F-820

IONOSPHERIC DATA IN JAPAN

FOR APRIL 2017

VOL. 69 NO. 4

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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

APR. 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	41	G	G	24	G	G	G	G	34	35	G	32	32	45	G	G	32	G	G	G	G	G	G	G
2	G	G	G	G	G	G	G	G	35	35	34	33	40	32	G	G	33	G	24	G	G	G	G	G
3	G	G	G	G	G	G	G	38	34	32	34	35	33	32	37	34	G	23	G	G	23	24	G	G
4	G	G	G	G	G	G	G	36	40	G	41	35	39	96	32	34	G	G	24	G	G	G	G	G
5	G	G	G	G	26	29	149	58	59	83	86	36		40	38	34	33	24	G	26	G	28	50	G
6	G	G	G	G		G	35	33	106	48	56	48	42	34	G	G	32	G	G	G	G	G	G	30
7	G	23	G	G	27	24	23	156	35	46	41	46	35	45	110	G	32	G	G	G	G	G	G	G
8	G	G	G	G	G	G	38	G	34	36	43	46	41	57	43	43	40	37	G	G	G	25	G	28
9	24	29	32	25	G	G	G	36	36	106	39	34	38	40	39	34	G	G	G	G	G	G	G	G
10	G	G	G	G	G	G	32	33	44	38	45	39	40	39	G	35	33	G	G	G	G	G	G	G
11	G	G	G	G	G	59	125	40	36	38	160	43	44	40	41	40	34	G	G	G	G	G	G	G
12	24	G	G	G	G	G	91	34	131	44	45	46	49	40	G	38	36	G	27	24	G	26		28
13	25	29	G	G	G	G	115	32	132	39	39	40	47	41	38	37	33	G	G		G	G	G	G
14	G	G	G	G	11	20	39	33	108	36	42	43	40	40	41	47	43	32	25	G	G	G	G	G
15	G	G	G	G	G	G	36	71	50	91	46	50	33	34	G	40	105	36	30	36	42	44	49	36
16	G	G	G	27	G	G	G	G	36	39	37	40	34	32		36	32	33	G	G	35	53	48	33
17	G	G	G	G	G	36	34	31	41	46	64	45	150	39	41	43	33	27	26	28	G	G	G	G
18	G	G	G	G	G	G	94	38	38	39	33	40	132	40	38	35	34	G	G	G	G	G	G	G
19	G	G	G	G	G	G	46	34	36	37	33	45	41	35	32	G	39	37	33	28	26	25	G	G
20	G	25	G	G	G	G	69	60	34	35	38	35	132	33	32	G	46	40	G	G	G	25	30	29
21	46	25	29		124	59	26	44	36	44		50	50	52	40	G	G	40	G	G	25	G	G	24
22	G	G	G	G	G	G	33	34	G	38	159	47	46	36	40	37	46	34	G	G	G	G	G	G
23	24	26	46	33	29	31	113	44	44	35	50	107	39	43	34	38	33	G	G	26	G	G	G	G
24	G	G	G	G	G	G	G	131	40	34		42	34	51	38	36	G	G	G	G	G	G	G	G
25	G	G	G	G	G	G	28	G	35	46	40	36	35	G	G	G	G	G	G	G	G	G	G	G
26	G	G	G	G	G	G	G	34	34	46	45	G	37	37	38	37	G	G	G	G	G	G	G	G
27	27	G	G	G	G	G	G	G	G	G	40	38	38	35	31	G	G	G	G	26	G	G	G	G
28	G	G	G	G	G	G	G	G	G	37	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	40	41	28	G	G	G	36	G	G
30	G	G	G	G	G	G	36	38	85	43	129	44	52	40	44	43	59	73	48	40	G	28	G	G
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	29	29	29	28	28	29	29	29	29	29	26	28	27	28	27	29	29	29	29	28	29	29	28	29
MED	G	G	G	G	G	G	33	34	36	38	42	41	40	40	38	35	33	G	G	G	G	G	G	G
U Q	12	G	G	G	G	10	57	42	47	46	50	46	47	42	40	39	39	33	24	25	G	25	G	12
L Q	G	G	G	G	G	G	G	16	34	35	38	35	35	34	G	G	G	G	G	G	G	G	G	G

HOURLY VALUES OF fmin AT Wakkanai

APR. 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	17	14	16	14	14	20	14	14	18	15	34	16	15	15	14	14	14	15	14	14	15	14	15
2	14	14	15	14	15	14	21	32	16	17	15	17	33	21	20	18	14	26	17	14	14	14	14	15
3	14	14	14	14	14	14	26	15	14	18	27	28	41	24	18	16	15	14	15	14	14	14	14	14
4	17	14	14	15	14	14	24	15	14	15	20	20	17	20	15	15	17	15	14	15	15	14	15	14
5	14	14	14	18	15	14	14	14	15	18	17	20		21	18	16	14	14	16	15	14	15	14	14
6	16	14	14	14		17	14	14	14	14	16	21	16	15	16	14	14	14	17	14	14	15	15	14
7	15	14	14	17	14	14	14	14	14	15	23	17	16	17	15	14	14	14	15	15	14	17	15	14
8	14	14	14	14	14	15	14	14	14	15	15	17	16	15	16	15	14	15	14	14	14	14	14	14
9	15	14	14	14	14	14	15	14	14	14	15	16	17	14	15	14	14	14	15	15	15	15	14	14
10	14	14	15	14	15	14	14	14	14	14	16	16	17	18	17	15	14	14	15	15	14	15	14	14
11	15	15	14	14	14	15	15	14	14	14	15	23	22	17	17	14	14	14	17	14	15	14	14	14
12	14	14	15	14	14	14	14	14	14	16	17	16	15	15	15	15	14	14	17	14	14	15		14
13	14	14	15	14	14	15	14	14	14	14	15	18	15	15	18	14	14	14	16		15	14	14	14
14	14	14	15	15	14	17	18	14	14	14	16	18	16	18	15	14	14	14	15	14	14	14	14	14
15	15	14	14	14	15	17	15	14	14	14	15	15	17	15	14	15	14	14	14	14	14	14	14	14
16	14	14	15	14	14	14	22	14	14	14	20	27	16	18		15	14	14	16	14	14	14	14	14
17	14	14	14	14	16	18	16	14	14	17	26	18	27	20	15	15	15	14	14	14	18	14	15	15
18	14	15	15	17	15	15	14	14	18	16	17	18	15	26	17	15	14	14	14	14	14	14	15	14
19	14	15	14	16	14	15	14	14	18	17	33	30	27	20	20	16	14	14	14	15	14	15	17	14
20	15	15	14	14	14	17	14	14	14	18	18	17	27	20	15	14	14	14	15	14	14	14	14	14
21	14	14	14		14	15	14	15	14	15		27	27	18	18	15	14	14	14	14	14	15	14	14
22	14	15	14	14	15	18	14	18	18	20	14	28	27	18	21	14	14	14	20	14	15	14	16	14
23	15	14	14	14	14	14	14	14	14	14	15	30	26	18	18	17	15	24	14	16	15	15	15	20
24	15	14	15	14	14	18	14	15	15	18		27	17	17	15	14	15	29	20	15	28	17	28	15
25	21	15	30	14	20	27	15	18	28	29	30	18	28	48	43	44	17	32	20	15	17	16	16	17
26	22	15	14	18	15	20	14	14	18	18	32	49	47	30	28	24	18	16	21	17	26	17	16	15
27	15	15	14	15	15	20	26	17	40	42	30	30	29	27	32	16	18	23	20	15	27	26	15	15
28	16	14	14	14	26	22	14	16	41	29	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	18	14	14	18	18	15	14	15	15
30	15	15	15	15	14	27	15	14	14	18	20	28	18	18	17	14	14	14	14	14	15	14	14	14
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	29	29	29	28	28	29	29	29	29	29	26	28	27	28	27	29	29	29	29	28	29	29	28	29
MED	14	14	14	14	14	15	14	14	14	16	17	20	17	18	17	15	14	14	15	14	14	14	14	14
U Q	15	15	15	15	15	18	17	15	17	18	23	28	27	20	18	16	15	15	17	15	15	15	15	15
L Q	14	14	14	14	14	14	14	14	14	14	15	17	16	16	15	14	14	14	14	14	14	14	14	14

HOURLY VALUES OF foF2 AT Kokubunji

APR. 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	39	39	42	34	27		44	57	55	66	76	77	78	70	64	71	66	67	67	58	46	44	44	45
2	45	42	38	43	30	34	44	50	57		80	84	71	87	82	68	66	69	67	62	44	42	42	42
3	42	38	38	36	30	30	44	55	67	63	68	72	80	90	76	66	70	66	59	51	48	36	47	47
4	46	43	39	38	30	30	47	58	65	65	71	81	83	91	87	62	68	61	66	75	67	53	48	48
5	47	52	N	27	27	N	45	55	52	56	61	62	A	89	62	57	57	58	61	60	48	37	38	42
6	42	39	37	32	32	37	42	47	57	52	65	84	84	74	A	59	44	55	57	54	49	47	45	46
7	44	38	41	43		27	42	47	57	67	69	64	63	58	63	59	55	49	49	52	54	53	48	49
8	46	43	36	36	34	35	41	46	56	54	68	60	71	74	68	57	55	58	55	64	52	54	52	46
9	36	38	36	36	34	38	45	54	56	61	65	80	84	85	73	76	66	66	61	53	47	44	45	43
10	43	37	39	39	A	32	47	52	59	A	72	86	83	74	71	66	59	57	54	55	51	42	44	47
11	43	44	43	37	26	31	37	44			56	64	65	64	60	57	56	57	44	53	51	47	48	47
12	48	43	43	37	25	30	47	45	52	57	56	64	62	59	64	59	56	54	51	52	47	48	43	44
13	38	42	36	34	28	30	45	52	53	58	60		56	65	65	63	58	58	57	51	51		42	44
14	42	36	32	37	27	36	44		48	59	65	66	58	56	62	75	76	67	63	51	54	47	45	47
15	44	43	41	42		26	A	A	A	A		A				49	A	47	49	55	51	A	34	34
16	32	A	A	34	36	36	42	45	48	54	A	62	61	58	A	45	65	54	49	47	42		36	32
17	N	37	36	34	36	36	53	56	56	51	54	48	59	60	58	49	55	55	59	67	63	38		36
18	36	32	36	32	30	31	57	57	58	62	63	67	71	66	69	68	63	59	62	66	52	43	32	46
19	42	39	42	37		31	57	62	62	58	65	67	69	77	80	77	67	81	80	74	46	42	A	42
20	44	42	N	36		38	46	46	41	56	A	55	60	68	78	84	58	100	88	A	47	30	42	A
21	42	39	36	34	27	32	57	57	57	59	58	106	72	66	62	65	65	61	62	63	50	47	42	46
22	44	42	41	39	42	37	52	56	51	56	54	45	66	76	76	83	78	68	60	58	67	47	39	43
23	39	A	38	38	43	31	A	A	A	A	A		62	58	55	54	59	58	59	72	55	42	41	36
24	36		32	35	27	33	47	62	55	61	59	65	74	73	72	78	87	76	69	61	59	C		
25				C	37	42	48	58	62	61	68	74	76	68	76	71	65	58	64	65	65	55	58	53
26	53	49	47	46	44	49	48	51	52	56	54	64	67	75	72	60	58	58	58	67	67	64	47	47
27	N	42	45	42	37	44	56	61	58	57	56		67	80	85	76	64	60	67	75	67	54	48	45
28	31	42	43	41	38	41	57	58	59	66	66	58	65	64	61	68	82	77	67	75	66	54	54	52
29	48	45	46	43	39	46	49	57	62	57	58	A	62	62	66	74	73	72	71	67	64	61	63	A
30	51	46	42	38	38	47	59	65	68	56	58		56	A	67	77		65	58	52	63	59	52	49
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	27	26	26	29	25	28	28	27	27	25	26	24	28	28	27	30	28	30	30	29	30	26	27	27
MED	43	42	39	37	32	34	47	55	57	58	64	66	67	69	68	66	64	60	60	60	52	47	45	46
U Q	46	43	42	40	37	38	52	58	59	61	68	78	75	76	76	75	67	67	67	67	63	54	48	47
L Q	39	38	36	34	27	31	44	47	52	56	58	62	62	63	62	59	57	57	57	52	48	42	42	42

HOURLY VALUES OF fEs AT Kokubunji

APR. 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	G	G	G	G	G	37	35	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
2	G	G	G	G	G	G	32	G	34	G	G	42	G	G	32	29	42	G	G	G	G	G	G	G
3	G	G	G	G	G	G	31	G	34	37	G	G	G	G	G	31	27	25	G	G	28	28	G	G
4	G	G	G	G	G	G	29	26	37	45	45	45	34	42	36	36	G	28	33	24	G	G	G	G
5	G	G	G	G	G	G	22	26	G	G	46	46	82	79	43	43	40	G	G	G	40	G	G	26
6	G	G	G	G	G	G	28	G	33	G	45	53	46	46	58	49	43	27	G	G	G	G	G	G
7	G	G	G	G		G	22	G	33	41	35	41	G	G	32	34	G	G	G	G	G	G	G	G
8	G	G	G	G	G	G	29	G	G	G	42	37	G	G	G	G	30	28	G	G	35	25	28	G
9	22	G	23	23	G	G	30	132	G	31	50	G	67	61	53	44	35	35	30	28	G	G	33	33
10	G	G	G	G	22	G	32	33	G	69	G	36	34	G	G	31	28	27	G	G	22	G	G	G
11	G	G	G	G	G	G	31	31	G		G	42	G	G	G	G	34	G	G	G	G	G	G	G
12	G	24	G	G	G	G	30	32	G	32	44	47	G	G	G	G	31	27	28	25	G	G	G	G
13	G	G	G	G	G	G	30	31	34	34	G		35	32	G	30	G	G	27	G	G		G	G
14	G	G	G	G	G	G	31		44	42	G	G	G	53	39	G	39	39	39	24	29	22	G	22
15	32	37	G	G		G	47	39	46	45	G	53				G	49	37	25	G	33	28	G	G
16	39	58	60	G	G	G	G	G	34	G	83	43	51	46	32	31	G	26	G	G	G		G	G
17	24	G	G	G	G	G	29	34	G	G	G	48	G	G	G	G	31	26	26	G	25	26		G
18	G	G	G	G	G	G	28	33	35	33	35	34	G	46	37	50	52	44	29	G	G	G	G	G
19	G	G	G	G		G	35	G	45	36	G	G	G	G	G	39	50	G	29	44	36	31	39	25
20	28	24	29	26	G	G	26	G	43	G	48	55	51	G	68	59	84	111	82	92	39	G	47	35
21	30	G	G	25	G	G	24	32	31	44	55	86	95	53	50	37	61	25	38	49	24	G	G	G
22	G	G	G	G	G	G	33	31	43	35	G	G	G	40	G	50	43	25	G	G	G	35	22	G
23	G	47	24	23	23	24	39	45	43	43	47		G	46	48	59	37	40	43	49	30	24	G	G
24	G	G	G	G	G	25	33	G	G	G	G	49	57	34	G	G	G	G	G	G	G	C		
25				C	G	25	36	41	G	38	50	G	52	50	51	48	40	34	G	53	46	43	24	G
26	36	G	26	28	34	G	24	G	36	38	G	G	G	G	G	G	G	G	52	39	45	37	29	27
27	24	G	27	24	G	G	G	G	G	35	G		39	G	G	G	G	G	G	23	G	G	G	G
28	G	G	G	G	G	27	34	37	34	G	G	48	38	G	34	40	34	43	41	34	38	49	24	G
29	G	G	G	G	G	G	33	40	45	G	53	55	56	65	68	G	40	34	45	48	30	71	59	59
30	59	48	36	G	G	G	37	60	43	51	58	G	42	61	60	82		50	40	78	61	78	40	52
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	29	29	29	29	27	30	30	29	30	29	30	27	29	29	29	30	29	30	30	30	30	27	28	29
MED	G	G	G	G	G	G	30	31	34	34	18	42	34	32	32	31	34	26	26	G	23	G	G	G
U Q	24	G	12	G	G	G	33	36	43	41	47	48	51	48	49	44	42	35	38	39	35	31	26	23
L Q	G	G	G	G	G	G	28	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G

HOURLY VALUES OF fmin AT Kokubunji

APR. 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	14	14	13	13	13	15	14	13	13	18	21	42	20	44	20	13	17	14	15	14	14	14	13	13
2	13	13	13	13	14	13	13	36	17	15	40	42	44	22	20	17	15	34	18	14	13	14	14	14
3	13	13	14	13	13	14	15	13	18	17	41	43	43	47	40	18	15	13	13	13	13	15	13	14
4	13	14	13	15	13	14	14	14	15	18	43	42	20	28	14	14	14	13	13	14	13	13	14	13
5	13	13	13	13	14	17	13	13	13	18	20	31	30	29	21	21	13	13	13	13	13	14	13	14
6	13	13	13	13	13	13	14	13	14	41	21	30	26	17	20	14	13	13	14	14	14	13	13	14
7	14	13	14	14		17	14	18	13	17	15	28	22	42	43	13	15	22	14	13	14	14	13	13
8	13	13	13	13	13	13	13	13	14	14	18	44	43	44	40	17	13	13	14	14	13	14	13	13
9	14	13	13	13	14	13	13	14	17	18	18	45	30	24	17	18	13	13	13	13	14	14	13	13
10	13	14	14	13	13	13	13	13	15	15	18	29	41	20	14	13	13	13	15	14	14	13	13	13
11	13	14	13	13	13	13	14	13	13		17	18	46	45	43	14	18	13	15	15	14	14	14	13
12	14	14	13	13	13	13	13	13	13	17	20	29	46	45	42	17	15	13	13	13	13	14	14	14
13	13	13	13	13	13	14	14	13	13	13	20		18	46	17	17	13	13	13	14	14		13	13
14	13	13	13	13	15	14	13		14	14	18	40	44	37	44	42	14	13	14	13	13	13	13	13
15	13	13	14	15		13	15	13	15	31	18	33				15	13	14	13	13	13	18	14	14
16	14	13	13	13	13	15	20	13	14	43	25	26	24	23	21	14	14	13	15	15	15		13	13
17	14	14	13	14	13	13	17	13	14	20	44	35	49	46	40	15	13	13	17	13	14	17		13
18	17	14	14	14	14	14	13	13	14	23	26	22	38	46	44	21	13	13	13	13	14	14	20	13
19	15	13	13	13		13	13	13	18	21	45	44	38	50	36	18	13	13	13	13	13	14	14	14
20	14	14	13	15	18	13	14	13	17	15	30	30	31	48	33	29	18	13	13	13	13	21	13	13
21	14	13	14	14	15	13	13	13	18	20	22	30	30	22	26	17	15	13	13	13	14	14	28	14
22	13	14	13	13	14	13	13	13	14	17	44	50	50	15	42	18	13	13	21	13	14	13	14	14
23	14	13	14	13	15	13	14	13	15	17	33		47	26	20	21	13	13	13	13	13	15	18	13
24	14	20	13	14	15	15	18	13	14	18	20	31	25	44	43	13	14	13	17	14	13	C		
25				C	14	17	13	14	15	14	33	47	28	24	20	20	15	15	18	14	14	13	13	15
26	13	13	13	14	13	13	13	13	15	18	46	47	47	18	43	31	31	18	14	14	13	14	14	14
27	13	13	13	13	13	13	25	13	14	18	42		33	46	42	21	15	31	20	14	13	14	14	13
28	14	14	14	13	13	13	13	13	14	40	20	33	30	42	36	15	13	13	13	13	13	13	14	14
29	13	13	13	17	14	13	13	13	14	17	34	34	36	33	33	42	13	13	20	13	13	14	14	13
30	13	13	13	14	13	17	17	15	18	14	31	43	35	37	31	15		14	13	13	13	13	14	14
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	29	29	29	29	27	30	30	29	30	29	30	27	29	29	29	30	29	30	30	30	30	27	28	29
MED	13	13	13	13	13	13	14	13	14	18	24	34	35	37	33	17	14	13	14	13	13	14	14	13
U Q	14	14	14	14	14	14	14	13	15	20	40	43	44	45	42	21	15	14	15	14	14	14	14	14
L Q	13	13	13	13	13	13	13	13	14	15	20	30	27	23	20	14	13	13	13	13	13	13	13	13

HOURLY VALUES OF foF2 AT Yamagawa

APR. 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																								
	00	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

APR. 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																								
	00	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

APR. 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																								
	00	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

APR. 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	48	52	58	52	B	B	N	50	61	72	84	82	90	90	108	112	110	88	80	67	59	53		
2	B	43	40	44	36	B	N	54	63	67	65	78	90	104	110	108	96	N	88	75	49		B	43
3		47	42	50	B	B		52	60	94	66	70	88	101	104	97	112	91	86	81	A	36	43	43
4			30	40	B		29	54	59	65	66	77	88	106	110	113	107	106	92	89	69	53	B	B
5	A	43	44	A	A	B	B	58	67	63	75	90	110	98	88	90	90	86	72	66	48		B	38
6	B	42	40	42	B	B	37	48	58	68	80	96	107	121	108	87	86	76	92	74	66	37	B	28
7	38	36	34	47	B	B	N	50	67	74	65	67	70	83	99	75	59	54	60	67	66	54	37	37
8	40	40	32			B	A	53	56	62		A	66	87	92	86	78	81	68	60	61	52	27	38
9	B		28	31	B	B	30	50	73	58	58	67	78	98	102	91	84	77	81	72	54	37	B	B
10		31	43	37	B	B		51	54	64	72	81	100	107	108	108	N	72	62	63	58		43	B
11	B	42	43	42	B	B	B	47	54	60	68	71	86	104	102	80	68	65	66	52	52	48		B
12	47	42	38	44	B	B	B	48	56	55	62	77	88	110	115	97	76	61	62	71	54	47	A	
13	B	43	44		B	B	B	54	55	57	59	68	81	97	97	86	81	80	71	62	54	48	43	
14	37	38	34	34	B	B		56	58	60	58	66	75	77	84	88	84	76	71	68	60	45	B	32
15	B	B	37		B	B	34	56	60	74	76	81	83	57	71	64	55	A	68	66	48	A	B	B
16	B	B	B	32	B	B	B	43	57	49	64	74	85	85	86	90	75	68	58	50	B	B	B	
17		36	42		26	B	32	58	52	56	60	64	72	86	71	68	75	76	75	77	44	42	B	43
18	42	40			B	B	37	58	59	55	61	77	62	104	107	102	74	64	61	67	54	48		B
19	B	53	66	B	B	B	36	50	56	57	65		80	90	98	90	82	80	88	A	54		40	B
20		42		35	B	B	40	56	66	74	71		68	87	108	97	86	115	75	80		A	43	46
21	51			B	B		37	57	62	60	71	70	82	83	85	88	90	77	67	67	A	50	50	49
22				46	B	B	42	61	51	61	66	63	64	105	110	104	102	89	92	75	52	A	52	A
23	51	B	50	53		34	40	61	58	53	A	A	84	72	62	66	90	105	64	A	54	A	48	A
24	48	A	A	A	B	A	A	57	66	76	72		106	110	108	A	113	114	102	83	A	A	53	55
25	63	52	50	A	B	B	46	58	60	63	71	85	87	107	108	111	110	97	90	87	86	78	54	
26	52	52	58	A	A	A	54	59	54	63	77	68	82	103	106	105	106	97	103	107	84	52		44
27	A	42	42	46	A	B	43	55	62	56	56	63	75	90	107	110	102	88	102	103	88	53	A	43
28	N	36	N		B	B	59	61	70	61	62	72	86	103	107	108	104	102	109	88	84	79	54	A
29	52	54	52	N	40	34	52	56	56	60	62	52	69	72	88	91	90	84	81	A	A	77	52	B
30	52	58		43	B	36	47	60	59	62	65	64	71	85	99	100	88	80	A	70	78	65	A	A
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	13	22	22	17	3	3	17	30	30	30	28	25	30	30	30	29	29	28	29	27	24	20	14	13
MED	48	42	42	43	36	34	40	56	59	62	66	71	82	98	103	91	88	80	75	71	56	51	46	43
U Q	52	52	50	46	40	36	46	58	62	67	71	79	88	104	108	106	103	94	91	81	67	53	52	45
L Q	41	40	37	36	26	34	35	50	56	57	62	66	72	85	88	86	77	76	66	66	53	46	43	37

HOURLY VALUES OF fEs AT Okinawa

APR. 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	G	G	G	B	B	G	G	G	G	G	G	G	G	G	G	G	36	G	G	G	G	G	G
2	B	G	G	G	G	B	G	G	G	G	G	G	G	48	44	39	34	G	33	24	G	G	B	G
3	G	G	G	G	B	B	G	G	33	37	G	G	G	G	G	G	47	53	26	39	24	24	G	G
4	G	G	G	G	B	G	G	23	G	30	G	G	G	G	G	G	G	55	G	G	26	38	B	B
5	44	32	27	33	29	B	B	34	40	G	47	53	G	G	51	G	G	33	29	25	30	G	B	29
6	B	G	G	G	B	B	G	35	32	32	56	71	54	57	G	G	38	41	32	G	G	G	B	G
7	G	G	G	G	B	B	G	24	G	32	G	G	G	G	G	G	G	G	G	G	G	G	G	G
8	G	G	G	G	G	B	26	33	35	39	G	45	G	G	44	44	48	34	34	58	G	G	G	G
9	B	G	G	G	B	B	G	G	G	G	G	G	G	G	G	G	G	44	G	G	G	G	B	B
10	G	25	34	G	B	B	G	34	40	G	G	G	G	G	66	78	70	48	G	G	29	G	G	B
11	B	G	G	G	B	B	B	34	31	34	G	G	G	G	G	G	G	G	G	G	G	G	G	B
12	G	G	G	G	B	B	B	26	33	G	G	G	G	G	G	G	G	G	G	33	30	G	36	G
13	B	26	29	G	B	B	B	26	G	42	G	G	G	G	G	53	36	G	32	G	G	G	G	G
14	G	G	G	G	B	B	G	G	39	30	G	G	G	G	G	G	44	44	44	32	G	G	B	G
15	B	B	G	G	B	B	G	37	57	G	G	G	G	G	G	G	G	65	G	G	G	28	B	B
16	B	B	B	G	B	B	B	34	35	G	G	52	G	G	G	39	G	G	G	G	B	B	B	G
17	G	G	G	G	G	B	G	37	40	30	G	G	G	G	G	G	G	G	G	G	G	G	B	G
18	G	G	G	G	B	B	G	G	G	G	39	G	G	G	G	G	G	G	G	28	G	G	G	B
19	B	G	G	B	B	B	25	34	G	G	G	G	G	G	G	48	51	48	56	110	G	G	G	B
20	G	G	G	G	B	B	G	G	G	G	G	G	G	G	G	G	G	G	32	G	G	39	G	28
21	35	G	G	B	B	G	G	32	38	42	46	54	G	G	G	G	G	G	36	33	40	G	G	G
22	G	G	G	G	B	B	G	28	33	40	G	G	68	49	G	G	G	G	46	36	43	59	33	58
23	33	B	G	G	G	G	G	26	41	43	42	72	52	G	42	G	G	G	41	50	39	46	40	50
24	G	71	49	52	B	35	39	34	32	G	G	G	G	G	76	121	53	G	53	41	59	70	57	G
25	G	G	G	32	B	B	G	34	G	48	64	52	54	79	87	59	46	G	G	52	G	25	24	G
26	49	32	58	58	57	52	33	44	34	38	42	G	G	G	49	41	G	34	31	G	G	G	G	G
27	49	28	G	30	33	B	G	G	G	G	G	G	G	G	G	G	G	42	36	52	53	60	58	29
28	26	G	G	G	B	B	G	G	36	39	G	G	G	G	G	69	84	58	46	44	43	35	44	54
29	59	52	45	35	G	G	G	35	30	31	G	G	G	52	G	54	46	65	70	116	84	72	49	B
30	38	25	G	24	B	24	32	37	28	47	60	52	52	54	56	67	65	43	66	46	54	40	46	33
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	22	27	29	28	8	7	25	30	30	30	30	30	30	30	30	30	30	30	30	30	29	29	21	22
MED	G	G	G	G	G	G	G	30	32	30	G	G	G	G	G	G	G	34	32	26	G	G	G	G
U Q	35	25	G	12	31	35	G	34	36	39	39	45	G	G	44	48	46	44	41	44	39	38	42	29
L Q	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G

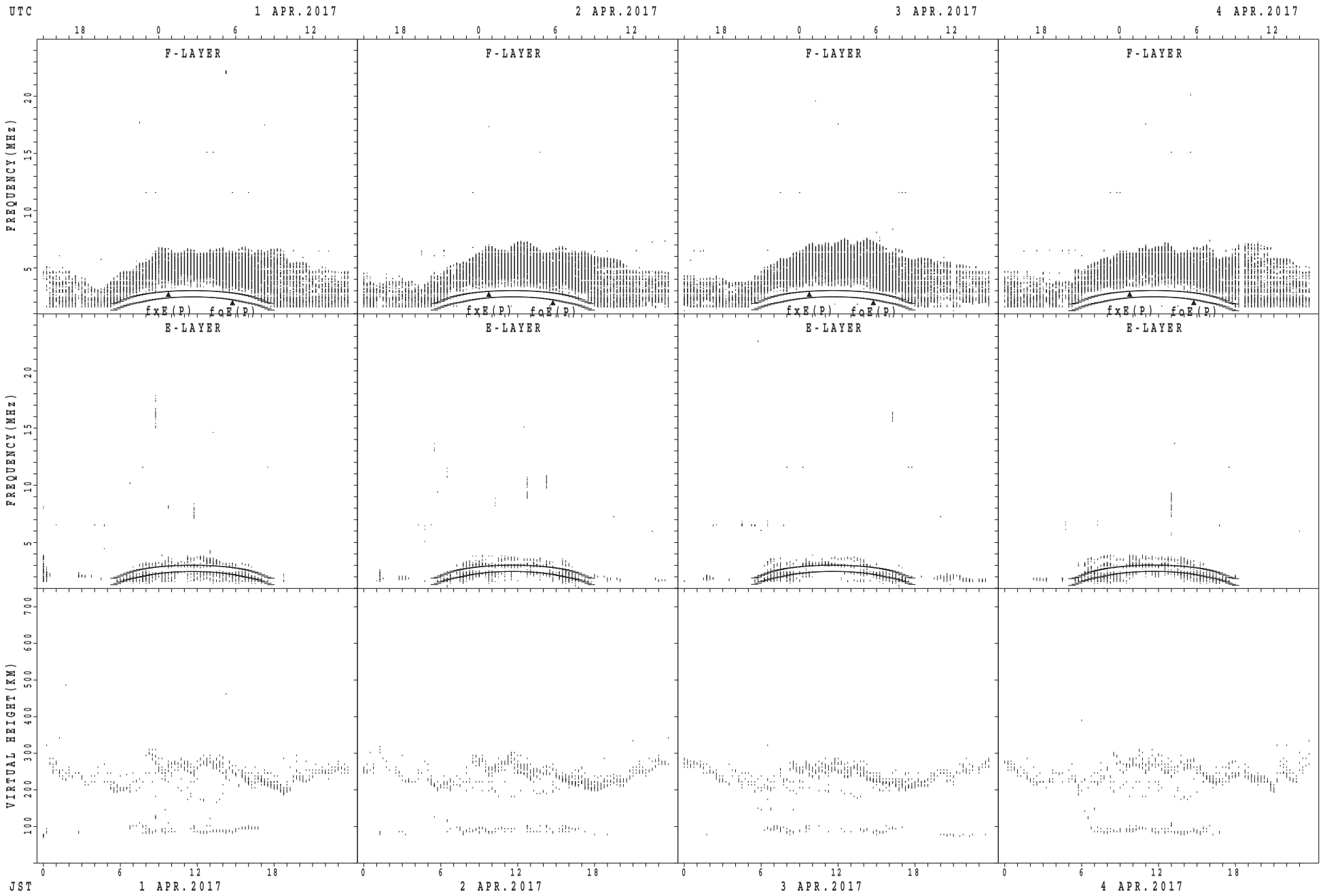
HOURLY VALUES OF fmin AT Okinawa

APR. 2017

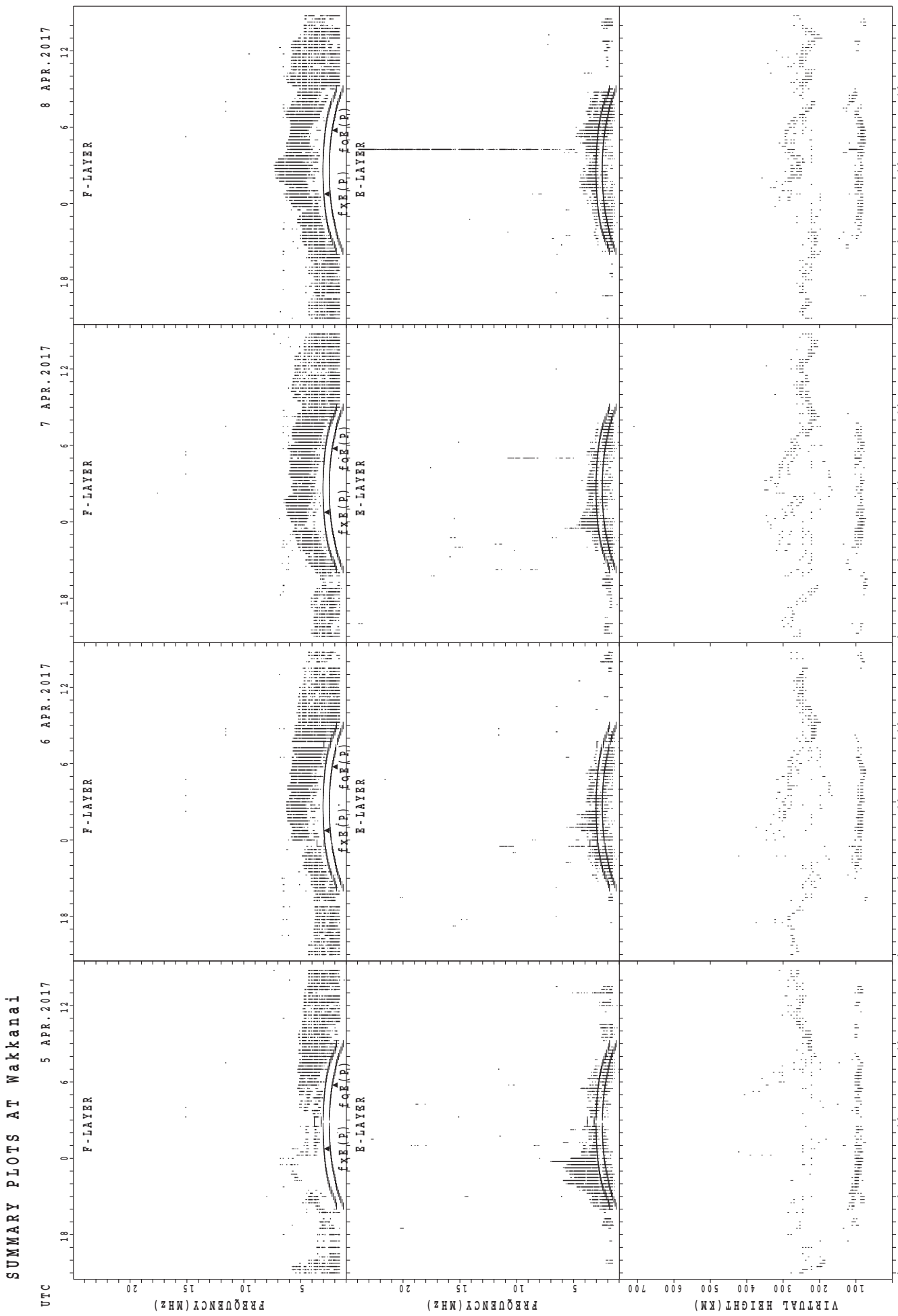
LAT. 26°41.0'N LON. 128°09.0'E SWEEP 1.0MHz TO 30.0MHz AUTOMATIC SCALING

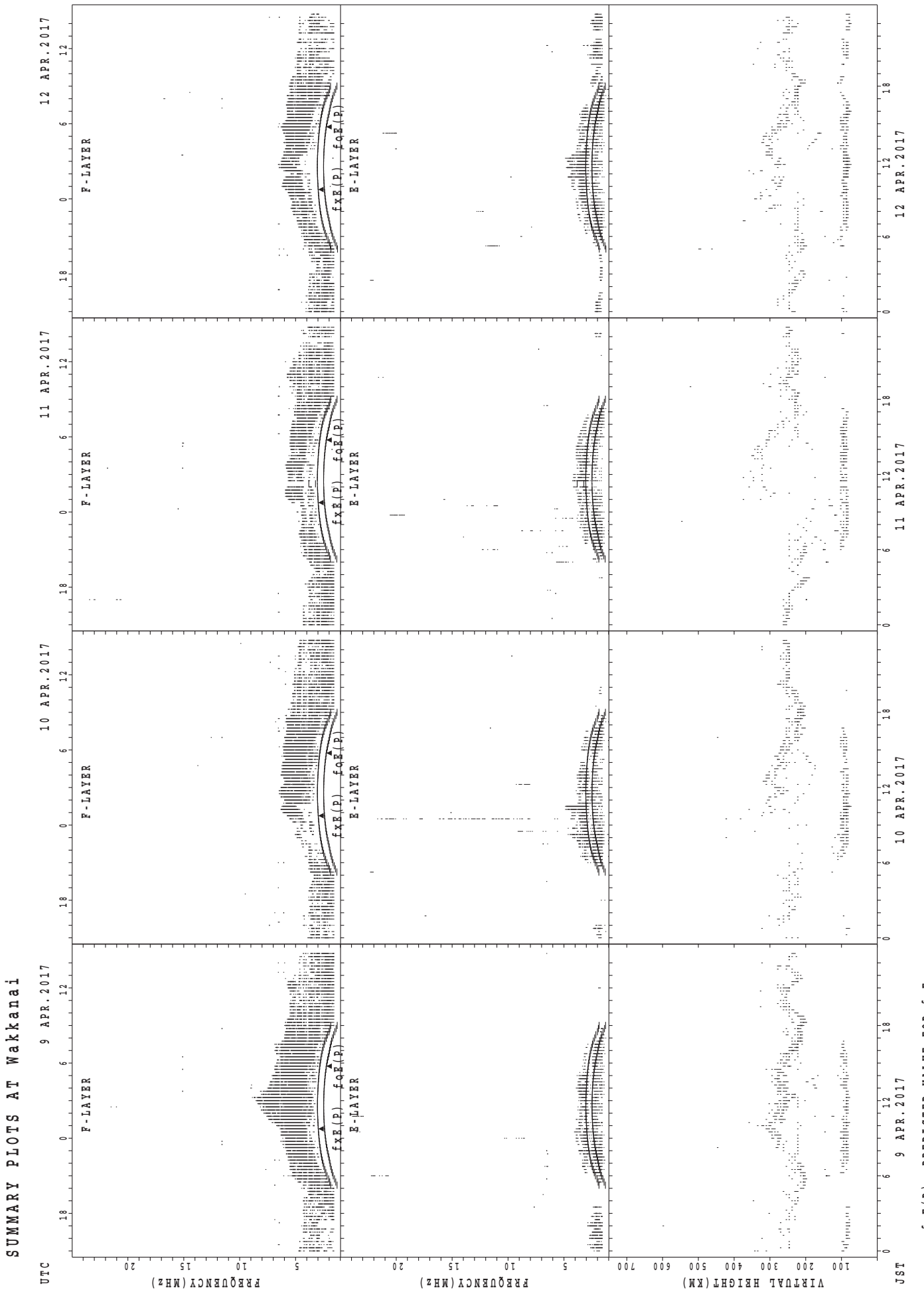
D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	17	18	15	16	B	B	18	24	32	40	42	48	48	62	49	44	47	21	22	17	17	44	71	66
2	B	15	16	16	17	B	18	32	35	38	42	48	45	32	29	22	20	55	15	14	20	28	B	16
3	66	17	15	15	B	B	66	26	18	40	50	50	51	53	59	44	29	20	15	17	15	16	15	17
4	71	20	18	16	B	16	15	15	37	41	43	44	45	52	52	46	40	17	30	17	14	17	B	B
5	15	15	15	15	15	B	B	16	17	39	33	32	46	49	38	37	45	20	14	17	15	66	B	16
6	B	17	16	20	B	B	17	22	18	22	28	35	38	30	24	42	18	15	18	20	16	23	B	21
7	15	20	15	17	B	B	20	18	18	23	44	50	50	62	48	42	39	33	21	20	37	16	21	20
8	14	22	15	71	26	B	15	16	20	18	71	28	49	48	27	26	24	16	15	15	15	16	17	15
9	B	23	21	15	B	B	20	24	15	39	47	47	50	47	47	46	42	17	20	15	16	15	B	B
10	71	15	16	17	B	B	15	17	17	42	42	48	49	50	32	26	24	16	14	16	15	66	20	B
11	B	15	16	18	B	B	B	17	34	40	45	49	49	50	49	45	39	37	29	16	27	17	66	B
12	23	17	20	29	B	B	B	18	18	42	46	46	53	50	50	47	42	36	24	15	15	24	16	27
13	B	16	16	66	B	B	B	20	16	40	43	50	49	49	49	29	22	36	16	24	18	18	16	66
14	27	26	15	17	B	B	18	26	16	21	47	50	52	49	49	46	28	29	14	16	17	36	B	18
15	B	B	16	18	B	B	16	20	28	42	44	50	54	49	52	46	46	22	20	15	24	16	B	B
16	B	B	B	18	B	B	B	15	22	43	49	50	50	53	50	23	44	37	30	22	B	B	B	71
17	26	17	23	71	17	B	23	15	18	23	47	49	53	49	49	47	45	34	28	15	15	17	B	23
18	21	20	66	24	B	B	18	26	36	42	48	52	52	52	49	21	43	42	30	15	15	21	66	B
19	B	42	24	B	B	B	17	27	40	42	49	52	52	50	49	48	33	27	16	16	17	81	22	B
20	27	24	81	16	B	B	21	29	17	44	46	47	81	55	48	49	45	18	17	23	66	17	26	15
21	15	71	26	B	B	16	26	18	18	40	38	34	54	53	53	49	45	18	20	14	16	20	27	20
22	71	66	16	16	B	B	18	15	18	23	44	52	39	38	52	45	42	35	15	15	16	16	15	15
23	15	B	18	44	17	16	21	18	18	27	34	34	34	48	52	46	48	18	15	16	16	17	15	17
24	22	21	17	15	B	15	15	17	35	40	44	91	54	54	39	21	24	40	15	15	15	15	16	16
25	20	26	43	15	B	B	17	27	33	33	38	36	35	38	30	24	21	34	24	17	28	15	15	91
26	18	15	18	17	20	18	17	15	18	26	29	44	52	52	24	22	17	16	15	18	16	17	66	28
27	16	15	17	16	15	B	18	32	30	40	44	45	48	74	49	48	43	28	21	16	20	15	15	15
28	16	16	17	17	B	B	71	16	21	24	45	52	53	53	53	38	34	28	17	16	18	17	15	17
29	17	16	17	18	20	17	20	14	17	21	46	46	50	42	48	34	32	28	17	18	16	16	15	B
30	16	16	81	15	B	15	15	15	21	36	35	38	39	38	38	36	32	28	16	14	16	15	16	17
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	22	27	29	28	8	7	25	30	30	30	30	30	30	30	30	30	30	30	30	30	29	29	21	22
MED	19	17	17	17	17	16	18	18	18	40	44	48	50	50	49	43	39	28	17	16	16	17	16	18
U Q	27	23	22	19	20	17	20	26	32	41	47	50	52	53	50	46	44	35	22	17	19	23	26	27
L Q	16	16	16	16	16	15	16	16	18	24	42	44	46	48	38	26	24	18	15	15	15	16	15	16

SUMMARY PLOTS AT Wakkanai

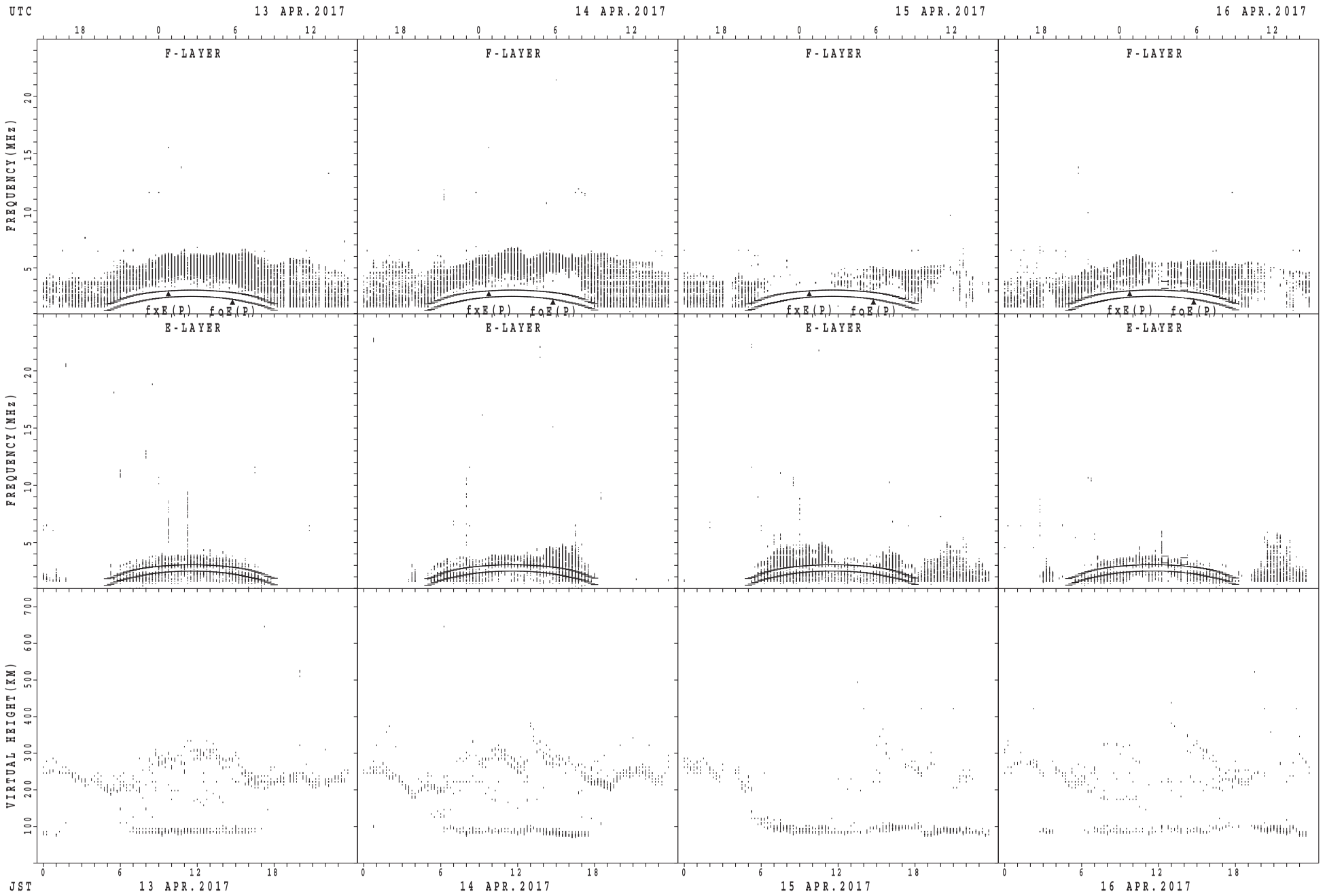


fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE


SUMMARY PLOTS AT Wakkanai
UTC
JST
5 APR.2017
6 APR.2017
7 APR.2017
8 APR.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

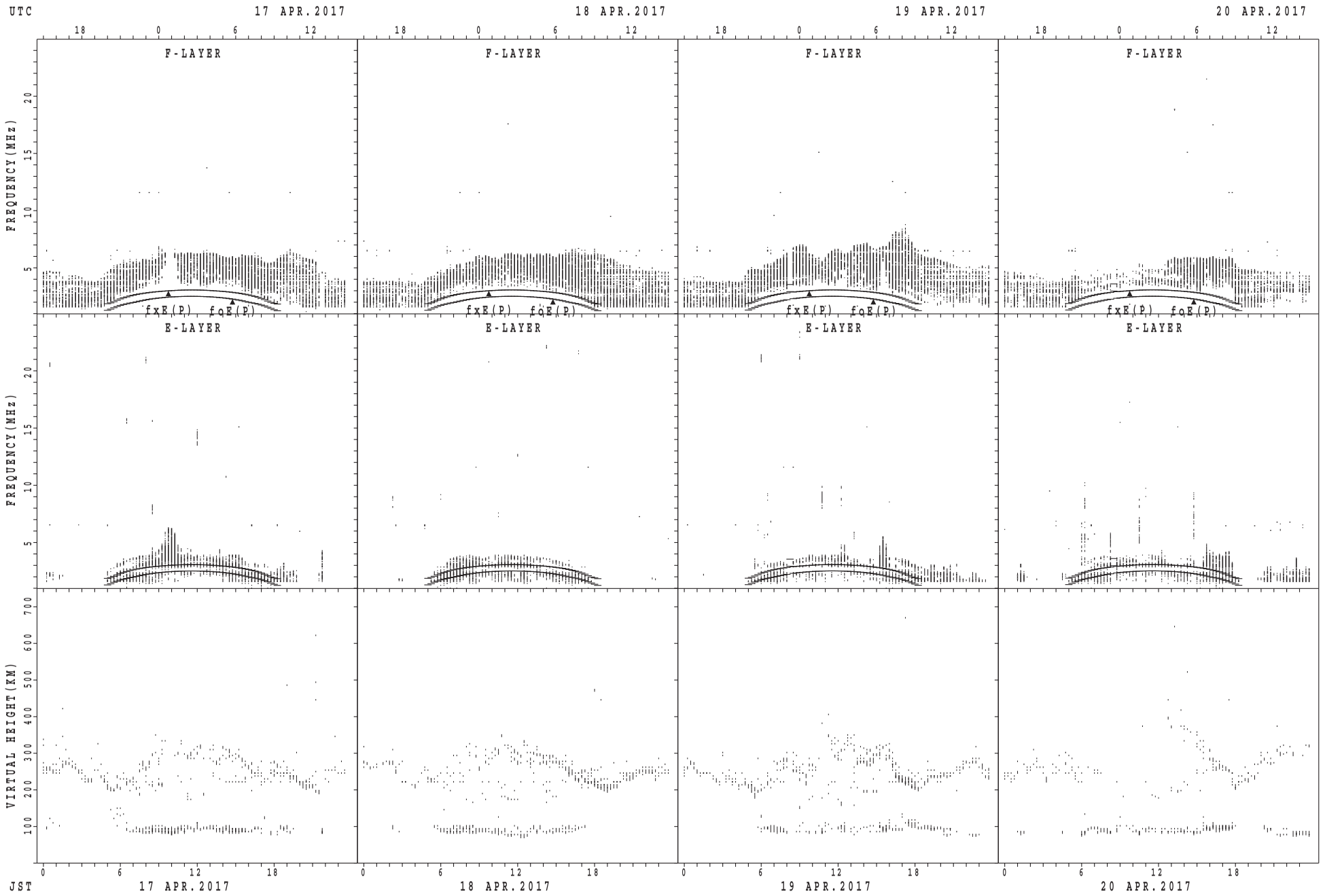

SUMMARY PLOTS AT Wakkanai
UTC
JST
9 APR.2017
10 APR.2017
11 APR.2017
12 APR.2017
F-LAYER
E-LAYER
fxE(P)
foE(P)
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



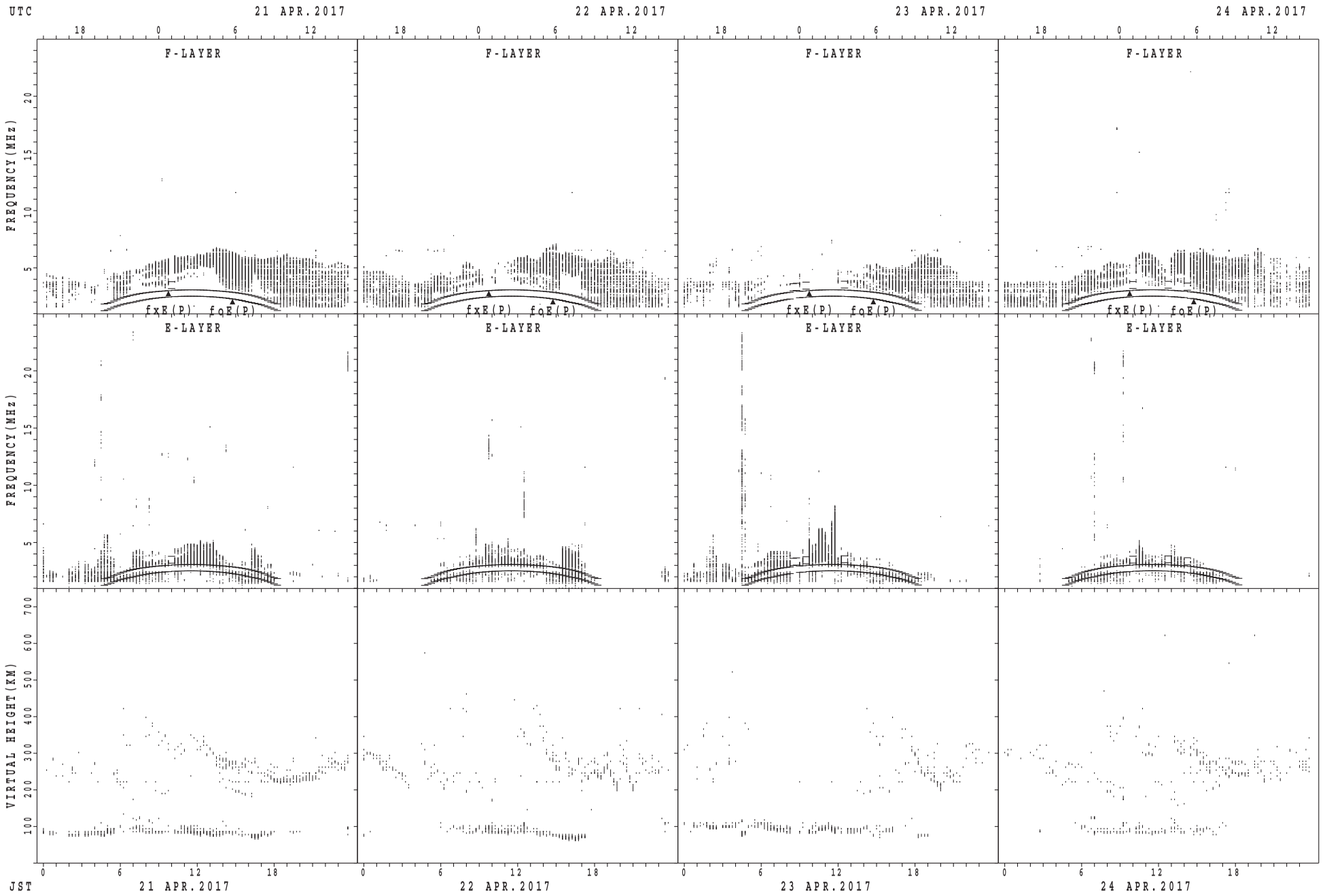
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai

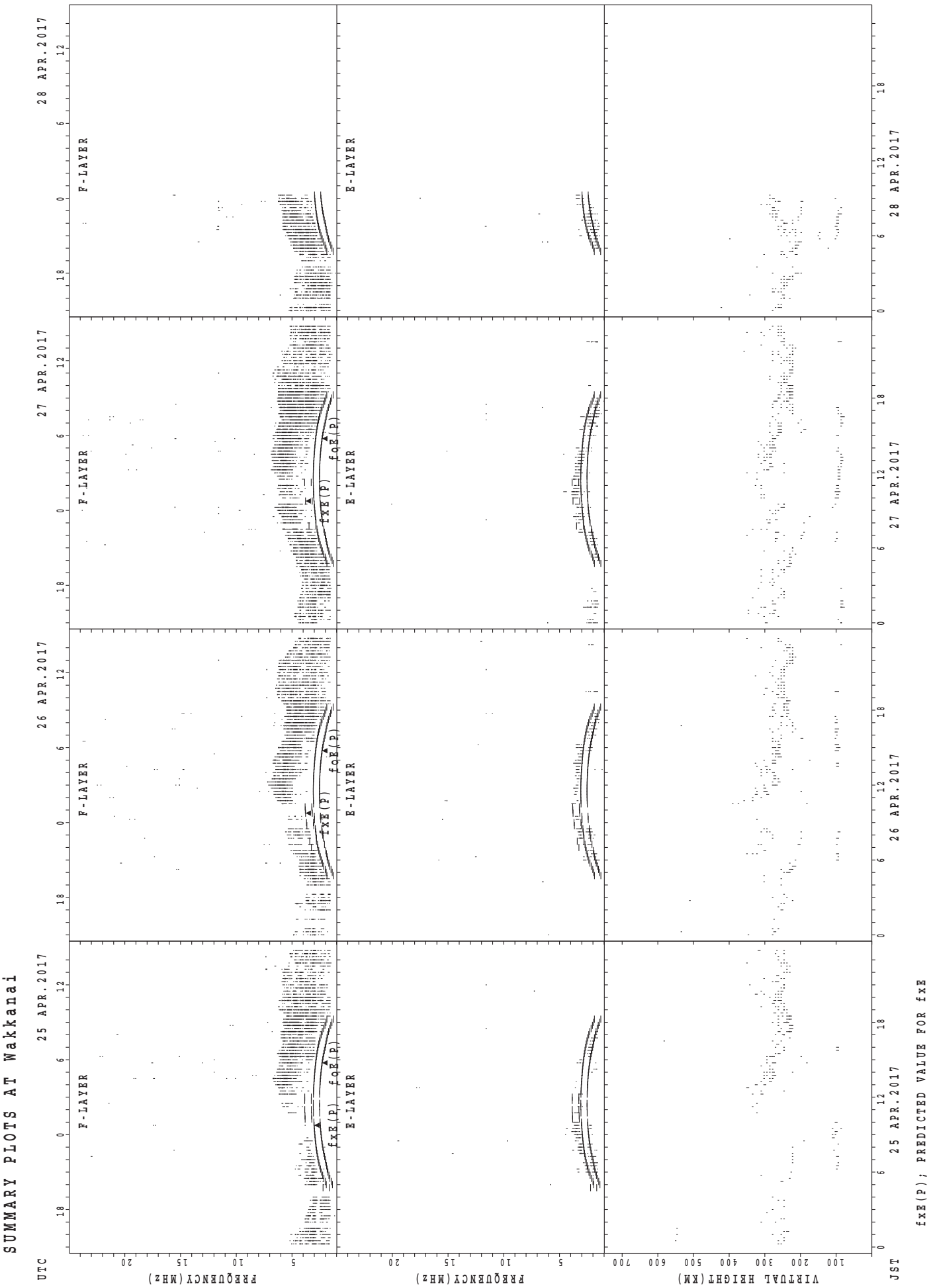


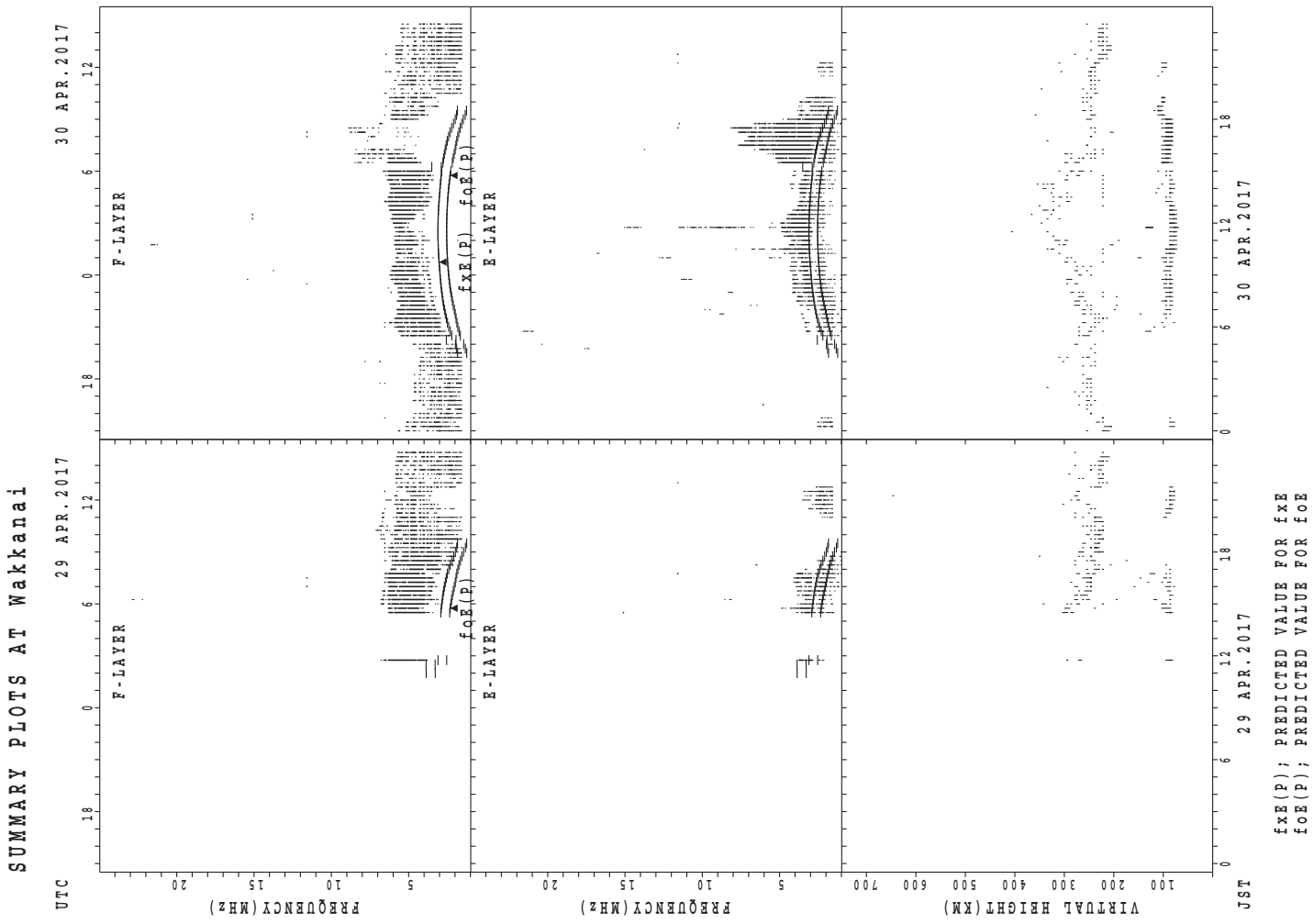
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai

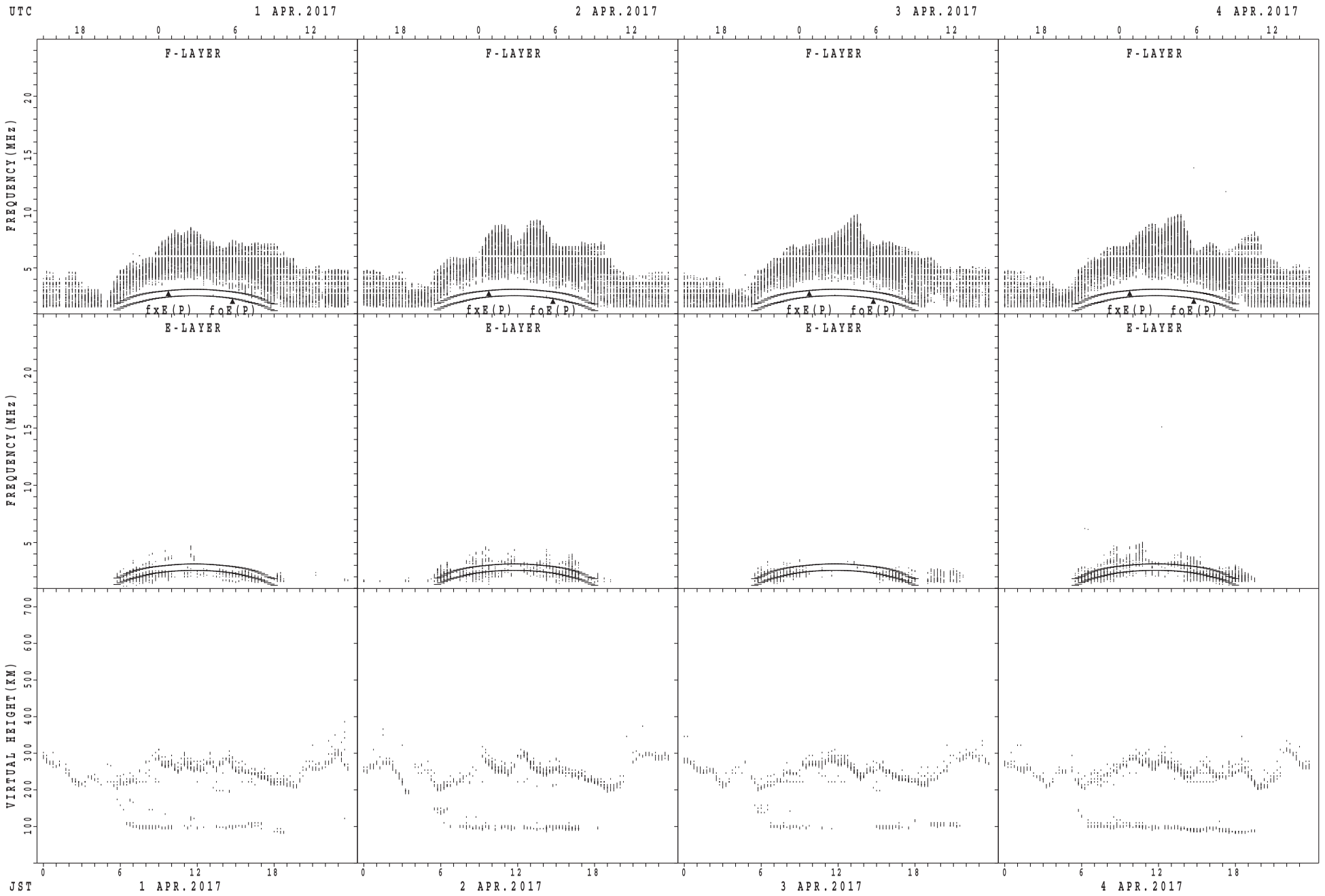


fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE


SUMMARY PLOTS AT Wakkanai
UTC
JST
25 APR.2017
26 APR.2017
27 APR.2017
28 APR.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

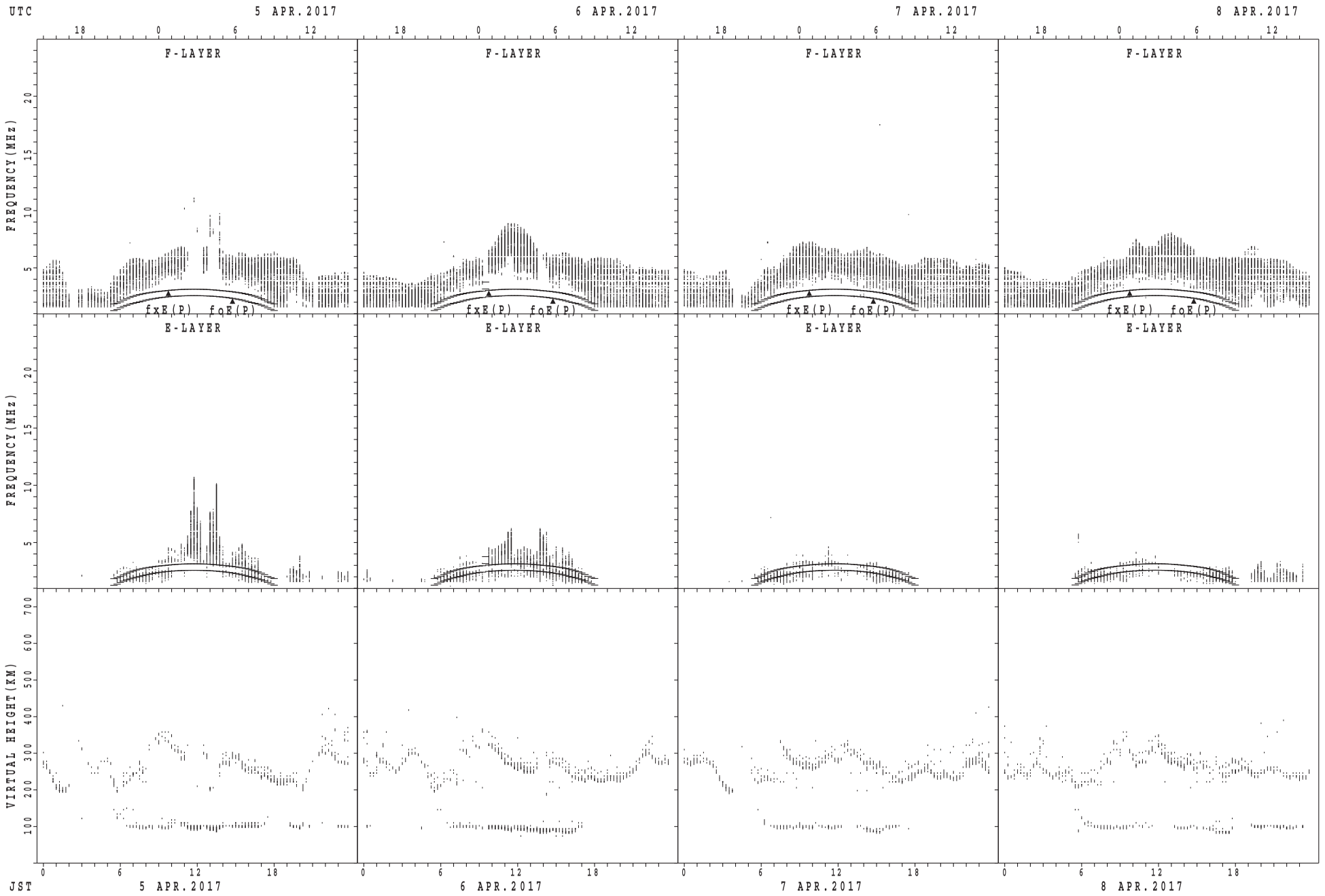

SUMMARY PLOTS AT Wakkanai
UTC
29 APR.2017
30 APR.2017
F-LAYER
E-LAYER
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
fxE(P)
foE(P)
JST
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



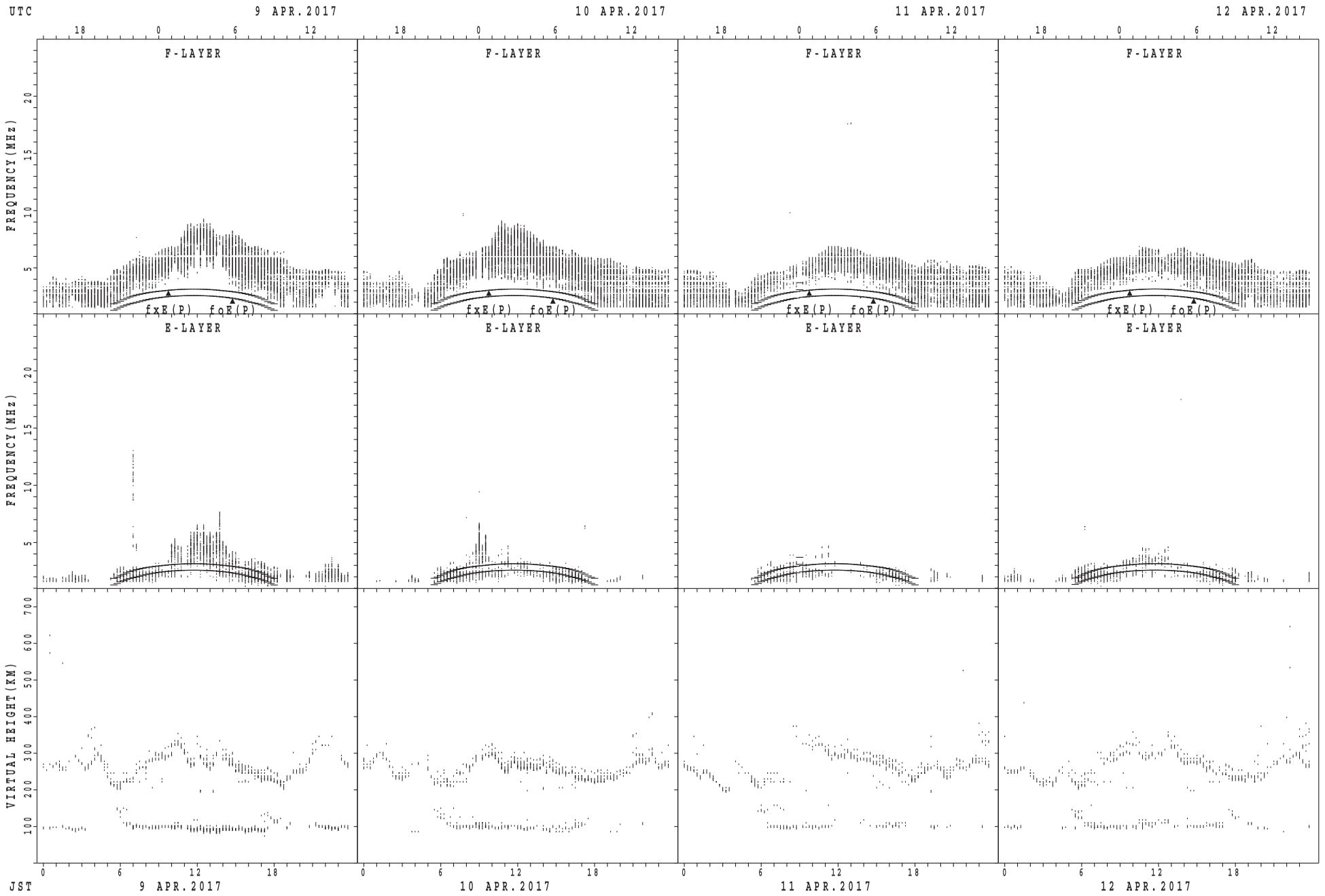
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



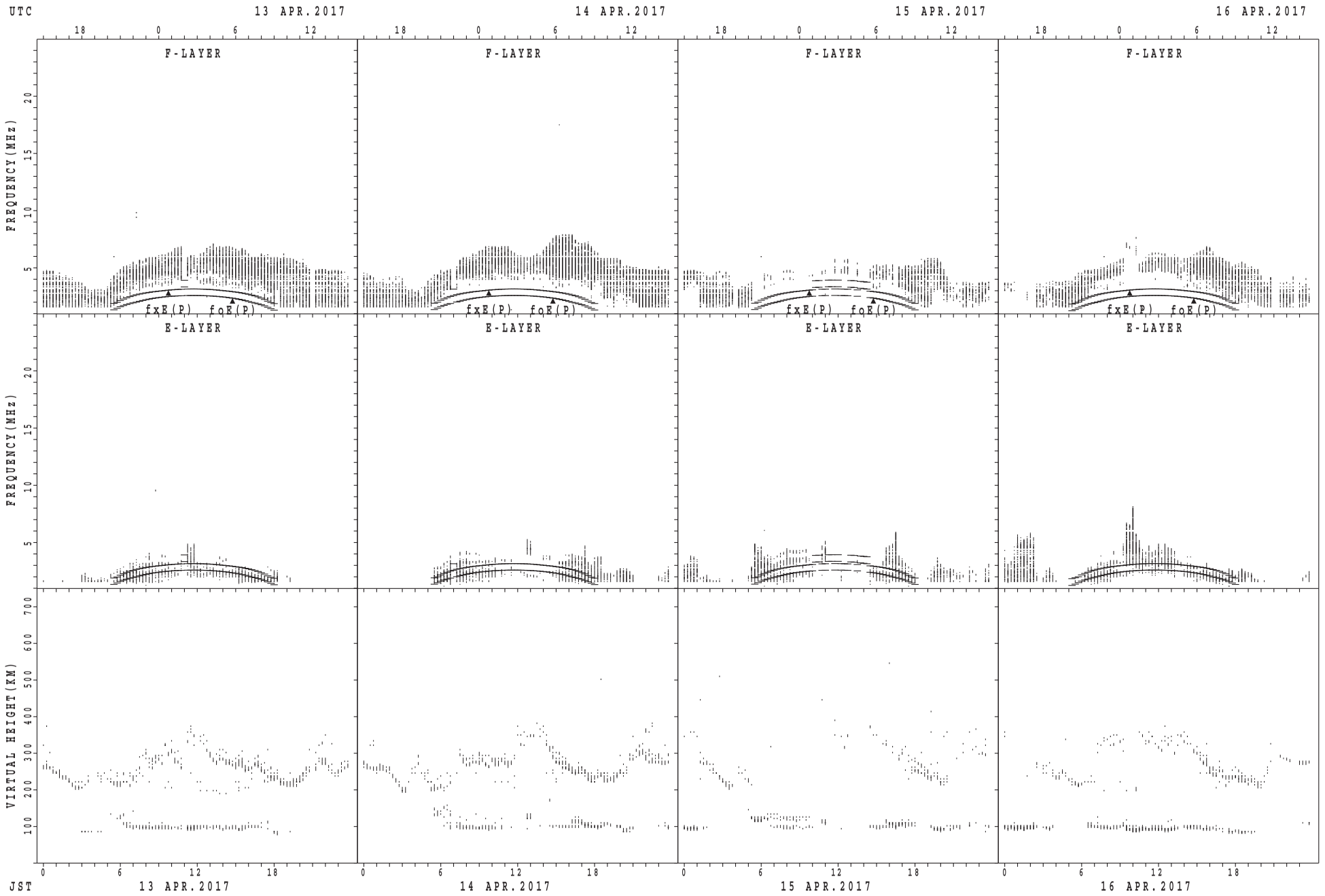
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



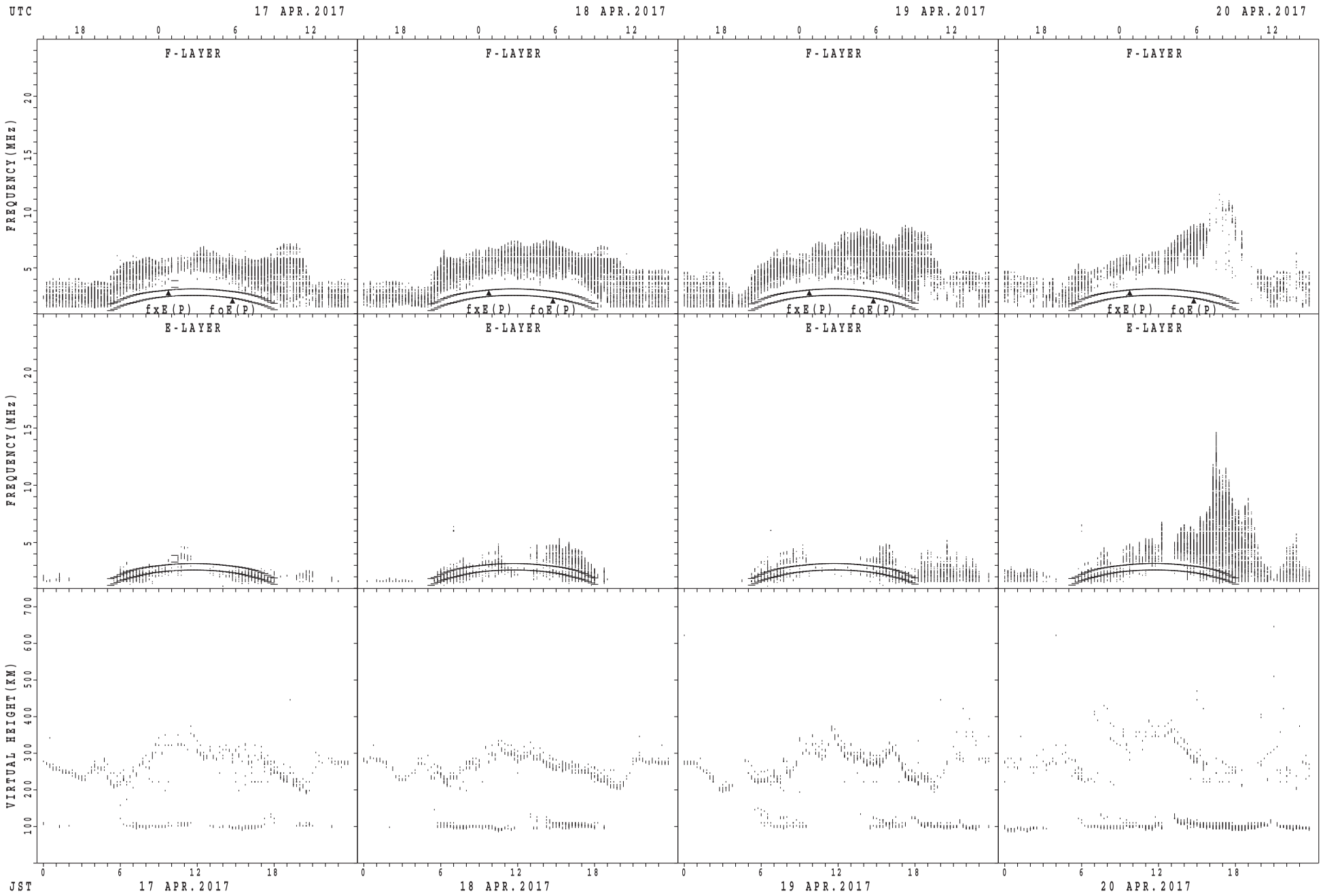
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



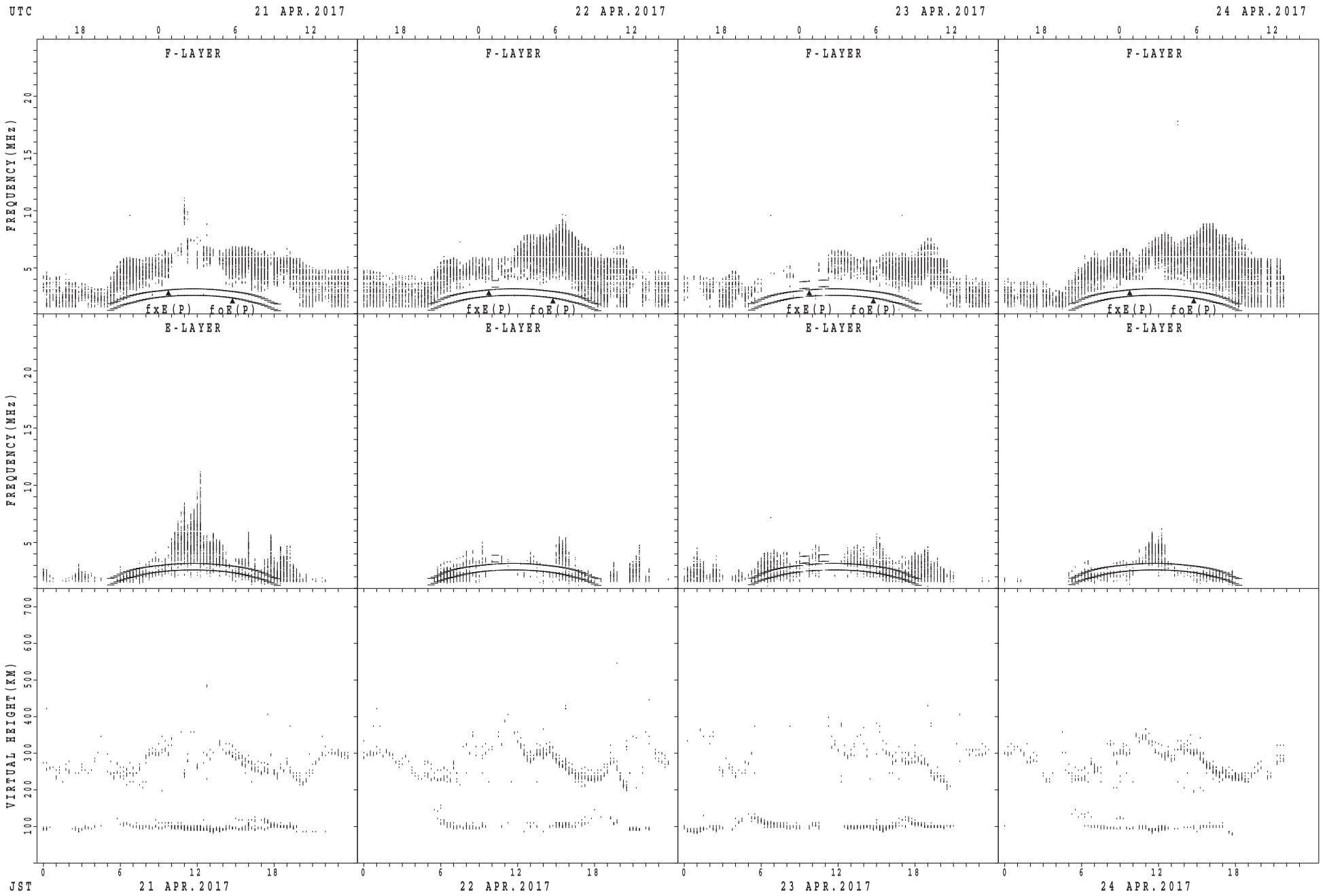
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



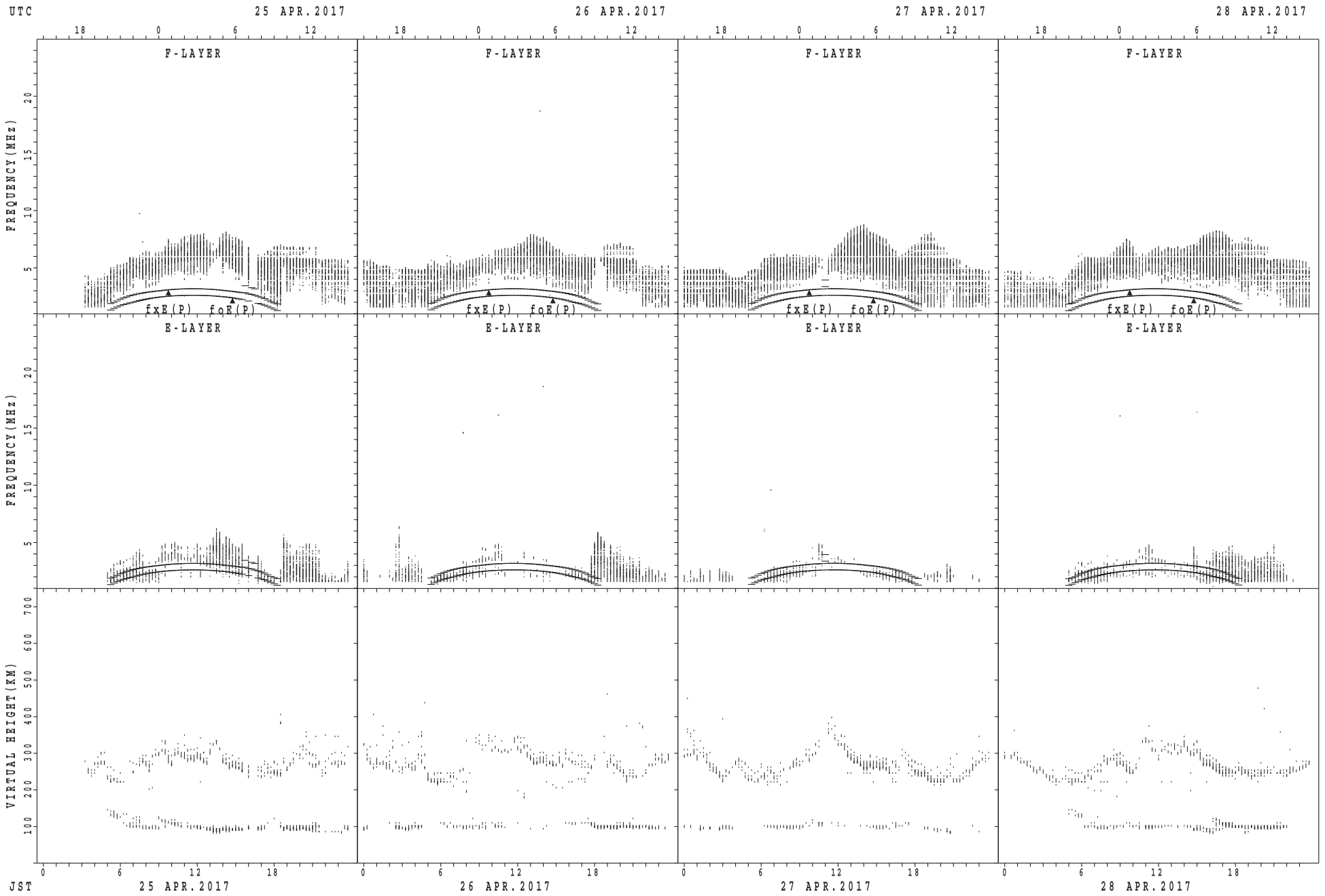
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



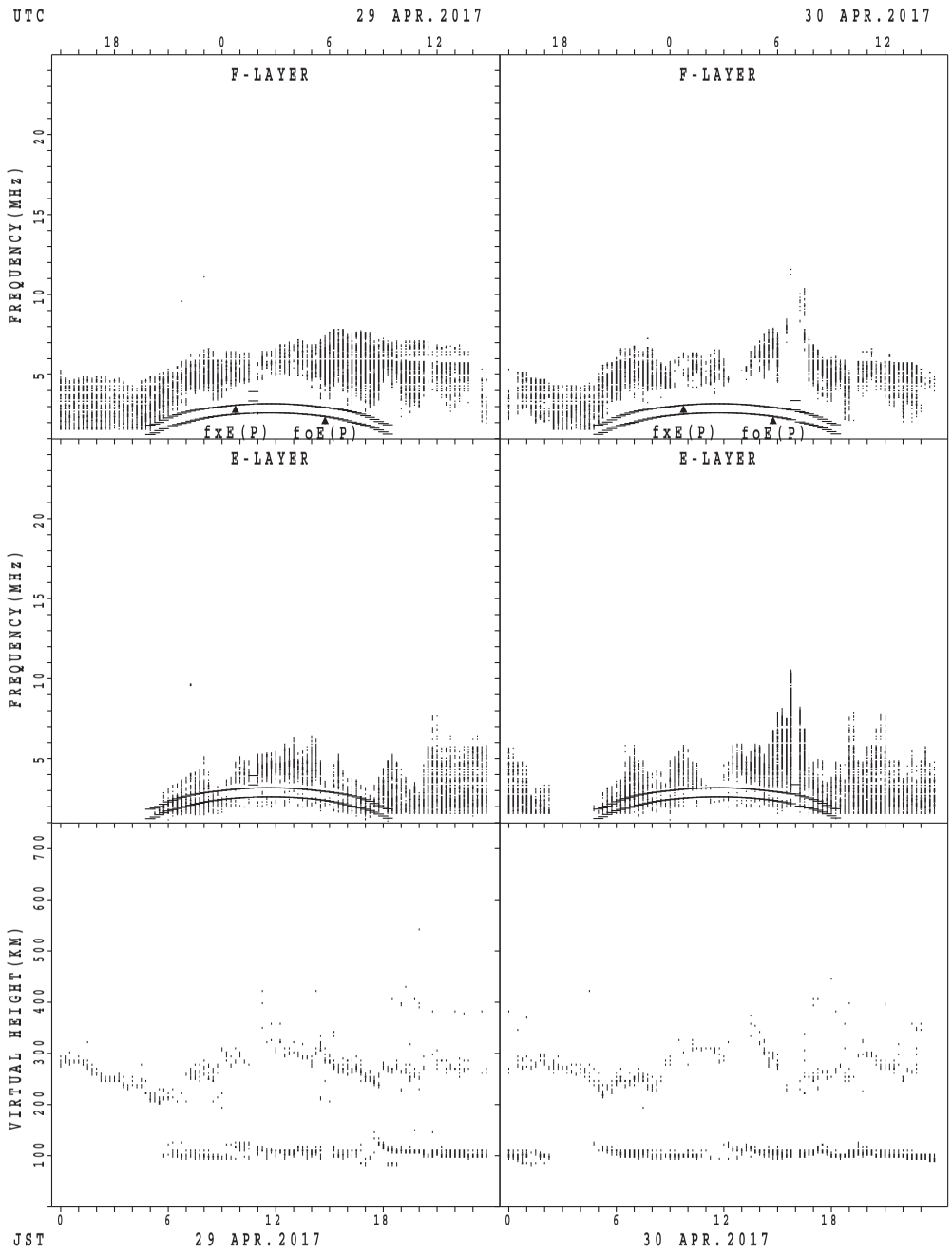
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



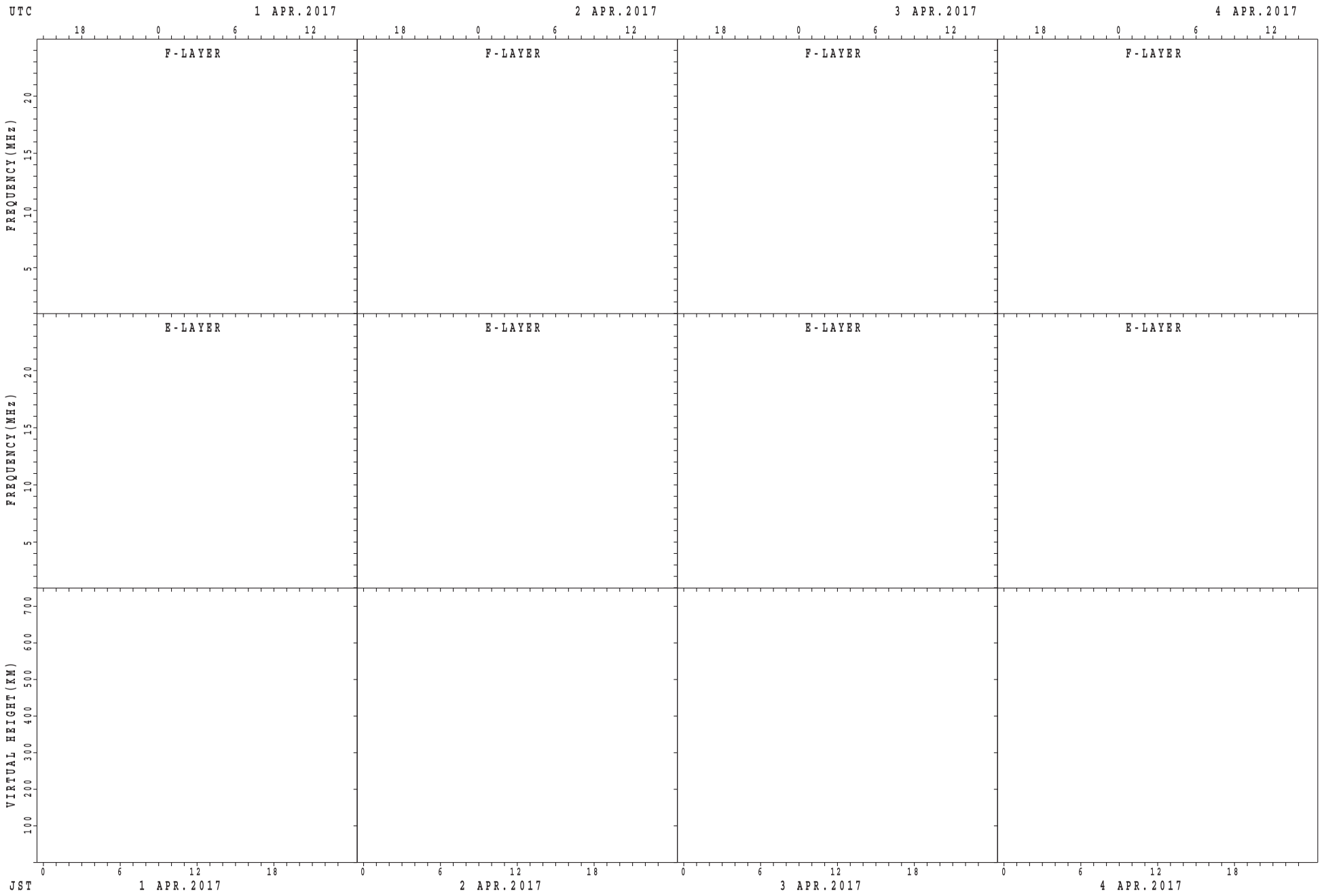
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



