F-809

IONOSPHERIC DATA IN JAPAN

FOR MAY 2016

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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

MAY 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	59	53	54	53	44	44	52	54	55	A	60	A	58	64	64	68	63	69	67	64	64	66		61
2	52	52	53	53	49	51	46	51	52	A	60		65	64	67	70	A	67	65	61	63	64	64	66
3	59	58	52	49	48	51	A	A	A	A	A	61	A	A	A	57	60	64	63	66	51	53	52	50
4	52	52	52	52	51	56	A	45	A	A	A	A	A	A	A	A	64	61	60	62	66	53	55	48
5	34	44	46	44	48	55	51	58	65	57	55		62	57		65	67	65	68	67	64	67	51	58
6	50	58	55	53	48	57	60	52	60	49	A		60	62	63	58	60	60	63	66	64	65	67	54
7	58	53	52	36	46	46	56	48	61		57	64	67	67	64	61	62	58	61	62	65	67	64	52
8	54	52	48	46	51	58	60	50		56	A	56	58	A		68	67	72	63	67	52	54	47	54
9	43	44	A	A	34	A	43	A	A	A		A	A	A	A	A	A	A	A	99	A	48	28	23
10	A	A	25	A	A	A	A	A	A	A	A			A	A	57	58	60	55	60	63	56	53	37
11	34	34	32	38	35	39		A	A	A	A		A		A	A	A	A	46	30	44	55	A	43
12	38	34	37	37	42	30	50	53	A	A	A	A	A	A	61	60	61	A	A	66	A	A	63	
13	61	58	49	53	48	48	64	55	55	A	59	61	65	66	66	66	67	A	65	72	64	72	68	65
14	64	51	54	48	50	45	42	55	53	54	60	99	63	N	67	70	A	67	62	57	69	63	53	67
15	64	59	56	47	42	51	55	58	64	65	61	66	65	66	72	70	66	65	71	73	75	75	67	63
16	52	54	51	40	45	45	49	A	A	A	A	A	A		55	55	A	55	57	60		55	58	62
17	59	41	43	42	40	34	63	42		A	A		40	40		40	51	50	47	53	63	59	55	54
18	42	42	39	43	42	56	61	55	57	55	A	56	40	55	54	A	63		66	71	72	61	54	50
19	51	47	49	48	52	62	56	54	51	A	A	A		55	A		85	110	56	111	A	109	62	46
20	54	52	47	42	40	44	51	55	A		A	A	A	55		56	58	A	56	91	58	57	59	60
21	47	54	51	43	45	51	51	A	55	57	A	A	93		128	A	A	79	72	77	70	A	58	50
22	51	47	47	A			47	87	A	A	73	A	A	54		52	55	50	61	50	63	63	57	54
23	51		50	48	46	A		52	57	52	A	A	59	59	53	58	58	A	58	66	65	66	65	52
24	51	51	37	49	48	49	54	56	A	A	57	99	106	A	N	A	149	179	184	A	70	63	64	58
25	51	47	A	45	45	48	56	54	111	A	51	56	55	56	55	55	58	62	62	63	67	66	66	56
26	52	51	28	47	47	57	51	A	55	57	59	57	58	57		59	62	89	122	56	63	64	67	61
27	60	62	53	51	54	56	51	79		54	A	A	A	A	55	57	139		58	A	66	55	63	63
28	51	54	54	55	51	62	71	61	A	A	79	A	A	58	64	62	60	58	60	66	63	65	65	62
29	58	55	56	61	57	61	72	A	A	149		A	A	80	58	A	106	139	111	110	A	65	79	42
30	58	54	52	51	54	49	A	85	108	A	108	62	A	A	64	A	A	70	N	86	A	A	A	A
31	A	A	44	A	47	56	54	62	103	158	A	109	A	A	A	108	90		57	66	A	110	104	51
	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	29	27	29	27	25	23	16	12	13	12	16	17	17	22	24	22	28	29	24	28	28	29
MED	52	52	50	48	47	51	54	55	57	56	60	62	61	58	64	60	62	65	62	66	64	64	62	54
U Q	58	54	53	52	50	56	60	58	64	61	67	82	65	65	66	68	67	72	66	72	66	66	65	61
L Q	50	47	43	43	43	45	50	52	55	54	57	56	58	55	55	57	59	60	57	60	63	55	54	50

HOURLY VALUES OF fEs AT Wakkanai

MAY 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	24	G	26	G	G	31	38	G	39	52	50	58	44	G	G	39	36	57	41	40	56	33		34
2	33	G	G	G	G	29	35	45	G	55	G	G	41	52	61	61	66	61	44	45	33	G	G	25
3	G	24	G	G	25	39	57	51	86	61	72	51	80	105	60	G	G	38	35	40	37	60	44	43
4	24	25	28	28	11	30	51	40	50	55	55	67	63	68	66	83	56	42	34	51	24	29	G	G
5	G	G	G	G	G	G	G	35	G	G	41	G	G	G		50	43	48	32	26	26	28	33	34
6	27	25	24	G	G	28	52	G	G	G	44	G	G	G	G	G	G	G	28	31	G	34	G	G
7	G	24	31	G	G	31	36	G	48		G	G	50	G	G	G	G	40	34	G	26	G	23	G
8	G	G	G	G	G	30	37	G	G	G	50	48	G	45	G	G	G	34	32	30	32	26	G	G
9	G	28	40	40	36	51	40	43	52	55	G	52	85	58	58	76	70	92	105	87	69	45	G	G
10	24	32	22	29	29	36	56	77	46	50	73	G	G	70	44	G	G	41	42	52	43	30	28	30
11	27	32	39	29	27	30	G	41	62	54	73	G	62	G	54	56	50	104	34	33	27	39	40	44
12	33	G	G	G	28	G	40	51	63	59	74	69	73	119	48	42	36	71	80	41	74	61	40	
13	46	26	G	G	29	32	111	48	50	53	49	57	52	G	G	G	39	59	G	28	39	42	40	36
14	G	G	30	33	G	33	38	48	52	G	164	93	49	56	80	46	126	72	42	44	41	41	G	26
15	26	G	G	G	G	G	38	G	51	48	G	G	G	G	50	47	62	56	57	43	115	52	54	39
16	45	39	G	G	G	37	84	43	54	57	56	108	55	G	46	47	58	38	41	27		G	G	G
17	30	G	26	G	G	G	154	43	G	52	50	G	G	62		G	G	46	45	35	33	24	G	32
18	27	24	G	G	G	G	G	45	52	50	50	143	G	57	48	95	39		44	33	G	35	29	G
19	G	34	G	G	G	G	G	G	54	61	60	60		48	62		81	114	81	115	167	146	115	29
20	41	29	G	36	G	33	40	60	72		71	156	45	G		47	40	82	40	62	41	40	35	30
21	32	25	34	G	G	G	G	38	48	51	60	60	77		71	117	95	89	33	G	34	70	43	40
22	32	G	34	41			G	79	51	55	74	58	60	48		47	40	34	32	G	31	40	G	G
23	G	G	29	25	38	60		46	48	46	62	72	48	G	53	59	57	61	53	36	28	32	28	40
24	33	27	25	24	G	G	44	49	56	66	80	124	103	112	54	69	97	90	118	148	34	41	G	25
25	G	G	32	25	58	34	44	53	164	60	46	G	56	42	50	47	71	38	54	35	35	44	40	42
26	37	G	G	G	26	68	43	58	54	53	50	138	53	44		44	45	48	96	39	28	G	24	G
27	G	G	29	G	G	34	39	108		G	46	57	91	64	G	46	124		37	59	41	45	46	27
28	39	24	G	G	G	G	37	44	61	87	56	62	50	G	G	49	40	47	50	37	31	G	24	G
29	G	G	G	G	G	36	46	72	89	127		125	96	72	55	135	80	102	102	127	115	58	107	36
30	25	G	26	G	G	39	70	89	70	77	96	49	63	76	57	71	72	62	93	81	77	94	59	73
31	84	110	47	55	42	44	44	63	89	118	72	66	74	61	126	114	115		38	42	79	95	126	24
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	30	30	30	31	30	29	30	31	30	30	26	30	31	28	31	31	30	31	30	30
MED	26	24	24	G	G	31	40	45	52	54	56	58	52	48	52	47	50	56	42	40	34	40	28	28
U Q	33	27	30	28	27	36	51	58	62	60	72	72	73	64	60	69	72	77	57	52	56	52	43	36
L Q	G	G	G	G	G	G	36	38	48	49	46	G	41	G	G	39	36	40	34	31	28	28	G	G

HOURLY VALUES OF fmin AT Wakkanai

MAY 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	15	14	14	14	14	15	15	16	15	14	14	14	14	14	14	14	14	14		14
2	14	14	14	15	14	14	14	14	14	14	15	24	15	15	14	14	14	14	14	14	15	15	15	14
3	15	14	15	15	14	14	14	14	14	14	16	18	14	14	14	14	14	14	14	14	14	14	14	14
4	14	14	14	14	14	14	14	14	15	16	18	18	15	18	14	15	14	14	14	14	14	14	14	14
5	14	14	14	14	14	14	14	14	14	15	14	15	18	15		14	14	14	14	15	14	14	15	14
6	14	14	15	14	14	14	14	14	14	14	15	15	18	16	14	14	14	14	14	14	14	14	14	15
7	15	16	14	14	14	14	14	14	14		14	17	16	15	14	14	14	14	14	15	14	14	14	14
8	14	14	14	14	14	14	14	14	14	14	14	15	16	15	17	14	14	14	14	14	14	14	15	15
9	14	15	14	14	14	14	14	14	14	14	15	14	14	15	16	15	14	14	14	14	14	15	14	14
10	17	14	16	14	14	14	14	15	14	14	17	18	14	14	20	15	14	14	14	14	14	14	14	14
11	14	15	14	14	14	14	16	15	16	22	20	18	17	20	24	18	14	15	15	14	14	14	14	14
12	14	14	14	14	14	16	14	14	14	18	17	20	21	20	17	14	16	14	14	14	14	14	14	
13	14	14	15	14	15	17	14	20	21	24	22	21	23	22	20	20	20	18	18	14	14	14	14	14
14	16	18	14	15	17	17	14	17	18	23	27	36	23	22	22	20	18	16	15	14	15	15	14	17
15	15	15	22	17	20	21	24	18	20	21	32	27	23	26	24	20	21	17	15	14	14	15	14	16
16	14	14	17	14	16	14	15	21	18	20	22	27	24	24	24	22	18	18	14	16		14	18	15
17	15	18	17	15	18	20	15	17	18	20	22	27	23	24		21	20	16	17	14	15	15	15	15
18	14	18	15	18	20	22	15	16	17	20	21	23	22	29	20	20	17		14	15	15	14	17	15
19	16	15	20	18	15	22	15	20	21	21	24	23		26	23		17	14	16	15	15	14	14	17
20	14	14	21	16	22	16	20	18	18		22	26	22	21		21	16	14	14	15	15	16	15	14
21	15	16	15	17	18	23	14	15	17	32	33	33	32		28	26	21	14	14	17	14	14	17	15
22	14	15	14	15			20	17	17	32	33	30	33	33		18	17	15	17	16	15	15	14	18
23	16	17	14	15	14	16		17	18	20	18	20	21	18	22	23	26	14	18	15	14	15	14	14
24	15	15	16	20	17	16	15	18	30	21	33	32	32	29	29	30	20	18	16	14	17	15	15	15
25	17	20	14	14	15	17	14	14	18	16	30	32	29	33	33	30	14	14	14	14	14	14	14	14
26	15	15	15	15	17	18	17	17	18	18	30	32	29	29		18	17	17	17	14	16	16	17	14
27	17	18	18	17	17	18	14	15		45	32	30	30	28	33	30	18		15	14	15	16	16	17
28	14	17	15	17	17	18	17	18	18	32	33	33	33	30	20	29	30	16	14	17	15	20	17	15
29	15	15	16	16	17	18	26	18	18	32		29	29	30	29	20	28	21	18	17	15	15	15	15
30	14	16	14	15	17	18	24	17	29	30	32	32	33	29	30	29	18	17	15	15	14	15	15	14
31	15	15	14	15	15	16	15	18	18	32	29	32	30	28	23	18	17		15	16	15	15	16	15
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	30	30	30	31	30	29	30	31	30	30	26	30	31	28	31	31	30	31	30	30
MED	14	15	15	15	15	16	14	16	18	20	22	24	22	22	21	19	17	14	14	14	14	14	14	14
U Q	15	16	16	16	17	18	16	18	18	27	30	32	29	29	24	22	20	16	16	15	15	15	15	15
L Q	14	14	14	14	14	14	14	14	14	15	16	18	16	15	16	14	14	14	14	14	14	14	14	14

HOURLY VALUES OF foF2 AT Kokubunji

MAY 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	52	44	52	54	47	49	58	50	61	54	A	69	71	86	78	91	86	80	85	88	82	64	64	54
2	61	54	54	55	58	44	52	61	74	A	58	A	85	87	84	96	87	A	A	74	74	72	A	66
3	52	54	52	55	54	51	55	54	A	A	A	A	81	80	A	82	90	80	A	A	60	48	A	48
4	49	49	51	50	41	A	56	59	A	58	64	68	78	82	86	87	81	71	67	73	N	54	52	54
5	52	49	44	47	45	44	57	70	60	59	64	64	72	66	68	75	84	84	81	91	73	52	54	58
6	51	54	51	55	49	54	68	65	66	66	57	63	81	81	81	81	67	67	55	81	81	74	67	67
7	64	67	65	58	53	53	58	74	67	58	A	63	78	94	82	68	63	64	72	76	80	76	67	54
8	55	57	52	47	41	51	69	68	69	63	69	75	83	79	N	112	96	105	84	71	A	52	54	52
9	52	53	41	A	45	A	A	A	A	108	A	A		61			A	A	A	55	A	52	54	43
10	48	46	45	37	32	38	42	A	A	A		A	57		60	74	68	72	73	67	64	64	51	A
11	52	44	47	44	A	A	A		A	A	A	A	A	59	A	58	A		48	57	64	52	50	52	A
12	51	A	44	44	39	45	47	59	66	62	A	67	69	75	67	68	67	64	64	72	72	67	64	54
13	52	50	51	51	45	47	55	A	A	55	48	62	69	76	75	80	80	A	63	74	A	66	A	54
14	A	54	52	55	47	54	65	46	59	61	A	A	69	A	77	90	90	69	63	67	63	63	54	67
15	66	65	62	57	52	49	72	68	A	59	66	62	72	74	85	91	86	76	A	85	77	A	55	A
16	51	54	51	52	A	42	A	A	A	A	A	A	A	A	62	64	A	105	A	60	52	54	54	51
17	50	49	51	44	A	41	49	A	A	A	A			A			A	A	A	55	69	52	46	47
18	45	44	42	43	39	52	61	65	62	61		A	63	72	73	78	81	88	87	82	63	48	A	A
19	A	47	50	45	45	49	57	51	56	A	A		A	61	62	69	72	A	A	109	A	66	A	49
20	A	A	A	A	42	A	A	A	A	A	A	106	100	70	78	78	68	107	62	72	67	A	53	54
21	52	52	A	39	42	46	51	62	72	60	A		A	74	78	75	72	68	75	86	88	49	39	A
22	44	44	44	42	46	A	47	A	A	A	A	A	A	59	64	A	A	A			66	54	64	63
23	52	52	50	44	46	49	61	67	A	A	A	58	59	66	62	A	A	A	A	A	72	54	55	54
24	52	50	50	45	39	54	66	A	99	A		A	58	62	N	143			N	76	72	54	59	51
25	52	51	44	A	42	52	59	74	A	A	51	A	A	A	A	129	69	71	73	A	A	A	52	61
26	52	52	47	45	44	50	56	A	A	A	A	A	A	66	70	101	A	72	A	58	55	63	A	60
27	A	51	51	44	45	52	57	72	65	54		100	59	62	69	78	76	80	76	78	66	64	61	54
28	52	52	42	42	46	61	57	57	A		A	89	A	75	74	A	89	59	A	71	64	65	A	A
29	53	A	54	A	A	58	76	74	A	A	A	A	65	77	A	75	77	77	75	66	54	66	66	A
30	58	A	54	49	47	54	67	72	62	A	A	A	A	N	77	101	88	92	90	77	63	55	51	54
31	52	52	54	52	54	58	66	A	A	A	109	A	A	A	76	77	77	68	A	67	67	A	53	56
	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	29	27	27	26	27	20	14	14	9	13	19	24	23	26	23	23	18	27	25	27	24	24
MED	52	52	51	47	45	50	57	65	66	60	64	67	71	74	75	79	80	72	73	73	67	55	54	54
U Q	52	54	52	54	47	54	66	71	69	62	67	82	81	79	78	91	87	84	81	81	73	66	62	59
L Q	51	49	44	44	42	46	55	58	61	58	54	62	63	64	67	75	69	68	63	67	63	52	52	51

HOURLY VALUES OF fEs AT Kokubunji

MAY 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	40	33	25	G	G	26	43	50	52	68	111	61	61	53	70	68	G	39	50	39	39	46	28	G
2	32	24	G	26	84	35	54	49	103	68	50	102	101	74	G	G	57	102	155	134	69	60	103	53
3	46	33	34	33	29	30	49	53	82	84	119	107	53	66	116	76	G	36	127	94	57	58	48	32
4	G	G	28	27	G	34	37	42	62	53	57	62	47	50	45	48	G	G	33	37	G	54	40	35
5	30	35	29	28	G	28	45	49	56	59	43	66	42	G	G	112	49	41	G	33	33	G	35	26
6	26	G	G	G	G	G	G	G	G	70	68	G	50	G	G	53	73	48	80	79	89	45	72	42
7	G	32	52	50	G	32	43	47	46	50	47	G	G	G	G	G	G	43	37	37	34	28	G	23
8	G	G	G	G	G	G	G	44	47	G	42	61	55	49	85	G	G	46	50	52	85	50	32	G
9	G	G	G	27	68	74	45	43	60	111	128	96		G		G	61	94	79	58	59	33	40	26
10	40	33	35	24	24	G	50	69	82	115	G	46	G		G	G	G	48	32	42	89	105	52	71
11	58	58	43	37	57	43	51	G	47	58	82	90	74	52	60	52	73	61	53	48	50	45	94	81
12	58	84	59	57	35	G	G	37	52	71	55	62	50	G	54	50	G	60	32	61	70	84	66	53
13	31	43	36	39	38	32	34	78	74	50	43	50	G	70	68	57	64	84	44	71	92	70	79	57
14	57	35	34	G	28	26	45	47	48	57	77	60	G	77	49	49	46	47	29	26	23	53	80	59
15	39	29	36	29	G	G	G	G	68	45	52	G	50	G	G	51	53	71	92	55	56	127	56	61
16	37	49	40	47	41	31	45	63	55	69	55	59	62	62	47	G	82	75	136	95	48	53	G	27
17	G	32	30	54	73	G	45	50	61	59	58			43			52	55	48	49	57	82	57	31
18	35	27	45	29	24	G	31	48	52	55		51	50	G	G	G	G	46	55	71	49	27	40	49
19	59	43	G	51	56	35	37	44	50	63	78		53	50	53	53	57	82	77	80	116	58	84	70
20	84	80	51	51	28	56	59	83	86	78	75	100	102	65	80	81	64	73	59	58	59	94	116	60
21	58	31	72	29	G	31	G	46	46	54	61		55	G	57	59	43	G	38	52	37	30	25	45
22	49	49	40	32	51	60	55	55	57	60	72	55	64	53	58	103	78	136			28	31	31	41
23	79	47	58	31	G	36	58	62	67	136	66	50	50	G	52	96	69	124	161	116	56	42	37	41
24	G	39	29	45	30	32	39	58	67	68		61	G	51	106	110			87	87	95	40	37	35
25	49	29	33	57	35	51	57	61	83	118	56	69	80	80	86	122	62	52	78	113	117	91	45	43
26	39	49	40	33	46	35	55	62	72	113	79	69	70	65	62	116	89	85	98	52	50	33	80	59
27	65	59	G	27	25	31	G	G	45	G	G	106	G	G	G	G	53	57	58	80	51	41	36	90
28	36	50	34	37	35	29	39	46	66		79	114	66	51	79	72	75	37	83	45	49	34	59	67
29	G	92	58	72	89	34	45	70	82	118	154	114	50	G	101	104	G	72	49	64	80	50	58	94
30	58	80	56	43	30	29	68	69	62	58	56	72	64	G	57	G	55	54	39	40	46	38	50	78
31	49	48	53	50	30	G	40	79	117	96	120	73	112	75	62	62	98	52	81	50	72	83	50	53
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	31	31	31	31	30	29	28	29	30	29	30	30	30	30	30	31	31	31	31
MED	39	35	35	33	30	31	45	49	61	66	61	62	53	50	57	53	54	54	56	56	56	50	50	49
U Q	58	49	51	50	46	35	51	62	74	84	79	93	65	65	74	81	69	75	83	80	80	70	72	61
L Q	26	29	28	27	G	G	34	44	50	55	51	53	44	G	G	G	G	46	39	45	46	34	36	32

HOURLY VALUES OF fmin AT Kokubunji

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

HOURLY VALUES OF foF2 AT Yamagawa

MAY 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	64	52	54	54	51	47	70	68	A	A	61	74	78	91	96	113	97	A	A	89	86	73	53	66
2	54	52	54	57	57	42	48	68	67	55	A	75	90	92	86	100	96	78	77	A	82	A	A	75
3	52	53	51	52	49	41	51	61	A	78	109	74	A	109	87	96	108	91	A	78	A	A	A	53
4	54	51	70	52	39	35	53	A	A	A	72	77	81	A	93	95	94	80	78	83	68	53	52	52
5	52	52	51	51	45	40	51	66	58	61	A	61	72	80	A	86	78	92	88	89	A	53	54	54
6	59	53	54	55	52	45	54	75	63	53	68	72	91	103	88	94	85	76	67	77	73	72	54	63
7	52	54	62	54	38	36	70	72	51	57	A	71	83	92	90	76	70	70	76	83	86	76	54	54
8	54	54	52	52	49	52	62	69	64	72	71	75	86	90	92	103	114	113	96	85	76	53	51	52
9	53	52	52	46	43	56	58	A	A	A	A	A	A	67	A	A	61	62	61	66	46	63	40	A
10	52	51	A	44	38	34	40	A	39	A				A	65	75	74	75	70	63	A	52	51	51
11	52	53	58	55	45	31	A	A	A	A	A	B	A	B	B	A	66	67	66	A	52	54	A	50
12	A	50	48	41	A	34	50	54	61	A	A	61	72	A	77	71	76	73	73	77	77	72	32	58
13	A	48	42	52	42	34	52	68	A	A	A	A	69	82	77	59	93	90	81	78	77	54	54	52
14	52	A	52	51	46	46	53	51	60	67	61	63	A	A	83	89	94	77	68	73	76	67	54	52
15	52	51	54	52	42	42	58	64	67	61	A	A	74	77	84	96	90	A	A	A	83	77	67	A
16	N	54	52	46	51	46	A	55	47	A	A	A	A	A	A	72	70	69	62	66	A	A	51	A
17	54	51	49	42	41	45	52	61	A	A	A	A	A	A	A	A	58	58	62	66	70	59	48	52
18	A	A	41	40	34	34	58	60	58	A	A	A	68	73	84	91	94	88	78	A	A	A	51	50
19	43	A	51	50	37	A	45	52	60	62	A	65		64	72	87	96	88	88	86	72	A	61	54
20	54	A	63	51	A	50	65	A	A	A	A	A	A	94	90	90	92	88	88	N	83	A	64	A
21	52	54	A	A	A	34	51	70	67	A	A	A	A	71	A	84	81	A	78	89	A	A	A	A
22	41	A	A	A	A	34	49	A	A	A	A	A	A	73	77	A	A	A	72	78	71	54	54	54
23	52	53	54	45	46	52	54	56	56	A	57	A	B	66	70	66	62	65	74	83	A	63	A	52
24	52	52	51	44	45	48	60	51	A	A	A	A	A	64	A	A	A	A	A	86	58	A	A	54
25	52	53	50	47	A	A	66	67	55	A	62	64	60	A	A	60	90	76	82	A	A	54	54	A
26	A	A	46	44	34	A	57	56	60	A	A	A	A	76	A	87	A	A	A	A	67	A	63	54
27	45	42	44	44	42	A	58	69	67	A	A	A	A	68	75	78	81	88	90	A	54	54	54	53
28	52	54	54	52	49	45	50	56	58	A	A	A	A	A	A	86	72	76	76	77	78	49	A	54
29	A	A	54	49	45	43	61	67	A	A	60	A	61	83	87	83	86	89	A	A	72	67	A	A
30	A	A	A	A	46	53	67	80	A	A	A	A	A	A	A	91	91	93	90	76	72	54	N	63
31	62	62	54	57	59	54	59	70	51	A	A	A	A	A	76	A	78	84	84	76	72	52	A	A
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	24	23	27	28	26	27	29	25	19	9	9	12	13	20	20	25	28	25	25	22	23	22	21	23
MED	52	52	52	51	45	43	54	66	60	61	62	72	74	78	84	87	86	78	77	78	72	54	54	54
U Q	54	54	54	52	49	48	60	69	64	69	71	74	84	91	89	94	94	88	86	85	78	67	54	54
L Q	52	51	50	44	41	34	51	56	55	56	60	63	68	69	76	75	73	71	69	76	68	53	51	52

HOURLY VALUES OF fEs AT Yamagawa

MAY 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	46	47	31	32	G	G	36	58	72	77	56	56	46	G	42	G	58	91	99	48	36	41	33	32
2	23	G	G	G	G	G	28	39	44	49	55	69	G	62	G	G	47	52	51	73	59	88	59	49
3	48	30	G	27	32	G	40	46	64	62	113	119	152	G	G	G	45	68	88	115	84	80	70	56
4	40	35	73	50	40	33	30	91	76	61	65	86	59	87	72	66	54	57	44	44	40	33	60	59
5	46	28	34	G	G	G	40	40	40	39	66	58	62	55	163	86	112	122	106	84	92	25	G	G
6	30	26	G	23	G	G	G	35	G	42	51	54	60	G	47	G	G	43	46	45	57	37	32	31
7	30	36	G	G	G	G	31	54	69	49	46	42	G	48	54	52	49	37	38	32	29	G	34	G
8	G	G	26	G	G	G	G	40	48	48	52	G	G	55	G	46	G	39	34	42	44	36	39	33
9	26	28	26	29	33	47	42	49	75	60	78	92	74	65	43	48	53	46	44	49	33	39	26	69
10	40	49	49	29	33	30	38	46	G	50	G	G	G	44	G	G	50	47	32	36	88	43	45	40
11	57	46	46	26	G	G	49	41	47	49	48	B	53	B	B	65	G	41	57	86	46	58	84	46
12	80	41	58	58	61	29	32	G	53	52	60	60	57	78	51	G	58	49	65	50	G	49	33	82
13	58	48	44	40	36	25	40	54	60	83	119	102	69	54	G	72	41	35	G	36	32	45	71	46
14	116	73	48	52	49	28	41	40	52	49	42	55	96	81	48	56	G	41	34	29	G	24	G	G
15	38	40	44	32	39	32	31	G	44	52	64	55	G	G	44	56	56	80	151	130	74	72	30	82
16	25	34	42	36	38	53	62	48	51	53	61	69	69	82	49	62	60	59	51	44	54	93	32	86
17	32	G	28	34	24	25	G	61	64	54	56	77	121	110	80	66	G	45	54	45	44	50	33	55
18	59	49	32	32	G	34	29	47	57	69	62	60	48	60	59	53	86	90	151	103	109	81	65	46
19	37	58	G	59	30	54	58	48	48	50	48	G	G	G	G	G	46	58	43	72	50	57	47	50
20	58	72	53	38	61	39	48	79	87	101	169	92	118	68	56	82	55	42	54	56	69	84	70	58
21	59	46	54	50	38	28	44	39	56	63	66	72	64	56	98	65	83	70	48	44	92	94	36	73
22	G	59	72	61	52	25	40	55	106	89	77	141	62	68	59	92	134	81	64	46	35	32	39	33
23	46	41	53	34	25	G	32	G	58	116	52	43	B	G	48	G	48	40	44	54	92	104	85	40
24	32	36	32	34	34	G	29	55	84	111	68	102	65	48	81	97	79	86	107	88	89	91	84	44
25	34	45	43	50	50	40	38	49	61	67	52	57	52	78	179	50	77	G	60	83	93	50	92	82
26	78	49	41	39	40	60	36	54	46	80	76	70	84	79	110	86	117	149	102	123	40	60	56	59
27	57	39	G	G	49	49	33	83	58	64	75	54	103	58	57	56	47	46	52	102	54	46	50	54
28	57	49	37	34	34	36	39	34	50	55	89	117	103	85	116	52	52	G	G	57	49	70	80	34
29	69	70	25	G	G	G	40	58	77	65	56	65	G	56	76	118	52	86	95	92	68	49	82	117
30	80	70	59	50	51	40	53	50	75	66	66	78	82	90	110	70	G	53	58	44	40	32	48	33
31	39	50	48	55	32	28	30	38	47	61	75	94	112	97	59	76	69	55	60	59	55	50	78	94
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	31	31	31	31	31	31	30	30	30	30	31	31	31	31	31	31	31	31	31
MED	46	45	41	34	33	28	38	48	57	61	62	67	62	59	55	56	52	52	54	54	54	50	48	49
U Q	58	49	49	50	40	39	41	55	72	69	75	92	84	79	80	72	69	80	88	86	84	80	71	69
L Q	32	34	26	26	G	G	30	39	47	50	52	55	46	48	43	G	45	41	44	44	40	37	33	33

HOURLY VALUES OF fmin AT Yamagawa

MAY 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	14	14	15	15	15	14	14	14	16	26	27	35	33	34	30	22	18	15	14	15	14	14	14	15
2	16	16	16	15	16	14	18	14	14	18	20	30	50	38	27	22	18	18	14	16	15	15	14	14
3	14	14	15	15	15	15	14	14	17	17	21	32	34	52	24	45	18	15	15	15	15	14	14	14
4	14	15	14	14	17	14	14	14	16	20	27	30	30	32	29	23	20	17	15	15	15	16	14	14
5	15	14	15	14	17	15	14	15	16	20	20	21	34	32	28	28	18	17	15	15	14	17	16	15
6	16	14	16	15	15	17	20	15	14	18	20	32	29	56	28	18	39	15	14	14	14	14	15	15
7	15	16	16	14	17	18	14	15	18	20	21	28	27	27	22	20	16	15	15	15	15	15	15	15
8	15	14	15	15	15	14	16	14	17	20	28	28	45	27	56	20	18	16	16	14	14	14	15	14
9	15	15	15	15	15	14	14	14	15	21	20	23	32	30	45	27	21	16	17	15	14	14	15	14
10	14	15	14	15	14	16	15	14	17	20	66	71	22	71	48	23	29	17	18	14	15	14	14	14
11	14	14	14	15	17	14	15	15	20	18	34	B	36	B	B	34	22	18	17	14	15	14	14	14
12	15	15	15	14	14	14	18	17	21	24	29	34	35	36	37	50	32	26	18	14	15	14	15	14
13	14	14	14	14	15	14	14	15	18	24	21	33	34	33	30	26	18	16	14	14	14	14	14	14
14	15	14	14	14	14	15	14	16	18	17	32	28	30	35	29	23	17	14	15	14	15	14	17	15
15	15	14	14	15	15	14	17	14	16	18	29	26	27	52	53	38	23	18	14	16	15	14	15	15
16	14	15	14	15	14	14	16	16	20	22	30	34	33	29	29	23	21	16	16	14	17	14	14	15
17	14	14	14	15	15	15	17	14	14	21	21	30	30	33	22	24	18	15	15	14	16	14	14	14
18	15	15	15	14	18	15	15	15	16	20	33	28	38	27	27	27	18	17	14	15	14	14	15	14
19	17	14	15	14	14	14	14	15	16	21	30	50	101	50	51	23	23	18	14	14	15	14	14	14
20	14	14	14	15	14	14	14	14	16	21	22	32	32	28	30	27	20	17	15	15	15	14	14	14
21	14	14	14	14	14	15	14	14	16	18	20	35	33	35	24	21	18	17	15	14	15	14	14	14
22	17	15	15	14	14	15	17	15	17	20	20	27	33	27	33	20	17	16	15	15	15	15	15	14
23	15	15	15	15	16	15	15	14	17	20	24	34	B	26	23	23	17	17	14	14	14	14	15	14
24	14	14	14	15	14	14	15	15	16	20	22	35	35	36	35	32	16	18	14	16	14	14	15	14
25	15	15	14	15	14	14	14	15	18	17	34	34	33	34	28	27	30	14	15	14	14	14	14	14
26	14	14	14	15	15	14	15	14	15	18	33	22	35	38	34	33	20	16	14	16	15	15	14	14
27	15	14	15	15	15	14	15	14	14	22	20	22	30	29	21	21	16	14	14	14	14	14	15	14
28	15	15	14	14	14	15	23	15	18	18	22	35	36	34	30	21	18	17	15	14	14	15	14	14
29	15	14	15	15	14	14	14	14	15	18	18	35	71	35	22	20	20	18	18	14	14	15	14	14
30	15	14	14	14	14	14	14	14	16	17	23	24	33	33	26	26	21	17	14	15	15	14	16	15
31	14	15	15	14	15	15	17	15	16	20	22	36	26	38	36	33	17	17	16	17	15	15	15	15
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	31	31	31	31	31	31	30	30	30	30	31	31	31	31	31	31	31	31	31
MED	15	14	15	15	15	14	15	14	16	20	22	32	33	34	29	23	18	17	15	14	15	14	14	14
U Q	15	15	15	15	15	15	17	15	18	21	30	35	35	38	35	28	21	17	16	15	15	15	15	15
L Q	14	14	14	14	14	14	14	14	16	18	20	28	30	29	26	21	18	15	14	14	14	14	14	14

HOURLY VALUES OF foF2 AT Okinawa

MAY 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	72	67	66	61	52	51	58	65	65	68	A	76	A	107	130	147	N	141	A	A	118	A	A	87
2	90	87	82	78	63	52	52	67	61	A	A	82	107	111	107	108	110	A	A	A	88	82	78	72
3	77	75	73	67	46	A	A	54	A	78	85	84	106	135	127	124	132	102	96	88	74	52	A	54
4	52	77	97	67	40	36	50	62	A	A	77	84	91	101	117	118	126	118	115	110	84	52	58	52
5	67	A	60	52	44	34	46	67	62	61	67	66	74	90	98	98	90	96	102	97	A	A	54	58
6	52	54	54	61	51	34	56	64	62	67	74	88	106	122	130	117	102	84	77	84	88	72	54	61
7	N	61	66	63	A		52	64	65	52	A	75	90	100	102	95	88	86	90	98	97	73	52	54
8	54	58	66	50	48	52	59	68	61	71	66	72	93	107	106	126	132	114	101	88	88	54	63	54
9	64	77	A	44	43	54	61	58	A	A	A	A	A	C	A	58	76	81	73	80	A	54	A	A
10	54	52	A	40	37	38	40	A	A	A	A	A	A	64	77	86	95	86	85	84	72	54	52	42
11	43	52	58	64	44	34	41	A	A	A	A	A	A	64	75	84	87	98	80	71	A	A	47	A
12	44	44	51	A	A	25	46	61	62	62	61	68	77	81	92	100	98	90	86	A	78	A	61	53
13	52	62	53	55	36	B	50	66	50	A	A	A	A	86	A	A	102	105	98	88	88	67	44	54
14	52	51	A	A	46	A	A	63	75	72	A	A	66	81	91	100	100	94	79	85	84	80	54	54
15	59	64	67	53	52	A	51	64	66	70	A	A	74	86	97	106	102	101	96	87	84	73	75	66
16	67	52	54	52	52	54	60	52	A	A	A	A	A	A	78	87	86	76	74	73	64	54	50	52
17	52	53	50	45	44	42	50	55	A	A	A	A	A	66	68	A	A	72	81	77	71	62	54	52
18	A	50	47	44	34	30	52	54	55	A	58	A	A	A	94	106	111	111	110	88	58	A	A	48
19	50	A	46	50	28	B	A	56	64	60	70	66	66	68	77	98	107	104	A	89	75	A	52	54
20	54	A	A	A	50	47	52	54	A	A	A	A	A	A	123	130	134	136	140	130	103	77	73	77
21	59	44	51	44	A	A	54	75	A	A	A	A	A	A	87	97	106	111	108	118	101	A	43	A
22	44	46	A	A	A	37	47	52	A	A	A	A	70	A	97	A	A	A	A	103	74	72	74	67
23	63	63	51	42	40	43	52	55	A	56	A	A	71	90	77	77	76	A	93	88	54	52	A	52
24	52	51	42	39	A	A	49	A	A	A	A	A	A	78	A	91	95	A	107	106	67	54	A	A
25	54	52	A	A	A	A	50	A	A	A	A	A	A	A	96	90	97	98	A	96	A	A	A	A
26	A	51	52	A	45	44	50	67	A	A	A	A	A	98	110	113	A	A	94	84	81	84	53	52
27	A	A	A	52	43	44	51	71	60	A	A	A	66	81	86	88	97	107	115	A	A	64	61	52
28	50	A	52	52	46	40	47	60	A	54	61	A	77	81	97	87	84	93	89	88	88	55	54	A
29	52	A	58	A	A	A	51	A	62	A	A	A	A	84	87	88	A	104	98	88	77	A	54	A
30	52	45	52	44	A	50	72	67	A	54	A	A	A	A	A	97	107	98	86	87	86	78	66	67
31	52	63	63	65	64	50	47	52	56	55	A	A	72	A	80	80	88	100	100	88	77	67	64	58
	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	25	24	24	23	21	28	26	15	14	9	10	16	22	27	28	26	26	26	27	26	22	24	24
MED	52	53	54	52	45	43	51	62	62	62	67	76	76	86	96	98	99	99	95	88	82	66	54	54
U Q	63	63	66	62	51	50	53	67	65	70	75	84	92	101	107	110	107	107	102	97	88	73	63	63
L Q	52	51	51	44	40	35	48	55	60	55	61	68	70	81	80	87	88	90	85	84	74	54	52	52

HOURLY VALUES OF fEs AT Okinawa

MAY 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	39	G	G	G	G	G	28	46	56	74	76	86	104	92	126	114	69	106	152	142	105	144	115	86
2	69	59	58	34	46	G	33	40	52	98	56	G	50	68	70	49	57	92	112	132	84	55	58	78
3	56	40	44	29	29	79	49	52	84	44	G	106	84	58	50	G	47	40	78	27	44	40	49	45
4	43	71	58	G	G	G	G	48	94	84	88	68	59	49	54	58	46	39	54	39	G	G	G	48
5	48	58	G	G	G	G	29	36	38	45	49	44	49	66	84	74	60	63	87	61	78	70	59	G
6	G	G	G	36	47	71	G	37	42	53	48	74	71	48	49	53	48	36	40	32	28	29	40	50
7	38	27	32	72	27	G	39	39	37	45	49	53	48	56	44	58	41	58	47	51	28	G	G	30
8	G	G	G	G	G	G	G	34	52	51	66	54	G	G	G	50	54	49	53	33	G	30	34	G
9	35	48	50	32	G	57	38	51	83	85	77	65	104	C	68	41	44	G	53	58	69	77	53	60
10	51	51	82	23	G	G	32	49	57	64	61	58	57	G	52	G	74	72	36	61	59	G	G	G
11	G	G	G	G	G	G	32	57	46	53	58	53	54	G	43	52	G	G	43	61	78	81	72	57
12	73	57	41	60	28	G	33	47	57	48	55	61	78	64	62	G	52	72	60	128	41	59	G	58
13	48	50	38	29	G	B	45	52	78	59	77	96	100	112	135	116	78	36	32	34	G	46	34	26
14	28	35	68	65	43	55	86	46	62	74	108	64	69	74	50	48	56	38	32	35	G	G	G	G
15	G	38	27	G	G	39	28	46	60	61	69	70	G	G	G	G	G	42	58	58	74	50	79	54
16	54	59	32	G	40	50	G	43	66	71	58	77	102	63	G	G	49	65	64	46	38	34	35	35
17	24	91	58	34	38	44	46	47	72	73	92	82	93	54	62	86	77	69	41	35	35	36	35	32
18	59	59	60	58	34	G	33	40	52	71	56	55	102	96	72	61	64	50	68	70	57	33	94	92
19	58	68	58	40	G	B	52	58	50	44	58	54	55	58	92	60	50	66	112	86	50	54	44	66
20	56	72	74	50	35	G	36	51	88	164	178	182	137	170	47	46	G	G	36	38	38	84	56	70
21	51	92	44	45	41	45	30	49	111	80	93	56	60	84	84	66	58	62	45	46	73	44	G	60
22	29	50	57	64	54	35	46	45	60	68	78	98	80	107	70	94	104	95	150	114	58	40	36	34
23	G	40	45	40	G	G	28	44	72	50	107	55	G	50	64	54	43	84	73	34	39	57	81	110
24	69	39	39	49	59	52	83	92	122	94	92	125	80	56	83	77	74	96	95	86	49	49	72	71
25	38	58	137	86	91	73	36	73	90	91	96	80	84	152	70	59	61	58	102	44	94	73	89	82
26	110	73	54	56	46	38	32	60	84	81	83	80	86	85	95	107	118	106	60	90	72	36	G	72
27	114	94	57	30	41	23	29	34	47	49	50	103	61	56	63	55	50	59	78	111	115	82	65	49
28	50	73	49	39	28	G	G	40	55	72	52	172	G	G	54	83	52	G	32	G	G	46	60	69
29	55	71	82	68	48	38	28	74	79	95	90	106	143	59	87	86	92	42	35	35	46	48	27	114
30	59	53	38	59	57	38	45	58	67	54	86	95	134	115	112	72	55	51	81	41	37	34	56	67
31	40	G	G	G	G	G	G	40	G	87	86	89	G	104	90	64	64	75	70	50	43	27	37	35
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	29	31	31	31	31	31	31	31	30	31	31	31	31	31	31	31	31	31	31
MED	48	53	45	36	29	23	32	47	60	71	76	74	71	61	64	58	55	58	60	50	46	46	44	57
U Q	58	71	58	58	46	47	45	52	83	84	90	96	100	92	84	77	69	72	81	86	73	59	65	71
L Q	29	38	32	G	G	G	28	40	52	51	56	55	50	50	50	48	47	39	41	35	35	33	27	34

HOURLY VALUES OF fmin AT Okinawa

MAY 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	15	15	15	14	14	14	14	18	26	33	34	34	34	32	29	22	18	15	14	14	14	14	15
2	14	14	15	14	15	18	14	16	20	32	35	45	39	39	33	33	33	18	16	14	18	17	15	15
3	14	14	14	14	14	14	14	15	20	21	39	36	36	40	38	44	30	21	16	14	14	16	15	14
4	14	14	14	21	27	15	20	16	18	22	27	32	30	29	28	28	22	20	16	15	17	18	26	17
5	15	15	17	21	16	20	16	15	18	20	27	29	42	38	38	34	23	15	14	14	15	14	14	17
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9	15	14	14	14	28	14	16	18	17	22	22	32	32	C	29	28	26	20	14	14	15	15	15	14
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12	15	15	14	14	16	15	16	24	22	33	36	36	38	38	38	49	34	21	20	14	15	14	15	14
13	14	14	14	14	15	B	14	16	20	23	30	34	34	33	30	27	21	16	14	14	16	15	15	14
14	14	15	15	14	14	15	15	14	18	24	28	30	30	33	29	23	22	18	14	18	20	15	15	24
15	15	14	17	16	17	14	15	15	18	24	27	32	54	60	50	48	22	20	15	17	14	14	14	15
16	16	15	15	15	14	14	18	17	21	23	33	33	34	34	32	28	33	18	18	14	14	15	14	14
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18	14	15	14	14	14	17	14	14	17	20	27	29	33	29	29	34	32	20	14	16	14	15	14	15
19	14	14	14	14	17	B	15	15	21	26	27	36	38	36	36	34	30	18	17	15	14	15	18	15
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21	16	15	15	15	15	16	14	14	17	29	26	35	29	35	33	30	26	21	16	16	17	15	17	15
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23	16	15	14	14	16	16	14	14	15	20	26	34	54	29	26	20	20	16	18	15	15	14	15	15
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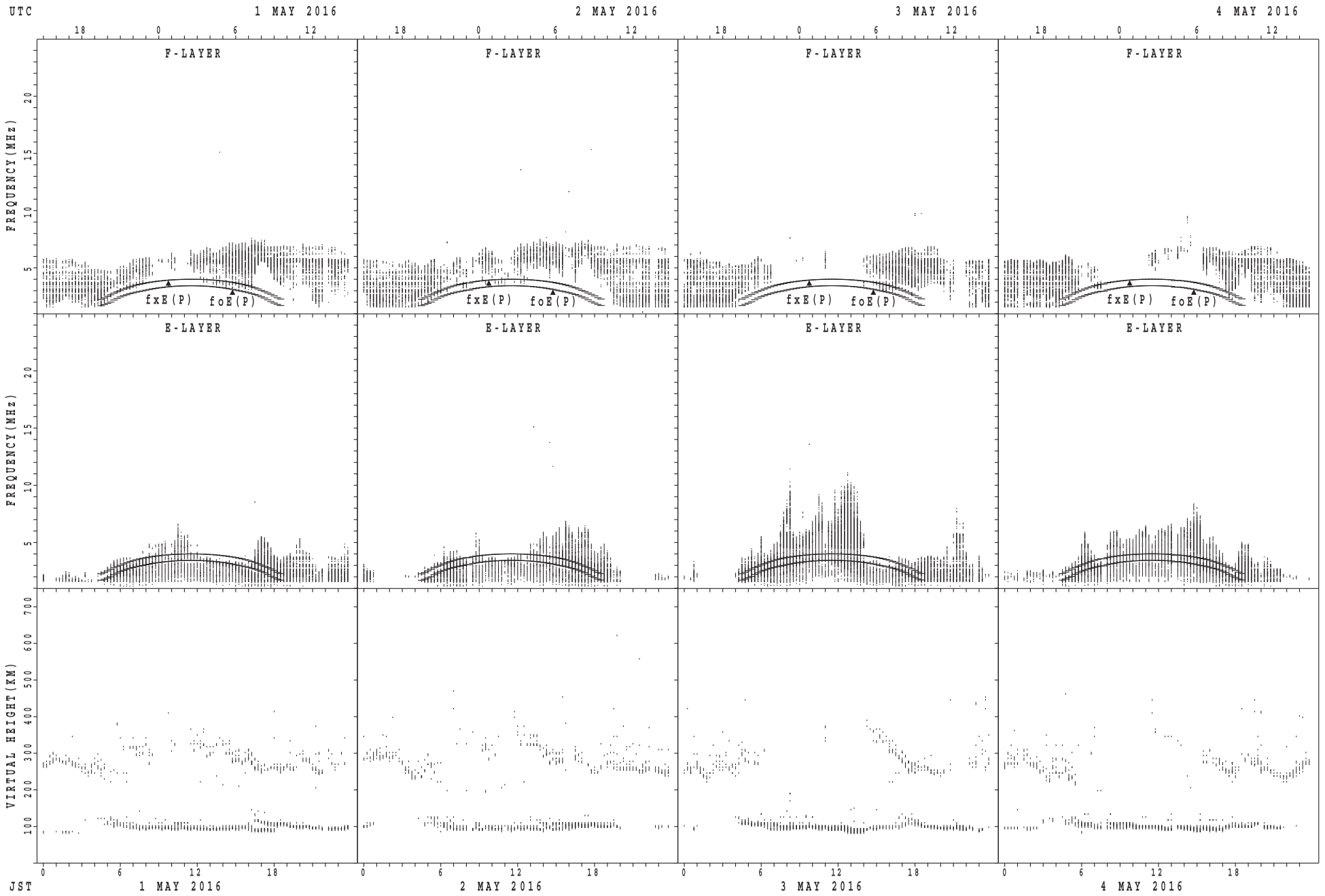
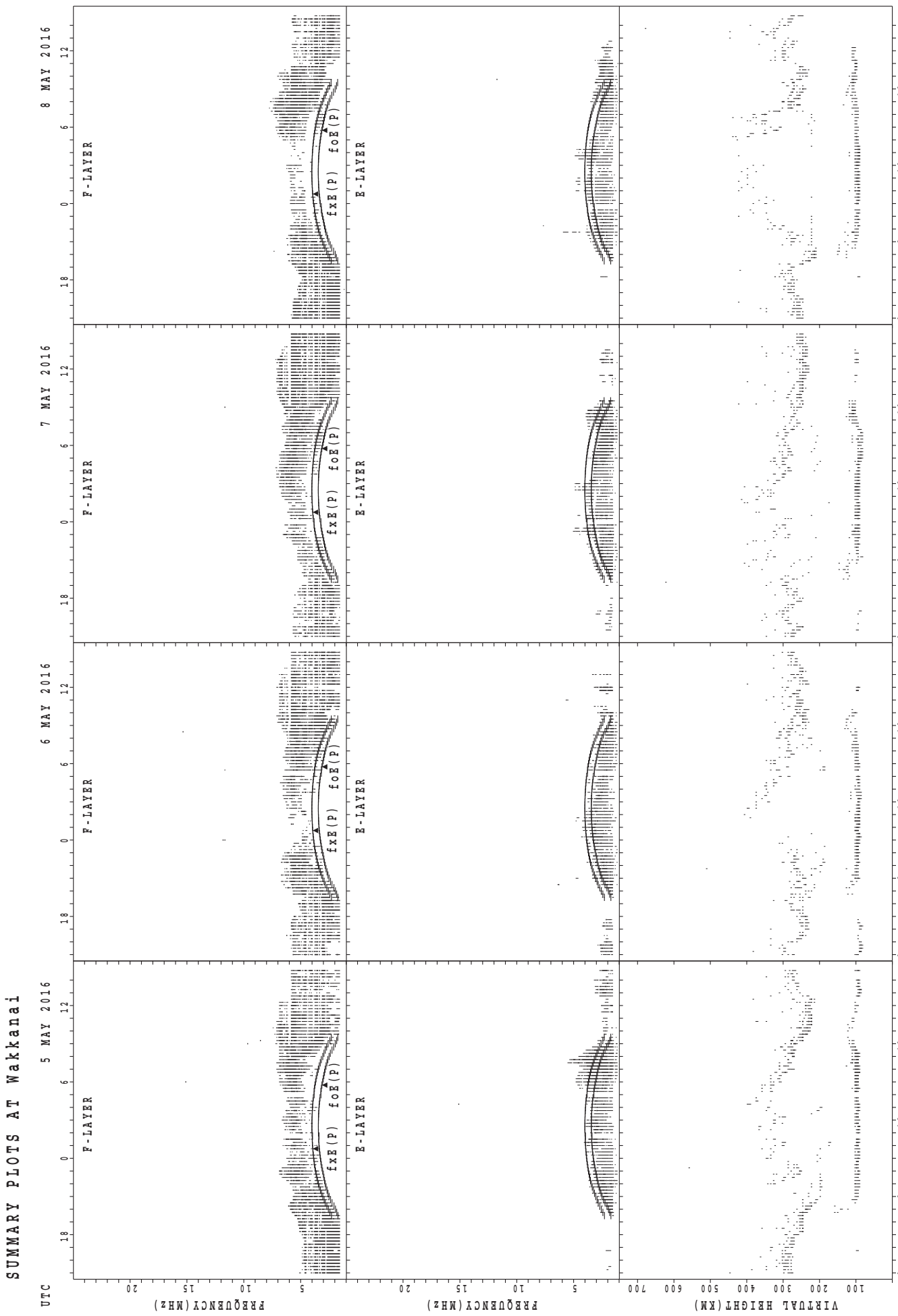
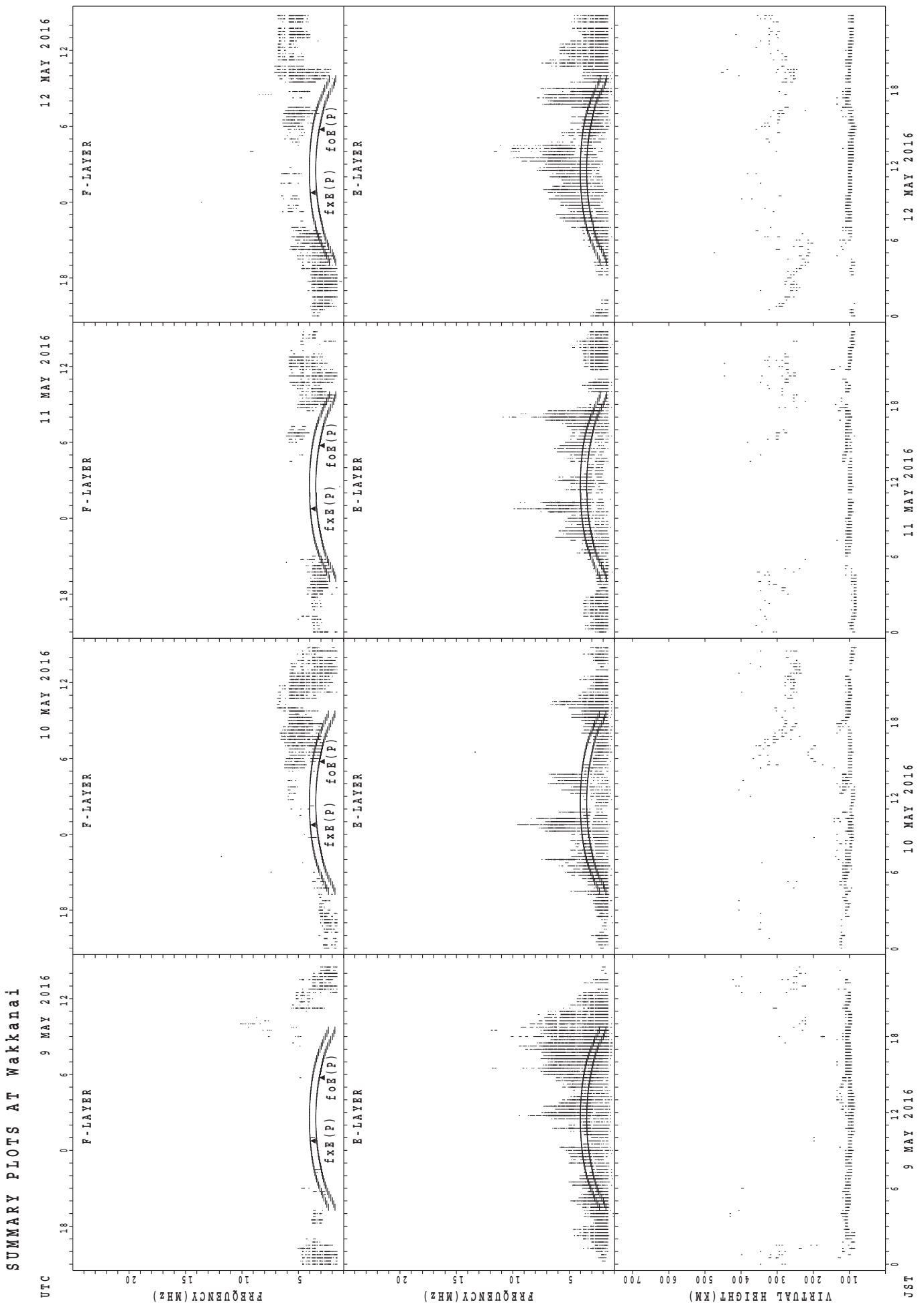
31	14	15	15	14	15	15	18	14	20	21	28	36	54	38	37	34	20	23	17	15	14	14	15	15
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	29	31	31	31	31	31	31	31	30	31	31	31	31	31	31	31	31	31	31
MED	14	14	14	14	15	15	14	15	18	23	28	33	35	35	33	33	26	18	15	14	14	15	15	15
U Q	15	15	15	15	16	17	16	15	20	26	33	35	39	39	38	34	32	21	17	15	15	15	15	15
L Q	14	14	14	14	14	14	14	14	17	21	27	30	33	32	29	28	22	17	14	14	14	14	14	14

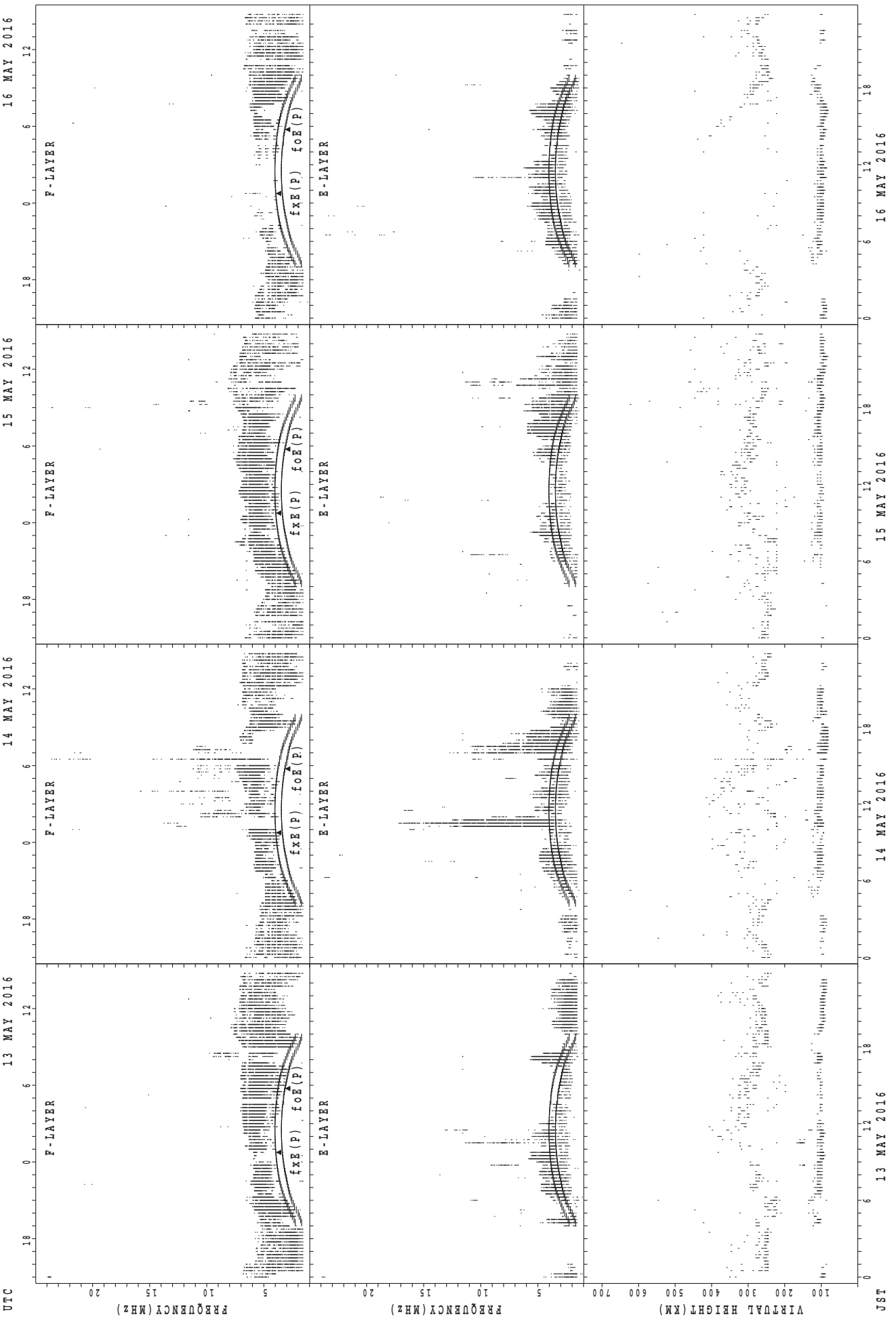
SUMMARY PLOTS AT Wakkanai



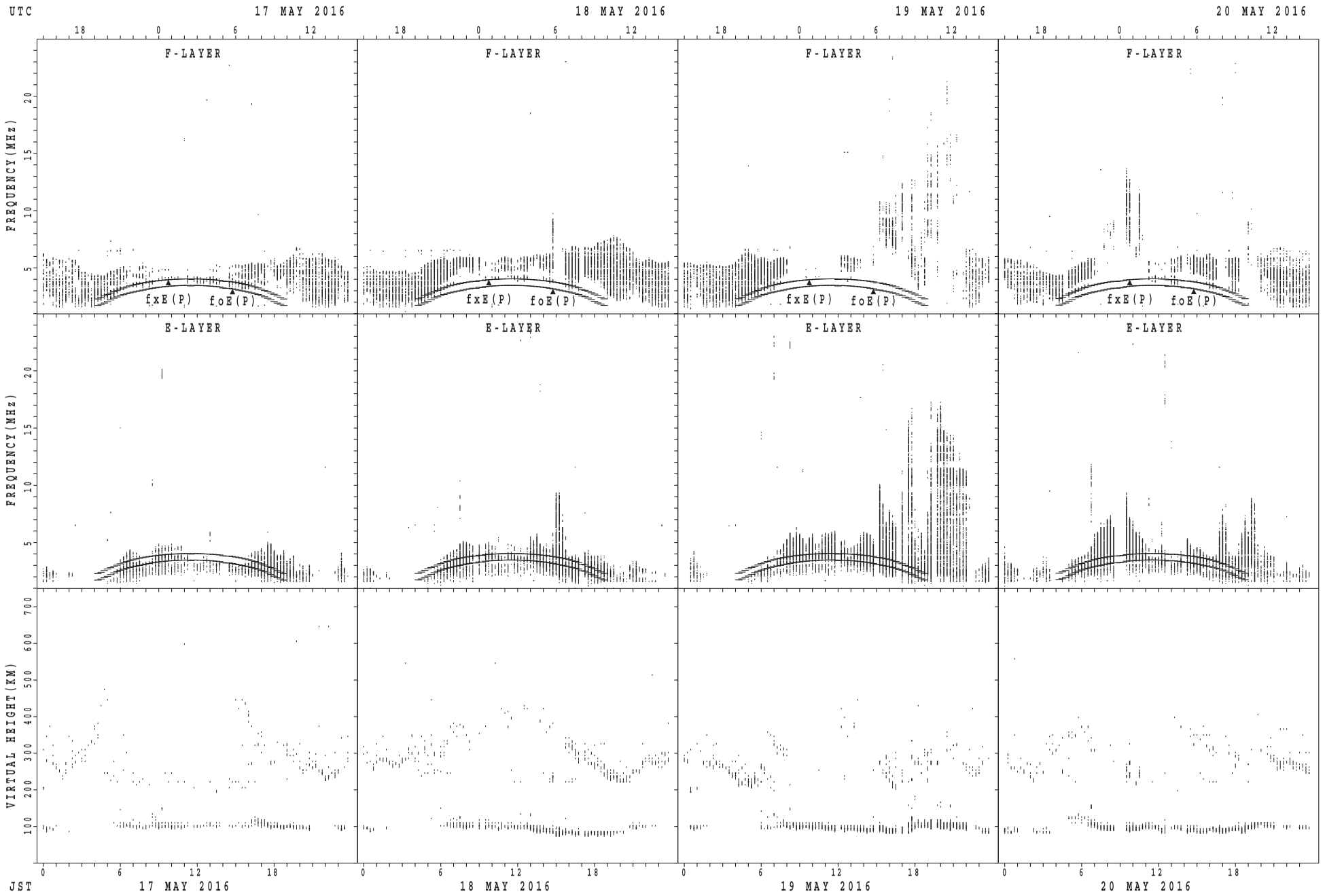
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE


SUMMARY PLOTS AT Wakkanai
UTC
JST
5 MAY 2016
6 MAY 2016
7 MAY 2016
8 MAY 2016
F-LAYER
E-LAYER
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
fxE(P) foE(P)
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

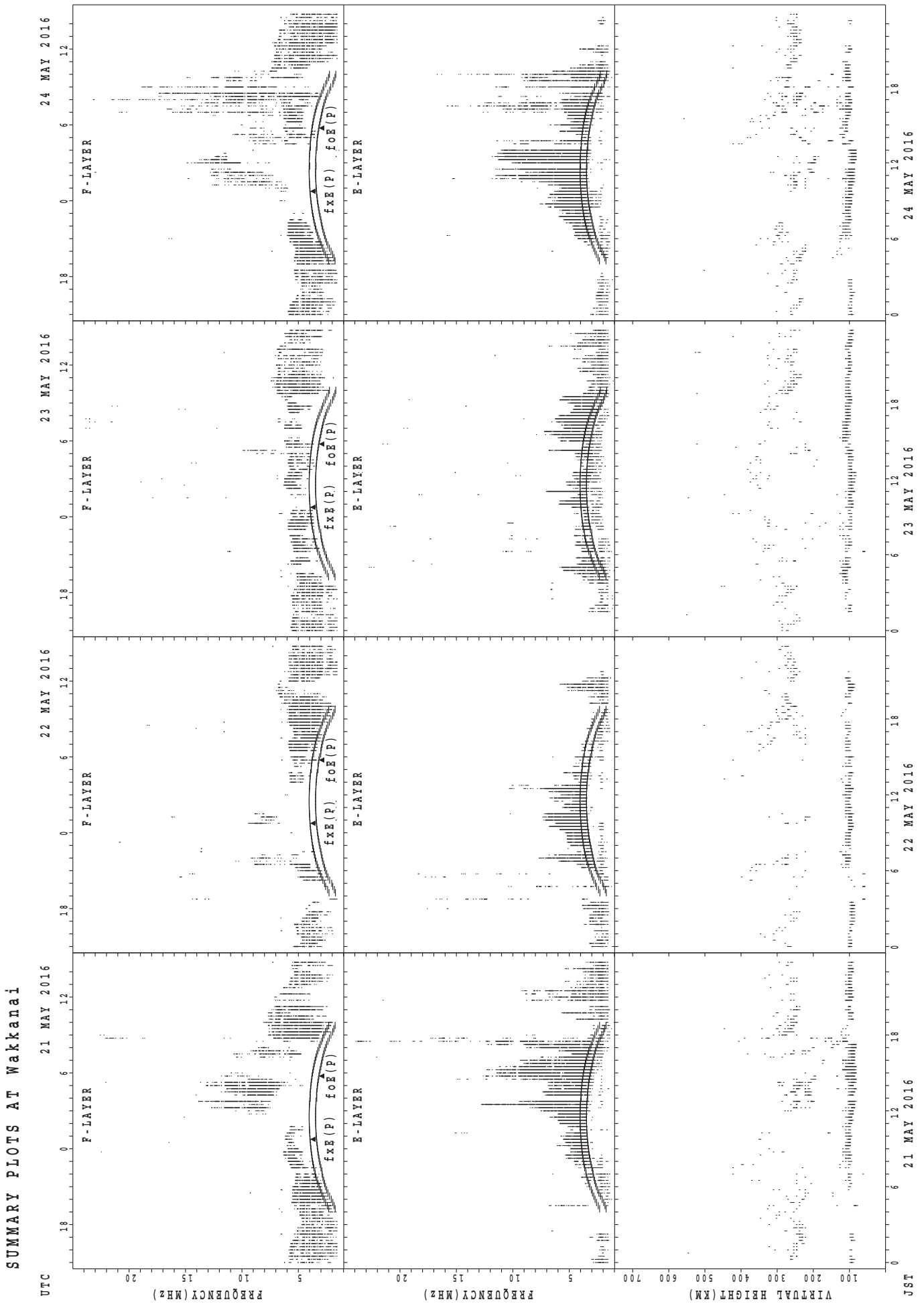

SUMMARY PLOTS AT Wakkanai
UTC
JST
9 MAY 2016
10 MAY 2016
11 MAY 2016
12 MAY 2016
F-LAYER
E-LAYER
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
fxE(P) foE(P)
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

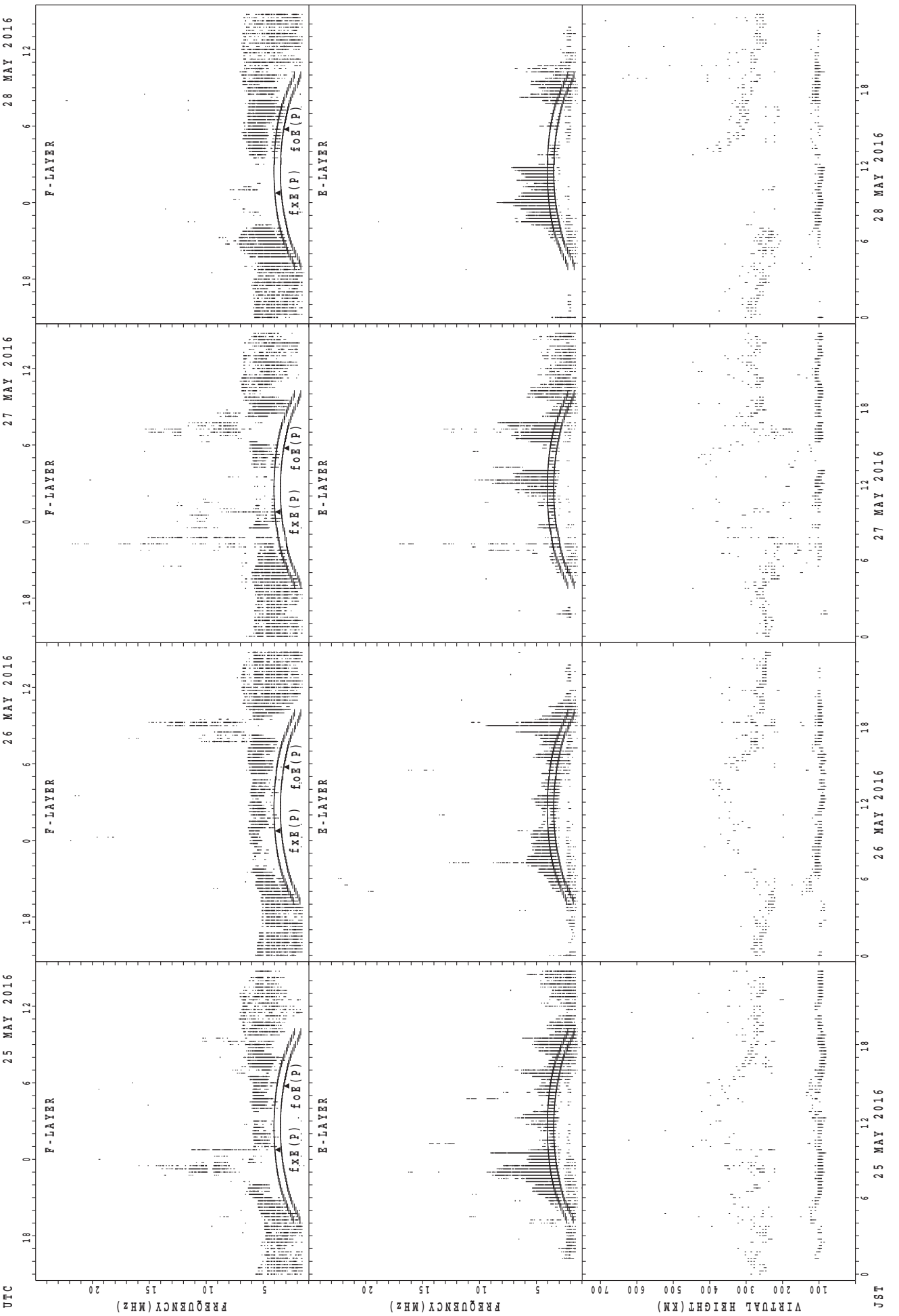

SUMMARY PLOTS AT Wakkanai
UTC
JST
13 MAY 2016
14 MAY 2016
15 MAY 2016
16 MAY 2016
F-LAYER
E-LAYER
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
fxE(P) foE(P)
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai

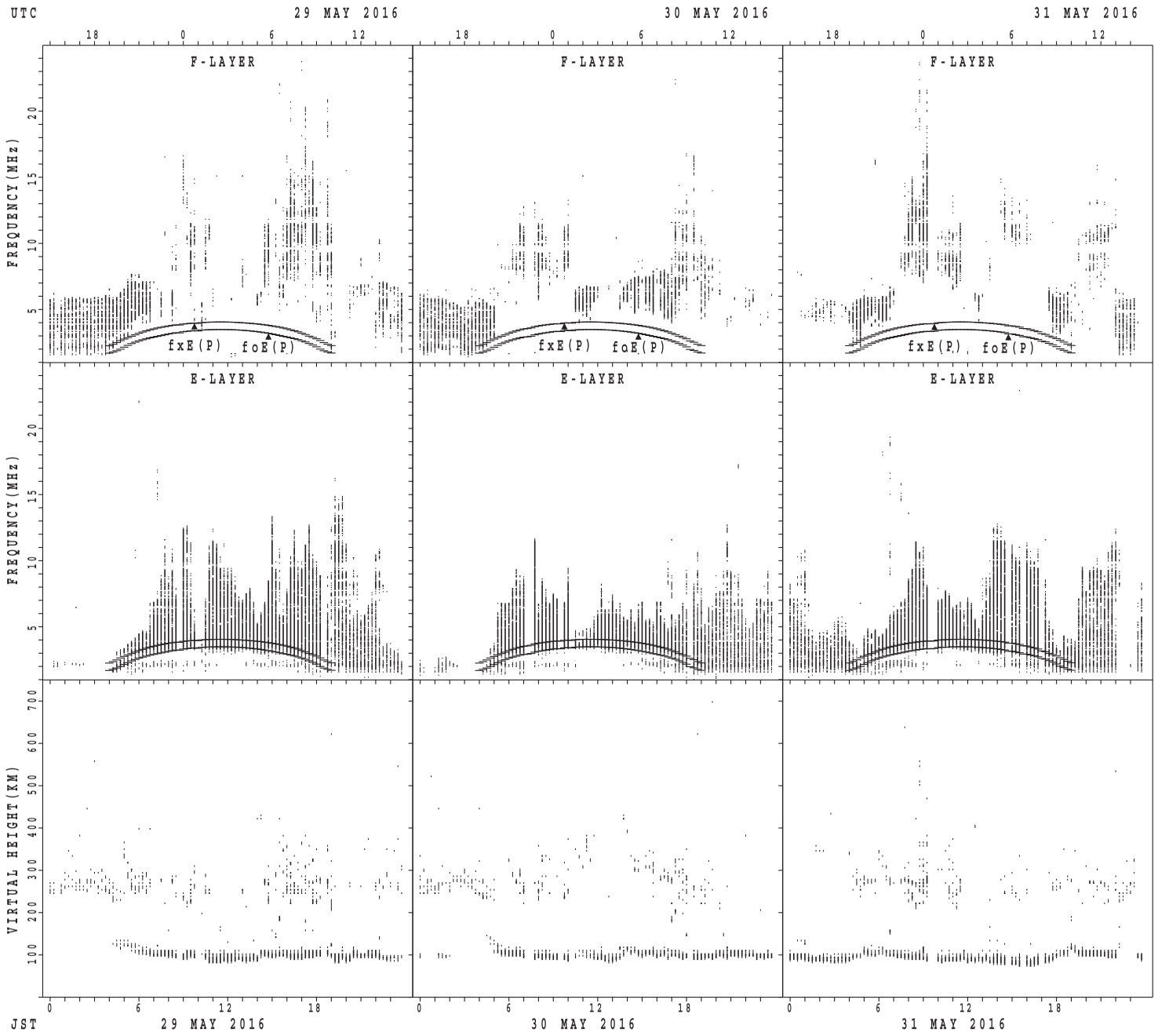


fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE


SUMMARY PLOTS AT Wakkanai
UTC
JST
21 MAY 2016
22 MAY 2016
23 MAY 2016
24 MAY 2016
F-LAYER
E-LAYER
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
fxE(P) foE(P)
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

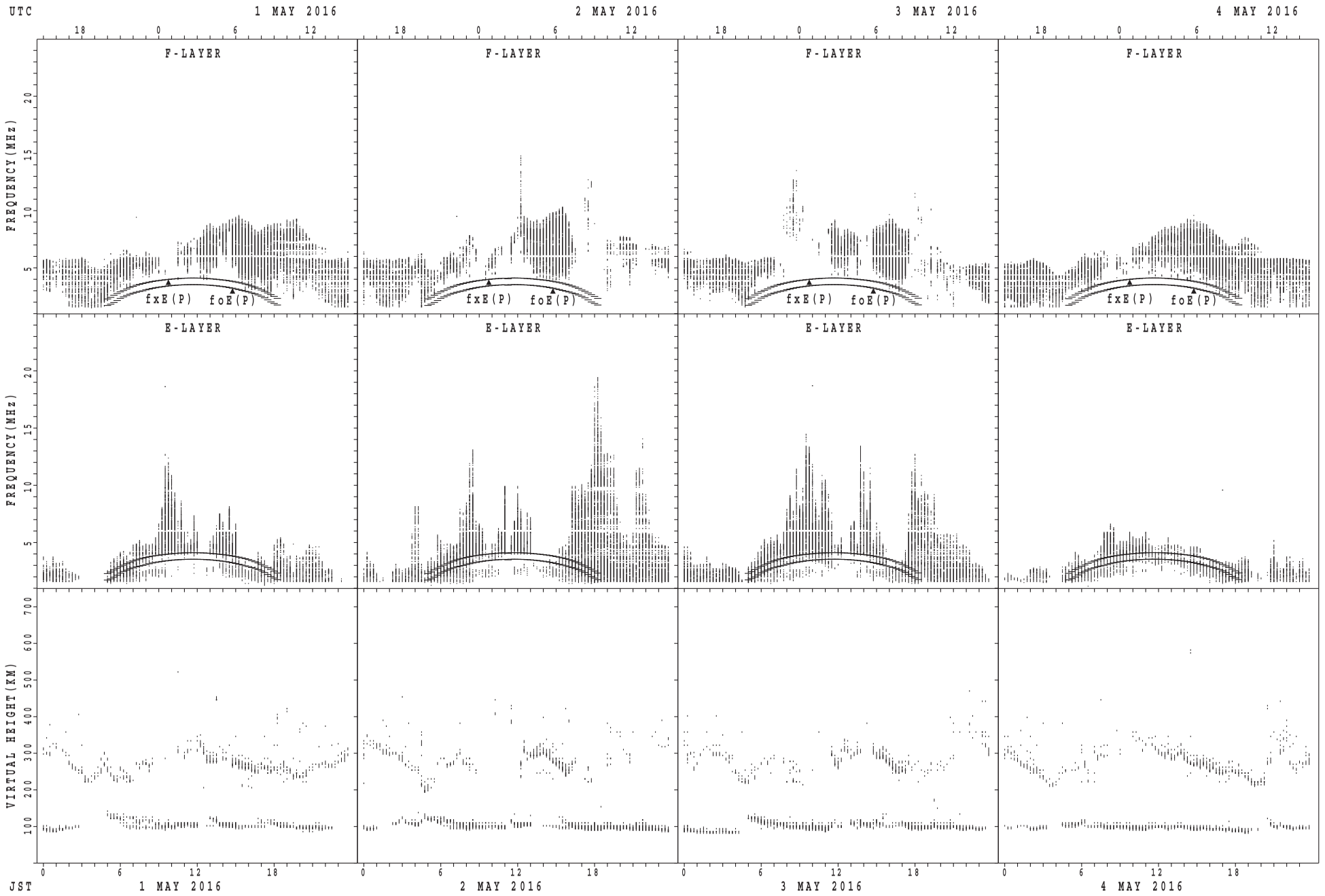

SUMMARY PLOTS AT Wakkanai
UTC
JST
25 MAY 2016
26 MAY 2016
27 MAY 2016
28 MAY 2016
F-LAYER
E-LAYER
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
fxE(P) foE(P)
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



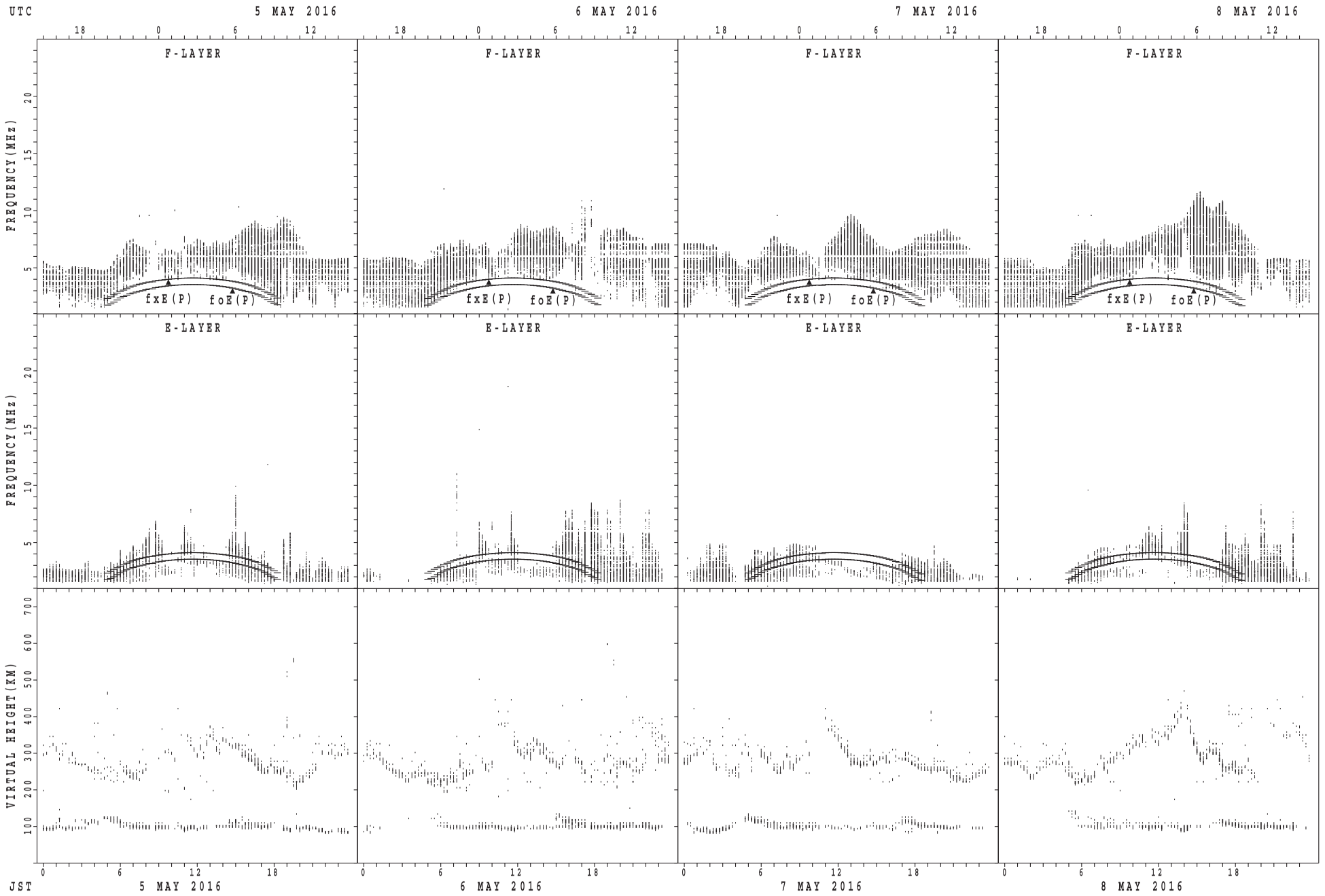
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



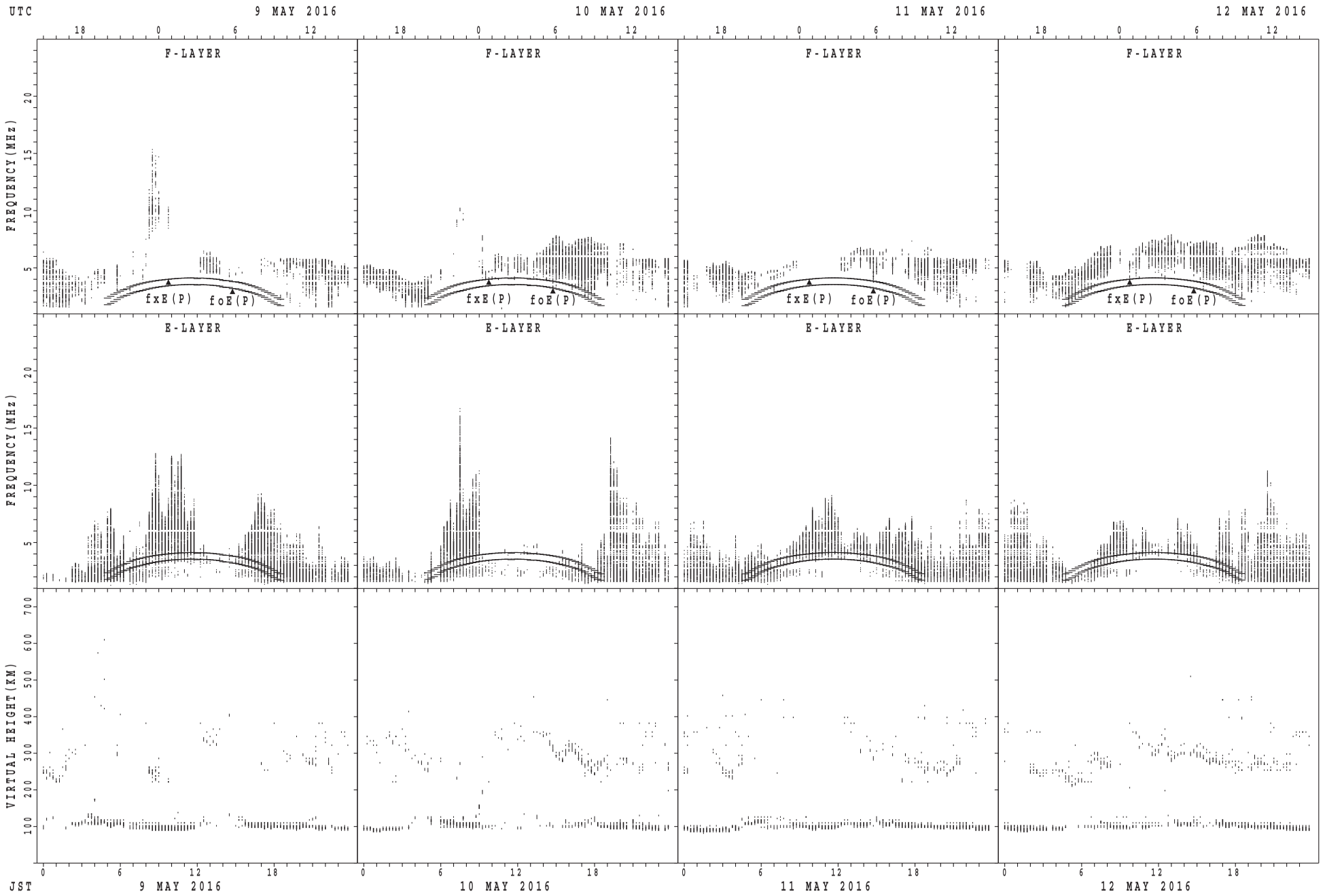
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



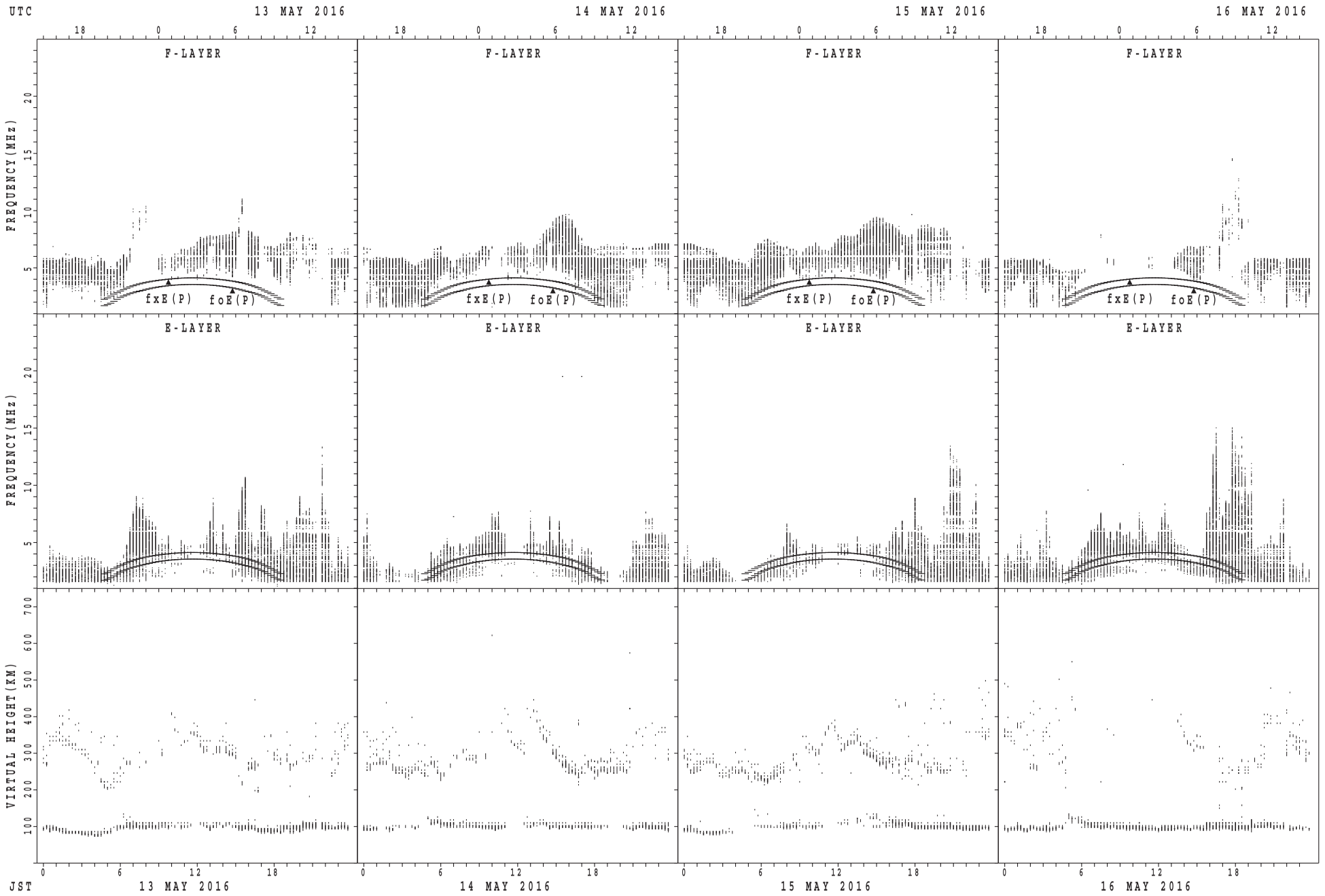
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



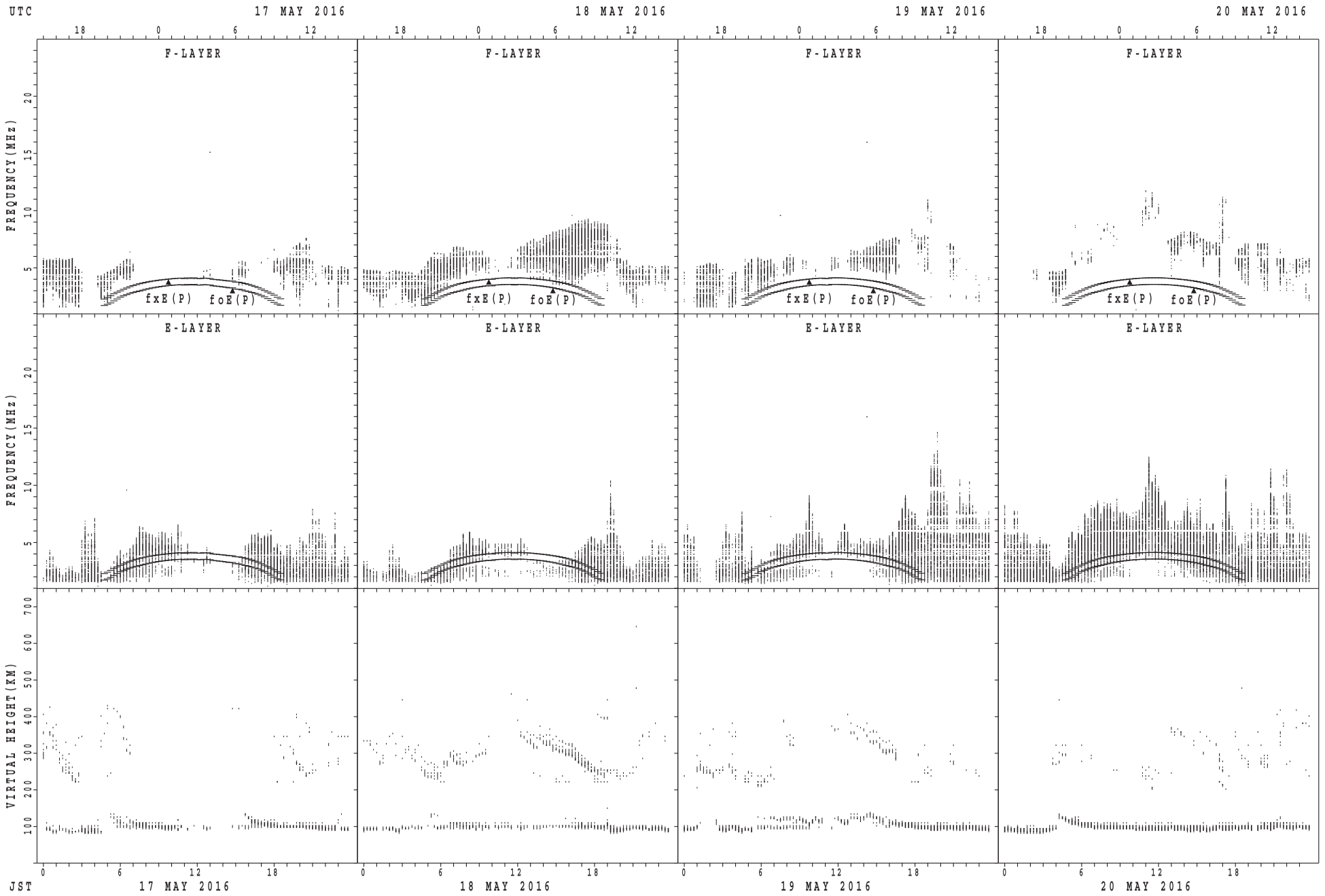
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



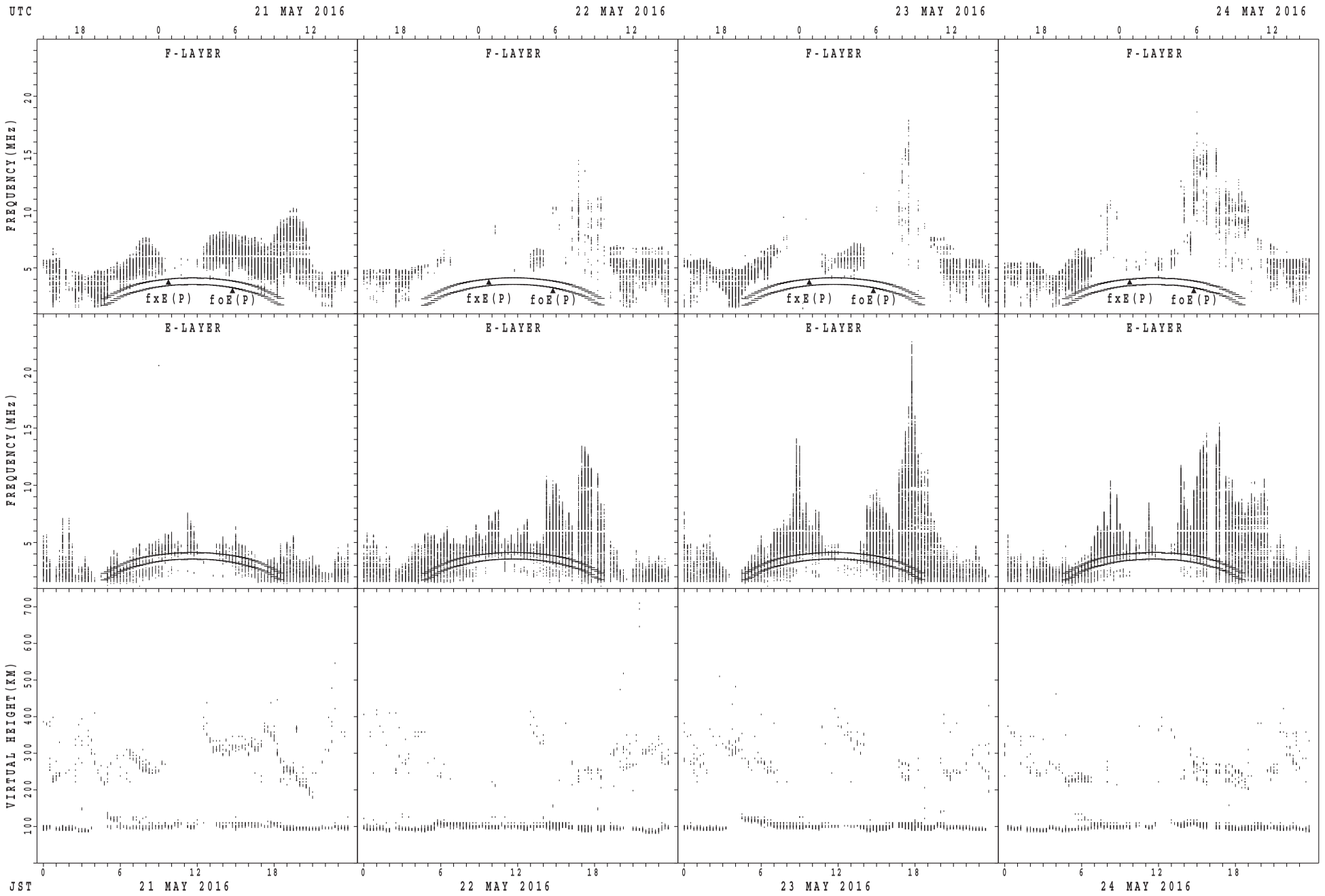
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



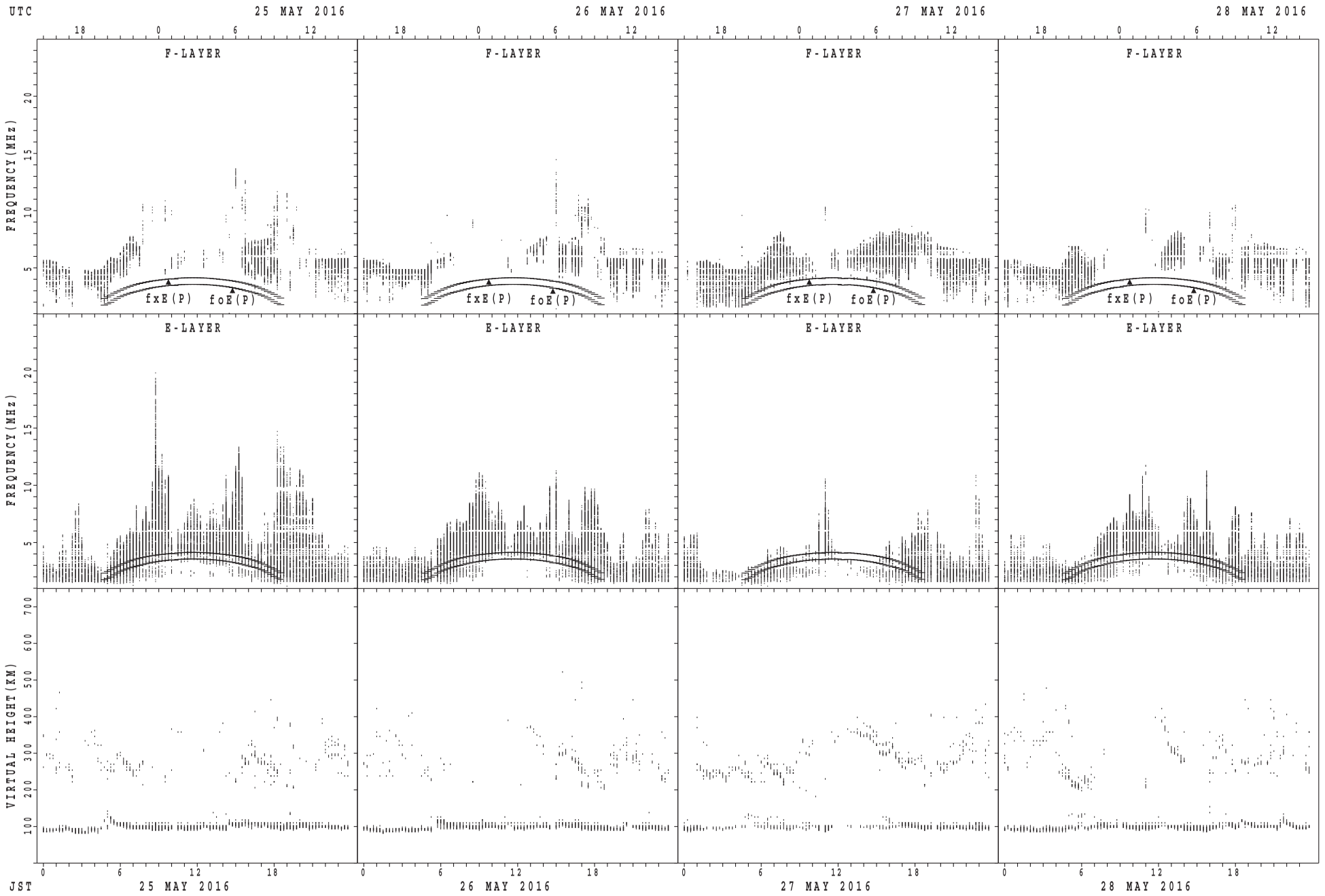
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji

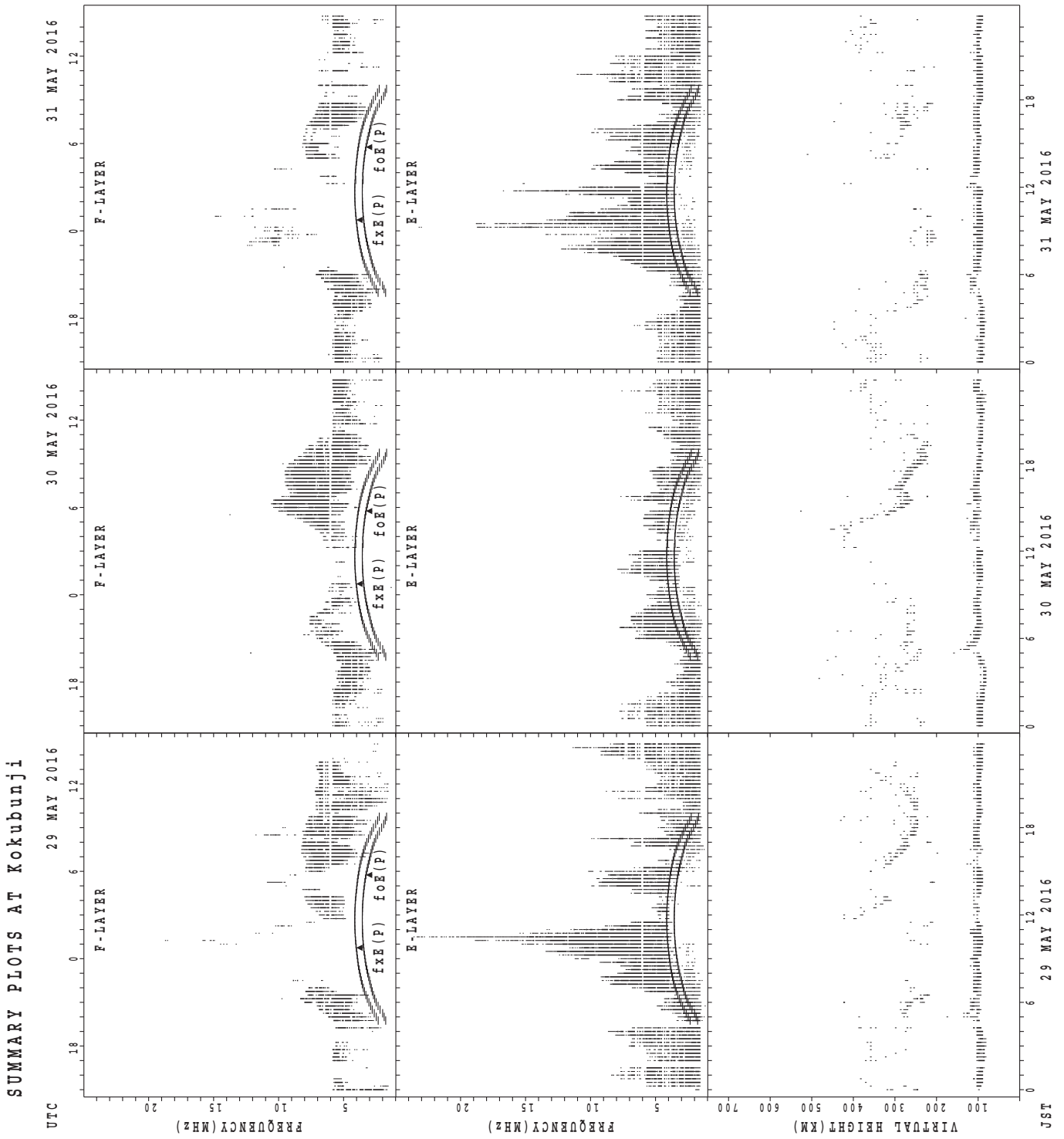


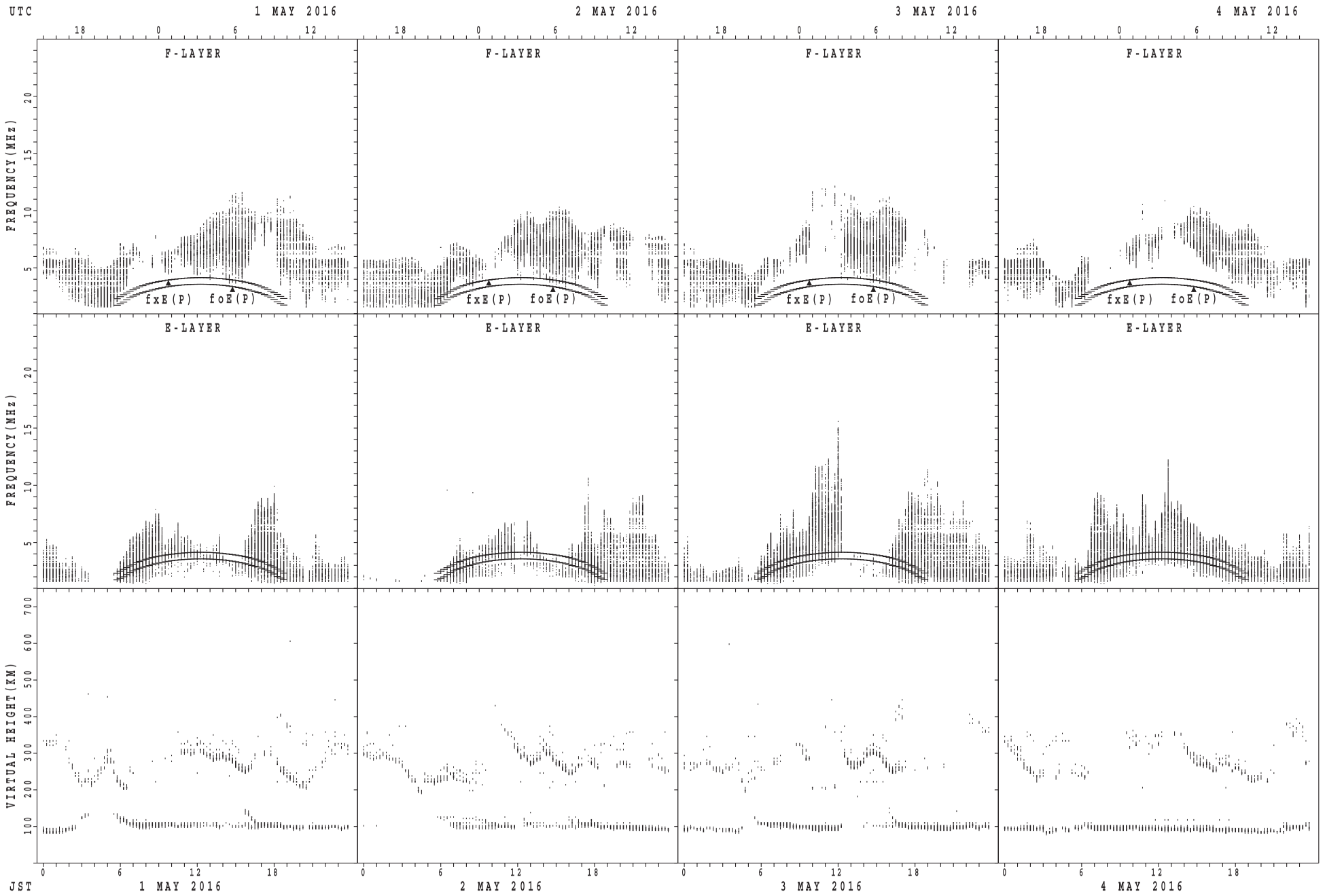
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji

