F-819

IONOSPHERIC DATA IN JAPAN

FOR MARCH 2017

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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 fEs AT Wakkanai

MAR. 2017

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	G	G	G	G	G	G	G	22	113	31	43	43	62	37	29	46	G	24	G	G	G	G	G	G
2	G	G	G	G	G	36	26	26	36	38	G	36	G	37	35	34	25	G	G	G	G	G	G	G
3	G	G	G	G	G	G	G	22	41	36	35	38	38	G	36	34	53	G	24	24	G	G	G	G
4	G	G	G	G	G	59	26	23	104	32	37	38	32	34	35	34	33	G	G	30	G	G	G	G
5	G	G	G	G	G	G	11	G	33	115	G	47	39	G	G	34	G	G	G	G	G	G	G	G
6	G	G	G	G	G	G	G	G	G	G	39	37	G	39	37	34	G	G	G	G	G	G	G	G
7	G	G	G	G	G	G	G	108	G	34	39	39	37	45	36	34	G	G	46	G	G	G	G	G
8	G	G	G	G	G	154	G	G	34	38	48	38	38	37	36	34	G	G	G	G	G	G	G	G
9	G	G	G	G	G	G	G	G	33	35	56	43	G	G	36	34	32	G	G	G	G	G	G	G
10	G	G	G	G	G		G	G	G	40	55	38	38	38	34	34	G	G	G	G	19	G	G	G
11	G	G	G	G	92	G	G	68	G	38	40	38	35	44	37	33	25	G	11	G	G	G	G	
12	G	G	G	G	G	G	30	92	127	38	43	37	38	38	G	44	36	29	41	54	G	G	G	G
13	G	G	G	G	G	G	G	180	35	53	40	39	34	38	G	33	G	G	G	G	G	G	G	G
14	G	G	G	G	G	G	G	33	34	110	36	40	40	34	37	44	G	G	11	G	G		G	G
15	G	G	G	G	G	G	38	28	69	85	38	38	38	38	37	35	G	G	G	G	G	G	G	G
16	G	G	G	G	G	G	44	44	37	38	38	38	39	38	38	G	G	26	G	G	G	G	G	G
17	G	G	G	G	G	G	33	34	32	36	40	38	38	37	34	34	G	G	G	G	G	G	G	G
18	G	G	G	G	G	G	41	26	34	46	149	53	39	45	38	34	68	25	G	G	G	G	G	G
19	G	G	G	G		G	28	40	39	34	42	57	61	38		34	33	28	G	G	G	G	G	G
20	G	G	G	G	G	G	G	29	37	43	41	44	39	39	40	36	32	G	26	G	G	G	G	G
21	G	G	G	G	G	G	44	32	38	38	G	40	37	38	44	35	N	G	G	G	G	G	G	G
22	G	G	G	G	G		G	69	110	38	55	41	38	G	34	35	34	34	25	24	G	G	G	G
23	G	G	G	G	G	G	27	34	39	140	45	39	39	46	179	32	G	G	G	G	32	24	G	G
24	G	G	G	G	G	G	G	32	38	40	39	41	37	G	G	35	G	G	33	G	G	G	G	G
25	G	G	G	G	G	G	G	93	34	52	34	46	54	38	38	35	33	G	G	G	G	G	G	G
26	G	G	G	G	G	G	G	32	37	35	37	40	45	45	150	105	G	36	32	24	G	G	G	G
27	G	G	G	G	G	G	G	33	40	41	39	43	40	34	37	34	G	G	G	G	G	11	G	G
28	G	G	G	G	G	24	23	33		41	50	48	53	65	G	G	33	G	G	27	G	25	36	34
29	48	29	G	G		G	G	26	34	45	46	40	32	G		G	G	G	G	G	G	33	29	G
30	G	G	G	G	G	G	G	33	34	G	40	53	35	G	G	34	32	G	G	26	43	G	G	24
31	G	24	28	G	G	G	G	35	38	38	37	40	39	G	G	G	G	G	G	G	G	G	G	G
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	29	29	31	31	30	31	31	31	31	31	29	31	30	31	31	31	31	30	31	30
MED	G	G	G	G	G	G	G	32	36	38	40	40	38	38	36	34	G	G	G	G	G	G	G	G
U Q	G	G	G	G	G	G	27	40	39	45	45	43	39	39	37	35	33	G	11	G	G	G	G	G
L Q	G	G	G	G	G	G	G	23	34	35	37	38	35	G	15	34	G	G	G	G	G	G	G	G

HOURLY VALUES OF fmin AT Wakkanai

MAR. 2017

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	14	14	15	14	14	14	15	14	15	16	15	14	14	15	14	14	17	14	14	14	14	14	15
2	14	14	14	15	15	14	15	14	14	14	14	18	18	17	14	14	15	15	14	14	15	14	15	14
3	14	17	15	14	14	15	14	16	14	14	14	14	14	17	15	14	14	16	14	14	14	15	21	14
4	14	15	14	15	14	16	14	14	14	14	15	14	18	14	15	14	14	17	14	14	14	16	15	14
5	14	14	15	14	15	15	14	21	14	14	14	18	18	18	14	14	14	16	14	14	14	14	14	15
6	17	14	14	14	14	14	14	20	14	17	15	17	15	14	14	15	14	17	14	14	15	14	16	14
7	14	14	14	15	14	14	14	20	18	16	16	15	15	18	14	14	14	17	14	14	14	14	15	14
8	15	14	14	14	14	15	14	14	14	15	14	14	15	14	15	14	14	18	14	14	14	15	15	14
9	14	14	15	15	14	14	15	14	14	15	15	16	15	14	15	14	14	17	15	14	14	14	14	14
10	15	15	14	14	15		15	14	14	15	17	18	14	14	15	14	14	17	14	14	14	15	15	15
11	14	14	14	14	16	14	14	14	14	14	14	14	18	14	14	14	14	18	14	14	15	14	14	
12	15	15	20	14	15	14	16	14	15	14	14	14	22	30	14	14	14	14	14	14	14	14	15	14
13	14	14	14	14	14	14	15	14	14	14	14	15	18	15	15	14	14	18	14	14	14	14	14	14
14	14	14	14	14	14	14	15	14	14	14	14	15	14	14	15	14	14	18	14	14	14		15	14
15	15	15	14	14	16	14	16	14	14	14	14	15	15	18	14	15	14	17	14	14	14	14	14	14
16	14	16	14	14	15	14	16	14	14	14	14	14	15	15	14	14	14	18	14	14	14	14	14	14
17	15	15	14	14	14	14	18	14	14	14	17	14	15	16	15	15	18	18	14	14	14	14	14	14
18	14	14	15	15	15	14	14	14	14	14	14	14	15	14	14	14	14	14	14	14	15	14	14	14
19	14	14	14	14		14	14	14	14	14	15	14	15	15		14	14	14	14	15	14	17	14	14
20	14	15	15	15	14	14	17	14	14	14	14	17	15	18	14	14	14	20	14	14	14	14	15	14
21	14	14	14	14	14	18	17	14	14	14	15	17	16	17	18	14	14	15	14	14	14	14	14	14
22	14	14	15	15	14		18	14	14	14	14	15	15	15	14	14	14	16	14	14	15	15	17	14
23	15	15	15	14	14	14	18	14	14	14	15	16	17	14	18	14	14	14	14	14	14	14	15	14
24	16	14	16	15	14	15	15	14	14	14	20	17	20	32	18	14	15	15	14	14	15	15	14	14
25	15	14	14	15	14	14	18	18	14	14	17	18	15	21	16	14	15	21	14	14	14	14	14	15
26	16	14	14	15	15	14	20	14	14	14	14	15	16	14	20	15	14	14	15	16	17	14	14	14
27	14	14	15	14	15	14	21	15	15	15	18	15	22	24	15	15	14	14	14	14	14	14	15	14
28	14	15	14	16	14	17	15	14		15	14	15	16	26	30	14	14	14	15	14	15	14	14	14
29	14	14	14	14		14	14	15	14	15	15	20	24	33		15	16	18	15	15	14	17	14	15
30	15	14	14	15	15	14	20	14	14	18	16	22	17	20	17	14	14	14	14	16	14	15	15	14
31	18	15	14	14	14	15	18	14	14	17	15	20	15	17	18	15	15	14	14	14	14	14	14	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	29	29	31	31	30	31	31	31	31	31	29	31	31	31	31	31	31	30	31	30
MED	14	14	14	14	14	14	15	14	14	14	15	15	15	16	15	14	14	17	14	14	14	14	14	14
U Q	15	15	15	15	15	15	18	15	14	15	16	17	18	18	16	14	14	18	14	14	15	15	15	14
L Q	14	14	14	14	14	14	14	14	14	14	14	14	15	14	14	14	14	14	14	14	14	14	14	14

HOURLY VALUES OF foF2 AT Kokubunji

MAR. 2017

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	37	36	39	34	27	27	34	50	58	62	67	87	81	81	75	71	65	55	51	45	43	34	34	38
2	37	42	30	36	N	N	36	53	56	90	87	66	71	81	69	69	62	67	75	62	41	32	34	32
3	34	34	38	34			32	57	64	76	75	61	78	90	82	80	68	67	58	47	31	A	A	30
4	31	27	36	39	28	N	A	N	65	66	71	85	82	86	81	81	71	77	55	37	34	27	32	31
5	36	34	31	32	32	34	36	57	58	59	68	68	66	68	69	73	71	66	66	55	45	31	34	30
6	32	30	32	32	25	28	36	54	69	65	69	72	85	71	79	80	77	65	43	34	36	36	34	32
7	A	34	32	31	30	N	37	42	56	67	61	72	80	80	77	68	68	72	65	36	A	30	32	32
8	34	34	30	31	N		32	54	62	65	67	59	71	81	76	76	65	67	62	A	A	A	32	31
9	31	30	28	28	N		39	54	60	57	61	58	71	85	74	62	64	67	49	38	30	34	34	34
10	34	32	30	32	30		35	50	58	63	71	76	77	78	66	67	68	67	52	43	42	34	34	32
11	32	34	34	38	31		36	52	69	62	58	69	80	76	59	59	59	67	72	51	32	30	30	31
12	32	32	30	32	31	26	39	54	60	64	59	67	69	74	72	66	71	69	67	34	30	34	34	34
13	34	34	36	34	31	25	39	54	56	56	59	68	74	65	63	62	61	59		44	34	31	30	32
14	34	32	A	32	31	30	38	59	69	65	57	66	65	65	61	58	65	67	66	43	30	31	30	31
15	31	31	28	30	27		37	51	58	52	56	62	C	C	C	C	C	61	61	54	44	32	30	31
16	32	32	34	38	31	28	43	59	55	59	52	C	C	C	C	67	59	52	54	54	47	34	32	34
17	32	36	36	36	32	26	39	52	52	62	65	64	72	72	62	57	59	64	54	47	42	41	39	36
18	37	32	39	41	32	26	37	47	59	56	59	62	61	68	62	59	61	58	58	53	34	38	38	38
19	41	42	42	45	44	36	43	48	56	54	56	64	77	74	72	61	62	61	59	53	45	42	39	34
20	30	34	34	35	32	34	46	54	57	55	52	58	71	75	80	61	52	61	64	54	45	43	36	34
21	39	38	37	37	32	30	44	51	55	48	58	58	72	77	68	50	58	69	58	44	45	36	30	38
22	38	36	36	37	36	37	44	58	64	71	76	84	107	91	81	69	59	64	66	46	39	41	43	39
23	39	41	38	39	34	26	45	48	60	67	71	82	90	75	61	60	65	65	58	41	36	38	36	36
24	35	34	48	34	32	27	44	56	53	58	62	71	75	70	72	63	66	67	64	55	46	46	42	39
25	39	42	37	37	36	34	48	54	64	58	64	66	62	64	72	59	55	59	72	67	43	37	32	36
26	34	34	34	34	32	30	N	52	60	61	66	70	67	68	73	69	58	56	62	59	44	38	32	36
27	37	36	32	34	31	N	46	57	57	52	65	72	82	75	67	58	62	68	85	76	39	38	38	37
28	48	38	44	37	34	28	45	64	76	92	101	82	90	105	110	75	66	63	55	47	44	46	46	43
29	46	34	41	35	28	N	42	60	62	61	65	80	105	86	74	71	62	58	63	60	47	48	44	49
30	43	41	38	39	37	36	42	58	55	59	69	85	84	76	68	65	63	64	72	65	39	36	36	38
31	38	38	34	34	27	31	48	52	68	66	72	65	75	80	81	75	72	59	74	55	45	45	43	44
	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	27	20	29	30	31	31	31	30	29	29	29	30	30	31	30	30	29	29	30	31
MED	34	34	35	34	31	29	39	54	59	62	65	68	75	76	72	66	64	65	62	49	42	36	34	34
U Q	38	38	38	37	32	34	44	57	64	66	71	76	82	81	78	71	68	67	66	55	45	41	38	38
L Q	32	32	32	32	30	26	36	51	56	57	59	64	71	70	66	60	59	59	55	43	34	32	32	32

HOURLY VALUES OF fEs AT Kokubunji

MAR. 2017

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

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

HOURLY VALUES OF fmin AT Kokubunji

MAR. 2017

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

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

HOURLY VALUES OF foF2 AT Yamagawa

MAR. 2017

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

DAY \ HOUR	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	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
2	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
3	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
4	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
5	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
6	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
7	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
8	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
9	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
10	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
11	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
12	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
13	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
14	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
15	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
16	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
17	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
18	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
19	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
20	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
21	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
22	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
23	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
24	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
25	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
26	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
27	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
28	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
29	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
30	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
31	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
	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																								

HOURLY VALUES OF fEs AT Yamagawa

MAR. 2017

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

DAY \ HOUR	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	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
2	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
3	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
4	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
5	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
6	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
7	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
8	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
9	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
10	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
11	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
12	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
13	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
14	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
15	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
16	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
17	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
18	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
19	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
20	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
21	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
22	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
23	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
24	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
25	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
26	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
27	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
28	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
29	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
30	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
31	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
	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																								

HOURLY VALUES OF fmin AT Yamagawa

MAR. 2017

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

HOURLY VALUES OF foF2 AT Okinawa

MAR. 2017

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1		52	53	49	47	N	B	41	50	54	65	82	90	112	100	90	80	72	61	48	52	46		43
2	47		52	42	B	B	B	46	55	93	92	64	72	102	76	72	67	70	87	74	52	38	B	B
3	47	B	B	38	B	B	B	45	68	72	76	81	96	114	122	125	105	86	83	87	74	34	32	
4	B	29	B	B	B	B	B	42	59	67	81	85	88	82	87	95	87	84	81	51	44	B	B	B
5	B	B	32		42		B	45	57	58	64	67	67	71	77	80	85	84	77	77	52	48	B	
6	34	A	B	B		B	N	42	71	55	74	89	86	98	85	82	92	86	81	A	43	36	38	37
7	40	31	B	34	37	B	B	44	57	67	68	66	88	102	88	85	82	81	76	45	40	36	30	B
8	B	B	B		B	B	B	45	72	61	76	85	90	96	97	87	98	88	80	67	48	42	37	37
9	40	42	30	B	B	34	B	42	60	55	61		71	92	87	84	94	74	81	65	46	B	B	B
10	B	B	B	31	28	N	B	41	56	66	86	100	111	116	118	108	107	86	88	80	A	A	A	39
11	B	29	34	B	32	B	B	43	56	66	74	84	88	113	111	104	92	81	93	86	52	B	A	B
12	B	B	B	N	30	B	B	45	52	58	69	75	92	108	123	107	101	102	72	63	50	A	42	42
13	34		37	36	34	B	B	47	60	62	71	76	85	105	107	108	96	80	76	65	42	26	A	B
14	N	B	B	B	B	N	B	47	54	68	93	87	92	118	120	111	110	107	94	88	63	B	B	B
15	B	38		40	44	B	B	44	56	50	59	66	75	92	101	101	93	94	81	67	40	B	B	A
16	A	B	N	30	31	B	B	44	54	60	66	68	82	90	103	88	90	86	78	54	48	43	50	B
17		47	34	44	32	N	B	44	52	58	77	83	85	92	80		84	84	71	55	46	37	34	
18	34	B	38	36	A	B	B	44	58	56	64	78	81	92	98	106	85	75	67	A	46			40
19		B	34	34	N	B	B	49	54	53	64	67	75	96	108	110	118	94	77	67	67	63	B	B
20				B	30	B		47	48	52	A		74	90	105	107	102	93	112	81	67	48	B	42
21	50			N	N	A	30	47	51	55	62	64	73	90	104	80	67	76	71	51	52	40	B	B
22	34	41	36	59	34	B	B	46	64	76	72	77	99	107	90	81	78	58	81	66	40	40		A
23	40	42	42	42	31	34	30	52	52	62	73	88	106	109	109	102	87	90	90	80	59	A	36	A
24	A	B	B	37	27	B	B	47	54	62	68	71	91	103	105	106	76	67	82	86	53			37
25	37	38	B	43	N	B	B	59	65	68	70	72	82	97	105	87	93	86	85	87	54	48	B	33
26	34	32		54		B	B	45	57	63	82	90	102	106	107	85	67	64	63	63	64	38	B	B
27	B	B	B		B	B	B	46	55	70	78	88	101	115	109	119	116	114	105	105	71	B	B	53
28		67	51	49	B	32	A	47	81	90	78	88	108	133	135	128	118	104	87	67	50	A	52	51
29	51	52	49	47	32	B	B	54	63	63	66	87	114	129	129	122	108	86	83	78	53	B	A	A
30	42	41	B	B	B	B		51	57	71	87	110	108	N	133	130	96	121	110	86	67	51	48	
31	B	51	58	40	B	B	29	58	61	63	94	80	86	104	123	133	130	103	80	80	52	52		48
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	14	15	14	19	15	3	3	31	31	31	30	29	31	30	31	30	31	31	31	29	30	18	10	12
MED	40	41	38	40	32	34	30	45	57	62	72	81	88	102	105	103	93	86	81	67	52	41	38	41
U Q	47	51	51	47	37	34	30	47	61	68	78	87	99	112	118	110	105	94	87	83	59	48	48	45
L Q	34	32	34	36	30	32	29	44	54	56	66	69	81	92	90	85	84	76	76	63	46	37	34	37

HOURLY VALUES OF fEs AT Okinawa

MAR. 2017

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	G	28	G	G	G	G	B	G	G	G	G	G	G	G	G	37	33	27	G	G	G	G	G	G
2	G	G	24	G	B	B	B	G	G	G	G	G	G	G	G	52	40	G	G	24	G	G	B	B
3	G	B	B	G	B	B	B	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
4	B	G	B	B	B	B	B	24	25	36	G	G	G	49	G	G	35	G	G	G	G	B	B	B
5	B	B	G	G	G	G	B	G	G	35	G	G	G	48	48	49	44	37	26	G	G	G	B	G
6	G	25	B	B	G	B	G	G	G	G	G	G	G	G	56	46	54	54	46	72	G	G	G	G
7	G	G	B	G	11	B	B	G	G	G	G	G	G	G	G	31	39	32	G	28	29	G	G	B
8	B	B	B	G	B	B	B	G	G	G	G	G	46	G	G	48	42	37	28	G	G	G	G	26
9	G	G	G	B	B	G	B	G	G	G	G		G	48	G	G	44	38	30	32	G	B	B	B
10	B	B	B	G	G	G	B	G	G	G	G	G	G	G	52	46	36	41	40	70	92	69	27	G
11	B	G	G	B	G	B	B	G	G	35	G	33	32	G	G	37	35	43	44	34	G	B	32	B
12	B	B	B	G	G	B	B	G	G	G	G	G	G	G	G	G	G	26	G	24	G	27	G	G
13	G	G	G	G	G	B	B	G	G	G	G	G	49	50	G	G	G	35	29	G	24	24	25	B
14	G	B	B	B	B	G	B	G	G	G	G	G	G	G	G	G	G	G	G	G	43	B	B	B
15	B	G	G	G	G	B	B	G	G	99	G	G	G	G	G	G	32	G	G	G	G	B	B	25
16	27	B	G	G	G	B	B	G	29	41	G	G	G	G	G	G	30	36	29	G	G	G	G	B
17	G	G	G	G	G	G	B	G	27	G	G	45	48	G	G		30	G	25	G	G	G	G	G
18	G	B	G	26	32	B	B	G	G	G	G	G	G	G	G	G	G	G	G	59	G	G	G	G
19	G	B	G	G	G	B	B	G	G	G	G	G	G	68	75	G	G	G	G	G	G	11	B	B
20	G	G	G	B	G	B	G	G	G	G	52	G	G	39	G	G	42	39	30	G	G	G	B	G
21	G	G	G	G	G	25	24	G	G	35	G	G	G	G	G	G	G	G	33	28	G	G	B	B
22	G	G	G	G	G	B	B	27	G	G	G	G	G	G	G	40	G	G	G	G	G	G	G	26
23	26	G	G	G	G	G	G	G	30	G	G	G	G	G	G	G	G	G	G	23	G	30	G	50
24	37	B	B	G	G	B	B	G	G	G	G	G	49	G	G	G	G	G	G	G	G	G	G	G
25	G	G	B	G	11	B	B	23	G	36	G	G	G	G	49	38	G	42	38	G	24	G	B	G
26	G	G	G	G		B	B	G	G	G	G	36	52	G	G	G	G	G	29	G	G	G	B	B
27	B	B	B	G	B	B	B	G	G	G	G	G	G	G	52	G	G	G	35	22	G	B	B	G
28	G	G	G	G	B	G	25	36	30	G	G	G	G	G	G	G	G	G	G	G	G	45	G	G
29	G	G	G	G	11	B	B	G	G	G	G	G	G	G	G	60	39	36	G	24	G	B	27	32
30	27	G	B	B	B	B	G	G	G	G	G	G	G	G	G	G	G	G	G	G	29	32	G	G
31	B	G	G	G	B	B	G	G	G	35	G	G	G	G	G	G	G	32	G	G	G	G	G	G
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	22	20	19	24	20	9	7	31	31	31	31	30	31	31	31	30	31	31	31	31	31	24	19	20
MED	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
U Q	G	G	G	G	G	G	24	G	G	35	G	G	G	G	G	38	39	37	30	24	G	17	G	13
L Q	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G

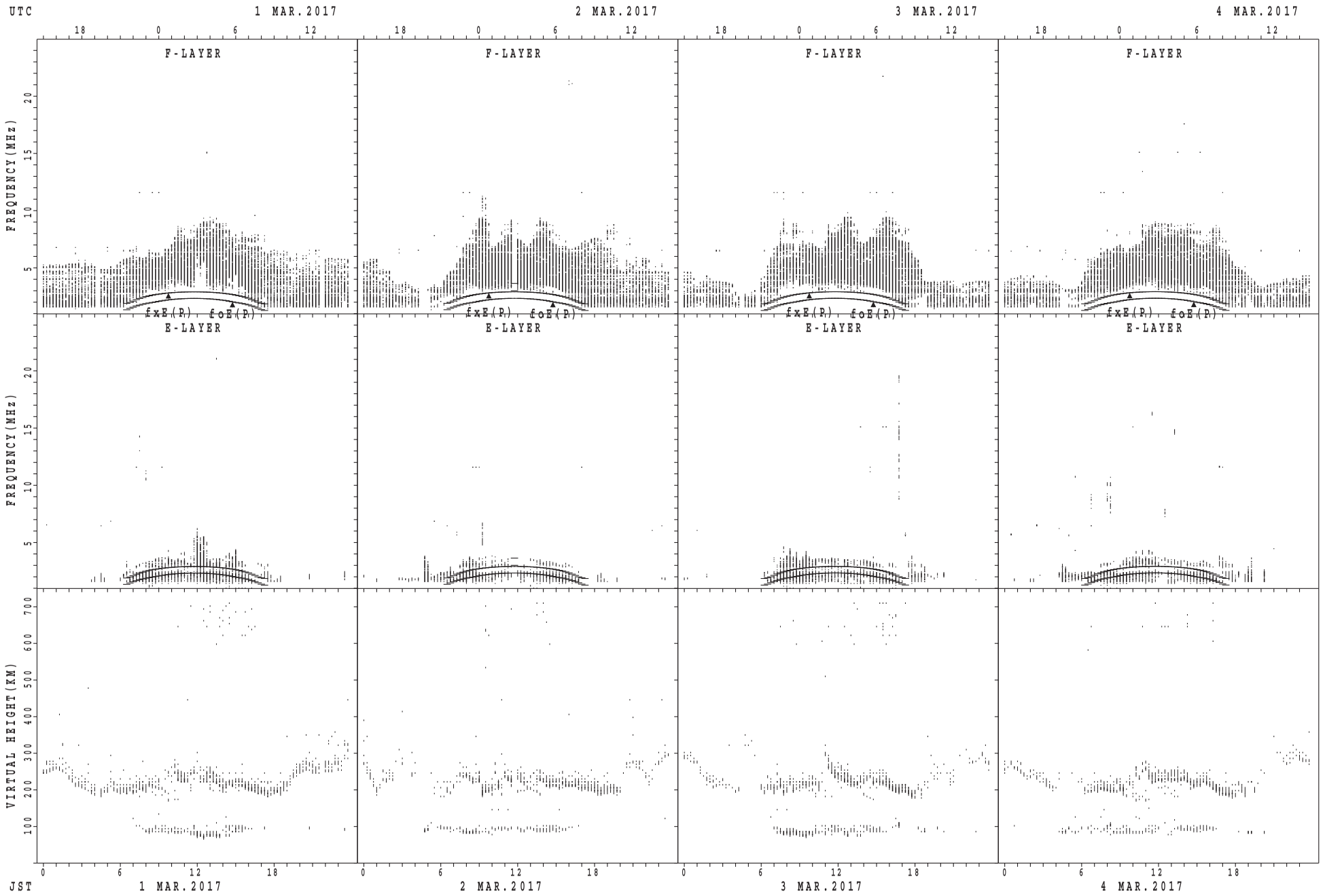
HOURLY VALUES OF fmin AT Okinawa

MAR. 2017

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

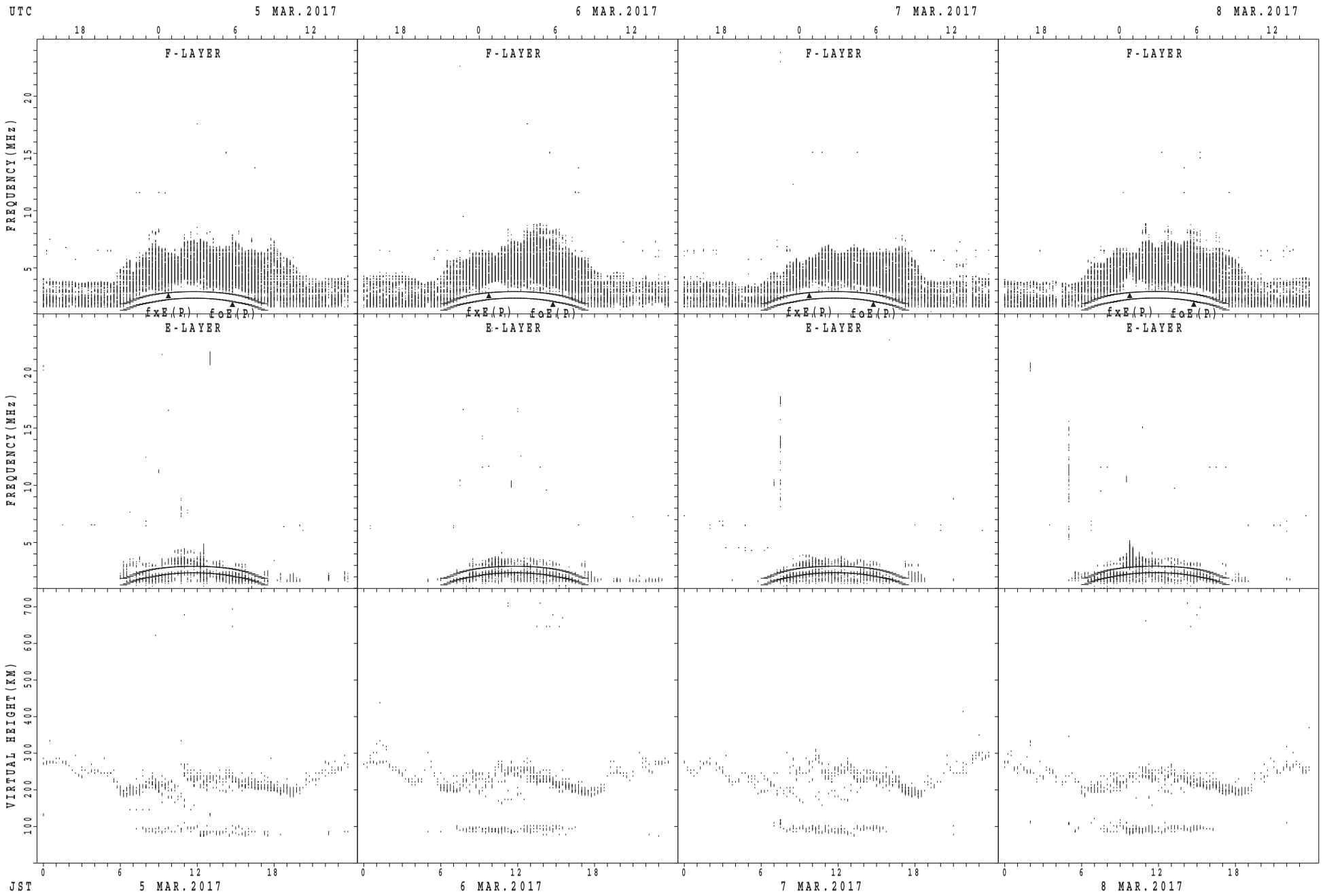
D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	16	21	20	17	17	17	B	17	23	29	44	42	52	44	44	26	20	15	18	17	18	16	21	20
2	16	71	14	17	B	B	B	18	26	34	38	42	46	40	42	30	18	14	18	16	16	15	B	B
3	17	B	B	16	B	B	B	18	15	34	40	43	52	44	43	42	37	15	17	15	15	15	20	66
4	B	15	B	B	B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

SUMMARY PLOTS AT Wakkanai

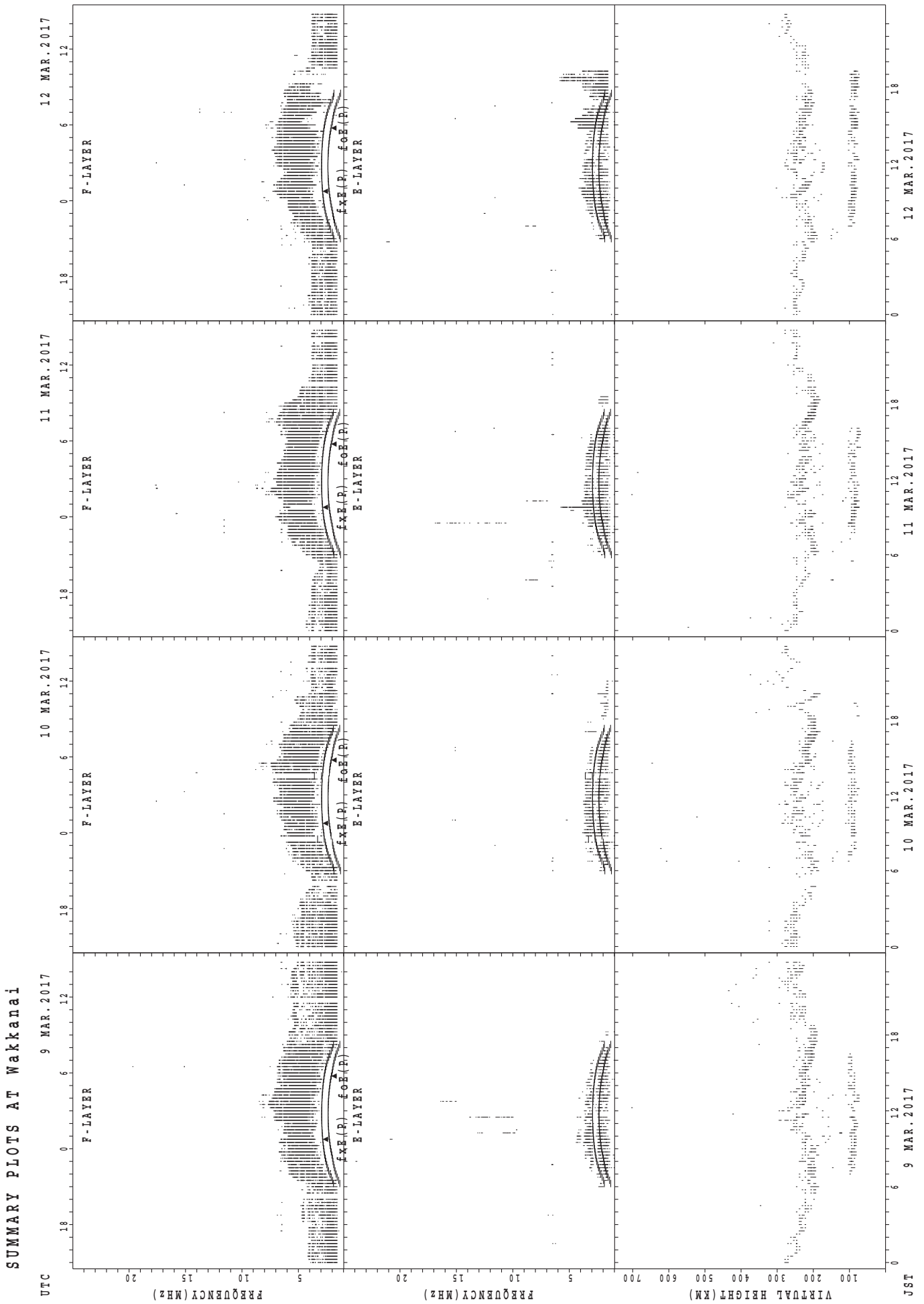


fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

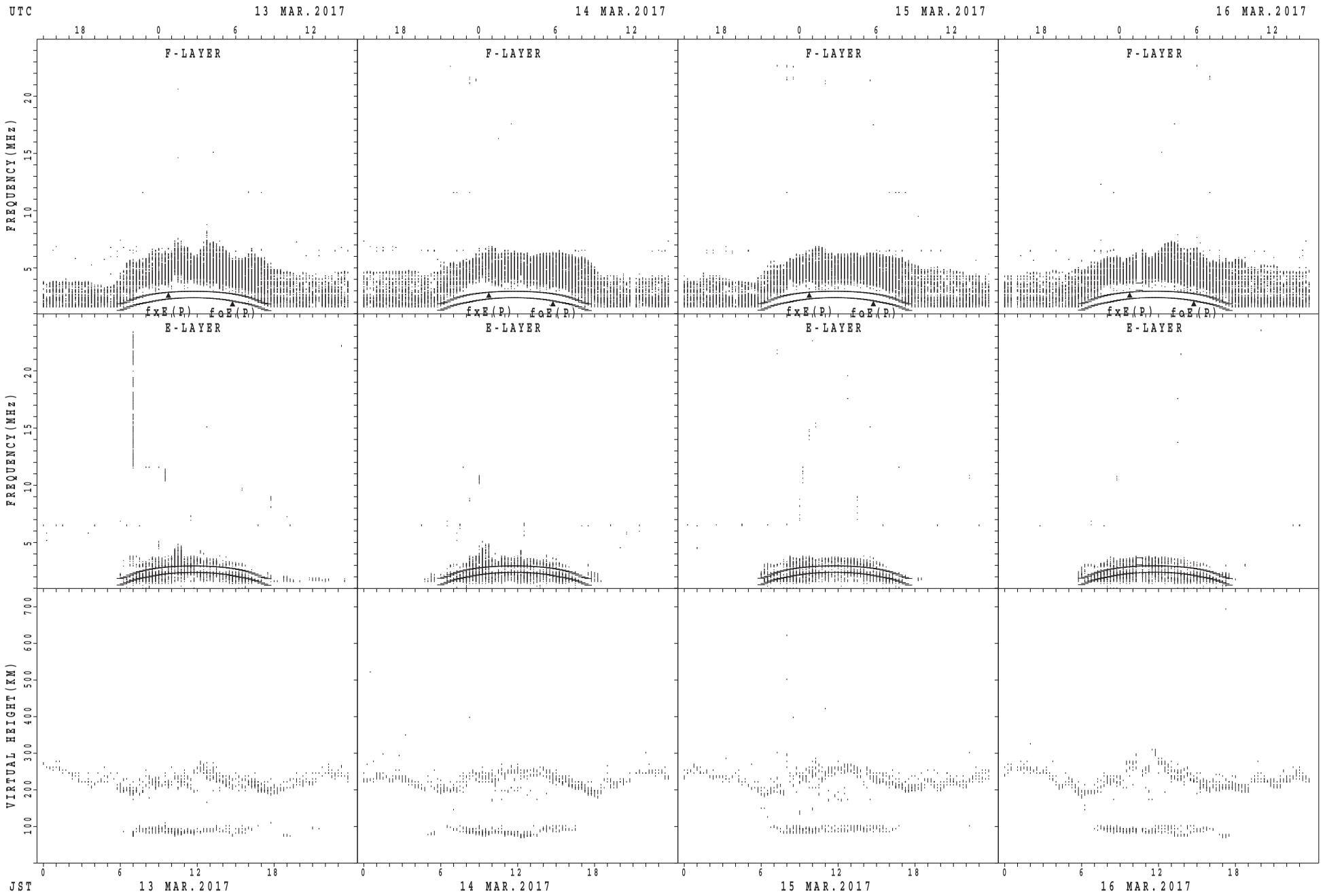
SUMMARY PLOTS AT Wakkanai



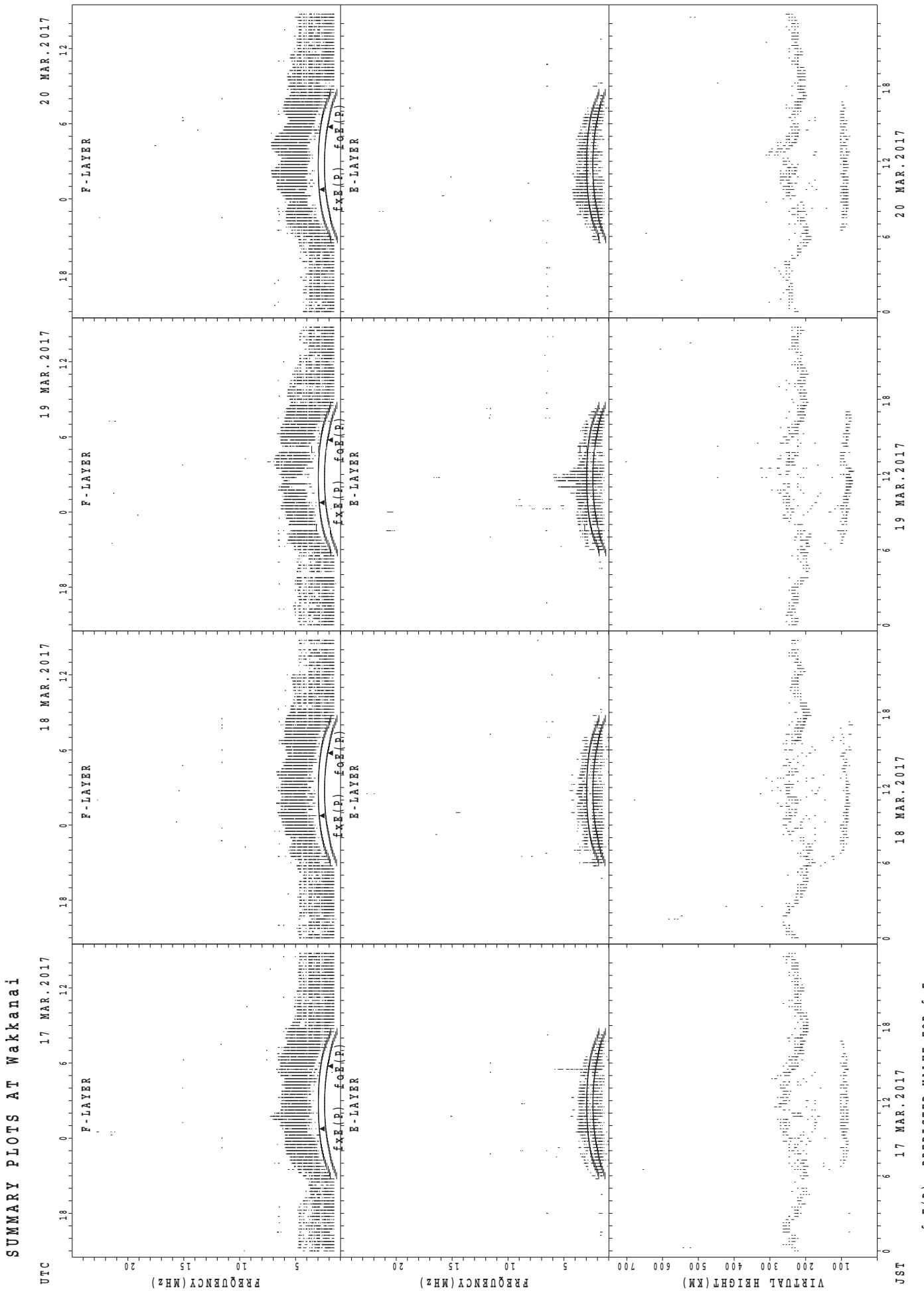
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE


SUMMARY PLOTS AT Wakkanai
UTC
JST
9 MAR.2017
10 MAR.2017
11 MAR.2017
12 MAR.2017
F-LAYER
E-LAYER
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
fxE(P), foE(P)
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

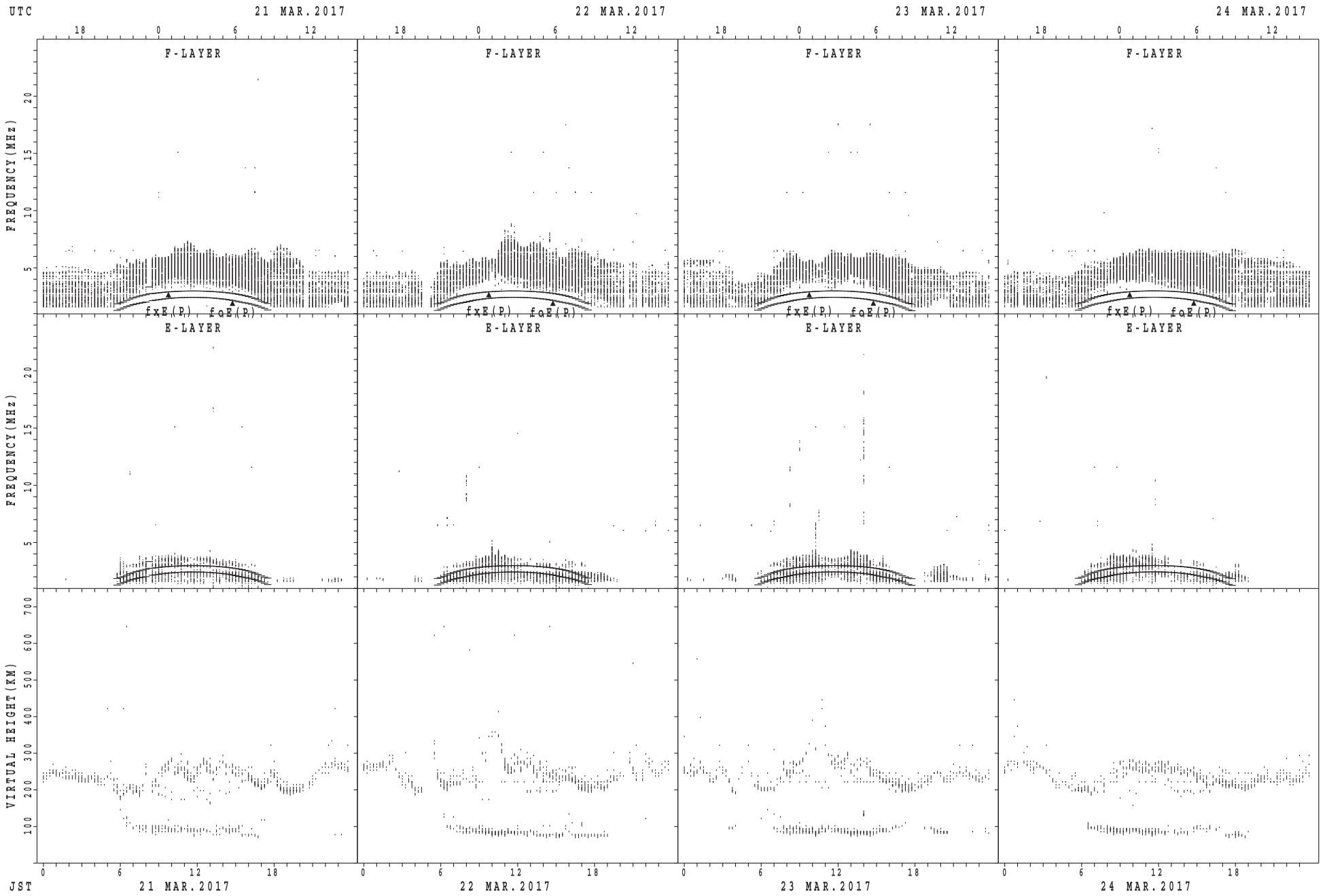
SUMMARY PLOTS AT Wakkanai



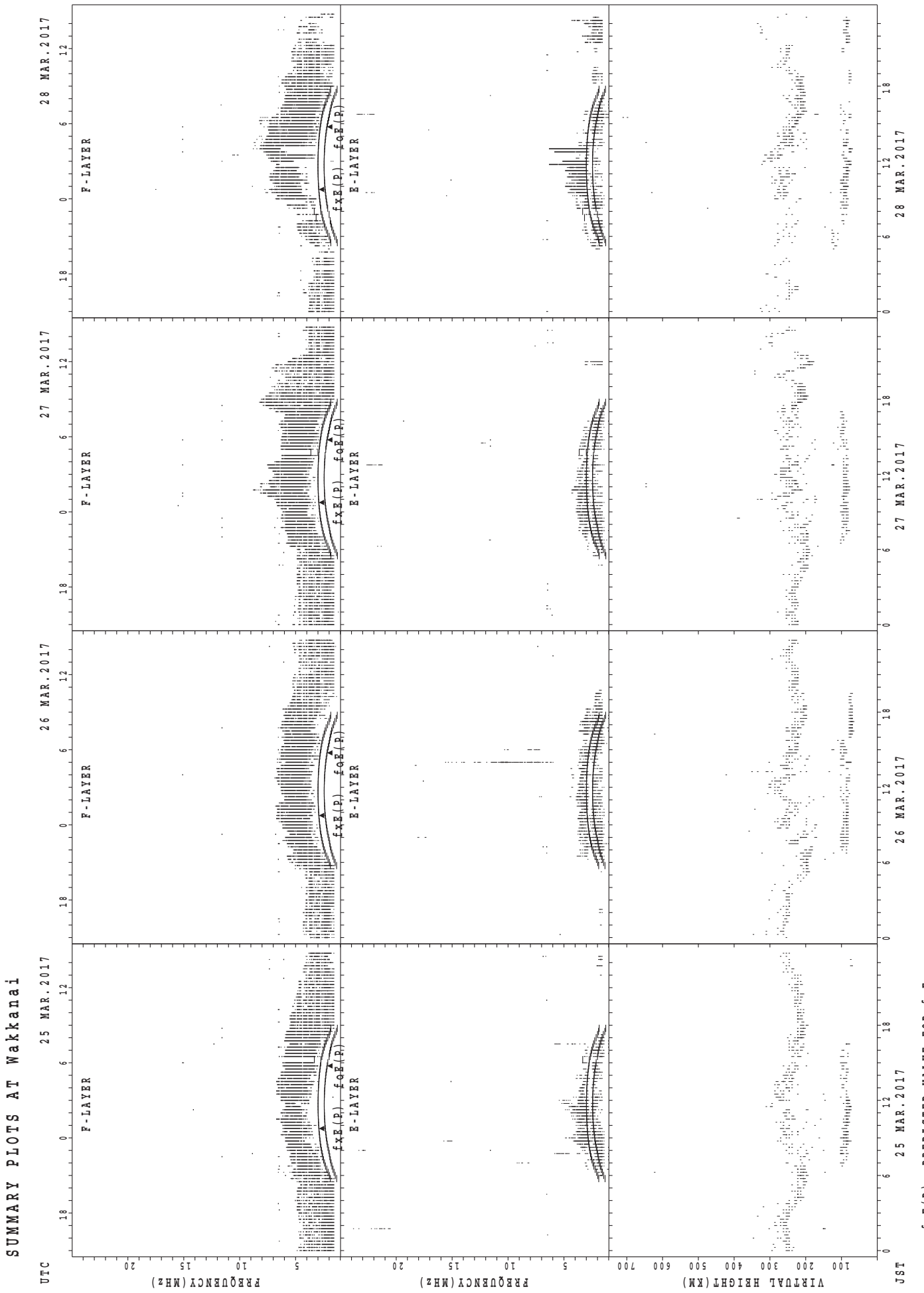
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE


SUMMARY PLOTS AT Wakkanai
UTC
JST
17 MAR.2017
18 MAR.2017
19 MAR.2017
20 MAR.2017
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

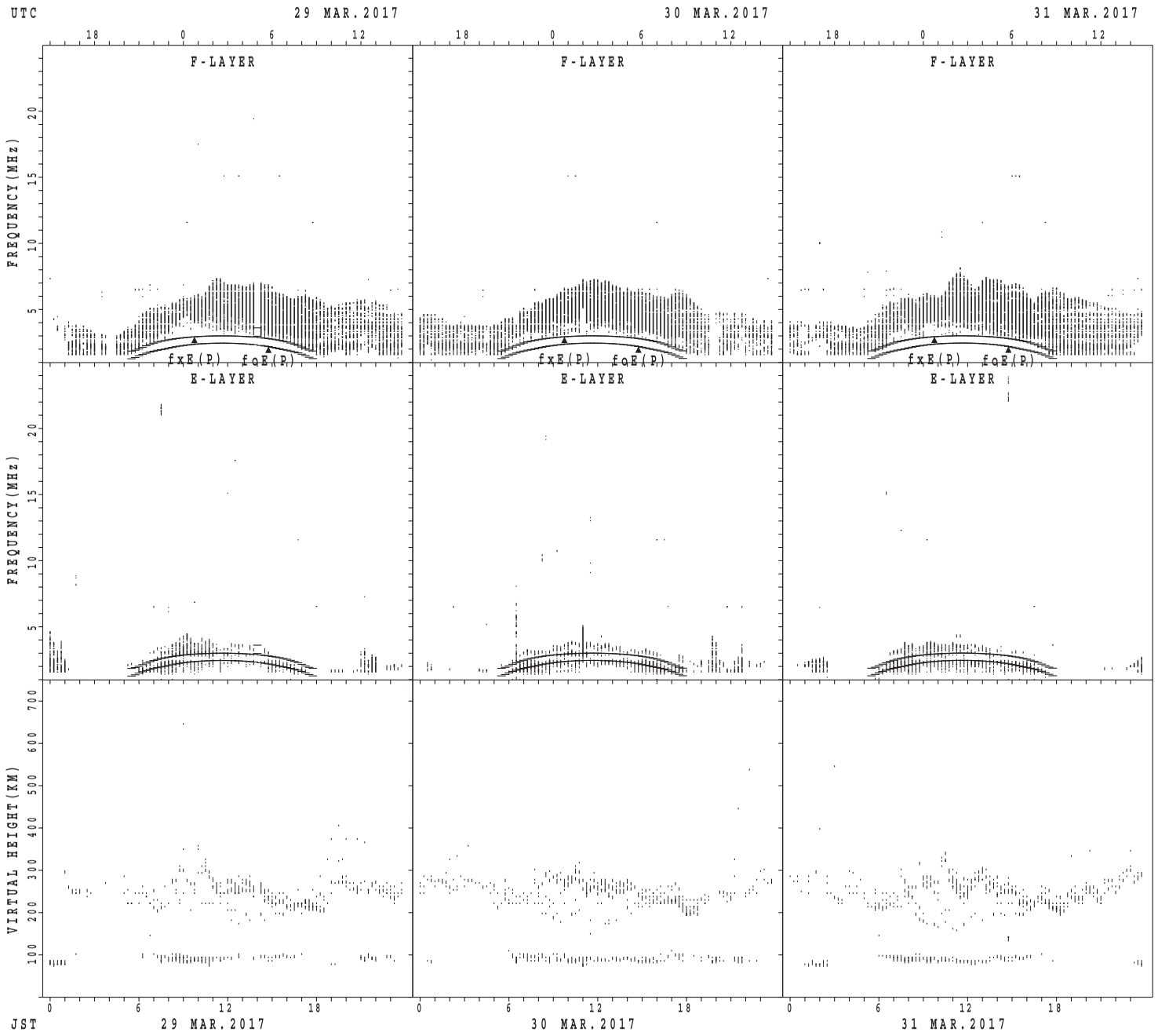
SUMMARY PLOTS AT Wakkanai



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

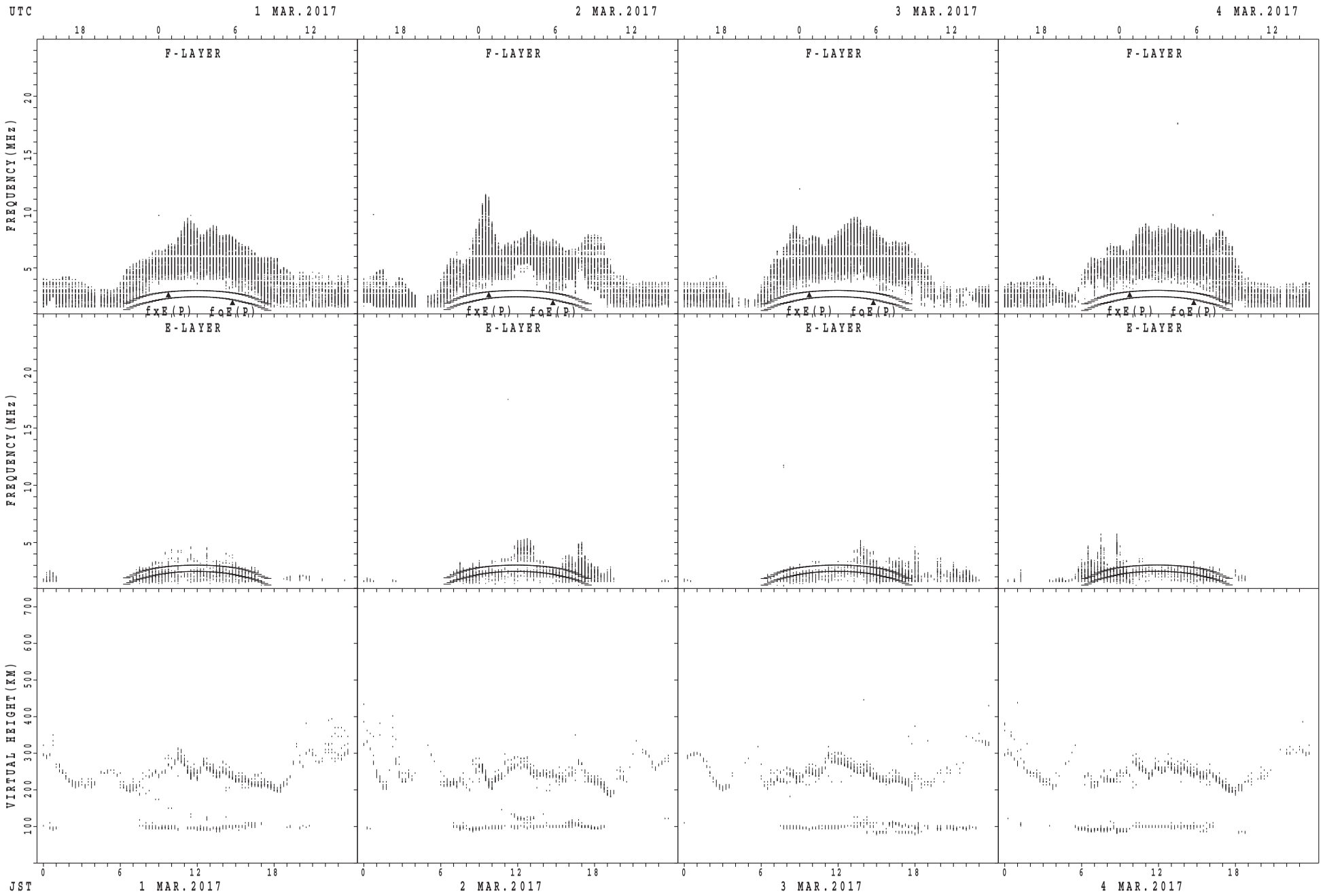

SUMMARY PLOTS AT Wakkanai
UTC
JST
25 MAR.2017
26 MAR.2017
27 MAR.2017
28 MAR.2017
F-LAYER
E-LAYER
fxE(P)
foE(P)
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



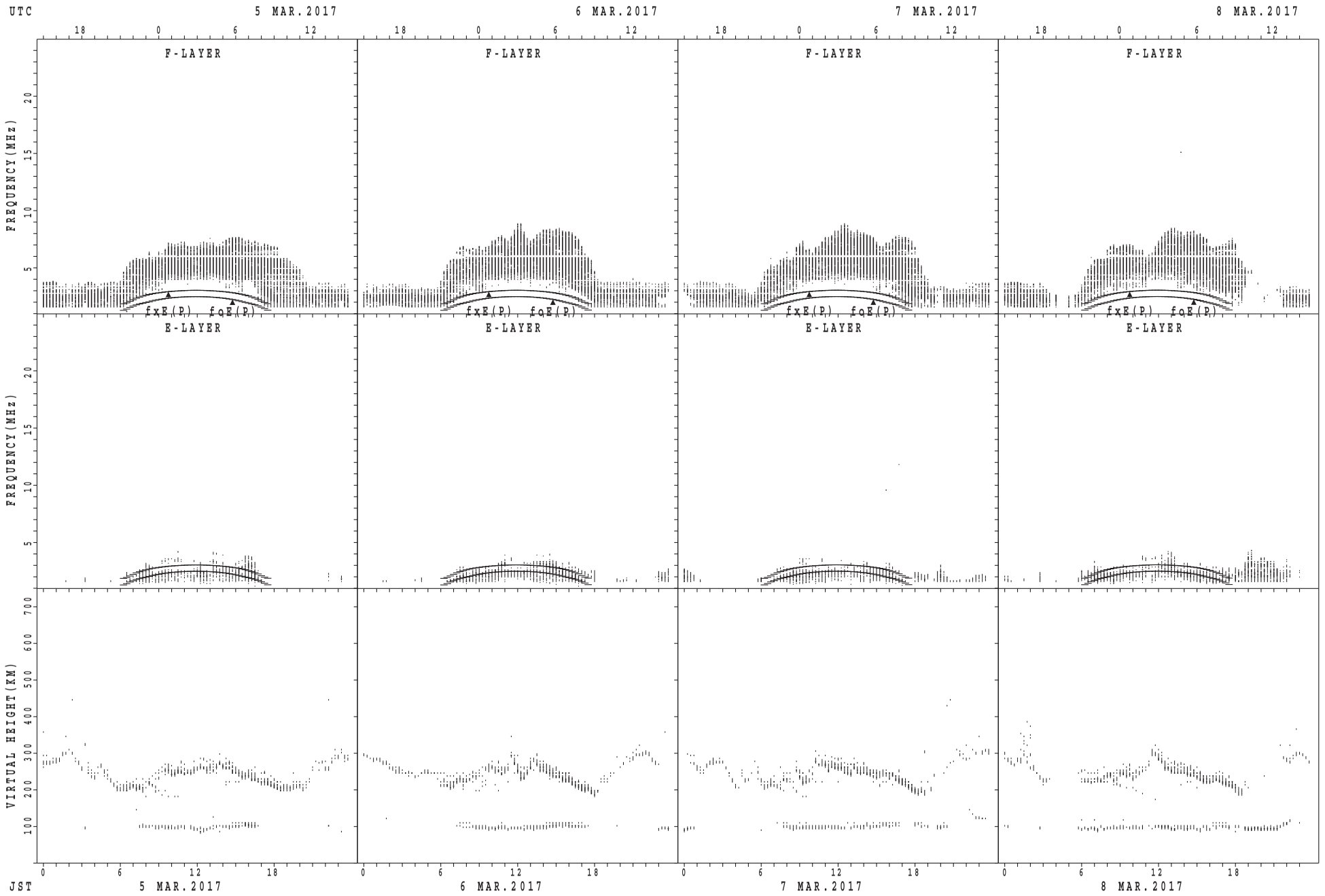
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



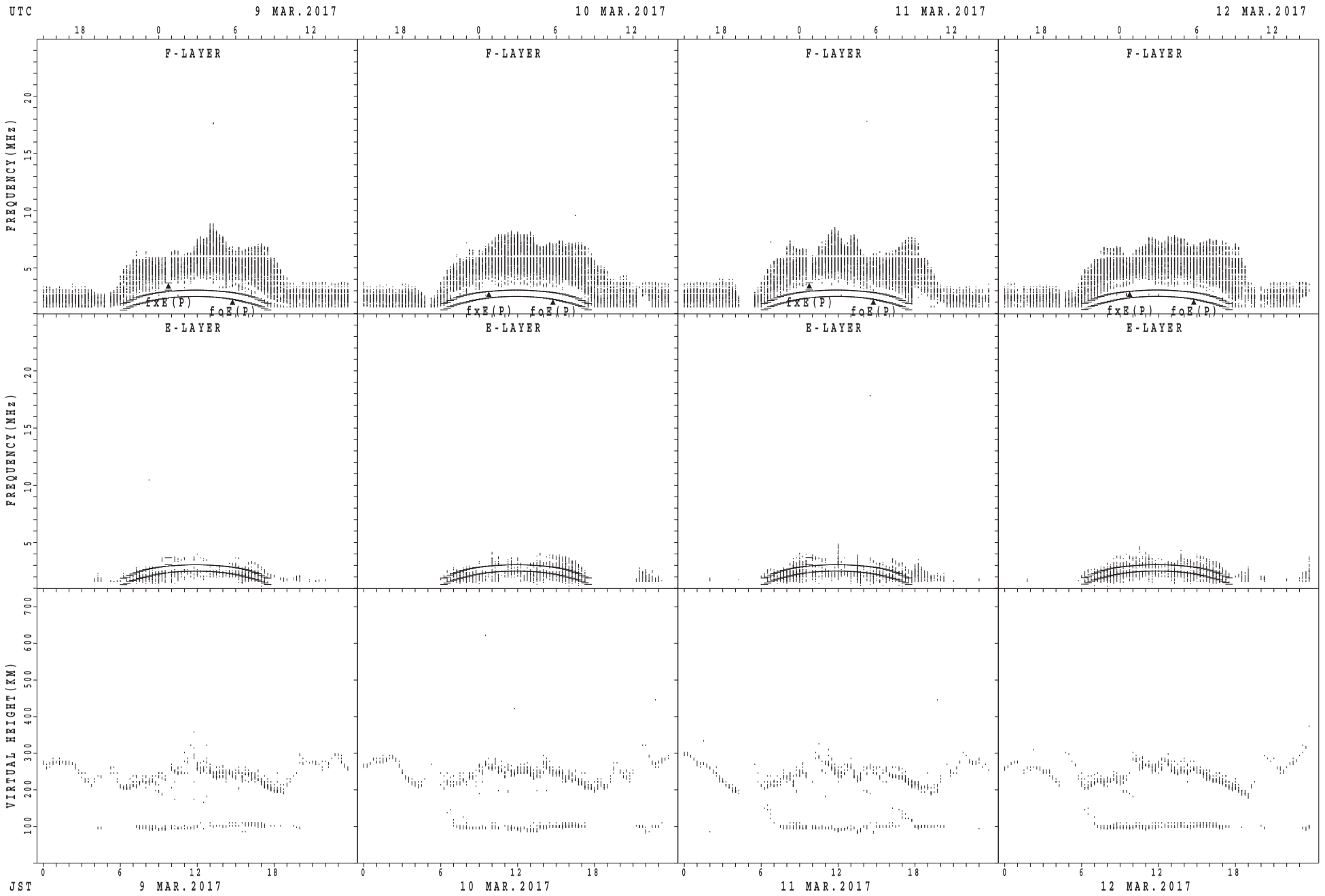
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



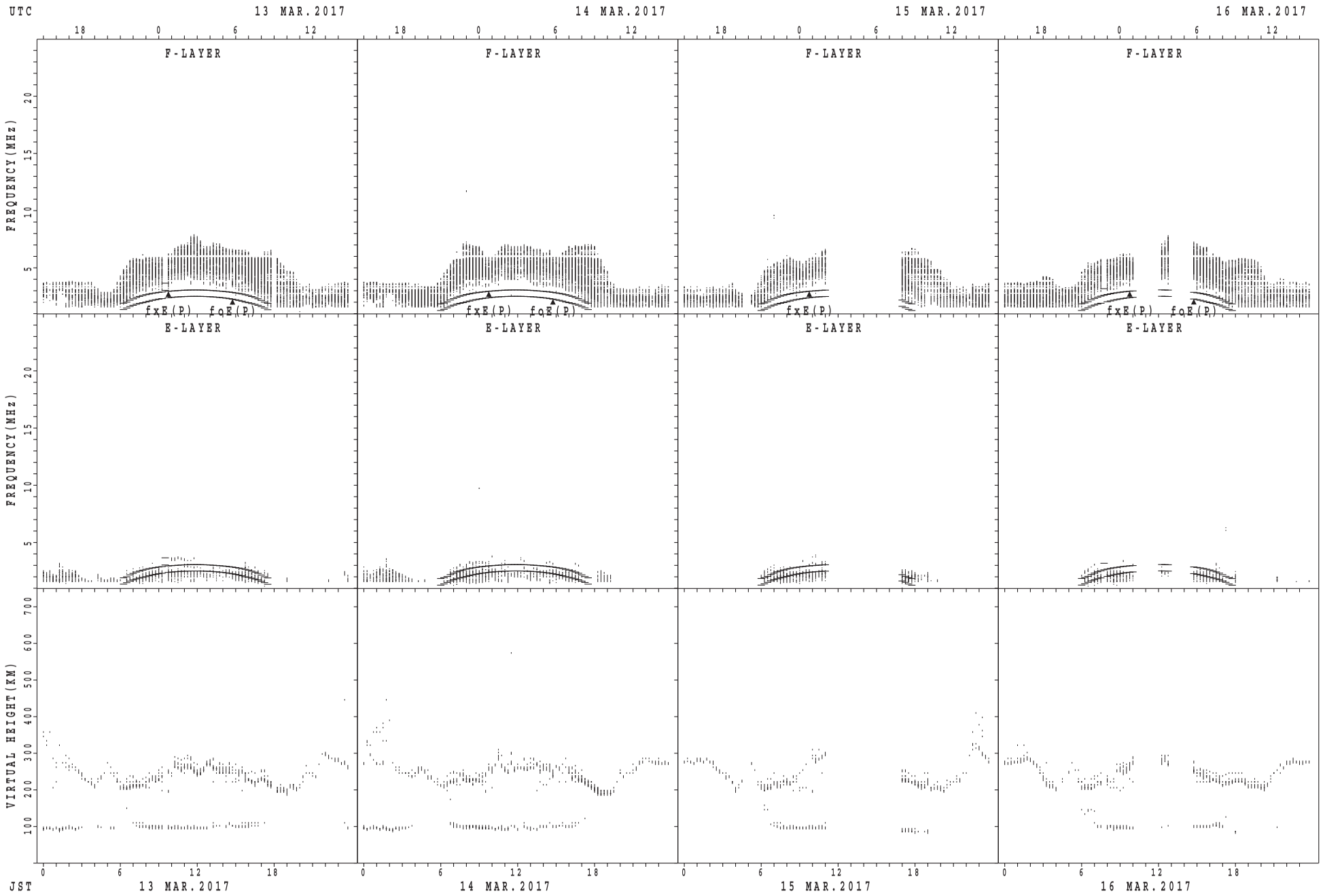
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



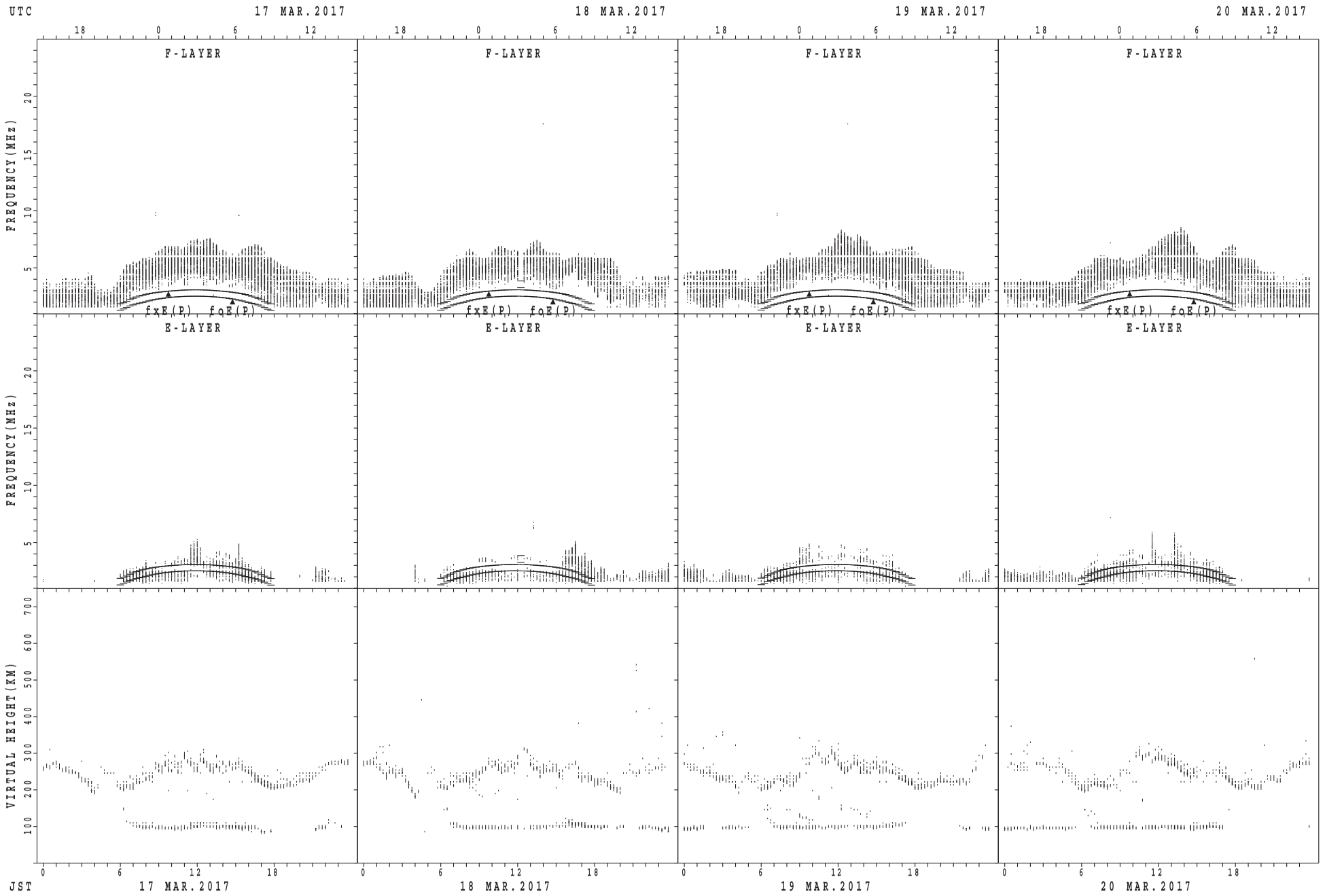
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



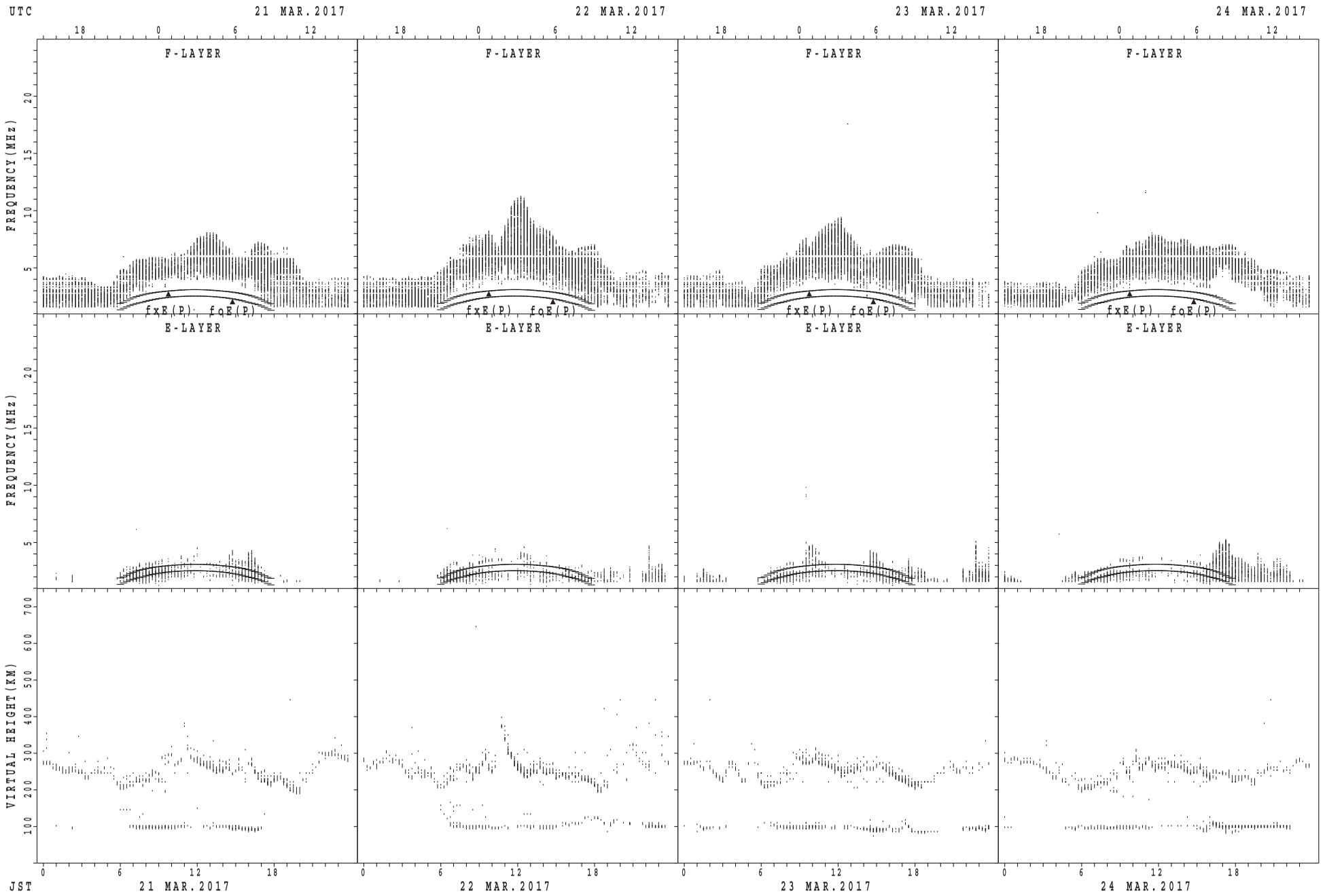
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



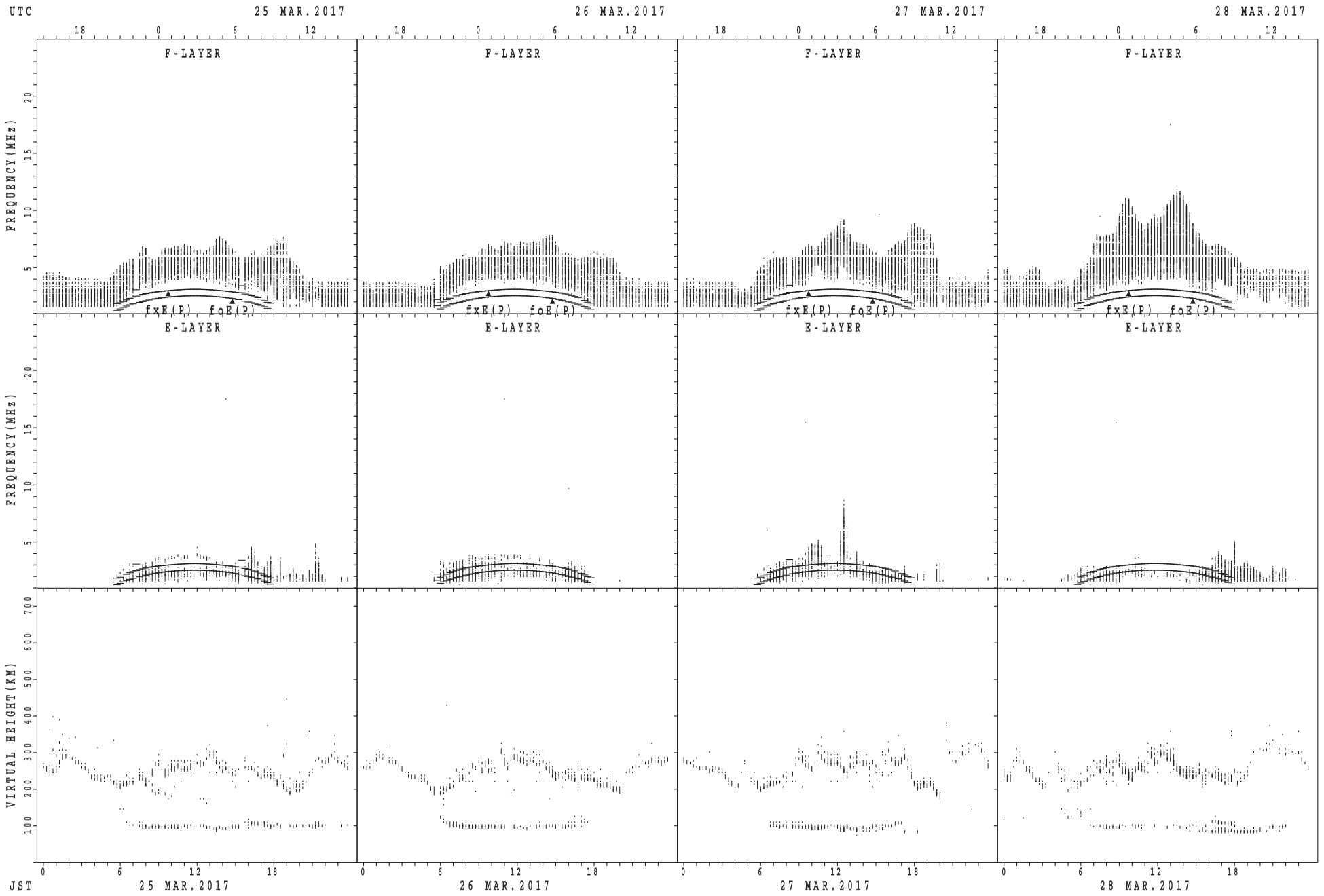
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



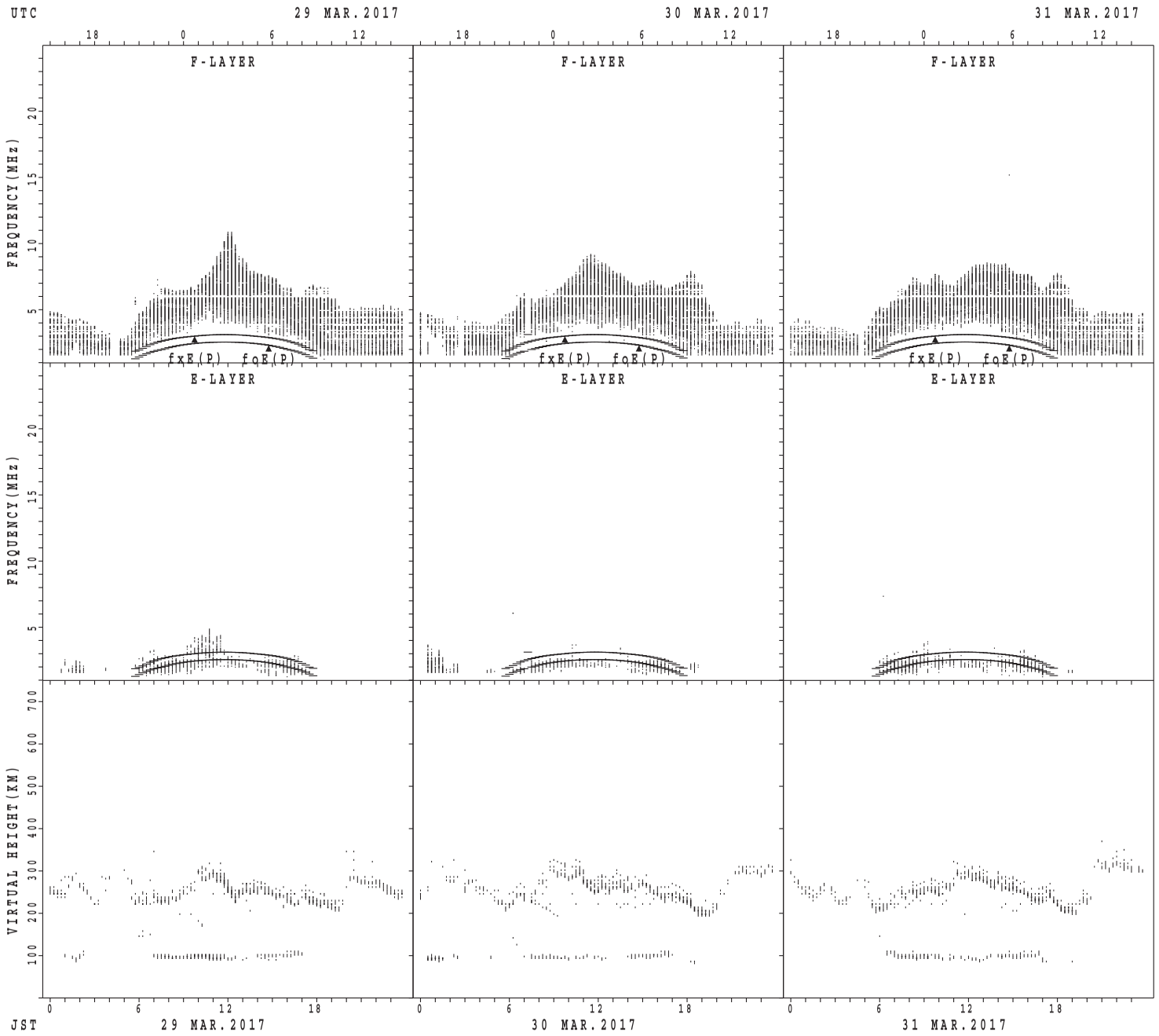
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



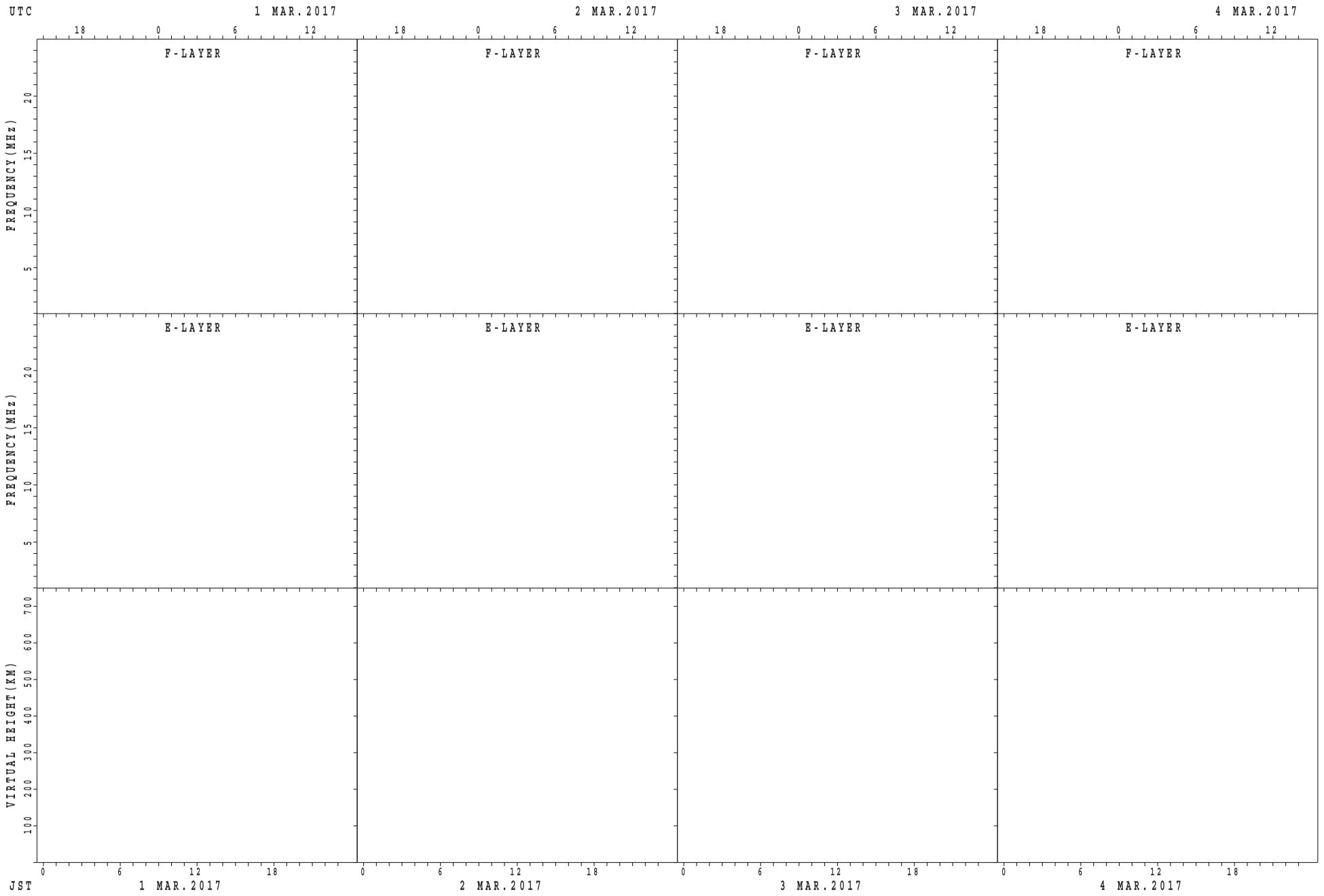
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



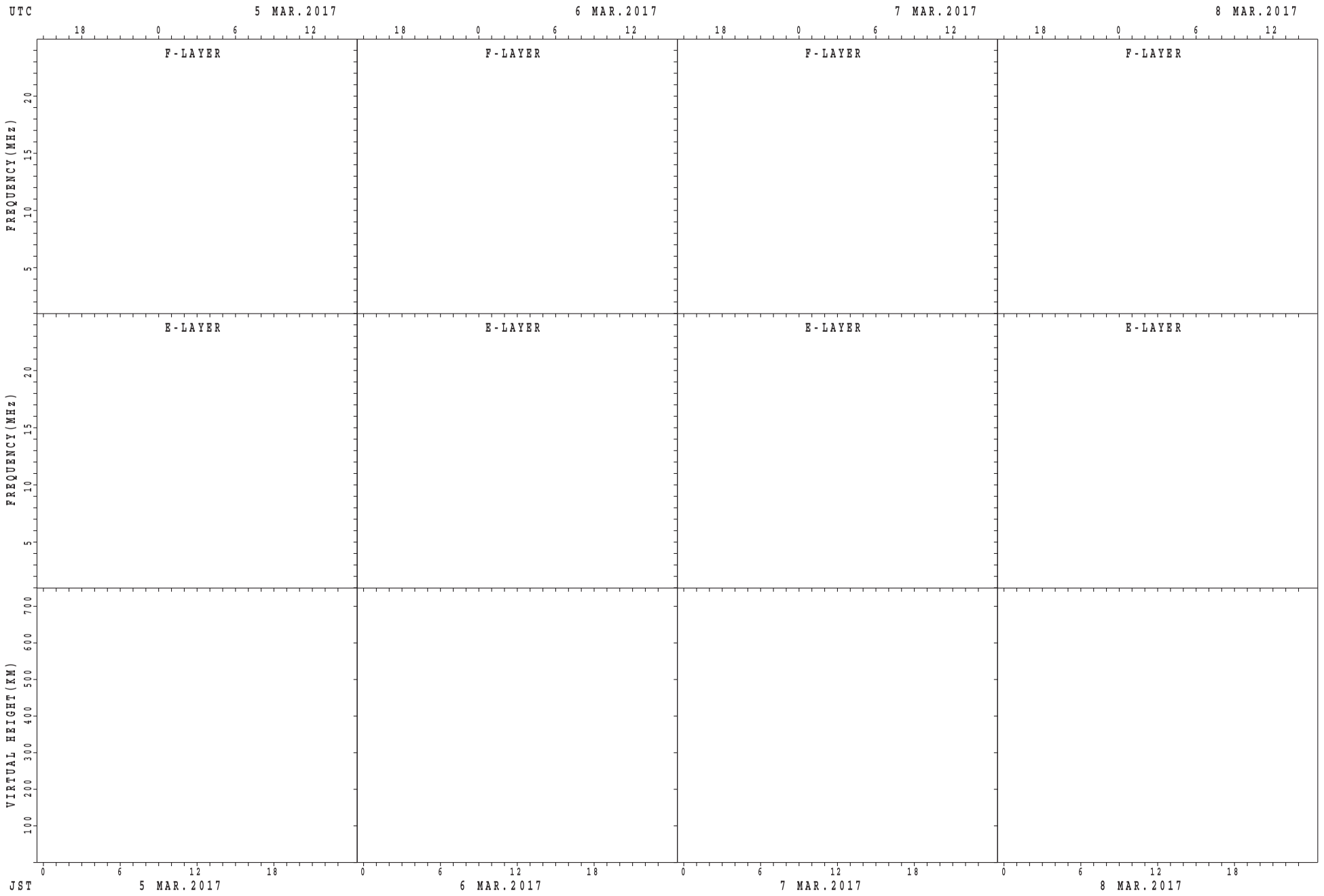
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



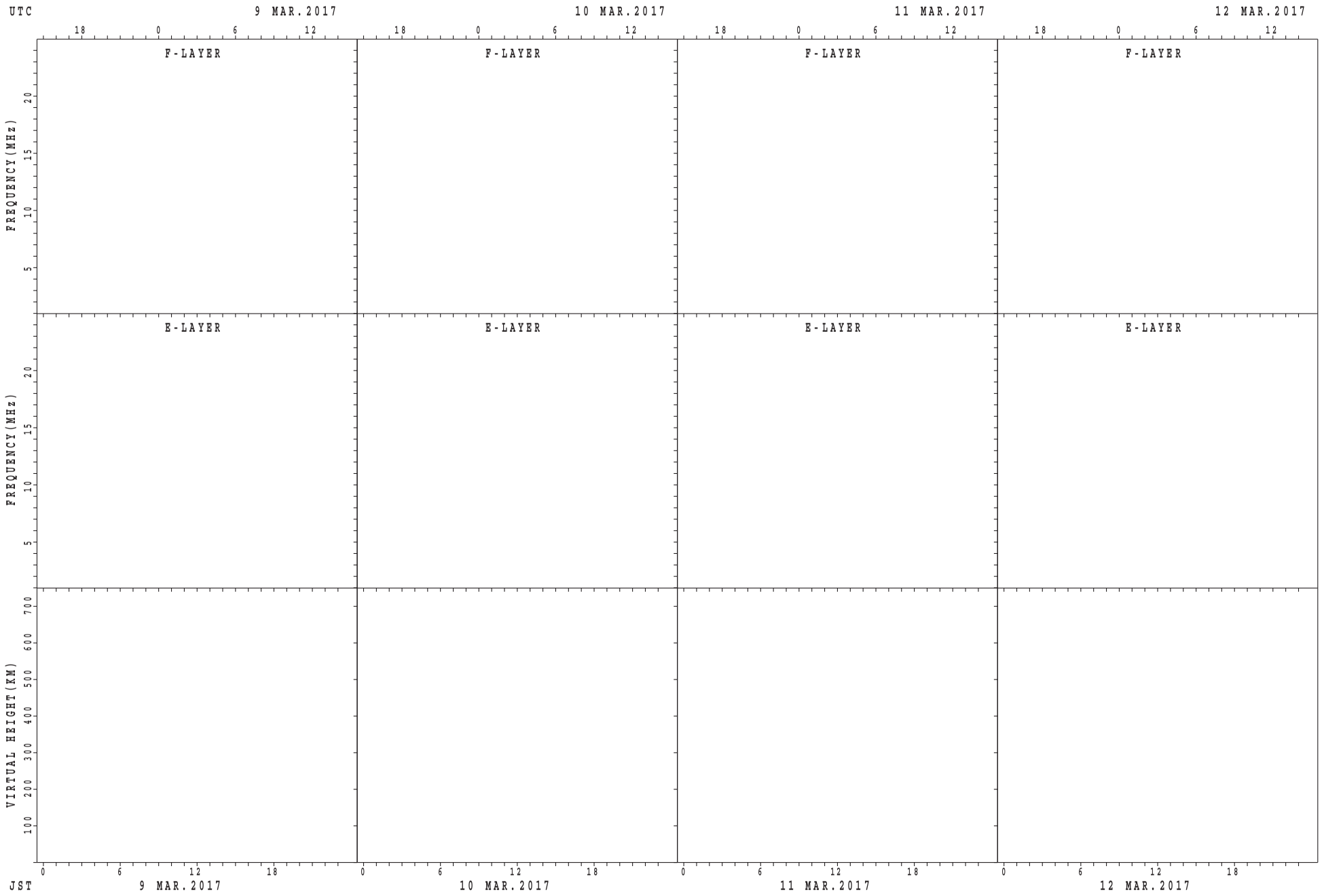
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



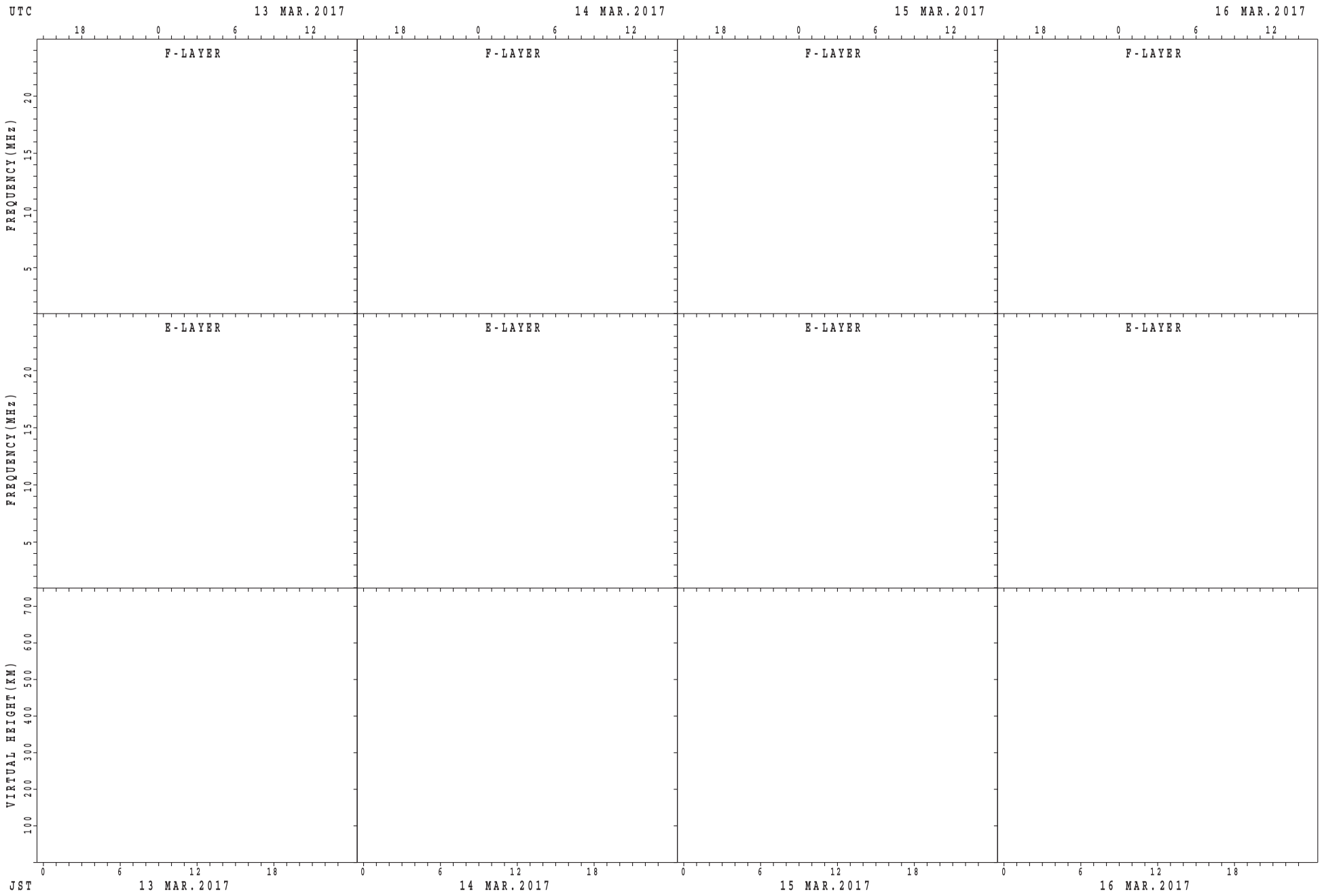
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