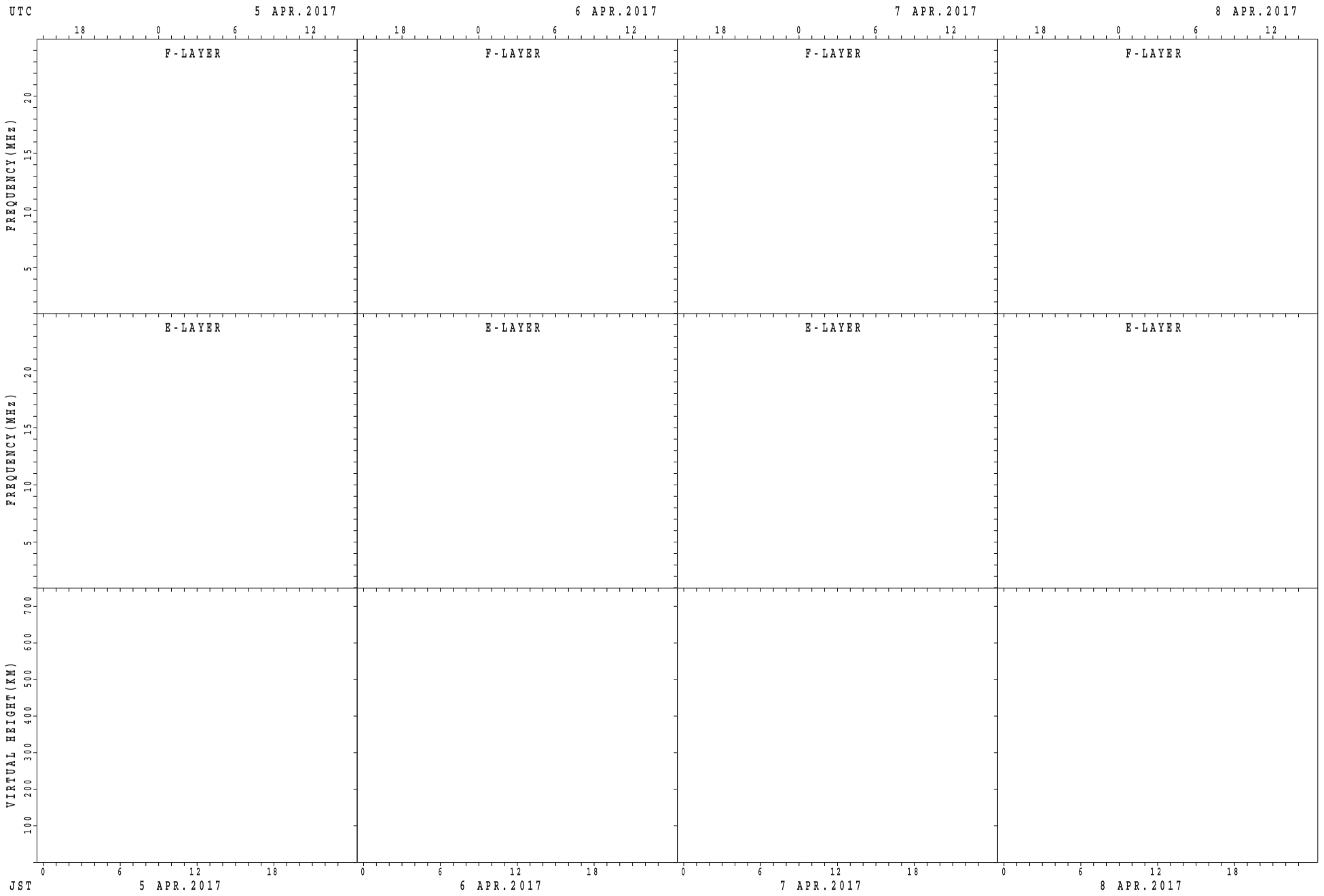
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



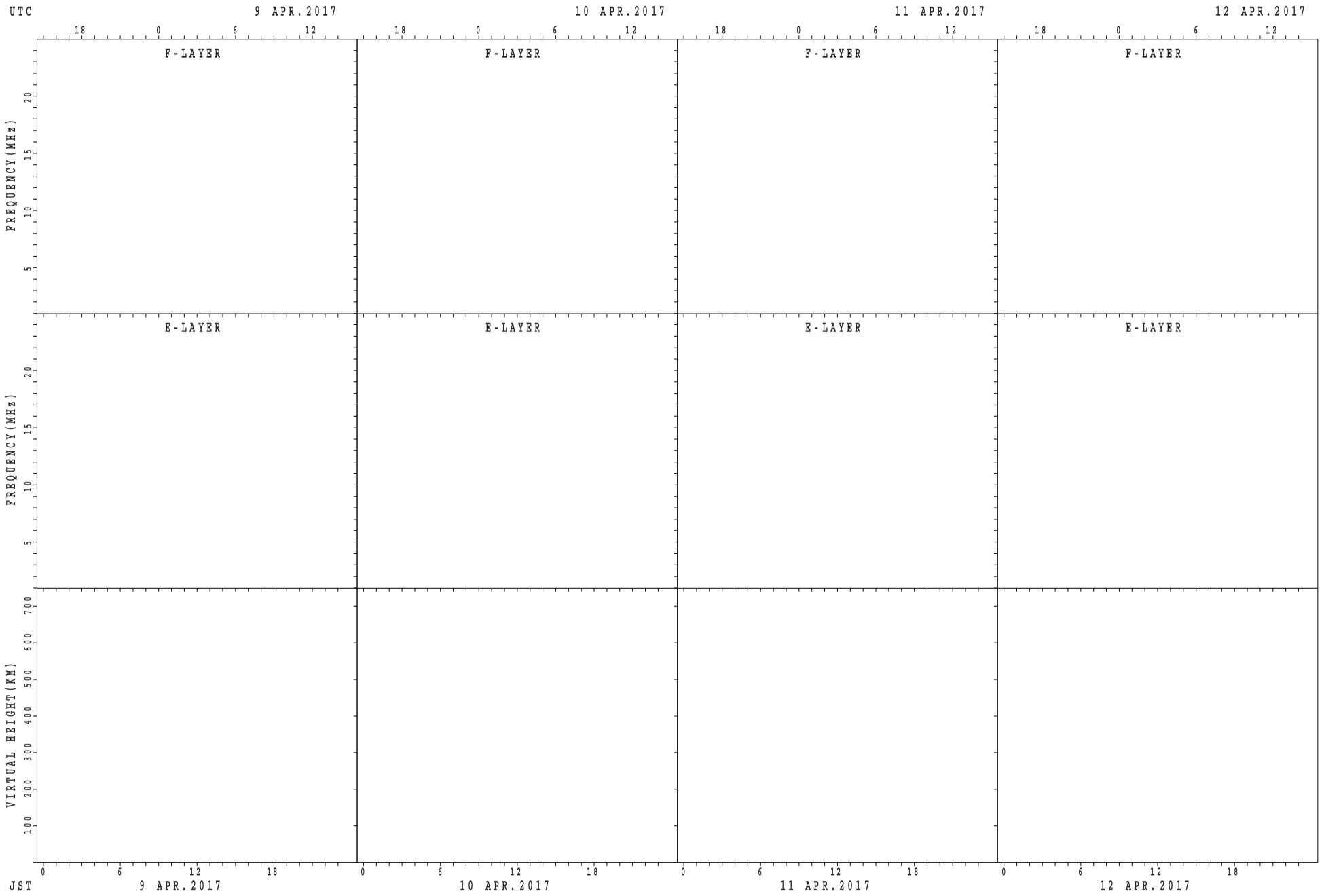
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



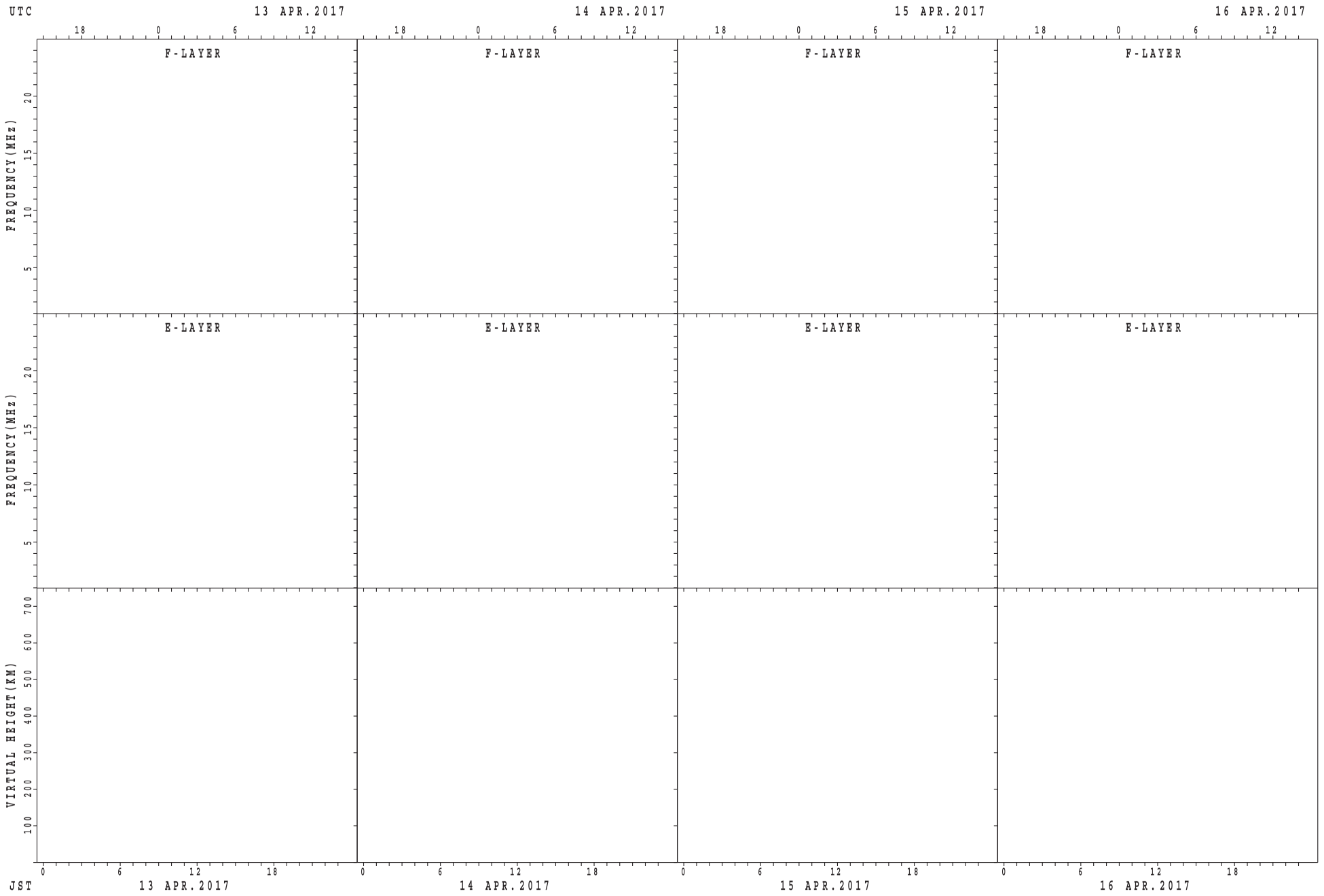
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



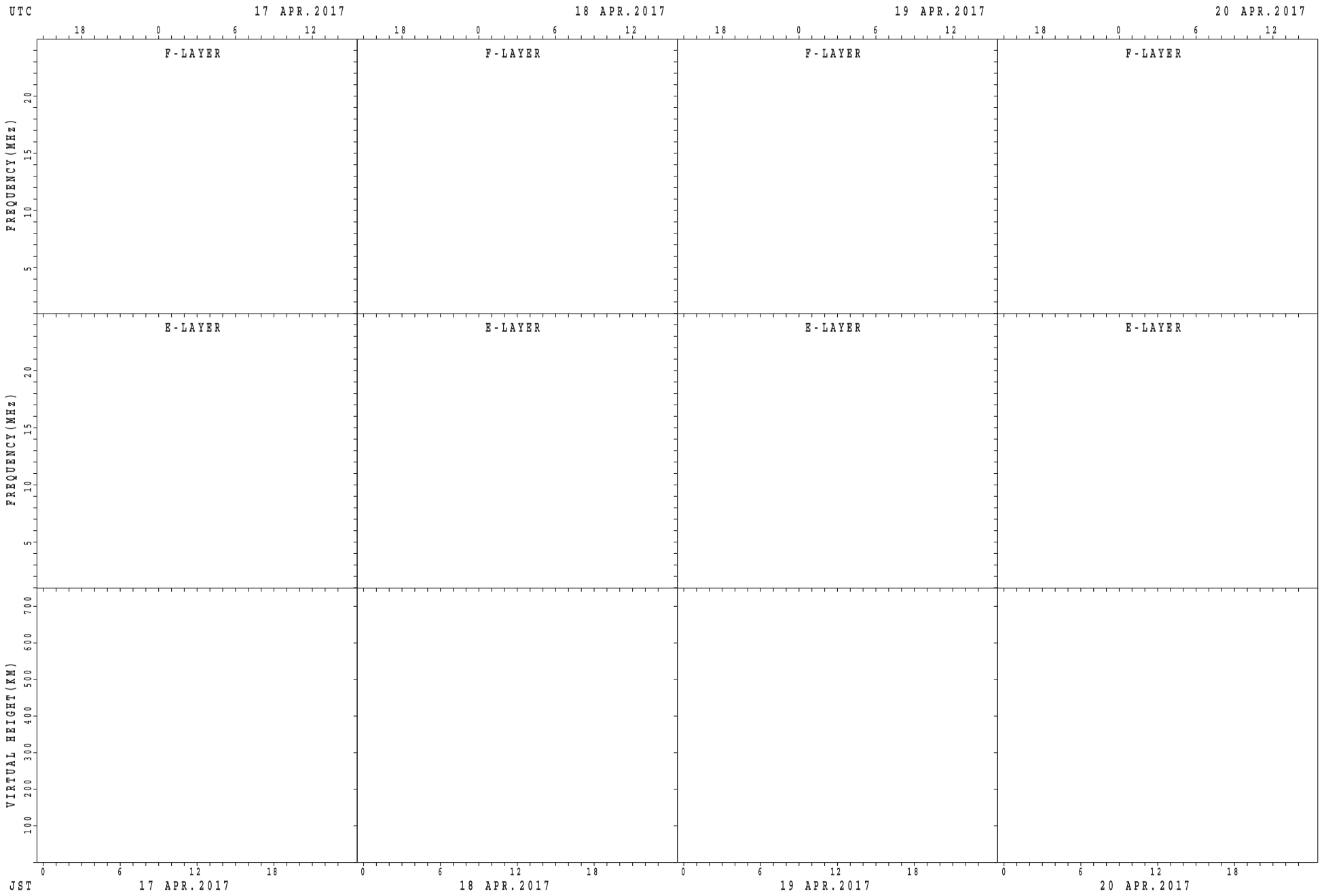
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



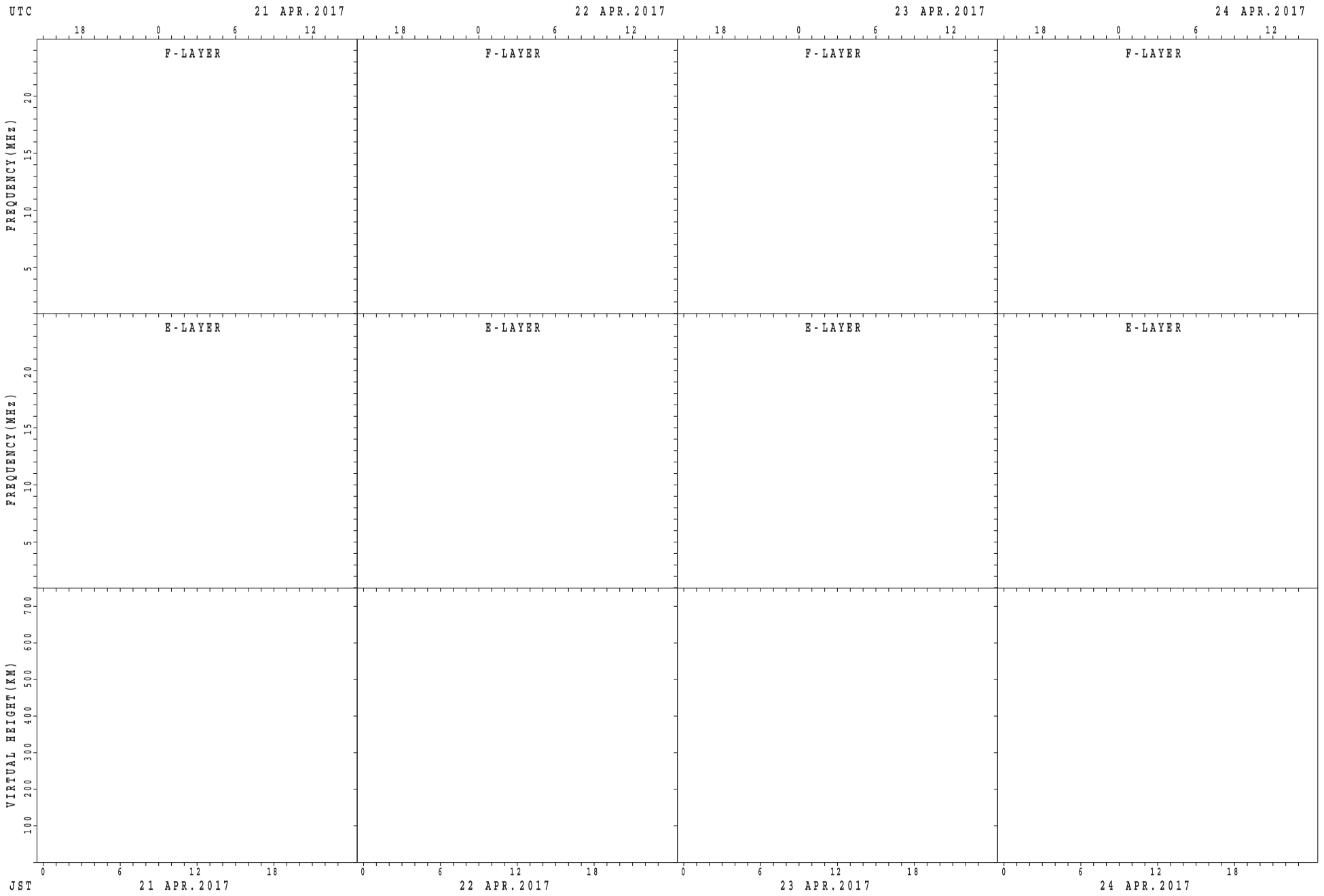
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



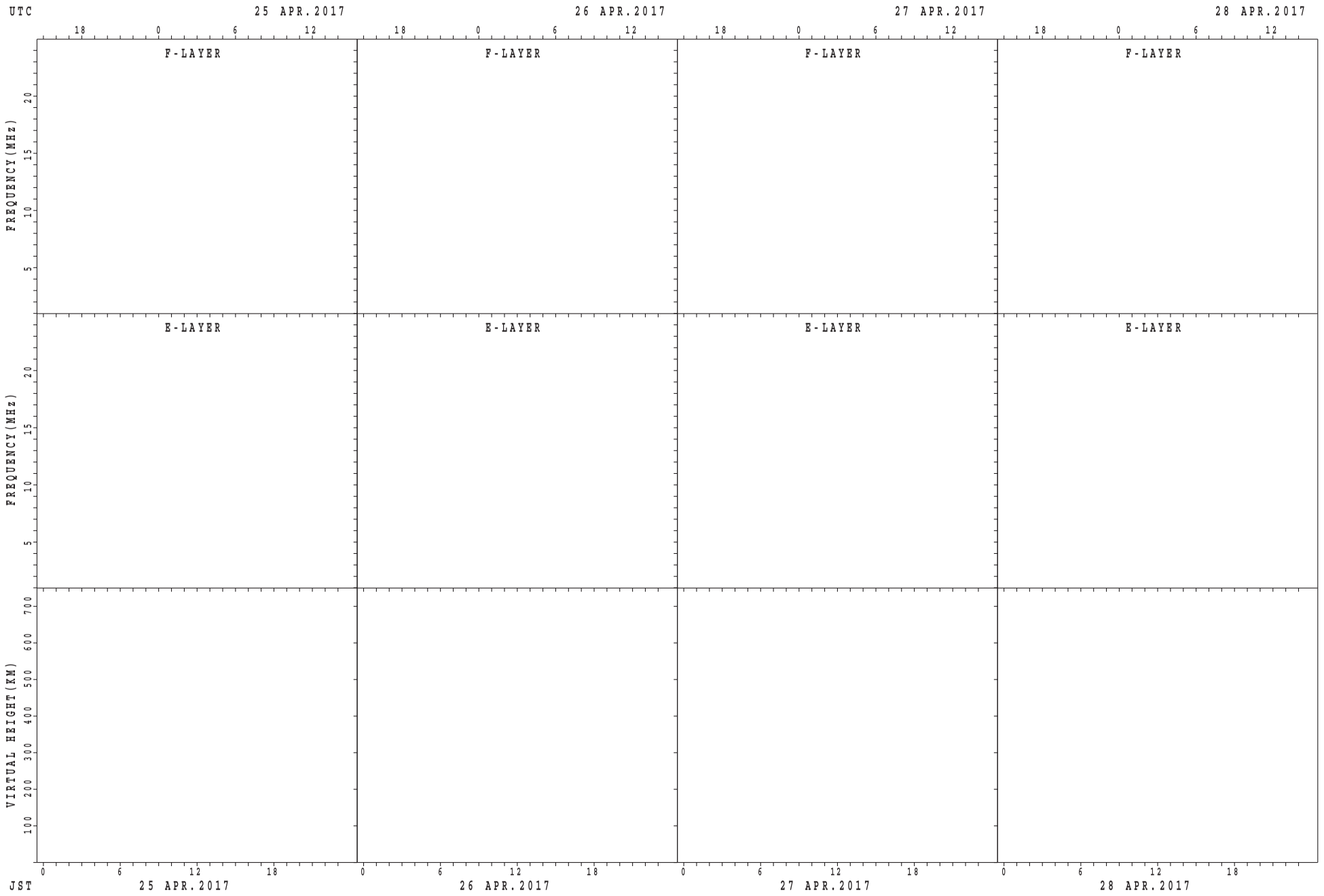
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



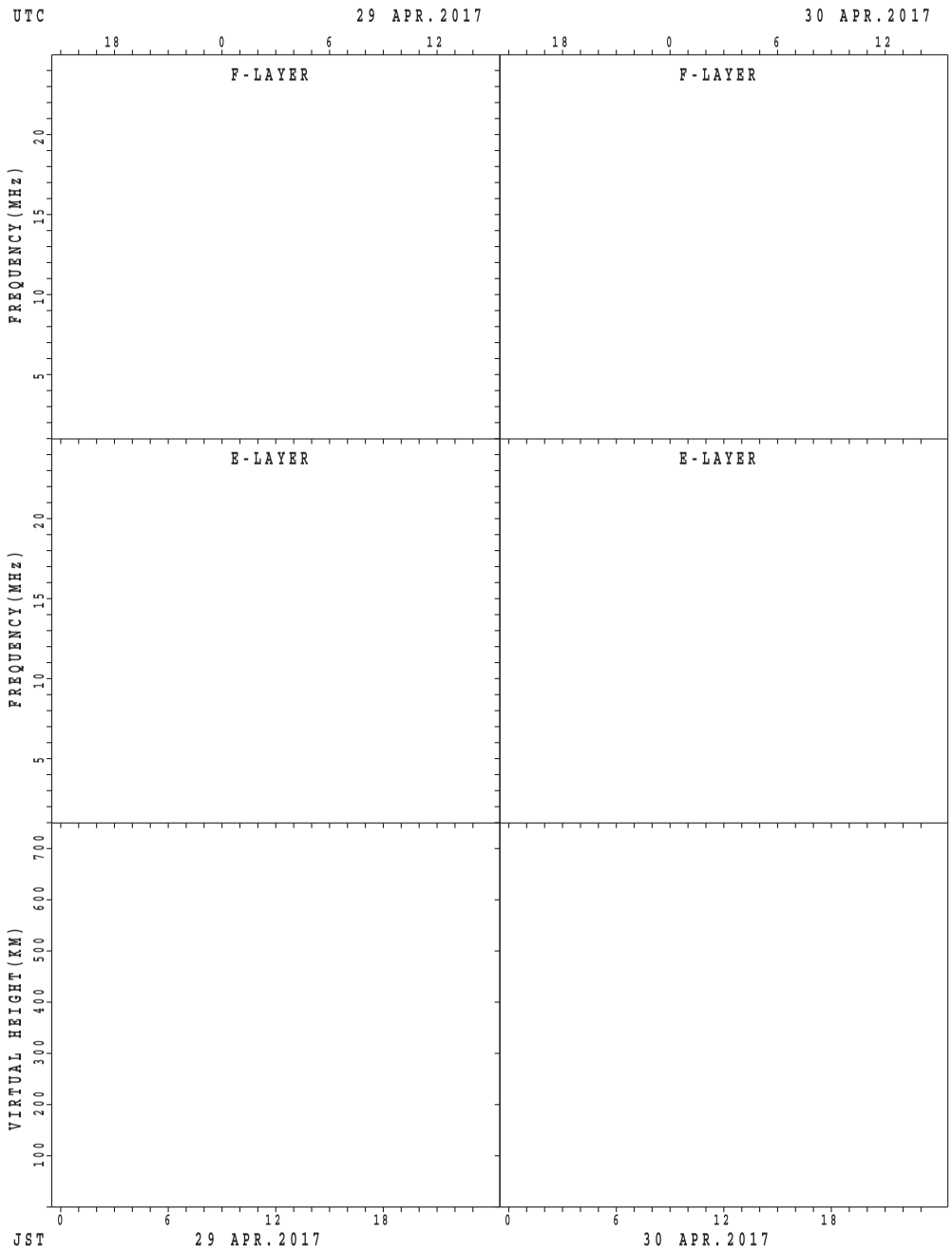
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



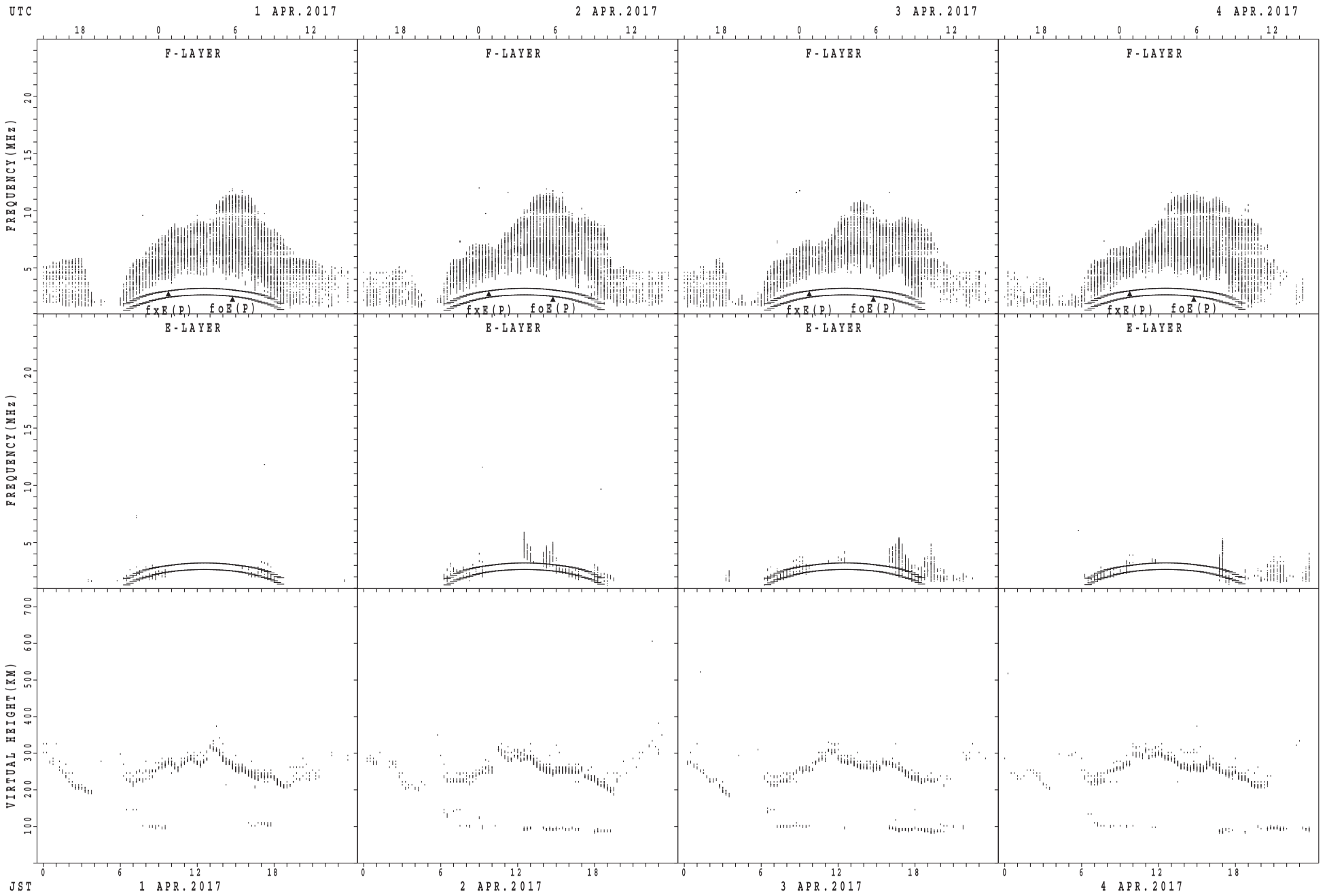
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



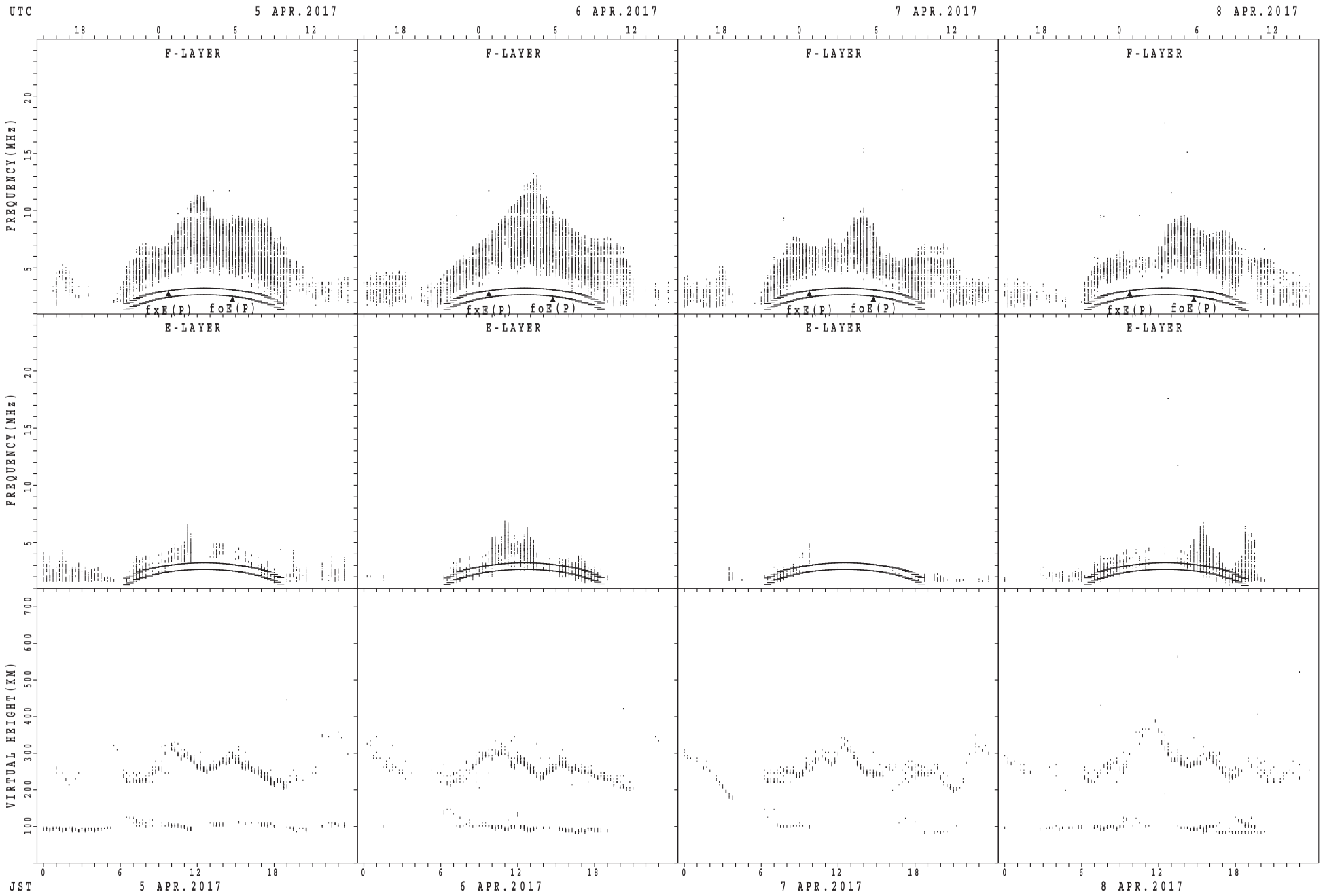
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



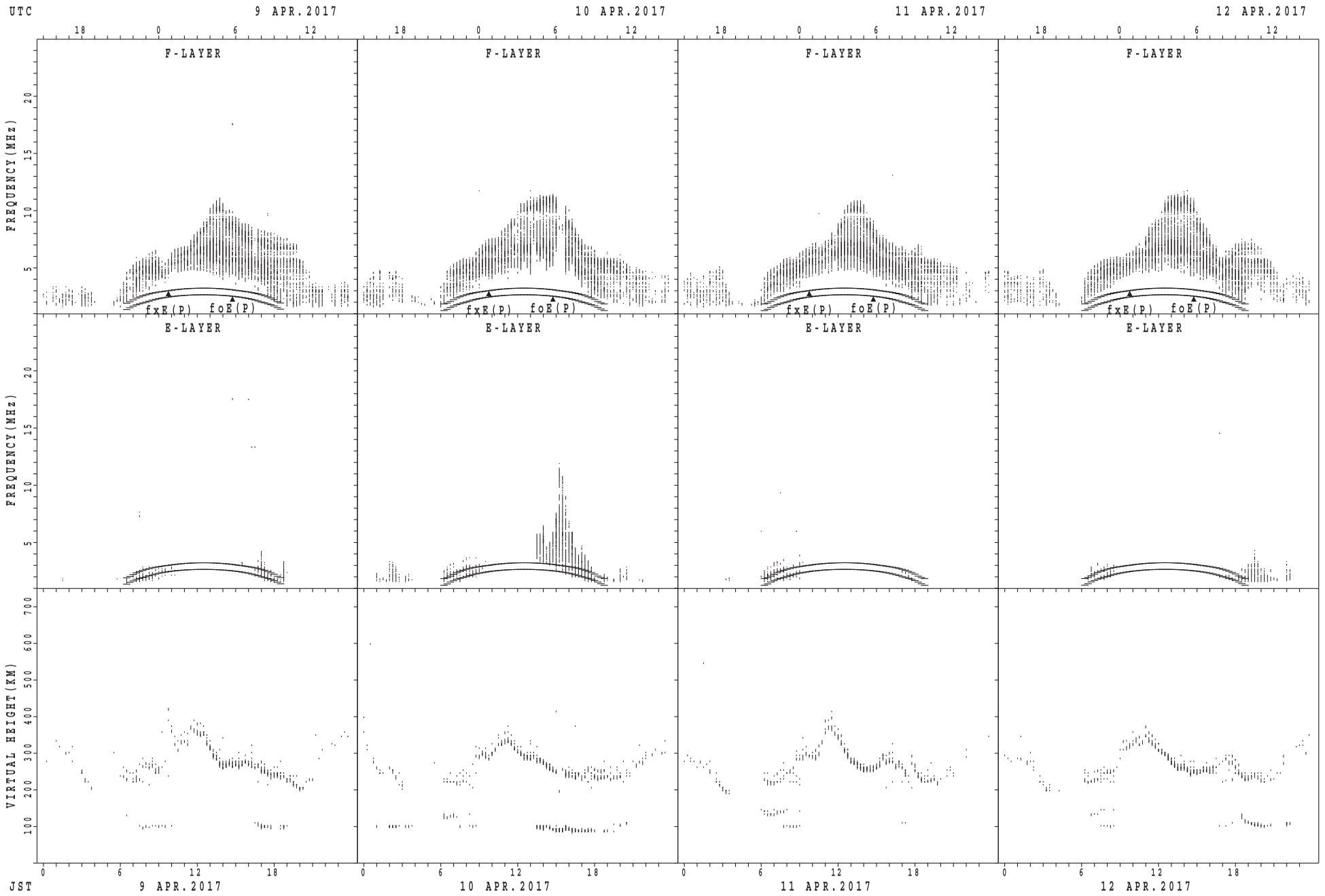
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



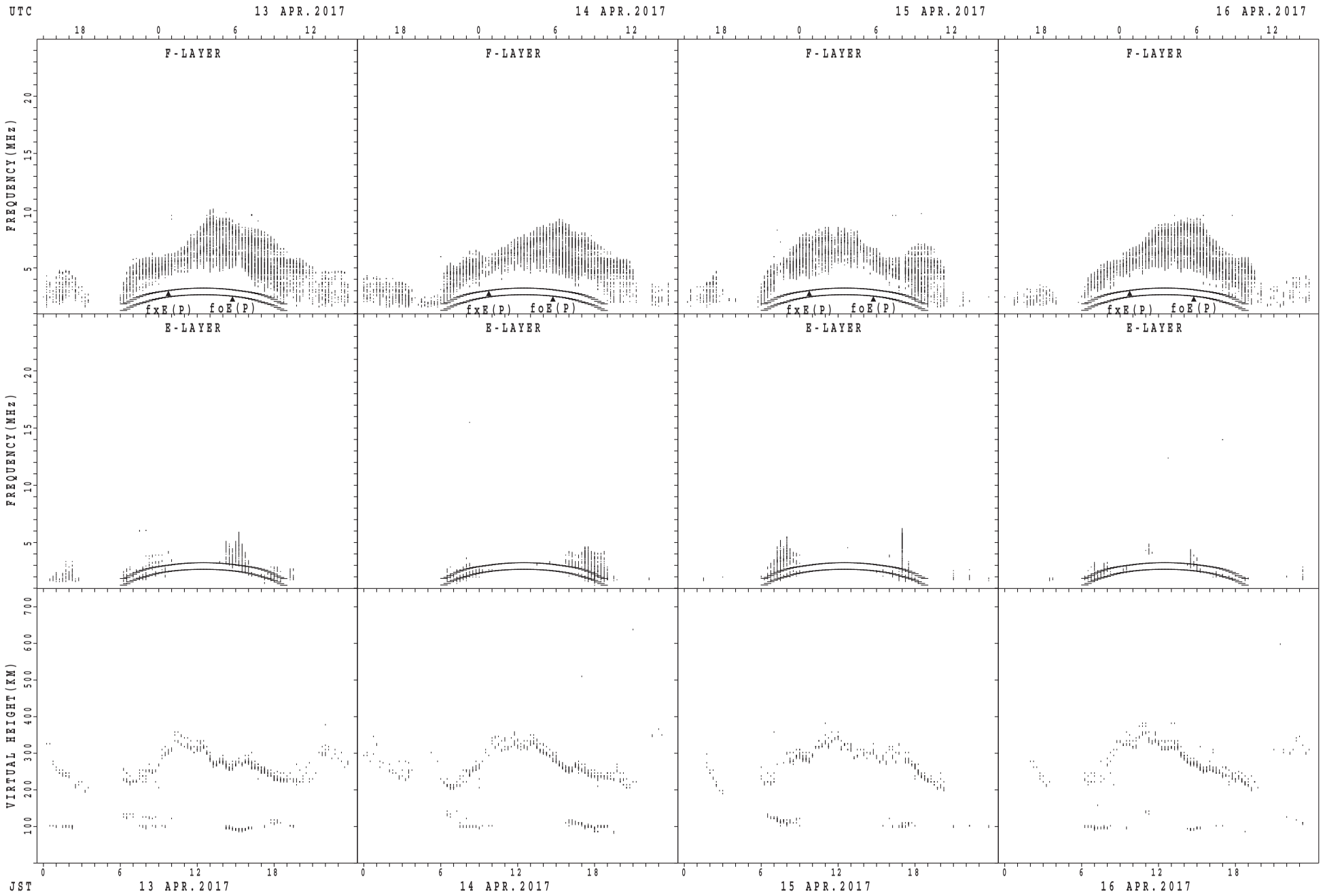
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



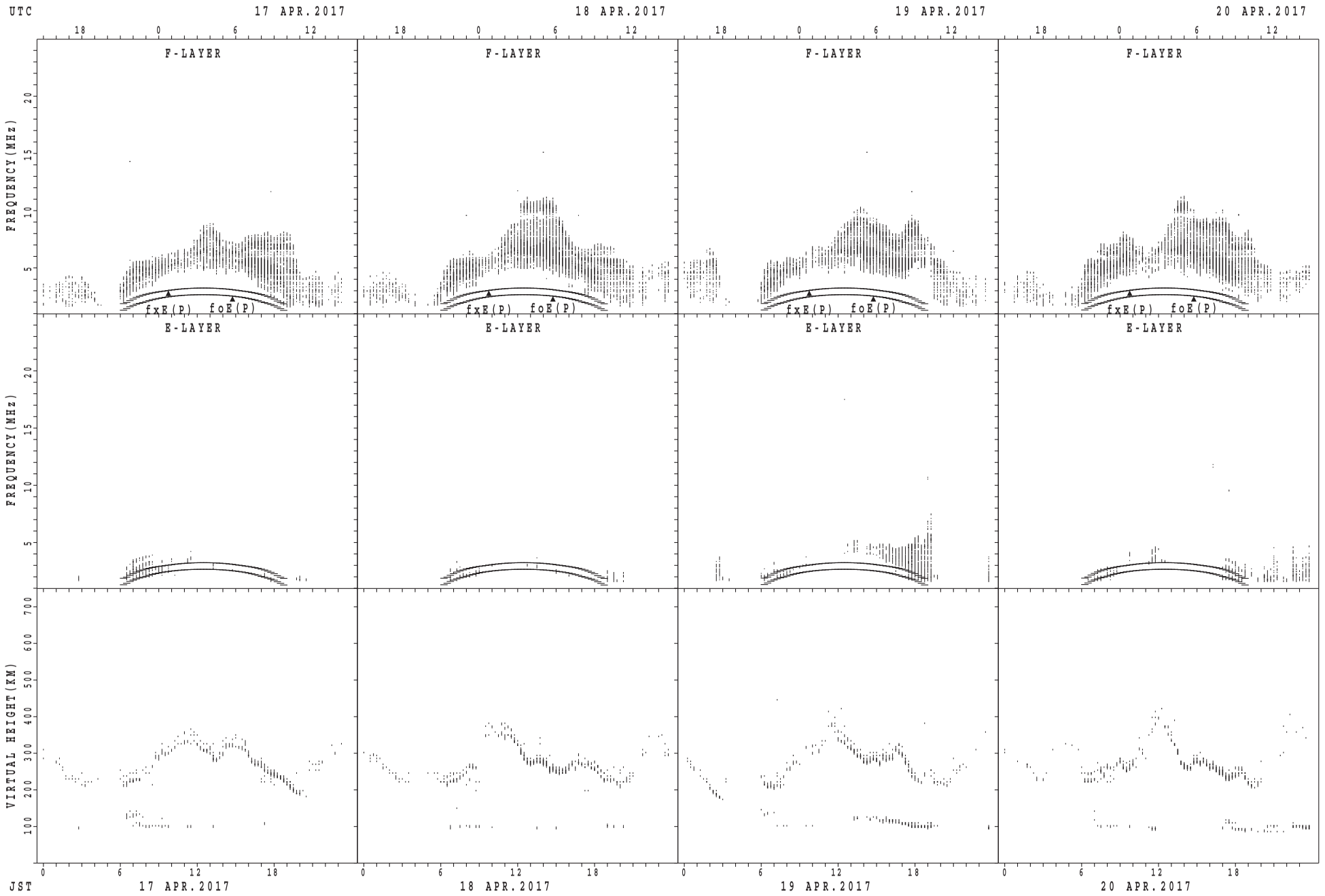
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



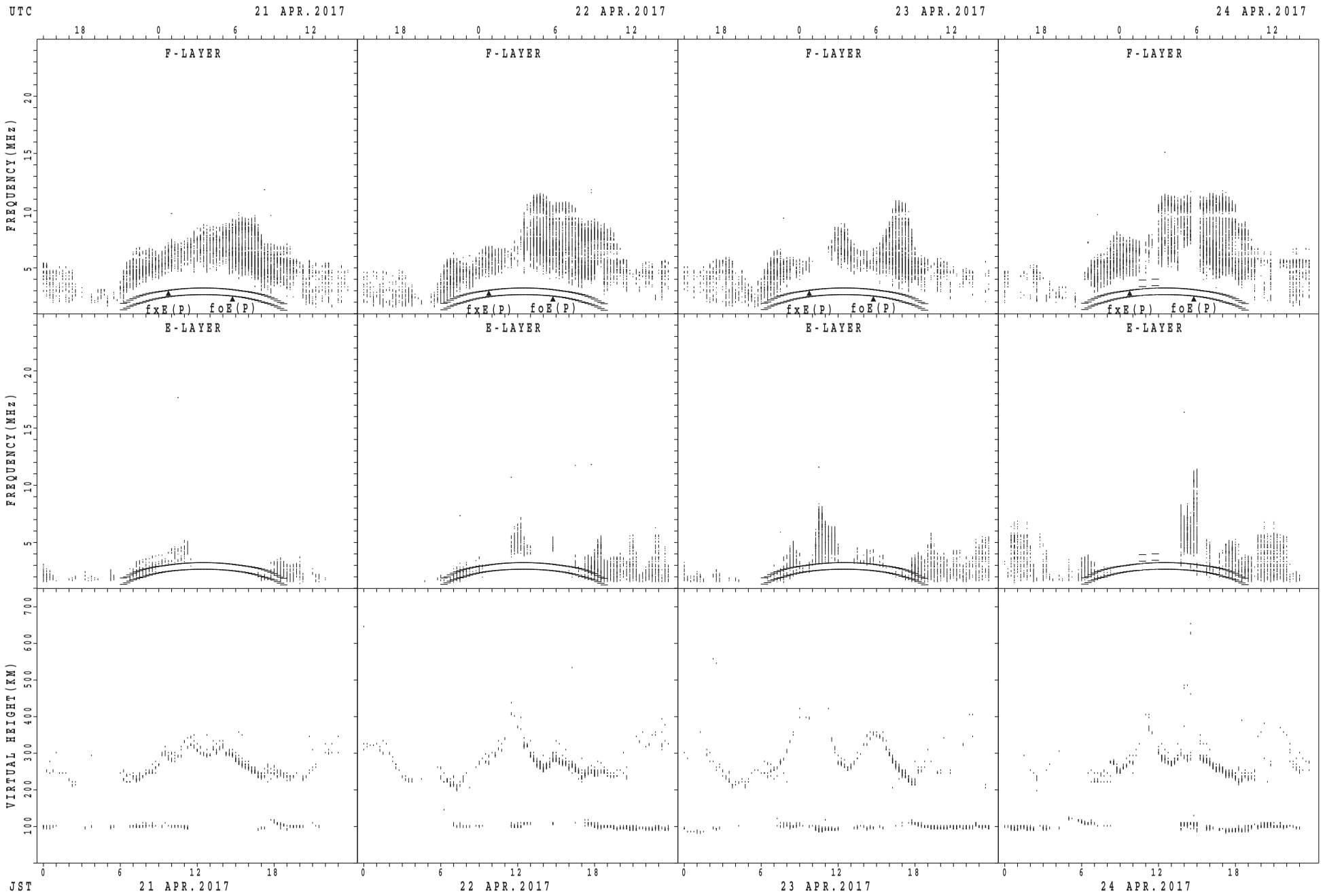
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



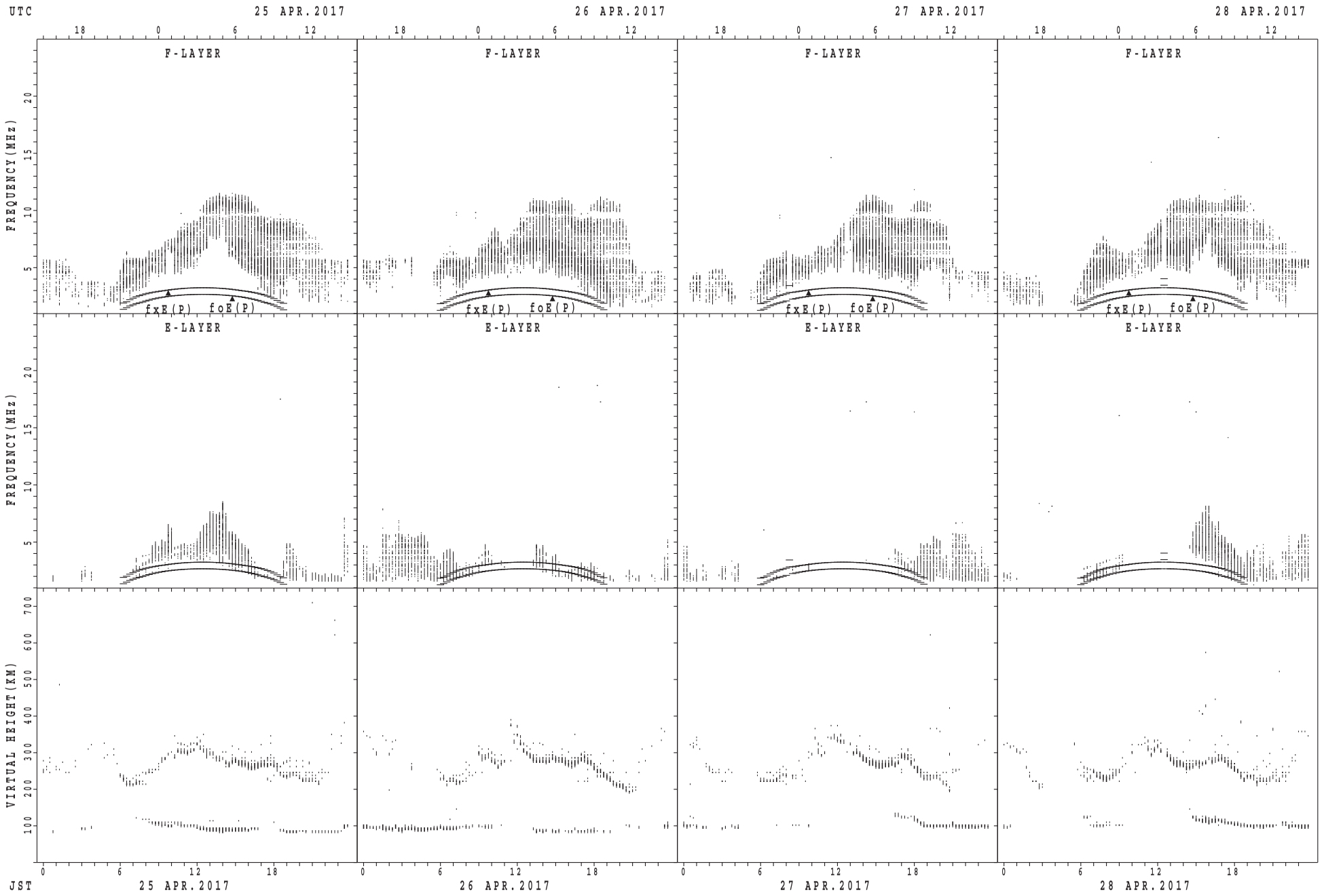
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa

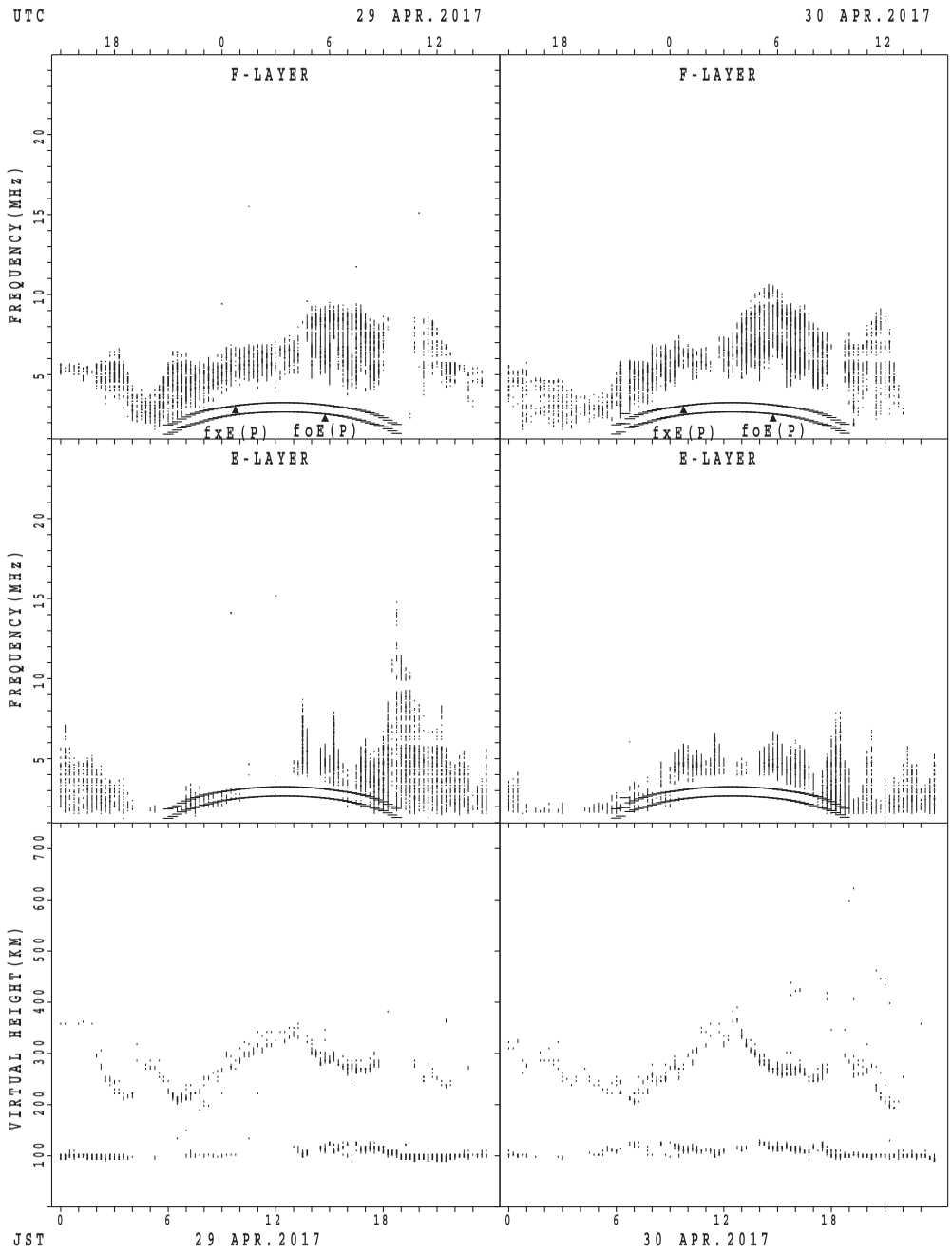


fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



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


SUMMARY PLOTS AT Okinawa
UTC
29 APR.2017
30 APR.2017
F-LAYER
F-LAYER
fxE(P) foE(P)
fxE(P) foE(P)
E-LAYER
E-LAYER
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
JST
29 APR.2017
30 APR.2017
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

MONTHLY MEDIANS OF h'F AND h'Es

APR.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	2	1	1				
MED																	246	256	240	318				
U Q																	268	280	120	159				
L Q																	240	232	120	159				

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	7	6	3	4	4	7	19	22	26	26	23	27	27	27	20	20	21	13	8	8	5	10	4	7
MED	91	88	81	92	102	101	119	106	101	103	95	93	95	93	93	92	95	99	93	90	89	91	92	83
U Q	97	89	97	98	106	143	153	131	119	107	101	101	107	105	102	96	107	119	105	98	92	97	100	83
L Q	83	85	79	90	86	91	113	93	91	91	91	89	87	89	89	89	90	84	84	89	85	89	86	81

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	5									14	12	6	4	2			
MED							262	258									267	257	240	263	270			
U Q							131	276									272	264	252	272	278			
L Q							131	255									256	253	238	250	262			

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	9	6	7	6	3	4	28	17	19	17	15	18	15	15	16	19	21	20	16	14	16	13	10	8
MED	101	97	97	97	105	140	131	107	105	103	103	103	99	99	100	103	105	107	104	103	103	103	100	101
U Q	104	99	103	97	113	143	143	126	113	107	111	109	105	105	108	111	108	113	115	107	108	107	103	104
L Q	97	95	95	95	89	138	121	103	101	101	101	97	95	95	96	95	97	98	102	97	99	97	97	100

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

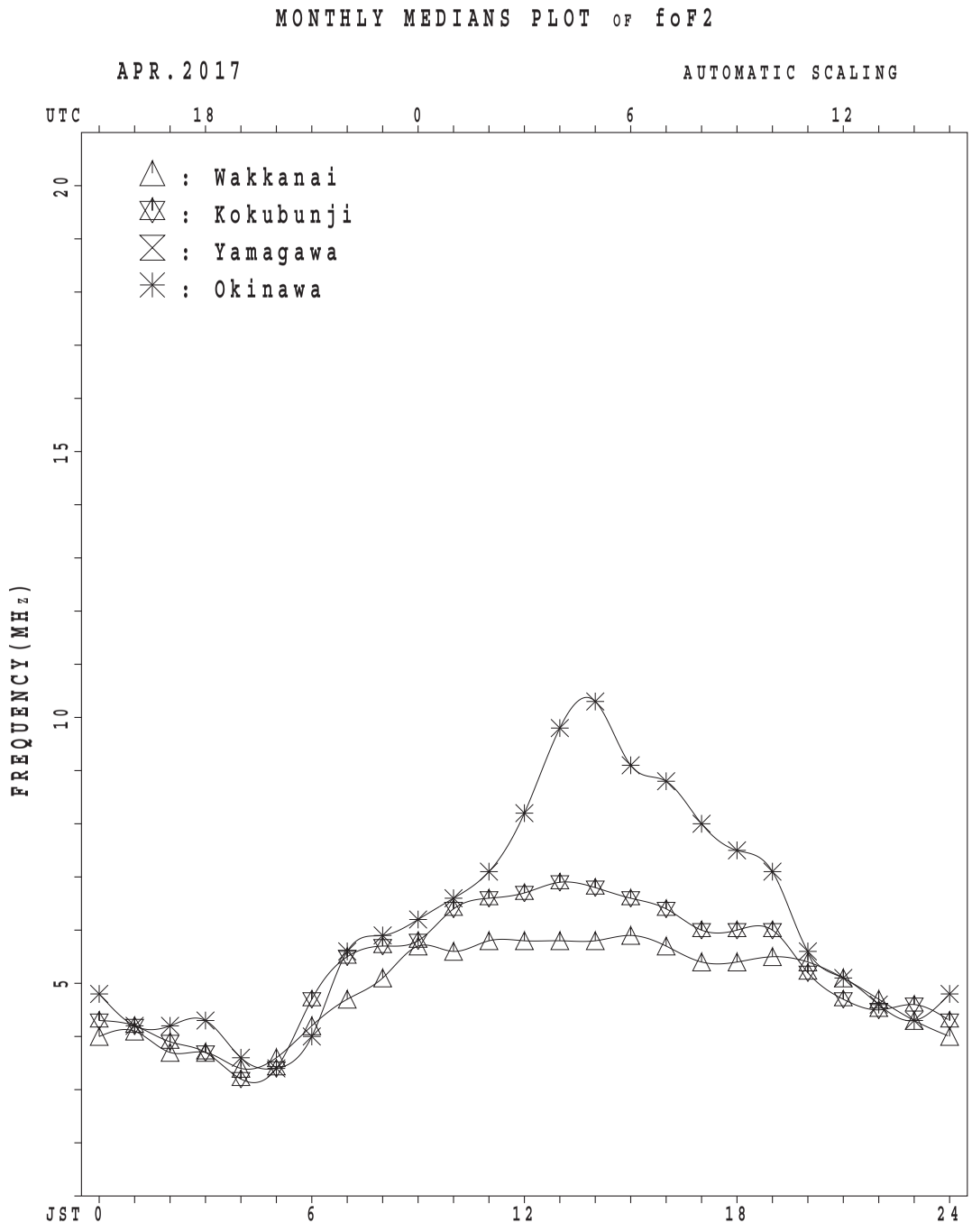
APR.2017 135E MEAN TIME(UTC+9H) AUTOMATIC SCALING

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			2	1				4	9									26	24	16	7	3		
MED			278	250				251	256									254	253	246	262	266		
U Q			334	125				269	281									274	268	256	276	272		
L Q			222	125				239	250									246	238	235	236	212		

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	8	8	6	7	3	3	5	21	19	17	8	8	5	6	9	12	13	16	18	17	13	12	9	7
MED	99	102	98	97	93	105	111	123	107	107	104	102	103	105	97	95	99	105	104	103	103	100	103	103
U Q	104	105	105	99	99	121	131	137	113	111	106	109	125	113	109	117	115	113	115	103	104	103	107	105
L Q	97	96	97	95	91	95	100	107	103	105	99	97	97	91	92	93	95	90	95	92	97	97	99	99


MONTHLY MEDIANS PLOT OF foF2
APR.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

APR. 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 52	X 51	X 49	X 45	X 34					C											X 58	X 51	X 51	X 50
2	X 49	X 44	X 43	X 45	X 39																X 58	X 52	X 52	X 49
3	X 46	X 43	X 44	X 42	X 39																X 59	X 56	X 54	X 50
4	X 50	X 49	X 48	X 46	X 41																X 72	X 64	X 61	X 51
5	X 55	X 47	X 38	X 37	X 33																X 49	X 49	X 47	X 47
6	X 47	X 43	X 42	X 39																	X 53	X 52	X 51	X 46
7	X 45	X 42	X 42	X 44																	X 58	X 57	X 57	X 51
8	X 45	X 46	X 43	X 44																	X 62	X 63	X 56	X 51
9	X 45	X 47	X 47	X 45																	X 54	X 58	X 51	X 48
10	X 48	X 45	X 45	X 41																	X 51	X 51	X 51	X 48
11	X 45	X 44	X 42	X 43																	X 59	X 54	X 46	X 46
12	X 45	X 42	X 42	X 40																	X 53	X 49	X 52	X 49
13	X 47	X 45	X 43	X 44																	X 59	X 57	X 53	X 50
14	X 47	54	56	57																	X 59	X 58	X 56	X 52
15	X 47	X 46	X 47	X 41																	X 53	A	X 48	X 42
16	X 39	X 46	X 43	X 43																	X 55	X 53	X 47	X 47
17	X 47	X 47	X 45	X 41																	X 65	X 61	X 47	X 42
18	X 40	X 41	X 41	X 41																	X 57	X 53	X 51	X 49
19	X 44	X 44	X 42	X 39																	X 59	X 55	X 51	X 52
20	X 52	X 46	X 46	X 44																	X 49	X 47	X 47	X 47
21	X 47	X 45	X 44	C																	X 62	X 59	X 54	X 56
22	X 52	X 51	X 47	X 46																	X 55	X 55	X 51	X 43
23	X 41	X 39	X 38	X 41																	X 63	X 51	X 40	X 40
24	X 40	X 39	X 39	X 41																	X 65	X 63	X 55	X 55
25	X 51	X 52	X 41	X 38																	X 66	X 63	X 61	X 56
26	X 51	X 48	X 47	X 43																	X 64	X 64	X 63	X 50
27	X 47	X 48	X 46	X 44																	X 67	X 60	X 54	57
28	X 54	57	57	X 47							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						X 72	X 67	X 65	X 62
30	X 58	X 48	X 47	X 47																	X 66	X 65	X 63	X 58
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	29	29	29	28	5																29	28	29	29
MED	X 47	X 46	X 44	X 43	X 39																X 59	X 56	X 52	X 50
U Q	X 51	X 48	X 47	X 45	X 40																X 64	X 62	X 56	X 52
L Q	X 45	X 44	X 42	X 41	X 34																X 54	X 52	X 50	X 47

APR. 2017 fxI (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

APR. 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	45	44	42	38	27	30	40	45	50	C	59	59	57	61	62	60	61	60	62	52	51	44	44	43
2	42	37	36	38	32	33	39	47	50	57	63	60	67	65	58	62	60	60	55	54	51	45	45	42
3	39	37	37	35	32	32	42	48	52	59	66	66	66	65	69	65	60	55	52	52	52	49	47	43
4	43	42	41	39	34	35	41	50	54	59	59	64	64	64	59	62	61	53	60	69	65	57	54	44
5	48	40	31	30	26	30	38	A	A	48	42	48	45	45	46	46	47	44	46	47	42	42	40	40
6	40	36	35	32	30	34	37	42	42	52	52	56	55	56	54	52	51	51	50	48	46	45	44	39
7	38	35	35	36	27	32	39	47	51	53	58	53	51	55	54	53	52	48	45	48	51	50	50	44
8	38	39	36	38	36	38	44	44	46	54	56	66	68	57	56	53	57	49	47	58	56	56	49	44
9	38	40	40	38	36	38	47	49	52	56	61	74	80	70	66	62	63	56	54	51	47	51	44	41
10	41	38	38	34	32	28	32	35	45	41	56	55	57	57	56	56	54	52	49	48	44	44	44	41
11	38	37	35	36	28	32	38	40	40	46	51	53	50	51	50	50	48	47	42	49	52	47	39	39
12	38	35	35	33	30	37	38	42	46	49	56	52	56	54	54	55	52	51	51	44	46	42	J R 45	42
13	40	38	36	37	36	40	45	46	49	56	57	61	60	56	58	56	60	52	48	51	52	50	46	43
14	40	40	F 44	F 46	35	42	43	46	49	55	54	60	62	53	59	57	54	56	57	59	52	51	49	45
15	40	39	40	34	37	36	R 38	A	R 36	A	A	A	R	R	45	45	44	42	44	46	46	A	41	35
16	32	39	36	36	36	37	41	45	44	51	55	51	48	50	49	48	50	50	49	52	48	46	40	40
17	40	40	38	34	32	40	45	50	52	54	57	57	57	57	54	54	55	51	50	60	58	54	40	35
18	33	34	34	34	31	37	38	44	49	56	54	56	56	56	56	56	59	56	59	55	50	46	44	42
19	37	37	35	32	33	41	45	50	58	66	57	54	61	61	66	61	69	75	62	54	52	48	44	45
20	45	39	39	37	34	35	35	36	39	40	43	44	43	53	53	54	54	52	48	42	42	40	40	40
21	40	38	37	C	25	35	39	R 44	47	50	55	54	56	59	60	58	53	53	54	58	55	52	47	49
22	45	44	40	39	31	36	40	37	48	46	A	50	54	52	59	64	62	53	52	55	48	48	44	36
23	34	32	31	34	32	34	34	A	A	R	A	A	R	R	46	48	44	45	51	58	56	44	33	33
24	33	32	32	34	33	32	40	42	49	49	52	57	52	55	60	60	58	55	54	57	58	56	48	48
25	44	45	34	31	28	35	39	43	46	46	49	56	56	60	60	56	55	55	52	56	59	56	54	49
26	45	41	40	36	32	39	39	45	50	50	51	60	67	62	63	58	52	52	50	57	57	57	56	43
27	40	41	39	37	38	40	44	50	54	58	54	58	61	62	62	62	57	56	58	58	60	53	48	F 44
28	47	F 46	F 43	40	38	44	48	54	54	56	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	B	C	C	C	62	60	55	58	64	65	60	58	55
30	51	41	40	40	39	42	52	52	52	57	52	54	54	58	57	61	60	A	57	58	59	58	56	51
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	29	29	29	28	29	29	29	26	27	26	25	26	26	26	28	29	29	28	29	29	29	28	29	29
MED	40	39	37	36	32	36	40	45	49	54	55	56	56	57	58	56	55	52	52	54	52	50	45	43
U Q	44	41	40	38	36	40	44	49	52	56	58	60	62	61	60	62	60	56	57	58	58	55	49	44
L Q	38	37	35	34	30	32	38	42	46	49	52	53	54	54	54	53	52	50	48	48	48	45	42	40

APR. 2017 foF2 (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

APR. 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									L	C	440	440	440	428	408	364	L	L						
2									L	L	436	436	436	436	L	L	L							
3							L		L	L	L	L	456	444	432	L	L							
4									416	416	444	444	444	444	428	400	L							
5								A	A	A		L	L	L	412	396	L	L						
6								L		412	428	428	432	428	416	L	L	L						
7								376	404	424	408	L	428	428	416	404	380							
8									L	408	424	L	L	436	428	416	L							
9									420	416	440	448	436	428	L	400	L	L						
10									L		L	436	428	428	412	392	L	L						
11										L	L	L	428	428	424	L	380	L						
12								L	L	428	428	444	444	432	416	404	372							
13							L	L	L	L	416	424	L	L	424	L	L							
14									400	L	L	L	L	L	432	L	L							
15							L	A	A	L	A	A	L	L	L	L	L	L		L				
16							L	L	L	L	L	L	L	L	420	404	L	L	L					
17								372	404	L	A	L	L	440	428	L	388	L						
18								L	L	L	440	L	432	L	432	400	L	L	L					
19						L	L	L	416	L	444	L	L	456	L	L	392	L						
20						L								L	L	L	400							
21								A	L	L	L	L	L	L	L	416	L							
22						L			L		A	L	444	L	L	424	400	L						
23						L		A	A	392	A	A	416	424	L	404		364	L					
24									L	L	L	L	L	L	L	L	396	L						
25								L	L	L	L	L	L	L	L	L	L	L						
26						L	L	L	420	432		L	L	L	440	L	L	L						
27						L		L	L	L	L	444	L	L	444	424	L	L						
28							L	L	416	456	C	C	C	C	C	C	C	C	C	C				
29					C	C	C	C	C	C	C	B	C	C	C	424	L							
30						L	360	404	L	L	L	452	452	L	452	424		A						
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT							1	3	8	9	11	10	14	14	18	16	8	1						
MED							360	376	416	416	436	442	436	430	426	404	390	364						
U Q								404	418	430	440	444	444	440	432	420	398							
L Q								372	404	410	424	436	428	428	416	400	380							

APR. 2017 foF1 (0.01MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

APR. 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 192	224	272		C 304	316	316	308	U R 300	276	244	204		B	B				
2						A 196		B 284	300	320	308	336	332	316	300	252		B	A	A				
3						A 220	248	A	300	336	360	360	312	312	300	K 264	220		B	B				
4						184	220	244	U R 296	304	320	340	340	316	312	U R 296	260	220	192	B				
5						204	204	248	280	296	296	308	296	324	304	288	A	212	228	252				
6					6 119	188	252	252	296	304	A	308	324	316	308	288	252	196	B	B				
7					A	A 200	244	284		A	A	328	316	316	304	260	244	216	B	B				
8					B 188	196	248	264	284	312	300	A	328	A	300	296	220		A	B				
9					B	A 220	276	304	304	324	336	320	328	304	284	272	212		B	B				
10					B	A 188	252	284	292	312	A	312	316	296	276	268	216		A	A				
11					B	A	A 228	280	288	316	312	316	316	A	A	280	204		B	B				
12					A	A 200	244	280	288	316	316	292	324	300	284	A	224	224		A				
13					A	B 224	240	292	316	316	320	324	324	308	280	244	192		B	B				
14					B	A 200	A	A	A	A	336	292	332	308	A	A	A	0 124	A	B				
15					B	240	204	252	288	300	300	328	316	308	300	292	264	208	216	A				
16					196	B	224	244	284	312	324	296	320	316	316	300	260	212	204	B				
17					B	216	216	244	288	304	308	340	328	328	312	A	A	224	192	A				
18					B	B 240	280	308	308	320	348	336	336	312	300	264	224		B	B				
19					B	B 244	A	300	316	316	324	344	312	308	304	A	228	172		A				
20					B	A 248	272	296	328	328	A	328	A	308	R 288	284	216		A	B				
21					A	A 232	U A 276	296	304	308	316	308	308	A	280	260	A	208		B				
22					B	B 208	268	A	300	328	312	A	328	312	288	A	A	B		B				
23					A	A 220	244	A	A	308	B	320	A	A	A	256	240	188		A				
24					B	180	224	A 256	284	300	300	300	324	332	308	A	244	240		B	B				
25					A	184	220	272	296	304	312	308	308	A	232	284	268	244		B	A				
26					B	184	228	284	296	324	308	324	324	324	316	A	292	232	184	B				
27					B	188	228	256	300	324	332	316	316	A	320	308	260	236	200	A				
28					B	200	240	284	284	320	C	C	C	C	C	C	C	C	C	C				
29					C	C	C	C	C	C	C	B	C	C	C	312	312	224	180	B				
30					B	160	236	272	292	296	320	A	312	312	312	296	268	228	A	A				
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT					2	12	28	26	25	25	26	24	26	24	23	23	23	26	12	1				
MED					158	188	220	252	288	304	316	316	320	316	308	288	264	220	196	252				
U Q						202	230	272	296	314	324	328	328	328	312	300	272	228	212					
L Q						184	202	244	284	298	308	308	316	312	304	284	252	212	186					

IONOSPHERIC DATA STATION Wakkanai

APR. 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	42	E B 15	E B 15	23	23	E B 15	G	26	G 20	C	G 21	34	39	38	33	32	G 20	G	E B 16	E B 16	E B 15	E B 16	E B 14	E B 15
2	21	22	E B 15	22	E B 16	19	22	E B 30	34	36	38	39	G 30	G 30	J A 61	G 22	G	E B 28	23	25	20	E B 15	E B 15	22
3	19	22	22	20	E B 16	18	G	30	34	32	34	G 36	G	G 30	36	33	G 24	G 21	E B 16	E B 16	23	23	20	20
4	E B 16	E B 16	16	21	21	G	G	36	35	37	J A 34	J A 37	39	J A 88	32	34	G 20	26	22	E B 16	E B 16	E B 16	E B 16	E B 16
5	E B 15	E B 16	19	19	26	28	28	J A 51	J A 53	55	37	36	J A 33	40	40	36	J A 27	25	G 20	G 19	19	29	J A 47	21
6	E B 16	E B 16	E B 16	18	G 22	G 20	G 25	27	35	88	J A 53	48	J A 36	J A 26	J A 26	G 20	G 19	24	E B 17	E B 16	E B 16	E B 16	19	J A 32
7	24	24	23	20	27	25	22	J A 52	37	45	J A 37	34	37	G 24	J A 103	G 23	G 20	23	E B 15	E B 16	E B 16	E B 16	E B 16	E B 15
8	22	E B 16	20	18	E B 15	G 18	22	27	J A 27	35	36	J A 39	J A 35	J A 55	J A 35	J A 56	34	28	22	E B 15	E B 16	25	21	32
9	26	30	34	25	E B 16	24	G	G 27	38	J A 99	J A 31	38	J A 46	40	38	34	34	G 19	E B 16	E B 16	21	22	E B 15	E B 15
10	20	24	20	J A 80	E B 15	18	24	28	36	34	J A 37	39	35	34	G 18	J A 32	G 25	24	J A 17	J A 29	19	18	E B 15	E B 15
11	E B 15	E B 15	E B 15	E B 15	E B 15	J A 53	24	28	32	32	38	J A 35	43	J A 36	J A 34	J A 32	J A 27	J A 19	E B 16	E B 16	E B 15	E B 15	18	23
12	24	20	20	20	20	20	24	28	35	36	39	J A 39	J A 42	40	J A 30	37	J A 30	G 18	28	24	23	26	20	27
13	26	28	27	E B 15	22	E B 15	G 19	29	32	39	41	41	41	39	39	32	G 20	26	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16
14	E B 15	E B 16	E B 16	E B 15	E B 16	20	25	33	37	37	36	J A 35	41	41	41	48	43	G 38	25	E B 15	E B 16	E B 16	E B 16	E B 16
15	20	E B 15	E B 15	E B 15	E B 15	J A 51	28	37	J A 43	J A 82	38	42	G	36	G	32	48	28	29	J A 30	42	45	J A 47	40
16	20	E B 15	E B 15	26	22	E B 15	G	J A 30	G	32	37	42	46	38	42	36	G 21	26	26	E B 16	J A 29	J A 51	J A 51	69
17	25	24	E B 16	E B 16	E B 16	26	26	32	36	38	64	J A 57	G 37	41	44	44	32	26	G 21	J A 25	22	E B 15	36	E B 15
18	E B 15	E B 16	E B 16	19	E B 15	E B 16	J A 39	34	40	40	G 25	44	42	40	35	35	33	25	E B 16	E B 15	E B 15	E B 15	E B 15	20
19	E B 15	21	E B 15	E B 15	E B 15	E B 15	26	34	38	36	36	40	38	G	G	G 20	38	29	J A 27	J A 21	21	23	23	24
20	20	26	26	20	E B 16	19	J A 62	32	34	38	38	39	J A 35	39	G 26	G 21	J A 42	J A 34	27	E B 16	20	25	30	32
21	J A 50	26	29	D C 20	J A 27	58	26	36	34	36	36	J A 43	J A 43	52	40	G	G 22	39	27	E B 15	26	E B 15	23	24
22	22	22	E B 15	E B 15	E B 15	E B 16	26	G	33	38	J A 49	41	48	36	40	33	45	J A 33	20	E B 15	E B 15	E B 15	E B 15	E B 15
23	27	26	47	32	30	J A 24	29	37	37	35	50	58	39	44	38	38	38	G 19	35	25	J A 102	E B 15	20	E B 15
24	20	E B 15	E B 15	E B 15	E B 15	G	32	J A 124	34	34	J A 36	J A 36	41	J A 50	J A 38	39	G	J A 33	E B 17	E B 16	J A 27	E B 15	E B 15	E B 15
25	21	E B 16	E B 16	26	20	G	28	31	35	38	41	37	37	34	37	G	35	G	E B 20	23	20	20	E B 16	E B 16
26	23	20	26	E B 16	E B 15	G	G 19	30	34	34	38	37	37	J A 37	37	44	G	G	G	E B 16	23	E B 16	21	25
27	26	24	26	23	E B 15	G	G	G	34	43	J A 87	38	38	44	40	34	35	G 17	23	25	E B 16	E B 16	E B 16	E B 16
28	E B 16	E B 16	E B 16	E B 16	E B 16	G	34	34	31	37	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	B	C	C	C	41	38	J A 39	26	E B 16	24	J A 30	21	E B 16
30	19	E B 16	E B 16	E B 16	E B 15	21	27	38	37	36	J A 52	J A 52	52	42	39	38	58	71	J A 43	42	E B 16	28	E B 16	E B 16
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	29	29	29	29	29	29	29	29	29	28	28	28	28	28	28	29	29	29	29	29	29	29	29	29
MED	20	20	E B 16	19	E B 16	G	G	31	35	37	38	39	38	39	38	34	30	26	G	E B 16	20	E B 16	18	E B 16
U Q	24	24	24	22	22	24	28	36	37	40	41	42	42	42	40	38	38	36	26	24	23	25	22	24
L Q	E B 16	E B 16	E B 15	E B 16	E B 15	E B 18	24	28	34	35	36	36	G	35	32	G	G 23	G 24	E B 16	E B 16	E B 16	E B 15	E B 16	E B 15

APR. 2017 foEs (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

APR. 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	A 29	E B 15	E B 15	E B 15	15	E B 15	G	24	G 20	C	G 21	33	37	36	G 30	31	G 19	G	E B 16	E B 16	E B 15	E B 16	E B 14	E B 15
2	E B 112	E B 15	E B 15	E B 15	E B 16	E B 16	G 19	E B 30	29	32	34	32	G 29	G 29	G 31	G 19	G	E B 28	16	E B 16	15	E B 15	E B 15	E B 15
3	E B 15	E B 16	E B 16	E B 15	E B 16	E B 16	G	29	30	G 30	G 33	G 33	G	G 29	34	31	G 22	G 20	E B 16	E B 16	E B 16	15	E B 16	E B 16
4	E B 16	E B 16	E B 16	E B 16	E B 16	G	G	28	32	34	34	36	36	34	G 30	G 30	G 19	G 20	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16
5	E B 15	E B 16	E B 16	E B 16	E B 16	G 19	21	A A 51	A A 53	E A 42	32	32	32	G 30	33	29	25	G 21	G 18	G 17	E B 16	E B 15	E B 16	E B 15
6	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	G 22	27	G 30	31	31	34	33	G 25	G 25	G 19	G 16	G 20	E B 17	E B 16	E B 16	E B 16	E B 14	E B 14
7	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	21	32	32	34	34	G 32	33	G 22	G 30	G 21	G 20	G 19	E B 15	E B 16	E B 16	E B 16	E B 16	E B 15
8	E B 15	E B 16	E B 16	E B 16	E B 15	E B 16	22	26	G 24	30	34	34	33	G 32	31	G 29	G 29	24	18	E B 15	E B 16	E B 16	E B 16	E B 16
9	E B 15	19	16	E B 16	E B 16	E B 16	G	G 25	G 30	33	G 31	35	34	G 32	31	G 28	28	G 17	E B 16	E B 16	E B 15	E B 15	E B 15	E B 15
10	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	22	28	34	32	34	34	33	G 32	G 17	G 27	G 24	G 20	16	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	20	26	30	30	34	G 30	34	G 32	29	28	G 27	G 18	E B 16	E B 16	E B 15	E B 15	E B 15	E B 15
12	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	22	26	29	34	34	36	36	G 32	G 29	29	27	G 17	G E B 17	E B 15	15	E B 15	E B 15	E B 15
13	E B 15	16	E B 15	E B 15	E B 15	E B 15	G 18	26	G 29	32	32	G 31	G 32	G 32	G 29	30	G 17	24	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16
14	E B 15	E B 16	E B 16	E B 15	E B 16	16	23	28	30	32	G 32	34	G 33	34	33	34	29	G 30	16	E B 15	E B 16	E B 16	E B 16	E B 16
15	E B 15	E B 15	E B 15	E B 15	E B 15	G 18	26	30	A	34	A A 38	A A 42	G	33	G	30	30	26	G 20	21	20	A A 45	15	E B 15
16	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	G	29	G	G 30	34	34	35	G 29	G 30	G 29	G 20	23	G E B 18	E B 16	18	20	E B 15	18
17	E B 16	E B 16	E B 16	E B 16	E B 16	G 20	25	28	32	35	48	37	G 35	34	36	30	28	24	G 18	E B 20	E B 15	E B 15	16	E B 15
18	E B 15	E B 16	E B 16	E B 16	E B 15	E B 16	G 21	G 28	G 29	33	G 24	G 35	35	G 32	34	G 29	29	G 22	E B 16	E B 15	E B 15	E B 15	E B 15	E B 15
19	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	G 22	30	34	34	34	36	37	G	G	G 19	29	29	20	E B 15	E B 16	16	E B 16	E B 16
20	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	G 24	28	G 29	G 31	36	34	33	34	G 23	G 19	36	28	18	E B 16	E B 16	E B 16	21	21
21	21	E B 15	16	C	17	28	24	30	32	32	34	40	40	42	35	G	G 20	29	G 20	E B 15	E B 15	E B 15	E B 15	E B 15
22	E B 15	E B 15	E B 15	E B 15	E B 15	E B 16	26	G	29	35	A A 49	37	38	35	32	31	32	23	18	E B 15	E B 15	E B 15	E B 15	E B 15
23	15	15	A	E A 24	20	20	25	A A 37	A A 37	33	A A 50	A A 58	36	32	32	30	30	G 18	G 18	E B 15	E B 15	E B 15	E B 15	E B 15
24	E B 15	E B 15	E B 15	E B 15	E B 15	G	23	30	30	32	34	34	34	34	34	32	G	25	E B 17	E B 16	E B 15	E B 15	E B 15	E B 15
25	E B 15	E B 16	E B 16	E B 16	E B 16	G	27	28	32	36	37	33	33	33	34	G	28	G	E B 20	E B 16	E B 16	E B 16	E B 16	E B 16
26	E B 16	E B 15	E B 15	E B 16	E B 15	G	G 19	29	32	G 32	36	34	34	34	33	34	G	G	G	E B 16	E B 16	E B 16	E B 16	E B 16
27	E B 16	E B 16	E B 16	E B 16	E B 15	G	G	G	31	33	38	36	36	34	G 32	G 30	28	G 15	G 15	24	E B 16	E B 16	E B 16	E B 16
28	E B 16	E B 16	E B 16	E B 16	E B 16	G	27	29	31	34	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	B	C	C	C	32	32	29	21	E B 16	E B 16	25	E B 16	E B 16
30	E B 15	E B 16	E B 16	E B 16	E B 15	18	26	30	35	32	36	35	40	37	35	33	36	A A 71	24	22	E B 16	18	E B 16	E B 16
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	29	29	28	28	29	29	29	29	28	28	28	28	28	28	28	29	29	29	29	29	29	29	29	29
MED	E B 15	E B 16	E B 16	E B 16	E B 15	E B 16	24	28	30	32	34	34	34	G	G	30	28	G 24	17	E B 16	E B 16	E B 16	E B 16	E B 15
U Q	E B 16	E B 16	E B 16	E B 16	E B 16	G	24	30	32	34	36	36	36	34	34	31	29	29	19	16	E B 16	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	G 22	28	G 29	32	G 32	33	33	G 32	G 30	G 28	G 21	G 20	E B 16	E B 15	E B 15	E B 15	E B 15	E B 15

APR. 2017 fbEs (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

APR. 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	16	15	15	15	15	15	16	15	14	C	16	17	15	16	16	14	16	15	16	16	15	16	14	15
2	112	16	15	14	16	16	16	30	16	17	15	16	28	20	21	16	16	28	12	15	15	15	15	15
3	16	16	15	15	16	15	15	15	16	16	20	29	29	16	16	16	15	14	16	16	16	15	16	16
4	16	16	16	16	15	15	16	16	14	16	19	18	17	16	16	15	15	11	16	16	16	16	16	16
5	15	16	16	16	16	14	16	15	16	17	18	10	17	18	18	16	15	15	16	16	16	15	16	16
6	16	16	16	16	15	15	16	15	15	16	17	22	16	16	18	16	14	12	17	16	16	16	14	14
7	15	15	15	15	15	15	16	16	16	14	18	16	18	15	15	12	11	14	15	16	16	16	16	15
8	15	16	16	15	15	16	16	16	16	16	16	15	15	15	15	15	14	15	15	15	16	16	16	16
9	15	15	16	16	16	16	16	14	15	15	16	16	16	15	16	16	15	14	16	16	15	15	15	15
10	15	15	15	15	15	15	15	15	15	15	15	16	16	15	16	17	15	14	15	15	15	15	15	15
11	15	15	15	15	15	16	16	16	16	14	17	21	17	14	17	14	15	15	16	16	15	15	15	15
12	15	15	15	15	15	15	14	15	14	14	16	15	14	16	14	16	15	14	14	15	15	16	15	15
13	15	15	15	15	15	15	15	16	11	16	14	18	15	15	15	16	11	14	16	16	16	16	16	16
14	15	16	16	15	16	15	16	16	15	14	17	17	16	16	15	16	16	12	15	15	16	16	16	16
15	15	15	15	15	15	16	16	16	14	14	16	15	14	16	15	15	16	15	14	16	16	15	15	15
16	15	15	15	15	15	15	15	14	15	15	16	18	16	16	15	15	15	11	16	16	15	15	15	15
17	16	16	16	16	16	16	16	15	15	15	16	18	22	20	15	15	15	12	12	12	15	15	15	15
18	15	16	16	16	15	16	16	16	16	16	15	20	16	15	18	16	14	15	16	15	15	15	15	15
19	15	15	15	15	15	15	13	13	15	16	17	17	16	20	16	15	15	12	14	14	16	16	16	16
20	15	15	15	16	16	16	14	14	16	16	16	16	21	18	14	14	14	15	16	16	16	15	15	15
21	15	15	15	13	16	16	16	16	14	16	21	15	22	17	15	17	12	15	15	15	15	15	15	15
22	15	15	15	15	15	16	15	16	15	15	15	18	16	19	22	14	14	15	16	15	15	15	15	15
23	15	15	15	15	15	15	15	16	15	14	16	33	16	15	16	16	15	13	15	15	15	15	16	15
24	15	15	15	15	15	15	15	16	16	15	15	18	16	18	14	14	14	16	17	16	15	15	15	15
25	15	16	16	16	16	15	15	14	14	14	21	20	16	16	16	16	14	15	20	16	16	16	16	16
26	16	15	16	16	15	15	14	16	15	16	18	20	22	23	21	20	16	13	16	16	16	16	16	16
27	16	16	16	16	15	15	15	16	22	20	21	19	22	18	15	15	15	13	15	15	16	16	16	16
28	16	16	16	16	16	15	15	14	15	19	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	B	C	C	C	16	13	10	10	16	16	16	16	16
30	16	16	16	16	15	15	13	11	11	14	17	18	21	16	16	14	12	12	16	16	16	16	16	16
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	29	29	29	29	29	29	29	29	29	28	28	29	28	28	28	29	29	29	29	29	29	29	29	29
MED	15	15	15	15	15	15	15	16	15	16	16	18	16	16	16	16	15	14	16	16	16	15	15	15
U Q	16	16	16	16	16	16	16	16	16	16	18	20	21	18	16	16	15	15	16	16	16	16	16	16
L Q	15	15	15	15	15	15	15	14	14	14	16	16	16	15	15	14	14	12	15	15	15	15	15	15

APR. 2017 fmin (0.1MHz)

IONOSPHERIC DATA STATION Wakkanai

APR. 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	298	311	320	325	346	338	371	341	334	C	353	346	336	320	347	335	362	344	335	333	305	305	325	301
2	311	295	294	325	322	336	365	354	327	338	346	335	349	360	346	347	359	358	348	325	326	305	303	303
3	301	307	329	324	324	342	356	341	329	348	361	350	337	340	348	348	348	352	332	322	304	315	313	309
4	299	306	319	349	319	312	338	344	362	352	330	360	342	359	332	346	351	316	314	300	317	313	304	308
5	314	374	328	300	331	332	366	A	A	310	370	408	284	284	293	330	336	324	332	315	310	297	298	287
6	303	309	301	296	321	332	352	359	357	317	306	327	334	342	328	343	344	347	351	316	314	320	297	315
7	297	303	304	318	337	336	376	329	331	319	333	362	318	334	342	345	356	355	322	317	312	304	320	341
8	325	319	316	315	328	347	367	354	337	321	337	330	328	330	329	329	345	349	307	312	297	314	335	307
9	298	314	297	302	325	331	362	347	325	332	312	317	330	328	331	337	343	338	347	302	309	298	334	306
10	294	305	316	350	337	327	358	359	288	389	328	324	339	332	346	346	357	341	336	324	313	311	312	318
11	314	309	316	349	333	348	377	352	383	246	316	319	324	335	325	324	336	336	336	308	320	316	321	321
12	309	310	342	356	337	360	349	331	339	317	345	297	225	328	327	352	342	339	339	332	298	322	R	323
13	309	315	324	317	320	384	360	374	334	343	347	346	316	334	348	327	362	345	322	333	313	329	323	329
14	310	307	F 279	F 322	349	349	392	355	332	344	330	329	349	294	324	333	321	341	337	327	310	302	315	321
15	308	309	314	315	304	318	R 295	A	R 307	A	A	A	R	R	280	324	317	310	306	313	311	A	310	298
16	293	283	278	327	307	353	341	359	320	328	329	328	281	299	330	309	331	334	340	316	303	300	319	312
17	298	298	268	314	328	362	356	368	351	338	331	324	323	332	338	313	331	347	319	323	329	344	310	307
18	313	310	310	344	323	347	346	329	322	351	334	320	350	351	331	315	339	360	343	343	307	309	306	308
19	316	316	322	328	344	374	364	332	343	351	345	290	334	295	324	304	301	333	347	310	322	310	308	303
20	326	300	295	308	314	318	347	359	372	399	367	383	412	295	300	306	327	330	358	326	290	302	294	315
21	292	306	326	C	351	298	345	R 272	312	319	289	339	327	316	346	324	340	341	331	313	302	305	307	294
22	288	287	302	327	297	317	355	371	280	336	A	269	306	316	296	343	340	312	315	294	290	353	316	300
23	282	293	304	276	328	301	334	A	A	R	A	A	R	R	264	310	291	284	298	308	340	316	296	300
24	300	284	289	300	308	340	325	349	306	305	277	334	288	281	315	313	339	327	319	293	325	285	311	299
25	314	326	312	317	324	320	338	307	304	277	286	322	322	328	326	336	336	334	335	305	290	301	315	305
26	298	303	316	314	312	352	350	333	344	317	262	314	333	329	319	347	321	326	319	302	312	315	319	319
27	306	287	312	293	298	339	347	339	324	336	319	314	309	320	331	332	331	322	321	313	328	314	323	F 285
28	300	F 291	F 315	337	327	362	347	358	343	336	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	B	C	C	C	339	342	350	324	314	310	295	318	322
30	345	307	307	309	316	309	333	354	346	352	335	323	312	319	309	339	336	A	344	313	307	311	322	330
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	29	29	29	28	29	29	29	26	27	26	25	26	26	26	28	29	29	28	29	29	29	28	28	29
MED	303	307	312	318	324	338	352	350	332	336	331	328	328	328	328	333	339	338	332	314	310	310	314	308
U Q	314	310	320	328	335	350	364	359	344	348	346	346	337	334	340	344	346	347	342	324	318	316	320	320
L Q	298	296	299	308	315	319	343	333	320	317	314	319	312	316	317	320	331	326	319	308	304	302	306	300

APR. 2017 M(3000)F2 (0.01)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

APR. 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									L	C	364	377	385	396	387	397	L	L						
2									L	L	379	379	393	382	L	L	L							
3							L		L	L	L	L	365	382	380	L	L							
4									368	383	369	390	390	382	396	371	L							
5								A	A	A		L	L	L	374	363	L	L						
6								L		364	389	391	388	417	394	L	L	L						
7								357	358	354	406	L	400	391	379	386	378							
8									L	374	379	L	L	366	370	363	L							
9									366	383	377	353	371	379	L	372	L	L						
10									L		L	385	393	393	384	387	L	L						
11										L	L	L	371	377	379	L	373	L						
12								L	L	375	406	394	382	392	375	368	383							
13							L	L	L	L	421	418	L	L	360	L	L							
14									378	L	L	L	L	L	361	L	L							
15							L	A	A	L	A	A	L	L	L	L	L	L		L				
16							L	L	L	L	L	L	L	L	362	373	L	L	L					
17								387	388	L	A	L	L	360	368	L	373	L						
18								L	L	L	372	L	380	L	380	387	L	L	L					
19						L	L	L	369	L	395	L	L	353	L	L	360	L						
20						L								L	L	L	328							
21								A	L	L	L	L	L	L	L	361	L							
22						L			L		A	L	349	L	L	351	357	L						
23						L		A	A	399	A	A	393	387	L	368		336	L					
24									L	L	L	L	L	L	L	L	352	L						
25								L	L	L	L	L	L	L	L	L	L	L						
26						L	L	L	372	379		L	L	L	385	L	L	L						
27						L		L	L	L	L	382	L	L	360	374	L	L						
28							L	L	378	358	C	C	C	C	C	C	C	C	C	C				
29					C	C	C	C	C	C	C	B	C	C	C	373	L							
30						L	374	389	L	L	L	386	405	L	354	359		A						
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT							1	3	8	9	11	10	14	14	18	16	8	1						
MED							374	387	370	375	379	386	386	382	377	372	366	336						
U Q								389	378	383	406	391	393	392	384	380	376							
L Q								357	367	361	372	379	371	377	362	363	354							

APR. 2017 M(3000)F1 (0.01)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

APR. 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									310	C	264	274	280	298	266	266	244	258						
2									270	282	266	274	274	256	272	258	242							
3							222		260	266	258	270	270	262	262	246	242							
4									264	272	286	264	294	252	276	270	242							
5								A	A	348		222	316	448	380	308	288	266						
6								236		310	344	314	302	292	302	270	280	240						
7								294	292	320	304	266	330	310	292	270	262							
8									284	318	298	282	282	298	298	290	270							
9									286	294	318	290	262	276	276	282	256	242						
10									376		316	342	282	302	268	268	256	242						
11										502	338	320	340	308	334	300	292	262						
12								242	320	344	298	364	290	292	312	270	272							
13							234	232	290	284	284	272	306	306	280	290	244							
14									306	292	310	308	272	382	310	288	298							
15							386	A	A	A	A	A	R	R	420	324	332	326		272				
16							256	258	286	296	302	312	416	358	326	332	308	268	256					
17								240	266	286	286	332	330	312	314	306	284	266						
18								298	334	282	292	330	300	284	292	298	260	260	244					
19						232	218	286	286	254	268	400	304	340	296	316	308	248						
20						320								366	350	340	304							
21								382	352	324	358	310	336	316	280	280	282							
22						262			374		A	416	362	330	368	278	254	262						
23						364		A	A	R	A	A	R	R	444	344		356	336					
24									344	366	414	322	360	392	338	318	274	274						
25								366	372	416	418	316	330	316	284	286	272	262						
26						256	258	312	296	322	472	322	292	292	286	280	264	264						
27						282		266	296	286	314	314	338	310	292	280	280	252						
28							266	262	278	286	C	C	C	C	C	C	C	C	C	C				
29					C	C	C	C	C	C	C	B	C	C	C	292	276							
30						328	276	264	286	272	300	316	360	334	340	286		A						
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT						7	8	14	23	23	23	25	25	26	28	29	27	17	3	1				
MED						282	257	265	292	294	302	314	304	309	297	286	272	262	256	272				
U Q						328	271	298	334	324	338	326	337	334	336	307	288	267	336					
L Q						256	228	242	284	282	286	274	282	292	280	270	256	250	244					

