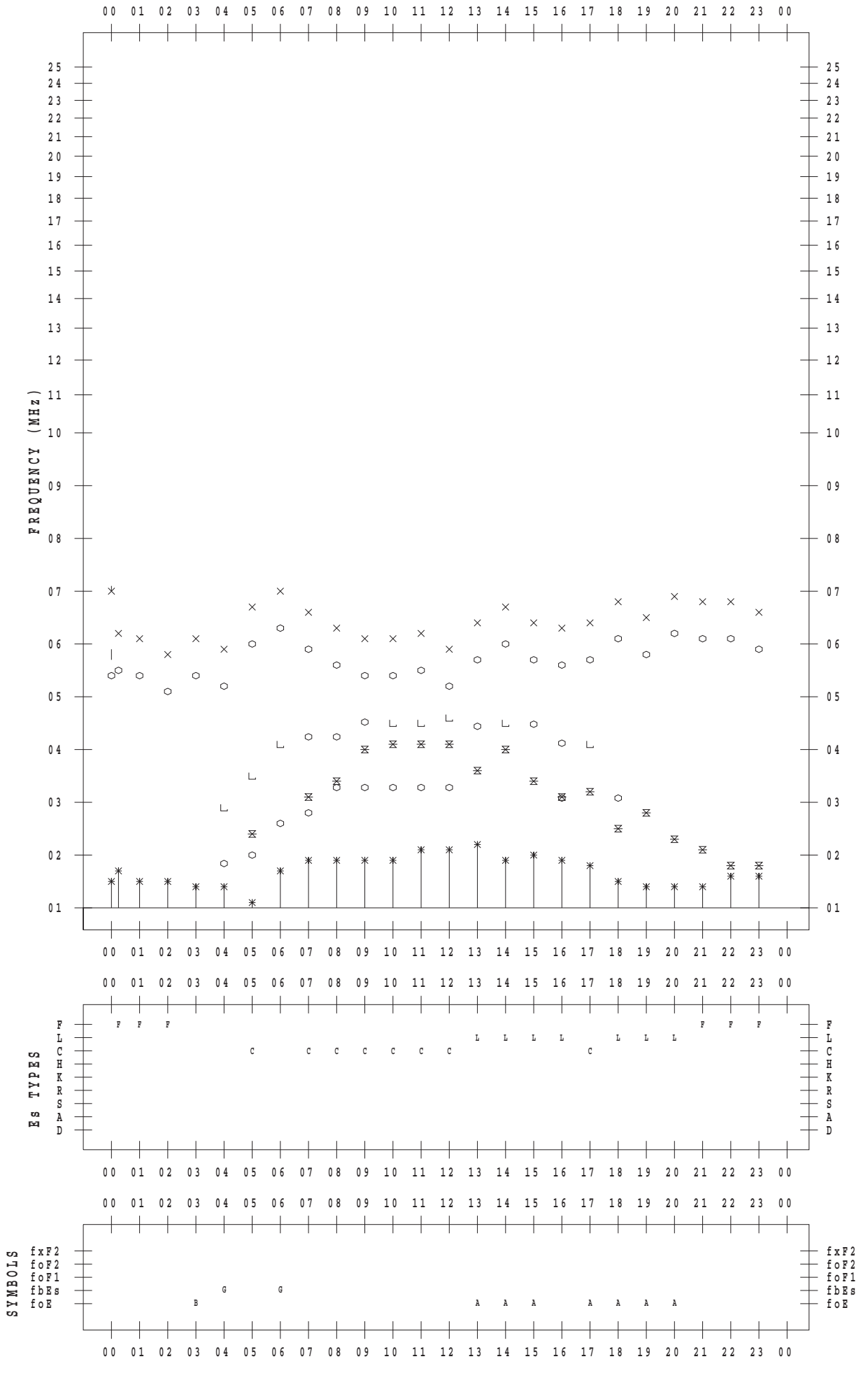
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2016/ 6/ 9

135 °E MEAN TIME



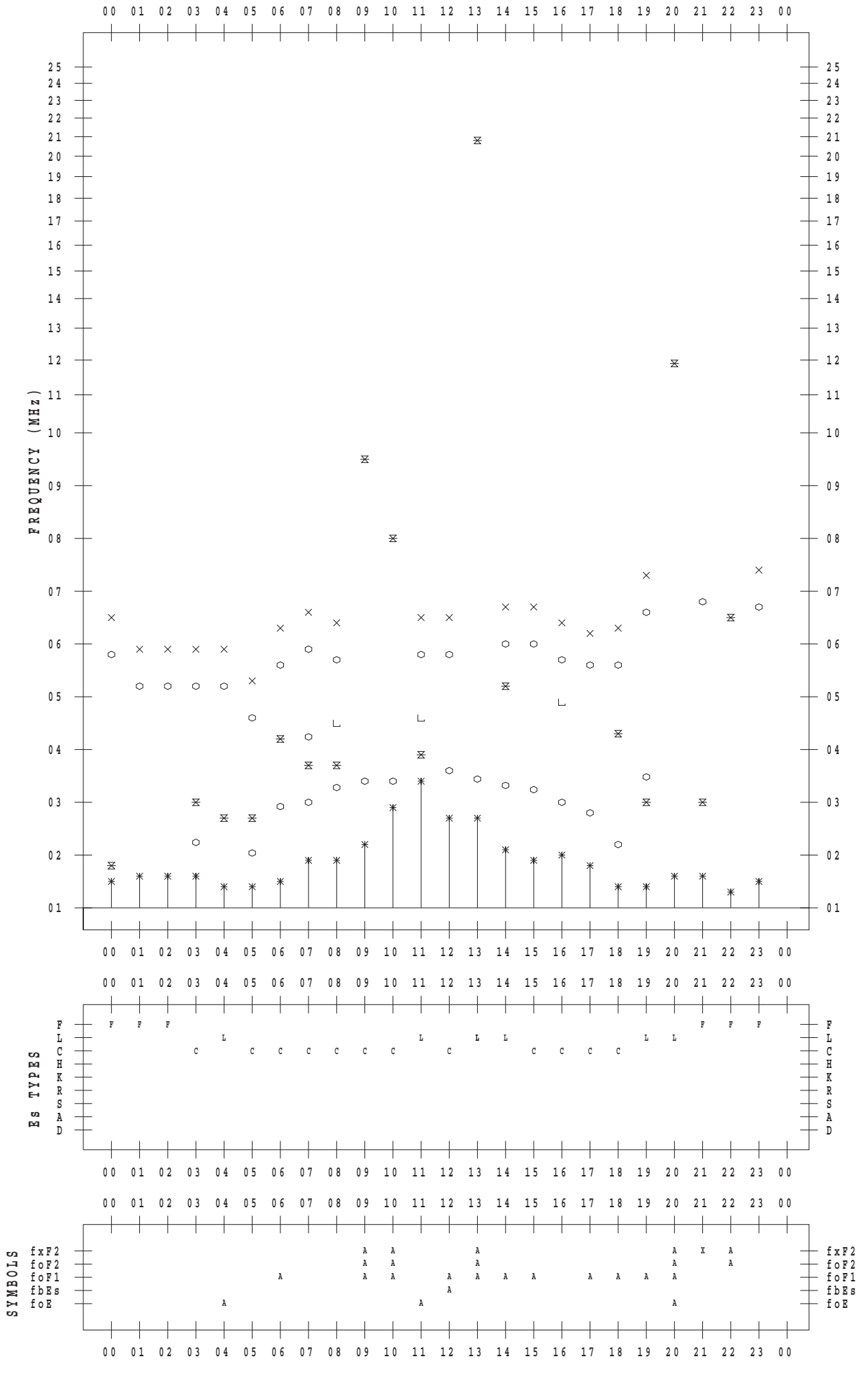
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2016/ 6/10

135 °E MEAN TIME



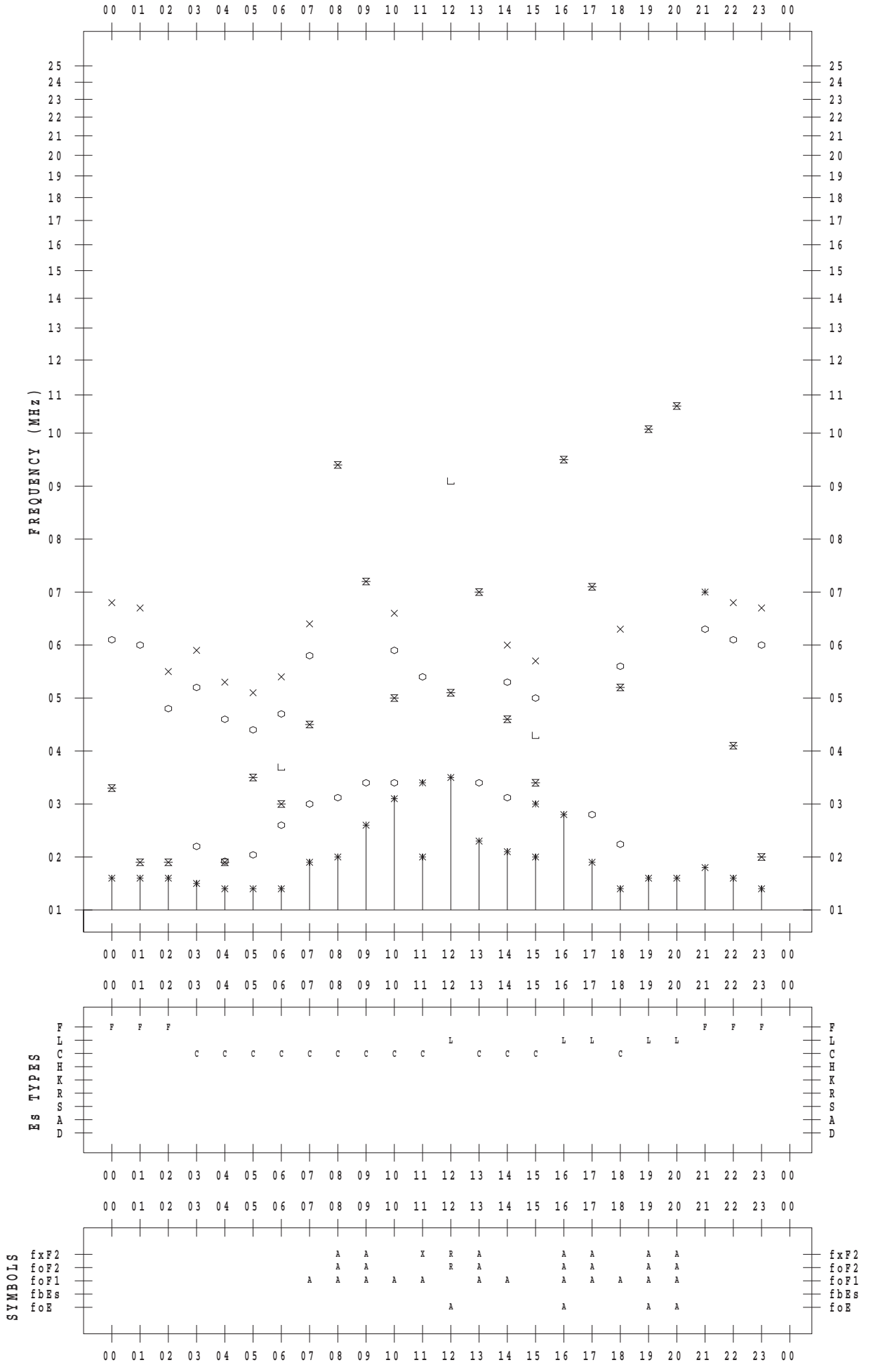
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2016/ 6/11

135 °E MEAN TIME



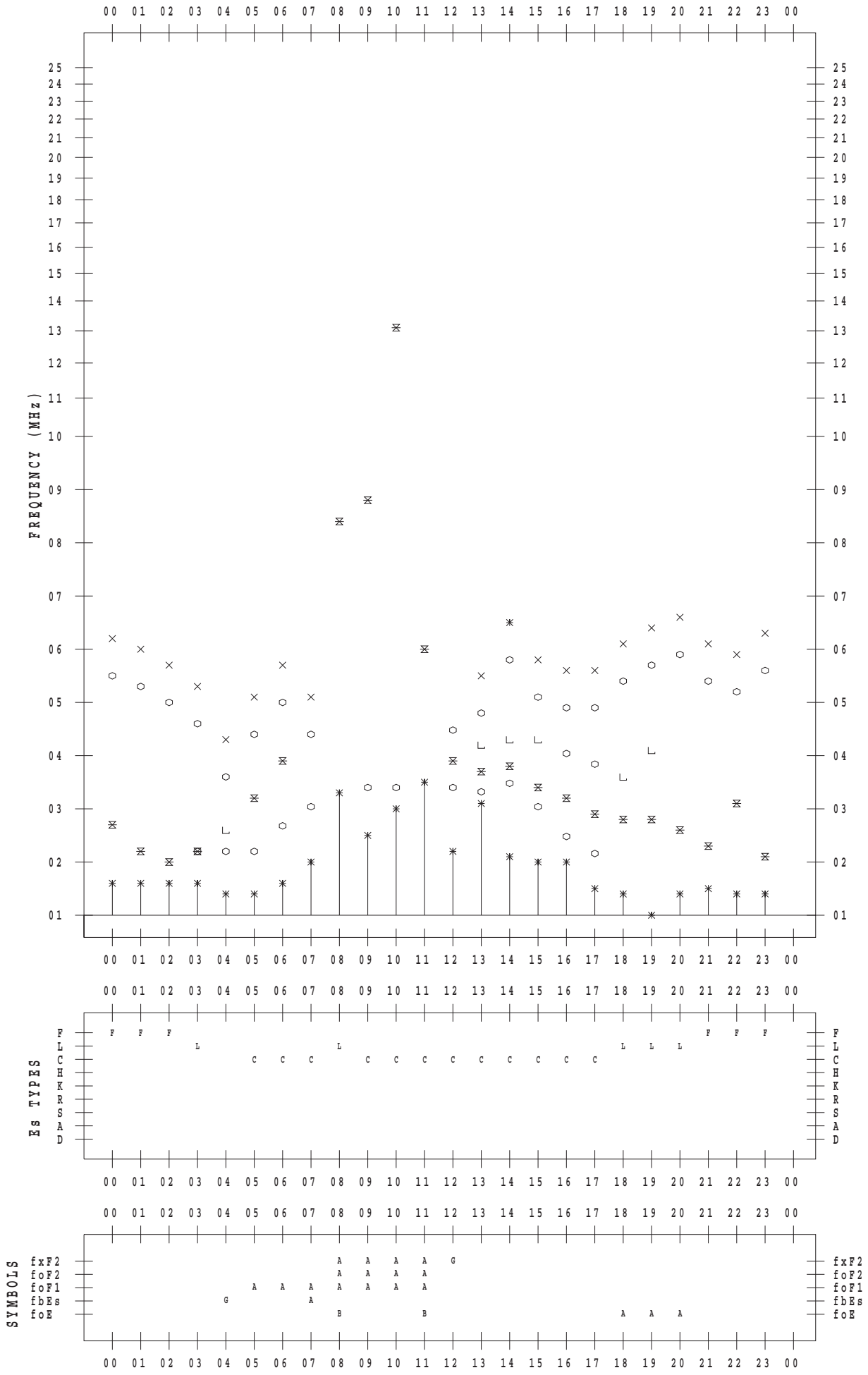
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2016/ 6/12

135 °E MEAN TIME



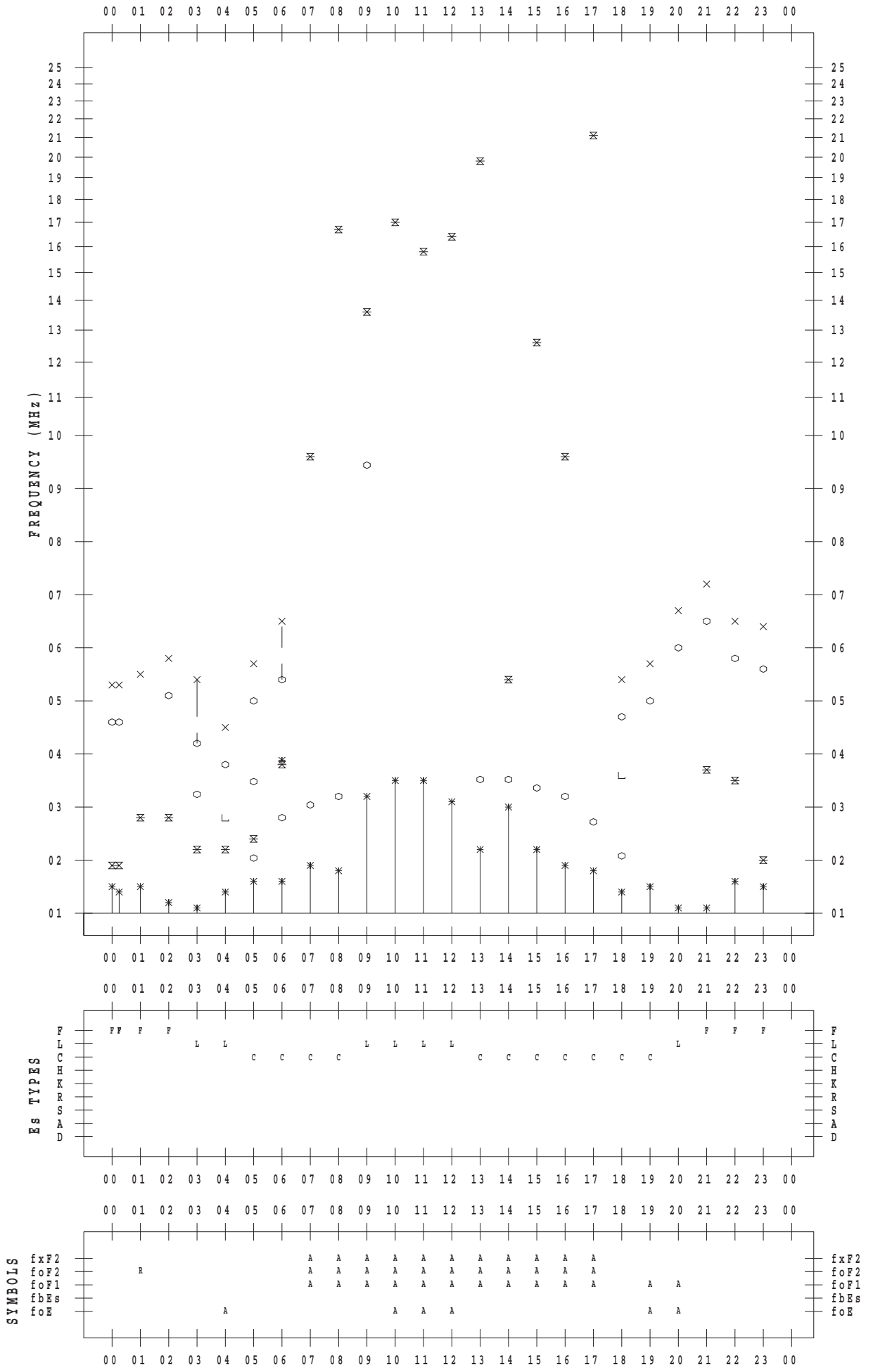
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2016/ 6/13

135 °E MEAN TIME



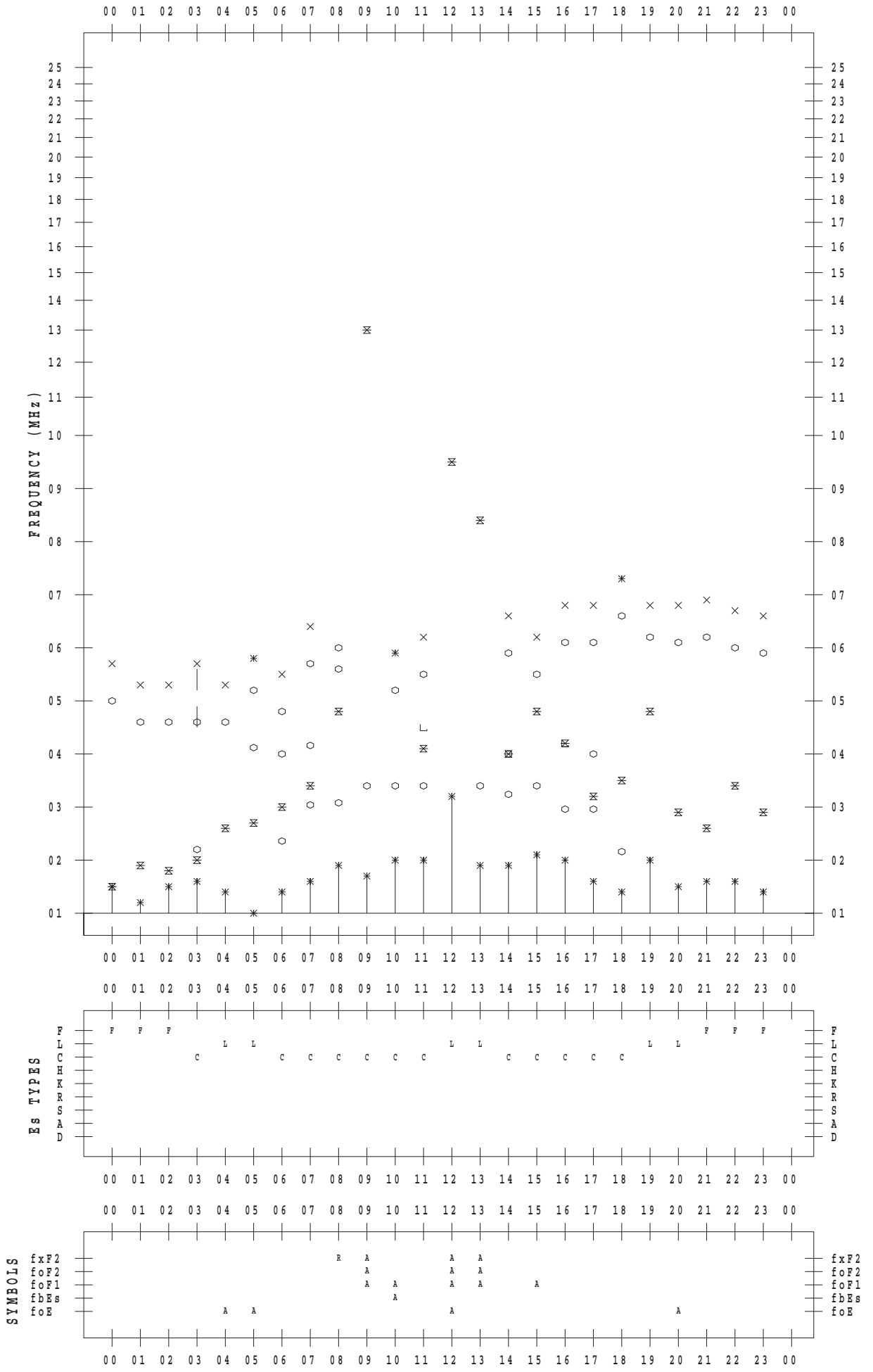
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2016/ 6/14

135 °E MEAN TIME



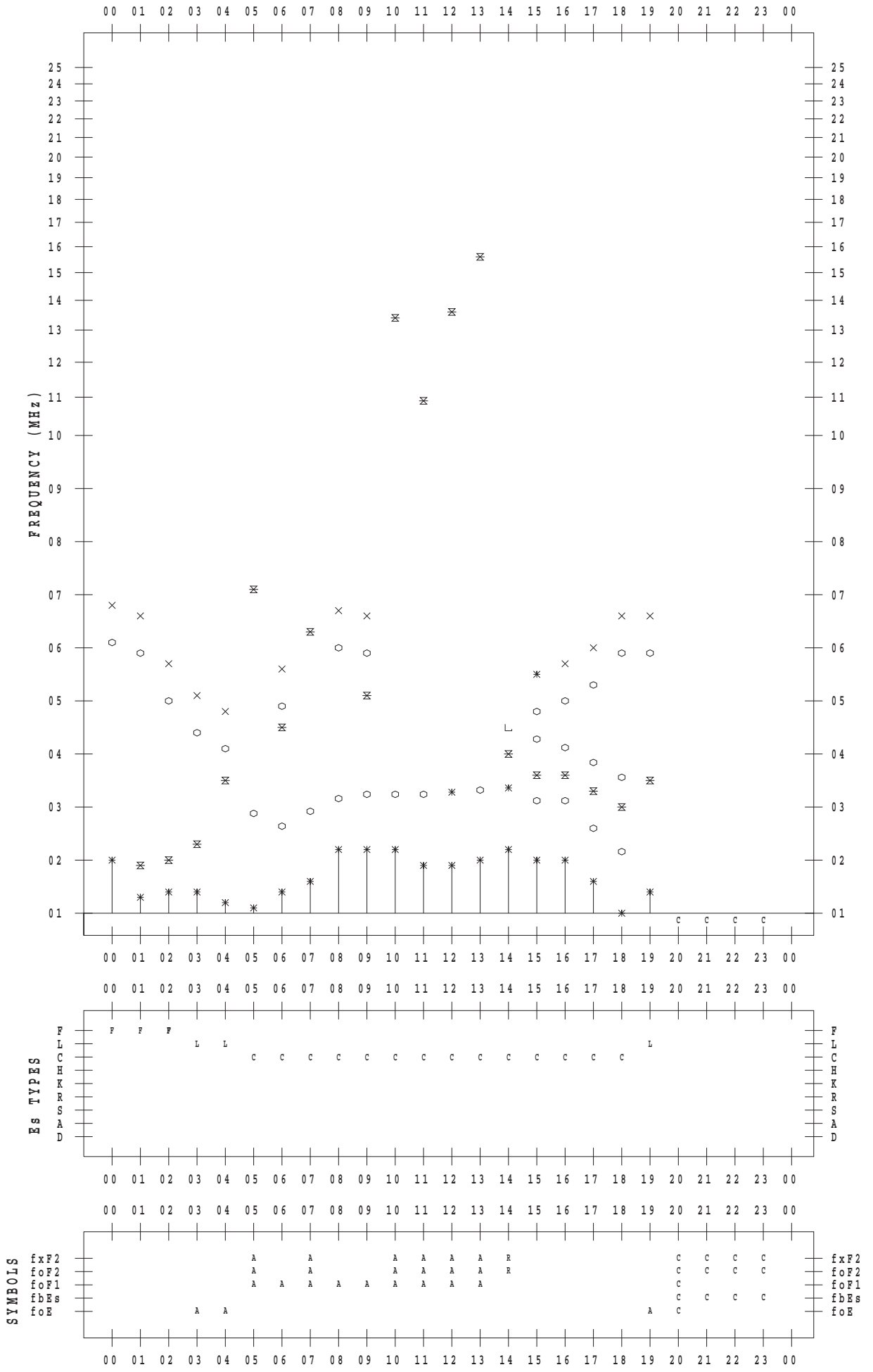
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2016/ 6/15

135 °E MEAN TIME



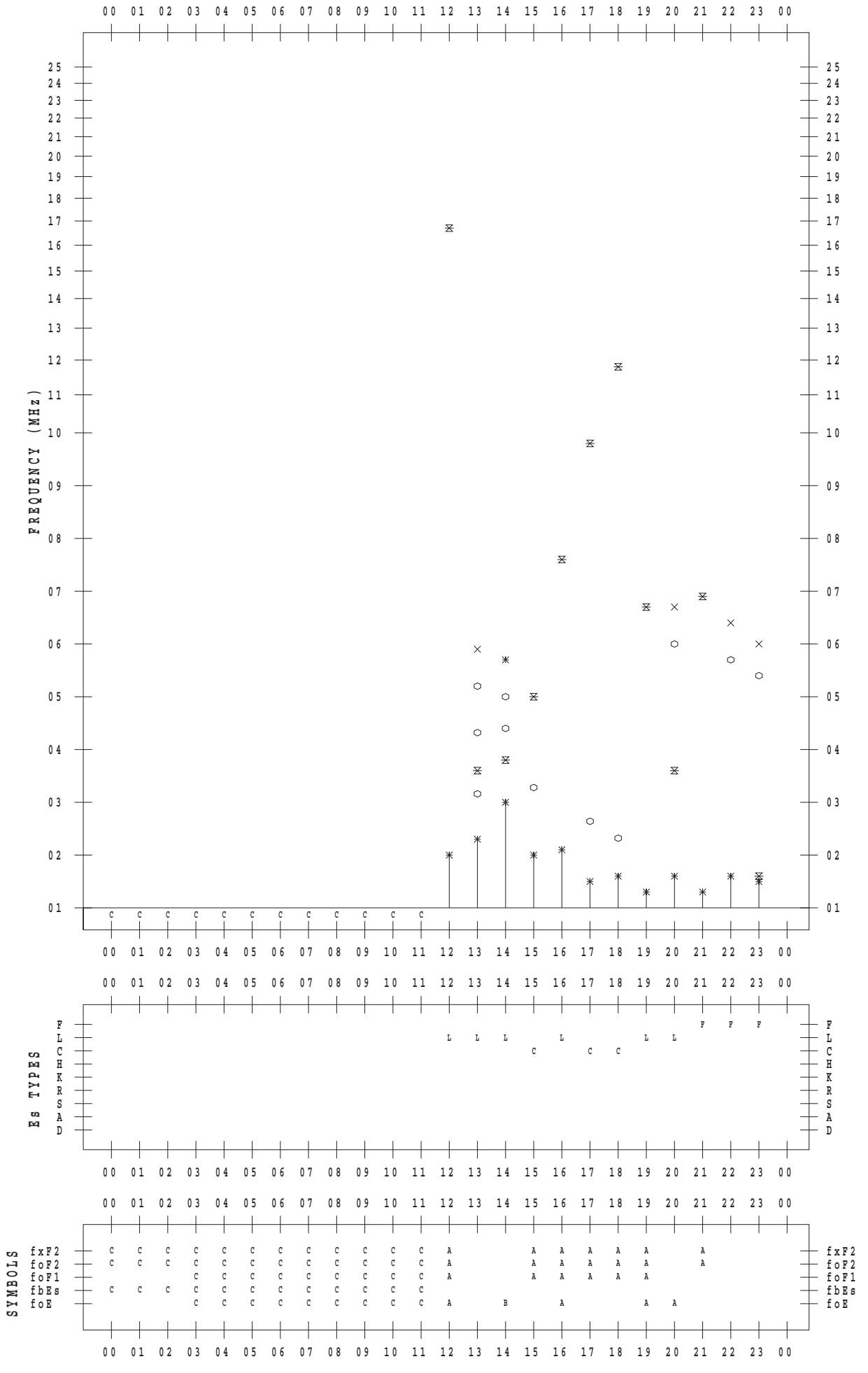
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2016/ 6/16

135 °E MEAN TIME



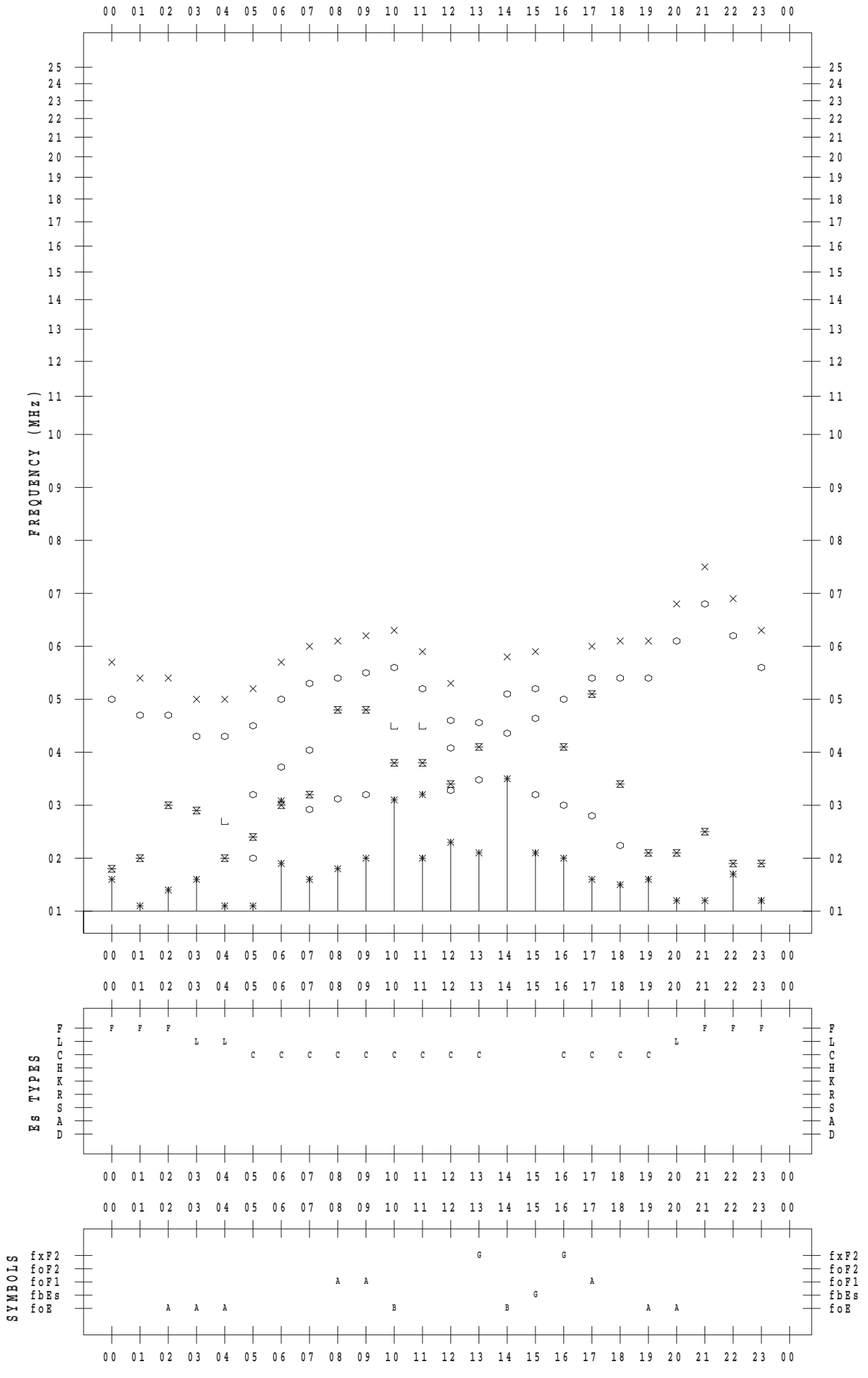
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2016/ 6/17

135 °E MEAN TIME



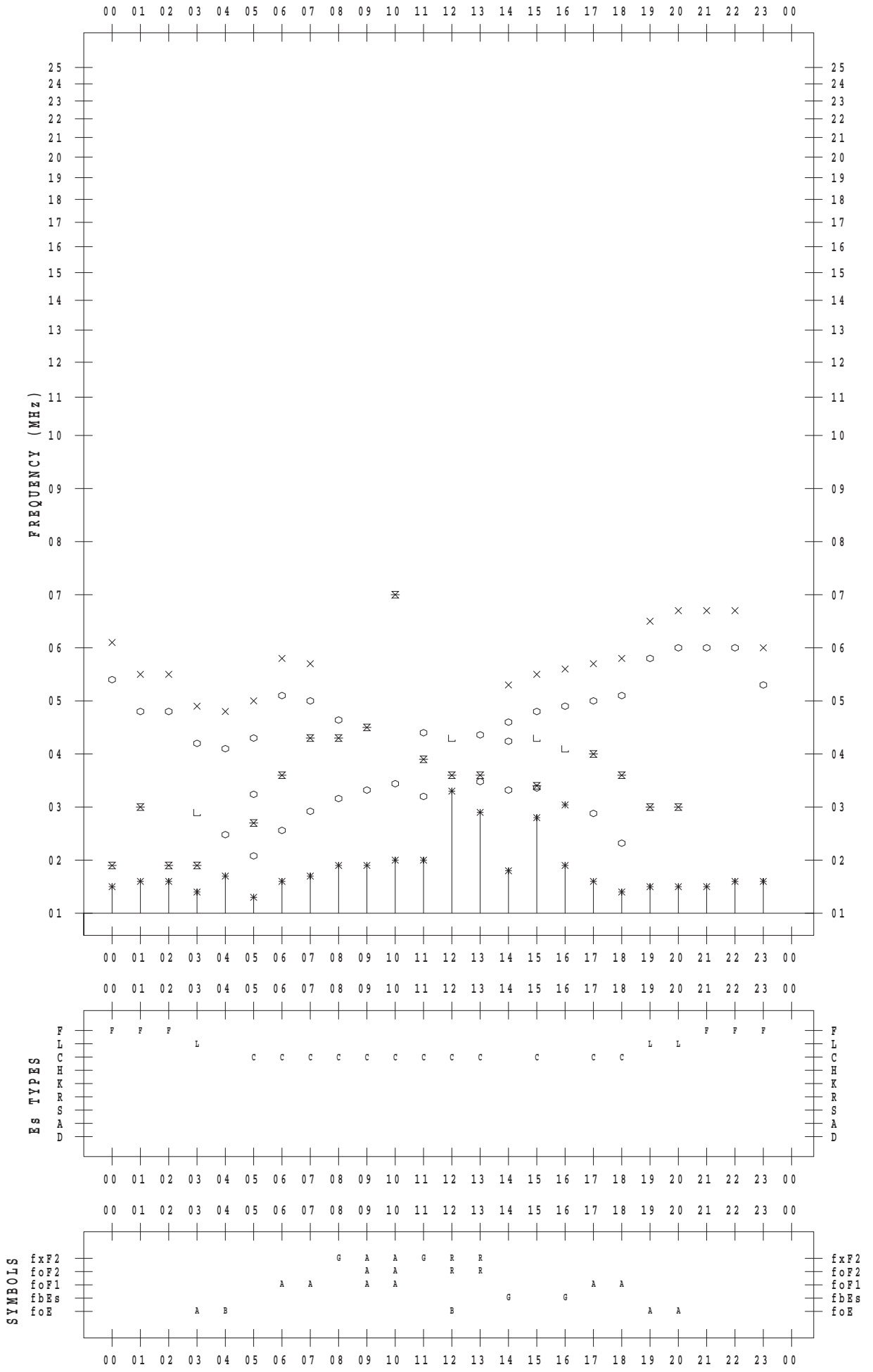
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2016/ 6/18

135 °E MEAN TIME



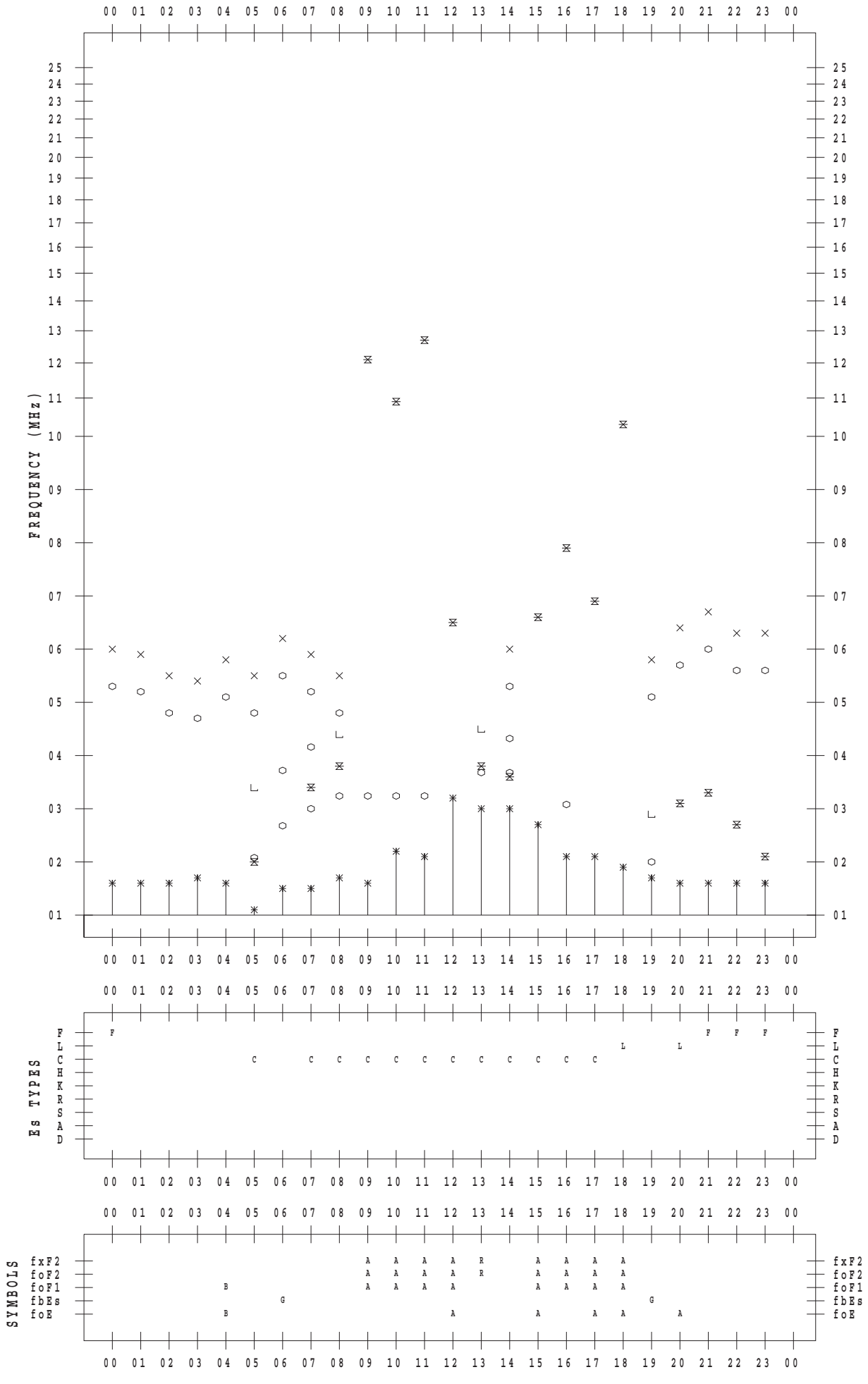
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2016/ 6/19

135 °E MEAN TIME



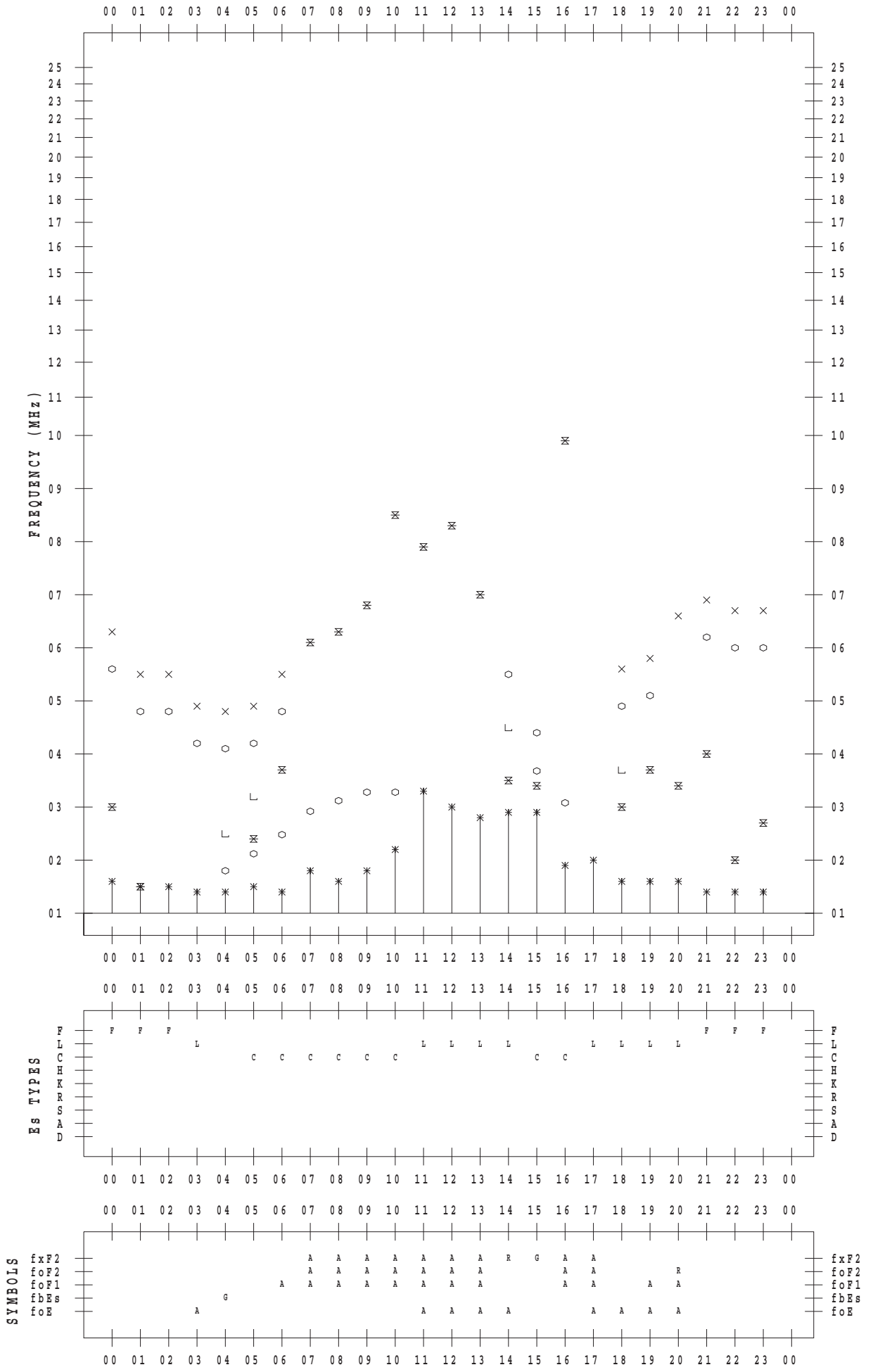
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2016/ 6/20

135 °E MEAN TIME



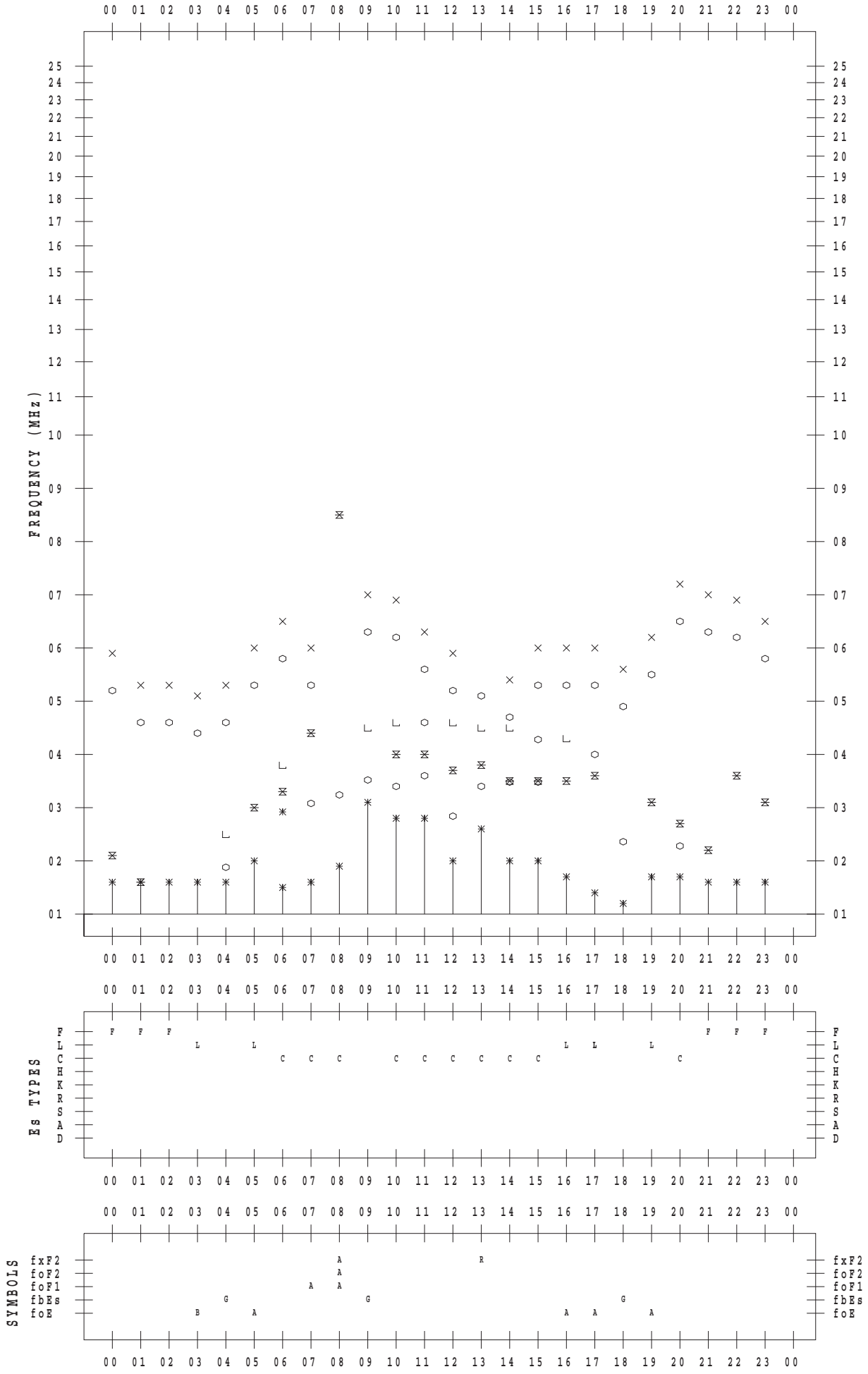
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2016/ 6/21

135 °E MEAN TIME



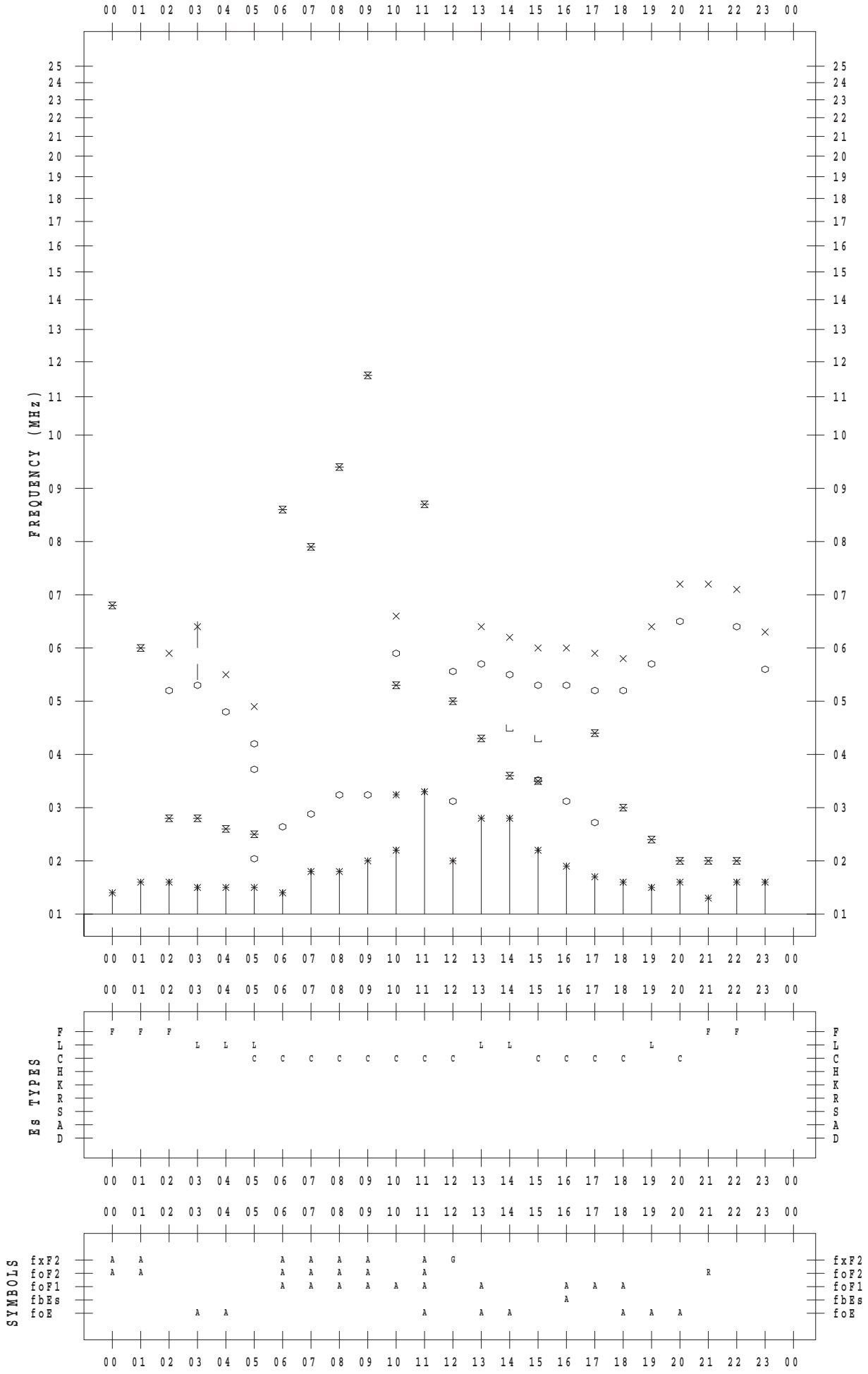
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2016/ 6/22

