F-829

IONOSPHERIC DATA IN JAPAN

FOR JANUARY 2018

VOL. 70 NO. 1

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

NATIONAL INSTITUTE OF INFORMATION
AND COMMUNICATIONS TECHNOLOGY
TOKYO, JAPAN

INTRODUCTION

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

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

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

IONOSPHERE

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

A1. Automatic Scaling

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

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

a. Characteristics of Ionosphere

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

b. Descriptive Letters

The following descriptive letters are used in the tables.

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

C Impossible measurement because of any failure in observation.

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

N Impossible automatic scaling because of complex echoes.

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

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

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

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

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

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

d. Reliability of Automatic Scaling

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

e. Summary Plot

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

A2. Manual Scaling

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

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

a. Characteristics of Ionosphere

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

b. Symbols

(i) Descriptive Letters

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

A Measurement influenced by, or impossible because of, the presence of a lower thin layer, for example *Es*.

B Measurement influenced by, or impossible because of, absorption in the vicinity of *fmin*.

C Measurement influenced by, or impossible because of, any non-ionospheric reason.

D Measurement influenced by, or impossible because of, the upper limit of the normal frequency range in use.

E Measurement influenced by, or impossible because of, the lower limit of the normal frequency range in use.

F Measurement influenced by, or impossible because of, the presence of spread echoes.

G Measurement influenced by, or impossible because the ionization density of the layer is too small to enable it to be made accurately.

H Measurement influenced by, or impossible because of, the presence of a stratification.

K Presence of particle *E* layer.

L Measurement influenced or impossible because the trace has no sufficiently definite cusp between layers.

M Interpretation of measurement questionable because the ordinary and extraordinary components are not distinguishable.

N Conditions are such that the measurement cannot be interpreted.

O Measurement refers to the ordinary component.

P Man-made perturbations of the observed parameter; or spur type spread *F* present.

Q Range spread present.

R Measurement influenced by, or impossible because of, attenuation in the vicinity of a critical frequency.

S Measurement influenced by, or impossible because of, interference or atmospherics.

T Value determined by a sequence of observations, the actual observation being inconsistent or doubtful.

V Forked trace which may influence the measurement.

W Measurement influenced or impossible because the echo lies outside the height range recorded.

X Measurement refers to the extraordinary component.

Y Lacuna phenomena, severe layer tilt.

Z Third magneto-electronic component present.

(ii) Qualifying Letters

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

A Less than. Used only when *fbEs* is deduced from *foEs* because total blanketing of higher layer is present.

D Greater than.

E Less than.

I Missing value has been replaced by an interpolated value.

J Ordinary component characteristic deduced from the extraordinary component.

M Mode interpretation uncertain.

O Extraordinary component characteristic deduced from the ordinary component. (Used for x-characteristics only.)

T Value determined by a sequence of observations, the actual observation being inconsistent or doubtful.

U Uncertain or doubtful numerical value.

Z Measurement deduced from the third magneto-electronic component.

(iii) Description of Types of *Es*

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

The types are:

f An *Es* trace which shows no appreciable increase of height with frequency.

l A flat *Es* trace at or below the normal *E* layer minimum virtual height or below the part *E* layer minimum virtual height.

c An *Es* trace showing a relatively symmetrical cusp at or below *foE*. (Usually a daytime type.)

h An *Es* trace showing a discontinuity in height with the normal *E* layer trace at or above *foE*. The cusp is not symmetrical, the low frequency end of the *Es* trace lying clearly above the high frequency end of the normal *E* trace. (Usually a daytime type.)

q An *Es* trace which is diffuse and non-blanketing over a wide frequency range.

r An *Es* trace showing an increase in virtual height at the high frequency end similar to group retardation.

a An *Es* trace having a well-defined flat or gradually rising lower edge with stratified and diffuse traces present above it.

s A diffuse *Es* trace which rises steadily with frequency and usually emerges from another type *Es* trace.

d A weak diffuse trace at heights below 95 km as-sociated with high absorption and large *fmin.*

n The designation 'n' is used to denote an *Es* trace which cannot be classified into one of the standard types.

k The designation 'k' is used to show the presence of particle *E*. When *foEs* > *foE* (particle *E*) the *Es* type precedes k.

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

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

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

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

HOURLY VALUES OF foF2 AT Wakkanai

JAN. 2018

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	C	28	29	29	31	29	A	35	48	51	58	72	57	56	54	51	48	22	A	A	A	32	40	42
2	37	31	32	34		26	59	36	52	47	67	70	54	54	47	55	A	34	A	A	35	38	42	42
3	40	34	34	31	37	37	36	38	64	50	58	58	55	57	48	48	50	A		A	59	A	A	A
4	34	36	37	34	34	34	29	36	45	A	46	58	53	43	55	51	40	36	A	26	31	31	30	32
5	34	32	34	32	34	31	29	34	42	54	54	56	48	57	58	55	40	59	A	31	28	28	34	36
6	34	32	32	31	32	28	A	A	47	48	55	57	49	52	57	49	42		A	A	32	A	A	32
7	34	34	34	34	30	30	A	32	42	64	55	60	58	55	55	50	40	31	A	A	A	A	A	31
8	30	30	28	28	28	29	N	37	44	46	61	62	55	54	54	50	46	30	N	28	30	29	29	A
9	28	A	29		28	N		31	A	65	60	62	72	65	56	54	45	40	42	39	37	36	39	40
10	39	41	36	35	37	34	26	34	46	54	55	55	60	51	55	50	42	29	A	A	A	31	31	32
11	30	34	34	A	31	30	29	35	50	49	49	51	50	62	52	47	47	31	26	32	31	30	28	A
12	28	32	34	32	31	29	30	35	40	48	45	55	51	50	47	52	40	26	N	26	28	28	28	29
13	30	30	31	30	30	59		32	67	47	60	58	54	51	50	56	48	A	A	34	37	28	29	30
14	26	32	28	29	28	29	28	34	52	47	54	56	55	66	46	58	28	40	25	A	32	A	40	42
15	50	42	42	42	37	28		32	40	48	53	59	61	65	61	51	45	A	34	35	A	A	32	34
16	32	25	32	35	34	46	29	32	48	51	56	56	62	61	51	57	54	26	40	32	35	34	34	39
17	34	42		34	34	33	34	37	48	48	50	54	48	52	52	A	51	A	32		34	31	32	A
18	36		32	32	28	29	28	37	47	C	C	C	C	C	C	C	47	34	A	31	28	A	29	
19	30	31	31	29	29	32	N	34	47	C	C	C	C	C	C	C	C	C	32	40	38	35	34	34
20	32	34	32	34	38	34		34	50	50	A	52	61	57	56	54	48	79	46	52	46	42	51	53
21	52	31	30	31	36	40	A	44	48	52	58	59	58	51	54	58	42	26	37	38	47	A	32	36
22	38	37	38	34	34		N	39	139	61	55	53	66	60	54	54	44	32	A	34	34	34	35	34
23	36	36	34	32	32	28	28	37	52	57	61	61	52	58	62	54	44	32	34	40	40	42	34	30
24	34	38	36	39	42	34	34	42	54	52	56	62	66	60	54	51	42	A	28	31	36	32	34	32
25	34	30	34	26	29	26	N	32	54	72	63	69	67	60	67	51	50	29	31	34	36	31	30	34
26	34	34	34	37	30	34	N	40	54	49	A	72	77	63	61	59	51	31	37	40	37	40	40	41
27		40	36	34	30	36	32	40	43	54	62	71	54	61	52	58	55	37	45	47	42	49	51	54
28	52	51	42	38	42	42	30	37	48	43	55	63	57	50	64	56	52	34	34	40	A	32	35	34
29	34	34	28	28	34	28	49	36	43	48	54	59	55	50	53	56	48	28	34	30	30	40	42	42
30	34	37	34	32	32	32	28	37	50	52	57	64	56	59	53	51	51	47	35	32	34	34	42	43
31	34	34	32	30	28	31	N	36	44	48	55	50	64	57	50	59	49	38	40	45	42	49	52	52
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	29	29	30	29	30	29	17	30	30	28	27	29	29	29	29	28	29	24	18	23	26	24	28	26
MED	34	34	34	32	32	31	29	36	48	50	55	59	56	57	54	54	47	32	34	34	35	33	34	35
U Q	36	37	34	34	34	34	34	37	52	54	60	62	61	60	56	56	50	37	40	40	38	39	40	42
L Q	31	31	31	30	30	29	28	34	44	48	54	55	53	51	51	51	42	29	32	31	31	31	30	32

HOURLY VALUES OF fEs AT Wakkanai

JAN. 2018

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	C	G	G	27	26	33	61	84	40	48	46	46	49	31	60	43	32	45	56	58	48	34	G	G
2	G	G	29	69		95	G	156	48	48	31	44	55	32	50	49	60	33	57	33	29	27	28	G
3	G	G	G	G	G	91	G	11	39	166	49	29	31	31	54	35	48	33		28	G	36	48	49
4	24	G	G	G	G	G	G	31	45	179	59	43	43	48	115	G	38	28	35	24	G	46	32	28
5	G	G	G	G	G	G	G	G	30	33	33	29	40	24	28	32	G	G	41	G	G	G	G	G
6	G	G	28	G	32	G	30	80	40	48	44	36	50	31	25	21	115		46	41	34	47	54	G
7	G	G	G	G	G	G	30	34	46	24	25	G	46	26	32	27	20	G	60	60	58	59	34	33
8	G	G	27	71	G	27	G	11	34	35	54	28	27	49	20	19	20	G	132	G	32	29	G	56
9	26	40	30		G	G		28	38	57	33	29	34	26	24	G	43	G	G	G	28	29	G	38
10	G	G	G	23	G	G	G	G	21	48	28	34	29	26	24	11	11	G	26	26	32	G	26	34
11	33	30	34	41	27	G	G	G	55	113	34	41	32	49	24	29	69	G	G	G	G	G	G	66
12	G	28	24	G	11	G	G	G	32	35	106	41	28	28	26	24	25	G	G	G	G	G	G	G
13	25	G	G	G	G	G		G	32	170	41	47	40	40	46	33	39	81	96	60	158	G	G	G
14	G	G	G	G	G	G	G	G	48	35	34	35	33	38	71	41	38	32	28	54	34	59	G	G
15	G	G	34	G	G	G		24	29	44	42	64	54	27	28	21	27	60	27	33	59	156	G	G
16	G	72	30	G	G	G	28	11	23	59	59	180	40	38	40	59	36	56	33	G	G	32	29	32
17	30	34		G	27	26	G	11	22	34	47	41	34	32	59	82	134	30	G		92	G	G	35
18	G		33	G	G	31	G	11	47	C	C	C	C	C	C	C	G	G	56	33	G	33	30	
19	G	G	G	G	94	11	G	33	92	C	C	C	C	C	C	C	C	C	G	G	25	G	G	G
20	G	G	G	G	G	G		25	92	69	60	41	39	40	133	G	11	105	58	G	11	32	56	32
21	G	G	29	28	24	24	52	52	60	35	79	36	50	34	24	34	19	53	58	39	34	39	32	G
22	115	24	G	G	G		G	24	116	69	28	106	49	26	24	G	59	G	48	G	G	G	G	29
23	122	G	G	G	G	132	24	24	35	32	59	54	50	30	23	24	11	G	G	G	G	G	G	G
24	27	39	G	G	G	G	G	24	40	92	40	35	48	32	25	40	92	25	G	26	G	G	G	G
25	G	G	G	G	G	G	G	25	159	34	36	36	35	34	48	21	11	G	G	G	G	G	G	G
26	G	G	G	G	G	G	G	11	35	41	107	40	28	48	48	G	54	33	49	34	G	G	G	32
27		G	G	G	115	G	G	25	32	116	30	151	56	34	39	48	48	G	G	11	90	34	37	G
28	G	G	G	G	G	G	G	19	24	31	32	27	48	11	27	G	G	33	G	G	28	G	G	G
29	G	29	G	G	G	G	G	108	28	46	51	40	180	25	27	24	20	34	57	G	G	G	G	G
30	G	G	G	G	G	24	G	28	46	34	46	28	35	108	38	34	32	41	34	G	G	G	G	G
31	G	29	29	24	G	G	G	28	45	50	37	34	36	46	46	48	34	34	52	G	G	28	G	35
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	29	30	30	30	30	30	27	31	31	29	29	29	29	29	29	29	30	29	30	30	31	31	31	30
MED	G	G	G	G	G	G	G	24	40	48	42	40	40	32	32	27	33	30	34	6	11	27	G	G
U Q	24	28	29	G	11	24	G	31	48	69	56	45	49	40	49	40	48	37	56	33	34	34	30	33
L Q	G	G	G	G	G	G	G	11	32	34	33	31	33	26	24	15	19	G	G	G	G	G	G	G

HOURLY VALUES OF fmin AT Wakkanai

JAN. 2018

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

HOURLY VALUES OF foF2 AT Kokubunji

JAN. 2018

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	27	31	27	26	30	A	A	43	51	37	54	58	61	61	50	56	55	A	A	A	30	34	A	A
2	30	26	48	A	26	A	A	39	53	56	58	62	62	49	53	51	50	39	35	A	31	37	30	A
3	A	28		26	32		28	47	54	54	59	62	61	54	48	65	51	41	A	A	A	A	23	A
4	A	31	31	30	27	A	30	46	45	47	51	58	56	59	44	54	50	30		28	N	A	A	A
5	A	30	30	30	27	28		37	45	48	55	62	57	53	49	55	48	36	A	A	A	32	A	A
6	A	A	28	31	26		N	37	46	51	52	65	53	51	47	50	49	32	A	A	A	25		
7	27		26	A	A			38	46	45	55	73	60	55	51	55	N	A	26	A	A	A	27	A
8	27	25		26	26	N	25	39	49	43	51	59	66	51	53	52	47	36	26	N	30	30	26	26
9	N		A	A				35	44	A	69	79	55	67	68	56	44	A	42	44	40	30	27	27
10	24	30	31	32	28	26	26	40	50	47	59	N	57	55	51	55	44	35	26	N	30		26	26
11	27	27	27	31	N			N	46	N	C	C	C	C	C	C	C	31		27	31	30		23
12	N	A	27	30	N			39	49	49	46	51	59	61	50	47	44	30		30	27	26	27	26
13	26	28	30	27	N			39	42	42	51	60	59	45	49	53	41	36		30	32	27	N	26
14	N	N	26	26	30	N		37	50	51	56	60	56	49	66	68	54	47	A	A	A	A		26
15	27	31	37	34		N		36	51	44	52	59	214	54	56	45	44	41	32	A		27		27
16	23	26	A	26	27			41	53	46	54	62	62	52	53	58	54	A	30	34		27	A	27
17	27	A	A	31	28			N	N	46	51	52	50	52	A	55	51	38	21	31		27	27	
18		26	26	27	34	27	26	39	46	47	47	54	55	54	56	61	48	38	34	36	28		25	A
19		27	28	30	37			33	41	54	49	47	55	57	44	54	42	41	27	30	35	23	25	26
20	25	27	27	26		25	30	44	44	46	62	67	56	58	61	52	48	40	32	39	36	27	26	27
21	28	48	28	31	27	27	N	39	50	44	A	66	64	59	51	46	52	39	N	34	58		N	A
22		A	27	30	A			39	51	51	64	60	62	61	67	59	50	35	27	38	N		N	
23	25	25	26	30	N		N	N	48	66	54	64	65	55	58	54	46	35	N	26	26	24	30	26
24	26	23	34	37	26		26	42	43	37	62	68	58	59	63	49	45	36	N	27	30		26	30
25	26	26	N	28	26		N	41	46	54	78	91	71	62	58	53	47	41	A	32	39	32	31	31
26	32	31	32	34	31	30	32	42	51	50	66	A	74	69	65	59	48	38		31	34	A	32	32
27	30	28	30	30	A			39	51	45	54	68	76	56	54	58	47	N	28	35	38	30	30	36
28	32	A	36	28	32			37	41	49	54	42	68	65	54	63	57	49	34	32	30	26	26	28
29	28	27	26	N	25			38	42	46	49	56	59	54	49	41	50	41	A	34	31	27	30	27
30	30	28	28	30	28	26		42	50	44	58	56	59	53	57	59	53	37	28	32	31	28	28	A
31	A	28	27	30	28			40	47	43	51	56	66	57	51	57	45	39	30	A	30	30	36	36
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	20	23	25	27	21	7	8	28	30	29	29	28	30	30	29	30	29	26	16	20	21	21	20	19
MED	27	28	28	30	28	27	27	39	48	47	54	60	60	55	53	55	48	38	29	32	31	27	27	27
U Q	29	30	31	31	30	28	30	41	51	51	59	65	65	59	58	58	51	41	33	34	35	30	30	30
L Q	26	26	27	27	26	26	26	37	45	44	51	56	56	53	49	52	45	35	26	30	30	26	26	26

HOURLY VALUES OF fEs AT Kokubunji

JAN. 2018

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	23	35	29	32	37	31	26	36	46	44	41	55	53	57	60	36	29	29	33	27
2	G	G	G	34	32	44	27	32	G	31	27	43	46	35	34	32	30	G	G	28	G	31	G	70
3	47	33		G	G		G	G	39	36	34	31	29	33	43	38	27	11	35	55	53	34	37	45
4	36	G	G	G	G	34	G	11	49	37	45	45	51	36	59	36	35	28		G	G	38	58	59
5	46	G	G	39	G	G		11	47	33	42	32	31	31	35	34	27	11	42	42	42	33	65	86
6	59	37	G	29	G		24	34	37	35	36	39	49	50	43	35	40	36	30	33	34	28		
7	G		G	36	32			11	29	27	34	64	36	51	47	29	34	35	26	45	45	33	G	38
8	24	G		G	G	G	G	G	70	32	33	57	34	37	27	24	G	26	G	G	G	G	33	27
9	G		27	30	G			28	39	56	60	32	36	31	27	24	20	42	27	G	G	G	G	29
10	G	56	G	36	32	G	G	11	30	53	38	33	32	36	34	24	28	32	29	29	32		G	G
11	G	26	G	G	G			11	33	33	C	C	C	C	C	C	C	G	G	G	G	G		G
12	G	34	28	G	G			G	29	34	53	38	71	43	42	32	76	G		G	G	G	G	G
13	G	G	25	11	G			G	44	31	43	53	43	28	49	37	42	60		G	G	G	G	G
14	G	G	G	G	G	G		G	29	45	34	49	35	45	42	32	31	G	54	43	60	40		G
15	G	G	G	11		G		28	35	40	43	40	180	52	43	45	29	26	G	29		G		G
16	G	G	31	G	G			G	31	40	40	48	38	44	33	31	31	45	26	28		27	34	31
17	G	36	33	29	11		G	34	38	36	28	30	45	29	70	26	23	11	G	G		G	G	
18		G	G	G	G	G	G	11	41	44	35	42	28	33	29	28	20	42	G	23	G		G	39
19		G	G	G	145			11	43	36	40	45	35	29	28	29	42	G	G	G	G	G	G	G
20	G	G	G	G		G	G	11	31	41	37	34	33	29	43	37	39	G	G	G	G	G	G	G
21	G	G	G	G	G	G	G	24	28	34	70	38	35	37	34	26	G	11	G	G	G		G	33
22		29	G	G	35			28	35	37	36	35	52	34	28	31	G	G	G	G	26	G	G	
23	G	G	G	G	G		G	G	32	37	36	37	29	27	27	23	G	11	G	G	G	G	G	G
24	G	G	G	G	G		G	29	34	42	42	34	29	33	39	45	30	11	G	33	G		G	G
25	G	G	G	G	G		G	28	35	40	69	44	32	33	28	26	G	30	33	G	G	G	G	G
26	G	G	G	G	G	G	G	25	32	42	54	75	45	35	27	32	47	42		G	34	33	G	G
27	G	28	G	G	33			29	49	43	51	57	41	37	31	34	39	11	G	G	G	G	G	29
28	34	48	G	G	27			33	29	32	35	35	36	45	43	45	39	35	38	G	G	G	G	G
29	G	G	G	G	G			40	36	40	44	44	31	44	32	34	28	11	27	23	27	G	G	G
30	G	G	G	G	28	G		42	49	33	36	36	34	28	36	36	24	28	29	G	G	G	25	37
31	28	G	G	G	G			29	28	32	35	36	36	46	37	31	31	11	G	27	G	G	G	G
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	29	29	31	29	13	15	31	31	31	30	30	30	30	30	30	30	31	27	31	28	27	27	28
MED	G	G	G	G	G	G	G	24	35	36	38	38	36	36	36	32	30	11	G	G	G	G	G	G
U Q	12	28	G	11	27	17	G	29	41	41	44	45	45	44	43	36	39	35	30	29	30	31	25	35
L Q	G	G	G	G	G	G	G	11	30	33	35	35	32	31	29	28	23	11	G	G	G	G	G	G

HOURLY VALUES OF fmin AT Kokubunji

JAN. 2018

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

HOURLY VALUES OF foF2 AT Yamagawa

JAN. 2018

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	N	26	28	26	30	30	A	26	48	51	64	68	58	61	57	54	44	55	34	A	38	37	41	A
2	A	28	31	49	30	A	A	A	52	49	58	N	58	64	61	54	51	48	38	34	59	29	32	26
3	26	39	26	A	26	A	A	30	54	54	40	72	56	66	58	60	57	54	37	28	N	30	28	A
4	A	A	28	28	30	29	A	32	48	51	56	56	51	A	54	55	53	50	30	32	A	A	A	26
5	A	28	30	30	31	34	25	30	47	39	54	63	59	A	50	51	55		36	A	A	34	49	N
6	B	A	A	28	A	A	B	29	50	51	63	63	A	A	51	A	51	47	34	A	26	28	B	B
7	N	25	28	26	28	A	A	A	51	48	42	64	66	66	60	55	57	28	37	A	59	B	30	B
8	25	A	26	26		25	B	28	48	53	50	55	65	55	59	58	52	47	N	N	30	109	26	B
9	A	N	N	26	28	B	B	B	38	48	A	66	68	66	70	57	51	45	34	40	29	30	26	26
10	28	25	26	31	N	A	B	29	47	51	55	66	64	51	55	55	57	48	41	34	34	32	A	28
11	26	B	28	28	31	59	A	30	42	48	52	58	53	57	62	55	50	40	34	N	30	32	30	26
12	N	N	28	B	N	B	B	N	52	50	55	45	52	70	58	54	57	45	25	A	59	N	59	29
13	28	30	32	32	26		B	B	47	48	56	58	58	58	51	50	51	44	36	N	69	A	A	N
14	26	26	26	49	34	B	B	26	53	53	51	50	61	51	63	65	54	55	42	A	A	34	A	A
15	A	A	49	33		B	B	N	50	48	50	60	63	60	62	57	53	51	45	26	A	31	28	26
16	28	28	26	26	A	A	A	A	50	48	48	58	52	52	56	58	57	49	42	38	34		B	B
17	B	26	A	28	34	N	B	26	43	47	48	50	54	57	57	54	63	52	34	31	28	B	28	N
18	N	26	B	N	28	31	B	N	49	48	47	50	99	56	54	50	58	51	34	34	40	N		N
19	N	N	26	30	32	N	B	28	42	45	46	48	55	61	54	53	52	47	48		36	23	B	N
20	B	N	N	26	N	N		30	41	47	56	67	64	65	62	58	51	46	39	30	33	N	25	A
21	26	28	28	32	26	49	N	31	48	48	A	69	63	59	57	54	53	54	N	49	31	34	A	N
22	26	N		30	B	B	B	28	50	48	54	62	67	82	68	58	54	50	38	34	32	N	N	N
23	26	N	28	30	30	N	N	30	49	C	C	C	C	C	C	C	C	44	38	B	28	32	26	30
24	26	26	25	N	N	N	B	32	47	54	54	64	179	68	71	56	54	50	34	26	29	23	30	26
25	25	N	N	28	N		B	28	39	48	70	94	75	71	A	52	51	33	42	23	A	34	26	30
26	31	32	30	29	30	28	30	34	50	51	59	70	82	87	56	57	52	50	32	29	36	28	28	30
27	30	49	A	30	34	59	B	28	53	34	48	61	81	A	A	A	54	45	36	54	34	A	B	N
28	26	29	28	A	42	49	N	30	46	50	51	47	66	67	61	48	59	54	44	34	30	28	26	26
29	26	28	29	28	34	28	B	N	43	47	46	47	64	63	A	54	48	48	40	30	29	59	28	30
30	31	30	31	30	32	28	28	30	46	40	44	59	67	70	54	60	57	44	35	31	28	32	29	N
31	30	N	A	26	N	26	B	28	41	45	49	52	65	65	56	56	53	47	34	28	N	26	N	26
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	18	18	22	26	20	13	3	22	31	30	28	29	29	26	27	28	30	30	29	20	24	21	19	14
MED	26	28	28	28	30	30	28	30	48	48	52	60	64	64	57	55	53	48	36	32	32	32	28	26
U Q	28	30	30	30	33	49	30	30	50	51	56	66	67	67	62	57	57	51	40	34	37	34	30	30
L Q	26	26	26	26	28	28	25	28	43	47	48	51	57	57	54	54	51	45	34	28	29	28	26	26

HOURLY VALUES OF fEs AT Yamagawa

JAN. 2018

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	G	G	G	G	34	38	58	27	31	125	30	36	36	44	41	56	50	40	28	36	38	49	40	66
2	58	G	G	G	G	35	39	40	41	40	46	44	48	43	41	50	32	46	32	28	G	G	25	G
3	G	G	G	43	27	34	28	26	29	40	46	44	50	38	38	40	31	28	35	G	26	G	31	56
4	36	38	G	26	26	27	36	26	46	34	41	55	50	59	68	49	32	11	G	27	39	36	29	G
5	44	G	G	G	G	G	G	G	26	38	40	87	68	92	36	40	31		28	28	26	G	G	G
6	B	41	39	38	43	27	B	G	27	36	46	92	79	78	48	111	48	26	G	25	G	G	B	B
7	G	G	29	35	26	33	26	28	32	38	41	34	38	39	37	40	36	33	40	26	25	B	26	B
8	G	35	48	G		G	B	G	28	33	40	45	56	49	35	28	28	39	11	G	G	28	20	B
9	67	G	G	G	G	B	B	B	29	39	86	61	53	44	41	35	32	G	G	G	G	G	G	G
10	G	G	G	G	G	32	B	G	29	39	43	76	52	60	37	52	34	28	20	G	G	G	43	29
11	G	B	G	G	29	26	25	G	28	33	39	42	38	40	30	40	40	29	26	G	G	G	27	24
12	G	G	G	B	G	B	B	G	29	38	40	44	45	47	53	47	40	40	35	28	G	G	G	G
13	G	G	G	G	G	G	B	B	29	38	42	35	41	37	34	40	30	G	40	G	G	34	27	G
14	G	G	G	G	11	B	B	G	27	32	38	46	50	42	41	34	35	48	49	75	35	32	70	83
15	70	59	30	38	G	B	B	G	28	33	44	44	40	50	42	36	49	35	32	28	34	27	26	G
16	G	G	34	29	33	32	35	33	28	29	45	59	68	69	43	52	76	33	26	G	G		B	B
17	B	G	46	G	71	G	B	G	29	44	34	42	44	40	37	30	25	16	G	G	G	B	G	G
18	G	G	B	G	G	34	B	G	27	46	43	44	92	41	40	45	34	28	G	G	11	11	G	G
19	G	G	G	G	11	G	B	G	56	34	40	43	43	41	46	40	34	32	30		G	G	B	G
20	B	G	G	G	G	G	G	G	44	42	50	45	40	38	35	40	33	G	25	G	34	G	24	35
21	G	26	G	G	G	G	G	G	26	40	86	69	40	69	48	40	46	34	11	G	G	G	26	25
22	G	28		G	B	B	B	G	28	39	44	34	41	60	38	36	34	27	30	26	24	G	G	24
23	G	G	G	G	G	G	G	G	28	C	C	C	C	C	C	C	C	26	11	B	G	G	G	G
24	G	G	G	G	26	G	B	G	22	34	41	40	40	37	40	39	32	30	G	G	G	G	G	G
25	G	G	G	G	G	G	B	G	29	37	44	52	83	45	60	58	46	41	G	24	71	25	G	G
26	25	G	G	G	G	G	G	G	29	36	80	39	47	40	42	58	32	20	11	G	G	G	G	27
27	G	24	30	G	30	G	B	G	28	37	34	40	43	134	116	108	61	45	25	G	28	36	B	G
28	G	G	32	34	31	24	G	24	34	46	33	48	55	40	37	36	48	35	32	G	26	G	G	G
29	G	G	32	26	G	24	B	G	30	38	29	44	41	43	59	39	56	34	34	25	25	28	26	G
30	G	G	26	G	G	G	24	G	45	39	42	41	46	42	40	36	32	29	26	G	G	G	G	G
31	G	G	45	26	G	G	B	G	26	43	40	38	46	38	41	41	41	32	32	26	24	G	G	G
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	30	29	30	29	26	14	29	31	30	30	30	30	30	30	30	30	30	31	29	31	28	27	27
MED	G	G	G	G	G	G	24	G	29	38	42	44	46	43	41	40	34	31	26	G	G	G	20	G
U Q	G	G	31	26	28	32	35	12	31	40	45	52	53	59	46	50	46	35	32	26	26	27	27	25
L Q	G	G	G	G	G	G	G	G	28	34	40	40	41	40	37	36	32	26	11	G	G	G	G	G

HOURLY VALUES OF fmin AT Yamagawa

JAN. 2018

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	16	14	15	14	14	14	14	14	14	14	14	18	14	14	18	15	15	15	15	14	15	14	15	14
2	15	15	15	15	14	14	14	14	14	14	14	15	16	17	17	17	15	15	14	15	22	15	14	14
3	14	15	14	14	14	15	14	15	16	15	15	16	16	17	18	15	17	14	14	14	15	14	15	14
4	14	14	15	16	15	15	14	14	16	14	15	15	17	18	18	17	15	18	16	14	14	14	14	15
5	14	14	15	14	15	14	16	16	14	14	14	15	15	17	16	15	18		14	15	15	15	21	16
6	B	14	14	14	14	15	B	14	14	14	15	15	18	17	16	16	17	18	15	17	16	15	B	B
7	18	15	14	14	15	14	15	15	14	14	15	15	15	18	18	20	15	14	15	17	14	B	15	B
8	15	15	14	15		16	B	14	14	14	14	14	15	14	16	18	16	14	15	14	14	14	14	B
9	14	14	14	14	14	B	B	B	16	14	15	16	17	17	16	15	15	16	15	14	14	14	14	14
10	15	14	14	14	14	15	B	14	14	14	14	15	15	18	18	15	15	14	14	16	14	14	14	15
11	16	B	14	15	14	14	14	15	14	14	14	15	17	16	17	15	16	14	14	20	14	14	14	14
12	15	16	14	B	15	B	B	15	15	14	15	17	15	17	17	16	14	14	14	15	14	17	15	14
13	14	15	14	14	14	66	B	B	16	14	15	17	15	17	17	17	16	17	15	20	15	14	15	15
14	15	15	14	15	14	B	B	15	15	14	14	15	15	18	15	15	15	17	14	14	14	14	14	14
15	14	14	14	14	17	B	B	15	15	14	14	14	17	17	17	15	14	14	14	16	14	16	14	14
16	14	14	16	15	14	14	14	14	15	15	14	16	17	17	17	15	14	15	15	15	15		B	B
17	B	15	14	15	14	14	B	14	14	15	14	15	16	18	21	21	23	18	15	15	15	B	14	14
18	14	14	B	14	14	17	B	14	16	14	16	16	17	17	18	17	15	14	15	15	14	15	18	18
19	15	14	14	14	14	17	B	17	16	15	14	15	17	20	18	15	15	17	16		14	17	B	14
20	B	14	15	15	18	16	66	15	16	16	15	14	18	20	18	18	15	18	16	20	14	18	18	15
21	15	14	17	15	14	18	16	14	16	14	14	17	17	16	16	15	14	17	15	15	14	15	17	15
22	15	14		14	B	B	B	15	14	14	15	14	18	15	15	15	15	16	14	16	14	14	17	17
23	22	15	16	14	16	14	15	14	15	C	C	C	C	C	C	C	C	17	14	B	15	14	14	14
24	14	14	14	15	14	15	B	18	18	14	15	15	16	15	17	18	15	16	15	14	14	15	15	14
25	14	15	14	15	15	16	B	15	16	15	14	17	17	17	16	15	15	14	14	15	14	14	14	15
26	14	14	17	16	15	15	15	14	15	15	15	15	15	15	16	15	17	20	15	14	15	15	14	14
27	14	14	14	15	14	15	B	15	17	14	15	15	16	16	15	15	15	21	14	15	14	14	B	16
28	14	14	15	15	14	15	16	15	16	14	14	18	17	16	20	16	14	14	15	15	15	14	14	16
29	14	15	15	14	14	15	B	14	15	14	15	14	16	17	17	16	14	14	15	14	17	14	14	15
30	16	15	14	15	15	14	14	16	16	14	14	15	17	16	17	15	16	14	15	14	20	18	15	16
31	14	15	14	15	14	18	B	14	18	14	15	17	16	17	17	15	14	15	14	15	14	15	18	14
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	30	29	30	29	26	14	29	31	30	30	30	30	30	30	30	30	30	31	29	31	28	27	27
MED	14	14	14	15	14	15	14	15	15	14	14	15	16	17	17	15	15	15	15	15	14	14	14	14
U Q	15	15	15	15	15	16	16	15	16	14	15	16	17	17	18	17	16	17	15	16	15	15	15	15
L Q	14	14	14	14	14	14	14	14	14	14	14	15	15	16	16	15	15	14	14	14	14	14	14	14

HOURLY VALUES OF foF2 AT Okinawa

JAN. 2018

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	B	26	28	29	28	34	34	30	45	48	53	90	54	57	75	60	54	57	A	A	A	A	48	A
2	A	A	A	A	A	A	B	N	50	62	65	60	58	61	67	63	54	A	54	29	A	29	32	30
3	N	N	26		29	A	B	59	48	51	159	65	73	75	90	71	69	62	67	45	A	A	A	A
4	A	A	A	B	28	29	26	28	48	56	58	61	58	A	A	60	62	52	A	A	A	34	25	28
5	30	30	28	28	31	26	A	30	49	50	56	66	67	62	68	A	A	61	56	34	32	34	59	A
6	B	N	A	A	31	A	A	29	45	47	60	84	80	85	86	64	57	50	44	A	A	A	A	A
7	A	26	29	A	A	A	B	25	49	54	54	64	66	87	111	81	65	72	47	A	A	N	N	59
8	B	B	A	59	59	49	B	26	47	50	57	54	63	57	69	71	56	48	50	34	29	29	39	B
9	B	N	A	34	30	N	N	26	40	48	50	69	A	70	85	72	57	60	44	34	35	B	A	28
10	28	26	28	26	28	B	B	N	52	52	45	67	64	62	72	159	62	60	56	50	44	52	A	34
11	A	28	30	34	37	30	A	59	49	47	54	52	62	63	68	55	54	47	37	30	26	31	28	31
12	A	N	25	N	N		B	B	50	50	62	53	149	56	80	74	A	55	44	A	39	36	A	32
13	29	32	34	B	N	A	B	B	48	55	72	78	66	82	44	52	58	48	42	49	A	34	34	A
14	49	26	26	A	32	A	A	B	54	65	149	72	68	80	82	75	70	57	65	A	A	28	30	30
15	A	A	39	A	A	A	A	A	52	63	53	55	65	81	62	86	69	83	65	A	A	A	31	26
16	25	26	28	23	28	A	B	25	54	51	52	58	62	58	62	65	72	58	30	47	44	A		30
17	A	31	30	A	50	A	A	A	44	48	47	50	54	60	84	81	72	65	55	59	36	29	B	N
18	28	N	28	28	31	32	B	N	50	53	50	48	58	A	71	54	39	32	53	36	41	28	B	N
19	26	N	25	26	31	B	B	25	44	49	42	48	57	61	73	67	60	57	50	36	28	29	B	N
20	N	49	26	28	29	29	B	25	46	51	56	81	78	81	88	91	72	55	54	49	37	A	A	N
21	A	28	31	34	N	B	59	26	47	54	67	87	78	72	72	66	52	56	67	49	A	32	32	25
22	A	39	26	34	B	B	B	26	51	54	56	64	75	86	90	82	57	58	51	A	40	24	26	34
23	30	31	26	31	99	N	B	30	53	53	60	75	85	88	96	86	71	55	40	30	N	28	23	25
24	26	A	29	28	N	B	B	26	49	52	57	64	91	80	86	82	60	50	40	28	A	29	25	N
25		25	25	28	28	N	B	N	42	48	72	91	101	60	62	65	A	54	47	40	A	A	A	31
26	34	34	32	N	28	26	26	34	52	56	74	90	94	86	65	66	59	54	39	A	34	37	31	28
27	29	A	A	31	39	31	25	30	47	66	64	52	78	90	67	60	54	50	44	32	30	28	N	
28	N	26	30	30	30	A	A	28	48	50	51	54	57	78	65	57	55	58	51	34	28	29	N	N
29	29	28	29	28	35	N	B	N	49	54	51	51	54	61	72	A	55	54	48	37	34	28	A	25
30	A	A	30	A	30	29	B	28	45	65	49	56	70	84	71	72	68	51	36	32	A	34	31	28
31	N	26	N	N	A	N	N	N	44	50	59	45	61	64	75	65	55	47	28	37	A	26	N	N
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	12	18	24	18	22	10	5	20	31	31	31	31	30	29	30	29	28	30	29	22	16	22	15	17
MED	29	28	28	28	30	30	26	28	48	52	56	64	66	72	72	67	58	55	48	36	34	29	31	30
U Q	30	31	30	34	35	32	46	30	50	55	64	75	78	83	85	81	68	58	54	47	39	34	34	31
L Q	27	26	26	28	28	29	25	26	45	50	51	53	58	61	67	61	55	50	41	32	29	28	26	27

HOURLY VALUES OF fEs AT Okinawa

JAN.2018

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	B	G	26	G	57	G	25	24	33	137	50	38	48	46	43	72	53	89	143	178	130	37	34	44
2	28	37	39	48	46	26	B	G	28	37	45	47	68	58	60	45	36	58	39	35	36	24	27	25
3	G	G	G		11	32	B	G	30	34	45	62	55	46	48	55	37	39	57	40	41	47	49	38
4	38	33	30	B	29	G	G	58	28	50	46	52	58	108	93	49	41	105	73	60	48	G	G	G
5	G	G	G	G	G	35	28	G	29	39	47	61	85	93	44	67	59	44	39	29	25	23	G	27
6	B	G	59	60	28	59	30	27	28	38	51	52	175	150	37	36	35	57	46	39	36	65	47	35
7	29	G	G	44	31	36	B	G	30	38	40	45	43	43	40	46	41	42	54	67	28	G	27	23
8	B	B	48	30	G	G	B	G	26	179	36	46	44	37	44	42	71	29	21	38	G	G	G	B
9	B	40	36	32	25	G	G	G	45	36	51	105	86	70	51	42	36	29	11	G	25	B	24	G
10	G	38	G	96	27	B	B	G	33	36	44	45	50	46	49	48	55	34	25	32	25	G	38	26
11	46	25	29	30	G	28	28	24	35	36	43	49	46	59	46	44	48	41	29	24	G	24	G	G
12	40	G	90	G	G	G	B	B	28	37	41	44	55	51	60	45	97	108	58	39	G	G	32	G
13	G	G	G	B	G	56	B	B	27	30	128	42	42	45	46	39	36	29	26	G	80	34	G	151
14	G	G	G	40	27	35	26	B	26	32	40	145	47	46	68	46	40	37	35	49	32	G	24	45
15	56	55	56	59	31	29	32	26	141	31	39	47	52	55	56	52	59	40	52	45	33	34	G	G
16	G	G	G	G	G	90	B	24	28	34	40	48	60	93	48	37	40	33	36	43	28	34		G
17	29	G	G	40	31	33	27	29	28	40	48	48	52	47	42	36	34	28	36	26	G	G	B	G
18	G	G	G	G	G	G	B	205	40	38	45	50	60	148	50	55	45	33	27	G	28	27	B	G
19	G	G	G	G	G	B	B	G	26	32	44	46	46	47	42	70	162	26	24	36	G	G	B	G
20	G	G	G	96	G	11	B	48	46	32	35	48	55	45	47	38	36	28	24	26	24	46	27	G
21	35	G	G	26	24	B	G	G	29	37	37	45	44	48	55	40	40	39	29	28	34	G	24	26
22	43	25	26	58	B	B	B	G	50	35	40	41	42	45	41	48	46	38	39	32	24	G	G	G
23	G	G	G	88	G	G	B	G	32	148	41	48	88	55	39	35	32	28	11	G	G	G	58	G
24	G	78	26	G	G	B	B	28	30	38	42	44	77	44	54	38	36	29	21	G	31	30	G	G
25		35	G	107	G	G	B	G	38	47	56	62	74	128	57	47	92	32	32	20	32	58	25	26
26	G	28	G	G	G	G	G	G	30	36	39	48	46	61	44	42	50	32	27	27	G	G	G	G
27	G	28	28	29	33	25	G	G	24	107	38	48	54	47	42	43	35	27	28	G	25	G	G	G
28	G	G	G	31	30	35	29	24	49	39	41	42	57	51	70	47	40	43	11	34	G	G	G	G
29	G	G	G	G	30	11	B	G	31	36	34	45	47	52	47	85	46	40	34	32	G	27	32	G
30	26	30	G	35	92	24	B	24	30	43	41	44	47	50	44	38	41	41	32	G	25	G	G	G
31	G	G	G	G	31	25	G	G	25	42	41	44	42	43	42	46	43	52	35	28	41	24	G	G
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	26	30	31	28	30	26	14	28	31	31	31	31	31	31	31	31	31	31	31	31	31	30	27	30
MED	G	G	G	30	24	25	26	G	30	37	41	47	52	50	47	45	41	38	32	32	25	12	24	G
U Q	29	30	29	53	31	35	28	25	35	42	46	50	60	61	55	49	53	43	39	39	34	34	32	26
L Q	G	G	G	G	G	G	G	G	28	35	40	44	46	46	42	39	36	29	25	20	G	G	G	G

HOURLY VALUES OF fmin AT Okinawa

JAN. 2018

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	B	15	14	14	14	14	14	14	14	14	14	14	14	14	14	15	14	14	14	15	14	14	14	15
2	14	14	14	14	14	14	B	15	14	14	14	15	15	14	14	14	14	14	14	14	14	14	14	14
3	15	14	14		14	14	B	14	14	14	14	14	14	15	14	14	14	14	15	14	14	14	14	14
4	14	14	14	B		14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	15	14	14
5	14	14	14	15	14	14	14	15	14	14	14	14	14	15	14	14	14	14	14	14	14	14	14	14
6	B	14	14	14	14	14	14	15	14	14	14	14	15	15	15	16	14	14	14	14	14	14	14	14
7	14	14	14	14	14	14	B	14	14	14	14	14	15	14	14	14	14	14	14	14	14	14	15	15
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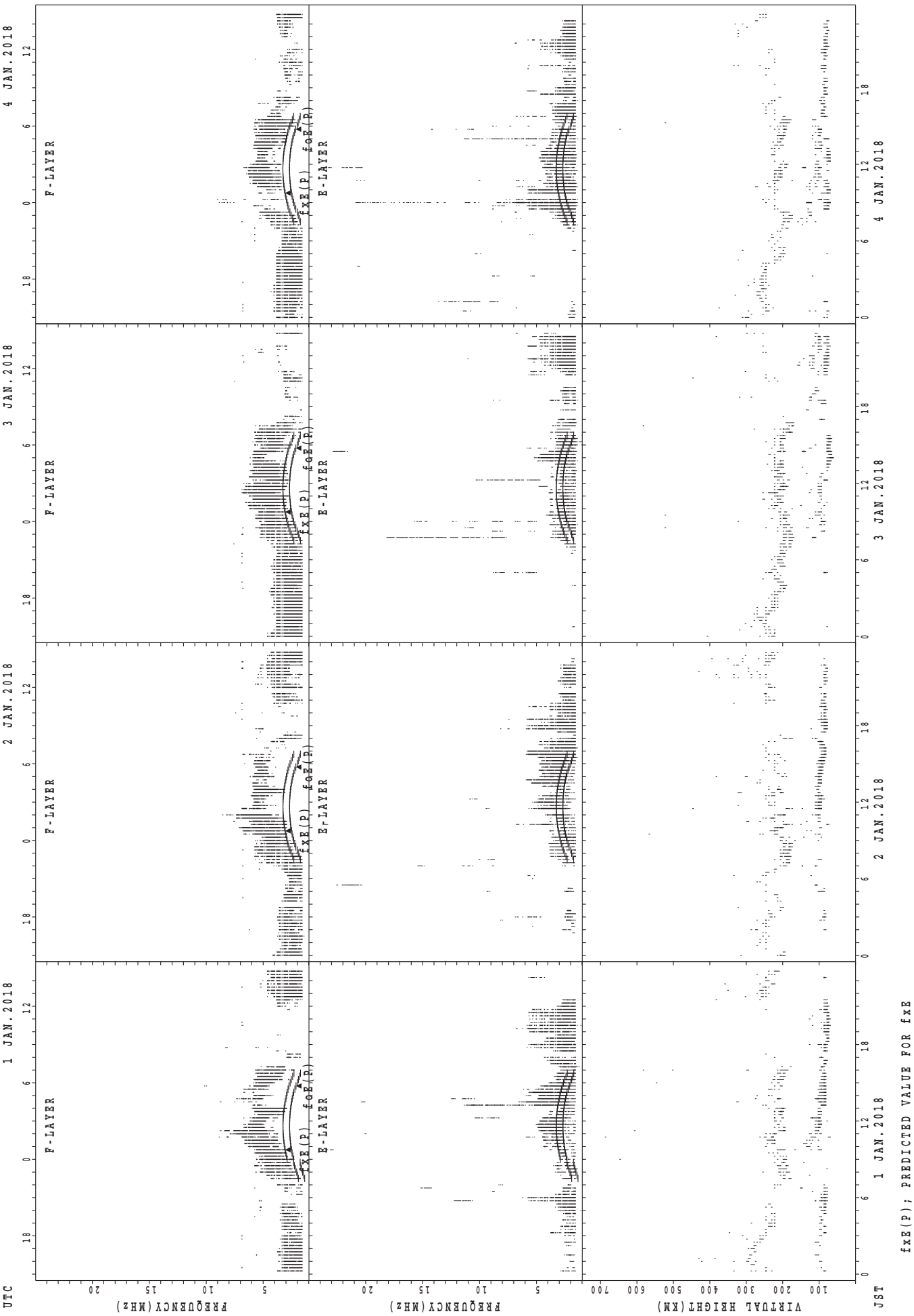
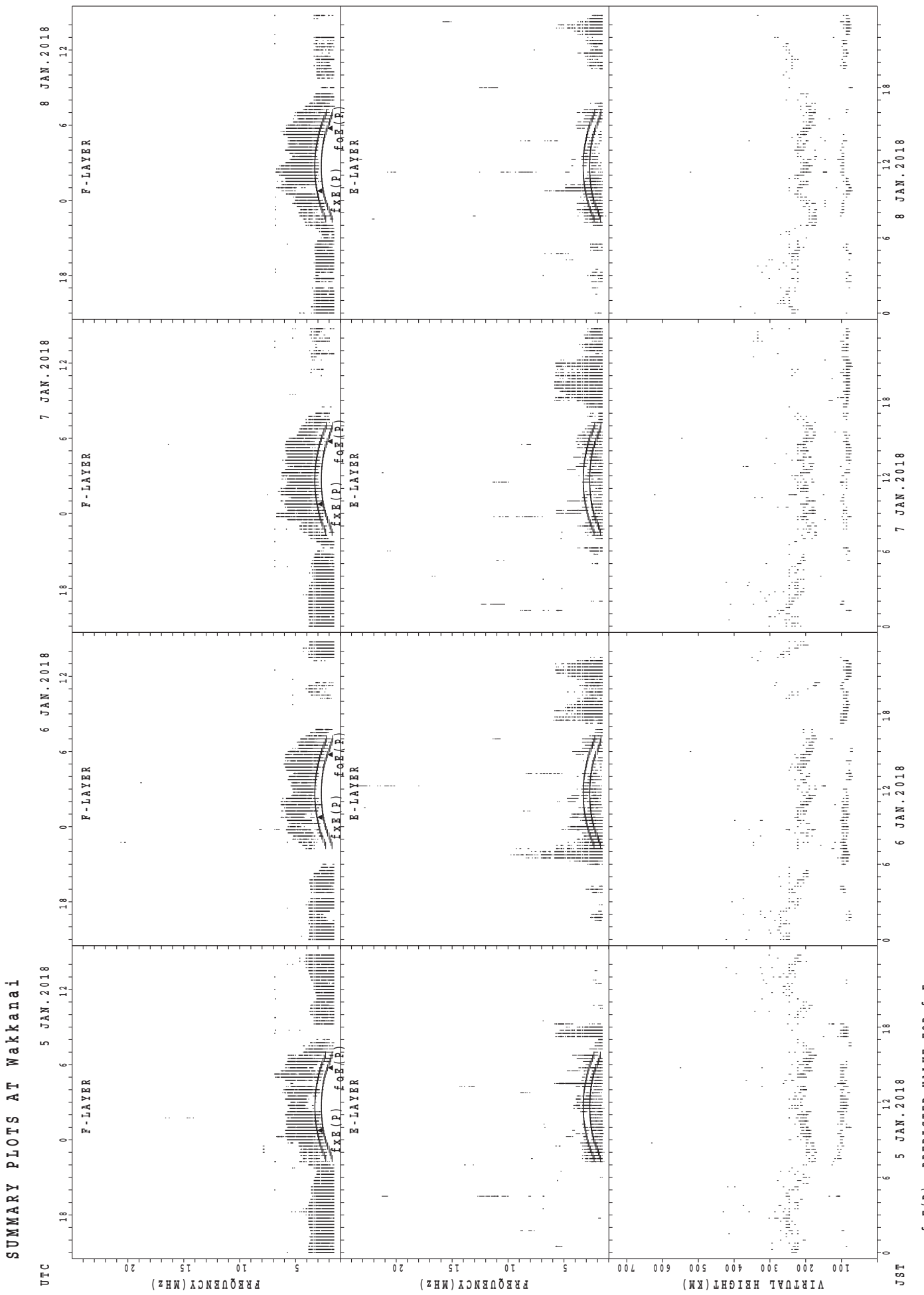

SUMMARY PLOTS AT Wakkanai
UTC
JST
1 JAN.2018
2 JAN.2018
3 JAN.2018
4 JAN.2018
F-LAYER
E-LAYER
fxE(P) foE(P)
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE


SUMMARY PLOTS AT Wakkanai
UTC
JST
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7 JAN.2018
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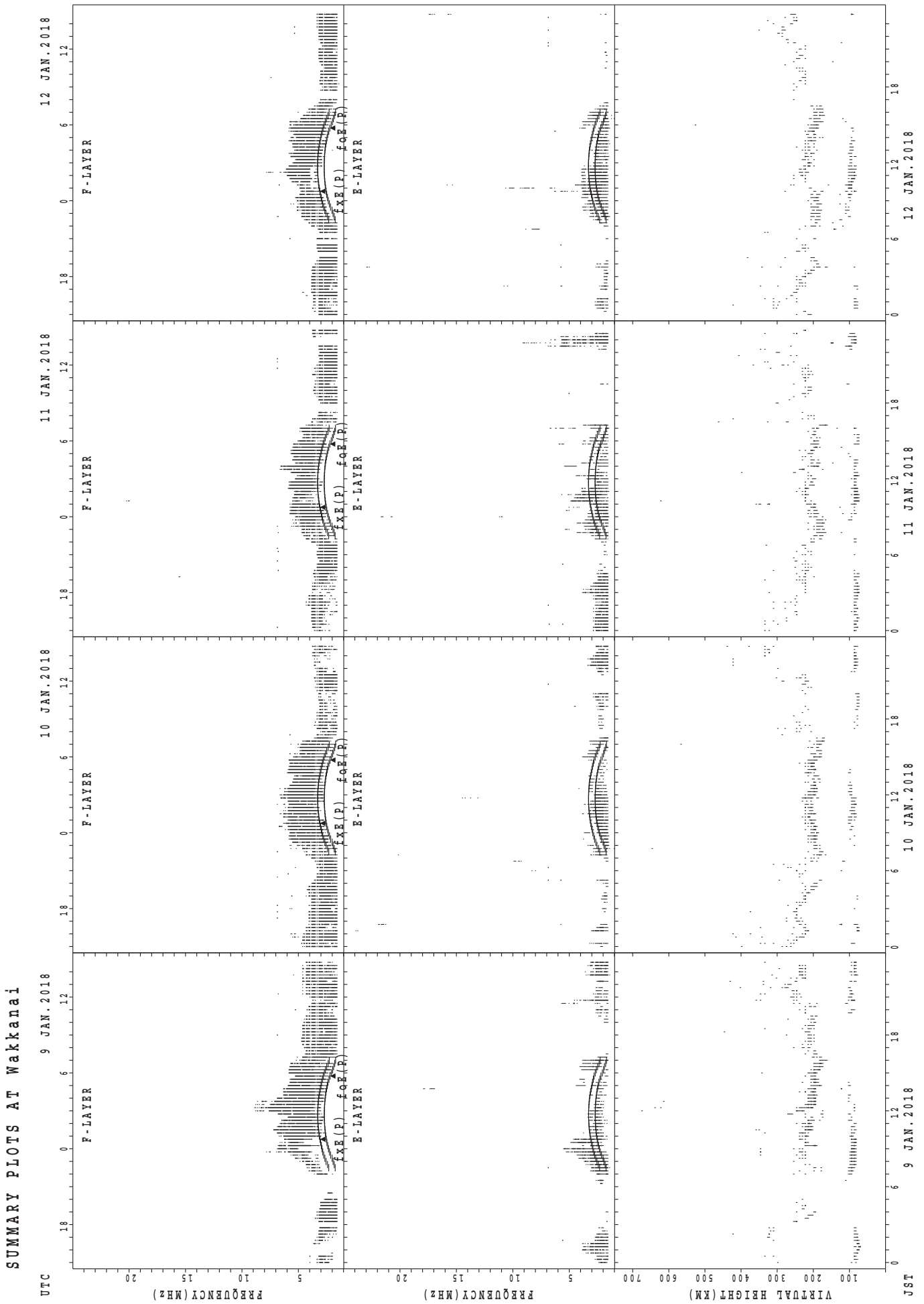
F-LAYER
E-LAYER
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
fxE(P)
foE(P)
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE


SUMMARY PLOTS AT Wakkanai
UTC
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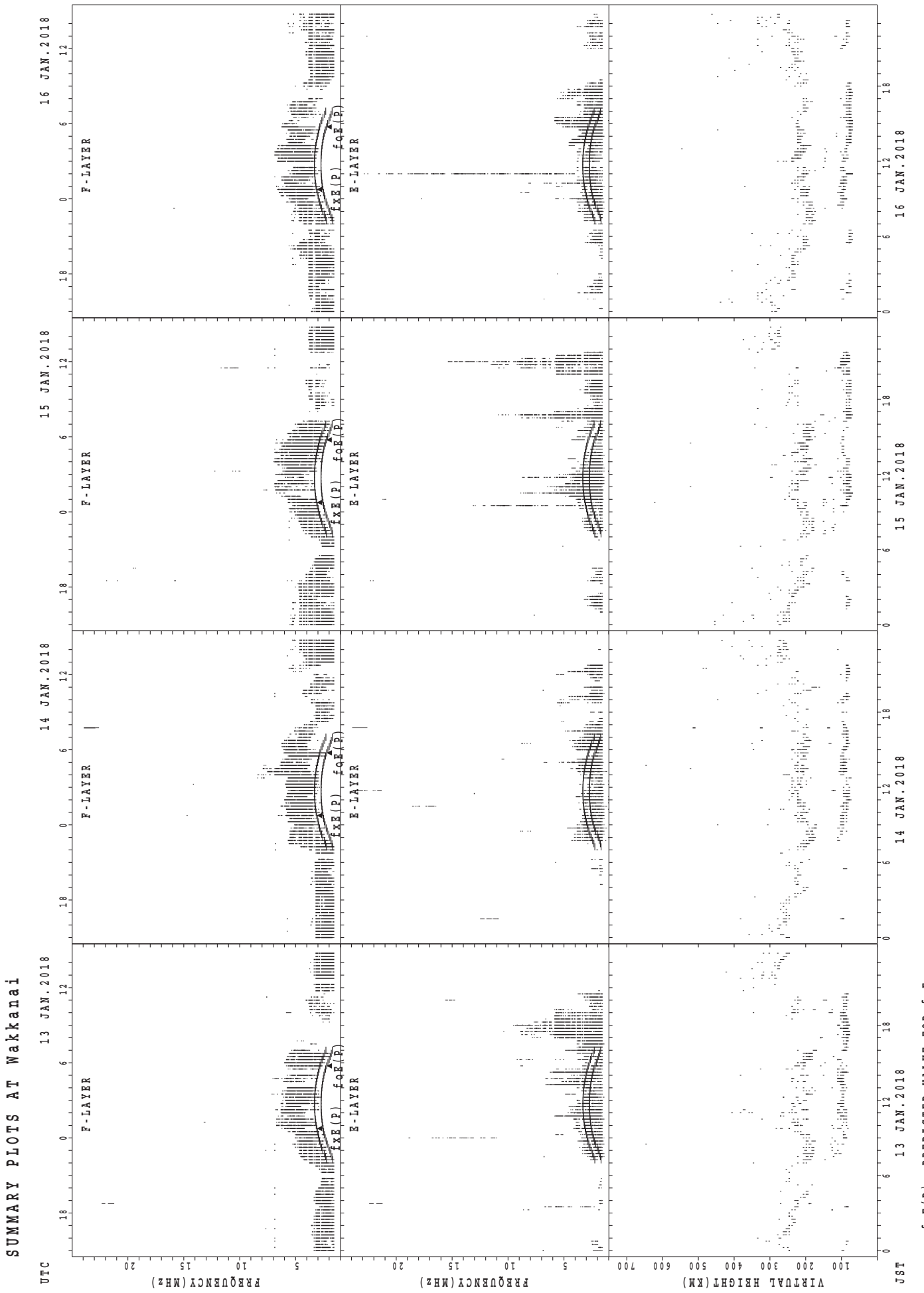
9 JAN.2018
10 JAN.2018
11 JAN.2018
12 JAN.2018
F-LAYER
E-LAYER
fxE(P)
foE(P)
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE


SUMMARY PLOTS AT Wakkanai
UTC
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13 JAN.2018
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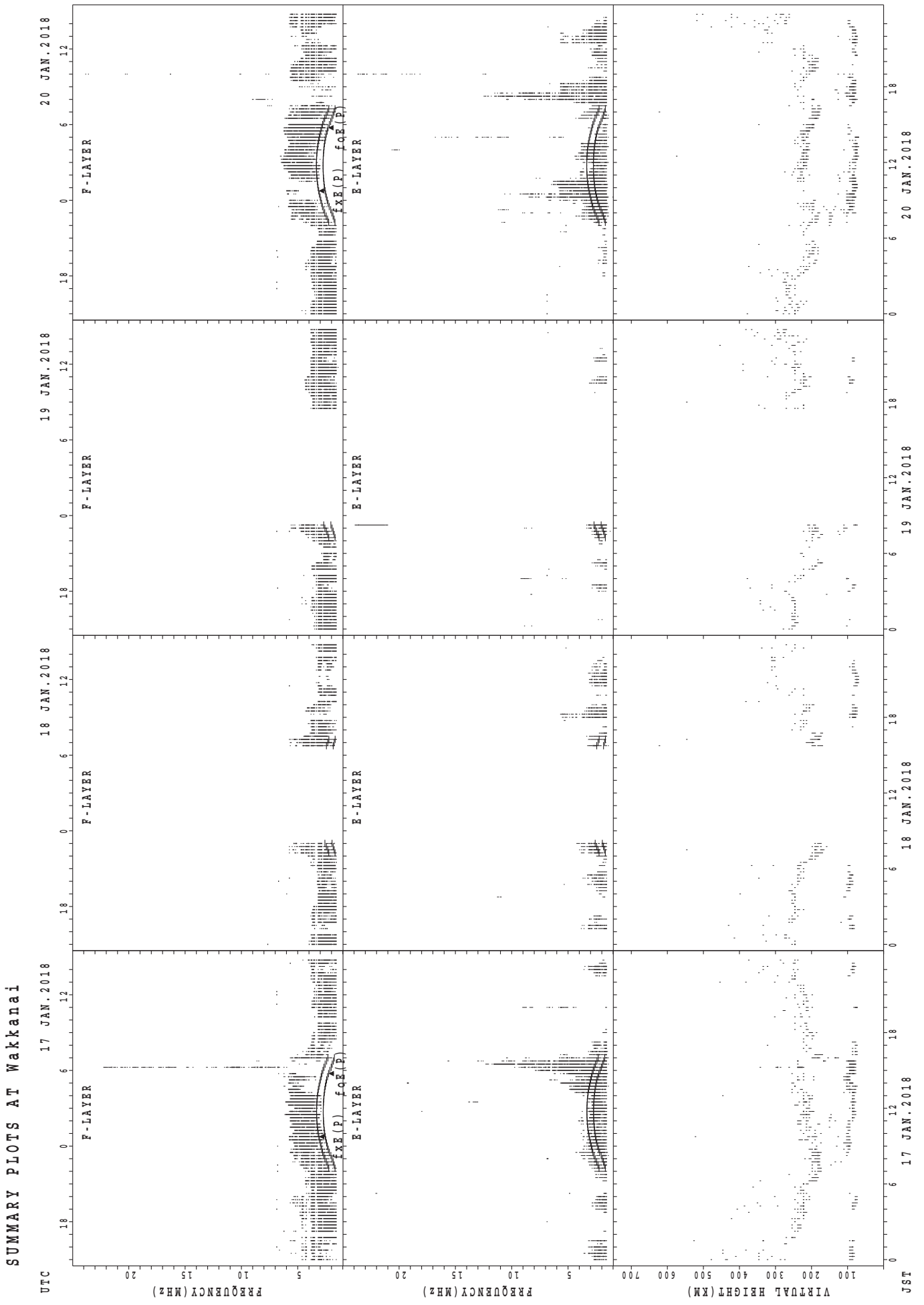
16 JAN.2018
F-LAYER
E-LAYER
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
fxE(P) foE(P)
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE


SUMMARY PLOTS AT Wakkanai
UTC
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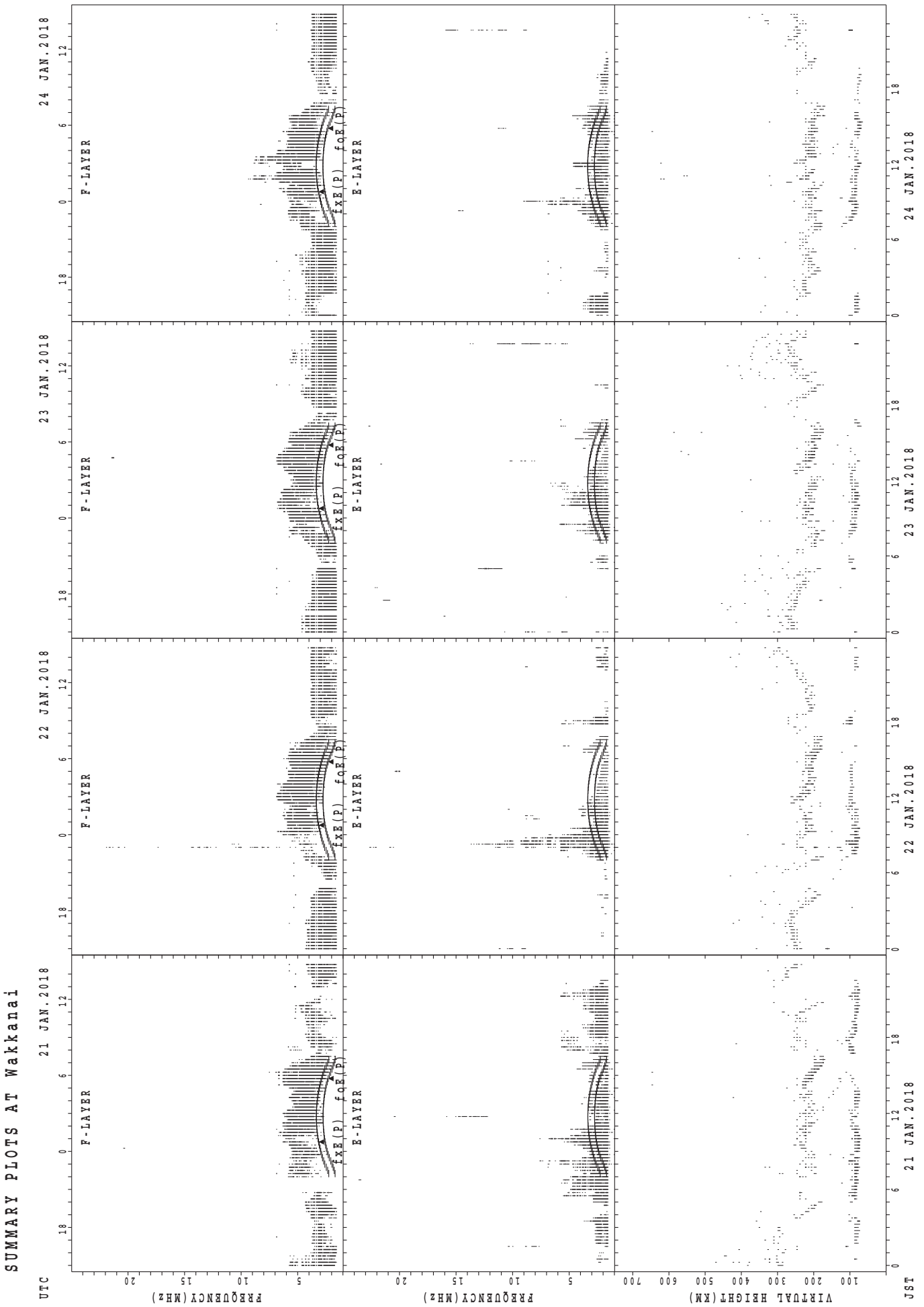
20 JAN.2018
F-LAYER
E-LAYER
fxE(P)
foE(P)
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE


SUMMARY PLOTS AT Wakkanai
UTC
JST
21 JAN.2018
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23 JAN.2018
24 JAN.2018
F-LAYER
E-LAYER
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
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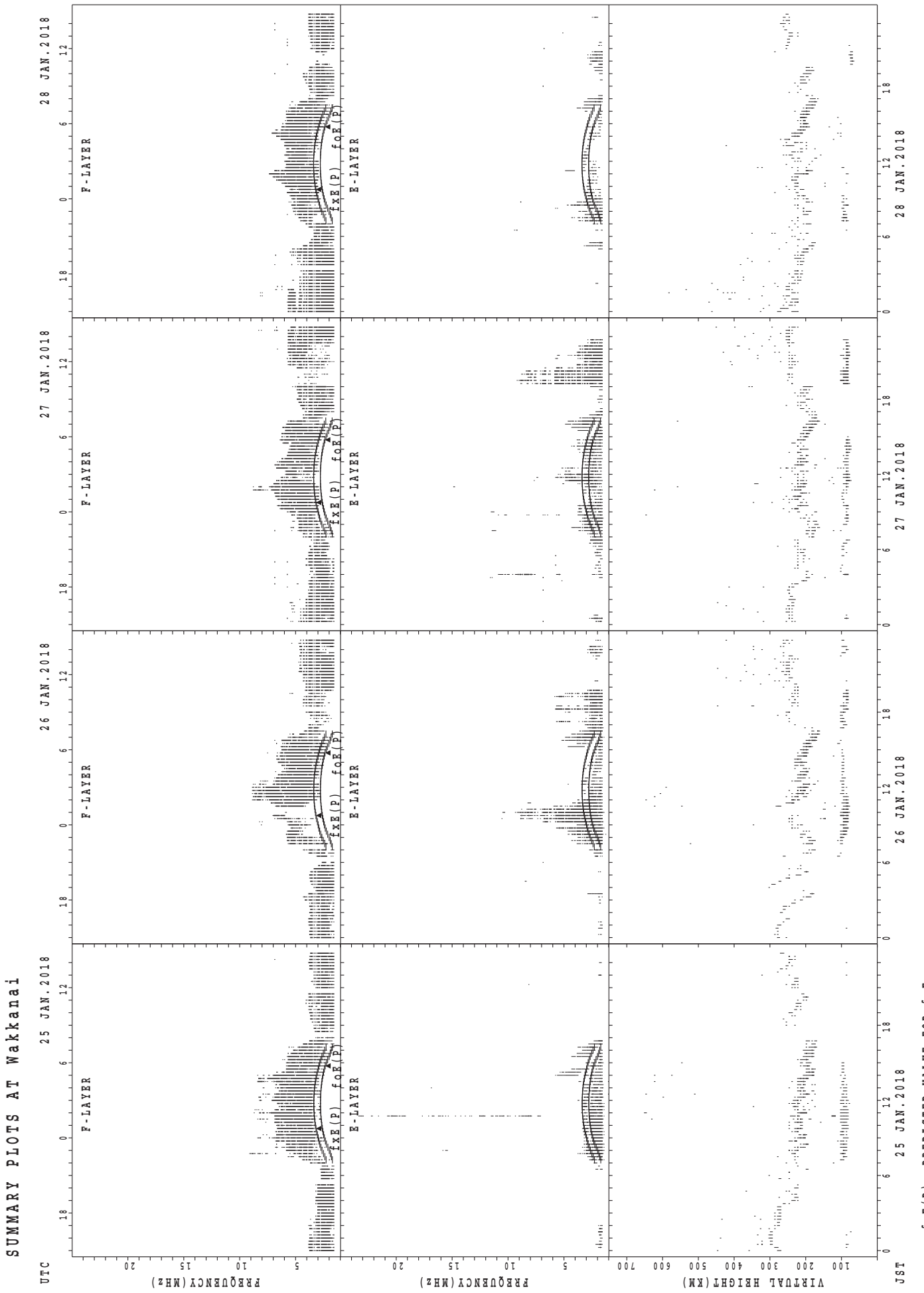
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE


SUMMARY PLOTS AT Wakkanai
UTC
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F-LAYER
E-LAYER
fxE(P) foE(P)
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VIRTUAL HEIGHT(KM)
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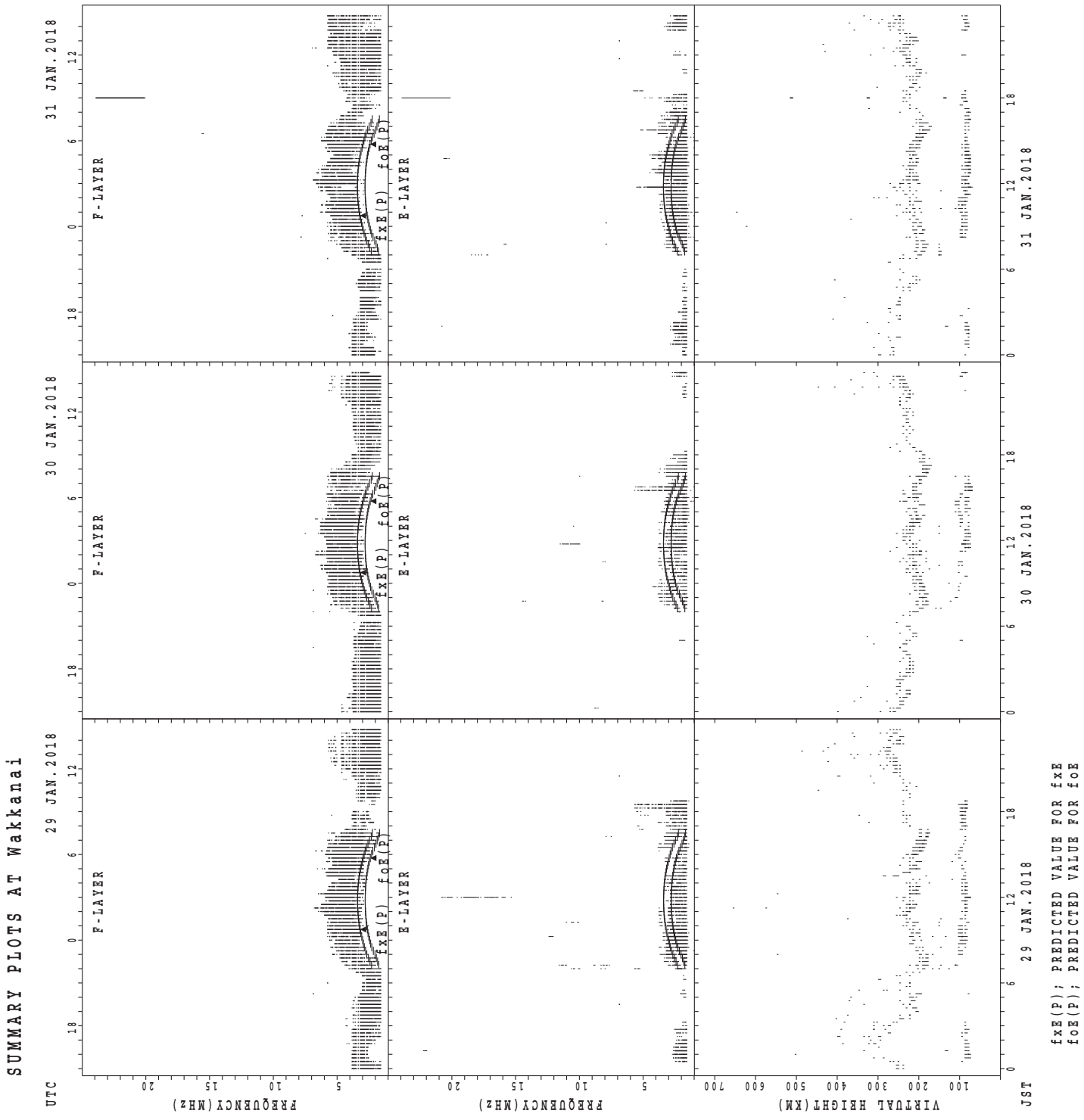
foE(P); PREDICTED VALUE FOR foE


SUMMARY PLOTS AT Wakkanai
UTC
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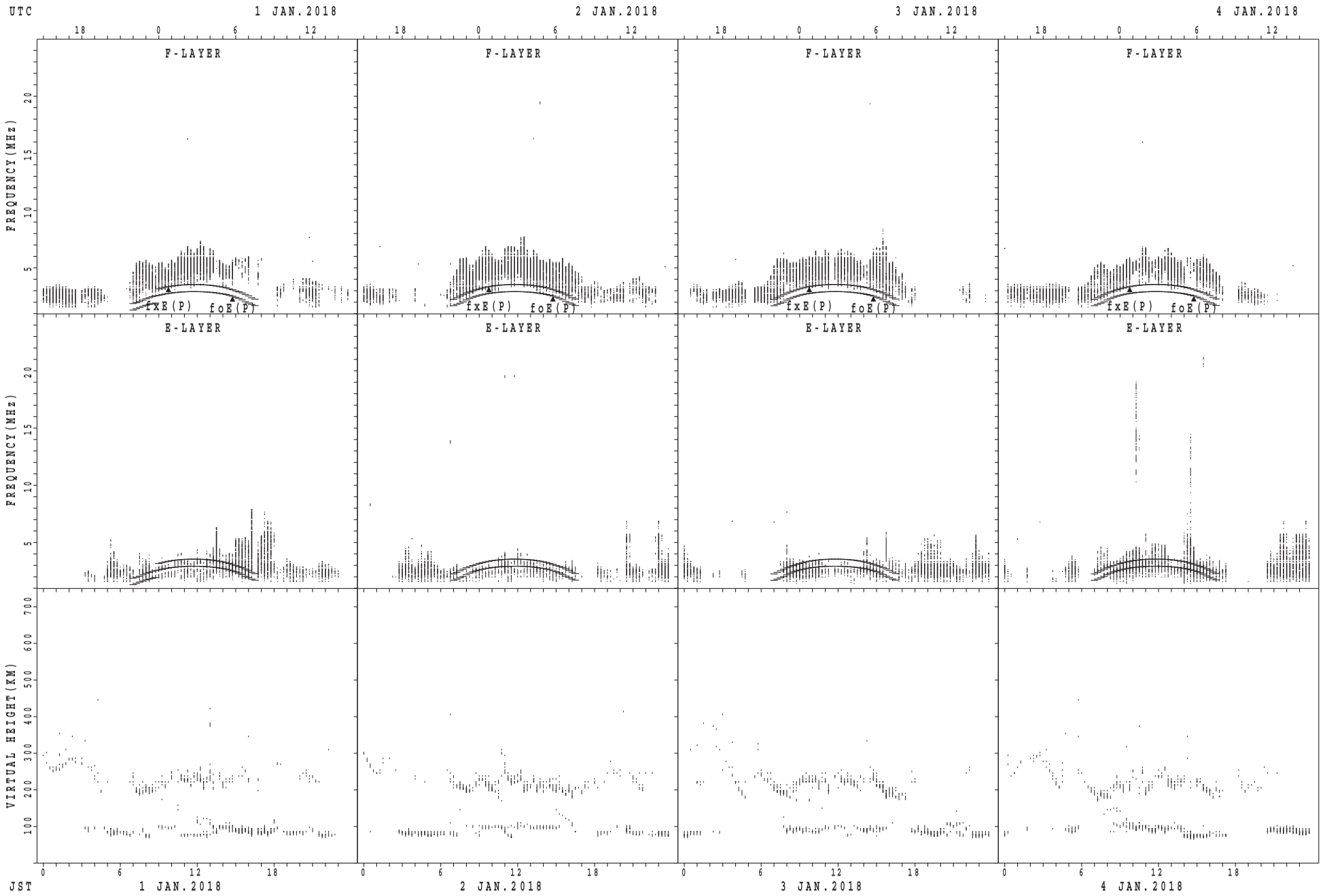
31 JAN.2018
F-LAYER
E-LAYER
fxE(P) foE(P)
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
JST
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



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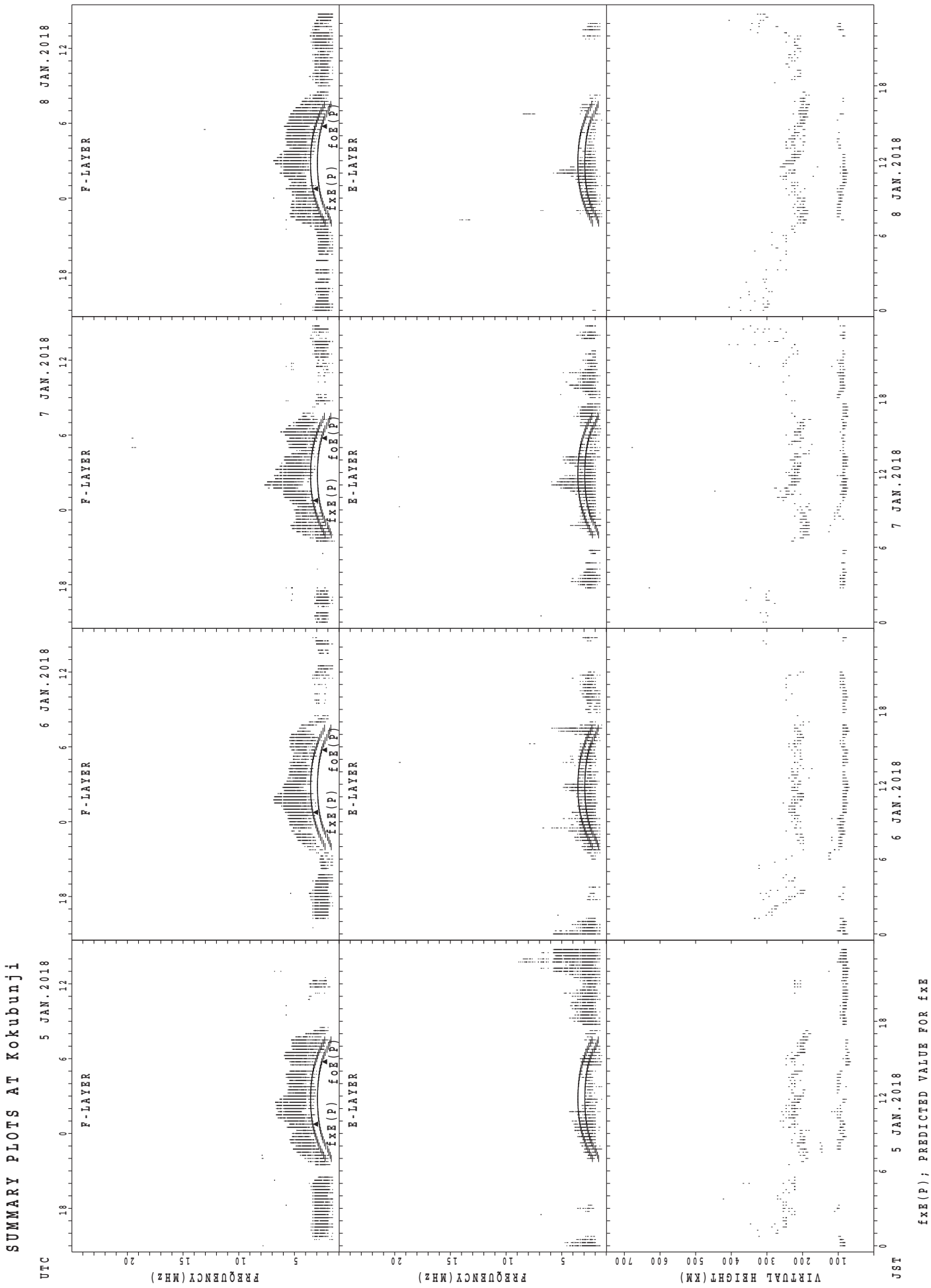
SUMMARY PLOTS AT Kokubunji
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8 JAN.2018
F-LAYER
E-LAYER
fxE(P)
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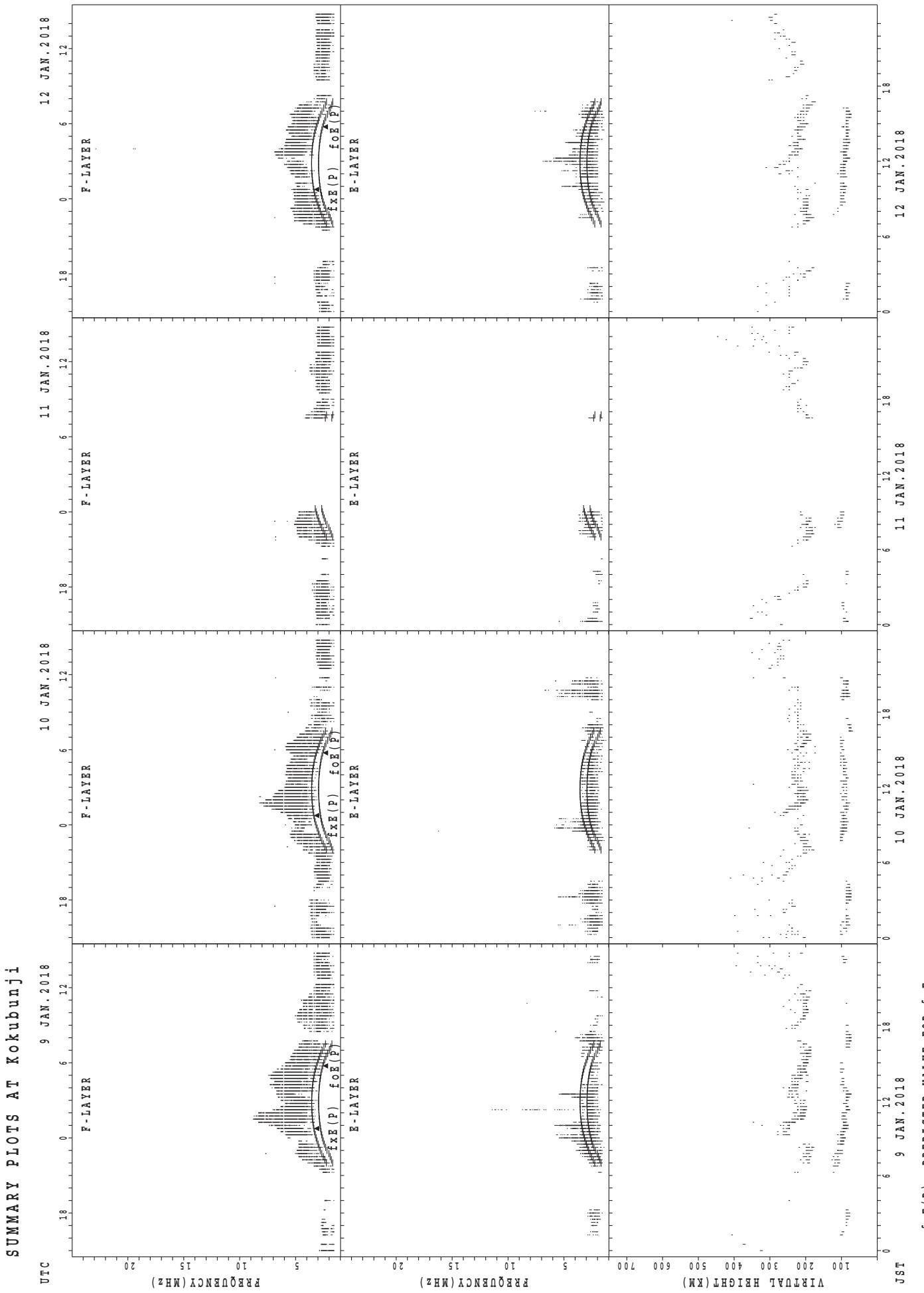
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE


SUMMARY PLOTS AT Kokubunji
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12 JAN.2018
F-LAYER
E-LAYER
fxE(P)
foE(P)
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
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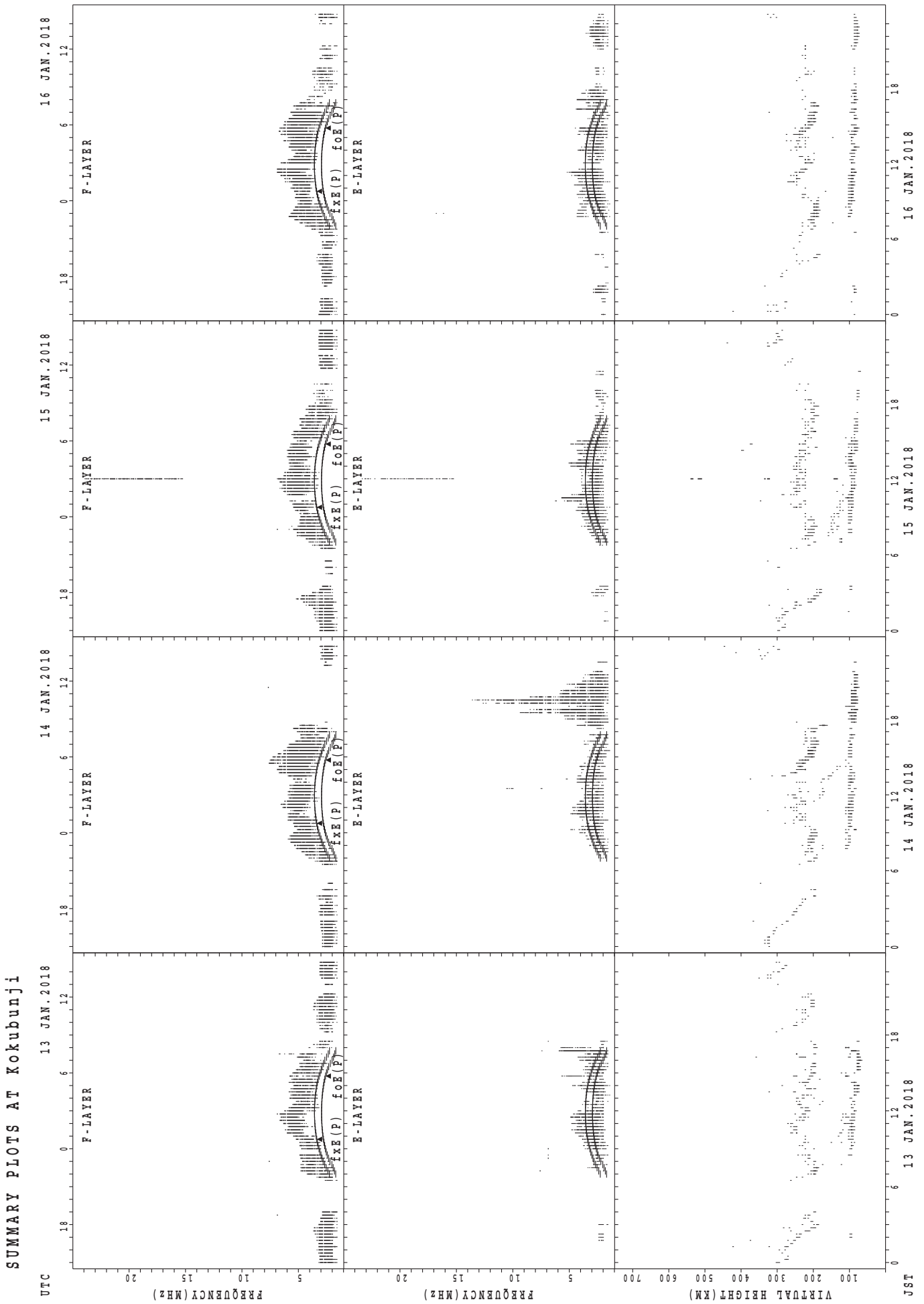
foE(P); PREDICTED VALUE FOR foE


SUMMARY PLOTS AT Kokubunji
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16 JAN.2018
F-LAYER
E-LAYER
fxE(P) foE(P)
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VIRTUAL HEIGHT(KM)
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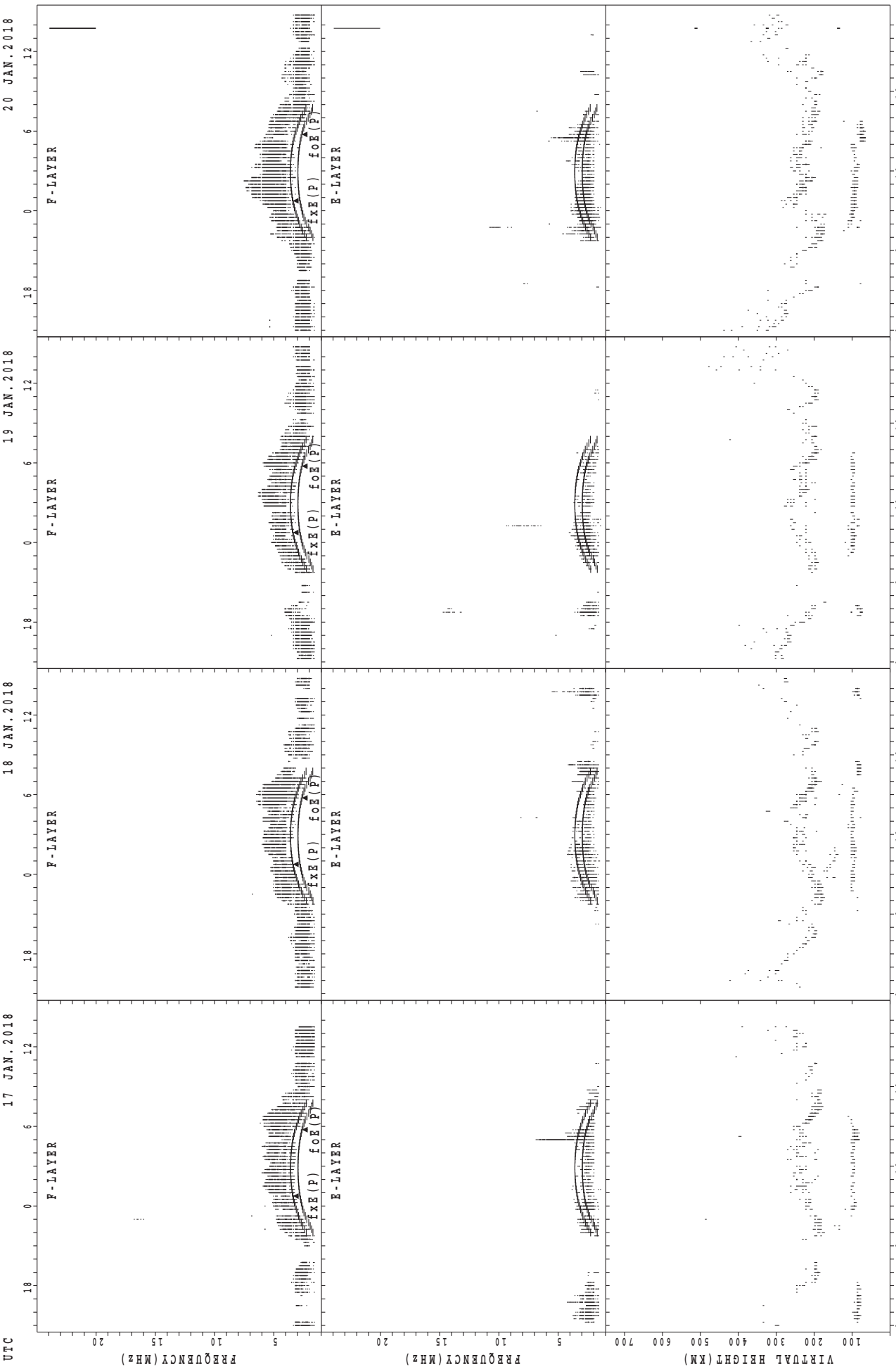
foE(P); PREDICTED VALUE FOR foE


SUMMARY PLOTS AT Kokubunji
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F-LAYER
E-LAYER
fxE(P) foE(P)
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
JST
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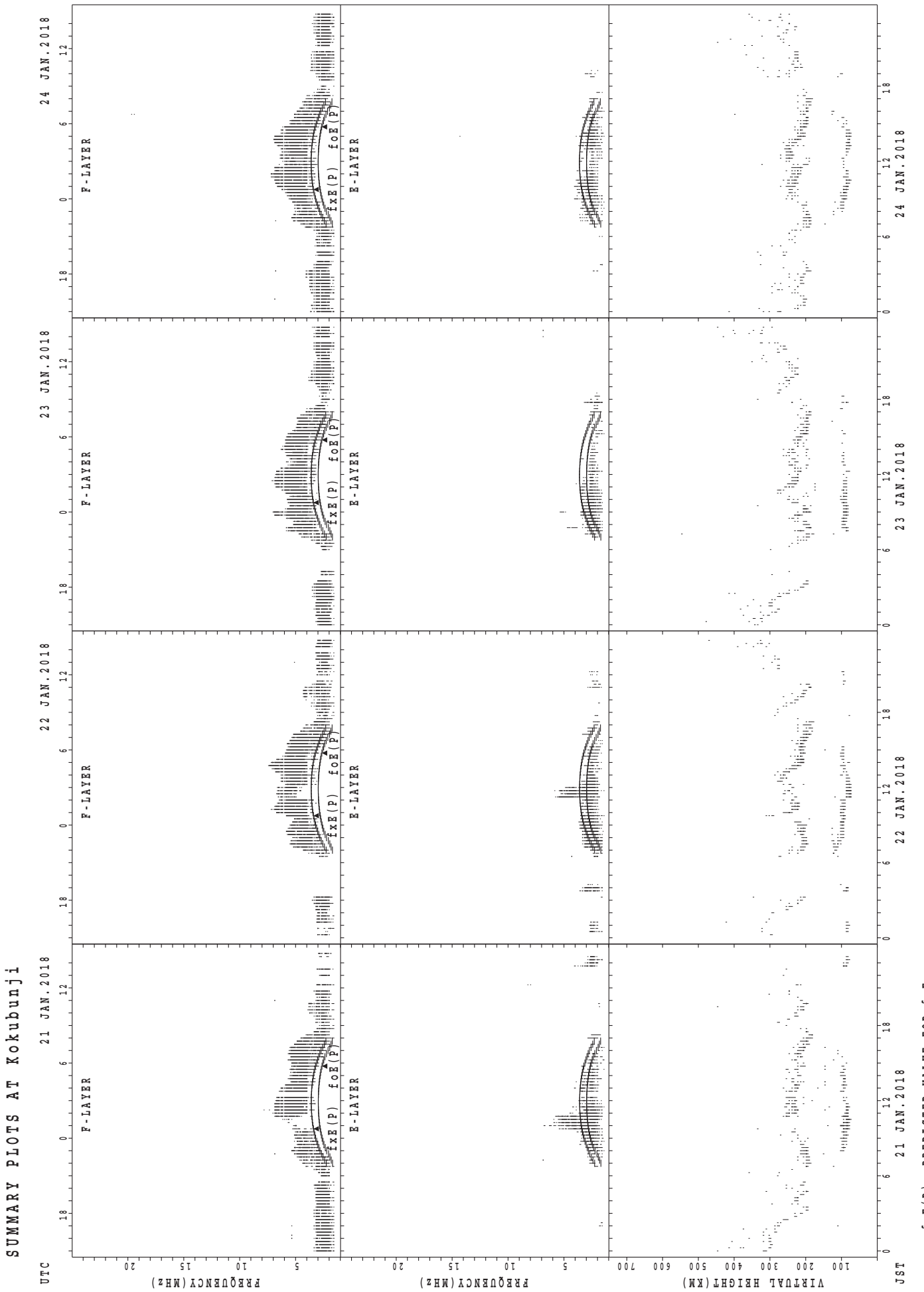
foE(P); PREDICTED VALUE FOR foE