APR. 2017 h'F2 (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

APR. 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	E A 296	266	260	254	212	242	228	224	200	C	212	202	202	198	198	198	216	226	222	210	246	258	252	258
2	E B 236	288	272	242	226	254	230	222	198	190	208	192	196	196	196	204	204	244	230	230	230	258	256	288
3	282	284	260	238	238	240	212	228	206	206	206	194	194	198	198	198	198	234	228	228	234	236	260	262
4	278	252	244	228	250	252	224	242	210	204	200	200	198	186	188	200	198	246	268	250	248	210	252	234
5	270	204	240	268	248	232	236	A	A	A	212	186	192	192	206	206	202	216	258	234	272	272	250	280
6	276	280	282	282	232	222	200	200	194	218	202	194	194	194	194	194	202	210	228	218	252	258	266	256
7	272	278	280	256	204	246	228	228	218	218	190	186	184	184	198	200	206	240	248	250	254	264	232	224
8	242	252	252	244	246	226	226	220	206	198	198	192	202	194	200	198	224	236	262	244	264	248	216	228
9	204	238	242	242	240	228	222	232	200	192	194	208	198	190	178	196	214	214	228	244	266	264	234	264
10	254	280	266	254	254	270	234	220	E A 268	206	216	206	196	196	196	198	210	206	228	228	262	262	254	260
11	260	250	E B 230	222	200	242	224	214	212	196	196	196	196	190	198	204	204	204	256	262	240	240	240	256
12	240	272	240	212	252	226	230	200	200	200	200	200	200	200	190	194	200	248	240	240	264	264	274	242
13	256	240	244	232	240	228	198	194	194	194	196	198	192	192	192	196	202	230	240	246	262	222	224	238
14	248	256	246	238	194	234	220	218	198	200	190	178	190	188	196	E A 242	202	272	232	232	248	248	248	230
15	274	272	266	284	254	230	230	A	A	200	A	A	216	194	186	212	212	222	262	198	226	A	228	228
16	248	268	278	220	262	238	210	194	188	188	194	190	192	194	194	202	202	202	230	236	254	236	236	254
17	270	254	Q 266	224	248	228	228	196	206	198	A	198	190	200	200	200	200	204	248	248	230	220	256	256
18	268	272	272	234	222	250	212	212	200	198	204	194	194	194	202	190	190	204	212	212	228	246	262	262
19	258	262	252	252	230	200	190	204	204	200	200	240	194	204	204	200	214	214	226	236	236	256	284	274
20	246	272	272	272	262	228	216	234	202	194	236	220	194	196	222	208	A	260	220	236	264	288	300	280
21	280	264	240	C	240	284	234	A	198	198	194	A	E A 244	A	220	202	202	246	246	246	246	246	268	278
22	302	308	284	244	260	198	244	228	198	198	A	204	248	192	198	214	202	196	272	278	246	224	282	264
23	338	276	A	302	256	256	236	A	A	200	A	A	206	206	202	214	198	216	246	256	224	238	260	286
24	286	290	300	272	262	220	246	222	200	194	194	194	194	194	222	218	196	196	262	254	254	Q 244	244	272
25	260	252	252	244	838	256	226	216	216	210	200	202	200	198	206	198	198	A	258	268	268	256	262	262
26	262	262	272	240	278	216	196	196	198	194	196	184	194	198	188	214	200	210	262	262	262	262	236	236
27	292	282	266	278	274	224	232	196	192	192	206	202	202	202	198	198	208	192	256	256	230	230	230	262
28	274	Q 242	248	212	234	234	194	196	196	206	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	B	C	C	C	206	212	246	258	268	248	272	238	236
30	246	234	254	258	268	238	206	206	198	210	194	196	196	212	212	212	234	A	234	236	256	232	226	234
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	29	29	28	28	29	29	29	25	26	27	24	25	28	27	28	29	28	27	29	29	29	28	29	29
MED	265	266	260	244	248	234	226	216	200	198	200	196	196	194	198	200	202	216	246	244	248	248	252	258
U Q	279	279	272	263	261	248	231	226	206	206	206	202	201	198	203	210	211	244	258	255	262	262	262	268
L Q	248	252	245	233	231	226	211	198	198	194	194	192	194	192	194	198	200	204	228	231	235	236	235	236

APR. 2017 h'F (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

APR. 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 140	114	108		C 108	108	108	108	108	108	108	112	110		B	B			
2						A 110		B 108	114	114	108	108	108	108	108	108	102		B	A	A			
3						A 102	102		A 102	94	122	98	108	108	108	108	108	118		B	B			
4						88	96	96	110	110	106	106	106	106	106	106	102	102	90		B			
5						114	104	104	110	110	98	106	106	106	110	114		A 120	102	90				
6					A	96	126	116	114	114	A	102	110	110	102	110	110	110		B	B			
7					A	A 116	116	108		A	A	108	112	108	108	102	108	114		B	B			
8					B	E B 134	118	112	110	110	110	110	A	106	A	106	120	120		A	B			
9					B	A 122	116	116	116	116	116	112	112	112	106	108	112	112		B	B			
10					B	A 124	120	108	108	108		A	108	108	108	108	108	116		A	A			
11					B	A	A 112	112	106	112	106	110	110		A	A	110	104		B	B			
12					A	A 114	114	114	106	106	106	106	106	106	106	108		A 112	132		A			
13					A	B 132	118	110	110	110	110	110	104	108	104	104	108	114		B	B			
14					B	A 114		A	A	A	110	106	106	106		A	A	A	A	A	B			
15					B	118	126	116	116	114	114	114	106	106	106	114	114	108	120		A			
16					120	B	120	114	106	106	106	96	108	108	108	108	108	108	108		B			
17					B	138	112	114	114	104	104	104	112	112	108	A	A	108	120		A			
18					B	B 126	118	118	114	104	110	106	106	106	106	116	116	116		B	B			
19					B	B 116		A 102	102	112	112	106	106	106	106	106		A 112	112		A			
20					B	A 112	112	112	112	112		A 112		A	106	106	116	116		A	B			
21					A	A 116	116	108	108	108	104	92	92		A	96	100		A 100		B			
22					B	B 108	108		A 108	108	102		A	102	102	102		A	A	B	B			
23					A	A 102	114		A	A	102	B	102		A	A	A	108	114	114	A			
24					B	118	118	118	114	112	106	92	104	108	108	A	108	116		B	B			
25					A	152	114	106	106	106	106	106	106		A	102	102	108	112		B	A			
26					B	136	110	110	98	98	108	108	108	108	108	108	108	112	126		B			
27					B	126	114	106	106	106	106	106	106	A	112	112	110	110	124		A			
28					B	132	98	114	114	106	C	C	C	C	C	C	C	C	C	C	C			
29					C	C	C	C	C	C	C	B	C	C	C	108	116	116	102		B			
30					B	114	106	112	110	110	100	A	100	100	100	108	108	108		A	A			
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT					1	12	28	26	25	25	26	24	26	24	23	24	23	25	12	1				
MED					120	120	114	114	110	108	108	106	106	108	106	108	108	112	113	90				
U Q						135	121	116	114	112	110	110	108	108	108	108	112	116	122					
L Q						114	109	110	108	106	106	105	106	106	106	106	108	109	102					

IONOSPHERIC DATA STATION Wakkanai

APR. 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	92	B	B	94	102	B	G	146	92	C	92	134	106	114	108	162	98	G	B	B	B	B	B	B
2	122	86	B	90	B	90	90	B	102	102	102	102	192	98	104	94	G	B	94	94	94	B	B	94
3	84	92	92	92	B	92	G	130	100	116	98	106	G	94	94	94	94	106	B	B	88	88	86	86
4	B	B	92	92	90	G	G	140	116	116	98	102	94	106	84	94	94	94	84	B	B	B	B	B
5	B	B	118	90	98	122	110	110	110	106	92	104	102	106	106	106	100	100	86	86	86	98	98	98
6	B	B	B	88	88	88	138	116	102	106	100	96	92	92	86	92	92	116	B	B	B	B	100	94
7	94	92	92	92	Q 84	88	130	126	124	96	96	96	104	90	96	94	100	122	B	B	B	B	B	B
8	96	B	88	82	B	146	144	144	102	90	98	98	98	128	92	98	108	112	114	B	B	104	84	90
9	96	96	92	92	B	92	G	134	134	106	102	178	92	106	108	106	106	96	B	B	114	98	B	B
10	92	98	92	84	B	90	120	128	118	118	102	98	98	94	94	98	120	120	126	100	92	90	B	B
11	B	B	B	B	B	94	102	96	96	96	188	100	100	100	100	100	100	96	B	B	B	B	96	108
12	100	100	96	96	96	96	104	136	94	100	100	100	100	100	100	100	94	94	128	108	108	92	92	94
13	94	92	100	B	100	B	116	122	116	98	100	98	98	96	100	100	92	114	B	B	B	B	B	B
14	B	B	B	B	B	90	128	100	100	98	186	100	96	102	102	96	92	96	94	B	B	B	B	B
15	86	B	B	B	B	90	122	108	108	94	102	112	G	96	G	122	112	108	108	92	94	98	98	98
16	94	B	B	98	98	B	G	98	G	98	190	108	100	94	94	94	90	120	110	B	98	102	94	90
17	94	108	B	B	B	164	136	124	106	106	102	104	104	104	104	104	96	126	108	102	96	B	104	B
18	B	B	B	92	B	B	98	98	106	106	92	98	98	98	104	104	112	144	B	B	B	B	B	94
19	B	94	B	B	B	B	166	104	92	108	108	108	96	G	G	90	104	122	116	110	100	92	90	94
20	94	96	96	96	B	132	90	124	132	98	112	98	98	98	98	98	104	104	108	B	90	98	98	98
21	98	92	92	92	92	98	104	120	126	118	104	96	96	96	96	G	90	90	86	B	86	B	94	94
22	88	92	B	B	B	B	160	G	98	120	98	98	98	140	92	158	86	90	132	B	B	B	B	B
23	114	114	108	108	114	114	114	104	104	104	104	104	122	96	98	102	102	96	96	96	106	B	90	B
24	134	B	B	B	B	G	108	96	94	108	98	98	98	112	112	104	G	104	B	B	96	B	B	B
25	96	B	B	96	94	G	114	120	122	122	116	100	100	100	108	G	100	G	B	94	92	92	B	B
26	98	98	90	B	B	G	98	94	118	118	118	108	108	102	102	102	G	G	G	B	102	B	102	102
27	96	96	96	96	B	G	G	G	128	124	104	104	94	94	114	100	100	94	94	94	B	B	B	B
28	B	B	B	B	B	G	142	104	118	102	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	B	C	C	C	102	102	94	134	B	100	98	98	B
30	92	B	B	B	B	134	132	124	100	96	98	98	94	94	94	124	106	102	102	110	B	110	B	B
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	21	15	14	18	11	17	23	26	28	28	28	28	26	27	26	27	26	25	18	11	17	13	15	14
MED	94	96	92	92	96	94	116	120	106	106	102	100	98	98	100	100	100	104	108	96	96	98	96	94
U Q	98	98	96	96	100	127	136	128	118	116	106	105	102	106	104	104	104	118	116	108	101	100	98	98
L Q	92	92	92	90	90	90	104	104	100	98	98	98	96	94	94	94	94	95	94	94	91	92	90	94

IONOSPHERIC DATA STATION Wakkanai

APR. 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	F5			F2	F1			C1	L1		L1	C1	L2	L2	L1	H1	L1							
2	F1	F1		F1		L1	L1		L1	L1	L1	L1	L1	L1	L1	L1			L1	L1	F1			F1
3	F1	F1	F2	F1		L1		C1	L1	C1	L1	L1		L1	L1	L1	F1	L1			F1	F2	F2	F1
4			F1	F2	F1			H1	C1	C1	C1	C1	C1	C1	L1	C1	L1	L1	L1					
5			F1	F1	F1	C2	CL21	C5	C3	C2	C1	C1	C1	L1	C1	L1	L2	CL21	L1	L1	F1	F3	F3	F1
6				F1	L1	L1	HL21	C2	L1	L1	L1	L2	L1	L1	L1	LC11	LC11	C2					F1	F5
7	F1	F2	F1	F1	L2	L1	C2	C1	C1	L2	L2	LC11	C1	L1	L1	L1	L1	C2						
8	F1		F1	F1		H1	H2	H1	L1	L2	C2	L2	L2	CL12	L3	L3	C2	C2	L2			F1	F1	F4
9	F1	F5	F4	F2		L1		CL11	CL12	CL11	CL11	CL11	LC11	CL11	CL11	L1	C1	L2			F1	F1		
10	F1	F1	F1	F1		L1	C2	C1	C2	C1	L1	L1	L1	L1	L1	L1	C2	C2	C1	L1	F1	F1		
11						LL11	LL11	L1	LC11	L1	L1	L1	L2	L1	L1	L1	L2	L1					F1	F1
12	F2	F2	F1	F1	L2	L1	LC11	CL21	CL21	C1	C1	C1	L3	LC11	C1	L1	L2	L1	C1	L1	F2	F2	F2	F2
13	F2	F4	F1		L1		L1	C2	C2	L2	L1	L2	L1	L1	L1	LC11	L1	C2						
14						L1	C2	L2	L1	L1	L1	L2	L2	L1	L2	L4	L3	L3	L1					
15	F1					L1	C2	C2	L2	LC22	C2	C2		L1		C2	C2	C3	L3	L5	F6	F5	F2	F4
16	F1			F1	L1			LC11		LC11	LC11	L1	L1	L1	L1	L1	L1	C2	L2		F3	F5	FF21	F2
17	F1	F1				H1	C2	C1	L1	L2	L3	L1	L1	L1	L2	L1	L2	CL21	LL11	L3	F1		F2	
18				F2			L1	L2	L1	L1	L1	L1	L1	L1	L1	L1	L1	C2						F1
19		F1					H1	L1	L1	C1	C1	C2	L2			L1	L1	C1	C3	L5	L3	F2	F1	FF11
20	F1	F1	FF11	F1		C1	LC11	C1	C1	L1	C2	L1	L1	L1	L1	L1	L3	L2	L1		FF11	FF21	F3	F3
21	F4	F2	F4	F3	LL32	L2	LC11	C2	C2	C1	L1	L2	L2	L3	L2		L2	L2	L2		F1		F1	F2
22	F1	F1					H2		L1	C1	L1	L2	L1	H1	L1	H1	L3	L2	C1					
23	FF31	FF31	FQ31	F2	L5	L3	L1	L3	L2	L1	L2	L3	C1	L2	L1	L1	L2	L1	L1	LQ11	FF11		F1	
24	F1						L1	L1	L1	L1	L1	L2	L1	C1	C2	L1		L2			F1			
25	F1			F1	L1		C1	C1	C2	C2	C1	L1	L1	L1	L1		L1			L1	F1	F2		
26	F1	F1	F1				L1	LC11	CL11	CL11	C1	C1	L1	L1	L2	L2					F1		F1	F2
27	F3	F2	F2	F2					C2	C1	C2	L2	L1	L2	L1	L1	L2	L2	L1	L2				
28							H1	LC11	C2	L1														
29																L1	L1	LC11	H2		F1	F4	F1	
30	F1					C1	C1	CL11	L2	L2	LL21	L2	L3	LC11	LC11	CL11	L3	L6	L4	L4		F2		
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT																								
MED																								
U Q																								
L Q																								

APR. 2017 TYPES OF Es

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

APR. 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 50	X 48	X 48	X 40	X 35	X 28														X 66	X 54	X 55	X 52	X 51
2	X 51	X 49	X 45	X 47	X 36	X 39														X 68	X 51	X 48	X 48	X 48
3	X 48	X 46	X 45	X 42	X 37	X 36														X 62	X 54	X 52	X 52	X 52
4	X 50	X 50	X 46	X 46	X 39	X 36														X 80	X 73	X 60	X 53	X 56
5	X 54	X 60	X 35	X 35	X 36	X 36														X 66	X 56	X 43	46	X 46
6	48	X 44	X 43	X 39	X 38	X 40														X 62	X 59	X 55	X 52	X 52
7	X 51	X 48	X 46	X 48	X 30	X 33														X 64	X 62	X 60	X 54	X 54
8	X 52	X 47	X 42	X 41	X 40	X 40														X 69	X 64	X 60	X 59	X 52
9	X 45	X 46	X 43	X 42	X 40	X 44														X 60	X 52	X 49	X 51	X 49
10	X 50	X 46	X 45	X 46	X 38	X 38		X 58												X 60	X 57	X 52	X 52	X 52
11	X 50	X 50	X 47	X 43	X 33															X 59	X 58	X 55	X 55	X 52
12	X 53	X 50	X 49	X 44	X 33	X 38														X 59	X 53	X 50	X 49	X 48
13	X 50	X 47	X 46	X 40	X 35	X 37														X 64	X 57	X 53	X 51	X 49
14	X 47	X 46	X 45	X 42	X 35	X 40														X 63	X 60	X 53	53	55
15	X 49	X 48	X 48	X 48	X 35	X 39														X 62	X 59	X 43	X 41	X 40
16	44	X 42	A	X 40	X 42	X 43														X 54	X 49	X 43	X 44	X 44
17	X 43	X 43	X 42	X 42	X 41	X 42														X 74	X 70	X 44	X 42	X 42
18	X 42	X 42	X 41	X 40	X 36	X 38														X 71	X 58	X 50	O X 52	X 51
19	X 50	X 48	X 50	X 44	X 31	X 38														X 81	X 53	X 48	X 49	X 48
20	X 48	X 48	X 45	X 42	X 42	X 42														A	X 53	X 48	X 48	X 49
21	X 48	X 47	X 42	X 41	X 35	X 39														X 69	X 62	X 55	X 54	X 54
22	X 52	X 49	X 46	X 47	X 47	X 42														X 66	X 75	X 52	X 48	X 49
23	X 45	X 46	X 46	X 45	X 48															X 79	X 68	X 48	X 47	X 44
24	X 43	X 42	X 42	X 43	X 34															X 70	X 66	C	26	S
25	C	C	C	C	X 43															X 70	X 69	X 69	X 64	X 61
26	X 58	X 55	X 53	X 51	X 48															X 73	X 74	X 69	X 55	X 55
27	X 52	53	52	52	X 43															X 82	X 72	X 64	X 55	X 51
28	X 50	X 48	X 49	X 46	X 44															X 80	X 73	X 69	X 62	X 60
29	X 56	X 54	X 53	X 50	X 48															X 75	X 76	X 73	72	X 64
30	X 57	X 52	X 47	X 46	X 45															X 68	X 67	X 66	68	X 56
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	29	29	28	29	30	21		1												29	30	29	30	29
MED	X 50	X 48	X 46	X 43	X 38	X 39		X 58												X 68	X 60	X 53	X 52	X 51
U Q	X 52	X 50	X 48	X 46	X 43	X 41														X 74	X 69	X 60	X 55	X 54
L Q	X 48	X 46	X 43	X 41	X 35	X 36														X 62	X 54	X 48	X 48	X 48

APR. 2017 fxI (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

APR. 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	44	42	42	34	29	22	44	51	56	66	76	76	77	70	64	71	66	68	68	60	48	49	46	45
2	45	43	39	41	30	33	48	56	55	61	80	83	69	87	82	67	66	70	69	62	45	42	42	42
3	42	40	39	36	31	30	44	54	63	62	68	71	79	90	76	66	68	65	61	56	48	46	46	46
4	44	43	40	40	33	31	46	58	64	65	70	81	82	89	87	62	68	60	65	74	67	54	46	50
5	48	54	29	29	30	30	46	56	51	55	61	64	A	A	61	57	56	58	62	60	50	37	F	40
6	F	38	37	33	32	36	40	46	52	54	65	82	83	73	58	58	59	54	55	56	53	49	46	46
7	45	42	40	42	23	27	42	46	56	65	69	63	62	58	63	58	54	48	49	58	56	54	47	48
8	46	41	36	35	34	34	43	46	52	53	68	65	70	76	68	58	54	54	55	63	58	54	53	46
9	39	40	37	36	34	38	46	53	55	60	65	79	83	86	74	76	64	62	60	54	46	43	45	43
10	44	40	39	40	32	32	46	52	60	A	72	86	84	79	70	65	59	57	54	54	51	46	46	46
11	44	44	41	37	27	31	40	42	43	50	57	62	65	64	59	57	56	53	49	53	52	49	49	46
12	49	44	43	38	27	31	46	45	53	56	56	64	62	60	64	59	56	53	51	53	47	44	43	42
13	44	41	40	34	29	31	45	50	54	58	61	58	54	64	64	63	59	57	58	58	51	46	45	43
14	40	40	39	36	29	34	44	45	56	61	64	66	58	56	60	74	75	67	62	57	54	47	F	F
15	43	42	42	42	29	33	A	40	43	A	46	51	53	52	48	49	50	47	49	56	53	37	35	34
16	F	35	A	34	36	37	41	45	49	53	A	60	60	58	54	58	63	54	50	48	43	37	38	38
17	37	37	36	36	35	36	48	51	56	53	55	58	64	61	58	55	55	54	60	68	64	38	36	36
18	36	36	35	34	30	32	56	57	57	62	63	68	70	65	70	68	62	59	62	65	52	44	46	45
19	44	42	43	38	25	32	49	60	61	60	65	66	70	77	80	77	67	82	80	75	47	42	43	42
20	42	42	39	36	36	36	46	46	48	55	56	56	61	68	78	82	A	A	65	A	47	42	42	43
21	42	40	36	35	29	33	52	56	56	58	59	70	72	64	61	64	64	60	62	63	56	49	48	47
22	46	43	40	41	41	36	51	55	52	54	54	57	66	75	75	83	80	66	60	60	69	46	42	43
23	41	40	40	39	42	32	37	A	47	43	R 48	57	61	57	55	53	60	58	59	72	62	41	41	38
24	38	36	36	37	28	36	46	61	55	59	58	65	73	73	71	78	86	76	70	64	61	C	S	S
25	C	C	C	C	37	42	49	56	60	61	68	74	76	68	77	72	64	58	64	64	63	63	57	55
26	52	49	47	45	42	48	48	51	52	55	60	64	67	75	72	62	57	57	57	67	67	63	49	48
27	46	F	F	F	37	41	50	59	57	57	56	56	66	79	84	75	66	59	66	76	66	58	49	45
28	44	42	43	40	38	41	54	56	58	66	64	57	64	63	62	69	77	78	68	74	67	63	56	54
29	50	47	47	44	42	45	50	56	62	59	59	55	63	67	66	72	72	71	70	69	70	67	F	58
30	50	46	40	40	39	46	58	63	61	54	58	57	56	56	66	76	A	66	57	62	61	60	F	50
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	27	28	27	28	30	30	29	29	30	28	29	30	29	29	30	30	28	29	30	29	30	29	25	28
MED	44	42	40	37	32	34	46	53	56	58	61	64	66	68	66	66	64	59	60	62	54	46	46	45
U Q	46	43	42	40	37	37	50	56	58	61	68	71	74	76	75	74	68	66	65	68	63	54	48	48
L Q	42	40	37	35	29	31	44	46	52	54	56	57	62	60	61	58	56	54	55	56	48	42	42	42

APR. 2017 foF2 (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

APR. 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									L	UL 456	L	UL 452	UL 436	UL 472	L	L	L							
2								E C	L	A	L	UL 464	UL 484	UL 464	444	L	L	A						
3									L	L	UL 464	L	464	460	L	L	L							
4									L	L	UL 464	UL 464	UL 468	464	452	L	L							
5							L		L	UL 432	440	448	A	A	UL 436	UL 440	A							
6									UL 408	UL 436	428	A	UL 452	444	A	UL 428	A							
7									UL 424	416	440	452	456	UL 444	432	UL 428	L							
8									UL 416	UL 436	428	436	UL 464	444	UL 432	L	L							
9									L	UL 432	A	UL 452	A	A	A	A	L	A						
10									L	A	UL 444	UL 432	UL 440	452	UL 456	L	L	L						
11										416	436	436	440	436	432	UL 416	L	L						
12									UL 416	432	444	436	444	448	432	UL 412	L	L						
13									UL 424	424	UL 436	456	452	436	428	416	L	L						
14									A	424	UL 440	440	UL 472	A	452	UL 420	A	A						
15							A	UL 372	A	A	A	A	UL 436	UL 428	420	UL 408	A	UL 364						
16									416	436	A	456	UL 448	UL 428	UL 440	416	UL 396	L	A					
17								L	UL 420	428	UL 436	448	UL 460	UL 452	UL 444	UL 448	L	L	A					
18								L	UL 416	UL 456	452	460	460	448	440	A	A	A						
19								L	UL 412	UL 484	UL 484	468	460	UL 440	452	424	A	L						
20								400	412	436	UL 444	A	440	464	A	A	A	A	A					
21								L	UL 436	444	A	A	A	A	UL 456	UL 436	A	A	A					
22								L	UL 444	UL 456	UL 476	UL 488	UL 452	456	UL 460	A	A	L						
23							A	A	A	UL 420	UL 420	UL 448	448	UL 452	444	UL 440	412	A	A					
24								UL 352	UL 436	UL 460	UL 480	UL 488	UL 472	468	464	UL 464	L	L						
25								L	L	464	UL 464	460	A	UL 476	A	A	L	A						
26								L	L	UL 456	UL 456	460	464	444	UL 452	L	L	L	A					
27								L	L	UL 440	UL 456	UL 480	464	464	452	UL 436	L	L						
28								L	L	436	UL 440	476	UL 460	448	448	UL 440	A	A	A					
29								L	UL 424	UL 484	A	A	A	A	UL 456	436	UL 416	L						
30								L	L	456	UL 444	UL 452	UL 460	A	A	A	A	A						
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								3	14	25	23	24	25	24	23	17	3	1						
MED								UL 372	UL 418	UL 436	UL 444	454	UL 460	450	444	UL 428	UL 412	UL 364						
U Q								400	UL 424	UL 456	UL 464	UL 464	UL 464	464	UL 452	UL 440	UL 416							
L Q								UL 352	416	430	436	448	446	444	432	UL 416	UL 396							

APR. 2017 foF1 (0.01MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

APR. 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							172	240	292	320	A	A	A	R	R	R	R	U R 224	B					
2							B	E C	R	A	A	R	R	A	R	R	A	A	U R 164					
3							176	260	312	A	R	R	R	A	A	R	U R 284	U R 236	B					
4							188	260	A	A	A	A	A	A	A	A	U R 276	U R 228	B					
5							B	256	R	A	A	A	A	A	A	A	A	A	B					
6							B	R	288	R	A	A	A	A	A	A	A	U R 236	B					
7							B	U R 252	R	A	A	A	R	R	R	A	R	U R 228	B					
8							172	248	R	A	A	A	R	R	R	R	U R 276	A	B					
9							B	252	R	A	A	A	A	A	A	A	U R 280	A	B					
10							196		A	A	A	A	A	R	R	U R 316	U R 272	U R 220	B					
11						B	164	232	292	308	A	A	A	A	A	A	A	A	B					
12							A	248	288	U R 340	A	A	A	R	A	R	R	224	B					
13							B	A	A	A	A	A	A	A	R	A	U R 272	R	B					
14							192	252	A	A	A	A	R	A	328	308	A	A	B					
15							A	U A 236	A	A	A	A	R	R	R	A	A	A	B					
16							192	U R 276	A	A	A	A	A	A	A	A	R	A	B					
17							216	U R 284	R	R	A	A	R	R	R	R	R	U A 228	B					
18							U R 224	R	A	R	R	A	R	A	A	A	A	A	B					
19							A	A	A	A	A	A	R	R	A	A	A	A	B					
20							220	264	A	A	A	A	A	340	A	A	A	A	B					
21							216	U R 284	A	A	A	A	A	A	A	A	A	A	B					
22							228	A	A	A	R	A	R	A	R	A	A	A	184					
23						B	A	A	A	A	A	A	A	A	A	A	A	A	B					
24						B	216	U R 276	R	A	A	A	A	A	A	R	U R 272	U R 240	B					
25						B	A	A	A	A	A	A	A	A	A	A	A	A	U R 180					
26						B	A	U R 276	A	A	A	R	R	R	R	R	R	U R 252	B					
27						B	208	280	R	A	A	A	A	R	R	R	R	A	B					
28						B	A	U R 296	A	U R 344	A	A	A	R	A	A	U A 284	A	B					
29						B	A	A	A	A	A	A	A	A	A	A	A	A	B					
30						B	A	A	A	A	A	A	A	A	A	A	A	A	B					
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT							15	19	5	4				1	1	2	8	10	3					
MED							196	260	292	330				340	328	312	U R 276	U R 228	U R 180					
U Q							216	U R 276	302	U R 342							U R 282	U R 236	184					
L Q							176	248	288	314							U R 272	U R 224	U R 164					

APR. 2017 foE (0.01MHz)

IONOSPHERIC DATA STATION Kokubunji

APR. 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	E B 15	E B 15	E B 14	E B 14	E B 14	E B 14	21	30	34	36	40	40	40	G	G	G	G	G	22	E B 15	E B 15	E B 15	E B 15	E B 15
2	19	E B 16	E B 15	E B 15	E B 15	E B 15	J A 27	E C 38	G	37	39	G 34	G	J A 40	G 29	G 28	J A 42	33	G	E B 15	E B 15	E B 15	E B 15	E B 14
3	E B 16	E B 15	E B 16	E B 15	E B 15	E B 14	26	30	34	37	G	G	G	37	34	G 28	G	G	20	J A 25	J A 24	J A 24	20	E B 14
4	E B 15	E B 15	E B 15	E B 15	E B 14	E B 15	24	31	38	41	J A 41	J A 40	38	37	J A 37	36	G 24	G 20	J A 27	J A 22	20	E B 16	E B 16	E B 14
5	E B 15	E B 14	E B 14	E B 16	E B 15	E B 15	22	30	G	36	40	J A 43	J A 78	J A 73	J A 43	J A 40	34	23	E B 15	20	J A 35	20	E B 16	J A 21
6	J A 21	E B 15	20	E B 15	E B 14	E B 15	23	G	34	G	J A 41	J A 47	J A 40	J A 42	J A 52	J A 43	J A 38	G	E B 15	E B 15	E B 14	E B 14	E B 15	E B 14
7	E B 15	E B 14	E B 14	E B 15	E B 14	E B 14	22	28	G	35	38	J A 40	G 32	G	G	J A 31	G	G	E B 15	E B 14	E B 14	E B 15	E B 14	E B 15
8	E B 16	E B 15	E B 15	E B 15	E B 15	E B 15	22	28	G	37	37	39	G	G	G	G	G 23	30	19	22	J A 30	J A 20	J A 23	19
9	J A 16	21	22	21	E B 14	E B 14	23	G	G	J A 36	J A 45	42	J A 61	J A 56	J A 48	J A 39	J A 33	27	24	J A 22	E B 15	22	J A 30	J A 28
10	20	20	E B 15	E B 15	J A 21	E B 14	26	28	35	J A 64	J A 38	38	J A 38	G 28	G	G 22	G 22	G	E B 14	18	22	E B 15	E B 15	E B 15
11	E B 16	E B 16	E B 15	E B 15	E B 15	E B 15	25	29	34	36	39	38	38	38	36	36	J A 32	30	E B 15	E B 14	21	E B 15	20	20
12	21	23	21	E B 14	20	19	25	28	33	G	39	J A 42	39	G	36	G	G	25	20	J A 21	20	E B 15	E B 16	E B 15
13	19	E B 15	E B 15	J A 18	21	20	23	30	35	35	35	37	J A 44	40	G	35	G	G	J A 23	J A 18	E B 14	E B 14	E B 14	E B 14
14	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	26	34	38	36	40	39	G	J A 49	41	36	36	J A 35	J A 34	24	J A 23	22	E B 15	22
15	J A 27	J A 31	20	E B 15	E B 14	J A 18	J A 42	33	39	40	40	47	G	G	G	33	J A 45	J A 31	21	20	J A 27	J A 24	19	J A 23
16	J A 36	J A 53	J A 58	20	J A 22	E B 15	21	G	34	37	J A 78	J A 41	J A 45	J A 41	33	32	G 24	27	24	J A 22	21	E B 15	E B 15	E B 15
17	J A 19	20	22	E B 15	E B 14	E B 14	26	G	G	G	38	42	G	G	G	G	G	26	21	20	J A 19	J A 23	E B 16	19
18	E B 17	18	21	21	18	E B 15	G 21	G	J A 36	G 32	G 34	J A 37	G	41	39	J A 46	J A 48	J A 39	J A 24	20	E B 15	E B 15	E B 15	E B 15
19	E B 14	E B 14	E B 15	E B 15	E B 15	E B 15	29	33	38	38	40	41	G	G	39	38	J A 46	30	J A 22	J A 40	J A 40	J A 32	J A 35	J A 21
20	J A 22	J A 23	J A 28	J A 23	21	E B 14	25	31	37	39	J A 44	J A 51	J A 51	40	J A 62	J A 54	J A 79	J A 112	J A 75	J A 88	J A 37	20	J A 41	J A 28
21	J A 27	E B 15	22	J A 22	20	20	25	G	34	38	J A 51	J A 81	J A 94	J A 49	J A 44	38	J A 55	30	J A 34	J A 43	J A 22	22	22	E B 16
22	E B 16	E B 15	E B 15	E B 15	E B 14	E B 15	27	32	37	37	G 34	40	G	J A 43	G	J A 45	J A 41	30	G	E B 15	E B 15	E B 30	J A 20	E B 15
23	J A 36	J A 44	J A 22	22	22	J A 21	J A 34	46	J A 38	38	J A 44	38	40	J A 46	J A 44	J A 57	J A 36	34	J A 39	J A 44	J A 25	J A 22	E B 15	20
24	22	20	E B 15	E B 15	E B 15	19	26	G	G	J A 39	40	J A 44	J A 56	39	J A 37	G	G	G	E B 16	20	E B 15	C	J A 21	S
25	C	C	C	C	E B 15	19	29	35	35	38	J A 46	40	J A 48	J A 46	J A 47	J A 42	J A 35	J A 31	G	J A 56	J A 43	J A 43	J A 24	22
26	J A 36	E B 15	J A 27	J A 23	J A 39	E B 14	24	G	34	40	40	G	G	G	G	G	G	G	J A 48	J A 32	J A 42	J A 35	J A 32	J A 27
27	23	20	J A 22	J A 22	20	E B 15	23	30	G	36	42	J A 42	40	G	G	G	G	29	E B 16	22	J A 21	22	E B 15	21
28	E B 15	E B 15	E B 15	E B 14	E B 13	20	28	G	36	G	J A 40	J A 44	39	G	36	J A 38	35	J A 39	J A 40	J A 29	J A 34	J A 46	J A 20	E B 15
29	E B 15	E B 15	E B 14	E B 15	E B 15	E B 15	25	32	J A 40	36	46	J A 49	J A 52	J A 59	J A 65	38	34	27	J A 41	J A 46	J A 28	J A 86	J A 58	J A 62
30	J A 56	J A 46	J A 36	26	E B 15	20	J A 35	J A 64	35	J A 46	J A 52	38	42	J A 57	J A 55	J A 76	J A 96	J A 44	J A 35	J A 81	J A 62	J A 72	J A 40	J A 53
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	29	29	29	29	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	29	30	29
MED	19	E B 15	E B 15	E B 15	E B 15	E B 15	25	30	34	37	40	40	39	40	36	36	34	28	22	22	J A 22	22	18	19
U Q	J A 22	J A 20	J A 22	21	20	19	27	32	37	38	J A 44	J A 43	J A 45	J A 46	J A 44	40	J A 41	31	34	32	J A 30	27	23	22
L Q	E B 15	E B 15	E B 15	E B 15	E B 14	E B 14	23	G	G	G 36	38	38	G	G	G	G	G	G	G	E B 18	E B 15	E B 15	E B 15	E B 15

APR. 2017 foEs (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

APR. 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 15	E B 15	E B 14	E B 14	E B 14	E B 14	20	28	33	34	38	37	38	G	G	G	G	G	E B 16	E B 15	E B 15	E B 15	E B 15	E B 15
2	E B 15	E B 16	E B 15	E B 15	E B 15	E B 15	23	E C 38	G	35	38	G 33	G	36	G 26	G 27	30	28	G	E B 15	E B 15	E B 15	E B 15	E B 14
3	E B 16	E B 15	E B 16	E B 15	E B 15	E B 14	23	28	33	36	G	G	G	36	33	G 27	G	G	20	E B 15	19	18	E B 14	E B 14
4	E B 15	E B 15	E B 15	E B 15	E B 14	E B 15	23	28	33	37	38	36	36	35	34	31	G 22	G 19	23	E B 16	E B 15	E B 16	E B 16	E B 14
5	E B 15	E B 14	E B 14	E B 16	E B 15	E B 15	21	28	G	35	38	39	A A 78	A A 73	33	32	31	22	E B 15	E B 14	30	E B 15	E B 16	E B 15
6	E B 16	E B 15	E B 15	E B 15	E B 14	E B 15	21	G	34	G	37	43	37	38	49	36	34	G	E B 15	E B 15	E B 14	E B 14	E B 15	E B 14
7	E B 15	E B 14	E B 14	E B 15	E B 14	E B 14	21	26	G	32	36	35	G 30	G	G	29	G	G	E B 15	E B 14	E B 14	E B 15	E B 14	E B 15
8	E B 16	E B 15	E B 15	E B 15	E B 15	E B 15	21	27	G	34	35	38	G	G	G	G	G 22	22	18	E B 16	21	E B 15	18	E B 15
9	E B 15	17	E B 15	E B 15	E B 14	E B 14	22	G	G	34	42	38	45	45	44	33	G 23	26	22	E B 15	E B 15	E B 15	18	E B 15
10	E B 14	E B 15	E B 15	E B 15	16	E B 14	24	28	33	A A 64	36	36	36	G 26	G	G 20	G 20	G	E B 14	E B 14	E B 15	E B 15	E B 15	E B 15
11	E B 16	E B 16	E B 15	E B 15	E B 15	E B 15	24	28	34	34	36	37	36	37	34	32	26	24	E B 15	E B 14	E B 14	E B 15	E B 15	E B 15
12	E B 15	E B 15	E B 15	E B 14	E B 14	E B 15	23	28	30	G	38	37	37	G	34	G	G	24	20	E B 15	E B 15	E B 15	E B 16	E B 15
13	E B 15	E B 15	E B 15	16	E B 16	E B 16	22	29	32	33	35	35	38	35	G	32	G	G	17	E B 15	E B 14	E B 14	E B 14	E B 14
14	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	24	33	36	35	38	37	G	44	39	34	34	30	27	E B 15	18	E B 15	E B 15	E B 15
15	18	29	E B 16	E B 15	E B 14	E B 15	A A 42	31	36	A A 40	37	43	G	G	G	30	38	27	19	E B 15	21	18	E B 15	16
16	22	26	A A 58	E B 15	E B 14	E B 15	21	G	31	35	A A 78	37	39	36	32	31	G 24	23	18	E B 14	E B 14	E B 15	E B 15	E B 15
17	E B 15	E B 15	E B 15	E B 15	E B 14	E B 14	24	G	G	G	37	39	G	G	G	G	G	24	19	16	19	17	E B 16	E B 15
18	E B 17	E B 15	E B 15	E B 15	E B 15	E B 15	G 18	G	30	G 30	G 33	34	G	40	36	41	43	34	20	E B 15	E B 15	E B 15	E B 15	E B 15
19	E B 14	E B 14	E B 15	E B 15	E B 15	E B 15	26	30	34	36	37	38	G	G	36	37	39	27	18	23	19	17	E B 16	E B 14
20	E B 15	E B 16	19	E B 15	17	E B 14	24	30	34	38	39	45	38	39	56	49	A A 79	A A 112	57	A A 88	30	16	27	28
21	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	23	G	32	36	44	66	47	44	41	36	46	28	28	39	E B 15	E B 16	E B 16	E B 16
22	E B 16	E B 15	E B 15	E B 15	E B 14	E B 15	25	30	35	34	G 34	36	G	38	G	40	38	25	G	E B 15	E B 15	26	E B 16	E B 15
23	E B 15	31	E B 15	E B 15	E B 15	E B 15	29	A A 46	36	35	37	34	36	38	36	35	31	34	34	42	22	E B 15	E B 15	E B 15
24	E B 15	E B 15	E B 15	E B 15	E B 15	18	24	G	G	34	38	40	41	34	34	G	G	G	E B 16	E B 15	E B 15	C	E B 15	S
25	C	C	C	C	E B 15	16	27	32	33	38	42	39	44	40	41	38	30	27	G	26	19	27	E B 16	E B 16
26	E B 14	E B 15	E B 15	E B 14	E B 15	E B 14	22	G	32	37	38	G	G	G	G	G	G	G	42	29	17	18	E B 15	E B 16
27	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	22	29	G	36	40	39	38	G	G	G	G	28	E B 16	E B 15	E B 15	E B 16	E B 15	E B 15
28	E B 15	E B 15	E B 15	E B 14	E B 13	18	26	G	32	G	35	38	37	G	35	32	32	32	31	21	26	32	E B 15	E B 15
29	E B 15	E B 15	E B 14	E B 15	E B 15	E B 15	23	32	35	34	44	46	45	51	41	34	32	24	30	24	21	16	20	20
30	21	18	E B 16	E B 16	E B 15	19	29	31	33	39	38	38	40	50	51	45	A A 96	41	32	20	36	32	20	27
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	29	29	29	29	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	29	30	29
MED	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	23	28	32	35	38	38	36	36	34	32	28	24	18	E B 15	E B 15	E B 15	E B 15	E B 15
U Q	E B 16	16	E B 15	E B 15	E B 15	15	24	30	34	36	38	39	39	40	39	36	34	28	27	21	21	18	16	16
L Q	E B 15	E B 15	E B 15	E B 15	E B 14	E B 14	22	G	G	G 34	36	36	G	G	G	G	G	G	E B 16	E B 15	E B 15	E B 15	E B 15	E B 15

APR. 2017 fbEs (0.1MHz)

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IONOSPHERIC DATA STATION Kokubunji

APR. 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	15	15	14	14	14	14	13	14	12	14	16	17	18	18	16	15	14	14	16	15	15	15	15	15
2	15	16	15	15	15	15	15	E C 38	14	14	12	17	22	18	16	15	13	17	14	15	15	15	15	14
3	16	15	16	15	15	14	13	14	13	18	20	19	20	20	17	17	17	15	16	15	15	14	14	14
4	15	15	15	15	14	15	12	14	14	16	19	19	18	18	16	14	15	15	14	16	16	16	16	14
5	15	14	14	16	15	15	15	14	14	16	14	14	22	16	17	16	14	13	15	14	15	15	16	15
6	16	15	15	15	14	15	15	14	13	14	18	15	17	17	18	14	14	14	15	15	14	14	15	14
7	15	14	14	15	14	14	16	15	14	16	16	15	17	21	16	13	14	13	15	14	14	15	14	15
8	16	15	15	15	15	15	14	13	14	15	15	16	19	19	14	13	13	14	13	16	14	15	15	15
9	15	14	15	15	14	14	14	14	13	16	16	18	24	17	14	14	12	13	14	15	15	15	14	15
10	14	15	15	15	14	14	14	14	13	14	14	14	19	19	15	14	12	13	14	14	15	15	15	15
11	16	16	15	15	15	15	14	13	13	14	16	17	18	20	16	15	14	13	15	14	14	15	15	15
12	15	15	15	14	14	15	14	14	14	14	18	16	19	18	18	16	12	14	14	15	15	15	16	15
13	15	15	15	14	16	16	15	14	14	14	13	18	18	16	16	15	14	15	15	15	14	14	14	14
14	15	15	15	15	15	15	14	14	14	13	15	16	18	20	16	17	14	13	15	15	15	15	15	15
15	15	15	16	15	14	15	14	14	14	14	16	14	14	16	15	16	14	13	13	15	14	15	15	16
16	17	14	15	15	14	15	14	13	15	15	18	18	18	20	19	12	14	14	14	14	14	15	15	15
17	15	35	16	15	14	14	14	14	14	15	17	19	19	16	14	13	13	12	14	16	15	14	16	15
18	17	15	15	15	15	15	14	13	14	15	15	16	19	16	16	14	14	12	13	15	15	15	15	15
19	14	14	15	15	15	15	14	13	13	12	16	18	19	20	19	16	15	13	13	14	16	16	16	14
20	15	16	15	15	14	14	14	14	12	13	21	16	21	19	17	18	14	13	13	16	14	16	14	15
21	15	15	15	15	15	15	15	14	14	17	15	19	17	17	21	14	13	13	13	14	16	16	16	16
22	16	15	15	15	14	15	14	14	12	14	21	22	18	13	14	15	14	13	14	15	15	14	16	15
23	15	14	15	15	15	16	14	14	14	14	12	18	16	15	18	19	13	13	15	15	16	15	15	15
24	15	15	15	15	15	15	14	13	15	15	15	24	18	19	18	16	14	15	16	15	15	C	14	S
25	C	C	C	C	15	15	15	16	14	15	18	17	19	18	17	20	14	13	14	14	15	15	16	16
26	14	15	15	14	15	14	14	14	16	18	16	18	20	16	16	17	17	15	14	16	16	15	16	16
27	15	15	15	16	15	15	13	14	14	14	20	18	17	24	19	17	13	15	16	15	15	16	15	15
28	15	15	15	14	13	14	13	14	14	16	17	18	17	19	17	16	14	15	11	15	16	16	15	15
29	15	15	14	15	15	15	12	12	12	14	18	17	16	21	19	15	14	14	15	15	16	16	16	15
30	15	16	15	16	15	16	12	14	16	15	18	20	19	19	16	17	15	15	15	14	15	17	16	16
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	29	29	29	29	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	29	30	29
MED	15	15	15	15	15	15	14	14	14	14	16	18	18	18	16	15	14	14	14	15	15	15	15	15
U Q	16	15	15	15	15	15	14	14	14	16	18	18	19	20	18	17	14	15	15	15	15	16	16	15
L Q	15	15	15	15	14	14	14	14	13	14	15	16	17	16	16	14	13	13	14	14	14	15	15	15

IONOSPHERIC DATA STATION Kokubunji

APR. 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	293	305	327	352	349	327	377	368	342	338	336	337	352	352	331	350	337	349	347	328	309	309	281	286
2	308	294	309	360	299	324	372	375	356	323	341	356	321	331	349	349	349	355	349	355	309	299	287	306
3	298	316	312	338	313	301	388	360	356	345	347	337	336	345	357	336	350	350	341	321	318	297	292	294
4	302	312	308	335	312	315	362	350	362	350	330	331	324	337	359	357	352	328	315	316	340	293	282	293
5	302	358	335	310	320	322	360	353	344	325	325	331	A	A	339	330	345	342	336	337	356	312	F	300
6	F	314	294	286	277	333	365	367	337	314	313	322	339	362	339	342	357	359	343	326	317	309	288	306
7	300	295	300	364	341	309	354	326	334	349	354	343	352	334	345	357	345	348	325	294	314	316	300	295
8	315	310	322	306	322	319	369	367	349	329	340	324	305	330	342	343	351	347	323	312	320	302	322	324
9	306	297	306	304	291	332	364	354	352	332	317	312	308	331	315	333	341	354	340	332	306	279	284	298
10	308	286	321	345	311	329	362	329	340	A	315	345	340	341	350	354	344	359	338	322	312	299	280	312
11	311	329	331	369	312	336	374	373	364	318	326	322	327	336	333	349	346	342	316	302	298	299	298	290
12	305	312	316	347	352	327	378	362	332	344	316	341	327	317	341	338	346	340	340	331	324	292	292	287
13	314	326	337	366	332	344	364	357	338	342	329	353	313	327	334	344	349	354	342	335	331	295	300	309
14	319	305	318	376	326	353	377	358	352	348	343	347	303	303	298	329	340	332	349	333	312	286	F	F
15	297	298	299	338	313	366	A	313	301	A	261	300	313	314	314	321	331	336	328	327	359	302	289	292
16	F	298	A	306	336	338	359	339	318	324	A	306	331	321	326	329	360	364	347	344	336	301	297	306
17	303	312	319	318	305	332	360	356	354	322	327	324	329	322	335	320	340	322	321	333	363	289	302	309
18	307	308	311	331	300	313	357	366	361	343	330	321	334	329	340	356	347	344	339	341	319	296	298	302
19	301	300	337	359	318	332	372	379	371	316	321	338	309	319	319	327	309	326	342	354	330	279	285	290
20	310	312	310	303	301	305	373	286	286	339	316	307	300	287	303	324	A	A	258	A	318	286	271	288
21	305	321	313	320	311	323	349	361	344	330	318	331	350	344	320	336	341	335	337	324	336	297	285	285
22	293	281	291	304	315	323	340	358	319	316	329	294	310	331	327	322	345	354	339	295	335	281	268	299
23	278	277	275	302	349	309	326	A	291	310	R 277	289	330	340	321	307	329	322	300	316	325	281	271	292
24	296	288	291	325	310	336	350	356	301	322	309	304	317	326	315	310	333	343	340	312	297	C	S	S
25	C	C	C	C	315	335	359	348	348	331	339	317	326	315	330	342	338	328	327	309	289	309	294	297
26	291	295	290	304	302	340	364	366	330	318	331	322	318	331	335	327	336	337	322	307	314	338	293	287
27	289	F	F	F	289	346	343	362	343	350	322	277	309	323	334	336	341	318	314	322	328	330	305	291
28	290	289	298	307	337	351	353	356	343	335	363	315	334	329	318	307	330	339	317	331	317	313	306	298
29	292	293	308	318	324	368	368	349	361	327	323	325	321	331	336	329	324	335	309	310	308	297	F	302
30	295	310	311	309	315	350	360	377	374	348	343	312	355	295	314	329	A	353	327	307	298	321	F	301
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	27	28	27	28	30	30	29	29	30	28	29	30	29	29	30	30	28	29	30	29	30	29	25	28
MED	302	305	311	322	314	332	362	358	344	330	327	323	326	330	334	334	342	342	336	324	318	299	292	298
U Q	308	312	321	350	326	340	372	366	356	344	340	337	335	336	340	344	348	354	341	333	331	309	299	304
L Q	293	294	299	306	305	322	356	350	332	322	316	312	312	320	319	327	336	334	321	311	309	290	283	290

APR. 2017 M(3000)F2 (0.01)

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APR. 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									L	UL 364	L	UL 379	UL 414	UL 375	L	L	L							
2								E C	L	A	L	UL 378	UL 378	UL 375	380	L	L	A						
3									L	L	UL 379	L	390	377	L	L	L							
4									L	L	UL 382	UL 390	UL 385	387	370	L	L							
5								L	L	UL 375	357	376	A	A	UL 384	UL 365	A							
6									UL 377	UL 381	405	A	UL 378	389	A	UL 377	A							
7									UL 360	399	392	399	389	UL 380	395	UL 368	L							
8									UL 383	UL 370	398	400	UL 361	396	UL 373	L	L							
9									L	UL 379	A	UL 407	A	A	A	A	L	A						
10									L	A	UL 397	UL 418	UL 415	383	UL 369	L	L	L						
11										390	391	438	410	389	378	UL 379	L	L						
12									UL 380	383	396	400	360	381	397	UL 383	L	L						
13									UL 368	396	UL 409	384	390	394	394	396	L	L						
14									A	399	UL 404	403	UL 393	A	349	UL 379	A	A						
15								A UL 363	A	A	A	A	UL 372	UL 383	381	UL 377	A	U L 354						
16									376	394	A	369	UL 373	UL 424	UL 382	387	U L 364	L	A					
17								L	UL 376	405	UL 391	402	UL 377	UL 375	UL 373	UL 362	L	L	A					
18								L	UL 392	UL 375	411	397	363	390	393	A	A	A						
19								L	UL 422	UL 375	UL 387	388	395	UL 393	385	397	A	L						
20								353	370	381	UL 392	A	411	358	A	A	A	A	A					
21								L	UL 370	386	A	A	A	A	UL 370	UL 369	A	A	A					
22								L	UL 359	UL 381	UL 386	UL 374	UL 380	408	UL 383	A	A	L						
23								A A	A	UL 395	UL 413	UL 355	380	UL 386	386	UL 371	351	A	A					
24								U L 420	UL 374	UL 364	UL 372	UL 393	UL 394	373	380	UL 349	L	L						
25								L	L	383	UL 382	418	A	UL 373	A	A	L	A						
26								L	L	UL 377	UL 372	399	402	422	UL 377	L	L	L	A					
27								L	L	UL 392	UL 392	UL 382	392	363	375	UL 375	L	L						
28								L	L	386	UL 413	386	UL 396	410	391	UL 374	A	A	A					
29								L	UL 385	UL 368	A	A	A	A	UL 363	377	U L 363	L						
30								L	L	380	UL 412	UL 393	UL 377	A	A	A	A	A						
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								3	14	25	23	24	25	24	23	17	3	1						
MED								U L 363	UL 376	UL 381	UL 392	393	UL 389	384	380	UL 377	U L 363	U L 354						
U Q								U L 420	UL 383	393	UL 405	401	396	394	386	381	U L 364							
L Q								353	UL 370	UL 375	UL 382	UL 380	UL 377	UL 375	UL 373	UL 368	351							

APR. 2017 M(3000)F1 (0.01)

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IONOSPHERIC DATA STATION Kokubunji

APR. 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									264	292	272	272	262	276	270	254	260							
2								228	242	E A 262	268	250	294	272	248	260	256	250						
3									258	256	270	274	272	264	240	276	258							
4									256	262	288	268	266	268	242	252	252							
5							258		262	328	322	292	A	A	272	296	258							
6									302	316	324	274	260	254	E A 284	278	252							
7									286	276	266	276	288	296	278	256	256							
8									282	306	292	276	326	280	262	264	264							
9									266	288	294	312	292	264	284	262	258	236						
10									266	A	296	256	270	266	270	254	254	246						
11										346	314	312	292	298	288	274	268	262						
12									290	296	320	294	300	312	278	276	266	266						
13									288	282	308	272	332	296	290	260	260	264						
14									270	274	282	280	340	346	356	282	264	248						
15							A	356	394	A	472	382	352	330	344	318	302	300						
16									340	332	A	332	314	338	336	306	254	242	240					
17								262	266	320	322	316	304	306	286	320	282	294	256					
18								252	258	264	296	300	288	300	282	260	256	254						
19								250	254	332	318	294	328	296	284	276	304	270						
20								402	402	304	312	E A 314	346	354	E A 310	278	A	A	E A 458					
21								252	280	300	304	E A 328	262	286	314	288	272	254	244					
22								260	322	334	312	380	330	286	292	282	254	250						
23							344	A	406	412	444	396	310	296	324	334	290	288	E A 294					
24								260	330	298	314	334	304	280	300	302	266	258						
25								262	266	302	270	292	290	308	280	268	260	260						
26								248	322	328	306	306	318	286	278	272	288	276	E A 282					
27								254	266	270	300	404	330	292	266	270	256	294						
28								252	274	276	248	334	284	298	320	302	268	254	246					
29								272	266	308	292	300	304	302	282	286	268	260						
30								244	234	276	284	312	286	E A 384	318	276	A	248						
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT							2	15	29	28	29	30	29	29	30	30	28	22	7					
MED							301	254	270	299	300	297	300	296	284	276	260	259	248					
U Q								262	312	324	316	328	327	307	310	288	268	270	E A 294					
L Q								250	263	276	283	276	285	278	272	262	256	250	244					

IONOSPHERIC DATA STATION Kokubunji

APR. 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 276	E B 260	E B 238	210	216	218	212	226	206	208	224	208	214	210	196	210	218	224	220	214	212	E B 254	E B 252	E B 286
2	E B 240	E B 262	E B 266	218	E B 238	E B 236	200	E C	200	A	214	210	210	206	206	210	224	A	222	206	206	E B 256	E B 282	E B 282
3	E B 276	E B 252	E B 244	216	E B 238	E B 242	206	214	218	208	208	228	206	206	200	200	220	236	218	210	228	E A 270	E B 282	E B 278
4	E B 264	E B 254	E B 250	224	224	E B 260	214	216	216	208	210	204	198	198	188	204	212	234	E A 242	236	206	212	E B 292	E B 266
5	E B 262	212	200	E B 278	E B 238	E B 252	202	E A 246	220	214	E A 242	E A 236	A	A	204	214	A	224	222	214	216	E B 236	E B 286	E B 274
6	E B 264	E B 238	E B 252	E B 250	E B 278	E B 232	206	218	212	212	204	A	224	210	A	218	A	226	226	222	222	E B 244	E B 286	E B 270
7	E B 268	E B 268	E B 264	216	194	E B 250	224	222	218	210	204	190	186	188	204	198	200	220	234	E B 256	230	226	E B 252	E B 268
8	E B 242	E B 240	E B 232	E B 248	E B 222	E B 226	218	222	202	202	202	204	204	204	190	216	212	226	244	E B 254	228	E B 248	228	226
9	E B 246	E A 258	E B 258	E B 268	E B 260	E B 238	206	216	206	214	A	196	A	A	A	A	216	A	226	212	238	E B 288	E A 302	E B 268
10	E B 266	E B 274	E B 260	226	E A 240	E B 246	214	212	218	A	206	190	196	196	202	204	208	200	222	228	228	E B 242	E B 264	E B 258
11	E B 260	E B 242	E B 238	202	E B 242	226	206	214	218	200	208	204	208	208	194	198	208	214	224	E B 244	E B 254	E B 234	E B 250	E B 272
12	E B 252	E B 240	E B 236	214	208	E B 236	212	216	210	210	206	196	212	214	206	198	206	208	228	224	224	E B 258	E B 262	E B 284
13	E B 254	E B 238	218	202	E B 234	216	212	224	202	204	194	202	214	200	200	198	214	228	228	212	214	E B 244	E B 268	E B 236
14	E B 258	E B 250	E B 250	204	230	222	210	214	A	208	202	202	198	A	232	218	A	A	222	220	226	E B 270	282	E B 276
15	E A 284	E A 310	E B 250	214	220	220	A	228	A	A	A	A	228	220	210	198	A	216	E A 238	232	212	E A 256	E B 296	E A 290
16	E A 288	E A 334	A	E B 246	226	226	208	204	194	212	A	216	E A 254	206	204	204	206	200	A	212	210	E B 256	E B 268	E B 266
17	E B 262	E B 256	E B 240	E B 230	E B 236	E B 234	214	206	200	206	202	208	218	216	226	212	212	218	A	220	204	224	E B 268	E B 266
18	E B 274	E B 272	E B 262	218	228	E B 256	234	208	202	202	190	186	E A 238	214	206	A	A	A	234	216	208	E B 254	E B 268	E B 268
19	E B 268	E B 264	232	200	210	E B 248	222	212	198	198	194	202	206	202	222	214	A	216	232	224	218	E A 288	E B 276	E B 264
20	E B 264	262	E A 264	E B 252	E A 266	E B 236	234	220	234	214	222	A	200	E A 236	A	A	A	A	A	A	E A 266	E B 268	E A 374	E A 320
21	E B 264	222	E B 240	232	E B 250	E B 252	230	216	200	204	A	A	A	A	E A 252	214	A	A	A	E A 264	218	E B 248	E B 276	E B 290
22	E B 278	E B 292	E B 292	E B 260	E B 236	E B 236	230	220	212	208	206	210	208	192	204	A	A	210	226	E B 240	228	E A 310	E B 298	E B 284
23	E B 268	E A 370	E B 300	E B 246	230	E B 254	A	A	A	212	212	214	214	208	208	214	228	A	A	E A 254	224	210	E B 284	E B 274
24	E B 284	E B 290	E B 268	E B 238	E B 246	E A 240	222	202	208	210	212	216	212	194	200	198	208	224	234	218	E B 250	C	E B 276	S
25	C	C	C	C	E B 242	232	220	222	200	200	218	204	A	218	A	A	200	A	240	E A 248	E A 272	E A 258	234	E B 252
26	E B 276	E B 260	E B 258	E B 246	E B 256	226	222	210	204	200	204	208	204	192	210	204	210	224	A	E A 264	E A 238	220	234	E B 270
27	E B 280	E B 286	E B 258	220	E B 256	222	226	208	206	208	204	206	190	234	188	200	202	232	E B 242	228	214	222	E B 226	E B 258
28	E B 272	E B 284	E B 258	E B 244	E B 214	218	220	202	196	188	186	220	204	200	208	206	A	A	A	234	228	E A 246	E B 236	E B 252
29	E B 274	E B 274	E B 258	E B 242	E B 228	212	204	204	216	192	A	A	A	A	E A 260	210	202	226	E A 250	E A 242	E A 244	E A 252	E A 260	E A 256
30	E A 256	E A 252	E B 274	E B 266	E B 258	228	E A 240	208	196	204	200	202	226	A	A	A	A	A	E A 244	E A 240	E A 284	E A 258	E A 252	E A 264
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	29	29	28	29	30	30	28	28	27	27	25	25	25	24	25	24	19	20	23	29	30	29	30	29
MED	E B 266	E B 260	E B 255	U 216	E B 236	E B 235	214	214	206	208	205	204	207	206	204	205	210	224	226	220	220	E B 252	E B 268	E B 268
U Q	E B 276	E B 279	E B 263	E B 247	E B 246	E B 246	223	221	216	210	212	212	216	214	210	214	216	226	E 240	E A 243	E A 238	E 258	E B 284	E B 280
L Q	E B 259	E B 246	E B 239	215	224	226	207	208	200	202	202	202	202	199	200	199	206	215	222	215	214	235	E 252	E B 261

APR. 2017 h'F (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

APR. 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							118	114	112	112	116	116	116	114	110	110	110	110	B					
2							B	E C	112	112	A	112	116	A	116	116	A	A	128					
3							112	112	112	112	112	112	118	116	A	116	114	112	B					
4							126	114	112	108	A	A	A	A	A	A	116	116	B					
5							B	110	108	110	110	108	A	A	A	A	A	A	B					
6							B	112	112	110	A	A	A	A	A	A	A	110	B					
7							B	110	110	112	112	A	112	112	112	A	108	112	B					
8							112	112	106	112	A	A	112	112	112	112	110	A	B					
9							B	112	114	A	A	A	A	A	A	A	110	114	B					
10							120		112	A	A	A	A	108	112	112	112	112	B					
11						B	130	112	112	110	110	112	110	114	114	114	A	116	B					
12							116	112	112	112	110	A	A	114	118	114	114	114	B					
13							B	118	112	110	A	A	A	A	110	A	108	118	B					
14							124	110	110	108	108	108	108	114	114	114	114	114	B					
15							126	114	114	114	116	120	124	122	116	110	116	112	B					
16							114	114	112	108	A	A	A	A	A	A	112	112	B					
17							116	116	112	114	114	A	114	114	114	114	112	114	B					
18							124	118	A	118	112	A	112	110	110	110	110	A	B					
19							110	112	112	112	112	112	112	112	112	114	114	114	B					
20							118	114	112	112	A	A	A	112	A	A	A	A	B					
21							112	112	110	A	A	A	A	A	A	114	114	116	B					
22							116	116	110	110	110	110	108	A	112	112	A	112	120					
23						B	112	112	112	112	112	112	112	A	A	A	A	112	B					
24						B	118	114	112	112	110	A	A	A	A	112	116	114	B					
25						B	118	112	112	112	108	A	A	A	A	A	A	A	112					
26						B	116	114	112	112	110	110	110	110	110	110	114	114	B					
27						B	116	116	110	110	110	110	A	114	116	114	112	114	B					
28						B	120	112	112	112	114	A	A	112	A	A	106	108	B					
29						B	114	114	114	110	110	110	110	A	A	110	110	110	B					
30						B	110	A	110	A	A	A	114	114	116	A	A	A	B					
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT							24	27	29	26	19	13	16	17	17	18	21	23	3					
MED							116	112	112	112	110	112	112	114	112	113	112	114	120					
U Q							120	114	112	112	112	112	115	114	116	114	114	114	128					
L Q							113	112	110	110	110	110	110	112	111	110	110	112	112					

IONOSPHERIC DATA STATION Kokubunji

APR. 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	B	B	B	B	B	B	154	162	150	132	122	122	116	G	G	G	G	G	92	B	B	B	B	B
2	116	B	B	B	B	B	140	C	G	120	104	100	G	100	98	98	98	104	G	B	B	B	B	B
3	B	B	B	B	B	B	146	142	152	132	G	G	G	112	104	106	G	G	128	100	106	106	106	B
4	B	B	B	B	B	B	134	146	126	116	106	100	100	100	100	94	94	92	90	90	94	B	B	B
5	B	B	B	B	B	B	140	152	G	124	114	112	102	98	104	104	104	102	B	112	106	106	B	104
6	112	B	96	B	B	B	146	G	140	G	102	102	98	94	94	94	92	G	B	B	B	B	B	B
7	B	B	B	B	B	B	150	150	G	120	114	102	100	G	G	96	G	G	B	B	B	B	B	B
8	B	B	B	B	B	B	130	142	G	116	108	104	G	G	G	G	100	96	122	110	104	104	104	104
9	104	104	100	98	B	B	142	G	G	104	102	102	96	96	96	92	96	128	122	118	B	112	106	100
10	108	104	B	B	96	B	130	140	120	104	106	104	100	100	G	94	94	G	B	94	100	B	B	B
11	B	B	B	B	B	B	144	150	146	136	122	120	114	114	112	120	110	116	B	B	108	B	88	112
12	106	100	100	B	102	106	128	140	148	G	116	106	106	G	106	G	G	162	130	116	98	B	B	B
13	98	B	B	94	94	90	118	128	118	116	104	104	102	104	G	104	G	G	90	92	B	B	B	B
14	B	B	B	B	B	B	136	136	122	122	118	116	G	124	160	152	122	118	104	104	106	98	B	110
15	100	96	100	B	B	140	118	124	118	122	128	114	G	G	G	110	114	112	112	108	102	102	102	108
16	106	104	100	104	106	B	138	G	116	114	94	100	98	96	100	100	96	120	94	92	94	B	B	B
17	110	110	110	B	B	B	152	G	G	G	112	108	G	G	G	G	G	120	118	92	104	104	B	108
18	B	114	108	108	108	B	104	G	104	104	102	98	G	120	120	120	114	104	104	104	B	B	B	B
19	B	B	B	B	B	B	130	128	120	116	120	120	G	G	132	126	120	120	118	112	108	104	100	100
20	100	100	98	98	98	B	144	134	120	116	106	102	106	132	106	106	104	102	102	102	108	114	98	98
21	98	B	98	96	98	102	154	G	124	106	104	102	100	98	98	126	114	114	106	106	104	96	96	B
22	B	B	B	B	B	B	148	124	114	114	110	118	G	104	G	120	108	126	G	B	B	102	100	B
23	98	94	98	98	122	130	114	112	114	114	116	114	116	100	102	104	102	120	112	108	106	106	B	116
24	104	98	B	B	B	138	132	G	G	116	114	98	96	98	106	G	G	G	B	90	B	C	102	S
25	C	C	C	C	B	142	130	122	120	120	118	104	102	100	94	94	102	100	G	100	100	100	96	96
26	96	B	110	100	106	B	128	G	132	116	112	G	G	G	G	G	G	G	104	102	102	102	100	100
27	100	104	98	94	98	B	160	160	G	120	116	112	102	G	G	G	G	112	B	96	94	94	B	92
28	B	B	B	B	B	128	124	G	118	G	112	100	100	G	102	98	124	116	104	104	100	100	100	B
29	B	B	B	B	B	B	132	122	118	132	120	116	114	106	108	114	116	116	124	116	110	108	106	106
30	106	104	104	120	B	120	112	104	116	104	106	106	122	116	116	106	106	106	108	108	110	108	106	104
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	16	12	13	10	10	9	30	20	22	26	29	28	20	20	20	23	21	22	20	24	21	18	15	15
MED	104	104	100	98	100	128	135	138	120	116	112	104	102	100	104	104	104	115	107	104	104	104	100	104
U Q	107	104	106	104	106	139	146	148	132	122	117	114	110	113	110	120	114	120	120	109	107	106	106	108
L Q	99	99	98	96	98	104	128	124	118	114	105	102	100	98	99	96	97	104	103	95	100	100	98	100

APR. 2017 h'Es (KM)

IONOSPHERIC DATA STATION Kokubunji

APR. 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							H 2	H 1	H 1	H 1	C 1	C 1	C 1						L 1					
2	F 2						H 3			C 2	L 2	L 1		L 2	L 2	L 1	L 2	L 2						
3							H 2	H 2	H 1	C 1				C 1	L 2	L 2			CL 21	F 1	F 2	F 2	F 1	
4							H 2	H 1	C 1	C 2	L 1	L 2	L 2	L 1	L 2	L 2	L 2	L 2	L 5	F 2	F 1			
5							H 2	H 1		C 1	C 2	C 2	L 3	L 3	L 2	L 2	L 2	L 2		C 1	F 4	F 1		F 1
6	F 1		F 1				H 2		H 1		L 2	L 2	L 2	L 2	L 3	L 3	L 3							
7							H 2	H 1		C 1	C 1	L 1	L 1			L 2								
8							H 2	H 2		C 1	L 1	L 1					L 2	L 3	CL 22	F 2	F 5	F 2	F 4	F 1
9	F 2	F 2	F 2	F 2			H 2			L 1	L 2	L 2	L 2	L 2	L 3	L 2	L 2	CL 12	C 3	F 3		F 1	F 3	F 2
10	F 1	F 1			F 3		H 3	H 2	C 2	L 3	L 2	L 2	L 2	L 2		L 2	L 2			F 1	F 2			
11							H 2	H 2	H 1	H 1	C 1	C 1	C 1	C 1	C 2	C 1	L 2	C 1			F 1		F 1	F 2
12	F 2	F 3	F 2		F 1	F 1	C 3	H 1	H 1		C 1	L 2	L 2		C 1			H 1	H 3	F 1	F 1			
13	F 1			F 3	F 3	F 1	C 2	C 1	C 2	C 2	L 1	L 2	L 2	L 2		L 1			L 2	F 2				
14							H 2	H 2	C 2	C 1	C 2	C 1		C 1	H 1	H 2	C 2	C 2	L 5	F 1	F 3	F 2		F 2
15	F 6	F 8	F 2			F 1	C 3	CL 22	CL 22	CL 22	CL 22	CL 22				C 1	C 2	C 2	C 2	F 2	F 4	F 2	F 1	F 2
16	F 2	F 5	F 5	F 2	F 1		H 2		C 1	C 1	L 4	L 2	L 2	L 2	L 2	L 2	L 2	C 1	L 3	F 3	F 2			
17	F 3	F 3	F 2				H 2				C 1	L 1						C 1	C 3	F 1	F 3	F 2		F 1
18		F 2	F 3	F 1	F 1		L 2		L 2	L 2	L 2	L 2		C 1	C 1	C 2	C 2	L 3	L 3	F 1				
19							C 2	C 2	C 2	C 2	C 1	C 2			C 1	C 1	C 3	C 2	C 2	F 3	F 3	F 2	F 3	F 2
20	F 2	F 2	F 4	F 2	F 2		H 2	H 1	C 1	C 1	L 2	L 2	L 2	H 1	L 2	L 3	L 3	L 4	L 5	F 5	F 4	F 2	F 5	F 5
21	F 3		F 1	F 3	F 2	F 1	H 1		C 1	L 2	L 2	L 3	L 2	L 3	L 2	CL 12	CL 22	CL 22	L 3	F 8	F 2	F 3	F 2	
22							H 2	C 1	C 1	C 1	L 2	C 2		L 2		C 1	L 2	C 1				F 5	F 2	
23	F 2	F 4	F 1	F 2	F 2	C 1	C 2	C 3	C 2	C 1	C 2	C 2	C 2	L 2	L 2	L 2	L 2	C 2	C 3	F 7	F 5	F 2		F 1
24	F 2	F 1				H 2	H 2			C 2	C 1	L 2	L 2	L 2	L 2					F 2			F 1	
25						H 2	C 3	C 2	C 1	C 1	C 2	L 1	L 2	L 2	L 2	L 2	L 2	L 3		F 5	F 3	F 2	F 2	F 1
26	F 2		F 1	F 2	F 2		C 1		C 1	C 1	C 1								L 4	F 3	F 3	F 3	F 3	F 2
27	F 2	F 2	F 2	F 3	F 1		H 1	H 1		C 1	C 1	C 1	L 2					C 1		F 2	F 3	F 1		F 1
28						C 2	C 2		C 1		C 1	L 1	L 2		L 1	L 2	CL 22	C 2	L 5	F 3	F 3	F 3	F 2	
29							C 2	C 2	C 2	CL 11	CL 21	CL 21	CL 21	L 2	L 2	C 2	C 2	CL 22	CL 22	FF 61	F 6	F 3	F 4	F 5
30	F 3	F 3	F 3	F 1		C 2	C 3	L 2	C 2	L 2	L 2	L 1	CL 12	CL 22	CL 22	L 2	L 4	L 2	L 3	F 5	F 4	F 4	F 6	F 5
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																								

APR. 2017 TYPES OF Es

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

APR. 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																								
	00	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

APR. 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																								
	00	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																								

APR. 2017 foF2 (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

APR. 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																								
	00	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

APR. 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																								
	00	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																								

APR. 2017 foE (0.01MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

APR. 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																								
	00	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																								

APR. 2017 foEs (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

APR. 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																								
	00	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																								

APR. 2017 fbEs (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

APR. 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																								
	00	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																								

APR. 2017 fmin (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

APR. 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																								
	00	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

APR. 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																								
	00	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

APR. 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																								
	00	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																								

APR. 2017 h'F2 (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

APR. 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																								
	00	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

APR. 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																								
	00	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																								

APR. 2017 h'E (KM)

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IONOSPHERIC DATA STATION Yamagawa

APR. 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																								
	00	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																								

APR. 2017 h'Es (KM)

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IONOSPHERIC DATA STATION Yamagawa

APR.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																								

IONOSPHERIC DATA STATION Okinawa

APR. 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 55	X 58	X 66	X 60	X 31																X 67	X 62	X 55	X 55
2	X 51	X 49	X 50	X 52	X 42	X 20															X 54	X 52	X 50	X 51
3	X 54	X 53	X 55	X 57		X 30															X 64	X 49	X 50	X 50
4	X 49	X 48	X 44	X 44	X 32	X 31															X 88	X 60	X 48	X 45
5	X 46	X 49	X 49	X 35	A	X 28															X 57	X 44	X 42	44
6	46	52	51	50	38	X 41	43														X 72	X 44	X 40	X 42
7	X 44	X 42	X 42	X 56																	X 74	X 61	X 44	X 44
8	X 46	X 44	X 41	X 39	X 34	X 30															X 68	X 60	X 50	X 48
9	X 39	X 37	X 36	X 38	X 26	X 25															X 68	X 44	X 42	X 41
10	50	X 48	X 52	X 43	X 28	X 27															X 64	X 53	X 50	X 48
11	X 47	X 47	X 50	X 50	X 30	X 26															X 58	X 56	X 48	X 47
12	56	X 48	X 44	X 50	X 31																X 72	X 54	X 47	X 47
13	X 47	X 49	X 49	X 41	X 24	X 23															X 64	X 54	52	52
14	X 46	X 44	X 44	X 40	X 35	X 29															X 66	X 52	X 41	X 42
15	X 40	X 40	47	X 38		X 23															X 59	A	X 34	36
16	X 36	X 34	X 35	X 39	X 28	X 21															X 44	X 44	X 44	X 46
17	X 46	X 45	X 47	X 44	X 33	X 28															X 54		X 48	X 49
18	X 49	X 47	X 48	X 42	X 32	X 30															X 64	X 57	X 54	X 58
19	X 62	X 60	X 73	X 30																X 79	X 62	X 51	X 46	X 47
20	X 48	X 48	X 49	X 42	X 37	X 36															X 58	X 54	X 51	X 52
21	58	X 53	X 54	X 36	X 34	X 36															X 64	X 58	X 57	X 55
22	X 52	X 50	X 48	X 50	X 40	X 35															X 71	X 57	X 59	X 57
23	X 57	X 51	X 56	X 65	X 53	X 40															X 61	X 56	X 54	X 56
24	56	A	X 55	48	38	X 35															X 68	X 67	X 68	X 73
25	X 69	X 62	X 57	X 43	X 40	X 40															X 98	X 84	X 68	X 63
26	66	66	69	66	A	A															X 110	X 63	X 49	X 50
27	X 48	50	X 50	X 50	X 34	35															X 96	X 66	X 49	X 48
28	X 49	X 43	X 45	X 40	X 27	X 27															X 100	X 86	X 74	X 66
29	67	65	67	69	47	44															X 91	X 85	X 65	X 58
30	59	X 56	X 52	X 49	X 42	X 42															X 84	X 93	X 37	44
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	29	30	30	24	25	1													1	30	28	30	30
MED	X 49	X 49	X 50	X 44	X 34	X 30	43													X 79	X 66	X 56	X 50	X 48
U Q	56	X 53	X 55	X 50	X 39	X 36															X 74	X 62	X 54	X 55
L Q	X 46	X 44	X 45	X 40	X 30	X 26															X 61	X 52	X 44	X 45

APR. 2017 fxI (0.1MHz)

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IONOSPHERIC DATA STATION Okinawa

APR. 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	49	52	60	54	25	19	24	50	60	72	83	82	91	92	111	116	112	88	82	69	61	56	49	49
2	45	43	J R 44	J R 46	36	E B 15	28	54	64	67	65	78	90	103	116	110	99	98	91	74	48	46	R 44	45
3	48	47	49	51	25	24	29	52	60	66	68	70	89	100	103	96	89	92	86	79	58	43	44	44
4	43	42	38	38	26	25	29	55	59	65	66	78	91	106	114	112	106	107	97	101	82	54	42	39
5	40	43	43	29	A	22	31	59	66	64	75	93	112	99	91	92	92	94	72	64	51	38	36	F 36
6	F 37	F 42	F 40	F 43	F 32	35	F 36	49	59	69	80	95	108	124	110	94	88	74	72	75	66	38	34	34
7	38	36	36	50	20	18	26	48	68	73	65	67	70	83	100	74	58	53	60	66	68	55	38	38
8	40	38	35	33	28	24	29	48	55	61	54	58	66	87	92	85	76	79	69	60	62	54	44	42
9	33	31	30	32	20	19	29	49	58	57	59	68	80	99	103	92	83	78	76	71	62	38	36	35
10	F 40	J R 42	J R 46	37	22	21	32	50	56	64	72	82	99	107	J R 117	113	98	72	62	63	58	47	44	42
11	41	41	44	44	24	20	29	46	55	58	68	71	86	104	102	80	68	64	64	59	52	50	42	41
12	F 46	42	38	44	25	J B 14	28	47	56	55	62	76	94	114	117	98	75	58	67	70	66	48	41	41
13	R 41	43	43	35	18	17	28	49	56	56	59	68	80	98	98	88	82	79	71	62	58	48	F 44	F 44
14	40	R 40	38	34	29	23	33	48	57	60	58	66	74	78	83	88	84	77	70	63	60	46	35	36
15	34	34	F 40	R 32	18	17	33	50	58	73	76	83	84	80	70	63	55	57	65	66	53	A	28	F
16	30	28	29	32	22	J R 15	31	42	52	56	66	75	86	86	92	90	74	64	56	55	38	38	38	40
17	40	39	41	38	27	22	33	51	52	57	59	65	78	87	74	69	75	76	75	77	48	44	42	43
18	43	41	42	36	26	24	38	56	57	56	62	77	97	106	108	102	74	65	67	68	58	51	48	52
19	56	54	67	24	17	19	36	50	56	58	65	66	80	92	98	91	81	81	93	73	56	45	40	41
20	42	42	43	36	31	30	40	56	67	75	72	J R 65	70	91	110	97	95	98	74	80	52	48	45	46
21	51	47	48	30	28	30	36	62	62	59	71	70	82	82	87	93	93	76	67	68	58	52	51	49
22	46	44	42	44	34	29	42	60	51	60	65	64	78	109	115	104	104	91	90	84	65	51	53	51
23	51	45	50	59	47	34	39	61	58	54	55	A	83	72	62	65	90	104	65	57	55	50	48	50
24	F 48	A	49	F 38	30	29	A	58	66	77	73	78	107	115	110	A	R 113	115	101	83	62	U R 58	62	67
25	63	56	51	37	34	34	46	60	60	64	72	85	92	108	116	114	110	97	96	94	92	78	62	57
26	F 52	F 55	F 58	F 59	A	A	53	61	57	64	78	71	85	104	106	105	106	96	102	108	104	57	43	44
27	R 42	F 42	J R 44	44	28	F 27	42	58	62	57	57	63	76	92	107	112	R 102	94	J R 102	103	90	60	R 42	42
28	43	37	39	34	22	22	38	62	70	60	61	72	86	102	108	108	104	104	110	J R 106	94	80	68	60
29	F 54	F 53	F 55	F 62	F 40	F 36	52	59	56	59	62	66	68	73	89	93	91	84	80	A	85	79	V 59	52
30	F 52	50	46	43	36	36	47	56	63	64	65	65	72	85	99	100	89	80	69	72	78	87	31	F 36
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	29	30	30	28	29	29	30	30	30	30	29	30	30	30	29	30	30	30	29	30	29	30	29
MED	43	42	43	38	26	23	33	53	58	60	65	71	84	98	103	94	90	80	73	71	60	50	44	43
U Q	49	47	49	44	32	30	40	59	62	66	72	78	91	106	110	106	102	96	91	82	68	56	48	50
L Q	40	40	39	34	22	19	29	49	56	57	61	66	78	86	92	88	76	74	67	64	55	46	38	40

IONOSPHERIC DATA STATION Okinawa

APR. 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										L 460	L 468	460	U L 500	460	L 464	L 436	L							
2										L 452	L 456	L 480	U L 472	L 468	L 472	L 432								
3										L 460	B L 476	L 472	L 480	B	L 468	U L 464	A							
4										U L 440	L 468	U L 476	L 480	L 472	L 468	U L 428	A	L						
5									L	L	U L 464	U L 468	L 476	L 472	U L 472	L 460	L	L						
6										428	456	A	U L 460	L 520	460	U L 452	U L 440	L						
7									L	L 432	L 448	460	468	B 464	452	444	U L 436		L					
8									L 392	412	U L 432	448	452	R 436	444	444	L 424	L 380						
9									U L 400	L	444	B	R 436	U B 444	444	440	428	L	L					
10										U L 440	U L 464	464	L 452	L 460	A	A	A		U L 252					
11									L	L 424	440	452	444	452	444	436	424	384	U L 316					
12									L	U L 440	444	440	448	448	448	440	L 416	L	L					
13										U L 428	L 448	U Y 460	456	R 448	Y 460	A	420	L 384	L					
14									L	U L 436	L 452	L 444	U R 452	U B 452	Y 464	440	412	E Y 432						
15									A	U L 444	U L 448	L 464	U R 460	448	E B 476	420	R 420	L 384	L					
16									A	L 432	444	452	B 464	E Y 484	444	U R 424	R 404	L 388						
17									L	U L 436	452	460	Y 468	U L 440	460	448	436	392	L					
18									L	U L 440	464	448	U R 444	Y 460	R J 456	R 380	424	U L 368	L					
19									L	U L 440	L 456	B	468	456	460	448	A	A						
20									L	U L 480	L 464	U L 472	A	U R 456	456	L 456	U L 428	U L 384						
21								L	L	U L 428	456	U L 476	484	R 464	468	460	L 436	L	L					
22										U L 440	U L 484	L 476	A	484	460	L 472	L 456	L						
23								L	U L 420	U L 452	440	A	448	452	472	U L 476	L 440	L						
24							A			L	L	U L 472	R 464	L 484	A	A	U L 456	L						
25									L	L	A	L 492	U L 512	A	A	A	L 444	L	L					
26									L	L 464	460	U L 476	U L 536	476	L 472	L 476	L 444	L	L					
27									L	U L 440	U L 472	U L 480	472	U L 476	472	E B 448	U L 448	U L 440						
28								L	L	L 440	U L 476	R 476	L 476	L 460	476	A	A	A	A					
29								L	L	U L 440	U L 460	U L 476	R 468	464	452	456	L 420	A	A	A				
30								L	L	U L 456	A	L 480	476	U A 460	A 448	A	A	L						
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT									3	23	27	26	28	29	26	24	25	10	2					
MED									U L 400	U L 440	L 456	L 468	466	460	460	450	L 432	384	U L 284					
U Q									U L 420	U L 440	U L 464	U L 476	L 476	L 476	468	L 462	U L 442	392						
L Q									L 392	L 432	448	456	452	452	452	440	422	L 384						

APR. 2017 foF1 (0.01MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

APR. 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						J K 116	B	184	264	304	R 308	B	B	A	R	B	300	260	A	B				
2							B	236	280	316	U R 352	R	B	B	A	A	308	B	A	A				
3					J K 120		B	184	288	324	B	A	A	B	B	B	A	A	A	A				
4							B	240	288	312	A	A	R	U R 396	R	B	U R 300	A	A	B				
5							B	228	276	U A 308	A	A	B	U R 340	A	A	304	252	A	A				
6							B	216	264	316	U A 316	A	376	A	R	R	A	A	208	A				
7					J K 148	J K 116	B	196	272	A	A	R	R	B	R	R 324	296	268	A	A				
8							A	A	A	A	332	A	A	A	A	A	A	A	A	A				
9							B	192	260	300	R 344	B	364	B	B	B	280	A	184	B				
10							B	212	268	296	U R 328	A	R 368	B	U A 316	A	A	A	A	A				
11							B	188	260	300	B	B	B	B	B	B	288	U A 244	204	B				
12						B	B	196	264	R 312	B	B	B	B	B	B	304	256	200	A				
13							B	200	256	300	328	U R 360	U R 360	A	A	A	A	256	192	A				
14							B	208	268	296	R 328	B	R	B	360	R	300	U A 256	A	A				
15					J K 124		B	216	268	304	324	R 364	B	B	B	U R 320	296	252	A	B				
16							A	A	A	A	A	A	B	A	A	A	R	256	200	A				
17							B	220	280	316	332	A	A	B	A	A	R 284	260	R 204	B		J K 116		
18							B	232	U R 280	U R 320	A	R	R	R	R	332	292	264	200	A				
19					J K 120	J K 112	A	228	292	340	A	B	B	A	A	A	A	268	U A 200					
20							B	212	268	R	A	R	A	B	R	B	U R 308	276	A	A				
21							B	A	A	A	U A 328	A	A	B	B	R 336	U R 304	268	212	A				
22							A	236	284	A	A	U R 368	A	U R 348	360	U R 300	300	276	A	A				
23							B	220	264	A	A	A	A	R	A	A	A	268	212	A				
24							B	208	272	296	U A 340	B	U Y 392	B	A	A	A	A	A	A				
25							B	224	284	320	U A 344	R 356	A	A	A	A	A	268	212	A				
26							A	A	A	A	A	A	R	B	A	A	R	284	A	A				
27							B	224	288	332	332	B	B	B	B	B	A	280	216	A				
28							A	A	A	332	U R 372	R 380	B	B	B	A	R 312	268	212	A				
29							B	224	292	328	352	364	368	U R 372	U R 336	U R 324	308	272	208	A				
30							A	224	280	316	340	R 356	U R 360	A	A	R	U R 300	276	A	A				
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT					4	3		25	25	22	17	7	7	4	4	6	18	22	15			1		
MED					J K 122	J K 116		216	272	314	332	R 364	368	U R 360	348	R 324	300	268	204			J K 116		
U Q					J K 136	J K 116		226	284	320	U R 344	R 368	376	U R 384	360	332	R 304	272	212					
L Q					J K 120	J K 112		198	264	300	328	R 356	U R 360	U R 344	U 326	U R 320	296	256	200					

APR. 2017 foE (0.01MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

APR. 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	18	E B 14	E B 14	E B 14	J K 12	E B 14	23	30	34	G	E B 42	37	40	26	E B 36	G	30	23	E B 15	E B 14	E B 14	E B 14	18
2	J A 18	E B 14	E B 14	E B 14	E B 14	E B 15	E B 15	30	32	36	G	G	E B 44	47	38	34	34	E B 52	J A 27	J A 20	J A 18	18	18	E B 14
3	E B 15	E B 14	E B 14	E B 14	J K 12	E B 15	E B 14	24	32	G	E B 46	43	45	E B 42	E B 52	E B 44	J A 41	J A 48	26	J A 37	J A 30	J A 31	J A 18	J A 19
4	J A 31	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	G	J A 46	G	38	41	34	G	30	E B 41	G 22	J A 49	26	J A 20	J A 32	J A 38	J A 22	21
5	J A 39	J A 25	J A 23	J A 31	J A 45	J A 16	E B 14	27	34	35	41	J A 54	E B 43	44	44	40	36	33	23	J A 19	J A 30	J A 19	J A 51	J A 38
6	J A 16	19	J A 18	J A 16	E B 15	E B 15	E B 15	29	32	G	J A 50	J A 65	47	J A 50	31	27	37	J A 38	25	J A 19	J A 20	J A 15	20	E B 14
7	E B 14	E B 14	E B 14	E B 14	J K 15	J K 12	E B 15	24	G	J A 34	41	30	30	E B 46	27	G	G	G	J A 22	22	22	18	17	J A 16
8	J A 16	18	J A 13	J A 29	J A 22	J A 19	J A 21	J A 28	J A 33	35	37	40	38	40	J A 38	J A 43	J A 42	J A 30	27	J A 54	J A 16	20	E B 14	E B 14
9	E B 14	E B 14	19	20	18	J A 17	J A 15	23	31	E B 17	37	E B 46	G	E B 44	E B 40	E B 35	33	J A 39	22	J A 26	E B 14	E B 14	E B 14	E B 16
10	E B 14	J A 22	J A 38	J A 19	19	E B 14	J A 16	27	32	34	G	39	G	E B 44	J A 61	J A 72	J A 66	J A 47	22	J A 24	J A 23	J A 15	J A 16	E B 14
11	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	J A 16	27	31	34	E B 36	E B 40	E B 39	E B 42	E B 43	E B 37	32	28	G	E B 14	E B 14	E B 14	E B 14	E B 14
12	E B 14	E B 14	E B 14	E B 14	E B 14	E B 17	E B 14	26	32	G	E B 36	E B 38	E B 45	E B 42	E B 42	E B 37	G	G	24	J A 27	J A 27	J A 17	J A 41	E B 14
13	E B 14	J A 21	J A 37	E B 14	18	E B 15	J A 14	G	33	35	38	J A 40	G	39	41	J A 46	31	G 20	25	19	E B 14	E B 14	E B 14	E B 14
14	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	J A 16	24	33	34	G	E B 41	G	E B 45	37	29	37	37	J A 37	J A 28	J A 18	A E B 16	24	20
15	E B 14	E B 14	E B 14	E B 15	J K 12	E B 15	J A 16	30	J A 50	36	37	G	42	E B 45	E B 48	G	37	J A 58	22	E B 15	E B 14	J A 26	J A 20	J A 18
16	J A 18	J A 22	A E B 14	18	J A 16	A E B 15	J A 20	J A 28	37	28	38	45	E B 46	34	32	40	24	G	22	23	E B 17	20	27	J A 16
17	E B 14	E B 14	E B 14	J A 16	E B 14	E B 14	E B 16	30	34	36	40	36	36	E B 41	30	30	G 22	G	G 18	E B 15	20	J K 12	E B 14	20
18	E B 14	E B 14	E B 14	E B	18	18	19	26	G 24	G 27	39	30	29	32	28	G 28	G 23	G 20	23	J A 21	J A 24	A E B 15	E B 15	E B 16
19	19	E B 17	E B 16	E B 14	J K 12	J K 11	18	28	33	38	41	E B 48	E B 47	42	42	42	45	J A 42	J A 50	J A 106	20	E B 14	19	E B 16
20	J A 18	E B 15	E B 14	E B 14	E B 14	E B 14	E B 15	27	32	G	35	35	46	E B 42	30	E B 40	G	31	27	J A 28	J A 24	J A 52	J A 16	J A 38
21	J A 38	J A 23	J A 16	J A 22	J A 19	J A 19	A E B 14	J A 27	33	36	J A 41	J A 49	40	E B 46	E B 43	39	G 25	G 22	28	J A 28	J A 36	J A 25	J A 17	A E B 14
22	E B 15	E B 14	E B 15	E B 14	E B 15	E B 16	19	G	30	33	40	G	J A 65	44	42	G	G	32	J A 40	J A 30	J A 38	65	J A 33	J A 63
23	J A 31	J A 28	J A 21	21	J A 19	A E B 14	E B 16	26	34	J A 40	J A 39	J A 65	J A 47	34	42	37	34	G	J A 36	J A 45	J A 36	J A 48	J A 36	J A 48
24	J A 49	J A 66	J A 52	J A 86	J A 20	J A 32	J A 32	28	31	G	40	E B 44	G	E B 43	J A 71	J A 116	J A 52	J A 39	J A 49	J A 38	J A 56	J A 67	J A 61	J A 19
25	E B 14	20	E B 17	J A 29	J A 23	20	E B 16	28	34	42	J A 58	45	J A 50	J A 72	J A 81	J A 55	J A 40	G 23	G	J A 50	J A 29	J A 20	J A 18	J A 18
26	J A 53	J A 40	J A 57	J A 59	J A 55	J A 48	J A 31	J A 37	30	35	38	40	30	E B 42	J A 42	40	27	G 27	25	J A 21	J A 20	J A 16	J A 18	J A 19
27	J A 51	J A 22	E B 14	J A 28	J A 38	J A 19	A E B 16	G	G	G 30	38	E B 42	45	E B 45	E B 43	E B 45	38	37	J A 31	J A 46	J A 49	J A 55	J A 62	J A 32
28	J A 26	20	E B 15	E B 14	E B 15	E B 15	18	26	32	34	G	G	E B 44	E B 44	E B 48	68	J A 77	J A 51	J A 40	J A 39	J A 49	J A 33	J A 47	J A 52
29	J A 62	J A 51	J A 51	J A 40	J A 26	J A 16	A E B 18	28	G	36	39	40	40	46	42	J A 48	J A 44	J A 62	J A 65	J A 130	J A 86	J A 87	J A 46	J A 28
30	J A 47	J A 28	J A 16	J A 21	A E B 14	J A 20	J A 26	30	31	41	J A 56	46	46	J A 49	49	J A 62	J A 62	J A 39	J A 62	J A 46	J A 51	J A 37	J A 52	J A 32
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30
MED	16	18	E B 14	16	15	E B 15	16	27	32	34	38	39	U 38	43	40	38	34	32	26	J A 26	J A 24	J A 20	J A 18	18
U Q	J A 31	J A 22	J A 19	J A 22	J A 19	J A 18	J A 18	28	33	36	41	45	46	45	44	J A 45	J A 41	J A 42	J A 36	J A 39	J A 36	J A 37	J A 36	J A 28
L Q	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	E B 15	24	31	G	G 36	36	G 30	41	32	34	G	G	22	20	E B 18	E B 15	E B 16	E B 14