135 °E MEAN TIME



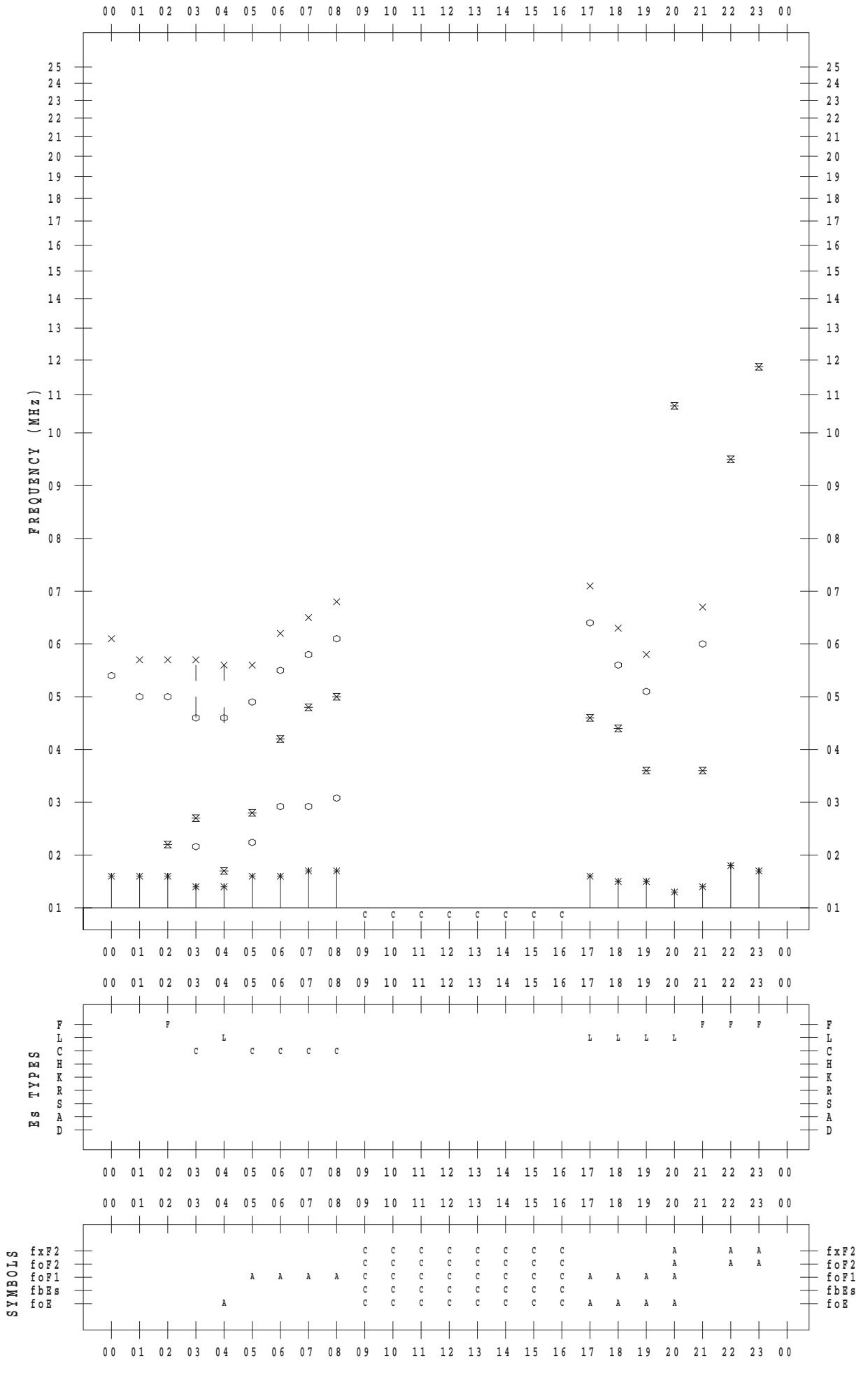
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2016/ 6/23

135 °E MEAN TIME



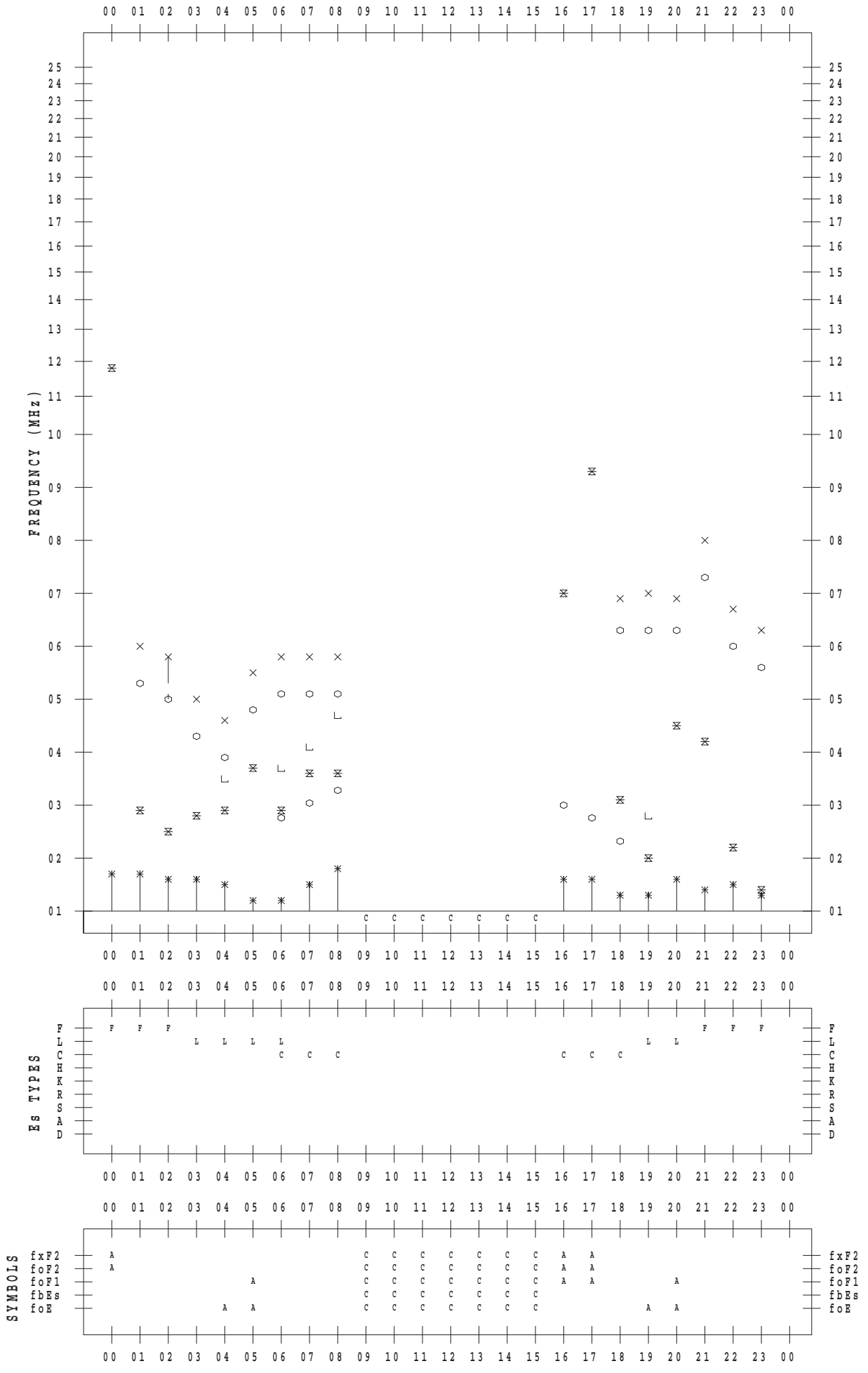
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2016/ 6/24

135 °E MEAN TIME



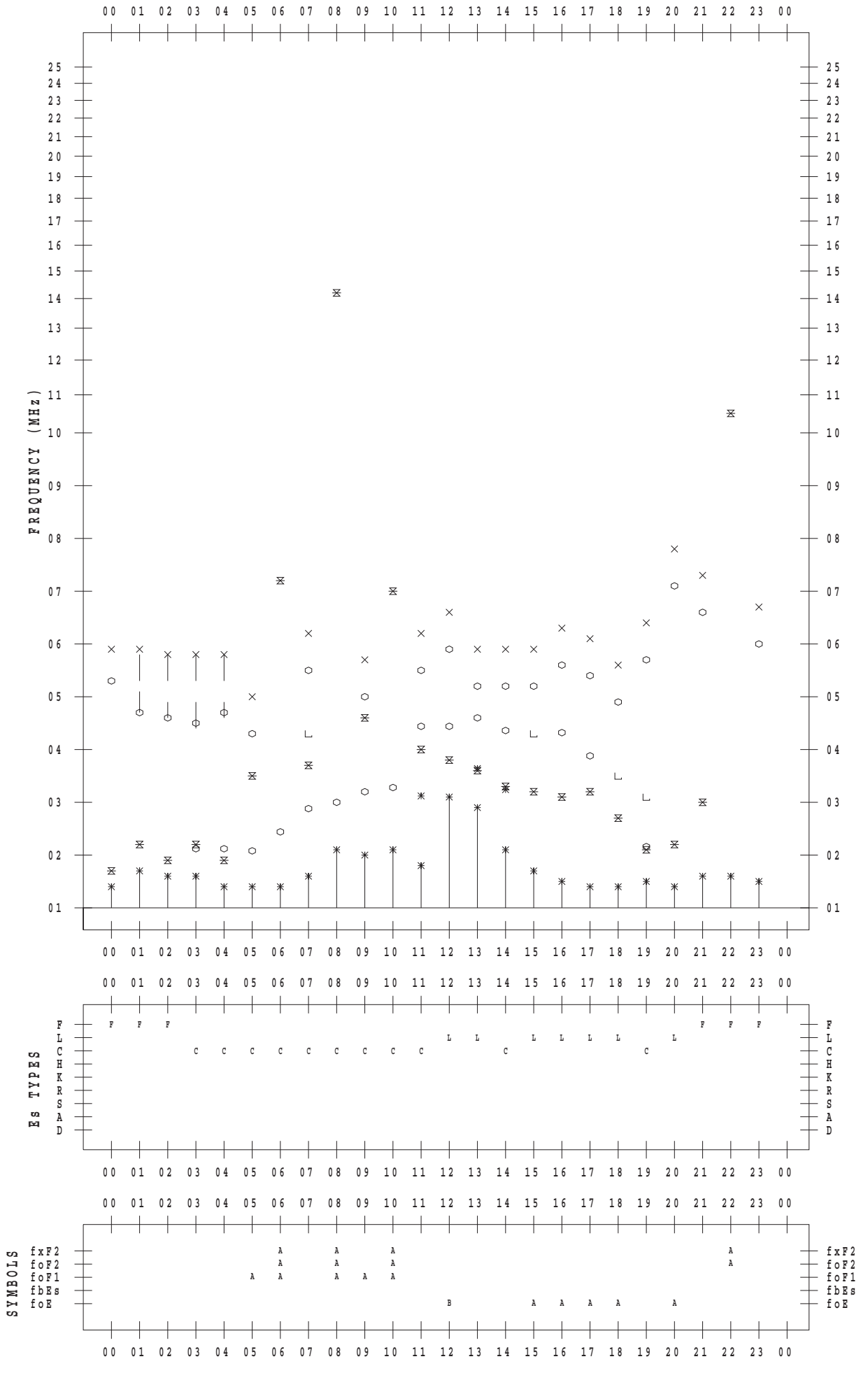
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2016/ 6/25

135 °E MEAN TIME



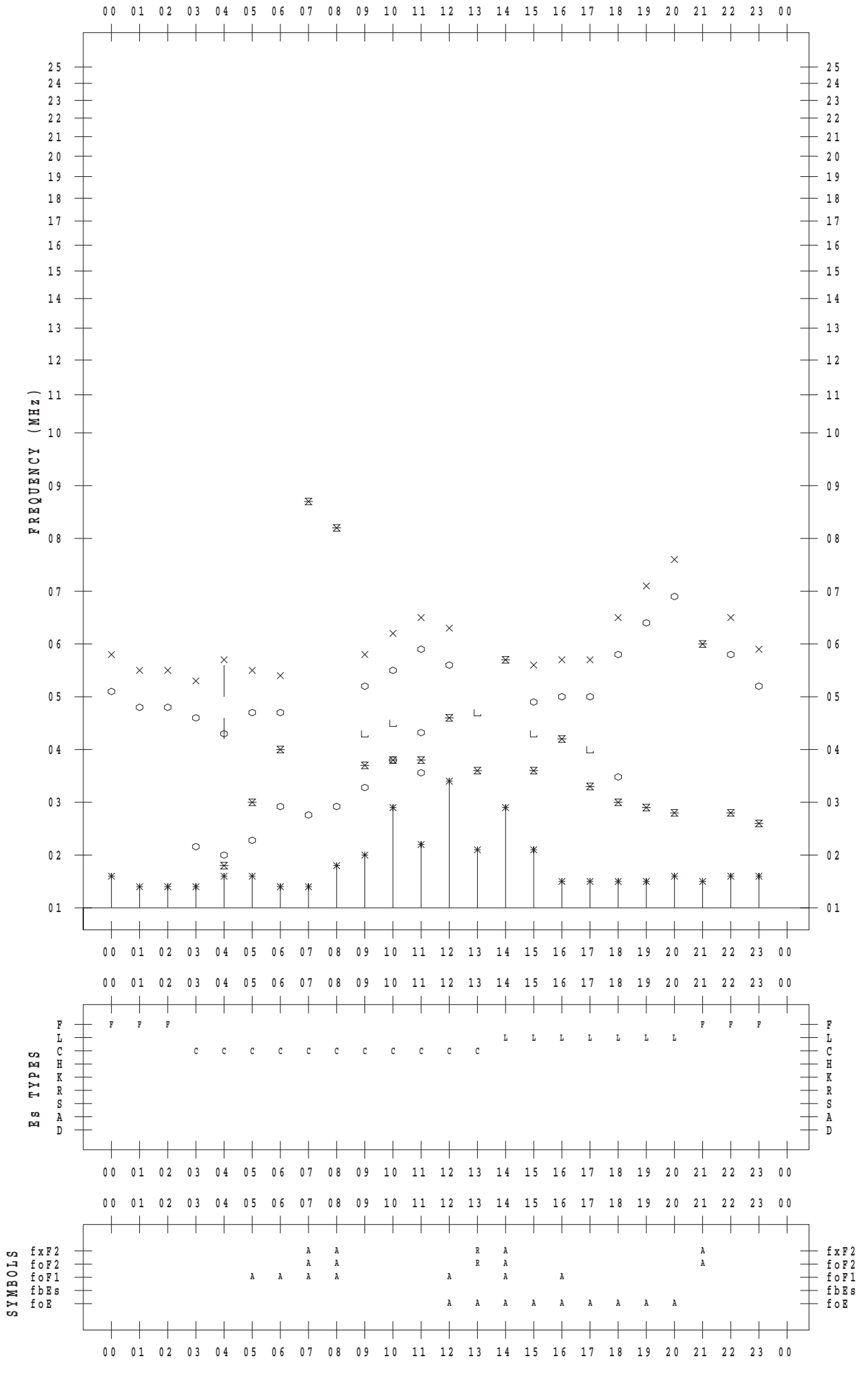
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2016/ 6/26

135 °E MEAN TIME



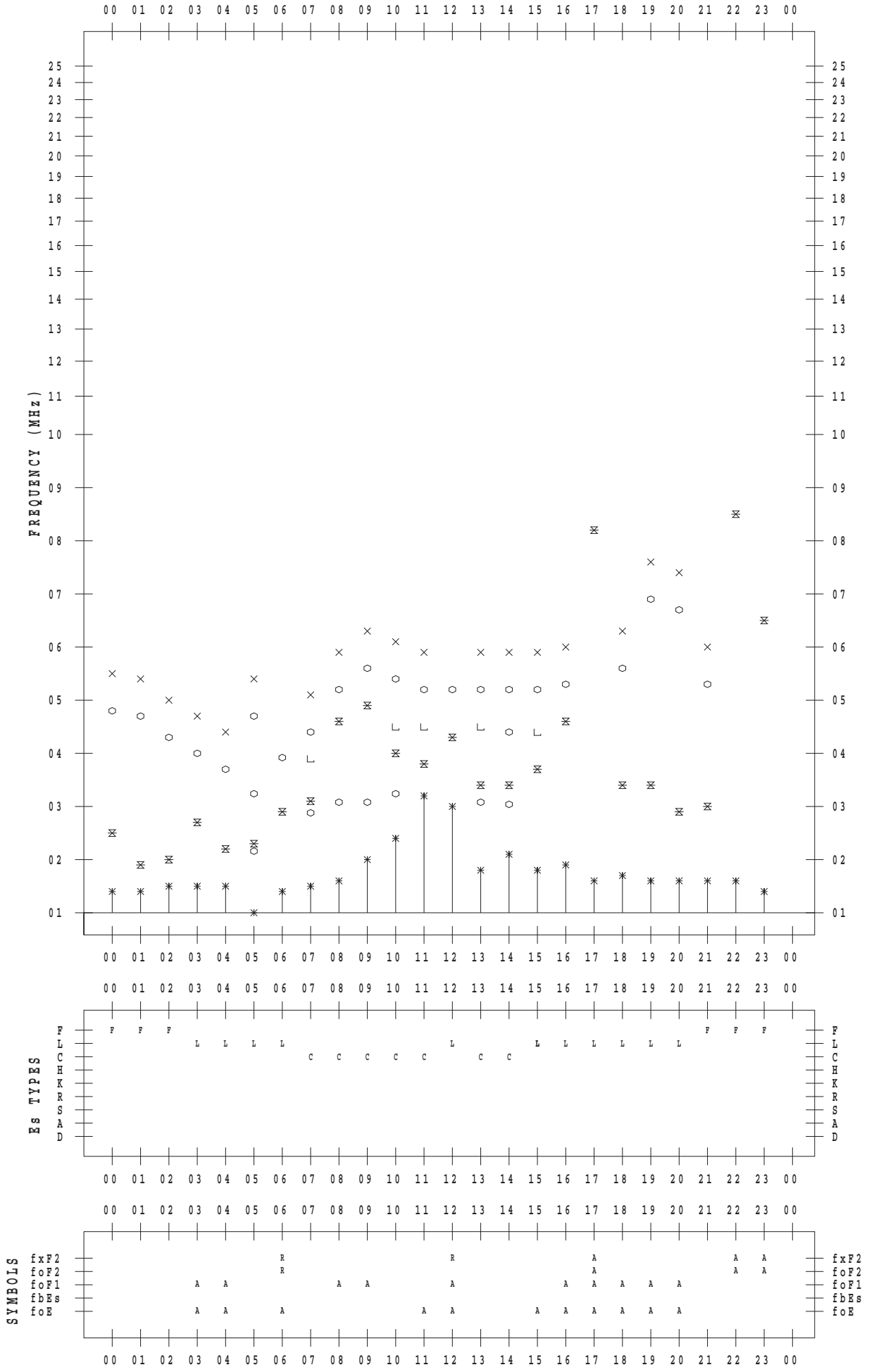
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2016/ 6/27

135 °E MEAN TIME



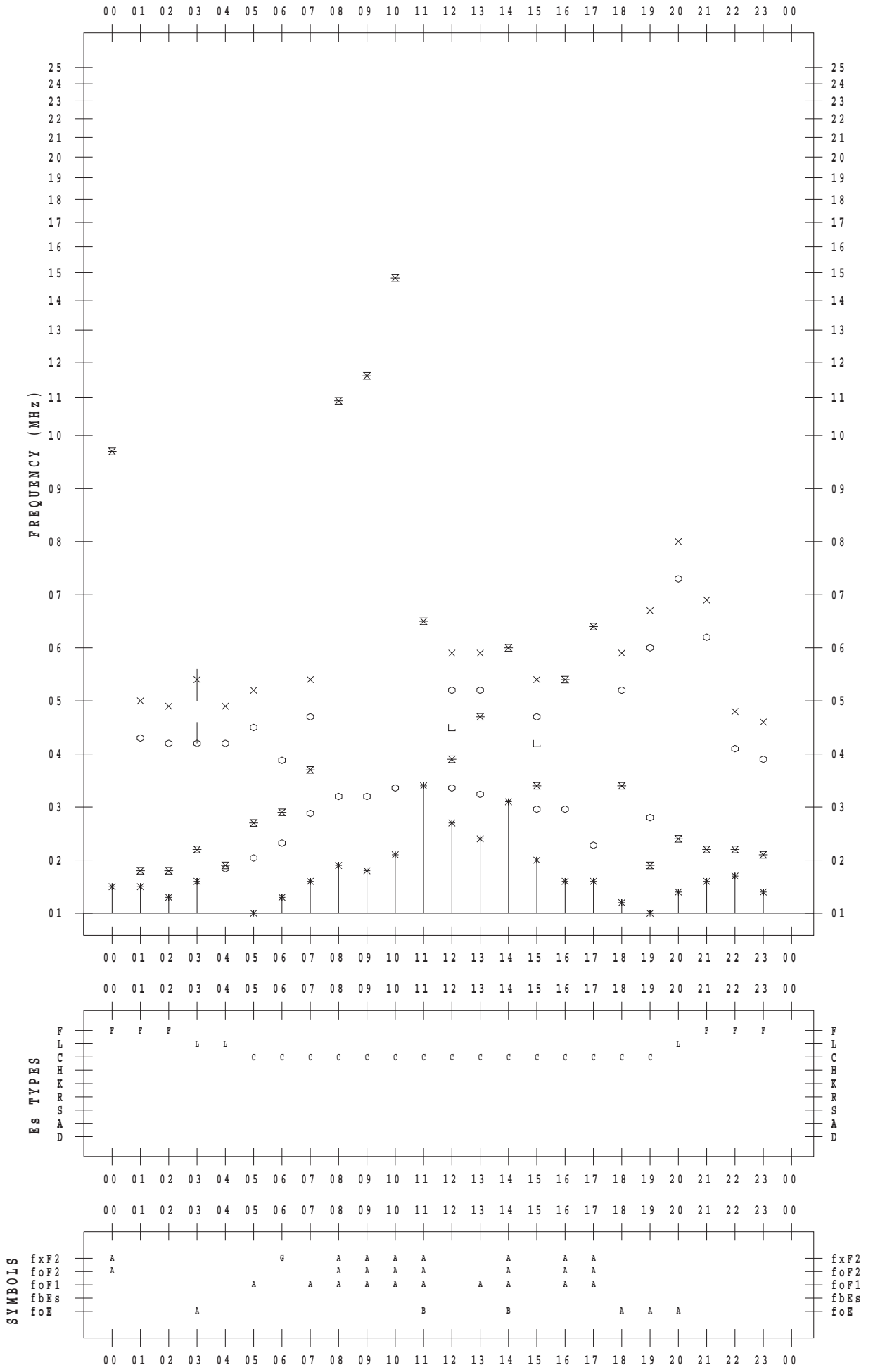
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2016/ 6/28

135 °E MEAN TIME



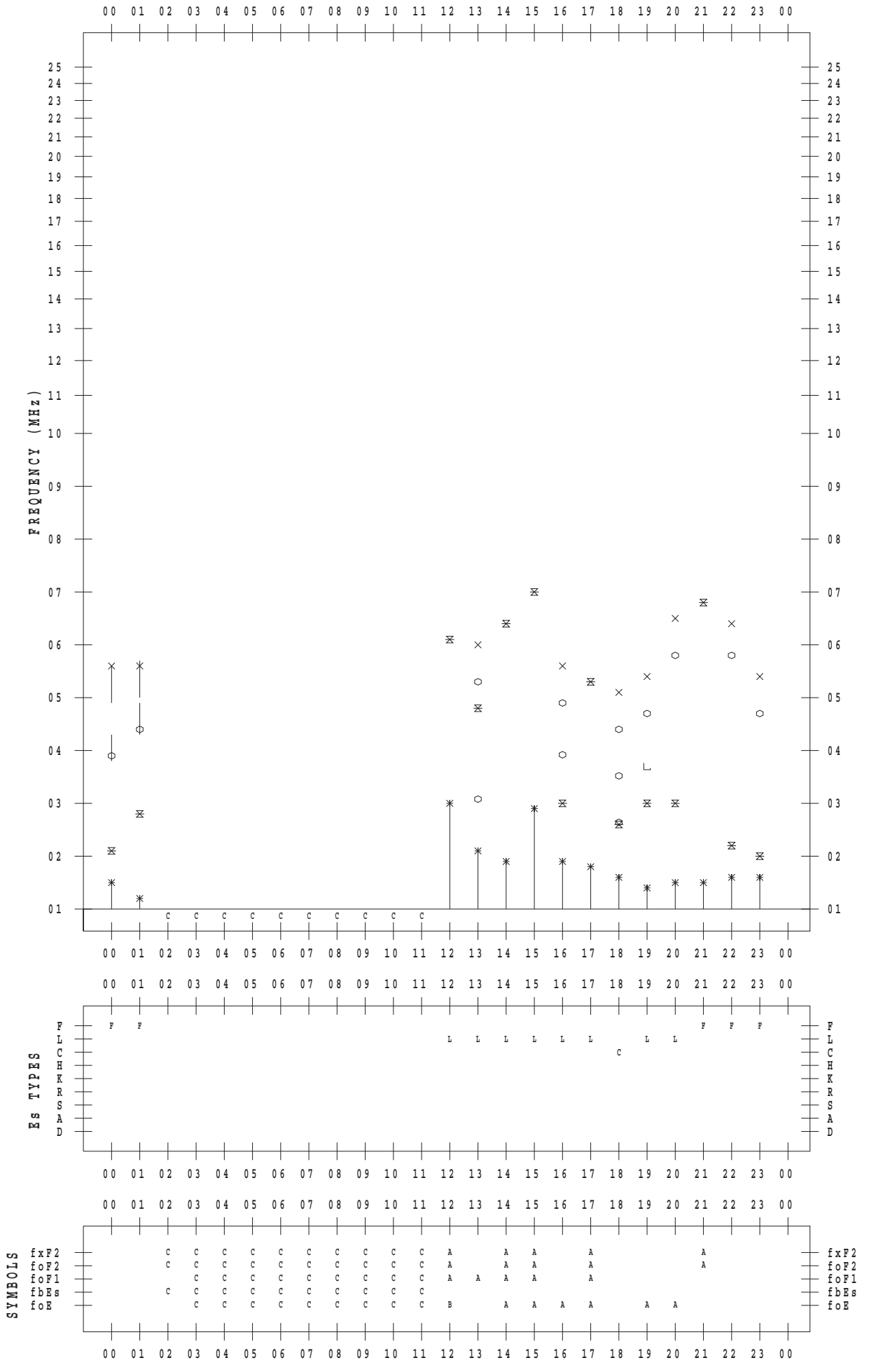
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2016/ 6/29

135 °E MEAN TIME



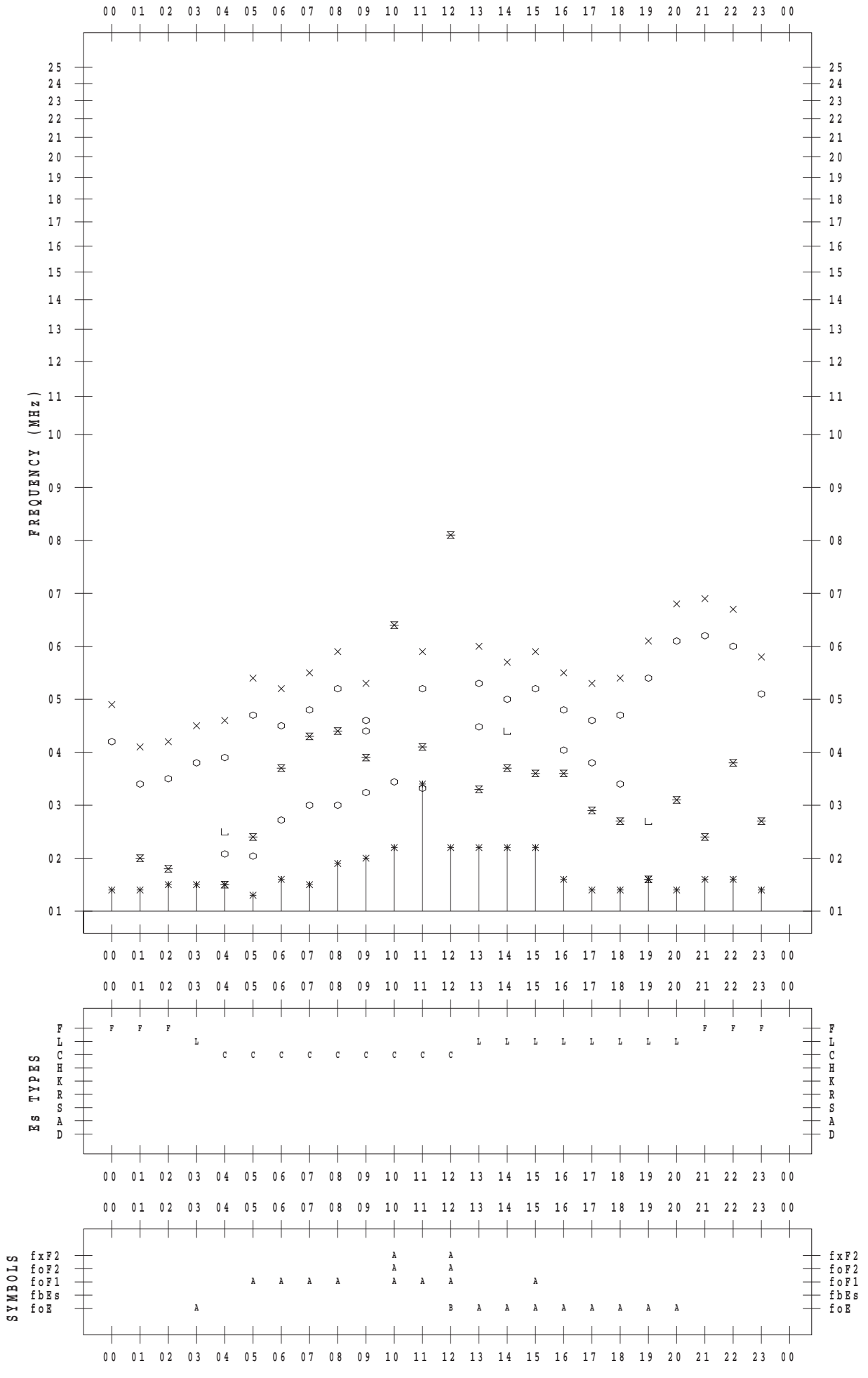
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2016/ 6/30

135 °E MEAN TIME



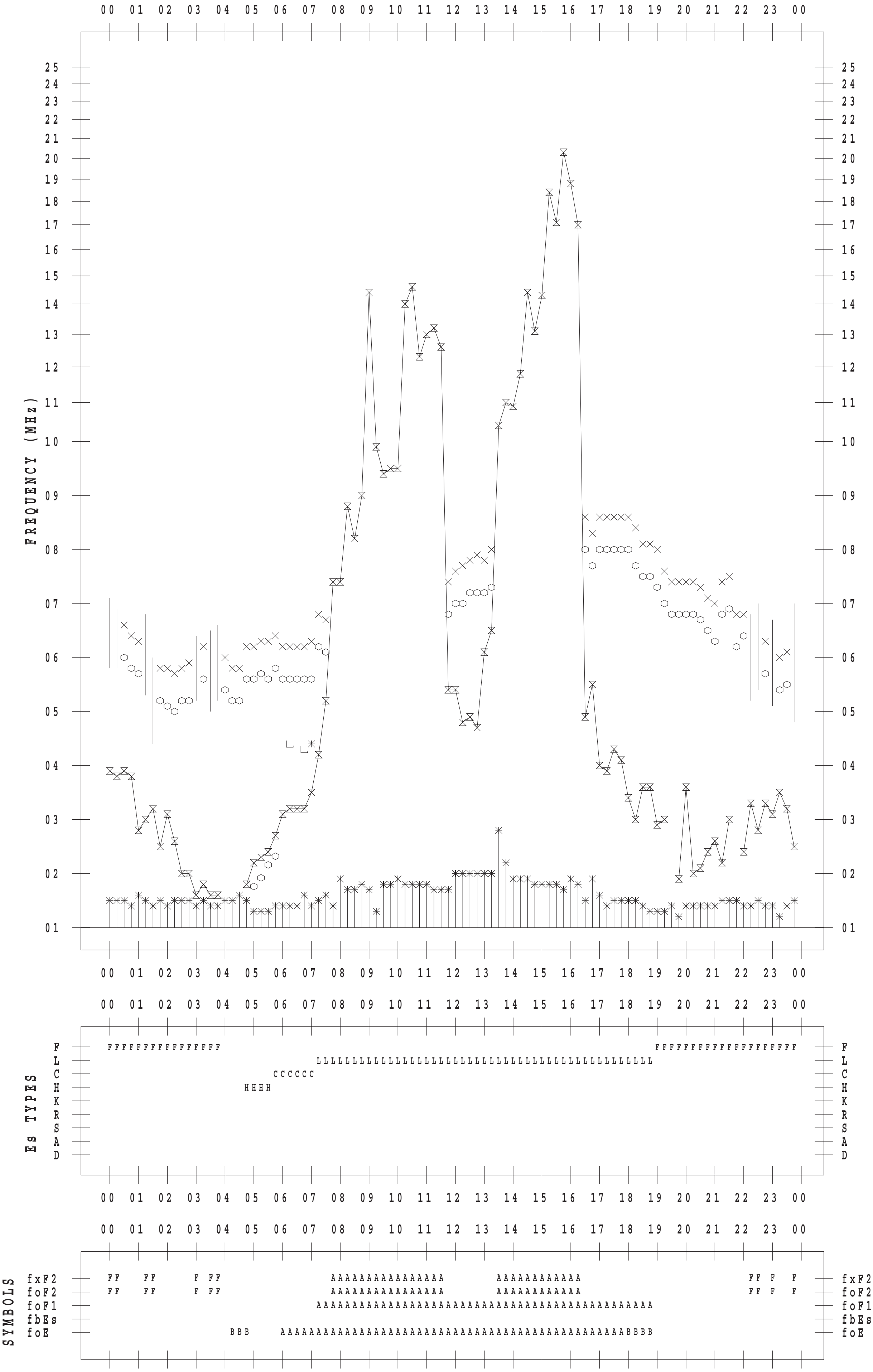
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2016/ 6/ 1

135 °E MEAN TIME



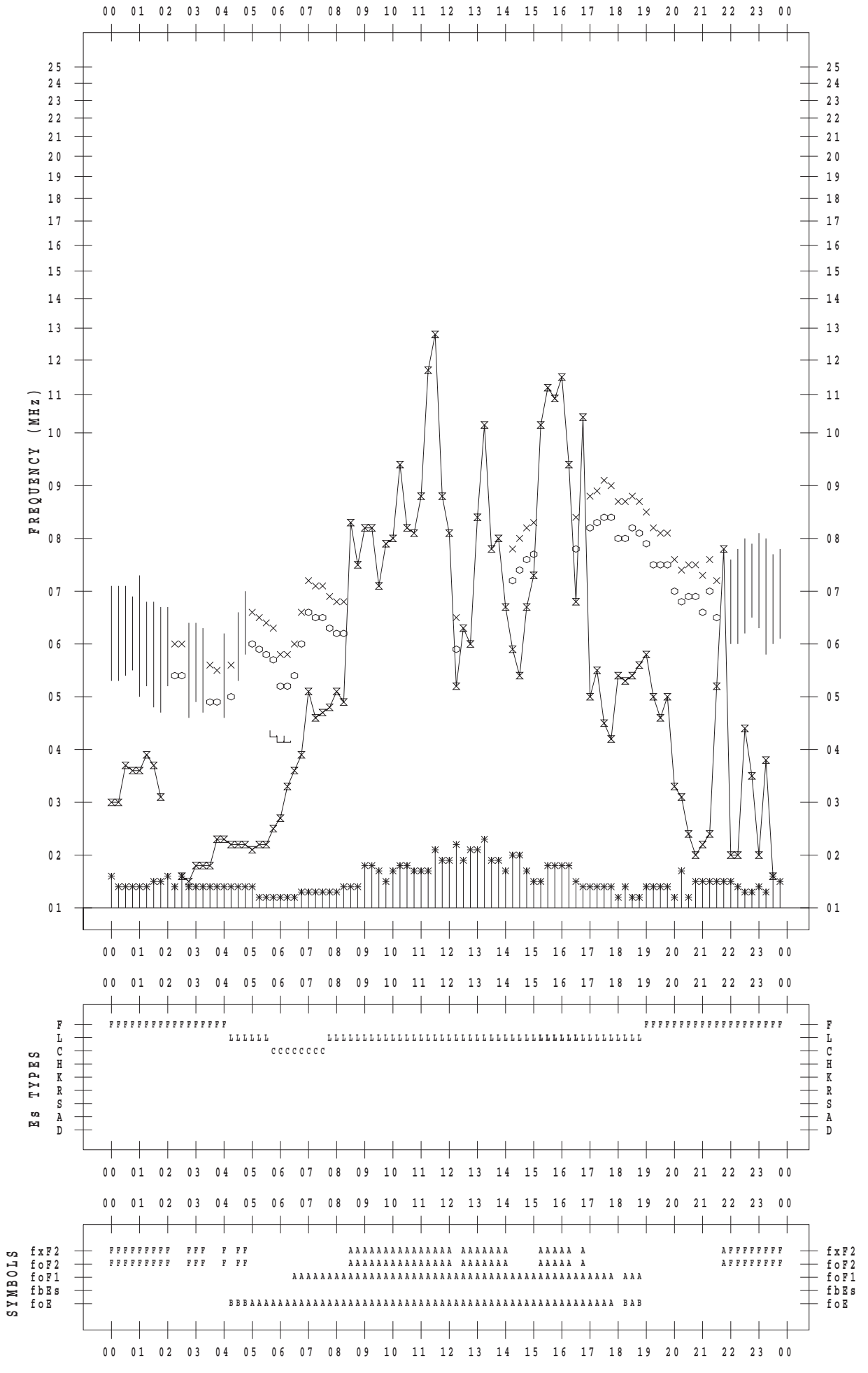
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2016/ 6/ 2

135 °E MEAN TIME



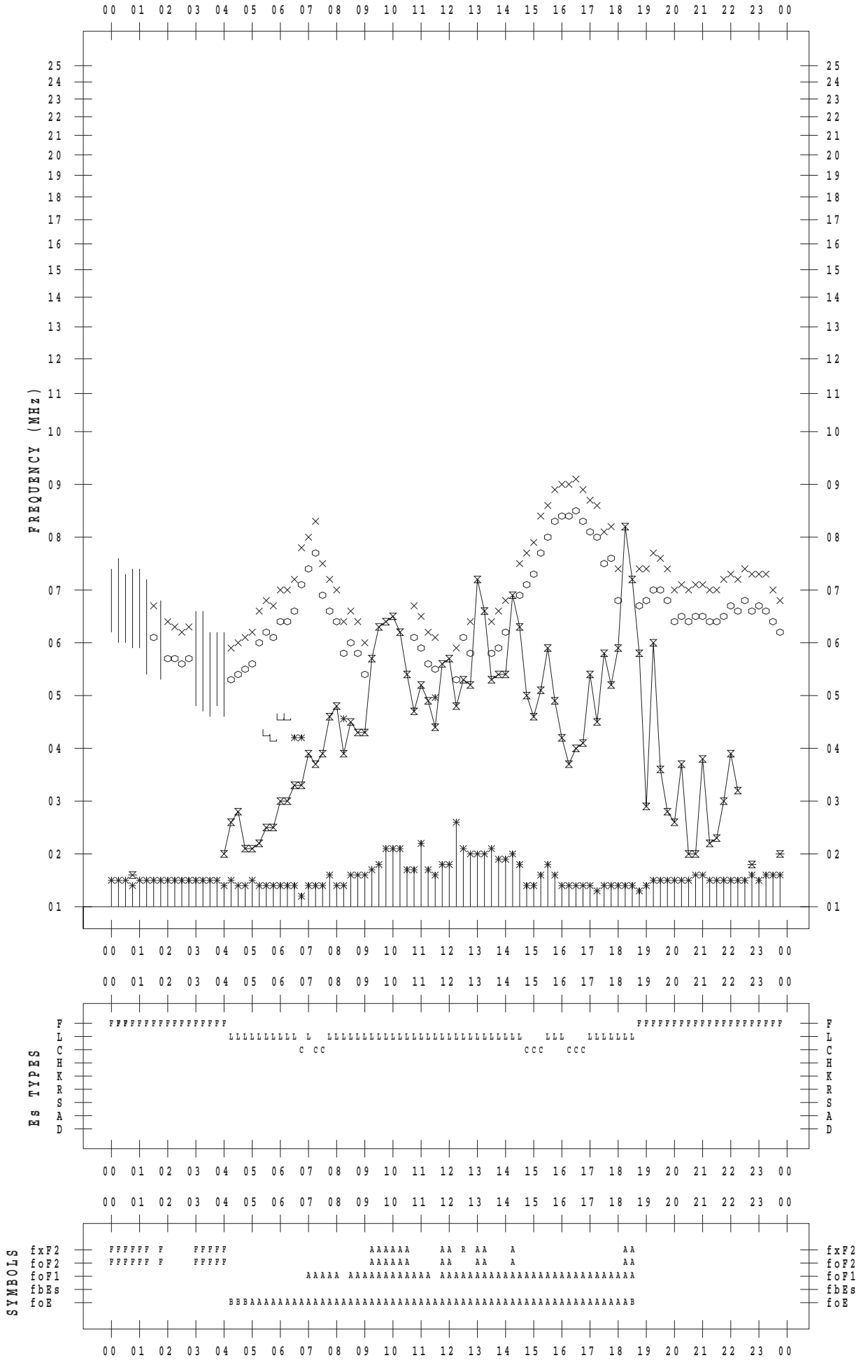
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2016/ 6/ 3

135 °E MEAN TIME

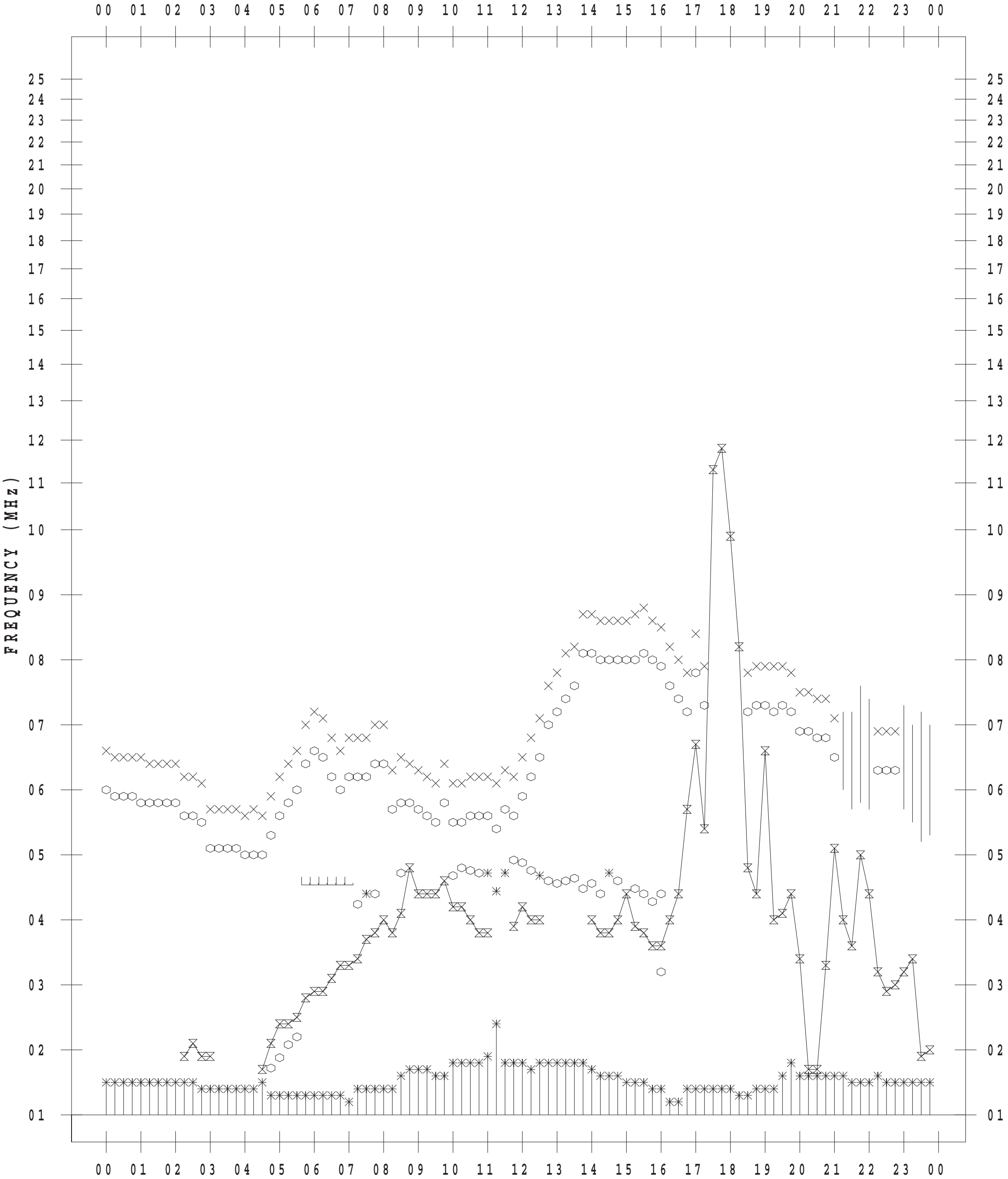


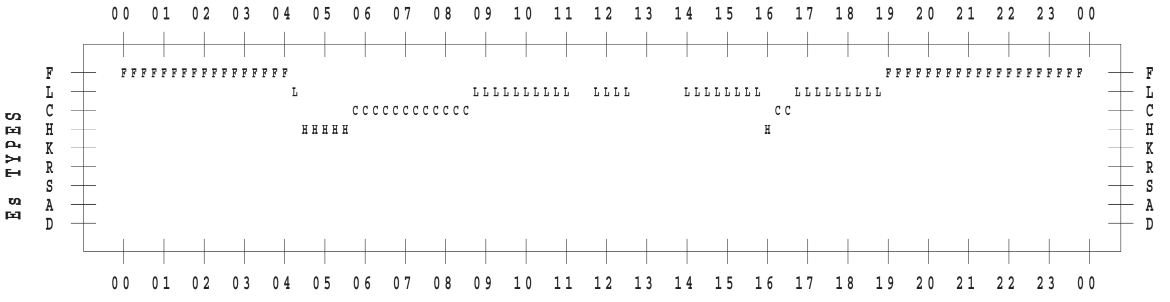
f-PLOT DATA

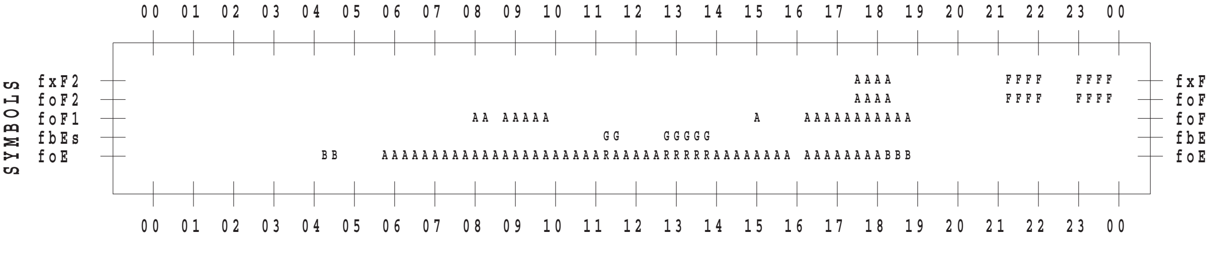
SCALER : I.NISHIMUTA

STATION : Kokubunji DATE : 2016/ 6/ 4

135 °E MEAN TIME







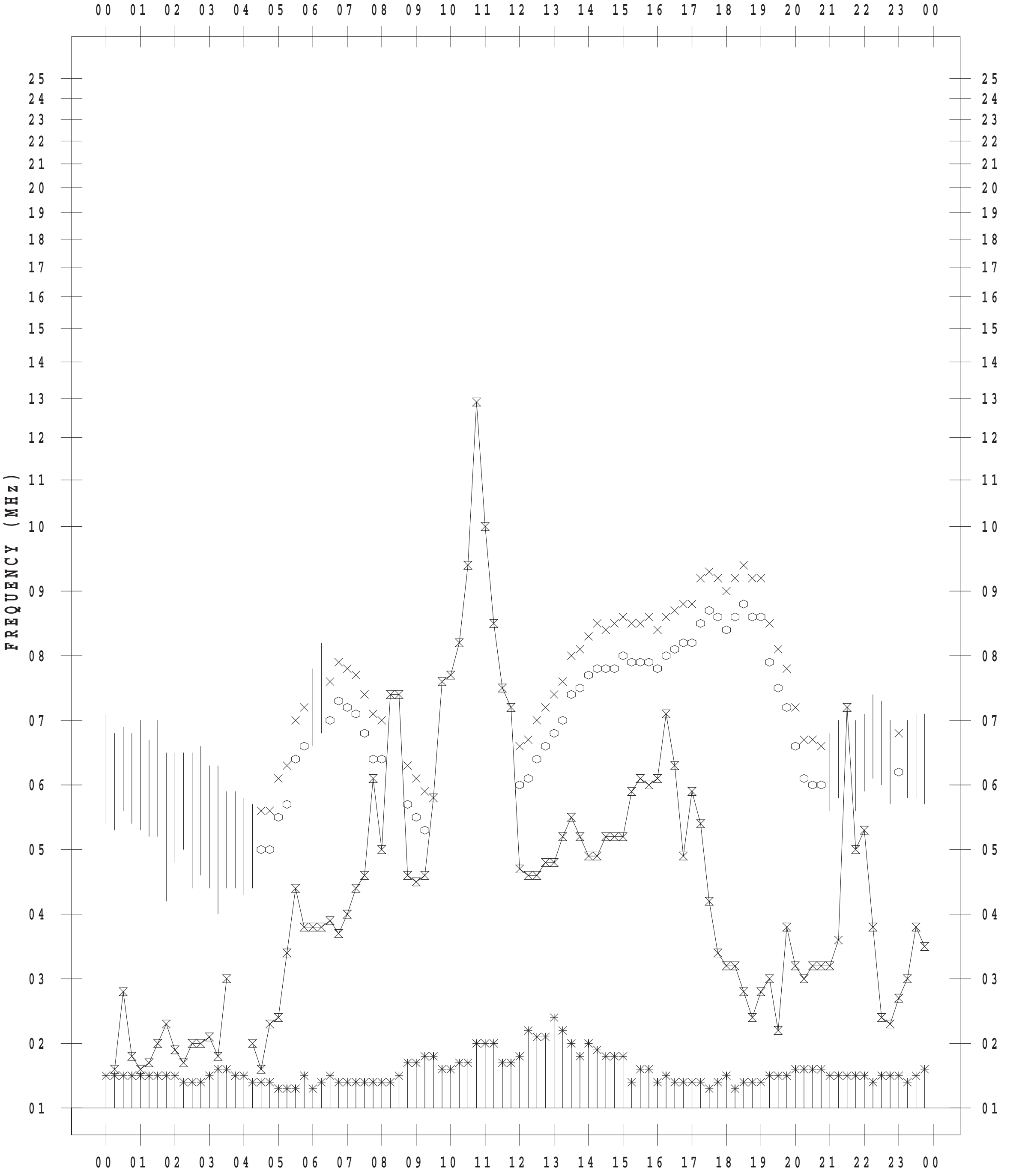
f-PLOT DATA

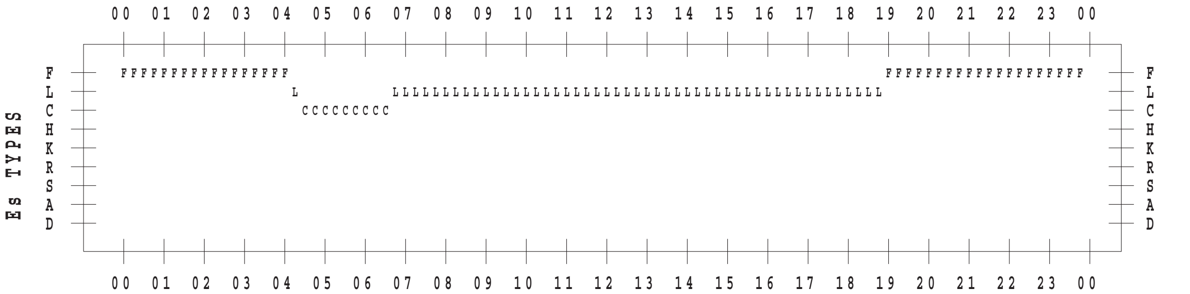
SCALER : I.NISHIMUTA

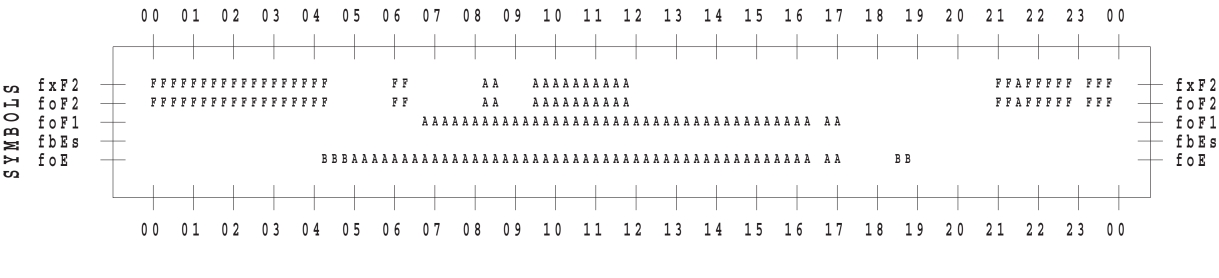
STATION : Kokubunji

DATE : 2016/ 6/ 5

135 °E MEAN TIME







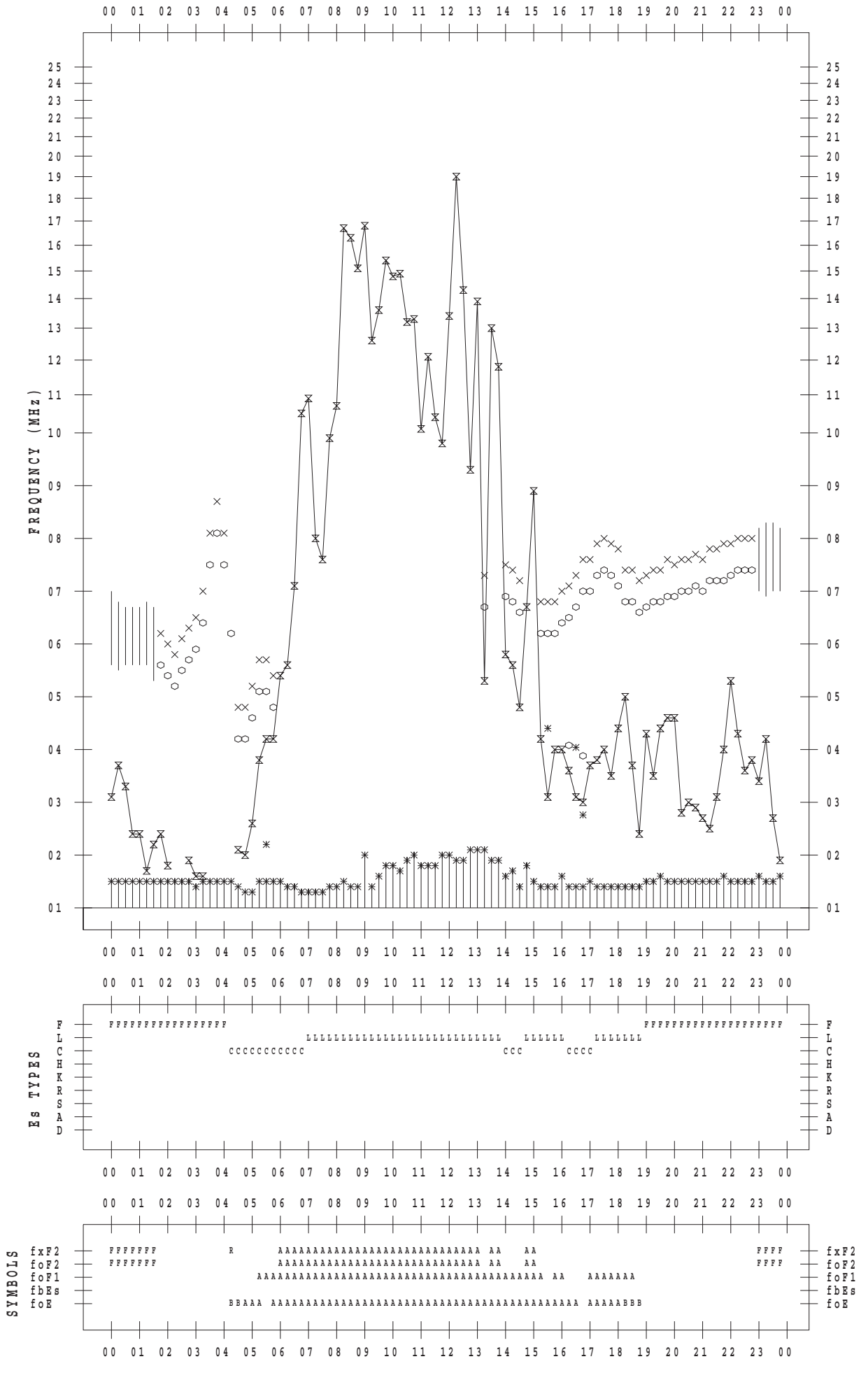
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2016/ 6/ 6