SUMMARY PLOTS AT Kokubunji
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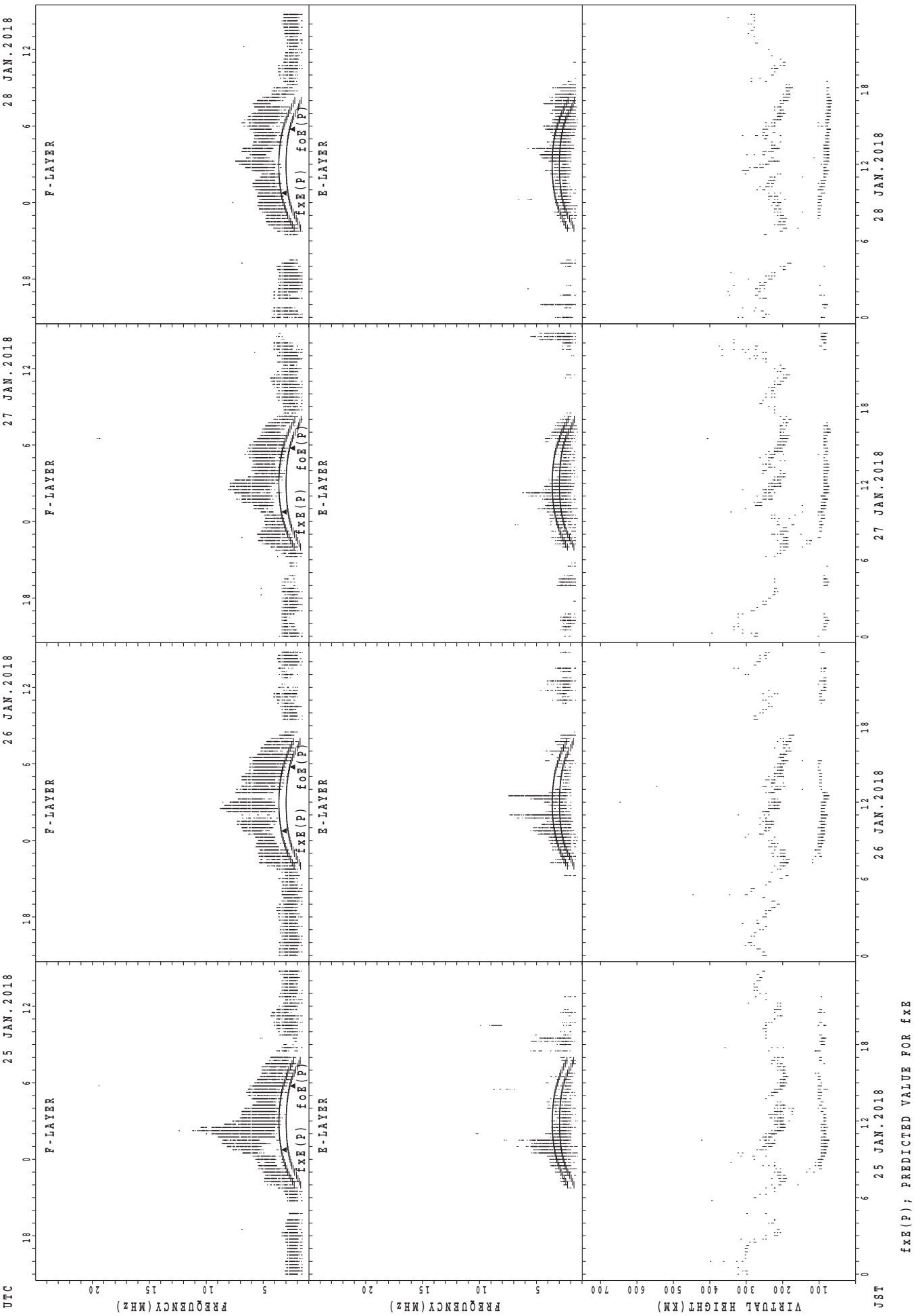
F-LAYER
E-LAYER
fxE(P) foE(P)
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE


SUMMARY PLOTS AT Kokubunji
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28 JAN.2018
F-LAYER
E-LAYER
fxE(P) foE(P)
FREQUENCY(MHz)
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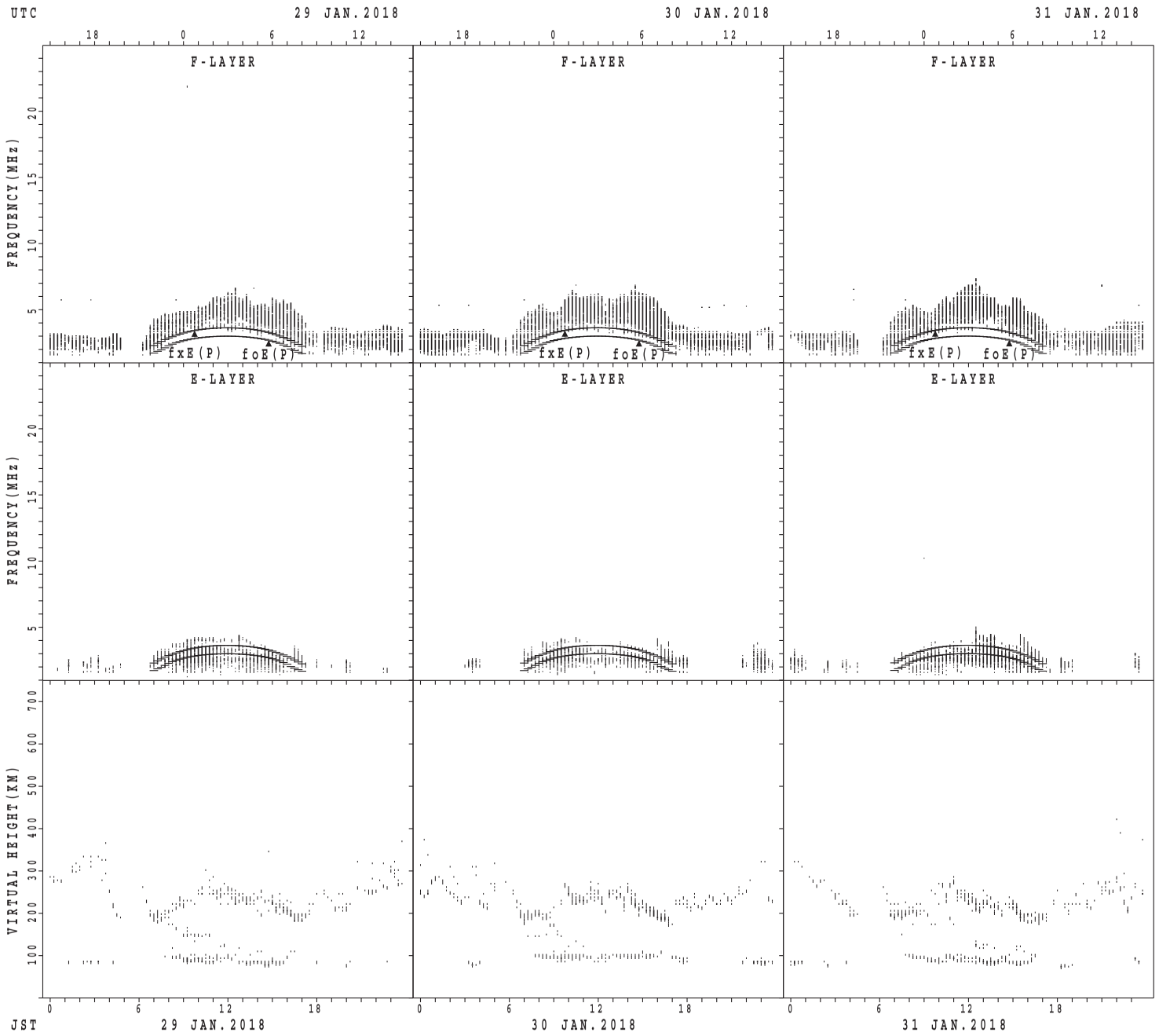
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



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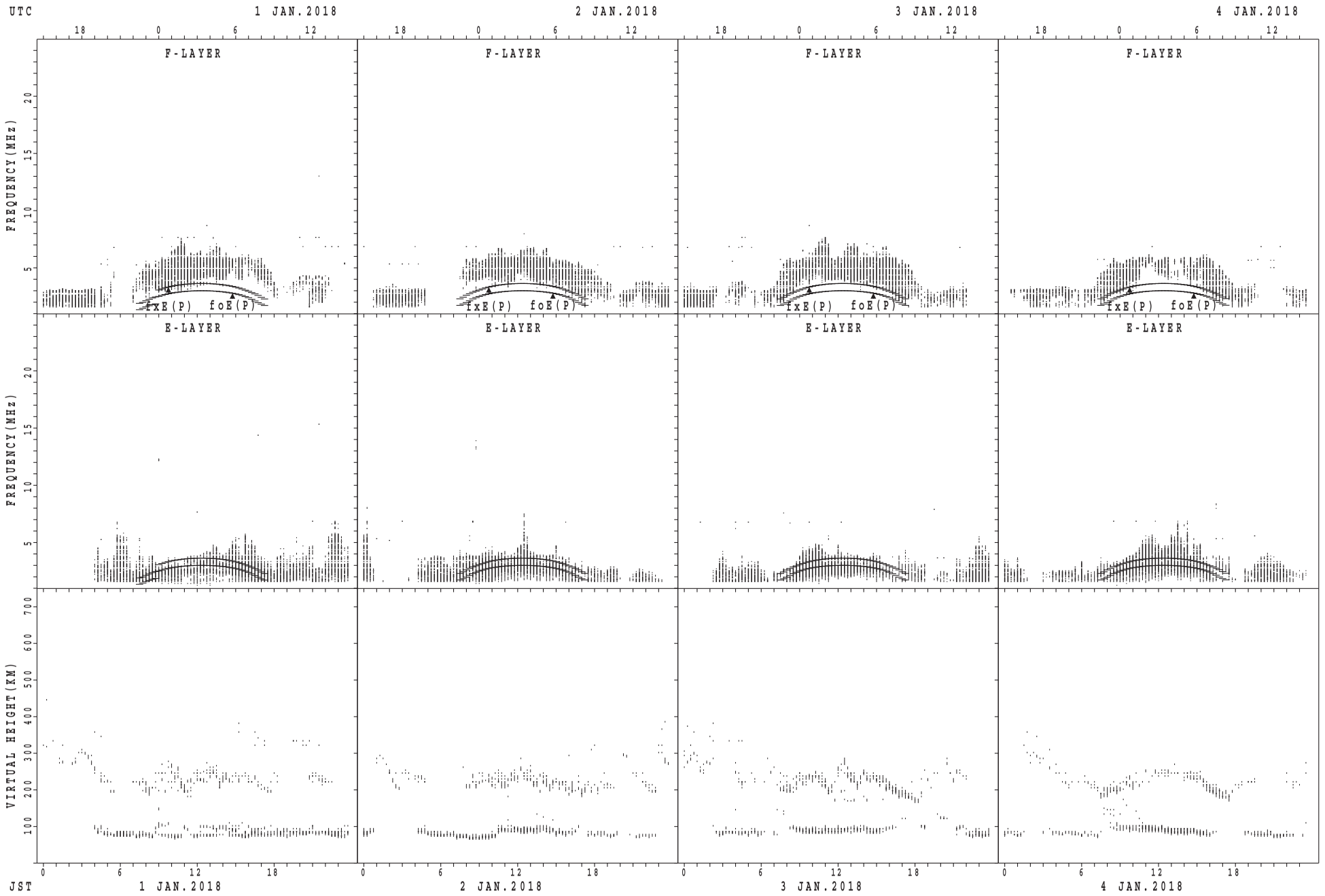
SUMMARY PLOTS AT Yamagawa



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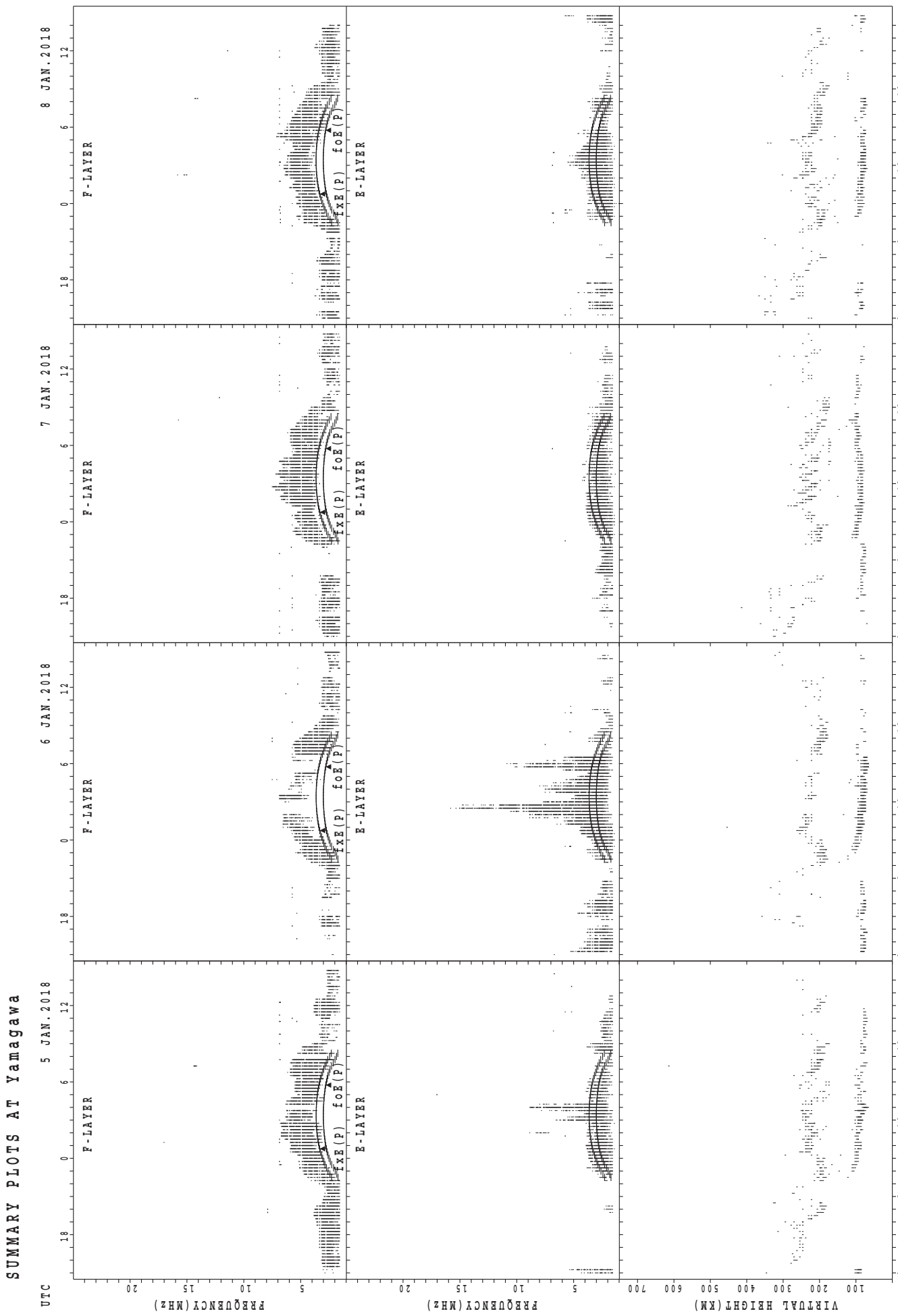
foE(P); PREDICTED VALUE FOR foE


SUMMARY PLOTS AT Yamagawa
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7 JAN.2018
8 JAN.2018
F-LAYER
E-LAYER
fxE(P) foE(P)
FREQUENCY(MHz)
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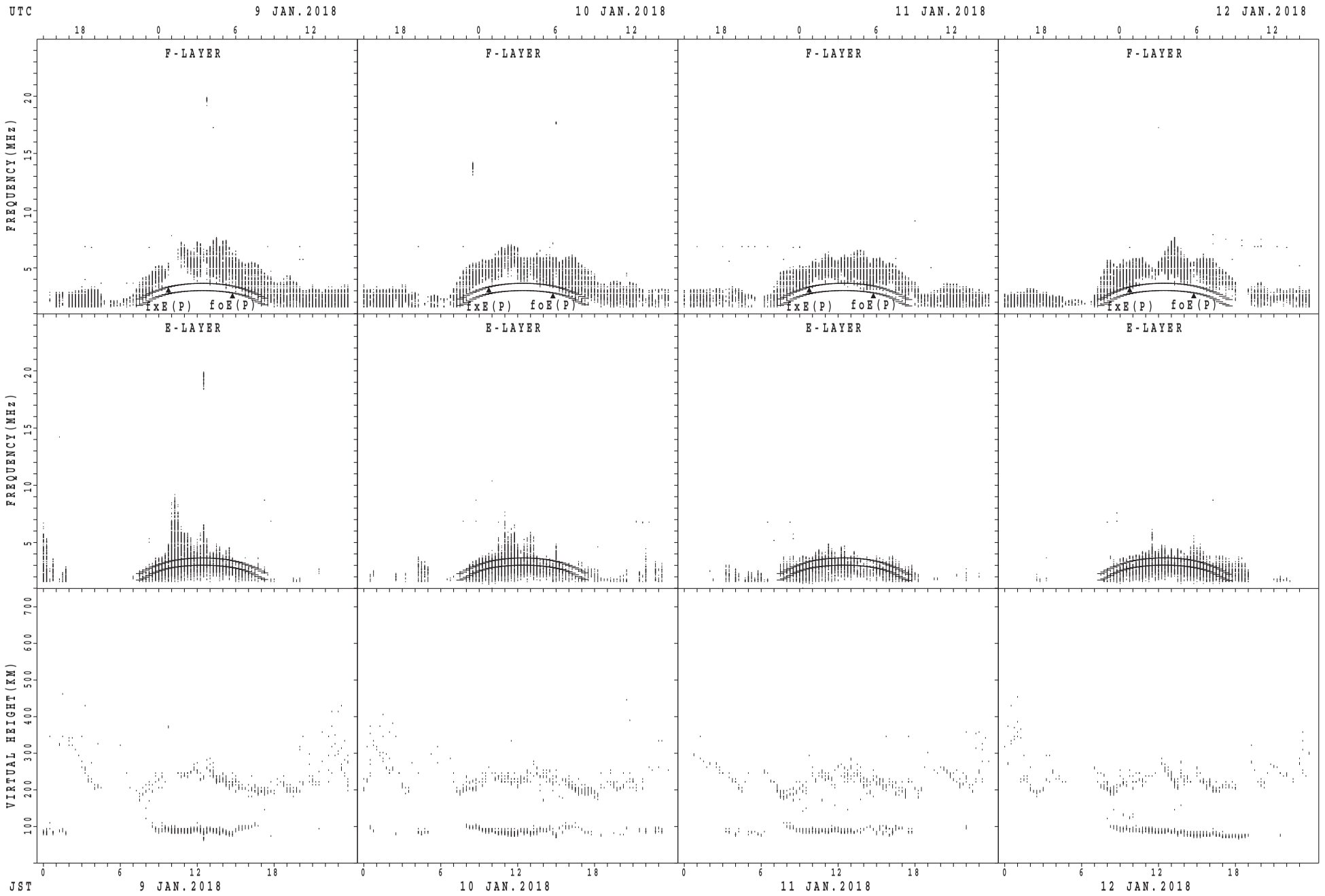
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



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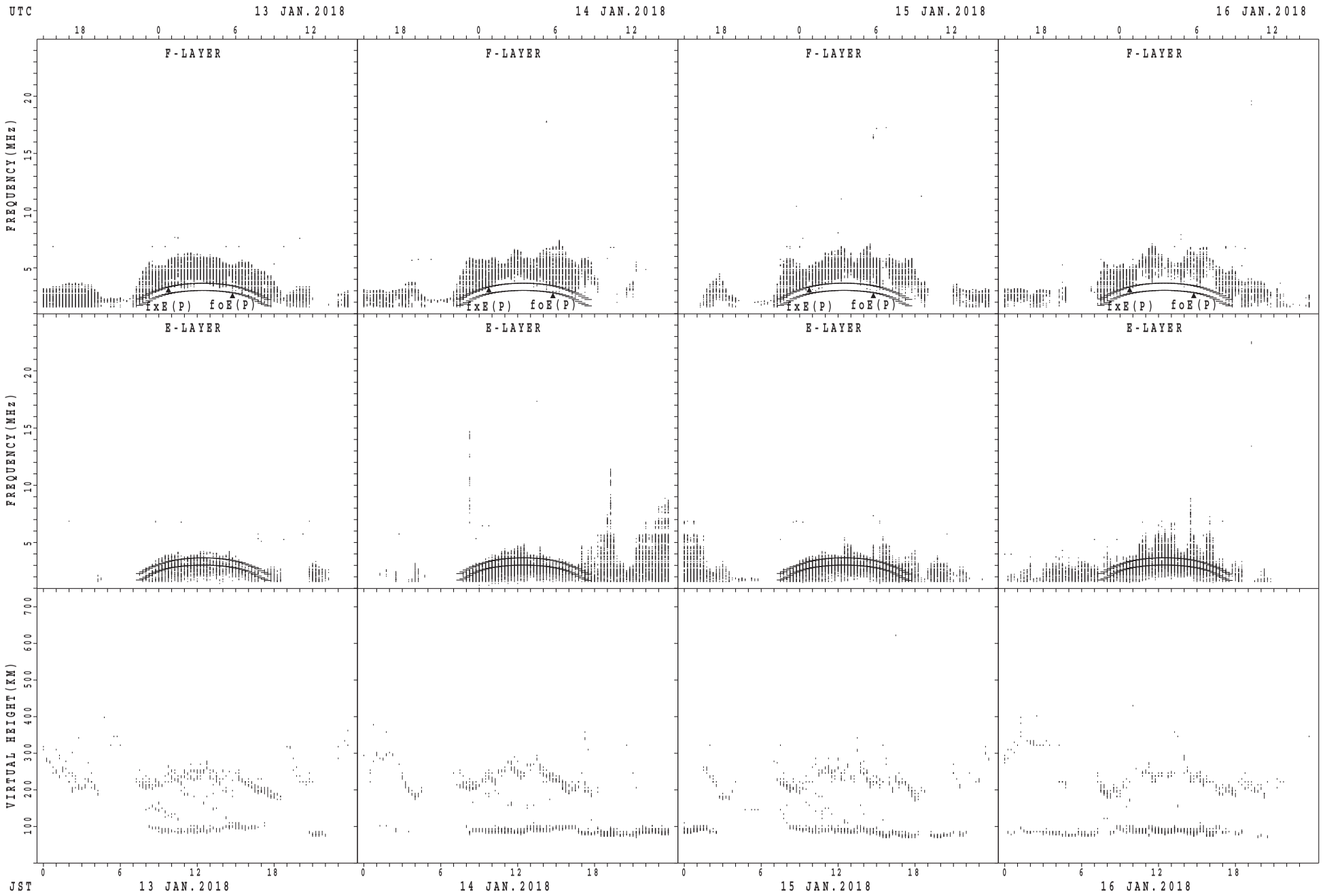
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



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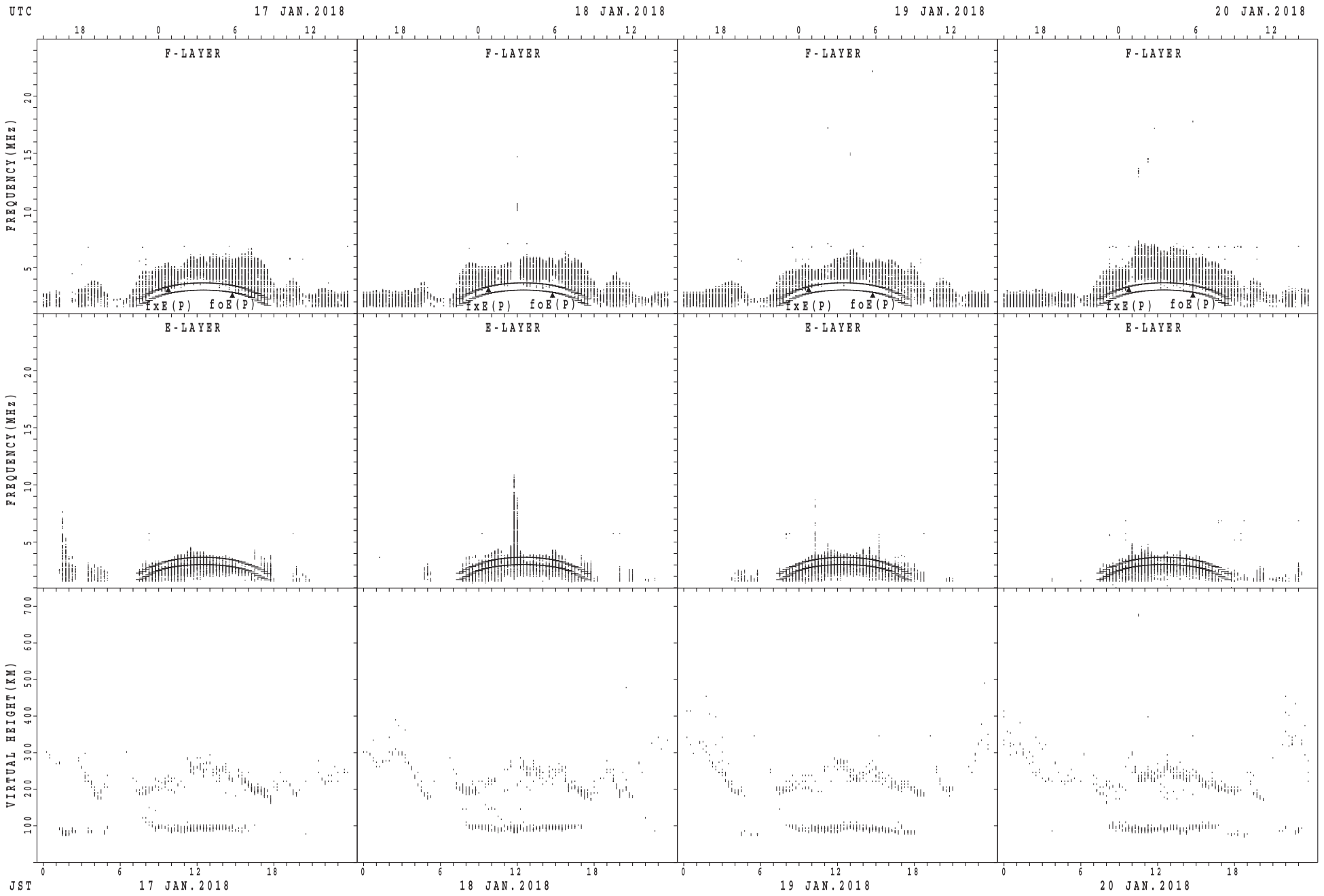
SUMMARY PLOTS AT Yamagawa
UTC
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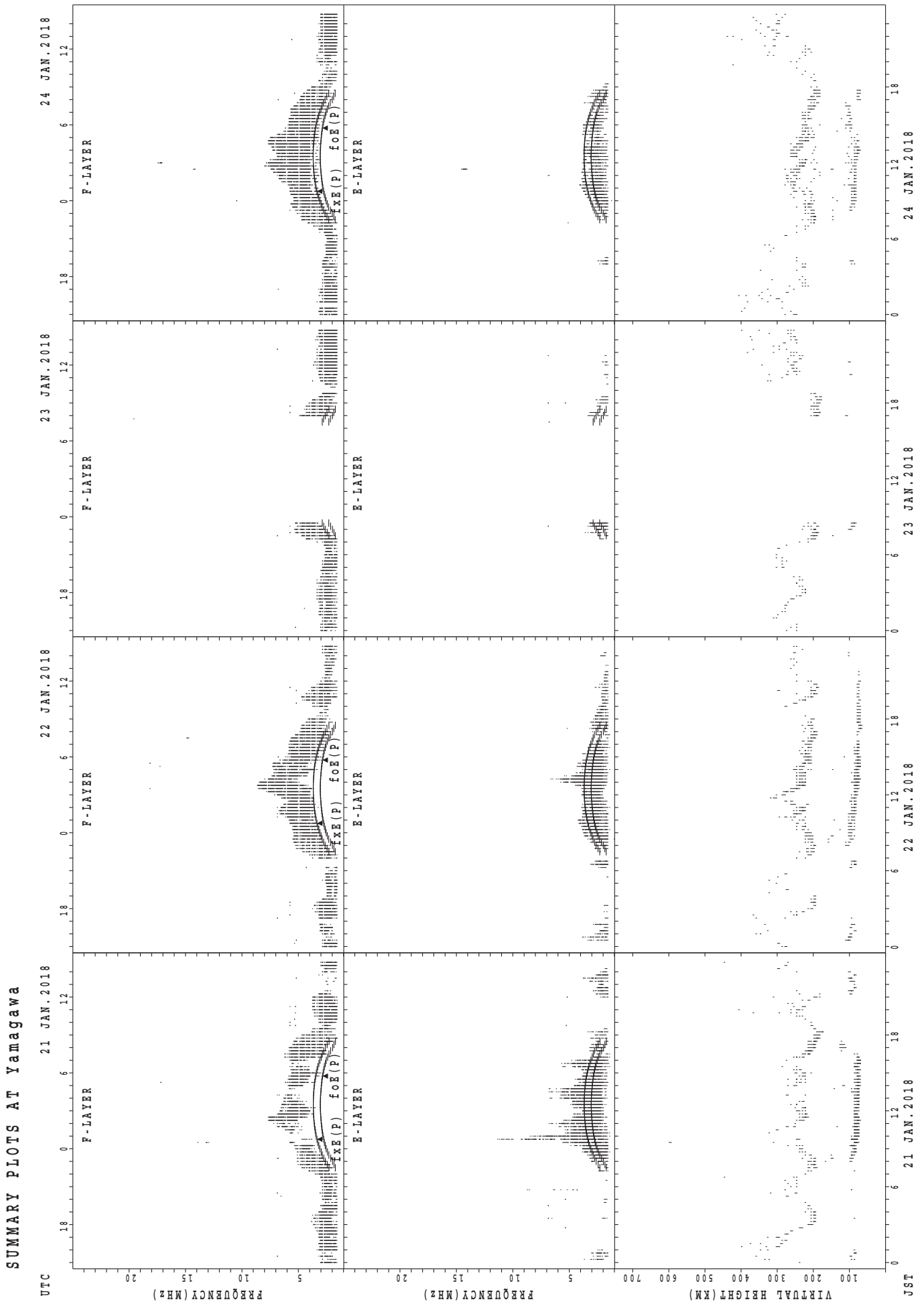
F-LAYER
E-LAYER
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
fxE(P) foE(P)
JST
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE


SUMMARY PLOTS AT Yamagawa
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F-LAYER
E-LAYER
fxE(P) foE(P)
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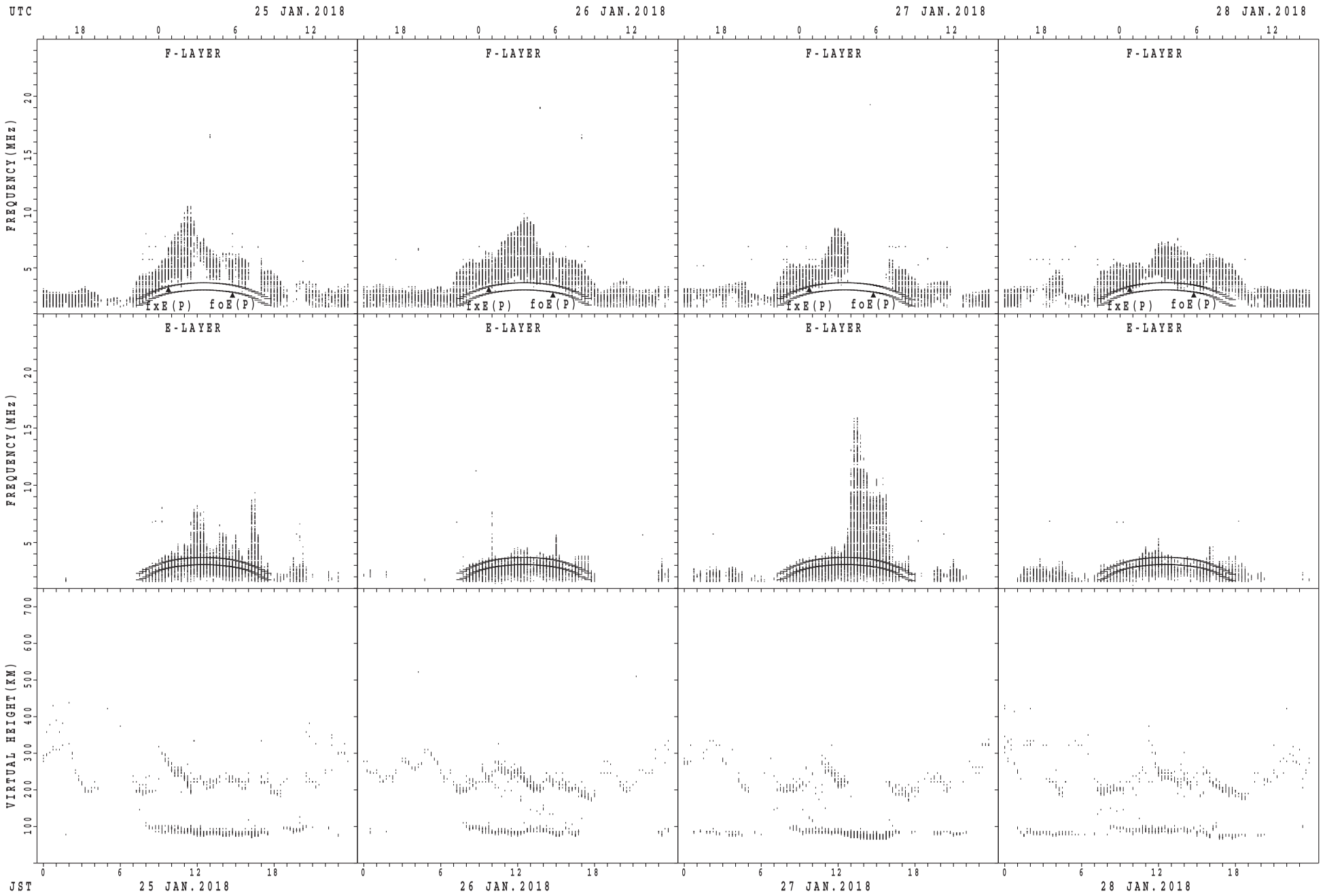
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



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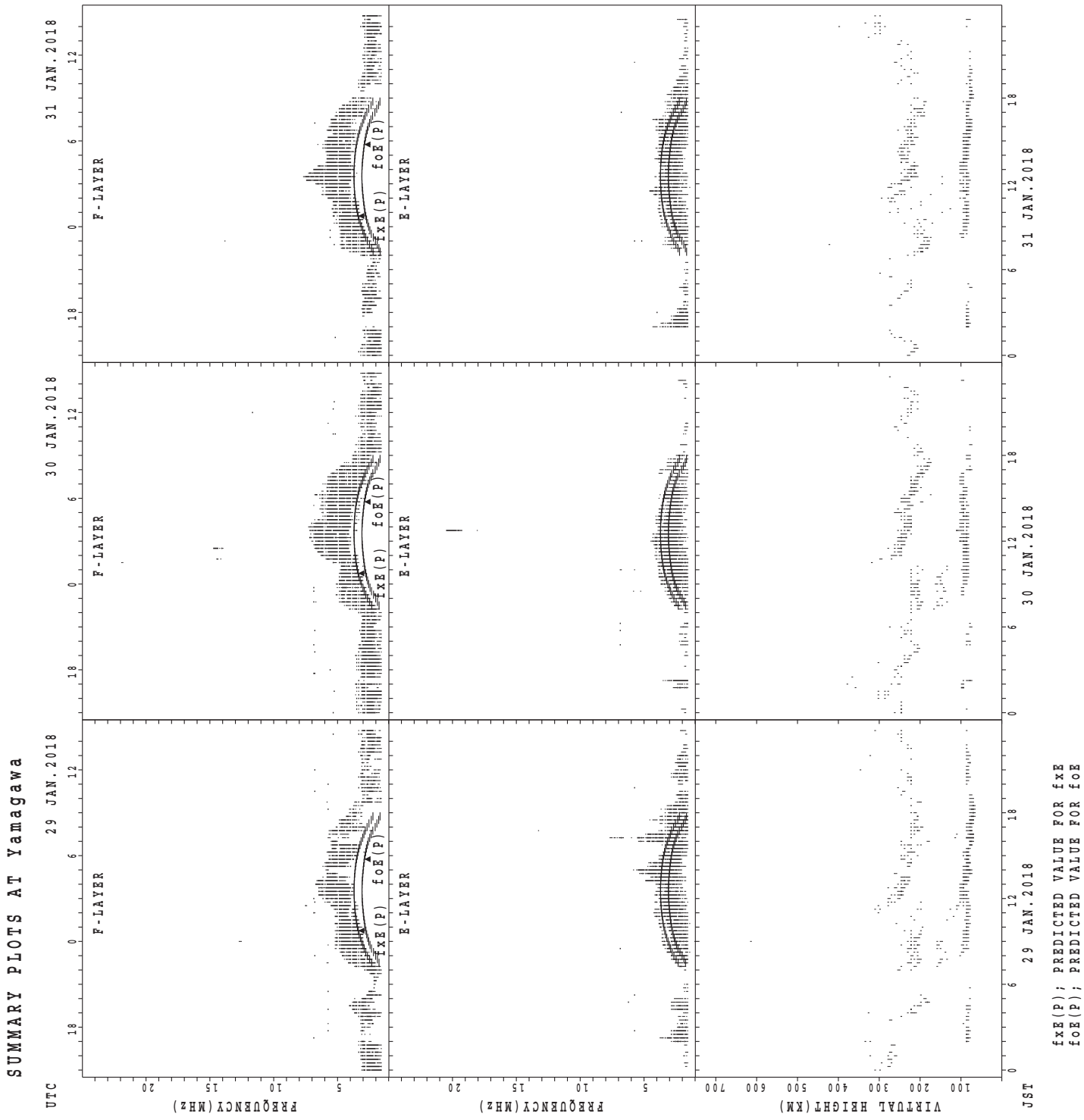
foE(P); PREDICTED VALUE FOR foE


SUMMARY PLOTS AT Yamagawa
UTC
29 JAN.2018
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31 JAN.2018
F-LAYER
E-LAYER
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
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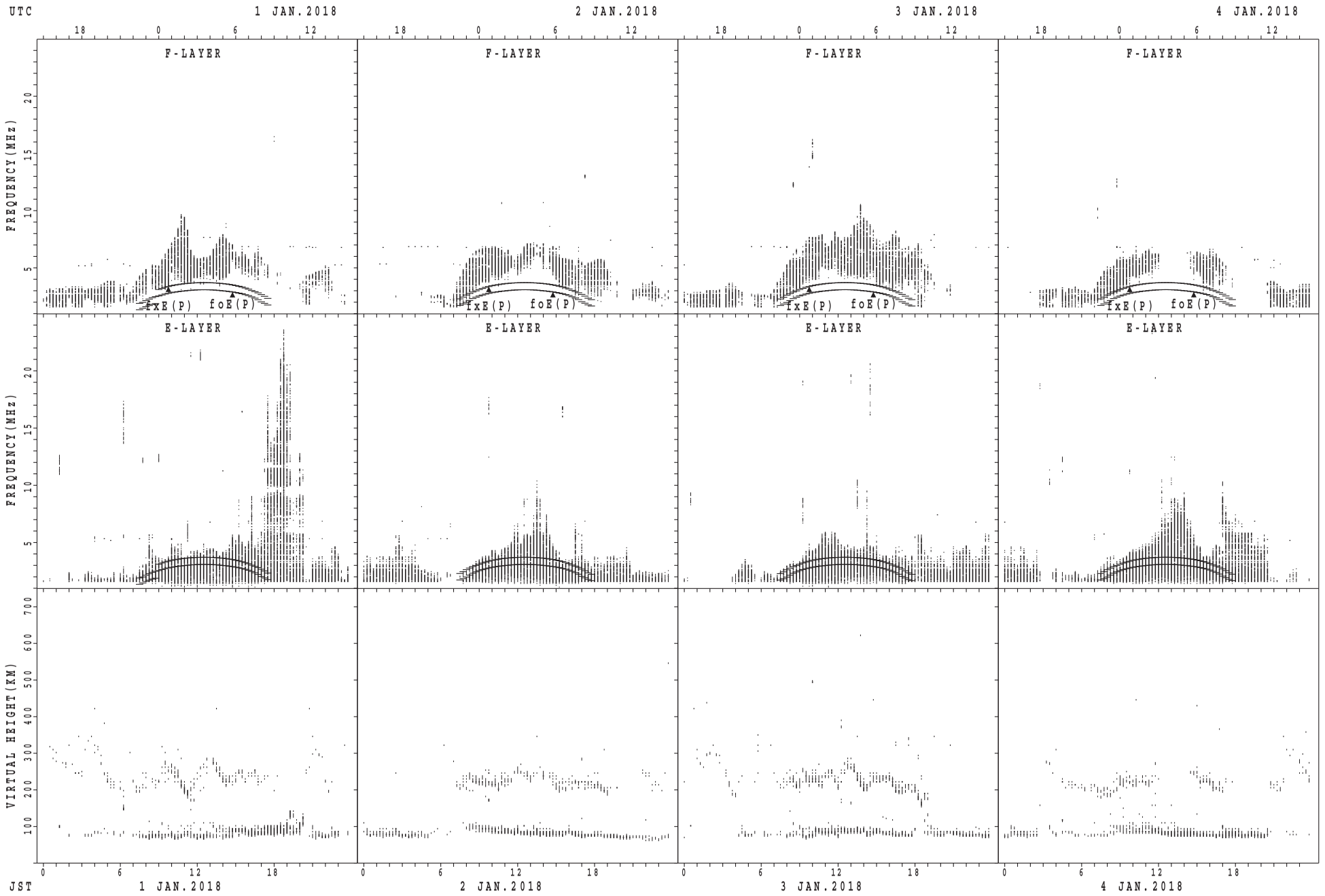
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



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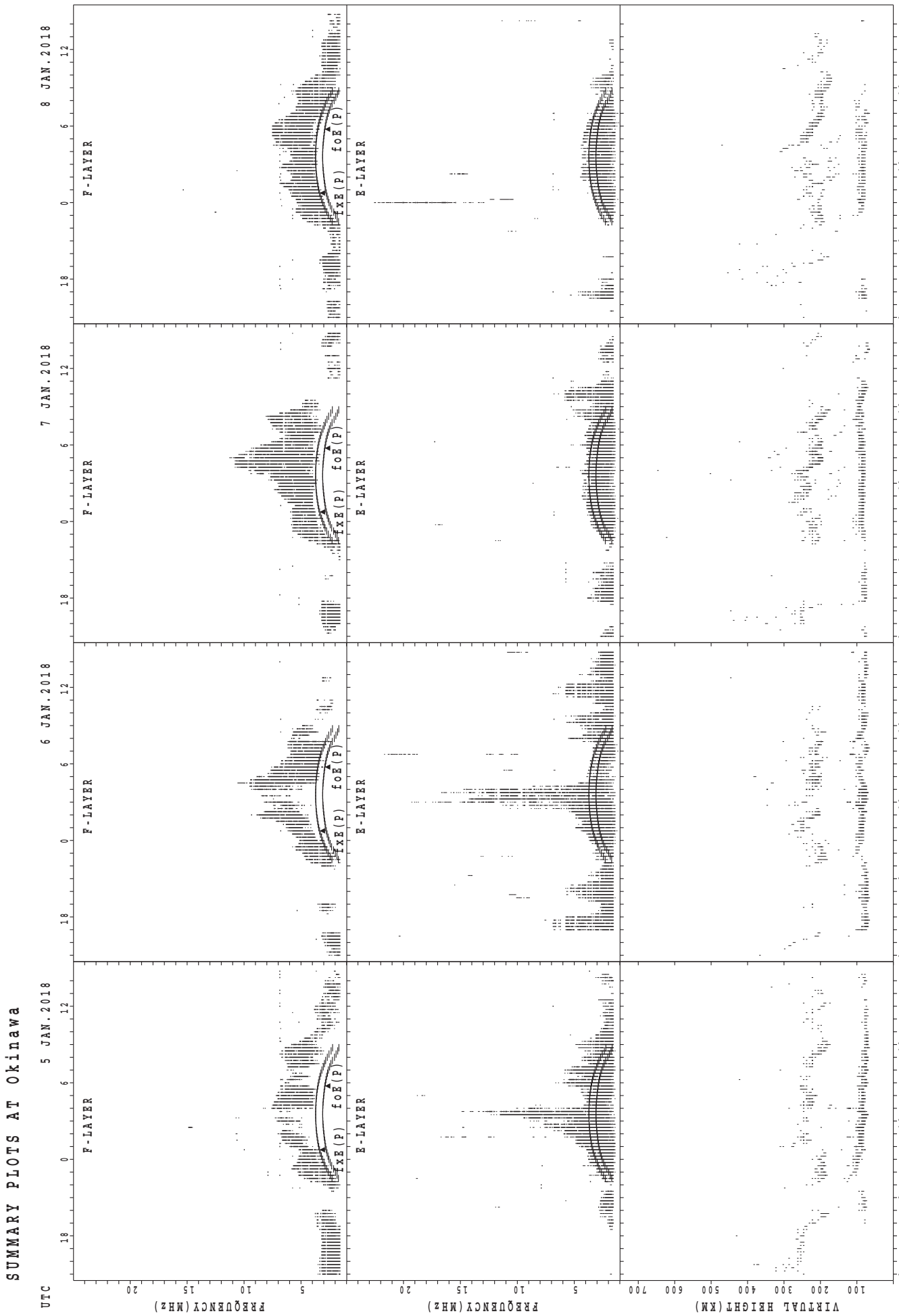
SUMMARY PLOTS AT Okinawa
UTC
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F-LAYER
E-LAYER
fxE(P)
foE(P)
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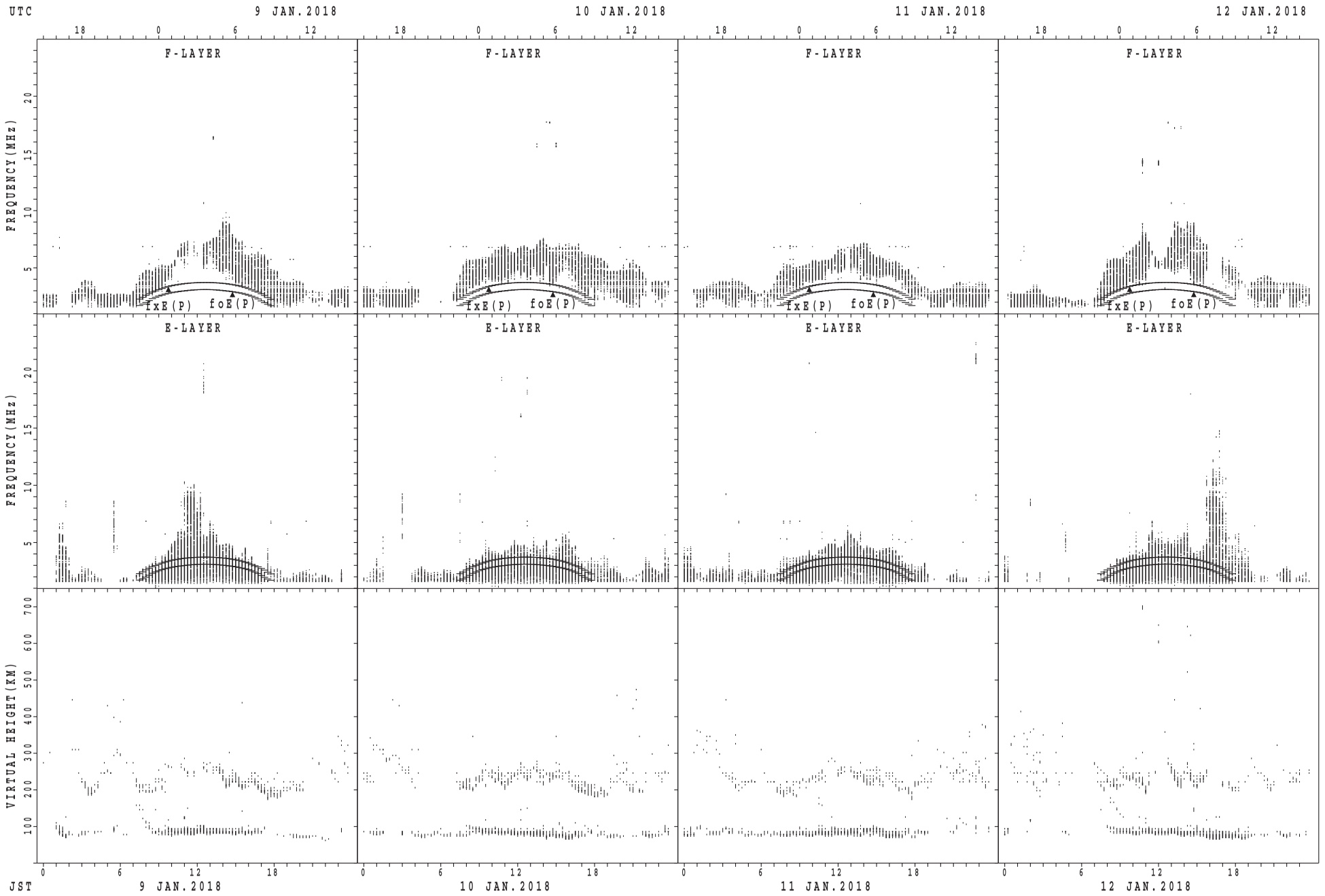
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



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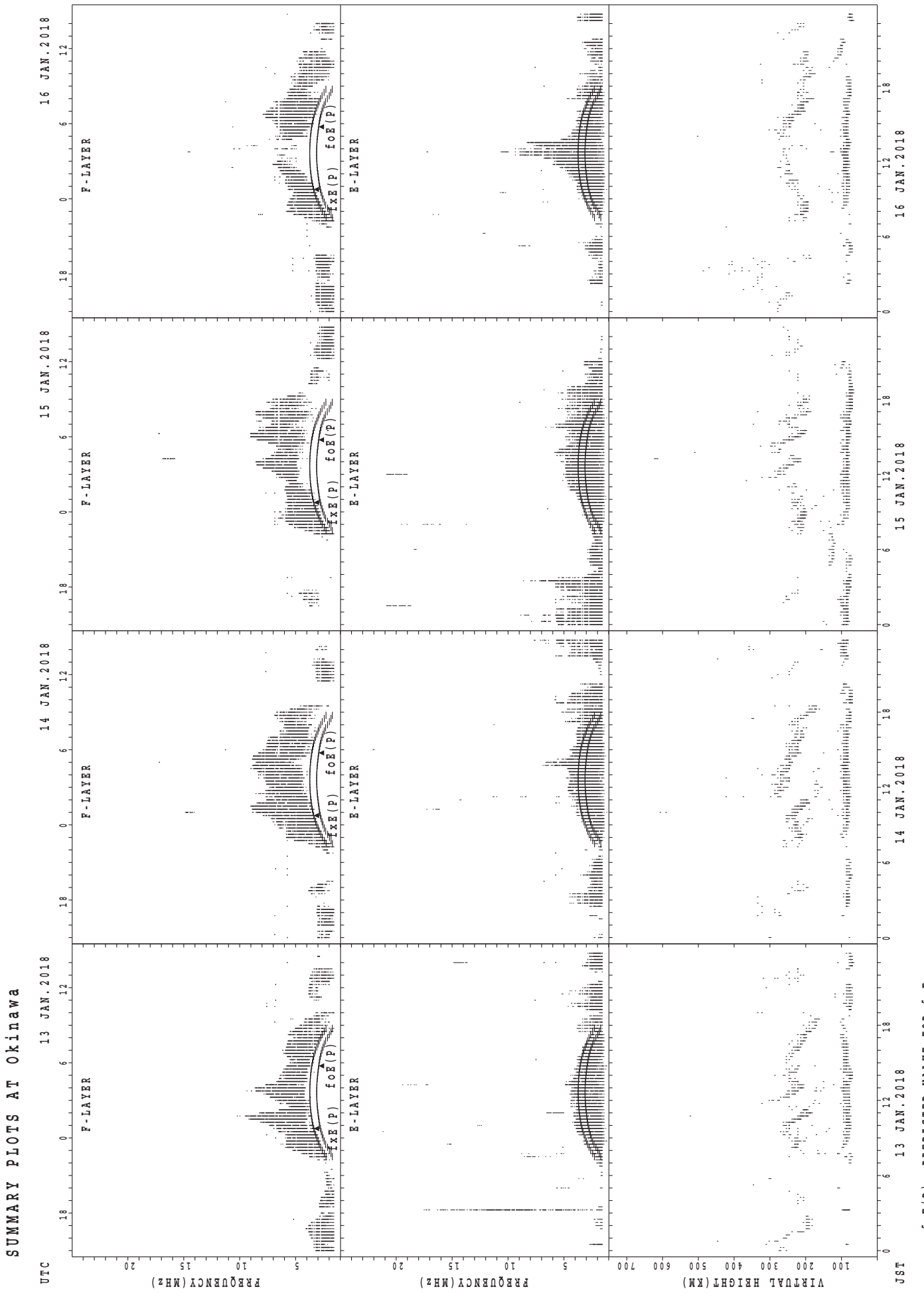
SUMMARY PLOTS AT Okinawa
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F-LAYER
E-LAYER
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
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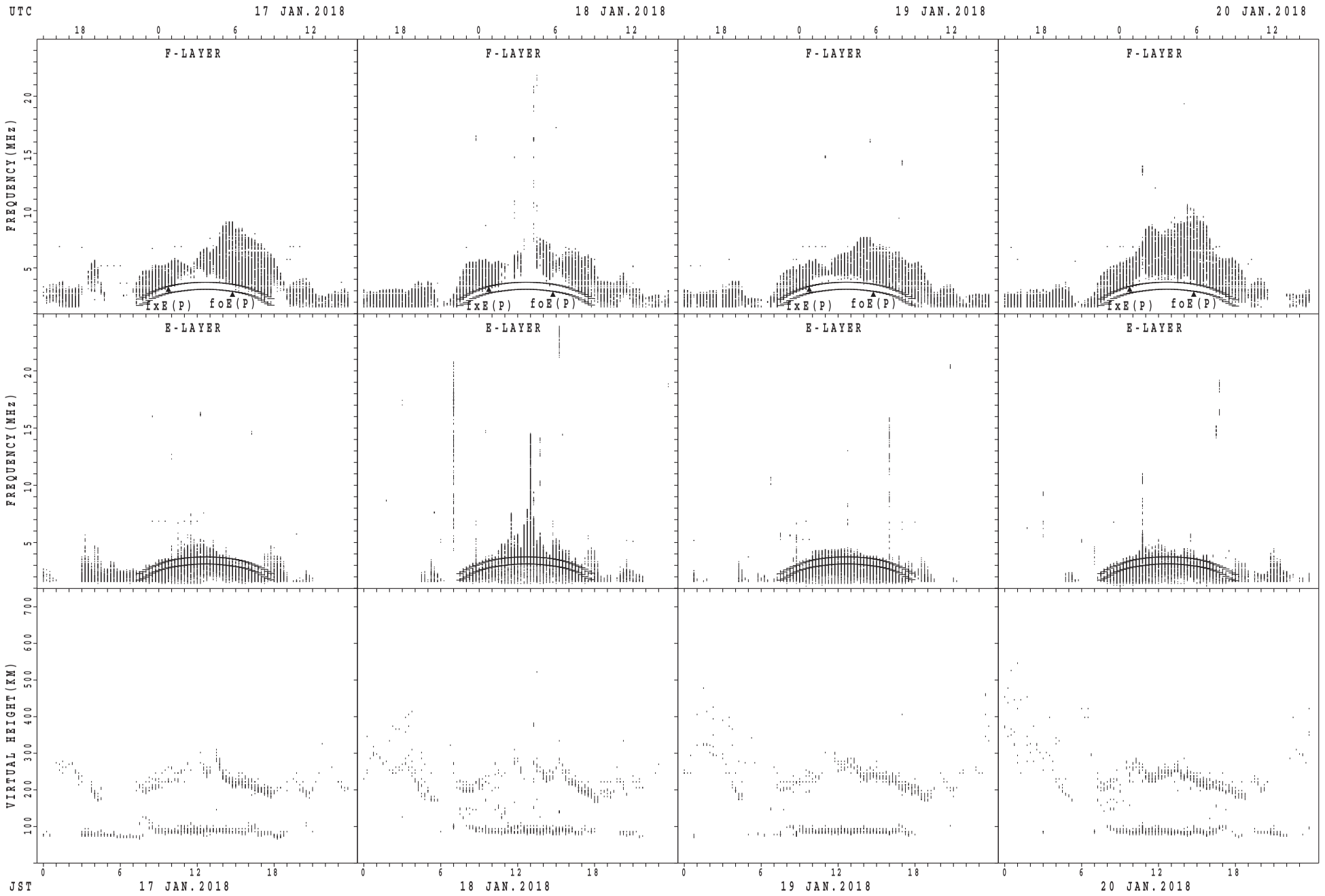
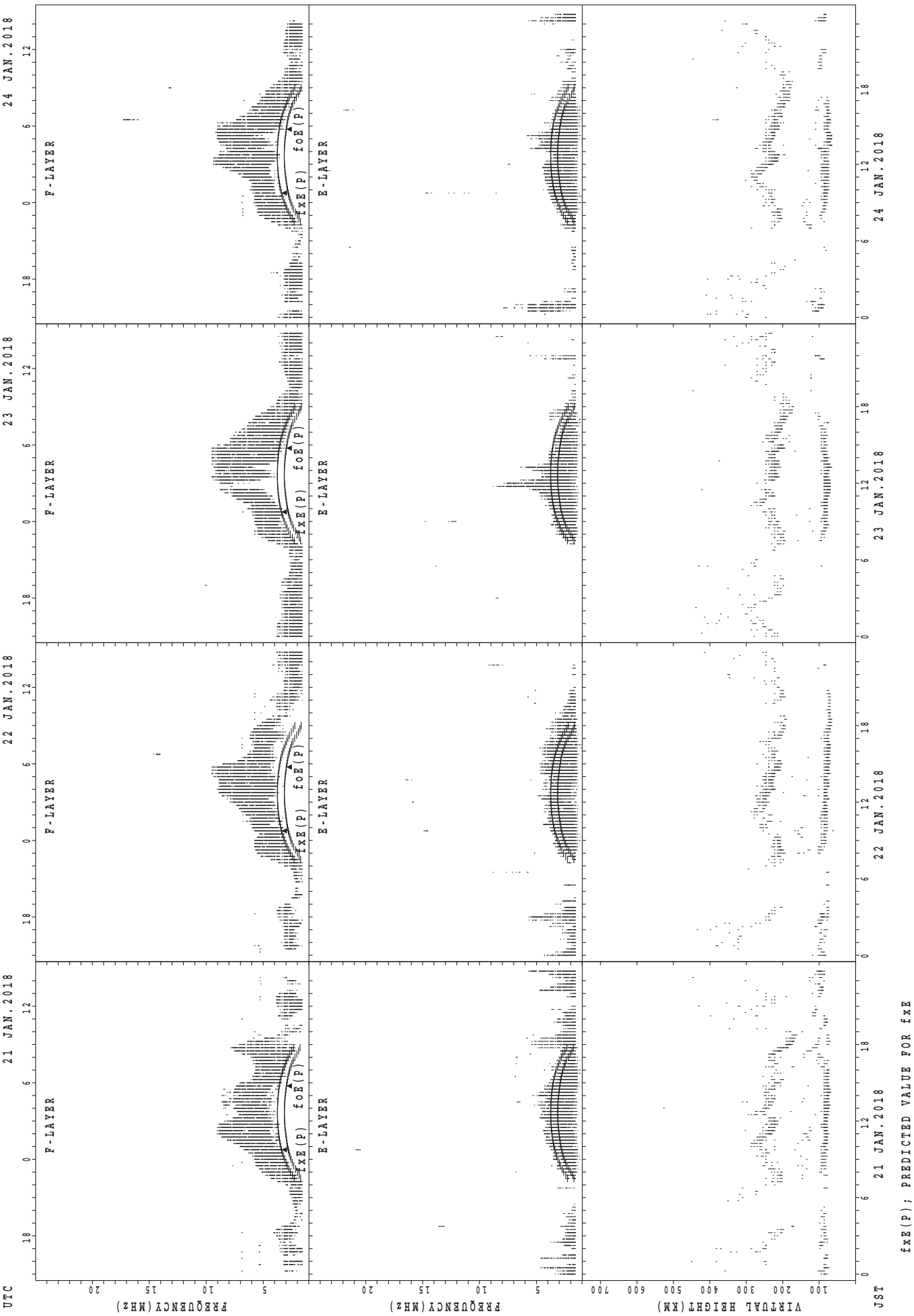
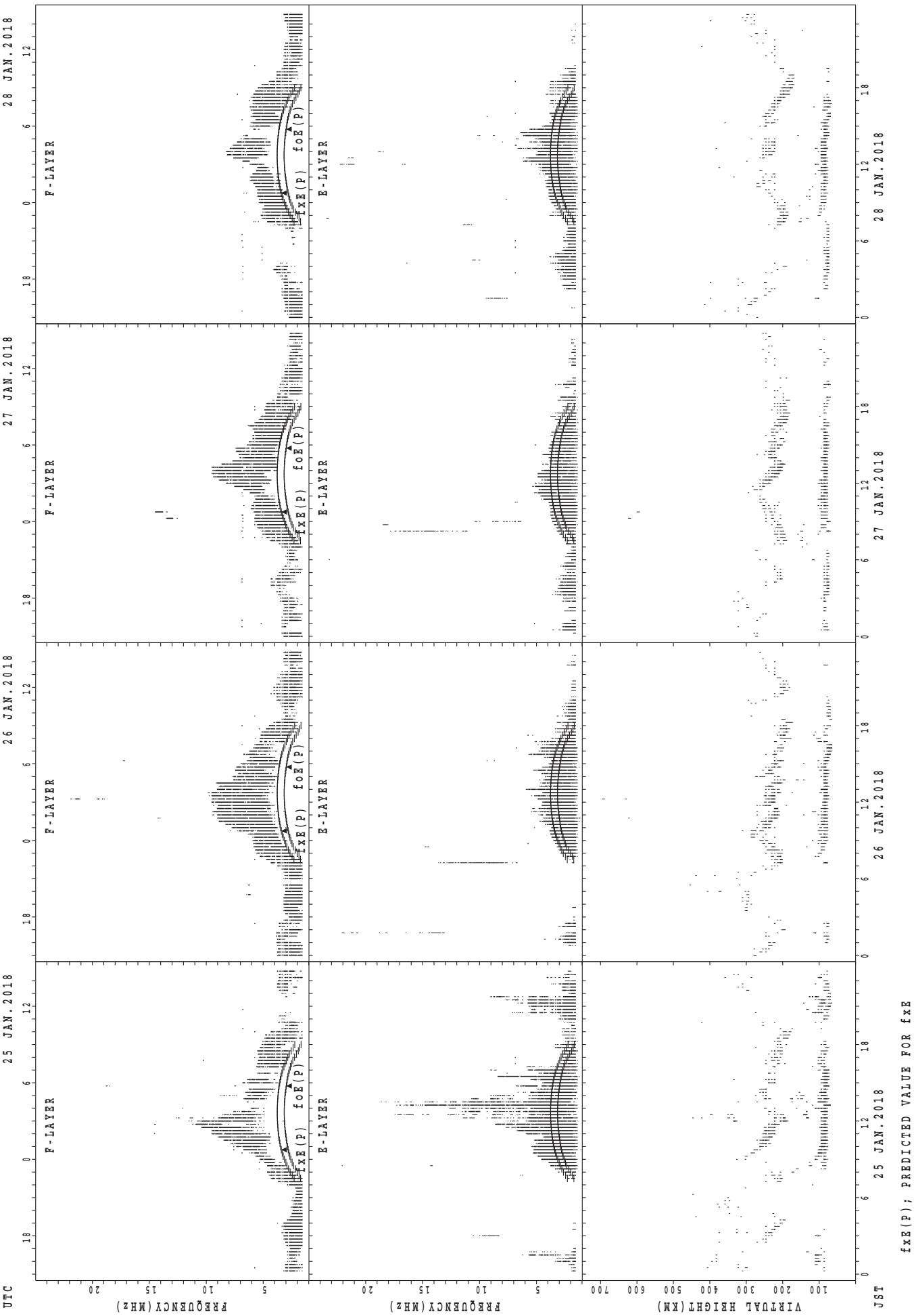
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa

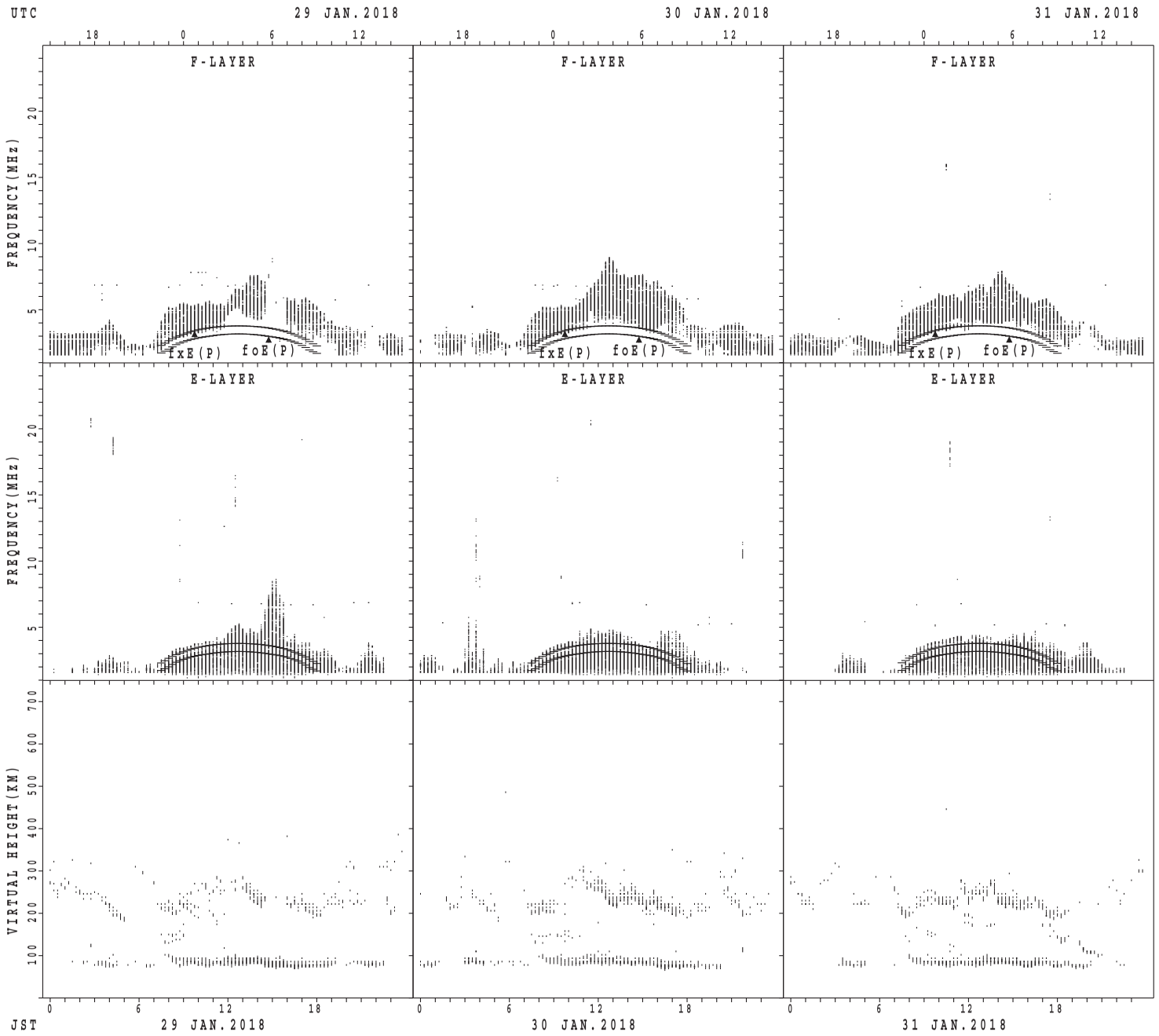


fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE


SUMMARY PLOTS AT Okinawa
UTC
JST
21 JAN.2018
22 JAN.2018
23 JAN.2018
24 JAN.2018
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 Okinawa
UTC
JST
25 JAN.2018
26 JAN.2018
27 JAN.2018
28 JAN.2018
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 Okinawa



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

MONTHLY MEDIANS OF h'F AND h'Es

JAN.2018 135E MEAN TIME(UTC+9H) AUTOMATIC SCALING

h'F STATION Wakkanai LAT. 45°10.0'N LON. 141°45.0'E

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT									1	3	5	16	9	11	7	2		1						
MED									192	220	232	226	232	220	224	228		198						
U Q									96	266	248	234	246	228	228	232		99						
L Q									96	192	220	219	218	218	214	224		99						

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	9	11	6	7	9	6	19	31	29	29	28	29	28	28	22	22	17	20	14	15	16	11	13
MED	93	85	83	85	93	89	92	129	113	101	101	95	101	101	101	94	91	93	94	89	95	89	89	87
U Q	96	96	87	89	101	96	95	157	137	139	131	107	153	125	110	119	131	120	112	89	113	97	89	90
L Q	87	82	81	83	87	89	83	107	93	94	87	89	89	91	83	87	89	86	86	83	83	82	83	86

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	17	17	9	6	5	1							
MED										208	248	236	230	240	225	232	236							
U Q										104	263	258	251	260	236	248	118							
L Q										104	227	216	224	231	218	220	118							

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	9	5	7	9	3	3	15	30	31	30	29	30	30	30	30	24	15	13	14	10	10	7	13
MED	83	85	87	87	87	89	87	147	107	101	95	95	95	97	95	96	98	85	91	86	90	92	89	87
U Q	89	90	93	97	91	91	129	167	149	125	107	112	107	107	99	101	118	99	103	93	91	93	97	92
L Q	79	85	85	81	82	79	83	113	103	95	89	89	89	91	89	89	84	81	88	83	89	85	81	83

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											4	16	21	16	5	1	3							
MED											251	242	248	245	248	250	236							
U Q											266	253	264	257	271	125	240							
L Q											245	225	224	230	238	125	226							

h'Es

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	6	7	11	9	10	12	8	7	31	30	30	30	30	29	30	30	30	25	20	13	14	9	14	9
MED	89	89	87	87	84	83	81	81	107	137	101	93	91	91	95	90	91	87	83	79	83	83	88	89
U Q	91	91	89	94	89	89	82	81	143	151	125	125	95	96	107	101	101	108	90	88	97	95	93	102
L Q	85	79	85	85	81	82	80	79	101	101	89	89	87	85	89	83	83	80	78	76	81	80	83	86

MONTHLY MEDIANS OF h'F AND h'Es

JAN.2018 135E MEAN TIME(UTC+9H) AUTOMATIC SCALING

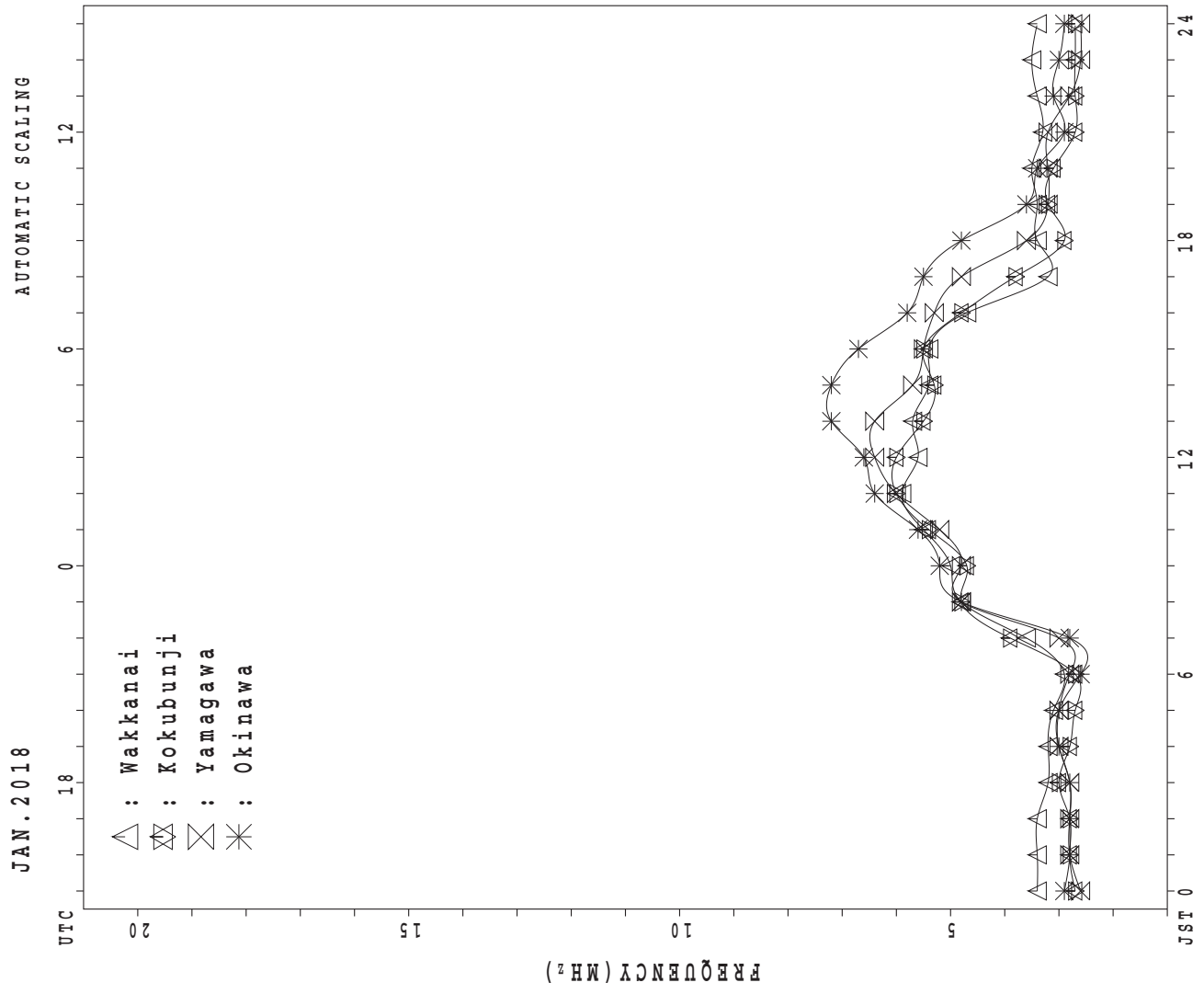
h'F

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	13	19	16	23	26	24	7	6	2					
MED										248	240	228	240	232	233	232	220	208	200					
U Q										254	255	236	253	256	240	244	242	218	204					
L Q										242	227	212	228	220	228	216	220	206	196					

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	10	12	12	18	16	14	8	12	31	31	31	31	31	31	31	30	30	31	28	23	21	15	14	11
MED	84	90	89	85	81	81	81	86	113	113	101	107	97	89	91	88	84	93	82	83	83	87	80	83
U Q	95	93	104	89	85	83	82	120	143	149	143	125	119	101	101	93	95	101	91	107	87	95	89	97
L Q	83	82	83	81	80	79	78	80	101	95	91	89	89	87	87	83	81	83	78	77	78	83	75	81


MONTHLY MEDIANS PLOT OF foF2
JAN.2018
AUTOMATIC SCALING
: Wakkanai
: Kokubunji
: Yamagawa
: Okinawa
UTC
0
6
12
18
JST 0
6
12
18
24
5
10
15
20
FREQUENCY(MHz)

IONOSPHERIC DATA STATION Wakkanai

JAN. 2018 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	C	X 32	39	X 35	X 36	X 33	X 34												X 30	X 34	X 37	X 37	47	56
2	X 41	X 35	X 37	X 39	X 36	X 31	X 29												A	X 32	X 41	X 41	58	55
3	48	39	47	44	X 41	X 41	X 41												X 26	X 32	X 33	X 37	X 41	X 38
4	X 39	X 41	X 41	X 39	X 38	X 39	X 34												X 33	X 31	X 35	X 37	X 34	X 36
5	X 39	X 36	X 38	42	X 39	37	34												X 33	38	34	X 33	39	X 40
6	X 37	X 37	X 37	39	39	36	X 27												X 32	X 34	X 42	X 29	X 37	47
7	39	47	X 38	38	X 33	X 37	X 31												A	A	X 39	X 34	41	38
8	38	35	X 35	X 33	X 32	X 34	X 27												X 29	X 31	X 34	X 34	X 34	X 35
9	X 33	X 32	X 32	X 33	X 33	26	X 21			68									X 45	X 45	X 42	43	47	48
10	47	57	43	X 39	X 40	X 37	34												X 34	X 31	X 33	X 35	X 35	X 37
11	40	40	42	X 37	38	36	36												X 31	X 37	X 35	X 35	34	X 40
12	X 33	39	X 35	39	X 34	X 34													X 31	X 30	X 31	X 33	X 32	X 34
13	X 34	X 34	X 35	X 35	X 34	X 29													X 33	X 37	X 41	X 32	X 34	X 34
14	X 34	X 37	X 31	X 33	X 33	39													X 35	X 36	X 37	X 34	46	46
15	57	57	57	54	X 41	34													X 37	X 40	X 33	X 29	X 37	46
16	X 36	38	X 39	X 38	X 38	56	38												X 42	X 35	X 40	X 40	X 38	54
17	40	48	X 37	47	X 37	58	45												X 37	X 33	X 38	X 33	X 37	X 38
18	47	X 37	X 37	X 35	X 32	X 32	34			C	C	C	C	C	C	C			X 41	X 37	X 32	X 33	X 35	X 33
19	X 35	X 35	53	X 33	X 35	X 37				C	C	C	C	C	C	C	C	C	X 37	X 44	X 41	X 39	X 38	X 39
20	47	39	X 37	43	48	48													X 50	X 55	X 51	46	57	58
21	58	39	37	37	X 40	X 42													X 41	X 42	X 49	X 38	X 38	X 39
22	X 44	X 43	44	X 38	X 40	X 26													X 38	X 38	X 39	X 39	X 40	X 38
23	46	49	46	39	39	36													X 40	49	44	47	58	X 42
24	45	X 43	44	48	59	56	38	49											X 32	X 36	X 41	X 38	X 37	39
25	43	39	40	X 33	X 33	X 31													X 35	X 39	X 41	X 34	X 34	X 39
26	X 38	X 39	X 38	X 42	X 36	X 39					70								X 41	X 41	X 41	X 46	51	51
27	58	50	47	X 39	X 35	X 41													X 49	X 53	X 49	53	58	58
28	70	58	58	51	54	57													X 40	X 44	X 34	X 36	X 39	X 40
29	X 40	X 39	44	44	38	37	31												X 36	X 34	X 33	53	59	59
30	54	52	38	X 37	X 37	X 37													X 39	X 36	X 38	X 40	52	50
31	49	47	X 37	X 34	X 32	X 33													X 44	55	48	55	59	58
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	31	31	31	31	31	16	1		1	1								29	30	31	31	31	31
MED	40	39	X 38	X 39	X 37	X 37	34	49		68	70								X 37	X 37	X 39	X 37	X 39	X 40
U Q	47	47	44	42	X 40	41	37												X 41	X 42	X 41	41	51	51
L Q	X 38	X 37	X 37	X 35	X 34	X 33	X 30												X 32	X 34	X 34	X 34	X 35	X 38

JAN. 2018 fxI (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

JAN. 2018 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	C	25	F 25	28	29	26	26	30	46	48	59	72	56	55	51	50	46	27	23	27	30	30	F 31	F 35
2	34	28	30	32	29	24	22	33	50	45	65	70	52	52	54	53	48	33	A	26	34	34	F 43	F 38
3	F 36	F 28	F 31	F 33	34	35	34	34	45	49	57	58	52	54	52	46	46	26	19	25	26	30	34	31
4	32	34	34	32	31	32	27	33	44	46	43	55	51	49	52	49	39	35	26	24	28	30	27	29
5	32	29	31	F 31	32	F 22	F 22	32	38	54	50	54	52	55	55	54	38	26	26	F 27	F 25	26	F 27	33
6	30	30	30	F 28	F 28	F 22	20	31	44	46	54	55	48	49	54	49	40	R 20	25	27	35	22	30	F 30
7	F 27	F 30	31	F 26	26	30	24	28	40	61	53	56	57	54	53	47	39	28	A	A	32	27	F 29	F 26
8	F 26	F 26	28	26	25	27	20	32	41	44	58	60	53	53	52	47	44	28	22	24	27	27	27	28
9	26	25	25	26	26	F 17	J R 14	28	39	F 55	58	58	69	62	53	50	41	38	38	38	35	F 31	F 35	F 34
10	F 34	F 36	F 31	32	33	30	F 22	31	44	53	54	54	58	50	53	46	42	27	27	24	26	28	28	30
11	F 26	F 28	F 29	30	F 26	F 24	F 24	32	42	47	51	49	49	60	51	44	44	30	24	30	28	28	F 24	33
12	26	F 26	28	F 27	27	27	27	31	43	47	43	54	49	48	48	49	38	25	24	23	24	26	25	27
13	27	27	28	28	27	22	20	30	41	44	58	58	52	51	49	55	46	A	26	30	34	25	27	27
14	27	30	25	26	26	F 25	24	32	47	44	52	55	52	67	58	57	45	36	28	29	30	27	F 31	F 33
15	F 32	F 37	F 35	F 38	34	F 22	18	30	40	45	52	57	60	64	59	49	43	32	30	33	27	22	30	F 30
16	29	F 26	32	31	31	F 38	F 27	36	45	47	55	54	62	58	46	55	50	36	35	28	33	33	31	F 29
17	F 28	F 26	30	F 30	30	F 26	F 26	34	46	46	47	50	46	50	53	51	47	32	30	26	31	26	30	31
18	F 32	30	30	28	25	25	F 21	35	44	C	C	C	C	C	C	C	46	33	34	30	25	26	28	26
19	28	28	F 29	26	28	30	22	30	45	C	C	C	C	C	C	C	C	C	30	37	34	32	31	32
20	F 26	F 26	30	F 29	F 29	F 27	22	32	49	50	46	50	59	54	54	52	46	A	43	48	44	F 33	F 39	F 37
21	F 31	F 26	F 26	F 25	33	35	A	41	44	51	55	56	58	50	53	59	42	30	34	35	42	31	31	32
22	37	36	F 32	31	33	19	20	37	41	58	52	51	64	59	53	53	43	31	31	31	32	32	33	31
23	F 31	F 30	F 26	F 26	F 24	F 22	25	34	48	54	59	59	48	55	59	52	42	30	33	F 34	F 27	F 30	F 38	35
24	F 30	36	F 32	F 32	F 26	F 28	F 24	F 35	51	52	55	66	63	58	52	50	40	27	25	29	34	31	30	F 27
25	F 30	F 24	F 26	26	26	24	21	31	55	68	60	68	63	58	65	48	46	28	28	32	34	27	27	32
26	31	32	31	35	29	32	21	41	53	48	F 53	70	76	60	58	58	48	32	34	34	34	39	F 37	F 32
27	F 35	F 33	F 33	32	28	34	28	36	42	49	60	67	53	60	50	56	52	36	42	46	42	F 44	F 47	F 41
28	F 44	F 38	F 38	F 29	F 32	F 34	27	34	46	48	55	68	54	55	62	54	50	34	33	37	27	29	32	33
29	33	32	F 26	F 25	F 25	F 23	F 17	34	42	45	52	56	54	48	52	54	46	32	29	27	26	F 31	F 32	F 38
30	F 32	F 28	F 27	30	30	30	25	35	48	50	56	61	54	57	51	48	49	44	32	29	31	33	F 35	F 36
31	F 34	F 32	30	27	25	26	22	34	41	48	54	50	61	55	46	56	44	34	37	F 40	F 37	F 38	F 44	F 46
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	31	31	31	31	31	30	31	31	29	29	29	29	29	29	29	30	28	29	30	31	31	31	31
MED	F 31	F 29	30	29	28	26	22	33	44	48	54	56	54	55	53	51	44	32	30	30	31	30	31	32
U Q	F 33	F 32	F 31	32	31	30	26	35	47	52	58	64	60	58	54	54	46	34	34	34	34	32	F 35	F 35
L Q	27	F 26	F 27	26	26	F 23	21	31	41	46	52	54	52	50	51	48	42	28	26	27	27	27	28	29

JAN. 2018 foF2 (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

JAN. 2018 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										252	L	L		L										
2											L			264			L							
3											L	L	324	L										
4																								
5										L		L		L			L							
6												L	280		L									
7												L	352	L	L									
8												L	L	348	L									
9											L	376	L	L	L	236								
10											L	L	L	L	L									
11													L	L	L									
12										L		L	L	L	L		L							
13										L	L	380	380	L	324	L		A						
14									L		L	L	L	L	L	L								
15											L	L		L	L	L								
16											L	L	384	L	L									
17									L	L	L		L											
18										C	C	C	C	C	C	C								
19										C	C	C	C	C	C	C	C	C						
20												L	L	L	L			A						
21							A					380	L	L										
22										L	368	384	L	248	232	L								
23										L		L	L		L									
24										L	L	L	L	L	L		212							
25										L	L	L	L	L	340	196								
26												L	L	L	L	L								
27										L	L	L	L	L	L	L								
28									L	L	L	L	L	L	L	L								
29											L	L	376	L		L								
30									L		L	L	L	384	L									
31											L	L	L	L	L	L								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT										1	1	4	6	4	3	2	1							
MED										252	368	380	364	306	324	216	212							
U Q												382	380	366	340									
L Q												378	324	256	232									

JAN. 2018 foF1 (0.01MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

JAN. 2018 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 212	216	244	264	264	248	216	A	A	A							
2								B 184	220	268	264	264	256	232	196	A	A							
3								196	192	248	240	264	264	252	A	A	A	A						
4								U R 204	204	A 256	272	264	236	232	212	A	A							
5								U R 208	A 228	260	268	252	280	228	188	B	A							
6								A	A	A 280	268	268	A	A	A	B	A							
7								B	A 228	252	268	268	280	216	216	196	A							
8								B	A 228	A 264	264	256	220	224	196	B								
9								A	A	A 252	276	276	268	240	200	A	B							
10							B	B 192	216	260	280	272	264	224	B	172	A							
11							A	A 200	236	268	A	276	264	248	A	192	B							
12							B	B U R 260	228	260	288	276	264	252	220	188	A							
13							B	B 232	216	264	264	264	264	264	204	A	A							
14							B	B 224	A	256	256	252	252	R 268	200	A	A							
15							B	B 208	232	256	272	272	276	228	208	A	B							
16							B	B 216	244	268	272	260	256	240	A	A	A							
17							B	B 216	248	264	284	296	268	248	208	184	A							
18							B	B 208	C	C	C	C	C	C	C	184	B								
19							B	B 252	C	C	C	C	C	C	C	C	C								
20							B	B 188	252	A 264		A	A	248	196	168	A							
21							A	A	A 236	A 268		276	256	256	212	192	A							
22							B	B	A 248	260	276	276	264	248	212	B	B							
23							B	220	200	264	A 288	272	256	252	236	192	A							
24							B	A	A 252	264	264	A	236	232	A	192	A							
25							B	B	A 240	276	276	268	A	248	216	176	B							
26							B	B 200	216	A 276		276	256	236	212	196	A							
27							B	A 204	A 248	272	280	260	A	224	188	A								
28							B	A	A 248	256	284	260	292	256	200	A	B							
29							B	204	204	236	256	256	256	244	264	236	172	188						
30							B	216	224	252	252	280	272	260	256	220	A	B						
31							B	236	180	248	264	260	124	280	252	216	A	A						
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								7	21	24	24	28	27	26	26	22	15	1						
MED								208	204	236	260	270	268	260	248	212	188	188						
U Q								220	220	248	264	276	276	268	252	220	192							
L Q								204	196	228	254	264	264	256	232	200	176							

JAN. 2018 foE (0.01MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

JAN. 2018 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	C	22	30	JA 31	31	33	JA 57	JA 93	G	24	JA 39	38	JA 41	31	49	JA 38	JA 25	45	JA 50	JA 51	39	JA 35	JA 137	EB 15
2	EB 16	JA 116	29	JA 63	JA 156	28	EB 16	JA 118	G	29	30	37	JA 50	32	JA 50	JA 43	JA 53	JA 39	JA 47	JA 42	32	33	29	24
3	EB 16	JA 21	EB 16	EB 16	EB 15	96	EB 16	24	G	JA 169	G	31	32	31	JA 53	JA 27	28	32	EB 16	28	EB 16	39	40	JA 48
4	24	26	20	EB 16	EB 16	JA 24	JA 45	JA 25	28	JA 83	58	35	36	41	JA 108	JA 95	JA 29	JA 21	JA 28	23	24	JA 47	33	30
5	EB 16	EB 16	EB 16	EB 16	EB 16	EB 16	EB 16	G 23	24	26	JA 62	29	JA 33	G	28	22	EB 15	JA 27	36	EB 16	EB 16	21	JA 20	23
6	EB 16	EB 16	JA 27	24	32	EB 16	JA 25	JA 76	48	45	JA 39	JA 82	G	JA 32	G	21	EB 16	JA 25	JA 51	50	38	58	JA 46	EB 16
7	JA 49	EB 16	68	EB 16	EB 16	26	29	EB 16	22	G	G	G	G	G 20	32	JA 27	JA 25	JA 20	JA 52	JA 55	60	JA 52	JA 29	JA 29
8	26	23	26	32	EB 17	28	EB 16	EB 15	JA 27	JA 50	JA 50	30	30	G	26	G	JA 25	EB 14	EB 14	EB 16	33	Q 32	JA 47	JA 51
9	27	40	32	32	24	25	25	JA 21	JA 31	JA 49	33	32	30	G	G	G	JA 23	EB 16	EB 16	EB 16	30	33	EB 16	37
10	28	26	26	23	23	23	JA 111	EB 16	22	JA 26	34	33	33	G	25	EB 21	G	JA 24	26	26	32	EB 16	JA 20	33
11	JA 28	32	JA 31	JA 35	JA 28	25	22	JA 21	JA 51	32	JA 44	JA 44	JA 32	G	28	JA 28	JA 61	25	EB 16	EB 16	EB 16	EB 16	EB 16	JA 63
12	23	28	26	JA 26	22	24	EB 16	EB 16	32	34	JA 101	JA 33	G	30	G	G	27	JA 25	EB 16	EB 16	19	19	EB 16	EB 16
13	28	28	20	20	20	EB 16	EB 16	EB 16	32	28	33	JA 57	33	33	34	24	38	60	JA 65	JA 33	JA 31	20	EB 16	EB 16
14	20	EB 16	EB 16	EB 16	EB 16	20	20	23	JA 22	JA 27	30	29	27	30	JA 64	JA 33	36	33	JA 21	JA 49	EB 16	28	24	21
15	EB 16	22	33	EB 16	22	EB 16	EB 15	24	24	28	33	62	JA 53	33	28	G	JA 30	58	29	32	58	JA 148	24	19
16	27	JA 84	31	JA 63	19	20	28	23	23	JA 51	JA 53	36	32	30	JA 32	54	JA 51	34	34	EB 16	EB 16	BJ A 35	39	32
17	32	JA 29	20	EB 16	29	29	EB 16	EB 16	28	34	30	34	36	32	56	JA 75	G	JA 22	EB 16	22	JA 86	EB 16	EB 16	JA 32
18	27	43	JA 34	JA 109	25	JA 29	22	EB 16	26	C	C	C	C	C	C	C	G	EB 15	JA 51	34	29	34	JA 29	24
19	27	23	20	27	JA 93	EB 16	23	20	32	C	C	C	C	C	C	C	C	C	EB 16	JA 24	32	26	26	EB 17
20	EB 16	EB 16	EB 16	22	24	EB 15	EB 16	25	28	JA 61	59	32	33	40	31	24	G	91	JA 61	EB 17	EB 16	34	59	31
21	27	27	33	27	29	24	50	52	60	35	68	JA 46	JA 43	29	28	26	26	54	JA 51	JA 41	33	JA 40	31	20
22	EB 16	30	EB 16	22	23	EB 16	20	24	JA 64	JA 63	30	35	32	G	G	G	JA 51	EB 16	JA 46	20	EB 16	EB 16	20	31
23	JA 122	22	EB 16	EB 16	EB 16	EB 16	26	G 23	JA 42	36	JA 60	JA 55	JA 59	29	29	32	33	JA 31	20	EB 16	EB 16	26	22	EB 16
24	31	39	19	20	24	26	21	25	41	JA 84	JA 33	33	47	30	28	39	34	25	25	28	20	21	EB 16	EB 17
25	21	21	25	EB 16	23	18	20	26	34	34	34	37	36	JA 27	30	G	G	EB 15	EB 14	EB 16	22	EB 16	22	27
26	30	26	EB 16	20	22	EB 16	27	23	28	JA 45	JA 102	40	32	G	28	24	G	33	35	34	EB 16	27	28	30
27	26	EB 16	EB 16	EB 16	116	25	24	27	24	G	29	JA 33	JA 53	JA 34	JA 35	24	21	30	EB 16	22	84	39	39	28
28	27	EB 16	EB 17	EB 16	EB 16	23	22	28	26	30	31	30	G	G	30	24	G 20	EB 15	EB 16	EB 16	28	21	21	EB 16
29	EB 16	28	28	26	20	26	EB 17	115	24	33	31	32	31	28	35	G	20	34	39	24	EB 16	EB 16	EB 16	EB 17
30	EB 16	23	21	EB 16	EB 16	22	EB 16	25	G	31	33	32	30	30	30	27	JA 26	EB 16	EB 16	EB 17	EB 16	EB 16	20	20
31	26	30	34	25	23	19	20	G	26	29	30	30	36	JA 45	JA 45	35	32	33	JA 51	EB 16	EB 16	29	EB 16	JA 37
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	31	31	31	31	31	31	31	31	29	29	29	29	29	29	29	30	30	31	31	31	31	31	31
MED	26	26	25	22	23	23	21	23	27	34	33	33	33	30	30	24	26	26	28	23	24	28	24	24
U Q	28	30	31	JA 27	28	26	26	26	32	JA 50	JA 56	JA 39	JA 38	32	JA 40	JA 34	33	34	JA 50	JA 34	33	JA 35	33	JA 32
L Q	EB 16	EB 21	EB 16	EB 16	EB 16	EB 16	EB 16	EB 20	23	28	30	32	30	G	28	G	G	EB 20	EB 16	EB 16	EB 16	EB 19	EB 16	EB 17

JAN. 2018 foEs (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

JAN. 2018 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	C	E B 17	E B 17	E B 16	E B 16	E B 16	17	19	G	22	36	36	39	29	36	26	22	16	20	E B 20	18	16	E B 17	E B 15
2	E B 16	E B 15	E B 16	16	E B 15	E B 16	E B 16	E B 16	G	27	28	35	35	G 17	32	37	33	16	A A 47	16	E B 16	E B 16	16	E B 17
3	E B 16	E B 16	E B 16	E B 16	E B 15	E B 16	E B 16	E B 16	G	26	G	28	28	28	31	24	E B 16	16	E B 16	16	E B 16	18	E A 24	20
4	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	22	25	27	31	31	37	36	22	28	E B 15	21	E B 15	E B 16	16	E B 16	E B 16
5	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	22	24	G 25	G 26	30	G	26	21	E B 15	16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16
6	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	24	23	30	34	G 26	G	30	G	20	E B 16	16	E B 16	16	16	E B 16	20	E B 16
7	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	16	E B 16	20	G	G	G	G	G 18	25	22	G 18	E B 16	A A 52	A A 55	E B 16	16	E B 16	E B 16
8	E B 16	E B 16	E B 16	E B 16	E B 17	E B 15	E B 16	E B 15	21	28	28	G 26	28	G	24	G	G 16	E B 14	E B 14	E B 16	16	16	E B 16	16
9	E B 16	19	E B 16	E B 16	E B 16	16	R 21	19	24	38	27	29	G 26	G	G	G	17	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	16
10	17	E B 17	E B 17	E B 17	E B 16	E B 16	E B 16	E B 16	G 18	24	G 26	G 26	28	G	G 22	E B 21	G	16	E B 16	16	E B 16	E B 16	E B 16	18
11	E B 16	E B 16	E B 16	E B 17	E B 16	E B 16	E B 16	16	21	28	28	28	28	G	25	26	G 18	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	16
12	E B 16	E B 16	16	16	E B 16	E B 16	E B 16	E B 16	G 24	26	29	32	G	28	G	G	G 15	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16
13	16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	G 23	26	31	31	30	30	27	22	29	A A 60	E B 17	17	16	E B 16	E B 16	E B 16
14	E B 17	E B 16	E B 16	E B 16	E B 16	16	E B 16	E B 16	G 22	26	G 26	26	26	27	G 26	23	23	20	E B 16	E B 16	E B 16	20	E B 16	E B 16
15	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 15	E B 16	22	27	30	30	30	30	26	G	19	19	E B 16	16	16	16	E B 16	E B 16
16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	G 20	26	29	G 27	32	29	G 22	27	24	22	17	E B 16	E B 16	E B 16	E B 16	E B 16
17	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	G 21	27	27	33	G 30	30	29	A	G	18	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16
18	E B 16	E B 16	E B 16	E B 16	E B 16	16	E B 16	E B 16	22	C	C	C	C	C	C	C	G	E B 15	25	16	E B 16	19	E B 16	E B 16
19	E B 17	E B 17	E B 17	E B 17	E B 17	E B 16	E B 16	16	G 22	C	C	C	C	C	C	C	C	C	E B 16	16	E B 16	E B 16	E B 16	E B 17
20	E B 16	E B 16	E B 16	E B 16	E B 16	E B 15	E B 16	20	21	28	31	31	29	29	26	23	G	A A 91	16	E B 17	E B 16	E B 16	E A 22	E B 17
21	E B 17	E B 17	E B 17	E B 17	E B 17	A A 17	50	26	25	G 23	28	27	28	27	G 26	24	G 18	16	16	16	18	20	19	E B 16
22	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	34	27	27	33	31	G	G	G	17	E B 16	17	E B 16	E B 16	E B 16	E B 16	E B 15
23	E B 15	E B 15	E B 16	E B 16	E B 16	E B 16	E B 15	G 20	22	G 26	33	30	30	28	G 25	25	G 17	17	E B 15	E B 16	E B 16	E B 15	E B 15	E B 16
24	E B 15	18	E B 16	E B 16	E B 16	E B 16	E B 16	E B 17	32	G 24	28	28	E A 37	28	26	24	G 16	16	16	E B 16	E B 16	E B 16	E B 16	E B 17
25	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 17	E B 18	G 24	G 27	G 27	27	24	28	G	G	E B 15	E B 14	E B 16	E B 16	E B 16	E B 16	E B 16
26	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	26	23	36	34	30	G	26	23	G	20	18	17	E B 16	E B 17	E B 17	E B 17
27	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	16	23	G	28	28	29	31	26	23	G 18	16	E B 16	E B 16	E B 17	16	17	E B 17
28	E B 17	E B 16	E B 17	E B 16	E B 16	E B 16	E B 16	18	21	30	30	G 28	G	G	28	22	G 17	E B 15	E B 16	E B 16	17	E B 15	E B 15	E B 16
29	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 17	G 16	22	28	28	30	29	25	28	G	18	G 18	18	E B 16	E B 16	E B 16	E B 16	E B 17
30	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	G	30	28	30	28	28	28	24	20	E B 16	E B 16	E B 17	E B 16	E B 16	E B 16	E B 16
31	E B 16	E B 16	E B 16	16	E B 16	E B 16	E B 16	G	22	26	28	28	28	29	26	23	21	18	17	E B 16	E B 16	E B 17	E B 16	E B 17
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	31	31	31	31	31	31	31	31	29	29	29	29	29	29	28	30	30	31	31	31	31	31	31
MED	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	22	26	28	28	G	28	26	22	G	16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16
U Q	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	16	18	G	28	30	31	30	29	28	24	20	18	17	16	16	16	16	E B 17
L Q	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	21	24	G 27	G 27	28	G	G 26	G	G 17	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16