APR. 2017 foEs (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

APR. 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 15	E B 14	23	30	34	G	E B 42	37	40	26	E B 36	G	30	22	E B 15	E B 14	E B 14	E B 14	E B 14
2	E B 15	E B 14	E B 14	E B 14	E B 14	E B 15	E B 15	29	32	36	G	G	E B 44	46	37	34	G 26	E B 52	24	16	E B 14	E B 14	E B 14	E B 14
3	E B 15	E B 14	E B 14	E B 14	K 12	E B 15	E B 14	24	32	G	E B 46	42	44	E B 42	E B 52	E B 44	40	45	25	33	24	19	E B 15	E B 14
4	16	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	G	G 18	G	38	40	U Y 34	G	U Y 30	E B 41	G 22	48	24	E B 14	17	28	18	E B 14
5	32	17	20	23	A A 45	E B 14	E B 14	24	32	34	40	40	E B 43	44	42	38	35	30	23	16	20	17	E B 14	E B 14
6	E B 14	E B 14	E B 14	E B 16	E B 15	E B 15	E B 15	27	30	G	42	51	42	50	U Y 31	U Y 27	33	29	24	17	E B 15	E B 15	E B 14	E B 14
7	E B 14	E B 14	E B 14	E B 14	K 15	K 12	E B 15	24	G	33	40	U Y 30	U Y 30	E B 46	U Y 27	G	G	G	22	17	18	E B 14	E B 14	E B 14
8	E B 14	16	E B 14	23	E B 14	18	19	25	29	35	36	39	38	39	37	37	38	28	26	46	E B 14	E B 14	E B 14	E B 14
9	E B 14	E B 14	E B 14	E B 14	E B 14	E B 15	E B 15	23	30	E B 17	U Y 37	E B 46	G	E B 44	E B 40	E B 35	33	31	21	16	E B 14	E B 14	E B 14	E B 16
10	E B 14	E B 14	17	E B 14	E B 14	E B 14	E B 15	24	31	32	G	38	G	E B 44	57	64	48	33	22	22	20	E B 14	E B 14	E B 14
11	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	E B 15	27	30	34	E B 36	E B 40	E B 39	E B 42	E B 43	E B 37	32	28	G	E B 14	E B 14	E B 14	E B 14	E B 14
12	E B 14	E B 14	E B 14	E B 14	E B 14	E B 17	E B 14	26	32	G	E B 36	E B 38	E B 45	E B 42	E B 42	E B 37	G	G	23	25	E B 14	E B 14	E B 14	E B 14
13	E B 14	E B 14	16	E B 14	16	E B 15	E B 15	G	32	34	38	U Y 40	G	39	U Y 41	46	31	G 20	24	18	E B 14	E B 14	E B 14	E B 14
14	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	24	32	34	G	E B 41	G	E B 45	U Y 37	U Y 29	37	U Y 37	34	24	17	E B 16	17	E B 14
15	E B 14	E B 14	E B 15	K 12	E B 15	E B 14	29	48	35	35	G	42	E B 45	E B 48	G	36	37	21	E B 15	E B 14	A A 26	E B 14	E B 14	
16	E B 15	E B 15	E B 14	E B 15	E B 14	E B 15	19	26	37	U Y 28	38	45	E B 46	U Y 34	U Y 32	40	U Y 24	G	22	19	E B 17	E B 16	22	E B 15
17	E B 14	E B 14	E B 14	E B 15	E B 14	E B 14	16	28	34	36	40	U Y 36	U Y 36	E B 41	U Y 30	U Y 30	G 22	G	G 17	E B 15	E B 14	K 12	E B 14	E B 14
18	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	E B 15	26	G 23	G 26	38	U Y 30	U Y 29	U Y 32	U Y 28	G 25	G 22	G 20	23	18	E B 14	E B 15	E B 15	E B 16
19	E B 16	E B 17	E B 16	E B 14	J K 12	J K 11	18	27	33	37	40	E B 48	E B 47	42	41	41	44	41	48	69	E B 14	E B 14	E B 14	E B 16
20	E B 14	E B 15	E B 14	E B 14	E B 14	E B 14	E B 15	27	30	G	U Y 34	U Y 35	46	E B 42	U Y 30	E B 40	G	30	25	18	21	22	E B 14	16
21	16	E B 14	E B 14	18	E B 14	E B 14	E B 14	26	31	35	38	42	40	E B 46	E B 43	39	G 24	G 22	28	24	19	16	E B 15	E B 14
22	E B 15	E B 14	E B 15	E B 14	E B 15	E B 16	18	G	30	33	38	G	52	42	41	G	G	29	38	27	34	33	25	28
23	22	22	18	17	E B 14	E B 14	E B 16	25	32	36	37	A A 65	44	U Y 34	42	U Y 37	33	G	28	41	27	32	23	33
24	E B 14	A A 66	21	31	E B 15	18	A A 32	26	31	G	39	E B 44	G	E B 43	66	A A 116	33	39	39	35	37	31	20	E B 15
25	E B 14	E B 15	E B 17	20	19	E B 14	E B 16	26	33	40	57	44	46	69	78	50	38	G 21	G	41	24	17	17	18
26	19	20	39	38	A A 55	A A 48	26	34	30	34	38	40	U Y 30	E B 42	41	39	U Y 27	G 24	24	18	16	E B 15	17	16
27	27	16	E B 14	20	17	E B 14	E B 16	G	G	G 29	37	E B 42	45	E B 45	E B 43	E B 45	37	36	31	44	43	33	21	17
28	21	E B 14	E B 15	E B 14	E B 15	E B 15	16	26	32	G 28	G	G	E B 44	E B 44	E B 48	66	77	50	36	27	22	24	E B 14	33
29	25	40	28	23	18	E B 14	E B 18	28	G	36	38	40	40	45	41	44	37	42	52	A A 130	42	38	36	21
30	19	E B 14	E B 14	E B 14	16	21	29	30	40	54	43	44	46	45	52	48	34	42	39	38	19	15	24	
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30
MED	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	E B 15	26	31	34	38	E G 40	E G 41	41	U 38	38	33	30	24	20	17	16	E B 14	E B 14
U Q	16	16	16	18	15	15	18	27	32	35	40	43	44	45	43	44	37	37	31	35	24	24	17	16
L Q	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	24	G 30	G	G 36	G	G	41	U Y 32	34	G	G	22	E B 16	E B 14	E B 14	E B 14	E B 14

APR. 2017 fbEs (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

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

IONOSPHERIC DATA STATION Okinawa

APR. 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	294	313	349	373	325	351	335	365	347	345	340	331	327	301	323	337	333	341	351	335	327	320	283	306
2	295	304	J R 300	J R 360	374	B	316	363	348	363	352	325	318	319	333	336	329	334	350	375	302	314	R 294	291
3	298	319	342	393	308	303	330	366	359	350	357	333	321	327	333	331	319	334	353	359	352	315	300	291
4	315	346	334	361	294	300	334	361	351	351	329	314	312	321	332	332	320	333	329	338	355	307	281	286
5	297	323	379	344	A	302	328	362	364	342	310	316	341	334	320	320	339	352	362	351	352	331	279	F 291
6	F 297	F 300	F 331	F 340	F 288	305	F 354	365	350	331	313	316	317	343	341	319	336	330	345	343	357	378	296	304
7	294	324	333	361	302	298	341	361	350	374	356	336	318	314	354	368	360	340	345	328	345	375	297	291
8	305	326	330	329	351	325	328	357	362	365	327	312	288	321	330	325	315	341	342	338	330	343	314	335
9	317	306	316	340	384	321	335	361	359	368	305	298	284	306	331	326	322	332	347	347	370	336	294	287
10	F 284	315	J R 314	377	314	323	332	364	335	326	313	290	312	318	J R 326	343	338	337	345	340	331	310	297	308
11	310	318	325	386	316	335	339	375	362	337	331	281	294	324	343	337	333	353	339	335	328	325	308	298
12	F 297	311	321	381	393	B	348	377	362	335	317	286	309	330	338	343	357	314	337	349	353	349	292	295
13	R 309	323	361	369	372	293	342	363	366	350	327	314	299	320	319	323	323	344	360	349	344	330	F 300	F 325
14	312	R 307	333	337	324	319	367	391	361	364	317	316	306	291	307	323	341	345	353	343	344	371	283	263
15	288	305	F 347	R 410	365	264	342	376	337	334	305	296	291	317	323	342	331	338	345	362	371	A	281	F
16	299	314	320	372	393	B	349	363	350	315	318	284	297	301	322	335	349	363	361	370	310	299	310	299
17	301	320	352	360	380	357	352	374	360	341	335	307	302	316	300	306	320	337	350	358	349	305	292	295
18	305	312	338	352	343	348	360	375	351	327	290	285	305	327	326	346	342	329	332	331	328	320	281	284
19	302	328	381	394	301	311	350	397	352	341	325	296	289	301	329	321	308	301	356	344	336	314	299	294
20	298	312	331	323	308	307	340	349	329	335	337	J R 303	267	289	334	325	325	342	345	353	308	294	272	277
21	315	316	341	324	307	285	345	357	359	345	337	302	315	317	296	318	336	358	344	339	327	301	290	292
22	288	285	295	343	330	291	347	386	368	339	333	304	284	314	333	315	328	328	340	324	313	271	292	284
23	307	276	304	346	341	357	321	344	320	283	274	A	326	347	315	298	314	357	360	315	307	299	291	292
24	F 293	A	322	F 332	298	356	A	357	316	350	327	269	313	333	312	A	R 329	341	359	348	297	R	294	312
25	315	320	336	298	295	310	344	368	353	337	321	311	300	317	327	324	326	316	317	335	330	325	304	299
26	F 273	F 309	F 314	F 306	A	A	352	369	366	335	330	300	288	319	323	320	332	310	328	338	348	360	299	281
27	R 275	F 291	J R 323	366	310	F 303	362	369	363	349	322	319	291	307	325	334	R 316	306	J R 317	340	348	352	R 309	298
28	295	299	356	361	309	297	347	355	374	361	333	298	304	325	332	322	320	310	322	J R 318	344	332	323	291
29	F 307	F 306	F 320	F 357	F 365	F 318	355	378	355	342	342	317	305	291	311	323	329	328	307	A	333	337	V 316	311
30	F 295	306	301	317	319	349	356	372	359	337	331	313	306	295	320	339	333	340	304	306	320	383	347	F 309
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	29	30	30	28	26	29	30	30	30	30	29	30	30	30	29	30	30	30	29	30	28	30	29
MED	298	312	331	358	322	310	344	365	357	342	327	307	305	318	326	325	329	337	345	340	334	325	295	294
U Q	307	320	342	372	365	335	352	375	362	350	335	316	315	325	333	337	336	342	353	350	349	346	304	305
L Q	294	306	320	337	308	300	334	361	350	335	317	296	291	306	320	320	320	328	332	335	327	308	290	289

APR. 2017 M(3000)F2 (0.01)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

APR. 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										L 362	L 377	L	383	U L 357	389	L 357	L 366	L						
2										L 387	L 404		B 364	A	L 366	L 365	Y							
3										L	B	L 362	L 341	L 370	B	B	U L 363	A						
4										U L 372	L 365	U L 376	Y 340	L 388	L 387	B 363	U L 370	A	L					
5									L	L	U L 376	U L 369	B 362	A 372	U L 381	L 356	L	L						
6										389	A 381	A	U L 385	A	388	U L 382	U L 362	L						
7									L	L 375	L 388	Y	394	B	381	383	U L 374		L					
8									L 370	391	U L 397	401	417	R 427	404	374	L 367	L 376						
9									U L 364	L	385	B	R 441	B	370	371	364	L	L					
10										U L 363	U L 361	378	Y	B	A	A	A		U L 402					
11									L	L 388	393	423	441	B	B	394	373	375	U L 368					
12									L	U L 371	378	413	B	426	B	375	L 377	L	L					
13										U L 383	L 386	Y	387	R 398	Y	A	373	L 363	L					
14									L	U L 385	L 400	L 424	G 401	B	Y	378	A 369	Y						
15									A	U L 359	U L 370	L 374	A 378	B	B	386	R 383	A	L					
16									A	L 374	394	A	B	Y	Y	U R 390	R 411	L 368						
17									L	U L 384	389	Y	Y	U L 451	363	375	355	374	L					
18									L	U L 374	A 389	402	U R 410	Y	R 389	J R 388	395	U L 419	L					
19									L	U L 381	L 387	B	B	376	366	A	A	A						
20									L	U L 359	Y 379	Y	A	B 373	Y 381	L 376	U L 367	U L 383						
21								L	L	U L 392	393	A 379	392	B	B 375	364	L 371	L	L					
22										U L 369	U L 372	L 388	A	360	401	L 368	L 355	L						
23								L	U L 359	U L 353	394	A	A	Y	379	Y 339	L 351	L						
24							A			L	L	U L 385	Y	B	A	A	U L 365	L						
25									L	L	A	L 373	A 336	A	A	A	L 364	L	L					
26									L	L 367	389	U L 400	U L 329	382	L 372	L 349	L 360	L	L					
27									L	U L 391	U L 390	U L 375	A	B	B	B	U L 361	U L 355						
28								L	L	L 397	U L 372	R 360	L 385	B	B	A	A	A	A					
29								L	L	U L 381	U L 374	U L 379	R 389	A	394	A	L 392	A	A	A				
30								L	L	U L 370	A	L 368	A	A	A	A	A	L						
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT									3	23	26	21	19	12	17	20	24	8	2					
MED									U L 364	U L 375	L 386	L 379	385	379	381	374	L 367	L 374	U L 385					
U Q									L 370	L 388	390	402	401	412	389	382	374	U L 380						
L Q									U L 359	U L 369	U L 374	L 374	362	371	371	364	L 362	L 366						

APR. 2017 M(3000)F1 (0.01)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

APR. 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										268	274	274	274	320	286	256	246	240						
2										250	252	292	292	290	258	250	252							
3										262	260	282	290	278	264	260	276	260						
4										262	298	310	302	286	264	260	272	248	248					
5									236	262	316	296	268	260	280	280	266	238						
6										282	290	294	282	256	234	262	258	254						
7									256	238	260	288	300	306	250	244	258		256					
8									260	256	330	338	362	282	270	274	294	250						
9									268	252	362	332	354	314	262	272	272	254	246					
10										294	300	332	306	288	278	250	244		236					
11									250	286	292	360	344	280	256	260	276	262	258					
12									252	290	326	346	310	276	262	244	248	L 300	266					
13										272	310	318	312	288	280	270	280	254	234					
14									258	266	330	312	316	328	306	284	256	258						
15									288	290	294	328	346	310	296	290	310	292	262					
16									272	332	318	356	326	318	288	268	260	242						
17									254	288	310	330	326	302	298	320	296	268	244					
18									252	L 286	372	346	326	274	276	252	262	270	260					
19									262	278	300	334	340	316	282	284	284	296						
20									268	278	274	286	396	338	268	280	262	244						
21								246	250	276	282	320	310	296	320	284	264	240	248					
22										278	292	342	372	298	260	284	262	238						
23								262	314	L 400	434	A	274	262	324	352	302	244						
24							A			252	274	302	308	272	292	A	274	256						
25									246	268	294	306	324	290	280	282	264	268	268					
26									250	298	282	278	352	292	282	282	272	286	262					
27									242	256	300	302	336	308	286	270	266	290						
28								254	228	248	302	330	318	284	268	268	282	286	258					
29								218	240	274	288	318	334	336	304	288	268	260	298	A				
30								208	260	278	A 292	320	318	338	284	266	268	248						
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								5	21	30	30	29	30	30	30	29	30	27	15					
MED								246	254	275	296	318	318	291	280	270	267	256	258					
U Q								258	265	286	316	333	340	314	288	284	276	270	262					
L Q								213	248	262	282	295	302	280	264	260	260	244	246					

APR. 2017 h'F2 (KM)

IONOSPHERIC DATA STATION Okinawa

APR. 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	294	254	222	206	210	268	264	220	230	222	224	E B 236	202	E A 238	212	202	206	226	236	210	222	230	264	268
2	276	266	Q 260	216	200	B	268	228	222	214	E Y 242	198	E B 266	A	208	206	Y	258	234	204	220	252	294	288
3	284	258	226	202	258	298	256	216	224	220	B	256	A	B 238	B	B	E B 266	A	232	224	218	E A 246	280	288
4	262	224	240	214	250	284	256	220	220	224	206	216	E Y 298	G 230	Y 212	B	216	A	236	224	210	A 244	A 312	314
5	E A 340	246	210	E A 266	A	308	254	228	224	216	230	A 236	E B 258	E A 256	E A 240	A 232	234	218	216	206	212	236	304	326
6	Q 286	Q 276	250	238	246	264	222	222	232	206	E A 246	A	234	A	Y	214	210	222	242	228	210	198	298	310
7	288	266	244	206	356	B	246	224	228	210	230	Y	Y 222	B	224	210	204	206	236	242	228	196	248	296
8	284	254	240	E A 268	224	A 262	A 258	220	216	204	210	206	188	194	180	232	E A 254	222	238	A 274	230	218	228	228
9	260	292	282	242	212	312	238	222	224	210	256	B	190	B	B 246	214	208	232	234	222	204	224	316	322
10	Q 312	256	250	204	278	280	226	222	224	208	226	212	Y	B	A	A	A	232	A 216	236	236	246	274	290
11	274	262	246	198	254	274	248	220	228	212	200	192	176	E B 254	B	196	206	214	214	224	214	234	278	292
12	276	264	262	208	200	B	248	228	234	206	198	192	B	200	E B 260	B	212	204	244	226	224	218	292	298
13	Q 284	250	222	198	230	B	244	224	224	208	208	Y	234	214	Y	A	196	210	226	226	216	226	Q 288	Q 270
14	Q 260	264	250	228	236	274	230	210	220	204	194	198	E G 236	B	Y	Y 230	E A 244	Y	242	234	224	202	328	330
15	304	298	236	190	264	B	232	222	A	218	202	222	A 244	B	B	224	226	A	232	222	204	A	330	Q 334
16	310	286	276	220	200	B	232	220	A	198	194	A	B	Y	Y	242	202	202	226	216	248	286	A 312	298
17	282	260	230	210	204	232	224	228	224	208	222	Y	Y	184	E Y 264	198	196	206	214	218	192	248	266	292
18	282	272	230	212	226	234	220	224	218	202	204	Y 222	Y 222	Y	Y 216	202	202	204	232	226	212	226	290	288
19	270	240	204	178	B	326	234	210	224	232	226	B	B	258	250	E A 260	A	A	232	E A 308	214	214	256	304
20	290	252	242	224	280	294	242	224	222	224	E Y 240	Y	A	E B 248	E Y 240	B 234	212	206	240	218	220	E A 284	310	314
21	256	248	218	A 236	278	286	236	218	210	194	188	E A 234	200	B	E B 250	230	214	210	238	232	230	250	282	288
22	298	308	292	232	224	288	234	218	206	220	202	208	A	A 250	212	212	218	214	246	242	240	E A 322	298	E A 318
23	286	E A 336	274	230	204	208	244	232	220	226	206	A	A	Y	232	E Y 274	204	228	222	E A 284	240	E A 294	A 292	E A 350
24	296	A	248	E A 268	224	222	A	220	214	212	228	E B 238	Y	E B 224	A	A	200	A	238	234	A 284	A 258	280	248
25	244	242	228	A 278	A 284	272	238	216	212	232	A	E A 248	E A 296	A	A	A	A 238	220	240	234	232	222	218	270
26	314	276	A 276	A 288	A	A	228	218	186	208	212	200	E Y 304	B 230	E A 238	A 230	230	226	240	238	210	190	A 272	288
27	A 352	294	246	210	A 252	278	224	224	214	202	194	E B 226	E A 274	E B 290	E B 264	B	236	240	258	230	230	218	A 266	296
28	300	288	236	198	288	306	232	222	220	208	E Y 242	E G 278	B 238	B	B	A	A	A	A	234	224	232	226	E A 302
29	302	E A 316	278	216	216	Q 254	226	210	H 198	224	224	208	212	A	224	A	224	A	A	A	252	242	258	246
30	288	264	272	Q 244	236	228	228	A	H 190	236	A	E A 252	E A 302	A	A	A	A	240	278	A 278	260	202	204	E A 318
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	29	30	30	27	23	29	29	28	30	27	21	20	15	18	19	25	22	28	29	30	29	30	30
MED	286	263	245	214	236	274	236	222	221	211	209	U 210	U 212	U 226	U 222	219	210	219	236	227	223	228	281	292
U Q	300	287	262	A 238	264	294	248	224	224	222	E 230	E 237	E 270	E 254	E B 250	232	232	228	240	237	232	249	298	314
L Q	276	253	230	206	212	254	228	218	214	206	202	203	207	214	212	206	204	206	229	222	212	218	264	288

APR. 2017 h'F (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

APR. 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	B	124	110	110	108	B	B	A	110	B	110	110	A	B				
2							B	138	108	108	108	110	B	B	A	A	110	B	A	A				
3					B		B	110	110	110	B	A	A	B	B	B	A	A	A	A				
4							B	110	110	110	A	A	A	118	A	B	114	A	A	B				
5							B	114	110	110	A	A	B	106	A	A	112	108	A	A				
6							B	110	110	110	106	A	108	A	A	A	A	A	110	A				
7					B	B	B	110	108	A	A	A	A	B	A	110	108	110	110	A				
8							A	A	A	A	110	A	A	A	A	A	A	A	A	A				
9							B	116	108	108	108	B	108	B	B	B	108	A	108	B				
10							B	116	110	110	110	A	114	B	108	A	A	A	A	A				
11							B	116	108	108	B	B	B	B	B	B	110	110	110	B				
12						B	B	110	108	108	B	B	B	B	B	B	108	108	108	A				
13							B	112	110	108	108	108	108	108	A	A	A	108	112	A				
14							B	112	112	112	108	B	110	B	108	A	108	110	A	A				
15					B		B	124	108	108	108	108	B	B	B	108	120	108	A	B				
16							A	A	A	A	A	A	B	A	A	A	A	108	112	A				
17							B	112	110	110	110	A	A	B	A	A	110	110	114	B		B		
18							B	106	114	114	A	A	A	A	A	114	110	110	118	A				
19					B	B	A	118	114	116	A	B	B	A	A	A	A	112	112					
20							B	108	108	110	A	A	A	B	A	B	110	110	A	A				
21							B	A	A	A	110	A	A	B	B	110	114	114	114	A				
22							A	110	108	A	A	108	A	108	108	108	108	108	112	A				
23							B	112	110	A	A	A	A	A	A	A	A	108	114	A				
24							B	110	110	108	108	B	106	B	A	A	A	A	A	A				
25							B	110	110	110	110	108	A	A	A	A	A	114	114	A				
26							A	A	A	A	A	A	A	B	A	A	A	112	A	A				
27							B	108	108	112	A	B	B	B	B	B	A	114	114	A				
28							A	A	A	114	108	112	B	B	B	A	112	112	112	A				
29							B	108	108	108	108	108	108	108	108	108	108	110	110	A				
30							A	110	114	110	110	108	108	A	A	108	108	108	A	A				
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								25	25	23	16	8	8	5	5	7	18	22	17					
MED								110	110	110	108	108	108	108	108	108	110	110	112					
U Q								116	110	110	110	109	109	113	109	110	112	112	114					
L Q								110	108	108	108	108	108	107	108	108	108	108	110					

APR. 2017 h'E (KM)

IONOSPHERIC DATA STATION Okinawa

APR. 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	B	B	B	B	148	150	144	G	B	126	118	100	B	G	110	110	B	B	B	B	108
2	122	B	B	B	B	B	B	140	138	122	G	G	B	102	102	100	98	B	94	96	96	96	108	B
3	B	B	B	B	B	B	B	146	156	G	B	104	104	B	B	B	102	98	146	96	112	104	104	102
4	108	B	B	B	B	B	B	G	100	G	104	104	102	G	100	B	98	96	94	94	98	98	98	100
5	98	98	96	96	96	100	B	122	116	112	108	104	B	108	112	116	114	108	104	100	98	106	118	108
6	108	112	100	94	B	B	B	132	116	G	102	102	132	100	102	102	96	96	122	92	110	108	96	B
7	B	B	B	B	B	B	B	142	G	110	104	104	102	B	98	G	G	G	118	94	94	106	102	104
8	102	102	106	96	102	100	102	102	100	120	124	106	108	106	100	100	104	112	126	106	88	104	B	B
9	B	B	104	98	98	126	B	138	134	B	196	B	G	B	B	B	124	104	136	126	B	B	B	B
10	B	108	104	114	102	B	138	132	122	118	G	108	G	B	102	100	98	96	96	94	108	108	108	B
11	B	B	B	B	B	B	144	138	146	134	B	B	B	B	B	B	114	114	G	B	B	B	B	B
12	B	B	B	B	B	B	B	138	138	G	B	B	B	B	B	B	G	G	164	116	110	108	108	B
13	B	102	106	B	102	B	B	G	126	122	118	118	G	106	102	100	100	100	112	110	B	B	B	B
14	B	B	B	B	B	B	144	140	122	114	G	B	G	B	122	104	114	112	106	106	106	B	106	90
15	B	B	B	B	B	B	136	122	116	118	118	G	124	B	B	G	116	108	108	B	B	102	102	92
16	102	102	B	104	104	B	104	104	102	102	102	138	B	102	102	100	100	G	164	90	B	152	134	118
17	B	B	B	104	B	B	B	132	124	126	118	108	106	B	100	112	98	G	96	B	112	B	B	112
18	B	B	B	B	108	112	112	158	104	104	104	104	104	102	102	98	98	98	114	108	108	B	B	B
19	102	B	B	B	B	B	140	142	152	142	104	B	B	134	130	124	116	116	108	108	110	B	104	B
20	110	B	B	B	B	B	B	142	118	G	104	102	102	B	102	B	G	120	110	102	108	108	106	106
21	104	104	102	102	102	106	B	106	108	108	106	104	108	B	B	136	104	98	114	112	106	110	106	B
22	B	B	B	B	B	B	134	G	138	104	104	G	108	112	122	G	G	126	108	106	102	102	102	102
23	98	90	98	102	104	B	B	122	108	108	108	98	100	104	104	104	104	G	116	106	100	102	102	106
24	112	102	102	116	102	126	120	112	112	G	108	B	G	B	114	114	102	98	94	106	110	108	108	102
25	B	102	B	96	96	100	B	124	118	112	112	108	104	98	96	96	96	96	G	92	92	92	92	88
26	100	100	96	96	96	96	102	100	100	126	102	102	98	B	94	94	94	94	150	100	106	104	104	100
27	110	102	B	100	100	100	B	G	G	104	122	B	114	B	B	B	140	128	122	108	104	106	106	102
28	102	102	B	B	B	B	126	128	102	102	G	G	B	B	B	122	120	120	112	108	104	104	110	102
29	102	104	104	104	102	104	B	138	G	160	142	134	132	118	116	128	122	118	118	104	104	104	104	104
30	108	104	104	102	B	108	112	118	112	124	116	116	116	116	128	118	118	118	106	108	106	106	106	106
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	16	16	12	15	14	11	13	26	27	23	22	18	18	14	22	19	25	24	28	26	24	22	23	19
MED	103	102	103	102	102	104	126	132	118	118	108	104	107	106	102	104	104	108	112	106	106	105	106	102
U Q	109	104	104	104	102	112	139	140	138	126	118	108	116	116	114	118	116	117	122	108	109	108	108	106
L Q	102	102	99	96	98	100	108	122	108	108	104	104	102	102	100	100	98	98	106	96	99	102	102	100

APR. 2017 h'Es (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

APR. 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		F 1				K 1		H 1	HL 11	H 1			C 1	C 1	L 1			C 1	C 1					F 1
2	F 1							H 1	H 1	C 1				L 1	L 1	L 1	L 1		L 2	L 1	L 1	F 1	F 1	
3					K 1			H 1	H 1			L 1	L 1				L 1	L 3	HL 11	L 4	FF 32	F 2	F 2	F 1
4	F 2								L 1		L 1	L 1	L 1		L 1		L 1	L 3	L 1	L 1	F 3	F 3	F 2	F 1
5	F 7	F 6	F 6	F 5	F 4	F 2		C 1	C 1	C 1	C 1	C 1		C 1	C 1	C 1	C 1	C 1	L 1	L 1	F 3	FF 11	FF 21	F 3
6	F 1	F 1	F 1	F 1				H 1	C 1		L 2	L 2	H 1	L 2	L 1	L 1	L 1	L 2	CL 11	L 2	FF 11	F 1	F 1	
7					K 1	K 1		H 1		C 1	L 1	L 1	L 1		L 1				C 2	L 2	F 3	F 1	F 1	FQ 21
8	F 2	F 1	F 1	F 3	F 4	F 2	L 4	L 1	LC 11	CL 11	C 1	L 1	C 1	L 1	L 1	LQ 21	L 1	CL 12	CL 12	CL 33	F 2	F 1		
9			F 1	F 1	F 1	F 1	H 1	H 1	H 1		H 1						C 1	L 1	H 1	CL 11				
10		F 3	F 2	F 1	F 2		H 1	H 1	C 1	C 1		C 1			L 3	L 3	L 2	L 4	L 1	L 1	F 4	F 1	F 1	
11							H 1	H 2	H 1	H 1							C 1	C 1						
12								H 1	H 1										H 1	C 4	F 6	F 1	F 1	
13		F 3	F 3		F 1		H 1		C 1	C 1	C 1	C 1		C 1	L 1	L 2	L 1	L 1	C 2	C 1				
14							H 1	H 1	CL 11	CL 11					C 1	L 1	C 1	C 2	CL 22	CL 21	FF 11		F 1	F 1
15					K 1		H 1	C 1	C 2	C 1	C 1		C 1				C 1	C 2	C 1			F 1	F 1	F 1
16	F 1	FF 11		F 1	F 1		L 1	L 2	L 1	L 1	L 1	HL 11		L 1	L 1	L 1	L 1		H 1	L 1		F 1	F 2	F 1
17				F 1				H 2	C 1	C 1	C 1	C 1	C 1		L 1	C 1	L 1		L 1		F 1	K 1		F 1
18					F 1	F 1	C 1	HL 11	L 1	L 1	L 1	L 1	L 1	L 1	L 1	L 1	L 1	L 1	C 1	CL 12	F 1			
19	F 1				K 1	K 1	H 1	H 1	HL 11	HL 11	L 1			H 1	H 1	C 1	C 1	C 1	C 2	F 4	F 1		F 1	
20	F 1							H 1	C 1		L 1	L 1	L 1		L 1			CL 11	CL 11	L 1	FF 32	FF 22	FF 12	FQ 21
21	FQ 21	FF 11	F 1	F 3	F 2	F 1		L 1	C 1	C 1	C 1	L 1	C 1			H 1	L 1	L 1	C 1	CL 21	F 3	FF 21	F 1	
22							H 1		H 1	L 1	L 1		C 1	C 1	C 1			C 1	C 2	L 3	F 6	F 5	F 6	FQ 41
23	F 4	F 3	F 2	F 1	F 1			C 1	C 1	C 1	C 1	L 2	L 1	L 1	L 1	L 1	L 1		C 3	L 3	F 8	F 6	F 4	F 6
24	FF 11	F 3	F 3	FF 14	F 2	F 3	C 2	C 1	C 1		C 1				C 1	CL 11	L 1	L 2	L 2	CL 43	FQ 41	FQ 31	FQ 31	F 2
25		FF 11		F 2	F 1	F 1		C 1	C 1	C 1	C 3	C 1	L 1	L 2	L 4	L 3	L 2	L 1		L 6	F 3	F 2	F 2	F 2
26	F 3	F 3	F 3	F 3	F 5	F 6	L 2	L 3	L 1	CL 11	L 1	L 1	L 1		L 2	L 1	L 1	L 1	HL 11	L 1	F 1	F 1	F 1	F 2
27	F 7	F 2		F 3	F 2	F 1				L 1	CL 11		C 1				H 1	C 2	C 1	C 1	F 2	FQ 31	FQ 21	F 2
28	F 3	F 1					C 1	CL 11	L 1	L 1						C 1	CL 21	C 2	C 3	C 2	F 2	F 2	F 2	F 7
29	F 3	F 8	FQ 41	FQ 31	F 2	F 2		H 1		H 1	H 1	H 1	H 1	C 1	C 1	C 1	C 1	C 2	C 6	L 4	F 4	F 4	FQ 61	F 3
30	FQ 31	F 2	FF 11	F 2		F 3	C 1	C 1	C 1	CL 11	C 1	C 1	C 1	C 1	C 1	C 3	C 2	C 1	C 4	C 5	F 9	F 4	FQ 31	F 6
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																								

APR. 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

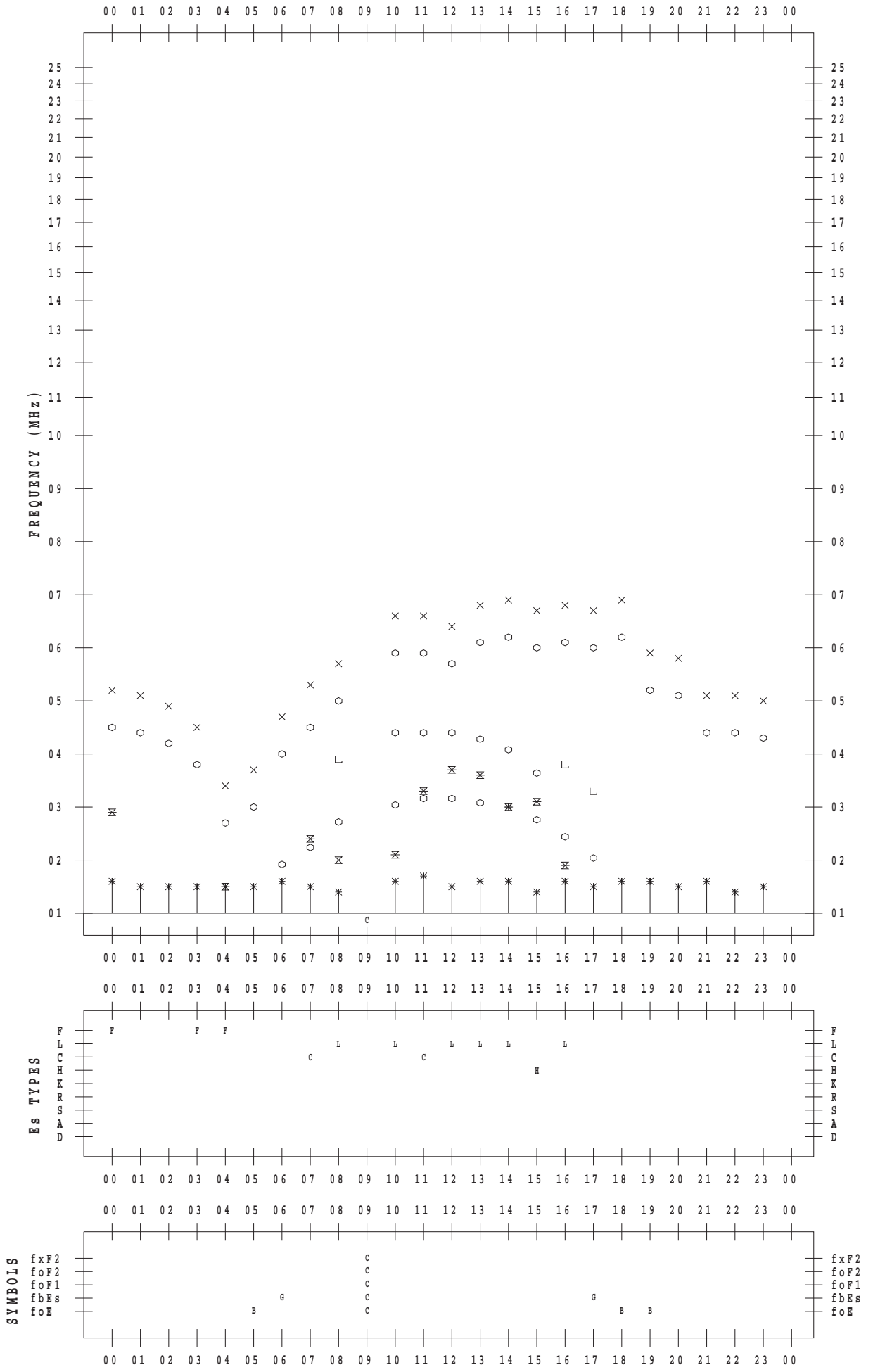
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2017/ 4/ 1

135 °E MEAN TIME



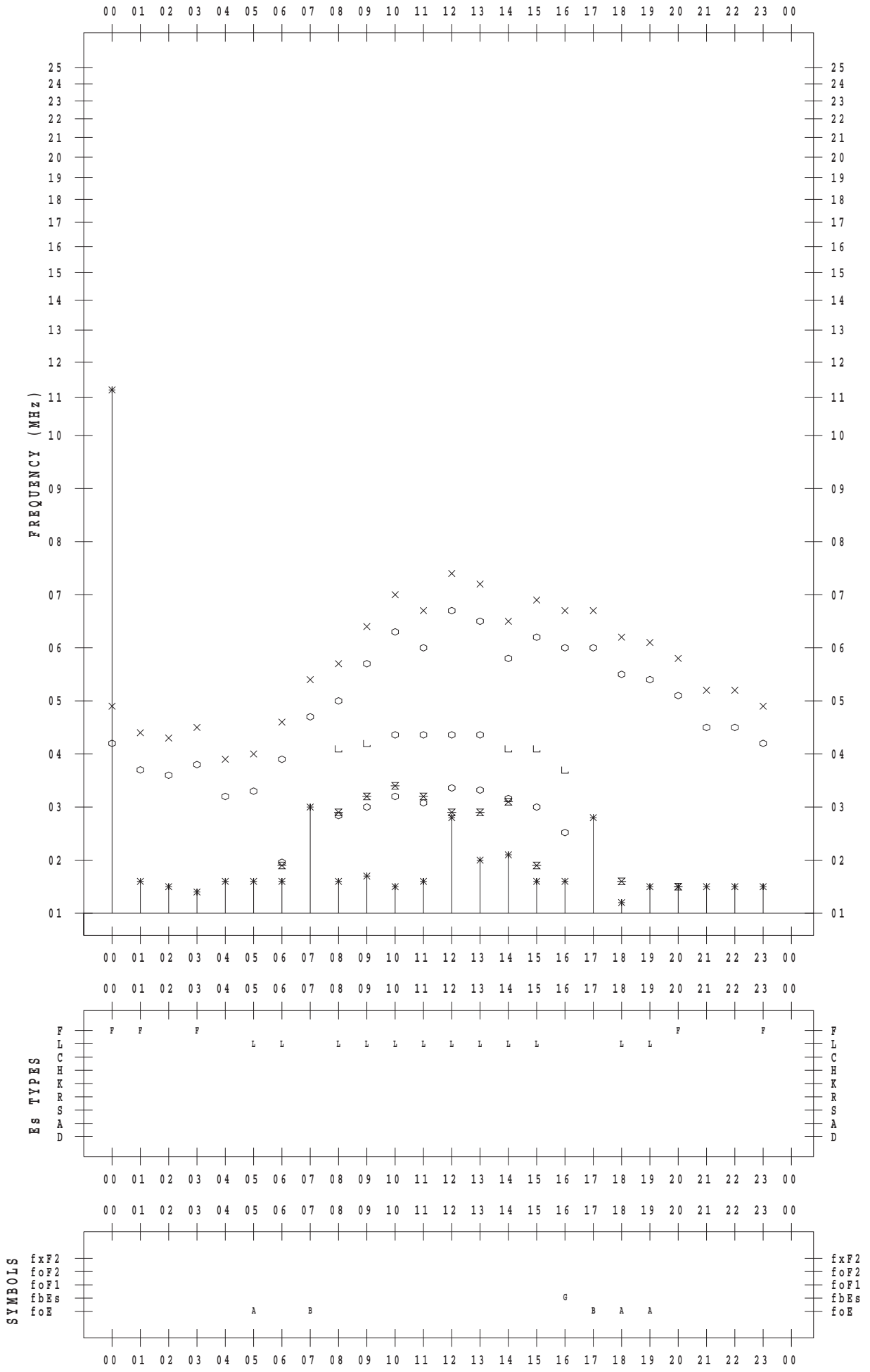
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2017/ 4/ 2

135 °E MEAN TIME



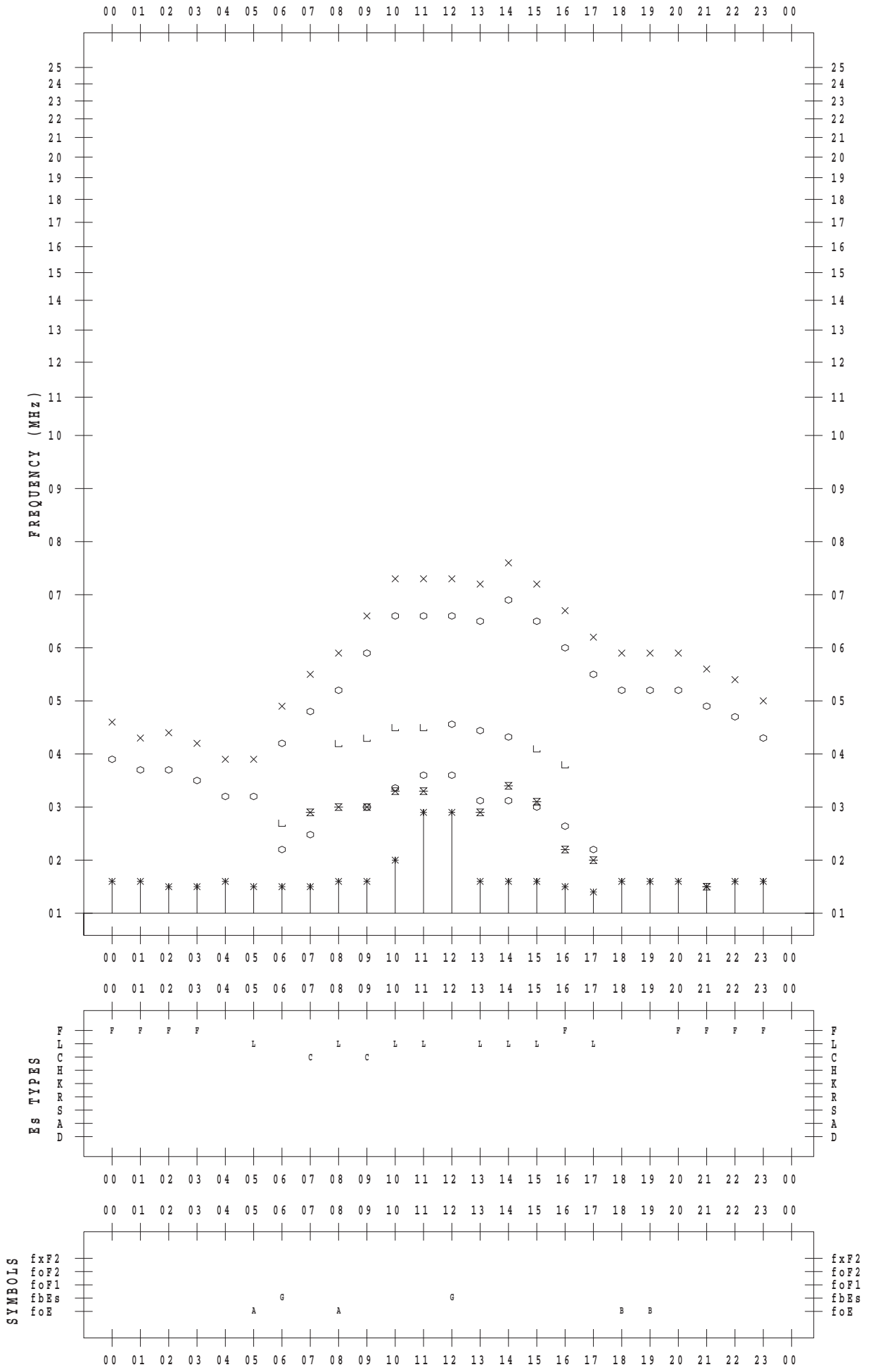
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2017/ 4/ 3

135 °E MEAN TIME



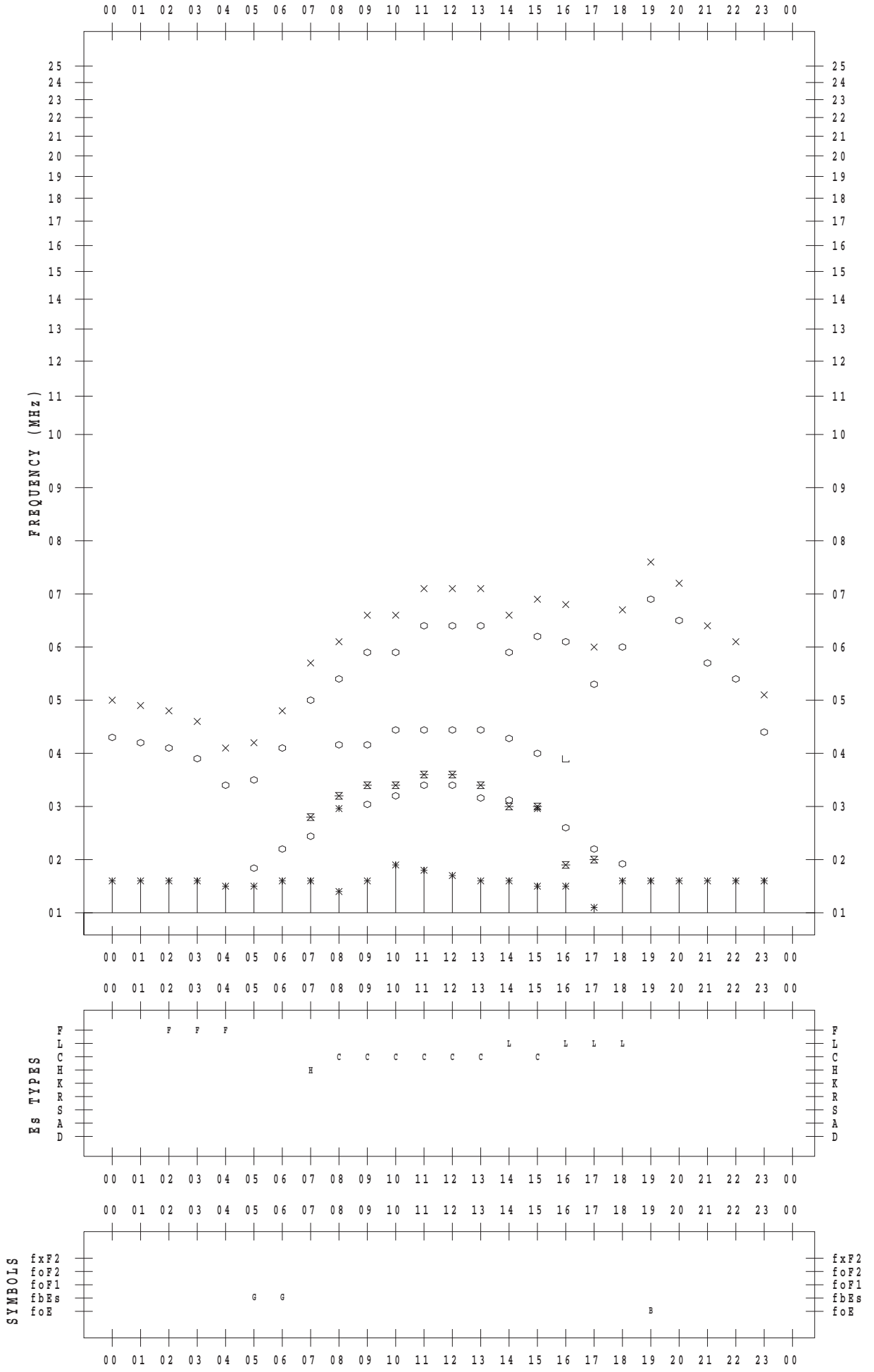
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2017/ 4/ 4

135 °E MEAN TIME



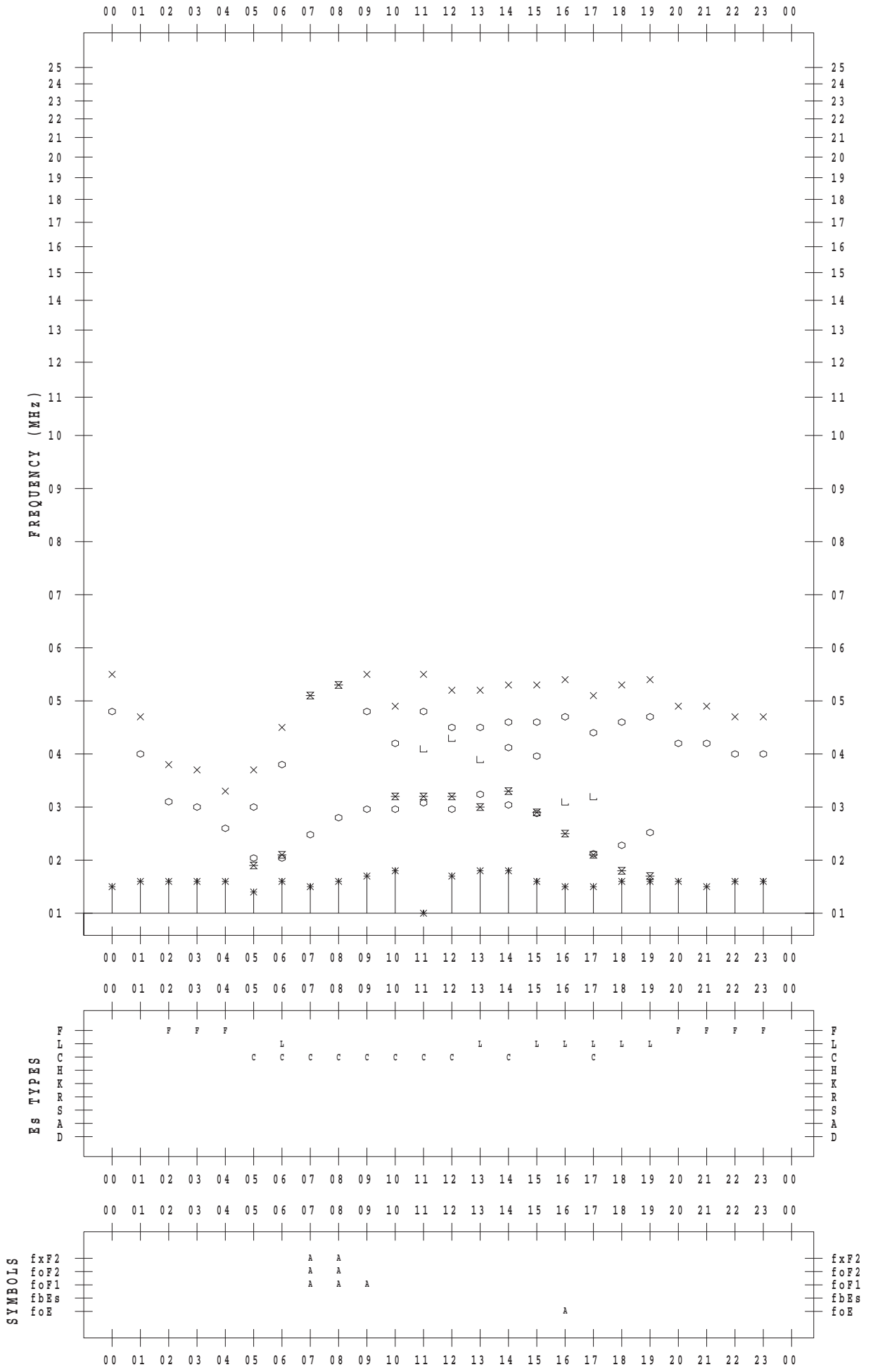
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2017/ 4/ 5

135 °E MEAN TIME



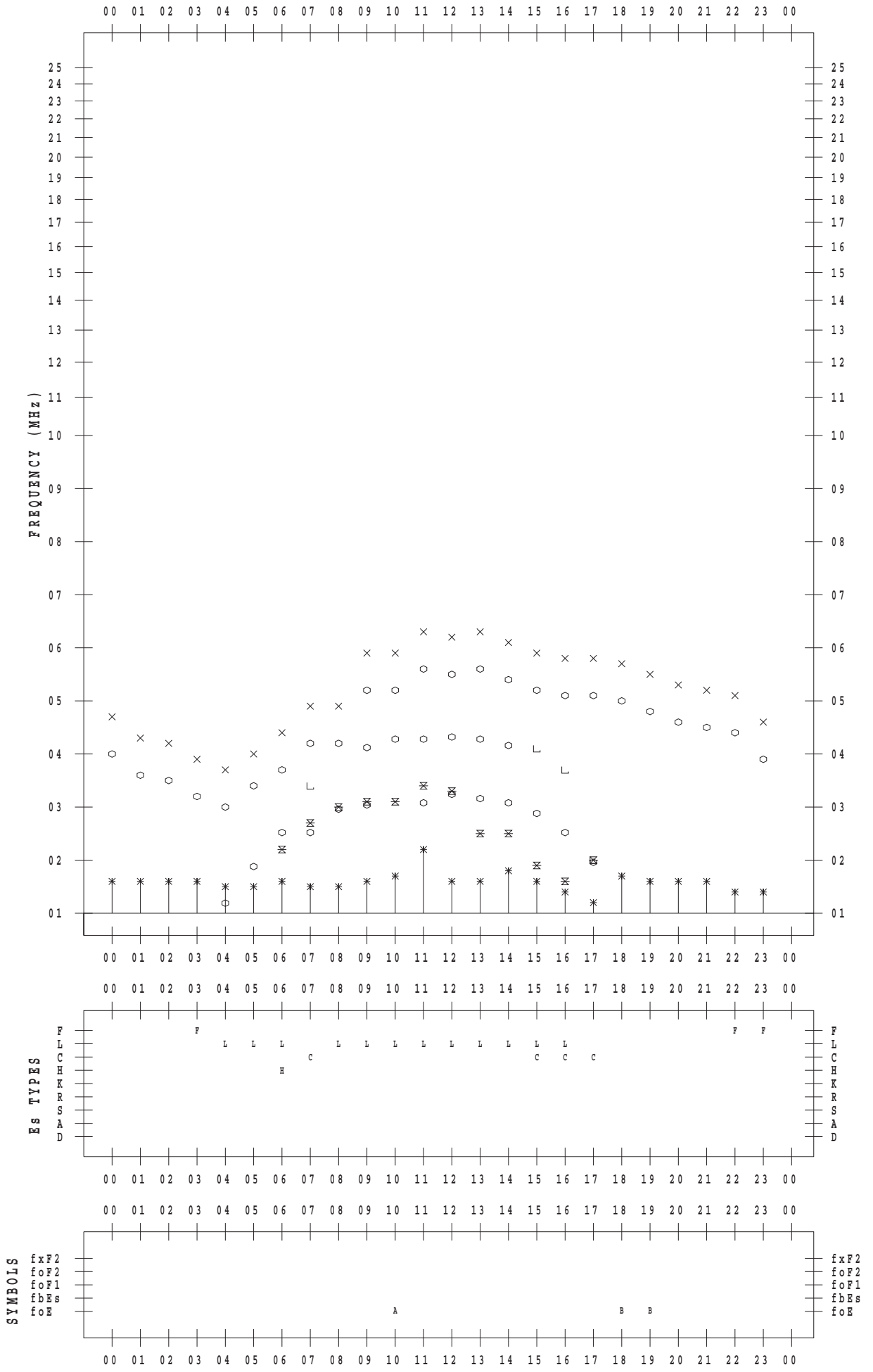
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2017/ 4/ 6

135 °E MEAN TIME



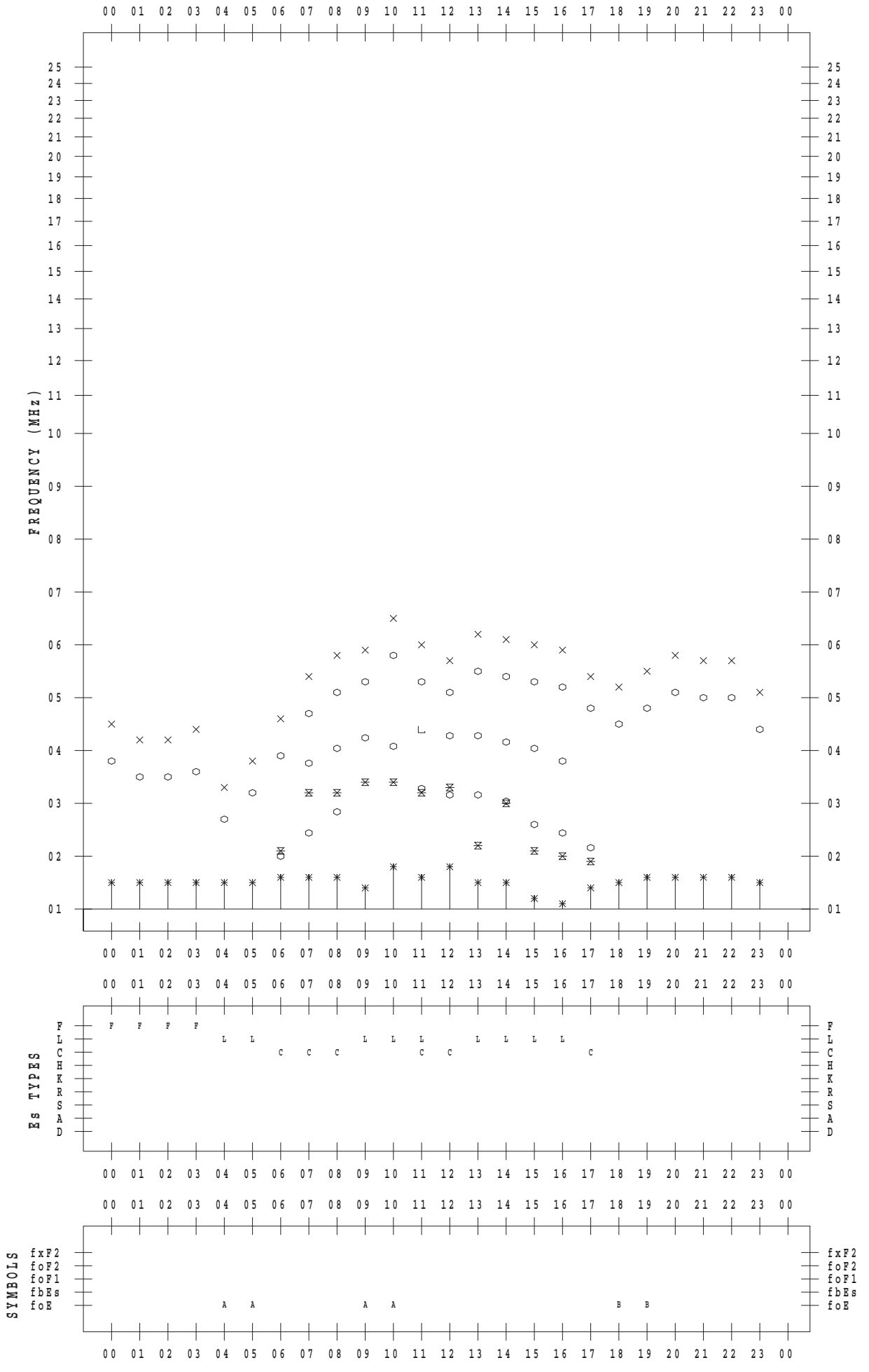
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2017/ 4/ 7

135 °E MEAN TIME



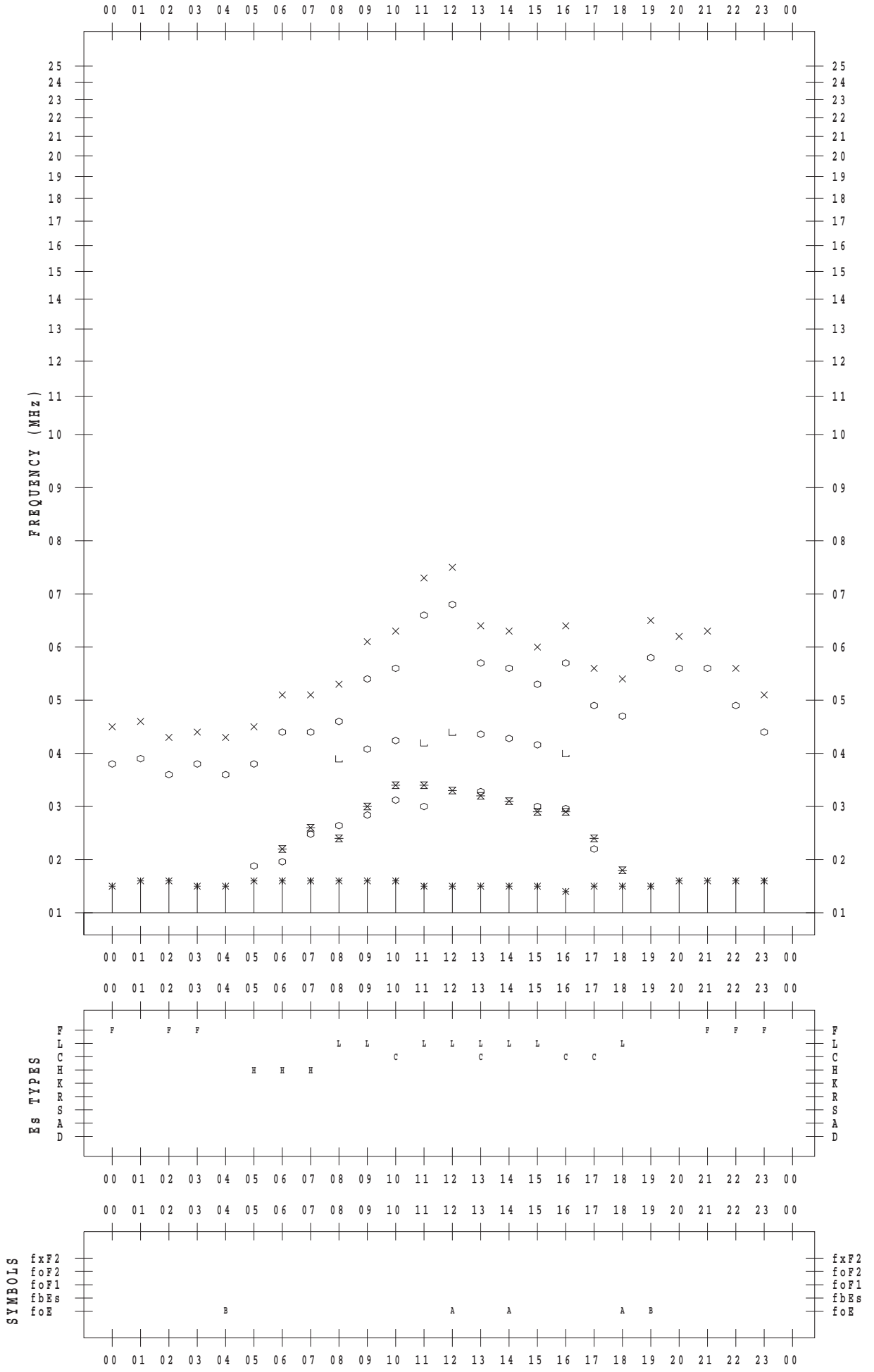
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2017/ 4/ 8

135 °E MEAN TIME



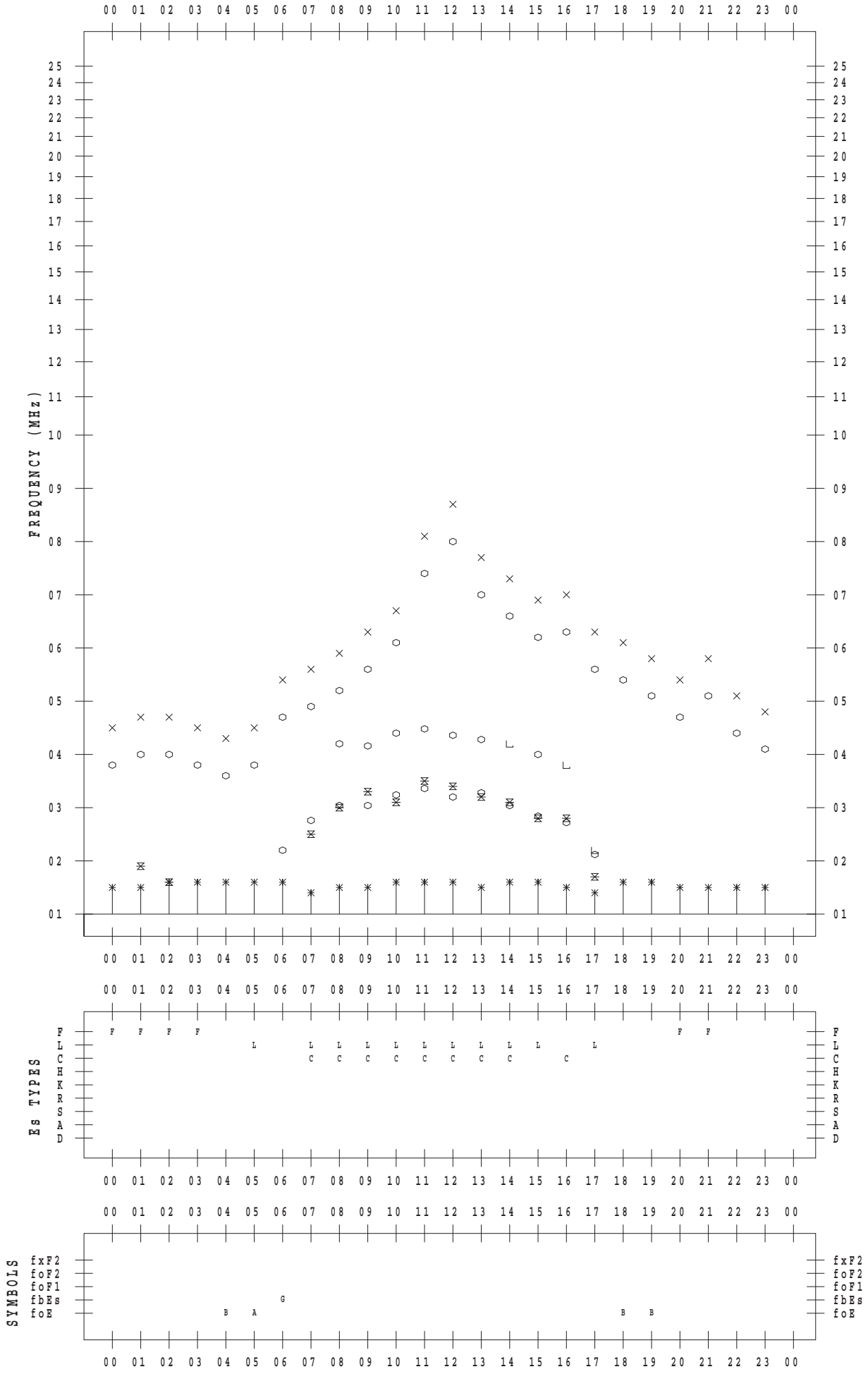
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2017/ 4/ 9

135 °E MEAN TIME



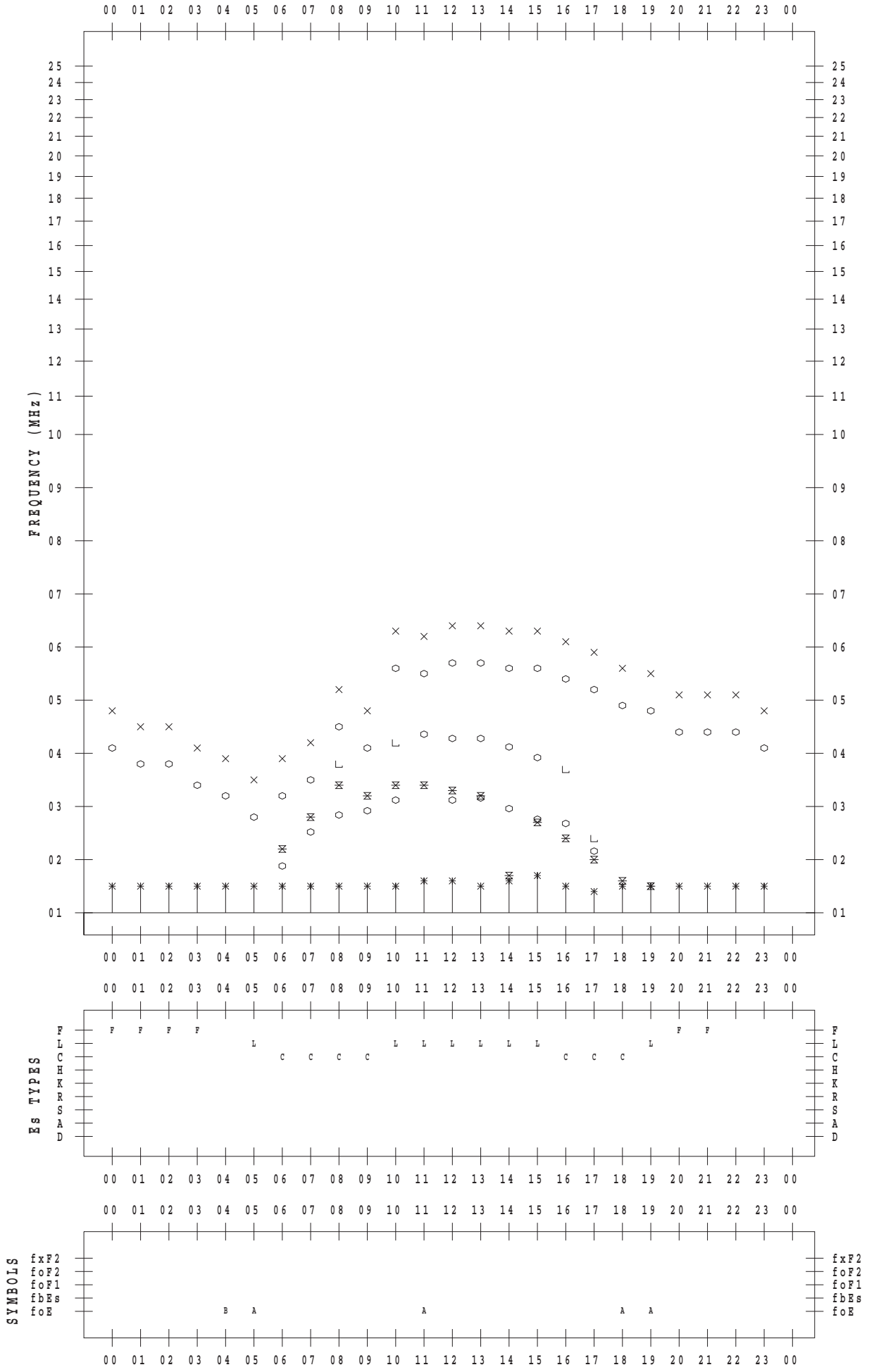
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2017/ 4/10

135 °E MEAN TIME



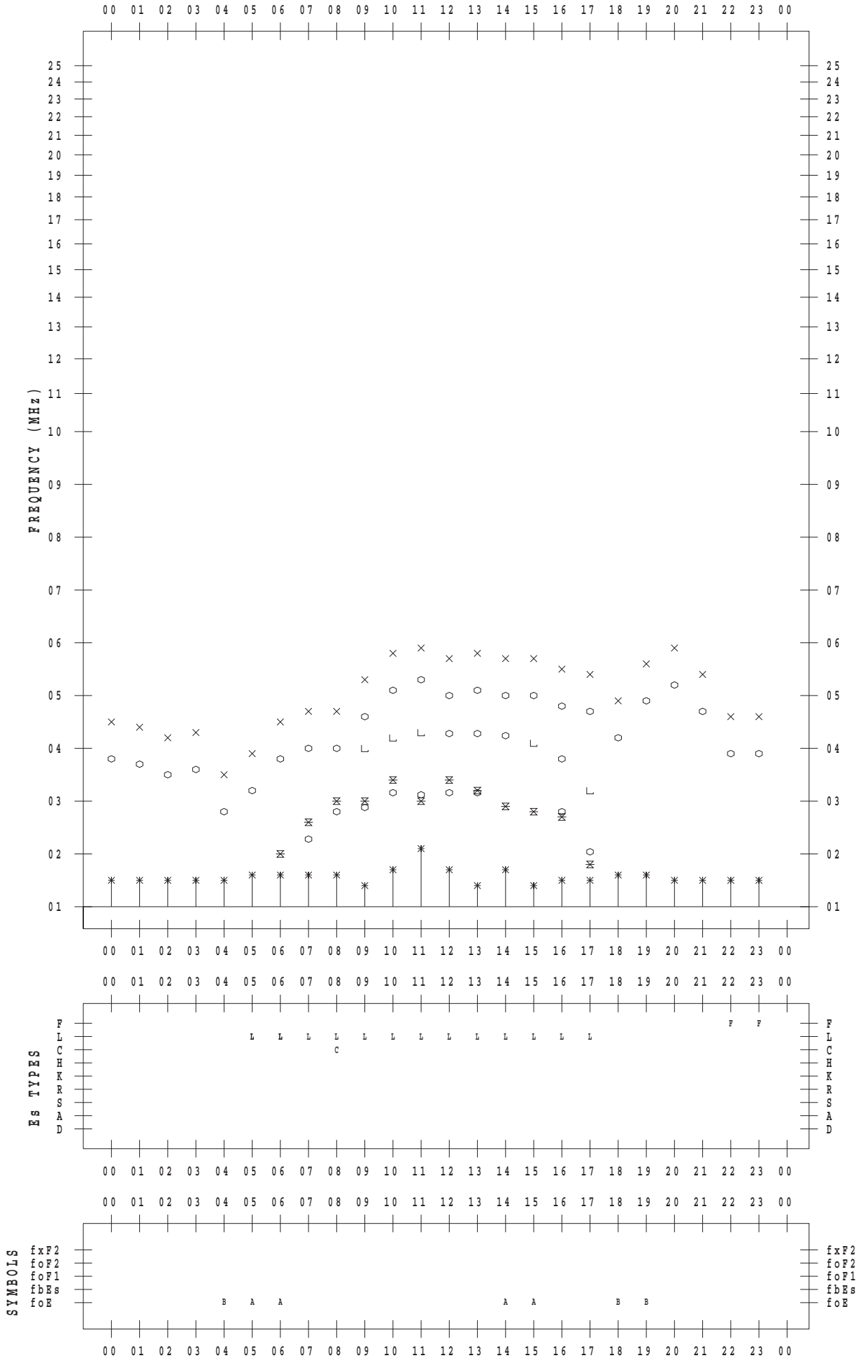
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2017/ 4/11

135 °E MEAN TIME



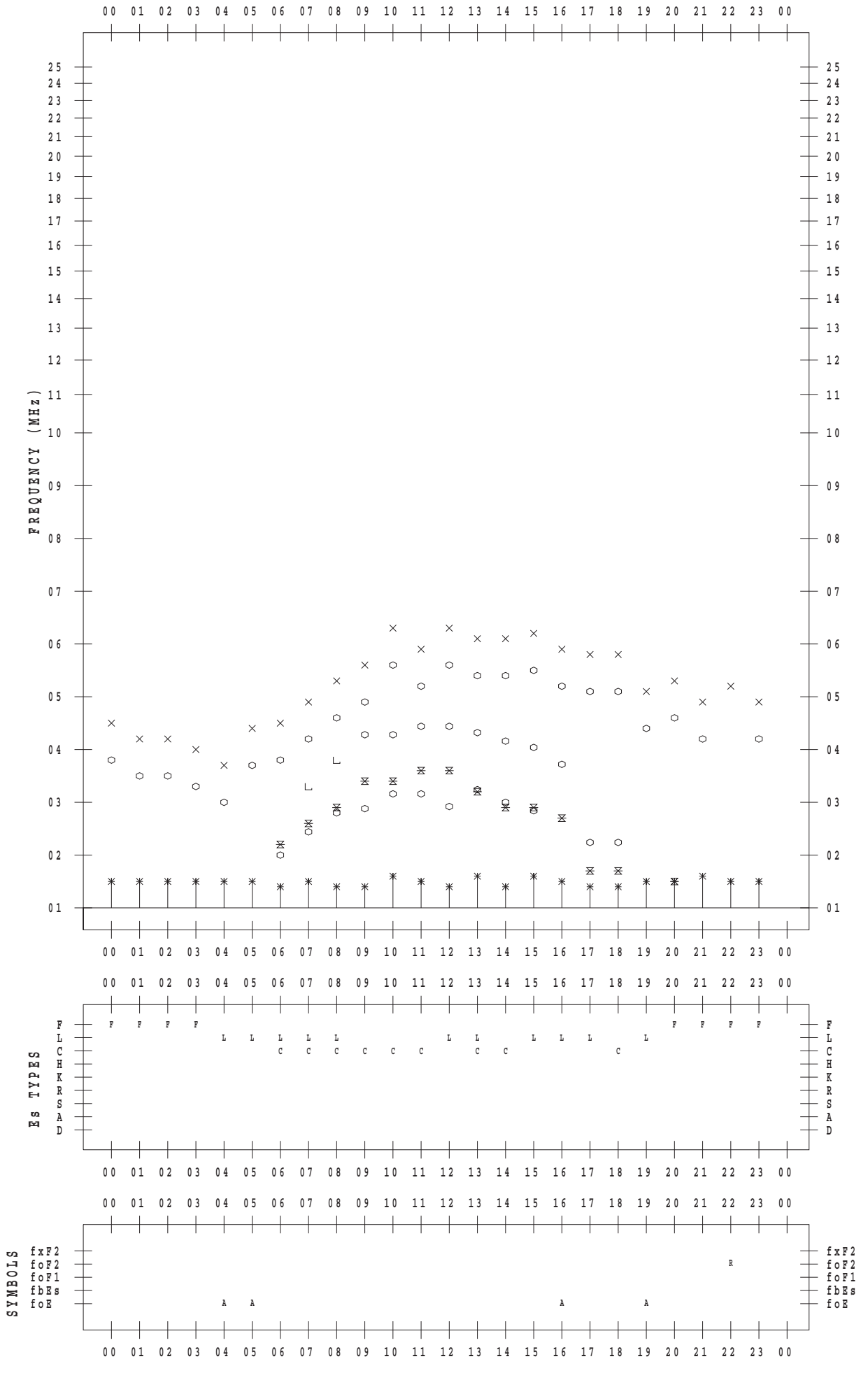
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2017/ 4/12

135 °E MEAN TIME



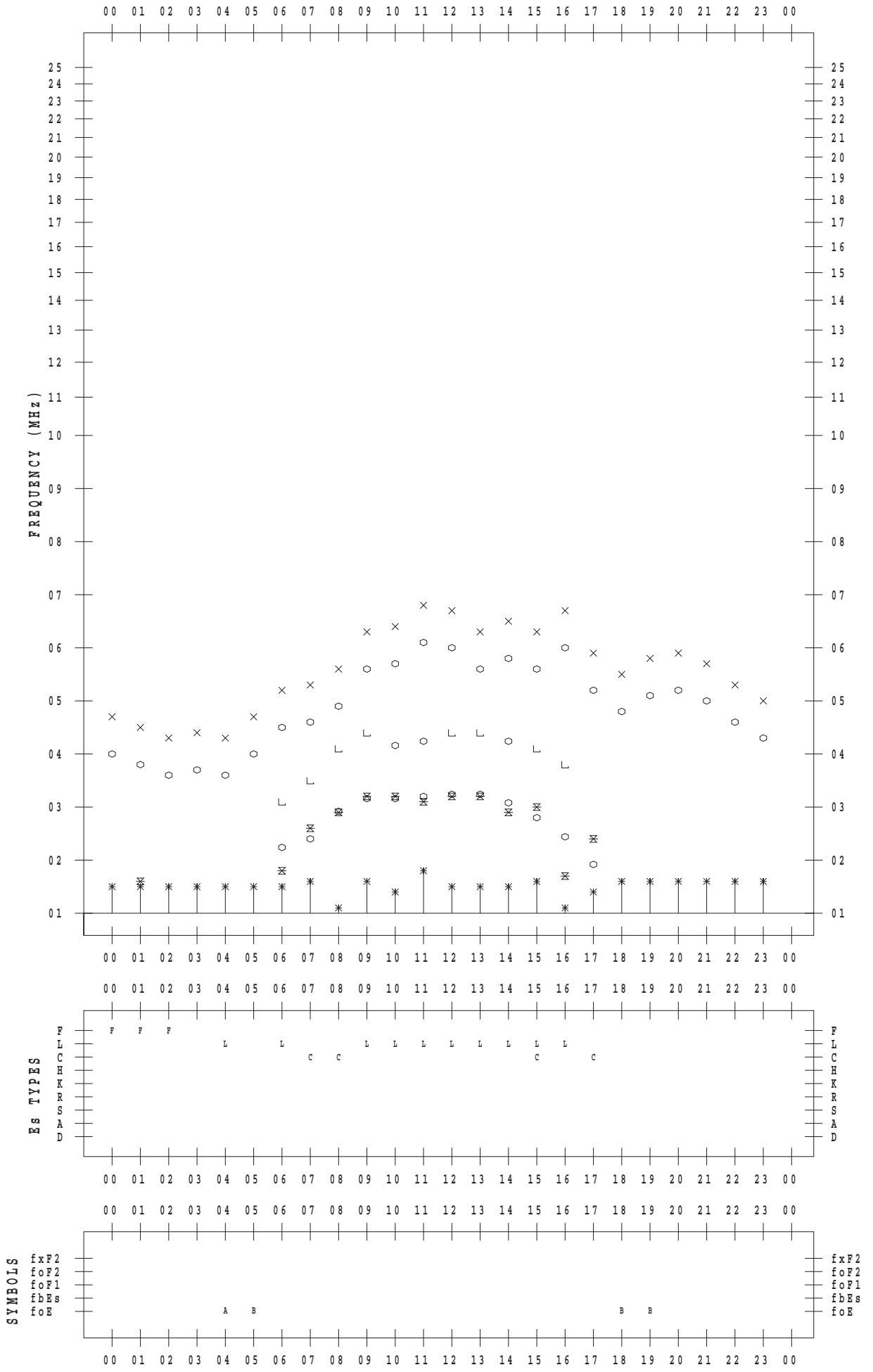
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2017/ 4/13

135 °E MEAN TIME



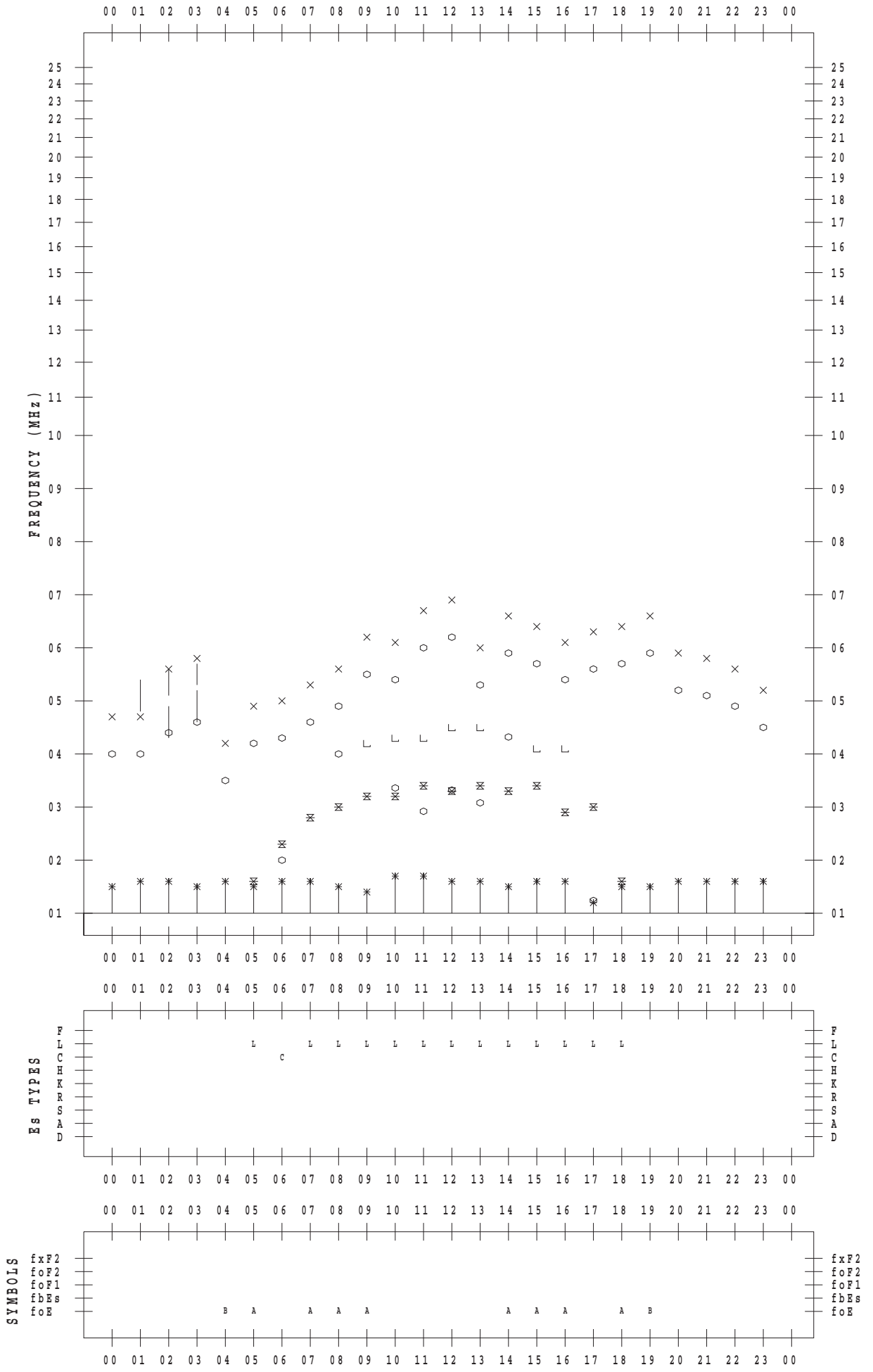
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2017/ 4/14

135 °E MEAN TIME



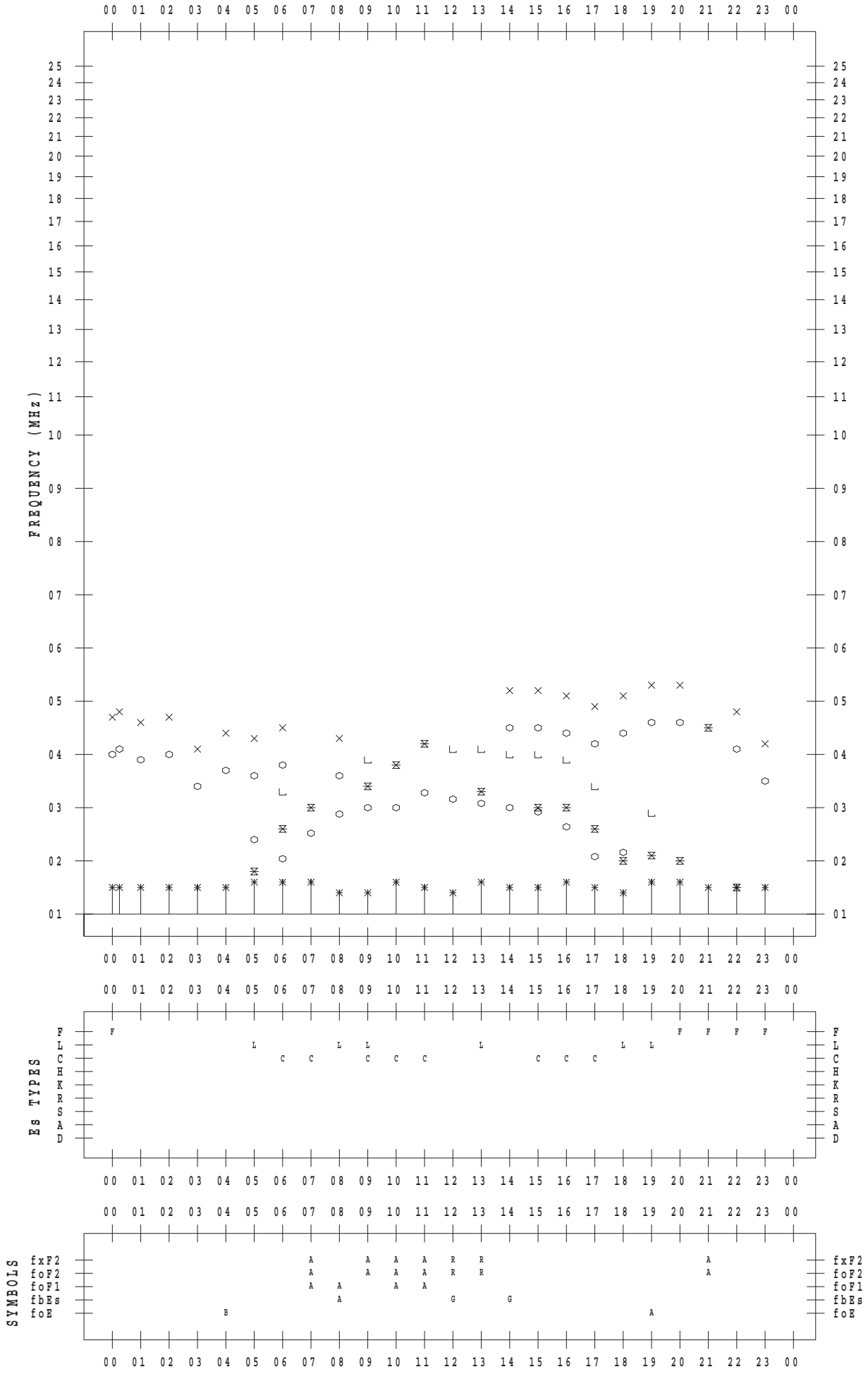
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2017/ 4/15

135 °E MEAN TIME



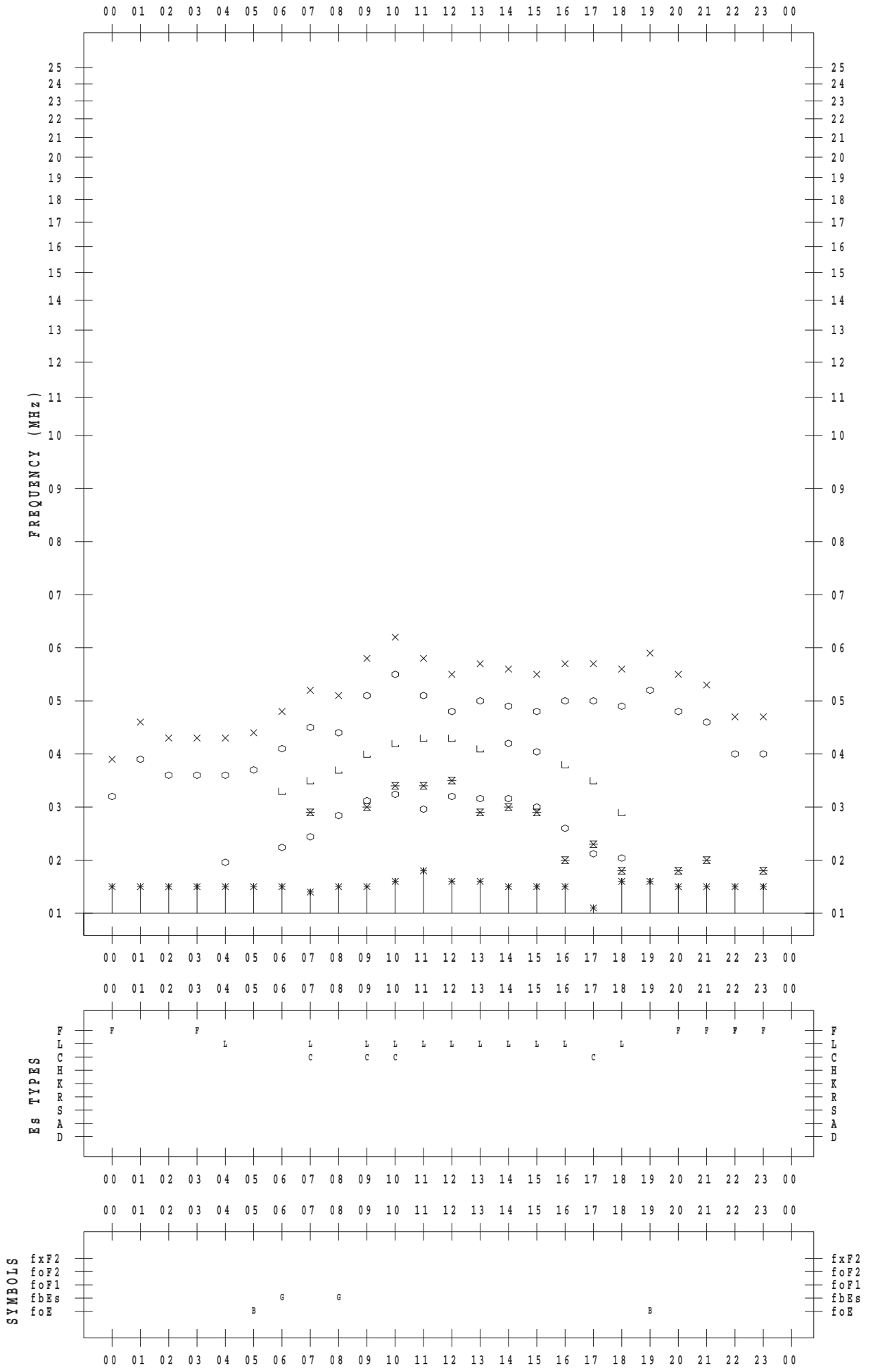
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2017/ 4/16

135 °E MEAN TIME



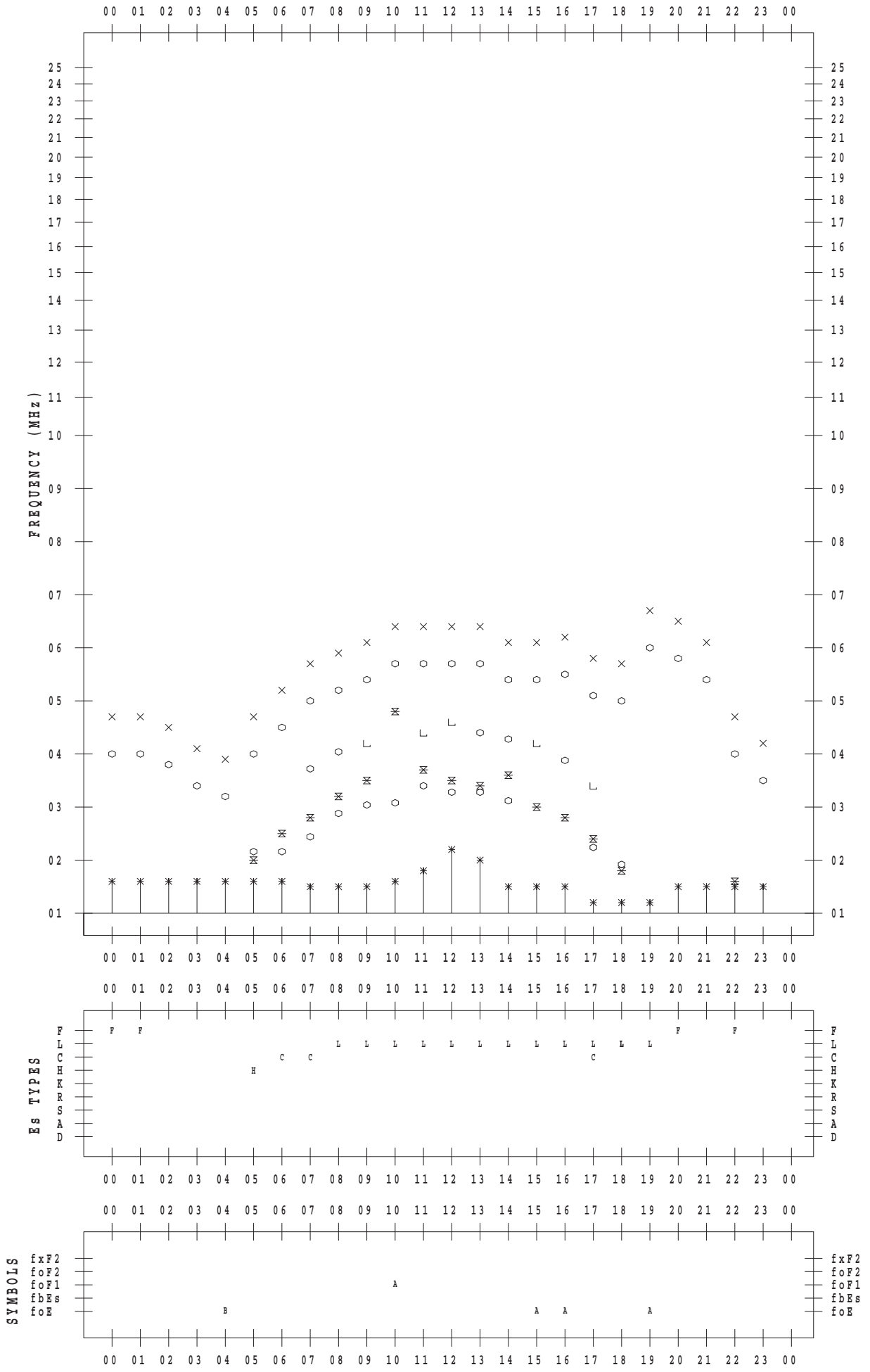
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2017/ 4/17

135 °E MEAN TIME



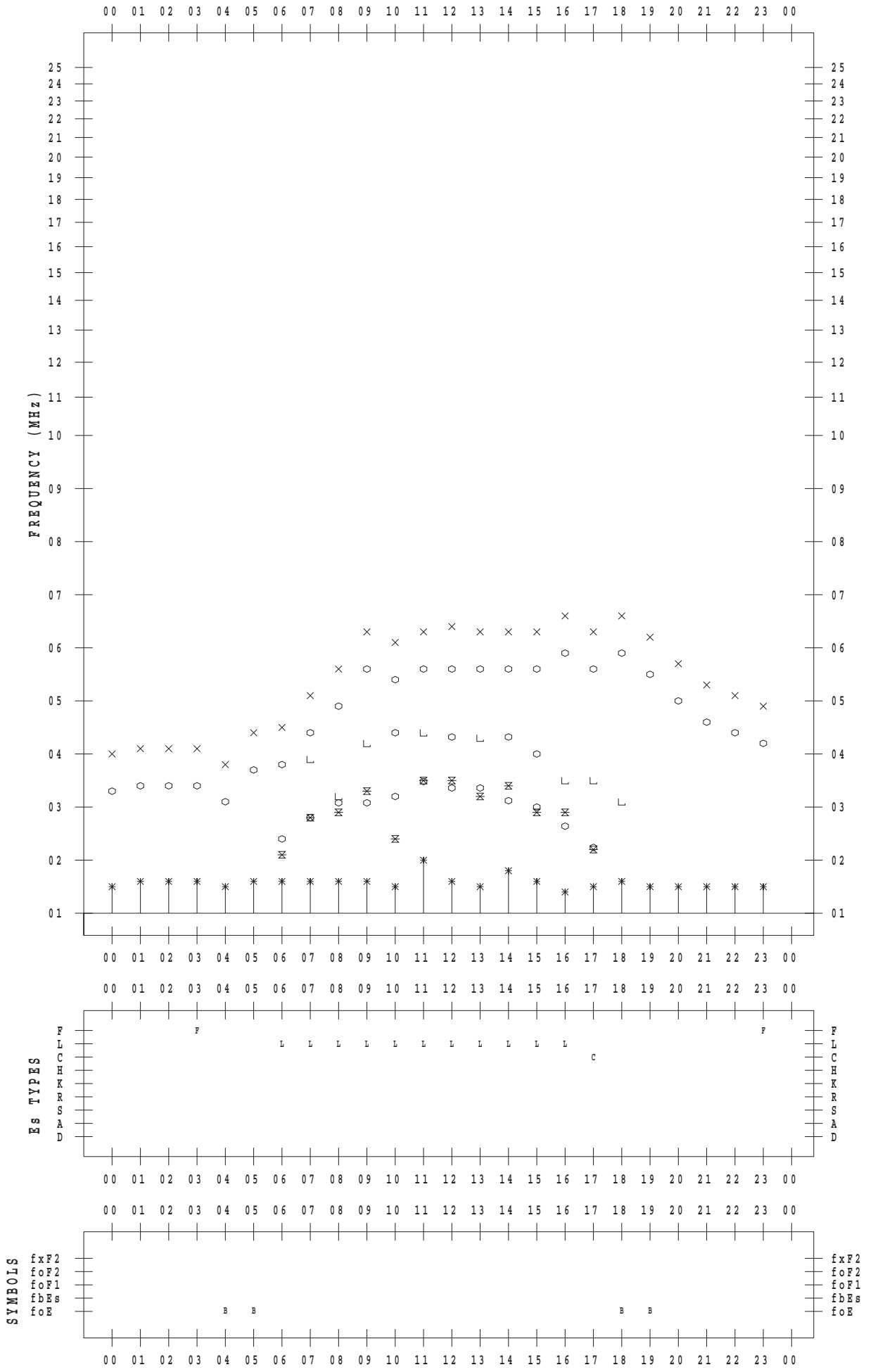
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2017/ 4/18