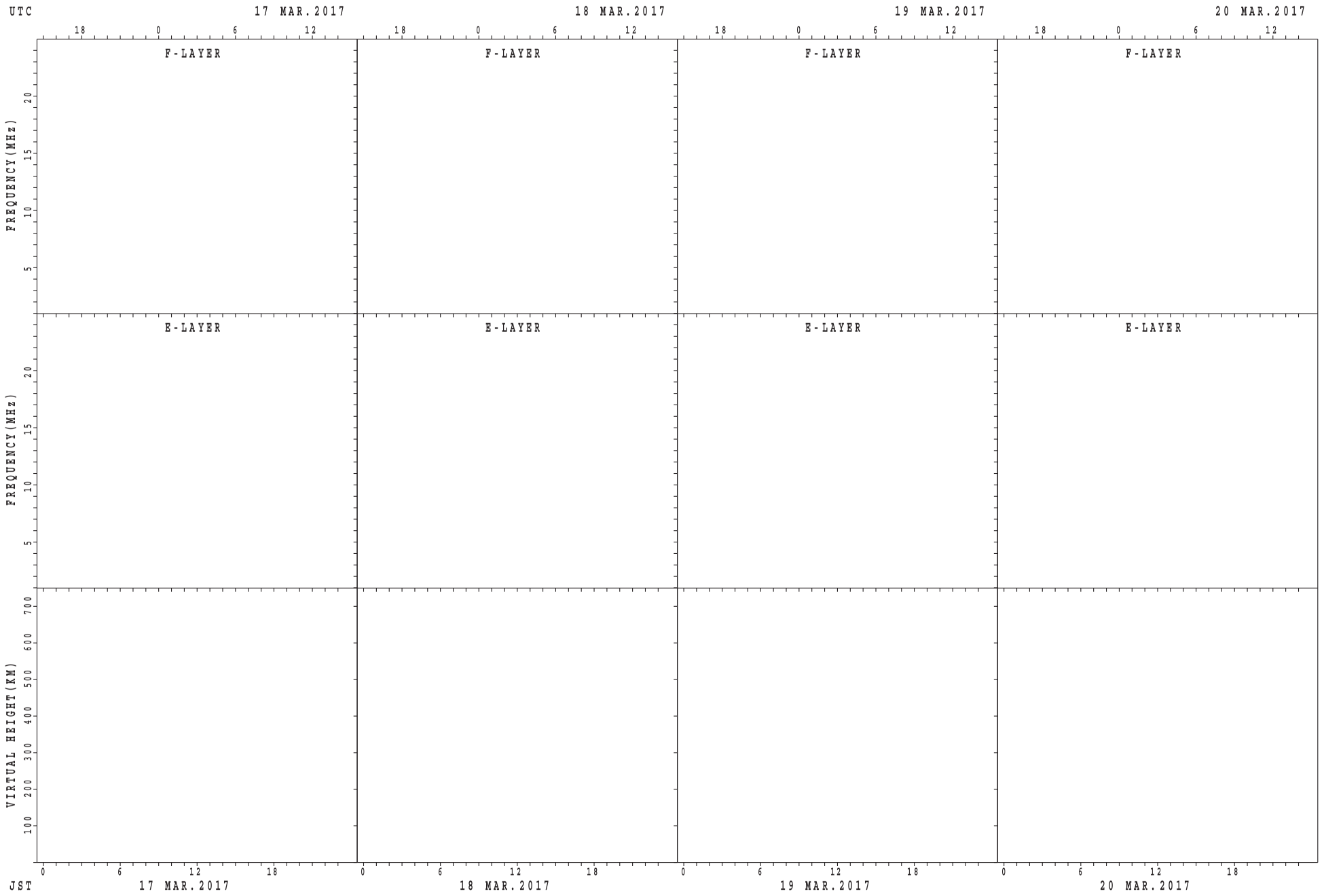
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



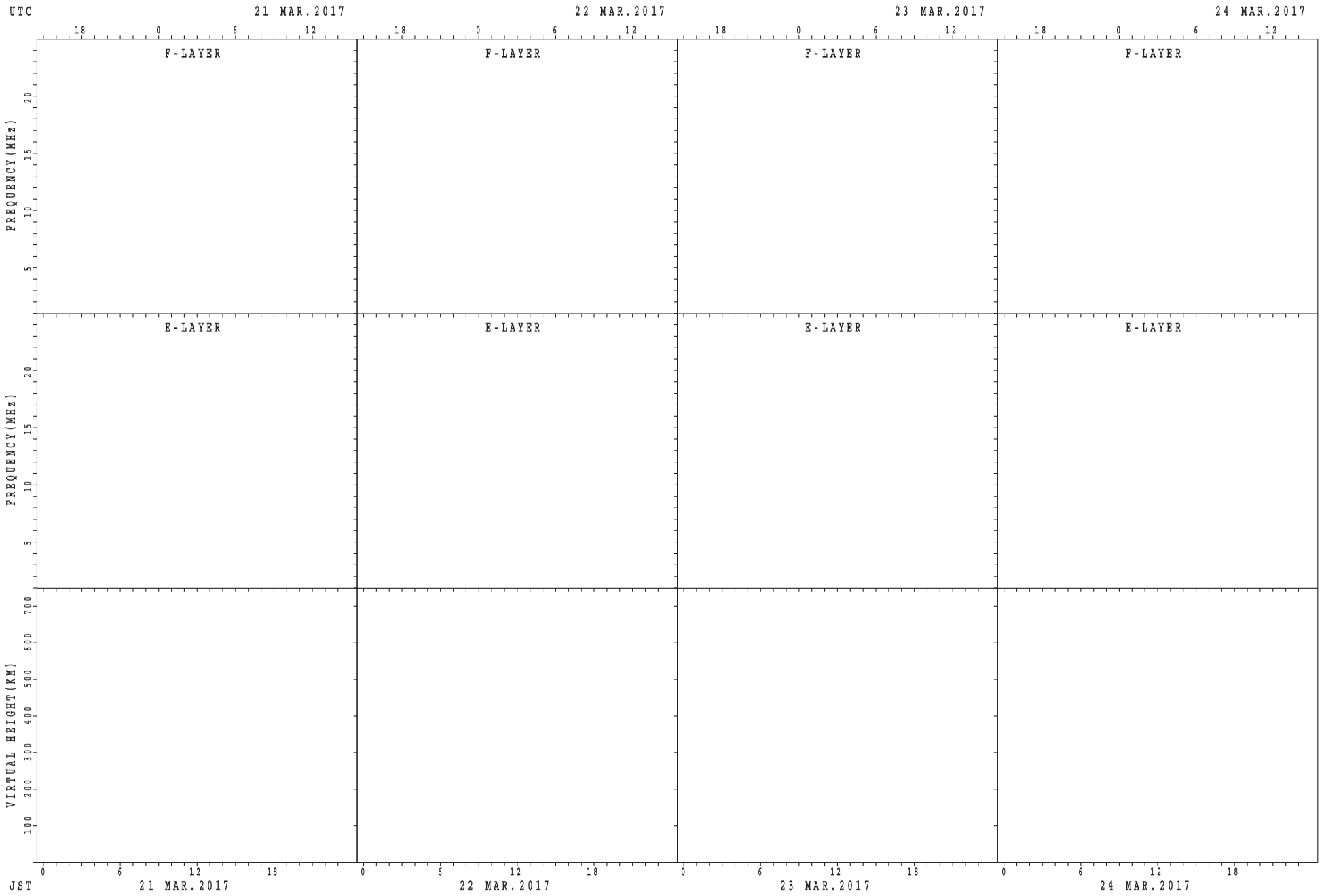
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



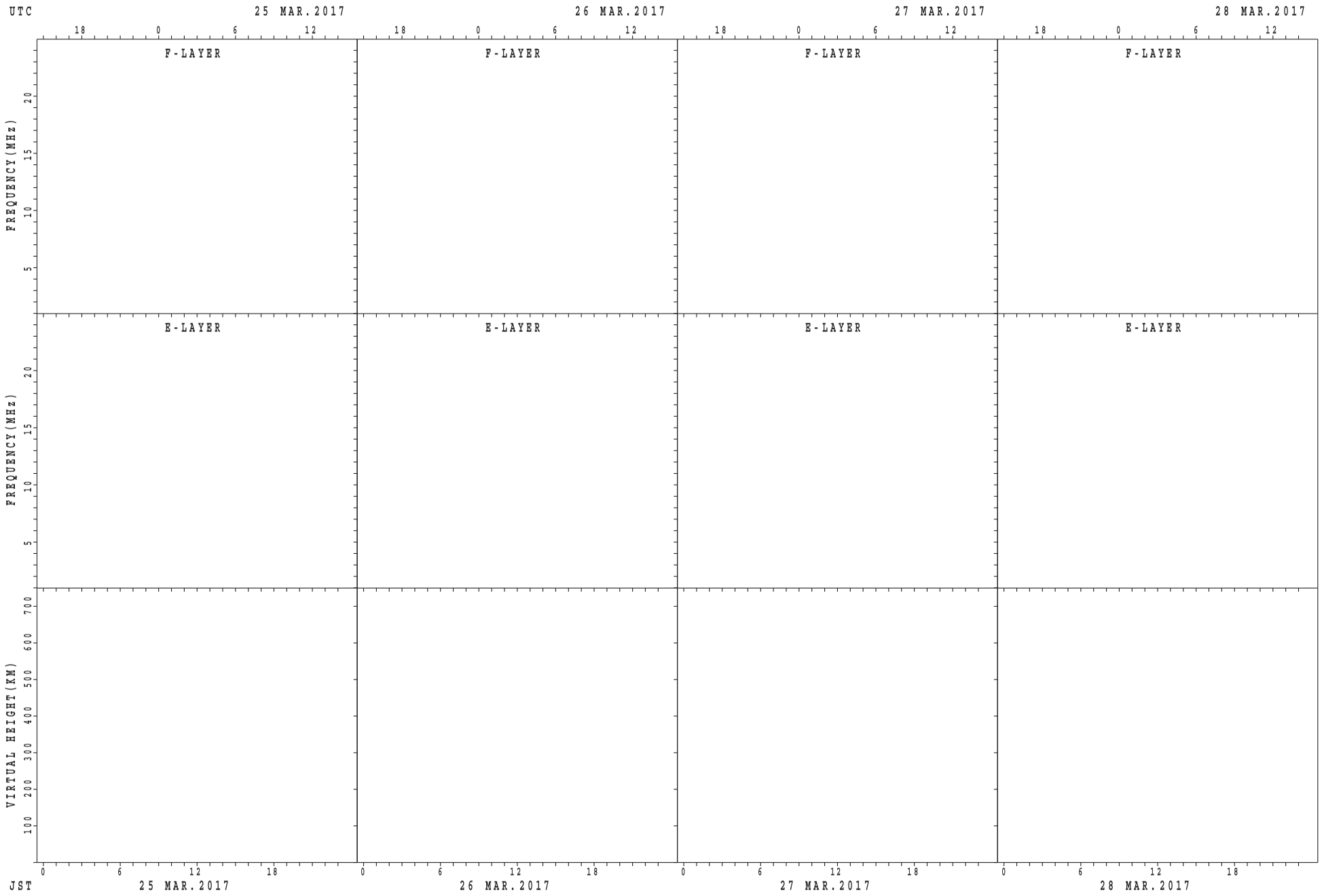
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



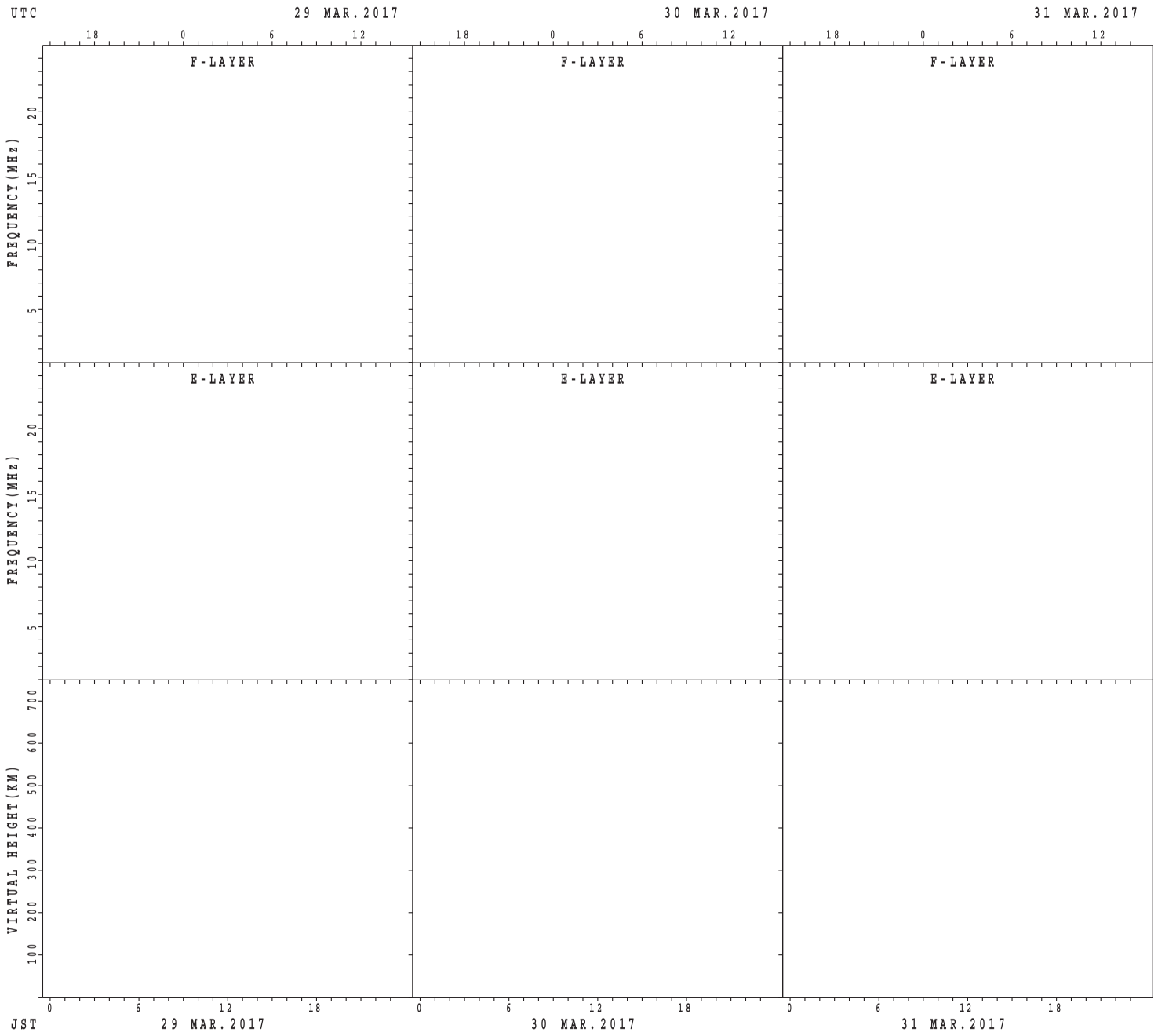
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



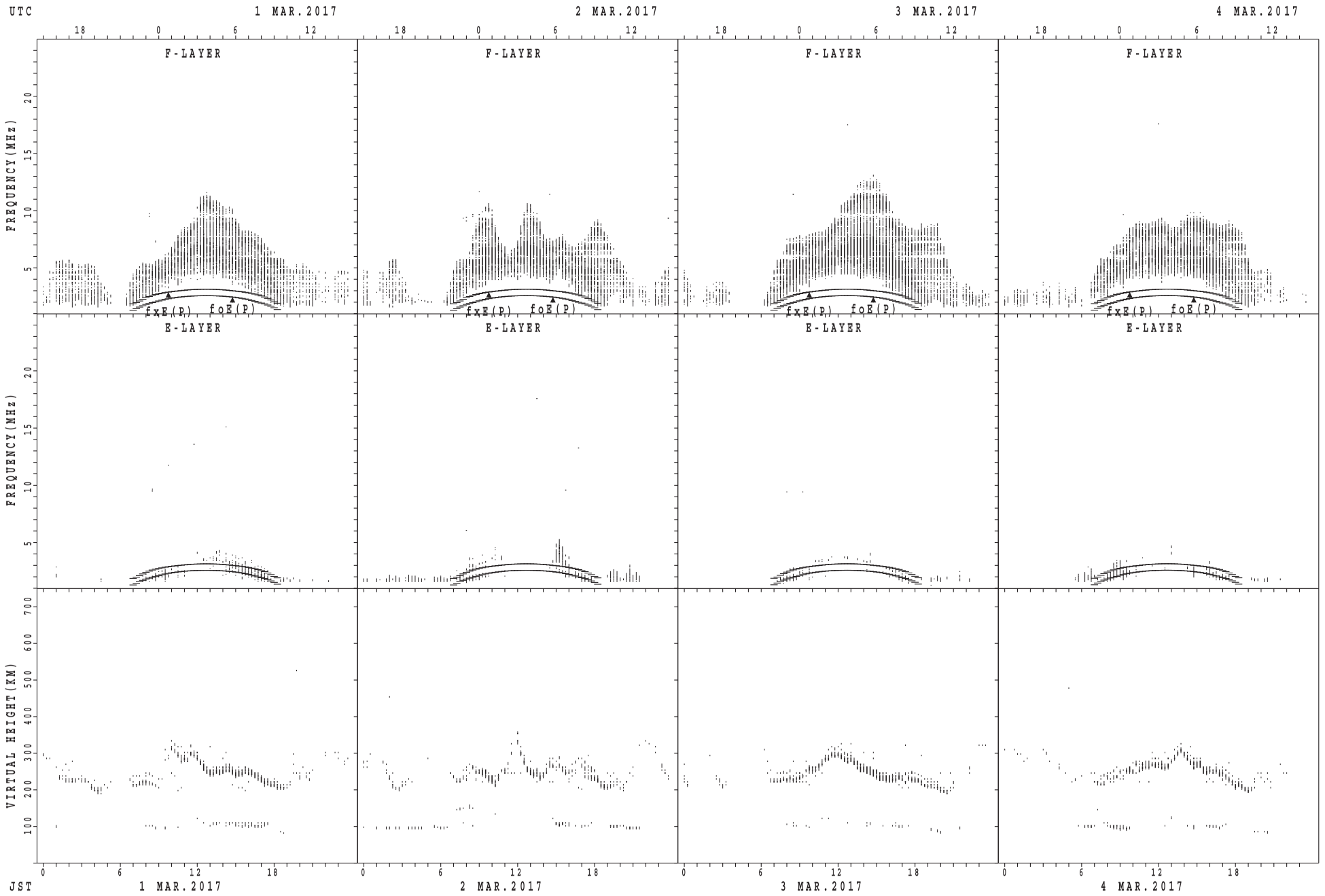
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



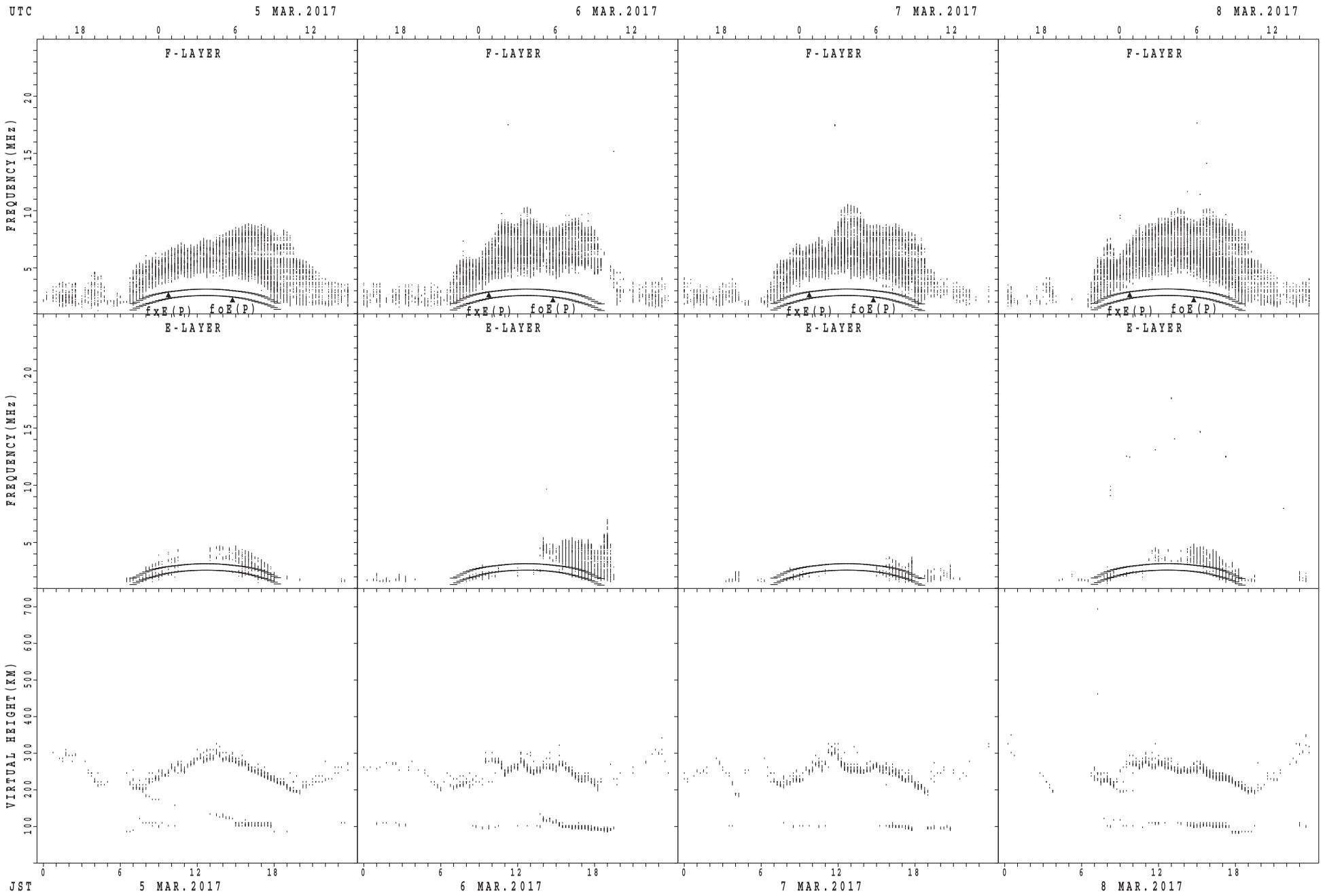
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



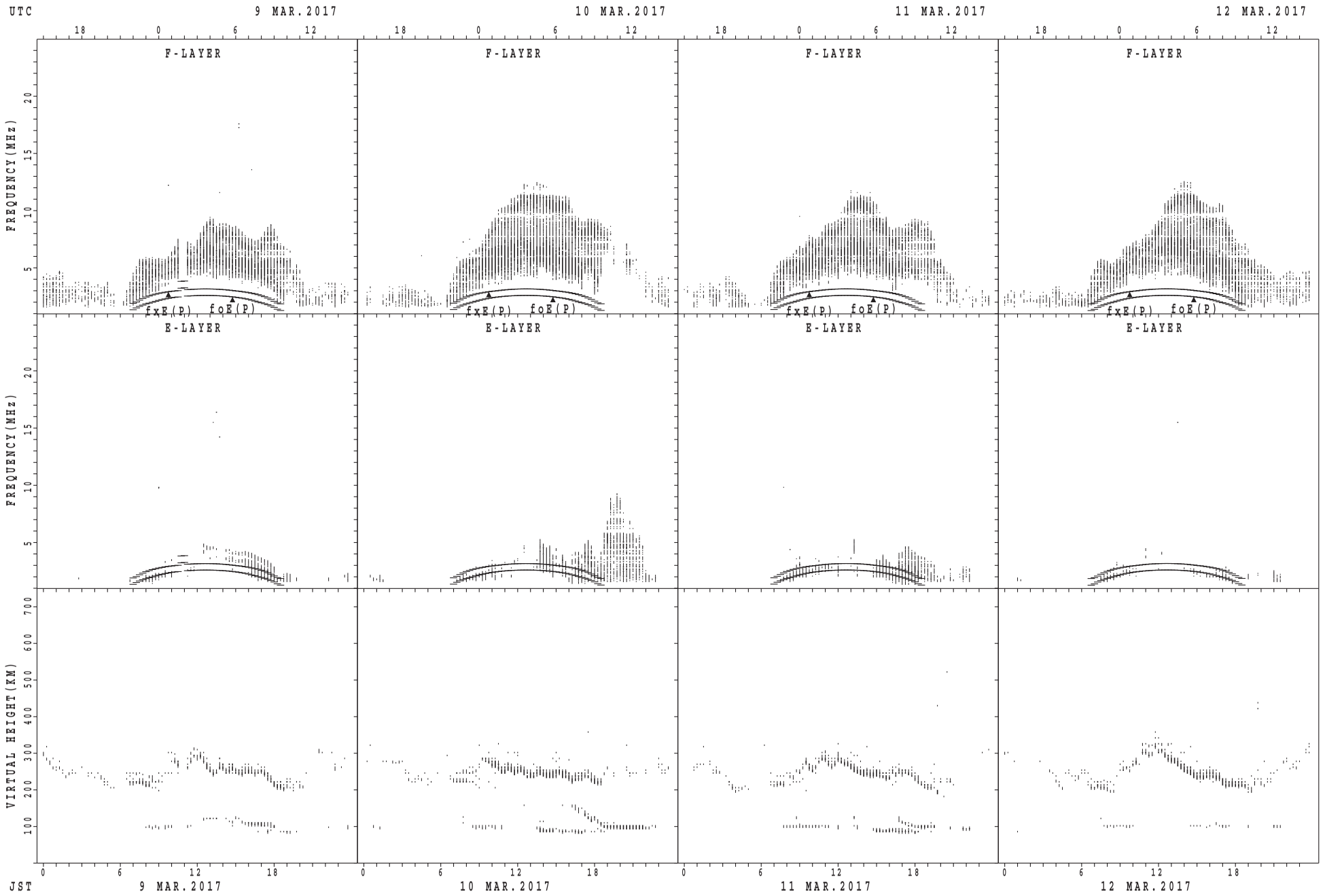
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



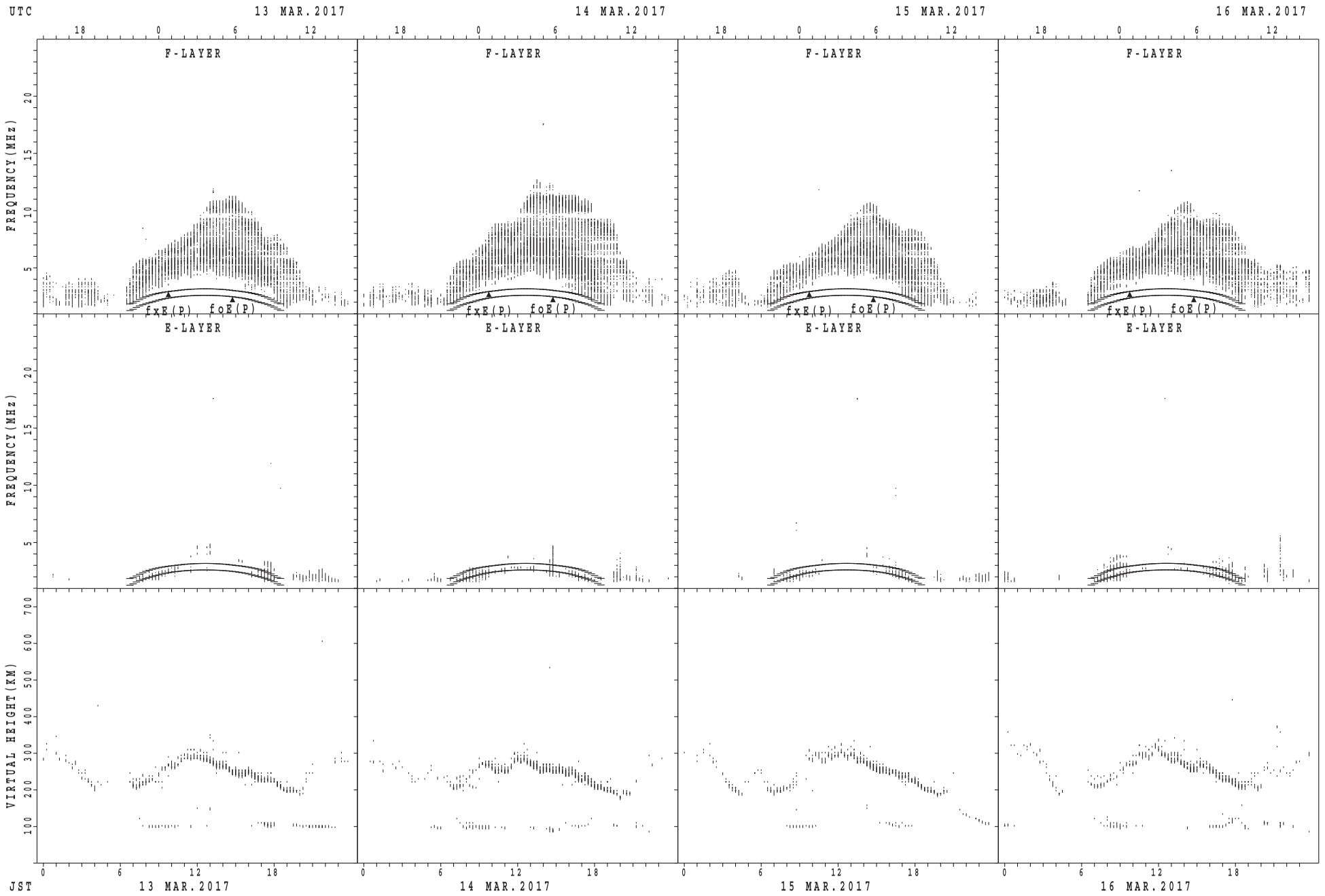
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



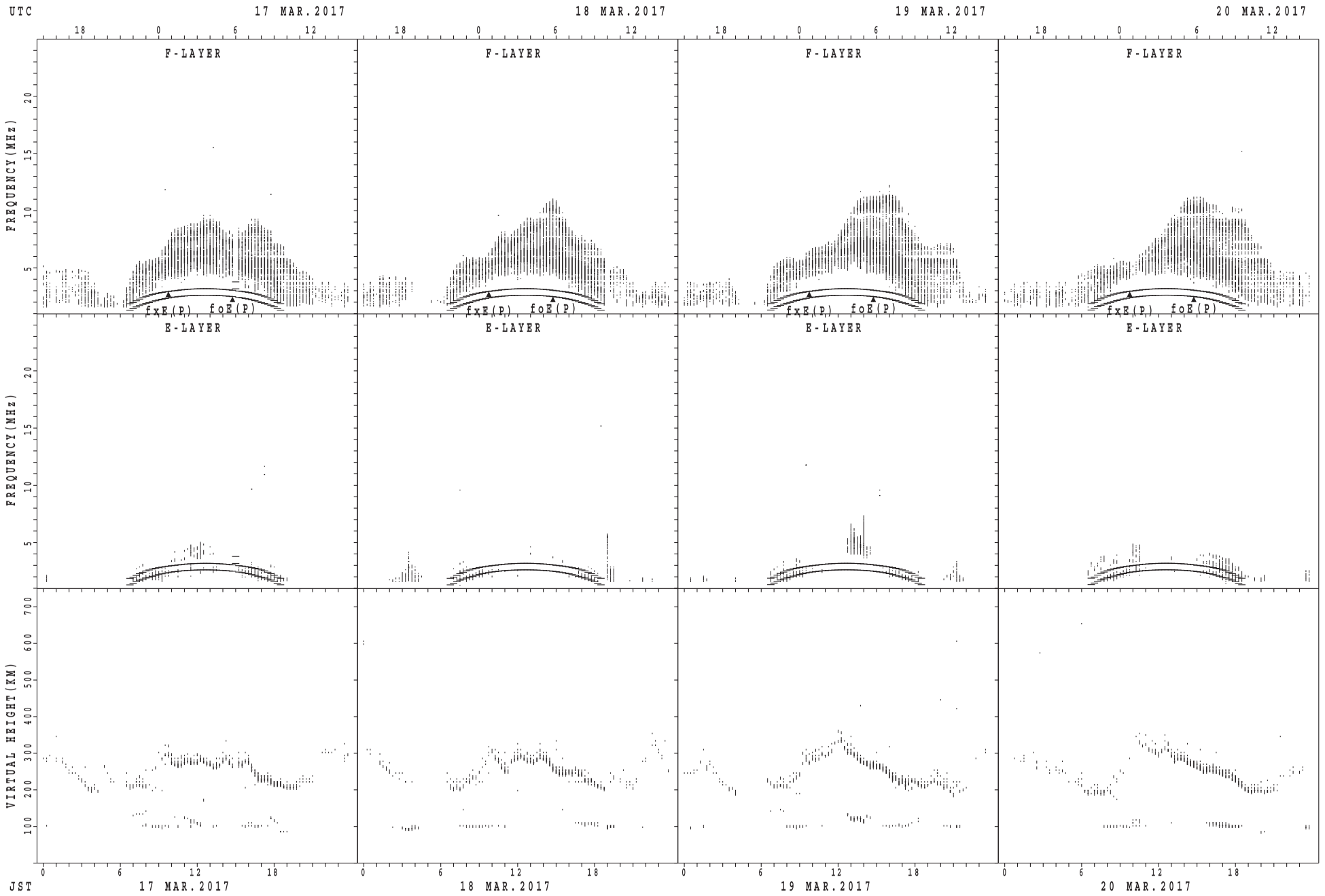
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



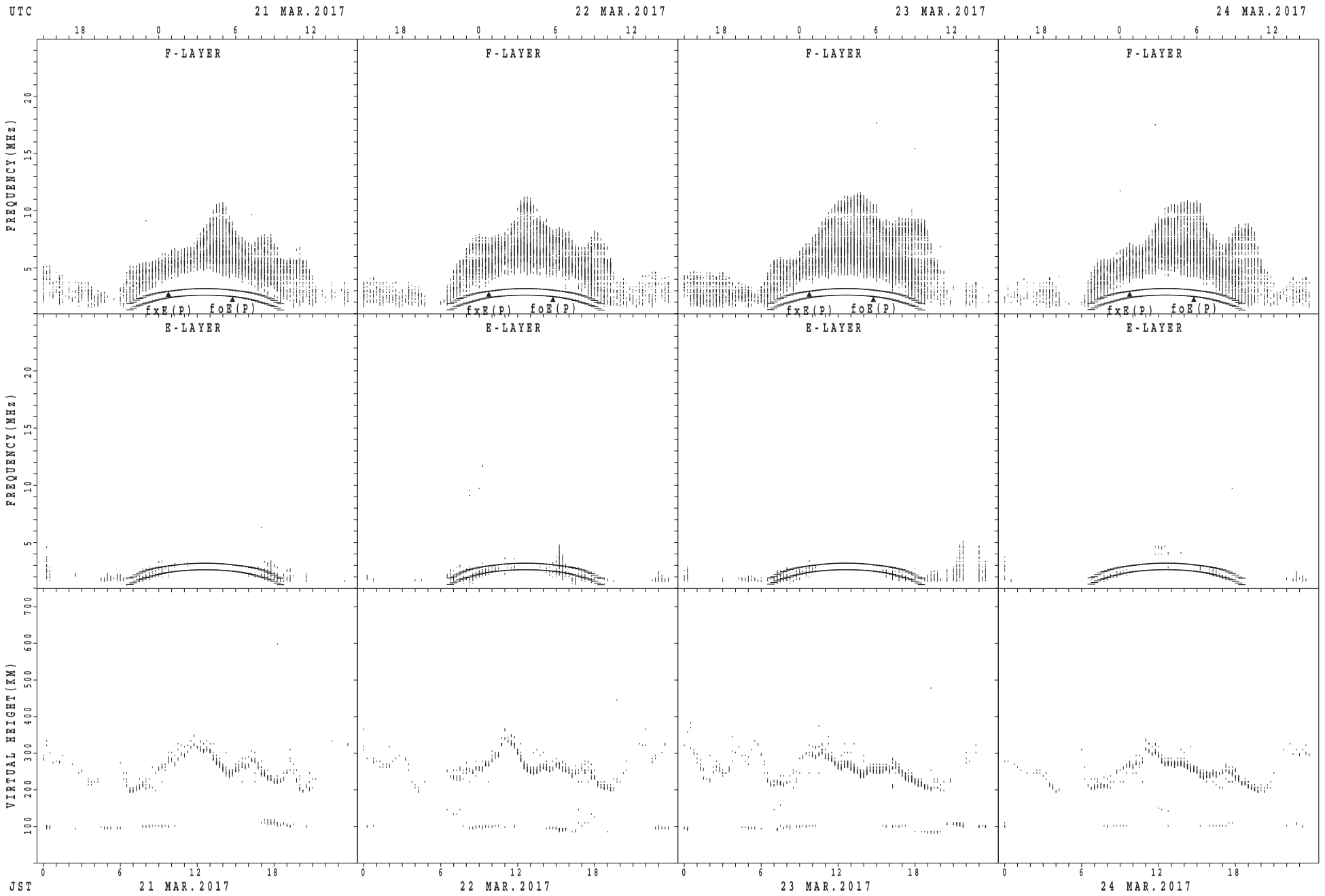
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



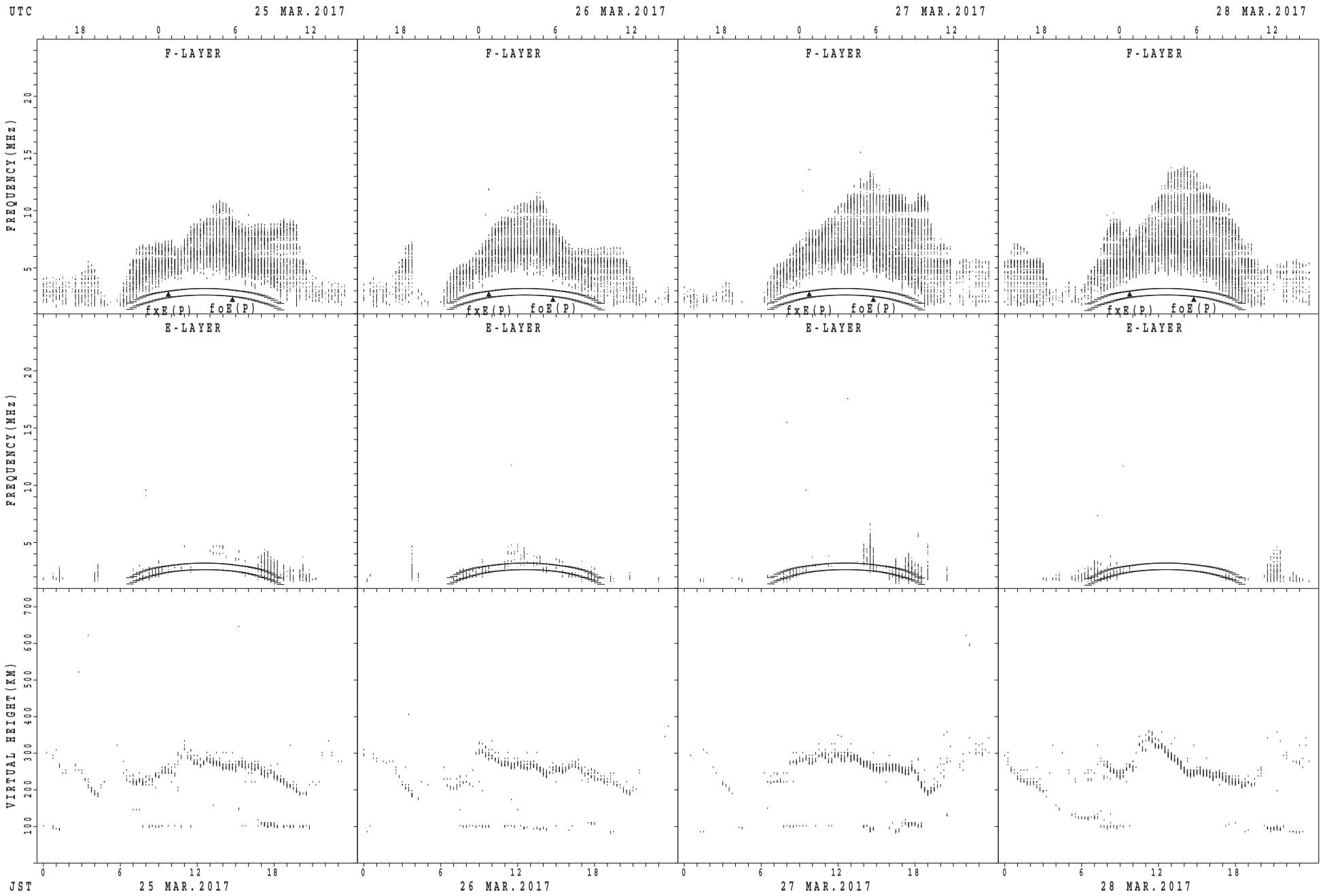
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



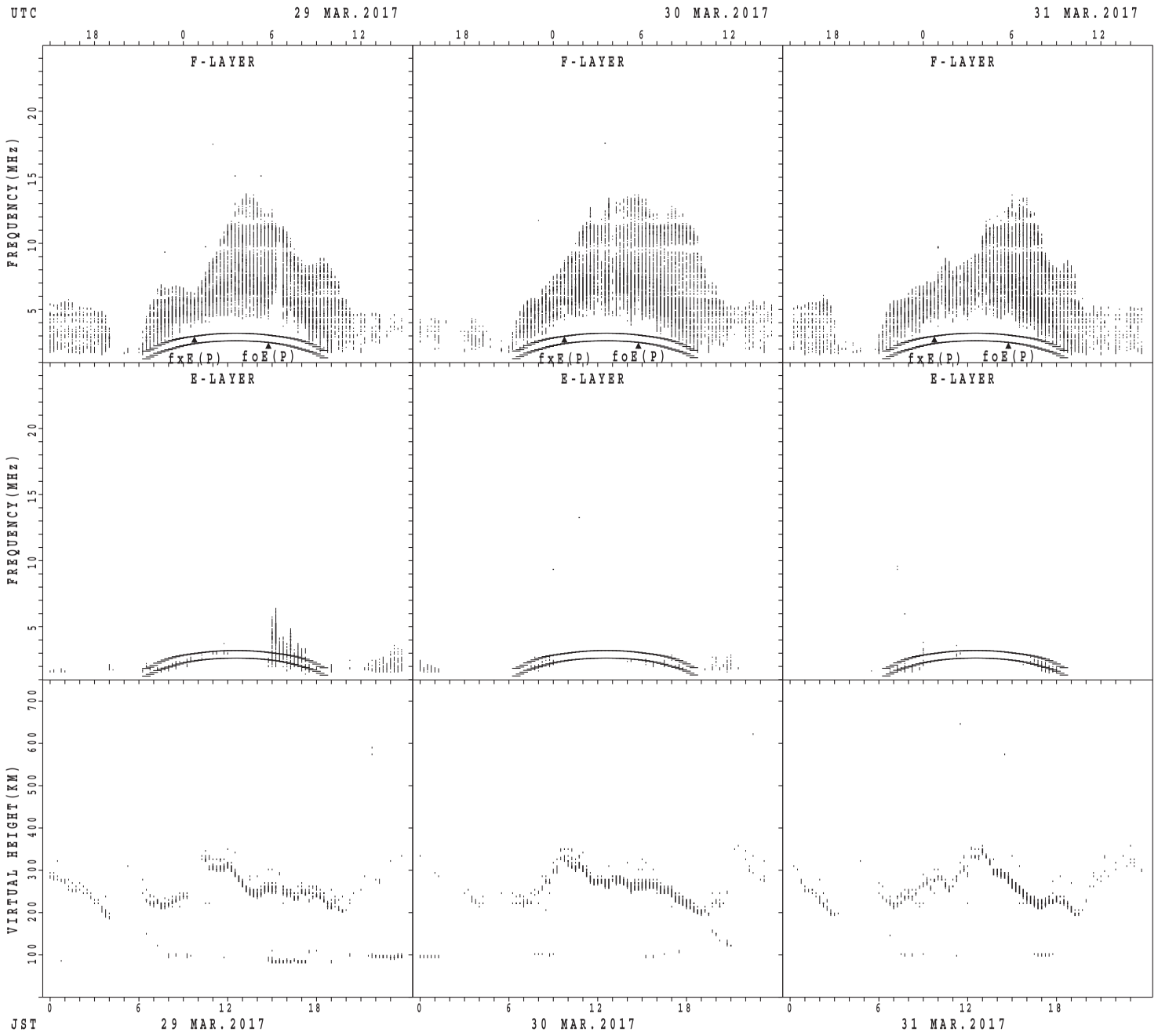
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



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

SUMMARY PLOTS AT Okinawa



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

MONTHLY MEDIANS OF h'F AND h'Es

MAR.2017 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									8	6						11	7	5	4	1				
MED									234	226						234	234	242	242	256				
U Q									264	234						240	252	282	250	128				
L Q									224	222						232	226	225	229	128				

h'Es

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	1	2	1		1	4	11	26	25	29	28	31	28	23	22	27	12	7	7	7	2	3	2	2
MED	83	83	81		147	105	149	105	95	95	90	95	94	97	95	95	95	83	85	87	89	95	87	88
U Q	41	83	40		73	118	167	131	122	113	95	107	101	137	101	95	113	101	95	99	91	97	91	89
L Q	41	83	40		73	96	123	99	90	90	87	87	89	91	91	89	92	73	77	79	87	89	83	87

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

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								1	14	3						11	19	19	12	2				
MED								256	245	264						246	256	244	239	227				
U Q								128	266	266						260	264	250	248	232				
L Q								128	238	228						238	240	230	227	222				

h'Es

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	6	8	5	3	3	3	15	23	19	15	12	15	12	12	17	15	27	22	16	8	12	5	9	6
MED	95	97	95	97	97	101	151	109	99	99	102	103	140	107	101	105	105	102	100	101	99	95	101	100
U Q	97	99	98	97	183	127	155	161	105	107	109	171	173	117	113	105	107	107	105	103	104	101	104	105
L Q	95	95	95	95	95	97	129	103	99	99	99	99	100	102	96	101	101	95	93	93	97	95	97	95

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

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT																								
MED																								
U Q																								
L Q																								

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																								
MED																								
U Q																								
L Q																								

MONTHLY MEDIANS OF h'F AND h'Es

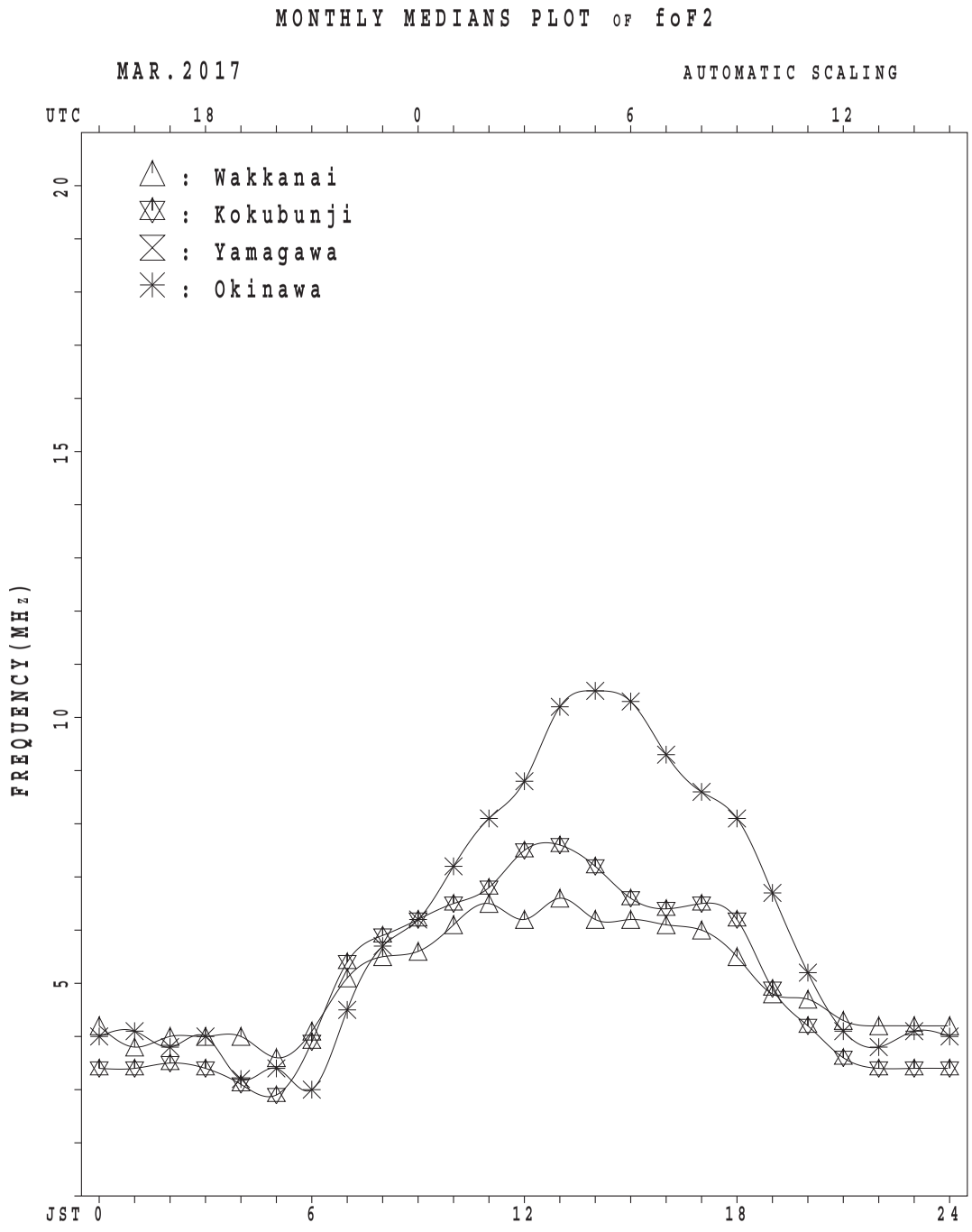
MAR.2017 135E MEAN TIME(UTC+9H) AUTOMATIC SCALING

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

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT		1							8	12							20	30	30	15	2			
MED		268							251	258							246	240	232	224	237			
U Q		134							261	279							254	254	244	232	238			
L Q		134							239	237							240	230	224	222	236			

h'Es

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	4	2	1	1	1	1	2	4	5	7	1	3	6	6	6	11	15	15	14	12	6	6	4	5
MED	101	107	97	95	97	97	112	131	107	107	115	105	129	123	117	109	107	105	105	97	106	103	99	105
U Q	106	111	48	47	48	48	127	141	126	139	57	131	153	135	133	117	111	111	113	106	151	109	101	114
L Q	97	103	48	47	48	48	97	117	102	103	57	105	113	123	103	97	103	103	97	89	103	97	97	96


MONTHLY MEDIANS PLOT OF foF2
MAR.2017
AUTOMATIC SCALING
UTC
18
0
6
12
△ : Wakkanai
✡ : Kokubunji
⧖ : Yamagawa
✳ : Okinawa
FREQUENCY(MHz)
20
15
10
5
JST 0
6
12
18
24

IONOSPHERIC DATA STATION Wakkanai

MAR. 2017 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 53	X 54	X 53	X 53	X 53	X 49														X 65	X 62	70	X 64	X 66
2	X 58	X 56	X 49	X 38	X 33	X 32														92	X 51	X 54	X 63	54
3	X 51	X 46	X 46	X 41	X 33	X 29														X 39	X 40	X 40	X 38	X 40
4	X 42	X 42	X 44	X 44	X 39	X 33														X 46	X 35	X 38	X 42	X 43
5	X 43	X 39	X 42	X 40	X 40	X 39														X 63	X 48	X 44	X 42	X 42
6	X 43	46	X 39	X 46	X 41															X 43	X 47	X 45	X 45	X 43
7	X 44	X 44	X 42	X 42	X 39															X 41	X 41	X 41	X 46	X 44
8	X 41	X 37	X 39	X 39	X 42															X 46	X 42	X 42	X 41	X 43
9	X 43	X 44	X 43	X 43	X 49															X 55	X 57	59	59	59
10	X 55	X 53	59	X 50	X 46															X 51	X 45	X 44	X 44	X 43
11	X 42	X 44	X 42	X 39	X 39															X 51	X 42	X 40	X 41	X 41
12	X 41	X 41	X 42	X 39	X 41															X 46	X 45	X 43	X 40	X 40
13	X 41	X 41	X 41	X 41	X 37															X 49	X 48	X 46	X 46	X 46
14	X 49	X 49	X 51	X 49	X 49															X 46	X 47	X 43	X 44	X 45
15	X 45	X 45	X 45	X 42	X 39															X 52	X 51	X 51	X 46	X 46
16	X 45	X 45	X 47	X 47	X 49															X 53	X 54	X 54	X 51	X 51
17	X 51	X 51	X 49	X 49	X 45															X 50	X 51	X 49	X 49	X 51
18	X 51	X 49	X 47	X 47	X 47															X 52	X 53	X 54	X 50	X 50
19	X 49	X 50	X 53	X 52	X 51															X 58	X 55	X 50	X 47	X 48
20	X 46	X 45	X 47	X 46	X 46															X 57	X 54	X 51	X 51	X 51
21	X 51	X 51	X 52	X 51	X 50															X 68	X 59	X 49	X 49	X 48
22	X 48	X 49	X 47	X 47	X 47															X 58	X 57	X 59	X 51	X 54
23	X 60	X 61	X 57	X 51	X 45															X 51	X 53	X 47	X 47	X 47
24	X 47	X 48	X 46	X 46	X 45															X 62	X 62	X 57	X 57	X 51
25	X 49	X 49	X 49	X 49	X 51															X 55	X 53	X 51	X 47	X 43
26	X 43	X 44	X 44	X 43	X 41															X 54	X 54	X 52	X 52	X 52
27	X 54	X 53	X 51	X 49	X 50															X 73	X 67	X 60	X 39	X 45
28	X 40	X 41	X 42	X 35	X 37																X 56	X 56	A	X 47
29	X 45	X 43	X 38	X 35	X 32																56	X 59	X 53	X 51
30	X 47	X 44	X 41	X 42	X 41																X 51	X 49	X 48	X 43
31	X 43	X 43	X 42	X 39	X 38																X 57	X 55	X 54	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	31	31	31	31	31	5														27	31	31	30	31
MED	X 46	X 45	X 46	X 44	X 42	X 33														X 52	X 53	X 50	X 47	X 47
U Q	X 51	X 50	X 49	X 49	X 49	X 44														X 58	X 56	X 55	X 51	X 51
L Q	X 43	X 43	X 42	X 40	X 39	X 30														X 46	X 47	X 44	X 44	X 43

MAR. 2017 fxI (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

MAR. 2017 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	46	47	46	46	46	42	50	55	53	57	64	73	76	76	70	65	63	63	60	58	55	F 60	57	59
2	52	49	42	31	26	25	27	44	70	94	63	72	70	67	76	66	60	67	73	F 70	44	47	56	F 41
3	44	39	39	34	26	22	35	59	67	64	65	64	77	79	67	72	80	69	57	32	33	32	31	33
4	35	36	37	37	32	26	36	52	61	65	64	73	77	76	76	67	67	61	46	39	28	31	35	36
5	36	33	34	33	33	32	44	C 48	R 61	63	57	67	67	64	62	67	60	59	68	56	41	37	35	35
6	36	F 34	32	39	34	32	39	49	52	59	57	64	67	77	72	68	61	54	43	36	40	38	38	36
7	37	37	35	35	32	27	30	41	47	48	54	65	57	63	61	61	59	64	52	34	34	34	39	37
8	34	30	R 32	32	35	28	37	49	53	60	58	70	63	69	68	64	56	58	52	39	35	35	34	36
9	36	37	36	36	42	38	38	53	58	56	54	58	67	67	61	63	61	55	51	48	50	F 45	F 42	F 47
10	48	46	F 41	43	39	31	36	48	53	55	59	58	62	67	66	62	60	52	44	44	38	37	37	36
11	35	37	35	32	32	26	39	46	56	64	60	70	67	62	57	54	59	62	58	44	35	33	34	34
12	34	34	35	32	34	33	38	45	50	58	66	58	65	68	64	64	57	56	53	39	38	36	33	33
13	34	34	34	34	30	27	40	51	55	57	60	63	59	67	63	52	57	54	44	42	41	39	39	39
14	42	42	44	42	42	37	42	49	50	57	63	60	59	55	57	59	56	54	46	39	40	36	37	38
15	38	38	38	35	32	29	38	44	51	56	60	58	56	56	56	57	55	53	47	45	44	44	39	39
16	38	38	40	40	42	40	43	48	55	53	56	57	60	68	60	62	51	50	52	46	47	47	44	44
17	44	44	42	42	38	32	39	48	52	55	60	61	58	54	58	58	55	53	50	44	44	42	42	44
18	44	42	40	40	40	39	42	48	50	55	61	59	59	61	53	53	55	54	51	45	46	47	43	43
19	42	43	46	45	44	41	45	51	51	56	56	60	60	63	58	60	56	52	51	51	48	43	40	41
20	39	38	40	39	39	39	44	51	56	53	60	66	59	66	62	52	56	53	51	50	47	44	44	44
21	44	44	45	44	43	41	48	47	54	56	59	66	59	60	56	57	61	56	60	61	52	42	42	41
22	41	42	40	40	40	29	49	47	48	44	54	73	66	64	63	58	58	60	55	51	51	52	44	47
23	53	54	50	44	38	36	38	44	59	53	51	54	58	57	55	58	54	52	46	44	46	40	40	40
24	40	41	39	39	38	36	44	45	48	55	58	60	59	59	60	61	57	58	60	55	55	50	50	44
25	42	42	42	42	44	42	46	46	51	55	56	58	58	60	58	58	54	54	49	48	46	44	40	36
26	36	37	37	36	34	35	46	V 46	55	56	61	54	58	60	61	58	56	57	55	47	47	45	45	45
27	47	46	44	42	43	40	45	52	58	55	63	69	64	62	58	58	58	62	76	66	60	53	32	38
28	33	34	35	28	30	24	38	43	45	62	63	67	67	77	70	68	58	55	56	52	49	49	A	40
29	38	36	31	28	25	28	38	46	46	53	53	66	64	62	64	62	55	55	52	46	F 46	52	46	44
30	40	37	34	35	34	31	37	44	51	53	60	68	67	63	61	59	55	55	57	44	44	42	41	36
31	36	36	35	32	31	31	42	49	58	58	55	68	67	67	67	64	56	58	60	53	50	48	47	45
	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	30	31
MED	39	38	39	37	35	32	39	48	53	56	60	64	63	64	61	61	57	55	52	46	46	43	40	40
U Q	44	43	42	42	42	39	44	51	58	59	63	68	67	68	67	64	60	60	58	52	49	47	44	44
L Q	36	36	35	33	32	28	38	45	50	55	56	58	59	60	58	58	55	54	49	42	40	37	37	36

MAR. 2017 foF2 (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

MAR. 2017 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										376	L	L	L	432	384	L								
2							L	L	L	L	408	428	428	L	404	L								
3										L	L	480	L	L	L	L								
4										L	L	444	L	L	392	384								
5									348	L	L	A	396	L	L	L	L								
6									L	392	420	388	432	420	392	L	L							
7								L	L	384	436	412	L	L	L	380								
8									L	384	L	416	416	416	388	L	L							
9									L	L	L	L	L	L	L	L								
10								L		L	412	432	L	412	412	L		L						
11								L		L	L	424	420	L	L									
12									L	L	416	416	400	416	L	392								
13									L	L	L	420	416	416	L	L								
14									L	396	396	416	416	416	L	376								
15									L	388	412	428	428	420	L	L								
16									L	L	404	L	428	420	416	388								
17									L	384	416	416	L	L	400	L	L	L						
18									384	404	404	424	420	L	400	376	L							
19									384	400	412	428	L	L	L	384	L							
20								L	L	L	L	444	436	432	416	376								
21									408	L	432	L	420	420	412	L	L							
22									388	412		L	436	L	L	L	348							
23									392	L	L	L	408	420	L	L	L							
24								L		420	L	416	416	428	412	L	344							
25								L	L	400	392	432	408	400	L	L								
26							L		L	L	384	L	L	440	396	L	L							
27								L	L	L	448	448	L	L	L	388	L	L						
28								L	384	L	424	432	L		L	L								
29							L	L	L	L	L	L	436	L	L	L	L	L						
30								L	L	L	440	L	432	L	424	L								
31									L	420	L	L	L	432	424	L	L	L						
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT									7	13	17	20	19	16	15	9	2							
MED									384	396	412	426	420	420	404	384	346							
U Q									392	408	428	432	432	430	416	388								
L Q									384	384	404	416	416	416	392	376								

MAR. 2017 foF1 (0.01MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

MAR. 2017 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							B 220	252	296	300	300	304	292	288	276	220	184		B					
2							184	208	216	272	284	296	308	308	288	252	224	168	B					
3							R 192	212	172	280	A	304	300	A	288	A	U R 208	180	A					
4							8 114	224	264	268	292	300	300	316	292	276	232	184	192					
5							B	216	260	248	296	308	296	312	U R 280	256	228	184	A					
6						A	A	196	232	R 260	A	A	304	304	304	260	244	176	B					
7						B	A	U R 200	236	272	A	A	R 268	296	276	264	220	B	B					
8						A	B	196	240	232	280	292	308	308	8 236	R 272	212	204	A					
9						B	B	212	240	300	300	300	300	308	292	288	244	184	B					
10						B	B	228	240	220	300	300	296	296	A	A	220	B	A					
11						B	B	200	R 264	240	296	300	300	292	292	284	228	184	B					
12						B	A	228	268	308	292	300	304	316	284	232	208	A	A					
13						B	208	204	252	288	A	300	312	312	300	284	244	188	A					
14						A	236	208	272	A	304	304	312	312	300	276	232	184	A					
15						A	176	236	264	288	312	312	312	308	288	296	232	180	A					
16						B	220	224	240	300	300	304	308	300	300	U R 284	228	A	A					
17						B	184	240	256	300	304	308	308	308	304	268	244	180	B					
18						B	184	228	272	284	308	300	320	304	288	268	244	200	212					
19						A	212	232	276	288	A	A	364	312	308	284	244	192	192					
20						B	176	212	320	304	A	328	328	328	304	A	240	204	A					
21						B	192	248	248	316	324	320	320	316	A	A	260	192	B					
22						B	B	228	R 288	276	A	A	308	312	292	268	252	184	244					
23						B	196	220	248	A	296	A	320	A	A	280	244	188	B					
24						B	192	236	248	272	A	A	316	316	316	272	272	180	A					
25						180	188	216	260	296	300	A	316	316	312	280	244	208	B					
26						B	208	236	308	304	320	320	308	308	280	292	232	A	A					
27						B	200	252	280	292	324	A	324	304	304	A	260	200	B					
28						192	192	244	U A 280	288	308	292	U R 284	A	308	292	256	200	B	A				
29						B	160	232	236	288	A	A	316	308	300	296	248	200	B	A				
30						A	200	208	264	304	300	A	320	308	A	272	228	212	200	A				
31						B	204	228	152	A	308	308	296	300	292	276	256	208	B	B				
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT						2	21	31	31	28	22	21	31	28	27	26	31	26	5					
MED						186	192	224	256	288	300	300	308	308	292	276	240	186	200					
U Q							206	232	272	300	308	308	316	312	304	284	244	200	228					
L Q							184	208	240	272	296	300	300	304	288	268	228	184	192					

IONOSPHERIC DATA STATION Wakkanai

MAR. 2017 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	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	G	G	34	36	36	J A 80	33	G 19	J A 39	G 21	24	E B 16	E B 15	E B 15	26	E B 15	24
2	23	E B 15	E B 15	21	20	J A 32	J A 19	J A 21	J A 29	31	33	34	38	J A 37	34	G 23	26	24	E B 16	E B 15	E B 16	E B 15	E B 16	21
3	22	18	18	E B 16	E B 14	E B 14	22	27	J A 34	37	J A 59	G 32	G 20	J A 29	G 19	J A 27	25	J A 17	J A 17	24	20	E B 15	E B 15	21
4	24	20	E B 16	22	24	J A 61	G 26	25	J A 97	G	32	32	32	J A 64	G	G	J A 26	31	G 19	32	E B 15	E B 15	E B 15	E B 15
5	E B 15	E B 16	E B 16	E B 16	E B 16	E B 15	E B 16	G	56	J A 31	G 20	J A 39	J A 43	G 25	31	J A 53	28	23	26	E B 15	E B 15	E B 15	18	24
6	23	E B 15	E B 15	E B 15	E B 15	20	20	G 17	G	33	39	38	G 22	J A 32	G 19	G 20	G 21	G	E B 16	18	21	21	19	25
7	21	E B 15	E B 15	22	E B 15	E B 15	26	G	G 19	G 20	J A 32	J A 32	G 21	G	G 19	G 20	26	E B 18	E B 16	E B 16	E B 16	J A 87	E B 16	E B 16
8	E B 16	E B 16	E B 16	E B 16	E B 15	20	22	22	27	32	46	37	38	G 25	G 35	G 22	24	G	18	E B 15	E B 15	E B 15	20	E B 15
9	E B 15	E B 15	E B 15	E B 15	E B 14	E B 15	E B 16	28	G 19	J A 37	G 24	34	G 20	33	32	G 20	G 19	G	E B 15	E B 15	J A 61	E B 15	E B 15	E B 15
10	E B 16	20	E B 15	E B 15	E B 15	E B 15	E B 15	G	G	J A 33	J A 54	34	34	G 28	34	J A 27	G 20	E B 16	22	21	19	22	21	E B 15
11	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	23	32	J A 32	J A 47	34	35	J A 29	J A 29	G 34	J A 33	G	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15
12	E B 16	E B 16	E B 16	E B 16	E B 15	E B 15	J A 24	J A 86	J A 48	J A 42	J A 37	39	38	35	36	J A 38	28	J A 23	J A 35	J A 56	E B 15	E B 15	E B 15	E B 15
13	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	24	J A 25	38	J A 49	40	38	39	39	G 24	G 18	G	25	26	22	18	21	20	E B 15
14	18	E B 15	E B 16	E B 15	E B 15	20	E B 15	25	J A 33	J A 103	J A 34	41	40	37	34	34	30	26	J A 24	E B 15	E B 15	E B 15	E B 15	E B 15
15	E B 15	E B 15	18	21	E B 15	J A 49	24	24	28	J A 83	38	38	32	37	37	30	26	26	23	20	E B 15	E B 15	E B 15	E B 15
16	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	G	26	J A 31	J A 31	39	39	38	34	40	34	G	26	20	20	E B 15	E B 15	E B 15	E B 15
17	E B 15	E B 15	18	20	E B 16	E B 15	26	27	J A 87	35	38	34	37	37	34	G	G 20	20	E B 15	E B 15	E B 15	E B 15	E B 16	E B 16
18	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	26	32	G 32	36	38	35	37	37	34	G 19	G 22	26	G 19	24	E B 16	E B 16	E B 16	22
19	E B 16	E B 16	E B 15	E B 15	E B 15	31	28	J A 23	31	34	42	J A 51	J A 54	36	J A 33	34	J A 27	J A 20	G	E B 15	E B 15	E B 15	E B 15	E B 15
20	E B 15	E B 15	19	19	26	E B 15	G	27	G 26	J A 37	40	36	J A 39	39	43	J A 29	32	G	25	E B 15	E B 15	E B 15	20	E B 15
21	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	21	26	31	34	34	40	38	G 25	G	J A 27	G 26	25	E B 15	E B 16	E B 16	E B 16	20	21
22	E B 16	22	E B 16	E B 16	E B 16	E B 16	J A 26	25	J A 125	38	48	40	34	37	38	G 22	32	26	J A 25	26	20	20	E B 16	E B 16
23	20	E B 16	20	20	21	E B 15	27	27	J A 32	J A 32	J A 39	J A 32	39	46	42	34	31	23	E B 15	22	J A 24	24	22	E B 16
24	20	20	20	E B 15	20	E B 15	E B 14	25	J A 30	33	J A 33	J A 33	36	G	G	G	G	23	J A 26	25	20	E B 16	E B 16	E B 16
25	E B 16	J A 21	E B 14	E B 15	E B 15	24	26	J A 86	36	J A 51	41	J A 45	J A 52	G	39	J A 43	J A 28	G	E B 15	E B 15	E B 15	E B 15	18	22
26	21	21	22	22	E B 16	E B 16	G	26	31	35	J A 32	35	35	36	J A 151	J A 103	27	J A 29	J A 26	24	E B 15	E B 15	E B 15	E B 15
27	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	G	G	38	41	36	J A 35	41	35	38	36	G	G	E B 16	E B 16	E B 16	22	E B 16	E B 16
28	E B 16	20	E B 14	E B 16	E B 16	23	23	26	J A 118	J A 51	50	J A 43	56	64	35	G	32	25	E B 16	26	E B 16	24	36	35
29	51	J A 32	E B 15	20	E B 15	E B 15	20	26	36	J A 37	J A 32	J A 33	36	G 25	G 25	G 25	32	G	E B 16	20	E B 16	34	30	23
30	22	24	22	E B 15	22	23	24	32	G 22	38	J A 33	J A 45	34	36	34	34	26	23	25	25	45	J A 25	E B 16	26
31	24	24	28	21	E B 15	E B 16	G	27	38	J A 31	38	38	35	G	G 23	G	G	G	E B 16	E B 16	E B 16	20	E B 16	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	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	E B 16	E B 16	E B 16	E B 16	E B 15	E B 15	24	25	G	35	38	36	37	35	34	G	26	23	18	18	E B 16	E B 16	E B 16	E B 16
U Q	21	20	18	20	16	20	G	27	J A 38	J A 38	41	J A 39	J A 39	37	37	J A 34	28	25	25	24	19	22	20	22
L Q	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	E B 19	G 22	30	32	33	34	34	G	G 29	G 23	G 25	G	E B 16	E B 15	E B 15	E B 15	E B 15	E B 15

MAR. 2017 foEs (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

MAR. 2017 fbEs (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	G	G	G 28	36	34	G 29	30	G 17	31	G 20	G 18	E B 16	E B 15	E B 15	E B 16	E B 15	E B 16
2	E B 15	E B 15	E B 15	E B 15	E B 15	20	G 17	G 20	24	30	31	31	33	G 30	31	G 18	G 22	20	E B 16	E B 15	E B 16	E B 15	E B 16	E B 15
3	E B 15	E B 15	E B 15	E B 16	E B 14	E B 14	G 17	G 20	27	28	30	G 31	G 17	26	G 15	23	23	G 15	E B 15	15	E B 15	E B 15	E B 15	15
4	E B 15	E B 15	E B 16	E B 16	E B 15	E B 15	E B 15	G 21	28	G	30	G 30	31	33	G	G	G 22	G 18	G 15	20	E B 15	E B 15	E B 15	E B 15
5	E B 15	E B 16	E B 16	E B 16	E B 16	E B 15	E B 16	G	28	30	G 18	38	33	G 24	28	28	G 22	G 17	E B 16	E B 15	E B 15	E B 15	E B 15	E B 15
6	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	G 16	G	28	30	30	G 22	G 30	G 16	G 18	G 19	G	E B 16	E B 15	E B 16	E B 16	E B 15	E B 15
7	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	G	G 18	G 18	30	30	G 19	G	G 17	G 17	25	E B 18	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16
8	E B 16	E B 16	E B 16	E B 16	E B 15	E B 16	16	21	25	30	37	33	32	G 23	G 28	G 19	23	G	E B 16	E B 15	E B 15	E B 15	E B 15	E B 15
9	E B 15	E B 15	E B 15	E B 15	E B 14	E B 15	E B 16	22	G 18	G 29	G 23	32	G 20	33	30	G 20	G 19	G	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15
10	E B 16	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	G	G	28	30	30	31	G 27	30	26	G 20	E B 16	E B 16	E B 15	E B 15	E B 15	E B 15	E B 15
11	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	21	28	29	G 30	30	33	G 29	G 29	G 29	24	G	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15
12	E B 16	E B 16	E B 16	E B 16	E B 15	E B 15	17	G 21	28	32	G 29	30	G 30	G 31	30	34	G 20	20	29	22	E B 15	E B 15	E B 15	E B 15
13	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	21	26	G 29	31	31	32	32	G 22	G 16	G	19	15	E B 16	E B 15	E B 15	E B 15	E B 15
14	E B 15	E B 15	E B 16	E B 15	E B 15	E B 15	E B 15	23	28	31	G 30	32	32	G 31	G 30	29	27	20	16	E B 15	E B 15	E B 15	E B 15	E B 15
15	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	G 17	G 22	G 26	30	32	G 30	G 30	G 30	32	G 28	G 23	19	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15
16	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	G	G 21	30	G 30	31	33	31	32	G 29	29	G	19	E B 16	E B 16	E B 15	E B 15	E B 15	E B 15
17	E B 15	E B 15	E B 15	E B 15	E B 16	E B 15	19	25	28	G 28	G 30	G 30	G 31	G 31	31	G	G 20	19	E B 15	E B 15	E B 15	E B 16	E B 16	E B 16
18	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	19	24	G 27	30	32	32	34	36	32	G 15	G 19	G 20	G 17	E B 16	E B 16	E B 16	E B 16	E B 16
19	E B 16	E B 16	E B 15	E B 15	E B 15	E B 16	25	G 22	30	31	33	33	G 36	33	G 28	30	G 20	G 18	G	E B 15	E B 15	E B 15	E B 15	E B 15
20	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	G	25	G 24	35	34	35	G 33	G 33	G 30	27	G 21	G	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15
21	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	G 19	G 24	29	G 30	G 32	33	33	G 24	G	24	G 24	G 18	E B 15	E B 16	E B 16	E B 16	E B 16	E B 16
22	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	16	23	30	28	36	34	32	G 30	33	G 19	27	19	G 17	E B 16	E B 16	E B 16	E B 16	E B 16
23	E B 16	E B 16	E B 16	E B 16	E B 16	E B 15	G 19	24	G 23	28	G 29	31	G 31	33	28	G 26	G 23	20	E B 15	E B 15	20	E B 15	E B 15	E B 16
24	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	E B 14	24	26	31	31	30	G 32	G	G	G	G	21	19	E B 15	E B 16	E B 16	E B 16	E B 16
25	E B 16	E B 15	E B 14	E B 15	E B 15	E B 15	19	28	29	G 30	33	34	33	G	32	28	26	G	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15
26	E B 15	E B 15	E B 15	E B 15	E B 16	E B 16	G	G 23	G 31	G 30	G 32	G 32	31	35	30	G 29	G 23	28	20	18	E B 15	E B 15	E B 15	E B 15
27	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	G	G	30	30	33	33	34	34	32	29	G	G	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16
28	E B 16	E B 15	E B 14	E B 16	E B 16	E B 16	21	G 24	29	32	36	39	42	50	33	G	27	22	E B 16	17	E B 16	E B 16	A A 36	A 27
29	E A 21	E A 22	E B 15	E B 15	E B 15	E B 15	18	25	28	34	32	31	33	G 24	G 24	G 24	27	G	E B 16	E B 15	E B 16	15	16	E B 16
30	E B 16	E B 15	E B 15	E B 15	E B 15	E B 15	21	24	G 21	G 30	30	33	33	31	32	29	24	G 20	E B 16	21	27	E B 15	E B 16	E B 16
31	E B 15	E B 15	18	E B 15	E B 15	E B 16	G	24	30	28	32	32	31	G	G 22	G	G	G	E B 16	E B 16	E B 16	E B 16	E B 16	E B 15
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31
MED	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	17	G 24	28	30	31	32	32	G 31	G	G 28	G 23	G	E B 16	E B 15	E B 15	E B 15	E B 15	E B 15
U Q	E B 16	E B 16	E B 16	E B 16	E B 15	E B 16	G	24	30	30	33	33	33	33	31	G	24	G	16	16	E B 16	E B 16	E B 16	E B 16
L Q	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	G 21	G 26	28	G 30	30	G 31	G 30	G 28	G 20	G 20	G 18	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15

IONOSPHERIC DATA STATION Wakkanai

MAR. 2017 fmin (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

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

IONOSPHERIC DATA STATION Wakkanai

MAR. 2017 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	293	287	311	309	336	330	341	368	368	364	317	345	332	346	353	343	358	358	353	317	288	F 265	299	274
2	255	346	325	304	322	325	403	326	336	349	370	351	355	330	354	353	341	333	340	F 328	321	276	284	F 286
3	245	276	312	344	373	298	360	368	347	353	367	322	332	363	334	344	366	357	333	296	318	320	304	286
4	311	302	315	315	345	305	351	354	368	378	361	331	345	346	346	340	352	360	331	337	330	305	303	289
5	289	298	297	308	306	318	371	C 392	R 373	382	371	353	344	358	330	350	353	348	359	354	328	329	318	319
6	308	F 288	306	295	315	306	359	376	370	348	344	336	334	350	358	366	367	374	336	318	319	314	314	315
7	306	303	309	310	337	338	337	365	316	352	316	351	342	333	355	344	358	358	354	345	309	330	292	273
8	307	330	R 317	313	321	341	362	376	360	372	360	343	334	345	352	356	364	363	361	343	323	299	303	309
9	294	313	295	296	314	303	375	365	368	375	369	329	333	362	349	347	362	359	335	298	286	F 314	F 279	F 287
10	280	290	F 302	311	340	279	352	372	340	341	352	338	344	341	346	347	361	364	343	306	351	293	287	288
11	295	295	312	327	351	355	357	362	364	394	348	354	360	336	351	353	337	367	354	346	332	311	310	311
12	320	320	343	320	327	335	372	350	375	311	358	347	361	360	359	360	351	350	364	365	310	318	303	318
13	311	311	333	336	344	356	366	373	352	382	332	355	317	346	377	364	359	359	355	338	336	329	306	314
14	313	316	300	312	336	333	367	371	369	364	372	365	353	364	345	350	357	360	367	330	324	321	319	313
15	323	313	313	337	339	355	376	373	332	380	365	339	345	343	331	343	358	375	346	316	345	329	332	324
16	310	310	305	309	341	326	359	374	364	371	342	348	327	349	345	353	357	351	337	328	315	325	325	322
17	327	320	312	332	334	335	369	371	360	372	346	369	341	344	355	343	354	355	347	321	334	339	322	317
18	315	315	324	324	331	338	387	394	339	329	361	362	362	354	351	352	347	348	342	331	325	345	326	324
19	328	325	303	306	324	329	379	358	364	337	350	362	348	331	366	349	355	353	345	334	337	331	324	329
20	322	324	307	313	313	350	351	361	393	355	349	346	338	341	357	368	346	363	340	333	324	338	336	328
21	325	321	314	322	304	322	383	386	356	338	322	359	358	351	323	339	341	342	321	358	337	312	315	320
22	311	319	297	345	385	284	364	367	331	347	313	330	310	317	357	344	330	350	345	311	292	306	294	303
23	289	278	310	297	341	303	374	328	351	362	311	292	331	354	322	344	354	363	335	335	313	315	309	318
24	306	290	300	300	331	328	377	371	347	333	333	332	342	349	347	343	339	353	348	326	311	325	317	310
25	304	297	289	303	331	327	390	359	348	358	353	365	360	351	347	328	350	350	339	338	325	324	319	314
26	314	311	311	313	327	350	369	V 369	386	342	348	345	327	348	344	365	352	345	343	333	322	333	304	317
27	331	319	328	342	329	338	355	355	343	345	327	340	320	356	343	347	338	314	338	331	294	351	311	290
28	295	290	349	302	303	291	335	355	288	321	331	346	317	332	343	358	352	347	337	315	294	294	A	294
29	319	316	308	302	293	325	333	362	318	337	292	342	347	332	340	351	353	340	332	287	F 289	292	296	307
30	303	297	313	299	295	343	362	368	341	336	332	336	344	346	337	349	345	336	363	325	301	315	314	306
31	299	312	304	339	294	333	362	354	354	327	315	331	337	322	332	334	359	332	337	295	303	308	301	282
	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	30	31
MED	308	311	311	312	331	329	364	368	354	352	348	345	342	346	347	349	353	353	343	330	321	318	310	311
U Q	319	319	315	327	340	338	375	373	368	372	361	354	348	354	355	353	358	360	354	338	330	329	319	318
L Q	295	295	303	303	314	306	355	358	340	337	327	336	332	336	340	343	346	347	337	316	303	306	301	289

MAR. 2017 M(3000)F2 (0.01)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

MAR. 2017 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										387	L	L	L	381	408	L								
2							L	L	L	L	402	375	372	L	377	L								
3										L	L	348	L	L	L	L								
4										L	L	376	L	L	382	387								
5									411	L	L	A	382	L	L	L	L								
6									L	390	389	420	377	380	403	L	L							
7								L	L	409	358	376	L	L	L	371								
8									L	399	L	392	392	392	394	L	L							
9									L	L	L	L	L	L	L	L								
10								L		L	365	367	L	379	376	L		L						
11								L		L	L	364	386	L	L									
12									L	L	378	406	422	381	L	377								
13									L	L	L	375	410	387	L	L								
14									L	384	400	378	403	395	L	391								
15									L	377	389	374	380	389	L	L								
16									L	L	403	L	363	369	369	380								
17									L	391	404	386	L	L	386	L	L	L						
18									399	398	403	392	397	L	397	394	L							
19									383	388	407	379	L	L	L	382	L							
20								L	L	L	L	370	378	376	362	411								
21									376	L	388	L	401	401	388	L	L							
22									362	375		L	369	L	L	L	385							
23									342	L	L	L	404	367	L	L	L							
24								L		384	L	395	395	384	380	L	409							
25								L	L	423	433	393	426	423	L	L								
26							L		L	L	415	L	L	378	404	L	L							
27								L	L	L	388	389	L	L	L	379	L	L						
28								L	344	L	363	370	L		L	L								
29							L	L	L	L	L	L	390	L	L	L	L	L						
30								L	L	L	375	L	382	L	390	L								
31									L	382	L	L	L	371	361	L	L	L						
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT									7	13	17	20	19	16	15	9	2							
MED									376	388	389	377	390	381	386	382	397							
U Q									399	398	404	392	403	390	397	392								
L Q									344	383	376	372	378	377	376	378								

MAR. 2017 M(3000)F1 (0.01)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

MAR. 2017 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										226	284	262	262	262	234	246								
2							220	238	262	246	236	264	264	268	248	248								
3										232	242	312	272	244	246	252								
4										230	236	278	250	250	258	240								
5									246	236	232	258	258	248	256	256	236							
6									248	256	240	264	268	258	252	238	232							
7								240	312	272	274	254	268	268	256	256								
8									246	230	244	258	266	266	258	238	232							
9									236	226	226	250	288	246	236	240								
10								242		256	258	258	258	256	266	238		216						
11								234		224	238	258	242	252	270									
12									244	252	240	248	264	246	246	238								
13									238	222	276	240	264	252	244	246								
14									240	242	238	246	260	256	266	258								
15									280	242	262	262	284	274	254	254								
16									246	236	280	260	288	256	260	244								
17									250	246	254	236	264	268	276	272	250	234						
18									266	258	254	236	256	256	264	264	242							
19									242	250	256	256	280	258	254	258	242							
20								246	224	260	268	248	262	276	240	240								
21									264	254	296	270	270	270	296	268	266							
22									292	230		280	300	290	246	246	268							
23									268	278	356	380	298	274	292	272	244							
24								238		276	276	274	286	264	274	248	242							
25								254	254	270	258	258	272	260	270	270								
26							220		220	266	260	260	292	254	270	248	248							
27								232	232	258	316	254	282	238	268	268	280	300						
28								274	406	282	282	250	320		268	256								
29							276	250	292	284	348	286	280	280	266	242	242	248						
30								248	262	316	302	284	262	262	280	254								
31									260	282	276	274	260	304	262	270	240	258						
	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	11	25	31	30	31	31	30	31	30	14	5						
MED							220	242	250	252	259	258	268	259	260	250	242	248						
U Q							276	250	267	270	280	274	284	268	270	258	250	279						
L Q							220	238	241	232	240	250	262	252	248	242	240	225						

MAR. 2017 h'F2 (KM)

IONOSPHERIC DATA STATION Wakkanai

MAR. 2017 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	254	266	236	216	200	200	218	214	224	194	220	222	188	202	194	204	220	226	214	214	258	266	266	Q 272
2	Q 276	212	228	288	232	232	192	198	218	200	194	194	194	196	196	210	248	240	222	212	212	284	260	282
3	286	274	220	214	200	E B 276	230	210	208	188	188	194	222	214	194	206	234	218	204	220	256	220	266	274
4	262	262	246	246	208	236	236	218	220	202	190	186	204	204	206	200	240	218	210	218	228	278	256	272
5	E B 260	260	250	224	240	228	206	210	196	202	192	A	202	196	196	214	198	230	218	210	214	234	268	268
6	262	Q 266	266	258	228	278	216	216	204	200	194	182	198	206	206	206	210	210	206	252	240	244	268	268
7	278	254	278	264	238	238	220	196	194	188	192	196	196	196	200	200	240	218	218	200	208	250	250	282
8	282	260	238	238	214	232	210	218	202	196	214	194	200	194	200	204	198	208	208	208	228	250	270	254
9	256	248	248	236	234	212	208	220	194	190	178	190	196	236	198	186	222	222	214	202	Q 244	Q 224	Q 250	238
10	Q 250	258	252	240	228	E B 212	216	208	232	192	192	202	196	192	202	202	234	192	214	270	200	274	276	276
11	270	Q 244	244	244	228	226	218	200	224	190	200	190	220	192	190	230	240	216	216	222	222	248	264	260
12	252	252	238	252	244	240	218	246	202	196	180	196	182	196	194	218	228	232	212	212	212	218	242	268
13	270	238	246	220	222	238	216	206	198	198	188	188	180	180	186	196	236	224	216	216	232	214	262	248
14	234	244	232	236	224	238	226	226	192	196	188	188	188	188	188	210	236	220	214	242	230	238	268	258
15	250	264	252	252	240	236	208	220	194	194	200	190	188	188	196	208	236	226	222	234	222	232	224	238
16	254	270	274	274	240	240	210	222	190	194	194	194	194	202	208	200	222	240	228	212	244	232	242	248
17	238	242	264	236	228	210	222	234	210	200	176	190	182	182	188	196	204	204	214	222	234	216	238	238
18	242	260	260	246	216	206	196	204	190	202	190	194	184	196	196	190	212	228	220	220	246	230	230	248
19	248	248	244	244	220	220	224	224	206	202	186	204	204	198	210	204	204	236	226	228	212	228	238	238
20	240	258	254	254	254	228	216	200	200	194	194	206	192	182	184	200	234	224	224	224	236	236	236	236
21	236	252	252	244	244	244	196	216	198	198	194	194	194	188	188	192	206	228	266	216	216	230	276	276
22	272	272	284	238	200	236	236	242	204	190	320	198	198	198	218	200	200	224	224	224	246	256	256	256
23	256	256	240	264	202	290	232	222	200	200	202	200	194	200	200	200	200	228	220	232	256	258	258	238
24	264	Q 270	Q 270	270	218	218	220	196	212	192	178	178	198	206	194	210	200	236	236	214	244	224	252	252
25	258	Q 258	Q 258	262	240	236	216	196	196	178	178	186	170	170	200	200	238	234	226	226	226	244	238	252
26	258	248	250	260	252	226	198	208	208	194	184	192	196	218	192	200	206	236	224	224	240	240	264	248
27	240	240	240	240	226	226	204	194	194	194	186	198	182	204	186	186	210	230	216	216	276	200	276	276
28	252	262	234	252	238	246	258	228	228	216	216	216	A	266	198	198	232	236	236	244	266	266	A	A
29	258	262	246	270	E B 278	280	218	216	196	198	H 174	190	196	204	192	200	200	200	234	264	278	Q 262	262	262
30	262	282	260	Q 270	270	260	242	222	204	194	194	194	194	204	188	200	236	252	210	238	268	250	260	288
31	252	240	264	244	244	266	212	248	204	194	190	184	184	192	200	200	206	E A 212	224	254	242	242	260	302
	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	31	31	31	31	31	31	31	31	31	30	30
MED	256	258	250	246	228	236	216	216	202	194	192	194	194	196	196	200	222	226	218	222	236	240	260	259
U Q	264	264	260	262	240	244	224	222	210	200	194	198	198	204	200	206	236	234	224	234	246	256	266	274
L Q	250	248	240	238	218	226	208	204	196	192	186	190	188	192	190	200	204	218	214	214	222	228	242	248

MAR. 2017 h'F (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

MAR. 2017 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							B												B					
							120	90	90	116	112	112	112	104	108	112	120							
2																			B					
							106	104	104	106	104	116	116	116	116	110	110	118						
3											A			A		A			A					
							118	118	100	106		106	106		106		112	120						
4							A											G						
							120	122	112	112	112	110	106	106	108	108	108		98					
5							B												A					
							112	112	110	110	110	110	110	110	110	110	110	92						
6						A	A				A	A							B					
							118	118	114				114	114	104	104	114	114						
7						B	A				A	A						B	B					
							114	114	110				110	104	108	108	114							
8						A	B												A					
							118	100	104	104	104	104	108	108	108	108	108	110						
9						B	B												B					
							110	110	110	104	104	104	104	100	114	106	112	112						
10						B	B								A	A		B	A					
							100	102	100	108	108	108	110				130							
11						B	B											G	B					
							130	106	106	106	106	106	106	106	106	110	110							
12						B												A	A					
							116	116	116	124	110	110	110	110	104	104	98							
13						B					A								A					
							104	114	114	114		114	108	108	108	100	112	118						
14						A	E B			A									A					
							148	114	114		114	102	102	102	114	114	114	114						
15						A													A					
							146	114	106	116	116	116	108	108	108	116	122	94						
16						B												A	A					
							140	116	112	112	112	112	112	112	102	112	112							
17						B													B					
							122	104	112	112	112	108	108	104	104	104	112	100						
18						B																		
							110	110	110	110	104	100	114	112	112	112	112	90	90					
19						A					A	A	E A											
							124	120	108	108			148	108	108	108	108	108	128					
20						B					A					A			A					
							138	116	116	116		116	116	114	114		114	120						
21						B									A	A			B					
							120	116	116	116	116	116	112	108			100	116						
22						B	B				A	A												
							116	112	112				104	106	104	104	114	108	88					
23						B				A		A		A	A				B					
							128	112	112		102		112			112	112	108						
24						B					A	A							A					
							170	114	114	110			110	110	96	108	108	92						
25												A							B					
						96	108	108	108	108	108		108	108	108	108	118	112						
26						B												A	A					
							146	116	116	116	108	108	108	108	108	120	94							
27						B						A				A			B					
							124	108	108	108	108		108	108	108		108	108						
28														A					B	A				
						118	118	118	98	98	98	104	104		104	104	104	104						
29						B	B				A	A												
							106	106	106				106	106	106	106	110	116						
30						A						A			A					A				
							116	116	110	112	104		104	104		104	110	112	108					
31						B			A	A									B	B				
							106	106			106	106	104	104	106	106	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						2	20	31	30	28	22	21	31	28	27	26	31	24	5					
MED						107	120	114	111	110	108	108	108	108	108	108	112	112	98					
U Q							139	118	114	113	112	113	112	110	108	110	114	116	118					
L Q							113	110	106	106	104	105	106	106	104	104	108	106	89					

MAR. 2017 h'E (KM)

IONOSPHERIC DATA STATION Wakkanai

MAR. 2017 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	B	B	B	B	B	B	B	G	G	104	160	144	106	114	90	100	100	96	B	B	B	100	B	100
2	100	B	B	108	112	112	102	102	100	148	148	144	104	104	104	102	108	108	B	B	B	B	B	144
3	118	118	118	B	B	B	156	102	94	94	94	94	90	100	84	104	156	120	100	98	98	B	B	120
4	90	102	94	96	102	102	102	106	108	G	108	118	118	92	G	G	108	90	82	100	B	B	B	B
5	B	B	B	B	B	B	B	G	102	100	92	170	108	94	94	94	94	94	94	B	B	B	96	100
6	94	B	B	B	B	96	96	106	G	106	96	102	94	104	86	100	98	G	B	94	84	96	92	94
7	96	B	B	100	B	B	94	G	94	100	100	106	92	G	92	100	186	B	B	B	B	98	B	B
8	B	B	B	B	B	102	140	140	126	110	96	104	104	96	98	96	148	G	92	B	B	B	116	B
9	B	B	B	B	B	B	B	116	102	102	94	158	96	154	154	94	100	G	B	B	110	B	B	B
10	B	96	B	B	B	B	B	G	G	96	88	170	170	96	102	102	102	B	86	88	88	86	76	B
11	B	B	B	B	B	B	B	140	110	102	112	94	162	98	98	92	92	G	B	B	B	B	B	B
12	B	B	B	B	B	B	104	104	104	112	100	100	100	96	100	100	96	102	90	98	B	B	B	B
13	B	B	B	B	B	B	144	108	96	102	102	92	114	102	98	92	G	120	86	86	86	94	94	B
14	112	B	B	B	B	90	B	118	100	100	96	92	88	104	104		104	120	92	B	B	B	B	B
15	B	B	92	92	B	108	140	140	152	140	98	114	98	102	102	166	174	92	92	92	B	B	B	B
16	B	B	B	B	B	B	G	108	106	100	102	114	100	176	86	104	G	86	86	88	B	B	B	B
17	B	B	98	92	B	B	154	138	104	112	102	164	98	98	94	G	94	122	B	B	B	B	B	B
18	B	B	B	B	B	B	148	100	100	100	98	118	154	110	100	86	94	78	76	102	B	B	B	102
19	B	B	B	B	B	80	148	108	128	110	100	92	102	154	96	96	98	90	G	B	B	B	B	B
20	B	B	94	94	106	B	G	100	102	102	102	152	102	102	102	102	102	G	100	B	B	B	92	B
21	B	B	B	B	B	B	138	134	134	124	112	100	100	186	G	104	148	86	B	B	B	B	86	86
22	B	116	B	B	B	B	90	144	94	94	94	94	162	104	110	82	116	108	88	88	92	92	B	B
23	118	B	92	108	108	B	138	120	100	104	100	104	100	98	98	98	108	112	B	94	94	94	94	B
24	94	94	94	B	94	B	B	100	108	96	96	96	96	G	G	G	G	96	92	96	84	B	B	B
25	B	120	B	B	B	84	158	106	106	106	96	96	102	G	102	96	102	G	B	B	B	B	90	90
26	92	92	92	92	B	B	G	142	154	176	92	108	192	132	94	126	126	86	86	86	B	B	B	B
27	B	B	B	B	B	B	G	G	116	104	104	94	94	152	106	100	G	G	B	B	B	100	B	B
28	B	144	B	B	B	116	116	132	102	92	92	92	92	92	134	G	110	88	B	88	B	94	94	94
29	94	94	B	96	B	B	130	120	102	98	98	98	160	98	98	98	108	G	B	84	B	96	104	96
30	98	98	98	B	98	98	120	100	100	104	104	96	96	96	100	92	118	112	100	100	100	100	B	100
31	94	94	88	92	B	B	G	92	100	100	100	100	90	G	98	G	G	G	B	B	B	94	B	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	12	11	10	10	6	10	19	26	28	30	31	31	31	27	28	25	26	20	16	16	9	12	11	12
MED	95	98	94	95	104	100	138	108	102	102	100	102	100	102	98	100	106	96	91	93	92	95	94	98
U Q	106	118	98	100	108	108	148	134	109	110	102	118	114	114	102	102	118	112	93	98	99	99	96	101
L Q	94	94	92	92	98	90	102	102	100	100	96	94	96	96	94	94	98	89	86	88	85	94	90	94

MAR. 2017 h'Es (KM)