JAN. 2018 fbEs (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

JAN. 2018 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	C	16	15	16	16	16	16	15	16	16	15	15	14	14	14	16	16	15	16	17	15	16	16	15
2	16	16	16	16	14	16	16	15	15	16	16	16	15	16	17	16	16	16	16	16	16	16	15	17
3	16	16	16	16	15	16	16	17	16	16	16	14	15	15	15	15	16	16	16	16	16	16	16	16
4	16	15	16	16	16	16	16	16	16	14	14	14	16	14	15	14	15	15	15	14	16	16	16	16
5	16	16	16	16	16	16	16	16	16	16	14	16	16	16	16	16	15	15	15	16	16	17	16	16
6	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	15	15	16	16	16
7	16	16	16	16	16	16	16	16	15	17	16	16	16	16	15	15	16	16	16	16	16	16	16	16
8	16	16	16	16	17	16	16	15	15	16	17	16	15	20	17	16	16	14	14	16	16	16	16	16
9	16	16	16	17	16	16	16	16	16	18	18	18	18	17	16	16	15	16	16	16	16	16	16	16
10	16	16	16	15	16	15	16	16	15	16	15	15	15	16	17	21	16	15	16	12	16	16	16	16
11	15	15	16	15	16	16	15	16	16	16	15	14	14	16	16	16	14	16	16	16	16	16	16	15
12	15	16	16	16	15	15	16	16	16	16	16	16	17	17	15	14	14	15	16	16	15	16	16	16
13	16	16	16	16	16	16	16	16	16	16	16	15	15	16	15	15	16	16	16	17	16	16	16	16
14	17	16	16	16	16	16	16	15	16	10	13	14	13	12	15	15	12	16	16	16	16	15	16	16
15	16	16	16	16	16	16	15	15	12	14	15	12	15	16	12	16	17	17	16	16	16	16	16	16
16	17	16	16	16	15	16	16	16	15	15	15	16	16	17	14	16	16	16	16	16	16	16	16	15
17	16	16	16	16	16	16	16	16	16	15	16	16	14	15	16	16	16	15	16	16	16	16	16	16
18	16	16	16	16	16	16	16	16	15	C	C	C	C	C	C	C	11	15	16	16	16	16	16	16
19	16	16	17	16	17	16	16	16	16	C	C	C	C	C	C	C	C	C	16	16	16	16	16	17
20	16	16	16	16	16	15	16	17	10	13	16	15	13	16	12	14	12	16	16	17	16	16	16	16
21	16	16	16	16	16	16	16	16	16	16	11	15	14	16	15	13	12	15	16	16	15	16	16	16
22	16	16	16	16	16	16	16	16	12	16	15	16	16	14	14	14	16	16	15	16	16	16	16	16
23	15	16	16	16	16	16	16	16	12	16	16	16	16	15	15	16	15	16	16	16	16	16	17	16
24	16	15	16	16	16	15	15	17	16	15	14	14	14	15	15	14	16	16	15	16	16	16	16	17
25	16	15	16	16	15	17	16	16	16	15	16	14	14	16	15	15	14	15	14	16	16	16	16	16
26	16	16	16	15	15	16	16	16	16	14	14	16	16	17	17	16	16	16	16	16	16	17	16	16
27	16	16	16	16	16	16	16	16	15	16	16	18	17	16	16	17	15	15	16	16	17	16	16	16
28	17	16	17	16	16	16	15	16	16	17	16	16	19	22	18	16	16	15	16	16	17	16	16	16
29	16	16	16	16	16	16	17	16	16	16	16	17	16	16	14	16	14	16	16	16	16	16	16	17
30	16	16	16	16	16	16	16	16	15	16	15	15	15	15	13	14	16	16	16	17	16	16	16	16
31	16	16	16	16	16	16	16	16	14	11	13	15	15	14	12	11	16	15	15	16	16	16	16	16
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	31	31	31	31	31	31	31	31	29	29	29	29	29	29	29	30	30	31	31	31	31	31	31
MED	16	16	16	16	16	16	16	16	16	16	16	16	15	16	15	16	16	16	16	16	16	16	16	16
U Q	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16
L Q	16	16	16	16	16	16	16	16	15	15	14	14	14	15	14	14	14	15	16	16	16	16	16	16

JAN. 2018 fmin (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

JAN. 2018 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	C 277	292	F 318	326	363	335	377	375	372	325	374	379	387	370	362	372	353	254	238	329	324	F 308	F 296
2	362	327	324	347	367	311	341	374	385	379	392	368	375	376	392	380	252	378	A	310	326	322	F 274	F 271
3	F 293	F 287	F 334	F 314	354	331	332	378	388	357	362	360	373	380	377	357	389	351	324	371	359	338	324	336
4	280	322	307	297	305	338	353	374	357	380	400	371	403	395	382	379	363	349	360	340	359	323	317	295
5	304	318	311	F 295	310	F 293	F 342	371	394	344	366	384	315	384	358	381	371	393	338	F 355	F 333	282	F 304	296
6	308	287	321	F 330	F 330	F 313	313	386	373	361	386	384	367	384	376	403	402	R 217	341	339	377	324	287	F 266
7	F 319	F 286	314	F 308	314	340	365	387	415	413	404	376	366	337	404	403	384	369	A	A 349	337	F 266	F 236
8	F 302	F 296	291	319	319	335	390	389	405	370	372	370	398	384	370	390	403	340	328	340	343	338	305	354
9	267	272	286	293	319	F 305	J R 343	389	360	F 370	364	359	364	385	384	371	383	330	346	346	342	F 298	F 280	F 324
10	F 276	F 300	F 307	300	320	373	F 293	368	390	366	380	378	389	385	379	397	380	346	346	365	346	341	326	268
11	F 311	F 308	F 300	337	F 323	F 340	F 333	365	405	386	393	360	363	399	364	401	397	378	305	352	337	319	F 280	314
12	298	F 294	330	F 335	367	321	361	371	378	373	369	359	390	374	375	377	406	344	334	351	339	339	291	296
13	325	326	327	330	334	378	342	361	391	365	377	365	382	346	391	378	407	A	235	339	369	297	285	285
14	317	279	308	310	350	F 356	368	340	416	346	381	350	370	323	370	364	373	380	375	314	382	313	F 273	F 243
15	F 268	F 276	F 322	F 342	384	F 344	338	358	385	367	350	383	390	393	378	388	371	390	342	343	372	272	272	F 262
16	284	F 308	273	320	319	F 321	F 372	377	387	364	362	392	356	367	373	372	369	388	342	360	330	323	330	F 290
17	F 278	F 298	308	F 274	331	F 386	F 343	372	390	359	372	384	355	345	375	255	386	315	369	323	322	373	311	304
18	F 289	301	312	330	338	343	F 331	378	405	C	C	C	C	C	C	C	372	336	345	380	332	317	299	317
19	305	331	F 319	314	275	376	359	379	386	C	C	C	C	C	C	C	C	C	311	331	353	289	300	296
20	F 274	F 312	302	F 311	F 357	F 383	318	366	393	392	376	363	372	381	355	372	386	A	328	367	357	F 295	F 269	F 269
21	F 272	F 276	F 290	F 299	332	371	A	370	412	354	367	384	357	341	343	375	406	323	338	327	325	294	293	286
22	316	283	F 288	301	343	349	322	360	385	385	350	357	367	378	374	375	368	340	341	356	343	324	320	270
23	F 298	F 272	F 279	F 279	F 293	F 345	273	351	392	349	378	379	385	358	387	380	404	346	300	F 358	F 322	F 292	F 266	271
24	F 310	312	F 313	F 336	F 336	F 321	F 328	F 367	396	367	359	357	363	384	371	365	395	358	328	327	354	314	290	F 283
25	F 284	F 283	F 266	270	295	314	320	321	348	375	336	373	359	371	394	368	384	346	328	331	369	351	320	327
26	309	297	307	370	291	339	301	352	383	359	F 245	350	371	379	383	357	414	365	332	351	313	279	F 286	F 279
27	F 302	F 311	F 308	321	358	338	374	385	396	349	367	377	372	386	390	365	396	351	367	357	346	F 310	F 303	F 288
28	F 281	F 283	F 228	F 308	F 329	F 349	354	369	401	354	349	399	377	328	364	381	244	356	344	379	327	324	328	301
29	300	298	F 282	F 271	F 316	F 318	F 270	378	388	380	374	361	342	376	367	371	375	379	365	345	341	F 284	F 270	F 270
30	F 287	F 320	F 298	341	321	321	353	370	397	392	350	379	355	369	369	380	375	386	373	330	327	336	F 314	F 295
31	F 277	F 318	307	308	328	343	327	369	390	377	357	343	370	369	386	362	385	397	338	F 322	F 318	F 293	F 335	F 298
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	31	31	31	31	31	30	31	31	29	29	29	29	29	29	29	30	28	29	30	31	31	31	31
MED	F 298	F 298	307	314	328	340	340	371	390	367	367	371	370	378	375	375	384	352	338	344	342	319	299	290
U Q	309	312	314	330	343	356	354	378	397	380	379	381	380	384	385	381	397	378	346	357	357	336	317	301
L Q	F 280	283	F 290	F 299	316	321	322	365	385	358	354	360	361	362	370	365	372	342	328	330	327	294	F 280	F 270

JAN. 2018 M(3000)F2 (0.01)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

JAN. 2018 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										441	L	L		L										
2											L			518			L							
3											L	L	422	L										
4																								
5										L		L		L			L							
6												L	558		L									
7												L	397	L	L									
8												L	L	402	L									
9											L	406	L	L	L	418								
10											L	L	L	L	L									
11													L	L	L									
12										L		L	L	L	L		L							
13										L	L	377	394	L	426	L		A						
14									L		L	L	L	L	L	L								
15											L	L		L	L	L								
16											L	L	364	L	L									
17									L	L	L		L											
18										C	C	C	C	C	C	C								
19										C	C	C	C	C	C	C	C	C						
20												L	L	L	L			A						
21							A					392	L	L										
22										L	398	406	L	598	580	L								
23										L		L	L		L									
24										L	L	L	L	L	L		403							
25										L	L	L	L	L	430									
26												L	L	L	L	L								
27										L	L	L	L	L	L	L								
28									L	L	L	L	L	L	L	L								
29											L	L	399	L		L								
30									L		L	L	L	401	L									
31											L	L	L	L	L	L								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT										1	1	4	6	4	3	1	1							
MED										441	398	399	398	460	430	418	403							
U Q												406	422	558	580									
L Q												384	394	402	426									

JAN. 2018 M(3000)F1 (0.01)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

JAN. 2018 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										218	286	232		222										
2											222			232			412							
3											256	222	222	234										
4																								
5										244		232		226			218							
6												212	220		220									
7												234	234	298	218									
8												228	218	238	246									
9											250	234	256	222	222	224								
10											230	230	222	222	222									
11													226	206	236									
12										224		250	232	232	214		202							
13										222	234	246	226	238	212	234		A						
14									196		220	242	242	266	240	214								
15											258	226		214	214	214								
16											232	210	264	230	222									
17									202	218	226		232											
18										C	C	C	C	C	C	C								
19										C	C	C	C	C	C	C	C	C						
20												248	242	232	238			A						
21							A					238	238	252										
22										236	250	234	248	232	238	226								
23										240		232	212		222									
24										232	210	232	254	224	224		208							
25										234	250	220	234	240	208	206								
26												240	218	226	226	226								
27										222	238	224	224	218	218	218								
28									218	228	248	222	232	208	242	224								
29											236	244	256	234		234								
30									210		226	224	244	240	240									
31											240	280	238	230	226	226								
	00	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	11	18	25	24	25	21	11	4							
MED									206	228	237	232	233	232	222	224	213							
U Q									214	236	250	241	243	238	238	226	315							
L Q									199	222	226	224	223	222	218	214	205							

JAN. 2018 h'F2 (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

JAN. 2018 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	C	Q 280	282	252	214	214	214	216	210	188	218	240	220	206	210	204	210	202	A	B	244	214	Q 256	244
2	210	264	264	238	216	216	E B 244	210	208	208	220	220	220	214	208	214	214	198	A	226	226	226	Q 256	Q 246
3	Q 210	Q 248	Q 224	224	188	240	216	198	194	206	196	190	184	208	208	218	198	194	294	228	210	A 234	A	200
4	Q 268	238	260	254	246	210	220	206	200	200	192	224	202	226	220	220	200	222	218	202	222	222	240	268
5	Q 232	210	250	Q 248	Q 224	Q 224	204	224	192	204	220	198	218	214	222	218	198	198	230	218	202	Q 242	Q 250	246
6	252	Q 274	260	Q 238	228	202	250	204	208	198	224	200	190	210	212	198	196	206	226	204	210	E B 248	A	Q 250
7	Q 230	Q 254	Q 238	Q 226	238	222	196	202	196	192	200	196	180	196	196	204	208	216	A	A	208	208	Q 312	312
8	Q 226	274	Q 252	E A 224	Q 224	224	188	188	194	212	222	224	192	176	194	194	202	214	214	E B 232	210	226	284	216
9	Q 294	A	Q 304	264	Q 204	212	A	212	212	222	198	208	190	202	192	192	192	234	210	206	212	Q 244	Q 268	Q 212
10	Q 276	Q 222	Q 248	248	224	200	230	210	196	204	200	198	198	190	198	198	202	232	210	210	218	218	272	A 298
11	290	250	250	218	200	204	216	206	196	208	216	228	190	188	194	204	212	206	E B 246	216	220	194	Q 278	262
12	Q 212	252	246	Q 228	196	232	204	210	202	194	204	198	208	202	190	208	188	206	226	202	248	236	Q 272	Q 260
13	244	274	244	246	228	192	234	218	204	192	230	214	196	196	186	212	190	A	B	238	216	216	Q 264	Q 264
14	256	Q 268	264	240	196	218	214	238	180	198	202	198	196	196	226	196	204	192	212	218	186	A	Q 266	Q 246
15	Q 270	Q 256	258	212	194	220	190	230	204	206	206	192	226	188	198	188	214	192	248	214	208	222	Q 292	Q 280
16	254	288	Q 242	Q 236	Q 236	224	198	216	202	210	202	198	224	202	190	204	204	198	198	204	216	Q 216	232	Q 252
17	Q 268	298	Q 238	Q 240	Q 230	Q 188	Q 210	194	188	188	188	228	192	210	232	A	200	198	200	232	212	220	244	244
18	Q 248	248	252	244	248	224	214	196	190	C	C	C	C	C	C	C	210	226	E A 234	194	226	A 276	258	248
19	252	248	248	Q 256	Q 230	194	222	210	204	C	C	C	C	C	C	C	C	C	232	244	212	Q 242	258	216
20	Q 254	222	264	Q 236	Q 192	202	202	226	194	208	208	198	210	210	212	214	196	A	242	200	208	Q 224	A	Q 266
21	Q 268	Q 268	Q 272	Q 272	232	198	A	222	204	206	234	204	184	198	232	226	194	232	232	232	240	204	A	266
22	242	Q 262	Q 266	252	198	198	E B 248	204	202	206	200	200	242	208	208	204	200	216	242	216	216	226	236	Q 264
23	Q 264	Q 264	Q 250	Q 244	Q 228	Q 184	262	228	194	206	236	198	184	240	208	218	194	238	256	208	Q 220	Q 250	Q 262	Q 248
24	248	248	Q 226	Q 212	Q 196	Q 196	220	194	214	196	198	198	A	198	186	216	190	192	E B 220	234	212	244	Q 248	Q 244
25	Q 268	Q 292	Q 272	Q 258	Q 242	Q 230	A 246	244	240	220	200	200	200	200	186	212	198	202	224	234	218	218	236	248
26	252	272	272	214	264	214	A	194	208	208	A	216	206	192	206	206	194	200	214	202	228	Q 242	Q 242	Q 266
27	244	252	242	246	194	208	208	198	188	176	210	196	192	206	200	188	196	196	200	204	204	246	264	Q 250
28	Q 220	Q 232	Q 250	224	212	200	234	214	196	196	206	222	192	192	218	198	210	188	222	206	224	252	248	264
29	244	282	Q 282	Q 262	Q 208	Q 200	206	202	196	216	194	206	202	196	224	218	208	194	194	232	204	Q 244	Q 278	Q 250
30	Q 264	Q 232	Q 244	226	222	234	222	218	194	212	194	214	198	204	194	224	216	194	194	228	244	236	Q 246	Q 246
31	Q 268	252	282	260	228	214	224	204	202	214	204	200	192	192	192	192	188	192	212	212	212	234	Q 210	Q 254
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	30	31	31	31	31	28	31	31	29	28	29	28	29	29	28	30	28	27	29	31	30	27	31
MED	Q 252	255	252	240	224	212	215	210	200	206	204	200	197	202	206	205	200	201	220	215	216	228	Q 258	Q 250
U Q	Q 268	274	Q 266	252	230	224	232	218	204	209	219	218	209	209	215	217	208	216	234	232	224	244	Q 272	264
L Q	Q 242	248	Q 244	226	198	200	205	202	194	196	199	198	191	194	193	198	194	194	210	204	210	218	244	246

JAN. 2018 h'F (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

JAN. 2018 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	146	92	110	110	94	94	94	A	A	A						
2								B	126	108	106	108	108	112	112	110	A	A						
3								102	102	118	118	106	106	106	A	A	A	A						
4								108	132	A	108	102	102	102	102	106	A	A						
5								106	A	106	106	106	106	112	112	106	B	A						
6								A	A	A	108	108	108	A	A	A	B	A						
7								B	A	108	114	106	104	104	86	110	90	A						
8								B	A	110	A	110	110	108	108	126	100	B						
9								A	A	A	108	108	108	108	108	112	A	B						
10							B	B	102	110	112	112	112	100	98	B	B	A						
11							A	A	100	98	108	A	108	102	118	A	B	B						
12							B	B	118	102	112	112	112	114	110	110	96	A						
13							B	B	112	112	100	106	94	104	100	118	A	A						
14							B	B	124	A	118	104	104	96	114	114	A	A						
15							B	B	116	112	E A 118	108	108	104	104	108	A	B						
16							B	B	114	114	112	112	106	106	106	A	A	A						
17							B	B	126	126	120	120	120	96	96	96	98	A						
18							B	B	118	C	C	C	C	C	C	C	110	B						
19							B	B	116	C	C	C	C	C	C	C	C	C						
20							B	B	122	122	A	102	A	A	94	106	106	A						
21							A	A	A	106	A	106	98	102	102	110	122	A						
22							B	B	A	122	102	102	114	114	114	112	B	B						
23							B	116	112	112	A	112	112	112	100	118	118	A						
24							B	A	A	118	118	112	A	104	104	A	104	A						
25							B	B	A	104	114	114	114	A	114	114	124	B						
26							B	B	100	100	A	116	106	112	110	110	110	A						
27							B	A	110	A	110	110	110	108	A	108	108	A						
28							B	A	A	118	108	108	108	108	112	112	A	B						
29							B	106	118	118	124	104	106	106	116	116	108	108						
30							B	B	130	114	100	110	108	108	100	100	A	B						
31							B	B	112	112	112	106	108	118	120	106	A	A						
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								5	21	24	24	28	27	26	26	22	13	1						
MED								106	116	112	110	108	108	106	107	110	108	108						
U Q								112	125	118	116	112	110	112	112	114	114							
L Q								104	111	106	108	106	106	102	100	106	99							

JAN. 2018 h'E (KM)

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IONOSPHERIC DATA STATION Wakkanai

JAN. 2018 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	C 96	92	114	104	104	104	104	98	G 96	142	138	124	110	114	104	100	98	102	98	90	90	94	108	B 92
2	B 96	112	106	100	90	104	B 96	114	G 96	170	128	116	116	116	116	108	100	124	98	100	100	100	92	92
3	B 96	86	B 96	B 96	B 96	88	B 96	102	G 96	102	G 96	134	112	130	86	86	86	106	B 96	122	B 96	98	98	110
4	94	92	94	B 96	B 96	88	110	100	140	94	94	112	112	106	86	116	106	106	98	98	98	98	98	96
5	B 96	B 96	B 96	B 96	B 96	B 96	B 96	138	120	104	86	104	108	G 96	116	104	B 96	86	102	B 96	B 96	92	126	90
6	B 96	B 96	98	98	102	B 96	104	102	108	102	102	102	G 96	92	G 96	86	B 96	86	106	Q 102	102	90	94	B 96
7	96	B 96	96	B 96	B 96	96	92	B 96	96	G 96	G 96	G 96	G 96	88	96	96	88	94	94	94	96	96	102	102
8	90	90	90	90	B 96	90	B 96	B 96	110	88	88	160	160	G 96	156	G 96	94	B 96	B 96	B 96	Q 102	102	126	96
9	96	90	96	96	96	100	142	112	106	106	102	114	172	G 96	G 96	G 96	102	B 96	B 96	B 96	102	102	B 96	102
10	102	102	102	94	88	88	124	B 96	94	128	104	104	104	G 96	112	B 96	G 96	94	88	88	88	B 96	98	98
11	94	94	94	94	94	94	94	100	94	120	96	98	98	G 96	132	88	92	100	B 96	B 96	B 96	B 96	B 96	100
12	96	94	94	94	94	102	B 96	B 96	122	132	106	106	G 96	132	G 96	G 96	78	88	B 96	B 96	108	122	B 96	B 96
13	98	98	100	102	90	B 96	B 96	B 96	136	116	122	122	114	120	114	142	104	102	98	106	98	148	B 96	B 96
14	112	B 96	B 96	B 96	B 96	198	102	152	134	110	150	120	120	106	112	110	98	102	102	104	B 96	96	122	118
15	B 96	98	90	B 96	102	B 96	B 96	142	136	150	124	96	118	174	110	G 96	110	98	84	94	94	106	106	86
16	92	98	86	98	92	98	86	106	154	98	130	100	100	124	90	90	90	94	98	B 96	B 96	104	100	100
17	98	98	98	B 96	98	90	B 96	B 96	124	110	130	136	100	122	104	102	G 96	88	B 96	100	84	B 96	B 96	96
18	96	96	104	100	102	104	104	B 96	126	C 96	C 96	C 96	C 96	C 96	C 96	C 96	G 96	B 96	94	94	102	84	100	96
19	98	98	106	98	106	B 96	96	100	118	C 96	C 96	C 96	C 96	C 96	C 96	C 96	C 96	C 96	B 96	108	96	96	96	B 96
20	B 96	B 96	B 96	108	108	B 96	B 96	152	140	102	92	120	94	94	108	130	G 96	98	98	B 96	B 96	98	98	98
21	98	96	96	96	106	106	96	96	96	90	92	94	110	148	146	124	124	104	110	96	96	96	96	92
22	B 96	96	B 96	96	118	B 96	132	120	104	104	124	108	184	G 96	G 96	G 96	92	B 96	120	86	B 96	B 96	86	Q 92
23	92	92	B 96	B 96	B 96	B 96	108	118	104	104	98	98	90	148	148	136	96	88	78	B 96	B 96	102	102	B 96
24	102	94	94	94	94	94	94	118	96	106	100	96	88	144	94	88	88	88	88	88	90	90	B 96	B 96
25	96	96	96	B 96	96	96	G 96	118	100	100	100	104	104	104	112	G 96	G 96	B 96	B 96	B 96	112	B 96	94	94
26	94	94	B 96	120	94	B 96	122	122	108	108	108	92	172	G 96	132	126	G 96	104	106	102	B 96	102	108	104
27	Q 96	B 96	B 96	B 96	98	98	100	108	100	G 96	124	92	98	98	98	116	G 96	94	B 96	96	104	98	98	102
28	118	B 96	B 96	B 96	B 96	102	102	104	102	140	140	132	G 96	G 96	150	112	102	B 96	B 96	B 96	82	90	98	B 96
29	B 96	92	Q 92	98	98	94	B 96	132	144	96	142	120	130	130	130	G 96	100	100	100	100	B 96	B 96	B 96	B 96
30	B 96	98	108	B 96	B 96	102	B 96	156	G 96	124	116	120	152	126	106	106	84	B 96	B 96	B 96	B 96	B 96	94	96
31	96	96	98	98	92	92	86	G 96	98	152	146	144	96	96	96	98	98	90	100	B 96	B 96	100	B 96	100
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	21	24	22	19	22	22	19	23	27	27	27	28	25	21	25	21	21	23	20	19	19	24	23	22
MED	96	96	96	98	97	97	102	114	108	106	108	110	110	120	112	106	98	98	98	98	98	98	98	97
U Q	98	98	102	100	102	102	110	132	134	128	130	121	125	131	131	120	102	102	102	102	102	102	106	102
L Q	94	92	94	94	94	92	94	102	100	102	98	99	99	101	97	93	89	88	94	94	90	95	96	94

JAN. 2018 h'Es (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

JAN. 2018 TYPES OF Es 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1		F1	F1	F2	F2	F3	F4	L4		C1	C1	C2	C2	C2	C3	L1	L2	L2	F3	F6	F4	F2	F1	
2		F1	FF21	F2	F1	F2		L1		H2	C2	C2	C2	C2	C3	C3	L4	L3	F4	F2	F1	F1	F1	F1
3		F1				F1		L1		LC11		C1	C1	C1	L3	F2	L1	L1		F1		FF42	FF42	FF22
4	F1	F1	F1			F1	L1	LC11	C1	L3	L3	C2	C2	CL21	LC12	C1	L3	L1	F3	F1	F1	F2	F2	F2
5								C1	C2	C2	LC11	C1	C3		C2	C2		L1	F3			F1	F1	F1
6			F2	F1	F1		F1	L3	L2	L2	L2	C1		L2		L1		L1	F1	F1	F1	F4	F3	
7	F1		F1			F1	F4		L1					L2	C1	L1	L1	L1	FF51	F5	F2	F3	F2	F2
8	F1	F1	F2	F3		F2			L2	LC11	L2	H1	H1		H1		L1				F2	F2	F1	F2
9	F2	F4	F2	F1	F1	F1	F1	L3	L1	L2	L1	CL11	C1				L1				FQ11	F1		F2
10	FF21	F1	F1	F2	F2	F1	L1		L1	C1	C1	C1	C1		C1			L1	F1	F2	F2		F2	F2
11	F2	F2	F2	F3	F2	F1	L2	L1	L1	C1	LC11	L2	L1		C1	C2	L1	L1						F3
12	F1	F2	F3	F2	F1	F1			C2	C1	C1	C2		C1			CL11	L1			F1	F1		
13	F1	F1	F1	F1	F2				C2	C2	C2	C2	C2	C2	C2	C2	L3	LL51	FF31	FF31	F3	F1		
14	L1					L1	L1	H1	H1	C2	HL11	CL23	C2	C2	C3	CL31	L3	LL21	F2	F3		F4	F1	F1
15		F1	F3		F1			H1	CL21	C1	CL21	CL22	CL11	HL11	C2		L2	L2	FF21	F2	F3	F3	F1	F1
16	F1	F2	F2	F2	F1	F1	L2	L1	C1	LC11	C1	C2	LC11	CL11	LC11	L3	L1	L3	F1			F1	F2	F2
17	F2	F2	F1		F2	F1			C1	LC11	C1	C2	LC11	CL21	C3	C3		C3		F1	F1			F2
18	F1	F1	F1	F1	F2	F2	L1		C1										F3	F1	F1	F3	F1	F1
19	F1	F1	F1	F2	F1		L1	L1	C1											F1	F1	F1	F1	
20				F1	F1			C2	C1	L3	L3	CL21	L1	L2	C1	C1		LL51	F3			F2	F4	F1
21	F1	F1	F2	F2	F1	F2	L7	L5	L2	LC21	L2	LC11	C1	CL11	CL11	C2	C1	L3	F2	F2	F3	F3	F2	F1
22		F1		F1	F1		C1	C1	L3	LC11	CL11	CL11	C1				L1		F2	F1			F1	F1
23	F1	F1					L2	C1	L3	L1	L2	LC11	L1	C1	C1	C1	L1	L1	F1			F1	F1	
24	F1	F2	F1	FF11	F1	F1	L1	L1	L4	L2	LC11	LC11	L3	C1	C1	L2	L1	L1	F1	F2	F2	F1		
25	F1	F1	F1		F1	F1	C1	C1	LC11	LC21	C2	C2	C2	L2	C1						F1		F1	F1
26	F1	F1		F1	F1		L1	C1	C2	C3	L4	L2	H1		C1	C1		L2	F2	F3		F1	F1	F2
27	F1				F1	F1	L1	L1	LC21		C2	L1	LC11	LC11	L1	CL11	L1	L1		FF11	F2	F2	F3	F1
28	F1					F1	L1	L2	LC11	CL21	C1	CL11			C1	C1	L1				F2	F1	F1	
29		F2	F1	F1	F1	F1		C1	CL11	LC21	CL11	C2	C1	CL21	CL11		L2	L3	FF32	F1				
30		F1	F1			F1		F1		C1	C2	C2	CL12	CL11	CL22	CL12	L2						F1	F1
31	F1	F3	F3	FF11	FF11	F1	L1		C1	C2	C2	CL11	C2	L2	L2	L1	L2	L2	L2			F1		F2
	00	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																								

JAN. 2018 TYPES OF Es

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

JAN. 2018 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 33	X 34	X 33	X 33	X 33	X 27	X 27	X 47										A	X 34	X 38	X 38	X 41	X 36	X 36
2	X 36	X 35	X 34	X 34	X 34	A	X 28											X 47	X 40	X 34	X 37	X 41	37	X 34
3	X 36	X 36	37	X 33	38	X 31	37											X 48	X 34	A	X 40	A	X 36	X 40
4	41	X 37	X 36	X 36	41	X 32	X 32											X 39	X 35	X 36	X 32	X 32	A	A
5	36	X 33	X 35	X 33	X 33	X 31	X 27											X 42	A	A	X 39	X 36	A	A
6	A	36	X 31	38	X 31	X 27	X 28											X 40	A	X 34	X 33	X 34	X 27	X 31
7	X 32	X 33	X 32	X 31	X 28	X 27	X 27											X 41	X 32	A	X 32	X 32	X 35	38
8	37	X 31	X 31	X 31	X 30	X 28	X 29											X 42	X 32	X 36	X 35	X 36	X 36	34
9	35	X 27	32	X 26	X 25	X 22	X 25											X 40	X 47	X 49	X 44	X 34	35	37
10	38	40	41	39	X 33	35	X 31											X 40	X 39	X 40	X 35	X 30	X 31	X 32
11	X 33	X 32	X 34	X 36	X 29	X 26	X 27				C	C	C	C	C	C	C	X 39	X 29	X 34	X 38	X 35	X 32	34
12	34	34	X 32	X 34	X 26	X 25	X 24	X 46										X 37	X 30	X 36	X 34	X 32	X 32	X 32
13	X 32	X 33	X 34	X 32	X 28	X 24	X 24											X 41	X 29	X 36	X 38	X 33	X 29	X 32
14	X 30	X 31	X 31	X 31	X 35	X 24	X 24											X 52	A	X 30	X 36	X 37	X 28	X 30
15	X 32	39	X 42	44	X 27	X 24	X 24											X 46	X 38	X 37	X 29	X 31	X 32	X 33
16	38	X 31	X 30	X 31	X 31	X 26	33											X 47	X 36	X 41	C	X 33	A	X 32
17	X 33	X 32	X 32	X 36	X 34	X 26	X 25											X 44	X 33	X 36	X 31	X 34	X 33	X 31
18	35	X 32	X 31	X 33	X 34	X 31	X 31											X 45	X 39	X 39	X 33	X 30	X 32	X 32
19	38	39	40	X 33	44	X 24	X 26											X 47	X 39	X 37	X 41	X 32	36	36
20	38	36	34	37	X 31	33	X 34											X 47	X 38	X 44	44	X 33	X 31	X 33
21	38	37	36	X 34	35	34	X 27											X 48	X 33	X 40	X 36	X 35	X 31	X 31
22	X 32	X 32	X 32	38	A	X 25	X 25												X 33	X 44	X 43	X 32	X 33	35
23	X 30	X 32	X 32	X 34	X 28	X 27	X 26												X 28	X 32	X 38	36	X 34	37
24	38	37	39	44	36	34	32											X 44	X 29	X 34	X 35	36	36	38
25	35	X 30	X 30	X 34	X 29	X 26	X 26											X 47	X 36	X 39	X 44	X 37	X 36	X 37
26	X 38	X 36	X 36	X 37	X 37	X 35	X 37												X 32	X 38	X 40	X 36	X 37	X 37
27	37	X 34	X 36	X 35	X 36	X 28	X 28											X 43		X 41	X 45	X 37	38	42
28	44	46	47	39	X 36	X 22	X 25												X 42	X 36	X 34	X 31	X 31	X 31
29	X 33	X 33	X 32	X 29	X 29	X 26	X 25												X 34	X 38	X 36	X 34	X 36	44
30	39	36	X 33	X 33	X 33	X 29	X 28												X 40	X 38	X 37	X 35	X 34	X 36
31	X 36	X 34	X 34	X 36	X 34	X 26	X 27												X 35	X 35	40	39	45	46
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	31	31	31	30	30	31	2										23	27	28	30	30	28	29
MED	36	X 34	X 34	X 34	X 33	X 27	X 27	X 46										X 44	X 34	X 37	X 37	X 34	X 34	X 34
U Q	38	36	36	37	35	31	X 31											X 47	X 39	X 40	X 40	X 36	X 36	37
L Q	X 33	X 32	X 32	X 33	X 29	X 25	X 25											X 40	X 32	X 36	X 34	X 32	X 32	X 32

IONOSPHERIC DATA STATION Kokubunji

JAN. 2018 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	27	28	27	27	27	21	21	41	52	50	52	60	62	61	50	56	56	A	28	32	32	35	30	30
2	30	29	28	28	28	A	22	39	55	57	59	62	61	55	52	50	52	41	34	28	31	35	F	28
3	30	30	F	27	F	25	F	46	53	52	57	61	60	60	49	64	52	41	28	A	34	A	30	34
4	F	31	30	30	F	26	26	44	44	46	51	63	56	60	50	53	49	33	29	30	26	26	A	A
5	F	27	29	27	27	25	21	36	46	47	54	61	56	52	50	54	49	36	A	A	33	30	A	A
6	A	F	25	F	25	21	22	37	46	50	56	63	55	49	46	50	48	34	A	28	27	28	20	25
7	26	27	26	25	22	21	21	38	44	45	56	74	60	55	50	54	46	35	26	A	26	26	28	F
8	F	23	25	25	24	22	22	38	48	45	52	60	66	50	53	51	46	36	26	30	29	30	31	F
9	F	21	F	20	18	16	19	34	45	50	68	78	58	68	67	55	46	34	41	43	38	28	F	F
10	F	F	F	F	27	F	24	38	50	45	60	74	57	53	51	54	46	34	33	34	28	24	25	26
11	27	26	28	30	23	20	21	42	46	43	C	C	C	C	C	C	C	33	23	27	32	28	26	F
12	F	F	26	28	20	18	18	40	48	47	46	51	59	60	50	48	46	31	24	30	28	26	26	26
13	26	27	28	26	22	18	18	39	42	43	51	60	58	53	48	51	43	35	23	30	32	27	23	26
14	24	24	25	25	29	18	18	37	48	50	54	60	55	49	65	68	54	46	A	24	30	31	22	24
15	26	F	36	F	20	18	18	37	50	44	51	59	63	54	56	48	43	40	32	31	23	25	26	27
16	F	24	24	25	25	20	F	40	52	47	53	62	60	52	56	60	53	41	30	35	C	27	A	26
17	27	26	26	30	28	20	19	37	43	45	51	52	49		49	55	51	38	26	30	25	28	27	25
18	F	26	25	27	28	25	25	40	46	46	46	54	54	56	57	61	47	38	33	33	27	24	26	26
19	F	F	F	27	F	18	20	34	41	49	48	48	55	56	49	54	42	41	33	31	35	26	F	F
20	F	F	F	F	25	F	28	42	43	46	62	67	56	58	61	52	48	40	32	38	F	26	25	26
21	F	F	F	28	F	F	21	38	48	46	52	66	63	60	52	50	51	42	27	34	30	29	25	25
22	26	26	26	F	A	19	19	40	48	50	63	60	61	60	68	54	50	37	27	38	37	25	27	F
23	24	26	26	28	22	21	20	41	47	64	52	63	64	55	59	54	45	38	22	26	32	F	28	F
24	F	F	F	F	F	F	F	40	44	52	62	67	58	60	65	51	44	37	23	28	29	F	F	F
25	F	24	24	28	23	20	20	40	46	54	78	91	70	63	58	54	46	41	30	33	38	31	30	30
26	32	30	30	31	31	29	31	44	49	49	66	66	76	68	64	58	48	38	26	32	34	30	31	31
27	F	28	30	29	30	22	22	41	52	44	54	67	75	56	60	58	47	37	29	35	39	31	F	F
28	F	F	F	F	30	16	19	37	42	50	53	47	68	65	53	64	57	50	36	30	28	25	25	27
29	27	27	26	23	23	20	18	38	42	45	48	55	59	54	48	54	50	41	28	32	30	28	30	F
30	F	F	27	27	27	23	22	42	49	43	58	56	58	52	58	58	53	36	34	32	31	29	28	30
31	30	28	28	30	28	20	21	41	47	45	50	56	65	56	53	56	46	39	29	29	F	F	F	F
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	14	21	23	24	25	26	28	31	31	31	30	30	30	29	30	30	30	30	28	28	28	27	22	18
MED	27	27	26	27	25	20	21	40	47	47	54	61	60	56	53	54	48	38	28	31	30	28	26	26
U Q	30	28	28	28	28	22	22	41	49	50	59	66	63	60	59	58	51	41	32	34	34	30	30	30
L Q	26	25	25	26	22	18	19	37	44	45	51	56	56	53	50	51	46	35	26	30	28	26	25	26

IONOSPHERIC DATA STATION Kokubunji

JAN. 2018 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		A	L										
2										L		U L 404	A											
3									L	L		L	L	L										
4											A		U L 404	L		L								
5											L	L	L			U L 356								
6											L	L	L	L										
7											L	U L 408	L		L	L								
8									L	L	L	U L 400	U L 400	L										
9										A	A		L	L	L									
10										L	U L 412	L	L	L	L	U L 304								
11											C	C	C	C	C	C	C							
12												L	U L 404	A	A									
13											U L 412	A	L	L	L									
14											L	L	U L 400	L										
15												U L 384	L	A										
16											L	U L 424	L	U L 416	L									
17										U L 352	L	L	L		L	L								
18									L			U L 416	A	U L 408	L	L								
19											L	L	L	L	L	L								
20											L	U L 396	L	L										
21											L	U L 400	U L 416		U L 368									
22											L	L	L	L	A	L								
23											L	U L 384	L	L	L	L								
24											L	L	L	L		L								
25										380	A	416	L	L	L									
26											A	A	A		U L 356									
27										416	408	U L 412	U L 404	L	L									
28											L		A	396	L									
29												A	U L 396	A										
30									L		U L 408	A	U L 412	L	U L 412	L								
31										L	L	U L 408	396	A										
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT										3	4	12	9	3	3	2								
MED										380	U L 410	U L 406	U L 404	U L 408	U L 368	U L 330								
U Q										416	U L 412	U L 414	U L 408	U L 416	U L 412									
L Q										U L 352	408	U L 398	U L 398	396	U L 356									

JAN. 2018 foF1 (0.01MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

JAN. 2018 foE (0.01MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1									A	U R 248	288	A	U A 300	A	A	A	A							
2								A	U R 212	248	R	A	A	A	U R 272	U R 220	B							
3								B	A	U R 272	280	U A 272	U R 300	R	A	A	R							
4								B	208	A	A	A	A	U R 300	A	A	A							
5								B	U A 232	U A 268	A	A	A	A	A	A	U R 212							
6								A	A	A	A	A	A	U R 292	A	A	A							
7								B	U R 224	U R 272	R	A	R	A	U R 272	R	A							
8								B	U R 212	248	A	A	R	U R 284	U R 260	U R 232	A							
9								B	A	A	A	R	U R 308	U R 308	U R 284	U R 248	B							
10								B	U R 232	A	A	R	R	R	U R 280	R 244	U R 200							
11								B	A	A	C	C	C	C	C	C	C							
12									R	R	A	A	A	A	A	A	A							
13								B	U R 216	268	A	A	A	R	A	A	A							
14								B	224	268	288	A	A	A	A	A	A							
15								U R 196	216	U A 248	A	A	A	A	A	A	U R 204							
16								B	U R 232	A	A	A	A	A	264	248	A							
17								B	212	U A 256	A	A	A		A	U R 276	U R 224							
18								B	R	268	292	A	A	A	U R 312	A	U R 224							
19								B	232	A	A	R	U R 304	R	U R 284	U R 268	U R 212							
20								B	R	A	A	U R 328	U R 320	U A 292	U A 284	A	R							
21								B	224	U R 280	296	312	U R 300	U R 292	U R 256	A	U A 216							
22								B	A	A	R	R	A	U R 300	268	A	U A 184	B						
23								B	A	A	U R 296	R	288	R	R	236	U R 224	B						
24								B	A	A	A	A	R	R	A	U R 236	A							
25								B	A	A	A	A	R	R	U R 284	U R 252	A							
26								B	A	A	A	A	A	U A 284	U R 280	U R 256	A	B						
27								B	U R 224	U R 276	296	A	A	A	R	260	A		B					
28								B	236	A	R	A	308	A	A	A	A	B						
29								B	244	276	A	A	U A 296	A	A	268	U R 224	B						
30								B	204	288	304	A	R	A	A	A	A	B						
31								B	U A 216	U R 260	292	A	A	A	A	U A 256	A	B						
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								1	18	16	9	3	9	8	13	14	10							
MED								U R 196	224	U 268	292	U 312	U R 300	U R 292	U R 280	U R 250	U R 214							
U Q									U 232	U R 274	296	U R 328	U R 308	U R 300	U R 284	260	U R 224							
L Q									212	U 252	288	U A 272	U A 298	U A 288	266	U R 236	U R 204							

JAN. 2018 foE (0.01MHz)

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IONOSPHERIC DATA STATION Kokubunji

JAN. 2018 foEs (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	JA 23	EB 16	EB 15	21	23	JA 32	JA 26	JA 30	JA 32	G	33	36	38	JA 48	37	JA 47	JA 50	JA 55	JA 31	JA 37	JA 28	JA 26	JA 36	JA 26
2	JA 22	JA 24	JA 25	JA 31	JA 34	JA 40	JA 24	JA 28	G	30	G	JA 38	JA 41	36	G	28	26	EB 14	21	JA 30	JA 29	JA 30	JA 23	JA 84
3	JA 51	JA 31	EB 15	JA 24	22	EB 16	EB 15	EB 16	JA 36	G	35	33	G	G	JA 40	JA 37	JA 51	JA 25	JA 32	JA 54	JA 54	JA 31	JA 32	JA 53
4	JA 38	JA 25	JA 25	JA 25	22	JA 30	JA 19	EB 16	26	32	38	JA 42	JA 50	G	JA 39	JA 39	JA 29	JA 30	JA 28	22	EB 14	JA 40	JA 57	JA 65
5	JA 52	JA 28	JA 23	JA 36	JA 21	EB 15	EB 14	EB 16	28	29	35	34	33	32	29	JA 30	G	26	JA 40	JA 40	JA 44	JA 31	JA 65	JA 99
6	JA 63	JA 37	EB 14	JA 31	22	20	JA 22	29	32	32	JA 43	JA 40	JA 44	G 28	JA 39	JA 36	JA 37	JA 25	JA 27	JA 28	JA 31	JA 29	EB 15	EB 15
7	JA 28	JA 20	JA 20	JA 33	JA 27	JA 30	22	EB 16	G	G	G	JA 64	G	JA 49	G	G	JA 30	JA 31	JA 21	JA 40	JA 46	JA 28	22	JA 36
8	JA 28	EB 16	EB 15	JA 26	EB 15	EB 15	EB 14	EB 14	G	G	36	JA 55	G	32	G	G	23	JA 27	JA 24	24	19	EB 16	JA 29	JA 28
9	EB 16	25	JA 24	JA 26	23	EB 16	20	JA 24	JA 34	JA 51	JA 57	G	JA 38	G	G	G	22	JA 36	JA 22	23	EB 15	EB 15	EB 15	JA 26
10	JA 29	JA 28	JA 26	JA 32	JA 31	20	20	JA 22	G	JA 38	JA 36	G	G	G	G	G	G	JA 30	JA 23	JA 26	JA 27	JA 24	EB 15	EB 15
11	JA 28	JA 22	JA 26	23	JA 23	JA 24	EB 15	EB 14	26	33	C	C	C	C	C	C	C	EB 15	23	19	EB 14	EB 15	EB 15	EB 15
12	21	JA 37	JA 30	21	EB 15	EB 15	EB 15	EB 14	G	G	JA 52	JA 38	JA 67	JA 40	JA 40	JA 31	JA 31	JA 23	EB 15	EB 14	EB 14	EB 14	EB 16	EB 15
13	EB 16	EB 16	JA 22	EB 15	EB 14	22	JA 23	EB 15	G	32	37	JA 49	36	G	JA 42	31	JA 36	JA 54	EB 15	21	EB 15	21	EB 15	EB 15
14	JA 21	EB 15	EB 15	20	EB 15	19	EB 15	EB 15	29	33	37	JA 46	JA 36	JA 41	36	30	32	JA 22	JA 56	JA 56	JA 54	JA 37	JA 28	EB 16
15	EB 16	EB 15	21	21	EB 15	EB 15	EB 14	G	29	33	38	34	34	JA 48	JA 38	JA 39	G	JA 23	JA 22	JA 24	JA 28	24	EB 15	EB 16
16	JA 23	JA 20	JA 27	21	22	EB 15	22	EB 18	32	JA 34	34	JA 47	JA 38	JA 43	33	29	JA 28	JA 39	JA 24	JA 25	C	JA 26	JA 30	JA 35
17	JA 24	JA 34	JA 30	JA 26	JA 21	EB 15	EB 15	EB 15	26	30	33	35	33	JA 64	G	G	EB 16	EB 16	21	21	EB 16	21	23
18	EB 15	EB 15	EB 15	EB 15	EB 15	22	24	JA 24	G	32	37	36	36	JA 36	G	30	G	JA 39	EB 14	23	EB 16	EB 15	JA 24	JA 51
19	EB 15	EB 15	EB 15	23	JA 33	24	EB 15	EB 15	27	31	JA 37	32	35	G	G	G	G	EB 15	EB 15	EB 14	EB 15	EB 15	EB 16	EB 16
20	EB 16	EB 16	EB 15	EB 15	20	EB 15	EB 16	EB 16	G	34	34	G	G 28	34	33	JA 36	G	EB 14	EB 15	EB 14	20	EB 15	EB 15	EB 15
21	EB 15	EB 15	20	EB 14	EB 15	EB 16	EB 15	JA 21	26	JA 31	35	36	G	37	G	29	G	EB 14	EB 14	EB 14	EB 14	EB 14	EB 12	JA 29
22	JA 25	JA 30	21	EB 16	JA 33	EB 15	JA 19	JA 24	JA 31	JA 32	G	G	JA 52	G	31	26	22	EB 16	22	EB 14	JA 23	JA 25	EB 15	EB 15
23	JA 22	EB 15	EB 16	EB 15	EB 14	EB 16	21	JA 21	JA 32	30	G	G	35	G	G	28	G	EB 15	JA 24	18	EB 15	EB 15	EB 16	EB 14
24	EB 15	EB 15	EB 16	EB 15	19	EB 16	19	JA 18	28	JA 37	JA 37	35	G	JA 32	JA 39	29	24	EB 16	EB 14	JA 28	JA 24	JA 41	EB 15	EB 15
25	EB 15	EB 15	EB 15	EB 14	EB 15	EB 14	EB 15	JA 25	29	JA 40	JA 66	JA 43	G	G	G	G	24	JA 27	JA 30	JA 28	24	20	23	EB 15
26	EB 15	22	EB 15	EB 14	EB 15	EB 14	EB 14	18	30	JA 40	JA 50	JA 69	JA 40	36	G	G	24	EB 15	EB 14	23	JA 43	JA 31	JA 23	JA 22
27	JA 28	JA 23	23	22	JA 28	21	20	20	G	G	36	36	JA 38	JA 38	G	29	JA 39	JA 28	EB 14	EB 15	EB 15	19	22	JA 28
28	JA 34	JA 42	27	JA 24	JA 24	EB 13	19	20	27	30	G 27	36	36	JA 42	35	JA 42	JA 33	JA 28	22	22	EB 15	EB 15	EB 15	EB 16
29	EB 14	JA 22	EB 16	23	23	EB 15	EB 16	EB 15	30	34	37	38	34	37	33	30	G	EB 15	JA 22	23	JA 24	EB 15	EB 15	EB 15
30	EB 15	EB 15	EB 15	22	JA 24	20	EB 15	EB 17	26	33	36	36	G 28	37	36	30	26	JA 24	JA 28	19	EB 15	EB 14	JA 26	JA 37
31	JA 29	JA 24	20	20	JA 22	JA 24	EB 14	EB 16	G	G	34	32	36	40	34	31	25	EB 16	JA 21	JA 26	EB 16	EB 15	EB 15	JA 25
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	31	31	31	31	31	30	30	30	29	30	30	30	31	31	31	30	31	31	31
MED	JA 22	JA 22	20	22	22	EB 16	EB 16	EB 18	27	32	36	36	36	36	33	30	24	JA 24	JA 22	23	20	20	EB 16	22
U Q	JA 28	JA 28	JA 25	JA 26	JA 24	JA 22	21	JA 22	JA 30	JA 34	JA 37	JA 42	JA 38	JA 40	JA 38	JA 31	JA 31	JA 30	JA 27	JA 28	JA 28	JA 29	JA 26	JA 35
L Q	EB 15	EB 15	EB 15	EB 15	EB 15	EB 15	EB 15	EB 15	G	G 29	G 34	G 33	G	G	G	G	G	EB 15	EB 15	EB 19	EB 15	EB 15	EB 15	EB 15

JAN. 2018 foEs (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

JAN. 2018 fbEs (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E B 16	E B 16	E B 15	E B 15	E B 15	E B 16	E B 15	21	23	G	31	34	36	32	34	41	36	A A 55	E B 15	19	20	E B 15	20	19
2	E B 15	E B 15	16	20	20	A A 40	18	19	G	G 18	G	33	36	33	G	24	22	E B 14	E B 14	E B 15	E B 16	19	E B 15	18
3	22	18	E B 15	E B 16	E B 15	E B 16	E B 15	E B 16	22	G	32	31	G	G	29	25	22	E B 16	18	A A 54	20	A A 31	17	27
4	23	E B 16	E B 15	E B 15	E B 15	19	E B 15	E B 16	24	29	35	33	32	G	29	24	24	19	E B 15	E B 15	E B 14	18	A A 57	A A 65
5	E B 15	E B 14	E B 15	E B 15	16	E B 15	E B 14	E B 16	25	29	31	32	31	30	28	24	G	17	A A 40	A A 40	22	18	A A 65	A A 99
6	A A 63	21	E B 14	E B 14	E B 15	E B 15	E B 16	26	32	29	30	32	32	G 22	27	26	23	21	A A 27	22	20	E B 15	E B 15	E B 15
7	E B 15	E B 14	15	20	20	15	E B 16	E B 16	G	G	G	32	G	36	G	G	22	26	18	A A 40	19	E B 16	E B 15	E B 16
8	E B 16	E B 16	E B 15	E B 15	E B 15	E B 15	E B 14	E B 14	G	G	29	33	G	31	G	G	20	17	E B 14	E B 14	E B 16	E B 16	E B 16	E B 16
9	E B 16	E B 16	E B 15	E B 15	E B 16	E B 16	E B 16	18	30	39	39	G	G 25	G	G	G	20	27	E B 16	E B 16	E B 15	E B 15	E B 15	E B 16
10	17	E B 16	16	19	20	E B 15	E B 15	E B 15	G	28	31	G	G	G	G	G	G	19	18	21	20	E B 16	E B 15	E B 15
11	E B 16	E B 16	E B 16	E B 16	E B 15	E B 16	E B 15	E B 14	24	30	C	C	C	C	C	C	C	E B 15	E B 16	E B 16	E B 14	E B 15	E B 15	E B 15
12	E B 15	E B 16	15	E B 15	E B 15	E B 15	E B 15	E B 14	G	G	31	32	34	32	30	25	20	E B 16	E B 15	E B 14	E B 14	E B 14	E B 16	E B 15
13	E B 16	E B 16	E B 16	E B 15	E B 14	16	E B 15	E B 15	G	30	34	36	34	G	32	30	24	20	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15
14	E B 15	E B 15	E B 15	E B 14	E B 15	E B 15	E B 15	E B 15	25	32	32	36	30	32	33	27	26	19	A A 56	19	23	24	E B 15	E B 16
15	E B 16	E B 15	E B 16	E B 15	E B 15	E B 15	E B 14	G	26	32	33	32	32	39	30	28	G	18	E B 15	19	E B 17	E B 16	E B 15	E B 16
16	E B 16	E B 15	19	E B 15	E B 15	E B 15	E B 15	E B 18	24	29	33	33	31	32	31	27	19	31	E B 16	19	C 20	A A 30	E B 16
17	E B 15	18	E B 15	18	E B 15	E B 15	E B 15	E B 15	24	28	32	32	32	29	G	G	E B 16	E B 16	E B 15	E B 16	E B 15	E B 16	E B 15	E B 15
18	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	E B 16	E B 16	G	31	34	35	35	32	G	27	G	22	E B 14	E B 15	E B 16	E B 15	E B 15	E B 14
19	E B 15	E B 15	E B 15	E B 15	22	16	E B 15	E B 15	26	29	31	31	34	G	G	G	G	E B 15	E B 15	E B 14	E B 15	E B 15	E B 16	E B 16
20	E B 16	E B 16	E B 15	E B 15	E B 15	E B 15	E B 16	E B 16	G	33	32	G	G 24	32	32	28	G	E B 14	E B 15	E B 14	E B 16	E B 15	E B 15	E B 15
21	E B 15	E B 15	E B 15	E B 14	E B 15	E B 16	E B 15	18	23	G 27	32	32	G	34	G	27	G	E B 14	E B 14	E B 14	E B 14	E B 14	E B 12	15
22	E B 15	20	E B 15	E B 16	A A 33	E B 15	E B 15	20	25	29	G	G	33	G	30	26	21	E B 16	E B 15	E B 14	E B 16	E B 16	E B 15	E B 15
23	E B 15	E B 15	E B 16	E B 15	E B 14	E B 16	E B 15	E B 16	22	28	G	G	33	G	G	26	G	E B 15	E B 15	E B 15	E B 15	E B 15	E B 16	E B 14
24	E B 15	E B 15	E B 16	E B 15	E B 15	E B 16	16	16	25	30	32	32	G	24	28	27	22	E B 16	E B 14	E B 16	E B 16	E B 15	E B 15	E B 15
25	E B 15	E B 15	E B 15	E B 14	E B 15	E B 14	E B 15	22	27	32	38	32	G	G	G	G	24	18	17	16	E B 14	15	E B 14	E B 15
26	E B 15	E B 15	E B 15	E B 14	E B 15	E B 14	E B 14	17	23	30	36	37	34	34	G	G	23	E B 15	E B 14	E B 16	20	18	E B 15	E B 15
27	E B 15	E B 16	E B 15	E B 16	19	E B 16	E B 16	18	G	G	34	32	29	30	G	28	23	20	E B 14	E B 15	E B 15	E B 15	E B 15	E B 16
28	E B 16	E B 15	E B 16	E B 15	15	E B 13	E B 15	16	26	29	G 23	34	34	34	33	35	24	24	E B 15	E B 15	E B 15	E B 15	E B 15	E B 16
29	E B 14	E B 15	E B 16	E B 16	E B 15	E B 15	E B 16	E B 15	28	33	36	35	33	35	31	30	G	E B 15	18	16	16	E B 15	E B 15	E B 15
30	E B 15	E B 15	E B 15	E B 16	E B 15	E B 15	E B 15	E B 17	23	30	34	34	G 27	32	32	28	24	18	19	E B 15	E B 15	E B 14	E B 14	19
31	18	E B 15	E B 15	E B 16	E B 16	E B 16	E B 14	E B 16	G	G	32	30	33	37	33	29	24	E B 16	E B 15	E B 14	E B 16	E B 15	E B 15	E B 15
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	31	31	31	31	31	30	30	30	29	30	30	30	31	31	31	30	31	31	31
MED	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	E B 16	23	29	32	32	32	32	28	26	22	17	E B 15	E B 15	E B 16	E B 15	E B 15	E B 15
U Q	16	16	E B 16	16	16	16	E B 16	18	25	30	34	34	34	34	31	28	24	20	18	19	19	16	16	16
L Q	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	G	G	G 31	G 31	G	G	G	G	G	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15

JAN. 2018 fbEs (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

JAN. 2018 fmin (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

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

IONOSPHERIC DATA STATION Kokubunji

JAN. 2018 M(3000)F2 (0.01) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	296	303	296	306	324	359	314	376	396	360	377	363	371	378	398	362	383	A	311	332	318	339	340	318
2	299	330	314	351	375	A	339	362	396	375	403	351	364	374	381	385	368	341	378	333	326	338	F	353
3	328	340	F	333	F	333	F	376	415	376	361	367	356	355	374	362	385	394	422	A	368	A	332	363
4	F	319	324	326	F	339	356	404	431	383	362	422	363	374	355	395	397	375	330	364	370	354	A	A
5	F	324	308	337	322	339	351	396	377	400	356	383	401	384	396	373	368	393	A	A	370	363	A	A
6	A	F	304	F	349	311	394	405	404	373	388	407	401	386	396	376	397	383	A	376	346	389	320	323
7	324	326	281	326	398	344	316	387	398	405	351	380	382	373	373	364	399	371	363	A	379	368	339	F
8	F	300	297	316	345	312	370	367	391	413	378	378	384	345	384	404	387	381	322	374	347	367	336	F
9	F	295	F	300	366	349	371	401	412	324	354	368	364	367	375	405	399	339	340	362	344	354	F	F
10	F	F	F	F	343	F	314	387	381	399	349	397	393	381	383	380	380	374	355	376	349	324	331	304
11	334	307	312	396	383	342	356	402	401	399	C	C	C	C	C	C	C	370	373	344	332	387	324	F
12	F	F	342	372	366	316	294	364	387	392	391	338	362	390	380	404	392	390	328	358	369	337	328	290
13	298	322	330	365	411	326	326	375	392	368	337	370	395	391	340	400	381	387	293	340	350	336	310	306
14	278	300	315	357	381	344	324	383	383	406	367	362	362	368	384	392	391	373	A	325	346	381	284	278
15	303	F	331	F	332	362	318	403	396	380	368	357	378	358	381	381	377	373	358	366	409	337	317	321
16	F	352	315	303	368	379	F	384	408	388	350	361	395	344	356	367	395	380	350	354	C	388	A	317
17	308	318	328	351	407	332	401	397	397	383	350	376	365		352	362	398	369	357	380	332	339	342	321
18	F	319	319	350	379	384	338	409	399	379	404	356	373	349	358	390	406	375	347	373	380	346	324	309
19	F	F	F	329	F	334	345	397	393	375	360	362	350	383	380	380	373	366	356	326	380	344	F	F
20	F	F	F	F	365	F	341	397	392	350	360	369	346	364	376	371	370	377	355	392	F	329	303	286
21	F	F	F	366	F	F	352	412	413	381	342	368	371	365	375	346	366	380	307	337	354	362	337	346
22	310	332	330	F	A	341	342	369	380	396	365	368	359	344	380	378	392	378	321	353	395	312	300	F
23	275	295	306	363	340	326	346	397	390	418	380	369	370	368	362	377	384	375	379	349	321	F	301	F
24	F	F	F	F	F	F	F	396	398	358	366	381	347	364	396	388	373	381	363	323	336	F	F	F
25	F	294	331	358	373	314	335	388	378	329	354	368	373	396	363	397	371	374	339	333	354	365	302	320
26	328	299	323	349	359	305	407	391	386	356	358	342	379	348	389	398	401	409	301	319	349	335	306	302
27	F	310	313	346	378	330	376	384	392	357	337	360	381	364	378	401	386	386	319	346	367	378	F	F
28	F	F	F	F	405	339	349	366	401	388	353	371	363	379	372	356	396	407	386	356	378	337	330	313
29	313	321	303	324	339	395	345	409	393	390	352	372	369	376	372	377	389	387	315	340	370	335	305	F
30	F	F	339	354	359	327	325	394	400	395	372	374	375	354	343	380	391	385	357	369	355	346	323	343
31	332	320	326	335	369	346	346	384	388	385	365	352	374	375	380	388	392	390	347	333	F	F	F	F
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	14	21	23	24	25	26	28	31	31	31	30	30	30	29	30	30	30	30	28	28	28	27	22	18
MED	309	319	315	348	366	339	345	391	396	383	360	368	371	368	377	380	388	379	348	351	354	346	324	318
U Q	328	325	330	358	380	346	356	401	401	396	372	376	381	380	383	395	396	387	360	368	370	367	332	323
L Q	298	300	306	326	344	326	326	376	388	368	352	361	363	356	363	371	377	373	322	333	345	337	305	304

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JAN. 2018 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		A	L										
2										L		U L 411	A											
3									L	L		L	L	L										
4											A		U L 407	L		L								
5											L	L	L			U L 377								
6											L	L	L	L										
7											L	U L 388	L		L	L								
8									L	L	L	U L 424	U L 418	L										
9										A	A		L	L	L									
10										L	U L 374	L	L	L	L	U L 432								
11											C	C	C	C	C	C	C							
12												L	U L 413	A	A									
13											U L 375	A	L	L	L									
14											L	L	U L 432	L										
15												U L 426	L	A										
16											L	U L 379	L	U L 410	L									
17										U L 411	L	L	L		L	L								
18									L			U L 397	A	U L 401	L	L								
19											L	L	L	L	L	L								
20											L	U L 411	L	L										
21											L	U L 395	U L 389		U L 417									
22											L	L	L	L	A	L								
23											L	U L 439	L	L	L	L								
24											L	L	L	L		L								
25										392	A	398	L	L	L									
26											A	A	A		U L 435									
27										391	403	U L 391	U L 393	L	L									
28											L		A	395	L									
29												A	U L 416	A										
30									L		U L 387	A	U L 400	L	U L 399	L								
31										L	L	U L 403	414	A										
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT										3	4	12	9	3	3	2								
MED										392	U L 381	U L 400	U L 413	U L 401	U L 417	U L 404								
U Q										U L 411	395	U L 418	U L 417	U L 410	U L 435									
L Q										391	U L 374	U L 393	U L 396	395	U L 399									

JAN. 2018 M(3000)F1 (0.01)

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JAN. 2018 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											244		236	242										
2										242		264	232											
3									210	240		258	272	236										
4											242		254	226		232								
5											260	234	232			242								
6											242	226	232	238										
7											256	226	228		236	234								
8									224	224	226	244	234	244										
9										E A 302	260		256	242	228									
10										222	266	222	222	238	232	240								
11											C	C	C	C	C	C	C							
12												278	262	228	232									
13											292	254	228	236	302									
14											260	264	260	236										
15												248	244	246										
16											258	258	218	266	248									
17										250	268	246	244		256	262								
18									204			260	242	274	262	238								
19											254	270	268	240	258	244								
20											258	236	258	250										
21											278	242	242		236									
22											254	246	248	270	214	232								
23											252	250	236	234	246	238								
24											256	230	256	248		222								
25										282	240	228	214	208	244									
26											242	248	222		224									
27										296	280	240	222	254	236									
28											266		250	236	248									
29												248	246	240										
30									220		256	242	242	256	266	236								
31										226	270	278	232	234										
	00	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	9	24	26	30	24	17	11								
MED									215	241	257	247	242	240	244	238								
U Q									222	289	266	258	254	249	257	242								
L Q									207	225	248	236	232	236	232	232								

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JAN. 2018 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 252	E B 250	E B 262	E B 258	226	198	E B 268	208	200	198	192	226	A	216	212	216	220	A	E B 254	E A 242	218	210	E A 234	E A 240
2	E B 272	E B 236	E A 252	E A 242	230	A	E A 288	212	202	204	198	196	A	206	206	204	204	190	206	E B 204	220	222	198	E A 220
3	E A 294	196	E B 280	E B 238	208	182	222	210	192	182	202	202	206	176	204	214	192	186	204	A	E A 230	A	E A 238	E A 260
4	E A 276	E B 238	E B 268	E B 264	212	E A 274	224	192	192	210	A	194	186	194	196	188	198	186	226	194	196	224	A	A
5	E B 298	E B 252	E B 240	224	E B 256	E B 208	220	194	200	200	204	198	190	200	212	180	202	186	A	A	214	204	A	A
6	A	E A 292	E B 260	218	196	E B 244	220	198	202	206	196	184	184	182	200	204	204	194	A	E A 230	E A 234	196	E B 276	E B 266
7	E B 278	E B 266	E B 284	E A 302	E A 244	E A 246	E B 256	196	196	194	186	186	194	222	182	176	200	206	206	A	214	214	210	E B 238
8	E B 288	E B 288	E B 268	E B 248	E B 230	E B 238	218	212	186	190	190	180	168	184	194	206	202	196	214	206	218	208	208	E B 270
9	E B 294	E B 338	E B 324	E B 324	236	E B 278	E B 242	202	194	A	A	206	194	188	192	202	202	E A 248	224	204	202	202	226	260
10	206	232	E A 248	222	222	E B 238	218	200	208	172	194	194	190	190	194	168	208	198	212	210	210	234	E B 262	E B 254
11	E B 244	E B 300	E B 272	204	194	E B 284	E B 242	196	204	196	C	C	C	C	C	C	C	194	200	224	E B 232	204	E B 214	E B 286
12	E B 240	E B 252	E B 238	206	E B 232	224	E B 322	206	206	202	196	208	190	A	A	202	202	184	220	220	202	E B 232	E B 236	E B 266
13	E B 278	E B 264	E B 234	192	202	E A 340	E A 310	200	188	204	216	A	194	H 164	202	210	202	196	E B 272	220	210	204	E B 266	E B 290
14	E B 292	E B 306	E B 266	232	198	E B 308	E B 292	194	198	196	216	222	186	182	218	206	202	200	A	E A 248	E A 234	212	E B 316	E B 314
15	E B 278	E B 278	E B 236	184	182	E B 256	E B 316	204	206	200	228	184	208	A	216	208	186	200	188	220	196	E B 254	E B 244	E B 276
16	E B 276	E B 274	E A 318	E B 282	E B 234	198	220	204	198	196	194	194	186	178	196	214	200	208	200	216	C	216	A	E B 272
17	E B 290	E A 304	E B 284	234	190	192	200	188	194	188	206	194	182		184	198	206	190	186	E B 200	200	222	230	E B 266
18	E B 250	E B 254	E B 274	248	212	198	220	188	178	206	214	192	A	188	212	202	198	192	214	194	194	220	E B 250	E B 256
19	E B 262	E B 276	E B 258	E B 222	200	E B 300	220	208	200	208	200	188	210	210	204	208	198	202	202	232	196	206	E B 268	E B 298
20	E B 276	E B 268	E B 268	214	204	218	218	190	190	208	218	202	202	192	216	198	180	194	194	200	214	206	E B 290	E B 256
21	E B 276	E B 284	E B 268	212	206	208	E B 242	198	204	198	214	204	188	216	160	206	216	192	212	216	200	E B 216	E B 242	E A 262
22	E B 272	E A 310	E B 258	208	A	274	E B 278	208	204	208	184	H 182	204	186	A	194	202	190	E B 240	E B 214	192	E B 242	E B 270	E B 286
23	E B 314	E B 264	E B 282	212	E B 250	E B 252	E B 260	202	194	204	196	180	192	192	192	198	198	192	196	E B 238	218	E B 218	E B 242	E B 272
24	E B 262	E B 202	218	206	194	E B 248	214	200	196	204	216	202	194	192	208	194	206	192	194	E B 234	214	214	E B 246	E B 236
25	E B 242	E B 292	E B 290	212	220	E B 256	E B 250	210	208	202	A	196	174	180	180	202	204	204	212	228	218	198	E B 246	E B 250
26	E B 242	E B 274	E B 250	E B 242	206	E B 280	196	204	204	204	A	A	A	216	190	204	190	184	E B 230	E B 240	224	E A 232	E B 256	E B 254
27	E B 244	E B 280	E B 272	224	208	E B 246	226	192	196	200	216	186	180	186	184	204	192	190	210	212	206	194	E B 236	E B 260
28	E B 252	E B 256	E B 256	222	194	190	E B 262	200	196	206	188	202	A	204	180	224	202	190	180	214	E B 198	E B 214	E B 258	E B 262
29	E B 270	E B 268	E B 286	E B 262	E B 246	194	E B 270	192	192	218	216	A	204	A	200	224	194	192	216	222	202	E B 218	224	E B 292
30	E B 236	E B 280	E B 242	222	220	E B 232	E B 256	190	186	192	202	A	190	184	192	200	202	186	210	208	E B 212	210	228	E A 264
31	E A 262	E B 280	E B 254	E B 232	200	190	E B 262	196	202	164	200	180	180	A	210	216	196	190	214	200	208	E B 244	E B 268	E B 232
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	31	31	31	30	30	31	31	31	30	26	26	25	25	28	30	30	30	28	28	30	30	28	29
MED	E B 272	E B 274	E B 266	215	205	E 241	E 242	200	198	201	201	194	190	190	198	204	202	192	208	212	206	210	E B 243	E B 262
U Q	E B 278	E B 288	E B 280	E B 248	E B 230	E B 274	E B 268	206	204	206	216	202	198	205	209	208	204	198	218	E 229	218	E 222	E B 264	E B 274
L Q	E B 250	E B 252	E B 250	212	200	198	220	194	192	196	194	186	185	183	191	198	198	190	200	205	200	206	229	E B 254

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JAN. 2018 h'E (KM) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1									A	110	110	108	104	114	A	A	A							
2								A	120	110	112	A	A	116	110	108	B							
3								B	A	120	112	110	110	110	A	A	122							
4								B	116	120	114	A	A	116	A	A	A							
5								B	126	122	114	110	110	108	A	A	108							
6								110	A	110	A	A	A	114	A	A	A							
7								B	112	112	110	A	110	A	110	110	A							
8								B	112	112	112	A	110	108	106	110	110							
9								B	114	A	A	116	112	112	110	110	B							
10								B	114	A	A	114	114	112	112	112	112							
11								B	A	110	C	C	C	C	C	C	C							
12									116	116	A	A	A	A	A	A	A							
13								B	118	114	112	112	112	112	A	114	A							
14								B	114	114	114	A	A	A	110	112	A							
15								118	118	110	118	118	110	A	A	A	108							
16								B	120	A	A	A	A	A	108	108	A							
17								B	110	114	118	114	114		A	114	114							
18								B	114	110	110	110	112	A	116	116	116							
19								B	120	120	A	114	118	118	120	120	112							
20								B	116	120	120	110	110	118	112	A	108							
21								B	114	118	120	112	112	110	110	110	118							
22								B	114	114	114	114	A	108	108	108	110	B						
23								B	A	118	114	112	108	108	108	108	118	B						
24								B	114	A	A	A	110	108	A	114	114							
25								B	124	A	A	A	108	110	110	110	106							
26								B	112	A	A	A	A	110	110	112	112	B						
27								B	120	120	114	114	A	A	108	110	A		B					
28								B	108	112	114	A	114	A	114	A	A	B						
29								B	114	114	116	116	114	110	110	110	110	B						
30								B	112	114	114	114	112	114	116	114	114	B						
31								B	120	108	110	A	A	112	112	112	108	B						
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								2	26	25	21	17	20	21	20	21	18							
MED								114	114	114	114	114	111	112	110	110	112							
U Q									120	119	115	114	113	114	112	114	114							
L Q									114	110	112	110	110	109	109	110	108							

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IONOSPHERIC DATA STATION Kokubunji

JAN. 2018 h'Es (KM) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	100	B	B	98	98	98	96	94	90	G	148	134	120	112	100	94	92	90	92	94	88	94	92	88
2	88	88	90	90	86	86	86	86	G	154	G	100	108	120	G	132	118	B	90	90	90	88	86	86
3	88	88	B	96	96	B	B	B	102	G	156	146	G	G	94	94	116	84	90	96	82	106	96	88
4	88	88	98	94	90	96	100	B	130	126	116	102	100	G	86	86	86	86	82	82	B	94	94	96
5	96	96	92	106	98	B	B	B	150	150	126	110	118	110	102	82	G	88	88	94	92	92	92	90
6	92	92	B	96	96	92	124	108	122	116	92	94	90	92	92	90	96	86	92	90	94	92	B	B
7	90	90	90	94	94	92	92	B	G	G	G	92	G	88	G	G	88	88	98	100	100	102	94	96
8	96	B	B	96	B	B	B	B	G	G	112	94	G	144	G	G	124	94	94	86	94	B	92	94
9	B	102	102	88	90	B	126	120	112	104	94	G	94	G	G	G	110	90	90	88	B	B	B	96
10	110	90	94	88	88	88	88	90	G	102	104	G	G	G	G	G	G	84	88	100	98	120	B	B
11	104	90	94	86	90	94	B	B	104	124	C	C	C	C	C	C	C	B	90	124	B	B	B	B
12	98	98	94	90	B	B	B	B	G	G	104	106	106	96	96	96	94	90	B	B	B	B	B	B
13	B	B	106	B	B	92	92	B	G	138	116	116	116	G	88	114	82	104	B	86	B	92	B	B
14	102	B	B	94	B	98	B	B	142	146	130	102	100	100	130	112	106	102	100	98	92	90	100	B
15	B	B	102	102	B	B	B	G	136	136	118	114	110	102	102	102	G	92	88	90	90	84	B	B
16	92	98	94	98	90	B	90	B	126	104	102	102	96	96	132	128	104	96	94	92	C	94	86	86
17	100	94	94	92	92	B	B	B	138	128	132	128	124		98	G	G	B	B	90	90	B	84	80
18	B	B	B	B	B	80	92	94	G	154	156	122	124	116	G	122	G	90	B	84	B	B	82	90
19	B	B	B	94	92	92	B	B	148	120	106	116	142	G	G	G	G	B	B	B	B	B	B	B
20	B	B	B	B	88	B	B	B	G	146	120	G	102	126	162	84	G	B	B	B	94	B	B	B
21	B	B	104	B	B	B	B	116	152	100	144	128	G	140	G	122	G	B	B	B	B	B	B	94
22	98	92	94	B	98	B	120	118	122	122	G	G	92	G	150	126	120	B	88	B	106	96	B	B
23	94	B	B	B	B	B	94	116	100	120	G	G	144	G	G	134	G	B	98	102	B	B	B	B
24	B	B	B	B	96	B	126	130	122	100	96	92	G	92	92	146	120	B	B	106	112	106	B	B
25	B	B	B	B	B	B	B	146	120	98	90	96	G	G	G	G	102	100	100	108	106	102	100	B
26	B	102	B	B	B	B	B	128	108	98	98	94	90	138	G	G	132	B	B	88	94	92	92	108
27	98	94	92	92	92	92	92	126	G	G	134	126	86	92	G	156	86	86	B	B	B	86	92	92
28	92	88	94	114	90	B	148	142	158	122	100	134	160	86	112	98	82	82	82	82	B	B	B	B
29	B	96	B	90	90	B	B	B	148	148	128	120	116	116	116	148	G	B	92	90	90	B	B	B
30	B	B	B	96	90	90	B	B	138	156	138	128	96	120	108	112	124	104	98	86	B	B	92	92
31	92	92	92	86	88	88	B	B	G	G	148	96	96	118	118	118	120	B	86	86	B	B	B	100
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	19	18	17	22	21	14	15	14	21	24	26	25	23	20	18	22	20	19	21	25	17	17	15	16
MED	96	92	94	94	90	92	94	117	126	123	117	110	106	111	102	113	105	90	90	90	94	94	92	92
U Q	100	96	100	96	96	94	124	128	145	146	134	127	120	120	118	128	120	96	96	99	99	102	94	96
L Q	92	90	92	90	90	88	92	94	110	104	102	96	96	94	94	94	90	86	88	86	90	91	86	88

JAN. 2018 h'Es (KM)

IONOSPHERIC DATA STATION Kokubunji

JAN. 2018 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	F1			F1	F2	F3	F2	L3	L3		H1	H2	CL12	CL11	L2	L4	L4	F4	F2	F2	F2	F2	F2	F2
2	F2	F1	F1	F4	F3	F5	F3	L3		HL21		L2	L2	C2		HL11	C2		F1	F2	F2	F2	F1	F4
3	F4	F2		F2	F1				L2		H1	H1			L2	L1	L2	F1	F2	F4	F3	F4	F3	F5
4	F2	F1	F1	F2	F2	F3	F1		H2	C2	C3	L2	L2		L3	L2	L2	F2	F1	F1		F3	F3	F3
5	F3	F2	F2	F2	F1				HL22	HL22	CL22	C2	C1	C2	L2	L2		F1	F4	F4	F6	F3	F4	F3
6	F4	F3		F2	F1	F1	F2	C2	CL22	CL22	L2	L2	L2	L1	L1	L2	L2	F3	F2	F3	F2	F2		
7	F1	F1	F1	F3	F3	F2	F2					L2		L2			L2	F4	F2	F5	F2	F2	F1	F2
8	F2			F2							CL12	L2		HL12			C1	F1	F1	F1	F1		F2	F2
9		F1	F2	F2	F1		F1	C4	C3	L3	L2		L2				C1	F3	F1	F1				F2
10	F1	F3	F2	F2	F2	F1	F1	L1		L2	L2							F3	F1	F2	F3	F2		
11	F1	F2	F1	F1	F1	F2			L2	C2									F1	F1				
12	F2	F3	F2	F1							L3	L2	L3	L3	L2	L2	L1	F1						
13			F2			F2	F1			H2	C2	C2	C1		L2	CL22	L3	FF22		F1		F2		
14	F2			F1		F1			H2	H2	H2	L2	L2	L2	C2	C2	L4	F2	F4	F3	F4	F3	F2	
15			F1	F1					H2	H2	C2	C2	CL11	L2	L2	L2		F2	F1	F2	F2	F1		
16	F2	F2	F2	F1	F2		F1		CL11	L2	L2	L2	L2	L2	HL11	CL11	L2	F5	F2	F1		F2	F3	F3
17	F1	F3	F4	F2	F1				H2	C1	C1	C1	C1		L2					F1	F1		F1	F1
18						F1	F2	L1		H2	H2	C1	C1	L1		CL12		F3		F1			F2	F2
19				F2	F4	F2			H2	C2	L2	C1	HL12											
20					F1					H2	CL11		L2	C2	H1	L3					F1			
21			F2					C1	H2	L2	HL22	CL12		H1		C2								F2
22	F2	F3	F1		F4		F1	C3	C2	C2			L2		HL12	C2	C2		F1		F1	F2		
23	F1						F1	C1	L2	CL23			H1			C1			F2	F1				
24					F1		F1	C2	C2	L2	L2	L2		L2	L2	HL12	C2			F2	F1	F1		
25								H2	C2	L3	L3	L2					L2	F3	F2	F3	F2	F1	F2	
26		F1						C2	C2	L3	L2	L2	L3	H1			C1			F2	F2	F2	F1	F1
27	F1	F2	F2	F1	F3	F1	F1	C2			HL22	CL22	L2	L2		HL21	L3	L2				F1	F2	F2
28	F3	F2	F2	F1	F1		F1	H2	H2	C2	L2	CL22	HL12	L2	CL13	L3	L3	L4	F2	F1				
29		F2		F2	F2				H2	H2	C2	C2	C2	C2	CL22	HL12			F1	F2	F2			
30				F2	F2	F2			H1	H1	H1	C2	L2	C1	C1	C2	C2	L2	F3	F1			F2	F2
31	F3	F2	F1	F2	F1	F2					H1	L2	L2	CL12	CL22	CL21	CL21		F2	F2				F2
	00	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

JAN. 2018 fxI (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	X 30	X 32	X 32	X 31	X 34	X 35												X 62		X 38	X 43	X 43	X 46	A
2	A	X 34	X 36	X 32	X 34	X 35			X 59											X 41	X 32	X 38	X 39	X 31
3	40	X 32	38	37	40	X 32	X 30													X 34	X 32	X 37	X 36	X 37
4	X 30	X 31	X 33	X 33	X 34	X 34														X 37	X 33	X 29	X 35	X 32
5	X 32	X 32	X 34	X 34	X 36	X 38		X 34											X 41	X 34	X 36	X 38	X 28	X 29
6	X 29	X 33	X 34	X 33	X 34	33		X 33												X 30	X 36	X 33	X 29	X 28
7	X 32	38	X 32	37	X 32	X 28		X 33												X 29	X 31	X 31	X 35	X 34
8	38	X 30	38	38	X 33	X 29														X 32	X 34	X 36	X 33	X 26
9	A	X 30	X 30	38	38	O X 24														X 45	X 34	38	34	38
10	37	37	36	38	X 28	X 25														X 39	X 37	X 37	X 31	X 33
11	X 33	X 33	X 33	X 33	X 35	X 28														X 31	X 35	X 37	X 34	33
12	X 28	34	X 32	32	X 25	X 23														X 34	X 38	X 33	X 33	X 33
13	X 33	X 35	X 37	39	X 32	O X 30														X 31	X 36	X 36	X 28	X 30
14	X 31	X 31	X 31	X 34	X 38															A	X 32	X 40	A	A
15	A	X 34	X 37	X 39	X 26	O X 28													X 51	X 39	X 32	X 38	X 33	X 33
16	X 34	X 33	34	34	X 32	X 32														X 42	X 42	X 34	X 28	X 26
17	X 29	X 31	A	X 32	X 40															X 38	X 34	X 28	X 32	X 29
18	X 30	X 32	X 31	X 31	X 33	X 36														X 39	X 44	X 33	X 27	X 30
19	X 30	33	34	40	X 37															X 35	X 42	X 34	X 30	32
20	32	33	X 31	33	32															X 38	X 38	X 29	32	X 32
21	X 31	36	38	X 38	38	33	32													X 34	38	40	X 28	X 29
22	X 31	X 31	X 32	X 36	X 27	X 26														X 39	X 46	33	X 28	X 31
23	X 32	X 31	X 33	X 36	X 34	33				C	C	C	C	C	C	C	C			X 30	X 33	38	40	37
24	35	35	35	33	33	X 26		X 37												X 31	X 34	X 33	35	35
25	37	30	32	36	X 28	X 24														X 36	X 40	X 41	X 34	X 34
26	X 35	X 37	X 36	X 35	X 35	X 33														X 34	X 42	X 34	X 33	X 35
27	X 35	X 34	X 33	X 35	X 37	X 32														X 38	X 40	A	X 30	X 32
28	35	36	X 32	X 34	50	32														X 34	X 34	X 33	X 31	X 31
29	X 32	X 33	X 34	X 34	X 38	X 33		X 32										X 54	X 44	X 36	X 35	33	X 33	X 34
30	X 37	X 36	X 36	X 35	X 38	X 32													X 40	X 38	X 38	X 38	X 36	X 30
31	X 36	X 31	X 31	X 32	X 30	X 31														X 37	X 33	X 32	X 30	34
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	31	30	31	31	27	2	5	1									2	4	30	31	30	30	29
MED	X 32	X 33	X 34	X 34	X 34	X 32	31	X 33	X 59									X 58	X 42	X 36	X 36	X 35	X 33	X 32
U Q	35	35	X 36	37	38	X 33		X 36											X 48	X 38	X 40	X 38	X 35	X 34
L Q	X 30	X 31	X 32	X 33	X 32	X 28		X 32											X 40	X 34	X 33	X 33	X 30	X 30

JAN. 2018 fxI (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

JAN. 2018 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	24	26	26	25	28	29	A	29	49	50	60	67	60	60	56	53	60	56	32	32	37	37	40	A
2	A	28	30	26	28	29	24	26	53	50	57	59	57	63	61	54	53	48	40	34	26	31	33	25
3	F	26	F	F	F	26	24	28	53	58	58	73	56	66	59	59	60	54	38	28	26	31	30	31
4	24	25	27	27	28	28	24	30	46	49	56	54	51	52	56	54	54	44	31	31	27	23	29	26
5	26	26	28	28	30	32	25	28	44	44	53	64	58	61	50	50	55	50	35	28	30	32	22	23
6	23	27	28	26	28	F	21	28	50	50	58	62	62	58	50	50	50	47	32	24	30	27	23	22
7	26	F	26	F	26	21	20	27	50	48	48	63	66	66	61	54	56	49	38	23	25	25	29	26
8	F	24	F	F	27	23	19	27	48	51	50	54	60	56	59	59	52	44	39	26	28	30	27	20
9	A	24	24	F	F	18	20	23	39	47	A	66	69	64	69	56	52	44	34	39	28	F	F	F
10	F	F	F	F	22	19	20	27	46	50	54	66	63	56	56	54	57	48	40	33	31	31	25	27
11	27	27	27	27	29	22	21	28	44	47	52	58	52	58	61	54	50	42	33	25	29	31	28	F
12	22	F	26	F	19	17	17	22	52	49	53	50	53	70	58	54	56	44	36	28	32	27	27	27
13	27	29	30	F	26	24	19	23	45	47	55	58	58	57	51	49	50	42	36	25	30	30	22	24
14	25	25	25	28	32	18	18	24	52	54	56	50	60	56	62	65	52	55	41	A	26	34	A	A
15	A	28	31	33	20	22	22	23	56	49	49	59	61	58	62	57	58	51	45	33	26	32	27	27
16	28	27	F	F	26	26	A	25	48	48	46	56	58	51	56	58	58	44	42	36	36	28	22	20
17	23	25	A	26	34	20	18	26	43	46	47	48	54	57	57	54	62	52	32	32	28	22	26	23
18	23	26	25	25	27	30	19	24	48	47	47	49	52	54	53	49	58	51	34	33	38	27	21	24
19	24	F	F	F	31	22	18	26	42	45	45	47	53	60	52	52	53	46	46	29	36	28	24	F
20	F	F	25	F	F	21	21	27	44	46	56	66	63	65	62	58	50	46	39	32	32	23	F	26
21	25	F	F	32	F	F	F	29	46	47	57	68	62	58	56	53	53	54	44	28	F	F	21	23
22	25	25	26	30	21	20	20	28	48	50	54	62	67	81	68	58	54	45	39	33	40	F	23	25
23	26	25	27	30	28	F	20	28	49	C	C	C	C	C	C	C	C	45	38	24	27	F	F	F
24	F	F	F	F	F	20	18	30	46	49	53	66	74	69	69	55	53	46	33	25	28	27	F	F
25	F	F	F	F	22	18	18	26	41	48	70	95	74	62	59	58	52	44	41	30	34	35	27	28
26	29	31	30	29	29	27	27	33	49	50	58	69	83	89	57	56	53	49	32	28	36	28	27	29
27	29	28	27	29	31	26	22	27	47	49	48	60	79	A	65	A	54	45	35	32	34	A	24	26
28	F	F	26	28	F	F	21	28	45	49	49	45	68	68	60	49	60	53	43	28	28	27	25	25
29	26	27	28	28	32	27	18	26	42	48	46	47	58	64	57	53	52	48	39	29	29	F	27	28
30	31	30	30	29	32	26	26	30	45	46	43	59	66	67	58	60	57	46	34	32	32	32	30	26
31	30	25	25	26	24	25	21	28	44	45	48	53	64	64	56	56	52	46	34	31	27	26	24	F
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	21	22	22	19	25	27	28	31	31	30	29	30	30	29	30	29	30	31	31	30	30	25	26	23
MED	26	26	27	28	28	23	20	27	46	48	53	59	60	61	58	54	54	46	38	30	30	28	26	26
U Q	28	28	28	29	30	27	22	28	49	50	56	66	66	66	61	58	57	51	40	32	34	32	28	27
L Q	24	25	26	26	25	20	18	26	44	47	48	53	57	57	56	53	52	44	34	28	27	27	23	23

JAN. 2018 foF2 (0.1MHz)

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IONOSPHERIC DATA STATION Yamagawa

JAN. 2018 foF1 (0.01MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							A		L		L	L	U L 408	L	L									
2											L	L	L	L	U L 372	A	U L 460							
3											L	U L 420	U L 416	U L 416	L	L								
4											L	A	L	A	A	L								
5												L	L	A	L	L	280							
6										L	L	L	A	A	L	A	L							
7												L	U L 420	L	L	L								
8											U L 432	U L 396	U L 404	U L 420	412	L								
9									L		A	A	U L 420	U L 416	A 408	L								
10											L	L	L	L	L	L								
11										L	L	A	444	U L 444	L	L								
12											L	L	420	A	A 416	L								
13											A	416	U L 416	408	L	L								
14										L	A	A	U L 408	L	L	A		A						
15										L		U L 408	U L 424	U L 420	U L 400	L								
16							A					A	L	L	400	L	A							
17												U L 444	U L 424	U L 412	L	L	L							
18												U L 412	A	U L 412	L	A								
19												U L 436	U L 416	U L 416	L	L	L							
20											U L 416	U L 416	U L 416	416	412	L								
21											A	412	412	A	A	L	L							
22										A	A	L	416	U L 416	U L 412	L	L							
23										C	C	C	C	C	C	C	C							
24											L	420	420	412	U L 412	L	L							
25										U L 396	408	A	A	U L 420	A	A	A							
26											L	408	408		L	A								
27											U L 408	L	U L 432	A	A	A								
28											L			416	396	L								
29												U L 432	400	412	U L 408	L	A							
30												400	408	U L 420	U L 412	L	L							
31											L	U L 416	400	U L 420	U L 416	L	L							
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT										1	4	14	21	17	13		2							
MED										U L 396	U L 412	U L 416	U L 416	U L 416	U L 412		370							
U Q											U L 424	U L 420	U L 420	U L 420	U L 412									
L Q											408	408	408	412	400									

JAN. 2018 foF1 (0.01MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

JAN. 2018 foE (0.01MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							B	B	UR 212	252	280	UR 304	A	A	A	A	A		B					
2							B	B		A	A	A	A	A	A	A	UR 240	UA 168	B					
3								B	188	A	A	A	A	A	A	A	UR 256	B	B					
4							B	A	192	UA 260	A	A	A	A	A	A	A	A	B					
5							B		196	248	A	A	A	A	UR 296	UR 264	UR 236	B						
6							B		UA 204	A	A	A	A	A	UR 316	A	UR 240	B	B					
7							B		A	A	A	UA 296	308	304	UR 292	R	UA 248	B	B					
8							B	B	UR 212	256	A	A	UA 308	A	UR 320	R 296	A	A	B					
9							B	B	180	A	A	A	A	A	A	UR 284	248	176	B					
10							B	B	A	A	A	A	A	A	UR 304	A	A	A	B					
11							B	B	R	UR 248	A	A	UA 312	UA 304	UR 296	A	A	B	B					
12							B	B	UA 176	UA 252	UA 276	A	A	A	A	R	A	B	B					
13							B	B	172	232	UA 276	A	A	UR 312	UA 300	A	A	B	B					
14						B	B	B	UR 188	UR 260	288	A	A	A	A	A	A	A	B					
15							B	B	176	A	UA 264	328	A	A	UA 304	A	A	A						
16							B	B	UR 204	UR 252	288	A	A	A	A	A	A	B	B					
17						B	B	B	UA 204	260	UR 292	A	A	A	UR 308	UR 284	UR 252	UR 184	B					
18							B	B	UR 220	UR 256	296	312	A	A	A	A	B	B	B					
19						B	B	B	UA 180	UR 256	A	A	A	A	A	A	A	A	B					
20						B	B	B	192	256	A	A	A	UR 316	UR 308	A	A	UR 196	B					
21							B	B	204	A	A	A	UA 316	316	A	A	UR 296	UA 184	B					
22							B	B	UA 208	UA 256	UA 300	UA 316	A	A	UA 296	UR 280	UA 264	A	B					
23							B	B	UR 216	C	C	C	C	C	C	C	C	UR 200	B					
24							B		UR 208	UR 264	A	A	A	UR 324	UA 304	A	R 256	UR 208	B					
25							B	B	184	UA 244	A	A	A	A	A	A	A	B	B					
26							B	B	UR 208	UR 272	UR 308	UR 304	A	A	296	A	UR 260	A	B					
27							B	B	176	248	304	328	A	A	A	A	A	B	B					
28							B	B	UA 184	UA 240	UR 284	A	A	A	A	A	A	A	B					
29							B		B	264	284	304	A	A	A	A	A							
30							B	B	UA 180	UA 236	A	R	A	A	A	UR 296	UR 256	A						
31							B	B	UA 184	UA 248	284	A	A	A	A	A	A	B	B					
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT									26	22	14	8	4	6	13	6	12	7						
MED									U 192	U 254	286	308	UA 310	UA 314	UR 304	UR 284	UR 254	UR 184						
U Q									UR 208	U 260	296	322	UA 314	UR 316	UR 308	R 296	UR 258	UR 200						
L Q									180	248	UA 280	U 304	308	304	U 296	UR 280	UR 244	176						

JAN. 2018 foE (0.01MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

JAN. 2018 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	E B 16	E B 15	E B 15	E B 15	J A 30	J A 33	J A 54	J A 30	J A 30	30	32	G	36	37	34	J A 50	J A 50	J A 36	J A 31	J A 38	J A 42	J A 48	J A 47	J A 61
2	J A 54	J A 28	E B 16	22	22	J A 29	J A 42	J A 44	J A 38	J A 38	J A 45	J A 43	J A 42	38	36	J A 44	G	20	J A 26	J A 26	J A 25	22	J A 28	24
3	E B 16	E B 16	20	J A 42	J A 25	J A 33	J A 29	J A 25	24	J A 38	J A 44	J A 41	J A 48	J A 37	J A 35	J A 40	G	21	E B 15	J A 25	J A 24	21	J A 29	J A 52
4	J A 33	J A 35	J A 25	23	J A 24	J A 25	J A 32	J A 39	24	29	37	J A 54	J A 46	J A 52	J A 48	J A 51	32	J A 27	22	J A 25	J A 33	J A 35	J A 32	J A 26
5	J A 54	E B 15	E B 15	E B 15	E B 15	E B 16	E B 16	E B 16	26	31	36	J A 36	J A 67	J A 87	G	G	G	J A 26	J A 28	J A 28	J A 26	J A 23	E B 16	E B 15
6	E B 16	J A 41	J A 41	J A 39	J A 43	J A 24	22	20	24	J A 36	J A 46	J A 84	J A 76	J A 75	J A 43	J A 88	G	J A 24	J A 29	24	22	J A 28	J A 22	E B 15
7	J A 19	22	J A 25	J A 32	J A 24	J A 32	J A 23	J A 38	J A 28	J A 34	J A 36	35	J A 43	35	G	G	32	26	E B 16	J A 23	J A 26	24	J A 23	22
8	J A 29	J A 38	J A 49	J A 24	E B 16	E B 15	E B 16	E B 16	G	33	J A 38	J A 32	J A 61	J A 45	G	G	31	J A 37	E B 16	23	20	J A 38	24	24
9	J A 78	J A 24	J A 23	E B 16	E B 16	23	E B 16	E B 16	23	33	J A 84	J A 62	J A 54	J A 43	J A 40	G	30	G	J A 21	E B 16	J A 21	E B 16	J A 24	E B 16
10	E B 16	E B 16	E B 16	21	22	J A 30	J A 21	23	J A 25	J A 35	J A 37	J A 74	J A 51	J A 59	G	J A 54	28	22	24	24	J A 22	E B 16	J A 41	J A 25
11	J A 22	E B 16	J A 23	22	J A 26	J A 27	J A 23	20	G	G	J A 36	J A 38	36	36	G	J A 42	J A 35	J A 28	J A 24	E B 16	22	E B 16	J A 48	24
12	E B 15	E B 16	E B 15	22	E B 16	E B 16	E B 16	E B 15	22	30	33	J A 40	J A 41	J A 42	J A 42	J A 45	28	J A 34	J A 34	J A 30	E B 15	21	22	E B 16
13	E B 16	E B 15	E B 15	E B 16	E B 16	E B 16	E B 15	E B 15	24	30	35	35	35	G	35	33	J A 26	20	E B 15	20	E B 15	J A 35	J A 27	E B 16
14	J A 27	E B 16	E B 16	J A 24	22	E B 15	E B 16	E B 15	G	G	35	38	J A 45	36	J A 40	36	30	J A 44	J A 32	J A 73	J A 33	J A 31	J A 65	J A 79
15	J A 83	J A 53	J A 24	19	E B 15	20	E B 16	E B 14	21	30	32	40	37	J A 44	36	32	J A 45	J A 35	J A 26	J A 29	J A 29	J A 24	J A 28	20
16	20	24	J A 28	J A 28	J A 28	J A 27	J A 34	J A 31	G	G	34	J A 54	J A 62	J A 68	J A 40	J A 50	J A 70	J A 29	J A 26	E B 16	J A 26	21	E B 16	E B 16
17	E B 16	E B 16	J A 53	J A 31	J A 22	J A 27	E B 16	E B 15	24	29	G	36	J A 39	J A 37	G	G	G	G	J A 20	E B 16	J A 20	E B 15	E B 15	E B 15
18	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	G	G	38	37	J A 85	36	J A 36	J A 40	J A 30	21	E B 16	E B 15	E B 15	E B 15	19	J A 21
19	J A 24	E B 16	E B 16	E B 16	21	20	E B 16	E B 15	22	G	J A 34	J A 37	J A 38	J A 38	J A 42	J A 36	J A 34	J A 36	J A 25	E B 15	E B 15	E B 15	E B 15	E B 15
20	E B 16	E B 16	E B 16	E B 16	E B 15	E B 16	20	E B 16	25	30	J A 44	J A 42	J A 38	G	G	J A 37	27	G	J A 24	22	E B 15	22	J A 26	J A 35
21	E B 15	J A 28	E B 14	E B 15	20	20	21	23	26	J A 37	J A 84	J A 64	35	38	43	J A 35	J A 40	28	E B 15	E B 16	E B 15	E B 15	25	J A 23
22	19	J A 28	24	20	E B 15	E B 15	E B 14	J A 21	26	33	40	35	J A 42	J A 60	34	G	G	J A 30	J A 27	J A 24	23	23	21	24
23	E B 16	E B 16	E B 16	E B 15	E B 16	E B 16	E B 16	E B 15	G	C	C	C	C	C	C	C	C	G	E B 15	E B 15	J A 26	24	E B 16	22
24	E B 16	E B 16	E B 16	E B 16	J A 22	21	21	21	G	G	34	34	40	34	34	33	G	J A 29	J A 25	E B 15	E B 15	E B 16	E B 16	E B 16
25	E B 16	22	E B 16	E B 16	E B 16	E B 15	E B 15	E B 15	22	30	J A 39	J A 48	J A 82	J A 44	J A 56	J A 56	J A 44	J A 44	E B 15	24	J A 31	J A 22	J A 27	J A 22
26	26	E B 16	21	E B 15	20	20	E B 16	E B 16	G	J A 32	J A 82	J A 38	J A 45	36	36	J A 54	G	24	E B 16	E B 16	E B 15	E B 15	E B 16	J A 26
27	J A 26	23	J A 27	J A 24	J A 30	20	22	21	22	30	35	36	J A 40	J A 92	J A 109	J A 102	J A 68	E B 18	24	23	J A 26	J A 36	J A 25	E B 15
28	E B 16	J A 23	J A 33	J A 34	J A 34	J A 28	23	22	23	29	G	J A 44	J A 49	J A 36	32	J A 31	J A 43	J A 32	J A 32	19	J A 22	E B 16	E B 16	E B 16
29	E B 16	23	J A 31	J A 28	22	23	21	20	26	31	32	37	37	J A 38	J A 54	J A 35	J A 48	J A 33	J A 33	22	23	J A 22	24	19
30	19	19	J A 26	20	20	22	24	19	28	32	36	G	J A 40	J A 39	J A 36	G	G	J A 26	J A 22	23	23	E B 16	20	20
31	E B 16	E B 15	J A 39	J A 27	21	23	20	E B 16	G	30	34	36	J A 37	36	J A 38	J A 38	J A 39	J A 29	J A 27	J A 21	24	23	22	22
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	31	31	31	31	30	30	30	30	30	30	30	30	31	31	31	31	31	31	31
MED	E B 16	E B 16	21	21	21	21	20	19	23	30	36	J A 38	J A 42	J A 38	36	J A 36	30	J A 27	J A 24	23	J A 23	22	24	22
U Q	J A 26	J A 24	J A 27	J A 27	J A 24	J A 27	J A 23	J A 23	26	J A 33	J A 40	J A 44	J A 51	J A 45	J A 42	J A 50	J A 40	J A 33	J A 27	J A 25	J A 26	J A 24	J A 28	J A 24
L Q	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 15	G	G 29	34	36	38	36	G 32	G 31	G	21	E B 16	E B 16	E B 15	E B 16	E B 16	E B 16