135 °E MEAN TIME



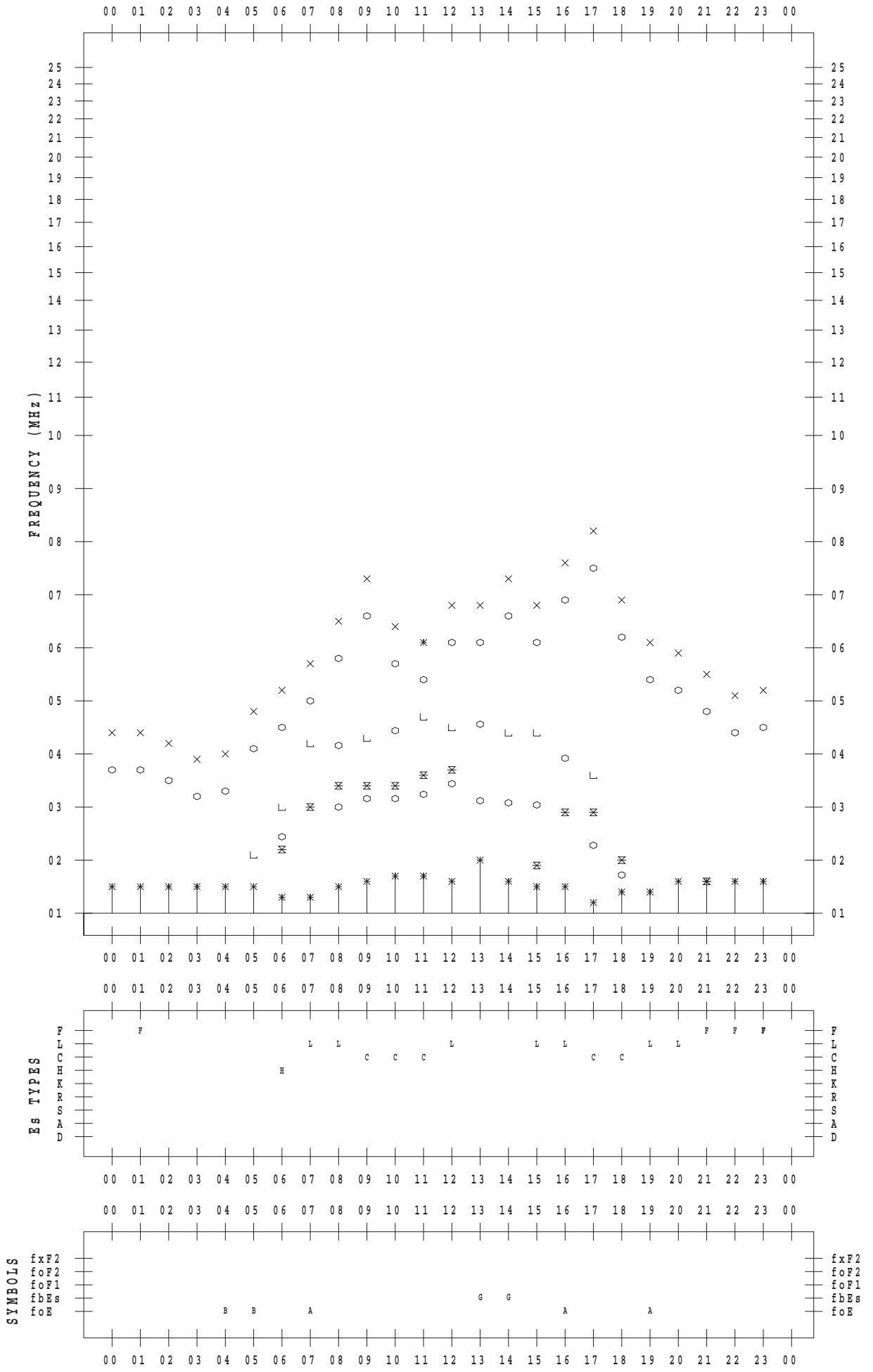
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2017/ 4/19

135 °E MEAN TIME



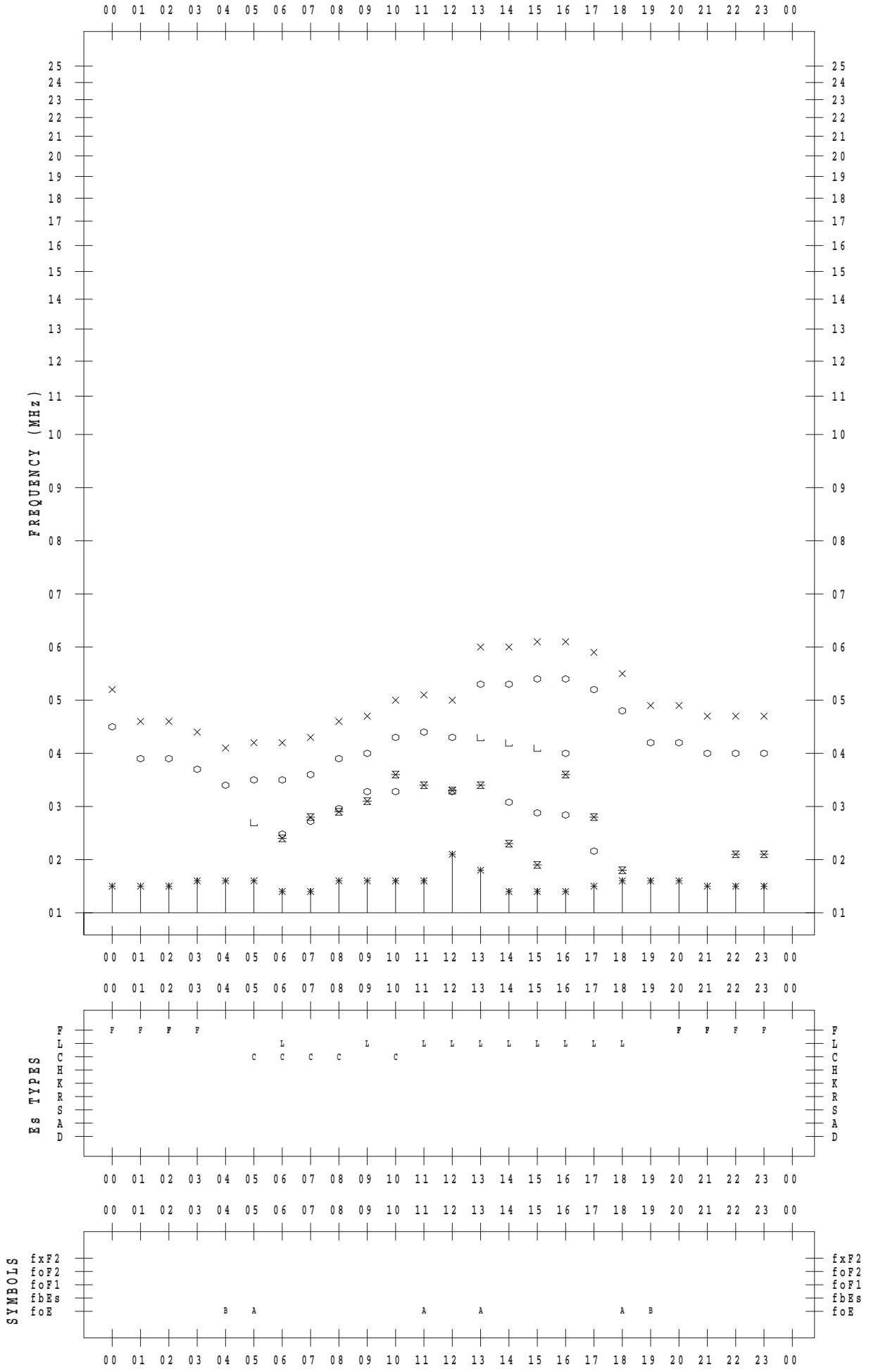
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2017/ 4/20

135 °E MEAN TIME



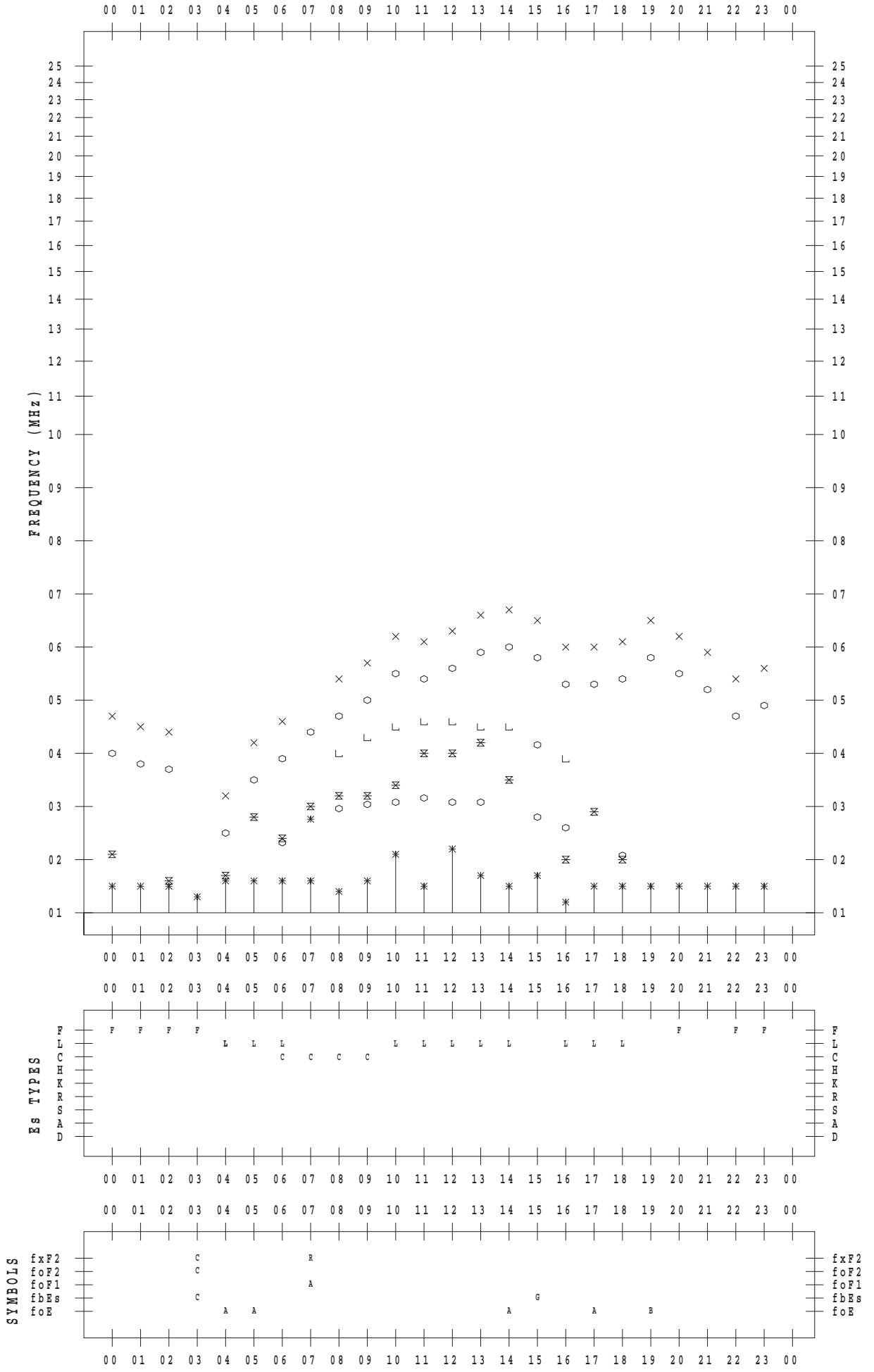
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2017/ 4/21

135 °E MEAN TIME



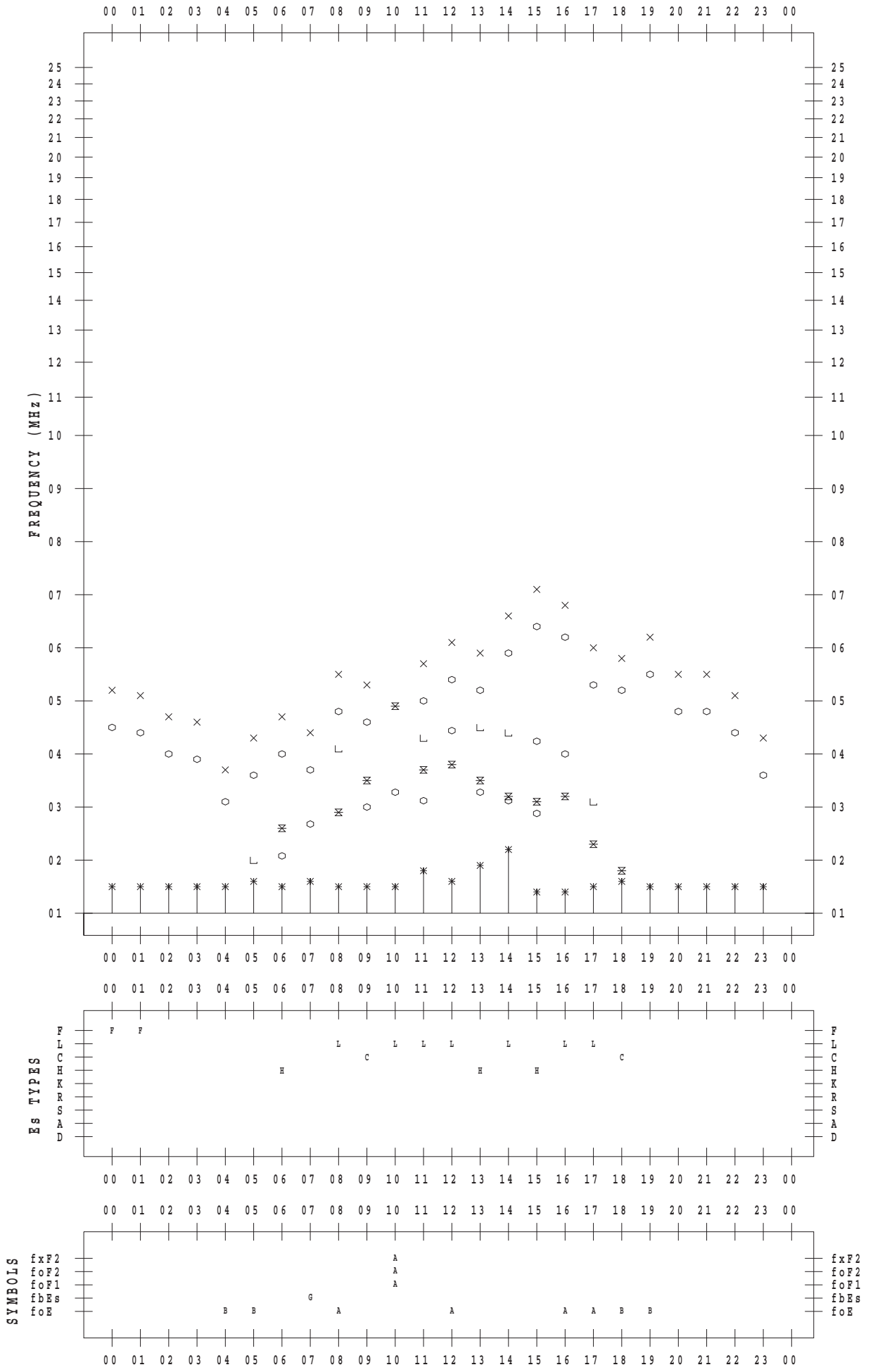
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2017/ 4/22

135 °E MEAN TIME



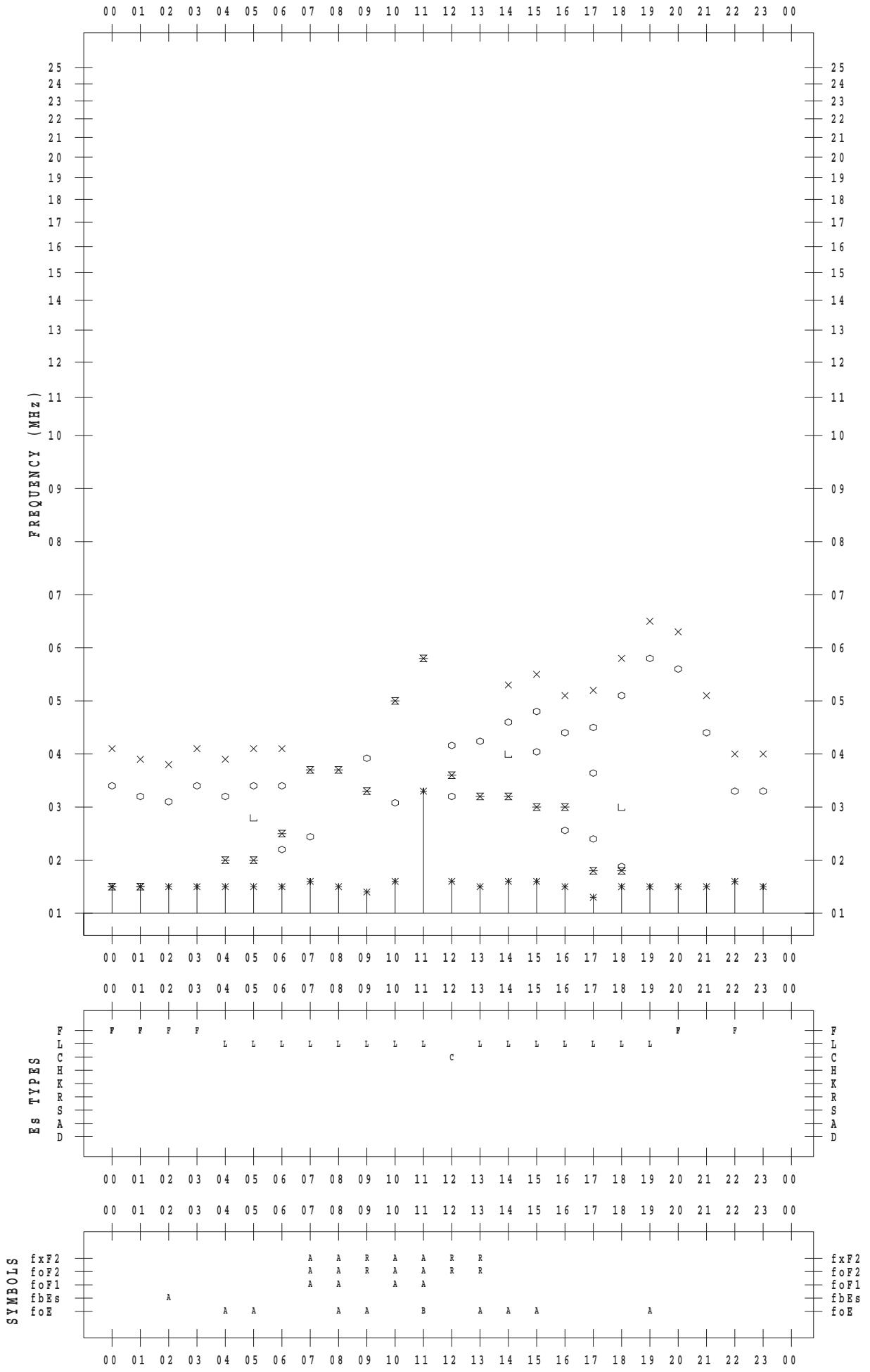
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2017/ 4/23

135 °E MEAN TIME



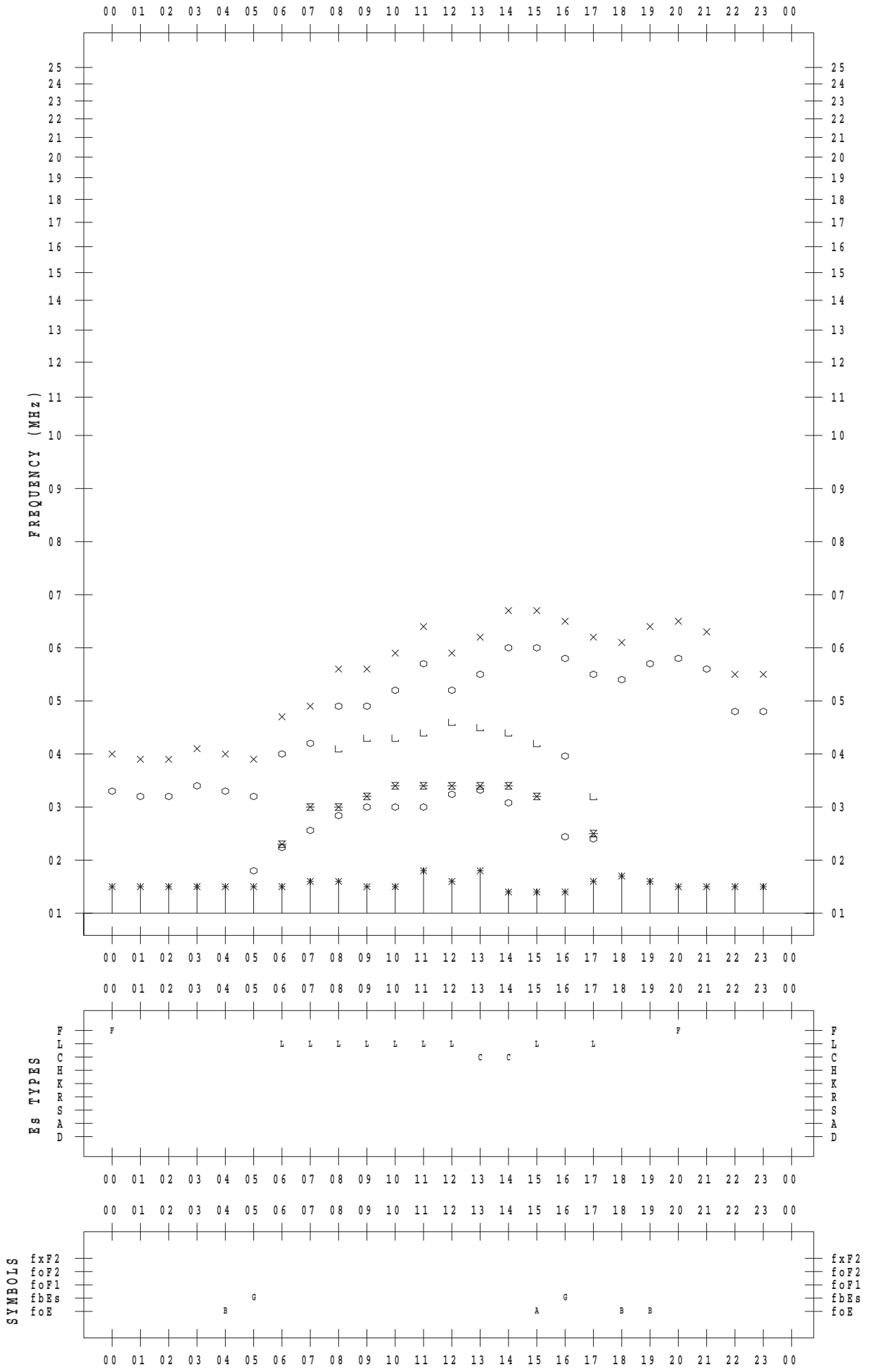
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2017/ 4/24

135 °E MEAN TIME



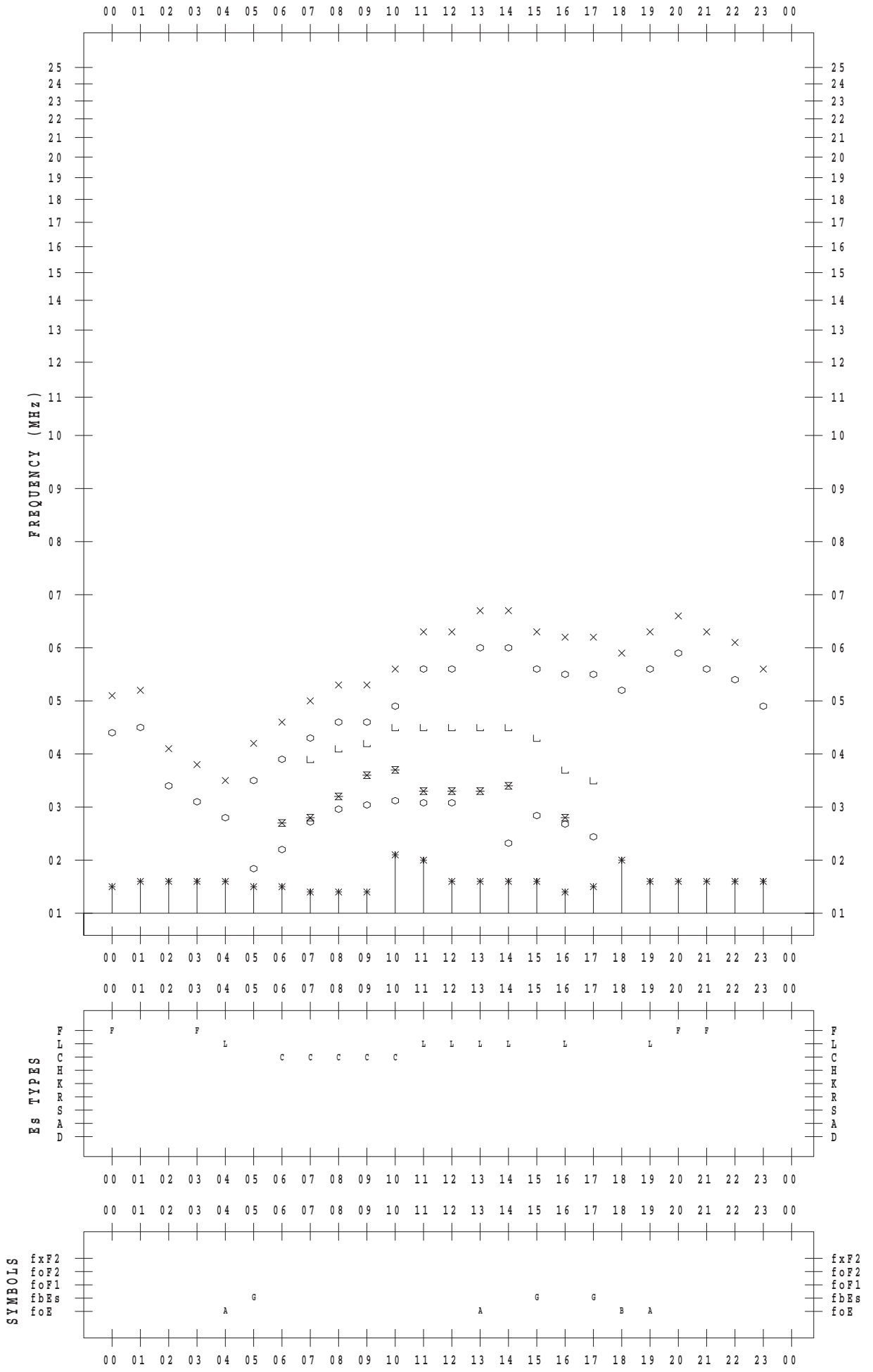
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2017/ 4/25

135 °E MEAN TIME



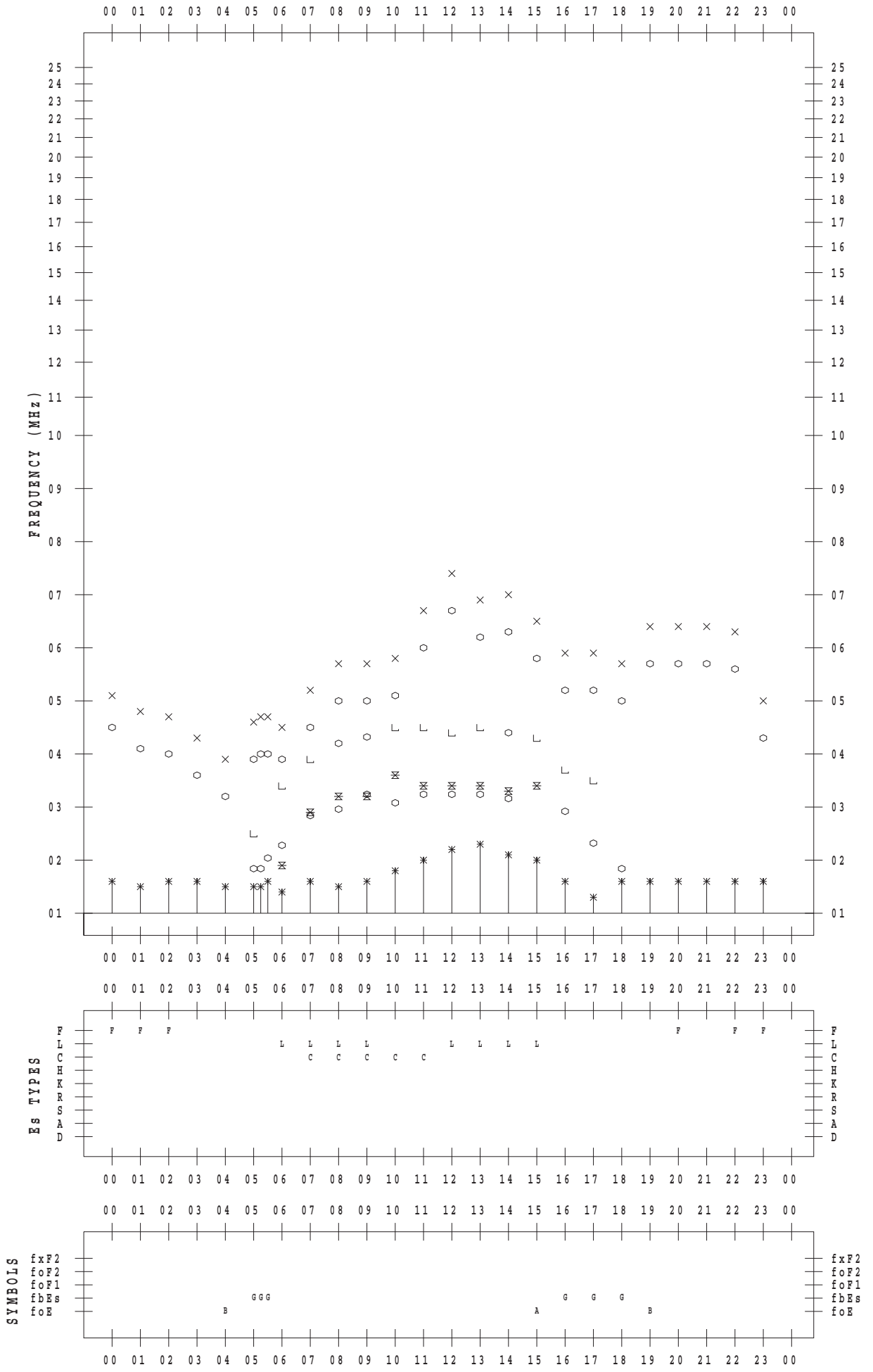
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2017/ 4/26

135 °E MEAN TIME



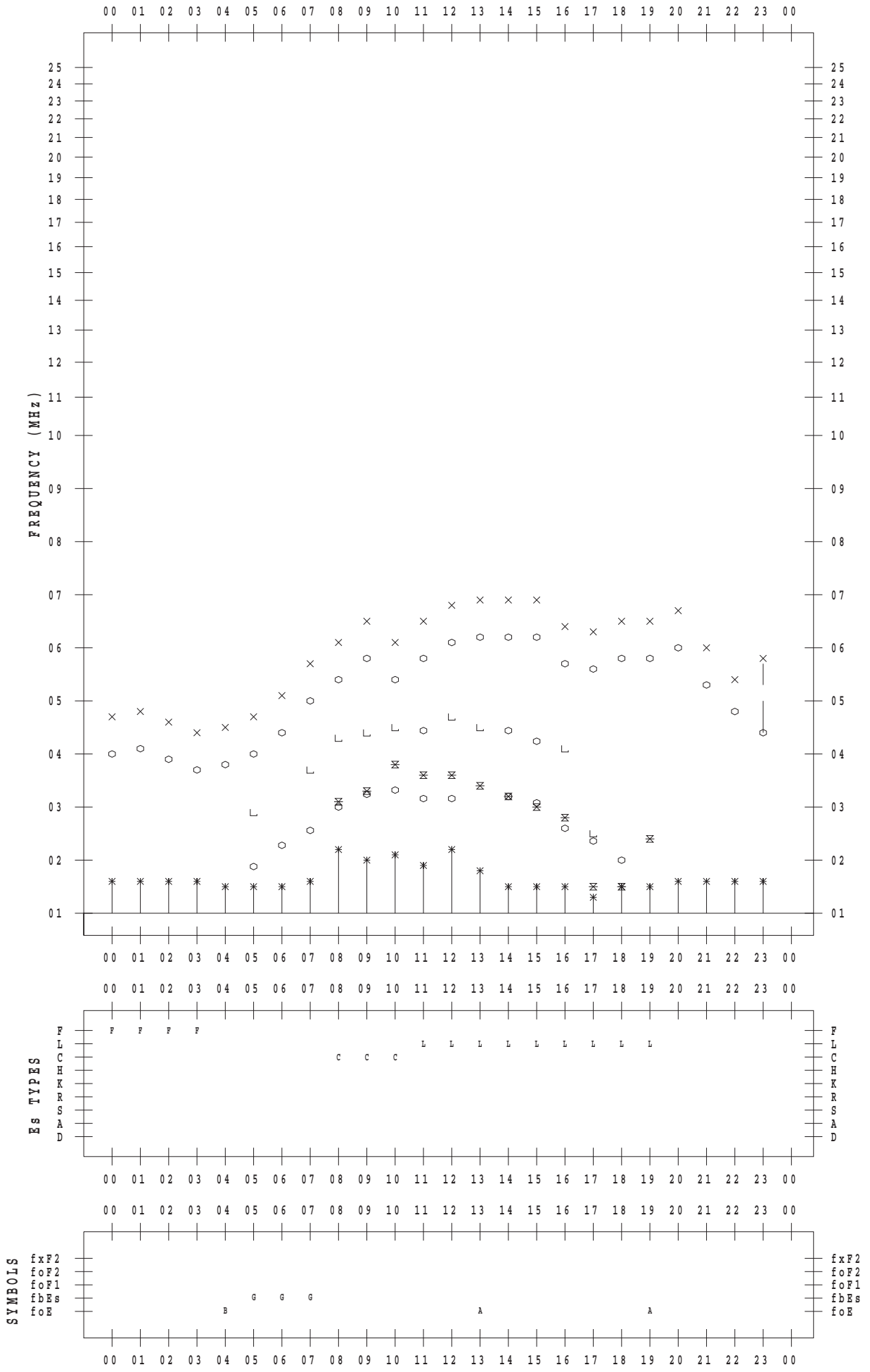
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2017/ 4/27

135 °E MEAN TIME



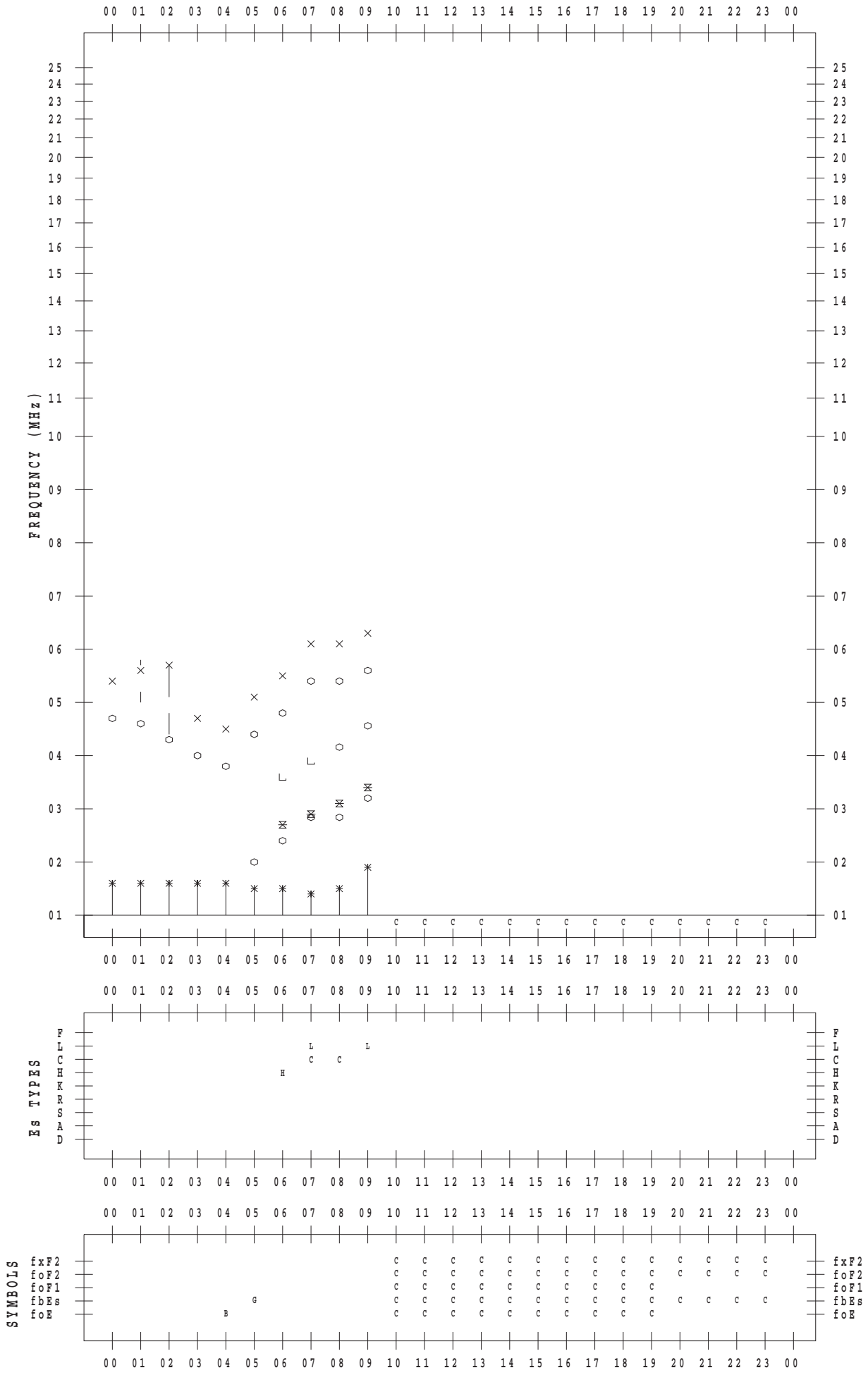
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2017/ 4/28

135 °E MEAN TIME



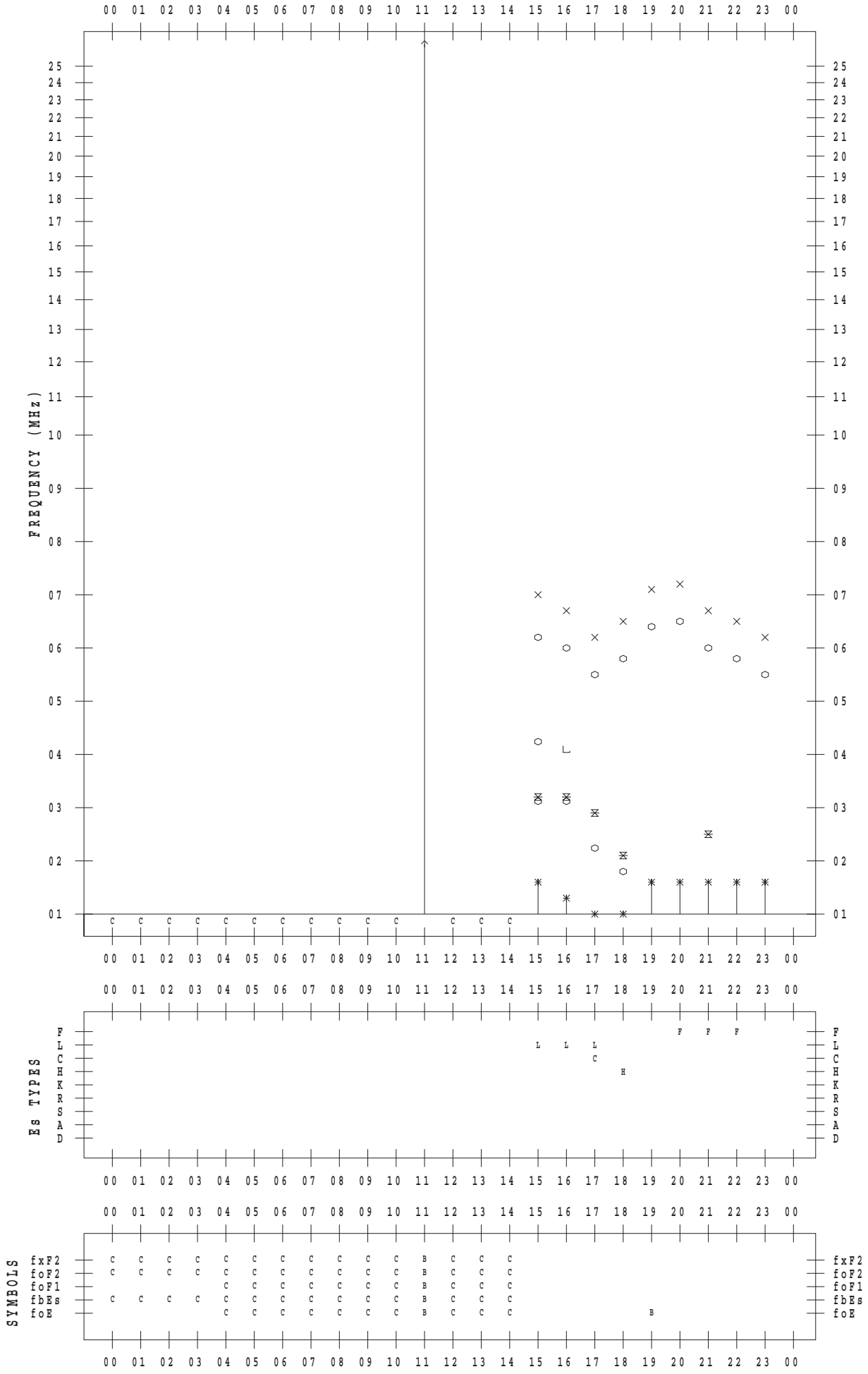
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2017/ 4/29

135 °E MEAN TIME



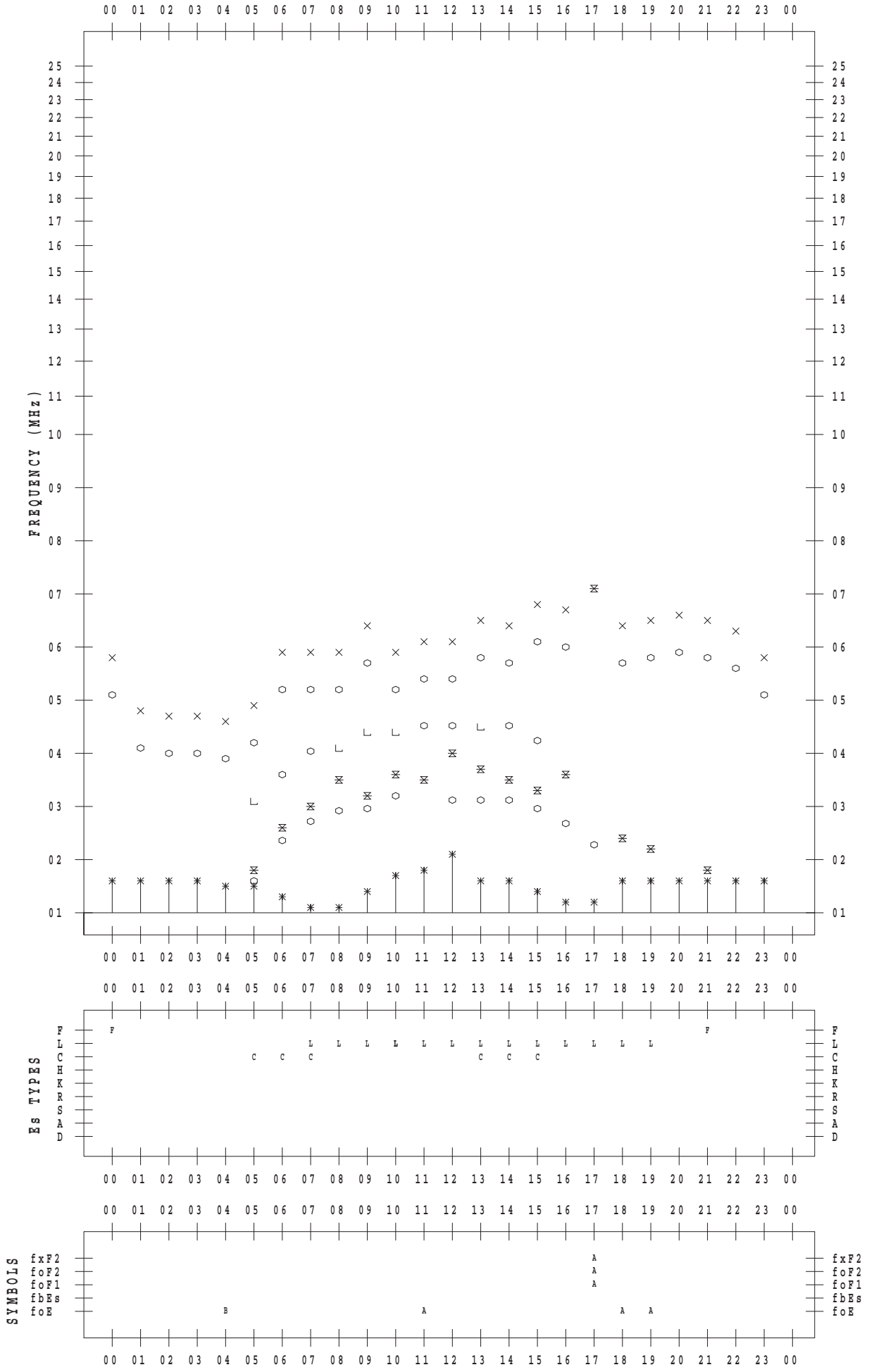
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2017/ 4/30

135 °E MEAN TIME



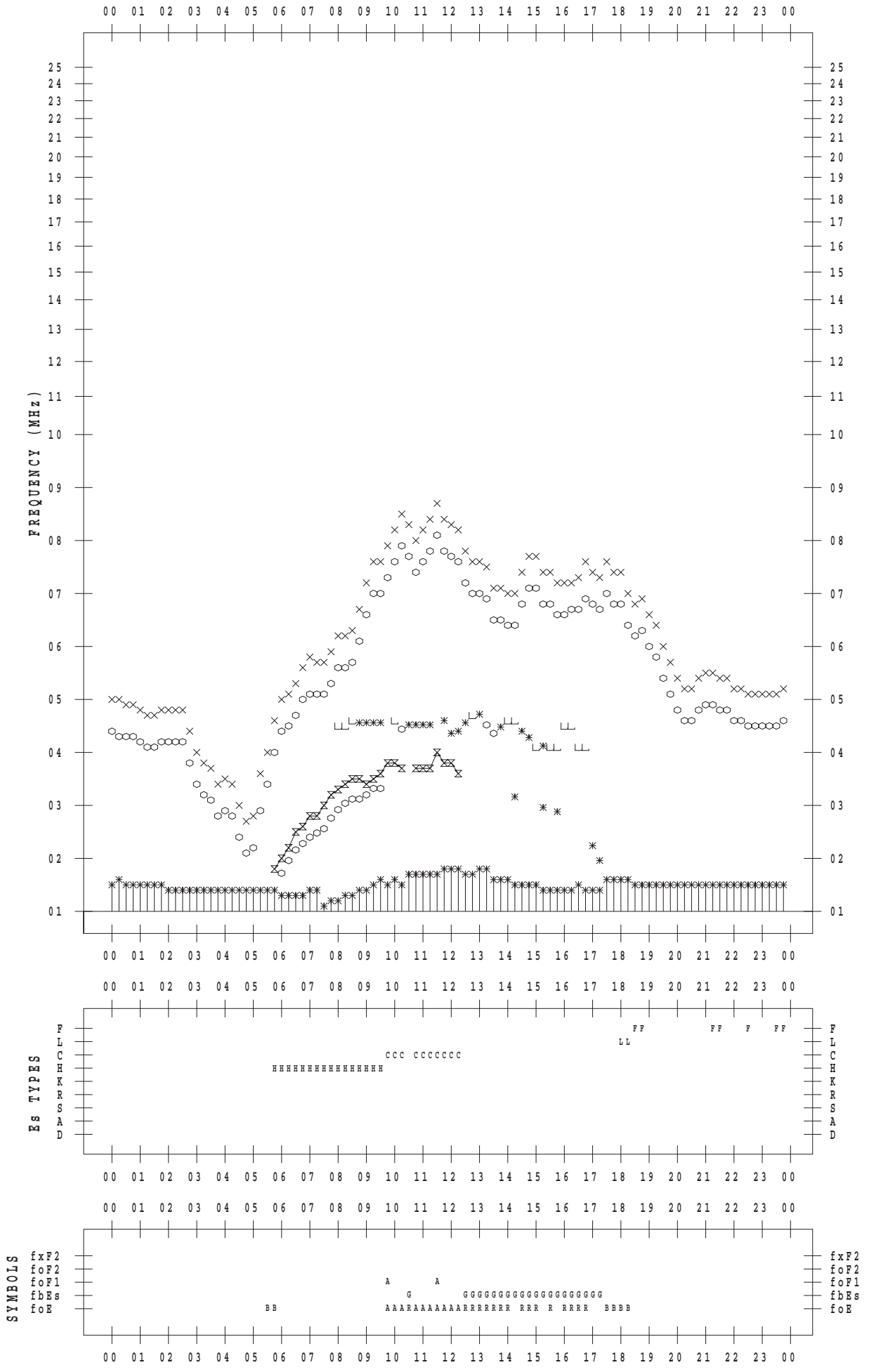
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2017/ 4/ 1

135 °E MEAN TIME



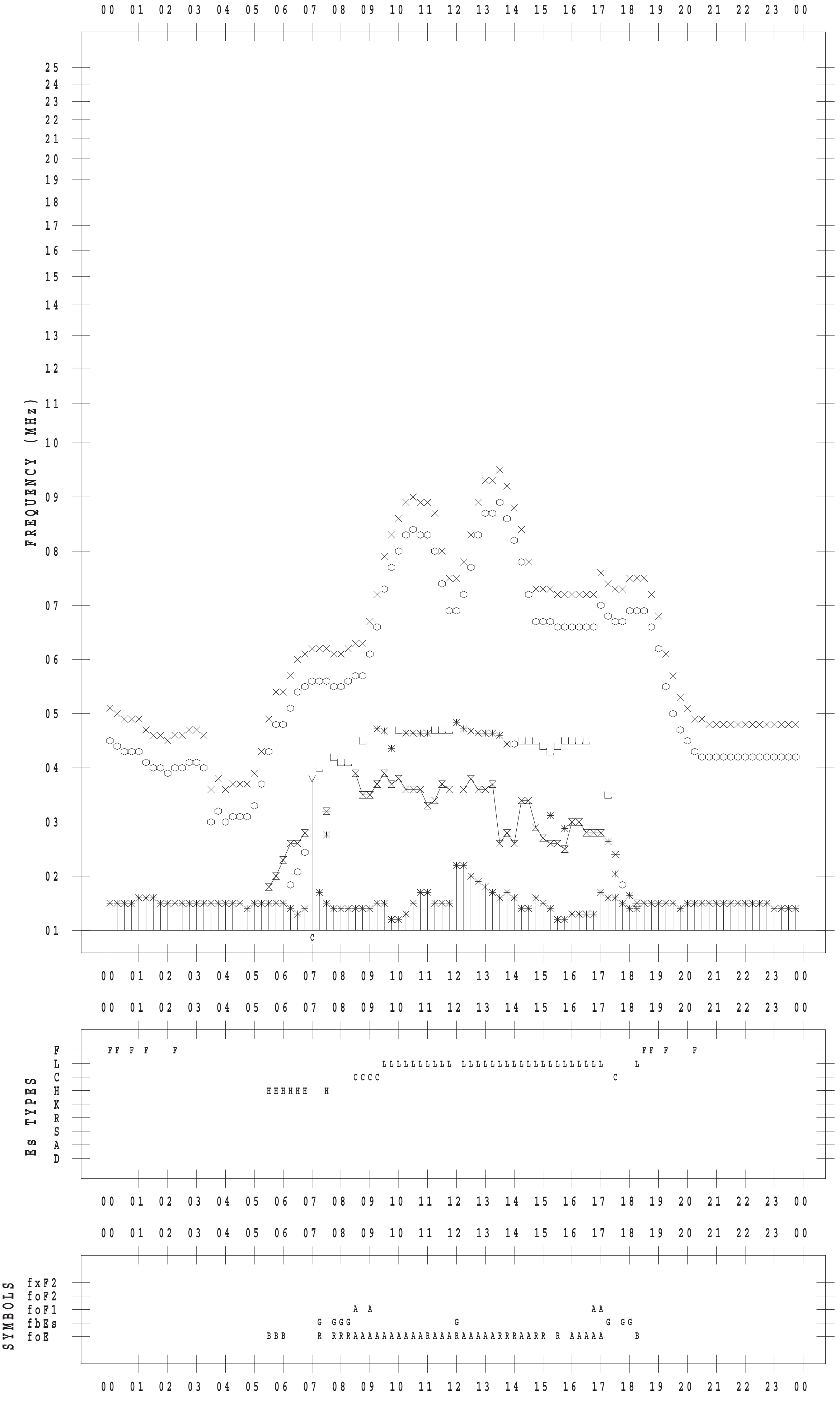
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2017/ 4/ 2

135 °E MEAN TIME



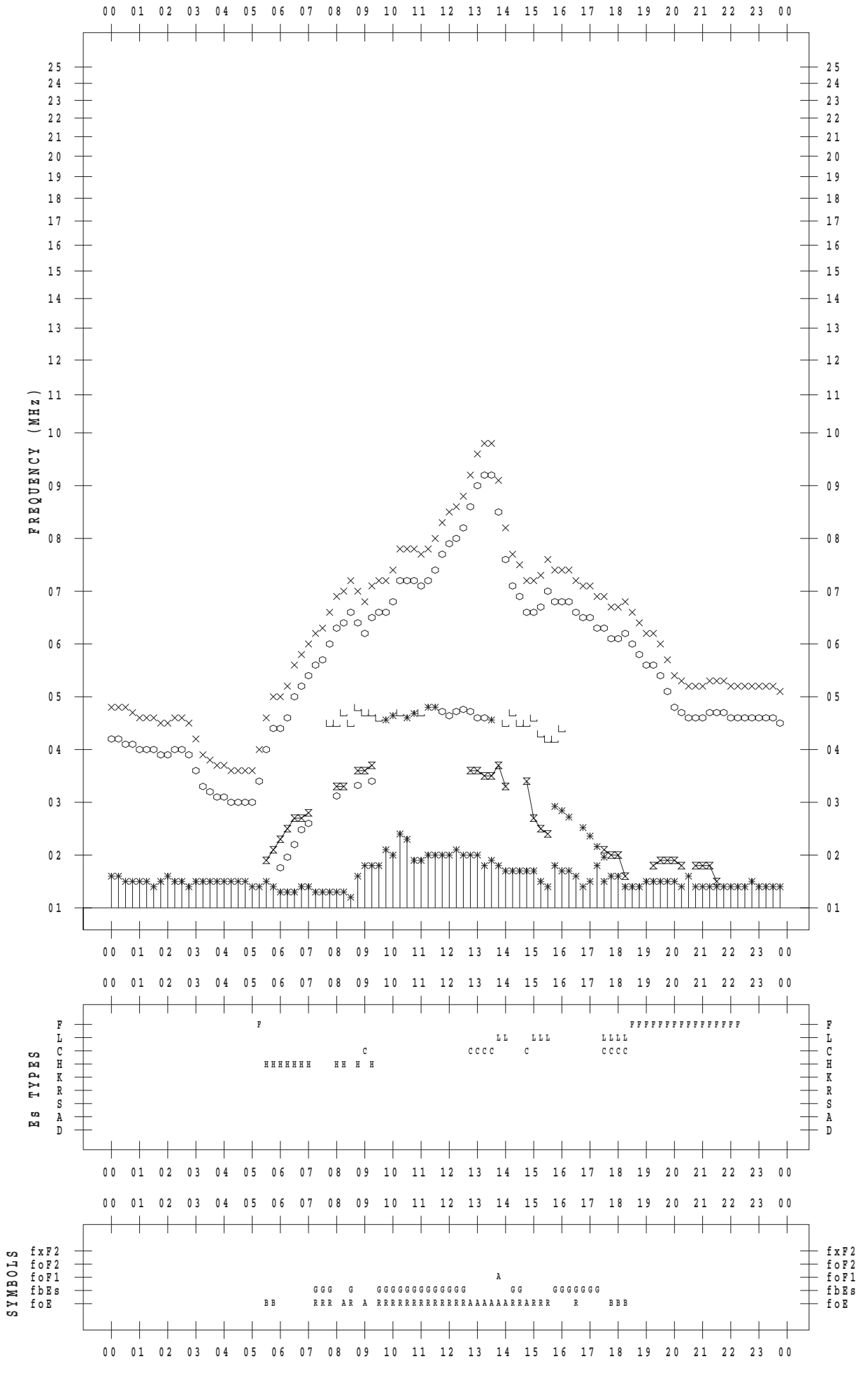
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2017/ 4/ 3

135 °E MEAN TIME



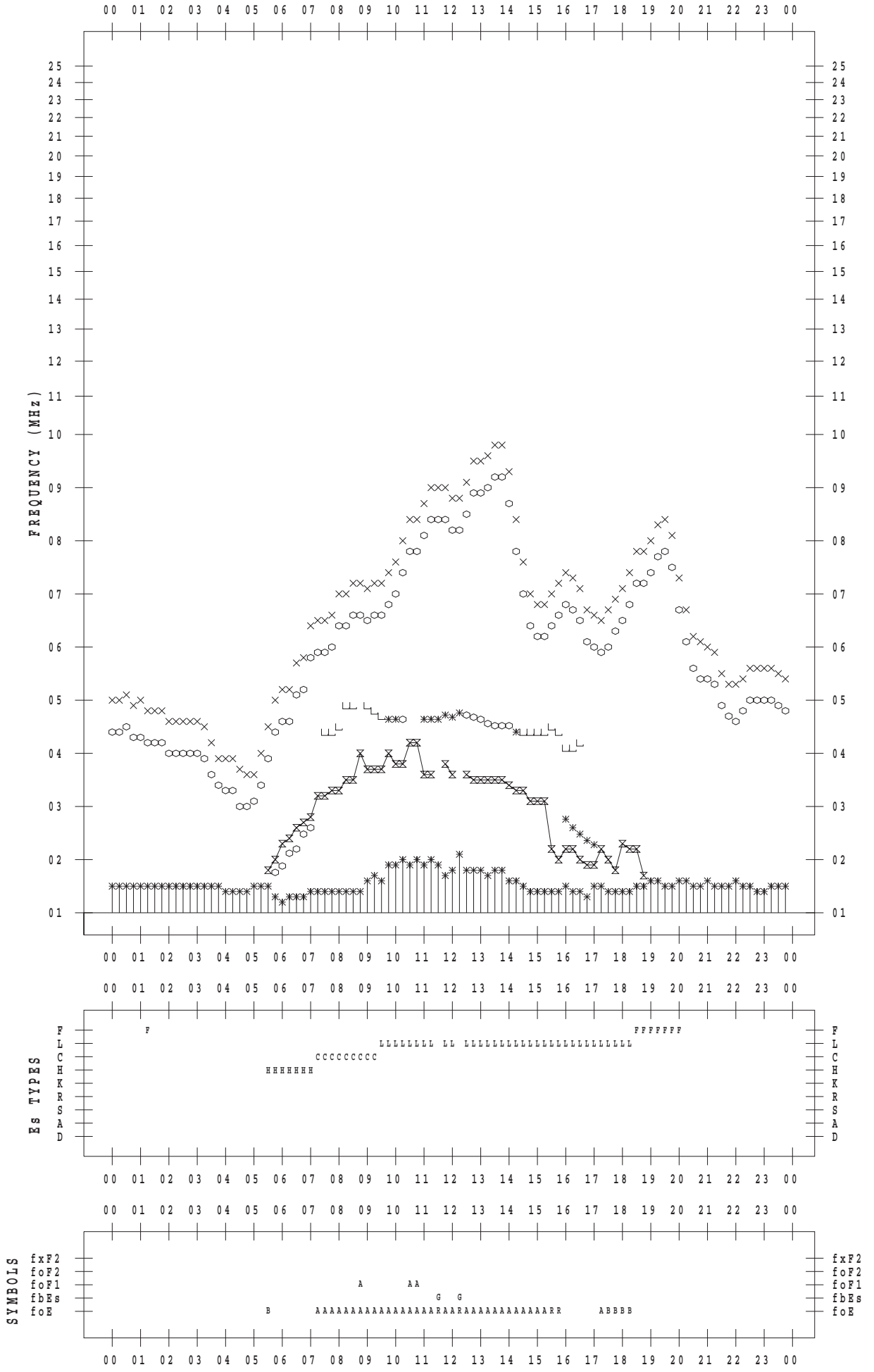
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2017/ 4/ 4

135 °E MEAN TIME



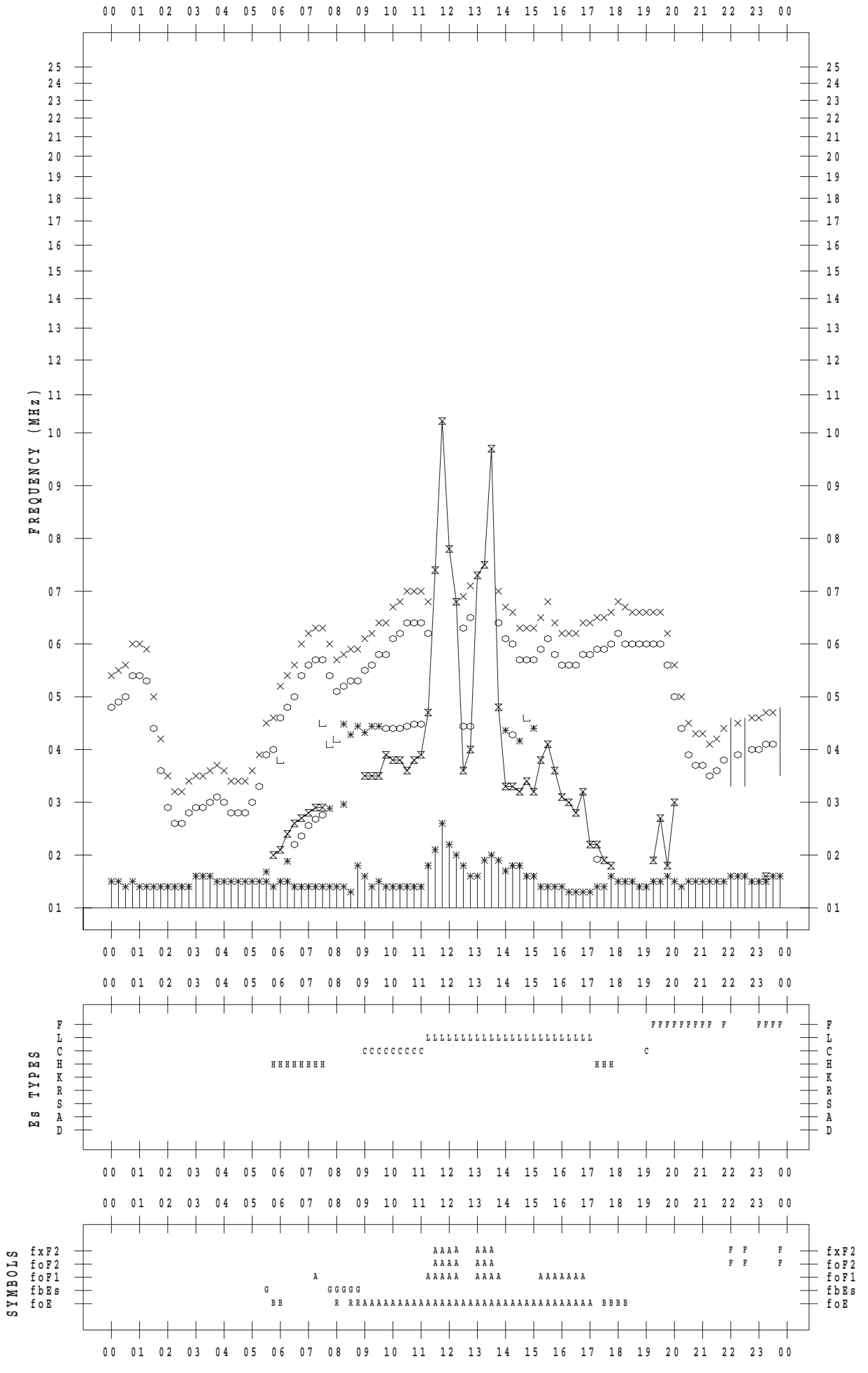
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2017/ 4/ 5

135 °E MEAN TIME



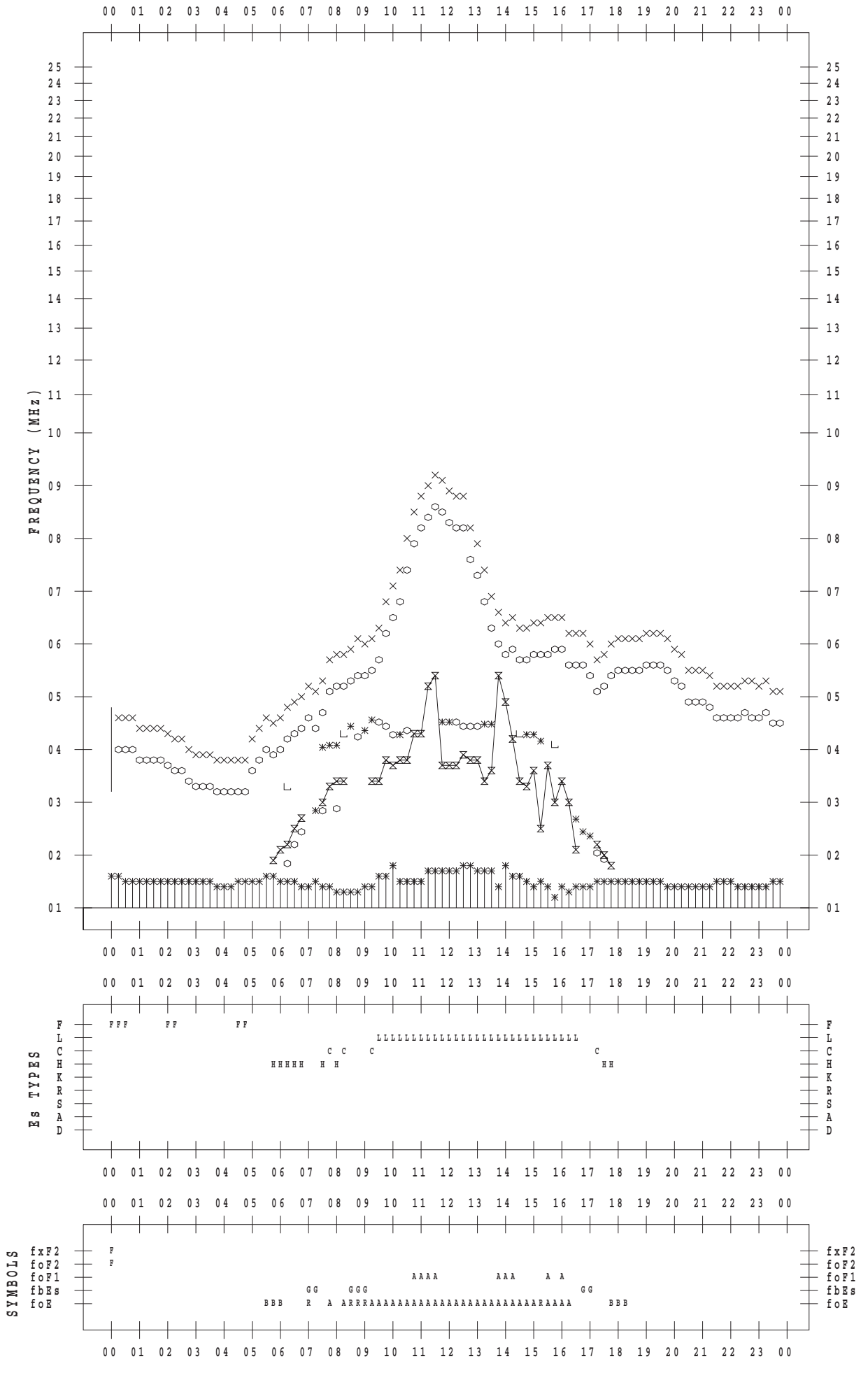
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2017/ 4/ 6

135 °E MEAN TIME



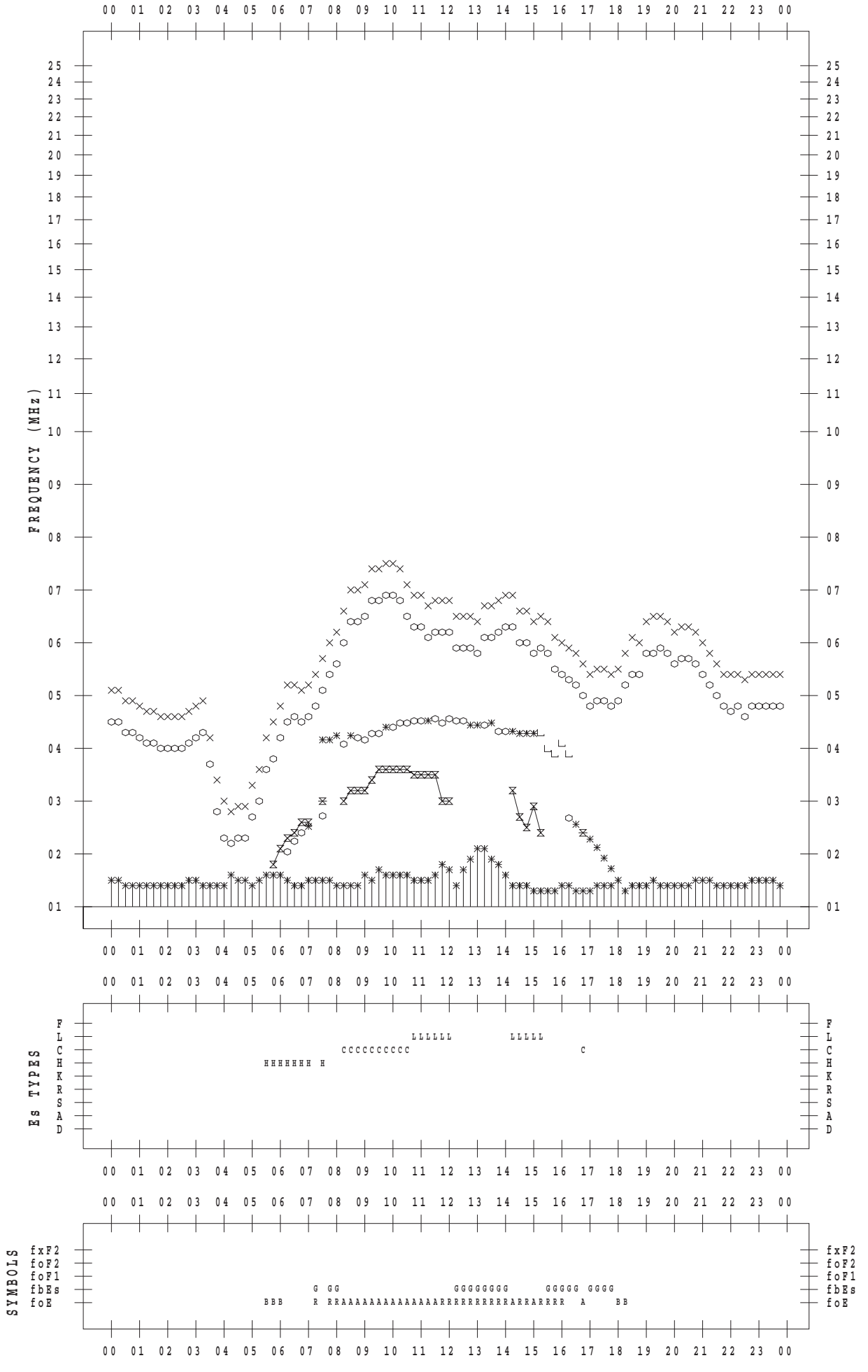
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2017/ 4/ 7

135 °E MEAN TIME



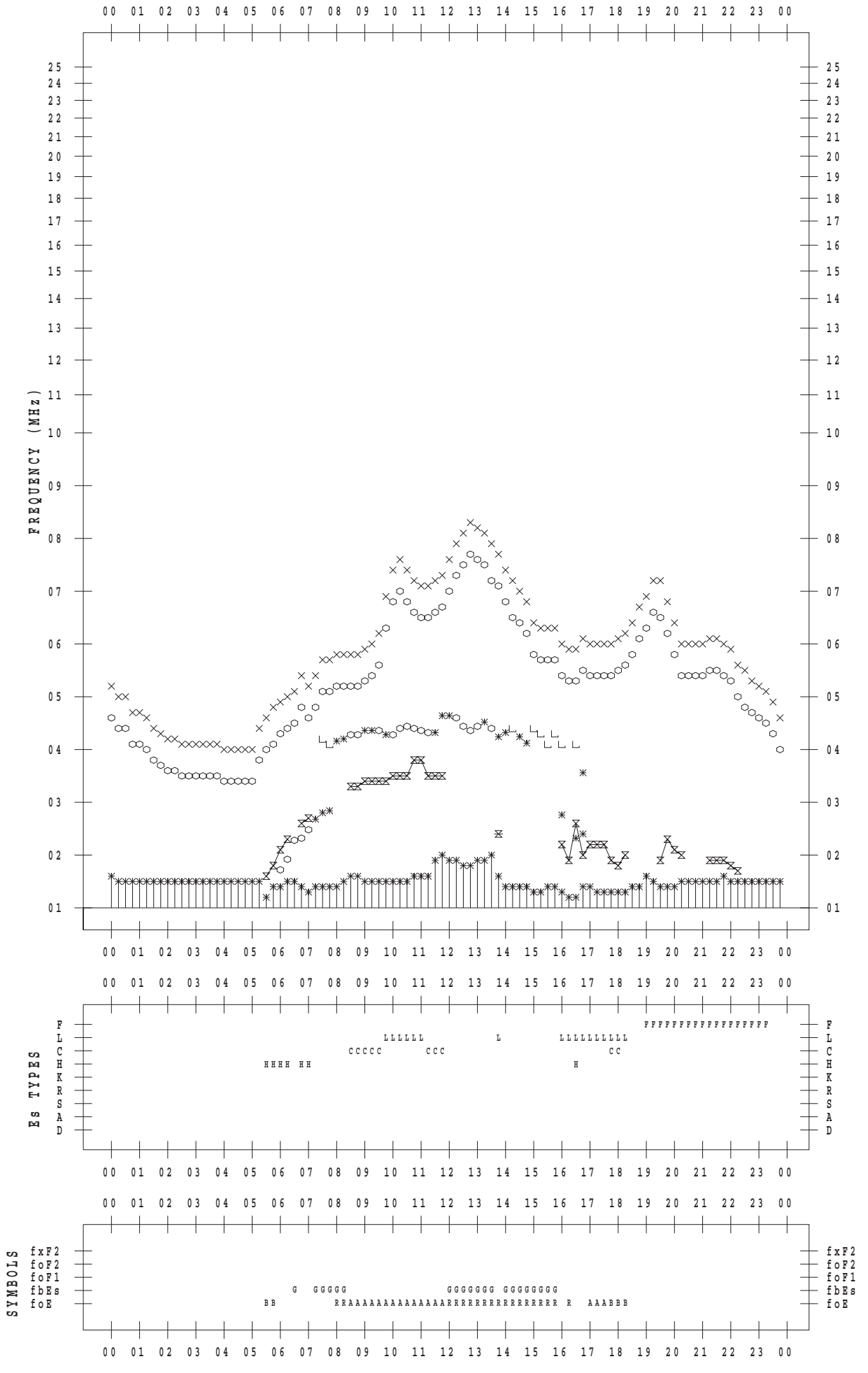
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2017/ 4/ 8

135 °E MEAN TIME



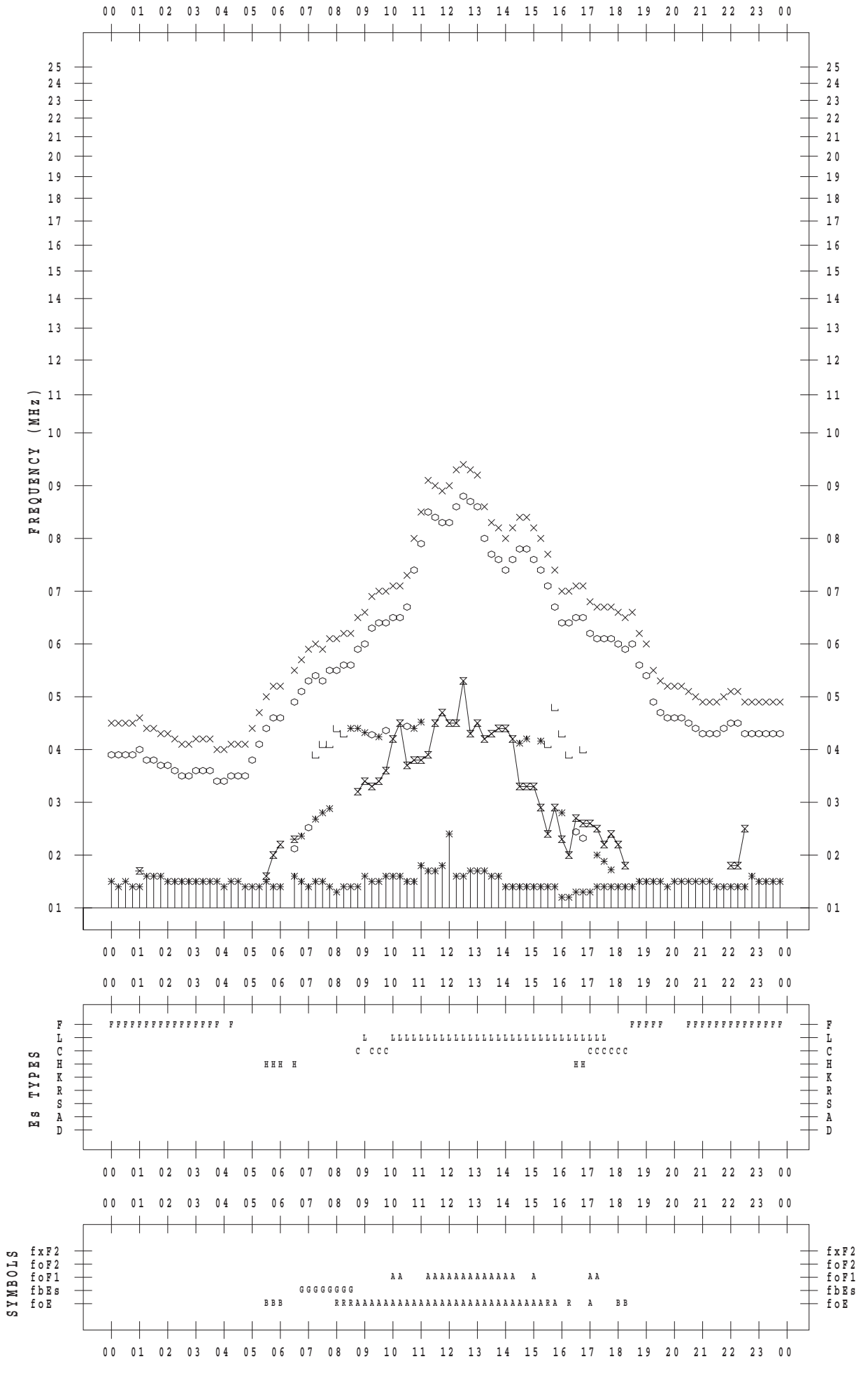
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2017/ 4/ 9

135 °E MEAN TIME



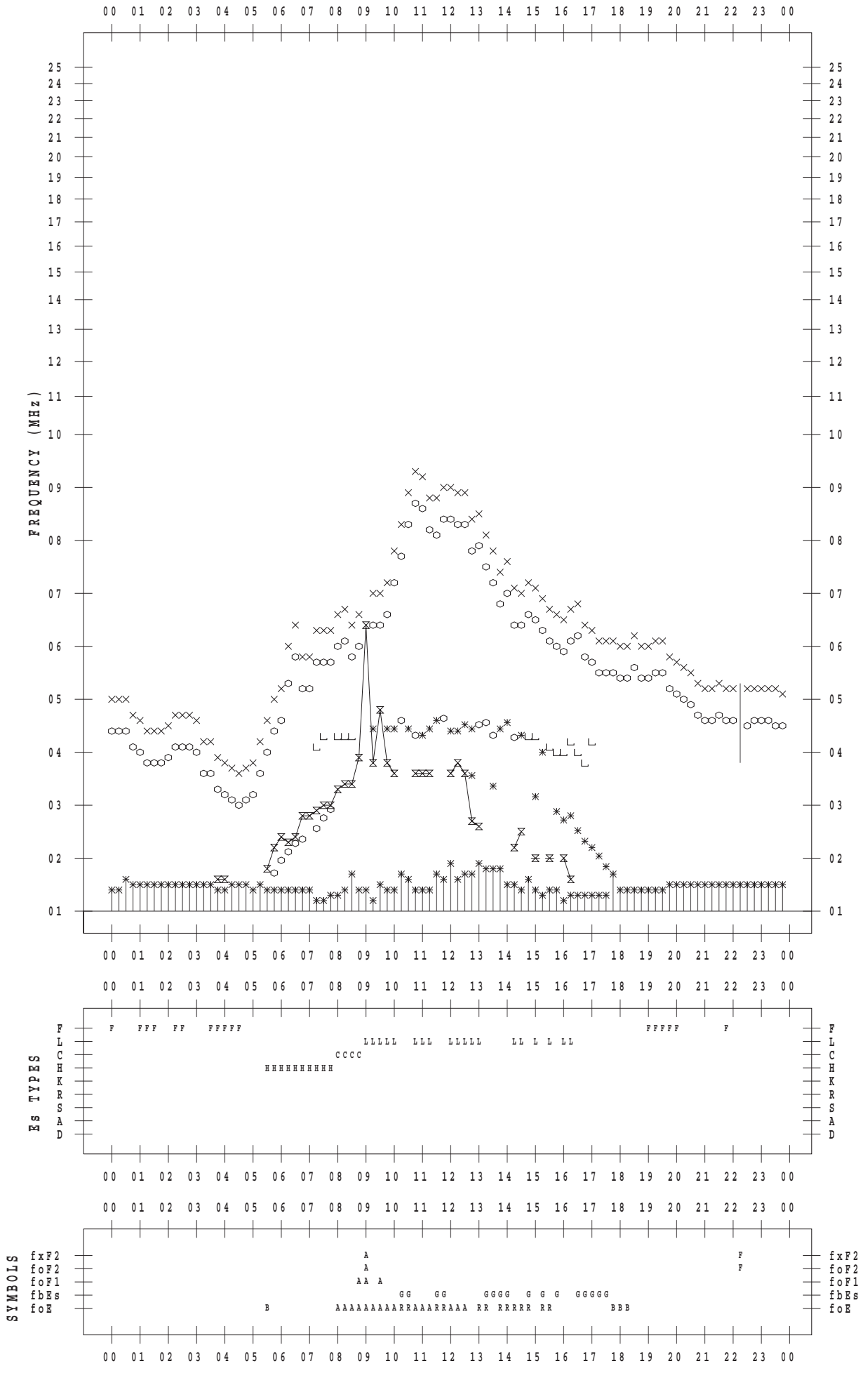
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2017/ 4/10

135 °E MEAN TIME



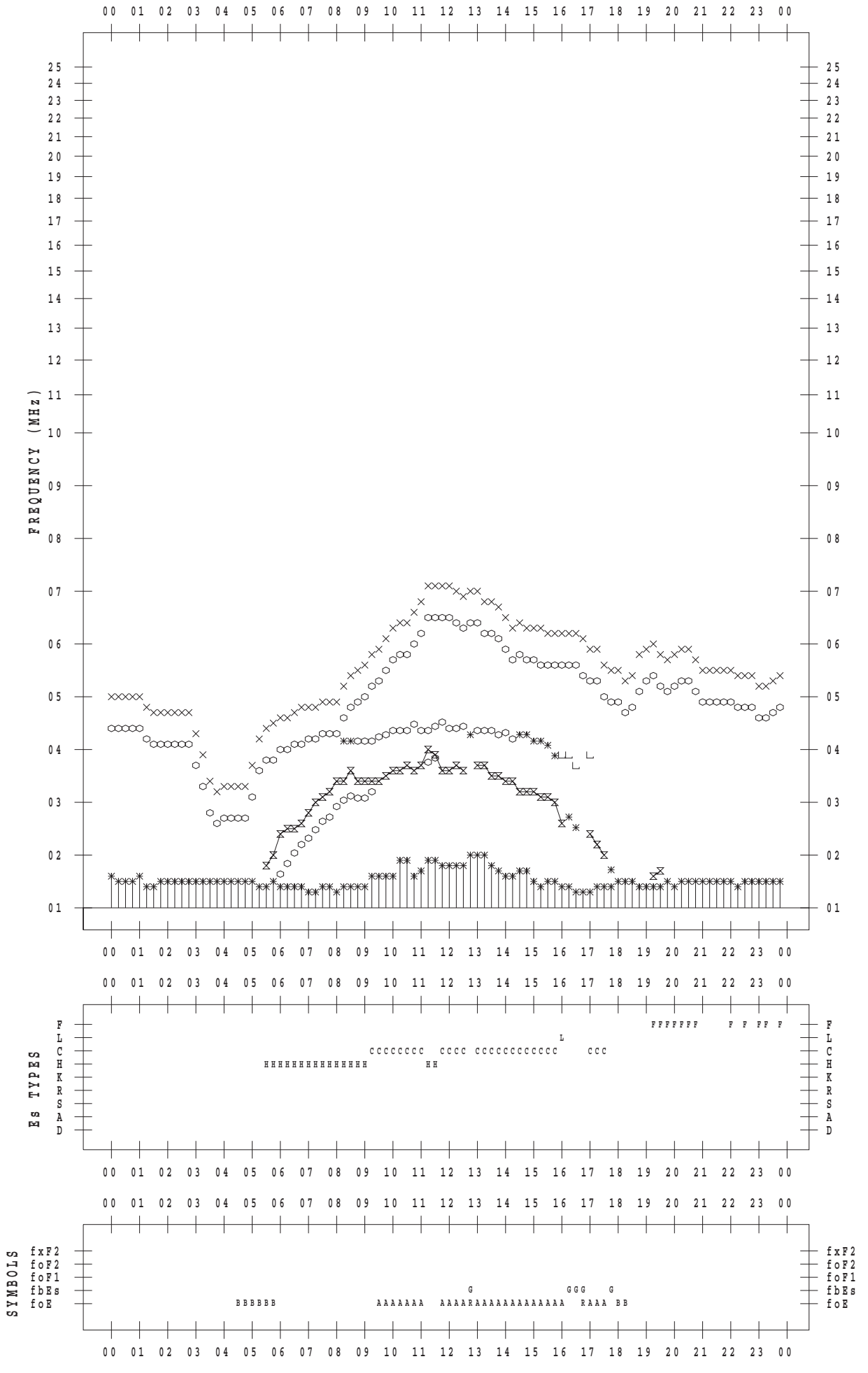
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2017/ 4/11

135 °E MEAN TIME



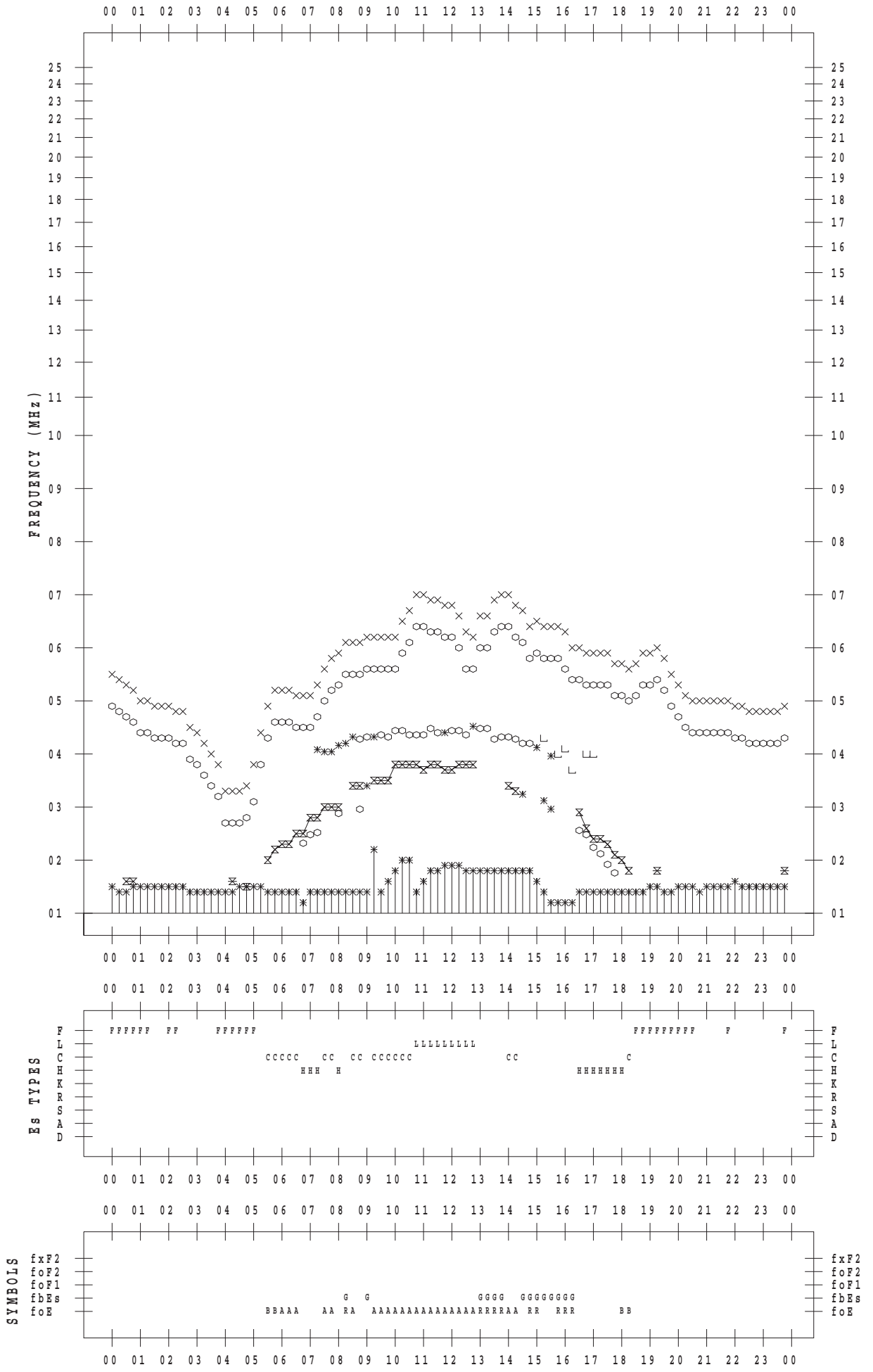
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2017/ 4/12

135 °E MEAN TIME



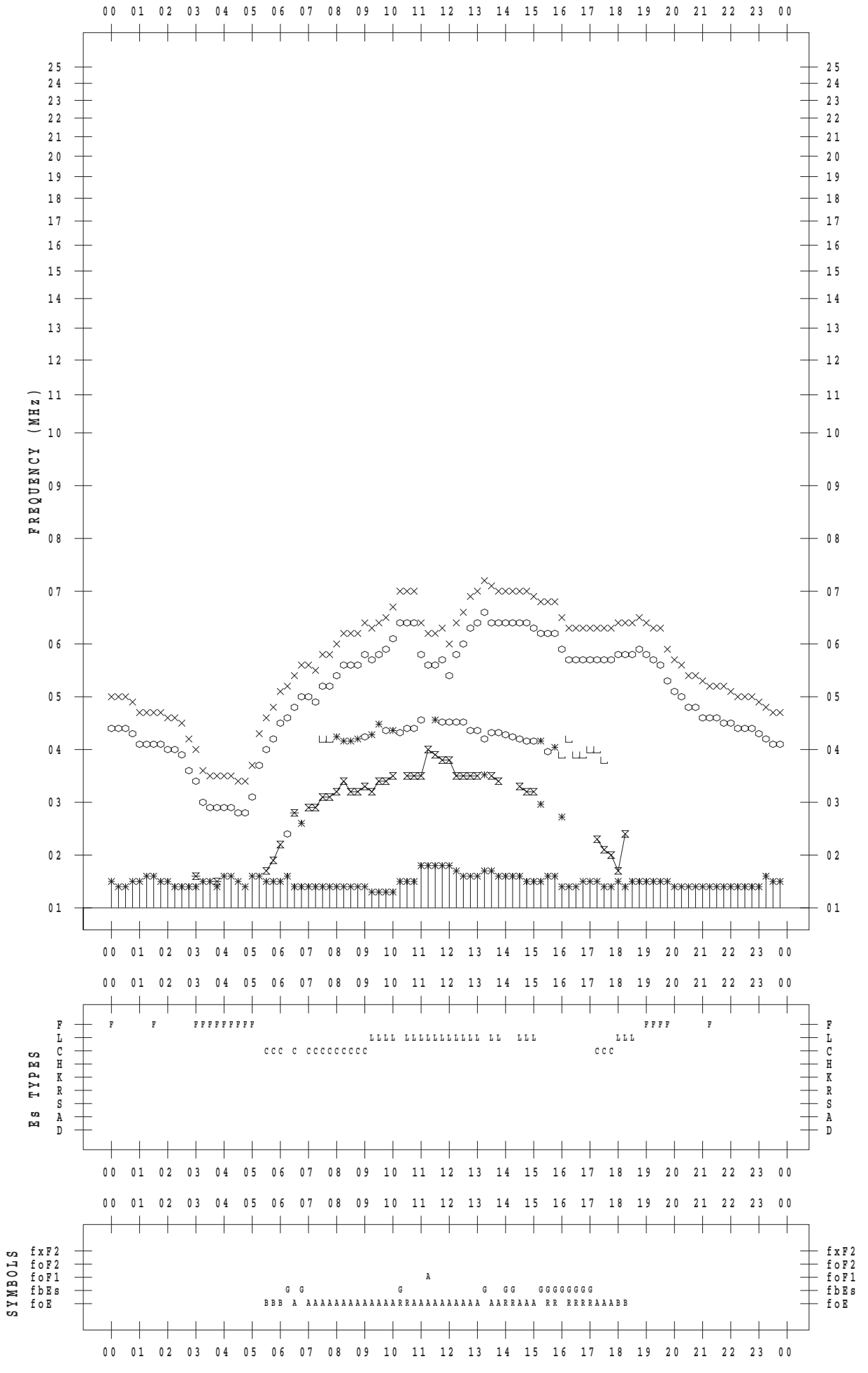
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2017/ 4/13