IONOSPHERIC DATA STATION Wakkanai

MAR. 2017 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										C1	HL11	HL11	LL12	CL12	L1	C2	L2	L1				FF11		F1
2	F3			F1	F1	F5	L3	L2	C2	CL12	C1	C1	L1	L1	L1	L2	C2	C1						F1
3	F1	F1	F1				CL11	LL11	C3	L2	LL11	L1	L1	L1	L1	L2	C1	C1	L1	F2	F1			F1
4	F1	F1	FF11	FF11	F1	F1	L1	L1	L1		C1	C1	C1	C1			C1	L1	L1	F3				
5									C2	L1	L1	C2	C1	L1	L1	L1	L2	L1	L1				F1	F1
6	F1					L1	L1	L1		C1	L1	L1	L1	L1	L1	L1	L2			F1	F1	F1	F1	F1
7	F1			F1			F1		L1	L1	L1	L1	L1		L1	L1	C1					F1		
8						L1	C1	C2	C1	C2	C2	C2	C2	L1	C1	L1	C1		L1				F1	
9								C2	L1	L1	L1	C1	L2	C1	C1	L1	L2				L1			
10		F1								C2	LC11	C1	C2	L1	L1	L1	L1		L1	F2	F1	F1	F1	
11								C1	C1	C1	CC11	L1	C1	C1	C1	L1	L1							
12							L1	L1	L1	LC11	LC11	LC11	C1	L1	C1	C4	C3	L3	L4	F3				
13							H1	L1	C2	LC11	L1	L1	CL11	CL11	LC11	LC11		C1	L1	F1	F1	F1	F2	
14	F1					L1		C2	LC22	L2	L2	L2	L2	CL12	L1	CL11	C2	C2	L1					
15			F1	F1		C1	C1	CL11	CL11	CL11	C1	CL11	CL21	LC11	C1	H1	H1	L1	L1	F1				
16								L1	C2	C2	C1	C2	C1	CL11	LC11	C2		C2	L1	F1				
17			F1	F1			H1	C2	C2	CL11	L1	HL11	L1	L1	L1		L1	C2						
18							H2	LC22	LC22	LC11	L1	CL21	CL11	CL11	CL11	L1	L2	L1	L1	F1				F1
19						L1	H1	L2	L1	C2	L2	L2	L1	CL11	L1	L2	L2	L3						
20			F1	F1	F1			LC22	LC21	C3	L2	CL11	L1	L1	L1	L1	L2		L1				F1	
21							C1	C2	C1	C1	C1	L1	L1	L1		L2	HL11	L1					F1	F1
22		F1					L1	C2	C2	C1	L4	L3	HL11	HL11	CL22	LL22	C2	CL21	C1	F1	F1	F1		
23	F1		F1	F1	F1		C2	C2	L2	L1	C1	L1	L1	L3	L1	C2	C2	C2		F1	F4	F3	F2	
24	F1	F1	F1		F1			L2	L2	L1	L1	L2	L1					LC11	L2	F1	F1			
25		F1				C1	C3	C2	C2	L1	L1	L2	LL21		L1	LC11	L2						F1	F1
26	F1	F1	F1	F1				CL21	HL11	L1	L1	C1	C1	C1	LC11	CL11	CL11	LL31	LL21	F1				
27									CL21	C1	L1	L3	C2	HL11	CL11	L1						F1		
28		F1				C1	C2	C1	C2	C2	C2	C2	C2	L3	C2		C2	L1		L2		F1	F4	F3
29	F3	F4		F1			C1	C1	L1	L3	L1	L1	HL11	L1	L1	L1	C1			L1		F3	F2	F1
30	F1	F1	F1		F1	L1	C1	C2	L1	L1	L1	L3	L1	L1	L1	L1	CL21	C2	C1	L2	F5	FF11		F1
31	F1	F2	F3	F1				L2	L1	L1	L1	C1	L1		L1							F1		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																								

MAR. 2017 TYPES OF Es

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

MAR. 2017 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 41	X 41	X 44	X 40	X 34	X 33	X 40												X 63	X 50	X 48	X 48	X 46	50
2	X 43	X 48	X 35	X 42	X 28	X 28	X 41												X 81	X 68	X 48	X 40	X 42	X 42
3	X 42	X 41	X 44	X 40	X 27	X 26	X 38												X 66	X 54	X 42	X 38	X 36	X 36
4	X 36	X 39	X 40	X 45	X 34	X 31													X 60	X 44	X 42	X 36	X 38	X 38
5	X 40	X 39	X 38	X 40	X 37	X 38	X 42												X 72	X 62	X 52	X 38	X 41	X 39
6	X 39	X 38	X 38	X 38	X 38	X 35	X 42												X 48	X 41	X 42	X 43	X 42	X 42
7	X 40	X 40	X 40	X 39	X 37	X 31	X 42												X 69	X 42	X 37	X 37	X 38	X 38
8	X 40	X 40	46	X 36	X 28	X 27	X 38												X 75	A	A	X 36	X 38	X 38
9	X 38	X 36	X 36	X 38	X 32	X 30	X 45												X 62	X 44	X 39	X 40	X 41	X 40
10	X 40	X 40	X 37	X 38	X 35	X 28	X 39												X 58	X 48	X 46	X 40	X 40	X 41
11	X 39	X 40	X 40	X 44	X 37	X 28	X 42												X 78	X 60	X 38	X 37	X 36	X 38
12	X 38	X 38	X 37	X 37	X 36	X 33	X 45												X 72	X 42	X 36	X 41	X 40	X 39
13	X 40	X 40	X 41	X 41	X 36	X 33	X 46												X 67	X 51	X 41	X 39	X 36	X 38
14	X 40	42	X 38	X 38	X 37	X 36													X 72	X 49	X 35	X 37	X 37	X 37
15	X 36	X 37	X 35	X 36	X 35	X 29	X 45						C	C	C	C	C		X 68	X 61	X 50	X 40	X 36	X 37
16	X 38	X 38	X 39	X 42	X 38	X 32	X 48					C	C	C	C				X 58	X 61	X 53	X 42	X 42	X 41
17	X 42	X 41	X 42	X 43	X 38	X 34	X 47												X 59	X 54	X 48	X 47	X 44	X 43
18	X 43	X 44	47	48	X 43	X 31	X 44												X 65	X 62	X 46	X 45	X 44	X 43
19	X 45	X 46	50	50	X 48	X 40	X 48												X 68	X 59	X 52	X 50	X 46	X 40
20	X 40	X 40	X 40	X 39	X 39	X 40													X 71	X 63	X 52	X 49	X 44	X 44
21	X 44	X 44	X 44	46	X 37	X 36													X 65	X 71	X 52	X 44	X 43	X 43
22	X 44	X 43	X 43	X 41	X 42	X 42													X 72	X 53	X 46	X 46	X 49	X 46
23	X 47	X 47	X 46	X 46	X 42	X 34													X 64	X 47	X 43	X 44	X 43	X 42
24	X 41	X 40	X 40	X 39	X 39	X 32													X 70	X 65	X 52	X 51	X 48	X 46
25	X 46	X 47	X 42	X 42	X 41	X 39													X 78	X 73	X 51	X 43	X 42	X 41
26	X 41	X 40	X 40	X 40	X 39	X 36													X 68	X 67	X 50	X 46	X 44	X 44
27	X 44	X 43	X 42	X 40	X 38	X 34													X 92	X 83	X 46	X 46	X 46	X 45
28	X 54	X 43	X 51	X 45	X 41	X 39													X 66	X 54	X 52	X 52	X 52	X 51
29	X 51	X 47	X 45	X 40	X 33	X 29													X 69	X 67	X 53	X 55	X 55	X 56
30	X 52	X 48	X 45	X 46	X 44	X 42													X 78	X 71	X 45	X 42	X 44	X 45
31	X 44	X 46	X 40	X 39	X 35	X 36													X 78	X 60	X 53	X 52	X 50	X 49
	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	17												31	30	30	31	31	31
MED	X 41	X 41	X 40	X 40	X 37	X 33	X 42												X 68	X 60	X 47	X 43	X 42	X 42
U Q	X 44	X 44	X 44	X 44	X 39	X 36	X 46												X 72	X 65	X 52	X 47	X 46	X 45
L Q	X 40	X 40	X 38	X 39	X 35	X 30	X 40												X 64	X 49	X 42	X 39	X 38	X 38

IONOSPHERIC DATA STATION Kokubunji

MAR. 2017 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	35	35	38	33	28	27	34	49	53	62	66	87	81	80	74	70	64	56	57	44	42	42	40	F
2	37	42	29	35	22	22	35	58	55	90	86	66	69	80	70	69	61	69	75	62	42	34	36	36
3	36	35	38	34	21	20	32	55	69	76	73	66	78	90	82	79	68	68	60	48	36	32	30	30
4	30	33	34	39	28	25	36	57	64	65	68	84	82	86	80	80	71	78	54	38	36	30	32	32
5	34	33	32	34	31	32	36	54	59	60	68	68	66	68	69	72	70	66	66	56	46	32	35	33
6	33	32	32	32	32	29	36	56	64	65	69	72	86	70	78	80	78	64	42	35	36	37	35	36
7	34	34	34	33	31	25	36	48	55	67	60	73	78	79	77	68	67	72	63	36	31	31	32	32
8	34	34	F	30	22	21	32	53	62	64	66	58	69	80	77	76	65	66	69	A	A	30	32	32
9	32	30	30	32	26	24	39	54	59	57	60	58	70	85	73	62	63	68	56	38	33	34	35	34
10	34	34	31	32	29	22	33	50	58	62	69	74	77	78	64	67	68	68	52	42	41	34	34	35
11	33	34	34	38	30	22	36	52	65	62	58	68	79	76	58	58	59	68	72	54	32	31	31	32
12	32	32	31	31	30	27	39	53	63	64	59	67	69	73	71	66	70	69	66	36	30	35	34	33
13	34	34	35	35	30	27	40	56	56	57	60	66	73	66	64	62	60	57	61	45	35	33	30	32
14	34	F	32	32	31	30	37	52	69	64	58	66	65	64	60	57	64	65	66	42	29	31	31	31
15	30	31	29	30	29	23	39	49	55	52	56	62	C	C	C	C	C	60	62	55	44	33	30	31
16	32	32	33	36	32	26	42	50	57	58	58	C	C	C	C	66	59	52	52	55	47	36	36	35
17	36	35	36	37	32	28	41	51	58	61	63	63	70	70	61	57	64	64	53	48	42	40	38	37
18	37	38	F	F	37	25	38	50	60	56	59	64	60	67	62	60	54	58	59	56	40	39	38	37
19	39	40	F	F	42	34	42	50	57	52	56	62	76	72	70	61	60	63	62	53	46	44	40	34
20	34	34	34	33	33	34	46	55	55	54	53	58	70	74	78	59	52	59	65	57	45	43	38	38
21	38	38	38	F	31	30	43	52	55	56	57	58	72	76	68	56	58	68	59	65	46	38	37	37
22	38	37	37	35	36	36	43	59	70	71	75	84	107	90	82	70	60	63	66	47	40	40	43	40
23	41	41	40	40	36	28	45	48	58	67	70	82	90	74	61	59	64	64	58	41	37	38	37	36
24	35	34	34	33	33	26	44	52	54	59	63	70	74	69	71	62	64	65	64	59	46	45	42	40
25	40	41	36	36	35	33	47	54	63	58	62	65	61	63	71	60	56	60	72	67	45	37	36	35
26	35	34	34	34	33	30	48	49	59	60	66	69	66	68	70	69	60	55	62	61	44	40	38	38
27	38	37	36	34	32	28	46	55	55	57	64	72	83	75	67	58	62	68	86	76	40	40	40	39
28	48	37	45	39	34	33	45	69	75	93	101	81	90	105	110	78	65	65	60	48	46	46	46	45
29	45	41	39	34	27	23	42	57	61	61	64	80	104	85	73	70	62	58	63	61	47	49	49	50
30	46	41	39	40	38	36	42	60	53	58	69	83	83	76	68	64	64	63	72	65	39	36	38	39
31	38	40	34	33	29	30	48	52	64	64	72	64	75	80	80	76	72	62	72	54	46	46	44	43
	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	30	28	28	31	31	31	31	31	31	31	30	29	29	29	30	30	31	31	30	30	31	31	30
MED	35	34	34	34	31	27	40	53	59	61	64	68	75	76	71	66	64	64	62	54	42	37	36	36
U Q	38	38	38	36	33	30	44	56	64	65	69	74	82	80	78	70	67	68	66	59	46	40	40	38
L Q	34	34	32	32	29	24	36	50	55	57	59	64	69	70	66	60	60	60	58	42	36	33	32	32

MAR. 2017 foF2 (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

MAR. 2017 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	U L 448	U L 428	L	L	A	L							
2										L		L	A		A									
3									L	A	L	L	U L 456	U L 456	A	A								
4										L	L	U L 428	U L 460	U L 440	L	L	L							
5										L	U L 432	A	L	L	L	L	A							
6										L	L	U L 436	440	U L 448	L	L	A							
7									L	404	U L 428	U L 452	U L 452	L	L	L	L							
8									L	L	L	U L 436	U L 444	U L 432	L	L								
9									L	L	L	U L 424	U L 420	436	L	A	L							
10										L	L	L	448	U L 444	L	A	A							
11										L		U L 456	U L 456	456	L	A	A							
12									L	L	U L 476	U L 444	U L 444	L	U L 420	L	L							
13										L	L	U L 460	L	U L 448	L	L								
14										L	428	U L 444	U L 444	L	L	L	L							
15									L		U L 448	U L 452	C	C	C	C	C							
16									L	U L 420	U L 448	C	C	C	C	L								
17									L	L	U L 432	U L 448	A	432	U L 440	L	L							
18									L	U L 416	U L 424	436	424	432	A	L	A							
19									L		U L 456	U L 420	A	A	A	L	A							
20										U L 440	U L 472	U L 440	U L 448	U L 436	U L 436	L								
21									L	U L 424	U L 440	U L 488	452	U L 444	U L 428		L							
22									L	L	U L 428	U L 456	U L 440	U L 440	424		L							
23									L	L	A	A	U L 440	L	L	U L 404								
24								L	L	L	U L 460	U L 464	U L 456	U L 456	U L 420	L	A	A						
25									L	U L 436	U L 440	452	U L 456	U L 444	U L 428	L	L							
26									L	U L 436	U L 440	452	U L 452	U L 452	428	U L 408	L							
27									L	U L 436	A	U L 452	456	456	U L 448	L	L	A						
28								L	L	U L 436	L	L	L	U L 468	U L 444	L	L							
29									L	L	U L 464	U L 456	456	U L 460	L	L	L	L						
30								L	L	428	444	432	U L 452	U L 448	L	L	L							
31									L	L	U L 444	U L 460	U L 472	U L 464	L	L	L							
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT										10	18	24	23	21	10	2								
MED										U L 432	U L 442	U L 450	U L 452	U L 448	U L 428	U L 406								
U Q										U L 436	U L 456	U L 456	U L 456	U L 456	U L 440									
L Q										U L 420	U L 432	U L 436	U L 440	438	U L 424									

MAR. 2017 foF1 (0.01MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

MAR. 2017 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								168	R	R 292	332	A	A	R	A	A	A	U R 180						
2								B	U R 252	U R 296	U R 308	316	A	A	A	R	A	A						
3								196	R	292	320	R	A	A	A	A	A	B						
4							B	A	U R 264	A	U R 324	R	R	R	R	R	U R 248	U R 184						
5								U A 180	U R 268	R	R	328	A	A	A	U R 296	A	U R 192						
6								U R 200	U R 268	R	R	R	R	A	A	A	A	B						
7								U R 204	R	R	R	R	R	A	A	R	A	U R 192						
8								U A 200	R	A	R	R	A	A	R	U R 284	R	B						
9								U R 200	U R 260	A	R	R	R	U R 328	A	A	A	B						
10								192	264	R	A	A	U R 336	R	A	A	A	B						
11								204	A	A	A	A	A	R	R	296	252	A						
12								U R 220	U R 288	A	A	A	A	A	A	A	A	B						
13								196	R	U R 300	A	R	R	R	R	U R 300	268	A						
14							B	216	272	A	R	A	R	R	R	284	256	196						
15								216	R	R	A	A	C	C	C	C	C	B						
16								208	272	U R 316	A	C	C	C	C	R	U R 268	B						
17								228	A	R	A	A	A	A	A	A	A	B						
18								220	R	R	A	R	288	R	288	A	A	A						
19								216	280	A	A	332	340	R 312	316	A	A	U R 204						
20							B	240	U R 292	A	A	R	A	A	A	A	U R 280	U R 200						
21							B	232	U R 284	R	R	R	328	R	R	A	A	U R 200						
22							B	224	272	A	A	R	A	A	R	R	U R 272	U A 208						
23							B	U R 220	R	A	A	A	R	R	A	A	U R 276	A						
24							B	U R 224	R	R	R	R	R	320	308	A	A	A						
25							B	224	U R 280	R	R	R	R	R	R	A	A	A						
26							172	248	R	A	A	A	R	320	A	A	A	B						
27							B	244	312	U R 332	A	A	R	U R 340	R	A	R	R						
28							B	U A 224	U R 284	R	R	R	R	R	R	292	A	A						
29							B	228	276	A	A	A	R	R	R	R	R	U R 208						
30							B	236	R	R	R	R	R	R	U R 336	R	R	U R 216						
31							B	236	284	A	R	R	R	R	R	A	U R 272	U R 208						
	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	29	18	6	4	3	4	5	4	6	9	12						
MED							172	220	U R 274	U R 298	322	328	332	R 320	312	294	U R 268	U R 200						
U Q								228	U R 284	U R 316	328	332	338	U R 334	326	U R 296	U R 274	U R 208						
L Q								200	U R 268	292	314	316	308	316	298	284	254	U R 192						

MAR. 2017 foE (0.01MHz)

IONOSPHERIC DATA STATION Kokubunji

MAR. 2017 foEs (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

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

MAR. 2017 foEs (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

MAR. 2017 fbEs (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

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

MAR. 2017 fbEs (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

MAR. 2017 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	16	15	14	15	15	14	15	14	13	14	13	15	14	14	13	14	14	13	14	15	15	16	14	15
2	15	15	15	15	14	15	15	15	14	14	13	17	14	15	16	15	12	14	14	15	15	15	15	15
3	15	15	15	14	15	15	15	15	14	12	12	14	14	14	16	13	14	16	15	15	16	15	15	15
4	15	15	15	15	14	14	14	14	14	14	13	16	18	16	15	14	15	15	14	15	15	15	14	14
5	16	15	14	14	14	14	14	13	13	13	15	15	14	15	14	13	13	14	14	14	14	15	15	15
6	14	15	15	14	14	14	14	15	14	14	13	16	16	15	14	12	14	14	15	14	14	15	15	14
7	15	15	14	14	15	15	15	16	14	14	14	13	14	15	12	16	14	13	15	15	15	15	15	15
8	16	15	15	15	14	15	15	15	15	14	14	14	13	18	16	14	13	14	15	15	14	14	15	15
9	16	15	15	15	14	15	15	15	14	14	13	14	15	19	14	15	14	14	14	14	15	15	14	14
10	15	14	15	15	14	15	14	13	13	11	15	14	15	14	13	14	15	13	14	14	15	15	13	14
11	15	15	16	15	14	14	15	14	14	14	14	16	14	15	16	12	14	14	14	14	15	15	15	14
12	15	16	16	15	15	15	16	14	14	14	13	15	16	14	14	13	14	14	15	15	15	15	15	15
13	15	15	15	15	14	15	15	13	13	12	14	14	16	13	16	15	14	12	13	14	14	14	15	15
14	16	15	14	15	14	15	15	12	12	13	16	14	17	14	14	13	12	13	15	15	14	14	16	14
15	15	14	14	15	14	14	14	14	14	12	14	14	C	C	C	C	C	14	14	15	15	15	14	14
16	16	15	15	15	15	15	15	15	14	14	14	C	C	C	C	14	12	12	14	14	16	14	16	15
17	16	15	15	16	15	15	14	14	13	13	15	14	18	15	15	13	15	14	16	15	15	15	15	15
18	16	15	14	14	14	14	16	12	14	13	13	15	14	14	13	13	13	14	15	14	15	16	15	14
19	15	15	15	15	14	14	15	14	14	14	13	13	16	15	14	14	13	13	14	14	13	14	15	15
20	15	15	15	15	14	15	18	15	15	16	14	13	15	14	16	14	14	14	15	16	15	15	15	15
21	15	14	16	15	14	14	14	14	14	14	14	17	19	16	16	15	14	14	16	15	15	15	15	15
22	15	15	16	15	14	14	14	12	13	13	14	14	15	15	14	12	13	14	13	14	15	15	14	15
23	15	15	15	15	14	14	15	14	14	14	14	15	16	18	14	13	12	15	13	15	14	15	14	14
24	15	15	14	14	14	15	15	14	14	13	12	16	16	15	14	13	12	14	15	15	15	14	15	15
25	15	15	15	14	14	14	14	12	14	13	14	13	17	14	14	14	14	14	12	14	14	15	15	14
26	15	15	14	15	15	15	14	13	14	14	13	13	19	15	16	14	15	15	16	14	14	14	14	14
27	14	14	14	14	14	15	14	13	14	16	18	18	18	19	15	14	13	13	14	15	15	15	14	15
28	15	15	15	15	14	14	14	15	13	13	20	19	16	16	20	16	13	16	15	15	15	15	15	15
29	15	15	15	15	15	15	15	13	13	14	16	17	14	16	14	15	13	13	13	14	14	14	14	15
30	15	15	15	15	15	15	18	16	14	17	16	16	19	19	16	15	14	12	15	15	14	14	15	15
31	15	15	14	14	14	14	15	14	14	12	15	14	19	16	19	15	12	14	15	15	15	15	15	14
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	31	31	31	31	31	31	30	29	29	29	30	30	31	31	31	31	31	31	31
MED	15	15	15	15	14	15	15	14	14	14	14	14	16	15	14	14	14	14	14	15	15	15	15	15
U Q	16	15	15	15	15	15	15	15	14	14	15	16	18	16	16	15	14	14	15	15	15	15	15	15
L Q	15	15	14	14	14	14	14	13	13	13	13	14	14	14	14	13	13	13	14	14	14	14	14	14

IONOSPHERIC DATA STATION Kokubunji

MAR. 2017 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	300	300	350	358	352	340	352	378	353	355	336	335	359	346	351	373	362	348	356	323	306	292	280	F
2	275	317	311	340	326	320	337	379	306	322	370	348	345	358	341	355	348	326	347	367	319	287	299	310
3	284	291	334	356	320	321	337	350	339	354	354	304	328	333	351	361	350	358	348	353	331	324	292	277
4	298	312	338	361	375	301	346	381	356	358	345	351	346	335	341	346	343	361	372	324	324	313	294	290
5	316	311	294	328	330	342	354	374	335	357	357	354	329	348	337	359	350	348	347	341	350	306	321	302
6	290	305	311	327	317	314	340	357	367	346	336	336	344	342	344	354	366	378	370	318	306	300	289	310
7	302	322	309	301	373	351	363	378	359	370	350	344	339	343	352	362	354	355	371	351	316	295	303	291
8	303	301	F	347	306	306	343	362	349	359	375	342	327	347	342	355	368	371	370	A	A	314	305	302
9	317	324	311	334	342	324	375	372	376	371	344	329	349	357	364	363	349	372	368	334	301	311	309	296
10	315	293	309	329	360	322	375	376	353	350	329	361	363	363	341	350	362	364	360	352	321	301	306	314
11	304	302	328	347	392	320	349	366	358	371	330	318	357	349	357	364	361	352	362	365	338	328	302	304
12	304	310	308	333	349	309	362	377	375	378	345	335	335	340	355	343	358	370	374	409	305	309	306	325
13	281	312	306	335	364	306	374	383	379	367	333	343	357	342	351	341	369	356	374	350	341	329	306	322
14	310	F	322	325	331	314	366	366	378	381	335	361	351	350	351	338	352	353	370	365	347	329	315	311
15	321	309	328	337	362	311	368	386	386	375	338	323	C	C	C	C	C	357	351	351	356	331	318	274
16	310	311	309	355	357	337	374	378	368	358	350	C	C	C	C	349	367	360	354	346	347	316	307	307
17	308	312	320	327	368	318	363	382	365	354	355	338	330	351	347	341	349	351	349	349	335	337	316	311
18	310	306	F	F	389	338	368	376	376	382	352	340	337	348	356	354	342	363	361	352	380	332	320	317
19	318	326	F	F	375	347	369	379	377	355	344	347	339	330	341	342	357	357	351	338	325	341	363	305
20	316	323	293	320	300	332	382	384	386	370	330	325	320	331	350	361	323	343	347	340	339	323	315	310
21	316	313	320	F	312	321	368	367	373	379	339	295	327	343	359	328	319	351	337	341	341	312	307	307
22	300	317	300	306	312	322	348	354	334	339	336	282	335	337	346	372	354	339	355	336	300	273	311	281
23	292	309	308	342	321	289	364	376	363	330	320	327	331	343	329	337	350	358	369	323	312	318	318	313
24	306	297	305	311	334	353	377	371	368	333	301	331	343	346	355	348	365	359	348	343	322	318	317	302
25	304	307	297	312	319	322	372	375	385	342	360	356	349	328	345	352	333	346	340	373	353	315	306	299
26	320	308	298	321	330	359	402	375	383	341	360	346	330	339	341	372	358	348	353	339	338	301	295	298
27	306	317	322	324	345	339	393	367	369	337	362	326	329	340	343	337	315	315	346	355	391	291	295	278
28	339	299	319	348	293	351	357	321	325	316	330	320	294	313	349	345	357	357	357	307	275	281	289	282
29	311	318	307	320	334	299	349	357	369	356	325	311	343	345	336	347	351	339	344	330	296	295	299	311
30	321	300	305	309	309	322	364	366	350	330	323	331	332	326	341	334	343	332	349	360	340	289	291	292
31	303	309	327	332	324	337	386	363	340	351	356	315	317	328	326	339	340	329	351	350	326	285	269	282
	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	30	28	28	31	31	31	31	31	31	31	30	29	29	29	30	30	31	31	30	30	31	31	30
MED	306	310	310	330	334	322	364	375	367	355	344	335	337	343	346	350	352	355	354	348	328	312	306	303
U Q	316	317	322	344	362	339	374	378	376	370	355	346	348	348	352	361	361	360	369	353	341	324	315	311
L Q	300	302	306	320	319	314	349	366	350	341	330	323	329	334	341	341	343	346	348	336	312	295	295	291

IONOSPHERIC DATA STATION Kokubunji

MAR. 2017 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	U L 379	U L 395	L	L	A	L							
2										L		L	A		A									
3									L	A	L	L	U L 370	U L 374	A	A								
4										L	L	U L 408	U L 378	U L 380	L	L	L							
5										L	U L 392	A	L	L	L	L	A							
6										L	L	U L 422	375	U L 377	L	L	A							
7									L	421	U L 398	U L 377	U L 382	L	L	L	L							
8									L	L	L	U L 413	U L 373	U L 388	L	L								
9									L	L	L	U L 416	U L 445	390	L	A	L							
10										L	L	L	381	U L 381	L	A	A							
11										L		U L 378	U L 371	377	L	A	A							
12									L	L	U L 380	U L 395	U L 390	L	U L 414	L	L							
13										L	L	U L 387	L	U L 381	L	L								
14										L	421	U L 408	U L 408	L	L	L	L							
15									L		U L 395	U L 388	C	C	C	C	C							
16									L	U L 393	U L 392	C	C	C	C	L								
17									L	L	U L 389	U L 391	A	408	U L 385	L	L							
18									L	U L 417	U L 428	413	424	415	A	L	A							
19									L		U L 396	U L 435	A	A	A	L	A							
20										U L 404	U L 378	U L 421	U L 365	U L 384	U L 367	L								
21									L	U L 398	U L 396	U L 353	368	U L 385	U L 369		L							
22									L	L	U L 396	U L 392	U L 371	U L 368	392		L							
23									L	L	A	A	U L 384	L	L	U L 407								
24								L	L	L	U L 384	U L 378	U L 380	U L 367	U L 400	L	A	A						
25									L	U L 400	U L 404	394	U L 410	U L 392	U L 388	L	L							
26									L	U L 384	U L 396	409	U L 412	U L 390	405	U L 390	L							
27									L	U L 397	A	U L 399	389	378	U L 371	L	L	A						
28								L	L	U L 393	L	L	L	U L 365	U L 369	L	L							
29									L	L	U L 397	U L 391	382	U L 391	L	L	L	L						
30								L	L	394	390	411	U L 390	U L 381	L	L	L							
31									L	L	U L 391	U L 388	U L 388	U L 366	L	L	L							
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT										10	18	24	23	21	10	2								
MED										U L 398	U L 396	U L 394	U L 382	U L 381	U L 386	U L 398								
U Q										U L 404	U L 397	U L 412	U L 395	390	U L 400									
L Q										U L 393	U L 390	U L 388	U L 373	U L 376	U L 369									

MAR. 2017 M(3000)F1 (0.01)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

MAR. 2017 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										248	270	274	240	264	256	234	234							
2										270		278	262		242									
3									264	236	256	274	282	266	250	246								
4										254	274	246	264	264	262	256	254							
5										242	254	252	264	260	266	254	244							
6										248	262	266	262	266	266	254	232							
7									244	240	250	276	264	248	252	246	246							
8									256	254	240	256	294	260	252	252								
9									234	242	258	272	270	254	242	242	260							
10										264	266	240	248	250	270	254	240							
11										244		282	244	266	262	246	246							
12									244	226	288	272	264	258	256	262	254							
13										236	264	264	244	274	248	266								
14										234	254	260	260	260	260	270	264							
15									234		296	300	C	C	C	C	C							
16									244	258	268	C	C	C	C	248								
17									252	260	262	292	260	260	278	266	256							
18									234	238	266	260	264	280	250	258	246							
19									234		294	278	278	268	260	270	254							
20										246	286	294	288	276	250	248								
21									242	238	290	370	286	266	252		278							
22									262	260	254	342	260	244	256		252							
23									256	288	276	274	258	254	268	270								
24								234	234	278	276	276	262	272	264	252	238	244						
25									232	270	256	256	268	296	252	256	262							
26									230	274	260	276	282	278	282	244	242							
27									248	288	252	284	270	264	268	270	306	280						
28								296	280	270	248	262	292	286	246	242	254							
29									238	250	298	292	260	248	248	254	250	270						
30								240	276	302	286	276	256	262	264	272	264							
31									270	258	252	276	290	282	276	262	256							
	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	21	29	29	30	29	28	29	27	23	3						
MED								240	244	254	264	275	264	264	256	254	254	270						
U Q								296	259	270	281	282	280	273	266	266	260	280						
L Q								234	234	241	254	262	260	259	250	246	244	244						

MAR. 2017 h'F2 (KM)

IONOSPHERIC DATA STATION Kokubunji

MAR. 2017 h'F (KM) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E B 284	E B 268	224	212	212	226	214	204	186	A	A	212	198	206	206	A	202	212	206	202	E B 274	E B 278	E B 288	E B 284
2	E B 304	E B 238	220	228	224	E B 280	214	216	202	200	210	222	A	246	A	224	230	E A 260	218	194	E B 224	E B 258	E B 288	E B 250
3	E B 268	E B 286	E B 240	212	E B 270	E B 250	234	212	218	A	214	212	208	216	A	A	218	224	218	206	E A 238	E A 256	E B 262	E B 306
4	E B 288	E B 268	E B 244	222	204	E B 240	E A 266	210	220	204	200	194	192	202	212	212	210	218	194	208	E B 214	228	E B 280	E B 290
5	E B 264	E B 272	E B 292	E B 256	232	234	202	208	190	194	186	A	200	208	214	220	A	220	212	202	204	224	E B 248	E B 270
6	E B 278	E B 278	E B 256	E B 240	230	232	214	212	222	200	204	196	210	208	206	212	A	206	192	214	E B 252	E B 274	E B 288	E B 262
7	E A 284	E B 254	E B 256	E B 260	210	218	214	214	202	194	192	198	210	204	206	208	206	224	196	194	E A 278	E B 254	E B 278	E B 290
8	E B 284	E B 270	E B 256	220	E B 248	E B 278	E A 238	220	220	212	202	190	186	202	202	204	212	222	198	A	A	E A 304	E B 272	E B 288
9	E B 266	E B 260	E B 262	E B 238	214	E B 252	212	212	200	192	184	174	184	210	198	A	214	218	206	202	E B 260	E B 260	E B 250	E B 266
10	E B 252	E B 264	E B 272	E B 246	214	226	214	216	220	192	202	206	190	208	194	A	A	214	200	210	242	234	E A 286	E B 254
11	E B 286	E B 264	E B 252	222	202	E B 252	210	212	214	202	186	178	200	218	202	A	A	E A 236	208	194	204	E B 234	E B 268	E B 260
12	E B 248	E B 256	E B 246	E B 238	216	E B 268	212	216	210	200	192	186	186	196	196	206	216	224	210	182	E B 278	E B 252	E B 238	E B 274
13	E B 312	E A 258	E B 262	230	204	E B 242	208	216	214	184	184	176	214	184	200	212	216	228	210	196	200	E B 224	E B 274	E B 268
14	E B 260	E B 266	E A 282	E B 236	E B 234	228	210	214	228	202	188	190	180	222	200	208	214	222	206	192	216	E B 238	E B 270	E B 262
15	E B 268	E B 268	E B 268	E B 240	202	E B 244	208	206	206	198	198	198	C	C	C	C	C	226	218	206	198	202	E B 236	E B 298
16	E B 268	E B 266	E B 280	230	200	232	214	206	206	200	210	C	C	C	C	212	222	218	216	212	210	E B 222	E B 256	E B 272
17	E B 250	E B 252	E B 246	E B 220	200	E B 230	212	208	212	214	200	190	A	188	224	226	210	220	206	204	210	218	E A 250	E B 262
18	E B 262	E B 252	E B 242	E B 236	182	214	208	212	206	196	190	196	182	182	A	204	A	226	212	220	198	E B 236	E A 236	E B 250
19	E A 264	E B 244	E B 244	218	208	218	192	210	204	230	198	186	A	A	A	212	A	226	206	204	212	212	206	E B 258
20	E B 280	E B 250	E B 262	E B 264	E B 246	228	210	214	210	200	200	178	204	198	202	198	204	234	212	210	204	224	224	E B 252
21	E B 264	E B 260	E B 250	E B 240	230	E B 240	212	216	206	206	194	198	240	216	206	212	214	222	222	212	194	E B 234	E B 274	E B 286
22	E B 276	E B 254	E B 266	E B 256	228	E B 228	210	230	216	206	206	198	220	218	206	234	214	220	214	206	E B 252	E B 308	E B 256	E B 292
23	E B 262	E B 262	E B 258	218	E B 252	E B 248	218	214	216	220	A	A	204	218	202	194	234	226	208	206	222	E B 256	E A 256	E A 260
24	E B 266	E B 274	E B 272	E B 258	E B 232	208	202	198	202	186	190	202	204	212	210	214	A	A	222	220	218	E A 252	E A 240	E B 258
25	E B 258	E B 242	E B 280	E B 256	230	224	206	216	206	192	188	186	186	174	196	208	216	238	228	196	202	226	E B 256	E B 272
26	E B 254	E B 268	E B 274	E B 250	E B 228	210	192	206	204	196	182	190	180	194	200	172	208	230	226	210	196	E B 242	E B 256	E B 268
27	E B 274	E B 258	E B 248	E B 246	210	E B 236	202	208	202	196	A	196	200	182	198	198	214	A	218	204	180	E B 274	E B 280	E B 300
28	232	E B 274	E B 234	208	E B 256	198	208	226	208	210	206	196	228	220	214	210	208	228	234	E B 236	E B 268	E A 316	E B 290	E B 290
29	E B 246	E B 242	E B 250	214	E B 244	E B 258	228	230	204	198	188	204	216	218	198	204	212	204	218	214	E B 244	E B 268	E B 264	E B 252
30	232	E B 268	E B 272	E B 250	E B 248	226	214	210	220	206	208	182	194	204	212	200	218	236	226	202	E B 202	E B 262	E B 284	E B 282
31	E B 288	E B 246	E B 232	E B 226	218	E B 250	212	218	208	218	200	200	198	188	232	206	216	224	226	200	222	E B 304	E B 304	E B 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	31	31	31	31	31	31	31	31	31	29	28	28	26	28	25	25	23	29	31	30	30	31	31	31
MED	E B 266	E B 262	E B 256	E B 236	214	E B 232	211	212	208	200	198	196	200	207	202	208	214	223	212	204	207	E B 252	E B 264	E B 270
U Q	E B 284	E B 268	E B 272	E B 250	E B 234	E B 250	214	216	216	206	203	199	210	217	211	212	216	228	218	210	E B 244	E B 268	E B 280	E B 290
L Q	E B 258	E B 252	E B 244	220	208	226	208	208	204	195	188	186	186	195	199	204	210	219	206	200	202	226	E 250	E B 260

MAR. 2017 h'F (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

MAR. 2017 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								110	112	114	110	110	112	114	112	114	A	112						
2								B	112	112	112	108	106	106	110	110	110	A						
3								118	112	110	108	110	110	110	110	114	112	B						
4							B	A	112	A	110	110	110	108	108	110	112	114						
5								110	110	110	110	110	108	110	110	112	A	112						
6								120	116	110	112	112	116	112	110	114	A	B						
7								114	114	112	112	112	110	110	A	110	A	110						
8								116	114	114	112	112	A	A	116	116	116	B						
9								116	116	112	112	112	112	114	114	114	114	B						
10								110	112	110	114	A	110	112	A	A	A	B						
11								116	116	A	A	A	A	116	112	112	110	124						
12								120	112	A	A	A	112	A	A	A	A	B						
13								112	110	114	A	112	116	114	110	112	112	118						
14							B	114	110	A	114	A	112	118	114	112	110	112						
15								118	122	122	A	A	C	C	C	C	C	B						
16								122	112	112	110	C	C	C	C	116	114	B						
17								114	118	118	116	112	A	A	112	A	114	B						
18								114	110	110	110	112	110	110	110	110	110	A						
19								114	116	114	114	114	110	108	108	112	112	112						
20							B	120	114	114	A	114	A	A	A	A	114	116						
21							B	114	114	110	112	112	110	112	112	A	A	112						
22							B	112	112	112	112	112	112	112	112	112	112	112						
23							B	112	110	A	A	A	114	114	A	A	114	112						
24							B	112	112	114	114	116	116	118	114	114	110	A						
25							B	112	112	112	112	112	112	114	114	120	116	116						
26							116	116	116	116	A	A	114	114	110	A	110	B						
27							B	122	102	112	A	A	114	114	114	110	110	112						
28							B	110	108	108	108	116	116	116	116	110	116	114						
29							B	114	114	114	A	A	114	114	114	116	112	112						
30							B	112	118	118	116	116	116	114	114	110	110	112						
31							B	112	112	A	116	116	112	110	110	112	112	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							1	29	31	25	22	21	25	25	24	23	23	18						
MED							116	114	112	112	112	112	112	114	112	112	112	112						
U Q								117	116	114	114	114	114	114	114	114	114	114						
L Q								112	112	110	110	111	110	110	110	110	110	112						

MAR. 2017 h'E (KM)

IONOSPHERIC DATA STATION Kokubunji

MAR. 2017 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	122	102	B	B	B	B	B	142	G	168	152	124	130	98	124	118	106	G	106	100	100	108	B	B
2	102	104	B	B	B	B	B	158	G	102	144	134	116	116	128	G	116	102	98	98	B	B	B	B
3	122	116	B	B	B	B	136	162	G	140	140	G	134	120	114	116	120	104	102	100	100	100	100	100
4	B	118	B	B	106	106	106	98	98	98	G	G	G	G	G	G	G	G	96	B	B	B	B	B
5	B	B	B	B	B	102	B	140	G	G	G	156	140	120	120	G	104	G	B	B	B	B	B	B
6	B	B	120	B	104	B	B	G	G	G	98	G	100	116	114	112	108	104	B	104	104	B	B	100
7	98	106	B	B	B	B	98	G	G	G	G	G	G	128	104	G	106	G	106	110	106	106	140	130
8	108	B	B	B	98	B	98	156	G	124	G	G	104	104	96	G	96	104	102	98	98	98	108	118
9	B	B	B	B	104	102	104	G	G	138	100	100	G	G	114	120	114	104	104	104	104	B	104	B
10	104	B	B	B	B	B	B	150	166	G	114	104	98	94	102	102	104	100	B	B	B	112	96	110
11	B	106	92	B	B	B	B	150	138	106	106	102	94	96	G	164	150	128	102	112	106	106	B	96
12	B	94	98	B	B	B	150	G	G	98	100	96	114	102	104	102	106	102	102	106	106	B	104	106
13	102	100	96	98	100	102	100	148	G	100	100	G	102	106	G	G	G	124	B	B	B	B	140	102
14	100	100	100	96	102	102	B	174	G	100	100	98	96	96	G	150	156	136	B	106	B	B	B	B
15	B	B	B	B	B	B	B	146	106	100	106	104	C	C	C	C	C	96	96	96	B	B	B	B
16	B	B	B	B	B	B	B	140	146	G	116	C	C	C	C	G	G	104	92	B	B	B	B	102
17	102	B	B	B	B	B	B	144	128	106	116	116	106	106	148	102	100	94	B	B	92	96	98	108
18	B	B	B	B	B	B	B	152	G	G	118	G	118	G	134	138	120	104	100	100	100	100	98	98
19	96	96	110	108	110	104	B	138	136	126	116	152	154	148	134	124	122	G	B	B	B	B	106	104
20	98	98	96	96	100	98	B	142	102	116	106	104	104	102	98	102	G	G	B	B	102	B	B	B
21	B	102	B	B	B	B	134	146	G	G	G	G	148	G	G	104	100	156	B	96	B	B	B	B
22	B	102	B	B	B	B	138	146	148	136	126	G	136	128	G	G	G	142	122	120	116	116	114	108
23	106	102	102	102	B	B	B	G	G	102	102	104	G	104	102	96	G	120	102	94	94	B	96	98
24	98	98	B	B	B	100	100	G	100	G	100	102	102	146	132	122	120	106	102	100	102	104	102	98
25	B	106	B	B	B	B	142	146	G	100	G	100	G	104	98	138	122	114	104	112	104	104	104	B
26	B	B	B	B	B	B	162	150	G	100	100	100	G	136	130	106	128	122	B	B	B	B	B	B
27	B	B	B	B	B	B	146	166	104	G	102	102	102	96	94	116	G	118	94	96	B	B	B	138
28	126	130	B	B	B	122	128	144	G	G	G	G	G	G	G	146	116	114	110	92	92	94	98	98
29	B	98	98	B	B	B	140	140	134	124	102	100	100	G	G	G	G	G	B	B	B	B	B	B
30	B	98	100	B	B	100	B	G	100	100	96	98	98	G	G	G	G	G	98	B	B	B	B	B
31	B	B	B	B	B	B	140	146	166	100	98	98	G	G	G	116	G	92	100	92	B	B	B	B
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	14	19	10	5	8	10	16	24	14	21	24	20	21	21	19	20	20	23	20	20	16	12	15	17
MED	102	102	99	98	103	102	135	146	131	102	104	102	104	106	114	116	115	104	102	100	102	104	104	102
U Q	108	106	102	105	105	104	141	151	146	125	116	110	132	124	130	131	121	122	104	106	105	107	108	109
L Q	98	98	96	96	100	100	102	142	102	100	100	100	100	100	102	103	105	102	98	96	99	99	98	98

MAR. 2017 h'Es (KM)

IONOSPHERIC DATA STATION Kokubunji

MAR. 2017 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	F2	F2						H2		H1	H1	C1	CL12	L2	CL22	C1	L2		F1	F1	F2	F1		
2	F2	F2						HL12		L2	H1	H1	C2	C2	C2		C3	L5	F4	F1				
3	F2	F1					F1	H2		H1	H1		C1	C1	C2	CL12	CL22	L3	FF33	F2	F4	F4	F2	F2
4		F1			F1	F1	L4	L3	L2	L2									F1					
5						F2		H2				H1	HL11	C1	C1		L2							
6			F1		F2						L2		L2	C2	C1	C1	L2	L2		F1	F1			F4
7	F7	F2					F2							C1	L2		L2		F2	F3	F5	F1	F1	F2
8	F1				F1		F3	HL22		C1			L1	L2	L2		L2	L3	F2	F4	F7	F4	F2	F2
9					F2	F2	F1			C1	L2	L2			C2	C1	C2	L2	F1	F1	F3		F1	
10	F1							H2	H1		C2	L2	L2	L2	L2	L2	L2	L3				F2	F2	F2
11		F1	F2					H1	C1	L2	L1	L1	L2	L2		H2	H2	C2	F4	F3	F1	F1		F2
12		F1	F1				F2			L2	L2	L2	C1	L2	L2	L2	L2	F3	F1	F1	F2		F1	F2
13	F2	F3	F3	F2	F1	F1	F1	H2		L1	L1		L2	L2				C1					F1	F1
14	F3	F2	F3	F2	F1	F1		H1		L2	L2	L2	L2	L2		H1	H2	H2		F1				
15								H2	L2	L2	L2	L1						L3	F2	F2				
16								H2	H1		C1							L2	F2					F1
17	F2							H2	CL12	L2	CL12	C1	L2	L2	HC12	L2	L2	L3			F1	F1	F4	F1
18								H2			C1		C1		HL12	C1	C3	L3	F2	F3	F2	F2	F2	F2
19	F4	F2	F2	F3	F1	F3		H2	HL12	CL22	C2	H1	H1	H1	H1	C2	C2						F2	F2
20	F2	F2	F2	F2	F2	F4		H2	L2	CL12	L2	L2	L2	L2	L2	L2					F1			
21		F3					H1	H1					H1			L2	L2	H1		F1				
22		F1					H2	H2	H1	C1	C1		C1	C1				H1	F2	F3	F2	F2	F3	F2
23	F2	F2	F4	F1						L2	L2	L2		L1	L2	L2		CL22	F2	F3	F1		F2	F3
24	F2	F1				F2	L1		L2		L2	L2	L2	HL12	HL12	C1	CL12	L6	F3	F5	F3	F3	F4	F2
25		F2					H2	H2		L2		L1		L2	L2	HL11	C2	C2	F3	F1	F1	F3	F1	
26							H2	H3		L2	L2	L1		H1	H1	L2	C1	C2						
27							H2	HL22	L2		L2	L2	L2	L2	L2	CL22		C1	F1	F1				F1
28	F1	F1				F2	C2	H1								H1	CL12	CL32	FF42	F3	F2	F4	F2	F1
29		F1	F2				H2	HL11	H1	CL11	L2	L2	L1											
30		F4	F2			F1			L2	L2	L2	L3	L1						F1					
31							H2	H2	HL12	L2	L1	L2				C2		L2	F1	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																								

MAR. 2017 TYPES OF Es

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

MAR. 2017 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	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
2	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
3	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
4	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
5	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
6	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
7	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
8	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
9	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
10	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
11	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
12	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
13	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
14	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
15	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
16	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
17	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
18	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
19	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
20	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
21	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
22	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
23	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
24	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
25	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
26	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
27	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
28	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
29	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
30	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
31	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
	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																								

MAR. 2017 fxI (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

MAR. 2017 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	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
2	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
3	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
4	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
5	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
6	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
7	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
8	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
9	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
10	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
11	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
12	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
13	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
14	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
15	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
16	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
17	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
18	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
19	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
20	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
21	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
22	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
23	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
24	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
25	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
26	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
27	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
28	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
29	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
30	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
31	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
	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																								

MAR. 2017 foF2 (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

MAR.2017 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								C	C	C	C	C	C	C	C	C	C	C	C					
2								C	C	C	C	C	C	C	C	C	C	C	C					
3								C	C	C	C	C	C	C	C	C	C	C	C					
4								C	C	C	C	C	C	C	C	C	C	C	C					
5								C	C	C	C	C	C	C	C	C	C	C	C					
6								C	C	C	C	C	C	C	C	C	C	C	C					
7								C	C	C	C	C	C	C	C	C	C	C	C					
8								C	C	C	C	C	C	C	C	C	C	C	C					
9								C	C	C	C	C	C	C	C	C	C	C	C					
10								C	C	C	C	C	C	C	C	C	C	C	C					
11								C	C	C	C	C	C	C	C	C	C	C	C					
12								C	C	C	C	C	C	C	C	C	C	C	C					
13								C	C	C	C	C	C	C	C	C	C	C	C					
14								C	C	C	C	C	C	C	C	C	C	C	C					
15								C	C	C	C	C	C	C	C	C	C	C	C					
16								C	C	C	C	C	C	C	C	C	C	C	C					
17								C	C	C	C	C	C	C	C	C	C	C	C					
18								C	C	C	C	C	C	C	C	C	C	C	C					
19								C	C	C	C	C	C	C	C	C	C	C	C					
20								C	C	C	C	C	C	C	C	C	C	C	C					
21								C	C	C	C	C	C	C	C	C	C	C	C					
22								C	C	C	C	C	C	C	C	C	C	C	C					
23								C	C	C	C	C	C	C	C	C	C	C	C					
24								C	C	C	C	C	C	C	C	C	C	C	C					
25								C	C	C	C	C	C	C	C	C	C	C	C					
26								C	C	C	C	C	C	C	C	C	C	C	C					
27								C	C	C	C	C	C	C	C	C	C	C	C					
28								C	C	C	C	C	C	C	C	C	C	C	C					
29								C	C	C	C	C	C	C	C	C	C	C	C					
30								C	C	C	C	C	C	C	C	C	C	C	C					
31								C	C	C	C	C	C	C	C	C	C	C	C					
	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																								

IONOSPHERIC DATA STATION Yamagawa

MAR. 2017 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								C	C	C	C	C	C	C	C	C	C	C	C					
2								C	C	C	C	C	C	C	C	C	C	C	C					
3								C	C	C	C	C	C	C	C	C	C	C	C					
4								C	C	C	C	C	C	C	C	C	C	C	C					
5								C	C	C	C	C	C	C	C	C	C	C	C					
6								C	C	C	C	C	C	C	C	C	C	C	C					
7								C	C	C	C	C	C	C	C	C	C	C	C					
8								C	C	C	C	C	C	C	C	C	C	C	C					
9								C	C	C	C	C	C	C	C	C	C	C	C					
10								C	C	C	C	C	C	C	C	C	C	C	C					
11								C	C	C	C	C	C	C	C	C	C	C	C					
12								C	C	C	C	C	C	C	C	C	C	C	C					
13								C	C	C	C	C	C	C	C	C	C	C	C					
14								C	C	C	C	C	C	C	C	C	C	C	C					
15								C	C	C	C	C	C	C	C	C	C	C	C					
16								C	C	C	C	C	C	C	C	C	C	C	C					
17								C	C	C	C	C	C	C	C	C	C	C	C					
18								C	C	C	C	C	C	C	C	C	C	C	C					
19								C	C	C	C	C	C	C	C	C	C	C	C					
20								C	C	C	C	C	C	C	C	C	C	C	C					
21								C	C	C	C	C	C	C	C	C	C	C	C					
22								C	C	C	C	C	C	C	C	C	C	C	C					
23								C	C	C	C	C	C	C	C	C	C	C	C					
24								C	C	C	C	C	C	C	C	C	C	C	C					
25								C	C	C	C	C	C	C	C	C	C	C	C					
26								C	C	C	C	C	C	C	C	C	C	C	C					
27								C	C	C	C	C	C	C	C	C	C	C	C					
28								C	C	C	C	C	C	C	C	C	C	C	C					
29								C	C	C	C	C	C	C	C	C	C	C	C					
30								C	C	C	C	C	C	C	C	C	C	C	C					
31								C	C	C	C	C	C	C	C	C	C	C	C					
	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																								

MAR. 2017 foE (0.01MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

MAR. 2017 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	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
2	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
3	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
4	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
5	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
6	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
7	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
8	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
9	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
10	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
11	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
12	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
13	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
14	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
15	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
16	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
17	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
18	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
19	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
20	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
21	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
22	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
23	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
24	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
25	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
26	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
27	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
28	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
29	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
30	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
31	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
	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																								

MAR. 2017 foEs (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

MAR. 2017 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	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
2	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
3	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
4	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
5	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
6	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
7	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
8	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
9	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
10	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
11	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
12	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
13	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
14	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
15	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
16	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
17	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
18	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
19	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
20	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
21	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
22	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
23	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
24	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
25	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
26	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
27	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
28	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
29	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
30	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
31	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
	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																								

MAR. 2017 fbEs (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

MAR. 2017 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	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
2	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
3	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
4	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
5	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
6	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
7	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
8	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
9	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
10	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
11	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
12	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
13	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
14	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
15	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
16	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
17	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
18	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
19	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
20	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
21	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
22	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
23	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
24	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
25	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
26	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
27	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
28	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
29	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
30	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
31	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
	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																								

MAR. 2017 fmin (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

MAR. 2017 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	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
2	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
3	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
4	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
5	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
6	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
7	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
8	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
9	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
10	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
11	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
12	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
13	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
14	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
15	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
16	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
17	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
18	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
19	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
20	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
21	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
22	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
23	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
24	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
25	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
26	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
27	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
28	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
29	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
30	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
31	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
	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																								

MAR. 2017 M(3000)F2 (0.01)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

MAR.2017 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								C	C	C	C	C	C	C	C	C	C	C	C					
2								C	C	C	C	C	C	C	C	C	C	C	C					
3								C	C	C	C	C	C	C	C	C	C	C	C					
4								C	C	C	C	C	C	C	C	C	C	C	C					
5								C	C	C	C	C	C	C	C	C	C	C	C					
6								C	C	C	C	C	C	C	C	C	C	C	C					
7								C	C	C	C	C	C	C	C	C	C	C	C					
8								C	C	C	C	C	C	C	C	C	C	C	C					
9								C	C	C	C	C	C	C	C	C	C	C	C					
10								C	C	C	C	C	C	C	C	C	C	C	C					
11								C	C	C	C	C	C	C	C	C	C	C	C					
12								C	C	C	C	C	C	C	C	C	C	C	C					
13								C	C	C	C	C	C	C	C	C	C	C	C					
14								C	C	C	C	C	C	C	C	C	C	C	C					
15								C	C	C	C	C	C	C	C	C	C	C	C					
16								C	C	C	C	C	C	C	C	C	C	C	C					
17								C	C	C	C	C	C	C	C	C	C	C	C					
18								C	C	C	C	C	C	C	C	C	C	C	C					
19								C	C	C	C	C	C	C	C	C	C	C	C					
20								C	C	C	C	C	C	C	C	C	C	C	C					
21								C	C	C	C	C	C	C	C	C	C	C	C					
22								C	C	C	C	C	C	C	C	C	C	C	C					
23								C	C	C	C	C	C	C	C	C	C	C	C					
24								C	C	C	C	C	C	C	C	C	C	C	C					
25								C	C	C	C	C	C	C	C	C	C	C	C					
26								C	C	C	C	C	C	C	C	C	C	C	C					
27								C	C	C	C	C	C	C	C	C	C	C	C					
28								C	C	C	C	C	C	C	C	C	C	C	C					
29								C	C	C	C	C	C	C	C	C	C	C	C					
30								C	C	C	C	C	C	C	C	C	C	C	C					
31								C	C	C	C	C	C	C	C	C	C	C	C					
	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																								

MAR.2017 M(3000)F1 (0.01)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

MAR.2017 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								C	C	C	C	C	C	C	C	C	C	C	C					
2								C	C	C	C	C	C	C	C	C	C	C	C					
3								C	C	C	C	C	C	C	C	C	C	C	C					
4								C	C	C	C	C	C	C	C	C	C	C	C					
5								C	C	C	C	C	C	C	C	C	C	C	C					
6								C	C	C	C	C	C	C	C	C	C	C	C					
7								C	C	C	C	C	C	C	C	C	C	C	C					
8								C	C	C	C	C	C	C	C	C	C	C	C					
9								C	C	C	C	C	C	C	C	C	C	C	C					
10								C	C	C	C	C	C	C	C	C	C	C	C					
11								C	C	C	C	C	C	C	C	C	C	C	C					
12								C	C	C	C	C	C	C	C	C	C	C	C					
13								C	C	C	C	C	C	C	C	C	C	C	C					
14								C	C	C	C	C	C	C	C	C	C	C	C					
15								C	C	C	C	C	C	C	C	C	C	C	C					
16								C	C	C	C	C	C	C	C	C	C	C	C					
17								C	C	C	C	C	C	C	C	C	C	C	C					
18								C	C	C	C	C	C	C	C	C	C	C	C					
19								C	C	C	C	C	C	C	C	C	C	C	C					
20								C	C	C	C	C	C	C	C	C	C	C	C					
21								C	C	C	C	C	C	C	C	C	C	C	C					
22								C	C	C	C	C	C	C	C	C	C	C	C					
23								C	C	C	C	C	C	C	C	C	C	C	C					
24								C	C	C	C	C	C	C	C	C	C	C	C					
25								C	C	C	C	C	C	C	C	C	C	C	C					
26								C	C	C	C	C	C	C	C	C	C	C	C					
27								C	C	C	C	C	C	C	C	C	C	C	C					
28								C	C	C	C	C	C	C	C	C	C	C	C					
29								C	C	C	C	C	C	C	C	C	C	C	C					
30								C	C	C	C	C	C	C	C	C	C	C	C					
31								C	C	C	C	C	C	C	C	C	C	C	C					
	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																								

MAR.2017 h'F2 (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

MAR.2017 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	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
2	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
3	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
4	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
5	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
6	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
7	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
8	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
9	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
10	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
11	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
12	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
13	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
14	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
15	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
16	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
17	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
18	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
19	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
20	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
21	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
22	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
23	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
24	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
25	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
26	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
27	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
28	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
29	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
30	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
31	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
	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																								

MAR.2017 h'F (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

MAR.2017 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								C	C	C	C	C	C	C	C	C	C	C	C					
2								C	C	C	C	C	C	C	C	C	C	C	C					
3								C	C	C	C	C	C	C	C	C	C	C	C					
4								C	C	C	C	C	C	C	C	C	C	C	C					
5								C	C	C	C	C	C	C	C	C	C	C	C					
6								C	C	C	C	C	C	C	C	C	C	C	C					
7								C	C	C	C	C	C	C	C	C	C	C	C					
8								C	C	C	C	C	C	C	C	C	C	C	C					
9								C	C	C	C	C	C	C	C	C	C	C	C					
10								C	C	C	C	C	C	C	C	C	C	C	C					
11								C	C	C	C	C	C	C	C	C	C	C	C					
12								C	C	C	C	C	C	C	C	C	C	C	C					
13								C	C	C	C	C	C	C	C	C	C	C	C					
14								C	C	C	C	C	C	C	C	C	C	C	C					
15								C	C	C	C	C	C	C	C	C	C	C	C					
16								C	C	C	C	C	C	C	C	C	C	C	C					
17								C	C	C	C	C	C	C	C	C	C	C	C					
18								C	C	C	C	C	C	C	C	C	C	C	C					
19								C	C	C	C	C	C	C	C	C	C	C	C					
20								C	C	C	C	C	C	C	C	C	C	C	C					
21								C	C	C	C	C	C	C	C	C	C	C	C					
22								C	C	C	C	C	C	C	C	C	C	C	C					
23								C	C	C	C	C	C	C	C	C	C	C	C					
24								C	C	C	C	C	C	C	C	C	C	C	C					
25								C	C	C	C	C	C	C	C	C	C	C	C					
26								C	C	C	C	C	C	C	C	C	C	C	C					
27								C	C	C	C	C	C	C	C	C	C	C	C					
28								C	C	C	C	C	C	C	C	C	C	C	C					
29								C	C	C	C	C	C	C	C	C	C	C	C					
30								C	C	C	C	C	C	C	C	C	C	C	C					
31								C	C	C	C	C	C	C	C	C	C	C	C					
	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																								

MAR.2017 h'E (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

MAR. 2017 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	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
2	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
3	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
4	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
5	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
6	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
7	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
8	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
9	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
10	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
11	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
12	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
13	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
14	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
15	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
16	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
17	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
18	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
19	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
20	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
21	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
22	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
23	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
24	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
25	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
26	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
27	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
28	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
29	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
30	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
31	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
	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																								

MAR. 2017 h'Es (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

MAR.2017 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																								
2																								
3																								
4																								
5																								
6																								
7																								
8																								
9																								
10																								
11																								
12																								
13																								
14																								
15																								
16																								
17																								
18																								
19																								
20																								
21																								
22																								
23																								
24																								
25																								
26																								
27																								
28																								
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT																								
MED																								
U Q																								
L Q																								

MAR.2017 TYPES OF Es

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

MAR. 2017 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	X 45	X 58	X 60	X 56	X 54	X 33	X 27														X 58	X 52	X 51	X 52
2	X 52	X 48	X 59	X 48	X 30		X 25													X 80	X 60	X 44	X 41	X 43
3	X 52	X 38	X 40	X 41	X 27	X 26	X 27														X 81	X 40	X 38	X 34
4	X 34	X 36	X 36	X 37	X 37	X 38	X 30														X 52	X 40	X 38	X 35
5	X 37	X 38	X 38	X 40	X 46	X 35	X 33														X 65	X 54	X 44	X 42
6	X 41	X 39	X 39	X 38	X 36	X 38	X 32														X 49	X 46	X 44	X 43
7	X 46	X 39	X 37	X 40	X 45	X 27	X 27														X 46	X 44	X 39	X 36
8	X 37	X 38	X 38	X 43	X 30	X 26	X 27														X 57	X 48	X 44	X 43
9	X 44	X 48	X 46	X 41	X 39	X 39	X 26														X 52	X 39	X 40	X 42
10	X 42	X 39	X 39	X 39	X 36	X 32	X 22														X 73	X 70	X 50	X 48
11	X 46	X 43	X 40	X 44	X 39	X 26															X 64	X 42	X 37	X 34
12	X 36	X 37	X 36	X 36	X 37	X 32	X 29														X 55	X 47	X 49	X 49
13	X 49	X 42	X 43	X 44	X 42	X 31	X 26														X 54	X 36	X 38	X 36
14	X 38	X 38	X 40	X 40	X 38	X 34	X 32														X 69	X 49	X 43	X 45
15	X 44	X 44	X 44	X 46	X 50	X 28	X 30														X 46	X 32	X 33	X 33
16	X 33	X 34	X 34	X 35	X 40	X 25	X 25														X 53	X 51	56	X 53
17	X 53	X 53	X 53	X 52	X 39	X 30	X 25														X 52	X 45	X 42	X 43
18	X 43	X 43	X 45	45	X 41	X 25															X 53	X 43	X 40	47
19	47	44	44	X 42	X 35	X 25															X 76	X 70	X 36	X 38
20	X 40	X 43	X 44	X 41	X 42	X 40															X 74	X 54	X 52	X 53
21	X 55	X 50	X 42	X 44	X 39	X 34															X 72	X 48	X 40	X 40
22	43	47	X 42	X 38	X 41	X 27															X 47	X 46	X 46	X 48
23	50	51	50	50	X 38	43	38														X 54	X 47	X 43	X 38
24	X 40	X 42	X 40	X 43	X 36	X 25															X 62	X 44	X 43	X 44
25	X 43	X 44	X 46	X 51	X 53	X 30															X 78	X 50	X 42	X 43
26	X 43	X 44	X 49	X 60	X 56	X 24															X 71	X 44	X 35	X 35
27	X 35	X 36	X 37	X 44	X 27	X 22															X 80	X 66	X 66	X 63
28	X 62	X 73	X 64	56	36	X 41															X 58	X 54	X 58	X 56
29	X 57	X 59	X 56	X 52	X 40	X 26															X 62	X 52	X 52	X 49
30	X 49	X 49	X 46	X 46	X 44	X 30															X 73	X 58	X 58	X 60
31	X 56	X 57	X 66	X 45	X 30																X 59	X 57	X 54	X 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	31	31	31	31	31	29	17													1	31	31	31	31
MED	X 44	X 43	X 43	X 44	X 39	X 30	X 27													X 80	X 59	X 47	X 43	X 43
U Q	X 50	X 49	X 49	X 48	X 42	X 34	X 31														X 72	X 54	X 51	X 49
L Q	X 40	X 38	X 39	X 40	X 36	X 26	X 26														X 53	X 44	X 39	X 38

MAR. 2017 fxI (0.1MHz)

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IONOSPHERIC DATA STATION Okinawa

MAR. 2017 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	39	52	54	49	48	27	21	41	50	54	65	82	101	112	100	92	79	71	61	48	52	46	45	46
2	46	42	53	42	24	20	19	44	55	91	98	64	72	102	76	71	68	69	86	74	54	38	35	R 37
3	46	32	34	35	21	20	21	44	66	74	77	80	96	112	125	126	R 106	85	82	93	75	34	32	28
4	28	30	30	31	31	32	24	42	61	68	81	85	89	82	93	94	88	84	82	58	46	34	32	29
5	31	32	32	34	40	29	27	44	54	60	63	66	67	71	76	82	85	84	78	79	59	48	38	36
6	35	33	33	32	30	32	26	43	57	57	74	91	87	98	85	82	93	85	80	A	43	40	38	37
7	40	33	31	34	39	21	21	43	57	66	68	67	90	102	89	84	83	81	76	46	40	38	33	R 30
8	31	J R 32	32	37	24	20	21	45	72	61	76	84	91	95	96	89	98	88	81	68	51	42	38	37
9	38	42	40	35	33	33	20	41	58	54	60	74	71	93	86	84	71	73	80	66	46	33	34	R 36
10	U R 36	R 35	33	33	30	26	16	41	56	64	87	99	112	123	R 124	111	108	86	93	85	67	64	44	42
11	40	37	34	38	33	20	18	42	56	66	74	83	91	111	113	R 103	85	80	92	88	58	36	31	28
12	30	31	30	30	31	26	23	44	52	59	70	75	90	110	124	114	100	101	71	63	49	41	43	J R 43
13	43	36	37	38	36	25	20	47	59	61	70	76	89	105	112	112	98	82	76	65	48	R 30	32	30
14	32	32	R 34	34	32	28	26	46	55	64	82	86	93	118	123	118	114	107	97	92	63	43	J R 37	J R 39
15	R 38	38	R 38	40	44	22	24	44	50	50	60	66	75	89	101	100	92	80	80	68	40	26	27	27
16	27	28	28	29	34	19	19	43	54	58	65	69	81	96	104	93	89	86	78	60	47	R 45	J R 47	J R 47
17	J R 47	J R 47	J R 47	J R 46	33	24	19	43	52	58	79	82	85	94	82	79	84	84	70	61	46	39	36	37
18	37	37	39	F 37	35	19	20	44	54	56	64	78	81	94	98	105	84	74	69	A	47	37	34	F
19	F	F 37	F 34	36	29	19	20	47	55	53	64	68	76	95	108	114	120	99	76	67	70	R 64	30	32
20	34	37	38	R 35	36	34	40	47	48	53	50	62	75	92	105	109	104	96	100	82	68	48	46	47
21	49	44	36	38	33	28	29	47	51	57	62	63	73	92	104	80	67	75	71	57	66	42	34	34
22	35	F 37	36	32	35	21	22	46	64	76	72	77	100	107	91	81	78	64	79	66	41	40	40	J R 42
23	F 39	F 41	F 40	F 41	32	F 31	F 29	52	54	61	74	92	106	118	110	J R 102	86	93	96	81	48	41	37	32
24	36	36	J R 34	37	30	19	20	47	54	61	68	71	92	102	104	105	78	67	82	86	56	38	37	38
25	37	38	40	45	47	24	26	59	64	68	70	74	89	100	105	92	86	85	86	93	72	44	36	37
26	37	38	43	54	50	18	22	45	52	62	82	95	102	106	108	85	67	63	62	64	65	38	29	29
27	29	30	31	38	21	R 16	21	46	55	69	80	90	100	114	133	R 127	119	112	105	105	74	R 60	59	57
28	56	67	58	F 49	F 30	35	27	47	81	90	78	91	113	138	U R 146	130	118	104	86	70	52	48	52	R 50
29	51	53	50	46	34	20	25	54	62	63	64	89	114	137	137	125	110	85	83	79	56	46	R 46	43
30	43	43	40	40	38	26	28	50	58	71	89	113	R 129	U Y 125	U R 146	136	R 126	R 130	119	91	67	52	52	54
31	J R 50	51	60	39	24	22	28	52	60	65	75	80	86	105	124	R 136	R 139	J R 104	80	82	53	51	48	50
	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	31	31	31	31	31	31	31	31	31	31	31	31	31	31	29	31	31	31	30
MED	38	37	36	37	33	24	22	45	55	61	72	80	90	102	105	102	89	85	80	70	53	41	37	37
U Q	43	42	40	41	36	28	26	47	60	68	79	89	100	112	124	114	108	96	86	86	66	48	45	43
L Q	34	32	33	34	30	20	20	43	54	57	64	69	81	94	93	84	83	75	76	64	47	38	33	32

IONOSPHERIC DATA STATION Okinawa

MAR. 2017 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											U L 468	448	436	U L 420	L 468	L 436	U L 408	L	U L 224					
2										L	L	L	U L 504		L 452	A	L	U L 372						
3										L	L	L 464	464	L 468	460	L 440	L 412	L						
4									L	L	L	E Y 444	L 456	A	464	L 444	L	L						
5									L		U L 440	L 444	U L 456	U L 464	L 452	U L 452	U L 424	L						
6									L		U L 456	448	L 452	448	A	L	A	A		A				
7									L	L	U L 428	U L 448	L 460	L 460	L 452	U L 456	U L 416	L						
8									L	L	U L 456	L 464	L 456	L 460	U R 416	L	U L 408	L						
9								176	L	L	U L 448	448	448	L 444	U L 444	L 436	U L 412	L		A				
10										L	L 448	L 456	456	456	L 460	L 428								
11										L	L 436	L 456	L 476	452	L 456	428	L 404	L						
12										U L 404	U L 448	L 464	452	L 456	L 464	L 432	L	U L 360						
13										L	L 444	U L 464	L 456	L 464	456	432	L 408	L						
14									L	L	L 448	452	L	448	452	L 440	L 416	L						
15											L 436	444	452	452	444	L 436	L 420	L						
16										L	L 440	L 448	448	456	L 448	L 440	L	L						
17										U L 428	U L 440	L 460	456	L 432	L 452	L 436	L 428	L						
18									L	U L 412	U L 456	444	L 468	452	456	L 432	L 408	L		A				
19										U L 388	U L 436	456	E B	A	A	440	U L 428	L	L					
20									L	L	A	448	452	448	L 452	L 440	L 420	L						
21										L	440	444	440	R 440	432	440	U L 412	U L 368						
22									L	L	U L 448	448	444	452	Y 460	U L 440	L 412	L						
23									L	U L 440	U L 452	460	L 456	L 464	L 452	L 440	U L 424	L						
24										L	L 452	U L 484	L 464	A 468	L 460	L 448	L	L	L					
25									L	L	440	464	L 456	468	464	L 440	L 360	L	L					
26										U L 456	L 456	456	A	A	L 444	L 448	U L 428	L						
27										U L 448	448	448	L 456	L 468	456	448	424	L 400	L					
28									L	L	L	U L 464	U L 468	U L 488	B	U L 456	L 428	L						
29									L	L	U L 492	U L 452	U L 484	U L 480	L 464	L 468	L 424	L						
30										U L 468	R 444	U L 480	U L 464	L 480	L 472	L 452	L 436	L						
31								R 224	L	U L 444	U L 468	L 464	464	U L 532	U L 468	L 464	L 424	L	208					
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								2		9	26	30	28	27	28	28	24	4	2					
MED								200		U L 440	U L 448	454	L 456	L 456	L 456	L 440	L 418	U L 370	216					
U Q										U L 452	U L 456	L 464	L 464	L 468	L 462	L 448	U L 424	L 386						
L Q										U L 408	L 440	448	452	448	452	L 436	L 410	U L 364						

MAR. 2017 foF1 (0.01MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

MAR. 2017 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								168	216	268	R 296	328	336	R 328	360	A	296	252	B	B				
2						J K 128		180	216	R 256	U R 332	332	B	B	B	316	292	240	A					
3								172	228	276	320	332	R	R 328	R 324	B	U A 268	240	B	B				
4								168	236	A	R	R	B	U A 356	U R 344	B	A	240	188	B				
5								A	232	292	328	332	R 352	352	348	312	U A 288	A	A	A				
6								B	232	276	R 312	U R 332	R 336	R 328	332	312	284	A	A	A				
7								172	220	276	328	U R 348	R 352	R	344	304	A	A	A	A				
8								176	A	U A 268	300	A	A	328	B	U A 304	A	A	A	B				
9								B	236	276	U R 308	R 348	R 352	340	340	324	296	U A 256	A	A				
10								A	248	280	296	308	R 332	U R 364	A	312	312	A	180	A				
11							B	180	240	284	A	A	A	344	R 328	A	A	244	A	A				
12								176	248	284	316	R 340	356	U R 352	U R 344	304	276	A	176	A				
13								180	216	272	320	B	A	R 344	R	R 328	296	252	A	B				
14								168	244	280	300	R	R	U R 384	R 348	316	296	248	184	B				
15								184	248	300	U R 320	U R 360	B	R	348	A	A	260	172	B				
16								192	244	284	320	U R 332	R 344	R	A	332	A	256	172	A				
17								200	232	296	328	340	R 336	U R 360	U R 360	328	308	252	180	A				
18							B	180	228	292	U R 316	R 312	U R 328	B	R	U R 332	300	248	A	A				
19							B	176	240	284	R	U R 356	B	A	R 348	R 356	296	256	180	B				
20							B	188	236	A	R 336	R 340	U R 344	340	332	320	292	U A 240	A	B				
21							B	172	248	296	340	A	U R 356	R	R	U R 336	292	252	A	A				
22							B	B 244	300	332	U R 344	344	R	R	A	280	252	U A 176	A					
23							B	200	232	284	R 320	R 320	B	R	U R 340	U R 320	292	252	188	A				
24							B	208	232	U R 304	U R 336	B	U R 364	U R 368	R	R	300	256	180	B				
25							B	176	240	292	U R 304	U R 340	U R 348	B	U R 348	332	300	U A 260	A	A				
26							B	208	252	300	328	A	R 396	A	U R 328	336	R 312	260	188	B				
27							B	180	A	R 304	A	A	B	B	A	324	304	256	184	B				
28							A	A 256		R 320	R	B	B	R	B	R	U R 304	256	188	B				
29							B	216	256	284	U R 344	R	R	R	B	A	A	A	A	A				
30							B	196	240	292	B	B	R	B	R	U R 324	296	268	180	B				
31						J K 116	B	196	260	300	U R 312	R	R	B	U R 308	B	R 308	252	184	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						2		25	29	29	25	18	16	15	18	21	24	24	16					
MED						J K 122		180	240	284	320	R 336	R 346	R 344	R 344	324	296	252	180					
U Q								196	248	298	R 330	U R 344	R 354	U R 360	R 348	332	302	256	186					
L Q								174	232	276	R 310	332	R 336	R 328	R 332	312	292	248	178					

MAR. 2017 foE (0.01MHz)

IONOSPHERIC DATA STATION Okinawa

MAR. 2017 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	E B 14	J A 43	E B 14	19	E B 14	E B 14	E B 14	G	24	G	G	G	37	39	43	J A 35	G	G	E B 16	J A 16	21	20	18	E B 14
2	19	20	24	20	J A 17	J K 13	J A 18	E B 15	G	34	39	38	E B 40	E B 41	E B 37	J A 46	34	G	20	J A 17	J A 16	J A 17	E B 14	E B 14
3	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	G	26	30	36	38	J A 38	38	36	E B 35	32	G	18	19	J A 15	E B 14	J A 27	J A 22
4	E B 14	E B 14	E B 16	18	19	E B 14	J A 18	J A 17	26	30	G	G	37	44	G	E B 36	32	28	J A 17	19	J A 23	18	E B 14	E B 20
5	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	19	20	G	35	37	38	40	41	40	42	37	30	22	J A 20	E B 14	E B 14	E B 14	19
6	E B 14	J A 19	18	J A 19	19	E B 14	E B 14	E B 16	G	G	G	G	G	G	J A 50	40	J A 47	J A 48	J A 40	J A 68	E B 15	19	E B 15	E B 14
7	18	18	E B 14	18	18	E B 14	J A 15	G	G	32	36	G	38	G	G	G	32	26	19	J A 24	J A 23	J A 23	J A 16	E B 15
8	E B 14	E B 14	E B 14	19	J A 14	20	J A 15	J A 16	26	29	33	38	40	39	40	J A 42	J A 42	J A 31	J A 25	J A 16	20	18	E B 15	J A 22
9	18	E B 14	E B 14	J A 18	E B 14	E B 14	E B 14	E B 15	G	30	36	39	39	41	42	37	37	31	24	J A 28	18	18	20	18
10	J A 28	19	E B 14	E B 14	E B 14	E B 14	17	18	G	G 25	34	36	40	G	52	40	35	33	J A 33	J A 64	J A 116	J A 68	J A 24	E B 14
11	E B 16	E B 14	18	E B 14	E B 14	E B 14	E B 14	G	G	32	36	36	38	38	40	36	34	J A 38	J A 37	J A 32	20	J A 19	J A 28	19
12	E B 14	J A 16	E B 14	E B 14	E B 14	E B 14	E B 14	G	G	32	G 28	38	G	40	38	32	30	26	G	J A 17	19	26	20	J A 15
13	J A 17	19	J A 16	E B 14	E B 14	E B 14	E B 14	G	G	G	G	E B 38	42	44	40	36	G	29	22	E B 15	J A 18	J A 18	J A 19	19
14	E B 14	J A 20	20	18	J A 15	20	20	G	G 21	G	G	30	G 36	43	38	G 23	G	26	G	E B 14	20	J A 20	E B 14	E B 16
15	20	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	G	28	32	G	G	E B 42	G	38	37	32	G	G	E B 14	E B 14	E B 14	J A 16	J A 19
16	J A 20	E B 14	E B 14	20	E B 14	E B 14	E B 15	G	28	34	G	G 29	G	40	38	36	33	29	23	J A 23	J A 40	J A 23	J A 21	E B 14
17	J A 20	20	E B 15	E B 14	E B 14	E B 14	J A 15	G	27	32	37	38	43	G 25	G	37	G	29	24	J A 19	E B 14	J A 14	E B 14	E B 14
18	19	18	J A 16	J A 19	J A 37	E B 14	E B 14	22	30	33	G	G	G	42	41	38	33	27	21	J A 56	E B 14	E B 14	19	19
19	E B 14	18	J A 21	20	E B 14	E B 14	E B 14	22	28	32	U Y 30	G	E B 45	J A 62	J A 70	G	34	G	20	18	E B 14	19	18	E B 14
20	E B 14	E B 14	E B 14	E B 16	E B 14	E B 14	18	G	26	32	J A 49	38	G	39	35	38	36	32	J A 24	J A 16	J A 16	18	18	19
21	J A 43	J A 20	19	22	18	J A 19	J A 18	21	28	33	G 32	37	G	G	G	G	G 23	28	26	J A 23	20	E B 14	E B 17	19
22	E B 14	E B 14	E B 14	E B 14	18	E B 14	E B 14	G	29	33	36	G 32	40	32	36	40	32	28	21	J A 16	J A 15	J A E B 14	E B 14	J A 21
23	J A 23	18	J A 16	J A 17	J A 18	J A 17	J A 18	G 18	28	G 22	36	G	E B 40	29	G	G	G	G	22	J A 18	J A 17	J A 25	J A 24	J A 48
24	J A 40	18	18	E B 14	E B 14	18	E B 15	G	G	34	G	E B 40	42	42	G	G	34	G	G	E B 14	E B 14	20	J A 15	J A 19
25	J A 19	J A 19	J A 16	E B 14	E B 14	E B 14	E B 14	23	G	G	G	G	G	46	44	38	33	34	J A 31	J A 24	J A 17	J A 16	E B 14	E B 14
26	E B 14	J A 18	E B 14	E B 14	E B 14	E B 14	E B 14	23	29	G	G	36	47	40	G 30	38	G 24	29	24	J A 20	20	E B 14	E B 14	J A 16
27	E B 14	J A 21	E B 14	18	J A 16	E B 14	J A 15	21	27	G	36	37	E B 40	E B 41	J A 47	G	33	28	J A 28	J A 17	J A 16	J A E B 26	J A 23	20
28	E B 14	E B 14	E B 14	E B 14	J A 18	20	J A 22	J A 30	G 22	36	31	E B 42	E B 44	28	E B 47	24	G	G	G	J A 14	E B 14	J A 52	J A 22	J A 17
29	20	20	20	E B 14	20	17	J A 14	J A 16	G 22	G	G 30	38	32	30	E B 42	J A 58	J A 36	34	22	J A 19	J A 21	J A 16	J A 22	J A 27
30	J A 22	J A 15	E B 15	18	20	J A 21	E B 14	G	G	G	E B 41	E B 41	30	E B 46	28	G 26	G	30	21	E B 16	J A 26	J A 29	E B 16	E B 14
31	E B 14	E B 14	E B 14	E B 14	E B 14	J K 12	E B 14	22	30	36	G	29	28	E B 41	33	E B 38	G	G	21	E B 14	E B 14	E B 14	E B 14	E B 14
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31
MED	E B 16	18	E B 14	E B 16	E B 14	E B 14	E B 14	G	24	32	G	E G 36	E G 38	39	38	36	32	28	22	J A 18	17	18	17	18
U Q	J A 20	J A 19	18	19	18	17	J A 18	21	28	33	36	38	40	42	42	38	34	31	J A 24	J A 23	J A 20	J A 23	J A 21	J A 19
L Q	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	G	G	G	G	G	G	G 29	G	G	G	G	G 18	E B 16	E B 14	E B 14	E B 14	E B 14

MAR. 2017 foEs (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

MAR. 2017 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	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	G	24	G	G	G	36	37	38	34	G	G	E B 16	E B 14	E B 14	E B 14	E B 14	E B 14
2	E B 14	E B 14	E B 14	E B 14	E B 14	J K 13	E B 14	E B 15	G	33	37	38	E B 40	E B 41	E B 37	44	32	G	19	E B 14	E B 14	E B 14	E B 14	E B 14
3	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	G	26	30	35	38	38	38	U Y 36	E B 35	31	G	17	E B 15	E B 14	E B 14	E B 14	E B 14
4	E B 14	E B 14	E B 16	E B 14	E B 14	E B 14	E B 14	E B 15	25	29	G	G	U Y 37	44	G	E B 36	32	27	G 15	E B 14	18	E B 14	E B 14	E B 20
5	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	16	G	35	36	38	40	40	38	42	35	28	20	17	E B 14	E B 14	E B 14	E B 14
6	E B 14	E B 14	E B 14	18	E B 14	E B 14	E B 14	E B 16	G	G	G	G	G	G	48	38	45	44	38	A A 68	E B 15	E B 14	E B 15	E B 14
7	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	G	G	32	36	G	38	G	G	G	32	26	18	20	20	16	E B 14	E B 15
8	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	G 15	26	29	33	38	39	39	40	40	33	28	22	E B 14	E B 14	E B 14	E B 15	18
9	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	E B 15	G	30	36	39	38	40	41	36	36	30	22	20	E B 15	E B 15	E B 14	E B 14
10	16	E B 14	E B 14	E B 14	E B 14	E B 14	E B 15	18	G	G 23	34	36	39	G	45	39	35	32	27	54	34	43	19	E B 14
11	E B 16	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	G	G	32	36	36	37	38	40	34	32	31	32	27	E B 14	E B 14	20	E B 14
12	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	G	G	31	G 25	38	G	40	38	U Y 32	30	26	G	16	E B 14	20	16	E B 14
13	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	G	G	G	G	E B 38	42	44	40	36	G	28	21	E B 15	E B 14	E B 14	17	17
14	E B 14	18	E B 14	E B 14	E B 14	E B 14	E B 14	G	G 18	G	G	27	U G 36	43	38	G 22	G	26	G	E B 14	E B 14	E B 14	E B 14	E B 16
15	17	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	G	28	32	G	G	E B 42	G	38	37	32	G	G	E B 14	E B 14	E B 14	E B 14	E B 14
16	18	E B 14	E B 14	E B 14	E B 14	E B 14	E B 15	G	28	34	G	G 28	G	39	38	36	33	28	22	19	E B 14	18	E B 14	E B 14
17	E B 14	E B 14	E B 15	E B 14	E B 14	E B 14	E B 14	G	27	31	36	38	41	G 24	G	37	G	28	24	17	E B 14	E B 14	E B 14	E B 14
18	E B 14	E B 14	E B 14	E B 14	26	E B 14	E B 14	21	29	33	G	G	G	42	40	38	32	27	20	A A 56	E B 14	E B 14	E B 14	E B 14
19	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	21	28	32	U Y 30	G	E B 45	53	56	G	34	G	20	E B 14	E B 14	E B 14	E B 14	E B 14
20	E B 14	E B 14	E B 14	E B 16	E B 14	E B 14	E B 14	G	26	32	44	38	G	37	U Y 35	37	35	28	22	E B 14	E B 14	E B 14	E B 14	E B 14
21	16	19	17	16	E B 14	E B 14	E B 14	G 15	28	33	G 28	37	G	G	G	G	G 22	27	19	22	E B 14	E B 14	E B 17	E B 14
22	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	G	29	32	36	G 26	40	U Y 32	U Y 36	40	32	28	20	16	E B 14	E B 14	E B 14	18
23	17	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	16	28	G 20	36	G	E B 40	U Y 29	G	G	G	G	22	16	17	24	E B 14	19
24	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	E B 15	G	G	33	G	E B 40	42	40	G	G	33	G	G	E B 14	E B 14	E B 14	E B 14	E B 14
25	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	22	G	G	G	G	G	45	44	38	33	34	26	20	16	E B 14	E B 14	E B 14
26	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	23	29	G	G	36	47	40	G 27	36	G 22	28	20	E B 14	E B 14	E B 14	E B 14	E B 14
27	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	E B 15	21	27	G	35	37	E B 40	E B 41	39	G	33	28	26	E B 14	E B 14	E B 26	22	E B 14
28	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	17	24	G 18	35	U Y 31	E B 42	E B 44	U Y 28	E B 47	U Y 24	G	G	G	E B 14	E B 14	40	E B 14	E B 14
29	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	E B 15	G 18	G	G 30	38	U Y 32	U Y 30	E B 42	42	35	34	22	17	E B 14	E B 14	17	22
30	E B 14	E B 14	E B 15	E B 14	E B 14	E B 14	E B 14	G	G	G	E B 41	E B 41	U Y 30	E B 46	U Y 28	G 25	G	29	21	E B 16	26	27	E B 16	E B 14
31	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	20	30	36	G	U Y 29	U Y 28	E B 41	U Y 33	E B 38	G	G	20	E B 14	E B 14	E B 14	E B 14	E B 14
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31
MED	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	G	24	31	E G 30	E G 36	E G 38	38	38	36	32	28	20	E B 16	E B 14	E B 14	E B 14	E B 14
U Q	14	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	18	28	33	36	38	40	41	40	38	33	28	22	20	15	16	16	15
L Q	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	G	G	G	G	G	G	G 29	G 28	G	G	G	G 17	E B 14	E B 14	E B 14	E B 14	E B 14

MAR. 2017 fbEs (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

MAR. 2017 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	14	14	14	14	14	14	14	14	15	18	20	18	20	22	19	18	18	16	16	14	14	14	14	14
2	14	14	14	14	14	14	14	15	15	14	17	19	40	41	37	20	18	15	15	14	14	14	14	14
3	14	14	14	14	14	14	14	15	16	16	17	20	28	27	26	35	18	14	16	15	14	14	14	14
4	14	14	16	14	14	14	14	15	15	18	20	28	36	21	21	36	20	16	15	14	14	14	14	20
5	14	14	14	14	14	14	14	14	16	17	18	18	22	18	18	26	19	15	15	15	14	14	14	14
6	14	14	14	14	14	14	14	16	15	16	19	24	20	23	21	20	15	17	16	15	15	14	15	14
7	14	14	14	14	14	14	14	15	17	16	18	23	24	21	22	18	16	18	15	14	14	14	14	15
8	14	14	14	14	14	14	14	15	15	19	20	32	33	26	34	20	18	14	14	14	14	14	15	14
9	14	14	14	14	14	14	14	15	15	14	17	19	19	23	21	20	19	13	14	14	15	15	14	14
10	14	14	14	14	14	14	15	15	15	16	18	20	20	25	23	18	16	13	14	14	14	14	14	14
11	16	14	14	14	14	14	14	14	17	18	18	21	18	28	27	20	16	14	13	14	14	14	14	14
12	14	14	14	14	14	14	14	14	15	17	19	20	20	23	24	18	18	15	14	14	14	14	14	14
13	14	14	14	14	14	14	14	15	17	17	20	38	34	24	24	23	18	18	15	15	14	14	14	14
14	14	14	14	14	14	14	14	14	15	16	18	20	24	26	24	19	20	16	15	14	14	14	14	16
15	15	14	14	14	14	14	14	14	16	16	18	21	42	24	25	21	23	16	14	14	14	14	14	14
16	14	14	14	14	14	14	15	15	15	17	20	23	25	24	24	24	19	15	14	14	14	14	14	14
17	14	14	15	14	14	14	14	15	17	18	24	21	21	22	21	19	17	15	15	14	14	14	14	14
18	14	14	14	14	14	14	14	15	15	19	18	19	20	37	20	19	19	14	14	14	14	14	14	14
19	14	14	14	14	14	14	14	14	15	18	20	22	45	39	26	25	18	17	15	14	14	14	14	14
20	14	14	14	16	14	14	14	15	15	17	23	24	24	28	19	19	16	15	14	14	14	14	14	14
21	15	15	15	16	14	14	14	15	16	18	21	22	25	28	22	21	18	17	15	14	14	14	17	14
22	14	14	14	14	14	14	14	15	17	16	18	19	21	29	24	20	15	12	16	14	14	14	14	14
23	14	14	14	14	14	14	14	15	16	17	24	26	40	24	22	20	18	17	16	14	14	14	14	14
24	14	14	14	14	14	14	15	15	16	20	20	40	26	26	28	26	19	17	14	14	14	14	14	14
25	14	14	14	14	14	14	14	15	17	17	20	26	26	41	24	24	18	15	14	14	14	14	14	14
26	14	14	14	14	14	14	14	17	17	20	20	25	29	29	20	20	18	15	14	14	14	14	14	14
27	14	14	14	14	14	14	15	14	15	18	24	28	40	41	30	24	16	13	14	14	14	26	14	14
28	14	14	14	14	14	14	15	15	16	21	21	42	44	26	47	20	21	18	14	14	14	14	14	14
29	14	14	14	14	14	14	14	15	15	20	28	27	28	25	42	18	16	16	17	15	14	14	14	14
30	14	14	15	14	14	14	14	15	15	20	41	41	28	46	23	20	20	18	14	16	14	14	16	14
31	14	14	14	14	14	14	14	15	16	17	22	25	24	41	20	38	24	16	15	14	14	14	14	14
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31
MED	14	14	14	14	14	14	14	15	15	17	20	23	25	26	24	20	18	15	15	14	14	14	14	14
U Q	14	14	14	14	14	14	14	15	16	18	21	27	34	29	26	24	19	17	15	14	14	14	14	14
L Q	14	14	14	14	14	14	14	14	15	16	18	20	21	23	21	19	16	14	14	14	14	14	14	14

MAR. 2017 fmin (0.1MHz)

IONOSPHERIC DATA STATION Okinawa

MAR. 2017 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	310	305	330	327	377	378	306	374	374	343	313	318	323	353	340	353	347	371	368	345	321	300	307	300
2	311	284	350	374	357	340	301	353	337	340	375	361	303	356	360	334	342	322	342	356	356	312	285	R 301
3	355	303	306	370	320	308	305	353	357	362	346	317	307	317	331	344	R 337	343	317	319	363	352	320	298
4	306	298	309	307	315	344	354	362	369	348	342	336	335	318	311	328	336	333	354	365	332	355	329	293
5	306	309	296	321	372	328	338	372	366	359	352	360	332	332	329	323	338	343	347	352	331	340	341	328
6	317	323	321	311	341	350	409	368	370	330	319	350	326	351	329	331	345	368	367	A	317	325	312	293
7	338	321	322	334	402	343	320	367	365	371	351	321	322	341	348	330	344	357	371	389	319	327	323	R 317
8	297	J R 332	340	352	383	288	304	354	370	343	339	326	324	328	343	335	361	360	362	366	324	329	308	297
9	301	311	335	320	335	387	321	374	385	369	331	352	318	351	340	357	347	347	374	344	323	306	307	R 332
10	U R 295	R 304	314	317	354	367	322	358	356	331	334	341	329	344	R 341	337	355	344	357	330	317	353	310	309
11	311	319	327	354	383	388	310	373	356	355	354	329	316	334	339	R 336	334	328	353	355	374	357	338	310
12	307	327	311	321	362	346	341	373	392	350	339	307	304	320	339	343	335	365	361	355	336	323	311	J R 309
13	300	296	312	337	367	363	342	376	364	358	343	316	311	321	324	331	332	353	359	368	349	R 310	314	322
14	310	322	R 324	327	347	333	355	390	363	343	343	343	316	325	335	331	336	344	364	362	371	340	J R 298	J R 297
15	R 302	316	R 308	339	385	341	344	394	391	355	345	336	315	312	329	336	335	350	365	376	383	310	309	304
16	292	305	321	322	383	352	307	381	356	350	349	318	302	319	329	332	332	356	373	348	315	R 325	J R 307	J R 296
17	J R 285	J R 296	J R 290	J R 323	380	360	337	366	355	331	335	331	321	329	302	333	328	359	376	361	325	335	312	306
18	296	324	331	F 344	389	345	318	371	381	361	327	347	316	320	321	346	340	350	375	A	348	365	302	F
19	F	F 322	F 333	373	407	303	332	381	380	334	337	324	292	313	330	327	357	363	345	345	353	R 343	345	308
20	296	308	301	R 319	331	359	386	402	383	361	325	314	305	315	325	328	328	335	351	373	342	332	305	308
21	299	315	327	334	349	327	324	394	382	355	349	326	300	309	342	339	317	353	364	311	358	337	301	297
22	306	F 325	322	314	376	361	300	343	334	347	322	286	311	342	328	329	354	338	354	362	310	287	291	J R 317
23	F 290	F 299	F 344	F 342	317	F 315	F 322	374	361	333	308	311	321	331	333	J R 322	322	341	359	363	351	323	305	304
24	313	323	J R 360	350	390	326	334	378	377	352	350	309	315	330	334	349	354	341	344	364	366	331	303	303
25	301	329	330	327	378	332	319	372	374	364	360	303	320	322	336	322	324	343	348	358	379	340	303	303
26	308	312	300	369	416	383	316	372	354	329	319	327	326	330	355	345	345	353	355	352	365	377	289	303
27	314	311	325	383	398	R 353	335	368	336	339	327	315	313	322	330	R 342	331	337	329	390	299	R 295	287	268
28	284	335	332	F 384	F 298	357	349	322	336	362	321	292	297	316	U R 352	336	341	341	354	326	280	296	305	R 329
29	300	308	308	347	399	324	321	366	371	364	303	302	305	346	339	328	329	316	329	342	345	294	R 310	299
30	296	304	305	322	352	326	323	371	345	315	297	310	R 323	U Y 346	U R 331	322	R 323	R 344	353	355	336	279	285	295
31	J R 286	303	322	365	341	307	339	388	369	353	333	338	293	298	310	R 330	R 348	J R 349	341	358	300	292	279	277
	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	31	31	31	31	31	31	31	31	31	31	31	31	31	31	29	31	31	31	30
MED	302	311	322	334	372	344	323	372	366	350	337	324	316	328	333	333	337	344	355	356	336	327	307	303
U Q	310	323	331	354	385	360	341	378	377	361	349	338	323	342	340	342	347	356	365	364	358	340	312	R 309
L Q	296	304	308	321	341	326	316	366	356	339	322	311	305	318	329	328	331	341	347	345	319	306	301	297

MAR. 2017 M(3000)F2 (0.01)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

MAR. 2017 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											U L 362	389	430	U L 452	L 372	L 384	U L 393	L	U L 398					
2										L	L	L	U L 350		L 387	A	L	U L 385						
3										L	L	L 372	385	L 374	370	L 367	L 375	L						
4									L	L	L	Y	L 387	A	363	L 368	L	L						
5									L		U L 379	L 382	U L 377	U L 359	L 357	A 362	U L 368	L						
6									L		U L 369	376	L 382	369	A	L	A	A		A				
7									L	L	U L 386	U L 375	L 374	L 362	L 384	U L 367	U L 381	L						
8									L	L	U L 362	L 368	L 387	L 385	A 430	L	U L 381	L						
9								434	L	L	U L 374	383	391	L 396	A	L 372	U L 385	L		A				
10										L	L 363	L 375	381	386	A	A								
11										L	L 371	L 374	L 365	L 385	L 375	382	L 393	L						
12										U L 388	U L 382	L 400	399	L 371	L 360	L 373	L	U L 385						
13										L	L 380	U L 379	A 359	A	367	371	L 378	L						
14									L	L	L 375	402	L	A	363	L 368	L 371	L						
15											L 390	384	B	385	375	L 362	L 375	L						
16										L	L 384	L 385	408	368	L 375	L 357	L	L						
17										U L 371	U L 402	L 390	363	L 450	L 364	L 374	L 360	L						
18									L	U L 398	U L 374	391	L 397	A 384	A 371	A 361	L 380	L		A				
19										U L 424	U L 411	382	E B	A	A	361	U L 347	L	L					
20									L	L	A	388	405	415	Y 364	L 370	376	L						
21										L	379	397	426	R 416	Y	382	U L 377	U L 376						
22									L	L	U L 368	388	378	370	Y	U L 379	L 375	L						
23									L	U L 362	U L 363	387	L 383	L 368	L 369	L 374	U L 375	L						
24										L	L 369	U L 375	L 375	A 366	L 360	L 361	L	L	L					
25									L	L	405	424	L 417	A	A	L 378	L 445	L	L					
26										U L 352	L 370	395	A	A	L 404	L 379	U L 377	L						
27										U L 360	377	392	L 412	L 394	387	361	365	L 362	L					
28									L	L	L	B 360	B 343	U L 341	B	U L 368	L 381	L						
29									L	L	U L 356	U L 398	U L 377	U L 350	L 373	A 363	L 373	L						
30										U L 358	B 370	U L 365	Y	Y 351	L 363	L 364	L 354	L						
31								R 405	L	U L 367	U L 365	L 381	393	U L 349	U L 357	L 348	L 373	L	431					
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								2		9	26	29	26	24	23	27	24	4	2					
MED								420		U L 367	U L 374	384	384	L 372	L 370	L 368	L 376	U L 380	414					
U Q										U L 393	U L 382	392	399	L 390	L 375	L 374	U L 381	U L 385						
L Q										U L 359	U L 368	L 375	L 375	U L 364	L 363	362	L 372	L 369						

MAR. 2017 M(3000)F1 (0.01)

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IONOSPHERIC DATA STATION Okinawa