JAN. 2018 foEs (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

JAN. 2018 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	E B 16	E B 15	E B 15	E B 15	E B 15	17	A A 54	E B 16	G 19	28	31	G	34	34	32	33	25	25	19	19	19	E B 16	17	A A 61
2	A A 54	E B 16	E B 16	E B 16	E B 16	23	19	E B 16	32	32	30	30	33	34	32	30	G	19	19	16	E B 16	E B 16	E B 16	E B 16
3	E B 16	E B 16	E B 16	20	E B 16	20	E B 16	E B 16	22	22	28	31	31	31	30	30	G	19	E B 15	E B 16	E B 16	E B 16	E B 16	24
4	20	21	E B 16	E B 16	E B 16	E B 15	18	19	22	26	30	34	34	36	40	28	26	16	E B 16	E B 16	19	20	17	E B 16
5	E B 16	E B 15	E B 15	E B 15	E B 15	E B 16	E B 16	E B 16	24	30	31	30	30	36	G	G	G	18	16	18	E B 15	E B 16	E B 16	E B 15
6	E B 16	20	18	E B 15	22	16	E B 15	E B 16	21	27	28	32	36	38	G 26	35	G	18	E B 16	E B 16	E B 16	16	16	E B 15
7	E B 16	E B 15	16	E B 15	E B 16	E B 15	E B 16	17	19	27	29	32	32	32	G	G	27	22	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16
8	E B 15	21	E B 15	E B 16	E B 16	E B 15	E B 16	E B 16	G	31	29	29	G 25	33	G	G	24	22	E B 16	E B 16	E B 16	E B 16	E B 16	E B 15
9	A A 78	16	E B 16	E B 16	E B 16	E B 15	E B 16	E B 16	20	28	A A 84	40	32	32	30	G	28	G	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16
10	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	20	26	30	32	34	32	G	28	26	18	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16
11	E B 15	E B 16	E B 16	E B 16	18	E B 16	17	16	G	G	31	34	35	35	G	31	26	20	E B 16	E B 16	E B 16	E B 16	E B 16	E B 15
12	E B 15	E B 16	E B 15	E B 16	E B 16	E B 16	E B 16	E B 15	21	28	31	34	35	37	34	24	26	22	18	E B 16	E B 15	E B 16	E B 16	E B 16
13	E B 16	E B 15	E B 15	E B 16	E B 16	E B 16	E B 15	E B 15	21	29	33	33	33	G	33	30	24	19	E B 15	E B 16	E B 15	20	E B 16	E B 16
14	E B 16	E B 16	E B 16	E B 16	E B 16	E B 15	E B 16	E B 15	G	G	33	37	32	34	32	31	25	38	20	A A 73	21	20	A A 65	A A 79
15	A A 83	21	E B 16	E B 16	E B 15	19	E B 16	E B 14	20	25	29	36	34	34	33	30	27	22	E B 16	E B 16	19	18	E B 16	E B 15
16	E B 16	E B 16	E B 16	E B 16	20	20	A A 34	E B 16	G	G	32	37	35	33	32	30	34	21	E B 16	E B 16	17	17	E B 16	E B 16
17	E B 16	E B 16	A A 53	E B 15	E B 15	E B 15	E B 16	E B 15	21	28	G	33	33	31	G	G	G	G	E B 16	E B 16	E B 16	E B 15	E B 15	E B 15
18	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	G	G	35	34	40	33	31	33	27	18	E B 16	E B 15	E B 15	E B 15	E B 15	E B 16
19	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 15	19	G	33	33	34	33	33	30	24	22	20	E B 15	E B 15	E B 15	E B 15	E B 15
20	E B 16	E B 16	E B 16	E B 16	E B 15	E B 16	17	E B 16	24	28	31	31	31	G	G	29	23	G	17	E B 15	E B 15	E B 15	E B 15	E B 16
21	E B 15	E B 15	E B 14	E B 15	E B 15	15	E B 16	E B 16	23	29	33	34	34	37	38	24	G 23	25	E B 15	E B 16	E B 15	E B 15	16	18
22	E B 16	E B 16	E B 16	E B 16	E B 15	E B 15	E B 14	E B 16	24	29	34	32	32	32	32	G	G	20	20	E B 15	E B 15	E B 16	E B 16	E B 16
23	E B 16	E B 16	E B 16	E B 15	E B 16	E B 16	E B 16	E B 15	G	C	C	C	C	C	C	C	C	G	E B 15	E B 15	E B 16	E B 15	E B 16	16
24	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	G	G	32	32	34	G 32	32	31	G	G 18	E B 16	E B 15	E B 15	E B 16	E B 16	E B 16
25	E B 16	E B 16	E B 16	E B 16	E B 16	E B 15	E B 15	E B 15	21	29	32	37	37	33	36	34	34	23	E B 15	E B 16	28	E B 16	E B 16	E B 16
26	E B 16	E B 16	E B 16	E B 15	E B 16	E B 15	E B 16	E B 16	G	G 21	G 22	G 24	32	35	34	34	G	20	E B 16	E B 16	E B 15	E B 15	E B 16	E B 15
27	E B 16	E B 16	E B 16	E B 16	16	E B 16	E B 16	E B 16	19	28	32	35	32	A A 92	42	A A 102	28	E B 18	E B 16	E B 16	18	A A 36	E B 15	E B 15
28	E B 16	E B 15	E B 15	E B 16	E B 16	E B 15	E B 15	E B 16	22	28	G	34	35	32	30	30	39	24	17	E B 15	E B 16	E B 16	E B 16	E B 16
29	E B 16	E B 15	E B 15	E B 15	E B 15	E B 15	18	E B 16	24	28	31	35	33	33	35	28	35	20	20	E B 16	E B 16	E B 16	E B 16	E B 16
30	E B 16	E B 16	E B 16	E B 16	16	E B 16	E B 16	E B 16	24	30	33	G	35	32	31	G	G	22	20	16	E B 16	E B 16	E B 16	E B 16
31	E B 16	E B 15	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	G	29	32	34	34	34	34	30	27	20	18	16	E B 16	E B 16	E B 16	E B 16
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	31	31	31	31	30	30	30	30	30	30	30	30	31	31	31	31	31	31	31
MED	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	20	28	31	33	34	33	32	30	25	20	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16
U Q	16	16	E B 16	E B 16	16	16	16	E B 16	22	29	33	34	35	35	34	31	27	22	18	16	16	16	16	16
L Q	E B 16	E B 15	E B 15	E B 15	E B 15	E B 15	E B 16	E B 15	G	G 22	29	31	32	32	G	G 24	G	G 18	E B 16	E B 16	E B 15	E B 16	E B 16	E B 15

JAN. 2018 fbEs (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

JAN. 2018 fmin (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

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

JAN. 2018 fmin (0.1MHz)

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IONOSPHERIC DATA STATION Yamagawa

JAN. 2018 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	301	305	328	304	303	361	A	361	365	367	349	382	362	366	365	351	388	357	369	308	304	351	363	A
2	A	313	337	329	356	368	318	353	382	374	376	386	358	361	372	366	326	389	382	369	309	336	372	310
3	F	297	F	F	F	365	304	344	376	362	374	387	375	375	353	374	379	361	368	368	291	329	338	351
4	337	338	313	321	341	357	346	367	386	399	362	372	371	374	369	377	397	400	359	355	364	331	366	348
5	328	345	316	316	326	396	324	361	393	410	379	375	364	370	356	369	395	369	386	354	331	393	324	338
6	299	351	336	315	327	F	342	372	400	350	380	388	372	398	390	370	359	396	395	309	355	350	357	308
7	300	F	289	F	323	360	328	359	382	362	344	381	381	382	364	368	367	370	381	380	345	321	334	371
8	F	340	F	F	335	398	335	363	410	385	350	373	383	375	351	387	383	377	386	329	352	349	381	405
9	A	300	262	F	F	318	309	310	398	379	A	359	355	348	367	379	367	383	358	375	393	F	F	F
10	F	F	F	F	329	338	334	367	379	371	356	384	388	367	368	366	368	382	390	331	366	364	329	334
11	335	318	332	342	374	373	353	382	387	380	363	371	341	340	390	380	379	382	367	324	328	326	358	F
12	320	F	367	F	362	288	290	346	396	367	382	403	325	367	385	353	387	386	368	315	358	334	365	350
13	287	303	331	F	393	308	312	331	376	373	375	365	373	380	362	358	386	388	401	305	338	374	344	325
14	331	318	319	341	417	310	313	340	376	382	388	345	368	349	359	370	381	349	383	A	302	359	A	A
15	A	294	338	434	375	253	284	341	395	417	353	341	362	377	366	368	377	355	404	387	340	340	336	341
16	316	305	F	F	334	334	A	346	435	383	359	356	379	372	347	356	375	411	354	336	378	332	347	370
17	297	317	A	303	381	391	332	359	391	385	384	355	351	355	356	334	367	398	356	329	370	329	373	369
18	315	323	314	314	351	424	359	338	401	404	378	360	341	370	365	358	386	390	369	314	360	391	339	340
19	328	F	F	F	398	369	350	347	385	373	393	377	355	373	374	380	357	379	394	362	350	392	320	F
20	F	F	305	F	F	339	367	355	375	362	339	373	357	347	367	350	379	383	377	323	394	323	F	269
21	335	220	F	361	F	F	F	363	398	372	337	355	369	369	352	370	351	375	379	353	F	F	330	370
22	303	292	297	370	406	316	340	343	406	381	364	357	330	355	356	381	379	385	377	332	387	F	343	318
23	338	295	307	343	368	F	318	354	397	C	C	C	C	C	C	C	C	407	392	336	304	F	F	F
24	F	F	F	F	F	297	329	368	385	364	367	363	366	362	379	378	381	388	400	384	351	374	F	F
25	F	F	F	F	365	329	322	336	384	325	343	370	398	379	367	378	365	383	374	349	351	350	322	309
26	313	334	350	308	329	300	356	370	390	336	361	344	343	367	379	376	397	406	361	318	365	354	326	309
27	309	317	309	308	339	379	335	364	387	382	369	352	390	A	379	A	401	377	361	331	364	A	312	328
28	F	F	297	317	F	F	294	364	402	397	376	372	367	362	366	364	375	399	401	339	341	314	312	312
29	307	316	303	326	363	390	281	341	397	382	373	342	355	376	376	371	370	397	370	357	339	F	340	339
30	312	282	310	315	333	344	350	340	390	396	387	363	362	372	362	374	390	394	373	346	322	345	348	312
31	344	350	327	315	337	372	326	369	387	378	364	344	359	389	368	385	389	393	375	336	335	356	330	F
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	21	23	22	19	25	27	28	31	31	30	29	30	30	29	30	29	30	31	31	30	30	25	26	23
MED	315	316	315	317	351	357	328	355	390	378	367	368	363	370	366	370	379	385	377	336	350	349	340	338
U Q	333	334	332	342	374	373	344	364	398	385	378	377	373	376	374	378	387	396	390	357	364	362	358	351
L Q	302	297	305	314	331	316	312	341	382	367	354	355	355	362	359	361	367	377	368	324	331	330	329	312

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JAN. 2018 M(3000)F1 (0.01) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							A		L		L	L	U L 430	L	L									
2											L	L	L	L	U L 413	A	U L 381							
3											L	U L 390	U L 408	U L 398	L	L								
4											L	A	L	A	A	L								
5												L	L	A	L	L	436							
6										L	L	L	A	A	L	A	L							
7												L	U L 403	L	L	L								
8											U L 379	U L 439	U L 425	U L 404	412	L								
9									L		A	A	U L 391	U L 394	A 395	L								
10											L	L	L	L	L	L								
11										L	L	A	393	U L 377	L	L								
12											L	L	416	A	A 412	L								
13											A	412	U L 419	428	L	L								
14										L	A	A	U L 443	L	L	A		A						
15										L		U L 396	U L 411	U L 384	U L 400	L								
16							A					A	L	L	397	L	A							
17												U L 380	U L 399	U L 397	L	L	L							
18												U L 411	A	U L 402	L	A								
19												U L 387	U L 406	U L 389	L	L	L							
20											U L 373	U L 396	U L 396	396	397	L								
21											A	379	415	A	A	L	L							
22										A	A	L	407	U L 386	U L 395	L	L							
23										C	C	C	C	C	C	C	C							
24											L	409	388	418	U L 394	L	L							
25										U L 363	377	A	A	U L 414	A	A	A							
26											L	416	416		L	A								
27											U L 397	L	U L 375	A	A	A								
28											L			394	420	L								
29												U L 386	424	383	U L 381	L	A							
30												416	389	U L 397	U L 396	L	L							
31											L	U L 412	429	U L 401	U L 406	L	L							
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT										1	4	14	21	17	13		2							
MED										U L 363	U L 378	U L 402	U L 408	U L 397	U L 397		408							
U Q											U L 388	412	U L 422	U L 403	412									
L Q											375	U L 387	394	U L 388	U L 395									

JAN. 2018 M(3000)F1 (0.01)

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JAN. 2018 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							A		212		252	220	242	250	250									
2											238	234	234	246	230	230	312							
3											248	228	252	238	256	236								
4											230	230	246	254	240	246								
5												230	236	236	238	248	224							
6										274	246	228	236	226	240	224	224							
7												232	220	220	226	246								
8											298	262	240	240	264	222								
9									238		A	238	254	258	246	234								
10											272	230	228	254	254	246								
11										238	248	242	272	272	234	236								
12											244	244	316	242	242	254								
13											238	248	248	248	252	270								
14										242	238	256	256	256	246	234		E A 234						
15										224		262	262	248	248	240								
16							A					242	242	242	292	258	204							
17												282	282	282	264	278	230							
18												264	E A 270	254	248	240								
19												266	266	250	250	250	252							
20											282	250	250	250	240	246								
21											E A 240	242	242	242	250	250	258							
22										226	254	254	278	228	238	238	238							
23										C	C	C	C	C	C	C	C							
24											260	260	232	248	232	236	236							
25										324	260	246	218	220	238	234	220							
26											246	246	246		242	234								
27											248	264	228	A	234	A								
28											252			236	236	248								
29												296	264	244	242	242	224							
30												248	246	246	246	246	226							
31											254	282	258	240	240	228	228							
	00	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	6	20	29	29	28	30	28	13	1						
MED									225	240	248	246	246	246	242	241	228	E A 234						
U Q										274	257	262	263	252	250	248	245							
L Q										226	242	233	236	239	238	234	224							

JAN. 2018 h'F2 (KM)

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JAN. 2018 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	E B 280	E B 264	E B 248	E B 278	E B 244	216	A	208	186	198	202	190	182	206	206	206	204	194	202	E A 276	E A 274	210	210	A
2	A	E B 252	E B 238	228	228	E A 242	E A 264	E B 240	214	214	202	202	190	210	194	A	194	194	194	194	E B 262	236	200	E B 264
3	E B 252	E B 252	E B 252	E A 304	238	E A 238	E B 256	220	202	210	206	206	182	180	180	180	208	200	184	200	E B 272	222	214	224
4	E A 266	E A 284	E B 270	E B 270	E B 236	192	232	208	196	204	204	A	196	A	A	186	198	192	192	208	208	E A 306	216	216
5	E B 260	E B 254	E B 246	E B 236	E B 236	192	216	204	196	194	218	192	192	A	176	172	172	192	180	210	210	202	E B 258	E B 236
6	E B 280	E A 280	234	E B 240	E A 250	E A 270	E B 240	206	200	200	200	194	A	A	192	A	186	186	186	232	208	222	208	E B 280
7	E B 280	E B 270	E A 270	222	E B 236	226	E B 272	E A 230	208	192	198	198	190	190	190	176	208	198	186	186	226	230	230	212
8	222	E A 288	224	E B 254	202	194	E B 274	208	196	224	192	178	170	170	176	188	204	200	192	E B 242	208	212	196	194
9	A	E A 304	E B 320	E B 248	214	E B 330	304	210	190	212	A	A	190	188	188	196	202	202	200	200	198	204	224	E B 274
10	200	E A 290	E B 238	214	E B 238	E B 290	E B 254	216	210	210	210	204	188	188	176	182	206	198	190	208	204	204	216	E B 242
11	E B 242	E B 256	E B 256	E B 240	214	214	E A 248	208	196	194	194	A	190	202	202	196	196	196	194	E B 244	E B 244	E B 226	214	232
12	E B 274	230	204	194	228	E B 290	E B 328	E B 238	210	202	202	200	182	A	206	196	214	198	198	E B 238	216	E B 230	222	E B 242
13	E B 282	E B 240	220	206	202	E B 300	E B 308	E B 242	206	206	A	188	180	166	200	176	210	206	190	E B 260	220	214	E B 236	E B 260
14	E B 260	E B 260	E B 278	230	188	184	E B 330	E B 226	214	192	A	A	170	204	196	A	200	A	190	A	E A 320	222	A	A
15	A	E A 312	228	192	188	374	E B 360	238	214	188	196	218	198	196	200	188	216	216	180	180	E A 236	E A 236	E B 224	216
16	E B 266	E B 266	E B 272	E B 292	E A 262	200	A	228	196	196	196	A	196	186	186	210	A	192	186	202	202	216	E B 232	E B 232
17	E B 290	E B 238	A	E B 238	188	188	232	212	196	208	206	202	190	184	196	190	190	194	186	210	194	E B 234	214	218
18	E B 240	E B 246	E B 264	E B 274	E B 230	184	E A 252	228	196	190	208	200	A	194	194	A	202	198	192	E B 236	182	182	232	E B 252
19	E B 276	E B 288	E B 278	E B 236	196	196	E B 270	212	204	202	202	198	192	204	208	208	182	202	192	192	210	196	E B 246	E B 302
20	E B 302	E B 294	E B 252	230	216	216	206	212	198	210	198	198	190	178	190	190	206	206	198	206	186	E B 234	E B 264	E B 332
21	234	E B 286	E B 286	206	196	E A 238	238	222	200	206	A	208	204	A	A	196	204	204	192	192	222	192	E A 236	E A 242
22	E B 270	E B 302	E B 276	204	198	E B 292	E B 252	222	202	A	A	202	182	192	192	194	194	198	198	240	194	194	E B 242	E B 242
23	232	E B 262	E B 262	216	222	E B 258	E B 274	212	204	C	C	C	C	C	C	C	C	194	190	226	E B 250	E B 248	E B 238	E B 238
24	E B 238	E B 280	234	E B 220	220	E B 284	260	214	210	210	210	194	194	194	194	188	186	194	192	192	222	216	E B 246	E B 274
25	E B 264	E B 290	E B 290	204	204	E B 322	E B 304	218	204	210	222	A	A	192	A	A	A	212	200	204	E A 270	202	E B 228	E B 272
26	E B 266	E B 240	E B 234	E B 262	E B 252	E B 286	E B 236	208	208	208	208	180	180	210	194	A	200	200	194	234	222	208	E B 220	E B 254
27	E B 264	E B 256	E B 300	E B 276	E A 250	204	230	212	212	212	206	218	200	A	A	A	206	192	192	220	220	A	E B 254	E B 240
28	E B 292	E B 244	E B 258	E B 246	202	232	E B 284	214	204	204	188	204	E A 246	192	190	198	218	202	188	184	224	E B 224	E B 236	E B 246
29	E B 264	E B 256	E B 262	E B 262	216	196	E A 298	214	208	208	198	198	192	204	212	200	A	200	200	200	204	216	230	230
30	230	E B 268	E B 256	E B 256	226	220	220	220	212	212	210	194	206	200	190	184	184	194	194	200	226	214	206	E B 238
31	226	220	E B 280	E B 270	E B 256	216	E B 276	220	198	198	194	190	190	198	188	188	196	196	196	214	212	212	228	E B 272
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	31	30	31	31	31	29	31	31	29	25	24	27	24	26	23	27	30	31	30	31	30	30	29
MED	E B 264	E B 264	E B 257	E B 238	U 209	U 207	E B 260	213	204	206	202	198	190	193	193	190	202	198	192	204	212	210	218	E B 242
U Q	E B 278	E 288	E B 276	E B 262	E 238	E B 286	E B 291	E 226	210	210	208	203	196	203	200	196	206	202	196	E B 234	E 236	E 230	E B 236	E B 268
L Q	239	E B 252	238	216	202	196	237	210	196	197	197	193	182	187	188	184	194	194	188	200	204	204	214	231

JAN. 2018 h'F (KM)

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IONOSPHERIC DATA STATION Yamagawa

JAN. 2018 h'E (KM) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							B	B	110	118	110	110	108	108	108	108	A		B					
2							B	B		A	A	A	A	112	112	A	112	112	B					
3								B	108	A	A	A	A	A	A	A	108	B	B					
4							B	A	110	108	108	108	A	A	A	A	A	A	B					
5							B		108	108	108	A	A	A	108	106	110	B						
6							B		116	116	A	A	A	A	116	A	112	B	B					
7							B		A	A	A	114	112	112	112	112	120	B	B					
8							B	B	110	110	A	A	110	A	110	110	A	A	B					
9							B	B	110	110	A	A	A	A	A	110	114	114	B					
10							B	B	A	A	A	A	A	A	112	A	A	A	B					
11							B	B	112	112	A	A	112	112	112	A	A	B	B					
12							B	B	112	112	112	A	A	A	A	112	112	B	B					
13							B	B	112	112	112	110	110	110	110	A	A	B	B					
14						B	B	B	110	110	110	110	A	110	A	110	A	A	B					
15							B	B	110	110	110	114	114	A	114	116	A	A						
16							B	B	116	116	116	A	A	A	A	A	A	B	B					
17						B	B	B	126	122	122	A	A	A	122	120	118	118	B					
18							B	B	116	112	112	112	A	A	A	A	B	B	B					
19						B	B	B	110	110	110	A	A	A	A	A	A	A	B					
20						B	B	B	112	112	A	A	A	112	108	A	A	108	B					
21							B	B	112	A	A	A	112	122	A	A	118	120	B					
22							B	B	120	120	120	112	A	A	108	106	108	A	B					
23							B	B	108	C	C	C	C	C	C	C	C	108	B					
24							B		108	108	112	112	114	114	114	116	116	112	B					
25							B	B	112	112	A	A	A	A	A	A	A	B	B					
26							B	B	112	112	112	112	A	A	112	A	112	112	B					
27							B	B	112	114	114	114	A	A	A	A	A	B	B					
28							B	B	114	114	112	A	A	A	A	A	A	A	B					
29							B		B	112	112	112	112	A	A	A	A							
30							B	B	112	112	112	112	A	A	A	112	112	A						
31							B	B	112	110	110	108	108	108	A	A	A	B	B					
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT									27	25	19	14	10	10	15	12	13	8						
MED									112	112	112	112	112	112	112	111	112	112						
U Q									112	114	112	112	112	112	114	114	117	116						
L Q									110	110	110	110	110	110	108	109	111	110						

JAN. 2018 h'E (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

JAN. 2018 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	B	B	B	B	102	94	88	86	86	150	150	G	108	108	106	112	96	92	92	92	92	92	92	88
2	88	88	B	92	92	92	88	88	84	84	84	98	98	128	118	94	G	130	84	84	84	84	84	82
3	B	B	96	96	94	94	94	94	128	102	100	100	100	100	100	98	G	122	B	116	124	114	104	88
4	92	92	92	92	92	92	86	86	138	138	116	116	98	98	98	96	96	108	86	88	88	88	88	88
5	96	B	B	B	B	B	B	B	148	138	116	100	100	84	G	G	G	84	88	88	88	88	B	B
6	B	88	88	88	88	88	88	88	126	120	100	100	96	90	92	86	G	86	86	86	86	86	86	B
7	86	80	86	90	90	90	90	90	106	102	100	132	98	134	G	G	134	126	B	110	104	104	98	84
8	82	90	96	96	B	B	B	B	G	158	96	94	94	94	G	G	94	94	B	124	124	106	106	104
9	104	104	104	B	B	104	B	B	146	130	104	104	104	104	104	G	172	G	82	B	82	B	132	B
10	B	B	B	94	94	94	96	86	98	104	104	90	90	90	G	90	100	100	94	94	94	B	94	94
11	86	B	94	94	94	94	94	94	G	G	94	94	146	138	G	100	100	100	100	B	118	B	112	108
12	B	B	B	90	B	B	B	B	128	142	130	104	102	100	100	92	120	80	84	86	B	86	86	B
13	B	B	B	B	B	B	B	B	140	140	122	114	114	G	116	104	104	110	B	158	B	88	88	B
14	88	B	B	94	94	B	B	B	G	G	152	144	98	134	106	114	102	94	94	86	86	86	86	90
15	90	96	96	96	B	134	B	B	136	120	126	132	130	94	130	124	88	88	88	88	88	88	88	88
16	94	92	92	92	92	90	90	90	G	G	136	102	96	96	96	96	92	92	92	B	92	84	B	B
17	B	B	90	90	90	92	B	B	166	140	G	102	98	98	G	G	G	G	98	B	98	B	B	B
18	B	B	B	B	B	B	B	B	G	G	134	130	94	94	94	94	100	100	B	B	B	B	100	94
19	88	B	B	B	88	88	B	B	118	G	116	102	102	102	102	102	102	102	92	B	B	B	B	B
20	B	B	B	B	B	B	92	B	160	152	96	96	96	G	G	96	98	G	90	90	B	90	90	90
21	B	94	B	B	92	92	92	92	156	92	92	92	130	156	84	84	84	118	B	B	B	B	106	106
22	114	102	102	100	B	B	B	100	130	138	128	132	90	90	132	G	G	82	82	82	82	82	116	116
23	B	B	B	B	B	B	B	B	G	C	C	C	C	C	C	C	C	G	B	B	116	106	B	116
24	B	B	B	B	96	96	96	96	G	G	112	110	110	120	130	130	G	94	90	B	B	B	B	B
25	B	90	B	B	B	B	B	B	134	134	96	96	96	96	96	92	90	94	B	94	98	98	106	84
26	90	B	90	B	90	90	B	B	G	100	94	94	94	134	140	88	G	108	B	B	B	B	B	100
27	100	96	96	96	94	94	94	134	128	140	140	140	98	88	88	88	88	B	88	88	88	88	88	B
28	B	96	94	94	94	94	94	90	132	134	G	100	100	98	98	92	86	84	84	84	84	B	B	B
29	B	94	94	94	94	94	94	148	146	146	146	134	120	102	102	102	90	90	90	90	90	90	90	90
30	90	90	96	96	88	88	88	84	152	148	142	G	102	100	100	G	G	96	94	94	94	B	94	98
31	B	B	94	94	94	94	88	B	G	156	150	116	112	116	100	98	96	96	90	86	86	86	86	86
	00	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	15	17	19	20	21	17	16	22	24	28	28	30	28	23	23	21	26	22	21	23	20	23	20
MED	90	92	94	94	93	94	92	90	133	138	116	102	99	100	100	96	96	95	90	88	90	88	92	90
U Q	96	96	96	96	94	94	94	95	146	144	135	123	108	118	116	102	102	108	92	94	98	95	106	102
L Q	88	90	91	92	90	90	88	87	126	112	98	97	96	94	96	92	90	90	86	86	86	86	88	88

JAN. 2018 h'Es (KM)

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IONOSPHERIC DATA STATION Yamagawa

JAN. 2018 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					F2	F4	L6	L4	L3	H3	H2		CL11	CL12	CL22	CL32	L3	L3	L2	F2	F3	F4	F3	F4
2	F3	F1		F1	F1	F4	L6	L3	L4	L5	LC21	L2	L3	CL22	C2	L4		C2	L5	L3	F2	F2	F3	F2
3			F1	F3	F2	F4	F3	L2	C2	L2	L2	L2	L2	L2	L2	L2		C2		F1	F3	F2	F2	F3
4	F2	F5	F2	F2	F2	F2	L5	L4	H2	H2	C2	C3	L2	L4	L3	L3	L3	L1	L1	F3	F4	F5	F2	F1
5	F3								H3	H3	C2	L2	L3	L4				L1	L1	F3	F2	F1		
6		F3	F2	F1	F5	F2	F1	F1	C2	C2	L3	L2	L3	L4	L4	L4		L2	L2	F2	F1	F1	F1	
7	F1	F2	F2	F2	F2	F5	F5	F5	L4	L2	L2	CL12	LC21	HL12			H2	C3		F3	F3	F1	F2	F2
8	F1	F3	F2	F2						H3	L2	L2	L2	L3			L2	L3		F2	F1	F2	F1	F2
9	F4	F1	F1			F2			H2	C3	L4	L3	L2	L3	L3		H2		L1		F1		F1	
10				F2	F2	F2	L1	L2	L2	L2	L2	L3	L3	L3		L2	L2	L2	L1	F2	F1		F2	F2
11	F1		F2	F1	F4	F4	L5	L1			L3	L3	H1	H2		L2	L3	L3	L2		F1		F1	F2
12				F1					C2	H2	C2	L2	L4	L3	L3	L3	CL22	L3	L4	F1		F1	F2	
13									H2	H2	C2	C2	C2		C2	L2	L2	C2		F1		F3	F1	
14	F1			F2	F1						H2	H2	L2	C2	L2	C1	L2	L5	L4	F6	F4	F4	F7	F7
15	F3	F7	F3	F1		F1			H2	C2	C2	C2	C1	L3	C2	C2	L2	L2	L3	F1	F2	F2	F2	F2
16	F2	F2	F2	F2	F2	F3	L3	L3			H2	L3	L3	L3	L3	L2	L4	L3	L3		F3	F2		
17			F4	F2	F1	L1			C2	H1		L2	L2	L2					L1		L1			
18											H2	H1	L3	L3	L2	L3	L2	L1					F1	F1
19	F1				F1	F1			C2		C2	L2	L2	L2	L3	L3	L1	L2	L3					
20							L1		H3	H3	L3	L2	L2			L2	L2		L1	F1		F2	F2	F2
21		F1			F1	F1	L1	L1	H3	L4	L4	L3	HL22	HL22	HL22	L3	L3	C3					F2	F3
22	F1	F2	F2	F1				L2	C2	C2	C2	C2	L2	L2	C2			L2	L3	L2	F2	F2	F1	F2
23																					F1	F2		F1
24					F2	F2	F2	F1			L2	L1	C1	C1	C2	C1		L1	L1					
25		F1							C2	C2	L3	L3	L3	L2	L4	L3	L5	L3		F2	F7	F1	F1	F2
26	F1		F1		F1	F1				L3	L3	L2	L2	CL11	HL11	L4		C1						F2
27	F2	F2	F2	F2	F4	F1	L2	H1	C2	H2	H1	H2	L2	L6	L4	L4	L4		L1	F1	F5	F8	F2	
28		F2	F2	F2	F3	F2	L1	L2	C2	C2		L3	L3	L2	L2	L2	L4	L3	L3	F1	F3			
29		F2	F2	F3	F2	F2	L2	H1	H3	H2	H1	H2	C2	L2	L4	L2	L6	L3	L6	F3	F1	F2	F4	F2
30	F2	F1	F4	F1	F4	F4	L4	L2	H2	H2	H2		L2	L2	L3			L2	L3	F1	F1		F1	F2
31			F4	F2	F1	F3	L2			H1	H2	C2	C2	C2	L3	L3	L3	L1	L3	F3	F2	F2	F2	F2
	00	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																								

JAN. 2018 TYPES OF Es

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

JAN. 2018 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 33	X 33	X 34	34	36	42	X 36													X 45	X 44	X 46	X 53	X 31
2	X 28	X 32	X 35	X 29	X 30	X 28	X 28													X 52	X 35	X 33	X 38	X 35
3	X 30	X 30	X 32	X 33	X 32	X 32	28													X 52	X 39	X 38	A	X 32
4	X 30	X 30	X 32	X 32	X 33	X 34	X 31													A	A	X 37	X 30	36
5	38	35	X 33	X 32	X 37	34	27													X 40	X 38	X 42	X 32	X 30
6	X 29	X 32	X 32	X 34	X 36	A	X 29													X 39	X 37	A	X 33	X 25
7	X 28	32	38	33	35	X 29	X 23													A	X 29	X 28	X 30	X 34
8	X 28	X 29	34	33	32	X 30	X 24													X 39	X 35	X 34	X 30	X 26
9	X 28	29	30	X 39	X 35	30	31													X 39	X 40	X 31	X 29	34
10	38	32	34	33	X 33	A	X 23													57	51	X 53	X 42	41
11	39	X 33	37	X 38	X 40	X 34	X 30													X 34	X 32	37	39	43
12	36	35	38	28	X 25	X 22	24													X 40	X 43	X 40	X 39	X 38
13	X 34	38	X 39	X 29	X 29	X 23	X 24													X 34	X 36	X 38	X 38	O X 32
14	X 31	X 32	X 32	36	38	X 23	X 22													X 38	X 26	X 34	X 35	X 34
15	34	38	48	A	A	A	A										74			X 42	X 39	A	X 36	X 32
16	X 31	34	34	37	39	A	X 20													X 54	X 50	X 35	X 30	X 35
17	X 35	X 38	X 33	X 38	X 56	X 27	X 26													X 37	X 42	X 33	X 27	X 32
18	X 32	X 31	34	X 31	37	X 36	X 22													X 42	X 45	X 33	X 27	X 28
19	X 32	31	35	38	45	25	26													X 41	X 35	X 34	X 27	X 29
20	28	33	34	33	X 33	34	X 25	32												X 38	X 42	X 28	X 30	X 29
21	32	34	38	X 40	X 30	X 24	27													X 32	X 36	40	39	35
22	X 30	37	35	X 37	X 32	X 23	X 24													X 33	X 45	X 34	X 34	X 32
23	39	45	35	36	X 33	29	X 29													X 36	X 30	34	35	38
24	39	35	44	39	35	27	27													X 33	X 28	X 34	32	34
25	38	38	33	35	39	27	27													X 44	X 38	A	X 36	39
26	X 38	X 39	X 38	X 32	X 33	33	35	38												X 34	X 39	X 42	X 36	X 35
27	X 34	X 35	X 34	X 36	X 44	X 36	31													X 39	X 36	X 32	X 29	X 30
28	X 29	33	X 35	X 34	X 42	X 24	X 26													X 40	X 34	X 34	X 29	32
29	36	34	X 34	X 34	X 42	X 29	X 24													X 43	X 36	X 35	X 28	X 34
30	X 31	X 32	X 35	35	X 34	X 34	X 26													X 38	X 36	40	X 37	X 32
31	X 32	X 34	X 30	X 28	X 31	X 31	X 26													X 43	A	X 32	X 31	X 29
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	30	30	27	30	2									1			29	29	28	30	31
MED	X 32	33	34	X 34	X 35	X 29	X 26	35									74			X 39	X 37	X 34	X 32	X 32
U Q	36	35	37	X 37	X 39	X 34	X 29													X 43	X 42	X 39	X 37	35
L Q	X 30	32	X 33	X 32	X 32	X 25	X 24													X 36	X 35	X 33	X 30	X 30

JAN. 2018 fxI (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

JAN. 2018 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	27	27	28	F 28	F 27	F 32	30	28	44	48	68	89	54	56	74	59	52	57	A	39	38	40	47	24
2	22	26	29	23	24	22	22	25	50	61	63	58	58	66	66	65	53	56	52	46	29	27	32	29
3	24	24	26	27	26	26	F 21	26	47	56	71	65	72	75	89	69	68	62	62	45	33	32	A	26
4	24	24	26	26	27	28	25	27	47	56	57	60	57	49	58	59	62	50	38	A	A	31	24	F 28
5	F 30	F 28	27	26	30	F 26	18	26	48	49	R 54	65	67	71	63	59	56	62	56	34	32	36	26	24
6	23	26	26	28	30	A	23	27	45	47	58	83	77	90	74	64	56	54	44	33	31	A	27	19
7	22	F 25	F 28	F 24	F 24	23	17	24	48	53	53	63	66	86	H 104	79	64	75	48	A	23	22	24	28
8	22	23	F 25	F 24	F 25	F 22	18	26	46	48	56	51	62	58	69	72	54	48	49	33	29	28	24	20
9	22	F 23	F 23	33	30	F 22	F 22	24	43	47	48	68	62	68	83	70	H 56	60	44	33	34	25	23	F 26
10	F 26	F 25	F 26	F 25	27	A	17	24	51	52	58	64	61	60	69	64	64	61	57	44	V 42	47	36	F 33
11	F 30	27	F 30	32	34	28	24	29	46	46	52	52	60	62	67	55	50	46	37	28	26	F 30	F	F
12	F 26	F 25	F 24	F 22	19	16	17	20	49	54	60	76	50	72	78	H 71	58	59	44	34	37	34	33	31
13	28	30	33	23	23	17	18	20	48	56	68	77	61	J R 83	56	50	56	48	42	28	30	32	32	26
14	25	26	26	27	F 30	16	J B 16	22	54	63	J R 83	69	67	77	82	75	68	59	62	32	19	28	29	28
15	F 25	F 28	F 38	A	A	A	A	24	52	R 60	52	54	63	80	61	86	F 66	J R 83	66	36	33	A	30	26
16	25	F 27	F 27	F 23	F 26	A	J B 14	24	54	49	53	58	61	63	60	64	73	54	48	48	44	29	24	29
17	29	32	27	32	50	21	20	28	43	47	52	48	54	59	82	J R 82	72	66	54	32	36	27	21	26
18	26	25	F 26	25	F 31	30	J B 16	22	49	52	49	46	57	A	72	53	62	56	47	36	39	27	21	22
19	26	F 23	F 26	F	F 32	F 17	F 18	24	44	48	51	46	57	60	74	65	60	56	50	34	29	28	21	23
20	F	F	F	F 23	27	F	19	F 23	45	50	55	79	76	J R 84	90	92	71	53	52	32	36	22	24	23
21	F 26	F 27	F 30	34	24	18	19	26	46	53	66	87	77	V 71	67	V 65	52	57	H 66	26	V 30	F 30	F 30	F 24
22	24	F 24	F 27	31	J R 26	18	18	26	51	52	55	60	H 73	87	90	J R 84	56	58	52	27	39	28	28	26
23	F 28	F 27	25	F 28	27	22	23	29	50	53	58	72	83	88	92	R 80	68	54	38	30	24	F 27	F 28	F
24	F	F 26	F	F 25	F 23	F	F	24	49	53	57	62	89	78	84	80	60	48	40	28	22	28	25	F 24
25	F 26	F 27	F 24	F 27	F 27	F 19	F 18	23	42	48	69	91	100	59	60	63	52	49	46	38	32	A	30	F 32
26	32	33	32	26	27	F 25	F 24	F 31	51	56	73	89	93	90	66	V 66	58	48	40	28	33	36	29	29
27	28	29	28	30	38	30	F 24	28	46	52	56	52	78	89	65	60	52	49	43	33	30	26	23	24
28	24	F 25	29	28	36	18	20	26	47	48	51	56	57	77	61	56	54	56	49	34	28	28	23	F 24
29	F 27	F 27	28	28	36	23	18	24	46	51	49	48	52	60	70	A	54	52	48	37	30	29	22	28
30	25	26	29	F 27	28	28	20	26	45	46	48	54	68	82	70	71	66	56	40	32	30	F 32	31	26
31	26	28	24	22	25	25	20	25	43	49	57	57	60	63	74	63	53	52	47	37	A	26	25	23
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	29	30	29	29	30	25	29	31	31	31	31	31	31	30	31	30	31	31	30	29	29	28	29	29
MED	26	26	27	27	27	22	19	25	47	52	56	62	62	72	70	65	58	56	48	33	31	28	26	26
U Q	28	27	29	28	30	27	22	27	50	54	63	76	76	83	82	75	66	59	52	37	36	32	30	28
L Q	24	25	26	F 24	25	18	18	24	45	48	52	54	57	60	65	60	54	50	43	31	29	27	24	24

JAN. 2018 foF2 (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

JAN. 2018 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	L	412	416	UL392	UL432	L408	A			A					
2									L220	L	L	L	L416	A	L404	L	L							
3										L	404	428	424	412	420		L							
4										L	L	L424	L420	A	A	A	L							
5											UL412	L424	424	420	412	UL392	A							
6											L404	412	420	420	416	L	L							
7										L	L392	L384	L432	428	416	UL396	L348	A						
8											L	UL420	L424	L	388	L396	L	L						
9										L		L420	L408	L428	L424	400	L							
10									L	L	392	424	436	420	412	L400	L							
11									L	UL336	UL380	UL404	420	416	416	UL384								
12									L	L	L408	412	UL416	420	L416	L392	L							
13										L	400	416	436	416	L412	UL396	L							
14									L	L	L400	420	L416	L436	L408	L404	L							
15										L	L	420	L408	L428	L428	L400	A							
16										L	UL412	L420	A	L432	L420	L408								
17											L	UL428	L428	L420	420	408	L368							
18											L	A	A	A	416	A	L376							
19											L		412	424	416	400	L	L						
20									244		UL412	416	424	432	L424	404	L360	L						
21										L	408	412	428	420	416	L412								
22									252		392	UL436	UL428	424	420	400	L	UL284						
23										UL312	UL412	L428	A	428	L420	L400	L							
24										L	L408	420	420	L436	424	408								
25										A	A	416	L436	L424	L420	L408	L							
26									224	L	L396	416	428	L428	UL420	L404	L							
27										L	L404	UL392	L416		L416	L400	UL340	L252						
28											L	412	416	424	L416	UL408	L							
29										L	L400	L408	420	416	412	A	UL368	L						
30											UL404	L408	416	424	424	408	L380	L284						
31									L236	L	404	416	420	424	420	404	L380							
	00	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	2	21	28	28	26	30	24	8	3						
MED									236	UL324	L404	416	420	424	416	L400	L368	L284						
U Q									248		UL410	L422	428	L428	L420	L408	L378	UL284						
L Q									222		398	L412	L416	420	412	UL398	L354	L252						

JAN. 2018 foF1 (0.01MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

JAN. 2018 foE (0.01MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1								B	A	244	280	304	UA312	UA324	A	A	A	A	A					
2								B	196	A	A	A	A	A	A	A	A	A	B					
3								B	192	256	A	A	A	A	A	A	A	A	A					
4								B	180	248	A	A	A	A	A	A	A	A	A					
5								B	212	A	A	A	A	A	A	A	A	A	A					
6								B	208	252	A	A	A	A	312	288	A	188	A					
7								B	220	A	A	A	304	A	UA296	A	256	A	A					
8								B	188	248	292	300	312	312	312	292	264	208	B					
9								B	192	216	A	A	A	A	A	A	264	216	B					
10								B	A	A	A	A	A	A	312	296	A	A	B					
11								B	A	A	A	A	A	A	A	A	A	A	B					
12								B	180	252	A	300	A	A	A	292	A	A	B					
13								B	168	236	280	308	312	UA316	A	A	264	216	B					
14								B	184	240	276	308	A	A	A	A	252	196	A					
15								B	176	260	A	A	A	A	A	A	A	A	A					
16								B	164	236	A	A	A	A	A	300	268	A	A					
17								B	204	260	296	UA324	A	A	A	296	268	216	B					
18								B	180	252	284	300	312	UA316	UA316	A	A	A	B					
19								B	220	248	A	A	A	A	A	A	A	204	B					
20								B	184	256	300	300	A	A	312	296	A	204	B					
21								B	188	252	284	A	A	A	304	288	260	204	A					
22								B	B	244	272	296	A	312	296	A	A	A	A					
23								B	A	264	284	A	A	A	300	284	248	212	B					
24								B	176	244	292	UA296	A	A	328	A	272	216	B					
25								B	192	256	292	A	A	A	A	A	A	A	A					
26								B	204	A	A	A	A	A	304	288	A	A	B					
27								B	176	248	292	A	A	A	A	A	A	196	A					
28								B	184	256	292	304	A	A	A	A	A	A	B					
29								B	180	232	284	308	308	A	A	A	A	A	A					
30								B	180	240	272	300	UA332	A	A	A	268	A	B					
31								B	176	232	280	308	316	A	A	A	A	A	B					
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT									26	25	17	14	8	5	11	10	11	12						
MED									184	248	284	302	312	UA316	312	292	264	206						
U Q									196	256	292	308	UA314	UA320	312	296	268	216						
L Q									180	240	280	300	310	312	300	288	256	200						

JAN. 2018 foE (0.01MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

JAN. 2018 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	19	J A 20	J A 20	18	J A 18	J A 16	J A 19	J A 19	J A 32	J A 38	J A 52	J A 46	37	40	36	J A 47	J A 51	J A 83	J A 138	J A 229	J A 149	J A 33	J A 33	J A 40
2	J A 22	J A 42	J A 37	J A 44	J A 52	J A 25	J A 20	J A 24	G	J A 31	J A 38	J A 40	J A 62	J A 69	J A 57	J A 42	J A 29	J A 52	J A 33	J A 30	J A 31	J A 20	J A 20	J A 20
3	J A 20	E B 16	J A 33	E B 16	E B 15	J A 28	J A 18	J A 18	J A 29	28	J A 41	J A 56	J A 54	J A 40	J A 41	J A 52	31	J A 38	J A 29	J A 33	J A 41	J A 48	J A 44	J A 41
4	J A 42	J A 41	J A 36	20	J A 25	J A 18	19	J A 19	J A 28	30	J A 42	J A 46	J A 52	J A 62	J A 90	J A 43	J A 37	101	70	58	41	22	34	31
5	20	20	E B 16	E B 16	J A 19	J A 28	J A 22	E B 16	23	J A 35	J A 42	J A 56	J A 54	J A 98	J A 42	J A 61	J A 56	J A 42	J A 32	J A 23	26	22	E B 16	J A 28
6	E B 16	E B 16	J A 65	J A 63	J A 27	J A 54	J A 26	J A 23	G	31	J A 46	J A 50	J A 191	J A 149	35	32	J A 34	J A 50	J A 49	J A 38	J A 33	J A 64	J A 48	J A 38
7	J A 23	E B 16	E B 16	J A 42	J A 36	J A 35	J A 22	21	G 21	30	J A 40	J A 45	36	J A 50	34	J A 40	34	J A 36	J A 32	J A 63	J A 27	E B 16	J A 21	J A 22
8	E B 16	E B 16	J A 47	J A 27	19	J A 20	E B 16	E B 16	22	J A 36	32	G 26	G 29	G 29	38	36	J A 42	G	J A 22	19	19	19	E B 16	19
9	19	J A 39	J A 30	J A 28	J A 22	E B 16	18	E B 16	G	28	J A 44	J A 54	J A 75	J A 72	J A 43	J A 38	28	J A 26	J A 18	J A 19	J A 20	J A 19	J A 20	18
10	J A 19	J A 33	E B 16	E B 16	J A 22	J A 20	J A 21	J A 22	27	30	J A 38	J A 38	J A 42	J A 39	J A 43	J A 40	J A 48	J A 33	J A 20	J A 27	J A 18	21	J A 32	J A 20
11	J A 42	J A 20	J A 26	J A 24	J A 20	J A 27	J A 22	J A 19	J A 28	J A 29	34	J A 42	J A 40	J A 54	J A 40	J A 40	J A 42	J A 38	J A 24	J A 20	19	J A 20	J A 22	J A 24
12	J A 40	E B 16	J A 17	E B 16	E B 16	J A 16	J A 30	E B 16	20	31	34	J A 38	J A 52	J A 47	J A 53	J A 40	J A 95	78	J A 52	J A 32	J A 20	J A 16	J A 26	J A 21
13	J A 20	20	E B 16	E B 16	20	20	18	22	22	27	36	37	36	36	J A 50	J A 37	J A 29	G	J A 21	J A 29	J A 30	J A 29	J A 21	J A 28
14	J A 22	J A 16	J A 18	J A 33	J A 24	J A 34	J A 22	J A 17	21	G	G	35	42	41	J A 61	38	34	30	J A 28	J A 47	J A 29	19	J A 18	J A 47
15	J A 53	J A 52	J A 52	J A 53	J A 28	J A 28	J A 25	J A 18	23	G	J A 39	J A 43	J A 44	J A 51	J A 50	J A 51	J A 58	J A 34	J A 46	J A 38	J A 30	J A 26	18	18
16	E B 16	E B 16	E B 16	J A 21	J A 21	J A 33	J A 22	J A 17	21	28	36	J A 46	J A 54	J A 90	J A 44	G	J A 36	J A 28	J A 32	J A 16	J A 21	J A 27	E B 16	E B 16
17	J A 42	J A 21	E B 16	J A 34	J A 30	J A 29	J A 22	J A 22	24	28	J A 51	J A 43	J A 47	J A 40	J A 35	32	G	G 22	J A 38	J A 21	20	21	E B 16	E B 16
18	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	17	E B 16	24	30	33	40	J A 54	J A 141	J A 44	J A 49	J A 38	33	J A 22	E B 16	J A 28	J A 21	19	E B 16
19	E B 16	20	19	19	E B 16	19	J A 16	J A 21	G	J A 40	J A 38	J A 40	J A 39	J A 41	J A 40	J A 38	J A 29	21	J A 18	20	E B 16	E B 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	17	E B 16	G	28	33	J A 42	J A 55	J A 39	J A 40	J A 29	J A 30	G	J A 22	J A 20	J A 18	J A 48	J A 20	20
21	J A 32	E B 16	22	J A 25	J A 18	J A 16	E B 16	E B 16	22	30	34	38	J A 39	J A 42	J A 53	34	J A 38	27	J A 24	J A 25	J A 30	J A 22	J A 24	J A 22
22	J A 44	J A 19	J A 22	J A 53	J A 29	20	E B 16	E B 16	19	29	35	37	38	34	35	J A 44	J A 45	J A 35	J A 33	J A 29	J A 18	18	20	E B 16
23	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	J A 22	J A 32	30	J A 38	J A 83	J A 51	J A 48	30	31	24	E B 16	19	J A 23	18	J A 51	18
24	E B 16	J A 87	J A 25	E B 16	E B 16	20	18	J A 20	24	30	36	37	J A 39	J A 39	J A 48	32	J A 41	G	J A 19	18	J A 25	J A 28	20	19
25	J A 26	J A 29	J A 18	E B 16	20	E B 16	E B 16	E B 16	26	J A 40	J A 49	J A 56	J A 84	J A 121	J A 52	J A 40	J A 52	J A 26	J A 25	20	J A 28	J A 52	J A 21	J A 22
26	E B 16	J A 28	E B 16	J A 17	J A 18	E B 16	E B 16	J A 16	G	J A 29	J A 36	J A 47	J A 41	J A 55	36	J A 38	J A 49	J A 26	J A 25	J A 44	J A 26	E B 16	E B 16	J A 18
27	18	J A 28	J A 22	J A 28	J A 31	J A 20	16	J A 15	24	30	33	J A 43	J A 56	J A 41	J A 36	J A 37	J A 29	22	J A 22	19	J A 20	E B 16	18	J A 16
28	E B 16	E B 16	J A 15	J A 30	J A 28	J A 33	J A 22	J A 18	G	32	35	J A 37	J A 52	J A 45	J A 50	J A 42	J A 34	J A 38	E B 16	E B 16	J A 18	E B 16	J A 15	18
29	E B 16	E B 16	18	J A 18	J A 25	E B 16	18	20	G	32	32	35	40	J A 47	J A 40	J A 81	J A 36	J A 38	J A 28	J A 26	J A 16	J A 24	J A 26	E B 16
30	J A 25	J A 27	20	J A 29	J A 29	J A 20	J A 20	J A 18	G	30	34	38	40	J A 44	J A 43	J A 31	J A 36	J A 42	J A 28	J A 18	J A 20	21	18	E B 16
31	E B 16	E B 16	E B 16	20	J A 28	J A 22	E B 16	19	G	30	34	37	36	J A 38	J A 34	J A 42	J A 38	J A 30	J A 31	J A 24	J A 35	18	20	E B 16
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31
MED	19	20	J A 18	J A 20	J A 21	J A 20	J A 18	J A 18	22	30	36	J A 40	J A 44	J A 45	J A 43	J A 40	J A 36	J A 33	J A 28	J A 24	J A 25	J A 21	J A 20	J A 19
U Q	J A 26	J A 28	J A 26	J A 30	J A 28	J A 28	J A 22	J A 20	24	J A 32	J A 41	J A 46	J A 54	J A 62	J A 50	J A 43	J A 45	J A 38	J A 33	J A 33	J A 30	J A 27	J A 26	J A 24
L Q	E B 16	E B 16	E B 16	E B 16	E B 18	E B 16	E B 16	E B 16	G	28	34	37	39	40	36	34	J A 31	G 24	J A 22	19	J A 19	E B 18	E B 18	E B 16

JAN. 2018 foEs (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

JAN. 2018 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 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	22	G 18	G 18	G 20	37	38	35	40	26	25	A A 138	E B 16	E B 16	E B 16	22	20
2	E B 16	E B 16	E B 16	20	E B 16	E B 16	E B 16	E B 16	G	27	33	37	37	40	35	31	26	31	E B 16	18	26	E B 16	E B 16	E B 16
3	E B 16	E B 16	E B 16	E B 16	E B 15	19	E B 16	E B 16	G 16	27	32	36	33	32	32	29	30	24	E B 16	E B 16	22	E B 16	A A 44	24
4	18	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	29	35	36	38	46	44	40	27	28	28	A A 58	A A 41	E B 16	E B 16	E B 16
5	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	23	29	33	39	34	32	30	34	35	26	E B 16	18	E B 16	E B 16	E B 16	E B 16
6	E B 16	E B 16	E B 16	E B 16	E B 16	A A 54	E B 16	E B 16	G	29	33	33	34	36	34	31	26	46	29	20	21	A A 64	22	E B 15
7	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	29	31	32	36	35	32	34	33	34	29	A A 63	E B 16	E B 16	E B 16	E B 16
8	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	22	G 18	32	G 23	G 21	G 21	37	33	G 18	G	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16
9	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	G	28	36	36	35	34	32	30	G 20	G 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16
10	E B 16	E B 16	E B 16	E B 16	E B 16	A A 20	E B 16	E B 16	21	28	32	34	36	33	G 24	G 22	26	26	E B 16	E B 16	E B 16	E B 16	24	E B 16
11	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	21	26	33	38	39	36	36	35	22	22	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16
12	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	20	28	32	32	38	37	37	31	30	35	E B 16	E B 16	E B 16	E B 16	18	E B 16
13	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	21	26	34	34	33	33	32	30	G 20	G	E B 16	E B 16	20	20	E B 16	22
14	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	16	E B 16	21	G	G	33	37	39	38	34	32	26	26	24	17	E B 16	E B 16	E B 16
15	E B 16	19	E B 16	A A 53	A A 28	A A 28	A A 25	E B 14	22	G	32	34	40	37	38	30	32	25	E B 14	27	E B 16	A A 26	E B 16	E B 16
16	E B 16	E B 16	E B 16	E B 16	E B 16	A A 33	E B 16	E B 16	21	28	32	34	42	35	32	G	G 24	21	22	E B 16	E B 16	24	E B 16	E B 16
17	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	23	28	G 21	36	34	38	34	31	G	G 17	E B 15	E B 16	E B 16	E B 16	E B 16	E B 16
18	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	24	30	33	40	46	A A 141	38	38	28	22	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16
19	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	G	G 16	31	36	35	33	34	30	27	21	E B 14	E B 16	E B 16	E B 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	E B 16	E B 16	G	28	33	37	34	36	G 24	G 26	28	G	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16
21	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	22	30	33	37	34	30	G 25	32	G 17	25	22	E B 16	E B 16	E B 16	E B 16	E B 16
22	E B 16	E B 16	E B 16	18	E B 16	E B 16	E B 16	E B 16	18	28	32	34	36	33	33	32	29	22	24	19	E B 16	E B 16	E B 16	E B 16
23	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	22	G 20	30	36	46	34	G 25	30	30	23	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16
24	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	24	30	34	36	34	32	G 23	32	G 18	G	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16
25	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	26	40	45	37	35	34	32	34	32	24	E B 18	E B 16	22	A A 52	20	E B 16
26	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	G	26	30	33	36	32	36	G 24	30	24	E B 16	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 16	E B 16	E B 16	E B 16	24	29	32	36	35	37	34	32	28	22	17	E B 16	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	E B 16	E B 16	E B 16	G	30	33	34	39	34	33	34	32	24	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16
29	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	G	29	32	34	38	37	34	A A 81	30	24	18	E B 16	E B 16	E B 16	E B 16	E B 16
30	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	G	30	33	34	35	35	32	30	G 21	22	E B 14	E B 16	14	E B 16	E B 16	E B 16
31	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	G	30	34	36	34	34	32	31	31	28	E B 14	E B 15	A A 35	E B 16	E B 16	E B 16
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31
MED	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	21	28	32	36	36	35	33	31	28	24	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16
U Q	E B 16	E B 16	E B 16	E B 16	E B 16	16	E B 16	E B 16	22	29	33	36	38	37	36	34	30	26	22	18	17	16	16	E B 16
L Q	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	G	G 26	32	34	34	33	G 32	30	G 24	G 21	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16

IONOSPHERIC DATA STATION Okinawa

JAN. 2018 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	16	16	16	16	16	16	16	16	16	16	12	12	12	12	13	16	11	14	15	16	16	16	16	16
2	16	16	16	16	16	16	16	16	16	16	14	16	16	14	14	13	15	14	16	16	16	16	16	16
3	16	16	16	16	15	16	16	16	15	15	12	14	13	16	14	14	16	14	16	16	16	16	16	16
4	16	16	16	16	16	16	16	16	16	16	15	16	14	15	14	15	13	14	16	16	16	16	16	16
5	16	16	16	16	16	16	16	16	14	15	14	14	15	16	15	15	14	14	16	16	16	16	16	16
6	16	16	16	16	16	16	16	16	16	14	15	14	16	16	15	17	12	16	16	16	16	16	16	15
7	16	16	16	16	16	16	16	16	16	14	14	14	16	14	14	14	14	15	15	16	16	16	16	16
8	16	16	16	16	16	16	16	16	16	14	14	14	16	14	14	12	12	16	16	16	16	16	16	16
9	16	16	16	16	16	16	16	16	16	12	14	15	14	16	14	14	14	14	16	16	16	16	16	16
10	16	16	16	16	16	16	16	16	16	14	15	15	14	14	14	14	14	14	16	16	16	16	16	16
11	16	16	16	16	16	16	16	16	12	14	14	14	16	15	14	14	11	14	16	16	16	16	16	16
12	16	16	16	16	16	16	16	16	15	11	12	14	14	14	15	14	12	14	16	16	16	16	16	16
13	16	16	16	16	16	16	16	16	16	14	14	14	14	14	14	14	15	14	16	16	16	16	16	16
14	16	16	16	16	16	16	16	16	16	14	12	14	14	15	14	14	16	15	15	14	16	16	16	16
15	16	16	16	16	16	16	16	14	15	14	13	14	14	14	14	14	14	15	14	16	16	16	16	16
16	16	16	16	16	16	16	16	16	14	14	14	14	14	14	14	14	16	16	15	16	16	16	16	16
17	16	16	16	16	16	16	16	16	16	15	14	14	14	20	17	16	16	15	15	16	16	16	16	16
18	16	16	16	16	16	16	16	16	15	15	15	14	14	15	15	14	15	16	16	16	16	16	16	16
19	16	16	16	16	16	16	16	16	16	14	14	14	14	14	14	13	15	14	14	16	16	16	16	16
20	16	16	16	16	16	16	16	16	14	11	12	14	15	14	14	15	15	14	16	16	16	16	16	16
21	16	16	16	16	16	16	16	16	14	14	14	15	15	16	15	13	12	14	16	16	16	16	16	16
22	16	16	16	16	16	16	16	16	16	12	13	14	15	15	15	15	13	14	13	16	16	16	16	16
23	16	16	16	16	16	16	16	16	14	14	16	15	15	14	14	14	14	16	16	16	16	16	16	16
24	16	16	16	16	16	16	16	16	16	12	15	14	14	14	13	12	12	10	16	16	16	16	16	16
25	16	16	16	16	16	16	16	16	16	14	14	14	15	15	16	14	14	16	16	16	16	16	16	16
26	16	16	16	16	16	16	16	16	14	15	13	14	15	13	16	15	15	16	16	16	16	16	16	16
27	16	16	16	16	16	16	16	16	16	16	14	15	16	14	15	14	14	15	16	16	16	16	16	16
28	16	16	16	16	16	16	16	16	15	16	14	14	15	14	14	16	12	14	16	16	16	16	16	16
29	16	16	16	16	16	16	16	16	15	14	12	14	14	14	14	13	12	15	15	16	16	16	16	16
30	16	16	16	16	16	16	16	16	15	16	16	14	14	14	16	14	13	12	14	16	14	16	16	16
31	16	16	16	16	16	16	16	16	16	14	12	14	14	14	14	16	14	15	14	15	16	16	16	16
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31
MED	16	16	16	16	16	16	16	16	16	14	14	14	14	14	14	14	14	14	16	16	16	16	16	16
U Q	16	16	16	16	16	16	16	16	16	15	14	14	15	15	15	15	15	15	16	16	16	16	16	16
L Q	16	16	16	16	16	16	16	16	15	14	13	14	14	14	14	14	12	14	15	16	16	16	16	16

JAN. 2018 fmin (0.1MHz)

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IONOSPHERIC DATA STATION Okinawa

JAN. 2018 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	312	320	326	F 326	F 318	F 356	370	370	372	319	352	395	365	327	377	379	368	384	A	334	314	311	369	355
2	285	323	358	364	334	324	316	324	361	380	371	379	359	373	370	369	350	351	357	395	381	325	366	385
3	376	316	302	326	394	378	F 323	350	349	379	370	368	384	302	380	334	359	383	379	380	354	340	A	351
4	373	310	315	314	332	356	364	357	387	378	388	382	385	385	359	365	371	398	377	A	A	360	324	F 307
5	F 305	F 317	310	326	375	F 415	352	352	385	393	R 338	377	371	374	380	362	346	370	404	382	340	386	384	338
6	311	327	336	362	359	A	326	369	387	356	374	388	351	382	364	352	349	385	395	374	337	A	383	278
7	321	F 335	F 334	F 368	F 381	347	329	347	368	376	374	362	333	349	H 315	385	353	369	355	A	321	340	342	379
8	320	335	F 337	F 299	F 313	F 375	356	344	384	374	364	361	390	303	355	369	395	367	379	387	340	354	370	340
9	327	F 275	F 298	379	388	F 346	F 310	325	385	371	336	359	369	344	362	360	H 340	368	367	346	356	329	347	F 314
10	F 325	F 318	F 301	F 327	358	A	321	338	380	359	370	385	362	351	360	342	365	366	354	366	V 315	323	345	F 327
11	F 319	292	F 306	344	362	357	320	359	405	385	364	363	360	346	374	361	365	367	368	367	298	F 345	F	F
12	F 332	F 337	F 366	F 407	373	355	329	333	367	366	367	404	358	344	313	H 348	371	371	366	307	313	340	347	350
13	320	317	393	334	374	B 334	341	325	342	362	348	404	328	J R 347	366	354	375	383	394	355	335	348	346	350
14	318	303	300	338	F 410	U B 316	B	318	374	371	J R 335	361	340	297	327	346	359	343	386	364	388	322	360	310
15	F 276	F 321	F 361	A	A	A	A	328	370	354	373	381	347	363	329	358	F 326	J R 332	391	340	343	A	358	327
16	322	F 331	F 281	F 305	F 329	A	B	321	392	377	357	368	355	357	330	349	356	383	350	357	350	380	329	361
17	291	307	312	369	408	391	330	346	388	380	365	369	325	348	350	J R 336	370	384	370	330	352	374	320	374
18	345	297	F 315	320	F 363	384	B	347	388	386	376	370	352	A	346	344	374	389	380	337	353	364	348	334
19	328	F 283	F 281	F	F 370	F 403	F 363	343	385	383	381	383	359	340	359	346	357	360	366	394	310	392	295	357
20	F	F	F	F 357	338	F	286	F 346	390	351	342	353	343	J R 306	324	344	354	366	370	346	379	354	331	320
21	F 287	F 315	F 319	374	398	315	334	343	368	351	324	345	367	V 356	343	V 367	345	346	382	401	V 322	F 338	F 353	F 312
22	326	F 308	F 286	348	R	295	310	346	388	385	366	333	H 321	351	352	J R 358	372	370	384	389	367	353	355	347
23	F 343	F 298	303	F 349	337	297	340	357	382	385	351	378	344	364	314	R 330	371	397	355	373	309	F 320	F 378	F
24	F	F 336	F	F 317	F 392	F	F	351	375	372	372	332	347	338	344	360	377	391	387	364	311	352	321	F 308
25	F 327	F 296	F 317	F 350	F 378	F 349	F 316	350	377	331	354	363	396	368	362	378	372	359	386	381	324	A	339	F 327
26	317	358	360	314	298	F 312	F 316	F 354	368	348	354	350	356	332	331	V 359	392	374	375	321	334	364	343	333
27	317	325	318	296	345	358	F 333	350	387	374	364	329	356	380	373	384	370	382	377	296	353	356	344	368
28	322	F 318	350	321	398	329	320	353	407	366	358	373	326	372	368	350	364	384	380	379	321	357	321	F 314
29	F 302	F 315	332	329	384	401	332	343	382	376	375	374	312	340	369	A	375	364	378	352	321	380	341	380
30	337	322	359	F 327	355	377	312	353	377	371	348	334	341	373	364	371	372	392	390	355	315	F 361	357	364
31	321	357	325	318	356	352	328	336	369	368	380	388	370	367	364	380	378	375	382	305	A	363	350	321
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	29	30	29	29	29	25	26	31	31	31	31	31	31	30	31	30	31	31	30	29	29	28	29	29
MED	321	318	318	329	363	355	328	346	382	372	364	369	356	350	359	358	368	371	378	364	335	354	347	338
U Q	328	327	344	360	386	378	340	353	387	380	373	382	367	368	368	369	372	384	386	380	353	364	359	359
L Q	312	307	F 302	319	338	326	316	336	369	359	351	359	341	340	331	346	354	366	367	338	315	339	335	F 317

JAN. 2018 M(3000)F2 (0.01)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

JAN. 2018 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	L	379	391	U L 438	U L 387	L 388	A			A					
2									L 442	L	L	L	L 401	A	L 403	L	L							
3										L	378	394	401	422	393		L							
4										L	L	L 377	L 407	A	A	A	L							
5											U L 375	A 382	401	418	396	U L 393	A							
6											L 379	406	422	385	394	L	L							
7										L	L 414	L 462	L 386	384	395	U L 420	L 409	A						
8											L	U L 424	L 425	L	440	L 387	L	L						
9										L		L 384	L 424	L 398	L 370	389	L							
10									L	L	407	397	386	396	405	L 394	L							
11									L	U L 437	U L 434	U L 407	385	405	383	U L 405								
12									L	L	L 388	391	U L 423	401	L 412	L 399	L							
13										L	383	411	427	442	L 411	U L 408	L							
14									L	L	L 397	411	A	A 383	L 382	L 390	L							
15										L	L	400	A	379	L 373	L 385	A							
16										L	U L 388	L 385	A	L 403	L 407	L 391								
17											L	U L 406	L 418	422	379	386	L 385							
18											L	A	A	A	A 381	A	L 386							
19											L		410	396	393	387	L	L						
20									460		U L 375	382	402	396	L 382	377	L 394	L						
21										L	383	408	402	384	386	L 393								
22									471		405	U L 378	U L 404	406	402	387	L	U L 409						
23										U L 434	U L 400	L 372	A	406	L 394	L 404	L							
24										L	L 389	397	410	L 386	398	386								
25										A	A	412	L 385	L 410	L 409	L 391	L							
26									447	L	L 389	391	417	L 407	U L 427	L 397	L							
27										L	L 393	U L 440	L 418		L 390	L 412	U L 432	L 441						
28											L	401	425	384	L 395	U L 380	L							
29										L	L 400	L 418	434	394	388	A	U L 403	L						
30											U L 386	L 425	407	385	384	389	L 395	L 418						
31									L 446	L	387	408	415	407	394	384	L 415							
	00	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	2	21	28	26	26	30	24	8	3						
MED									447	U L 436	L 388	400	410	397	394	L 390	L 399	L 418						
U Q									466		L 400	L 411	L 423	407	L 403	L 398	L 412	L 441						
L Q									L 444		381	L 388	401	385	384	386	L 390	U L 409						

JAN. 2018 M(3000)F1 (0.01)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

JAN. 2018 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									218	220	258	204	232	282	232	224			A					
2									214	230	226	226	252	230	234	218	216							
3										228	234	228	218	272	216		242							
4										228	224	232	232	E 252	A 254	248	228							
5											290	236	244	238	226	236	238							
6											238	216	250	216	214	226	232							
7										230	242	246	242	248	210	210	248	210						
8											244	256	224	L 296	246	222	212	210						
9										244		252	236	260	240	230	230							
10									222	240	246	220	244	250	230	248	234							
11									210	220	246	254	254	264	236	250								
12									246	242	248	206	258	260	238	222	234							
13										248	254	202	288	222	260	254	232							
14									232	238	236	214	266	280	254	234	222							
15										222	236	244	272	234	278	230	240							
16										230	264	250	252	256	266	254								
17											254	260	312	258	244	222	222							
18											246	252	270	A	248	252	226							
19											238		266	276	238	246	236	214						
20									214		268	246	248	252	240	228	218	214						
21										270	274	244	226	252	244	224								
22									210		258	290	254	234	234	218	228	220						
23										228	244	248	246	232	234	216	222							
24										240	240	282	244	240	242	222								
25										308	256	238	204	230	248	232	240							
26									218	260	248	226	240	218	268	226	208							
27										234	250	L 248	248		232	212	224	200						
28											256	242	310	234	234	260	240							
29										234	254	252	344	276	234	A	232	238						
30											276	292	268	230	236	232	226	208						
31									204	244	236	222	238	244	238	228	228							
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT									10	21	30	30	31	29	31	29	26	8						
MED									216	234	247	244	248	249	238	228	229	212						
U Q									222	244	256	252	266	262	248	247	236	217						
L Q									210	228	238	226	238	233	234	222	222	209						

JAN. 2018 h'F2 (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

JAN. 2018 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	232	280	262	244	Q 286	Q 226	194	212	192	178	208	196	190	220	212	A	214	214	A	196	230	258	214	276
2	318	272	226	242	248	262	278	252	190	214	224	208	216	A	210	216	184	210	206	188	E A 222	270	220	202
3	210	282	298	260	184	A 214	260	230	218	206	216	208	190	180	184	230	230	200	200	172	222	248	A	E A 298
4	228	290	276	272	242	208	202	202	194	218	222	218	A 218	A	A	A	218	196	A 216	A	A	200	240	Q 254
5	Q 234	Q 262	256	250	212	180	280	220	202	212	204	A	186	170	184	A 220	A	220	180	186	212	188	194	240
6	278	258	226	232	210	A	270	210	200	194	A 214	182	180	A	210	204	196	A 224	194	202	E A 228	A	E A 220	412
7	282	Q 248	Q 254	224	218	238	316	236	216	206	190	168	224	210	204	196	E A 232	A	194	A	272	262	236	216
8	236	246	264	Q 264	Q 274	202	268	224	210	196	202	172	160	166	210	212	194	188	190	188	216	202	202	262
9	258	Q 344	Q 322	210	192	Q 250	Q 288	242	206	210	216	224	180	192	188	188	206	206	196	194	198	246	232	Q 226
10	Q 236	Q 256	Q 278	Q 244	184	A	E B 352	236	202	194	202	210	212	182	184	202	198	208	192	178	230	204	226	234
11	234	282	296	234	212	206	250	206	200	176	192	208	E A 244	214	216	220	212	198	202	192	262	Q 232	Q 232	Q 254
12	226	Q 220	Q 238	180	240	258	E B 330	272	210	206	216	192	204	204	204	196	204	212	190	210	238	206	226	226
13	260	Q 256	188	218	208	E B 324	306	280	222	210	218	198	172	166	162	194	194	212	182	190	258	236	202	A 278
14	272	Q 280	Q 274	258	186	E B 400	B	266	222	186	178	200	A	E A 246	A	222	218	222	190	218	A 228	246	222	Q 288
15	348	A 308	234	A	A	A	A	244	222	208	204	208	A	206	A 238	176	A	202	190	A 238	210	A	216	234
16	260	Q 262	Q 286	Q 304	Q 230	A	B	240	208	200	208	206	A	178	172	172	218	196	188	178	202	A 208	238	210
17	288	260	262	204	190	194	338	222	202	220	210	200	182	204	222	202	184	208	182	176	206	196	284	212
18	228	308	Q 262	270	Q 222	196	B	244	208	220	210	A	A	A	E A 242	A	210	206	180	190	218	222	244	256
19	250	Q 326	Q 312	Q 290	Q 202	206	258	238	212	204	204	196	200	206	188	194	206	198	202	182	246	190	306	232
20	Q 318	Q 256	250	Q 232	224	Q 184	354	240	158	210	216	234	200	202	172	184	196	194	192	174	192	230	256	270
21	Q 316	Q 254	Q 240	204	196	382	300	226	212	210	214	222	182	234	206	H 198	220	218	192	176	246	Q 230	Q 192	Q 254
22	Q 284	Q 288	Q 300	224	188	E B 390	E B 368	226	156	224	204	196	200	H 194	182	206	214	182	192	194	208	206	206	Q 220
23	Q 222	Q 260	Q 286	234	220	300	266	206	210	184	198	244	A	184	172	204	216	204	186	190	264	Q 254	Q 200	Q 258
24	Q 240	Q 236	Q 256	Q 234	Q 194	Q 266	310	232	218	218	216	200	178	202	192	208	218	196	190	198	246	226	Q 250	Q 292
25	Q 280	Q 318	Q 282	Q 234	Q 202	Q 240	Q 292	236	218	A	A	200	188	174	178	208	A	214	200	190	A 256	A	A 248	260
26	266	222	198	226	294	Q 294	Q 284	220	174	208	202	202	190	170	216	210	196	192	198	252	234	192	208	224
27	264	260	256	282	236	198	Q 234	214	208	210	210	194	192	218	218	184	176	182	200	194	206	212	230	226
28	258	Q 284	232	Q 264	192	322	308	230	200	206	212	206	206	204	H 178	226	216	218	188	180	214	222	244	Q 276
29	Q 272	Q 252	Q 248	Q 248	200	186	292	242	220	220	204	186	200	A 222	212	A	182	182	198	198	230	206	240	Q 202
30	242	264	216	Q 254	222	204	290	230	212	216	206	176	190	210	202	196	190	180	196	190	240	Q 222	206	214
31	264	224	270	304	242	228	290	238	162	218	214	210	192	188	178	186	212	222	186	218	A	194	234	274
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	30	30	27	27	31	31	30	30	29	26	27	29	27	28	30	30	29	29	28	30	31
MED	260	Q 262	262	243	212	218	285	232	208	209	209	200	190	202	197	202	207	205	192	190	228	222	228	247
U Q	280	Q 284	Q 282	264	236	294	310	242	216	216	216	209	204	210	212	212	217	214	198	198	246	241	240	274
L Q	234	Q 254	238	226	194	202	266	220	200	200	204	195	182	180	180	194	195	196	188	181	211	203	208	224

JAN. 2018 h'F (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

JAN. 2018 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	A	106	104	106	106	104	A	A	A	A	A					
2								B	108	A	A	A	A	A	A	A	A	A	B					
3								B	110	104	A	A	A	A	A	A	A	A	A					
4								B	112	102	A	A	A	A	A	A	A	A	A					
5								B	112	A	A	A	A	A	A	A	A	A	A					
6								B	108	102	A	A	A	A	102	104	A	104	A					
7								B	110	A	A	A	100	A	104	A	104	A	A					
8								B	112	102	102	100	106	106	104	104	104	104	B					
9								B	108	102	A	A	A	A	A	A	110	130	B					
10								B	A	A	A	A	A	A	104	102	A	A	B					
11								B	A	A	A	A	A	A	A	A	A	A	B					
12								B	102	102	A	100	A	A	A	106	A	A	B					
13								B	106	100	108	110	104	104	A	A	102	108	B					
14								B	102	102	100	104	A	A	A	A	108	110	A					
15								B	110	104	A	A	A	A	A	A	A	A	A					
16								B	106	106	A	A	A	A	A	102	110	A	A					
17								B	112	108	108	108	A	A	A	102	102	106	B					
18								B	106	104	104	110	110	106	106	102	A	A	B					
19								B	112	106	A	A	A	A	A	A	A	104	B					
20								B	104	104	104	102	A	A	106	108	A	104	B					
21								B	104	104	104	A	A	A	104	106	106	106	A					
22								B	B	104	106	106	A	104	102	A	A	A	A					
23								B	A	112	102	A	A	A	104	102	102	104	B					
24								B	104	104	104	106	A	A	106	A	106	106	B					
25								B	108	112	118	A	A	A	A	A	A	A	A					
26								B	106	A	A	A	A	A	106	108	A	A	B					
27								B	102	100	104	A	A	A	A	A	A	104	A					
28								B	108	106	106	106	A	A	A	A	A	A	B					
29								B	104	102	104	104	104	A	A	A	A	A	A					
30								B	100	100	100	104	106	A	A	A	108	A	B					
31								B	104	100	100	114	108	A	A	A	A	A	B					
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT									26	25	17	14	8	5	11	11	11	12						
MED									107	104	104	106	106	104	104	104	106	105						
U Q									110	106	106	108	107	106	106	106	108	107						
L Q									104	102	102	104	104	104	104	102	102	104						

JAN. 2018 h'E (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

JAN. 2018 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	78	108	88	98	92	92	88	84	84	90	90	86	158	118	104	104	102	98	98	114	114	98	84	90
2	90	90	90	90	84	84	98	92	G	108	100	100	100	96	96	94	100	90	88	86	82	82	78	78
3	78	B	96	B	B	90	90	90	88	154	102	100	102	106	102	100	156	94	96	110	90	92	90	90
4	90	88	88	90	88	88	88	88	88	156	120	120	102	94	94	92	92	110	94	90	88	90	90	82
5	80	82	B	B	94	90	90	B	150	118	118	100	98	126	96	90	90	90	88	84	84	82	B	82
6	B	B	106	88	88	94	88	88	G	108	100	98	126	90	156	152	88	108	94	94	94	94	104	110
7	86	B	B	86	92	92	84	92	92	106	94	96	158	92	108	98	144	118	106	98	92	B	110	110
8	B	B	94	92	84	86	B	B	156	94	170	94	92	90	152	112	82	G	84	88	84	84	B	88
9	82	106	90	90	94	B	94	B	G	156	104	106	100	98	98	94	94	94	88	86	80	80	80	78
10	92	90	B	B	86	90	90	88	112	102	102	98	94	94	108	88	86	94	94	90	86	78	90	90
11	94	98	96	96	96	90	90	90	90	96	152	94	108	102	100	104	94	102	96	96	120	94	114	106
12	98	B	92	B	B	88	102	B	138	150	130	118	116	108	94	108	90	90	86	92	84	88	86	86
13	86	82	B	B	88	88	86	84	148	166	130	126	110	104	86	104	98	G	102	110	106	86	86	82
14	90	86	102	94	94	88	90	90	154	G	G	152	170	180	100	140	126	112	92	92	100	96	102	102
15	102	100	108	94	92	90	140	138	152	G	110	110	150	96	108	92	92	116	86	86	86	108	112	84
16	B	B	B	90	92	86	92	88	124	172	150	120	102	110	102	G	96	96	92	92	128	112	B	B
17	84	108	B	90	90	92	84	86	158	164	88	110	110	100	100	154	G	90	88	88	86	92	B	B
18	B	B	B	B	B	B	86	B	144	190	174	134	116	102	104	104	104	98	96	B	90	90	84	B
19	B	124	88	82	B	86	88	100	G	98	106	106	108	102	102	96	100	140	88	82	B	B	B	B
20	B	B	B	B	B	B	164	B	G	184	148	100	102	96	96	100	94	G	84	96	96	96	88	84
21	94	B	106	94	98	98	B	B	150	152	164	138	130	92	92	116	86	148	122	144	94	118	116	138
22	100	100	94	102	92	88	B	B	112	144	140	122	144	136	112	90	90	94	88	86	86	86	114	B
23	B	B	B	B	B	B	B	B	110	94	156	92	92	92	88	154	194	162	B	132	124	134	106	90
24	B	124	96	B	B	96	94	130	148	128	122	108	106	104	86	172	86	G	84	84	100	96	92	100
25	98	114	104	B	90	B	B	B	172	124	108	104	132	112	102	96	94	100	94	102	98	108	94	90
26	B	90	B	90	94	B	B	102	G	104	104	108	98	104	154	98	90	120	86	86	86	B	B	86
27	86	96	92	94	90	90	90	148	166	150	126	104	104	96	96	96	96	140	92	84	84	B	92	92
28	B	B	92	92	96	90	88	88	G	142	128	126	108	102	108	94	90	88	B	B	88	B	84	130
29	B	B	94	88	88	B	88	88	G	150	162	142	102	100	100	92	92	92	92	92	92	94	90	B
30	92	92	92	98	96	90	96	90	G	166	140	128	110	110	106	100	92	94	90	90	86	86	80	B
31	B	B	B	96	94	92	B	86	G	166	142	124	110	108	100	94	94	94	92	90	124	112	90	B
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	19	18	20	21	24	24	24	21	21	29	30	31	31	31	31	30	30	27	29	29	30	26	25	23
MED	90	97	94	92	92	90	90	90	144	144	124	108	108	102	100	99	94	98	92	90	90	93	90	90
U Q	94	108	99	95	94	92	94	96	153	160	148	124	126	108	108	108	100	116	95	97	100	98	105	102
L Q	84	90	91	90	88	88	88	88	101	105	104	100	102	96	96	94	90	94	88	86	86	86	85	84

IONOSPHERIC DATA STATION Okinawa

JAN. 2018 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	F 1	F 2	F 1	F 2	F 2	F 2	L 2	LQ 61	LH 11	LH 21	LH 11	HCL 11	CLL 21	CLL 21	CQ 31	CQ 21	LQ 31	LQ 71	FQ 21	FF 22	FFQ 22	FQ 21	F 2
2	FQ 11	FQ 21	FQ 31	FQ 31	FQ 21	FQ 21	FQ 11	L 1		C 1	CQ 21	C 2	C 2	LQ 31	LQ 31	LQ 31	L 1	L 3	L 2	F 4	F 6	F 5	F 3	F 3
3	F 1		F 1			FQ 71	FQ 21	L 1	L 3	H 1	C 1	CQ 11	CQ 21	CQ 11	CQ 21	LH 21	HL 12	LH 51	L 3	FF 13	FQ 31	FQ 31	FQ 61	FQ 51
4	FQ 21	FQ 11	FQ 11	FQ 11	F 2	F 1	F 1	L 2	L 2	H 1	CQ 21	CQ 21	CQ 31	LQ 61	LQ 41	LH 21	LH 41	CL 24	L 4	FQ 41	FQ 61	FQ 11	F 1	F 1
5	F 1	F 1			F 2	F 3	FQ 11		H 1	CQ 21	CHQ 21	CQ 31	LQ 21	CQ 11	LQ 11	LQ 21	LQ 41	LQ 31	LQ 11	FQ 31	FQ 21	FQ 11		F 1
6			FFQ 22	FQ 21	FQ 21	FQ 31	FQ 21	LQ 21		CQ 21	CQ 31	LQ 21	CLQ 12	LQ 41	H 1	H 1	L 2	C 6	L 6	F 2	F 5	FQ 41	FFQ 14	FFQ 13
7	F 2			FQ 31	FQ 11	FQ 21	FQ 11	L 1	L 1	C 2	LC 11	L 1	H 1	LH 11	C 1	L 3	HC 31	C 5	C 5	FQ 71	FQ 11		FF 11	FF 11
8			FQ 21	FQ 11	F 1	F 1			H 1	L 1	H 1	L 1	L 1	L 1	H 2	C 2	L 2		LQ 11	F 1	F 1	F 1		F 1
9	F 1	FQ 11	FQ 11	FQ 11	F 3		F 2			HCL 11	CLL 31	CQ 11	CQ 31	LQ 21	LQ 21	LQ 11	L 2	L 1	L 1	F 1	F 4	F 2	F 3	F 1
10	F 1	F 2			F 1	F 1	FQ 11	LQ 11	CL 11	C 2	C 3	L 2	LQ 31	LQ 21	CL 13	L 2	LQ 31	LQ 11	L 1	F 3	F 2	F 1	F 3	F 2
11	F 3	F 1	FQ 11	FQ 11	FQ 11	FQ 21	F 2	L 2	L 3	LC 11	HL 12	LHC 21	CL 21	CL 31	C 2	C 2	LQ 11	CL 31	LL 12	F 1	FF 11	F 2	F 1	F 1
12	FQ 41		F 1			F 1	F 1		H 2	H 1	HQ 11	CQ 11	CLQ 12	CQ 21	LQ 31	CHQ 11	LQ 51	LQ 41	LQ 31	FQ 21	F 2	F 1	F 3	FQ 11
13	F 1	F 1			F 1	F 1	F 1	L 2	H 1	H 1	HL 21	CL 11	C 1	C 1	LC 11	C 1	L 1		CQ 31	FQ 11	FFQ 22	FQQ 11	FQ 11	FQ 31
14	FQ 11	F 1	FQ 11	FQ 21	FQ 31	FQ 31	FQ 11	L 1	H 1			H 1	HCQ 11	HCQ 21	CQ 21	HCQ 21	CLQ 32	CQ 31	LQ 51	FQ 51	F 4	FF 11	F 3	FFQ 21
15	FQ 31	FQ 31	FFQ 13	FQ 41	FQ 31	FF 41	FF 51	H 1	H 2		CHQ 11	CQ 21	HCQ 12	LQ 21	CQ 31	LQ 21	LQ 21	CLQ 23	LQ 31	LQ 31	FFF 32	F 4	F 1	F 1
16				FQ 21	FF 11	FQ 31	FQ 11	L 1	C 1	HC 12	HL 11	CQ 21	CQ 31	CLQ 41	L 1		LH 31	L 2	L 4	FF 11	FF 13	F 6		
17	FQ 11	FF 11		FQ 21	FQ 31	F 2	FQ 31	L 4	H 1	H 1	L 1	CQ 21	CLQ 11	C 2	C 1	H 1		L 1	L 1	FQ 11	F 1	F 1		
18							F 1		H 1	H 1	H 1	H 1	C 2	C 8	C 3	C 3	CQ 11	L 1	L 1		F 2	F 2	F 1	
19		FF 11	F 1	F 1		F 1	F 2	L 1		LH 11	CQ 11	C 2	C 1	C 1	C 1	L 1	L 1	H 1	L 1	F 1				
20							F 1			H 1	H 2	C 2	C 1	L 2	L 2	L 1	L 4		LQ 11	F 1	F 1	FQ 31	F 3	F 1
21	F 2		F 2	F 3	F 1	F 1			H 2	H 2	H 1	HL 22	HL 11	LHQ 21	LHQ 22	CLQ 11	LH 11	H 2	CL 32	FFF 11	F 4	F 1	FQ 11	FF 12
22	FQ 21	FQ 21	FQ 21	FF 24	F 1	F 1			C 1	H 1	H 2	C 2	HL 11	HL 11	C 1	LQ 21	LQ 21	LQ 11	LQ 71	FQ 41	F 3	F 1	F 1	
23									CHQ 11	LQ 21	HL 11	LH 31	LQ 31	LQ 21	LQ 11	HQ 11	H 1	H 1		F 1	F 1	F 1	F 1	F 1
24		FFQ 22	F 2			F 2	F 2	H 1	H 2	C 1	CL 21	CL 21	CL 11	C 1	LQ 21	HHC 11	L 1		L 1	F 1	F 1	F 1	F 1	F 1
25	F 2	FF 22	F 1		F 1				H 2	CL 52	CL 51	CL 41	HCQ 12	CLQ 22	LQ 11	L 2	L 3	LH 22	L 3	F 1	F 2	FFF 33	FF 21	F 2
26		F 3		F 1	F 1			C 1		CQ 11	CQ 11	CQ 11	LQ 21	CL 21	HLQ 11	LH 21	L 4	C 2	L 1	FQ 21	FQ 11			F 1
27	F 1	FQ 11	F 1	F 1	F 3	F 1	F 2	HL 11	H 1	H 2	C 1	CQ 11	C 1	L 2	LH 21	L 2	L 3	HL 11	L 2	F 1	F 1		F 1	F 1
28			F 1	FQ 21	FQ 11	FQ 21	F 3	L 2		H 2	C 2	CL 21	CLQ 21	CQ 21	CQ 21	LQ 21	L 2	LH 21			F 1		F 1	F 1
29			F 1	F 2	F 2		F 1	L 1		H 1	HL 11	HC 11	CL 11	CL 21	C 1	L 6	LQ 41	LQ 41	L 3	FQ 31	F 2	FQ 31	F 3	
30	F 2	F 3	F 1	FQ 21	FQ 11	FQ 21	FQ 11	LQ 11		HH 11	H 1	CQ 11	CQ 11	CQ 11	CQ 11	LQ 11	LQ 21	LQ 41	L 3	F 1	F 1	F 1	F 1	
31				F 2	F 3	F 2		L 2		HH 11	H 2	CL 21	CL 11	CQ 11	LQ 21	LQ 31	LQ 41	LQ 21	LH 54	FF 41	FF 34	FF 31	F 2	
	00	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																								

JAN. 2018 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

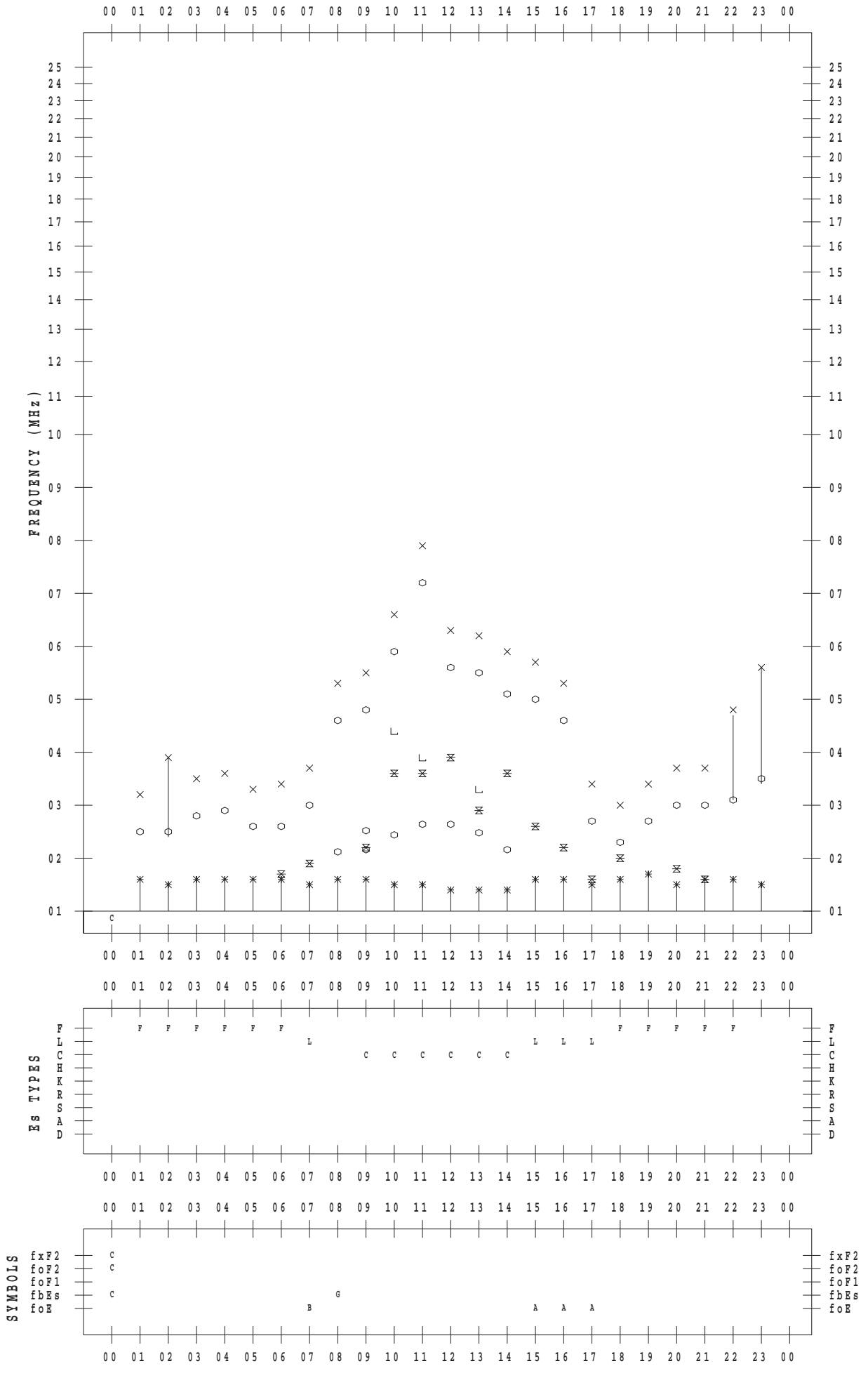
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2018/ 1/ 1

135 °E MEAN TIME



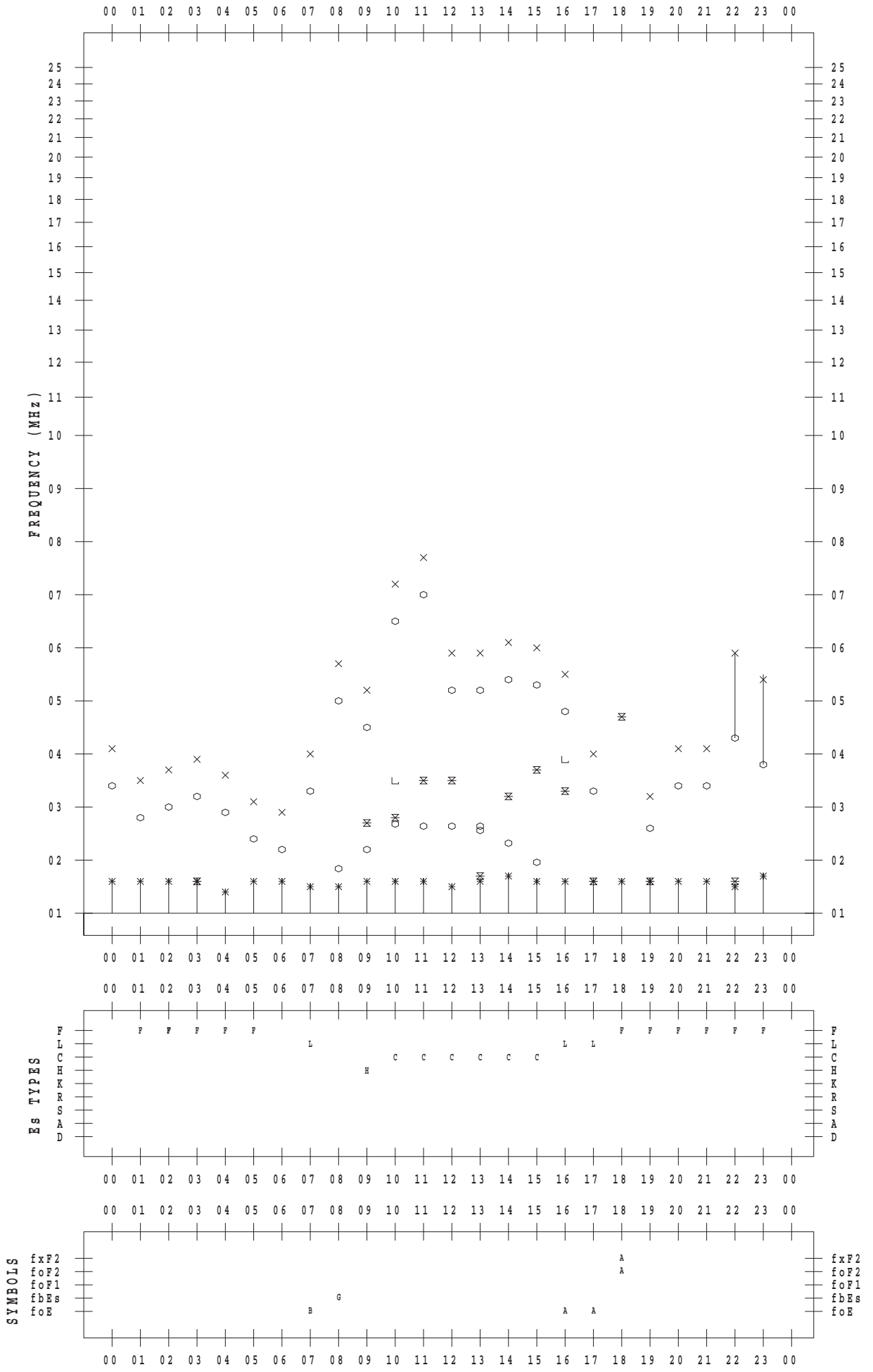
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2018/ 1/ 2