135 °E MEAN TIME



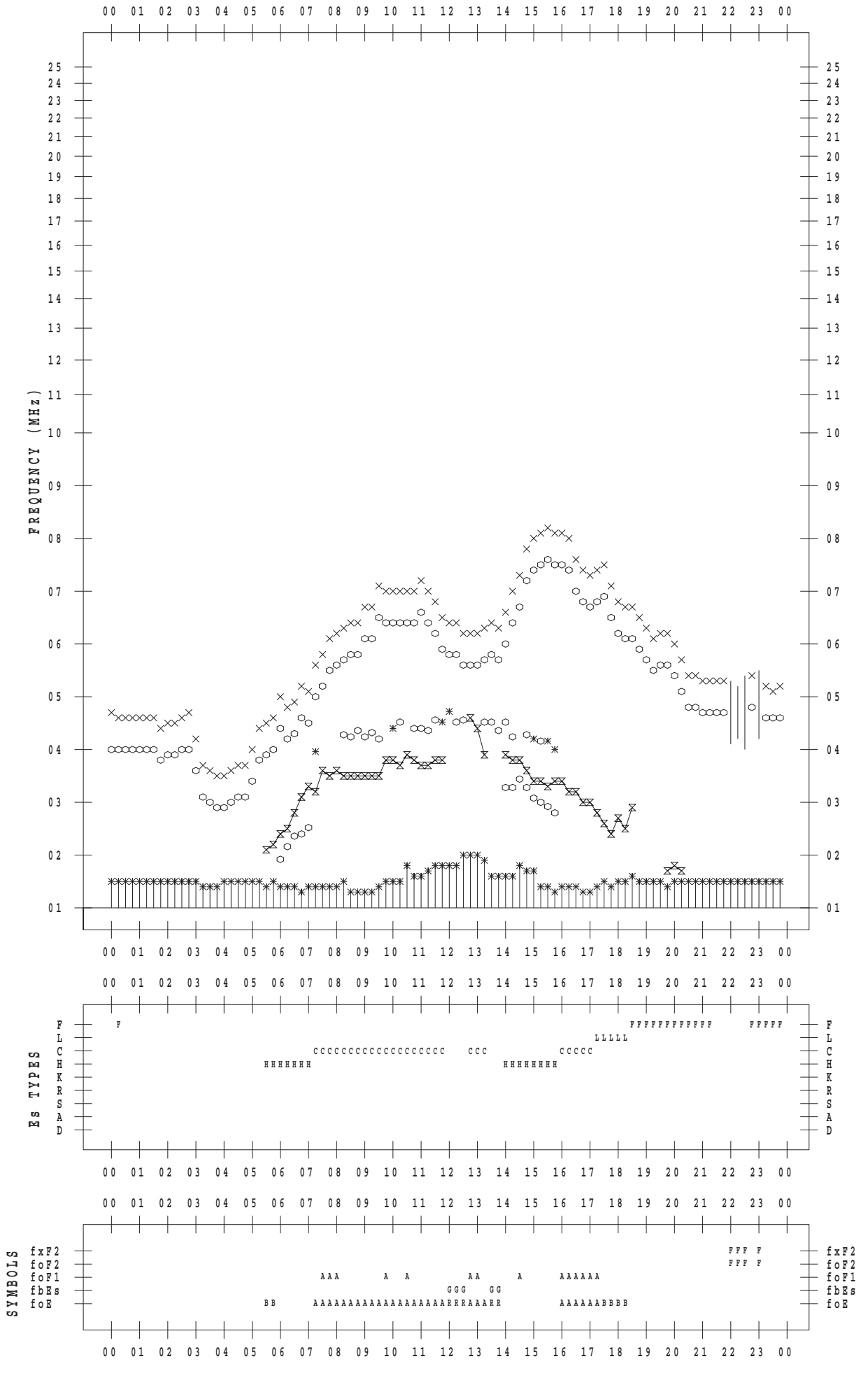
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2017/ 4/14

135 °E MEAN TIME



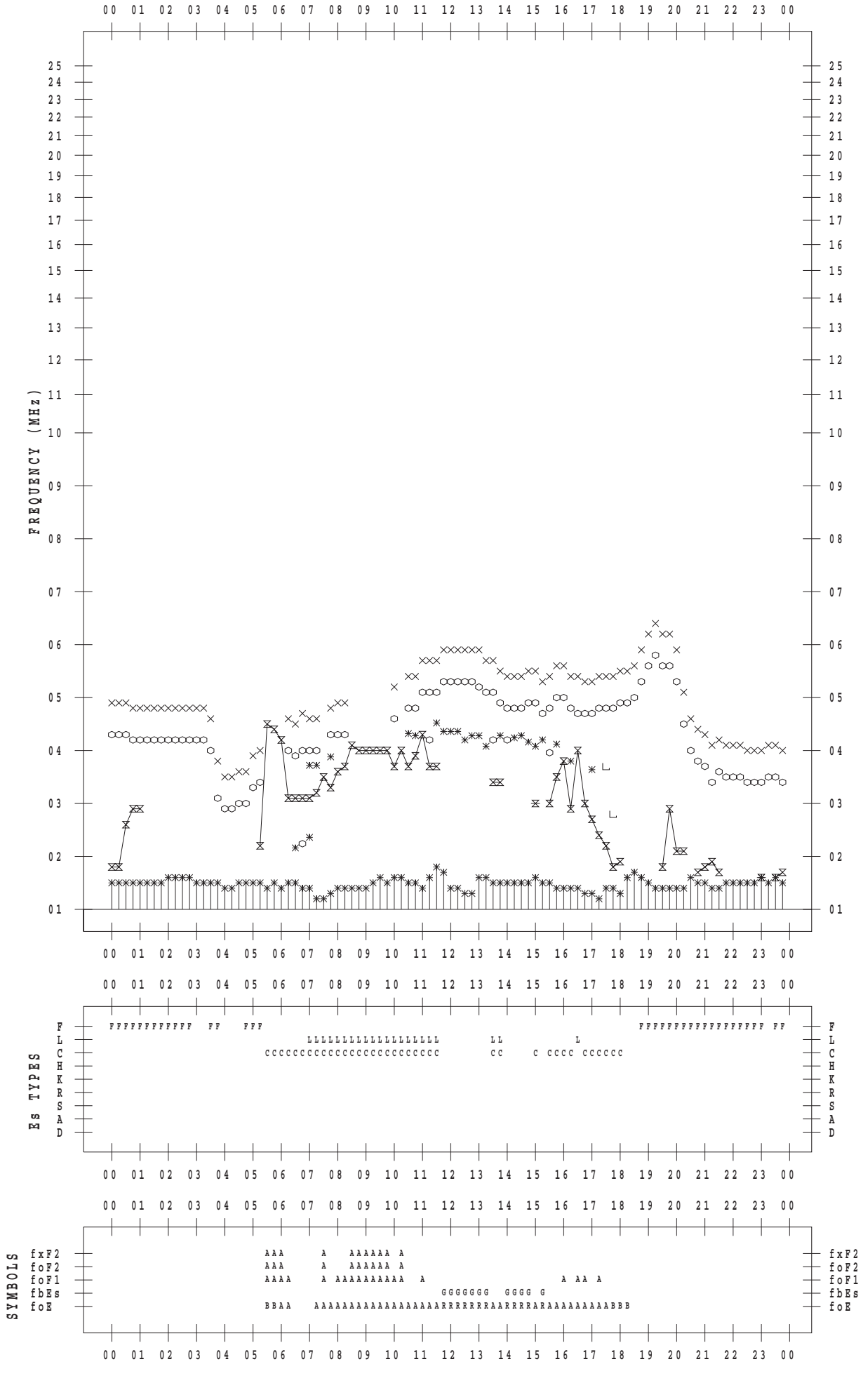
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2017/ 4/15

135 °E MEAN TIME



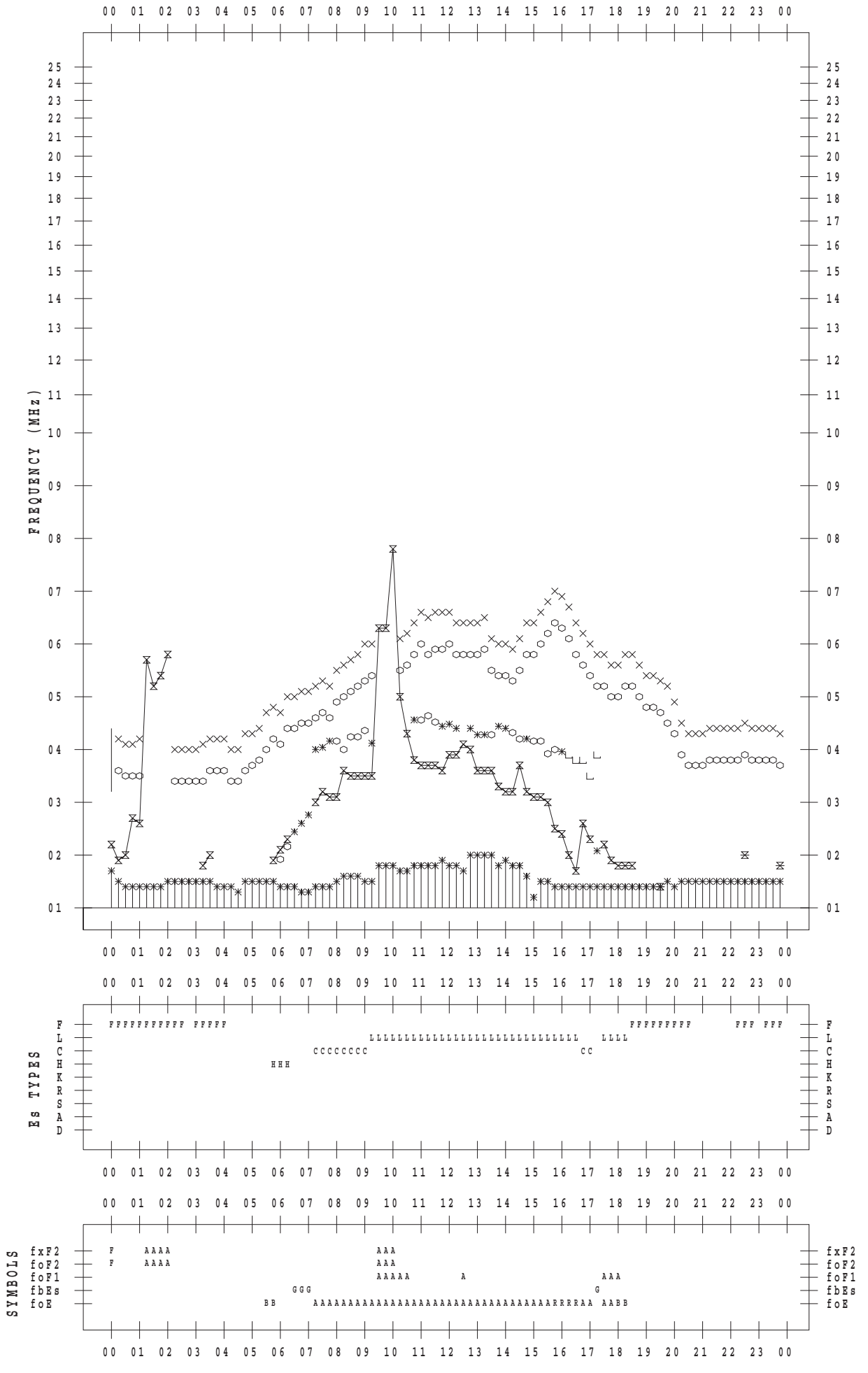
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2017/ 4/16

135 °E MEAN TIME



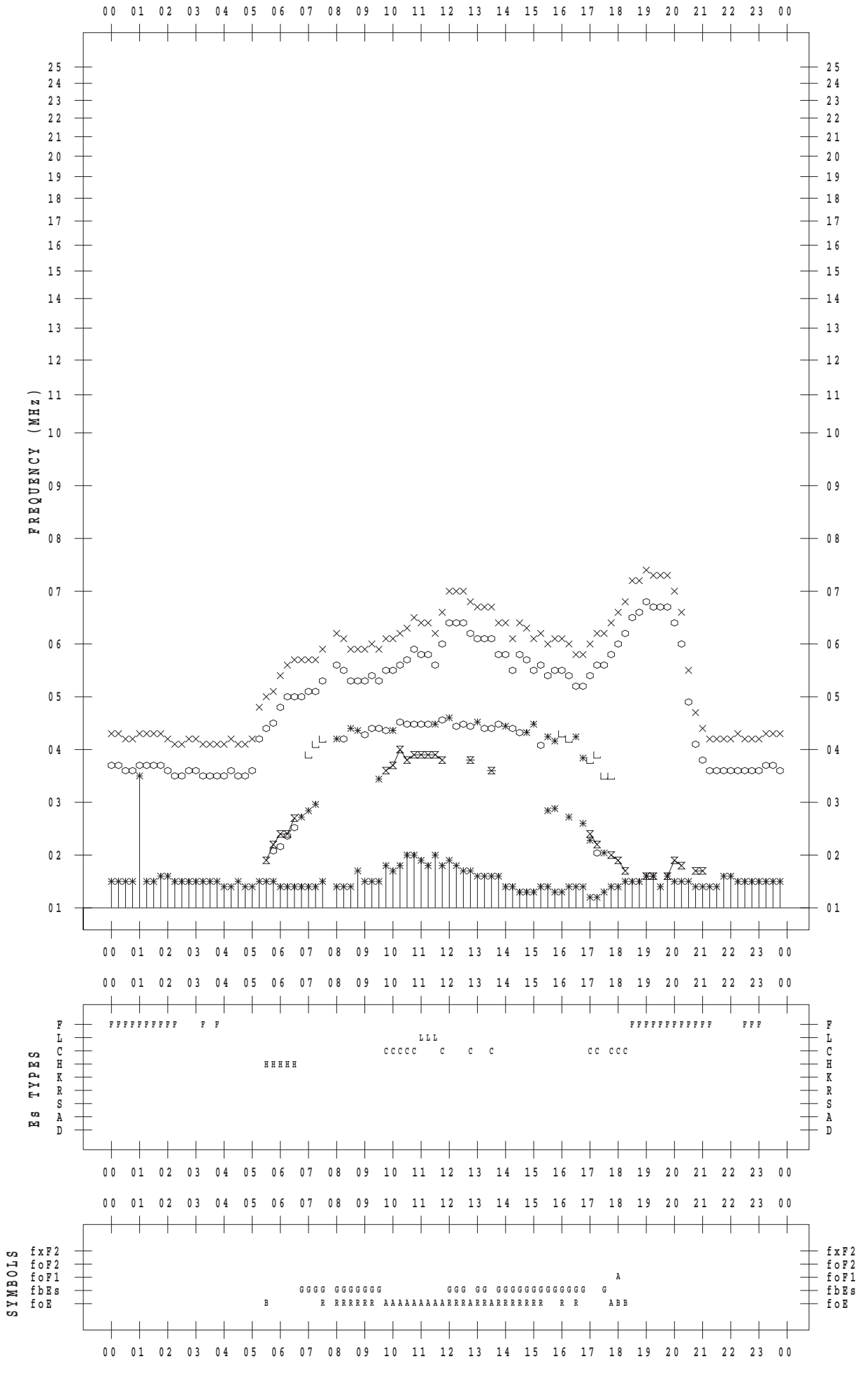
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2017/ 4/17

135 °E MEAN TIME



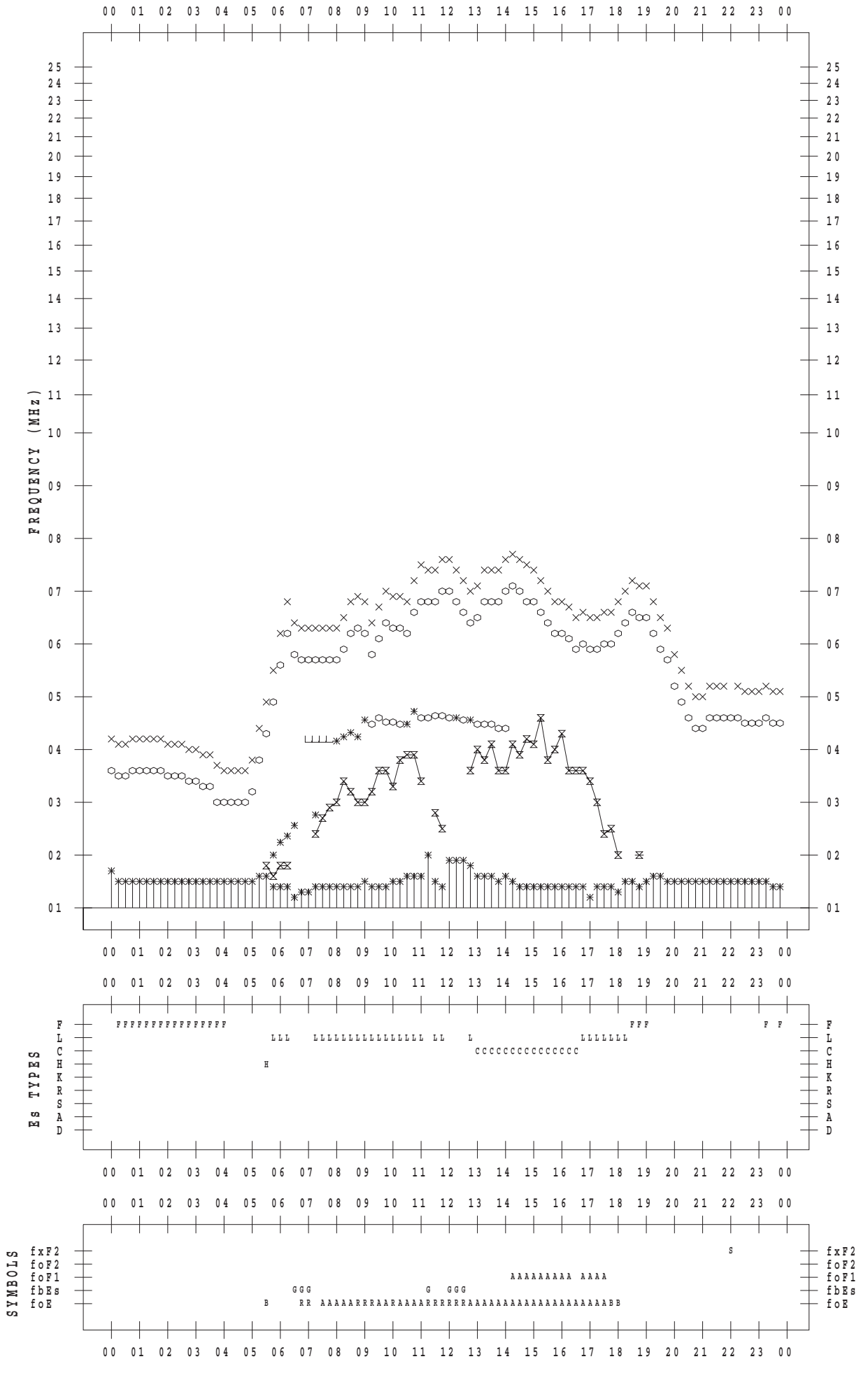
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2017/ 4/18

135 °E MEAN TIME



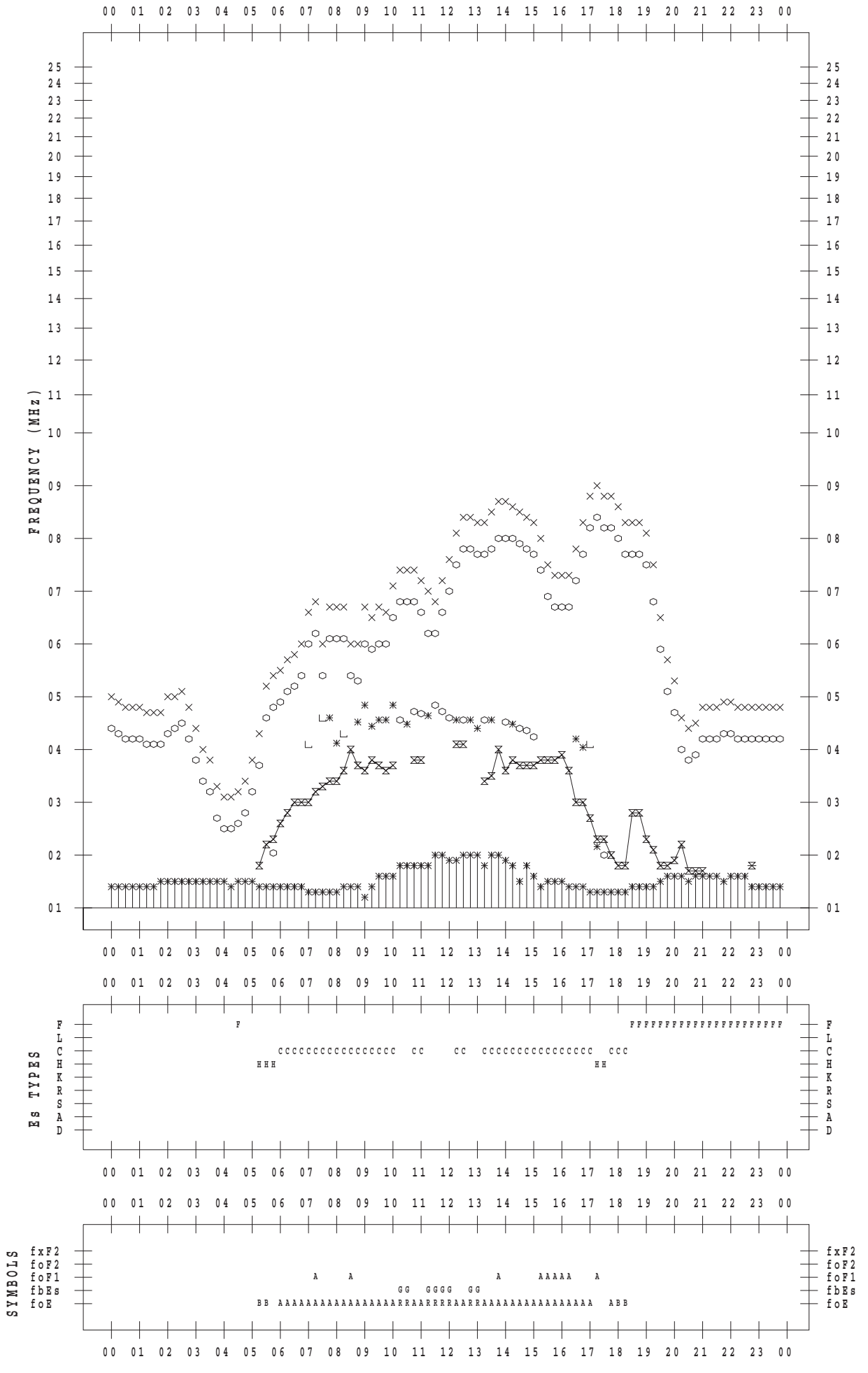
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2017/ 4/19

135 °E MEAN TIME



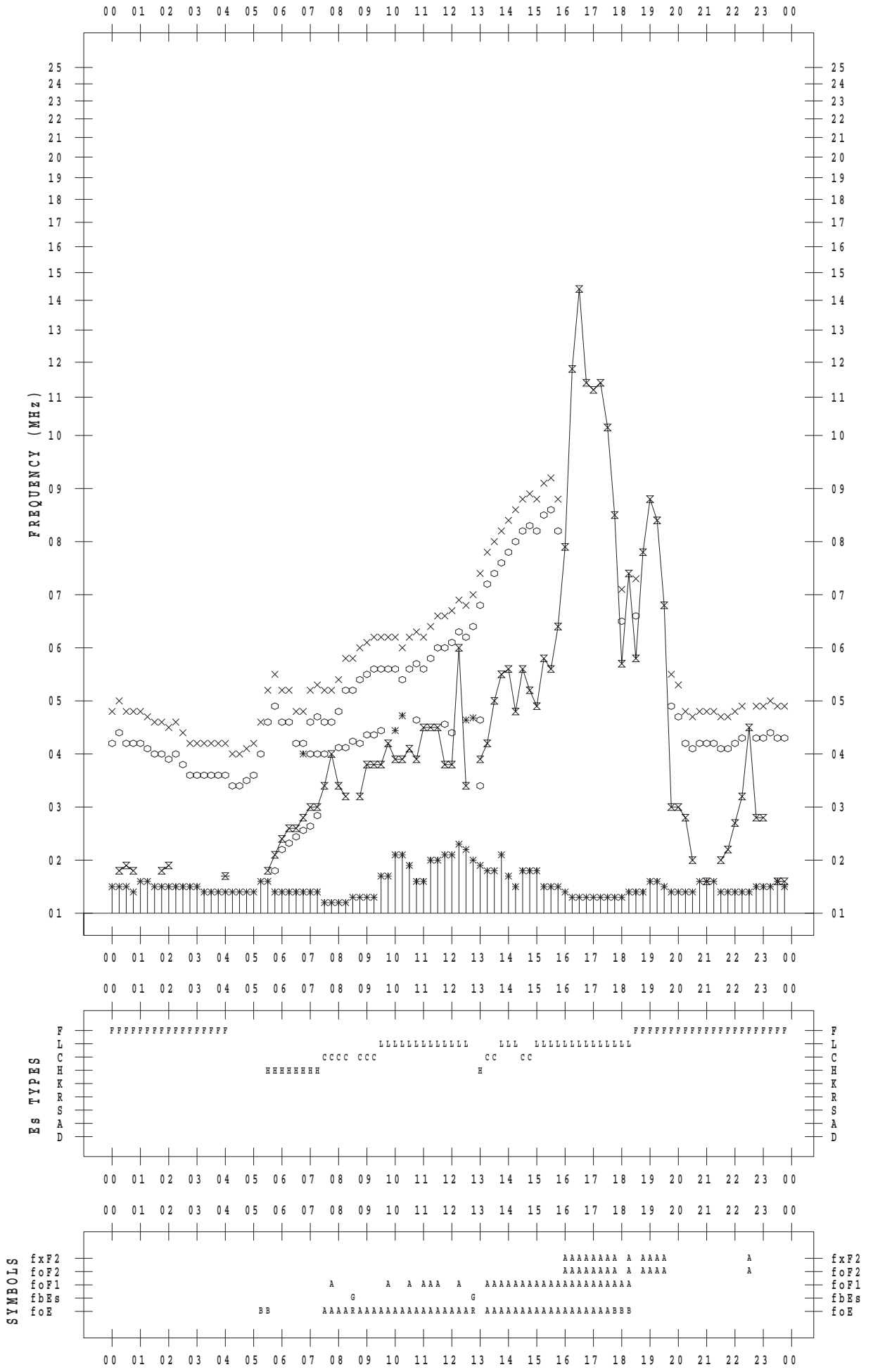
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2017/ 4/20

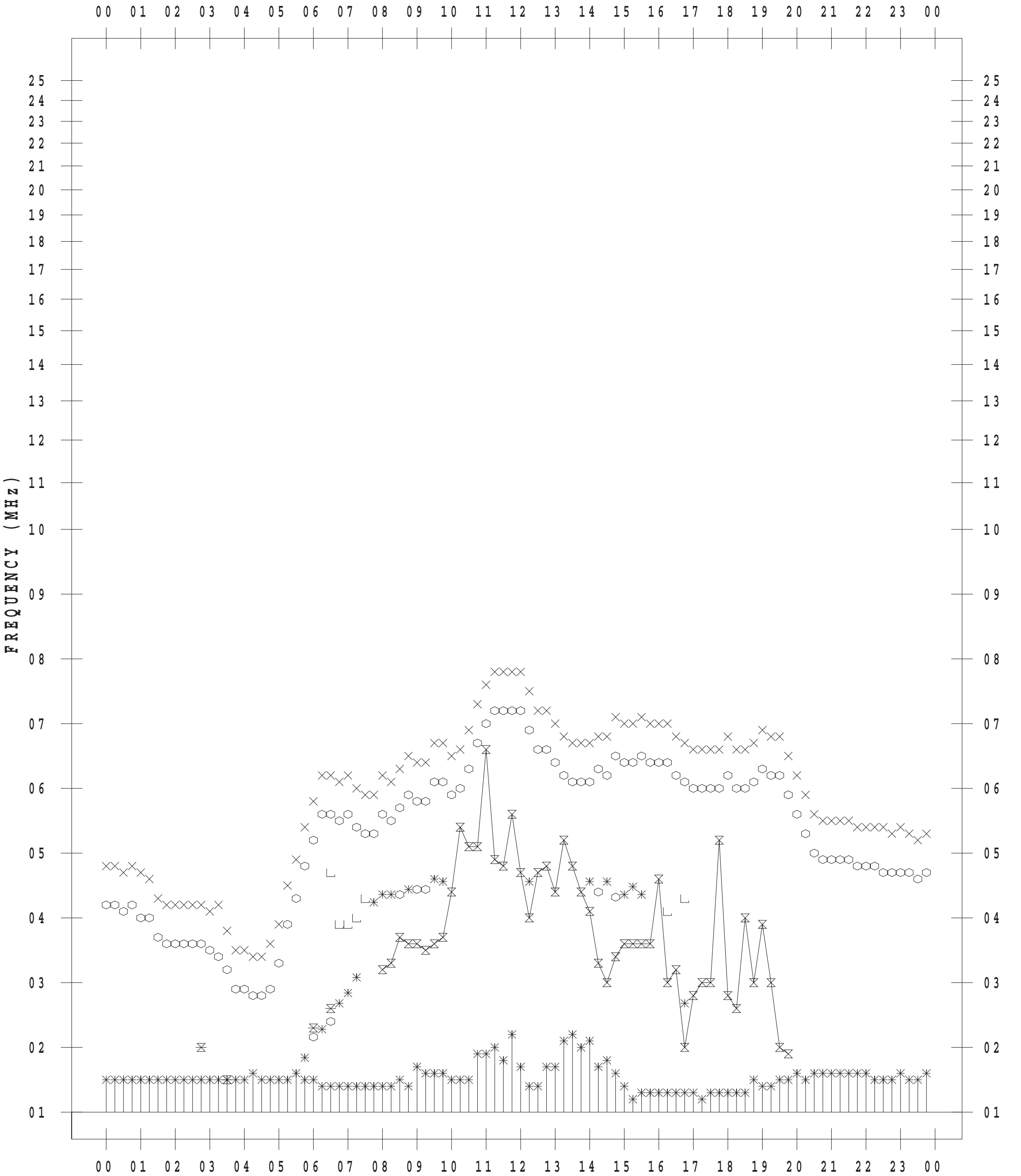
135 °E MEAN TIME

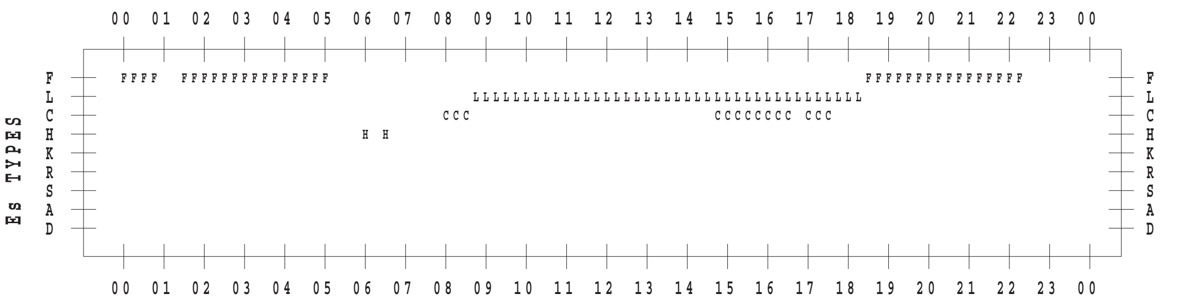


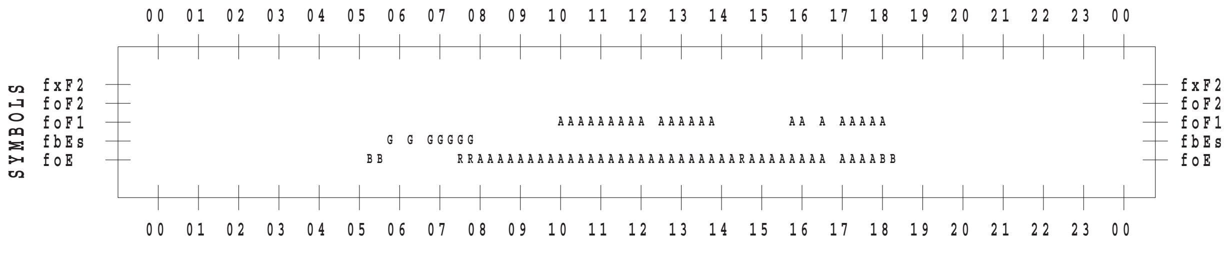
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji DATE : 2017/ 4/21







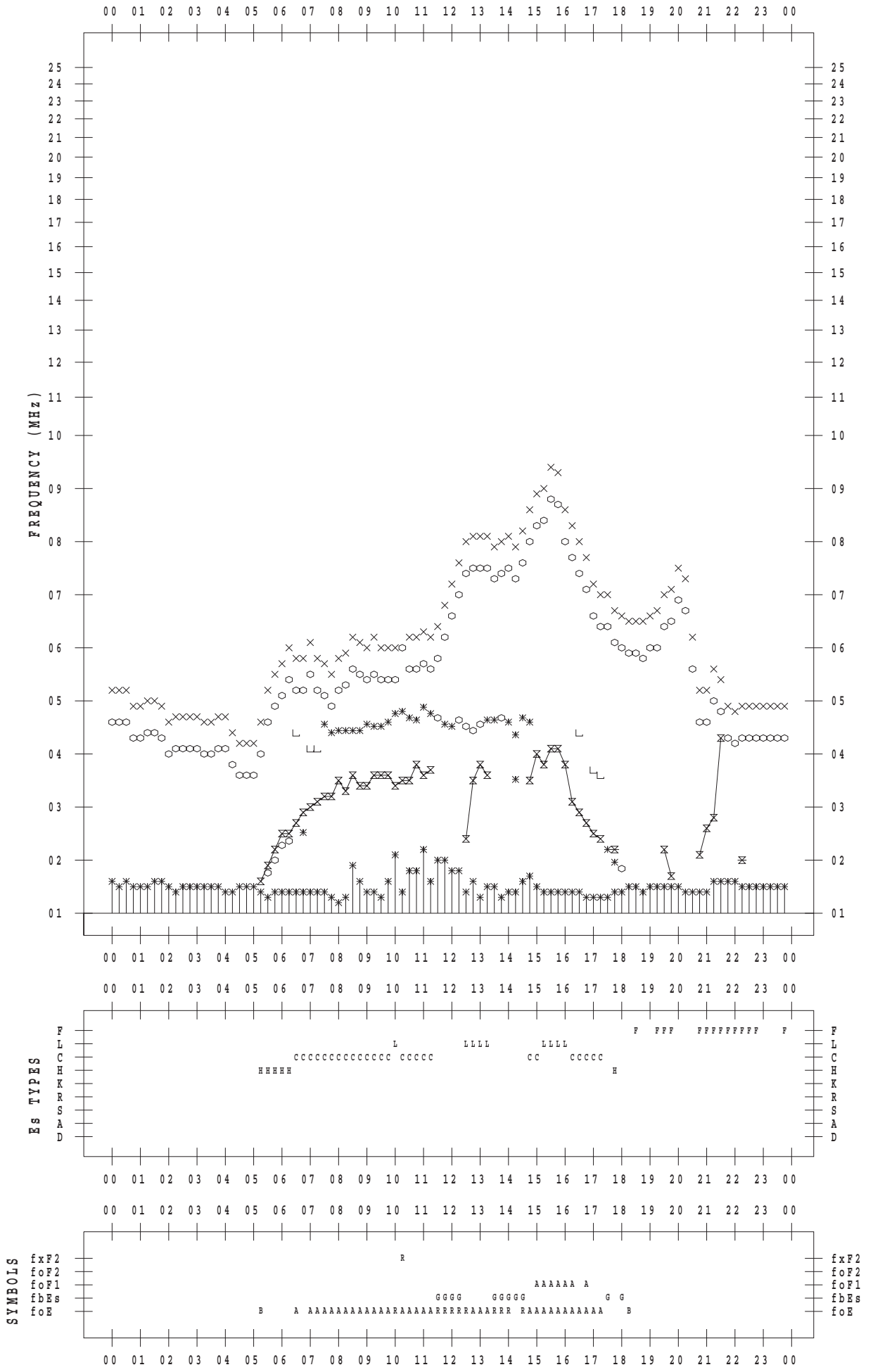
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2017/ 4/22

135 °E MEAN TIME



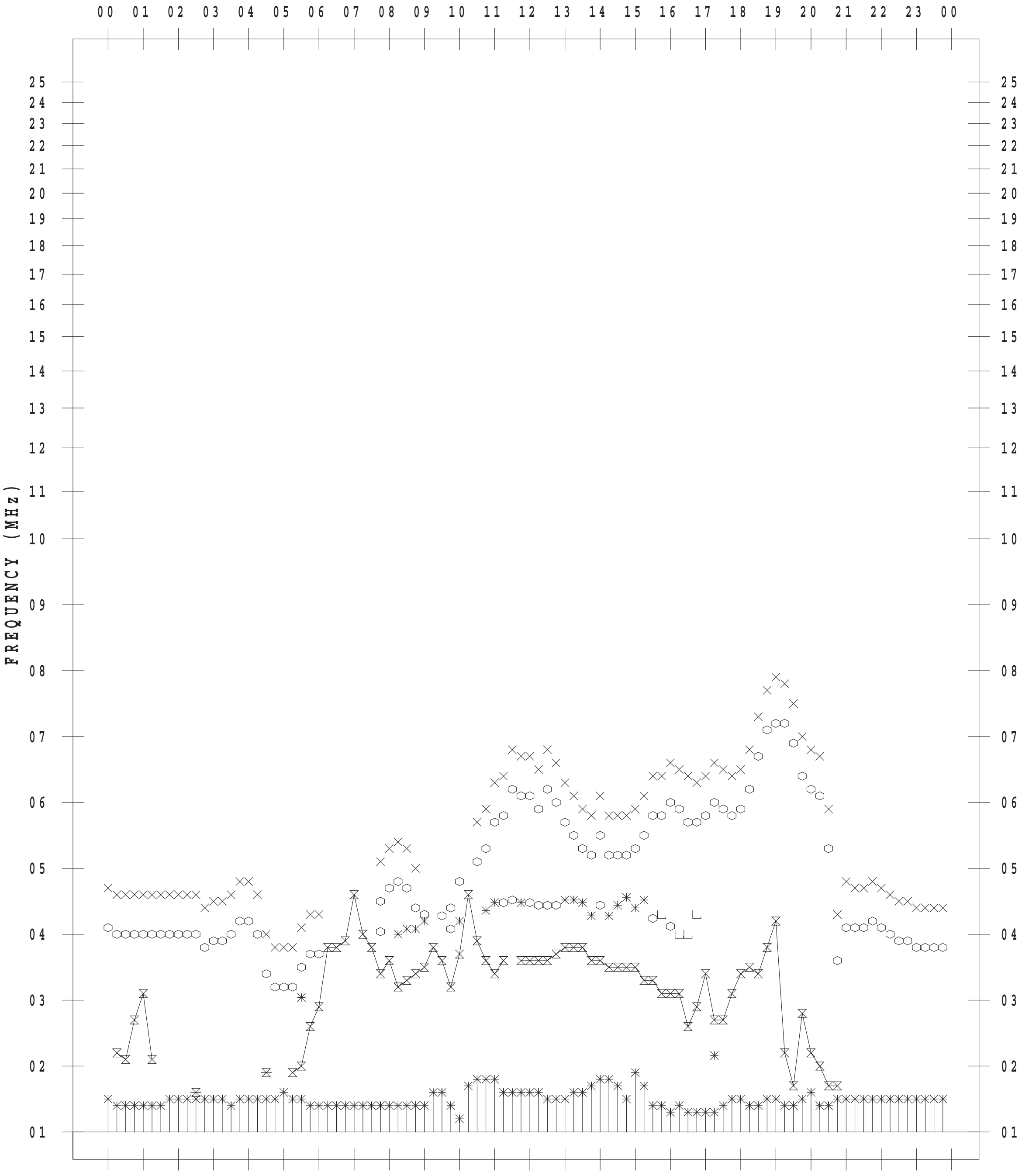
f-PLOT DATA

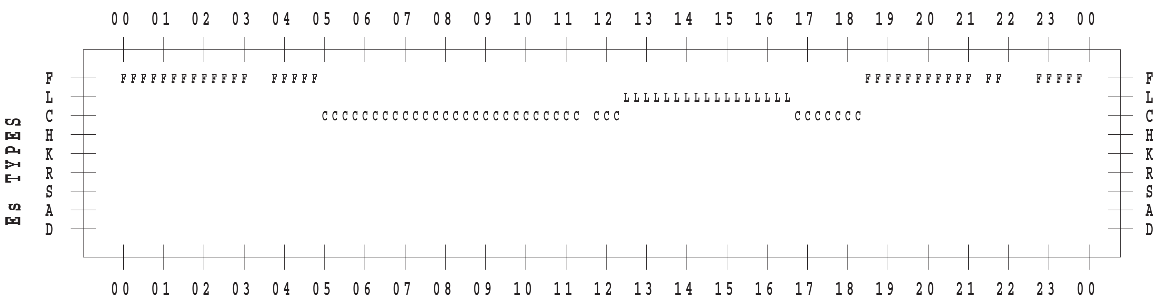
SCALER : I.NISHIMUTA

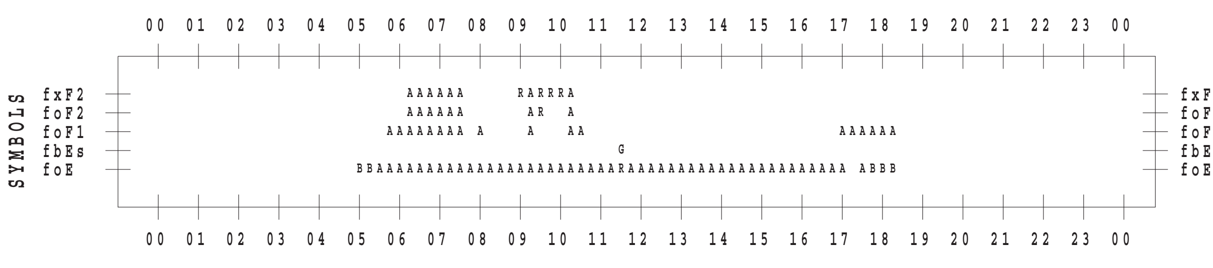
STATION : Kokubunji

DATE : 2017/ 4/23

135 °E MEAN TIME







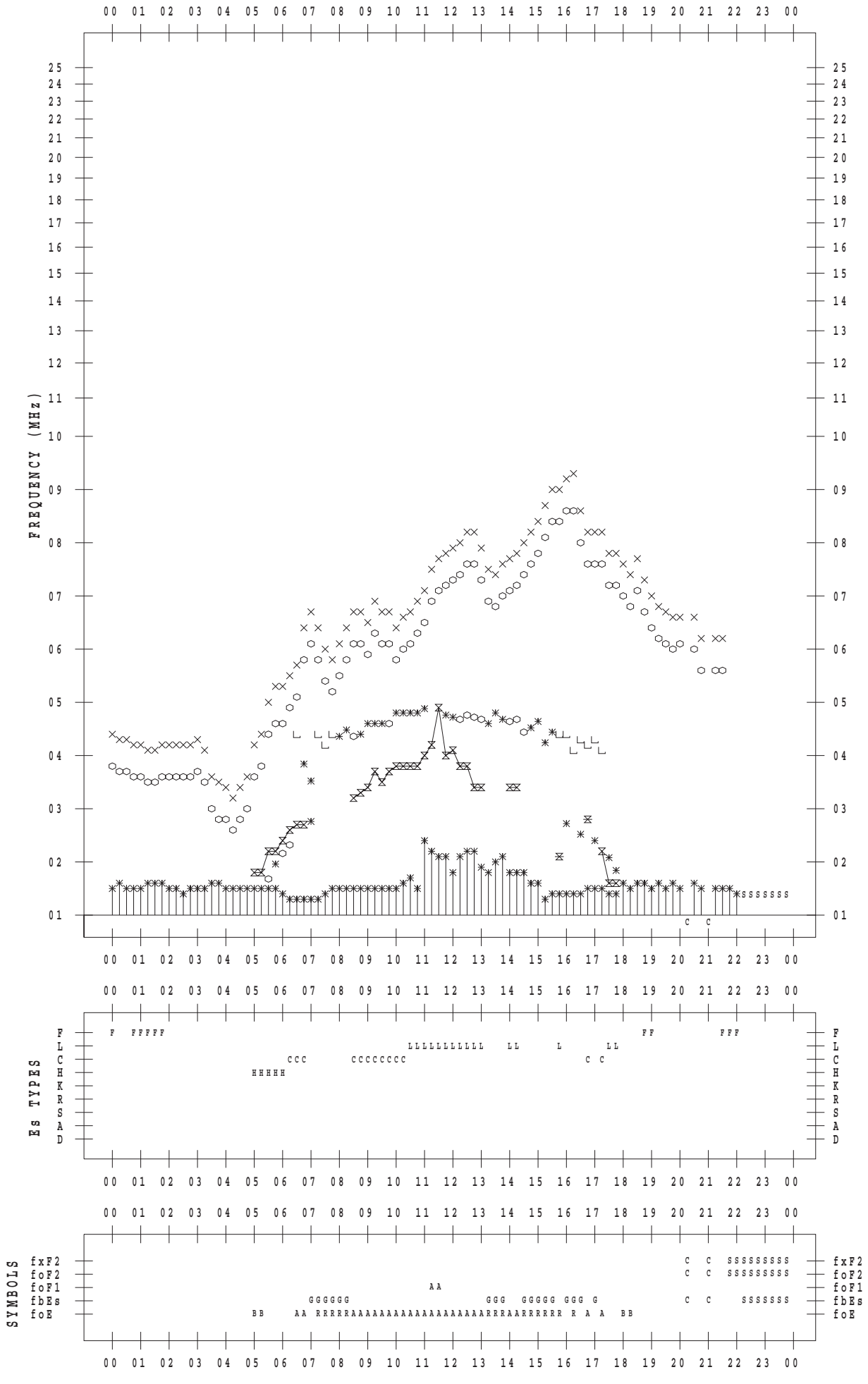
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2017/ 4/24

135 °E MEAN TIME



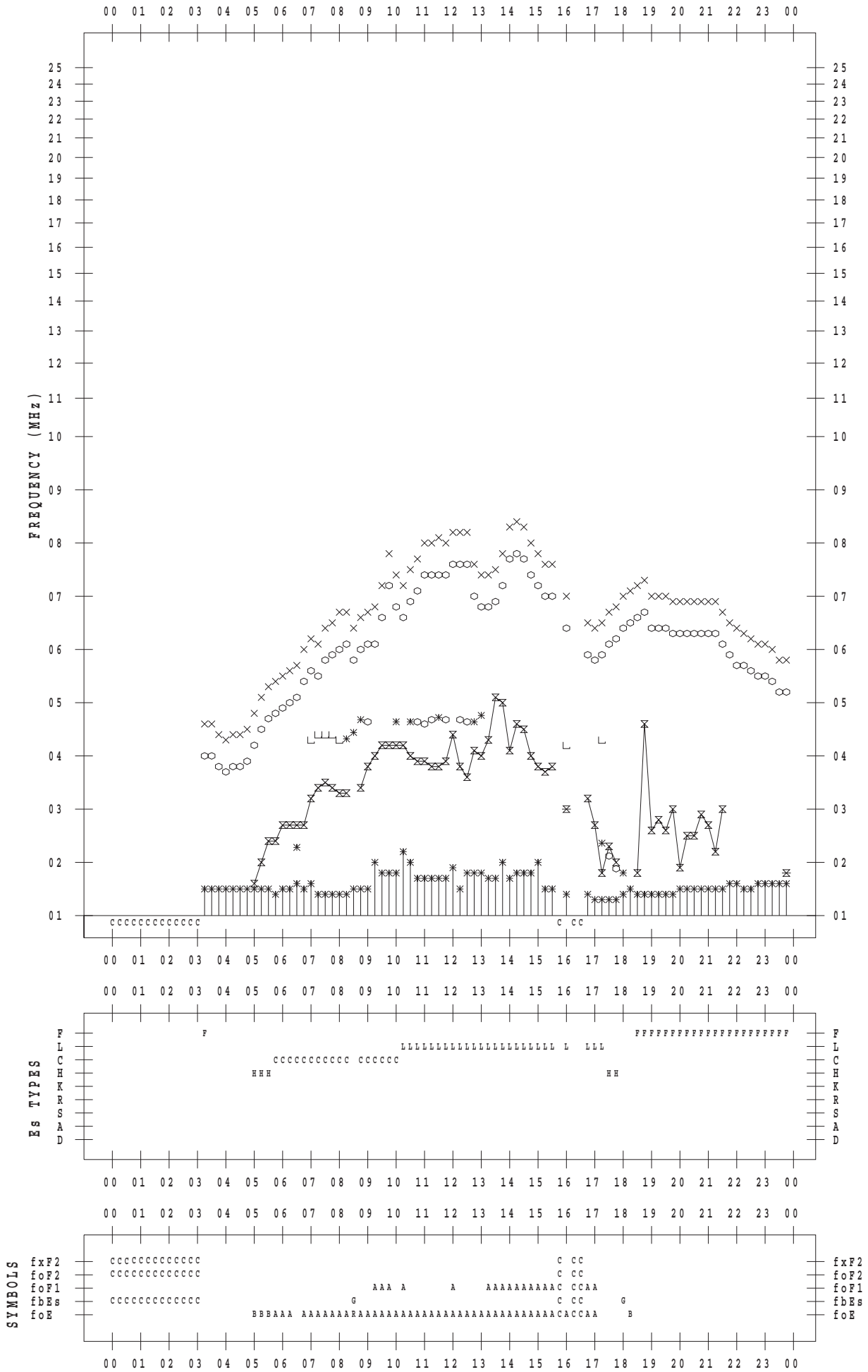
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2017/ 4/25

135 °E MEAN TIME



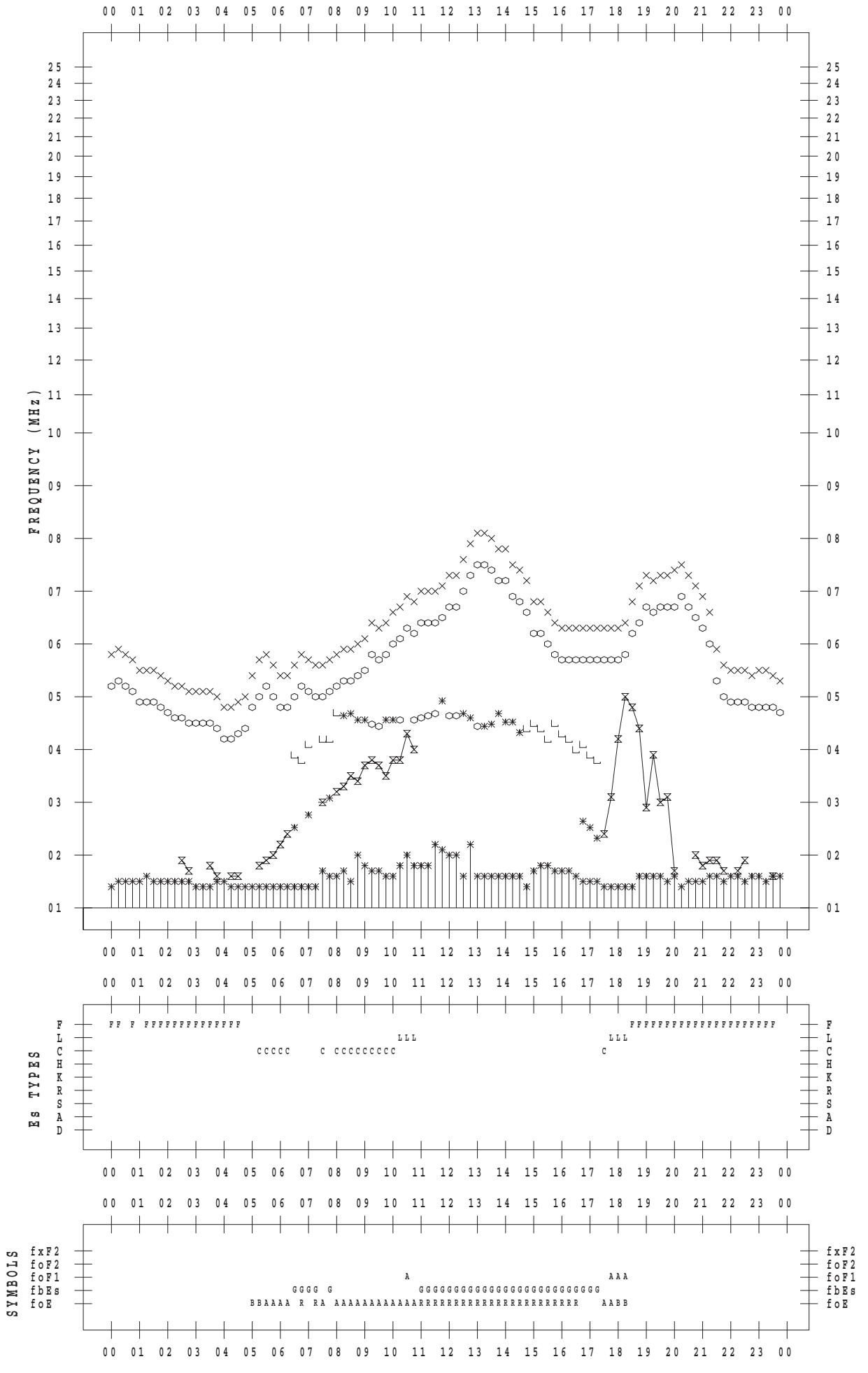
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2017/ 4/26

135 °E MEAN TIME



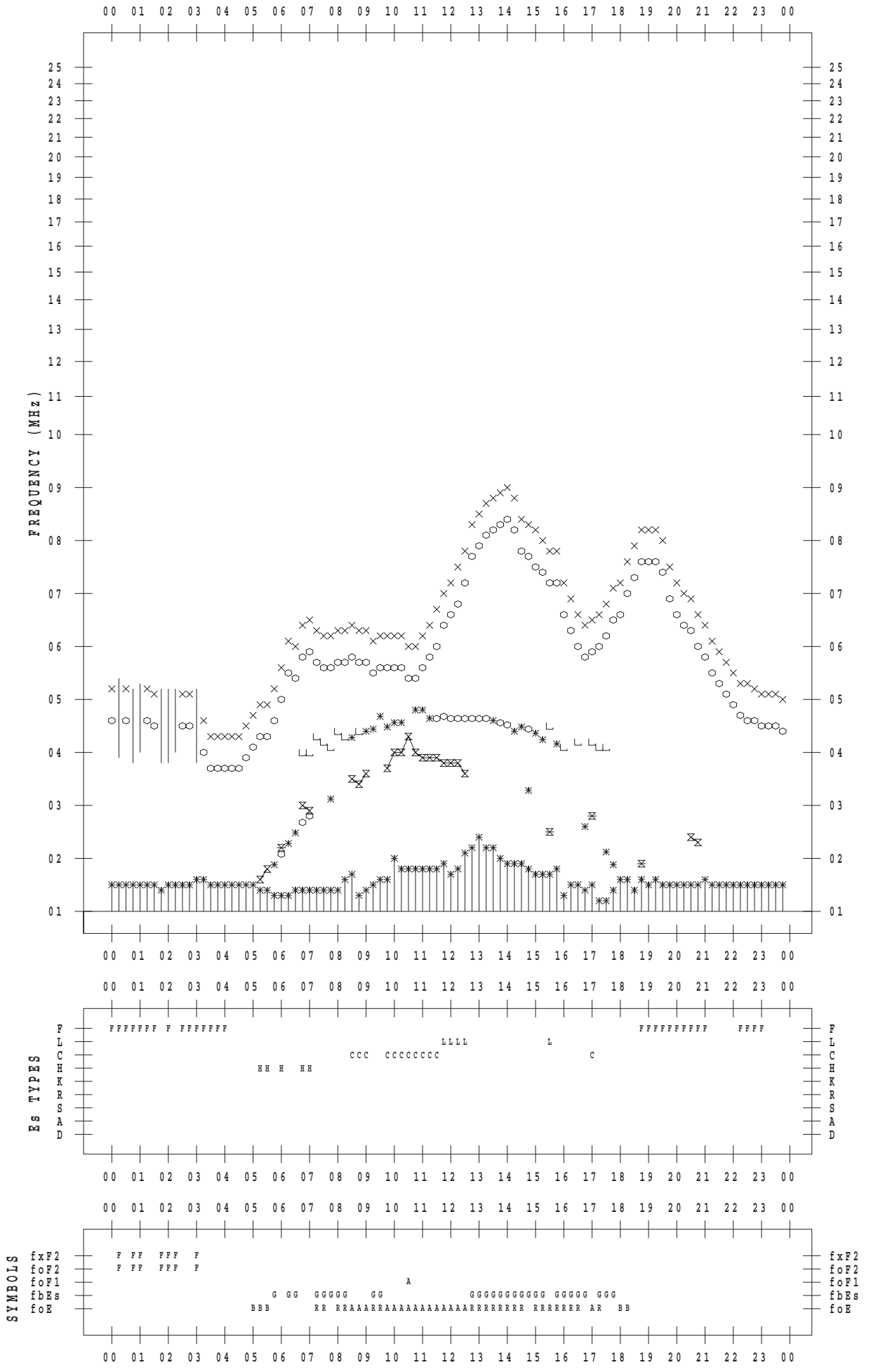
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2017/ 4/27

135 °E MEAN TIME



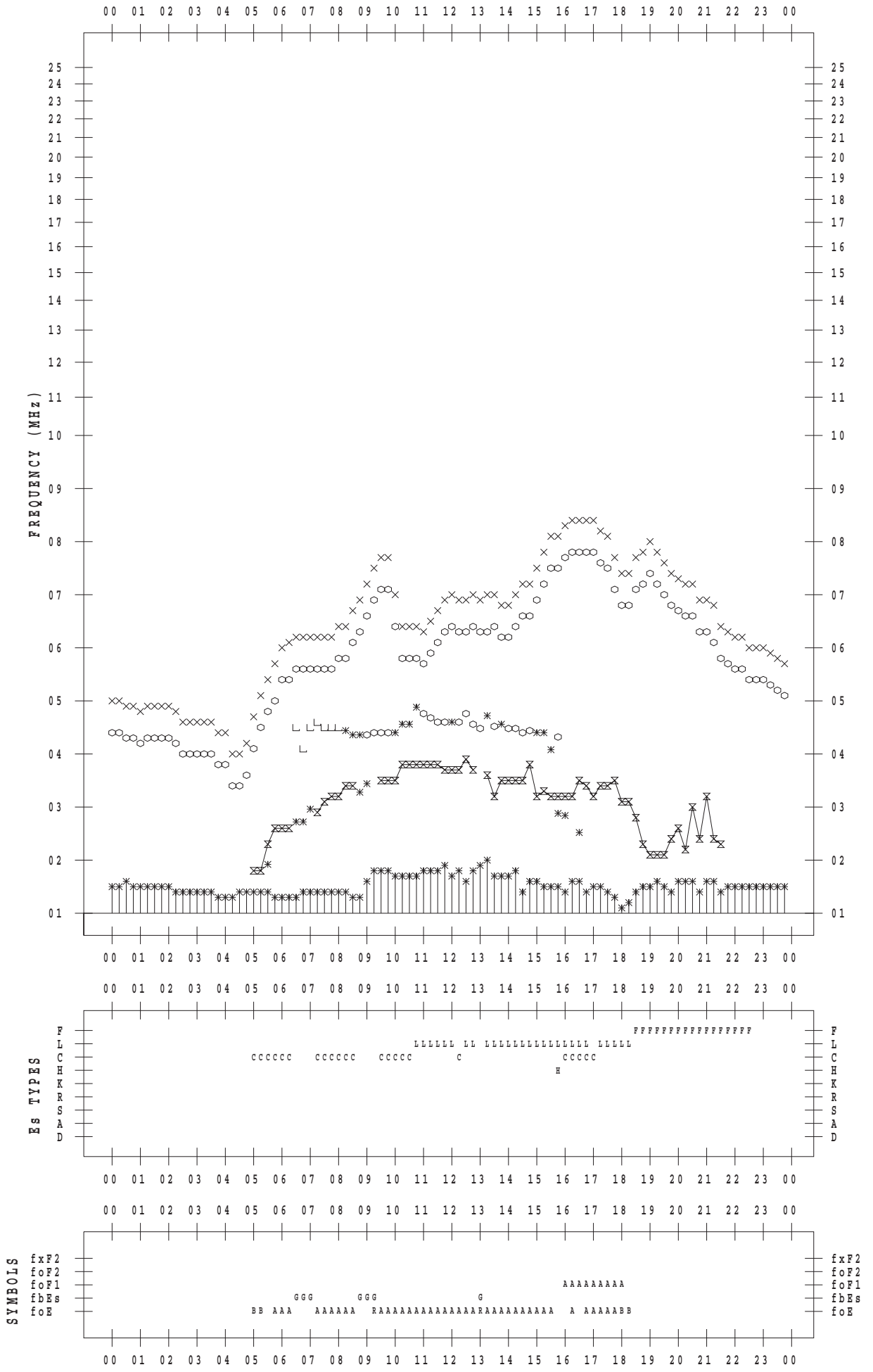
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2017/ 4/28

135 °E MEAN TIME



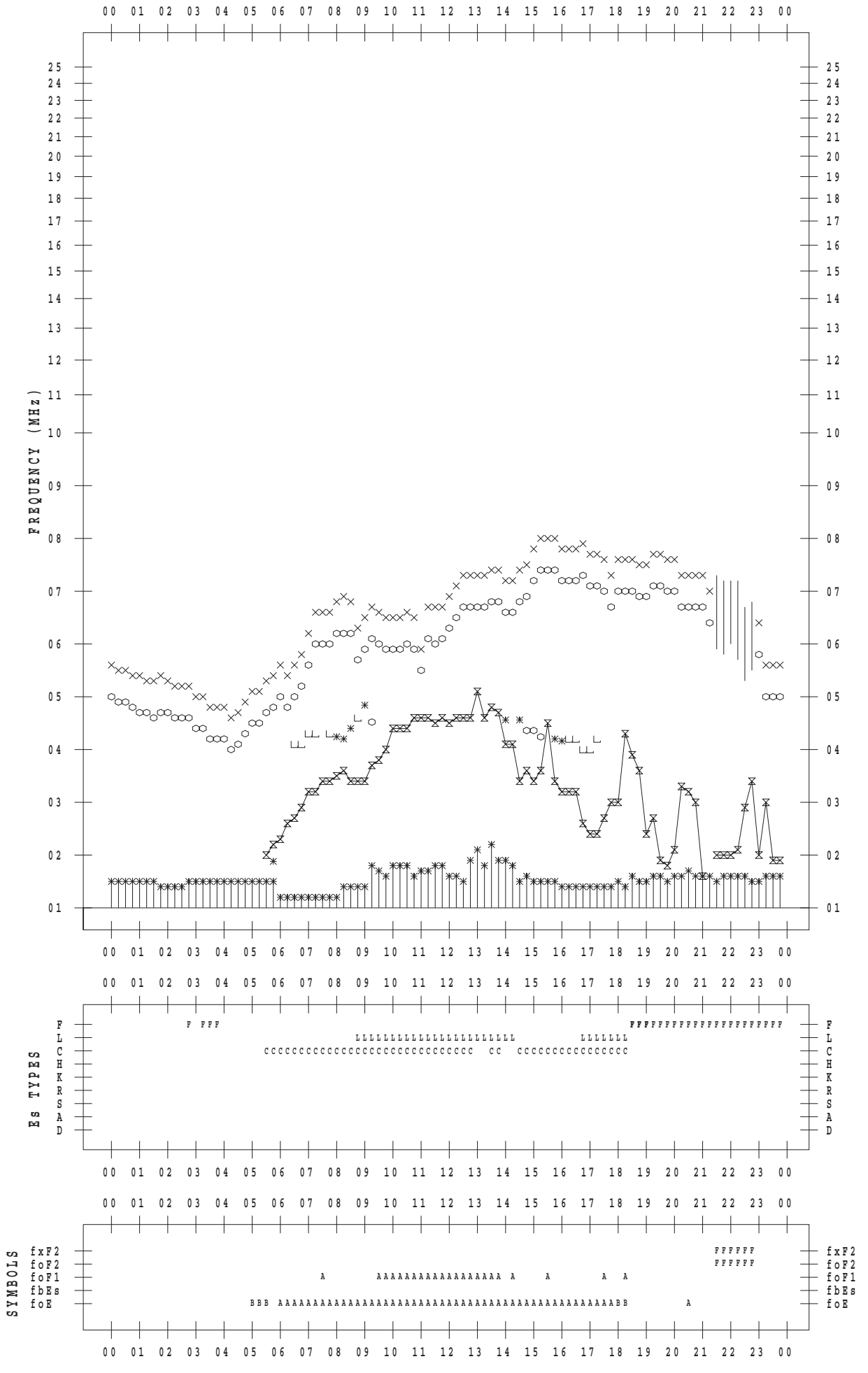
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2017/ 4/29

135 °E MEAN TIME



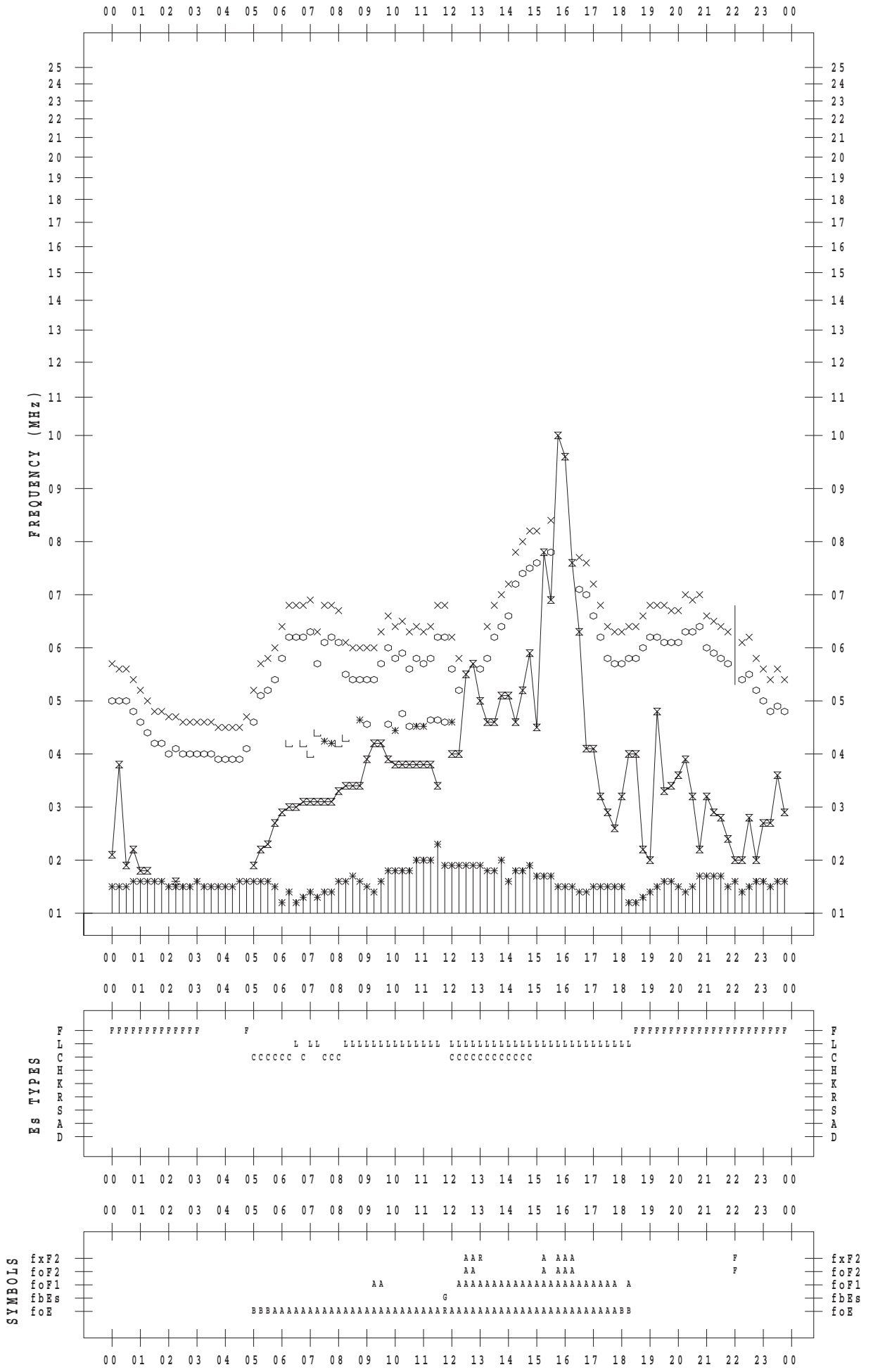
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2017/ 4/30

135 °E MEAN TIME



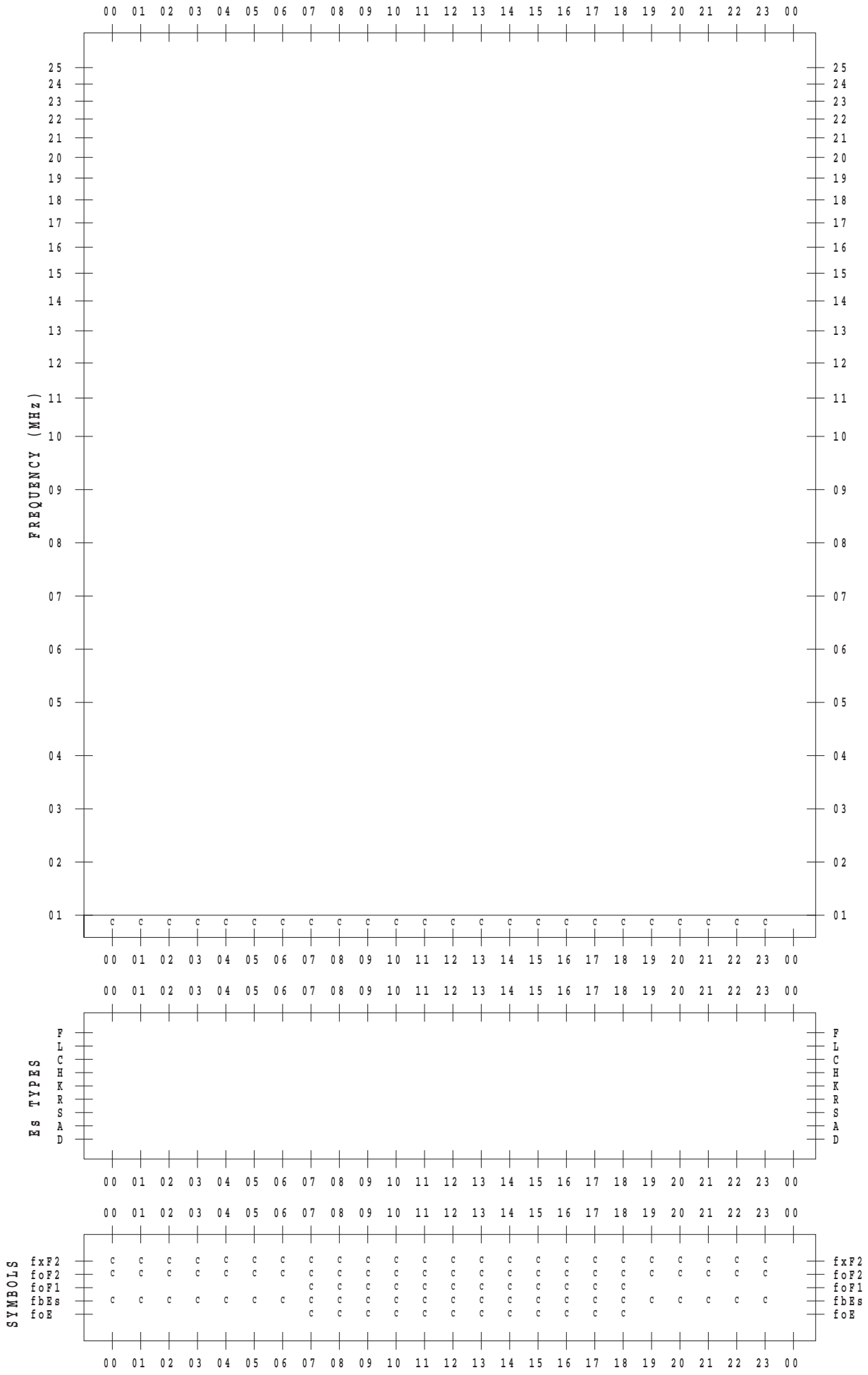
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2017/ 4/ 1

135 °E MEAN TIME



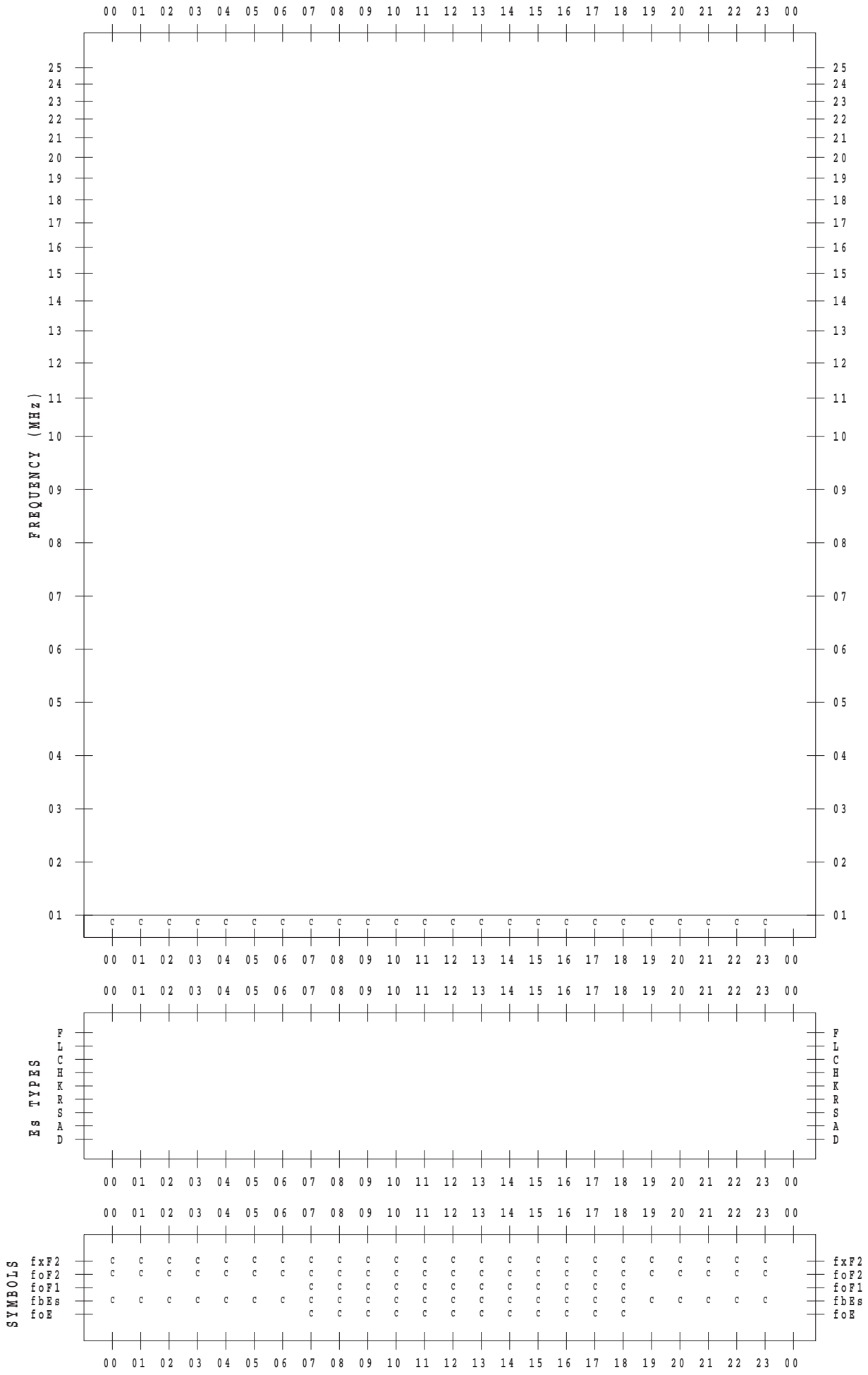
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2017/ 4/ 2

135 °E MEAN TIME



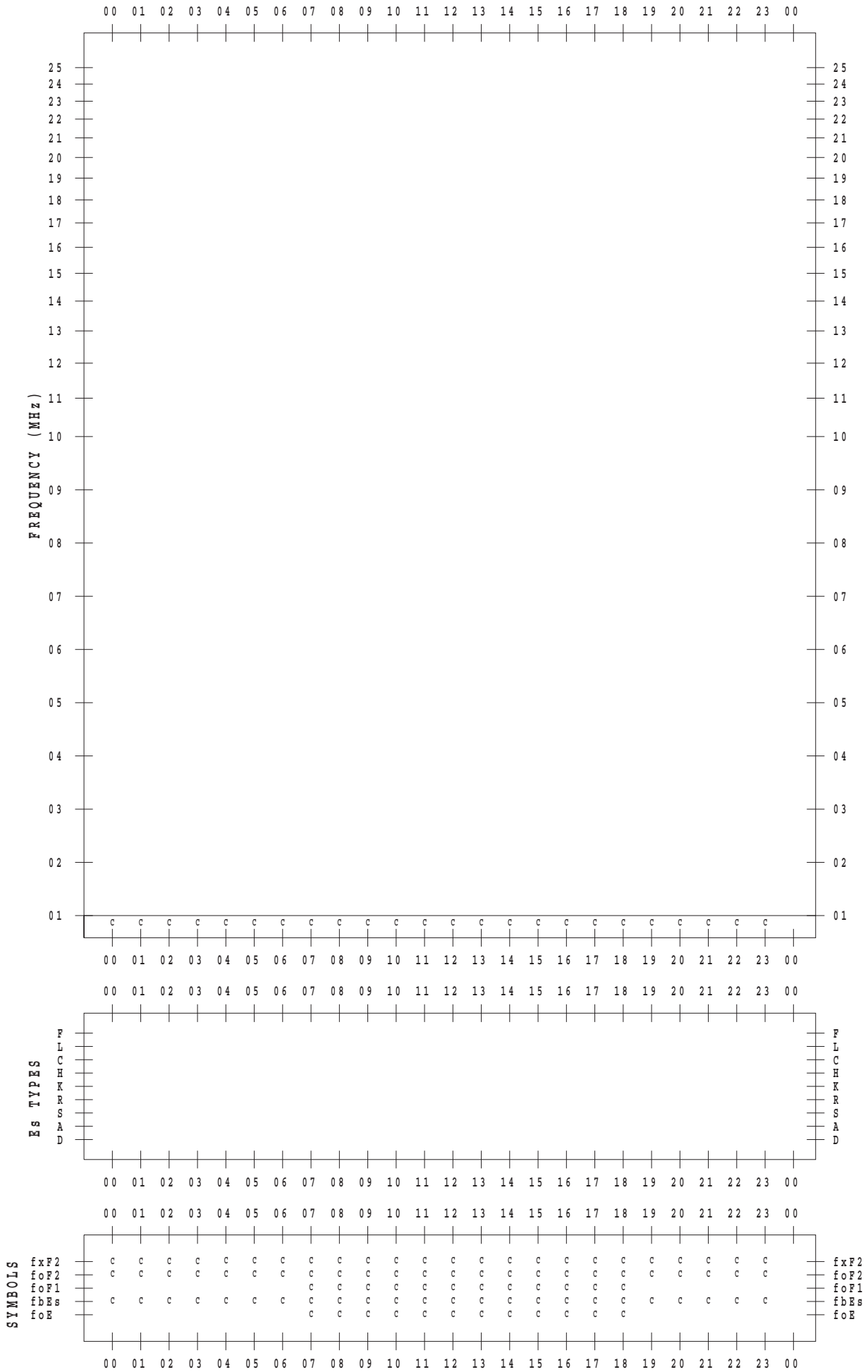
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2017/ 4/ 3

135 °E MEAN TIME



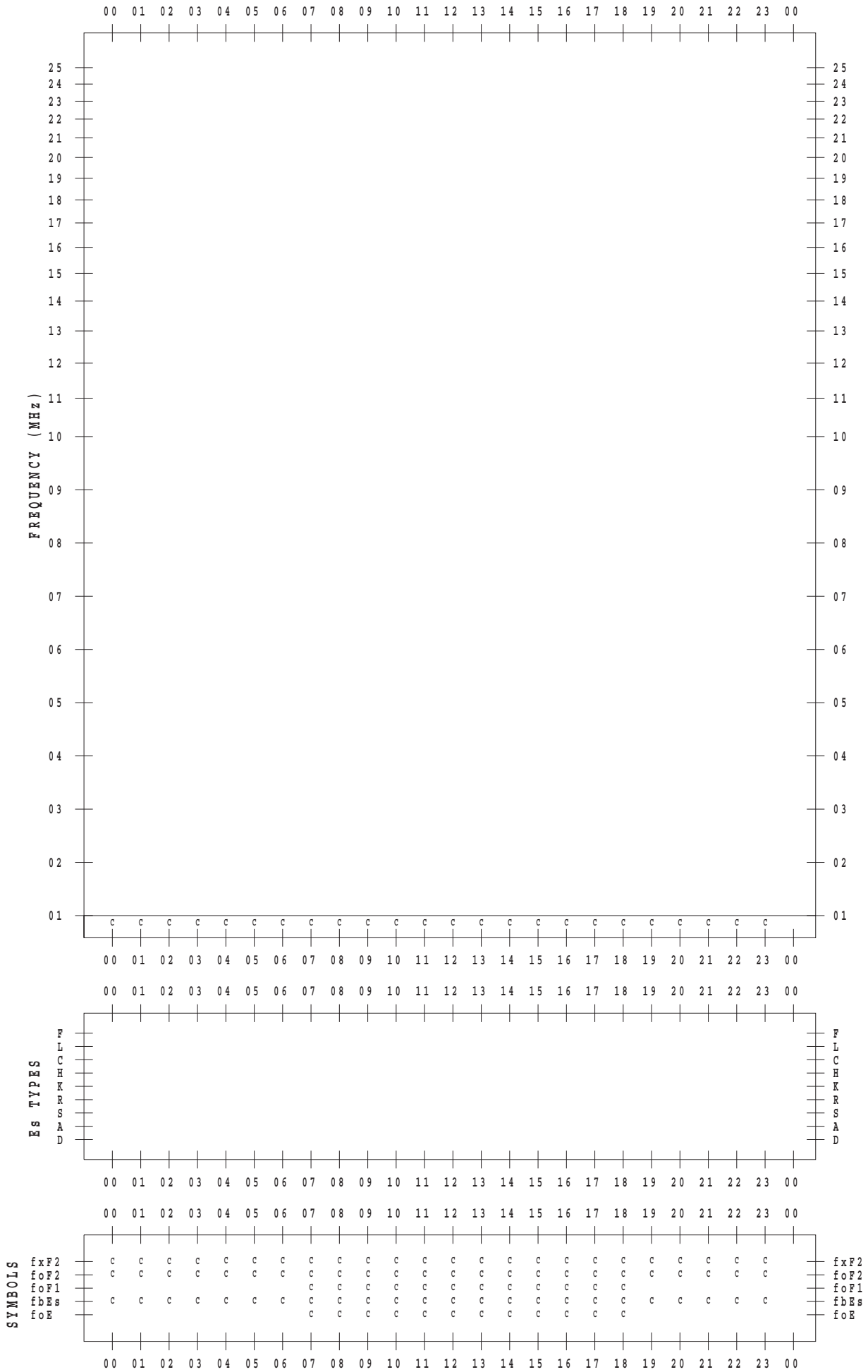
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2017/ 4/ 4

135 °E MEAN TIME



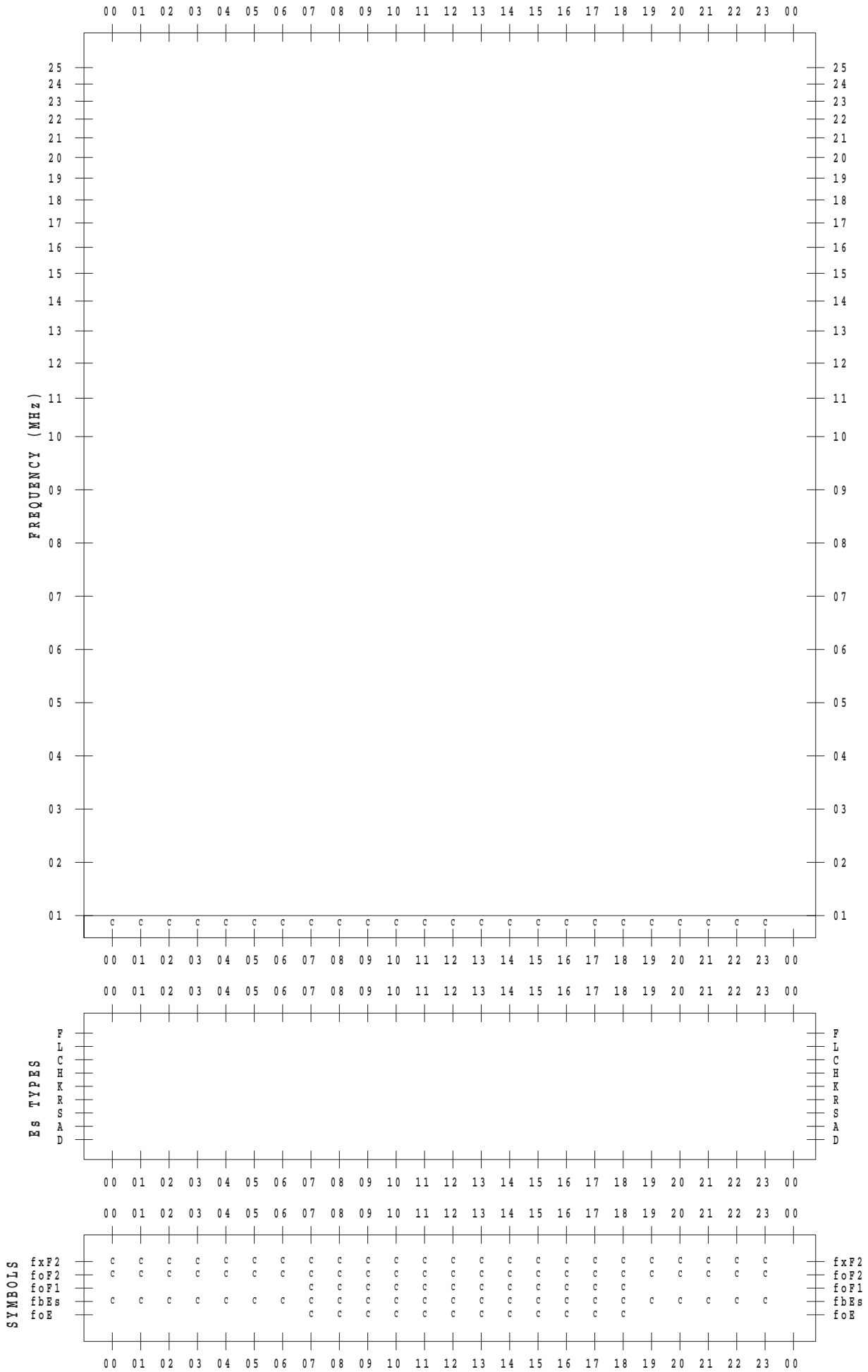
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2017/ 4/ 5

135 °E MEAN TIME



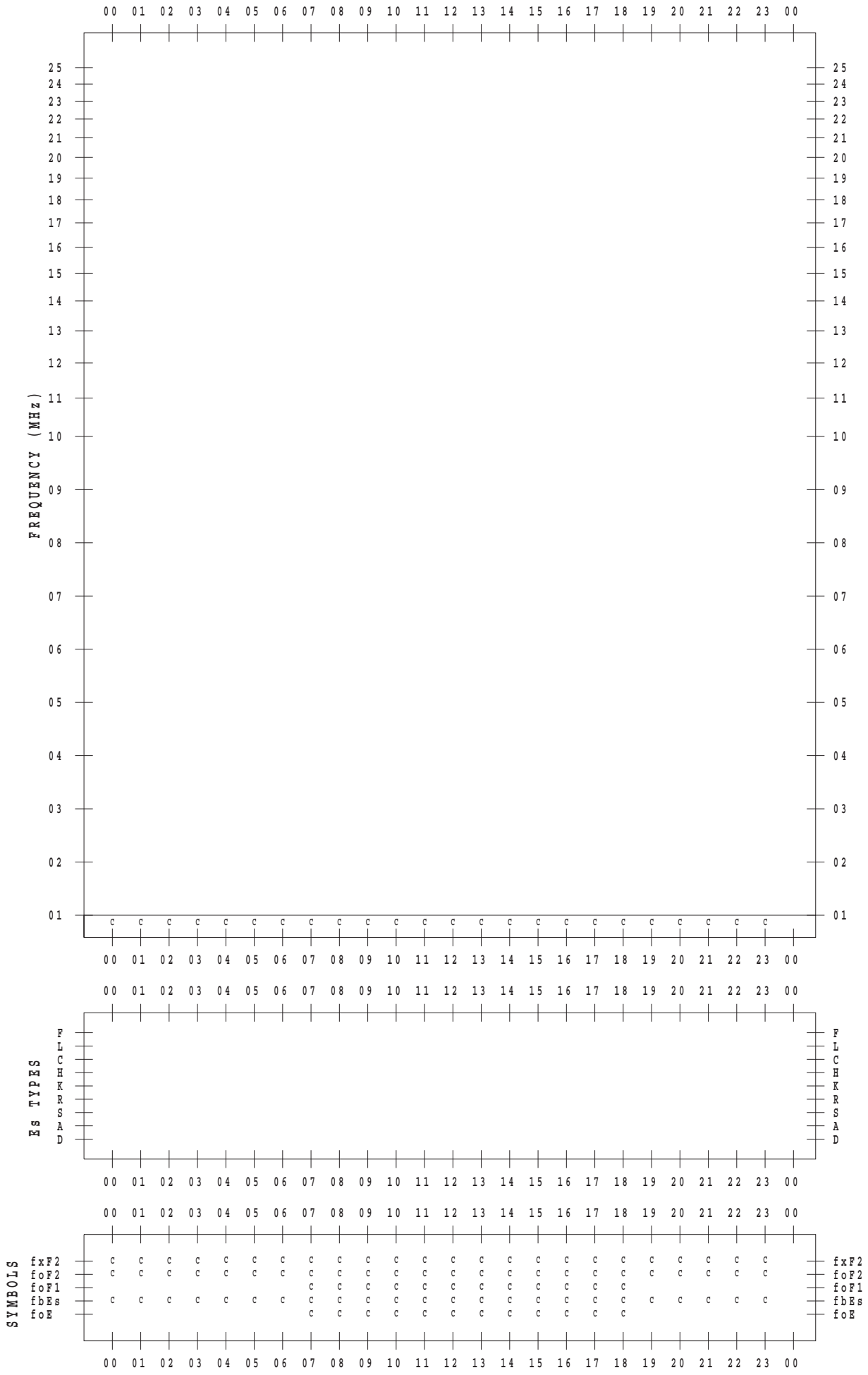
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2017/ 4/ 6

135 °E MEAN TIME



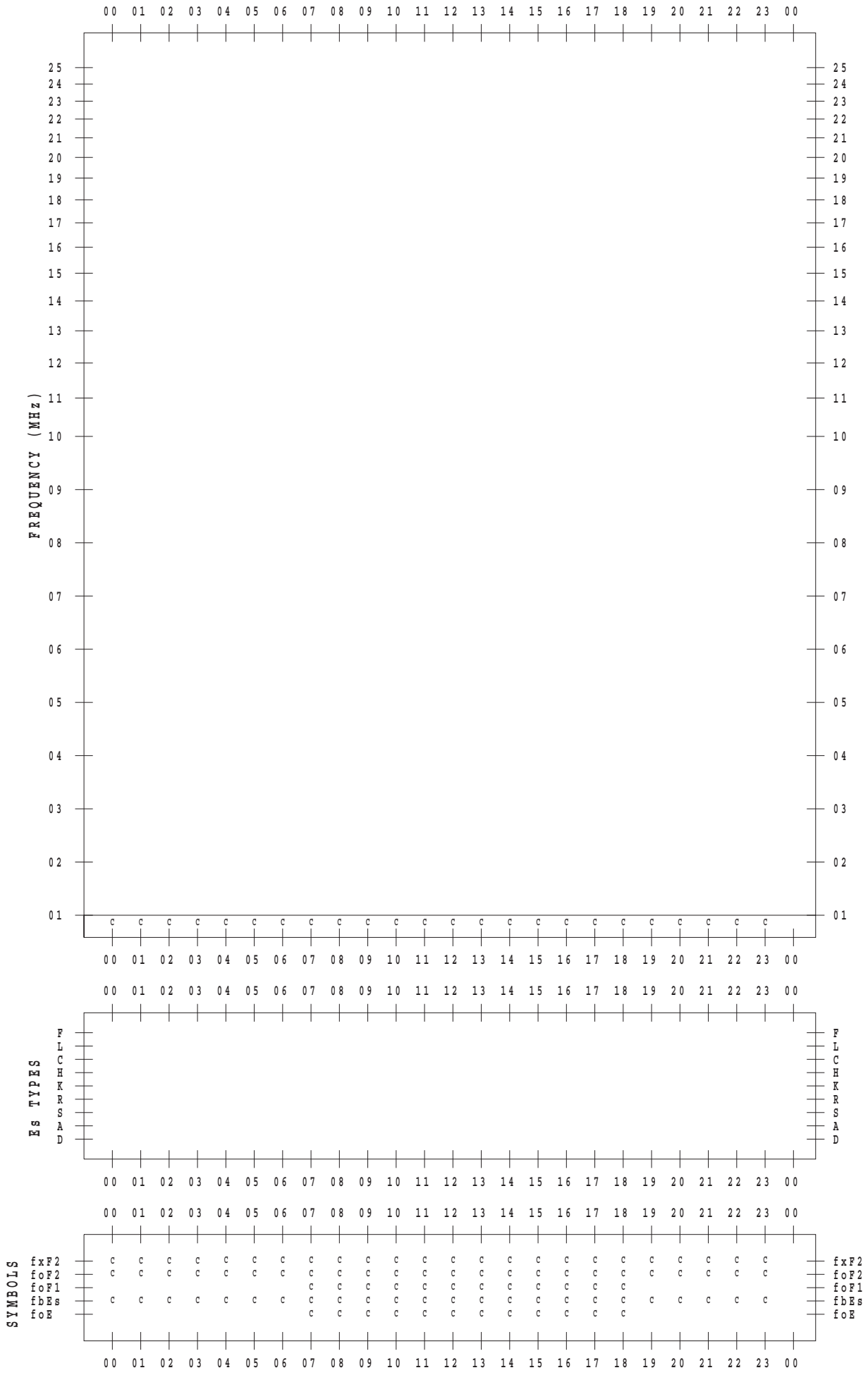
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2017/ 4/ 7

135 °E MEAN TIME



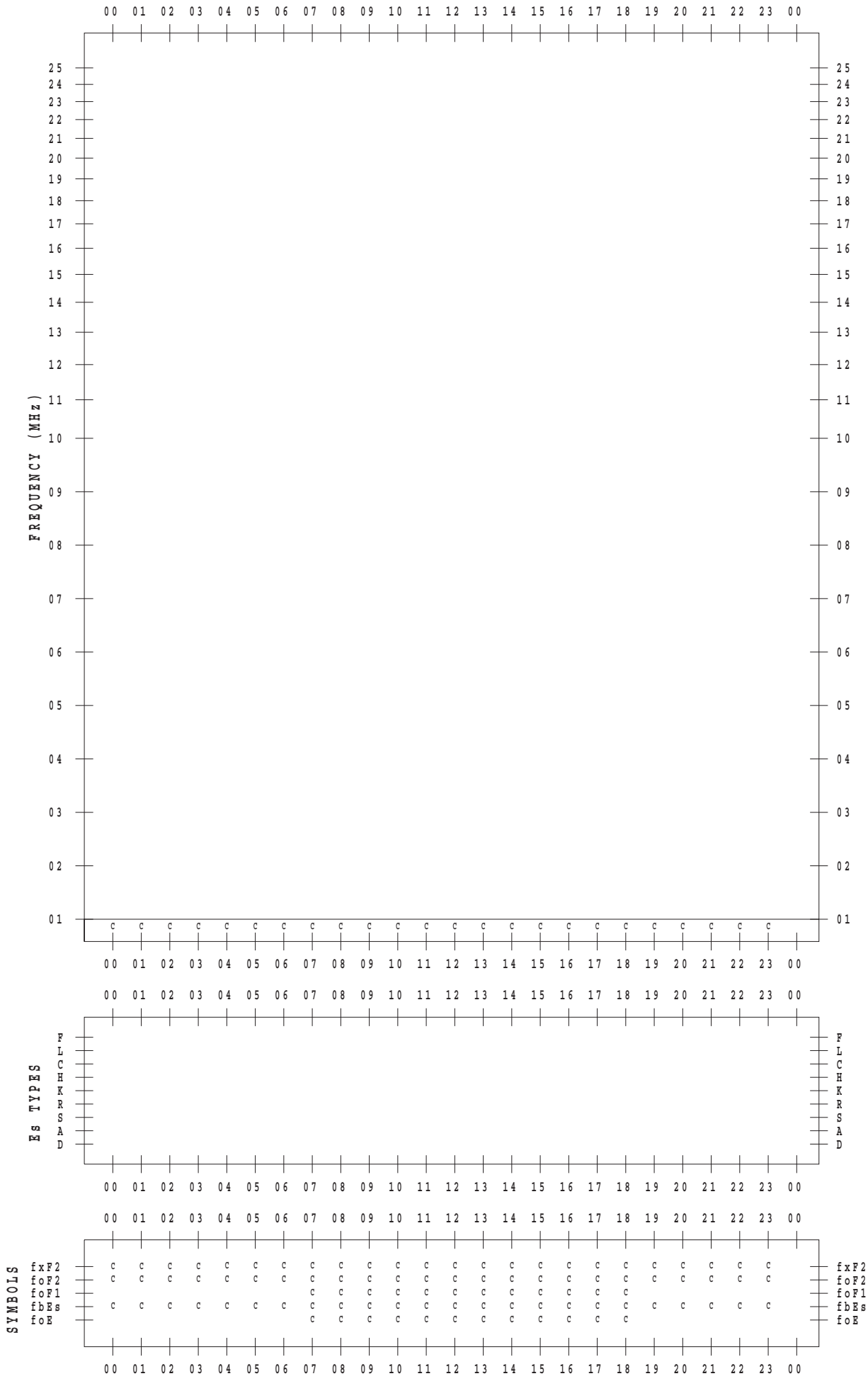
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2017/ 4/ 8