135 °E MEAN TIME



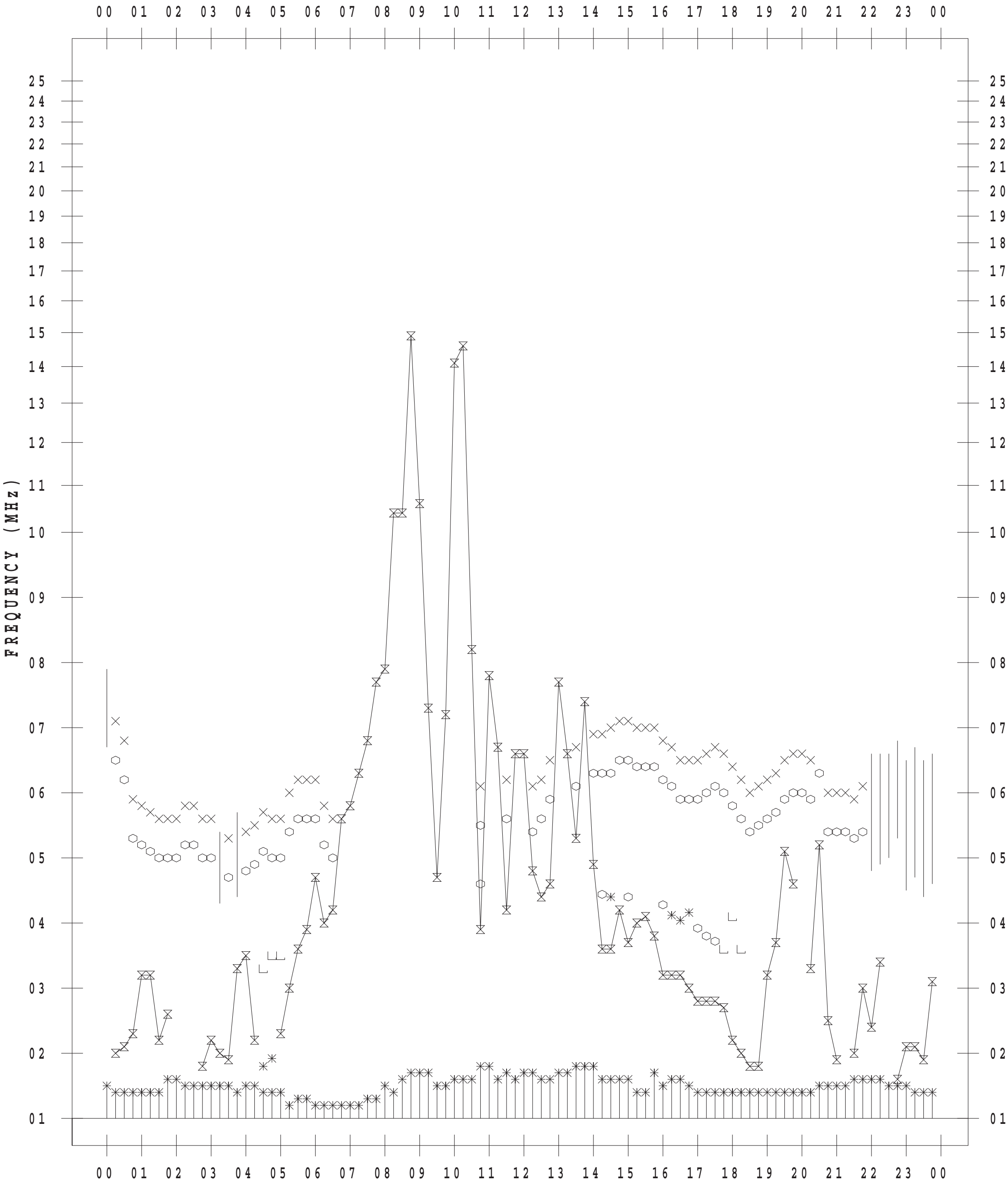
f-PLOT DATA

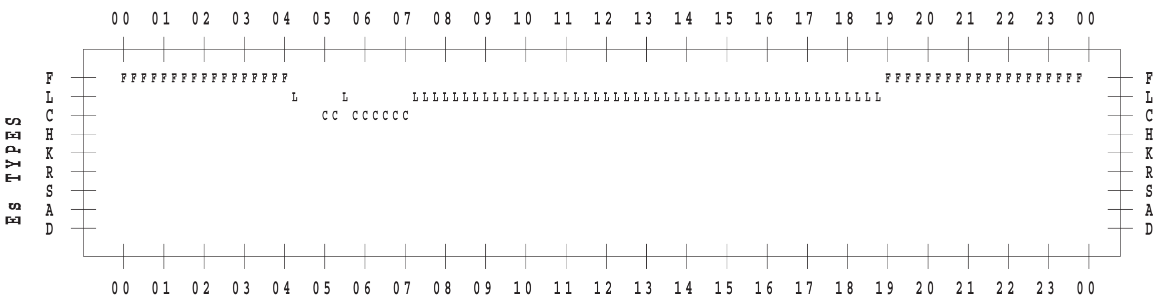
SCALER : I.NISHIMUTA

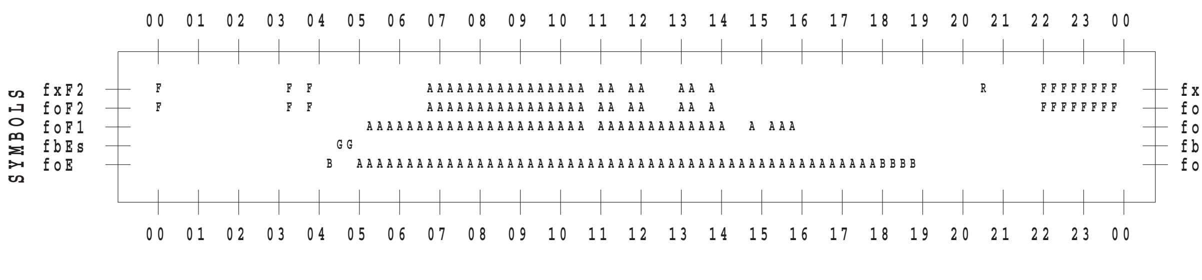
STATION : Kokubunji

DATE : 2016/ 6/ 7

135 °E MEAN TIME







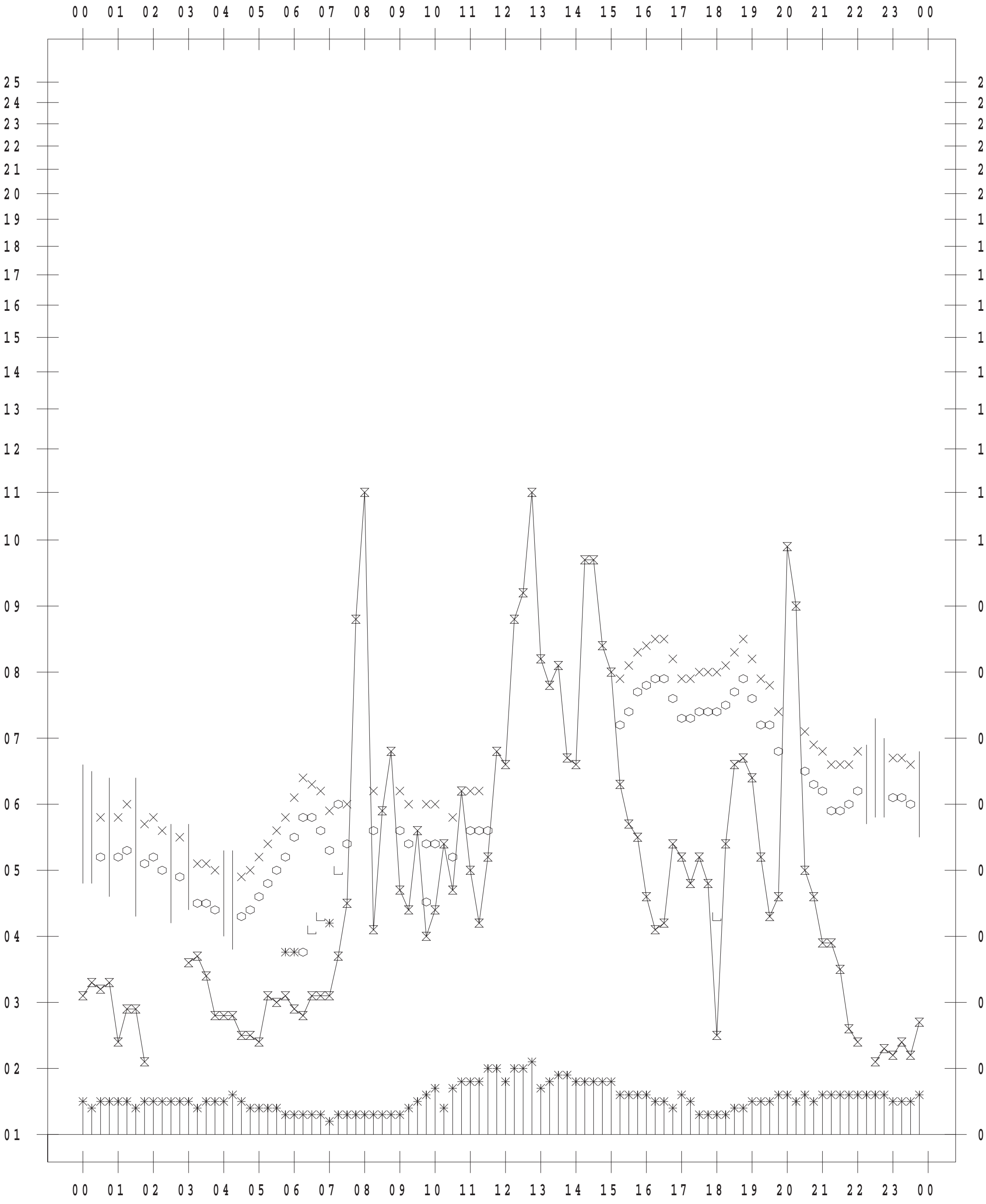
f-PLOT DATA

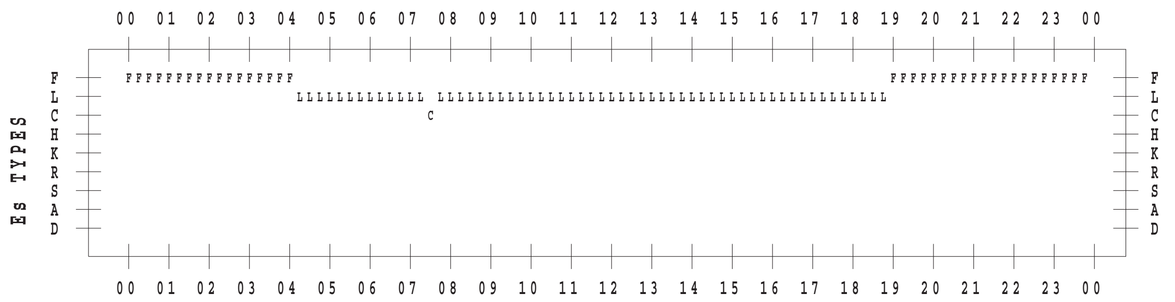
SCALER : I.NISHIMUTA

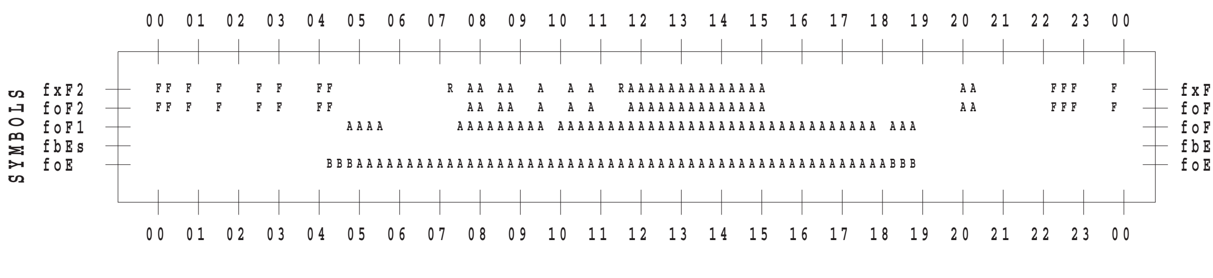
STATION : Kokubunji

DATE : 2016/ 6/ 8

135 °E MEAN TIME





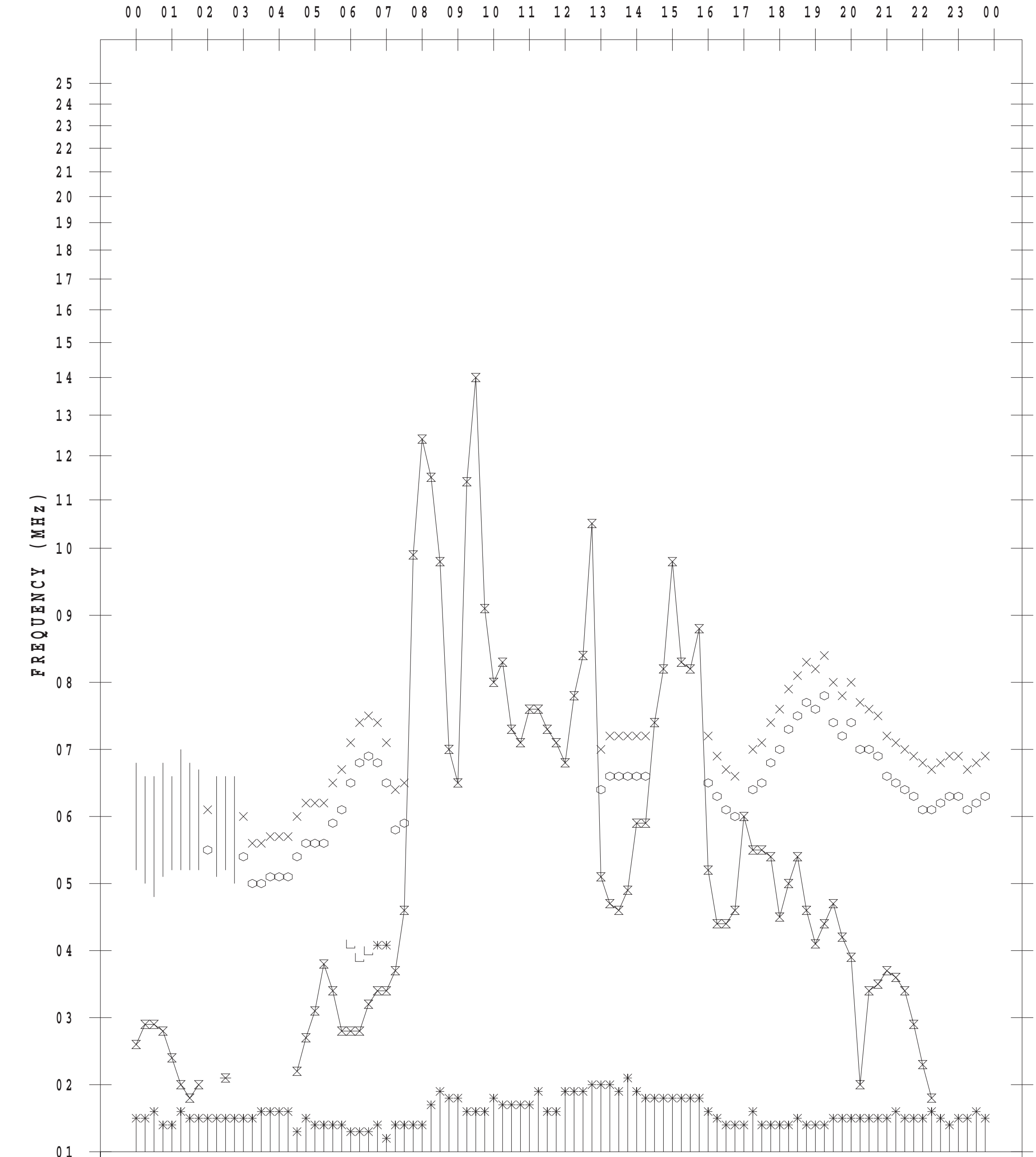


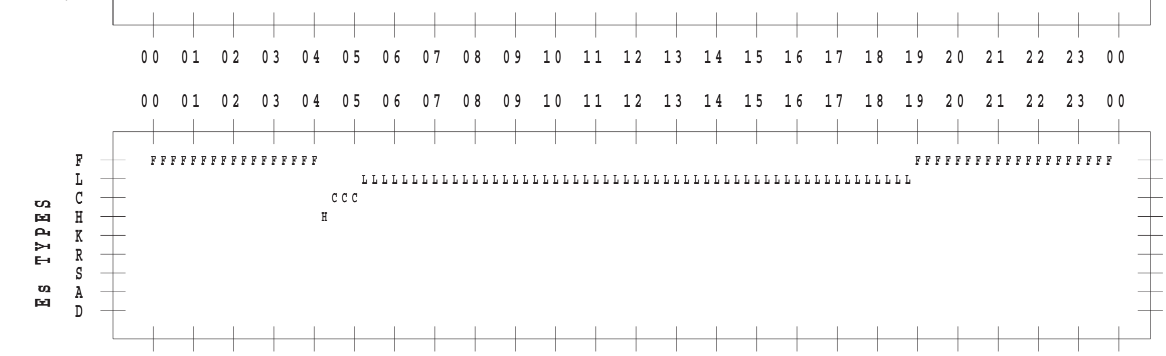
f-PLOT DATA

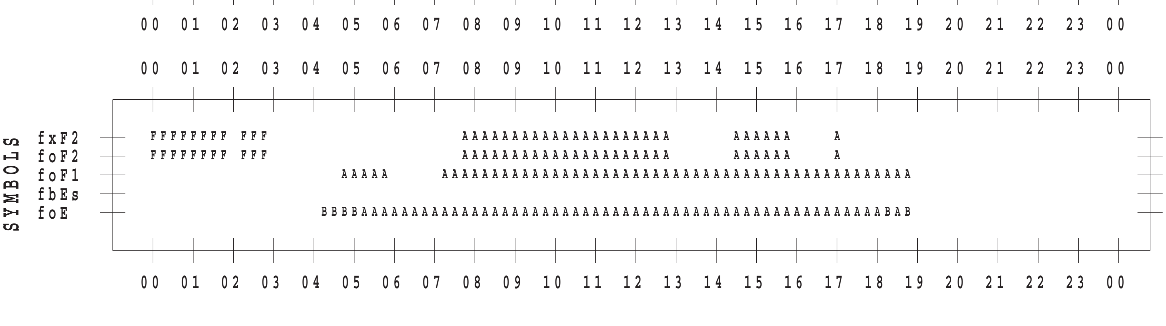
SCALER : I.NISHIMUTA

STATION : Kokubunji DATE : 2016/ 6/ 9

135 °E MEAN TIME







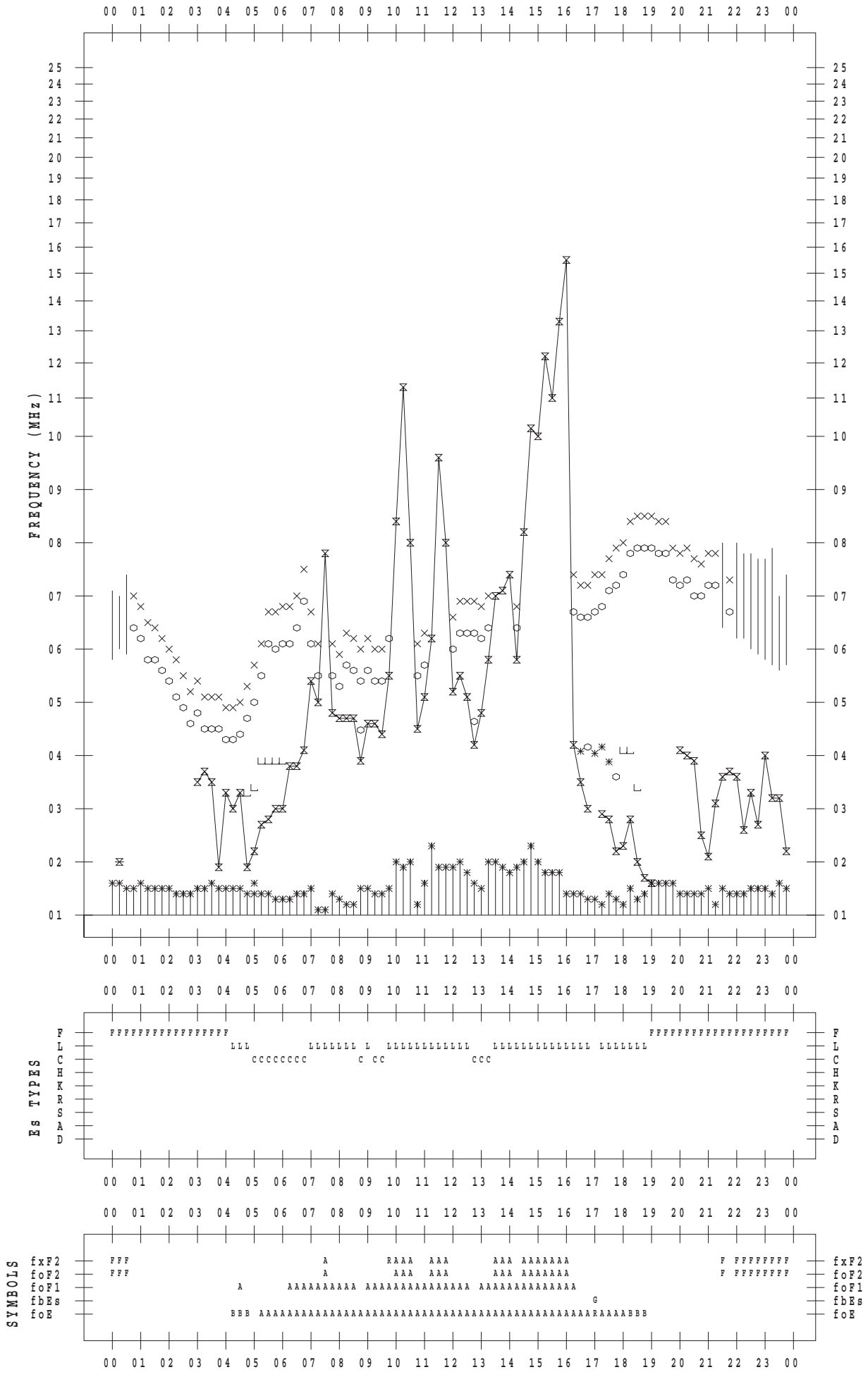
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2016/ 6/10

135 °E MEAN TIME



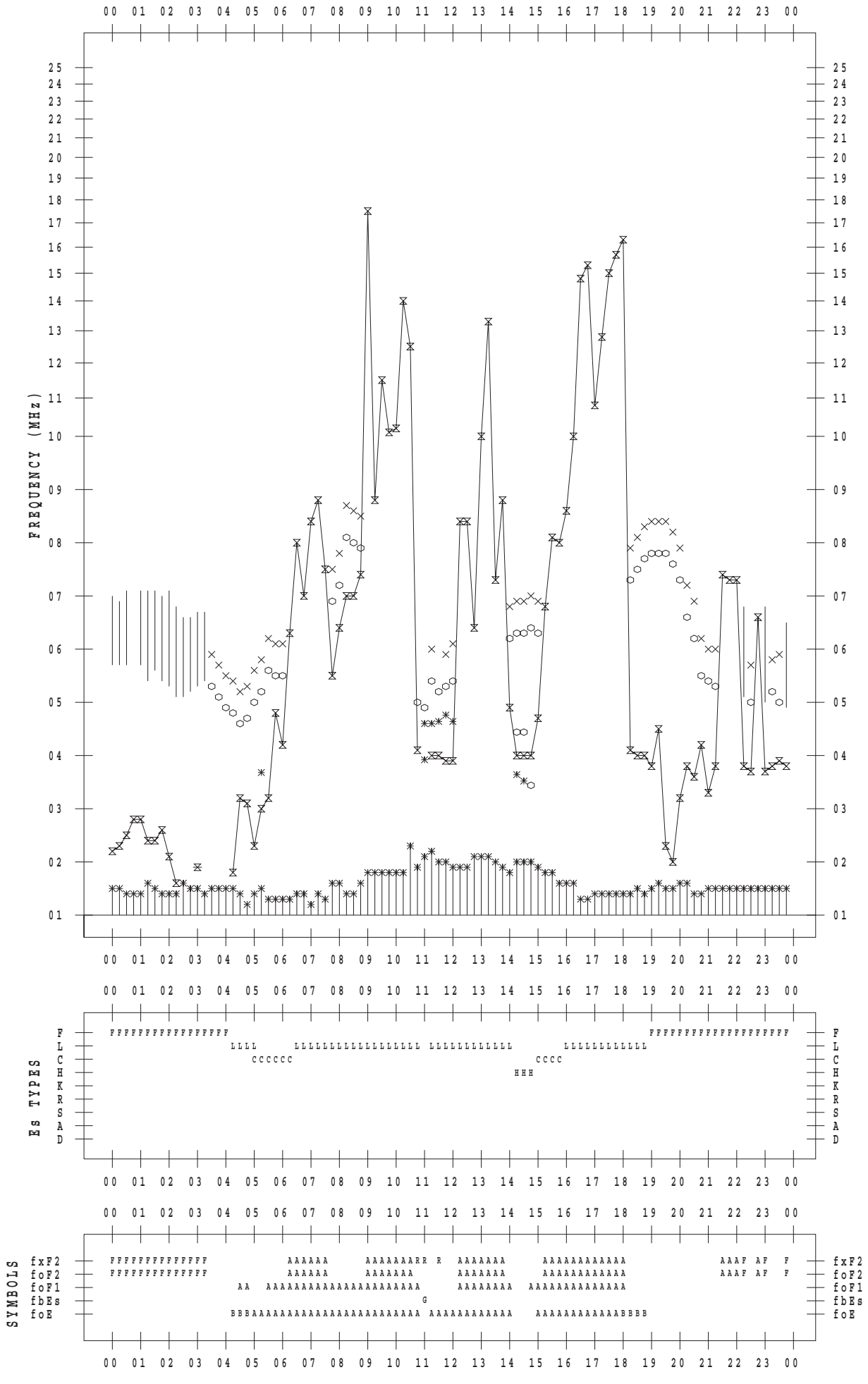
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2016/ 6/11

135 °E MEAN TIME



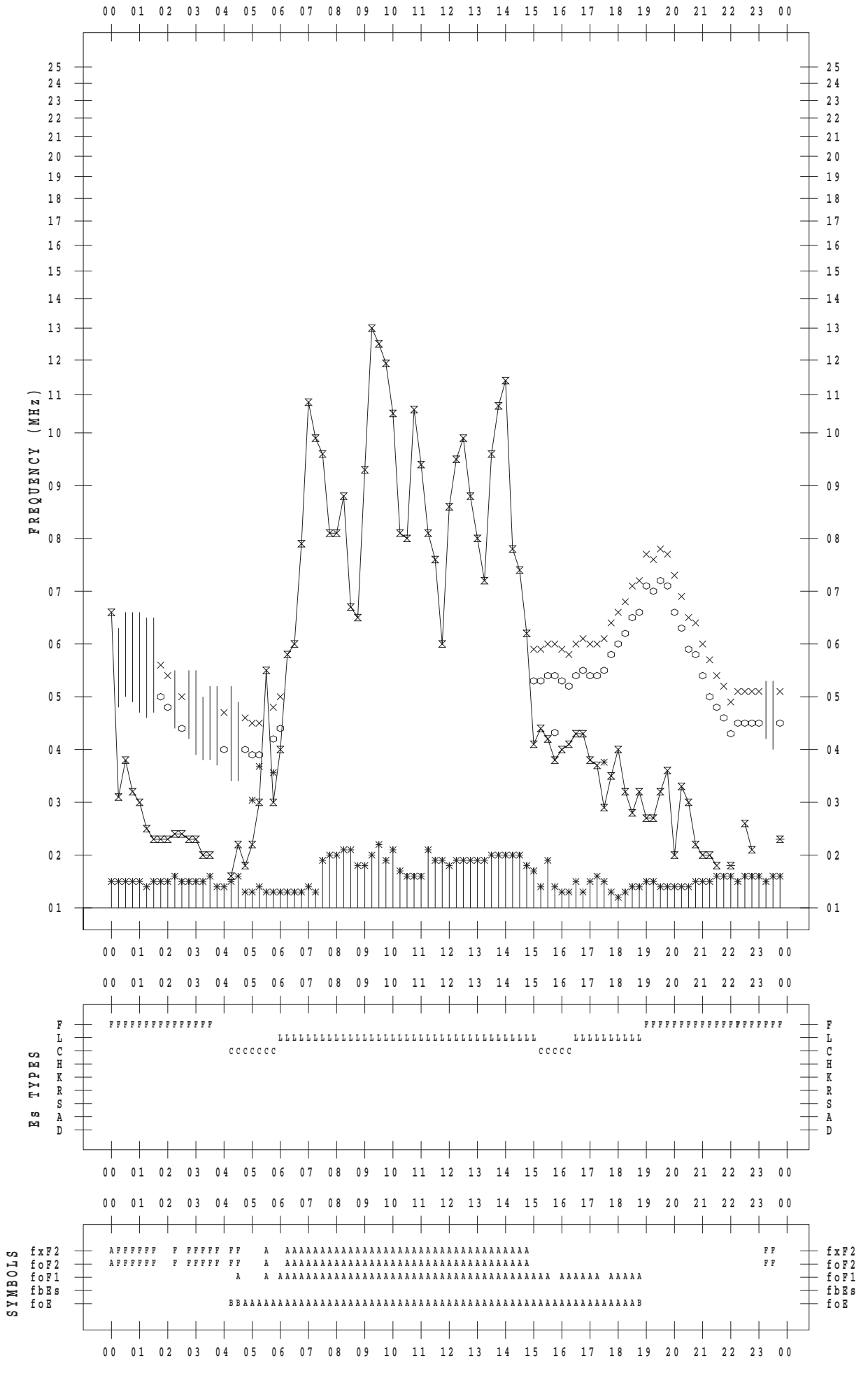
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2016/ 6/12

135 °E MEAN TIME



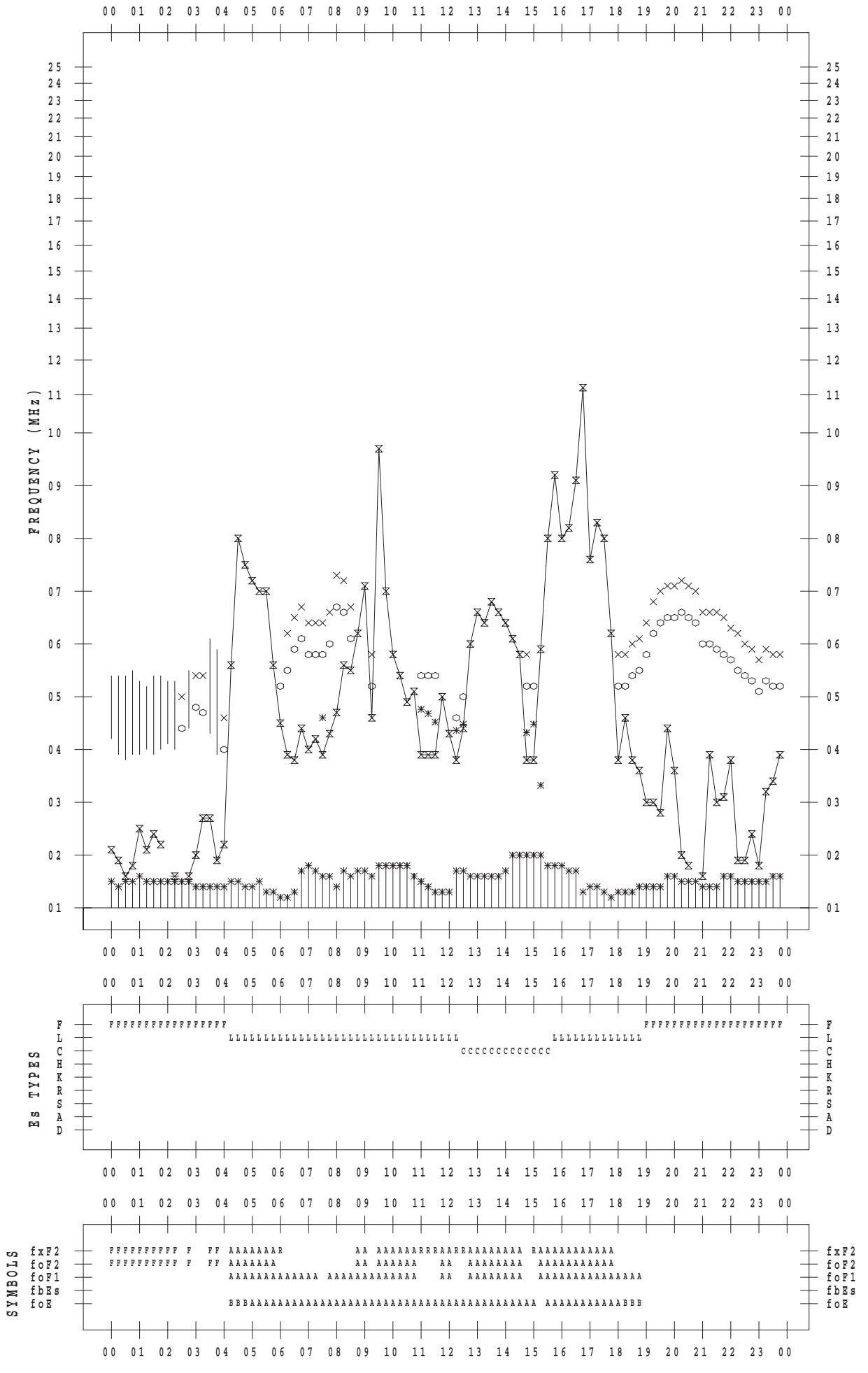
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2016/ 6/13

135 °E MEAN TIME



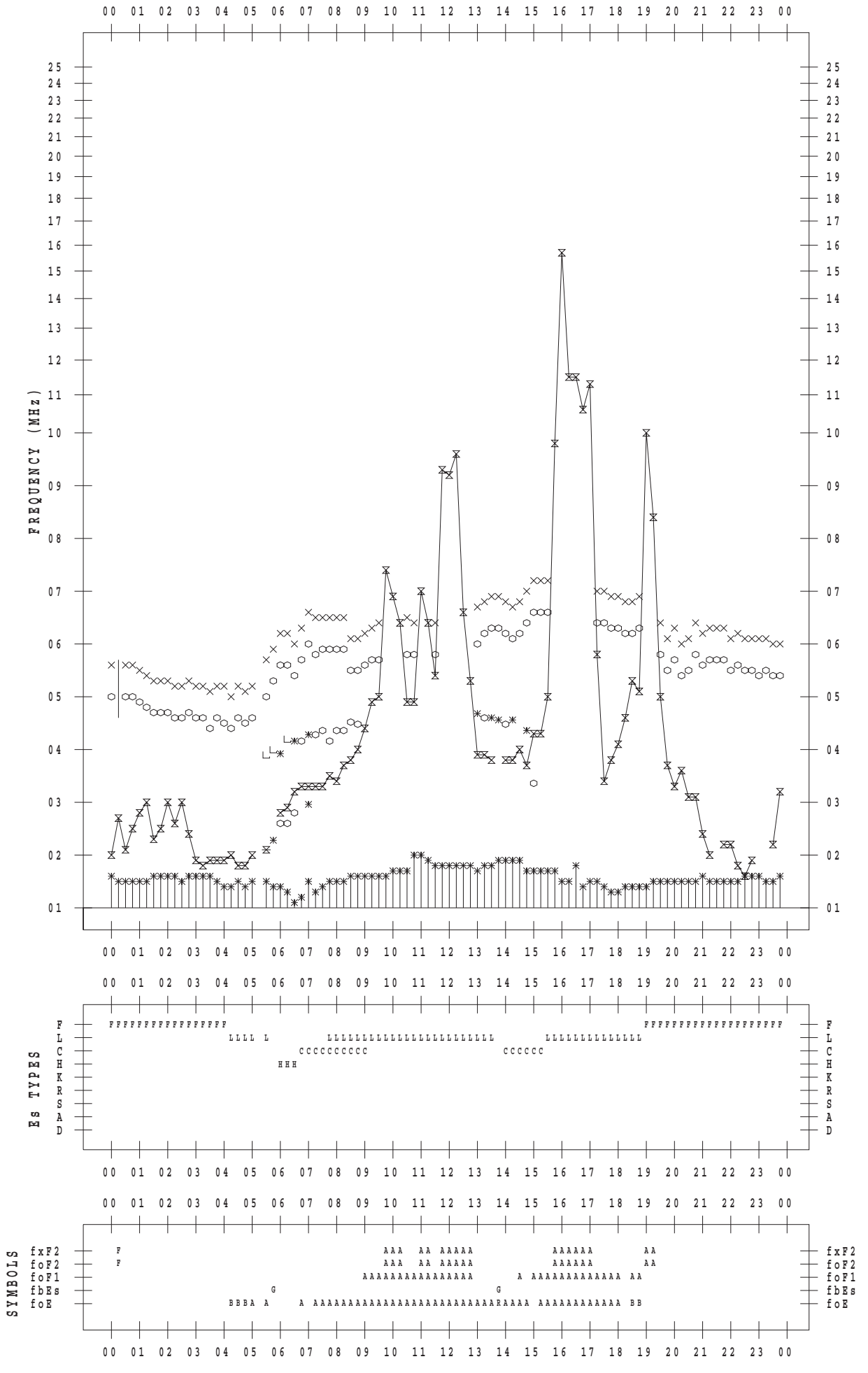
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2016/ 6/14

135 °E MEAN TIME



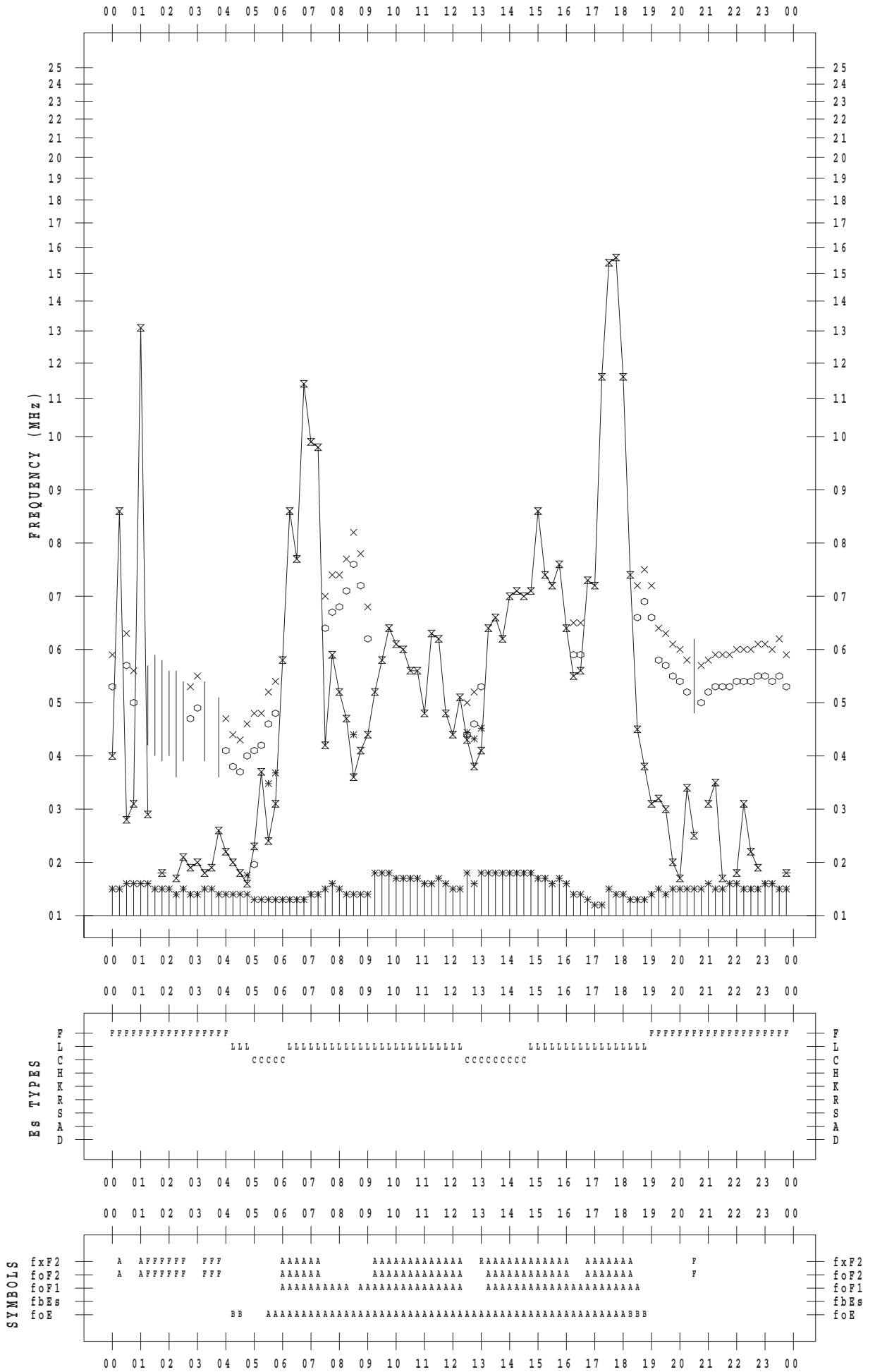
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2016/ 6/15

135 °E MEAN TIME



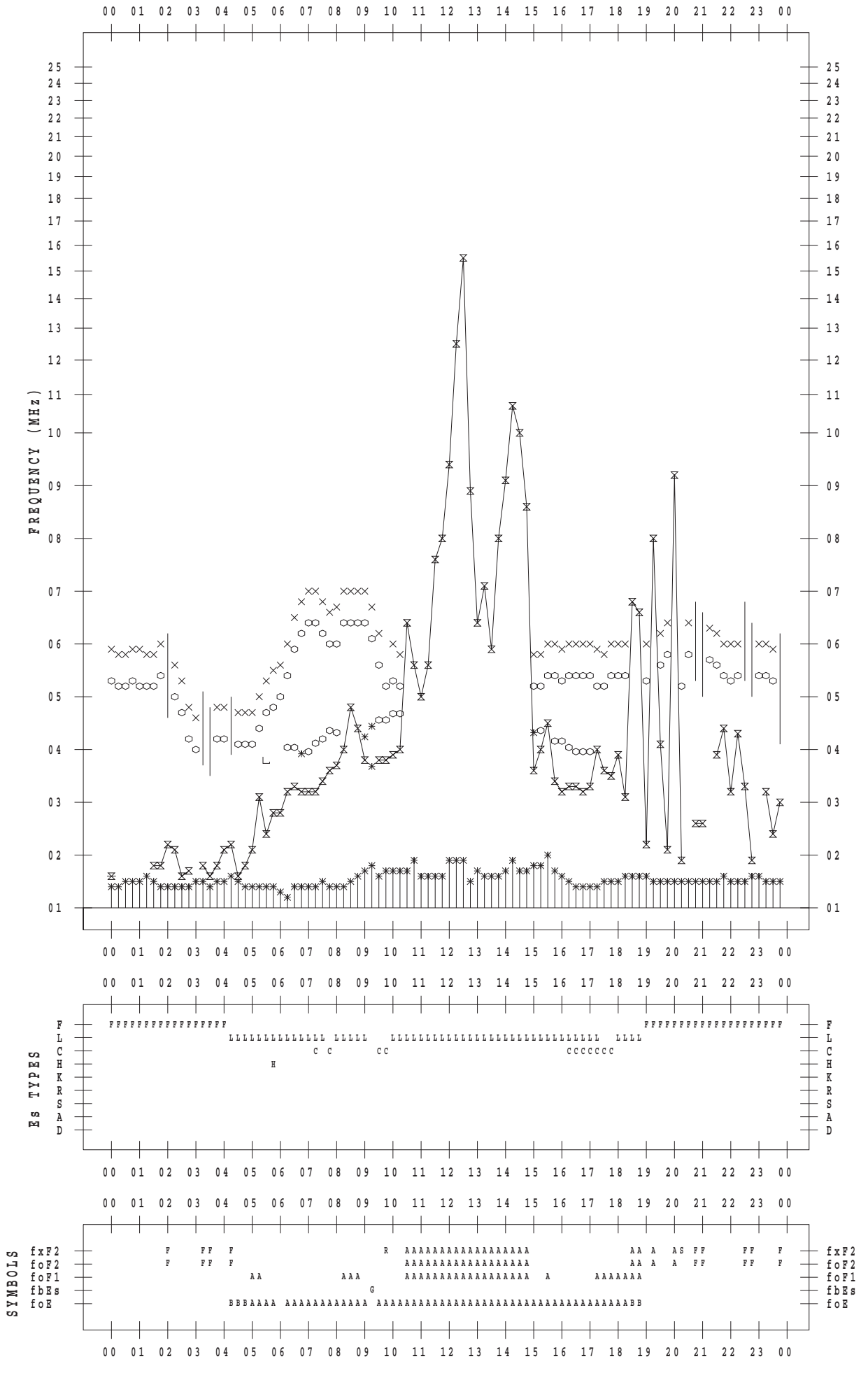
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2016/ 6/16

135 °E MEAN TIME



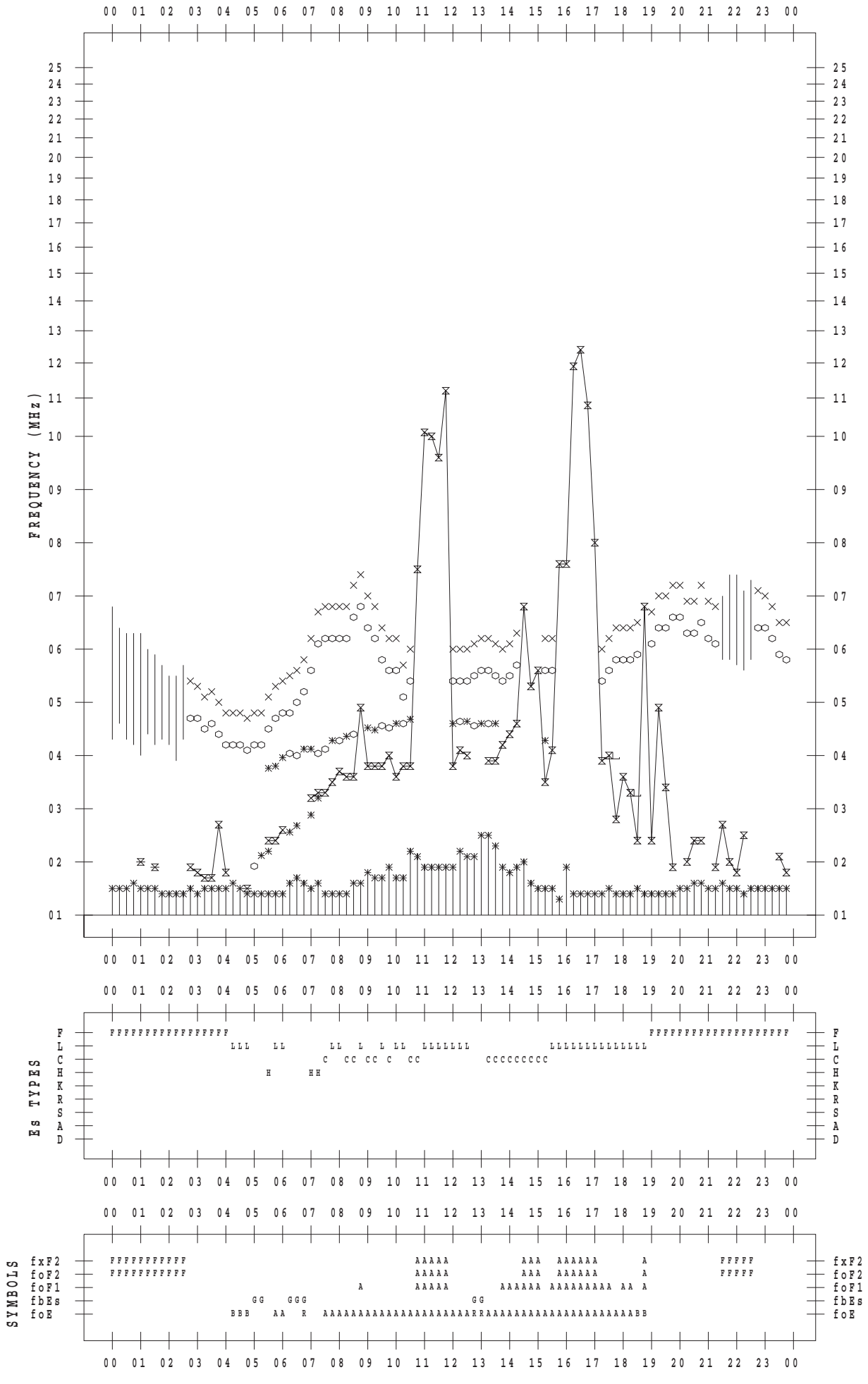
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2016/ 6/17

135 °E MEAN TIME



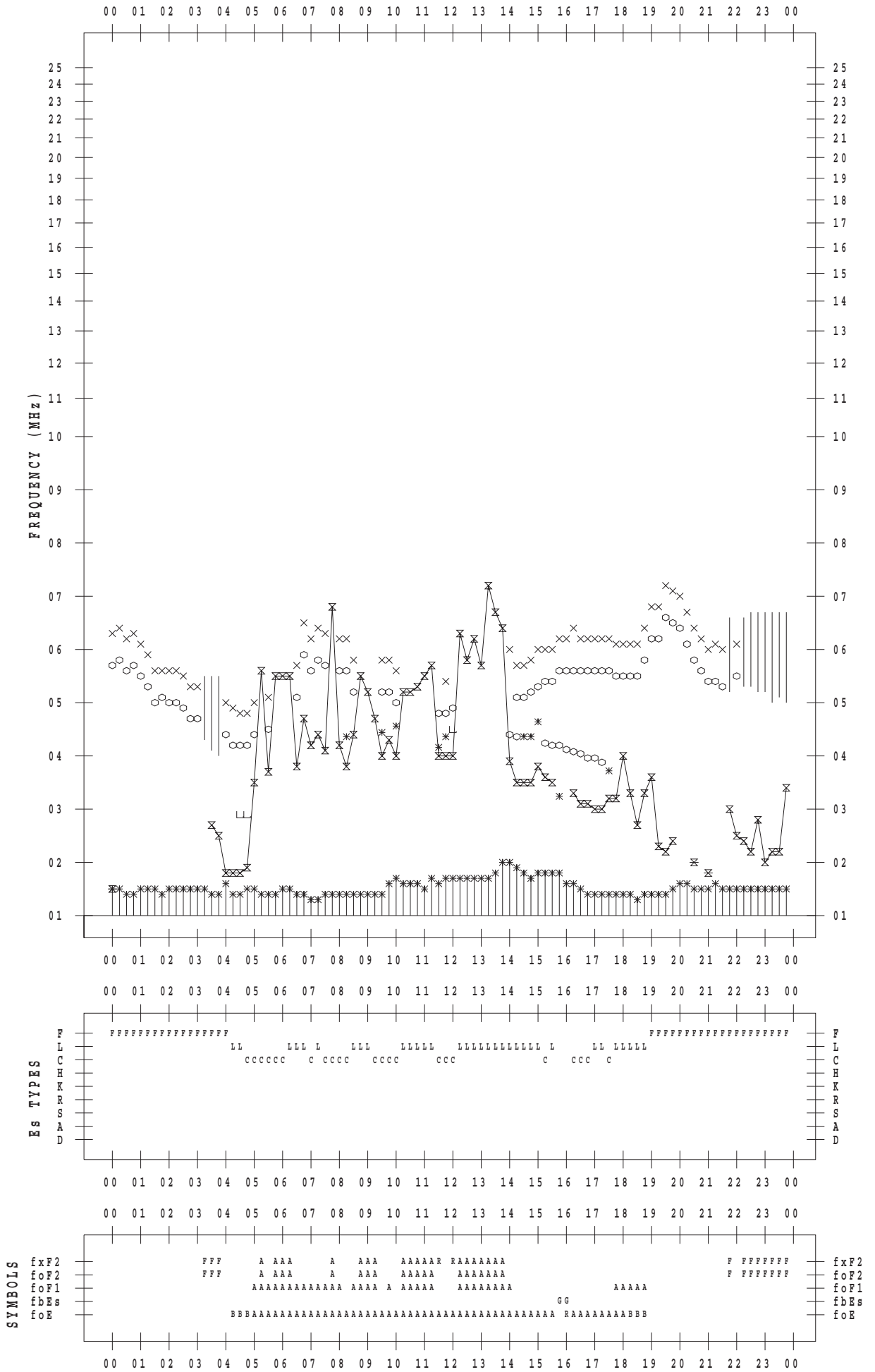
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2016/ 6/18