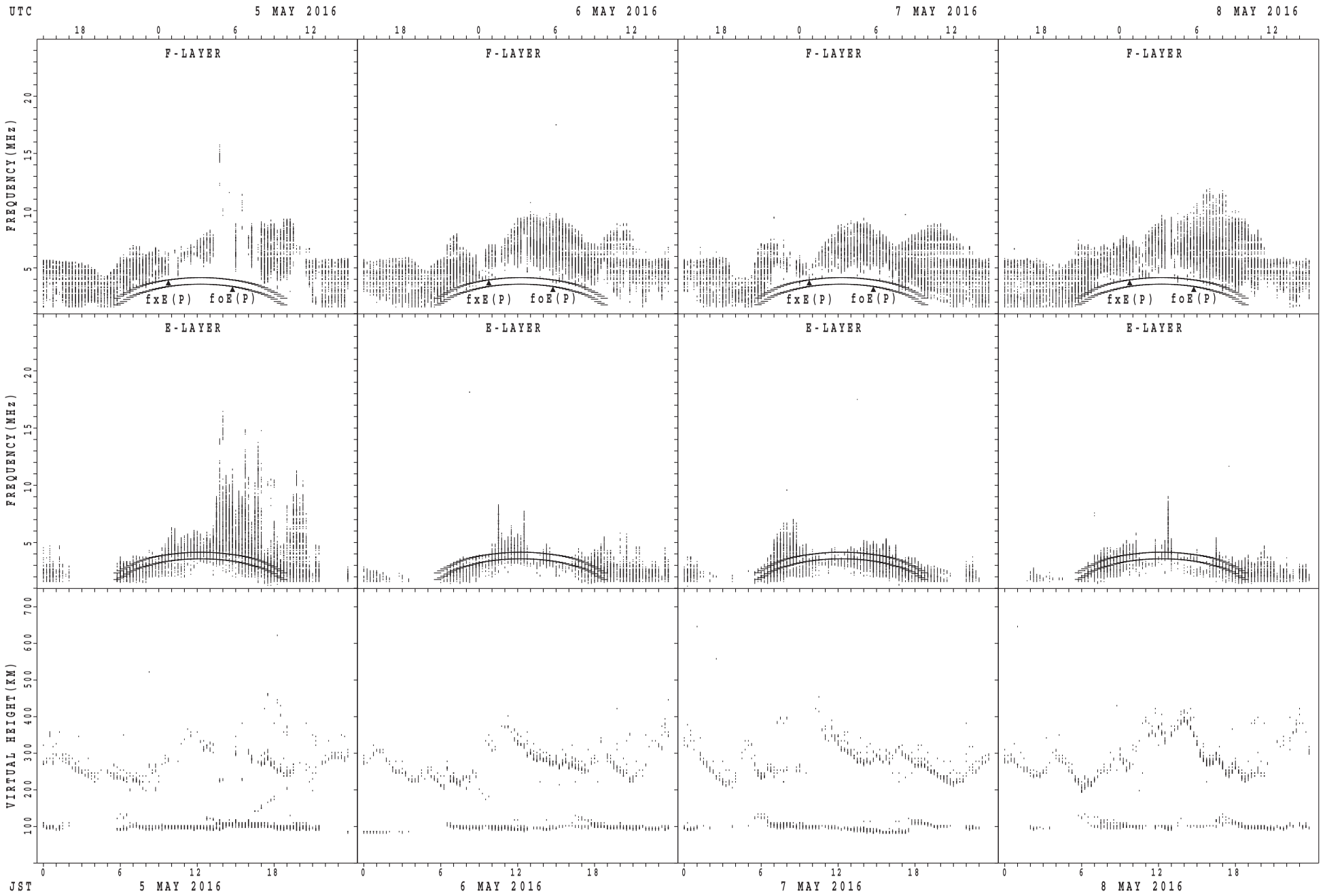


fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

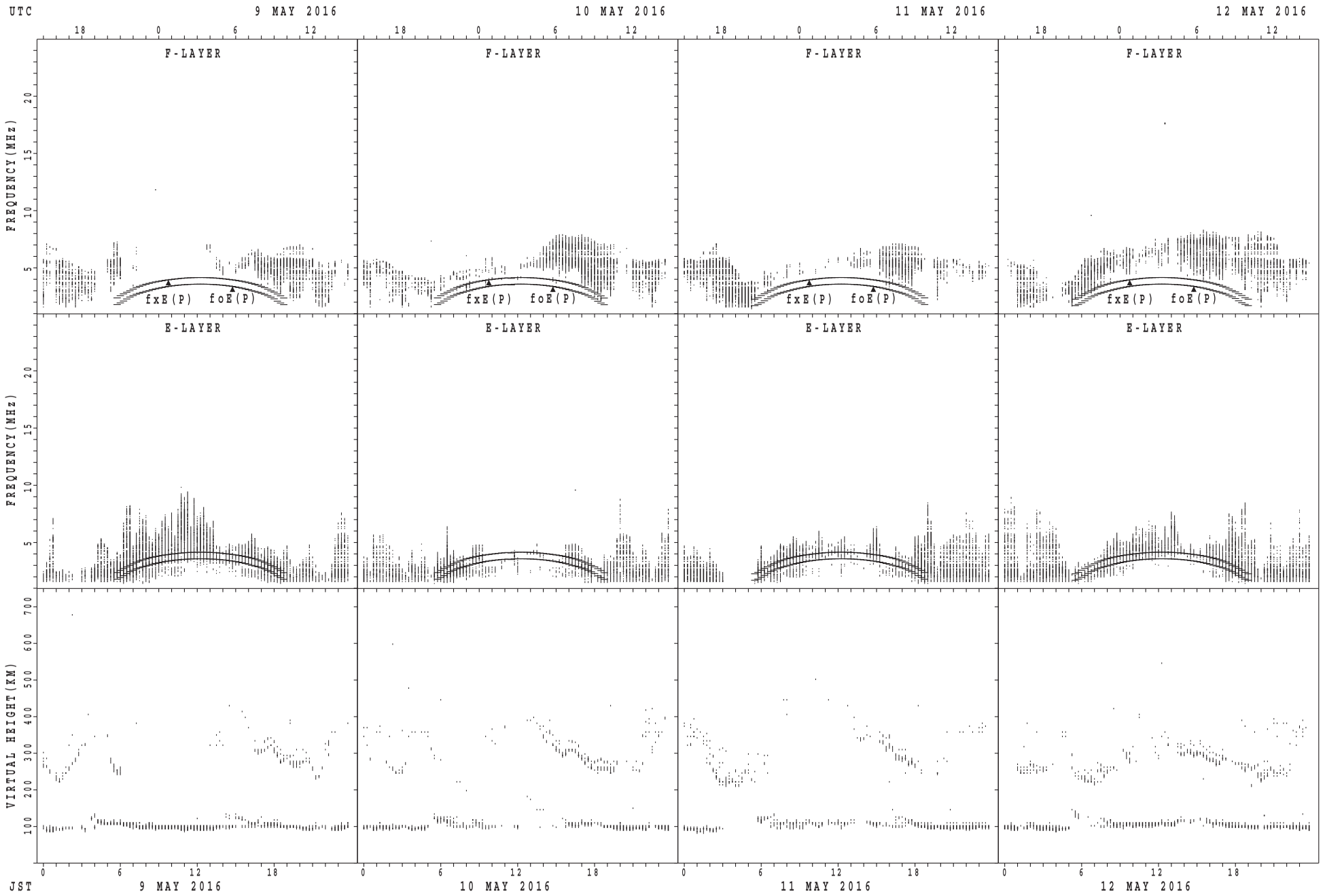

SUMMARY PLOTS AT Kokubunji
UTC
29 MAY 2016
30 MAY 2016
31 MAY 2016
F-LAYER
E-LAYER
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
fxE(P) foE(P)
JST
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE



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

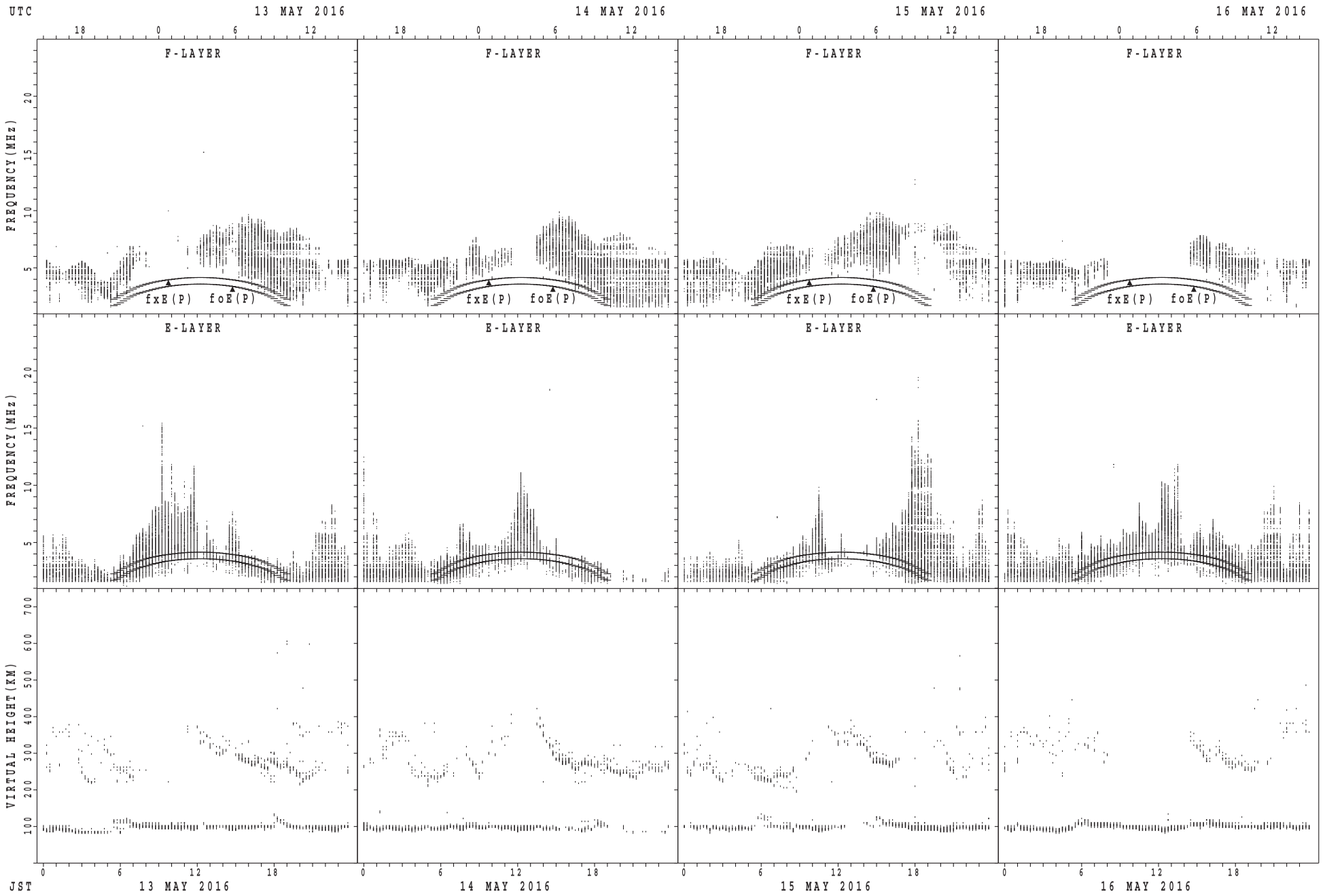

SUMMARY PLOTS AT Yamagawa
UTC
5 MAY 2016
6 MAY 2016
7 MAY 2016
8 MAY 2016
F-LAYER
E-LAYER
fxE(P) foE(P)
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
JST
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa

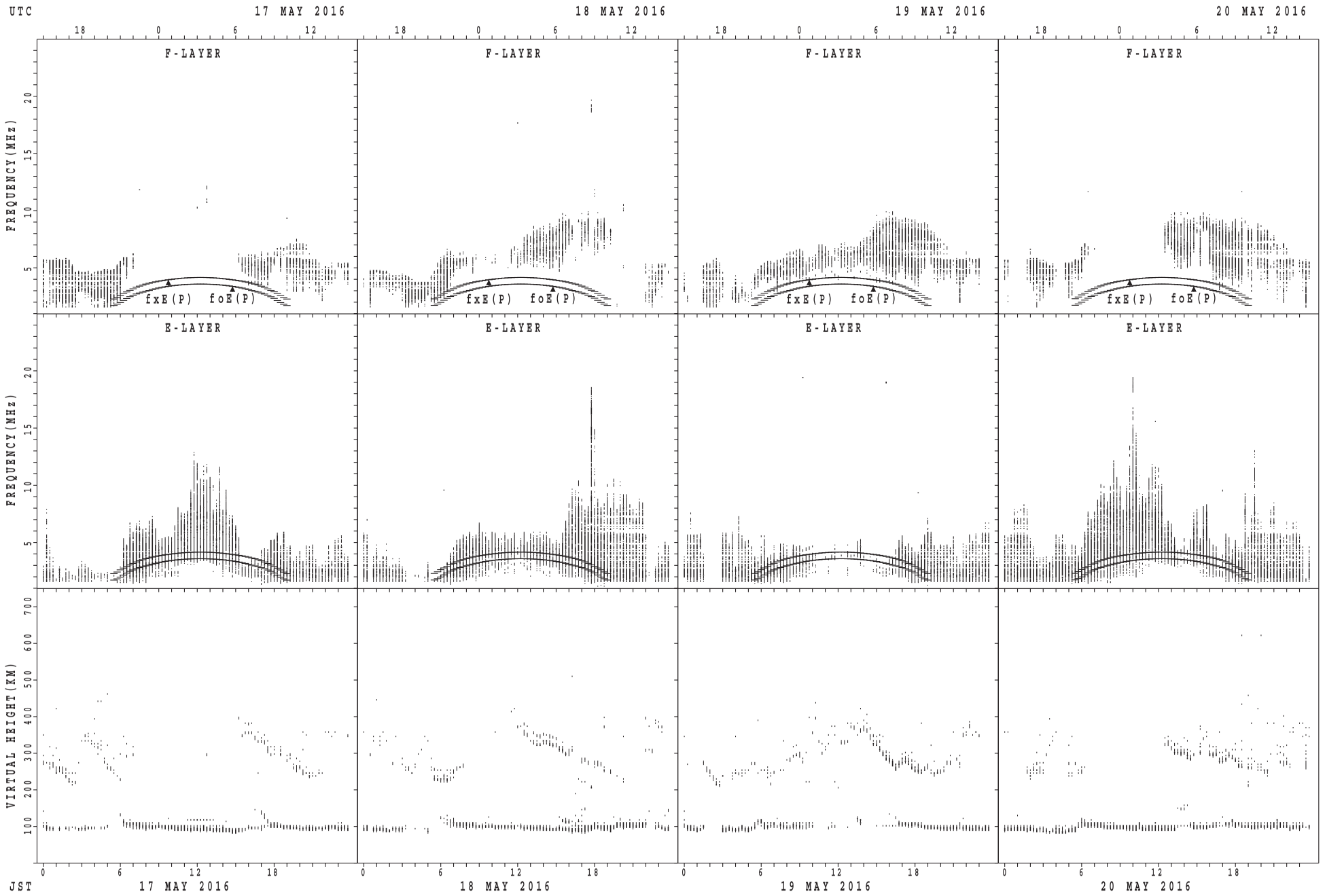


fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa

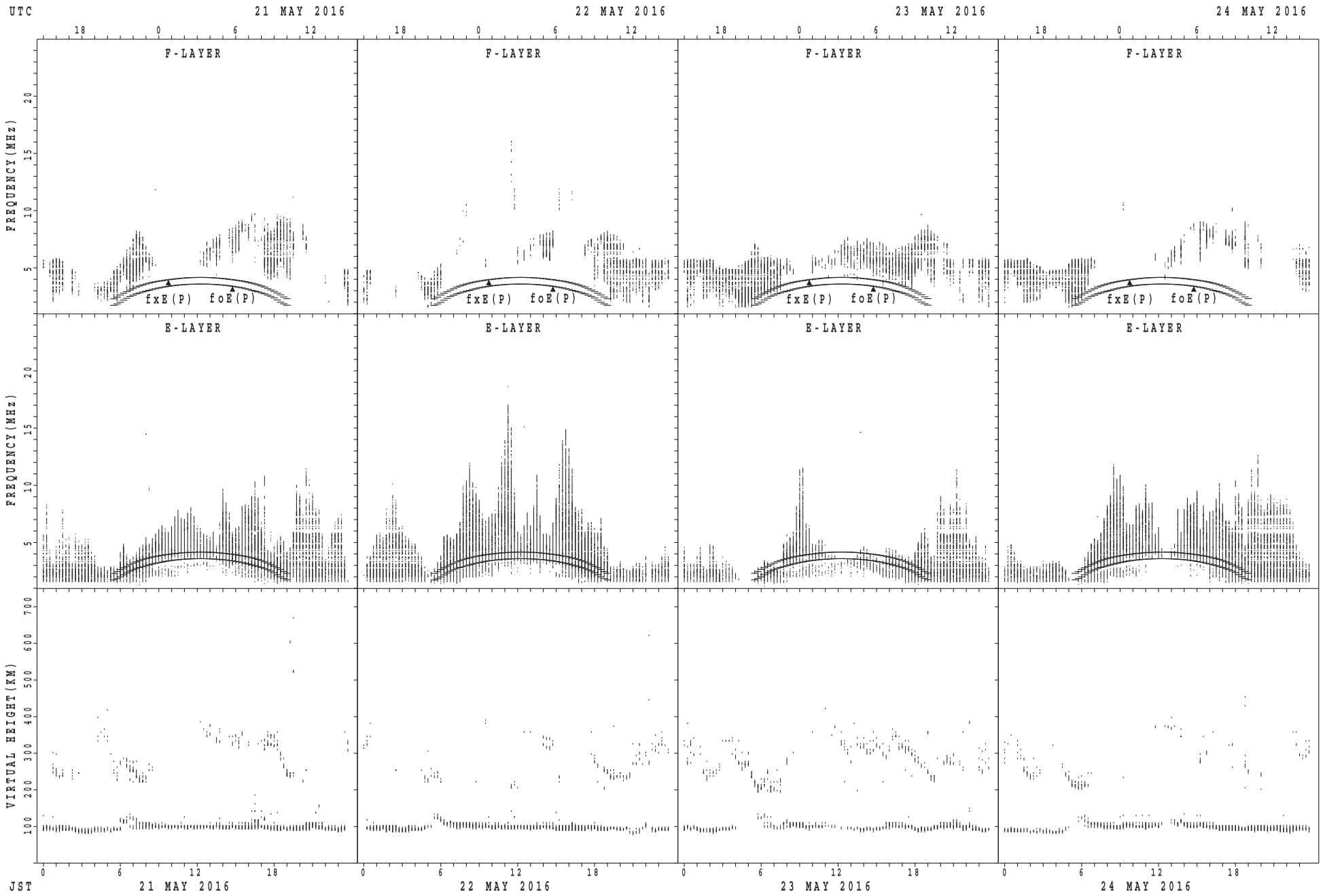


fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE



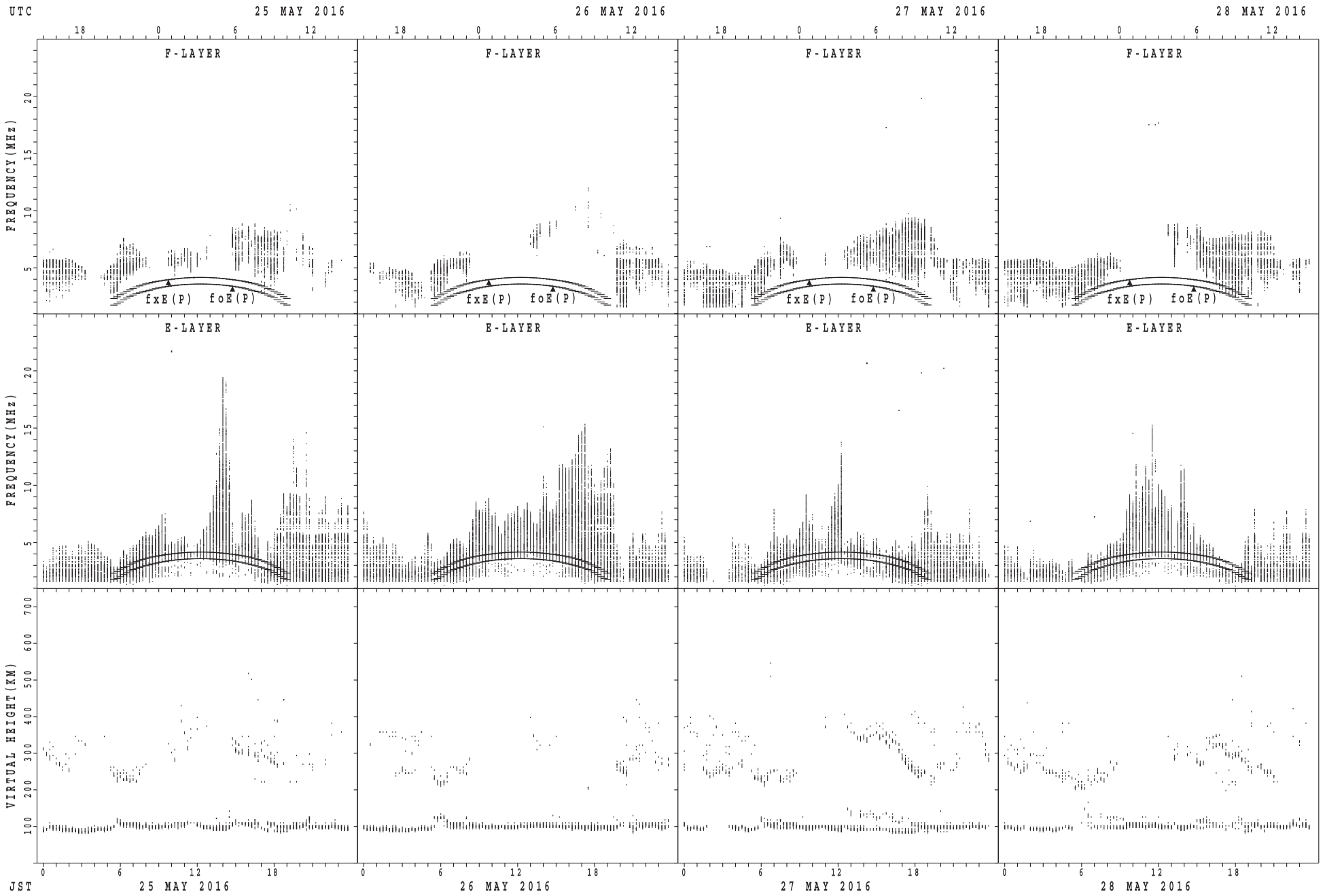
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



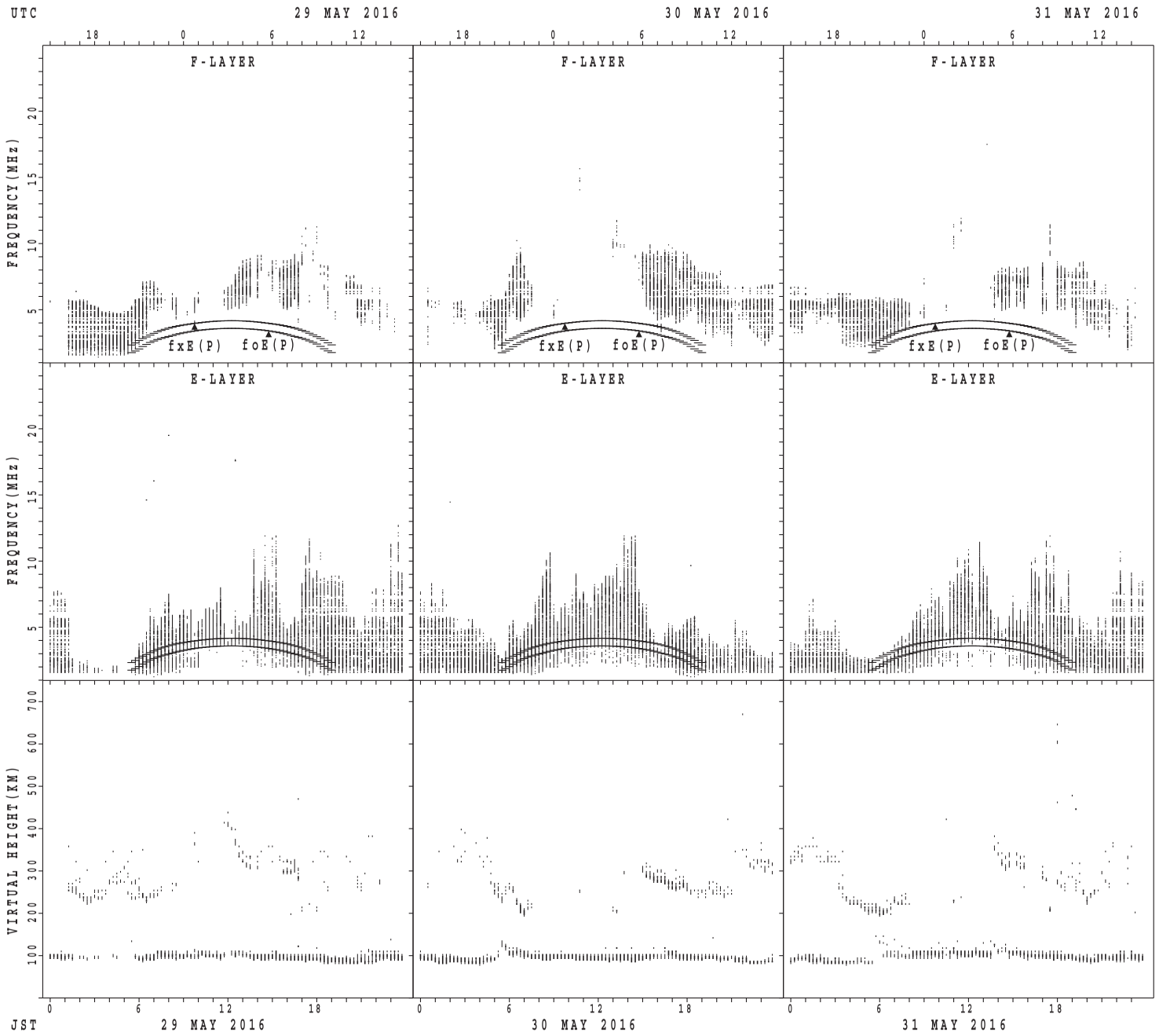
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



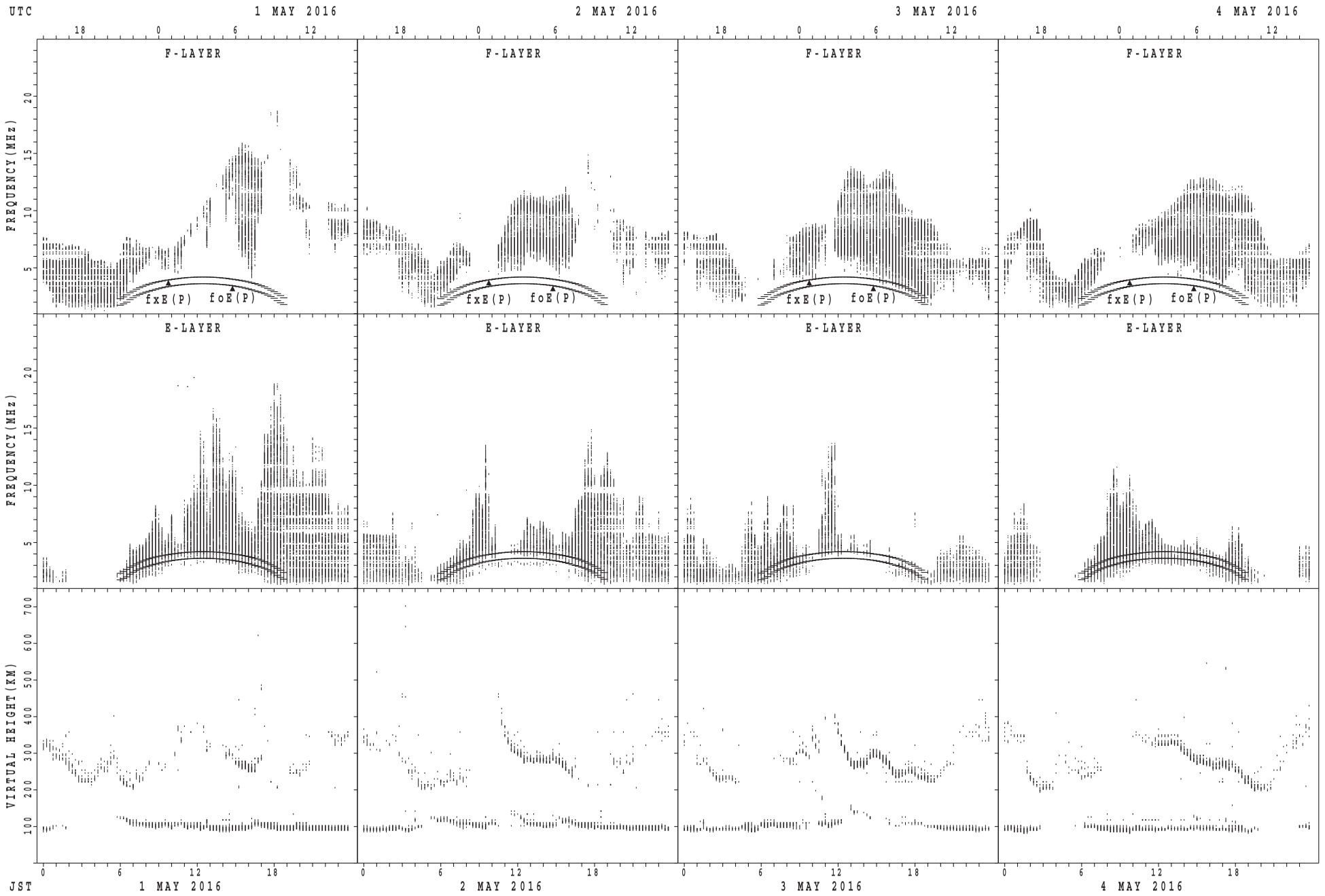
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa

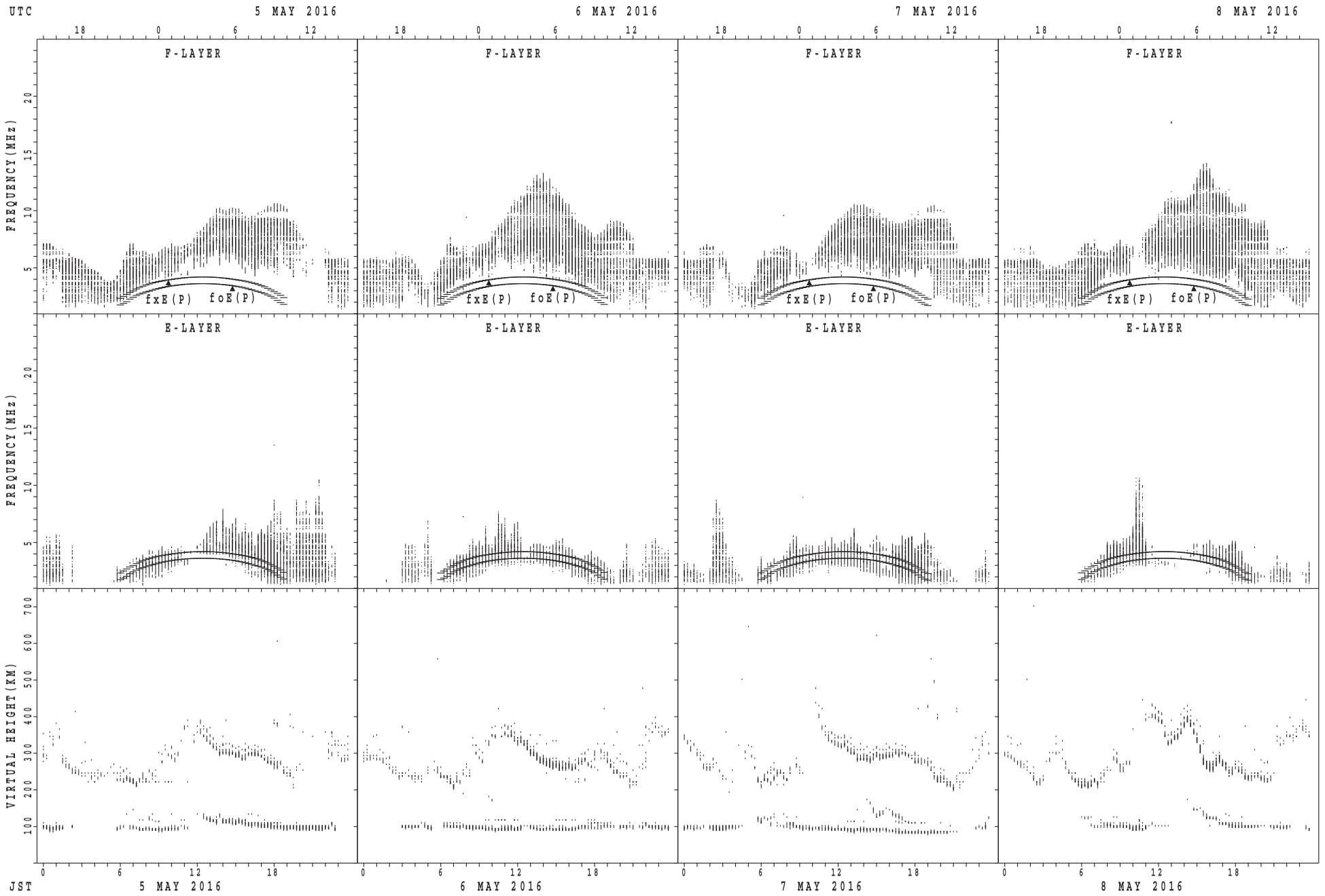


fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

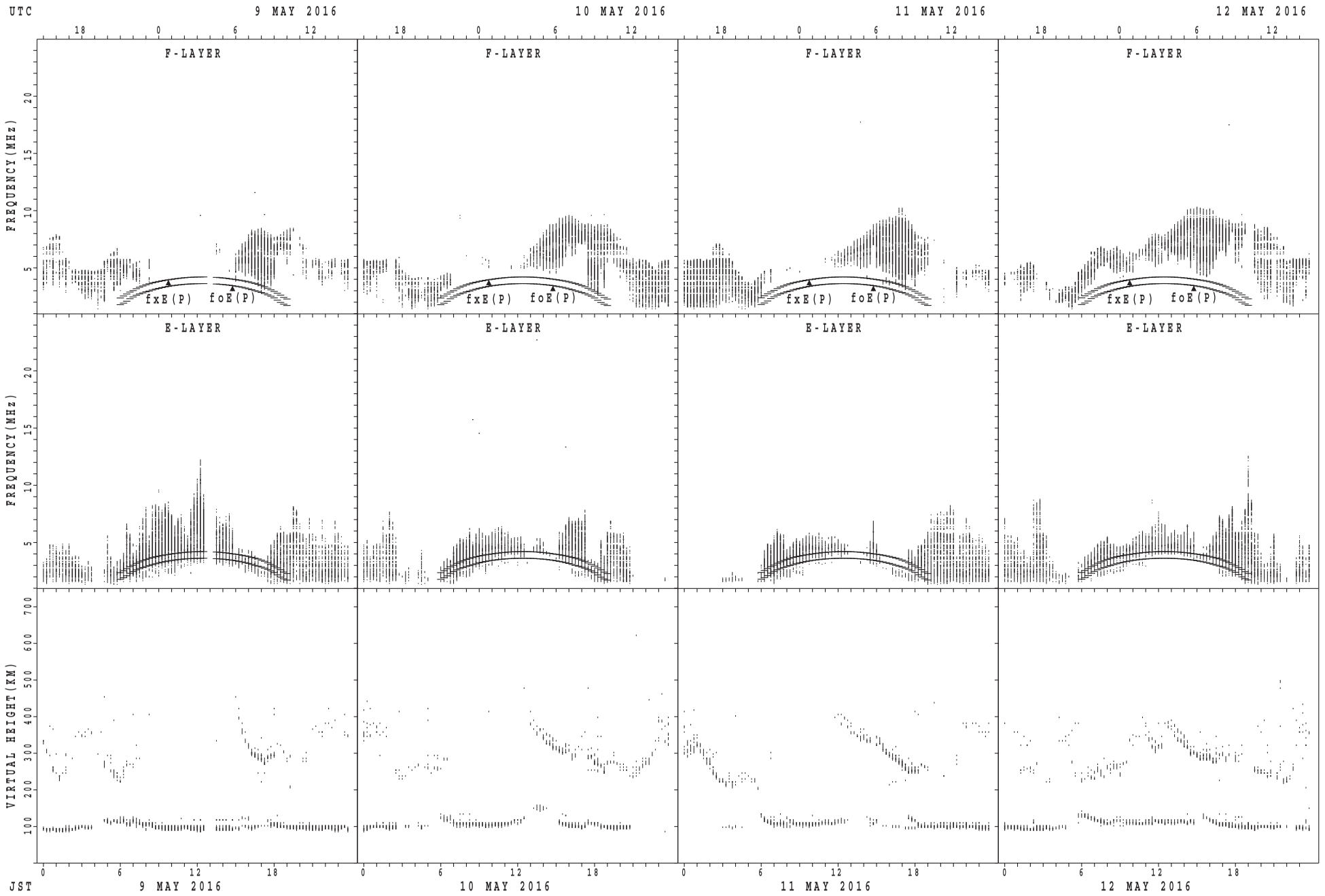
SUMMARY PLOTS AT Okinawa



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

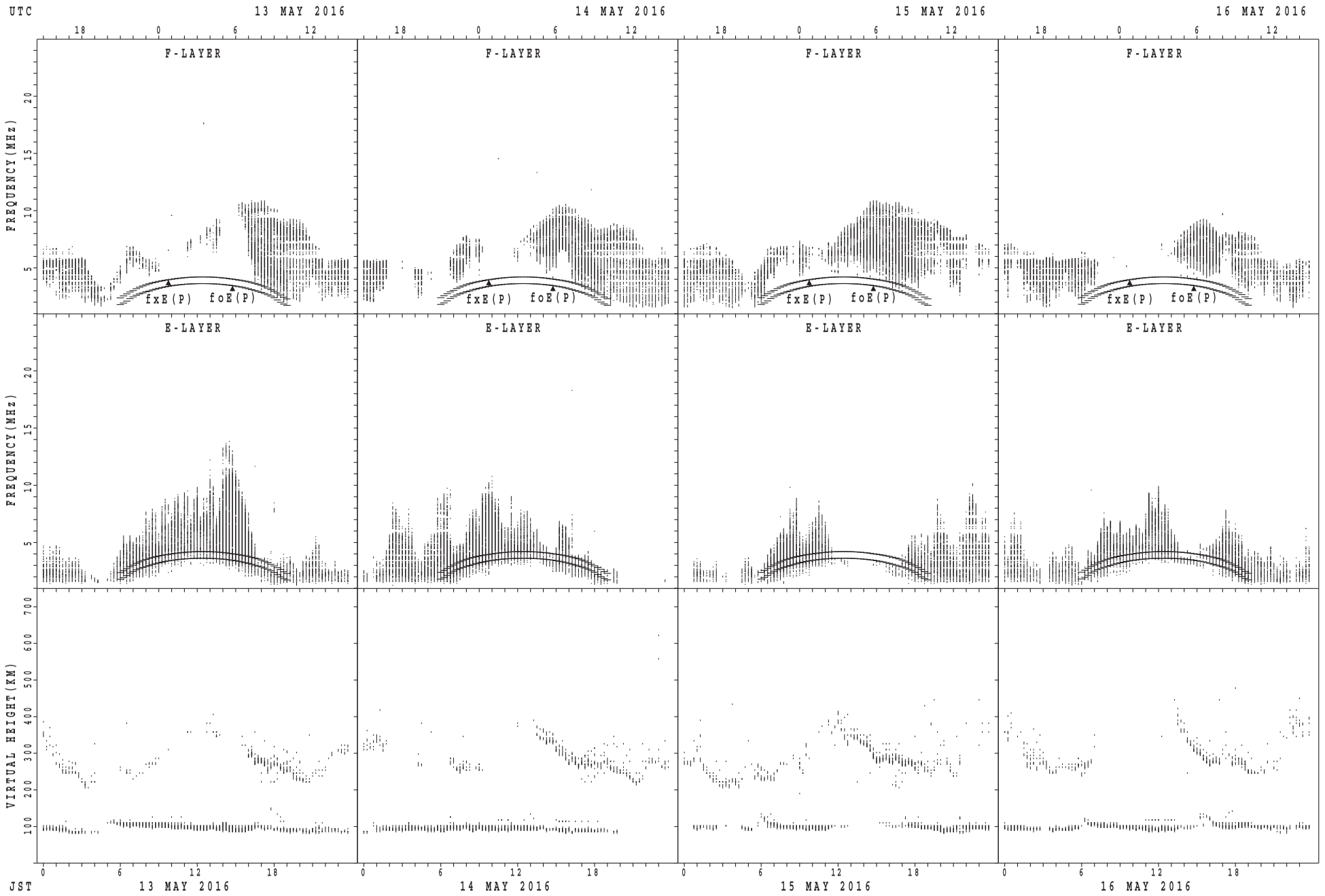

SUMMARY PLOTS AT Okinawa
UTC
5 MAY 2016
6 MAY 2016
7 MAY 2016
8 MAY 2016
F-LAYER
E-LAYER
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
fxE(P)
foE(P)
JST
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



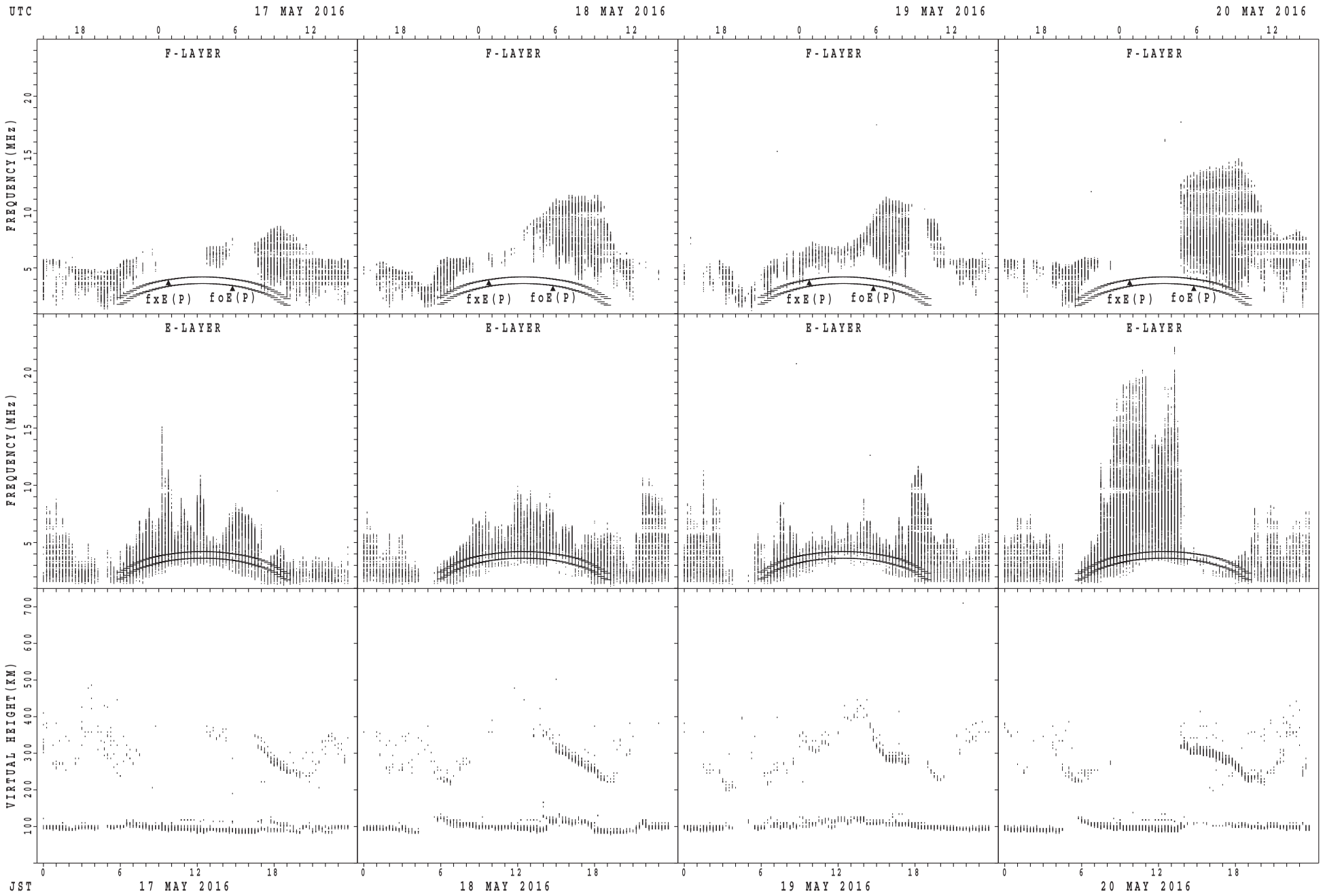
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



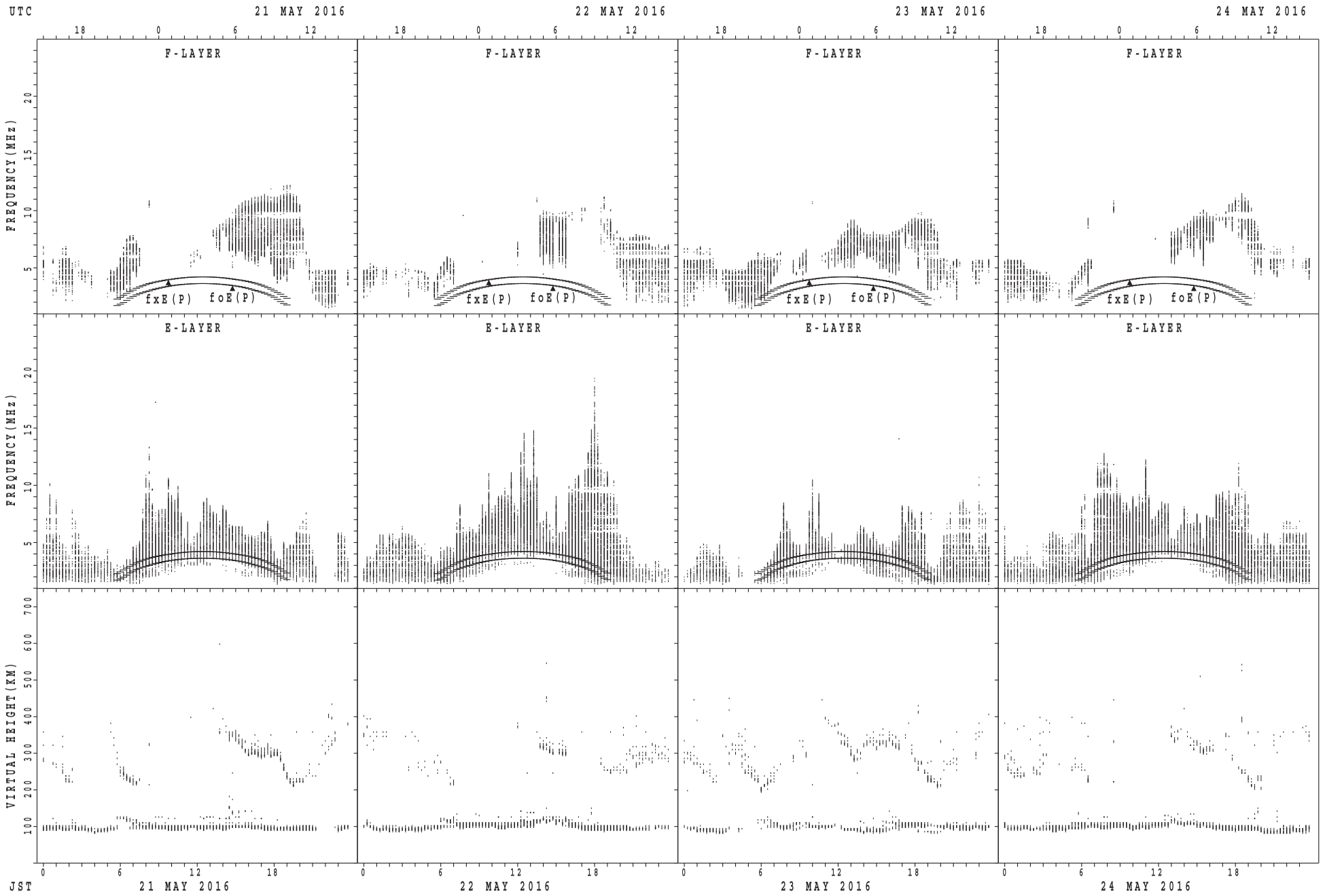
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



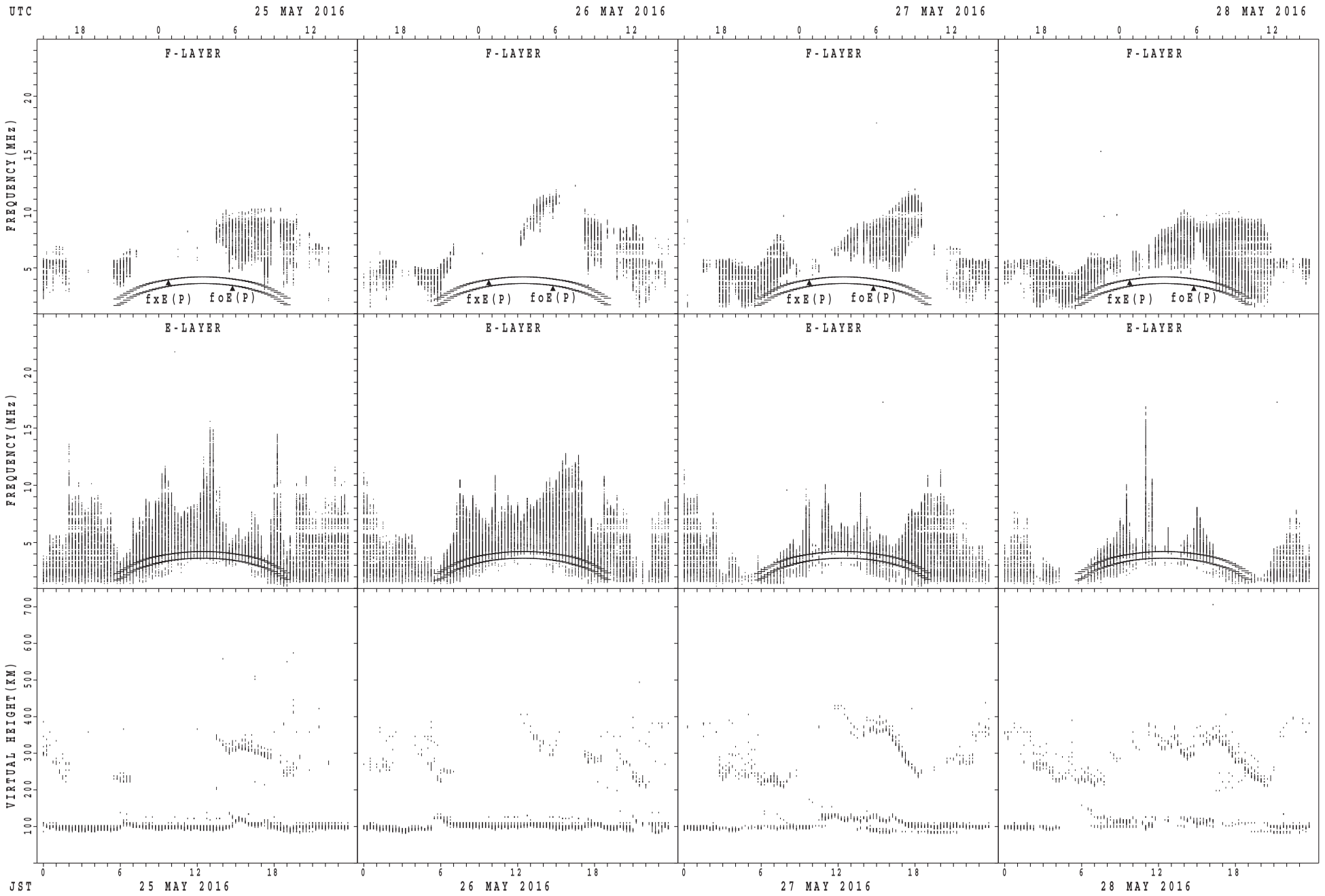
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



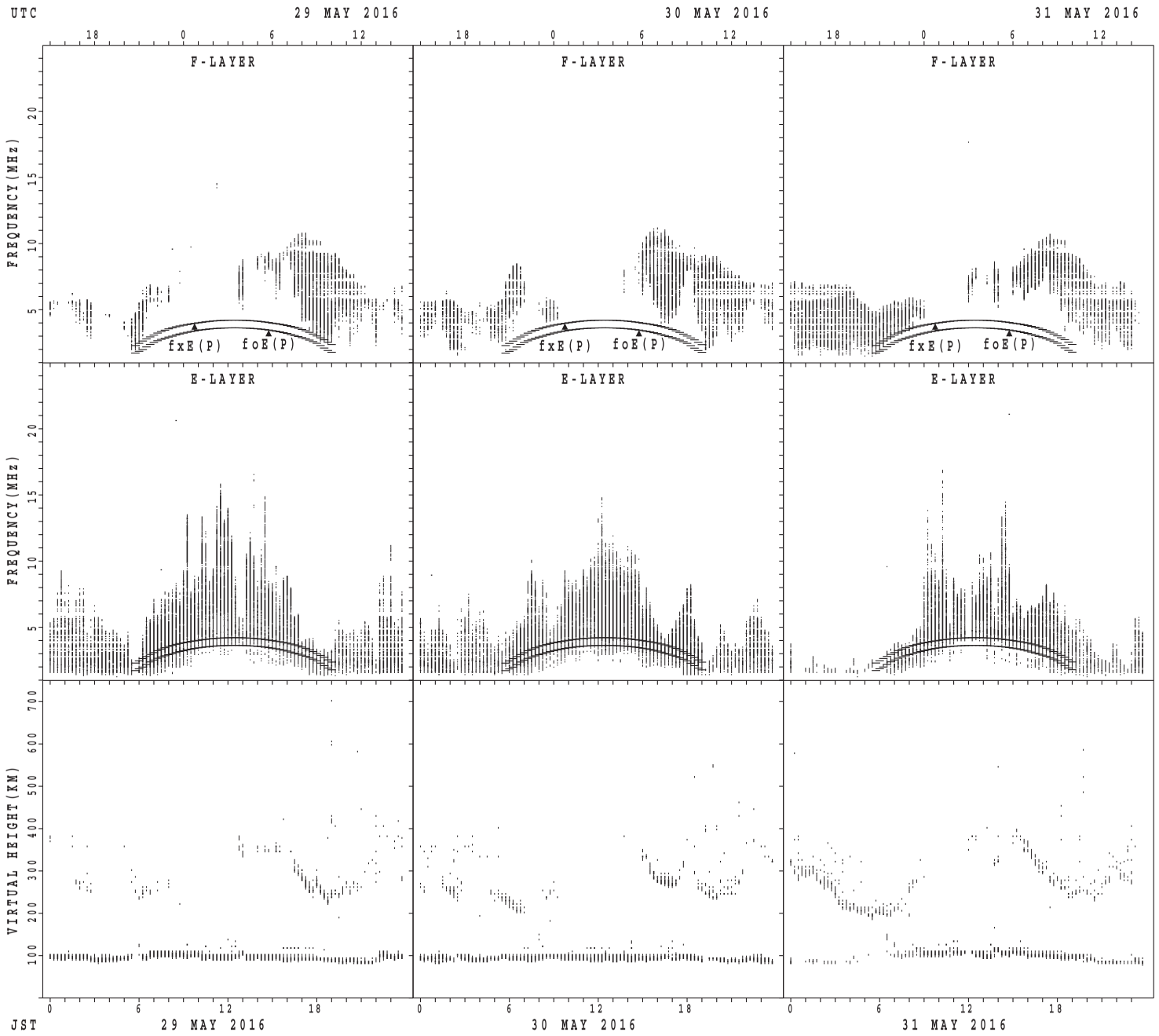
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

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

MAY 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					2	2	3									11	13	11	10	3	6	3	
MED	354					312	264	304									312	280	280	270	282	280	304	
U Q	177					368	266	336									330	303	306	286	298	342	308	
L Q	177					256	262	222									298	221	222	224	264	224	216	

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	20	16	17	11	10	21	24	25	25	24	26	21	23	19	19	23	25	27	30	28	28	26	20	20
MED	97	97	95	99	112	117	114	105	107	105	102	101	97	97	105	101	103	107	107	104	106	102	102	97
U Q	97	102	98	111	119	125	121	112	107	107	105	106	101	111	115	113	111	115	113	109	112	105	105	99
L Q	95	93	90	91	93	111	110	103	103	101	97	96	95	95	97	95	96	101	101	101	101	99	97	95

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

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	2		1				9	8									17	19	10	11	8	2		
MED	353		336				246	244									278	262	261	252	268	286		
U Q	366		168				248	254									306	276	270	264	287	290		
L Q	340		168				235	230									258	234	222	238	249	282		

h'Es

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	24	27	25	27	22	23	25	27	30	28	27	25	23	18	21	21	21	28	29	30	30	30	29	29
MED	96	95	95	95	96	119	113	107	103	103	101	103	103	103	103	107	107	103	103	103	102	102	99	99
U Q	99	97	96	97	101	123	115	113	111	105	109	104	109	111	112	119	112	108	105	105	105	105	105	103
L Q	95	95	91	91	93	101	110	103	101	99	97	98	99	101	99	102	103	103	99	99	97	99	97	97

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

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT			1	1			4	11	8									17	18	15	9	4		1
MED			354	290			243	240	253									276	279	256	280	273		390
U Q			177	145			257	250	273									286	290	272	286	301		195
L Q			177	145			224	240	245									263	276	246	265	263		195

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	29	28	25	25	22	20	28	28	29	31	30	27	23	24	24	23	25	29	29	31	29	30	29	28
MED	99	97	97	93	93	95	117	109	105	103	103	101	101	98	99	105	111	107	105	101	99	99	101	100
U Q	105	97	97	97	97	101	124	112	110	107	105	105	105	103	109	115	113	113	109	103	104	105	105	104
L Q	95	95	94	91	93	90	108	106	103	101	99	97	95	97	95	95	103	102	102	97	95	97	97	97

MONTHLY MEDIANS OF h'F AND h'Es

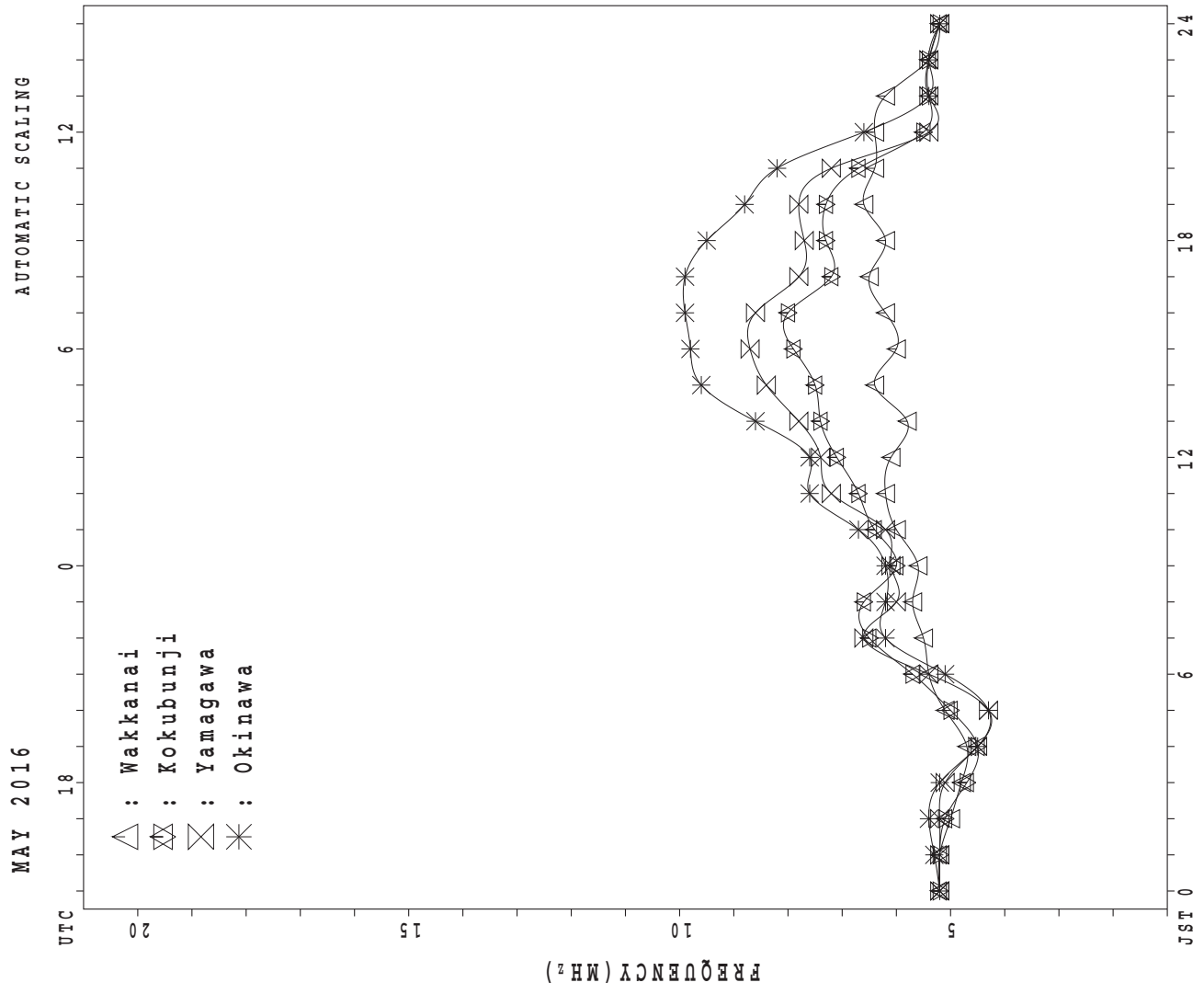
MAY 2016 135E MEAN TIME(UTC+9H) AUTOMATIC SCALING

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	5	3			2	12	8									25	25	27	17	5	1	3
MED	357	336	326	328			232	232	255									278	276	256	270	256	346	350
U Q	389	374	345	340			234	240	262									292	288	288	276	294	173	350
L Q	329	312	255	230			230	220	240									266	254	232	231	239	173	350

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	26	26	25	23	19	15	25	31	30	31	30	30	26	25	28	26	28	27	30	30	26	27	24	27
MED	97	97	97	97	95	97	113	111	105	103	103	99	102	101	103	109	108	103	103	99	99	97	99	101
U Q	103	103	100	99	99	105	124	115	109	109	107	103	113	113	121	113	117	111	105	103	103	103	104	103
L Q	95	95	95	95	95	95	102	107	103	99	97	95	95	95	95	95	99	99	97	95	95	91	95	97


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

IONOSPHERIC DATA STATION Wakkanai

MAY 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 64	X 62	X 59	X 57																	X 76	X 76	X 69	X 66
2	X 63	X 62	X 57	X 59																	X 75	X 75	X 73	X 71
3	X 65	X 64	X 57	X 57																	X 65	X 59	X 57	X 56
4	X 64	X 56	X 56	X 56																	X 75	X 68	X 63	64
5	X 53	54	54	X 57																	X 78	X 77	X 64	X 63
6	X 62	X 64	X 61	X 57																		X 77	X 72	X 65
7	X 65	X 55	X 59																			X 76	X 71	X 61
8	X 58	X 60	X 57		58																	X 59	X 57	X 59
9	X 57	X 51	X 47	X 47																		X 54	X 50	X 41
10	X 35	X 31	X 31																		X 71	X 69	X 61	X 54
11	X 48	X 47	X 48																			X 60	X 59	X 52
12	X 46	X 46	X 47																			X 71	X 69	X 69
13	X 71	X 65	X 56																			X 78	X 72	X 69
14	X 68	X 62	X 58																			X 71	X 73	X 70
15	X 67	X 62	X 59																			X 79	X 73	X 69
16	X 58	X 58	X 55																			X 66	X 65	X 66
17	X 63	X 59	X 55																			X 65	X 63	X 55
18	X 49	X 49	X 50	X 48	X 46																	X 66	X 58	X 57
19	X 56	X 53	X 55																			A	X 69	X 63
20	X 60	X 57	X 53																			X 62	X 63	X 66
21	X 61		X 55															A				A	X 65	X 55
22	X 55	X 52	X 51																			X 67	X 63	X 60
23	X 55	X 56	X 54																			X 71	X 73	X 59
24	X 61	X 56	X 50																			X 72	X 67	X 62
25	X 59	X 51	X 53																			X 71	X 71	X 65
26	X 59	X 57	O X 41																			X 69	X 71	X 66
27	X 65	X 63	X 58																			X 67	X 68	X 67
28	X 62	X 59	X 59																			X 71	X 69	X 65
29	X 66	X 61	X 61																			X 75	X 72	X 67
30		X 61	X 57																			A	X 66	A
31	A	X 57	X 58	59																		A	X 67	X 63
	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	31	9	2																6	27	31	30
MED	X 61	X 57	X 55	X 57	52																X 75	X 71	X 67	X 64
U Q	X 64	X 62	X 58	X 58																	X 76	X 75	X 71	X 66
L Q	X 56	X 53	X 51	X 52																	X 71	X 66	X 63	X 59

MAY 2016 fxI (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

MAY 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	57	55	52	50	46	43	46	52	55	62	58	56	59	62	63	68	69	75	64	70	69	69	J R 62	59
2	56	55	50	52	50	47	47	50	R 52	60	58	R	66	69	73	71	62	72	70	64	68	68	66	64
3	58	57	50	50	46	49	50	R 46	A	58	A	61	A	A	56	56	60	62	60	66	58	52	50	49
4	57	49	49	49	48	54	48	49	A	50	A	A	58	63	64	A	64	61	58	60	V 67	61	56	F 50
5	46	40	40	F 42	44	52	51	53	62	57	60	57	62	56	60	65	66	65	71	73	71	70	57	56
6	55	57	54	50	46	53	61	56	56	52	R 52	57	62	62	62	57	59	59	62	70	68	70	65	58
7	58	48	52	46	43	44	48	49	V 61	59	56	64	68	70	64	59	61	58	56	66	71	69	64	54
8	51	53	R 50	48	47	56	57	56	52	56	J R 55	56	57	56	61	72	74	75	61	65	50	52	50	52
9	50	44	40	40	34	A	42	R	A	A	R	A	A	A	A	A	A	A	A	A	50	47	43	34
10	R 28	24	24	25	27	R	A	A	R	R	A	J R 53	J R 56	A	R 56	56	58	63	56	64	64	62	54	47
11	41	40	40	40	35	41	42	42	A	A	A	49	A	R	J R 54	54	54	A	45	48	53	53	52	45
12	39	39	40	37	40	50	48	51	A	56	J R 59	R 60	A	A	58	57	57	R 59	54	64	70	64	62	62
13	64	58	49	46	46	50	56	51	54	H 52	58	58	63	63	64	64	63	58	63	71	71	71	65	62
14	62	56	51	J R 48	44	43	R 43	R 52	52	52	58	58	60	62	65	70	72	65	60	56	66	64	66	63
15	60	56	53	44	39	49	53	58	60	64	59	64	65	64	70	67	64	62	70	72	73	72	66	62
16	51	51	48	44	42	39	42	48	48	51	A	A	52	52	53	53	55	53	56	58	60	59	58	59
17	56	52	48	43	38	39	45	E G 39	R 46	R	R	R	R	R	R	48	48	48	46	51	59	58	56	48
18	42	42	43	42	39	50	55	53	56	54	49	54	51	55	55	A	61	62	64	70	70	59	51	50
19	49	46	48	46	49	61	53	52	51	A	A	A	55	53	52	A	A	A	51	55	A	A	62	56
20	53	51	46	41	38	43	49	53	A	A	A	R 50	E G 45	52	55	54	56	A	54	A	56	55	56	S 59
21	54	52	48	42	43	49	J R 49	47	52	55	57	52	A	60	56	A	58	A	72	73	70	A	58	48
22	48	45	44	37	31	39	44	A	A	A	A	A	A	52	51	51	53	49	54	55	62	60	56	53
23	48	49	47	47	42	A	47	49	55	52	A	A	57	53	52	58	64	E G 53	56	63	69	64	66	52
24	54	49	43	39	44	44	52	55	49	A	A	A	A	A	54	55	61	61	59	A	65	65	60	55
25	52	44	46	43	42	47	53	55	A	55	52	52	52	54	54	52	56	60	58	61	66	64	64	58
26	52	50	Y 34	44	44	47	49	51	53	54	57	55	55	54	54	57	60	54	A	54	61	62	64	59
27	58	56	51	50	52	54	51	47	52	52	R	E G 46	A	A	54	54	58	56	56	60	63	60	61	60
28	55	52	52	52	50	61	70	55	A	A	A	A	53	57	61	60	58	57	58	63	62	64	62	58
29	59	54	54	55	55	60	70	60	R 70	A	52	A	63	A	56	A	64	A	A	65	73	68	65	60
30	55	54	50	45	51	47	A	72	62	A	A	61	61	A	65	69	72	70	70	82	66	A	59	A
31	A	50	52	F 46	47	53	51	58	A	A	A	A	58	56	A	A	A	60	56	62	A	A	60	56
	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	31	31	31	31	28	29	28	20	19	15	19	22	21	28	24	28	25	28	28	29	27	31	30
MED	54	51	48	45	44	49	49	52	54	55	57	56	58	56	56	57	60	60	58	64	66	64	60	56
U Q	57	55	51	49	47	53	53	55	58	58	58	60	62	62	64	66	64	64	64	70	70	68	64	59
L Q	49	45	43	42	39	44	46	49	52	52	52	52	55	54	54	54	58	56	56	59	60	59	56	50

IONOSPHERIC DATA STATION Wakkanai

MAY 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 376	412	436		L	L	L	L	472	L	L	L							
2						L	L	L	L	A	L	L	L	A	A	A	A							
3						A	A	A	A	A	A	L	A	A	460	L	420	384	L					
4						L	A	L	A	A	A	A	A	A	A	A	A	L		A				
5						L	L	L	L	452	L	L	L	L	L	L	L	L	L					
6						L	L	L	L	L	L	L	L	L	L	L	400	396	L					
7						L	364	412	L	L	L	L	480	L	456	L	L	L						
8							L	416	L	L	L	464	A	A	L	416	L	372						
9						A	352	364	A	A	U R 420	A	A	A	A	A	A	A	A	A				
10						308	392	A	428	L	A	L	L	A	A	L	L	372	L					
11						L	L	L	A	A	A	L	A	L	A	A		A	L	L				
12						L	L	A	A	A	A	A	A	A	A	L	L	A	A					
13							L	L	448	464		L	464	L	460	436	424	A	L					
14				A		332	392	416	444	452	L	464	L	L	L	432	412		A					
15						L	L	428	444	444	L	476	472	L	A	L	A	A		A				
16				L		U R 308	A	396	A	A	A	R 444	A	456	452	428	A	364	A					
17					216	292	356	388	412	432	436	L	348	440	436	L	408	396	A	A	A			
18						L	L	412	A	448	456	456	452	464	460	A	424	396						
19						L	L	428	L	A	A	A	A	456	A	A	A	A	A	A	A			
20				L	B	332	372	A	A	A	A	L	448	444	444	432	412	A	L	A				
21					L	L	L	428	428	444	A	A	A	464	A	A	A		L					
22				A	244	312	368	A	A	A	A	A	A	L	A	420	400	400	L	2 123				
23						A	400	412	428	444	A	A	L	L	440	A	576	L	A	A	A			
24							388	A 404	A	A	A	A	A	A	452	A	A	A		A				
25						376	392	A	A	A	460	L	452	464	L	444	424	L	A	A				
26					L	U L 344	U L 408	A	A	A	448	460	L	460	L	432	416	A	A					
27							U L 400	404	L	448	456	464	A	A	L	L	A	A	L	A				
28					L	L	L	L	A	A	A 240	A	L	472	468	L	404	392						
29						L		A	A	A	L	A	A	A	A	A	A	A	A					
30							A	A	A	A	A	L	A	A	468	A	A	396	A		A			
31						A	412	A	A	A	A	A	A	L	A	A	A	A	L		A			
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT					2	8	14	14	8	9	7	7	7	10	11	8	12	10		1				
MED					230	322	390	412	432	448	448	464	452	462	456	432	414	394		123				
U Q						338	400	416	444	452	456	464	472	464	460	434	424	396						
L Q						308	368	404	428	444	420	456	448	456	444	424	406	372						

IONOSPHERIC DATA STATION Wakkanai

MAY 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					A	176	232	284	308	332	352	356	356	312	284	304	284	240	184	A				
2					A	200	224	260	300	324	336	328	344	344	320	308	276	240	184	A				
3					172	172	236	276	300	300	332	332	284	A	340	300	280	244	180	A				
4					B	192	216	276	312	U A 336	336	340	340	308	308	264	196	A	196	A				
5					B	196	256	288	304	320	324	340	340	332	332	304	272	204	180	176				
6					A	192	240	284	304	312	312	316	296	316	324	308	292	244	204	U A 220	A			
7				196	224	180	244	272	300	324	324	328	308	332	328	296	284	248	188	A	A			
8				B		184	240	280	308	328	328	328	328	276	284	300	296	248	188	212	200			
9					244	184	232	264	288	308	312	312	280	288	328	304	276	228	184	A	A			
10				196	180	188	240	276	300	320	320	332	352	352	324	308	284	244	196	A				
11				A	A	192	244	264	288	316	304	U R 292	292	320	332	312	280	240	188	A	A			
12				A	176	188	236	284	312	328	328	328	312	312	268	A	288	248	188	A	A			
13				B	A	188	240	296	316	324	344	344	340	352	316	320	268	260	232	220	A			
14				A	B	216	252	284	312	320	352	376	352	352	360	300	A	A	A	A	A			
15				B	B	U R 216	256	296	324	348	380	304	356	U R 364	348	324	316	264	A	A	A			
16				B 156	B	216	244	284	312	320	R 332	340	344	328	316	A	244	268	212	220	A			
17				B	B	196	260	280	312	328	344	356	356	332	332	316	292	260	196	184	A			
18						208	244	288	304	328	344	324	332	308	A	A	A	260	A	232	208			
19				B	B	216	260	288	316	324	344	344	324	A	A	A	A	A	K 232	A	A			
20				A	B	220	236	296	312	320	332	332	A	A	A	A	A	A	A	A	A			
21		148		B	B	232	260	292	320	340	A	352	336	A	A	A	A		208	196	A			
22				A	B	224	244	292	U R 308	B	U R 340	U R 340	B	336	B	296	A	A	204	164	A			
23				A	A	220	256	U R 276	304	324	332	332	R 312	A	A	328	288	252	196	A	A			
24				A	B	208	252	U R 292	320	328	356	B	U R 336	U R 316	A	324	292	248	A	A	A			
25				B	A	192	256	296	308	308	324	336	324	352	352	320	A	A	220	184	A			
26				184	A	204	252	296	U A 304	332	332	A	A	A	240	A	300	264	208	A	A			
27				B	B	196	U R 264	292	U R 300	B	332	332	A	A	336	336	304	248	172	A	216			
28				B	B	228	272	292	324	344	364	B	344	344	304	6 235	316	U R 272	204	A	A			
29				B	B	220	260	292	316	A	360	A	A	A	U R 284	324	308	272	208	204	A			
30	184			B	B	216	276	288	316	336	336	B	344	288	356	316	R 296	280	208	A	A			
31				A	A	224	260	312	320	U R 336	336	U R 316	A	308	A	A	A	A	A	A	A			
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	1	1		4	5	31	31	31	31	28	30	26	25	23	23	23	23	23	25	11	3			
MED	184	148		190	180	200	244	288	308	324	334	332	336	328	324	308	288	248	196	204	208			
U Q				196	234	216	260	292	316	332	344	340	344	344	336	320	296	264	208	220	216			
L Q				170	174	188	240	276	304	320	328	328	312	308	304	300	276	244	186	184	200			

MAY 2016 foE (0.01MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

MAY 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	22	20	22	20	23	J A 23	J A 31	32	39	J A 46	J A 43	48	44	38	34	35	32	J A 49	J A 33	40	54	33	22	38
2	33	22	E B 14	21	G	J A 22	30	39	38	J A 48	38	35	40	45	J A 54	J A 53	J A 65	62	J A 39	42	28	E B 14	J A 22	23
3	22	25	18	E B 14	26	J A 32	J A 49	J A 43	63	J A 60	69	J A 51	86	J A 98	J A 55	36	33	30	26	40	37	J A 84	43	42
4	22	25	27	29	23	23	J A 44	34	42	48	48	J A 59	62	64	63	J A 77	J A 50	J A 37	J A 26	50	26	J A 27	22	20
5	20	E B 14	23	19	E B 14	21	30	30	34	35	36	36	37	37	36	43	36	42	24	25	25	J A 20	33	34
6	27	25	25	21	23	20	28	33	J A 31	35	36	38	34	35	G 28	34	G	28	G 20	29	20	34	E B 14	E B 14
7	E B 14	24	22	J A 23	G	J A 24	28	32	39	37	37	39	J A 43	G 32	J A 28	34	32	32	25	J A 25	J A 19	E B 14	23	E B 14
8	E B 14	E B 14	E B 14	E B 14	E B 14	J A 22	30	34	36	37	42	40	40	40	37	G	G	29	25	30	29	25	E B 14	E B 14
9	22	29	40	J A 39	34	J A 45	32	36	43	48	G	J A 49	76	48	52	J A 69	J A 65	J A 88	72	101	88	44	J A 23	20
10	23	34	23	30	29	28	J A 50	74	39	43	71	41	41	72	48	G 29	34	34	J A 34	J A 45	J A 37	32	28	30
11	J A 28	J A 30	J A 33	29	26	23	30	38	J A 55	J A 46	J A 79	36	J A 57	36	J A 47	J A 51	J A 43	J A 104	26	J A 27	27	33	38	40
12	32	22	22	24	30	23	33	43	62	J A 51	J A 67	J A 62	J A 65	J A 111	J A 40	J A 45	36	66	72	J A 39	72	60	40	49
13	J A 42	24	20	E B 14	28	24	30	38	J A 43	J A 46	J A 41	J A 49	J A 44	G 36	G 28	38	J A 31	J A 51	26	29	J A 32	J A 42	J A 32	J A 29
14	J A 19	23	J A 22	J A 25	E B 15	25	30	39	J A 44	37	J A 41	J A 86	42	47	40	40	J A 109	J A 64	44	43	44	J A 41	E B 15	25
15	30	E B 15	E B 15	E B 16	E B 18	G 20	31	33	39	40	40	35	38	G 33	43	40	J A 55	J A 49	56	45	J A 110	J A 49	J A 47	J A 48
16	J A 45	38	22	E B 16	25	28	36	36	J A 45	J A 49	J A 48	J A 101	J A 49	G 36	J A 39	J A 40	J A 50	J A 33	33	27	24	18	23	24
17	34	24	25	E B 15	E B 15	G	31	34	34	40	42	G 38	G	J A 55	G	G 34	34	J A 39	J A 38	J A 34	J A 27	24	E B 15	J A 26
18	J A 21	23	22	E B 20	E B 17	29	29	37	44	J A 44	43	39	39	J A 49	J A 40	J A 87	J A 31	38	J A 38	34	J A 35	36	29	E B 15
19	25	J A 32	E B 15	E B 16	E B 16	G	28	32	J A 48	J A 53	J A 51	J A 52	J A 48	47	62	J A 69	J A 74	J A 89	J A 48	80	J A 169	J A 138	J A 125	28
20	40	28	24	J A 32	E B 22	J A 26	34	J A 53	J A 65	78	J A 63	J A 43	J A 38	35	J A 46	J A 41	39	J A 73	40	61	J A 35	40	34	29
21	29	24	J A 32	E B 14	E B 16	G	29	34	40	43	J A 52	J A 53	J A 75	53	J A 63	J A 109	95	J A 83	25	27	35	64	46	40
22	31	27	34	39	E B 19	G 20	29	J A 76	43	47	74	50	J A 50	42	J A 47	40	39	35	24	G	J A 26	40	E B 16	E B 15
23	E B 16	E B 16	28	26	J A 35	J A 53	35	38	40	40	59	71	40	41	54	51	49	E B 15	J A 45	J A 27	J A 19	31	29	40
24	33	26	24	24	E B 17	26	36	42	46	62	60	115	103	J A 106	54	J A 61	57	57	72	76	34	43	E B 16	24
25	E B 14	E B 15	34	24	J A 52	26	J A 37	J A 47	96	J A 52	38	39	J A 49	42	43	40	67	J A 30	J A 48	J A 30	J A 29	49	41	J A 41
26	36	24	23	22	25	27	34	48	46	44	42	J A 41	J A 46	38	J A 39	43	39	40	95	39	J A 22	24	24	E B 16
27	E B 15	23	28	E B 15	E B 16	27	32	J A 37	39	37	40	J A 53	J A 84	J A 56	39	39	J A 66	J A 88	J A 29	J A 52	J A 39	J A 84	51	26
28	40	24	23	E B 14	E B 16	24	29	J A 37	J A 53	J A 83	J A 51	62	42	39	36	G 42	33	39	J A 45	J A 31	J A 33	38	27	E B 14
29	E B 15	27	24	E B 16	E B 16	28	37	J A 64	J A 83	J A 119	G	J A 120	J A 89	72	J A 48	127	77	95	101	J A 126	77	56	J A 99	36
30	27	23	25	E B 17	E B 17	28	68	J A 83	J A 65	J A 69	85	J A 41	58	J A 68	J A 49	J A 64	J A 66	J A 54	J A 57	J A 75	76	93	J A 52	J A 65
31	74	J A 55	J A 40	J A 47	J A 35	44	36	J A 56	87	J A 113	71	65	73	56	J A 121	106	J A 108	J A 89	J A 27	J A 37	78	93	116	23
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31
MED	27	24	23	21	G	24	31	38	43	46	43	49	46	45	43	G	43	J A 49	38	39	34	40	29	26
U Q	33	27	28	26	26	28	36	J A 47	55	J A 53	63	62	65	J A 56	54	J A 64	J A 66	J A 73	48	50	54	56	43	40
L Q	E B 20	E B 22	22	E B 16	E B 16	G 22	30	34	39	40	40	39	40	37	37	39	33	34	26	29	26	27	E B 22	E B 20

MAY 2016 foEs (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

MAY 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 14	E B 14	E B 14	E B 14	E B 14	20	28	31	36	40	40	44	41	36	33	34	30	48	32	22	24	17	E B 14	E B 14
2	E B 14	E B 14	E B 14	14	G	G 19	23	33	34	A 45	36	34	38	A	E A 46	47	51	49	29	25	17	E B 14	E B 14	E B 14
3	E B 14	E B 14	E B 14	E B 14	19	E A 30	E A 44	E A 39	A A 63	A	A A 69	40	A A 86	A A 98	G 33	33	31	28	24	29	24	22	22	E B 14
4	E B 14	E B 14	E B 14	14	E B 14	20	42	32	A A 42	46	A A 48	A A 59	E A 53	53	57	A A 77	47	36	24	40	E B 14	18	E B 14	14
5	14	E B 14	E B 14	Q 14	E B 14	20	G 26	G 28	33	33	34	35	35	35	34	E A 39	32	36	21	G 16	16	17	18	16
6	E B 14	E B 14	E B 14	E B 14	E B 14	G 18	26	30	G 27	32	35	35	32	33	G 27	31	G	26	G 17	G 20	E B 14	22	E B 14	E B 14
7	E B 14	E B 14	E B 14	E B 14	G	21	27	31	37	35	37	36	40	G 29	G 24	32	30	31	24	E B 14	E B 14	E B 14	E B 14	E B 14
8	E B 14	E B 14	E B 14	E B 14	E B 14	G 17	28	32	34	36	39	38	A	A	35	G	G	27	22	G 17	20	14	E B 14	E B 14
9	14	E B 14	28	E A 27	G 22	A A 45	30	33	A A 43	A A 48	G	A A 49	A A 76	A A 48	A A 52	A A 69	A A 65	A A 88	A A 72	A A 101	29	29	E B 14	14
10	E B 14	E A 18	E B 14	E B 14	E A 18	26	30	A A 74	36	40	A A 71	39	40	A A 72	35	G 28	34	30	30	31	33	E B 14	E B 14	16
11	E B 14	20	20	20	E B 15	20	27	31	A A 55	A A 46	A A 79	34	A A 57	34	44	48	43	A A 104	24	20	17	24	17	E B 14
12	20	E B 14	E B 14	E B 14	G 16	20	29	42	A A 62	44	A	A	53	A A 111	A	34	34	E A 57	E A 32	21	41	42	24	27
13	30	E B 14	E B 14	E B 14	24	23	28	35	40	43	40	41	41	G 35	G 27	34	30	46	G 23	G 19	24	23	24	26
14	18	14	20	17	E B 15	23	28	35	40	36	40	G 38	40	40	37	35	36	44	25	27	25	27	E B 15	16
15	22	E B 15	E B 15	E B 16	E B 18	G 18	28	32	39	38	G 37	33	G 36	G 30	A	38	48	39	42	22	25	25	37	18
16	E B 194	22	E B 15	E B 16	E B 16	27	A	33	41	45	A A 48	40	E A 48	G 36	32	32	E A 47	31	30	G 20	E B 14	E B 14	E B 16	E B 16
17	17	E B 15	23	E B 15	E B 15	G	26	32	32	36	39	G 37	G	37	G	G 32	32	32	33	E A 25	25	16	E B 15	20
18	17	E B 18	E B 15	E B 20	E B 17	23	26	34	E A 43	40	40	38	36	39	36	A A 87	29	28	30	24	21	23	18	E B 15
19	E B 15	23	E B 15	E B 16	E B 16	G	27	30	44	A A 53	A A 51	A A 52	45	37	45	A	A A 74	A A 89	37	50	A A 169	A A 138	16	18
20	35	18	22	17	E B 22	24	29	40	A A 65	A A 78	A A 63	42	37	33	36	33	31	A A 73	28	A A 61	22	22	21	E B 15
21	20	16	16	E B 14	E B 16	G	28	31	37	38	46	45	A A 75	43	44	A A 109	42	A A 83	22	G 19	22	A A 64	30	30
22	21	17	27	23	E B 19	G 17	28	A A 76	A A 43	A A 47	A A 74	A A 50	A A 50	38	E A 41	36	32	31	22	G	22	26	E B 16	E B 15
23	E B 16	E B 16	28	18	E A 29	A A 53	32	36	37	38	A A 59	A A 71	38	36	37	44	46	E B 15	43	22	16	21	22	37
24	21	15	15	E B 16	E B 17	22	34	39	45	A A 62	A A 60	A A 115	A A 103	A A 106	35	44	E A 44	35	32	A A 76	17	27	E B 16	E B 16
25	E B 14	E B 15	18	12	16	22	33	44	A A 96	44	37	37	37	37	38	35	32	28	41	26	26	20	21	30
26	20	16	E B 16	G 16	16	24	32	46	43	42	38	36	A 42	36	34	32	34	37	A A 95	28	18	16	16	E B 16
27	E B 15	16	18	E B 15	E B 16	24	29	31	35	35	37	39	A A 84	A A 56	35	37	48	39	23	48	29	17	17	17
28	20	15	E B 15	E B 14	E B 16	G 22	28	33	A A 53	A A 83	42	A A 62	39	39	33	E A 40	G 31	32	36	25	16	17	15	E B 14
29	E B 15	E B 14	16	E B 16	E B 16	25	34	51	53	A A 119	G	A A 120	48	A A 72	A A 42	A A 127	42	A A 95	A A 101	G 18	28	50	20	29
30	19	16	16	E B 17	E B 17	26	A A 68	49	51	A A 69	A A 85	40	46	A A 68	A	A	48	E A 36	36	33	E A 59	A A 93	A 47	A A 65
31	A A 74	29	22	30	30	32	32	E A 48	A A 87	A A 113	A A 71	A A 65	E A 52	44	A A 121	A A 106	A A 108	47	25	22	A A 78	A A 93	18	16
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	31	30	31	31	30	30	30	30	29	28	29	31	31	31	31	31	31	31	31
MED	16	E B 15	E B 15	E B 15	E B 16	E G 22	28	33	42	44	40	40	41	38	36	36	34	36	30	23	22	22	16	16
U Q	20	17	20	17	19	25	32	42	A A 53	A A 48	A A 60	A A 50	A A 53	A A 54	43	A A 48	47	A A 49	36	31	28	27	21	20
L Q	E B 14	E B 14	E B 14	E B 14	E B 15	G 20	27	31	36	38	37	37	38	36	G 33	32	31	31	24	G 20	17	17	E B 14	E B 14

MAY 2016 fbEs (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

MAY 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	14	14	14	14	14	14	12	13	13	14	15	14	13	14	13	12	13	13	14	13	14	14	14	14
2	14	14	14	14	14	14	12	12	13	12	11	16	10	15	14	12	13	13	14	14	14	14	14	14
3	14	14	14	14	14	14	14	13	12	14	14	14	14	14	14	14	13	12	12	13	14	14	14	14
4	14	14	14	13	14	14	12	13	16	16	15	19	14	14	13	14	12	13	12	12	14	14	13	14
5	14	14	14	14	14	13	13	12	12	14	15	14	18	15	16	14	12	13	12	13	13	14	14	13
6	14	14	14	14	14	14	13	14	12	14	14	14	15	14	15	13	12	12	12	13	14	14	14	14
7	14	14	14	14	14	14	11	14	14	14	12	15	12	14	12	15	12	13	12	14	14	14	14	14
8	14	14	14	14	14	14	14	14	14	15	12	13	16	14	15	14	11	13	14	13	12	14	14	14
9	14	14	14	14	14	14	14	14	12	14	14	13	14	14	15	14	14	14	14	12	14	14	14	14
10	14	14	14	14	15	14	14	14	14	14	14	14	14	14	14	15	14	14	14	14	14	14	14	14
11	14	14	14	14	15	14	14	14	16	15	15	14	14	14	16	16	13	14	13	13	14	14	14	14
12	14	14	14	14	12	13	13	14	14	14	18	21	19	19	16	12	15	14	14	14	14	14	14	14
13	14	14	14	14	14	12	12	12	22	26	23	22	24	21	21	21	20	17	10	14	16	16	15	12
14	15	14	14	16	15	16	14	17	19	18	22	28	24	24	23	22	20	15	15	9	16	16	15	16
15	14	15	15	16	18	14	15	20	18	22	22	16	25	25	26	21	22	16	16	14	16	15	15	15
16	194	12	16	16	16	14	16	17	20	21	23	28	24	24	26	23	15	16	14	10	14	15	16	15
17	15	15	13	15	15	15	11	16	16	21	21	24	22	24	21	22	19	16	14	12	14	12	15	15
18	11	18	15	20	17	14	11	16	16	18	16	22	23	16	20	21	16	10	14	15	16	14	14	15
19	15	15	15	16	16	16	15	15	23	21	23	22	27	24	22	22	17	12	14	16	11	15	16	15
20	9	16	16	15	22	16	19	20	22	21	24	23	24	24	23	22	17	15	14	15	16	16	14	14
21	16	15	15	14	16	12	14	16	16	22	34	28	26	31	22	26	22	15	16	10	10	16	16	11
22	12	14	16	13	19	14	20	18	20	33	22	28	34	20	34	20	19	16	16	10	14	13	16	15
23	16	16	11	15	15	15	15	15	20	19	19	20	20	21	24	21	16	15	16	16	12	14	14	12
24	13	13	13	16	17	16	16	17	15	18	21	34	18	20	21	30	20	16	17	15	17	16	16	16
25	14	15	16	12	15	15	15	15	16	18	21	21	21	30	30	16	15	15	14	11	13	15	15	15
26	14	14	14	15	10	12	15	15	15	18	19	32	20	29	18	16	16	17	12	11	9	14	14	16
27	15	15	16	15	16	15	14	15	15	32	30	29	30	29	20	20	20	14	14	11	15	15	12	16
28	10	14	14	14	16	15	19	16	19	21	32	34	25	23	18	18	21	16	14	13	14	14	14	14
29	15	14	15	16	16	16	16	20	20	20	24	28	28	20	20	20	19	16	12	14	14	16	16	14
30	14	16	14	17	17	12	18	16	21	21	20	33	22	23	30	23	18	20	14	12	11	15	15	14
31	16	16	15	14	14	16	14	20	20	20	21	22	22	23	22	20	17	14	15	16	15	16	16	16
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31
MED	14	14	14	14	15	14	14	15	16	18	20	22	21	20	20	20	16	14	14	13	14	14	14	14
U Q	15	15	15	16	16	15	15	17	20	21	23	28	24	24	23	22	19	16	14	14	15	15	15	15
L Q	14	14	14	14	14	14	13	14	14	14	15	14	14	14	15	14	13	13	12	12	13	14	14	14

MAY 2016 fmin (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

MAY 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	297	287	303	290	296	318	302	319	300	303	326	310	313	330	307	320	315	338	307	308	304	301	R	292
2	287	274	278	283	319	320	337	280	R 295	285	295	R	298	302	311	331	308	315	325	295	284	284	288	295
3	290	294	295	277	299	309	325	R 313	A	249	A	310	A	A	276	309	313	318	331	314	318	298	285	263
4	277	289	293	312	320	349	332	297	A	276	A	A	308	317	314	A	323	330	330	286	V 310	311	295	F 278
5	267	288	289	F 290	299	339	337	321	352	327	331	293	319	315	294	310	315	315	316	334	328	321	283	283
6	285	296	299	322	290	315	347	304	355	303	R 260	316	307	299	334	311	325	310	305	308	294	307	310	292
7	282	307	286	292	297	260	300	295	V 323	337	316	310	303	329	329	315	318	322	324	301	297	308	287	309
8	300	283	R 286	264	284	336	330	320	291	302	J R 290	296	301	279	265	304	274	309	308	314	269	271	260	280
9	284	286	279	219	262	A	301	R	A	A	R	A	A	A	A	A	A	A	A	A	282	269	336	297
10	R 205	265	265	286	269	R	A	A	R	R	A	R	J R 354	A	R 294	302	310	317	292	305	307	301	305	285
11	277	283	290	294	298	305	302	303	A	A	A	292	A	R	R	301	319	A	328	305	305	305	312	295
12	305	306	300	295	346	322	355	338	A	320	R	R 321	A	A	318	318	334	R 217	217	298	310	301	281	281
13	262	285	291	293	308	311	356	340	337	H 306	315	294	309	312	317	326	323	313	304	298	297	304	292	301
14	296	297	290	J R 318	317	311	R 294	R 329	310	326	316	285	319	300	281	309	322	315	324	297	278	280	294	298
15	309	306	303	291	308	338	319	320	348	311	293	309	304	291	324	321	303	309	302	303	280	295	293	277
16	309	284	291	291	311	270	246	291	248	305	A	A	281	275	283	294	299	299	313	303	293	294	275	280
17	290	285	287	286	278	269	282	G	R 286	R	R	R	R	R	R	271	286	297	280	290	314	287	321	316
18	301	290	299	295	314	313	320	288	310	314	247	300	253	278	276	A	304	303	310	305	312	298	275	282
19	288	294	286	294	349	352	354	303	340	A	A	A	287	289	288	A	A	A	324	225	A	A	294	292
20	297	290	321	309	286	286	299	320	A	A	A	R 289	G	293	290	294	319	A	307	A	274	287	296	S 286
21	312	316	324	305	296	320	R	274	296	316	331	286	A	306	299	A	323	A	293	301	313	A	301	289
22	305	281	325	309	298	271	302	A	A	A	A	A	A	296	302	300	313	290	314	302	298	307	292	300
23	304	309	280	286	283	A	285	299	343	311	A	A	317	318	288	319	210	G	305	305	316	319	291	300
24	306	322	306	324	329	349	300	336	342	A	A	A	A	A	287	324	325	317	313	A	308	304	326	300
25	305	306	286	304	296	294	310	334	A	321	306	331	317	307	307	292	318	321	328	304	298	278	310	319
26	293	295	Y	316	318	329	340	340	330	320	343	313	313	305	279	303	323	330	A	309	304	301	305	310
27	303	312	323	303	309	307	288	276	307	337	R	G	A	A	290	326	309	315	315	303	305	289	285	306
28	289	285	283	306	286	310	342	351	A	A	R	A	237	282	309	309	310	310	297	307	279	300	292	300
29	296	301	299	289	319	284	317	256	R 230	A	286	A	311	A	291	A	319	A	A	302	306	294	308	312
30	307	312	299	294	309	285	A	317	351	A	A	306	305	A	287	307	304	306	307	319	319	A	277	A
31	A	282	281	F 270	264	321	294	369	A	A	A	A	293	288	A	A	A	307	315	315	A	A	310	296
	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	31	30	31	31	28	28	28	20	19	14	18	22	21	27	24	28	25	28	28	29	27	30	30
MED	296	290	291	294	299	312	314	315	316	311	310	303	306	300	294	309	315	313	312	304	304	300	294	295
U Q	305	306	300	306	317	326	337	332	342	321	326	310	313	314	311	320	322	318	324	308	311	305	308	300
L Q	285	285	286	286	286	290	300	293	296	303	290	292	293	288	287	302	306	304	304	300	288	287	285	283

MAY 2016 M(3000)F2 (0.01)

IONOSPHERIC DATA STATION Wakkanai

MAY 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	352	344	357	L	L	L	L	361	L	L	L							
2						L	L	L	L	A	L	L	L	A	A	A	A							
3						A	A	A	A	A	A	L	A	A	353	L	351	351	L					
4						L	A	L	A	A	A	A	A	A	A	A	A	L		A				
5						L	L	L	L	399	L	L	L	L	L	L	L	L	L					
6						L	L	L	L	L	L	L	L	L	L	L	367	344	L					
7						L	352	360	L	L	L	L	350	L	349	L	L	L						
8							L	354	L	L	L	371	A	A	L	344	L	347						
9						A	323	346	A	A	U R 428	A	A	A	A	A	A	A	A	A				
10						329	345	A	379	L	A	L	L	A	A	L	L	359	L					
11						L	L	L	A	A	A	L	A	L	A	A		A	L	L				
12						L	L	A	A	A	A	A	A	A	A	L	L	A	A					
13							L	L	385	A 363	L	L	366	L	371	371	351	A	L					
14				A		348	357	340	362	391	L	384	L	L	L	362	349		A					
15						L	L	351	368	368	L	386	389	L	A	L	A	A		A				
16				L		U R 326	A	371	A	A	A	R 388	A	371	359	379	A	381	A					
17					309	361	365	390	345	371	388	L	500	368	373	L	352	341	A	A	A			
18						L	L	359	A	362	393	393	397	349	352	A	342	357						
19						L	L	354	L	A	A	A	A	342	A	A	A	A	A	A	A			
20				L	B	342	361	A	A	A	A	L	400	393	373	356	353	A	L	A				
21					L	L	L	338	368	383	A	A	A	337	A	A	A		L					
22				A	328	347	352	A	A	A	A	A	A	L	A	374	389	343	L	A				
23						A	348	365	404	390	A	A	L	L	374	A	323	L	A	A	A			
24							345	A 361	A	A	A	A	A	A	351	A	A	A		A				
25						340	345	A	A	A	373	L	380	361	L	346	361	L	A	A				
26					L	U L 372	U L 359	A	A	A	391	395	L	369	L	378	360	A	A					
27							U L 352	364	L	372	397	390	A	A	L	L	A	A	L	A				
28					L	L	L	L	A	A	A	A	L	370	373	L	383	341						
29						L		A	A	A	A	L	A	A	A	A	A	A	A					
30							A	A	A	A	A	L	A	A	A	A	A	348	A		A			
31						A	333	A	A	A	A	A	A	L	A	A	A	A	L		A			
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT					2	8	14	14	8	9	6	7	7	10	10	8	12	10						
MED					318	344	352	356	368	372	392	388	389	364	365	366	352	348						
U Q						354	357	364	382	390	397	393	400	370	373	376	364	357						
L Q						334	345	346	360	366	388	384	366	349	352	351	350	343						

IONOSPHERIC DATA STATION Wakkanai

MAY 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						280	350	326	332	332	314	348	344	310	332	296	300							
2						282	288	426	366	344	324	R	374	320	298	278	A 316							
3						302	A	A 320	A	E A 512	A	342	A	A	386	344	316	290	268					
4						256	310	350	A	A 428	A	A	E A 354	312	324	A	306	276		284				
5						268	268	336	272	322	322	372	332	344	364	324	300	296	296					
6						284	260	322	284	364	466	380	346	350	292	340	304	310	284					
7						432	354	342	306	280	334	344	332	296	302	302	306	278						
8							296	322	378	362	376	376	358	396	434	312	364	288						
9						A	368	R	A	A	R	A	A	A	A	A	A	A	A	A				
10						374	A 396	A	A	396	A	364	340	A	A	346	326	292	284					
11						328	362	346	A	A	A	412	A	R	328	A		A	276	286				
12						248	256	308	A	E A 348	E A 318	E A 312	A	A	328	328	300	A	A					
13							246	292	276	296	328	372	324	324	310	290	290	A	294				270	
14				260		328	404	288	352	314	314	418	320	340	366	294	284		232					
15						280	338	298	274	320	374	350	322	360	296	292	282	282		248				
16				270		440	528	362	E A 466	356	A	A	E A 426	422	406	372	330	280	280					
17					336	440	406	G	430	R	R	R	R	R	R	438	410	346	A 306	288	262			
18						292	296	362	322	326	560	382	518	428	420	A	310	310						
19						238	272	342	294	A	A	A	376	378	378	A	A	A	266	E A 606	A			
20				280	310	356	340	310	A	A	A	414	G	398	376	358	318	A	290	A				
21					296	266	324	418	364	326	302	426	A	346	354	A	304		312					
22				240	338	424	354	A	A	A	A	A	A	388	364	372	326	376	298	266				
23						A	410	360	282	336	A	A	328	382	382	314	522	G	A 306	264	A			
24							342	290	286	A	A	A	A	A	372	320	296	288		A				
25						338	324	A	A	296	368	302	350	358	380	382	304	286	268	268				
26					268	274	262	290	316	336	300	340	316	352	394	344	296	278	A					
27							312	392	352	310	R	G	A	A	378	320	330	300	284	296				
28					296	296	262	254	A	A	A	A	488	380	330	314	310	314						
29						348		452	306	A	384	A	318	A	380	A	302	A	A					
30							A	256	248	A	A	324	324	A	374	326	300	274	252		A 310			
31						248	340	250	A	A	A	A	366	386	A	A	A	304	276		A			
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT				4	6	24	28	27	20	20	15	19	22	21	27	23	27	20	18	9	2		1	
MED				265	303	294	331	326	308	330	328	372	340	358	366	324	306	291	284	276	286		270	
U Q				275	336	352	358	362	358	359	376	412	374	387	380	346	326	310	296	292				
L Q				250	296	271	280	292	283	317	314	342	324	332	328	302	300	281	268	265				

MAY 2016 h'F2 (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

MAY 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	286	290	282	268	270	226	226	220	226	240	208	220	228	206	214	206	208	260	260	270	236	264	264	264
2	284	320	300	290	248	238	214	238	202	A	202	212	312	A	A	A	A	272	240	254	272	274	268	268
3	260	290	250	270	256	A	A	A	A	A	A	232	A	A	204	222	222	232	250	250	228	250	274	306
4	Q 274	Q 288	288	252	262	232	A	214	A	A	A	A	A	A	A	A	A	A	264	A	262	244	244	Q 268
5	294	Q 296	Q 296	Q 280	274	226	206	202	202	202	184	202	190	194	200	A	232	226	230	256	242	242	266	288
6	296	276	254	262	312	214	230	204	210	190	190	194	194	200	H 192	228	200	226	238	256	276	268	268	280
7	288	280	298	270	306	230	226	210	226	200	200	192	A	204	188	202	202	230	280	274	268	254	254	254
8	Q 254	Q 270	Q 278	Q 286	286	230	224	212	212	198	E A 238	202	A	A	206	E A 206	210	244	254	254	262	318	318	318
9	264	302	A	A	372	A	302	278	A	A	198	A	A	A	A	A	A	A	A	A	316	A	228	238
10	312	A	312	330	342	268	A 244	A	A 214	234	A	202	A	A	A	208	198	256	246	260	260	256	250	272
11	288	294	292	270	308	240	240	234	A	A	A	196	A	208	A	A	282	A	220	250	286	274	260	234
12	274	280	262	262	226	212	212	A	A	A	A	A	A	A	A	206	204	A	A	248	262	288	288	246
13	288	252	262	254	244	224	224	224	220	E A 276	198	200	216	H 202	H 204	204	H 236	A	E A 236	252	246	246	A	254
14	240	254	E A 278	A	256	222	222	232	250	208	202	202	202	A	238	200	E A 274	274	A	254	276	292	256	256
15	248	244	220	244	278	218	218	212	230	236	204	194	194	E A 206	A	238	A	A	264	A	250	272	E A 276	258
16	260	270	264	246	278	E A 294	A	A 218	A	A	A	230	A	230	208	194	A	220	A	252	252	270	270	286
17	278	266	282	294	E B 294	242	218	206	230	230	214	200	200	208	218	218	228	228	A	A	A	268	230	250
18	272	276	284	274	274	246	228	228	A	228	198	198	194	238	204	A	220	218	262	234	232	232	286	266
19	274	310	260	268	244	E A 226	206	204	222	A	A	A	A	E A 232	A	A	A	A	A	A	A	A	256	258
20	E A 298	A 228	250	246	B	240	218	A	A	A	A	E A 286	200	194	204	222	222	A	E A 250	A	292	Q 284	280	274
21	266	262	234	232	246	226	214	214	240	222	A	A	A	A 314	A	A	A	A	230	250	244	A	262	300
22	258	294	258	A	E B 266	236	204	A	A	A	A	A	A	204	A	226	206	226	244	A	266	258	E B 240	240
23	266	238	282	266	316	A	216	224	E A 214	224	A	A	A 228	190	216	A	A 288	E A 274	A	A	A	248	256	262
24	244	230	270	262	274	216	246	246	A	A	A	A	A	A	200	A	A	A	248	A	246	260	246	Q 264
25	236	270	270	232	232	224	224	A	A	A	194	194	226	218	A	A 234	200	206	A	A	266	266	260	260
26	268	268	246	262	228	222	222	A	A	A	208	196	A	196	196	196	226	A	A	250	258	266	260	250
27	242	252	252	264	264	236	206	206	A	196	196	190	A	A	190	226	A	A	A	A	240	264	280	260
28	282	282	262	262	232	232	208	208	A	A	A	A	228	192	204	A	204	240	286	242	266	272	272	252
29	242	276	270	288	268	220	252	A	A	A	202	A	A	A	A	A	A	A	A	244	238	E A 302	262	262
30	262	262	268	290	256	226	A	A	A	A	A	226	A	A	A	A	A	A	A	244	A	A	A 336	A
31	A	A 312	312	306	290	A	232	A	A	A	A	A	A	222	A	A	A	A	214	254	A	A	258	266
	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	28	30	27	27	21	14	14	16	20	13	19	17	17	19	16	19	20	26	26	30	30
MED	268	276	270	267	268	226	222	214	221	219	200	200	202	205	204	208	215	230	247	252	261	266	262	262
U Q	286	290	284	283	290	238	230	230	230	234	206	216	228	222	211	226	232	258	262	255	268	274	274	272
L Q	258	262	258	258	248	222	214	207	212	200	197	195	194	196	198	203	204	226	236	249	244	254	256	254