MAR. 2017 h'F2 (KM) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1											318	286	290	244	250	242	246	232	212					
2										250	228	248	330		238	256	258	272						
3										238	256	284	298	284	256	236	228	230						
4									240	258	252	264	266	276	296	268	254	252						
5									210		264	252	284	290	288	282	262	248						
6									222		290	244	262	250	264	256	256	228		A				
7									220	228	262	274	292	256	244	266	246	234						
8									232	254	272	282	274	262	256	254	242	232						
9								222	216	228	286	250	288	256	260	248	250	258		212				
10										272	272	252	256	244	248	244								
11										254	254	286	286	262	246	244	238	246						
12										254	272	306	308	286	260	236	244	222						
13										244	268	290	288	282	264	246	248	230						
14									236	268	262	252	286	274	254	250	248	228						
15											282	282	292	298	278	260	250	240						
16										L 256	272	294	312	282	270	260	256	234						
17										L 284	276	278	276	274	282	274	276	232						
18									228	254	308	254	286	282	288	254	248	246		A				
19										240	284	294	336	304	276	270	244	226	222					
20									202	254	A 296	328	298	296	286	264	258	244						
21										256	284	294	318	308	258	256	272	246						
22									260	260	284	342	304	252	264	268	252	262						
23									226	286	298	290	266	262	238	254	254	246						
24										262	264	314	296	274	268	252	240	252	242					
25									228	240	248	314	276	280	262	260	266	248	244					
26										306	292	274	272	268	246	252	264	252						
27										284	274	292	298	284	270	258	256	252	248					
28									272	240	258	312	320	290	254	250	242	236						
29									224	244	318	308	310	272	246	258	248	258						
30										300	316	308	274	278	268	266	262	250						
31								218	240	270	286	264	292	348	294	268	236	222	232					
	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	15	27	31	31	31	30	31	31	30	30	6	1				
MED								220	228	254	274	286	290	277	262	256	250	245	237	212				
U Q									240	270	290	306	304	286	276	266	258	252	244					
L Q									220	244	262	264	276	262	250	250	244	232	222					

MAR. 2017 h'F2 (KM)

IONOSPHERIC DATA STATION Okinawa

MAR. 2017 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	292	254	218	222	202	202	308	214	220	208	224	198	180	180	230	204	198	214	198	202	230	226	282	274
2	258	296	226	206	222	262	324	234	232	230	220	226	224	248	210	A	212	206	234	206	198	230	318	268
3	216	274	274	204	272	292	310	226	226	222	220	222	210	214	E Y 232	216	202	208	230	212	200	200	244	288
4	294	290	272	284	258	226	220	220	202	192	208	Y	232	A	210	224	220	218	206	198	224	200	230	300
5	284	278	Q 280	258	222	216	236	206	190	236	226	226	228	248	242	E A 278	230	220	228	210	186	214	224	242
6	252	246	258	A 268	236	228	200	210	198	214	212	212	202	230	A	242	A	A	216	A	230	238	264	292
7	226	228	252	252	190	248	276	222	202	218	222	222	240	236	220	220	204	228	216	192	A 236	232	230	272
8	298	264	242	226	194	350	320	232	220	194	200	210	220	212	A 218	A	222	214	220	196	198	222	254	292
9	290	252	238	248	224	204	274	192	188	200	204	212	204	A 224	A	216	228	220	218	A	204	270	282	242
10	278	258	268	256	218	206	B	228	224	210	208	224	224	232	A	A	236	236	228	256	244	228	234	258
11	262	250	240	230	198	196	316	214	210	210	218	196	218	218	232	206	214	238	236	206	192	208	A 246	280
12	290	266	268	264	222	230	246	204	204	194	186	182	178	240	222	E Y 226	208	206	216	200	204	A 230	260	268
13	276	288	268	228	198	212	234	214	220	206	H 188	192	E A 272	A	240	220	216	224	228	198	190	236	A 276	A 272
14	276	276	246	244	216	236	222	206	190	198	200	190	H 196	A	A 238	236	206	222	212	200	178	196	274	272
15	288	272	270	232	200	234	238	192	206	204	192	208	E B 254	206	242	236	216	224	224	198	190	224	282	302
16	E A 322	294	Q 282	Q 248	Q 200	248	322	212	210	206	194	192	178	234	220	228	228	222	220	208	208	228	234	268
17	278	268	244	222	204	222	268	212	208	192	188	202	E A 260	180	Y 266	220	204	210	220	210	208	218	276	270
18	282	268	244	228	210	246	300	198	200	208	194	192	190	A 244	A 242	E A 252	228	218	218	A	212	202	258	Q 298
19	Q 238	246	254	214	190	314	288	214	210	184	202	216	B	A	A	256	226	210	204	216	216	184	196	268
20	294	282	270	264	234	222	212	196	186	184	A	206	194	174	E Y 260	220	214	216	228	198	198	196	228	242
21	274	264	254	242	210	226	252	198	208	192	214	202	202	194	Y	236	206	202	224	244	202	200	E B 288	292
22	Q 300	Q 252	248	278	198	230	322	234	222	226	234	210	246	E Y 248	Y	232	224	224	236	208	218	270	300	A 294
23	Q 304	Q 272	Q 222	Q 238	270	Q 256	274	218	208	204	224	200	E B 226	Y 232	224	220	216	212	222	204	206	E A 276	258	A 306
24	268	248	236	234	192	292	290	212	210	202	220	202	A 242	A 240	E Y 250	226	220	210	228	212	192	218	276	284
25	288	258	244	238	192	224	270	224	218	210	208	174	172	A	A	216	222	A	224	214	190	198	262	266
26	278	274	258	214	176	212	278	206	214	212	204	188	A	A	186	206	204	226	230	216	206	192	292	304
27	296	276	258	212	198	294	272	220	212	224	204	198	196	208	204	218	198	226	242	194	202	E B 296	E A 272	296
28	280	232	214	192	290	216	228	238	234	228	226	E B 266	E B 314	E Y 272	B	G 218	218	214	220	222	232	E A 362	280	260
29	278	260	250	226	184	284	278	220	214	216	212	202	210	E Y 266	E B 244	A	214	236	238	216	200	248	262	A 286
30	280	270	272	236	206	242	248	218	220	214	E B 268	B 224	E Y 248	E Y 296	Y 230	212	228	214	224	196	228	E A 288	304	270
31	290	254	230	194	238	282	242	218	230	216	224	230	180	H 200	218	232	216	212	210	208	226	266	298	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	31	31	31	31	31	31	30	31	31	31	30	30	29	25	23	27	30	29	31	28	31	31	31	31
MED	280	266	252	234	206	230	273	214	210	208	209	203	U 207	223	225	220	216	218	224	207	204	222	263	274
U Q	292	276	268	252	224	262	300	222	220	216	222	222	E 241	E Y 246	242	236	224	224	228	213	224	248	282	294
L Q	274	252	240	222	198	216	238	206	202	198	200	196	195	207	218	216	206	211	216	198	198	200	244	268

MAR. 2017 h'F (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

MAR. 2017 h'E (KM) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1								B	106	106	106	104	104	104	108	A	110	110	B	B				
2						B		142	112	108	108	110	B	A	B	110	110	110	A					
3								140	114	108	108	108	110	110	108	B	108	108	B	B				
4								138	112	A	112	110	B	110	110	B	A	110	116	B				
5								A	116	110	108	108	108	108	108	108	108	A	A	A				
6								B	108	108	106	108	108	108	108	108	108	A	A	A				
7								160	106	106	108	108	108	108	108	108	110	A	A	A				
8								B	A	108	112	A	A	108	B	108	A	A	A	B				
9								B	108	108	106	106	106	106	110	110	110	110	A	A				
10								A	106	114	108	108	108	110	A	110	108	A	120	A				
11							B	156	108	108	A	A	A	108	108	A	A	108	A	A				
12								134	110	110	110	110	110	110	110	110	110	A	136	A				
13								136	106	106	110	B	A	108	108	108	108	110	A	B				
14								130	118	110	106	A	A	A	110	108	106	106	116	B				
15								144	112	110	106	110	B	108	110	A	A	110	114	B				
16								120	110	110	108	110	108	A	A	110	A	110	128	A				
17								130	110	108	108	108	108	108	108	110	112	112	116	A				
18							B	136	110	108	108	108	108	B	A	108	108	108	A	A				
19							B	134	112	112	A	110	B	A	110	110	110	110	A	B				
20							B	134	108	A	110	110	108	108	108	108	108	108	A	B				
21							B	128	108	108	114	A	110	110	108	108	108	110	A	A				
22							B	B	110	110	110	112	A	A	A	A	110	108	122	A				
23							B	144	106	108	108	108	B	A	108	108	110	110	114	A				
24							B	130	108	108	108	B	A	108	110	110	110	110	110	B				
25							B	122	110	108	108	108	108	B	110	110	108	112	A	A				
26							B	126	110	110	108	A	A	A	108	108	110	110	110	B				
27							B	124	A	108	A	A	B	B	A	106	110	110	110	B				
28							A	A	110	A	A	B	B	A	B	A	110	110	110	B				
29							B	120	120	108	A	A	A	A	B	A	A	A	A	A				
30							B	118	106	108	B	B	A	B	A	108	108	108	112	B				
31						B	B	126	108	108	108	A	A	B	A	B	112	110	110	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								23	29	28	25	19	14	17	20	22	25	24	15					
MED								134	110	108	108	108	108	108	108	108	110	110	114					
U Q								140	112	110	110	110	108	110	110	110	110	110	120					
L Q								126	108	108	108	108	108	108	108	108	108	108	110					

MAR. 2017 h'E (KM)

IONOSPHERIC DATA STATION Okinawa

MAR. 2017 h'Es (KM) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	B	102	B	96	B	B	B	G	136	G	G	G	116	114	118	114	G	G	B	90	88	104	104	B
2	100	100	100	102	102	B	104	B	G	154	132	140	B	B	B	114	116	G	134	114	104	104	B	B
3	B	B	B	B	B	B	B	G	164	142	118	120	120	120	114	B	110	G	172	98	94	B	124	94
4	B	B	B	92	98	B	110	106	156	102	G	G	138	124	G	B	104	142	94	94	94	90	B	B
5	B	B	B	B	B	B	96	98	G	168	158	152	146	134	130	110	110	108	108	92	B	B	B	118
6	B	112	116	114	110	B	B	B	G	G	G	G	G	G	122	116	106	106	100	100	B	96	B	B
7	118	116	B	112	110	B	98	G	G	198	162	G	158	G	G	G	106	104	102	102	102	102	98	B
8	B	B	B	104	102	98	100	104	110	114	114	110	112	112	110	108	108	106	92	92	92	106	B	110
9	104	B	B	102	B	B	B	B	G	160	172	150	140	120	120	122	112	108	108	94	96	106	106	100
10	108	100	B	B	B	B	100	182	G	104	112	112	110	G	98	172	168	152	128	108	106	104	102	B
11	B	B	94	B	B	B	B	G	G	118	108	104	124	114	154	96	96	116	110	106	106	98	98	96
12	B	92	B	B	B	B	B	G	G	124	104	172	G	178	164	112	112	106	G	104	108	106	104	108
13	106	106	98	B	B	B	B	G	G	G	G	B	146	144	152	142	G	116	110	B	108	106	106	106
14	B	94	100	98	110	100	100	G	102	G	G	102	102	174	162	100	G	152	G	B	106	106	B	B
15	94	B	B	B	B	B	B	G	178	158	G	G	B	G	166	116	112	G	G	B	B	B	136	124
16	112	B	B	108	B	B	B	G	120	110	G	104	G	156	160	162	148	128	124	94	114	108	108	B
17	104	92	B	B	B	B	108	G	140	138	130	126	114	102	G	136	G	134	118	112	B	108	B	B
18	98	94	100	100	100	B	B	166	158	164	G	G	G	172	160	150	144	142	108	102	B	B	104	114
19	B	100	102	94	B	B	B	146	160	130	104	G	B	126	122	G	142	G	132	96	B	106	106	B
20	B	B	B	B	B	B	106	G	142	166	116	170	G	112	120	114	112	108	108	108	90	108	108	106
21	110	100	100	108	106	102	102	104	160	134	104	108	G	G	G	G	100	130	112	106	108	B	B	90
22	B	B	B	B	100	B	B	G	160	150	150	104	138	102	102	122	118	142	122	94	92	B	B	102
23	102	114	124	104	104	100	100	100	170	98	186	G	B	102	G	G	G	G	128	90	90	108	108	108
24	108	104	104	B	B	106	B	G	G	174	G	B	148	138	G	G	148	G	G	B	B	96	108	108
25	106	100	98	B	B	B	B	142	G	G	G	G	G	150	152	152	140	112	108	108	108	108	B	B
26	B	104	B	B	B	B	B	180	136	G	G	104	142	102	100	132	96	126	112	94	92	B	B	108
27	B	108	B	108	104	B	104	148	108	G	104	104	B	B	104	G	140	132	110	108	108	B	98	90
28	B	B	B	B	158	134	128	126	102	138	104	B	B	98	B	98	G	G	G	96	B	100	106	90
29	96	90	90	B	102	102	104	104	102	G	102	116	100	100	B	94	94	92	112	90	106	104	102	102
30	100	100	B	102	98	98	B	G	G	G	B	B	98	B	100	100	G	136	138	B	152	126	B	B
31	B	B	B	B	B	B	B	156	148	132	G	100	100	B	114	B	G	G	120	B	B	B	B	B
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	15	19	12	15	14	8	14	14	19	22	18	18	18	22	22	22	23	22	25	25	22	22	18	18
MED	104	100	100	102	103	101	103	134	142	138	115	111	122	120	121	115	112	121	112	98	105	106	106	106
U Q	108	106	103	108	110	104	106	156	160	160	150	140	142	144	154	136	140	136	126	107	108	108	108	108
L Q	100	94	98	98	100	99	100	104	110	118	104	104	110	102	110	108	106	108	108	94	92	102	102	96

IONOSPHERIC DATA STATION Okinawa

MAR. 2017 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		F2		F1					H1				C1	C1	C1	C1				L1	F1	F1	F1	
2	F1	F1	F2	F1	F3	KF11	F3			HL11	H1	H1				C2	C1		H1	C1	F1	F2		
3									H1	H1	C1	C1	C1	C1	C1		C1		H1	L1	F2		F1	F1
4				F1	F1		F1	C1	H1	L1			H1	C1			L1	H1	L1	L1	F2	F1		
5							F1	L1		H1	H1	HL11	H1	HL11	HL11	C1	C1	C1	CL11	L2				F1
6		F2	F1	F2	F2										C2	C1	C2	C2	L2	L6		F1		
7	F1	F1		F1	F1		F2			H1	H1		H1				C1	L1	L1	L3	F4	F2	F1	
8				F1	F1	F1	FQ11	L1	C1	C1	CL11	C1	C1	C1	C1	C1	C1	C1	L2	L1	F1	F1		F3
9	F1			F1						H1	H1	H1	H1	C1	C1	C1	C1	CL11	C2	L4	F1	F1	F1	F1
10	F1	F2					F1	H1		L1	C1	C1	C1		L2	HL11	HL11	HL12	CL21	CL81	F3	FQ51	F2	
11			F1							C1	C1	L1	CL11	CL11	HC11	L1	L1	CL21	CL42	CL41	F3	F3	F3	F1
12		F1								C1	L1	H1		H1	H1	C1	C1	C1		L1	F1	F2	F2	F1
13	F1	F1	F1										HC11	HC11	H1	H1		C1	C1		F1	F1	F2	F1
14		F1	F1	F2	F1	F1	F2		L1			L1	L1	HL11	HL11	L1		H1			F1	F1		
15	F1								H1	H1					H1	C1	C1						F1	F3
16	F3			F1					C1	C1		L1		H1	HL11	H1	HL11	C1	C2	L2	FF11	FQ11	FQ11	
17	F1	F1					F1		H1	H1	H1	C1	C1	L1		H1		H1	C2	CL11		F1		
18	F1	F1	F2	F2	F5			H2	H1	H1				H1	HL11	HL11	H1	H1	C1	L5			F1	F1
19		F1	F1	F1				H1	HL11	HL11	L1			C2	C1		HL11		HL11	L1		F1	F1	
20							C1		H1	HL11	C2	HC11		C1	C1	C1	C1	C1	C3	CL11	F2	F1	F1	F1
21	F2	F1	F1	F1	F1	F3	L3	L1	H1	H1	L1	C1					L1	H1	C1	C1	FF11			F2
22					F1				HL11	HL11	HL11	L1	HL11	L1	L1	CL11	CL11	HL11	CL11	L1	F1			F2
23	F4	F1	FF11	FQ11	F1	F2	L2	L1	H1	L1	H1			L1					CL11	L1	F2	FF41	F2	F3
24	F2	F1	F1			F1				H1			HL11	H1			H1					F1	F1	F3
25	F2	FF11	F1					H1						H1	HL11	H1	H1	C2	C2	C3	F2	F1		
26		F1						H1	H1			L1	HL21	L1	L1	H1	L1	CL11	CL11	L1	F1			F2
27		FF11		F1	F1		L1	H1	C1		L1	L1			L2		HL11	HL11	C3	C1	FF11		F2	F1
28					FQ11	F1	C1	C1	L1	HL11	L1			L1		L1				L1		F8	FF11	F2
29	F1	F2	F1		F1	F1	L1	L1	L1		L1	CL11	L1	L1		L2	L2	L1	C1	L1	F1	F1	F3	F4
30	F3	F3		F1	F1	F1							L1		L1	L1		H1	H1		F2	F2		
31						K1		H1	H1	H1		L1	L1		CL11				C1					
	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																								

MAR. 2017 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

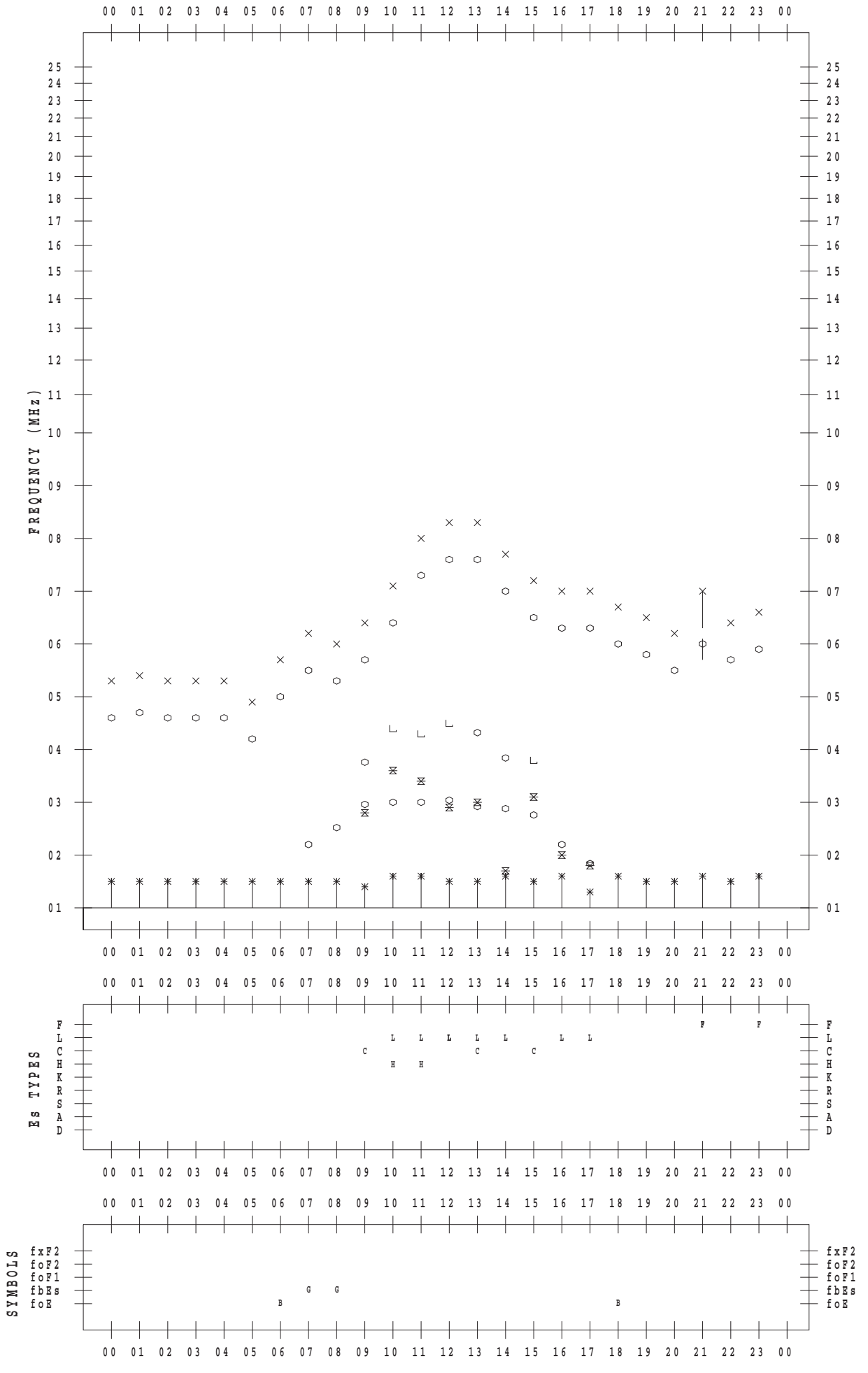
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2017/ 3/ 1

135 °E MEAN TIME



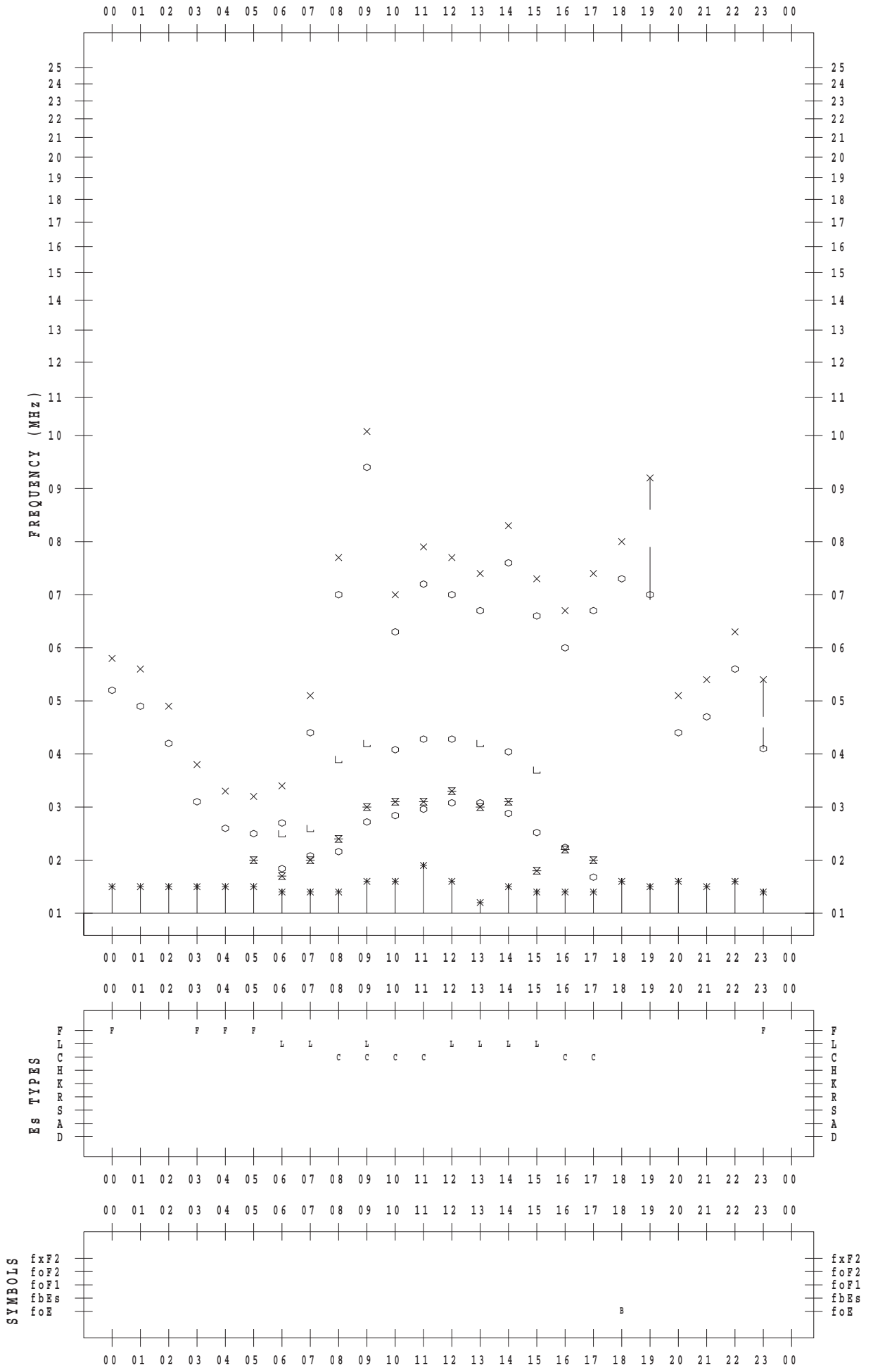
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2017/ 3/ 2

135 °E MEAN TIME



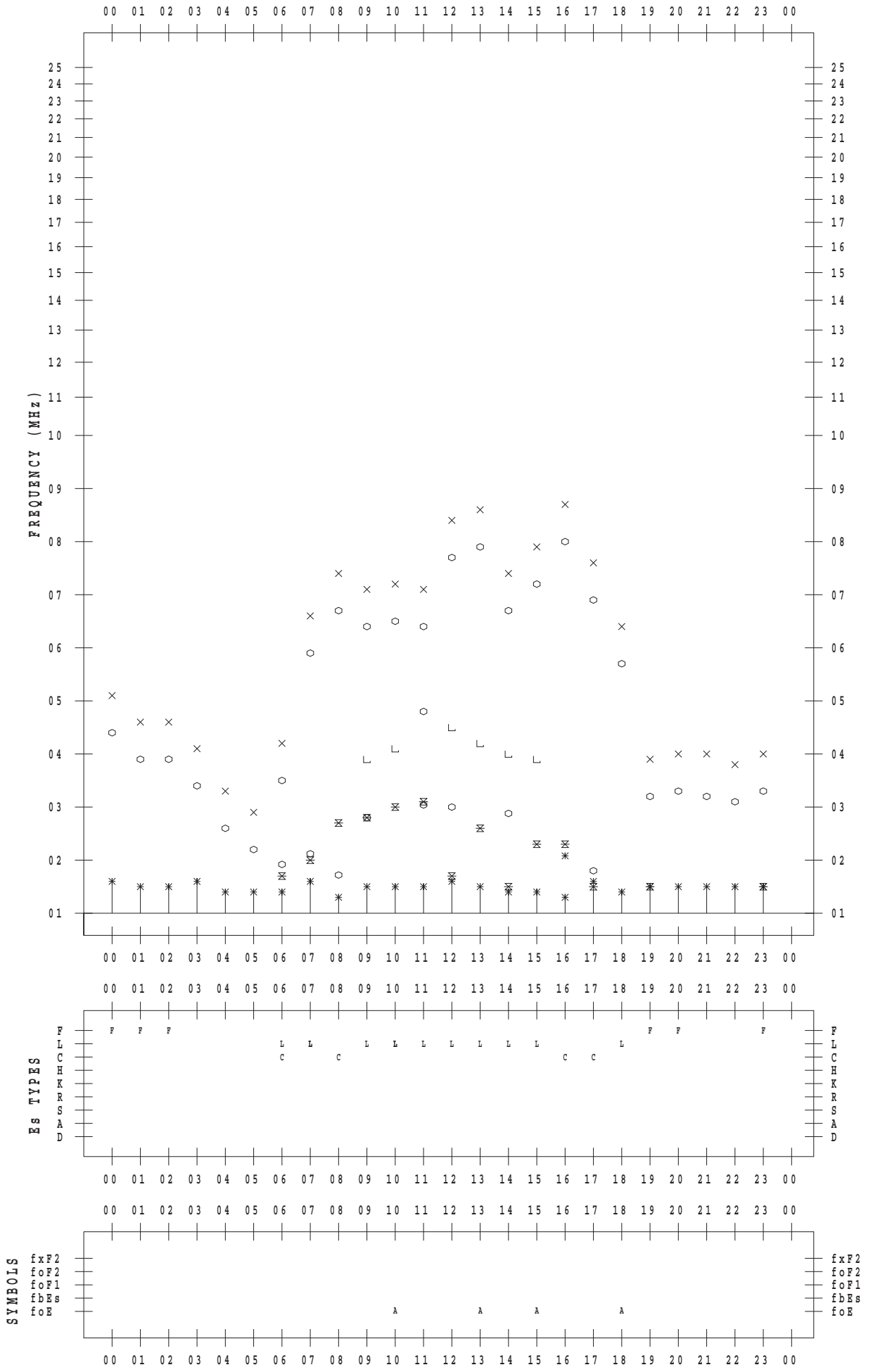
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2017/ 3/ 3

135 °E MEAN TIME



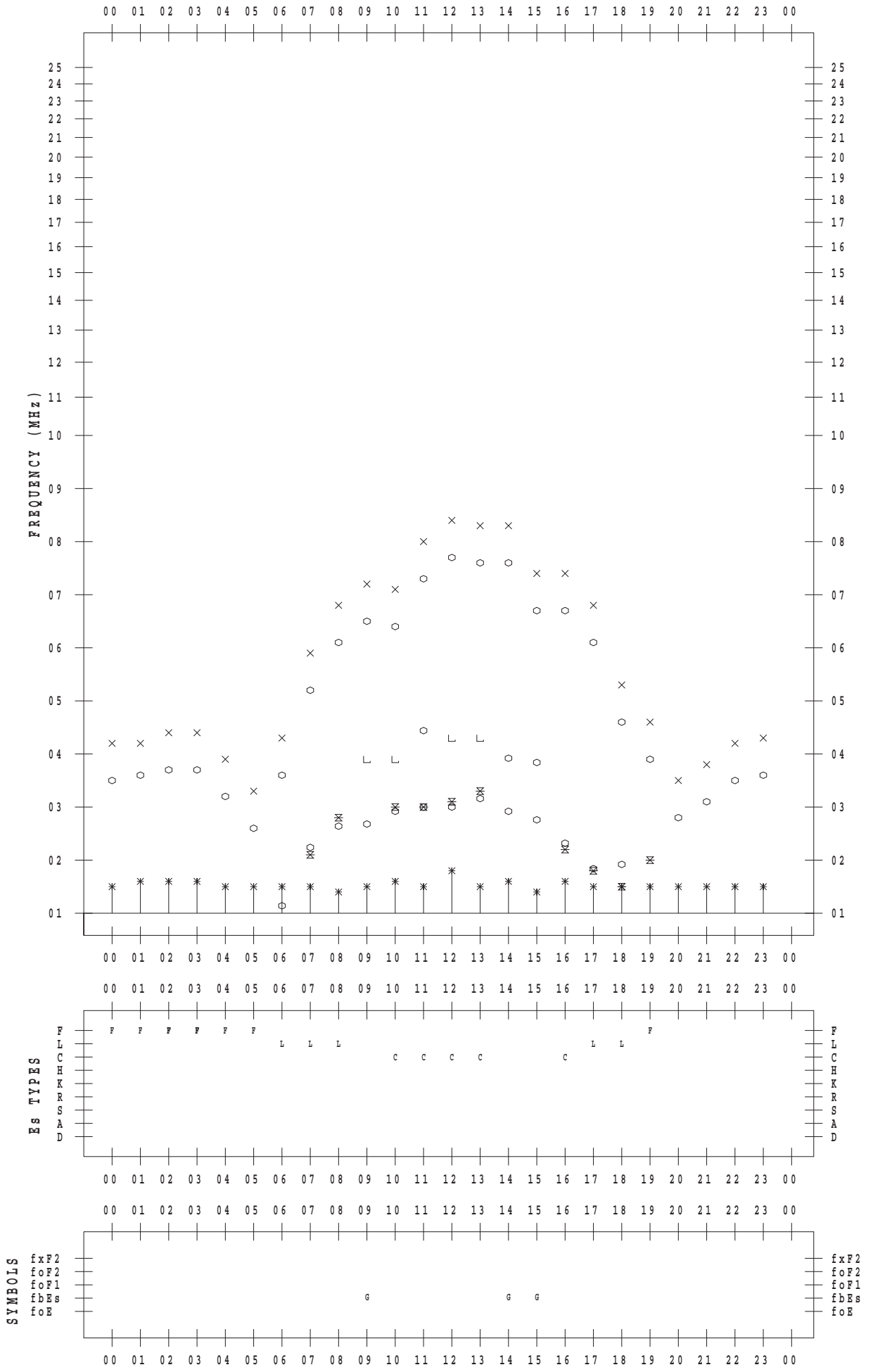
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2017/ 3/ 4

135 °E MEAN TIME



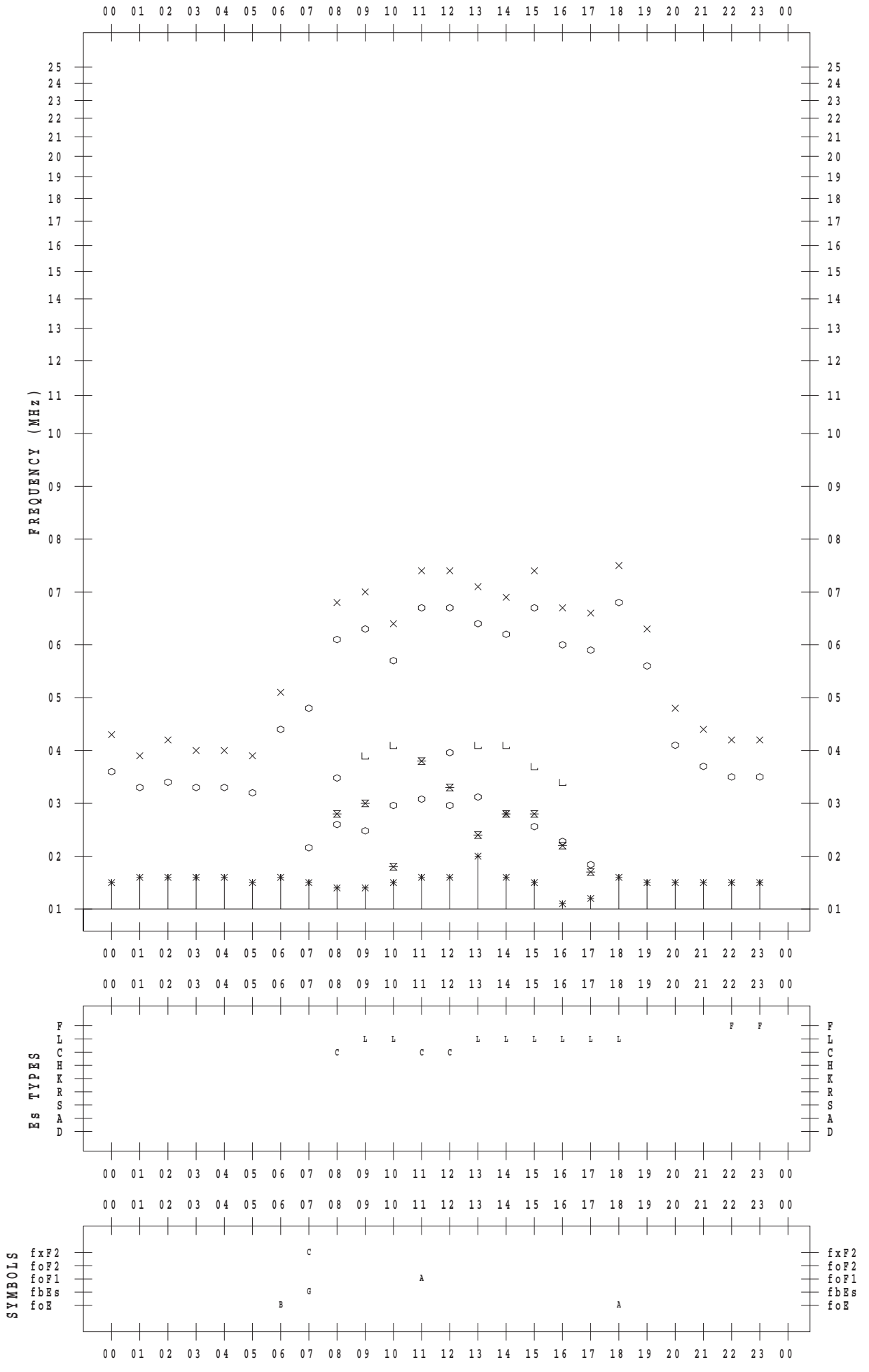
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2017/ 3/ 5

135 °E MEAN TIME



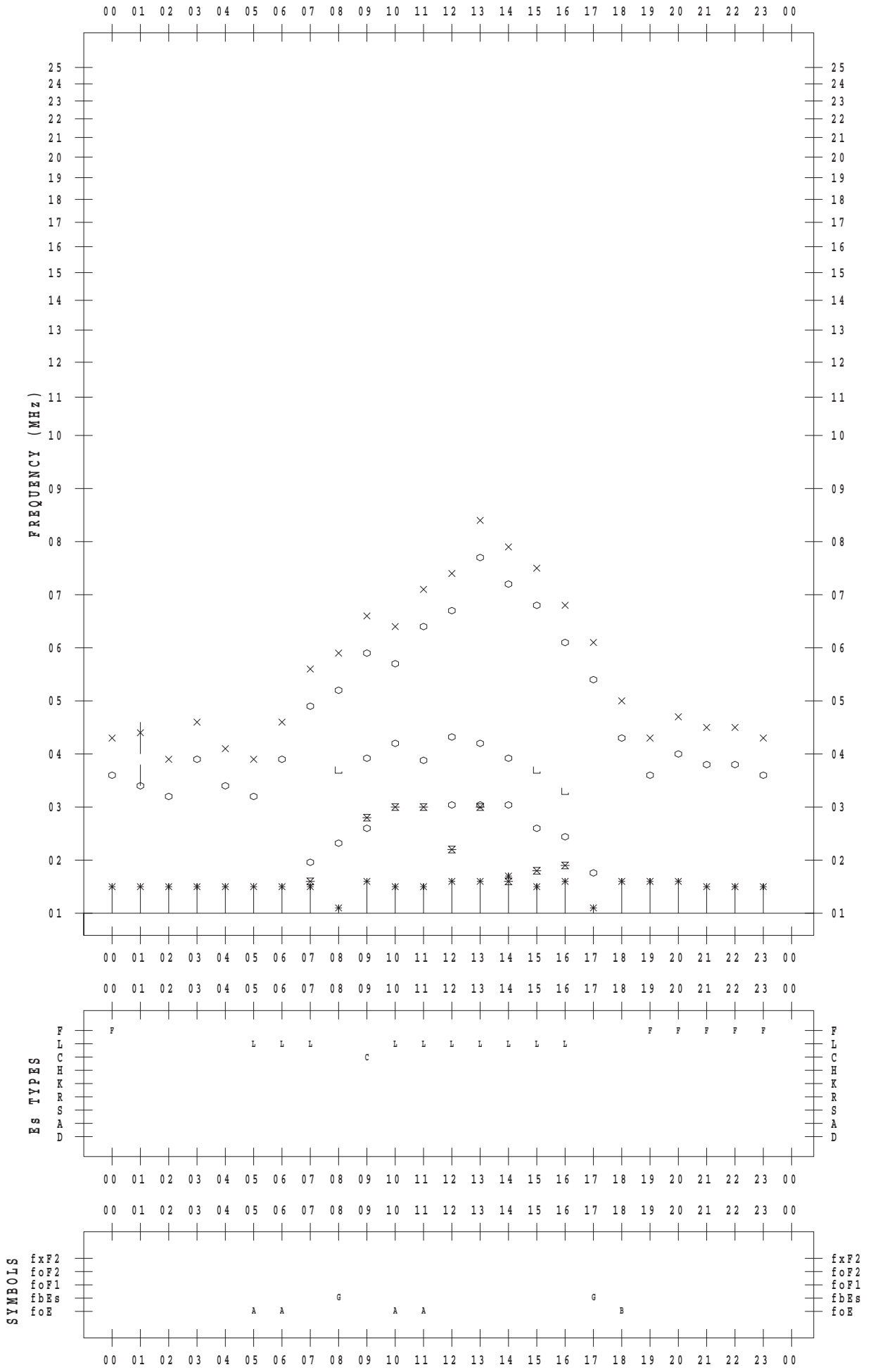
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2017/ 3/ 6

135 °E MEAN TIME



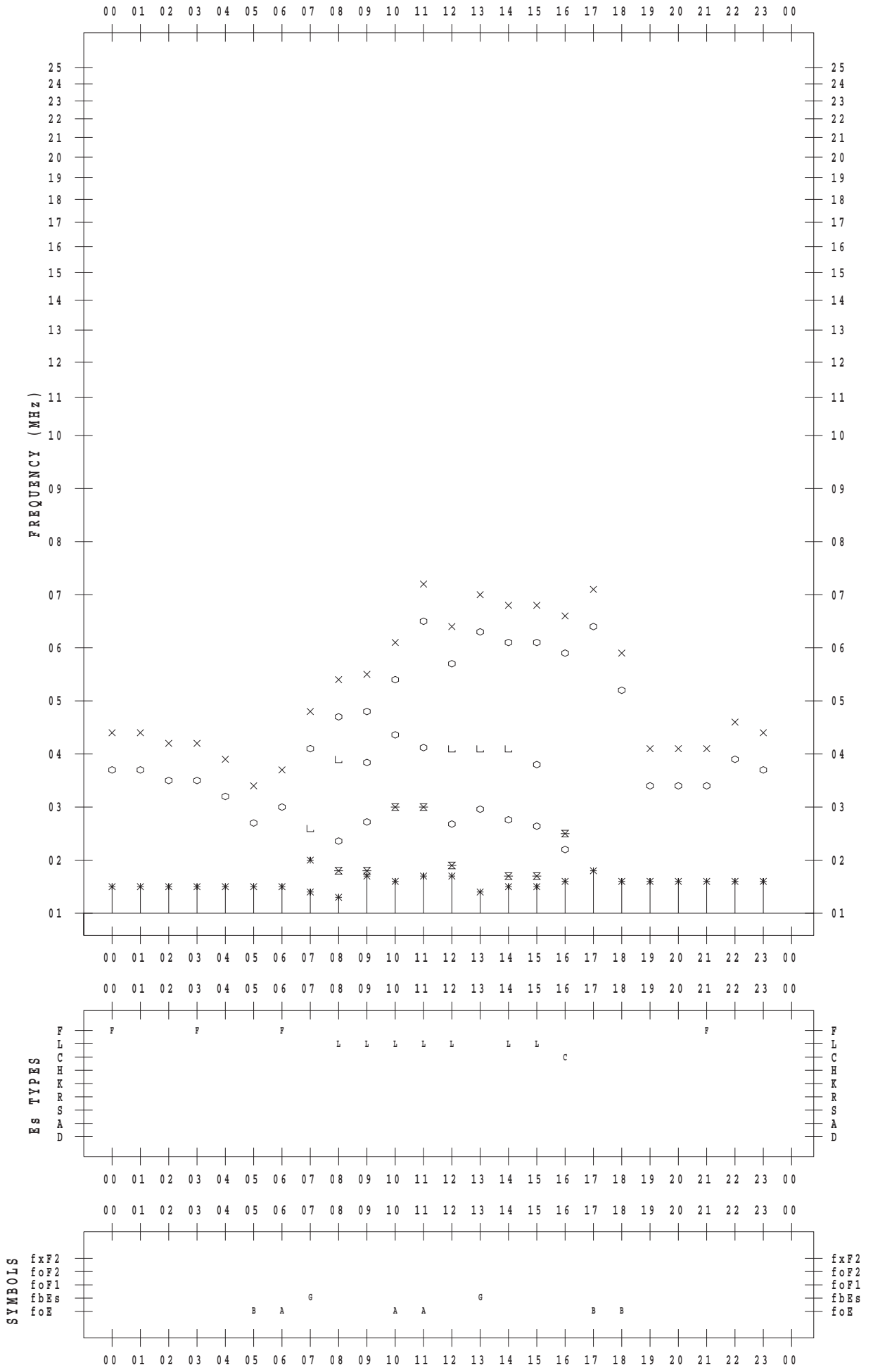
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2017/ 3/ 7

135 °E MEAN TIME



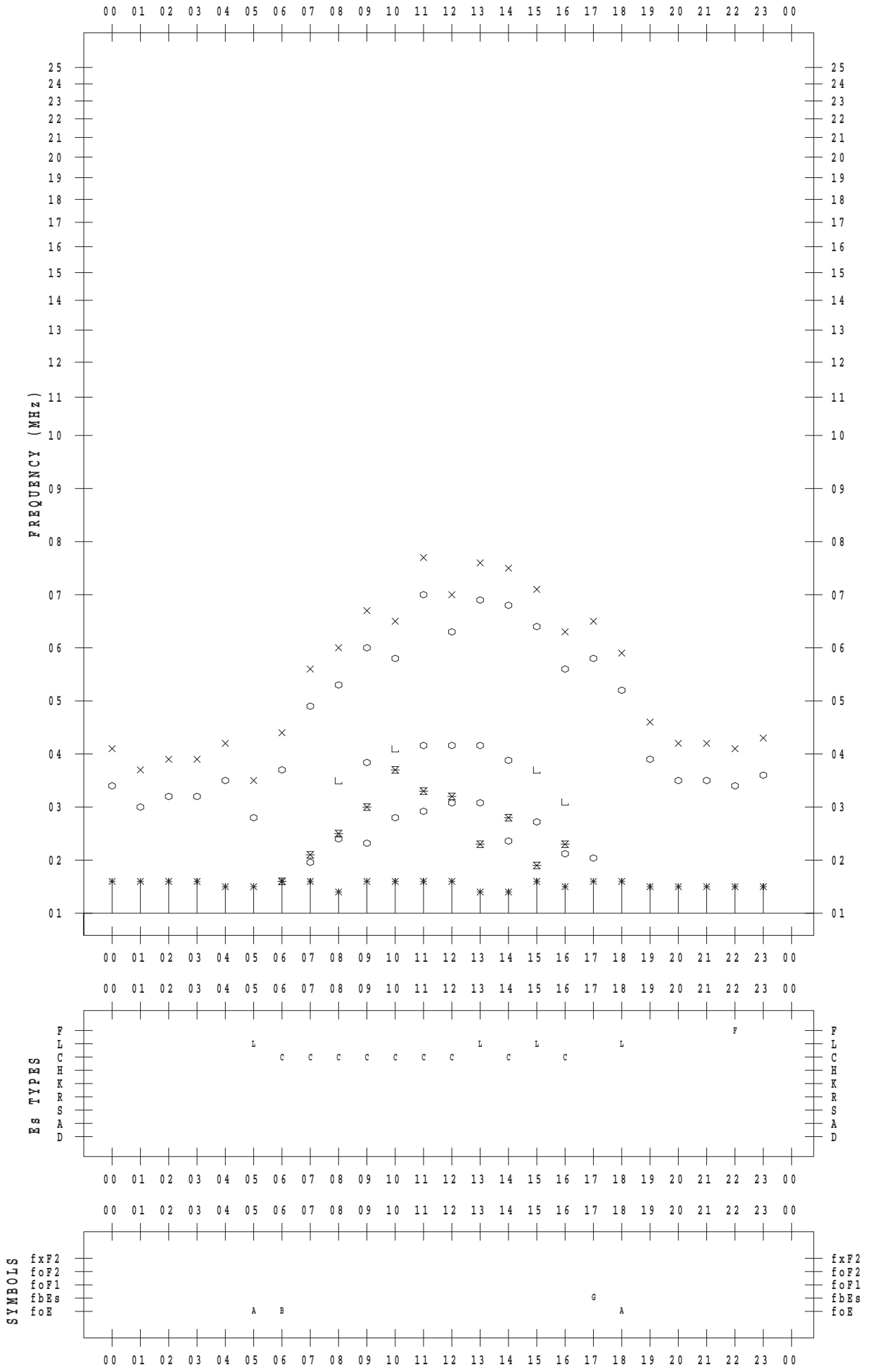
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2017/ 3/ 8

135 °E MEAN TIME



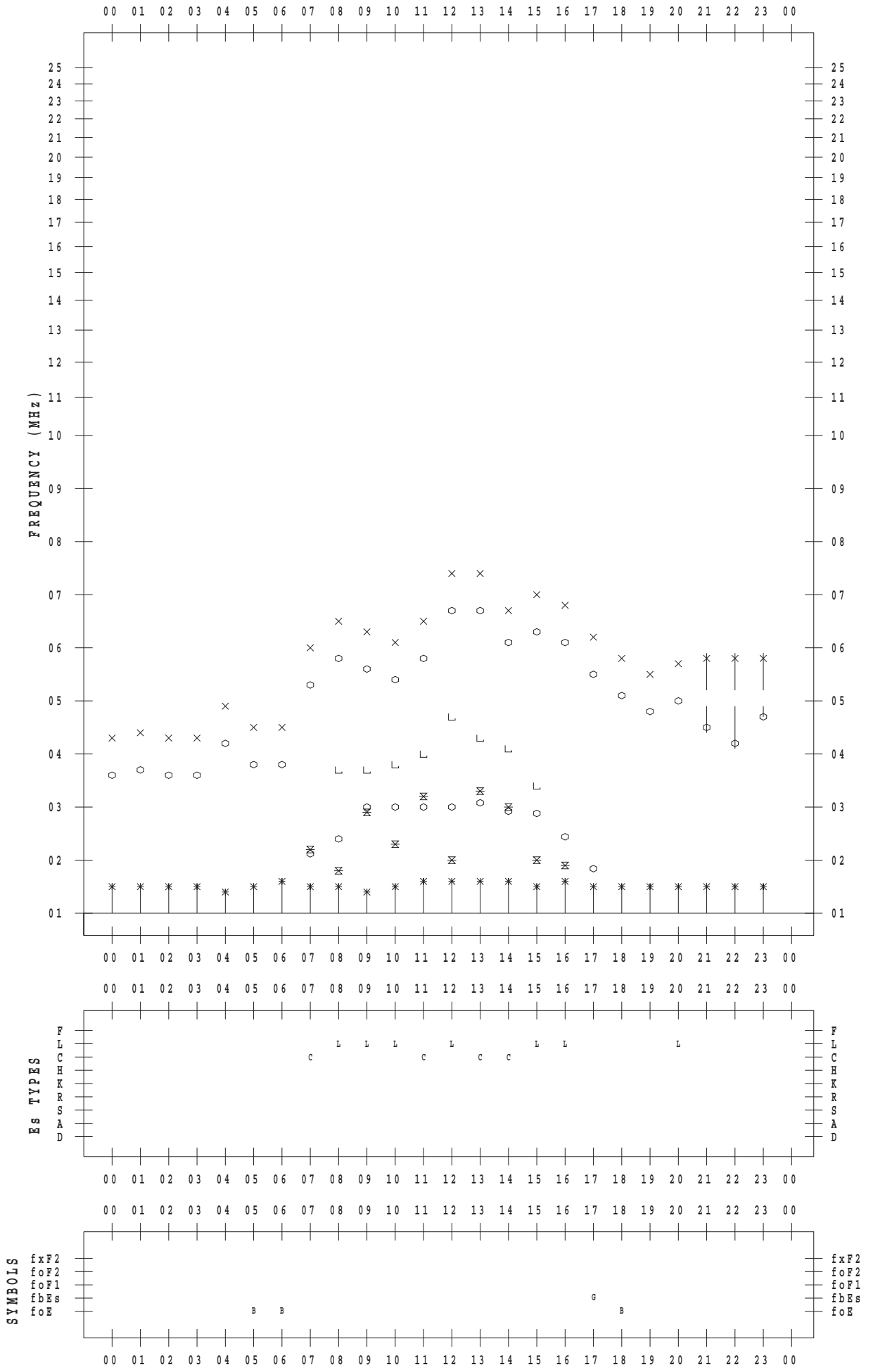
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2017/ 3/ 9

135 °E MEAN TIME



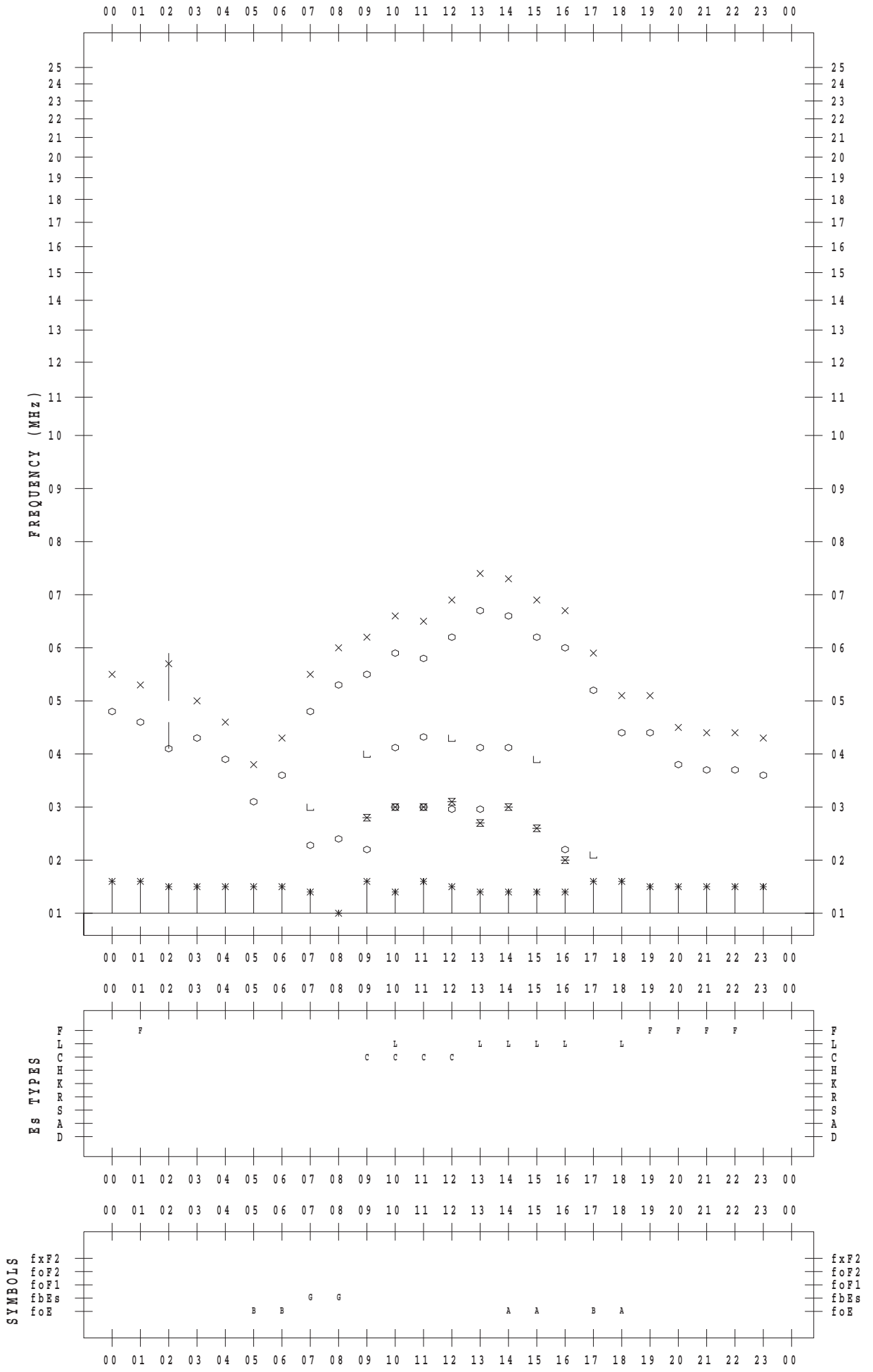
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2017/ 3/10

135 °E MEAN TIME



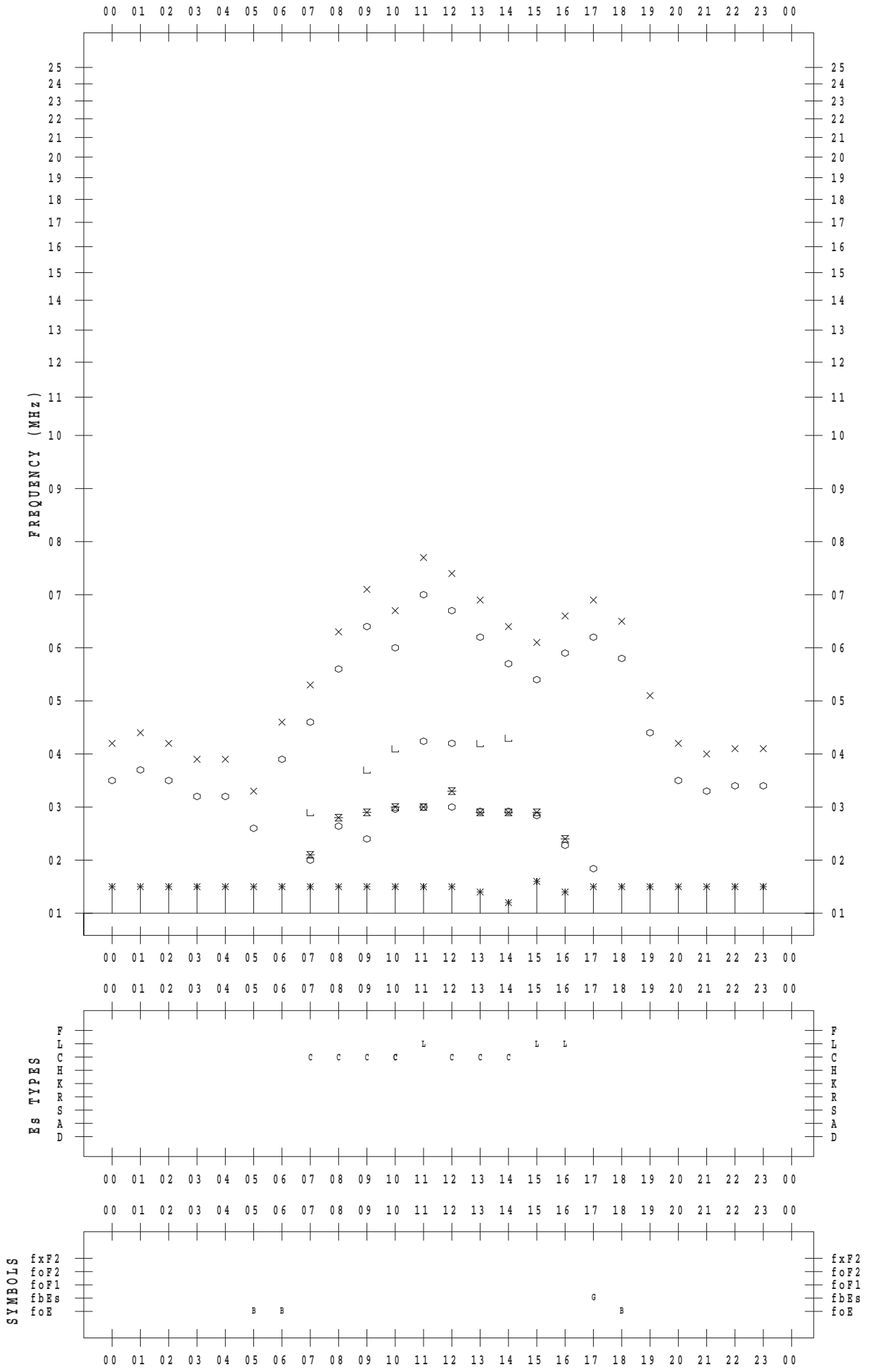
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2017/ 3/11

135 °E MEAN TIME



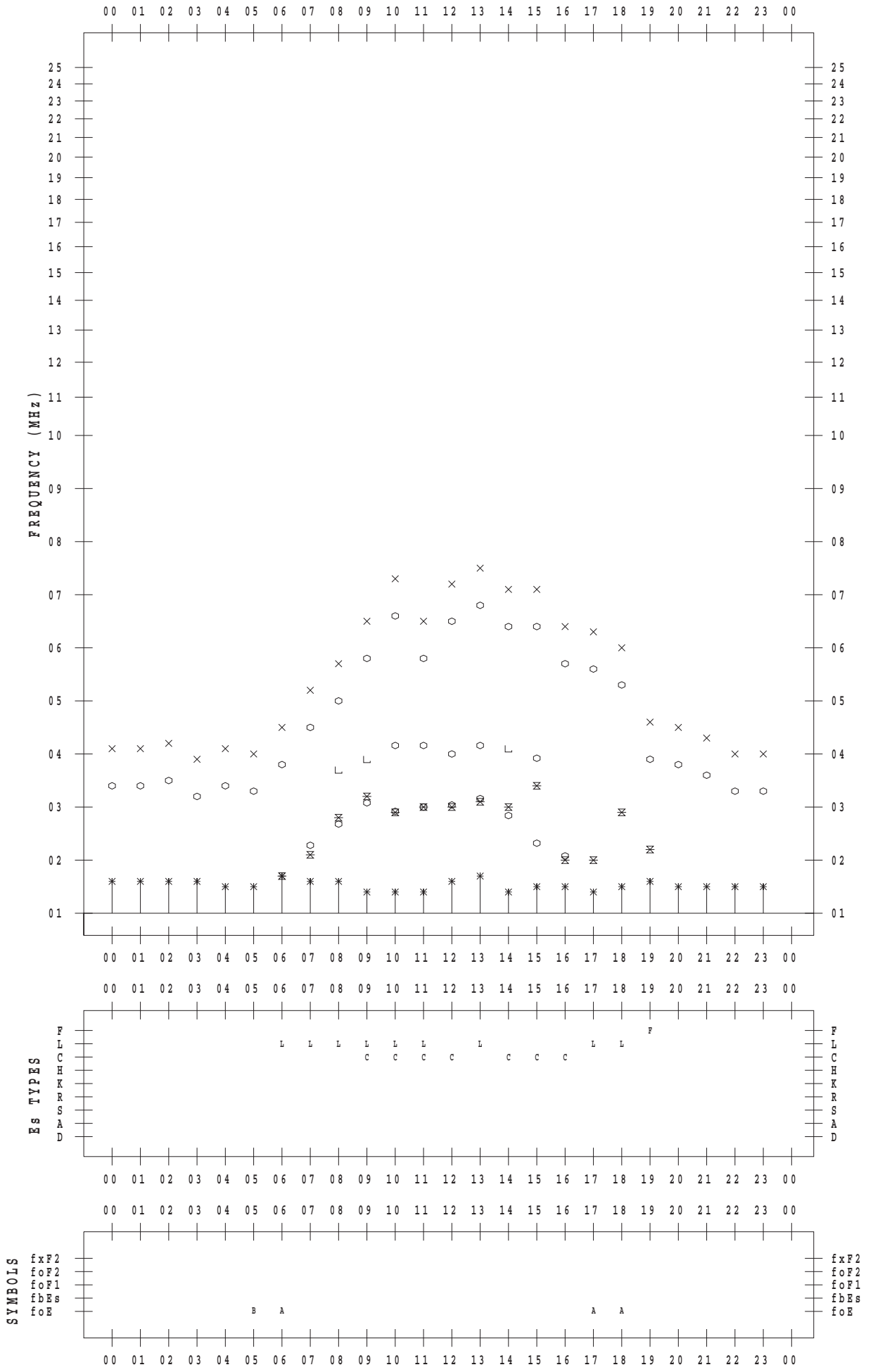
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2017/ 3/12

135 °E MEAN TIME



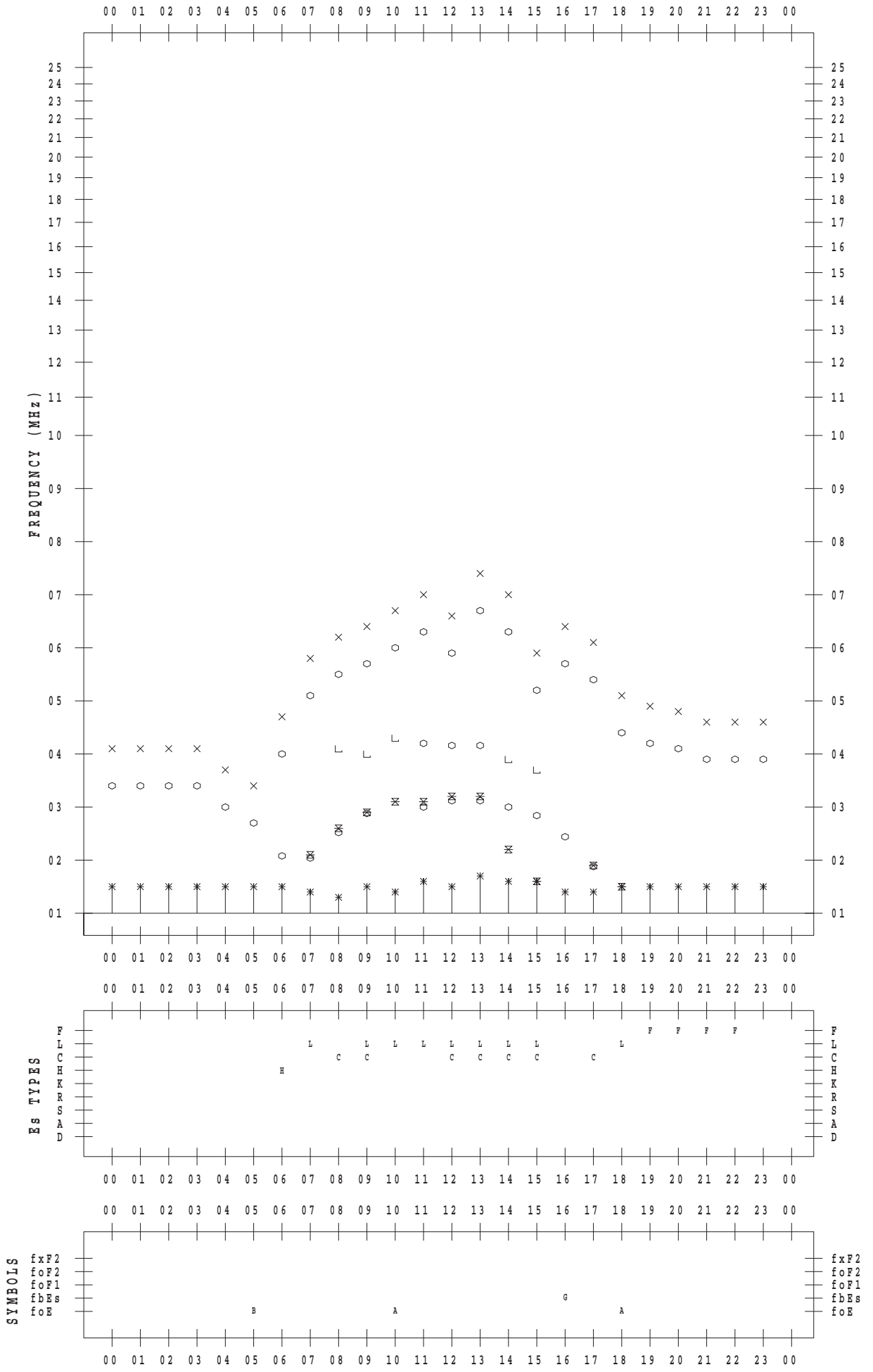
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2017/ 3/13

135 °E MEAN TIME



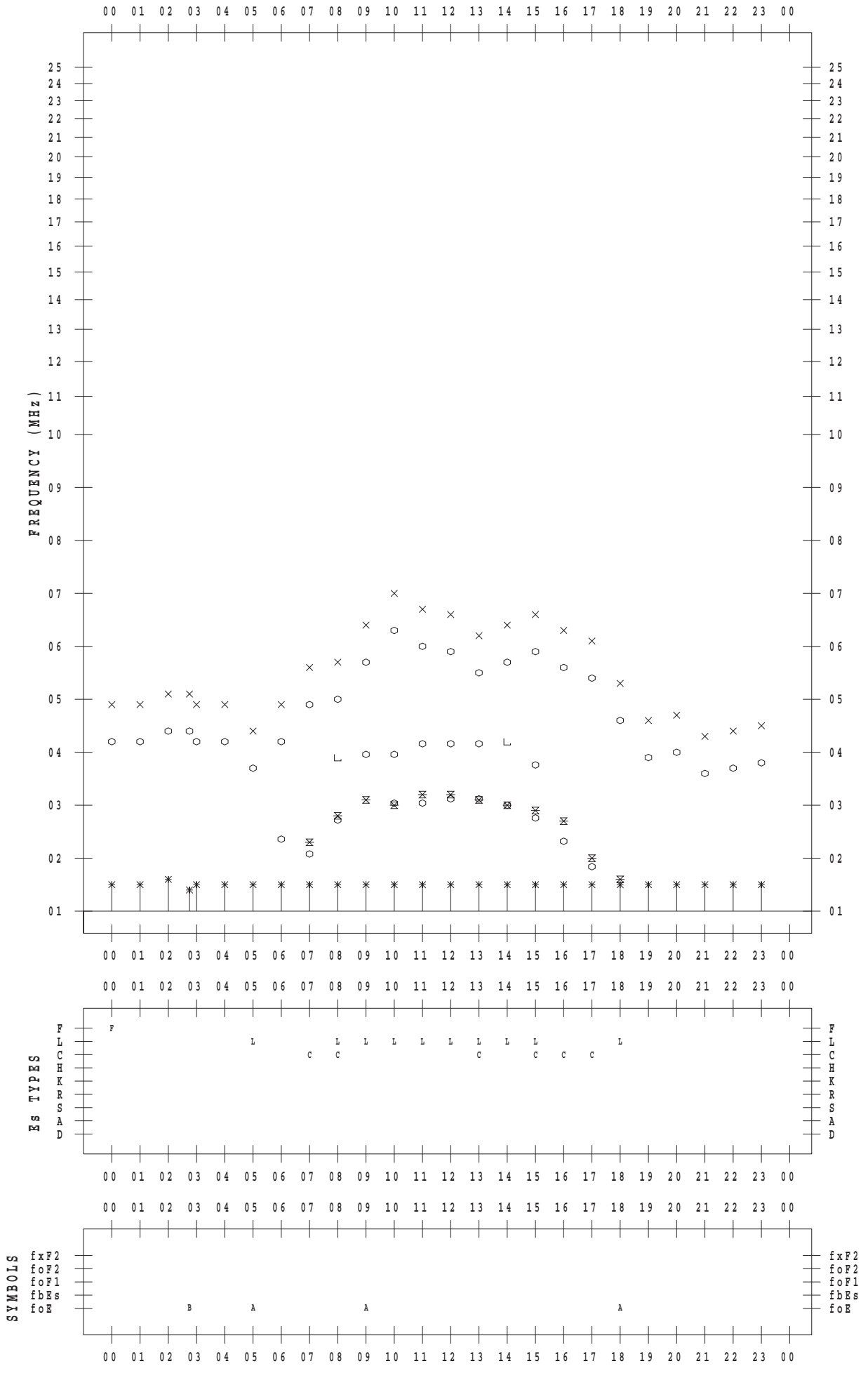
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2017/ 3/14

135 °E MEAN TIME



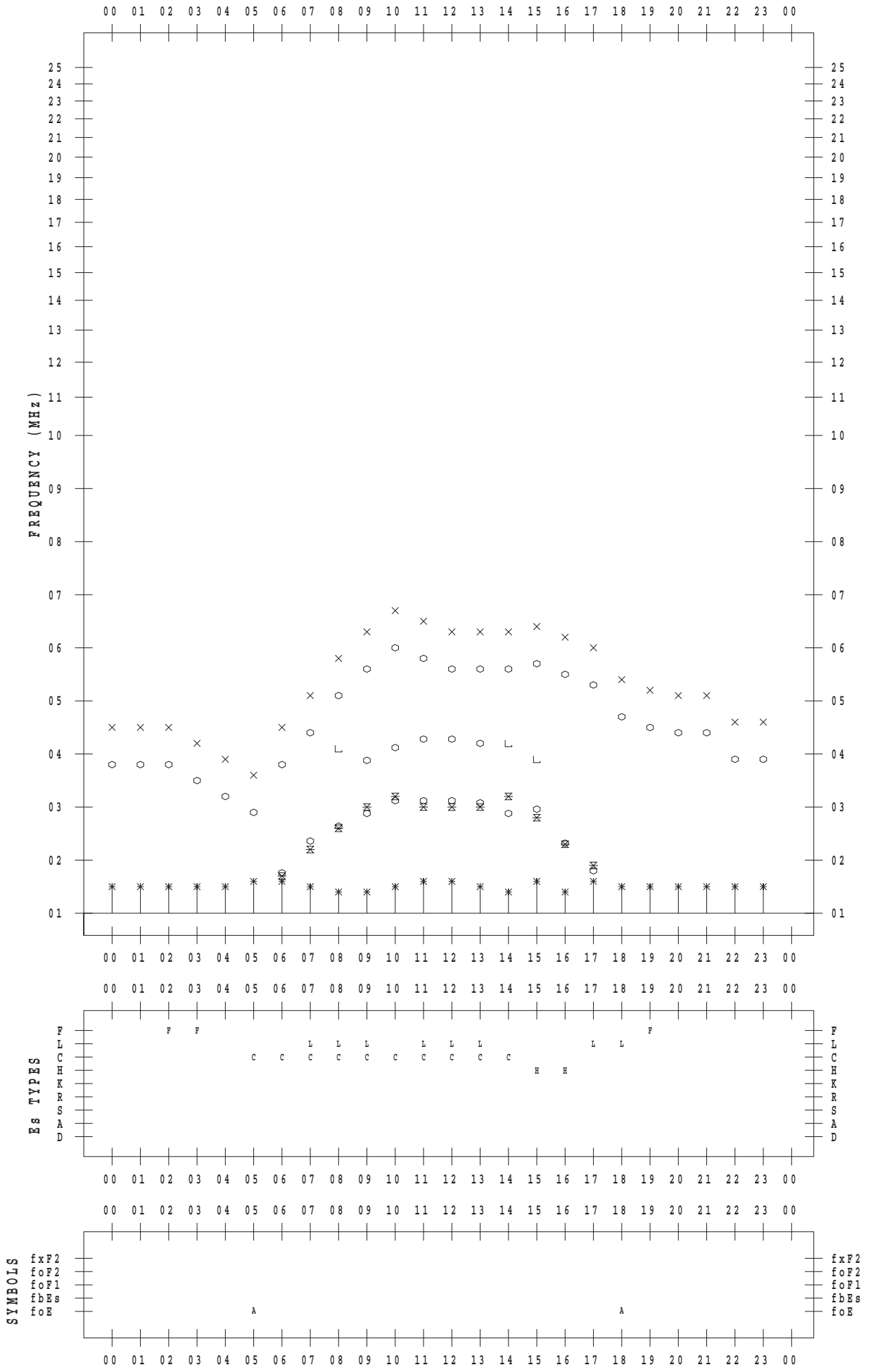
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2017/ 3/15

135 °E MEAN TIME



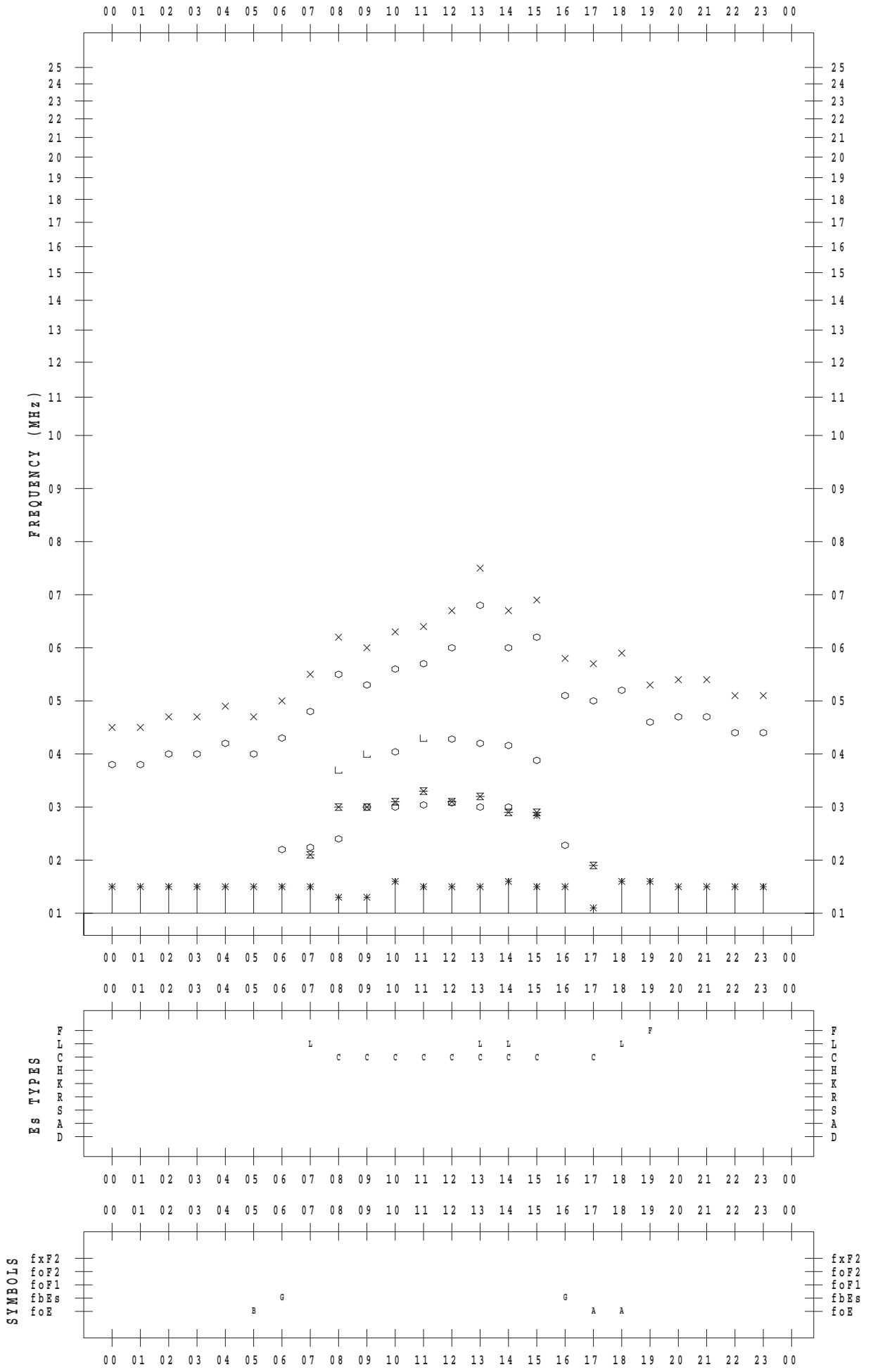
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2017/ 3/16

135 °E MEAN TIME



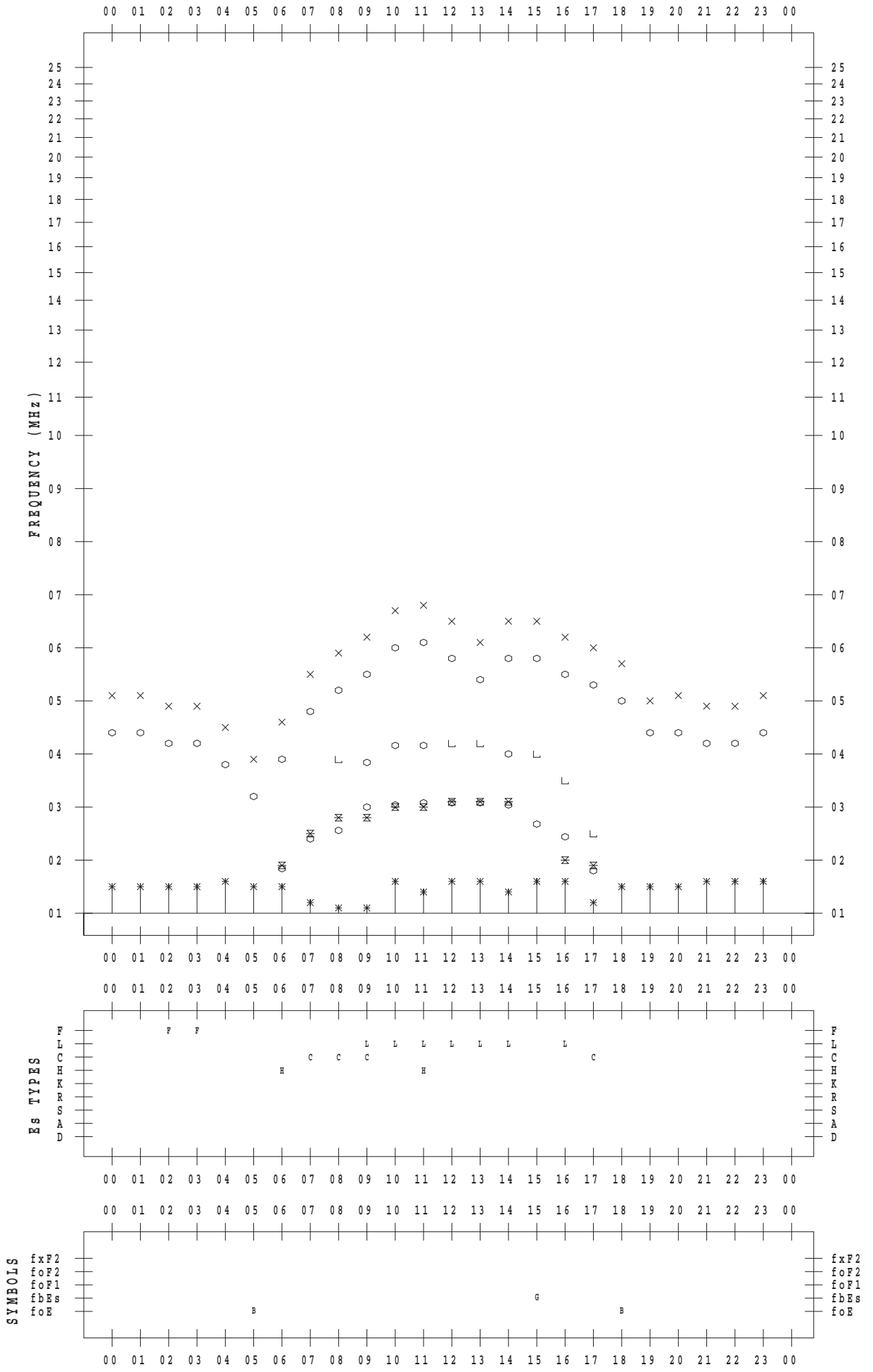
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2017/ 3/17

135 °E MEAN TIME



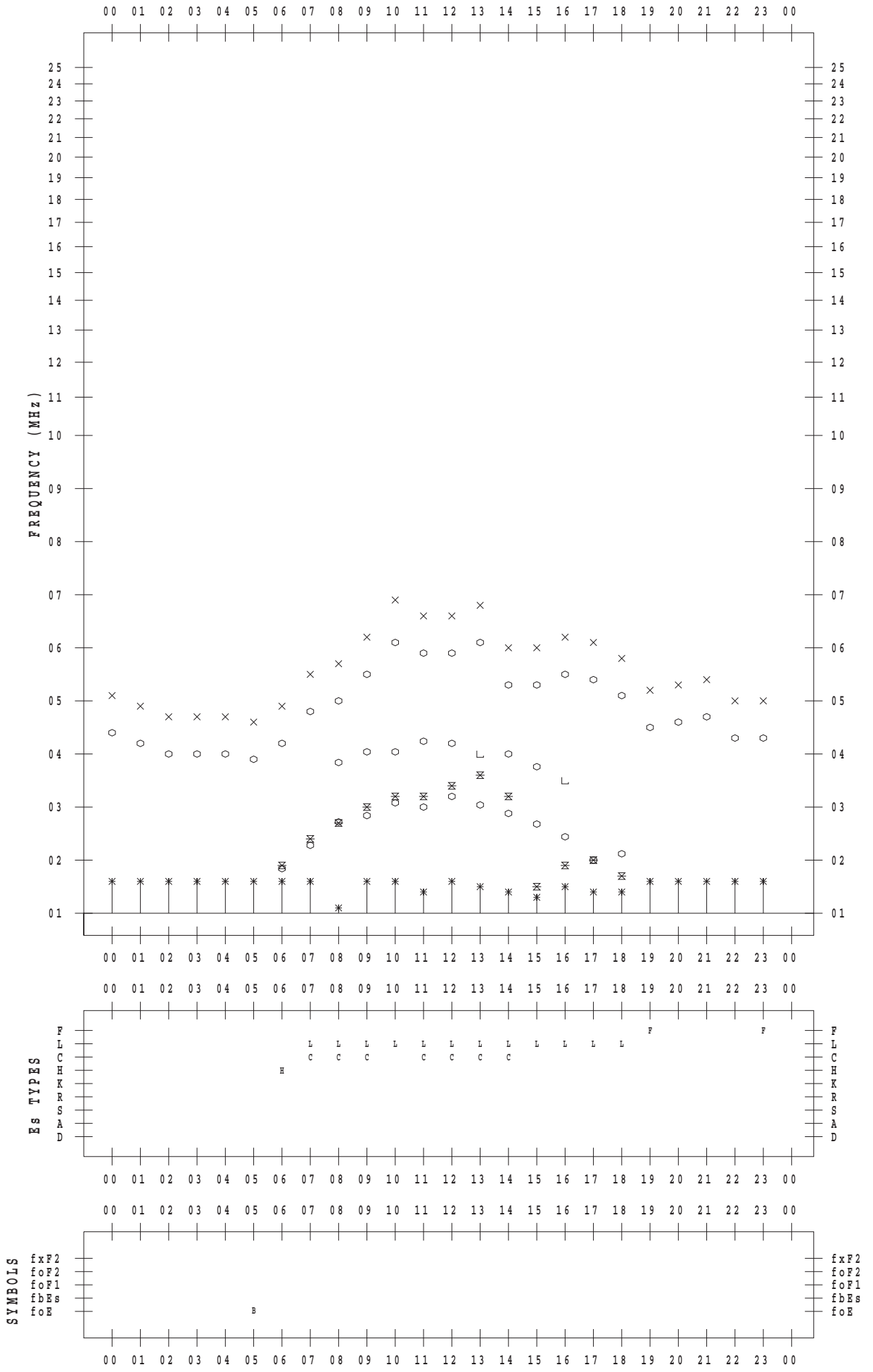
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2017/ 3/18

135 °E MEAN TIME



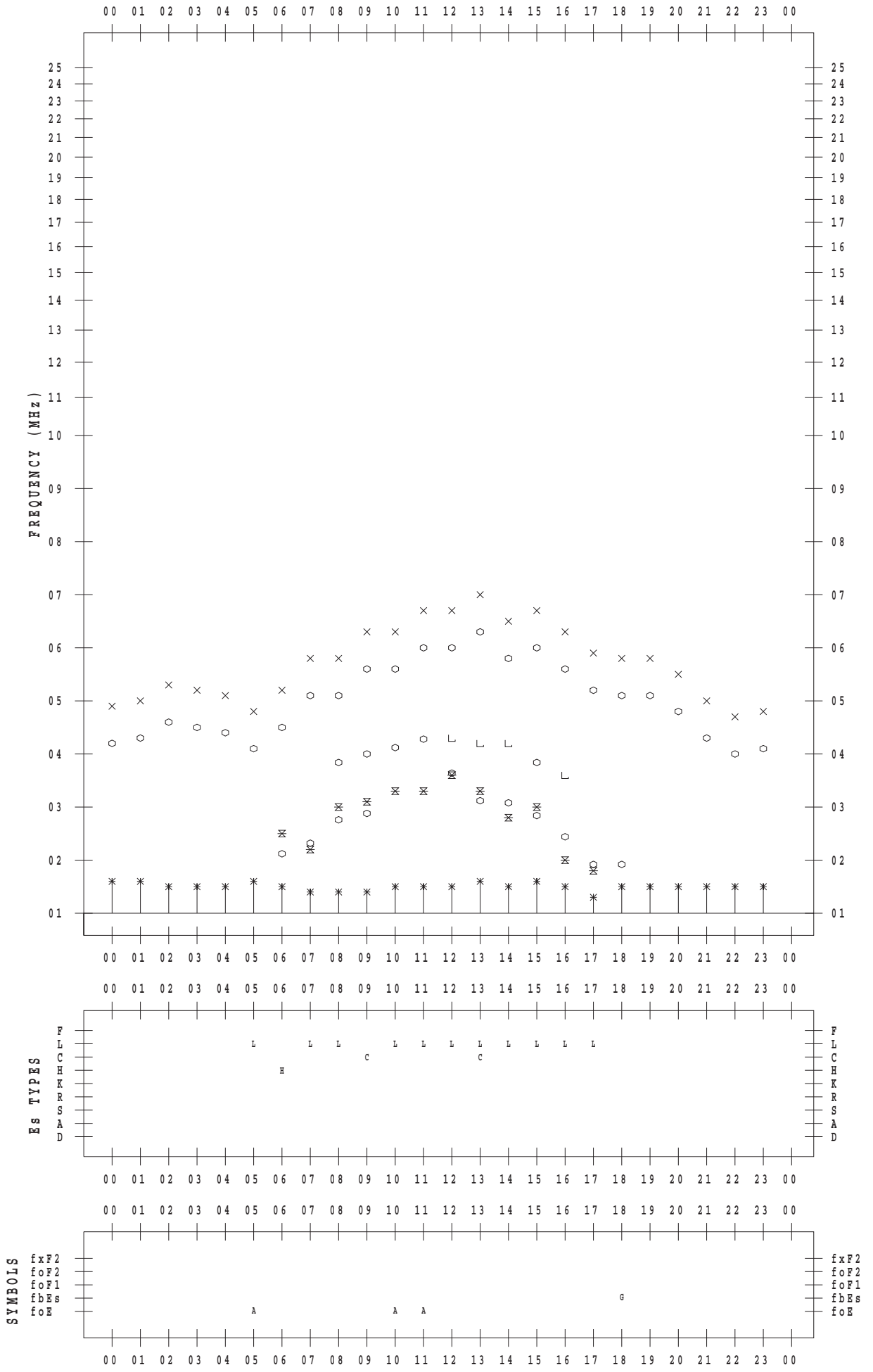
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2017/ 3/19

135 °E MEAN TIME



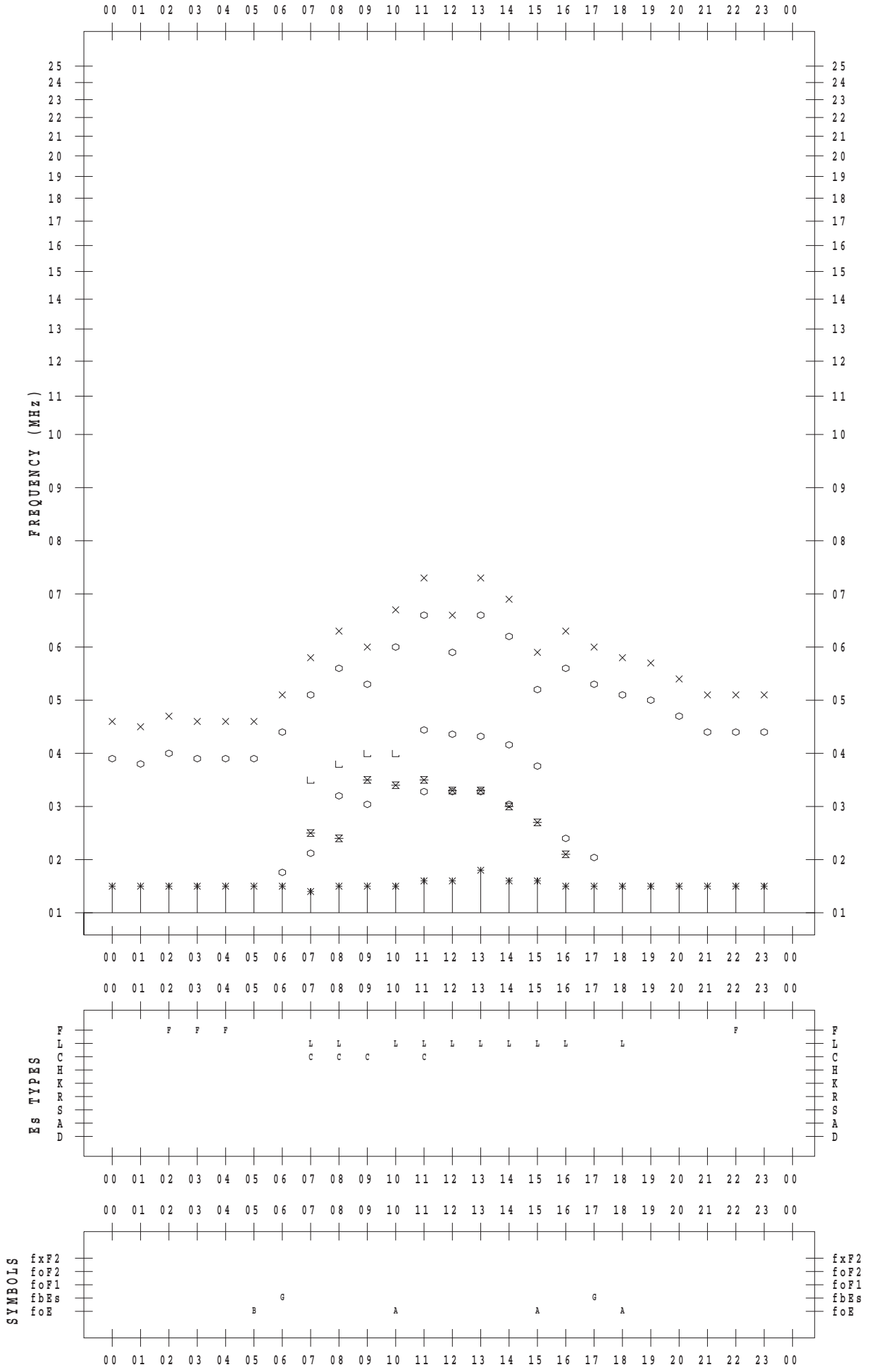
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2017/ 3/20

135 °E MEAN TIME



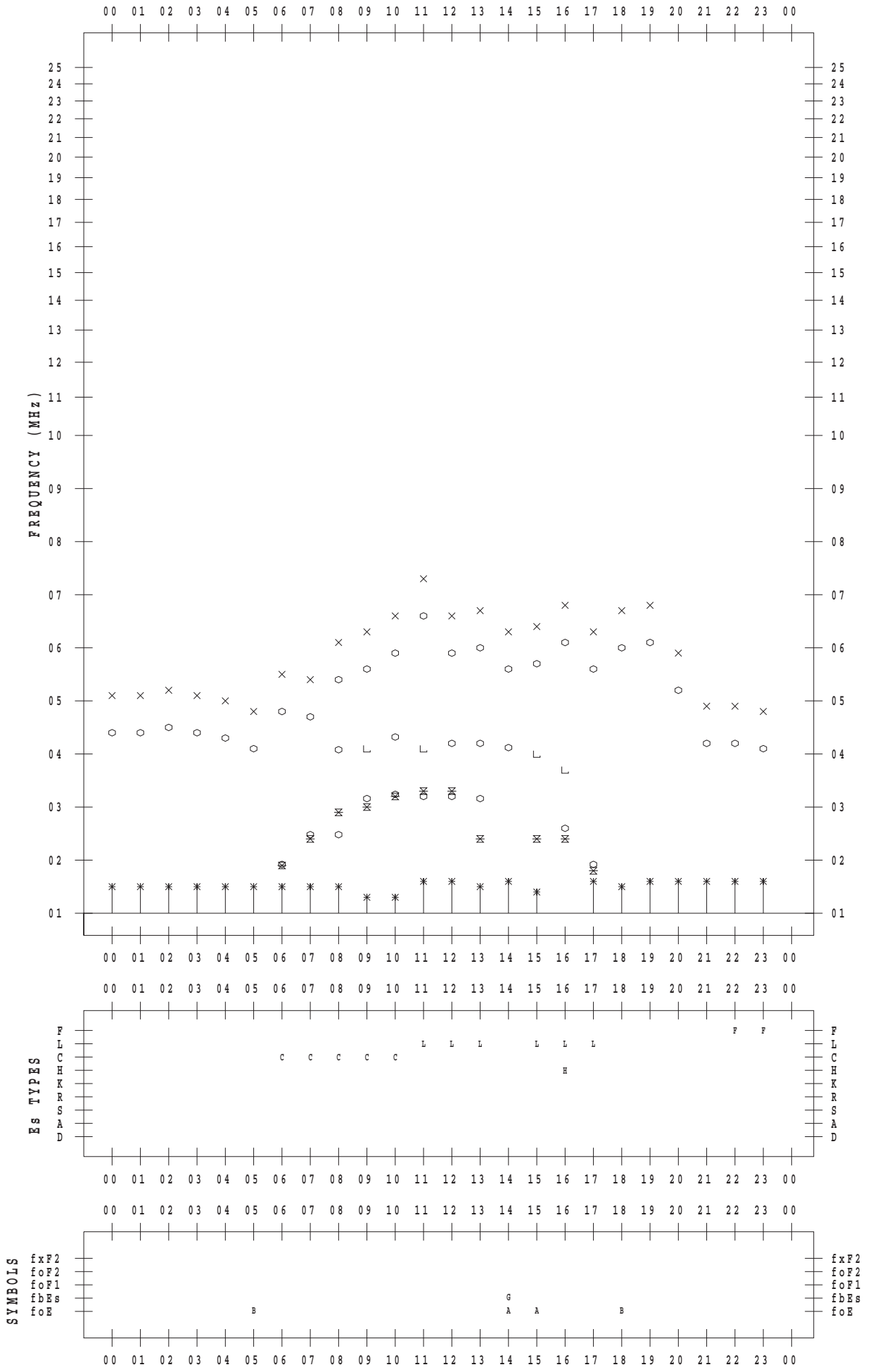
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2017/ 3/21