135 °E MEAN TIME



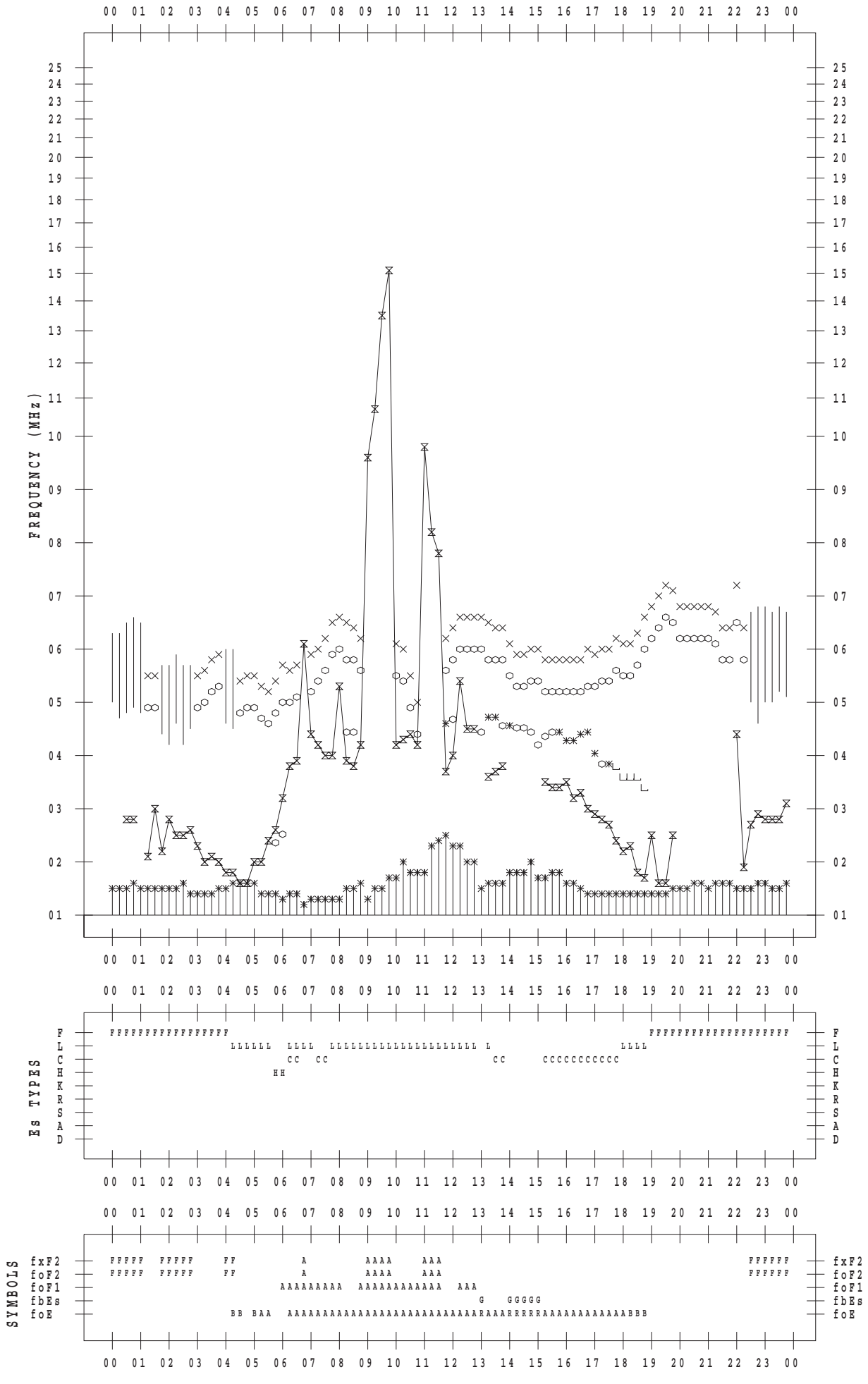
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2016/ 6/19

135 °E MEAN TIME



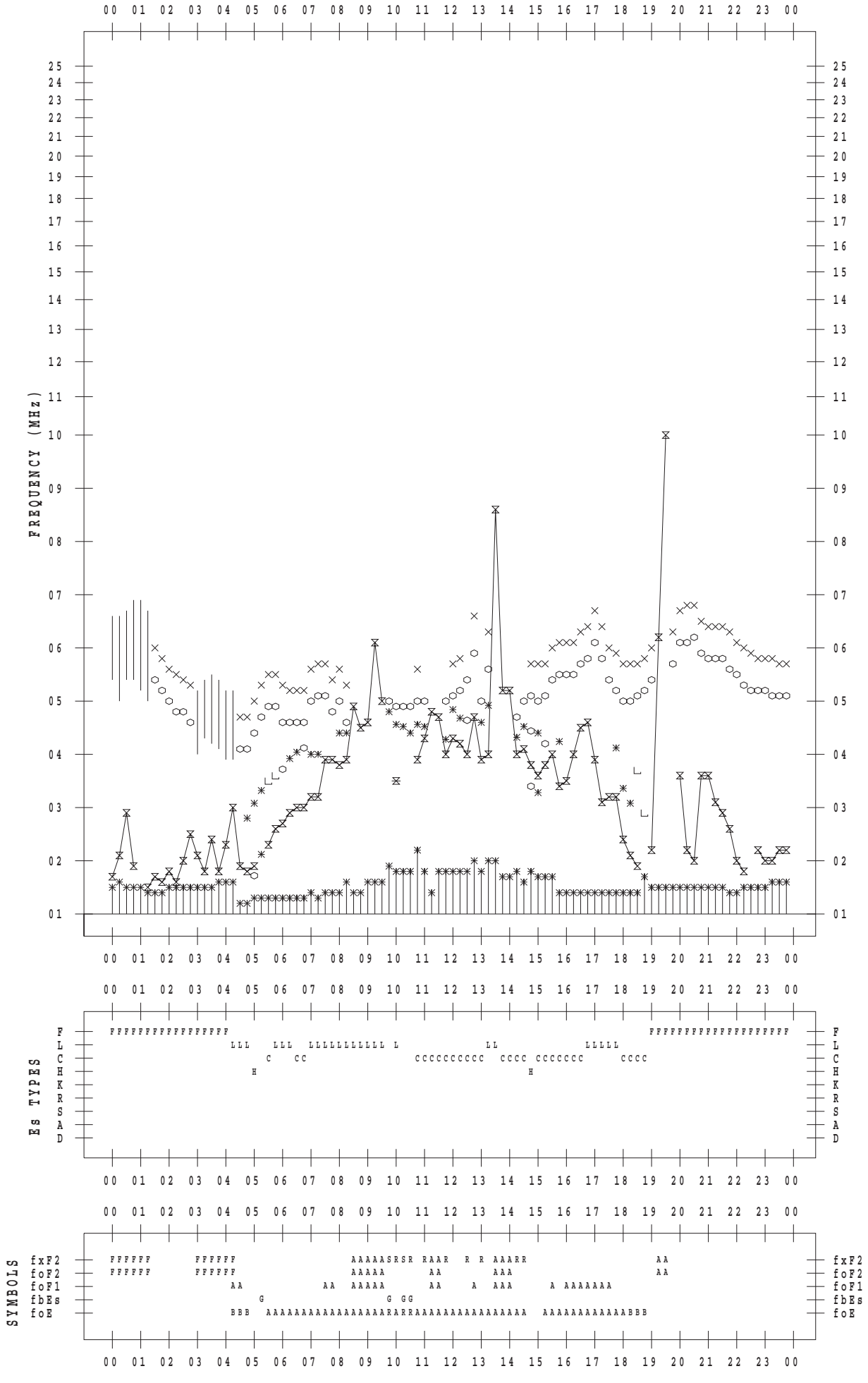
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2016/ 6/20

135 °E MEAN TIME



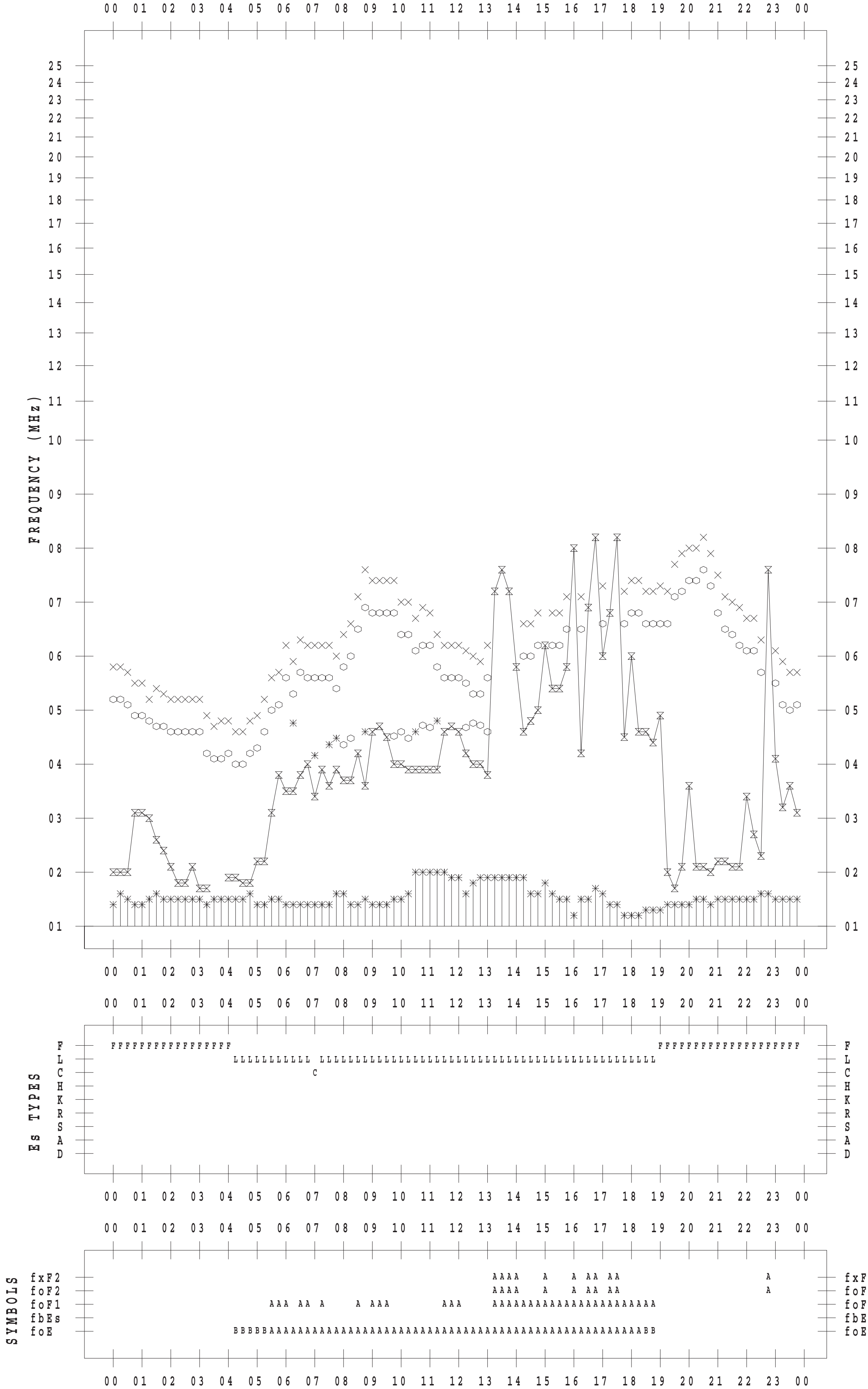
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2016/ 6/21

135 °E MEAN TIME

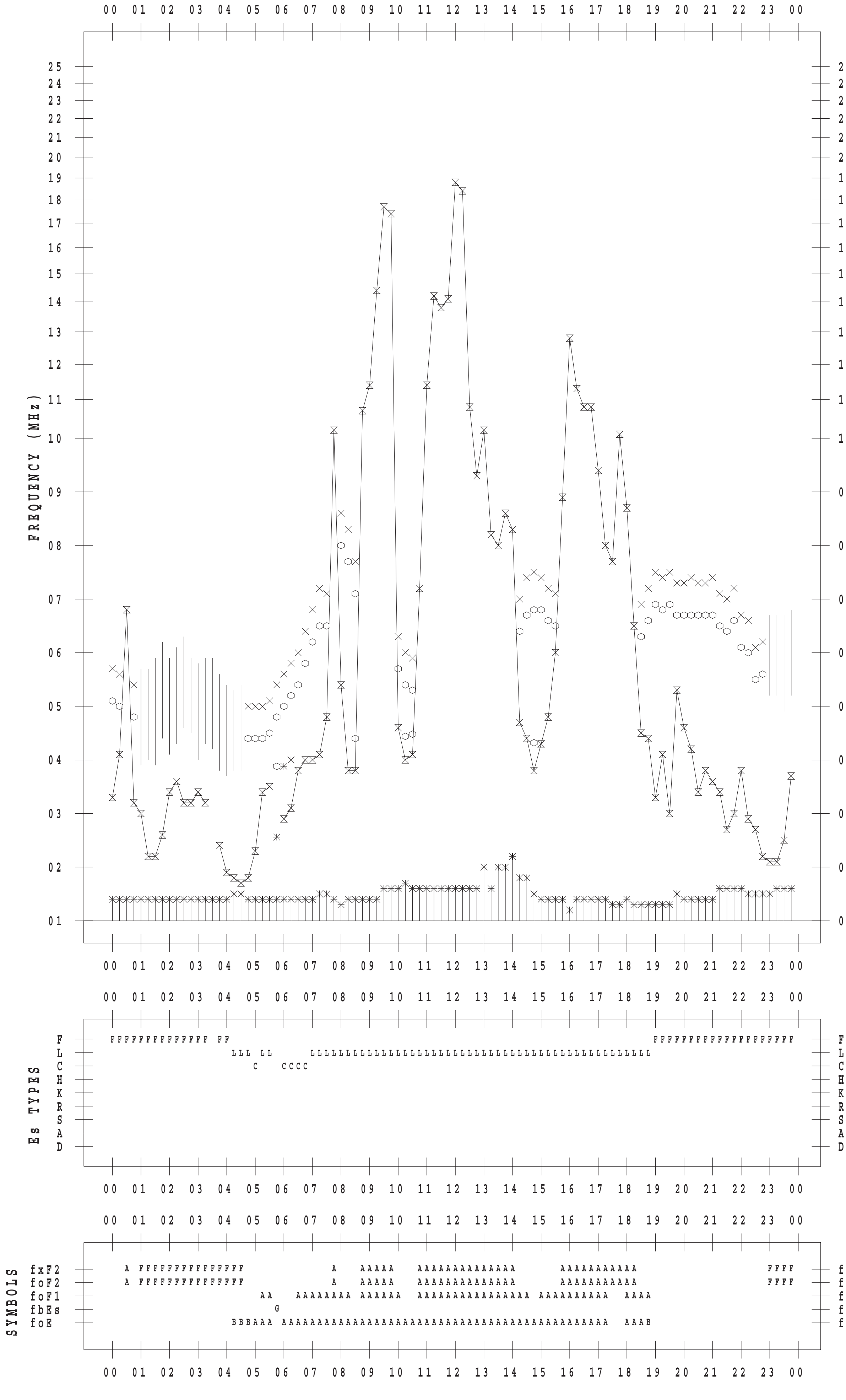


f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji   DATE : 2016/ 6/22

135 °E MEAN TIME



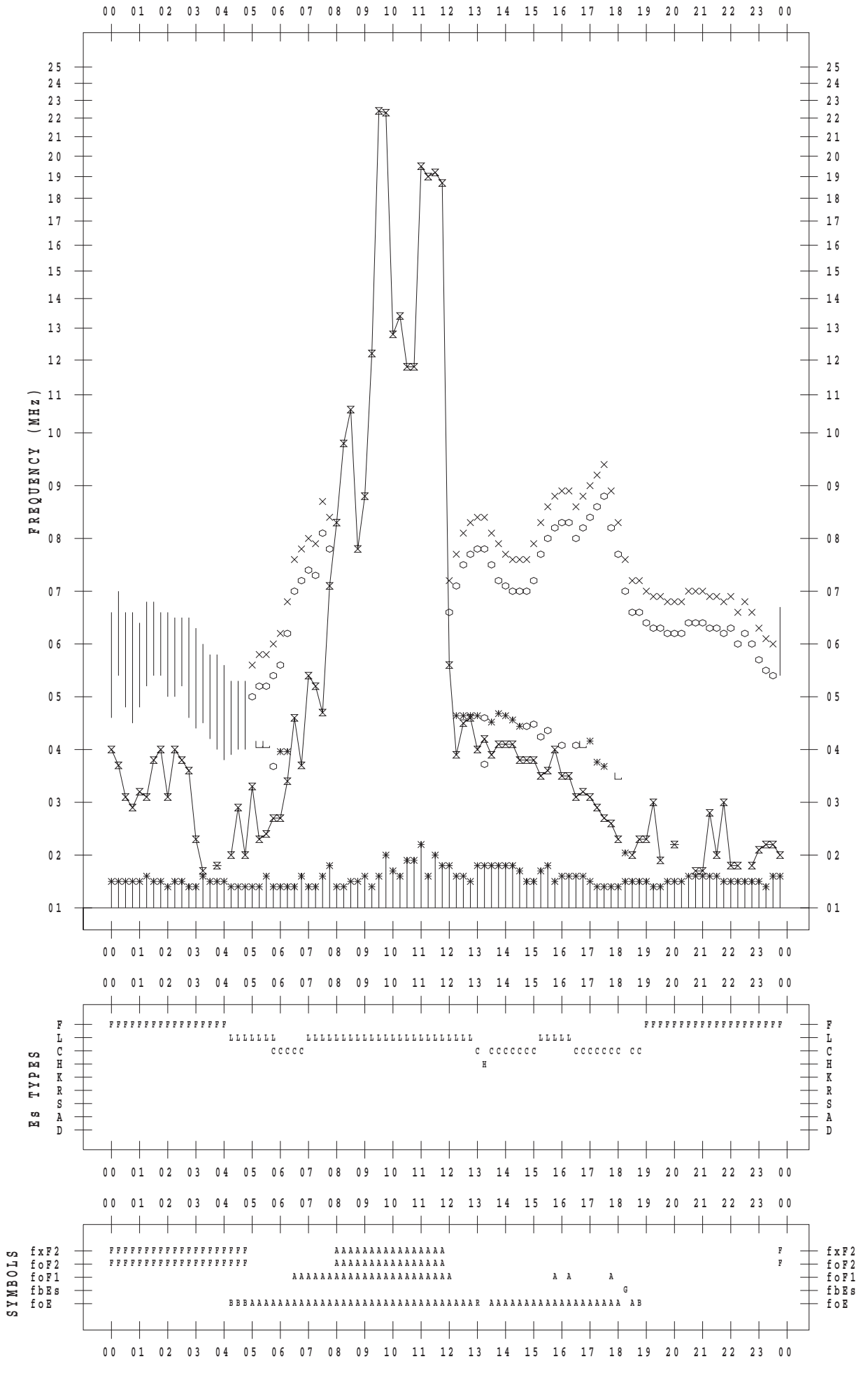
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2016/ 6/23

135 °E MEAN TIME



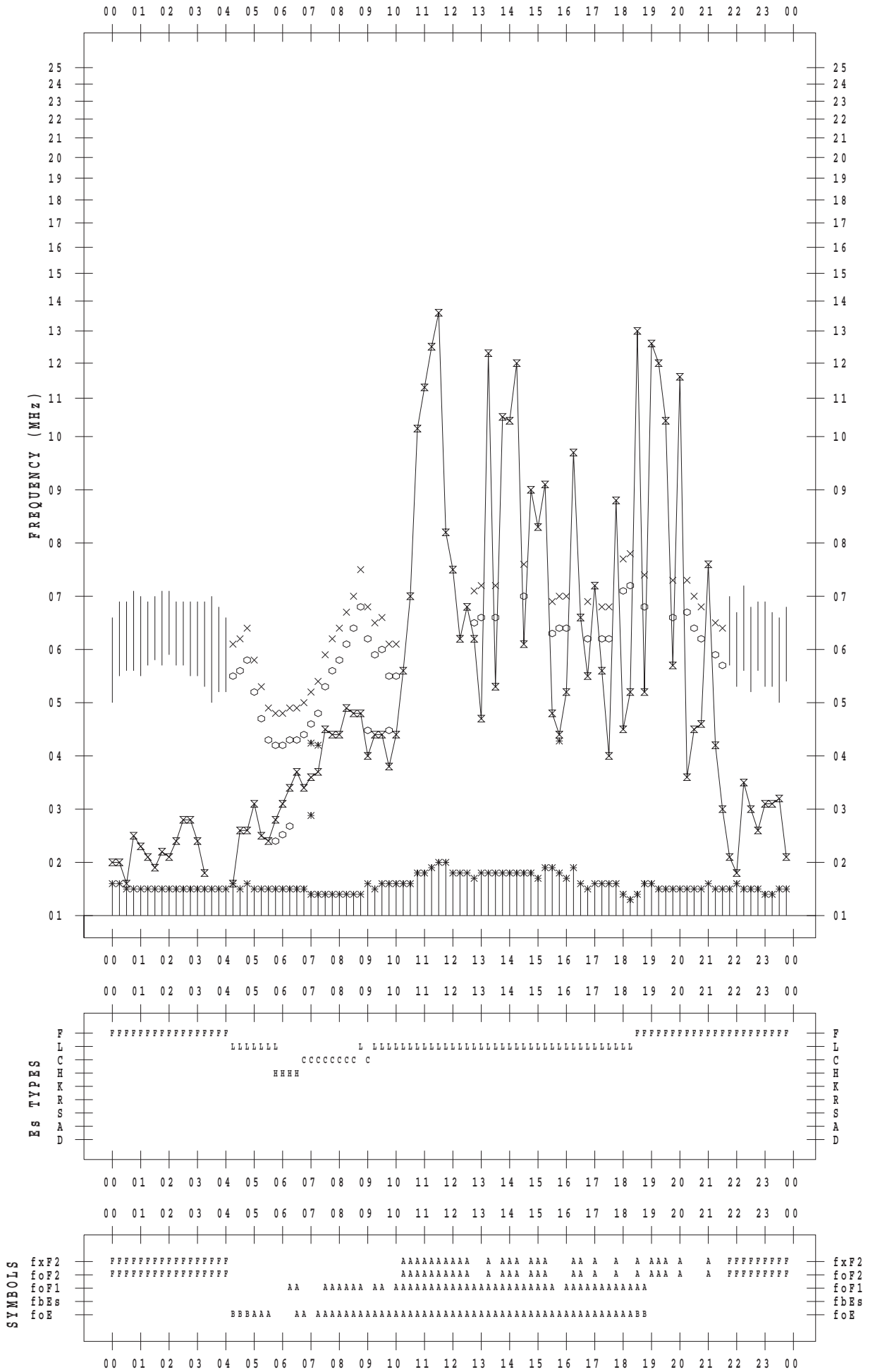
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2016/ 6/24

135 °E MEAN TIME



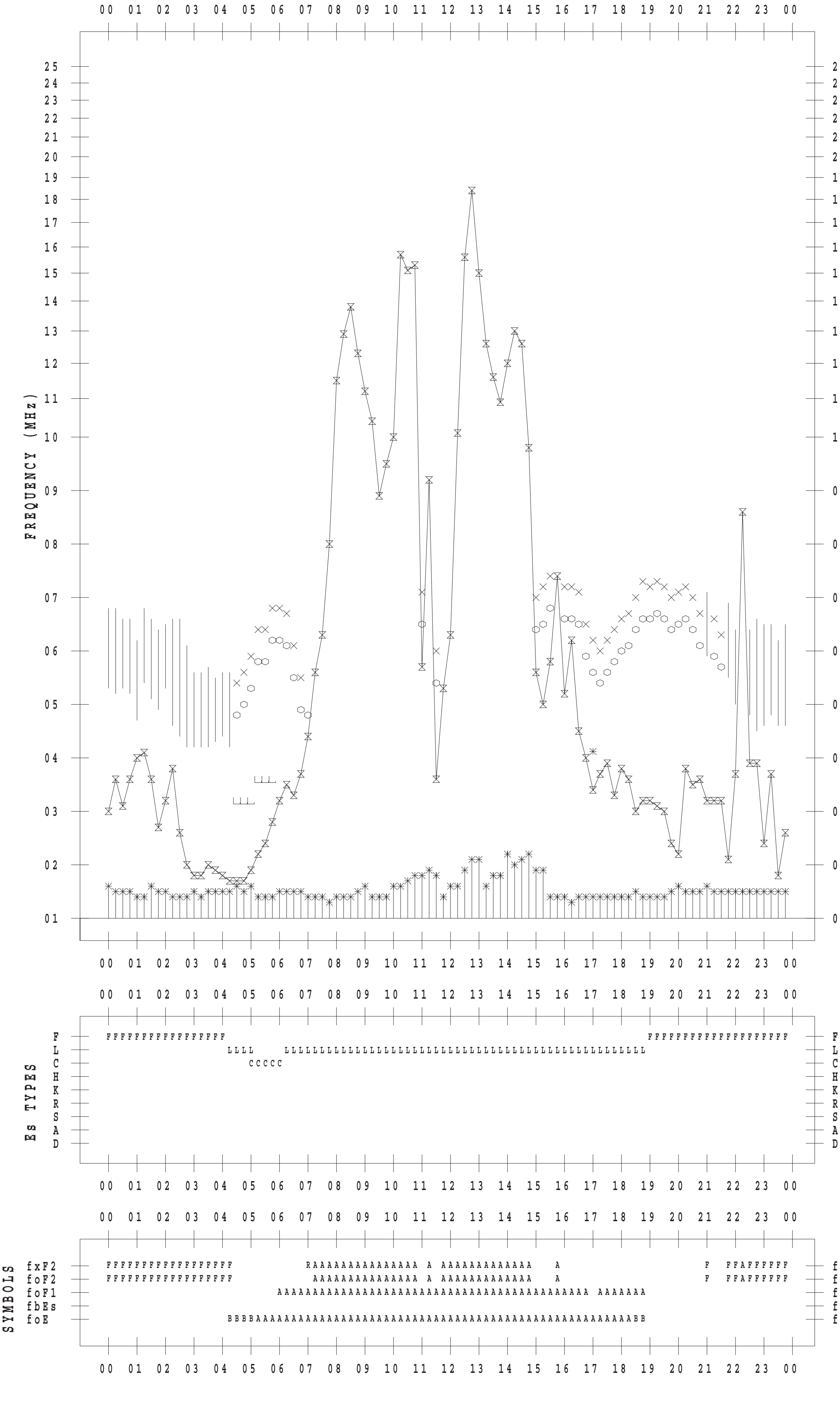
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2016/ 6/25

135 °E MEAN TIME

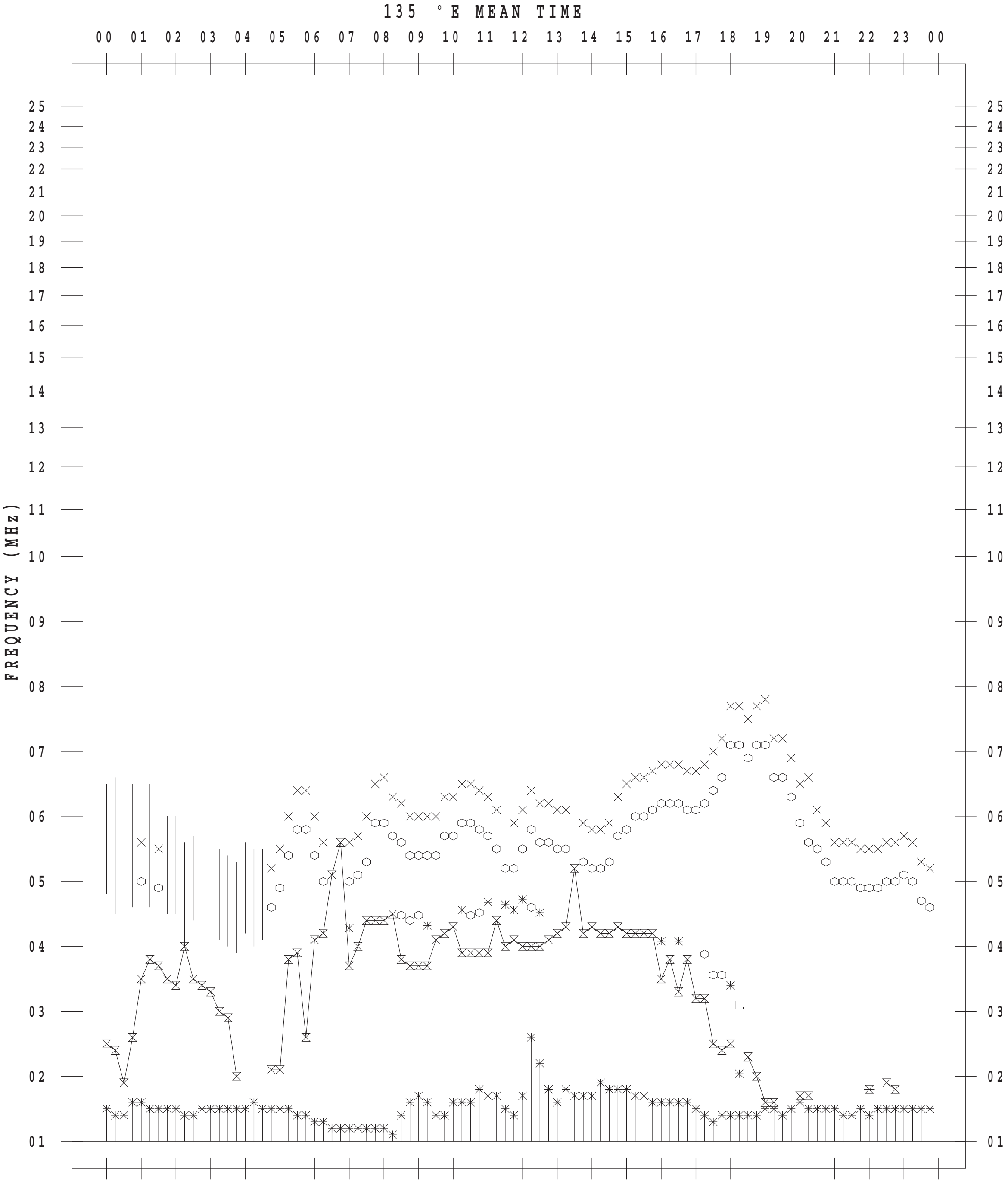


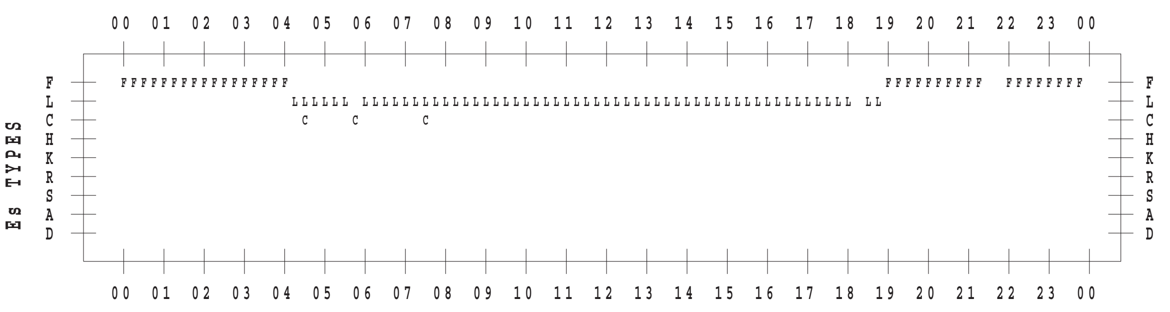
f-PLOT DATA

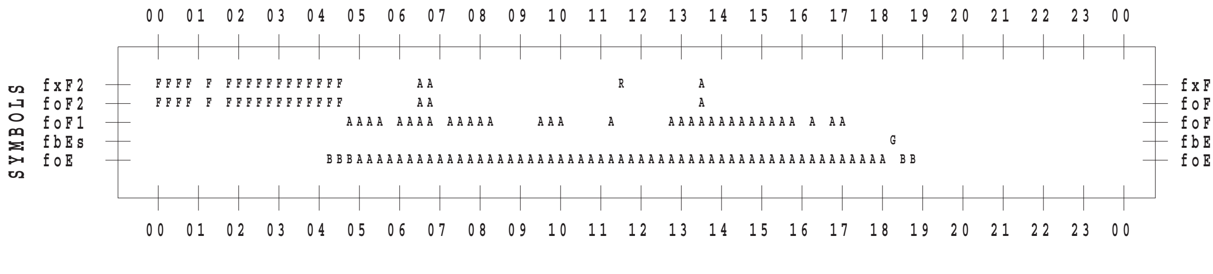
SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2016/ 6/26







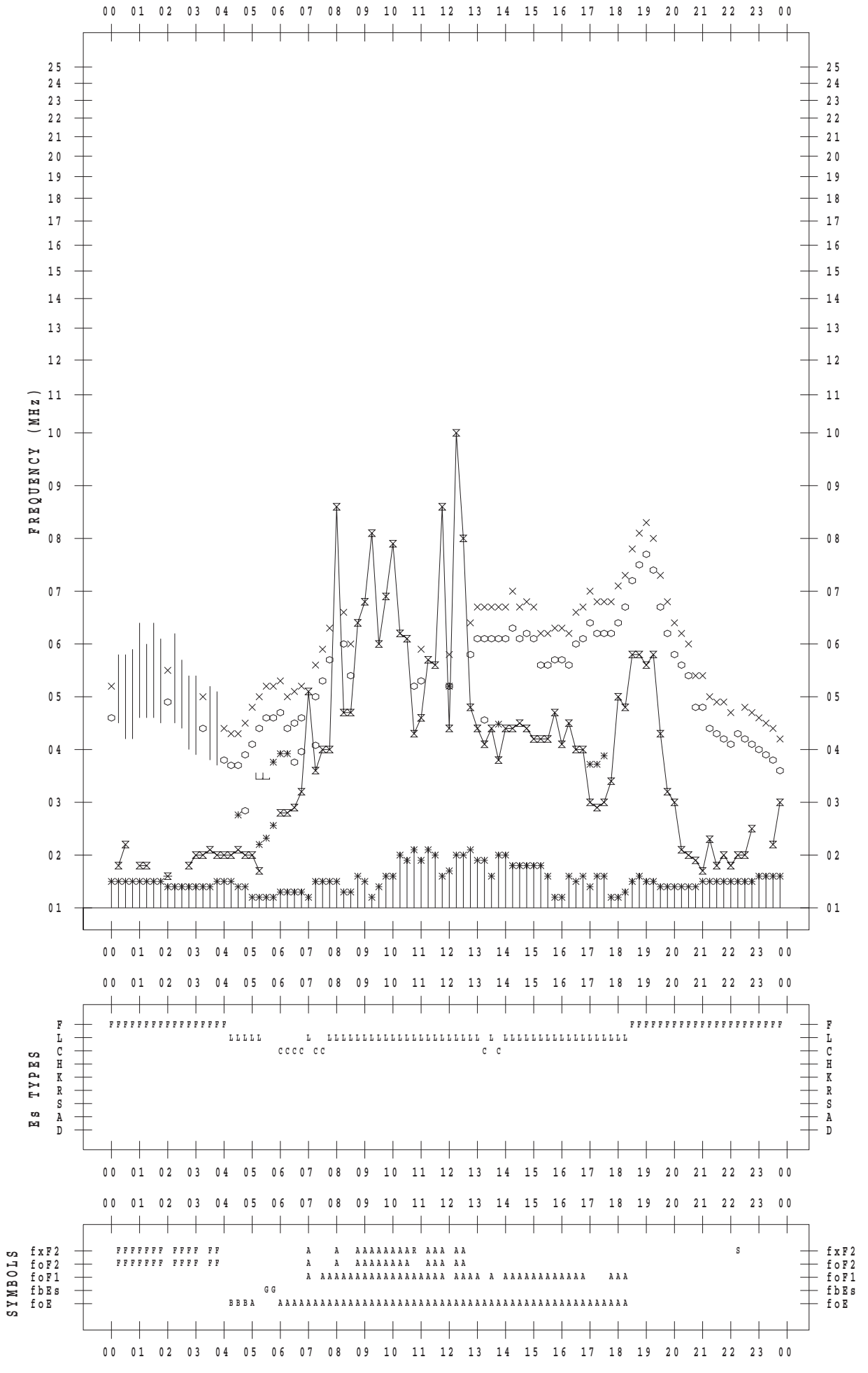
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2016/ 6/27

135 °E MEAN TIME



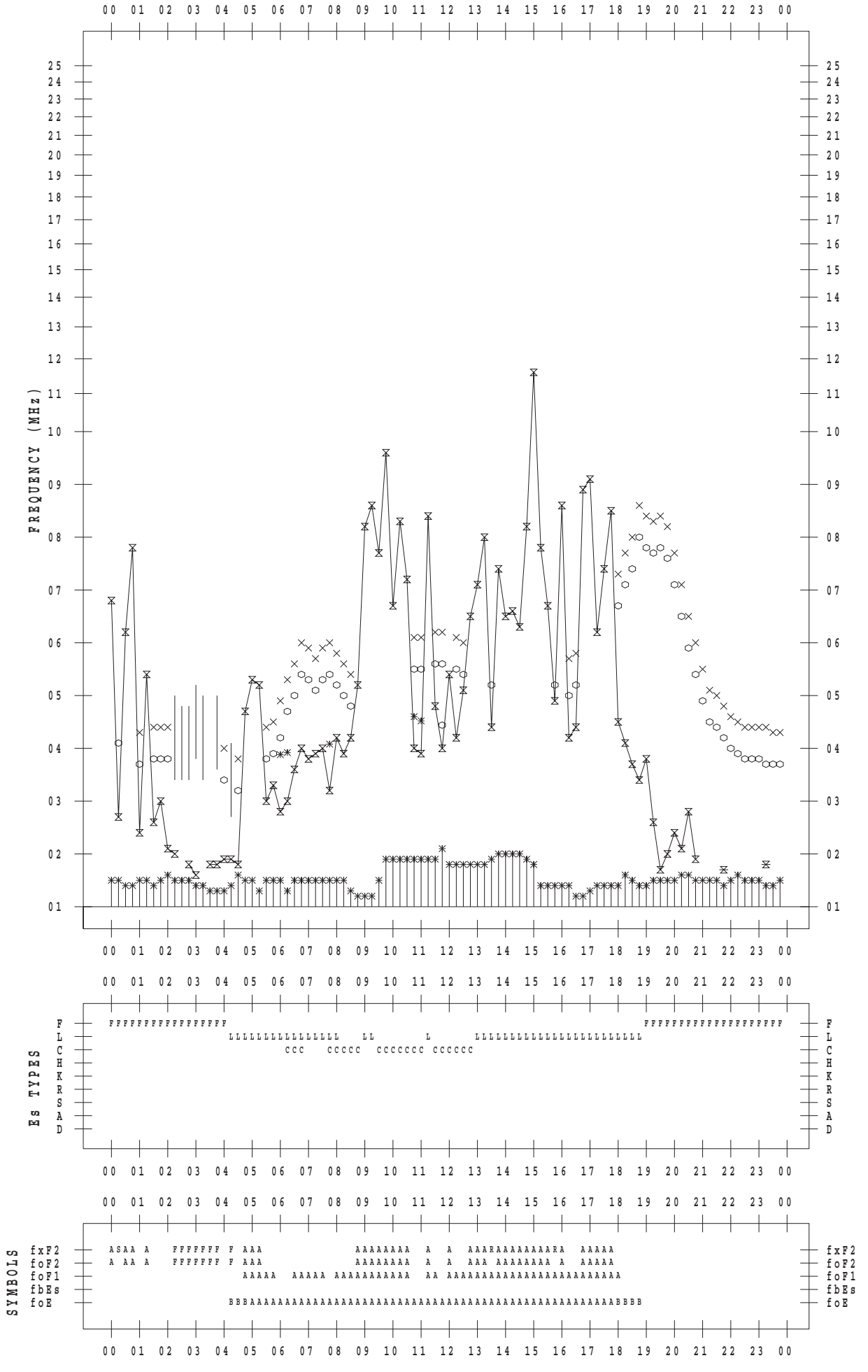
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2016/ 6/28

135 °E MEAN TIME



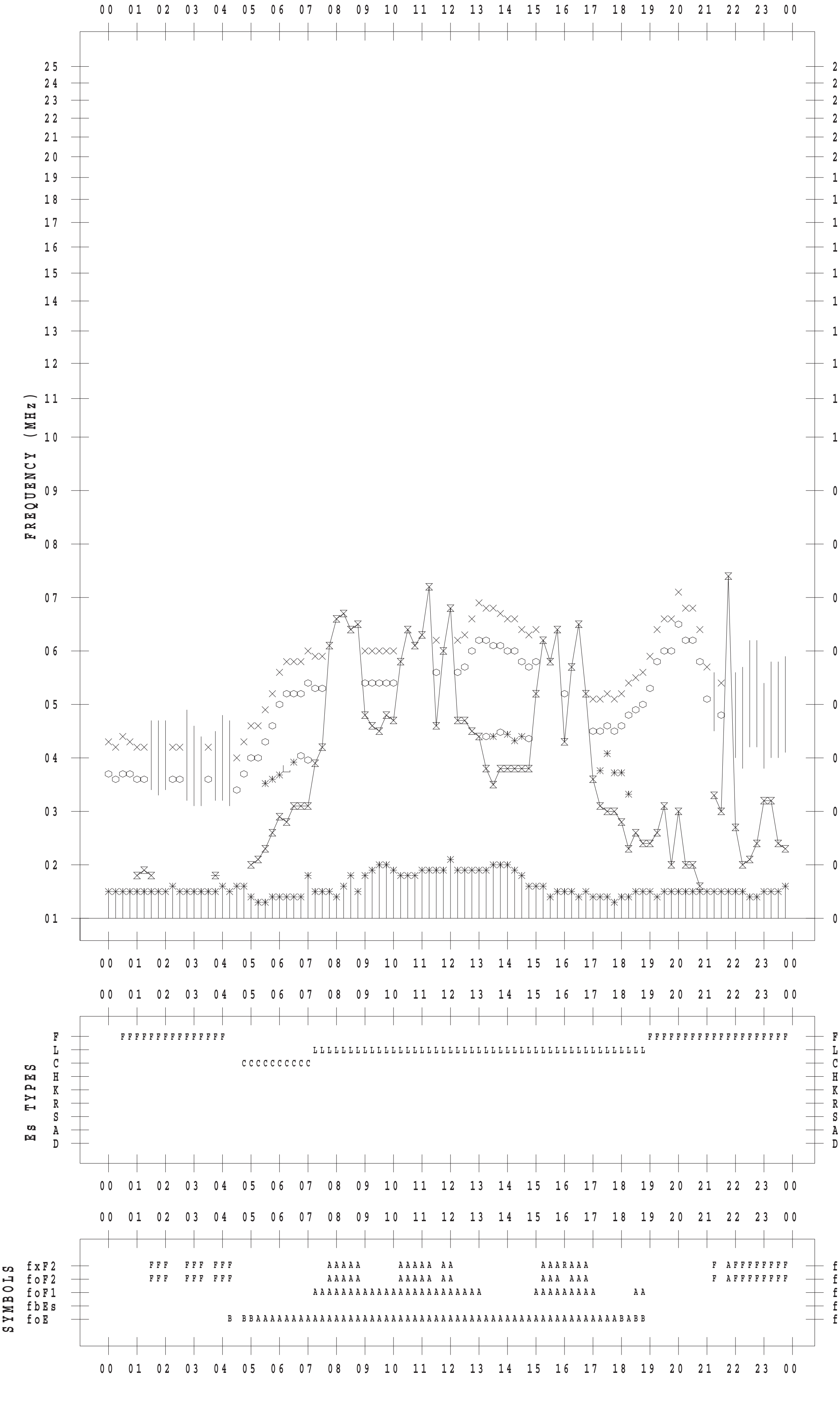
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2016/ 6/29

135 °E MEAN TIME



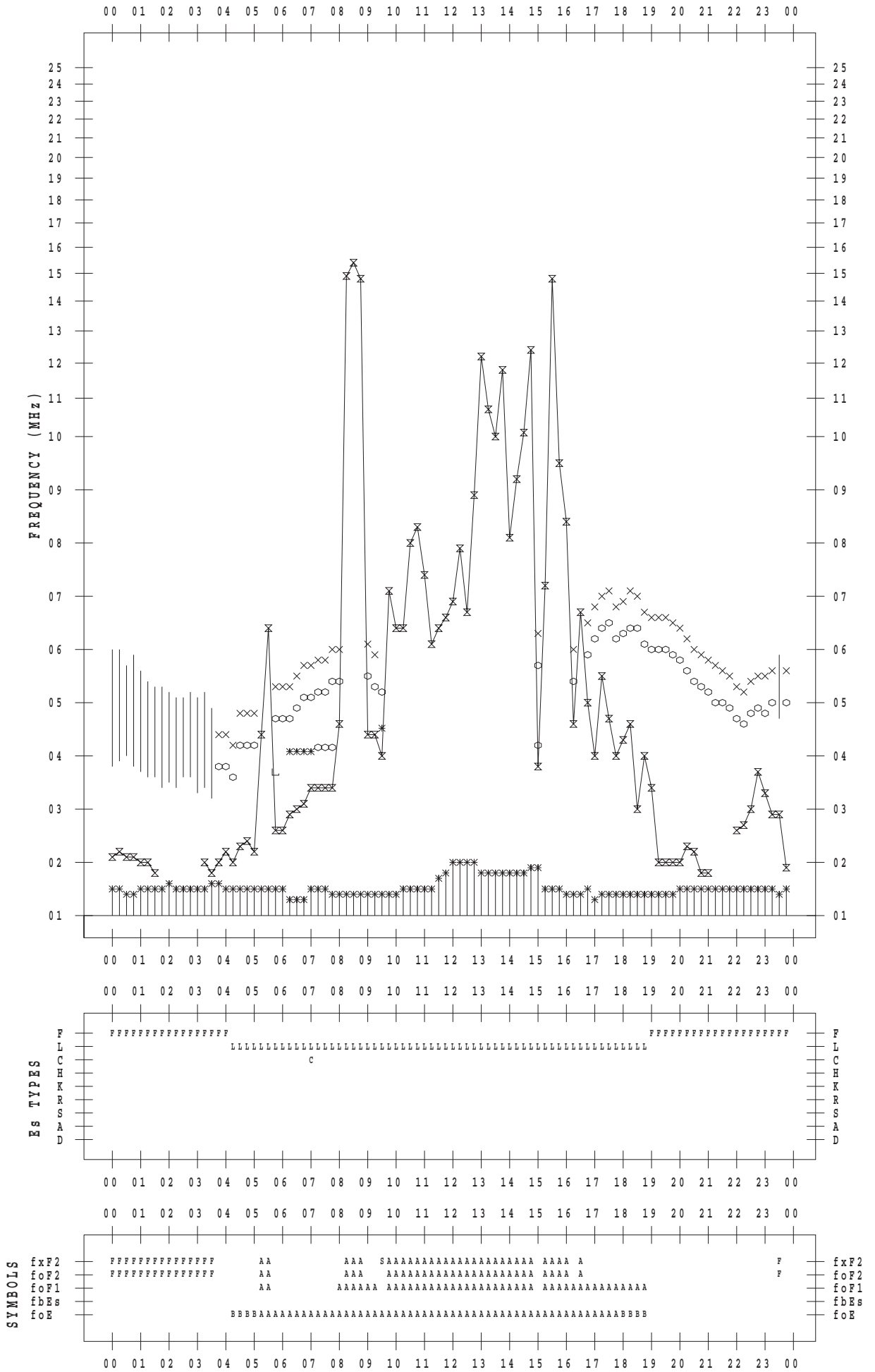
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2016/ 6/30

135 °E MEAN TIME



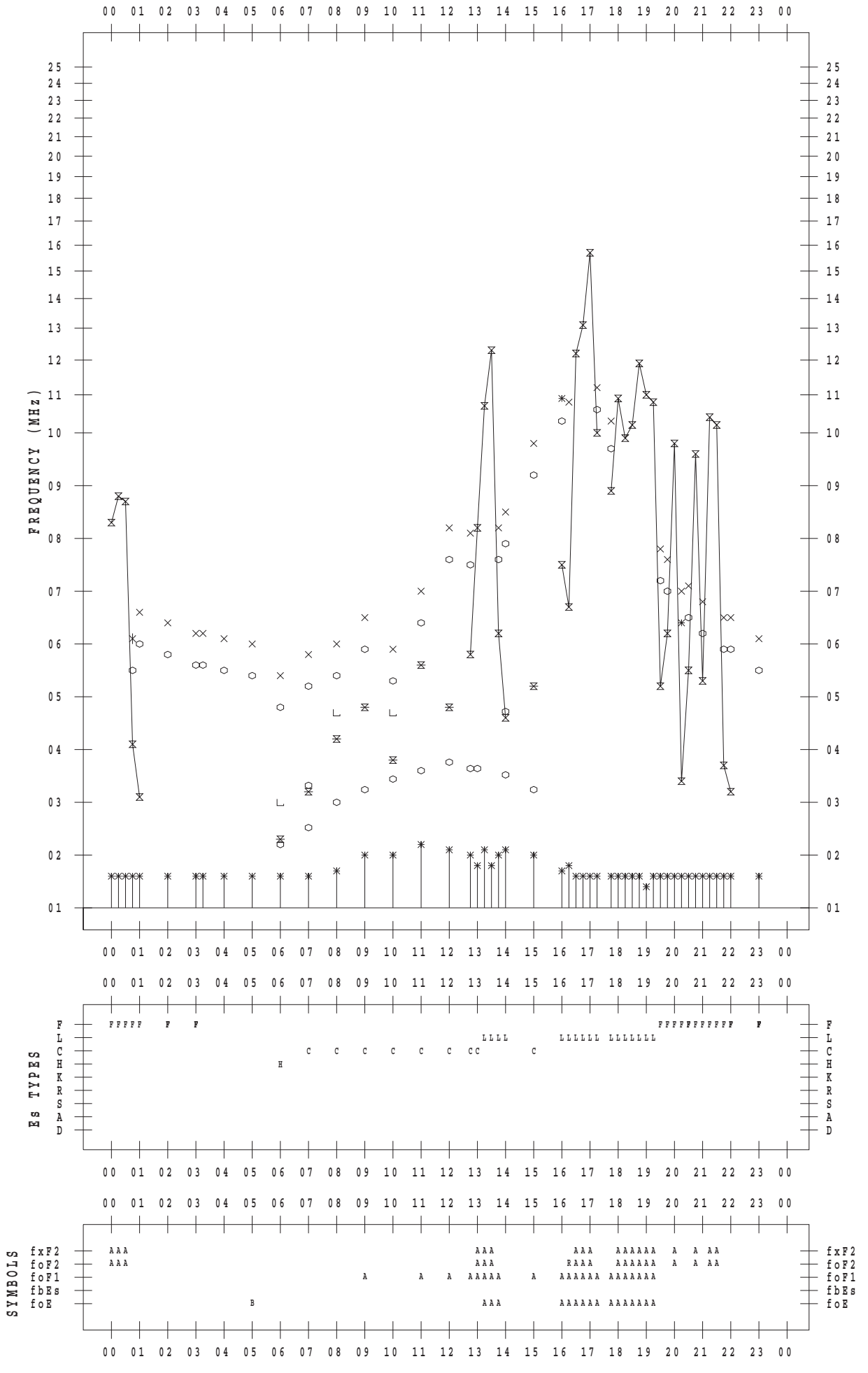
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2016/ 6/ 1

135 °E MEAN TIME



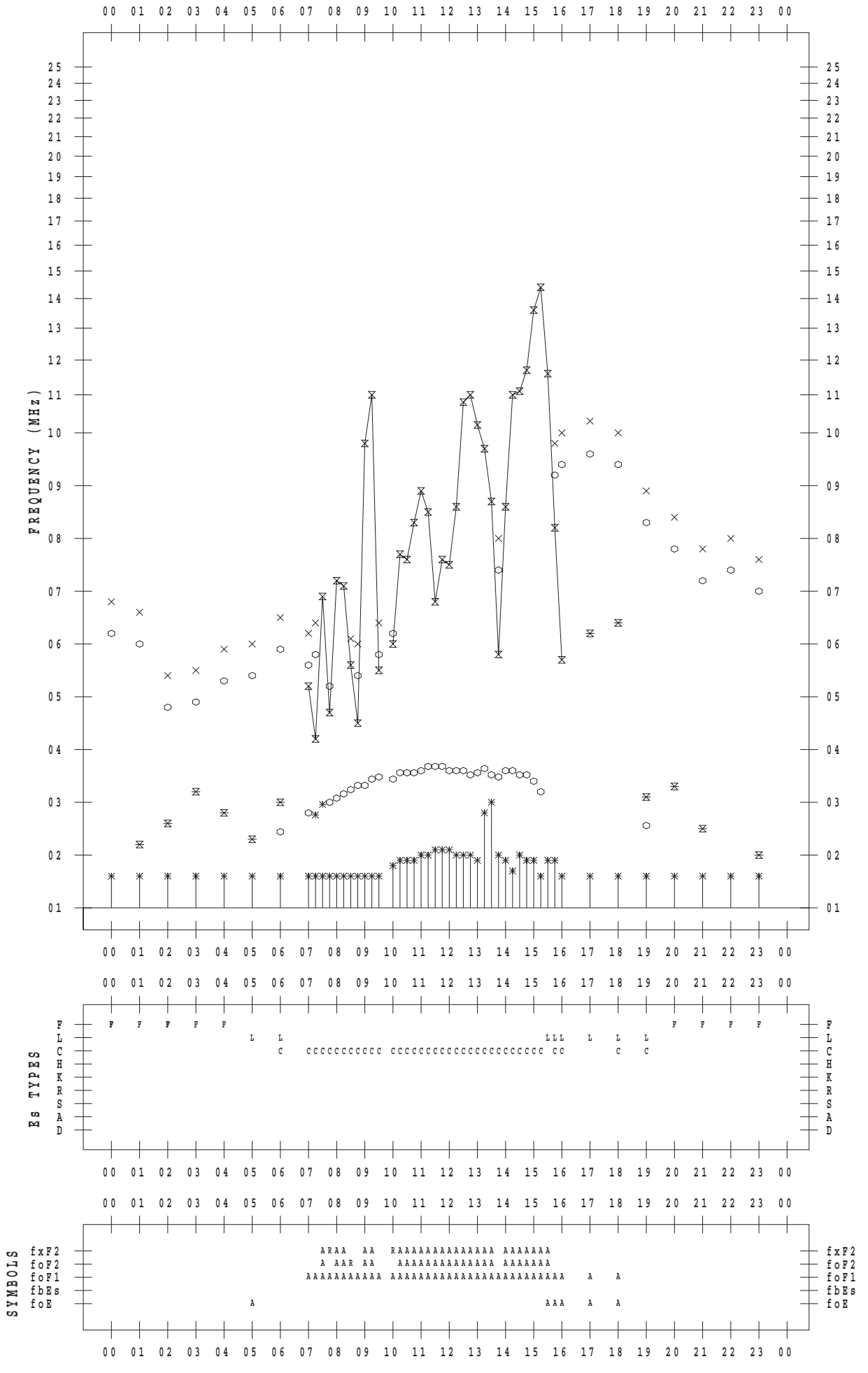
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2016/ 6/ 2