135 °E MEAN TIME



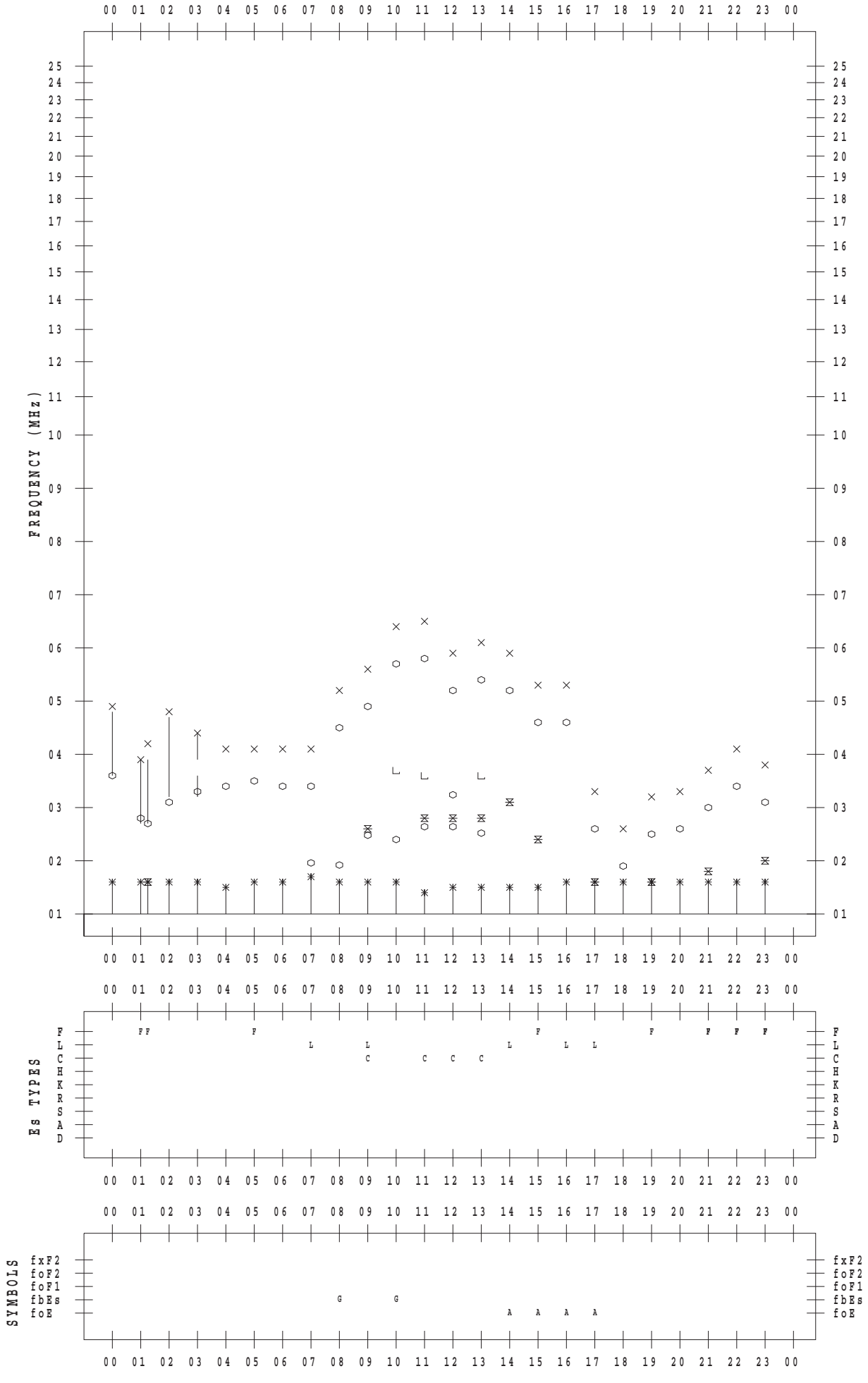
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2018/ 1/ 3

135 °E MEAN TIME



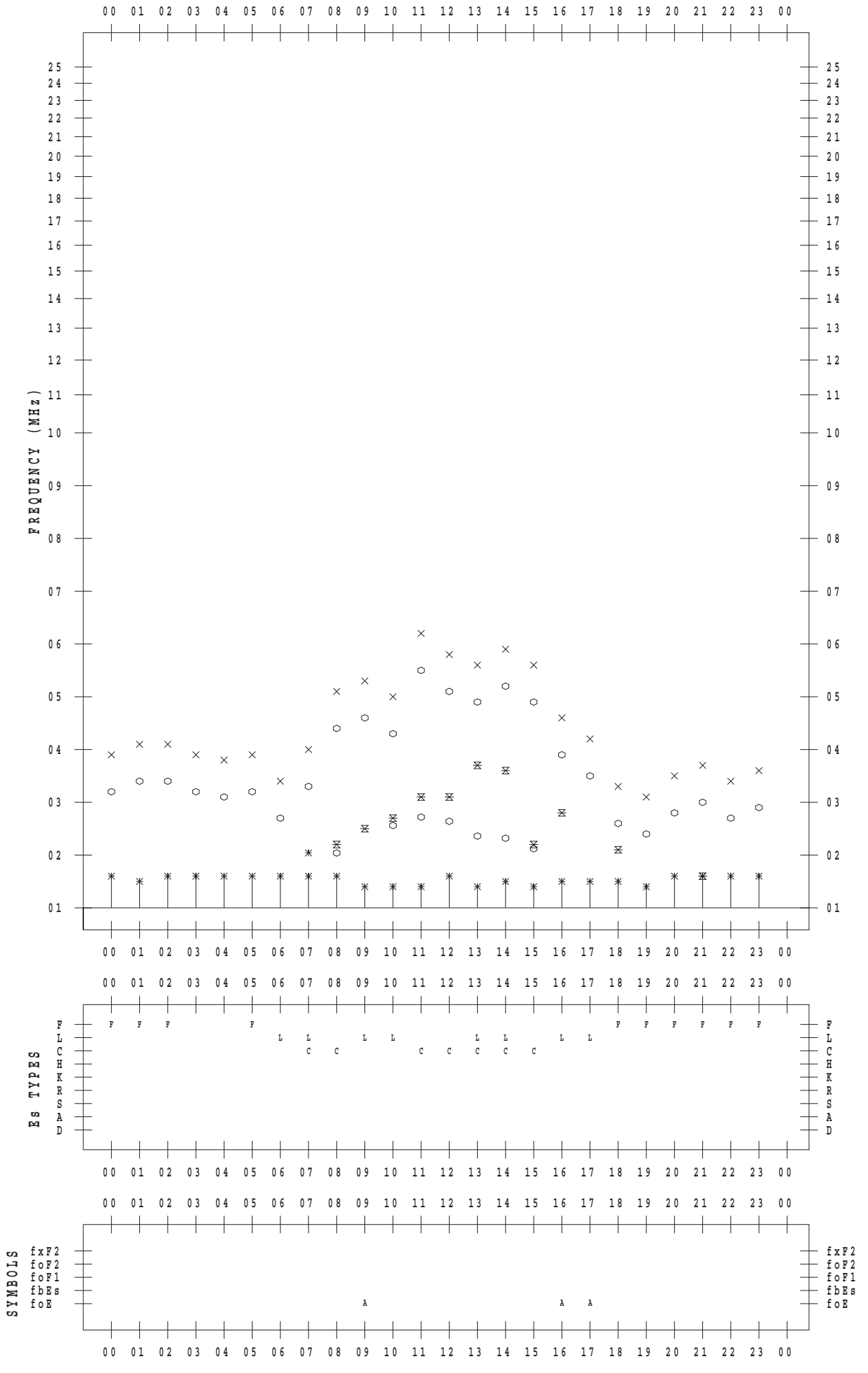
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2018/ 1/ 4

135 °E MEAN TIME



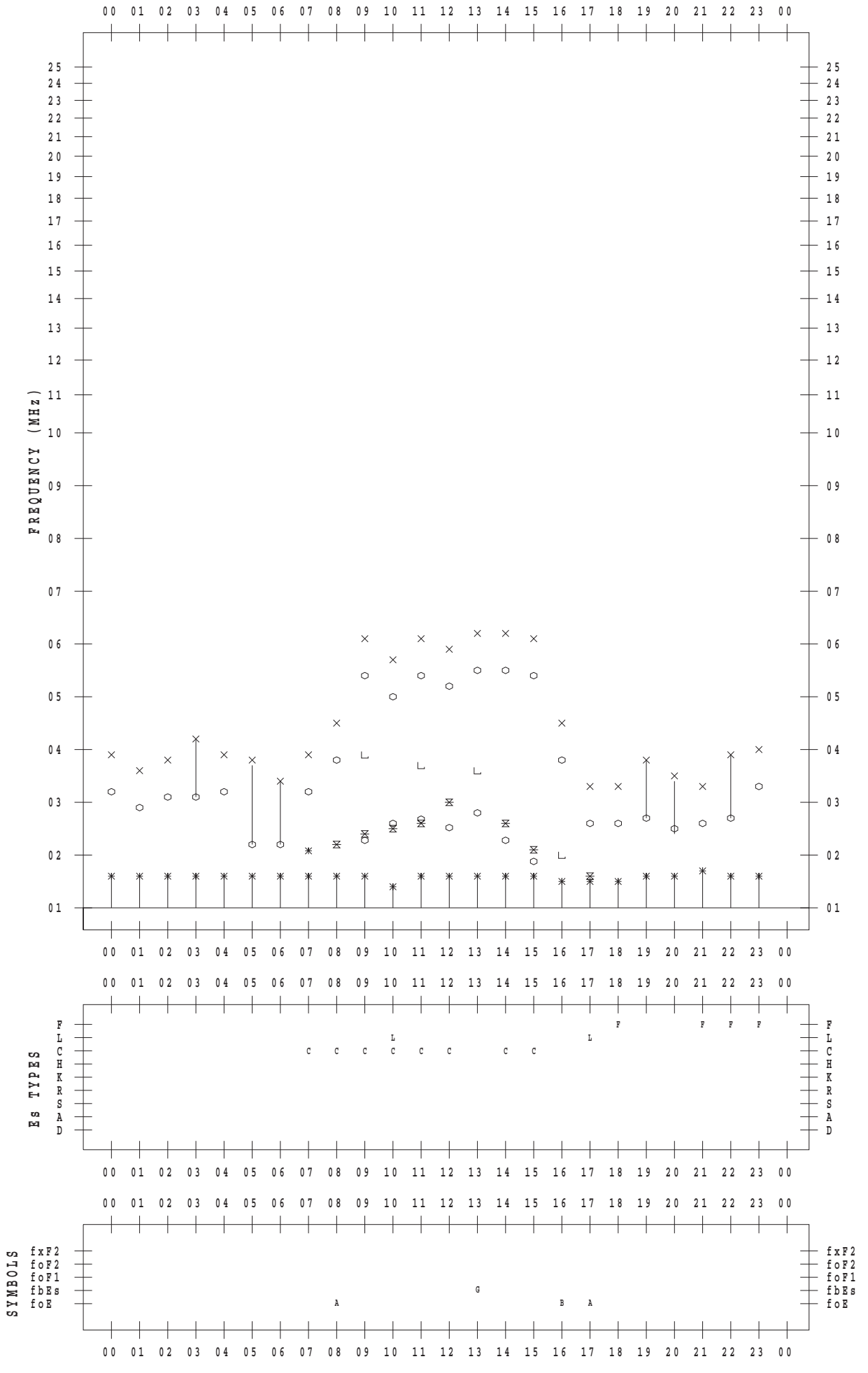
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2018/ 1/ 5

135 °E MEAN TIME



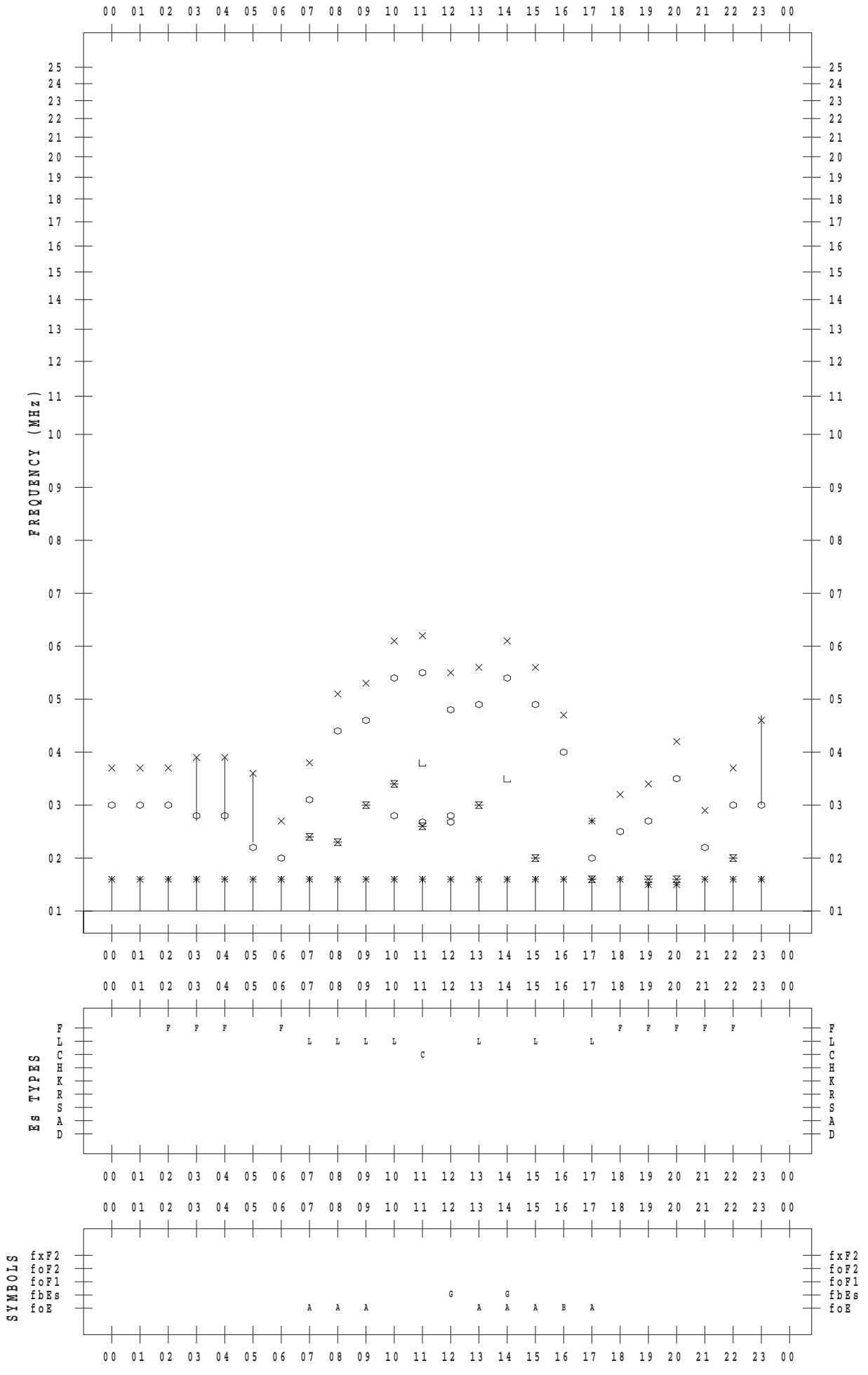
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2018/ 1/ 6

135 °E MEAN TIME



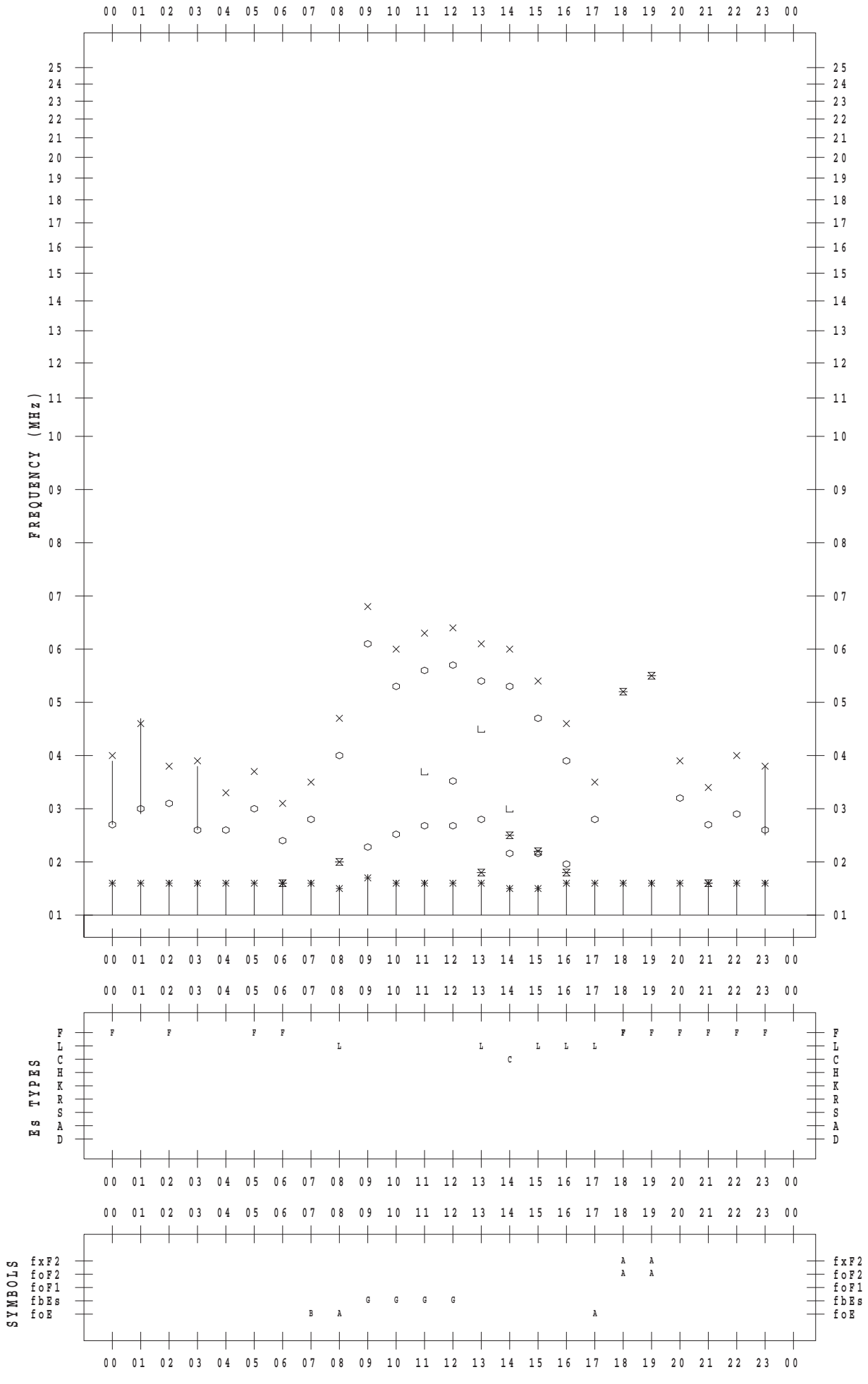
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2018/ 1/ 7

135 °E MEAN TIME



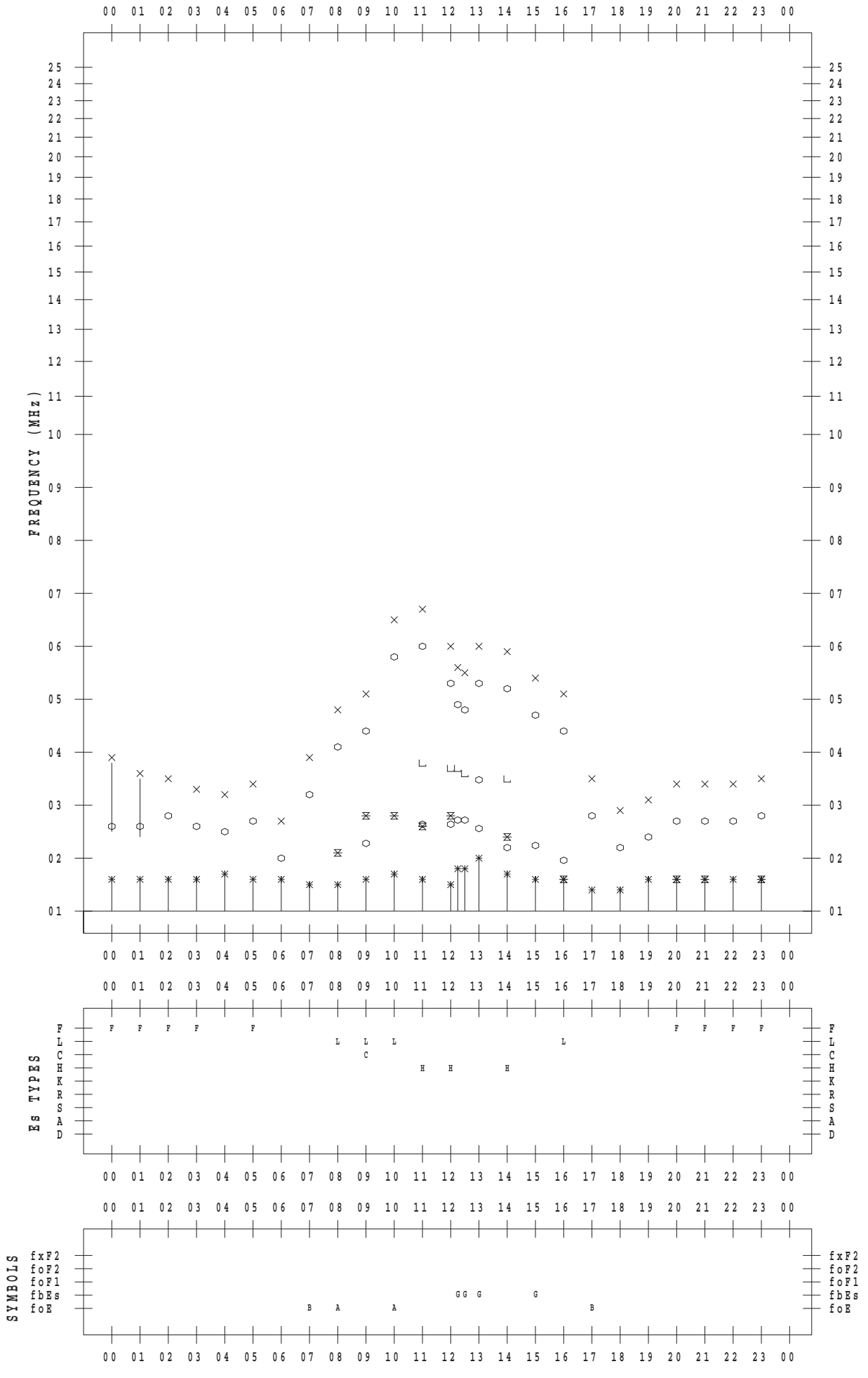
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2018/ 1/ 8

135 °E MEAN TIME



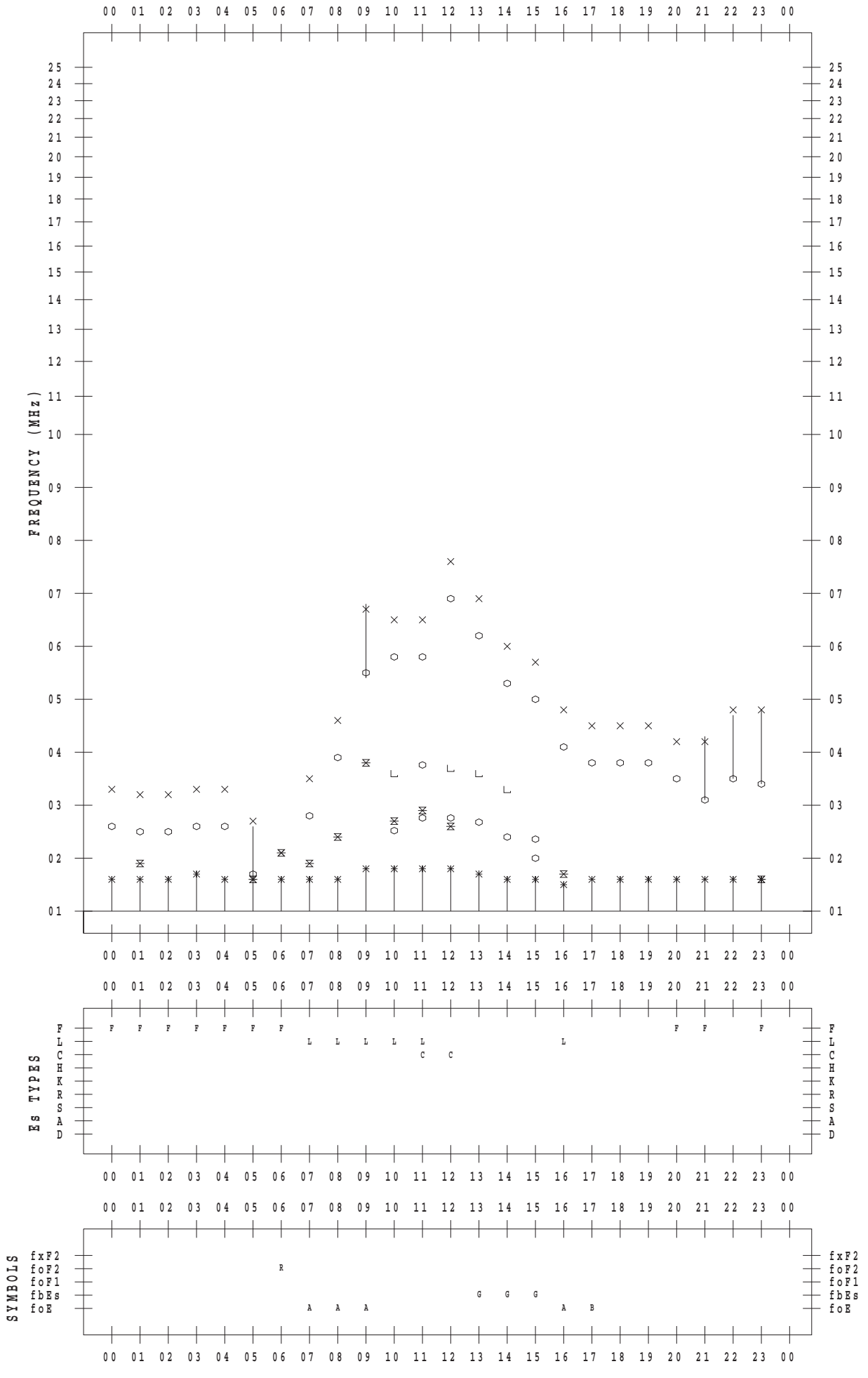
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2018/ 1/ 9

135 °E MEAN TIME



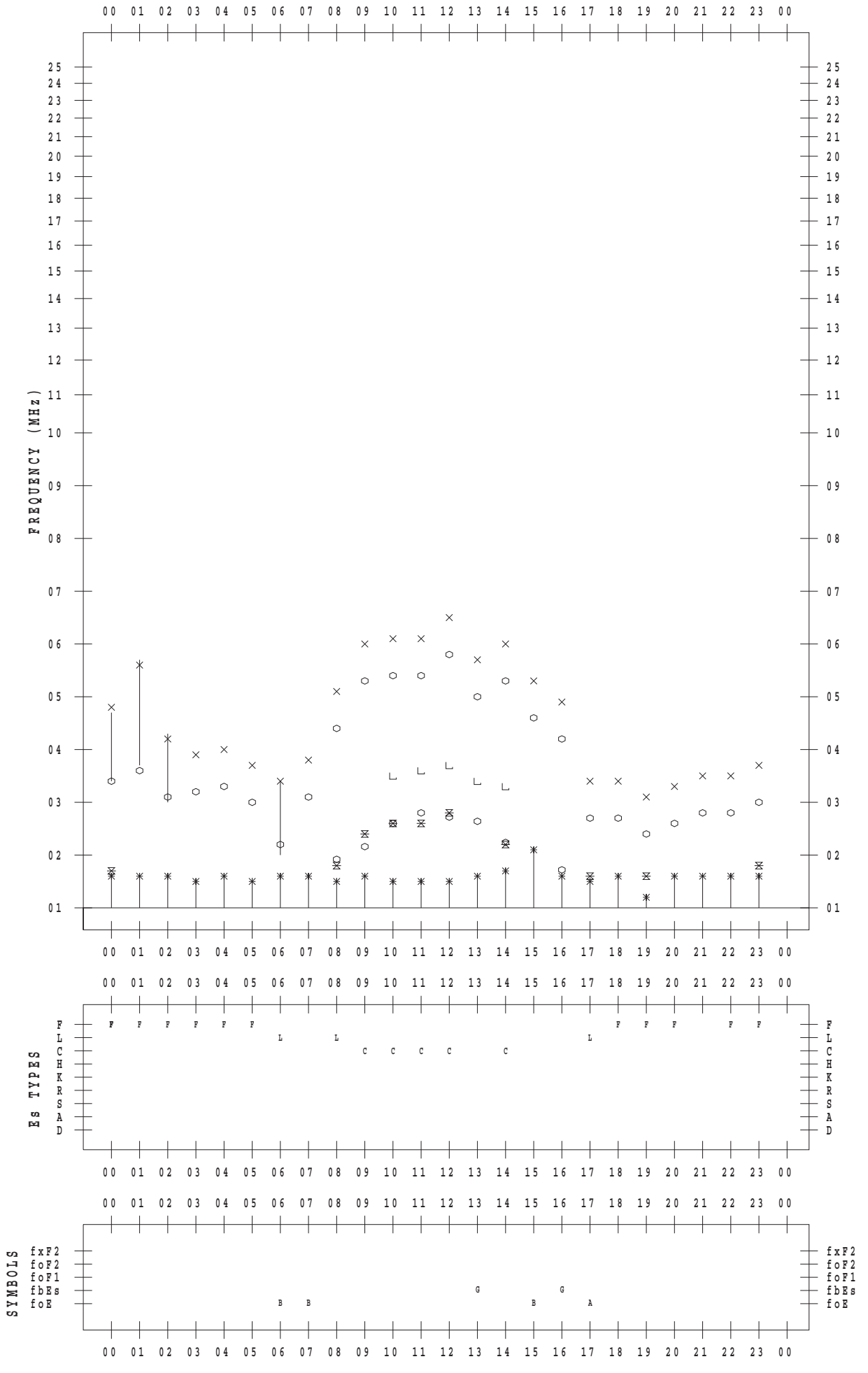
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2018/ 1/10

135 °E MEAN TIME



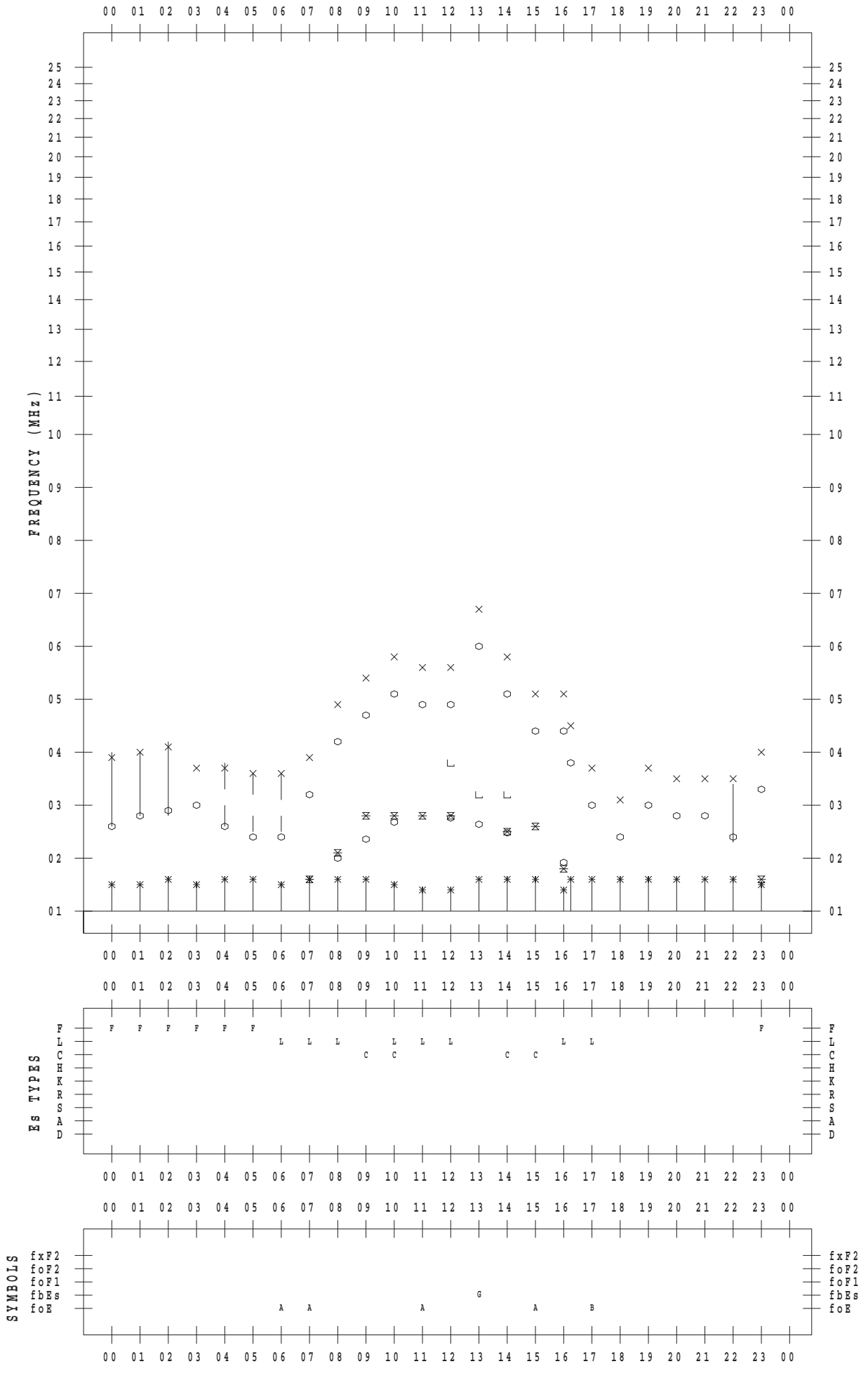
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2018/ 1/11

135 °E MEAN TIME



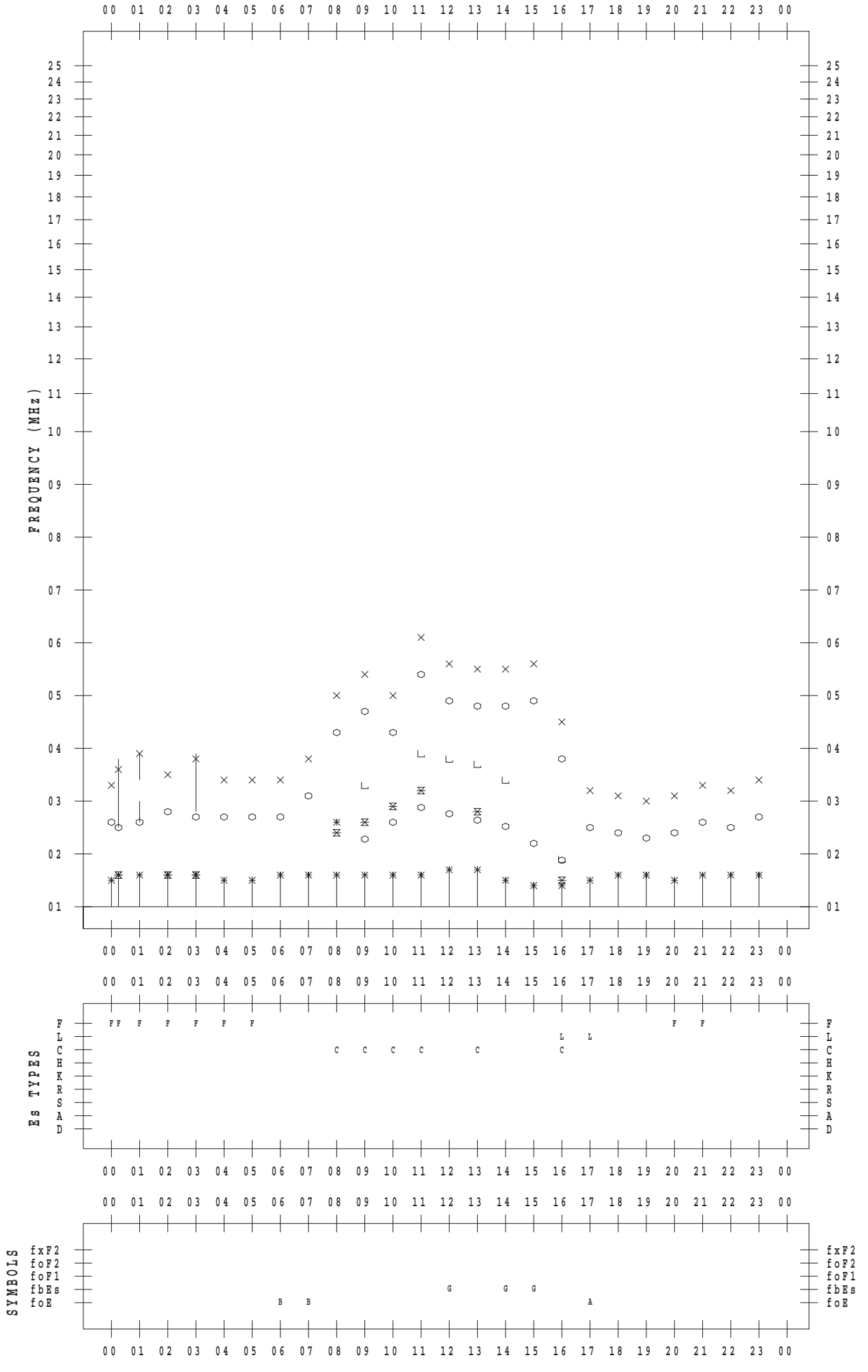
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2018/ 1/12

135 °E MEAN TIME



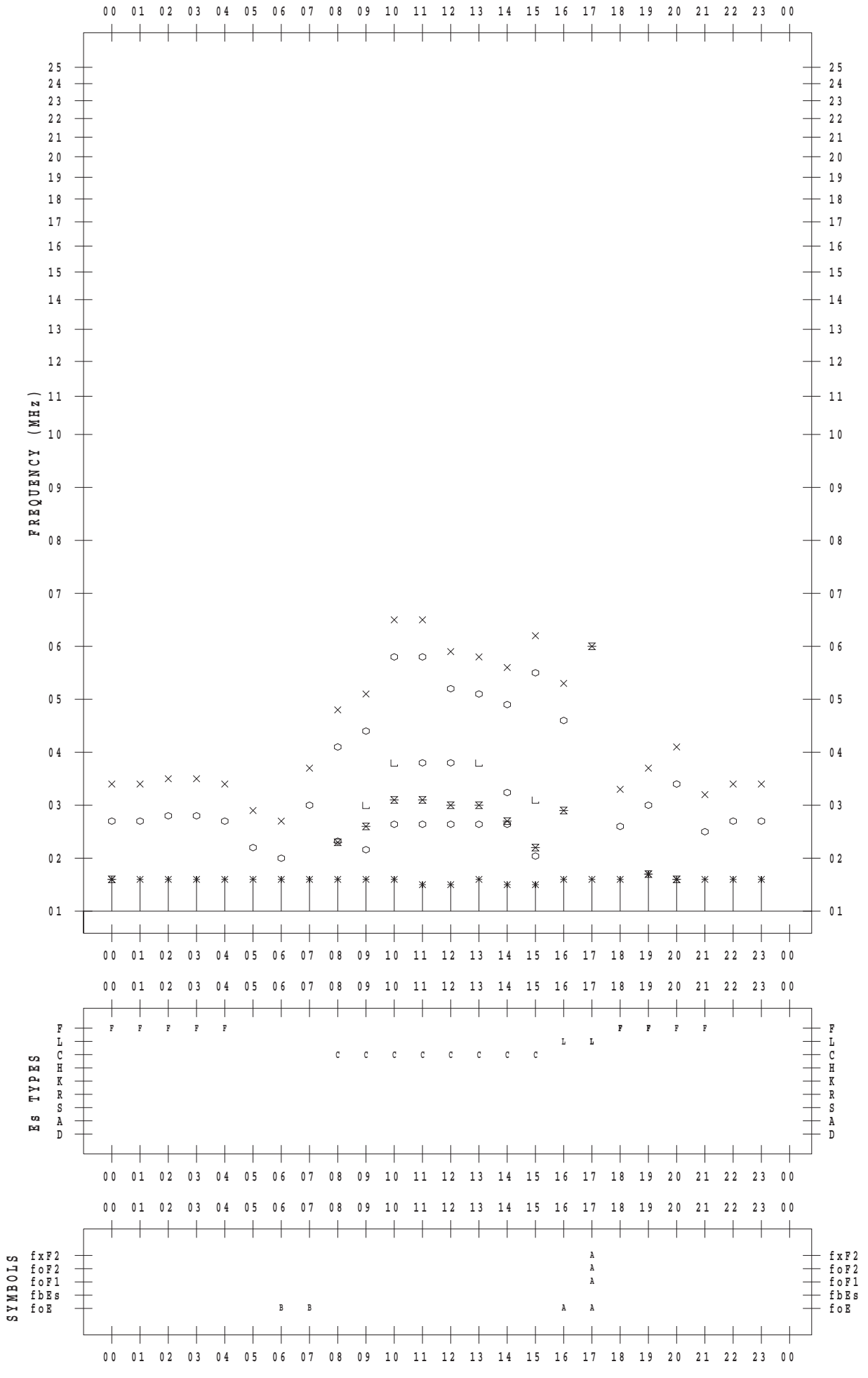
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2018/ 1/13

135 °E MEAN TIME



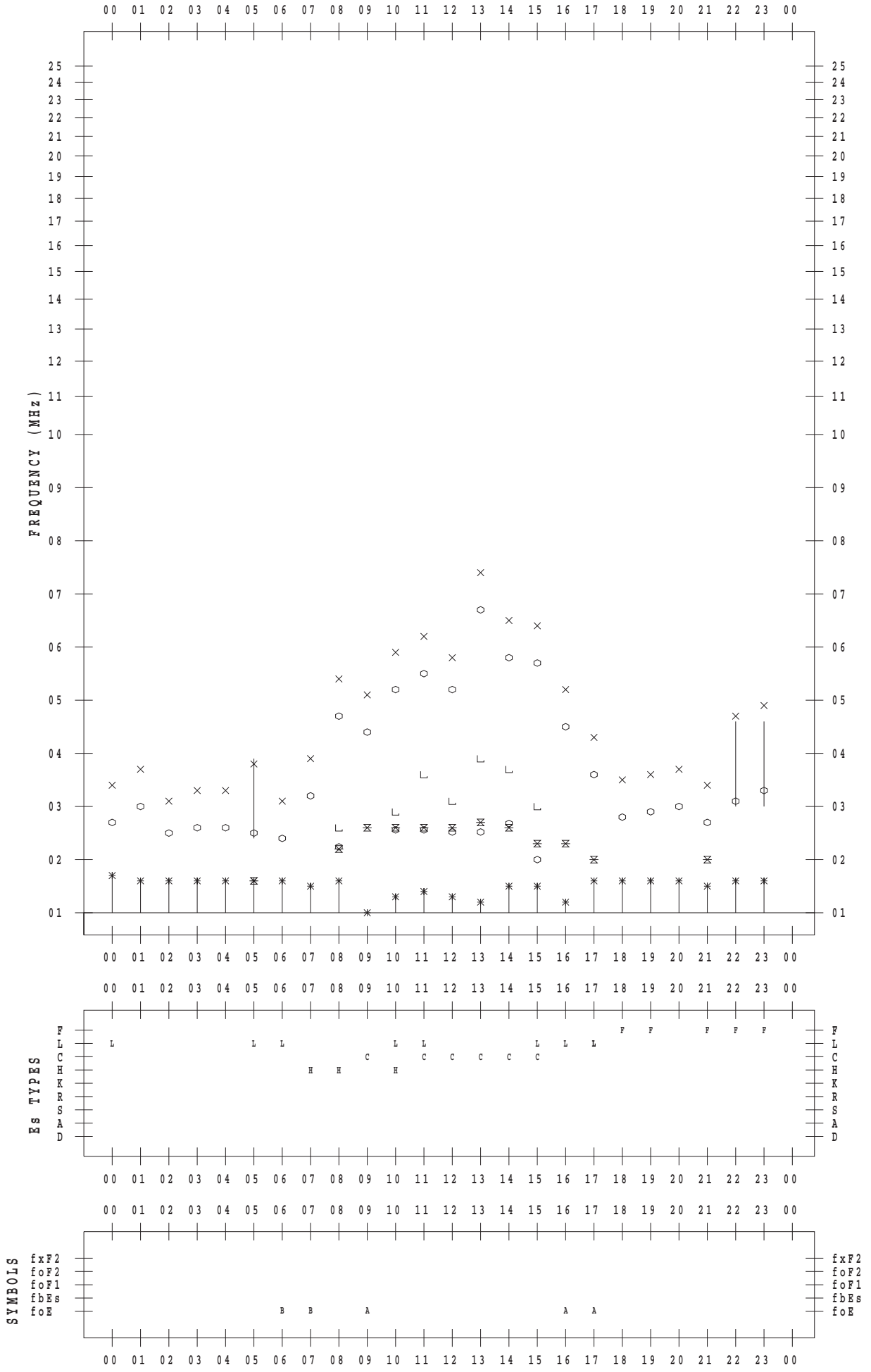
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2018/ 1/14

135 °E MEAN TIME



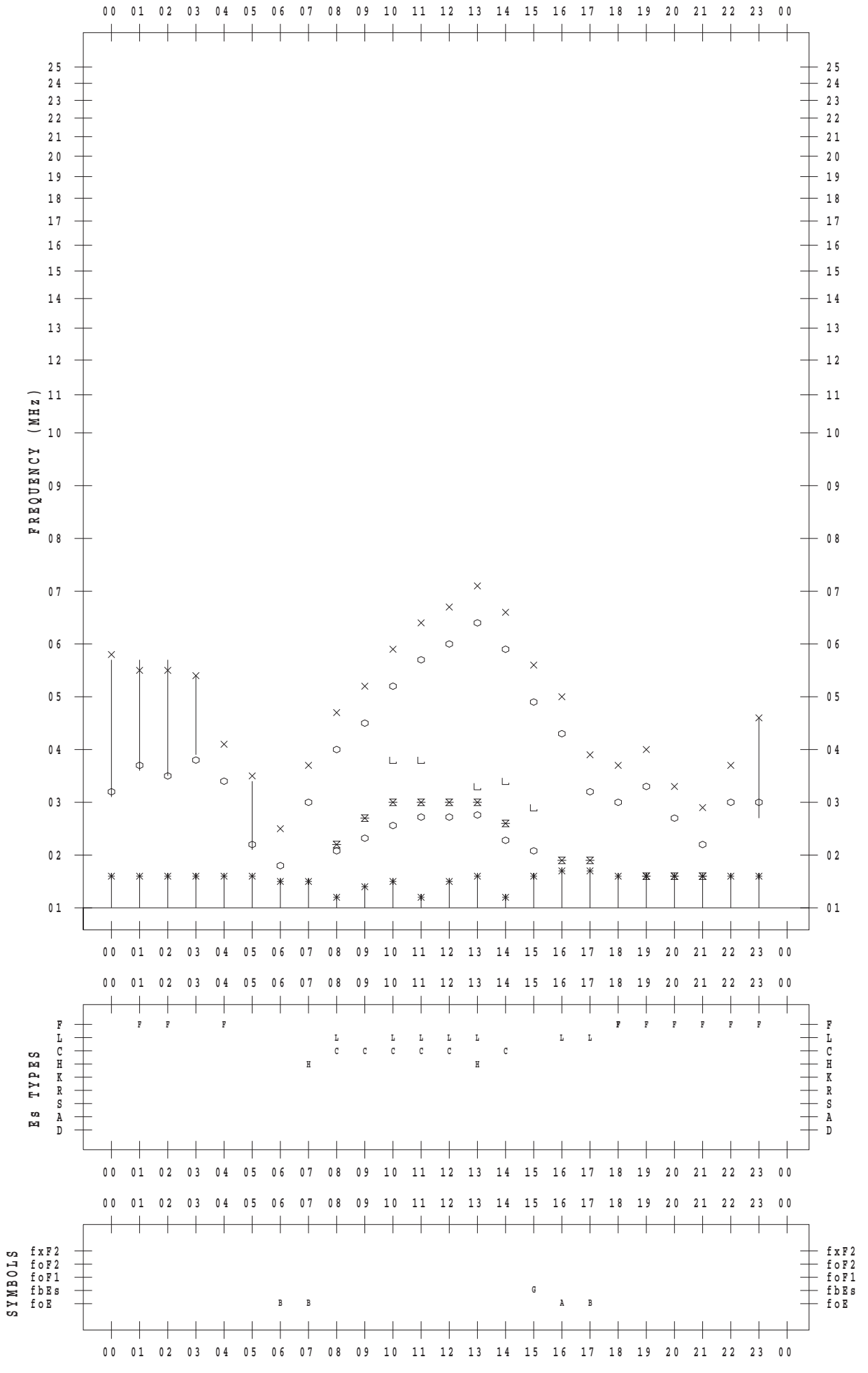
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2018/ 1/15

135 °E MEAN TIME



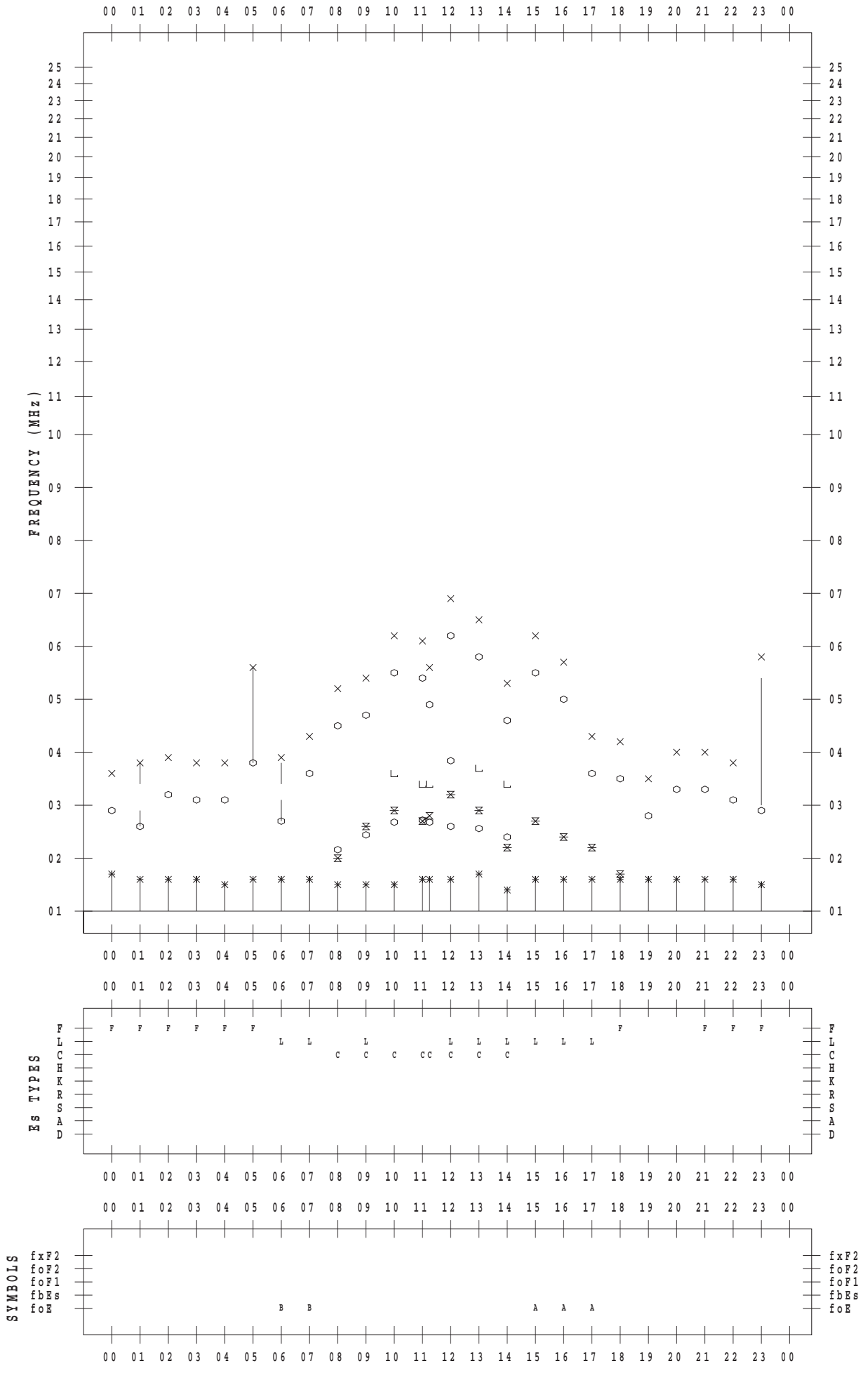
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2018/ 1/16

135 °E MEAN TIME



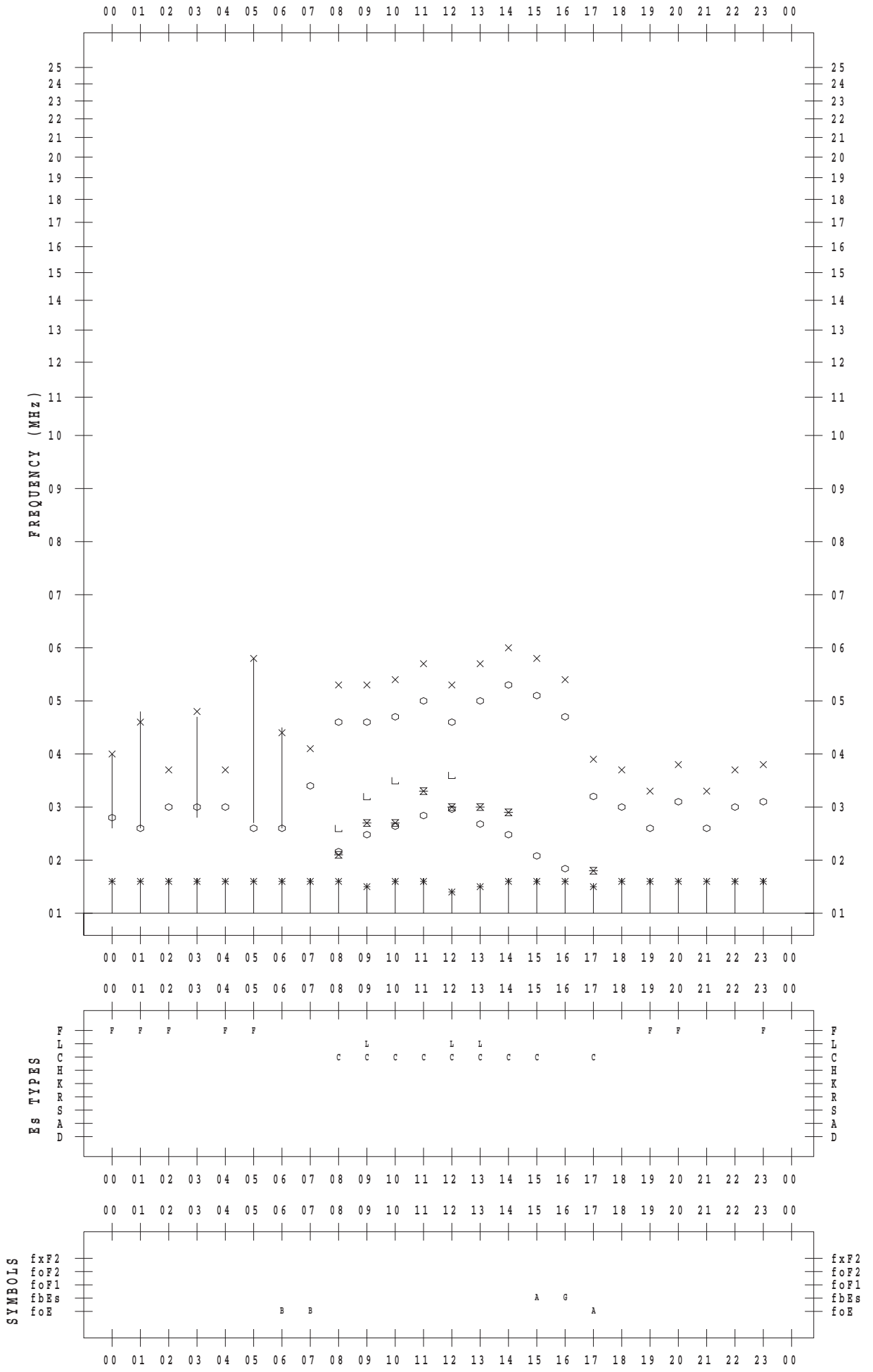
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2018/ 1/17

135 °E MEAN TIME



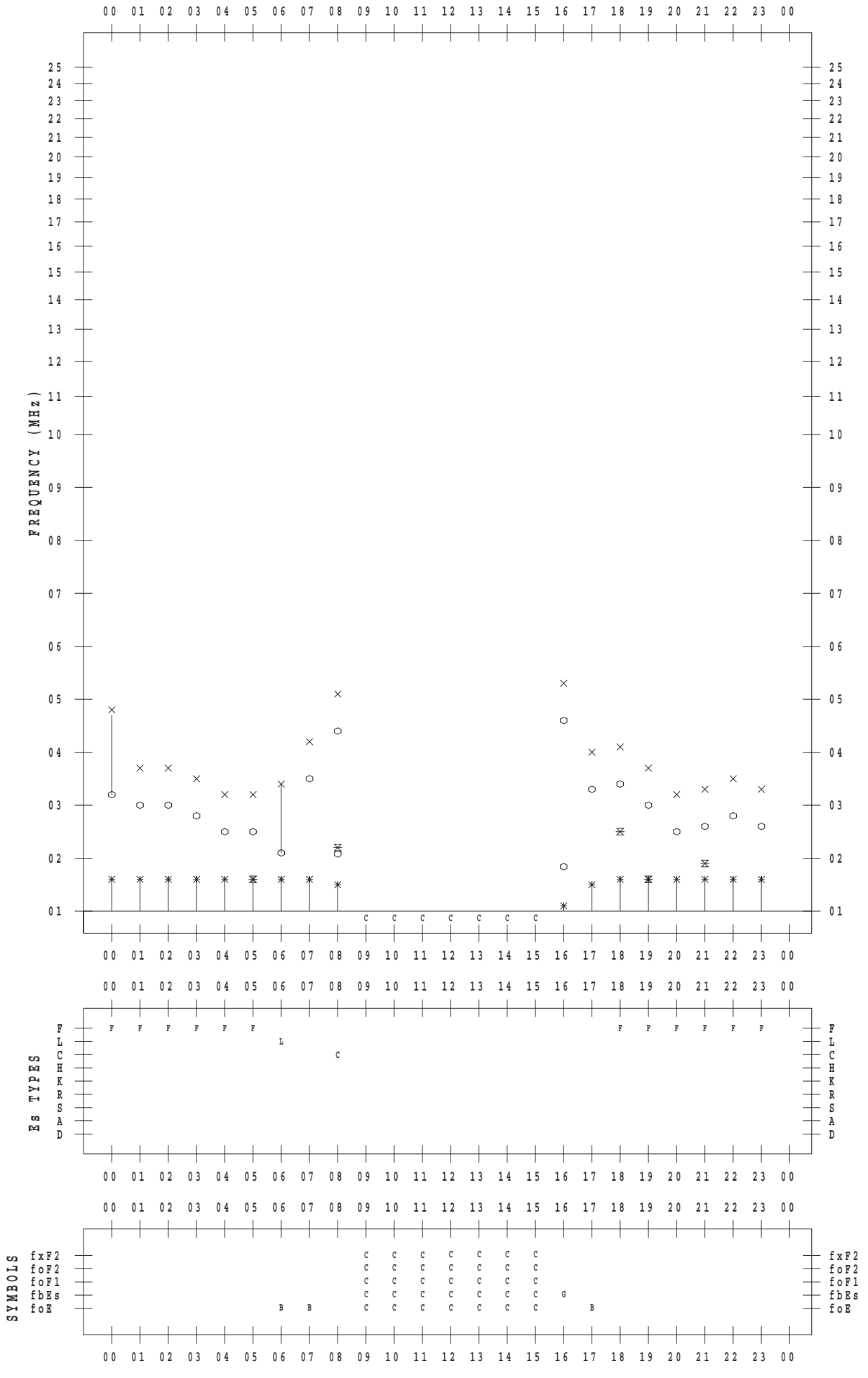
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2018/ 1/18

135 °E MEAN TIME



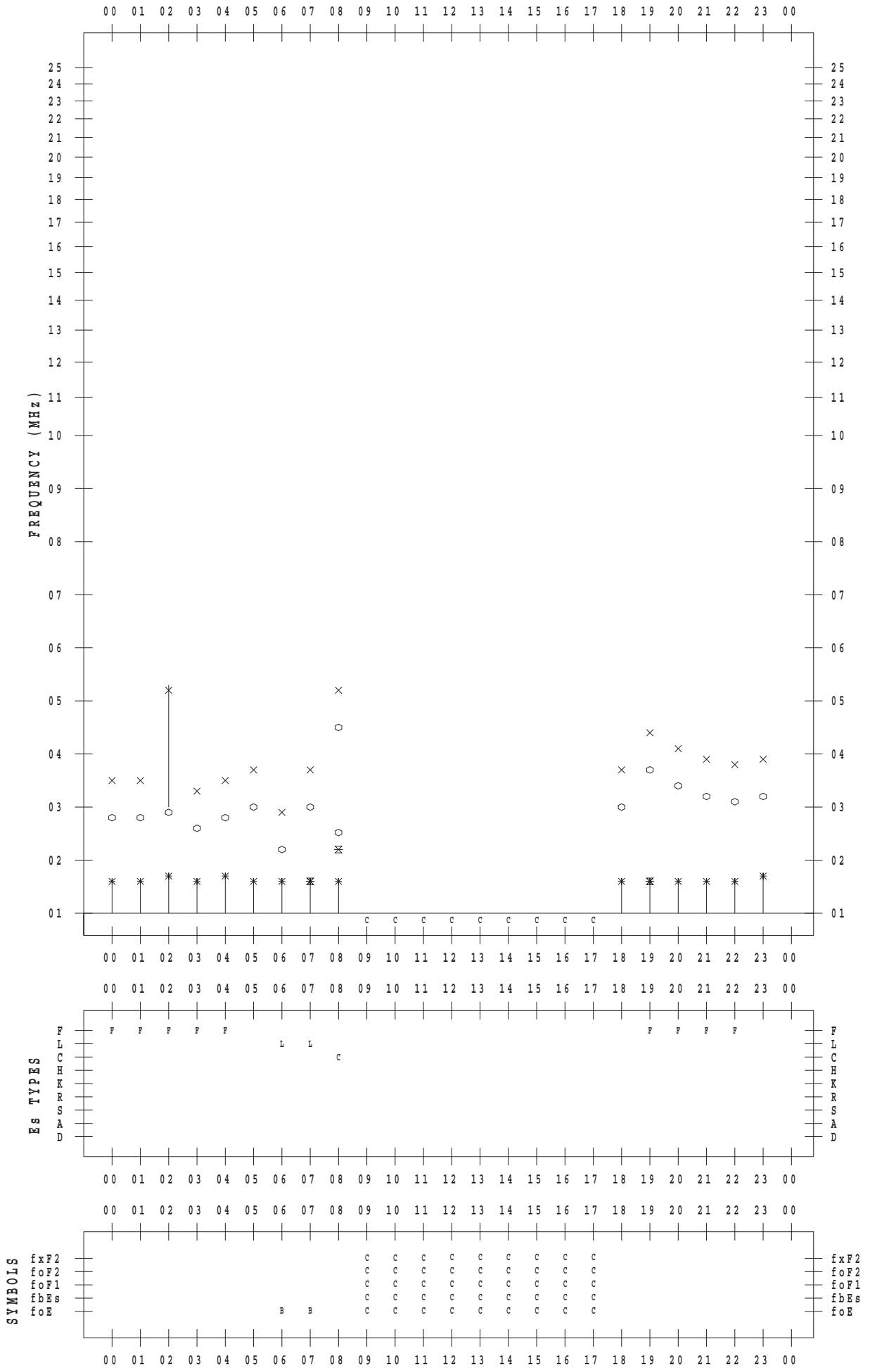
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2018/ 1/19

135 °E MEAN TIME



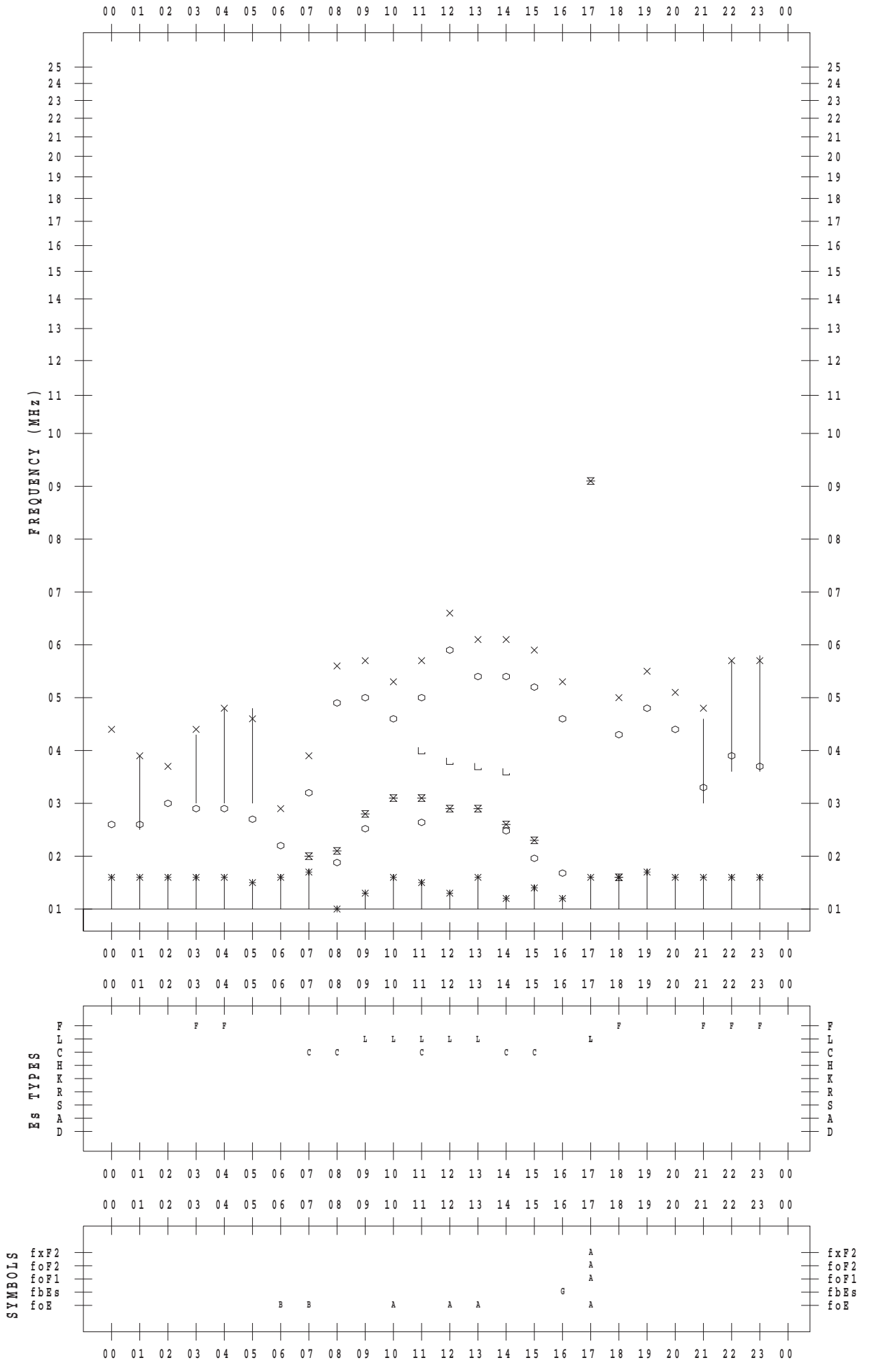
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2018/ 1/20

135 °E MEAN TIME



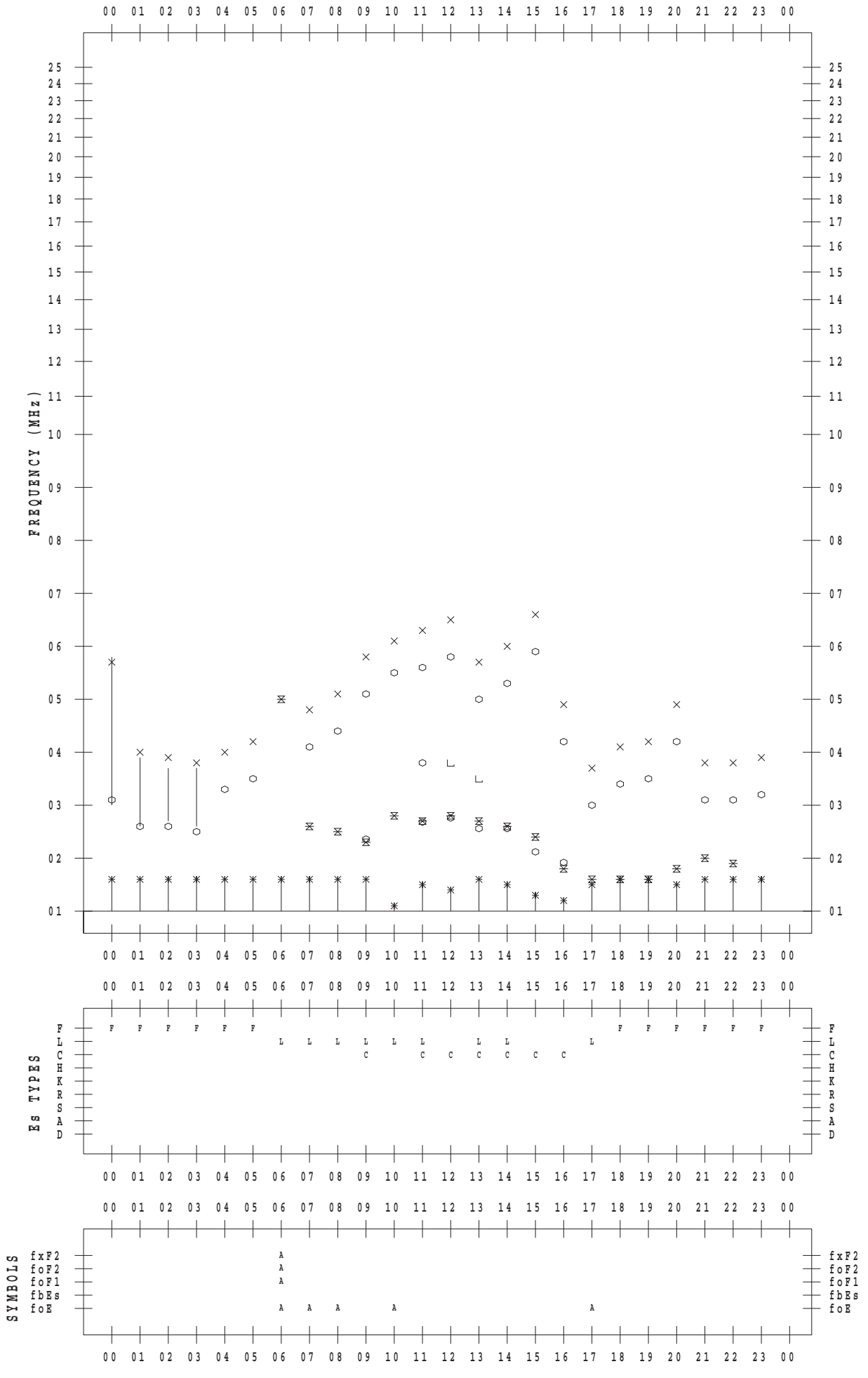
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2018/ 1/21

135 °E MEAN TIME



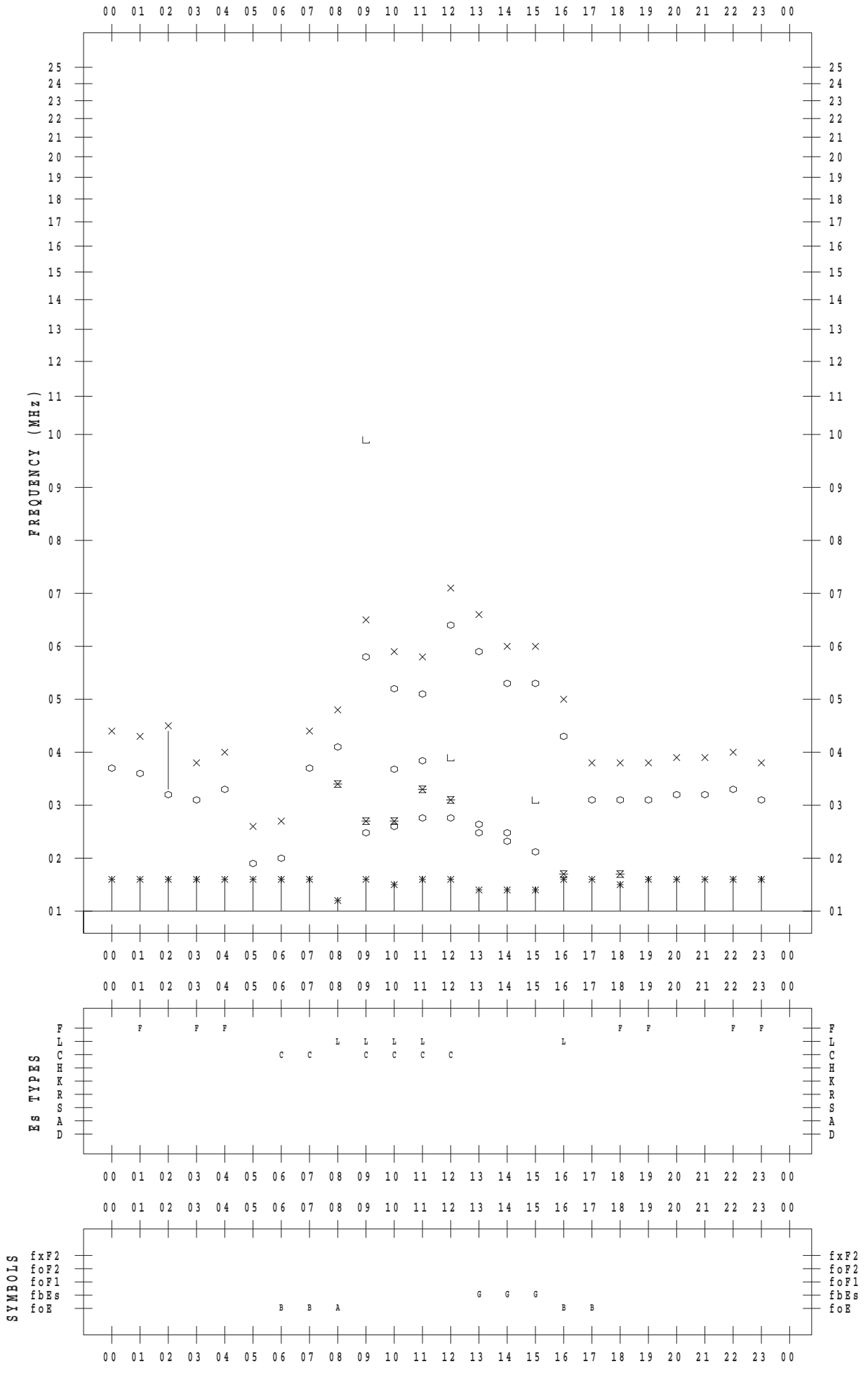
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2018/ 1/22

135 °E MEAN TIME



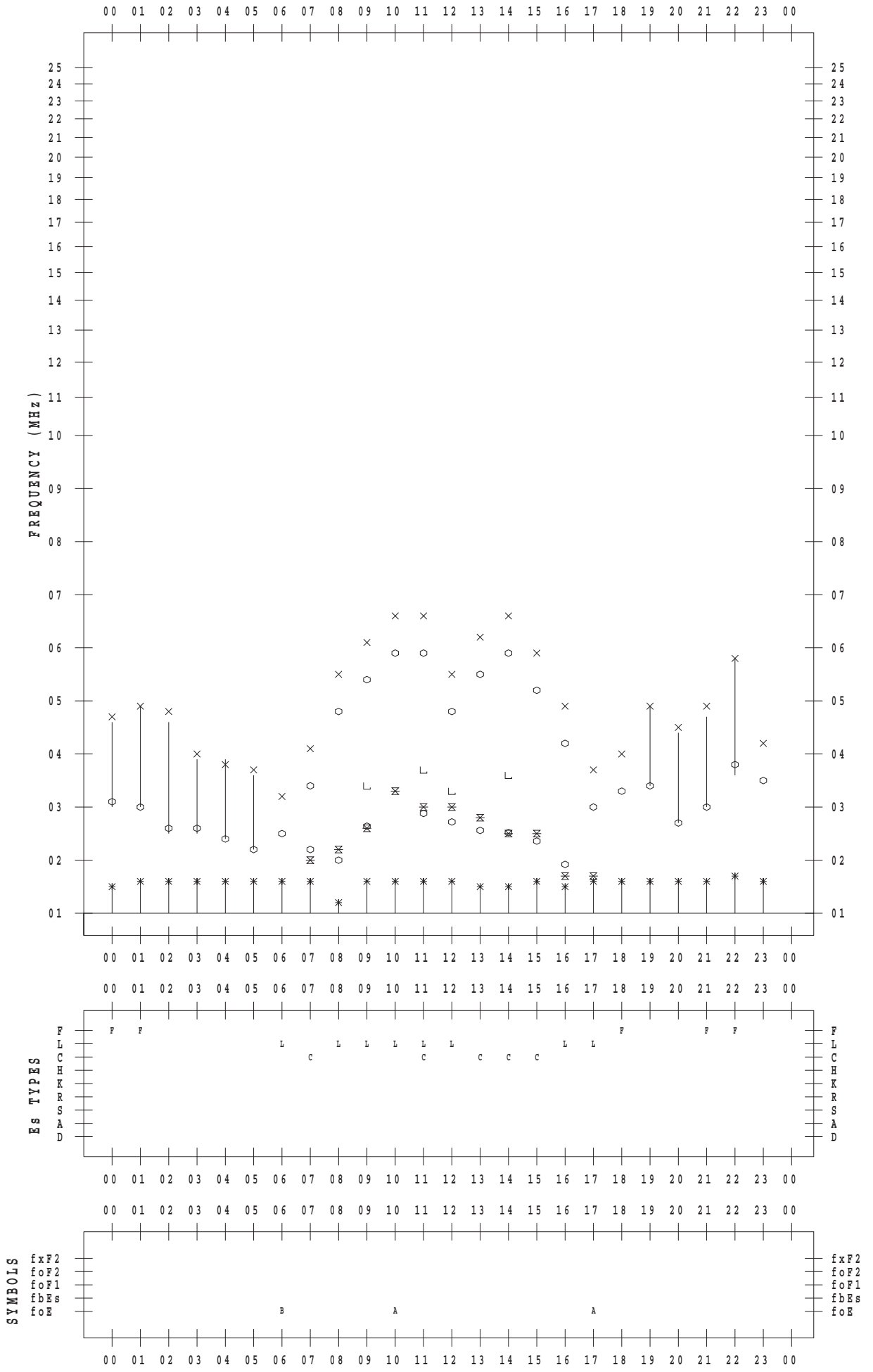
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2018/ 1/23

135 °E MEAN TIME



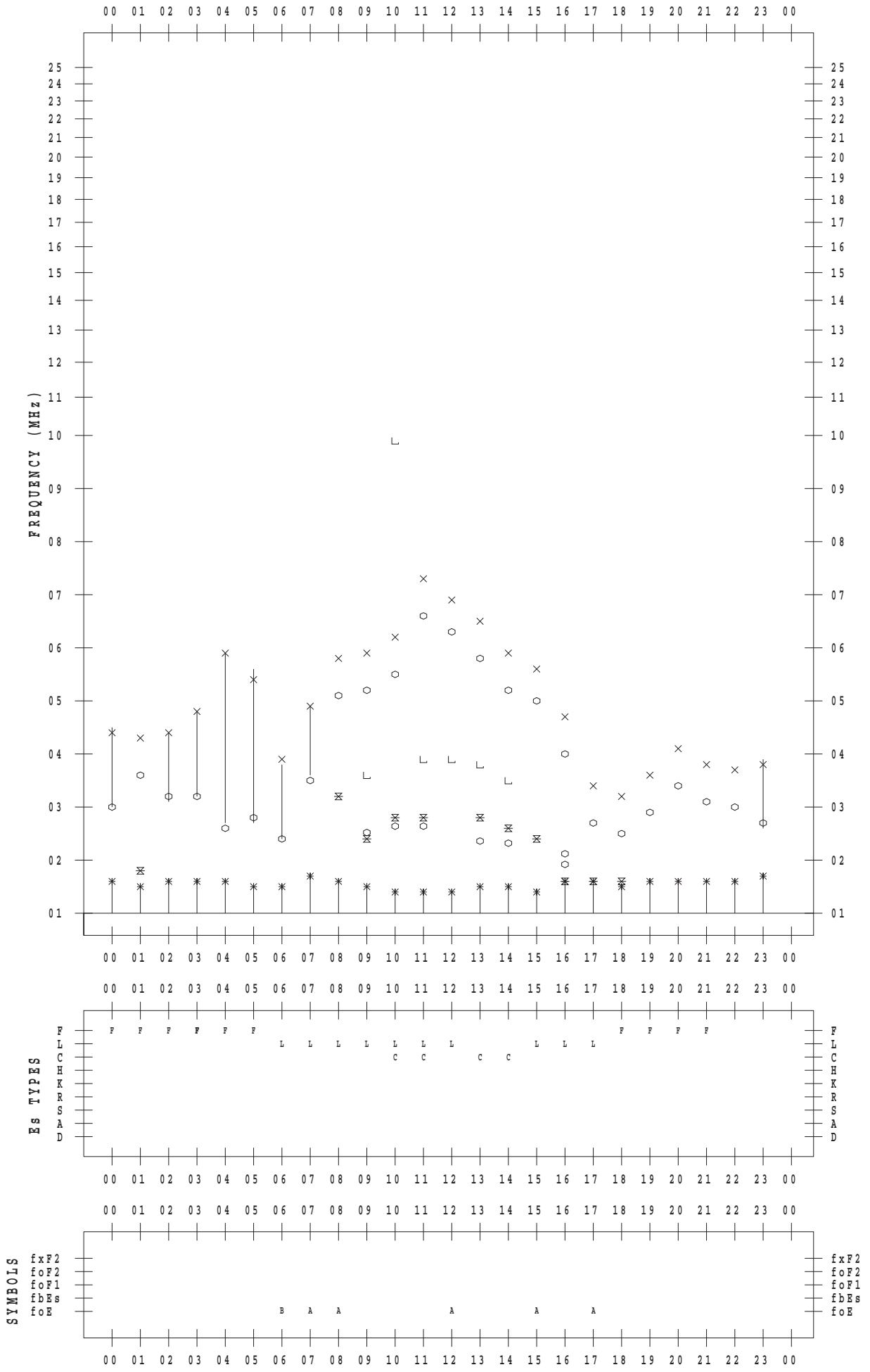
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2018/ 1/24

135 °E MEAN TIME



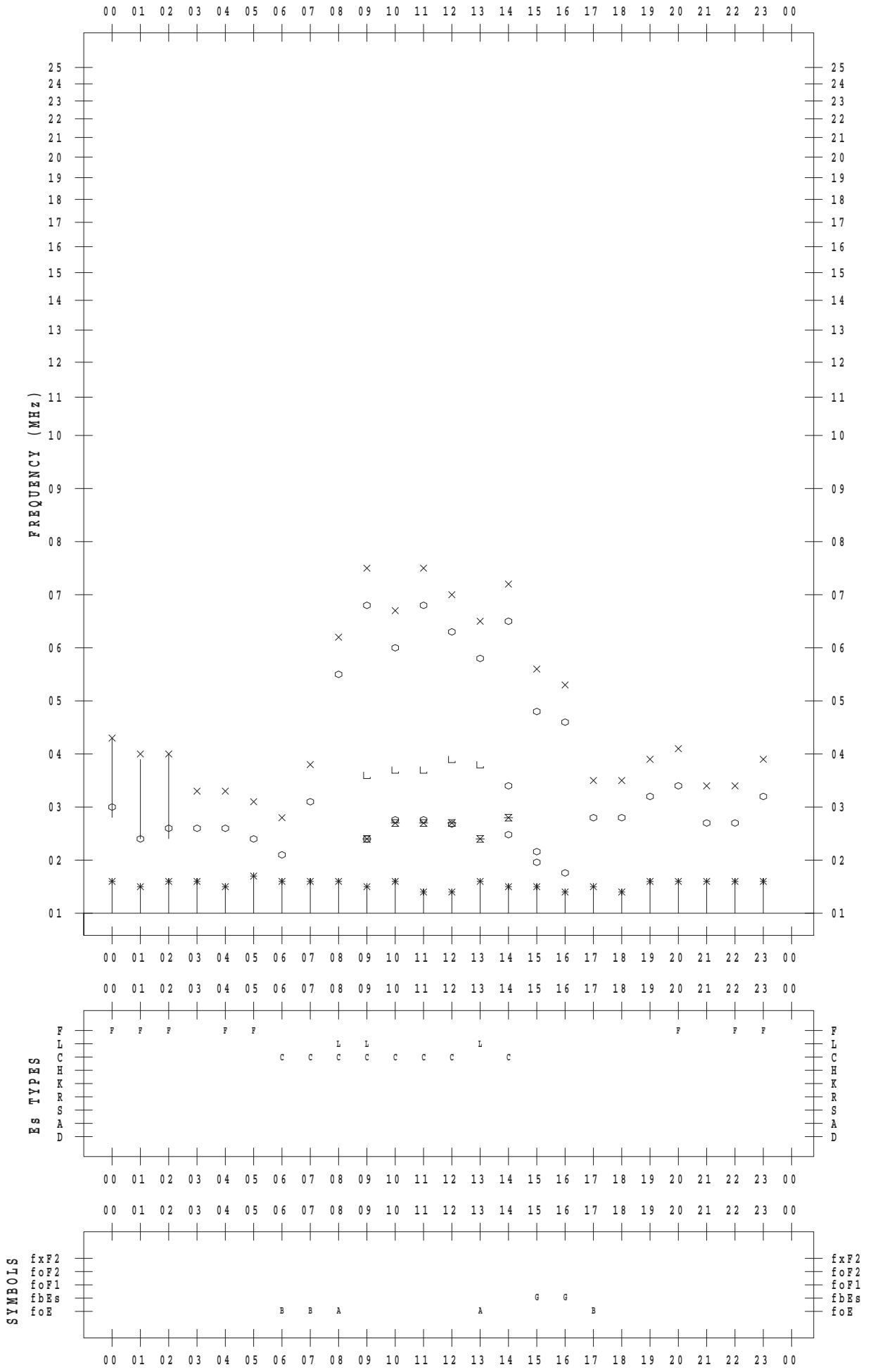
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2018/ 1/25

135 °E MEAN TIME



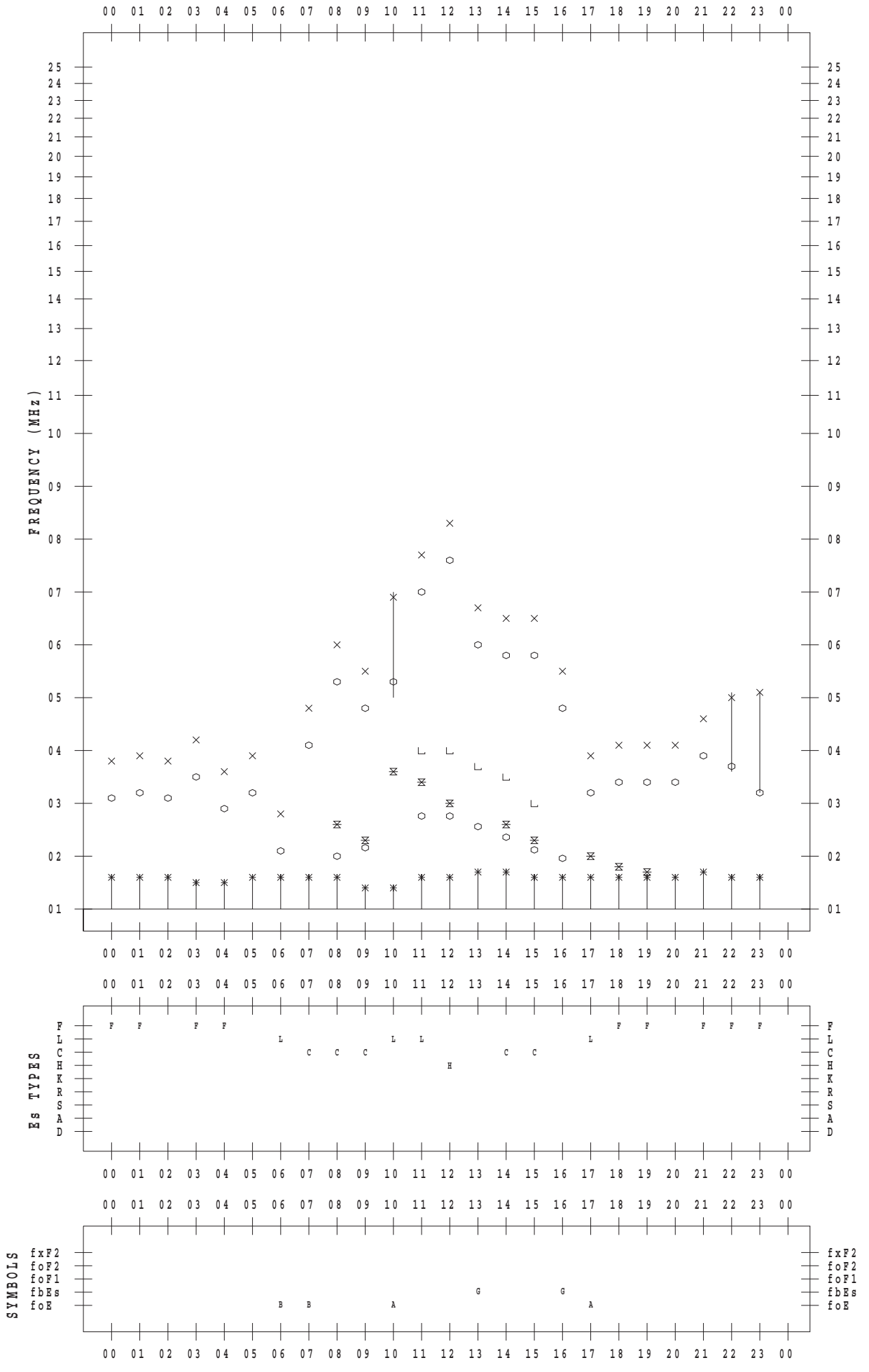
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2018/ 1/26

135 °E MEAN TIME



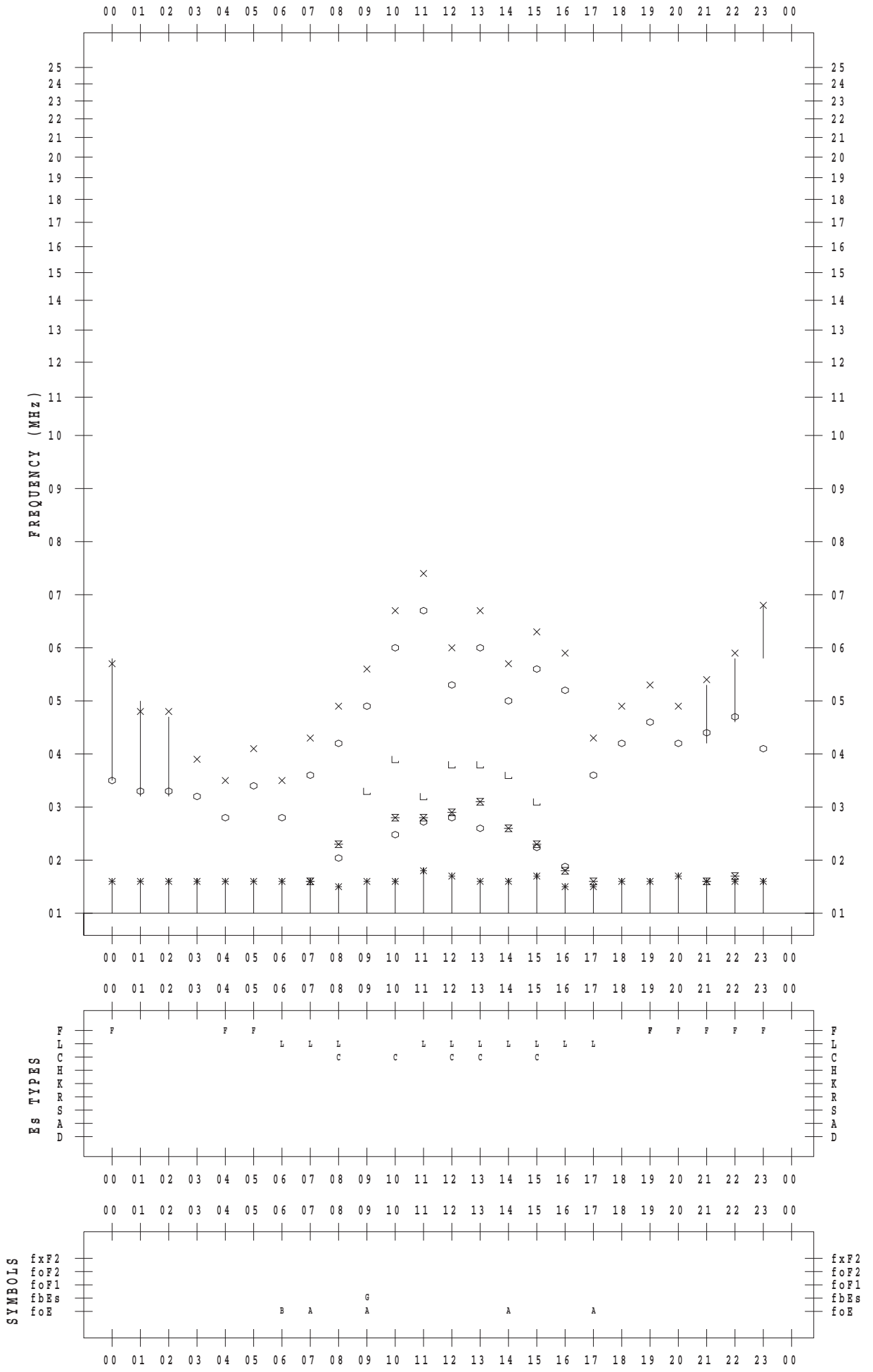
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2018/ 1/27

135 °E MEAN TIME



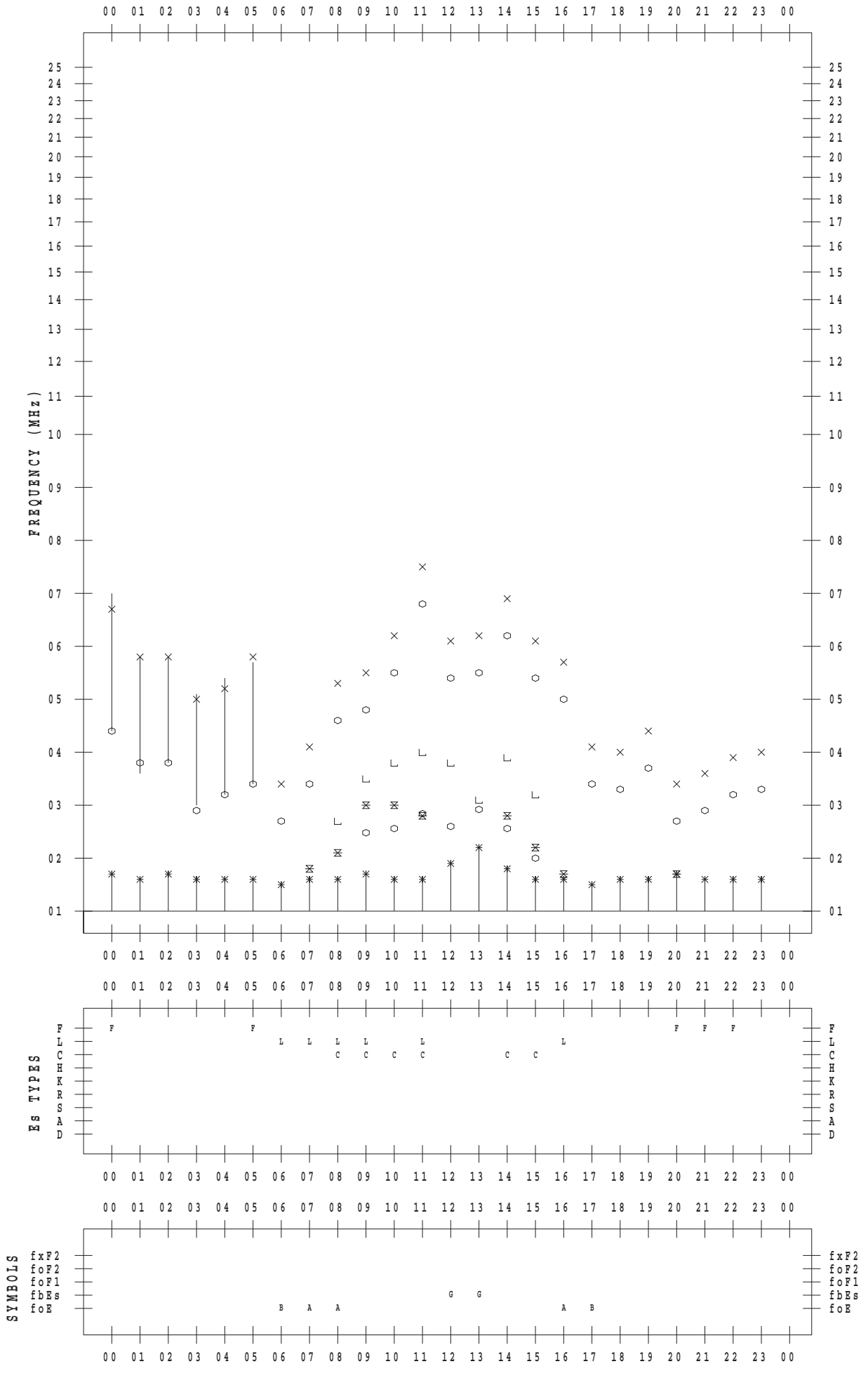
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2018/ 1/28