MAY 2016 h'F (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

MAY 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					A	122	112	118	110	106	110	112	108	104	104	116	118	108	108	A				
2					134	128	104	108	108	108	108	108	108	108	108	108	106	106	112	A				
3					130	130	112	106	100	102	102	102	102	A	102	102	102	108	118	A				
4					B	116	116	116	116	114	120	116	108	104	110	108	108	A	110	A				
5					B	126	118	116	112	108	108	108	108	108	108	108	108	108	116	118				
6					A	126	114	114	120	108	108	108	110	112	112	112	112	118	116	112	A			
7				104	E B 148	116	116	116	110	108	108	108	108	108	108	110	106	112	112	A	A			
8				B		120	118	116	116	108	108	108	108	104	104	104	112	112	124	110	110			
9					128	114	120	114	102	110	96	108	108	108	110	110	110	120	120	A	A			
10				118	118	108	116	116	112	112	104	104	104	104	104	118	122	114	128	A				
11				A	A	128	128	114	114	108	108	108	108	108	108	108	116	116	116	A	A			
12				A	120	120	106	114	114	108	108	108	108	108	102	A	116	116	116	A	A			
13				B	A	106	106	106	118	120	110	112	116	114	114	116	116	116	110	120	A			
14				A	B	124	118	118	118	114	114	114	114	114	106	118	A	A	A	A	A			
15				B	B	124	116	116	112	114	114	110	118	118	118	124	124	118	A	A	A			
16				B	B	118	118	102	112	114	114	114	114	114	114	A	108	110	114	116	A			
17				B	B	114	114	114	114	114	114	104	110	110	116	116	116	116	116	106	A			
18						122	114	114	110	110	98	112	106	104	A	A	A	104	A	104	104			
19				B	B	114	112	112	112	112	112	112	100	A	A	A	94	A	98	A	A			
20				A	B	136	124	120	120	120	120	106	A	A	A	A	A	A	A	A	A			
21				B	B	128	116	116	110	110	A	110	110	A 110	A	A	A		114	116	A			
22				A	B	116	108	108	110	B	110	120	B	118	B	118	A	A	114	122	A			
23				A	A	126	126	116	112	112	112	108	108	A	A	108	112	112	112	A	A			
24				A	B	122	122	108	108	108	108	B	112	112	120	120	120	118	A	A	A			
25				B	A	118	118	118	116	108	108	108	108	108	108	102	A	A	110	110	A			
26				106	A	96	106	110	110	114	114	A	A	A	100	A	106	106	114	A	A			
27				B	B	118	118	118	118	B	118	104	A	A	104	104	114	114	108	A	120			
28				B	B	124	124	120	120	114	114	B	114	112	112	A	112	112	116	A	A			
29				B	B	126	108	108	108	A	108	A	A	A	108	112	112	112	112	132	A			
30	96			B	B	118	118	114	114	114	114	B	100	100	108	108	108	118	118	A	A			
31				A	A	118	118	118	112	112	104	104	A	100	A	A	A	A	A	A	A			
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	1			3	6	31	31	31	31	28	30	26	25	24	24	22	24	23	25	11	3			
MED	96			106	126	120	116	114	112	111	109	108	108	108	108	110	112	112	114	116	110			
U Q				118	134	126	118	116	116	114	114	112	111	112	112	116	116	116	116	120	120			
L Q				104	120	116	112	110	110	108	108	108	108	104	104	108	108	108	111	110	104			

MAY 2016 h'E (KM)

IONOSPHERIC DATA STATION Wakkanai

MAY 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	96	96	96	96	96	120	120	130	126	120	122	120	118	116	112	170	162	122	122	122	114	108	108	106
2	116	116	B	124	G	124	124	128	124	112	106	108	108	118	118	118	118	112	112	112	112	B	102	102
3	106	112	156	B	130	120	120	114	110	108	108	108	100	100	108	142	132	120	120	112	112	120	104	104
4	102	104	104	128	138	122	116	124	124	114	112	108	108	100	104	104	100	100	110	110	120	108	108	112
5	112	B	112	102	B	138	126	126	122	122	102	108	112	112	112	104	104	104	118	122	112	104	100	106
6	106	98	98	96	100	120	120	120	106	120	100	106	116	128	98	112	G	150	118	112	98	106	B	B
7	B	102	102	106	G	144	134	128	120	112	114	102	104	102	100	100	142	124	116	96	112	B	112	B
8	B	B	B	B	B	150	128	128	128	122	114	114	104	104	104	G	G	126	116	114	114	114	B	B
9	132	124	122	122	124	118	114	114	114	114	G	114	110	108	124	120	120	114	120	116	116	116	130	150
10	130	130	130	112	124	124	120	116	126	124	110	110	126	114	124	108	108	130	124	118	108	118	108	102
11	126	100	100	100	100	118	122	122	116	116	108	108	108	120	120	118	118	116	122	122	122	108	108	102
12	102	96	96	104	96	130	124	122	110	112	106	106	106	106	100	100	120	120	118	118	118	108	108	108
13	108	102	102	B	124	126	126	120	112	112	112	108	108	116	102	108	114	118	132	114	104	104	100	100
14	106	106	100	104	B	120	120	120	108	118	126	114	114	114	102	106	104	104	94	104	104	110	B	102
15	104	B	B	B	B	116	130	122	118	122	118	102	102	108	110	116	116	116	102	106	124	110	98	112
16	106	98	100	B	134	118	112	118	116	108	108	102	104	108	106	106	104	106	110	118	118	134	108	108
17	108	106	106	B	B	G	122	122	122	112	112	106	G	106	G	146	136	118	116	116	104	104	B	104
18	104	104	104	B	B	138	138	118	112	118	114	110	110	106	98	92	92	92	92	90	92	104	104	B
19	104	104	B	B	B	G	140	140	116	108	112	102	102	106	106	106	96	102	114	114	118	112	112	102
20	102	102	102	96	B	122	122	114	100	100	100	100	102	102	102	94	96	96	100	106	118	102	102	102
21	98	98	102	B	B	G	140	130	112	116	116	108	108	104	104	114	118	110	122	116	116	104	106	106
22	102	106	106	96	B	102	132	116	112	112	106	106	114	114	106	106	106	112	122	G	112	112	B	B
23	B	B	112	112	118	116	118	118	118	118	100	100	100	100	116	116	116	B	112	112	112	112	104	104
24	104	104	104	104	B	132	124	118	112	106	106	106	96	96	116	116	118	106	106	110	118	108	B	108
25	B	B	102	106	120	120	114	102	102	104	104	100	106	122	122	114	114	88	104	112	112	112	104	104
26	104	104	104	94	94	134	120	114	112	112	112	102	102	102	98	98	114	110	110	110	110	110	110	B
27	B	98	88	B	B	136	124	118	118	118	112	126	106	106	162	120	114	114	112	112	112	112	112	102
28	102	102	102	B	B	120	128	124	118	110	110	108	108	108	108	108	120	120	120	114	114	130	110	B
29	B	110	100	B	B	126	120	116	116	104	G	104	104	104	104	104	114	114	114	130	96	102	112	100
30	100	100	100	B	B	134	112	112	112	112	112	112	112	106	124	118	110	116	110	110	110	110	110	110
31	110	110	100	100	102	120	120	120	114	114	102	102	102	104	106	98	98	98	112	124	114	114	114	112
	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	26	27	18	14	28	31	31	31	31	29	31	30	31	30	30	29	30	31	30	31	29	25	24
MED	104	104	102	104	119	122	122	120	116	112	110	108	107	106	106	108	114	114	114	113	112	110	108	104
U Q	109	106	106	112	124	133	128	124	120	118	113	110	110	114	116	118	119	120	120	118	118	113	111	108
L Q	102	100	100	96	100	120	120	116	112	110	106	102	102	104	102	104	104	104	110	110	110	105	104	102

MAY 2016 h'Es (KM)

IONOSPHERIC DATA STATION Wakkanai

MAY 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	F2	F2	F2	F2	L1	C2	C2	C2	C2	C1	C1	C2	C2	C1	C1	C1	C2	C4	C7	C7	F5	F4	F2	FQ41
2	FQ21	F1		F1		C2	C2	C2	C1	C1	C2	C1	C1	C1	C2	C2	C2	C3	C6	L5	F3		F1	F1
3	F1	F1	F1		C2	C4	C4	C2	C2	C1	C2	C2	C2	C3	C2	CL11	C1	C3	C6	C5	F4	FF13	F4	F3
4	F1	FF11	F2	F1	C1	C2	C2	C2	C1	C1	C2	C2	C3	C2	C3	C4	C4	L3	C3	L8	FF11	FF31	F1	F1
5	F1		F1	F1		C1	CL21	CL21	CL21	CL11	C1	C1	C1	C2	C1	C2	C2	C3	C3	C2	F1	F2	F3	F3
6	F2	F2	F2	F1	L1	C2	C2	C2	LC11	CL12	C2	C2	C2	C1	L1	CL21		C2	C1	C5	L1	F5		
7		F2	F2	LC11		H1	CL21	C1	C2	C2	C1	C1	C2	LC21	LC21	LC21	CL12	C2	C3	L1	L1		L1	
8						C2	C2	C2	C1	C1	C1	C1	C1	C2	C2			C2	C2	C3	C4	F2		
9	F1	F2	FF32	L6	C3	C4	C5	C2	C1	C2		C1	C2	C2	C2	C2	C3	C4	C5	LL52	L5	F5	FF11	FF11
10	F1	F5	F2	C2	C4	C2	C2	C2	C1	C2	C2	C1	C1	C2	C1	L1	C2	C2	C2	L3	L7	F2	F3	F7
11	FF12	F3	F3	L4	L2	C1	C2	C1	C2	C1	C1	C1	C1	C1	C1	C2	C2	C3	C1	L4	L4	FF42	F4	F3
12	F3	F1	F1	L1	L1	C1	C1	C2	C2	C1	C2	C1	C2	C3	C2	C2	C2	C3	C3	L4	L5	F5	F5	F5
13	F9	F2	F1		C2	C2	C2	C2	C2	C2	C2	C2	C1	C1	L1	C1	C2	C2	C1	C2	L3	F6	F3	F3
14	F2	F1	F2	LQ21		C2	C2	C2	C2	C1	C1	C2	C1	C2	C2	C1	L4	L3	L2	LQ31	LQ31	FQ31		F1
15	F3					L1	C1	C2	C2	C1	C1	C1	C2	L1	C1	C1	C2	C2	L2	L2	L2	L3	F4	F4
16	F3	F4	F2		L1	L2	C2	C2	C2	C2	C2	C2	C2	C1	C1	L1	C4	C2	C3	C1	L1	F1	F1	F2
17	F3	F2	F2				C1	C1	C1	C1	C1	C1		C1		C1	C1	C1	C4	C4	L3	F1		F2
18	F2	F1	F2			C1	C1	C1	C4	C2	C2	C1	C1	C1	L2	L3	L2	C2	L2	C1	C1	F4	F1	
19	F1	F4					CL21	CL21	C2	C3	C2	C2	C2	L2	L2	L2	L4	L4	L3	L5	L5	F5	F2	F2
20	F4	F3	F2	L2		C1	C1	C2	C4	C7	C2	C1	C1	L1	L2	L2	L1	L3	L1	LQ72	L3	F3	F3	F2
21	F3	F2	F2				F1	C1	C2	C2	C2	C2	C3	L3	L3	LQ32	LQ32	LQ42	C1	C1	L3	F7	F3	F3
22	F3	F2	F4	F3		L2	C1	CQ43	C1	C2	CQ42	CQ21	C2	C1	C2	C3	L1	L1	C1		L5	F4		
23			F2	L2	L2	L3	C2	C2	C2	C1	C2	C2	C2	L1	L1	L1	C2		C4	C2	L1	F3	F5	F3
24	F4	F2	F3	L2		C2	C2	C2	C2	C3	C2	C3	C1	C3	C1	C2	C2	C2	L2	L8	L1	F3		F1
25			F2	L1	L1	C2	C2	C5	C3	C2	C1	C1	C2	C1	C2	C1	C2	L2	C2	C2	L3	F2	F2	F4
26	F2	F2	F1	C2	L2	C2	C1	C2	C2	C2	C2	C1	C3	C2	C1	C2	C2	C4	C4	C3	C2	F1	F2	
27		F1	F2			C2	C1	C1	C1	C1	C1	C1	L2	L2	H1	C2	C3	C3	C2	C3	C4	F3	F2	F2
28	F3	F2	F2			C2	C2	C2	C2	C3	C2	C2	C1	C2	C1	L2	C1	C2	C3	L3	L2	F2	F2	
29		F1	F1			C2	C2	C2	C2	L3		LQ21	LQ21	LQ21	CQ21	CQ31	CQ21	CQ32	CQ72	CL11	LL21	L5	F2	FF32
30	F2	F1	F1			C1	C3	C5	C3	C3	C5	C2	C2	C2	C2	C2	C3	C3	F5	L4	L4	F4	F4	F5
31	F6	FF41	F4	L3	L3	C2	C2	C2	C4	CLQ23	CQ31	CQ21	CQ21	CQ21	LQ32	LQ42	LQ52	LQ32	L2	C2	L7	F4	F7	F1
	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																								

MAY 2016 TYPES OF Es

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IONOSPHERIC DATA STATION Kokubunji

MAY 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	X 67	X 64	X 62	X 60	X 54															X 93	X 90	X 75	X 71	X 66
2	X 66	X 60	X 60	X 59	X 64															X 78	X 80	X 76	X 72	X 72
3	X 67	X 62	X 61	X 61	X 59															X 70	X 68	X 54	X 52	57
4	X 56	X 56	X 56	X 55	X 46															X 79	X 70	X 63	67	X 59
5	X 57	X 55	X 53	X 52	X 51															X 97	X 80	X 66	X 65	X 65
6	X 64	X 61	X 62	X 62	X 57															X 89	X 86	X 81	77	78
7	X 74	X 74	X 70	X 66	X 58															X 84	X 86	X 83	X 73	X 68
8	X 64	X 63	X 60	X 54	X 52															X 78	X 65	X 62	X 63	X 59
9	X 67	X 59	X 45	X 42	X 50															X 60	X 65	X 64	X 61	X 56
10	X 55	X 52	50	X 42	X 39															X 74	X 74	X 69	X 63	65
11	X 60	X 50	X 54	60	51															X 69	X 66	X 60	X 64	X 59
12	64	65	62	51	49															X 78	X 79	X 72	X 70	X 61
13	64	68	67	66	X 57															X 80	O X 85	X 77	X 67	X 64
14	73	68	66	X 60	X 53															X 74	X 75	X 70	X 72	X 74
15	X 73	72	X 68	X 62	X 57															X 90	X 89	A	X 67	X 56
16	68	64	66	X 58	X 50													A		X 67	X 65	67	66	X 62
17	X 62	65	67	53	X 46															X 62	X 75	X 62	X 54	X 52
18	X 50	X 50	X 48	X 48	X 46															X 91	X 68	X 56	X 55	X 52
19	56	X 53	X 54	X 51	50															X 79	X 72	X 72	A	A
20	X 69	X 55	X 52	49	X 46															X 77	X 74	X 70	X 60	64
21	66	68	52	50	50															X 100	X 97	X 59	X 48	50
22	55	54	54	51	X 51															X 70	X 72	X 71	X 70	X 69
23	67	X 64	59	X 49	54															X 84	X 78	X 71	X 62	X 61
24	X 58	X 55	X 55	X 51	X 46															X 82	X 78	X 72	72	X 64
25	X 60	X 56	56	52	X 48															A	77	X 66	70	X 68
26	X 64	X 57	X 56	X 50	53															X 64	X 68	X 68	X 68	X 66
27	62	X 58	X 58	X 55	X 51															X 84	X 72	X 70	68	69
28	68	64	58	54	54															X 76	X 77	X 71	X 69	X 68
29	69	A	67	66	61															X 76	X 73	X 73	X 72	O X 72
30	69	A	64	62	59														X 94	X 84	X 70	X 61	X 62	X 61
31	67	67	64	X 58	X 60															X 72	X 72	57	66	68
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	29	31	31	31														1	30	31	30	30	30
MED	X 64	X 61	X 59	X 54	X 51														X 94	X 78	X 74	X 70	X 67	X 64
U Q	68	65	64	X 60	X 57															X 84	X 80	X 72	X 70	X 68
L Q	X 60	X 55	X 54	X 51	X 49															X 72	X 70	X 62	X 62	X 59

MAY 2016 fxI (0.1MHz)

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IONOSPHERIC DATA STATION Kokubunji

MAY 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	61	57	56	54	48	49	58	55	60	59	A	69	71	84	84	91	86	80	86	87	84	69	65	60
2	60	54	54	53	58	48	51	60	73	58	59	A	84	87	88	97	86	76	A	72	74	70	66	66
3	61	56	55	55	53	49	54	53	A	A	71	74	80	78	72	82	89	81	A	64	62	48	46	F
4	50	50	50	49	40	42	56	59	58	58	64	68	78	82	86	86	80	69	67	73	64	57	F	53
5	51	49	47	46	45	43	59	69	62	58	62	64	71	66	67	74	83	84	82	91	74	59	59	59
6	58	55	56	56	51	54	67	64	67	66	55	63	81	80	81	80	68	66	65	83	80	75	F	F
7	68	68	64	60	52	51	61	72	68	61	57	64	78	92	81	69	61	63	71	78	80	77	67	62
8	58	57	54	48	46	56	68	64	69	64	68	75	83	85	89	111	99	104	83	72	59	56	56	53
9	60	53	39	36	44	47	41	43	51	A	A	A	54	61	50	48	A	A	51	54	59	58	55	50
10	49	46	F	37	32	38	44	A	A	53	54	60	58	57	62	74	66	71	72	68	68	63	57	F
11	53	44	48	F	F	40	40	45	48	A	A	A	58	59	61	58	A	A	56	63	60	54	58	53
12	F	F	F	F	F	43	49	58	65	61	58	68	69	75	68	68	67	64	63	72	73	66	63	55
13	F	F	F	F	51	50	55	A	A	56	56	62	69	74	74	79	78	71	64	74	79	71	61	58
14	F	F	F	54	47	51	62	51	59	62	63	61	69	62	76	90	90	70	62	68	69	64	66	67
15	67	F	62	56	51	52	69	69	64	58	66	62	72	72	84	91	86	76	A	84	83	A	61	50
16	F	F	F	52	44	42	45	A	55	A	A	56	A	57	62	62	64	A	59	60	58	F	F	55
17	56	F	F	F	40	43	48	50	A	A	A	50	51	51	52	51	51	52	52	56	68	56	48	46
18	44	44	42	42	40	50	58	64	61	61	54	52	62	70	72	78	82	87	86	85	62	50	49	46
19	F	47	48	45	F	48	53	50	56	53	A	54	57	61	63	68	71	A	A	73	66	66	A	A
20	43	49	46	F	40	A	56	A	A	A	A	A	A	71	79	77	69	69	61	70	68	64	54	F
21	F	F	F	F	F	45	50	59	72	61	52	56	60	73	78	75	72	68	75	94	91	53	42	F
22	F	F	F	F	45	48	A	A	A	A	A	A	A	59	63	A	A	A	A	64	65	65	64	63
23	F	57	F	43	F	51	59	67	A	52	61	58	61	65	65	67	A	A	A	78	72	65	56	55
24	52	49	49	45	40	54	64	A	A	A	53	61	58	61	70	A	A	A	A	76	72	66	F	58
25	54	50	F	F	41	51	58	73	A	A	56	62	61	58	62	A	69	70	72	A	F	60	F	62
26	58	51	50	44	F	48	54	56	A	A	60	A	A	66	73	A	70	72	A	58	62	62	62	60
27	F	52	52	49	45	51	56	74	61	55	R 54	A	60	62	69	78	75	78	75	78	65	64	F	F
28	F	F	F	F	F	60	58	53	63	55	A	A	58	74	73	65	61	59	A	70	70	65	63	62
29	F	A	F	F	F	56	74	72	A	A	A	A	66	77	A	A	78	79	74	70	67	66	66	66
30	F	A	F	F	F	53	65	71	62	57	56	59	60	62	78	99	90	93	88	78	64	55	56	55
31	F	F	F	52	54	51	69	A	A	A	A	A	A	A	75	78	76	67	64	66	66	F	F	F
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	18	19	17	20	22	30	30	24	19	19	20	21	26	30	30	26	26	24	22	30	30	28	23	23
MED	57	51	50	49	45	50	57	60	62	58	58	62	64	68	72	78	76	71	69	72	68	64	59	58
U Q	60	56	56	54	51	51	62	69	67	61	62	66	72	77	79	86	86	80	75	78	74	66	64	62
L Q	51	49	48	44	40	45	51	53	58	55	54	57	58	61	63	68	68	68	62	66	64	56	55	53

IONOSPHERIC DATA STATION Kokubunji

MAY 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							A	A	A	A	A	A	A	A	A	A	L	L	A					
2							A	A	A	A	UL 520	A	A	A	472	456	A	A	A					
3							A	A	A	A	A	A	A	A	UL 472	A	UL 424	L	A					
4							L	UL 428	A	A	A	A	UL 464	468	472	A	UL 436	L	A					
5							A	A	A	A	476	A	492	472	UL 476	448	A	A						
6								L	L	A	UL 476	UL 484	A	472	480	A	A	L	A					
7						L	A	A	448	UL 452	UL 468	492	480	468	464	L	L	A	A					
8								A	A	UL 468	472	A	A	472	A	436	UL 428	A	A					
9						A	A	UL 384	A	A	A	A	444	UL 436	436	UL 432	A	A	A					
10							A	A	A	452	472	A	460	UL 468	UL 468	444	428	UL 400	A					
11							A	392	416	A	A	A	A	A	A	A	A	A	A					
12								L	A	A	A	A	A	464	468	UL 452	L	L	L					
13							L	A	A	UL 476	488	A	480	A	A	A	A	A	A					
14							A	420	UL 460	A	A	A	472	492	464	UL 460	A	A						
15							L	L	A	L	UL 460	UL 508	500	488	472	456	A	A	A					
16							A	A	A	A	A	A	A	A	452	UL 448	A		A					
17						UL 348	A	A	A	A	A	UL 448	460	UL 464	UL 452	UL 440	A	A	A					
18								A	A	A	UL 480	UL 480	488	472	460	456	UL 432	A	A					
19								A	UL 436	A	A	UL 464	A	A	A	A	A	A	A					
20						A		A	A	A	A	A	A	UL 464	A	424	A	A	A					
21								UL 424	436	A	A	UL 468	UL 472	452	A	A	432	392	A					
22						A	A	A	A	A	A	A	A	A	A	A	A	A	A					
23							A	A	A	A	A	A	468	464	A	A	A	A	A					
24							A	A	A	A	UL 480	A	468	UL 460	A	A	A	A	A					
25						L	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					
27						A	L	396	L	456	UL 488	A	468	UL 464	UL 480	432	A	A	A					
28								A	A	A	A	A	A	468	A	A	A	UL 440	A					
29							A	A	A	A	A	A	UL 464	464	A	A	UL 428	A	A					
30							A	A	A	A	UL 524	A	UL 500	472	A	UL 452	A	A						
31							L	A	A	A	A	A	A	A	A	A	A	A	A					
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT						1		6	5	5	12	7	16	20	15	14	7	3						
MED						UL 348		408	436	UL 456	UL 478	UL 480	470	468	468	448	UL 428	UL 400						
U Q								UL 424	454	UL 472	UL 488	492	484	472	UL 472	456	UL 432	UL 440						
L Q								392	426	452	472	UL 464	464	464	460	436	428	392						

MAY 2016 foF1 (0.01MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

MAY 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						B	A	A	A	A	A	A	A	A	A	A	R	A	B					
2						B	A	A	A	A	A	A	A	A	R	A	A	A	B					
3						B	A	A	A	A	A	A	A	A	A	A	A	A	A					
4						B	A	A	A	A	A	A	A	A	A	A	A	U R 264	B					
5						B	A	A	A	A	R	A	A	R	R	A	A	A	B					
6						B	A 228	R	A	A	A	A	A	R	R	A	A	A	B					
7						B	A	A	A	A	A	A	A	U R 360	R	R	U A 296	A	B					
8						B	A	A	A	A	A	A	A	A	A	R	U R 296	A	A					
9						B	A	A	A	A	A	A	A	A	328	A	A	A	B					
10						B	A	A	A	A	A	A	A	A	A	A	A	A	U A 188					
11						B	A	A	A	A	A	A	A	A	A	A	A	A	A					
12						B	U R 240	A	A	A	A	A	A	A	A	A	A	A	A					
13						B	A	A	A	A	A	A	A	A	A	A	A	A	A					
14						B	A	A	A	A	A	A	R	A	A	A	A	A	B					
15						B	252	A	A	A	A	A	A	R	352	A	A	A	B					
16						A	U A 244	A	A	A	A	A	A	A	A	A	A		B					
17						B	A	A	A	A	A	A	A	A	R	U R 344	A	U A 256	A					
18						B	A	A	A	A	A	A	A	A	A	R	A	A	B					
19						B	U A 232	U A 288	A	A	A	A	A	A	A	A	A	A	A					
20						A	A	A	A	A	A	A	A	A	A	A	A	A	B					
21						A	A	A	A	A	A	A	A	R	A	A	A	R	A					
22						B	A	A	A	A	A	A	A	A	A	A	A	A	B					
23						B	A	A	A	A	A	A	A	A	A	A	A	A	B					
24						B	A	A	A	A	A	A	A	A	A	A	A	A	B					
25						A	A	A	A	A	A	A	A	A	A	A	A	A	B					
26						B	U A 252	A	A	A	A	A	A	A	A	A	A	A	A					
27						U A 192	A	A	A	A	A	A	A	A	R	R	A	A	A					
28						U R 200	A	A	A	A	A	A	A	A	A	A	A	A	A					
29						172	A	A	A	A	A	A	A	A	A	A	A	A	A					
30						180	A	A	A	A	A	A	A	A	A	A	A	A						
31						A	A	A	A	A	A	A	A	A	A	A	A	A	B					
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT						4	6	1						1	2	1	2	2	1					
MED						186	U A 242	U A 288						U R 360	340	U R 344	U 296	U 260	U A 188					
U Q						U 196	252																	
L Q						176	A 232																	

MAY 2016 foE (0.01MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

MAY 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	JA 33	JA 29	JA 21	22	EB 14	23	JA 38	JA 43	JA 48	JA 64	JA 107	JA 62	JA 56	45	JA 68	JA 64	G	34	JA 45	JA 34	JA 39	JA 45	JA 26	EB 15
2	JA 44	JA 28	19	JA 23	JA 79	JA 30	JA 50	JA 45	JA 80	JA 61	JA 45	JA 94	JA 94	JA 69	G	39	JA 53	JA 96	JA 184	JA 131	JA 73	JA 56	JA 106	JA 50
3	JA 45	JA 27	JA 30	JA 30	JA 28	23	JA 43	JA 50	JA 76	JA 82	JA 116	JA 100	JA 50	JA 62	JA 81	JA 71	34	31	JA 126	JA 89	JA 54	JA 75	JA 52	JA 26
4	21	21	JA 23	JA 28	EB 14	JA 31	30	36	JA 58	JA 47	JA 52	JA 56	JA 46	JA 48	41	JA 42	JA 36	JA 30	JA 27	JA 34	21	JA 52	JA 35	JA 31
5	JA 28	JA 31	JA 24	JA 24	JA 23	22	JA 40	JA 43	JA 50	JA 55	G	JA 64	JA 44	G	G	JA 107	JA 44	JA 36	21	JA 29	JA 32	21	JA 32	JA 21
6	JA 22	JA 23	EB 15	EB 15	EB 14	EB 14	27	G	37	JA 66	JA 44	43	JA 44	G 30	G 30	JA 48	JA 68	JA 47	JA 75	JA 80	JA 89	JA 44	JA 82	JA 39
7	JA 44	JA 31	JA 52	JA 55	JA 24	25	38	JA 43	JA 42	JA 45	41	40	38	G 29	G	G	34	35	JA 34	JA 32	JA 28	JA 23	19	JA 18
8	21	20	20	20	EB 14	19	30	38	41	38	42	JA 57	JA 52	JA 46	JA 80	G	G	JA 43	JA 46	JA 48	JA 83	JA 46	JA 32	21
9	JA 21	21	20	JA 22	JA 80	JA 75	JA 41	36	JA 55	JA 105	JA 122	JA 101	JA 61	40	38	39	JA 56	JA 94	JA 77	JA 64	JA 70	JA 34	37	JA 22
10	JA 44	JA 31	JA 29	JA 20	JA 23	23	JA 46	JA 68	JA 77	JA 60	42	46	40	42	40	37	36	JA 45	27	JA 40	JA 105	JA 110	JA 46	JA 78
11	JA 53	JA 62	JA 47	JA 36	JA 57	JA 37	JA 46	33	JA 42	JA 52	JA 77	JA 84	JA 68	JA 51	JA 58	JA 48	JA 68	JA 62	JA 47	JA 42	JA 47	JA 43	JA 98	JA 75
12	JA 72	JA 79	JA 66	JA 54	JA 37	EB 14	G	35	JA 46	JA 65	JA 51	JA 60	JA 46	42	JA 54	JA 46	35	JA 58	JA 34	JA 70	JA 65	JA 89	JA 63	JA 57
13	JA 28	JA 41	JA 36	JA 35	JA 39	JA 30	JA 31	JA 73	JA 72	JA 43	41	JA 46	42	JA 65	JA 62	JA 54	JA 68	JA 77	JA 39	JA 68	JA 89	JA 64	JA 80	JA 63
14	JA 58	JA 34	JA 31	JA 22	JA 23	21	38	JA 42	JA 43	JA 51	JA 72	JA 58	G	JA 74	JA 45	JA 46	JA 42	JA 42	23	JA 21	19	JA 60	JA 79	JA 58
15	JA 34	JA 25	JA 32	JA 30	JA 24	22	29	34	JA 64	JA 43	JA 47	40	44	G	41	JA 46	JA 49	JA 66	JA 84	JA 50	JA 98	JA 127	JA 64	JA 62
16	JA 32	JA 44	JA 41	JA 49	JA 38	25	39	JA 58	JA 52	JA 64	JA 51	JA 57	JA 58	JA 59	JA 44	39	JA 76	JA 71	JA 145	JA 100	JA 52	JA 49	JA 24	JA 26
17	22	JA 28	JA 26	JA 62	JA 66	21	JA 40	JA 44	JA 57	JA 56	JA 57	41	38	JA 39	G	G	JA 46	JA 51	JA 43	JA 43	JA 57	JA 83	JA 58	JA 38
18	JA 32	JA 24	JA 41	JA 28	JA 22	20	30	JA 43	JA 46	JA 51	JA 42	JA 46	JA 47	JA 40	39	G	36	JA 44	JA 51	JA 96	JA 44	JA 21	JA 36	JA 45
19	JA 62	JA 51	EB 15	JA 52	JA 54	JA 30	31	38	40	JA 59	JA 74	JA 42	JA 49	JA 47	47	JA 48	JA 52	JA 77	JA 73	JA 79	JA 147	JA 55	JA 88	JA 67
20	JA 83	JA 86	JA 57	JA 52	JA 24	JA 50	JA 55	JA 77	JA 79	JA 74	JA 74	JA 95	JA 98	JA 60	JA 74	JA 78	JA 59	JA 72	JA 56	JA 60	JA 78	JA 107	JA 124	JA 64
21	JA 63	JA 30	JA 69	JA 24	20	24	29	JA 41	39	JA 49	JA 54	43	JA 54	G	JA 52	JA 54	JA 41	G	JA 33	JA 48	JA 34	JA 26	JA 20	JA 47
22	JA 44	JA 53	JA 34	JA 28	JA 47	JA 58	JA 50	JA 52	JA 52	JA 57	JA 69	JA 50	JA 59	JA 49	JA 56	JA 99	JA 72	JA 130	JA 95	JA 107	JA 26	JA 28	JA 25	JA 37
23	JA 78	JA 42	JA 54	JA 27	EB 14	JA 32	JA 53	JA 58	JA 64	JA 133	JA 62	JA 48	JA 45	JA 40	JA 49	JA 96	JA 65	JA 119	JA 169	JA 112	JA 60	JA 39	JA 31	JA 37
24	JA 33	JA 39	JA 24	JA 43	JA 26	JA 28	32	JA 53	JA 60	JA 62	JA 57	JA 58	41	43	JA 100	JA 103	JA 147	JA 126	JA 82	JA 99	JA 108	JA 41	JA 38	JA 56
25	JA 46	JA 25	JA 31	JA 58	JA 32	25	JA 52	JA 58	JA 77	JA 114	JA 57	JA 64	JA 78	JA 74	JA 80	JA 116	JA 58	JA 48	JA 74	JA 143	JA 127	JA 86	JA 45	JA 40
26	JA 34	JA 52	JA 37	JA 32	JA 42	JA 33	JA 50	JA 63	JA 69	JA 113	JA 67	JA 68	JA 65	JA 60	JA 58	JA 117	JA 82	JA 80	JA 94	JA 47	JA 45	JA 27	JA 96	JA 56
27	JA 63	JA 63	21	JA 21	JA 20	JA 26	JA 30	JA 34	JA 39	JA 41	JA 42	JA 103	JA 42	JA 42	G	G	JA 48	JA 52	JA 53	JA 74	JA 52	JA 38	JA 33	JA 108
28	JA 44	JA 46	JA 39	JA 54	JA 32	JA 32	32	JA 42	JA 60	JA 48	JA 74	JA 109	JA 62	JA 45	JA 79	JA 67	JA 70	33	JA 77	JA 40	JA 71	JA 29	JA 57	JA 63
29	21	JA 91	JA 66	JA 68	JA 84	JA 29	JA 40	JA 65	JA 77	JA 113	JA 149	JA 124	44	42	JA 94	JA 98	34	JA 68	JA 43	JA 60	JA 83	JA 73	JA 54	JA 98
30	JA 63	JA 90	JA 65	JA 36	JA 32	22	JA 62	JA 65	JA 58	JA 53	JA 52	JA 70	JA 62	38	JA 56	40	JA 49	JA 49	JA 34	JA 37	JA 41	JA 33	JA 44	JA 75
31	JA 45	JA 42	JA 53	JA 46	JA 28	24	34	JA 75	JA 114	JA 96	JA 115	JA 67	JA 114	JA 69	JA 58	JA 59	JA 94	JA 46	JA 74	JA 55	JA 102	JA 90	JA 49	JA 55
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31
MED	JA 44	JA 34	JA 32	JA 30	JA 28	25	JA 38	JA 43	JA 57	JA 59	JA 57	JA 58	JA 49	JA 45	JA 52	JA 48	JA 49	JA 51	JA 53	JA 60	JA 60	JA 46	JA 46	JA 50
U Q	JA 58	JA 52	JA 52	JA 52	JA 42	JA 31	JA 46	JA 58	JA 72	JA 74	JA 74	JA 84	JA 62	JA 60	JA 68	JA 78	JA 68	JA 77	JA 82	JA 89	JA 89	JA 75	JA 79	JA 63
L Q	28	JA 27	23	JA 23	EB 22	22	30	38	43	JA 49	44	46	44	G 40	G 39	G 39	36	42	JA 34	JA 40	JA 41	JA 33	JA 32	JA 31

MAY 2016 foEs (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

MAY 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	22	21	16	E B 15	E B 14	18	31	34	41	42	A A 107	52	54	43	56	50	G	32	39	29	26	29	19	E B 15
2	E B 15	E B 15	E B 15	E B 15	29	22	35	37	45	48	42	A A 94	74	52	G	36	37	62	A A 184	E B 15	40	26	45	32
3	20	20	17	20	18	21	35	42	A A 76	A A 82	54	56	44	58	42	42	32	30	A A 126	37	38	E B 15	23	19
4	E B 15	E B 15	18	E B 15	E B 14	21	29	33	50	44	47	48	36	41	39	40	32	G 20	22	27	15	33	27	21
5	18	E B 15	E B 15	E B 15	E B 16	19	32	38	44	47	G	57	40	G	G	37	41	33	19	20	17	E B 16	22	E B 14
6	E B 15	E B 16	E B 15	E B 15	E B 14	E B 14	26	G	34	43	39	41	41	G 27	G 29	40	56	30	37	51	22	21	E B 16	E B 15
7	E B 15	E B 15	18	32	E B 15	22	34	38	38	40	38	39	38	G 27	G	G	32	33	28	25	24	19	E B 15	E B 15
8	E B 15	E B 15	E B 15	E B 16	E B 14	18	26	34	39	35	40	53	46	40	56	G	G	37	26	46	22	21	20	E B 16
9	E B 15	E B 15	E B 15	20	26	38	31	34	38	A A 105	A A 122	A A 101	37	36	36	36	A A 56	A A 94	29	21	E B 15	E B 15	23	17
10	23	21	21	15	E B 15	19	34	A A 68	A A 77	39	37	44	38	39	38	35	34	26	23	30	E B 15	18	E B 15	18
11	E B 15	18	28	19	18	31	34	30	38	A A 52	A A 77	A A 84	46	39	50	42	A A 68	A A 62	38	33	28	17	32	35
12	18	28	E B 15	20	19	E B 14	G	33	40	53	44	54	42	38	40	38	32	31	22	20	17	30	25	17
13	E B 16	17	18	19	25	20	26	A A 73	A A 72	41	39	42	40	61	58	47	40	60	35	38	44	38	32	E B 15
14	41	E B 14	E B 16	E B 14	E B 15	18	34	38	37	46	55	50	G	43	39	39	36	38	21	17	E B 15	28	36	38
15	22	E B 16	20	17	E B 15	19	26	33	56	38	40	39	42	G	40	38	46	63	A A 84	20	18	A A 127	E B 15	20
16	20	21	E B 15	25	26	22	36	A A 58	45	A A 64	A A 51	50	A A 58	46	38	35	46	A A 71	44	31	E B 16	32	E B 15	E B 15
17	E B 15	E B 15	E B 15	17	28	18	36	40	A A 57	A A 56	A A 57	39	37	37	G	G	39	43	40	37	E B 15	28	20	E B 15
18	20	17	18	E B 15	E B 16	19	28	39	42	46	41	42	42	37	37	G	34	38	45	E B 15	30	16	18	32
19	30	E B 15	E B 15	25	E B 15	19	29	36	38	45	A A 74	40	45	44	44	42	40	A A 77	A A 73	44	40	38	A A 88	A A 67
20	39	34	29	29	17	A A 50	49	A A 77	A A 79	A A 74	A A 74	A A 95	A A 98	39	56	38	41	56	41	30	20	27	18	38
21	32	E B 14	20	17	E B 15	24	27	37	37	43	45	42	41	G	46	51	33	G	28	45	26	21	17	32
22	19	23	24	20	29	38	A A 50	A A 52	A A 52	A A 57	A A 69	A A 50	A A 59	43	47	A A 99	A A 72	A A 130	A A 95	55	20	18	E B 16	22
23	E B 14	34	29	20	E B 14	28	41	52	A A 64	45	57	42	41	38	43	60	A A 65	A A 119	A A 169	60	32	34	20	24
24	E B 16	23	16	24	E B 15	25	30	A A 53	A A 60	A A 62	42	52	40	42	62	A A 103	A A 147	A A 126	A A 82	53	23	17	26	18
25	17	18	E B 15	23	20	21	40	46	A A 77	A A 114	46	55	54	49	46	A A 116	43	43	35	A A 143	E B 16	38	34	26
26	26	24	28	23	31	26	44	51	A A 69	A A 113	46	A A 68	A A 65	55	53	A A 117	58	50	A A 94	42	26	23	50	32
27	38	16	E B 15	17	E B 15	24	28	32	36	37	39	A A 103	39	39	G	G	45	47	49	51	29	19	28	21
28	19	35	20	E B 15	22	G 17	30	36	58	44	A A 74	A A 109	48	41	44	62	47	30	A A 77	38	34	19	38	48
29	E B 15	A A 91	25	26	21	20	36	50	A A 77	A A 113	A A 149	A A 124	42	40	A A 94	A A 98	32	57	36	53	E B 15	E B 15	35	42
30	32	A A 90	21	24	18	21	54	53	51	49	46	52	41	36	48	37	46	44	32	26	36	28	20	25
31	33	28	28	32	18	21	30	A A 75	A A 114	A A 96	A A 115	A A 67	A A 114	A A 69	53	50	54	34	48	30	41	24	29	33
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31
MED	19	18	18	19	17	21	32	38	50	47	46	52	42	40	43	40	41	43	39	33	23	23	23	21
U Q	26	24	21	24	22	24	36	A A 52	A A 69	A A 64	A A 74	A A 68	A A 54	44	53	A A 51	A A 54	A A 62	A A 77	46	32	30	32	32
L Q	E B 15	E B 15	E B 15	E B 15	E B 15	19	28	34	38	43	40	42	40	G 37	G 37	G 36	33	32	28	25	E B 16	18	E B 18	E B 16

MAY 2016 fbEs (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

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

IONOSPHERIC DATA STATION Kokubunji

MAY 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	296	279	298	310	312	323	347	357	352	333	A	312	311	337	326	324	326	316	312	318	332	298	281	290
2	285	273	281	289	321	356	313	321	349	346	283	A	292	312	305	319	338	315	A	295	283	283	291	293
3	276	287	288	296	315	326	329	342	A	A	312	299	334	327	308	323	327	322	A	244	329	285	274	F
4	278	285	300	326	324	337	309	310	354	336	306	316	317	326	317	321	338	331	328	329	321	275	F	296
5	291	286	286	310	307	333	339	364	364	342	326	307	326	304	287	306	315	327	304	328	327	287	293	283
6	286	285	306	322	329	355	361	366	325	334	379	288	310	312	312	338	319	327	287	307	305	302	F	F
7	283	287	289	293	299	307	320	341	327	320	321	275	291	321	326	342	337	317	310	300	303	321	311	297
8	288	293	309	291	297	323	351	352	337	321	312	307	283	266	259	295	283	321	317	311	292	272	273	267
9	322	298	292	273	270	288	284	264	314	A	A	A	266	314	304	282	A	A	297	284	289	299	272	285
10	283	298	F	279	290	324	359	A	A	329	262	332	322	295	301	322	308	320	313	300	307	300	287	F
11	304	268	286	F	F	321	286	258	270	A	A	A	318	305	317	304	A	A	326	325	314	305	269	272
12	F	F	F	F	F	360	350	334	354	369	306	310	312	339	325	325	326	321	316	300	297	315	292	280
13	F	F	F	F	307	385	342	A	A	315	286	315	299	316	311	322	321	329	306	299	306	296	285	286
14	F	F	F	298	312	311	370	327	330	295	326	283	312	280	294	313	337	318	316	291	299	293	268	284
15	290	F	289	310	312	307	359	358	333	330	322	297	301	302	310	319	321	317	A	317	300	A	294	264
16	F	F	F	276	305	276	293	A	322	A	A	301	A	292	302	317	303	A	319	323	300	F	F	282
17	285	F	F	F	287	268	296	302	A	A	A	258	279	267	280	281	296	299	297	284	306	346	289	295
18	285	290	289	297	290	319	333	336	336	324	313	220	294	302	301	298	302	317	322	340	332	286	280	270
19	F	295	311	331	F	354	347	371	309	298	A	277	306	304	294	300	309	A	A	319	288	309	A	A
20	413	284	318	F	305	A	326	A	A	A	A	A	A	303	307	321	308	315	295	308	307	276	305	F
21	F	F	F	F	F	337	331	331	354	360	271	273	277	307	311	310	299	280	271	315	339	361	285	F
22	F	F	F	F	301	354	A	A	A	A	A	A	A	295	309	A	A	A	A	307	288	286	282	270
23	F	302	F	283	F	318	339	369	A	324	289	328	286	313	303	325	A	A	A	298	295	313	296	308
24	291	274	307	332	302	361	349	A	A	A	263	316	305	304	306	A	A	A	A	321	305	319	F	298
25	298	311	F	F	295	340	303	363	A	A	312	318	313	303	295	A	317	320	310	A	F	311	F	290
26	299	309	333	309	F	341	360	367	A	A	319	A	A	309	317	A	301	330	A	305	292	295	301	326
27	F	300	318	318	307	346	337	351	350	350	R 312	A	300	294	288	291	293	322	312	327	312	294	F	F
28	F	F	F	F	F	352	367	350	346	348	A	A	276	316	327	317	314	299	A	295	300	302	271	289
29	F	A	F	F	F	314	335	375	A	A	A	A	278	302	A	A	302	316	324	317	294	294	289	288
30	F	A	F	F	F	314	328	325	355	337	249	305	280	271	272	315	307	321	332	324	303	276	289	278
31	F	F	F	289	320	335	357	A	A	A	A	A	A	A	302	307	321	315	315	309	319	F	F	F
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	18	19	17	20	22	30	30	24	19	19	20	21	26	30	30	26	26	24	22	30	30	28	23	23
MED	289	287	298	298	306	330	338	346	337	333	312	305	300	304	306	317	314	319	312	308	304	297	287	286
U Q	298	298	310	314	312	352	351	364	354	346	320	316	312	314	312	322	326	322	319	321	314	310	293	295
L Q	285	284	288	289	297	314	320	326	325	321	284	280	283	295	295	304	302	316	304	299	295	286	274	278

IONOSPHERIC DATA STATION Kokubunji

MAY 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							A	A	A	A	A	A	A	A	A	A	L	L	A					
2							A	A	A	A	UL 358	A	A	A	363	359	A	A	A					
3							A	A	A	A	A	A	A	A	UL 360	A	UL 364	L	A					
4							L	UL 369	A	A	A	A	UL 411	394	381	A	UL 367	L	A					
5							A	A	A	A	408	A	379	408	UL 375	382	A	A						
6								L	L	A	UL 388	UL 417	A	382	367	A	A	L	A					
7						L	A	A	375	UL 404	UL 389	386	376	368	377	L	L	A	A					
8								A	A	UL 388	393	A	A	392	A	364	UL 349	A	A					
9						A	A	UL 341	A	A	A	A	385	UL 373	360	UL 364	A	A	A					
10							A	A	A	372	405	A	393	UL 386	UL 385	375	364	UL 344	A					
11							A	369	360	A	A	A	A	A	A	A	A	A	A					
12								L	A	A	A	A	A	410	376	UL 373	L	L	L					
13							L	A	A	UL 399	394	A	378	A	A	A	A	A	A					
14							A	421	UL 369	A	A	A	396	371	384	UL 359	A	A						
15							L	L	A	L	UL 418	UL 368	377	363	356	362	A	A	A					
16							A	A	A	A	A	A	A	A	383	UL 371	A		A					
17						UL 316	A	A	A	A	A	UL 400	387	UL 383	UL 399	UL 364	A	A	A					
18								A	A	A	UL 389	UL 396	379	374	378	351	UL 367	A	A					
19								A	UL 391	A	A	UL 390	A	A	A	A	A	A	A					
20						A		A	A	A	A	A	A	UL 375	A	411	A	A	A					
21								UL 370	384	A	A	UL 440	UL 409	403	A	A	354	350	A					
22						A	A	A	A	A	A	A	A	A	A	A	A	A	A					
23							A	A	A	A	A	A	368	391	A	A	A	A	A					
24							A	A	A	A	UL 375	A	390	UL 395	A	A	A	A	A					
25						L	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					
27						A	L	401	L	405	UL 390	A	369	UL 377	UL 385	391	A	A	A					
28								A	A	A	A	A	A	412	A	A	A	UL 326	A					
29							A	A	A	A	A	A	UL 396	425	A	A	UL 389	A	A					
30							A	A	A	A	UL 312	A	UL 373	376	A	UL 345	A	A						
31							L	A	A	A	A	A	A	A	A	A	A	A	A					
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT						1		6	5	5	12	7	16	20	15	14	7	3						
MED						UL 316		370	375	UL 399	UL 390	UL 396	382	384	377	364	UL 364	UL 344						
U Q								401	388	404	400	UL 417	UL 394	399	UL 384	375	UL 367	350						
L Q								369	364	380	UL 382	386	376	374	363	359	354	UL 326						

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MAY 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							228	234	268	E A 264		A 286	308	280	284	270	268	272	258					
2							E A 270	262	268	238	388	A	E A 358	292	298	276	252	E A 298	A					
3							250	E A 272	A	A	296	342	266	284	320	290	274	258	A					
4							332	308	E A 276	298	338	308	304	286	288	272	260	256	252					
5							260	244	240	286	302	E A 346	296	348	336	316	292	258						
6								240	250	298	258	376	310	282	306	268	E A 308	276	E A 278					
7						302	288	264	294	284	296	400	342	270	274	276	282	290	276					
8								244	256	298	314	314	324	362	392	306	306	260	252					
9						E A 352	E A 352	466	338	A	A	A	444	322	366	422	A	A	E A 312					
10							E A 248	A	A	340	458	312	334	390	350	292	310	286	246					
11							E A 306	462	458	A	A	A	332	360	E A 316	298	A	A	266					
12								282	262	E A 264	348	E A 306	300	282	300	298	272	284	278					
13							260	A	A	336	402	324	352	E A 316	E A 314	288	264	E A 298	276					
14							236	288	294	334	E A 304	404	318	396	344	288	252	246						
15							252	244	E A 290	280	312	354	342	332	306	286	276	E A 294	A					
16							E A 356	A	E A 324	A	A	E A 370	A	398	356	318	308		E A 284					
17						380	362	338	A	A	A	514	442	484	428	422	378	E A 342	E A 322					
18								282	276	296	326	E A 420	384	332	334	312	296	274	242					
19								238	348	E A 364	A	430	364	354	364	324	308	A	A					
20						A		A	A	A	A	A	A	338	306	290	302	E A 292	E A 306					
21								292	258	248	E A 414	440	408	330	298	302	290	322	342					
22						E A 264	A	A	A	A	A	A	A	376	326	A	A	A	A					
23							260	238	A	E A 308	E A 412	324	374	334	318	E A 318	A	A	A					
24							236	A	A	A	460	328	364	360	E A 368	A	A	A	A					
25						260	E A 294	230	A	A	354	E A 338	334	374	344	A	266	274	260					
26							250	E A 270	A	A	320	A	A	E A 342	298	A	E A 342	E A 268	A					
27						242	278	252	248	280	344	A	342	362	346	324	306	258	E A 268					
28								250	E A 294	276	A	A	398	306	278	E A 366	292	334	A					
29							264	238	A	A	A	A	384	320	A	A	304	264	244					
30							E A 298	E A 260	248	E A 278	500	E A 352	416	424	376	282	272	270						
31							254	A	A	A	A	A	A	A	318	296	278	280	E A 278					
	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	22	24	19	19	20	21	26	30	30	26	26	24	19					
MED						U 272	256	256	269	283	332	337	342	334	318	294	286	270	U 264					
U Q						352	E A 298	285	294	308	407	402	384	362	350	318	306	E A 293	E A 284					
L Q						260	250	242	256	276	308	319	318	306	300	286	272	262	252					

MAY 2016 h'F2 (KM)

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MAY 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 284	E A 296	E A 270	E B 240	226	E A 254	A	A	A	A	A	A	A	A	A	A	200	238	A	E A 240	226	E A 240	E A 262	E B 270
2	E B 284	E B 296	E B 296	E B 268	E A 242	202	A	A	A	A	214	A	A	A	222	222	A	A	A	E B 244	E A 292	E A 268	E A 314	E A 296
3	E A 280	E A 252	E A 290	E A 280	E A 240	214	A	A	A	A	A	A	A	A	E A 258	A	216	222	A	E A 372	E A 252	E B 266	E A 318	E A 314
4	E B 290	E B 276	E A 250	228	210	218	218	208	A	A	A	A	190	214	218	A	204	208	A	230	216	E A 312	E A 320	E A 272
5	E A 276	E B 288	E B 274	E B 250	228	232	A	A	A	A	180	A	208	200	206	224	A	A	220	230	206	E B 236	E A 282	E B 280
6	E B 282	E B 282	E B 252	E B 232	E B 234	220	218	190	192	A	210	190	A	212	204	A	A	218	A	E A 296	E A 252	E A 246	E B 260	E B 278
7	E B 270	E B 284	E B 284	E A 266	E B 230	E A 270	A	A	212	212	198	192	198	216	210	210	212	A	A	E A 248	E A 254	222	222	E B 234
8	E B 264	E B 264	E B 238	E B 248	E B 260	E A 242	218	A	A	194	216	A	A	208	A	220	218	A	A	E A 268	E A 246	E A 322	E A 314	E B 342
9	E B 244	220	E B 270	E A 306	E A 356	A	A	E A 266	A	A	A	A	216	E A 238	E A 234	234	A	A	A	E A 272	E B 280	E B 248	E A 308	E A 276
10	E A 294	E A 286	E A 312	E A 292	E B 258	E A 256	A	A	A	226	200	A	208	218	206	200	222	216	A	E A 262	E B 244	E B 248	E B 252	E A 284
11	E B 234	E A 296	E A 316	E A 242	E A 230	E A 298	A	198	E A 236	A	A	A	A	A	A	A	A	A	A	E A 246	E A 242	E A 236	E A 324	E A 310
12	E A 274	E A 310	E B 232	216	E A 240	218	218	220	A	A	A	A	A	168	210	230	208	224	230	E A 244	E A 244	E A 234	E A 254	E A 248
13	E B 274	E A 308	E A 286	E A 280	E A 240	206	210	A	A	200	198	A	222	A	A	A	A	A	A	E A 276	E A 240	E A 274	E A 292	E B 268
14	E A 302	E B 264	E B 264	E B 244	E B 246	E A 240	A	214	220	A	A	A	204	E A 244	210	E A 252	A	A	E A 246	E A 252	E B 250	E A 270	E A 316	E A 298
15	E A 272	E B 252	E A 264	226	E B 236	226	224	210	A	204	202	208	210	236	E A 236	E A 248	A	A	A	E A 246	E A 246	A	208	E A 310
16	E A 332	E A 312	E B 254	E A 286	E A 278	E A 240	A	A	A	A	A	A	A	A	216	214	A	A	A	E A 248	E B 248	E A 338	E B 288	E B 292
17	E B 288	E B 288	E B 244	E A 284	E A 362	240	A	A	A	A	A	210	208	208	212	204	A	A	A	E A 306	E A 254	220	E A 284	E B 272
18	E A 302	E A 288	E A 294	E B 258	E B 280	232	224	A	A	A	204	204	216	208	214	218	218	A	A	220	222	E A 238	E A 280	E A 350
19	E A 326	E B 246	E B 244	E A 248	222	216	216	A	222	A	A	212	A	A	A	A	A	A	A	E A 254	E A 292	E A 270	A	A
20	E A 382	E A 318	E A 258	E A 294	E A 246	A	E A 296	A	A	A	A	A	A	206	A	222	A	A	A	E A 258	222	E A 326	222	E A 340
21	E A 322	220	218	E A 266	E B 258	218	228	E A 238	E A 234	A	A	190	214	202	A	A	218	214	A	E A 250	212	182	E A 276	E A 388
22	E A 294	E A 320	E A 284	E A 268	E A 254	A	A	A	A	A	A	A	A	A	A	A	A	A	A	E A 320	E A 254	E A 254	E B 280	E A 298
23	E B 276	E A 278	E A 240	E A 294	E B 286	E A 250	A	A	A	A	A	A	236	210	A	A	A	A	A	E A 320	E A 238	E A 246	E A 248	E A 260
24	226	E A 302	E A 244	230	E B 256	212	A	A	A	A	214	A	214	218	A	A	A	A	A	E A 272	E A 248	220	E A 286	E A 256
25	E A 266	E A 252	232	E A 288	E A 270	230	A	A	A	A	A	A	A	A	A	A	A	A	A	A	232	E A 278	E A 294	E A 286
26	E A 268	E A 270	E A 250	E A 276	E A 276	232	A	A	A	A	A	A	A	A	A	A	A	A	A	E A 278	E A 276	E A 272	E A 320	E A 244
27	E A 316	E A 250	E B 234	E A 230	E B 250	A	218	212	198	192	194	A	204	232	212	208	A	A	A	E A 248	E A 246	E A 260	E A 306	E A 260
28	E A 272	E A 316	E A 268	E B 288	E A 262	228	206	A	A	A	A	A	A	202	A	A	A	230	A	E A 262	E A 268	228	E A 326	E A 342
29	E B 244	A	E A 302	E A 278	E A 264	E A 236	A	A	A	A	A	A	232	204	A	A	212	A	A	E A 278	E B 238	E B 266	E A 312	E A 330
30	E A 314	A	E A 268	E A 288	E A 276	224	A	A	A	A	E A 336	A	210	234	A	E A 260	A	A	E A 238	222	E A 248	E A 288	E A 284	E A 314
31	E A 306	E A 310	E A 306	E A 308	E A 240	220	216	A	A	A	A	A	A	A	A	A	A	A	A	E A 264	E A 258	E A 312	E A 332	E A 324
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	29	31	31	31	27	13	9	7	6	12	7	16	20	15	15	10	8	4	30	31	30	30	30
MED	E A 282	E A 286	E A 264	E A 268	E A 250	223	218	210	U 209	202	202	204	210	210	211	218	214	220	234	E A 256	E A 246	E A 257	E A 287	E A 289
U Q	E A 302	E A 305	E A 286	E A 288	E A 270	E A 240	224	E A 229	E A 234	212	214	210	216	225	E A 222	E A 234	218	227	E A 242	E A 276	E A 254	E A 274	E A 314	E A 314
L Q	E B 270	E 258	E 244	242	236	218	216	203	198	194	198	190	206	205	210	210	208	215	225	246	238	236	E 262	E A 270

MAY 2016 h'F (KM)

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IONOSPHERIC DATA STATION Kokubunji

MAY 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						B 118	114	116	A	A	A	A	112	A	A		114	112	B					
2						B 128	120	A	A	A	A	A	A	114	114	108	A	B						
3						B 124	114	A	A	A	A	A	110	A	A	114	114	A						
4						B 116	116	A	A	A	A	A	A	A	A	A	116	B						
5						B 116	A	A	A	110	A	A	110	110	110	110	A	B						
6						B 114	114	110	A	A	A	A	114	114	116	112	110	B						
7						B 118	114	112	A	A	A	A	114	116	112	116	116	B						
8						B 116	112	112	110	110	A	A	A	A	110	112	112	A						
9						B 110	110	A	A	A	A	A	110	116	112	A	A	B						
10						B 120	A	A	A	A	110	A	112	112	110	110	A	116						
11						B 114	110	110	A	A	A	A	A	A	110	A	A	A						
12						B 122	116	A	A	A	A	A	A	114	A	114	A	A						
13						B A	A	A	A	A	A	110	A	A	A	A	A	A						
14						B 114	A	A	A	A	A	110	A	A	A	A	A	B						
15						B 114	110	A	A	A	A	114	112	112	112	112	A	B						
16						118	116	A	A	A	A	A	A	A	A	A	A	B						
17						B 110	108	A	A	A	A	A	A	112	112	112	112	A						
18						B 112	114	A	A	A	A	A	A	A	112	112	110	B						
19						B 116	116	116	114	A	110	110	110	114	120	114	114	A	A					
20						112	118	A	A	A	A	A	A	A	A	A	A	A	B					
21						120	110	112	118	108	A	A	A	116	A	A	A	116	A					
22						B 114	110	110	A	A	A	A	A	A	A	A	A	B						
23						B 116	116	A	A	A	A	A	A	A	A	A	A	B						
24						B 110	110	A	A	A	A	A	110	A	A	A	A	B						
25						116	114	A	A	A	A	A	A	A	A	A	A	B						
26						B 122	108	A	A	A	A	A	A	A	A	A	A	A						
27						114	114	112	110	110	A	A	A	A	110	112	112	112	A					
28						120	116	118	A	A	A	A	A	A	A	A	A	116	A					
29						118	114	110	A	A	A	A	A	A	A	A	110	110	A					
30						110	110	A	A	A	A	A	A	A	110	112	114	A						
31						114	114	A	A	A	A	A	A	110	110	A	A	A	B					
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT						9	30	22	9	4	2	2	4	12	13	14	16	12	1					
MED						116	115	113	112	110	110	110	110	112	112	112	112	112	116					
U Q						119	118	116	116	112			112	114	115	112	114	116						
L Q						113	114	110	110	109			110	110	110	110	111	111						

MAY 2016 h'E (KM)

IONOSPHERIC DATA STATION Kokubunji

MAY 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	98	96	96	104	B	134	126	124	114	108	102	110	106	118	108	104	G	122	114	106	98	102	98	B
2	102	96	110	130	108	124	124	120	102	102	106	106	106	106	G	122	116	100	100	104	104	104	102	102
3	96	92	92	90	90	118	116	116	102	102	98	96	106	114	110	106	124	122	100	100	104	104	96	96
4	100	100	102	100	B	106	110	116	102	98	98	98	102	102	102	102	102	102	96	94	96	106	106	100
5	100	102	100	116	116	124	118	102	102	102	G	98	100	G	G	120	112	102	116	98	98	98	90	92
6	90	100	B	B	B	B	124	G	114	104	104	102	100	104	102	128	118	116	104	104	106	108	106	104
7	116	98	92	96	110	124	118	118	118	104	106	106	104	104	G	G	130	118	118	108	106	100	100	98
8	98	98	98	98	B	138	124	122	116	116	112	104	102	106	98	G	G	122	104	102	102	106	102	102
9	100	134	122	114	112	104	114	110	104	98	98	98	106	116	146	122	104	102	102	102	102	106	102	98
10	98	96	96	94	124	126	124	108	104	108	104	112	102	130	122	122	116	108	126	102	100	104	100	96
11	100	96	96	96	98	112	118	128	114	106	102	106	102	110	104	118	104	102	106	106	100	100	100	96
12	98	96	92	96	96	B	G	126	106	100	100	102	106	106	116	108	120	110	108	106	104	102	104	98
13	96	98	88	84	88	86	104	106	104	108	106	106	112	102	106	106	102	92	94	98	96	106	108	102
14	102	96	98	98	98	120	116	106	106	100	100	100	G	104	104	102	100	98	98	102	96	96	104	102
15	98	94	90	86	96	138	140	118	104	102	102	104	116	G	126	128	122	110	104	104	104	102	102	98
16	98	100	96	94	98	118	120	102	102	102	102	100	100	98	96	96	106	100	100	100	102	104	106	96
17	98	96	94	94	92	128	116	116	104	104	104	104	104	102	G	G	124	118	102	104	104	100	100	118
18	98	98	98	96	96	130	130	118	104	104	102	106	106	104	104	G	124	114	102	108	92	98	98	98
19	96	96	B	100	96	96	124	128	124	120	110	116	122	124	120	122	118	106	102	102	100	100	100	100
20	96	100	98	96	98	118	112	104	102	102	102	96	98	102	102	98	94	100	98	106	98	100	104	102
21	98	98	98	92	98	124	124	120	118	112	104	104	106	G	104	104	104	G	108	102	102	100	102	102
22	102	120	98	94	96	96	112	112	112	102	102	102	102	100	128	110	104	100	96	96	98	98	96	94
23	102	102	102	96	B	120	114	114	104	104	104	106	106	106	102	96	102	104	98	102	104	100	98	94
24	120	98	96	96	100	94	126	114	104	104	106	106	104	122	102	106	104	100	96	94	98	106	98	96
25	96	94	94	92	90	122	112	102	102	102	100	98	98	100	100	102	106	102	102	100	102	106	104	102
26	100	96	96	96	92	90	120	110	104	104	104	104	102	102	104	104	106	106	102	100	100	106	100	100
27	96	100	106	100	96	134	126	122	114	114	102	98	102	102	G	G	118	112	102	102	100	102	102	102
28	102	94	94	92	94	100	122	124	102	104	104	102	102	102	102	98	96	112	104	112	102	104	118	102
29	102	98	98	98	98	126	116	116	102	106	104	102	104	104	104	104	116	108	102	100	100	100	100	100
30	100	100	96	92	92	142	114	102	102	102	100	100	98	104	114	124	116	104	102	102	100	100	96	104
31	98	96	96	94	94	112	116	104	102	102	102	100	126	110	110	100	106	104	104	100	98	98	104	102
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	29	30	26	29	30	30	31	31	30	31	30	28	26	26	29	30	31	31	31	31	31	30
MED	98	98	96	96	96	120	118	116	104	104	102	102	104	104	104	106	106	105	102	102	100	102	102	100
U Q	102	100	98	98	98	127	124	120	114	106	104	106	106	110	114	122	118	112	104	104	104	106	104	102
L Q	98	96	94	94	94	105	114	106	102	102	102	100	102	102	102	102	104	102	100	100	98	100	98	96

IONOSPHERIC DATA STATION Kokubunji

MAY 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	F4	F4	F2	F1		C3	C3	C2	C2	L2	L2	L2	L2	C2	L2	L3		C2	C2	F6	F5	F4	F4	
2	F3	F2	F1	F2	F5	C4	C3	C2	L3	L2	L1	L3	L2	L2		C1	C2	L3	L3	F3	F3	F4	F5	F3
3	F3	F3	F4	F2	F3	C2	C2	C2	L3	L3	L3	L2	L2	C2	L2	L2	C1	C1	L4	F5	F6	F3	F3	F5
4	F2	F2	F2	F2		L2	C2	C2	L3	L2	L2	L2	L2	L2	L2	L2	L2	L2	L3	F4	F1	F3	F4	F3
5	F4	F2	F2	FF12	F1	C2	C2	L2	L3	L3		L2	L2			C2	C2	L2	C2	F4	F2	F2	F3	F2
6	F1	F1					C2		C1	L2	L2	L2	L3	L2	L2	C2	C2	C3	L4	F5	F4	F4	F4	F2
7	F2	F2	F3	F4	F1	C5	C3	C2	C2	L2	L2	L2	L2	L1			CL12	C2	C4	F5	F5	F7	F2	F2
8	F3	F2	F2	F1		H1	C1	C2	C2	C1	C1	L2	L2	L2	L3			C2	L5	F5	F4	F3	F3	F2
9	F2	F1	F2	F2	F5	L4	C2	C2	L2	L3	L3	L3	L2	C2	H1	C1	L3	L3	L3	F3	F2	F2	F3	F4
10	F5	F5	F5	F2	F2	C1	C2	L3	L3	L2	L1	C2	L2	C1	C1	C1	C1	L2	C2	F4	F4	F4	F4	F3
11	F3	F2	F4	F4	F4	C3	C3	C1	C2	L3	L2	L3	L2	L2	L2	C1	L2	L3	L3	F4	F6	F3	F5	F5
12	F4	F3	F3	F4	F4			C2	L2	L2	L2	L2	L2	L2	C2	L2	C2	L2	L2	F4	F4	F4	F4	F5
13	F4	F4	F3	F5	F5	L2	L2	L4	L3	L2	L2	L2	C1	L3	L2	L2	L2	L3	L3	F3	F4	F5	F3	F4
14	F5	F2	F2	F2	F4	C4	C3	L2	L1	L2	L2	L2		L1	L2	L2	L2	L3	L3	F3	F2	F4	F4	F4
15	F3	F2	F4	F2	F2	H1	H1	C1	L2	L3	L2	L2	C1		C1	C2	C2	L4	L4	F4	F4	F4	F3	F3
16	F4	F6	F4	F4	F4	C3	C2	L3	L3	L3	L3	L3	L2	L2	L2	L1	L2	L3	L4	F2	F3	F6	F1	F2
17	F2	F2	F2	F3	F2	C1	C2	C2	L3	L3	L3	L2	L2	L2			C2	C5	L4	F5	F5	F4	F4	F2
18	F5	F5	F4	F3	F2	H2	CL22	CL22	L3	L3	L2	L2	L2	L2	L2		C1	C3	L6	F4	F4	F4	F3	F5
19	F4	F2		F4	F2	L3	CL12	CL23	CL23	C2	L2	C2	C2	C2	C2	C2	C3	L3	L5	F5	F4	F6	F5	F6
20	F5	F3	F2	F2	F3	C4	C4	L3	L3	L3	L3	L3	L3	L2	L2	L2	L3	L4	L4	F3	F4	F4	F3	F6
21	F4	F3	F3	F3	F2	C3	CL22	C2	CL21	CL21	L3	L2	L2		L2	L3	L2		L3	F4	F3	F4	F3	F5
22	F3	FF27	F6	F4	F4	L3	C4	C2	C3	L3	L3	L2	L2	L3	CL22	CL32	L3	L4	L4	F4	F3	F4	F2	F2
23	F5	F6	F5	F5		C3	C3	C3	L3	L2	L2	L2	L2	L2	L2	L3	L4	L4	L3	F5	F4	F6	F4	F4
24	F2	F3	F3	F3	F2	L3	CL22	C3	L4	L3	L2	L3	L2	C1	L3	L4	L3	L4	L4	F5	F6	F3	F3	F3
25	F4	F5	F2	F3	F2	C2	C3	L4	L3	L3	L2	L2	L2	L2	L2	L3	L3	L3	L3	F4	F3	F4	F6	F8
26	F8	F5	F4	F4	F5	L3	CL33	C3	L3	L3	L2	L2	L2	L3	L2	L3	L2	L3	L4	F5	F5	F6	F5	F4
27	F5	F3	F1	F3	F2	C2	C2	C1	C1	C1	L2	L3	L2	L2			C3	C3	L3	F4	F4	F3	F4	F5
28	F6	F5	F5	F2	F4	L2	C2	CL12	L3	L2	L3	L3	L3	L2	L2	L3	L3	C1	L5	F5	F5	F3	F6	F7
29	F1	F5	F4	F3	F3	C2	C2	C3	L4	L3	L3	L3	L2	L2	L3	L3	C1	C3	L4	F5	F3	F4	F8	F6
30	F4	F6	F3	F4	F2	H2	C4	L4	L3	L2	L2	L2	L2	L2	C2	C1	C2	L3	L3	F5	F5	F5	F5	F3
31	F5	F4	F4	F4	F2	C1	C2	L3	L3	L3	L3	L2	LL22	C3	C2	L3	L2	L3	L3	F3	F3	F3	F4	F5
	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																								

MAY 2016 TYPES OF Es

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

MAY 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	X 70	X 68	X 66	X 64	X 56	X 52														X 116	X 98	X 79	X 67	X 72
2	X 69	X 66	X 64	X 62	X 66	X 48														X 89	X 88	X 83	X 86	X 80
3	X 72	X 66	X 63	X 58	X 54	X 46														X 81	O X 67	A	X 58	X 58
4	X 64	X 64	X 72	X 57	X 46															X 90	X 75	X 61	X 61	X 65
5	X 63	X 58	X 57	X 56	X 50															X 102	X 83	X 65	X 66	X 65
6	X 66	X 59	X 62	X 60	X 57																X 92	X 78	X 68	X 69
7	X 68	X 67	X 67	X 65	X 46																X 92	X 82	X 71	X 66
8	X 67	X 68	X 65	X 58	X 56																X 82	X 66	X 65	X 59
9	X 71	X 68	X 59	X 52	X 50																X 74	X 69	X 57	X 56
10	X 57	X 57	X 54	X 49	X 44																X 72	X 64	X 56	X 60
11	65	64	X 66	X 61	X 50																X 63	X 60	X 55	X 58
12	X 55	X 56	X 54	X 49	X 40	40															X 84	X 77	X 66	X 67
13	X 64	X 55	X 51	X 57	X 46																X 88	X 74	X 63	X 60
14	X 64	X 62	X 59	X 62	X 58																X 83	X 81	X 72	X 71
15	X 66	X 63	X 67	X 56	X 48																X 90	X 89	X 72	X 67
16	X 68	X 64	X 58	X 58	X 56																X 64	O X 52	X 58	63
17	X 64	X 64	X 60	X 48	X 48																X 77	X 68	X 56	X 57
18	X 54	X 49	X 46	X 46	X 41																A	A	X 56	X 55
19	X 56	X 54	X 57	X 55	X 42																X 77	X 60	X 68	X 68
20	X 64	X 68	X 68	X 56	X 55																X 90	X 80	X 75	X 60
21	X 58	X 60	X 51	X 43	X 41																X 107	A	X 43	A
22	X 46	A	X 43	X 42	X 46																X 78	X 71	X 69	X 65
23	X 64	X 60	X 60	X 51	X 53																O X 72	X 70	X 60	X 59
24	X 64	X 61	X 58	X 49	X 49																X 81	A	A	X 73
25	X 67	X 69	X 60	X 53	X 50																X 85	X 76	X 66	48
26	A	X 59	X 53	X 49	X 46																X 74	X 72	X 68	X 66
27	X 54	X 49	X 49	X 50	X 46	47															X 70	X 59	X 64	X 63
28	X 64	X 64	X 60	X 58	X 55																X 85	X 76	A	X 64
29	X 68	O X 62	X 58	X 54	X 50																X 77	X 73	O X 80	X 67
30	X 65	X 63	X 57	X 53	X 52																X 82	X 68	X 70	X 70
31	X 70	X 64	X 65	X 63	X 65																X 84	X 69	X 63	X 52
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	30	31	31	31	5														5	30	27	29	30
MED	X 64	X 63	X 59	X 56	X 50	X 47														X 90	X 82	X 71	X 66	X 64
U Q	X 68	X 66	X 65	X 58	X 55	X 50														X 109	X 88	X 78	X 70	X 67
L Q	X 63	X 59	X 54	X 49	X 46	43														X 85	X 74	X 65	X 58	X 59

IONOSPHERIC DATA STATION Yamagawa

MAY 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	64	62	60	58	50	46	65	67	61	A	62	74	79	R 94	100	114	R 107	94	102	R 110	92	73	61	66
2	63	60	58	56	60	41	50	68	64	58	57	U R 75	94	98	91	102	96	78	78	U R 83	82	77	80	74
3	66	60	57	52	48	40	51	60	61	79	88	R 80	U R 86	115	97	101	111	92	82	R 75	61	A	52	52
4	58	58	V 66	51	40	34	51	A	A	64	73	80	82	A	94	100	95	80	78	84	69	55	F 54	59
5	57	52	51	50	44	39	55	65	58	V 61	R 61	66	72	81	A	86	91	89	90	96	77	59	60	59
6	60	53	56	54	51	46	54	75	62	54	68	74	91	103	97	98	86	76	68	78	86	72	62	63
7	62	61	61	59	40	39	68	70	58	56	55	72	R 84	R 92	90	80	70	70	75	84	86	76	65	60
8	61	62	59	52	50	52	68	63	64	71	70	76	90	93	98	118	118	116	99	85	76	60	59	V 53
9	65	62	53	46	44	55	61	48	A	A	A	A	59	68	54	53	59	59	60	66	68	63	U R 51	U R 50
10	51	51	48	V 43	38	V 32	39	42	46	45	57	54	52	58	66	74	74	76	69	69	66	58	50	55
11	56	54	60	V 55	44	30	42	41	49	50	52	56	56	59	62	63	66	67	66	A	57	54	49	52
12	49	50	48	43	34	32	49	56	61	58	63	66	70	R 76	78	78	80	73	74	78	78	71	60	F 60
13	58	49	45	V 51	V 40	36	52	64	56	A	60	63	71	82	83	88	94	90	81	79	82	68	57	54
14	58	56	53	56	52	44	54	51	60	66	62	65	A	70	84	94	94	77	68	74	77	75	66	65
15	60	57	61	50	42	41	58	64	68	61	64	63	74	78	87	96	91	82	84	A	84	83	66	61
16	F 61	58	52	52	50	46	A	53	51	A	A	A	A	57	62	71	70	68	62	65	58	R 46	52	56
17	58	58	54	42	42	42	51	59	54	A	52	A	A	A	58	A	57	59	62	66	71	62	50	51
18	V 48	43	40	40	35	34	56	60	58	A	59	58	70	80	85	90	96	97	R	91	A	A	50	49
19	50	48	51	49	36	31	49	51	59	62	58	65	67	66	73	88	100	89	90	86	71	U R 54	F 60	62
20	U R 58	62	62	50	49	50	64	69	A	A	A	A	80	95	100	95	96	89	89	89	84	74	69	54
21	52	54	45	37	36	V 33	50	70	68	R 59	A	A	61	72	A	86	R 94	91	88	110	101	A	J R 37	A
22	40	A	R 37	36	40	35	49	A	A	A	A	A	62	73	77	A	A	65	70	80	72	65	63	59
23	58	R 54	54	45	V 47	51	58	V 51	56	A	58	56	63	70	70	66	61	65	74	83	66	64	54	53
24	58	V 55	V 52	43	43	47	55	53	A	A	62	A	60	66	76	A	82	A	80	86	75	A	A	67
25	61	63	54	47	44	43	64	67	57	54	62	63	62	A	A	84	88	83	82	83	79	70	U R 60	R
26	A	R 53	47	43	40	A	53	56	60	A	A	A	A	77	88	87	A	A	A	A	68	66	62	60
27	48	43	43	44	40	40	58	64	67	A	A	60	A	69	77	80	83	93	93	A	64	53	58	57
28	58	58	54	52	49	45	50	55	58	53	A	A	A	88	A	86	72	76	76	77	79	70	A	58
29	62	56	52	48	44	41	60	66	A	A	60	58	67	84	88	85	87	92	A	74	71	67	74	61
30	59	57	51	47	46	55	66	79	64	53	A	A	A	A	A	97	99	R 94	90	76	76	62	64	64
31	64	58	59	57	59	55	56	58	52	55	53	A	A	A	78	78	78	86	86	76	78	63	57	F 46
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	30	31	31	31	30	30	29	25	18	22	20	23	26	26	28	29	29	28	27	30	27	29	29
MED	58	56	53	50	44	41	54	60	59	58	60	65	70	78	84	86	88	82	79	80	76	65	60	59
U Q	61	60	59	52	49	46	60	67	63	62	63	74	82	92	91	96	96	92	88	86	82	72	64	62
L Q	56	53	48	43	40	35	50	53	56	54	57	59	62	69	73	79	73	72	70	75	68	59	52	53

IONOSPHERIC DATA STATION Yamagawa

MAY 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								A	A	A	L	A	524	L 480	L 500	464	A	A	A					
2								L	L 444	U L 444	508	A	500	A	500	472	U L 444	A	L					
3								L	A	A	A	U L 560	A	488	488	480	U L 452	A	A					
4								A	A	A	504	A	A	A	A	A	A	A	A					
5								L	L	L	U L 504	A	A	A	A	L 484	A	L	A					
6							204	L	L 432	U L 476	L	L	A	U R 484	L 472	L 464	U L 448	U L 408	L					
7								A	L 448	L 504	476	480	480	472	468	L 452	L 424	L						
8								L	L 456	U L	L 556	L	492	448	464	L 444	U L 416	L						
9							A	L	A	A	A	A	A	A	448	456	A	L 416	U L 368	A				
10								L	L	A	448	448	468	476	452	444	U L 436	U L 416	L					
11								A	396	432	R 444	R 452	A	460	460	A	L 444	L 408	A	A				
12								L	A	A	A	L 492	488	A	476	464	436	L 420	A					
13								A	A	A	L 480	A	488	484	480	A	440	L 416	L 376					
14								L	440	L 456	480	480	A	A	472	L 460	U L 460	U L 400	L					
15							L	L	U L 448	L	A	L	480	L 512	488	A		A		A				
16							A	A	L 424	A	A	A	A	A	464	452	A	L 412	L					
17							L	A	A	A	A	A	A	A	A	A	L 448	U L 416	A	A				
18							220	L	A	A	A	504	468	A	468	452	A	A		A				
19							240	L	U L 452	456	U L 484	484	472	480	472	456	436	A	A	A				
20								A	A	A	A	A	A	488	A	A	A	L 424	A					
21								U L 400	A	A	A	A	A	A	A	A	A	A	372					
22								A	A	A	A	A	A	A	A	A	A	A	L					
23							L	A	A	A	L 472	480	468	480	R 472	L 468	L 444	L 428	L	A				
24							L	A	A	A	A	A	A	476	A	A	A	A	A					
25							L	L	A	A	460	A	U R 480	A	A	444	A	U L 468	U L 372	A				
26						A		A	L 428	A	A	A	A	A	A	A	A	A	A	A				
27							L	A	A	A	A	R 468	A	A	464	484	432	L 404	A	A				
28							232	U L 360	A	A	A	A	A	A	A	464	460	L 436	U L 388	L				
29							L	L	A	A	464	A	464	A	R 456	460	L 440	A	A	A				
30							A	A	A	A	A	A	A	A	A	A	448	A	A					
31								U L 368	L	L	480	A	A	A	A	A	A	A	A	A				
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT							4	3	6	7	14	11	12	13	19	19	17	16	5					
MED							226	U L 368	L 434	L 448	480	480	480	480	472	464	L 444	L 416	U L 372					
U Q							236	U L 400	U L 448	L 456	504	L 504	488	488	480	468	U L 450	L 424	L 382					
L Q							212	U L 360	424	432	464	R 468	468	478	460	456	438	L 410	370					

MAY 2016 foF1 (0.01MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

MAY 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							U A 192	A 260	A 304	328	352	360	352	U A 348	U A 352	352	324	276	A 212					
2							B	252	296	328	348	A 360	U R 360	364	356	336	316	272	A 216					
3							A 180	252	A 300	324	332	A	A	336	R 360	336	324	284	U A 204					
4						A	A	A 240	A	A	A	A	A	A	A	A	A	A	A					
5						B	A	256	296	U A 336	U A 348	A	A	A	A	A 376	332	280	A					
6						B	U A 164	U A 228	U A 260	A	A	A	A	A	A	A	A	272	220	A				
7						A	196	248	U A 292	320	U A 356	U A 348	A	A	A	A	A	280	216	B				
8						B	188	248	300	320	328	U A 340	U A 348	A	344	328	312	280	220	A				
9						A	188	A 252	A 280	304	A 316	A 320	A	A	A	336	304	268	216	A				
10						A	208	256	A	332	332	A 332	U A 336	R 372	R 356	328	308	U A 284	U A 208	A				
11						B	176	248	288	324	344	R 352	356	R 356	344	340	R 312	280	220	A				
12						A	200	260	292	A 328	336	A 348	U A 340	A 368	356	R 340	320	284	A 232	A				
13						A	A	A 268	A 304	A 332	A 340	U A 348	A	328	A	A	A	A	244	B				
14						A	A	A	A	U A 400	A	U A 508	A	A	A	A	312	A	A 232	B				
15						A	200	A 268	U A 316	A 320	A	A	A	U A 360	U R 344	352	324	U A 296	A	2 135				
16						A	A 212	260	304	A 336	A 352	A	A	A	A	336	U A 332	A	A	A				
17						B	A 212	268	304	A 336	A	A	A	A	A	A	316	288	A 232	A				
18						A	184	A 268	300	336	R 352	U A 368	A 368	A	A	A	A	A	U A 224	A				
19						A	208	A 264	288	A 328	340	R 348	R 336	R 356	R 352	340	320	280	228	A				
20						A	A 232	A 268	304	A	A	A	A	A	384	A	A	288	U A 244	A				
21						A	216	284	304	324	340	352	348	A	A	A	A	A	A	A				
22						A	212	264	296	328	R 344	A	A	A	A 344	A	A	A	A	A				
23						B	224	252	296	328	344	R 352	A	A	A	A	U A 316	U A 272	A	A				
24						A	A 176	A 260	292	312	340	348	U R 352	R 352	R 352	332	312	A	A	A				
25						A	A 204	256	U A 308	U A 332	328	R 356	R 352	A	A	A	320	288	A 232	176				
26						A	U A 240	A 276	312	332	344	U A 332	R 340	344	356	332	312	A	A	A				
27						A	216	260	300	332	A	A	A	A	A	348	328	280	220	B				
28						A	200	264	A 316	332	356	364	A 368	356	A	348	324	A 284	236	B				
29						B	A	A	304	320	340	352	360	356	A	A	A	A	A	A				
30						A	216	256	296	320	A	A	A	A	A	A	316	280	U A 244	A				
31						A	U A 192	264	312	336	344	360	356	R 376	368	356	320	284	220	A				
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT							25	29	28	28	23	20	15	14	14	17	22	21	21	2				
MED							200	260	300	328	344	352	352	356	354	340	318	280	A 220	156				
U Q							214	A 266	A 304	A 332	348	360	360	364	356	350	324	284	A 232					
L Q							188	252	294	322	336	A 348	A 340	348	344	334	312	278	A 216					

MAY 2016 foE (0.01MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

MAY 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	J A 52	J A 44	J A 31	J A 26	E B 16	E B 16	J A 30	J A 51	J A 65	J A 72	J A 53	J A 50	J A 46	J A 43	J A 42	37	J A 54	J A 84	J A 95	J A 44	J A 33	J A 36	J A 29	J A 27
2	J A 16	20	18	18	18	E B 16	21	33	J A 41	J A 43	J A 48	J A 62	38	J A 54	39	38	J A 42	52	J A 54	J A 70	J A 61	J A 85	J A 66	J A 46
3	J A 52	J A 26	J A 18	J A 24	J A 28	J A 18	J A 34	J A 40	J A 58	J A 56	J A 116	J A 140	J A 183	G	40	37	38	J A 75	J A 83	J A 113	J A 100	J A 82	J A 80	J A 52
4	J A 39	J A 31	J A 76	J A 46	J A 35	J A 27	J A 24	J A 85	J A 73	J A 67	J A 63	J A 82	J A 53	J A 82	J A 65	J A 60	J A 47	J A 50	J A 39	J A 41	J A 35	J A 28	J A 66	J A 57
5	J A 44	J A 22	J A 38	J A 16	E B 16	E B 16	J A 33	34	34	39	J A 60	J A 53	J A 60	J A 52	J A 185	J A 106	J A 138	J A 156	J A 118	J A 78	J A 88	J A 19	E B 16	E B 16
6	J A 25	J A 20	21	J A 19	E B 16	E B 16	19	28	29	34	J A 48	J A 49	J A 56	41	J A 41	35	36	36	J A 40	J A 39	J A 62	J A 35	J A 25	J A 25
7	J A 26	J A 31	J A 20	J A 17	J A 17	J A 28	23	J A 49	J A 65	J A 61	J A 43	J A 40	J A 39	J A 42	J A 48	J A 46	J A 43	32	31	J A 26	J A 23	E B 16	J A 29	20
8	19	19	J A 23	J A 21	19	J A 20	22	33	40	J A 42	J A 45	36	46	J A 69	39	40	34	33	29	J A 36	J A 38	J A 31	J A 42	J A 31
9	J A 27	J A 49	J A 20	J A 25	J A 27	J A 41	J A 40	J A 52	J A 72	J A 56	J A 73	J A 104	J A 70	J A 60	J A 40	41	J A 46	34	J A 38	J A 42	J A 31	J A 34	J A 19	J A 66
10	J A 37	J A 67	J A 47	J A 31	J A 29	J A 30	J A 31	J A 40	J A 38	43	34	36	38	J A 43	41	36	J A 44	J A 42	25	J A 31	J A 87	J A 42	J A 40	J A 38
11	J A 66	J A 42	J A 41	J A 20	J A 18	E B 16	J A 42	34	J A 43	J A 43	J A 50	40	48	J A 45	38	J A 60	34	35	J A 51	J A 84	J A 44	J A 51	J A 86	J A 41
12	J A 79	J A 36	J A 74	J A 65	J A 58	J A 28	26	31	J A 47	J A 48	J A 53	J A 69	J A 62	J A 72	J A 45	40	J A 56	J A 44	J A 68	J A 45	20	J A 50	J A 31	J A 85
13	J A 76	J A 51	J A 41	J A 36	J A 34	J A 22	J A 38	J A 52	J A 65	J A 79	J A 114	J A 108	J A 66	J A 48	J A 59	J A 66	J A 35	J A 35	27	J A 33	J A 24	J A 44	J A 75	J A 44
14	J A 142	J A 79	J A 50	J A 48	J A 50	J A 24	J A 36	J A 49	J A 52	J A 44	J A 43	J A 54	J A 90	J A 77	J A 42	J A 50	J A 38	J A 34	J A 28	J A 22	J A 22	J A 17	J A 19	J A 18
15	J A 34	J A 38	J A 38	J A 28	J A 34	J A 25	25	32	J A 38	J A 47	J A 62	J A 59	J A 43	J A 38	J A 44	J A 49	J A 49	J A 77	J A 191	J A 130	J A 77	J A 72	J A 30	J A 85
16	J A 20	J A 30	J A 39	J A 34	J A 32	J A 51	J A 54	J A 46	J A 46	J A 48	J A 55	J A 63	J A 71	J A 121	J A 43	J A 70	J A 56	J A 80	J A 47	J A 38	J A 49	J A 108	J A 39	J A 84
17	J A 41	21	J A 24	J A 29	J A 18	J A 22	24	J A 55	J A 65	J A 48	J A 50	J A 78	J A 116	J A 123	J A 95	J A 61	35	35	J A 48	J A 42	J A 40	J A 43	J A 36	J A 52
18	J A 54	J A 46	J A 32	J A 28	J A 19	J A 33	20	J A 43	J A 52	J A 62	J A 56	J A 54	J A 46	J A 54	J A 54	J A 48	J A 84	J A 85	J A 148	J A 98	J A 112	J A 81	J A 75	J A 47
19	J A 64	J A 66	E B 16	J A 60	J A 72	J A 51	J A 53	J A 46	J A 46	J A 44	42	39	38	42	41	38	38	J A 52	J A 37	J A 69	J A 43	J A 51	J A 45	J A 52
20	J A 60	J A 75	J A 49	J A 41	J A 59	J A 51	J A 44	J A 72	J A 82	J A 95	J A 193	J A 85	J A 116	J A 68	48	J A 80	J A 49	35	J A 50	J A 75	J A 78	J A 85	J A 75	J A 75
21	J A 53	J A 41	J A 52	J A 46	J A 36	J A 28	J A 37	J A 32	J A 50	J A 57	J A 59	J A 68	J A 64	J A 51	J A 91	J A 61	J A 79	J A 70	J A 46	J A 38	J A 110	J A 88	J A 32	J A 75
22	J A 24	J A 52	J A 75	J A 66	J A 47	J A 22	J A 34	J A 48	J A 99	J A 83	J A 71	J A 135	J A 70	J A 63	J A 52	J A 88	J A 130	J A 76	J A 62	J A 41	J A 30	J A 26	J A 36	J A 27
23	J A 41	J A 39	J A 46	J A 34	J A 19	E B 16	25	30	J A 52	J A 110	J A 48	44	39	43	J A 42	38	J A 41	33	J A 37	49	J A 95	J A 110	J A 84	J A 34
24	J A 28	J A 31	J A 25	J A 29	J A 31	J A 22	22	J A 49	J A 77	J A 105	J A 64	J A 98	J A 59	43	J A 74	J A 92	J A 73	J A 82	J A 100	J A 103	J A 87	J A 88	J A 86	J A 44
25	J A 34	J A 40	J A 39	J A 55	J A 46	J A 36	J A 32	J A 43	J A 53	J A 62	J A 48	J A 52	J A 46	J A 71	J A 215	J A 64	J A 75	32	J A 56	J A 77	J A 93	J A 117	J A 109	J A 86
26	J A 73	J A 45	J A 40	J A 37	J A 51	J A 58	29	J A 50	J A 42	J A 74	J A 71	J A 66	J A 77	J A 73	J A 108	J A 82	J A 110	J A 142	J A 96	J A 129	J A 37	J A 65	J A 57	J A 65
27	J A 81	J A 34	J A 19	E B 16	J A 44	J A 44	26	J A 78	J A 52	J A 59	J A 72	J A 57	J A 119	J A 54	J A 53	49	40	J A 41	J A 53	J A 96	J A 53	J A 43	J A 44	J A 61
28	J A 51	J A 42	J A 39	J A 32	J A 29	J A 35	22	J A 34	43	J A 49	J A 87	J A 114	J A 98	85	J A 112	J A 53	J A 48	31	26	J A 52	J A 43	J A 68	J A 75	J A 34
29	J A 66	J A 78	J A 19	21	J A 16	E B 16	J A 33	J A 52	J A 72	J A 69	J A 50	J A 58	40	J A 50	J A 76	J A 144	J A 45	J A 80	J A 88	J A 87	J A 75	J A 51	J A 77	J A 124
30	J A 100	J A 73	J A 58	J A 51	J A 53	J A 35	J A 46	J A 44	J A 70	J A 73	J A 64	J A 72	J A 77	J A 86	J A 120	J A 73	36	J A 48	J A 53	J A 38	J A 32	J A 26	J A 49	J A 28
31	J A 33	J A 51	J A 44	J A 51	J A 26	J A 25	24	31	J A 42	J A 56	J A 70	J A 110	J A 110	J A 93	J A 53	76	J A 70	J A 49	J A 54	J A 52	J A 58	J A 46	J A 92	J A 102
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31
MED	J A 44	J A 41	J A 39	J A 31	J A 29	J A 25	J A 30	J A 44	J A 52	J A 56	J A 56	J A 62	J A 60	J A 54	J A 48	J A 53	J A 46	J A 48	J A 51	J A 49	J A 49	J A 50	J A 45	J A 47
U Q	J A 66	J A 51	J A 47	J A 46	J A 46	J A 35	J A 37	J A 51	J A 65	J A 72	J A 71	J A 85	J A 77	J A 73	J A 76	J A 73	J A 70	J A 77	J A 83	J A 84	J A 87	J A 82	J A 75	J A 75
L Q	J A 28	J A 31	J A 21	J A 21	18	E B 18	24	33	J A 42	J A 44	J A 48	50	46	43	41	40	38	35	37	J A 38	J A 33	J A 34	J A 31	J A 31

MAY 2016 foEs (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

MAY 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	31	26	17	24	E B 16	E B 16	26	35	54	A A 72	45	49	42	39	36	37	50	77	95	35	23	19	19	22
2	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	20	31	36	41	45	58	U Y 38	52	39	36	34	46	30	57	32	32	45	20
3	20	19	E B 16	E B 16	20	E B 16	30	36	56	55	83	44	72	G	40	U Y 37	35	45	42	60	29	A A 82	25	18
4	19	20	20	20	17	18	23	A A 85	A A 73	51	48	58	52	A A 82	64	57	46	48	34	35	33	22	19	33
5	16	E B 16	E B 16	E B 16	E B 16	E B 16	22	32	33	36	45	48	51	48	A A 185	44	55	35	46	35	62	18	E B 16	E B 16
6	20	E B 16	E B 16	E B 16	E B 16	E B 16	19	26	28	34	39	45	48	U Y 41	37	34	34	32	34	36	21	E B 16	17	E B 16
7	20	19	16	E B 16	E B 16	E B 16	23	44	33	34	39	37	39	37	44	44	40	31	30	24	20	E B 16	16	E B 16
8	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	20	32	36	38	42	36	45	45	38	38	34	30	28	33	32	31	20	E B 16
9	E B 16	19	18	E B 16	22	38	34	30	A A 72	A A 56	A A 73	A A 104	54	50	39	39	46	34	31	40	23	25	E B 16	39
10	30	40	19	E B 16	23	E B 16	29	35	30	42	U Y 34	U Y 36	38	43	40	34	42	31	25	28	46	20	E B 16	19
11	21	31	20	E B 16	E B 16	E B 16	40	28	40	40	40	39	48	42	U Y 38	48	33	35	44	A A 84	40	29	21	23
12	21	E B 16	E B 16	E B 16	E B 16	20	24	30	42	46	48	43	45	70	44	40	38	38	42	38	E B 16	19	16	41
13	42	20	21	22	20	E B 16	22	43	43	A A 79	46	51	47	45	39	54	34	32	G 24	22	23	34	23	25
14	E B 16	41	22	25	28	E B 16	27	31	37	42	38	G 41	A A 90	66	40	44	32	32	24	17	E B 16	E B 16	E B 16	E B 16
15	22	25	21	E B 16	28	22	23	30	36	42	56	43	40	U Y 38	44	49	46	64	45	A A 130	64	28	19	20
16	E B 16	E B 16	20	22	27	28	A A 54	40	40	A A 48	A A 55	A A 63	A A 71	51	43	44	48	29	31	36	44	40	E B 16	30
17	E B 16	E B 16	E B 16	20	E B 16	E B 16	22	49	50	A A 48	49	A A 78	A A 116	A A 123	50	A A 61	35	35	43	29	24	20	24	42
18	17	28	19	16	E B 16	20	20	34	45	A A 62	53	44	44	52	44	43	70	66	47	86	A A 112	A A 81	E B 16	19
19	E B 16	41	E B 16	19	E B 16	19	24	29	35	37	41	38	U Y 38	41	39	37	38	49	34	52	40	44	30	41
20	16	42	18	22	27	23	24	65	A A 82	A A 95	A A 193	A A 85	54	49	48	58	45	33	41	41	19	45	28	23
21	28	23	35	20	16	19	32	30	47	52	A A 59	A A 68	50	50	A A 91	52	70	54	34	31	84	A A 88	27	A A 75
22	E B 16	A A 52	E B 16	34	32	E B 16	32	A A 48	A A 99	A A 83	A A 71	A A 135	50	53	51	A A 88	A A 130	47	30	27	26	24	18	21
23	23	36	26	E B 16	E B 16	E B 16	24	28	44	A A 110	42	42	38	39	41	35	34	32	35	41	60	E B 16	47	18
24	E B 16	22	19	27	25	E B 16	22	47	A A 77	A A 105	59	A A 98	49	43	72	A A 92	70	A A 82	61	47	45	A A 88	A A 86	24
25	29	24	28	28	36	30	28	36	49	51	42	50	42	A A 71	A A 215	40	54	U Y 32	32	61	67	25	23	39
26	A A 73	37	36	22	E B 16	A A 58	28	43	36	A A 74	A A 71	A A 66	A A 77	70	62	73	A A 110	A A 142	A A 96	A A 129	E B 16	24	27	22
27	E B 16	27	E B 16	E B 16	E B 16	20	23	42	48	A A 59	A A 72	43	A A 119	50	46	46	40	37	37	A A 96	40	20	E B 16	19
28	E B 16	20	20	23	22	20	21	30	38	46	A A 87	A A 114	A A 98	81	A A 112	43	41	30	24	22	37	30	A A 75	17
29	56	53	E B 16	E B 16	E B 16	E B 16	24	32	A A 72	A A 69	45	56	40	46	43	38	42	74	A A 88	46	48	29	66	17
30	E B 16	30	23	34	28	18	41	40	60	42	A A 64	A A 72	A A 77	A A 86	A A 120	55	35	45	45	34	30	24	26	22
31	26	24	32	28	18	16	23	30	37	44	43	A A 110	A A 110	A A 93	50	69	53	45	49	47	30	31	45	E B 16
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31
MED	19	24	19	19	16	E B 16	24	34	43	48	48	50	49	50	44	44	42	37	35	38	32	25	21	21
U Q	26	36	21	23	25	20	29	43	A A 56	A A 69	A A 64	A A 72	A A 72	A A 70	A A 62	55	53	49	45	57	46	34	28	30
L Q	E B 16	E B 19	E B 16	E B 16	E B 16	E B 16	22	30	36	42	42	43	42	42	39	38	35	32	30	31	23	20	E B 16	E B 17

MAY 2016 fbEs (0.1MHz)

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IONOSPHERIC DATA STATION Yamagawa

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

IONOSPHERIC DATA STATION Yamagawa

MAY 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	292	292	290	339	322	296	368	378	356	A	334	322	304	R 313	319	332	R 325	315	306	R 337	357	321	285	281
2	287	303	295	300	348	356	354	369	358	360	275	U R 294	304	334	306	329	346	327	312	U R 307	307	311	306	296
3	297	300	301	314	310	313	324	330	297	299	294	R 283	U R 320	331	321	305	334	338	333	R 347	331	A	F 272	F 283
4	F 290	F 298	V 321	336	320	299	347	A	A	306	298	306	304	A	307	320	336	322	323	343	336	303	F 301	F 287
5	311	290	300	314	340	318	364	365	353	V 350	R 323	311	305	307	A	305	307	313	314	332	330	296	289	287
6	305	294	305	315	333	324	355	377	372	360	323	269	290	309	319	328	335	340	307	295	327	328	287	278
7	283	287	312	346	325	274	360	365	361	371	260	299	R 295	R 307	328	309	324	316	309	311	328	329	304	298
8	303	300	320	319	290	317	384	378	346	330	328	273	275	283	272	294	320	326	312	331	336	277	271	V 254
9	304	334	315	283	272	293	353	300	A	A	A	A	281	337	332	271	302	316	308	294	299	333	U R 295	U R 274
10	F 277	297	316	V 317	303	V 289	331	306	313	362	325	309	251	293	307	310	302	308	316	318	320	319	F 270	F 286
11	F 288	F 287	301	336	F 353	318	329	333	291	278	264	288	283	291	302	305	309	325	338	A	311	307	302	F 285
12	F 293	F 313	F 313	327	325	F 306	344	348	370	332	335	307	324	R 312	315	314	322	316	313	315	329	337	323	F 291
13	309	F 293	F 291	F 332	V 373	300	352	376	372	A	314	298	292	305	291	314	325	323	310	300	333	326	306	F 281
14	306	298	302	F 292	335	F 355	354	327	334	385	324	316	A	266	281	311	321	327	317	297	310	316	296	305
15	316	296	316	354	324	329	350	356	357	324	328	297	306	287	296	318	331	312	319	A	298	341	296	273
16	F 302	285	F 296	F 299	F 332	F 311	A	324	346	A	A	A	A	283	299	314	328	328	326	325	338	R 320	F 262	269
17	313	F 306	338	292	283	304	307	335	318	A	286	A	A	A	303	A	302	310	310	307	308	333	274	290
18	V 292	297	298	317	308	304	348	363	352	A	304	262	285	293	290	297	309	327	R	337	A	A	288	283
19	313	287	327	345	F 321	F 317	361	348	333	339	304	323	299	285	282	293	320	311	315	337	325	U R 305	F 274	F 292
20	U R 289	F 302	347	F 317	305	F 318	341	303	A	A	A	A	289	301	305	308	299	310	307	324	333	321	F 317	F 277
21	302	F 328	285	325	288	F 307	337	353	389	R 395	A	A	281	291	A	291	R 306	299	293	337	354	A	R	A
22	293	A	R 311	324	332	359	387	A	A	A	A	A	289	303	304	A	A	324	316	325	319	294	301	286
23	304	R 309	321	F 286	V 299	F 316	387	H 355	354	A	309	284	306	327	314	318	317	310	312	329	366	315	304	F 311
24	F 298	F 306	V 333	325	327	357	371	382	A	A	333	A	286	293	299	A	314	A	321	332	344	A	A	303
25	302	306	321	312	282	327	358	374	370	294	334	324	303	A	A	308	306	299	314	324	317	316	U R 315	R
26	A	R 318	F 310	F 316	F 306	A	367	362	362	A	A	A	A	290	311	316	A	A	A	A	307	312	289	329
27	F 301	298	F 331	314	F 313	325	371	370	383	A	A	307	A	290	287	280	294	307	332	A	316	305	F 292	268
28	294	327	304	322	336	346	381	360	357	334	A	A	A	317	A	330	295	284	295	308	313	355	A	279
29	299	307	322	F 325	303	F 295	334	366	A	A	332	270	268	295	304	299	305	312	A	344	306	322	306	317
30	F 302	302	F 325	F 307	F 299	F 323	343	397	383	361	A	A	A	A	A	302	316	R 338	325	296	309	311	287	274
31	293	F 296	F 303	314	362	362	398	380	359	341	266	A	A	A	291	300	293	310	307	306	328	309	299	F 284
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	30	31	31	31	30	30	29	25	18	22	20	23	26	26	28	29	29	28	27	30	27	28	29
MED	300	299	312	317	321	317	354	362	357	340	318	298	292	298	304	308	316	316	314	324	326	316	296	285
U Q	304	306	321	327	333	327	368	375	370	361	328	310	304	312	314	317	325	326	320	337	333	328	304	294
L Q	292	294	301	312	303	304	343	334	340	324	294	284	283	290	291	300	304	310	308	307	310	307	286	278

MAY 2016 M(3000)F2 (0.01)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

MAY 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								A	A	A	L	A	351	L 395	L 372	392	A	A	A					
2								L	L	U L 407	333	A	369	A	369	373	U L 372	A	L					
3								L	A	A	A	U L 342	A	382	361	368	U L 371	A	A					
4								A	A	A	A	A	A	A	A	A	A	A	A					
5								L	L	L	U L 364	A	A	A	A	L 335	A	L	A					
6							470	L	L	U L 435	L 393	L	A	U R 339	L 385	H 392	U L 374	U L 372	L					
7								A	L	L 392	392	417	392	383	A	L 363	L 367	U L 348	L					
8								L	L	U L 408	L	H 346	L	329	400	356	L 358	U L 369	L					
9							A	L	A	A	A	A	A	A	378	354	A	L 364	U L 345	A				
10								L	L	A	402	434	410	329	387	384	A	U L 352	L					
11								A	A	331	R 397	R 394	A	408		A	L 365	L 359	A	A				
12								L	A	A	A	L 386	A 343	A	356	375	377	L 370	A					
13								A	A	A	A	A	A	E A 328	370	A	384	L 377	L 353					
14								L	377	A	402	406	A	A	384	A	U L 361	U L 385	L					
15							L	L	U L 396	L	A	L	404	L 364	349	A		A		A				
16							A	A	A	A	A	A	A	A	335	A	A	L 364	L					
17							L	A	A	A	A	A	A	A	A	A	L 356	U L 360	A	A				
18							559	L	A	A	A	348	398	A	A 326	351	A	A		A				
19							A	L	U L 368	383	U L 383	388	414	399	394	375	373	A	A	A				
20								A	A	A	A	A	A	A	A	A	A	L 360	A					
21								U L 373	A	A	A	A	A	A	A	A	A	A	330					
22								A	A	A	A	A	A	A	A	A	A	A	L					
23							L	A	A	A	L 384	418	424	384	R 409	L 375	L 367	L 351	L	A				
24							L	A	A	A	A	A	A 388		A	A	A	A	A					
25							L	L	A	A	394	A	U R 411	A	A	314	A	U L 339	U L 367	A				
26						A		A	L 397	A	A	A	A	A	A	A	A	A	A	A				
27							L	A	A	A	A	R 427	A	A	A	390	358	L 361	A	A				
28							489	U L 409	A	A	A	A	A	A	A	352	348	L 348	U L 363	L				
29							L	L	A	A	A	A	407	A	R 376	373	A	A	A	A				
30							A	A	A	A	A	A	A	A	A	A	358	A	A					
31								U L 409	L	L	368	A	A	A	A	A	A	A	A	A				
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT							3	3	4	6	11	11	11	12	16	17	15	16	5					
MED							489	U L 409	L 386	L 400	392	394	404	382	374	373	L 367	L 360	U L 353					
U Q							559	U L 409	L 396	U L 408	397	418	411	392	386	380	373	U L 370	U L 365					
L Q							470	U L 373	372	383	368	348	369	334	358	353	358	U L 352	338					

MAY 2016 M(3000)F1 (0.01)

IONOSPHERIC DATA STATION Yamagawa

MAY 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								228	274	A	274	300	322	288	288	266	256	310	356					
2								236	230	246	438	346	306	270	310	270	244	268	264					
3								272	370	316	408	366	340	264	276	294	254	248	248					
4								A	A	330	336	308	324	A	310	270	260	266	260					
5								230	238	238	316	326	330	306	A	294	292	268	262					
6							210	222	234	H 224	306	378	326	300	280	272	260	256	286					
7								238	232	252	498	340	324	300	272	294	272	296	266					
8								228	244	286	272	390	372	350	386	322	270	260	262					
9							242	336	A	A	A	A	414	294	320	452	354	302	306	286				
10								374	346	272	332	360	536	386	342	310	308	284	278					
11								244	400	434	A 480	394	408	388	338	338	316	286	258	A				
12								238	238	264	300	330	286	342	298	292	282	284	270					
13								228	228	A	338	374	350	314	302	292	276	262	272					
14								264	294	234	330	318	A	466	348	284	278	266	266					
15							240	234	236	306	314	370	324	354	322	278		308		A				
16							A	310	296	A	A	A	A	416	380	316	282	282	264					
17							260	290	350	A	424	A	A	A	368	A	354	332	290	278				
18							226	234	248	A	358	470	370	332	330	318	296	274		320				
19							222	222	284	288	354	310	352	372	362	320	280	274	252	250				
20								384	A	A	A	A	344	312	300	302	296	278	280					
21								250	220	246	A	A	402	352	A	326	316	314	318					
22								A	A	A	A	A	382	328	318	A	A	300	276					
23							206	198	274	A	356	422	356	278	316	320	308	318	280	242				
24							214	240	A	A	328	A	390	366	392	A	312	A	284					
25							238	226	250	404	302	326	366	A	A	304	296	308	270	282				
26						A		244	244	A	A	A	A	384	304	314	A	A	A	A				
27							228	240	230	A	A	362	A	356	342	354	316	288	244	A				
28							206	228	240	298	A	A	A	336	A	276	328	320	294	260				
29							260	236	A	A	314	470	408	318	306	312	296	302	A	244				
30							256	200	244	248	A	A	A	A	A	298	276	260	258					
31								228	250	300	A 468	A	A	A	338	354	334	286	268	278				
	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	29	25	18	22	20	23	26	26	28	28	29	27	9				
MED							228	236	244	279	334	361	352	334	319	303	294	284	270	278				
U Q							249	257	289	306	408	384	390	366	342	320	314	305	284	284				
L Q							212	228	235	246	314	326	324	300	302	288	274	267	262	247				