135 °E MEAN TIME



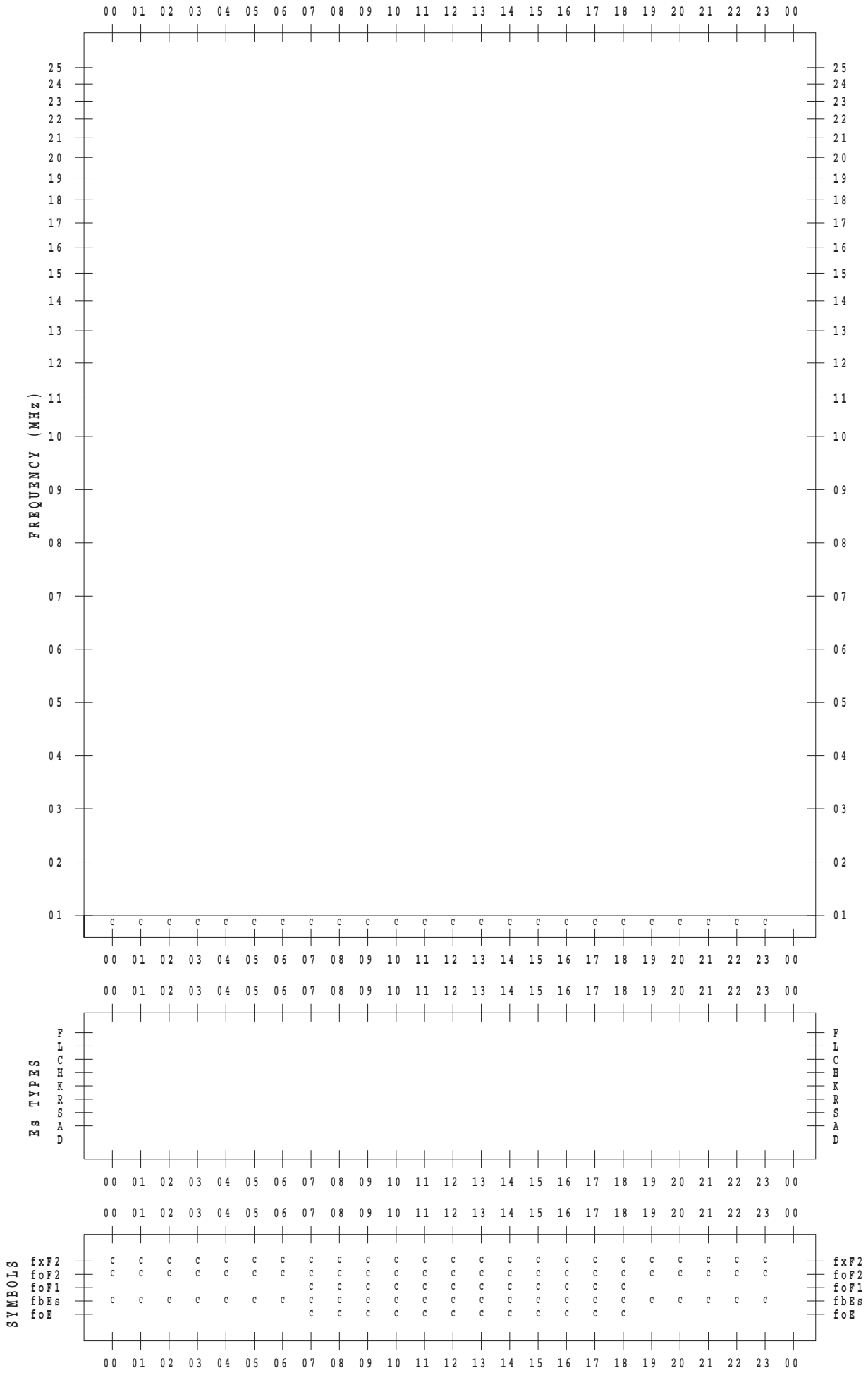
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2017/ 4/ 9

135 °E MEAN TIME



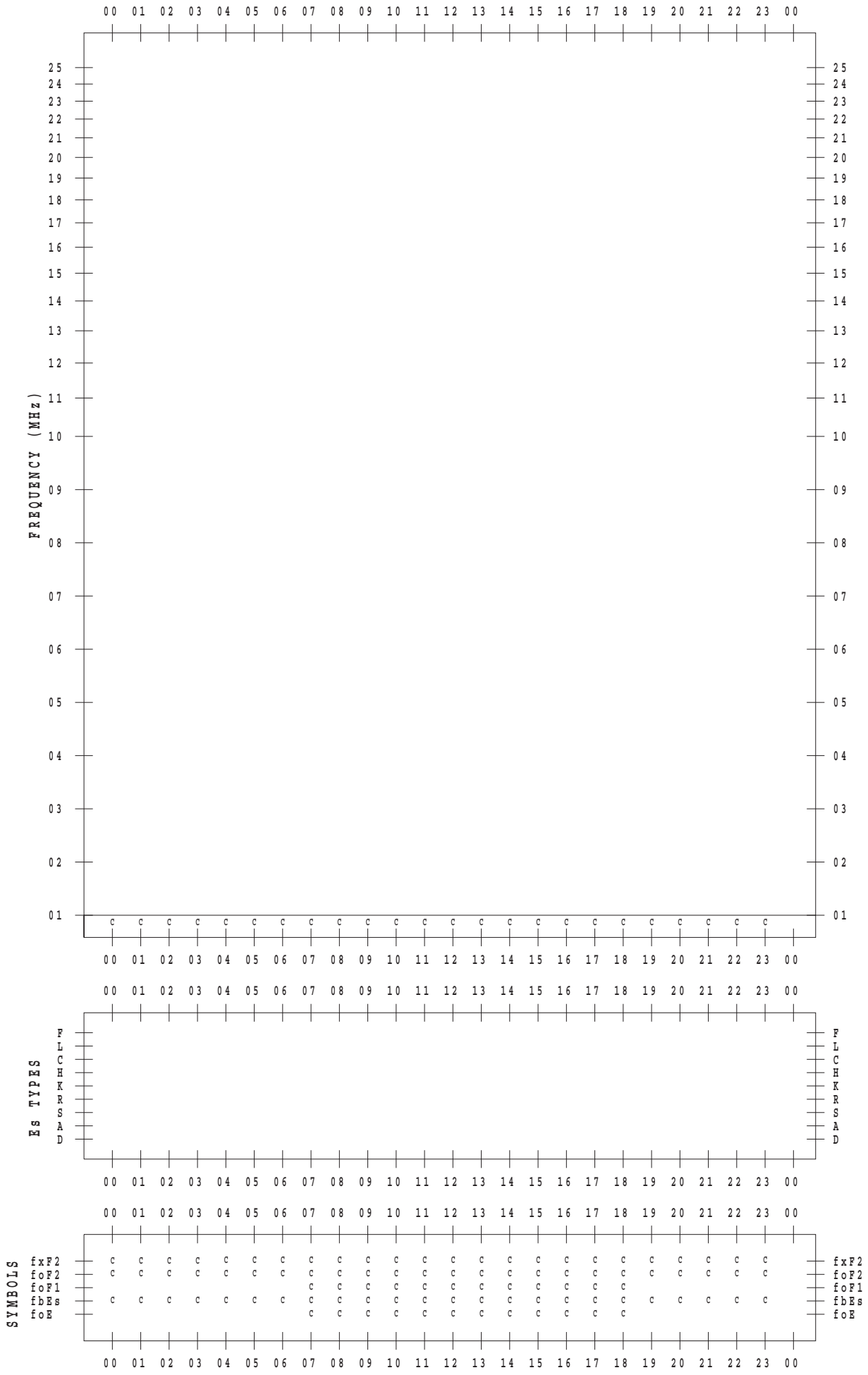
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2017/ 4/10

135 °E MEAN TIME



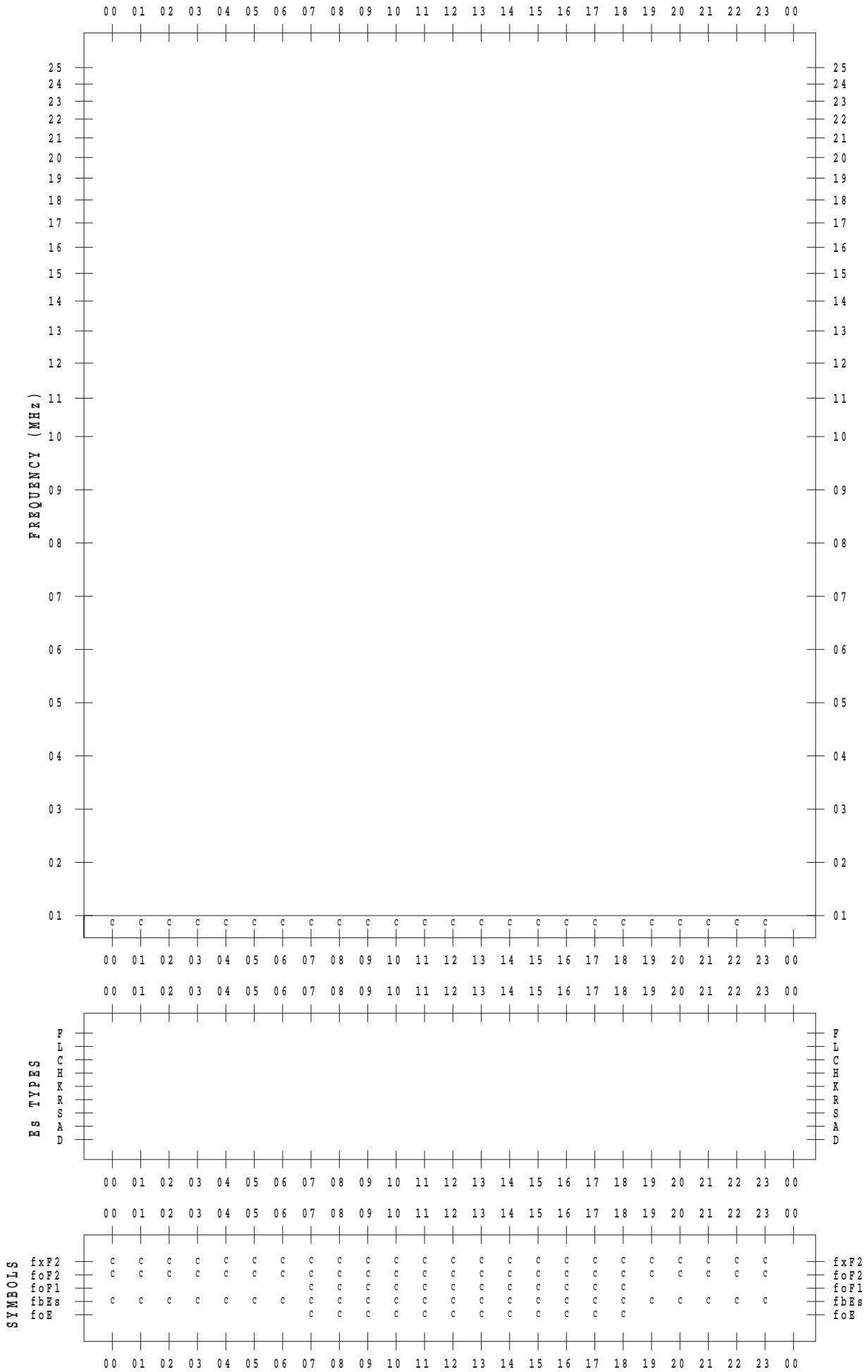
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2017/ 4/11

135 °E MEAN TIME



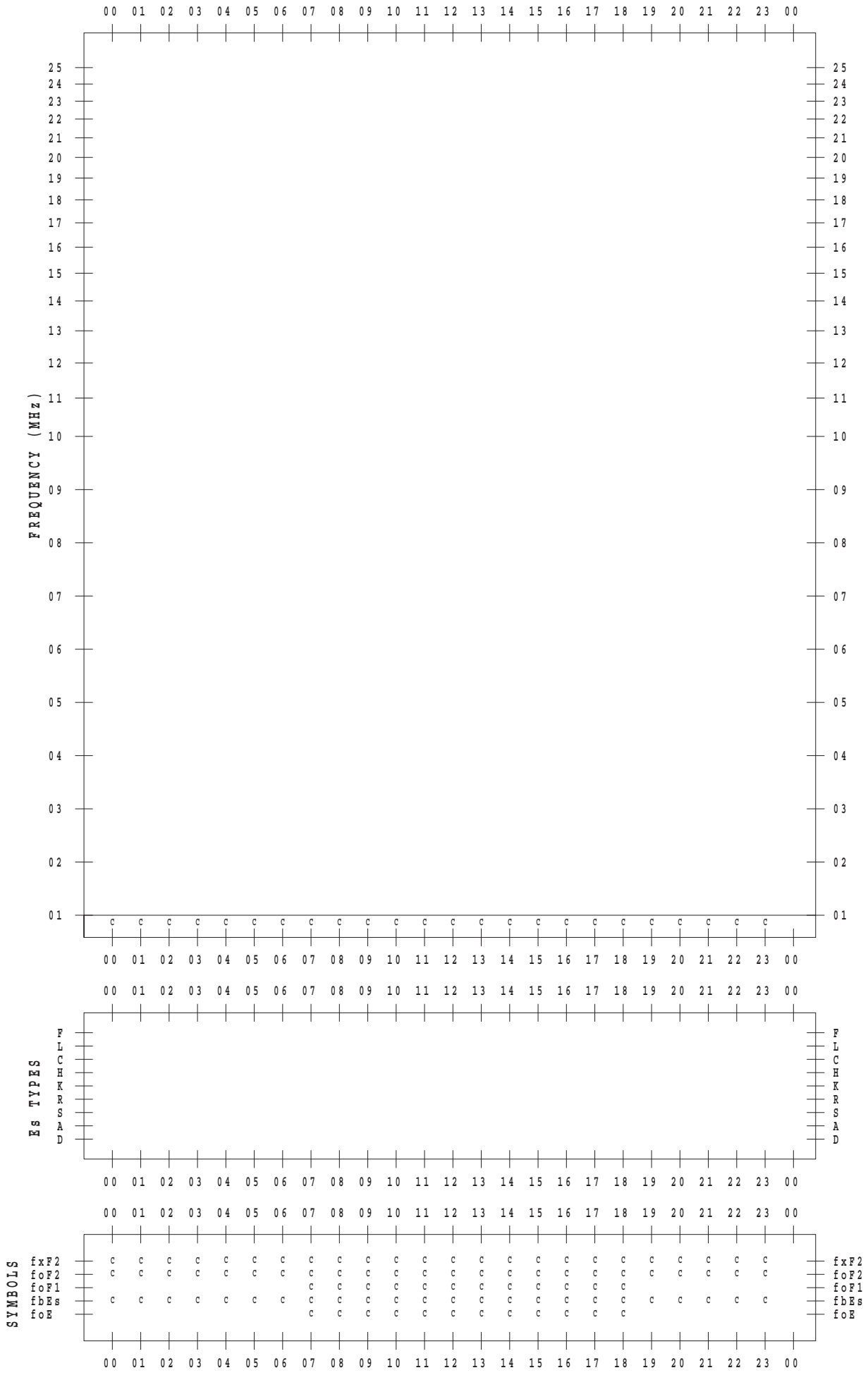
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2017/ 4/12

135 °E MEAN TIME



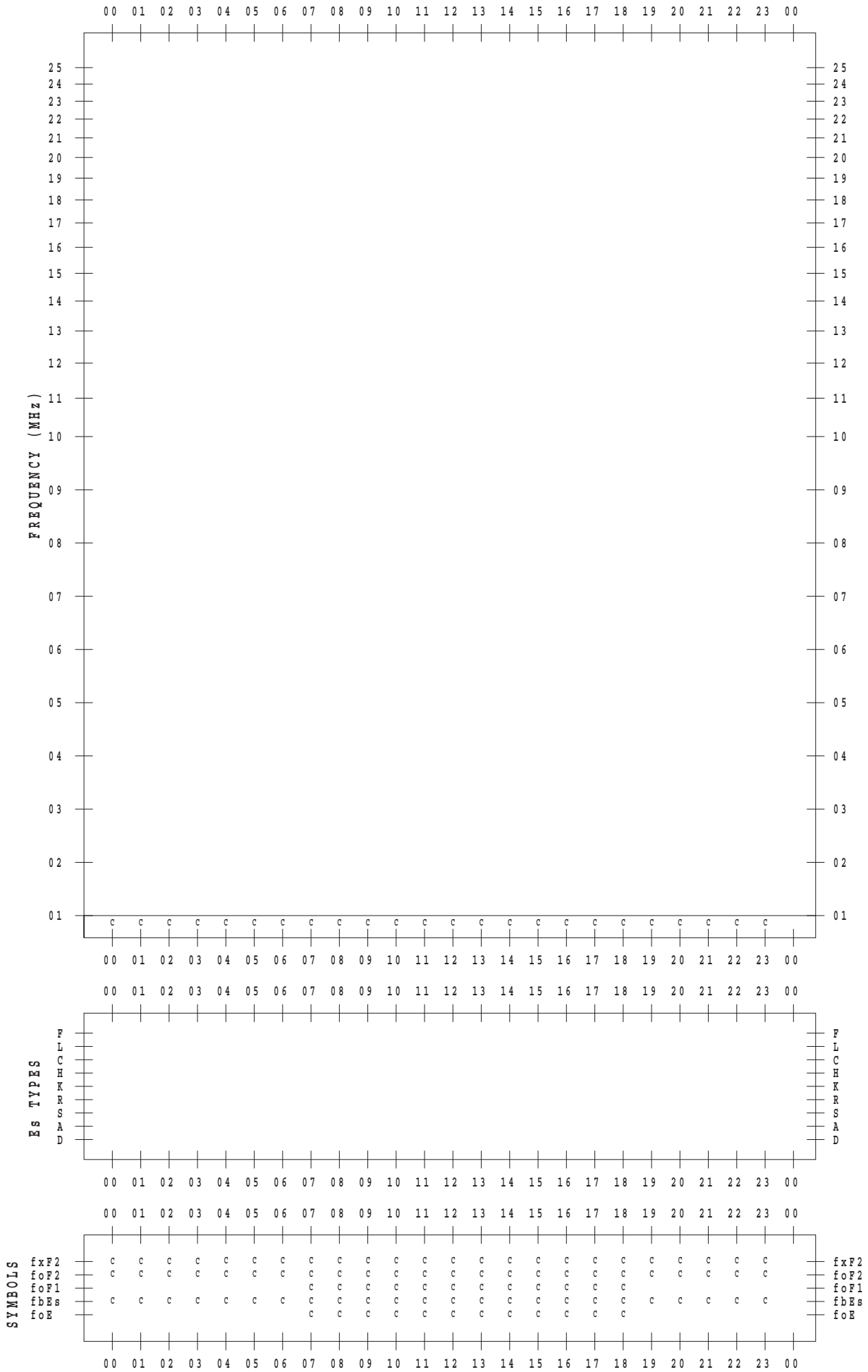
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2017/ 4/13

135 °E MEAN TIME



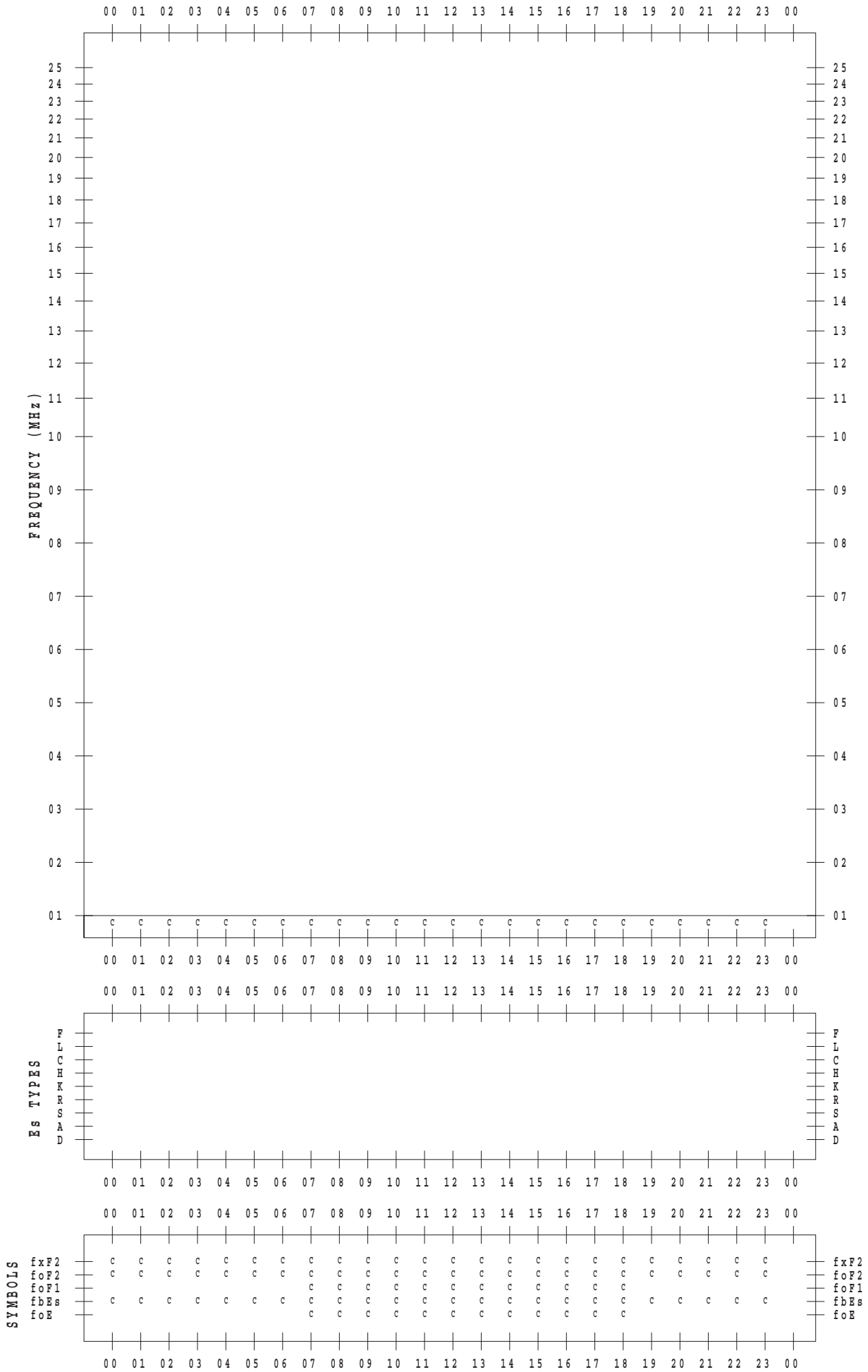
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2017/ 4/14

135 °E MEAN TIME



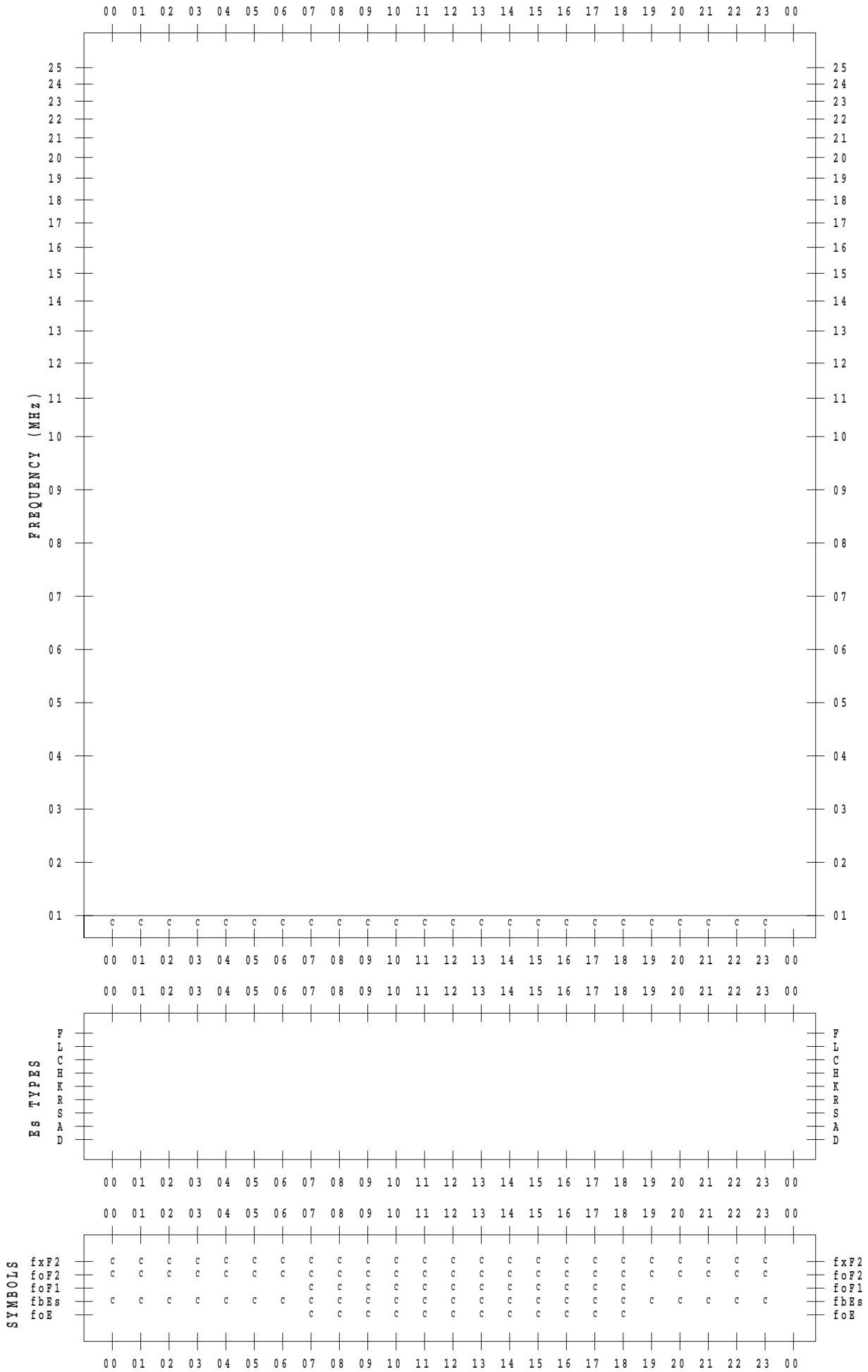
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2017/ 4/15

135 °E MEAN TIME



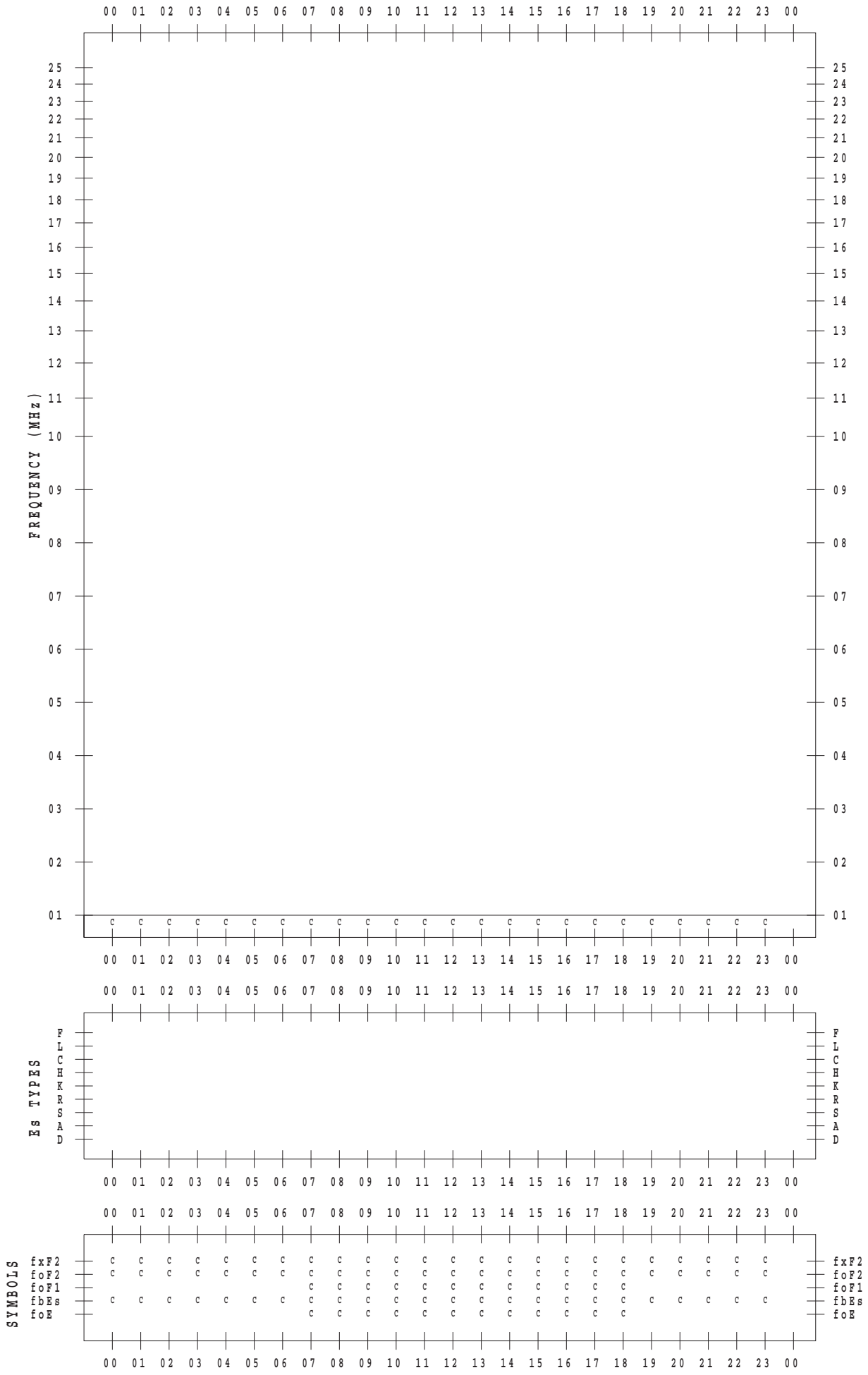
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2017/ 4/16

135 °E MEAN TIME



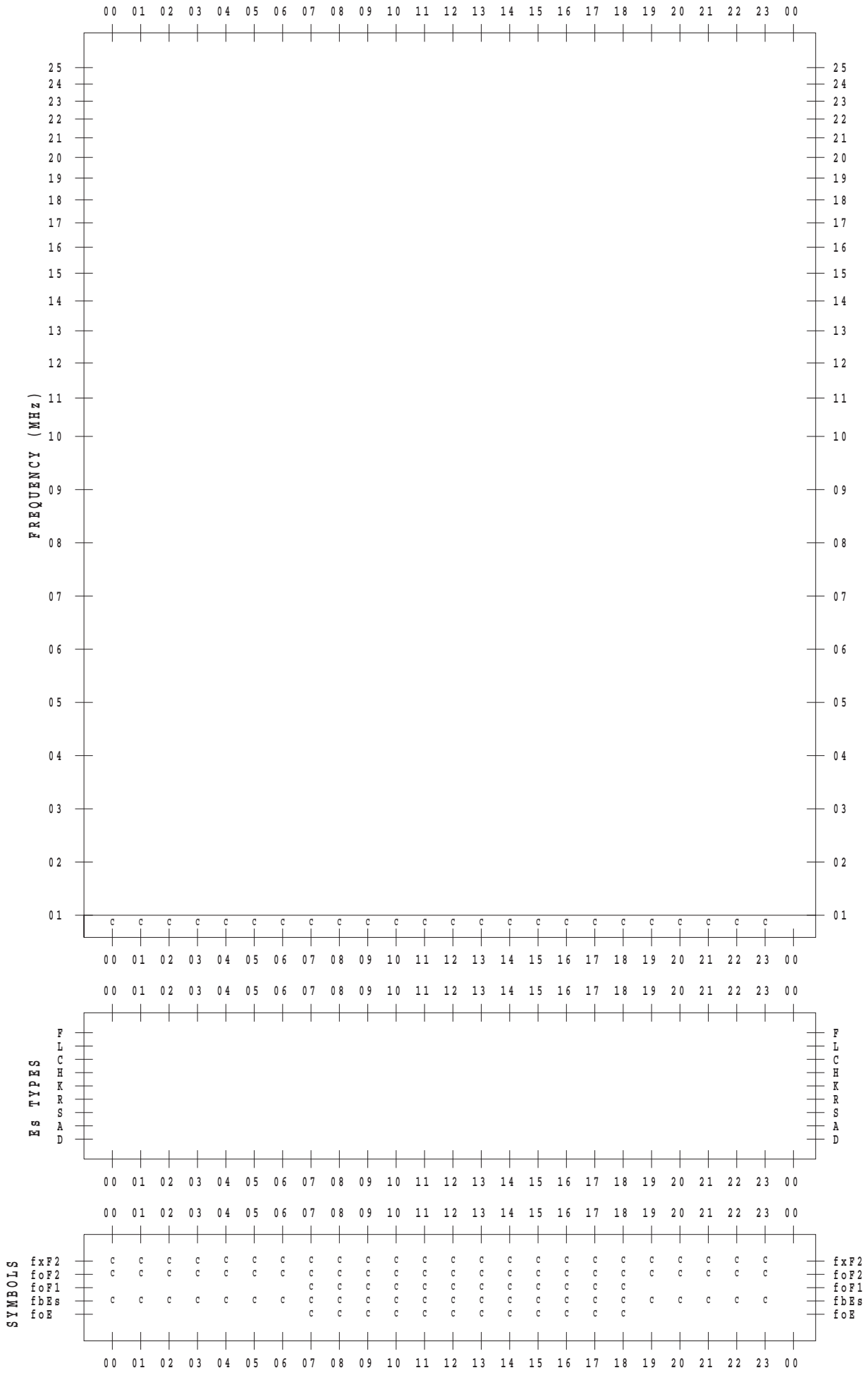
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2017/ 4/17

135 °E MEAN TIME



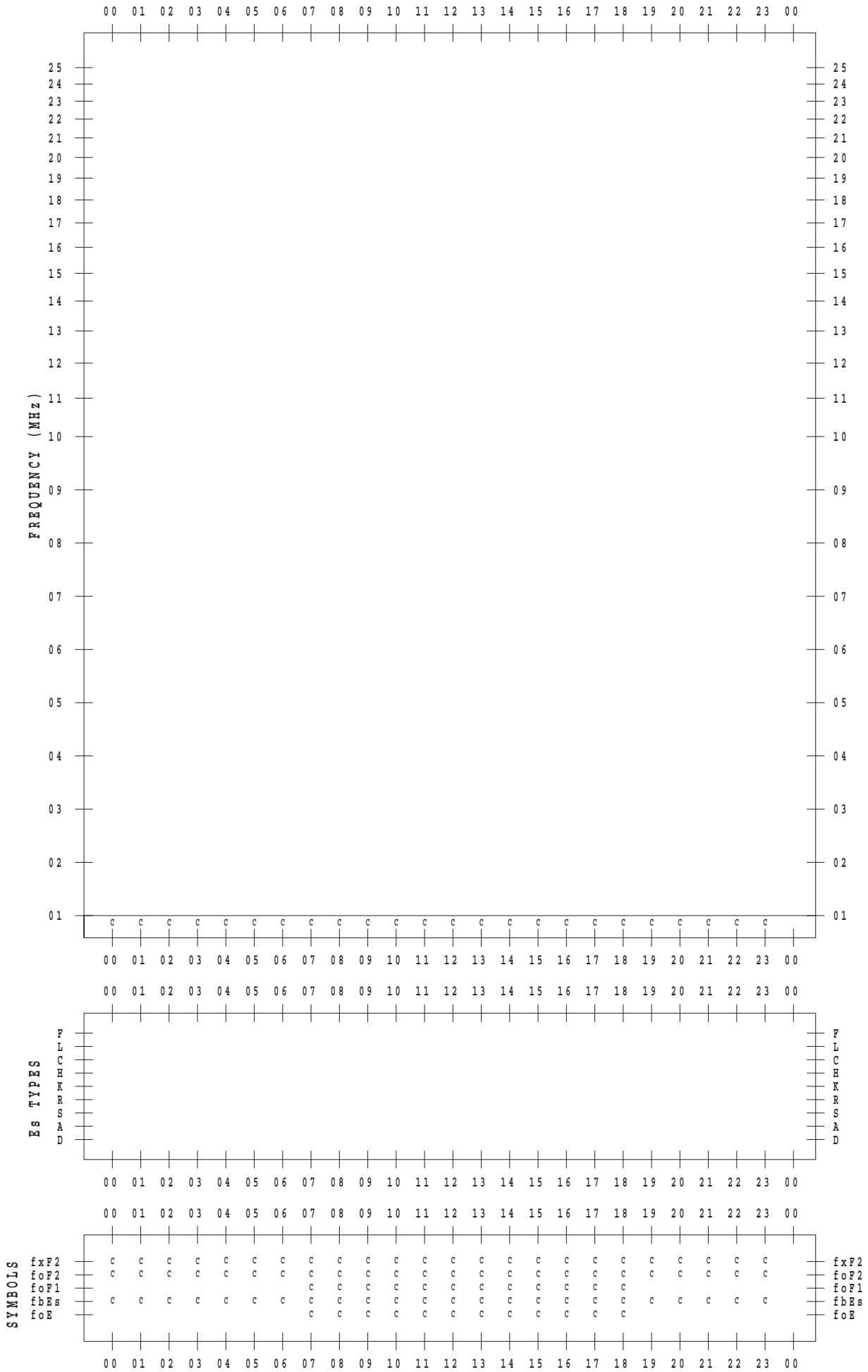
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2017/ 4/18

135 °E MEAN TIME



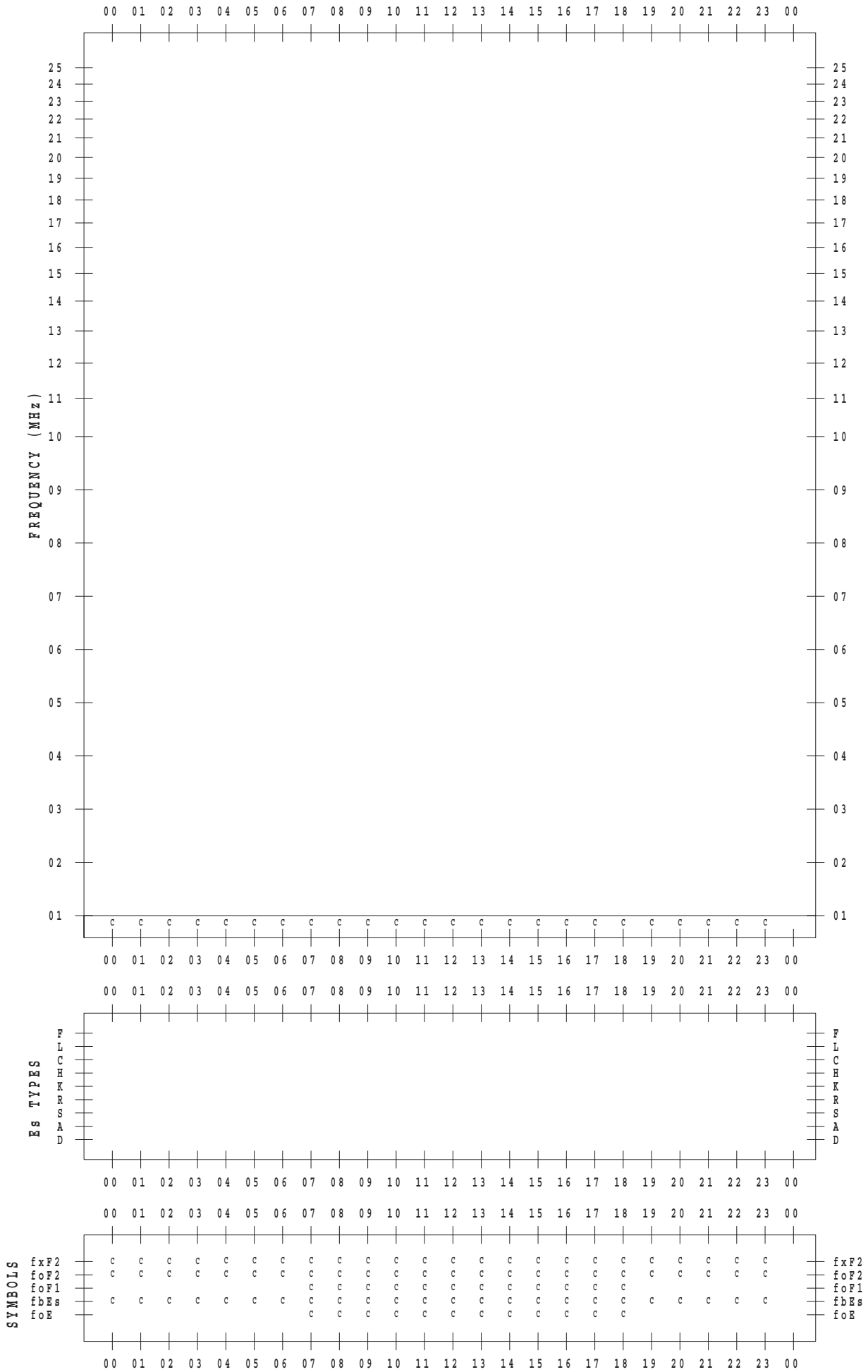
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2017/ 4/19

135 °E MEAN TIME



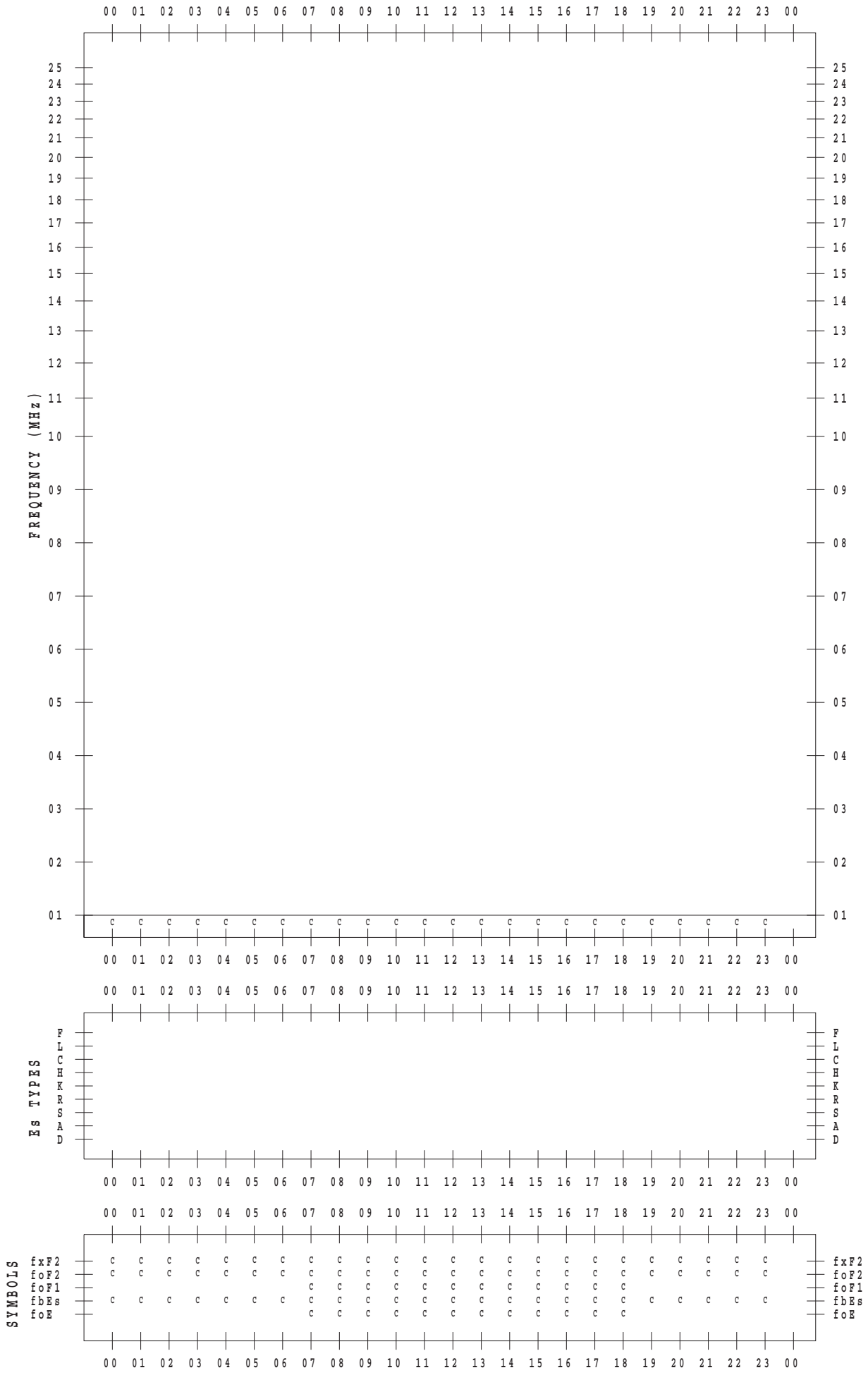
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2017/ 4/20

135 °E MEAN TIME



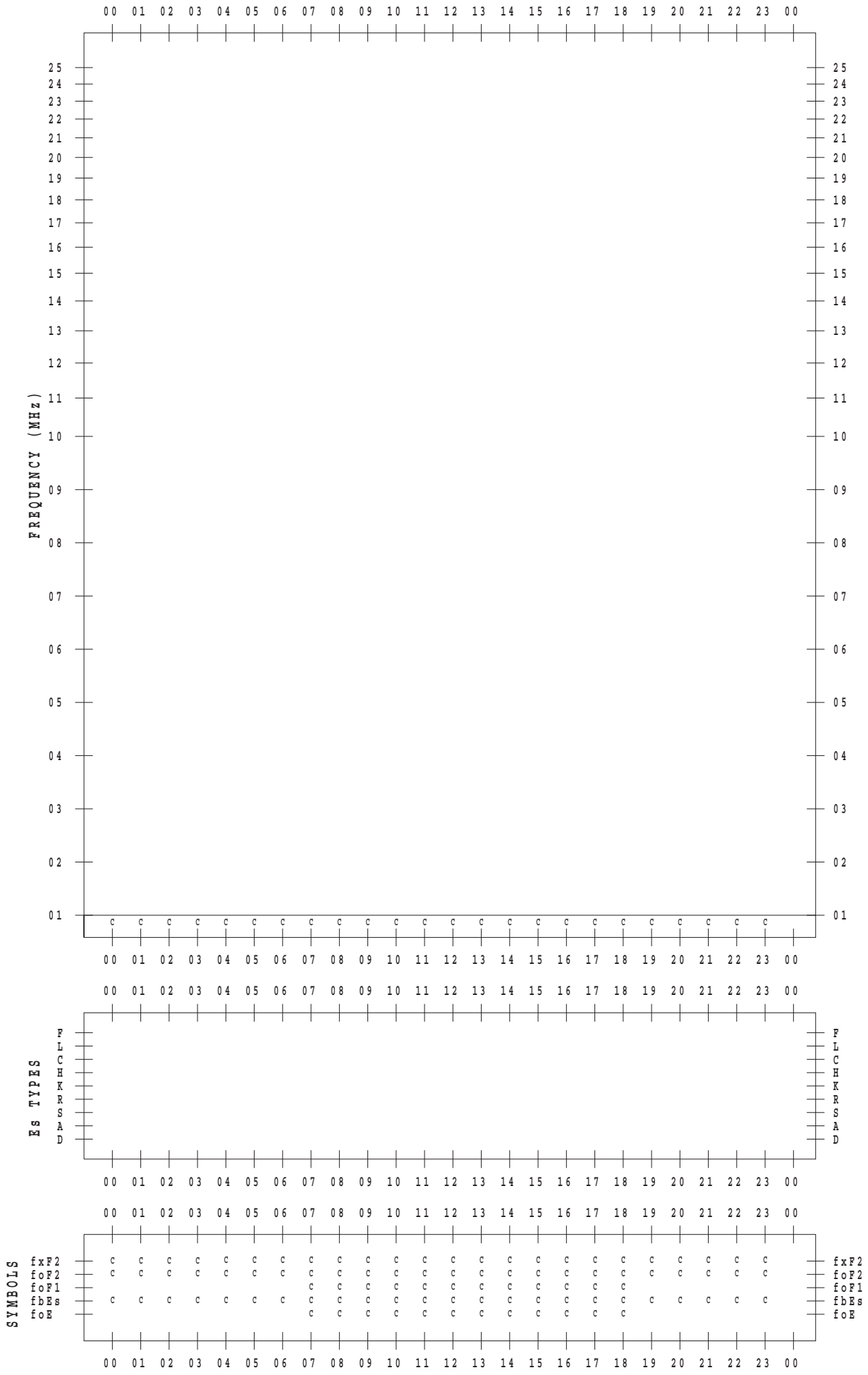
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2017/ 4/21

135 °E MEAN TIME



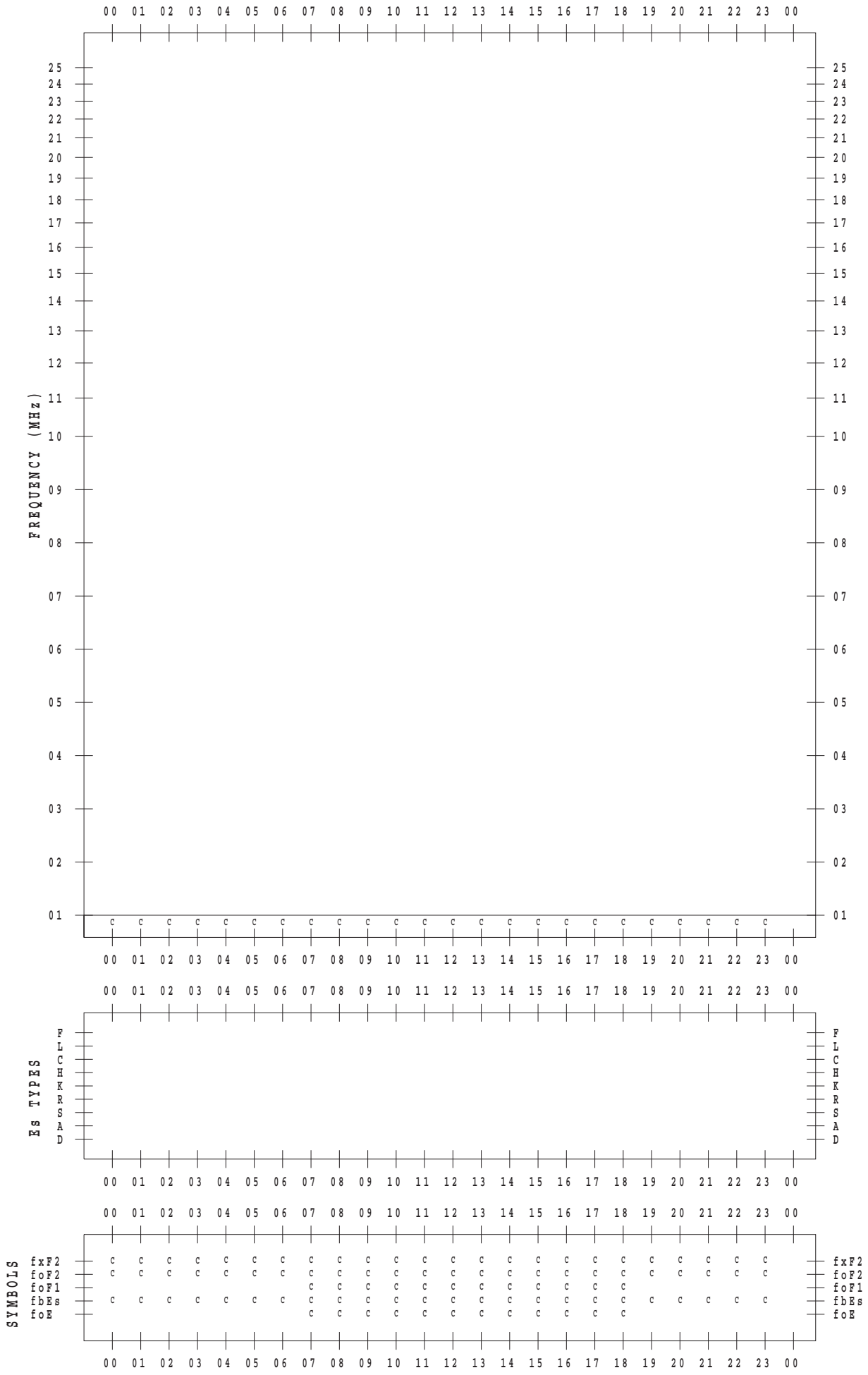
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2017/ 4/22

135 °E MEAN TIME



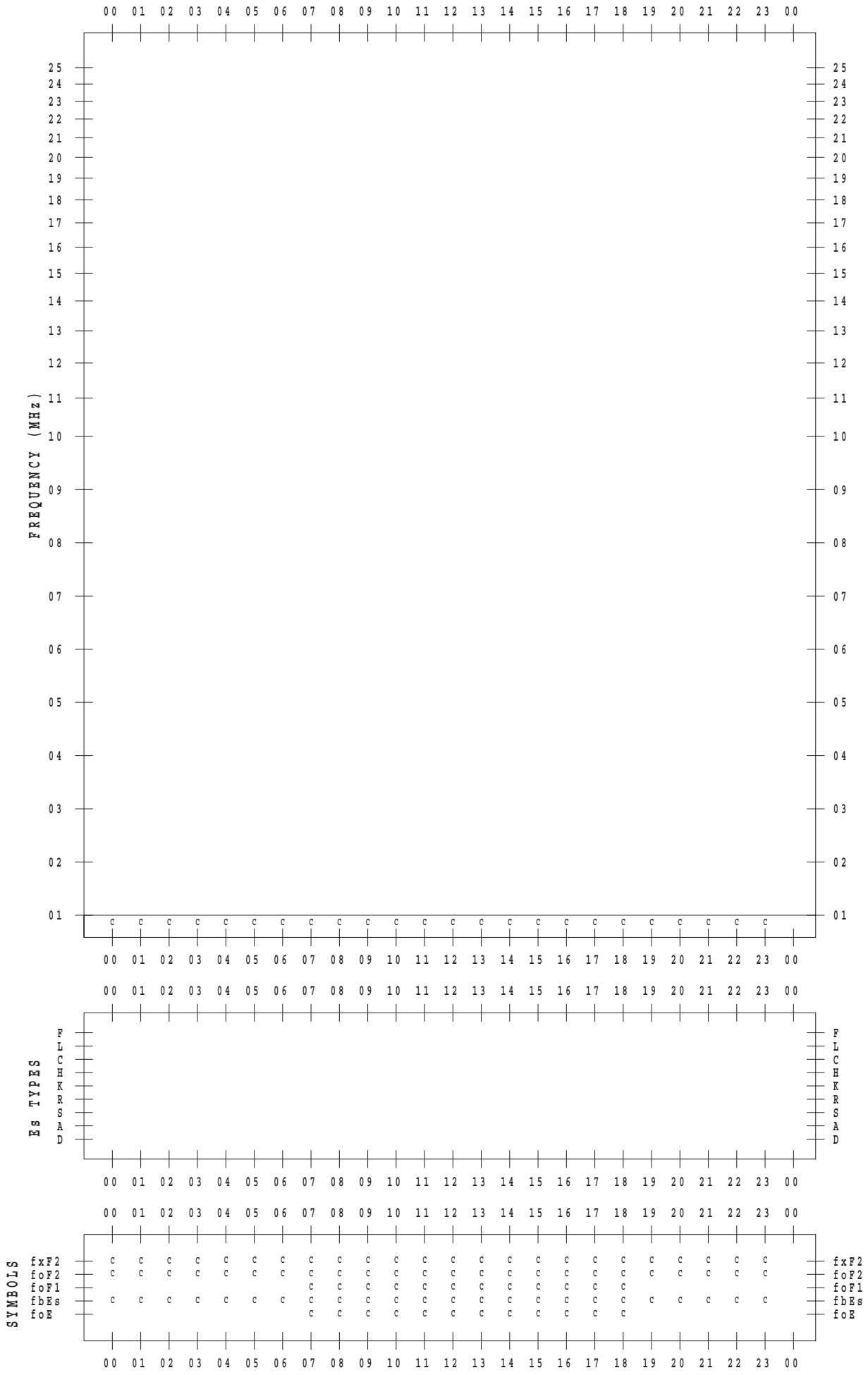
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2017/ 4/23

135 °E MEAN TIME



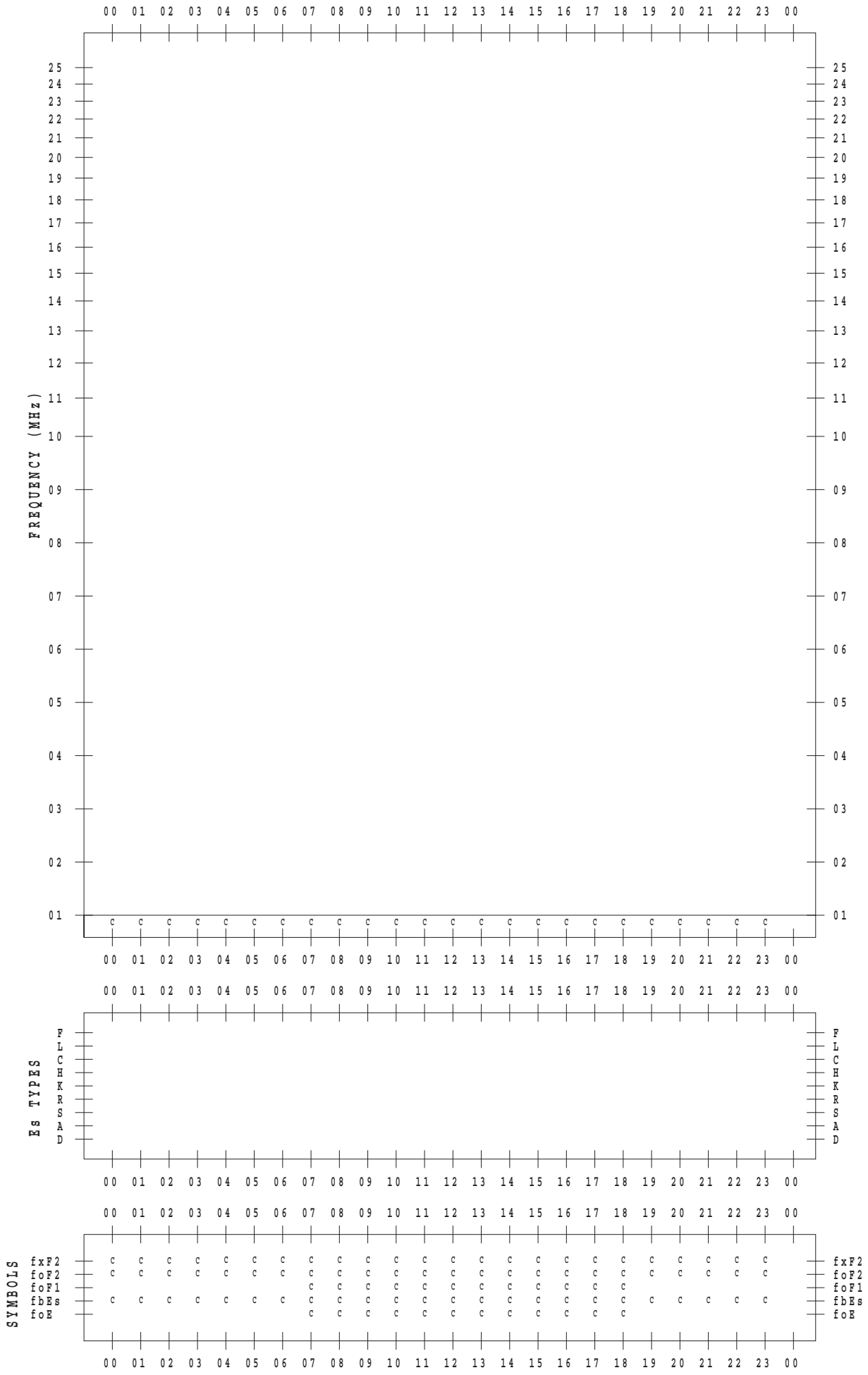
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2017/ 4/24

135 °E MEAN TIME



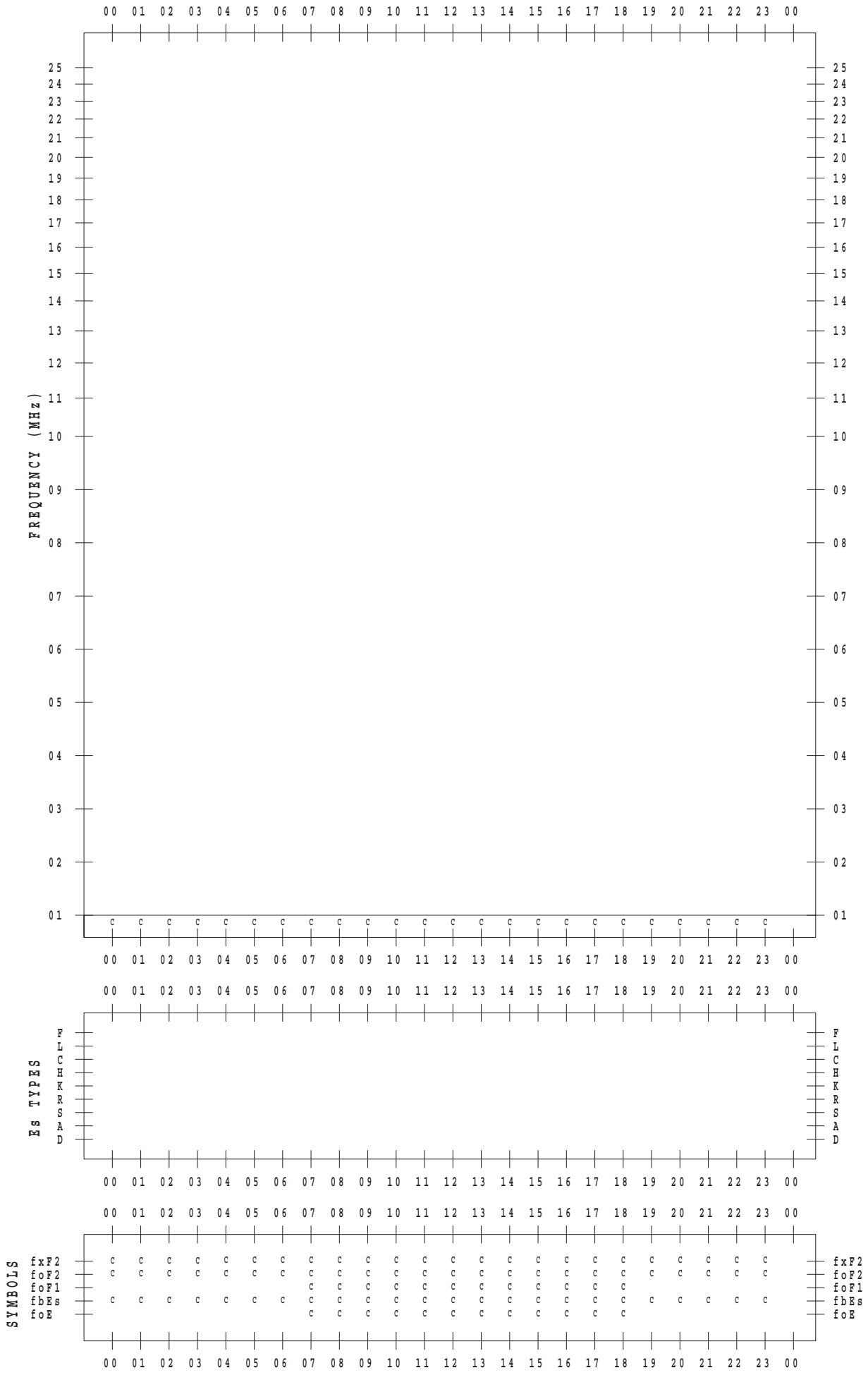
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2017/ 4/25

135 °E MEAN TIME



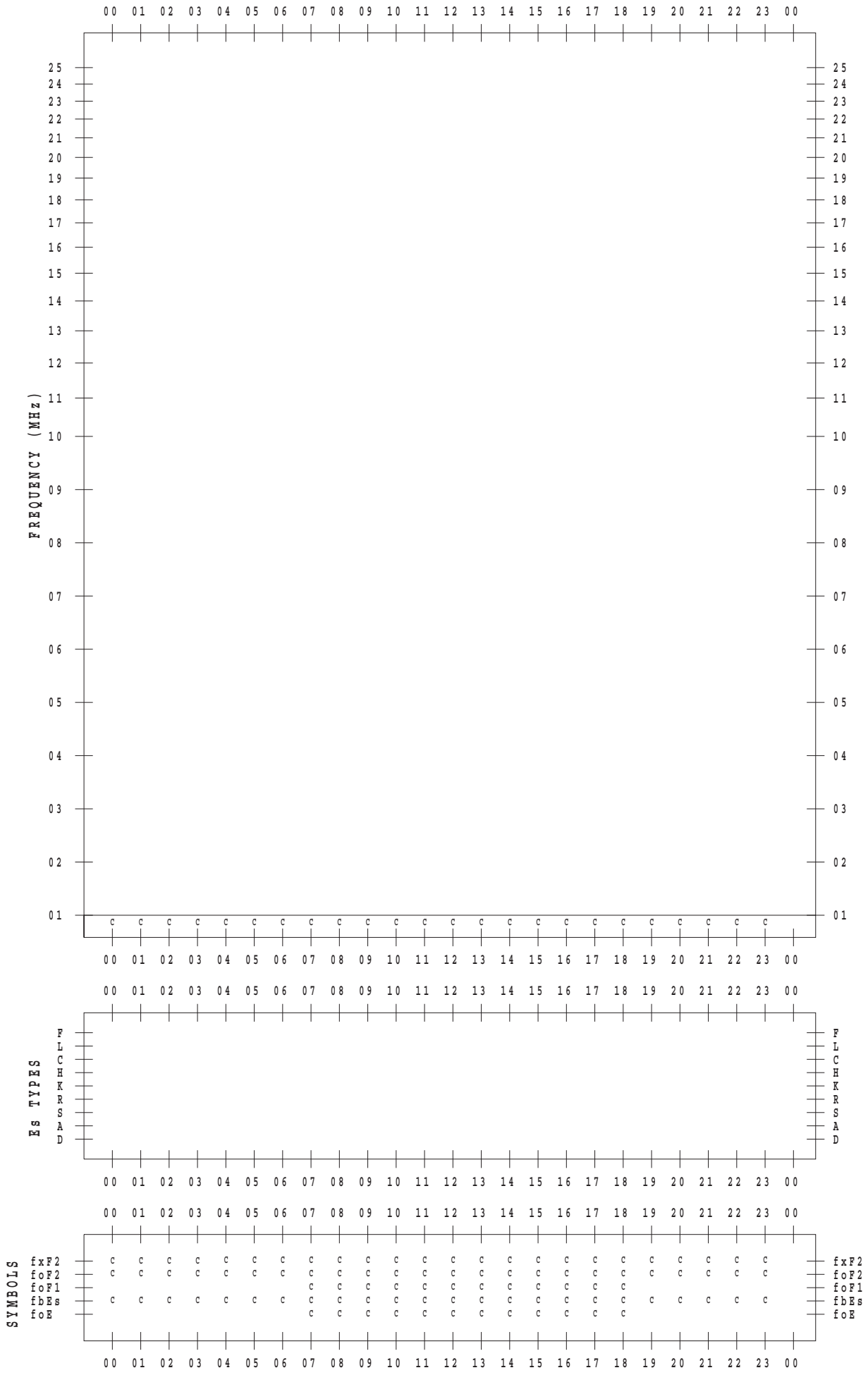
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2017/ 4/26

135 °E MEAN TIME



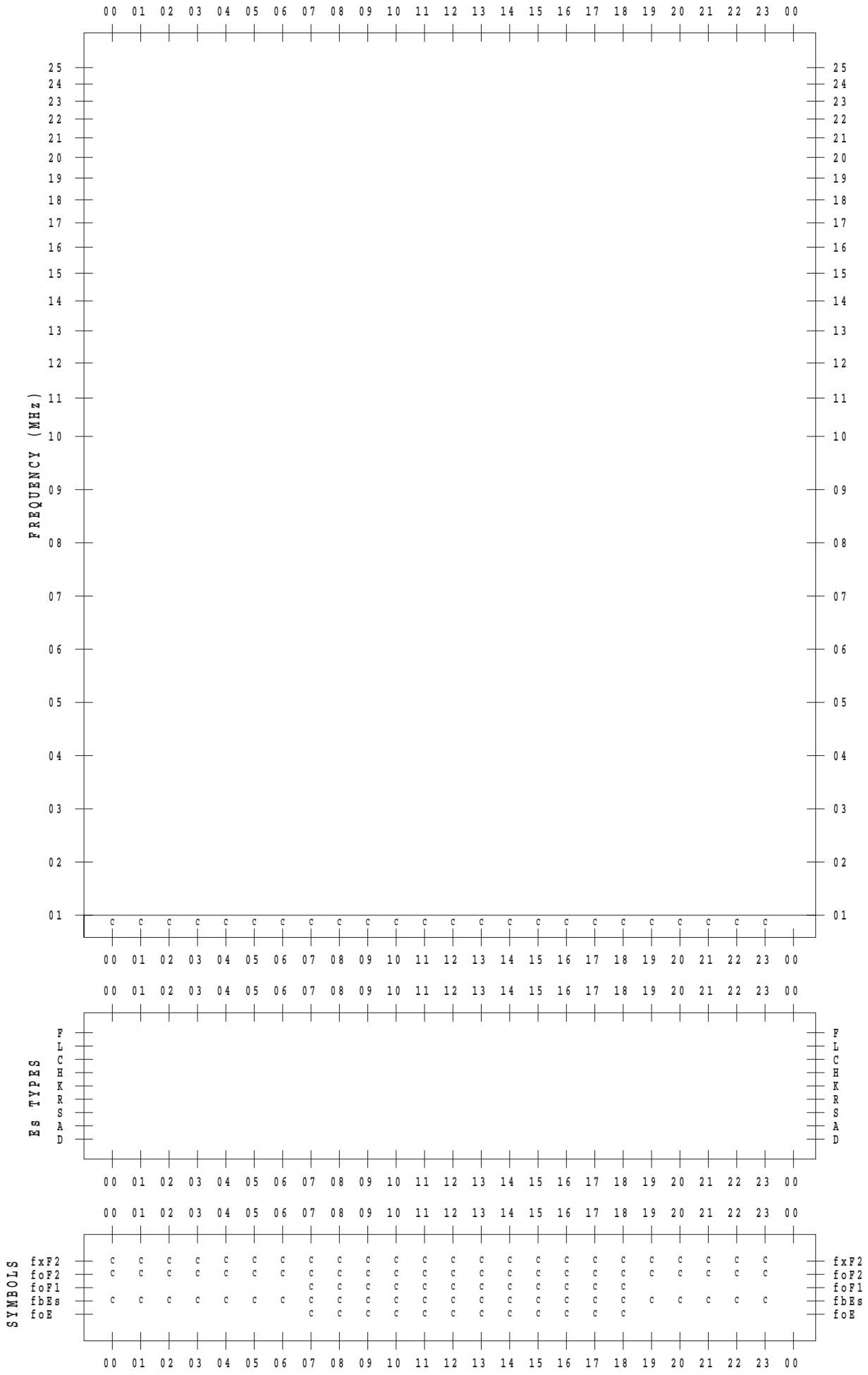
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2017/ 4/27

135 °E MEAN TIME



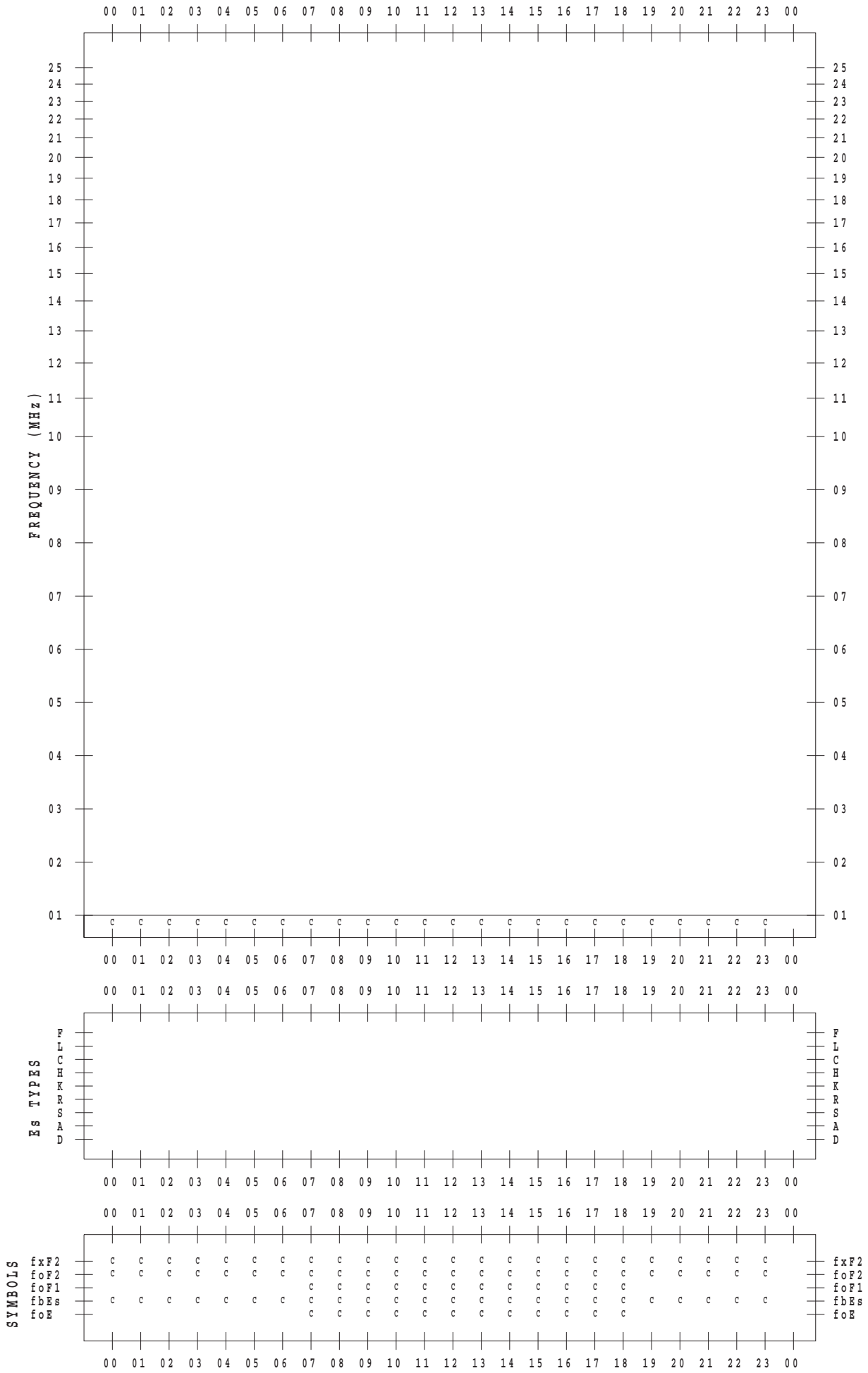
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2017/ 4/28

135 °E MEAN TIME



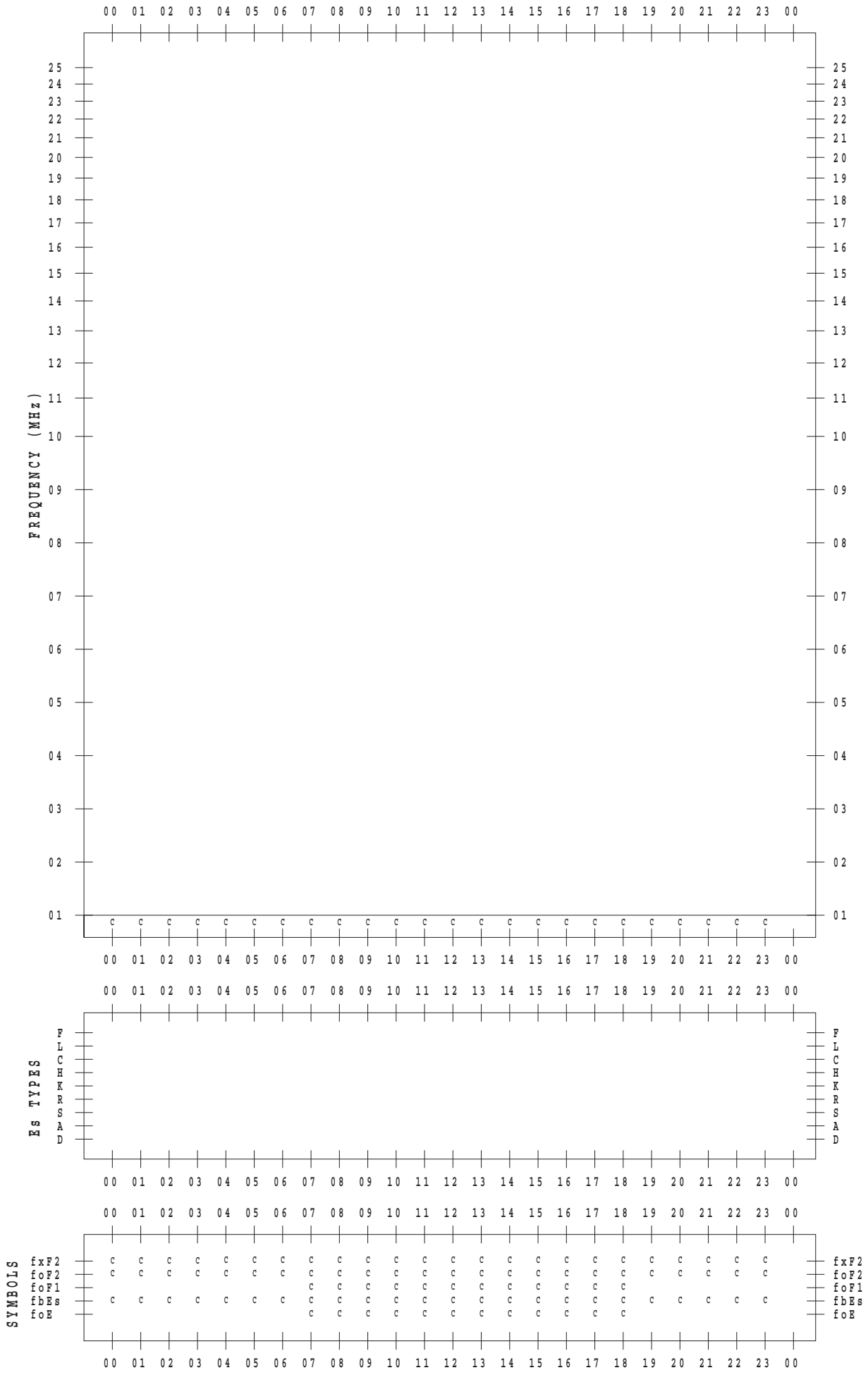
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2017/ 4/29

135 °E MEAN TIME



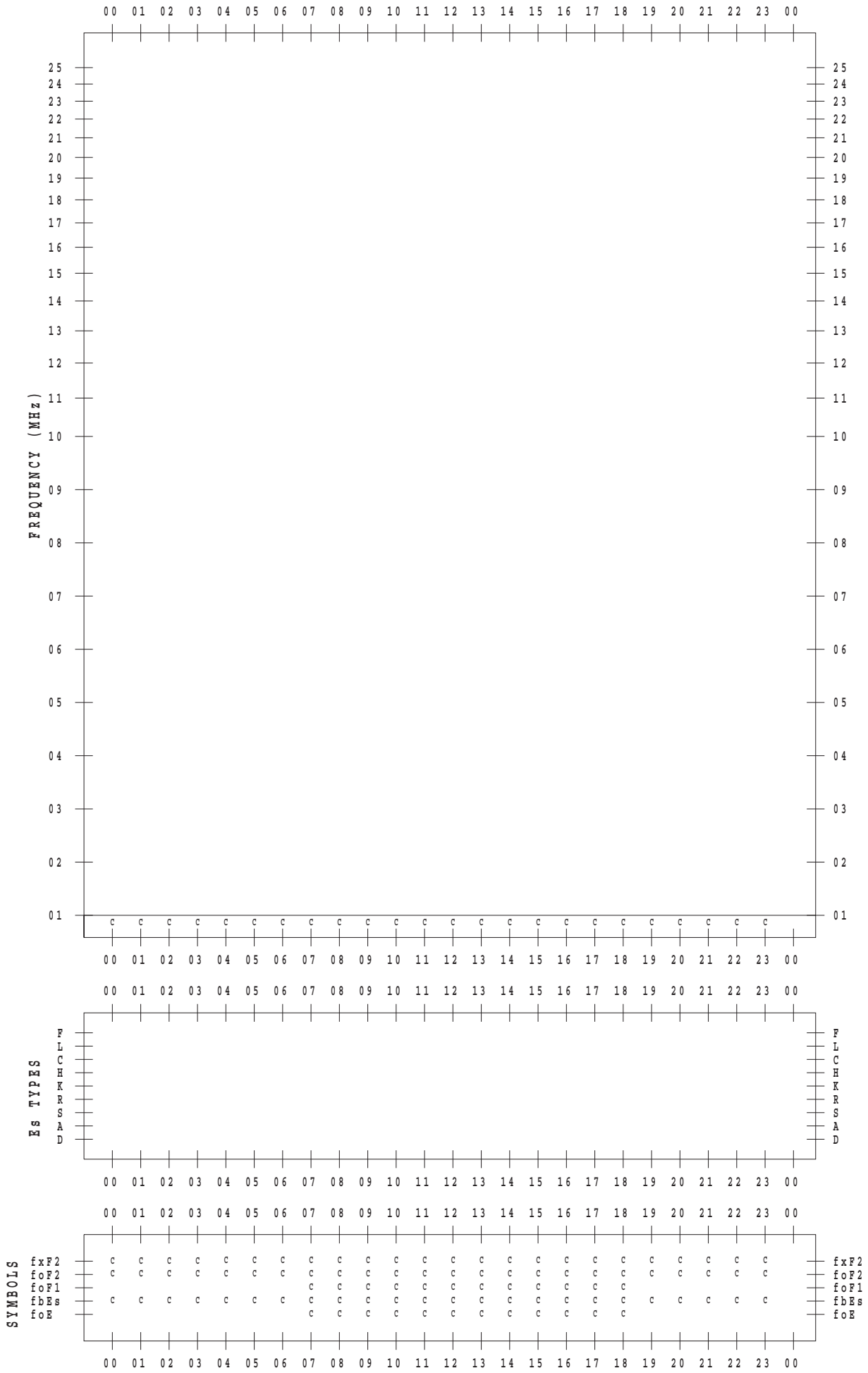
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2017/ 4/30

135 °E MEAN TIME



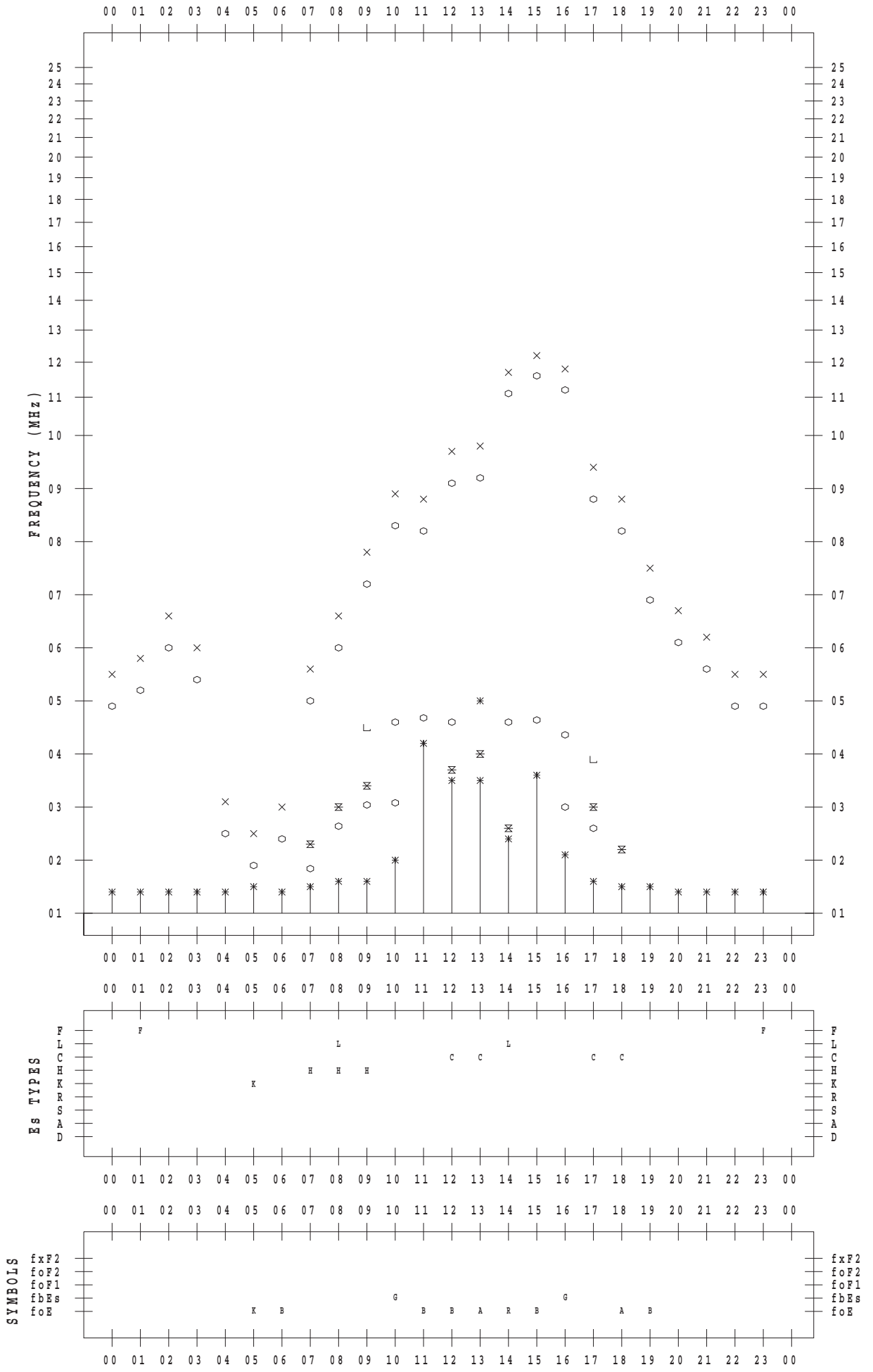
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2017/ 4/ 1

135 °E MEAN TIME



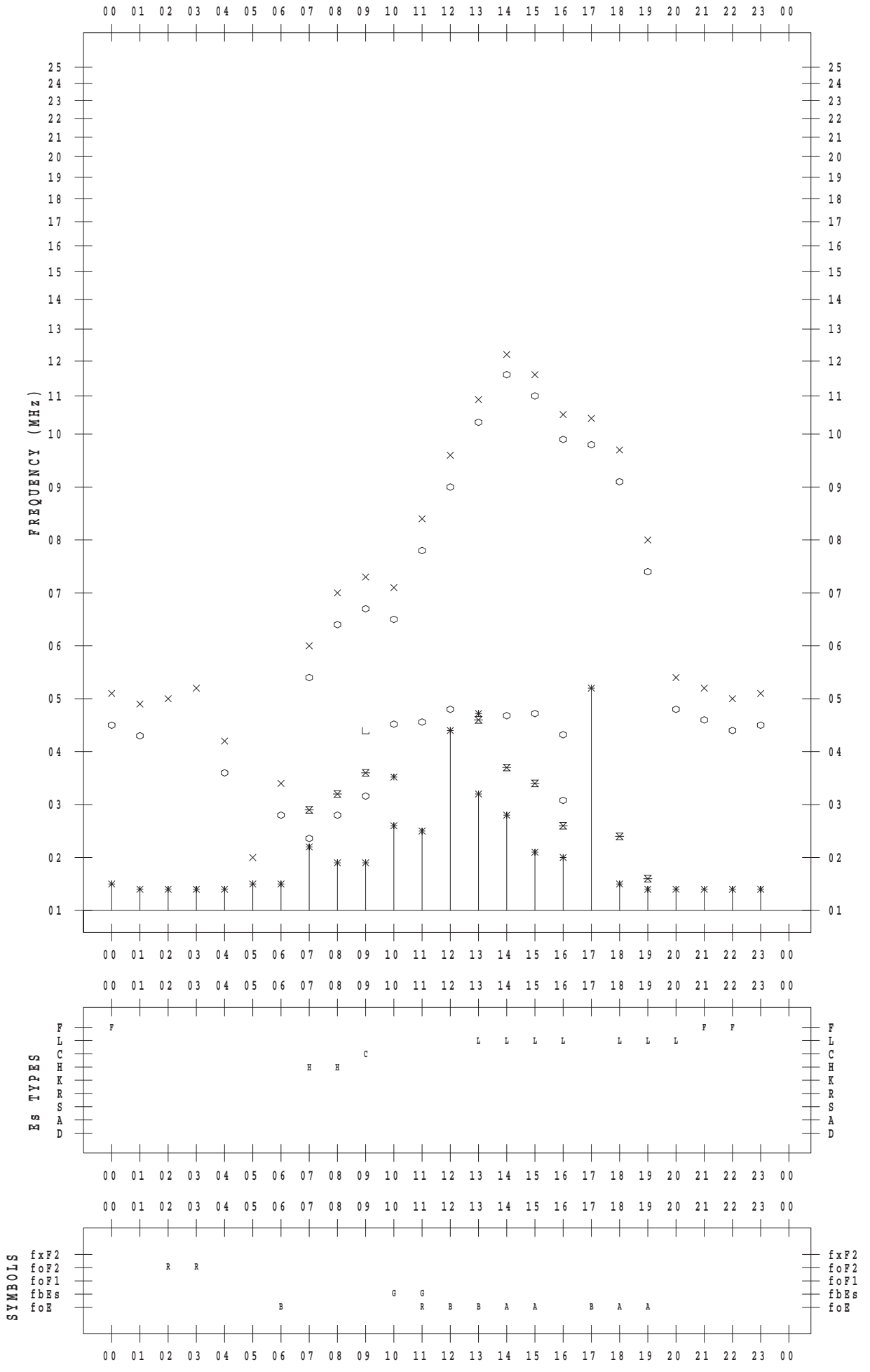
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2017/ 4/ 2

135 °E MEAN TIME



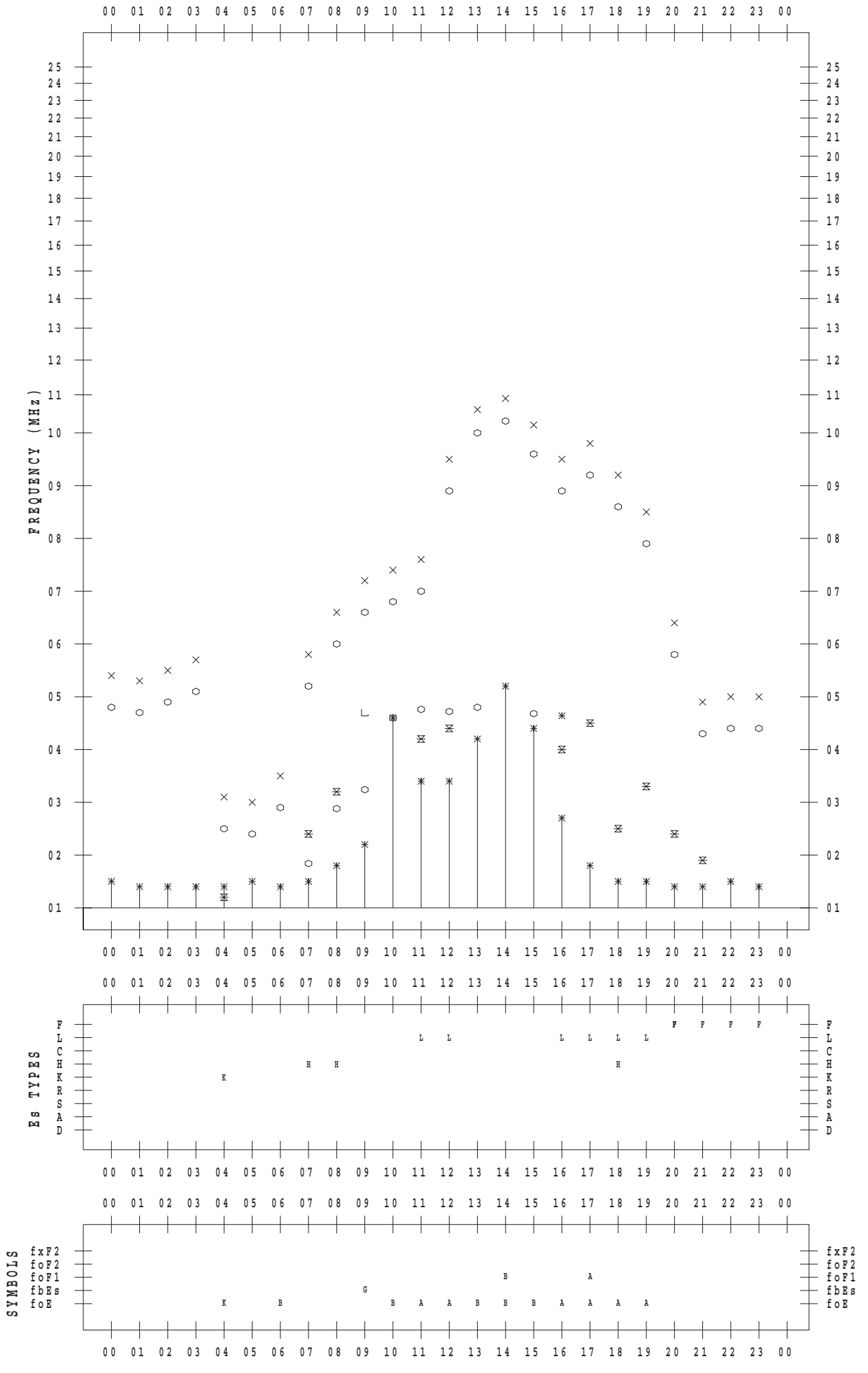
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2017/ 4/ 3

135 °E MEAN TIME



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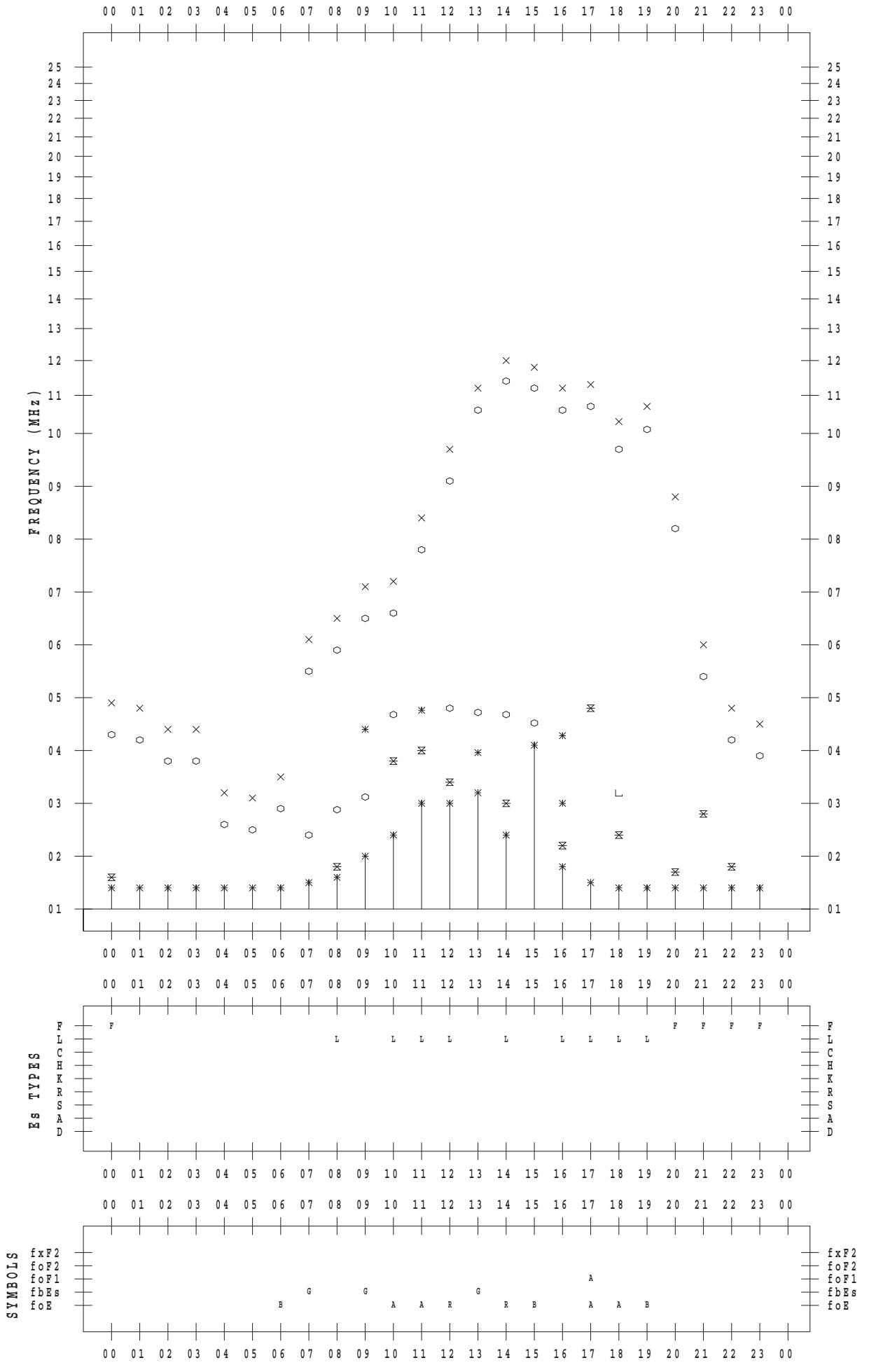
SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2017/ 4/ 4