135 °E MEAN TIME



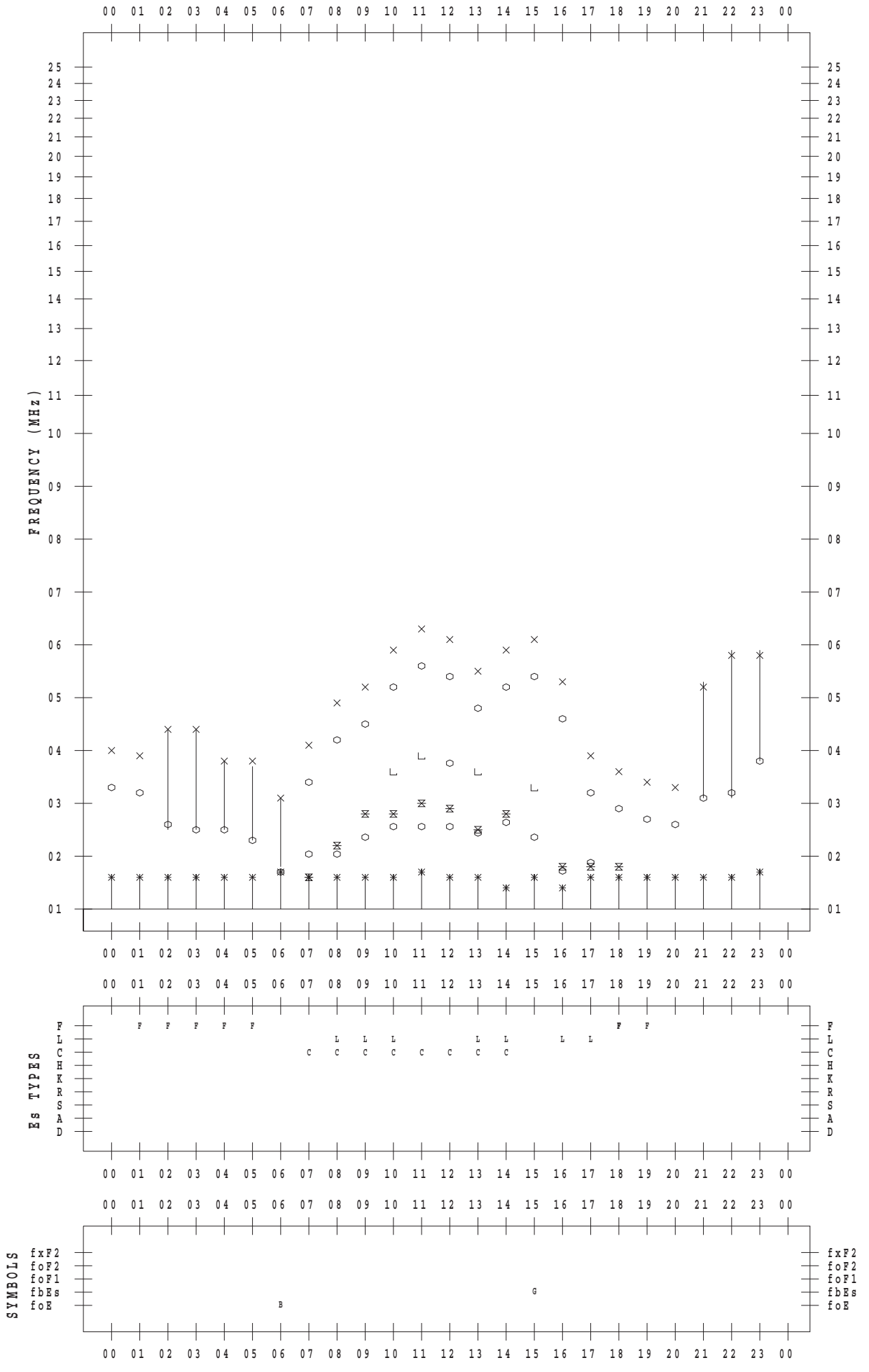
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2018/ 1/29

135 °E MEAN TIME



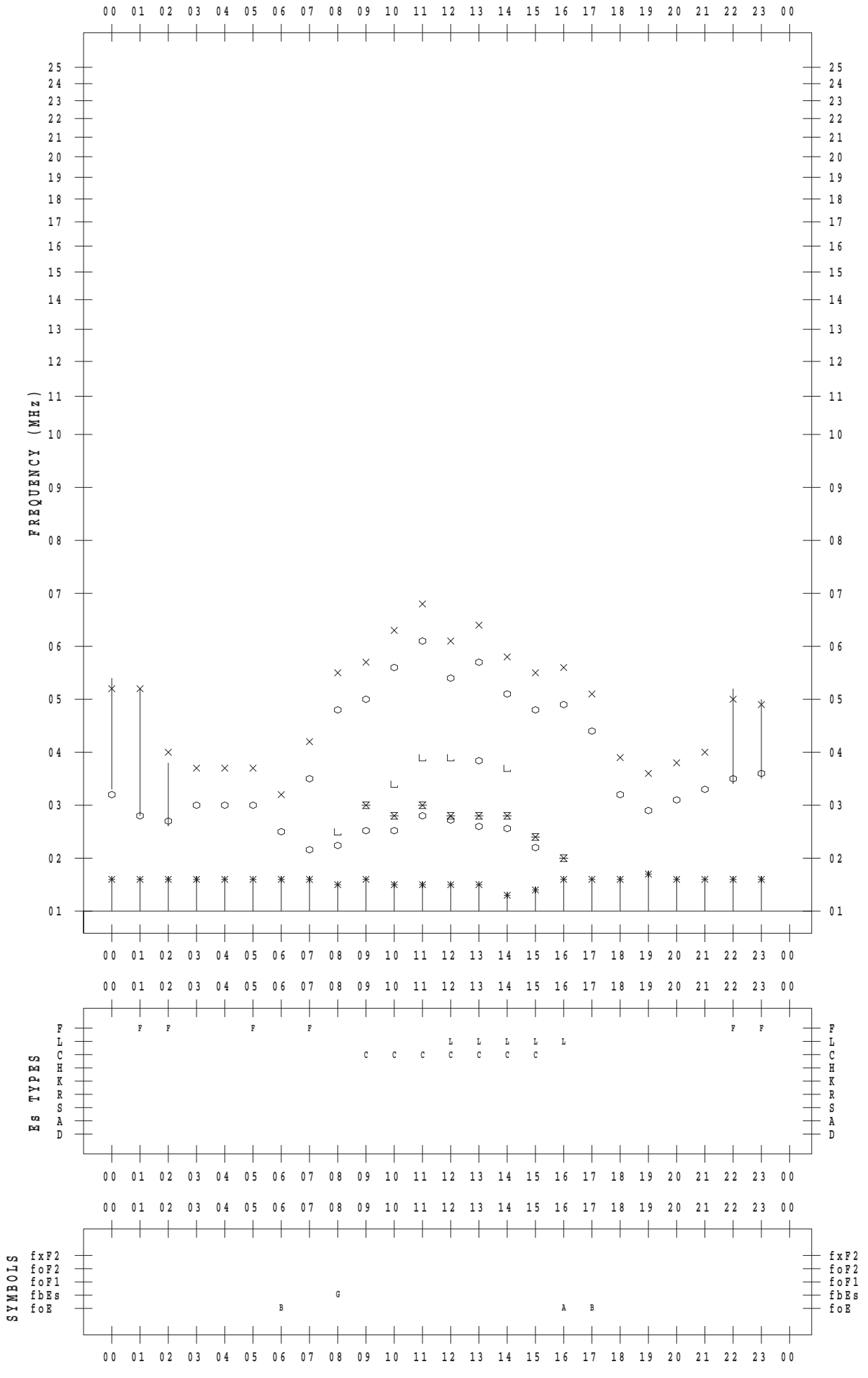
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2018/ 1/30

135 °E MEAN TIME



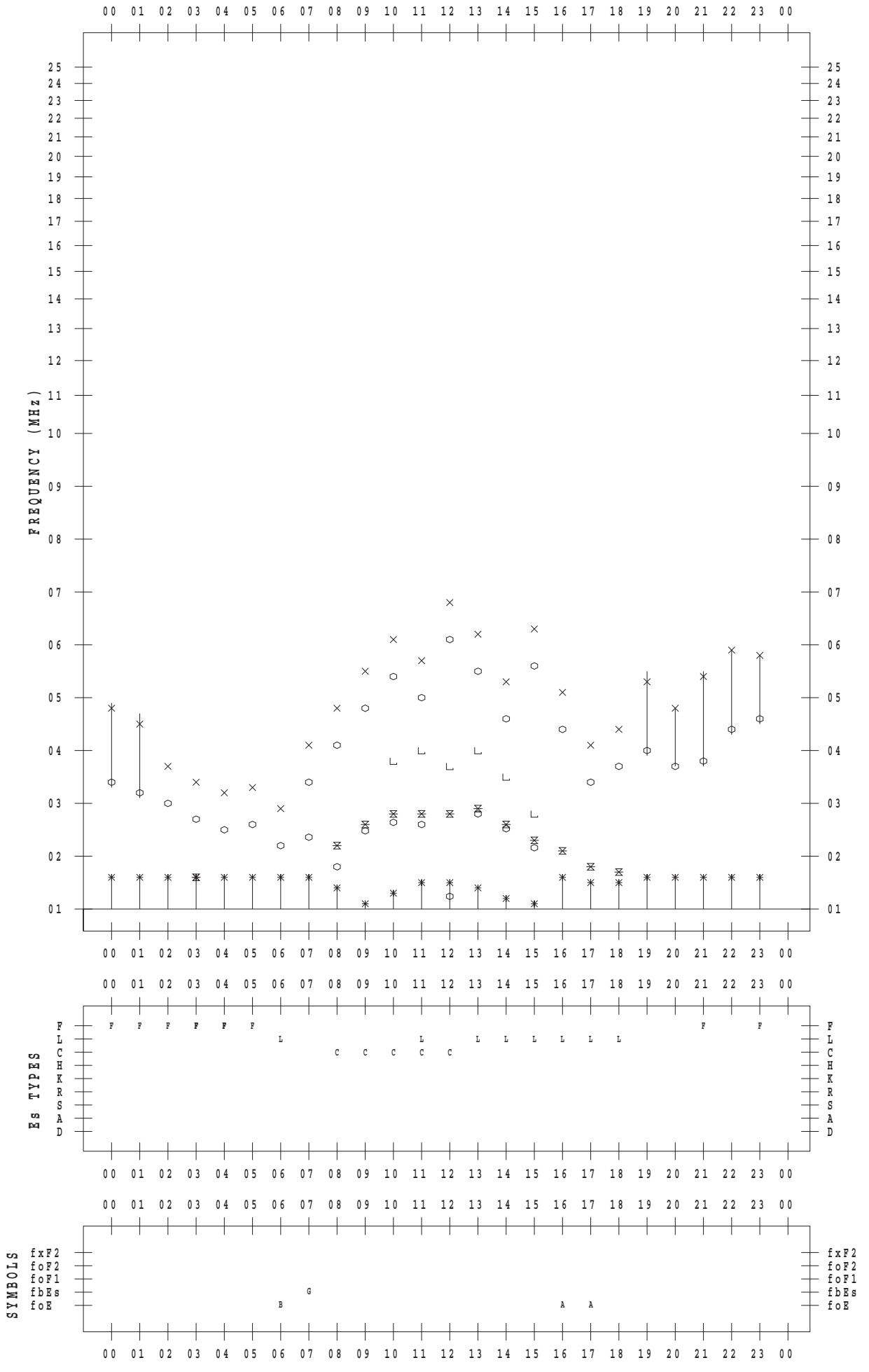
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2018/ 1/31

135 °E MEAN TIME



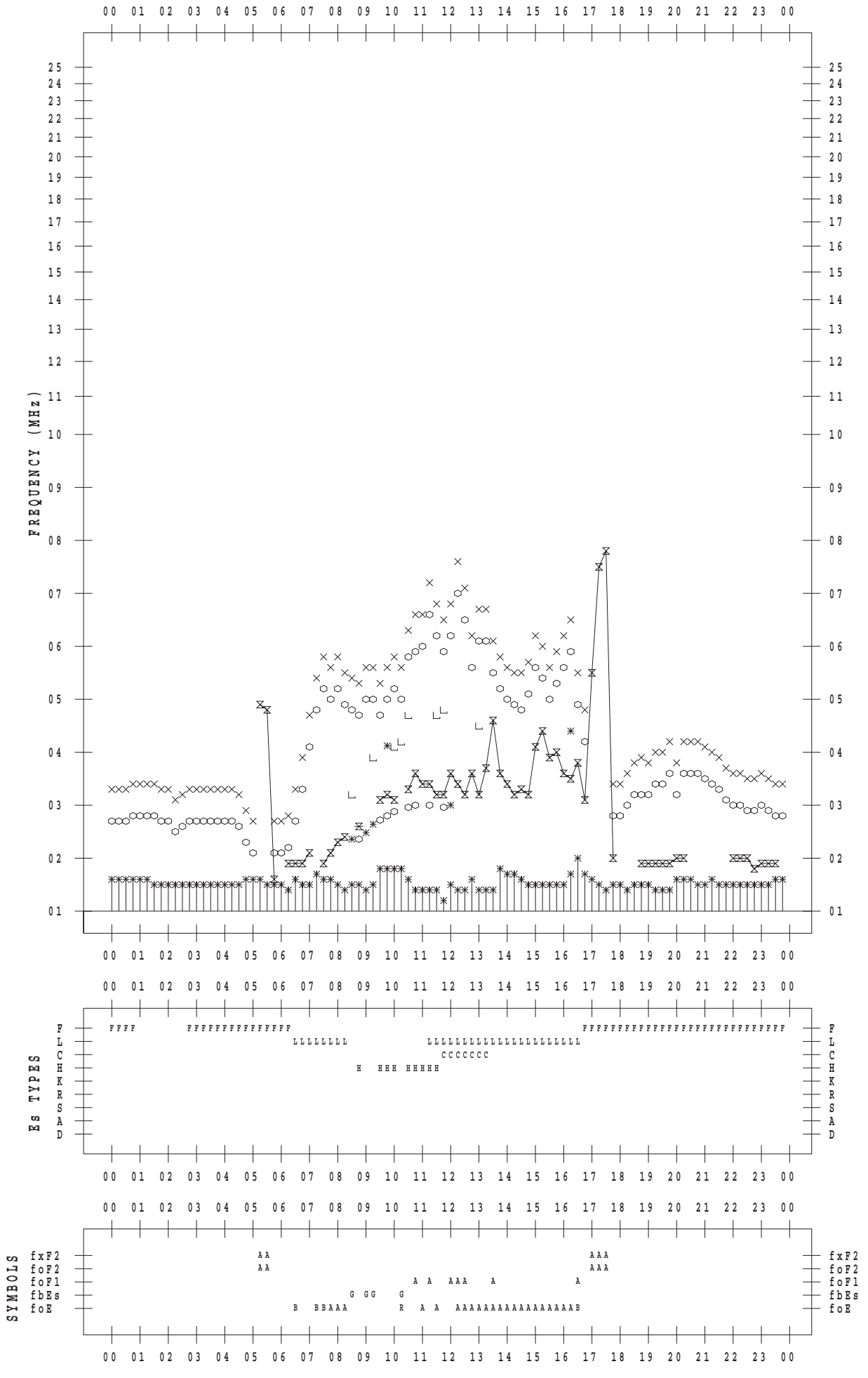
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2018/ 1/ 1

135 °E MEAN TIME



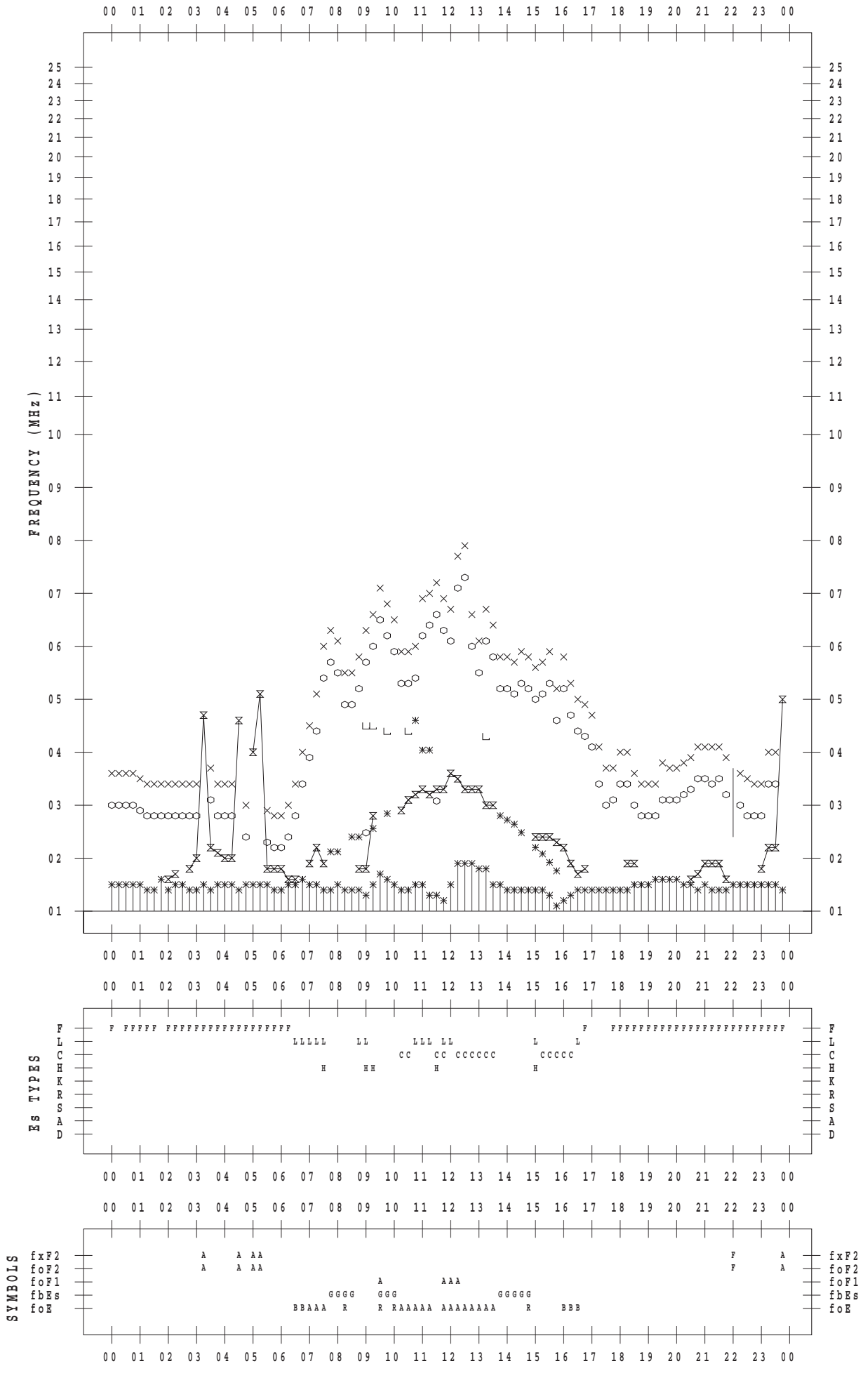
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2018/ 1/ 2

135 °E MEAN TIME



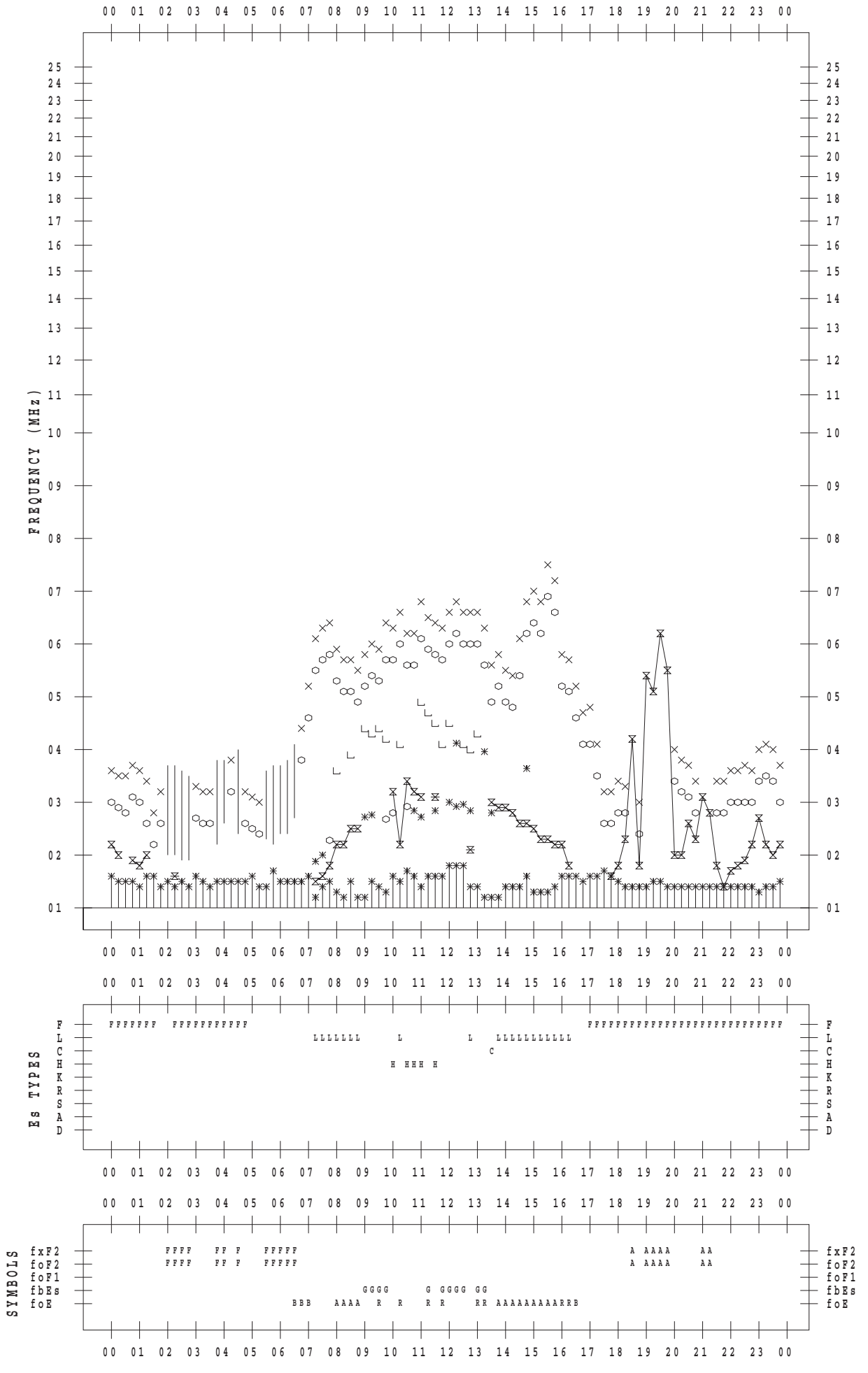
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2018/ 1/ 3

135 °E MEAN TIME



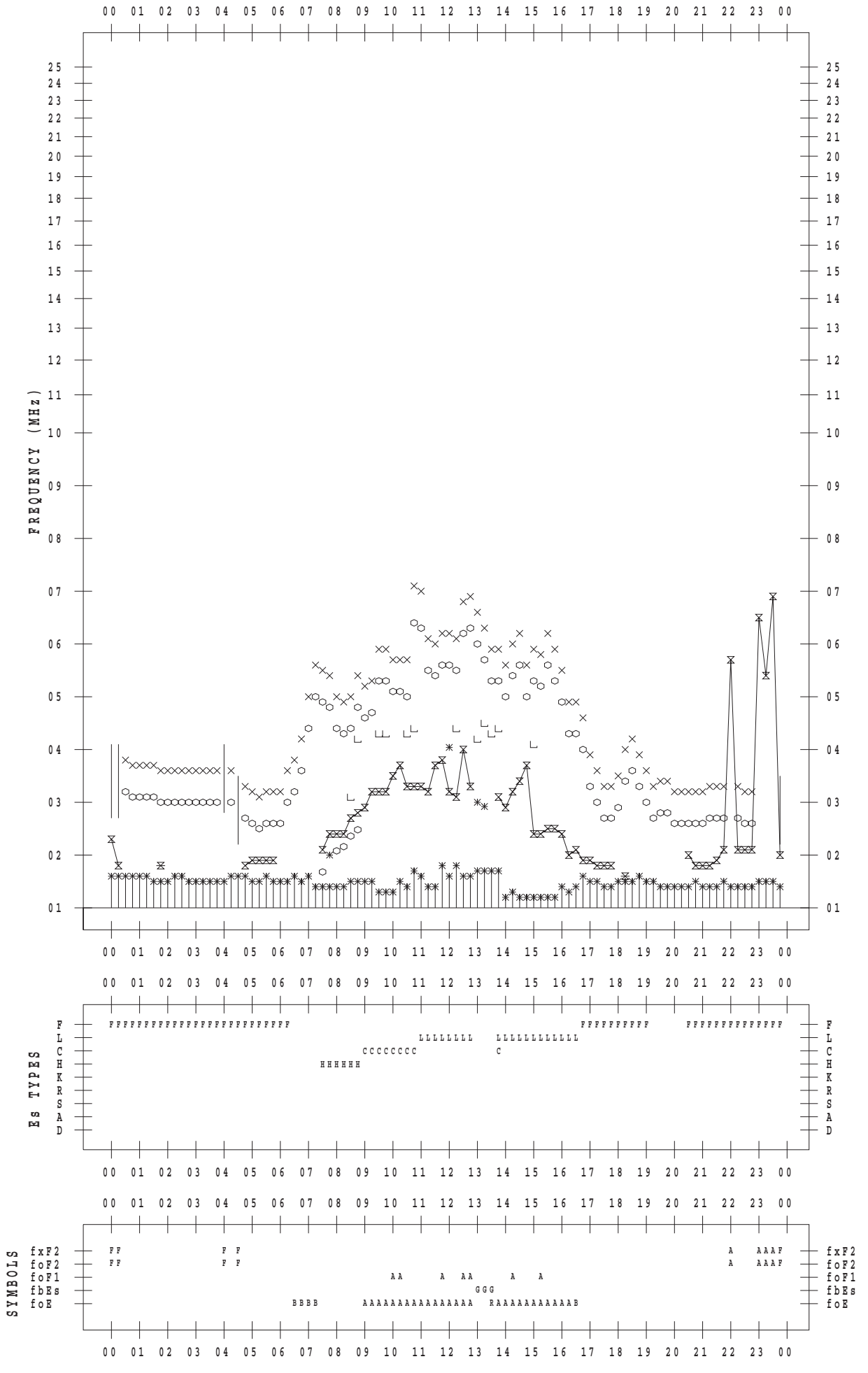
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2018/ 1/ 4

135 °E MEAN TIME



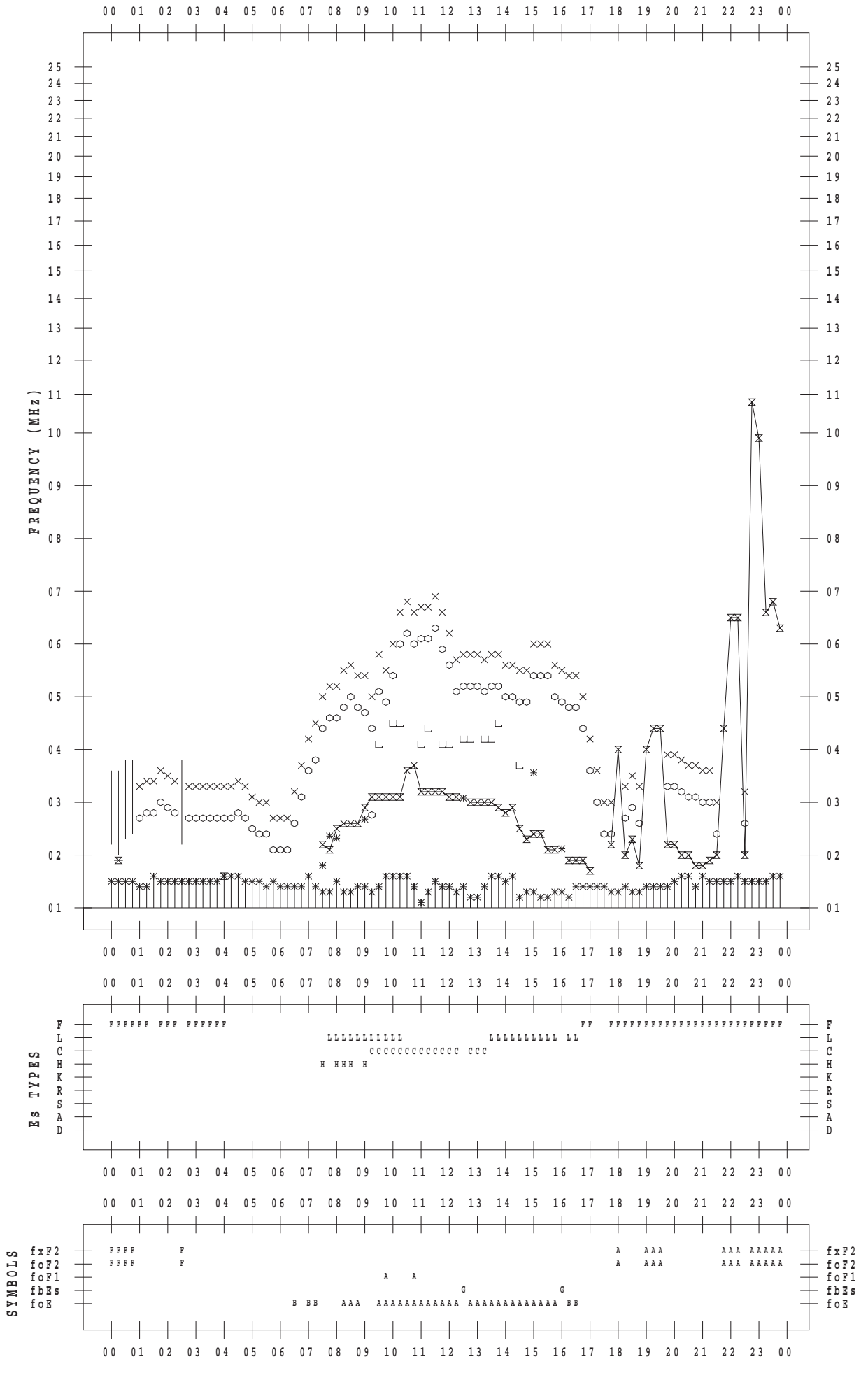
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2018/ 1/ 5

135 °E MEAN TIME



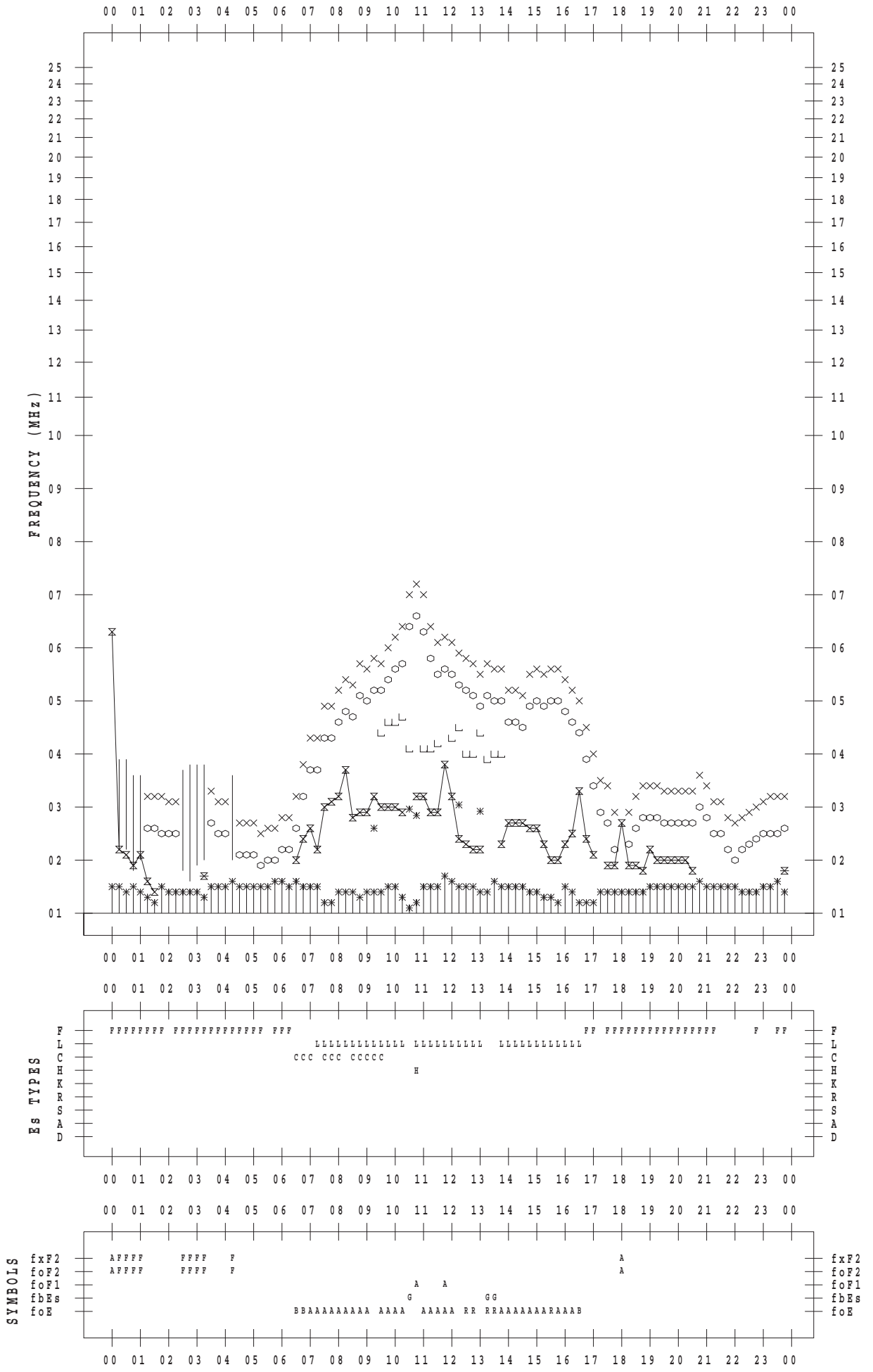
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2018/ 1/ 6

135 °E MEAN TIME



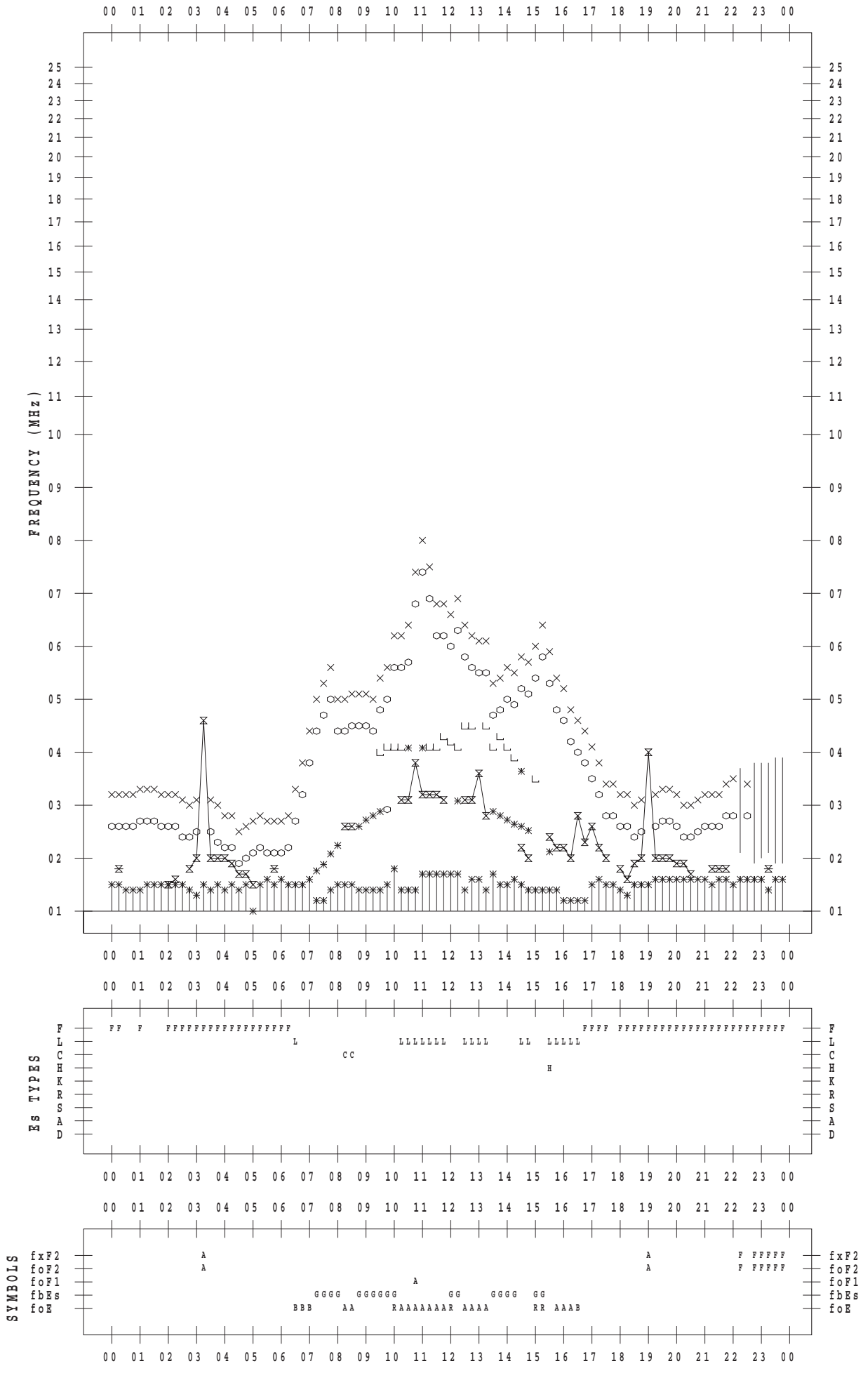
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2018/ 1/ 7

135 °E MEAN TIME



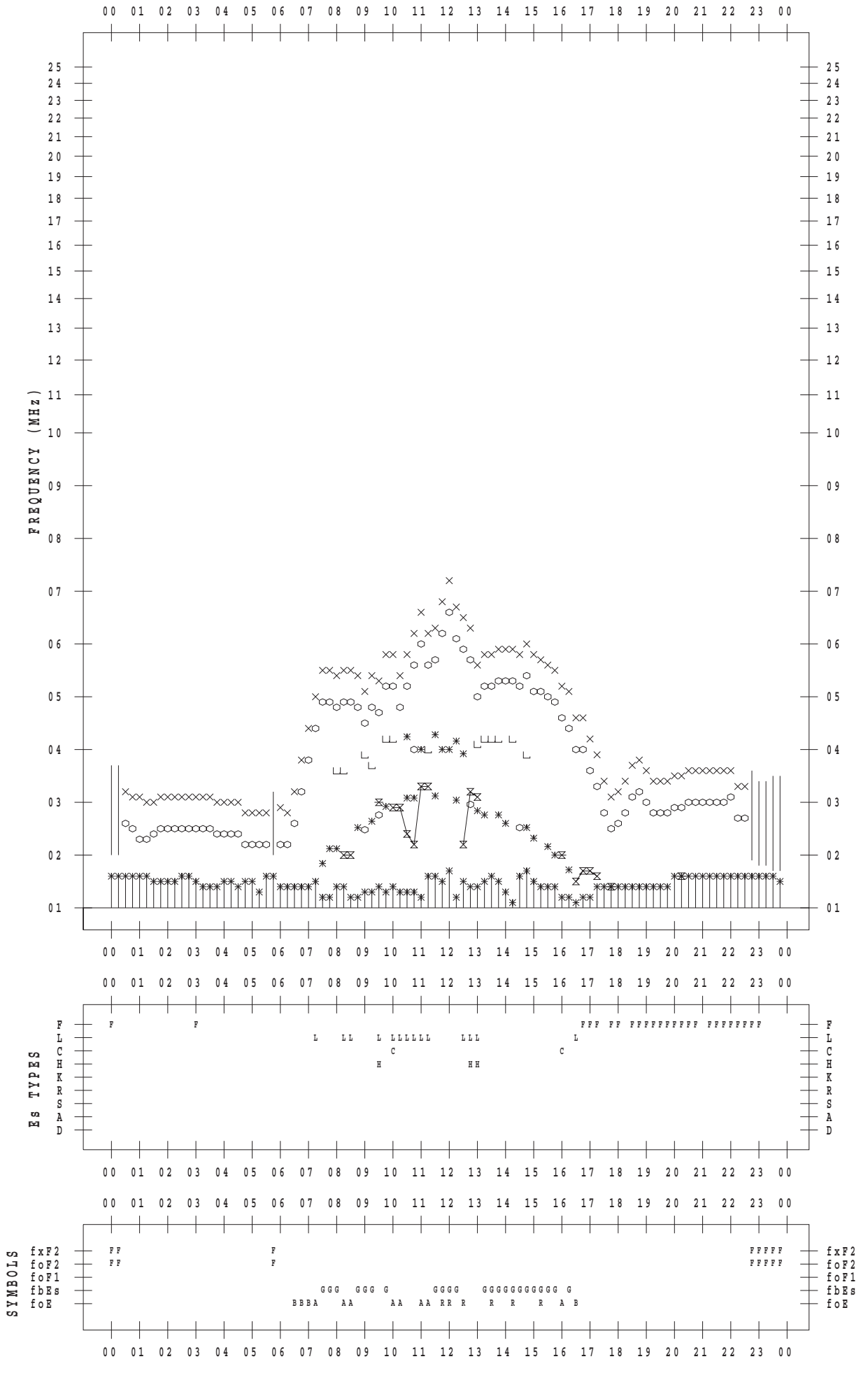
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2018/ 1/ 8

135 °E MEAN TIME



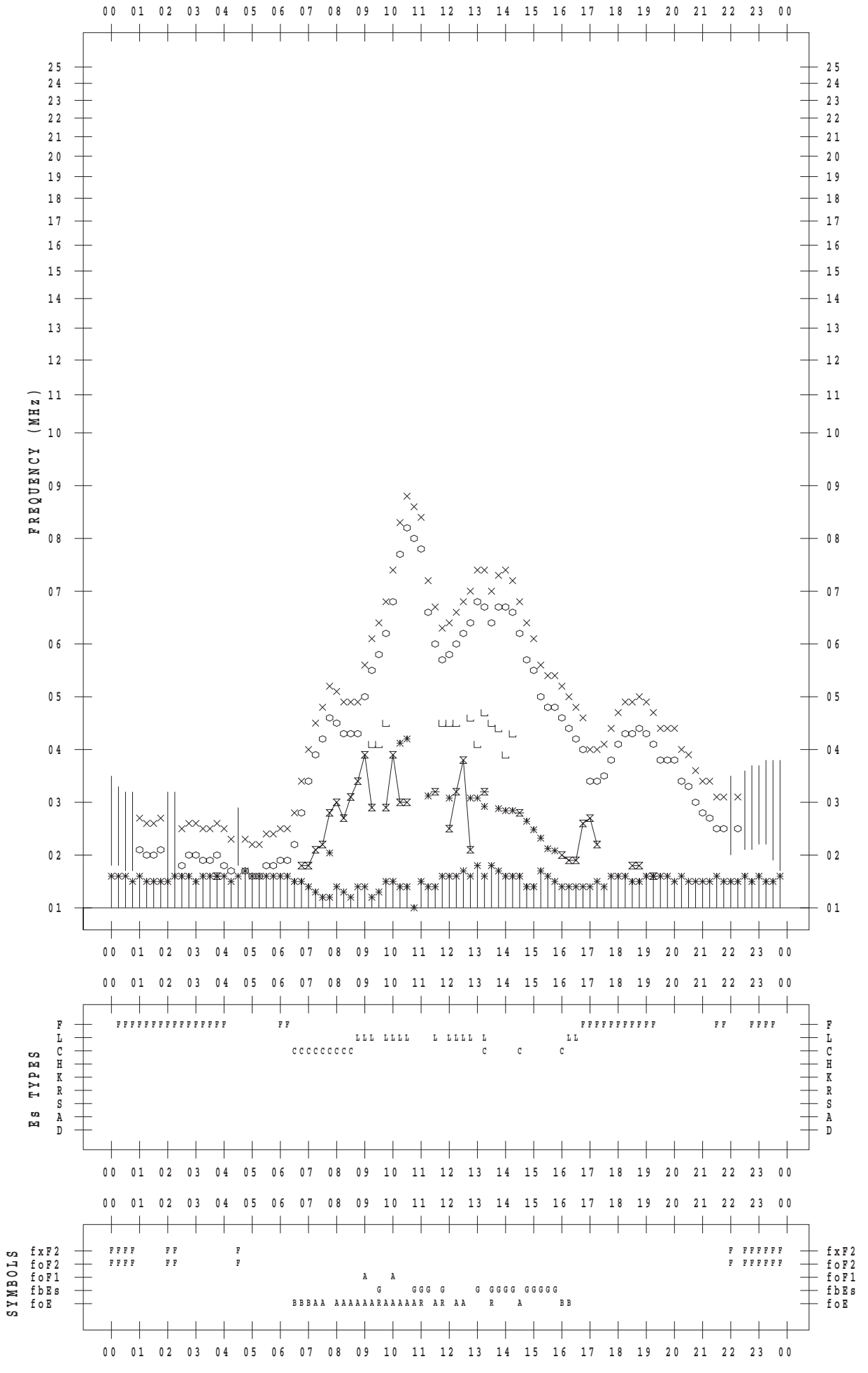
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2018/ 1/ 9

135 °E MEAN TIME



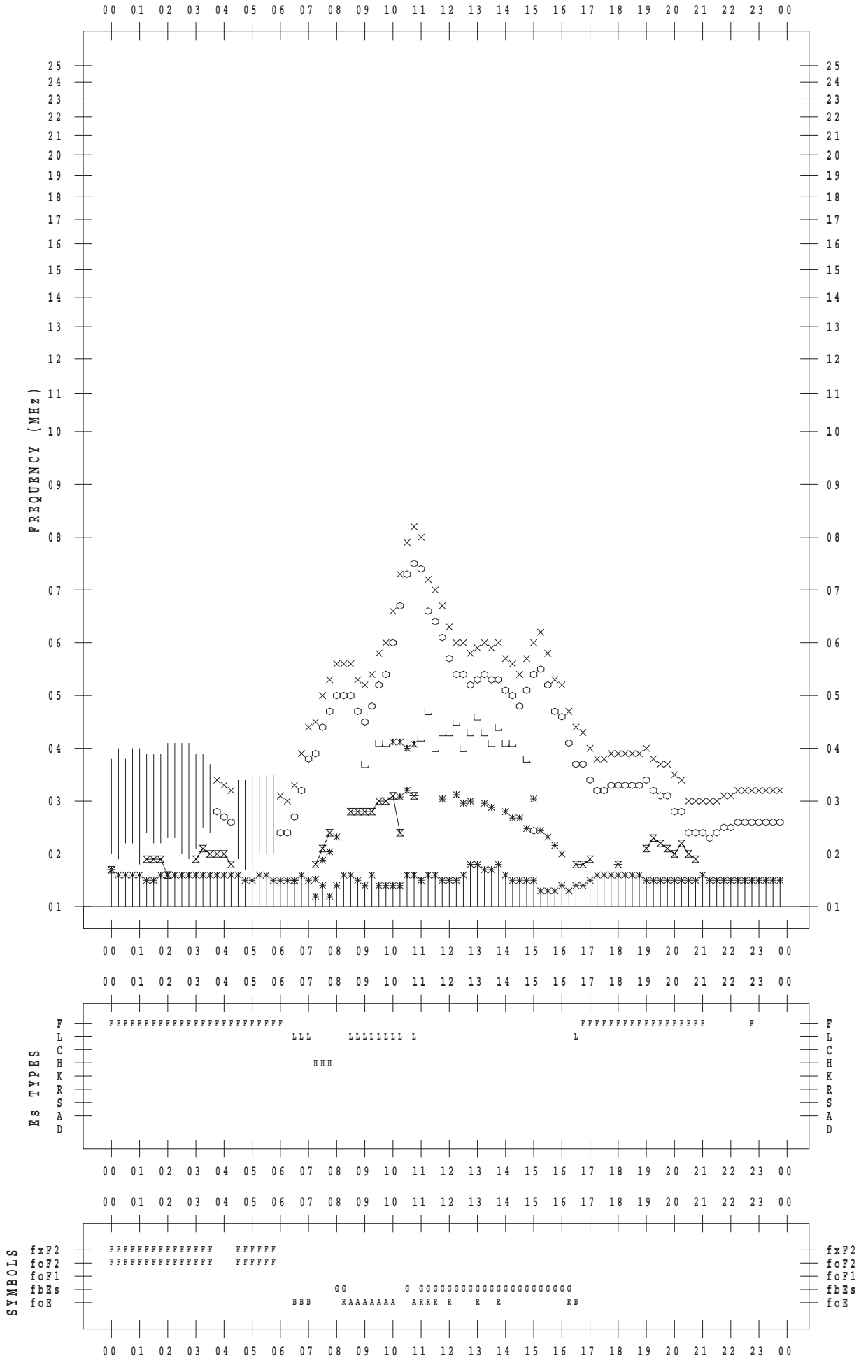
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2018/ 1/10

135 °E MEAN TIME



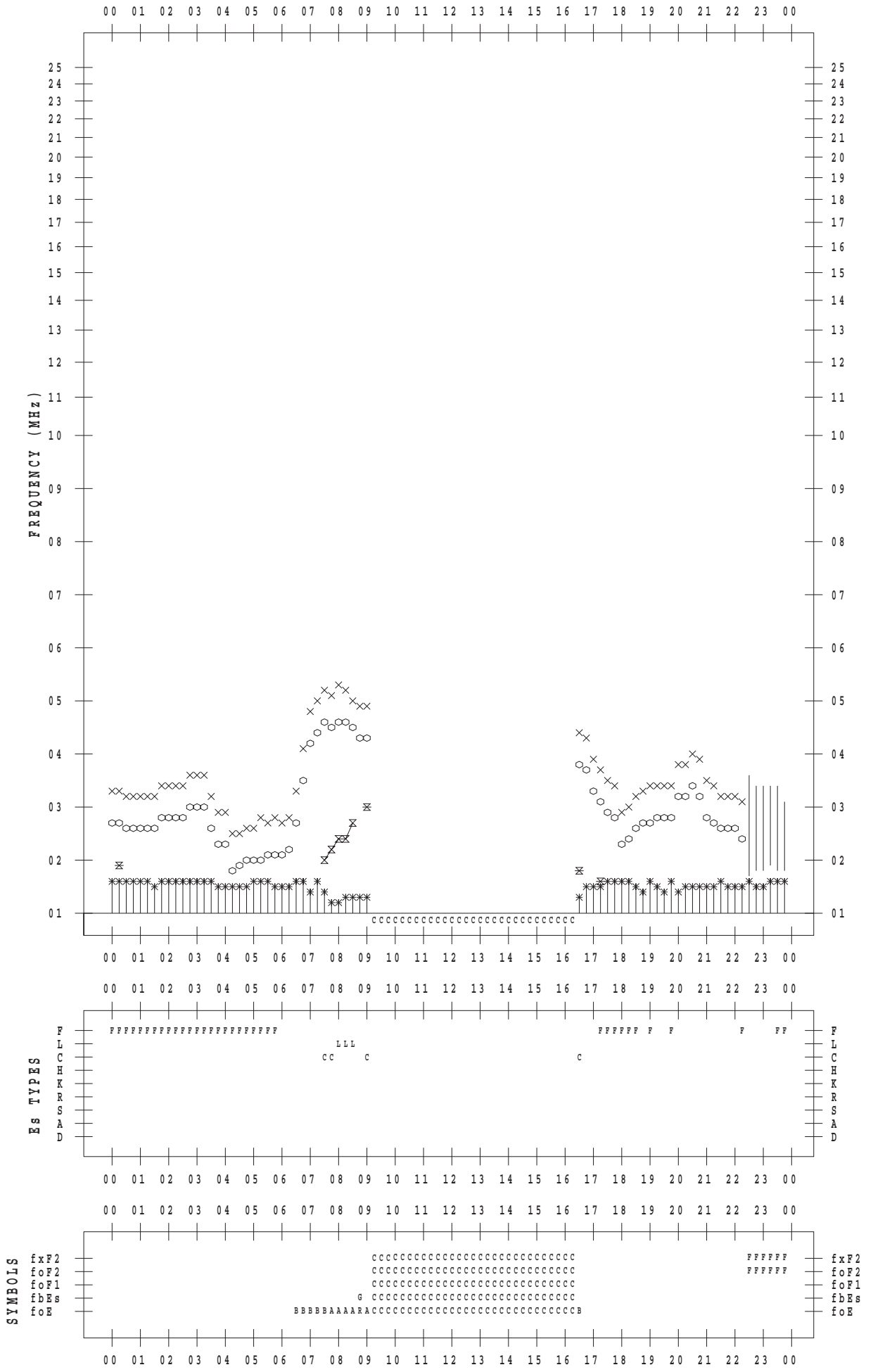
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2018/ 1/11

135 °E MEAN TIME



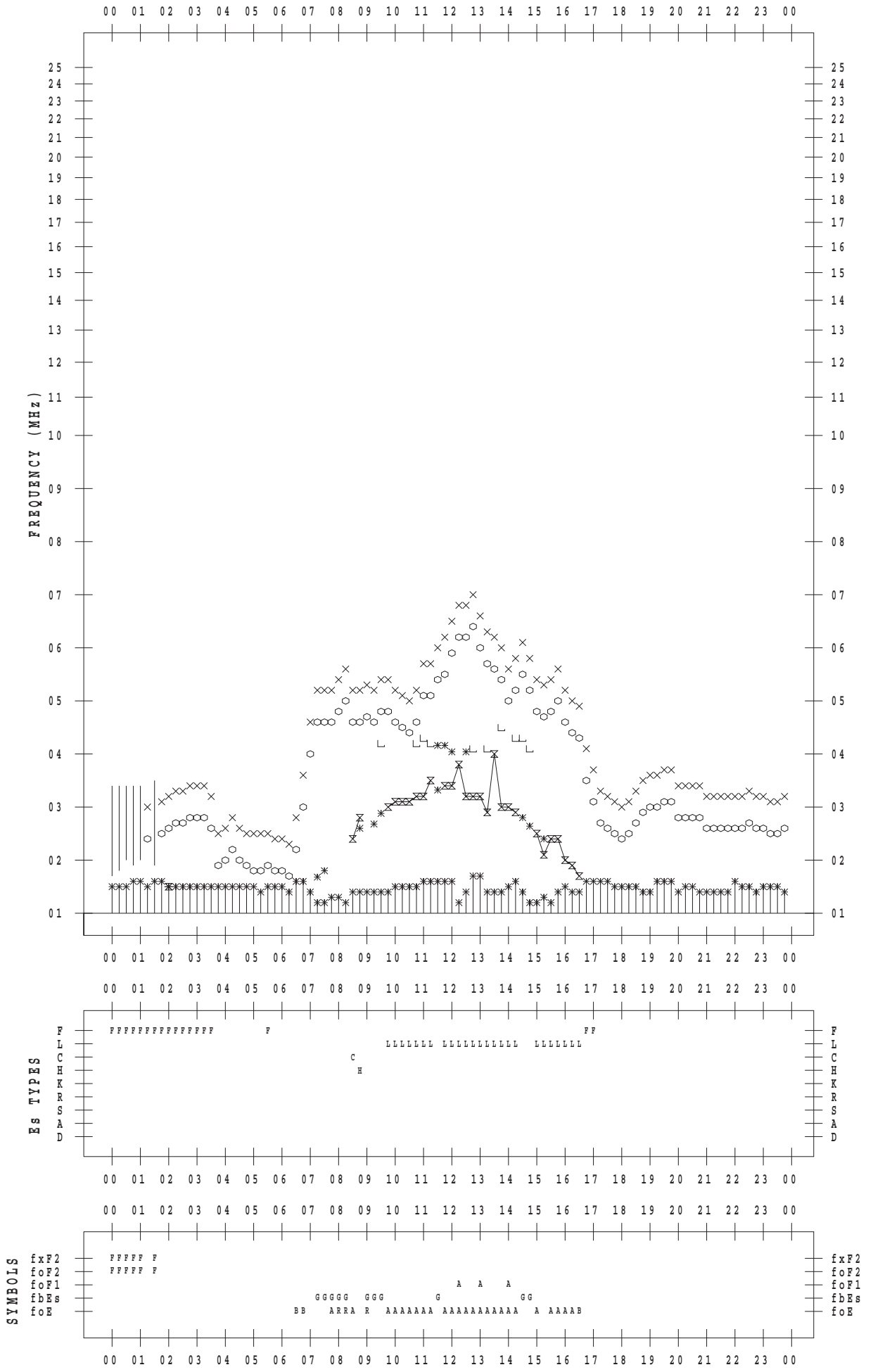
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2018/ 1/12

135 °E MEAN TIME



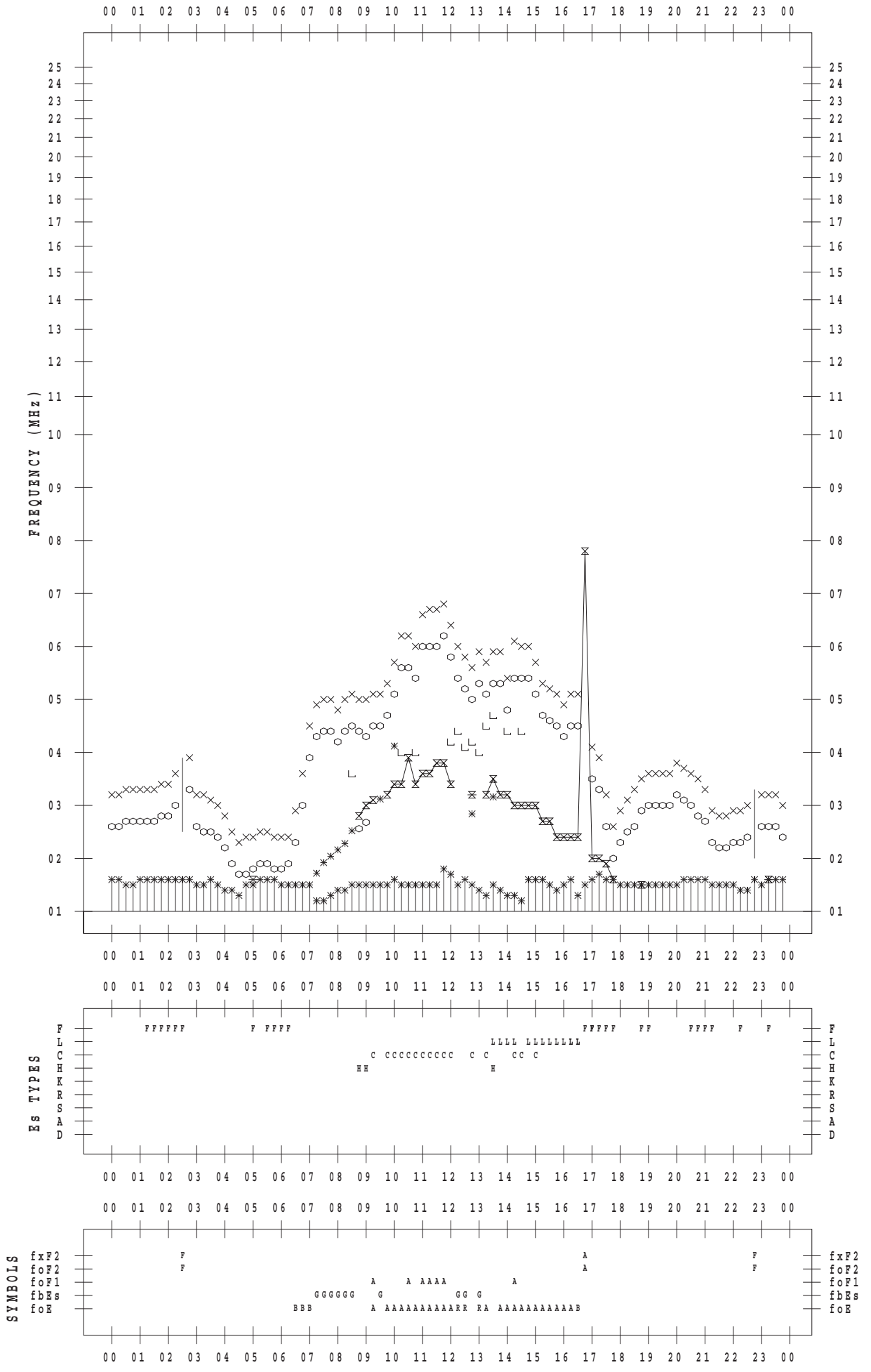
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2018/ 1/13

135 °E MEAN TIME



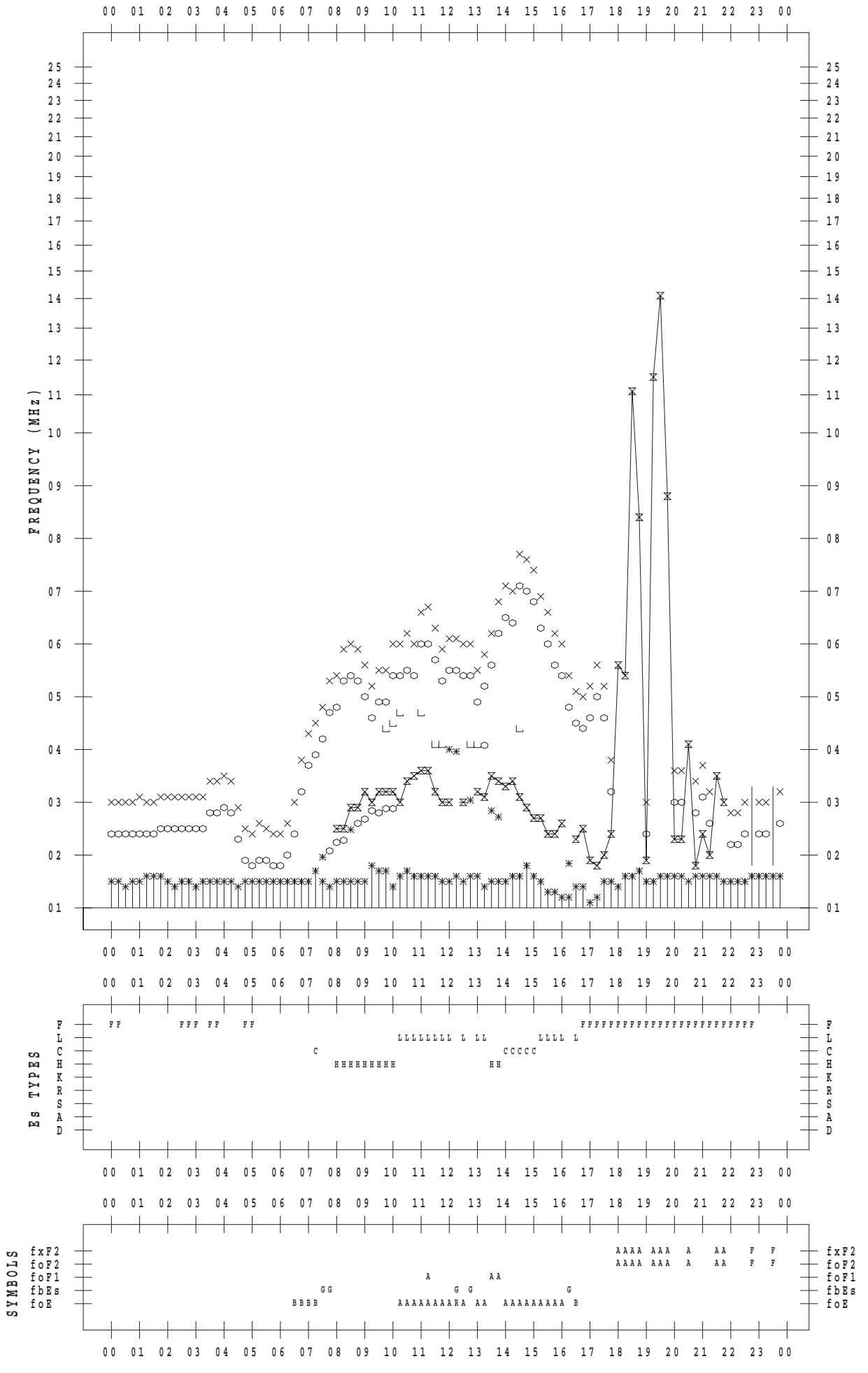
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2018/ 1/14

135 °E MEAN TIME



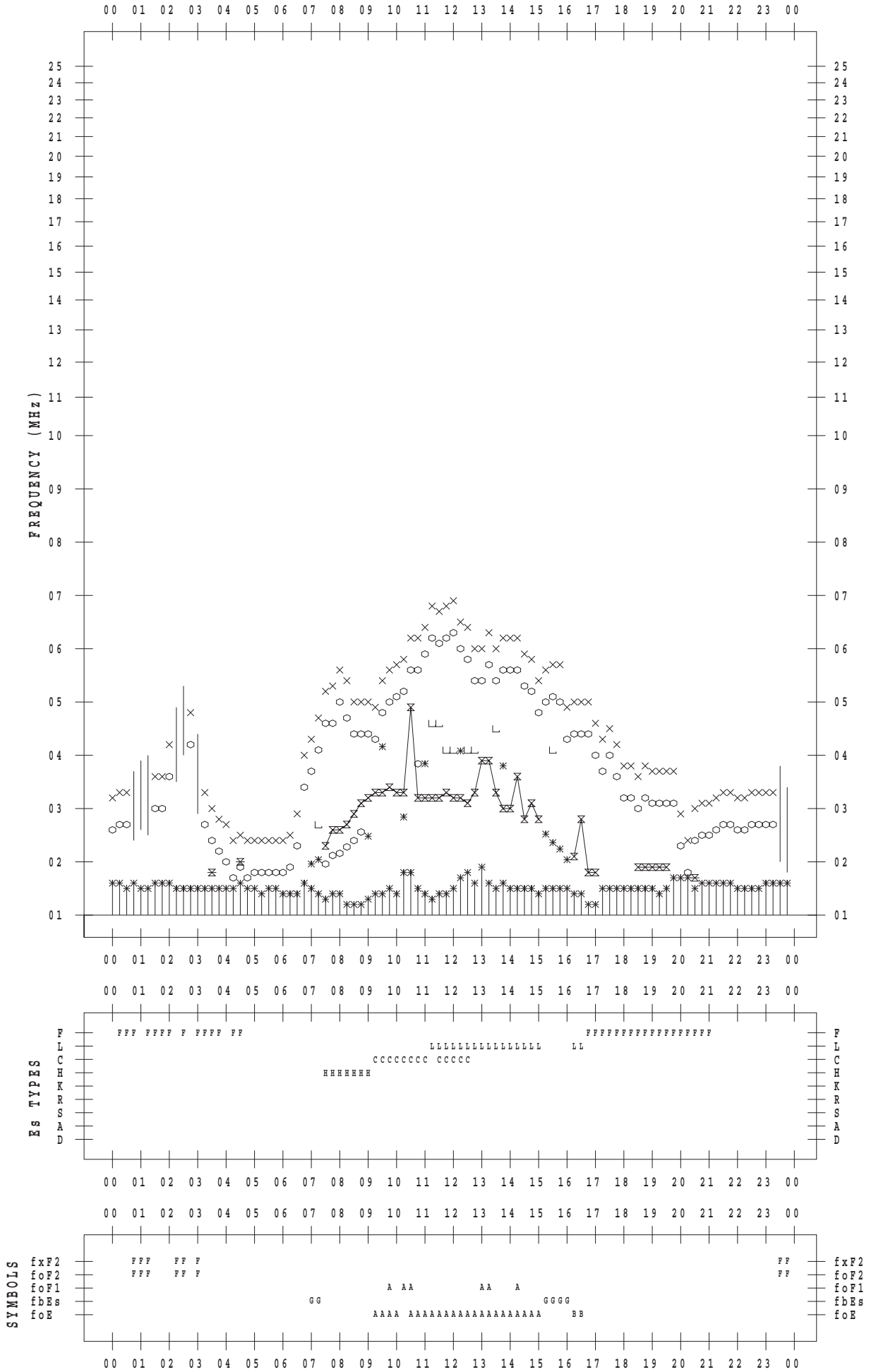
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2018/ 1/15

135 °E MEAN TIME



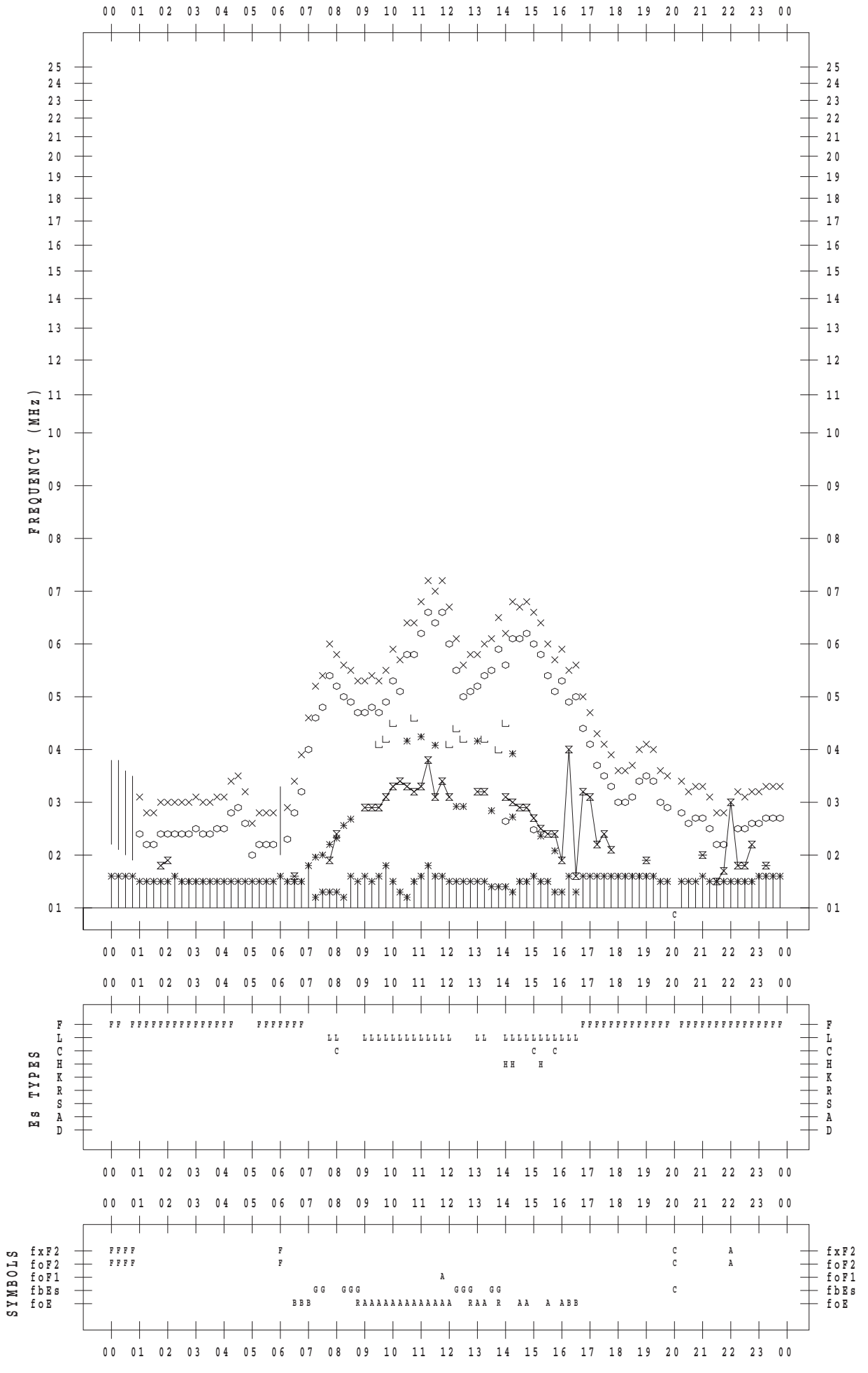
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2018/ 1/16

135 °E MEAN TIME



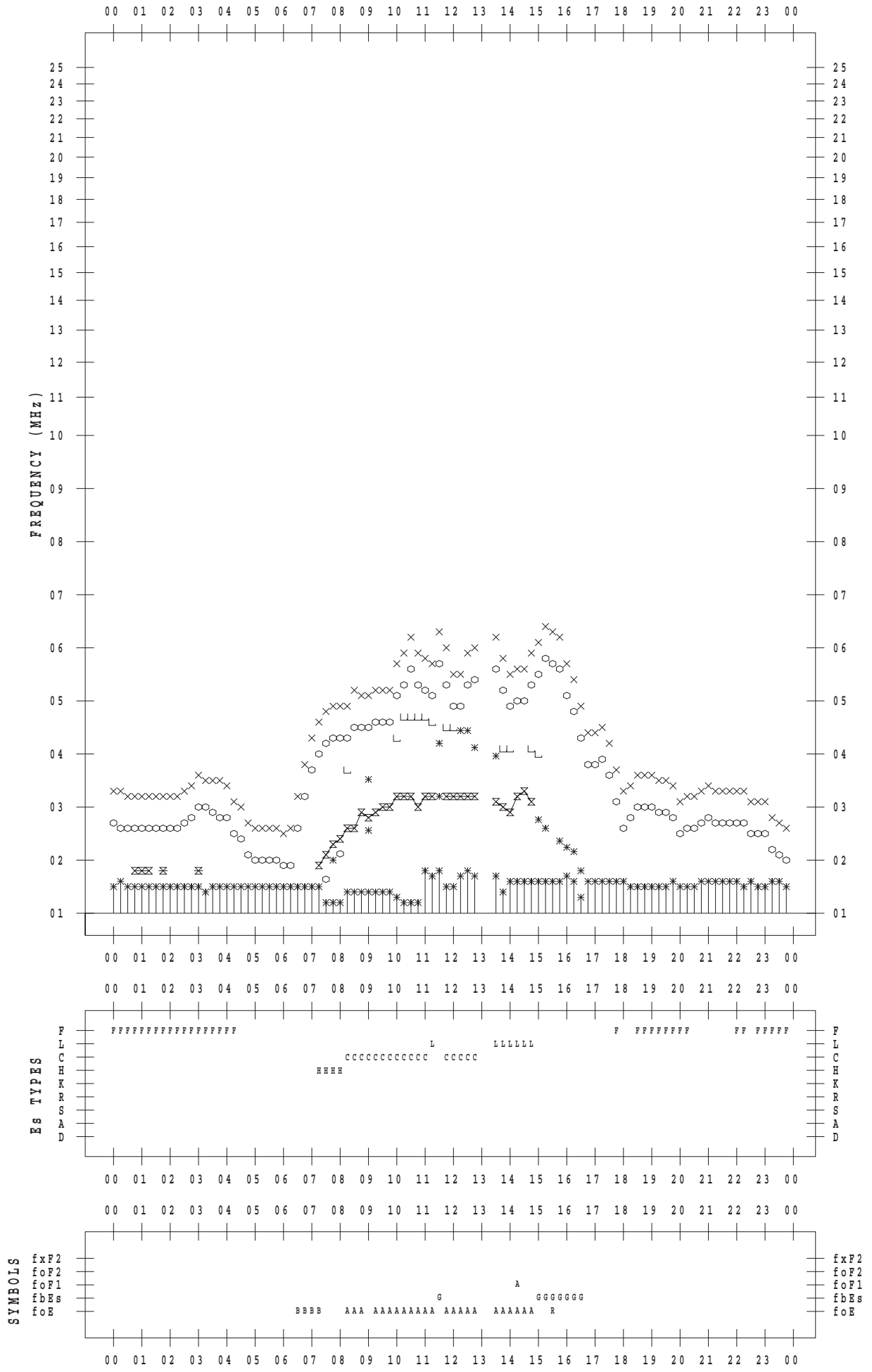
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2018/ 1/17

135 °E MEAN TIME



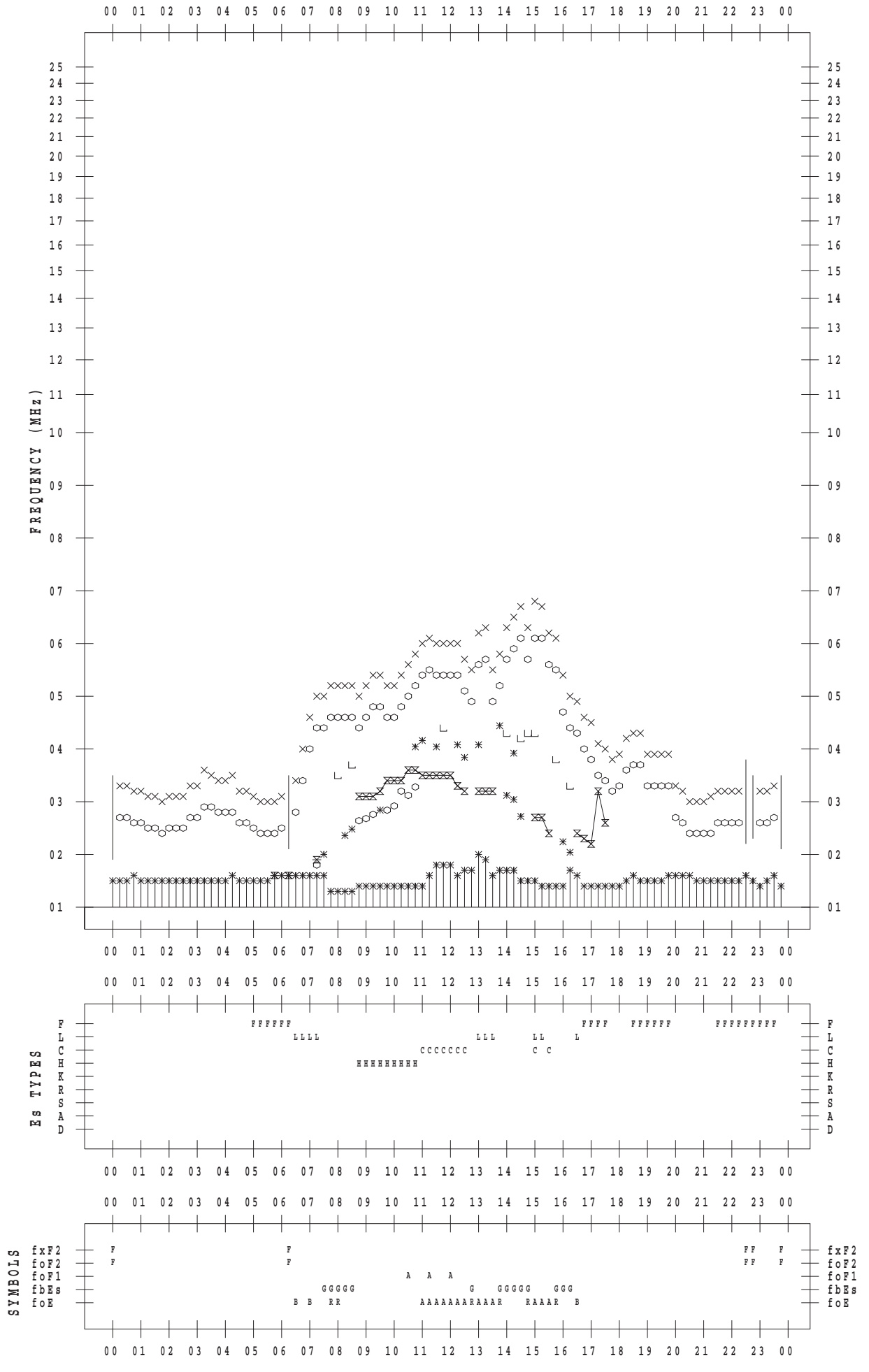
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2018/ 1/18

135 °E MEAN TIME



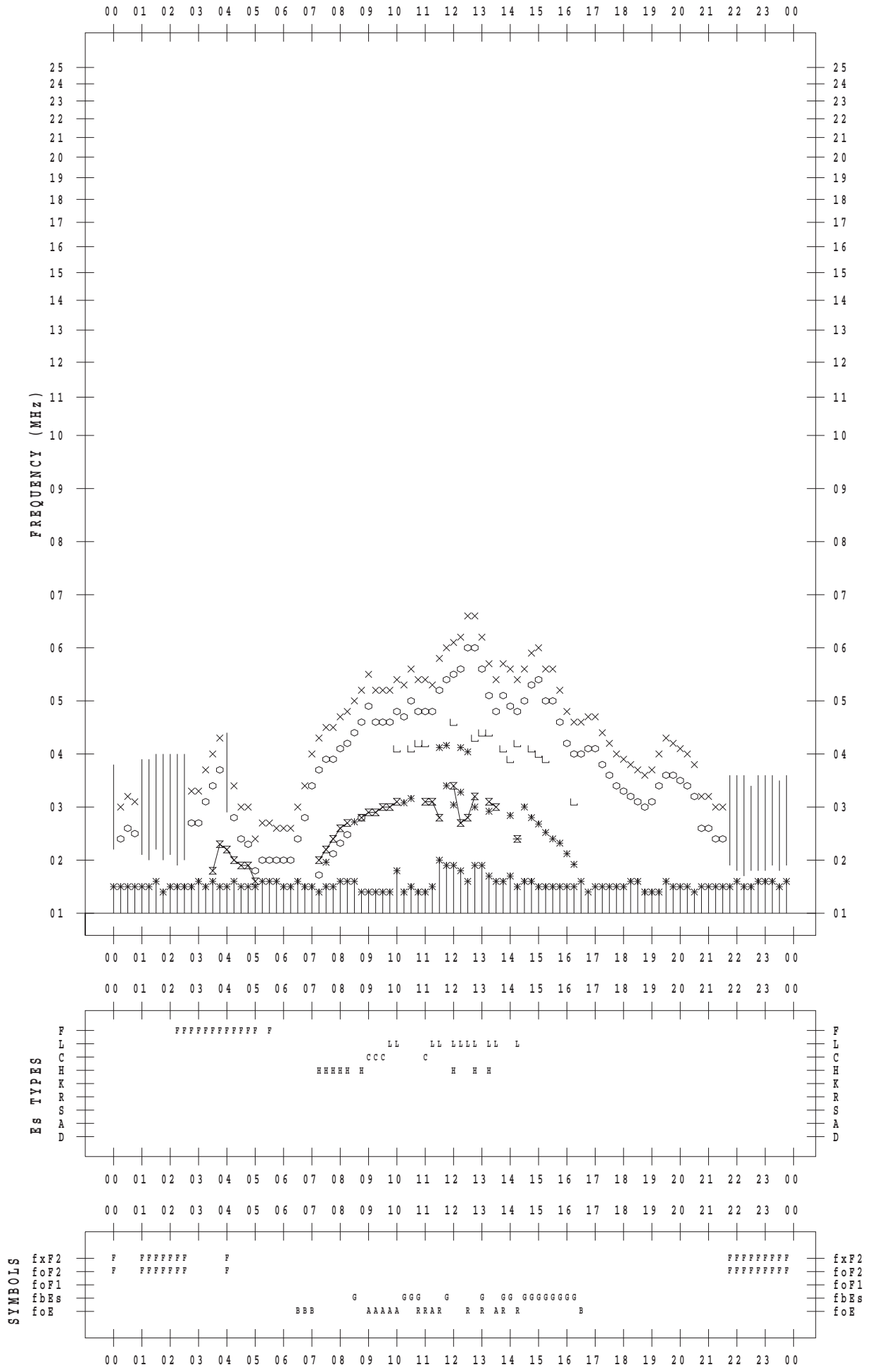
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2018/ 1/19

135 °E MEAN TIME



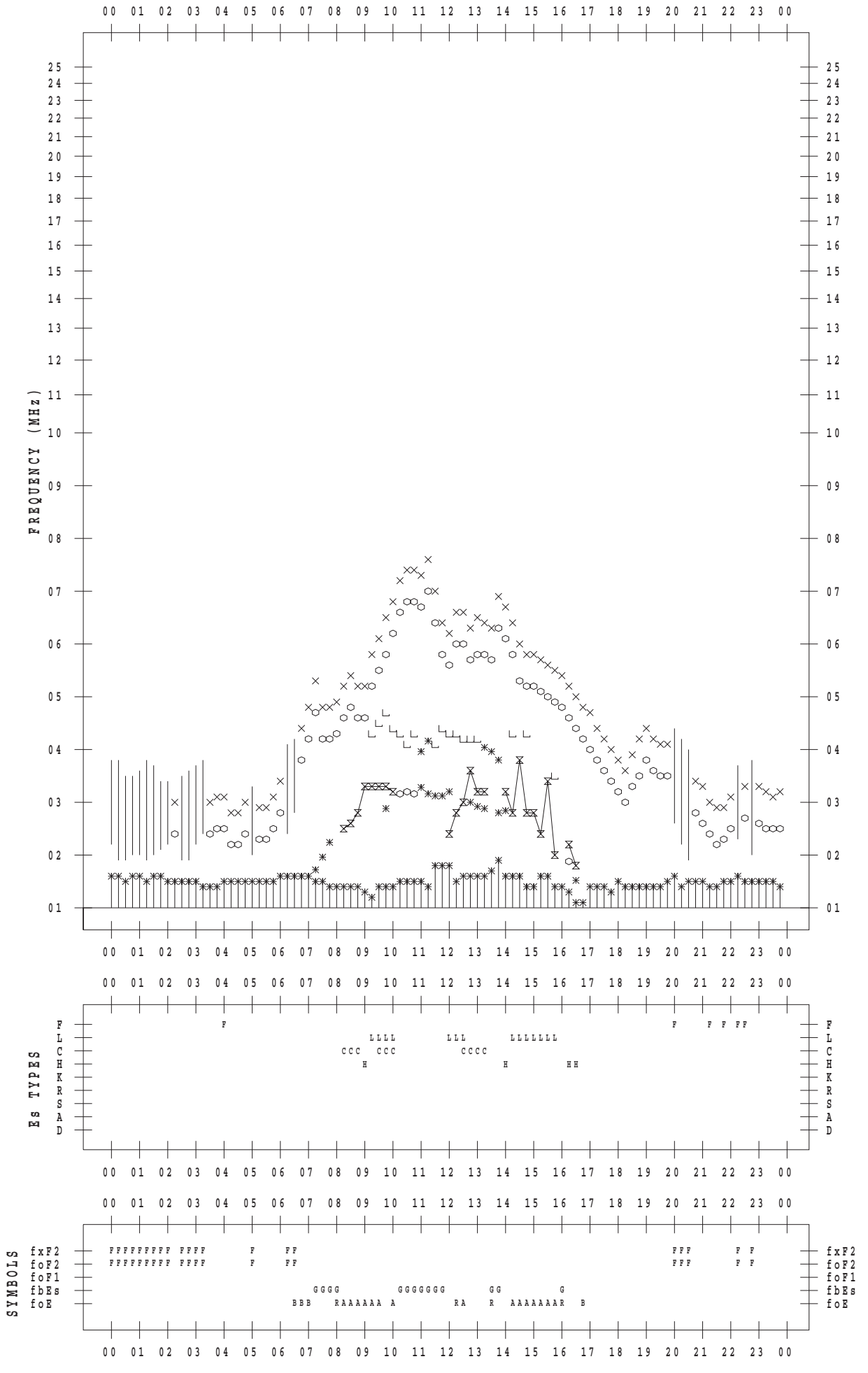
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2018/ 1/20

135 °E MEAN TIME



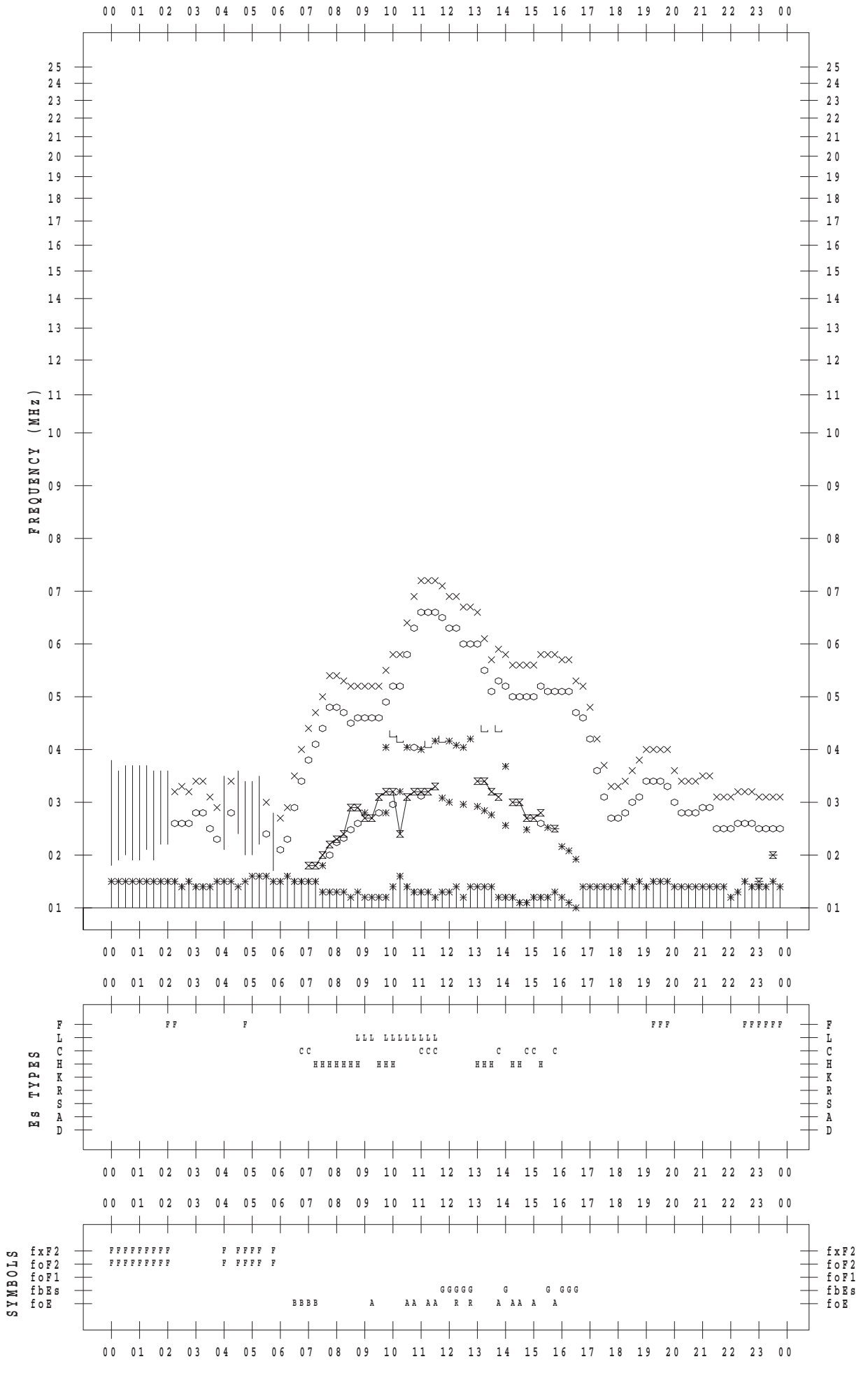
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2018/ 1/21

135 °E MEAN TIME



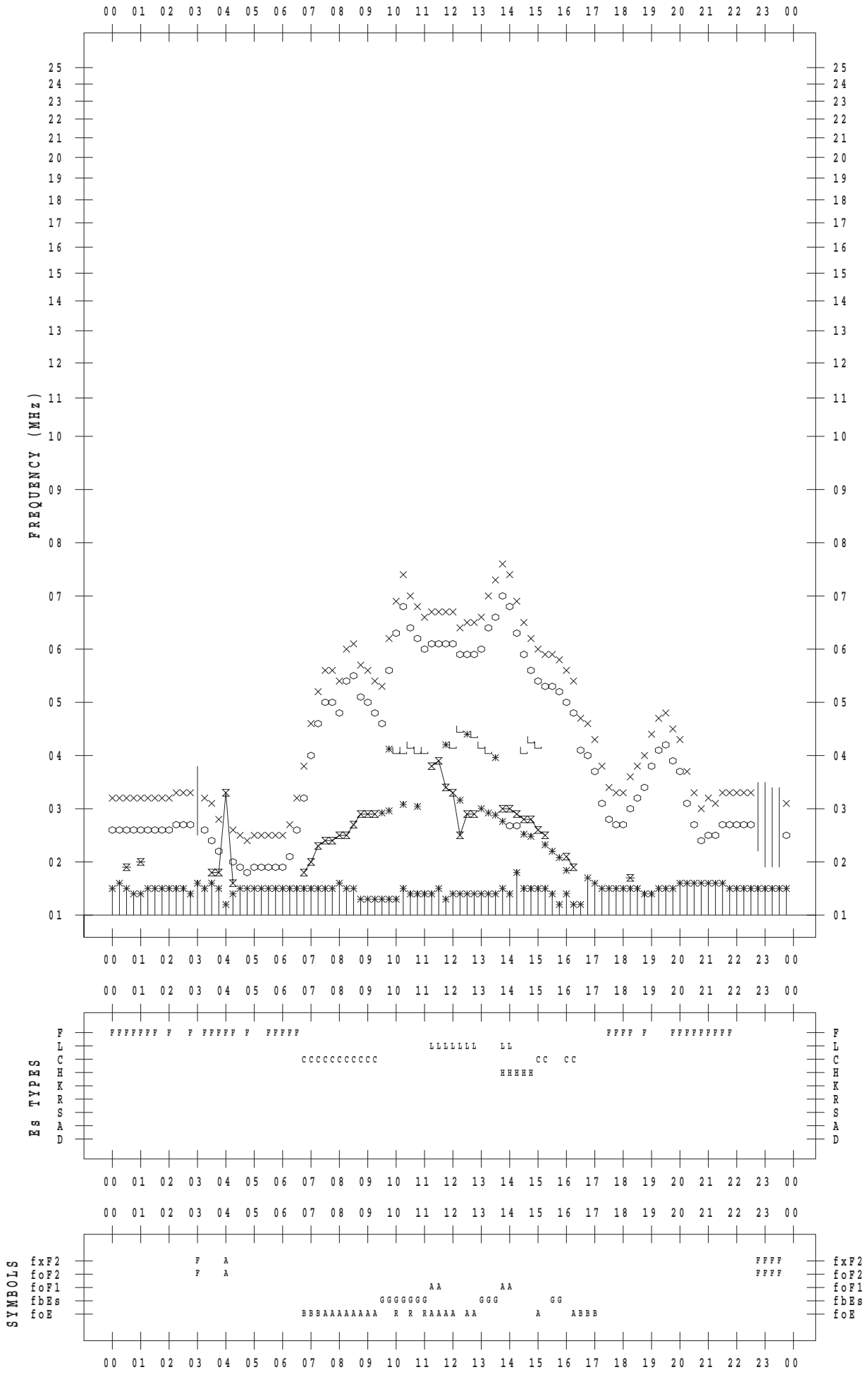
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2018/ 1/22

135 °E MEAN TIME



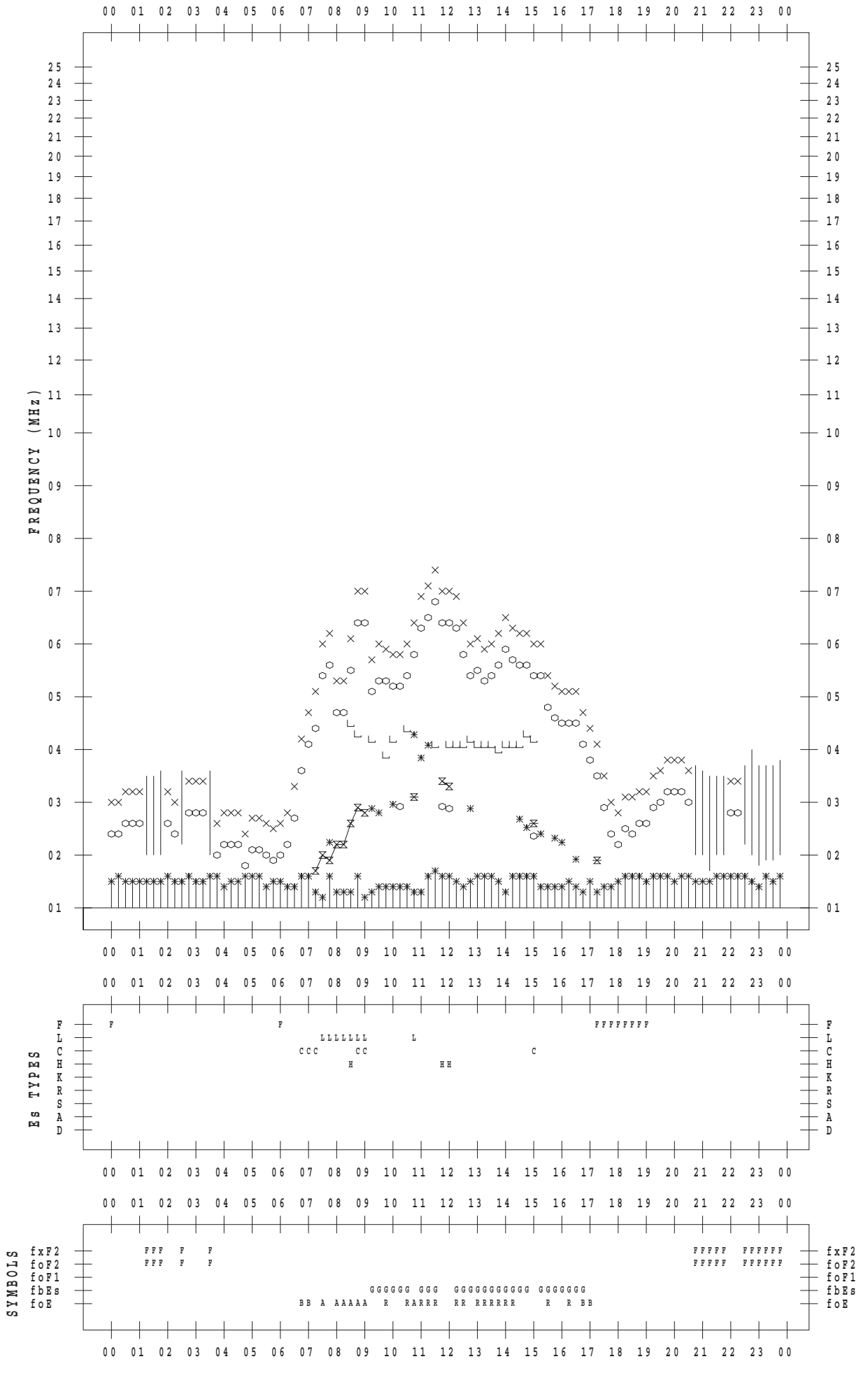
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2018/ 1/23