MAY 2016 h'F2 (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

MAY 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	290	304	264	212	216	274	212	A	A	A	248	A	240	204	200	208	A	A	A	234	206	220	272	300
2	294	284	278	258	218	216	226	230	216	224	284	A	212	A	228	202	212	A	244	278	264	272	290	254
3	258	260	260	244	244	220	240	250	A	A	A	224	A	188	230	H 218	H 244	A	A	254	244	A	372	330
4	308	276	234	220	230	254	240	A	A	A	A	A	A	A	A	A	A	A	A	228	226	242	278	338
5	256	278	262	244	216	244	232	224	200	H 194	252	A	A	A	A	E A 304	A	240	A	234	272	228	272	284
6	262	288	262	236	222	236	170	214	H 132	186	192	H 254	A	E A 312	182	H 164	H 206	226	264	276	244	208	246	298
7	310	294	250	216	224	302	234	A	212	198	H 190	174	H 194	H 196	A	284	256	218	248	252	228	212	234	254
8	276	262	240	240	284	248	200	218	224	196	242	186	316	320	204	236	222	214	248	226	230	316	310	358
9	264	218	252	284	328	328	A	256	A	A	A	A	A	A	230	250	A	240	296	A	266	244	280	350
10	346	332	258	246	306	306	274	276	196	A	196	182	194	312	234	206	H	224	228	254	272	234	298	310
11	316	316	272	200	206	246	350	A	A	310	220	204	A	216	202	A	222	246	A	A	280	274	276	330
12	320	250	242	242	248	272	232	218	A	A	A	216	E A 296	A	288	226	226	256	A	250	224	222	228	334
13	320	282	298	248	204	270	234	A	A	A	A	A	A	E A 324	224	A	H 200	206	212	266	232	230	238	326
14	262	320	290	288	234	208	218	192	224	A	188	190	A	A	210	A	194	202	230	256	242	232	256	250
15	256	280	258	208	262	250	224	210	204	220	A	214	192	188	276	A	266	A	274	A	314	234	218	318
16	254	264	302	286	272	276	A	A	A	A	A	A	A	A	320	A	A	216	254	254	286	324	324	324
17	266	244	220	294	294	256	226	A	A	A	A	A	A	A	A	A	222	242	A	A	254	218	300	372
18	312	322	284	260	238	302	124	224	A	A	A	256	234	A	E A 342	A 312	A	A	260	A	A	A	290	316
19	244	394	242	228	226	244	A	206	206	214	214	H 182	198	200	200	228	240	A	A	A	246	302	328	338
20	274	338	214	248	298	236	234	A	A	A	A	A	A	A	A	A	A	218	A	258	234	272	272	304
21	282	240	360	224	278	304	258	222	A	A	A	A	A	A	A	A	A	A	A	240	244	A	358	A
22	300	A	278	350	286	202	218	A	A	A	A	A	A	A	A	A	A	A	250	242	230	258	266	294
23	282	300	234	266	278	268	204	A	A	A	232	184	H 172	H 206	198	184	220	230	A	A	258	238	344	242
24	270	270	232	260	262	224	204	A	A	A	A	A	A	234	A	A	A	A	A	250	226	A	A	286
25	304	268	252	284	364	280	228	220	A	A	230	A	200	A	A	E A 350	A	276	254	A	298	228	240	296
26	A	272	330	246	230	A	214	A	210	A	A	A	A	A	A	A	A	A	A	A	246	262	300	214
27	242	324	234	246	276	268	222	A	A	A	A	196	A	A	A	254	284	266	A	A	256	242	288	318
28	288	266	286	256	238	228	168	196	A	A	A	A	A	A	A	E A 288	276	202	214	250	256	226	A	308
29	366	376	238	234	264	264	234	228	A	A	A	A	198	A	260	214	A	A	A	A	304	246	356	226
30	258	316	260	314	304	244	A	A	A	A	A	A	A	A	A	A	216	A	A	238	244	240	296	302
31	310	318	302	286	218	202	198	204	204	270	248	A	A	A	A	A	A	A	A	A	222	260	344	306
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	30	31	31	31	30	27	17	11	9	13	13	12	12	17	17	16	17	14	19	30	27	29	30
MED	282	283	260	246	248	252	226	220	206	214	230	196	198	206	226	221	222	226	249	250	245	240	288	307
U Q	310	318	284	284	284	274	234	229	216	247	248	220	237	312	268	E A 286	250	244	260	256	266	262	317	330
L Q	262	266	240	234	224	236	204	208	200	195	194	183	194	198	201	207	214	215	230	238	230	228	261	286

MAY 2016 h'F (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

MAY 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							120	102	98	96	96	96	98	98	98	102	98	98	102					
2							B	98	94	98	96	96	100	100	100	100	100	100	104					
3							110	96	100	96	96	A	A	100	98	98	98	98	104					
4						A	A	98	A	A	A	A	A	A	A	A	A	A	A					
5						B	A	100	96	96	96	A	A	A	A	100	98	100	A					
6						B	E B	98	92	A	A	A	A	A	A	A	A	96	100	A				
7						A	122	98	98	96	96	96	A	A	A	A	A	A 114	106	B				
8						B	126	102	100	98	102	96	102	A	100	96	98	102	110	A				
9						A	110	98	96	96	96	96	A	A	96	A	98	102	102	A				
10						A	E A	100	A	98	98	96	96	96	98	94	100	102	108	A				
11						B	E B 124	100	100	98	98	98	98	98	100	100	100	100	108	A				
12						A	126	102	102	102	102	100	100	104	100	104	104	104	E B 108	A				
13						A	A	102	100	100	98	96	A	98	A	A	A	98	130	B				
14						A	A	A	A	96	A	96	A	A	A	A	A	A	96	B				
15						A	E B 128	102	98	96	A	A	96	104	104	100	104	102	A	A				
16						A	112	104	100	100	98	A	A	A	A	102	102	A	A	A				
17						B	128	98	96	98	A	A	A	A	A	A	A	114	106	A				
18						A	106	100	98	98	100	100	100	A	A	A	A	A	92	A				
19						A	118	100	96	96	96	96	96	100	100	100	102	102	102	A				
20						A	114	102	98	A	A	A	A	A	A	A	A	102	A	A				
21						A	A	H 98	98	98	98	A	98	A	A	A	A	A	A	A				
22						A	106	102	98	98	98	A	A	A	96	A	A	A	A	A				
23						B	122	98	98	98	100	100	A	A	A	A	98	102	A	A				
24						A	116	100	98	98	98	98	98	100	98	98	96	A	A	A				
25						A	E A 110	100	100	94	100	98	98	E A	A	A	98	100	104	A				
26						A	124	96	96	96	96	96	96	96	96	96	98	A	A	A				
27						A	112	96	96	104	A	A	A	A	A	100	120	104	104	B				
28						A	110	98	98	112	100	98	98	98	A	96	106	106	106	B				
29						B	A	A	98	96	96	96	100	96	96	A	A	A	A	A				
30						A	96	100	98	94	A	A	A	A	A	A	108	96	92	A				
31						A	106	100	100	96	96	96	98	96	96	100	94	100	104	A				
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT							22	29	28	28	23	19	16	14	15	16	20	22	20					
MED							114	100	98	98	98	96	98	98	98	100	99	102	104					
U Q							124	102	100	98	100	98	100	100	100	100	103	102	107					
L Q							110	98	96	96	96	96	97	96	96	97	98	100	102					

MAY 2016 h'E (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

MAY 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	90	88	92	124	B	B	116	110	106	104	104	102	102	104	104	160	132	104	104	100	96	98	122	98
2	104	100	132	126	134	B	116	112	114	114	106	102	126	110	110	110	118	110	108	102	98	98	96	94
3	94	94	94	90	90	112	110	110	104	100	100	98	114	G	168	152	136	106	102	100	98	98	102	98
4	94	94	96	94	92	92	98	100	96	96	96	94	94	94	94	94	94	92	90	90	86	88	102	96
5	104	92	106	94	B	B	94	110	110	104	100	98	98	122	112	114	112	152	174	98	98	94	B	B
6	88	86	86	86	B	B	158	100	100	94	96	96	94	96	94	102	98	116	102	100	100	108	94	94
7	98	98	98	106	104	98	124	104	104	104	104	104	98	92	88	88	88	132	110	108	100	B	98	96
8	96	98	98	106	96	90	122	114	110	110	100	106	106	124	116	112	148	120	106	100	98	96	98	104
9	118	104	92	96	100	112	108	110	100	100	100	96	96	96	102	122	112	114	104	100	100	96	98	96
10	98	112	96	102	96	98	114	114	90	106	120	102	102	170	138	126	106	110	108	100	98	98	96	100
11	118	88	94	98	118	B	114	114	112	112	108	110	110	112	134	104	158	114	106	100	98	98	98	102
12	100	96	120	96	92	98	132	126	110	110	102	104	122	104	114	124	112	108	102	98	104	102	100	96
13	96	96	92	86	86	86	114	108	104	102	100	100	96	100	132	94	94	102	132	102	100	98	98	96
14	96	94	98	94	94	100	98	128	98	102	106	104	94	96	98	94	94	90	114	102	106	86	86	86
15	102	96	96	96	96	96	118	112	108	102	94	94	106	118	116	120	112	102	98	98	92	102	120	98
16	96	104	92	92	90	100	110	106	106	104	100	96	96	116	98	106	112	188	100	100	102	106	110	96
17	108	98	96	96	94	118	130	110	106	102	98	98	94	116	108	88	150	132	106	100	96	96	98	98
18	94	94	90	92	92	88	124	114	108	102	102	102	106	96	96	96	110	106	108	104	108	108	110	104
19	110	96	B	96	104	90	112	110	112	108	102	106	108	118	120	158	130	108	108	98	96	96	98	98
20	94	94	94	92	92	94	112	108	102	98	98	94	96	96	146	98	100	120	108	104	104	104	104	104
21	98	94	94	92	92	92	116	124	106	104	104	102	98	100	98	98	120	136	154	96	110	104	96	92
22	128	98	96	94	94	98	116	112	108	102	102	100	100	98	102	116	98	98	98	98	94	96	104	94
23	94	98	94	94	96	B	116	126	114	104	104	106	96	96	92	94	112	102	94	94	106	118	104	94
24	108	92	90	90	88	130	120	108	102	102	106	104	102	110	106	104	100	98	96	94	100	94	92	98
25	92	102	92	88	90	94	110	108	104	102	106	106	110	98	96	152	106	128	106	100	102	122	104	104
26	98	94	94	92	130	94	122	108	112	104	102	100	100	102	102	102	102	100	100	96	106	102	108	106
27	106	94	128	B	98	90	118	102	106	102	98	98	96	130	92	120	126	118	104	100	118	98	102	102
28	102	96	94	92	92	96	152	128	118	114	106	100	102	100	98	110	112	116	144	102	100	102	102	120
29	100	106	94	94	108	B	94	94	102	102	104	102	106	102	104	110	94	94	94	92	92	110	102	102
30	106	94	92	92	116	92	106	106	100	100	98	96	96	94	94	94	124	106	100	96	96	96	92	88
31	94	106	94	94	88	88	130	126	114	110	106	108	104	102	110	108	102	102	100	98	94	104	106	106
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	30	30	28	24	31	31	31	31	31	31	31	30	31	31	31	31	31	31	31	30	30	30
MED	98	96	94	94	94	95	116	110	106	102	102	102	100	102	104	108	112	108	104	100	100	98	101	98
U Q	106	98	96	96	102	99	122	114	110	106	106	104	106	116	116	120	124	120	108	100	104	104	104	102
L Q	94	94	92	92	92	91	110	108	102	102	100	98	96	96	96	96	100	102	100	98	96	96	98	96

MAY 2016 h'Es (KM)

IONOSPHERIC DATA STATION Yamagawa

MAY 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	F3	F3	F2	FFF21			CL41	C3	C4	C3	C2	C2	C2	C1	C1	H1	H3	C5	C8	FF61	F5	F7	FF25	F4
2	F2	F1	F1	F1	F1		C2	C2	C2	C1	C3	C2	C1	C2	C1	C1	C1	C2	C5	F7	F6	F5	F5	F4
3	F3	F5	F2	F2	F3	F1	C4	C4	C5	C2	C5	L2	CL23		H1	H1	H1	C4	C5	F4	F3	F4	FF31	FQ31
4	F6	F4	F3	F5	F1	L2	L3	C7	L7	L3	L3	L2	L3	L3	L3	L4	L2	L6	L4	F4	F6	F5	FFF22	F5
5	FFF21	FF21	FF21	F1			LC33	C2	C2	C1	C2	L2	L2	CL12	CL42	C2	C3	HC13	HC16	FF51	F8	F2		
6	F4	F2	F2	F2			H1	C2	C1	L2	L2	L2	L3	L1	L1	CL11	L1	C2	C3	L6	F4	FF12	FF31	FF21
7	FF61	FF21	F2	F1	F1	L1	C4	C4	C2	C1	C2	C1	L1	L1	L3	L2	L3	HL14	C2	CL61	F2		F2	F1
8	F1	F1	F2	FF11	F1	L1	CL11	C1	C2	C2	C2	C1	C1	CL22	C1	C2	H1	C1	C4	L6	F6	F5	F2	FQ11
9	FF23	FF24	F2	F2	FF13	C8	C6	C2	C5	C3	C2	L3	LC21	L3	C1	CL11	C2	C2	C4	L4	F4	F4	F2	F3
10	F8	FF28	F8	F2	F3	L2	C3	C2	LC11	C2	C1	C1	C1	H1	H1	C1	C2	C2	C1	L7	F7	FF31	FQ21	FQ51
11	FFQ12	FQ31	FF21	FF11	F1		C4	C1	C2	C2	C1	C1	C1	C1	H1	C2	H1	C1	C4	LC82	FF42	FFF31	FF41	FF51
12	F5	FF31	FF12	FF41	F7	L4	H2	C1	C2	C2	C3	C1	CC11	C3	C1	C1	C2	C2	C4	L5	F1	FF41	FF21	F4
13	F3	FF31	FF31	F3	F4	LC21	CL11	C3	C3	C5	C2	C2	L2	C2	HC11	LH31	L2	C2	HC11	C3	F4	FF62	F3	FQ31
14	FF21	FQ31	FF31	F4	FF41	L1	L2	CL12	L2	C2	C1	C1	L4	L4	L1	L3	L1	L2	C1	C2	FF11	F2	F1	F1
15	F8	F4	FFF31	FF21	FF31	L5	C2	C2	C2	C2	L2	L1	C1	C1	C1	C1	CL31	C3	L4	LQ71	FFF42	FF33	FF13	F4
16	F2	FF21	FF51	FF42	FF41	LQ41	C4	C2	C3	C2	C2	C2	C2	CL12	L2	C2	C2	HC11	CH21	L6	F8	F4	FF12	F3
17	FFF21	F2	F2	F4	F2	CL21	CC21	C6	C4	C2	L2	L2	L5	CL15	CL13	L4	HL11	HL21	C6	L5	F2	F4	F6	F8
18	F4	F4	F3	F2	F1	LQ41	C1	C2	C3	C5	C3	C2	C2	L2	LC21	LC21	CL22	CL43	C4	CL93	FFF91	FF81	FFF31	FF51
19	FFF11	F5		F4	FF12	LC21	CL31	C3	C1	C1	C1	C1	C1	C1	C1	H1	C1	C3	C3	L7	F4	FF81	F4	FFF82
20	FQ21	FF51	FF21	FF51	F4	LC51	CL22	C7	C7	L5	L4	L4	LH31	LH21	HL11	LH21	L2	C2	CL33	C7	F3	FQ41	FQ51	FF31
21	FF61	FF41	FF41	FF41	FF21	L3	CL33	C2	C3	C3	C2	CL21	L2	L2	L4	L2	CL34	HCL22	HCL11	LH51	FF26	FF71	FF61	F5
22	FFF11	FF51	FF31	F6	FF62	L3	C5	C4	C6	C4	C3	L4	L2	L2	C2	CL34	L5	LQ41	LQ31	L5	F5	FF33	FF31	F4
23	F4	FF61	FF41	F2	F2		C2	C2	C4	C3	C2	C1	L1	L1	L1	L2	C1	C3	L4	L9	F4	FFF11	F3	FF31
24	FF12	F5	F4	F6	F6	CCL11	C2	C8	C8	C3	C2	C3	CC21	C1	C3	C3	C2	L4	L4	L6	F5	F6	FF31	FF41
25	FF41	FF45	F4	F4	F4	LQ71	C6	C4	C3	C5	C2	C2	C1	L3	LQ31	HC11	C3	CL21	CL42	CL93	FFF51	FF13	FF23	F5
26	F8	F7	FQ41	F4	FF14	L9	C2	C4	C2	C3	C5	C3	C3	C3	C2	C4	C6	L6	L8	LQ61	F2	FF33	FQ61	FFQ31
27	FQ21	F5	FF11		F4	L4	CL21	C4	C3	CL41	L2	L2	L3	HL22	LC11	CL11	CL22	CL23	CL52	CL53	FFF24	F3	F7	F3
28	F4	F4	F7	F5	F6	LQ51	H1	C1	C2	CL21	C2	C4	C3	C2	L4	C2	CL21	CL21	HL22	CL63	FF41	F5	F4	FFF22
29	F8	FF15	FF21	F2	FF11		L4	L3	C5	C3	C2	C2	C1	C1	CL12	CLH11	L2	L7	L4	L5	F5	FF13	FF64	FFQ21
30	FF14	FQ31	FQ41	FF31	FFF13	LQ41	CQ51	C5	C3	C2	L3	L4	L4	L4	L4	L3	CL11	C2	C4	L5	FF62	F6	F5	F3
31	FF65	FF25	F4	FF23	FF32	FQ21	H2	C2	C2	C2	C2	C3	CH31	C3	C2	C2	C3	C3	C4	L4	F4	FF22	FF25	FF23
	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																								

MAY 2016 TYPES OF Es

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

MAY 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	80	78	76	70	64	58															X 133	X 113	X 113	X 112
2	X 106	X 102	X 96	X 85	X 73	X 58															X 98	X 90	X 84	81
3	85	X 80	X 80	X 74	X 51	A															X 81	X 69	X 66	71
4	81	88	X 104	76	50	45	55														X 90	X 64	X 64	80
5	78	71	67	68	51	41															X 82	X 67	70	X 66
6	X 65	X 64	X 64	X 67	X 57	X 46															X 96	X 78	X 66	X 66
7	X 67	X 66	X 70	X 70	X 38	X 40															X 104	X 82	X 65	X 66
8	X 68	X 70	X 71	X 56	X 55	X 58															X 96	X 69	X 69	X 64
9	X 71	X 83	X 58	X 51	X 50	X 60								C							X 78	X 66	X 60	X 71
10	X 61	X 59	X 62	X 52	46	X 43															X 78	X 63	X 58	58
11	66	67	69	72	55	41															A	A	X 54	X 54
12	56	55	59	51	36	37															X 87	X 80	X 66	X 63
13	71	72	69	X 59	43	37	X 54														X 97	X 76	X 60	X 60
14	62	60	65	62	55	51															X 92	X 88	X 70	X 70
15	X 70	72	X 71	X 64	X 57	X 42															X 90	X 82	X 80	80
16	76	72	70	63	61	63															X 70	X 63	X 58	64
17	70	67	58	55	53	51															X 77	X 69	X 64	X 63
18	X 61	56	56	50	47	38															X 65	X 67	X 61	58
19	58	A	67	58	X 37	34															X 80	X 64	X 66	X 65
20	67	72	62	56	57	54	61														X 114	X 84	80	88
21	77	67	68	55	X 44	49															X 108	X 54	X 49	51
22	56	58	56	59	51																X 78	X 80	X 82	X 74
23	X 69	X 68	X 70	X 57	53																X 72	X 61	67	66
24	68	66	55	51	52	46															X 74	X 75	X 72	71
25	70	77	69	A	X 53																X 94	X 74	79	A
26	70	72	66	59	55	54	56														X 86	X 89	X 70	81
27	83	A	73	67	66	58															A	X 69	X 66	62
28	66	70	65	67	57	49															X 98	X 70	X 62	X 60
29	66	67	X 67	55	X 48																X 83	X 74	X 66	76
30	72	68	68	60	54	57	78														X 94	X 84	X 74	X 73
31	X 74	71	72	74	69	58															X 83	X 74	X 72	70
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	29	31	30	31	26	5														29	30	31	30
MED	70	70	68	60	53	49	56														X 87	X 74	X 66	66
U Q	76	72	X 71	68	57	58	70														X 96	X 82	X 72	74
L Q	66	66	62	55	48	41	54														X 78	X 67	X 62	63

MAY 2016 fxI (0.1MHz)

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IONOSPHERIC DATA STATION Okinawa

MAY 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 73	F 68	F 66	F 63	F 52	F 51	57	65	64	68	A	77	93	113	131	153	155	142	A	A	127	107	107	106
2	100	96	90	79	67	52	53	68	61	A	57	84	108	113	110	110	110	A	88	A	92	84	78	F 73
3	F 78	74	74	68	45	A	43	55	75	78	85	86	108	135	127	125	132	102	96	91	75	63	60	F 62
4	F	F 78	98	F 66	F 39	F 37	F 48	61	A	69	78	88	92	101	117	124	128	119	115	114	84	58	58	F
5	F 68	F 64	F 60	F 52	F 42	F 33	45	69	62	61	68	68	76	91	98	99	92	96	102	98	76	61	F 62	60
6	59	58	58	61	51	40	53	66	61	66	76	92	105	124	130	118	102	84	77	84	90	72	60	60
7	61	60	64	65	32	34	58	64	61	56	55	75	90	100	102	96	89	86	90	99	98	76	59	60
8	62	64	65	50	49	52	64	66	60	71	67	78	94	108	109	126	134	116	100	97	90	63	63	58
9	65	77	52	45	44	54	60	Z 50	A	A	A	A	A	C	62	59	77	82	72	81	72	60	54	J R 65
10	55	53	56	46	36	37	39	42	A	A	56	A	55	64	78	87	96	86	85	85	72	57	52	F 51
11	F 56	F 58	F 60	F 62	F 40	F 30	39	44	46	51	A	55	62	69	75	84	94	99	78	70	A	A	48	48
12	F 46	F 45	F 50	F 41	F 27	F 30	45	61	61	62	60	69	77	81	93	100	98	90	86	A	81	74	60	57
13	F 59	F 62	F 61	53	F 35	F 29	48	66	55	H 54	A	71	A	87	94	102	102	104	99	90	91	70	54	54
14	F 52	F 50	F 50	F 53	F 48	F 42	A	62	74	72	A	H 60	68	80	91	100	100	92	81	84	86	82	64	64
15	64	F 63	65	58	51	36	51	63	65	70	64	65	75	87	96	106	102	100	94	95	84	76	74	F 68
16	F 67	F 62	F 62	F 54	F 51	F 54	56	54	A	A	A	A	A	J R 68	78	87	86	76	75	76	64	57	52	F 52
17	F 60	F 60	F 49	F 46	F 43	F 44	50	54	55	A	A	A	A	66	68	69	A	73	82	77	71	63	58	57
18	55	F 49	F 48	F 43	F 36	30	52	54	57	A	58	61	71	86	94	106	111	111	111	92	59	61	55	F 51
19	F 49	A	F 57	F 50	31	F 27	44	54	58	60	68	65	67	70	80	98	107	104	A	98	74	58	60	59
20	F 60	F 64	F 55	F 50	F 50	F 47	F 53	56	A	A	A	A	A	A	124	133	135	137	140	132	108	78	F 69	F 78
21	F 68	F 58	F 57	F 46	38	F 38	54	74	A	A	A	57	65	A	88	98	106	112	110	120	102	48	43	F 43
22	F 46	F 48	F	F	F 43	36	46	52	57	56	A	A	73	A	98	95	94	99	105	104	72	74	76	68
23	63	62	64	F 49	F 46	F 50	57	55	A	57	A	60	72	89	79	77	76	81	92	92	66	55	F	F 53
24	F	F 53	F 44	F 39	F 39	F 35	48	A	A	A	A	A	A	79	83	94	95	93	107	109	68	69	66	F
25	F 60	F 67	F 56	A	47	52	55	65	A	A	A	A	73	A	96	96	97	98	98	97	88	68	F 68	A
26	F 59	F 59	F 58	F	F 48	F	F 48	67	A	A	A	A	76	98	112	116	A	A	91	84	80	83	64	F
27	F 76	A	F	F 58	F 53	F 50	51	70	61	50	54	A	68	82	88	90	97	108	115	A	A	63	60	F 53
28	F 52	F 58	F 55	F 51	F 46	F 42	48	59	52	55	62	A	77	84	98	88	87	92	94	92	92	64	56	54
29	F 58	F 60	61	F 48	42	36	50	60	63	A	61	A	A	85	92	90	94	104	99	91	77	68	60	F
30	F 62	F 52	F 53	F 48	F 48	F 50	F 70	69	53	54	A	A	A	74	86	97	109	98	87	86	88	78	68	67
31	68	F 62	F 62	F 64	F 62	F 50	48	53	56	55	56	A	73	A	81	82	89	100	100	90	77	68	66	F 63
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	29	29	29	28	31	29	30	30	21	19	16	17	23	25	31	31	29	29	29	27	29	30	30	26
MED	F 60	F 60	F 58	F 52	F 45	F 40	50	61	61	60	62	69	75	86	94	98	98	99	94	92	81	68	60	60
U Q	F 68	F 64	64	62	F 50	50	55	66	62	69	68	81	92	100	109	110	110	106	104	98	90	76	66	65
L Q	F 56	F 56	F 54	F 47	39	F 34	48	54	56	55	56	60	68	76	81	88	93	88	86	84	72	61	56	F 53

MAY 2016 foF2 (0.1MHz)

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IONOSPHERIC DATA STATION Okinawa

MAY 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									L	A	A	A	A	A	A	A	L	A	A	A				
2										A	A	L 484	L 500	A	A	484	A	A		A				
3									L	U L 492	L 560	548	U A 504	A	484	U L 468	U L 452	L	L					
4								L	A	A	A	A	U A 500	U L 500	492	472	L 456	L 436	A					
5									L	U L 500	484	U L 528	R	A	A	A	A	A	A					
6								L	U L 400	U L 472	L 512	A	A	472	480	472	L 456	L	L					
7										L 432	U S 412	484	492	U A 488	L 488	A	L 460	A						
8								L	A	L	A	L 508	U L 532	480	468	460	L 444	L	A					
9									A	A	A	456	A	C	A	U L 480	440	L 420	A					
10								A	A	A	A	A	A	460	U A 456	456	A	A	L					
11								A	404	A	A	456	U A 496	464	456	U A 464	432	424						
12										L 452	L	A	A	A	A	468	452	A		A				
13										432	A	A	A	476	A	A	L	U L 416	L					
14							A			L 452	A	U A 476	L 496	A	U L 472	464	A	L 440	L					
15								L		L 428	A	L 476	512	L 512	472	456	L 472	L 424	A					
16							L	U L 388	A	A	A	A	A	U R 516	U R 480	452	444	A	L					
17								L	A	A	A	A	A	472	464	A	A	412	L 368					
18										A	U L 480	A	A	A	A	A	A	L 424	L					
19										U L 480	U A 460	476	L 488	A	A	A	440		A					
20									A	A	A	A	A	A	L 460	460	444	424	356					
21							L		A	A	A	A	A	A	A	A	A	A	L 388					
22									A	A	A	A	A	A	472	A	A	A						
23									A	456	A	U A 472	472	468	A	U A 456	452	A						
24								A	A	A	A	A	A	U A 476	A	A	A	A	A					
25									A	A	A	A	A	A	A	A	A	A	A					
26									A	A	A	A	A	A	A	A	A	A						
27								L	L 420	A	R 464	A	A	U A 484	A	U A 472	432	A	A					
28										U L 448	460	A	460	464	472	A	A	428	L					
29									A	A	A	A	A	472	A	A	A	420	L					
30										A	A	A	A	A	A	456	436	A	A					
31							232		L 420	L	L	A	460	A	A	A	A	A		A				
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT							1	1	4	11	8	11	12	15	14	16	15	11	3					
MED							232	U L 388	L 412	L 452	472	476	496	476	472	464	444	L 424	L 368					
U Q									L 420	U L 480	L 498	L 508	U 502	U 488	480	472	L 456	L 428	L 388					
L Q									402	L 432	U 460	472	480	468	464	456	440	420	356					

MAY 2016 foF1 (0.01MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

MAY 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							A	248	A	332	A	U A 356	A	A	A	A	A	280	A	A				
2							A	240	292	316	352	352	380	R 368	A	336	312	276	A	A				
3							A	A	A	A	R 332	A	R 372	A	A	360	316	288	224	A				
4							A	A	A	A	A	A	A	A	A	A	A	A	A	A				
5							A	A	A	A	A	A	B	388	R 376	348	324	284	A	A				
6							A	A	A	284	A	A	A	A	A	A	A	292	208	A				
7							A	A	A	A	A	A	A	A	A	A	328	A	A	A				
8							A	236	288	A	A	A	360	364	356	368	320	U A 276	A	A				
9							A	A	A	A	A	A	A	C	A	A	332	276	A	A				
10							A	A	276	A	340	A	376	380	388	340	320	272	A	A				
11							A	232	288	A	348	360	364	352	R 360	340	R	296	224	A				
12							168	248	296	328	352	368	A	368	A	352	328	284	A	A				
13								U A 252	U A 296	A	A	A	A	A	A	A	A	A	220	A				
14							A	A	A	A	A	A	A	A	A	A	A	A	A	A				
15							A	U A 248	A	A	A	A	A	B	R	R 352	324	288	A	A				
16							176	244	296	A	A	A	A	A	A	356	324	A	A	A				
17							188	240	A	A	A	A	A	A	A	A	A	288	228	A				
18							A	256	A	A	A	A	A	A	A	356	324	288	A	A				
19						B	A	A	U A 304	A	A	364	384	380	364	344	320	284	232	A				
20						B	A	244	A	A	A	A	A	A	A	A	U A 312	U A 292	A	A				
21						B	A	244	A	316	A	A	A	A	A	316	A	A	A	A				
22						B	A	232	A	324	U A 352	A	360	A	364	356	A	A	A	A				
23						B	A	240	A	320	348	A	A	A	A	A	A	A	232	A				
24						A	A	228	280	328	A	A	392	360	360	348	320	288	A	A				
25						A	A	244	U A 296	A	A	A	A	A	A	356	320	288	A	A				
26						A	192	U A 244	A	A	A	A	A	356	356	340	308	A	236	A				
27						B	A	232	292	320	A	428	A	376	356	360	324	288	224	A				
28						B	A	248	A	A	356	A	364	376	A	352	320	292	240	A				
29						A	A	A	292	332	344	A	A	A	A	A	A	A	A	A				
30						A	A	A	A	A	A	A	A	A	A	A	A	A	A	A				
31						B	168	236	296	344	A	364	356	364	376	344	316	284	A	A				
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT							5	20	13	11	9	7	10	12	10	19	19	20	10					
MED							176	244	292	324	348	364	368	368	362	352	320	288	226					
U Q							190	248	U A 296	332	352	368	380	378	376	356	324	288	232					
L Q							168	236	288	316	342	356	360	362	356	340	316	282	224					

MAY 2016 foE (0.01MHz)

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IONOSPHERIC DATA STATION Okinawa

MAY 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 36	J A 20	J A 17	E B 13	E B 13	J A 19	J A 21	J A 41	J A 53	J A 72	J A 71	J A 83	J A 101	J A 95	J A 132	J A 140	J A 70	J A 101	J A 188	J A 139	J A 137	J A 145	J A 112	J A 83
2	J A 74	J A 60	J A 64	J A 30	J A 43	J A 18	26	34	J A 48	J A 97	J A 50	G	45	J A 63	J A 63	43	J A 52	J A 88	J A 117	J A 126	J A 82	J A 97	J A 74	J A 77
3	J A 54	J A 44	J A 49	J A 28	J A 24	J A 89	J A 44	J A 46	J A 88	J A 39	42	J A 182	53	52	44	38	41	34	28	J A 23	J A 39	J A 43	J A 52	J A 47
4	J A 47	J A 95	J A 54	J A 41	E B 14	E B 14	19	J A 51	J A 88	J A 83	J A 71	J A 62	J A 53	43	J A 48	J A 52	J A 39	J A 33	J A 50	J A 40	E B 13	J A 18	J A 18	J A 50
5	J A 46	J A 68	E B 13	J A 19	J A 16	E B 13	J A 24	29	34	J A 39	43	43	49	J A 60	J A 78	J A 69	J A 54	J A 59	J A 82	J A 60	J A 82	J A 90	J A 66	E B 13
6	E B 13	J A 16	E B 13	J A 37	J A 52	J A 71	J A 19	J A 30	J A 36	J A 49	45	J A 67	J A 68	J A 42	J A 42	J A 51	J A 43	36	J A 34	J A 26	J A 22	J A 25	J A 50	J A 51
7	J A 38	J A 25	J A 40	J A 86	J A 28	E B 13	J A 33	J A 33	J A 38	J A 43	J A 42	J A 47	42	J A 50	44	52	40	J A 51	J A 40	J A 50	J A 42	J A 21	24	J A 32
8	E B 13	18	E B 13	E B 13	E B 13	E B 13	20	28	J A 45	J A 45	J A 62	J A 69	38	40	38	45	J A 48	J A 43	J A 47	28	18	28	31	J A 22
9	J A 30	J A 45	J A 54	J A 32	J A 16	J A 52	J A 35	J A 45	J A 86	J A 79	J A 71	J A 60	J A 101	C	J A 61	J A 43	38	G 26	J A 49	J A 54	J A 72	J A 76	J A 61	J A 63
10	J A 46	J A 64	J A 81	J A 18	J A 37	J A 22	26	J A 43	J A 50	J A 57	J A 57	J A 55	J A 52	44	46	40	J A 68	J A 69	29	J A 58	J A 66	J A 33	E B 13	E B 13
11	E B 13	E B 13	18	J A 19	J A 16	E B 13	25	J A 51	39	J A 49	J A 52	J A 49	50	44	42	46	31	32	36	J A 56	J A 83	J A 82	J A 81	J A 80
12	J A 73	J A 65	J A 40	J A 64	J A 27	J A 26	26	40	J A 50	42	J A 49	J A 56	J A 74	J A 60	J A 57	40	J A 46	J A 66	J A 55	J A 122	J A 45	J A 72	20	J A 63
13	J A 52	J A 53	J A 34	J A 37	J A 20	J A 21	J A 38	J A 52	J A 72	J A 56	J A 79	J A 99	J A 94	J A 127	J A 136	J A 116	J A 73	J A 31	J A 26	J A 31	J A 20	J A 48	44	J A 29
14	J A 26	J A 34	J A 65	J A 68	J A 39	J A 52	J A 85	J A 41	J A 65	J A 72	J A 106	J A 59	J A 70	J A 69	49	J A 41	J A 50	33	J A 27	J A 29	E B 20	13	19	18
15	E B 13	J A 37	J A 28	J A 20	J A 17	J A 34	23	J A 48	J A 53	J A 56	J A 70	J A 67	41	E B 43	G 36	G	G	34	J A 54	J A 51	J A 76	J A 50	J A 101	J A 59
16	J A 59	J A 64	J A 26	J A 32	J A 45	J A 50	20	36	J A 60	J A 64	J A 51	J A 81	J A 96	J A 59	43	39	43	J A 62	J A 60	39	J A 32	J A 48	J A 39	J A 45
17	J A 66	J A 108	J A 54	J A 42	J A 34	J A 44	J A 49	J A 43	J A 66	J A 67	J A 94	J A 75	J A 87	J A 48	J A 61	J A 82	J A 70	33	35	J A 28	J A 32	J A 35	J A 38	J A 29
18	J A 65	J A 58	J A 62	J A 56	J A 35	J A 32	27	35	J A 46	J A 65	J A 53	55	J A 99	J A 92	J A 69	J A 60	J A 60	J A 46	J A 67	J A 74	J A 61	J A 38	J A 109	J A 101
19	J A 103	J A 72	J A 71	J A 45	J A 22	J A 35	J A 48	J A 52	J A 44	J A 43	J A 55	48	J A 52	J A 52	J A 87	J A 55	J A 44	J A 60	J A 105	J A 82	J A 45	J A 49	J A 42	J A 71
20	J A 76	J A 80	J A 82	J A 51	J A 41	J A 22	J A 32	J A 45	J A 81	J A 181	J A 193	J A 198	J A 130	J A 185	J A 82	39	36	32	29	38	J A 45	J A 125	J A 66	J A 84
21	J A 50	J A 109	J A 45	J A 44	J A 42	J A 41	24	J A 42	J A 107	J A 73	J A 88	J A 56	J A 55	J A 80	J A 78	J A 60	J A 53	J A 56	J A 40	J A 41	J A 72	J A 46	E B 13	J A 64
22	J A 30	J A 49	J A 62	J A 60	J A 52	J A 33	J A 42	J A 39	J A 64	J A 62	J A 78	J A 94	J A 76	J A 101	J A 66	J A 89	J A 96	J A 89	J A 204	J A 110	J A 71	J A 36	J A 32	J A 45
23	J A 21	J A 44	J A 48	J A 43	J A 44	J A 16	J A 22	35	J A 66	J A 44	J A 104	J A 49	42	J A 43	J A 58	J A 48	J A 41	J A 77	J A 66	J A 28	J A 33	J A 61	J A 88	J A 122
24	J A 63	J A 39	J A 42	J A 77	J A 59	J A 49	J A 76	J A 86	J A 116	J A 100	J A 86	J A 118	J A 73	J A 50	J A 83	J A 71	J A 67	J A 96	J A 103	J A 81	J A 54	J A 45	J A 84	J A 77
25	J A 36	J A 65	J A 145	J A 88	J A 107	J A 73	J A 32	J A 68	J A 84	J A 84	J A 95	J A 73	J A 79	J A 183	J A 66	J A 53	J A 57	J A 51	J A 96	J A 43	J A 98	J A 84	J A 90	J A 126
26	J A 128	J A 89	J A 51	J A 51	J A 42	J A 33	26	J A 56	J A 79	J A 75	J A 79	J A 82	J A 80	J A 82	J A 90	J A 101	J A 114	J A 100	J A 54	J A 84	J A 70	J A 36	J A 33	J A 86
27	J A 142	J A 97	J A 81	J A 31	J A 41	J A 28	J A 24	29	39	J A 42	J A 43	J A 96	54	49	J A 57	J A 50	J A 43	J A 52	J A 72	J A 109	J A 135	J A 135	J A 73	J A 52
28	J A 47	J A 87	J A 48	J A 44	J A 24	E B 13	24	33	J A 49	J A 68	45	J A 167	40	43	48	J A 76	J A 46	G	27	18	J A 17	J A 41	J A 76	J A 77
29	J A 52	J A 81	J A 81	J A 73	J A 47	J A 33	22	J A 66	J A 74	J A 89	J A 85	J A 101	J A 136	J A 60	J A 82	J A 82	J A 88	J A 40	J A 28	J A 51	J A 42	J A 60	J A 31	J A 128
30	J A 96	J A 50	J A 36	J A 64	J A 83	J A 45	J A 41	J A 60	J A 61	J A 60	J A 84	J A 88	J A 144	J A 116	J A 109	J A 99	J A 50	J A 45	J A 74	J A 37	J A 32	J A 32	J A 51	J A 66
31	J A 34	J A 19	J A 18	J A 15	21	J A 21	19	33	35	J A 96	J A 89	J A 83	40	J A 99	J A 84	J A 63	J A 58	J A 70	J A 69	J A 44	J A 40	J A 33	J A 36	J A 46
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	31	31	31	31	31	31	31	31	30	31	31	31	31	31	31	31	31	31	31
MED	J A 47	J A 58	J A 48	J A 42	J A 35	J A 32	J A 26	J A 42	J A 60	J A 64	J A 71	J A 69	J A 68	J A 60	J A 61	J A 52	J A 50	J A 51	J A 54	J A 50	J A 45	J A 46	J A 50	J A 63
U Q	J A 66	J A 80	J A 64	J A 60	J A 44	J A 45	J A 38	J A 51	J A 79	J A 79	J A 86	J A 94	J A 94	J A 92	J A 82	J A 76	J A 67	J A 69	J A 74	J A 81	J A 72	J A 76	J A 76	J A 80
L Q	30	J A 37	28	J A 28	J A 20	E B 18	22	34	45	J A 45	50	55	49	44	46	43	41	33	34	J A 31	J A 32	J A 33	31	J A 45

MAY 2016 foEs (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

MAY 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 13	20	36	39	54	A A 71	58	52	57	88	73	44	94	A A 188	A A 139	31	82	86	44
2	40	44	37	22	26	E B 13	24	32	42	A A 97	49	G	44	59	57	42	49	A A 88	52	A A 126	57	39	20	32
3	41	19	20	18	E B 13	A A 89	29	36	37	36	39	52	50	52	43	38	39	32	24	18	21	26	24	22
4	20	30	25	19	E B 14	E B 14	19	30	A A 88	50	48	60	50	43	48	44	37	31	44	26	E B 13	E B 13	E B 13	24
5	E B 13	28	E B 13	E B 13	E B 13	E B 13	20	28	34	38	42	42	U Y 48	58	62	56	52	53	44	46	37	35	19	E B 13
6	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	17	25	32	39	44	53	52	42	42	40	40	32	28	21	18	E B 13	E B 13	19
7	E B 13	17	E B 13	21	27	E B 13	29	29	34	37	38	45	42	49	43	51	40	49	39	46	21	18	E B 13	E B 13
8	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	19	28	41	42	51	38	38	39	38	44	43	41	40	24	E B 14	22	E B 13	E B 13
9	19	31	29	E B 13	E B 13	23	28	33	A A 86	A A 79	A A 71	41	A A 101	C	58	38	37	G 21	39	53	41	23	29	28
10	21	31	43	E B 13	E B 13	E B 13	24	38	A A 50	A A 57	53	A A 55	49	44	46	39	64	60	27	54	26	E B 13	E B 13	E B 13
11	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	23	42	36	44	A A 52	44	50	42	40	46	U G 30	32	34	52	A A 83	A A 82	E B 13	16
12	E B 13	20	28	22	18	E B 13	26	38	44	41	46	52	50	56	56	40	44	65	54	A A 122	20	27	E B 13	E B 13
13	E B 13	19	22	18	E B 13	E B 13	34	44	47	38	A A 79	59	A A 94	44	64	77	43	28	G 15	19	18	20	22	17
14	17	22	20	32	23	22	A A 85	30	44	42	A A 106	47	44	50	46	39	47	32	24	24	E B 13	E B 13	E B 13	E B 13
15	E B 13	20	E B 13	E B 13	E B 13	30	20	34	46	38	48	45	41	E B 43	U G 36	G	G	30	36	47	36	22	31	26
16	30	30	19	E B 13	23	26	19	34	A A 60	A A 64	A A 51	A A 81	A A 96	48	42	38	42	53	28	20	30	23	20	16
17	E B 13	E B 13	29	17	22	E B 13	G 13	30	52	A A 67	A A 94	A A 75	A A 87	42	40	60	A A 70	32	32	24	25	20	20	E B 13
18	29	20	E B 13	E B 13	23	E B 13	21	30	39	A A 65	42	51	62	64	55	52	54	36	30	44	28	14	19	E B 13
19	E B 13	A A 72	18	19	E B 13	E B 14	35	31	33	36	46	46	47	50	54	52	42	58	A A 105	76	30	40	32	21
20	21	22	41	32	21	E B 13	27	36	A A 81	A A 181	A A 193	A A 198	A A 130	A A 185	39	38	34	31	29	32	29	26	18	40
21	31	19	16	20	21	E B 14	21	37	A A 107	A A 73	A A 88	50	54	A A 80	75	54	51	51	33	39	31	20	E B 13	20
22	19	24	26	30	32	E B 13	29	36	54	54	A A 78	A A 94	53	A A 101	43	70	70	78	72	58	31	21	18	E B 13
23	E B 13	28	24	28	E B 13	E B 13	21	32	A A 66	42	A A 104	47	40	43	56	46	37	53	62	24	30	20	19	E B 13
24	20	22	22	17	20	19	31	A A 86	A A 116	A A 100	A A 86	A A 118	A A 73	48	74	68	65	69	99	46	36	33	54	24
25	21	30	20	A A 88	29	31	22	58	A A 84	A A 84	A A 95	A A 73	55	A A 183	58	51	54	42	78	33	45	34	46	A A 126
26	E B 13	21	22	32	26	20	24	37	A A 79	A A 75	A A 79	A A 82	73	73	86	96	A A 114	A A 100	51	69	30	17	E B 13	29
27	E B 13	A A 97	22	E B 13	23	E B 14	22	29	36	42	36	A A 96	54	48	54	47	41	50	67	A A 109	A A 135	18	E B 13	20
28	21	25	18	E B 13	E B 13	E B 13	22	32	40	40	44	A A 167	40	42	46	73	45	G	26	18	E B 13	38	29	40
29	29	38	32	34	23	20	21	53	47	A A 89	56	A A 101	A A 136	44	63	72	80	34	26	25	21	28	17	31
30	20	15	E B 13	18	19	21	32	44	40	43	A A 84	A A 88	A A 144	61	64	45	44	44	70	34	28	24	30	28
31	20	E B 13	E B 13	E B 13	E B 13	E B 13	18	31	34	37	45	A A 83	40	A A 99	48	55	55	64	47	37	33	18	25	17
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	31	31	31	31	31	31	31	31	30	31	31	31	31	31	31	31	31	31	31
MED	19	22	20	18	18	E B 13	22	34	44	44	52	55	52	50	54	47	44	44	39	39	30	22	19	20
U Q	21	30	26	22	23	20	29	38	A A 66	A A 73	A A 84	A A 83	A A 73	A A 61	62	60	54	60	62	54	36	33	29	28
L Q	E B 13	E B 17	E B 13	E B 13	E B 13	E B 13	20	30	37	39	45	46	44	43	43	40	40	32	28	24	21	18	E B 13	E B 13

IONOSPHERIC DATA STATION Okinawa

MAY 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	13	14	14	18	20	29	27	30	30	26	24	21	17	13	12	13	13	13	13
2	13	13	13	13	13	13	14	15	16	21	22	22	30	28	30	21	20	18	15	14	13	13	13	13
3	13	13	13	13	13	13	14	14	16	20	24	36	22	40	37	28	21	20	17	14	13	13	13	13
4	13	13	13	14	14	14	14	14	19	20	24	31	31	29	29	29	21	19	16	14	13	13	13	13
5	13	13	13	13	13	13	14	14	14	16	16	26	40	32	32	21	21	15	14	14	13	13	13	13
6	13	13	13	13	13	13	14	16	14	21	25	24	32	24	24	20	26	15	14	14	13	13	13	13
7	13	13	13	13	13	13	14	15	16	21	24	29	29	28	24	21	15	14	13	13	13	13	13	13
8	13	13	13	13	13	13	14	14	18	21	24	25	28	27	31	25	21	23	15	14	14	13	13	13
9	13	13	13	13	13	13	15	16	17	20	20	25	28	C	30	24	24	19	14	14	13	13	13	13
10	13	13	13	13	13	13	14	14	15	21	24	30	30	30	26	21	22	17	14	13	13	13	13	13
11	13	13	13	13	13	13	14	14	16	23	24	30	31	32	33	26	24	20	14	13	13	13	13	13
12	13	13	13	13	13	13	14	16	21	24	29	29	38	32	36	30	27	17	19	14	13	13	13	13
13	13	13	13	13	13	13	13	14	17	22	24	27	30	24	30	24	20	14	13	13	13	13	13	13
14	13	13	13	13	13	13	14	14	15	21	24	26	30	30	30	25	21	18	13	13	13	13	13	13
15	13	13	13	13	13	13	14	14	14	22	25	29	32	43	31	30	19	18	14	14	13	13	13	13
16	13	13	13	13	13	14	14	17	19	20	29	25	32	34	30	29	21	20	15	14	13	13	13	13
17	13	13	13	13	13	13	13	14	15	20	22	24	29	28	24	22	19	14	14	13	13	13	13	13
18	13	13	13	13	13	13	14	14	17	20	21	29	30	30	30	24	21	15	13	14	13	13	13	13
19	13	13	13	13	13	14	14	14	16	22	23	25	31	24	25	25	20	18	14	14	13	13	13	13
20	13	13	13	13	13	13	14	14	16	16	21	22	30	29	22	24	22	17	14	14	13	13	13	13
21	13	13	13	13	13	14	14	14	14	20	20	24	28	29	21	22	18	15	16	15	14	13	13	13
22	13	13	13	13	13	13	14	14	16	20	21	22	26	29	21	21	20	15	14	14	13	13	13	13
23	13	13	13	13	13	13	14	14	14	18	20	25	25	24	24	20	16	14	12	13	13	13	13	13
24	13	13	13	13	13	14	14	14	20	18	23	21	33	26	29	28	22	14	12	13	13	13	13	13
25	13	13	13	13	13	14	14	14	14	19	22	23	26	34	31	28	21	14	13	12	13	13	13	13
26	13	13	13	13	13	14	14	15	15	20	21	23	25	24	24	24	19	14	14	14	13	13	13	13
27	13	13	13	13	13	14	13	14	15	20	22	23	40	30	24	18	14	13	13	12	12	13	13	13
28	13	13	13	13	13	13	14	14	17	20	21	24	25	26	23	24	18	15	14	14	13	13	13	13
29	13	13	13	13	13	13	14	14	15	17	22	24	28	26	23	21	20	15	14	12	13	13	13	13
30	13	13	13	13	13	13	13	14	14	20	22	22	24	23	26	20	18	15	14	13	13	13	13	13
31	13	13	13	13	13	13	14	14	15	19	20	22	24	25	23	20	16	16	14	14	13	13	13	13
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	31	31	31	31	31	31	31	31	30	31	31	31	31	31	31	31	31	31	31
MED	13	13	13	13	13	13	14	14	16	20	22	25	30	29	26	24	21	15	14	14	13	13	13	13
U Q	13	13	13	13	13	14	14	14	17	21	24	29	31	30	30	26	21	18	14	14	13	13	13	13
L Q	13	13	13	13	13	13	14	14	15	20	21	23	26	26	24	21	19	14	13	13	13	13	13	13

IONOSPHERIC DATA STATION Okinawa

MAY 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 290	F 292	F 305	F 320	F 303	F 297	341	381	360	344	A	290	290	308	315	323	327	307	A	A	348	298	292	298
2	284	294	287	289	320	352	374	363	354	A	289	277	305	318	320	317	345	A	295	A	323	311	294	F 273
3	F 292	300	325	341	355	A	328	296	322	296	285	257	282	328	324	307	332	318	317	330	301	287	285	F 281
4	F	F 296	351	F 368	F 295	F 303	F 338	348	A	307	281	292	292	289	302	318	313	312	325	335	333	295	288	F
5	F 294	F 293	F 303	F 316	F 330	F 323	341	380	371	323	336	297	271	292	304	303	297	302	319	331	314	298	F 288	283
6	287	287	301	336	346	315	341	387	357	334	281	277	291	305	317	318	322	307	291	291	324	331	284	274
7	274	289	309	366	279	282	359	352	348	359	300	287	292	300	307	303	299	291	304	314	340	345	292	273
8	287	303	322	290	286	325	368	376	340	348	296	256	271	287	272	291	325	320	301	324	318	265	265	244
9	266	335	329	264	269	330	352	Z 353	A	A	A	A	A	C	324	265	298	320	303	309	313	282	269	J R 279
10	279	296	309	337	311	324	336	310	A	A	327	A	268	290	288	292	294	299	293	312	324	312	292	F 259
11	F 284	F 274	F 319	F 346	F 341	F 340	330	306	264	291	A	273	283	287	286	280	295	317	328	345	A	A	281	292
12	F 271	F 311	F 338	F 339	F 271	F 283	356	356	360	364	307	296	305	275	295	308	314	314	308	A	314	326	324	289
13	F 283	F 308	F 334	351	F 348	F 298	348	368	366	H 334	A	307	A	291	291	308	308	316	303	299	329	318	314	281
14	F 287	F 284	F 293	F 319	F 308	F 309	A	337	359	360	A	H 292	284	273	281	297	318	322	301	300	305	332	288	302
15	290	F 283	330	339	354	315	341	362	346	347	322	289	274	283	292	316	320	321	310	319	293	300	283	F 285
16	F 269	F 294	F 306	F 290	F 327	F 323	318	301	A	A	A	A	A	R	280	309	334	300	306	323	308	295	273	F 265
17	F 273	F 324	F 311	F 274	F 271	F 281	302	321	337	A	A	A	A	297	291	310	A	295	319	317	318	303	278	296
18	284	F 287	F 309	F 312	F 321	280	347	348	339	A	300	269	249	281	284	299	308	319	335	358	294	267	274	F 283
19	F 289	A	F 323	F 361	361	F 314	354	347	324	318	319	307	300	279	270	296	318	315	A	328	348	279	284	272
20	F 277	F 334	F 303	F 307	F 306	F 327	F 338	353	A	A	A	A	A	A	291	299	303	310	319	336	326	318	F 276	F 306
21	F 313	F 306	F 354	F 310	305	F 275	340	378	A	A	A	290	282	A	288	290	307	306	298	333	357	312	286	F 262
22	F 289	F 308	F	F	F 347	364	353	358	A 310	A 299	A	A	285	A	286	296	301	308	318	339	306	284	283	284
23	286	303	339	F 281	F 273	F 334	377	360	A	320	A	286	292	314	300	303	290	295	319	339	344	314	F	F 292
24	F	F 350	F 319	F 318	F 299	F 339	358	A	A	A	A	A	A	279	280	303	303	297	320	363	333	286	283	F
25	F 286	F 330	F 306	A	274	334	355	357	A	A	A	A	285	A	301	296	298	300	302	317	322	315	F 319	A
26	F 308	F 307	F 312	F	F 318	F	F 349	369	A	A	A	A	A	294	308	311	A	A	304	298	309	328	343	F
27	F 297	A	F	F	F 325	F 329	355	378	391	388	297	A	271	273	276	277	280	305	337	A	A	298	296	F 293
28	F 308	F 305	F 292	F 315	F 346	F 299	345	364	354	347	320	A	302	288	310	295	280	284	306	307	334	314	283	276
29	F 275	F 285	328	F 306	311	302	322	352	363	A	334	A	A	285	297	290	285	310	317	314	310	312	289	F
30	F 302	F 297	F 317	F 297	F 281	F 317	F 369	404	378	365	A	A	A	272	272	291	320	318	289	296	315	306	284	284
31	286	F 282	F 295	F 319	F 361	F 364	381	362	360	323	289	A	288	A	284	274	282	308	308	314	315	289	293	F 296
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	29	29	29	27	31	29	30	30	21	19	16	17	22	24	31	31	29	29	29	27	29	30	30	26
MED	F 286	F 297	F 312	F 318	F 311	F 317	348	358	354	334	300	289	285	288	291	299	307	308	308	319	318	304	286	283
U Q	F 291	F 308	328	F 339	346	332	356	369	362	359	321	294	292	298	307	309	320	318	319	335	333	315	292	F 292
L Q	F 278	F 288	F 304	F 297	286	F 298	338	348	338	318	289	275	274	280	284	291	296	300	302	309	310	289	283	F 273

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MAY 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									L	A	A	A	A	A	A	A	L	A	A	A				
2										A	A	L 390	L 353	A	A	370	A	A		A				
3									L	U L 355	H 338	A	A 375	A	381	U L 382	A 353	L	L					
4								L	A	A	A	A	A	U L 339	A	A 345	L 354	L 370	A					
5									L	U L 378	392	U L 361	R	A	A	A	A	A	A					
6								L	U L 404	U L 357	L 345	A	A	409	366	357	L 362	L	L					
7										L 397	U S 427	A	382	A	L 358	A	L 353	A						
8								L	A	L	A	L 375	U L 353	392	386	A	A	L	A					
9									A	A	A	374	A	C	A	U L 346	356	L 344	A					
10								A	A	A	A	A	A	376	A	355	A	A	L					
11								A	365	A	A	A 368	A	391	391	A	381	348						
12										L 390	L	A	A	A	A	370	A	A		A				
13										451	A	A	A	397	A	A	L	U L 360	L					
14							A			A 389	A	A	L 337	A	A	389	A	L 353	L					
15								L		L 448	A	A	377	L 353	386	381	L 348	L 357	A					
16							L	U L 352	A	A	A	A	A	U R 293	A	377	A	A	L					
17								L	A	A	A	A	A	392	400	A	A	368	L 358					
18										A	U L 365	A	A	A	A	A	A	L 357	L					
19										U L 361	A	A	A	A	A	A	A		A					
20									A	A	A	A	A	A	L 401	384	385	362	358					
21							L		A	A	A	A	A	A	A	A	A	A	L 336					
22									A	A	A	A	A	A	361	A	A	A						
23									A	A 387	A	A	414	A	A	A	357	A						
24								A	A	A	A	A	A	A	A	A	A	A	A					
25									A	A	A	A	A	A	A	A	A	A	A					
26									A	A	A	A	A	A	A	A	A	A						
27								L	L 414	A	R 452	A	A	A	A	A	A 367	A		A				
28										A 387	A	A	427	403	A	A	A	354	L					
29									A	A	A	A	A	366	A	A	A	370	L					
30										A	A	A	A	A	A	A	A	A	A					
31							420		L 400	L	L	A	393	A	A	A	A	A		A				
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT							1	1	4	11	6	5	9	11	9	11	10	11	3					
MED							420	U L 352	L 402	L 387	378	L 374	377	391	386	370	356	L 357	L 358					
U Q									L 409	L 397	427	L 382	404	397	396	382	367	368	L 358					
L Q									382	U L 361	345	364	L 353	U L 353	364	355	L 353	L 353	L 336					

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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									246	262	A	346	334	306	296	278	260	286	A	A				
2										A	E A 346	350	302	284	286	278	250	A		A				
3									286	316	340	398	362	272	268	296	266	248	248					
4								250	A	340	306	328	326	332	306	278	274	272	256					
5									232	308	292	366	358	330	304	296	302	296	268					
6								210	246	290	350	356	324	304	282	266	264	280	296					
7										260	272	350	324	306	288	296	294	300						
8								226	238	256	340	390	392	330	380	336	262	270	258					
9									A	A	A	A	A	C	E A 340	418	322	284	296					
10								E A 352	A	A	E A 342	A	464	380	340	312	300	296	276					
11								E A 364	492	406	A	446	390	352	344	324	296	270						
12										244	326	352	320	366	322	296	292	A 288		A				
13										H 254	A	E A 320	A	324	326	306	296	280	274					
14							A			250	A	320	370	376	342	310	274	274	278					
15								230		264	310	330	384	350	328	282	280	274	262					
16							274	326	A	A	A	A	A	U G 422	360	306	272	298	270					
17								L 288	E A 318	A	A	A	A	350	360	A 332	A	A 310	274					
18										A	352	430	E A 466	362	344	308	294	276	254					
19										322	310	330	356	358	386	322	286		A					
20									A	A	A	A	A	A	324	302	298	282	266					
21							260		A	A	A	400	392	A	A 370	340	302	296	302					
22									E A 376	E A 408	A	A	362	A	318	324	314	A 316						
23									A	336	A	394	360	300	314	314	340	320						
24								A	A	A	A	A	A	348	E A 392	312	300	332	E A 336					
25									A	A	A	A	366	A	316	310	310	300	A 324					
26									A	A	A	A	E A 534	A 346	310	E A 306	A	A						
27								226	220	214	398	A	398	360	354	362	352	300		A				
28										282	328	A	324	318	296	A 336	330	324	280					
29									260	A	E A 320	A	A	338	316	344	E A 378	286	272					
30										252	A	A	A	390	A 364	326	280	270	E A 342					
31							206		260	L 302	L 388	A	356	A	324	362	346	296		242				
	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	9	11	19	16	17	23	25	31	31	29	28	20	1				
MED							260	U 238	253	273	328	352	360	346	323	310	295	287	272	242				
U Q							274	E A 339	E A 318	322	348	396	392	361	354	332	312	300	296					
L Q							206	226	238	254	310	330	326	312	306	296	274	275	264					

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MAY 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	A 298	Q 282	Q 250	Q 218	224	Q 252	232	208	A 230	A	A	A	A	A	A	A	A	A	A	A	218	E A 342	E A 348	A 308
2	A 314	304	A 294	268	230	210	220	230	212	A	A	184	264	A	A	236	A	A	294	A	A 270	A 270	260	Q 318
3	E A 302	260	250	232	212	A	E A 256	E A 256	A 252	224	H 220	E A 368	A	A	234	H 218	E A 258	216	228	224	220	E A 260	A 314	322
4	Q 314	Q 304	228	204	216	236	232	218	A	A	A	A	A	E A 276	A	A	220	212	A	222	202	214	278	Q 298
5	276	A 290	250	228	218	228	232	220	216	198	218	212	G	A	A	A	A	A	A	238	A 226	E A 272	290	286
6	272	280	254	230	214	242	236	210	192	E A 232	E A 266	A	A	198	E A 244	E A 244	A 248	220	234	278	236	210	260	326
7	318	286	260	210	E A 404	302	214	232	232	214	U S 196	E A 286	A 216	A	E A 256	A	E A 260	A	278	268	222	206	230	282
8	292	270	242	214	282	244	210	218	A	A	A	178	192	200	198	A	A	A	A	230	228	E A 246	320	362
9	308	236	260	312	314	262	228	238	A	A	A	238	A	C	A	230	E A 238	220	A	274	A 276	A 264	A 358	A 316
10	324	324	E A 318	228	246	252	262	A	A	A	A	A	A	E A 258	A	246	A	A	244	270	246	228	264	324
11	Q 290	Q 316	Q 252	218	206	220	226	A	A 246	A	A	E A 278	A	226	220	A	214	232	252	254	A	A	300	286
12	304	A 288	A 246	234	E A 316	Q 296	224	234	250	A 232	E A 302	A	A	A	A	232	A	A	282	A	242	228	218	286
13	Q 292	270	Q 250	218	212	270	A 250	222	A 250	182	A	A	A	226	A	A	A	210	214	252	226	212	246	288
14	294	A 310	A 310	A 270	266	256	A	230	254	A 240	A	A	E A 300	A	A	204	A	228	236	264	246	224	256	264
15	266	A 296	234	206	214	E A 312	230	224	254	186	A	E A 260	198	E B 238	226	226	212	218	A	A 252	262	224	E A 292	E A 278
16	Q 328	Q 288	262	Q 266	244	256	244	E A 268	A	A	A	A	A	E A 392	A 222	220	A	A	234	244	A 246	250	312	348
17	Q 290	262	E A 258	A 284	E A 302	Q 280	230	230	A	A	A	A	A	228	210	A	A	218	A 256	252	240	234	A 286	292
18	A 318	A 314	244	254	A 242	Q 296	238	208	252	A	A 242	A	A	A	A	A	A	E A 252	242	220	252	280	308	316
19	302	A	222	204	196	286	A 254	232	202	200	A	A	E A 350	A	A	A	A	282	A	A 266	222	E A 344	318	A 326
20	A 324	252	E A 310	A 294	268	228	228	226	A	A	A	A	A	A	212	220	202	212	A 234	232	214	226	312	A 280
21	278	250	206	A 298	290	322	238	222	A	A	A	A	A	A	A	A	A	A	A 274	236	204	216	296	Q 366
22	Q 324	A 280	A 316	Q 326	E A 276	218	242	220	A	A	A	A	A	A	E A 280	A	A	A	274	232	240	268	274	284
23	270	266	A 226	E A 292	Q 284	Q 242	202	224	A	E A 244	A	A	190	E A 262	A	A	232	A	A 278	234	208	234	Q 312	Q 296
24	Q 266	228	Q 254	Q 260	Q 278	240	248	A	A	A	A	A	A	A	A	A	A	A	A	220	224	A 298	E A 362	326
25	Q 292	264	250	A	A 318	262	228	246	A	A	A	A	A	A	A	A	A	A	A	242	260	A 226	E A 276	A
26	248	254	236	Q 262	282	256	228	240	A	A	A	A	A	A	A	A	A	A	282	E A 342	278	232	210	Q 262
27	262	A	A 294	220	A 236	234	218	214	206	A	168	A	A	A	A	A	E A 284	A	248	A	A	258	246	A 326
28	A 318	284	292	258	212	Q 228	228	214	A 232	E A 234	E A 308	A	186	208	A	A	A	224	230	248	224	A 244	E A 308	E A 366
29	E A 338	Q 336	A 244	E A 294	A 278	A 322	232	A 274	A	A	A	A	A	E A 266	A	A	A	230	204	242	246	248	252	Q 314
30	248	294	246	Q 258	E A 302	240	226	208	222	A	A	A	A	A	A	A	A	A	A	A 254	238	242	310	A 308
31	298	284	Q 266	Q 240	208	200	204	208	190	176	E A 286	A	204	A	A	A	A	A	270	A	242	242	282	262
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	29	31	30	31	30	30	28	17	12	9	8	9	12	10	10	10	14	21	26	29	30	31	30
MED	295	284	250	240	U 235	250	230	223	232	U 206	U 205	249	198	233	218	226	U 221	220	248	244	238	235	283	306
U Q	318	300	A 266	A 270	A 284	280	238	233	251	A 233	E A 294	E A 282	E A 282	E A 264	E A 244	236	E A 258	230	276	264	246	A 264	312	326
L Q	276	263	244	218	214	234	226	216	209	192	207	198	191	217	212	220	214	216	234	232	222	226	260	286

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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	108	A	108	A	108	A	A	A	A	A	108	A	A				
2							A	108	108	108	108	108	108	108	A	108	108	108	A	A				
3							A	A	A	A	106	A	106	A	A	112	108	110	110	A				
4							A	A	A	A	A	A	A	A	A	A	A	A	A	A				
5							A	A	A	A	A	A	B	114	114	110	110	108	A	A				
6							A	A	A	100	A	A	A	A	A	A	A	112	110	A				
7							A	A	A	A	A	A	A	A	A	A	110	A	A	A				
8							A	110	110	A	A	A	A	110	108	108	106	112	A	A				
9							A	A	A		A	A	A	C	A	A	A	114	A	A				
10							126	A	106	A	108	A	108	108	108	108	108	108	A	A				
11							A	108	108	A	108	108	110	110	110	A	A	112	116	A				
12							130	112	110	110	110	110	A	110	A	110	110	110	A	A				
13								110	110	A	A	A	A	A	A	A	A	A	110	A				
14							A	A	A	A	A	A	A	A	A	A	A	A	A	A				
15							A	110	A	A	A	A	A	B	A	110	108	110	A	A				
16							124	108	108	A	A	A	A	A	A	108	108	A	A	A				
17							138	108	A	A	A	A	A	A	A	A	A	112	A	A				
18							A	110	A	A	A	A	A	A	A	112	112	112	A	A				
19						B	A	A	108	A	A	108	108	108	108	108	108	108	108	A				
20						B	A	108	A	A	A	A	A	A	A	A	106	108	A	A				
21						B	A	106	A	106	A	A	A	A	A	106	A	A	A	A				
22						B	A	108	A	112	108	A	110	A	112	110	114	A	A	A				
23						B	A	108	A	108	108	A	A	A	A	A	A	A	110	A				
24						A	A	106	106	106	A	A	110	110	110	110	106	106	A	A				
25						A	A	108	108	A	A	A	A	A	A	112	106	108	A	A				
26						A	124	110	A	A	A	A	A	108	108	108	108	A	112	A				
27						B	A	104	108	A	A	106	A	120	104	112	108	108	108	A				
28						B	A	108	A	A	108	A	106	108	A	108	108	106	110	A				
29						A	A	A	108	108	108	A	A	A	A	A	A	A	A	A				
30						A	A	A	A	A	A	A	A	A	A	A	A	A	A	A				
31						B	134	110	108	108	A	106	106	106	106	106	106	104	A	A				
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT							6	20	13	10	9	7	9	12	10	18	19	20	9					
MED							128	108	108	108	108	108	108	109	108	109	108	108	110					
U Q							134	110	109	108	108	108	110	110	110	110	110	112	111					
L Q							124	108	108	106	108	106	106	108	108	108	106	108	109					

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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	98	106	106	B	B	132	124	112	114	110	108	108	108	104	102	102	104	116	106	104	104	104	104	104
2	100	98	102	102	120	134	120	114	118	110	116	G	128	116	110	110	120	114	108	104	104	104	104	104
3	102	100	98	100	100	114	114	114	110	116	116	130	116	148	140	148	112	122	114	106	104	102	102	100
4	110	98	98	104	B	B	112	106	100	100	100	100	100	100	100	120	100	100	112	114	B	96	92	110
5	106	114	B	104	96	B	98	152	130	96	132	118	138	120	120	116	114	112	108	104	104	118	106	B
6	B	92	B	106	104	102	112	106	102	102	166	98	98	104	100	100	100	118	116	110	106	102	110	104
7	102	102	108	102	102	B	118	128	122	104	102	102	154	96	160	134	148	126	118	110	108	90	102	102
8	B	102	B	B	B	B	132	122	112	112	102	104	132	128	134	140	128	112	108	104	104	104	104	106
9	100	98	98	104	102	120	118	116	114	106	102	102	100	C	100	100	122	104	112	106	104	106	104	104
10	98	108	108	106	130	120	126	118	116	108	108	112	114	168	146	124	108	108	108	106	106	106	B	B
11	B	B	104	104	102	B	126	118	118	114	110	114	112	124	126	116	104	186	116	108	108	108	108	106
12	106	106	100	120	100	106	130	124	116	116	116	116	116	116	116	132	120	114	108	108	108	108	108	106
13	104	100	92	92	92	114	114	114	110	114	108	104	100	104	102	102	102	102	96	96	96	98	102	98
14	92	100	100	100	100	100	98	104	110	104	102	102	102	102	100	98	96	166	98	94	110	B	90	90
15	B	102	98	98	100	100	114	110	106	106	104	102	108	B	112	G	G	122	108	102	100	100	106	104
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19	120	102	102	100	118	118	104	112	114	126	114	114	118	118	122	114	114	114	110	106	104	102	102	100
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21	102	102	100	100	96	98	122	116	108	108	106	106	102	108	106	106	106	106	106	102	102	102	B	102
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	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	27	30	28	29	28	25	31	31	31	31	31	30	31	29	31	30	30	30	31	31	30	30	29	29
MED	104	102	100	100	100	102	120	114	112	110	108	106	108	110	110	116	113	114	108	106	104	104	104	104
U Q	106	104	104	104	102	114	126	118	116	114	114	112	118	121	124	122	120	118	112	110	106	106	107	106
L Q	100	100	98	98	97	100	112	112	110	106	104	102	102	101	102	106	104	106	106	102	100	100	102	102

MAY 2016 h'Es (KM)

IONOSPHERIC DATA STATION Okinawa

MAY 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	F 4	F 2	F 1			F 1	C 2	C 2	C 2	C 3	C 5	C 2	C 2	CQ 21	L 3	L 4	LQ 21	C 8	C 9	L 9	FQ 41	FQ 71	FQ 51	F 5
2	FQ 71	F 8	FQ 71	FQ 71	FF 26	F 1	C 2	C 2	C 2	C 5	C 1		C 1	C 1	C 3	C 1	C 3	C 8	C 6	L 9	F 8	F 8	F 5	F 5
3	FQ 81	FQ 41	FQ 41	F 4	FF 31	FF 32	C 4	C 3	CQ 21	C 1	C 1	HC 12	C 2	H 1	H 1	H 1	C 1	C 1	C 1	C 1	F 5	F 7	FQ 41	FQ 31
4	FF 24	F 4	F 4	F 1			C 1	C 2	L 7	LQ 31	LQ 21	L 2	L 2	L 1	L 1	CL 21	L 2	LC 31	CLH 52	CL 12		F 1	F 1	FQ 21
5	FFQ 31	FFQ 23		F 1	F 1		L 1	HL 11	HL 11	L 3	HL 11	CL 11	H 1	C 1	C 2	C 2	C 3	C 5	CQ 41	L 9	FQ 51	FF 13	FQ 31	
6		F 1		F 3	F 3	F 2	C 1	C 1	L 2	L 4	HL 11	L 2	L 2	L 1	L 1	L 2	L 2	CL 11	CL 11	C 3	F 3	F 2	F 2	F 4
7	F 3	F 2	F 2	F 3	F 3		C 3	C 1	C 1	L 1	L 1	L 1	HL 11	L 2	HL 11	HL 11	HL 11	CL 54	CL 23	CL 34	FF 13	F 3	F 1	FQ 21
8		F 1					H 1	C 1	C 2	C 2	L 3	L 1	HL 11	C 1	H 1	H 1	C 2	C 1	C 3	L 2	F 1	F 6	FQ 21	FQ 11
9	F 2	F 6	F 3	FQ 21	F 1	F 8	C 4	C 4	CQ 41	C 4	L 4	L 2	L 4		L 2	LC 11	CL 11	L 1	C 4	C 8	FQ 91	FQ 71	FQ 51	FF 31
10	F 3	F 5	F 8	F 1	F 1	FF 11	C 3	C 4	C 3	C 2	C 2	C 1	C 1	H 1	H 1	C 1	C 2	C 3	C 1	C 9	FQ 41	F 1		
11			F 1	F 1	F 2		C 2	C 4	C 2	C 2	C 2	C 1	C 1	C 1	C 1	CL 11	L 1	HL 11	CL 22	C 8	F 8	F 3	F 4	F 4
12	F 4	FQ 41	FQ 51	FF 17	F 5	FF 11	H 3	C 2	C 2	C 1	C 2	C 1	C 2	C 1	C 1	H 1	C 2	C 2	C 5	C 8	F 3	FQ 41	F 1	F 3
13	F 3	F 4	F 4	F 3	F 2	F 1	F 3	C 3	C 4	C 2	C 2	L 3	L 3	LQ 11	LQ 41	LQ 31	LQ 21	L 1	LH 11	LQ 21	F 2	F 7	FF 32	F 2
14	F 3	FQ 21	FQ 31	FQ 51	FQ 51	FQ 41	LQ 61	LQ 21	CL 31	L 2	L 2	L 2	LQ 11	LC 21	L 1	L 1	L 4	HL 12	L 2	L 2	FF 11		F 2	F 1
15		F 3	FQ 21	FQ 11	F 1	F 7	CH 11	C 3	CQ 31	C 2	L 2	L 2	C 1		C 1			C 1	C 3	L 9	FQ 31	FQ 31	FF 33	F 3
16	F 9	F 5	F 4	F 1	F 4	F 8	HL 11	C 2	C 3	C 3	L 2	L 2	L 3	L 2	L 1	H 1	C 1	C 5	CQ 31	CQ 21	F 9	F 7	FF 32	F 3
17	FF 22	F 3	F 4	FQ 21	F 4	F 2	L 3	C 2	C 4	L 3	L 2	L 2	L 4	L 1	L 2	L 3	L 5	HL 11	CL 32	CL 51	F 5	FF 23	FF 22	FQ 21
18	F 5	F 4	FQ 21	FQ 31	FQ 31	F 1	C 3	C 2	C 3	C 2	C 2	L 1	L 3	L 3	LCH 32	C 3	C 4	CL 21	CL 32	L 6	FQ 41	FF 22	F 8	FQ 61
19	FF 13	F 9	F 5	FQ 31	FF 11	C 1	L 6	C 3	C 1	C 1	C 2	C 1	C 2	C 1	C 2	C 2	C 2	C 2	C 8	C 5	F 9	F 9	F 9	F 4
20	F 4	F 4	FQ 41	FQ 41	FQ 31	L 1	C 2	CQ 31	CQ 41	CQ 41	LQ 41	L 4	L 5	L 5	CLQ 11	C 1	C 1	C 1	L 2	C 4	FQ 61	FQ 31	FFQ 23	FQ 51
21	FQ 51	FQ 31	F 3	FQ 21	F 6	L 3	C 1	C 2	C 5	C 4	C 5	L 2	L 1	C 4	C 3	C 4	C 4	C 6	C 5	L 3	F 5	F 3		F 3
22	FQ 21	F 6	FQ 51	FQ 51	FQ 41	LQ 41	CL 42	C 4	CL 41	CL 31	C 3	C 4	C 3	CL 42	CL 21	CL 21	CL 51	C 8	L 8	LQ 61	FQ 41	F 5	F 4	F 3
23	F 1	F 4	F 4	FQ 41	F 2	C 1	CHL 11	C 2	C 3	CL 21	C 3	C 1	L 1	L 1	L 3	CL 21	HCL 11	CL 42	CL 31	CL 21	FF 32	FQ 31	FQ 31	FQ 31
24	FQ 51	FQ 71	FQ 61	F 2	FF 23	LQ 31	CL 32	C 4	C 5	C 5	CL 52	CL 51	C 2	C 1	C 4	C 3	C 4	C 4	L 7	LQ 41	FF 42	F 7	FF 84	FQ 41
25	FF 33	FQ 51	FQ 41	FQ 61	FQ 61	LQ 71	CL 32	C 4	C 3	C 7	C 4	C 3	L 3	L 4	LQ 41	C 2	C 3	CL 21	CL 71	CL 81	FF 84	FFQ 52	FQ 61	FQ 91
26	FQ 41	FQ 51	FQ 51	F 3	F 8	L 5	C 3	C 6	C 5	C 5	C 3	C 3	C 3	C 5	C 5	C 5	C 7	C 9	C 6	C 6	FQ 41	FQ 31	FF 11	FF 24
27	F 4	FQ 51	FFQ 16	F 2	F 9	L 2	LH 32	H 1	CL 21	CL 11	CL 11	C 2	C 1	CL 11	CL 11	CL 21	CL 11	CL 41	CL 31	CL 82	FFQ 43	FFF 13	FQ 31	FQ 61
28	F 6	F 7	FQ 41	F 3	FQ 21		H 1	H 2	C 2	C 2	C 1	C 3	H 1	H 1	CL 11	CL 21	C 2		C 1	CL 11	F 2	FF 85	FFQ 33	FF 72
29	FF 91	FQ 71	FQ 51	FQ 71	FQ 31	LQ 61	CL 12	C 4	C 4	C 6	C 4	L 5	LQ 41	C 1	C 3	L 4	L 5	L 2	L 2	CL 42	F 5	FQ 51	F 2	FQ 51
30	FQ 51	FF 24	F 2	FQ 21	FQ 71	LQ 71	L 3	L 4	L 4	L 2	L 6	L 4	L 4	LQ 31	LQ 41	CL 13	LQ 21	CL 22	CL 52	L 5	F 3	F 9	F 4	FF 25
31	F 3	F 1	F 2	F 2	F 1	L 1	H 1	C 2	H 1	C 2	CQ 21	C 2	H 1	C 3	C 2	C 2	C 3	C 4	C 8	L 5	FF 72	FF 12	F 4	FF 22
	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																								

MAY 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

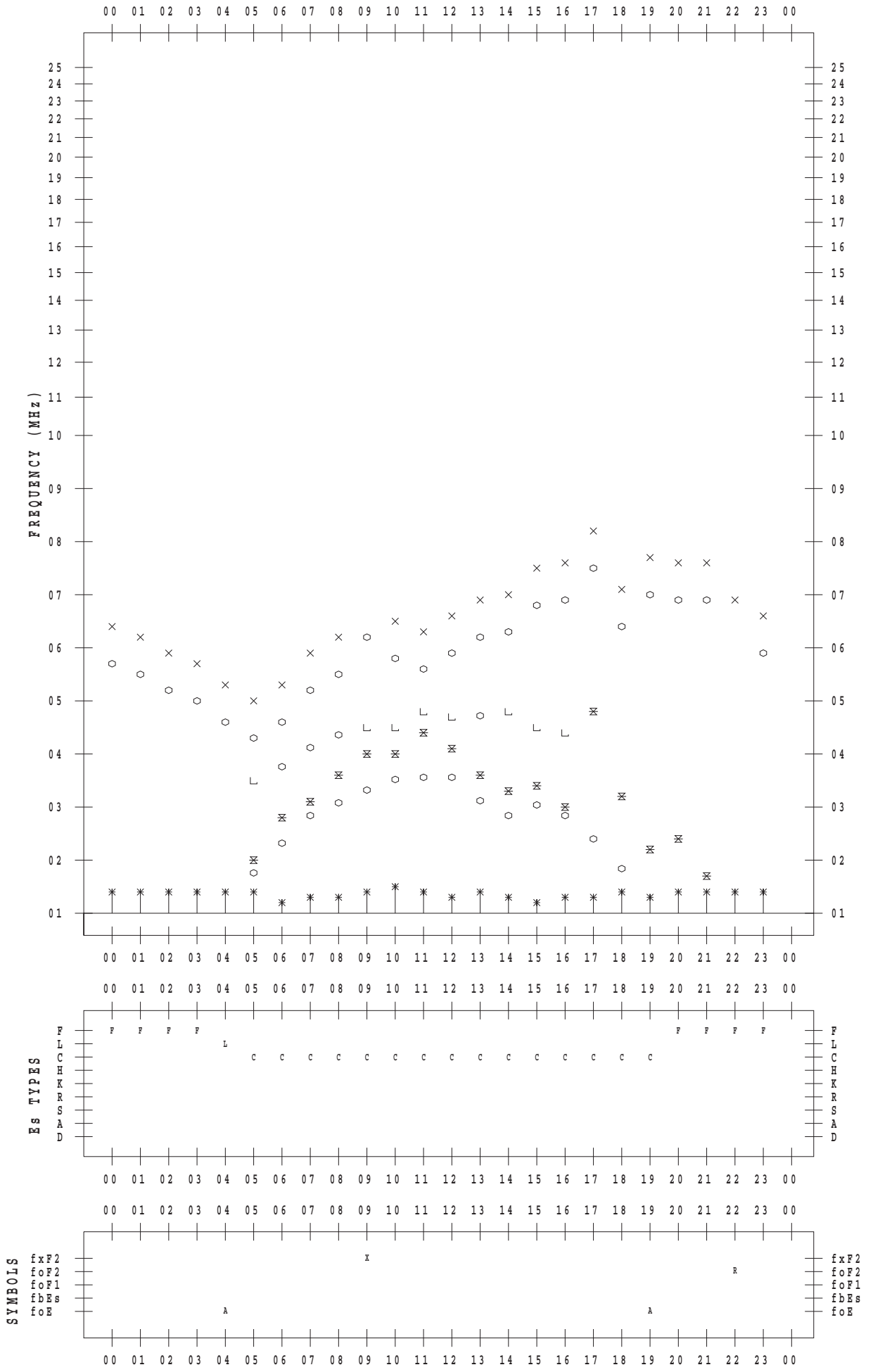
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2016/ 5/ 1

135 °E MEAN TIME



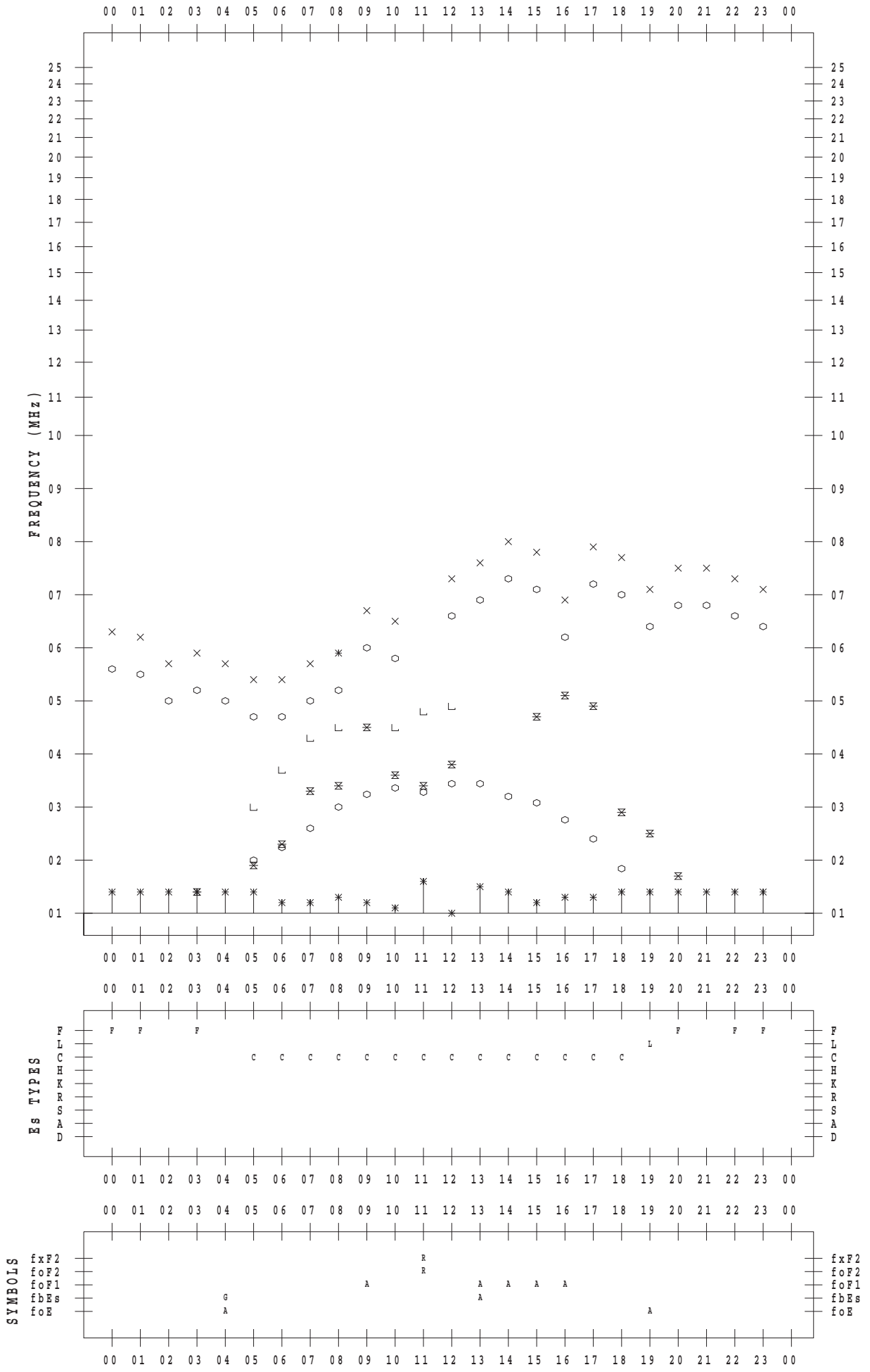
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2016/ 5/ 2

135 °E MEAN TIME



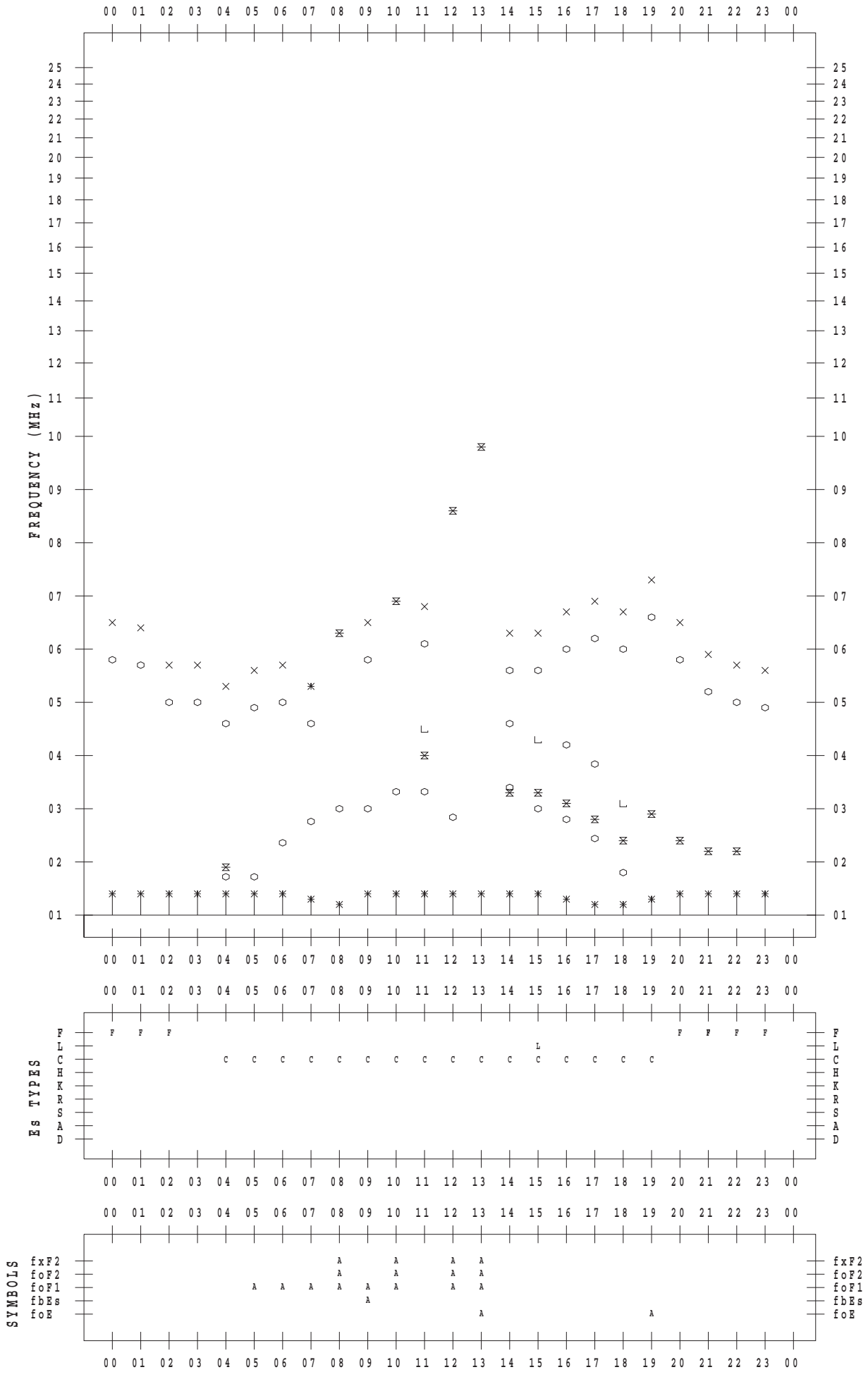
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2016/ 5/ 3

135 °E MEAN TIME



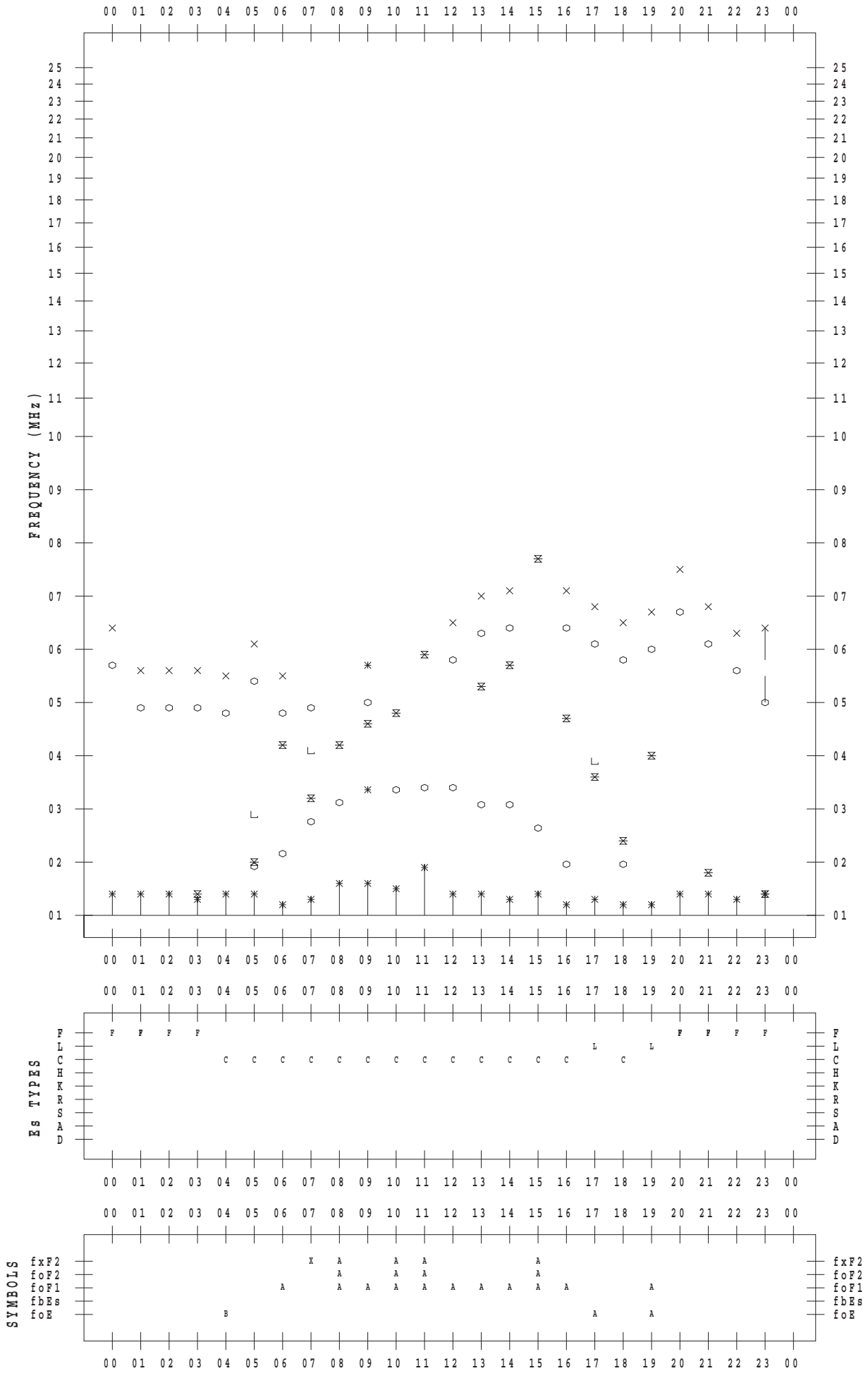
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2016/ 5/ 4

135 °E MEAN TIME



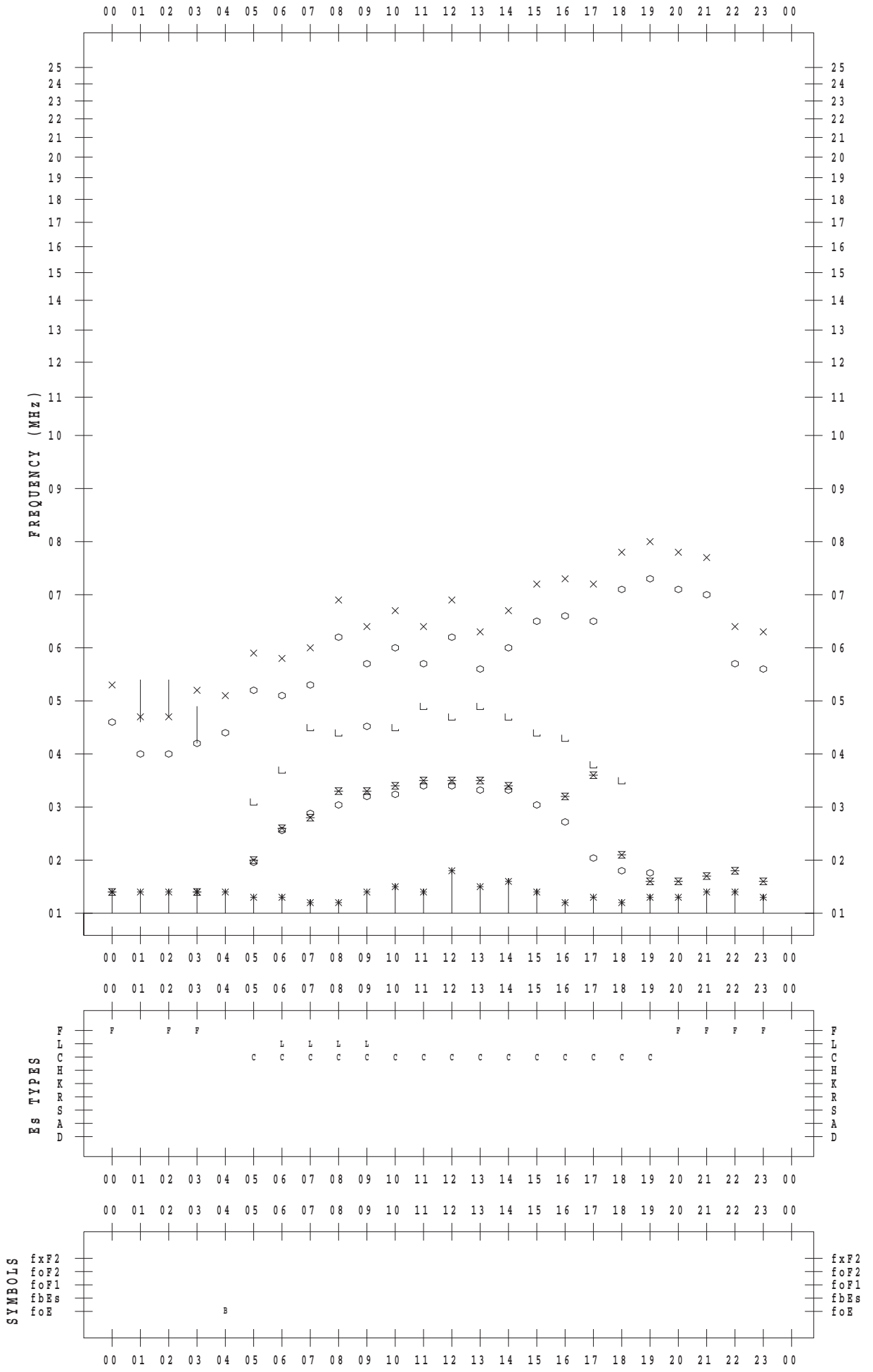
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2016/ 5/ 5

135 °E MEAN TIME



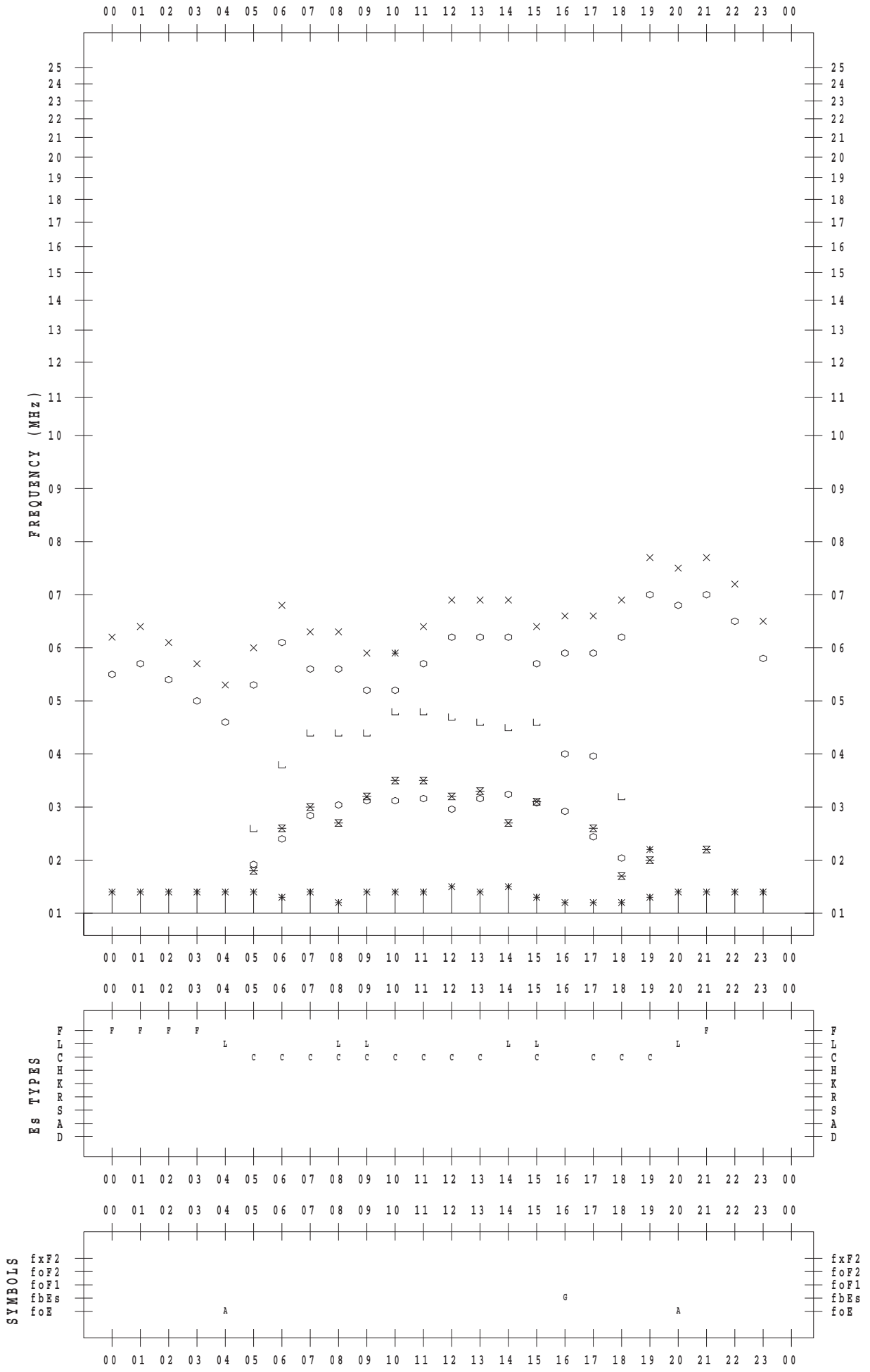
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2016/ 5/ 6

135 °E MEAN TIME



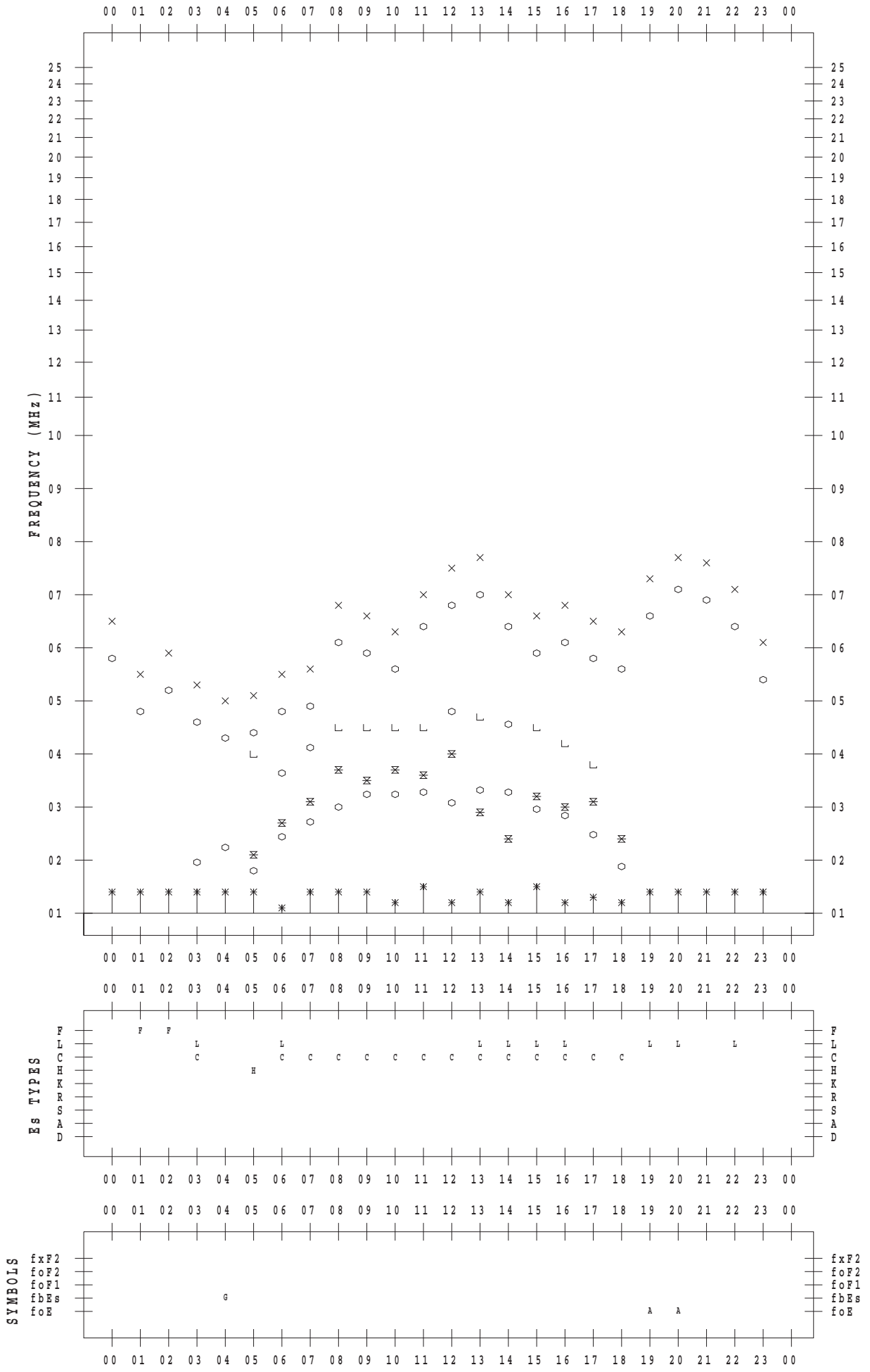
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2016/ 5/ 7

135 °E MEAN TIME



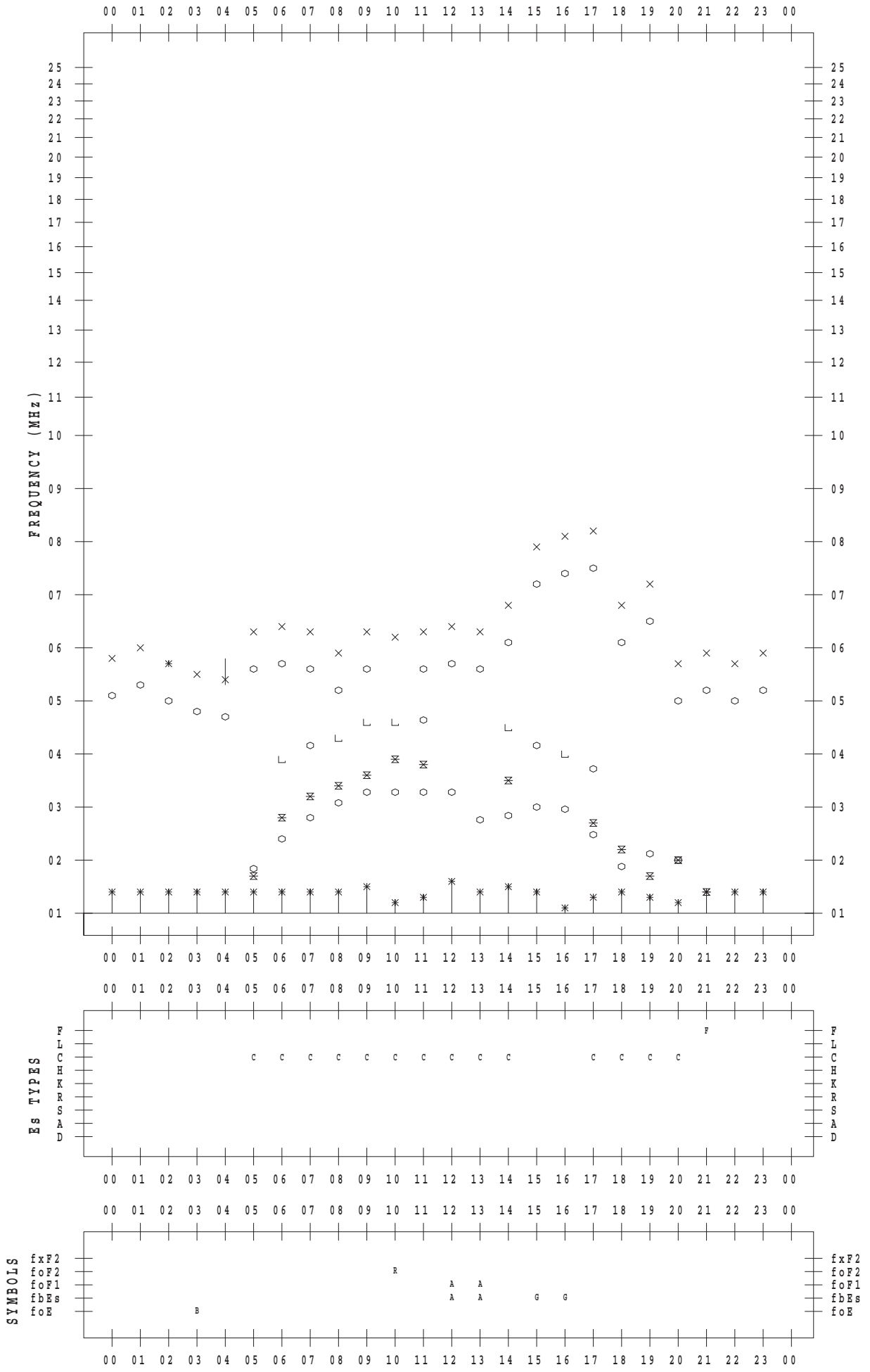
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2016/ 5/ 8

135 °E MEAN TIME



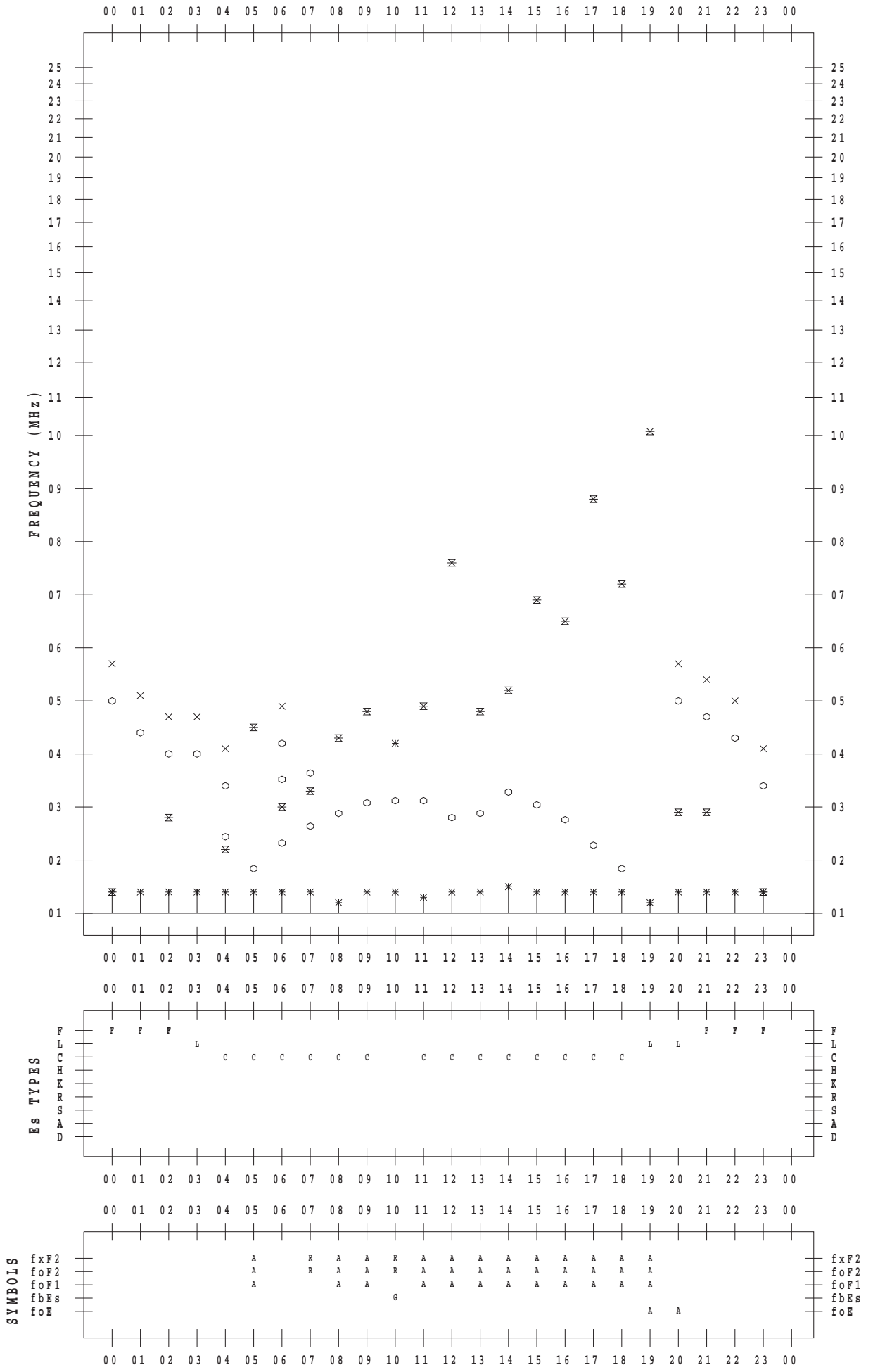
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2016/ 5/ 9