135 °E MEAN TIME



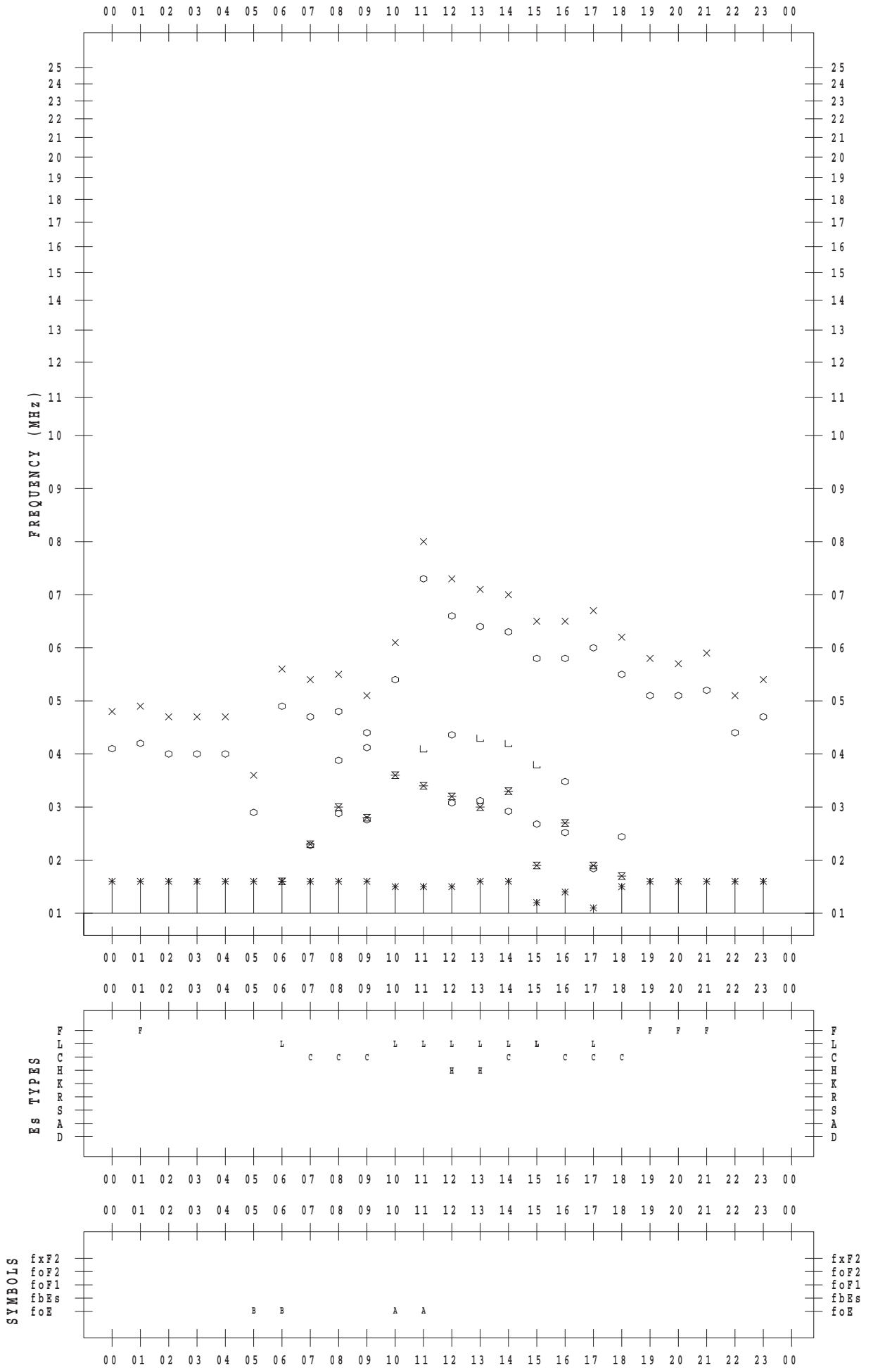
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2017/ 3/22

135 °E MEAN TIME



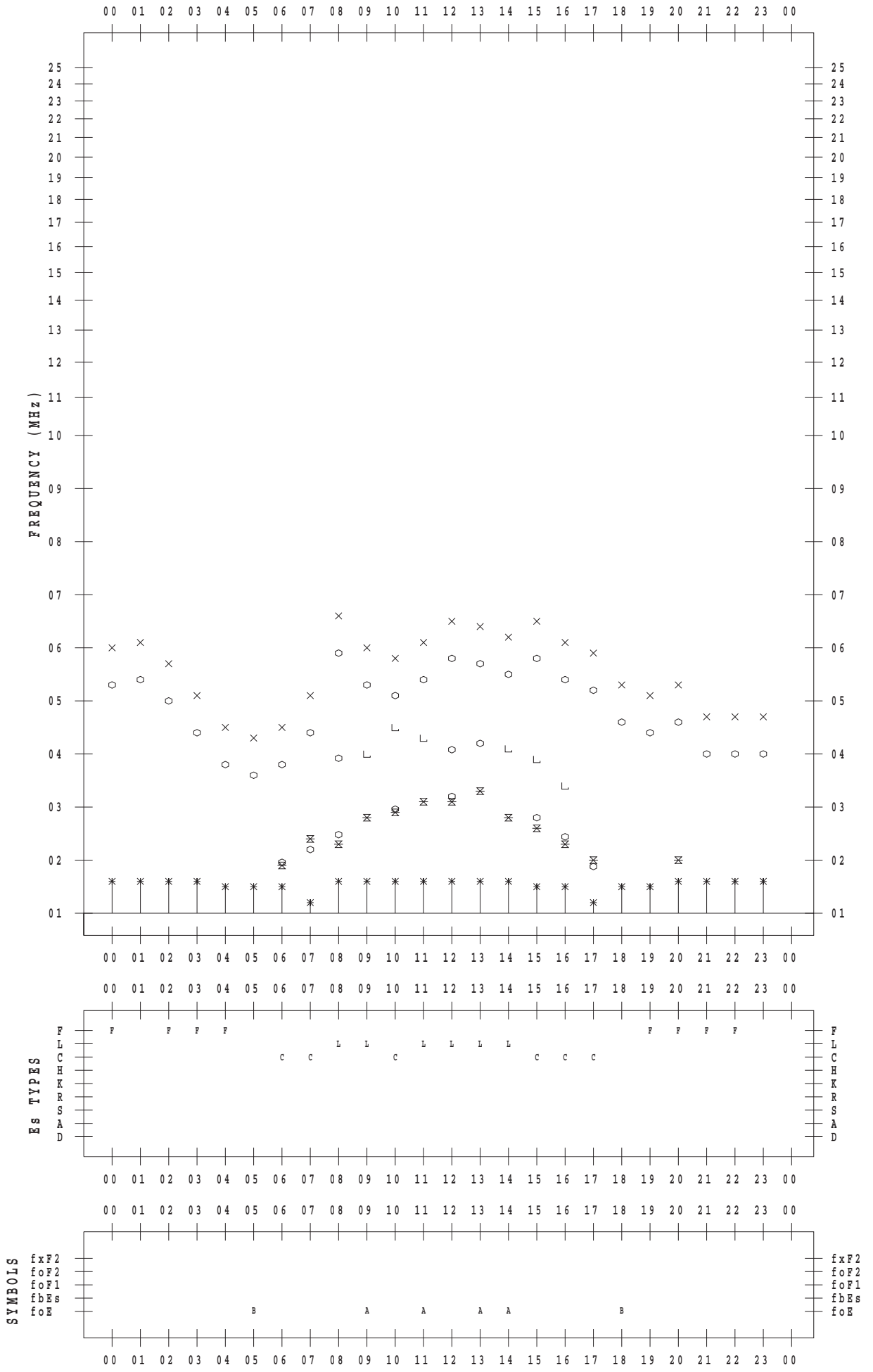
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2017/ 3/23

135 °E MEAN TIME



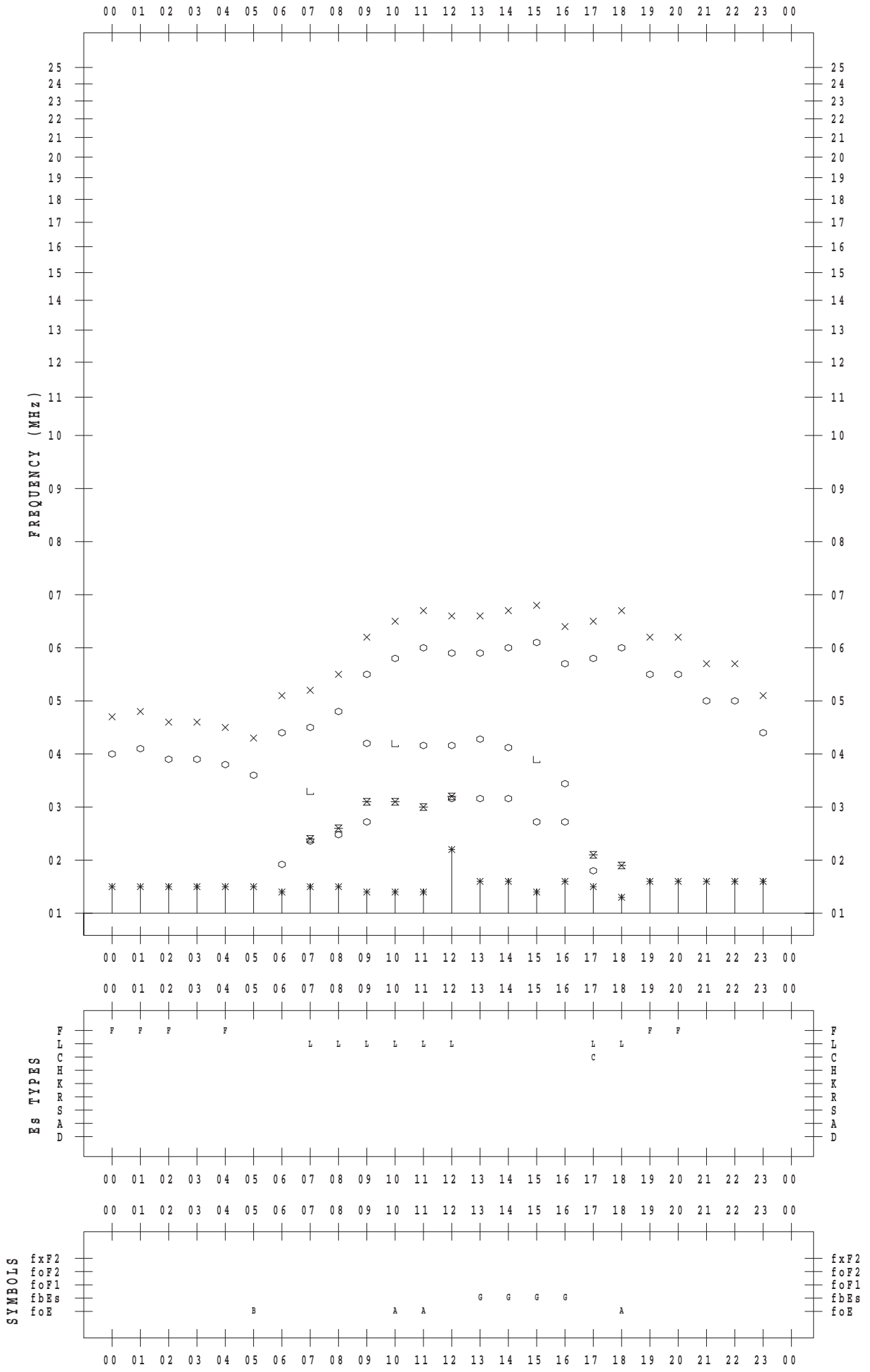
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2017/ 3/24

135 °E MEAN TIME



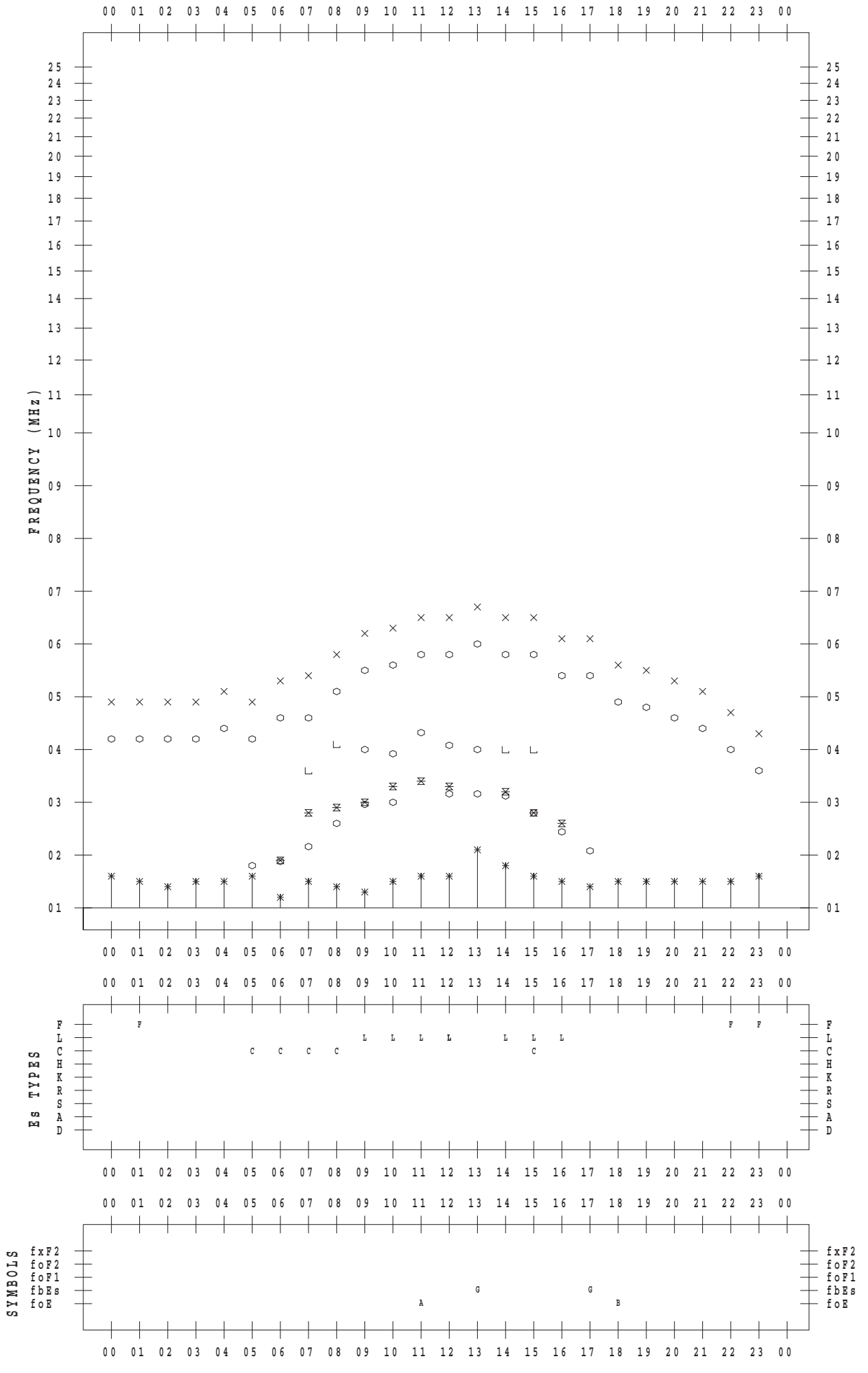
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2017/ 3/25

135 °E MEAN TIME



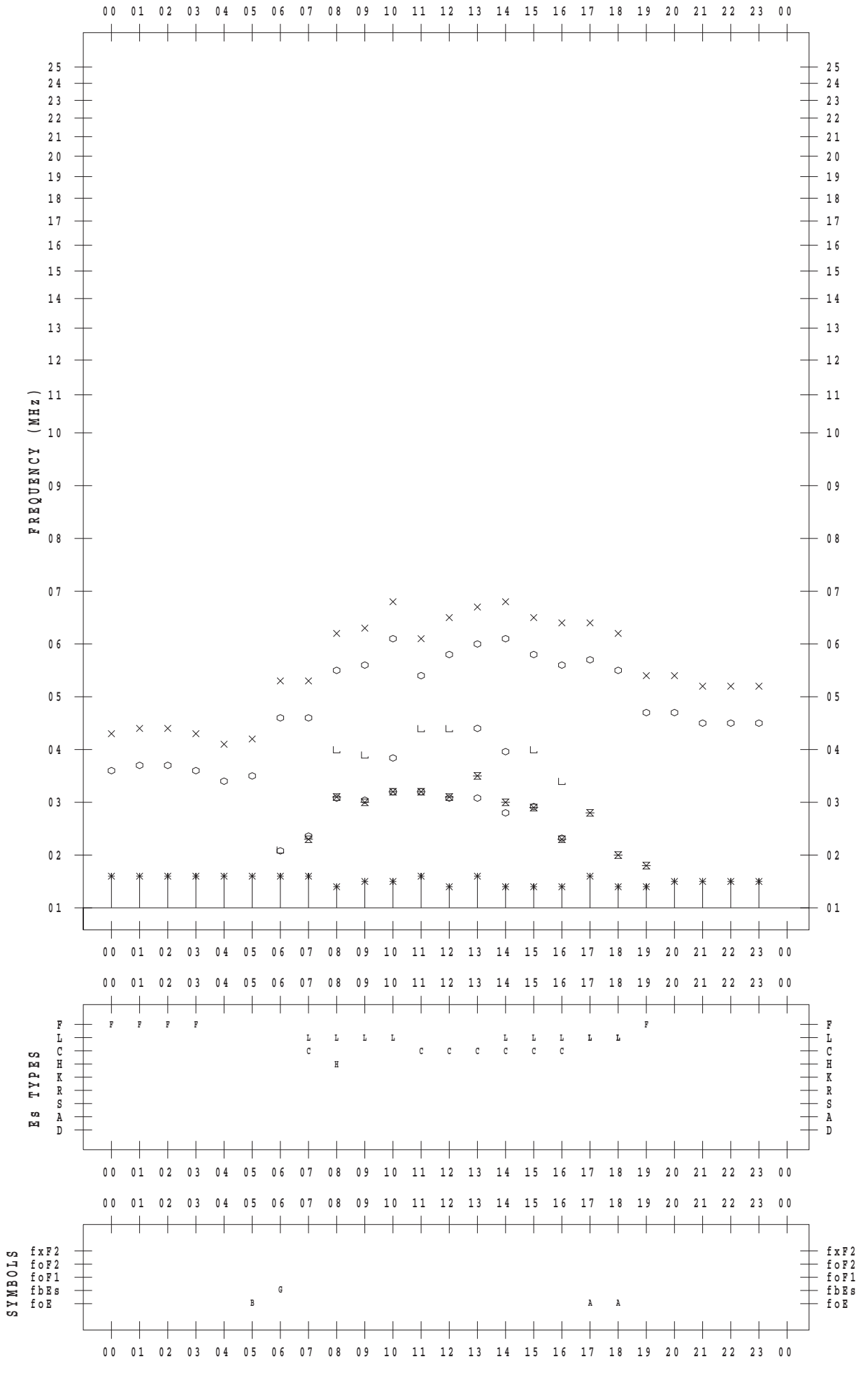
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2017/ 3/26

135 °E MEAN TIME



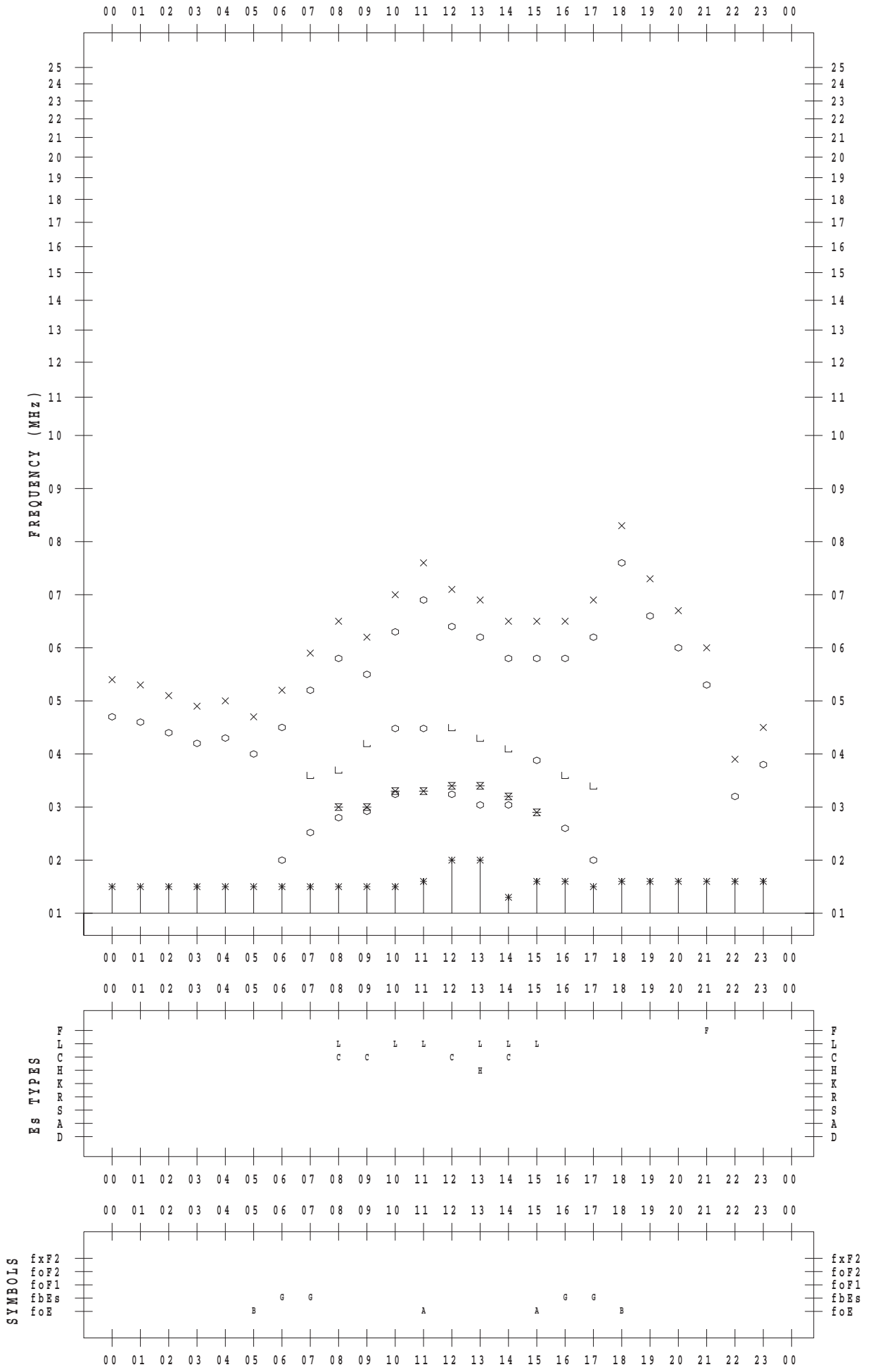
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2017/ 3/27

135 °E MEAN TIME



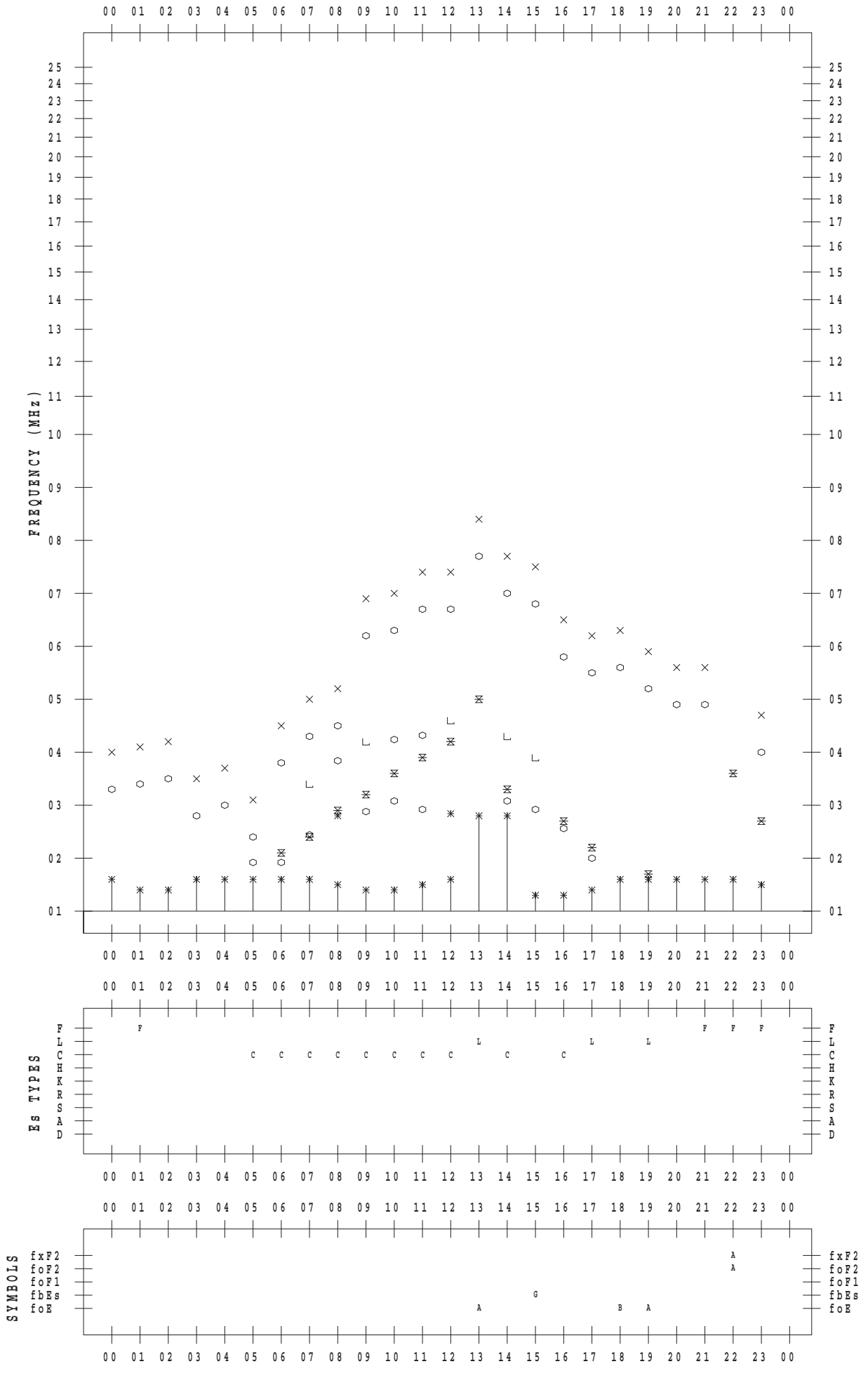
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2017/ 3/28

135 °E MEAN TIME



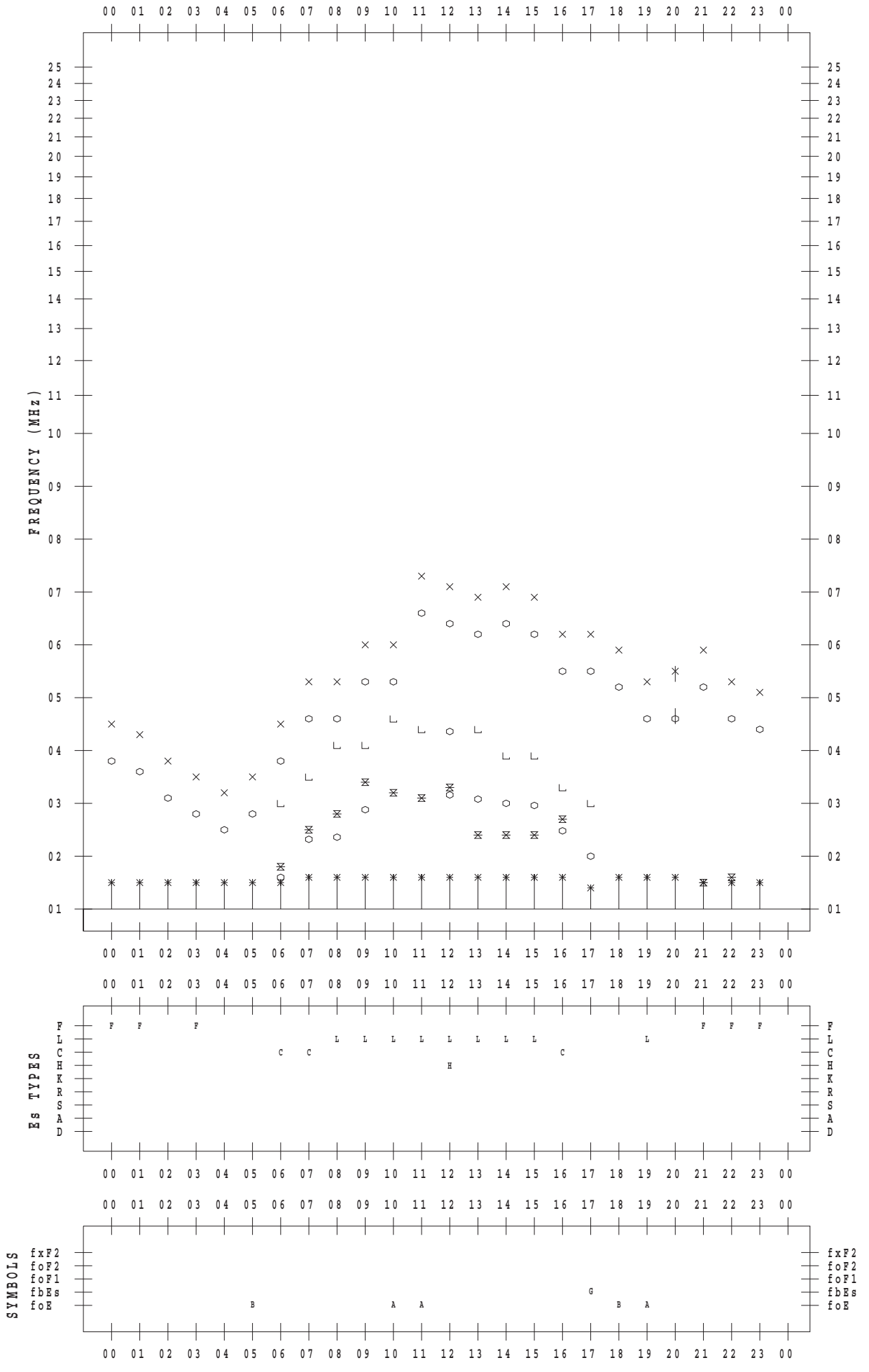
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2017/ 3/29

135 °E MEAN TIME



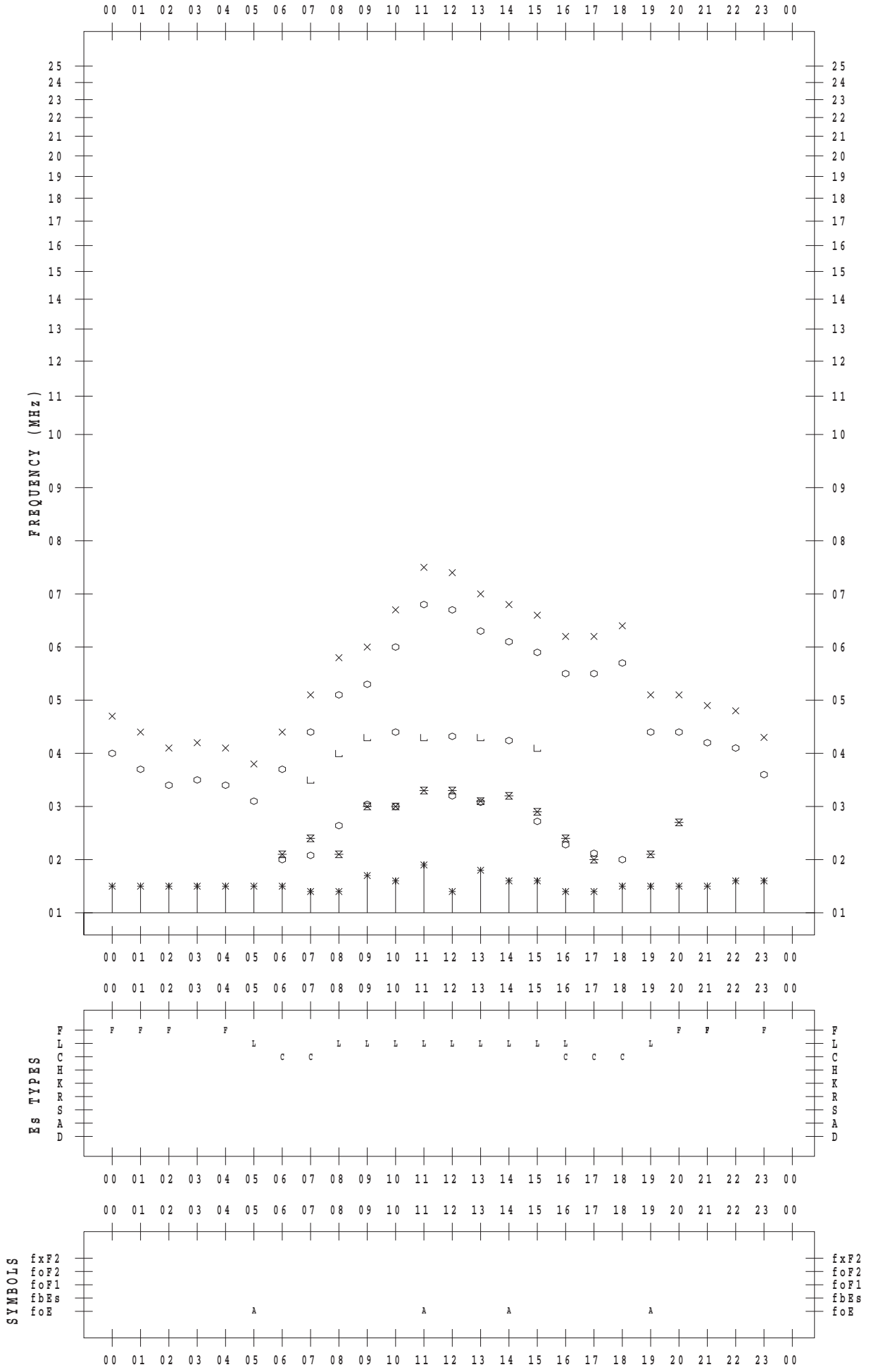
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2017/ 3/30

135 °E MEAN TIME



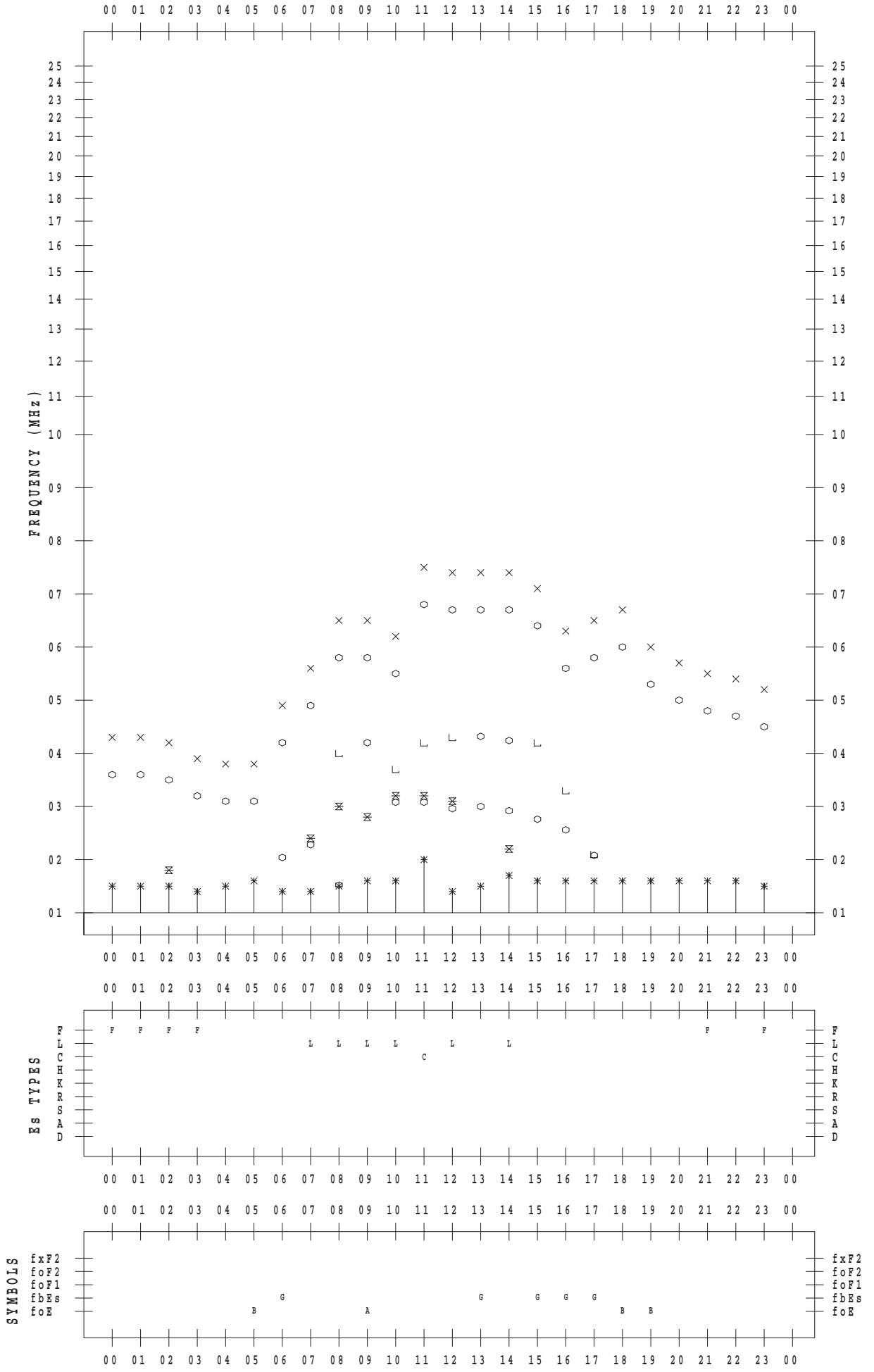
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2017/ 3/31

135 °E MEAN TIME



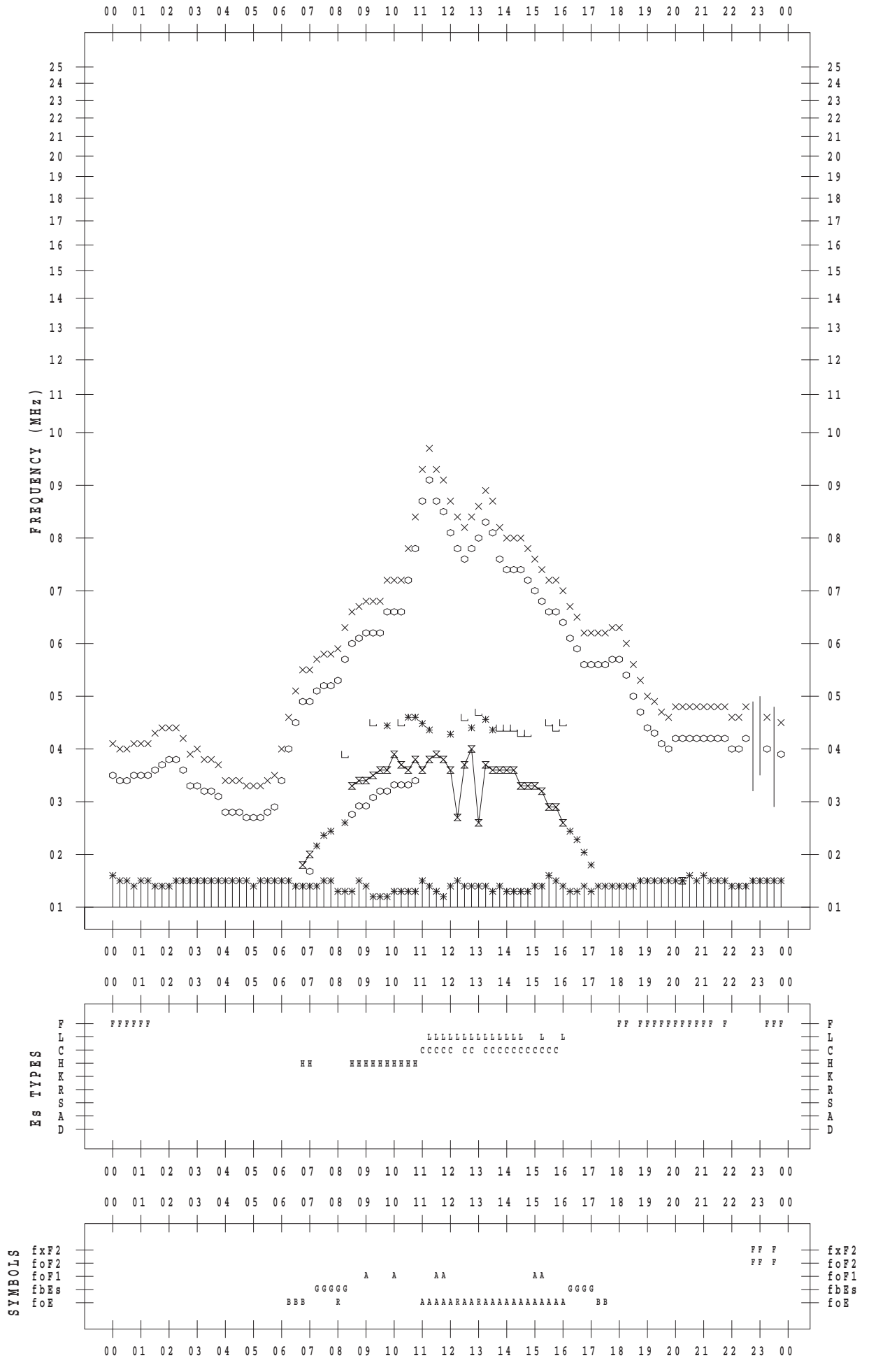
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2017/ 3/ 1

135 °E MEAN TIME



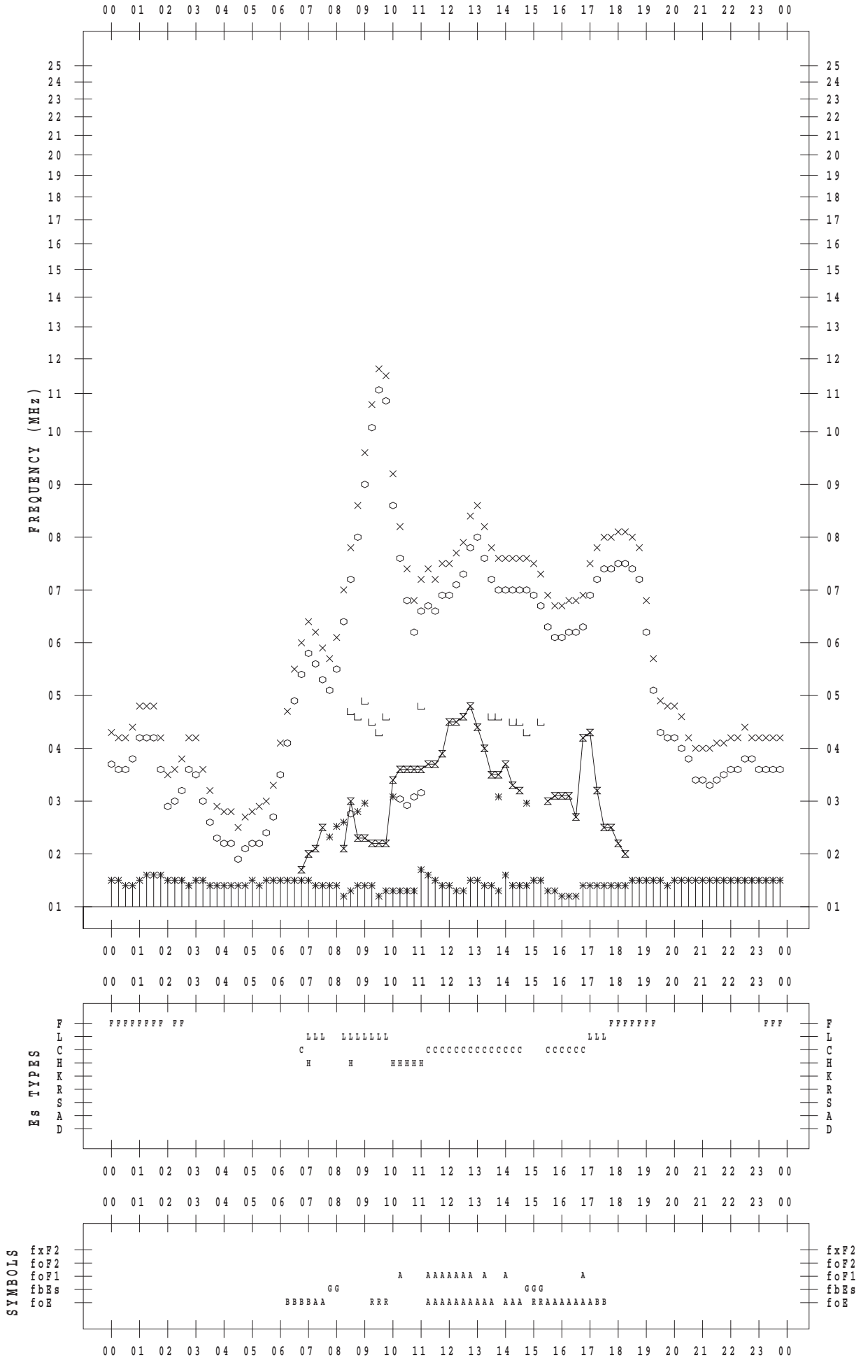
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2017/ 3/ 2

135 °E MEAN TIME



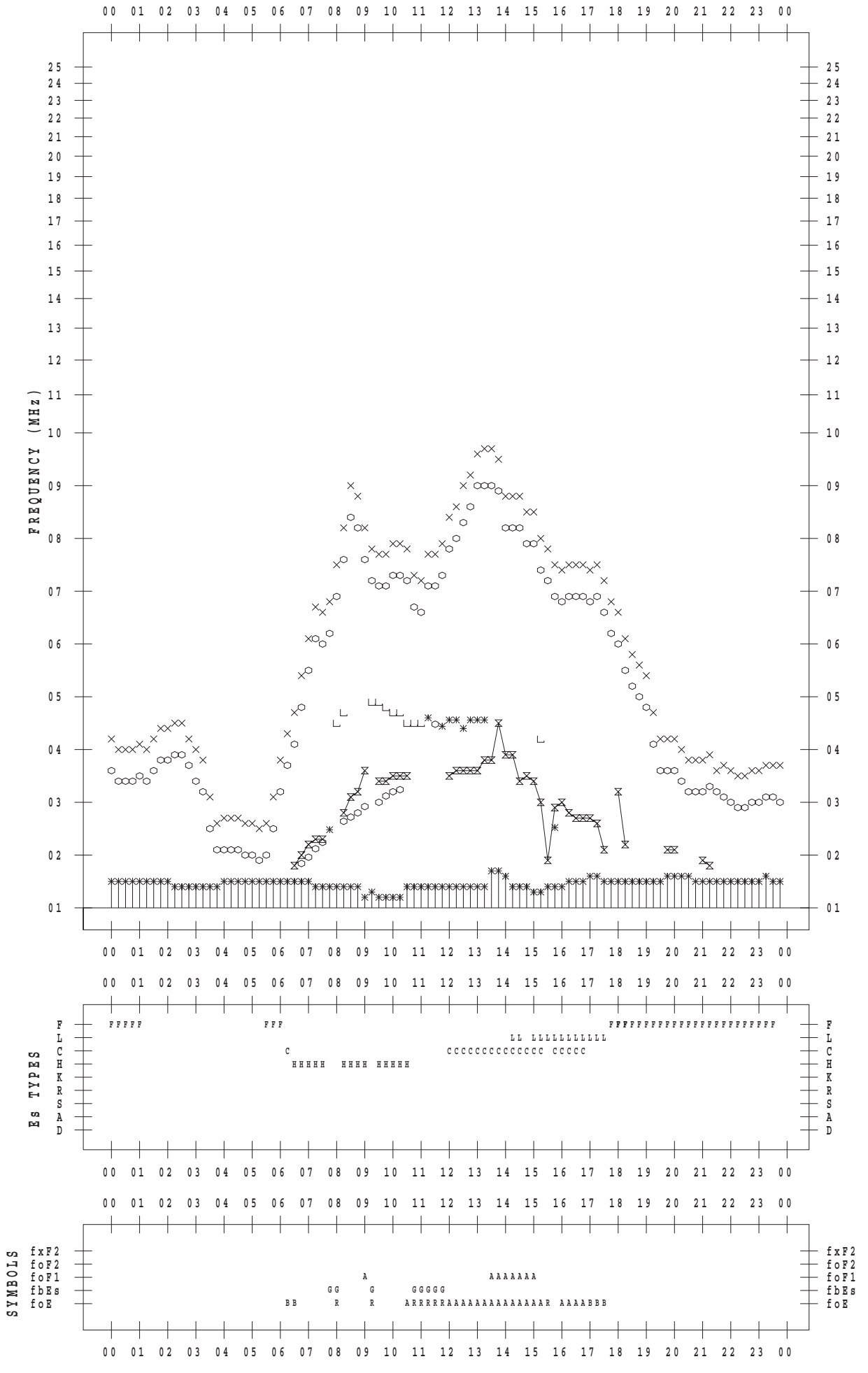
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2017/ 3/ 3

135 °E MEAN TIME



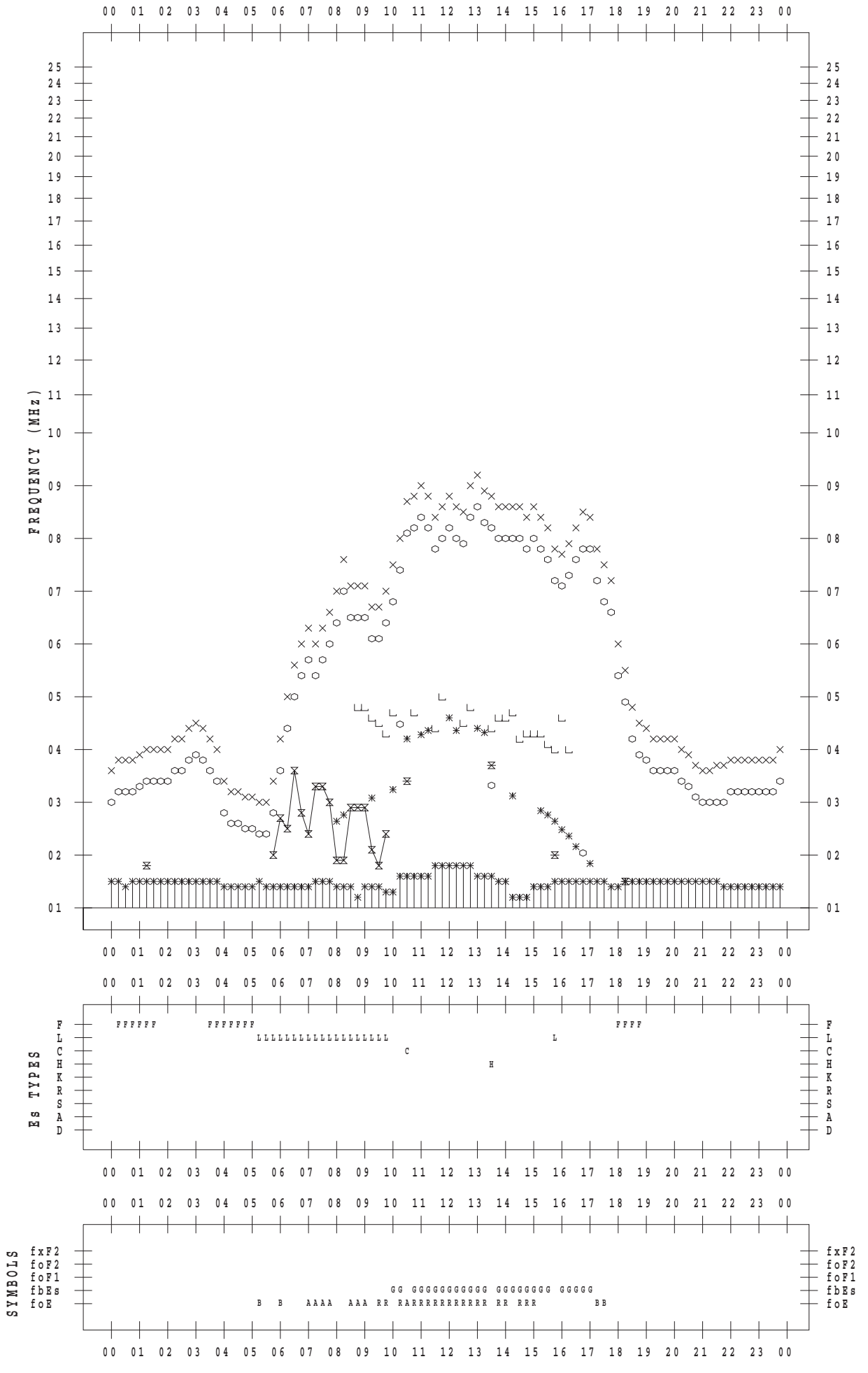
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2017/ 3/ 4

135 °E MEAN TIME



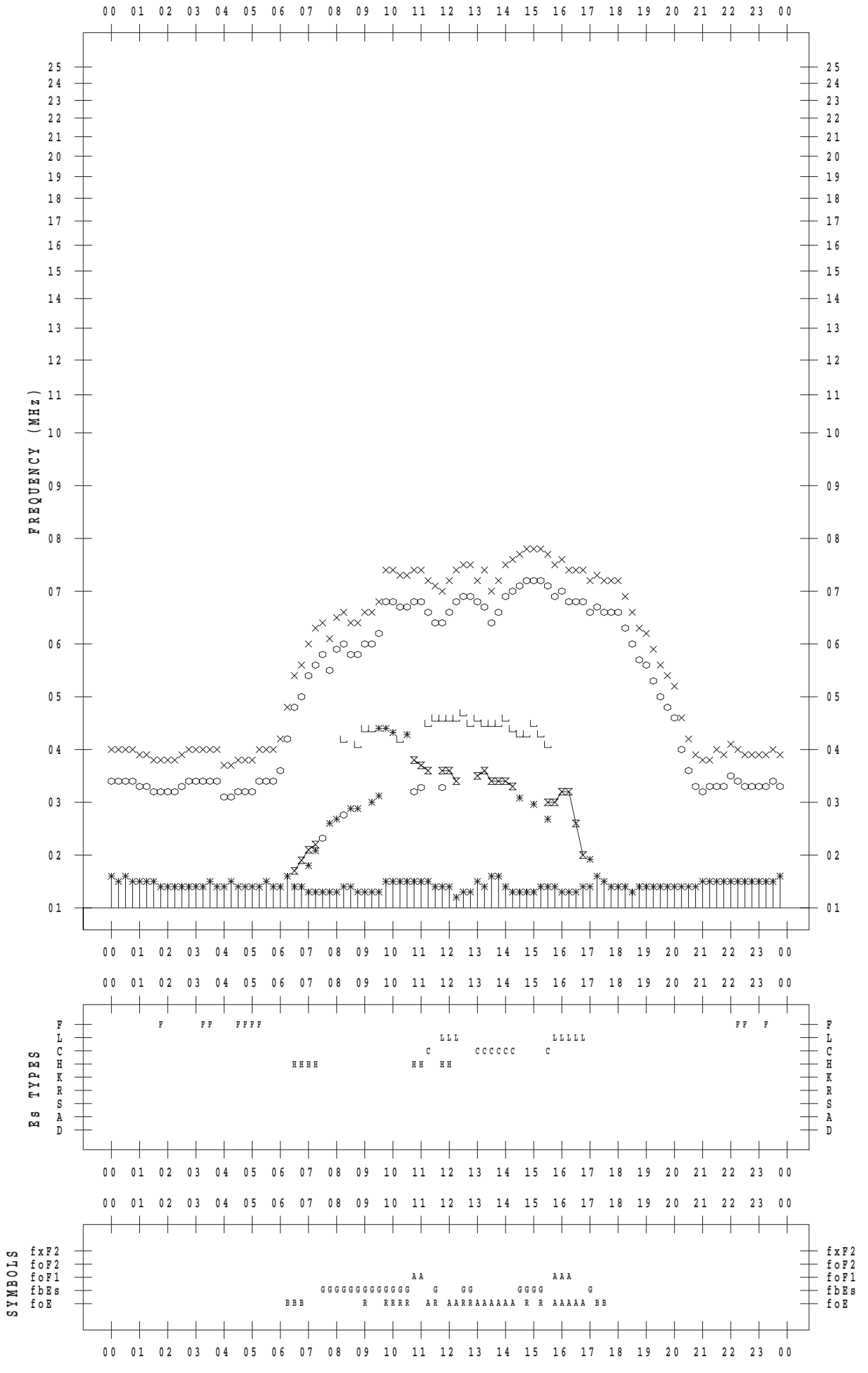
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2017/ 3/ 5

135 °E MEAN TIME



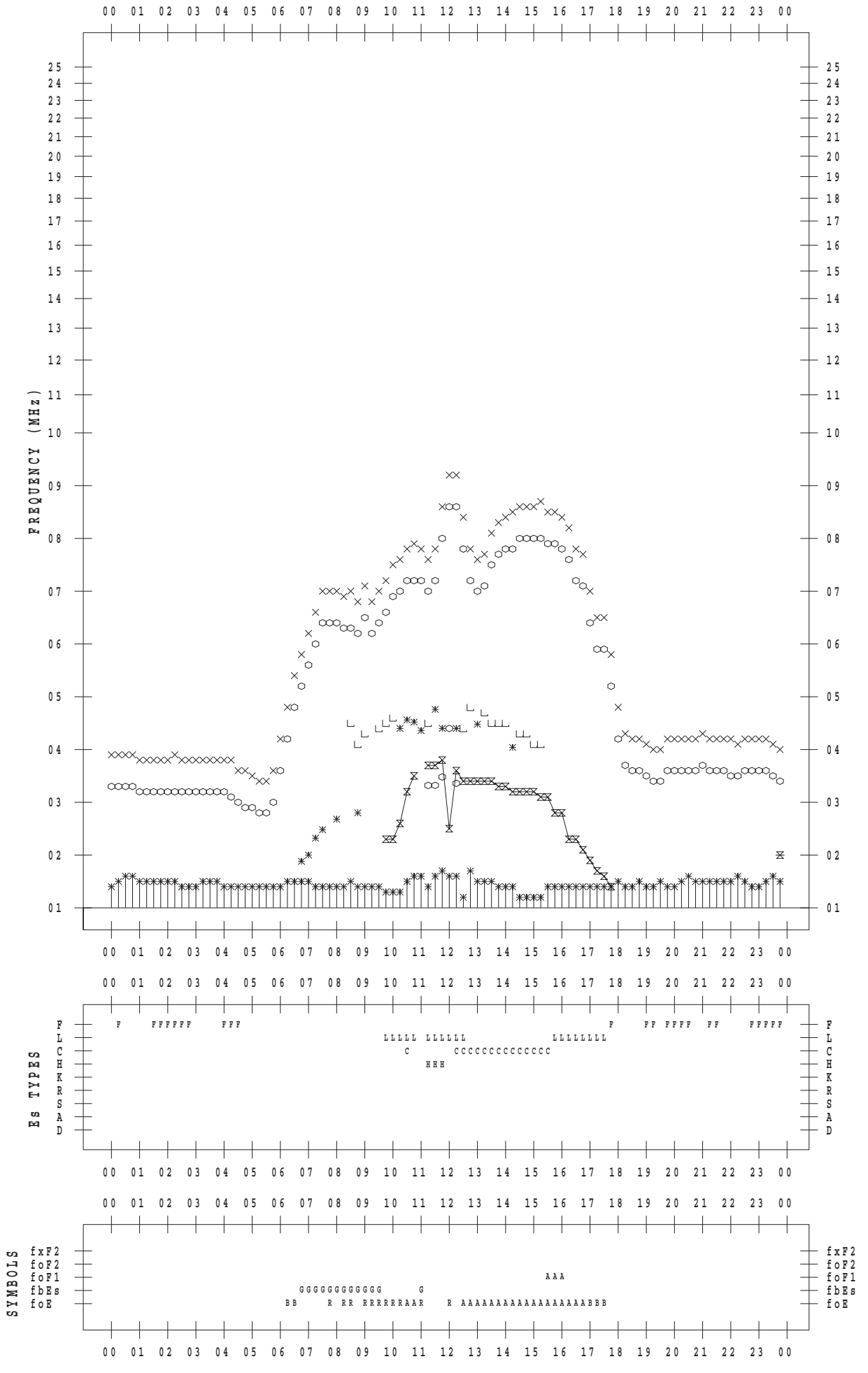
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2017/ 3/ 6

135 °E MEAN TIME



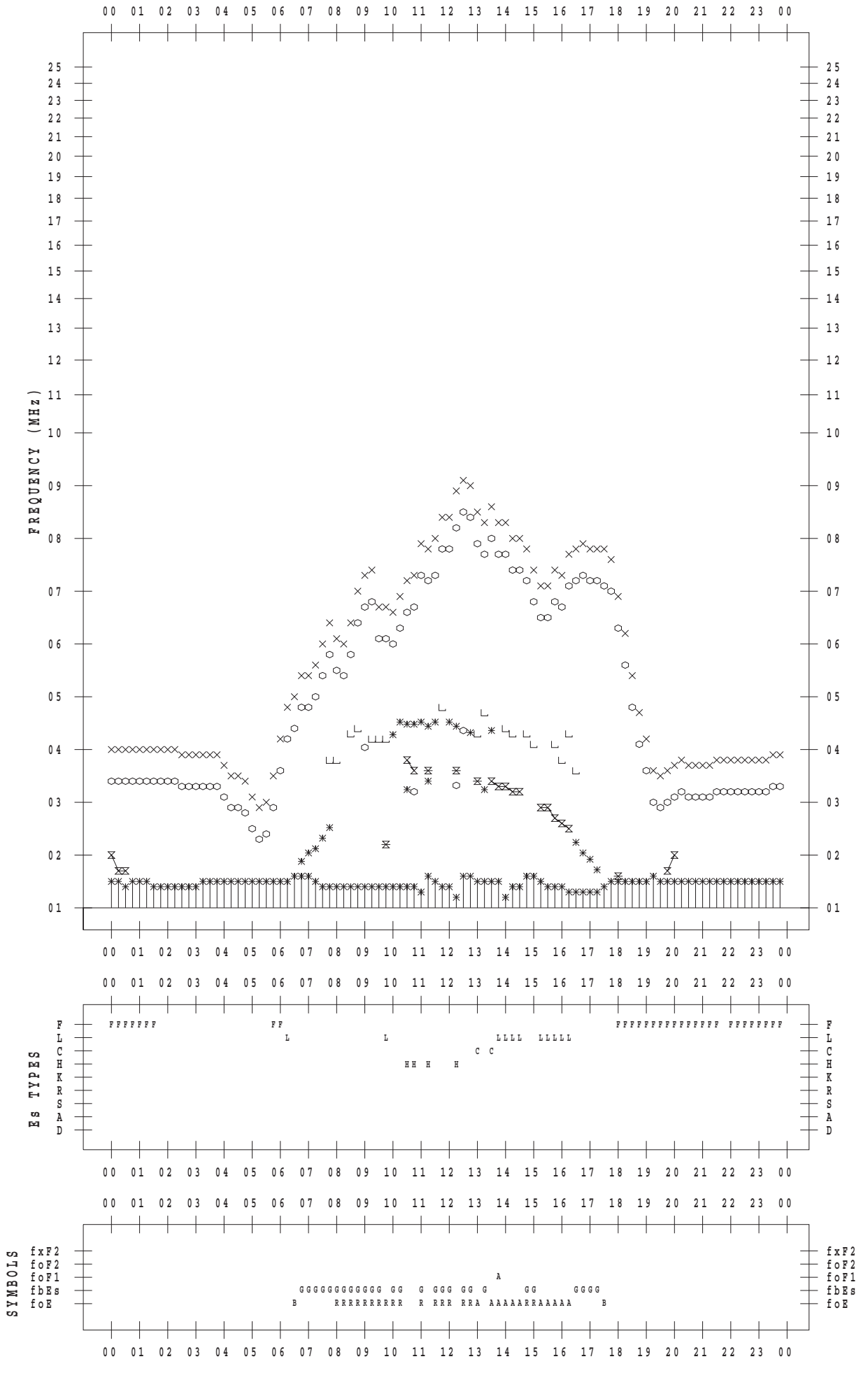
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2017/ 3/ 7

135 °E MEAN TIME



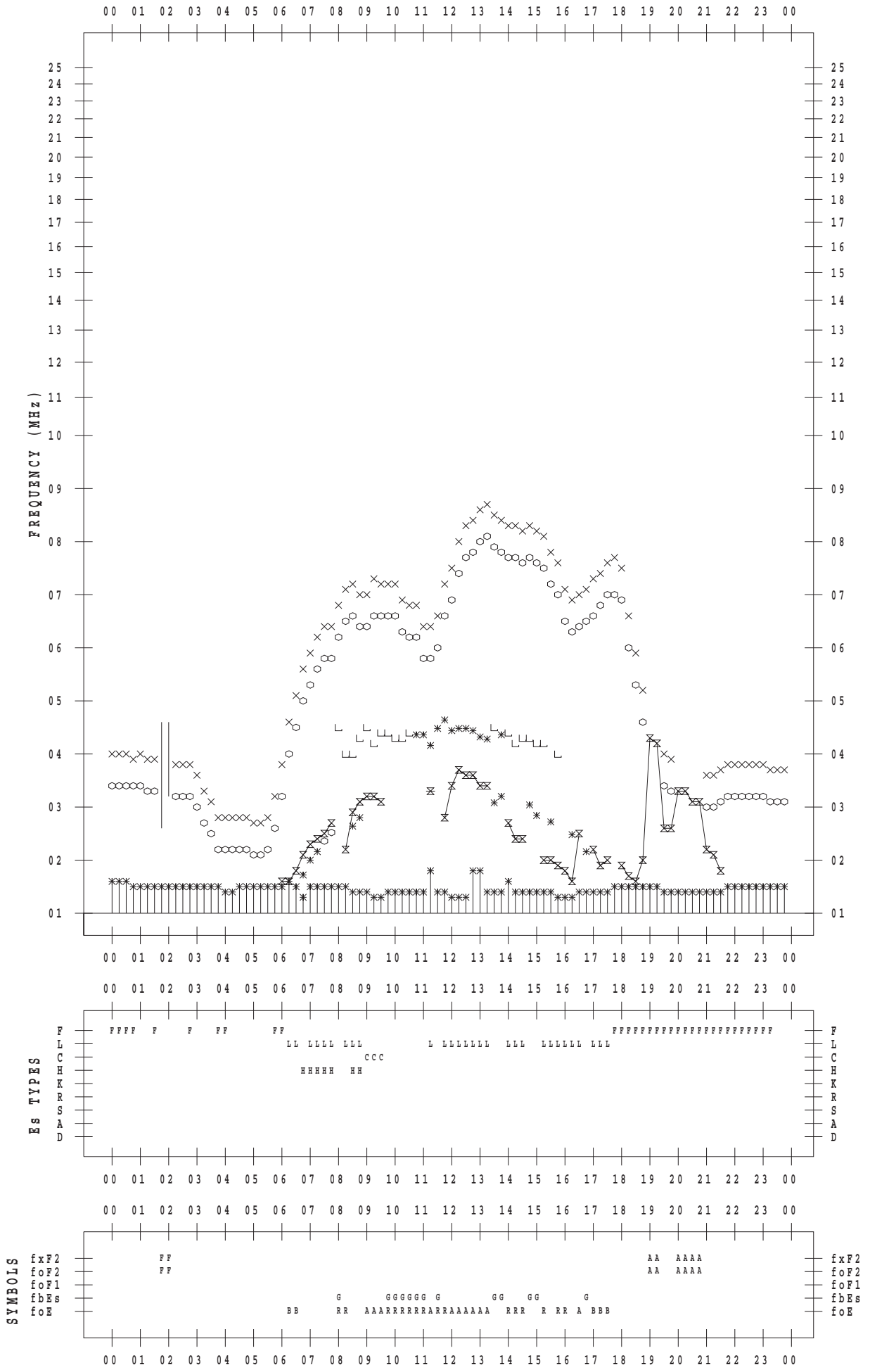
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2017/ 3/ 8

135 °E MEAN TIME



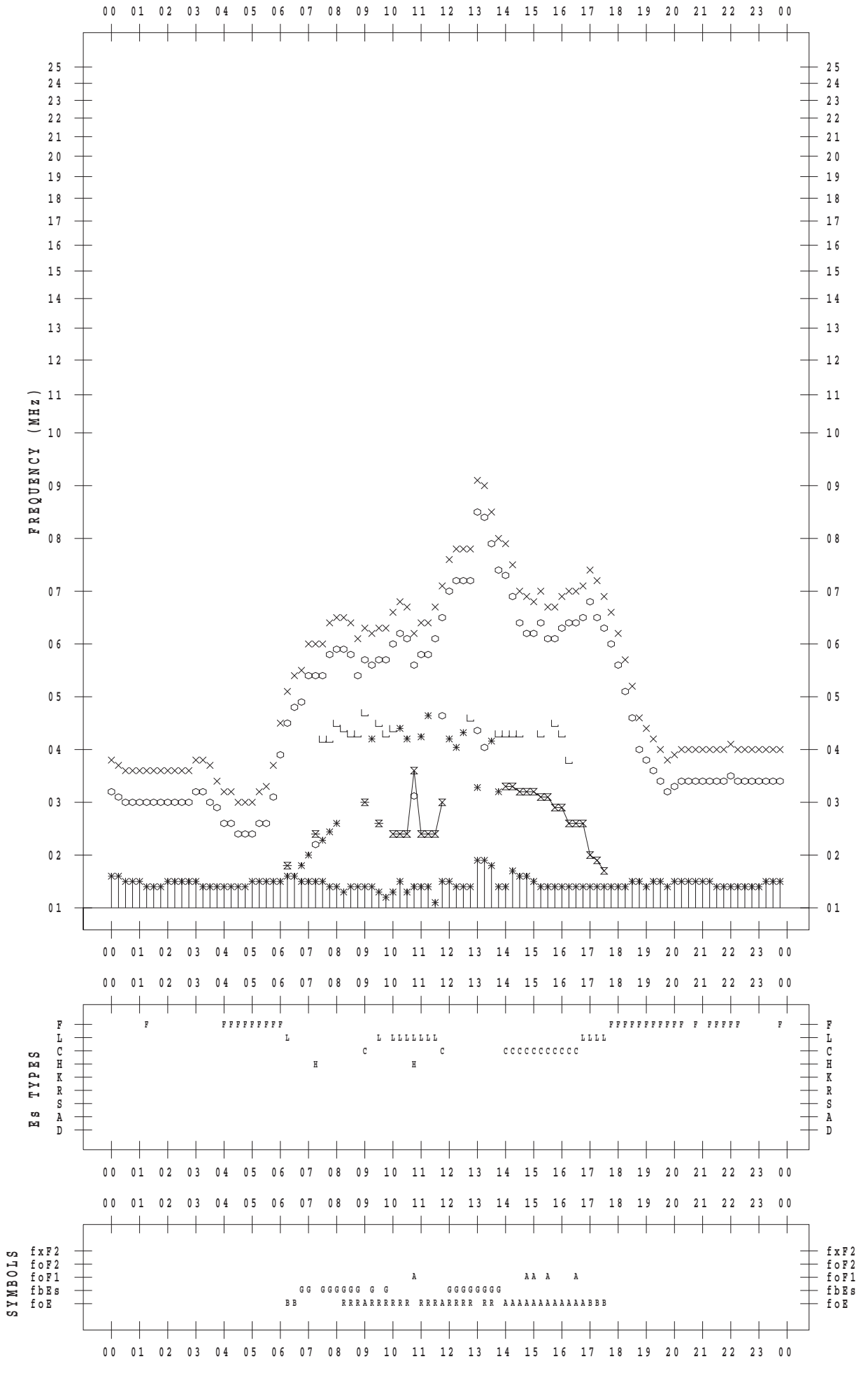
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2017/ 3/ 9

135 °E MEAN TIME



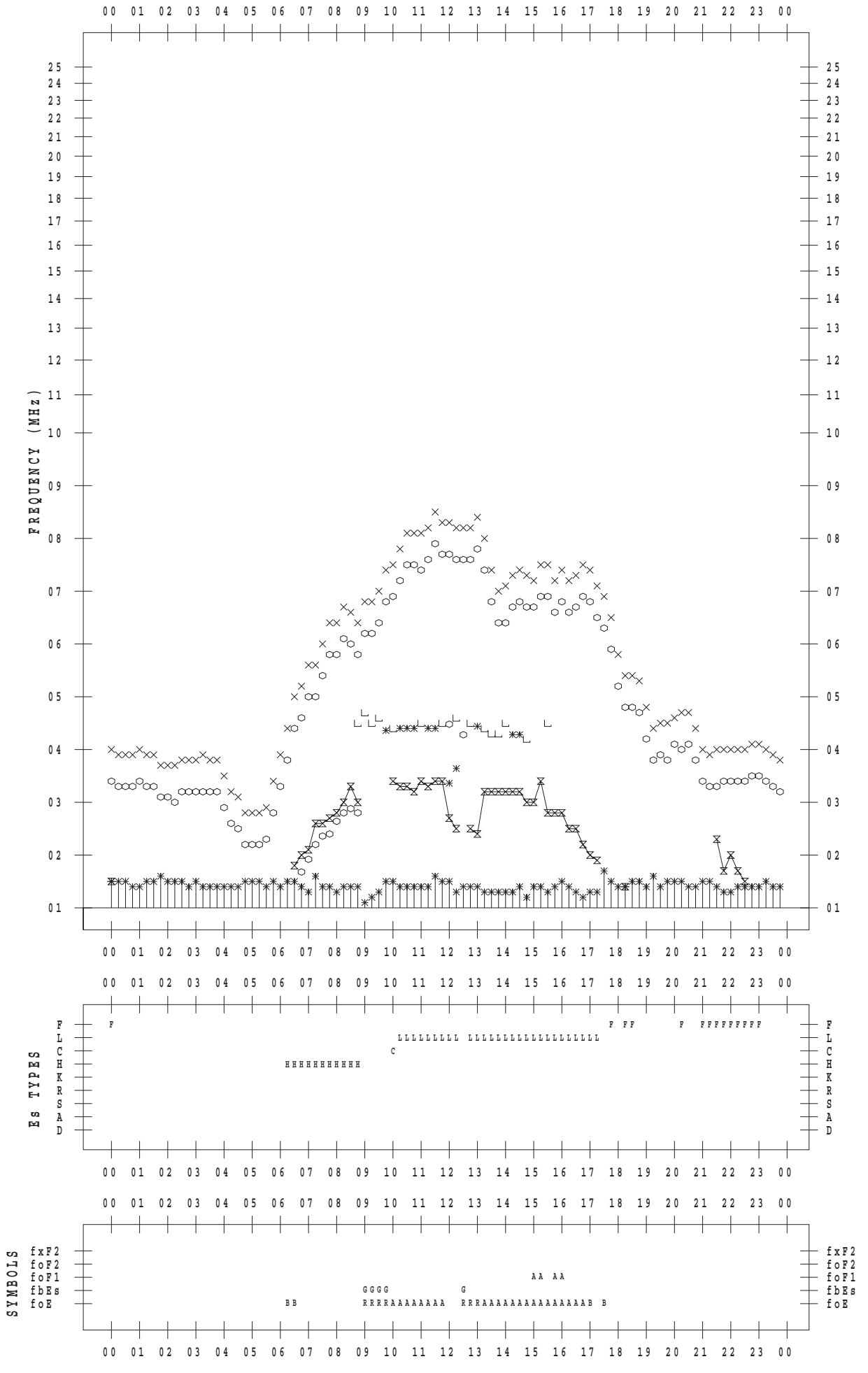
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2017/ 3/10

135 °E MEAN TIME



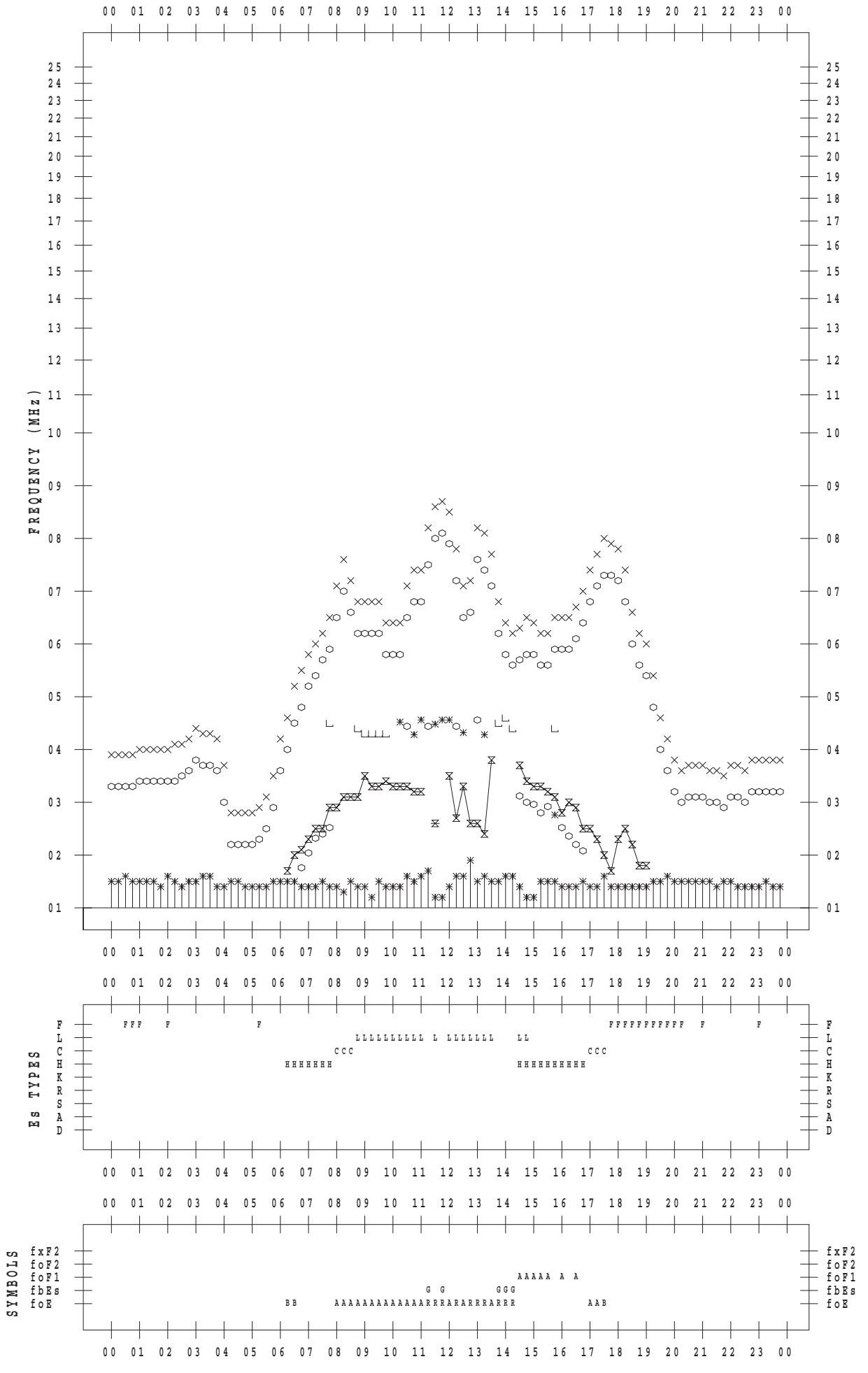
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2017/ 3/11

135 °E MEAN TIME



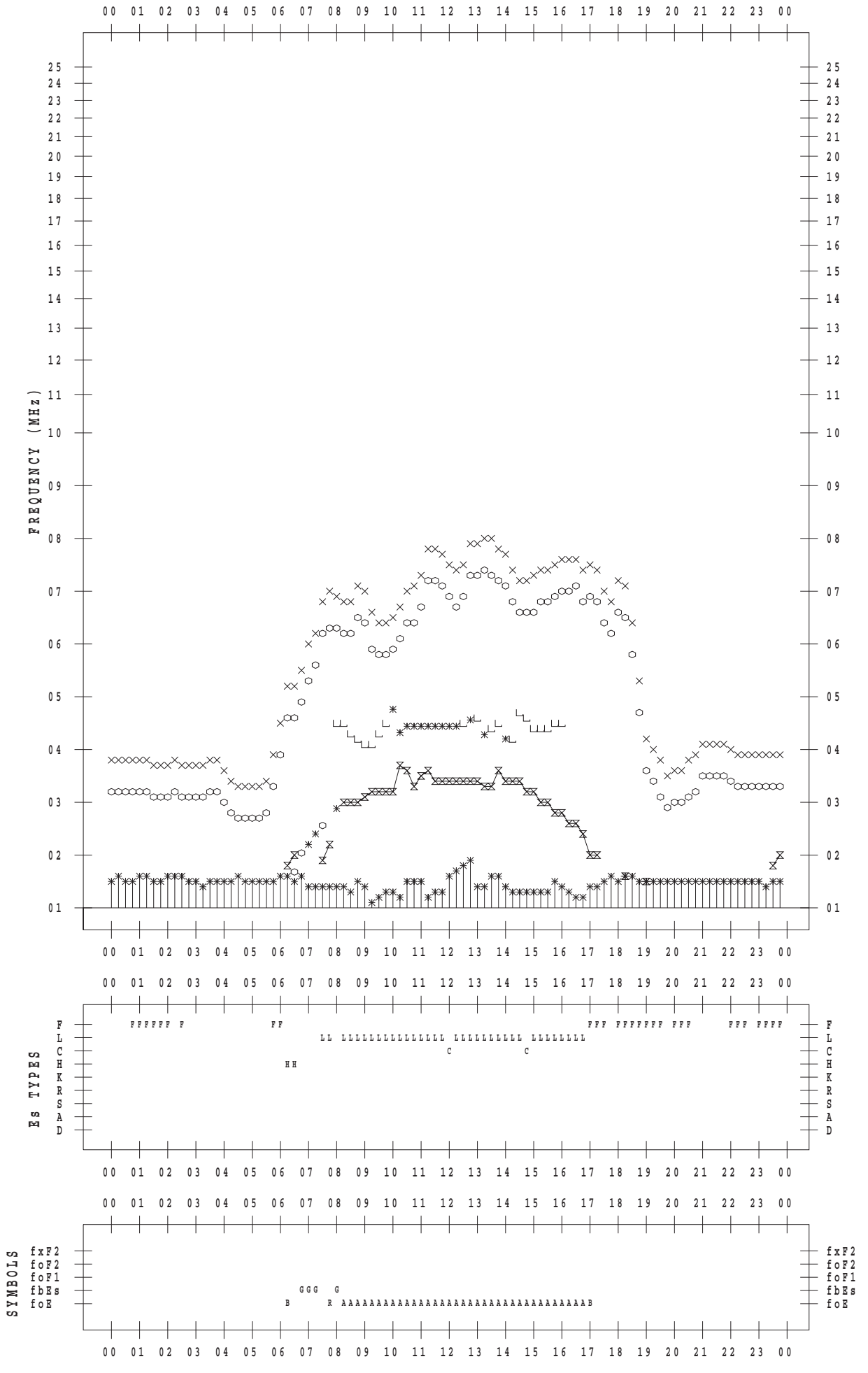
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2017/ 3/12

135 °E MEAN TIME



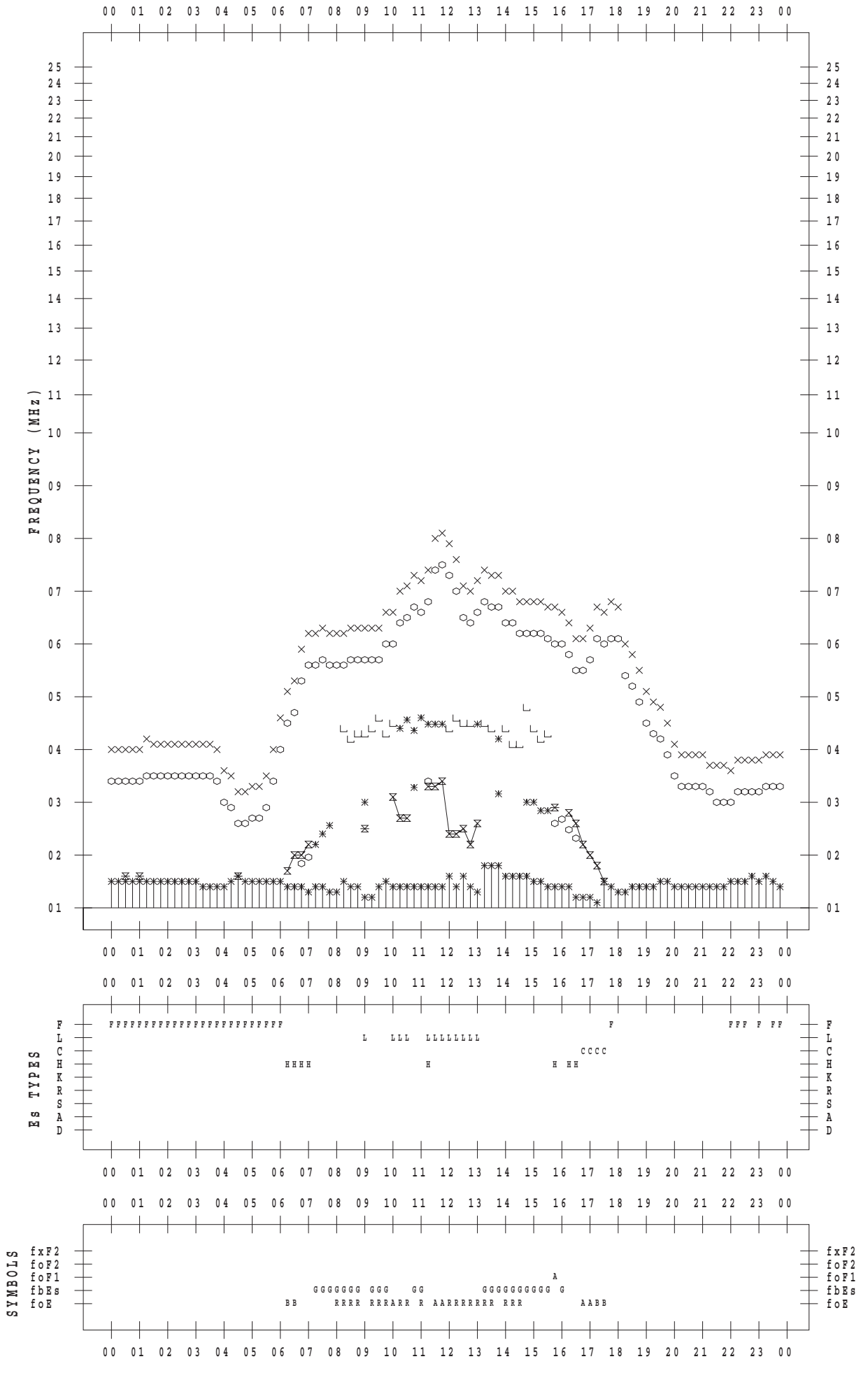
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2017/ 3/13

135 °E MEAN TIME



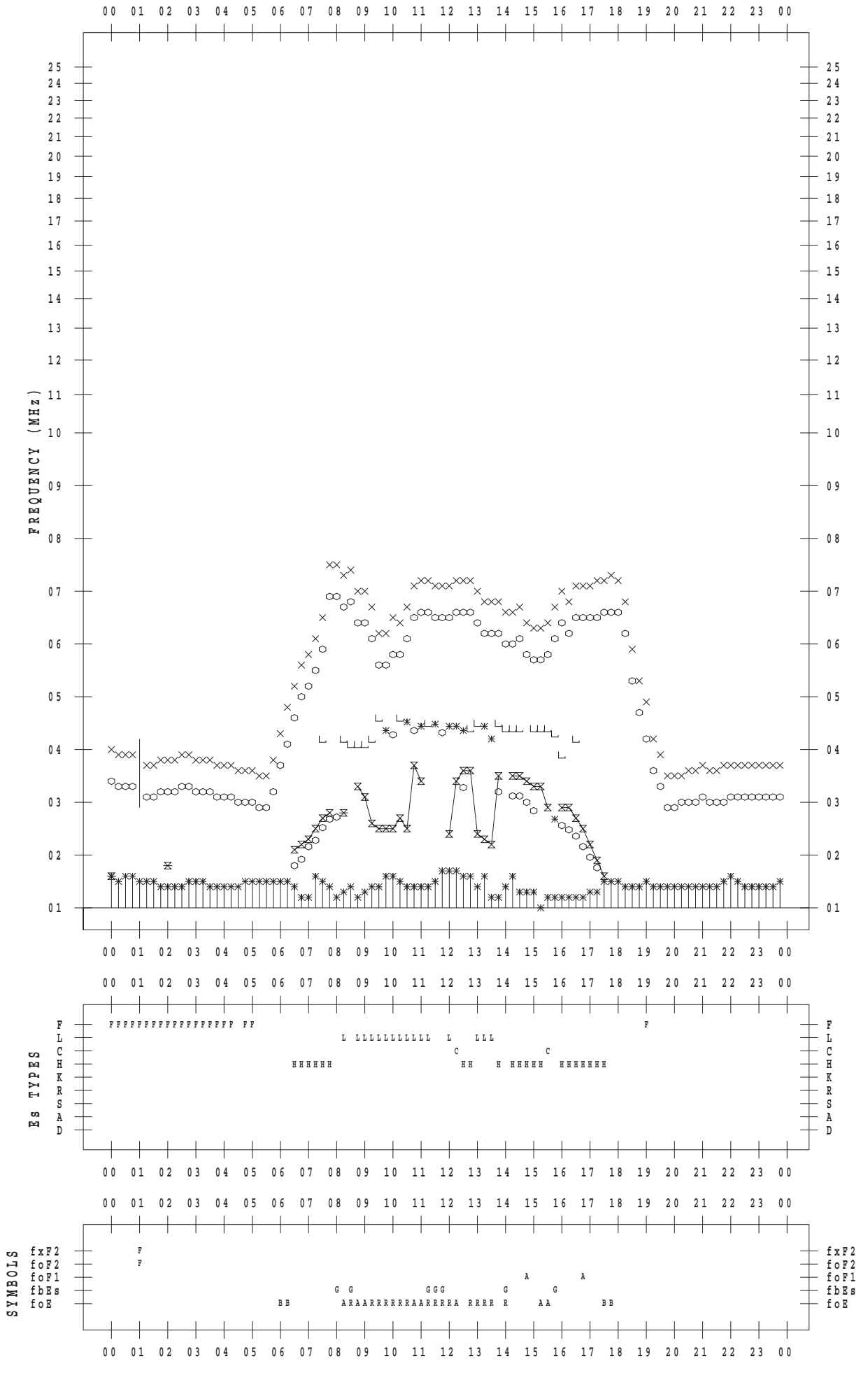
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2017/ 3/14

135 °E MEAN TIME



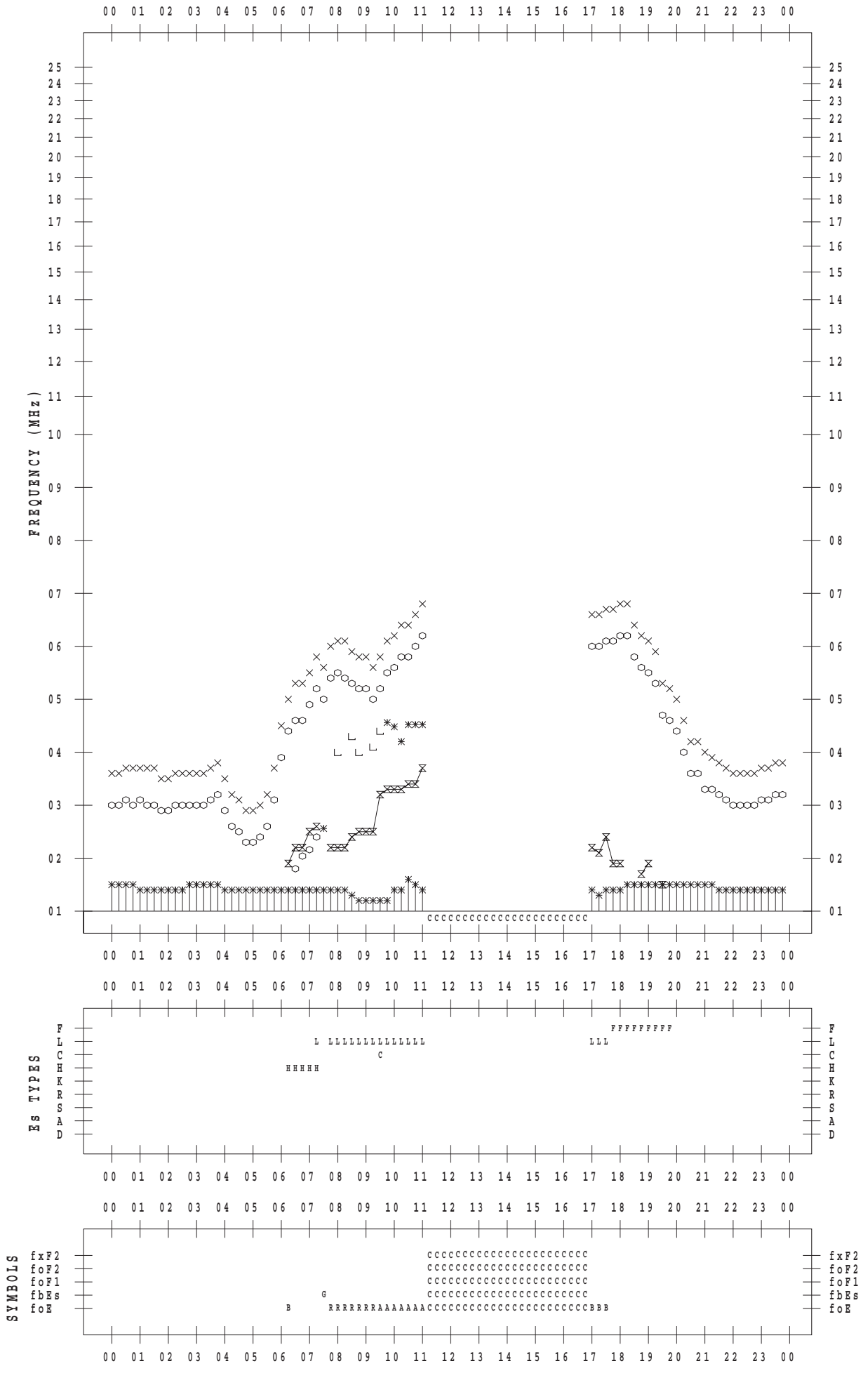
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2017/ 3/15

135 °E MEAN TIME



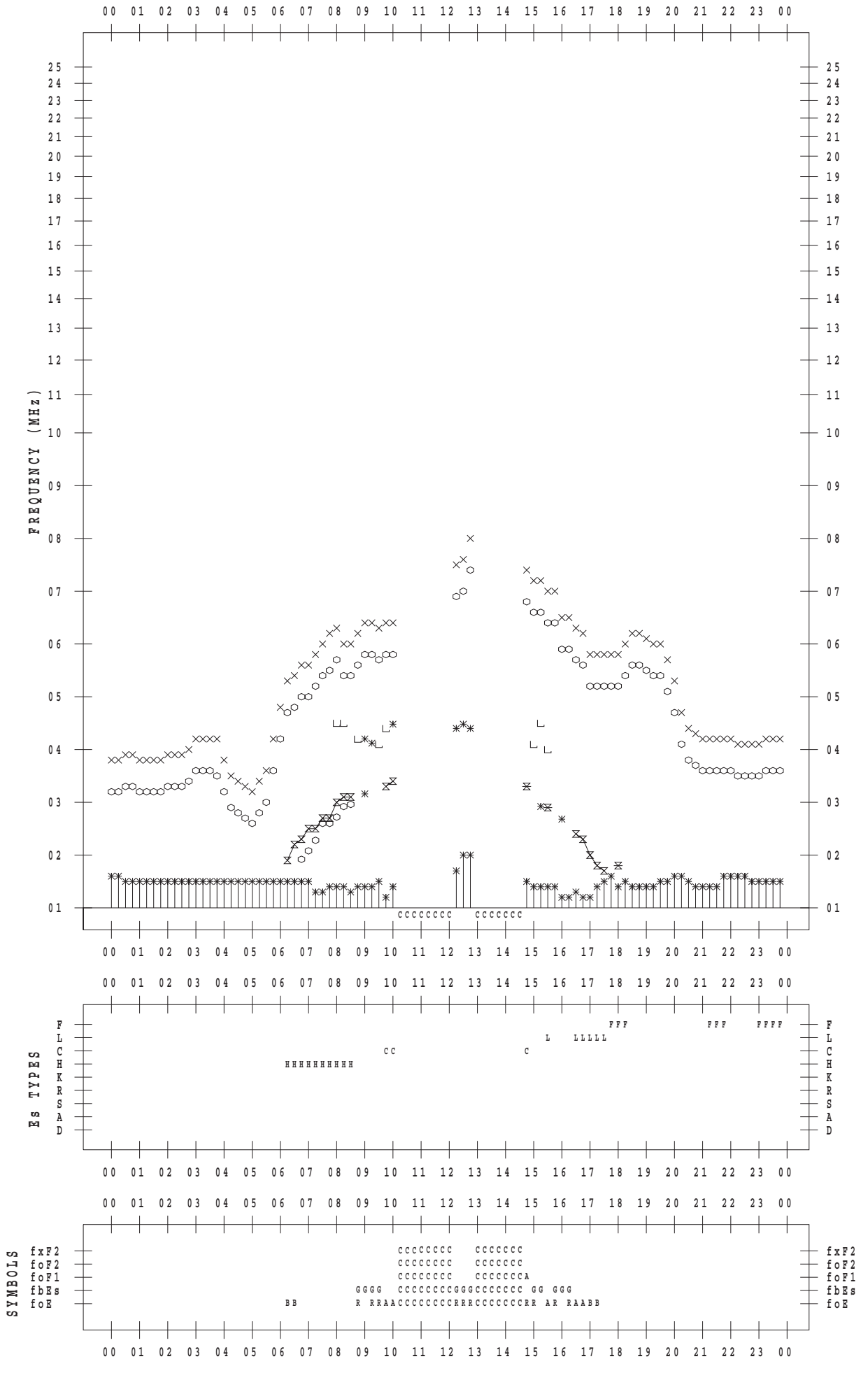
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2017/ 3/16