135 °E MEAN TIME



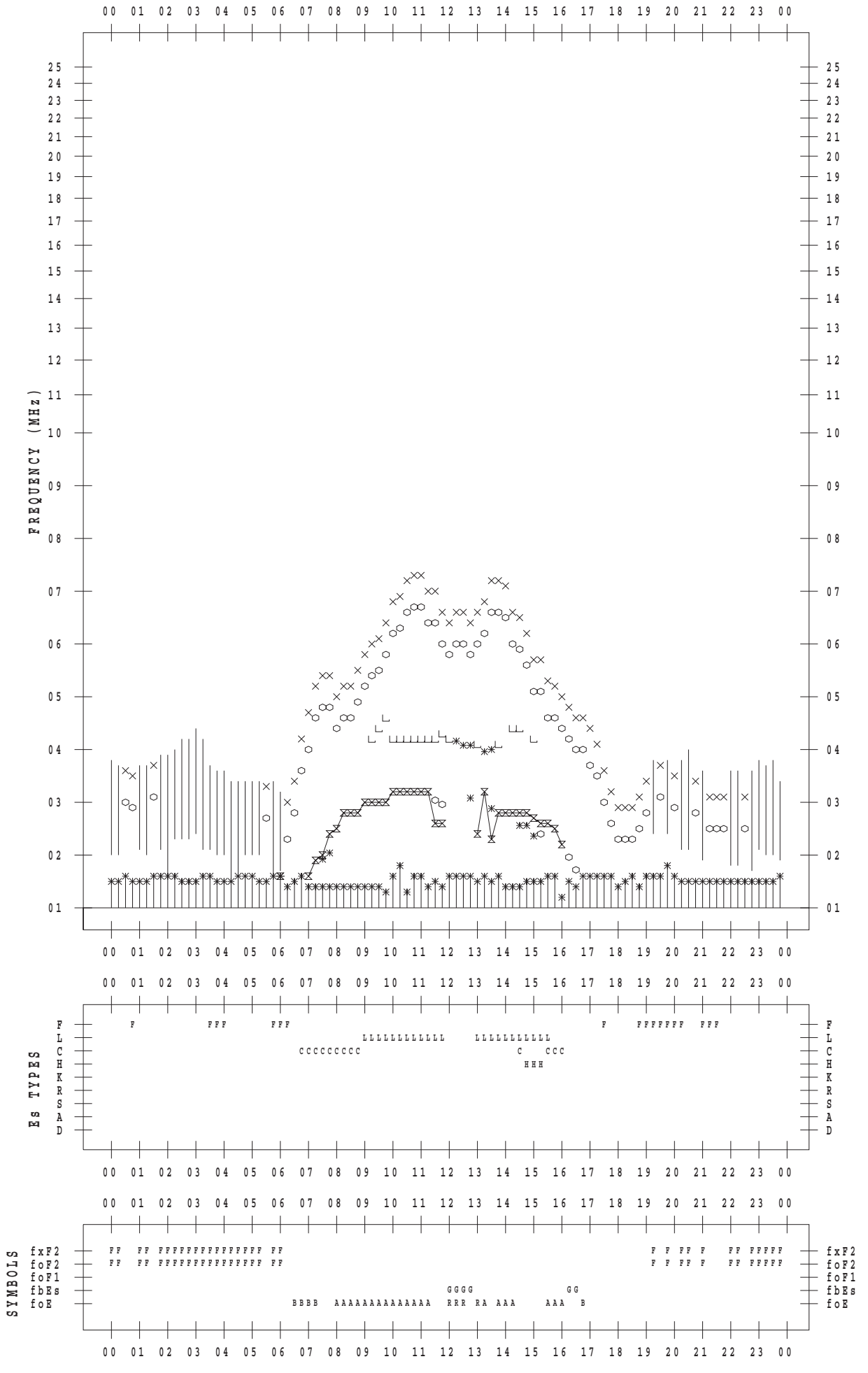
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2018/ 1/24

135 °E MEAN TIME



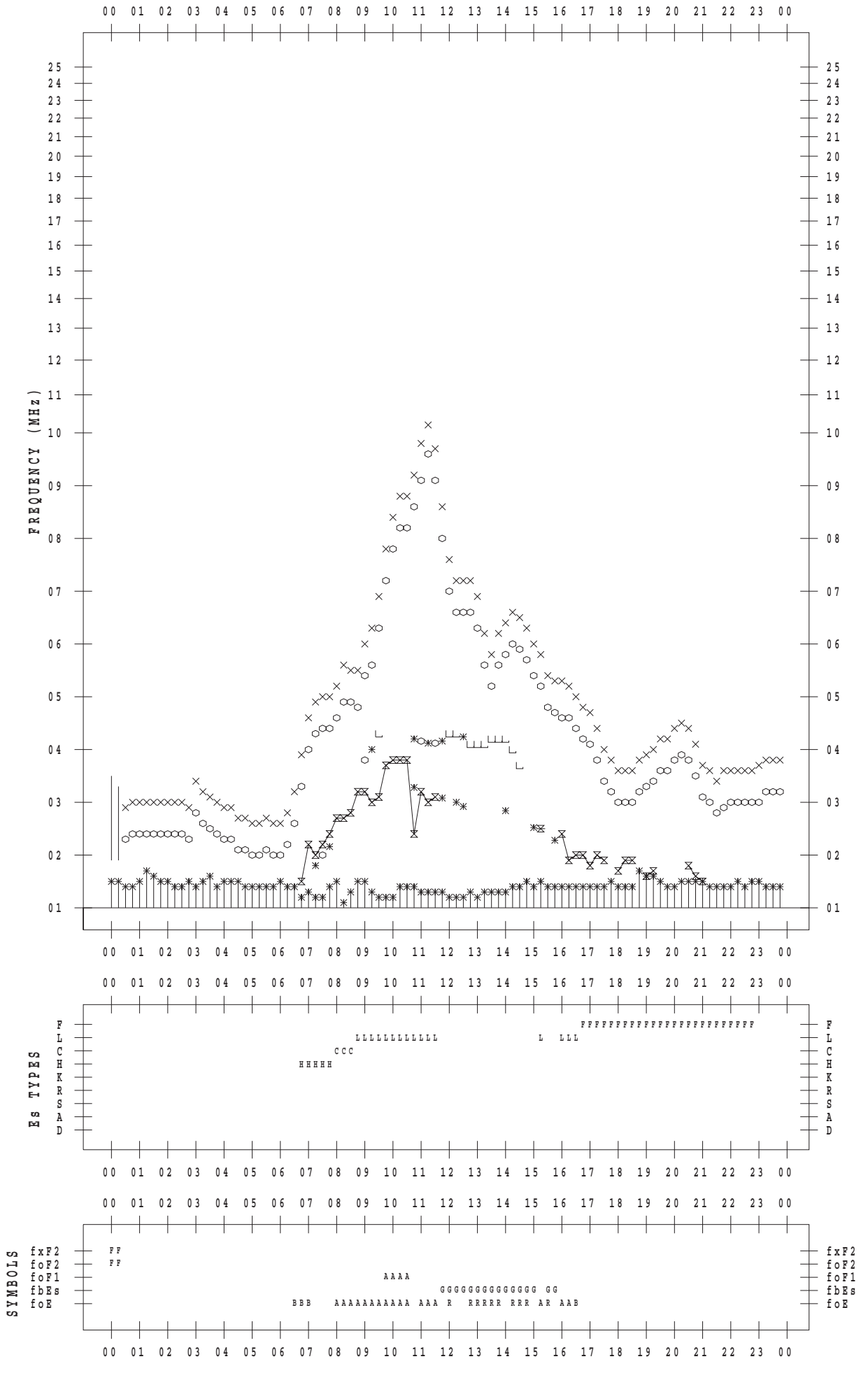
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2018/ 1/25

135 °E MEAN TIME



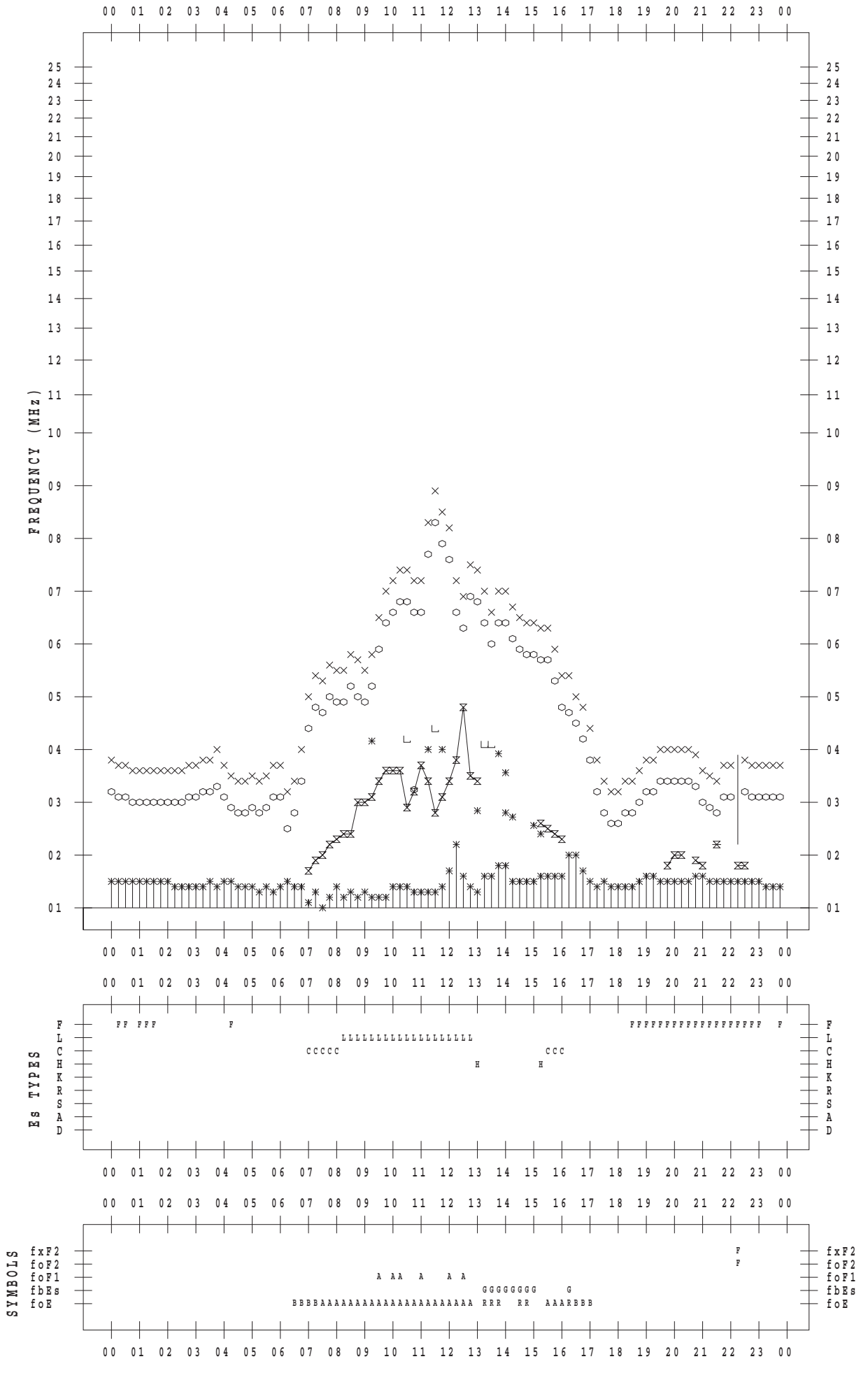
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2018/ 1/26

135 °E MEAN TIME



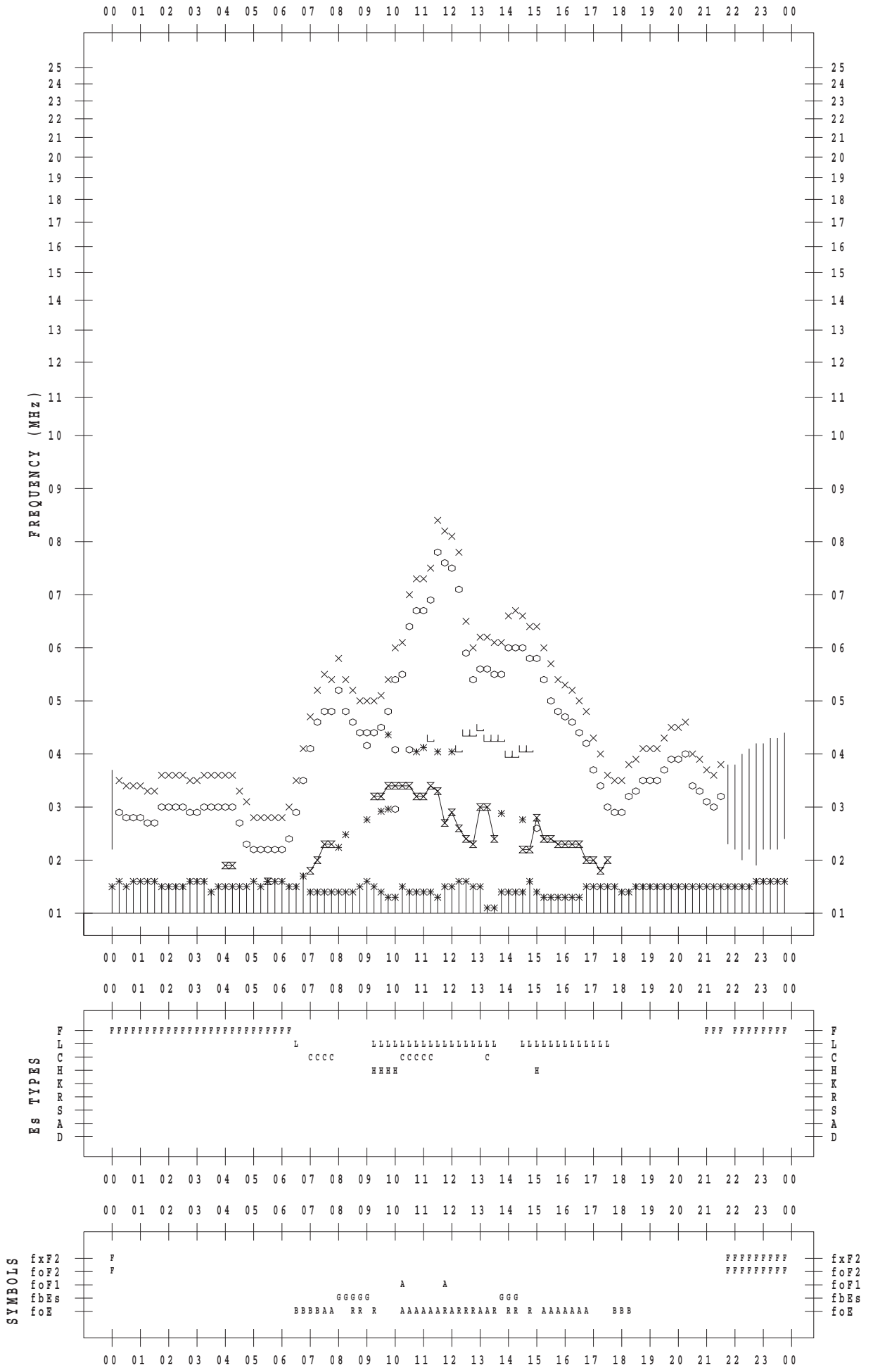
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2018/ 1/27

135 °E MEAN TIME



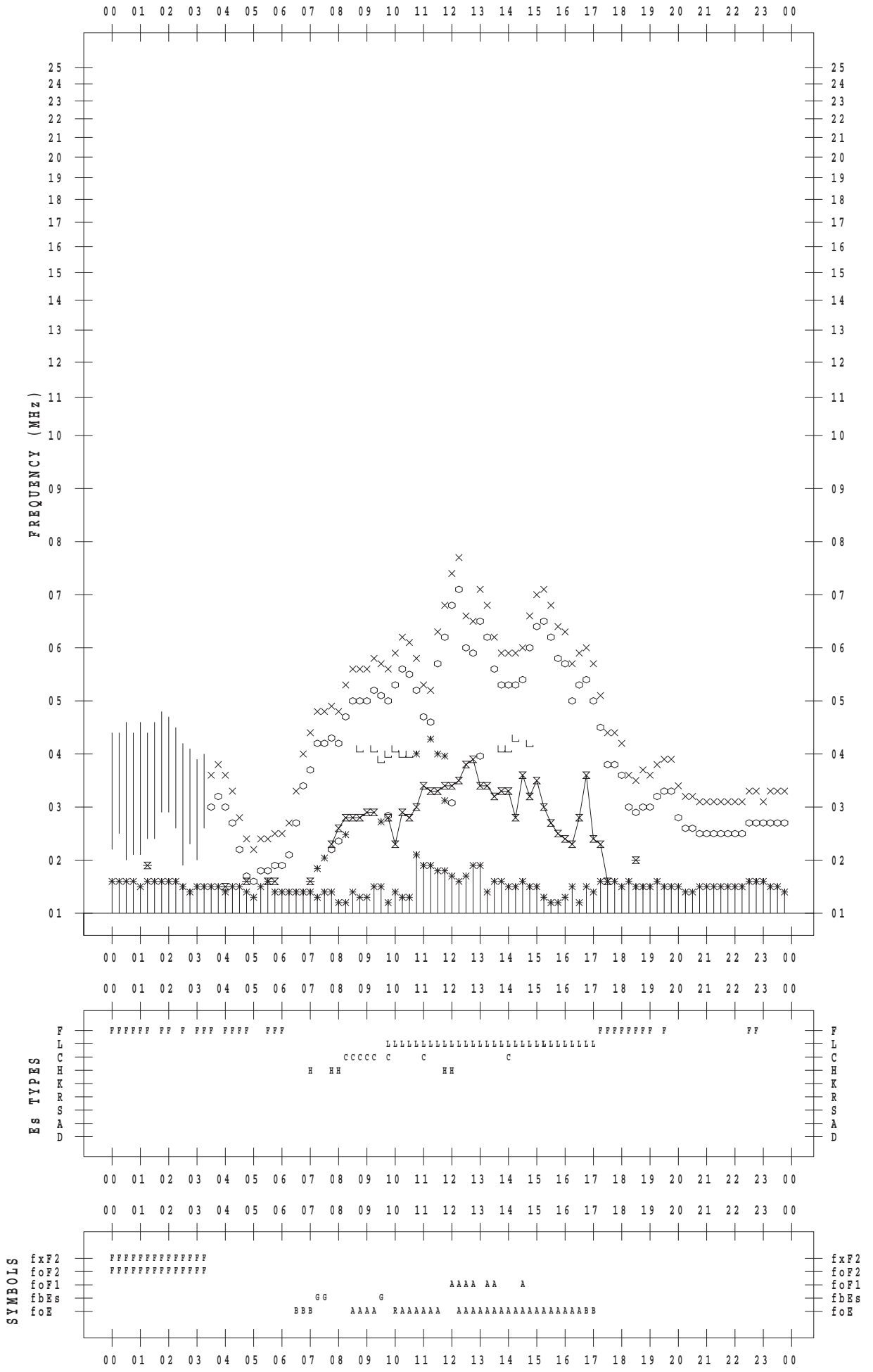
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2018/ 1/28

135 °E MEAN TIME



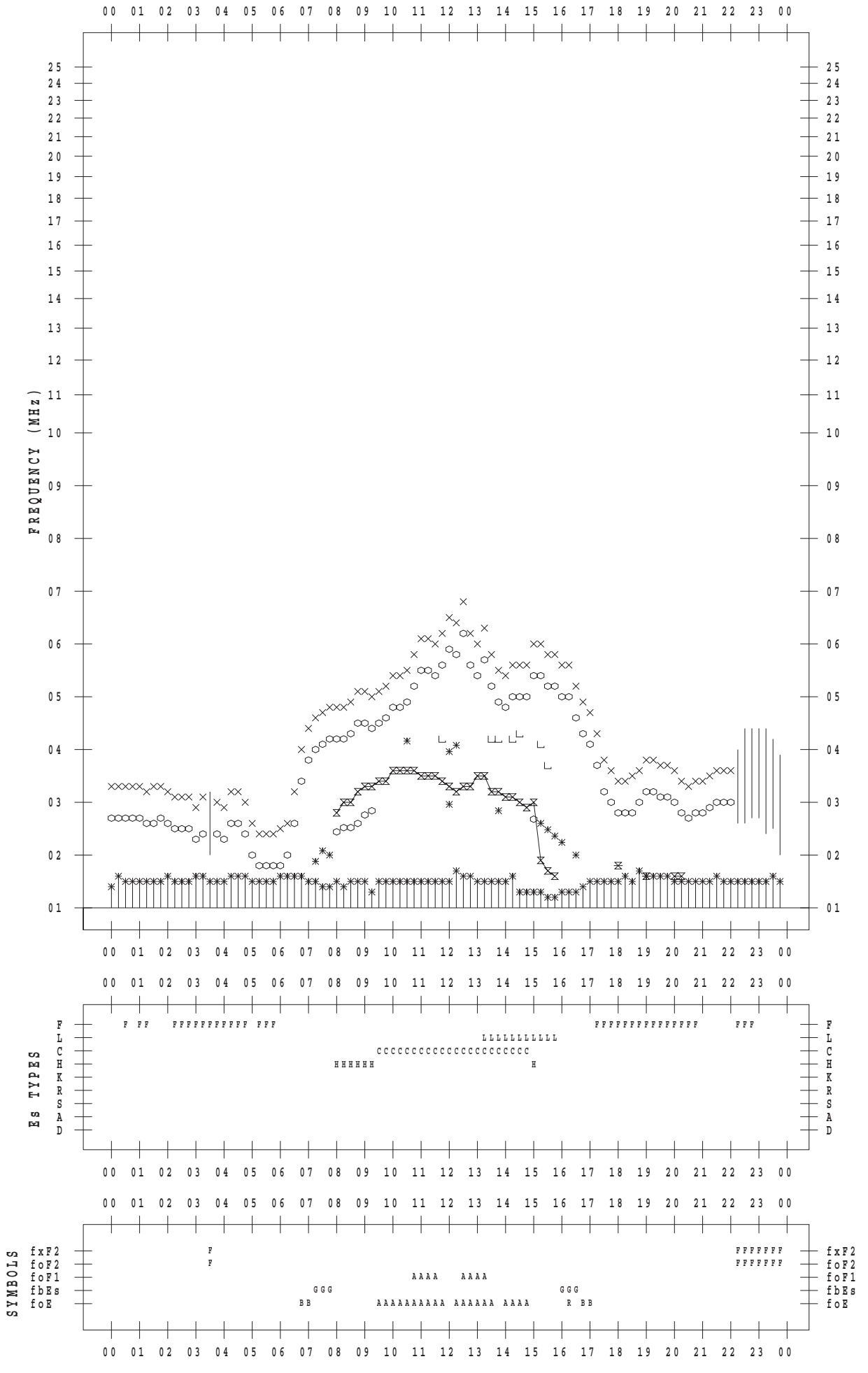
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2018/ 1/29

135 °E MEAN TIME



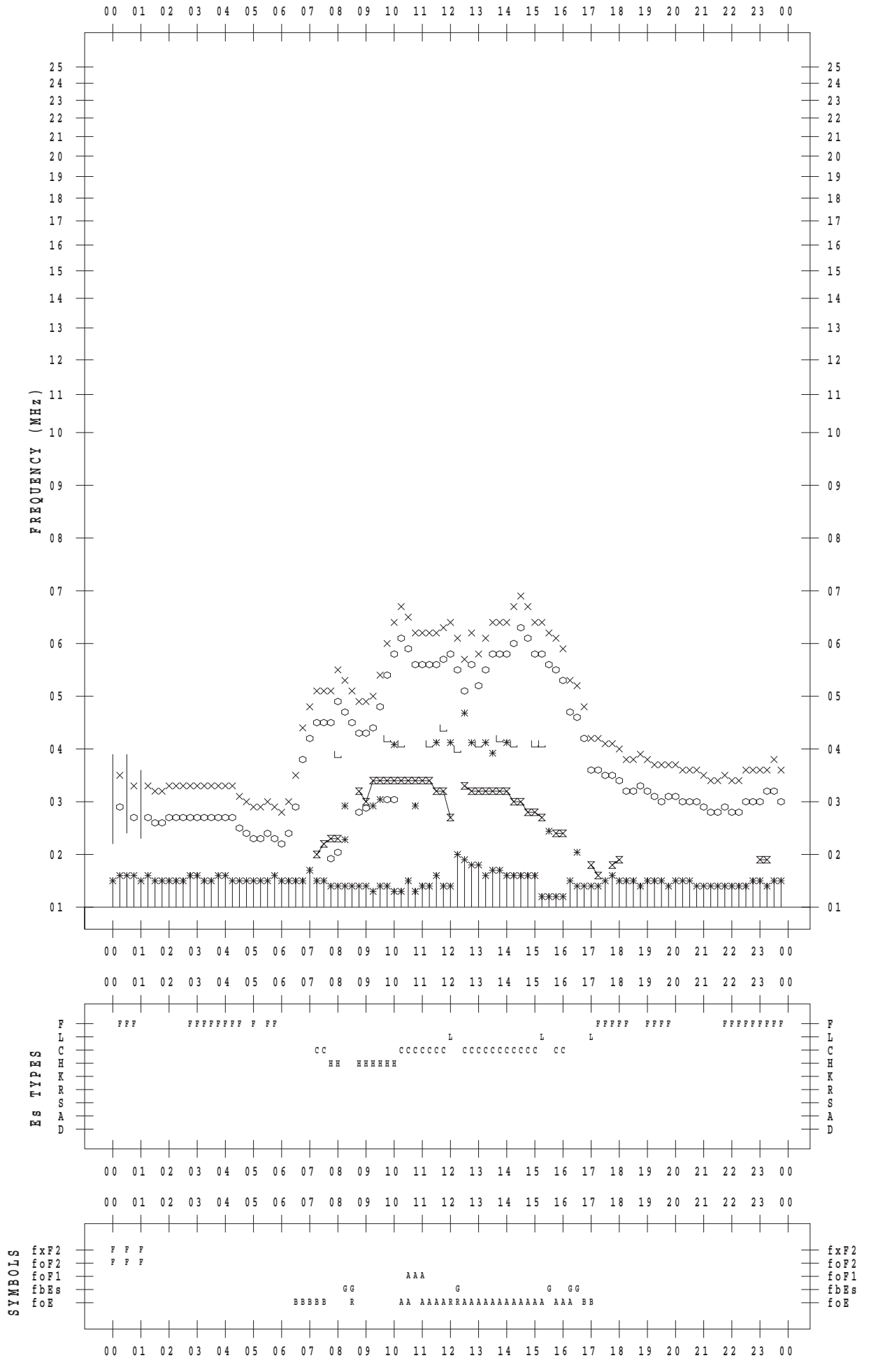
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2018/ 1/30

135 °E MEAN TIME



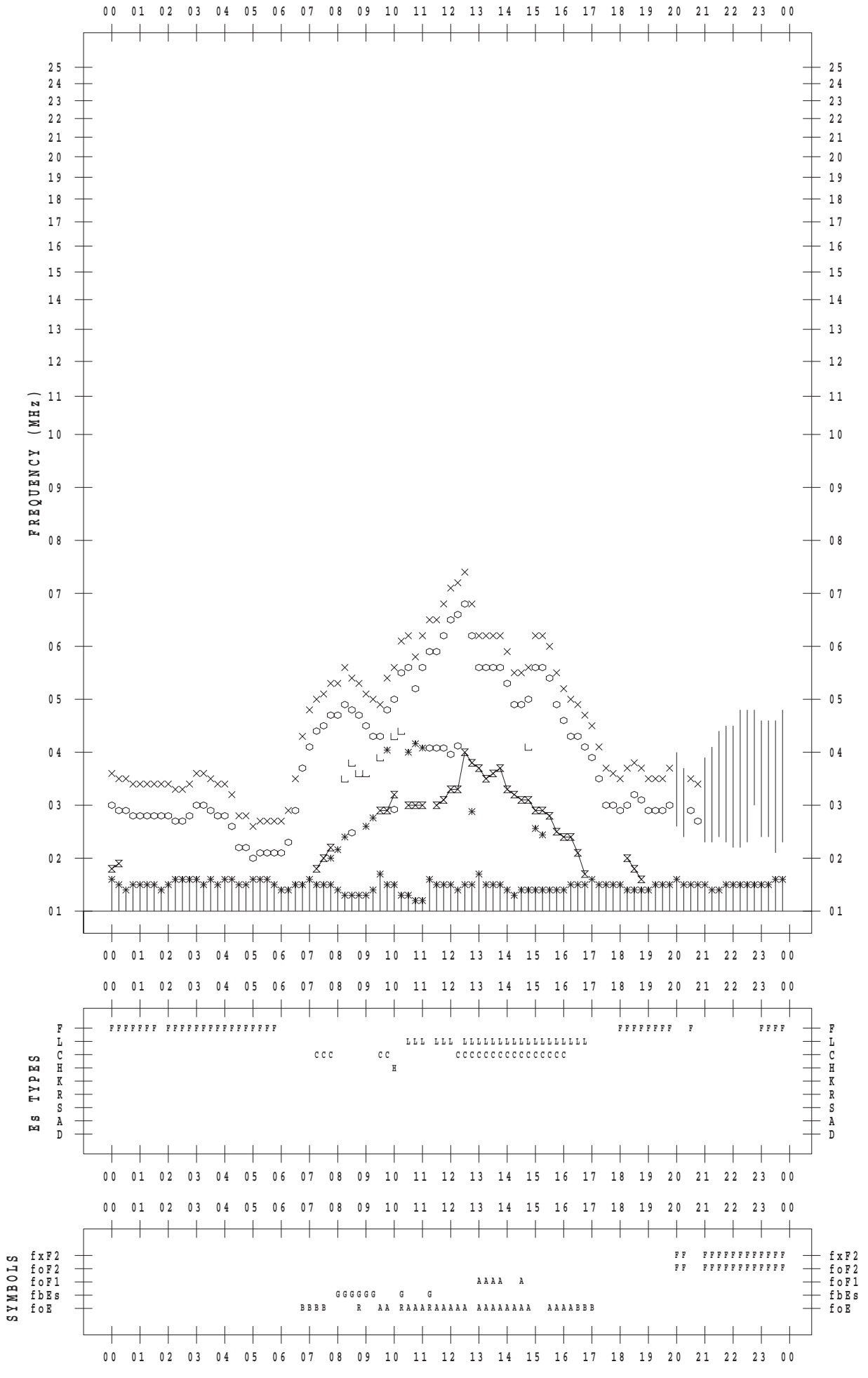
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2018/ 1/31

135 °E MEAN TIME



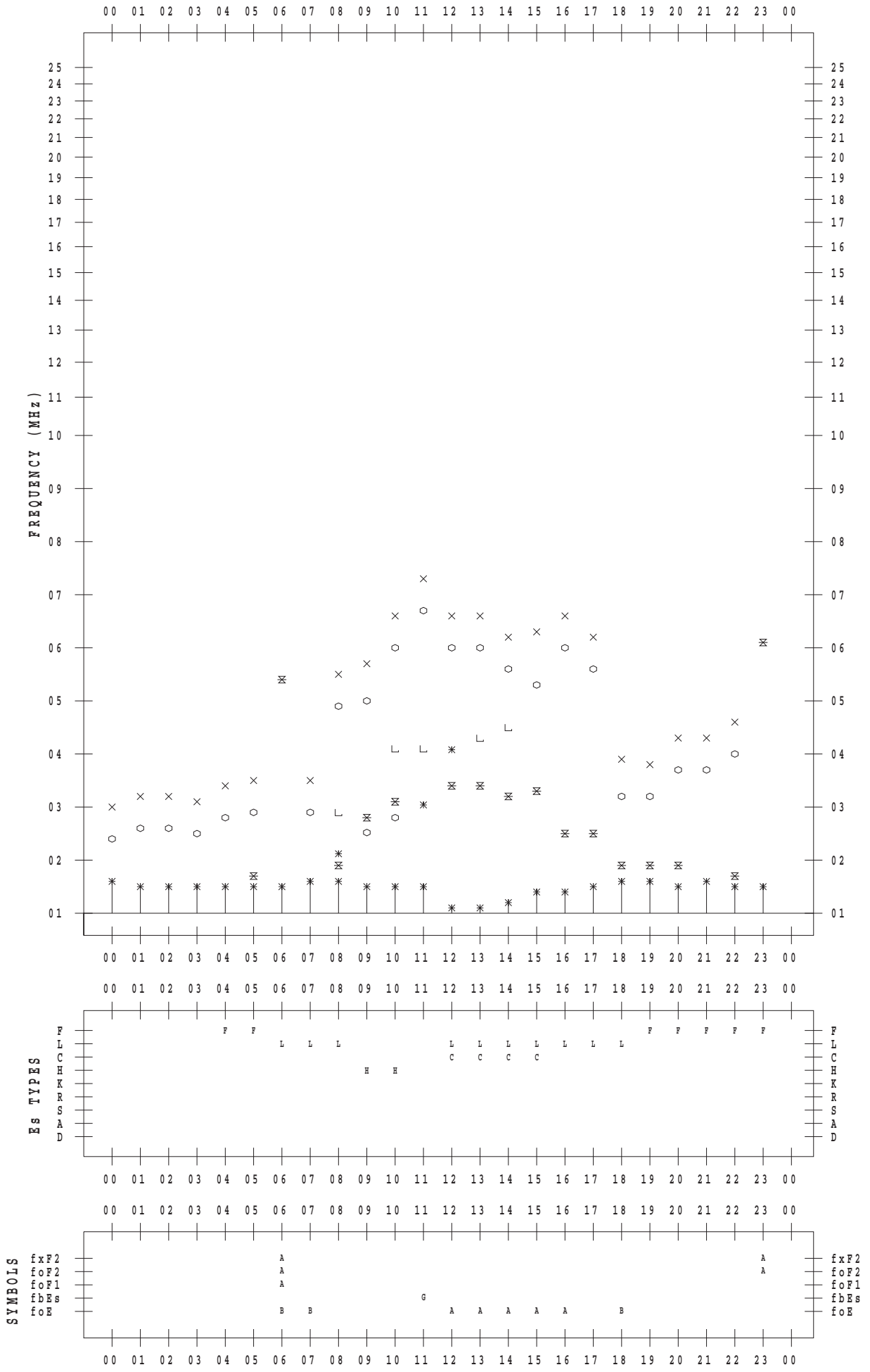
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2018/ 1/ 1

135 °E MEAN TIME



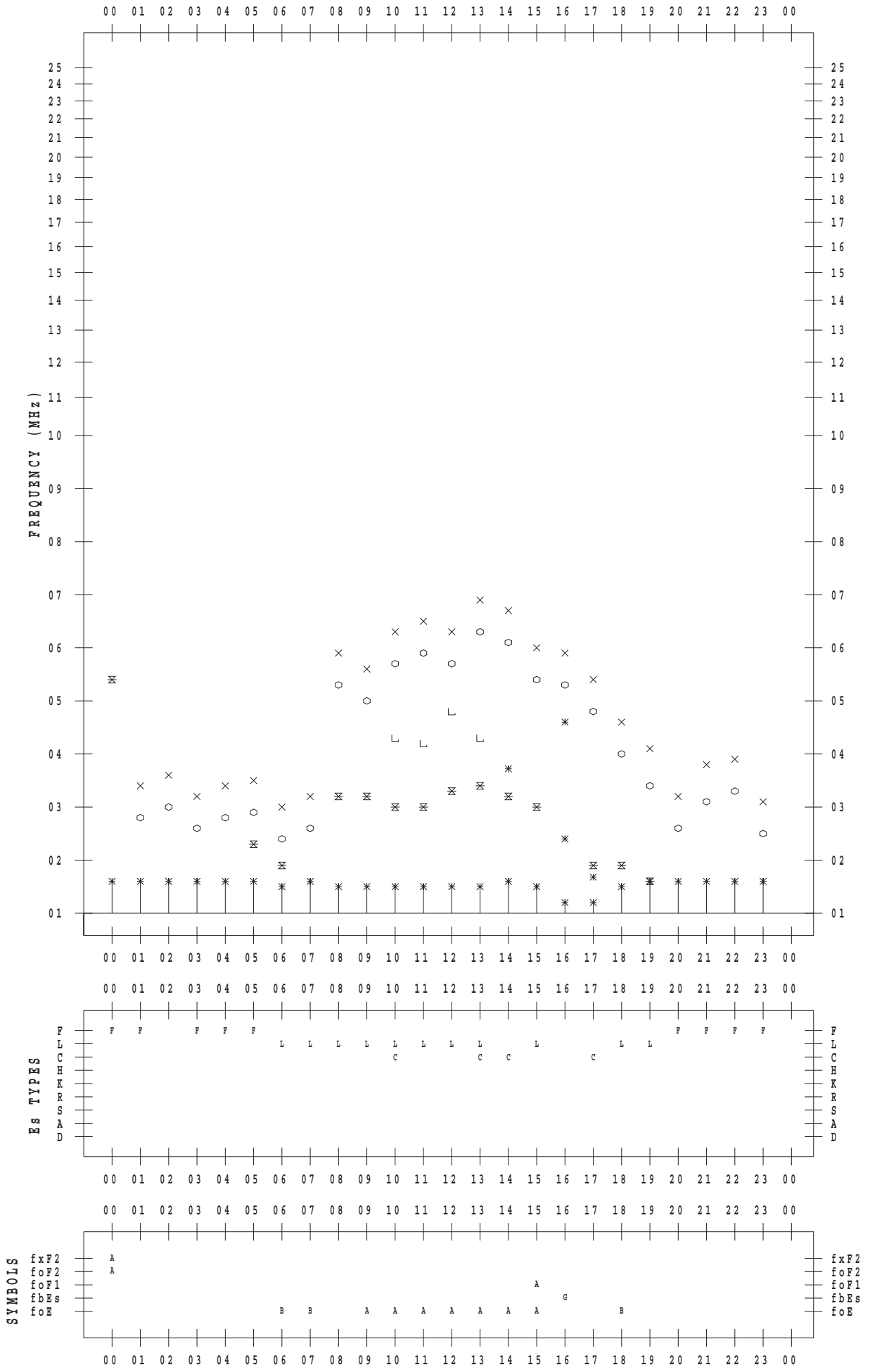
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2018/ 1/ 2

135 °E MEAN TIME



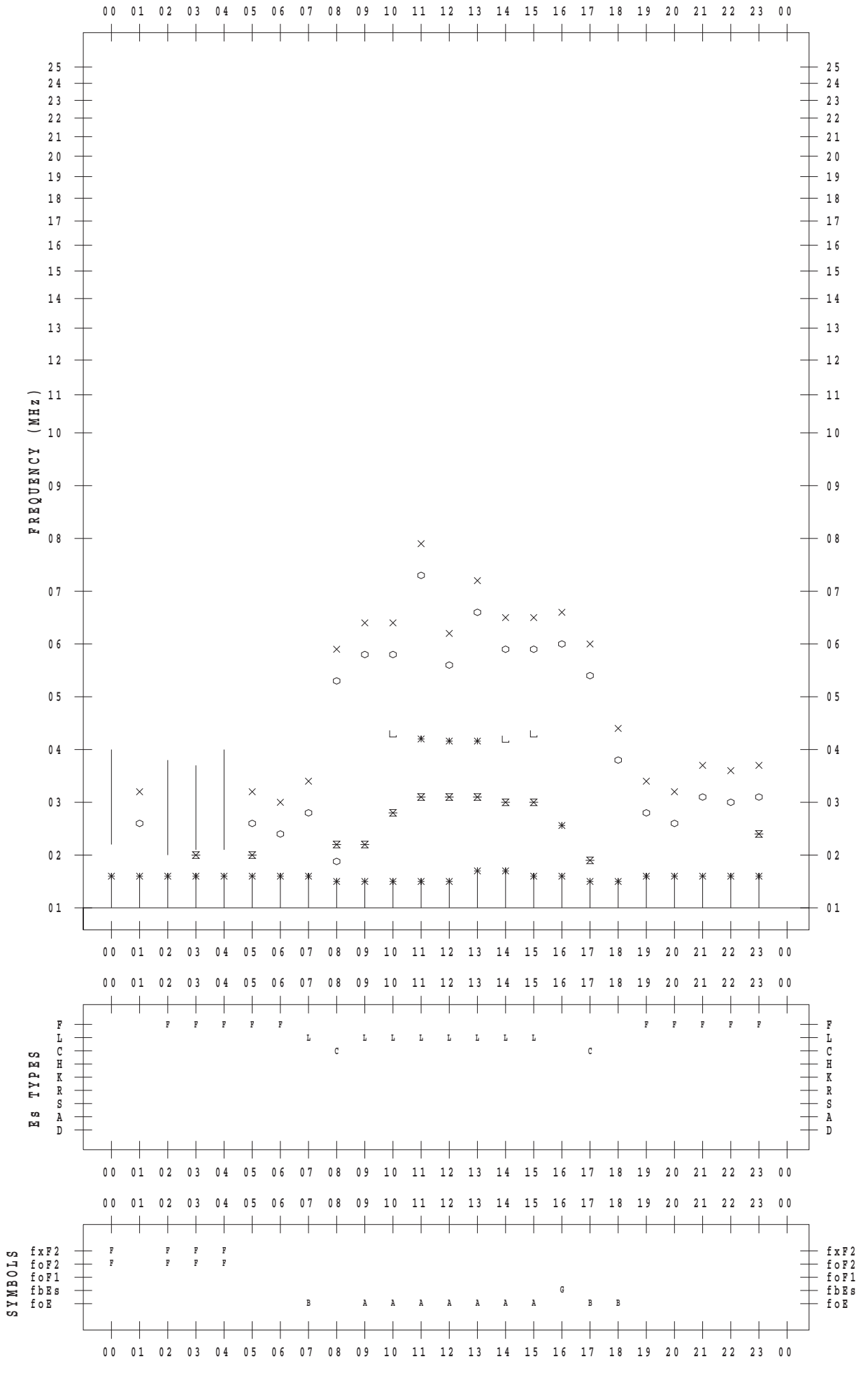
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2018/ 1/ 3

135 °E MEAN TIME



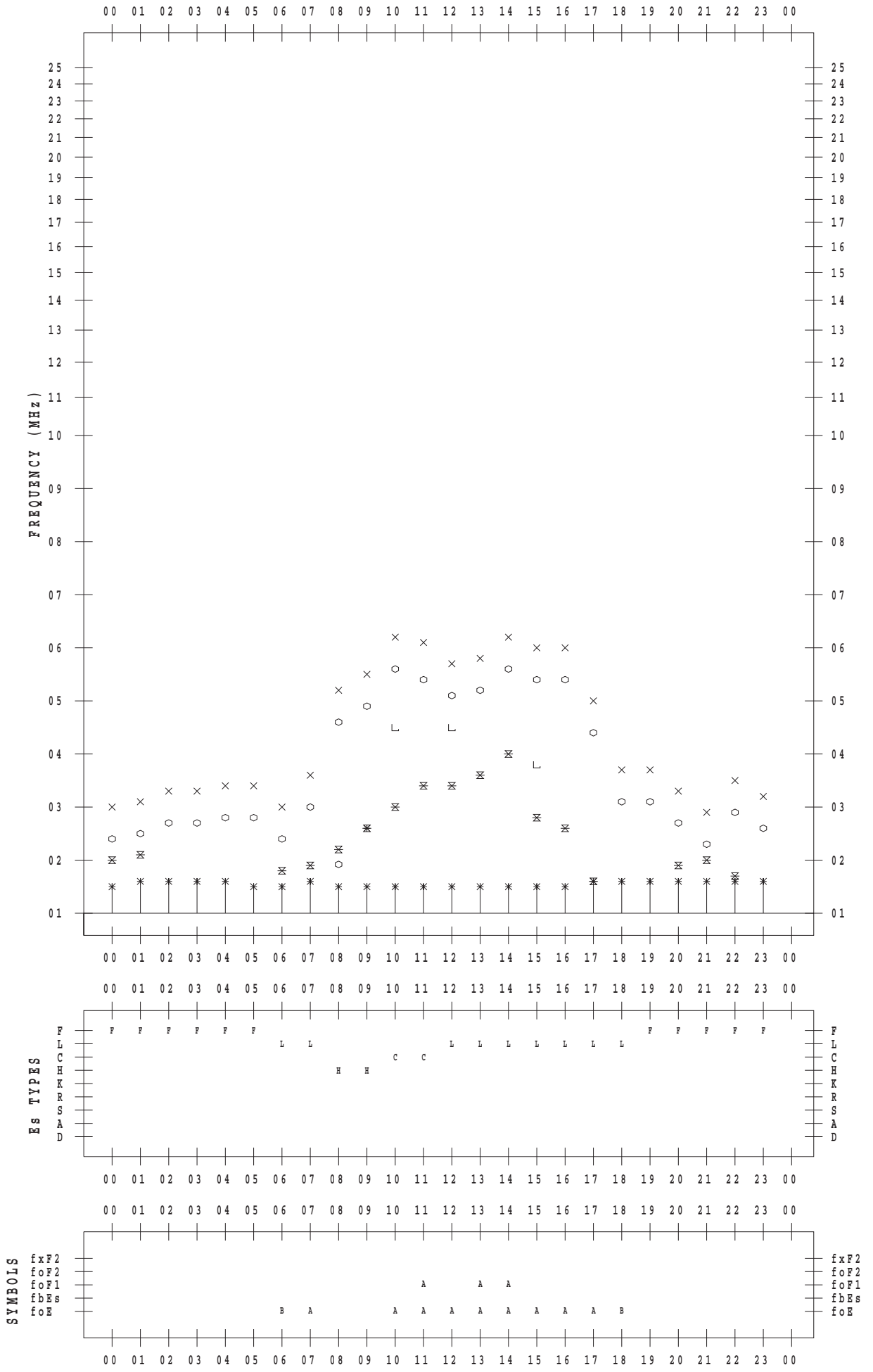
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2018/ 1/ 4

135 °E MEAN TIME



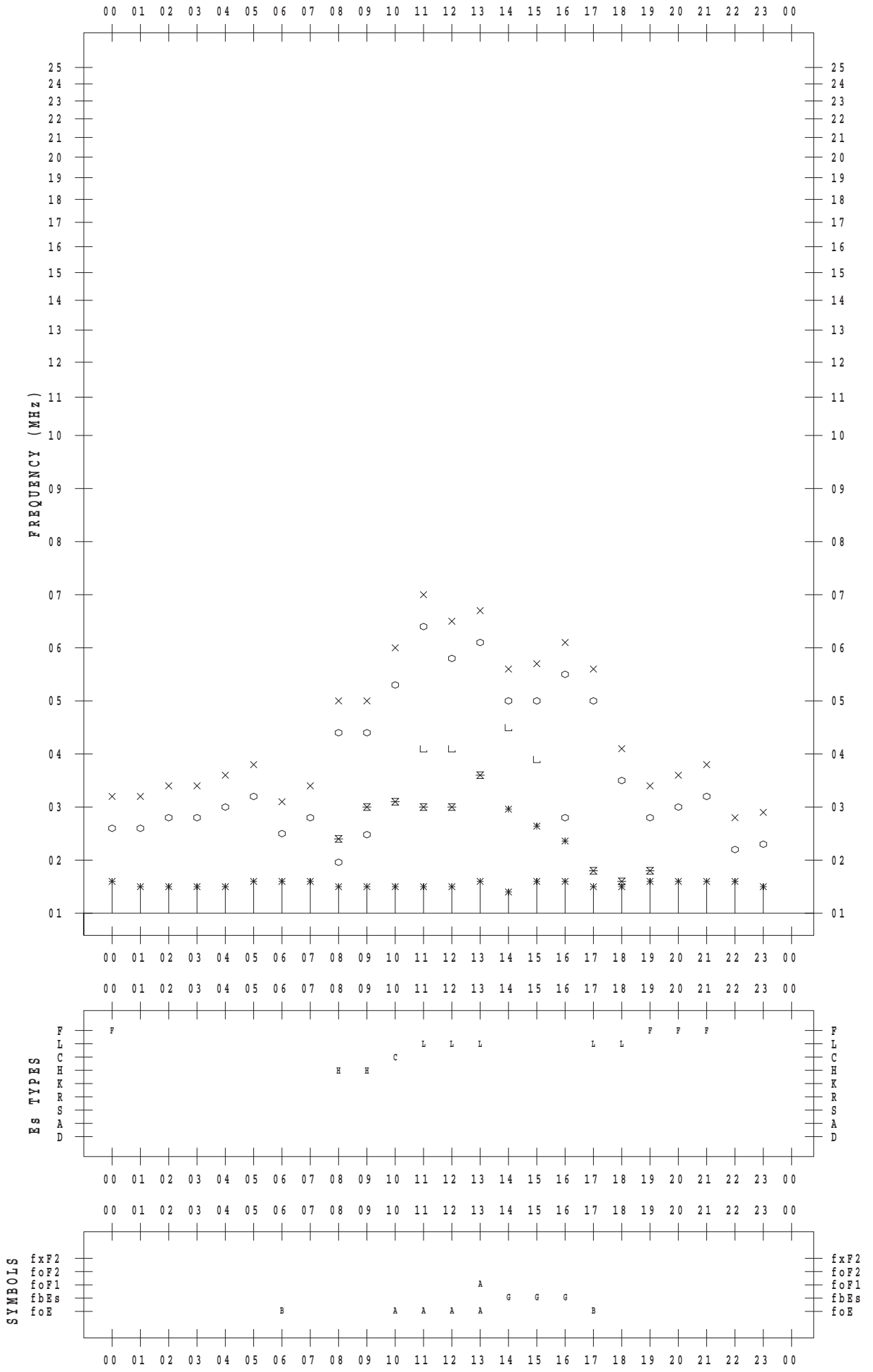
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2018/ 1/ 5

135 °E MEAN TIME



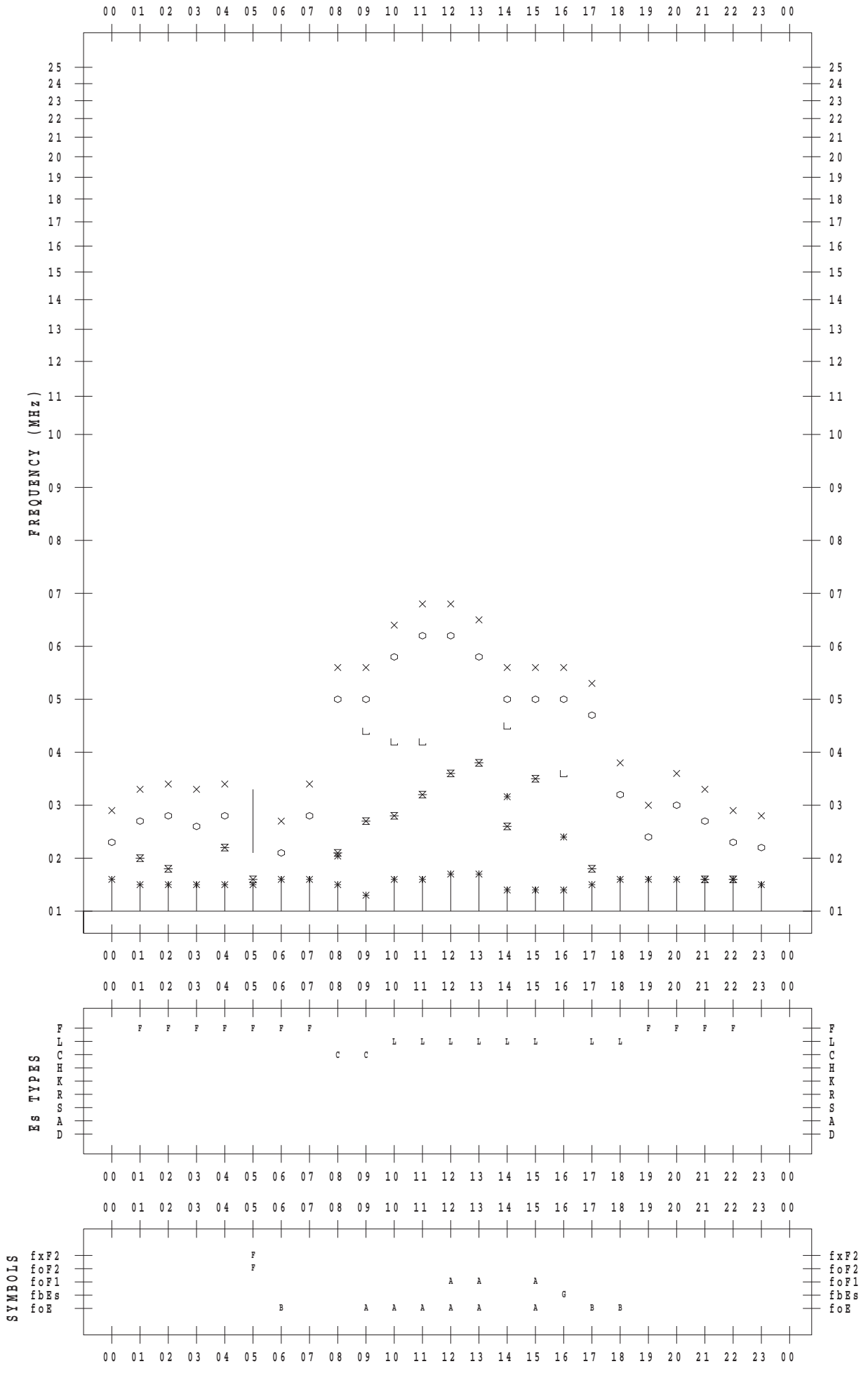
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2018/ 1/ 6

135 °E MEAN TIME



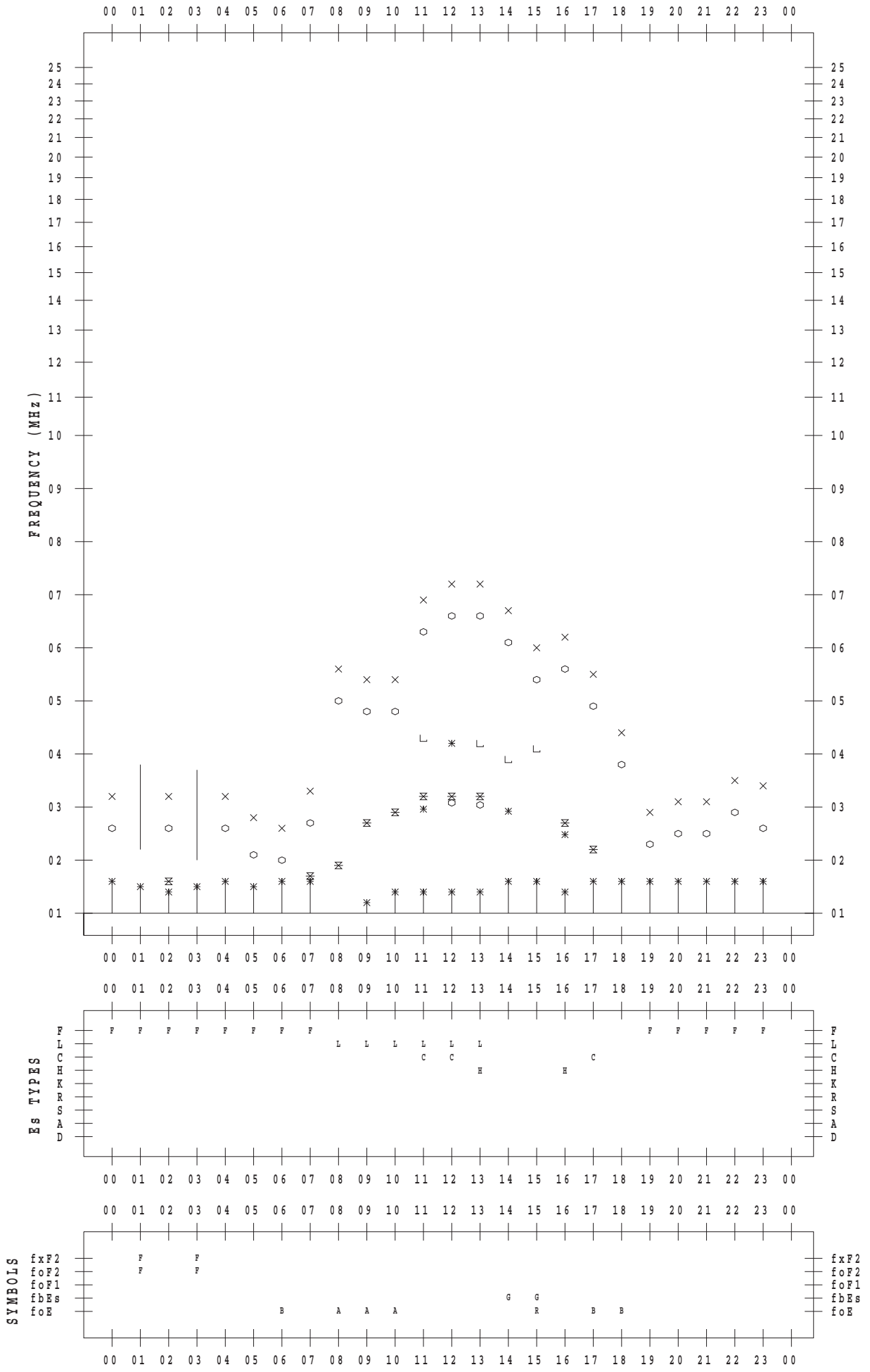
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2018/ 1/ 7

135 °E MEAN TIME



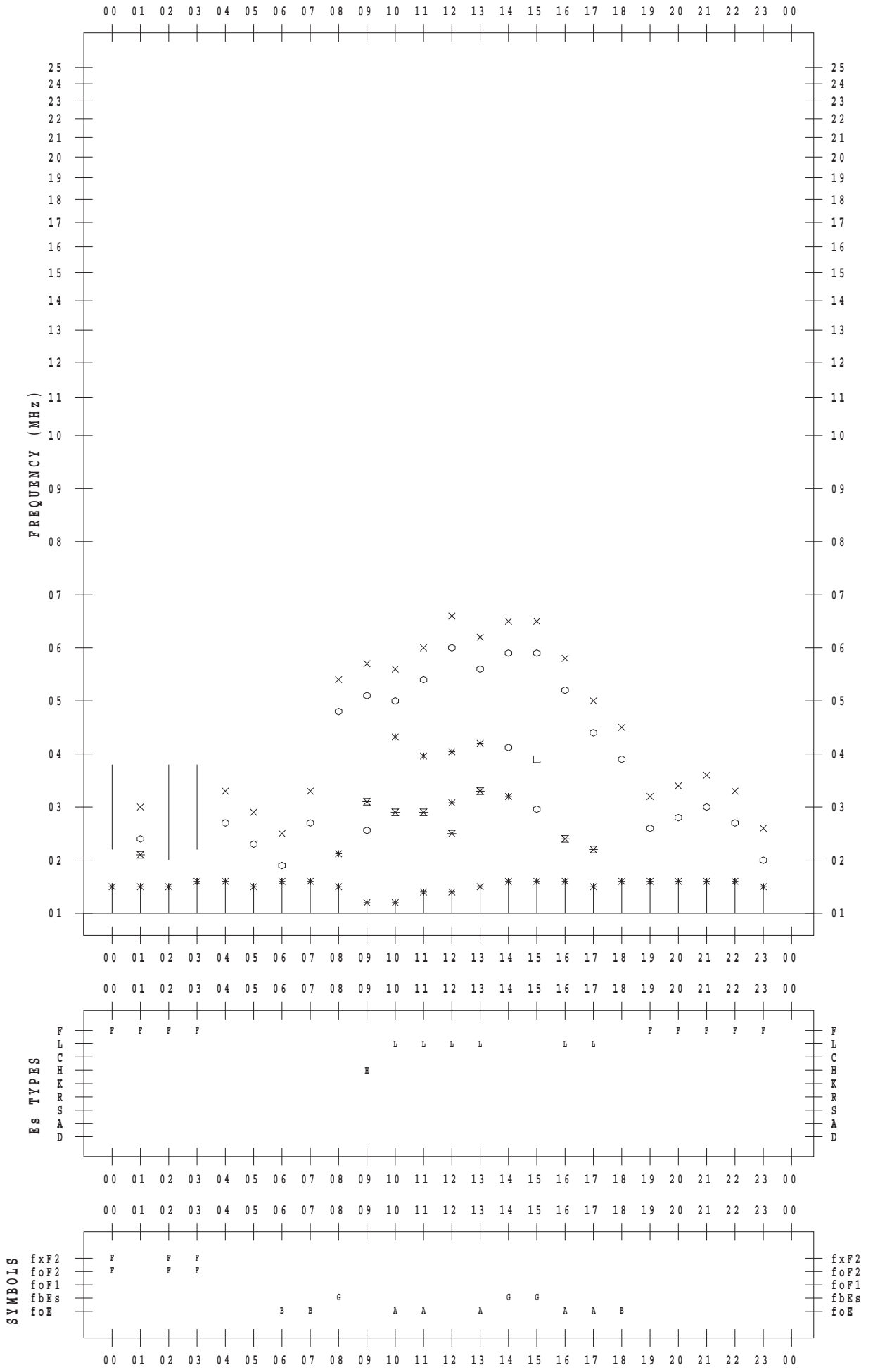
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2018/ 1/ 8

135 °E MEAN TIME



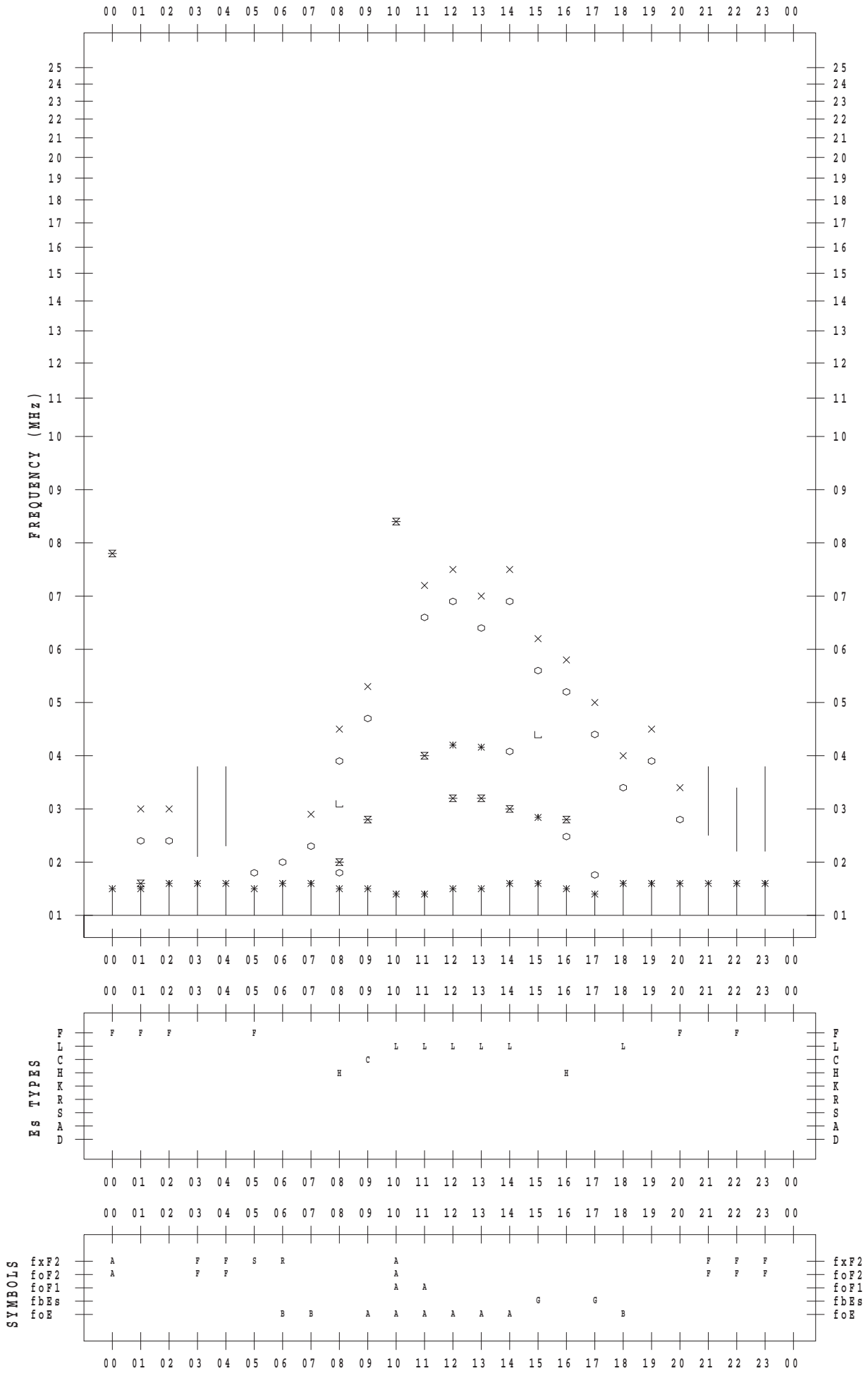
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2018/ 1/ 9

135 °E MEAN TIME



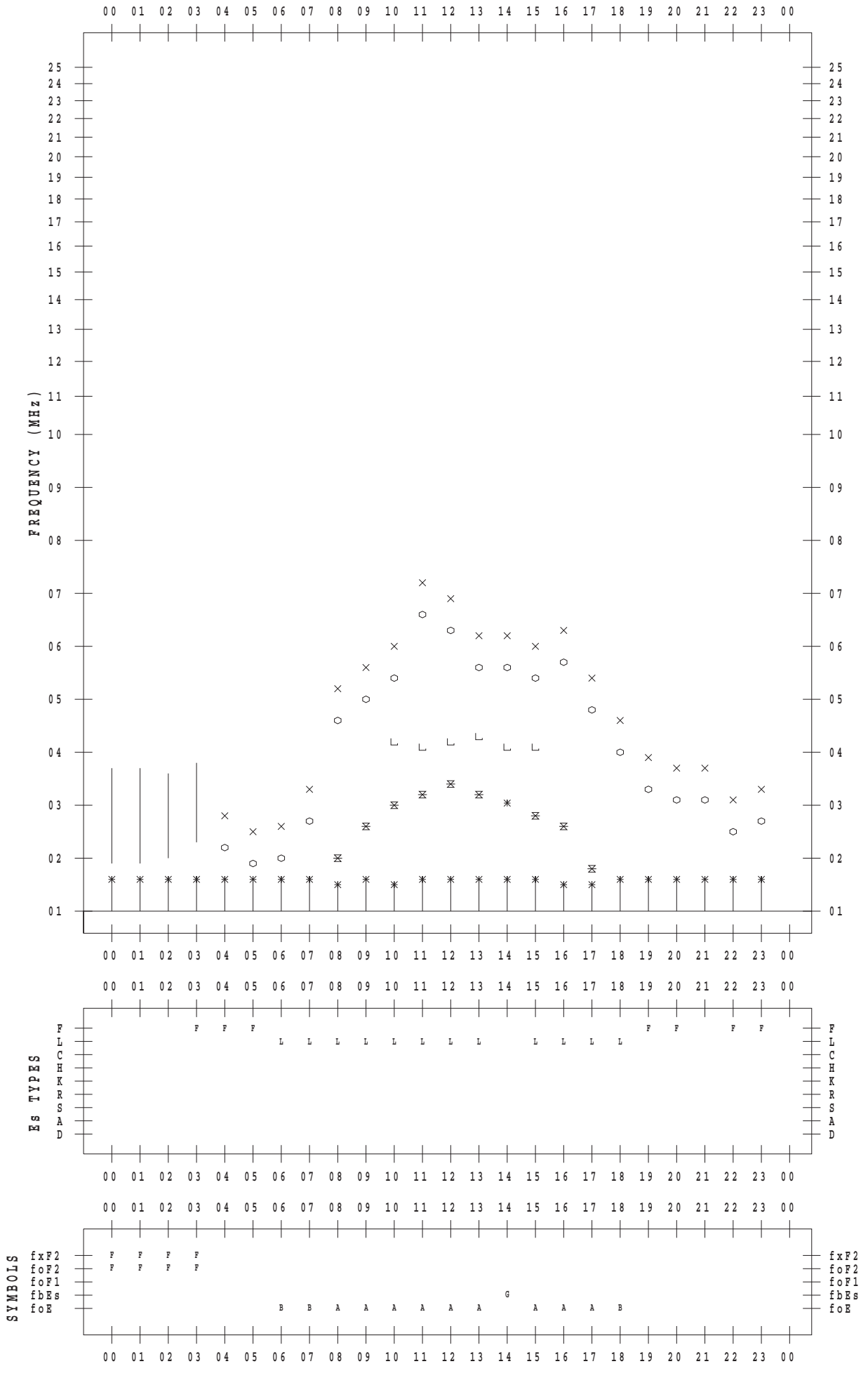
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2018/ 1/10

135 °E MEAN TIME



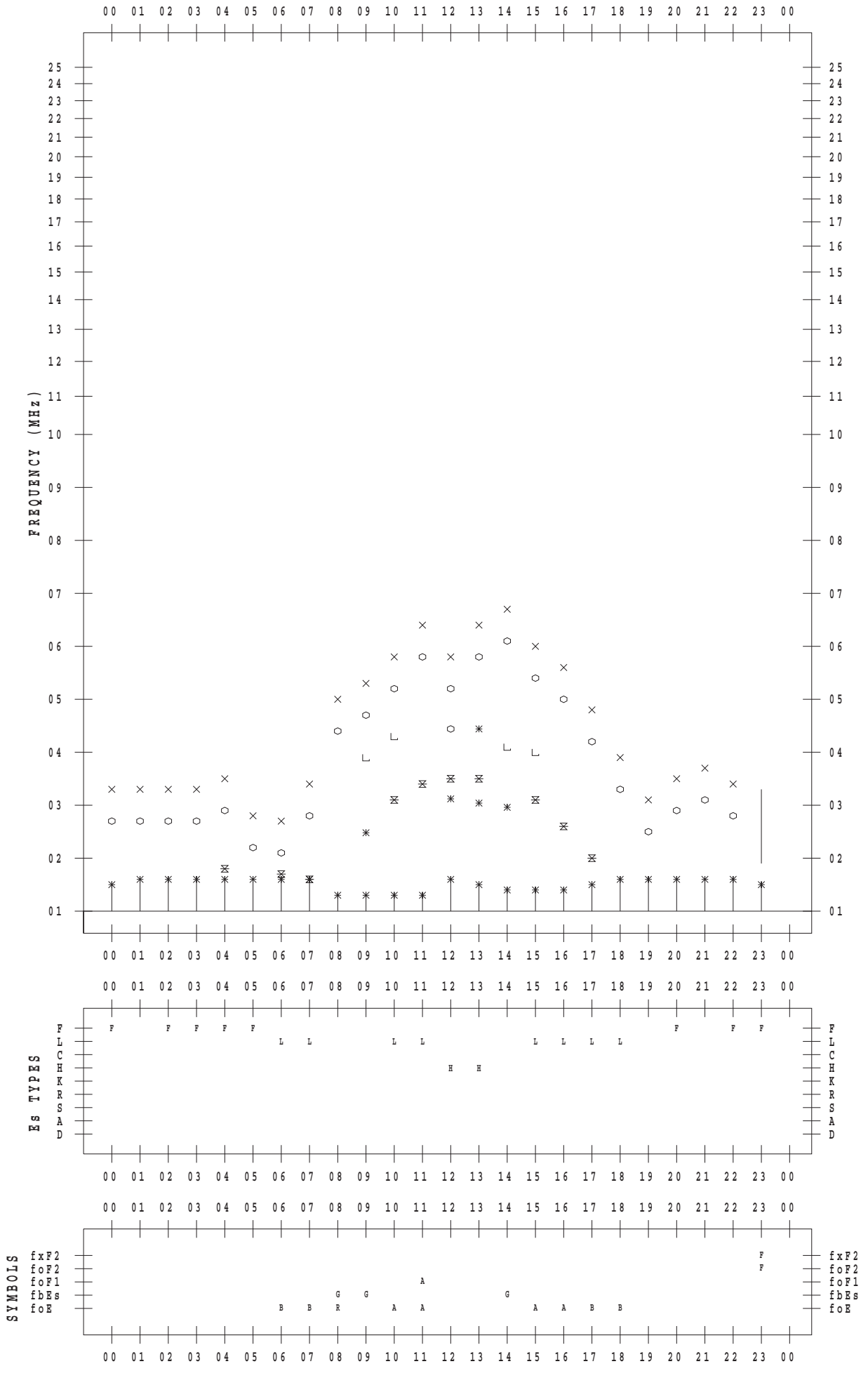
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2018/ 1/11

135 °E MEAN TIME



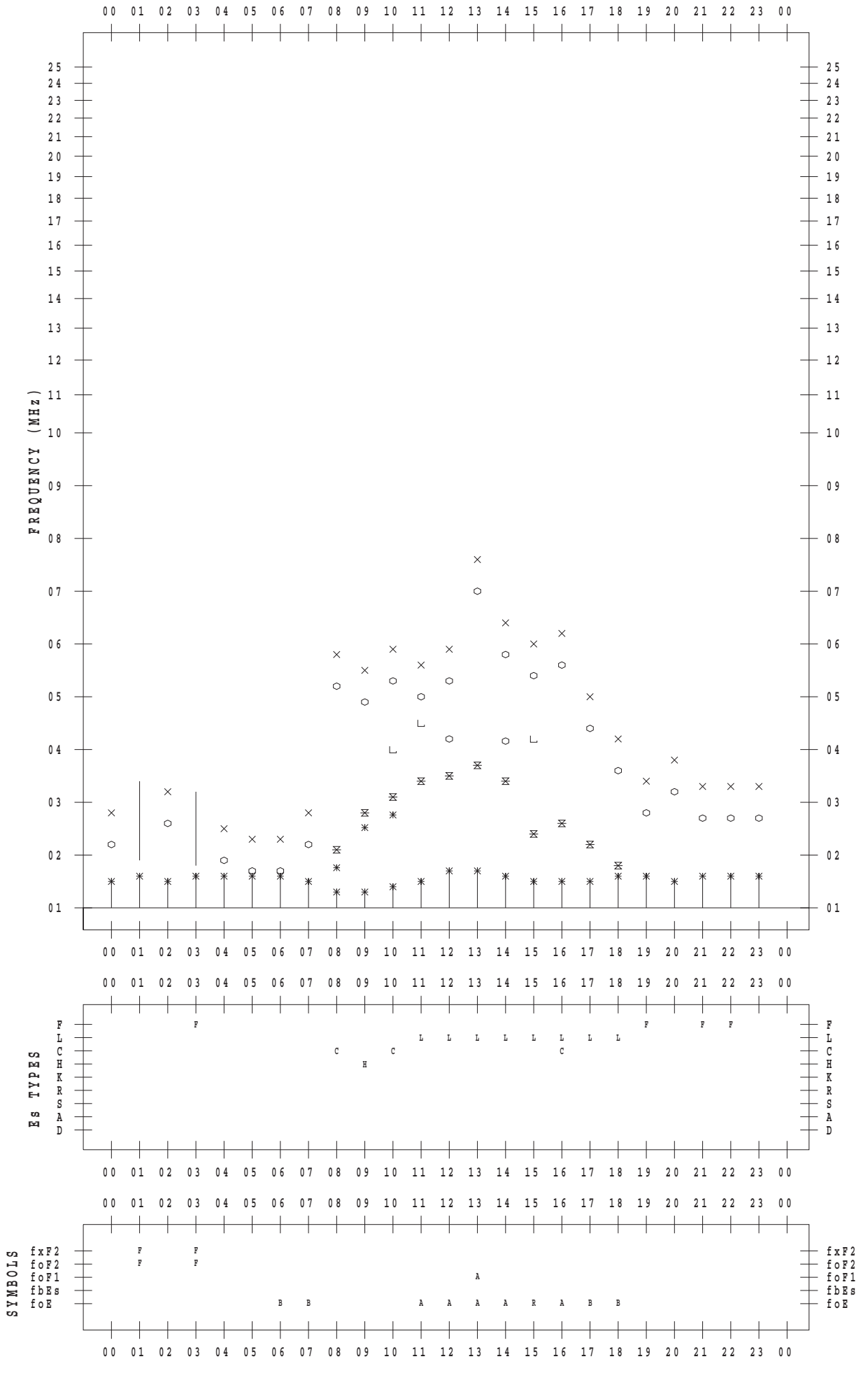
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2018/ 1/12

135 °E MEAN TIME



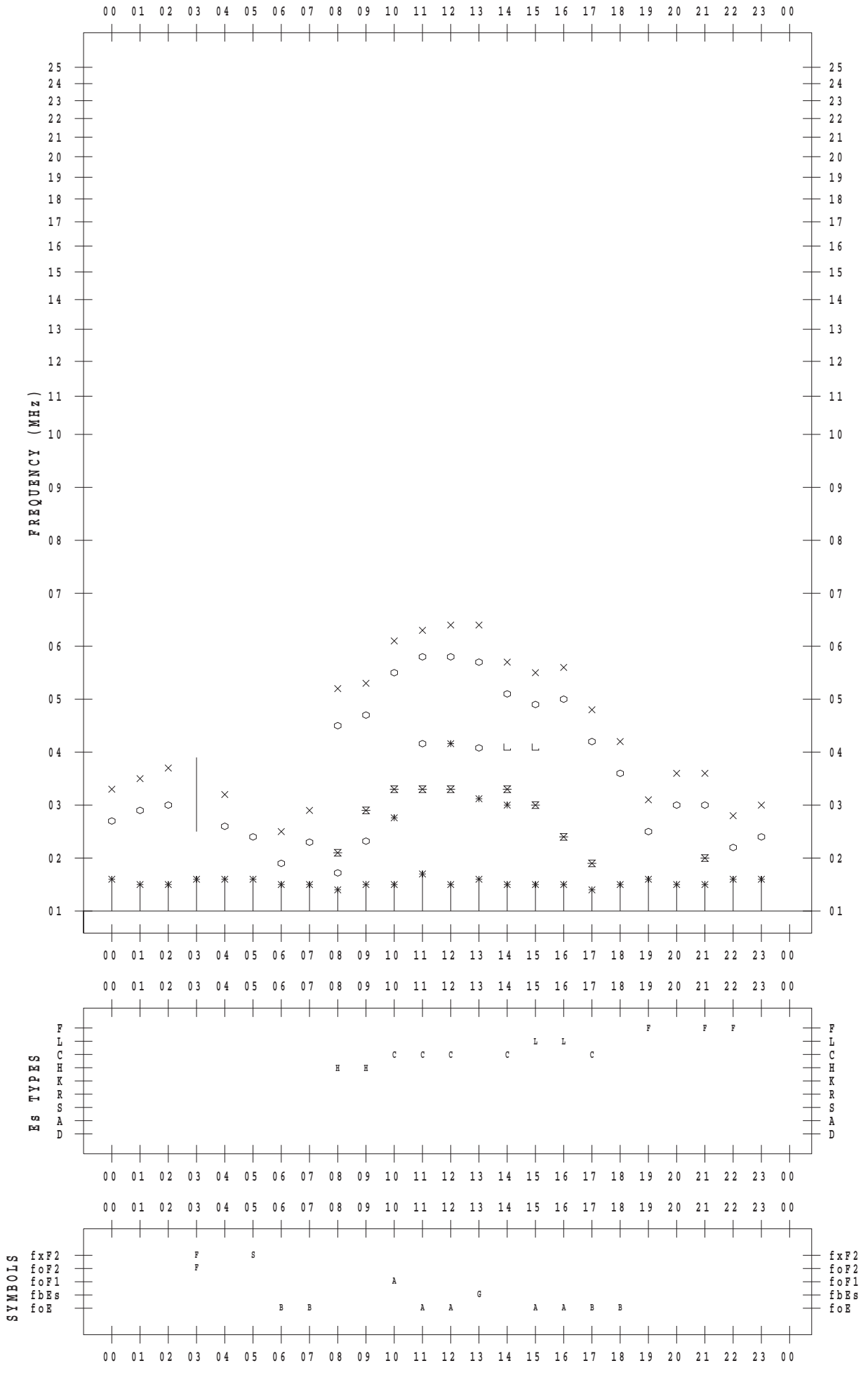
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2018/ 1/13

135 °E MEAN TIME



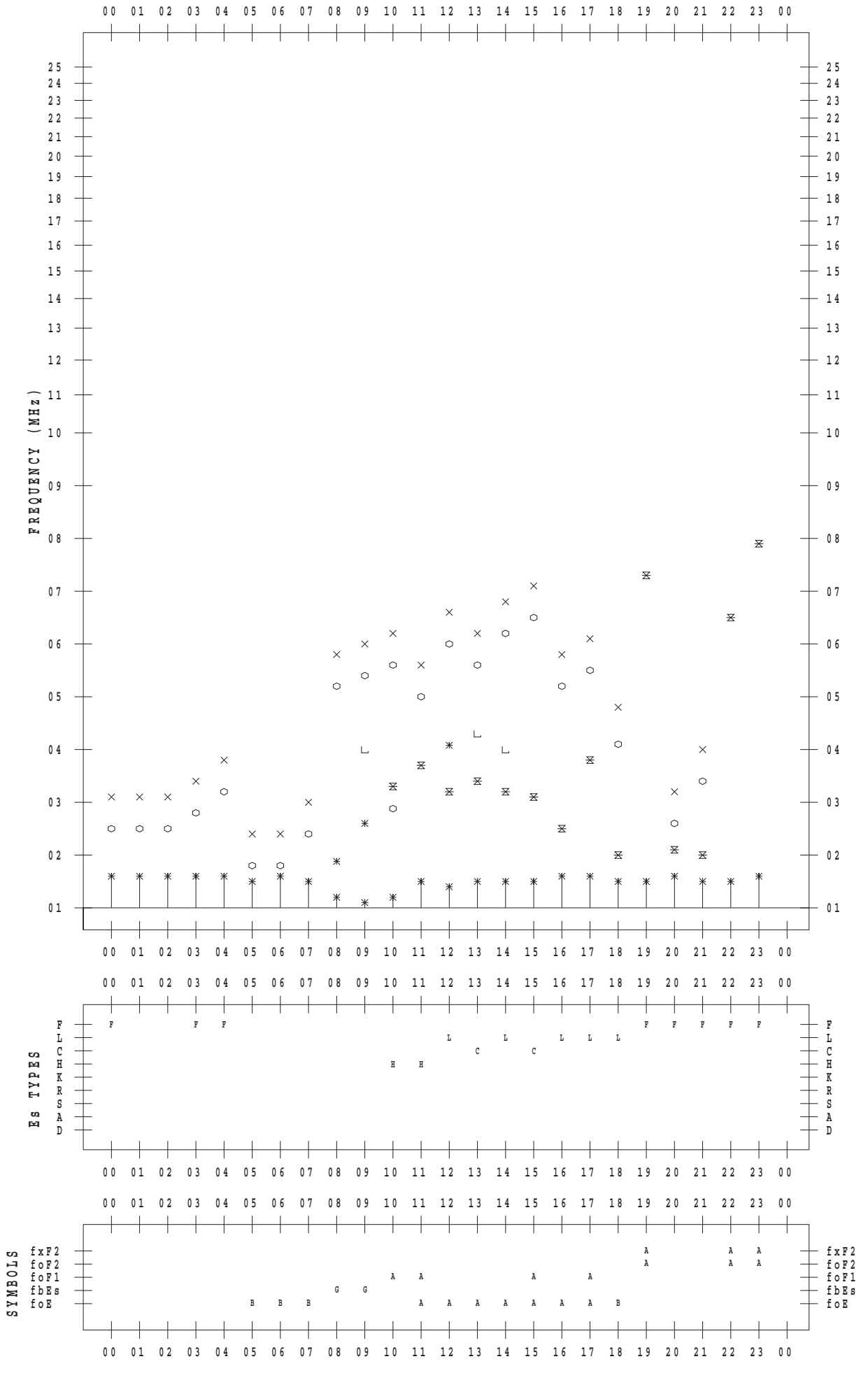
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2018/ 1/14

135 °E MEAN TIME



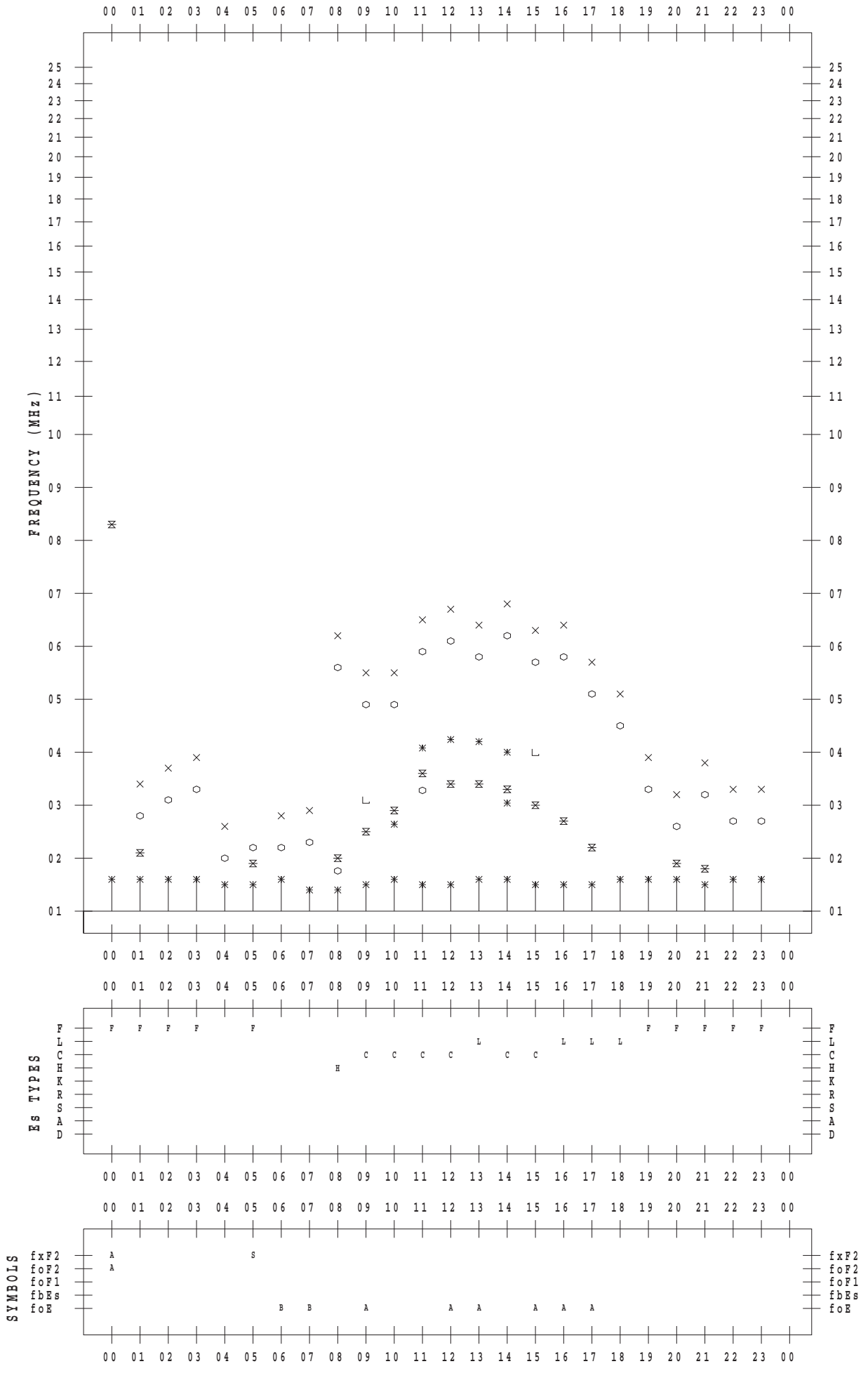
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2018/ 1/15

135 °E MEAN TIME



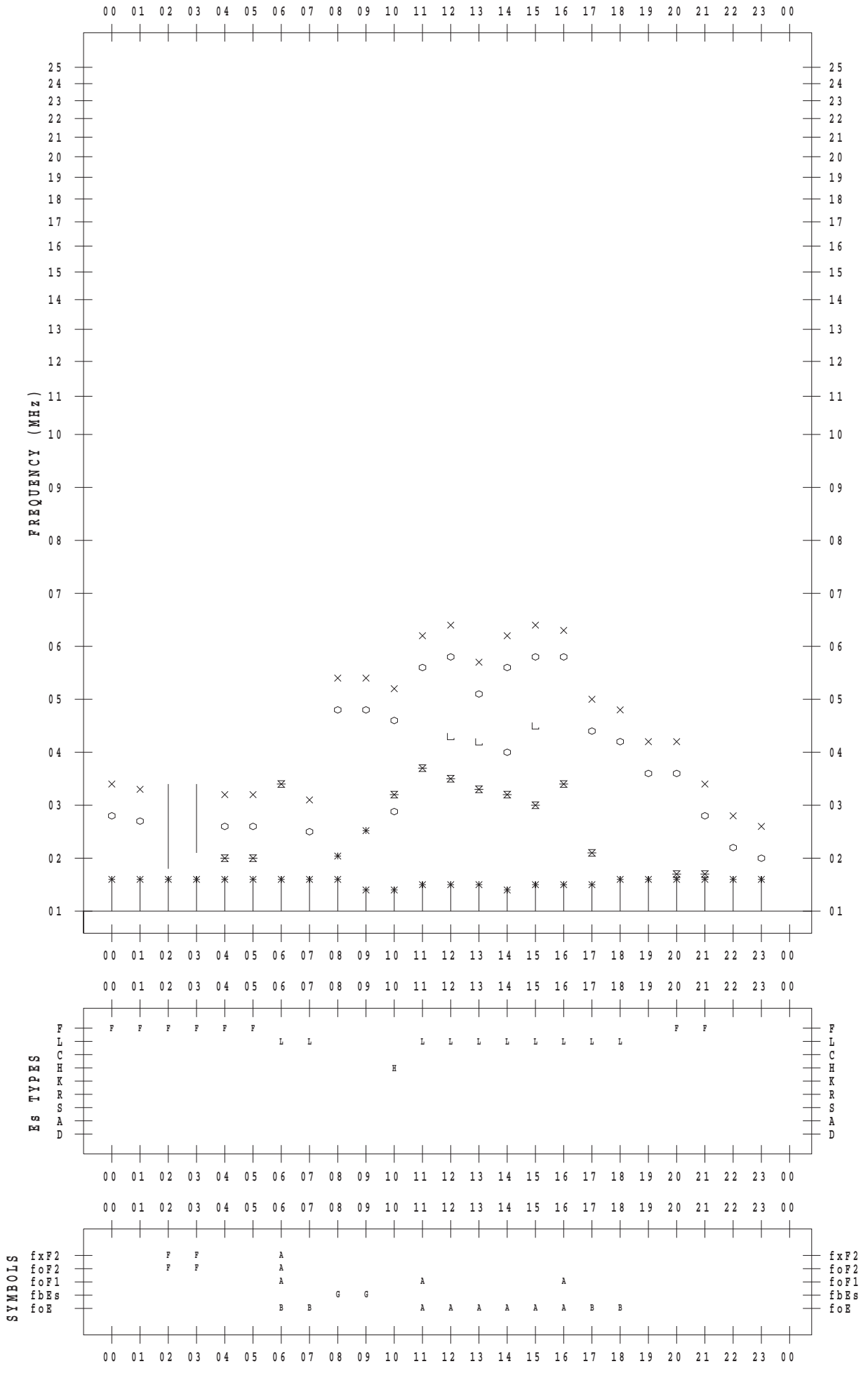
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2018/ 1/16

135 °E MEAN TIME



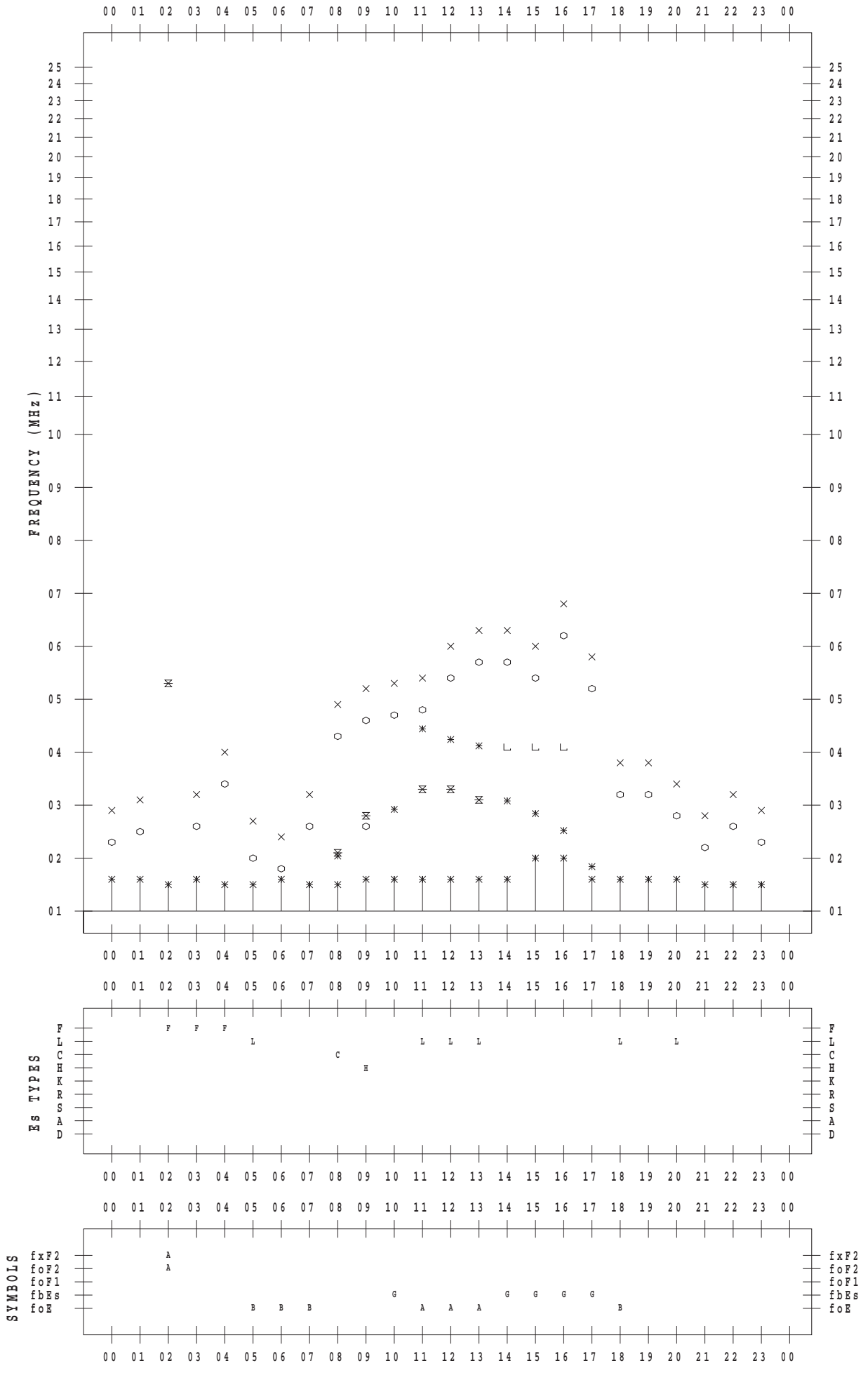
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2018/ 1/17

135 °E MEAN TIME



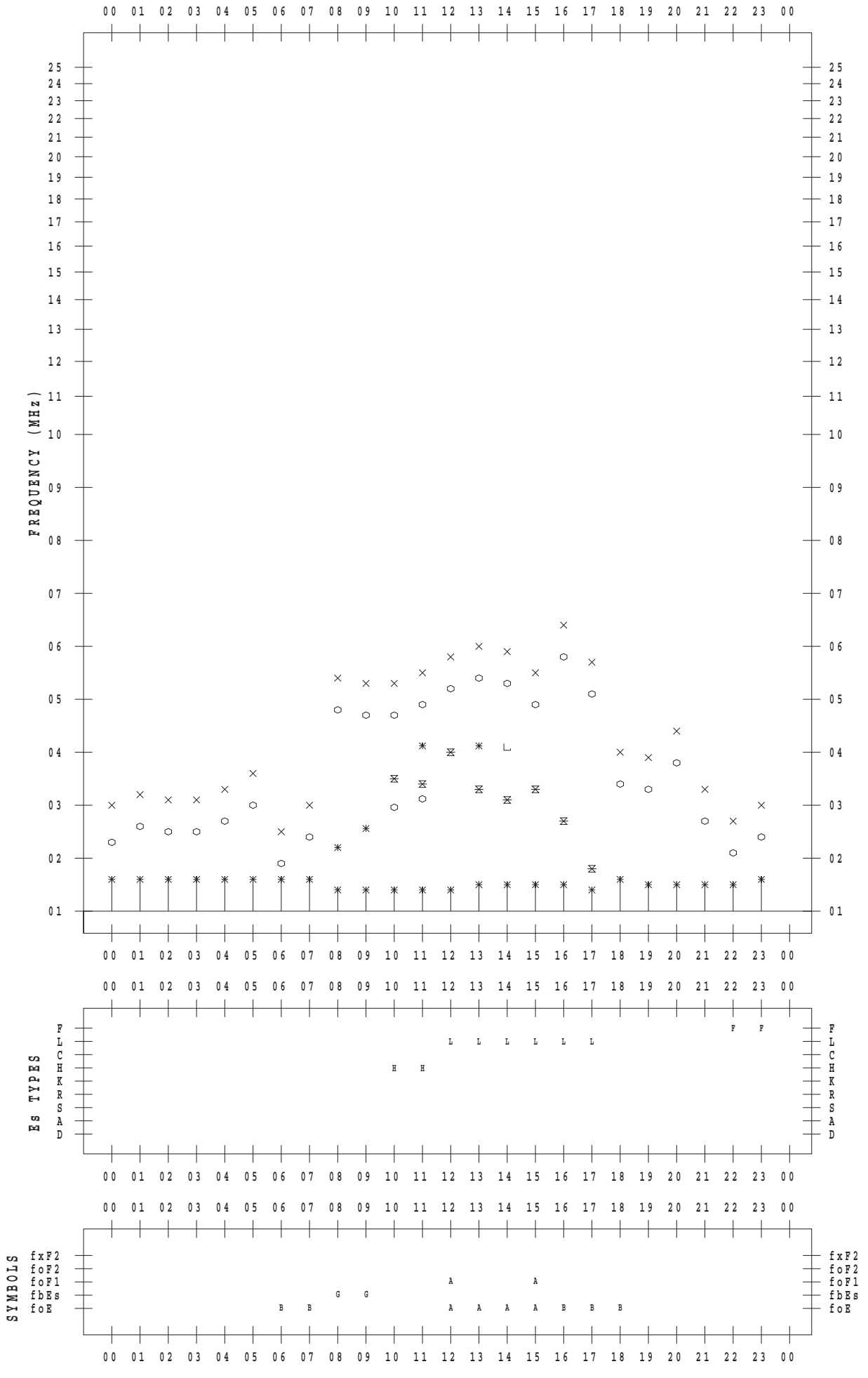
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2018/ 1/18