135 °E MEAN TIME



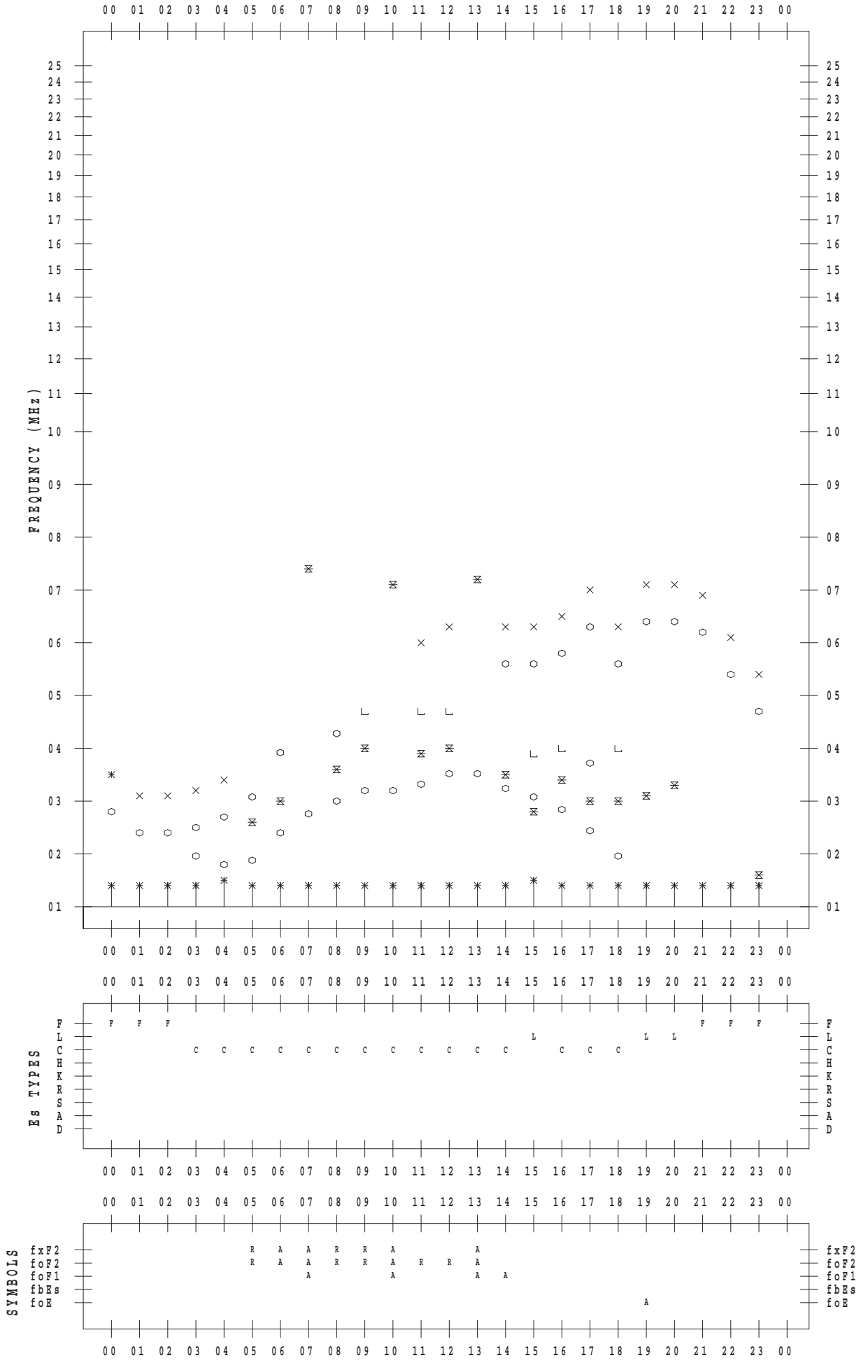
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2016/ 5/10

135 °E MEAN TIME



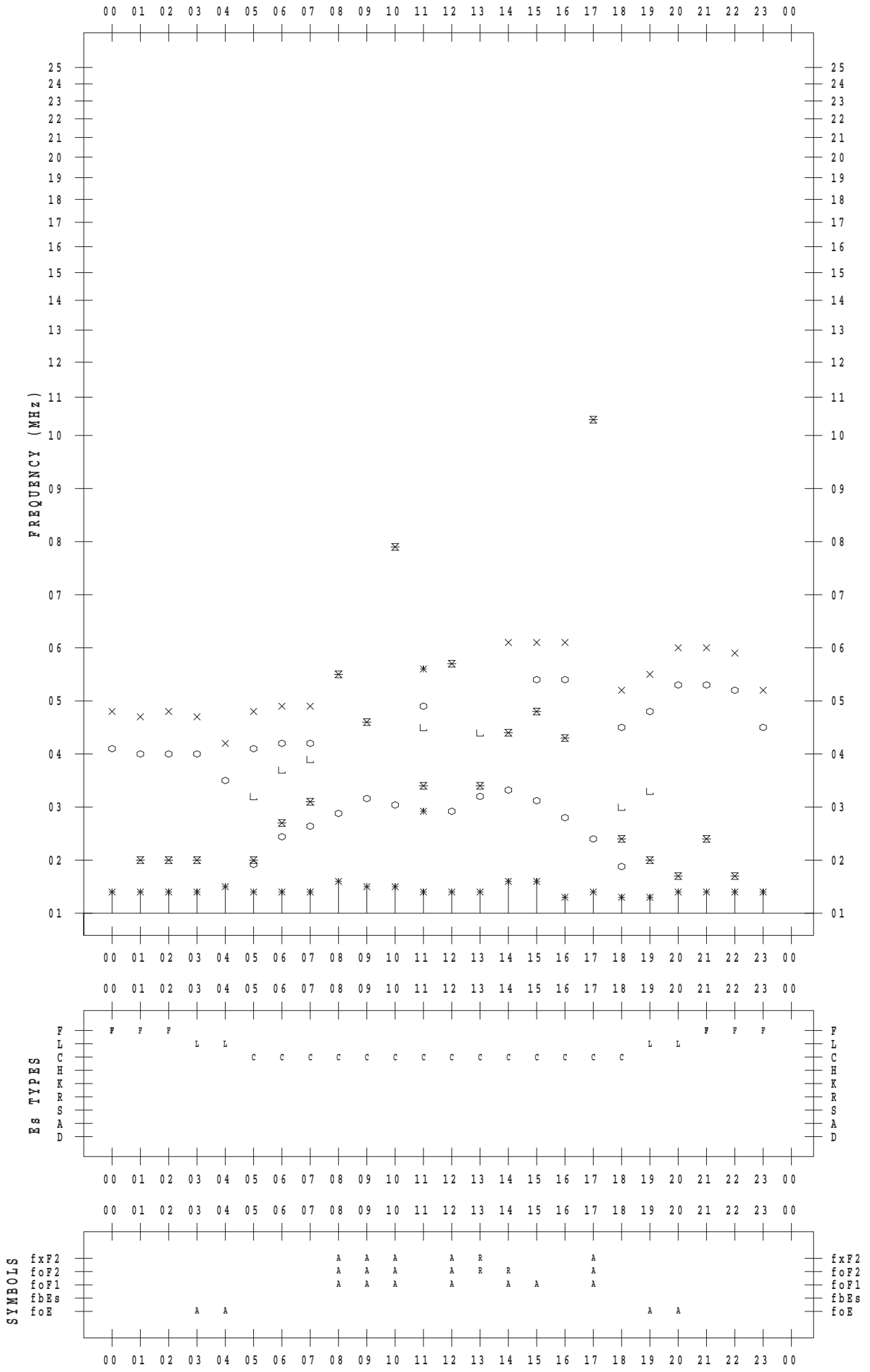
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2016/ 5/11

135 °E MEAN TIME



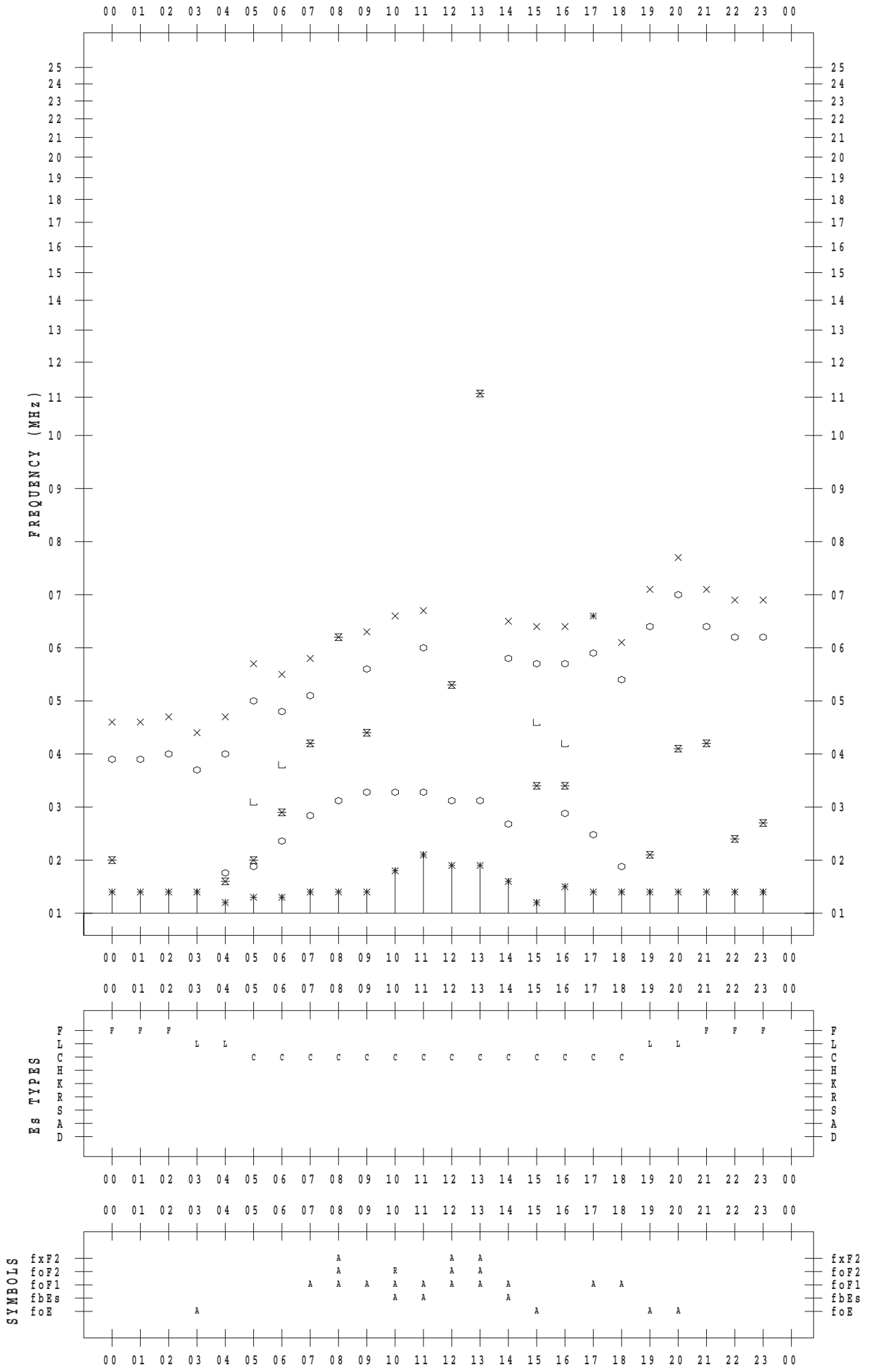
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2016/ 5/12

135 °E MEAN TIME



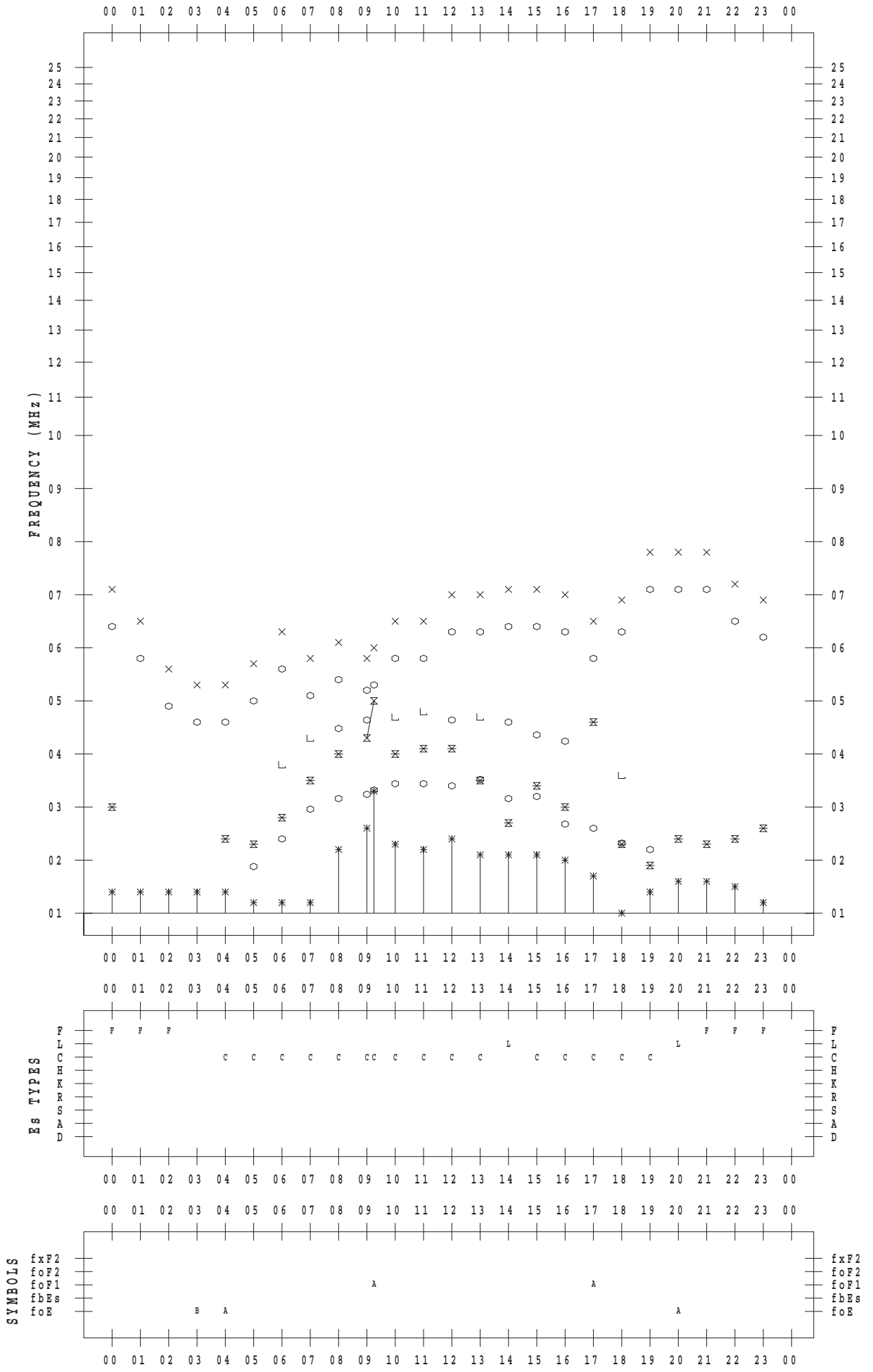
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2016/ 5/13

135 °E MEAN TIME



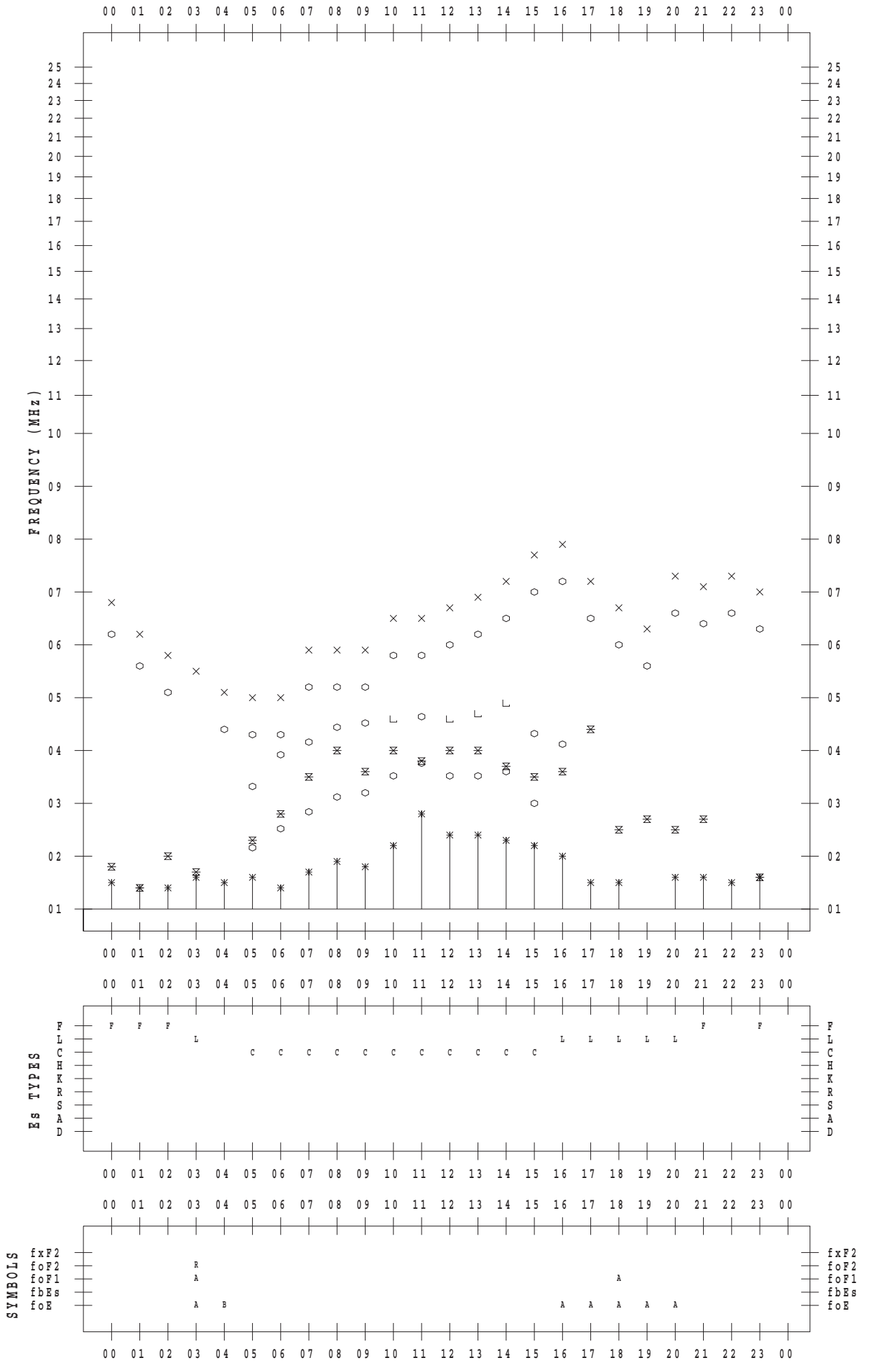
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2016/ 5/14

135 °E MEAN TIME



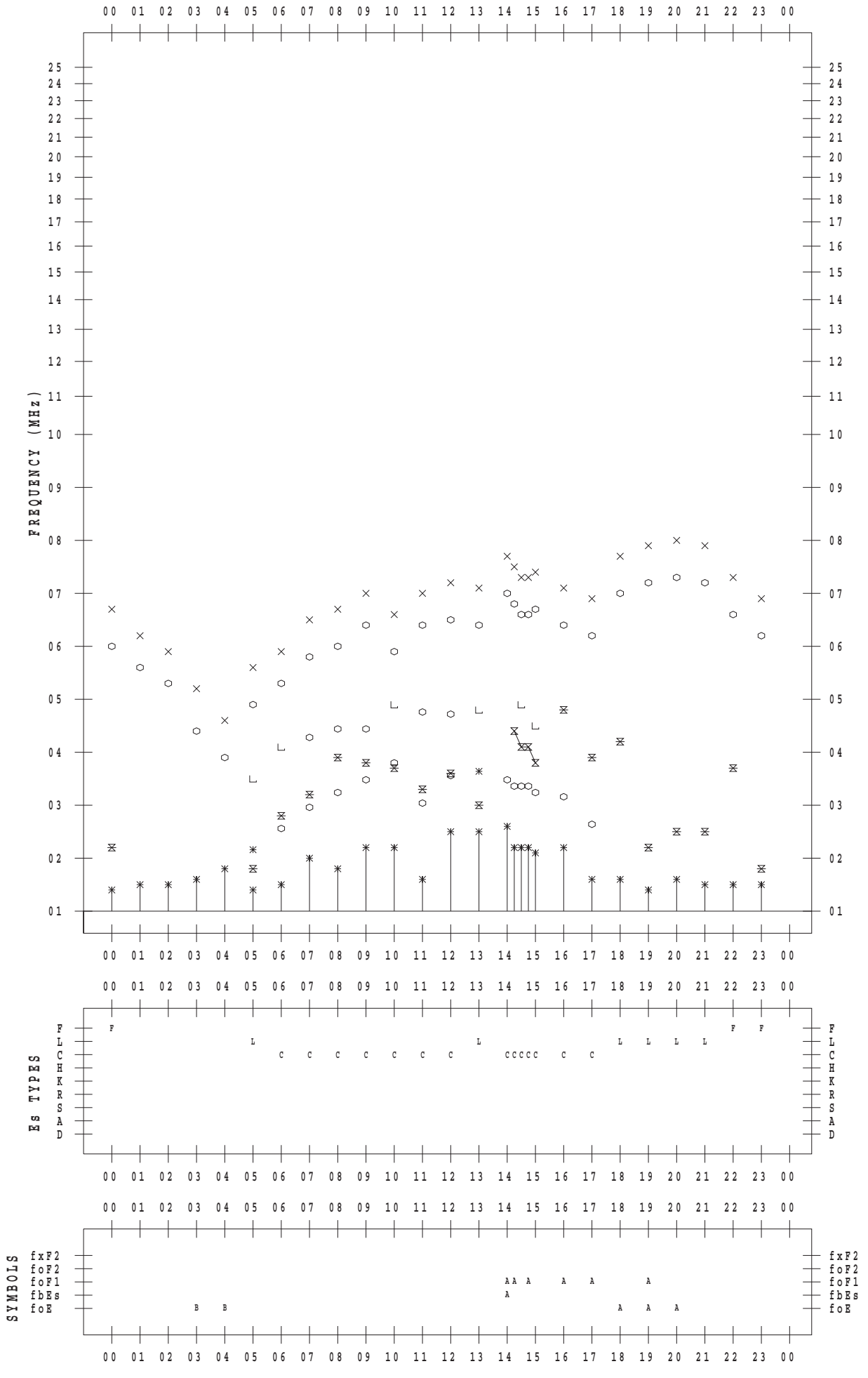
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2016/ 5/15

135 °E MEAN TIME



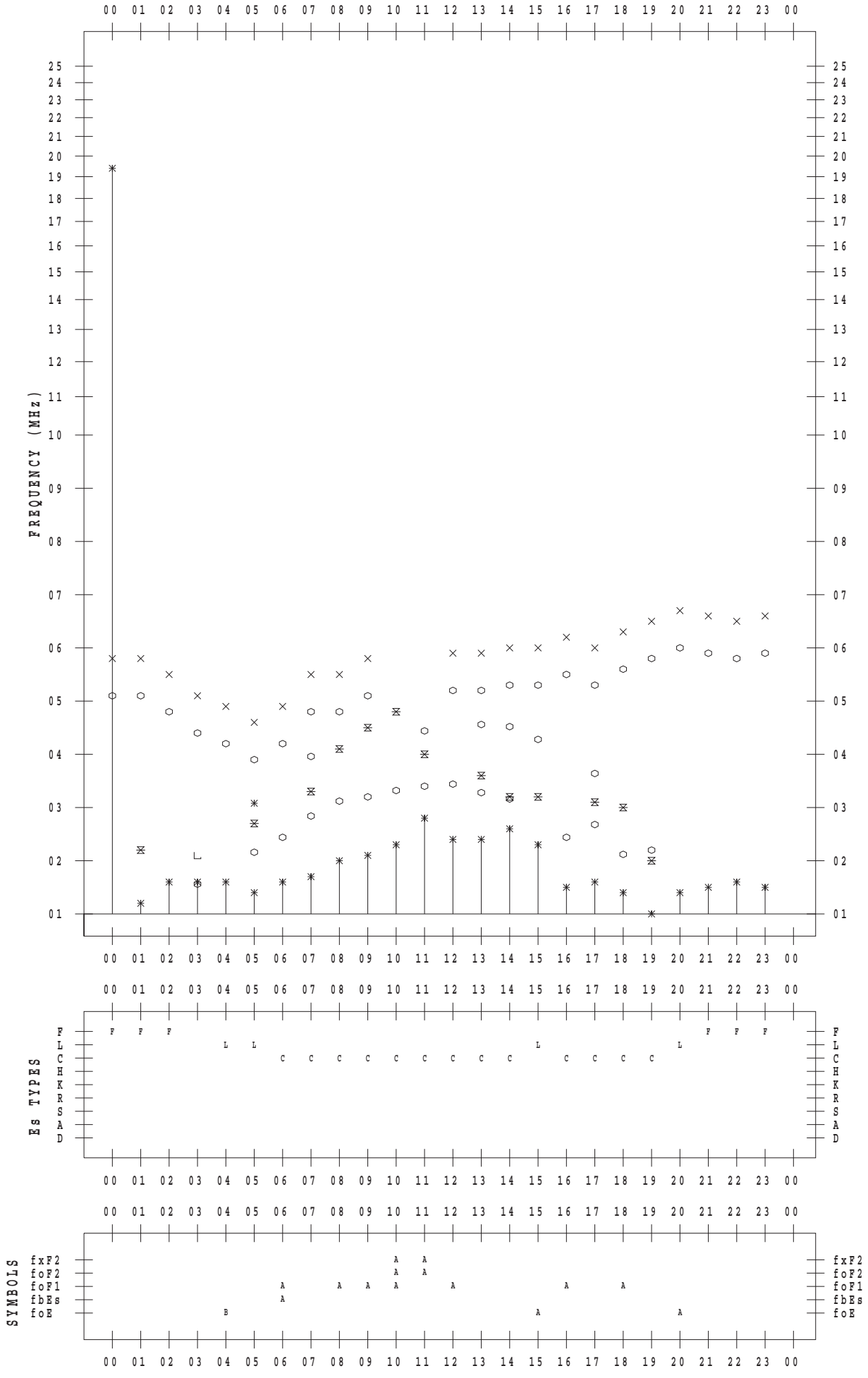
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2016/ 5/16

135 °E MEAN TIME



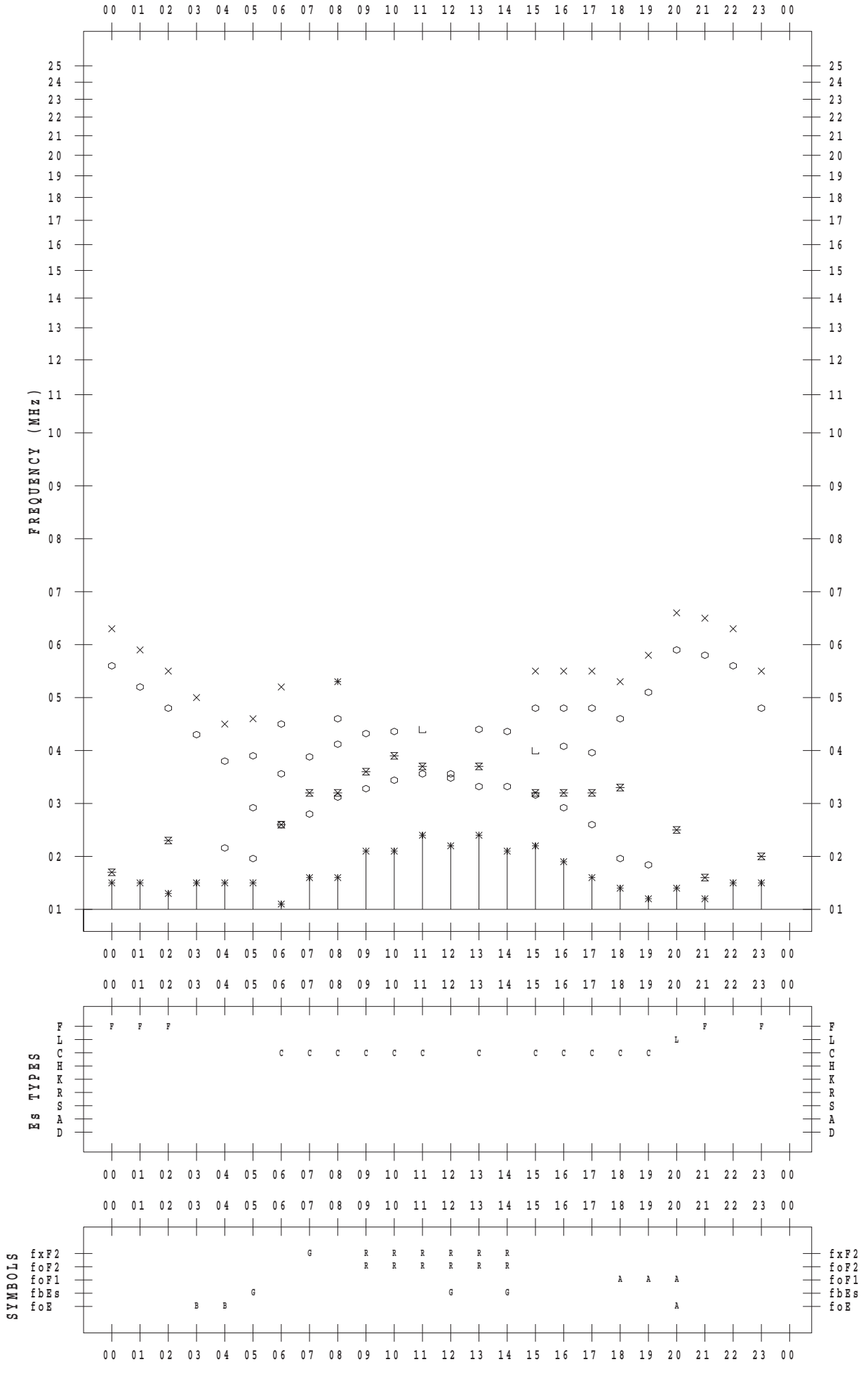
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2016/ 5/17

135 °E MEAN TIME



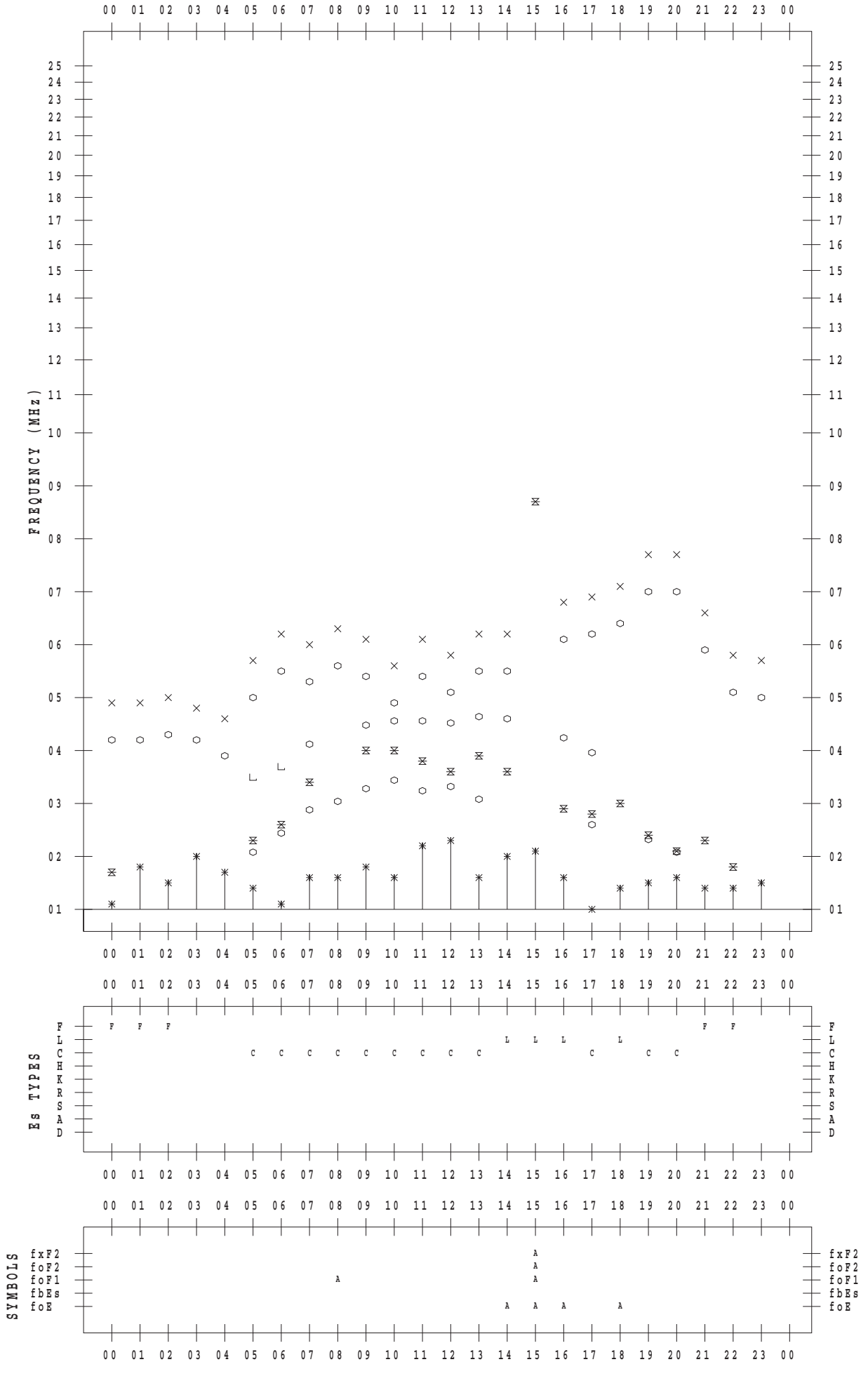
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2016/ 5/18

135 °E MEAN TIME



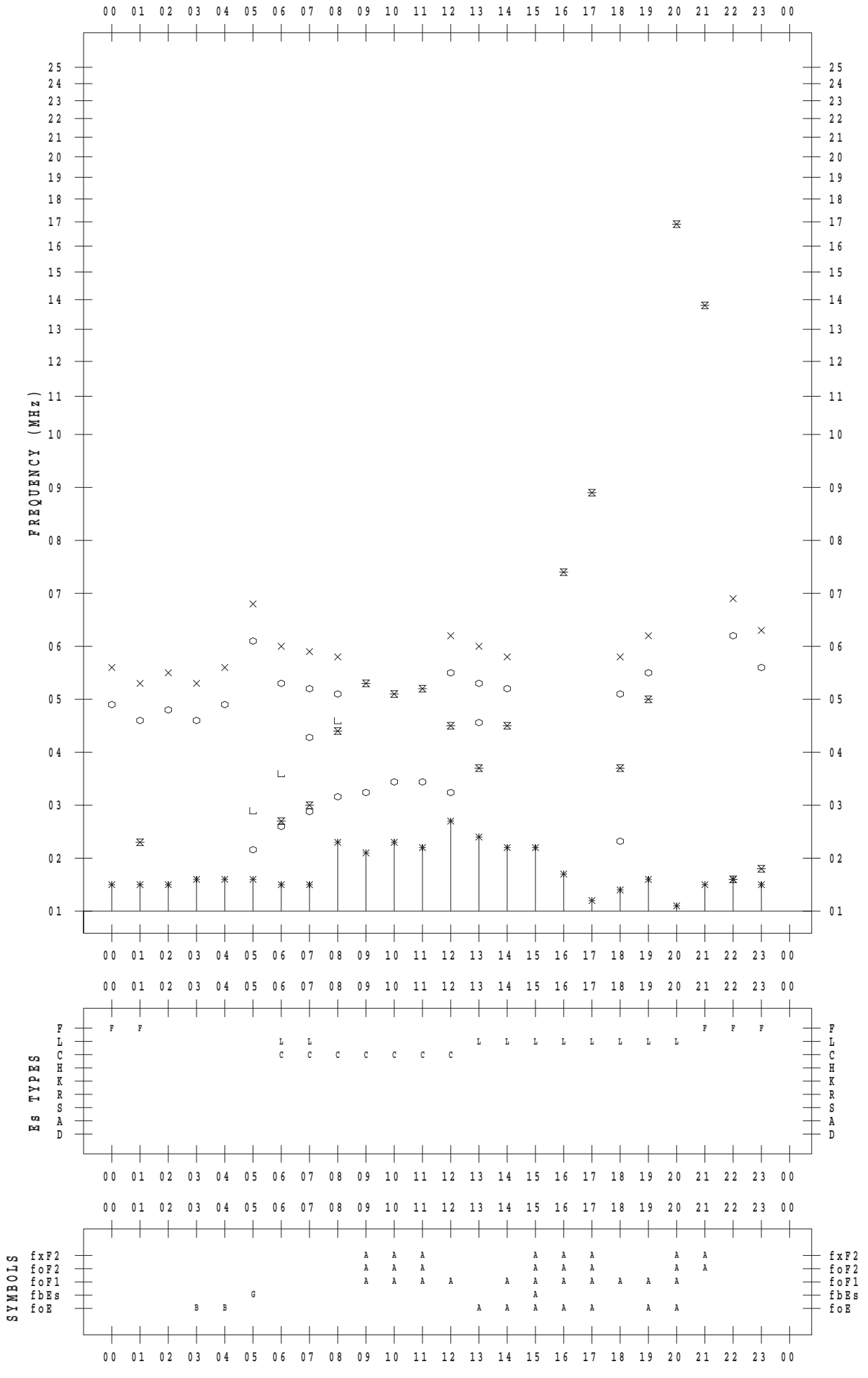
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2016/ 5/19

135 °E MEAN TIME



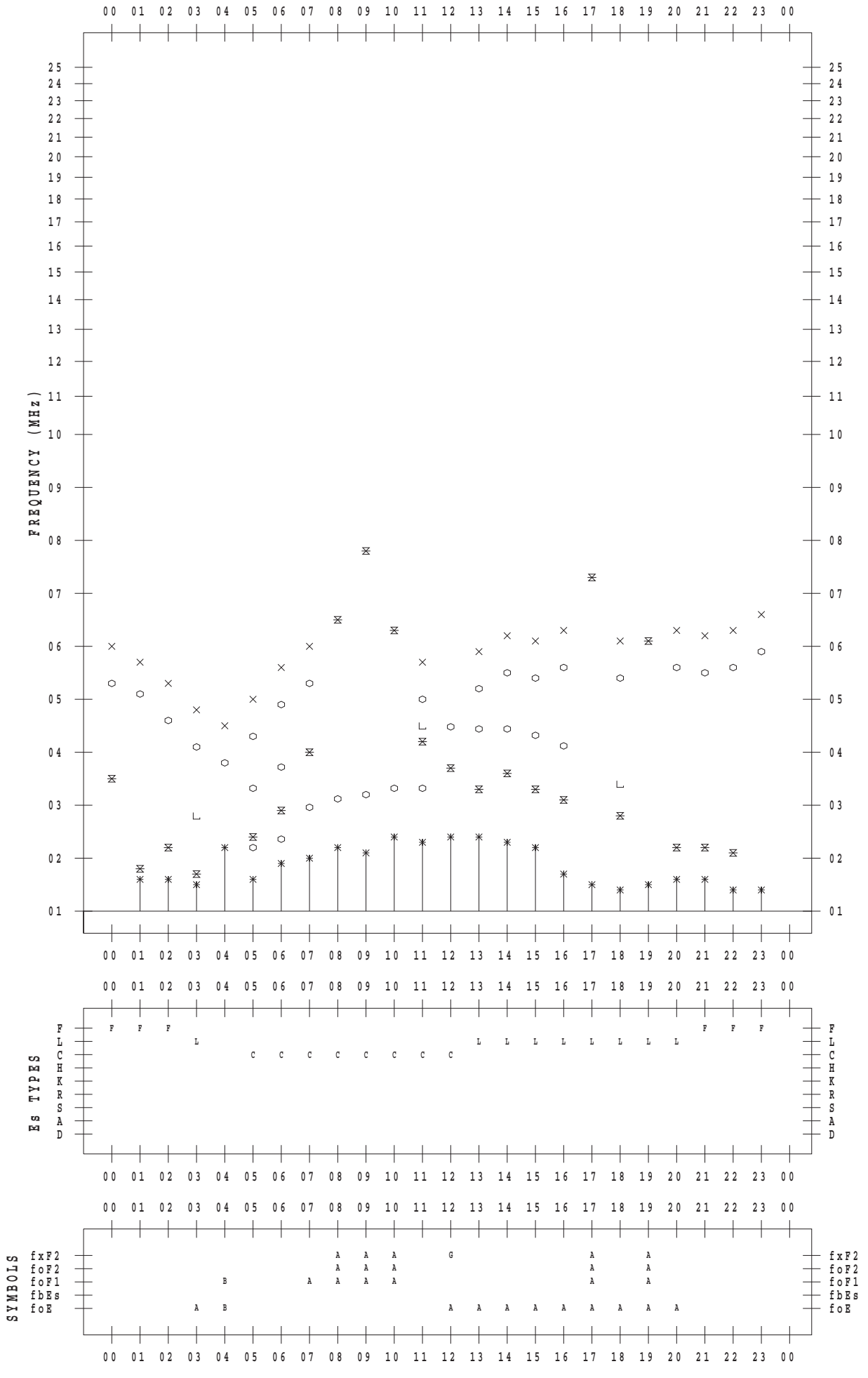
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2016/ 5/20

135 °E MEAN TIME



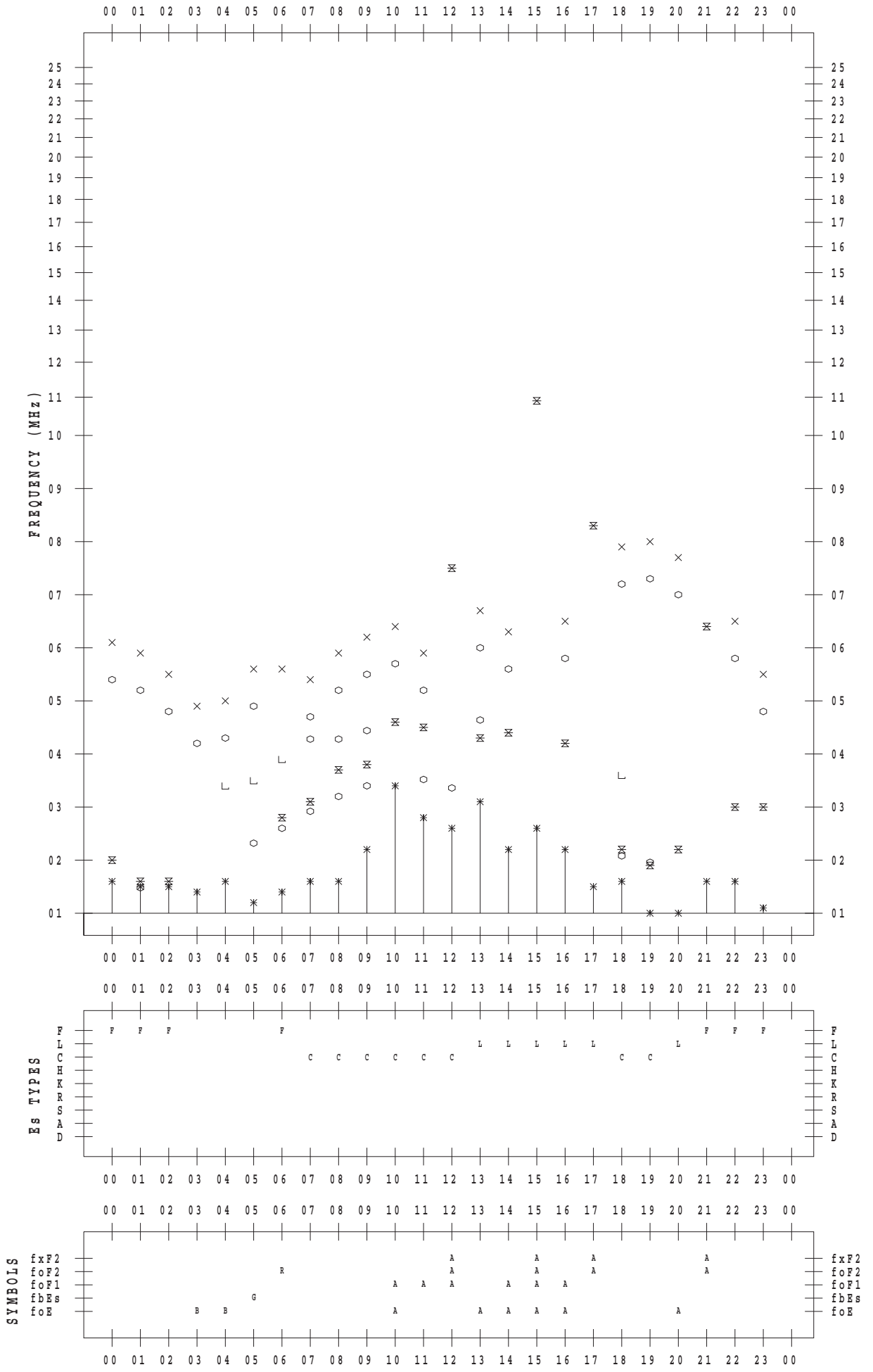
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2016/ 5/21

135 °E MEAN TIME



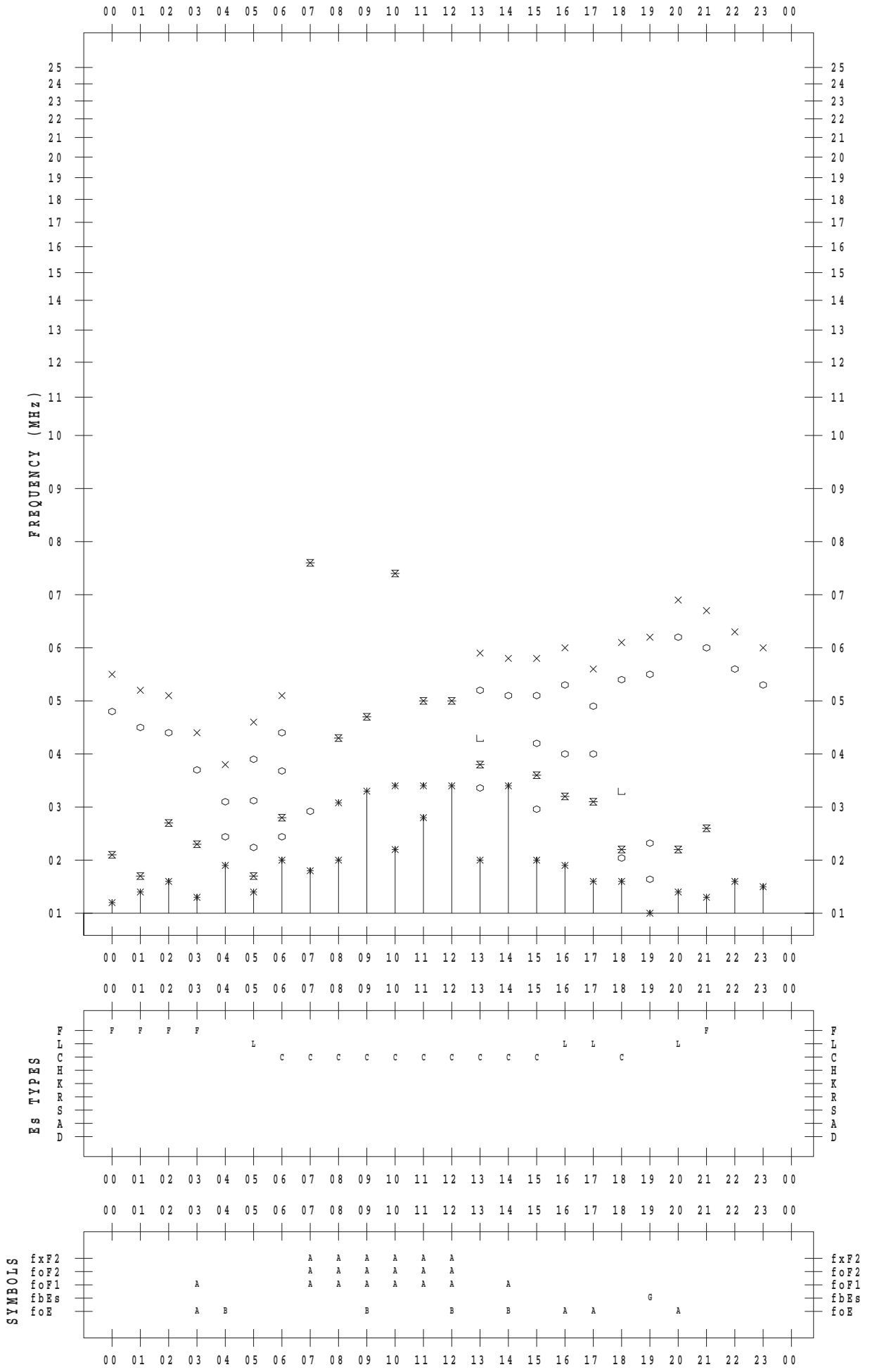
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2016/ 5/22

135 °E MEAN TIME



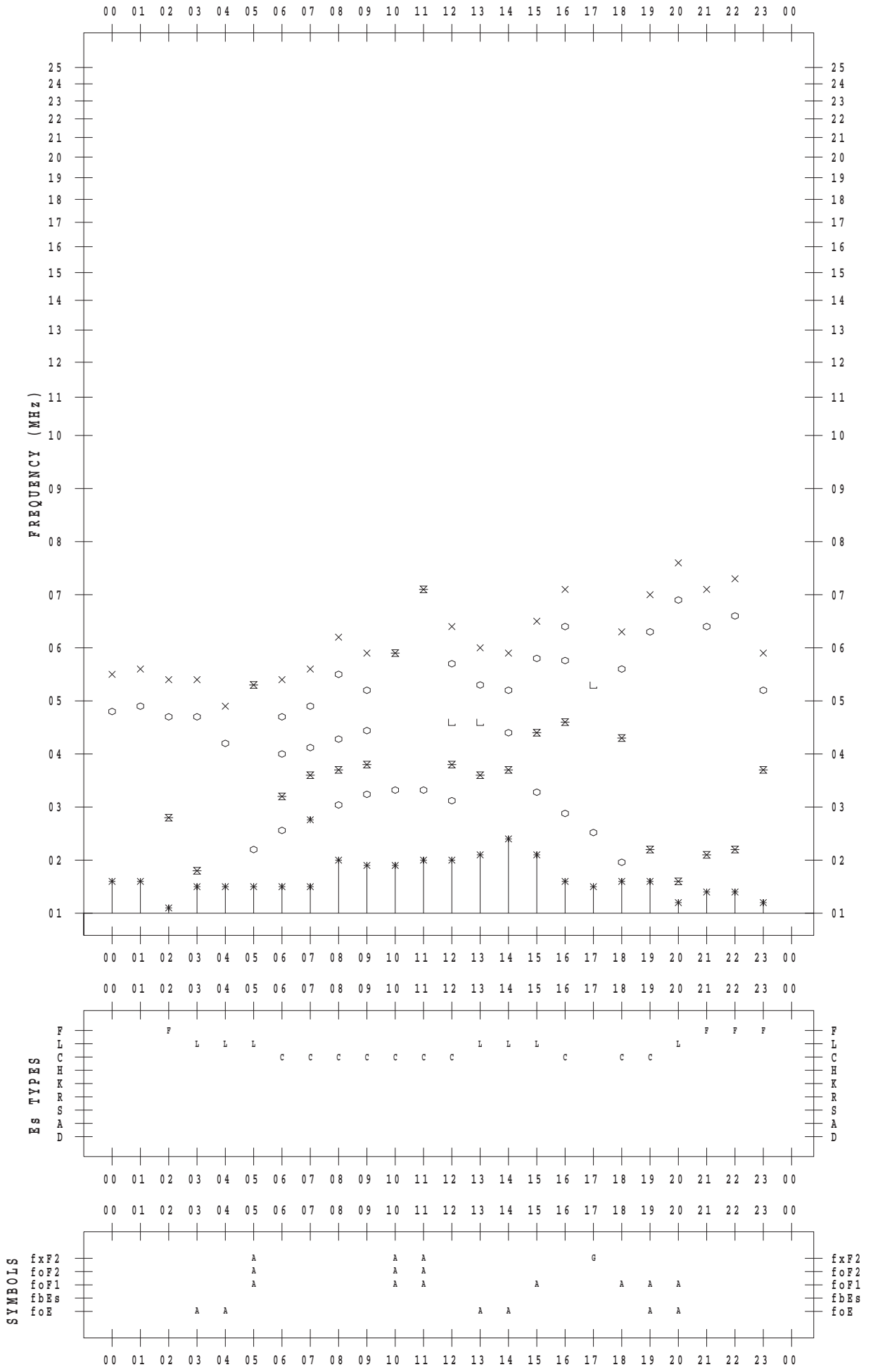
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2016/ 5/23

135 °E MEAN TIME



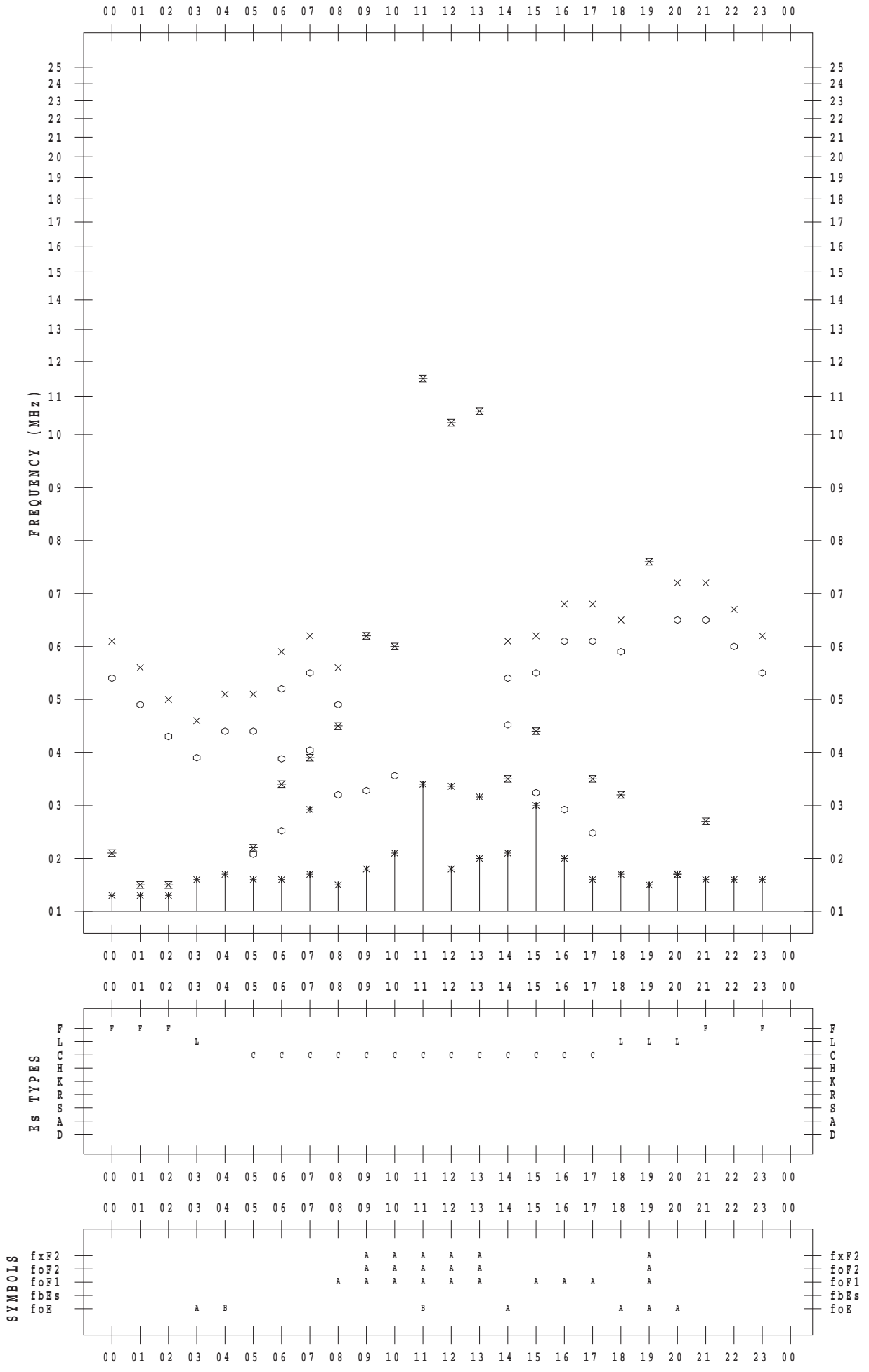
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2016/ 5/24

135 °E MEAN TIME



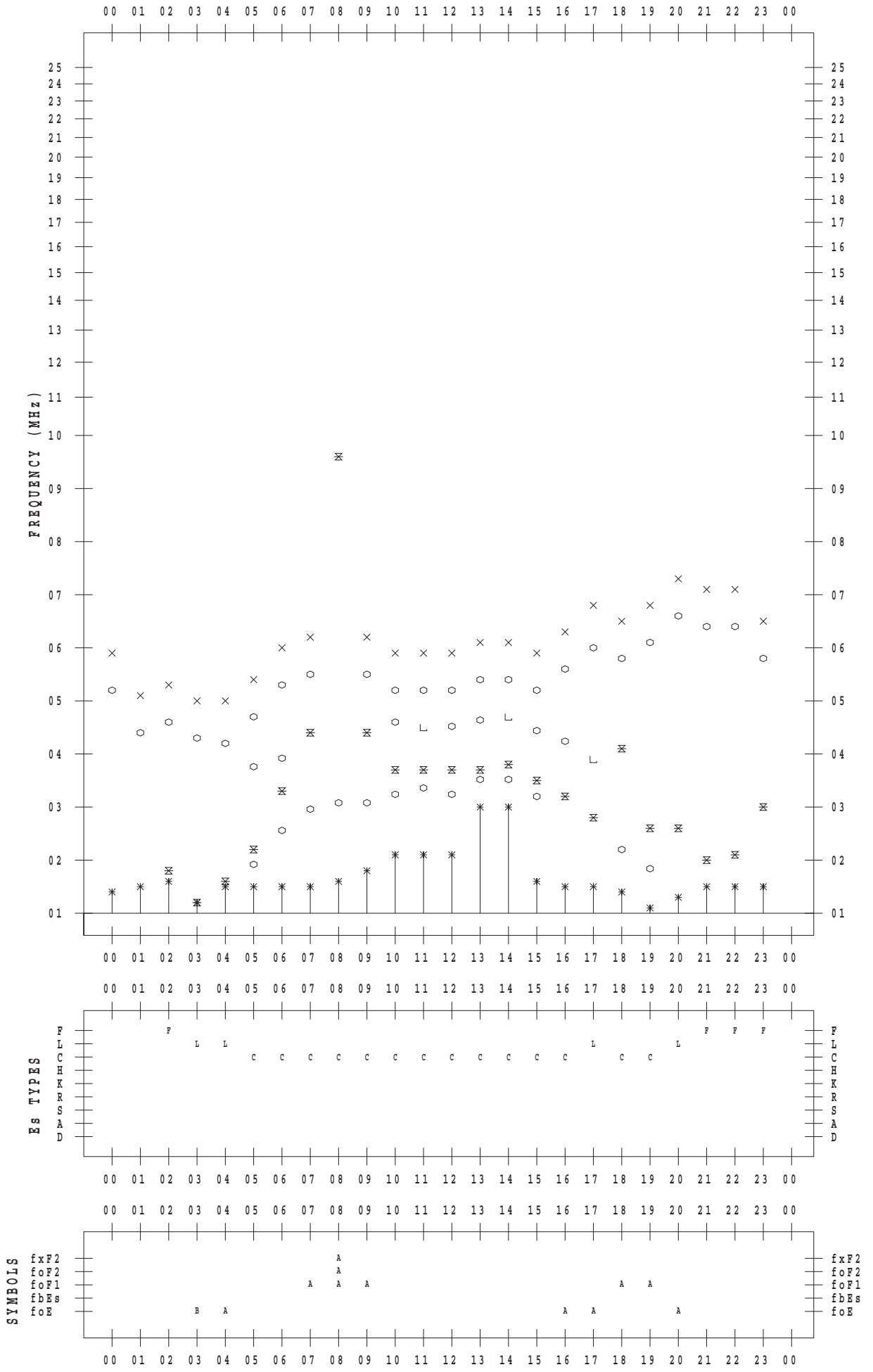
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2016/ 5/25

135 °E MEAN TIME



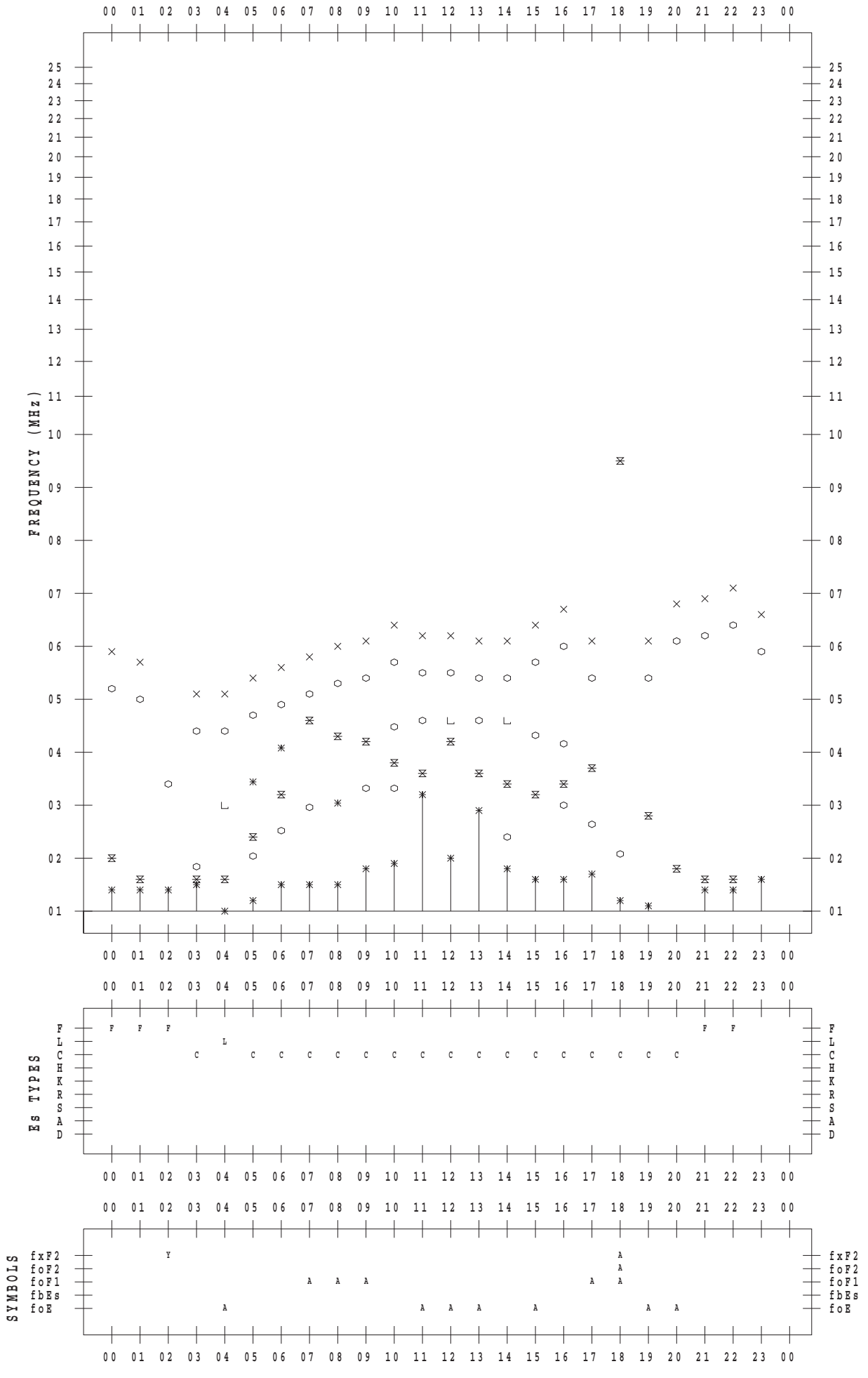
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2016/ 5/26

135 °E MEAN TIME



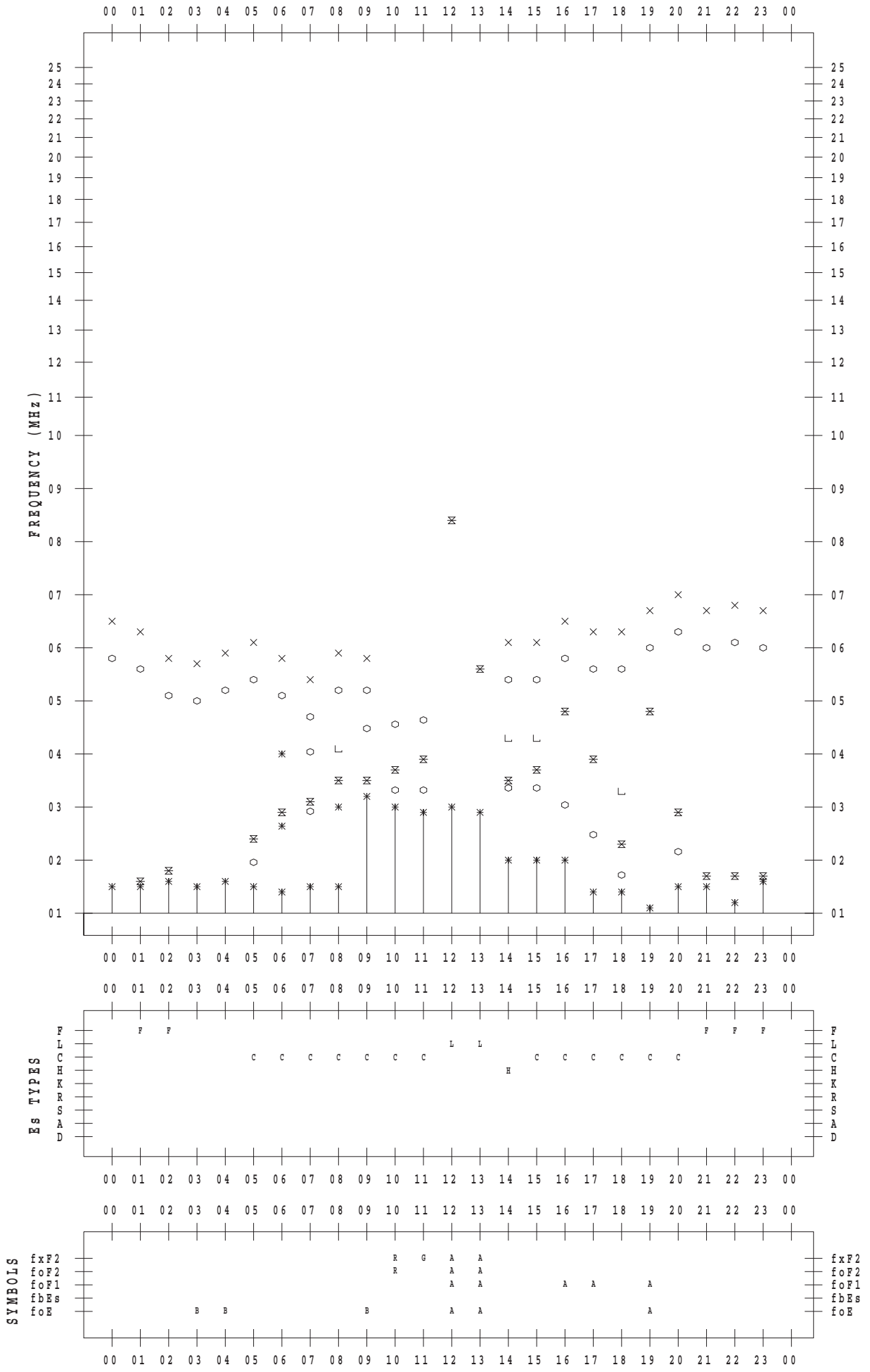
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2016/ 5/27

135 °E MEAN TIME



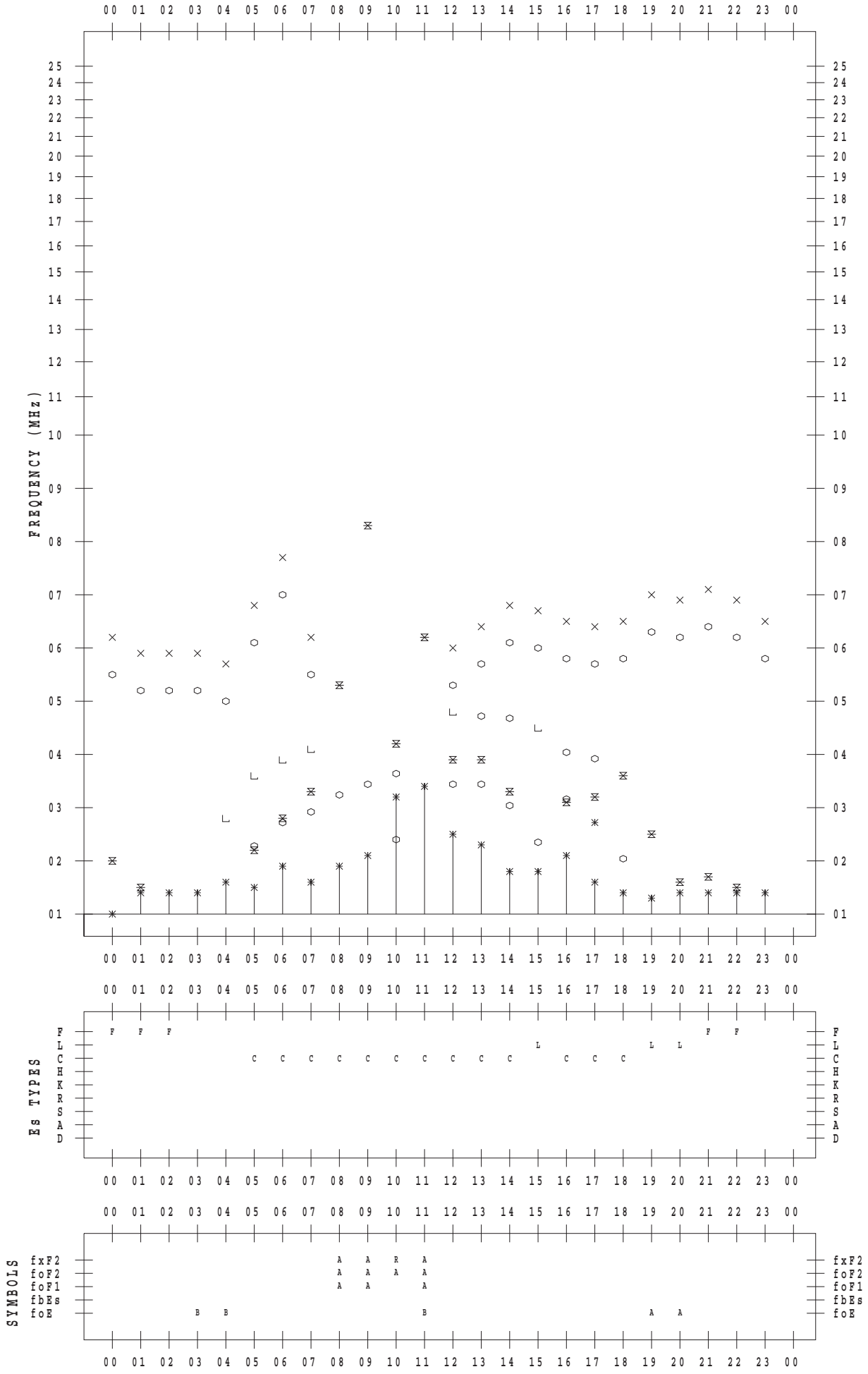
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2016/ 5/28

135 °E MEAN TIME



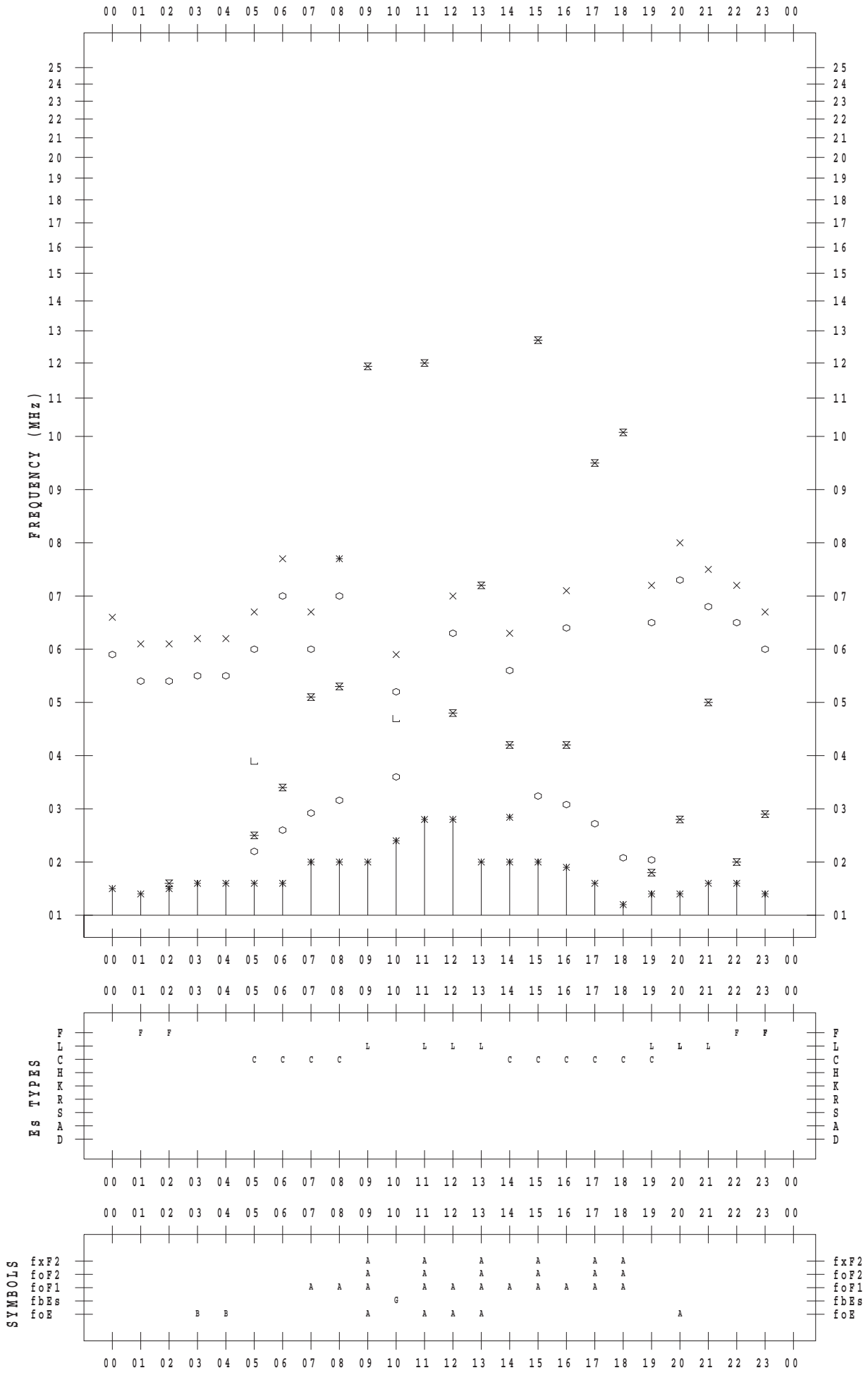
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2016/ 5/29

135 °E MEAN TIME



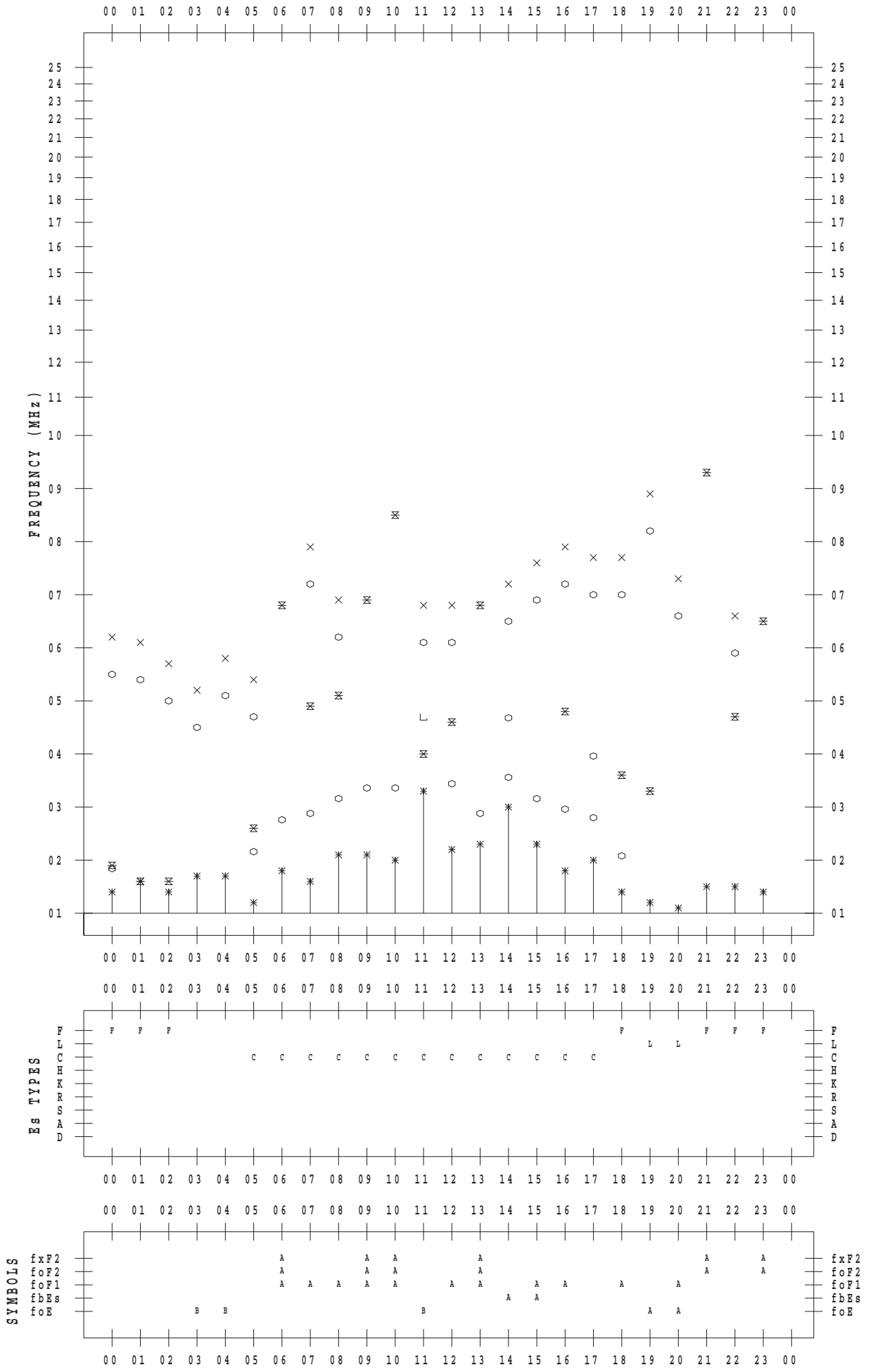
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2016/ 5/30

135 °E MEAN TIME



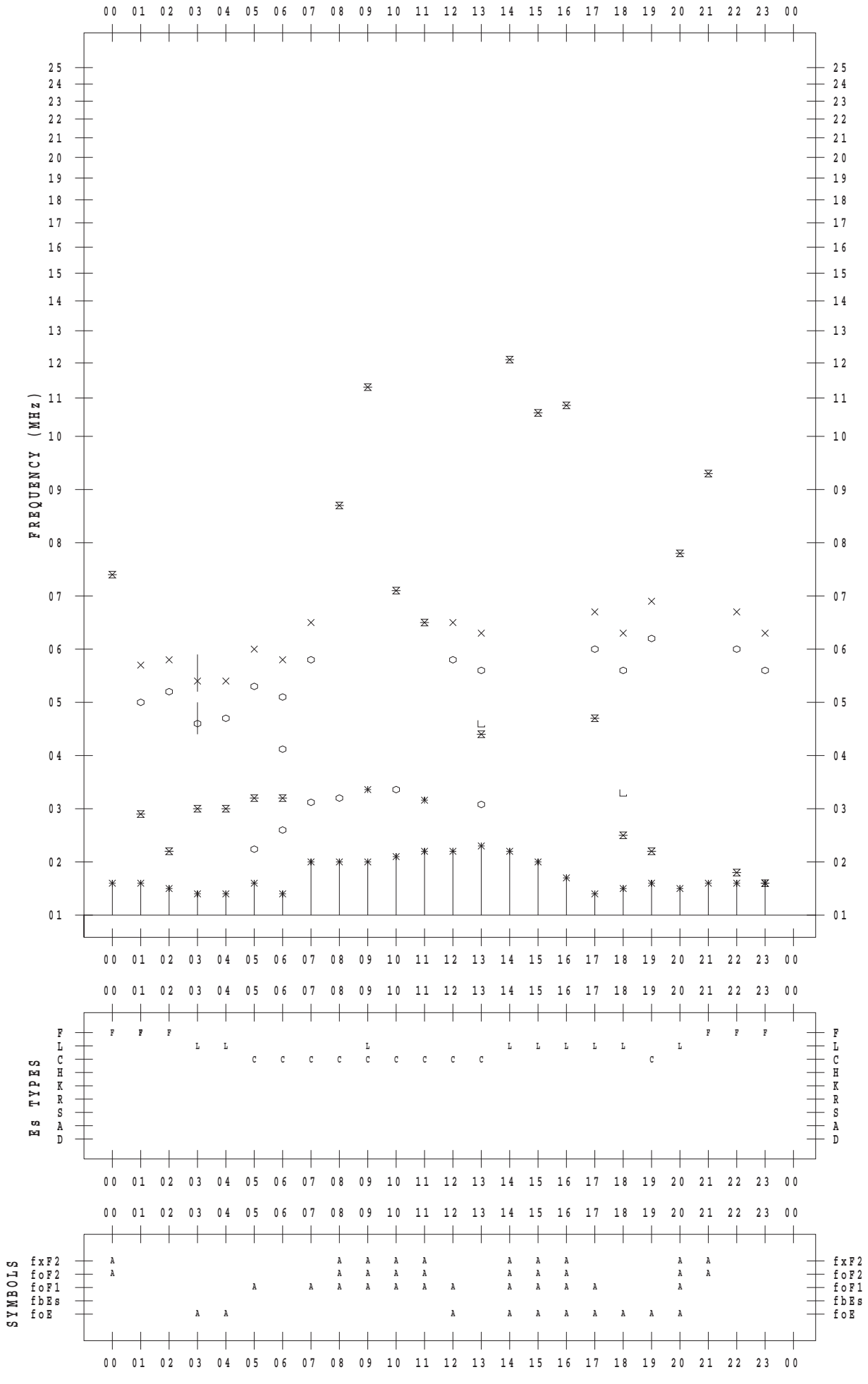
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2016/ 5/31

135 °E MEAN TIME



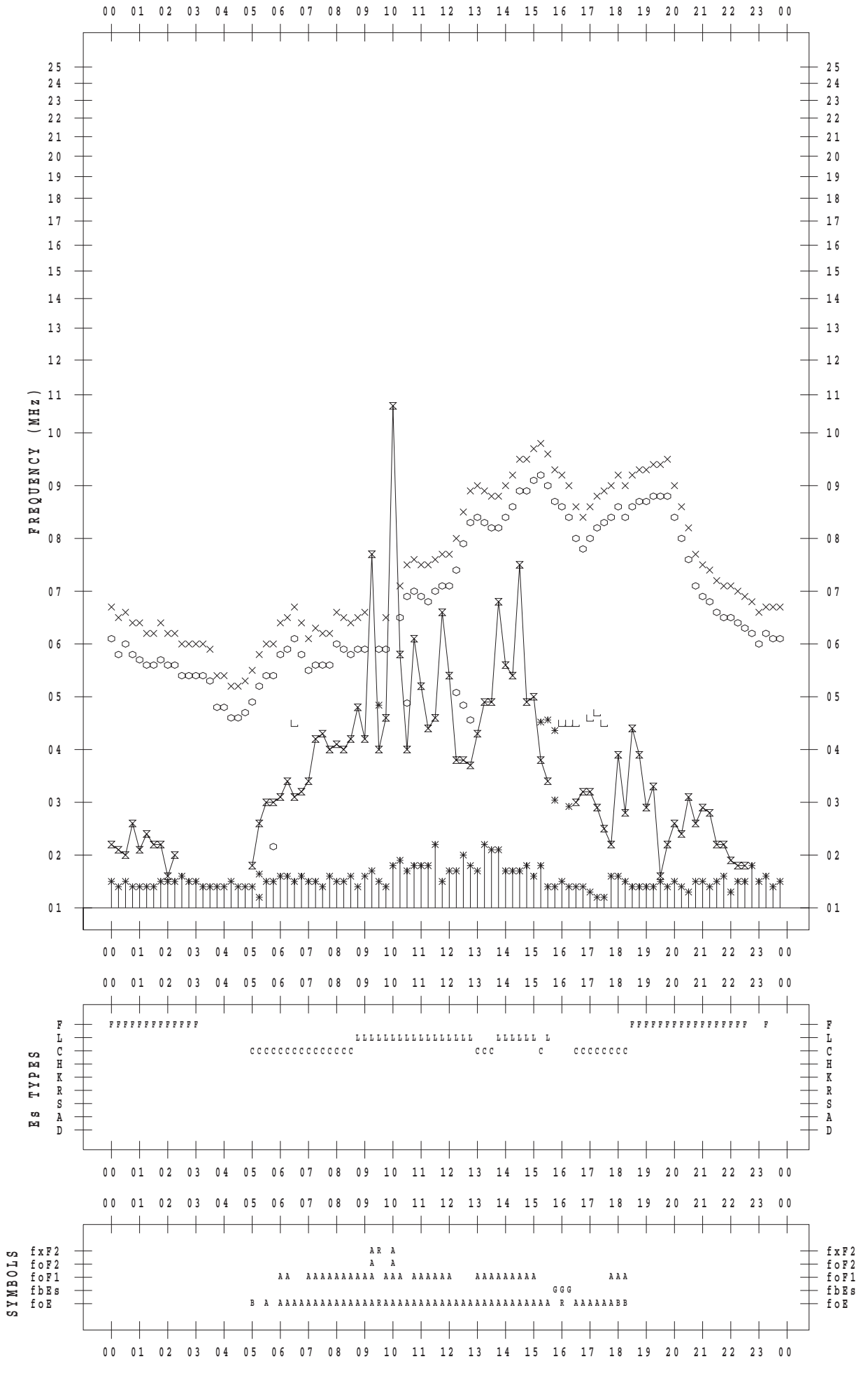
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2016/ 5/ 1

135 °E MEAN TIME



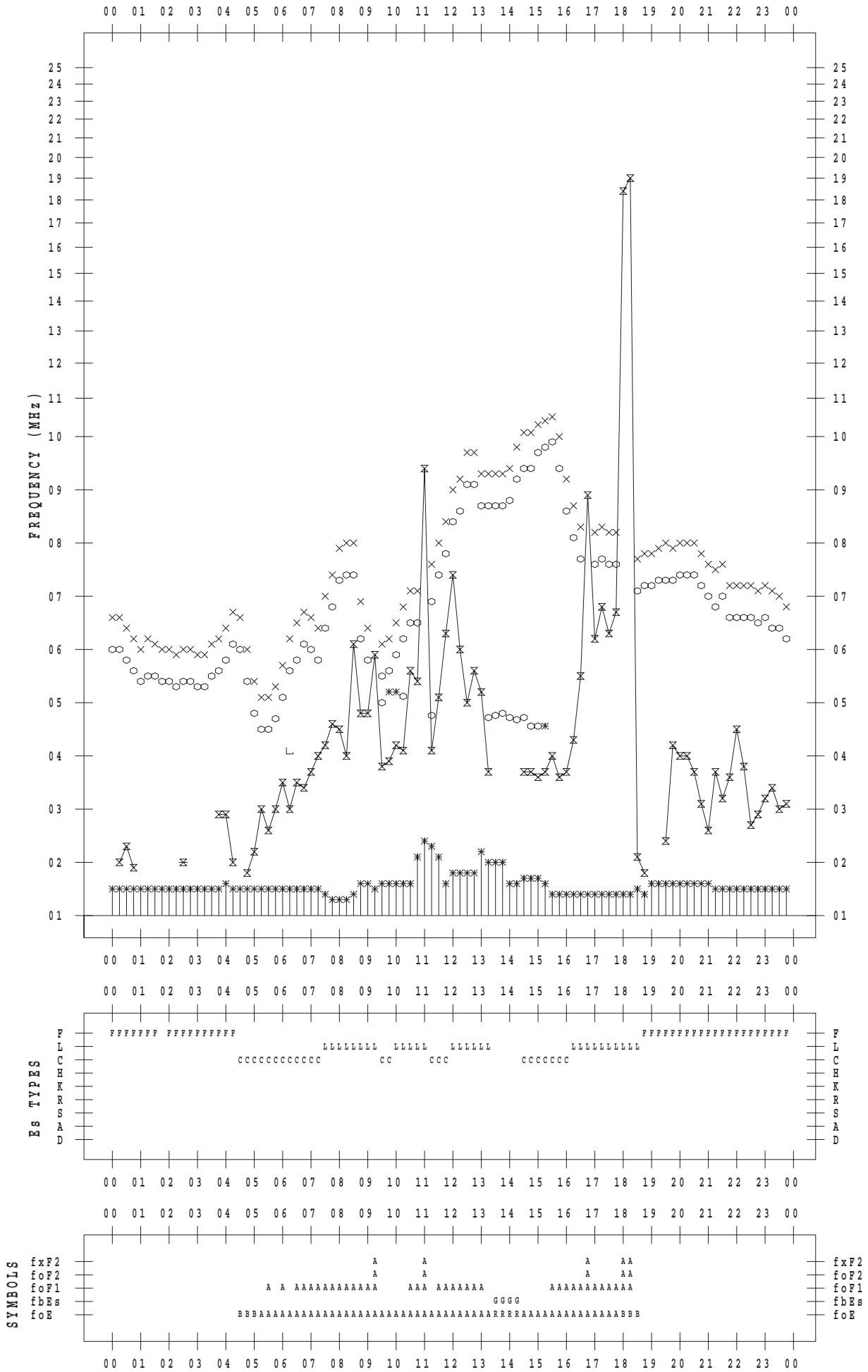
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2016/ 5/ 2

135 °E MEAN TIME



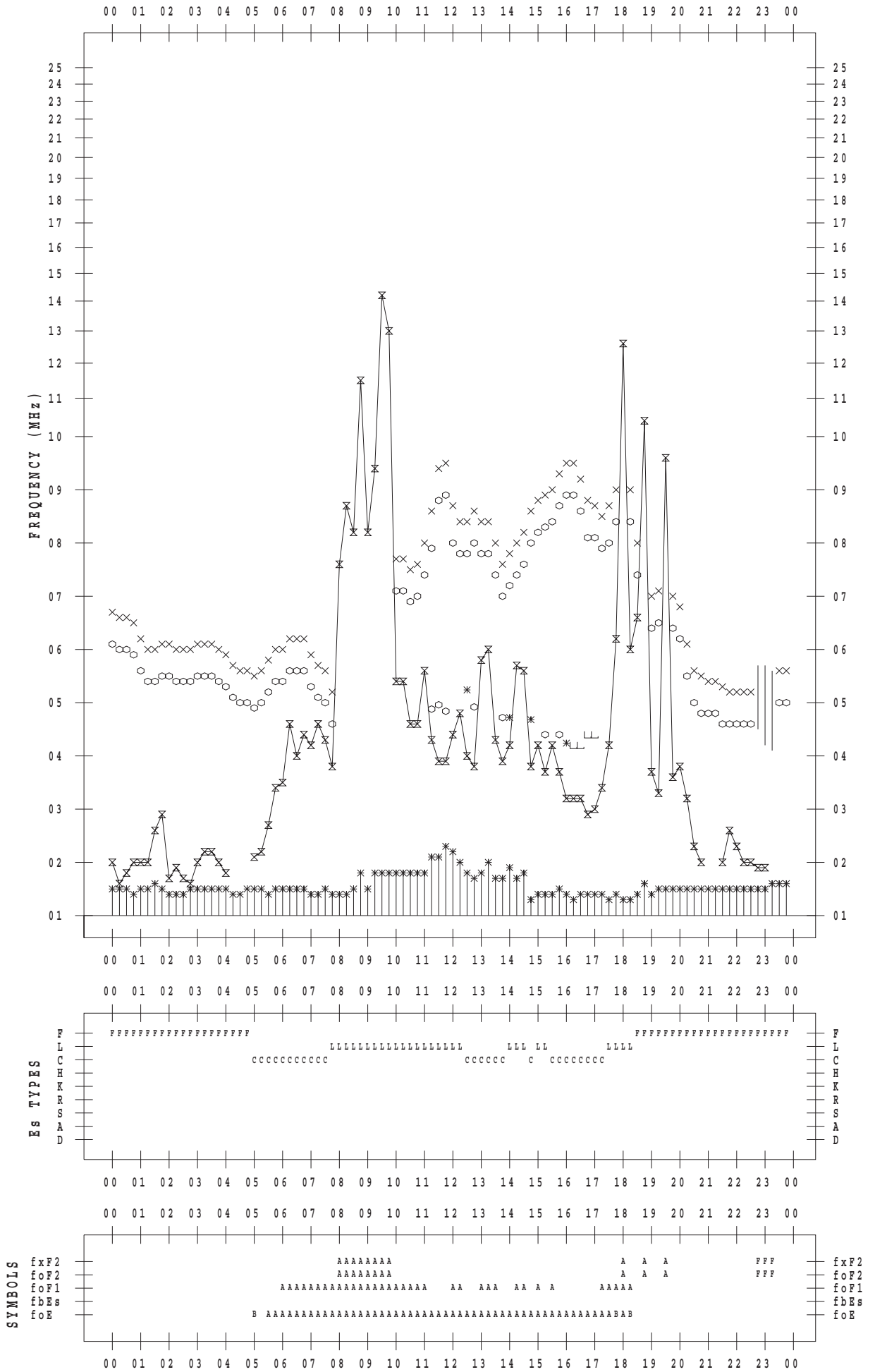
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2016/ 5/ 3

135 °E MEAN TIME



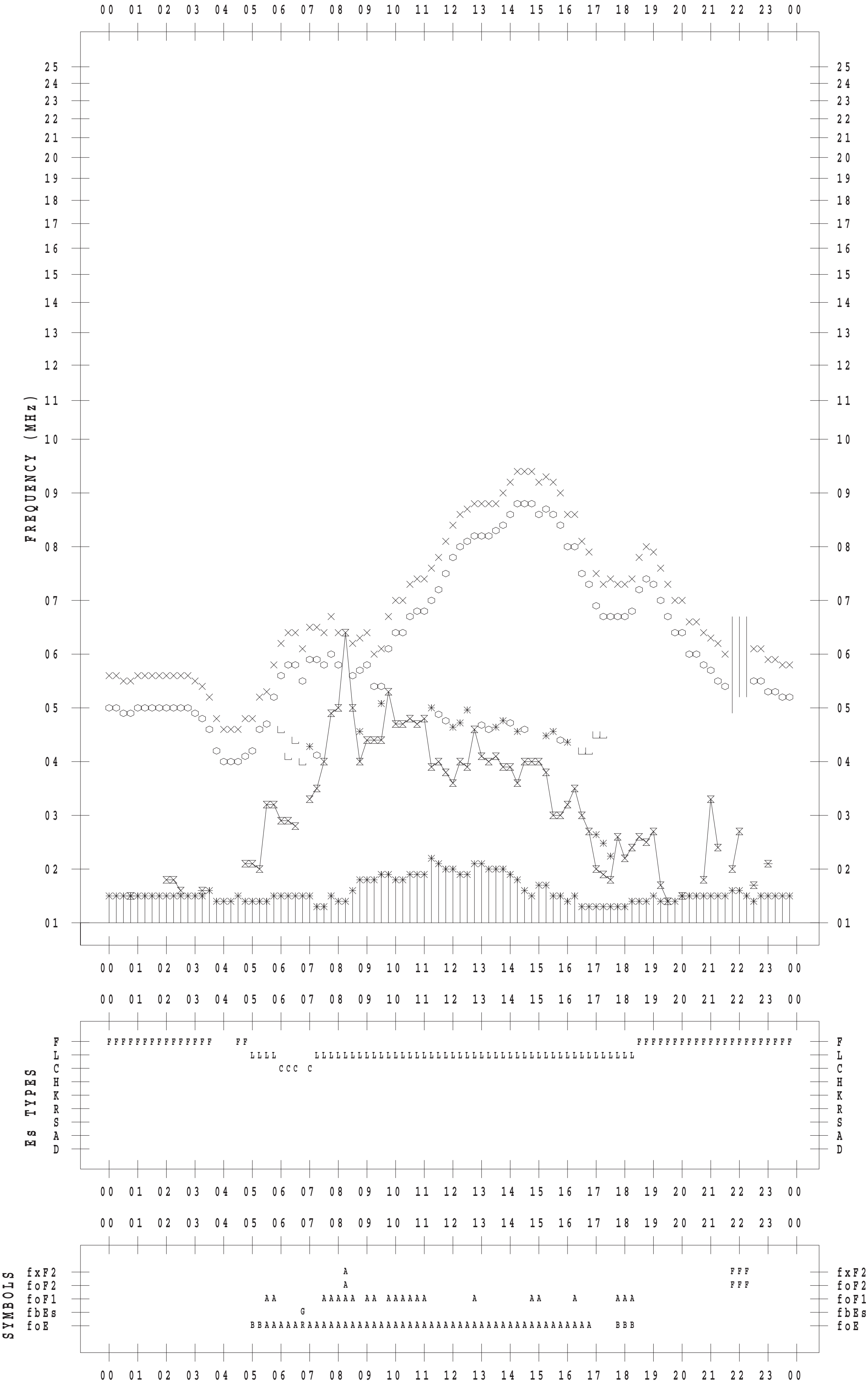
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2016/ 5/ 4

135 °E MEAN TIME



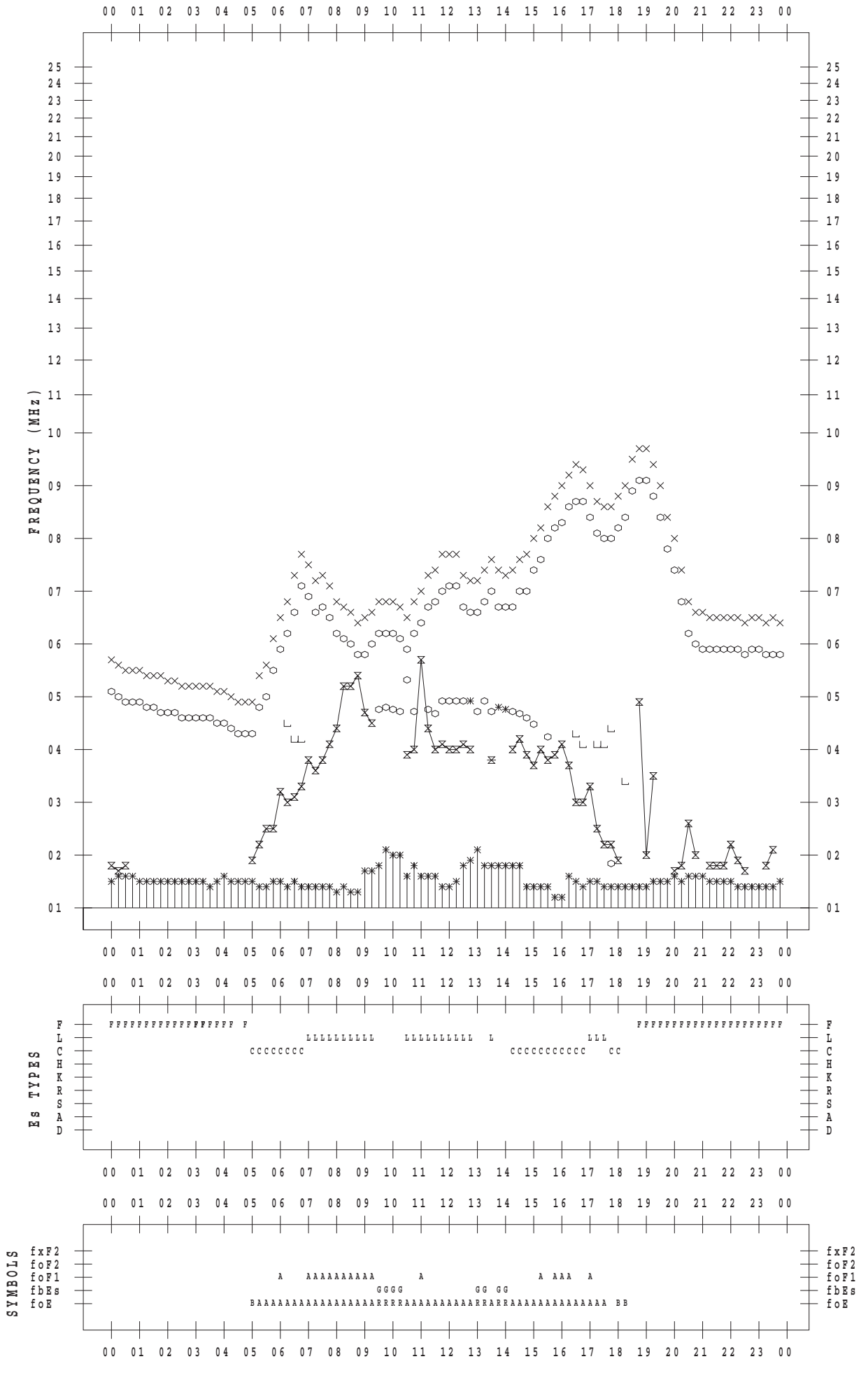
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2016/ 5/ 5

135 °E MEAN TIME



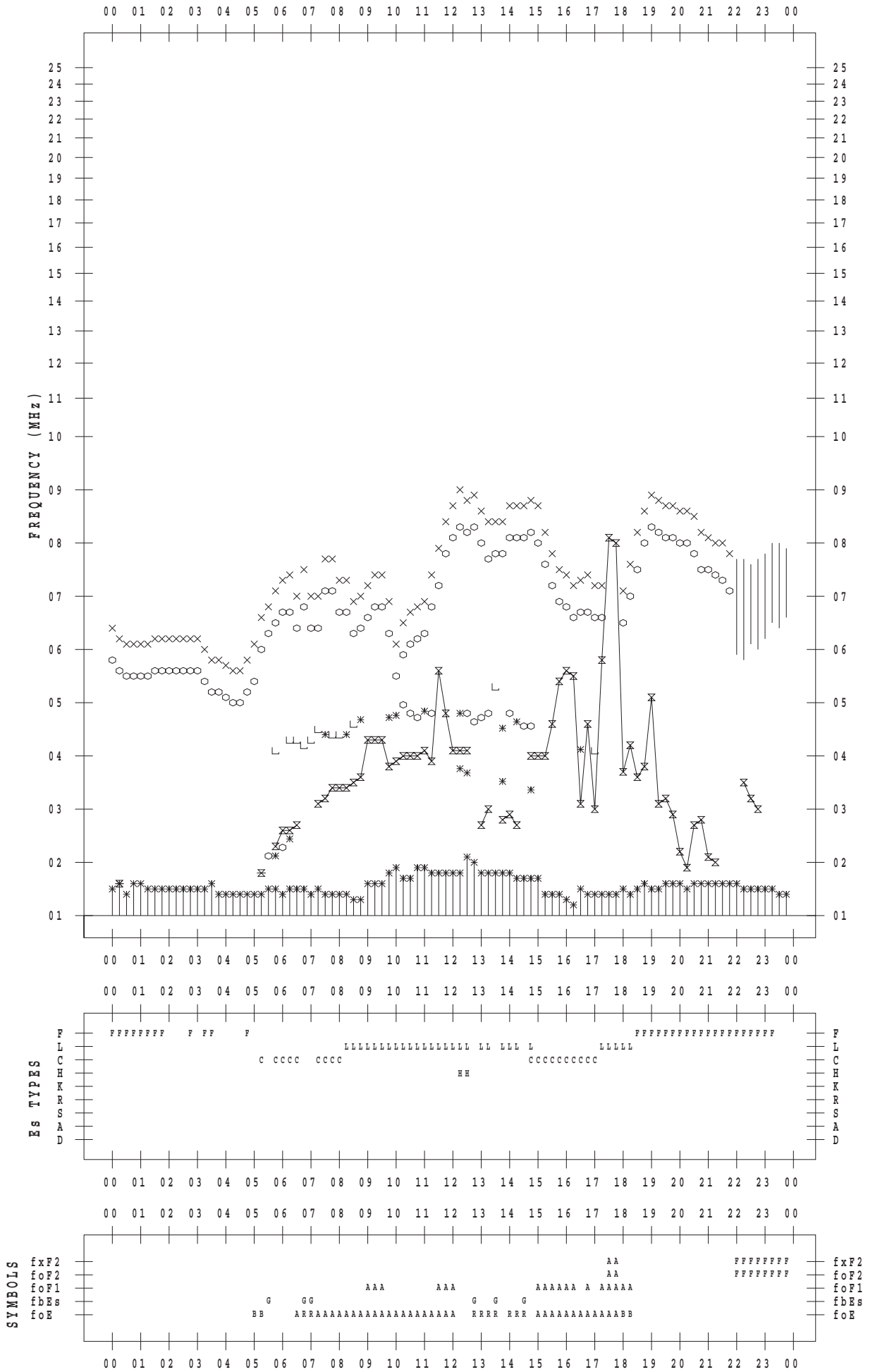
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2016/ 5/ 6