135 °E MEAN TIME



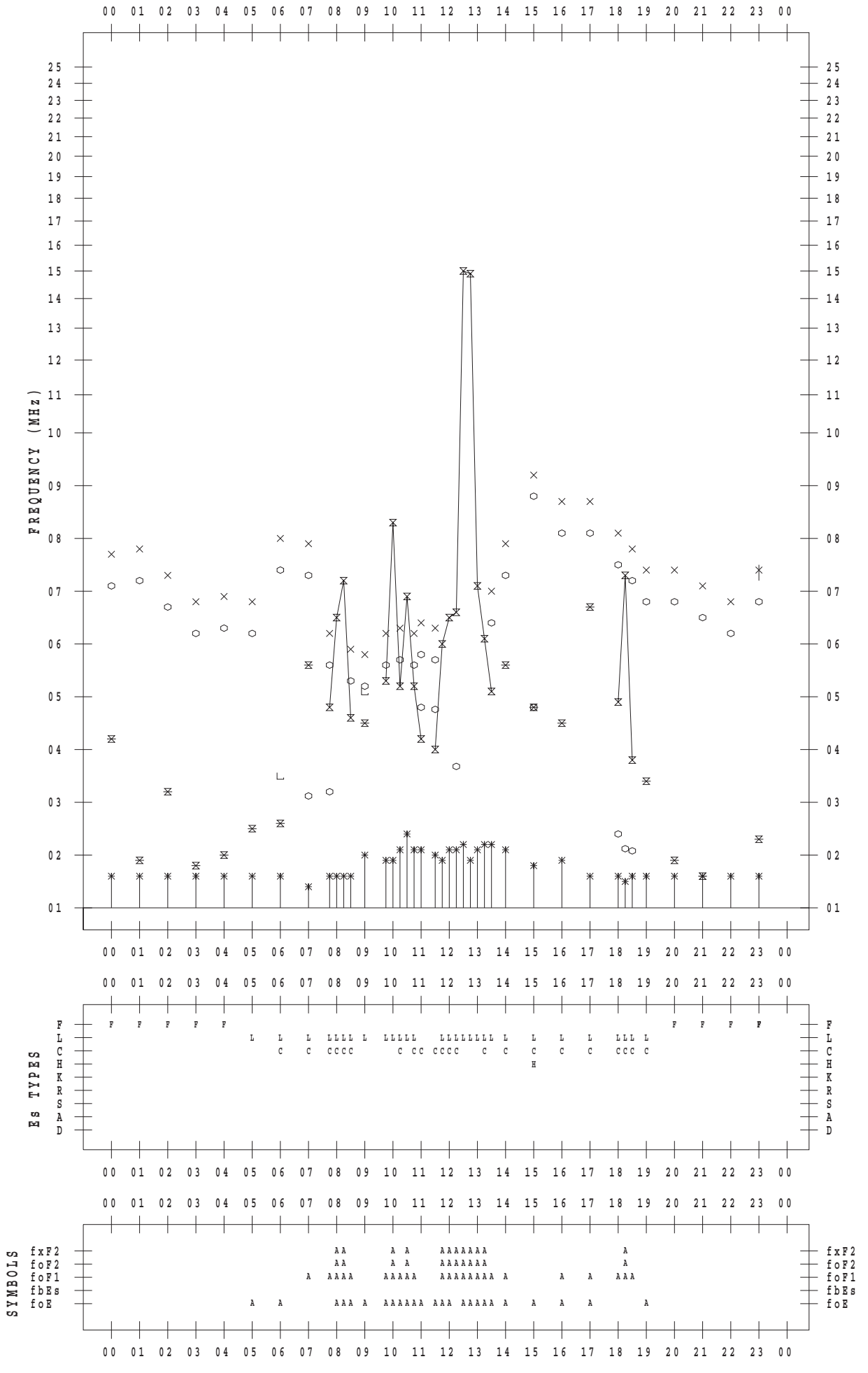
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2016/ 6/ 3

135 °E MEAN TIME



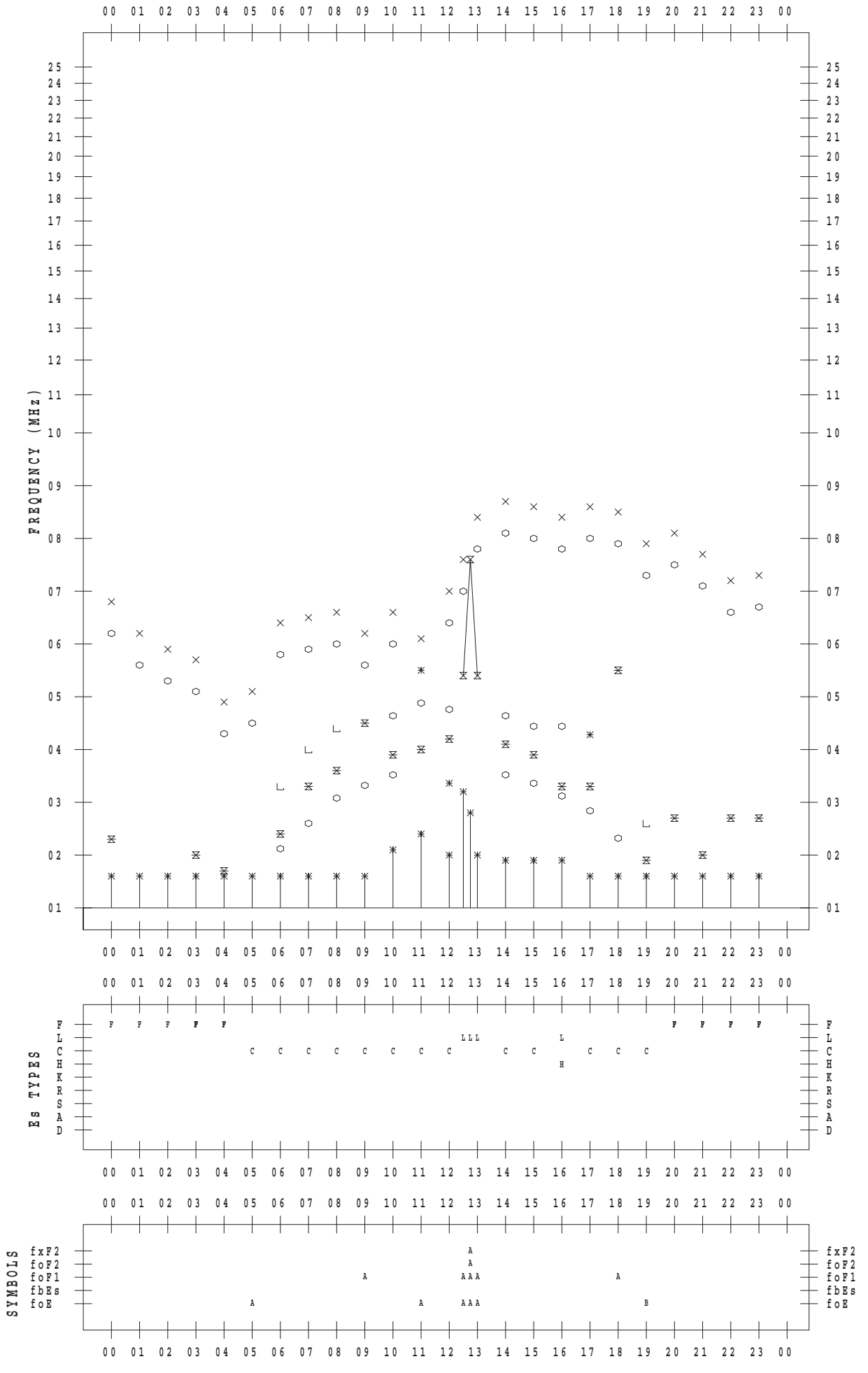
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2016/ 6/ 4

135 °E MEAN TIME



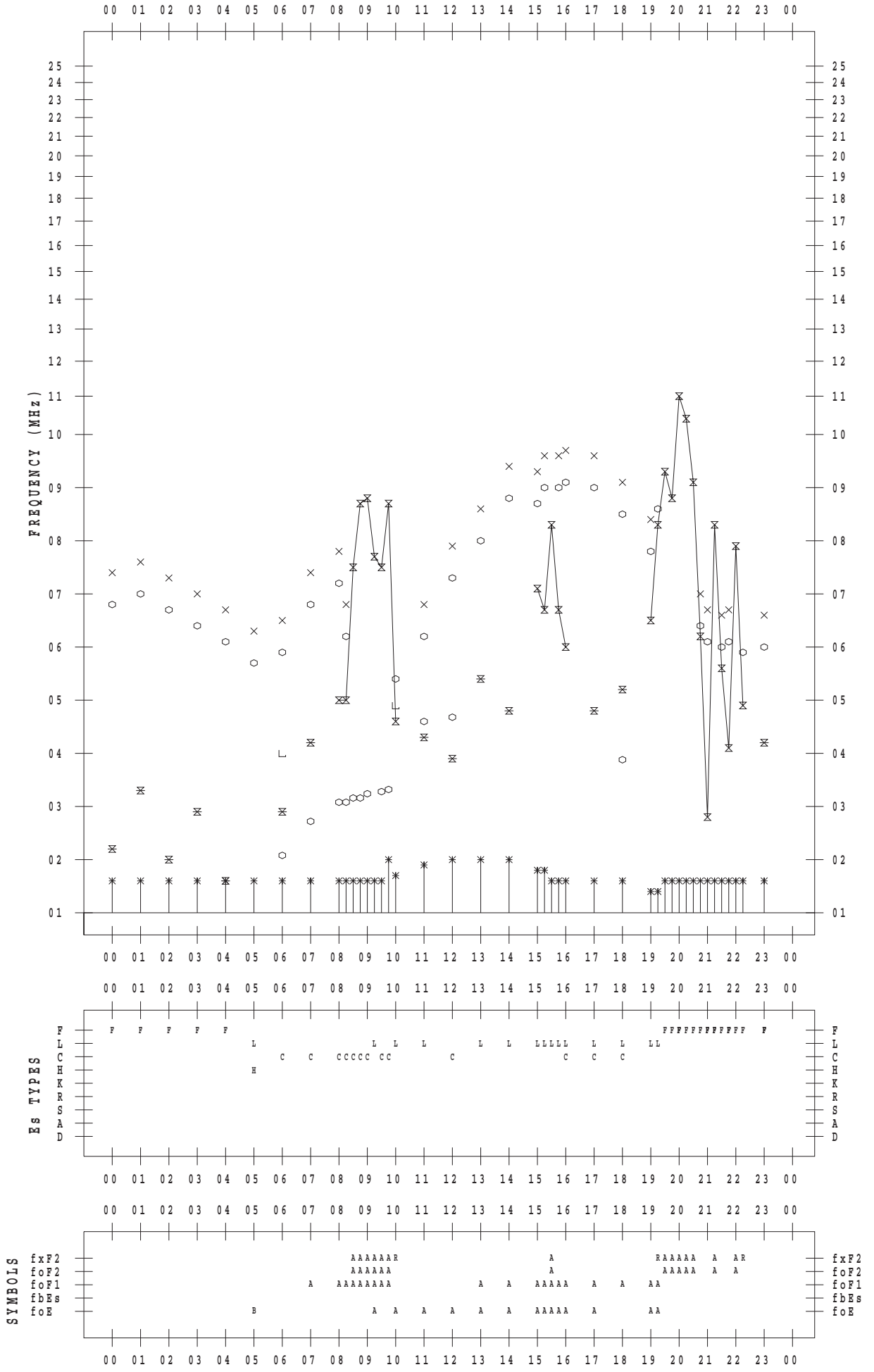
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2016/ 6/ 5

135 °E MEAN TIME



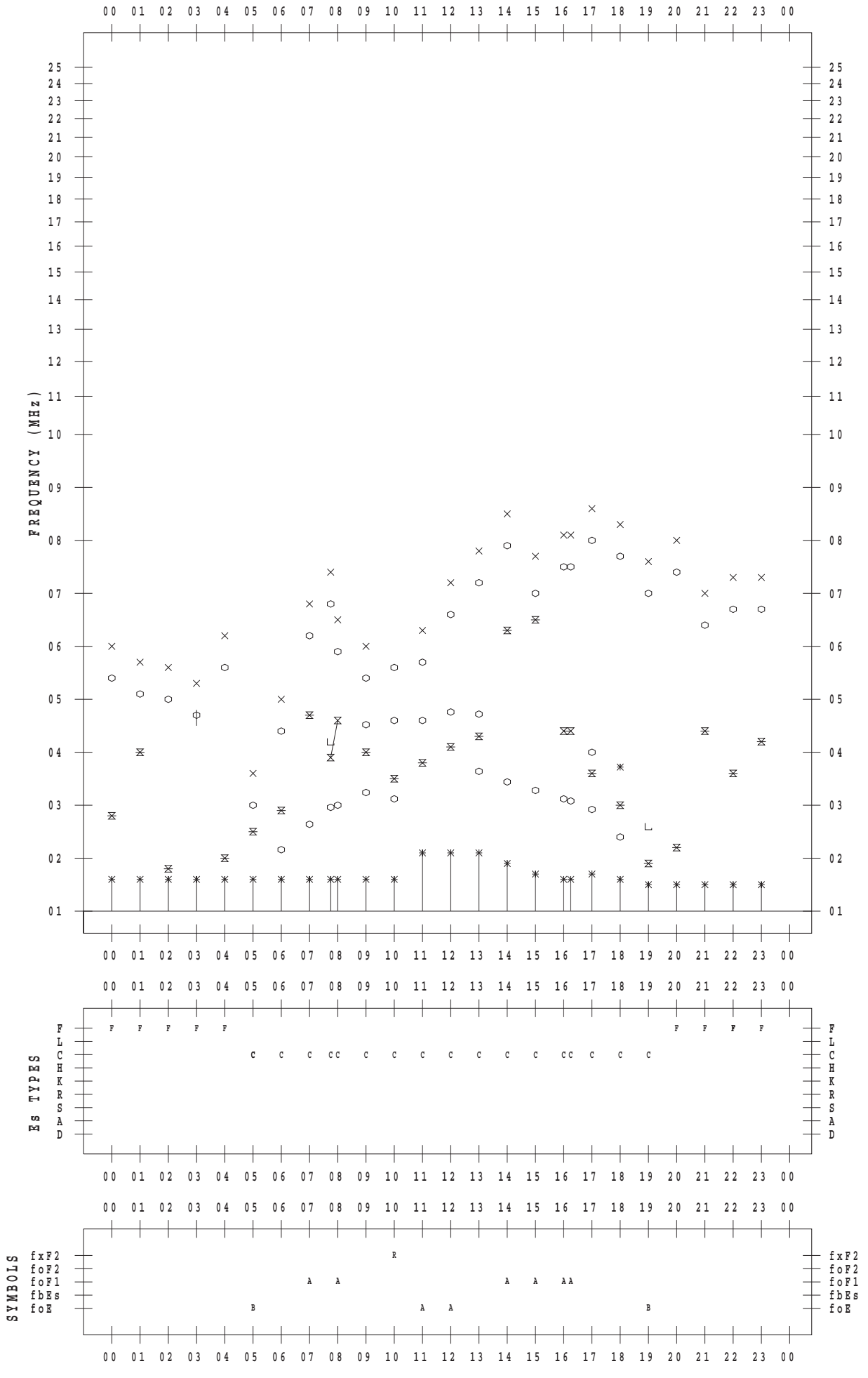
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2016/ 6/ 6

135 °E MEAN TIME



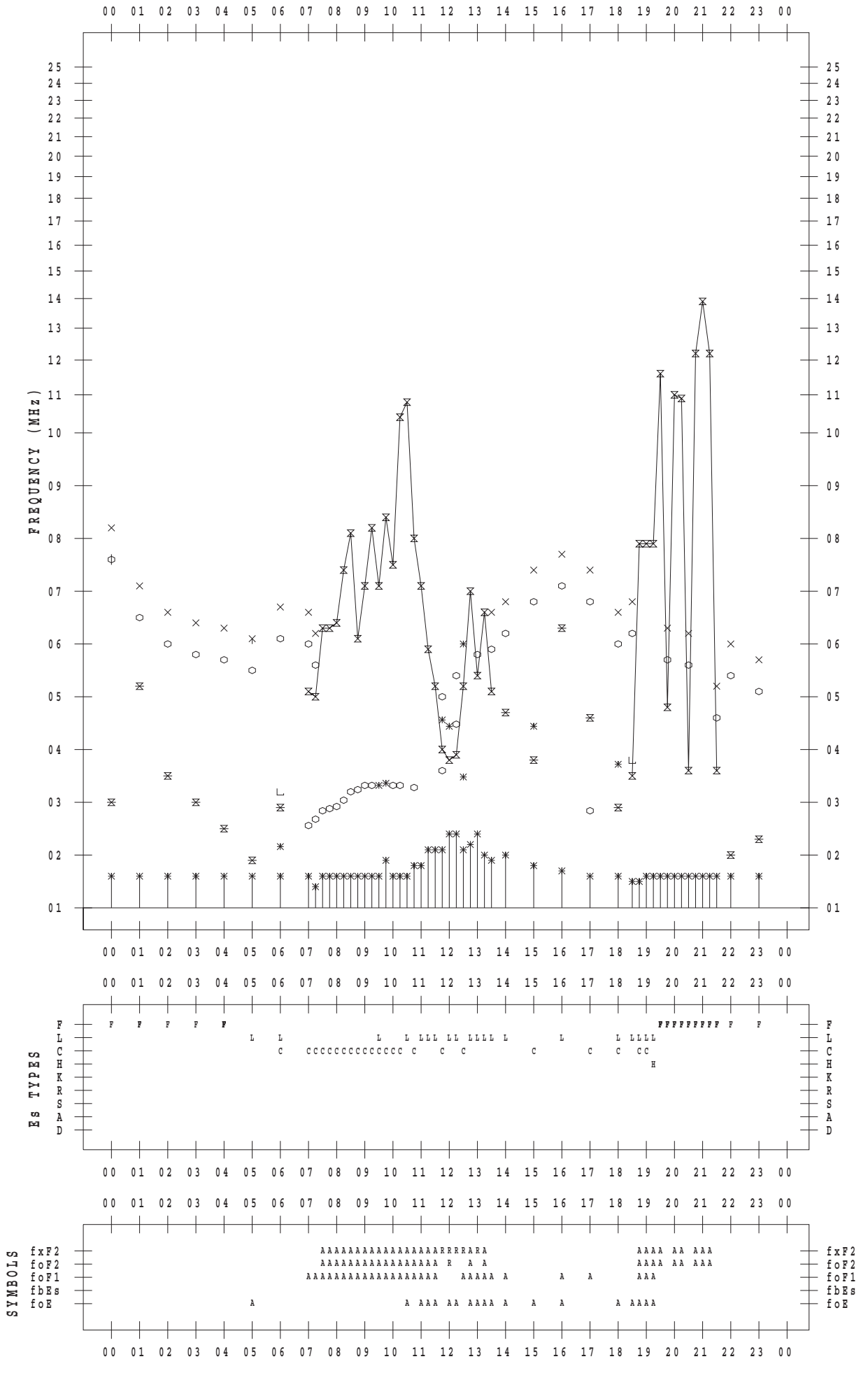
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2016/ 6/ 7

135 °E MEAN TIME



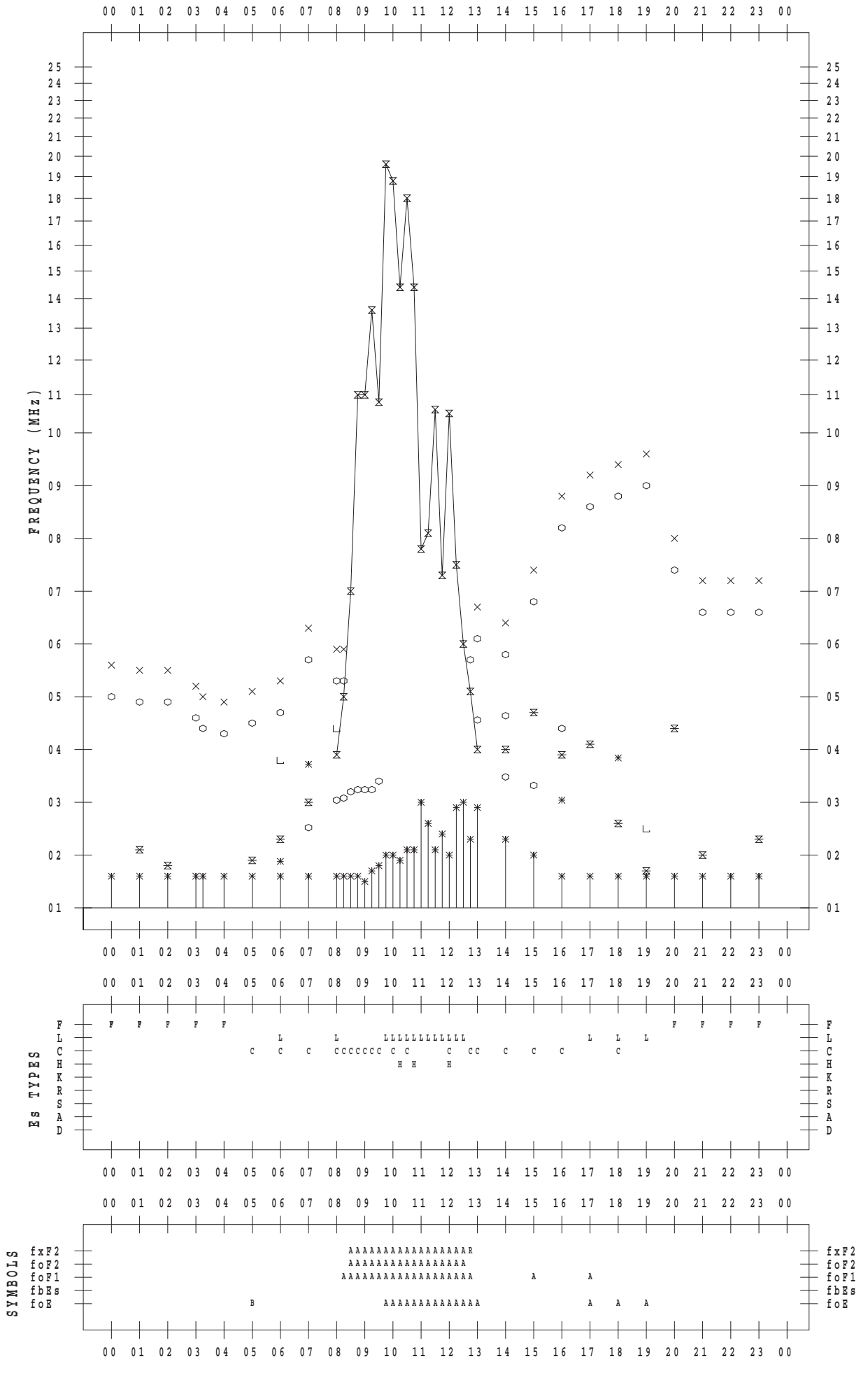
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2016/ 6/ 8

135 °E MEAN TIME



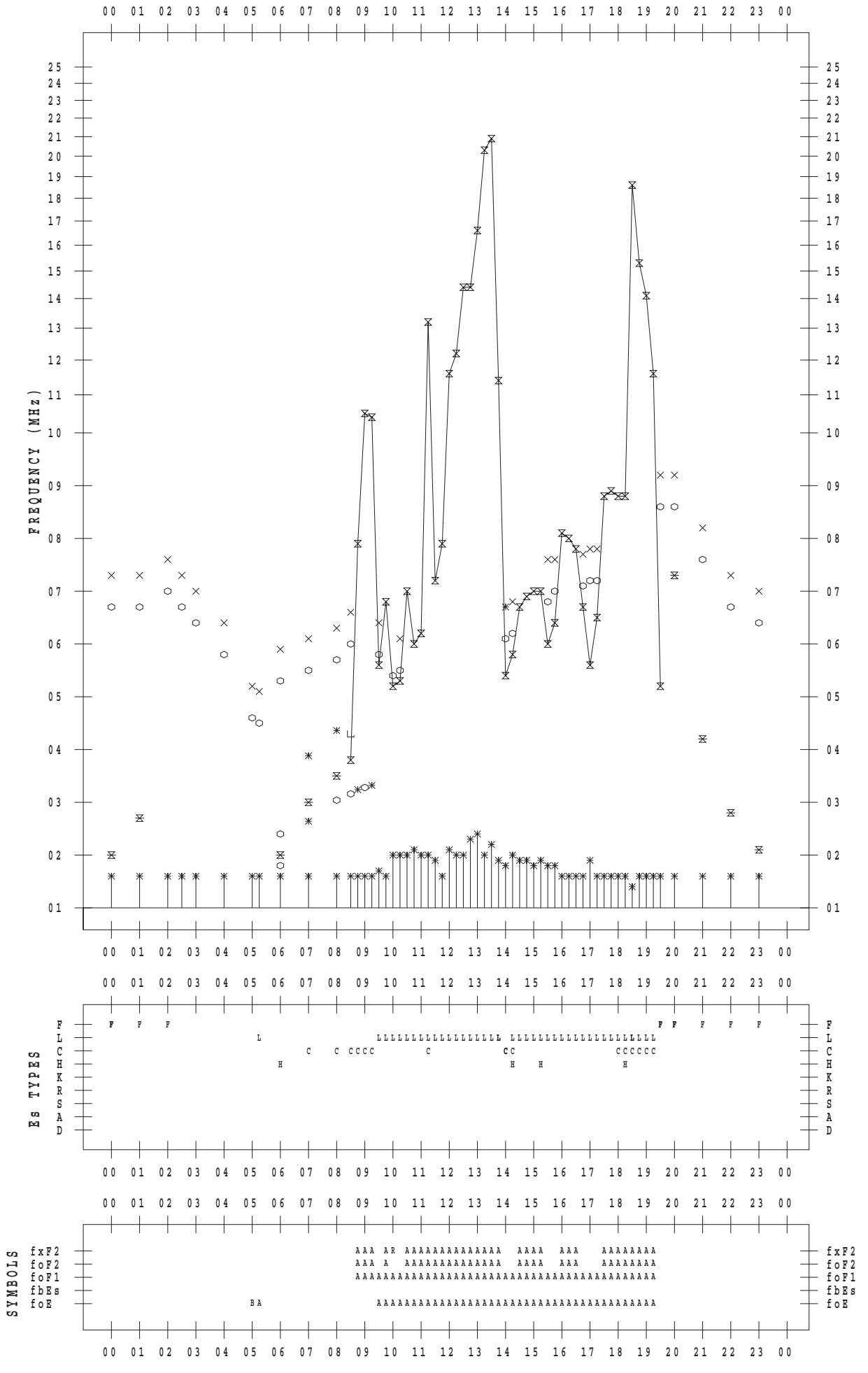
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2016/ 6/ 9

135 °E MEAN TIME



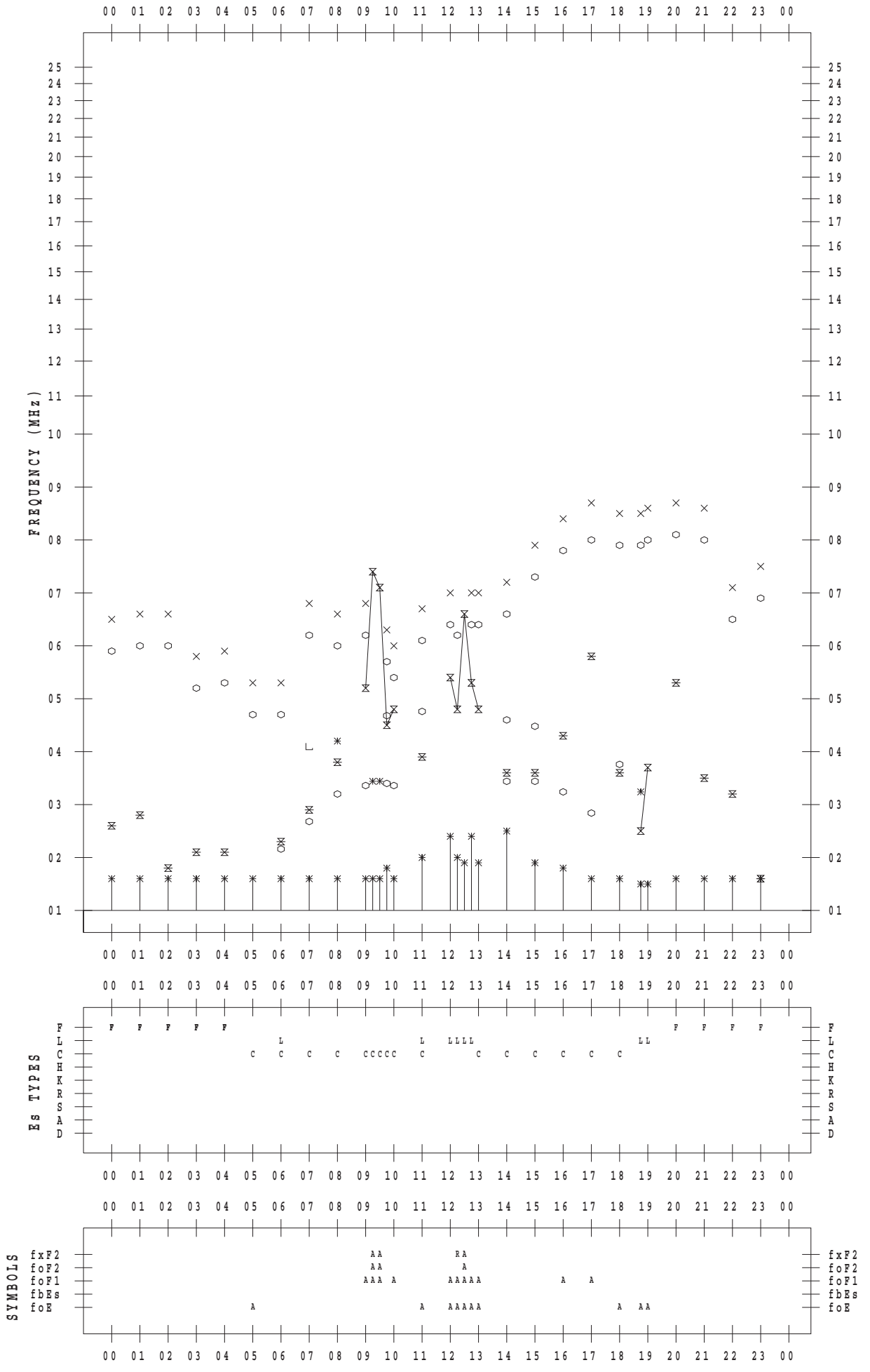
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2016/ 6/10

135 °E MEAN TIME



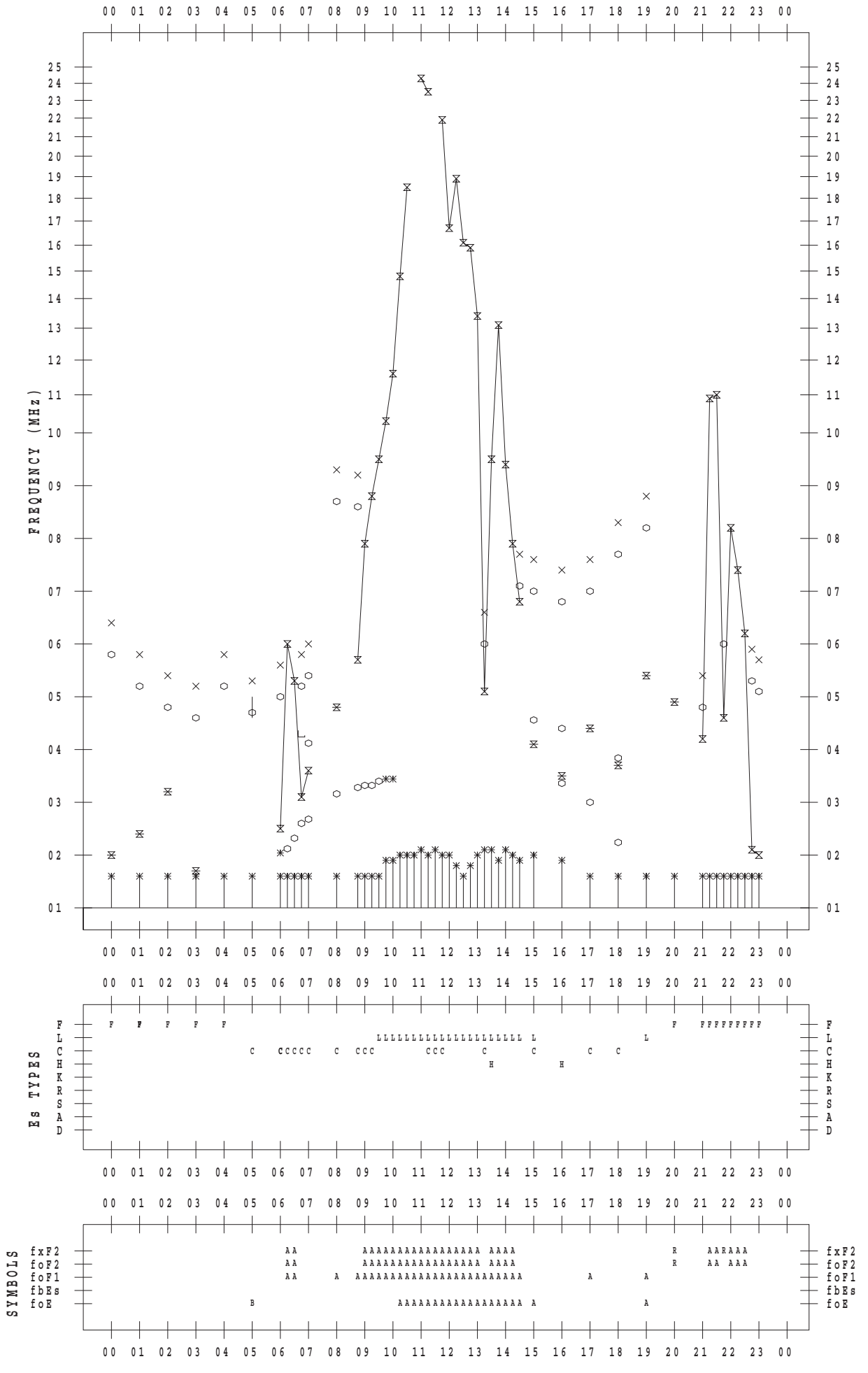
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2016/ 6/11

135 °E MEAN TIME



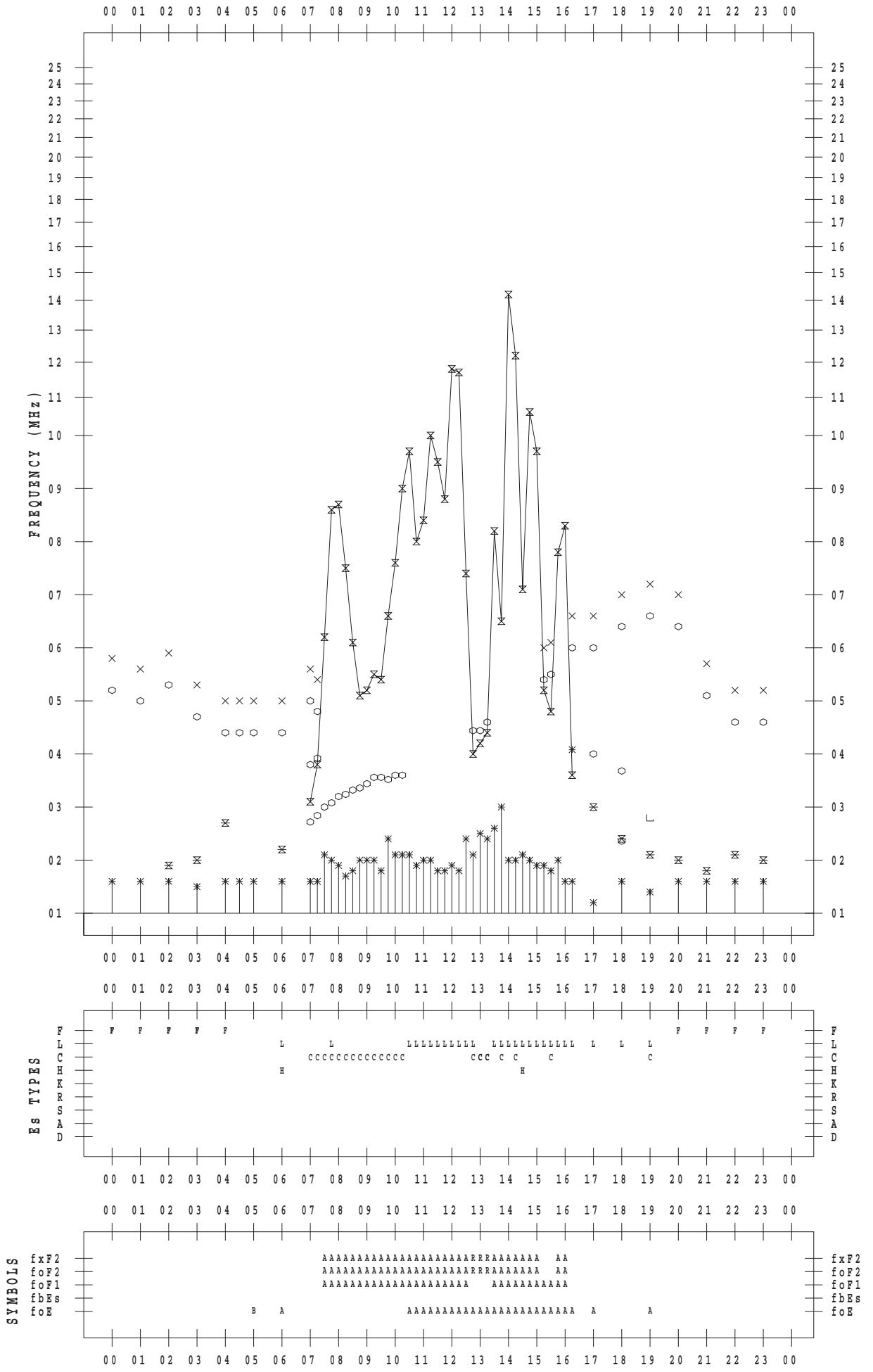
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2016/ 6/12

135 °E MEAN TIME



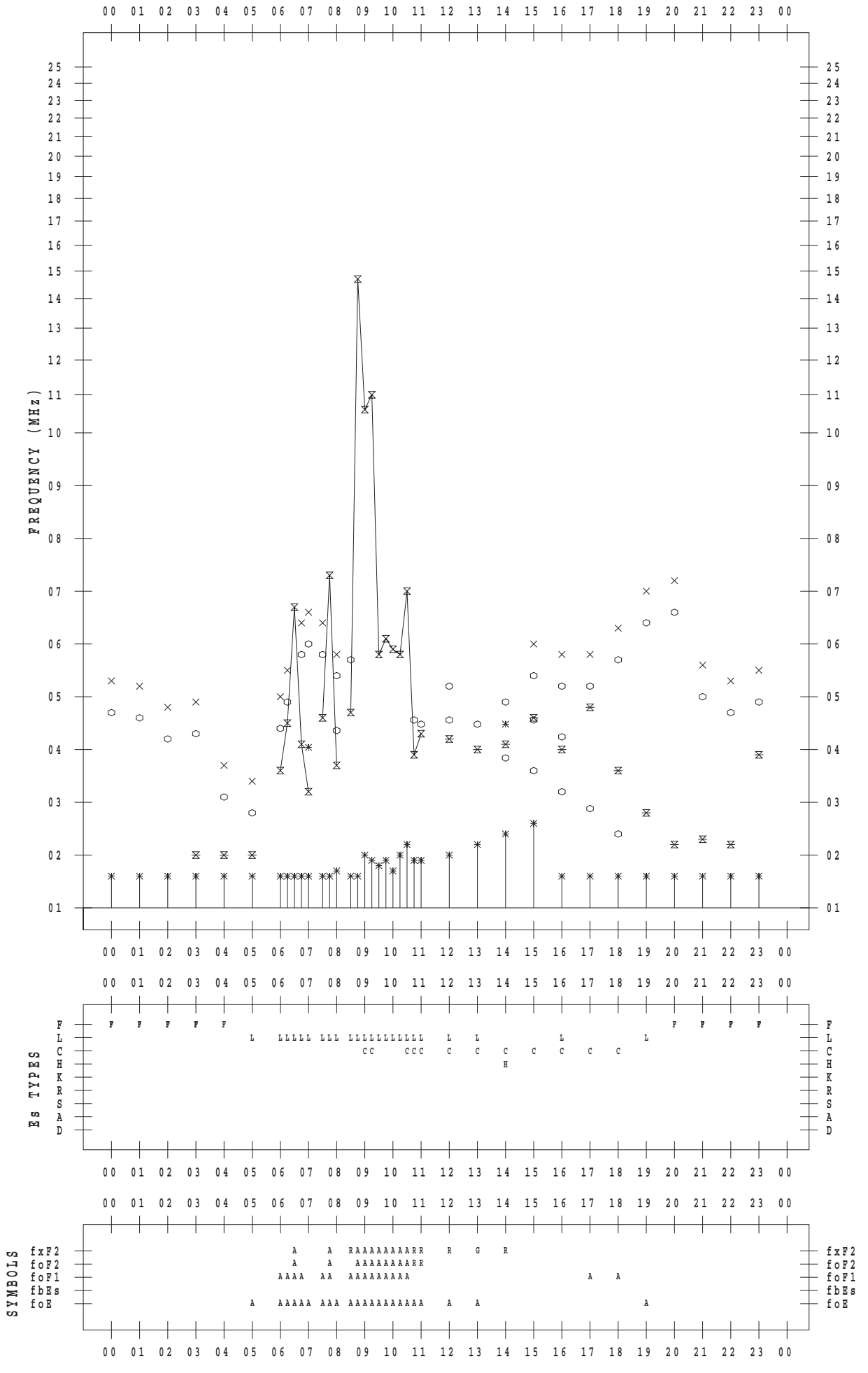
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2016/ 6/13

135 °E MEAN TIME



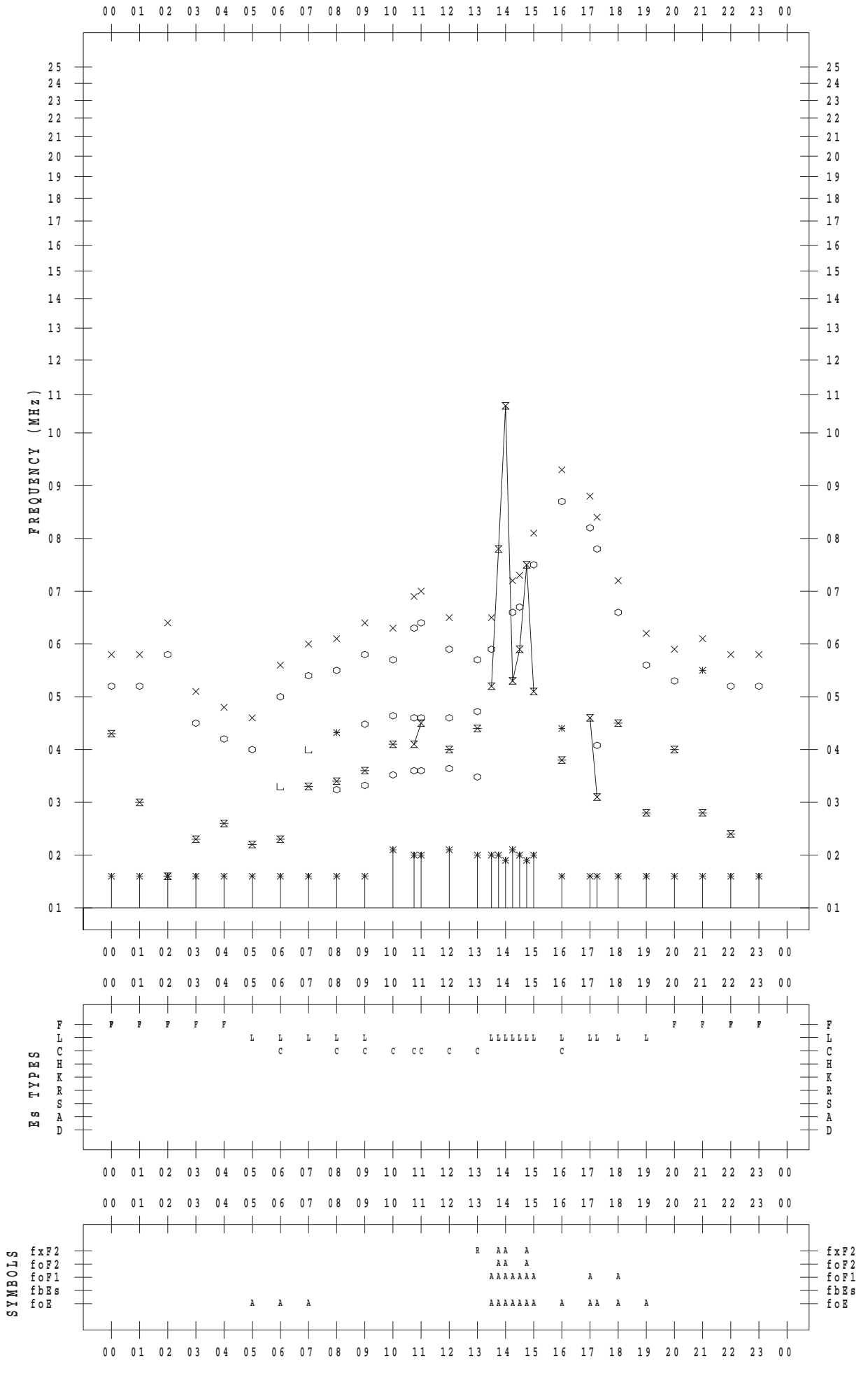
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2016/ 6/14

135 °E MEAN TIME



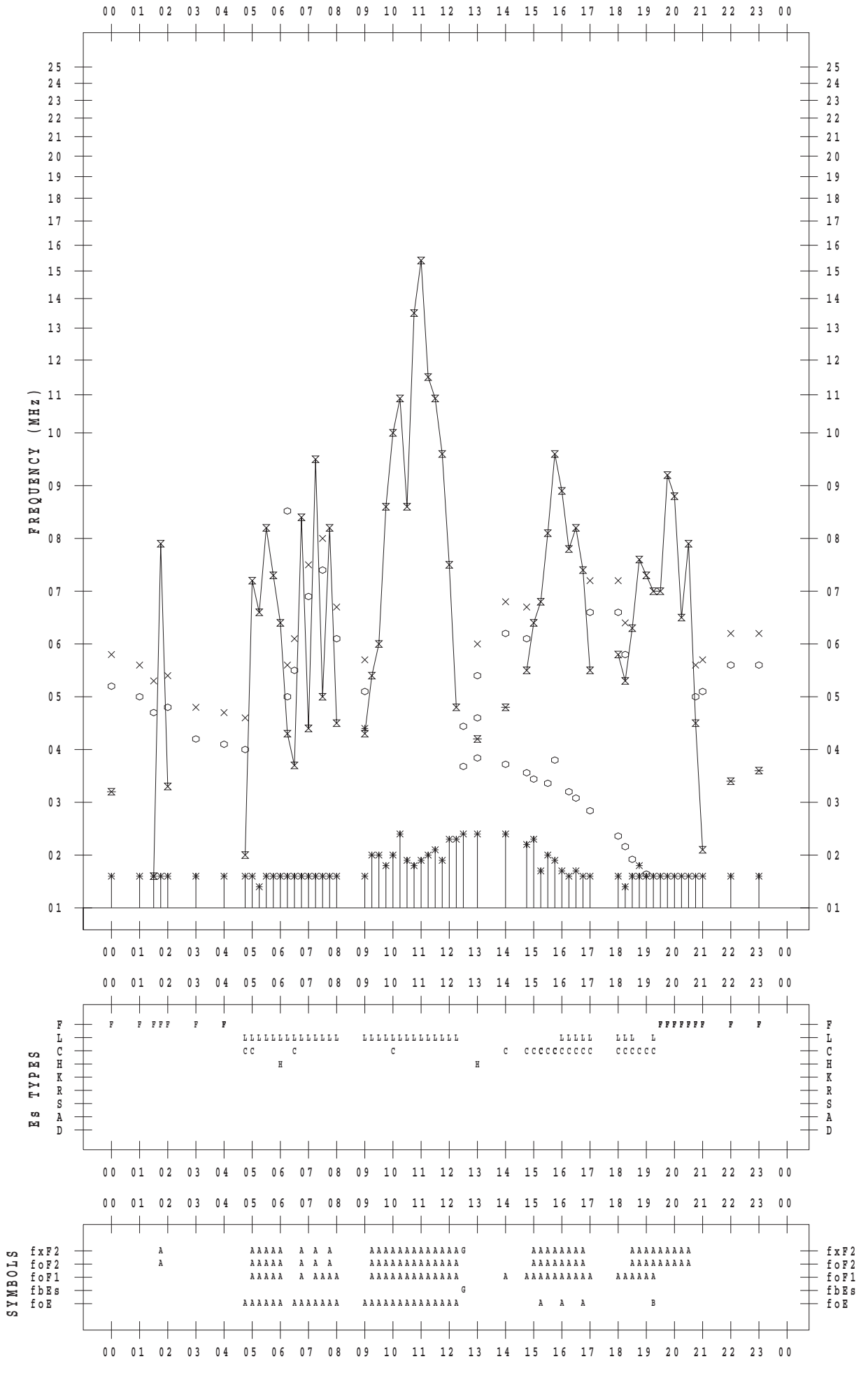
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2016/ 6/15

135 °E MEAN TIME



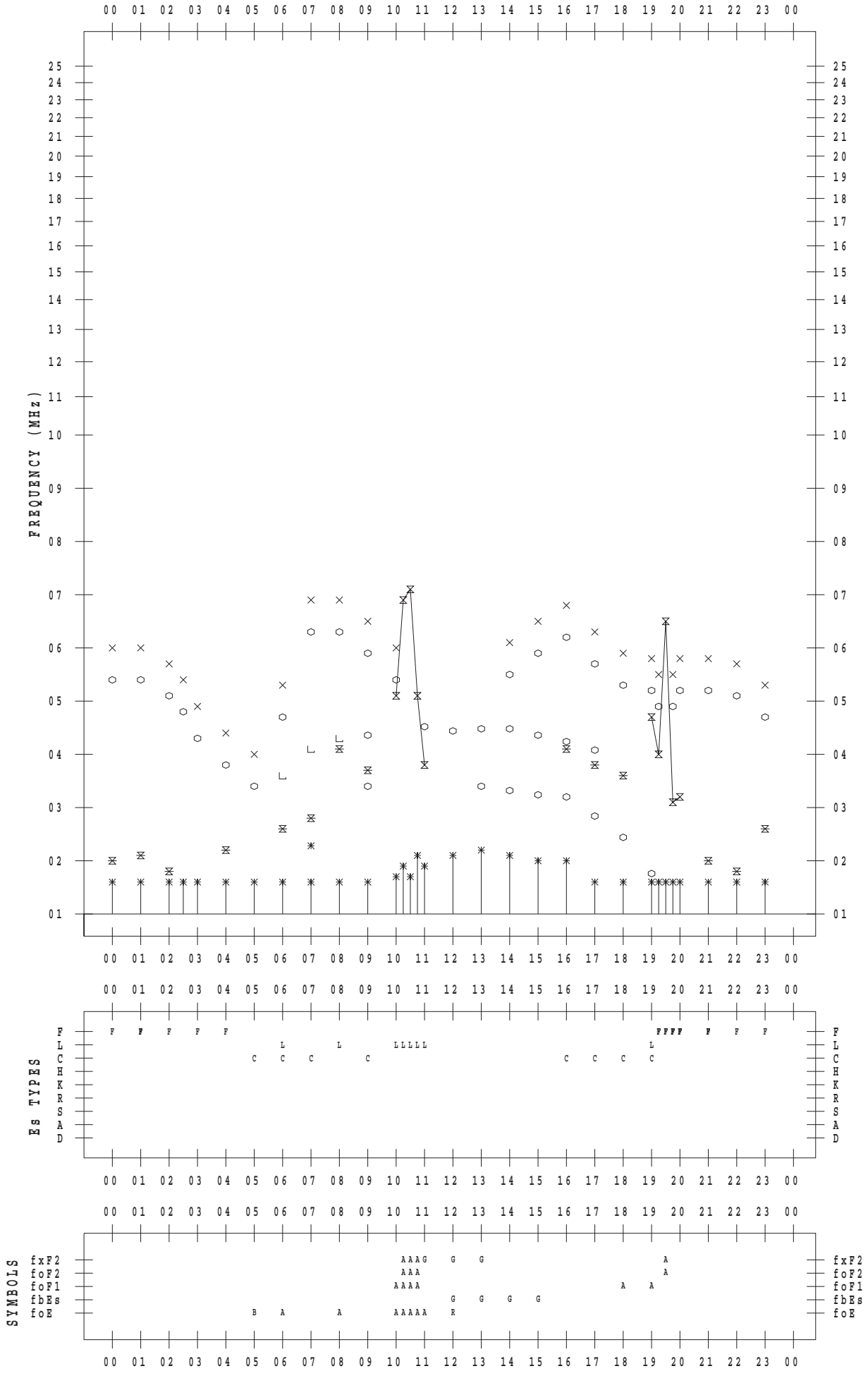
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2016/ 6/16