135 °E MEAN TIME



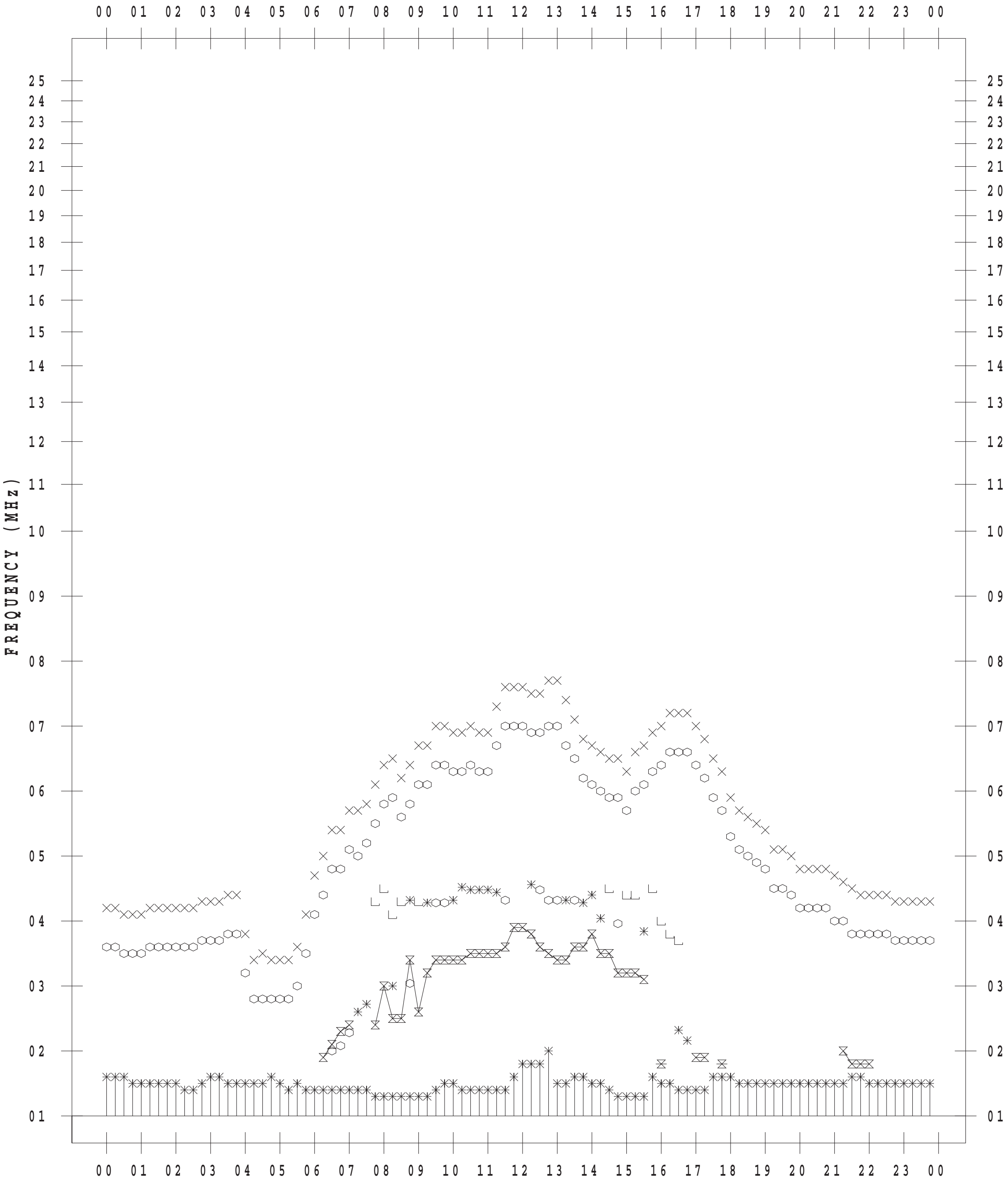
f-PLOT DATA

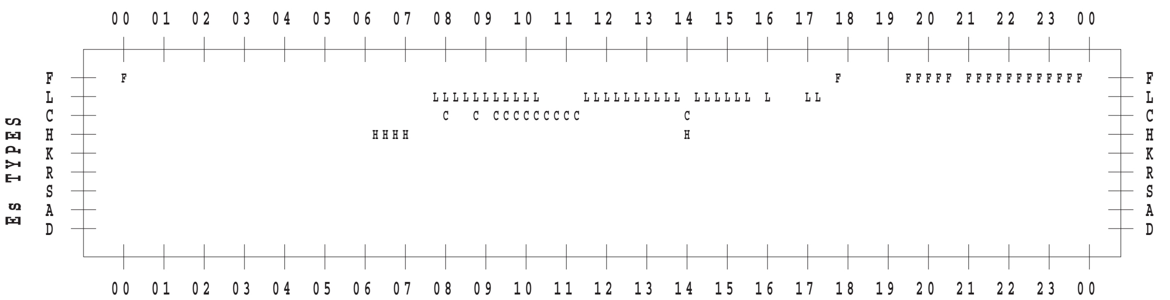
SCALER : I.NISHIMUTA

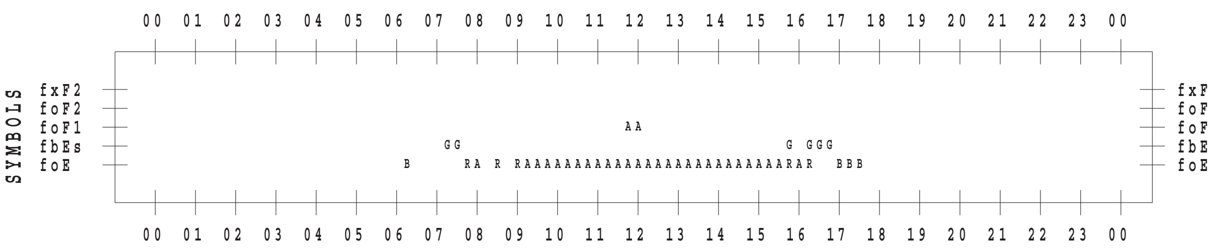
STATION : Kokubunji

DATE : 2017/ 3/17

135 °E MEAN TIME







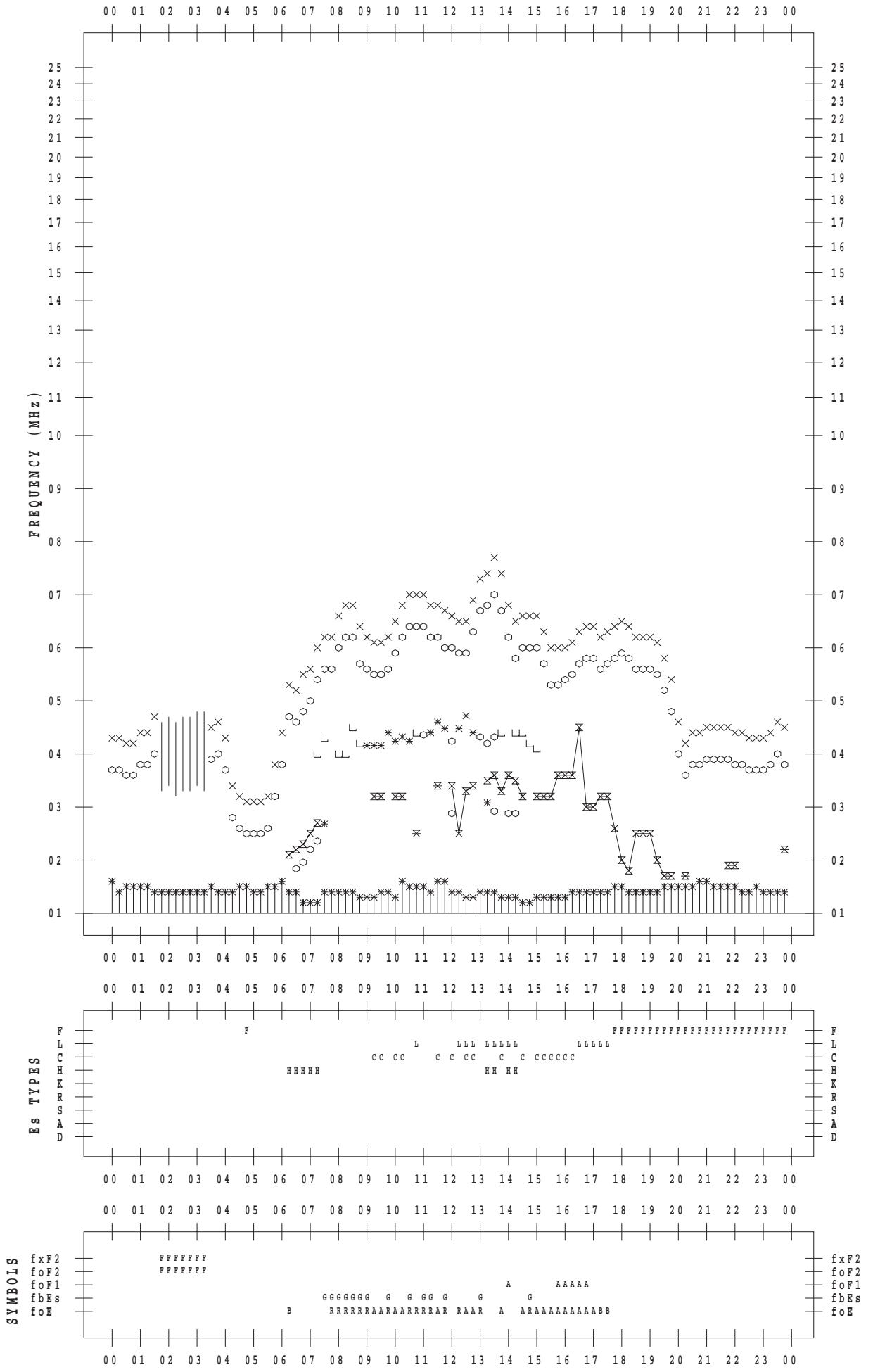
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2017/ 3/18

135 °E MEAN TIME



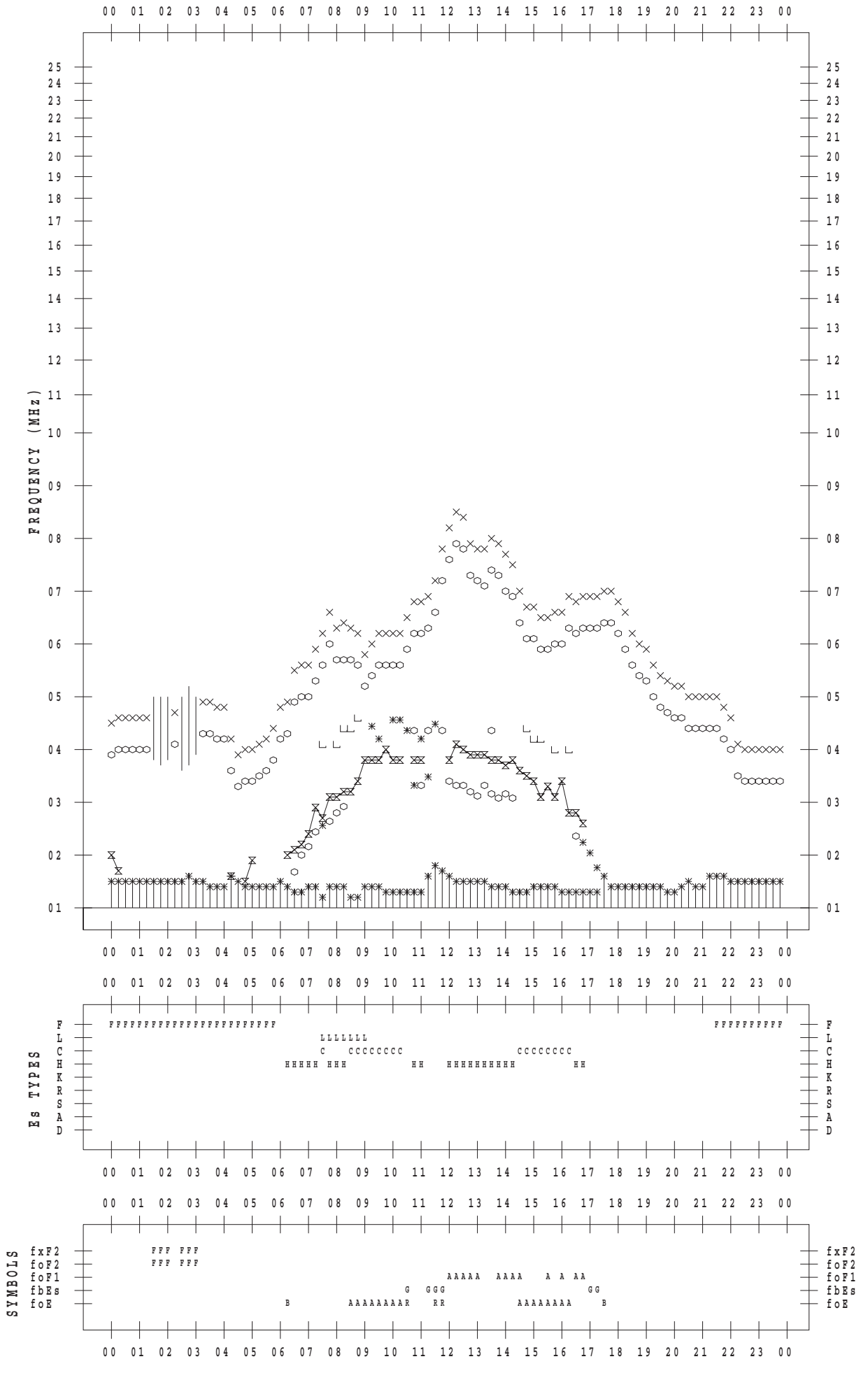
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2017/ 3/19

135 °E MEAN TIME



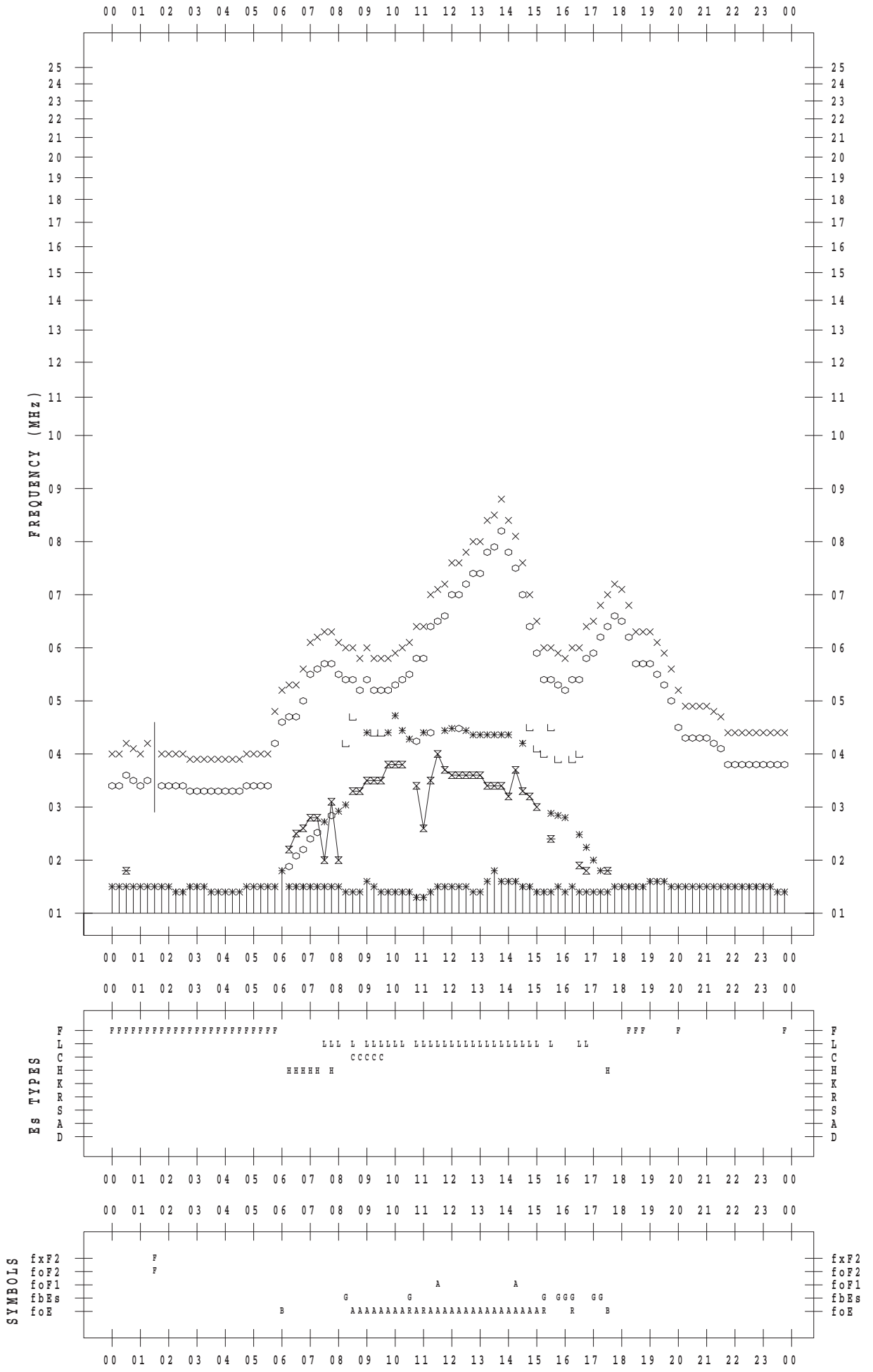
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2017/ 3/20

135 °E MEAN TIME



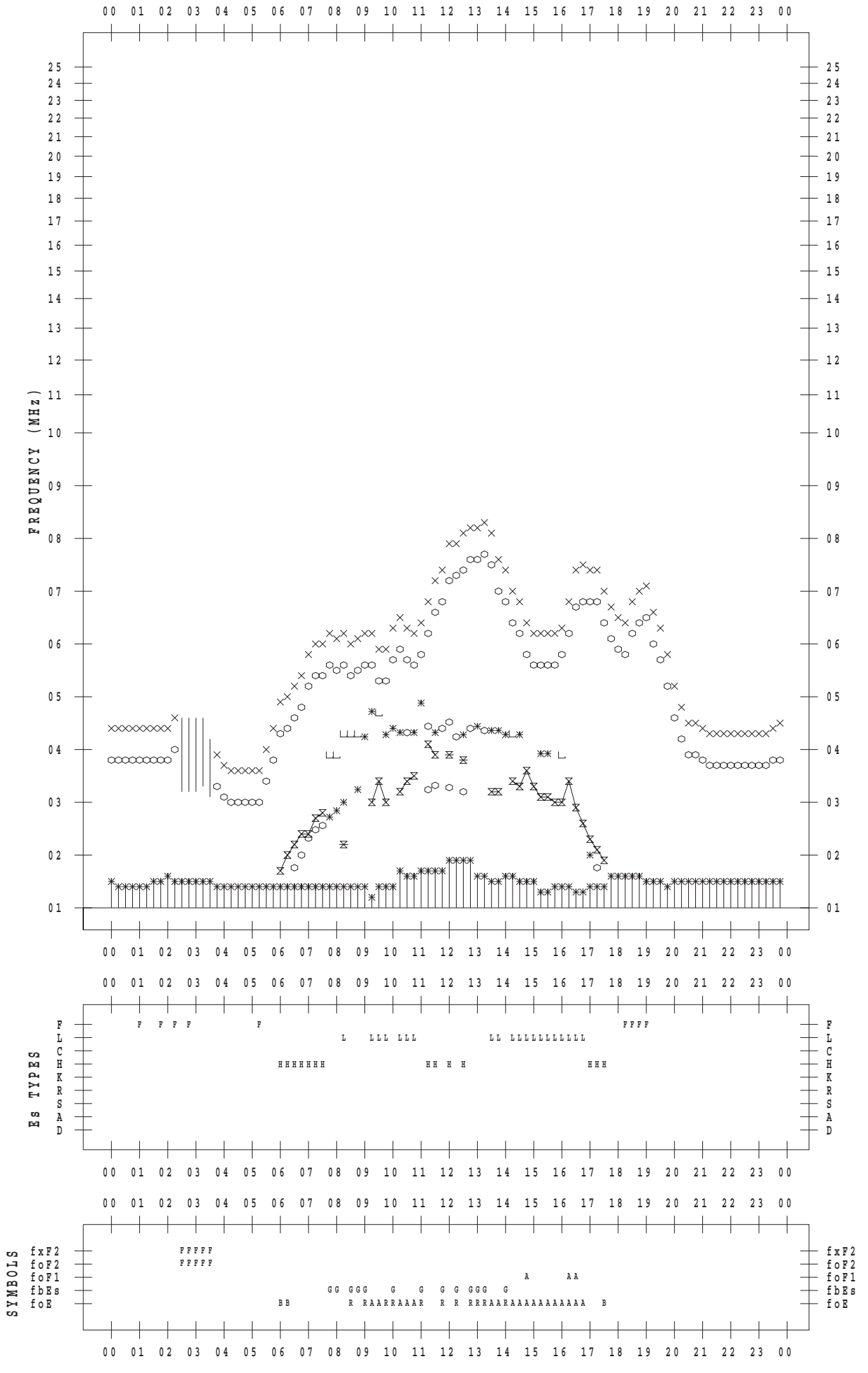
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2017/ 3/21

135 °E MEAN TIME



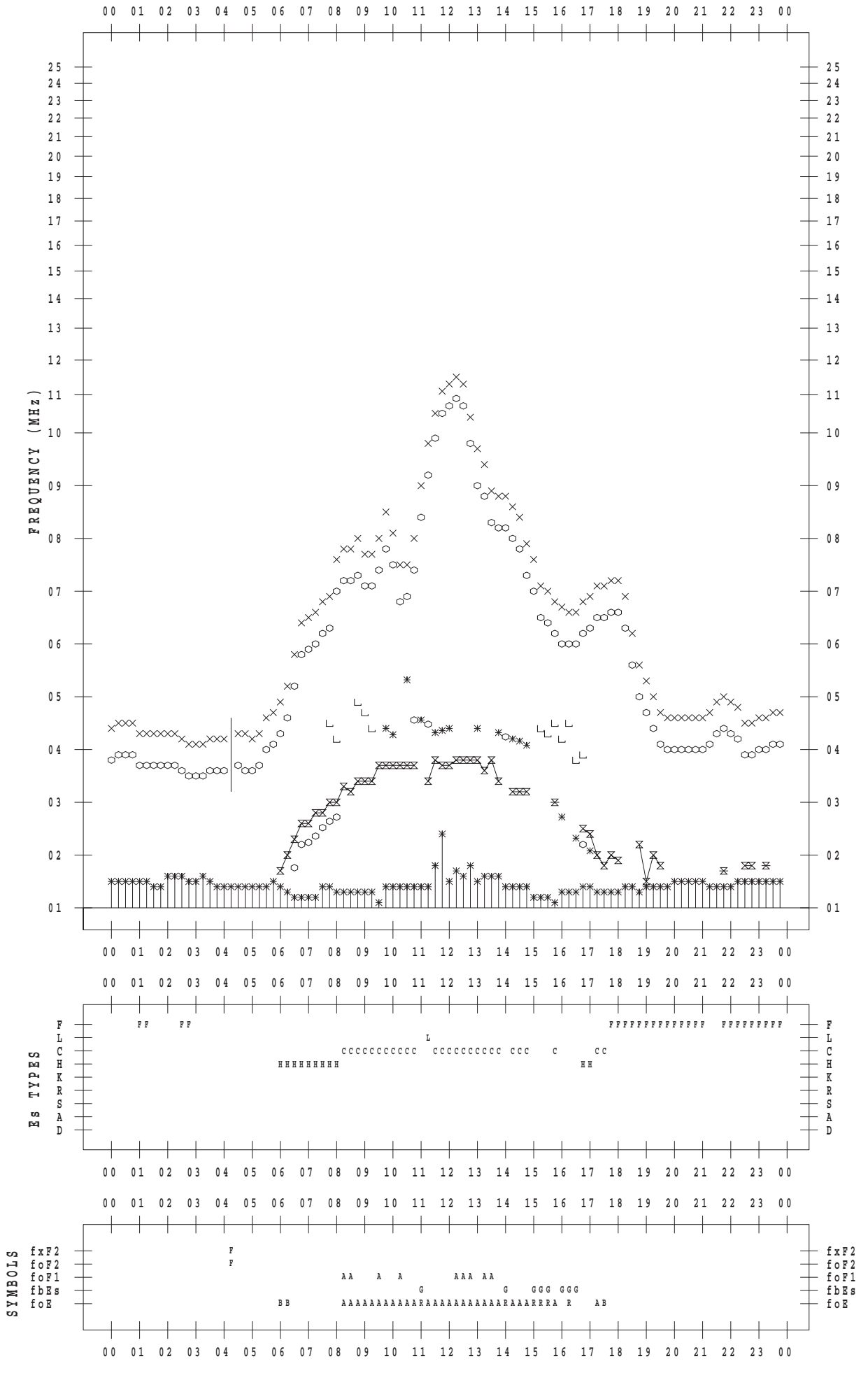
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2017/ 3/22

135 °E MEAN TIME



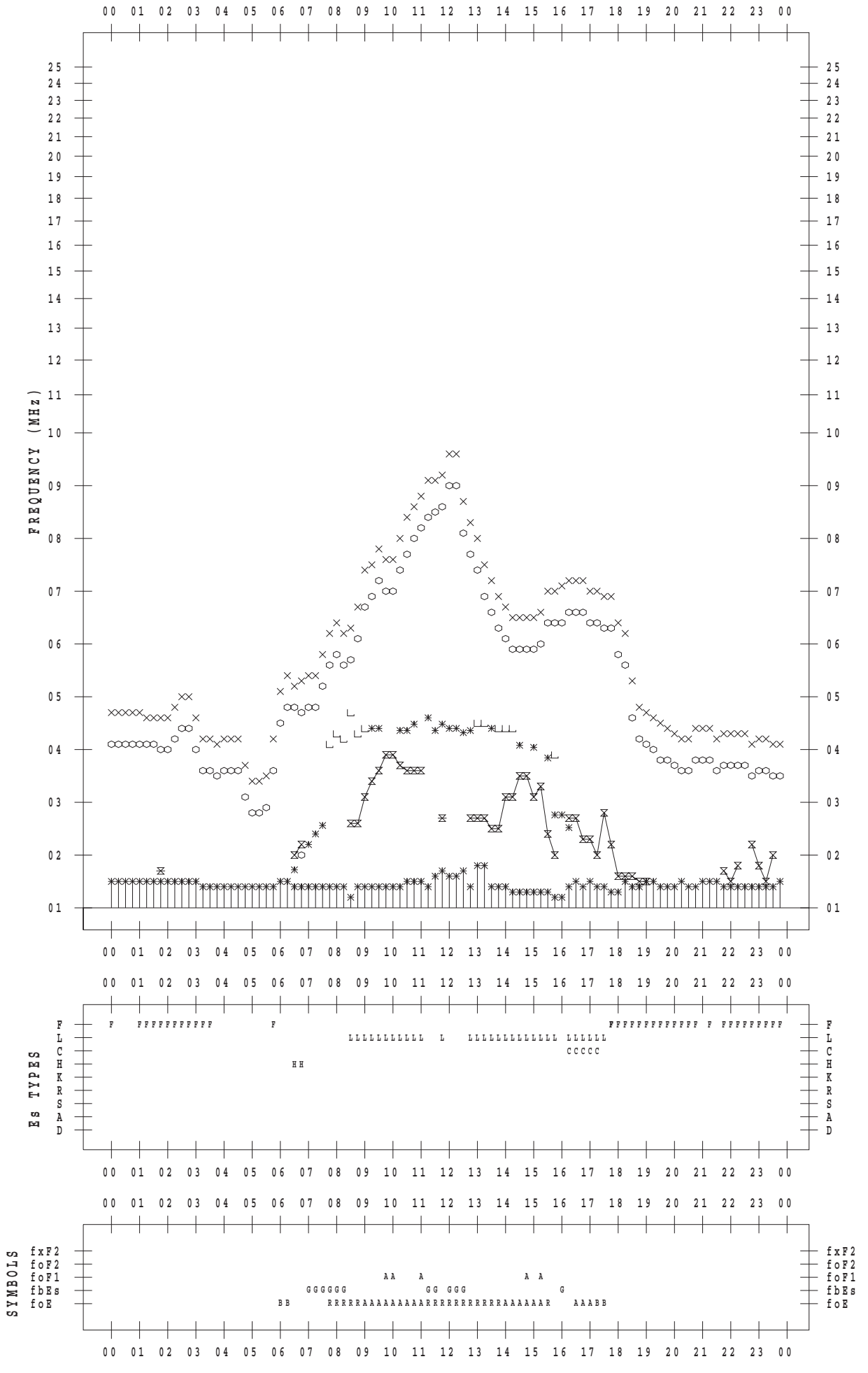
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2017/ 3/23

135 °E MEAN TIME



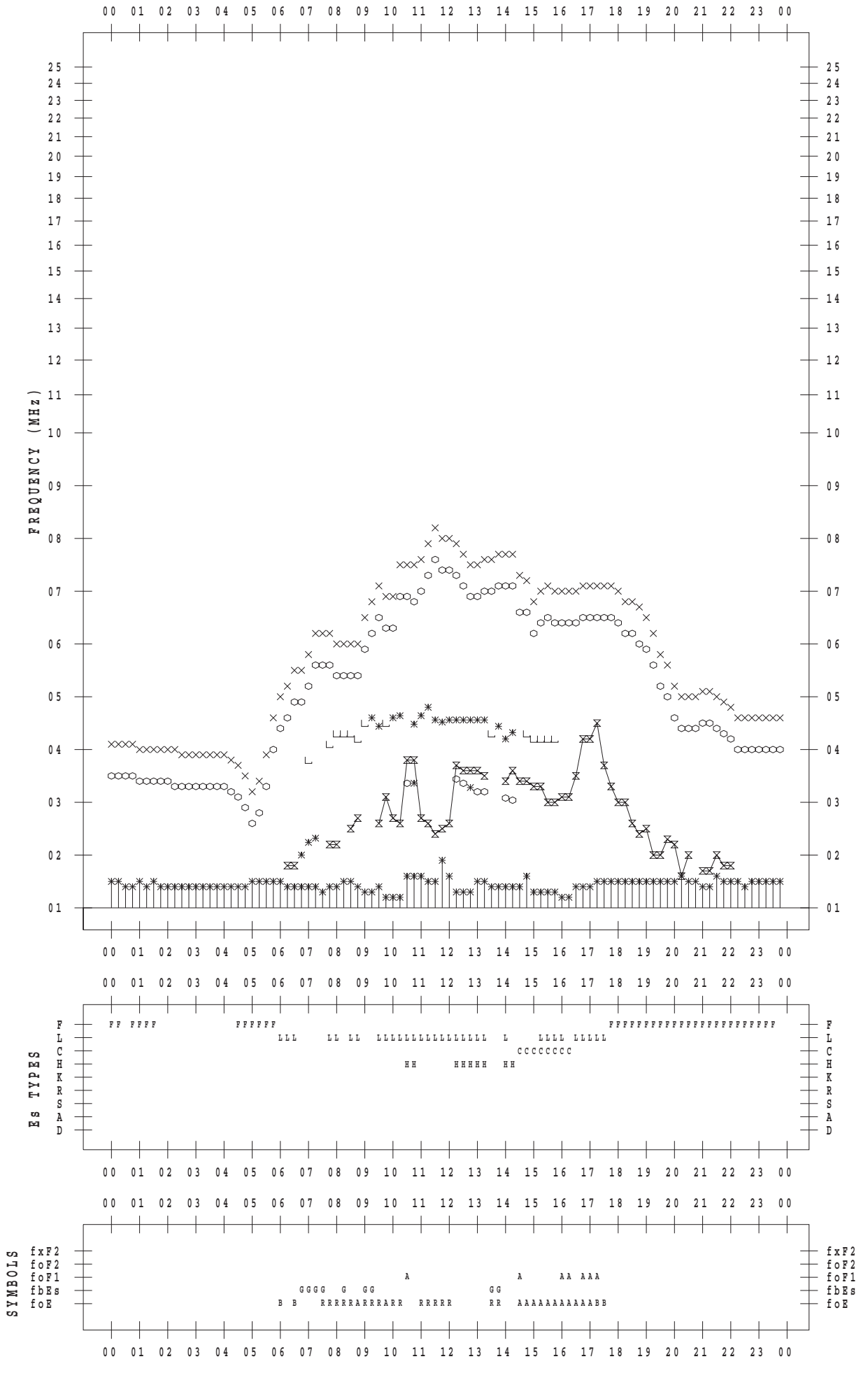
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2017/ 3/24

135 °E MEAN TIME



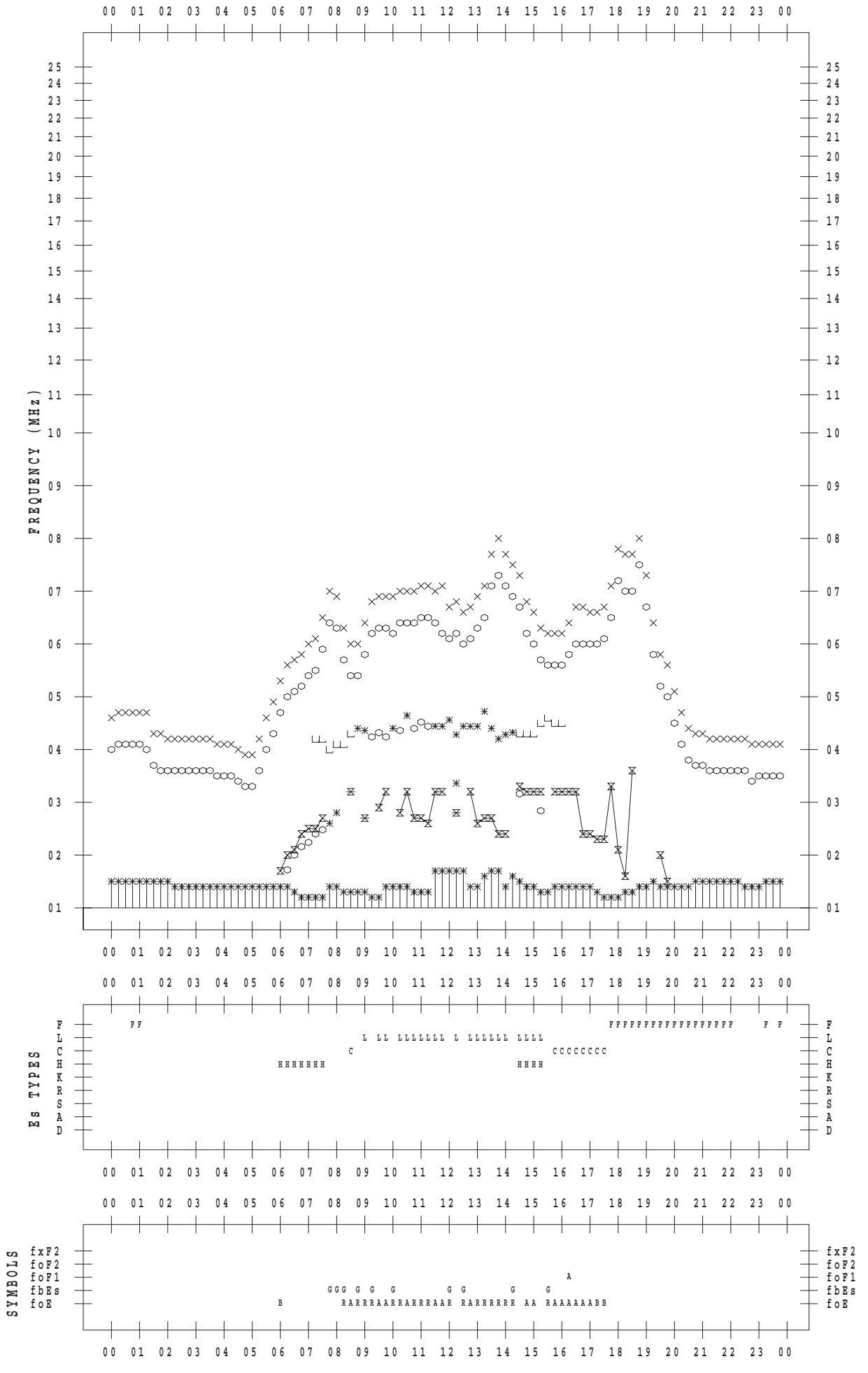
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2017/ 3/25

135 °E MEAN TIME



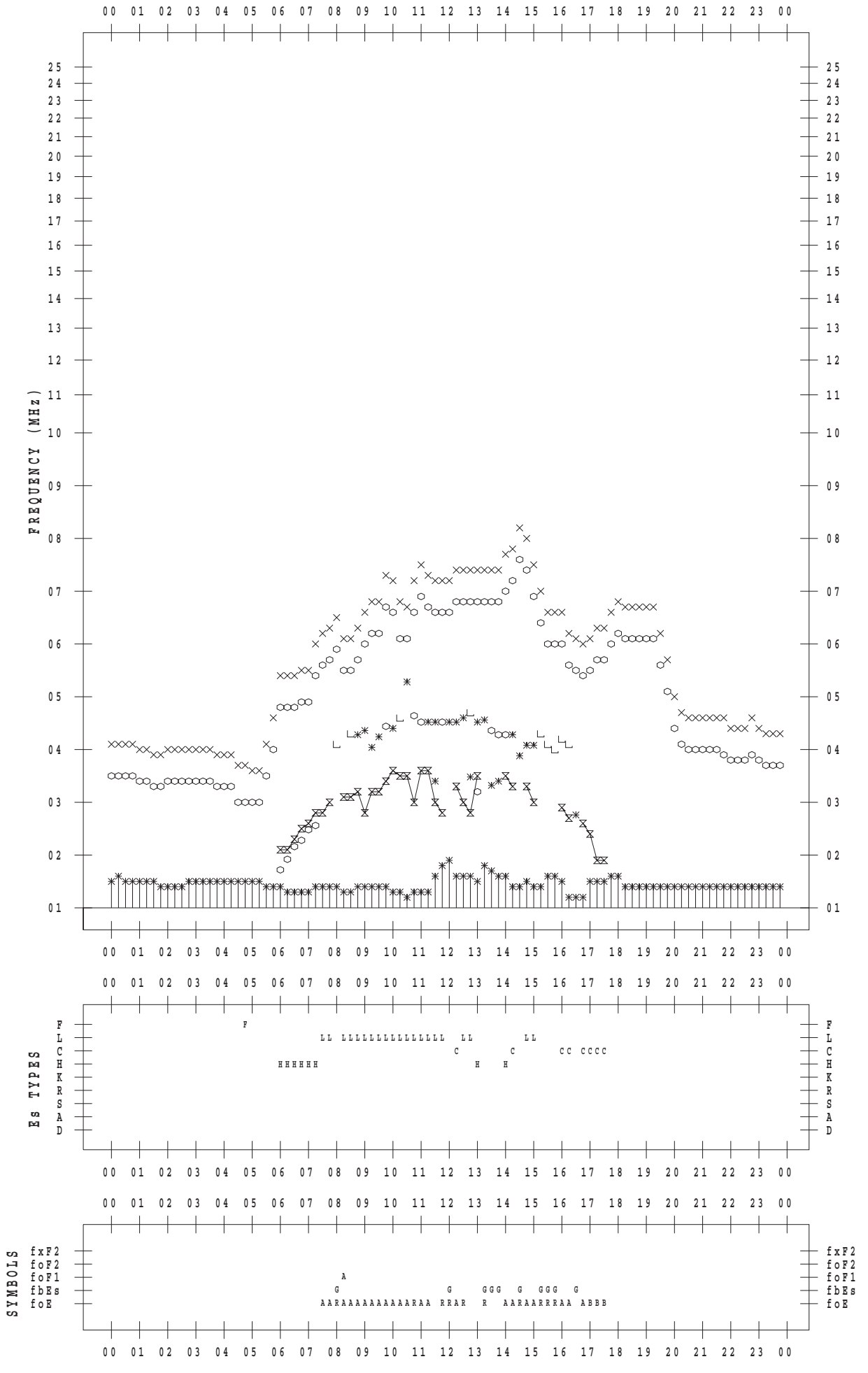
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2017/ 3/26

135 °E MEAN TIME



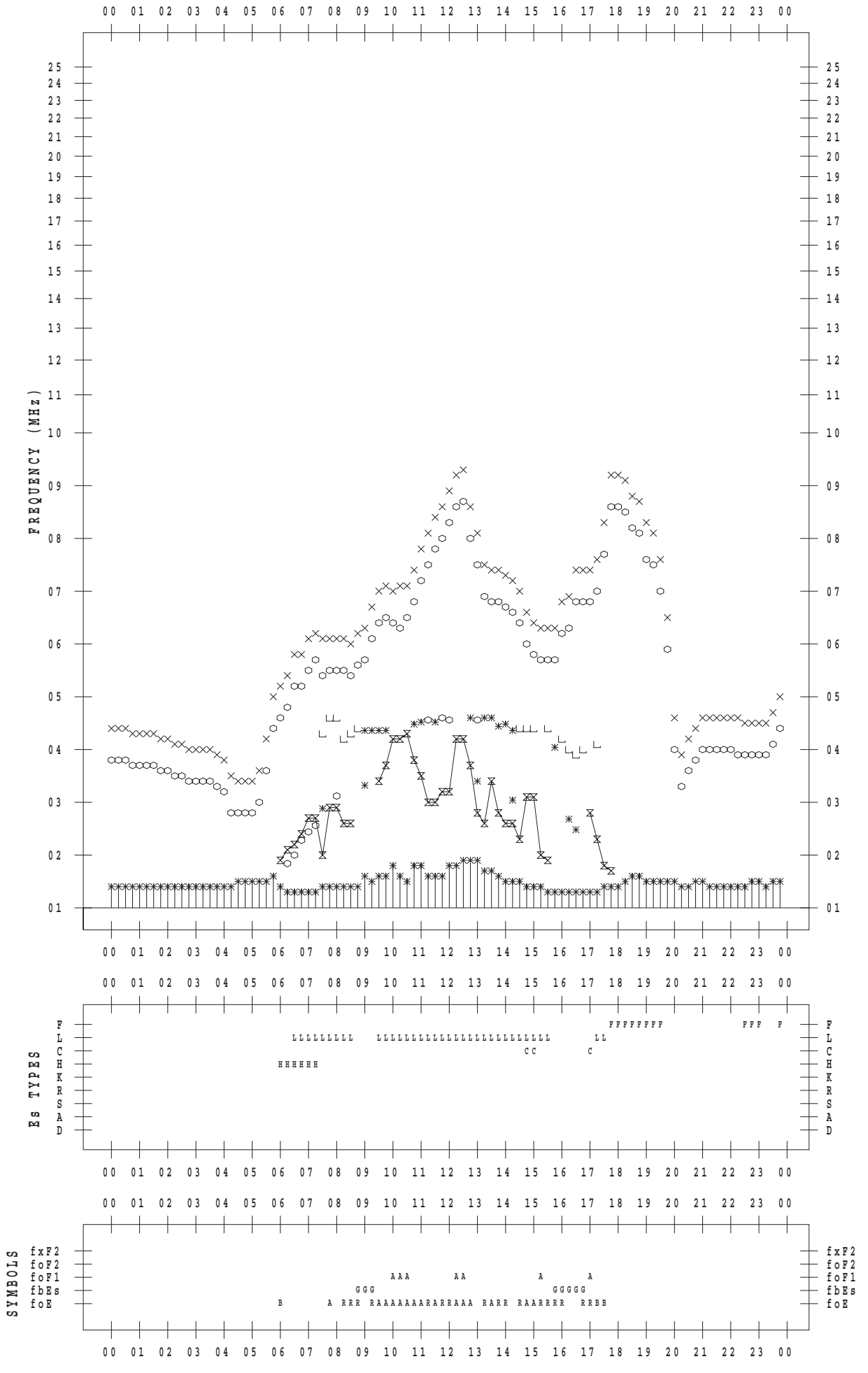
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2017/ 3/27

135 °E MEAN TIME



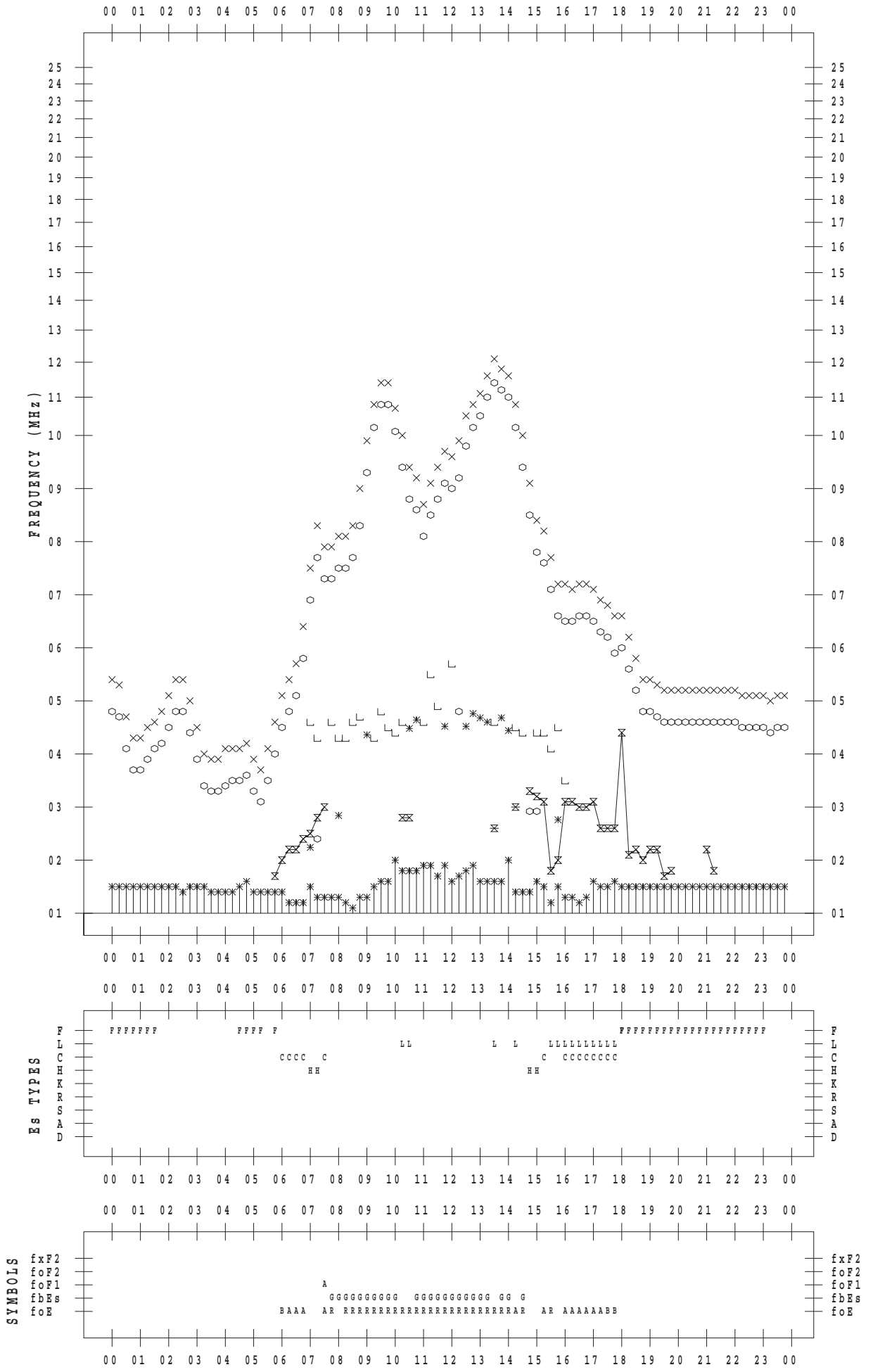
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2017/ 3/28

135 °E MEAN TIME



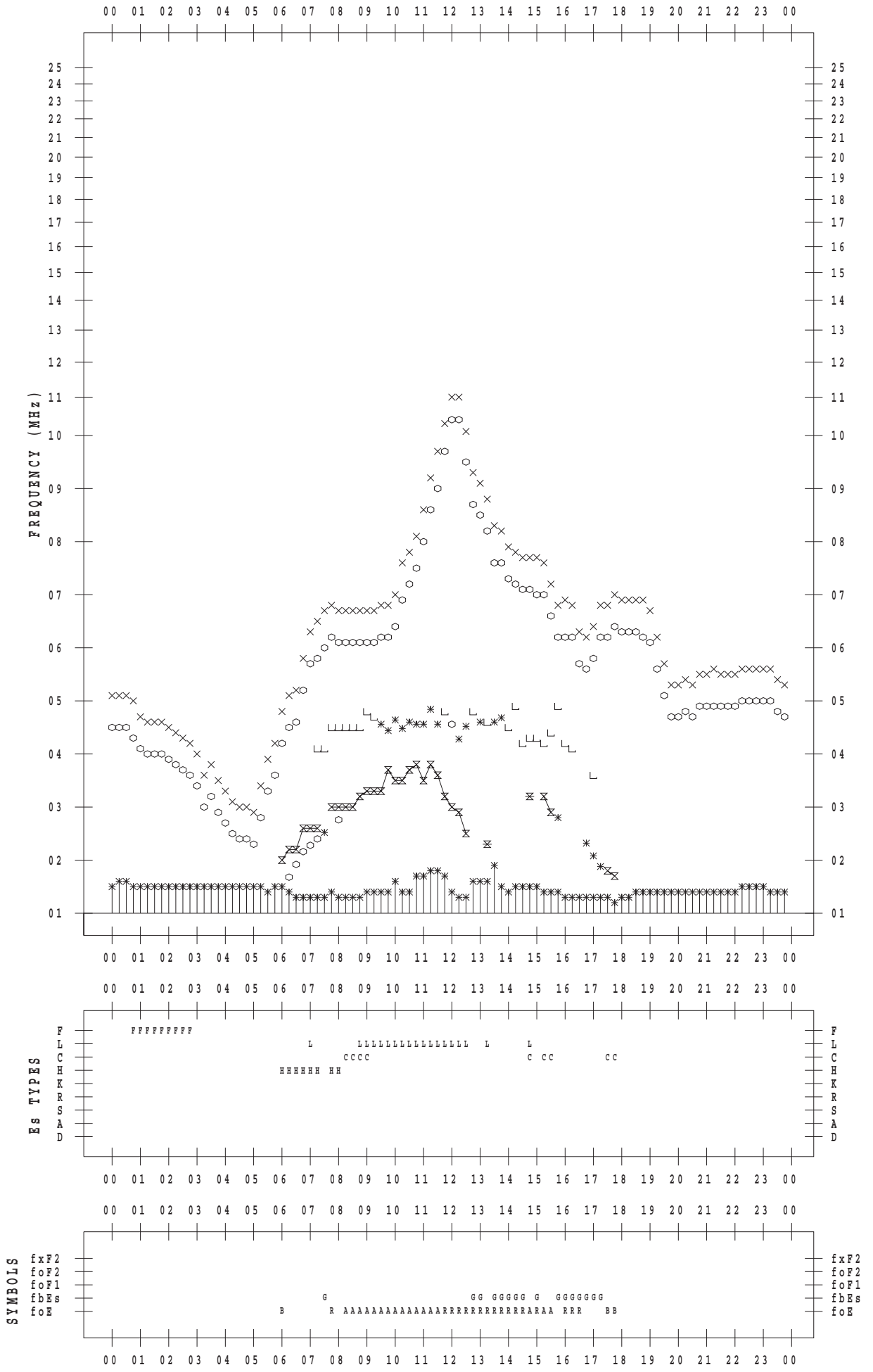
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2017/ 3/29

135 °E MEAN TIME



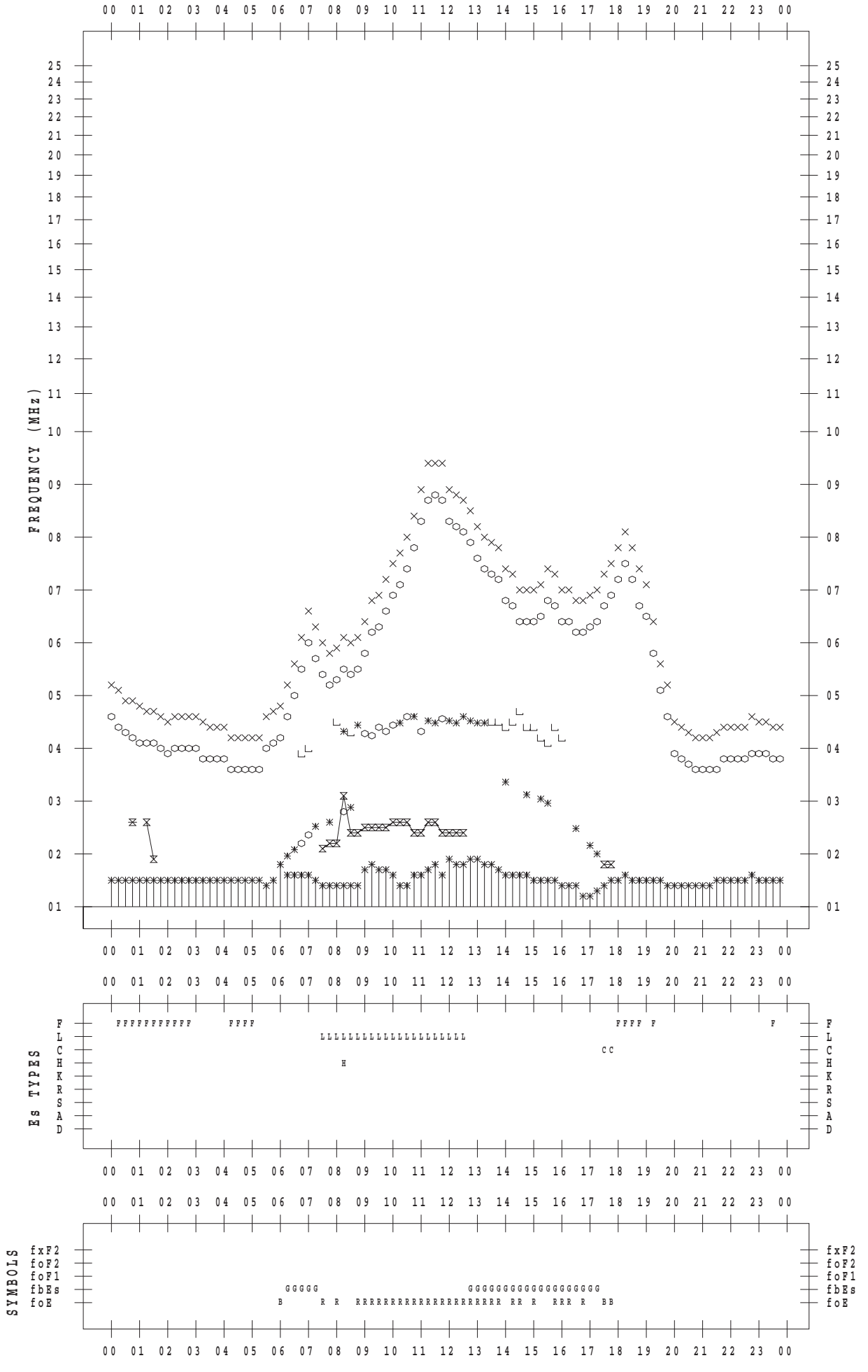
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2017/ 3/30

135 °E MEAN TIME



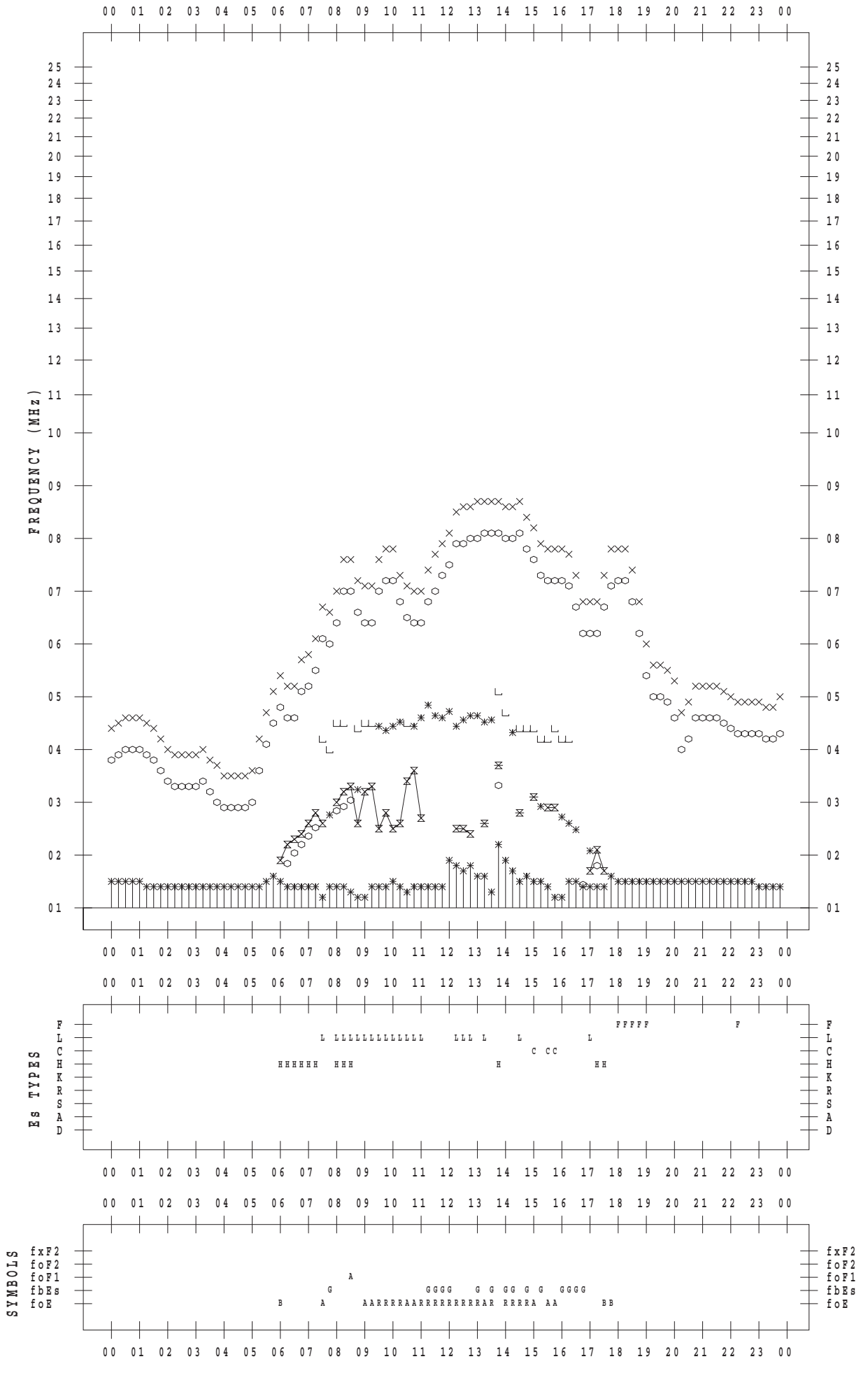
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2017/ 3/31

135 °E MEAN TIME



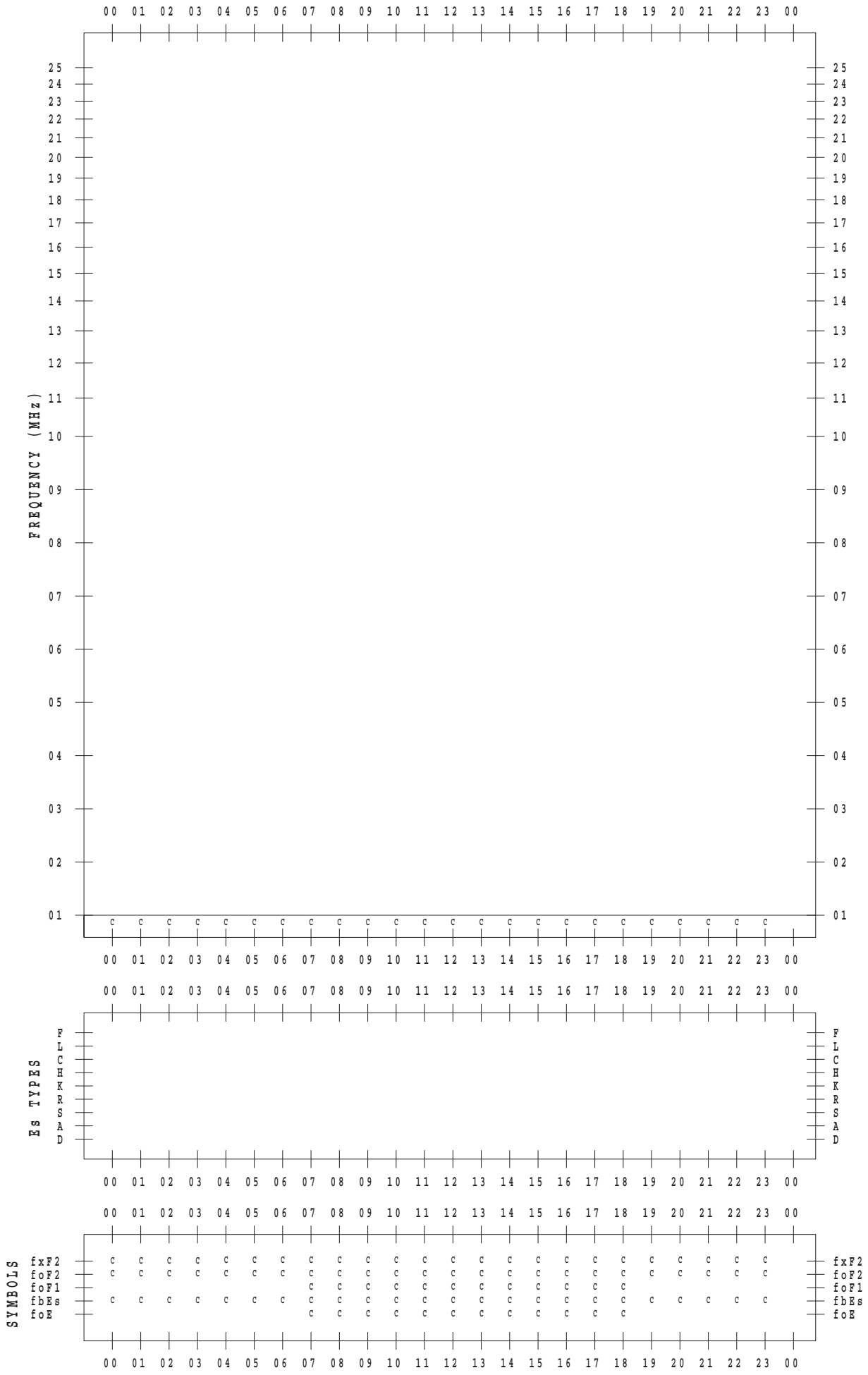
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2017/ 3/ 1

135 °E MEAN TIME



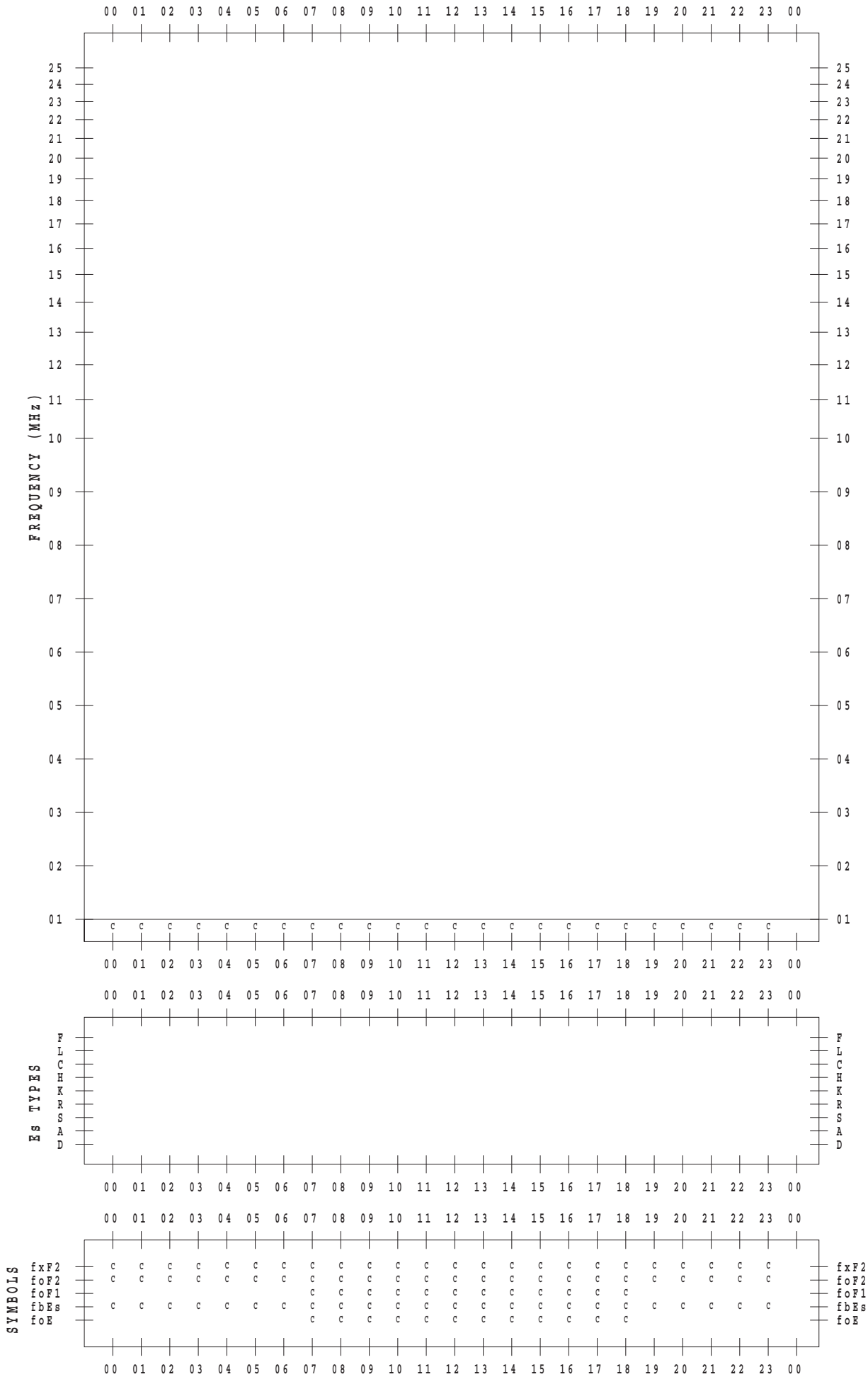
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2017/ 3/ 2

135 °E MEAN TIME



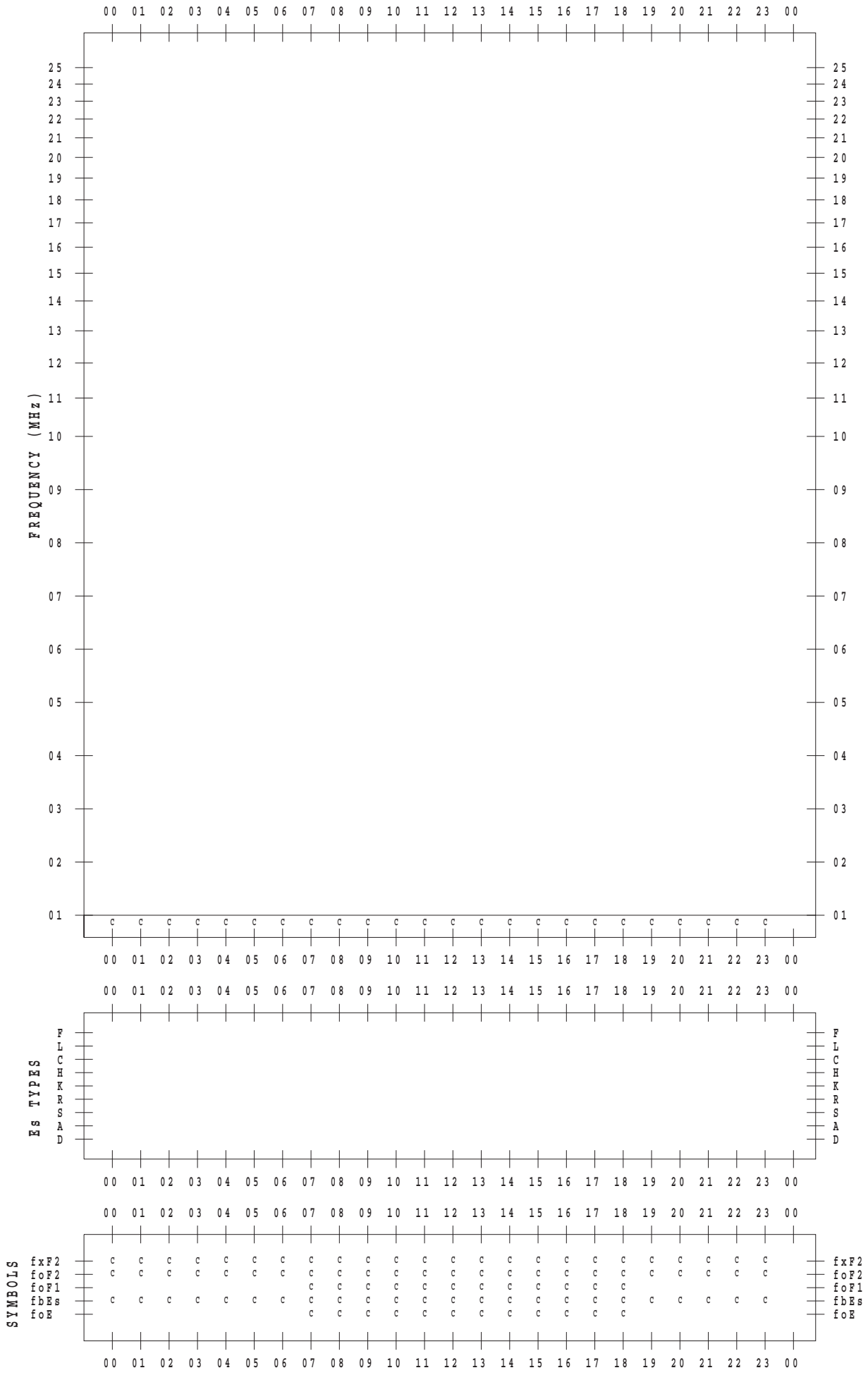
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2017/ 3/ 3

135 °E MEAN TIME



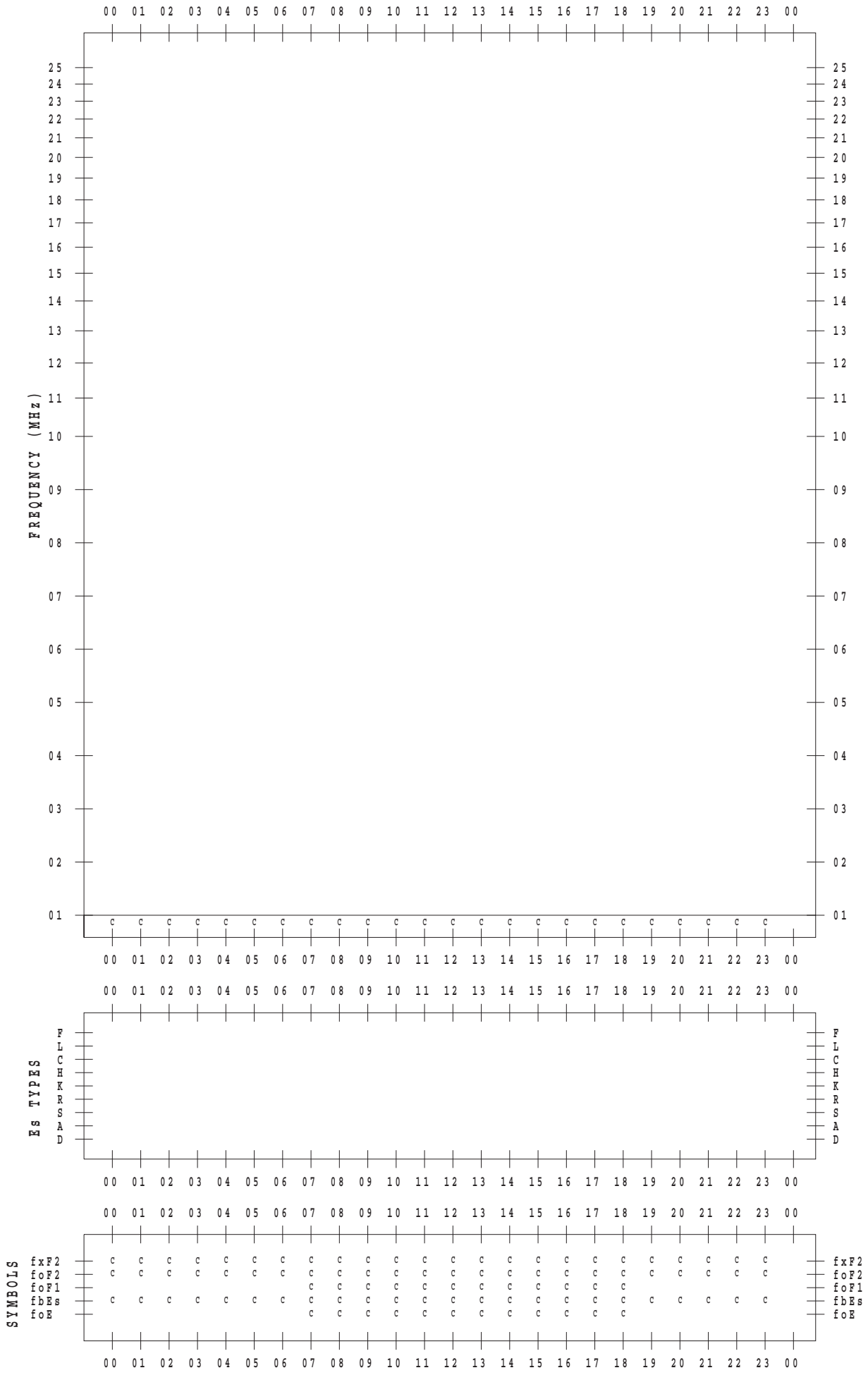
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2017/ 3/ 4

135 °E MEAN TIME



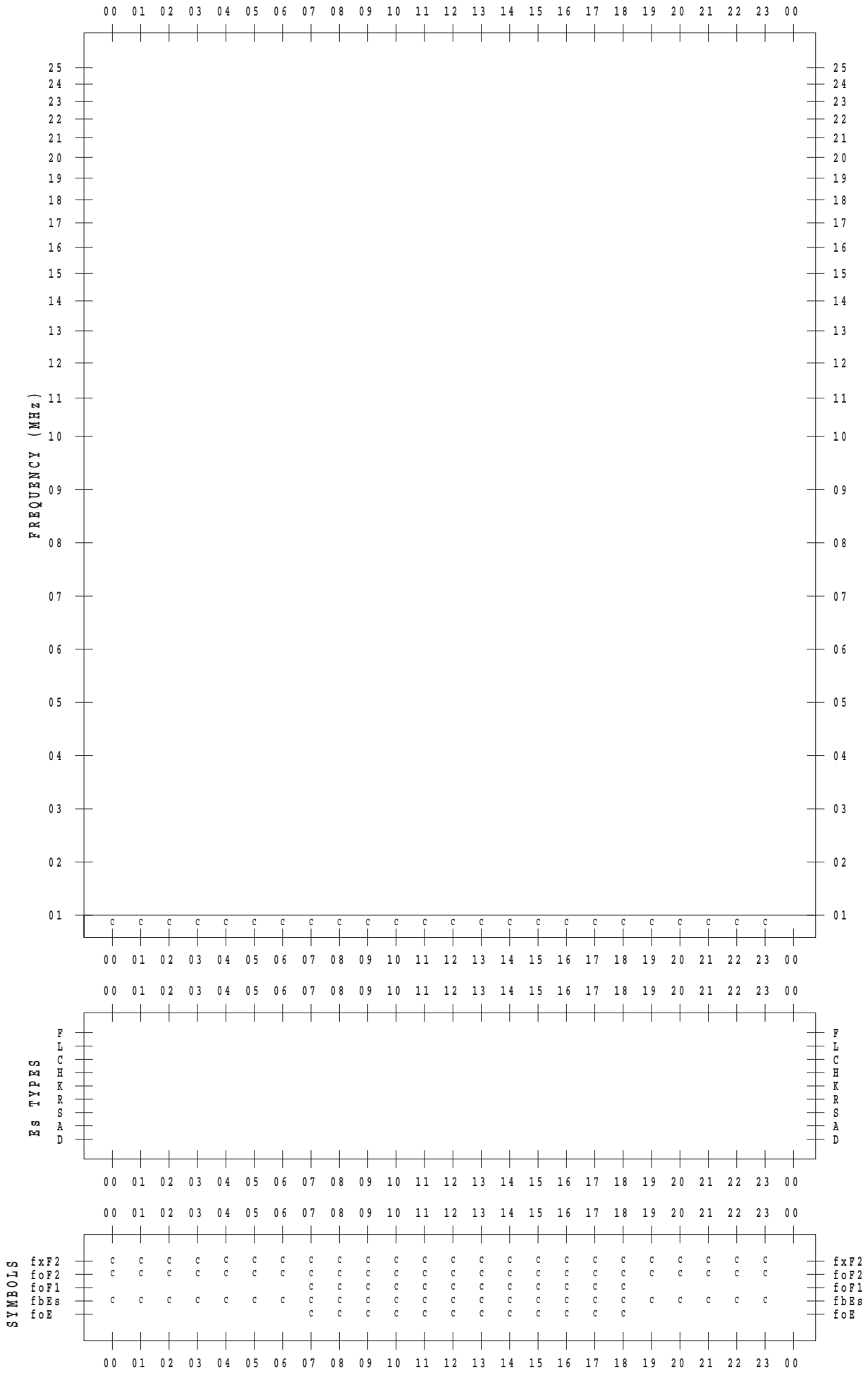
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2017/ 3/ 5

135 °E MEAN TIME



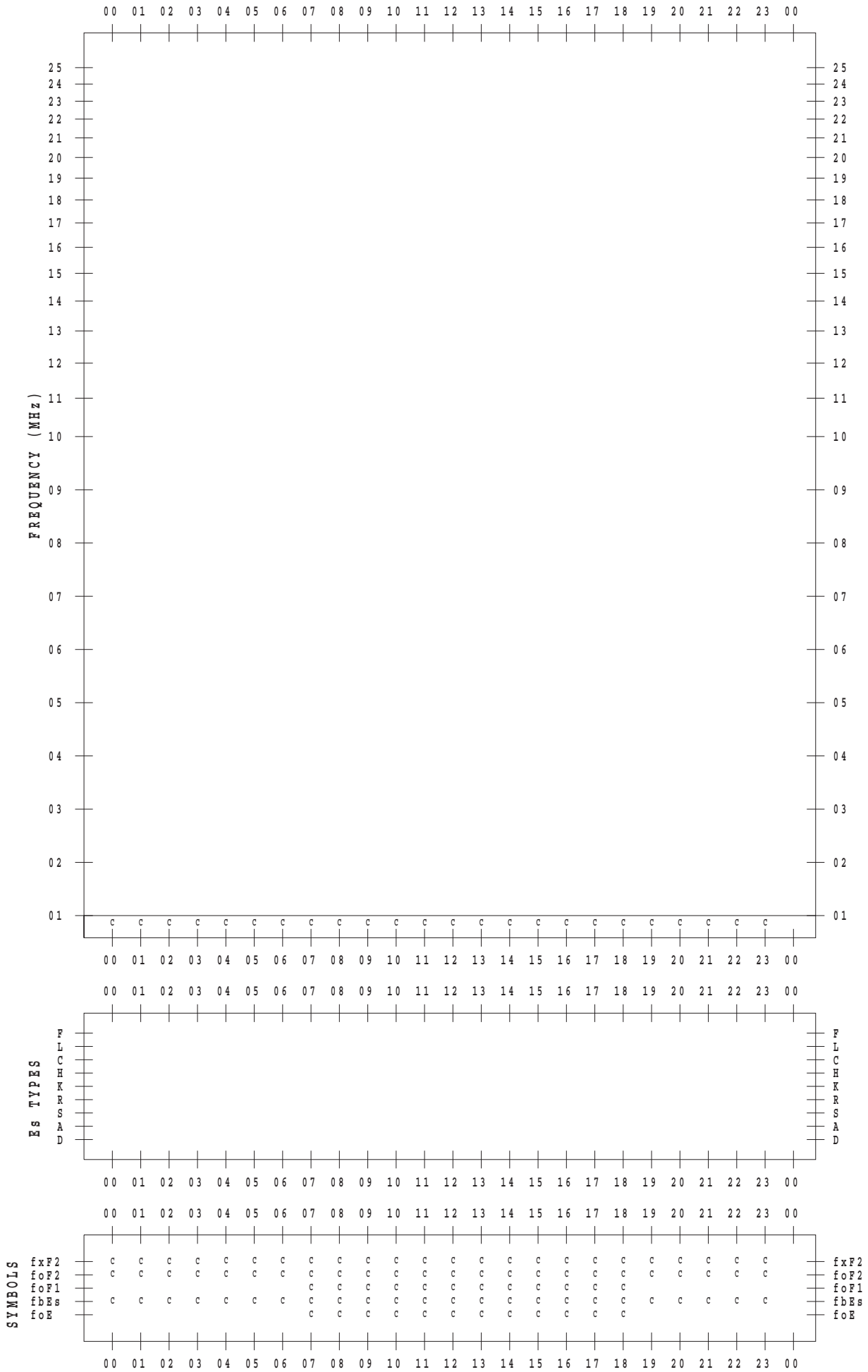
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2017/ 3/ 6

135 °E MEAN TIME



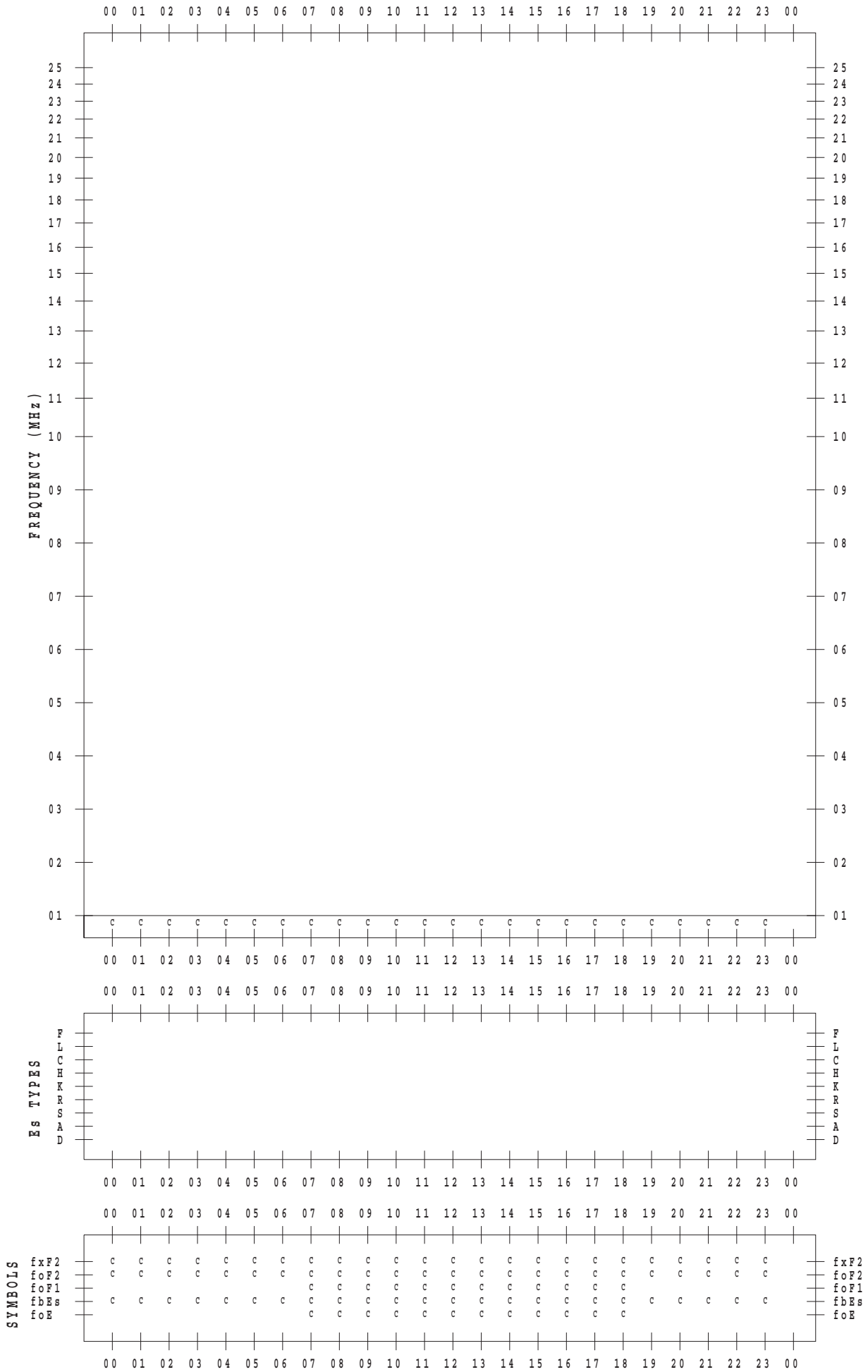
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2017/ 3/ 7

135 °E MEAN TIME



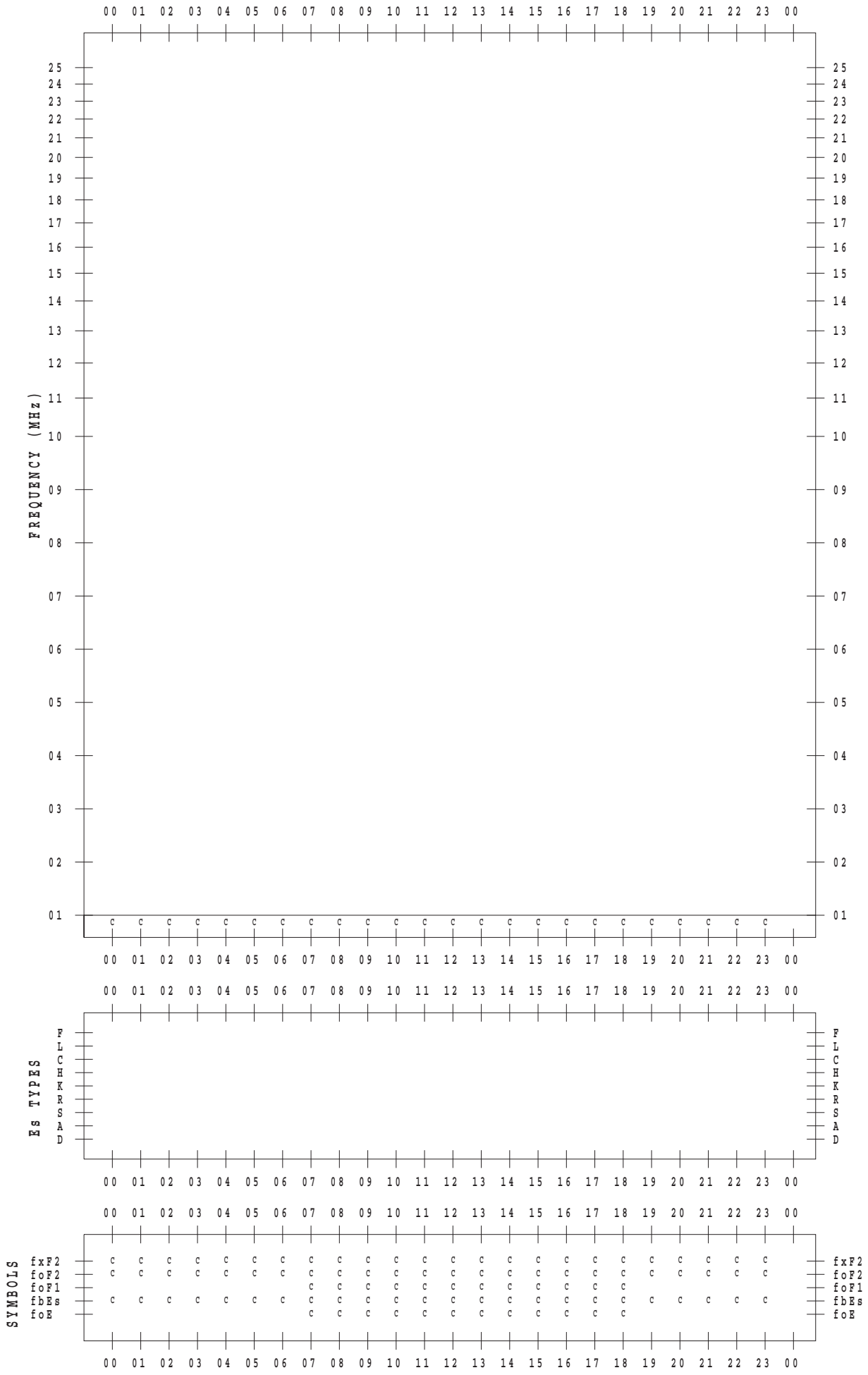
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2017/ 3/ 8

135 °E MEAN TIME



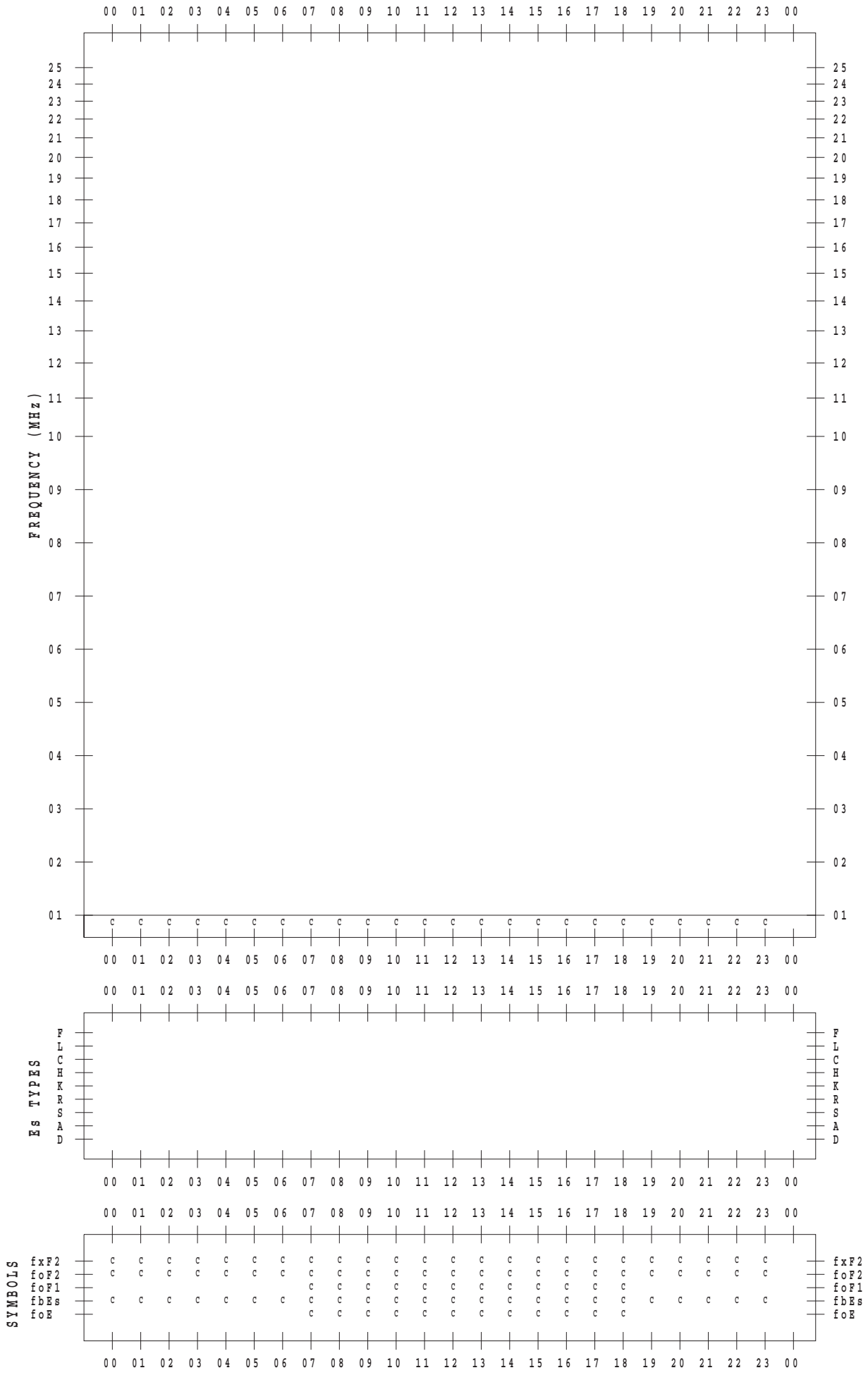
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2017/ 3/ 9

135 °E MEAN TIME



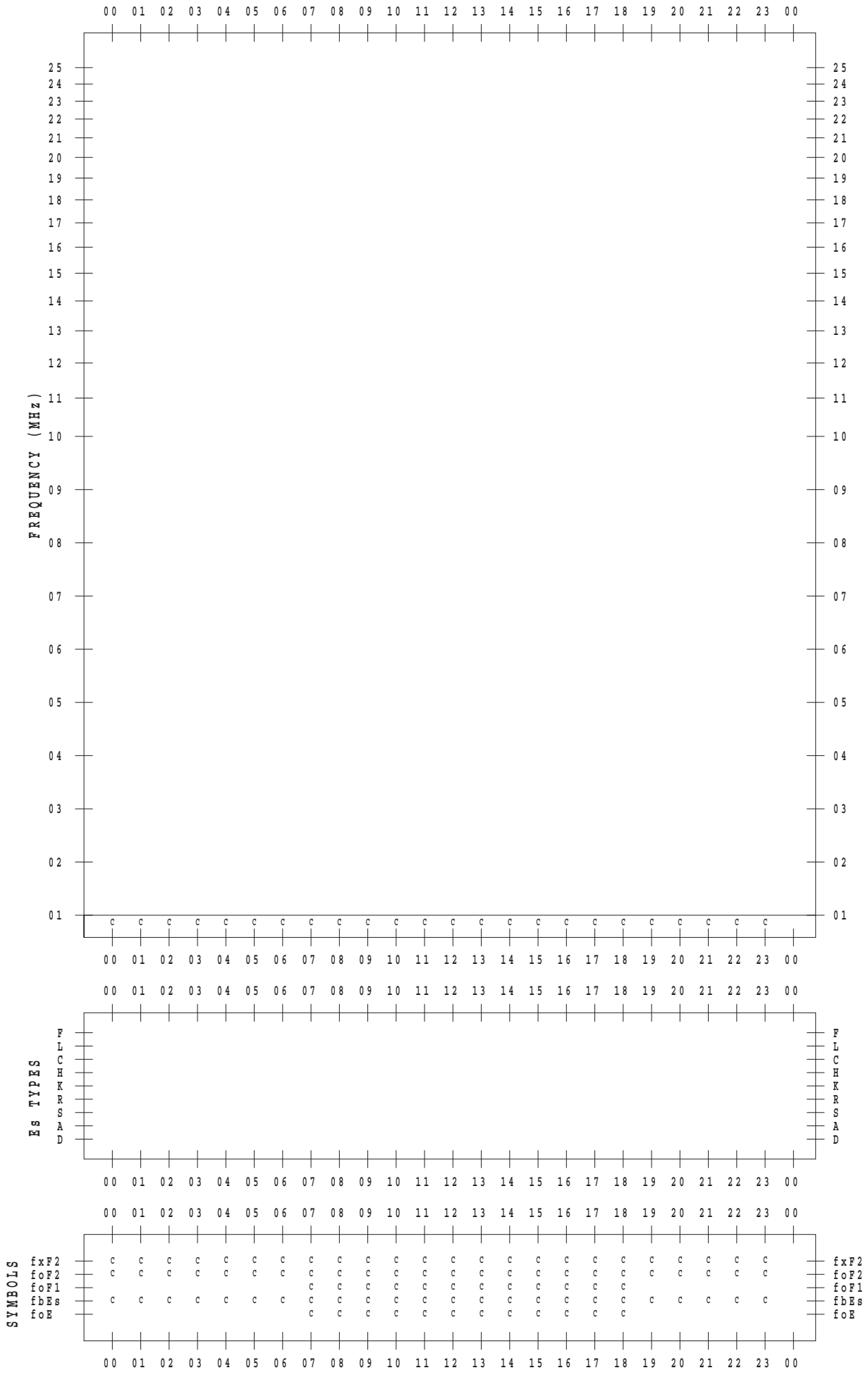
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2017/ 3/10