135 °E MEAN TIME



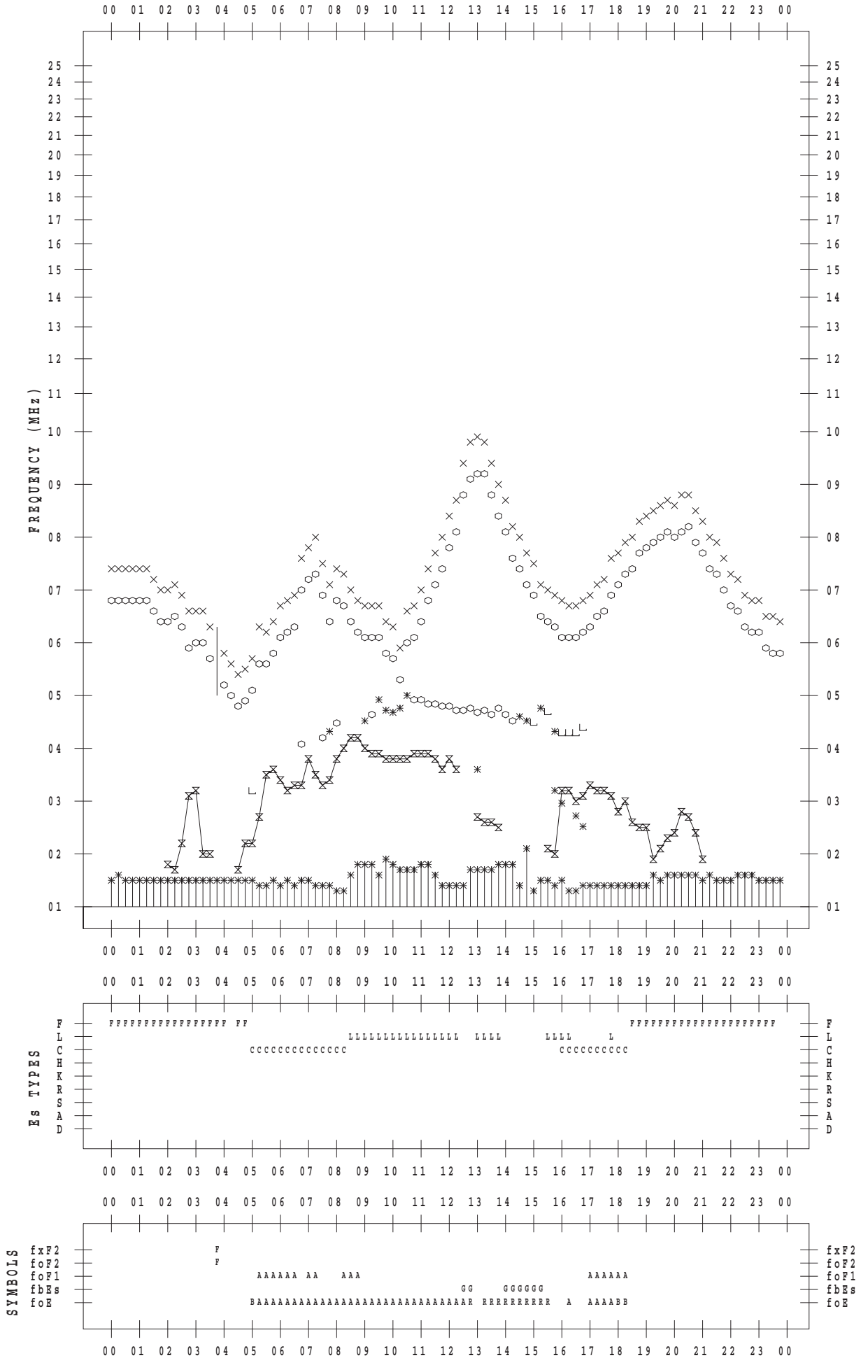
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2016/ 5/ 7

135 °E MEAN TIME



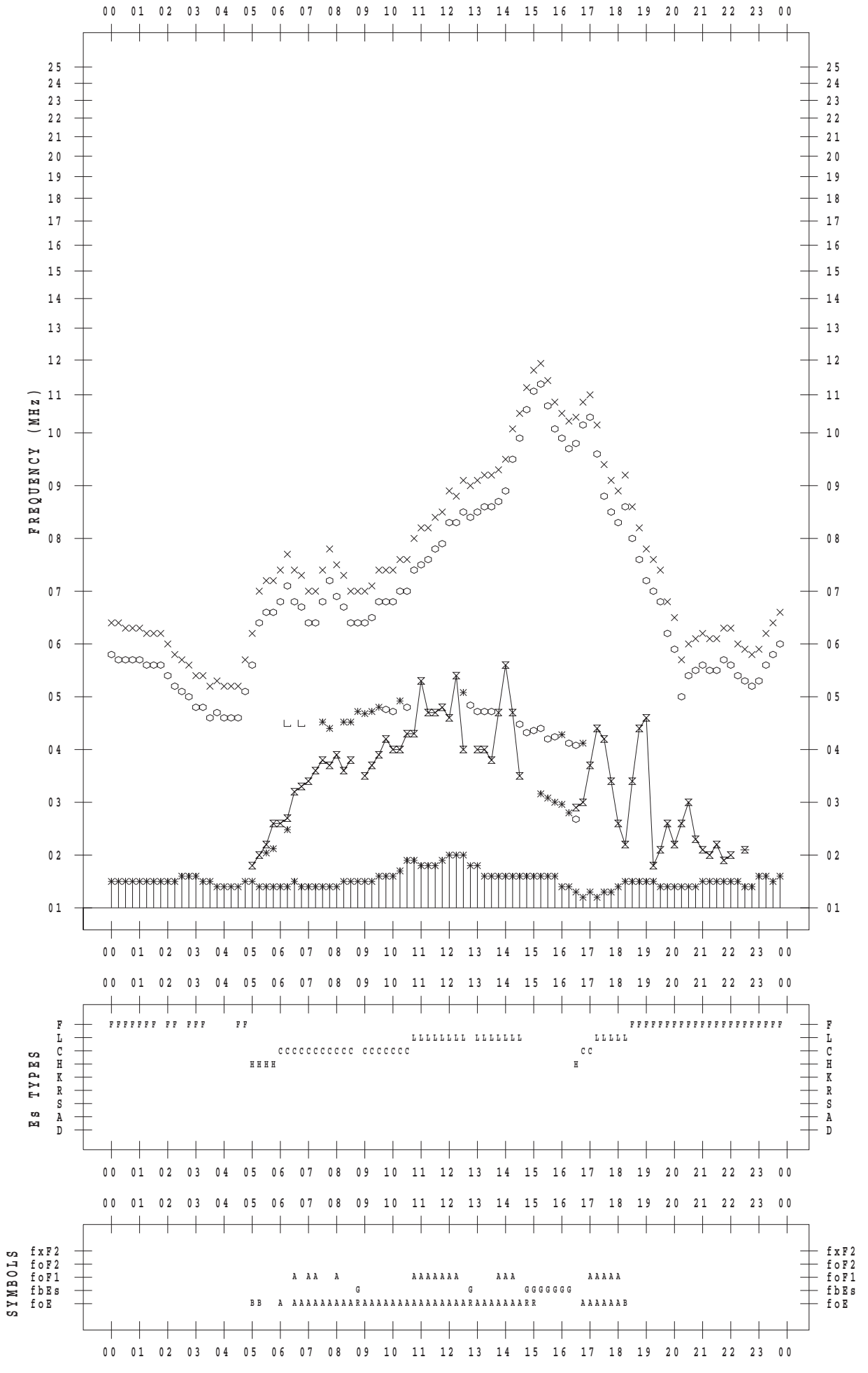
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2016/ 5/ 8

135 °E MEAN TIME



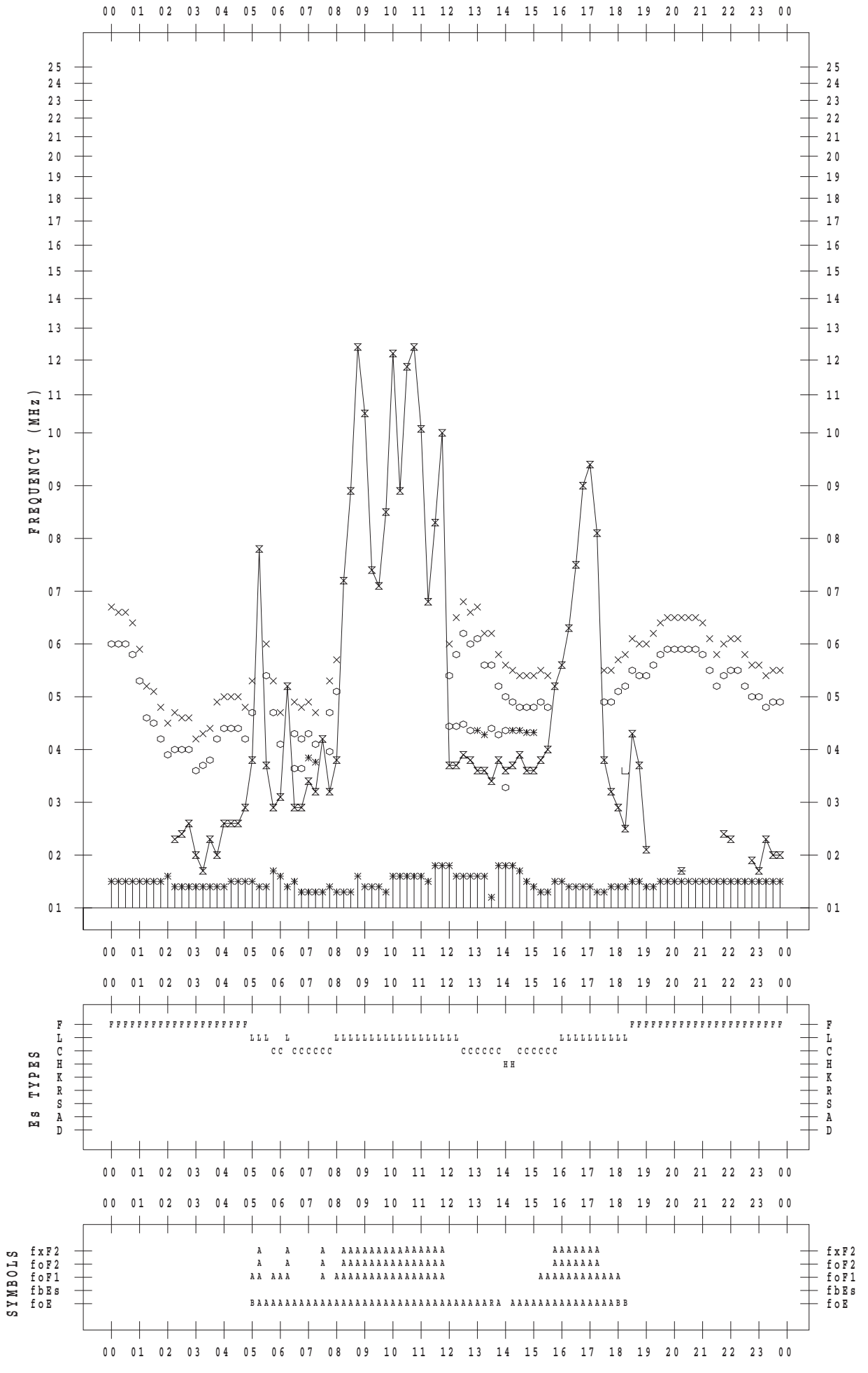
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2016/ 5/ 9

135 °E MEAN TIME



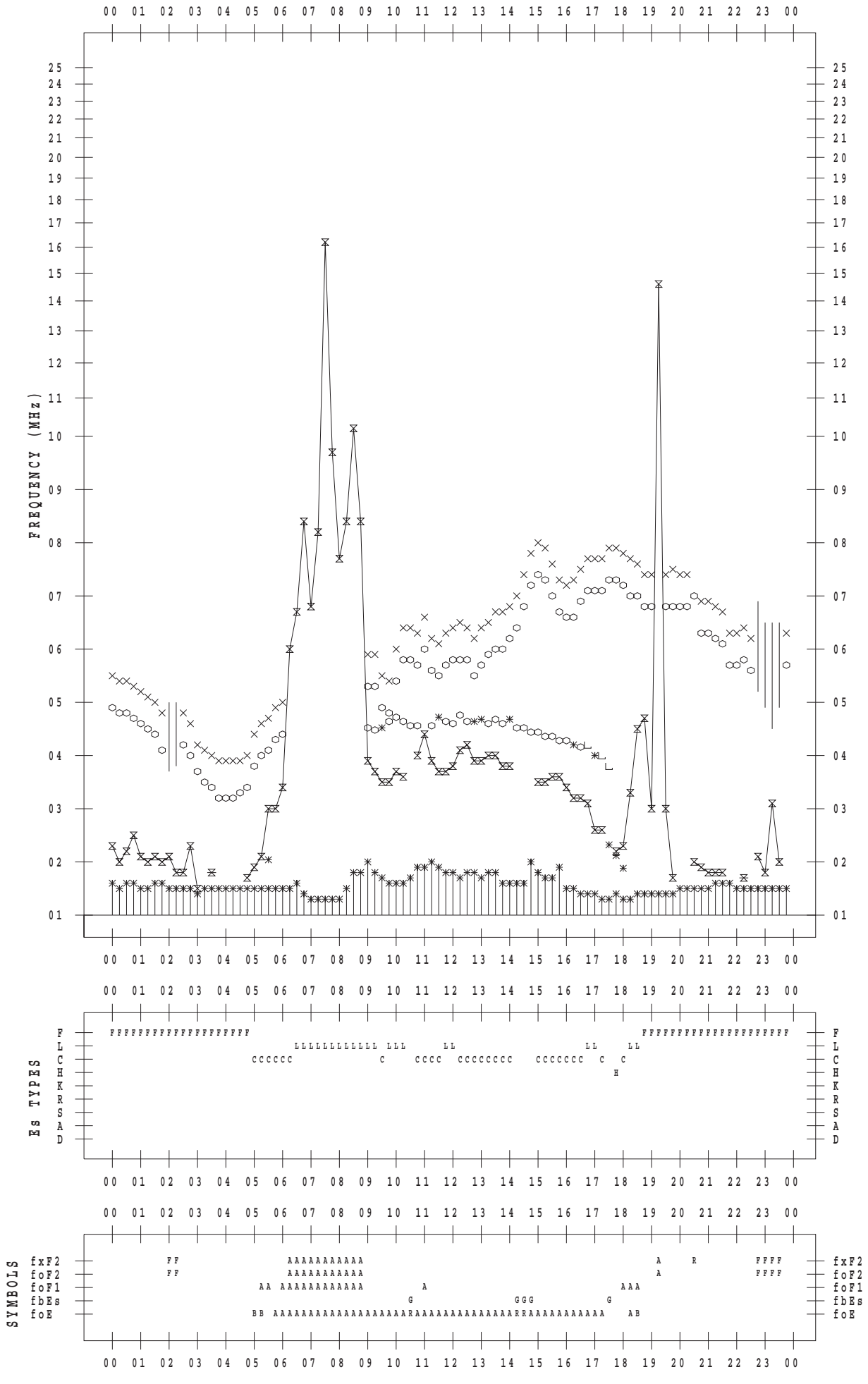
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2016/ 5/10

135 °E MEAN TIME



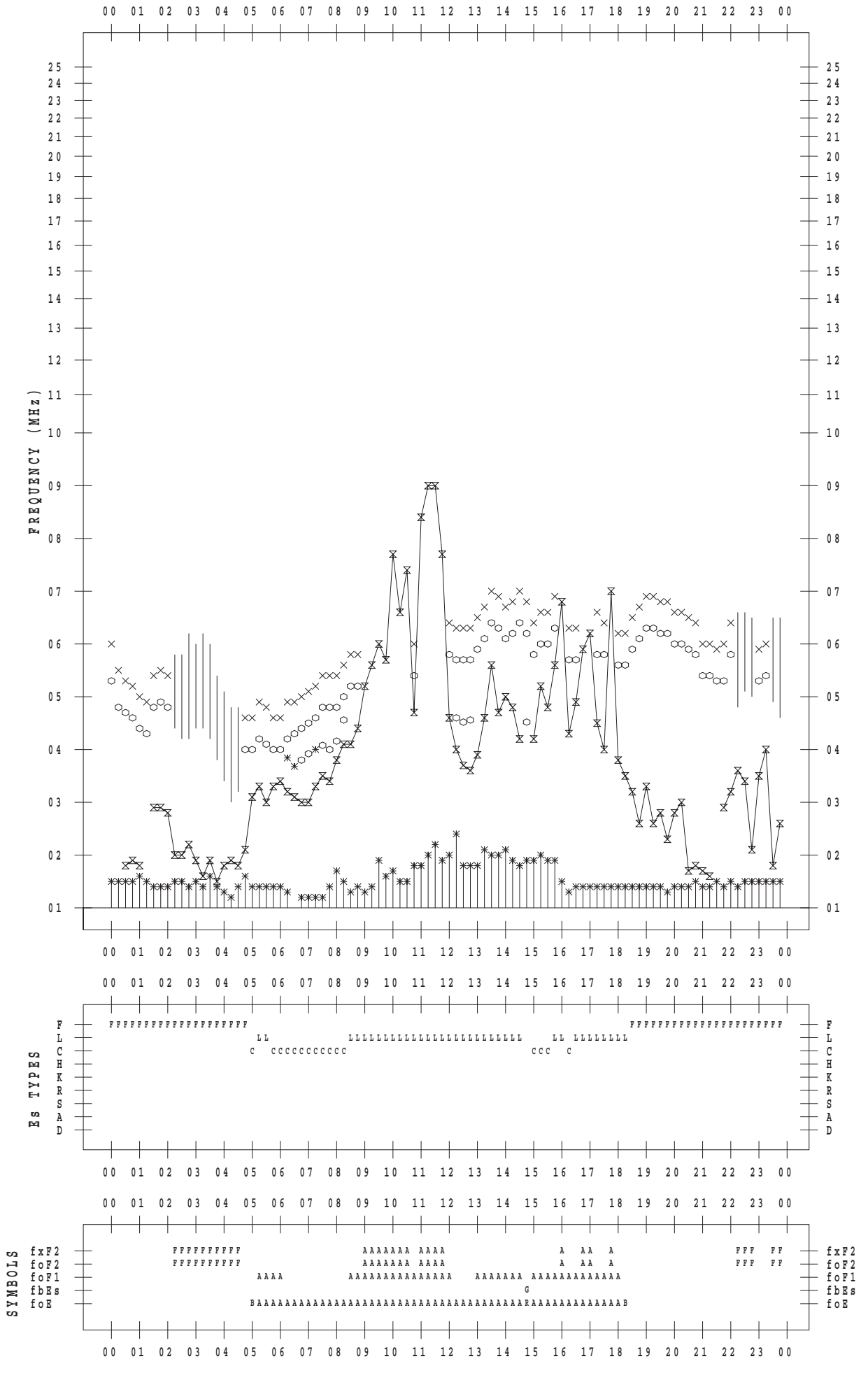
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2016/ 5/11

135 °E MEAN TIME



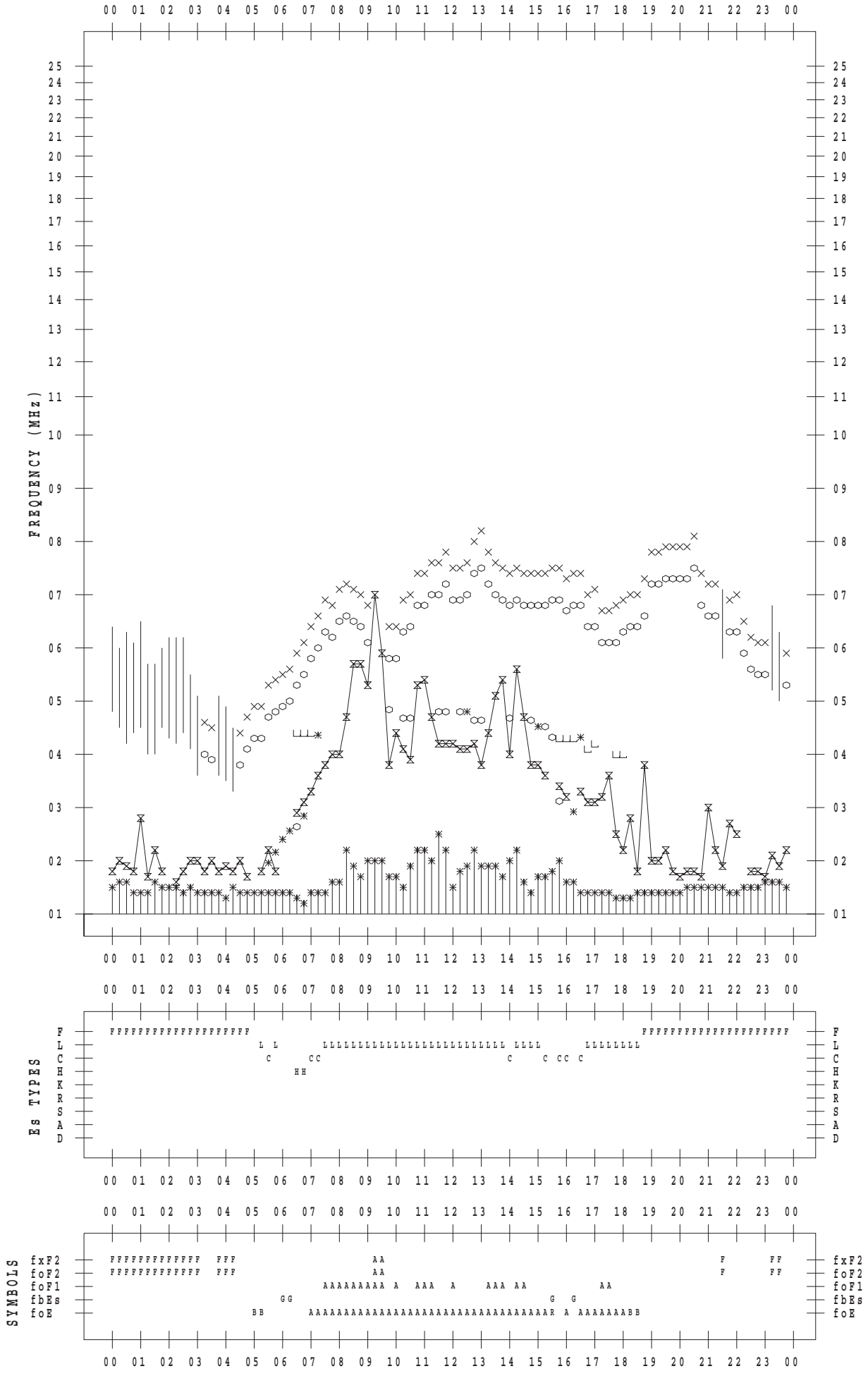
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2016/ 5/12

135 °E MEAN TIME



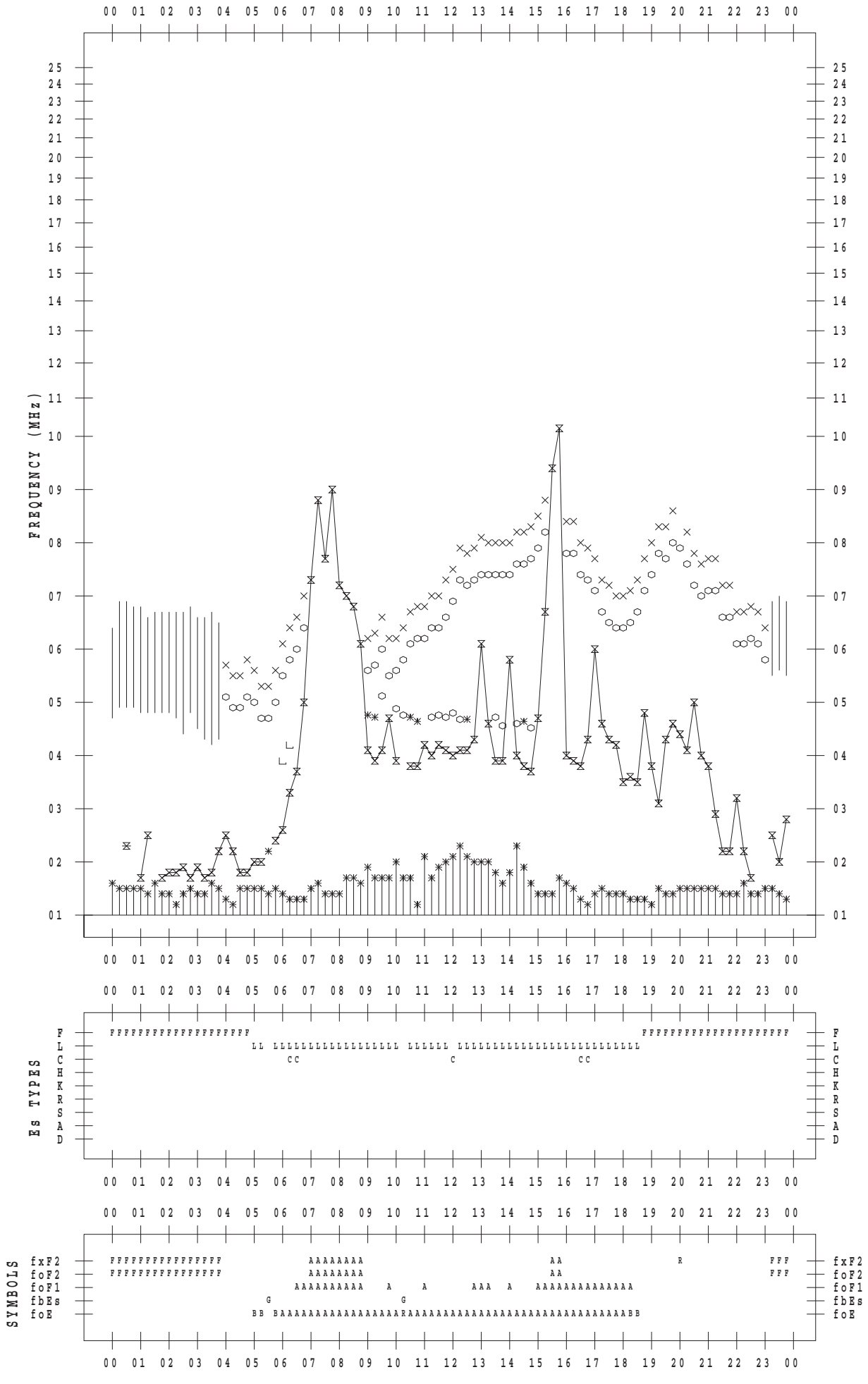
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2016/ 5/13

135 °E MEAN TIME



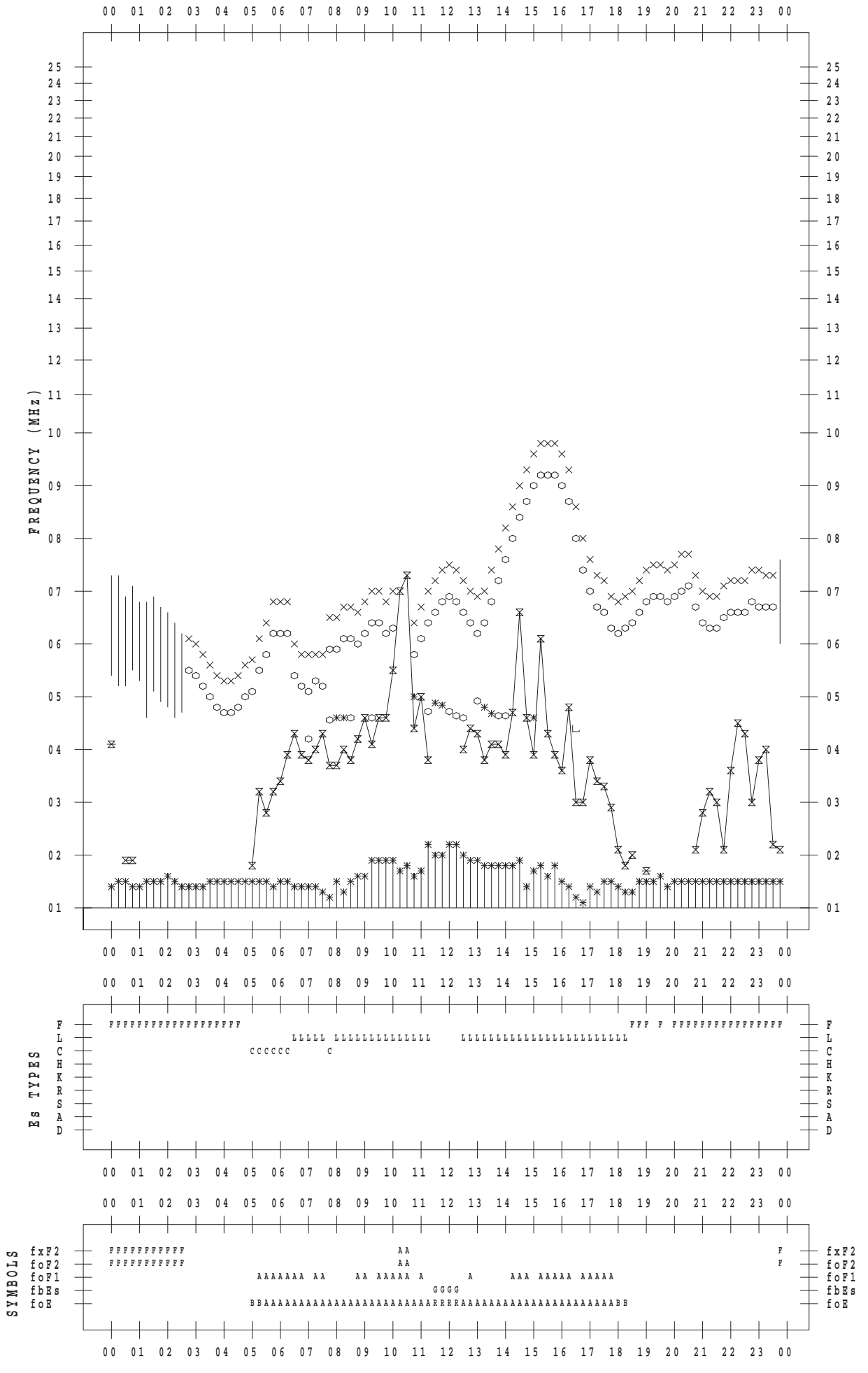
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2016/ 5/14

135 °E MEAN TIME



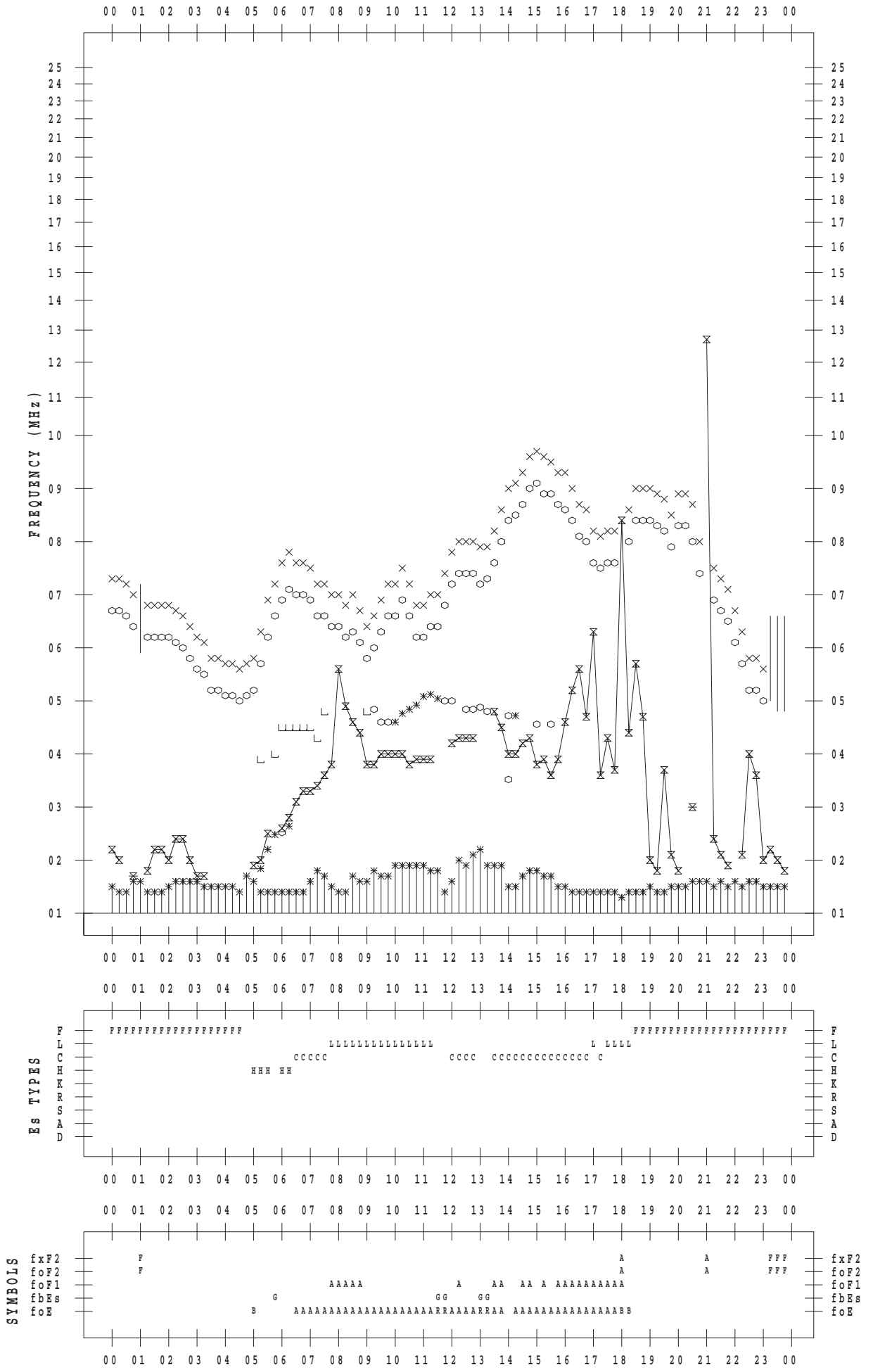
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2016/ 5/15

135 °E MEAN TIME



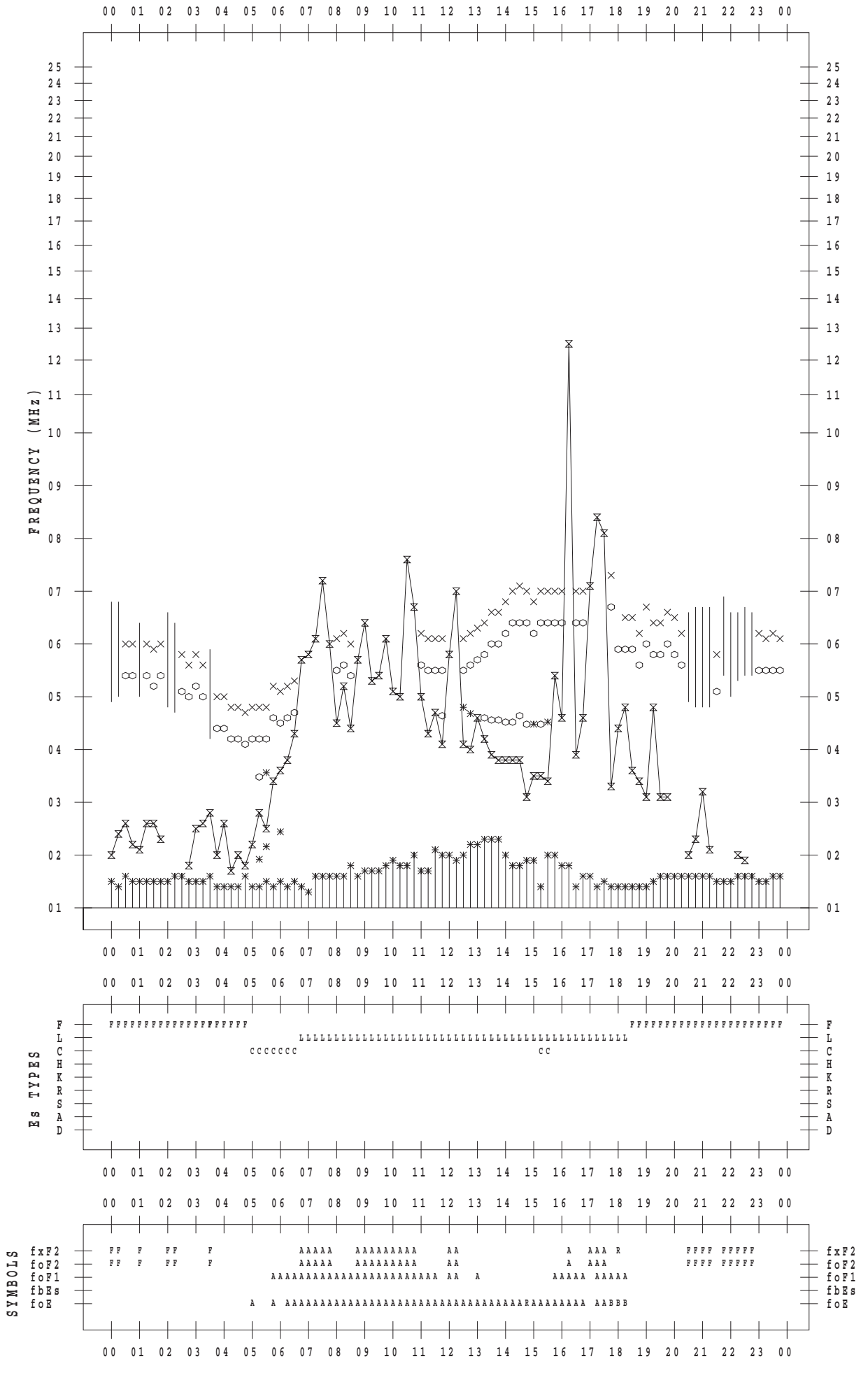
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2016/ 5/16

135 °E MEAN TIME



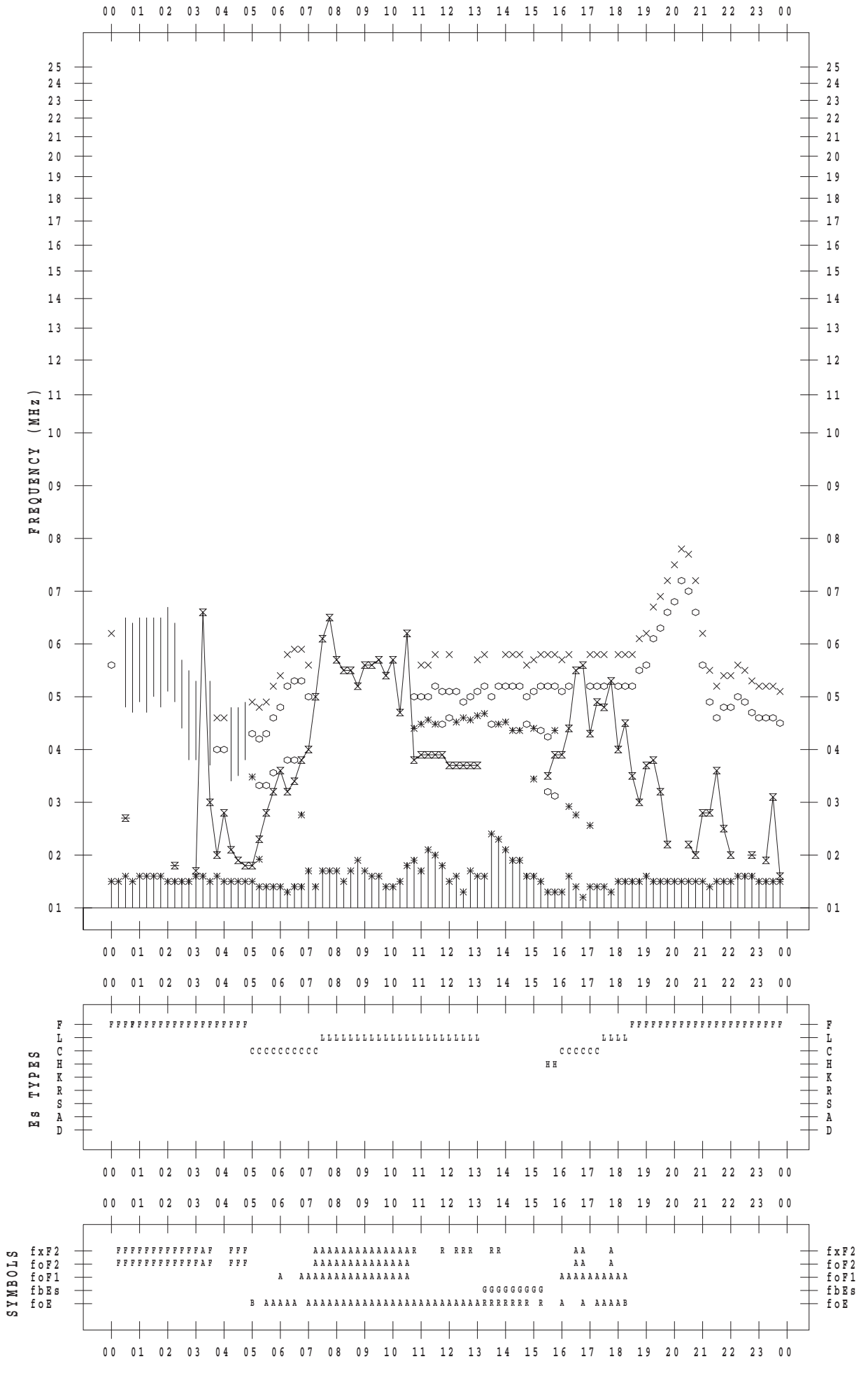
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2016/ 5/17

135 °E MEAN TIME



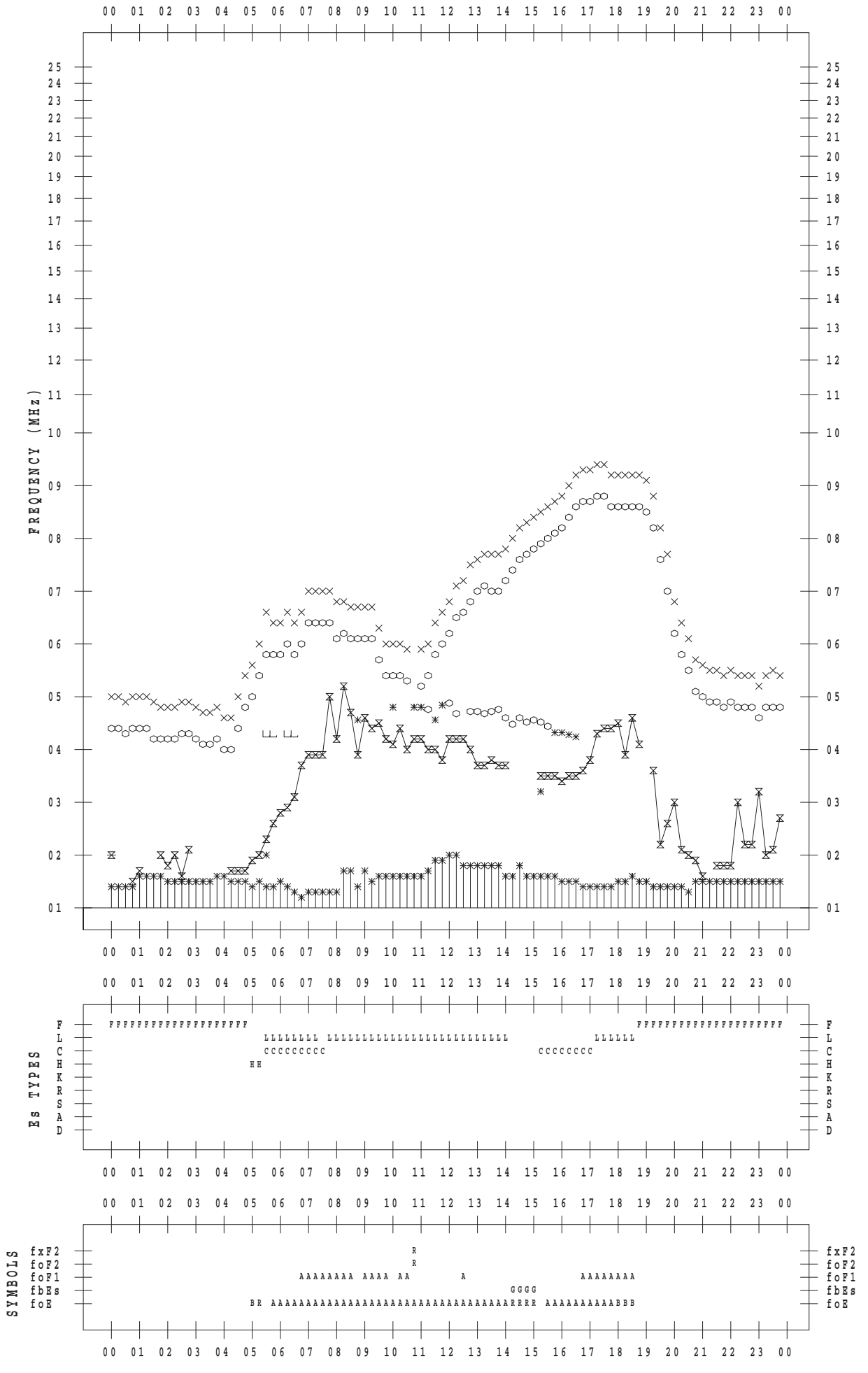
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2016/ 5/18

135 °E MEAN TIME



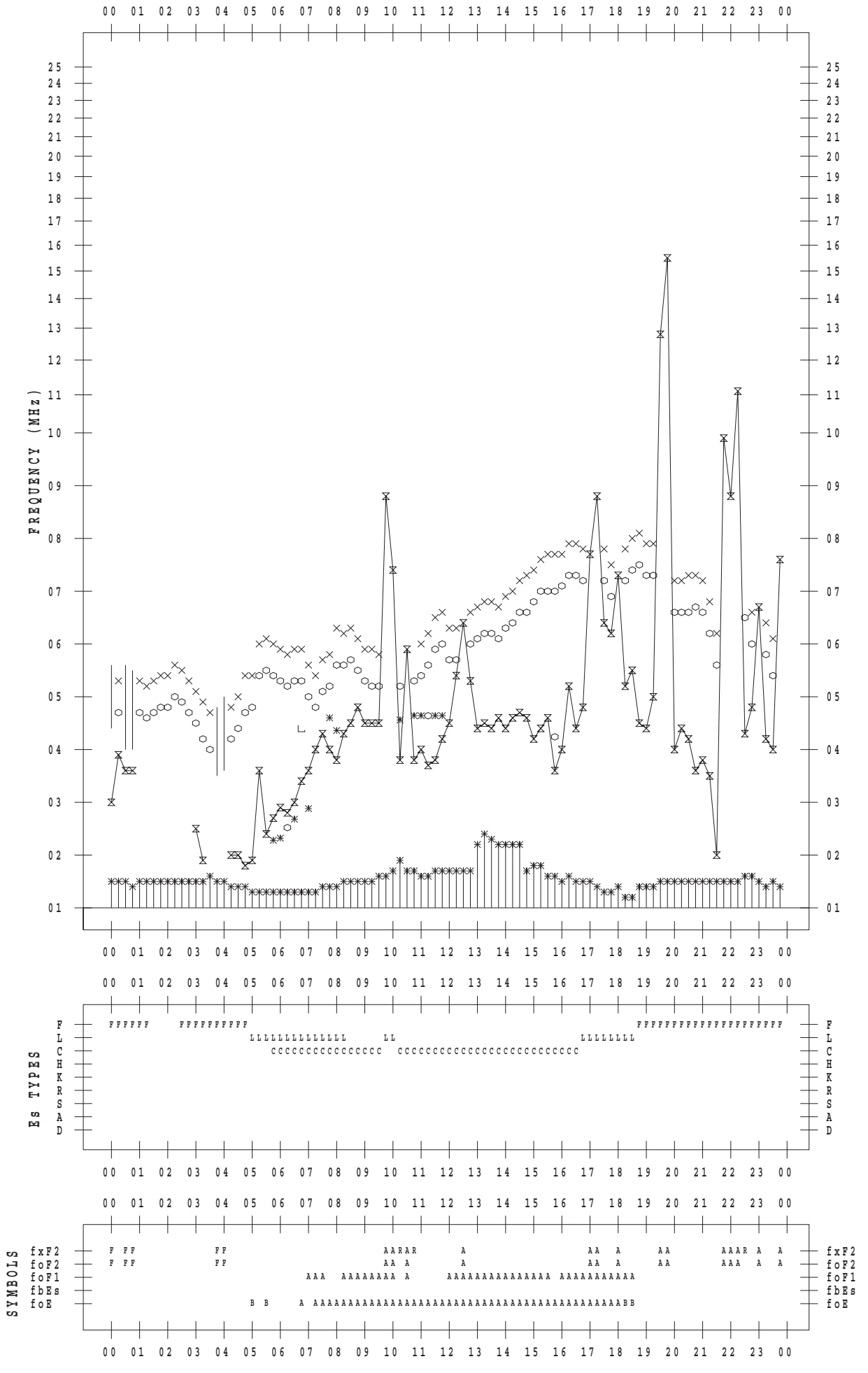
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2016/ 5/19

135 °E MEAN TIME

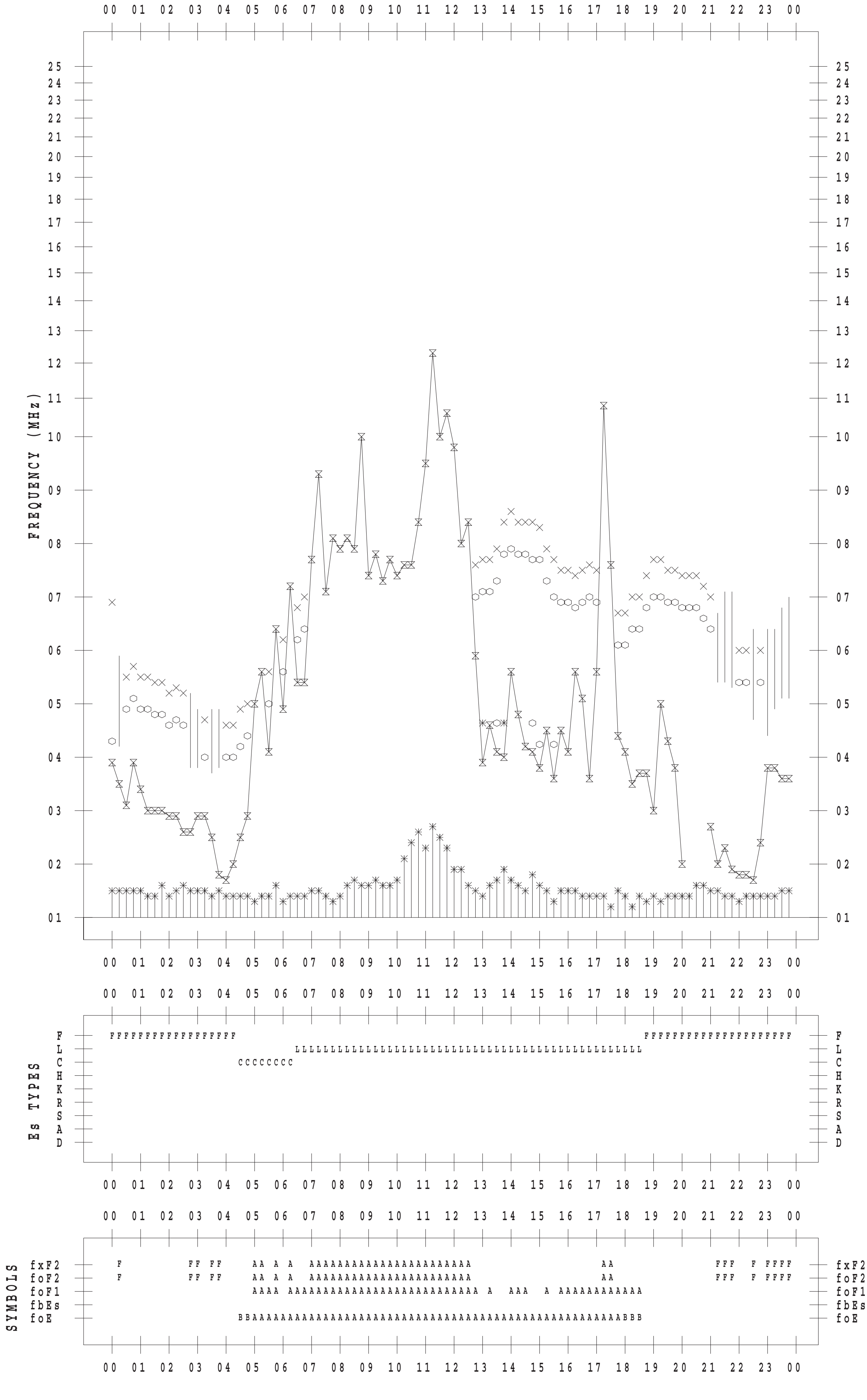


f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji DATE : 2016/ 5/20

135 °E MEAN TIME



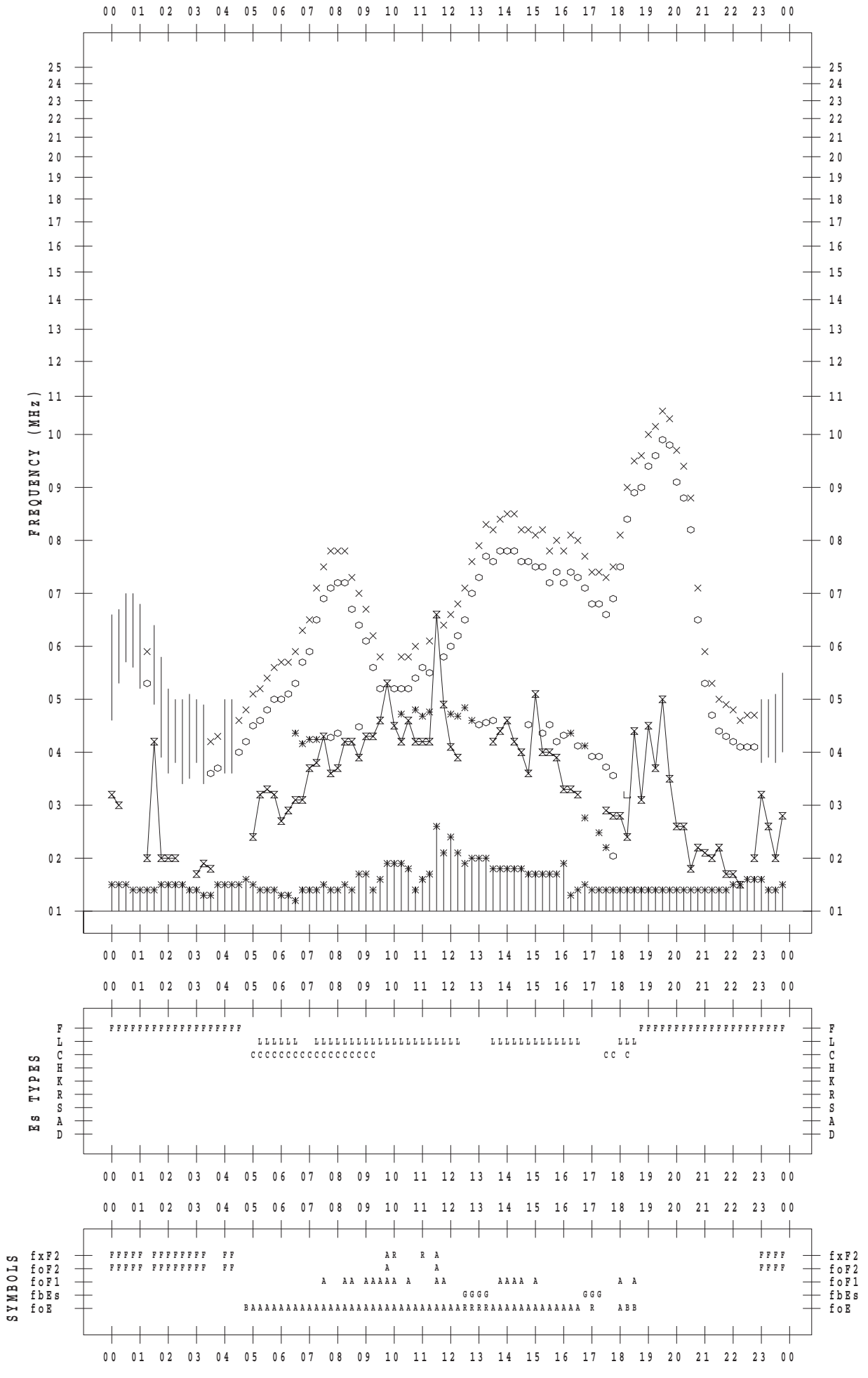
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2016/ 5/21

135 °E MEAN TIME



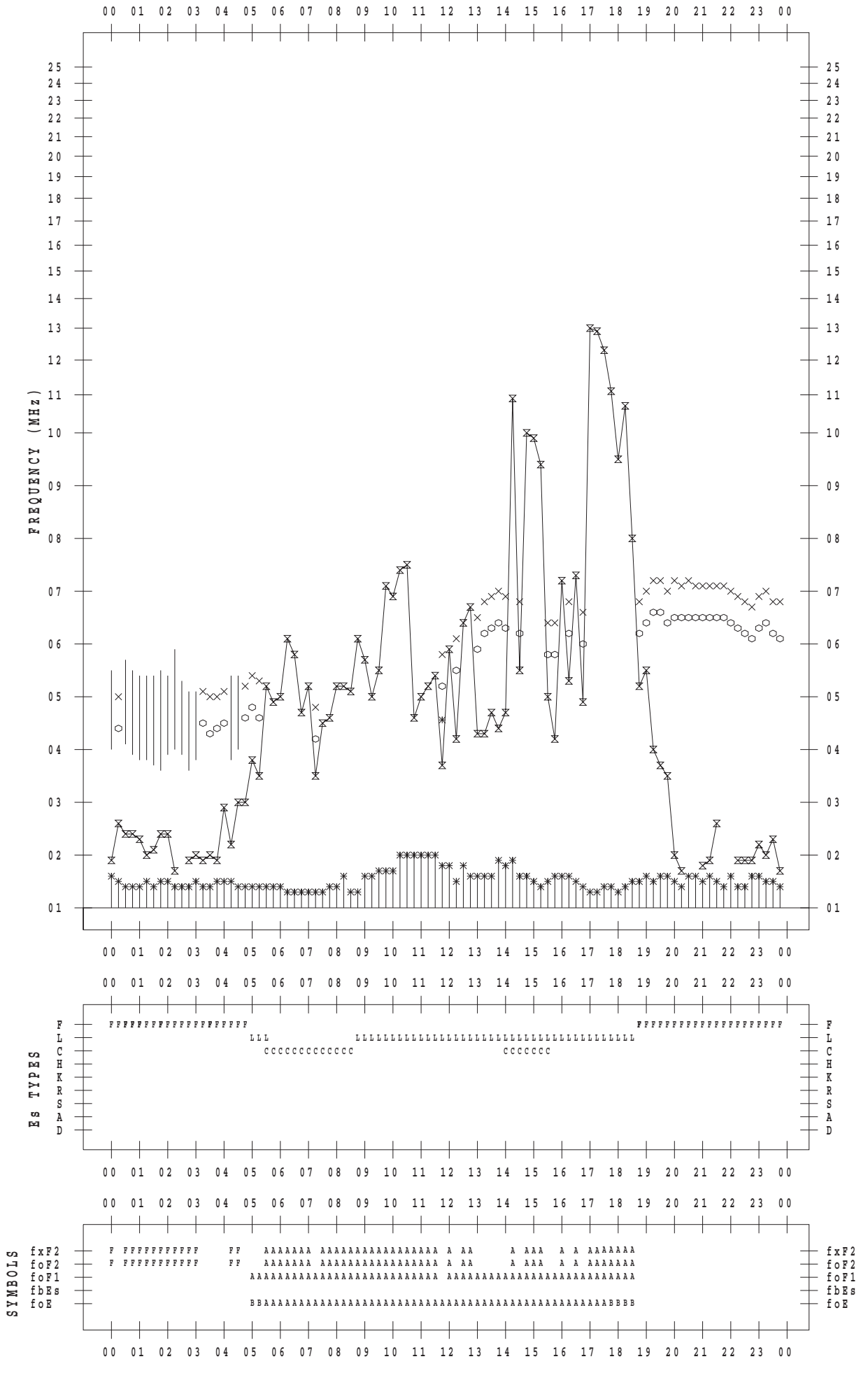
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2016/ 5/22

135 °E MEAN TIME



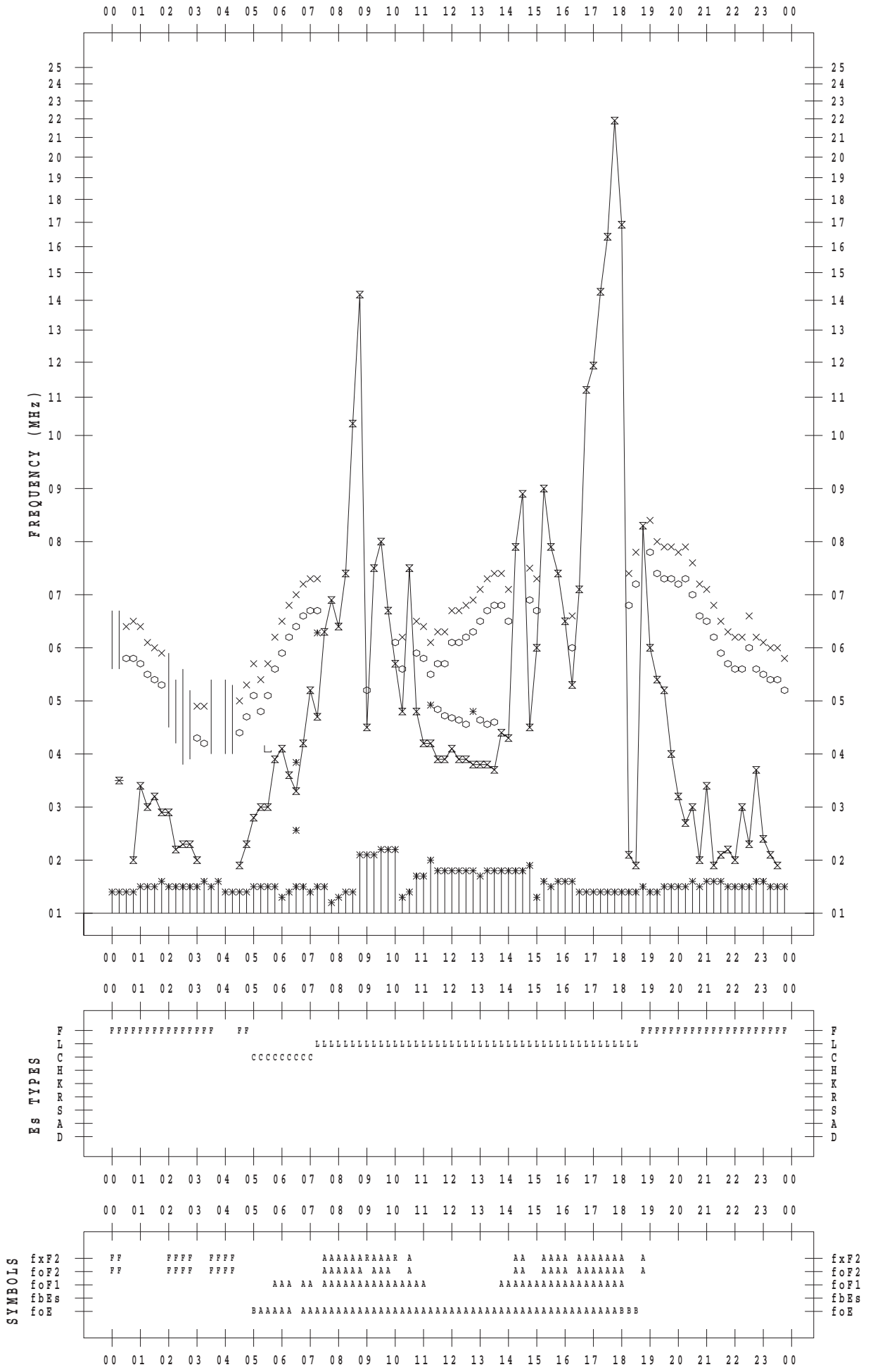
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2016/ 5/23

135 °E MEAN TIME



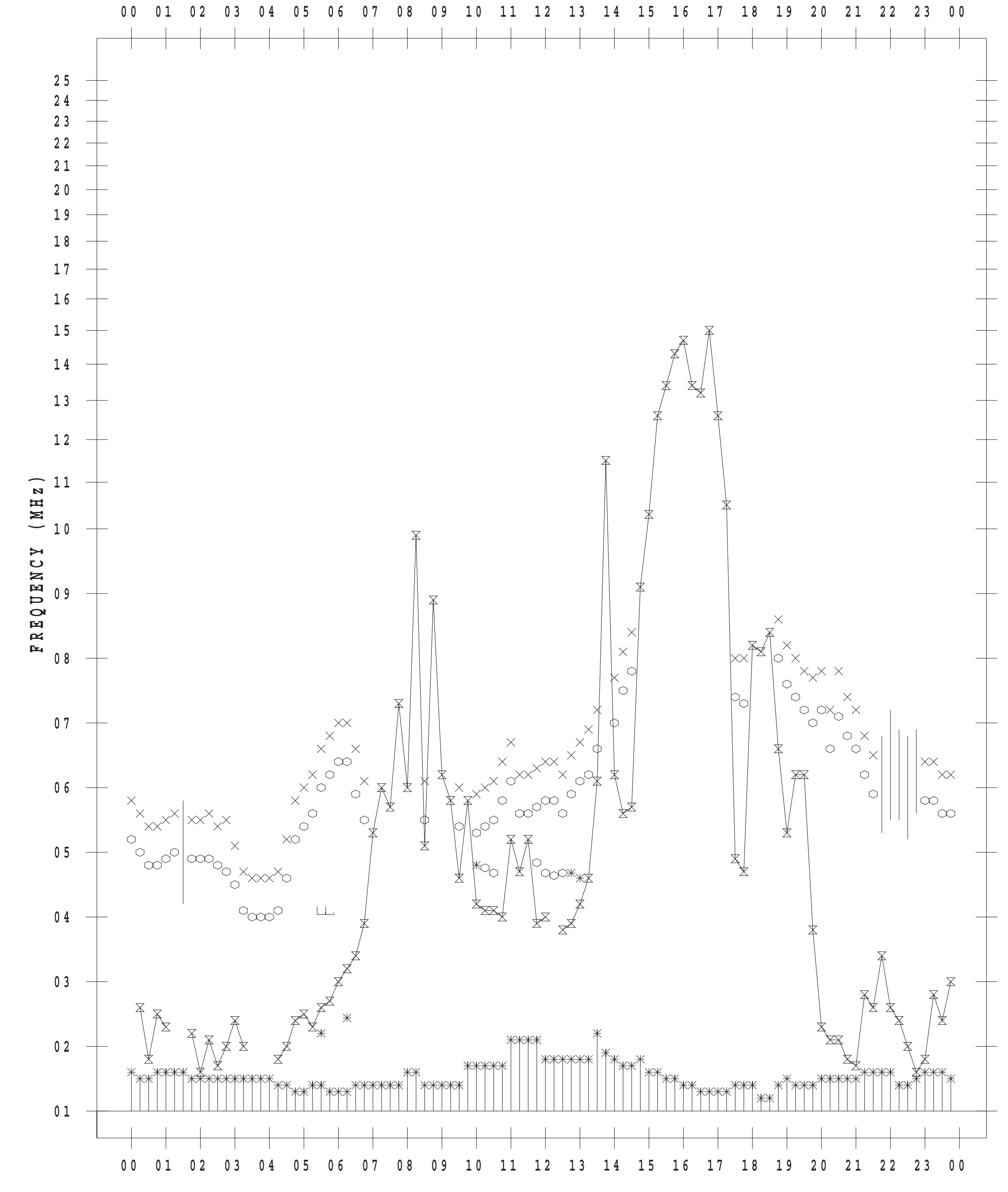
f-PLOT DATA

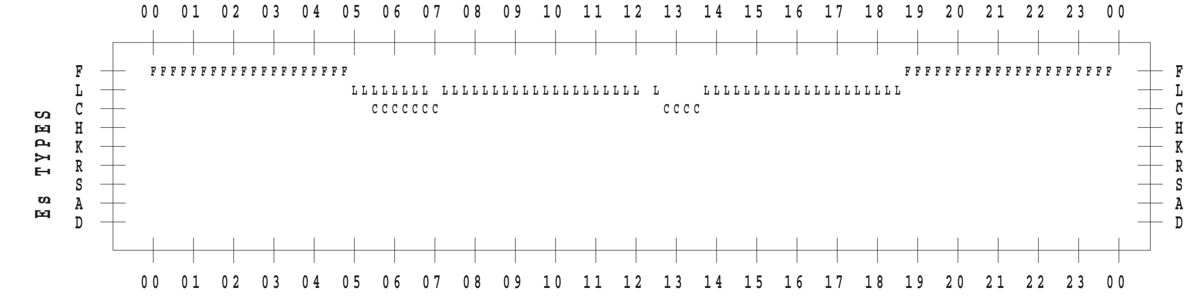
SCALER : I.NISHIMUTA

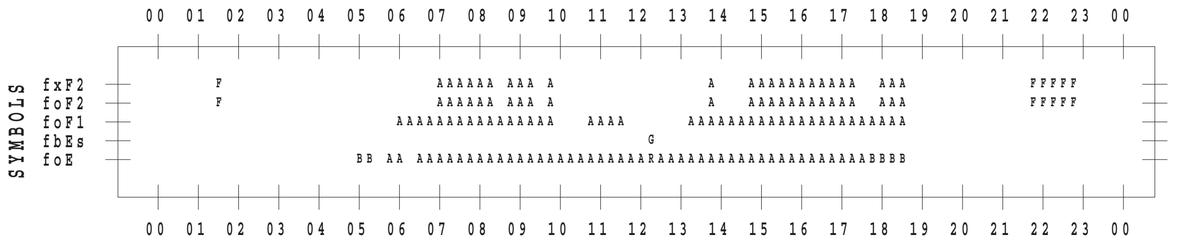
STATION : Kokubunji

DATE : 2016/ 5/24

135 °E MEAN TIME







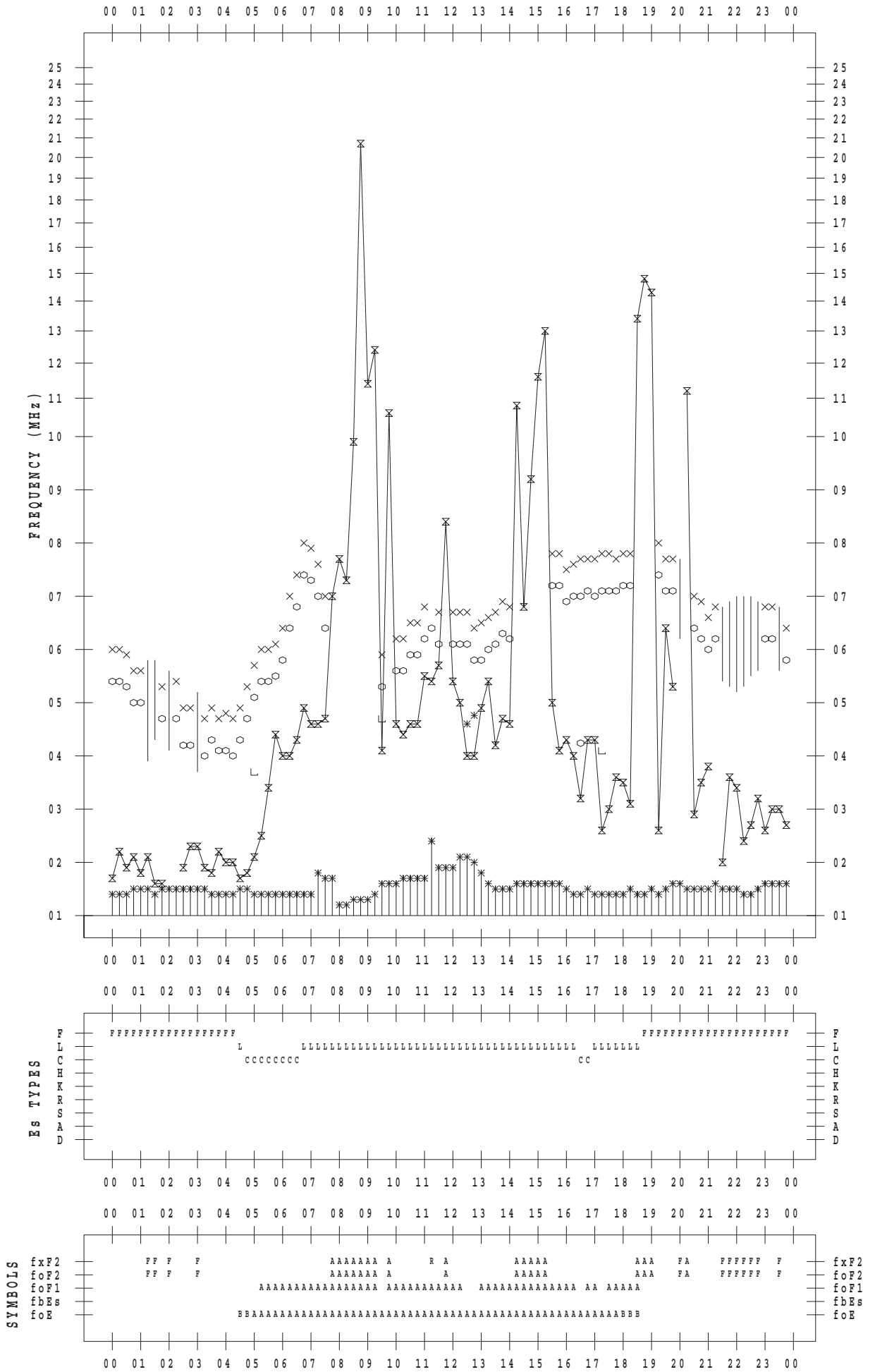
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2016/ 5/25

135 °E MEAN TIME



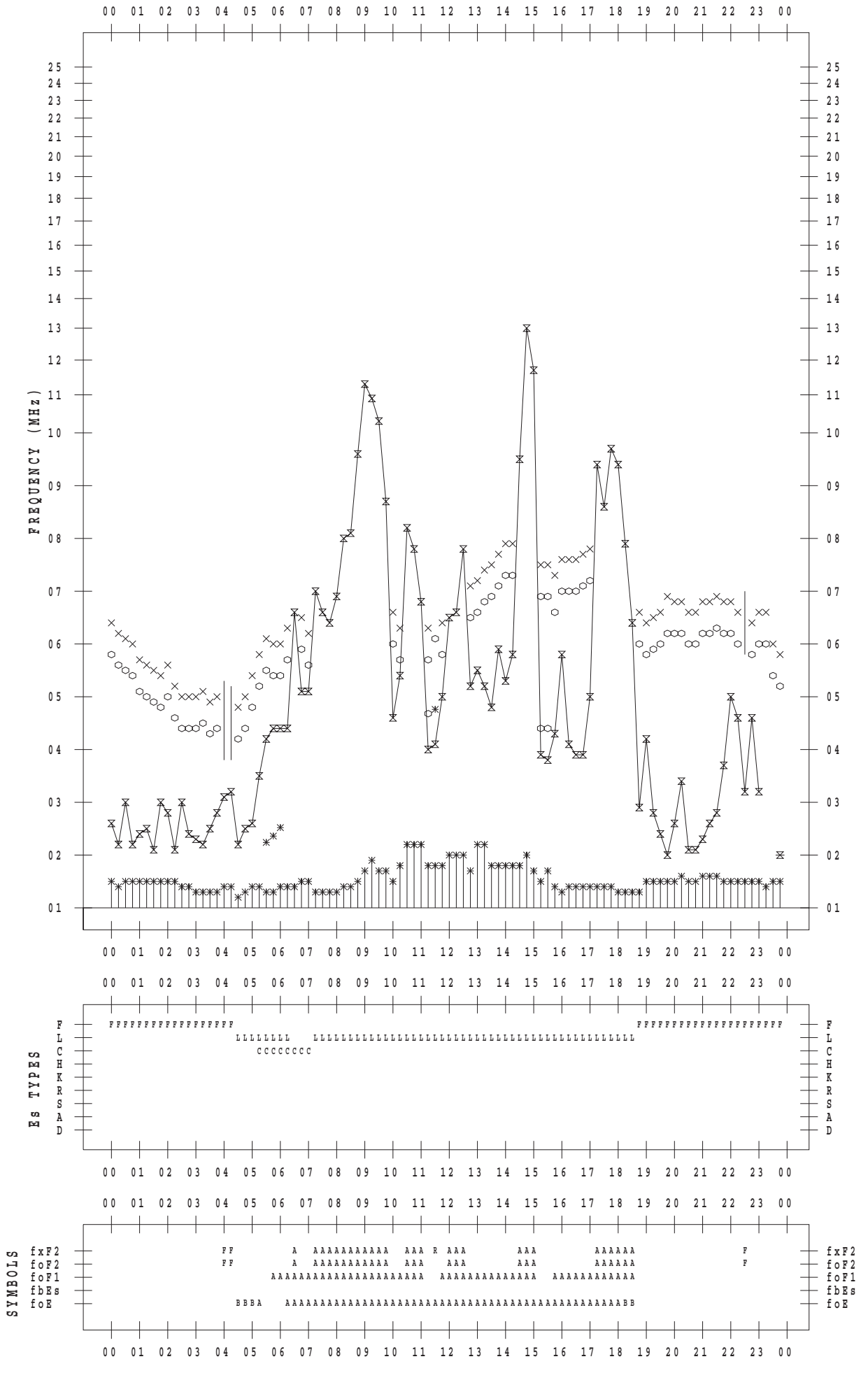
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2016/ 5/26

135 °E MEAN TIME



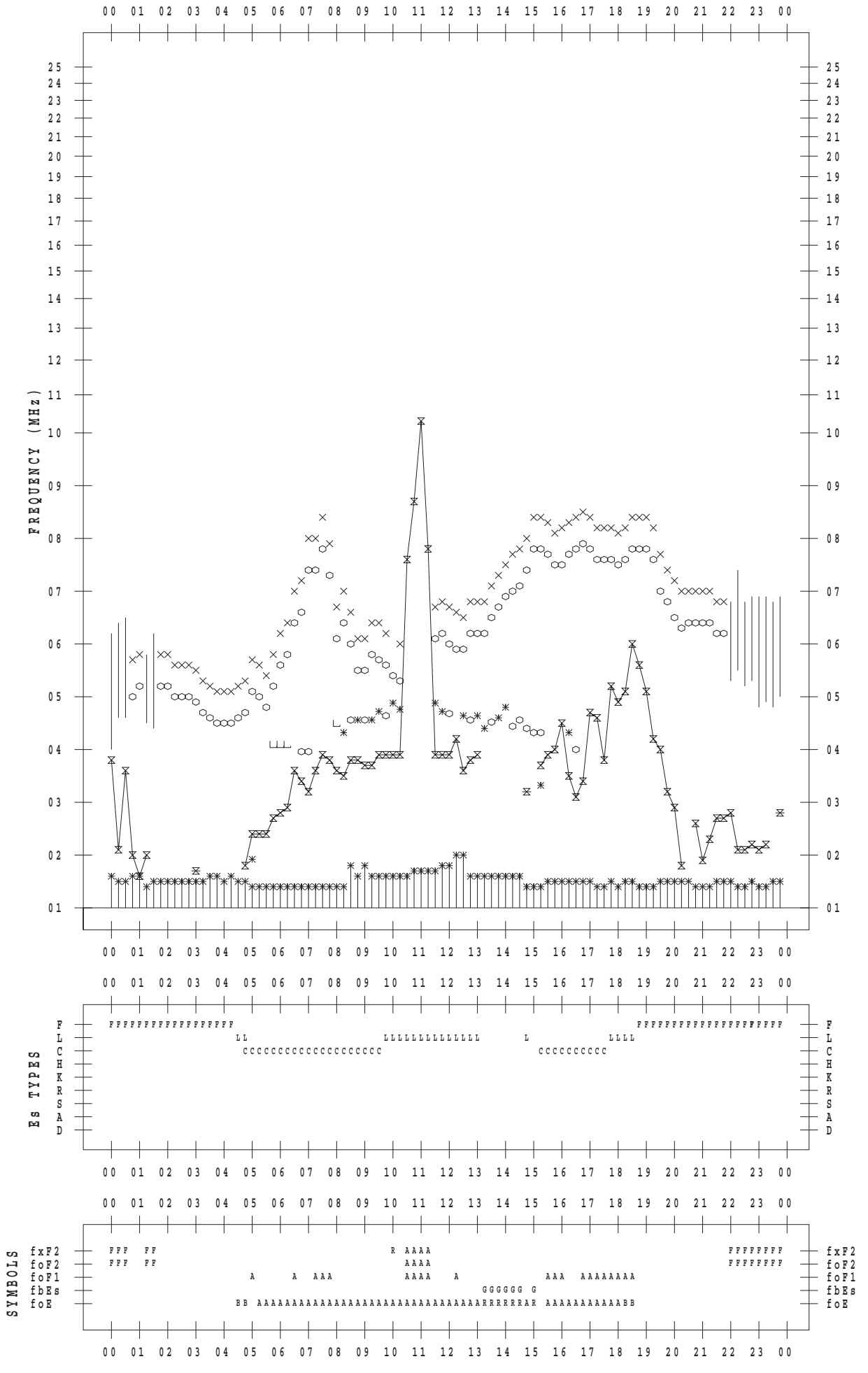
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2016/ 5/27

135 °E MEAN TIME



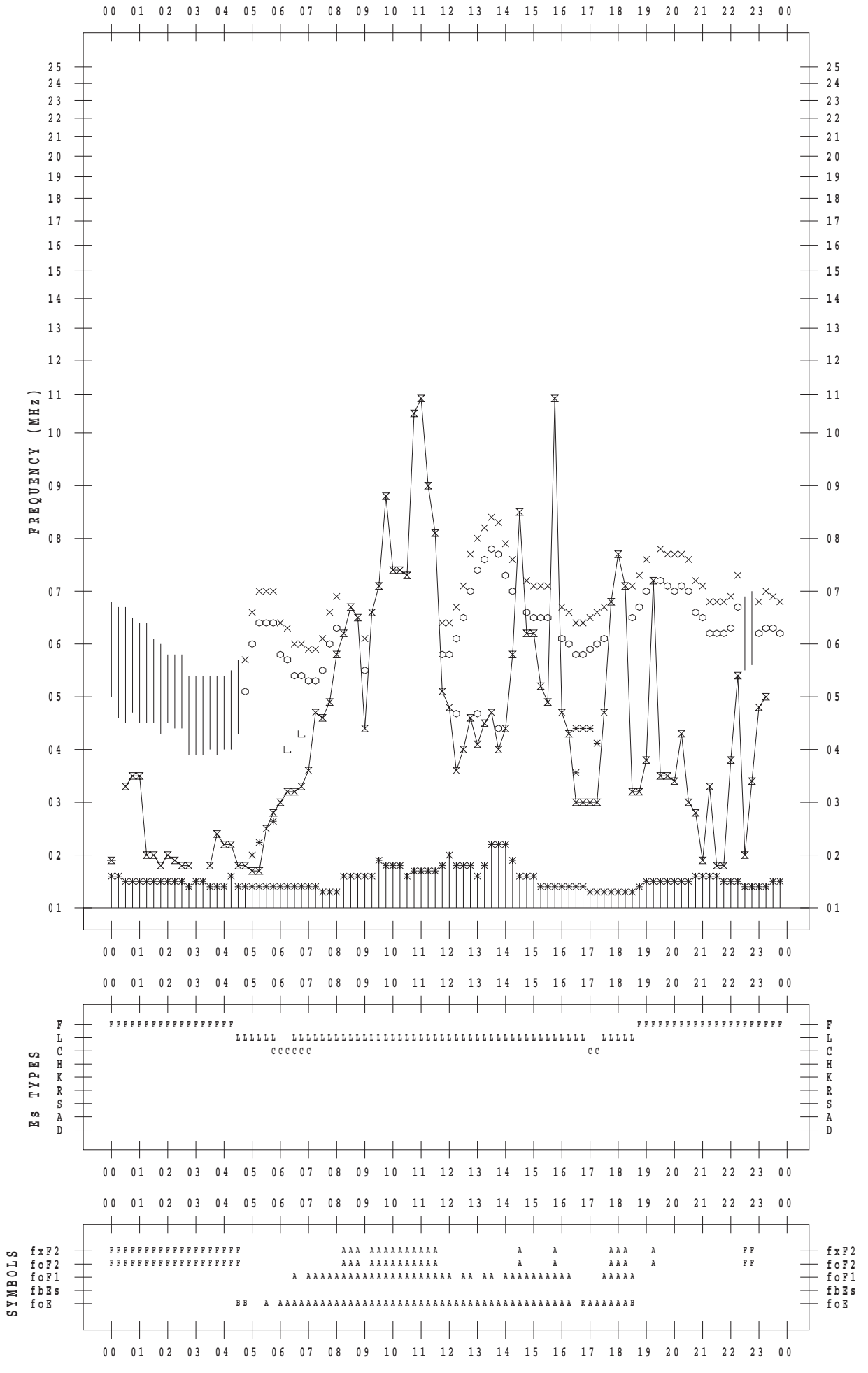
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2016/ 5/28

135 °E MEAN TIME



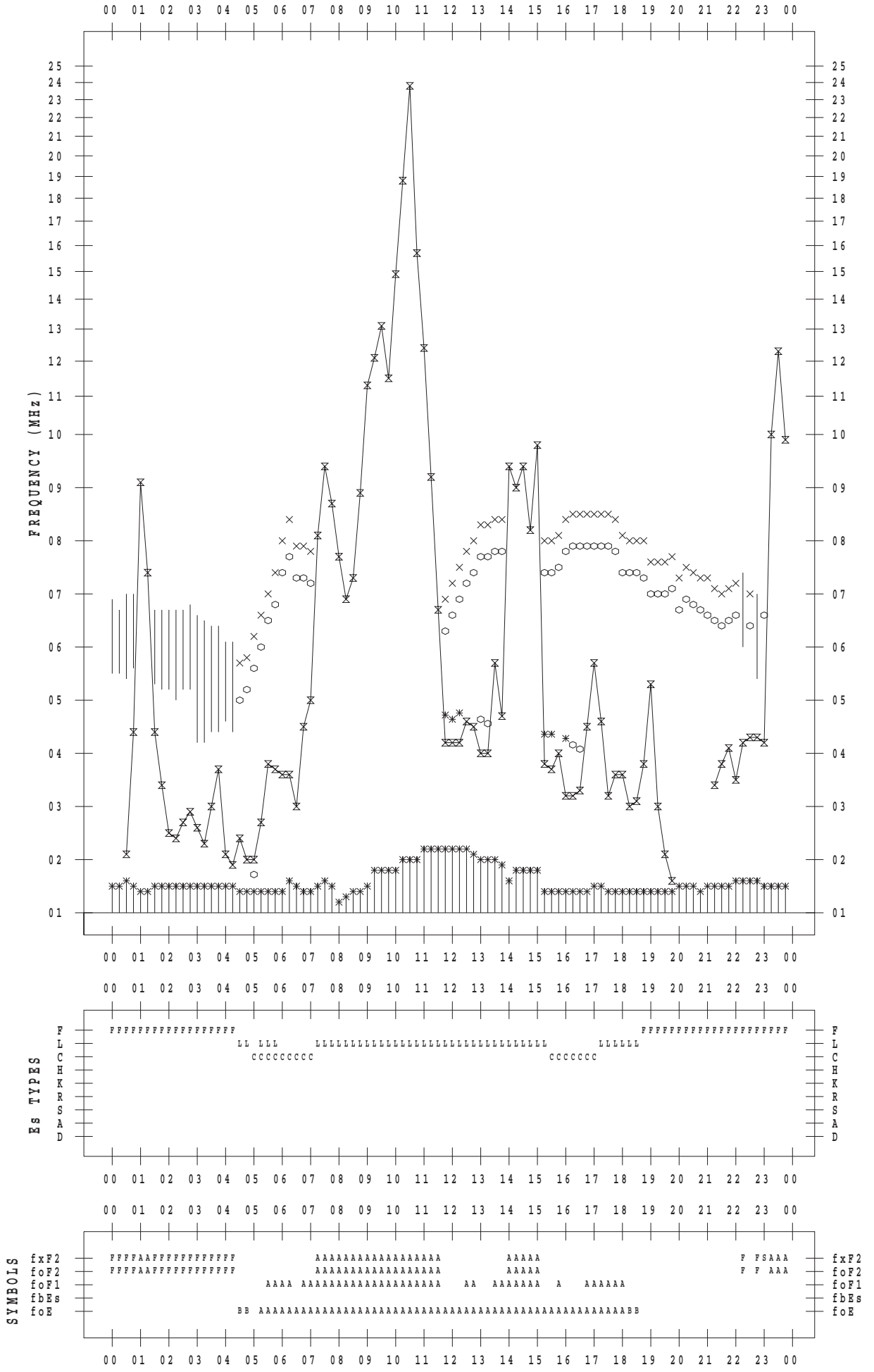
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2016/ 5/29

135 °E MEAN TIME



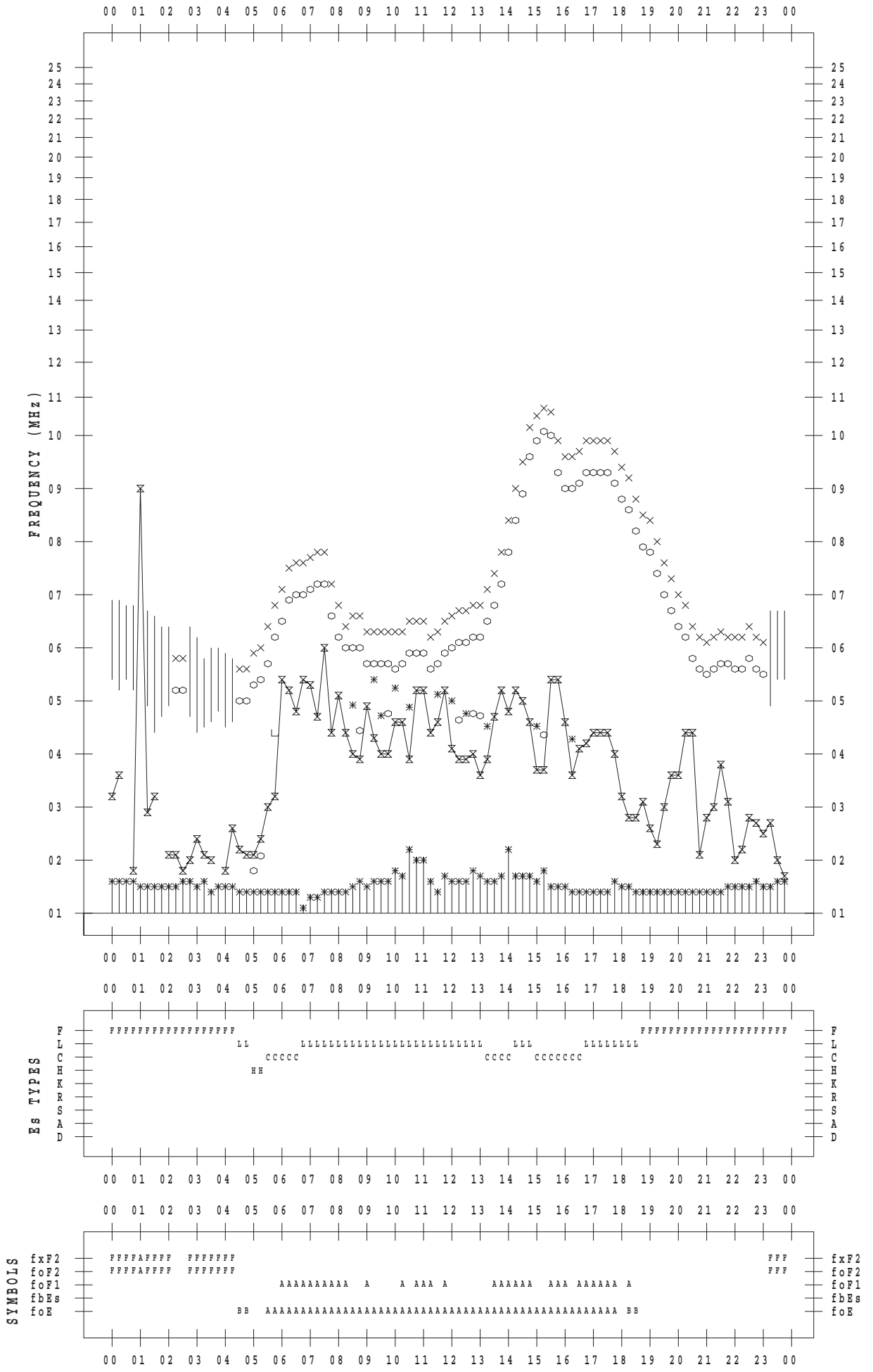
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2016/ 5/30

135 °E MEAN TIME

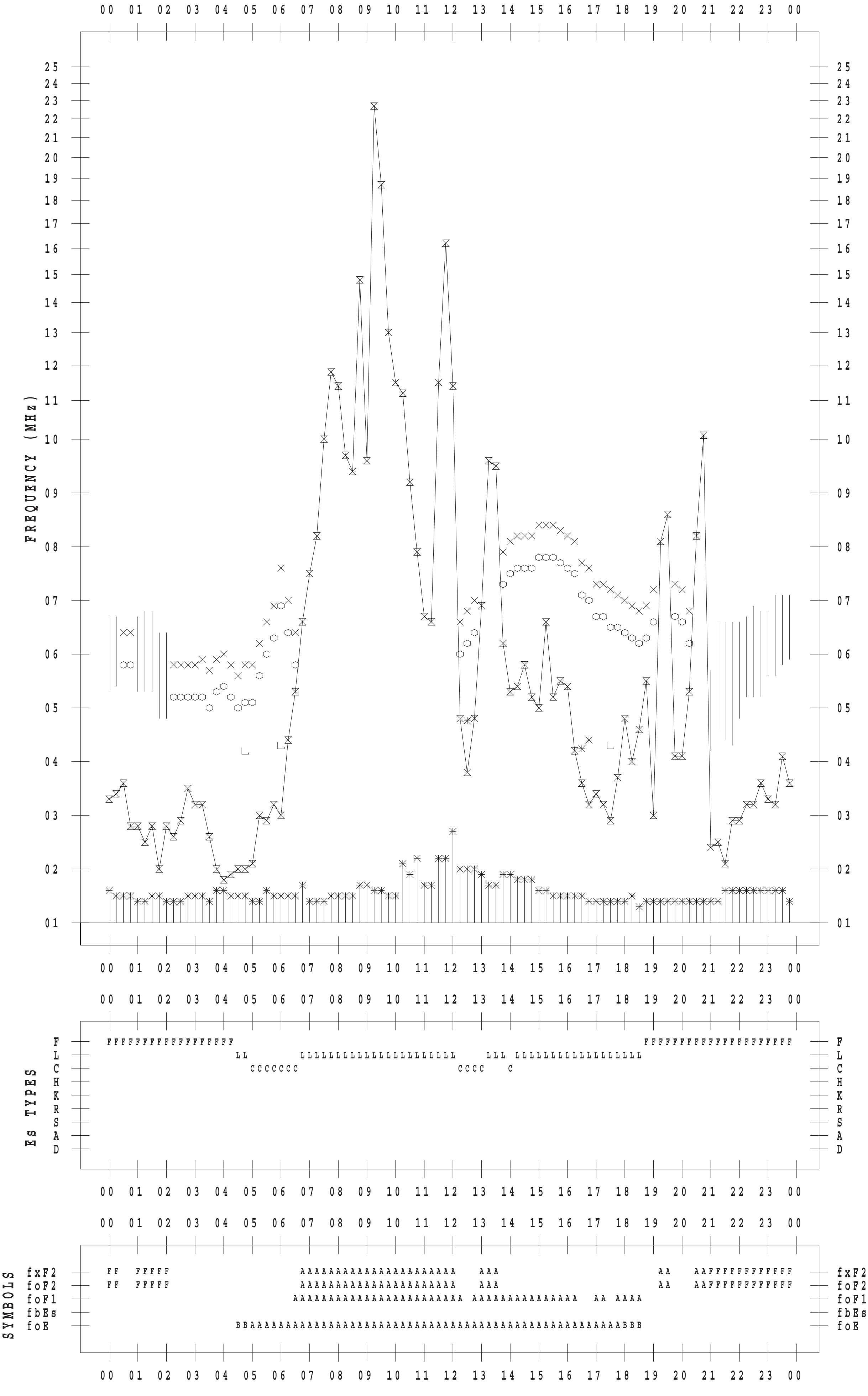


f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji DATE : 2016/ 5/31

135 °E MEAN TIME



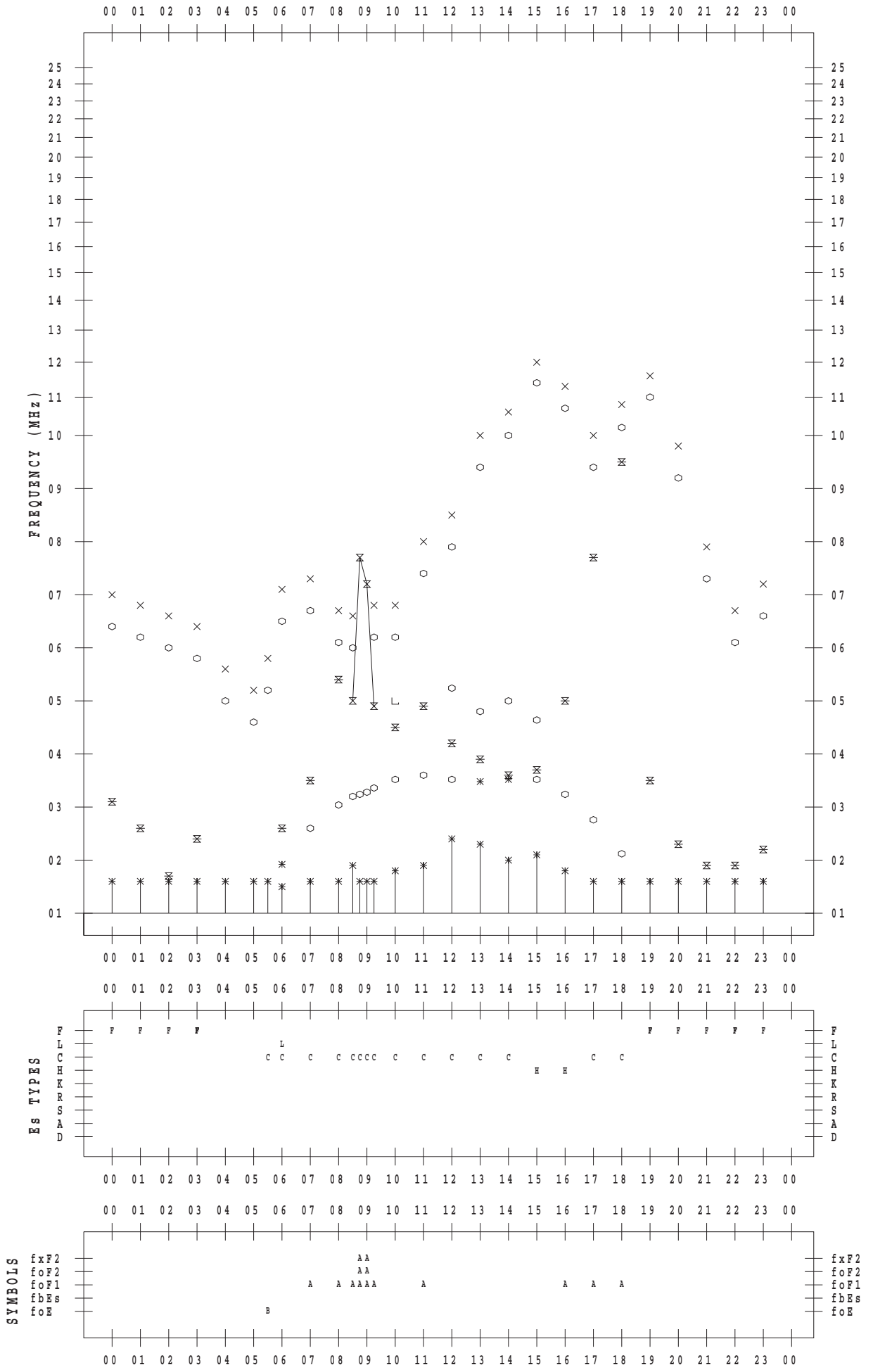
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2016/ 5/ 1

135 °E MEAN TIME



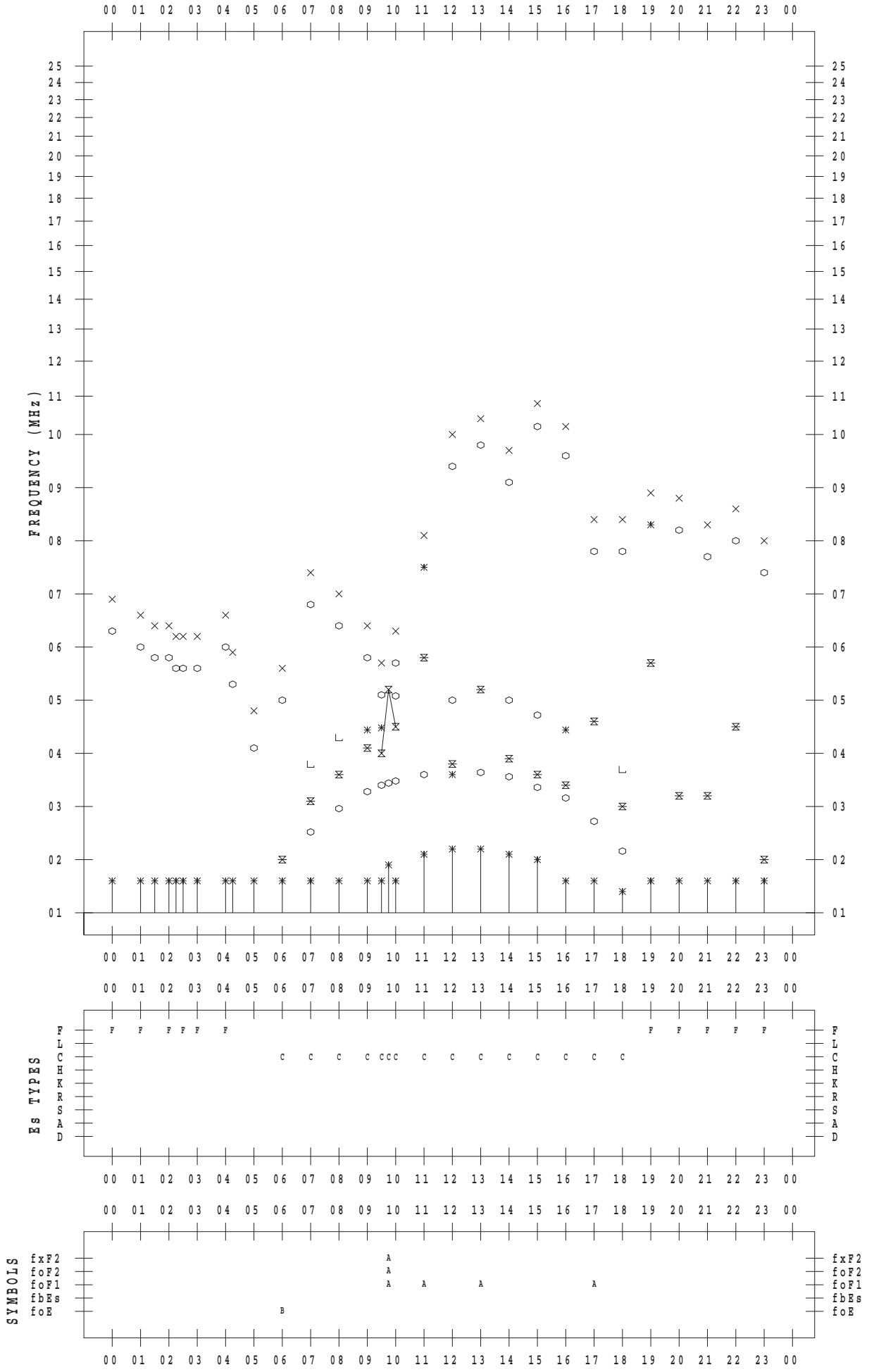
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2016/ 5/ 2

135 °E MEAN TIME



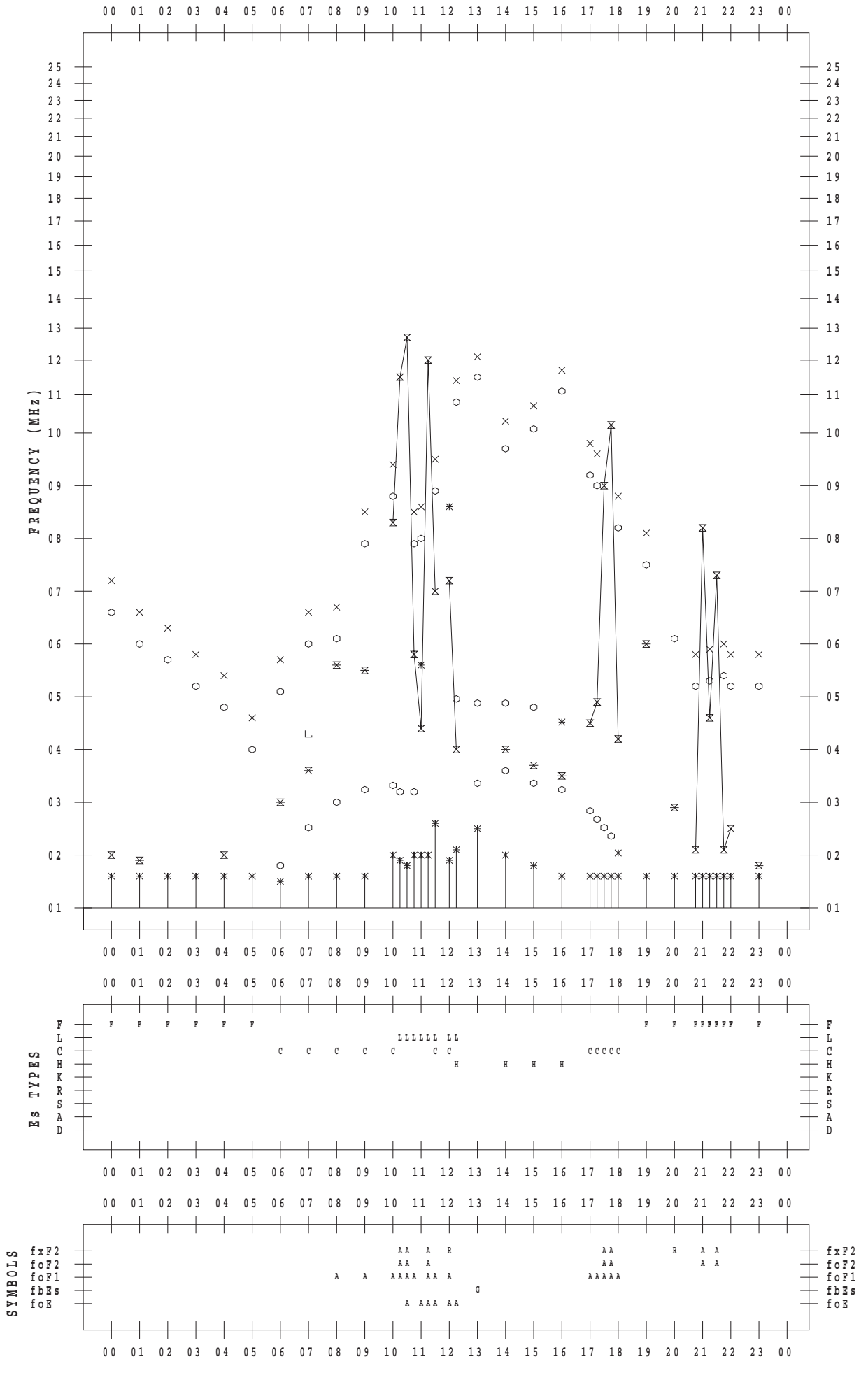
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2016/ 5/ 3