135 °E MEAN TIME



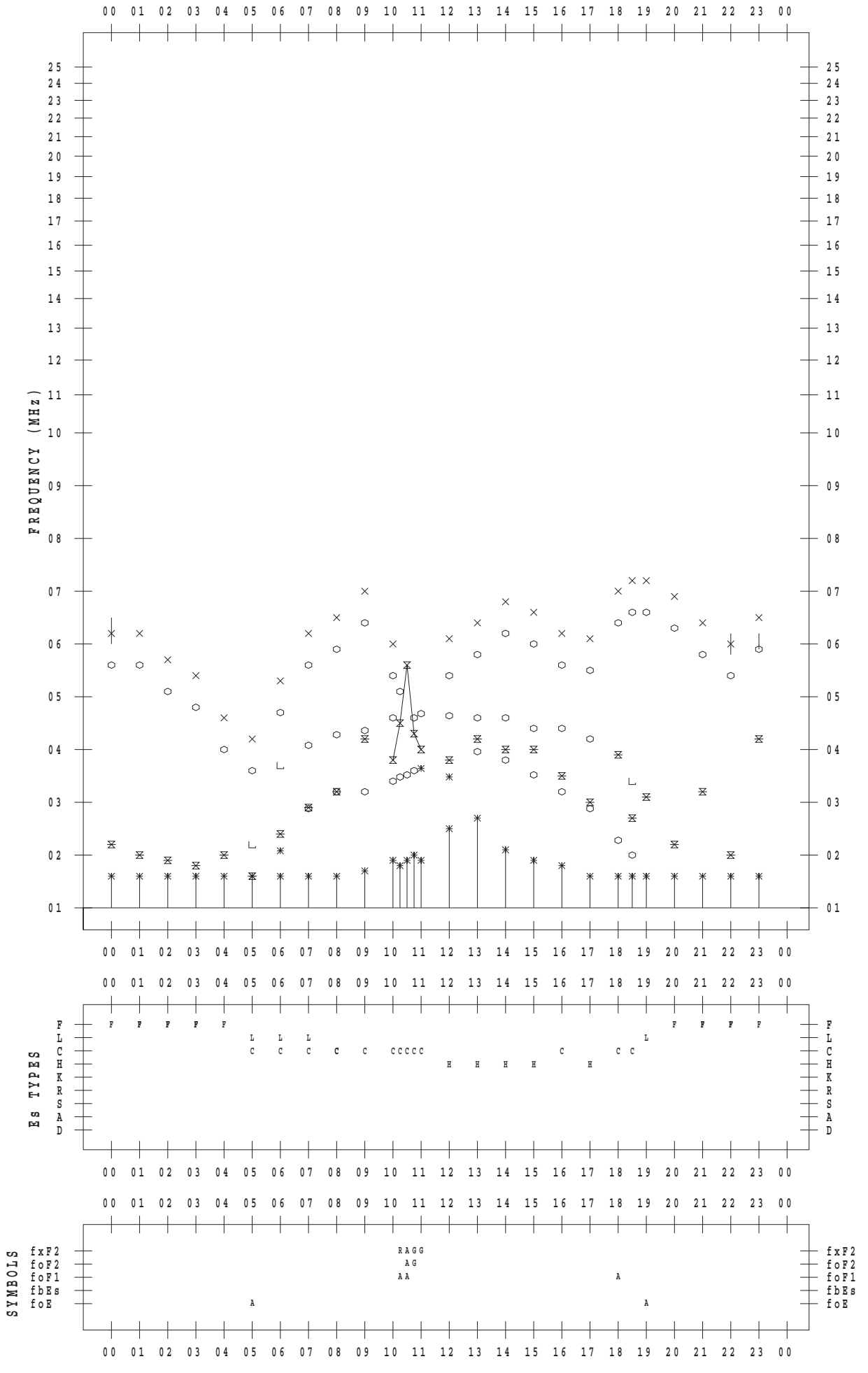
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2016/ 6/17

135 °E MEAN TIME



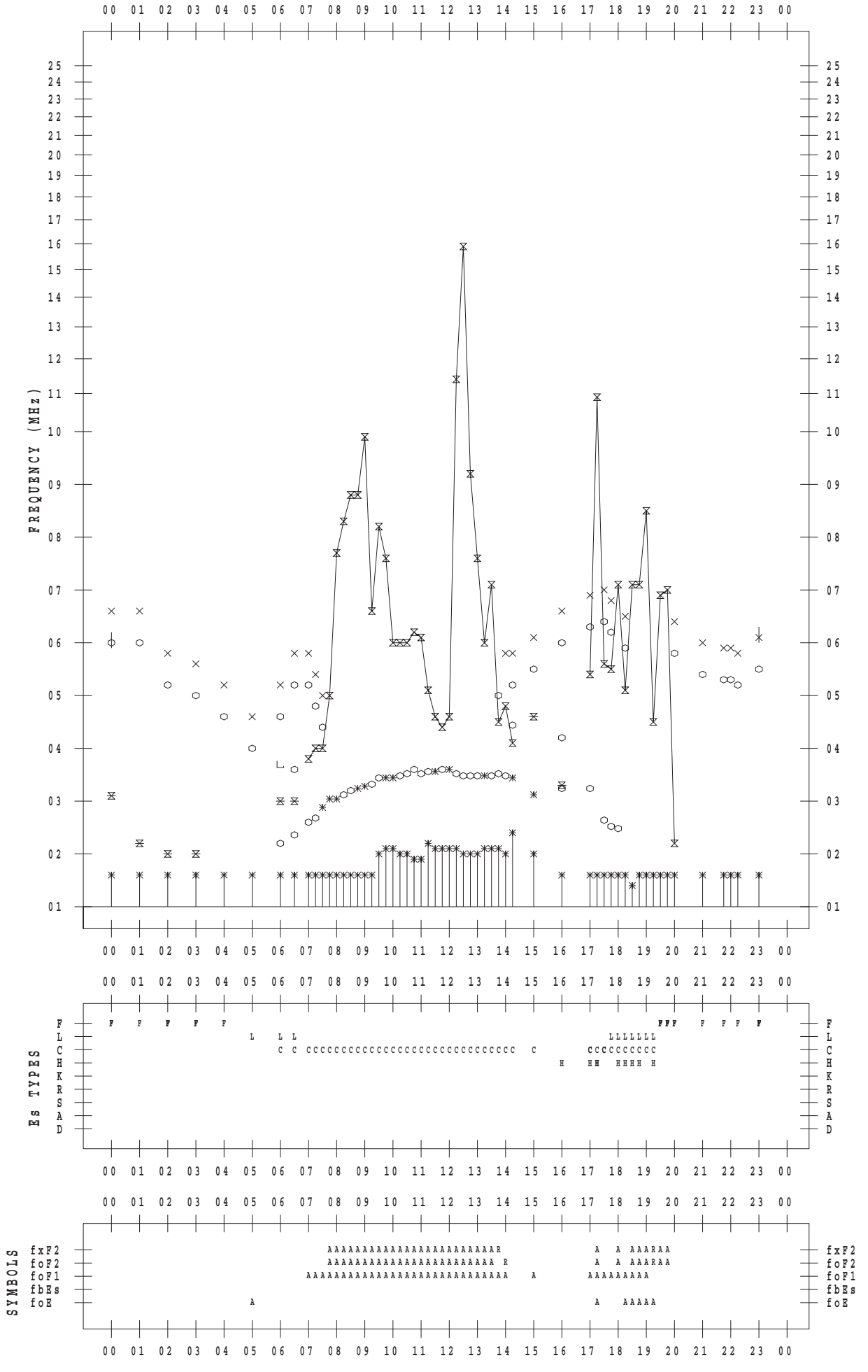
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2016/ 6/18

135 °E MEAN TIME



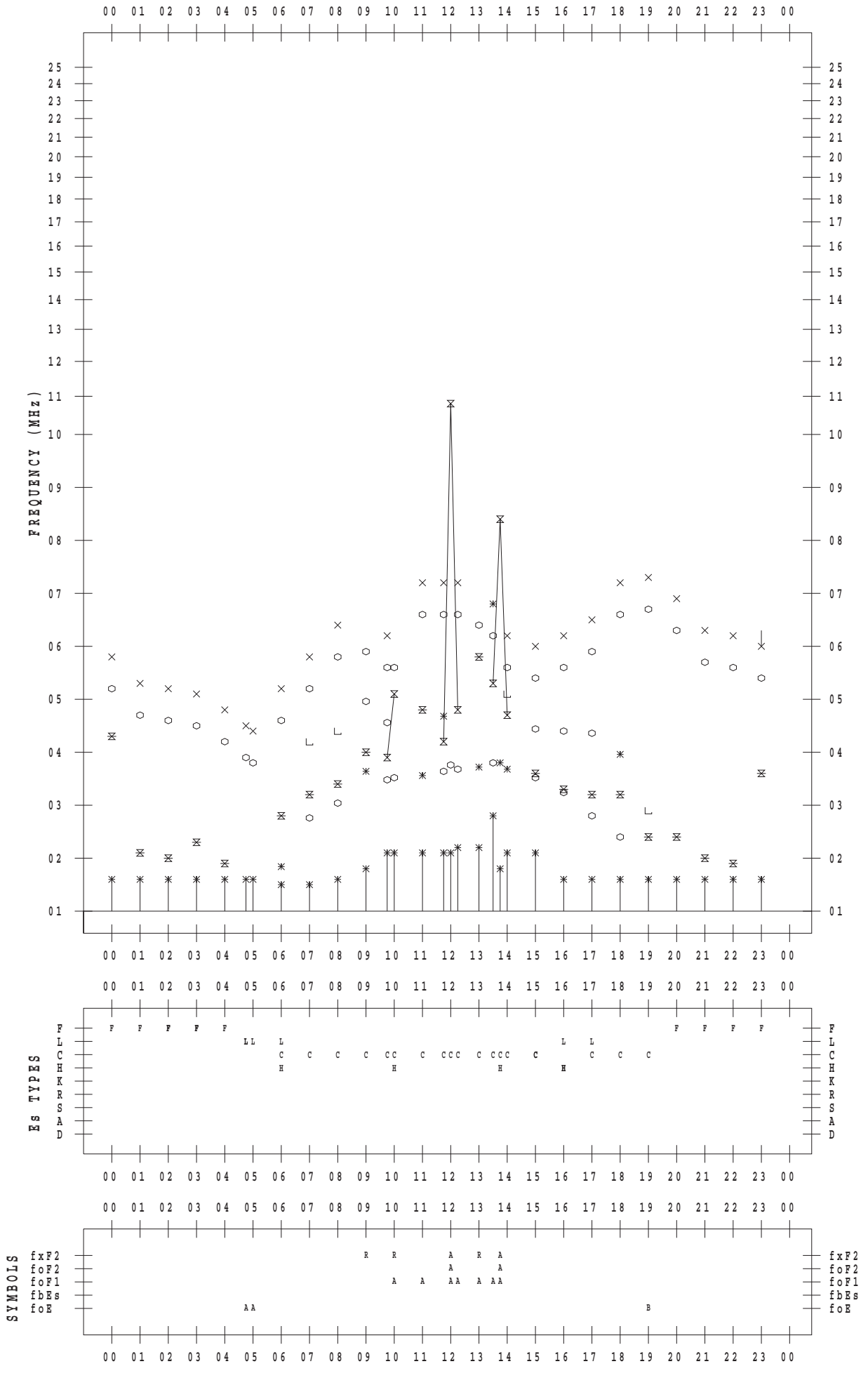
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2016/ 6/19

135 °E MEAN TIME



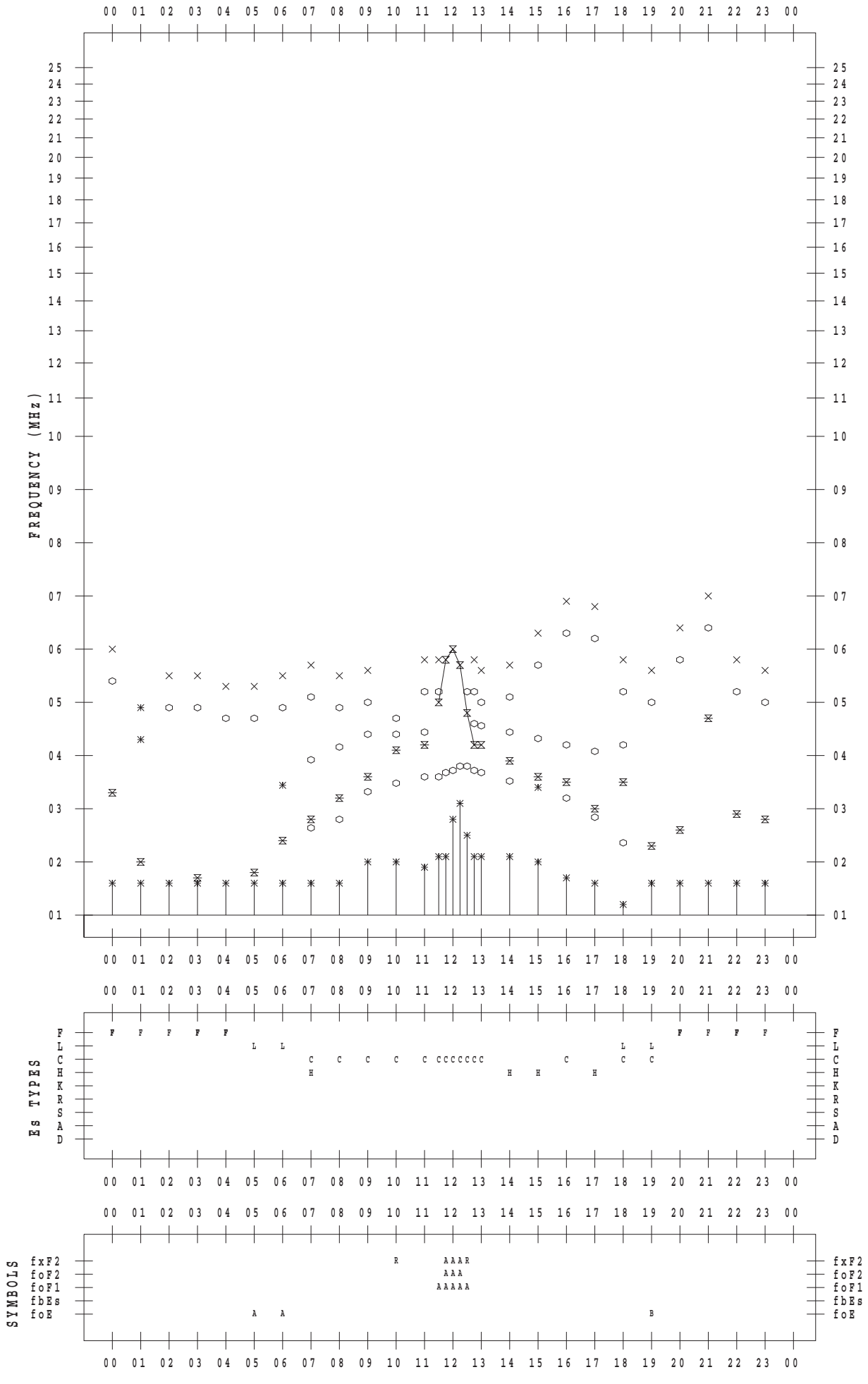
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2016/ 6/20

135 °E MEAN TIME



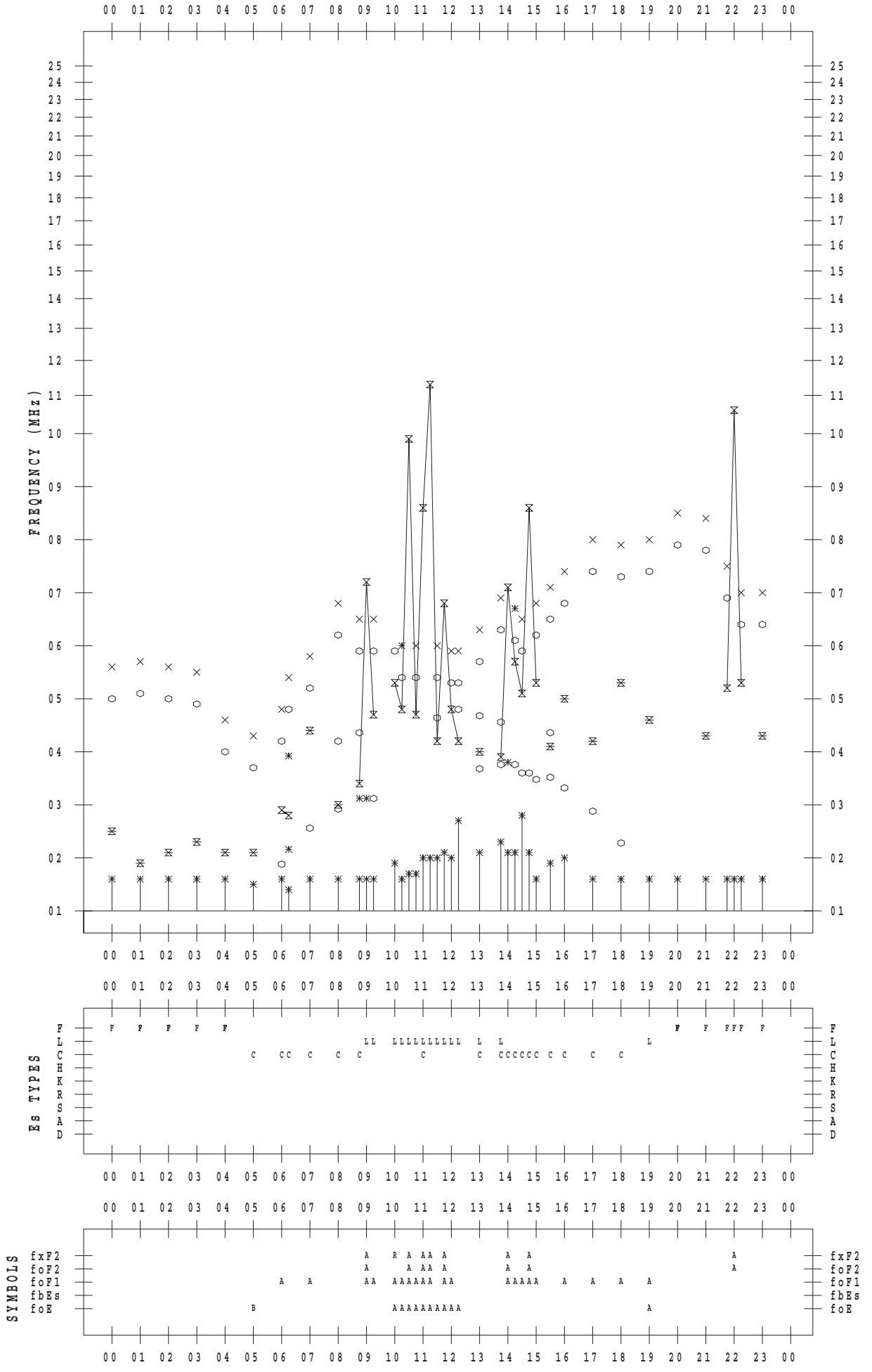
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2016/ 6/21

135 °E MEAN TIME



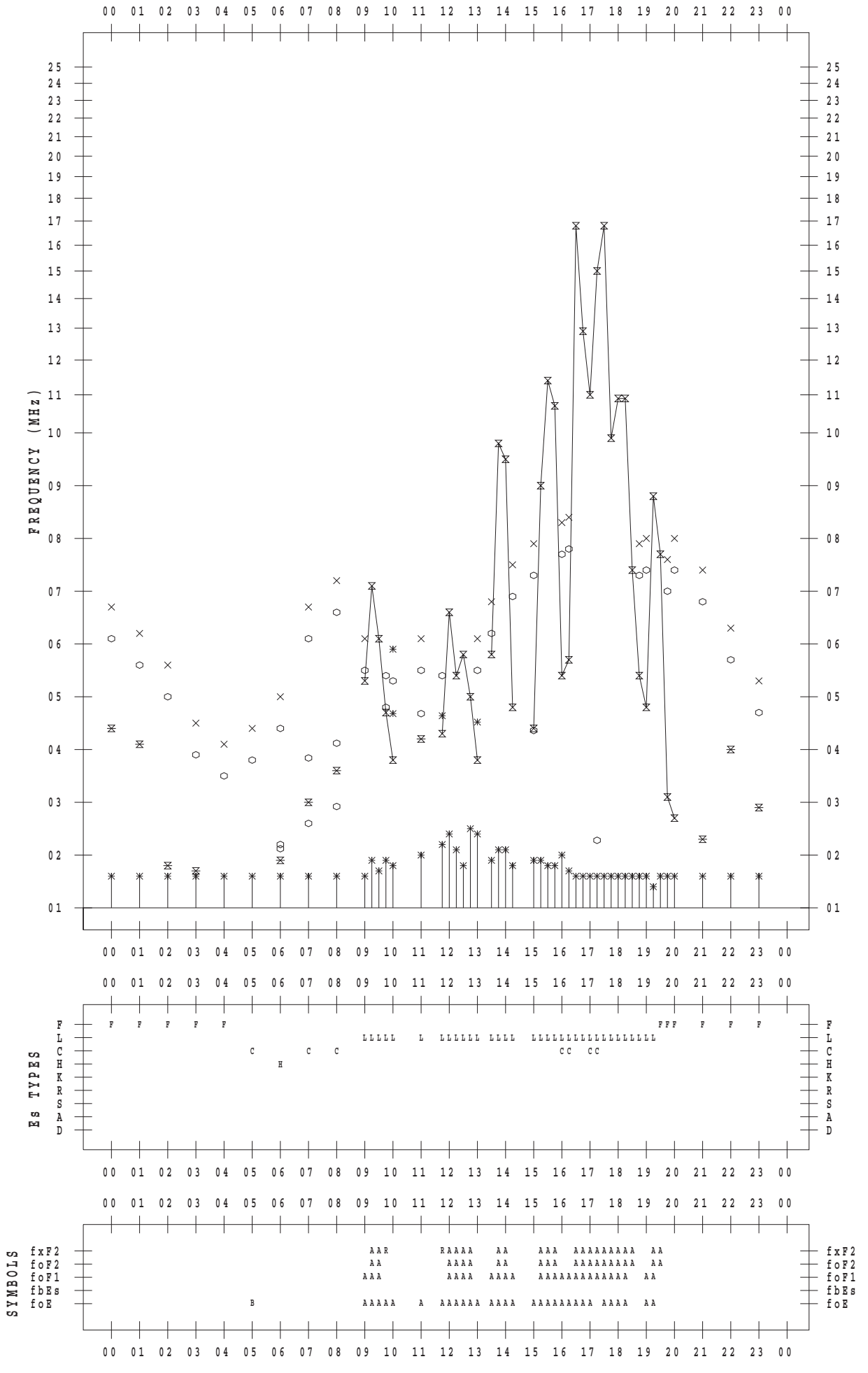
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2016/ 6/22

135 °E MEAN TIME



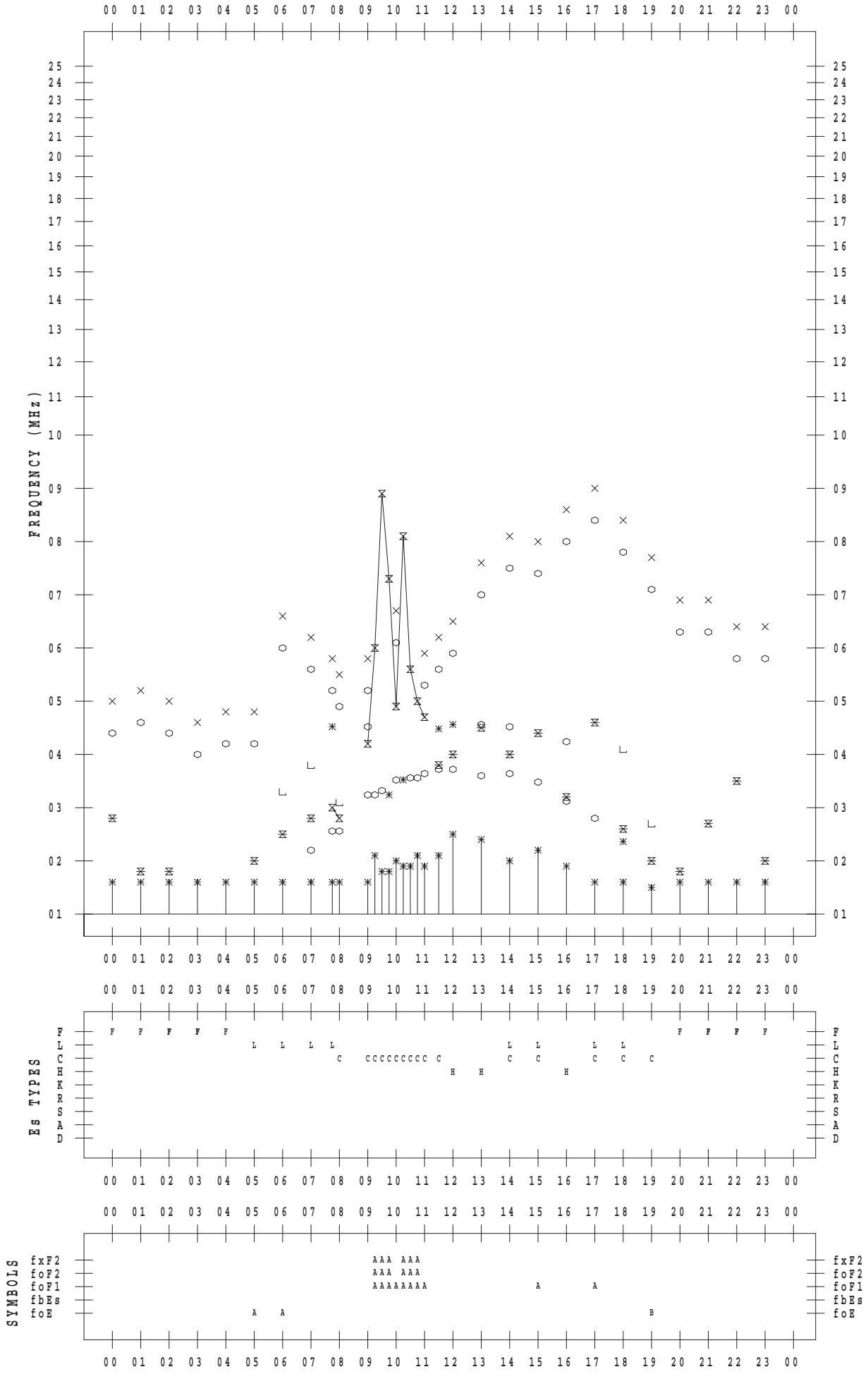
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2016/ 6/23

135 °E MEAN TIME



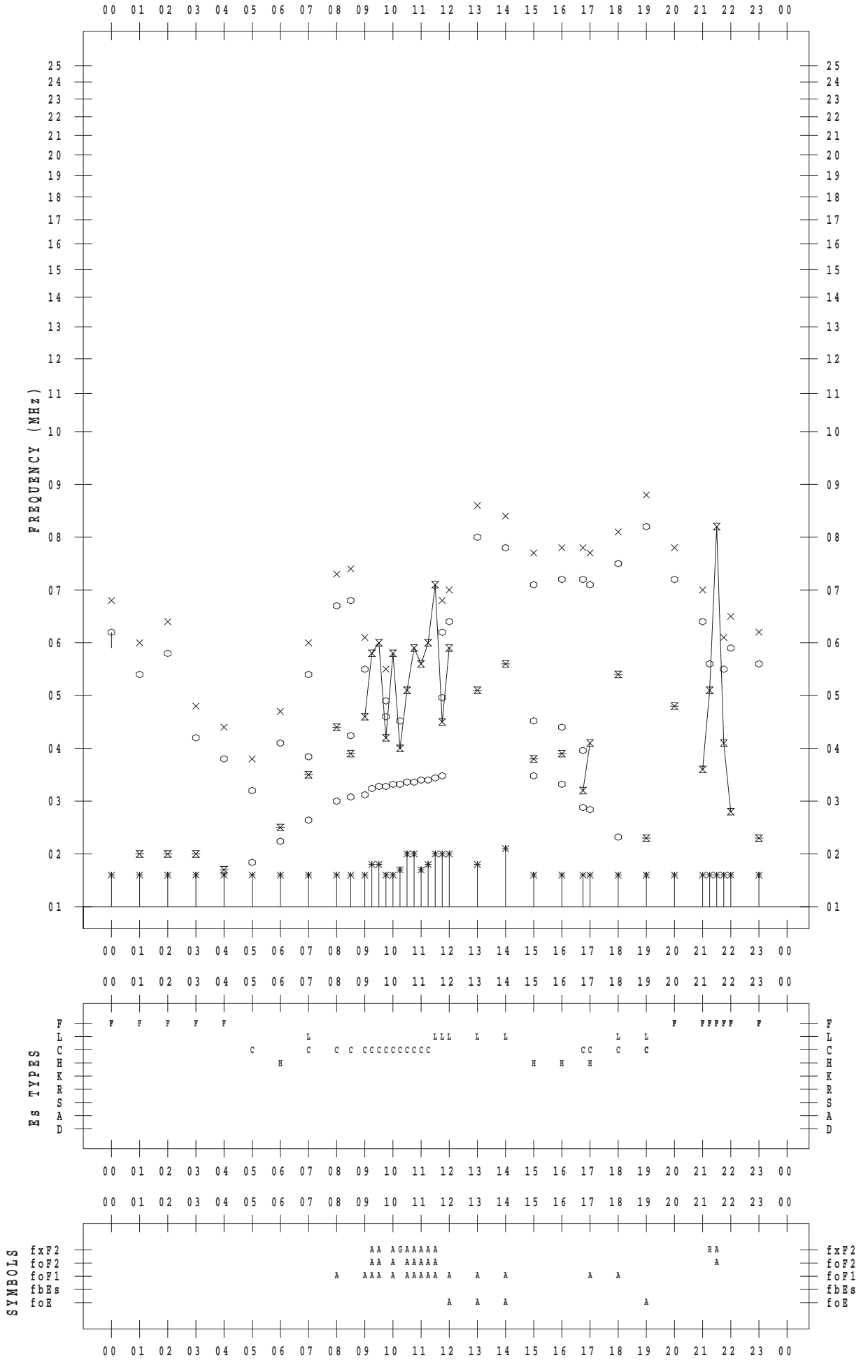
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2016/ 6/24

135 °E MEAN TIME



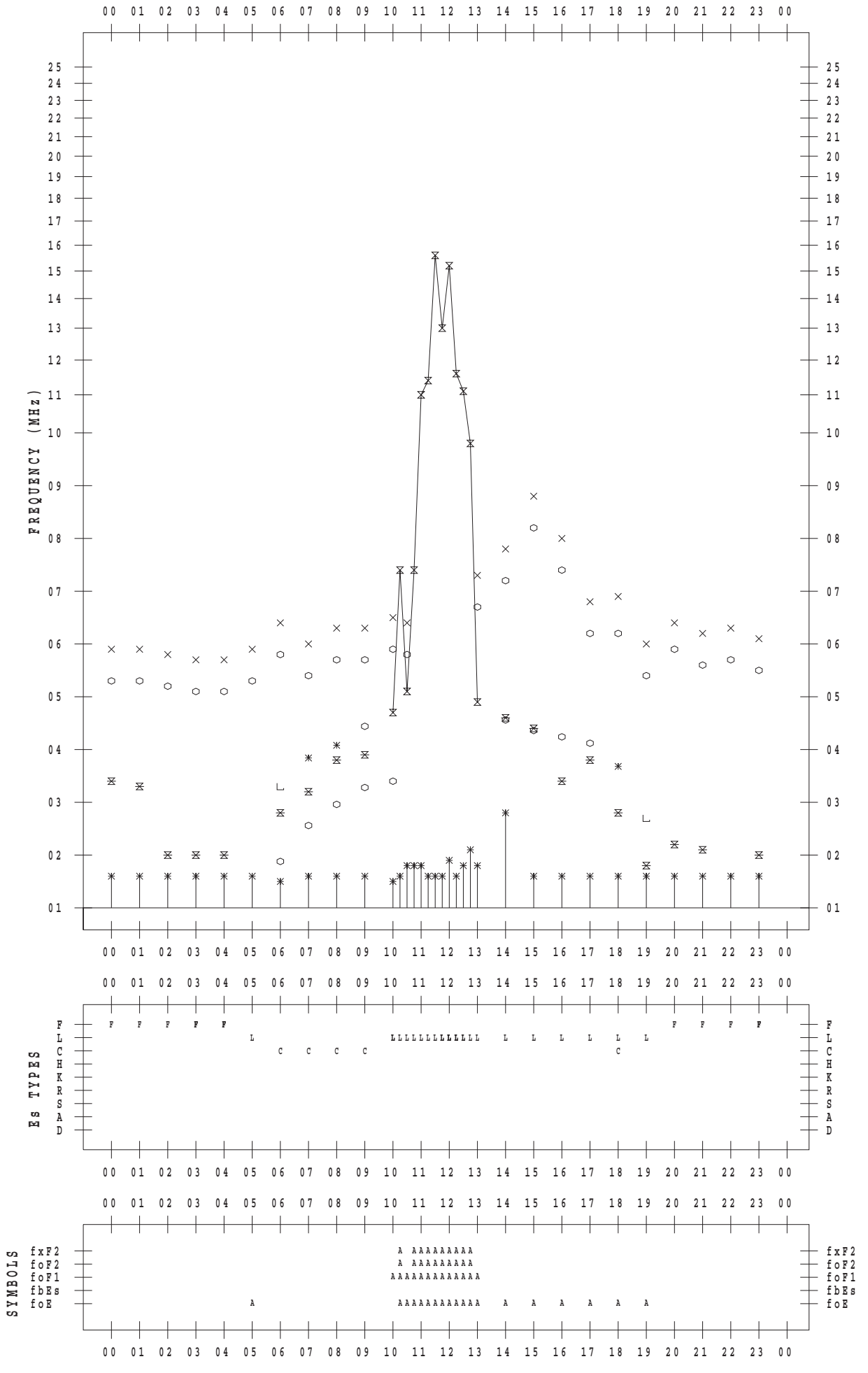
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2016/ 6/25

135 °E MEAN TIME



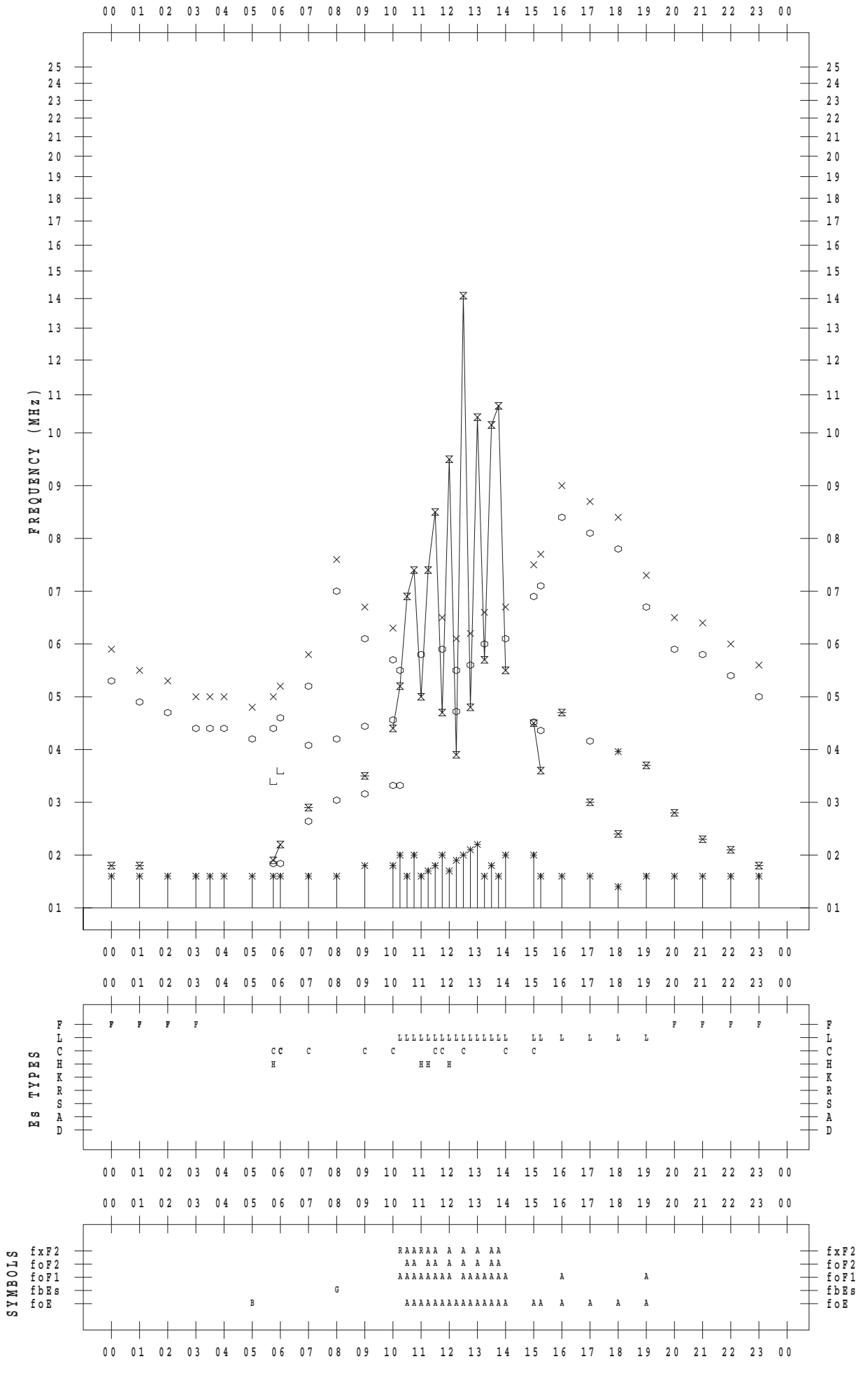
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2016/ 6/26

135 °E MEAN TIME



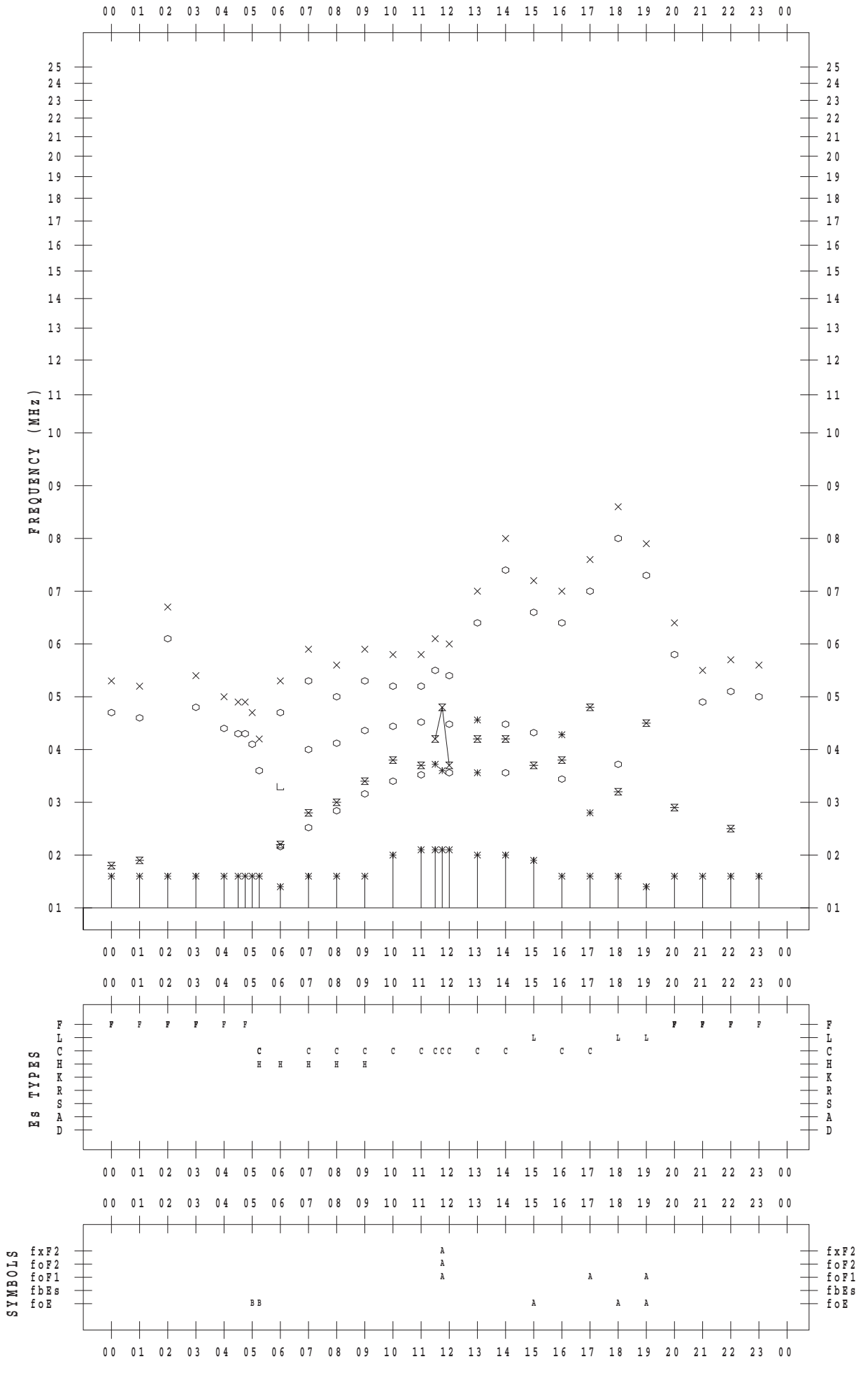
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2016/ 6/27

135 °E MEAN TIME



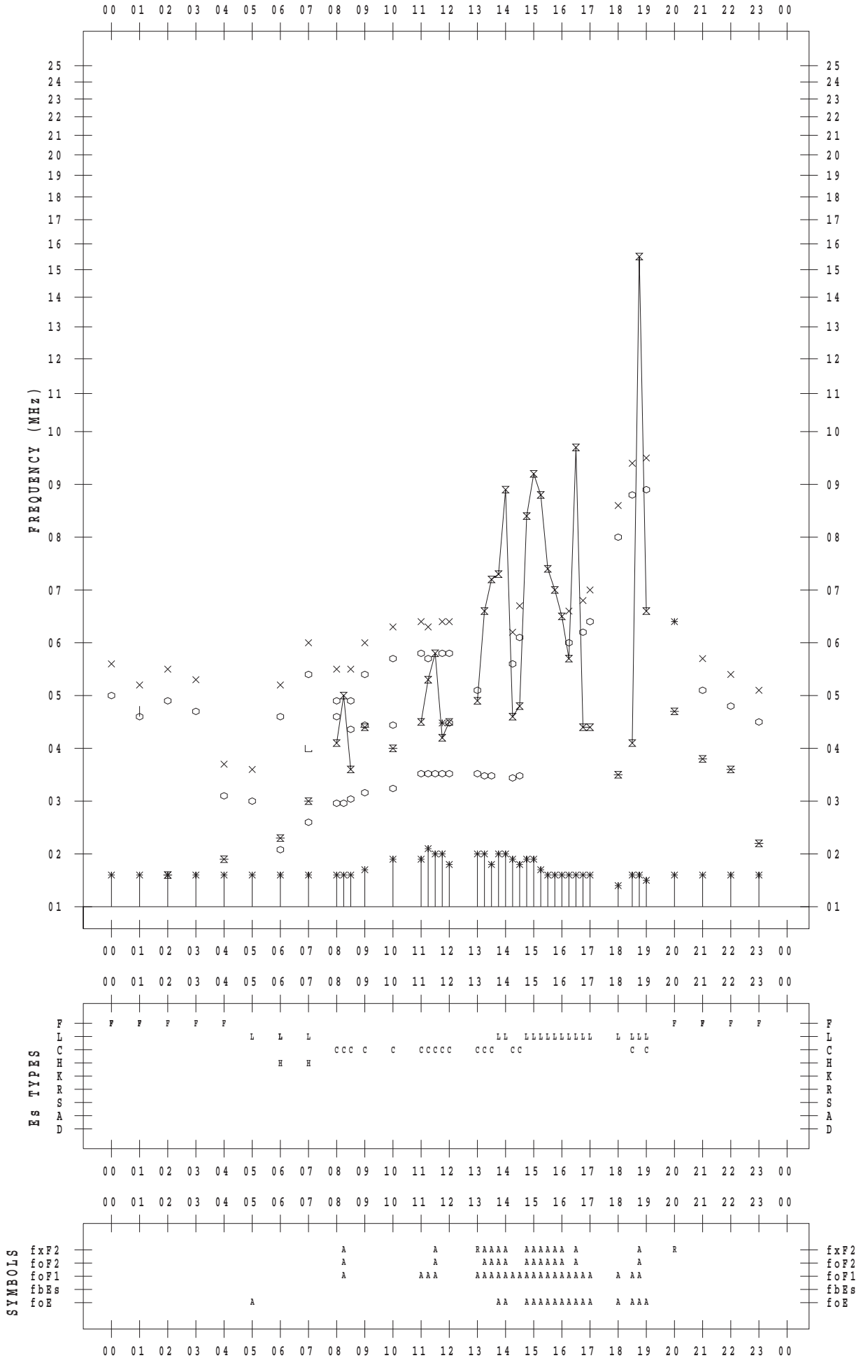
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2016/ 6/28

135 °E MEAN TIME



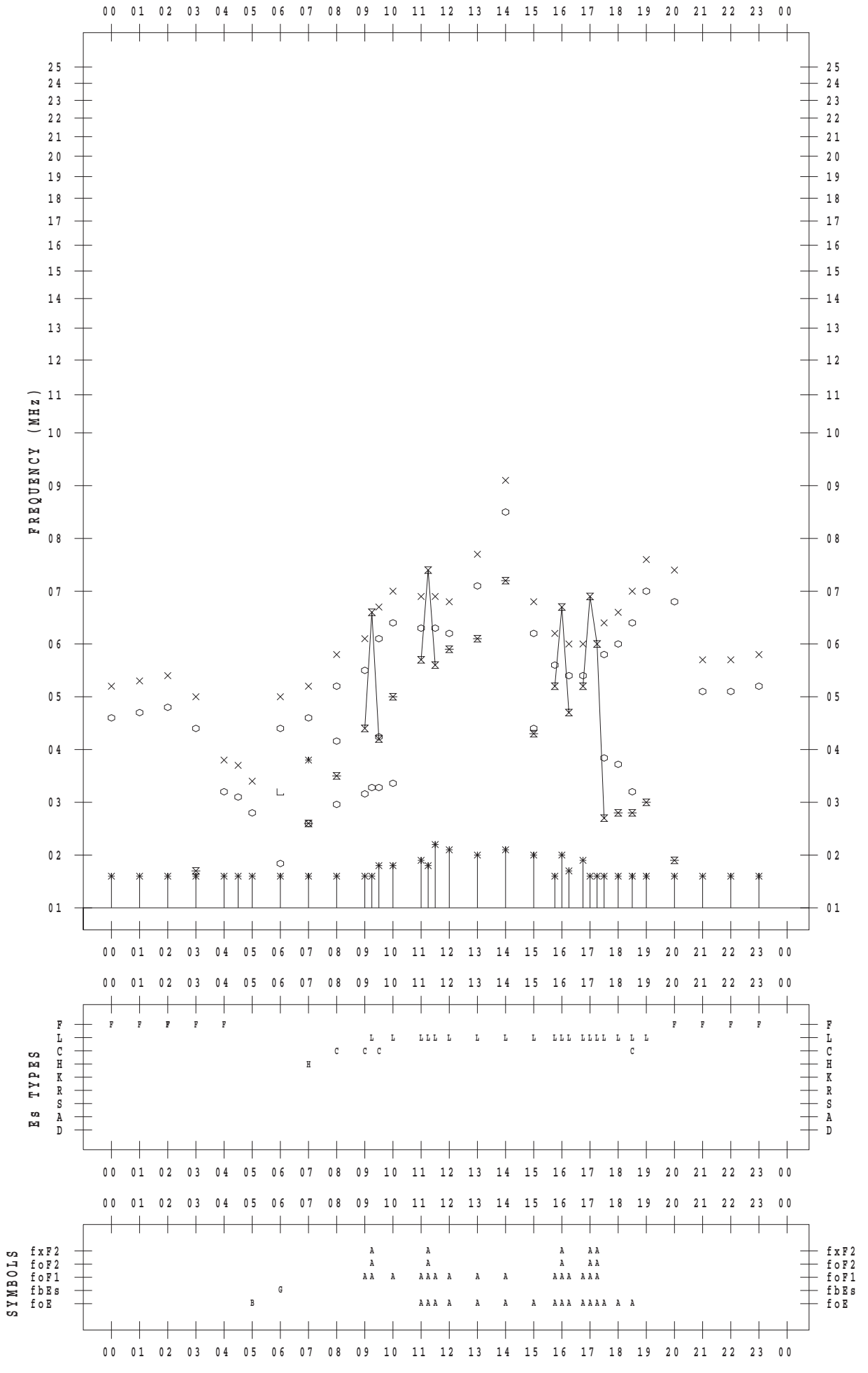
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2016/ 6/29

135 °E MEAN TIME



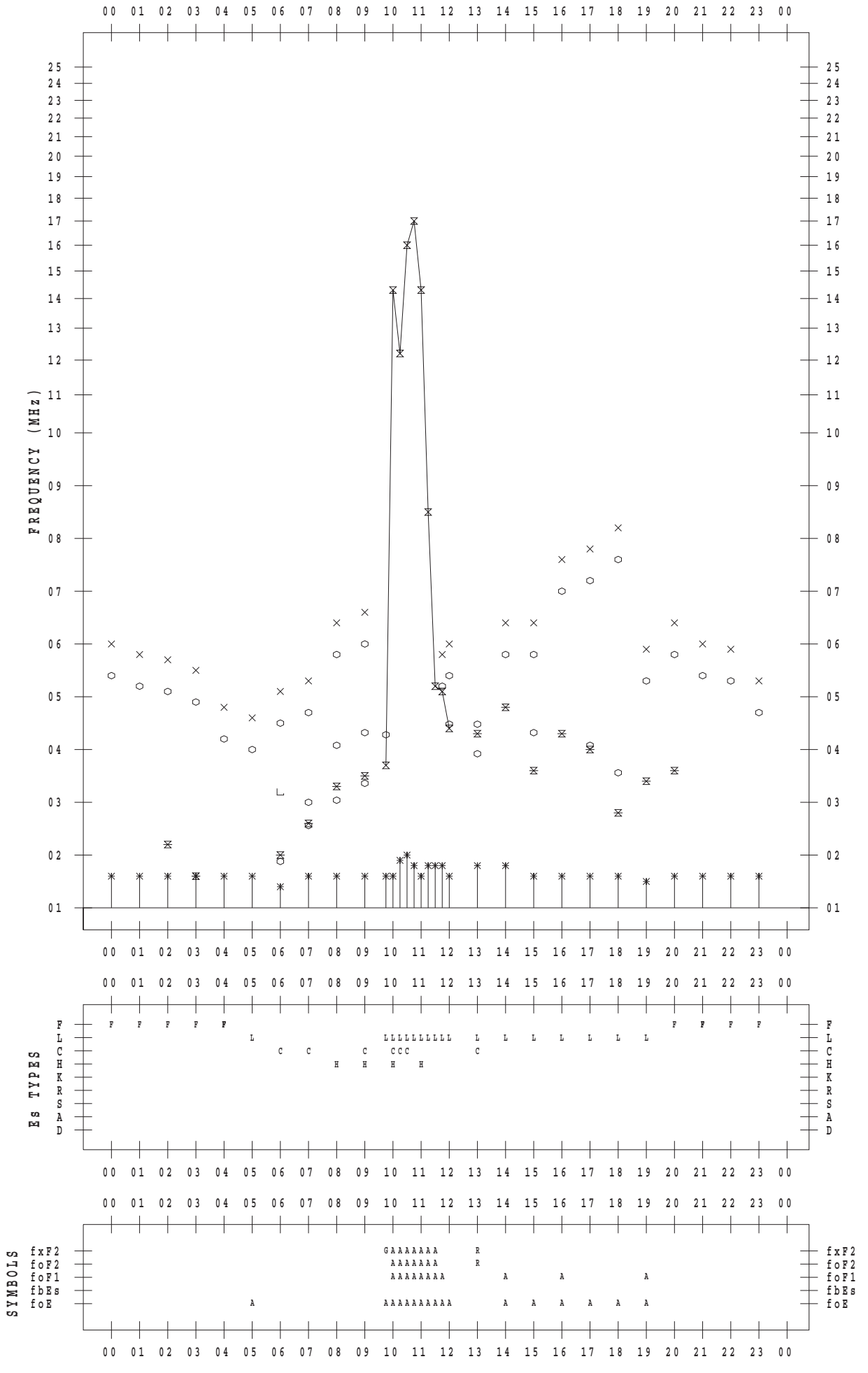
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2016/ 6/30