135 °E MEAN TIME



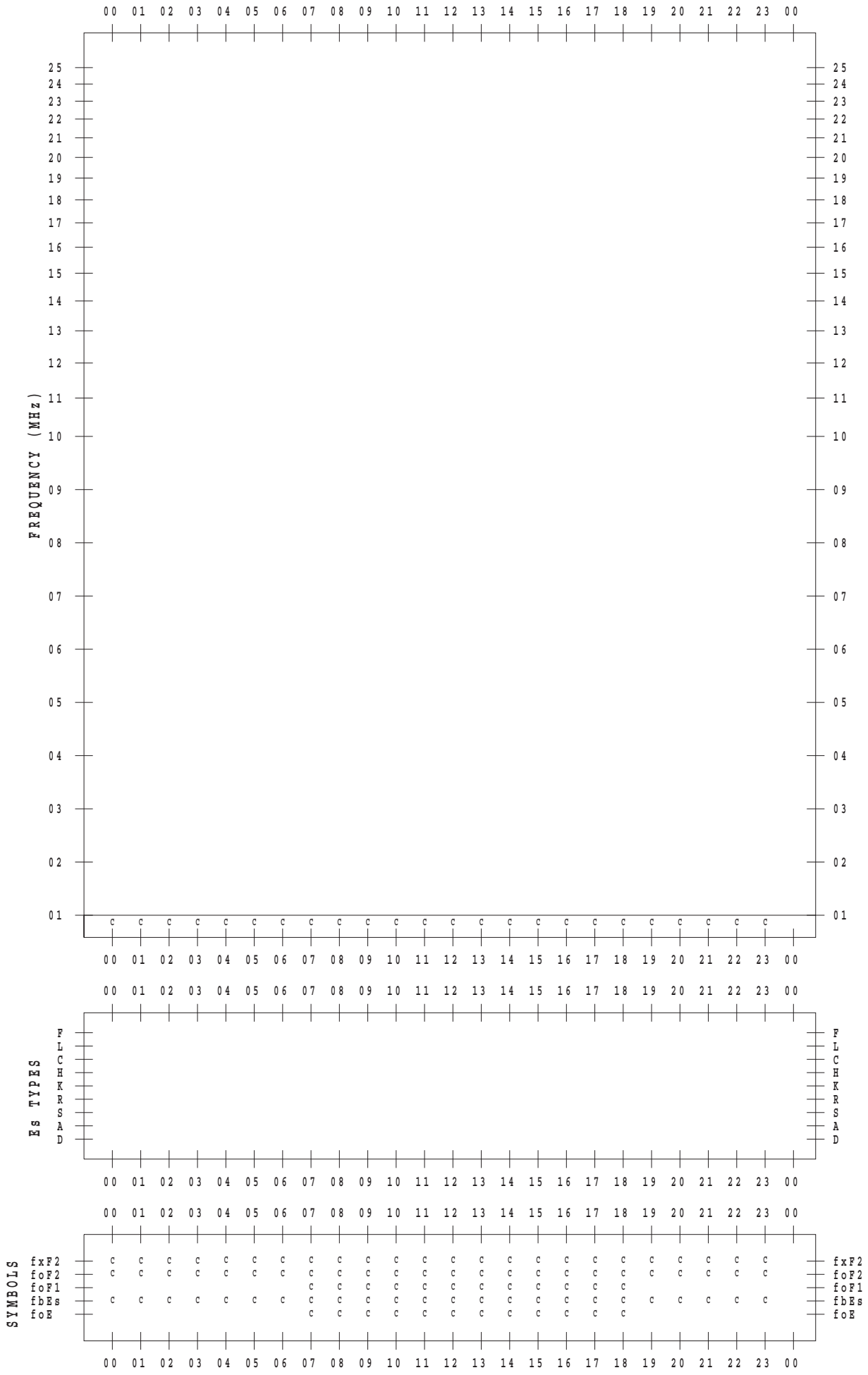
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2017/ 3/11

135 °E MEAN TIME



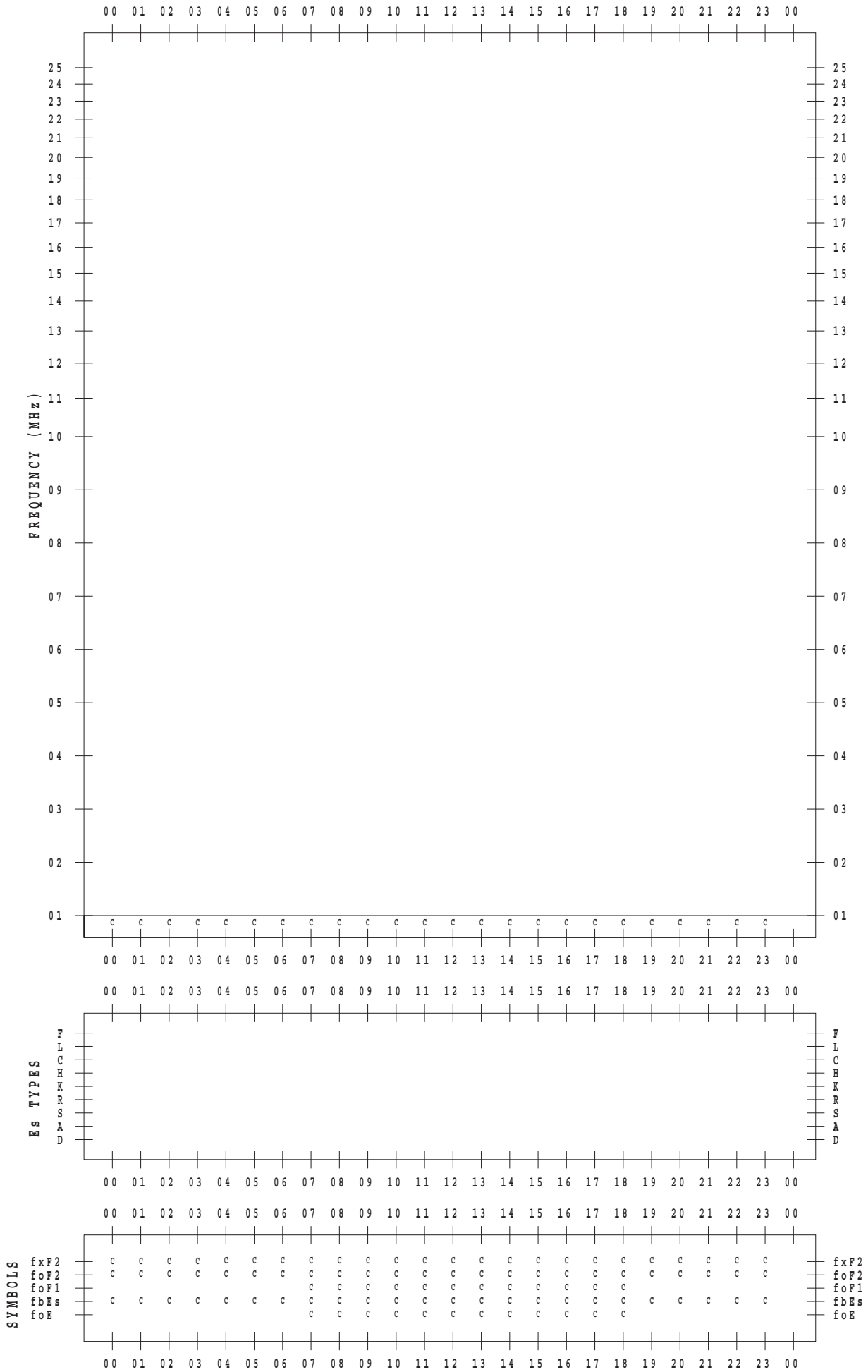
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2017/ 3/12

135 °E MEAN TIME



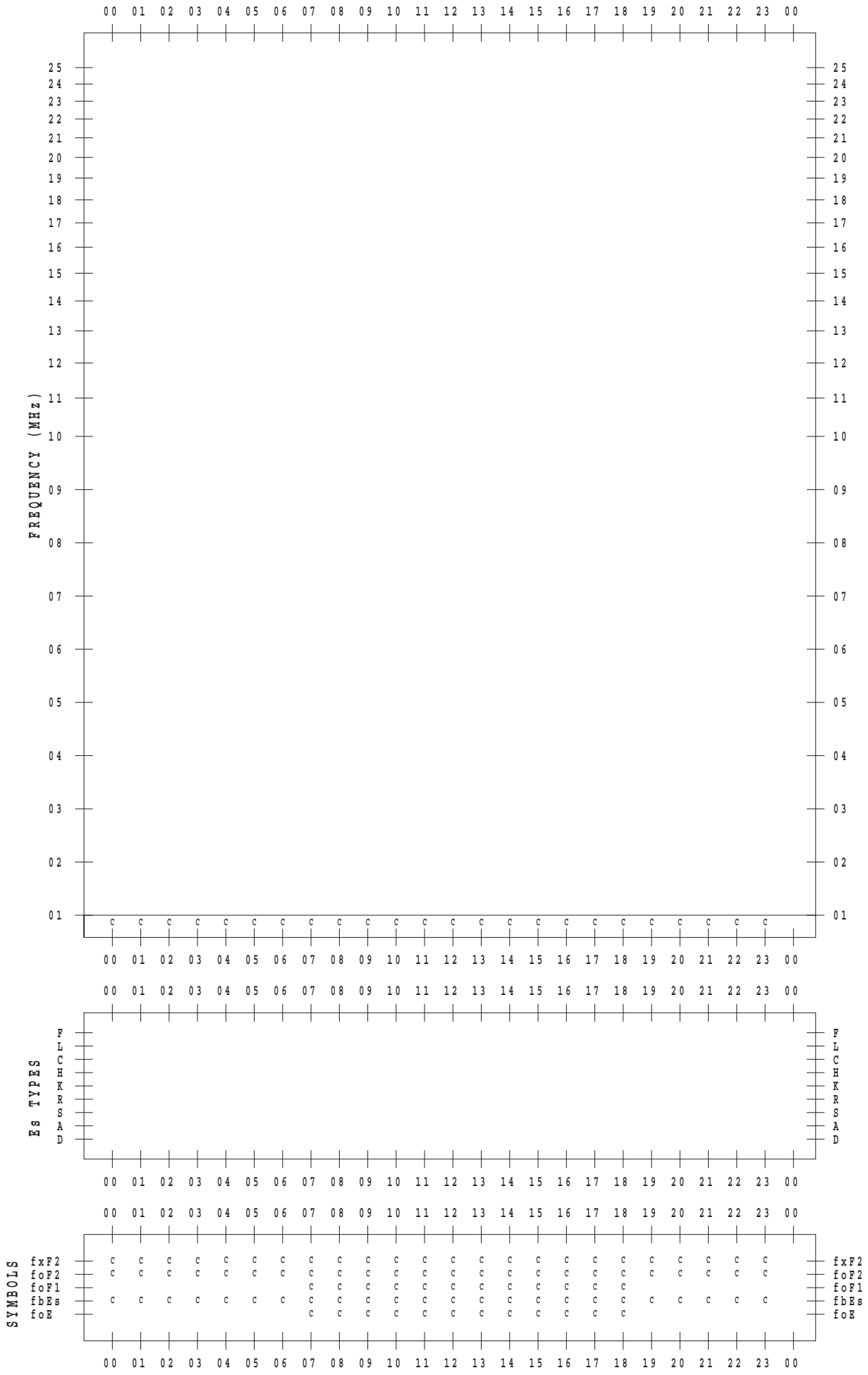
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2017/ 3/13

135 °E MEAN TIME



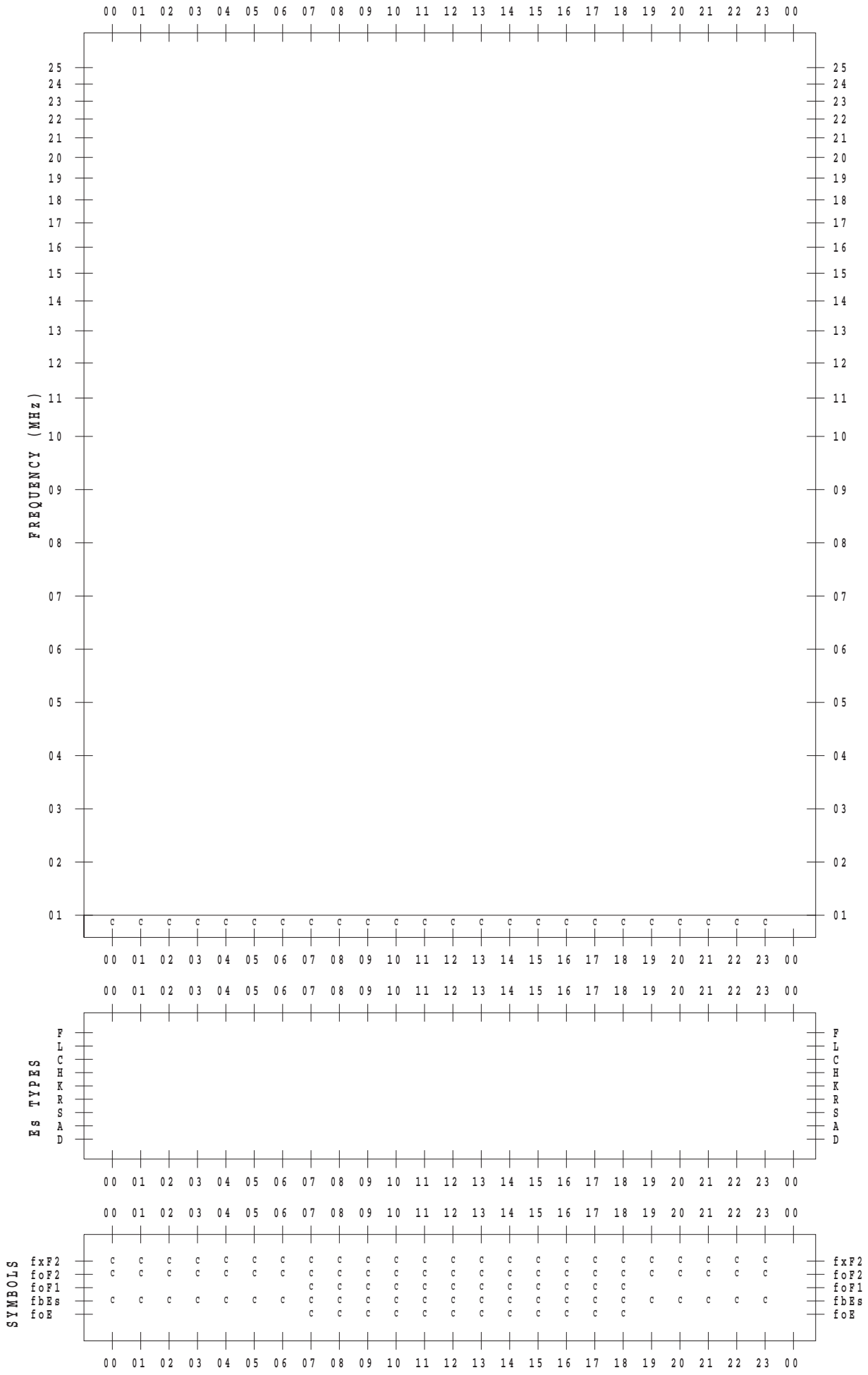
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2017/ 3/14

135 °E MEAN TIME



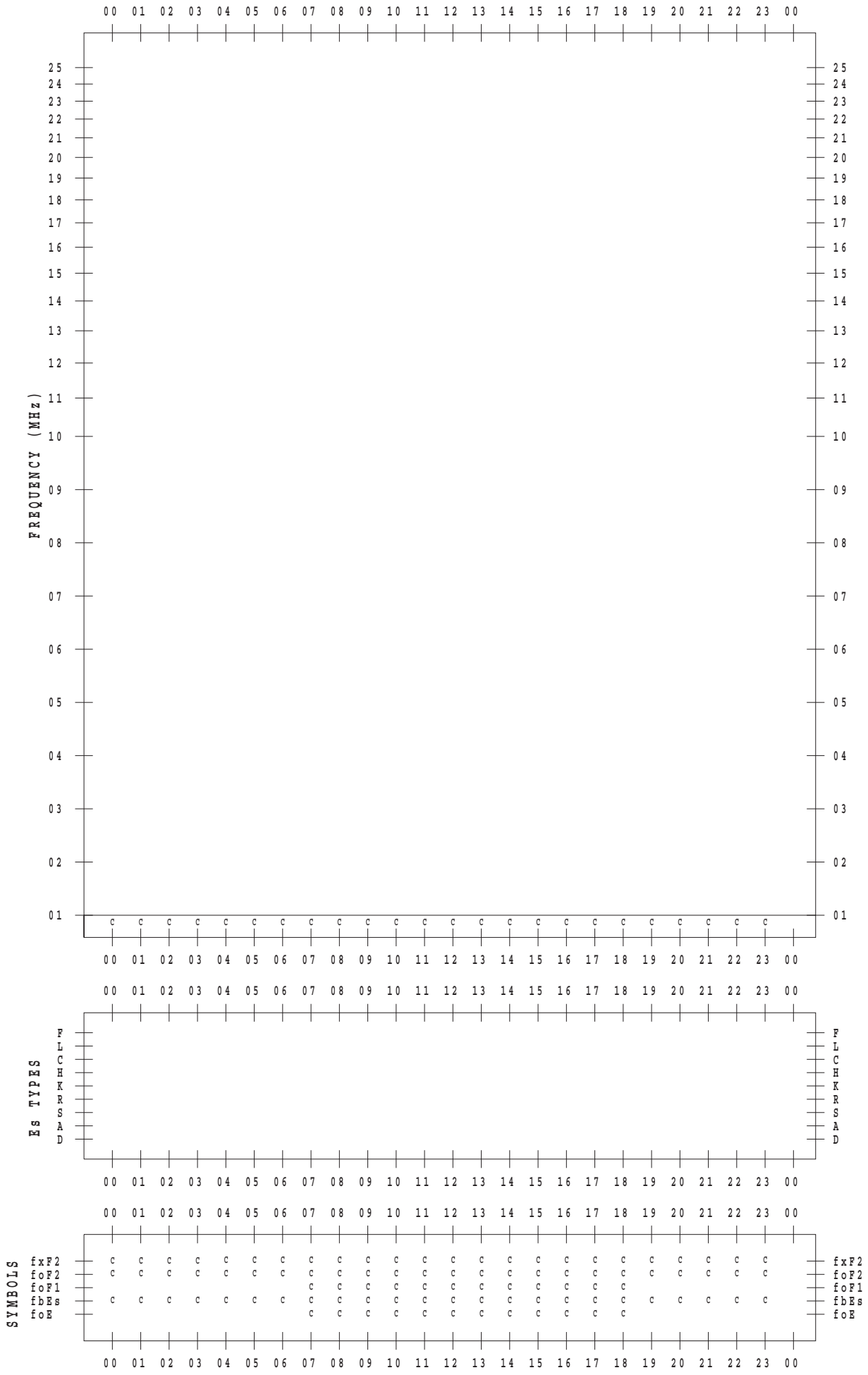
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2017/ 3/15

135 °E MEAN TIME



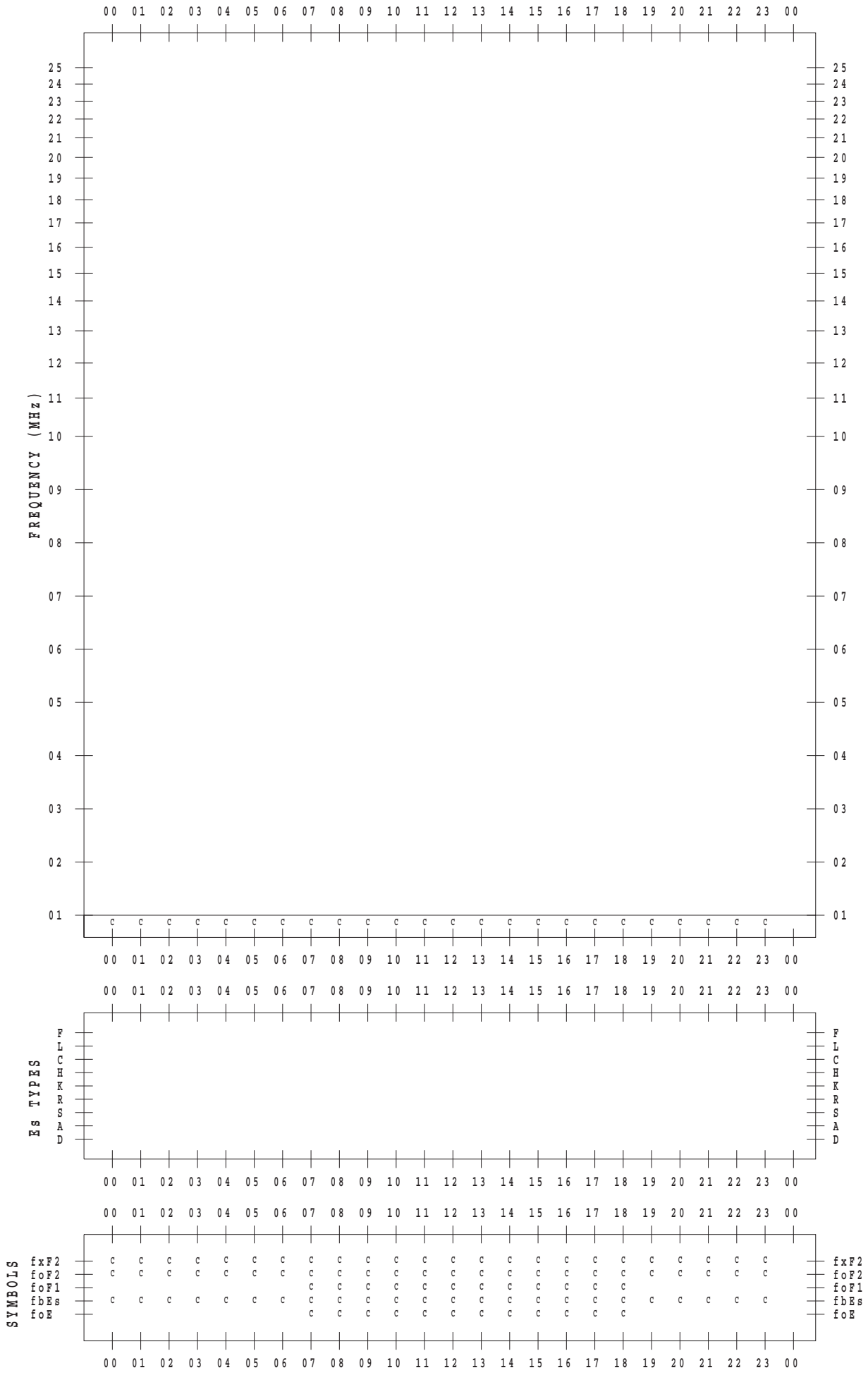
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2017/ 3/16

135 °E MEAN TIME



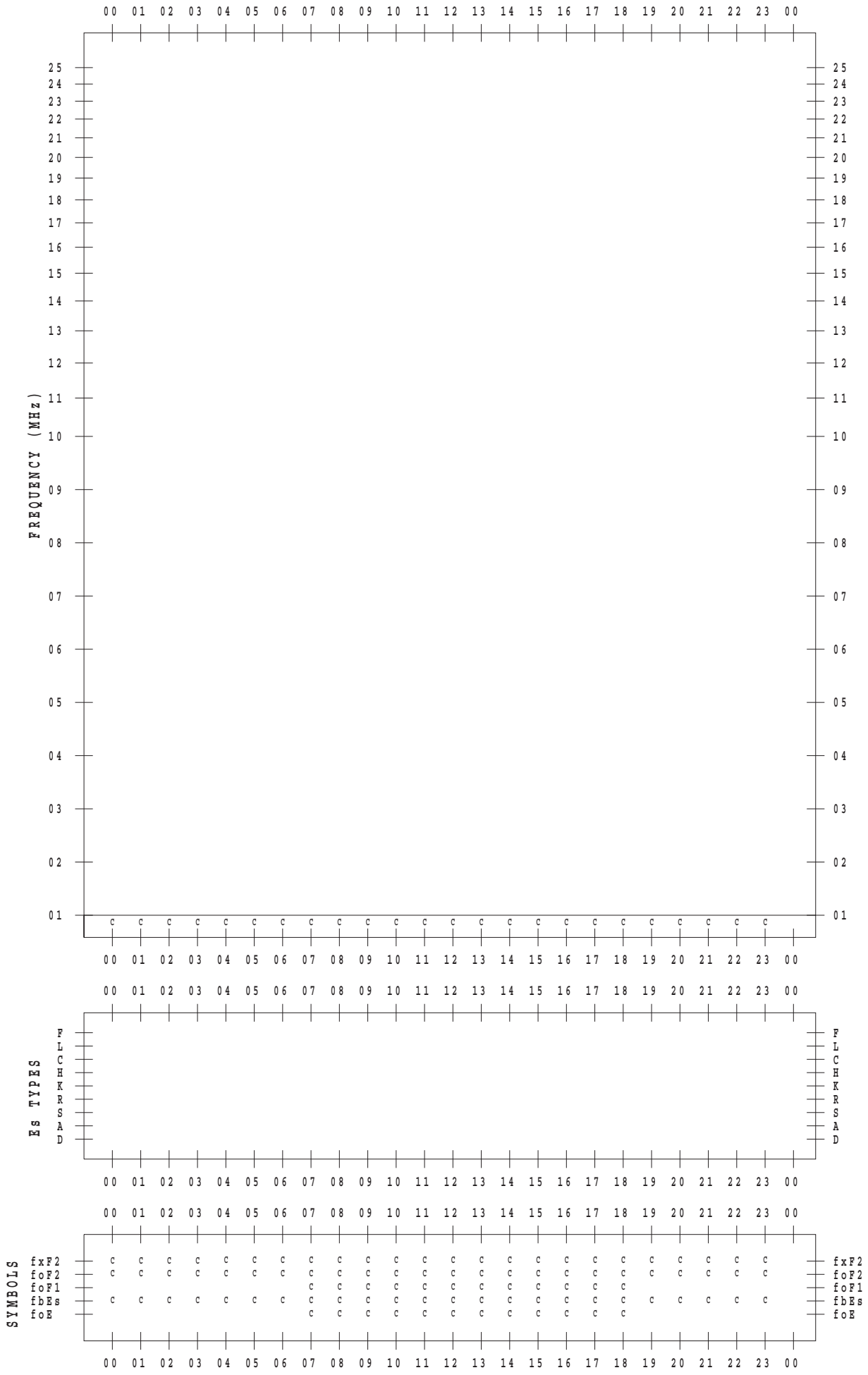
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2017/ 3/17

135 °E MEAN TIME



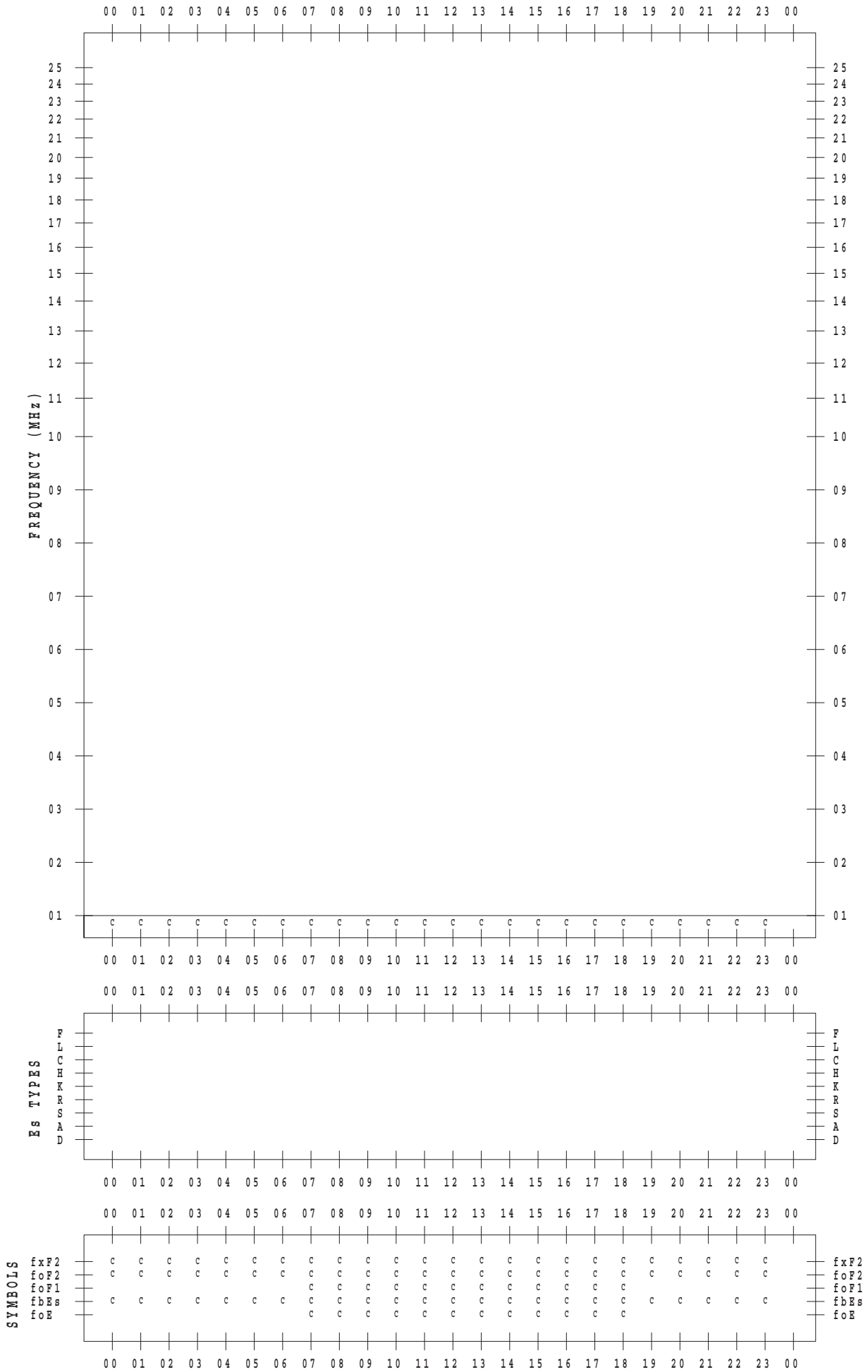
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2017/ 3/18

135 °E MEAN TIME



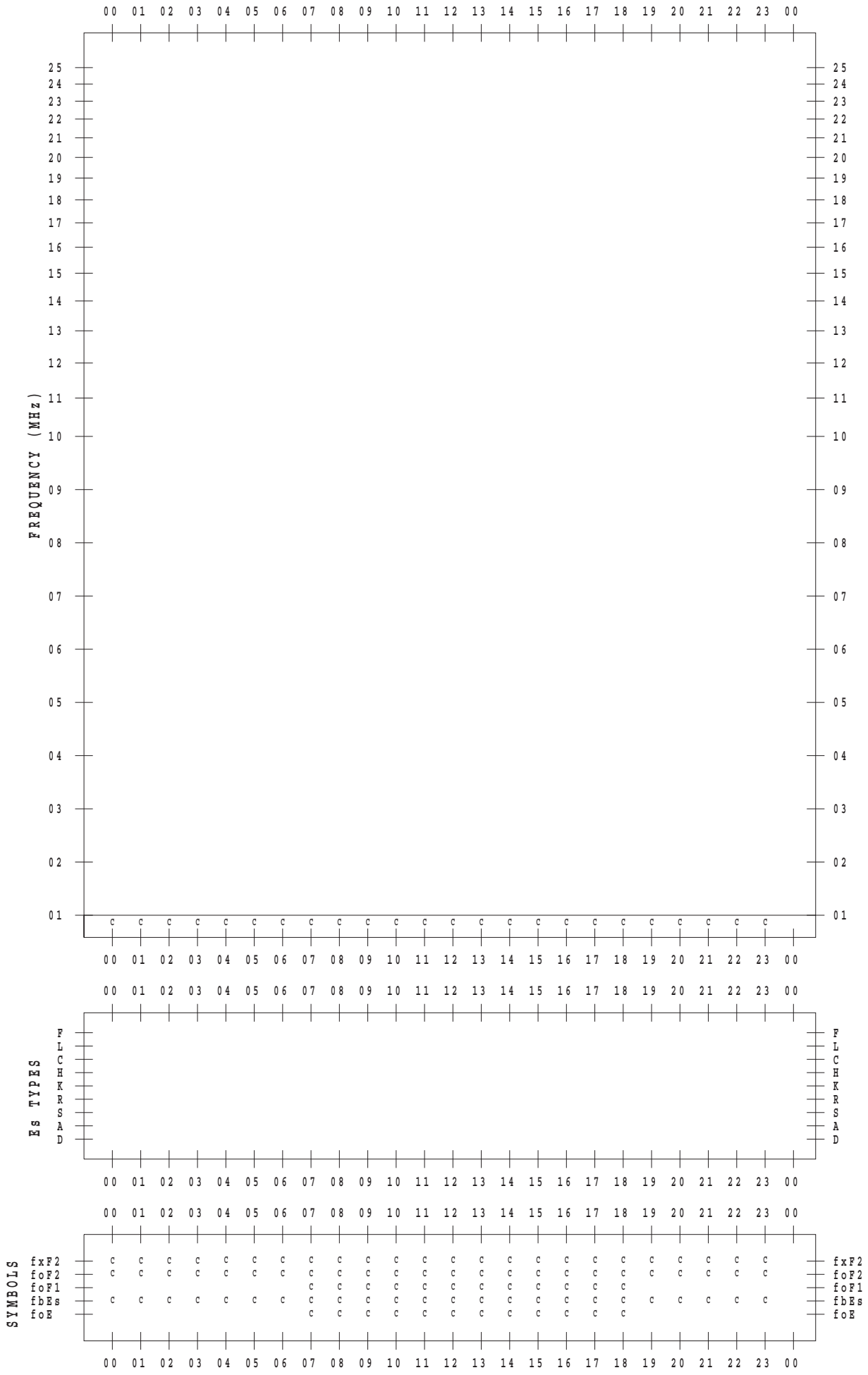
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2017/ 3/19

135 °E MEAN TIME



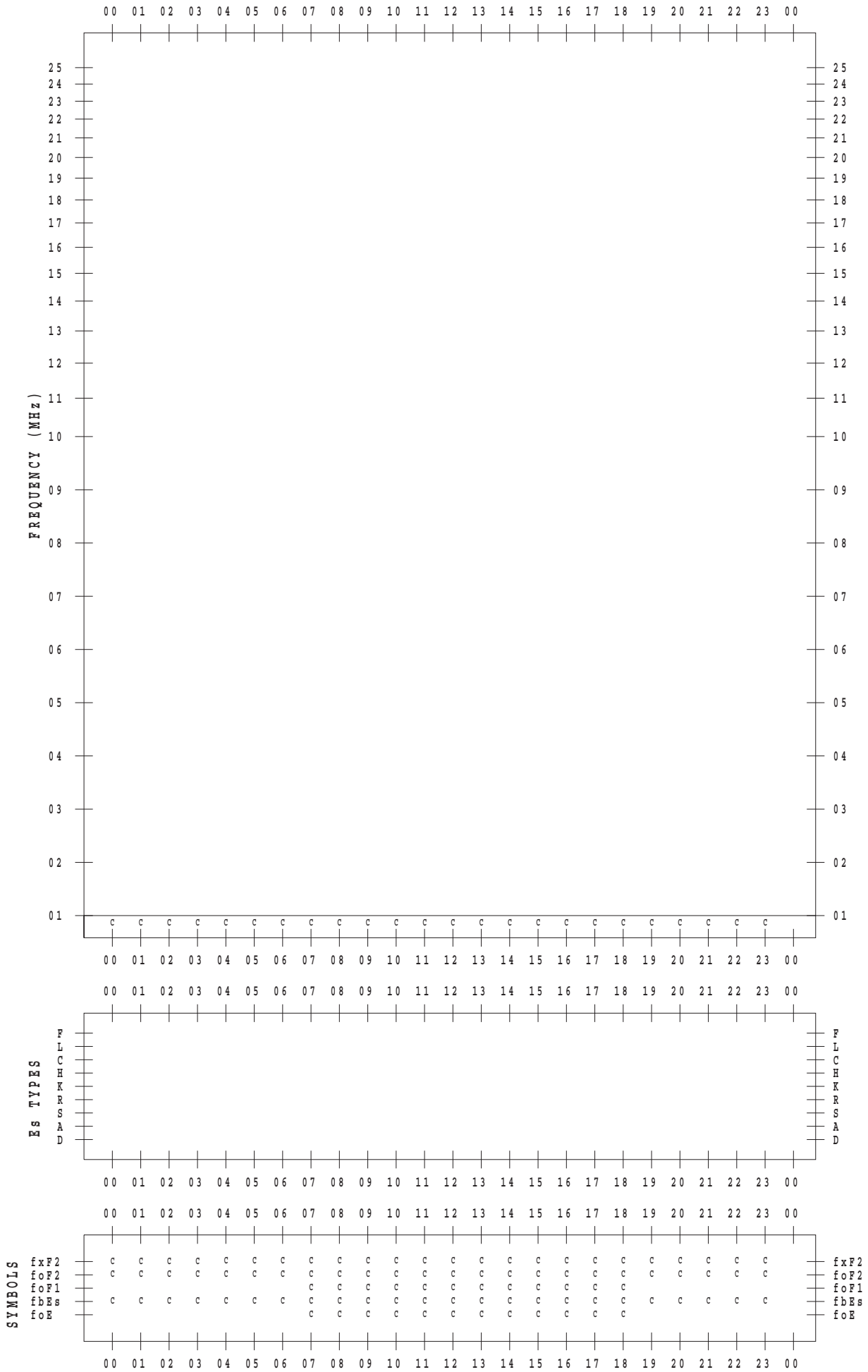
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2017/ 3/20

135 °E MEAN TIME



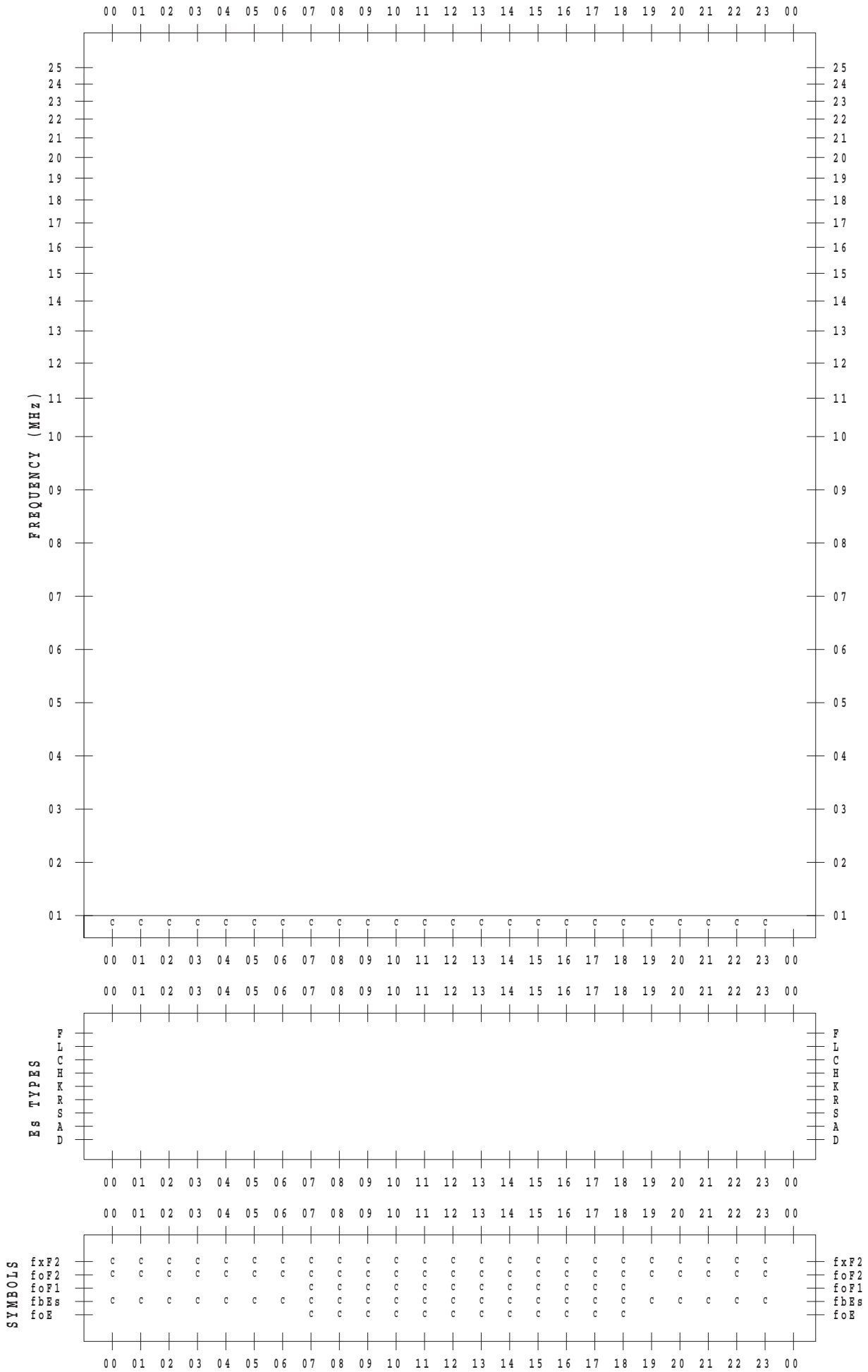
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2017/ 3/21

135 °E MEAN TIME



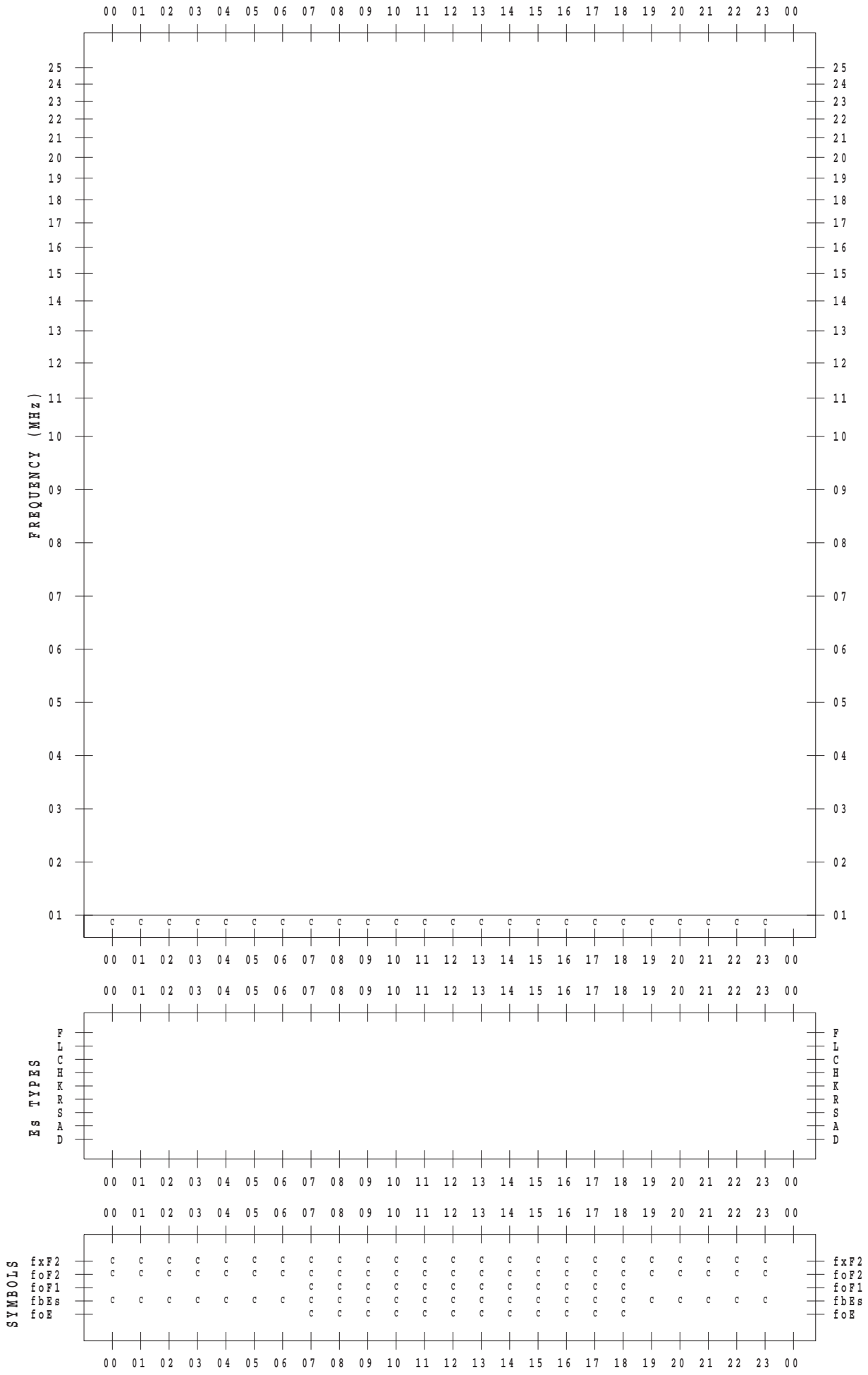
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2017/ 3/22

135 °E MEAN TIME



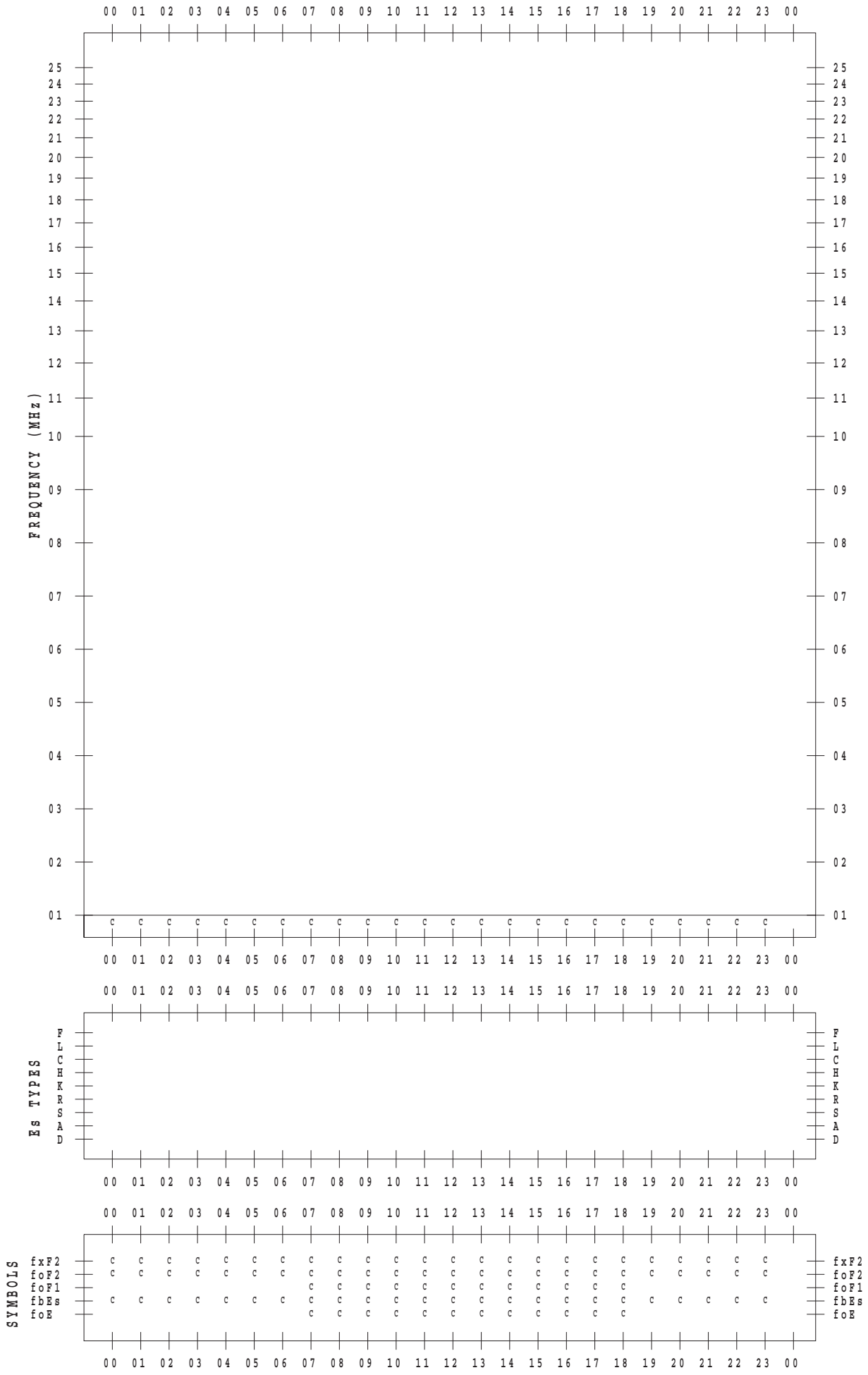
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2017/ 3/23

135 °E MEAN TIME



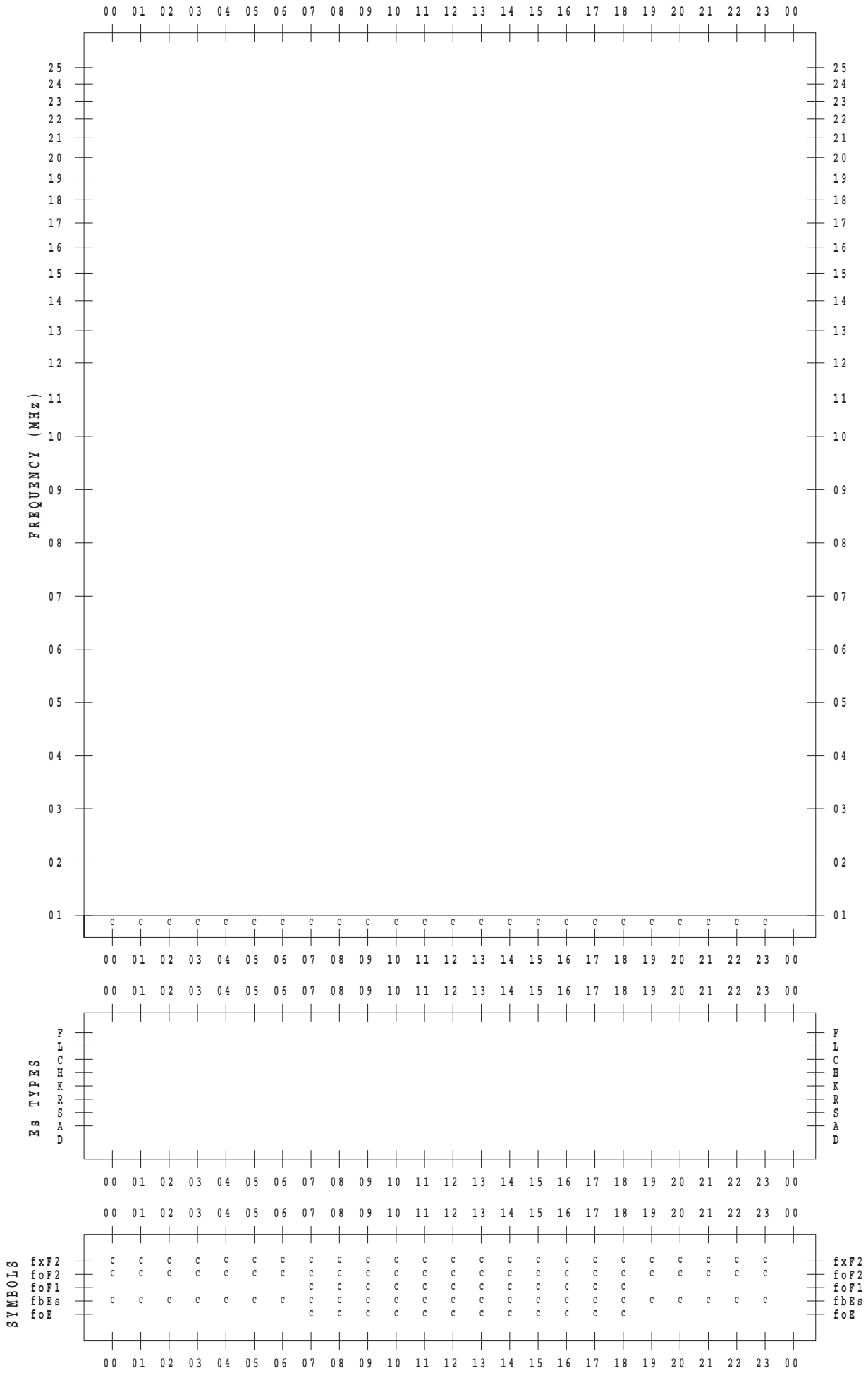
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2017/ 3/24

135 °E MEAN TIME



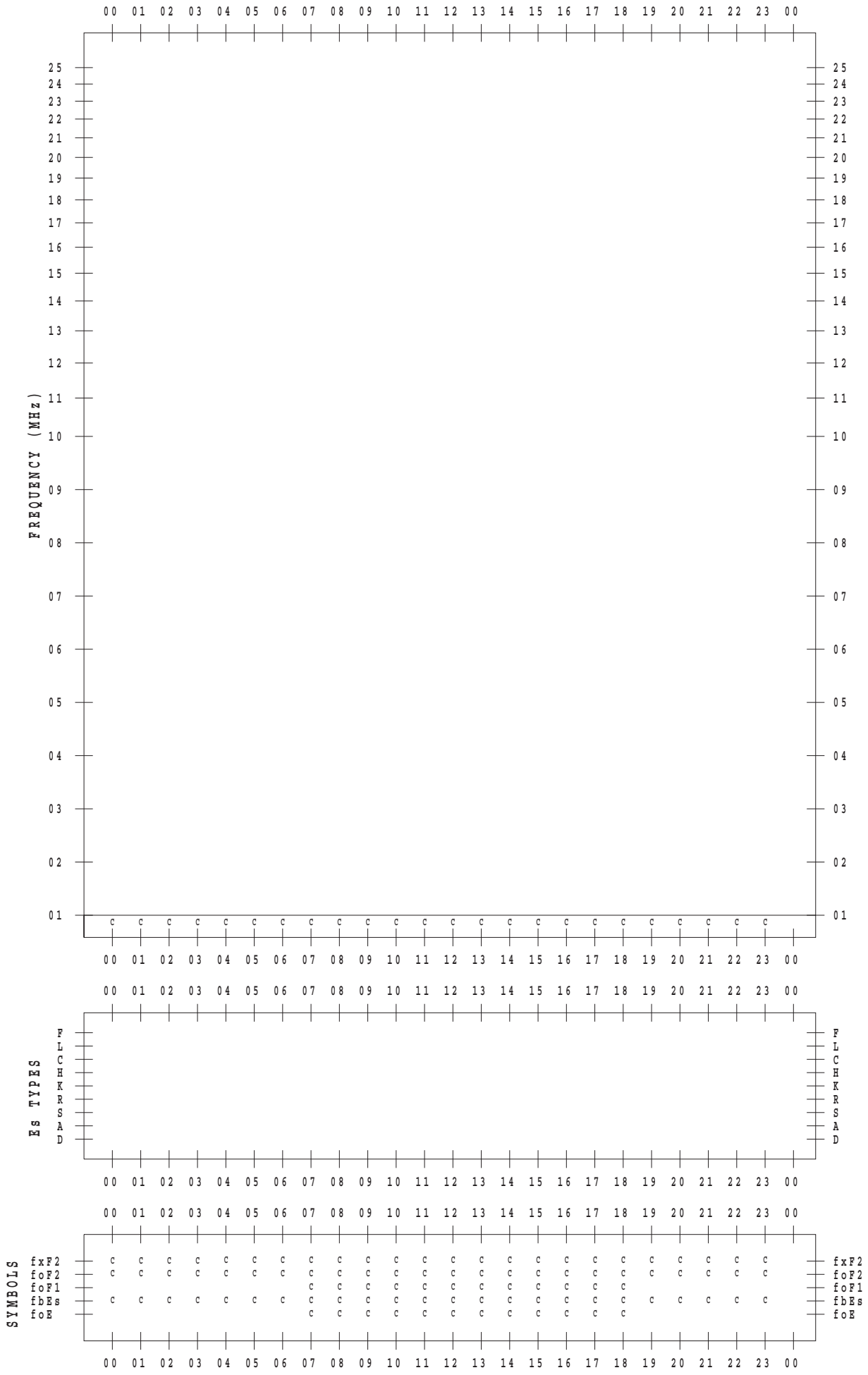
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2017/ 3/25

135 °E MEAN TIME



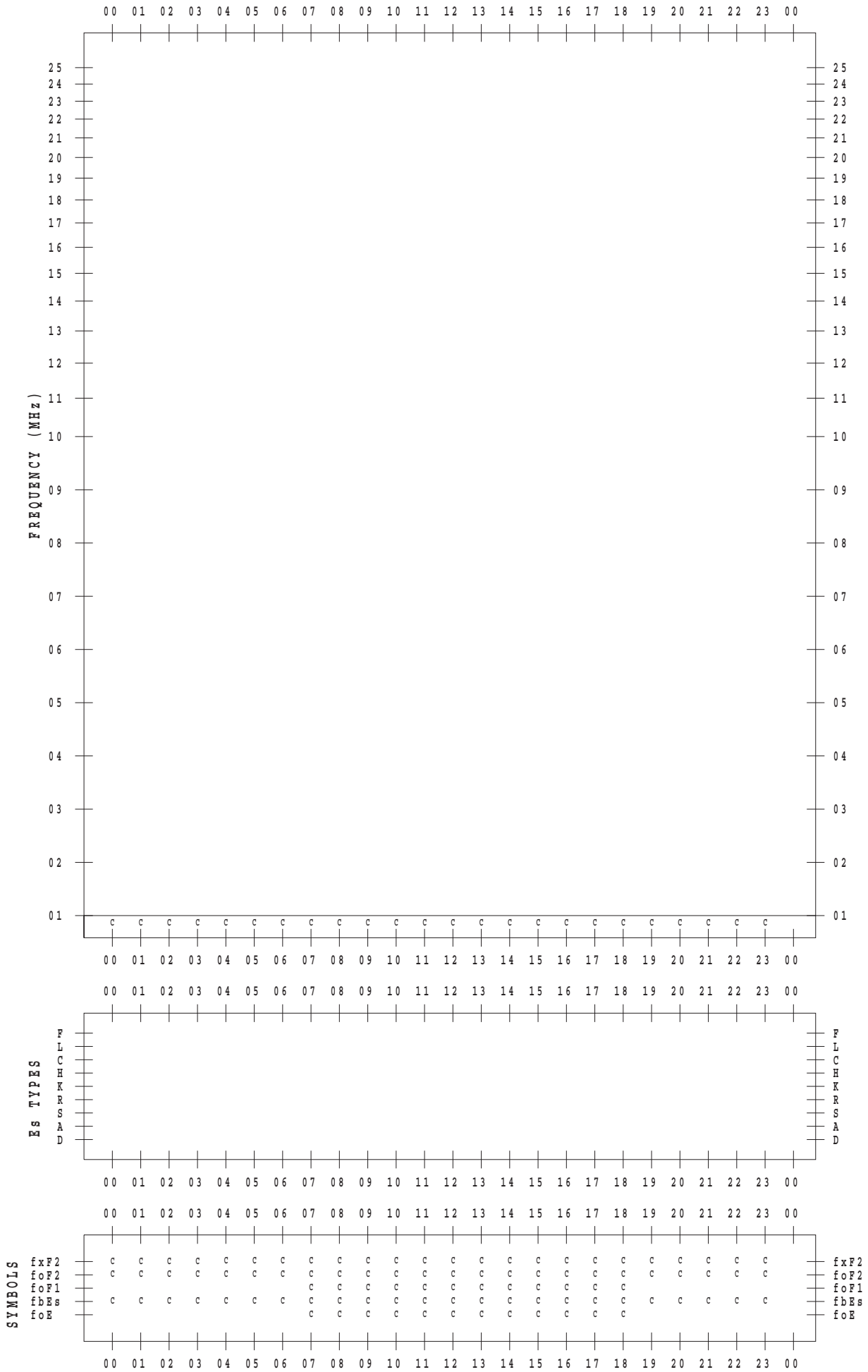
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2017/ 3/26

135 °E MEAN TIME



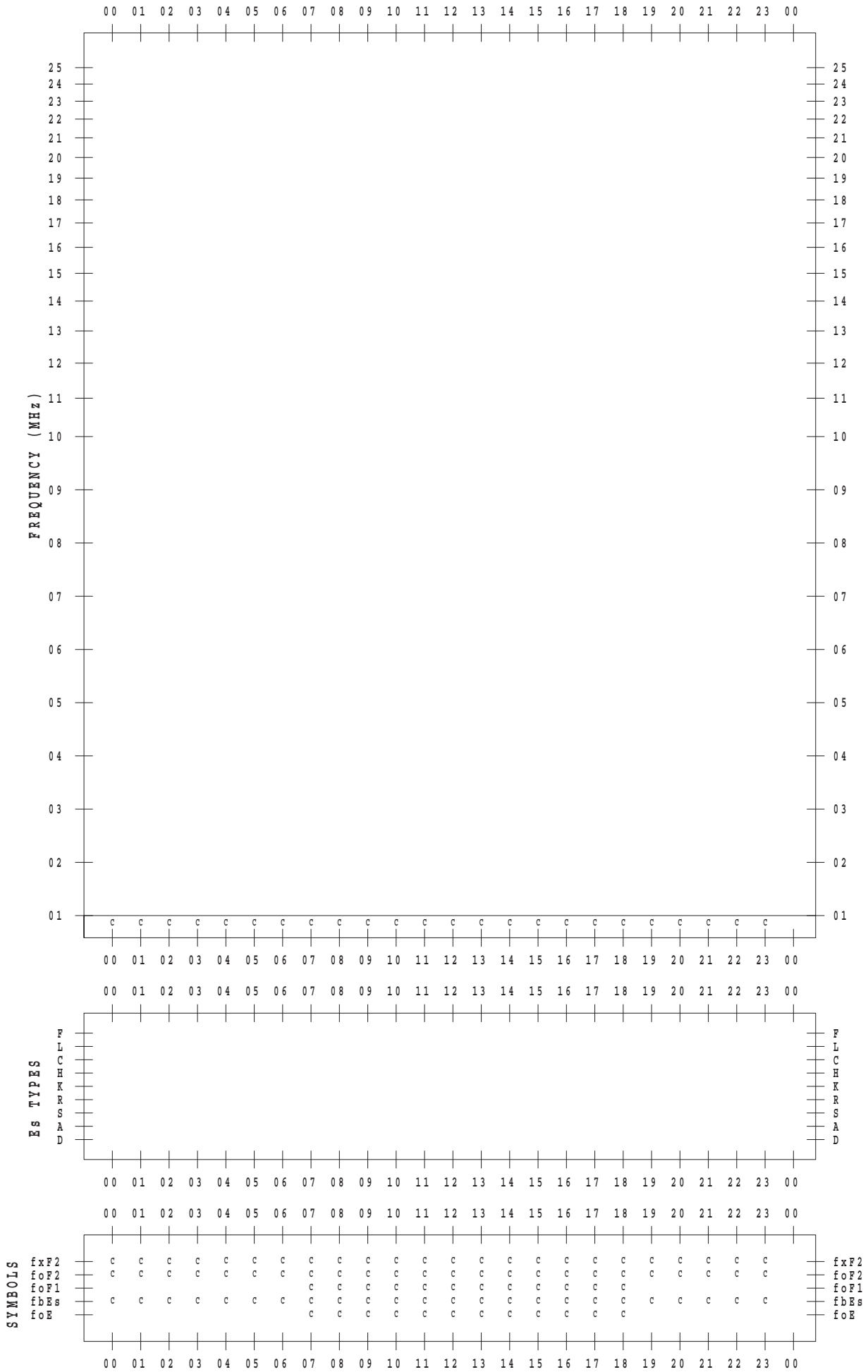
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2017/ 3/27

135 °E MEAN TIME



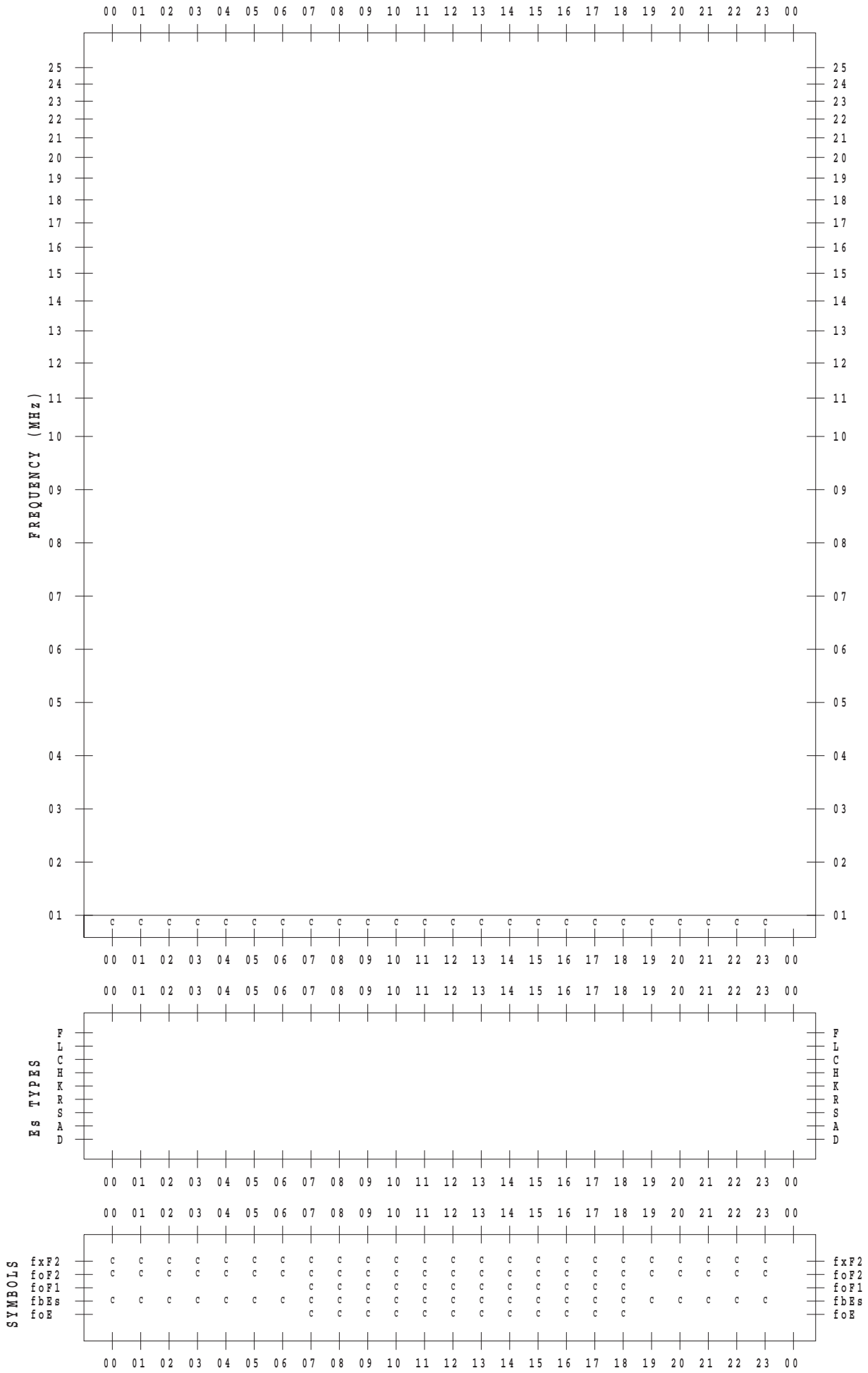
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2017/ 3/28

135 °E MEAN TIME



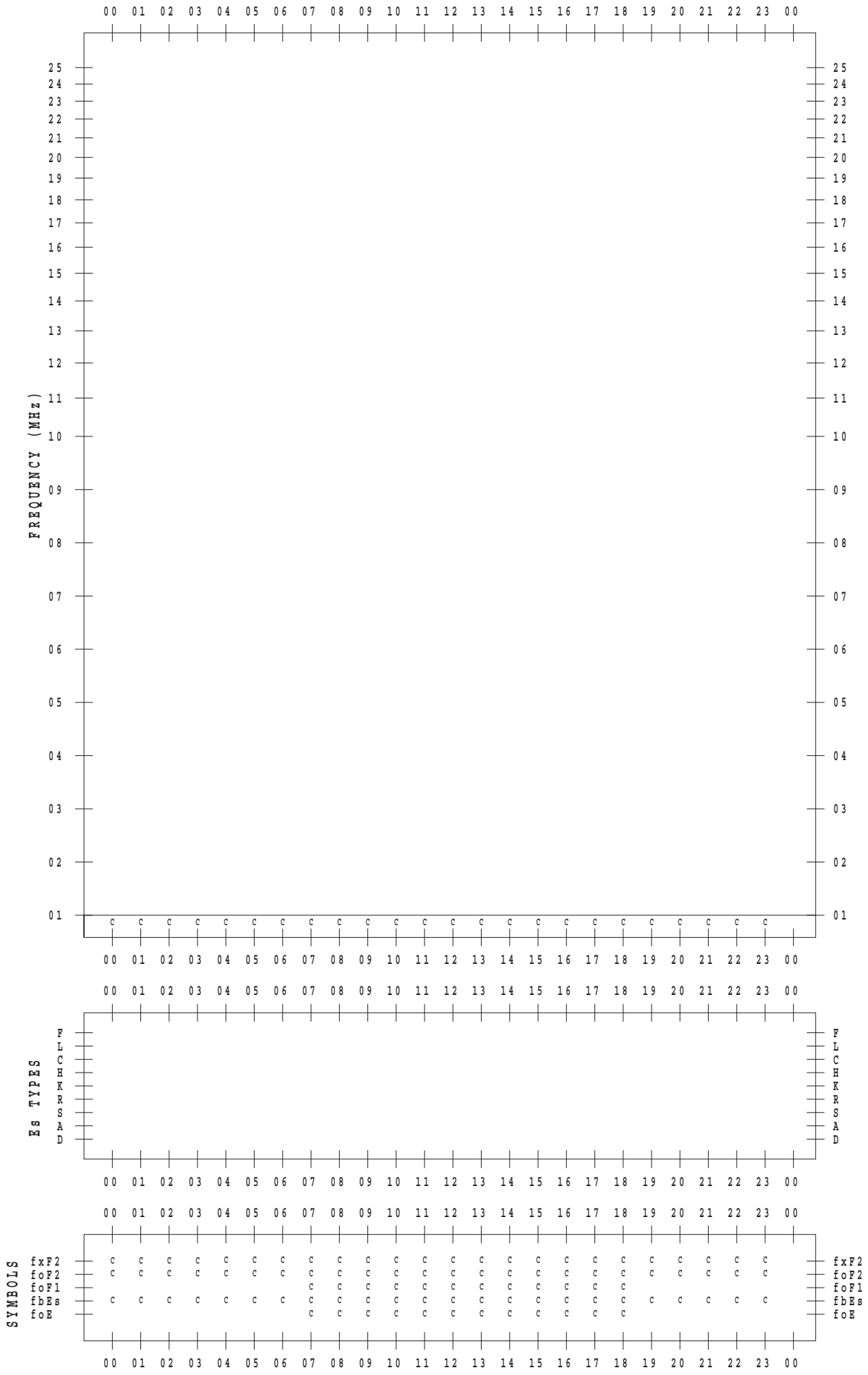
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2017/ 3/29

135 °E MEAN TIME



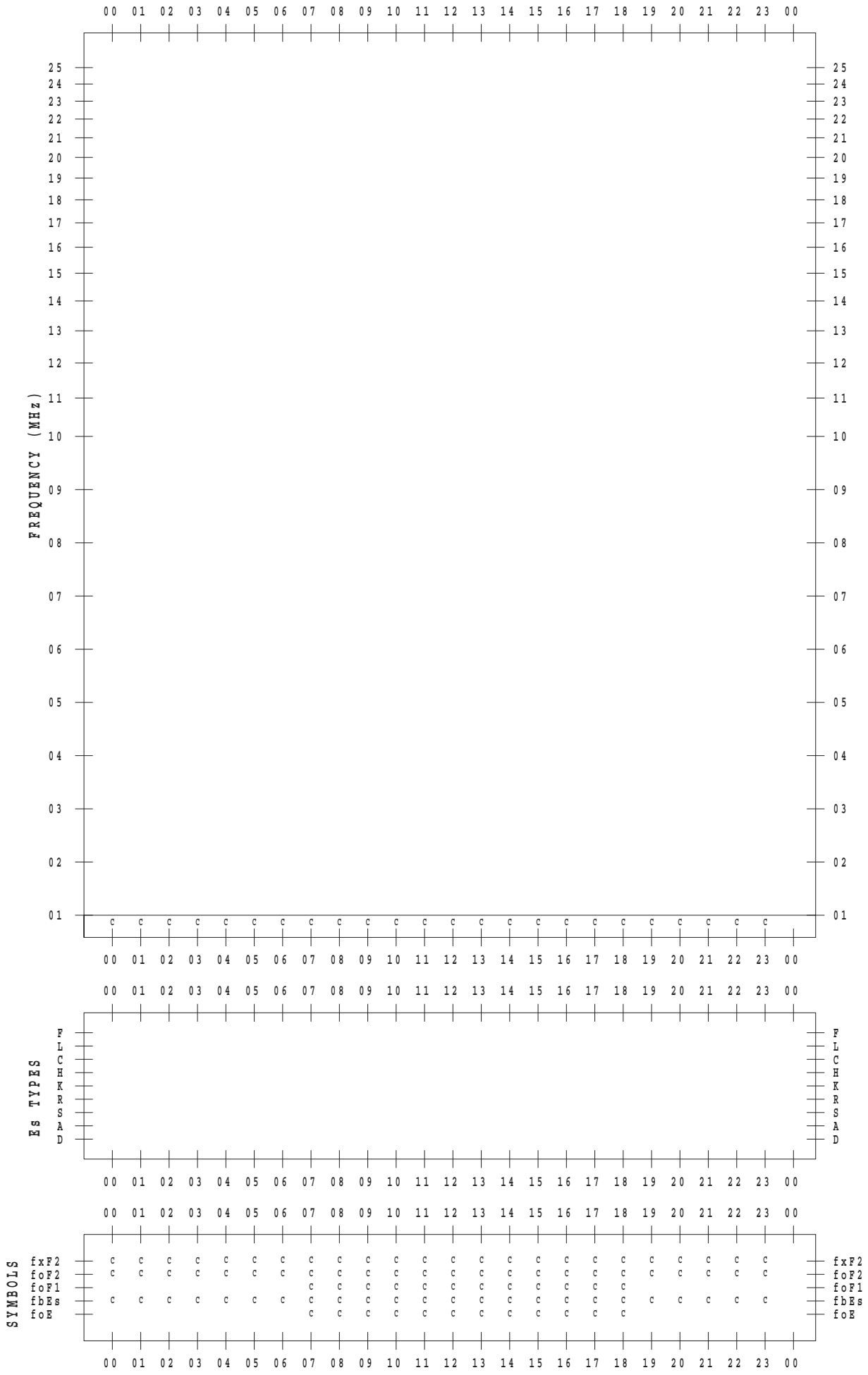
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2017/ 3/30

135 °E MEAN TIME



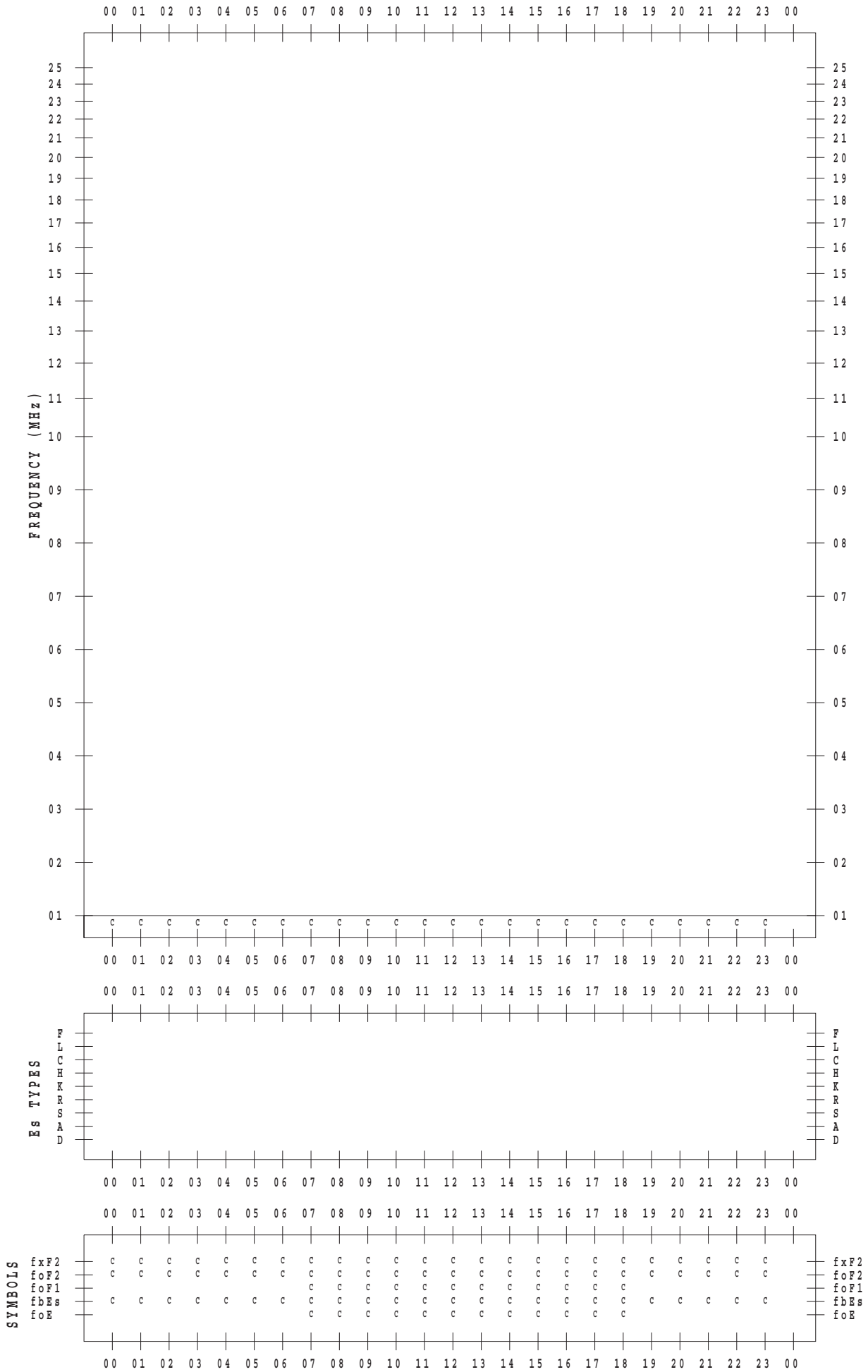
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2017/ 3/31

135 °E MEAN TIME



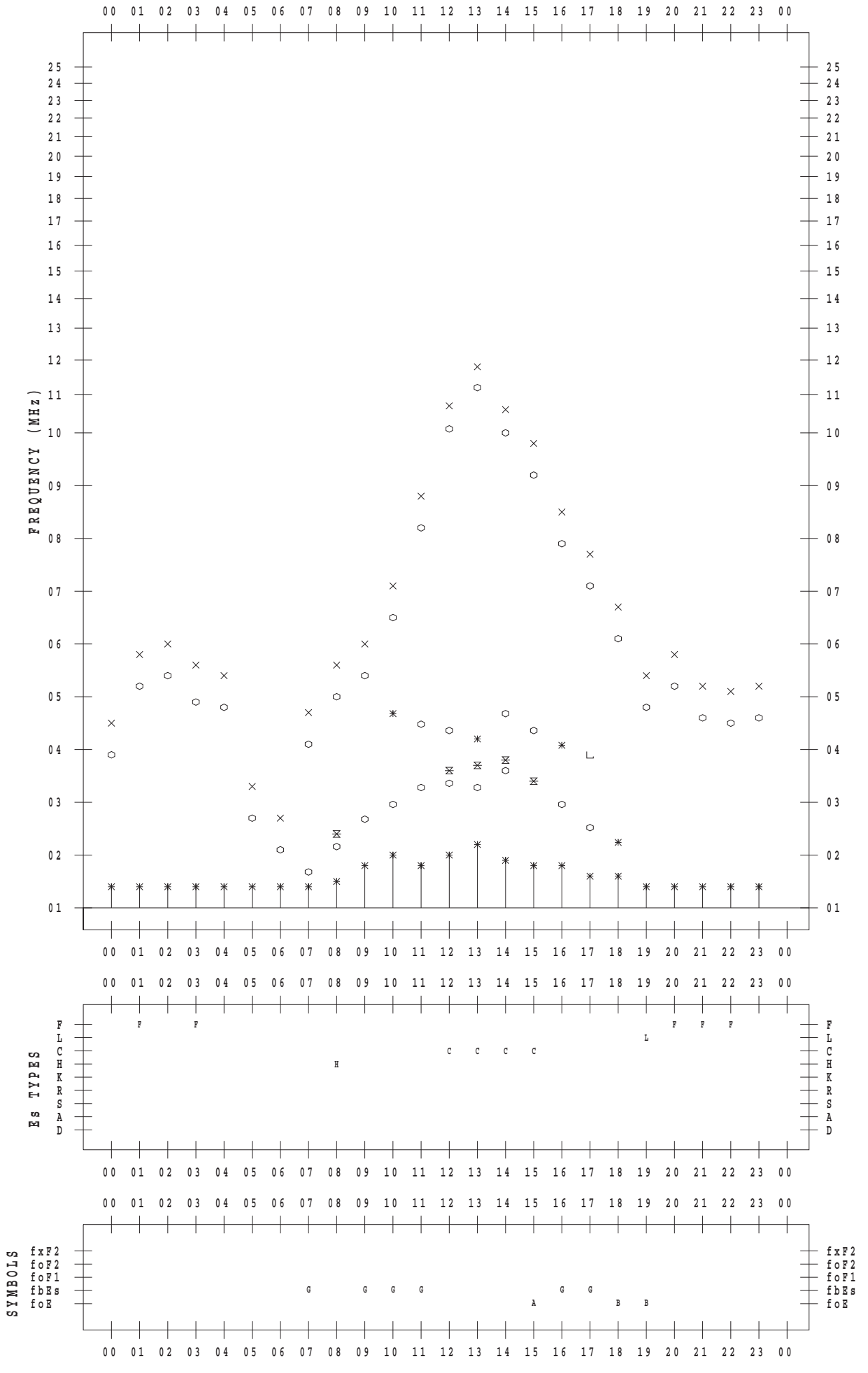
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2017/ 3/ 1

135 °E MEAN TIME



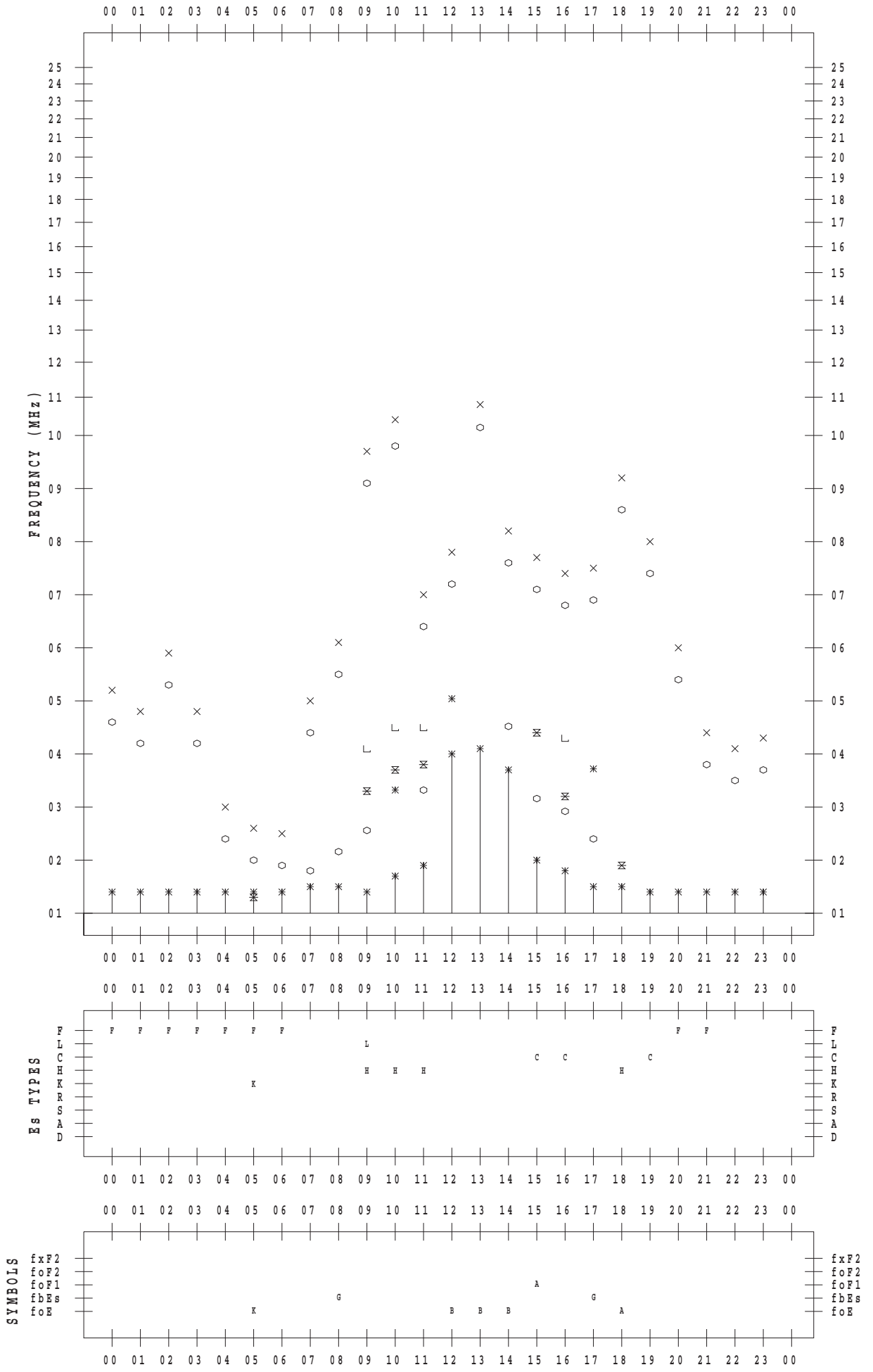
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2017/ 3/ 2

135 °E MEAN TIME



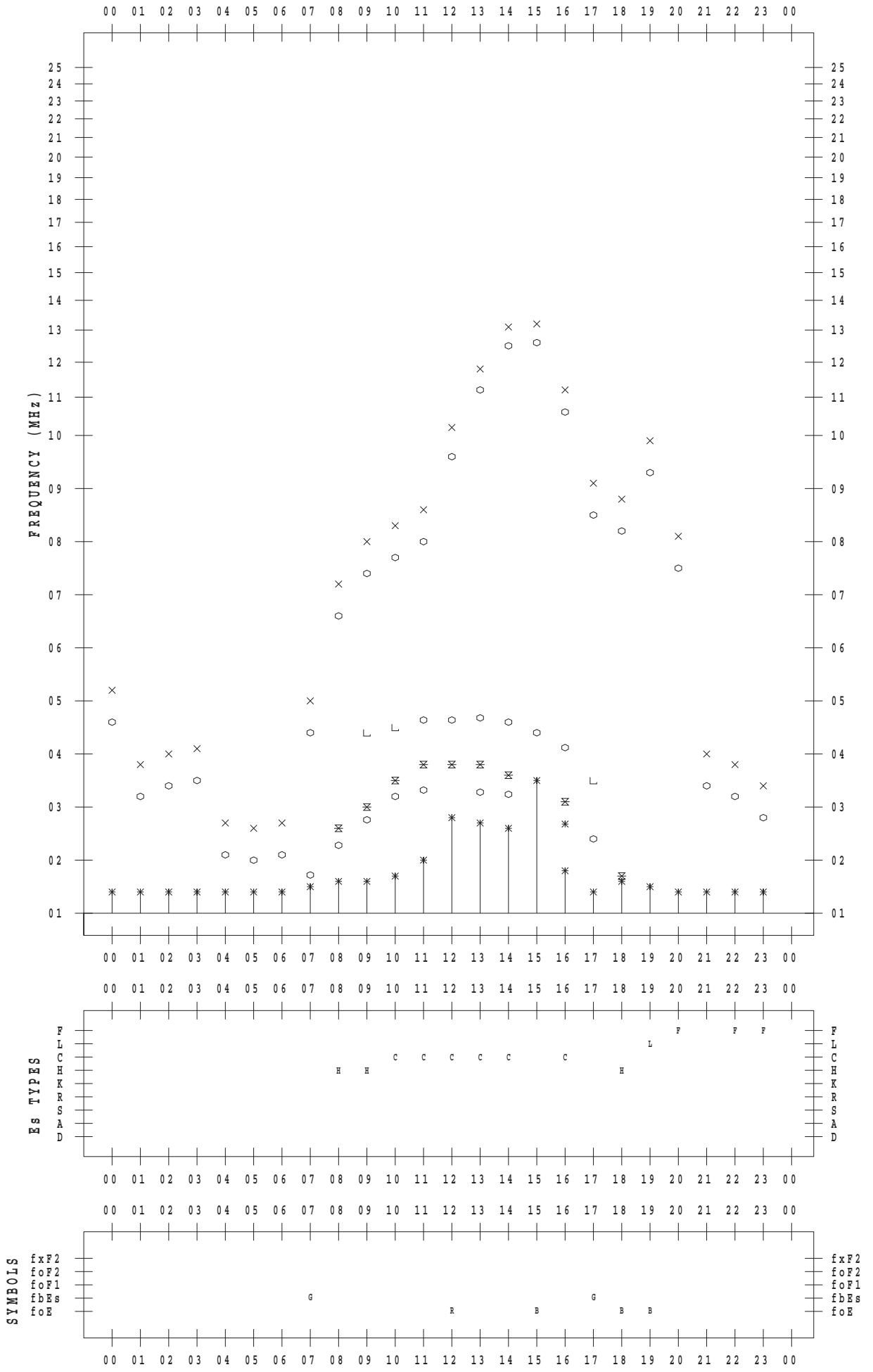
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2017/ 3/ 3

135 °E MEAN TIME



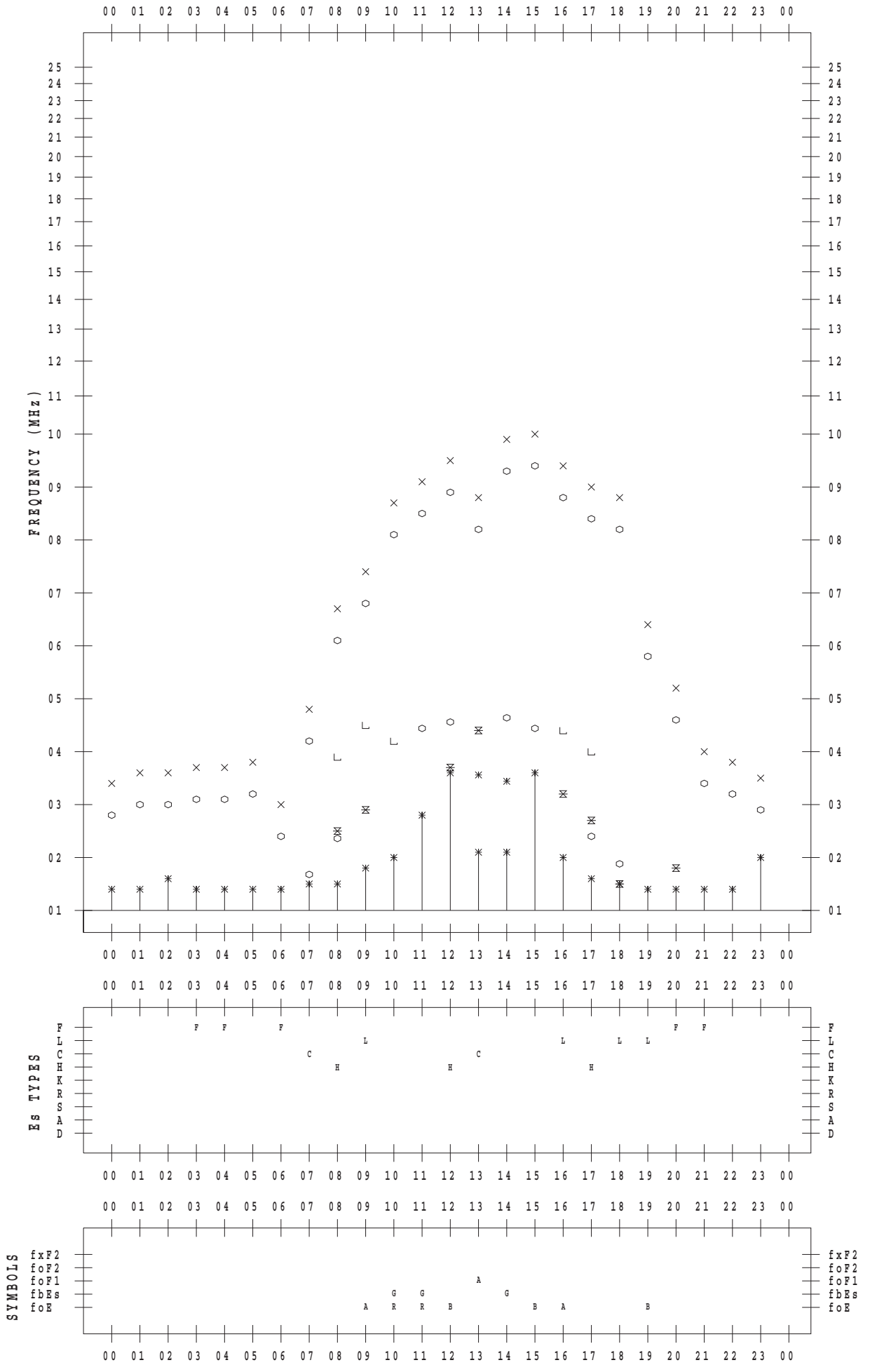
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2017/ 3/ 4