135 °E MEAN TIME



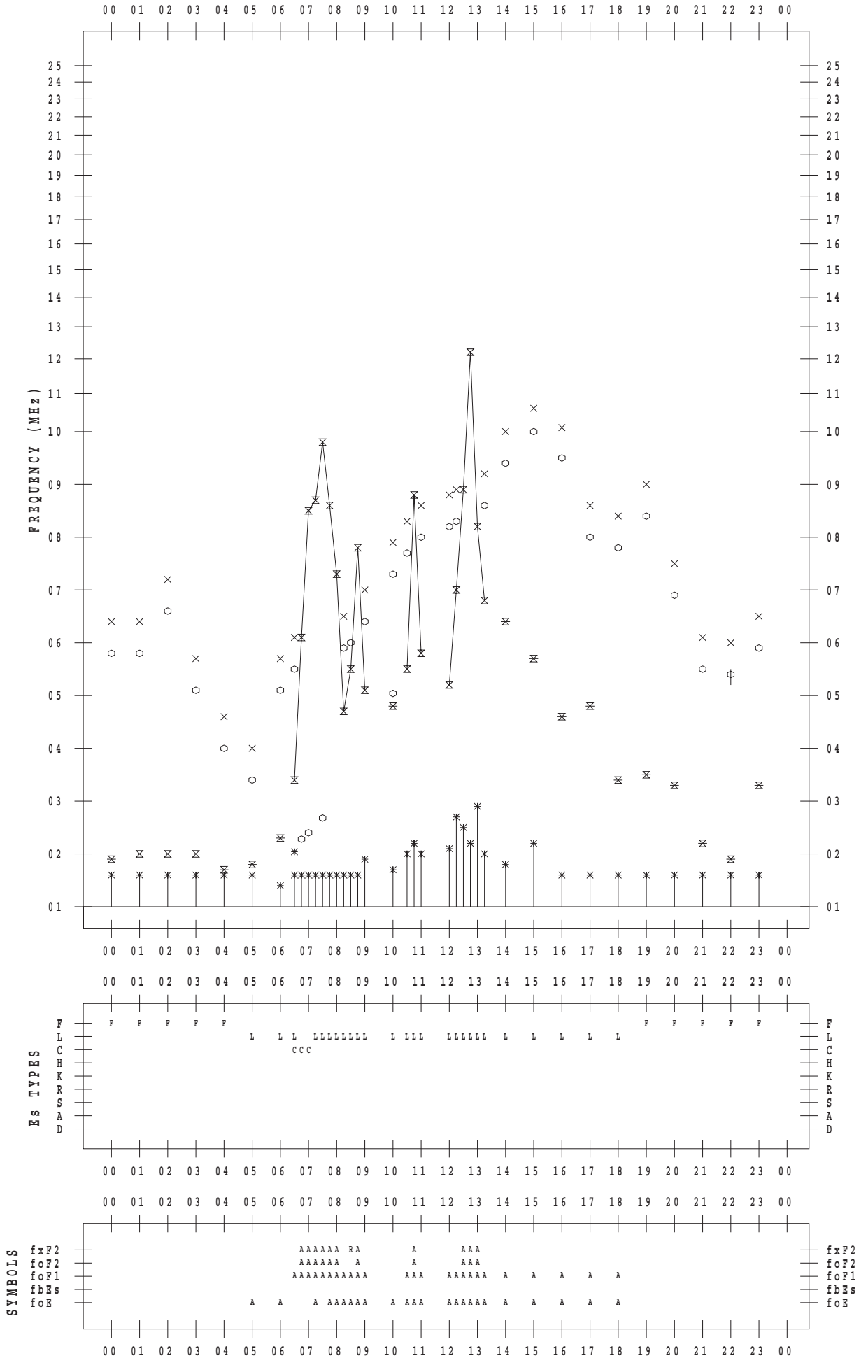
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2016/ 5/ 4

135 °E MEAN TIME



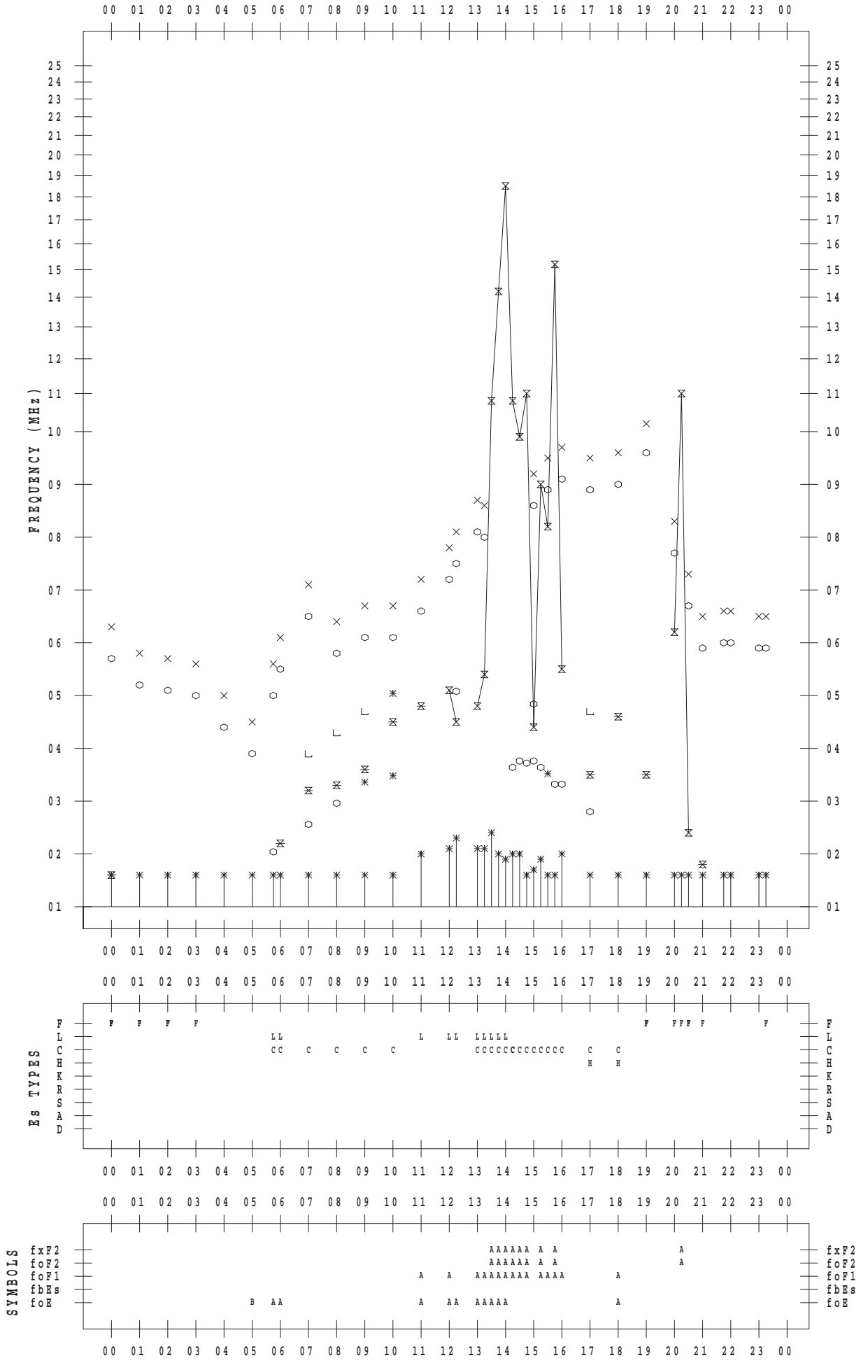
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2016/ 5/ 5

135 °E MEAN TIME



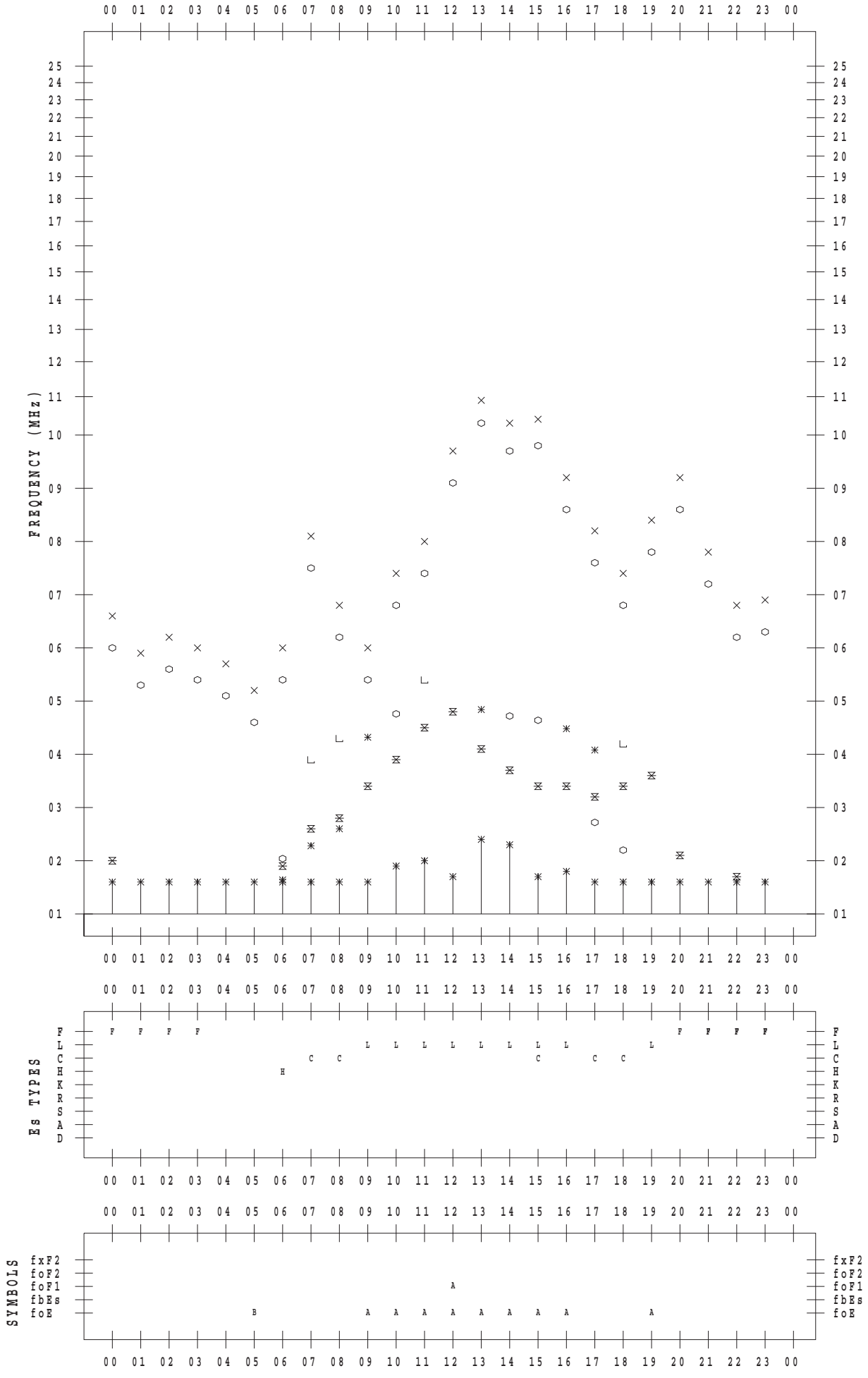
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2016/ 5/ 6

135 °E MEAN TIME



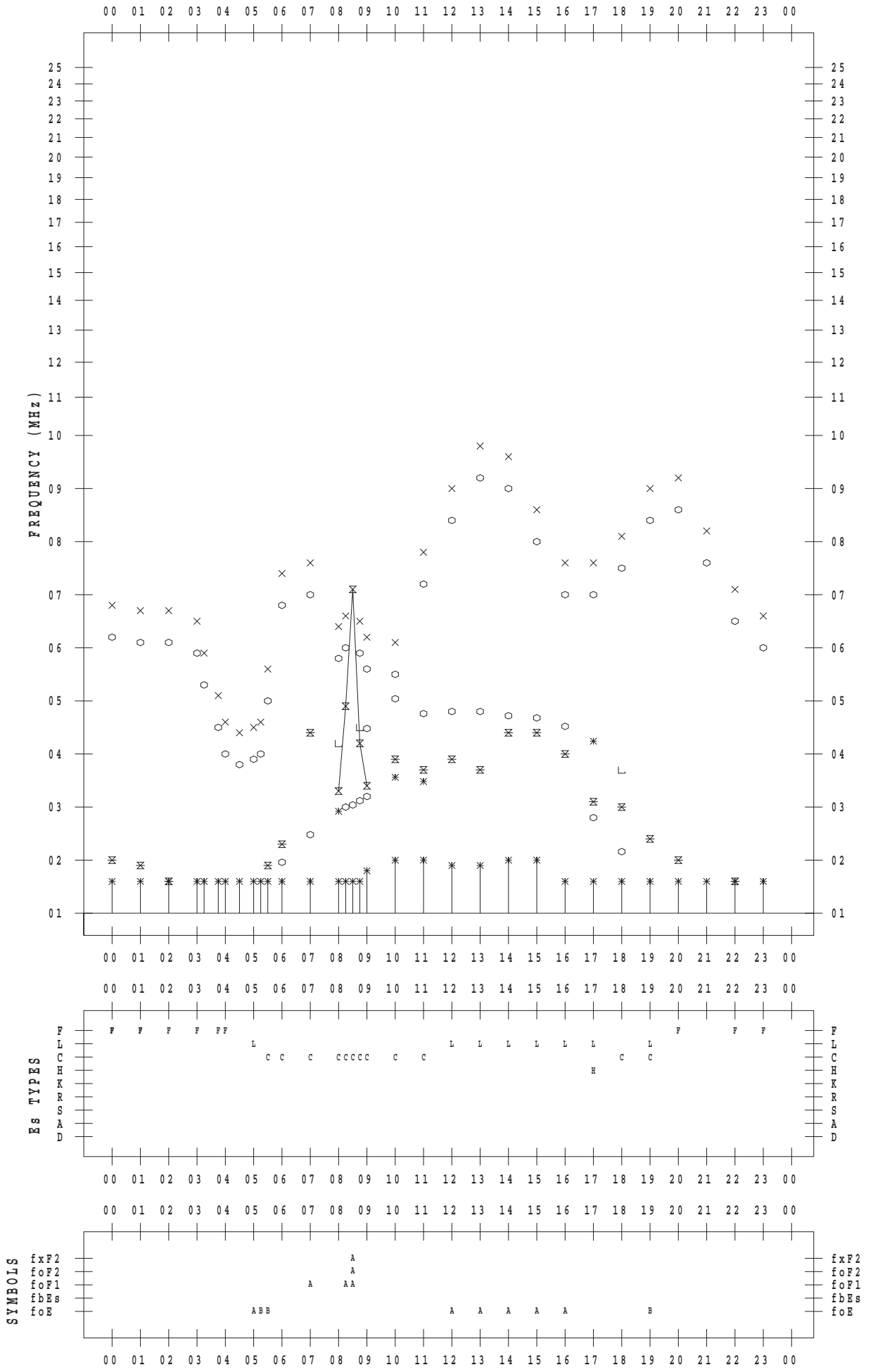
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2016/ 5/ 7

135 °E MEAN TIME



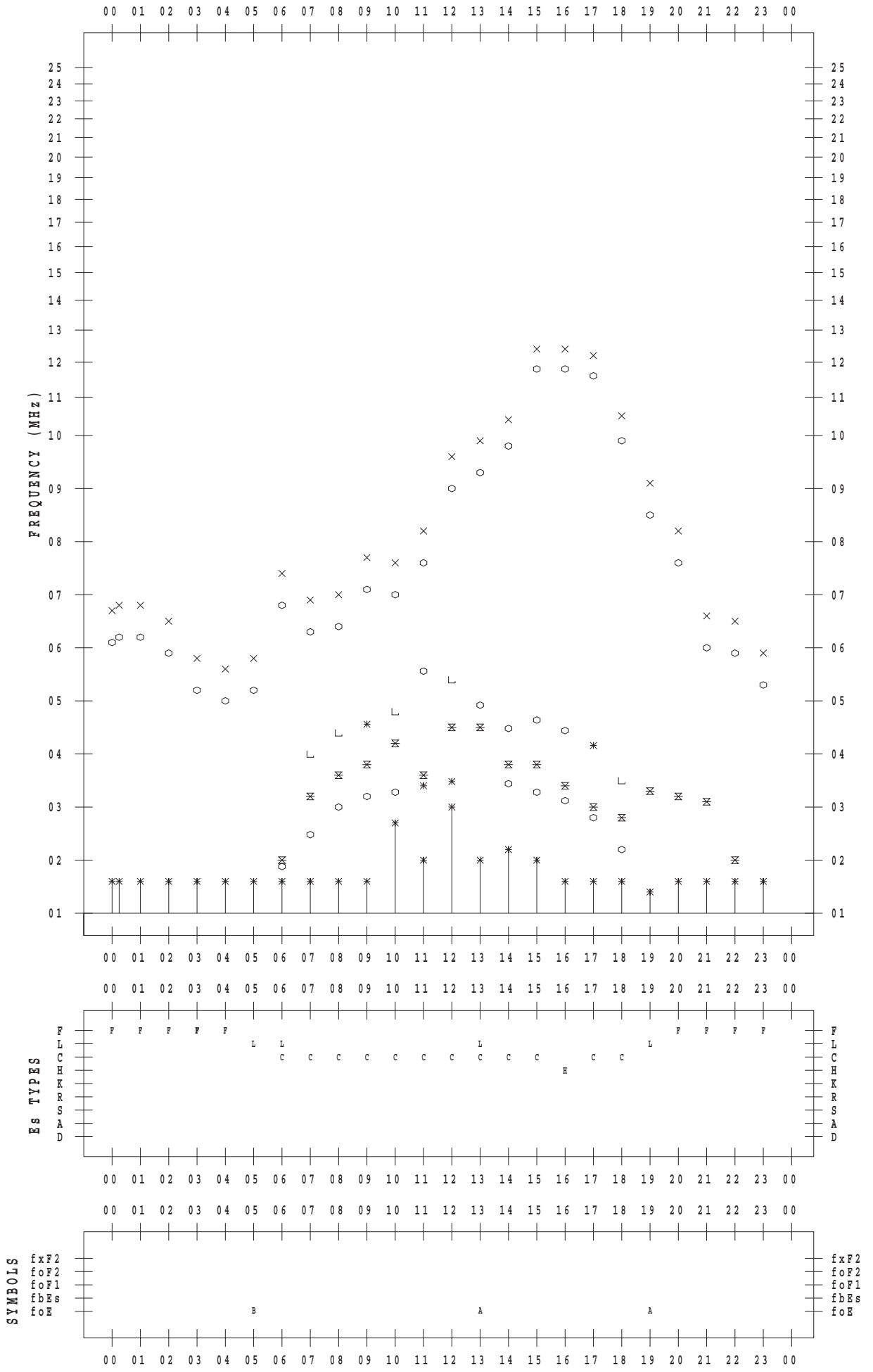
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2016/ 5/ 8

135 °E MEAN TIME



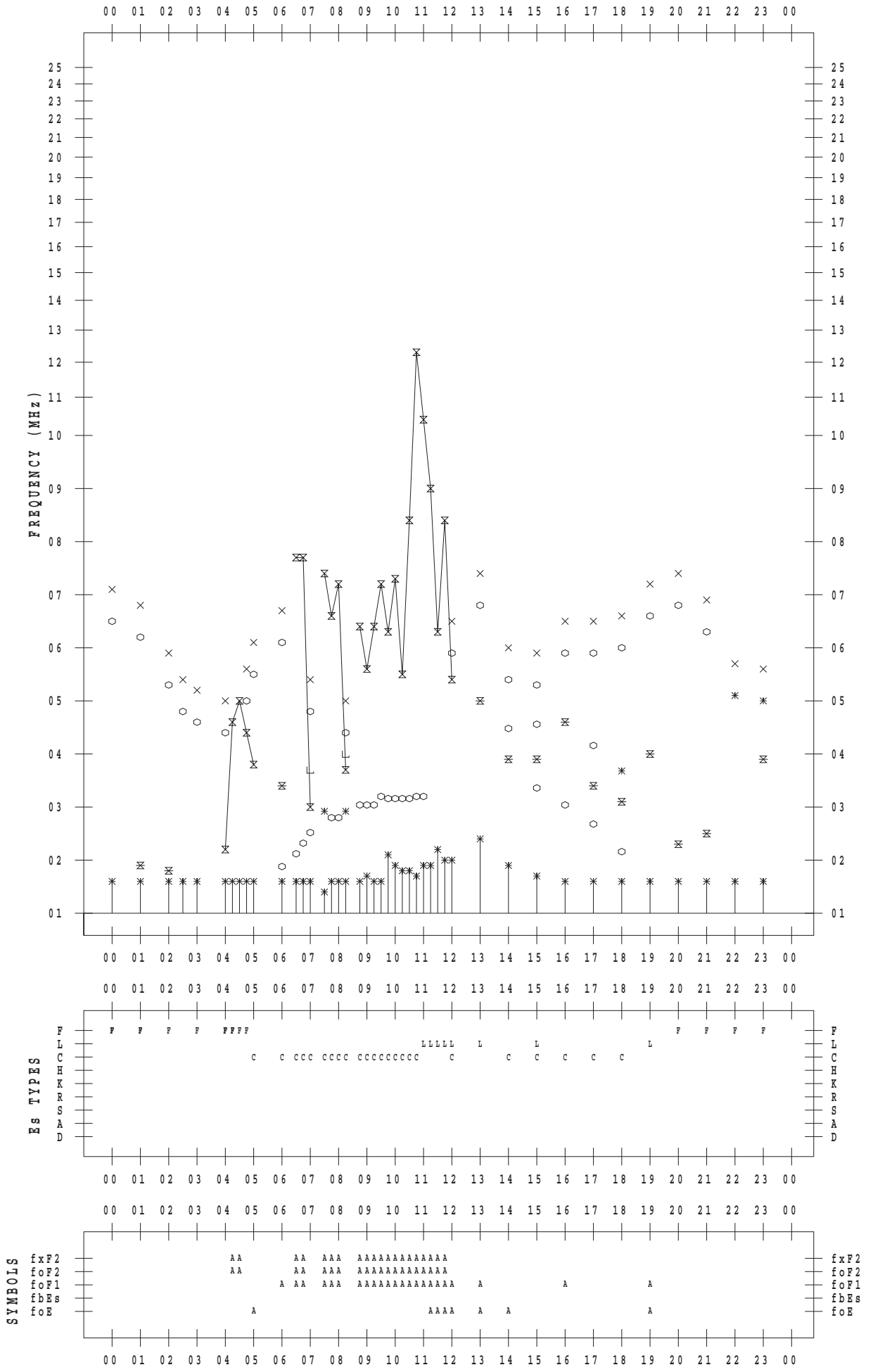
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2016/ 5/ 9

135 °E MEAN TIME



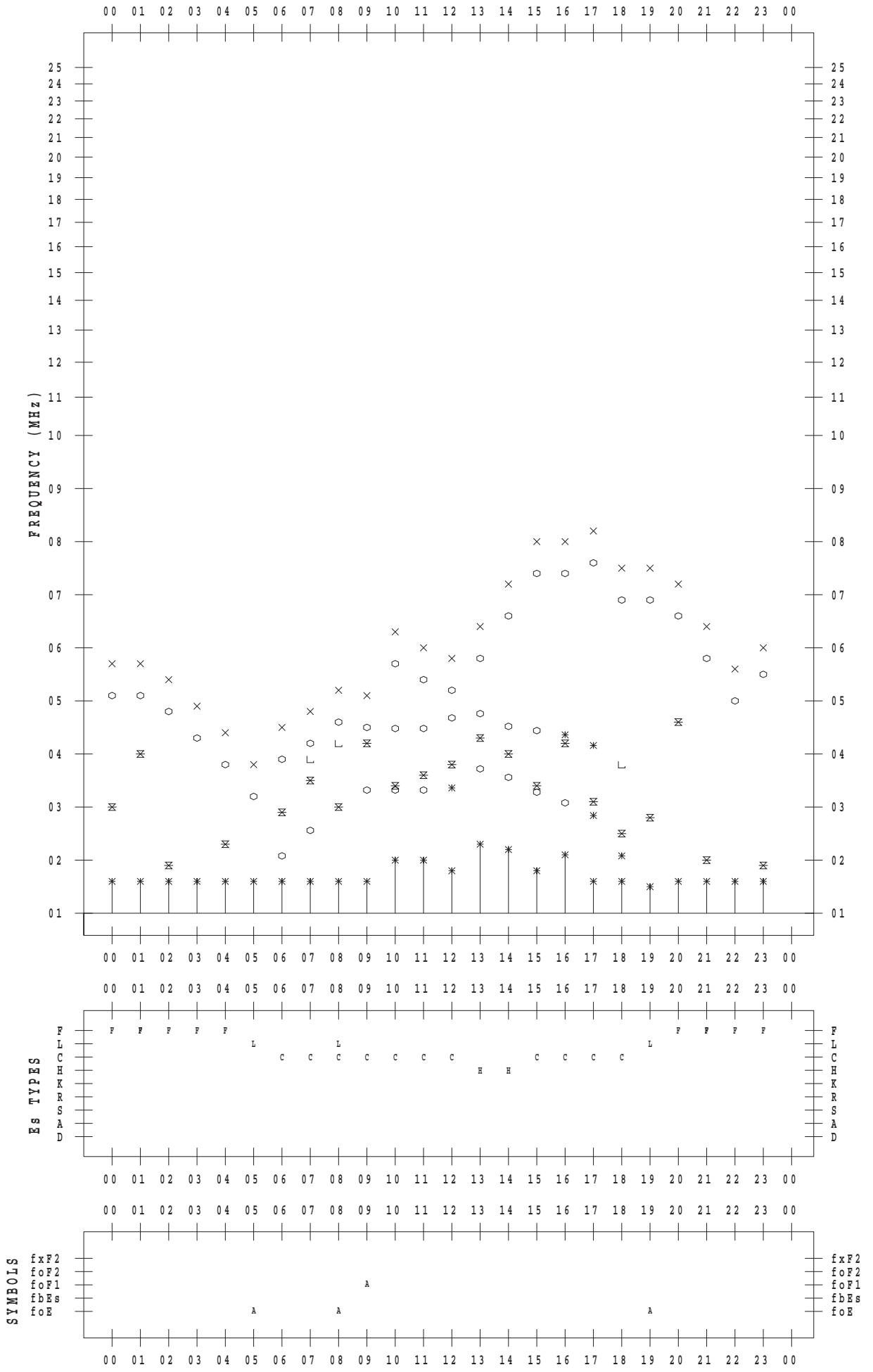
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2016/ 5/10

135 °E MEAN TIME



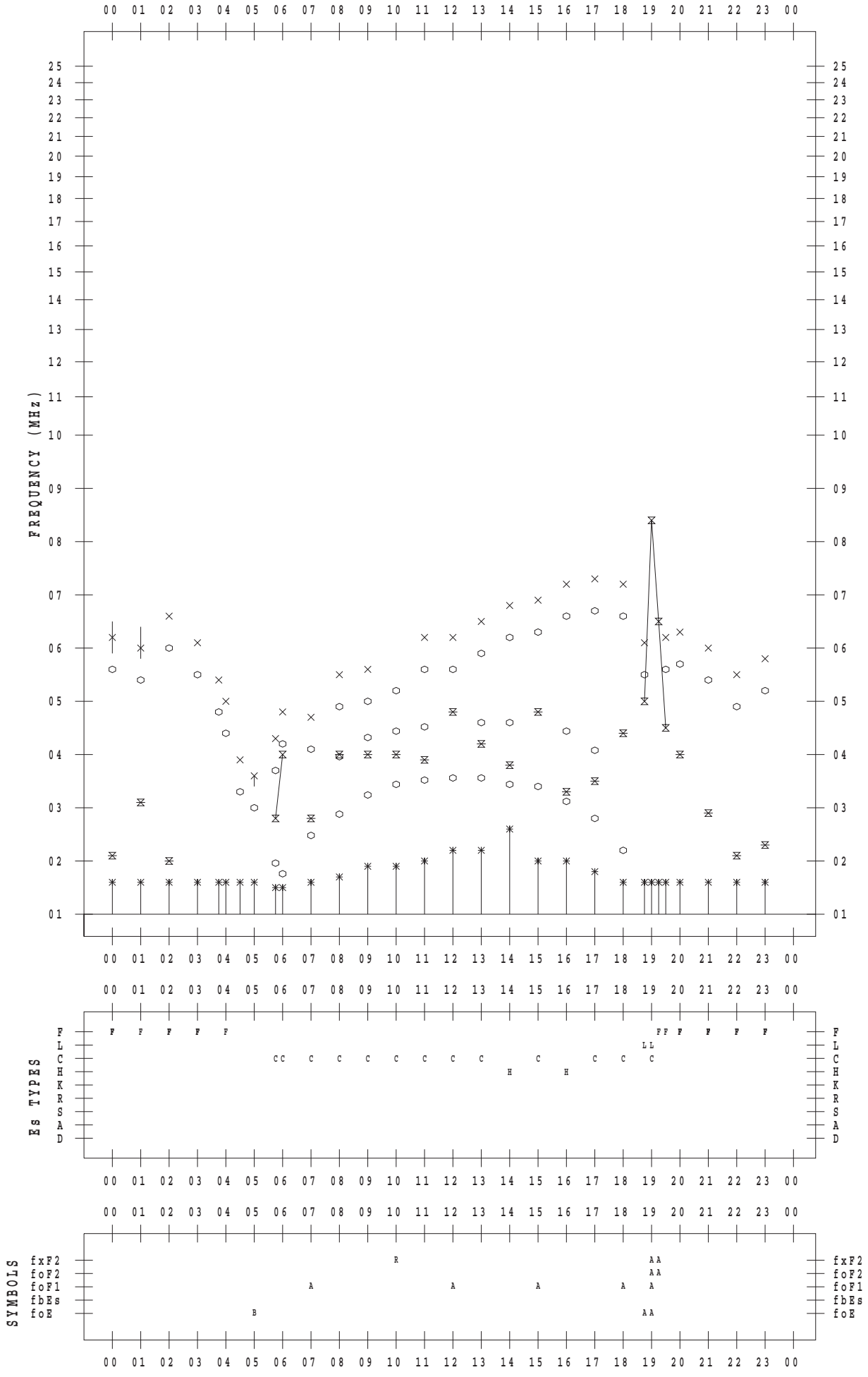
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2016/ 5/11

135 °E MEAN TIME



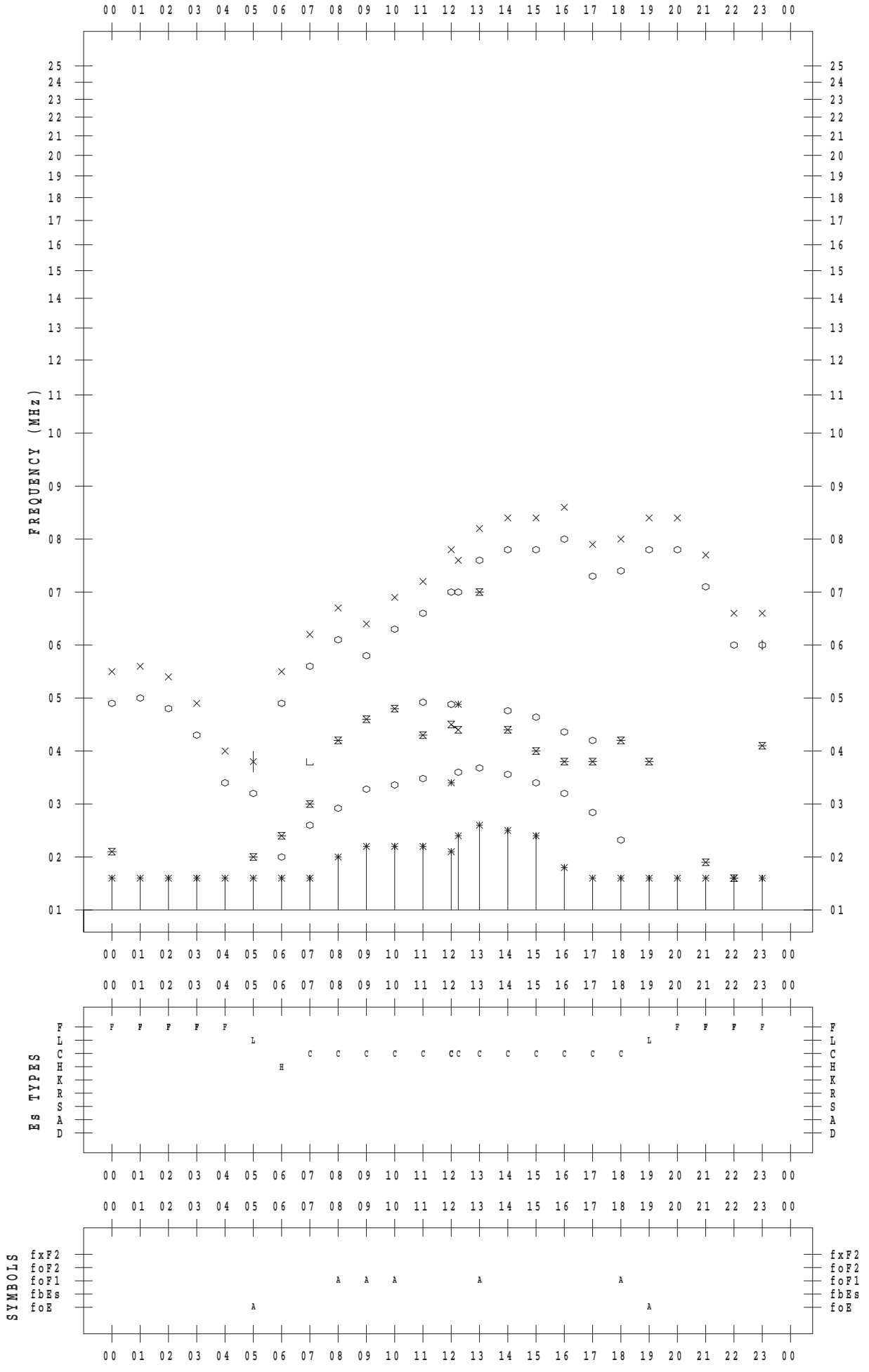
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2016/ 5/12

135 °E MEAN TIME



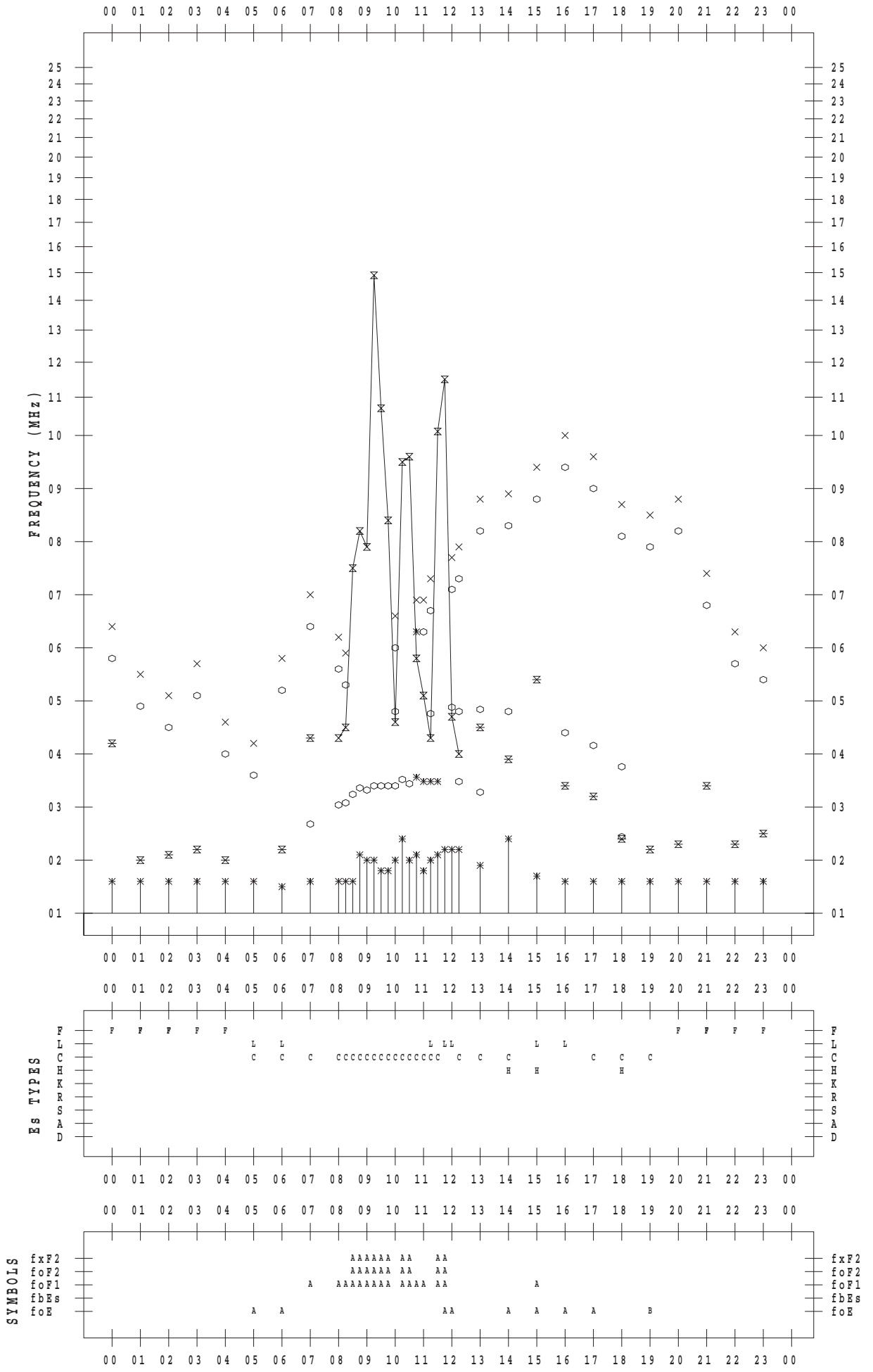
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2016/ 5/13

135 °E MEAN TIME



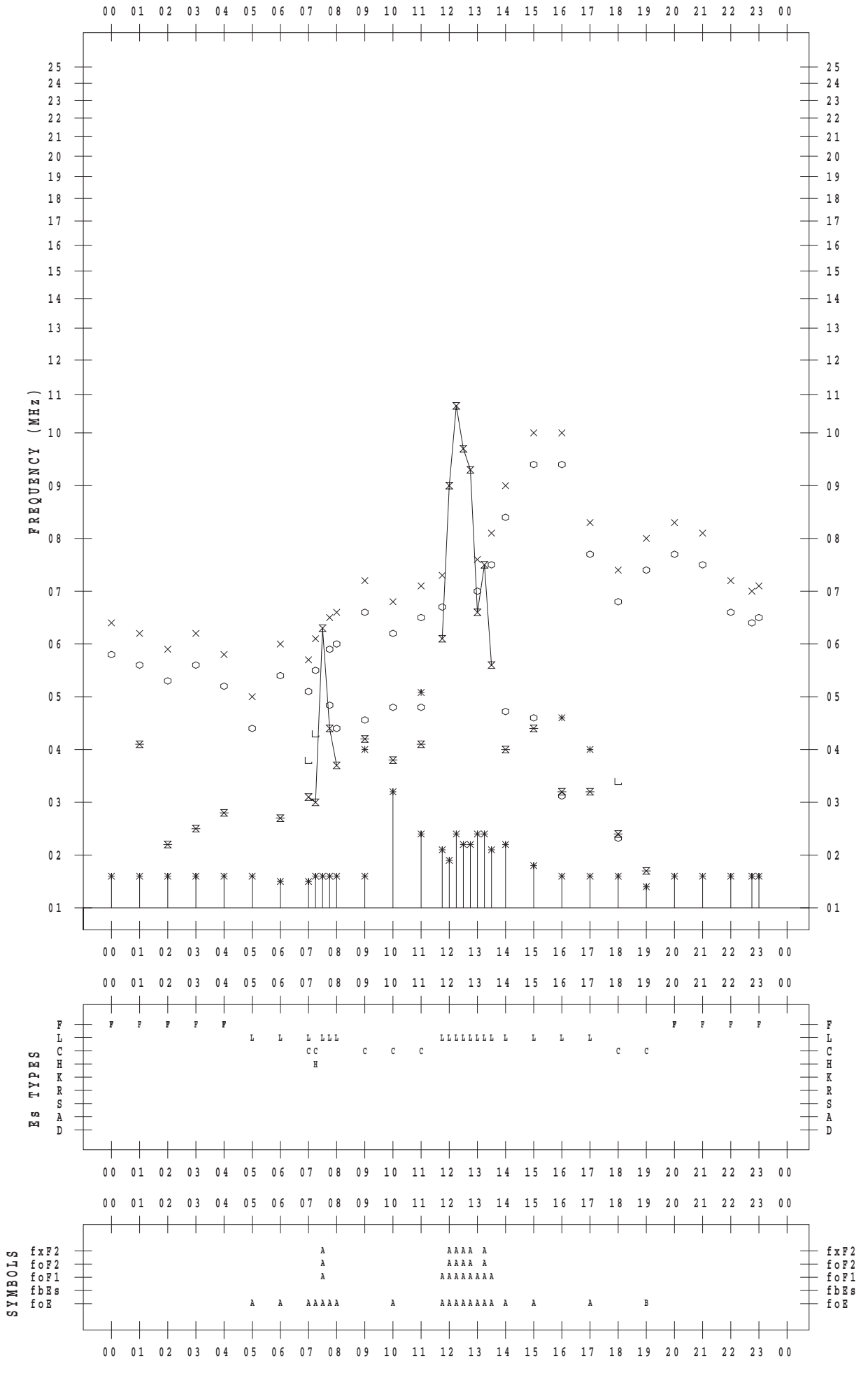
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2016/ 5/14

135 °E MEAN TIME



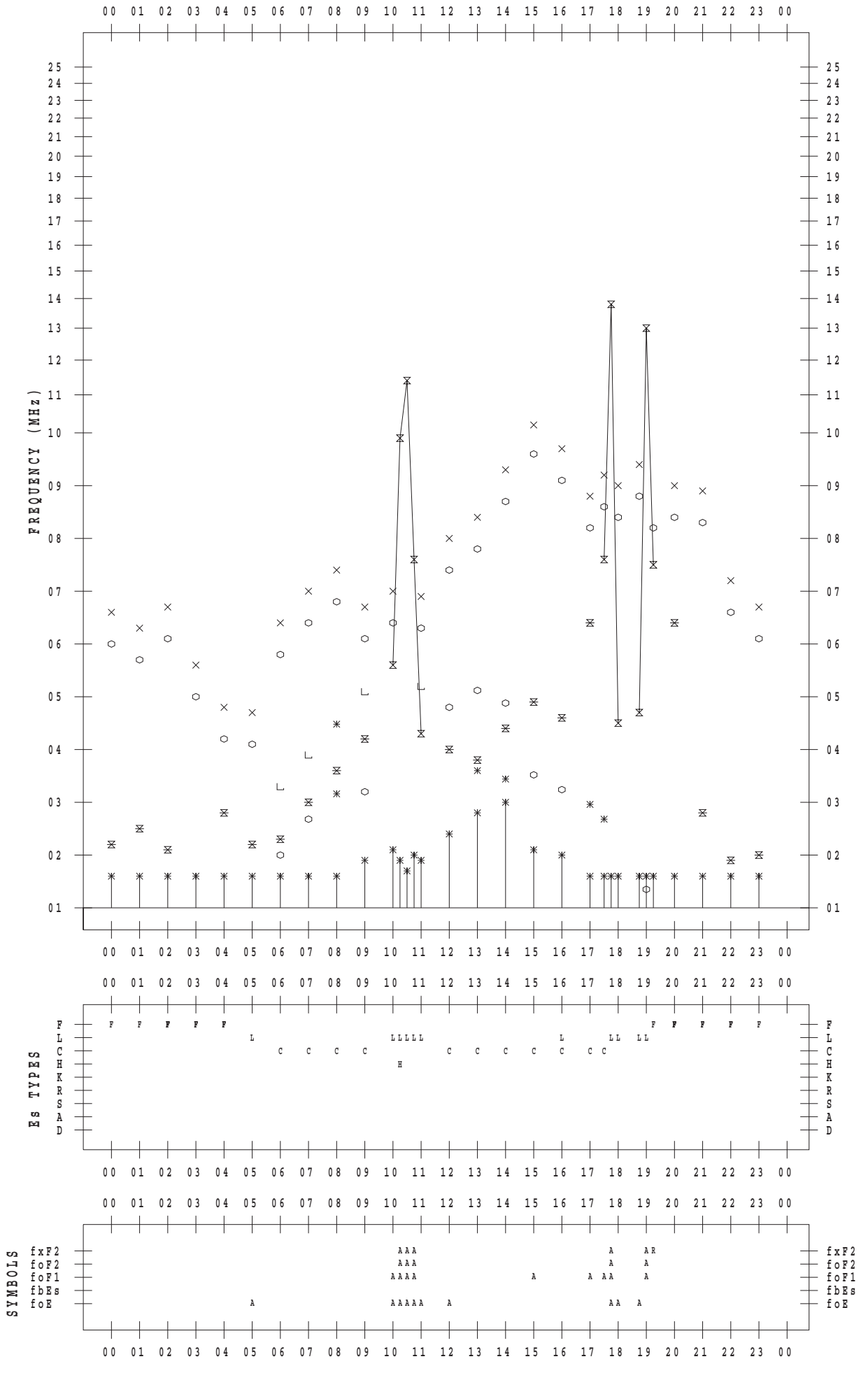
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2016/ 5/15

135 °E MEAN TIME



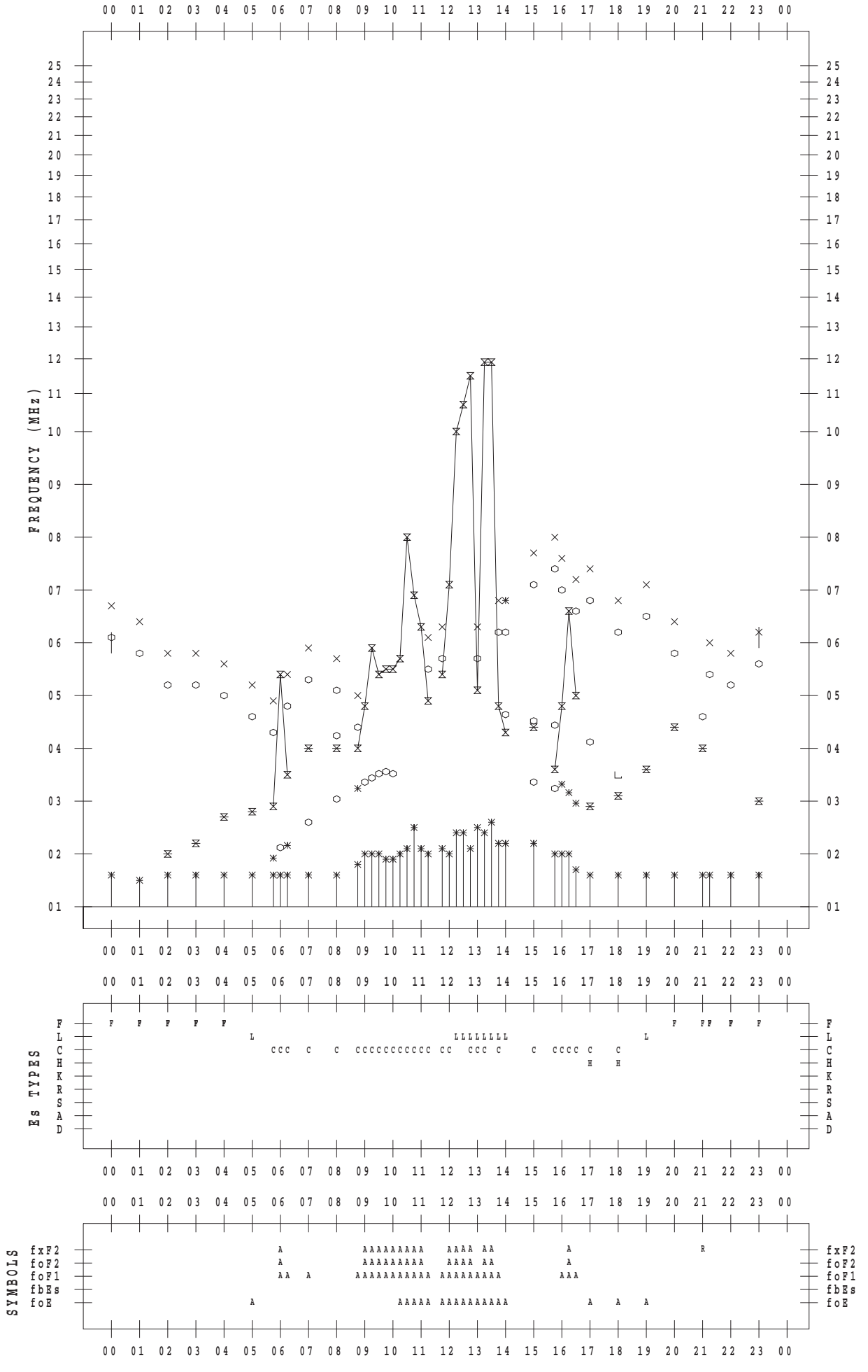
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2016/ 5/16

135 °E MEAN TIME



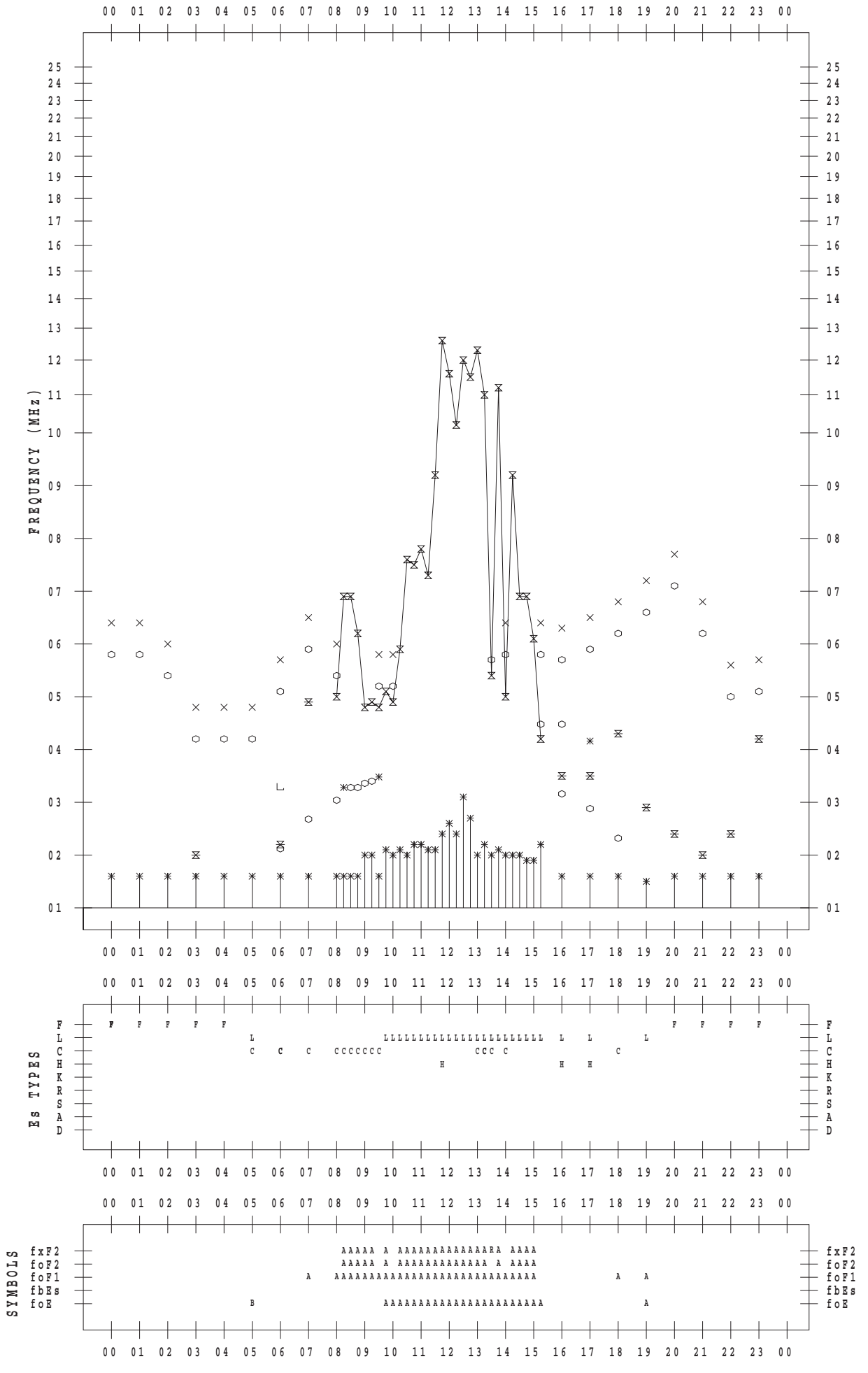
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2016/ 5/17

135 °E MEAN TIME



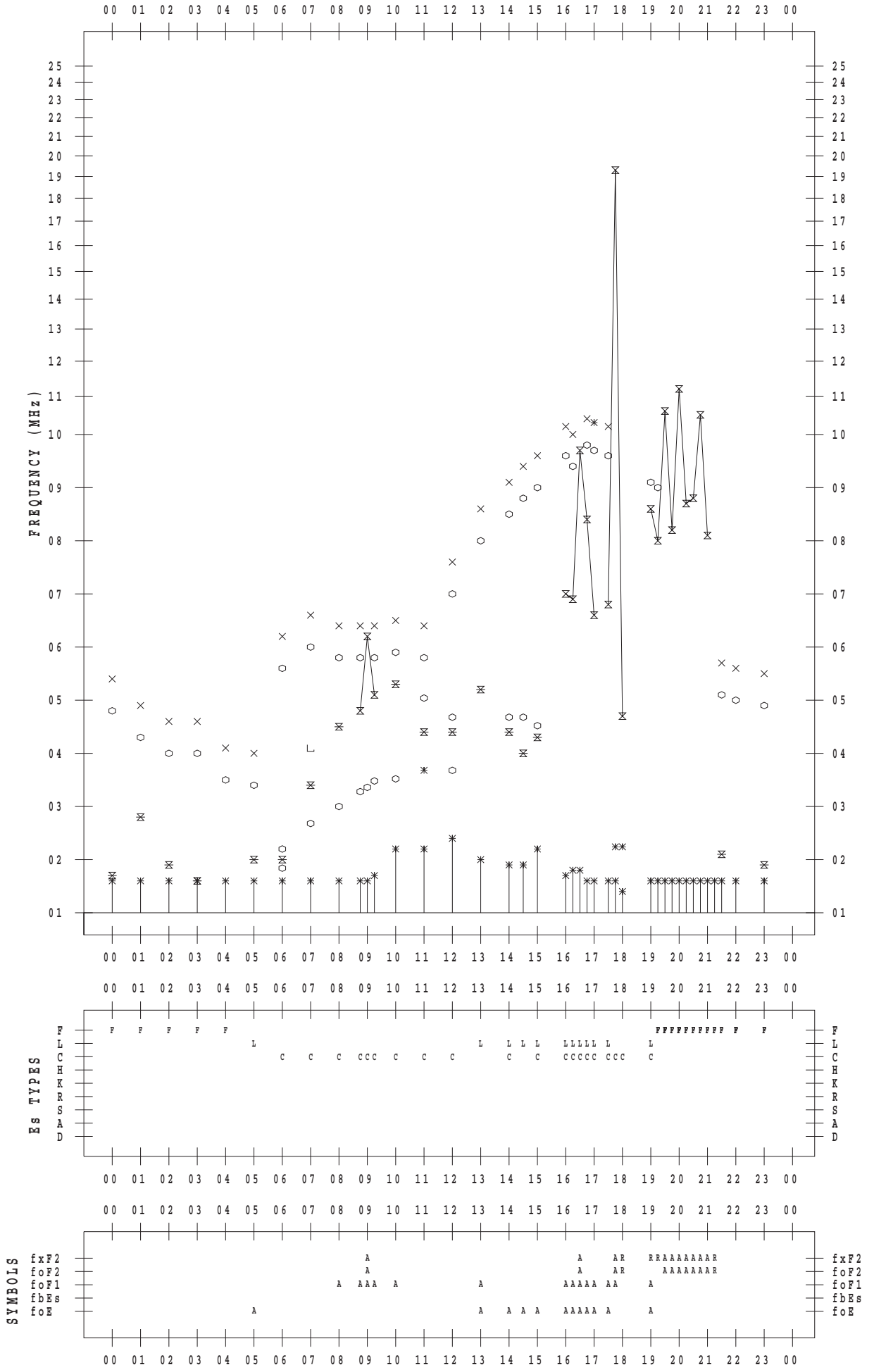
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2016/ 5/18

135 °E MEAN TIME



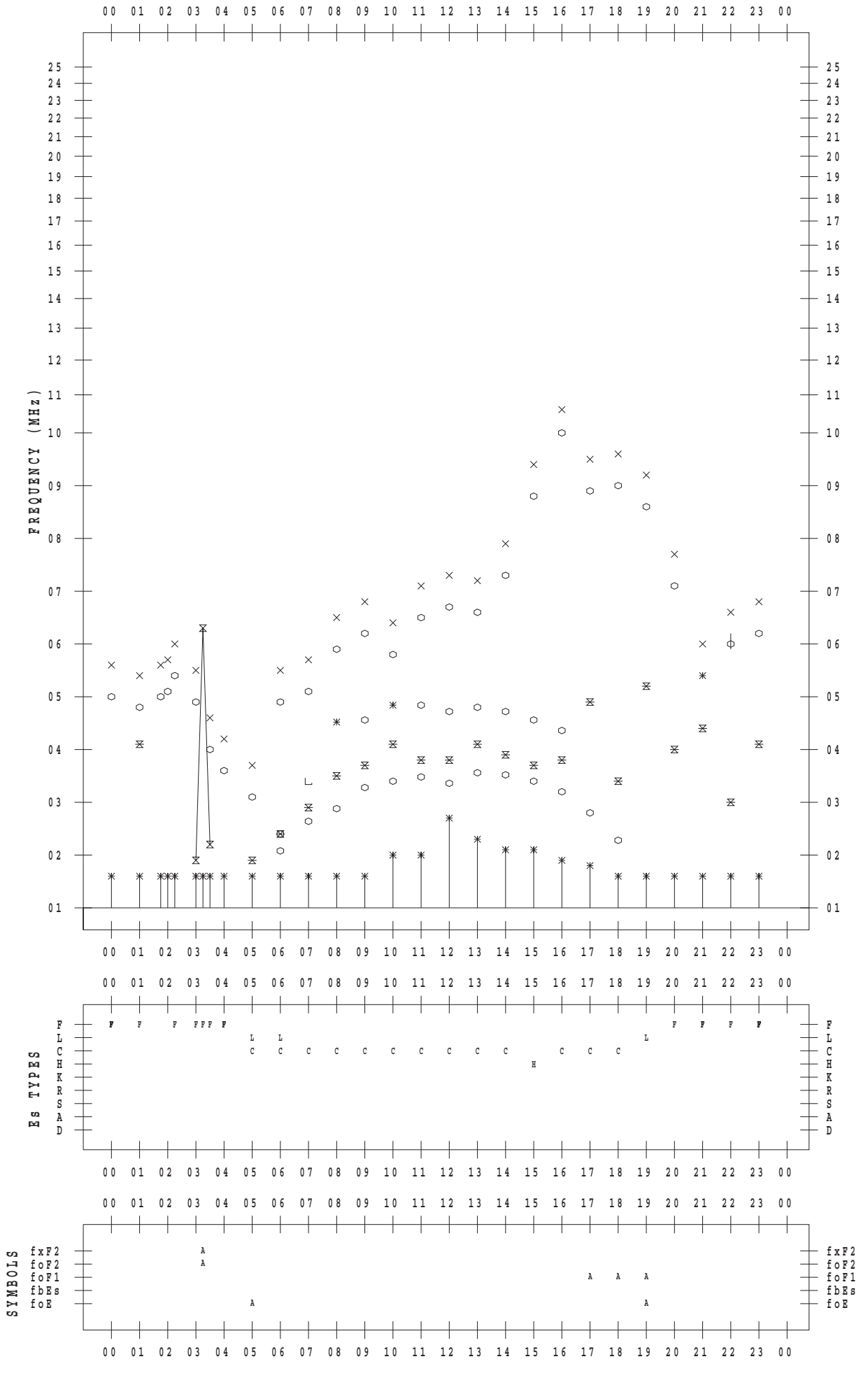
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2016/ 5/19

135 °E MEAN TIME



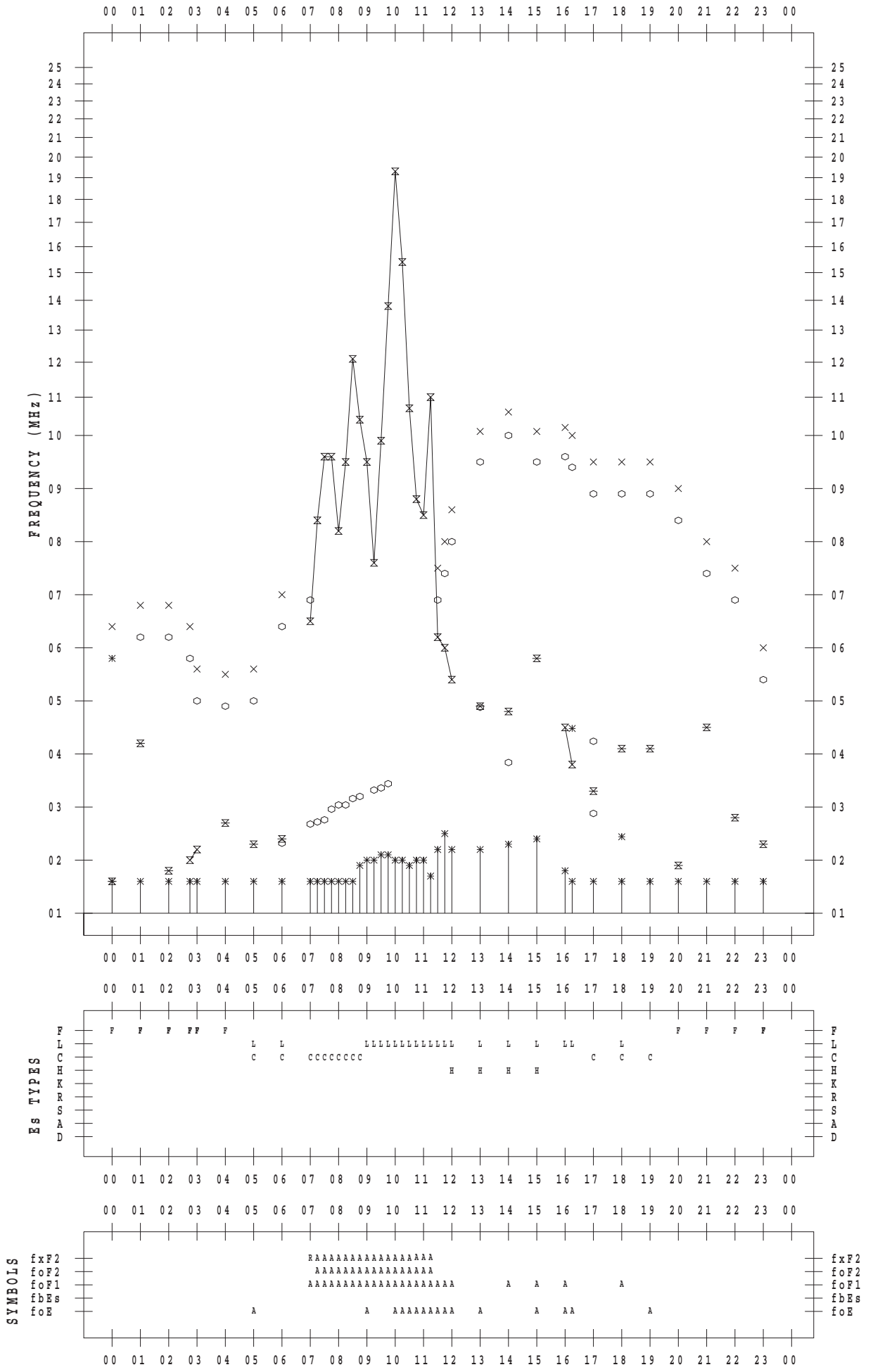
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2016/ 5/20

135 °E MEAN TIME



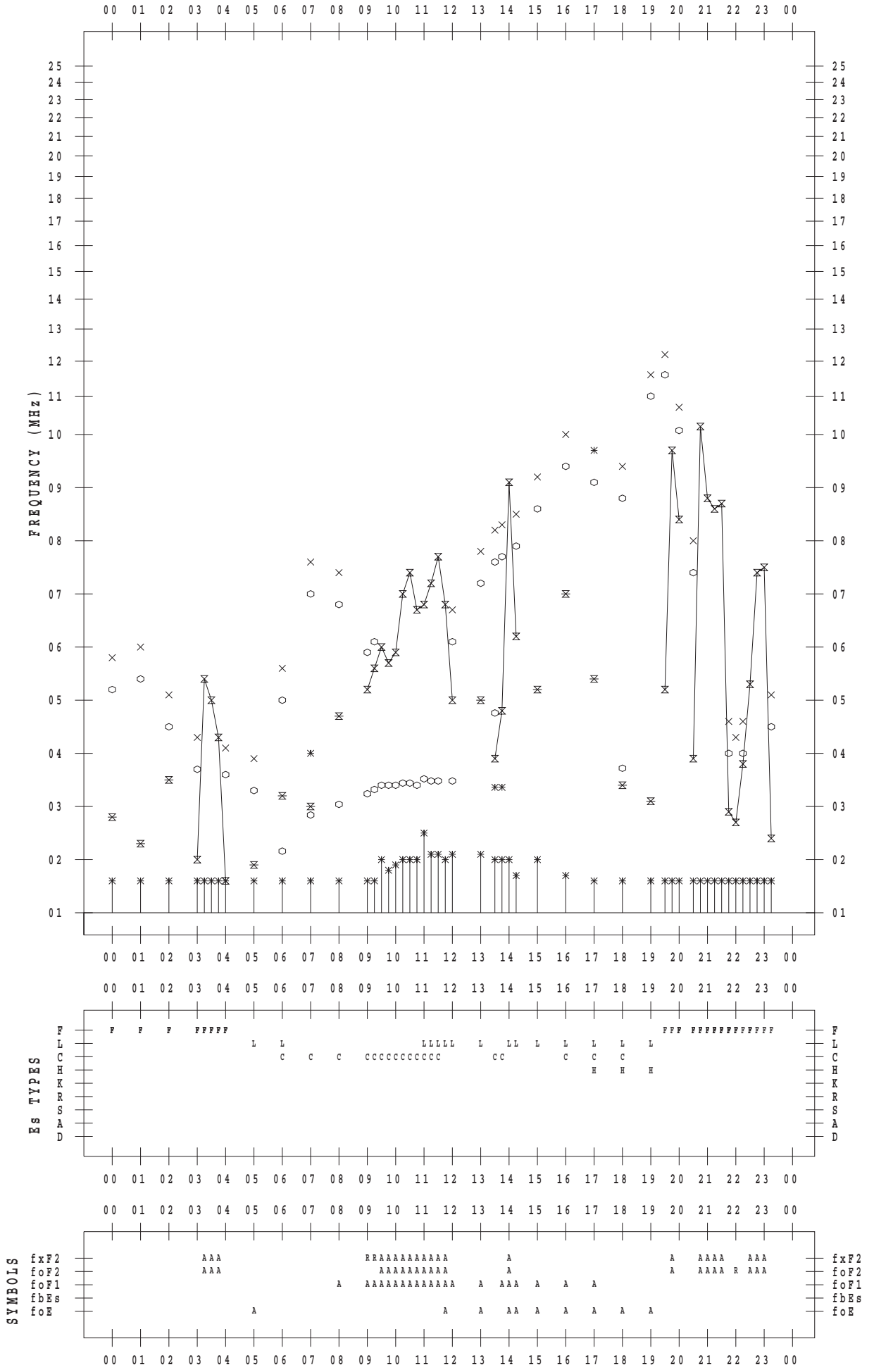
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2016/ 5/21

135 °E MEAN TIME



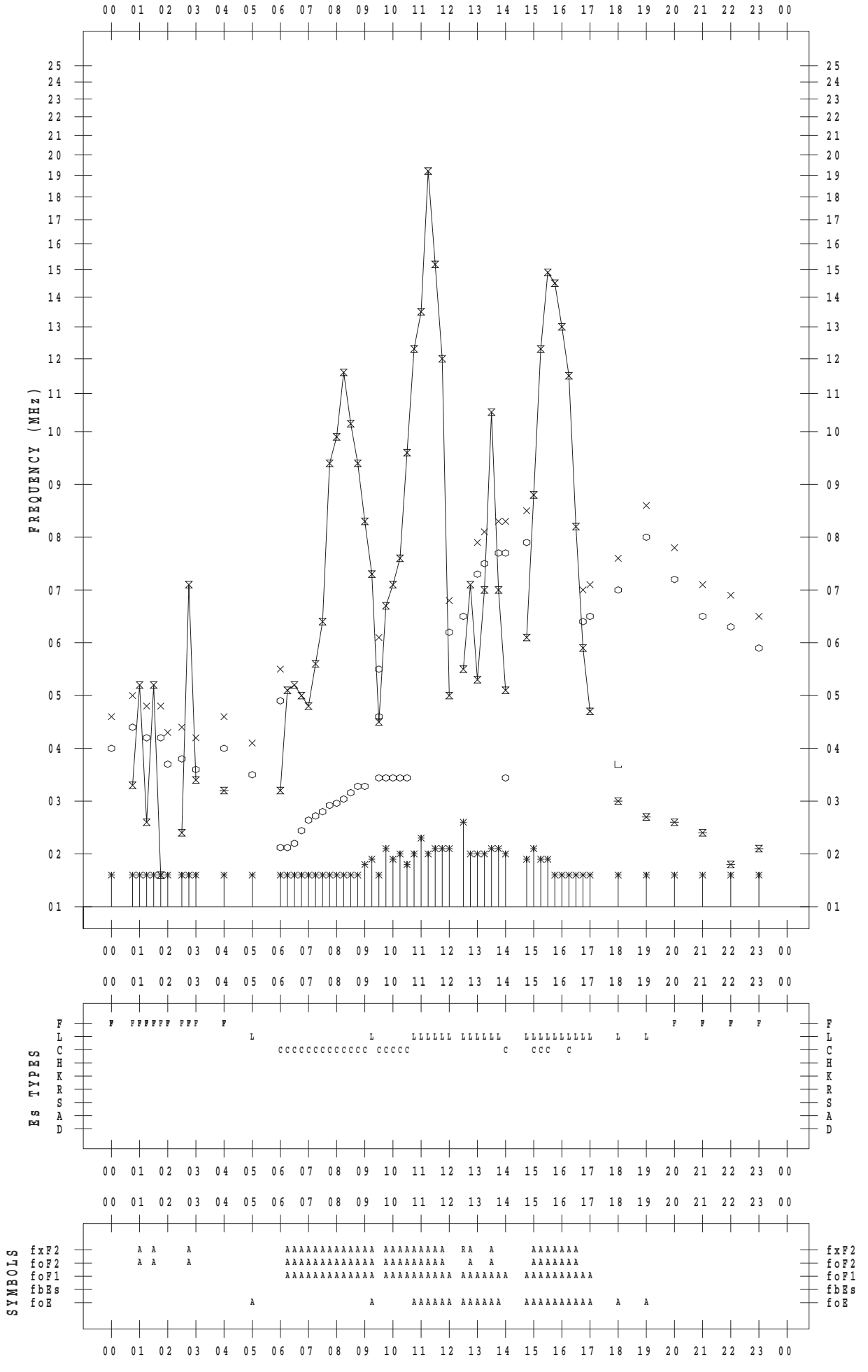
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2016/ 5/22

135 °E MEAN TIME



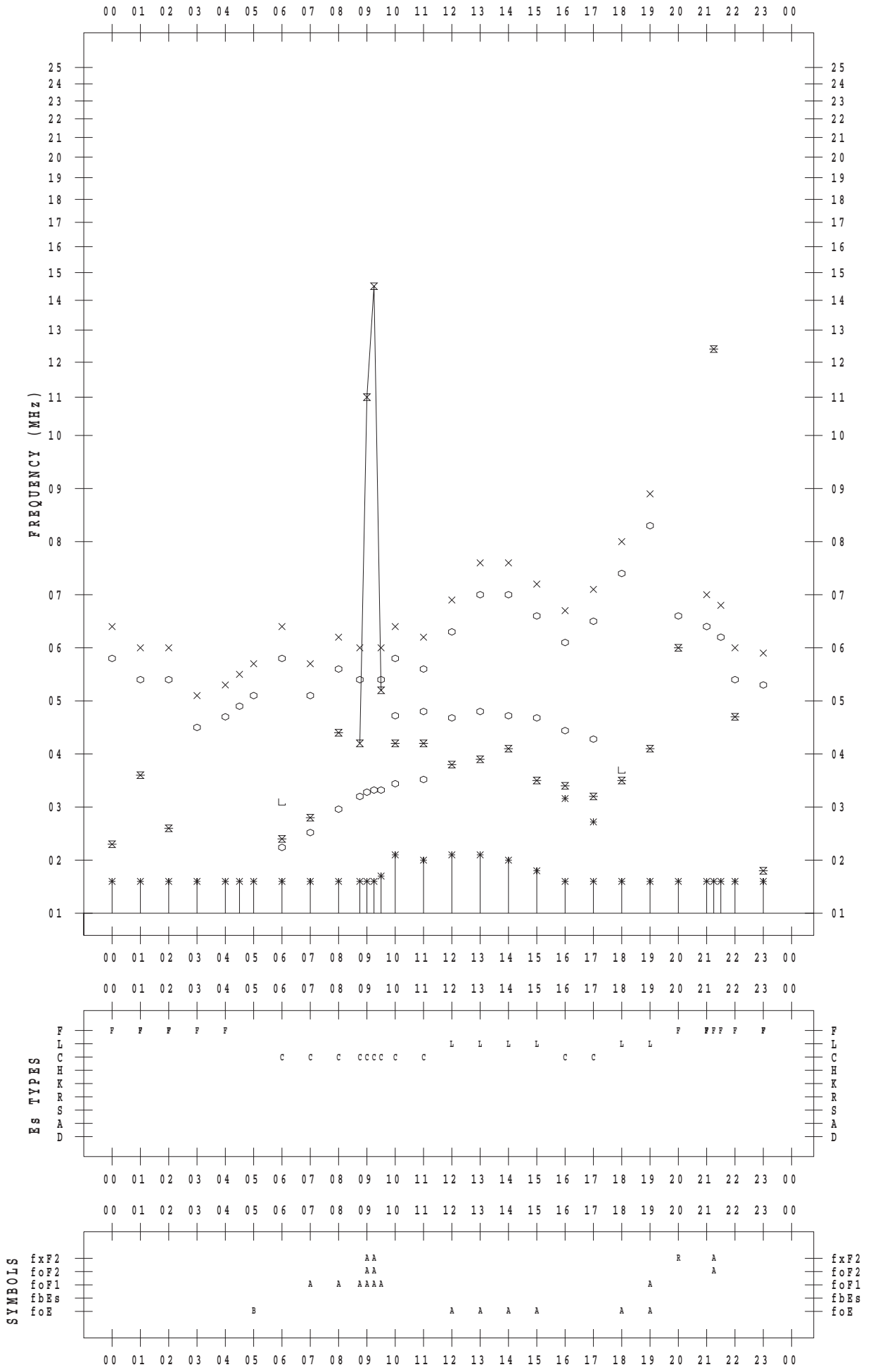
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2016/ 5/23

135 °E MEAN TIME



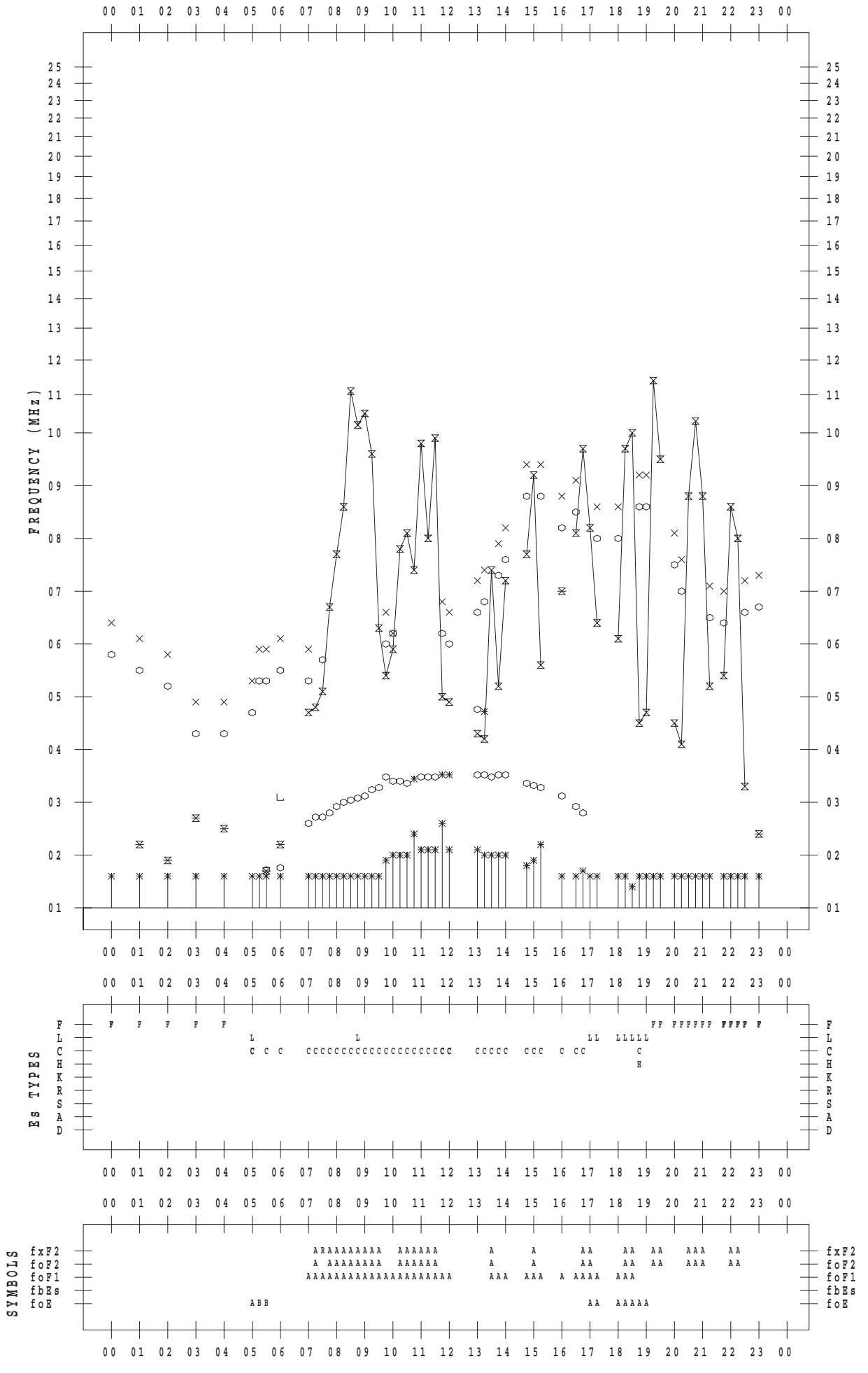
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2016/ 5/24

135 °E MEAN TIME



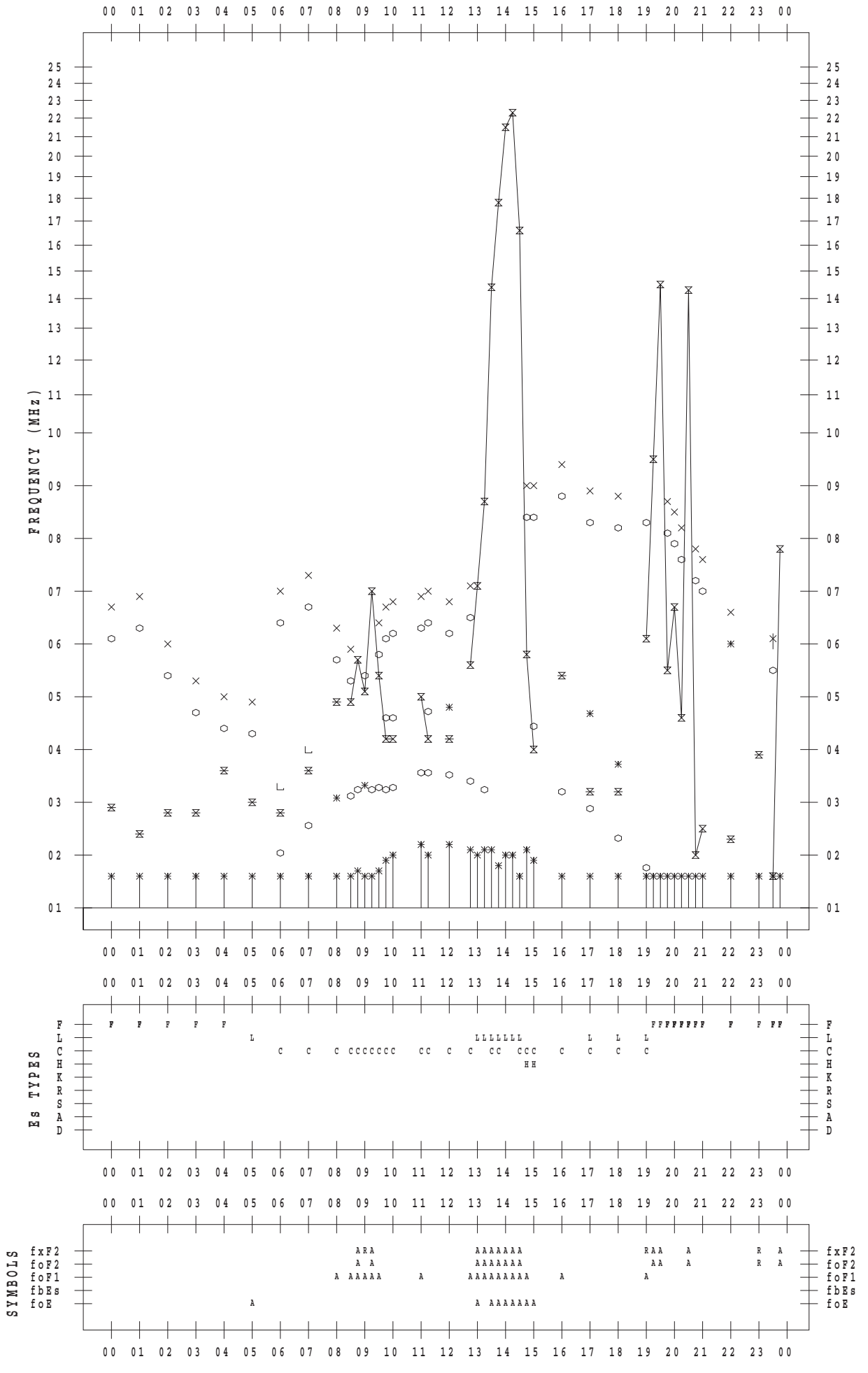
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2016/ 5/25

135 °E MEAN TIME



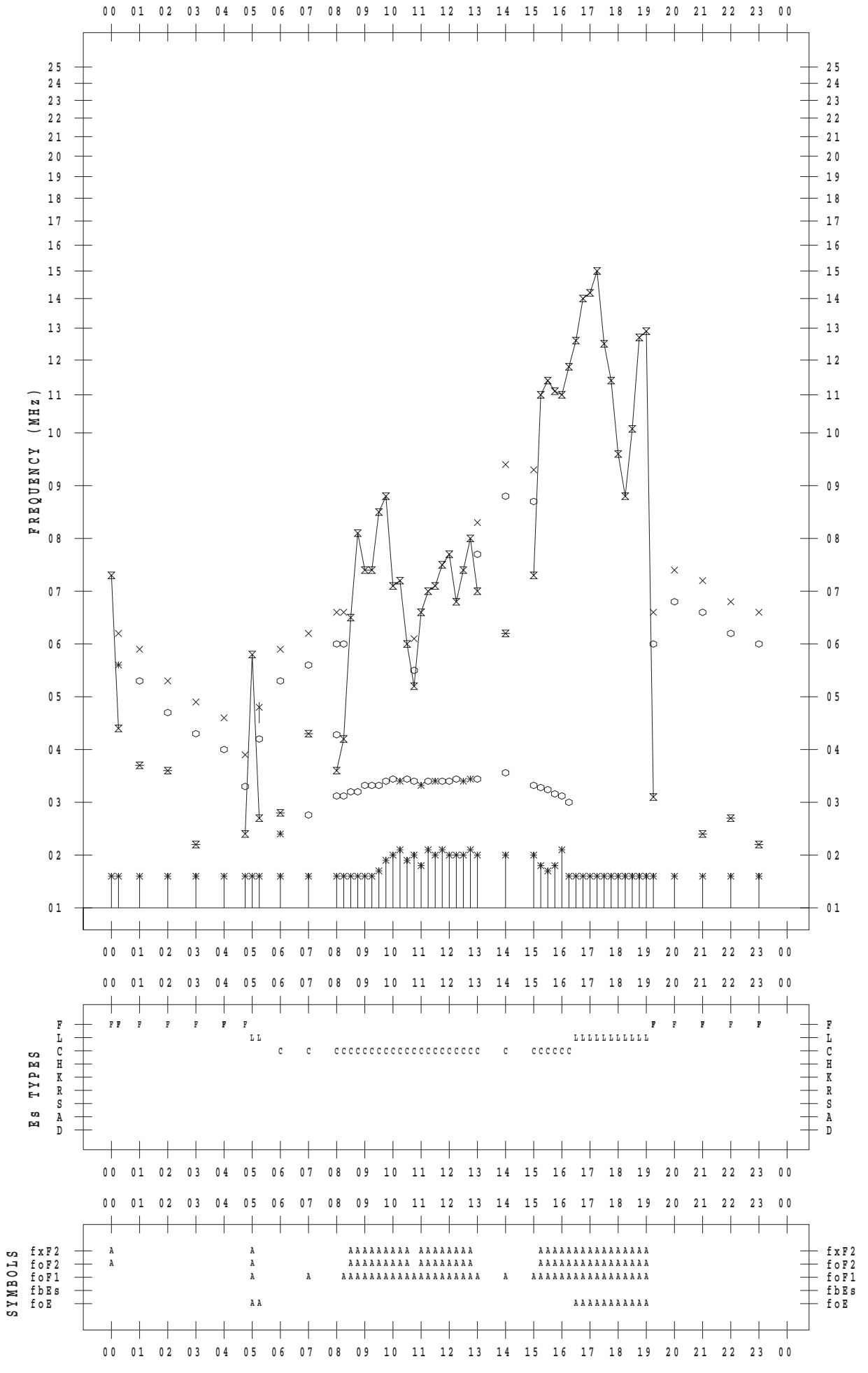
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2016/ 5/26

135 °E MEAN TIME



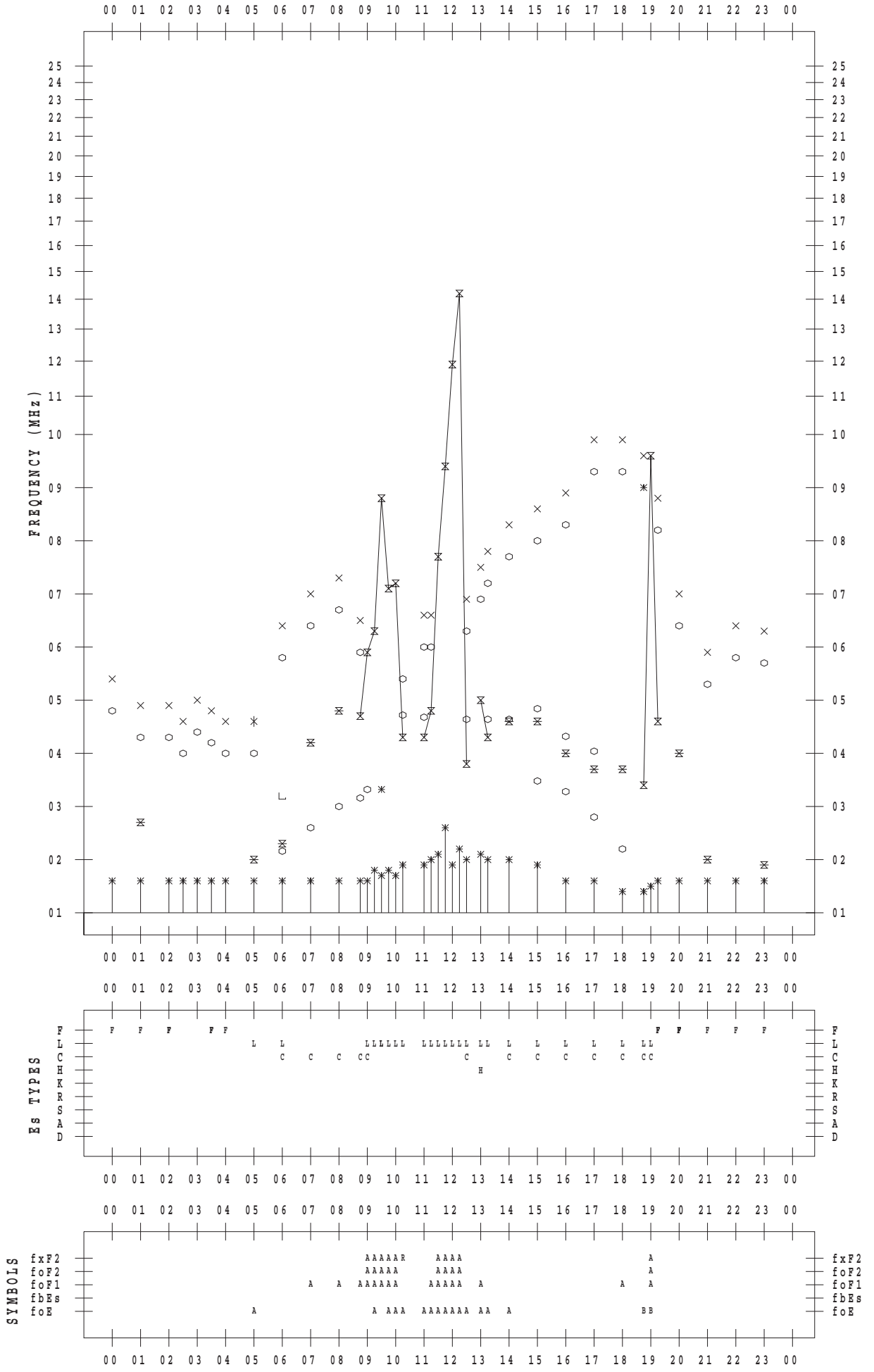
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2016/ 5/27

135 °E MEAN TIME



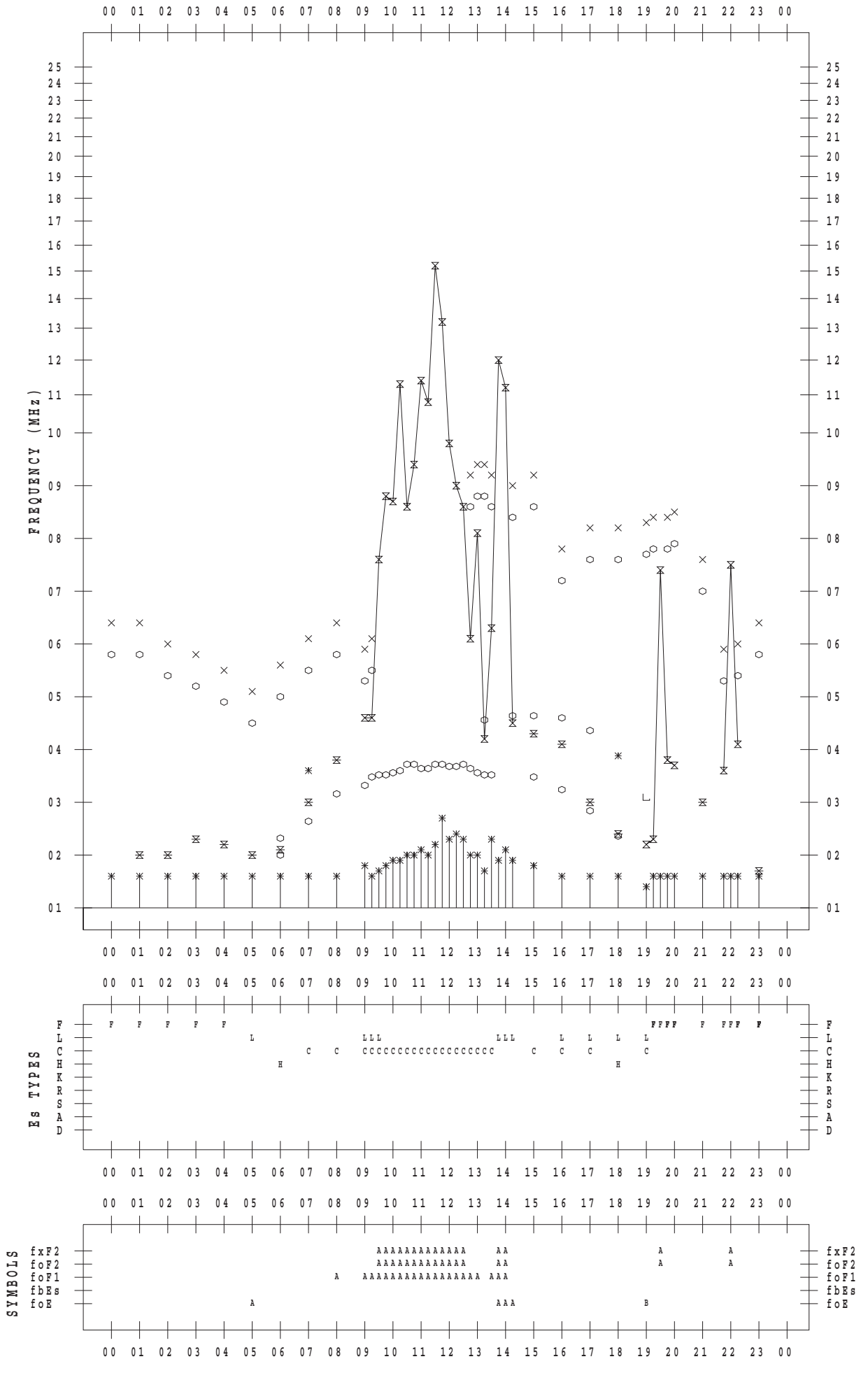
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2016/ 5/28

135 °E MEAN TIME



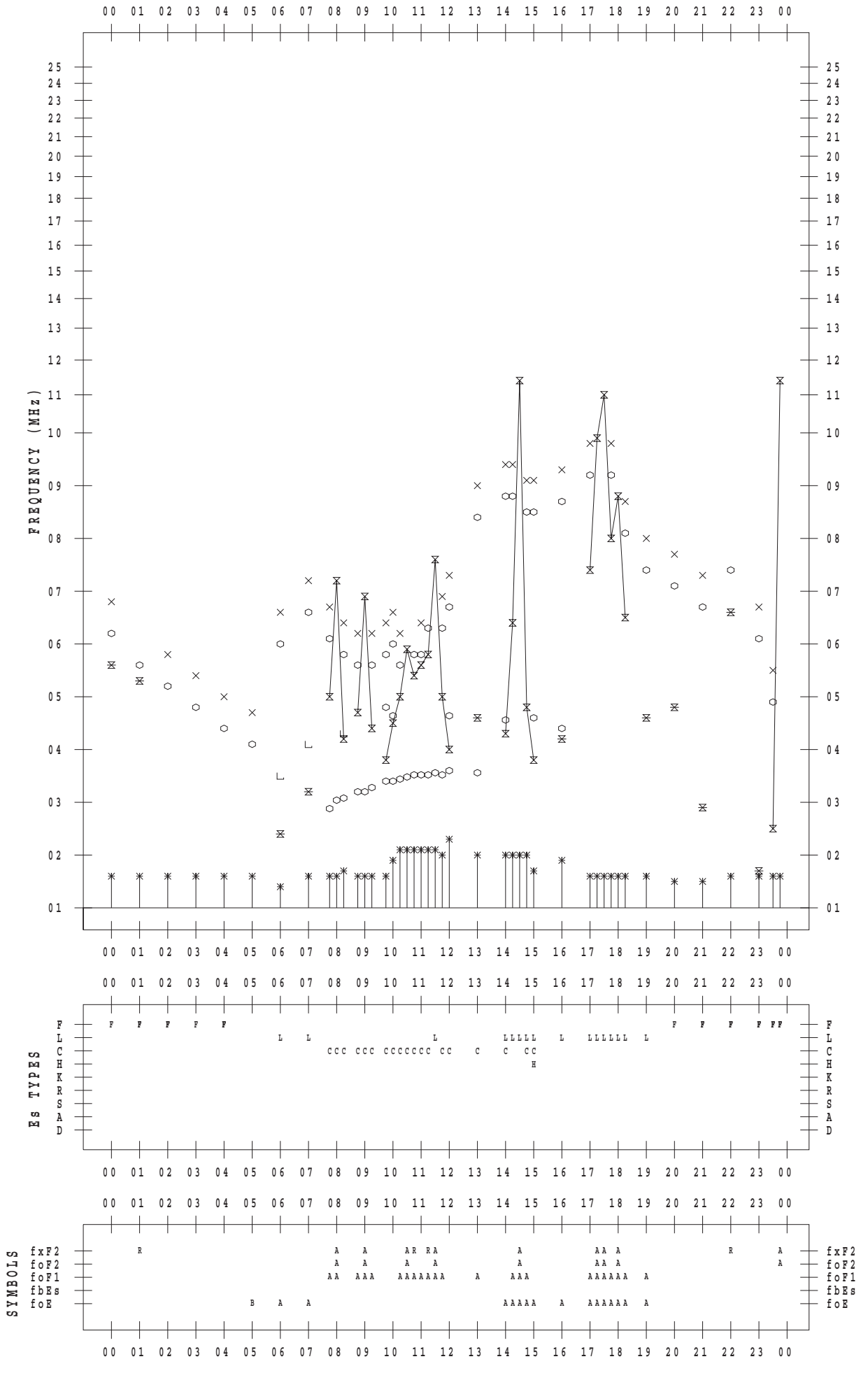
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2016/ 5/29

135 °E MEAN TIME



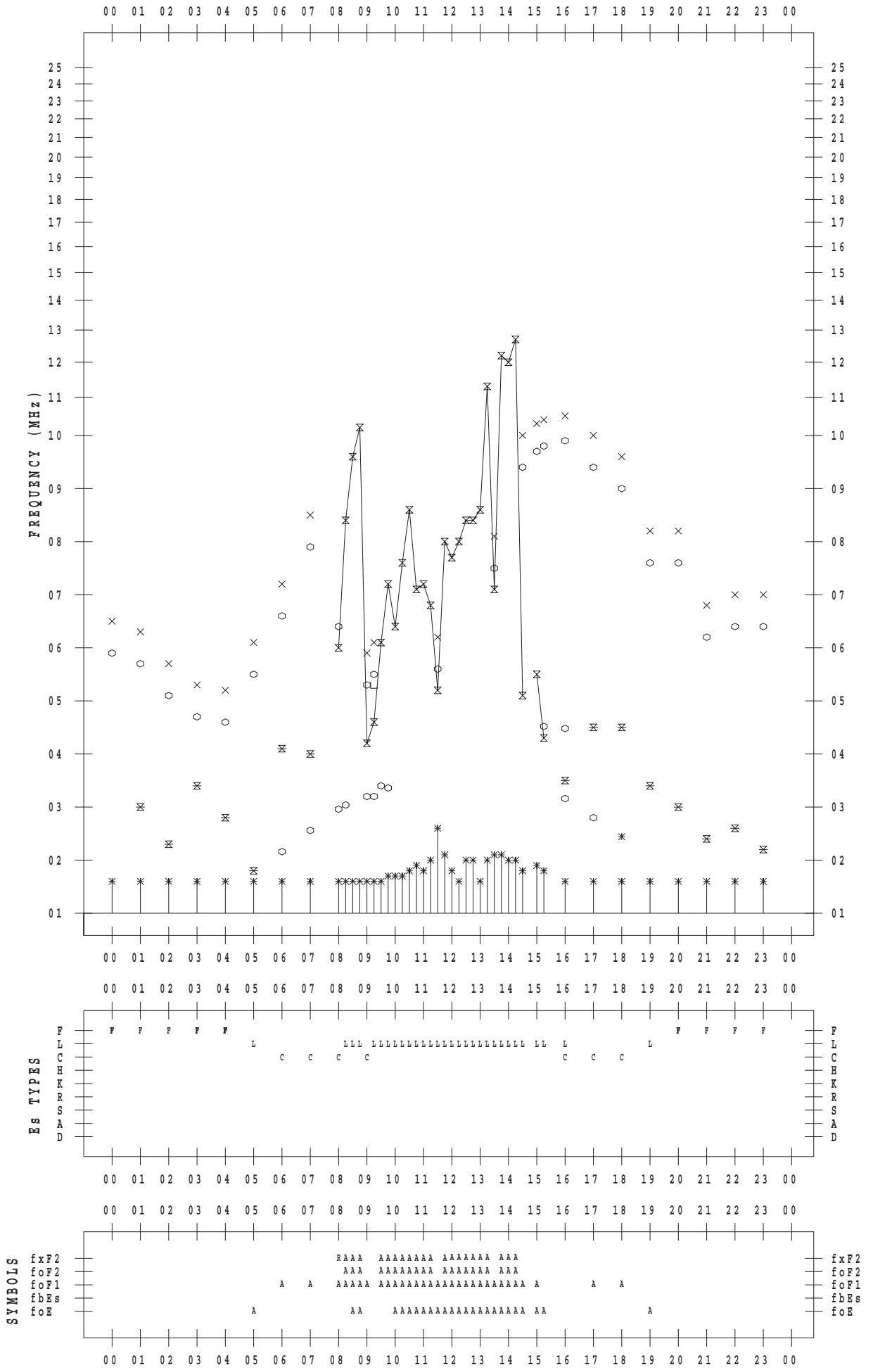
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2016/ 5/30

135 °E MEAN TIME



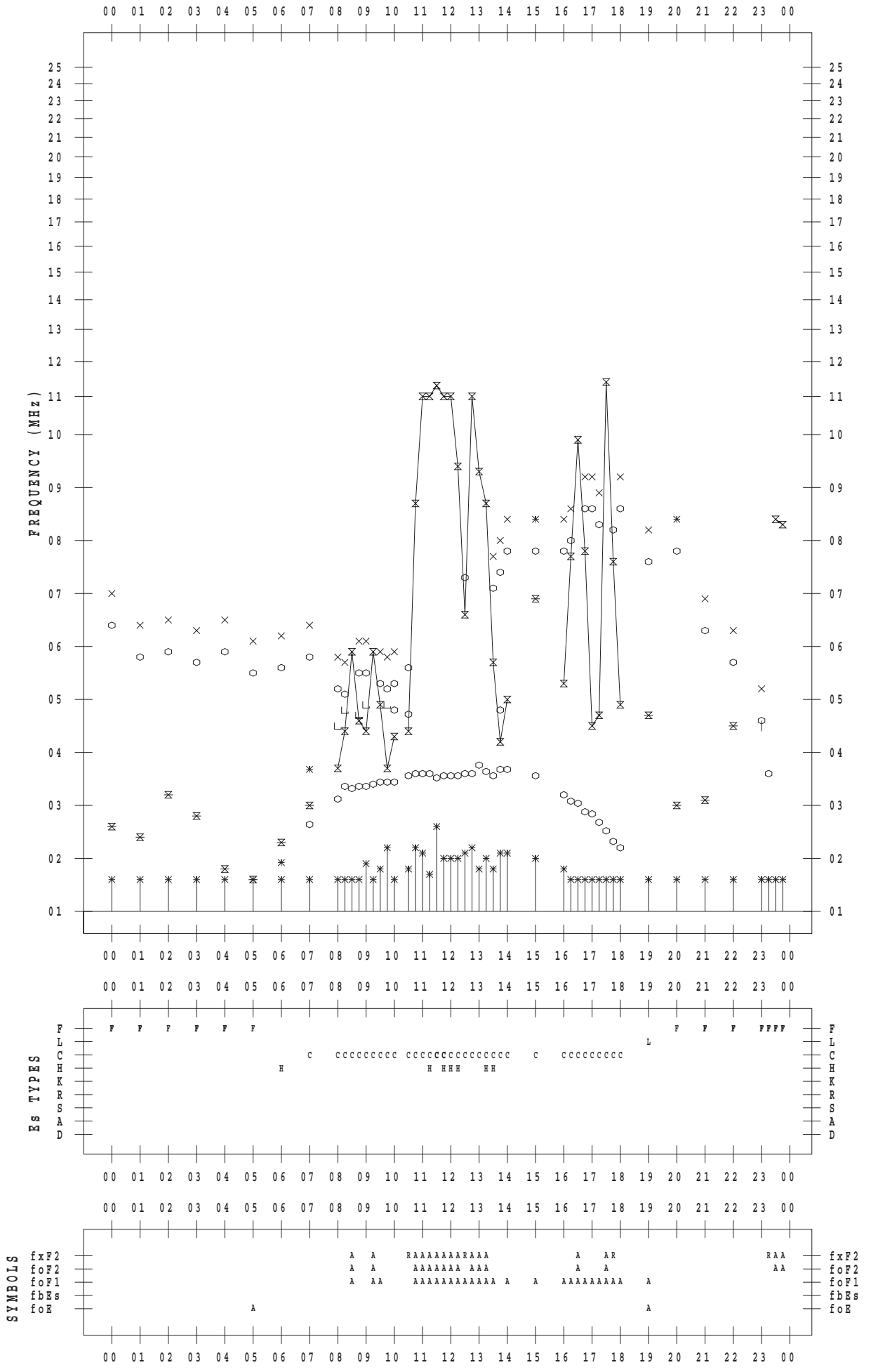
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2016/ 5/31

135 °E MEAN TIME



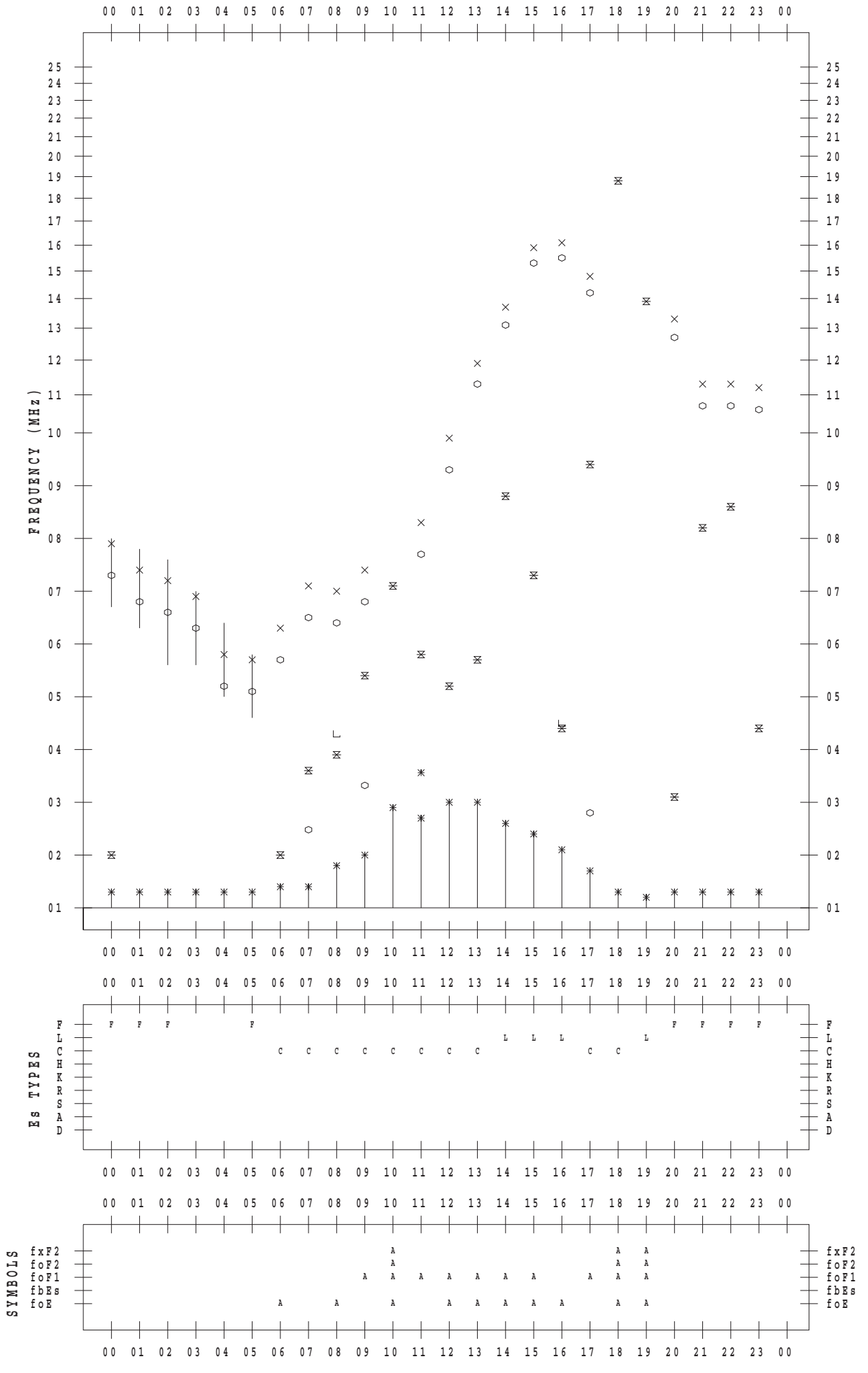
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2016/ 5/ 1