135 °E MEAN TIME



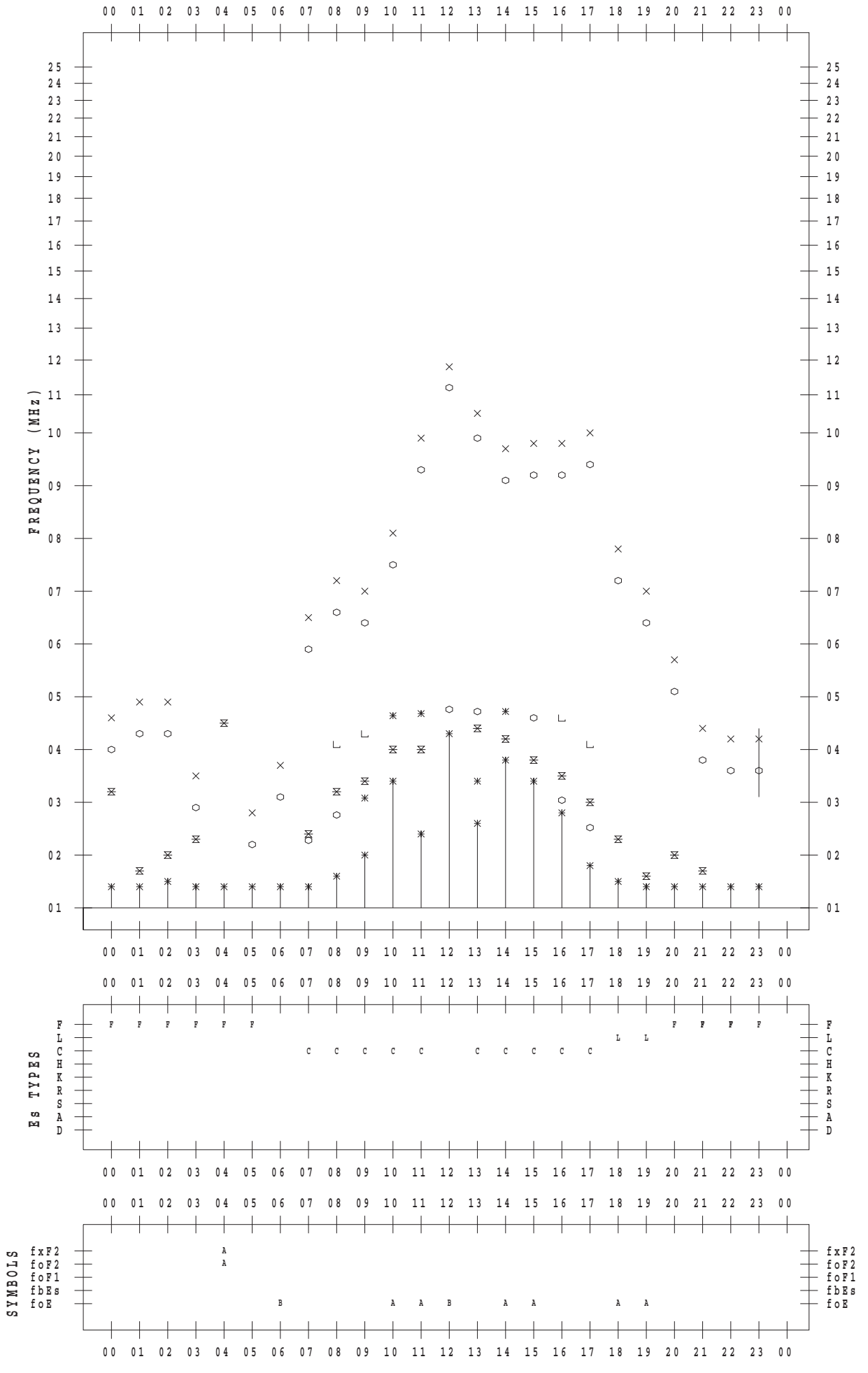
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2017/ 4/ 5

135 °E MEAN TIME



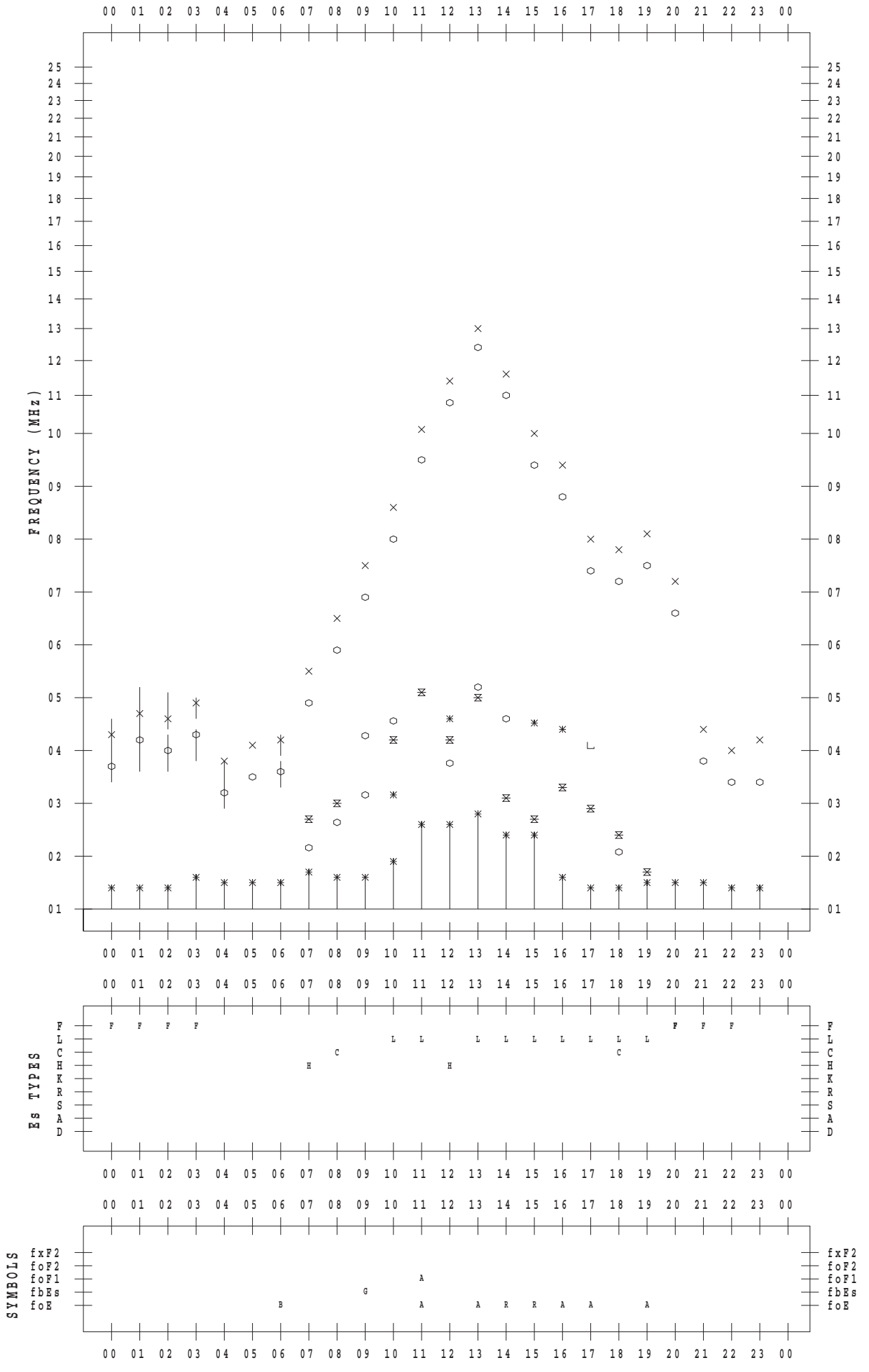
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2017/ 4/ 6

135 °E MEAN TIME



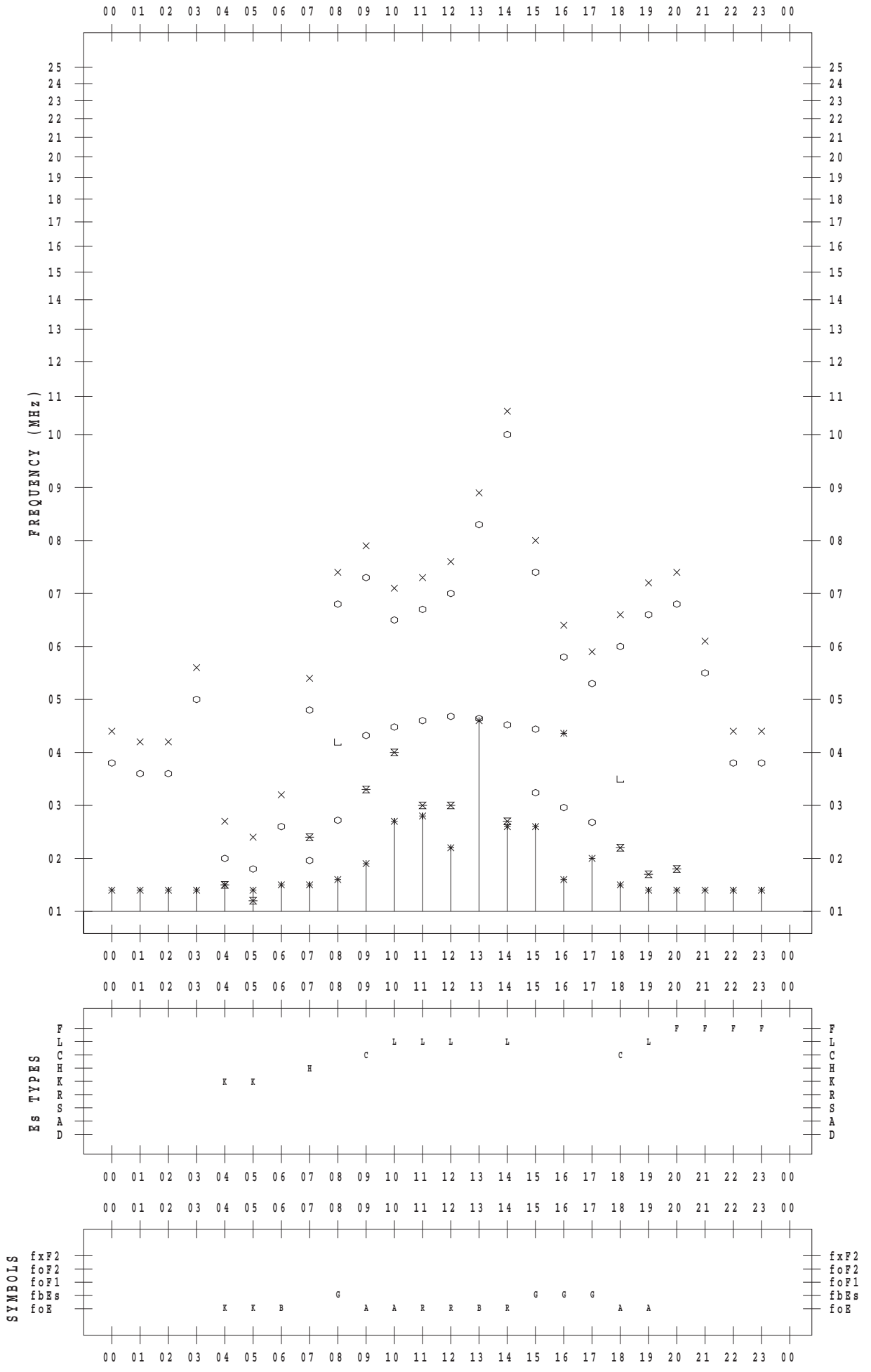
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2017/ 4/ 7

135 °E MEAN TIME



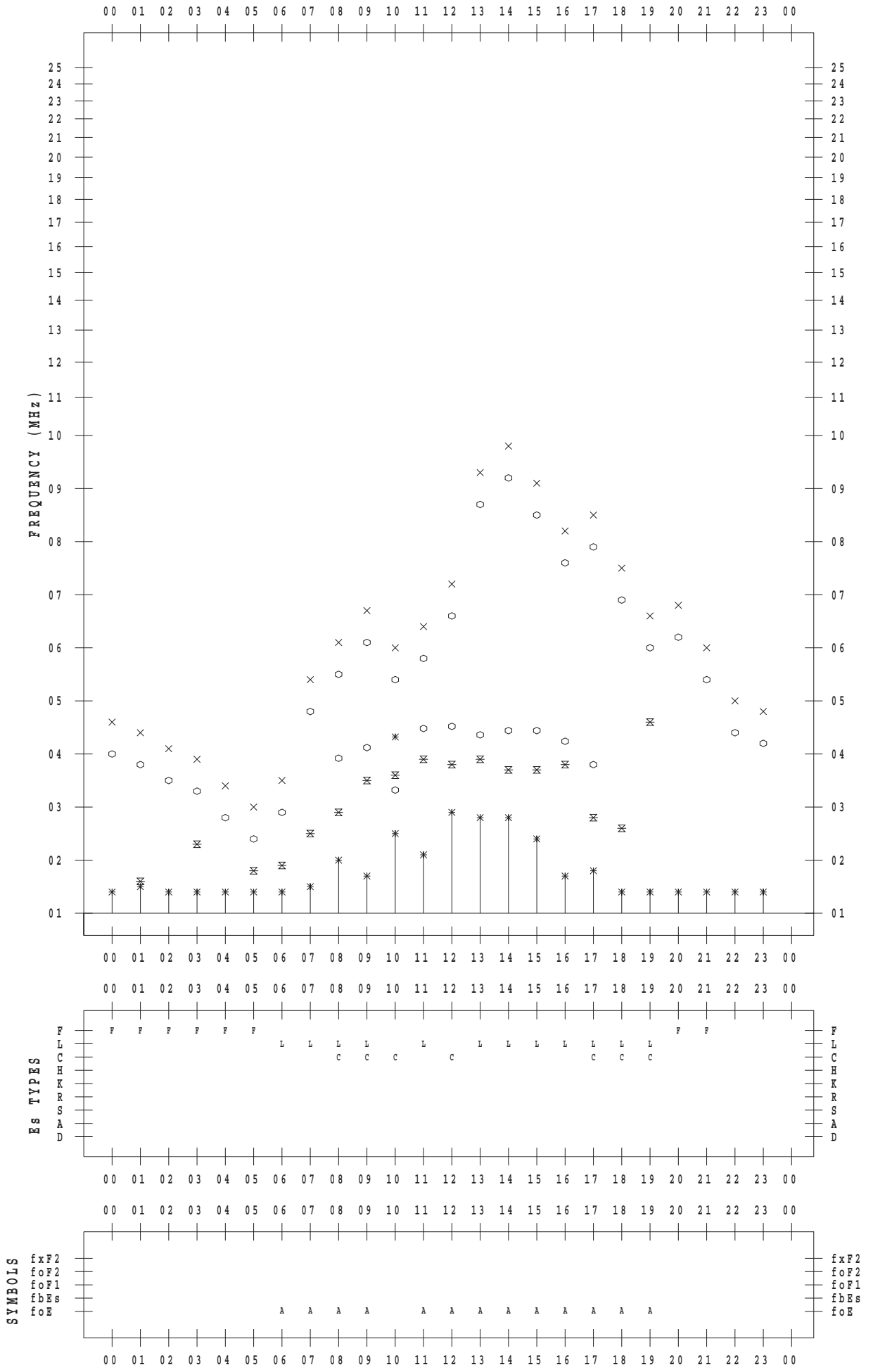
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2017/ 4/ 8

135 °E MEAN TIME



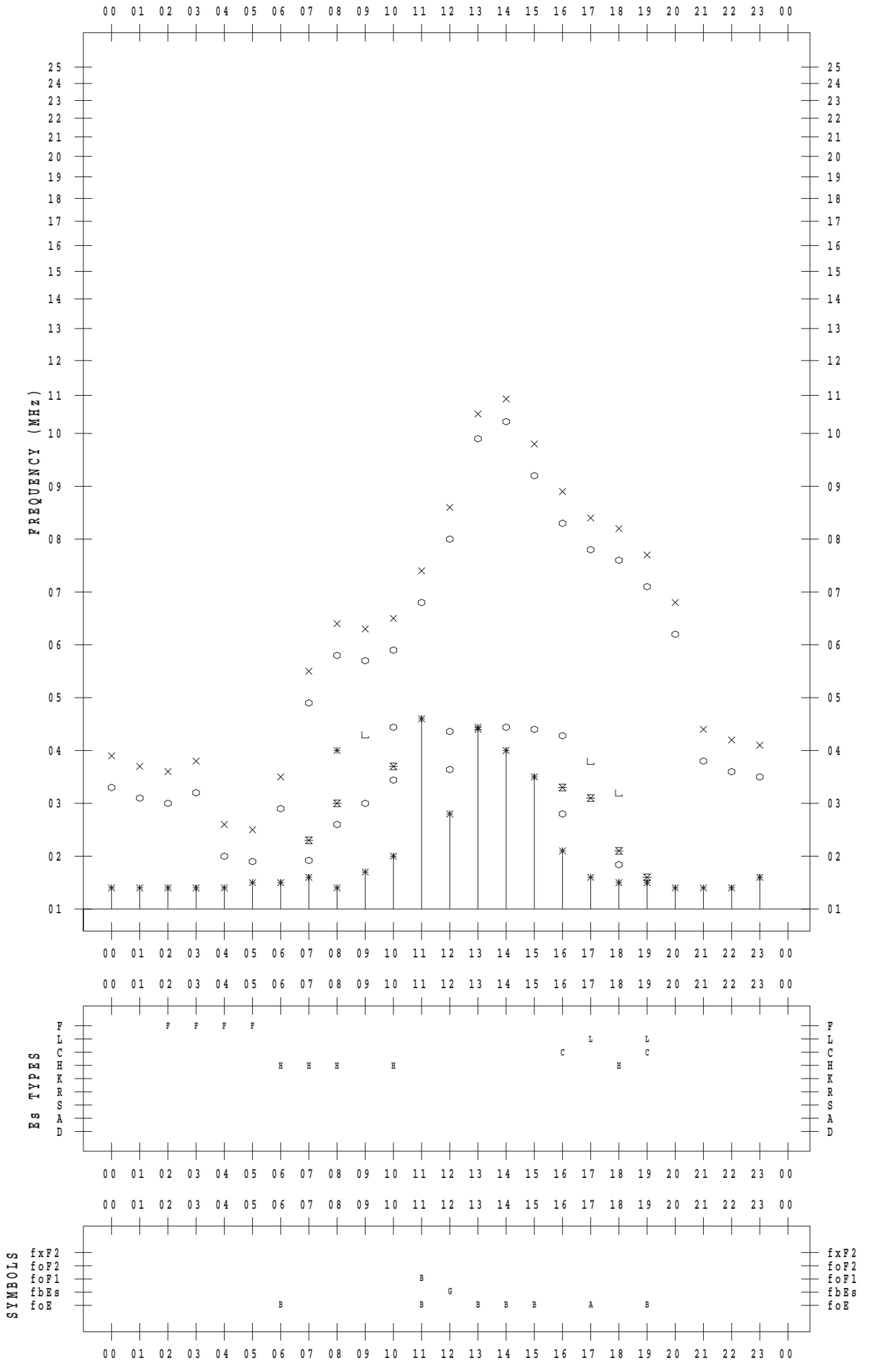
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2017/ 4/ 9

135 °E MEAN TIME



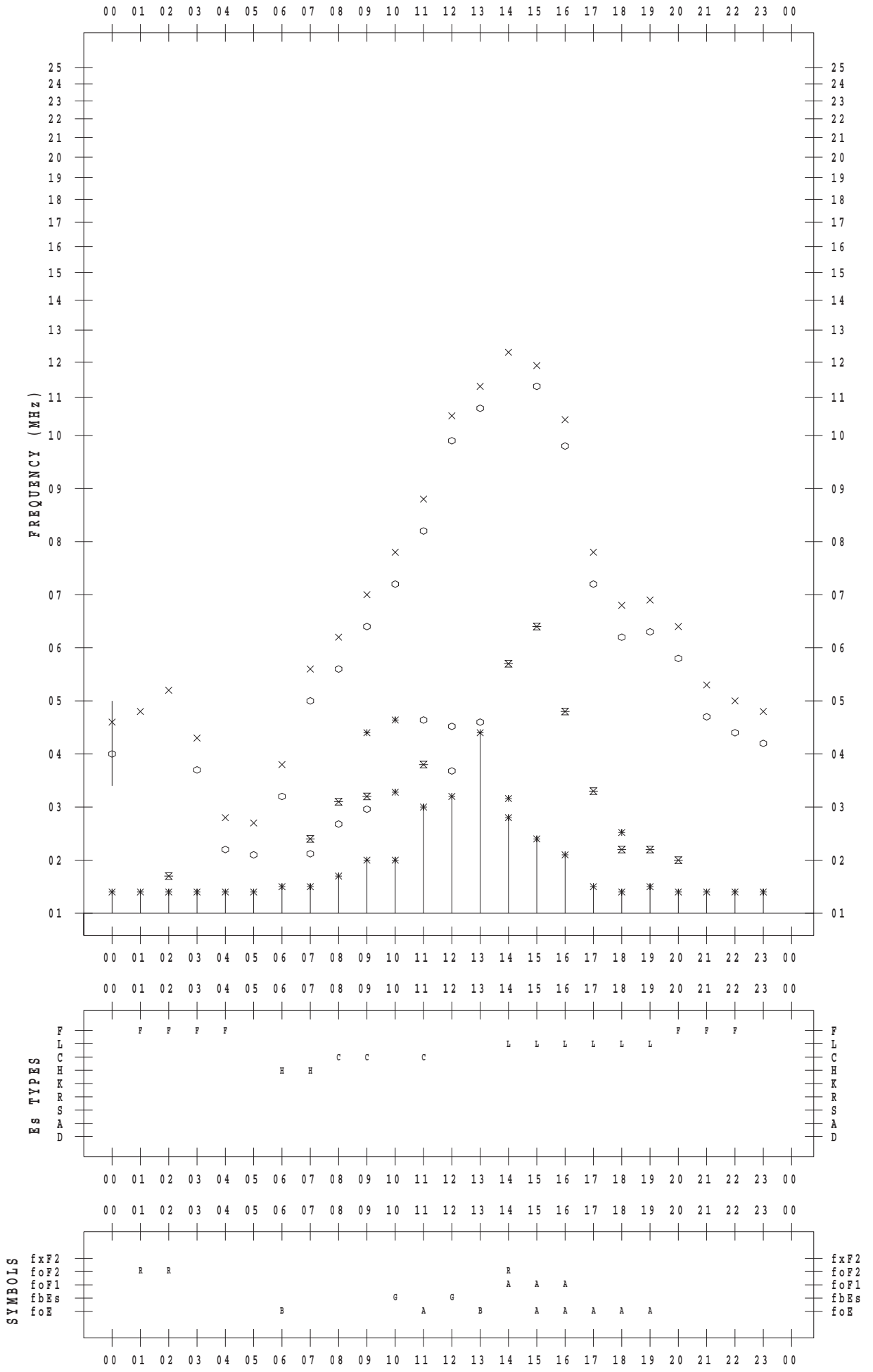
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2017/ 4/10

135 °E MEAN TIME



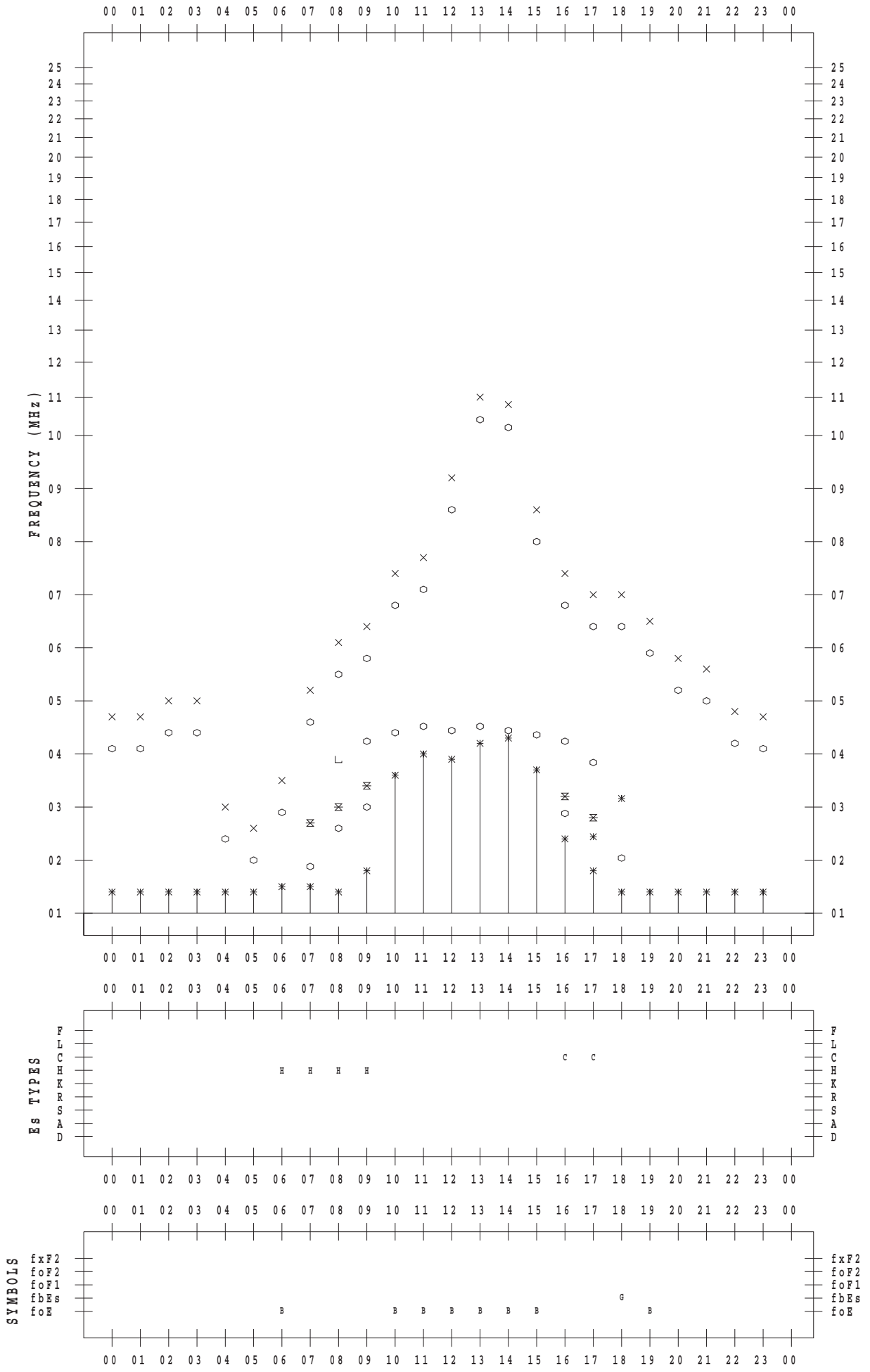
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2017/ 4/11

135 °E MEAN TIME



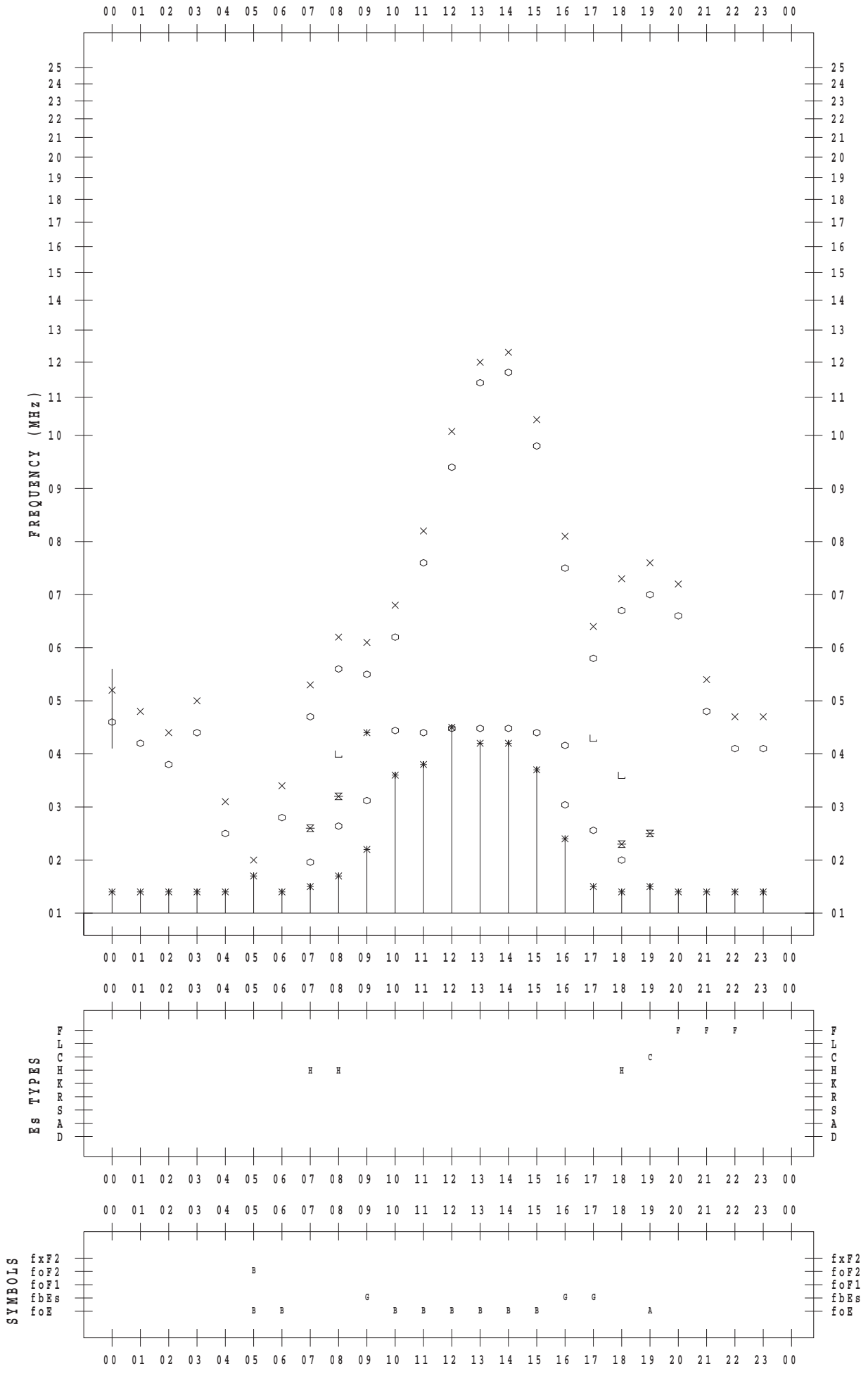
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2017/ 4/12

135 °E MEAN TIME



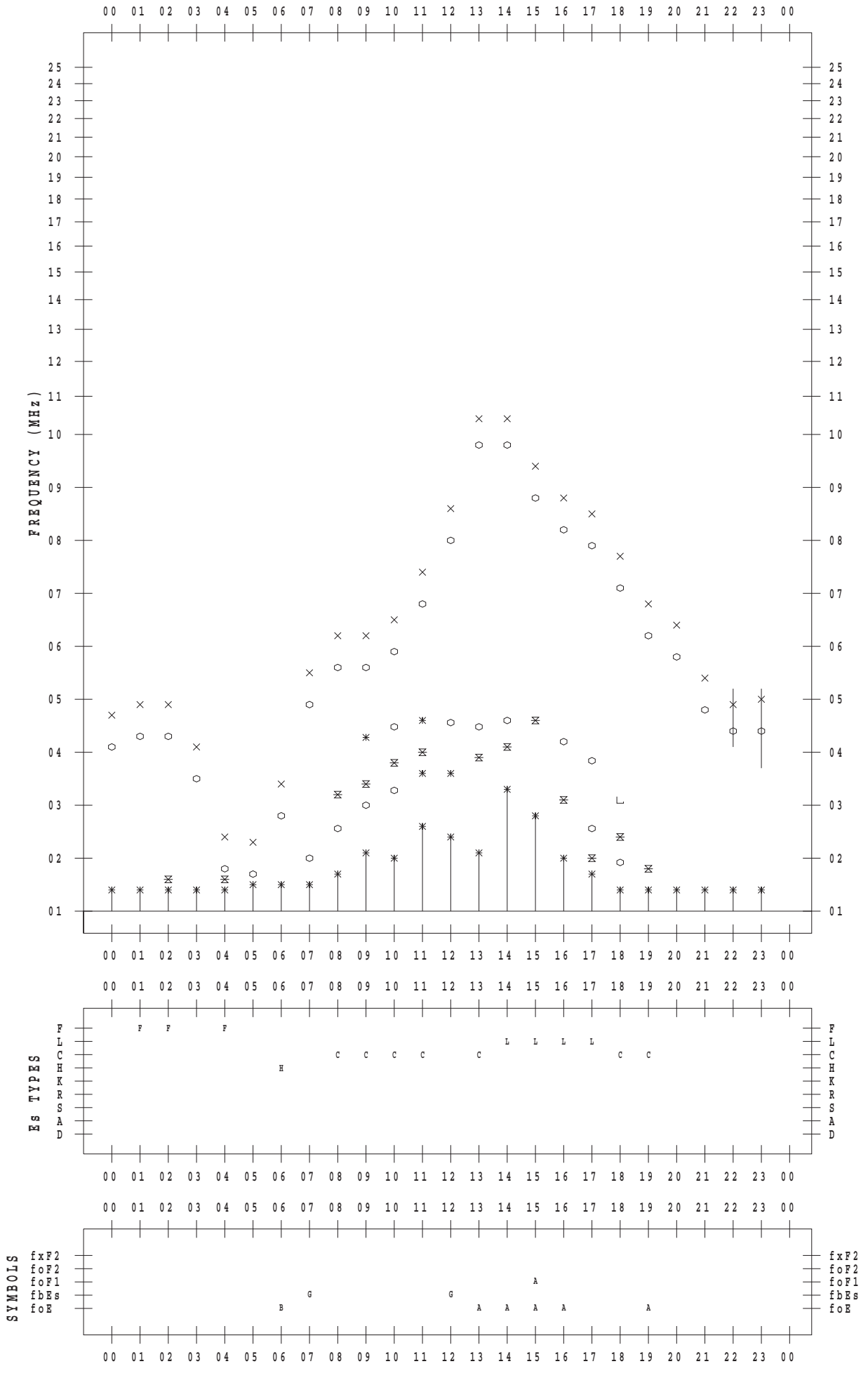
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2017/ 4/13

135 °E MEAN TIME



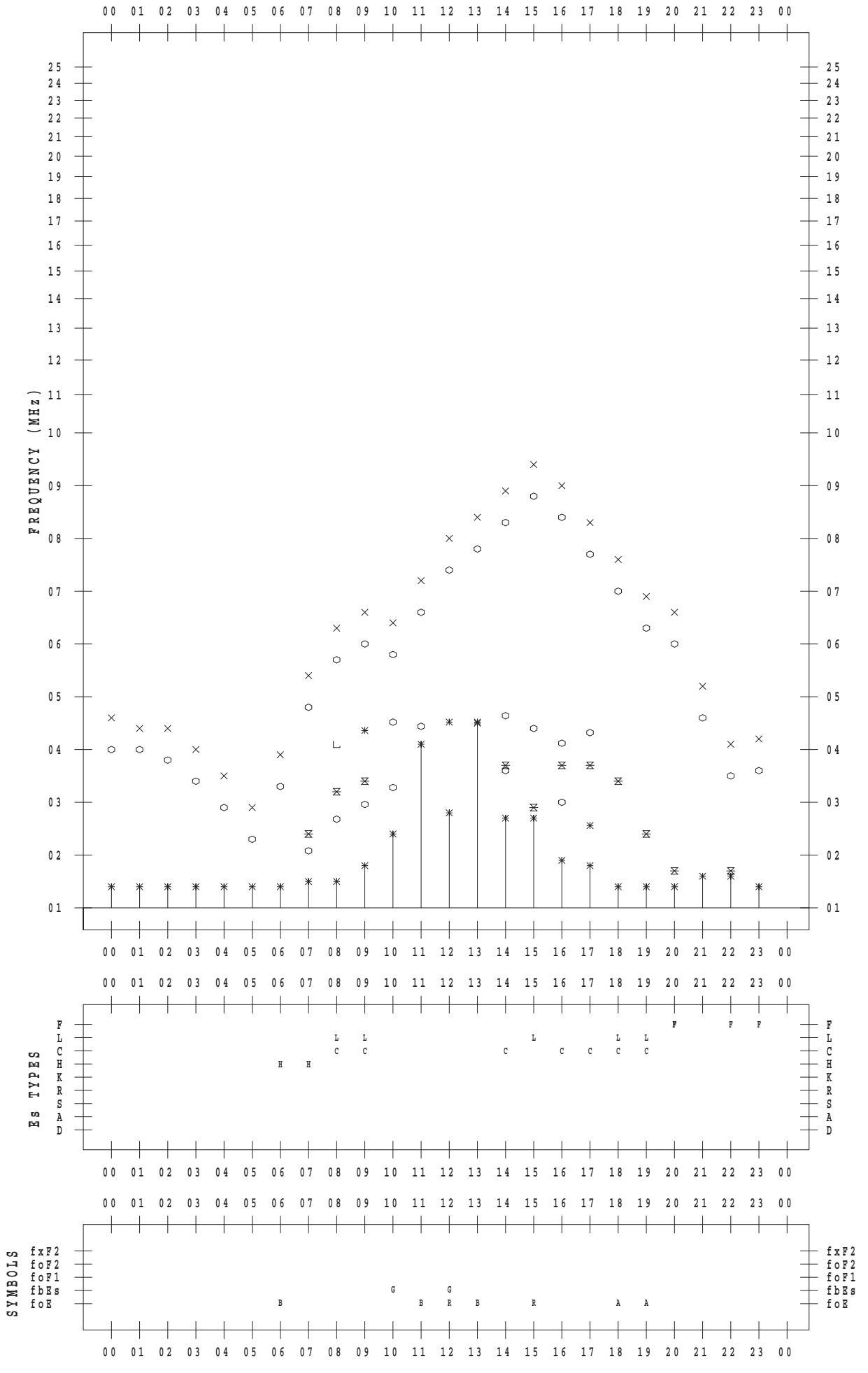
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2017/ 4/14

135 °E MEAN TIME



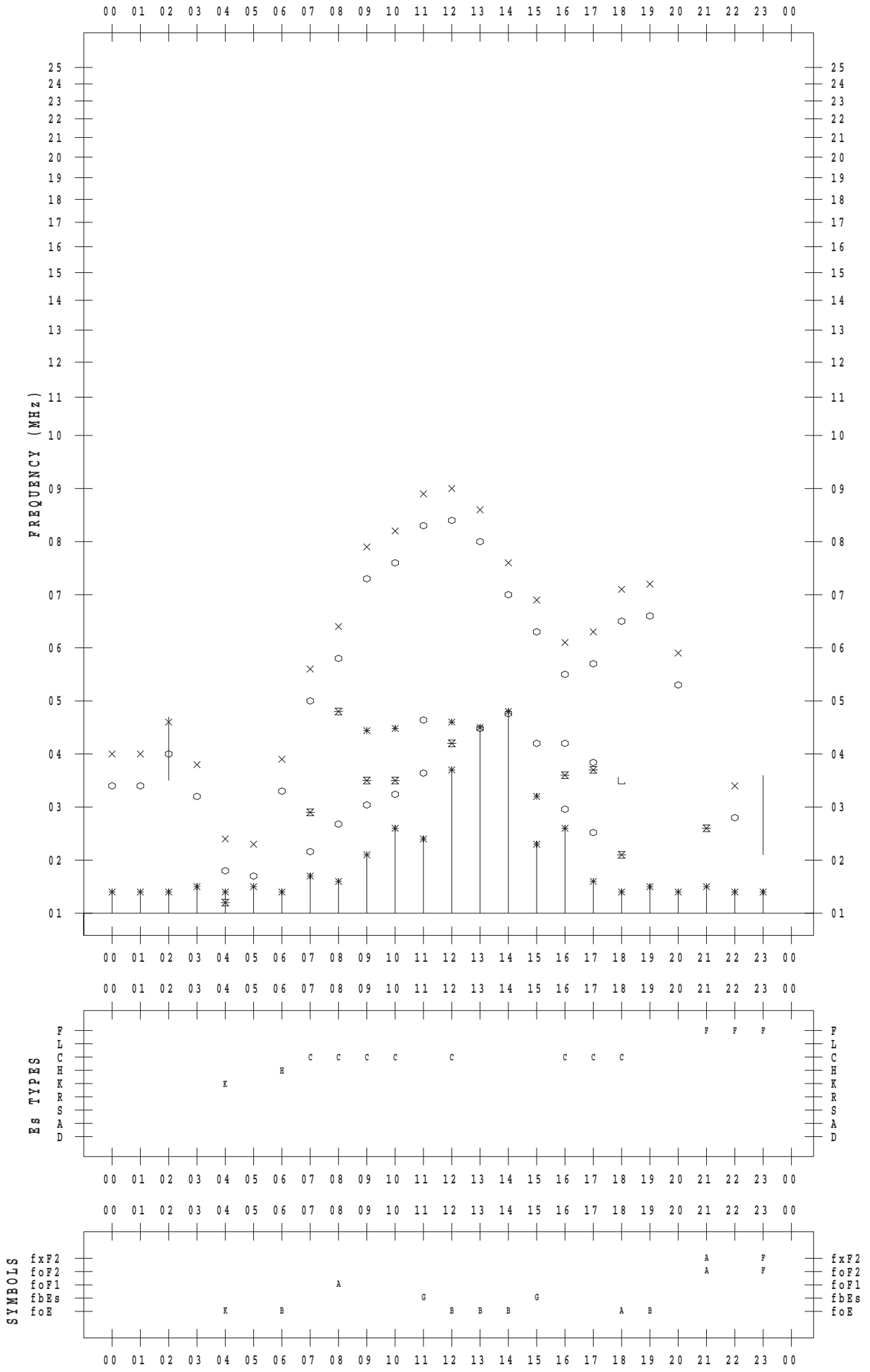
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2017/ 4/15

135 °E MEAN TIME



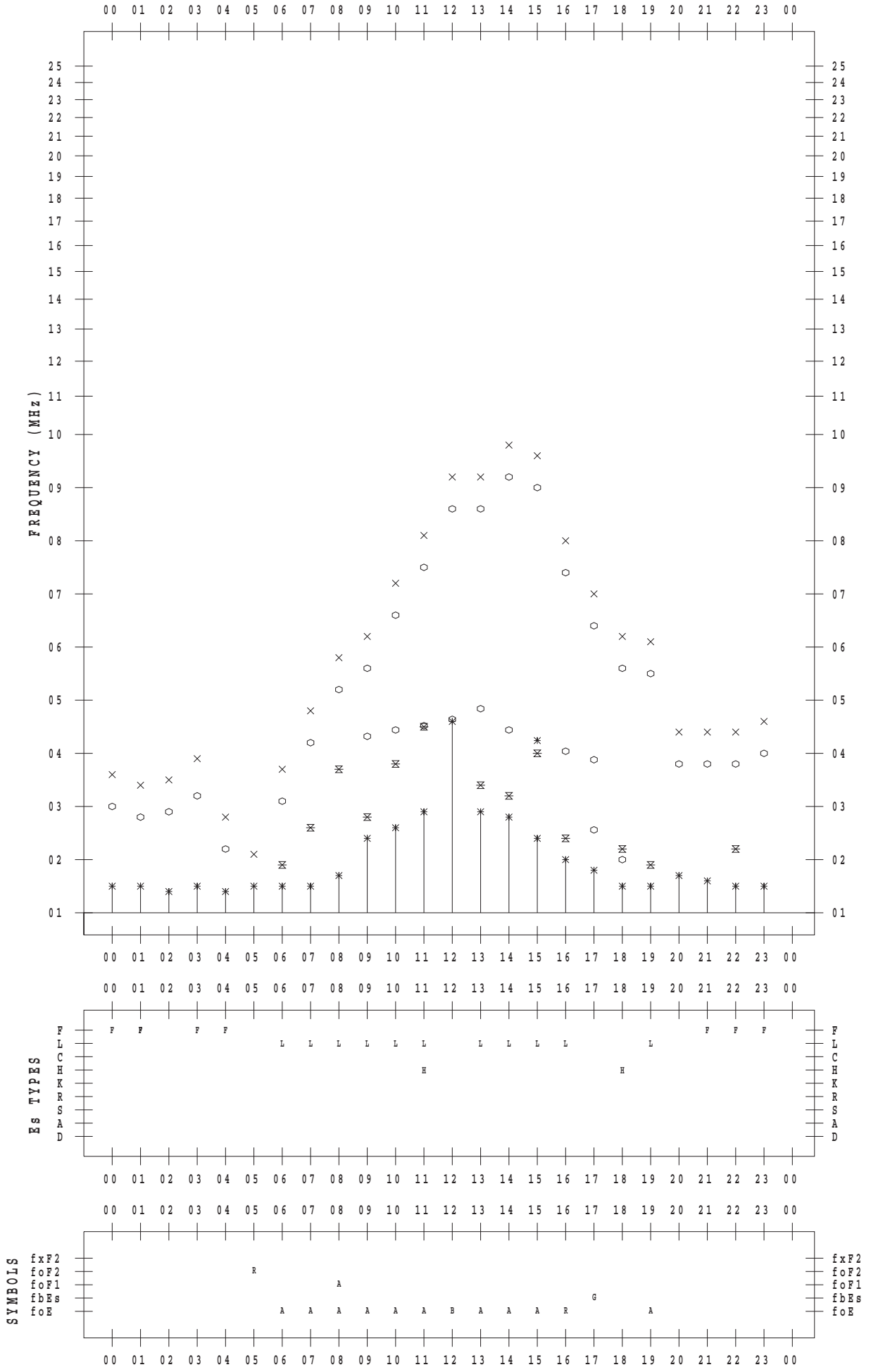
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2017/ 4/16

135 °E MEAN TIME



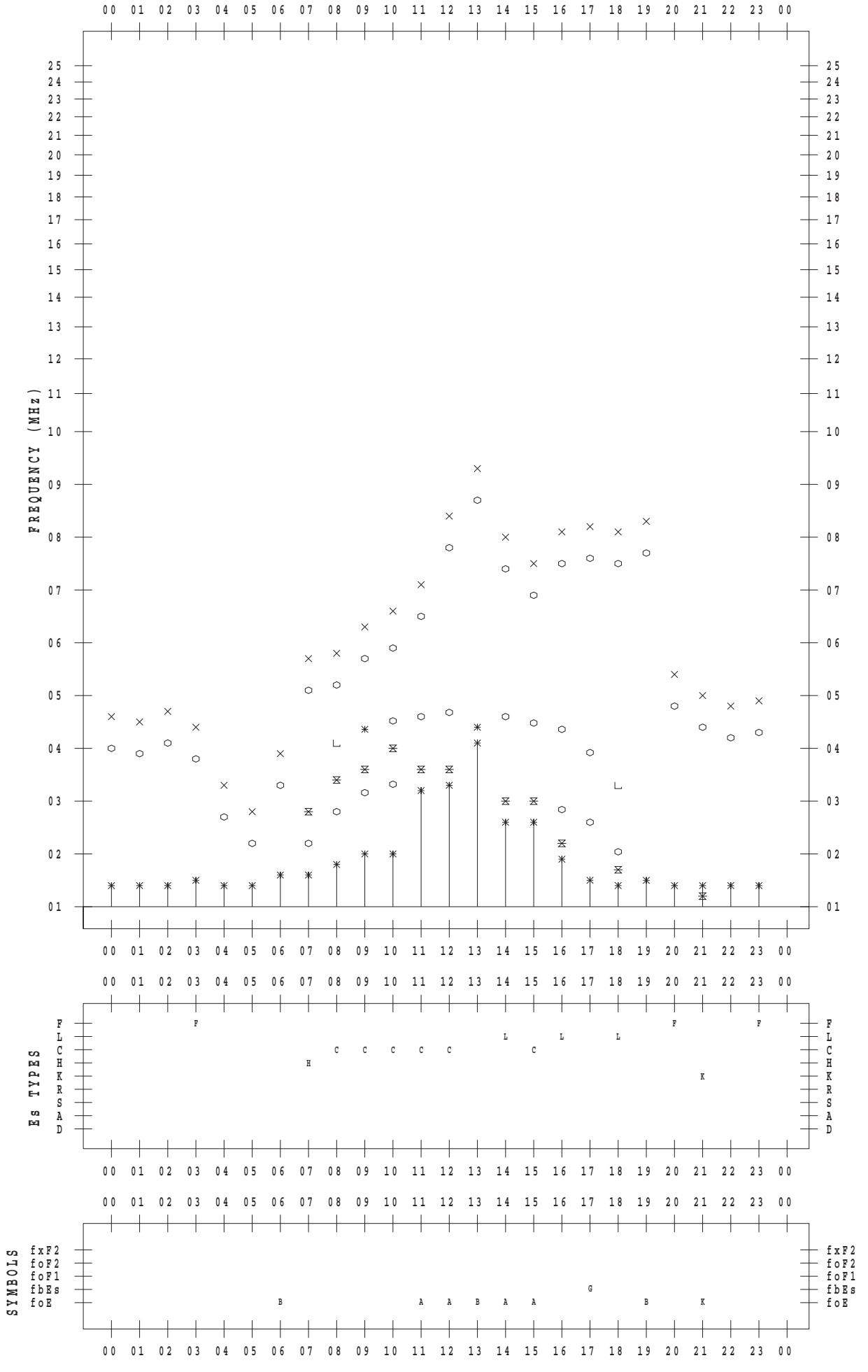
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2017/ 4/17

135 °E MEAN TIME



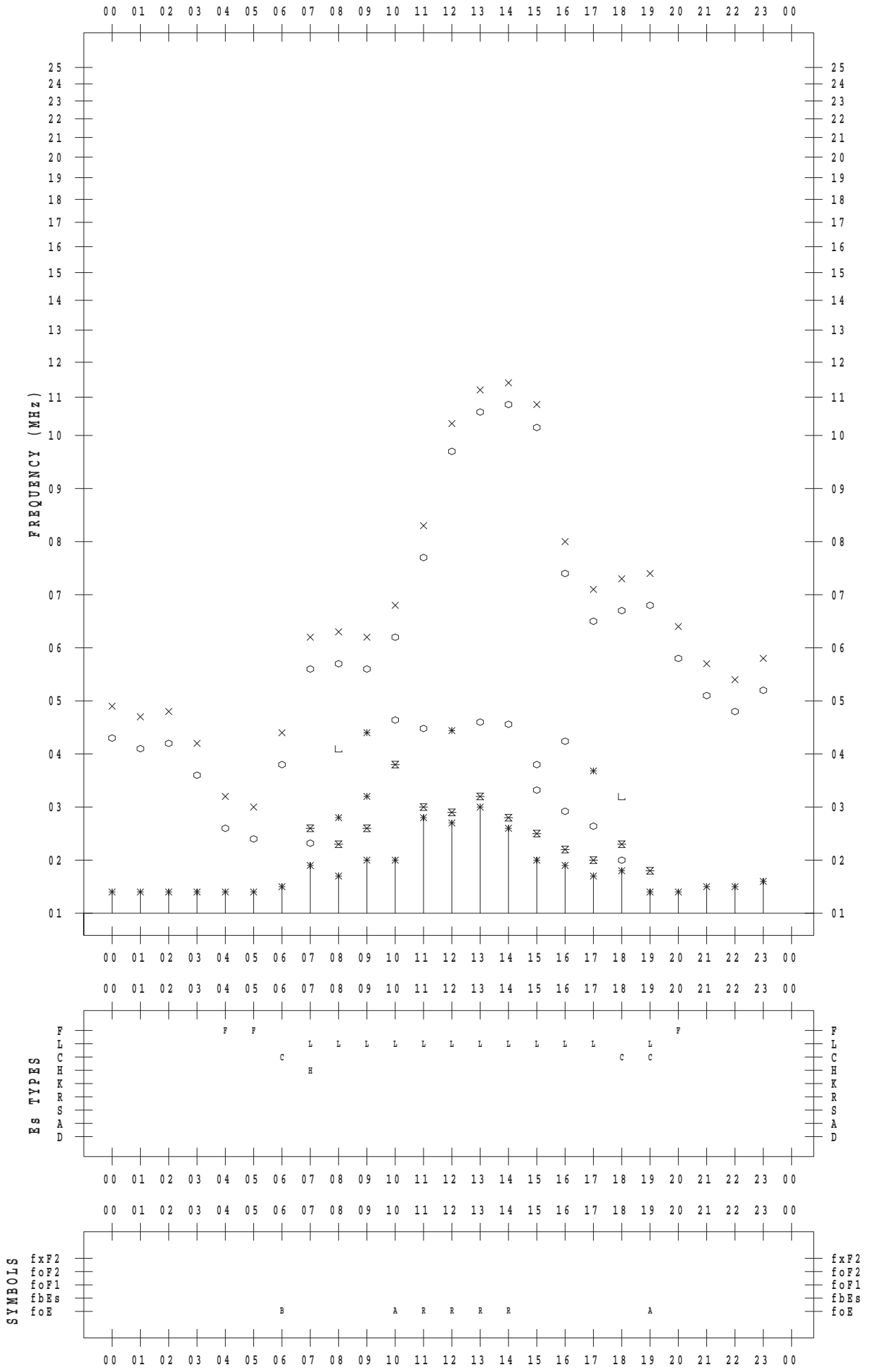
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2017/ 4/18

135 °E MEAN TIME



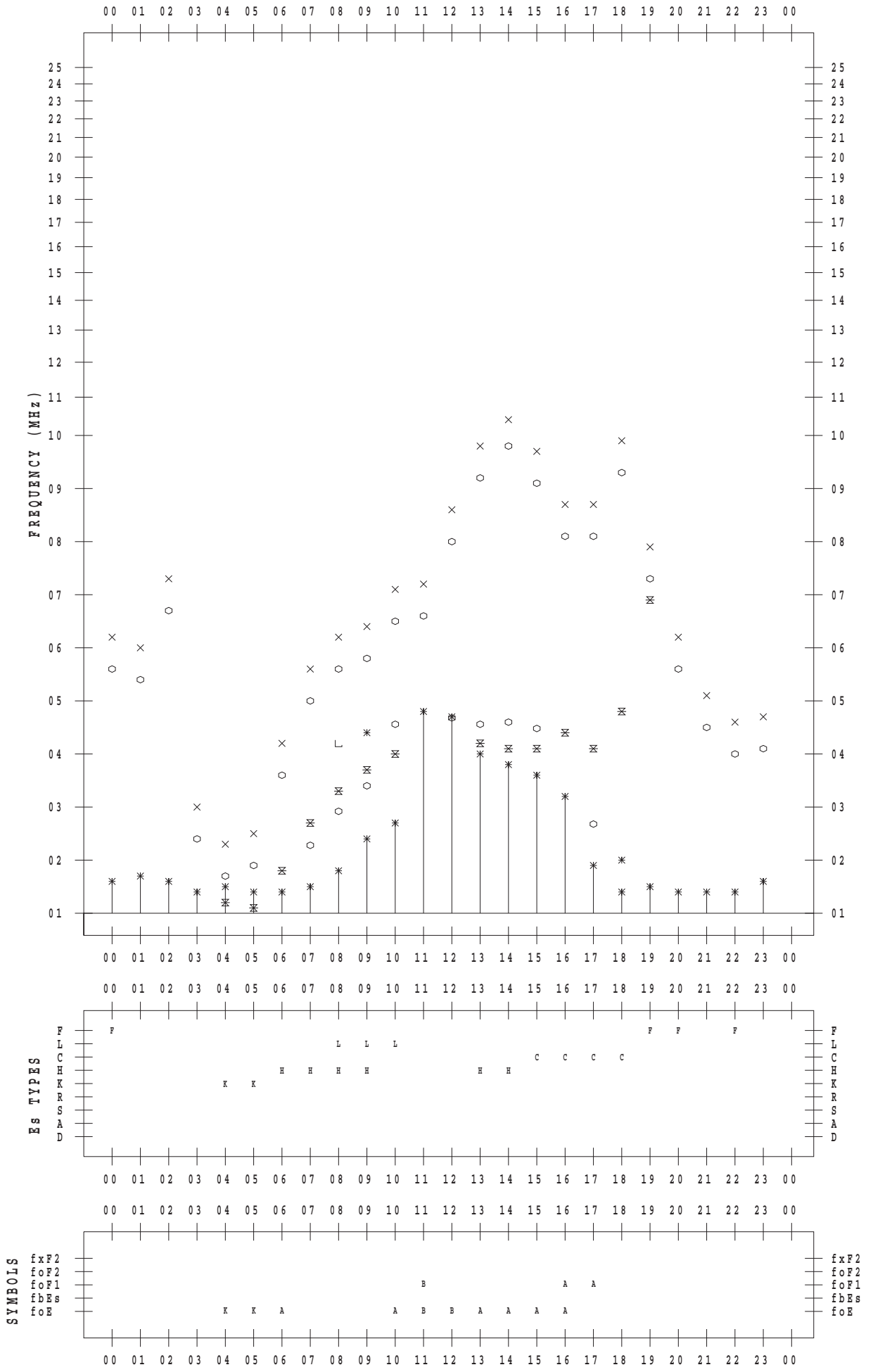
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2017/ 4/19

135 °E MEAN TIME



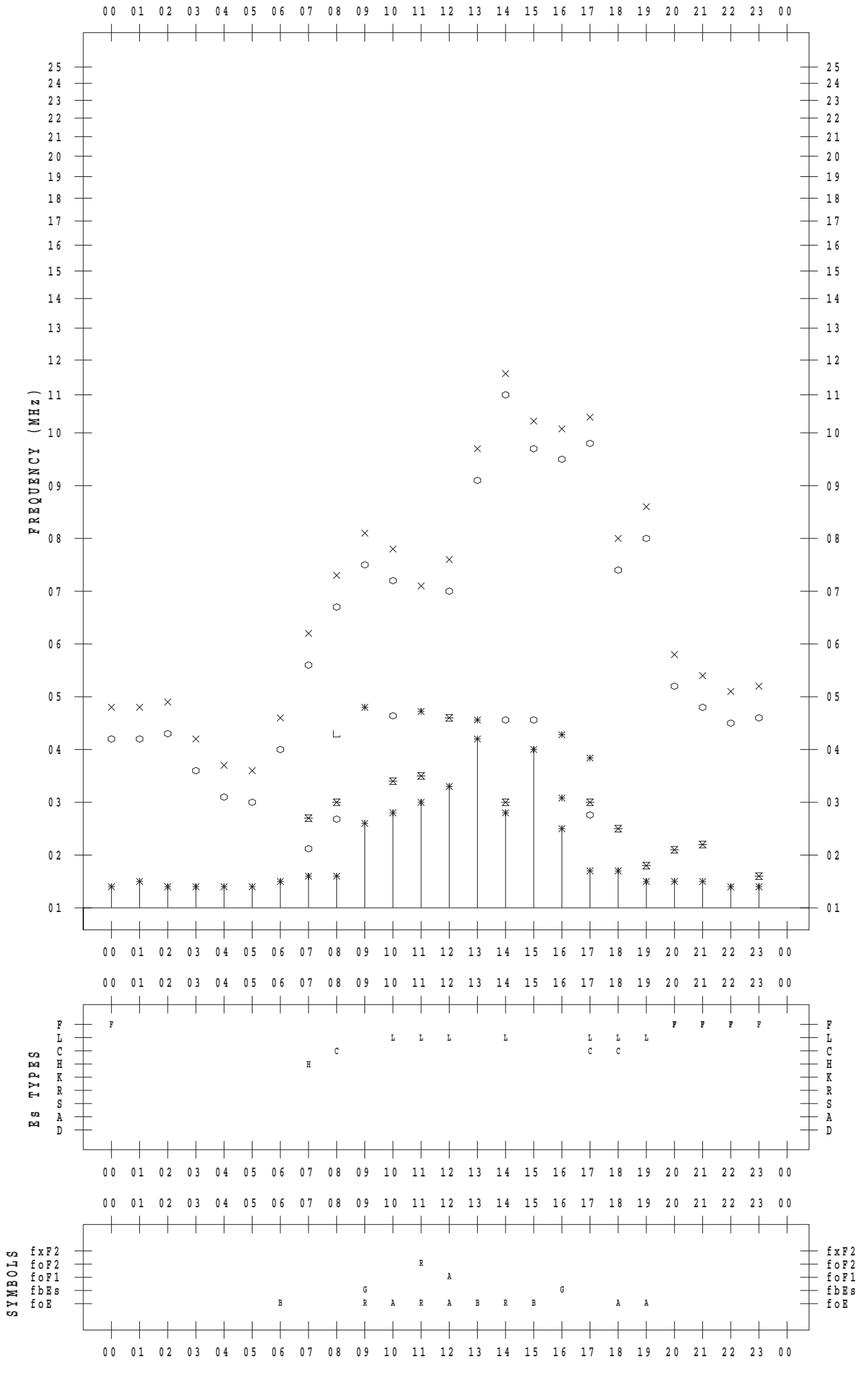
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2017/ 4/20

135 °E MEAN TIME



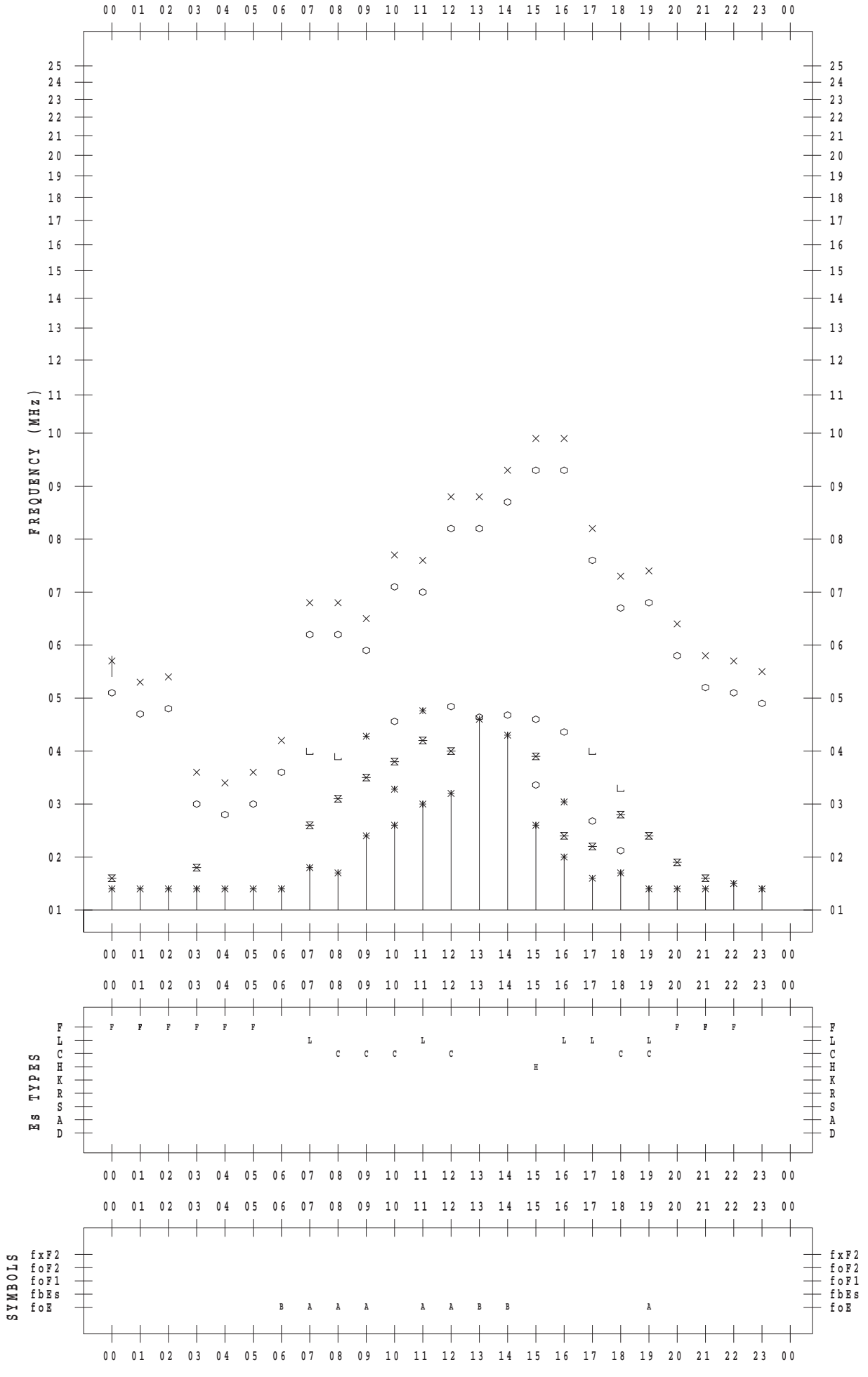
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2017/ 4/21

135 °E MEAN TIME



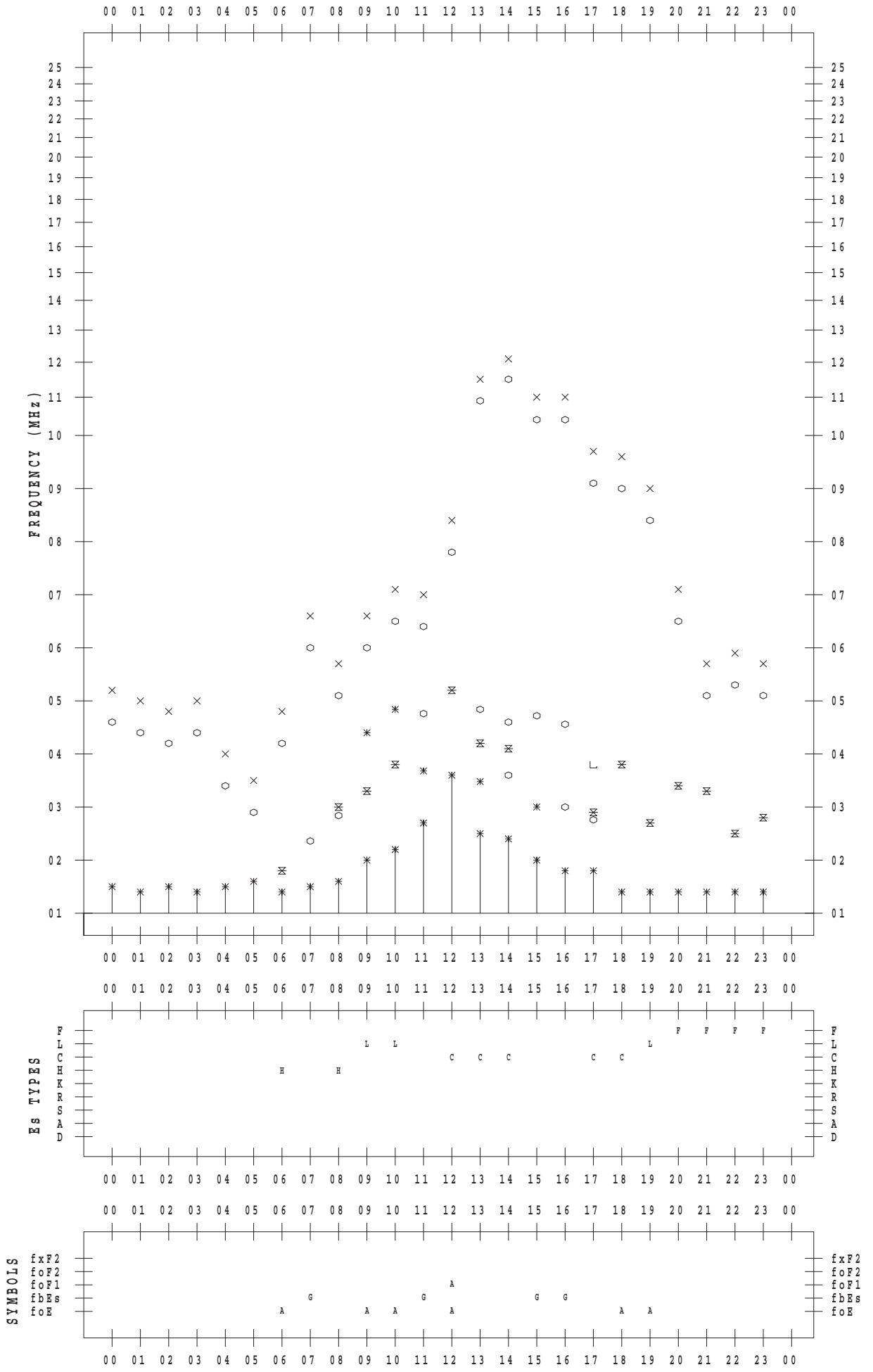
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2017/ 4/22

135 °E MEAN TIME



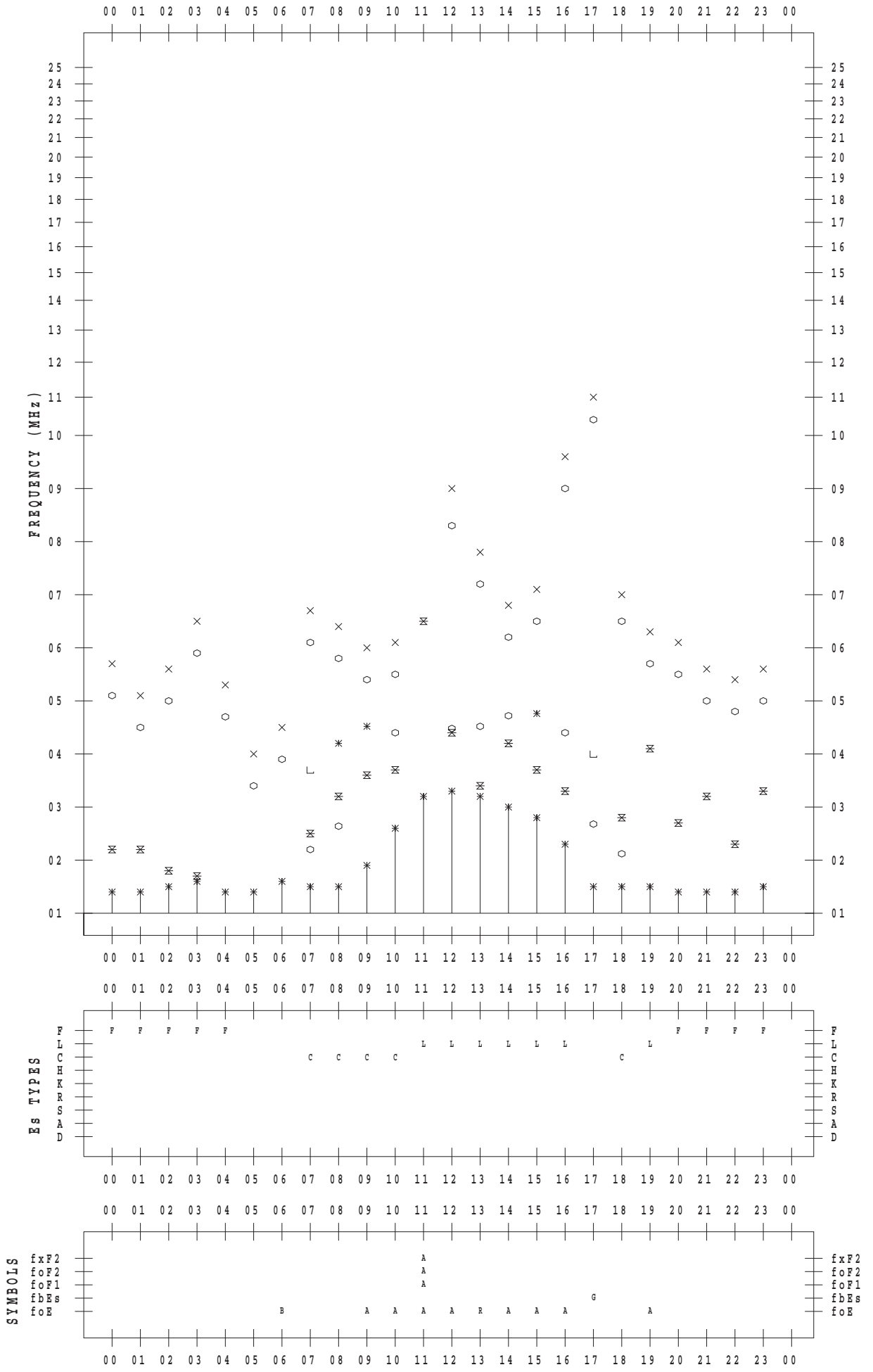
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2017/ 4/23

135 °E MEAN TIME



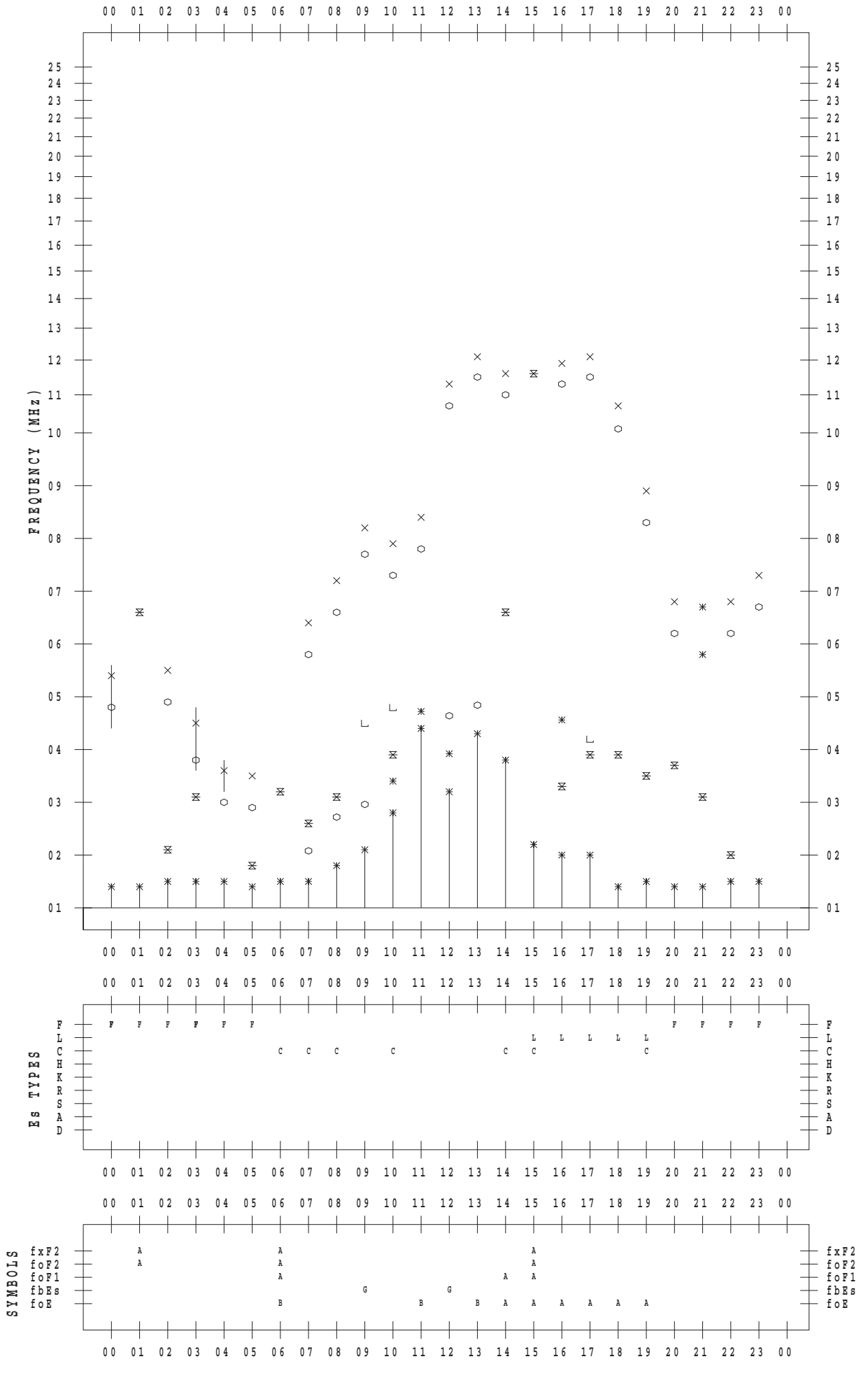
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2017/ 4/24

135 °E MEAN TIME



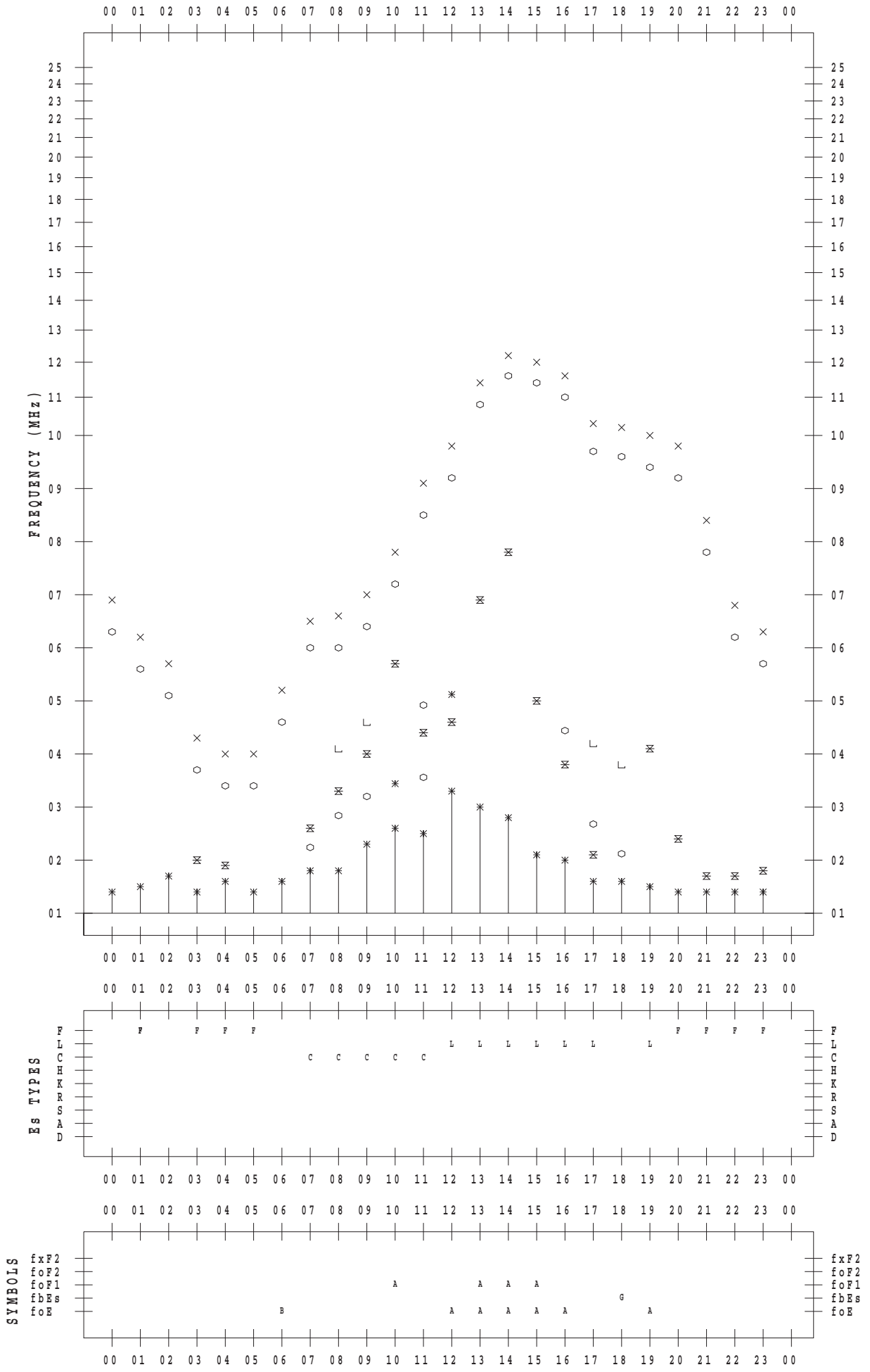
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2017/ 4/25

135 °E MEAN TIME



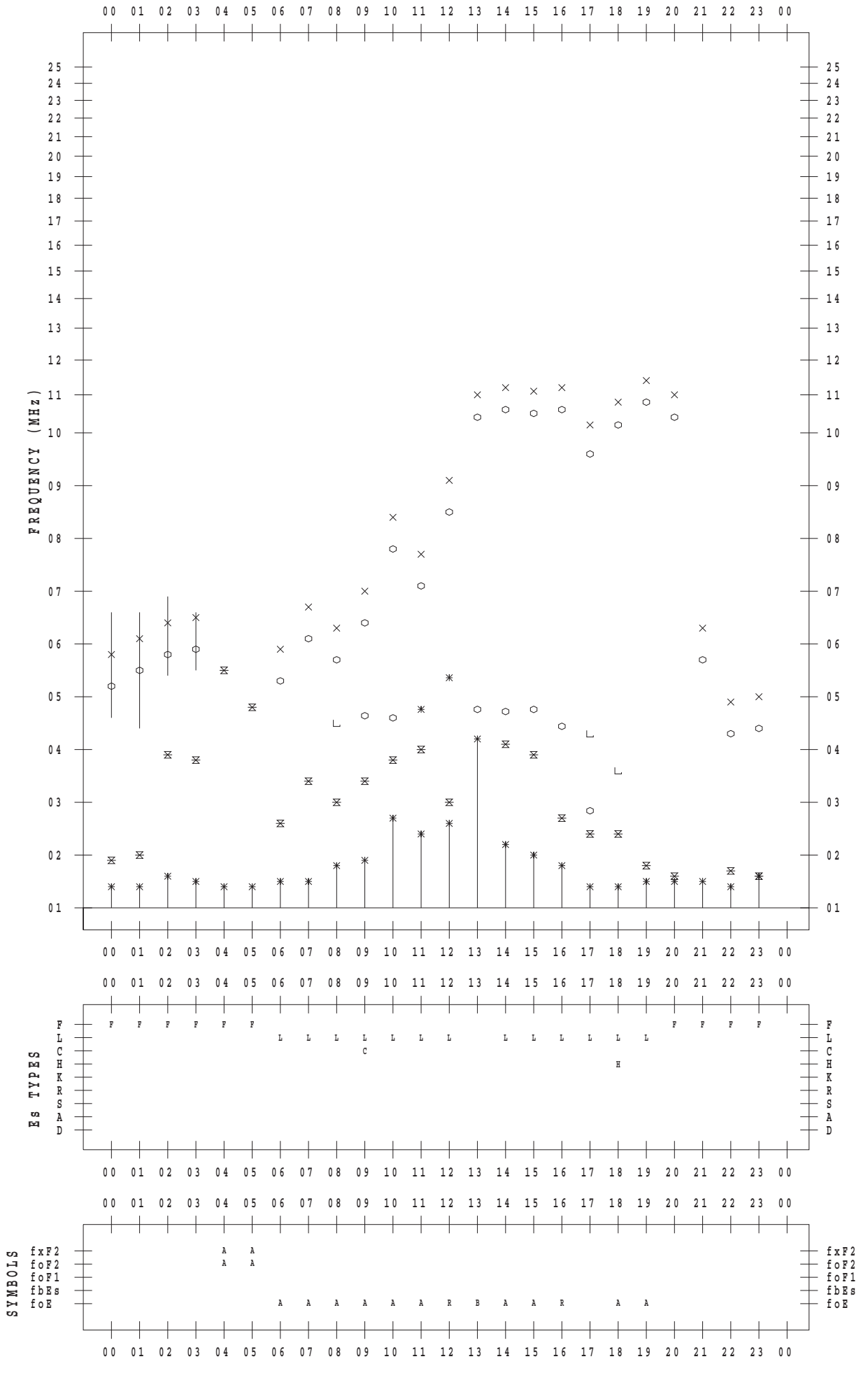
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2017/ 4/26

135 °E MEAN TIME



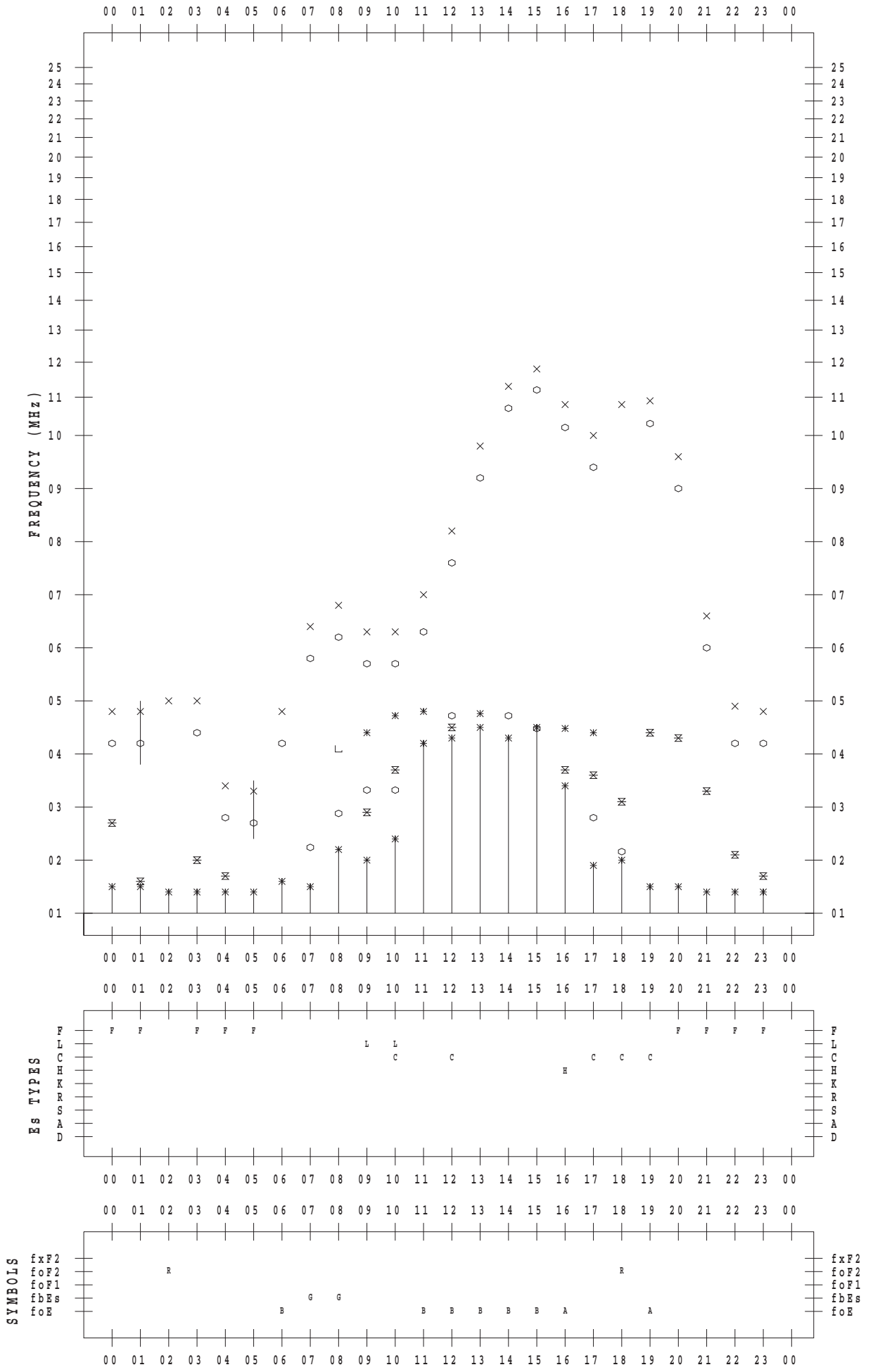
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2017/ 4/27

135 °E MEAN TIME



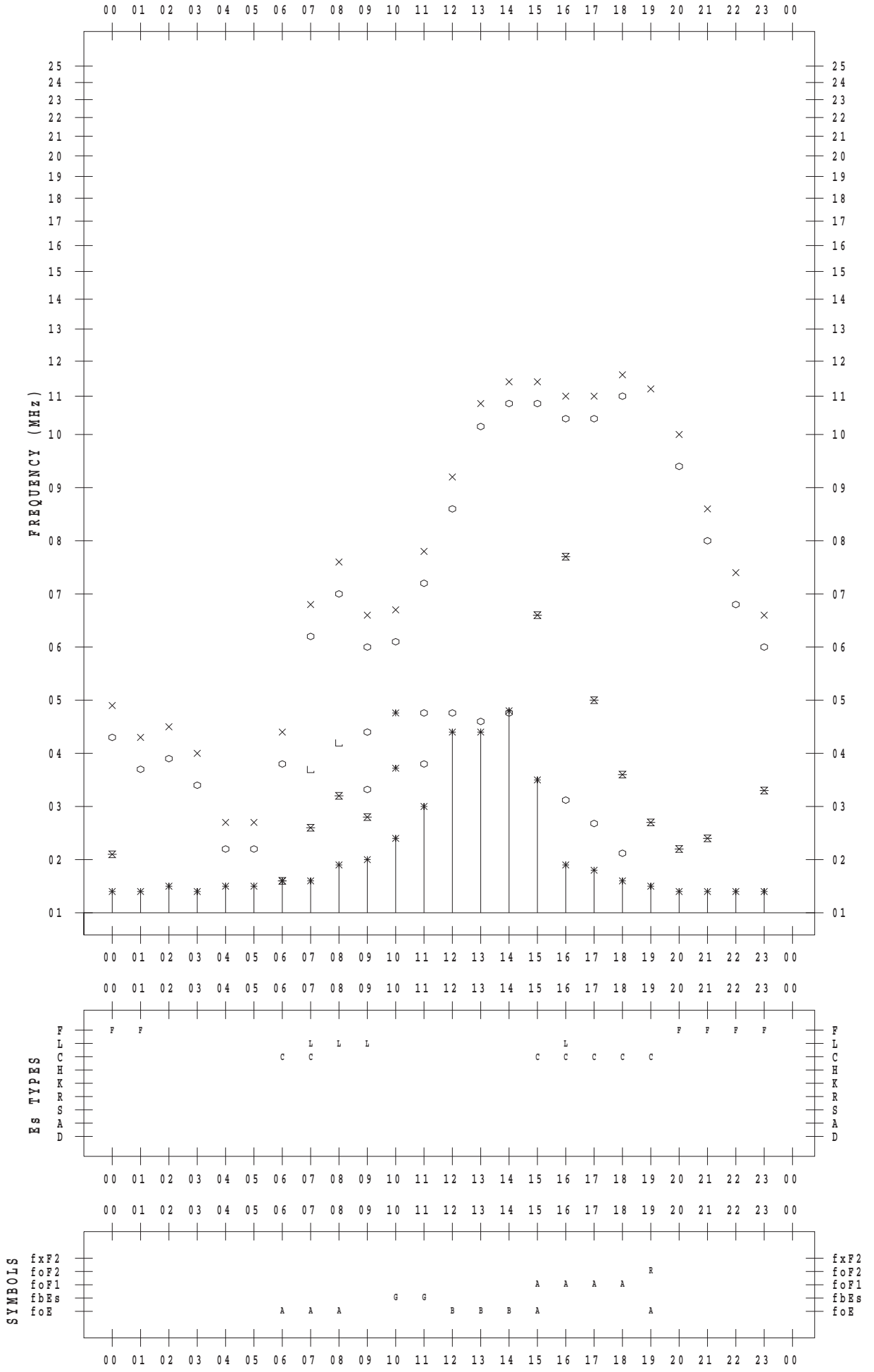
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2017/ 4/28

135 °E MEAN TIME



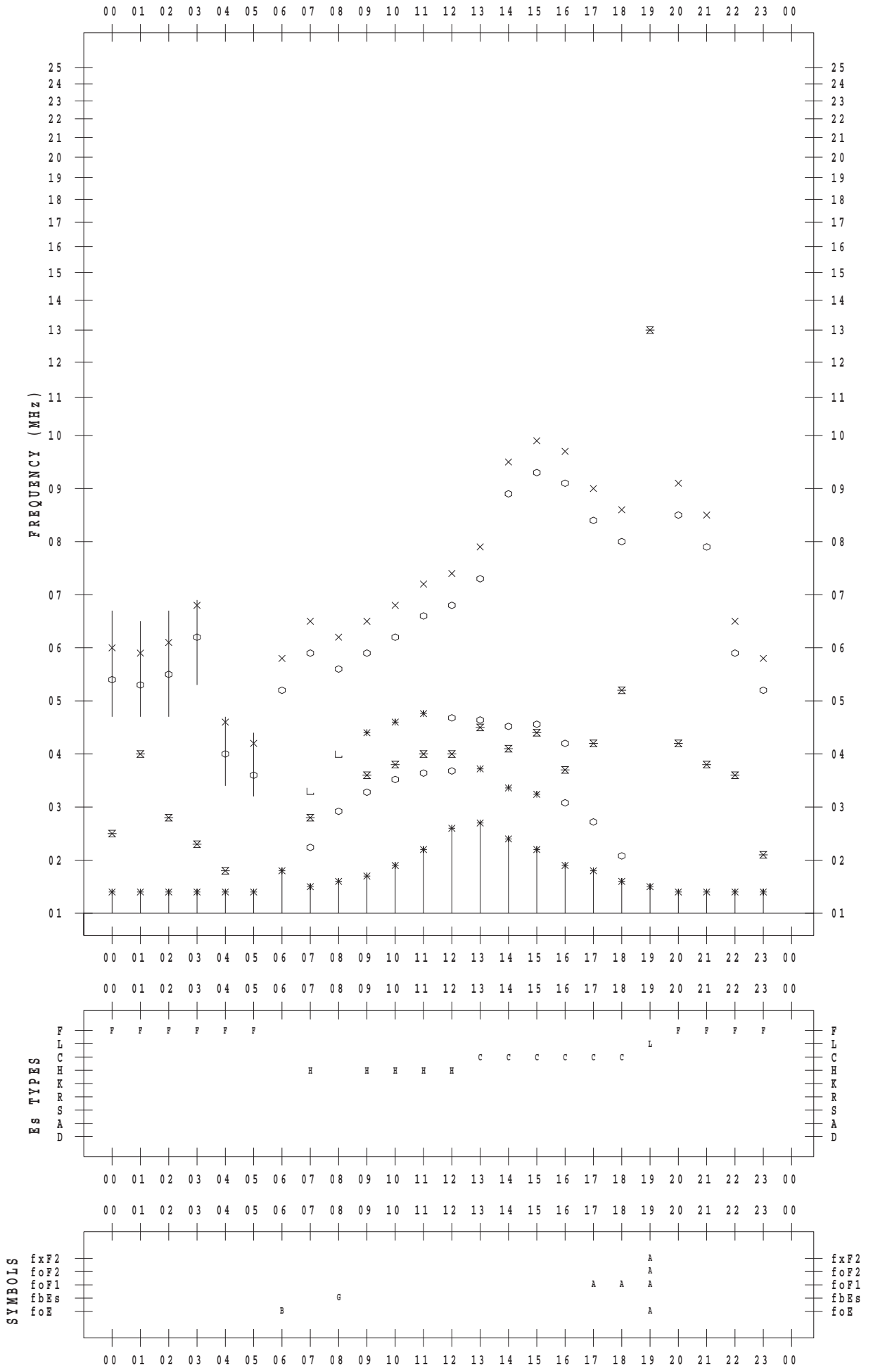
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2017/ 4/29

135 °E MEAN TIME



f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2017/ 4/30

135 °E MEAN TIME