135 °E MEAN TIME



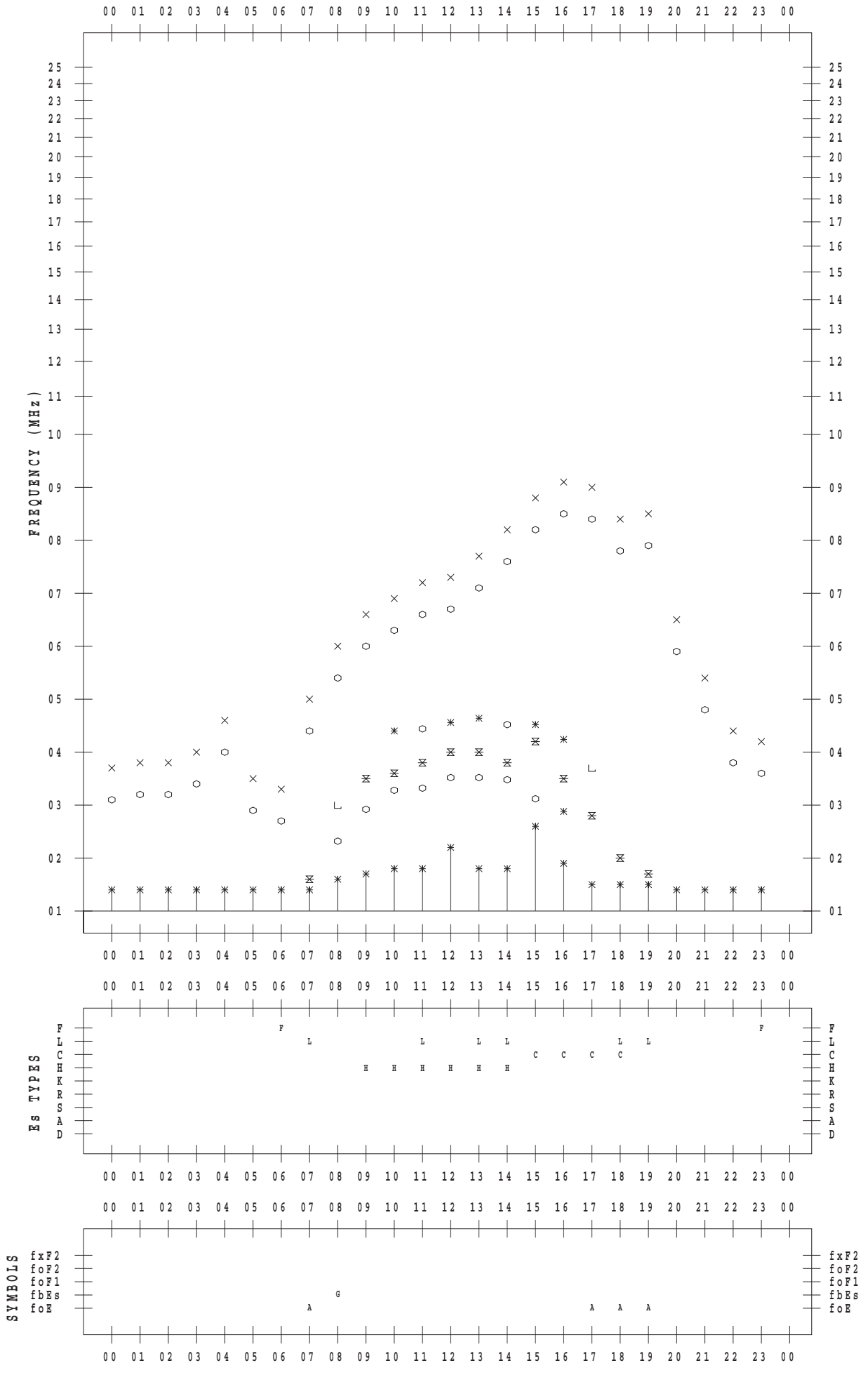
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2017/ 3/ 5

135 °E MEAN TIME



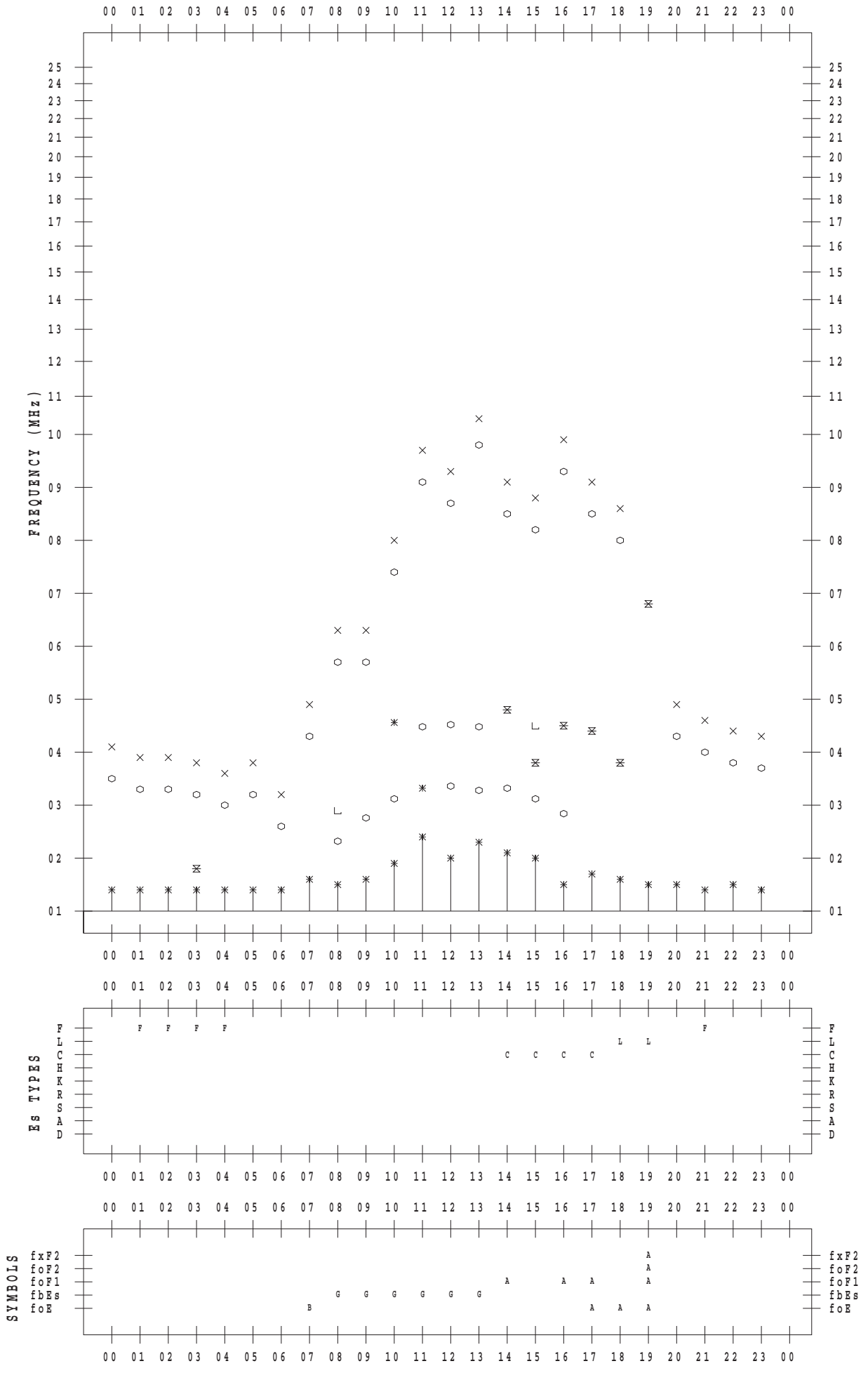
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2017/ 3/ 6

135 °E MEAN TIME



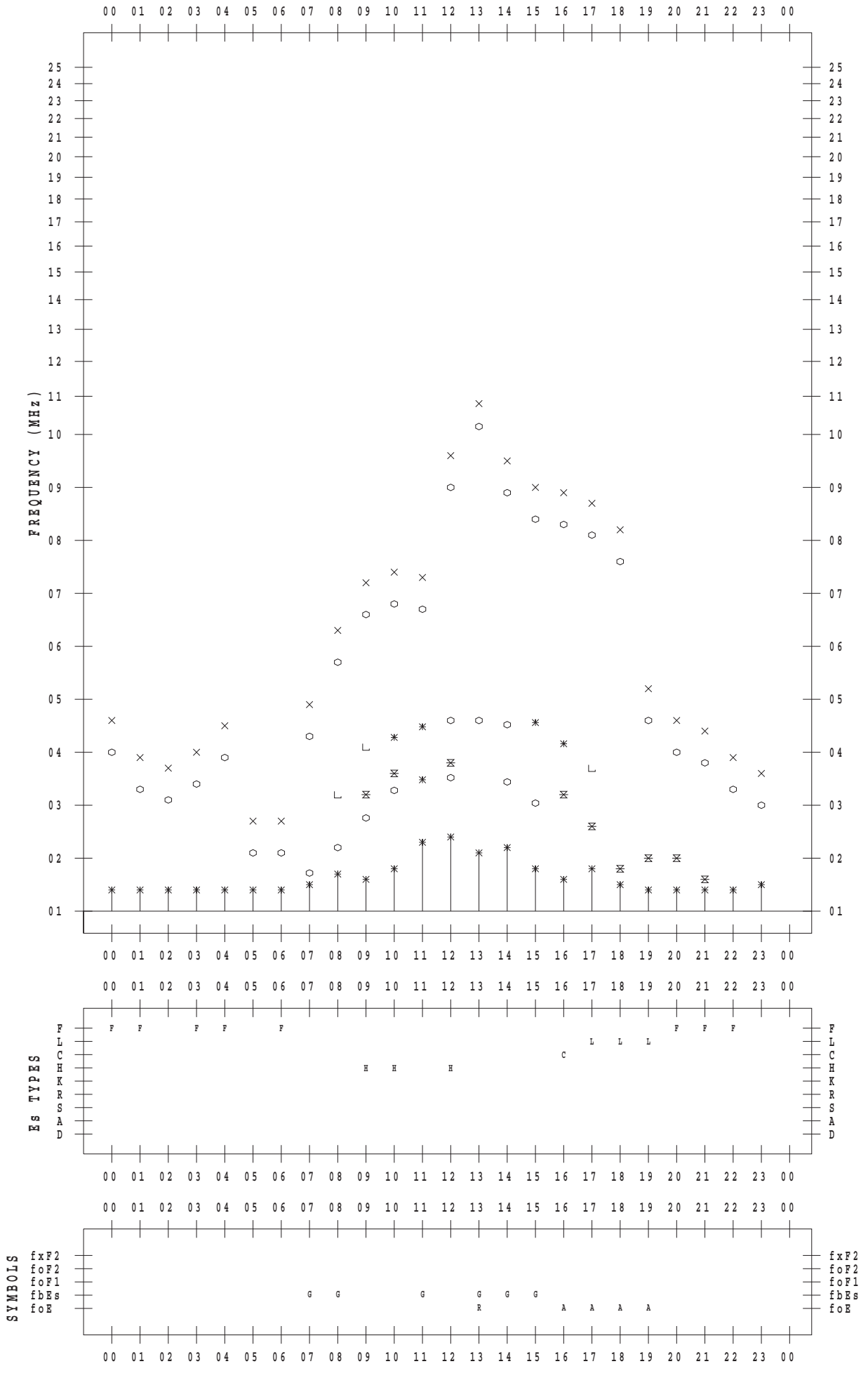
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2017/ 3/ 7

135 °E MEAN TIME



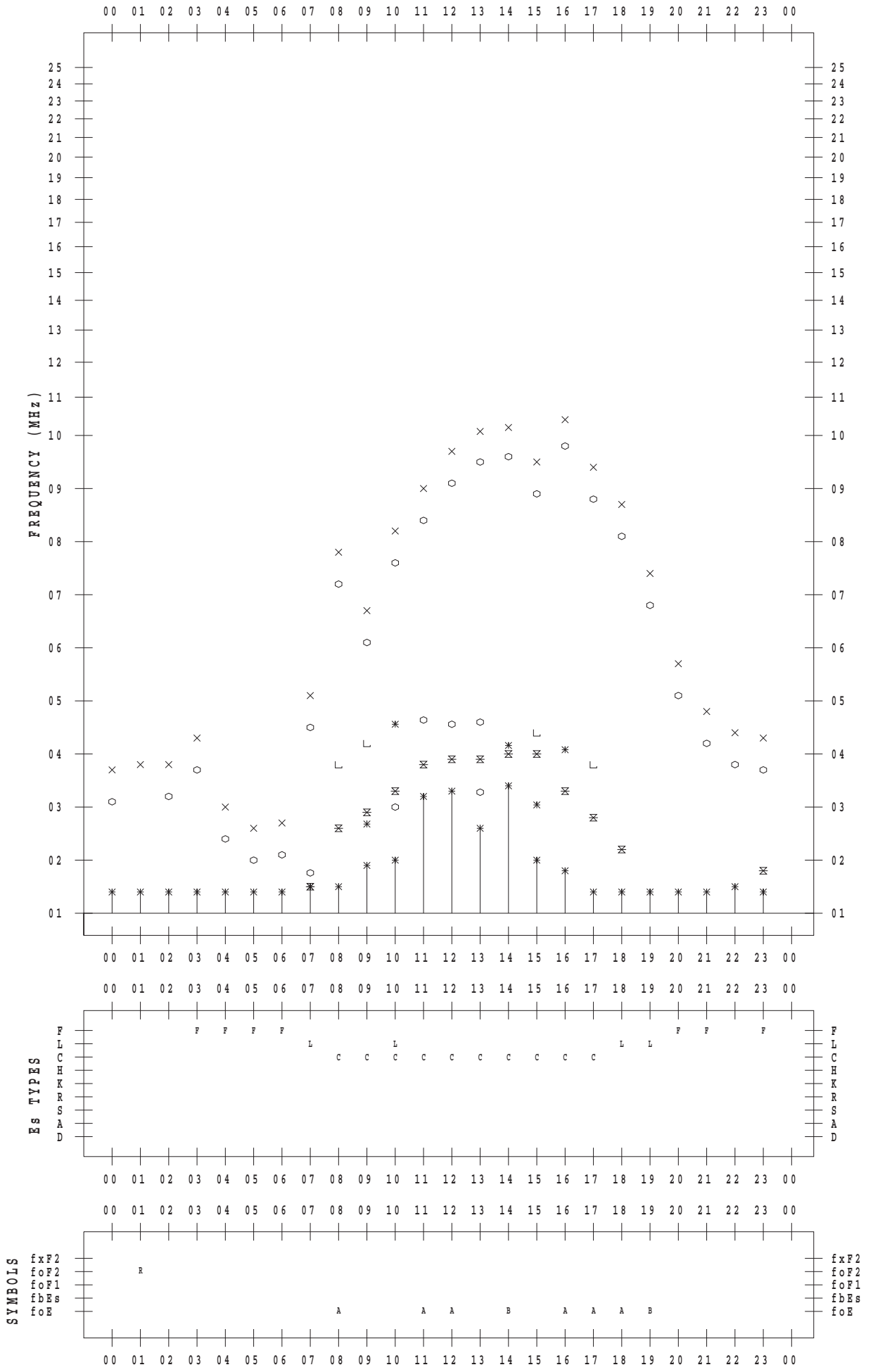
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2017/ 3/ 8

135 °E MEAN TIME



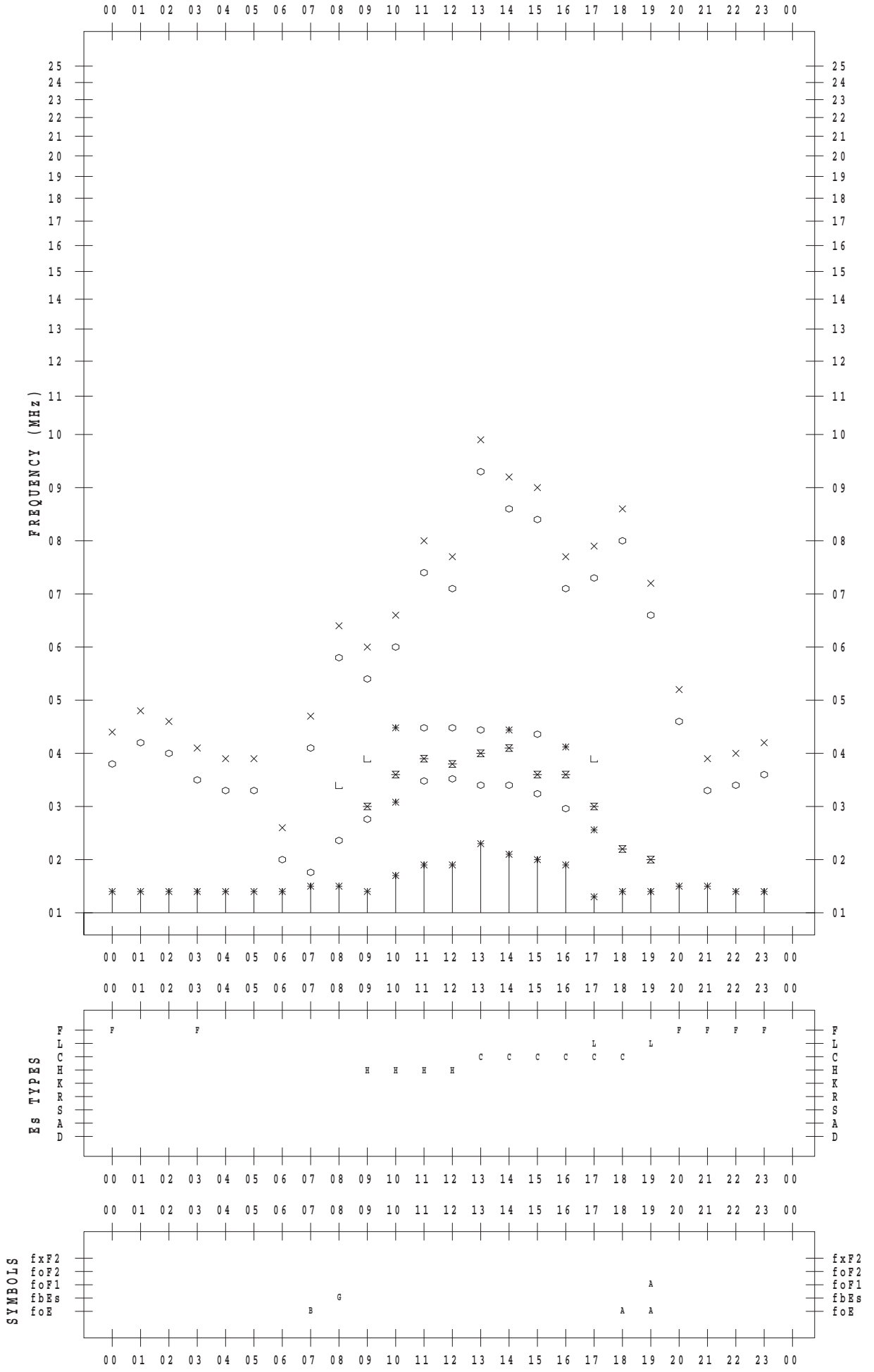
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2017/ 3/ 9

135 °E MEAN TIME



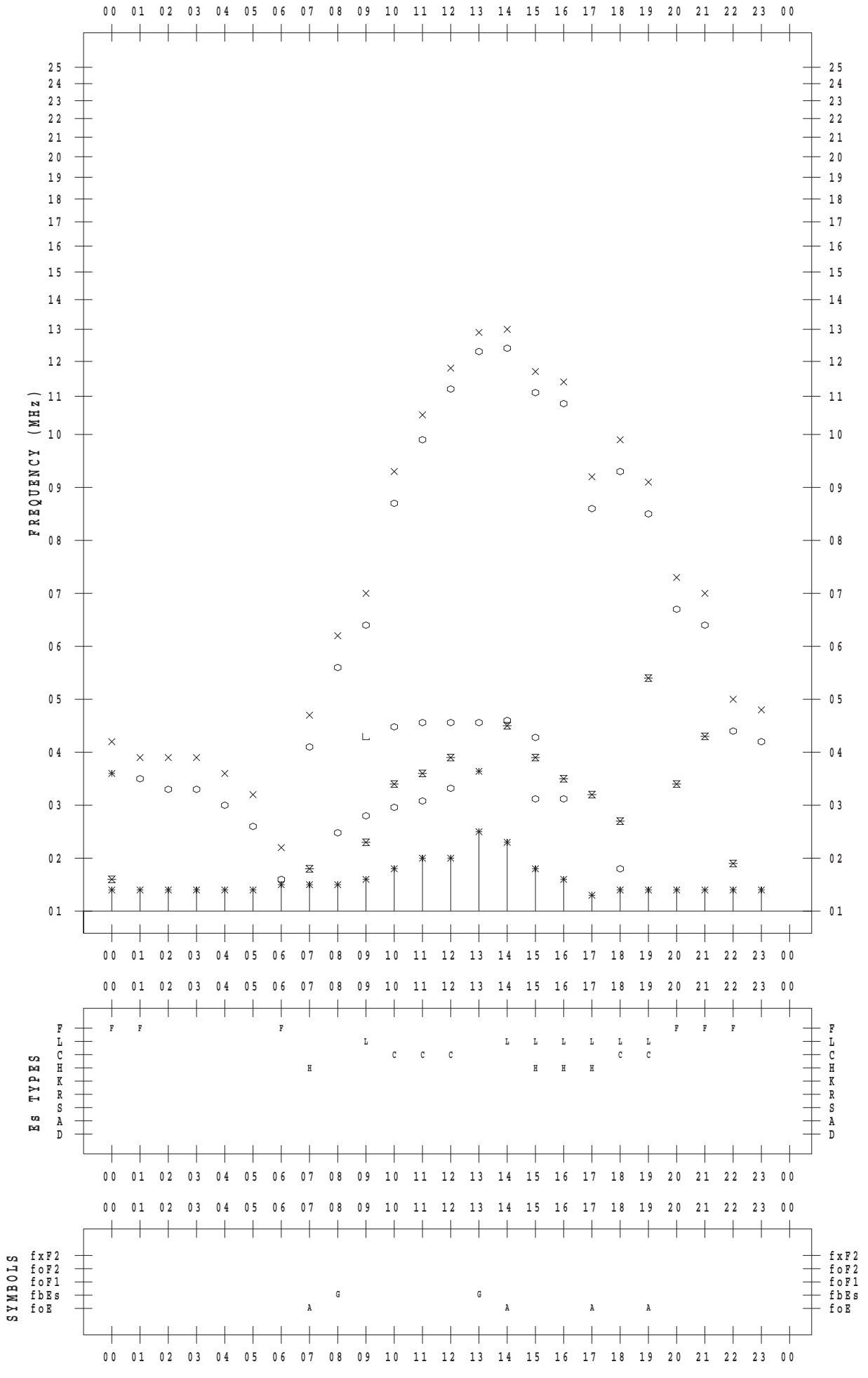
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2017/ 3/10

135 °E MEAN TIME



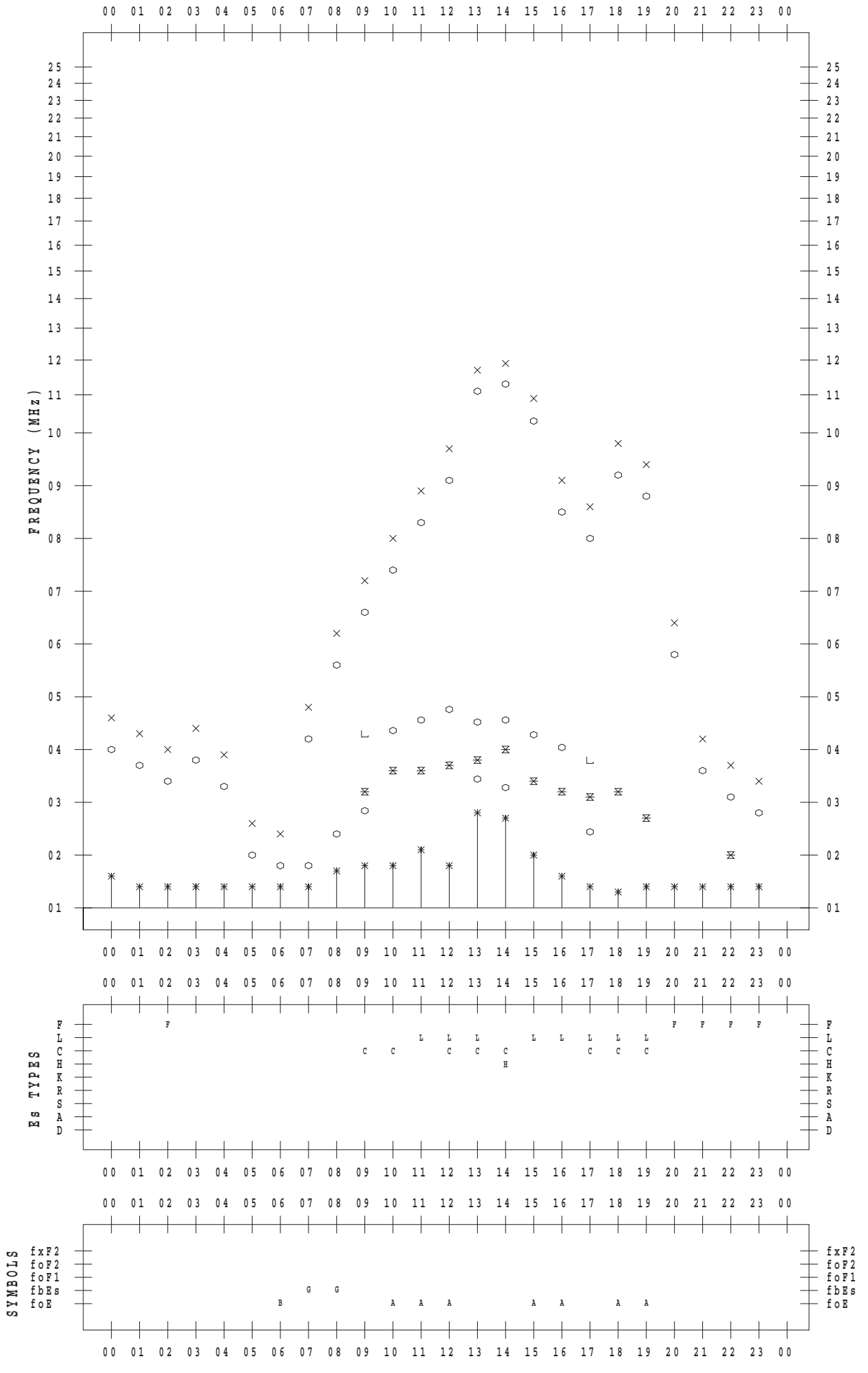
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2017/ 3/11

135 °E MEAN TIME



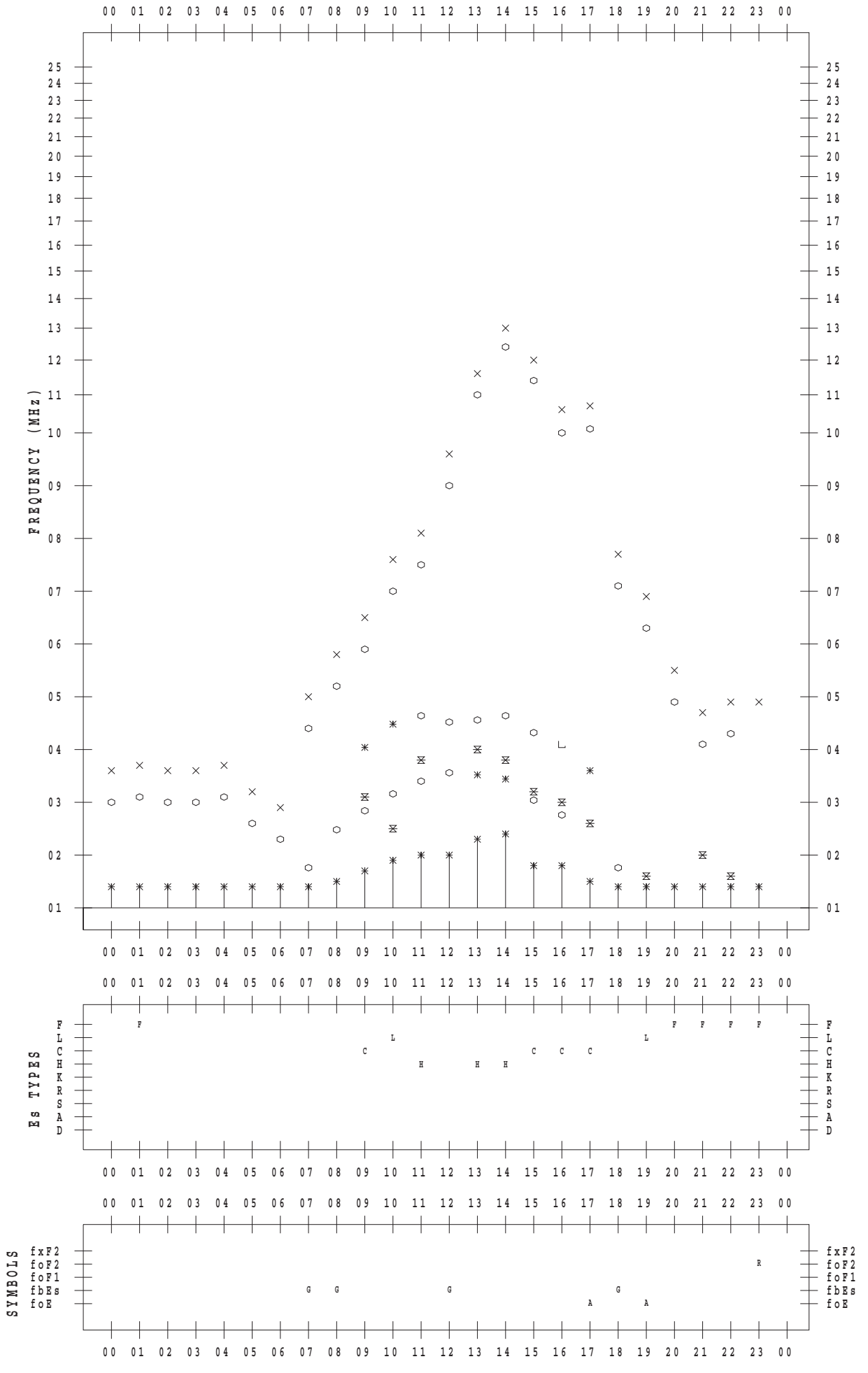
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2017/ 3/12

135 °E MEAN TIME



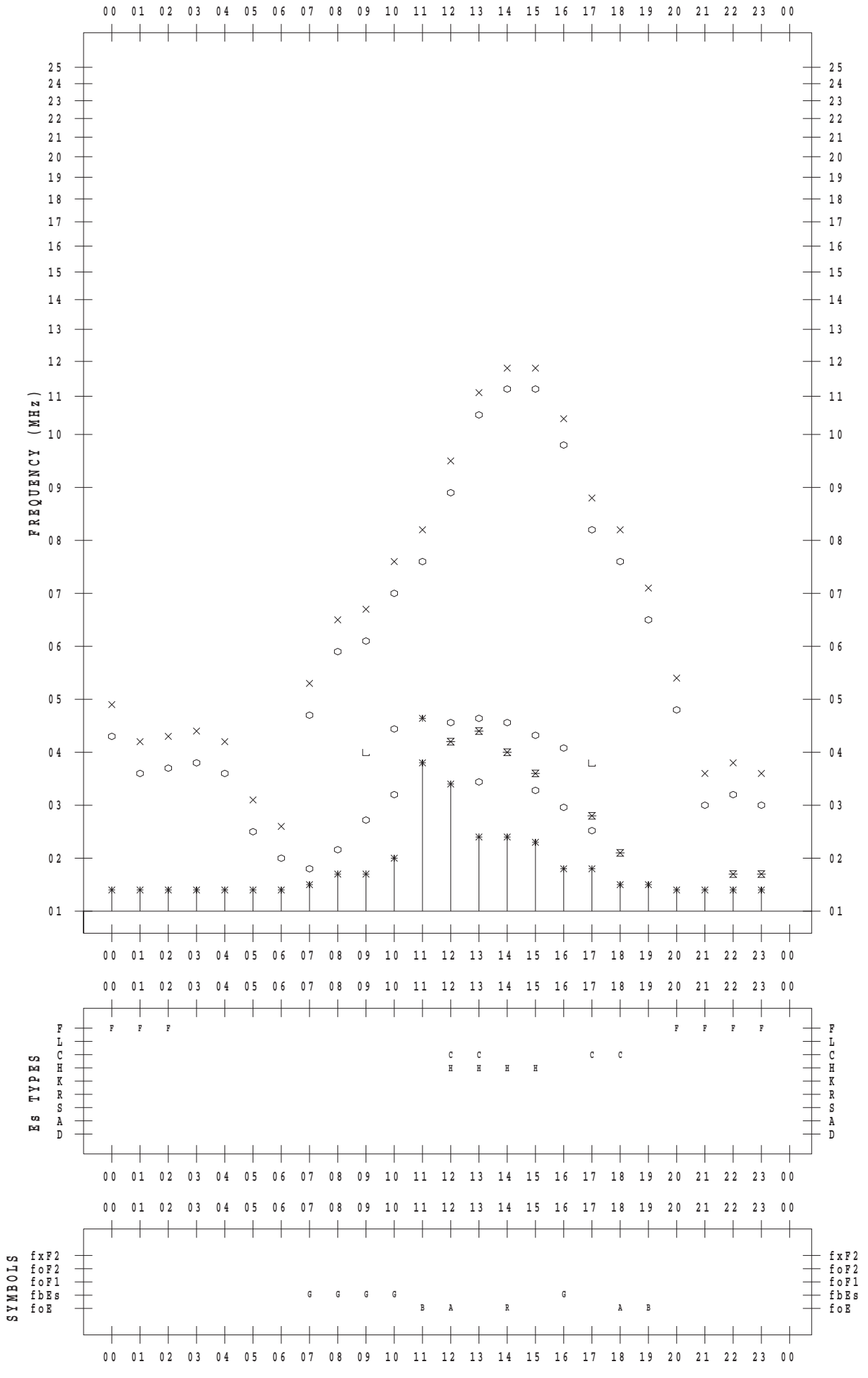
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2017/ 3/13

135 °E MEAN TIME



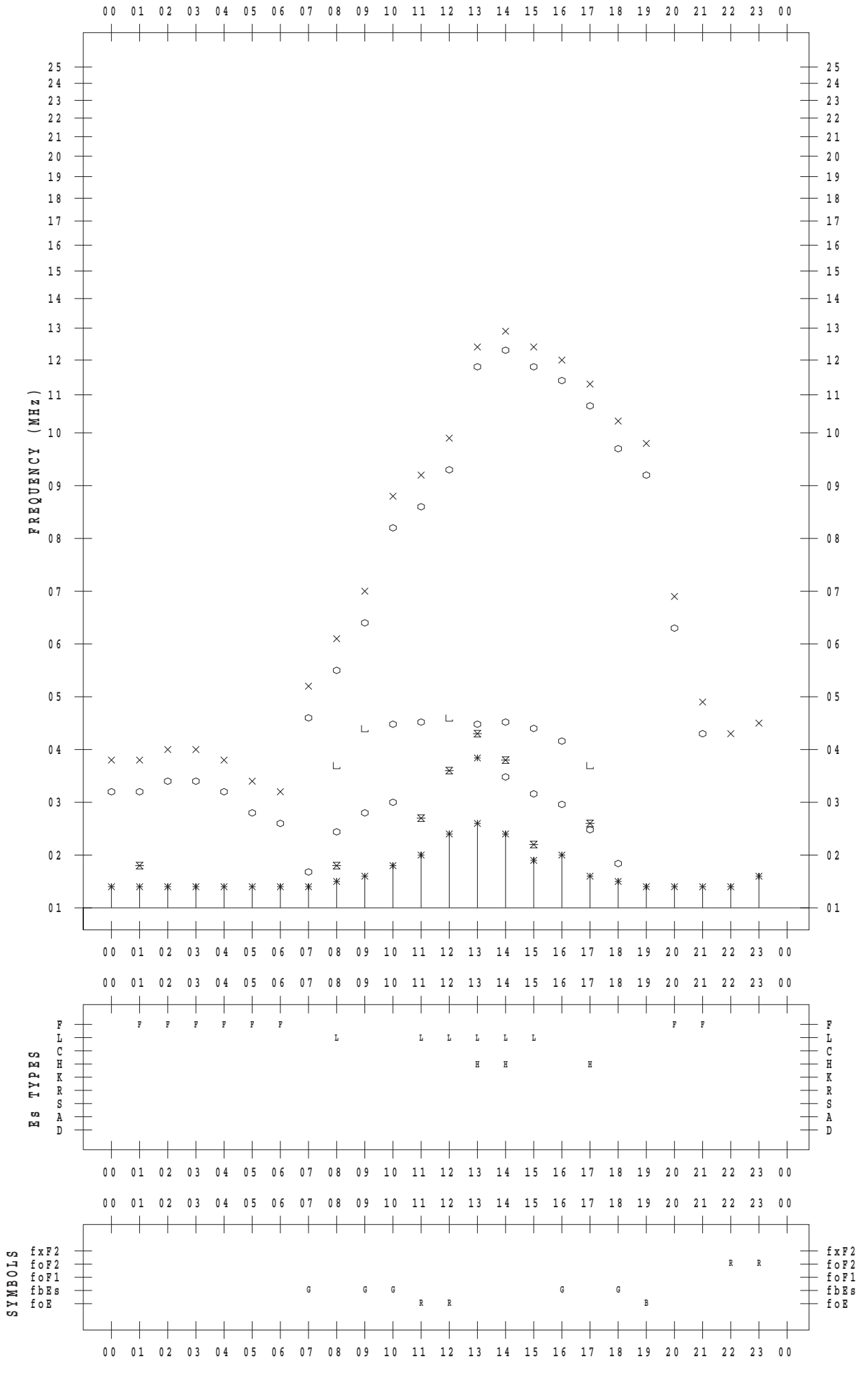
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2017/ 3/14

135 °E MEAN TIME



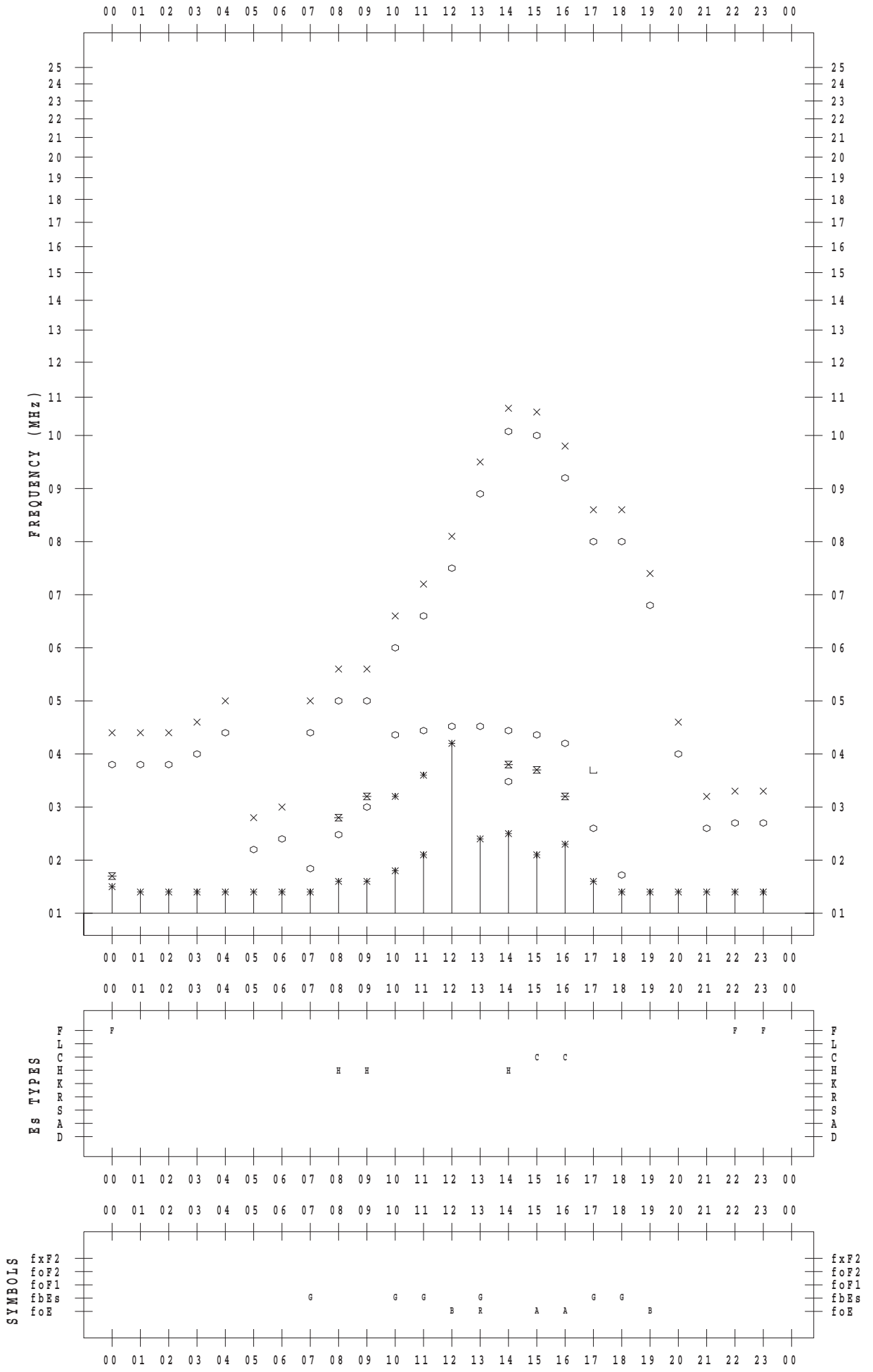
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2017/ 3/15

135 °E MEAN TIME



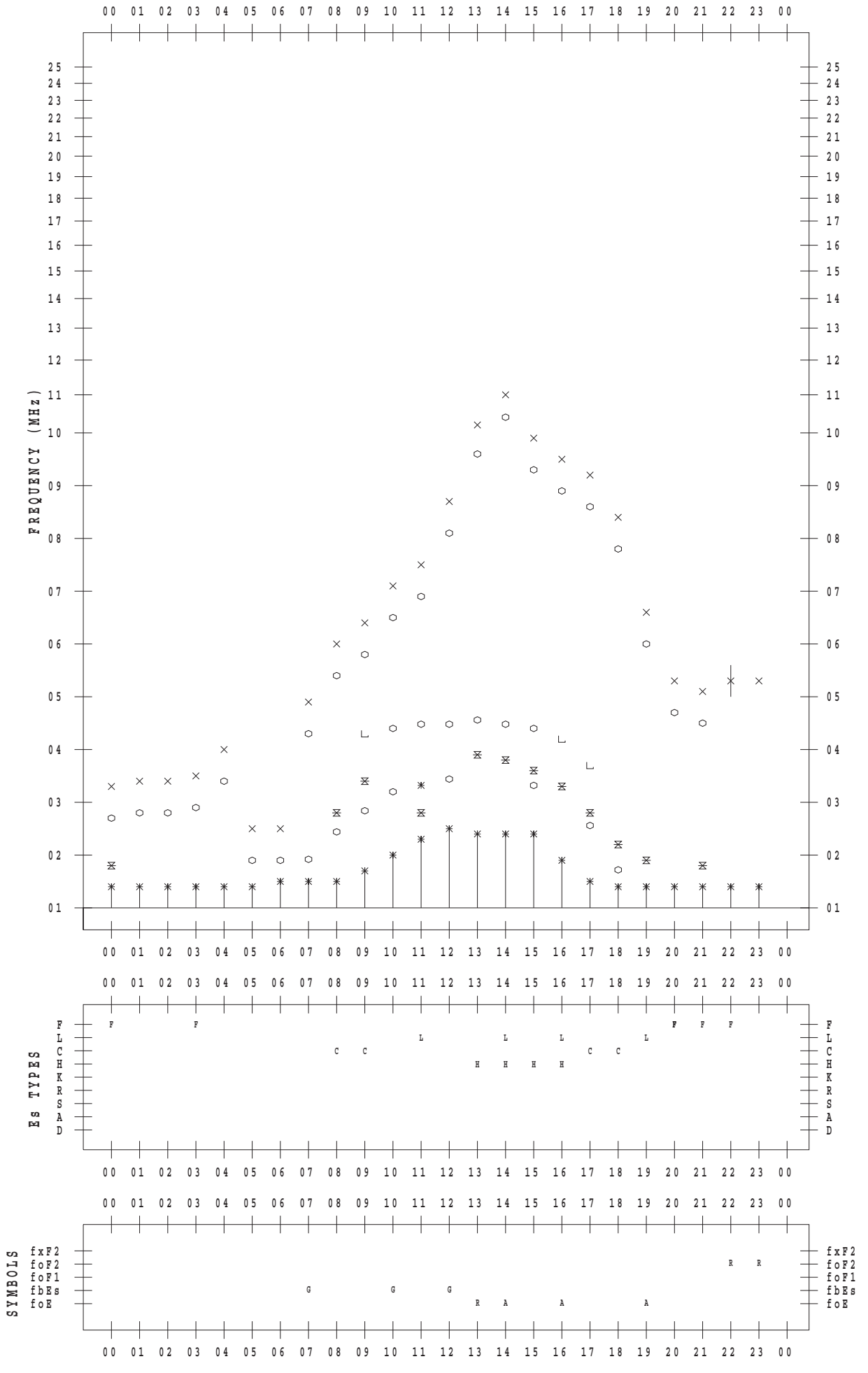
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2017/ 3/16

135 °E MEAN TIME



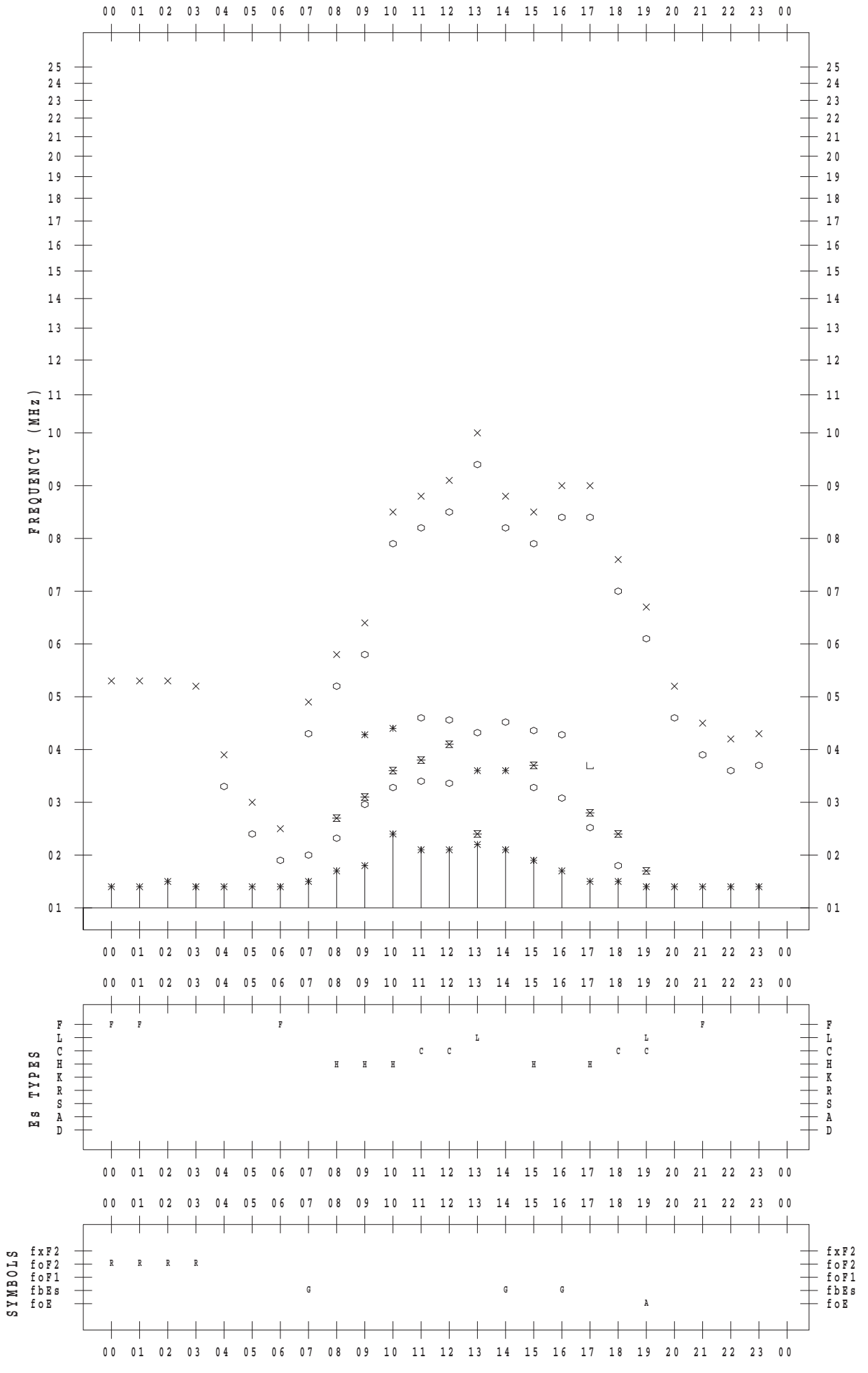
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2017/ 3/17

135 °E MEAN TIME



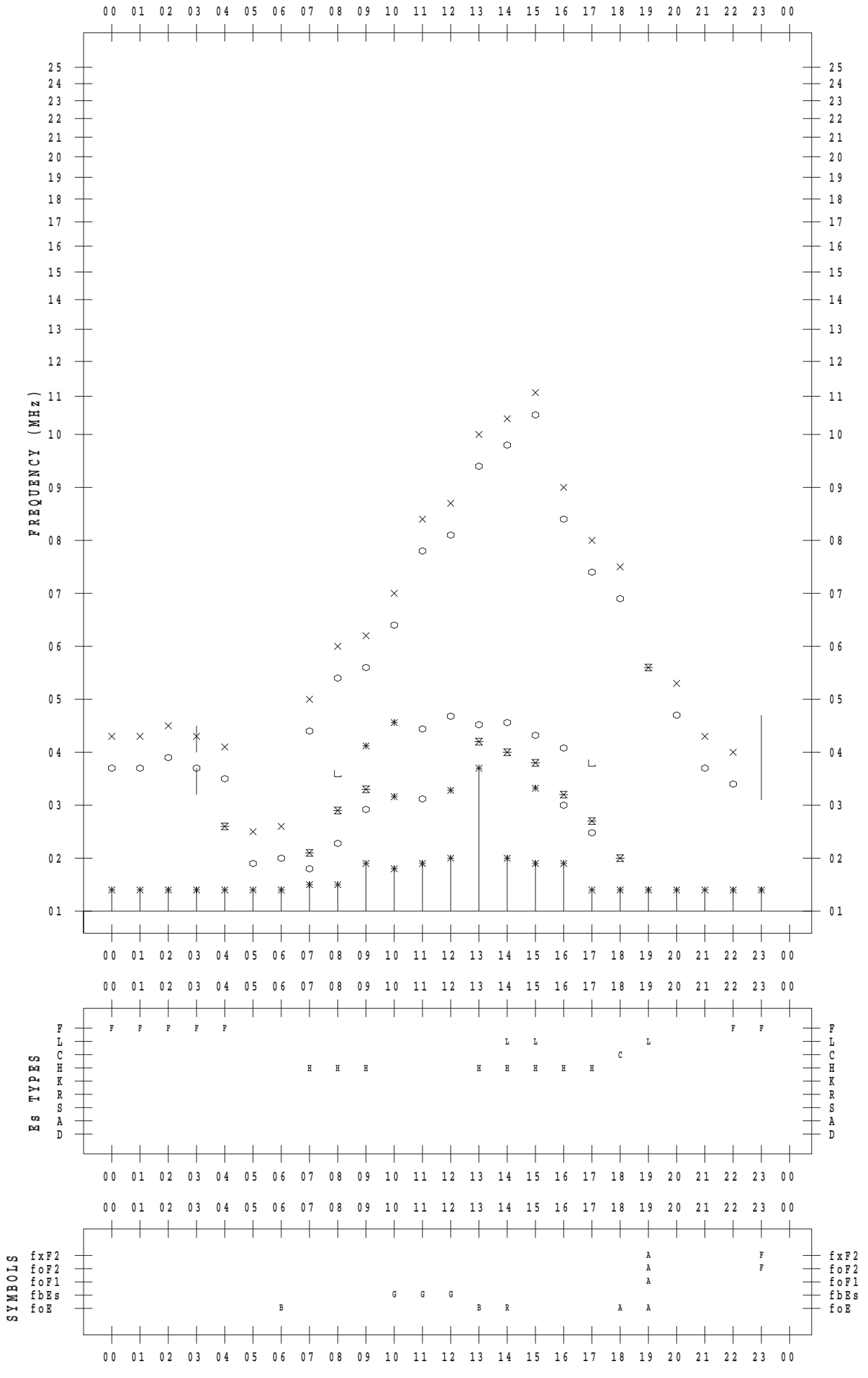
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2017/ 3/18

135 °E MEAN TIME



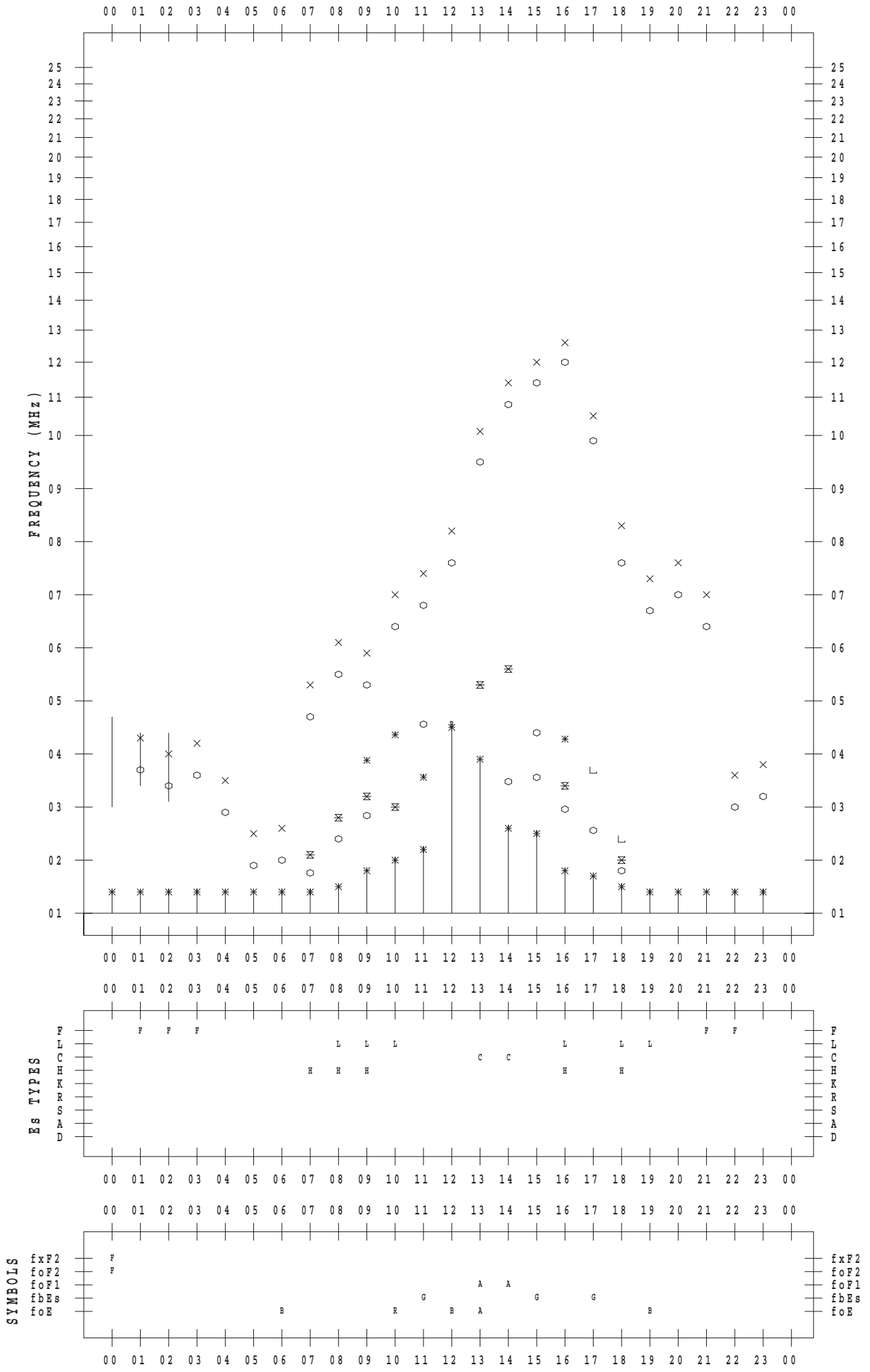
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2017/ 3/19

135 °E MEAN TIME



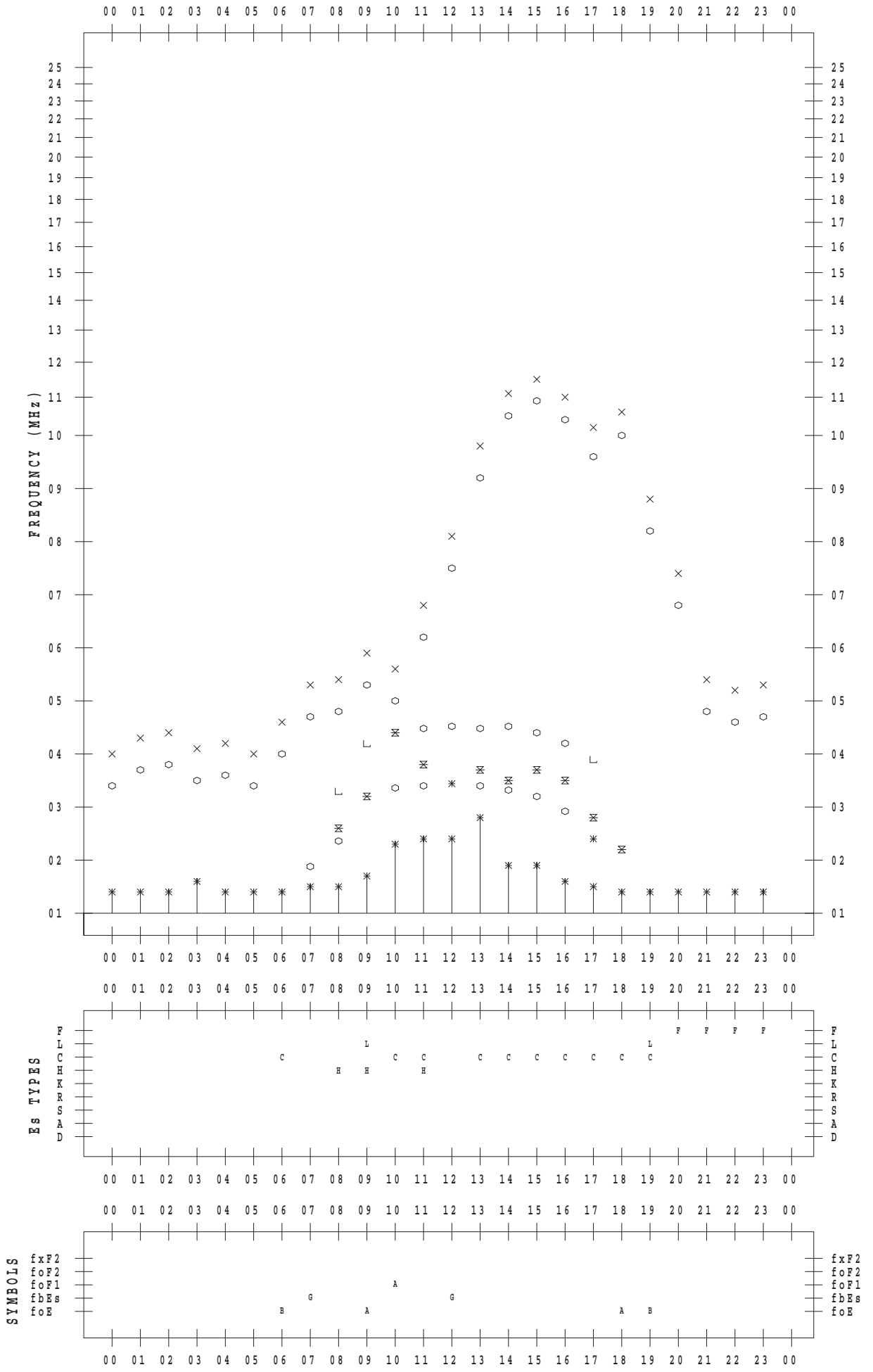
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2017/ 3/20

135 °E MEAN TIME



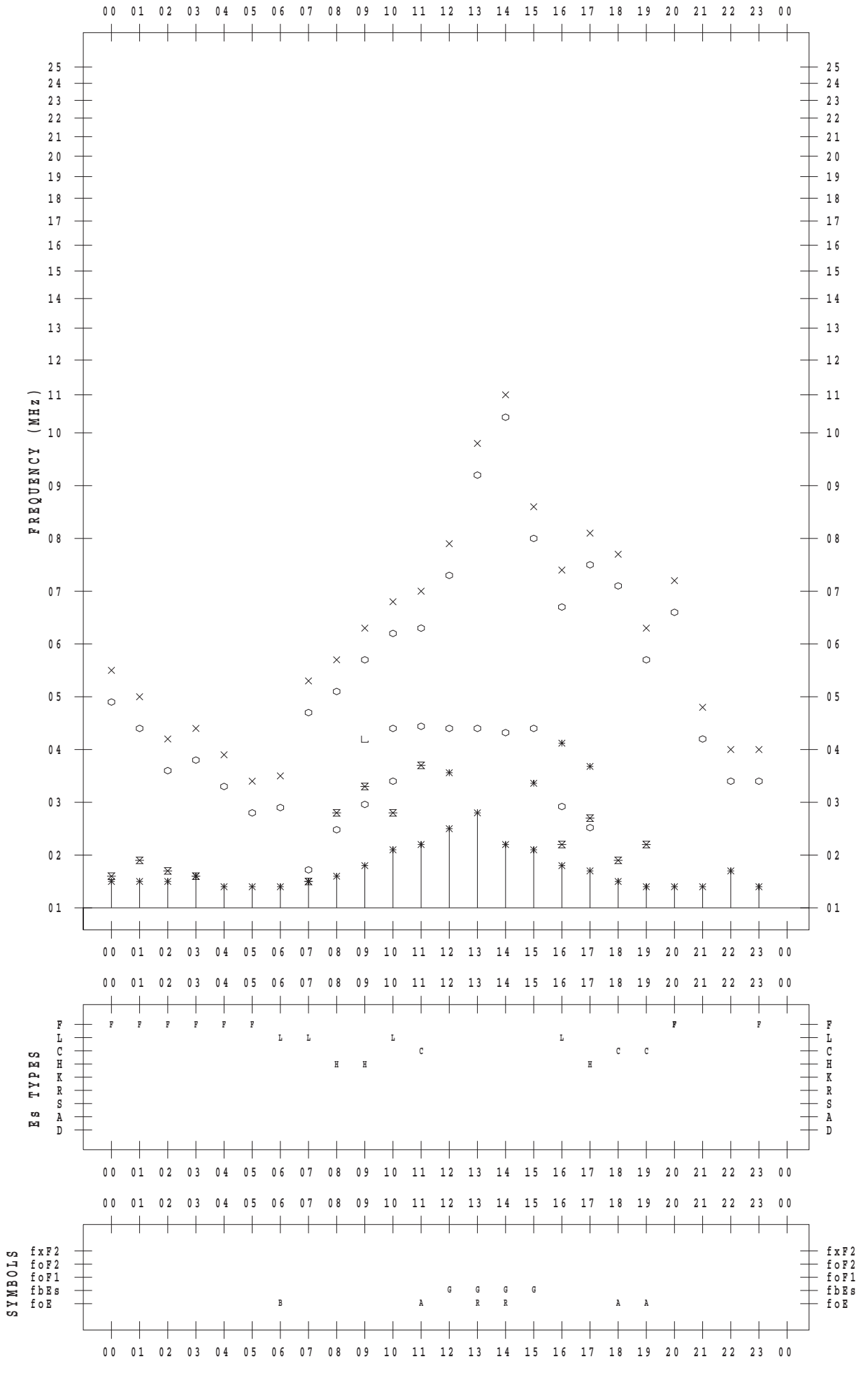
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2017/ 3/21

135 °E MEAN TIME



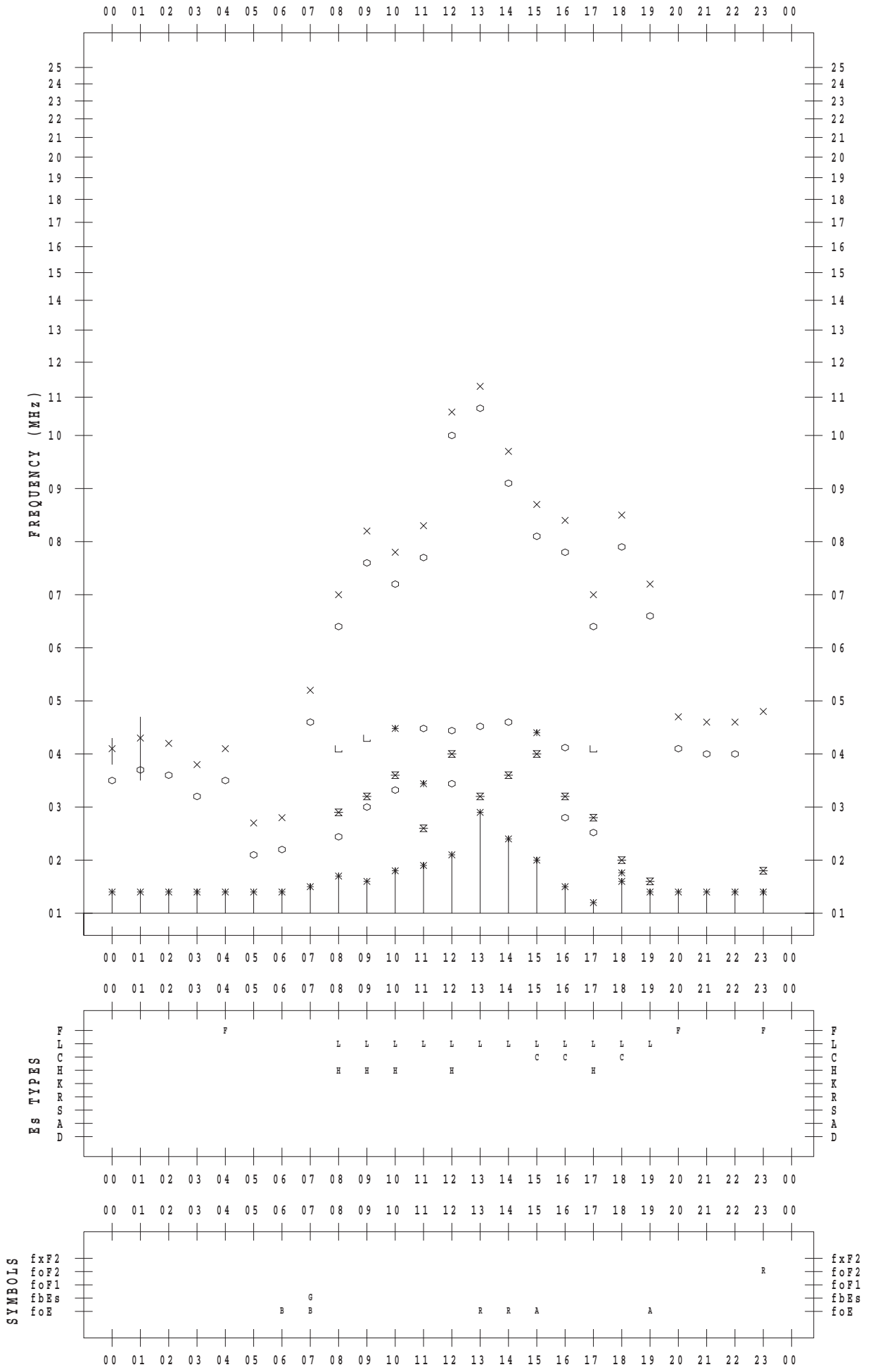
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2017/ 3/22

135 °E MEAN TIME



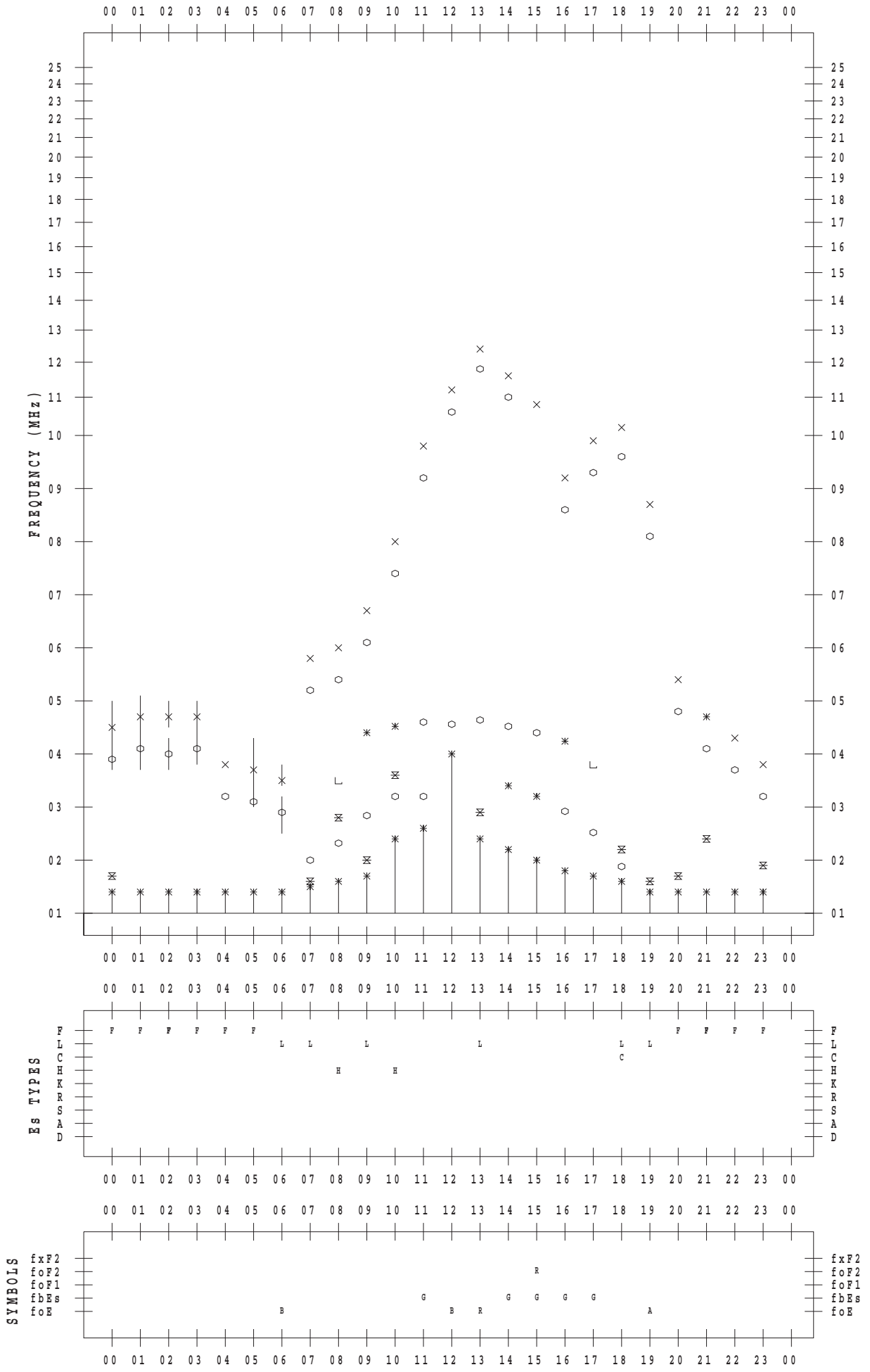
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2017/ 3/23

135 °E MEAN TIME



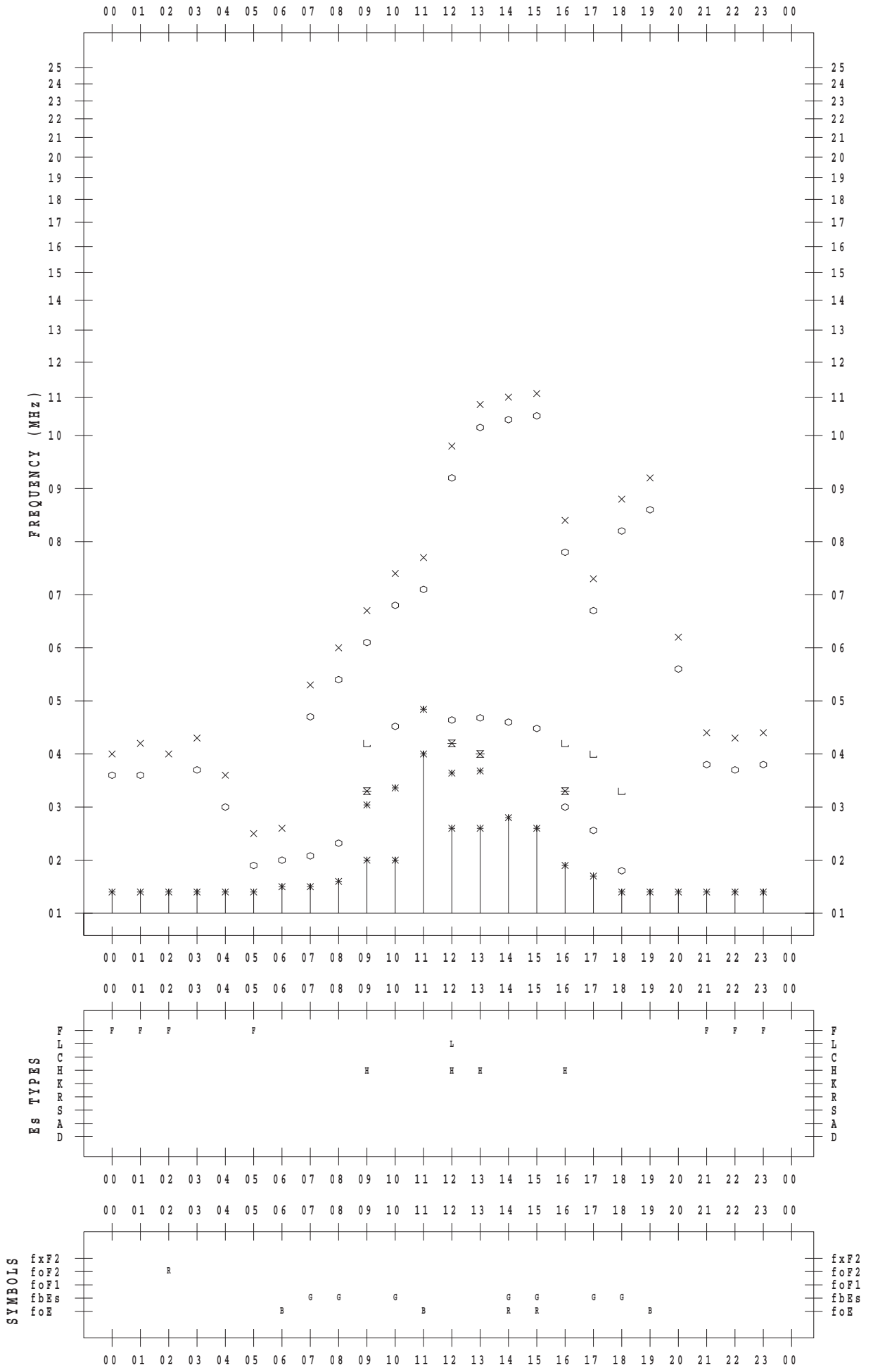
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2017/ 3/24

135 °E MEAN TIME



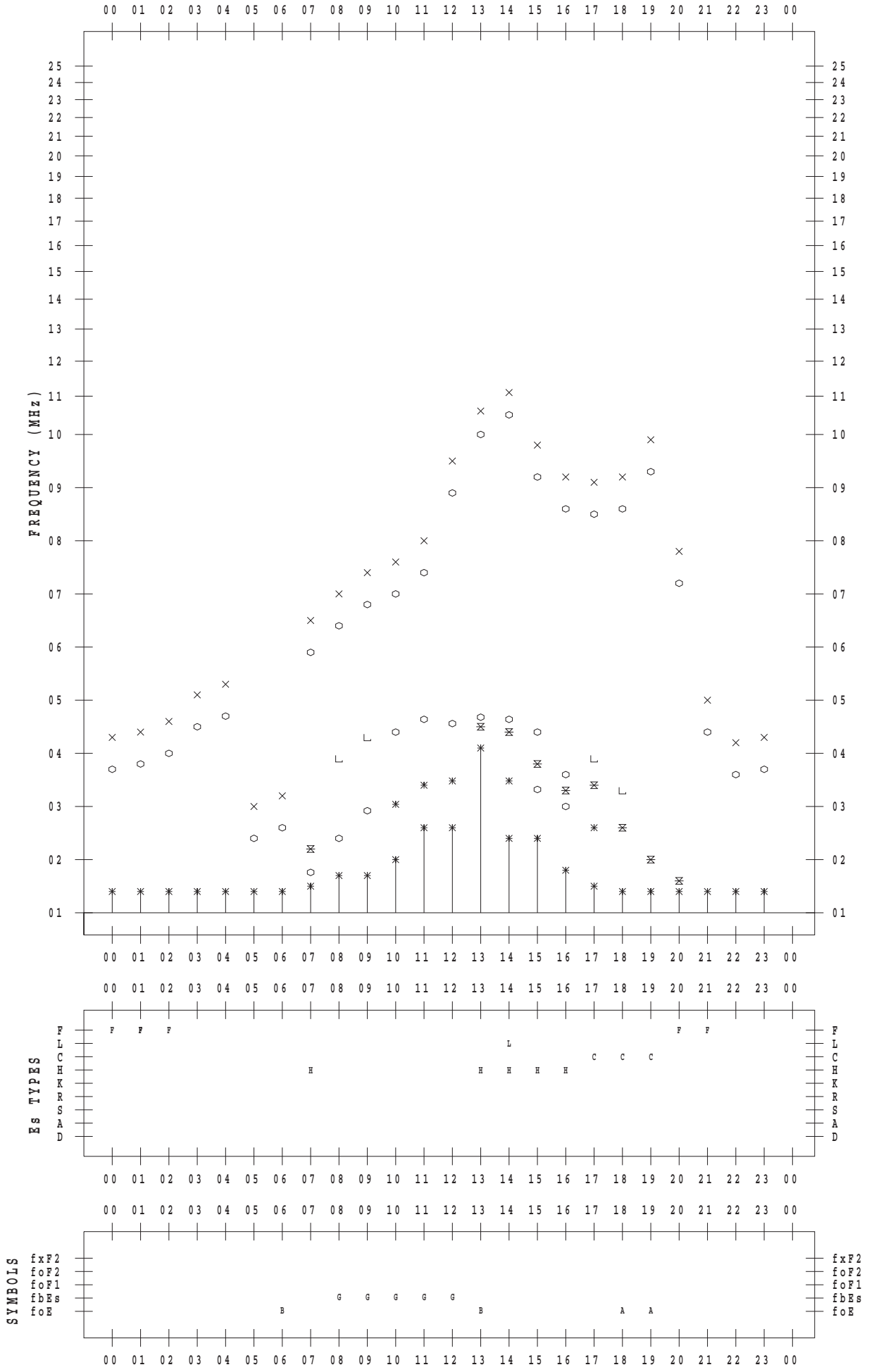
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2017/ 3/25

135 °E MEAN TIME



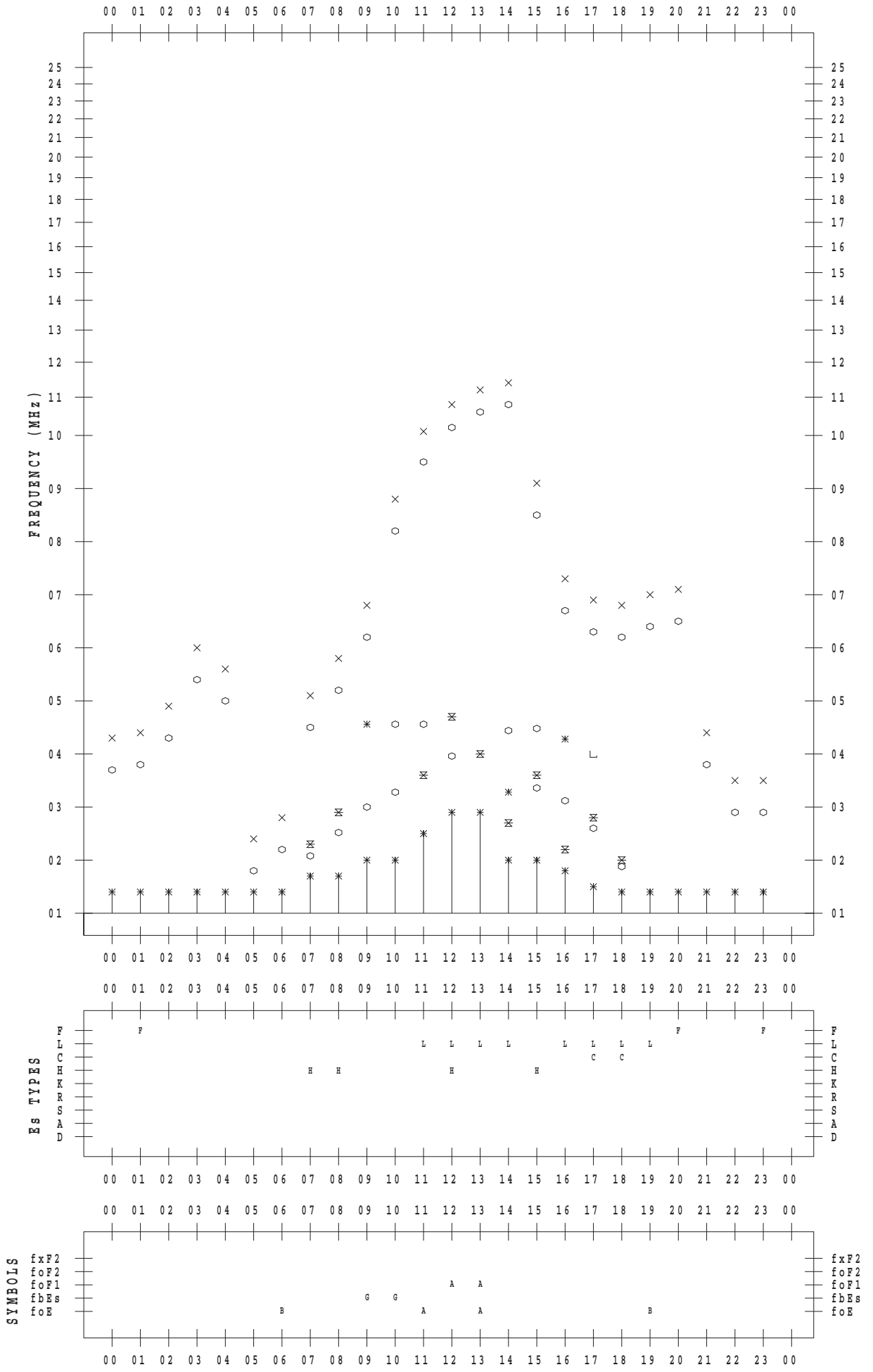
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2017/ 3/26

135 °E MEAN TIME



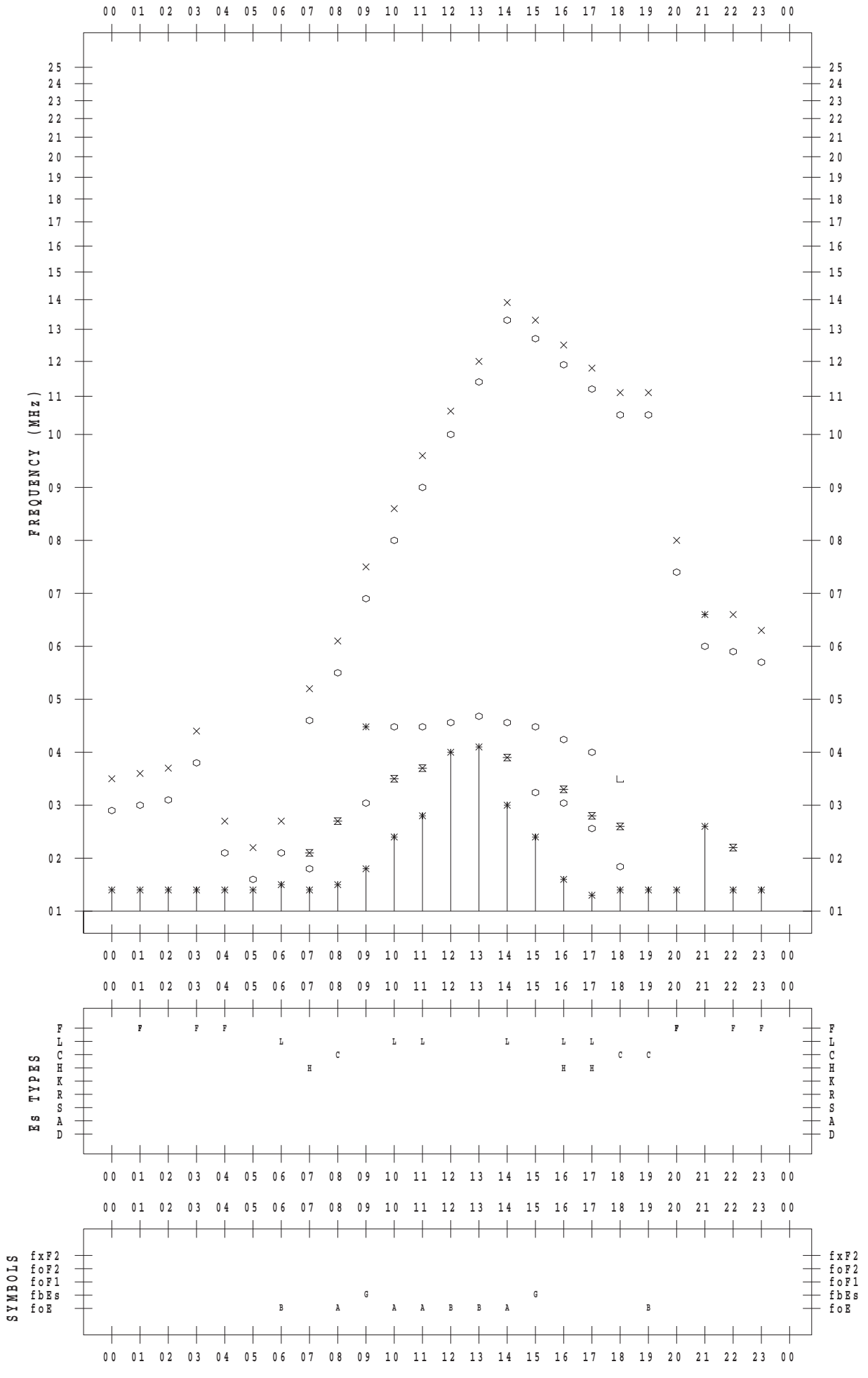
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2017/ 3/27

135 °E MEAN TIME



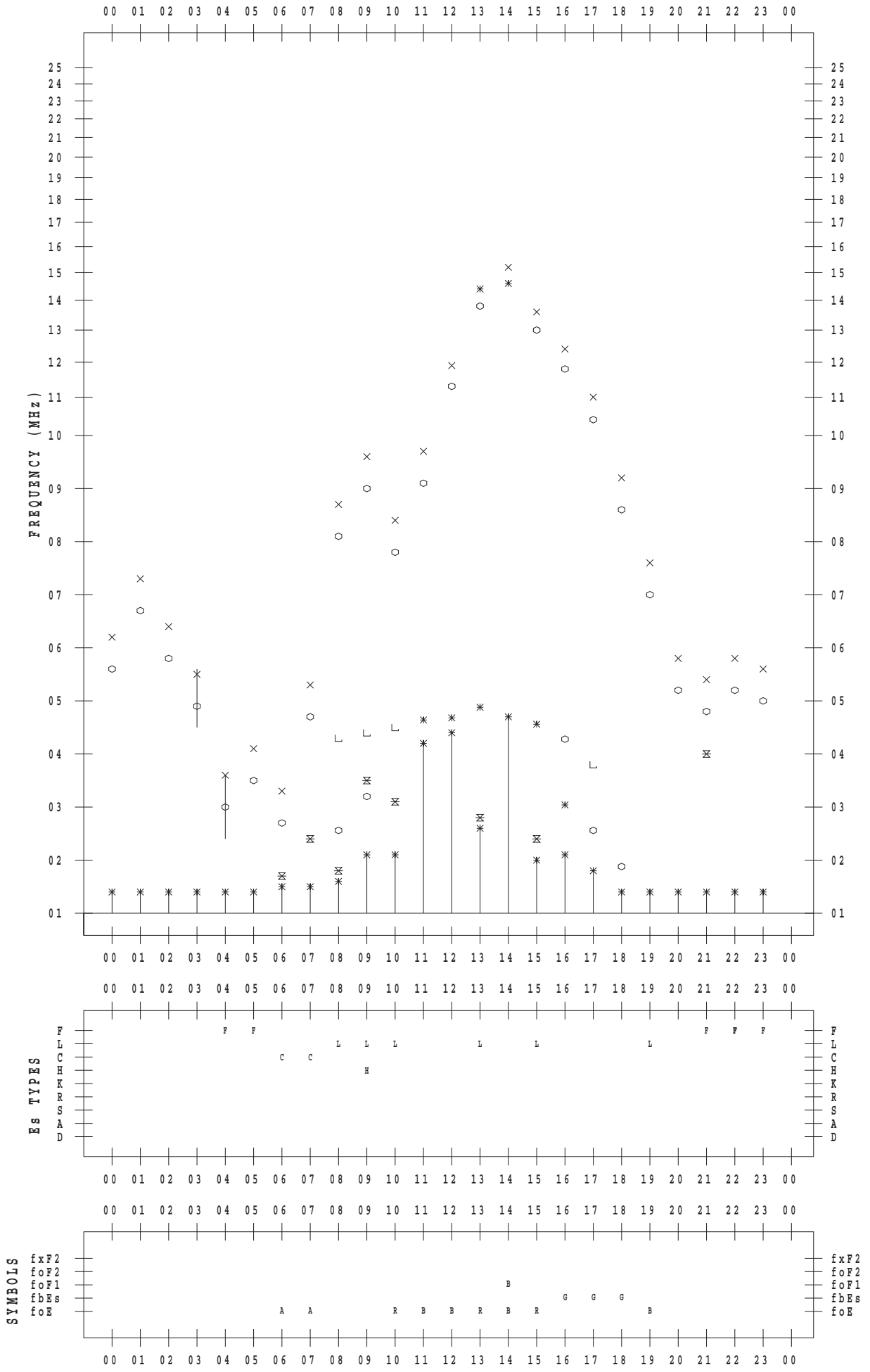
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2017/ 3/28

135 °E MEAN TIME



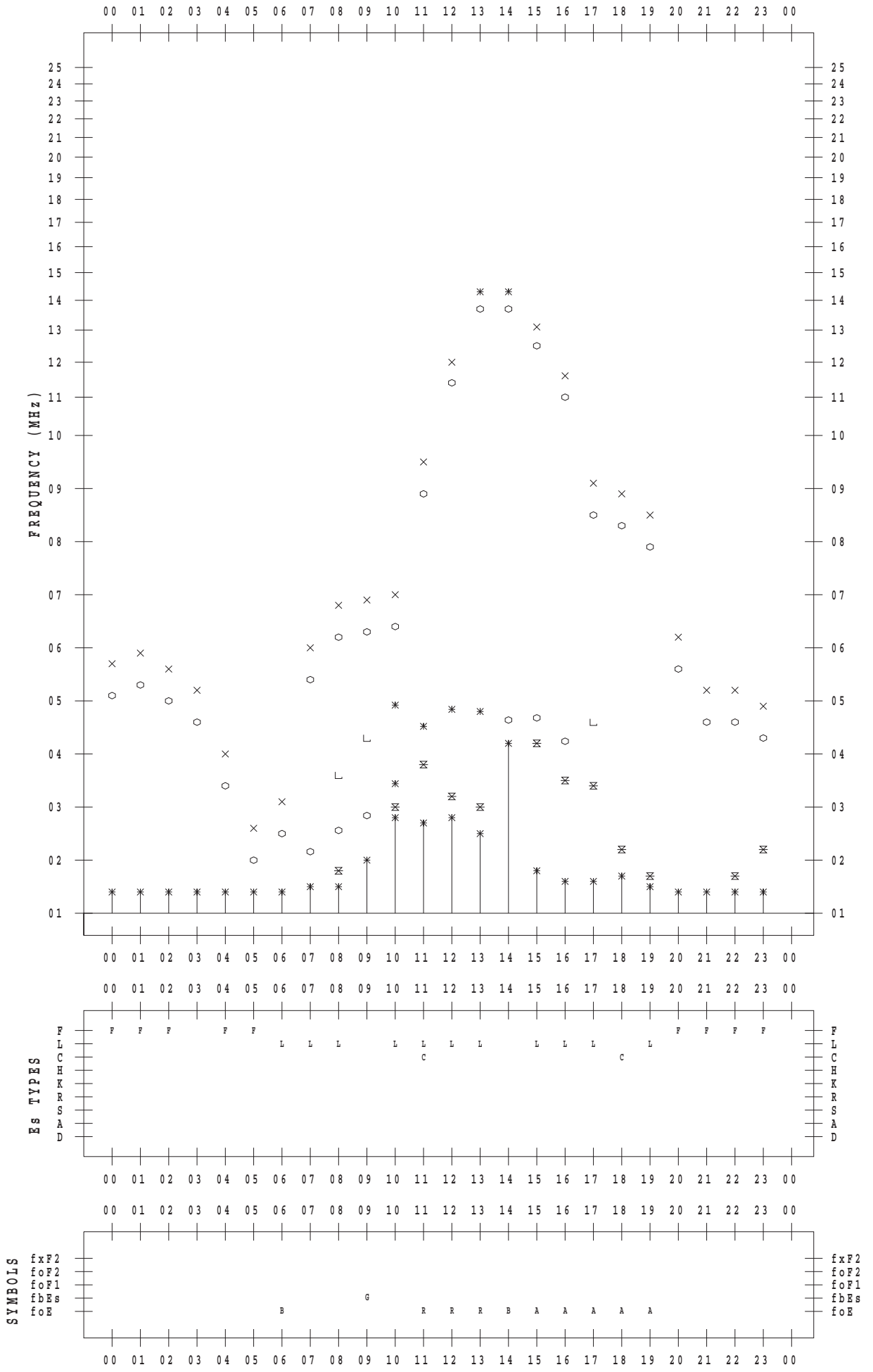
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2017/ 3/29

135 °E MEAN TIME



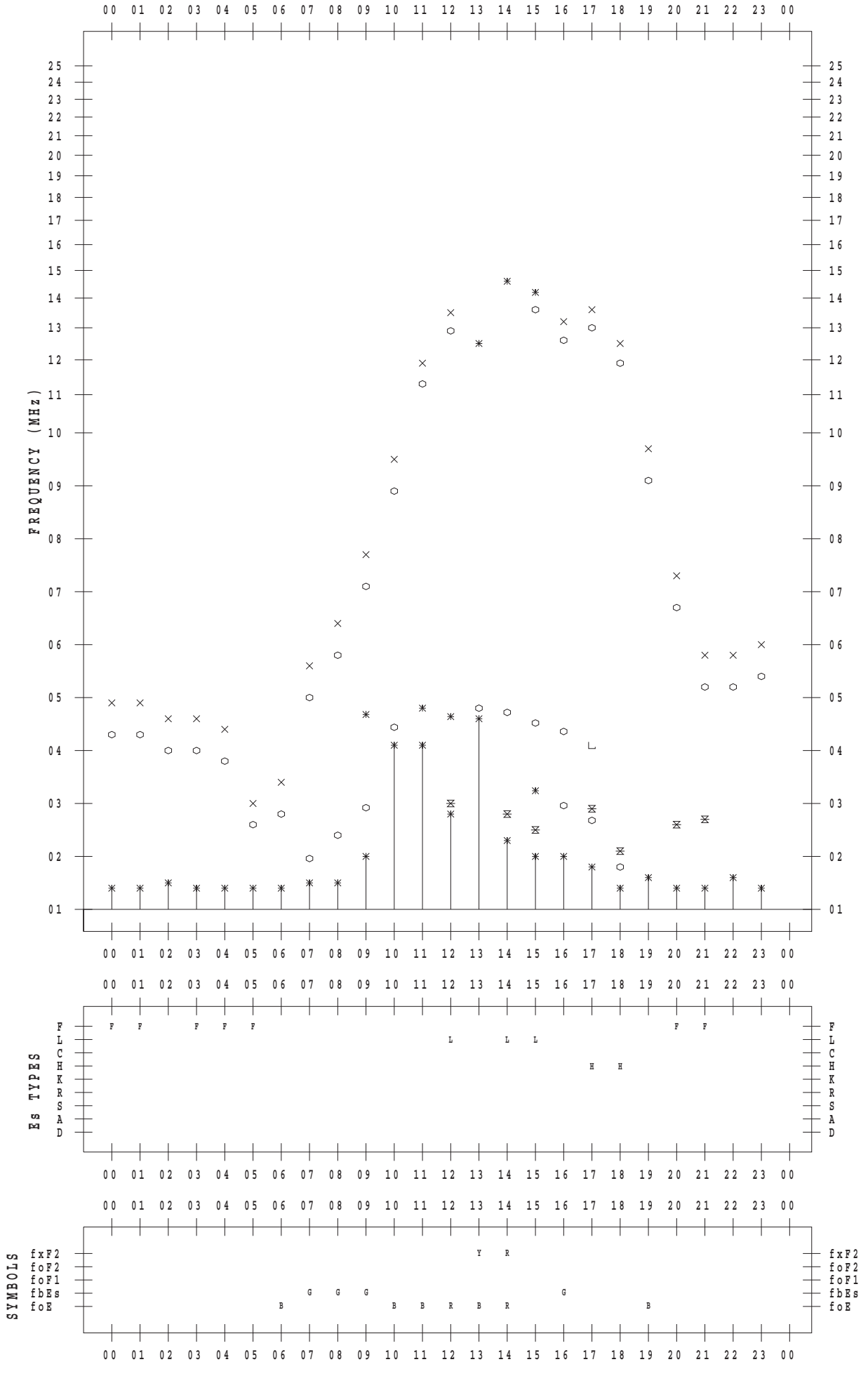
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2017/ 3/30

135 °E MEAN TIME



f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2017/ 3/31

135 °E MEAN TIME