135 °E MEAN TIME



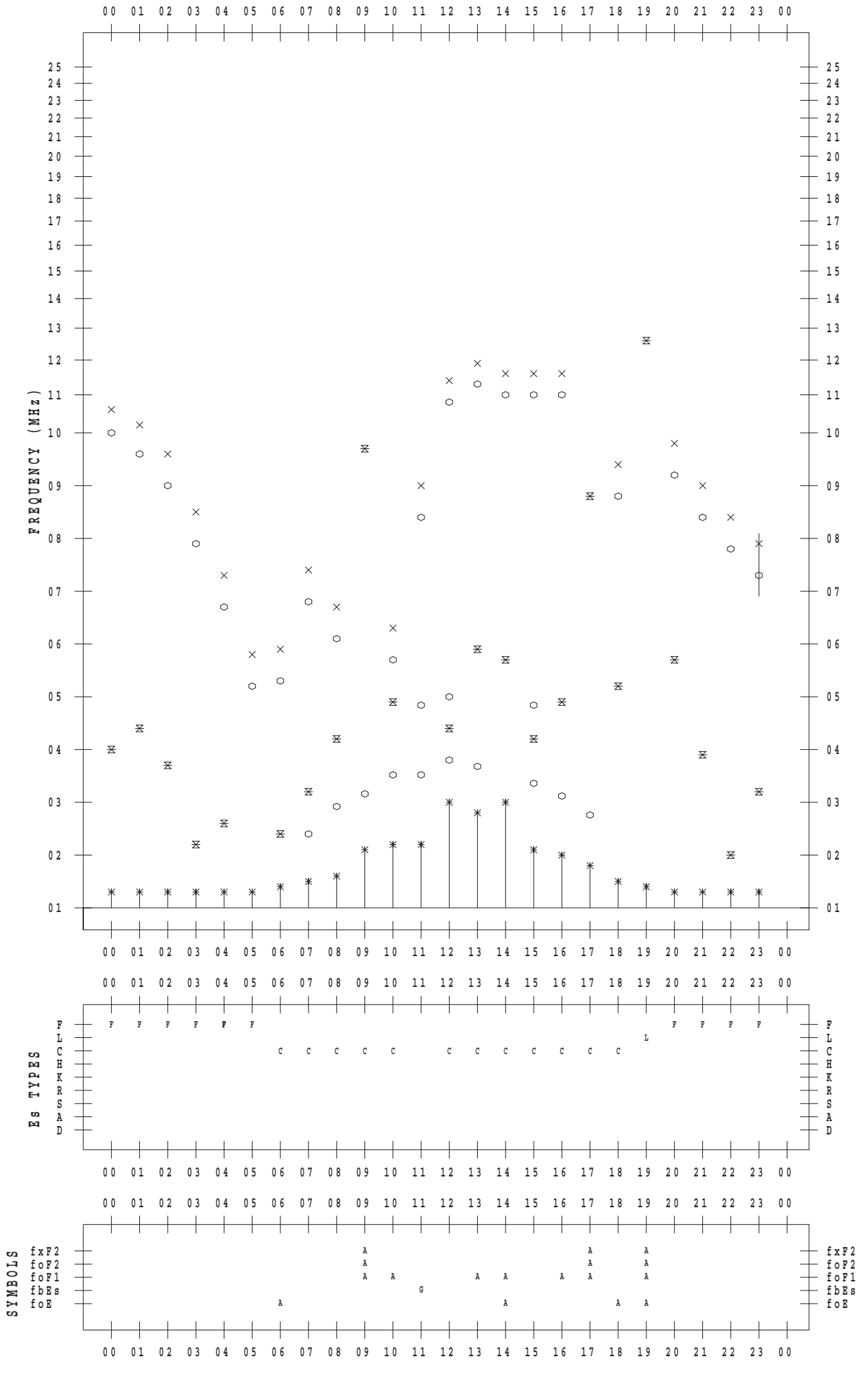
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2016/ 5/ 2

135 °E MEAN TIME



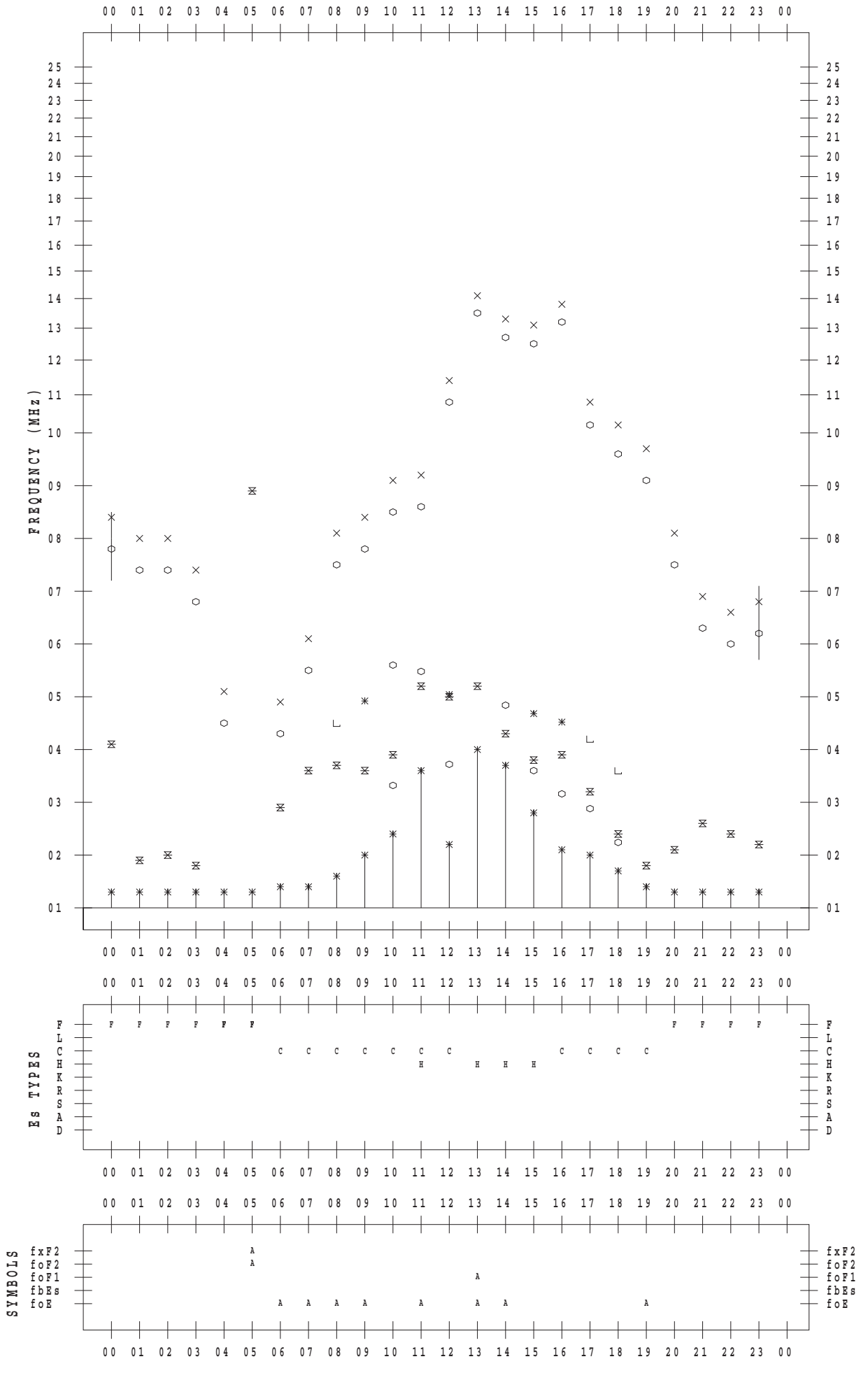
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2016/ 5/ 3

135 °E MEAN TIME



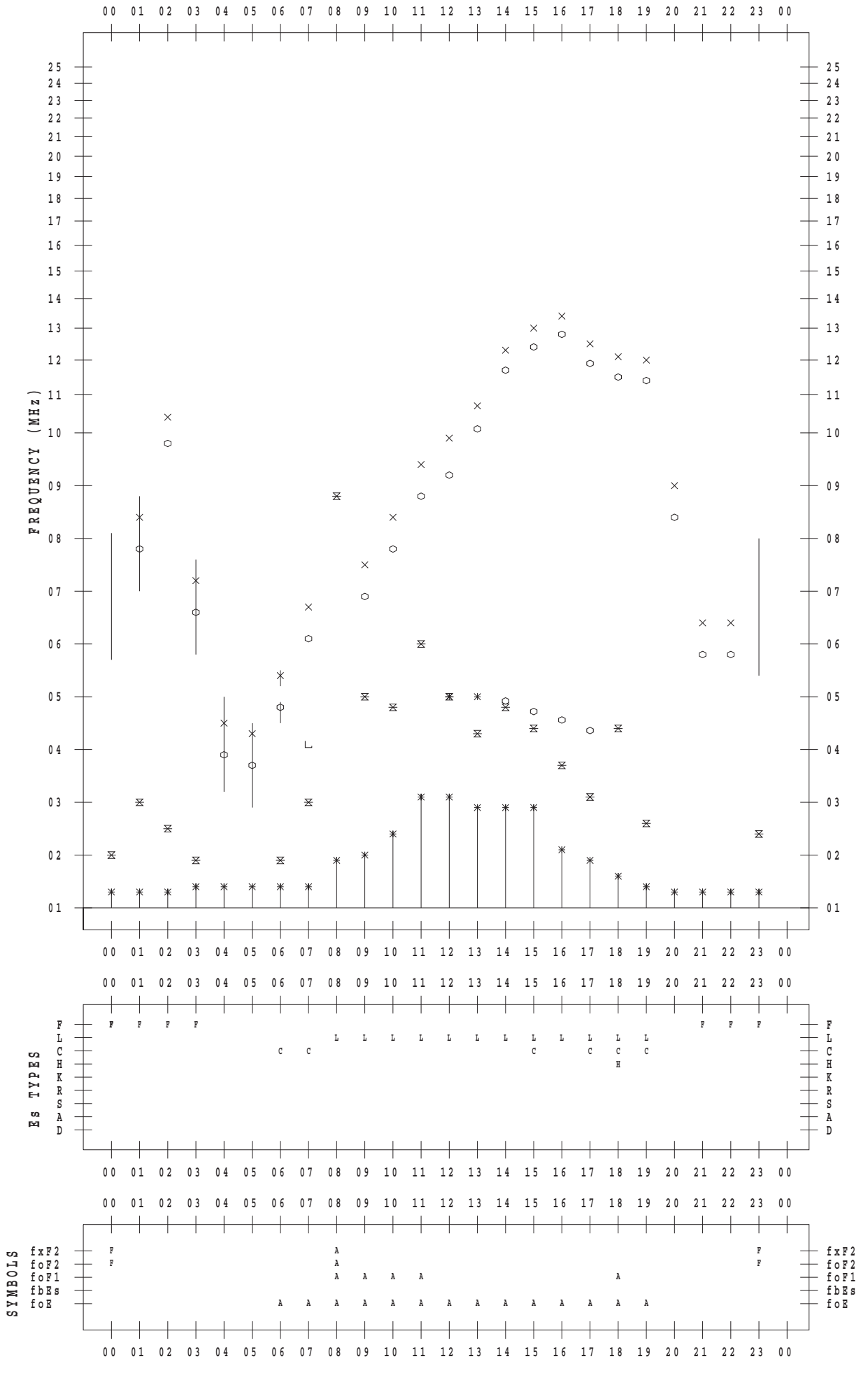
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2016/ 5/ 4

135 °E MEAN TIME



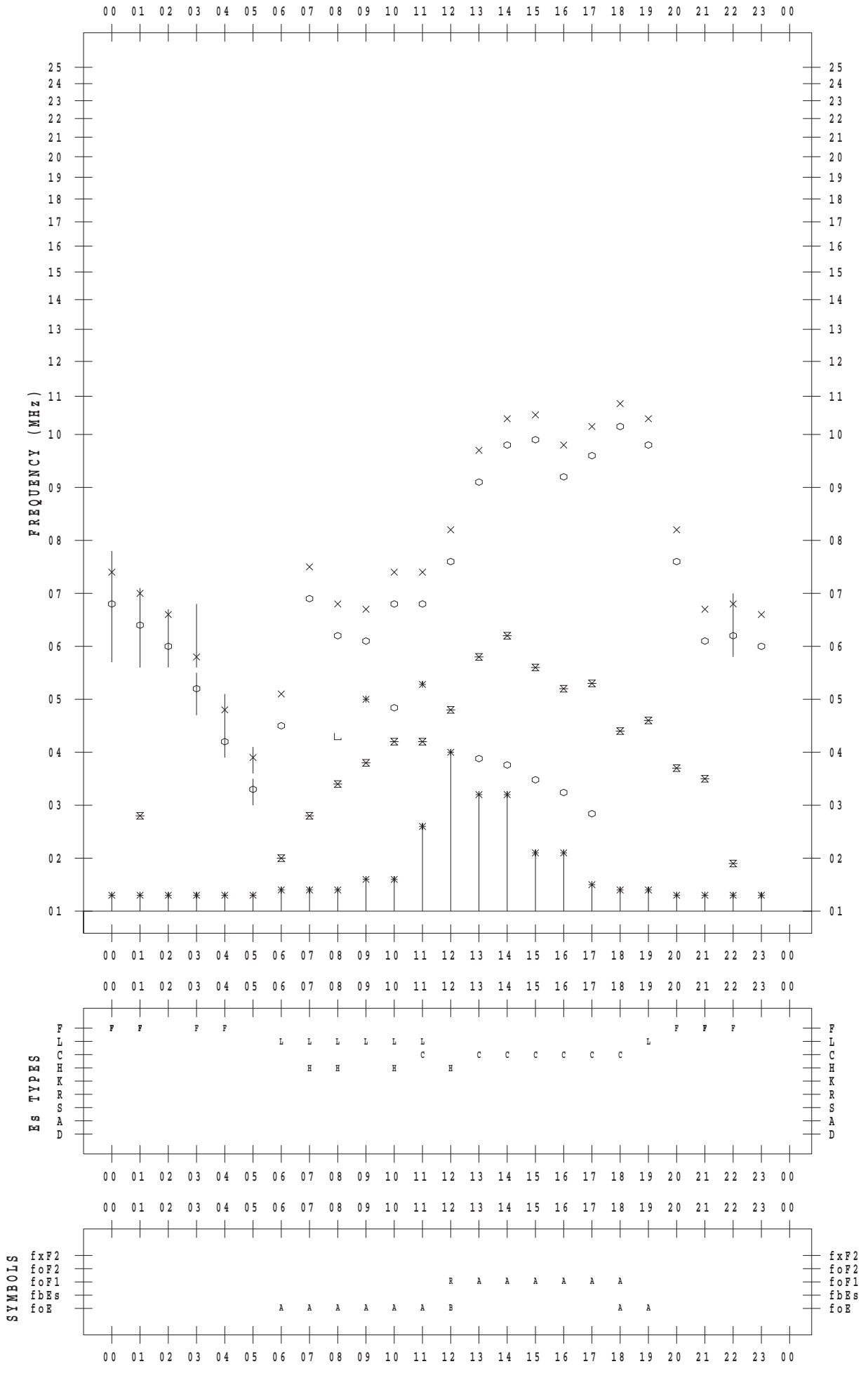
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2016/ 5/ 5

135 °E MEAN TIME



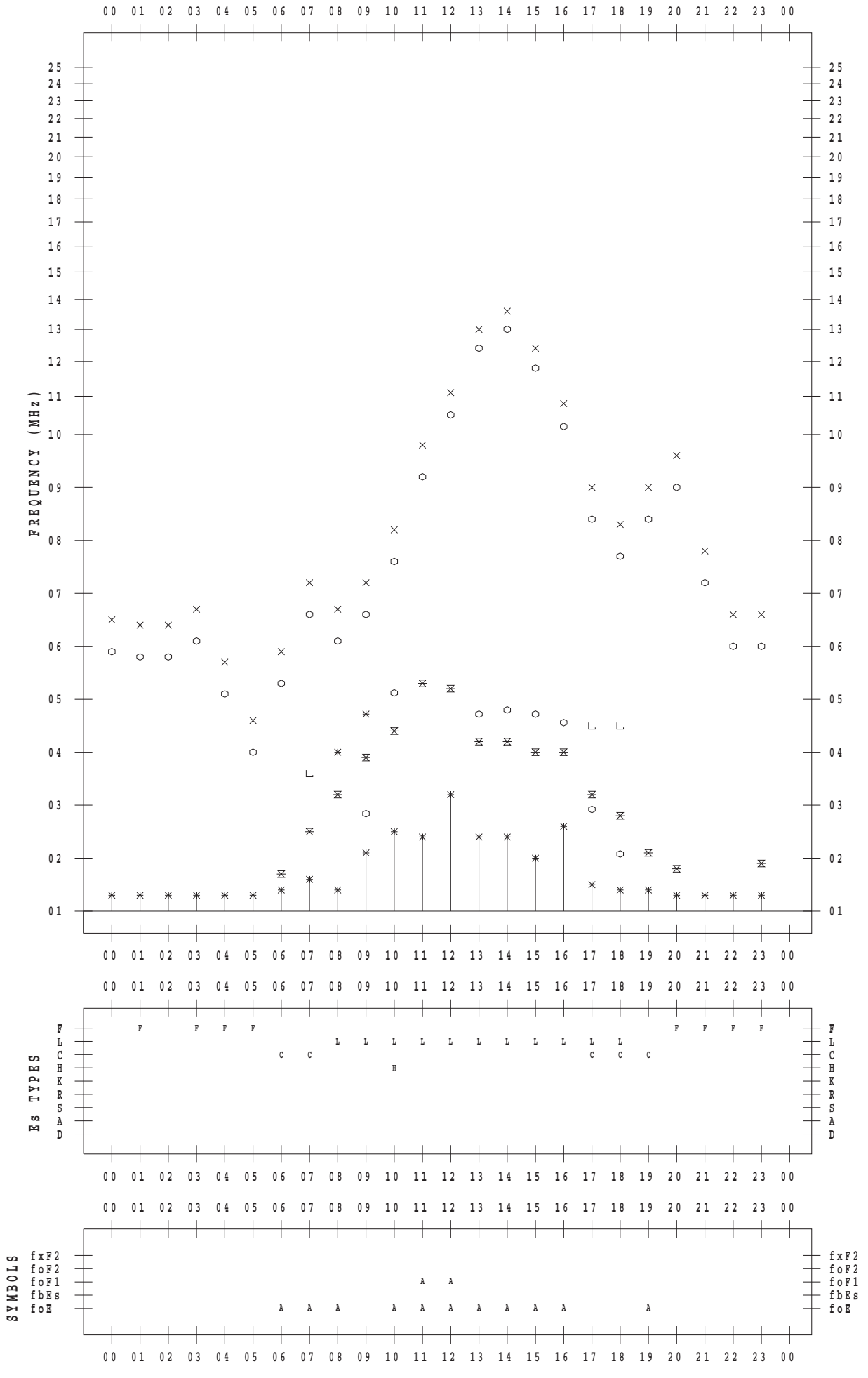
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2016/ 5/ 6

135 °E MEAN TIME



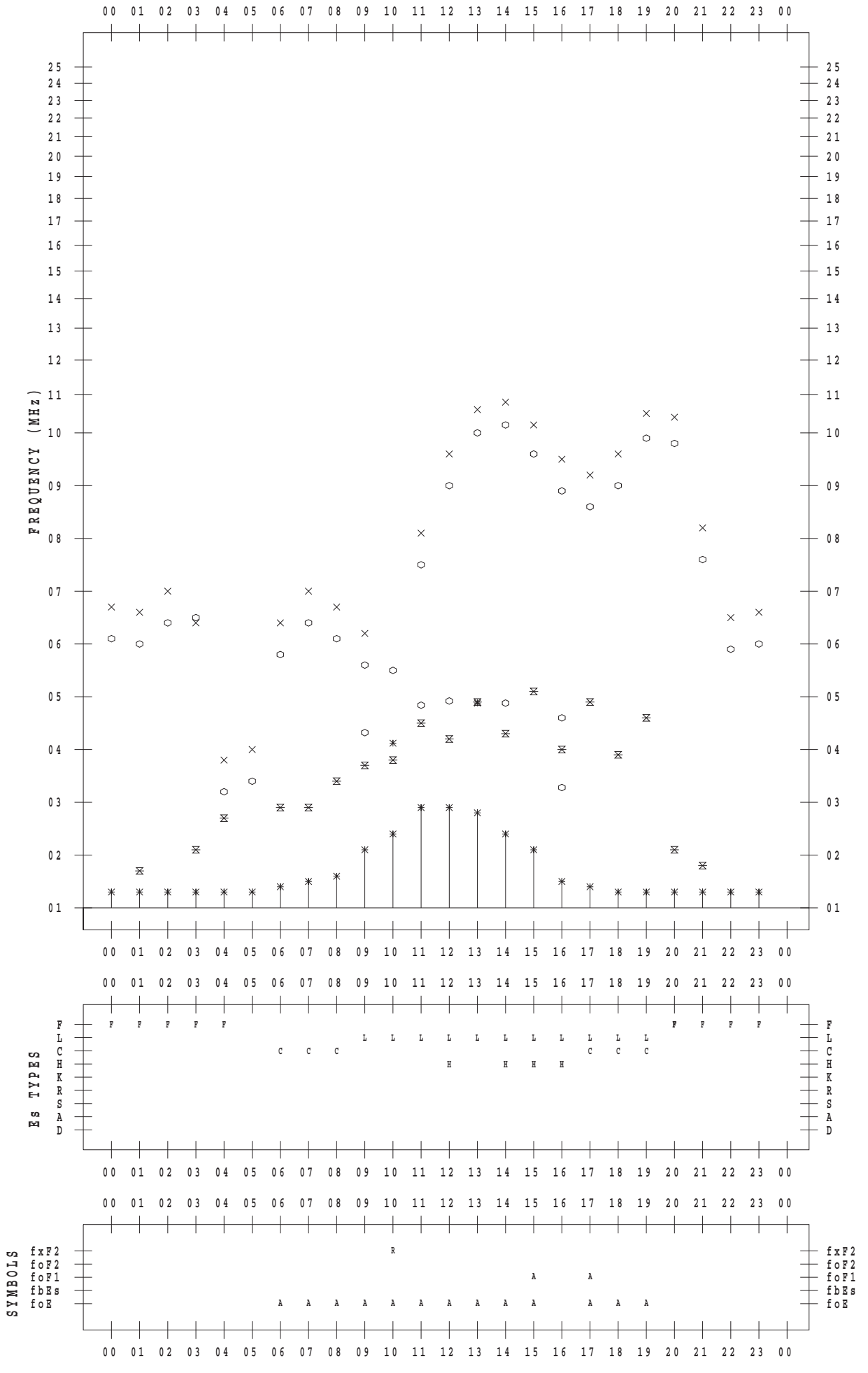
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2016/ 5/ 7

135 °E MEAN TIME



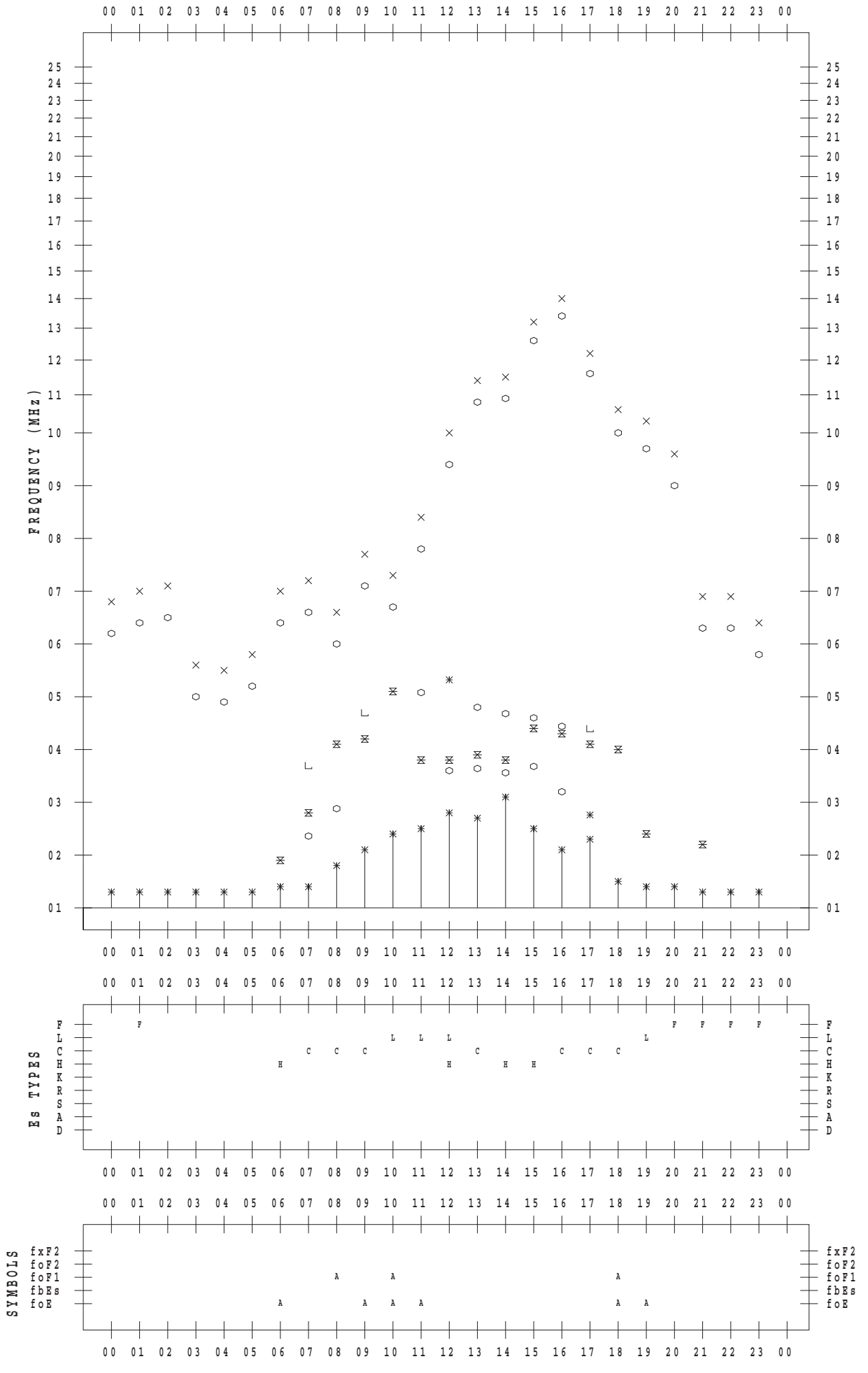
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2016/ 5/ 8

135 °E MEAN TIME



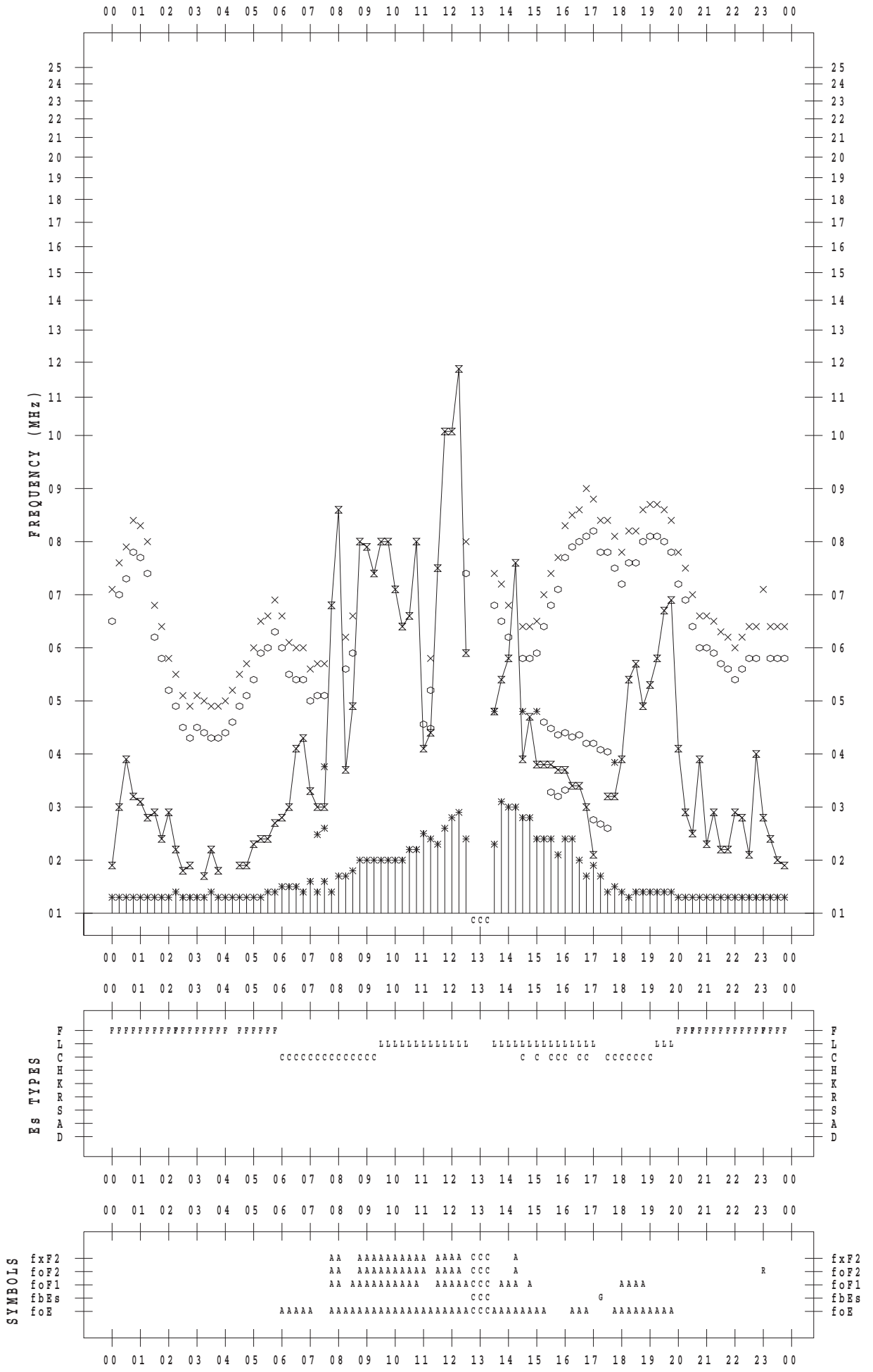
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2016/ 5/ 9

135 °E MEAN TIME



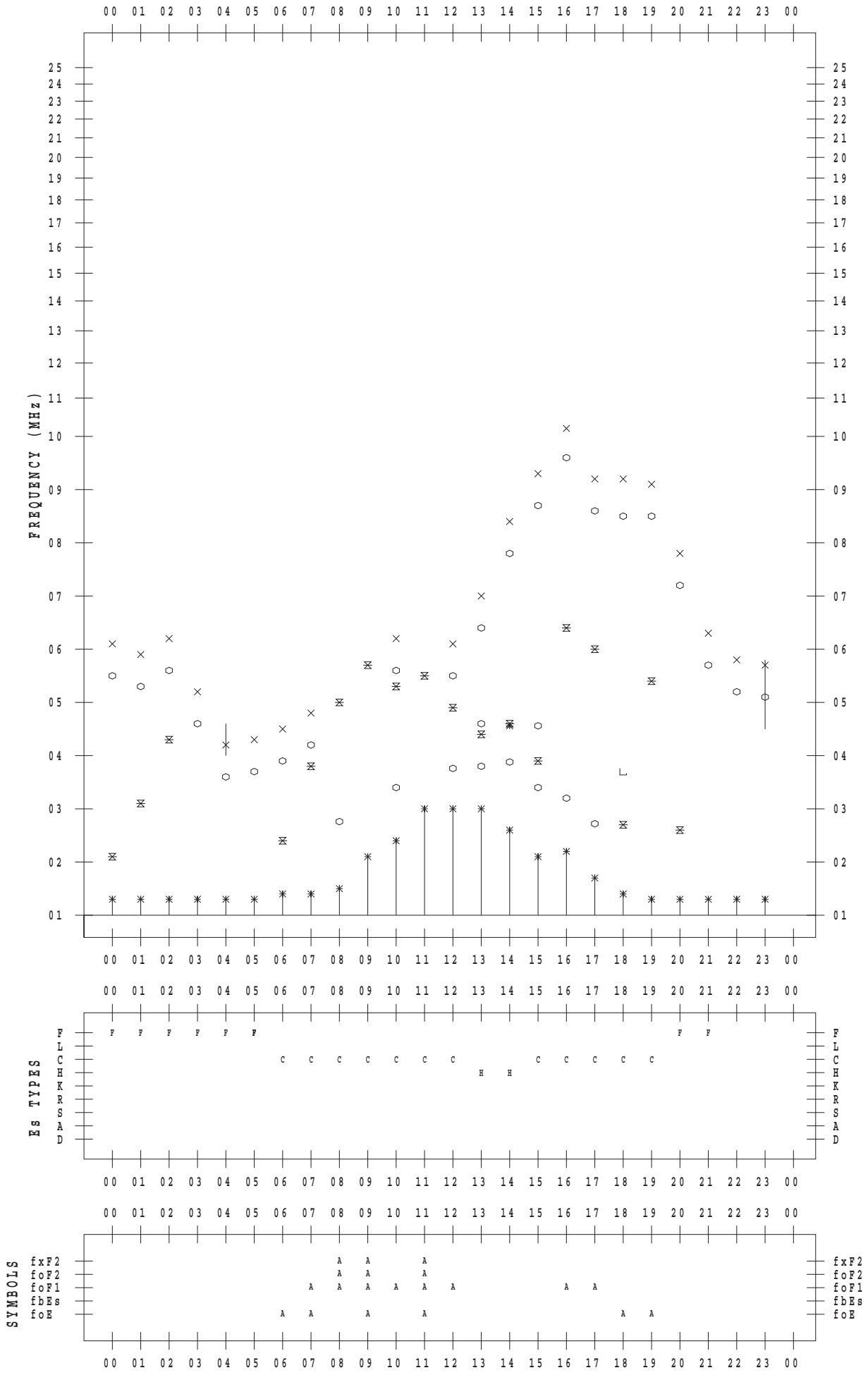
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2016/ 5/10

135 °E MEAN TIME



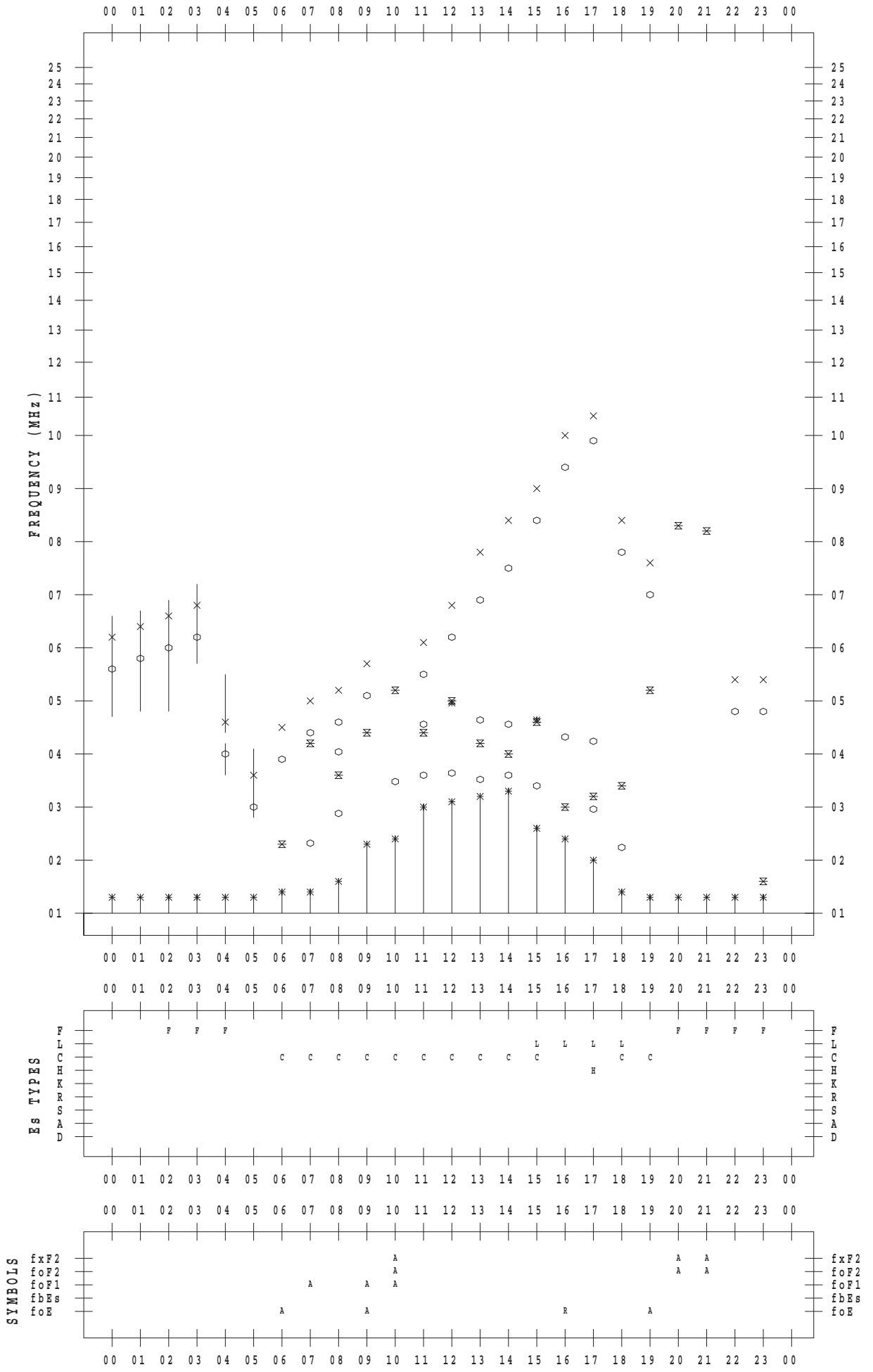
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2016/ 5/11

135 °E MEAN TIME



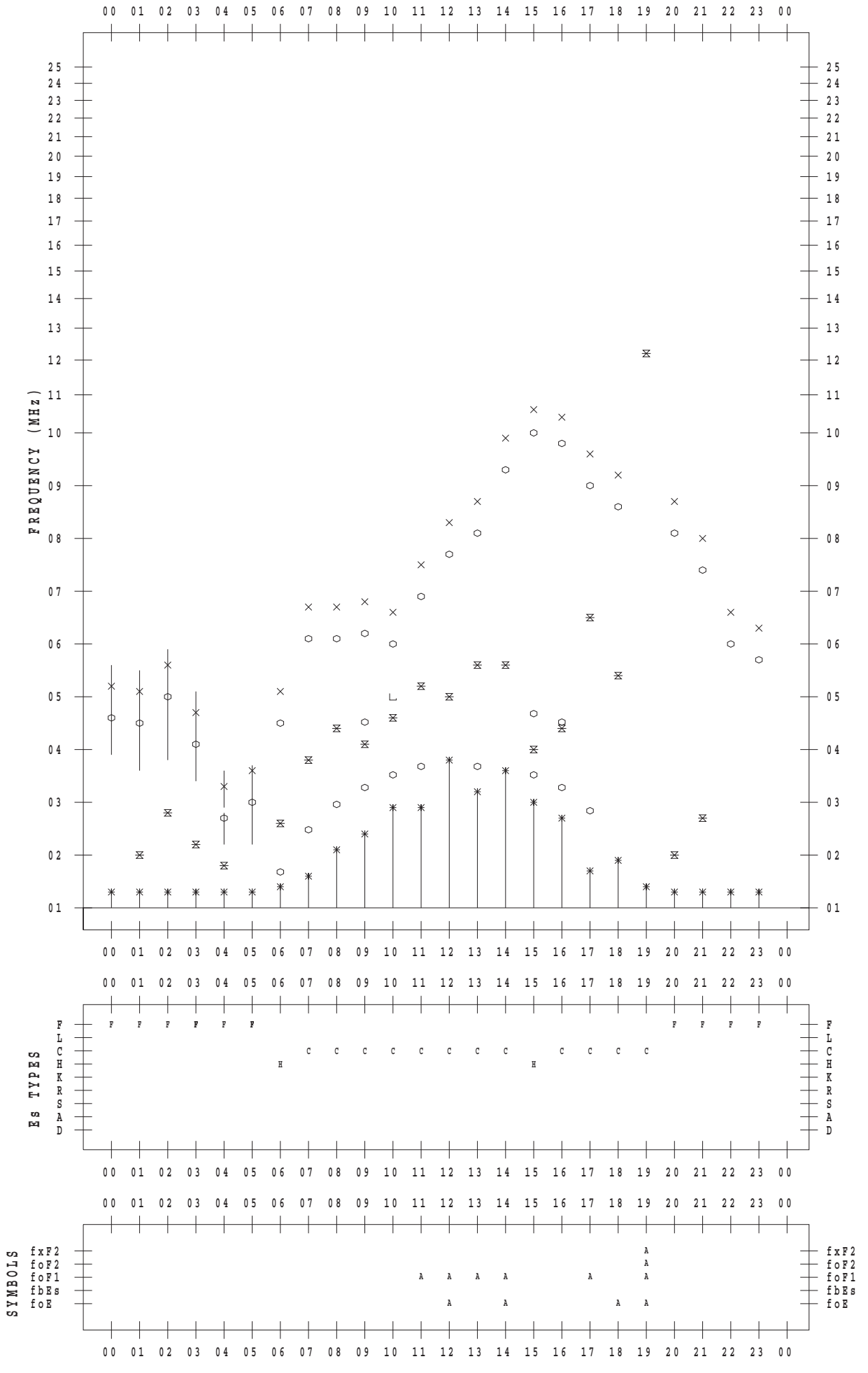
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2016/ 5/12

135 °E MEAN TIME



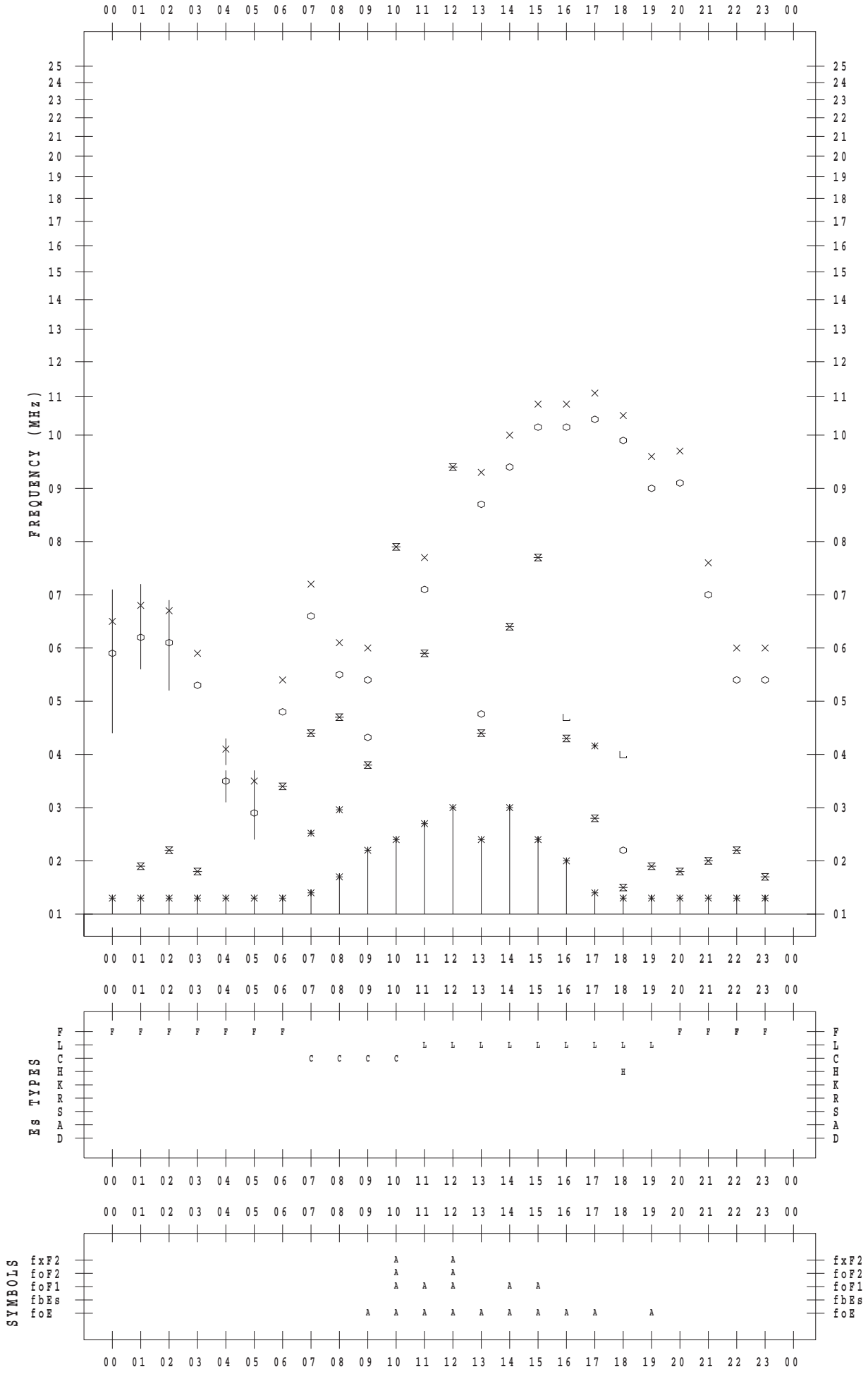
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2016/ 5/13

135 °E MEAN TIME



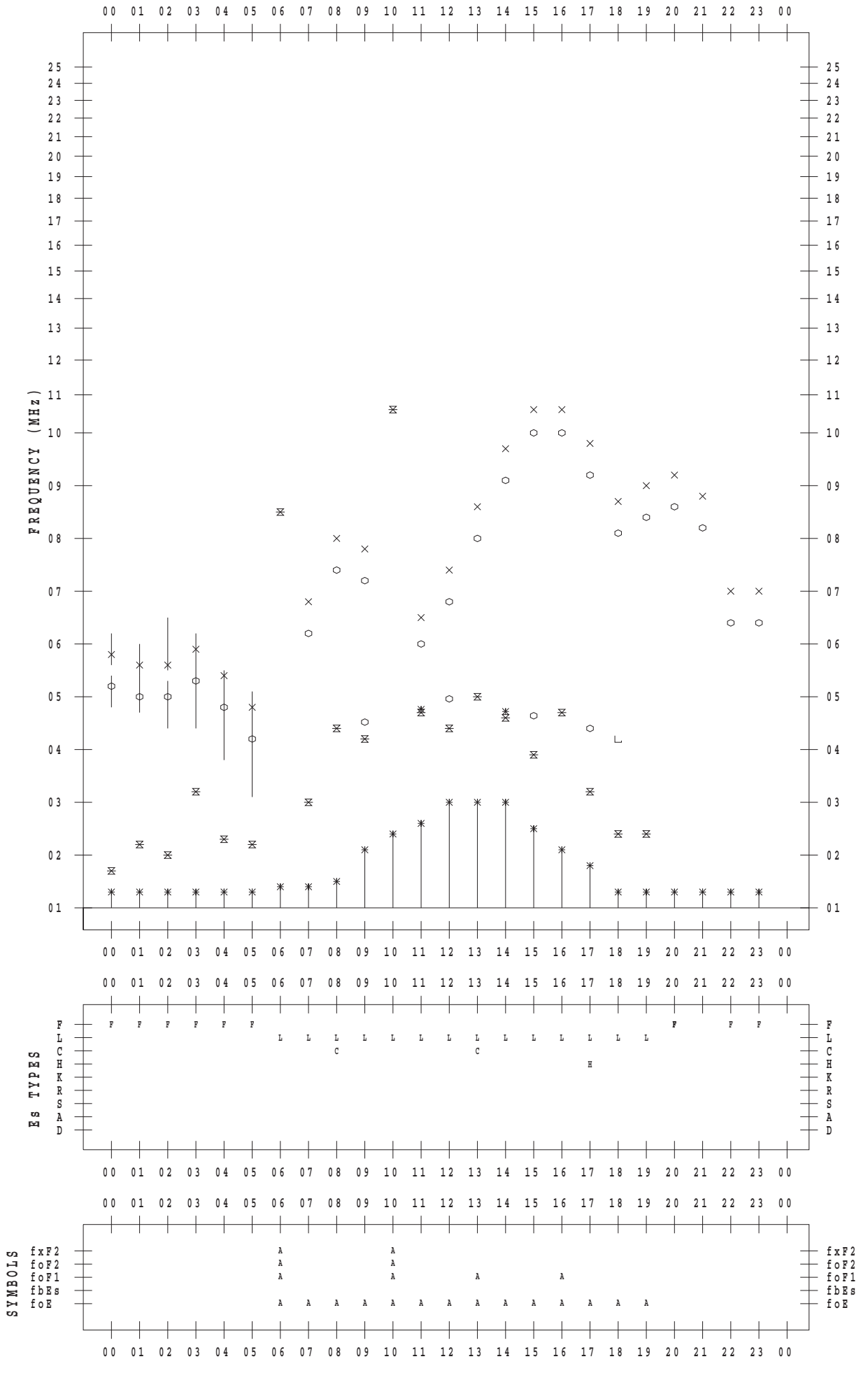
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2016/ 5/14

135 °E MEAN TIME



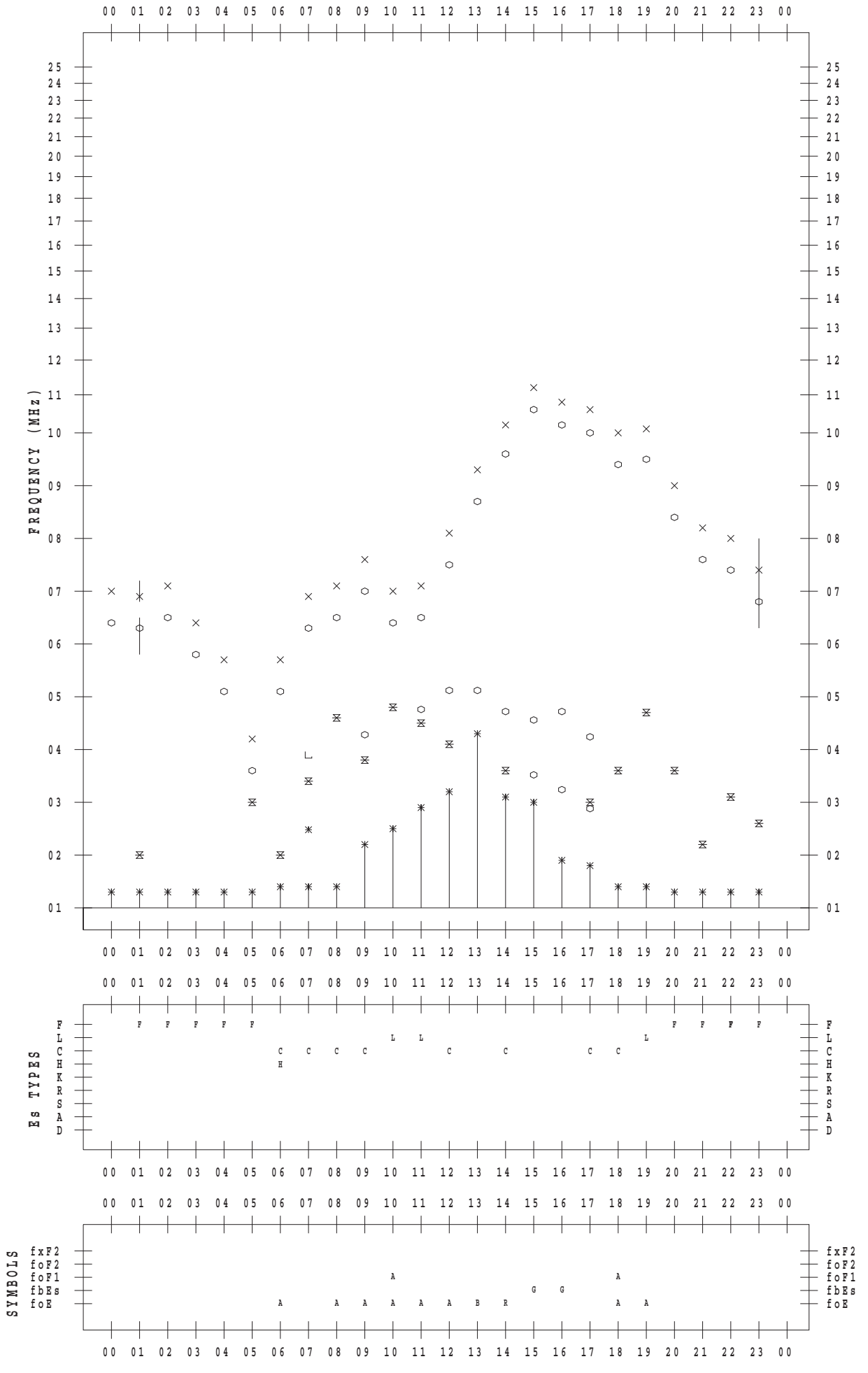
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2016/ 5/15

135 °E MEAN TIME



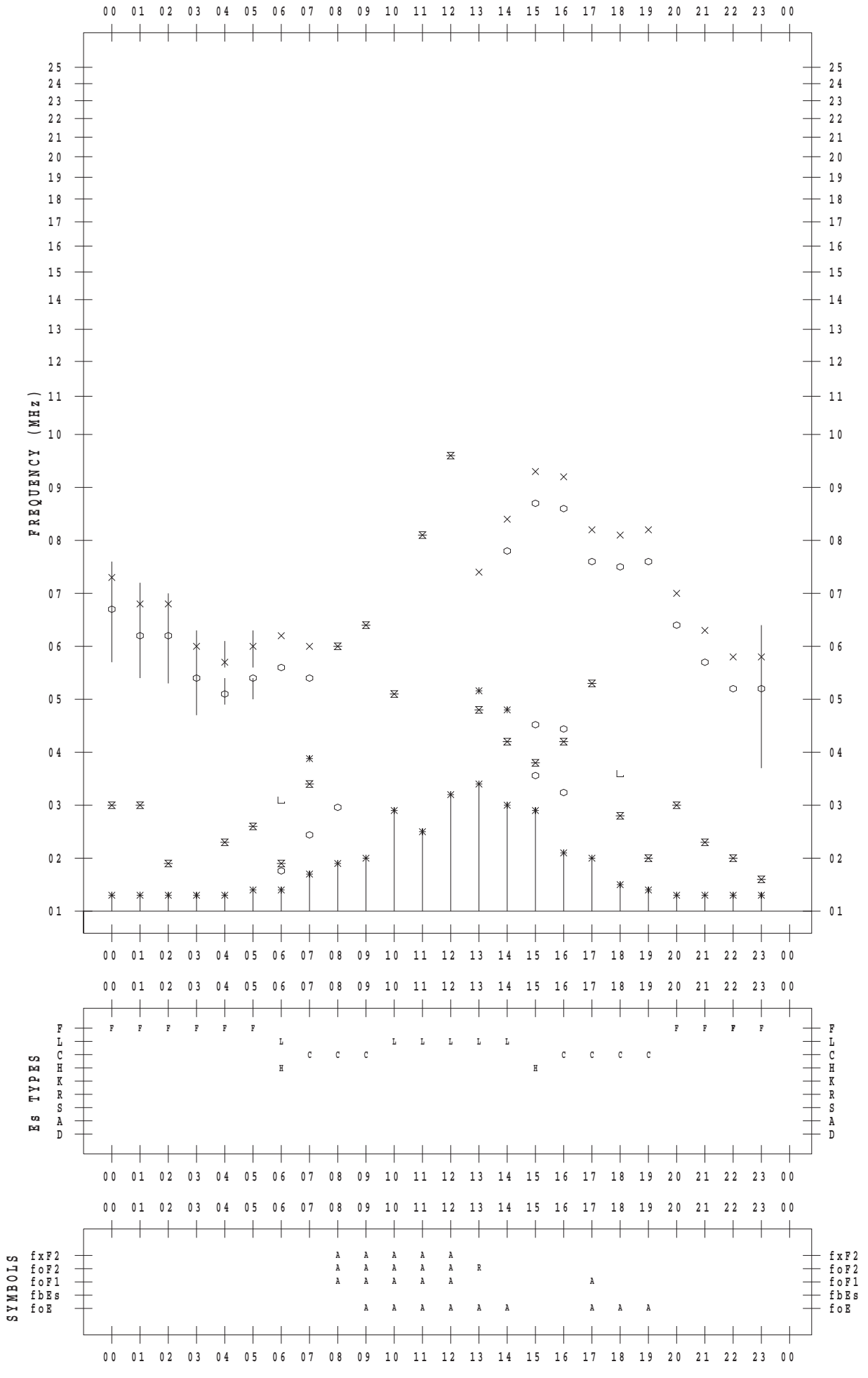
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2016/ 5/16

135 °E MEAN TIME



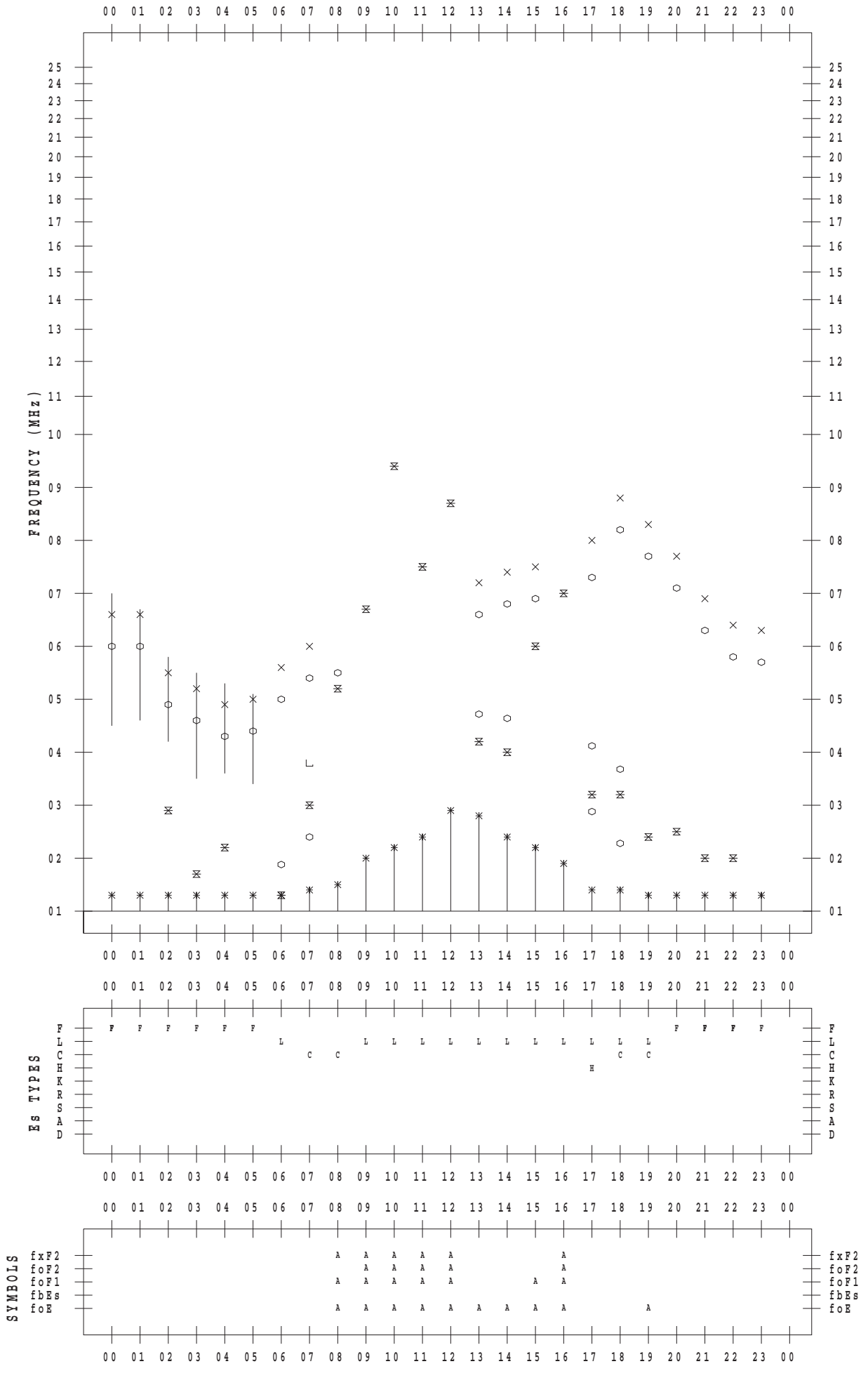
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2016/ 5/17

135 °E MEAN TIME



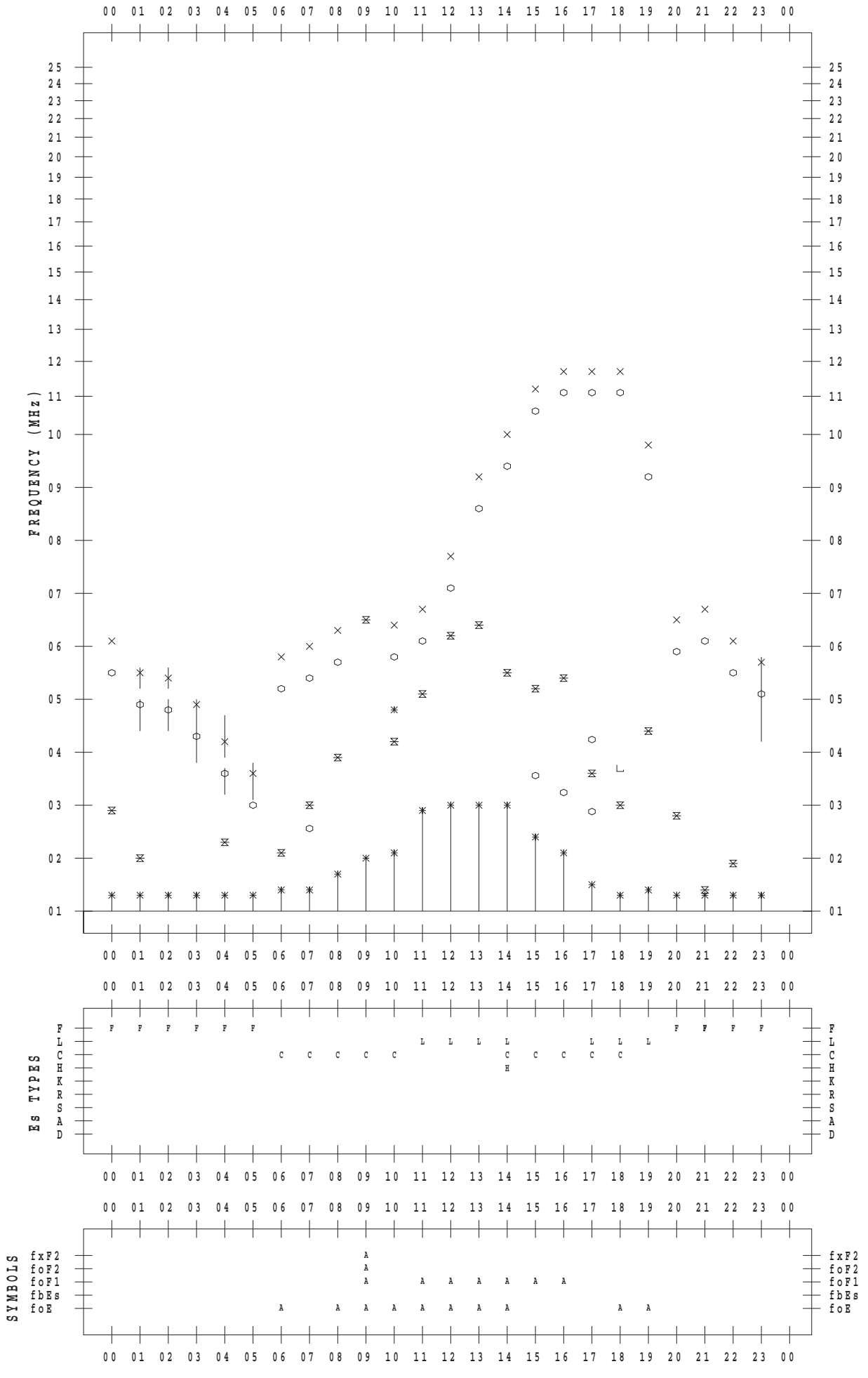
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2016/ 5/18

135 °E MEAN TIME



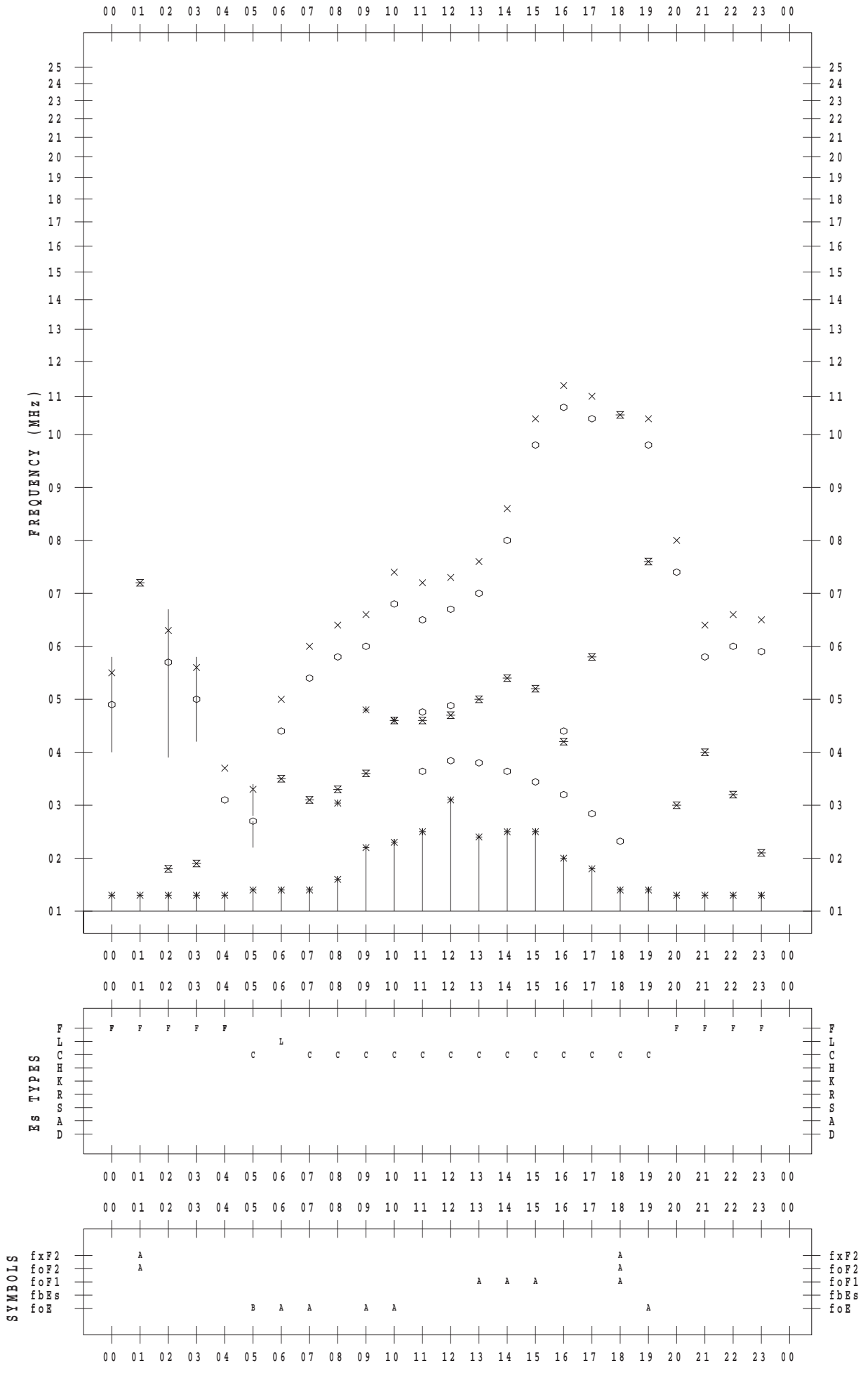
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2016/ 5/19

135 °E MEAN TIME



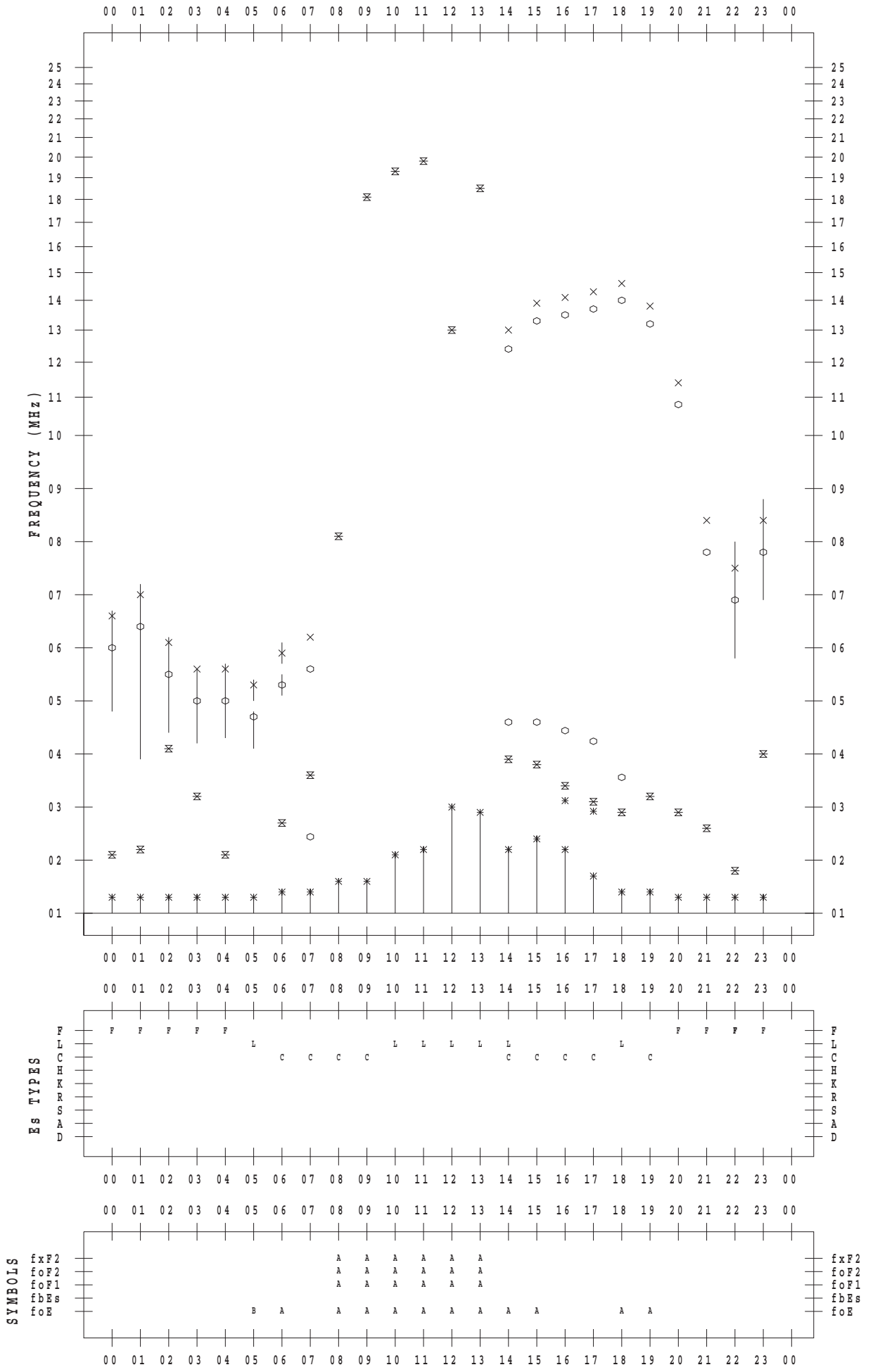
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2016/ 5/20

135 °E MEAN TIME



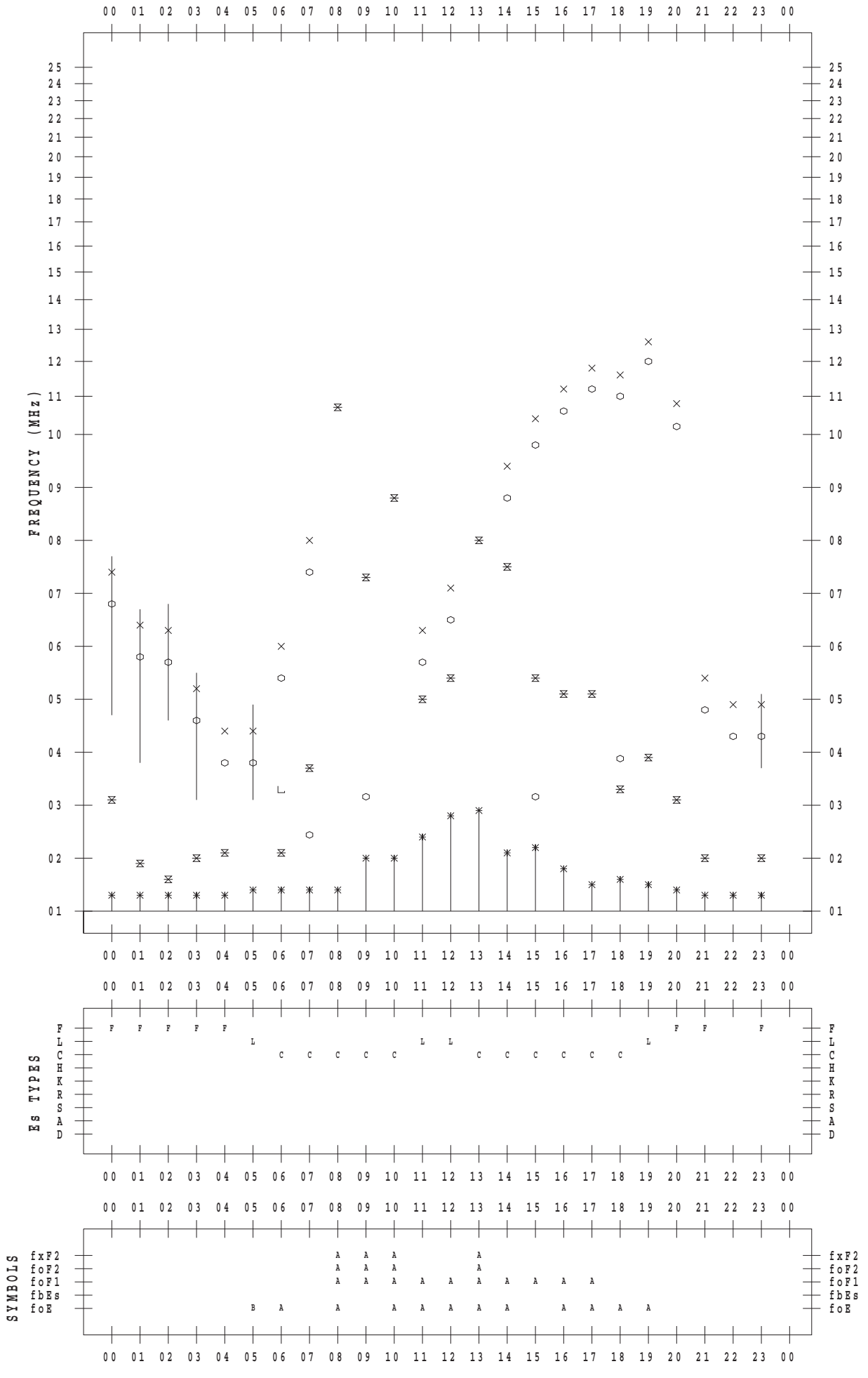
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2016/ 5/21

135 °E MEAN TIME



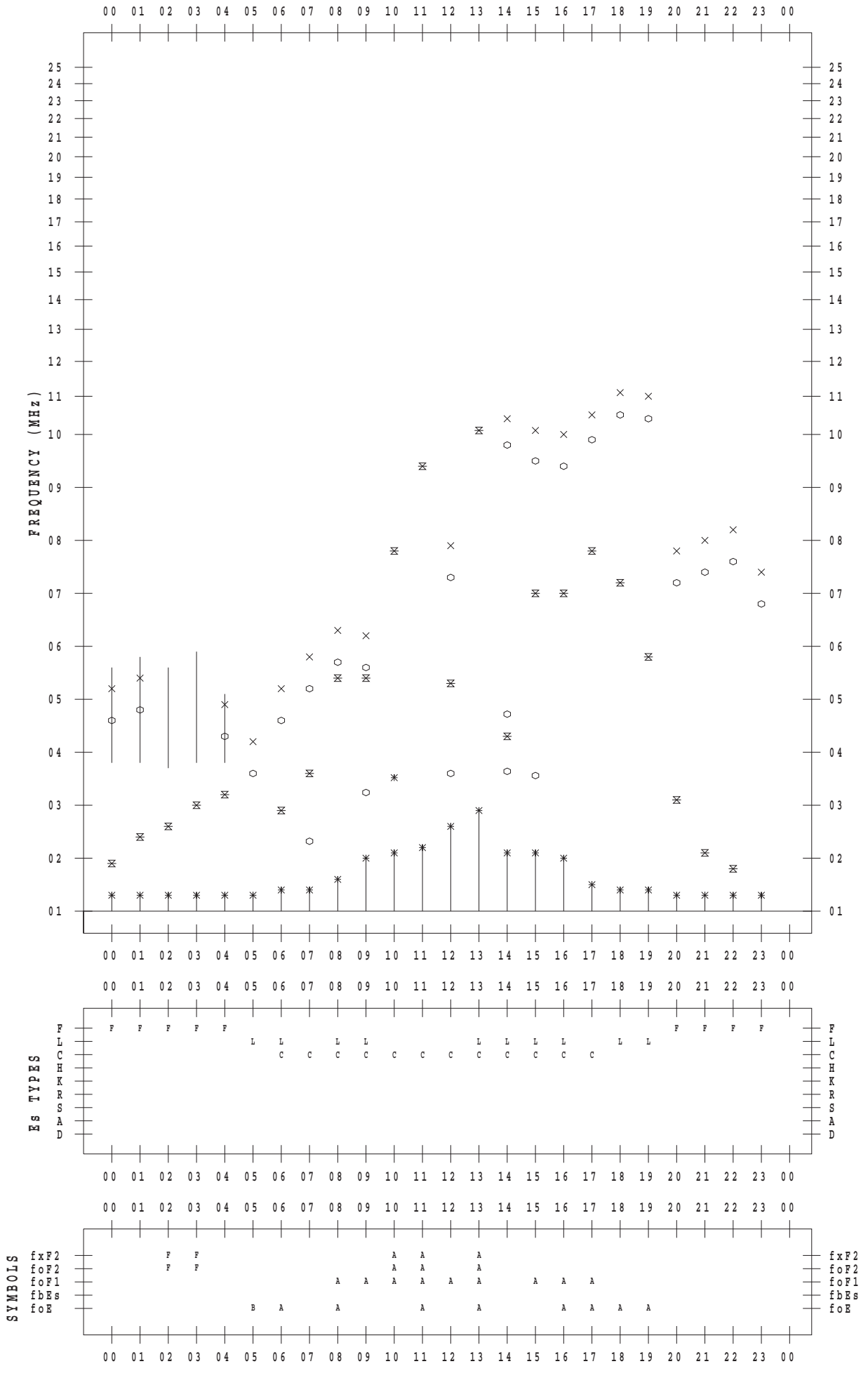
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2016/ 5/22

135 °E MEAN TIME



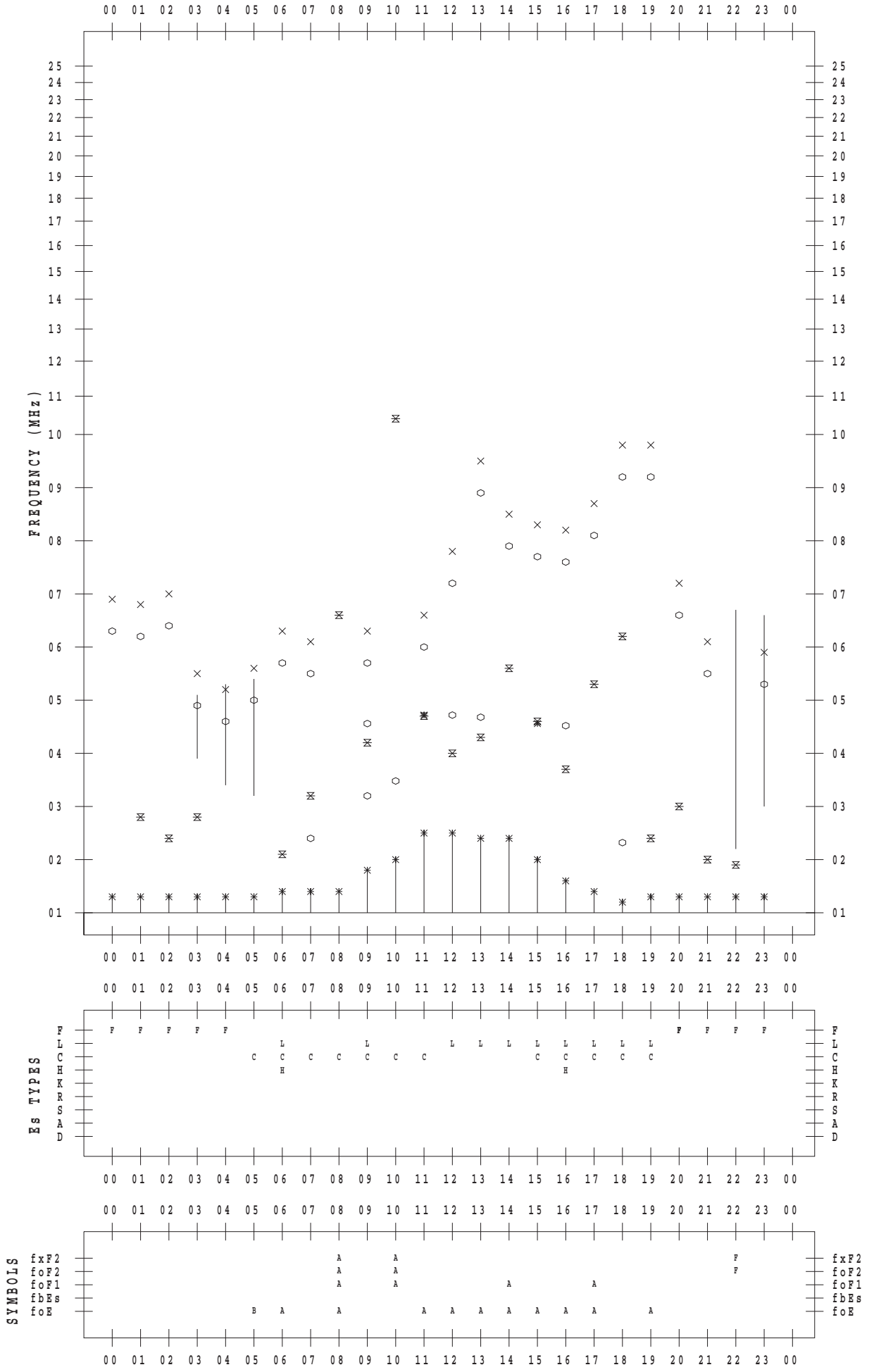
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2016/ 5/23

135 °E MEAN TIME



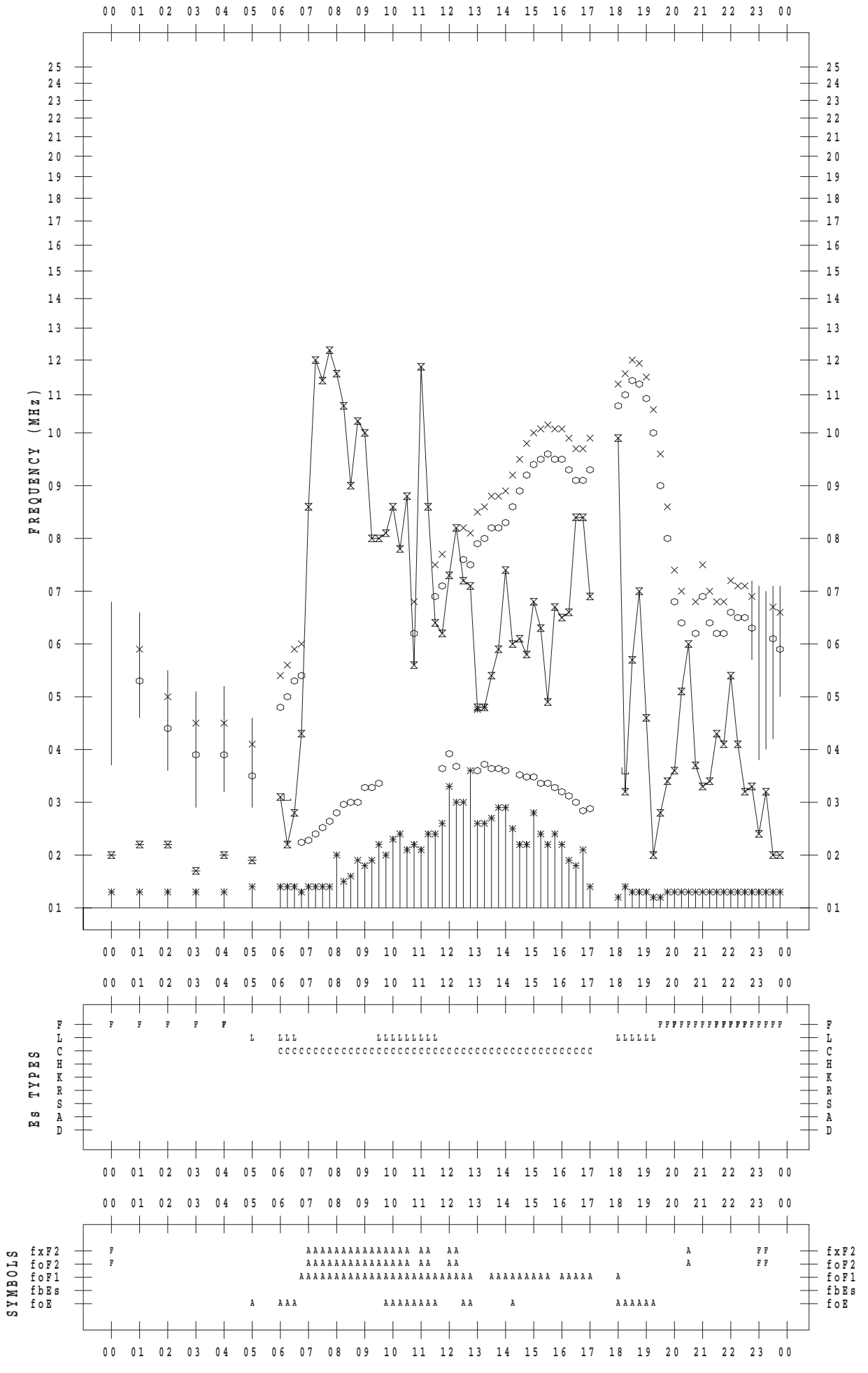
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2016/ 5/24

135 °E MEAN TIME



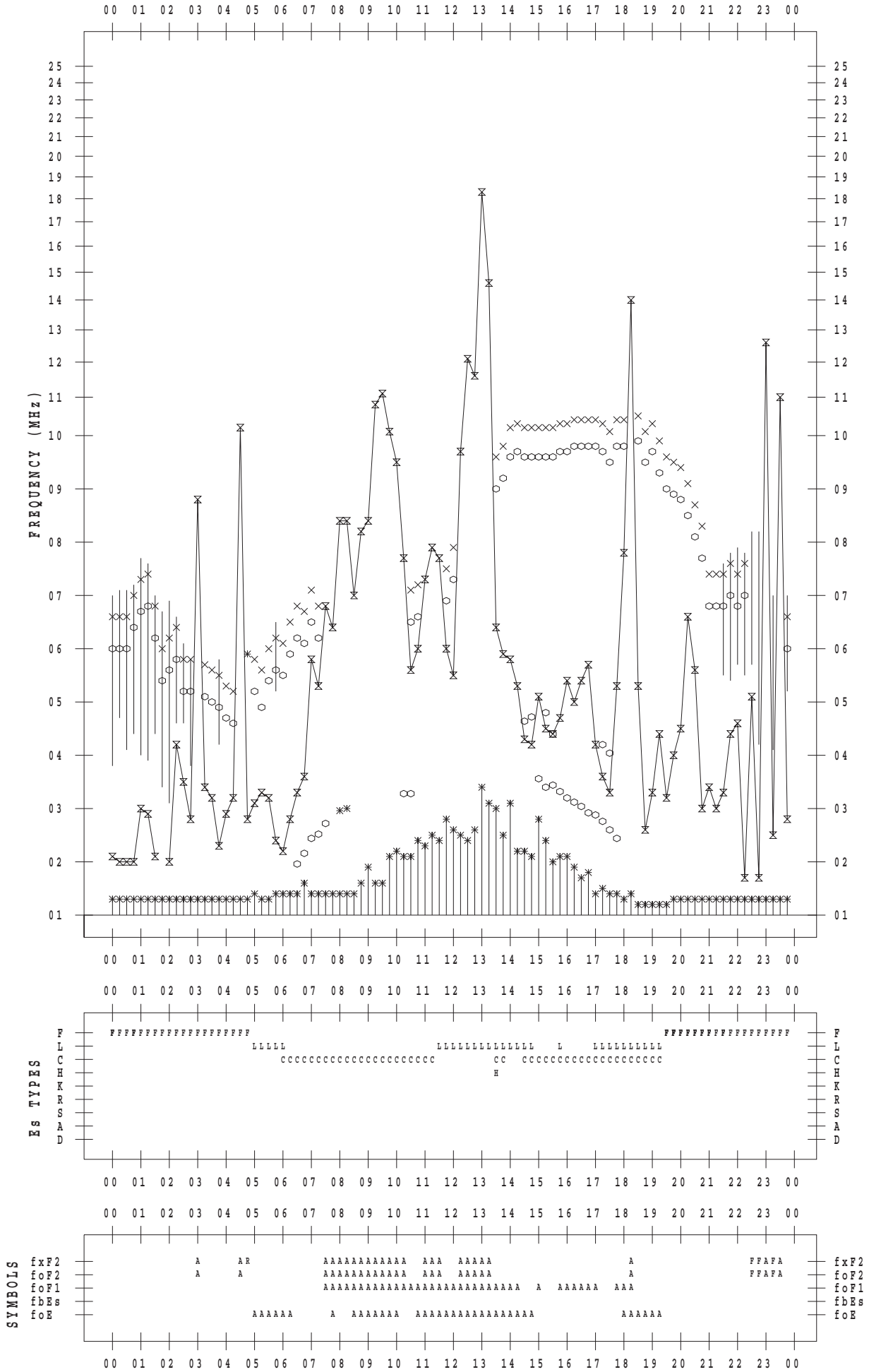
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2016/ 5/25

135 °E MEAN TIME



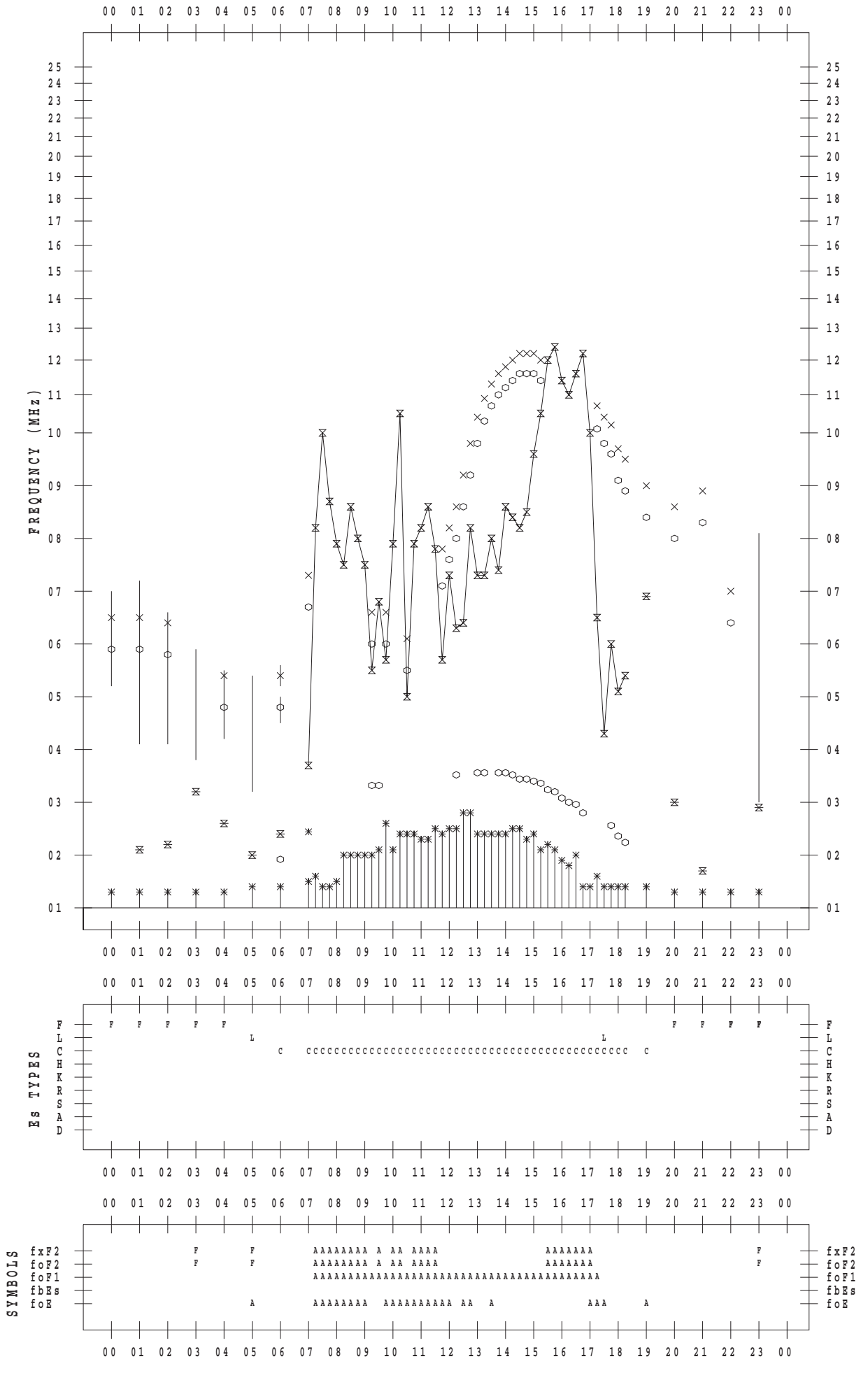
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2016/ 5/26

135 °E MEAN TIME



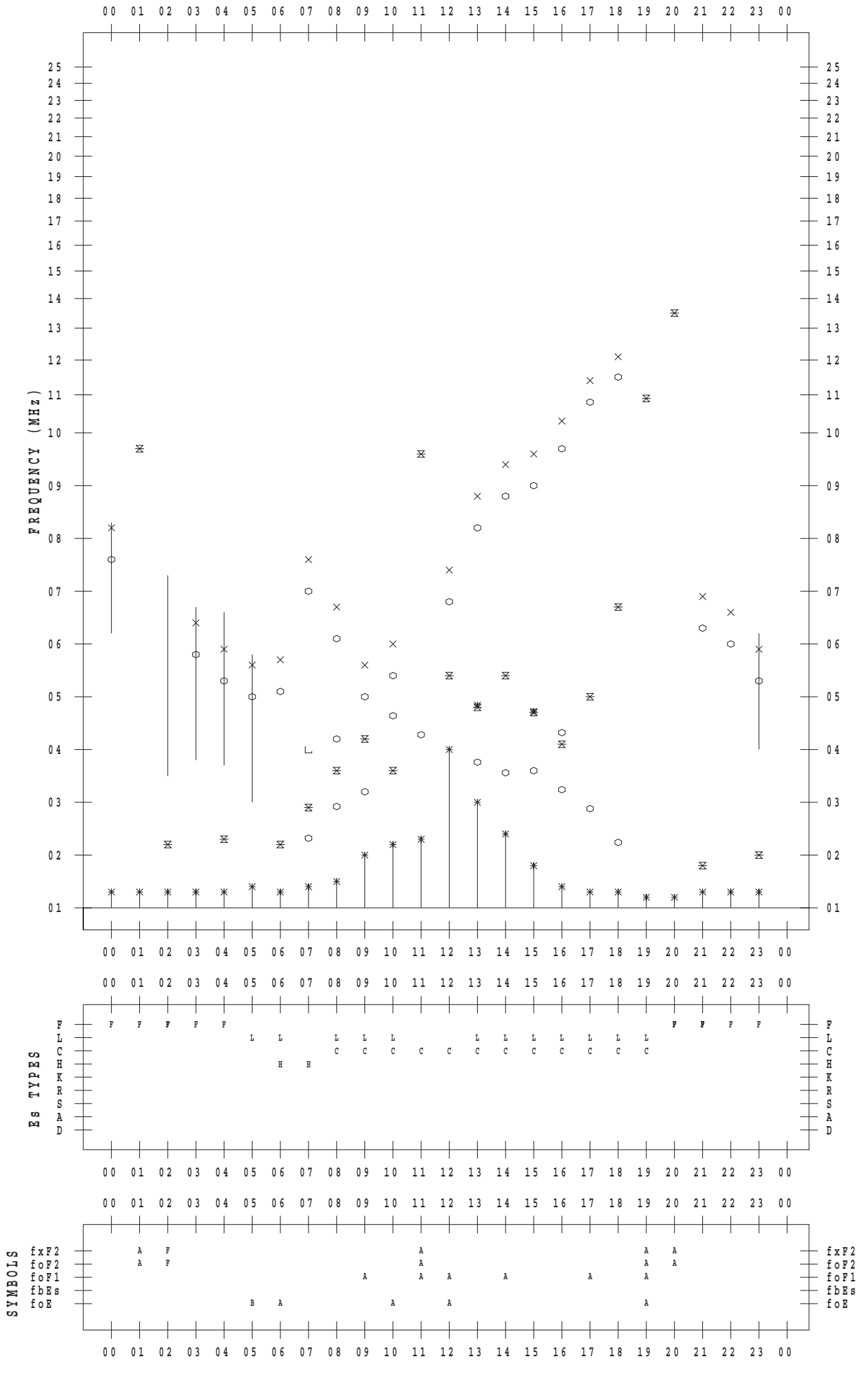
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2016/ 5/27

135 °E MEAN TIME



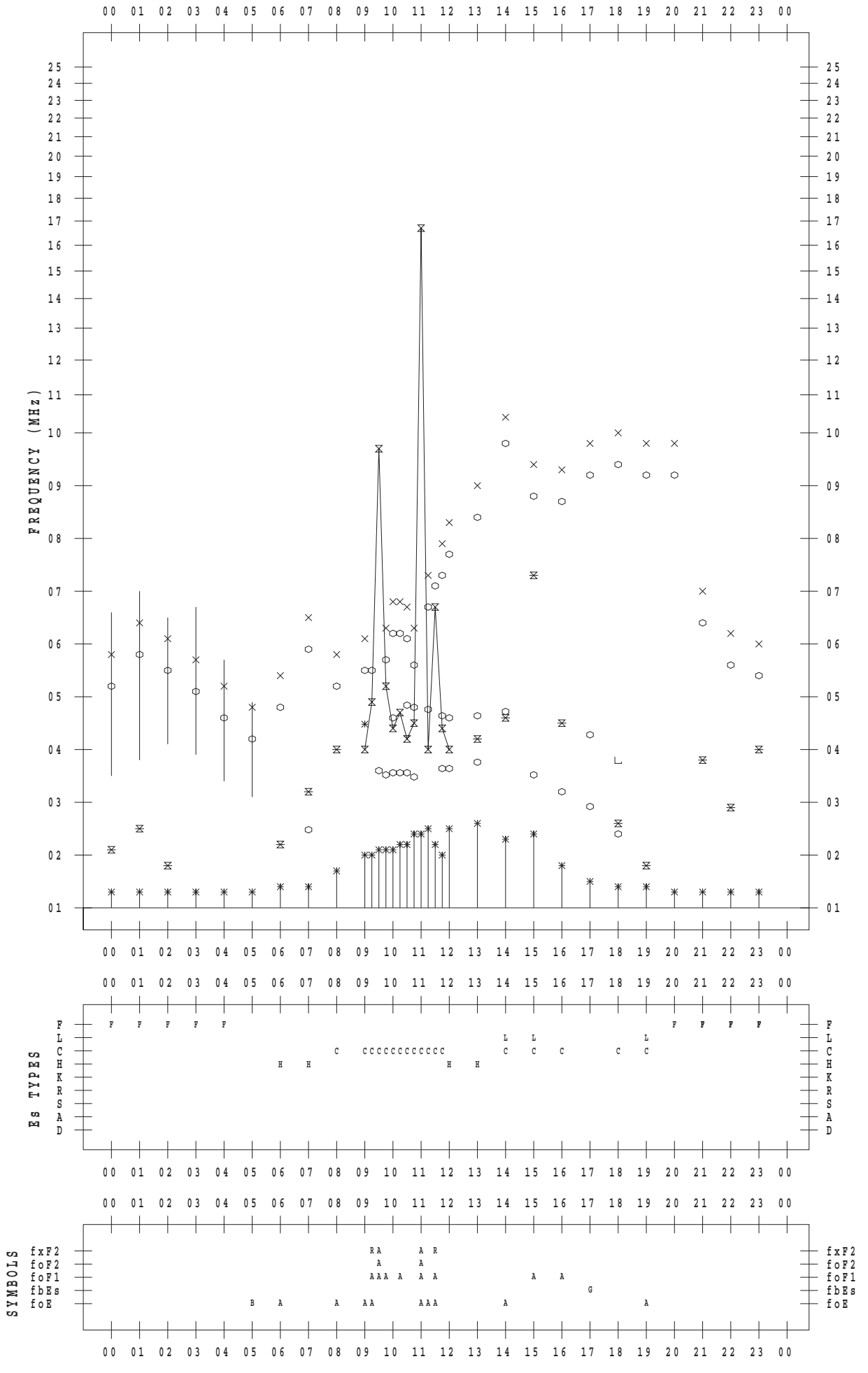
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2016/ 5/28

135 °E MEAN TIME



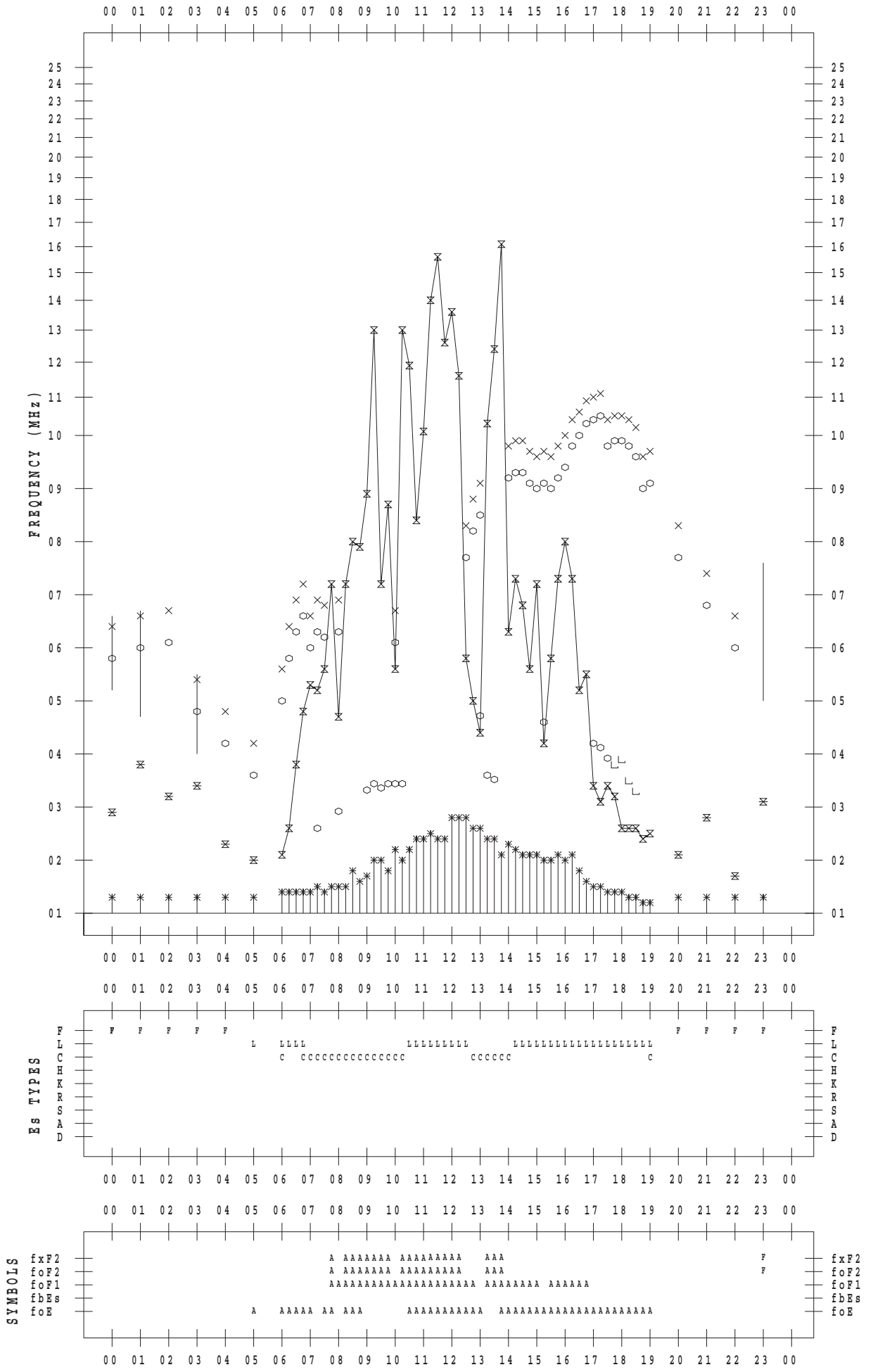
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2016/ 5/29

135 °E MEAN TIME



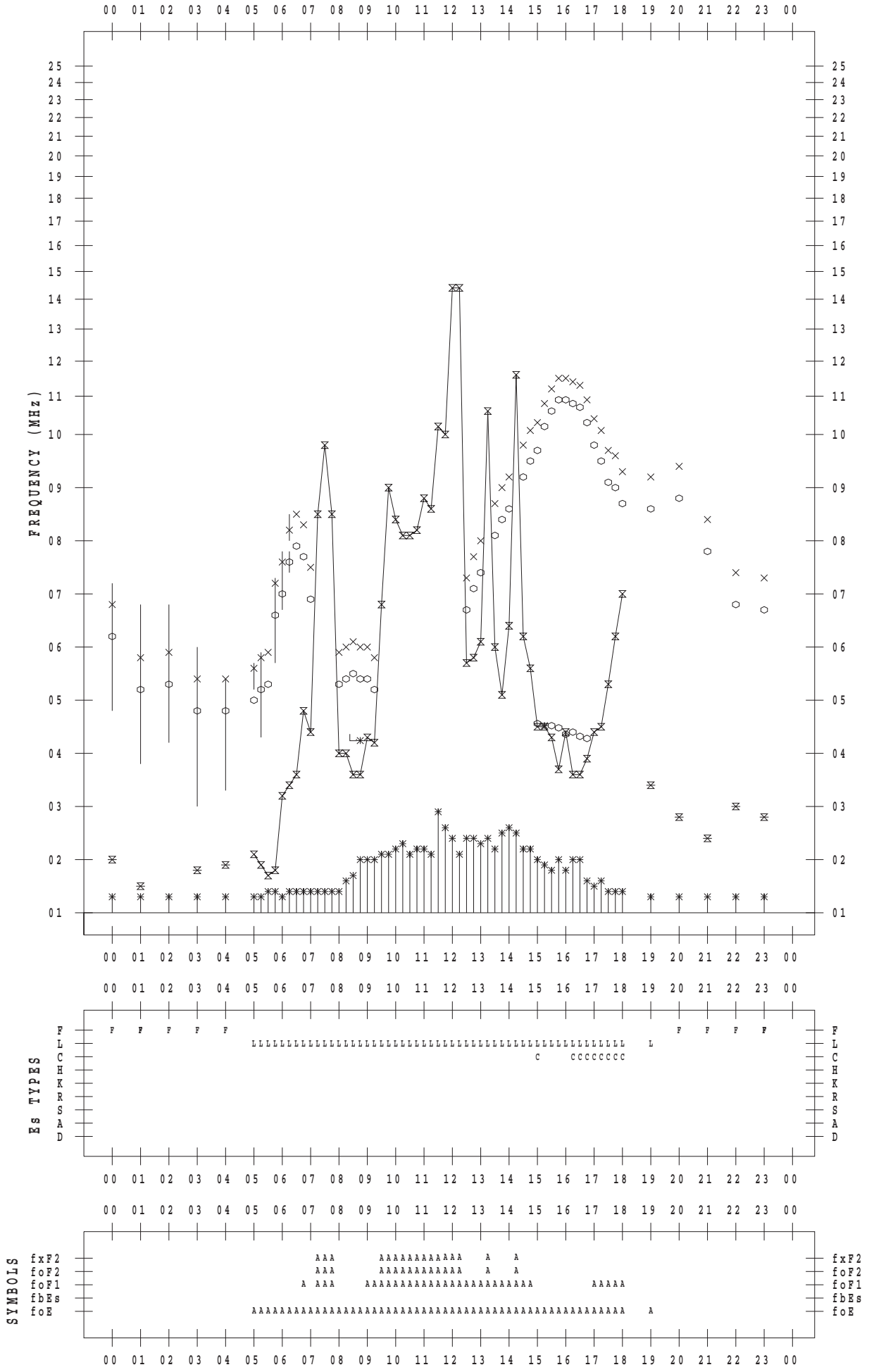
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2016/ 5/30

135 °E MEAN TIME



f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2016/ 5/31

135 °E MEAN TIME