135 °E MEAN TIME



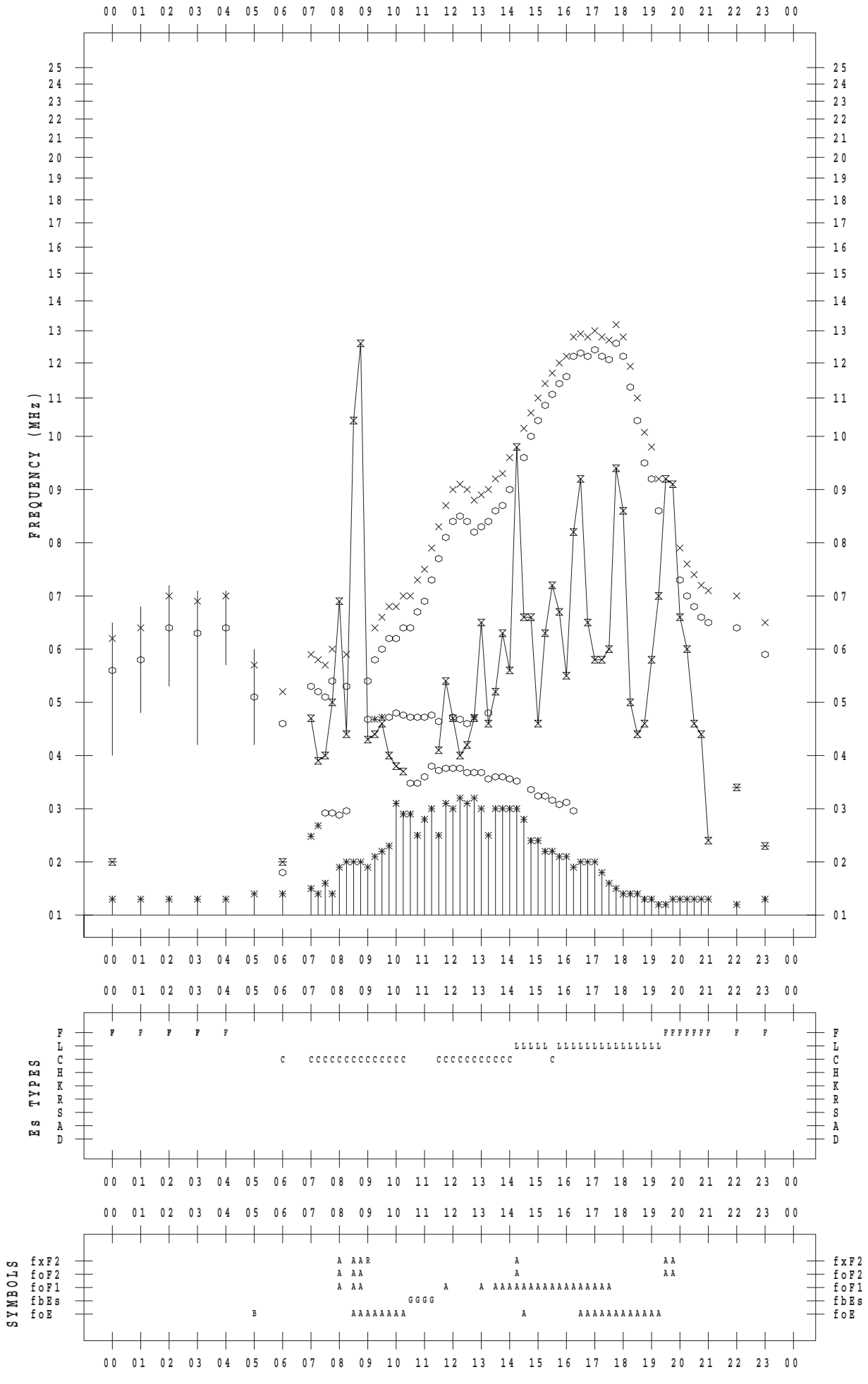
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2016/ 6/ 1

135 °E MEAN TIME



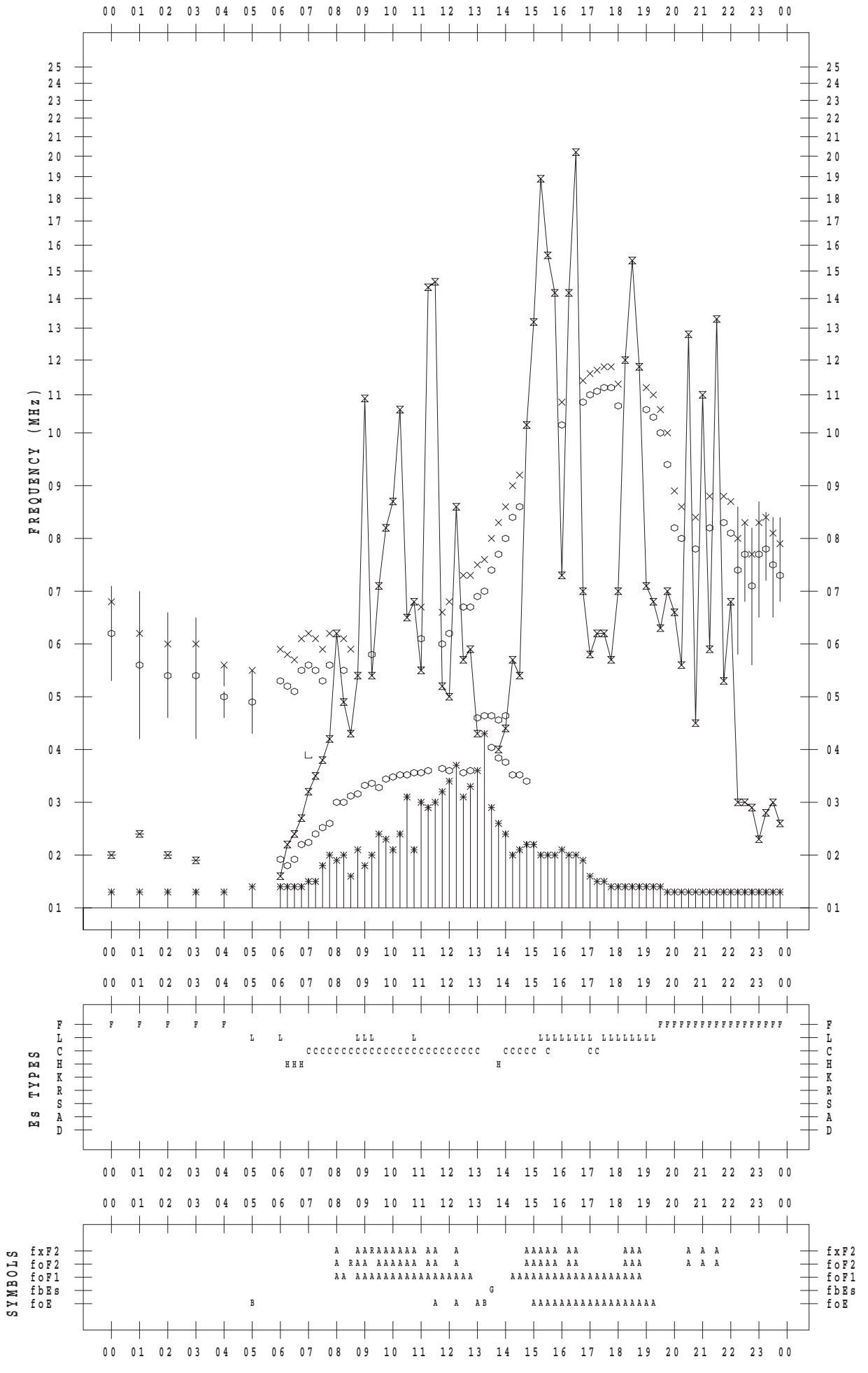
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2016/ 6/ 2

135 °E MEAN TIME



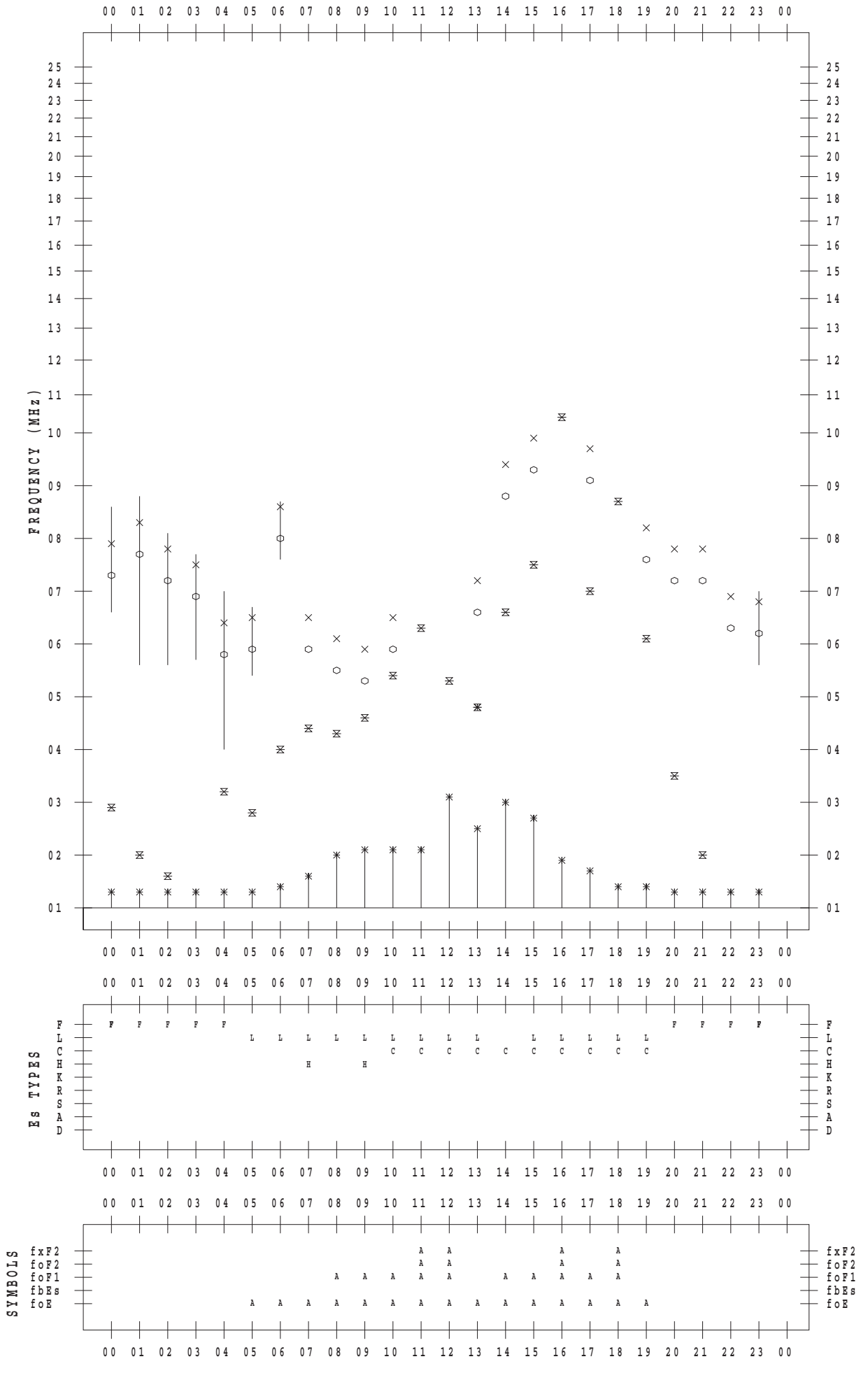
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2016/ 6/ 3

135 °E MEAN TIME



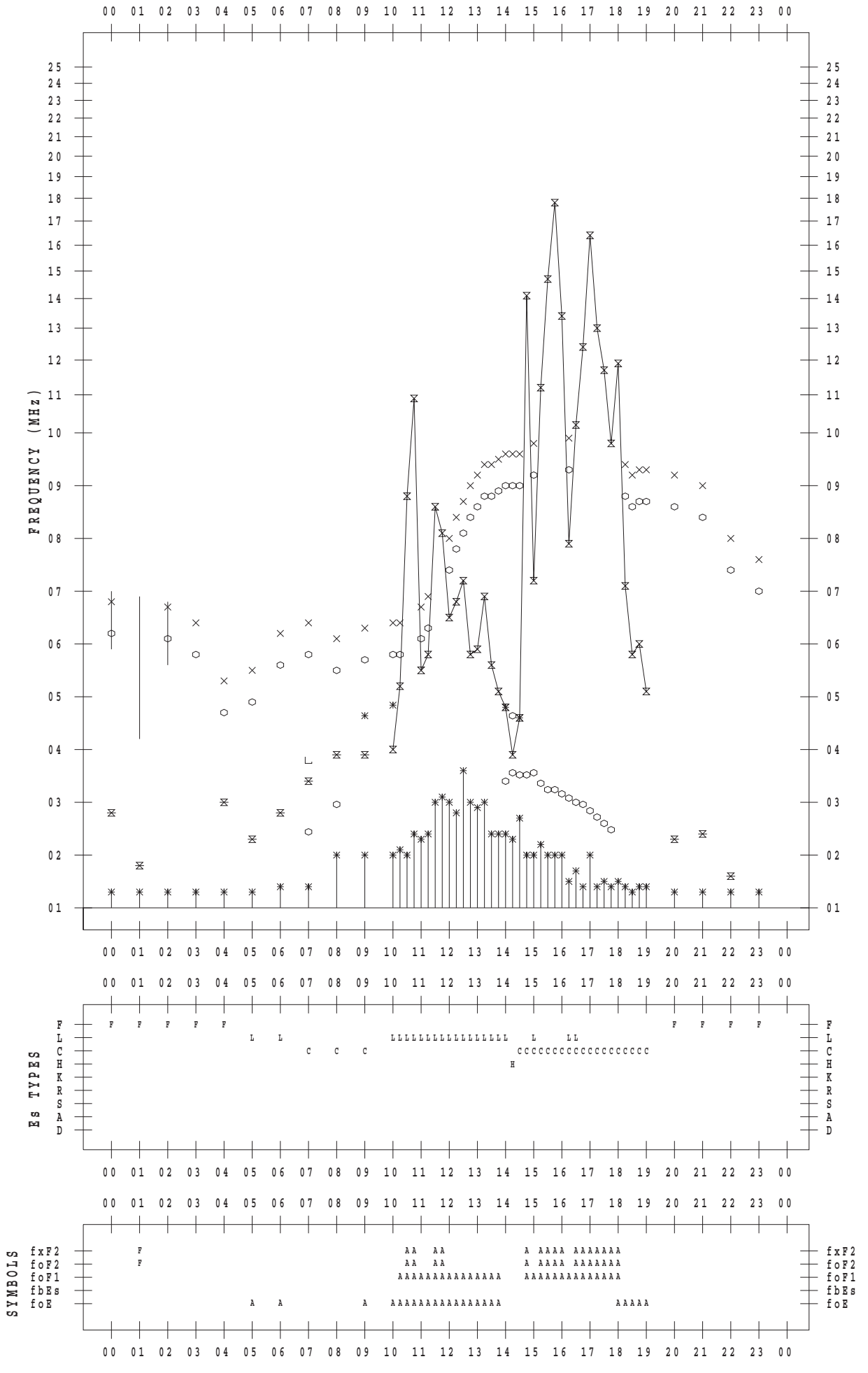
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2016/ 6/ 4

135 °E MEAN TIME



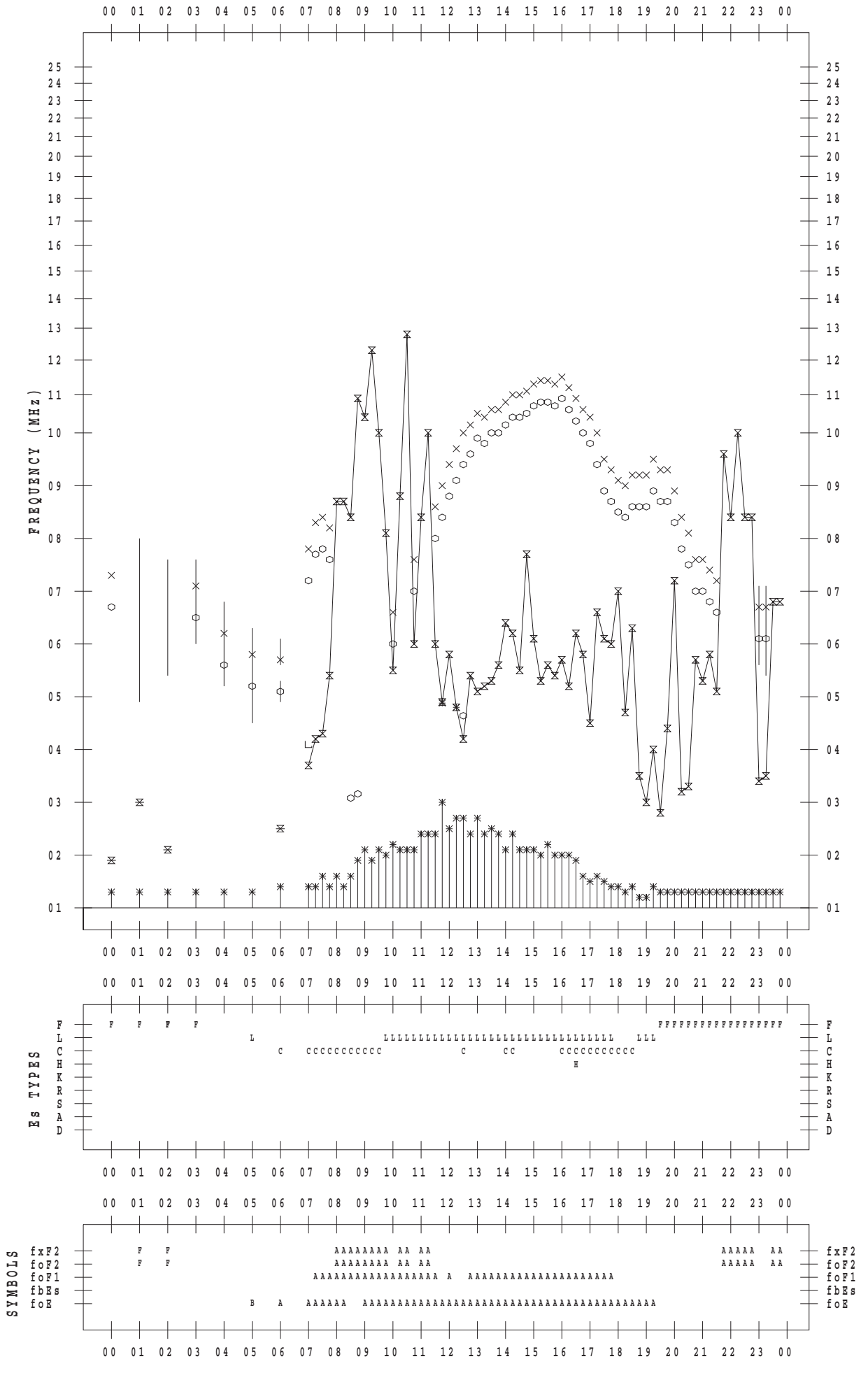
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2016/ 6/ 5

135 °E MEAN TIME



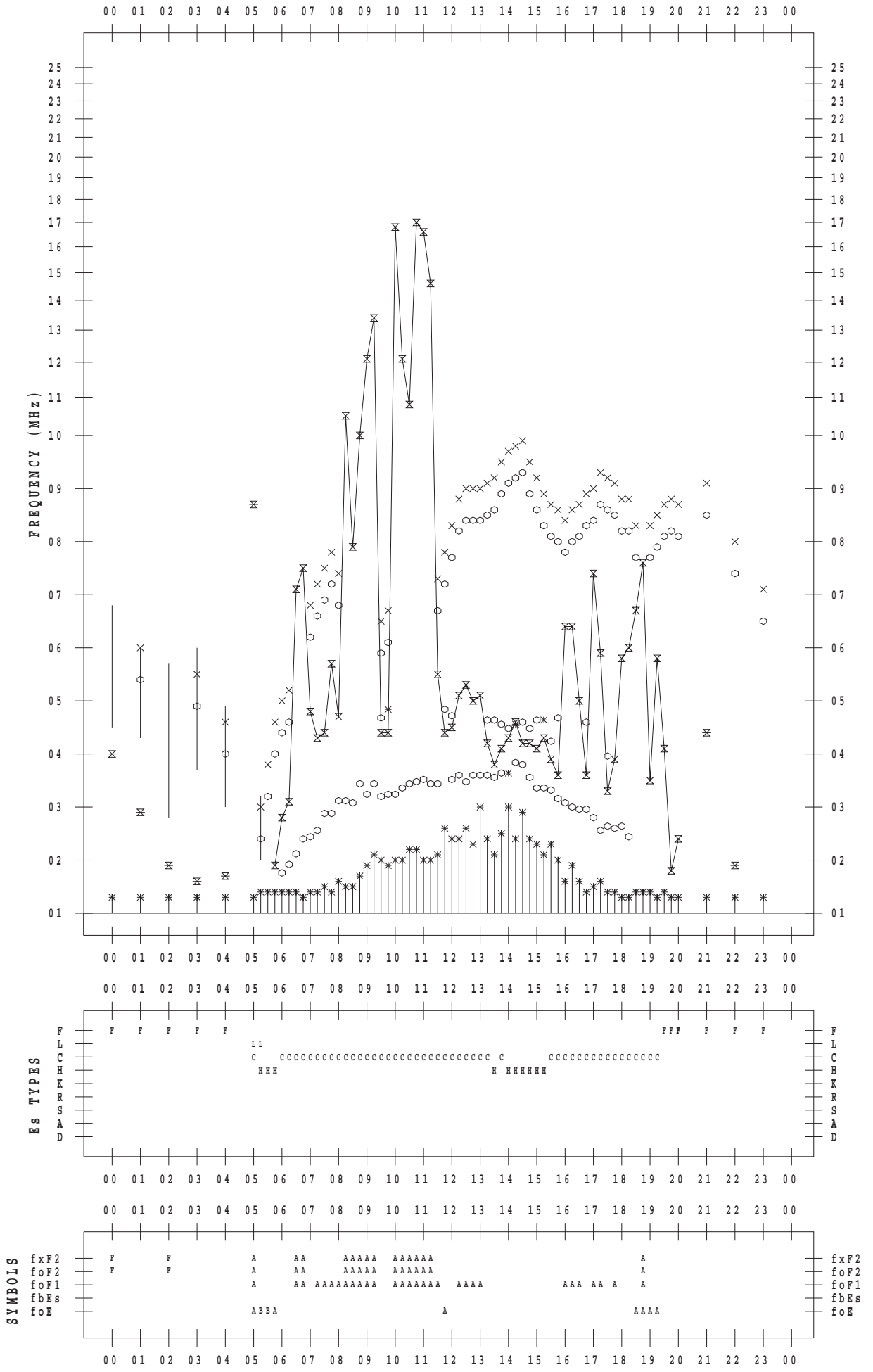
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2016/ 6/ 6

135 °E MEAN TIME



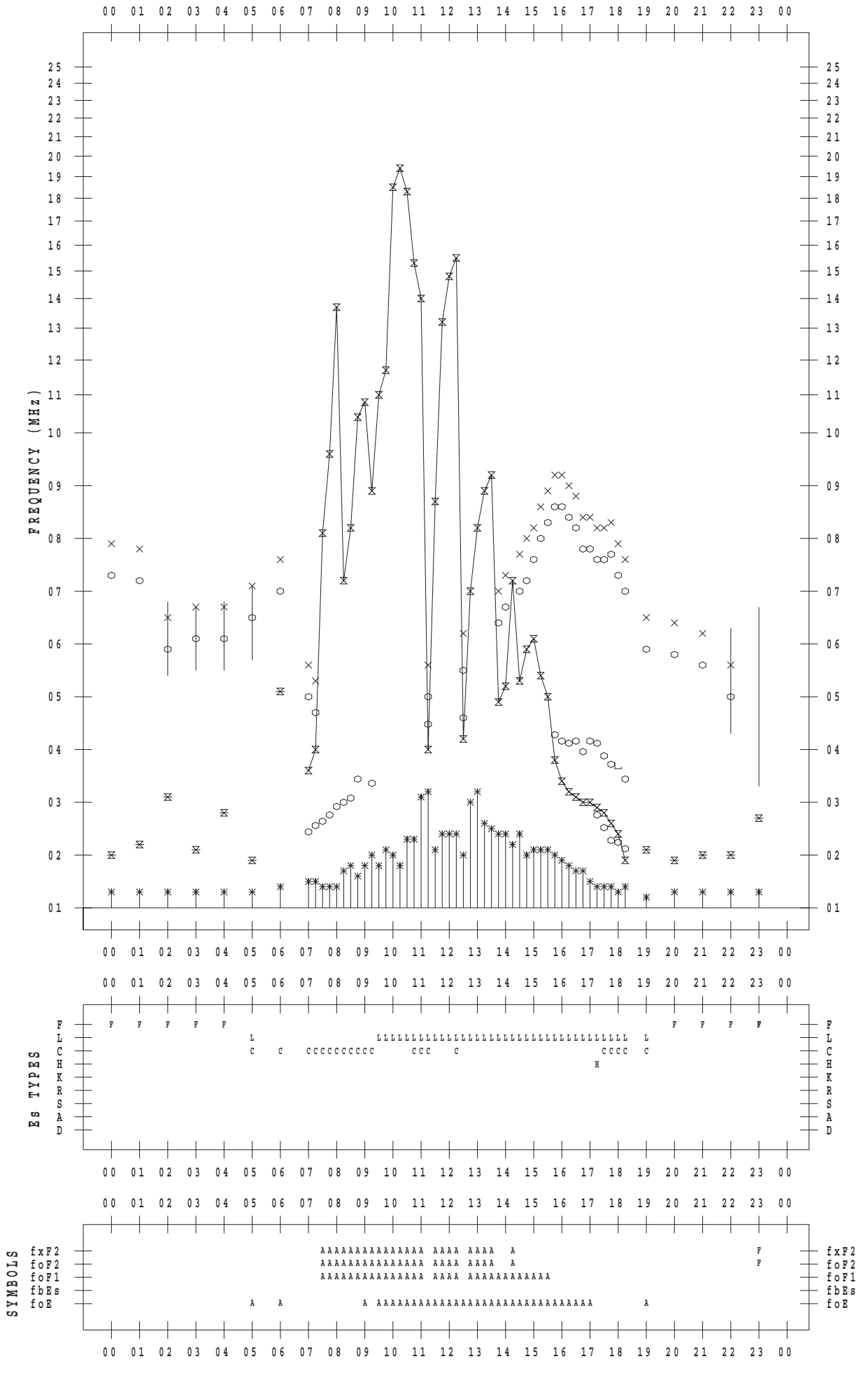
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2016/ 6/ 7

135 °E MEAN TIME



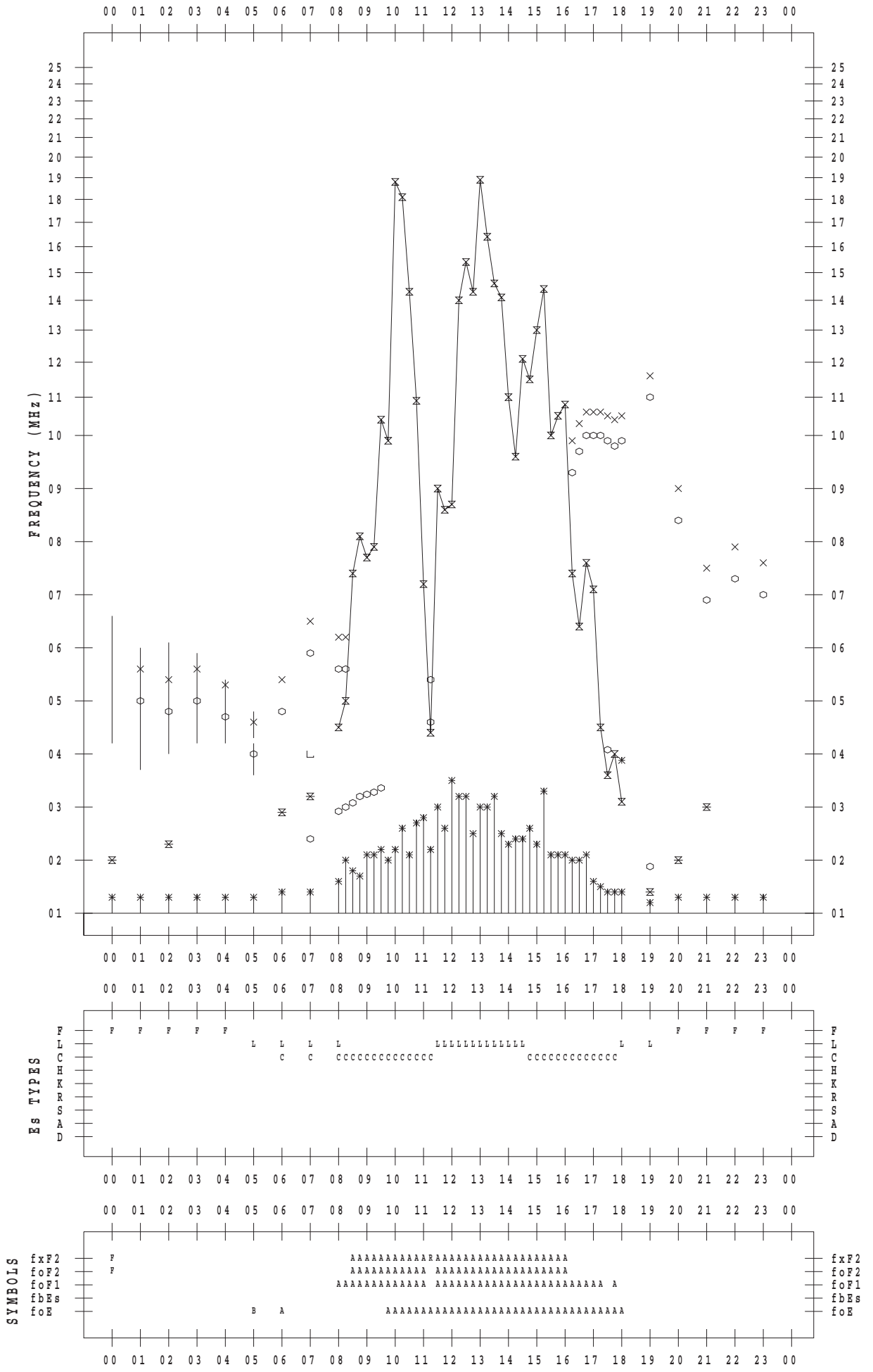
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2016/ 6/ 8

135 °E MEAN TIME



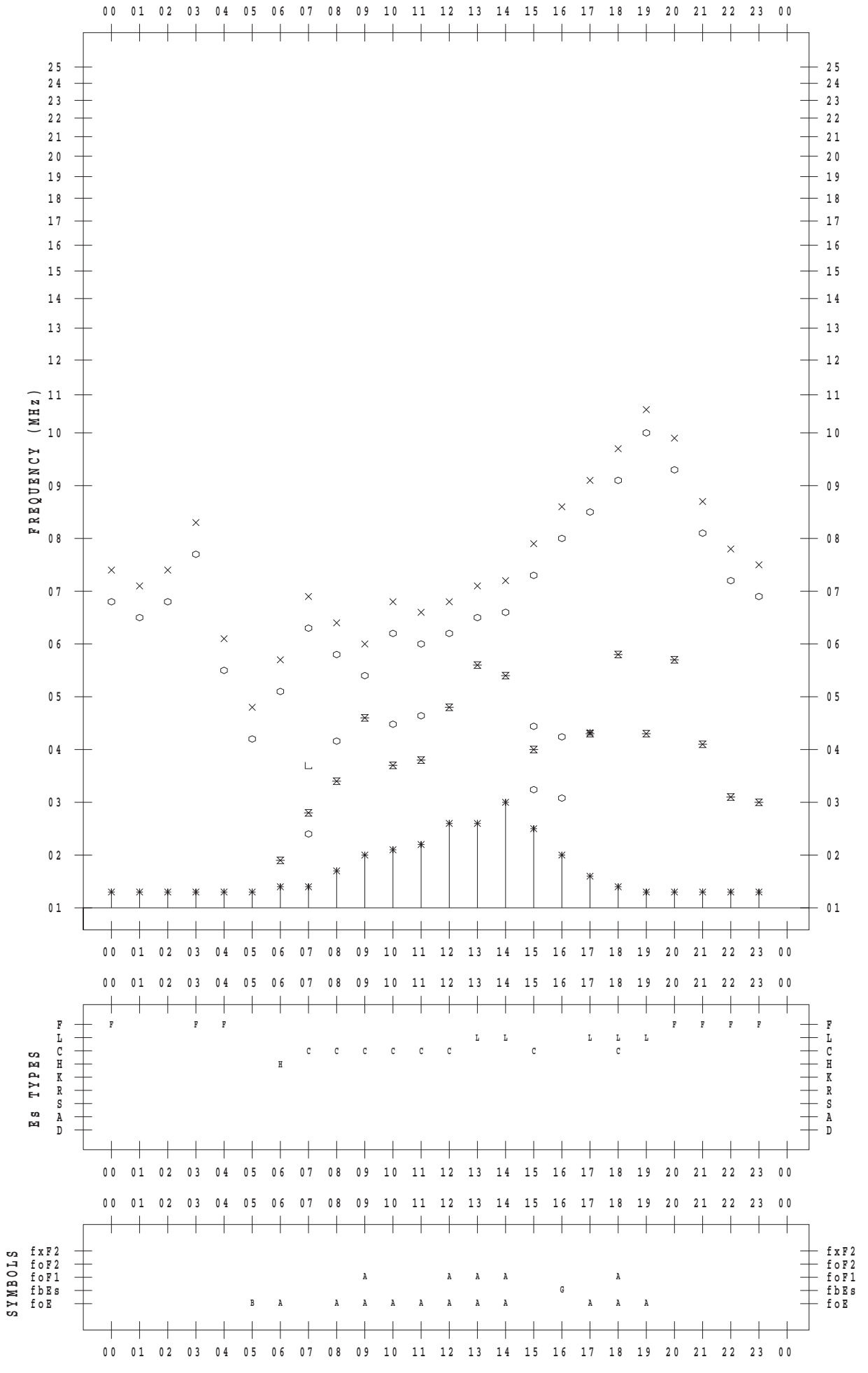
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2016/ 6/ 9

135 °E MEAN TIME



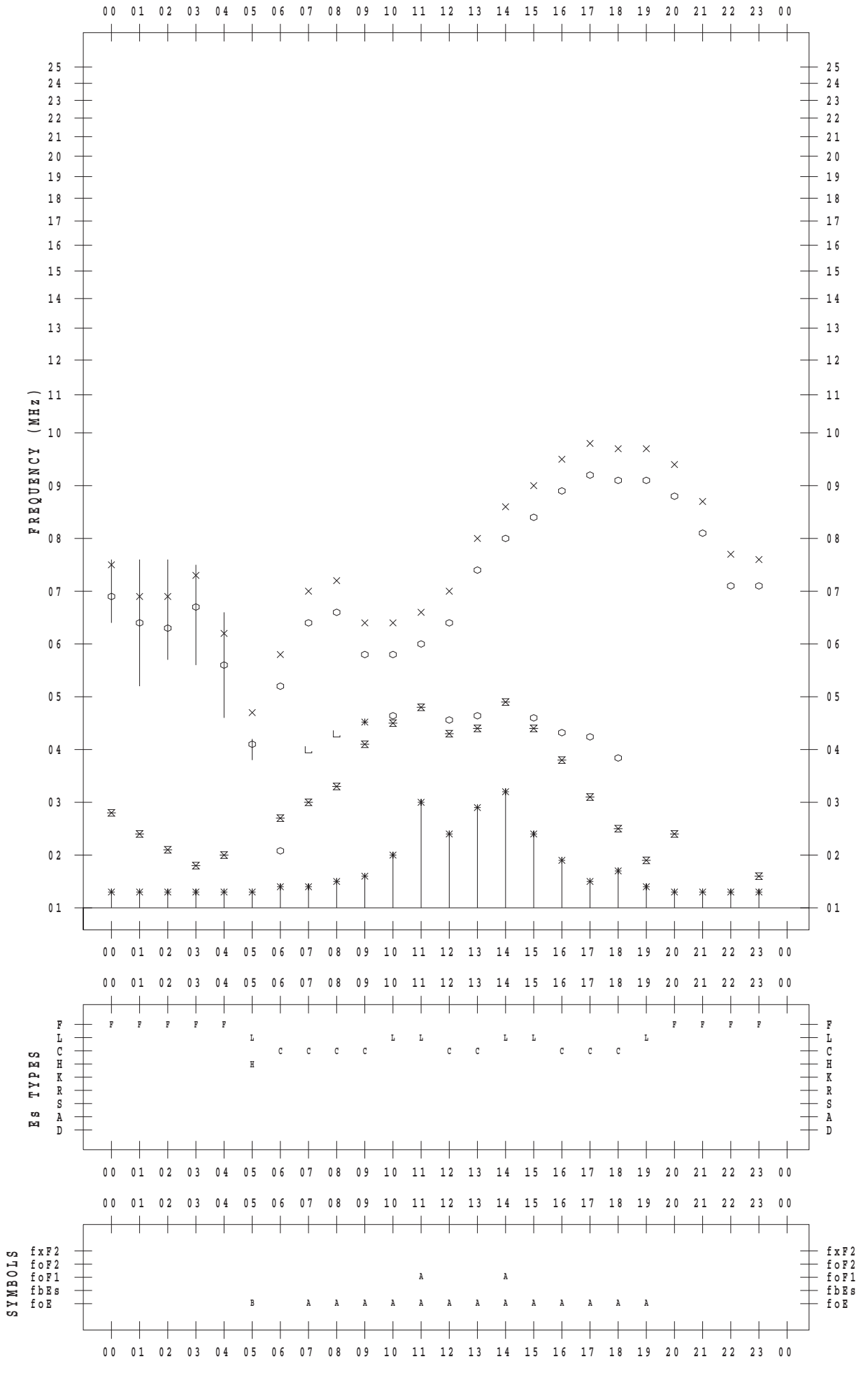
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2016/ 6/10

135 °E MEAN TIME



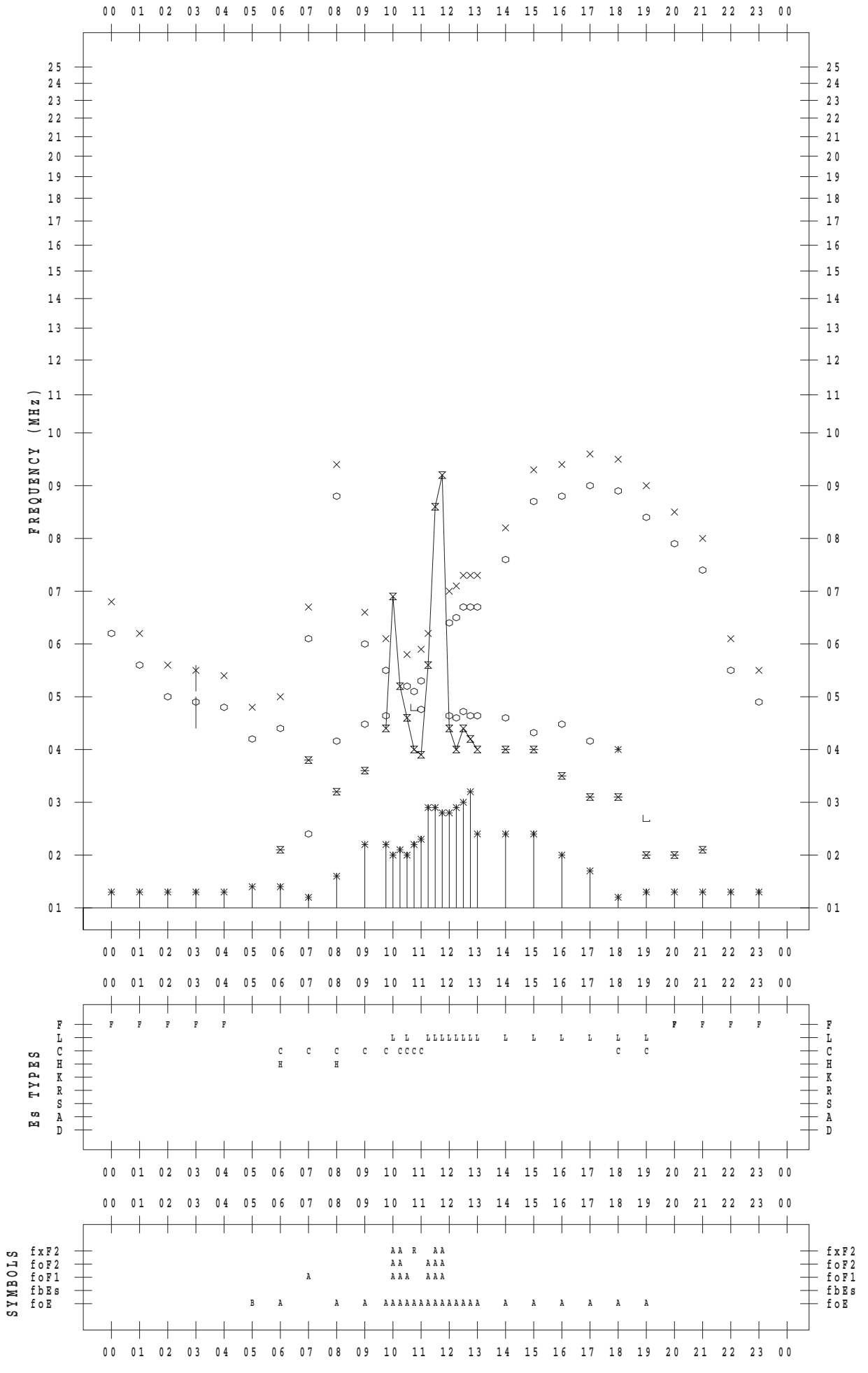
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2016/ 6/11

135 °E MEAN TIME



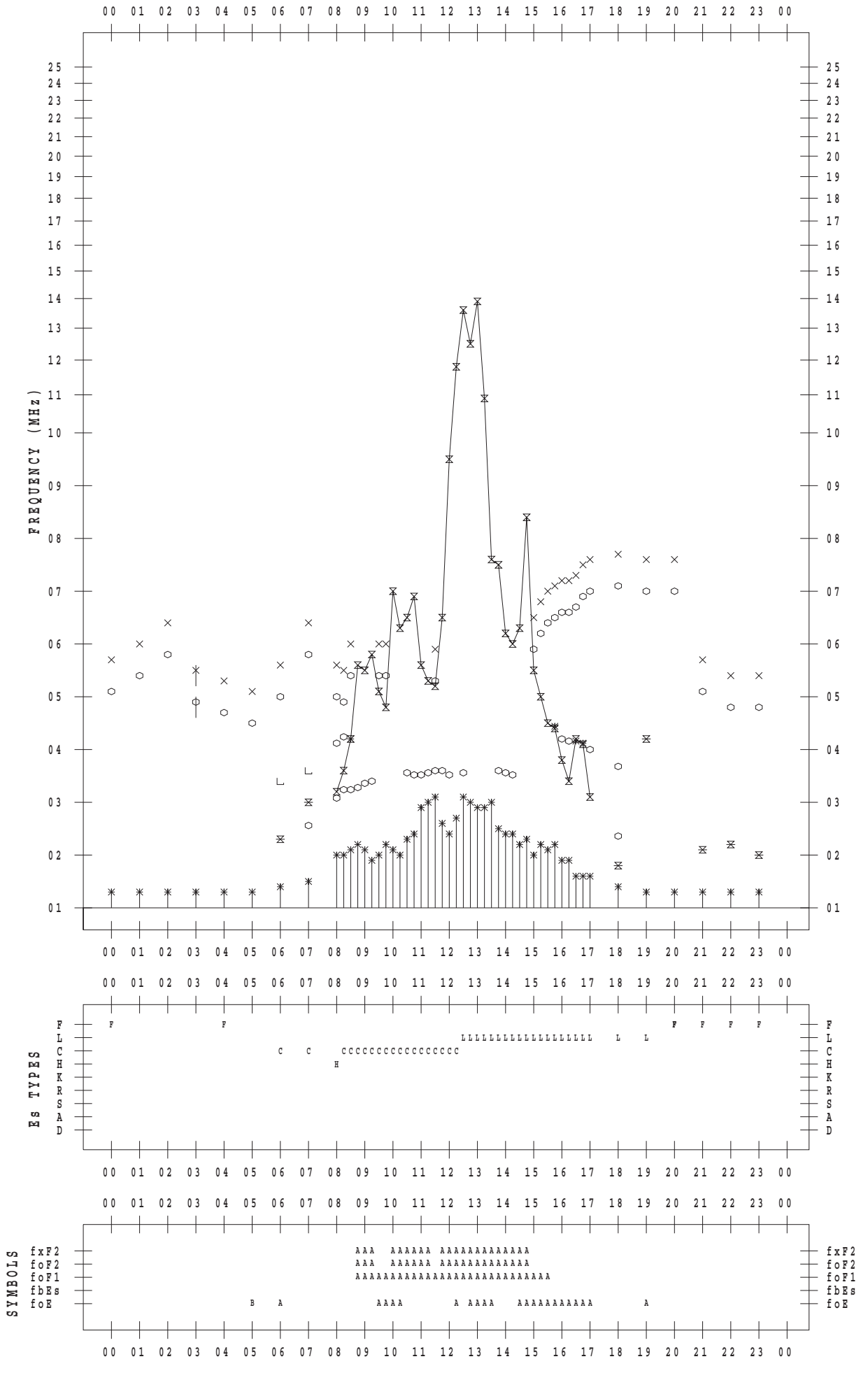
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2016/ 6/12

135 °E MEAN TIME



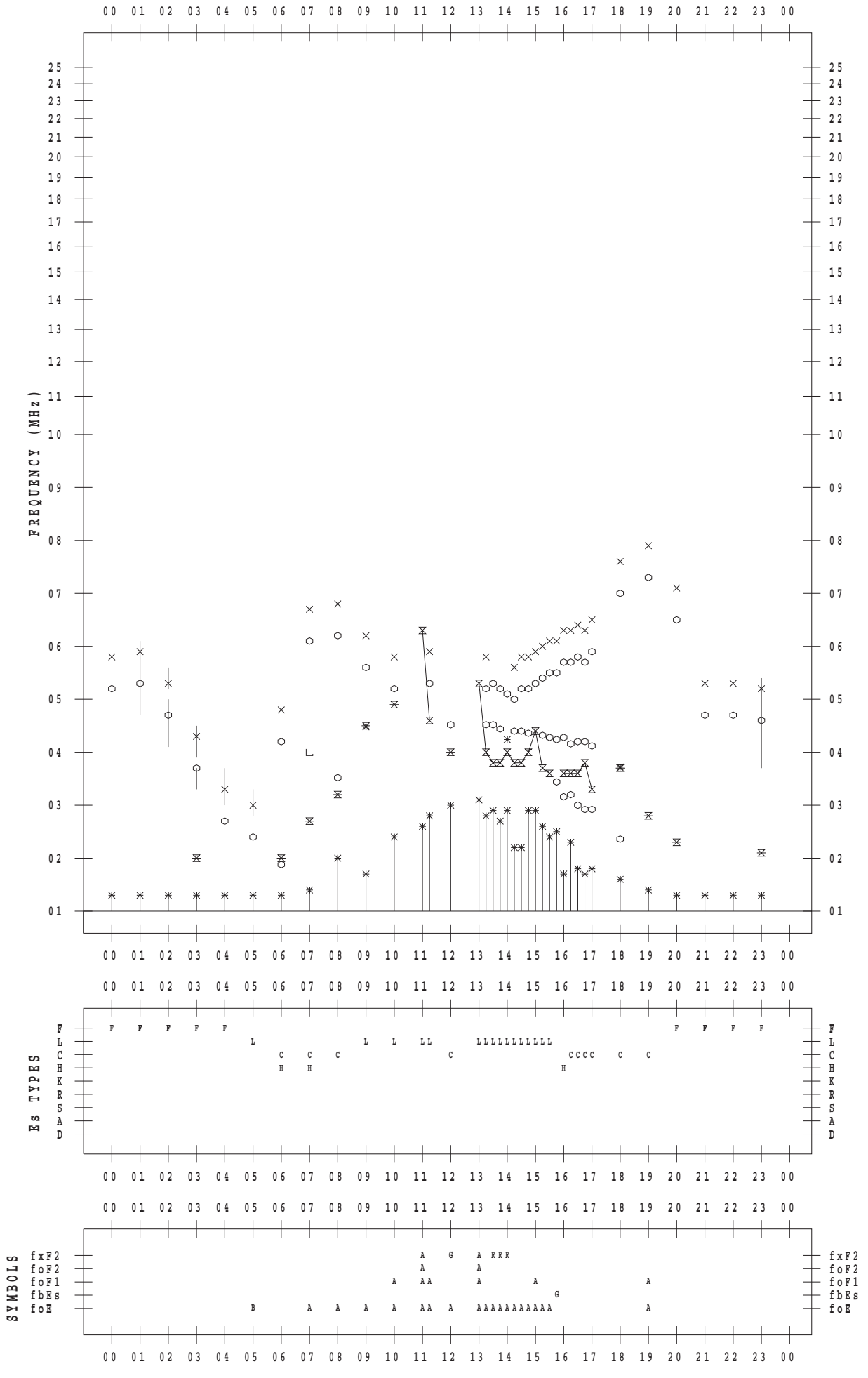
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2016/ 6/13

135 °E MEAN TIME



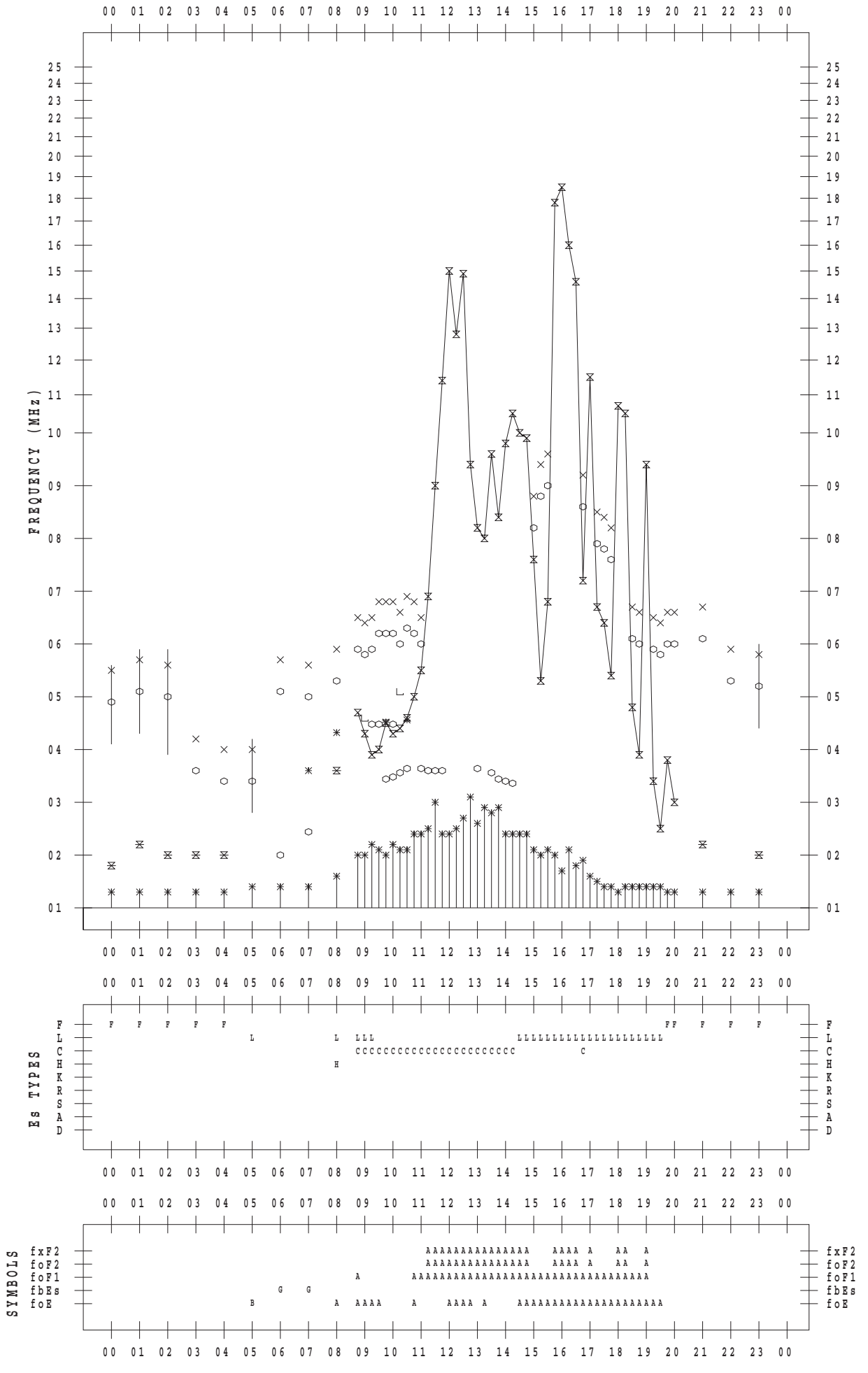
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2016/ 6/14

135 °E MEAN TIME



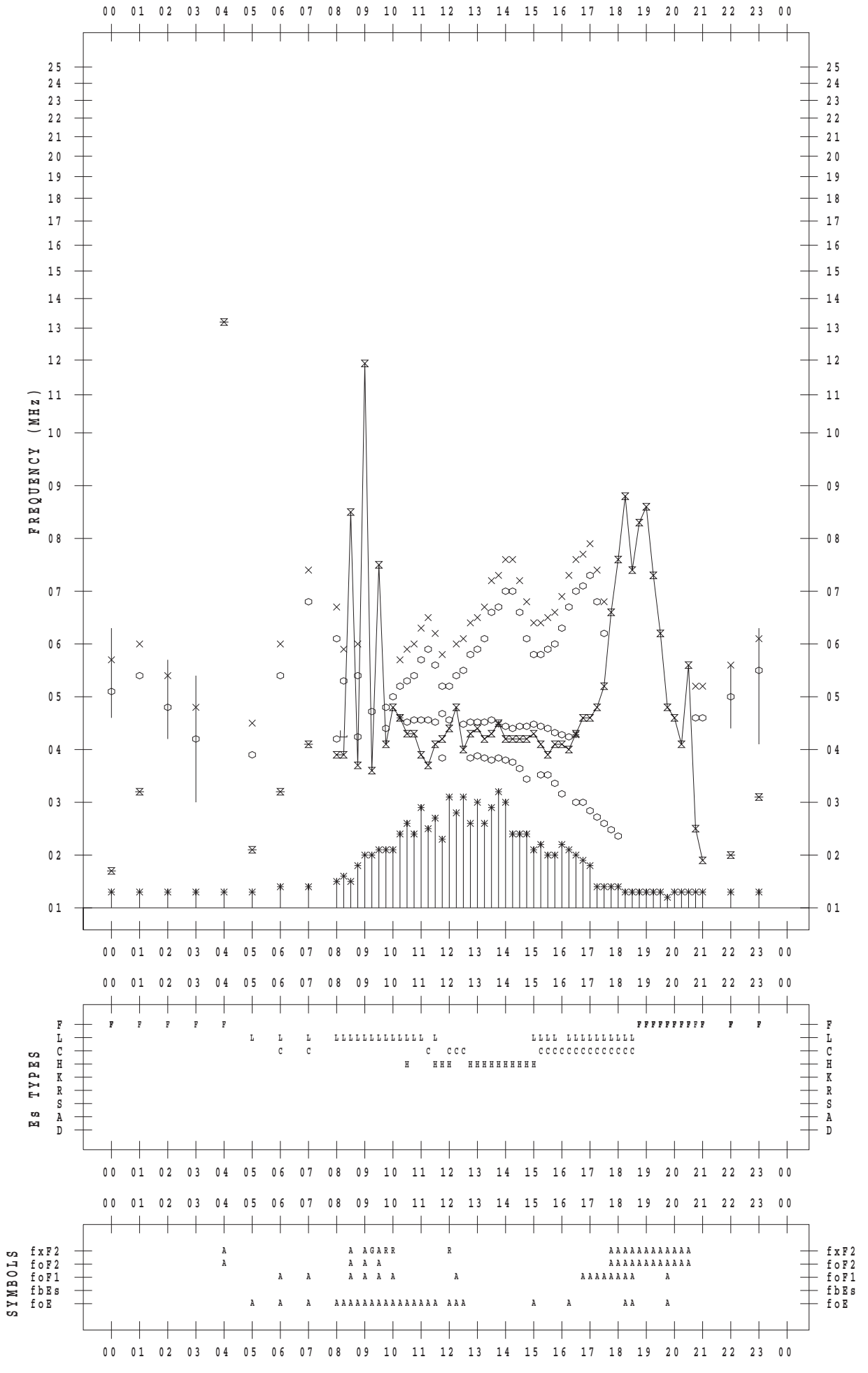
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2016/ 6/15

135 °E MEAN TIME



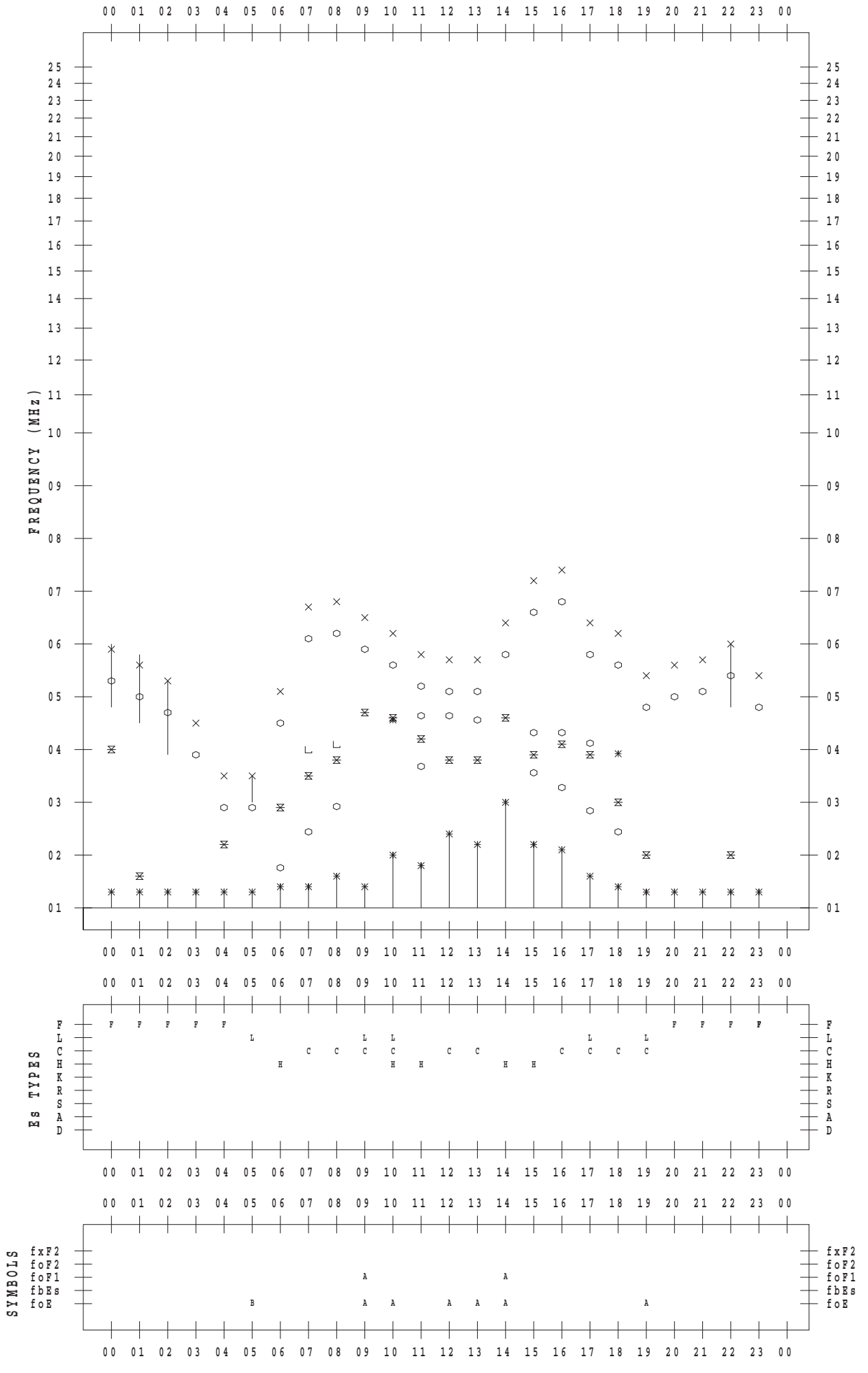
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2016/ 6/16

135 °E MEAN TIME



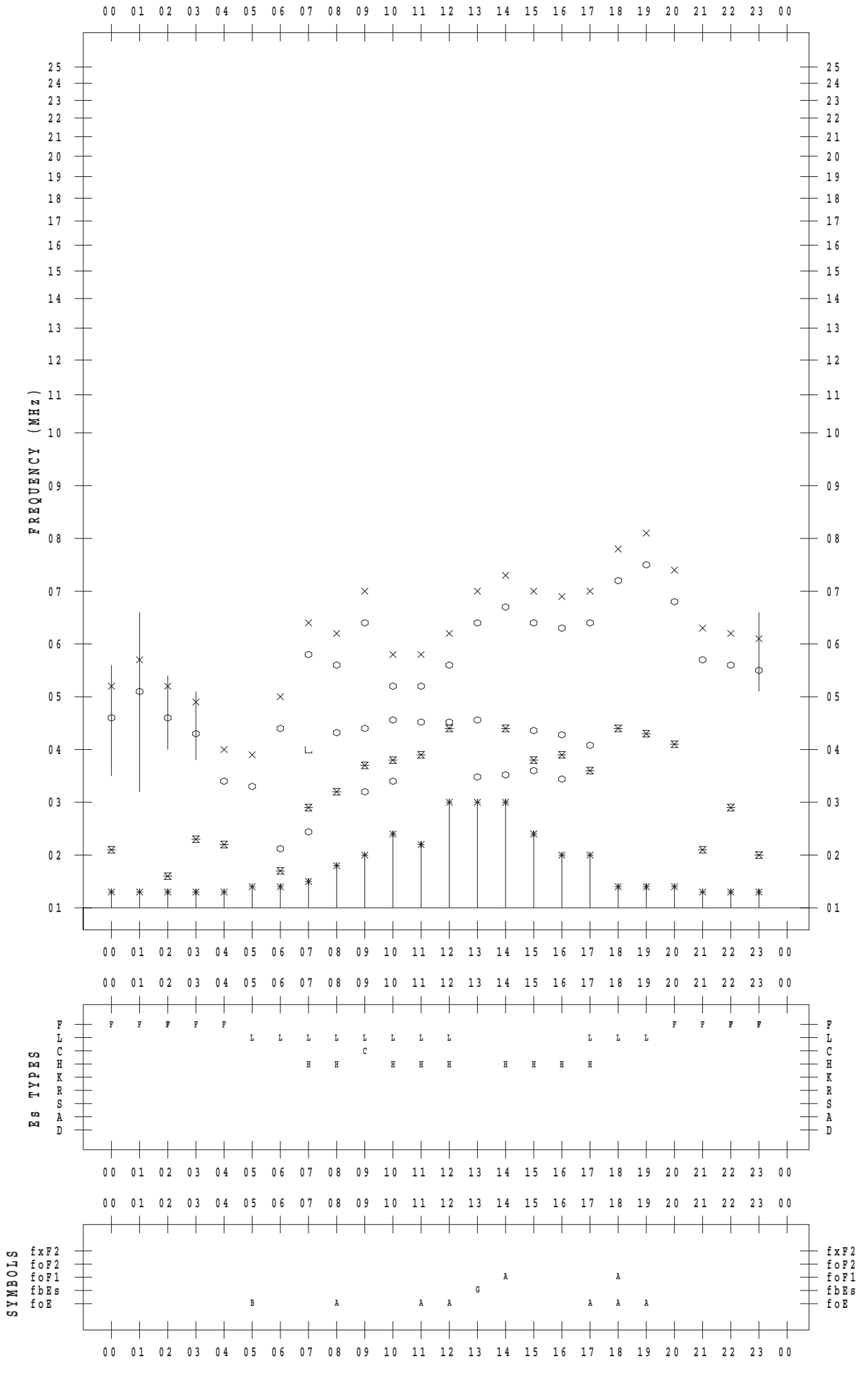
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2016/ 6/17

135 °E MEAN TIME



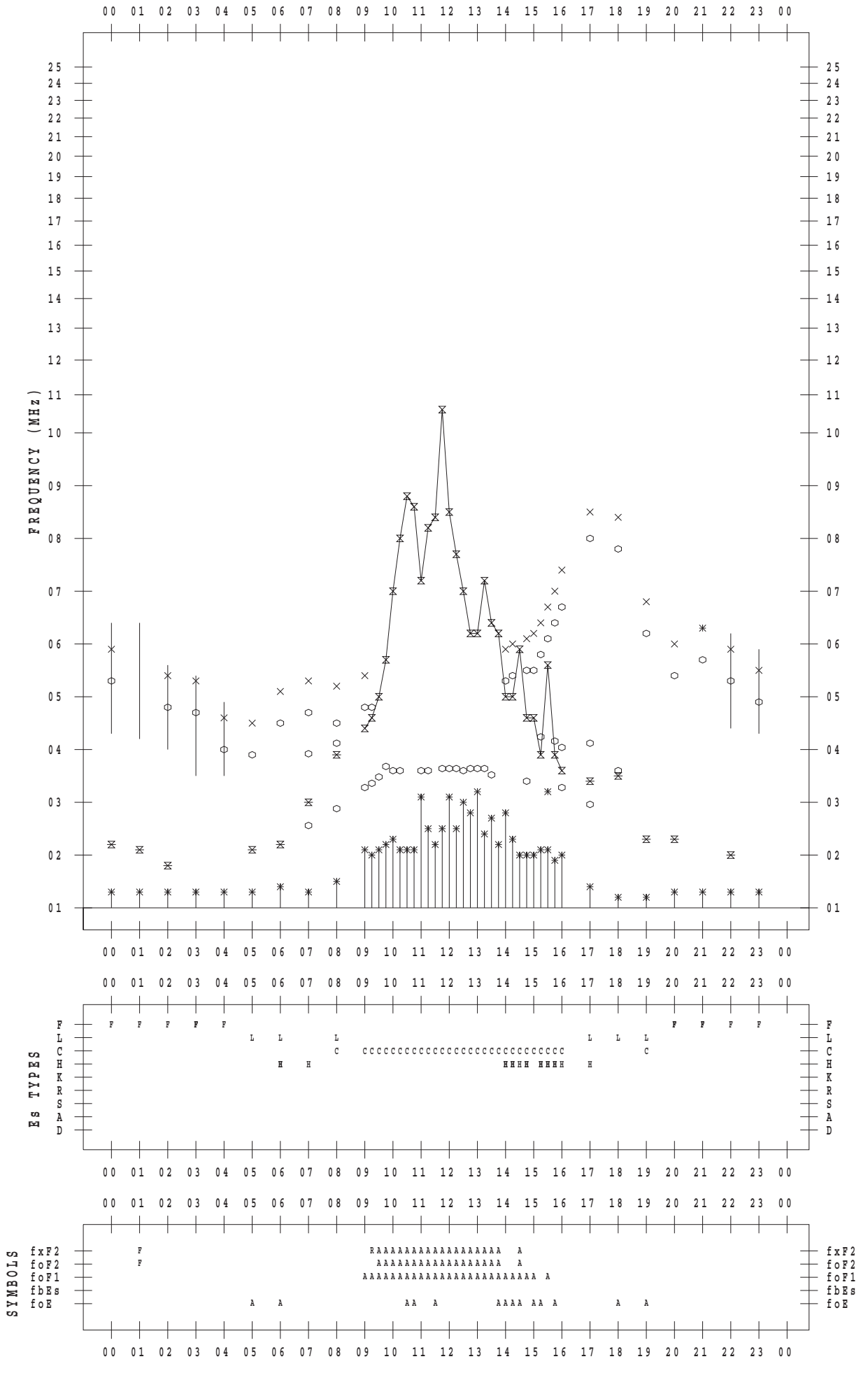
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2016/ 6/18

135 °E MEAN TIME



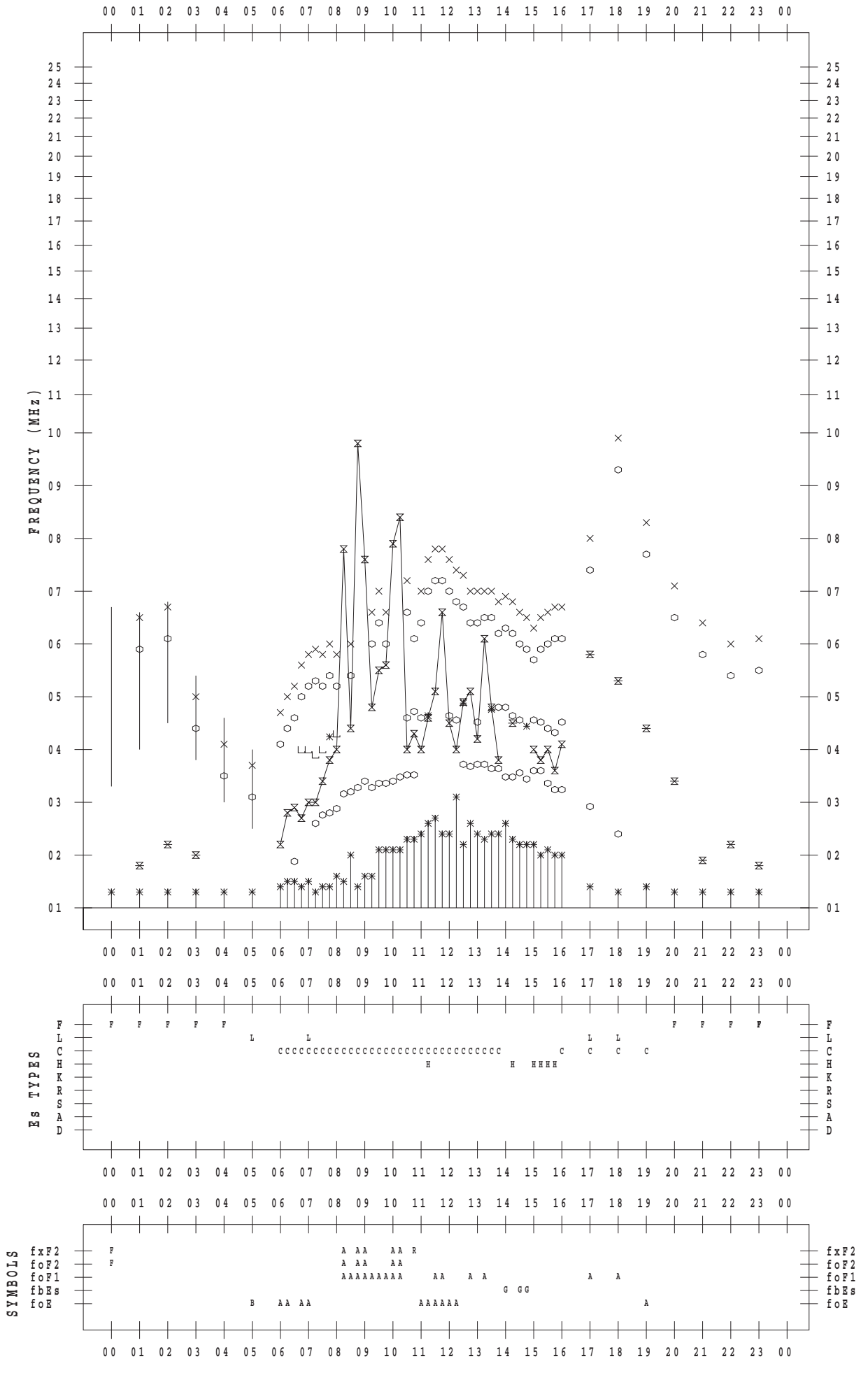
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2016/ 6/19

135 °E MEAN TIME



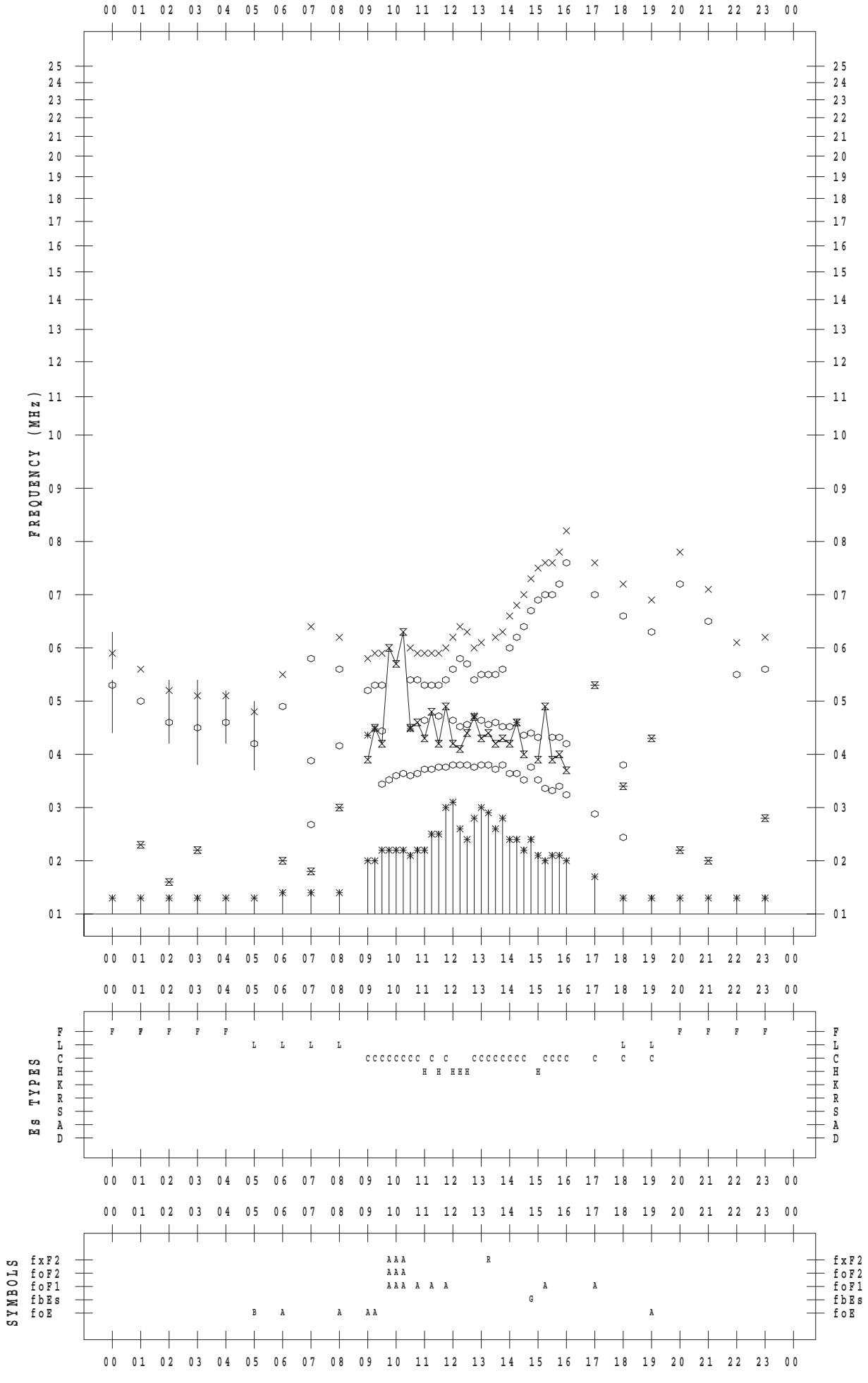
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2016/ 6/20

135 °E MEAN TIME



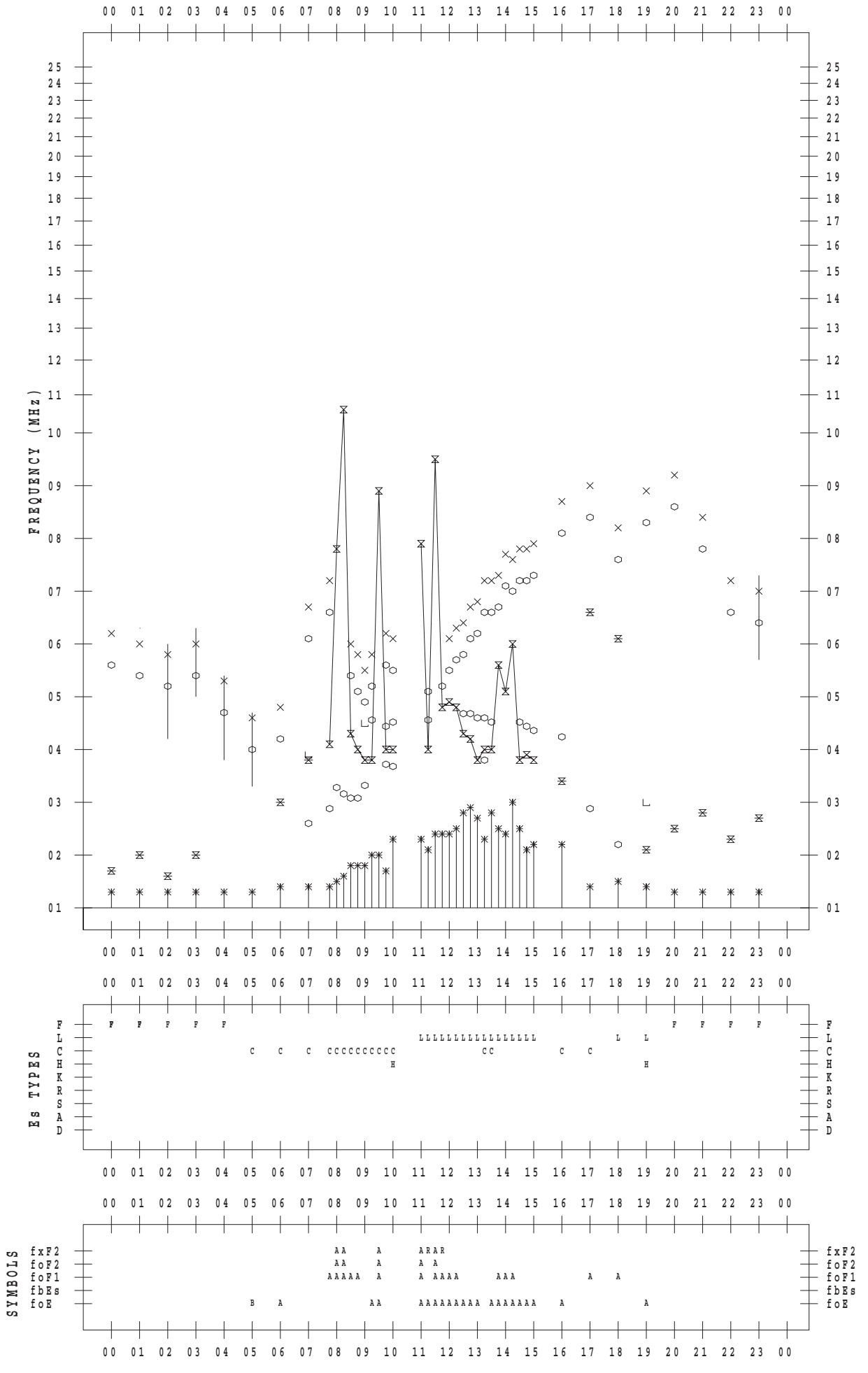
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2016/ 6/21

135 °E MEAN TIME



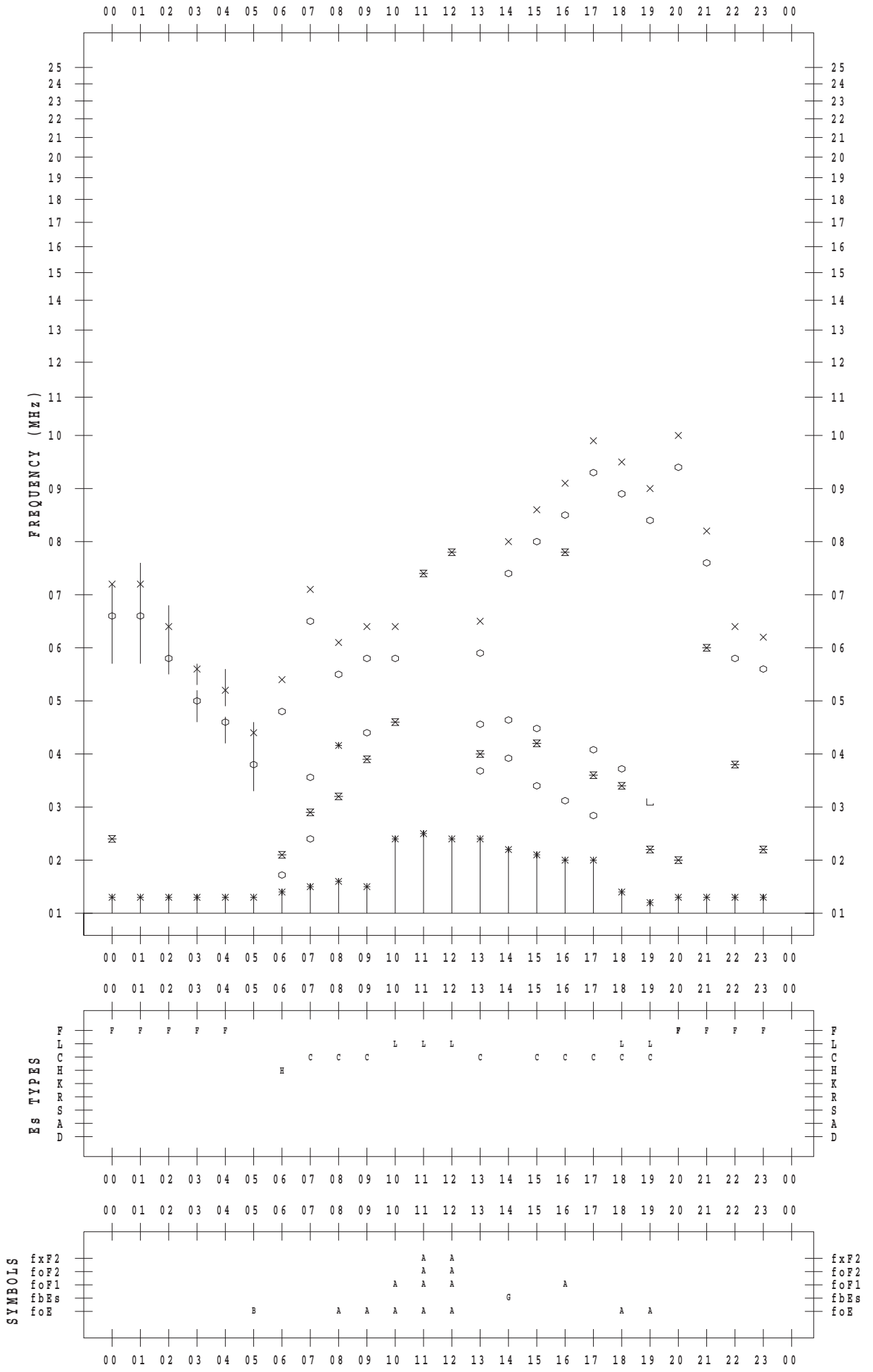
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2016/ 6/22

135 °E MEAN TIME



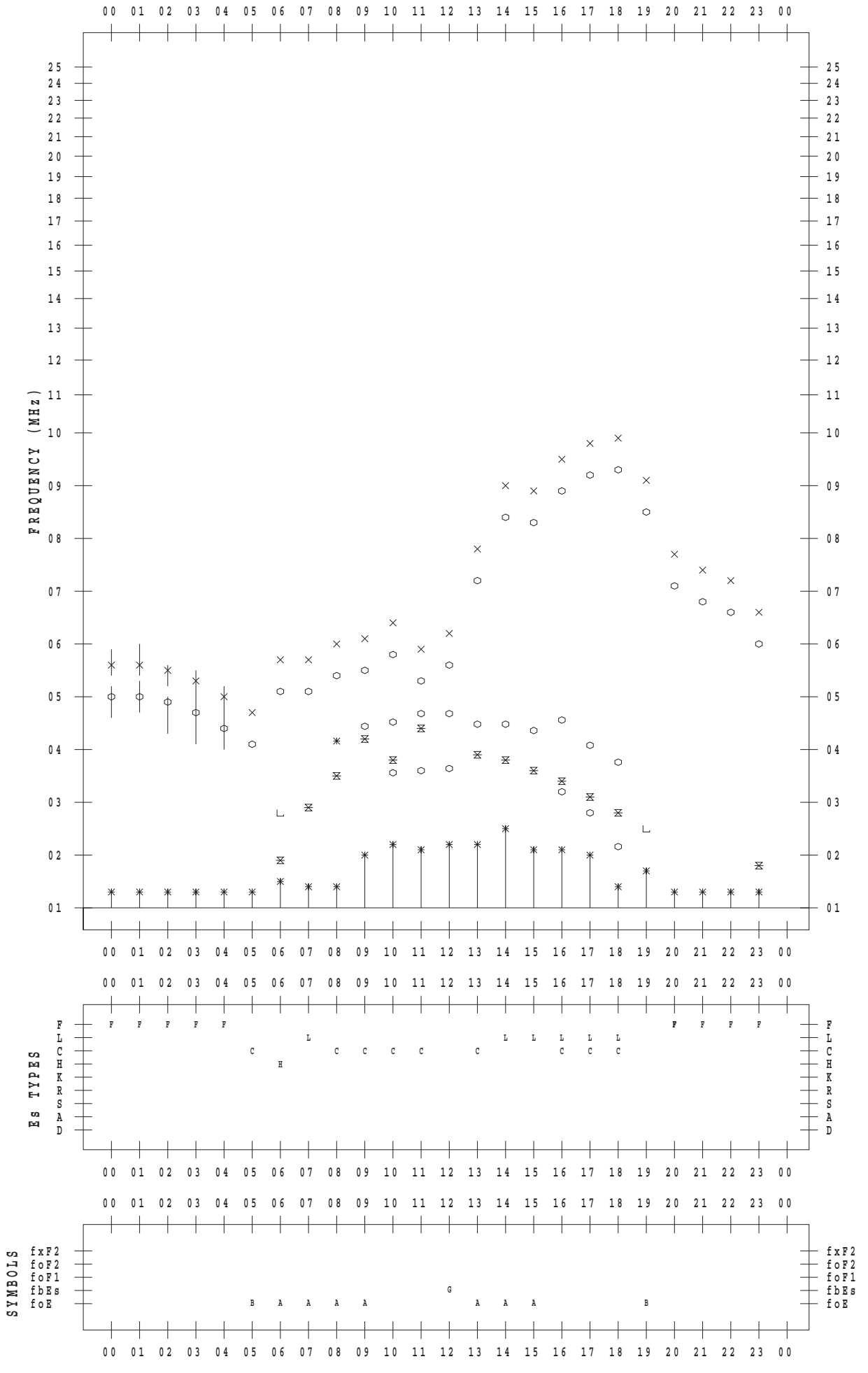
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2016/ 6/23

135 °E MEAN TIME



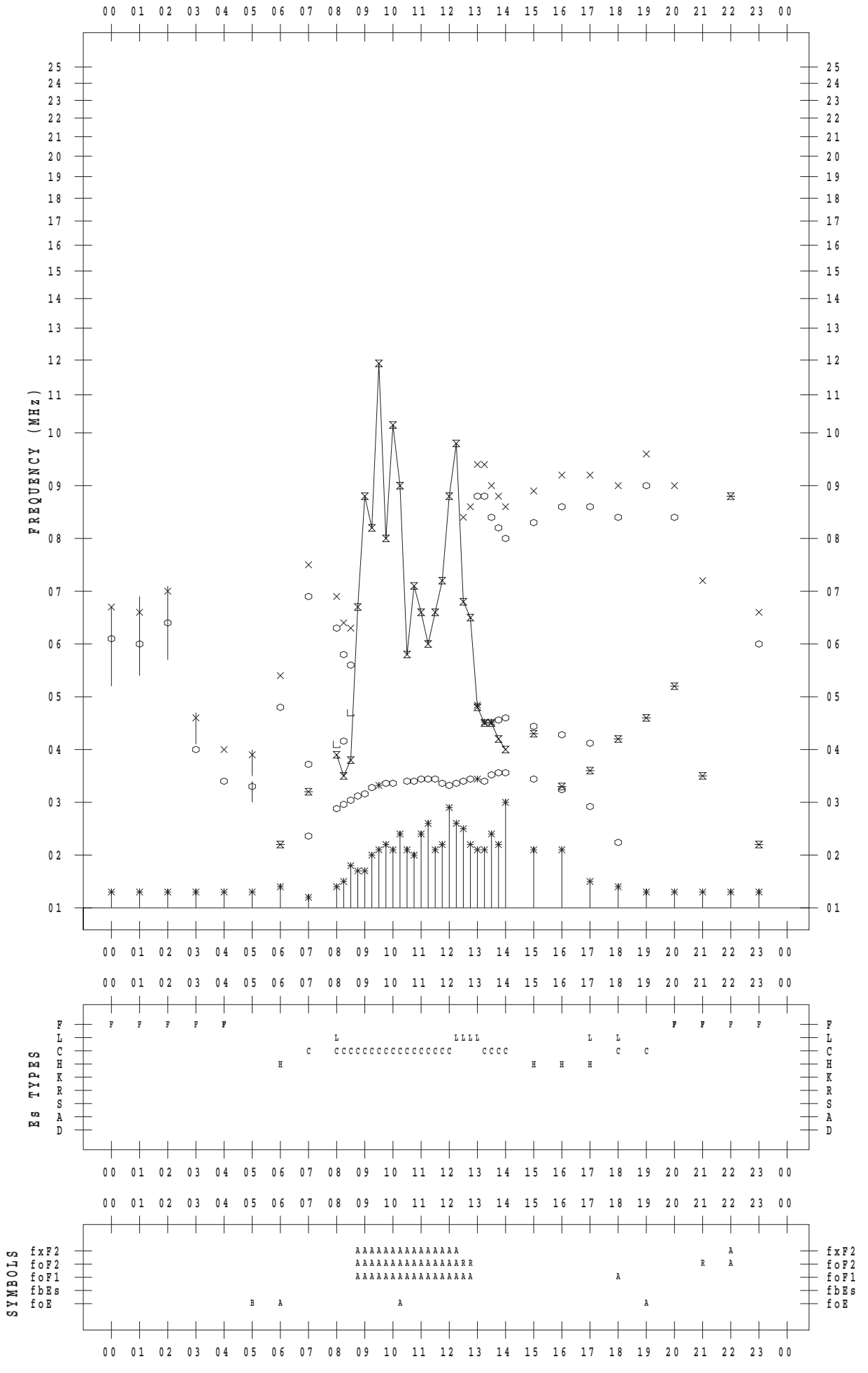
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2016/ 6/24

135 °E MEAN TIME



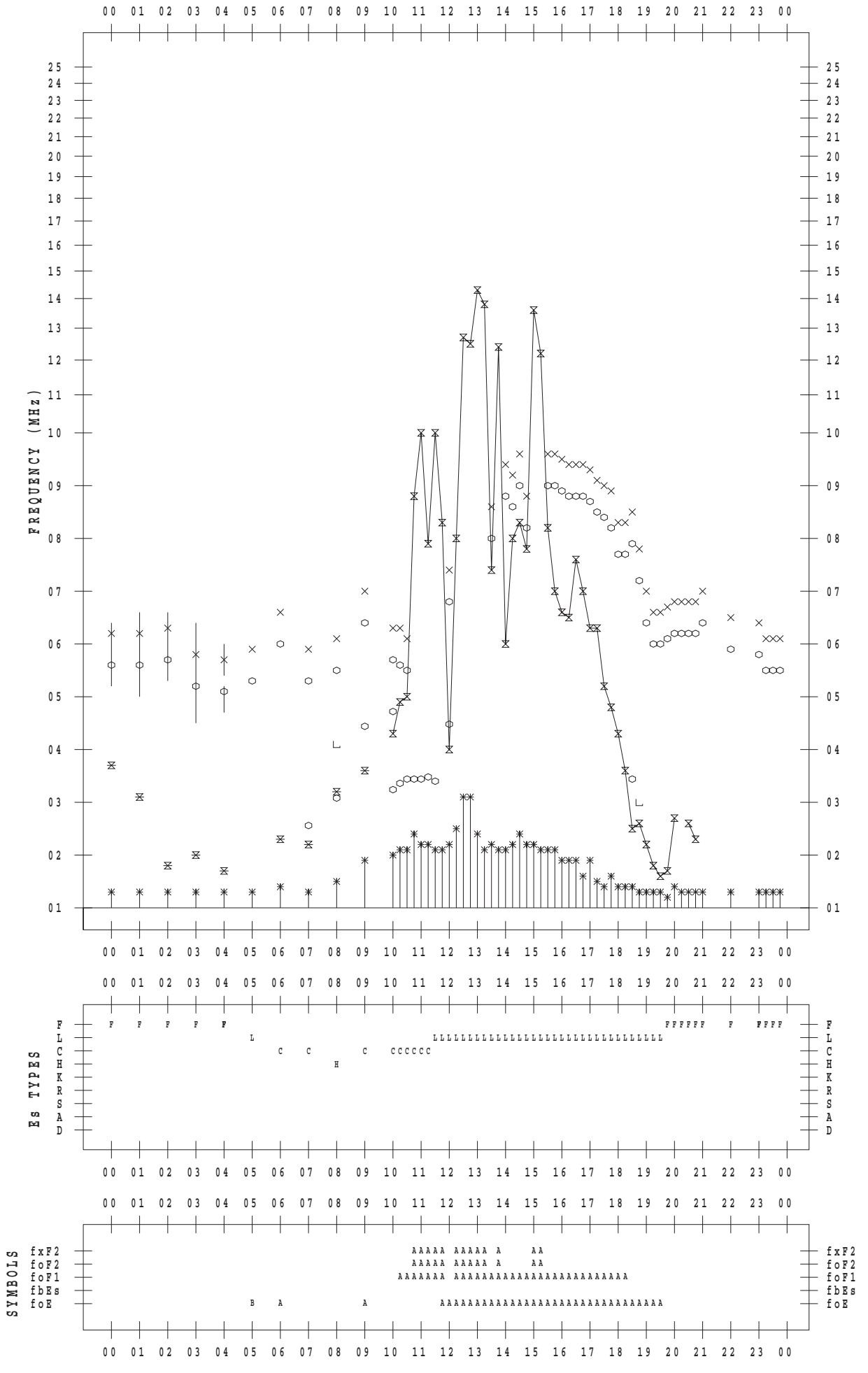
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2016/ 6/25

135 °E MEAN TIME



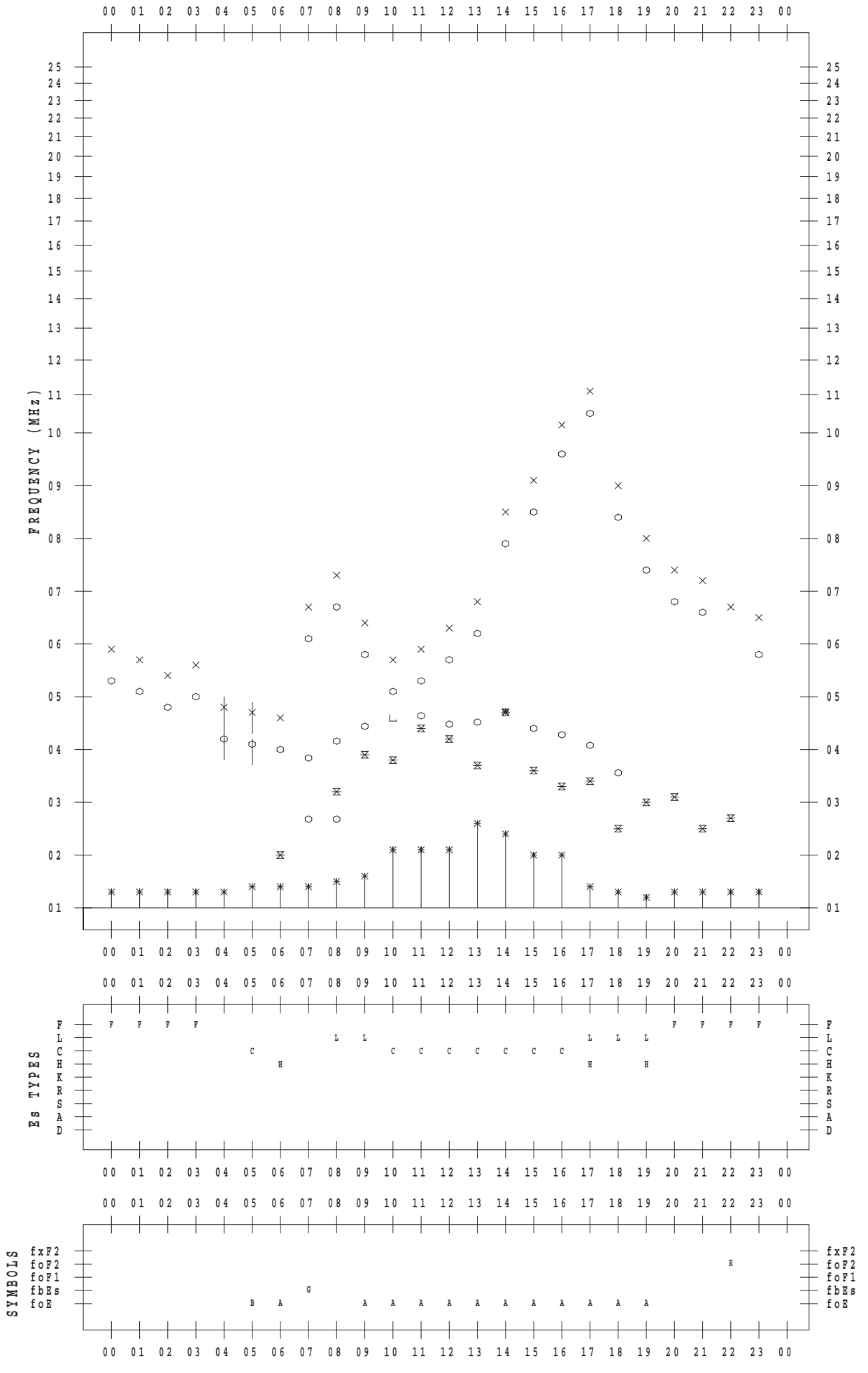
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2016/ 6/26

135 °E MEAN TIME



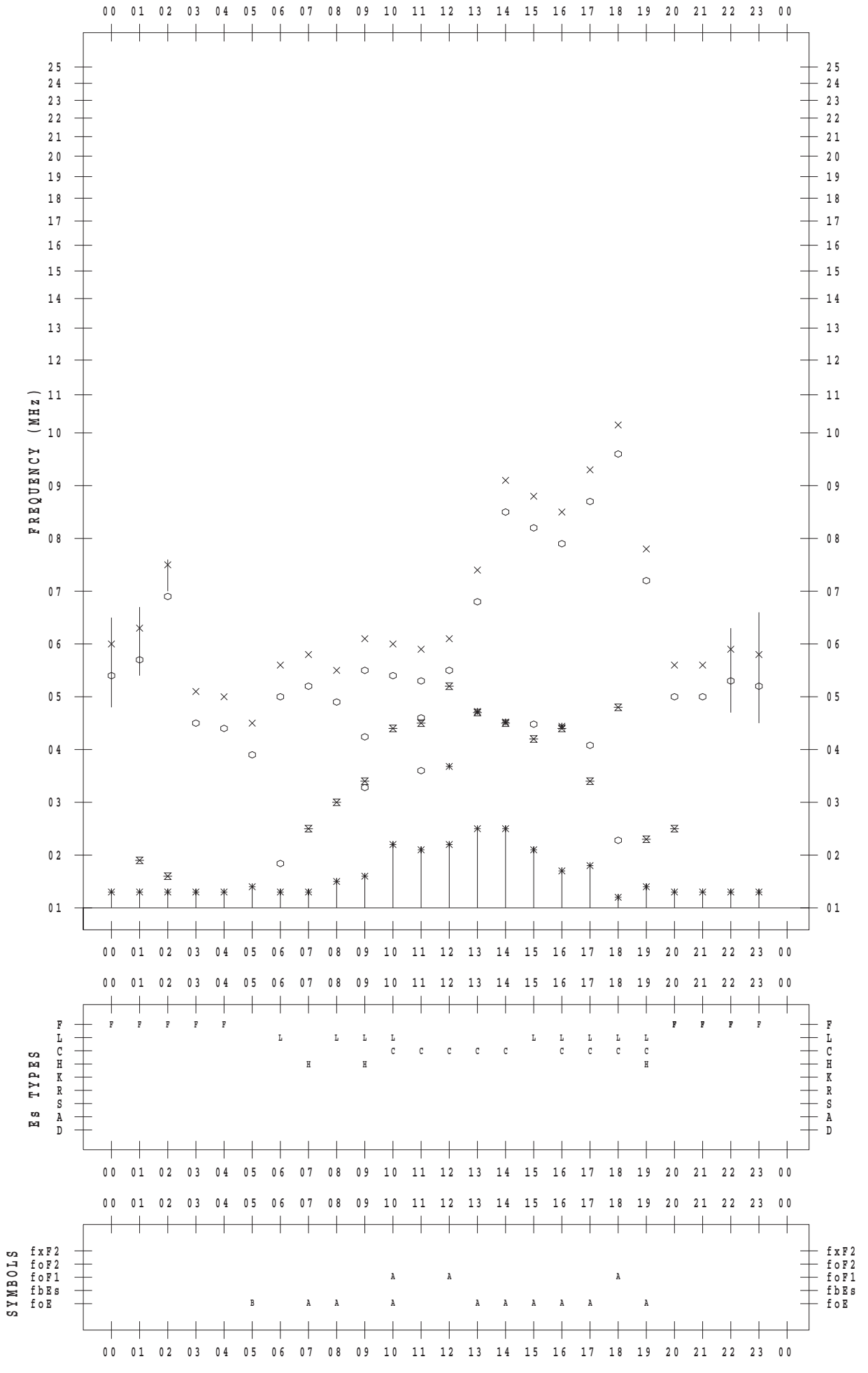
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2016/ 6/27

135 °E MEAN TIME



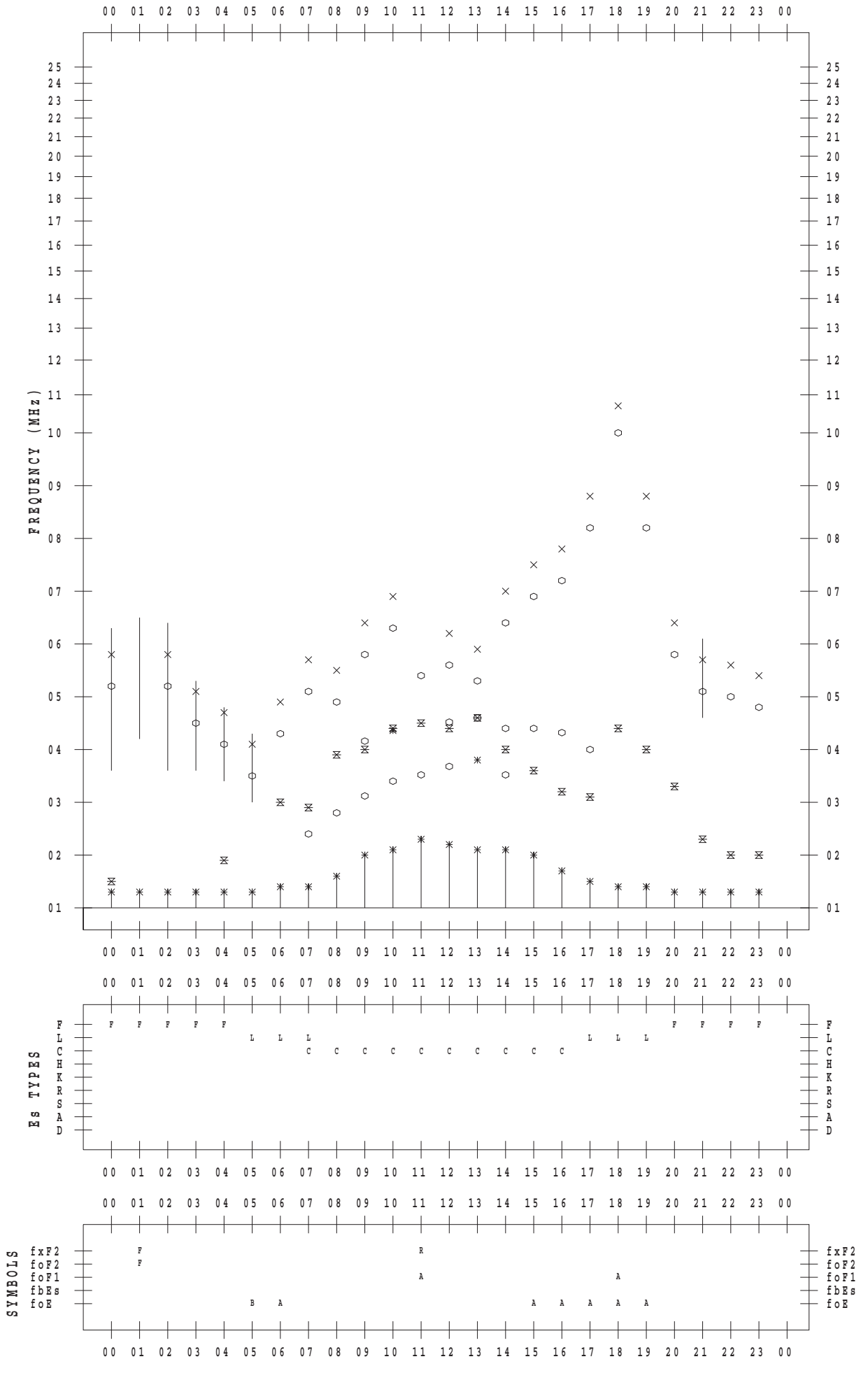
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2016/ 6/28

135 °E MEAN TIME



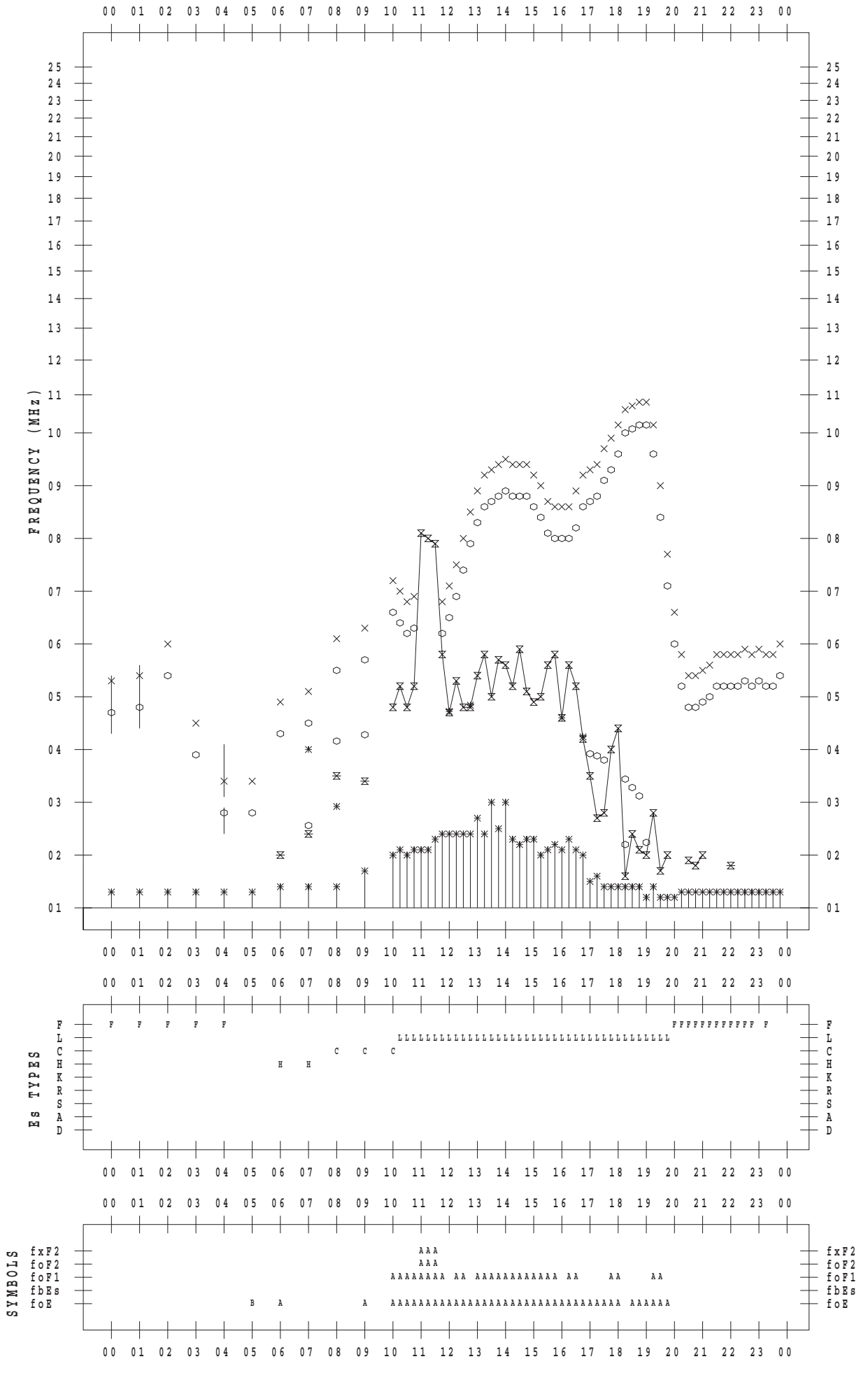
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2016/ 6/29

135 °E MEAN TIME



f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2016/ 6/30

135 °E MEAN TIME