135 °E MEAN TIME



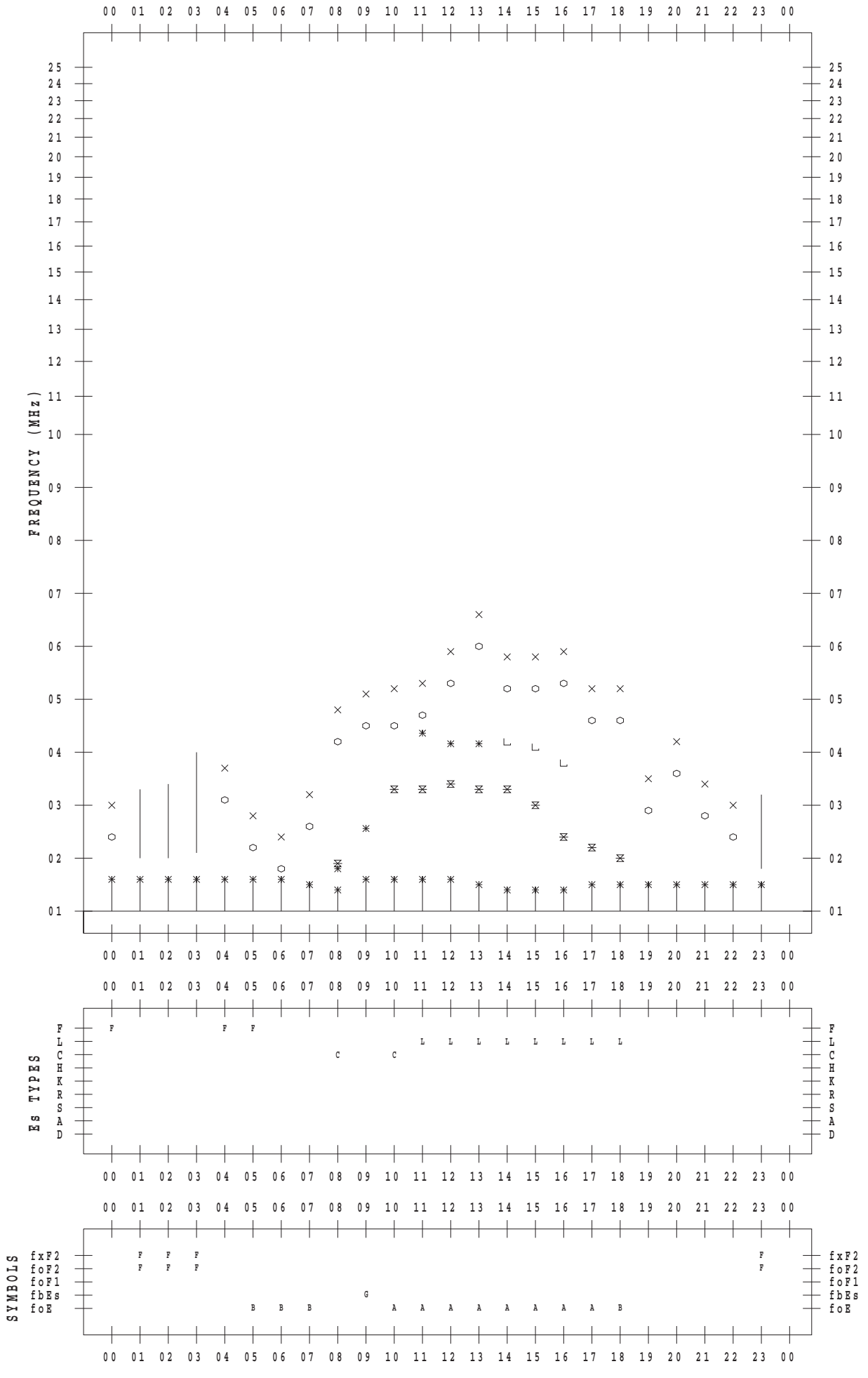
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2018/ 1/19

135 °E MEAN TIME



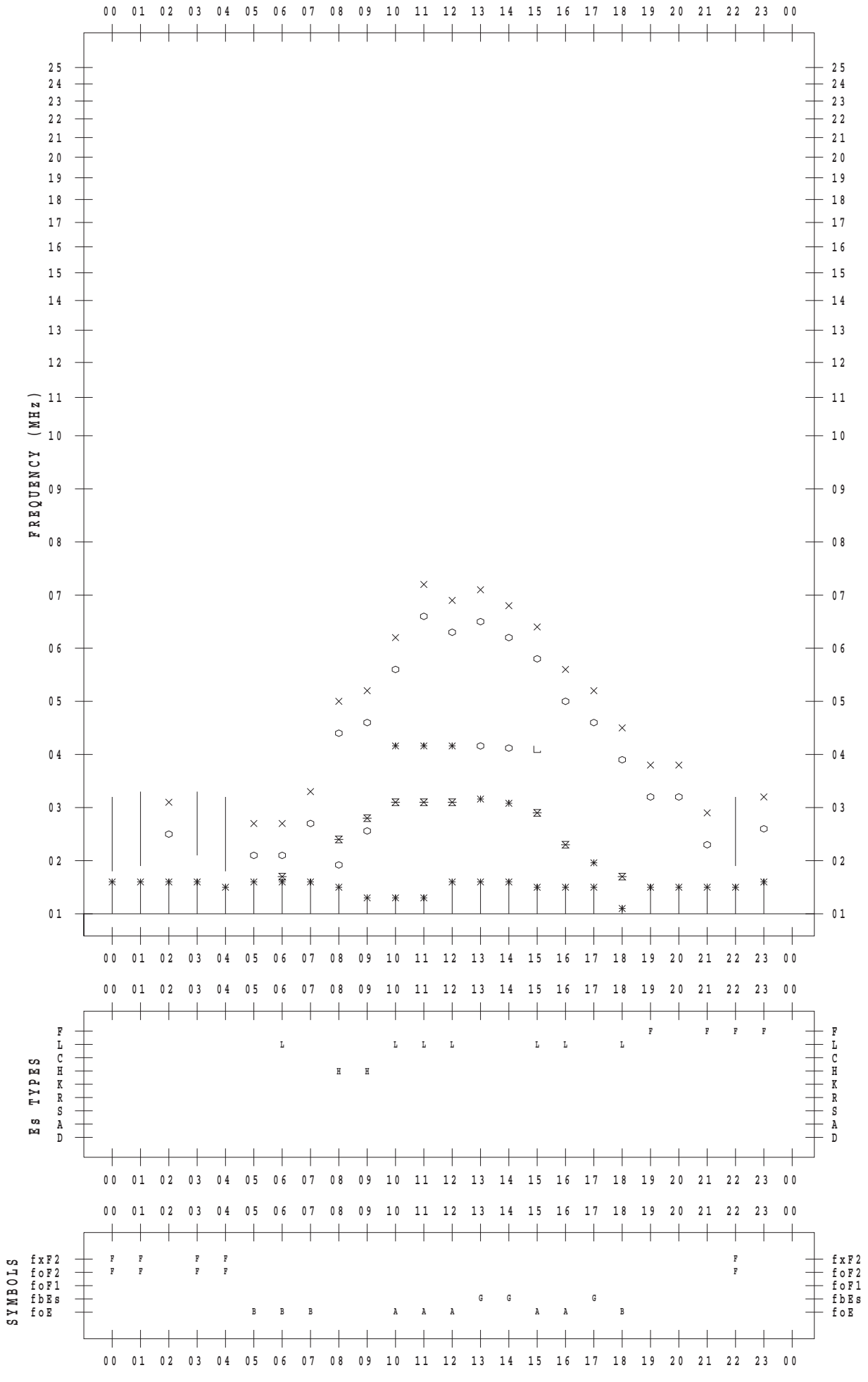
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2018/ 1/20

135 °E MEAN TIME



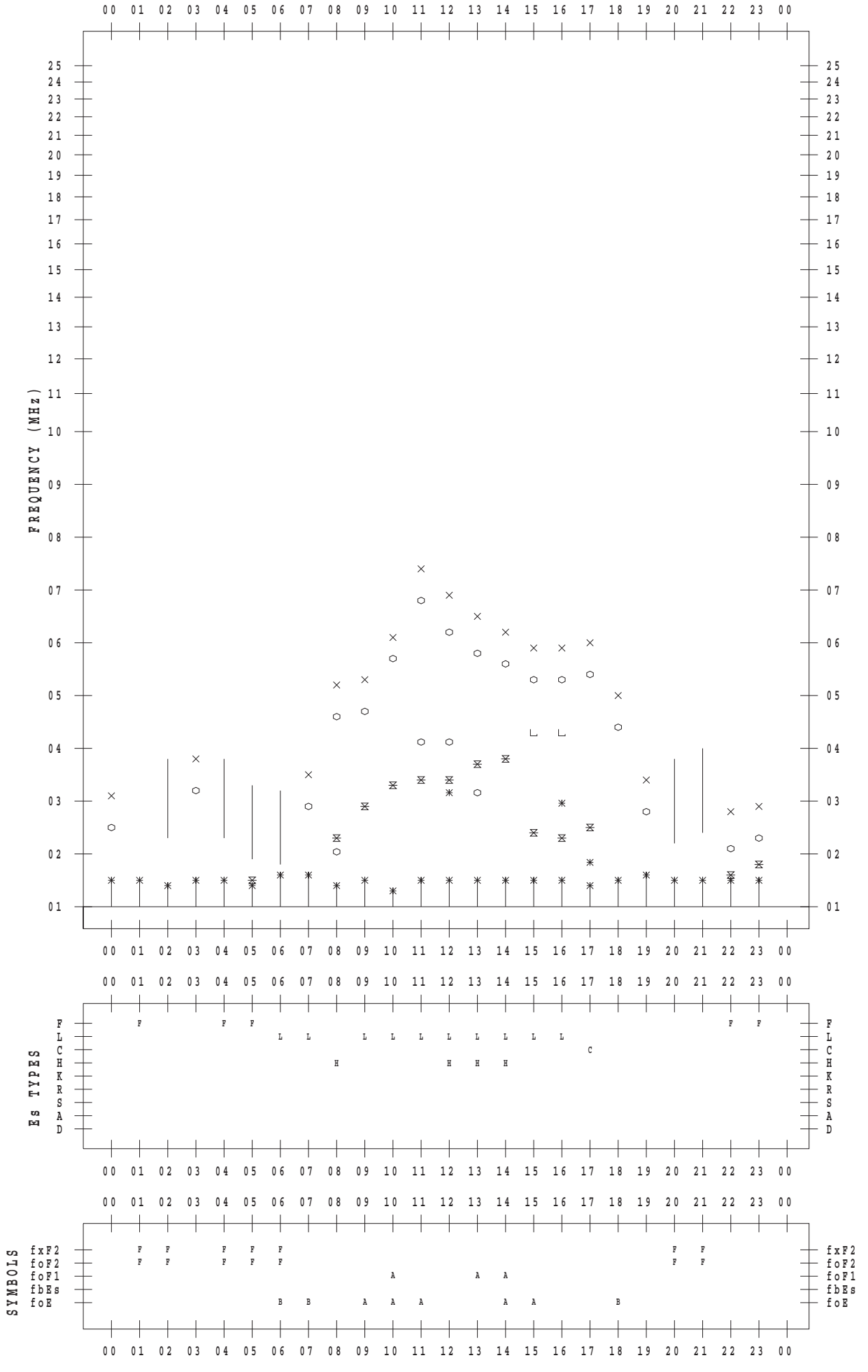
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2018/ 1/21

135 °E MEAN TIME



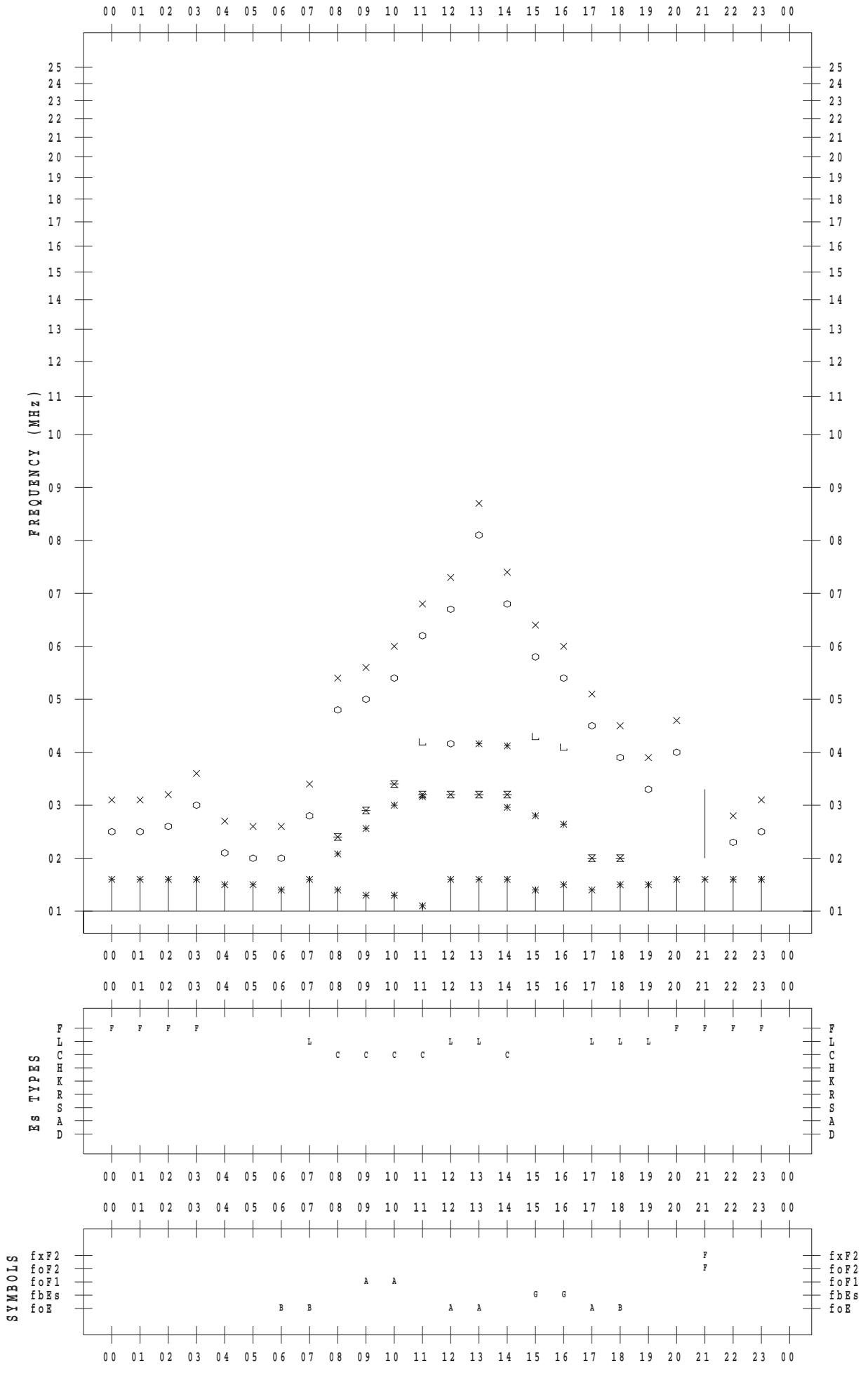
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2018/ 1/22

135 °E MEAN TIME



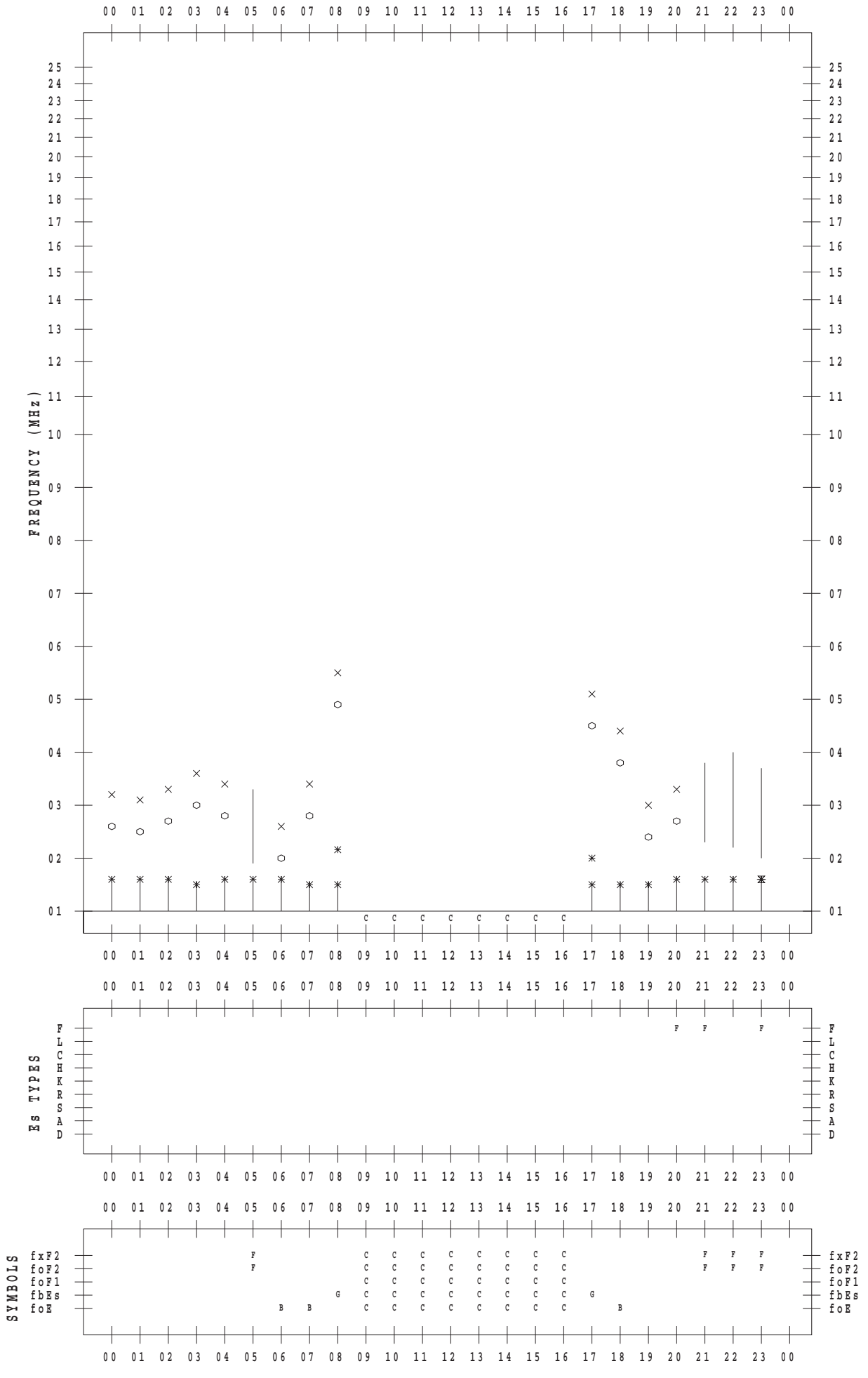
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2018/ 1/23

135 °E MEAN TIME



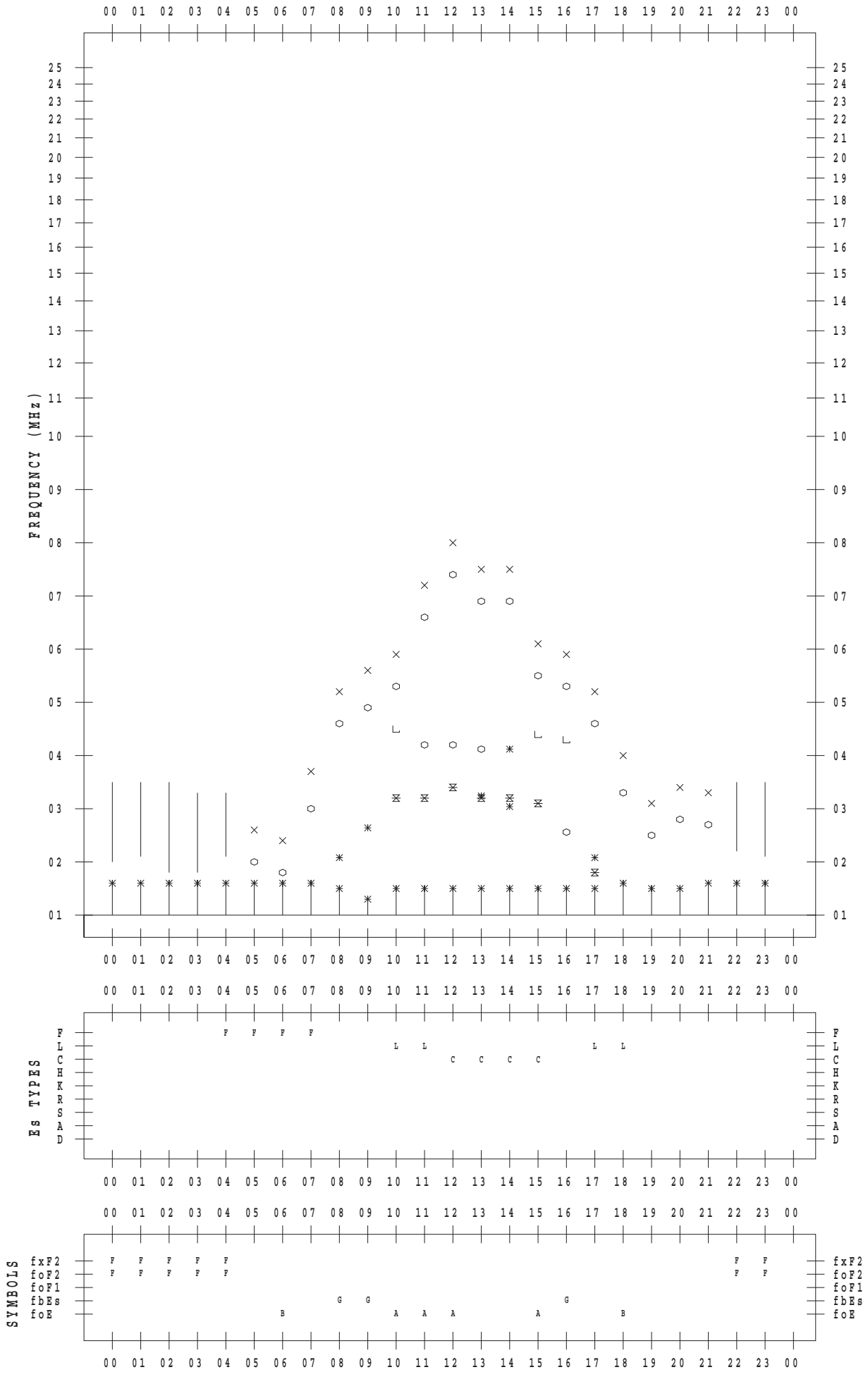
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2018/ 1/24

135 °E MEAN TIME



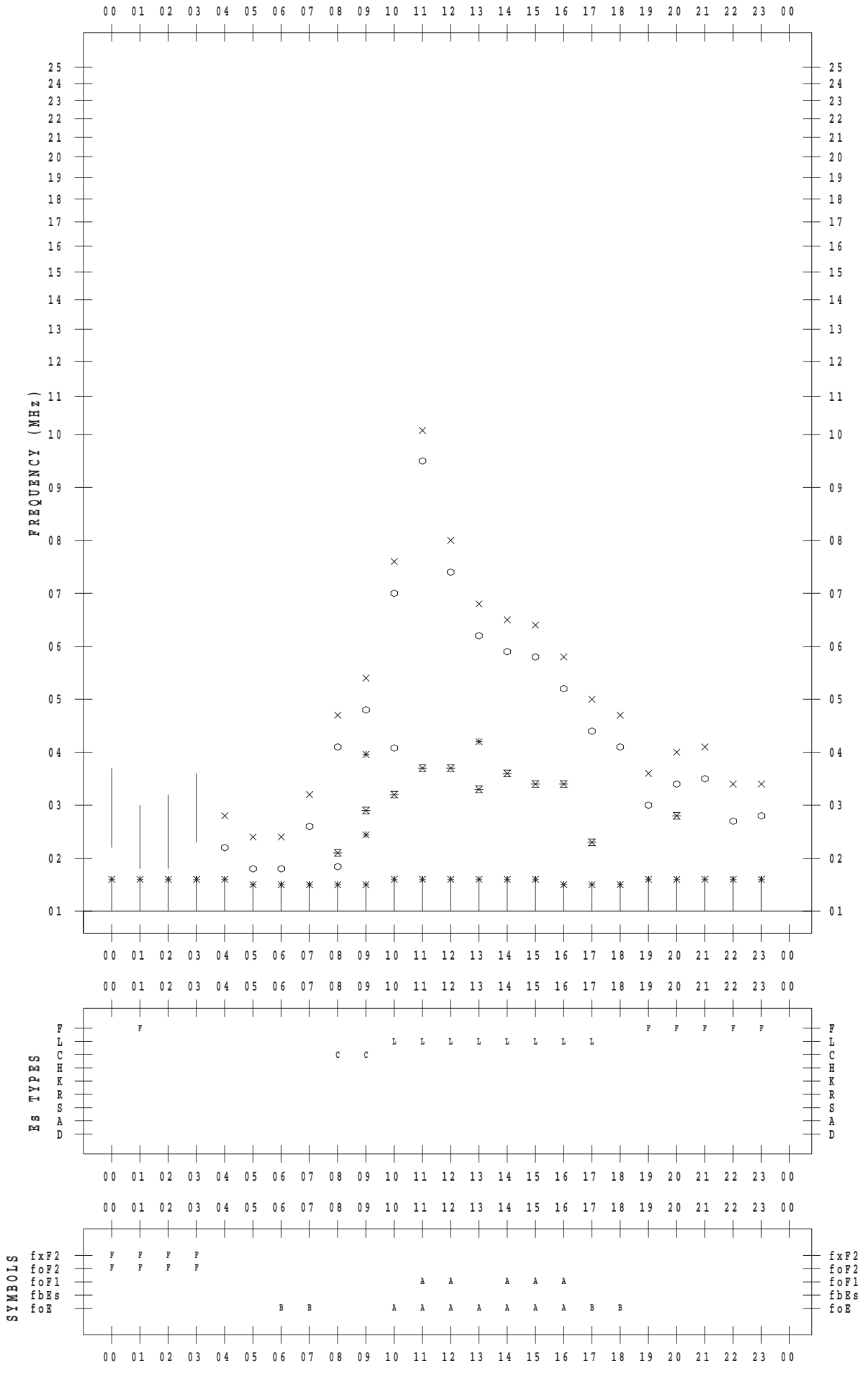
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2018/ 1/25

135 °E MEAN TIME



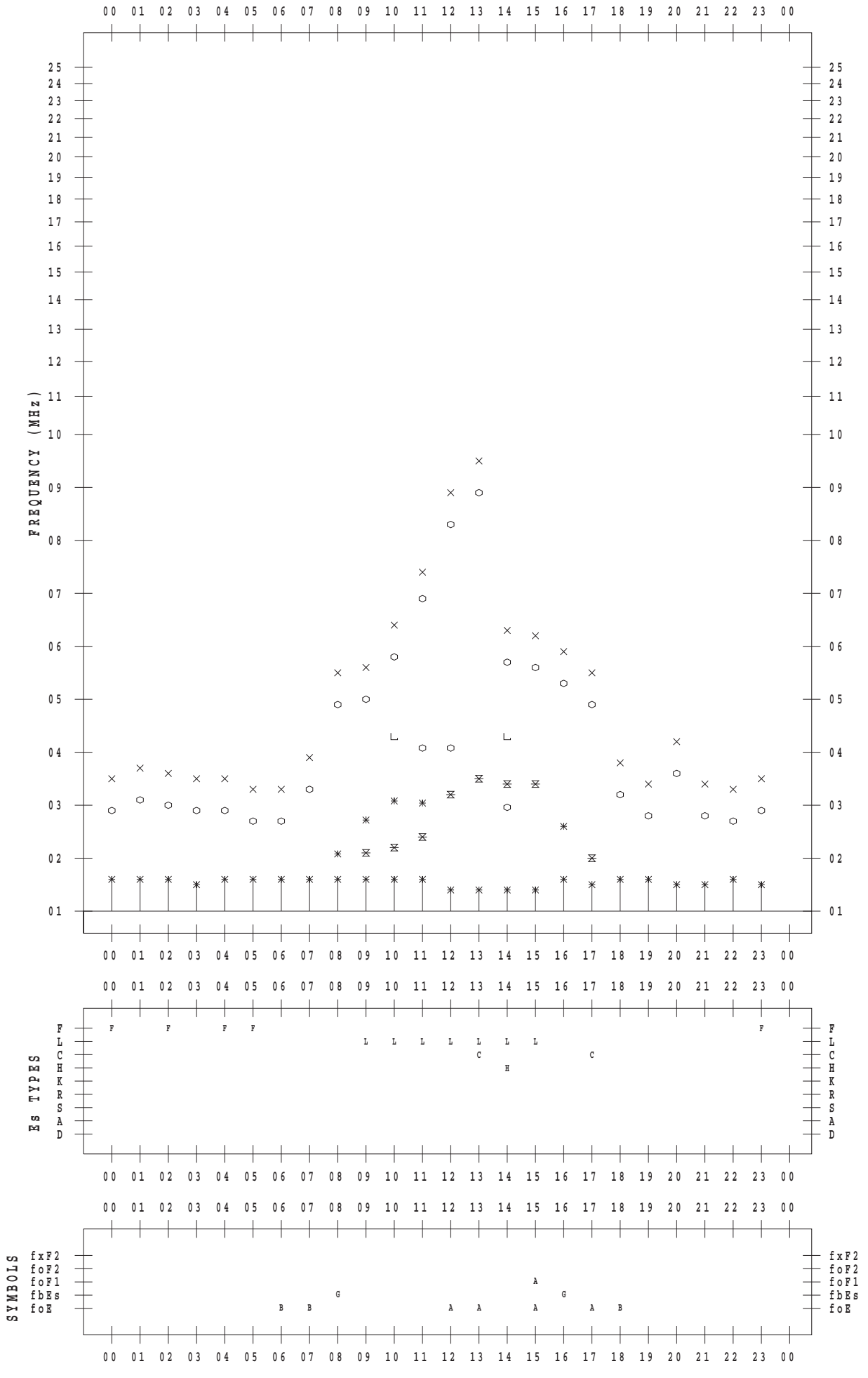
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2018/ 1/26

135 °E MEAN TIME



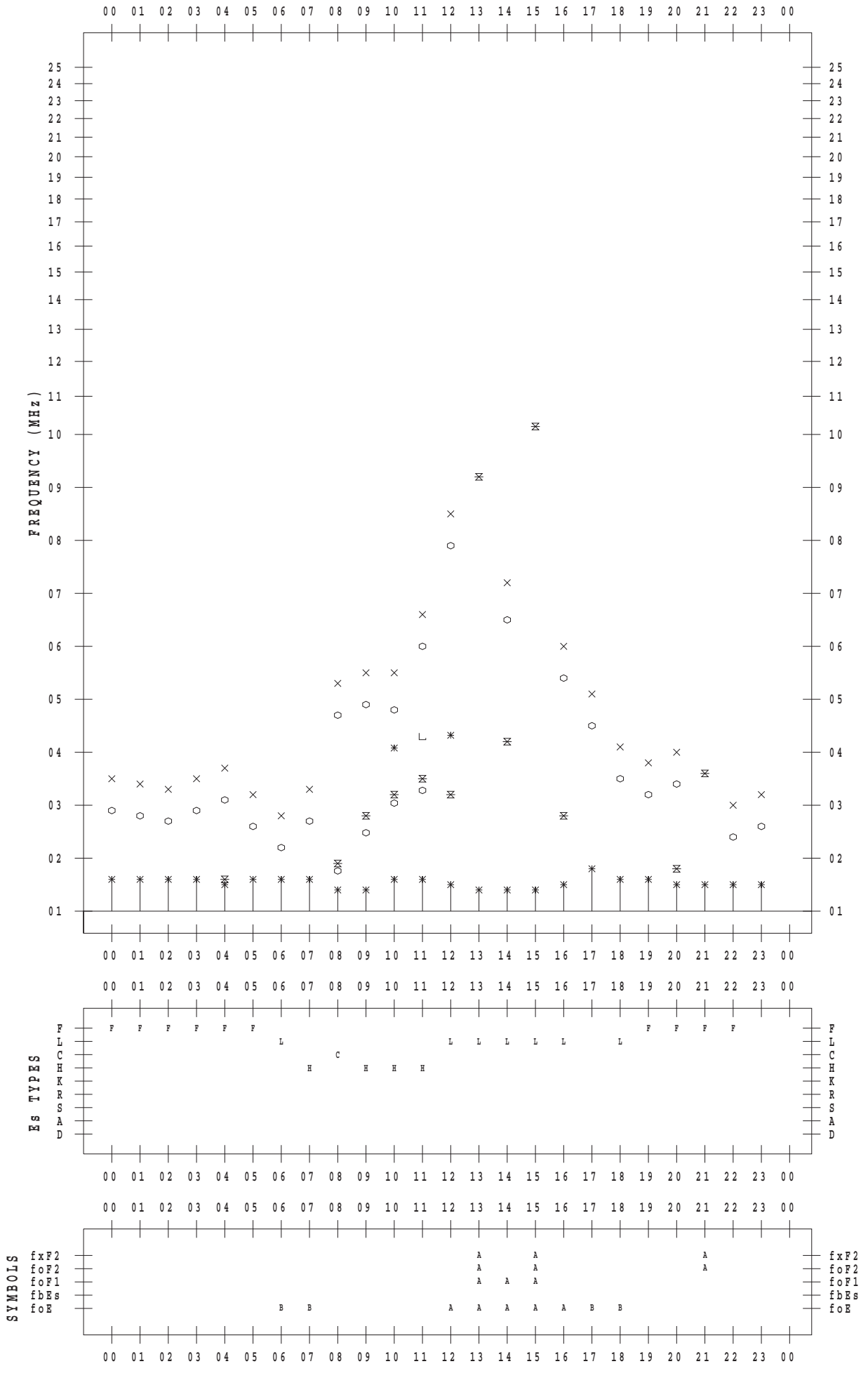
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2018/ 1/27

135 °E MEAN TIME



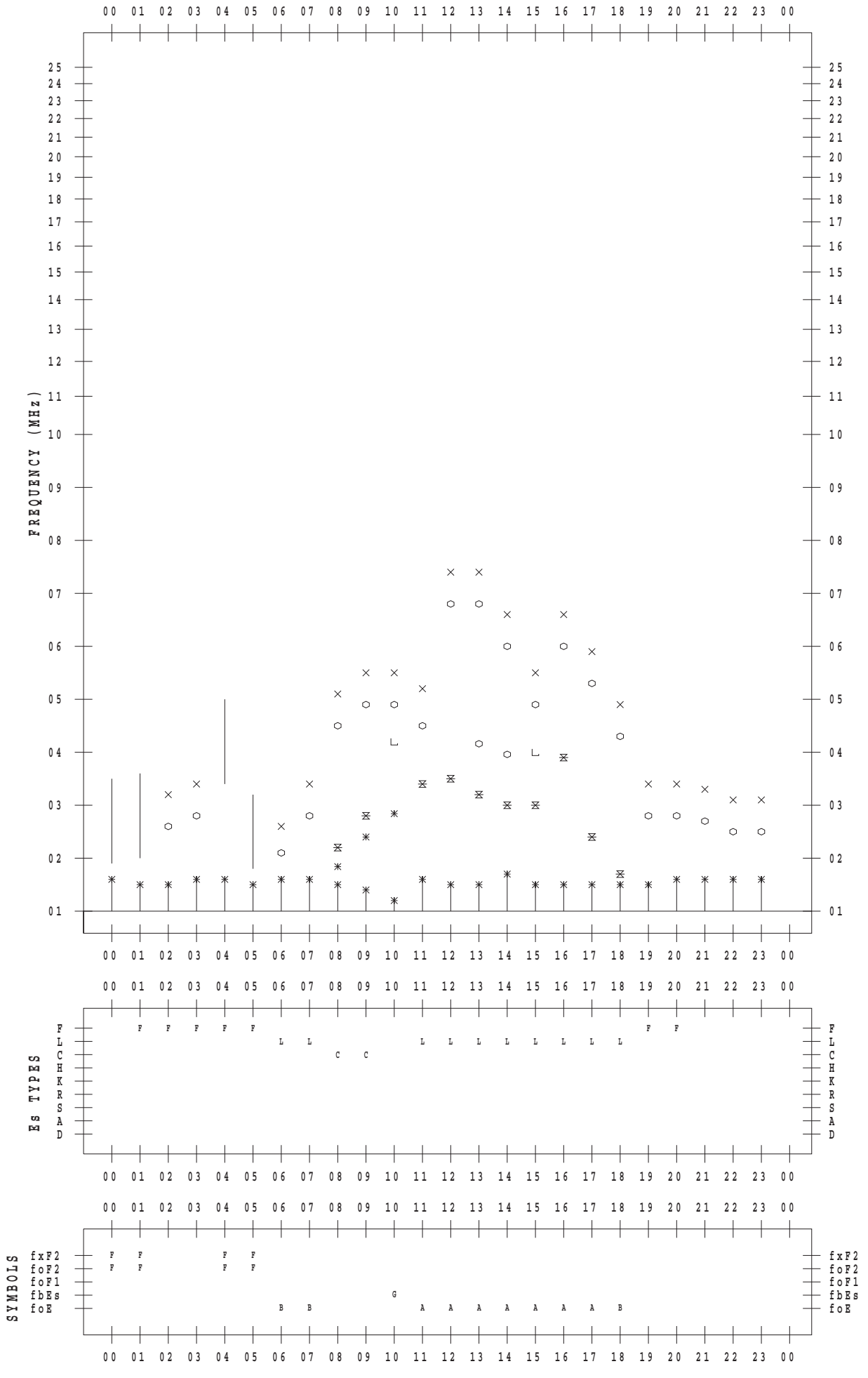
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2018/ 1/28

135 °E MEAN TIME



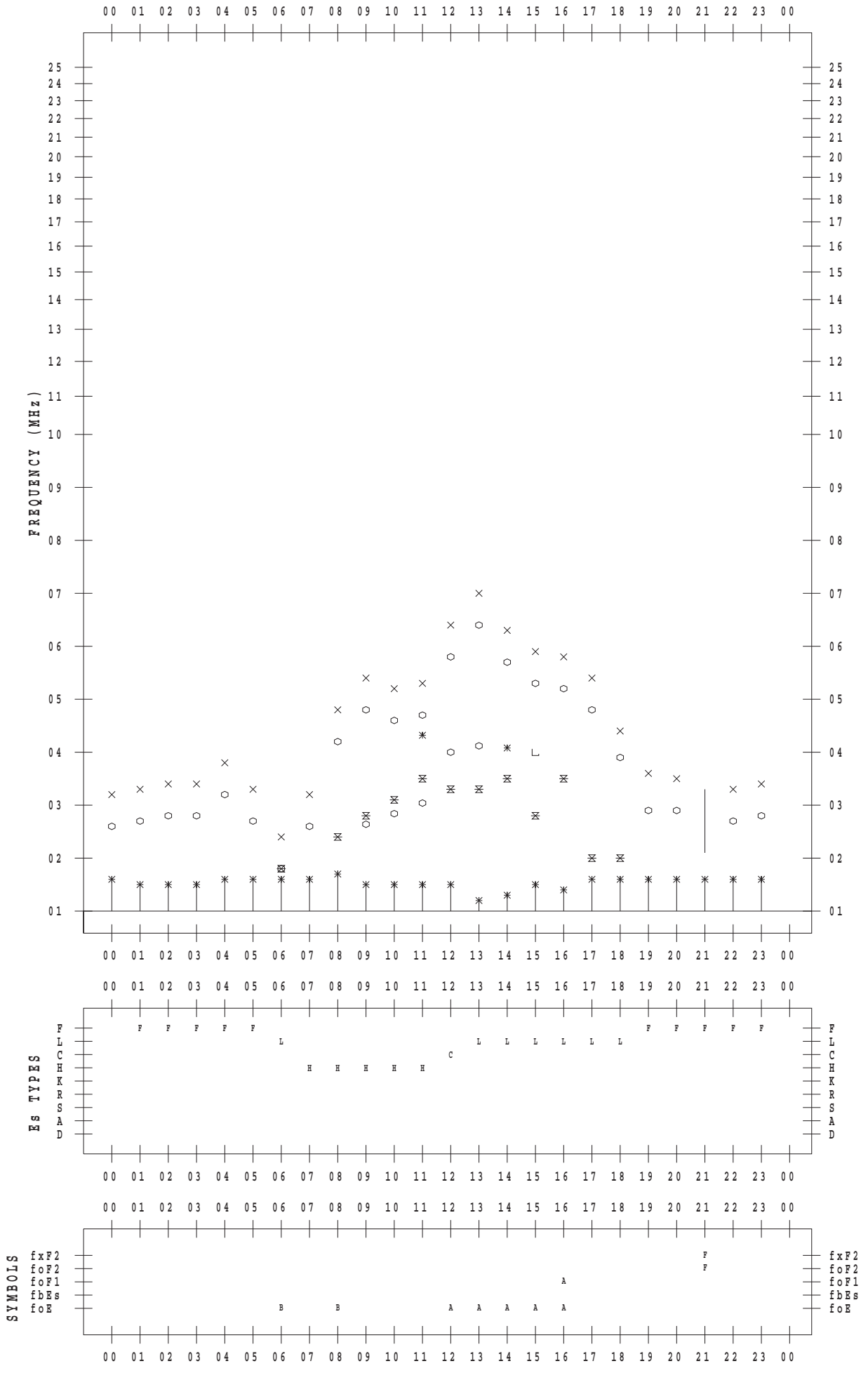
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2018/ 1/29

135 °E MEAN TIME



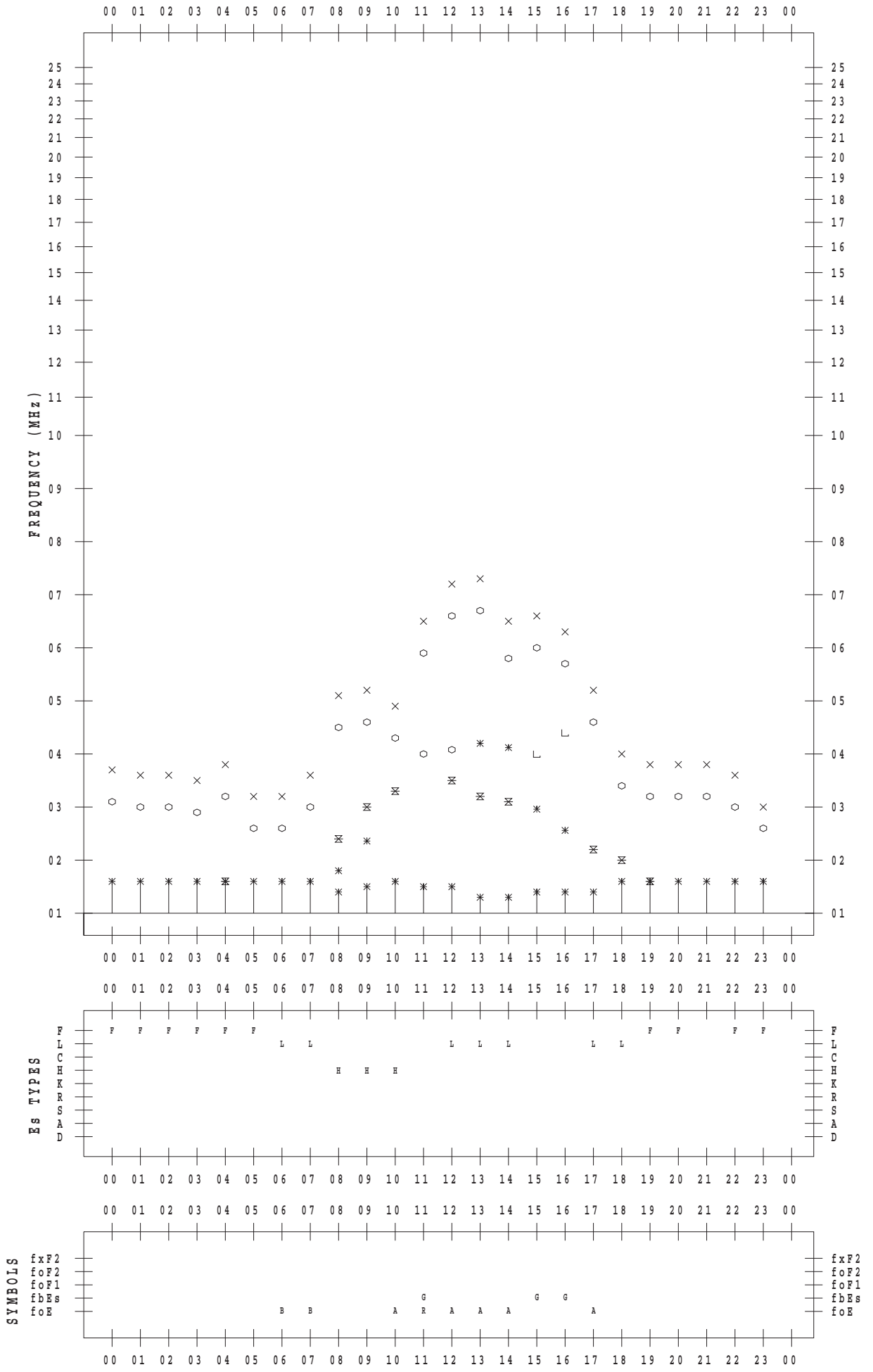
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2018/ 1/30

135 °E MEAN TIME



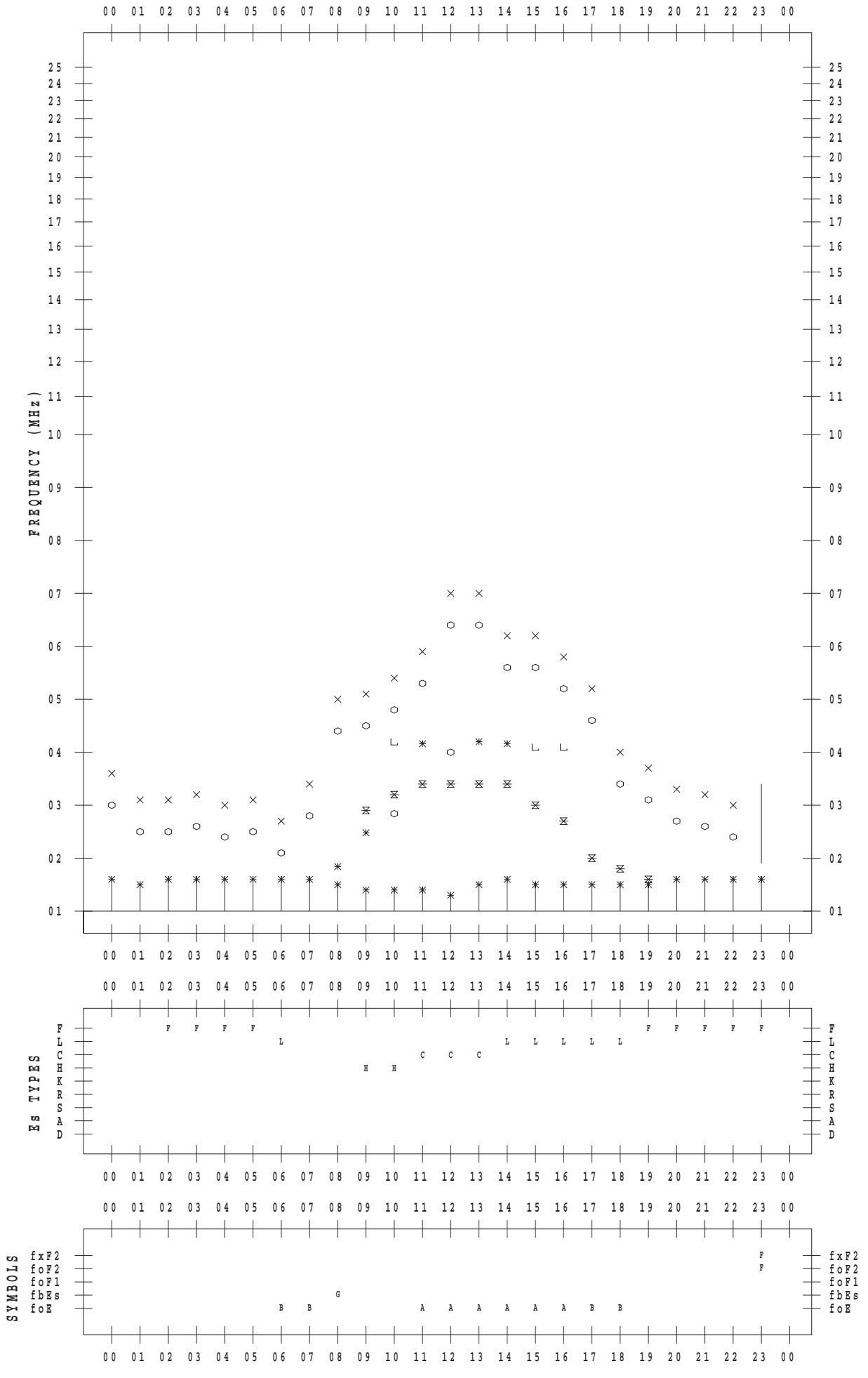
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2018/ 1/31

135 °E MEAN TIME



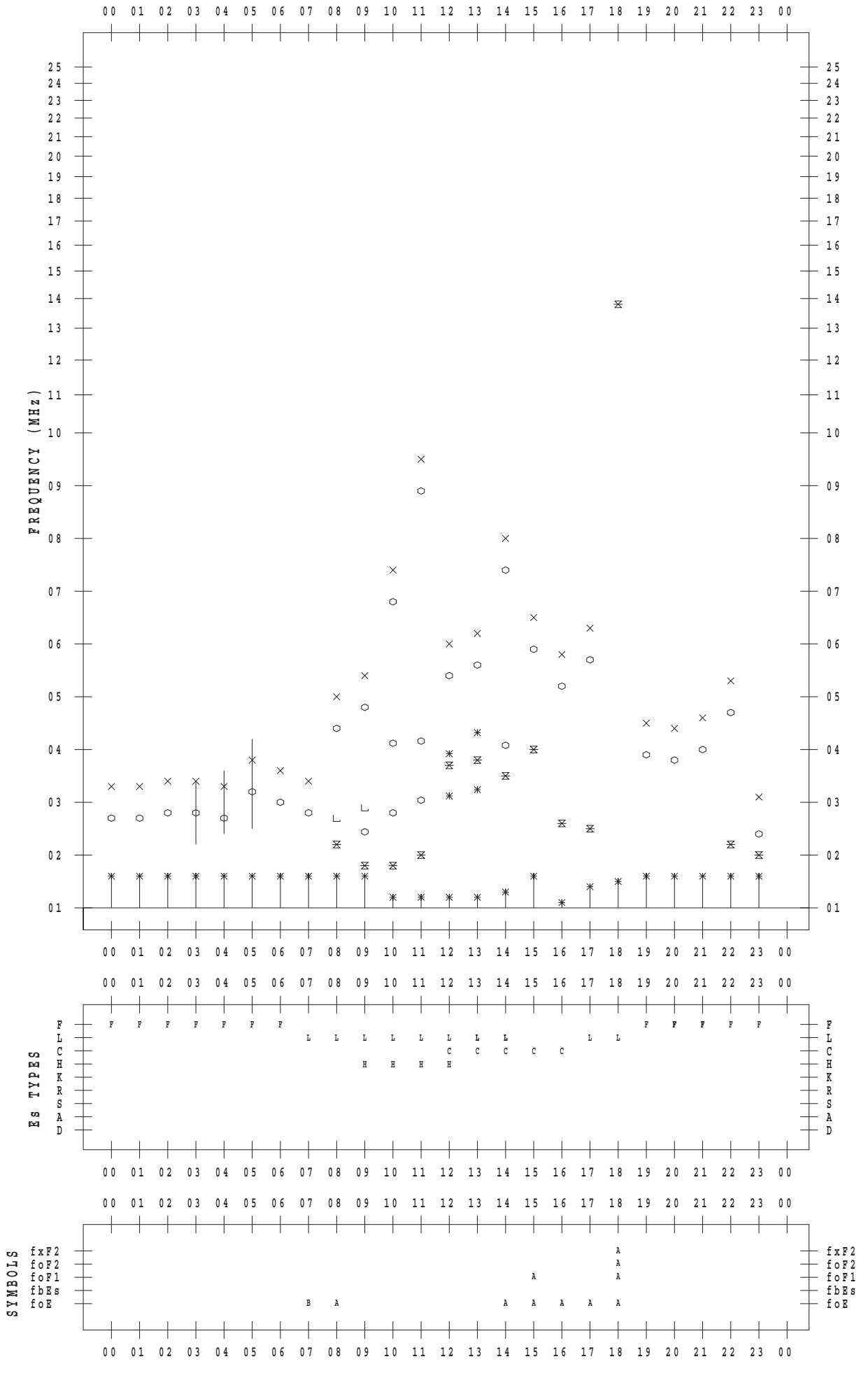
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2018/ 1/ 1

135 °E MEAN TIME



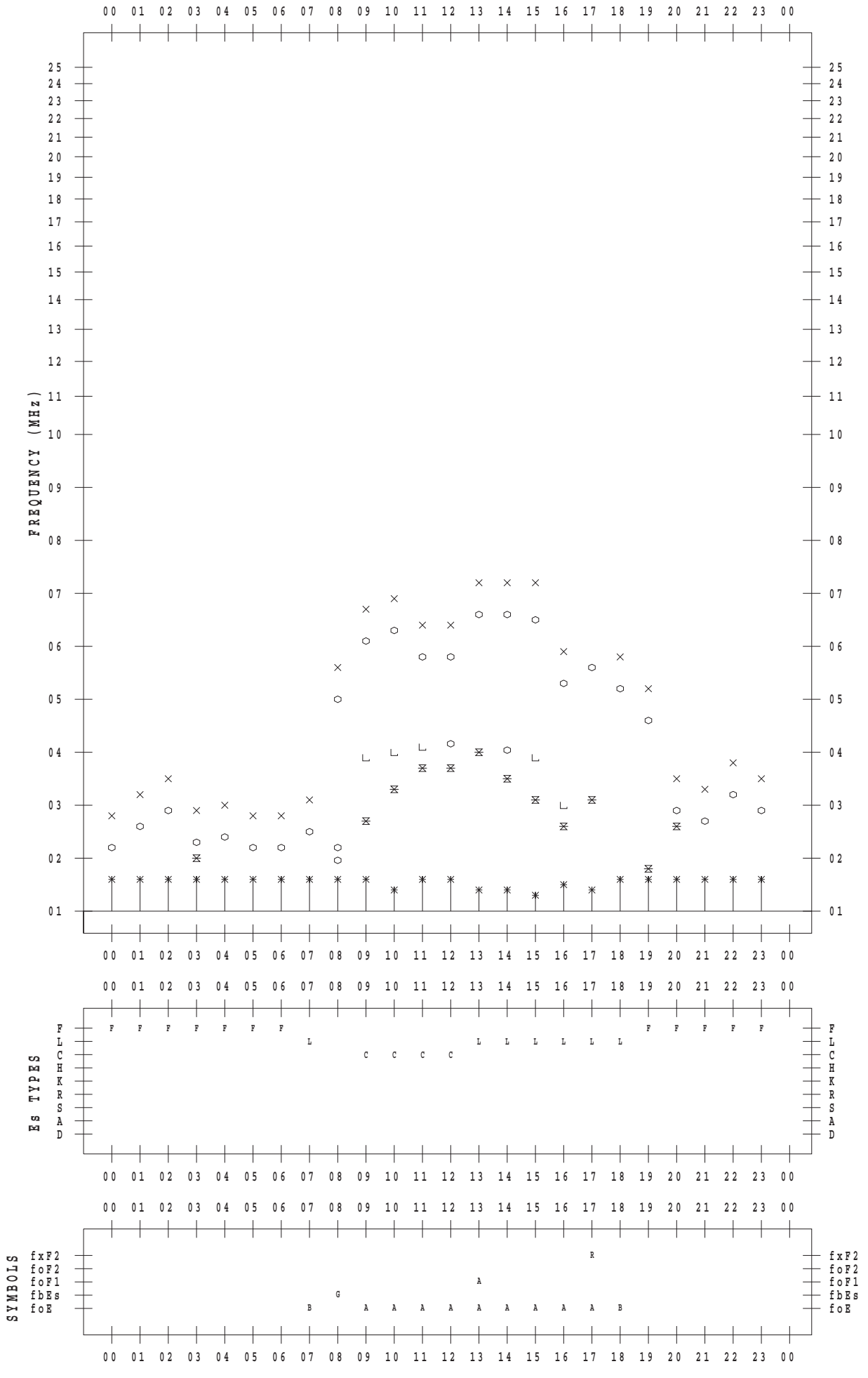
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2018/ 1/ 2

135 °E MEAN TIME



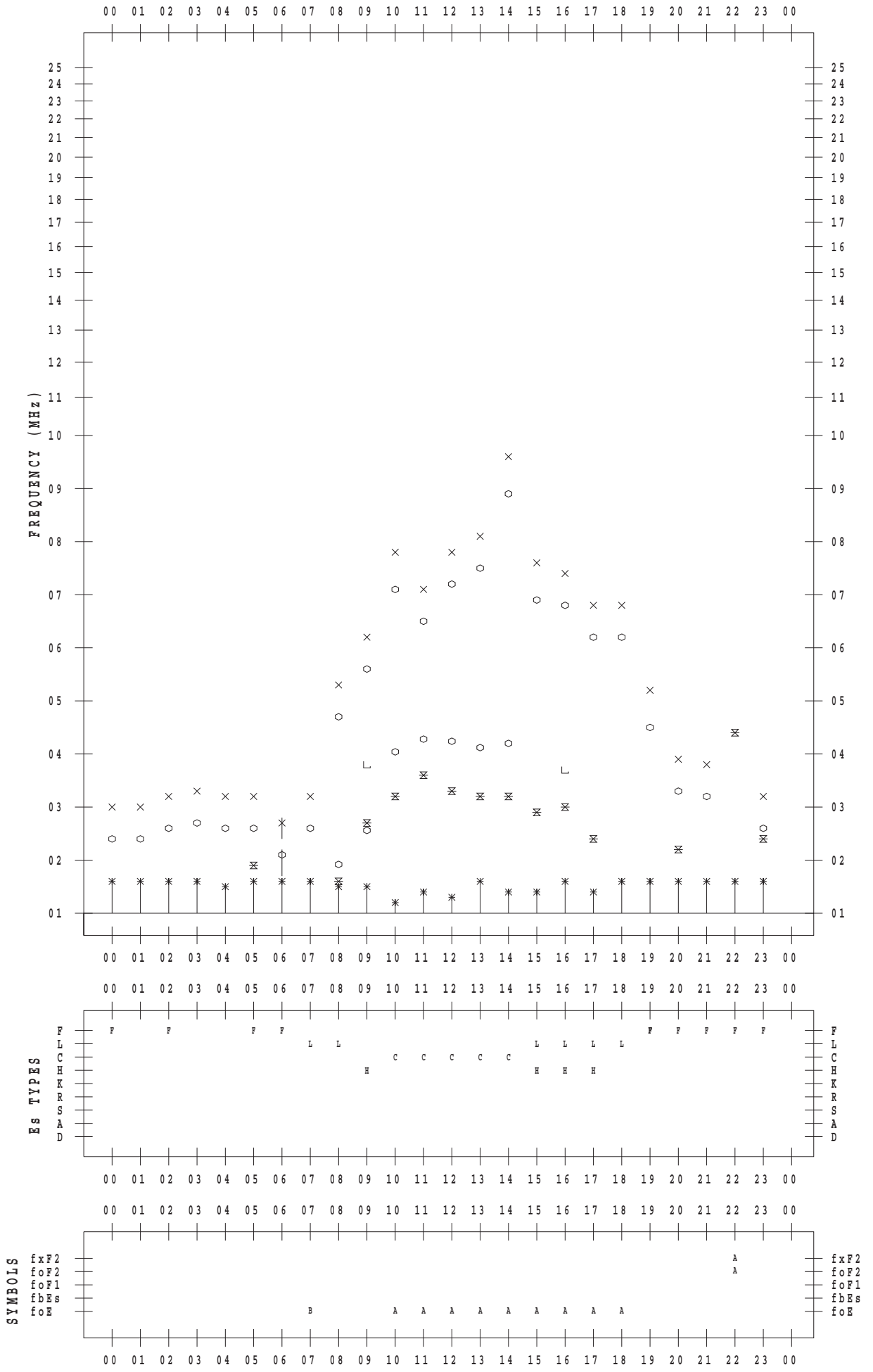
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2018/ 1/ 3

135 °E MEAN TIME



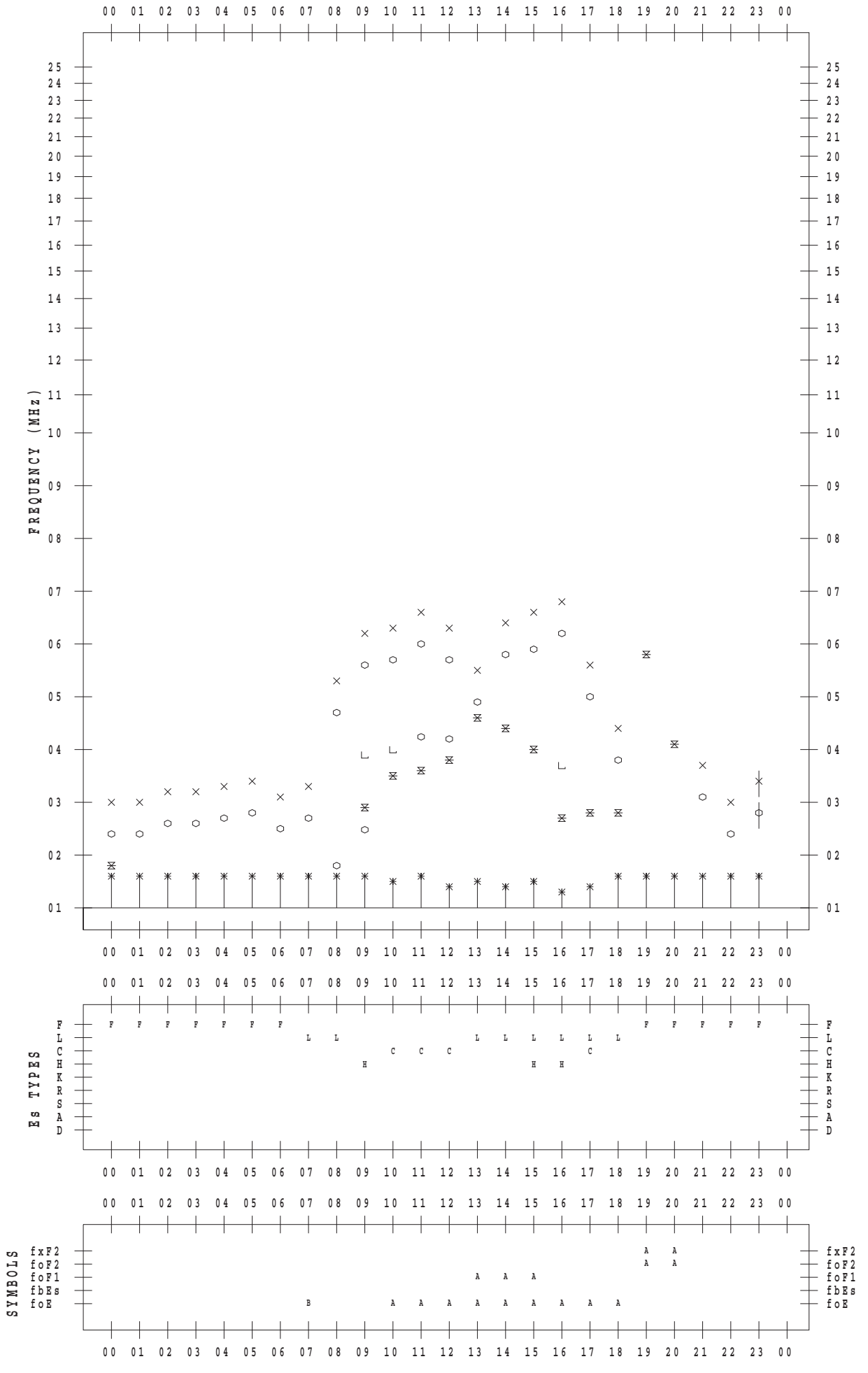
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2018/ 1/ 4

135 °E MEAN TIME



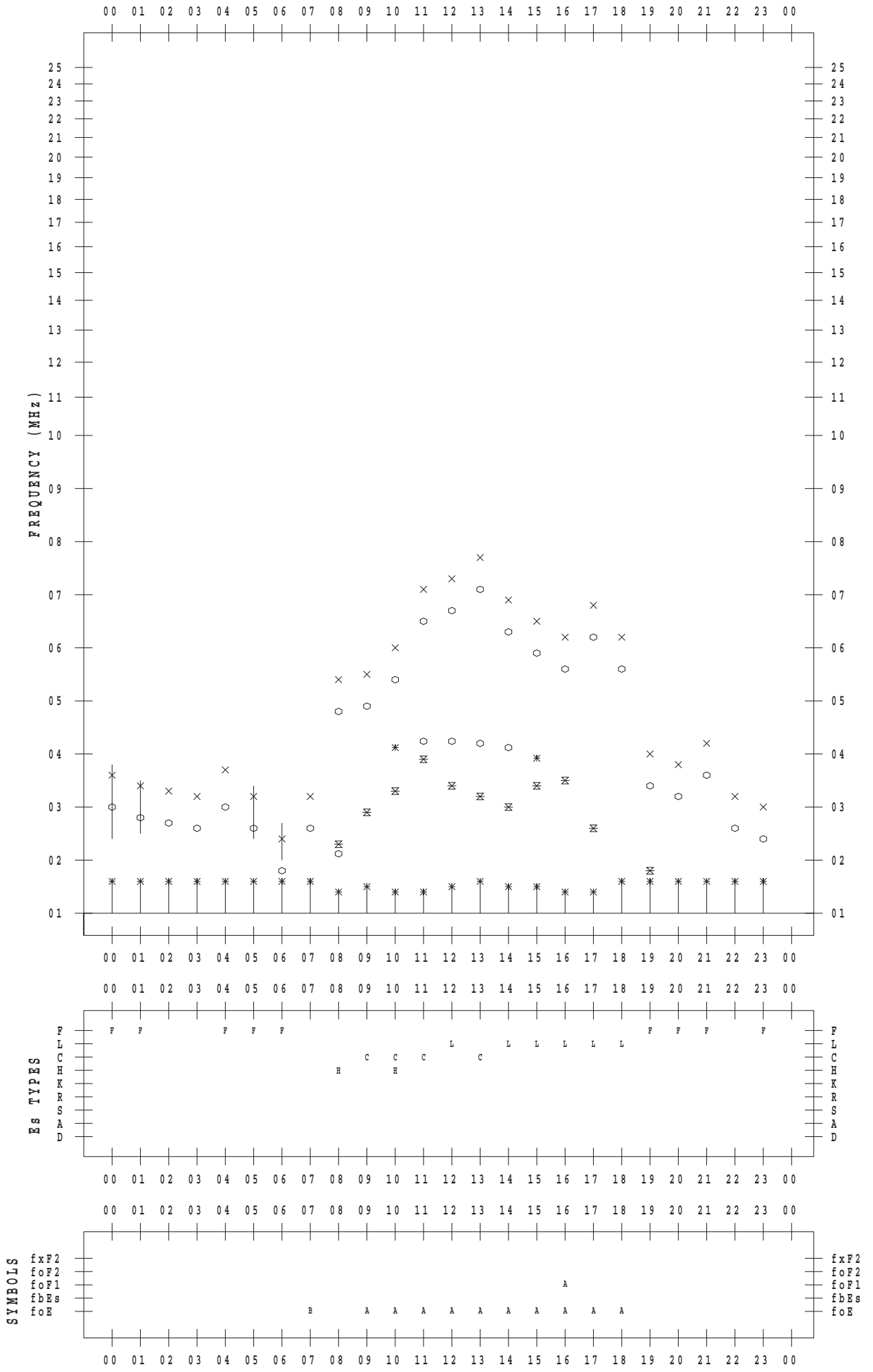
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2018/ 1/ 5

135 °E MEAN TIME



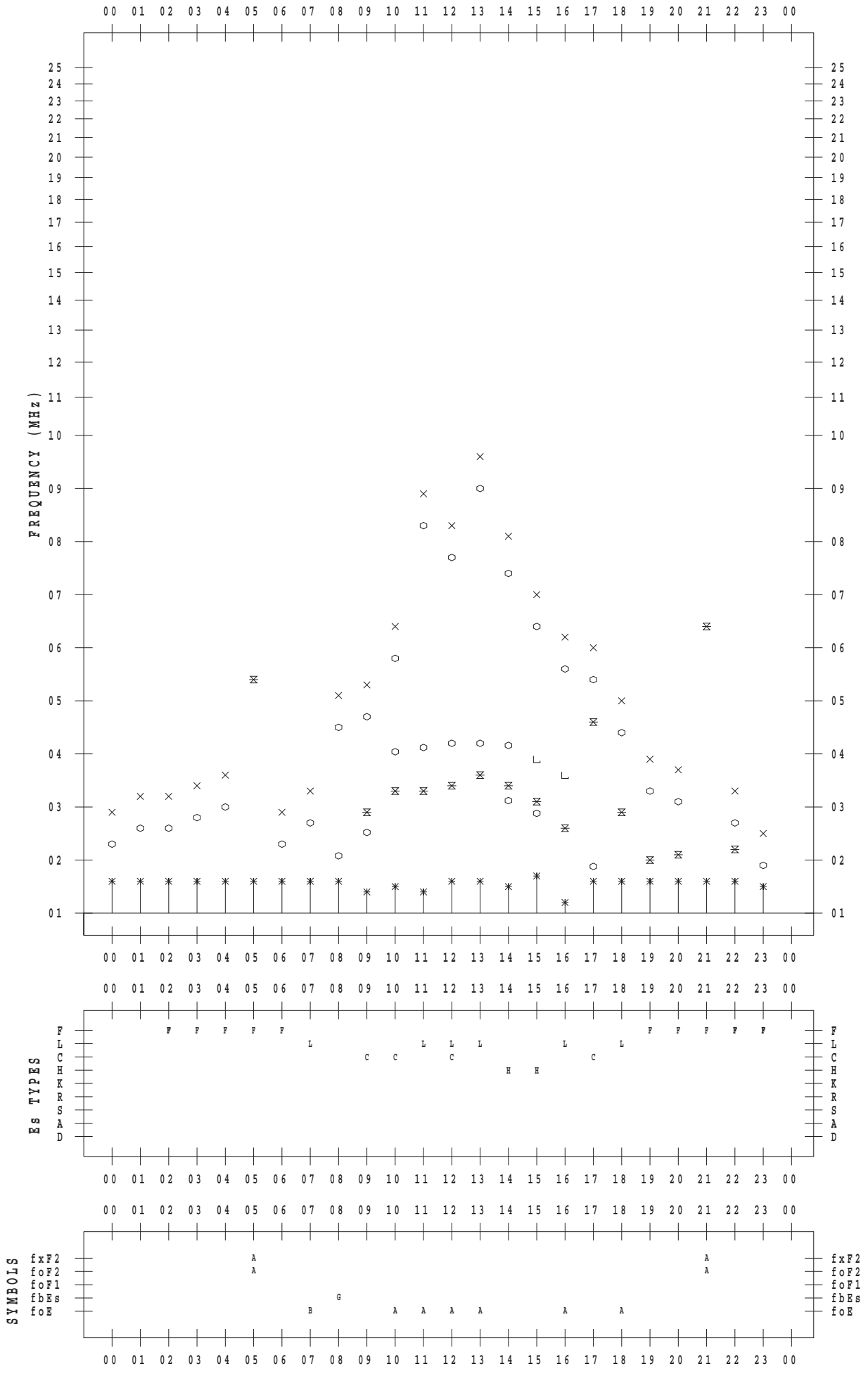
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2018/ 1/ 6

135 °E MEAN TIME



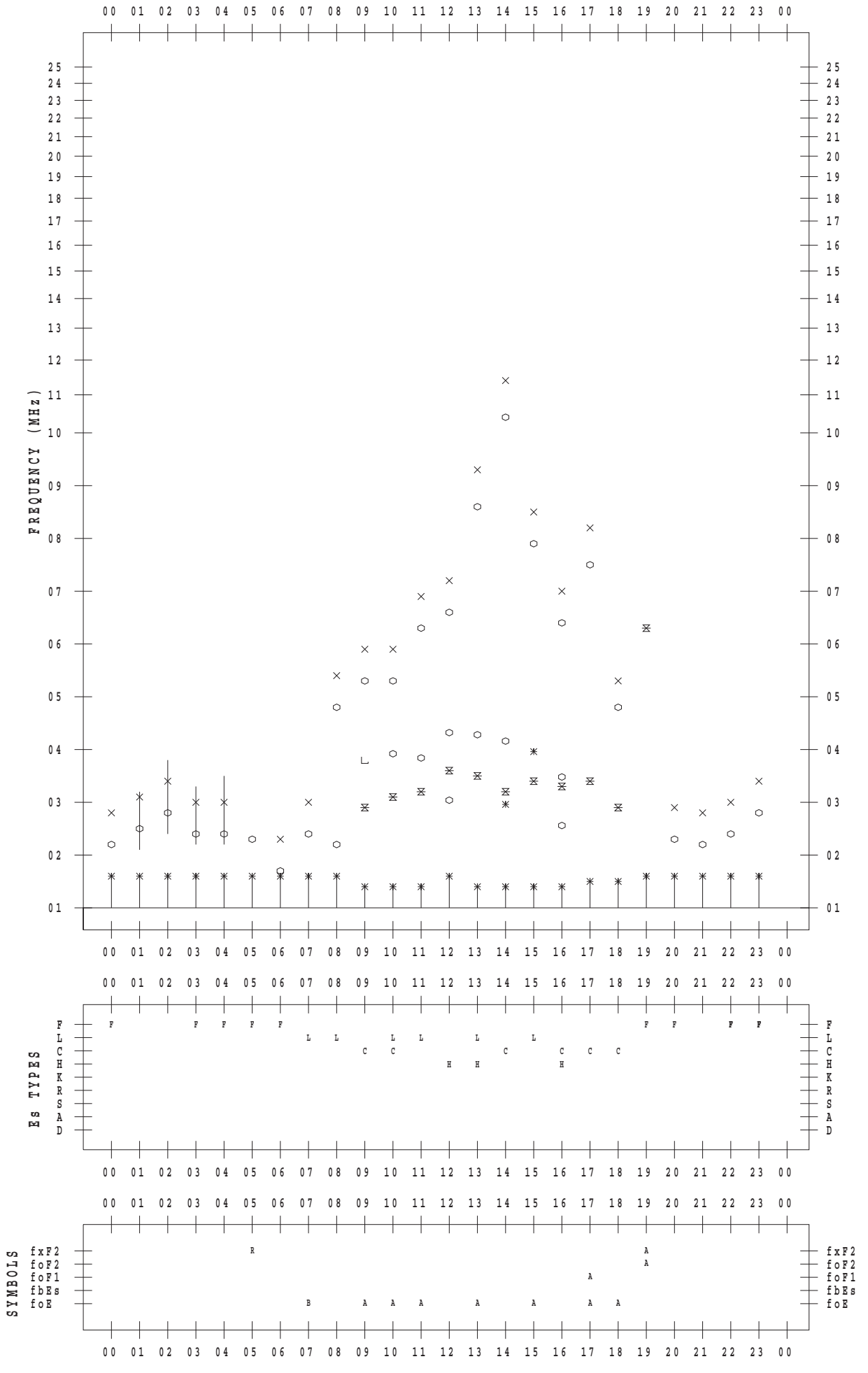
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2018/ 1/ 7

135 °E MEAN TIME



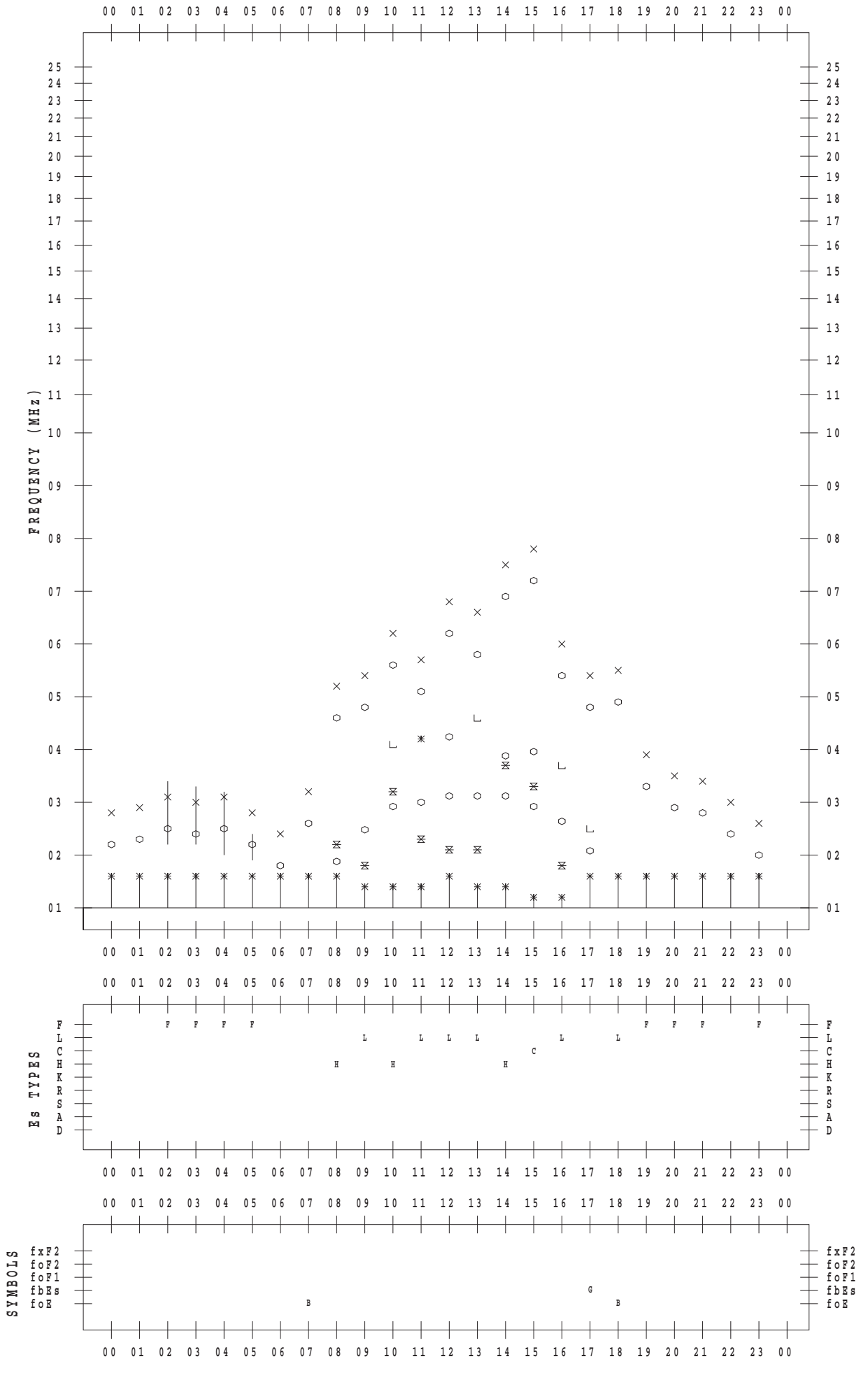
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2018/ 1/ 8

135 °E MEAN TIME



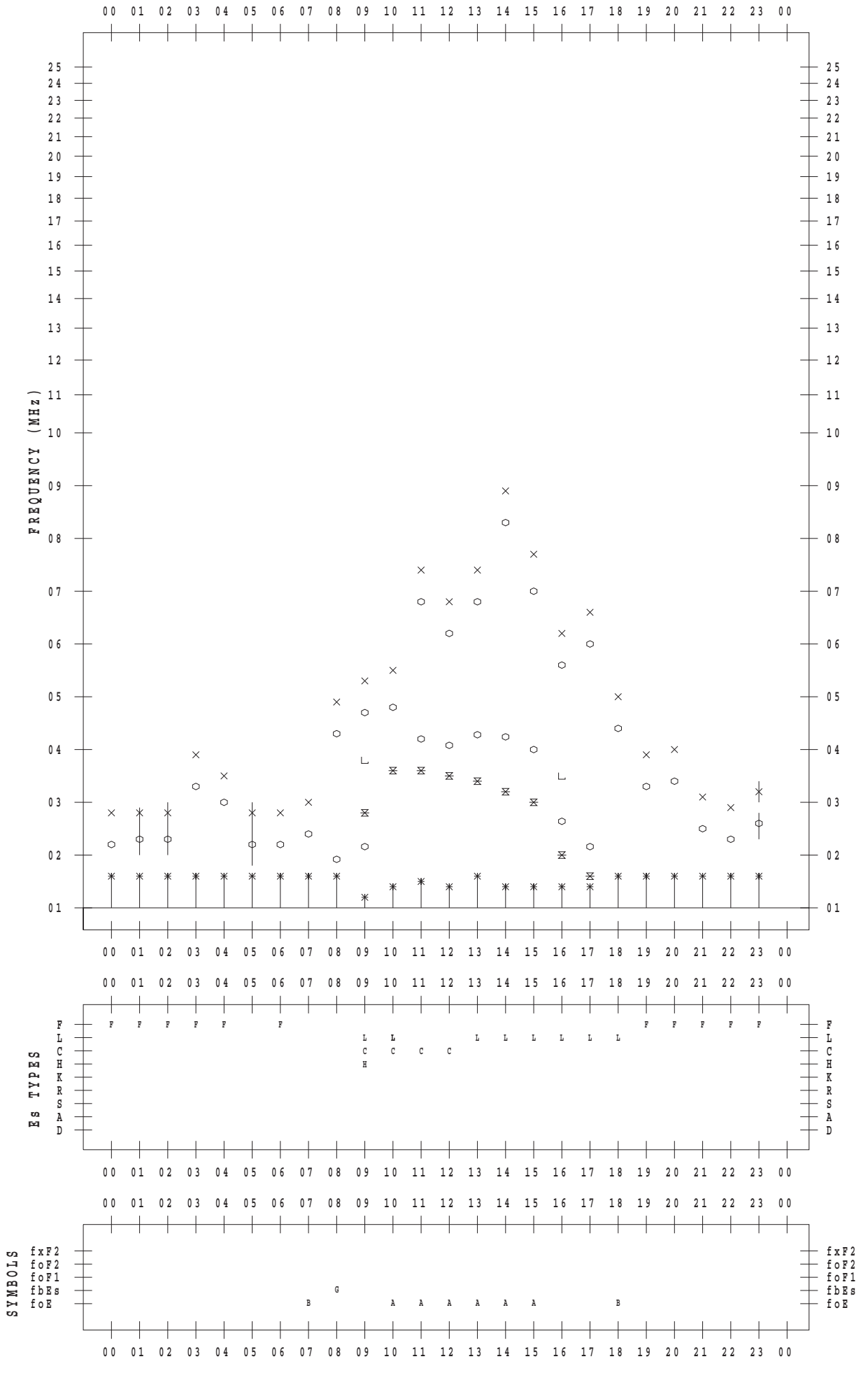
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2018/ 1/ 9

135 °E MEAN TIME



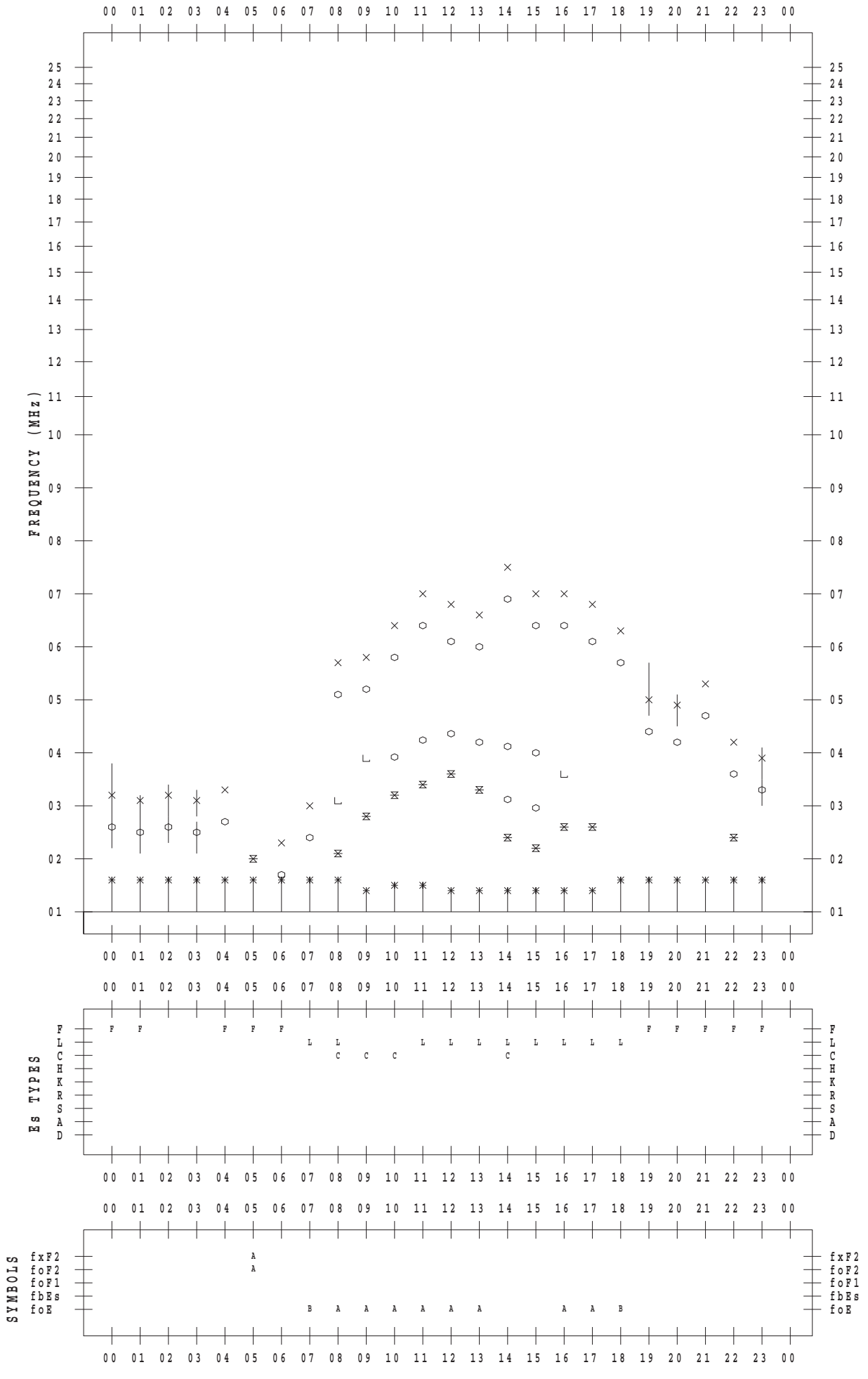
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2018/ 1/10

135 °E MEAN TIME



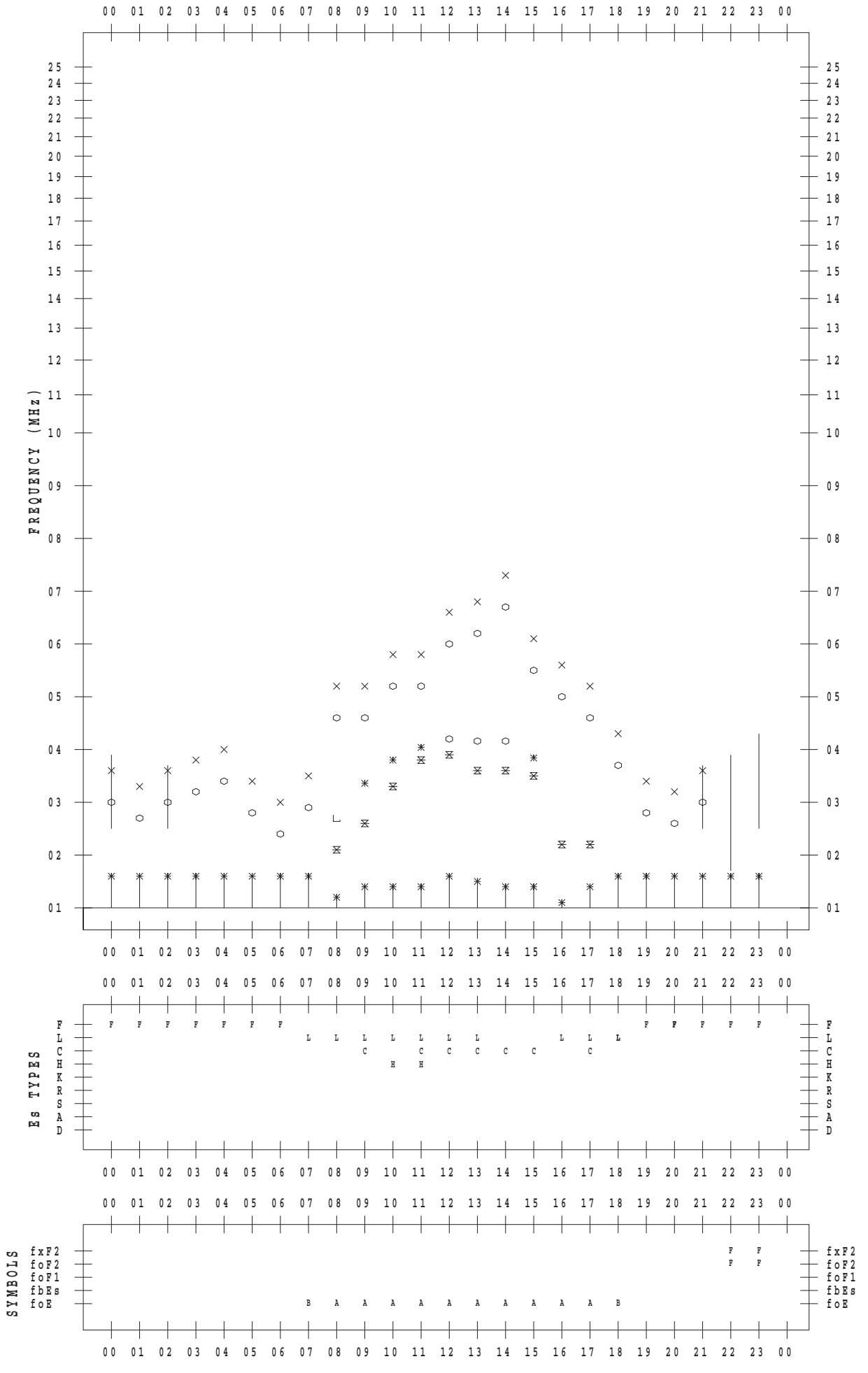
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2018/ 1/11

135 °E MEAN TIME



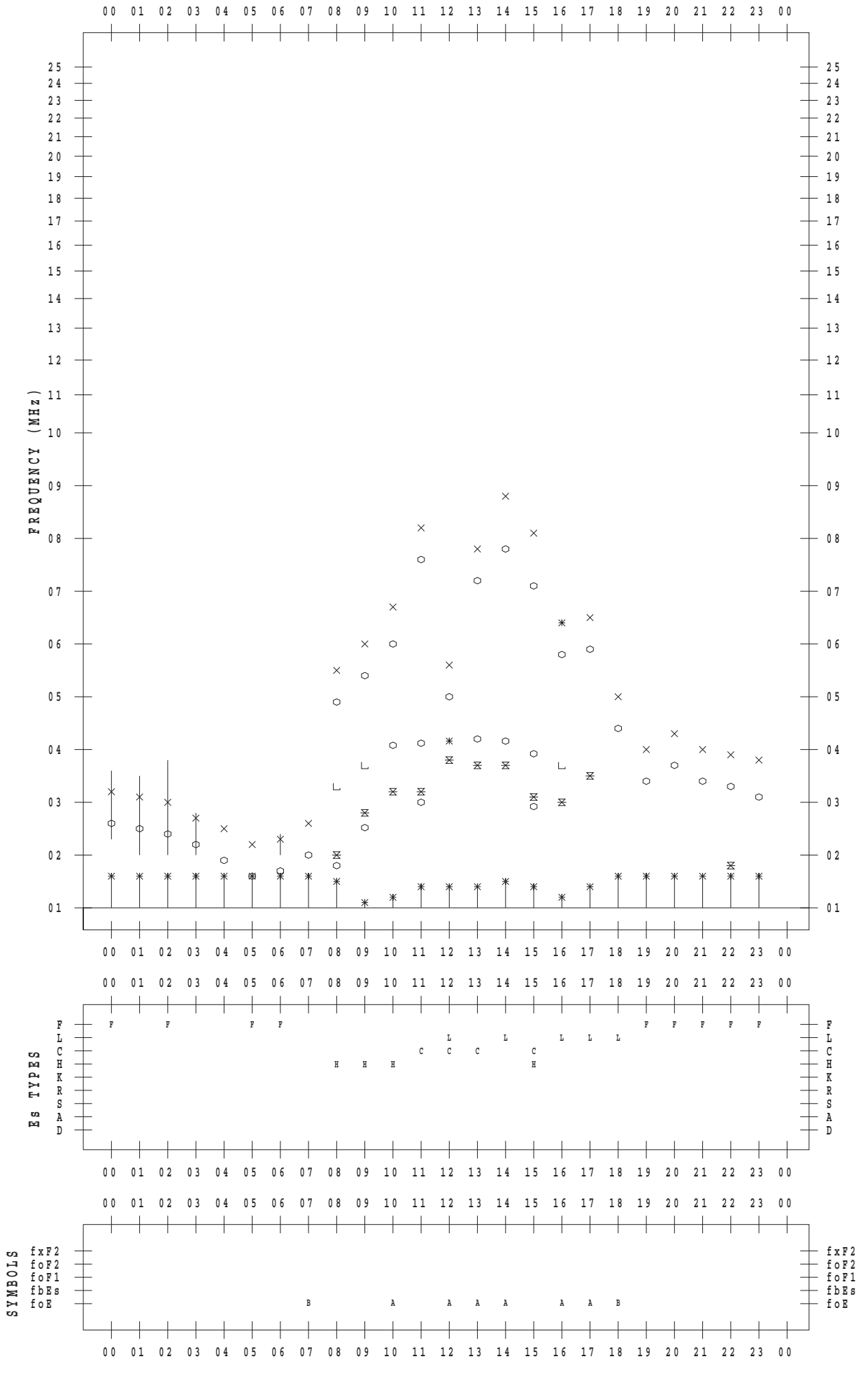
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2018/ 1/12

135 °E MEAN TIME



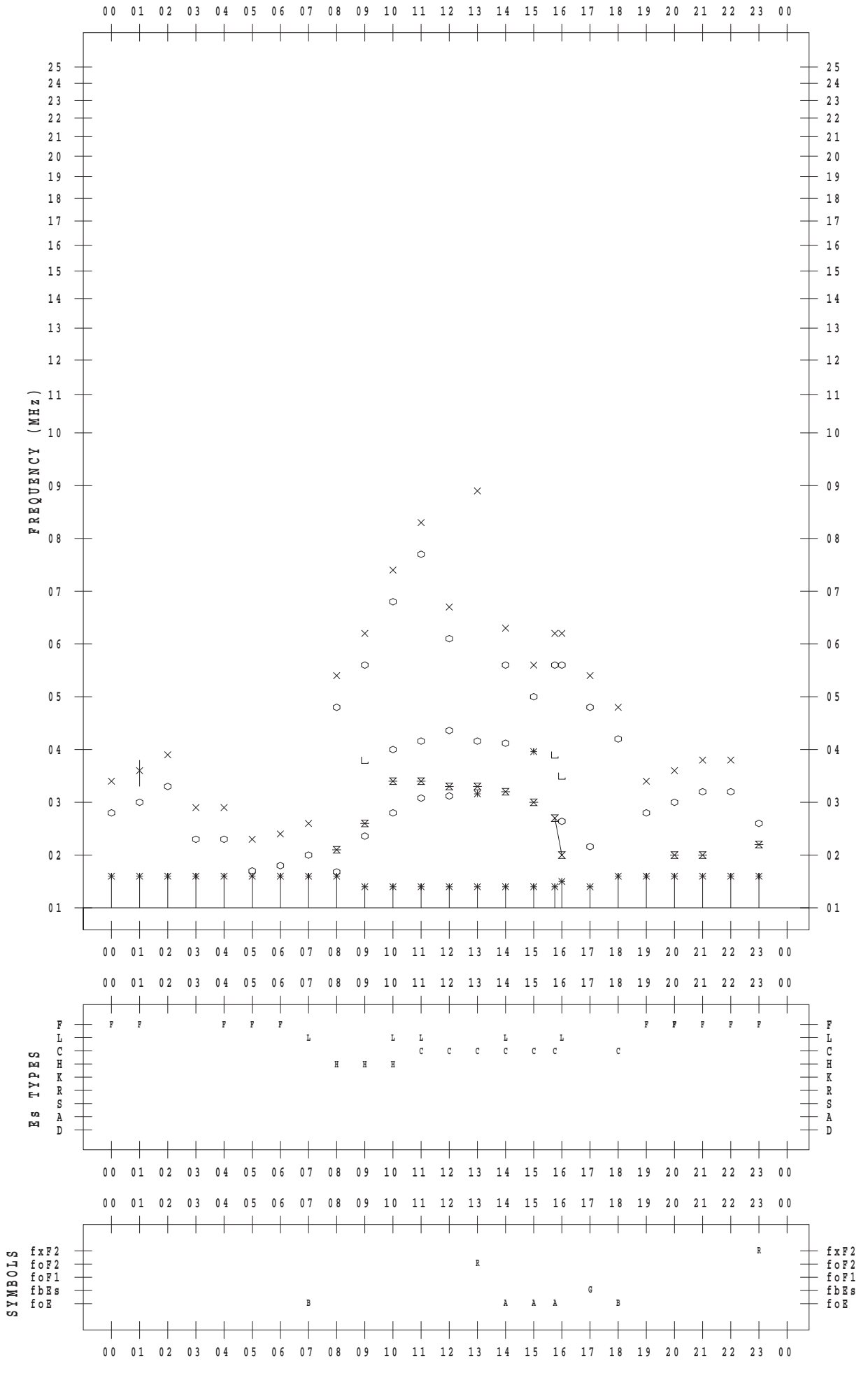
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2018/ 1/13

135 °E MEAN TIME



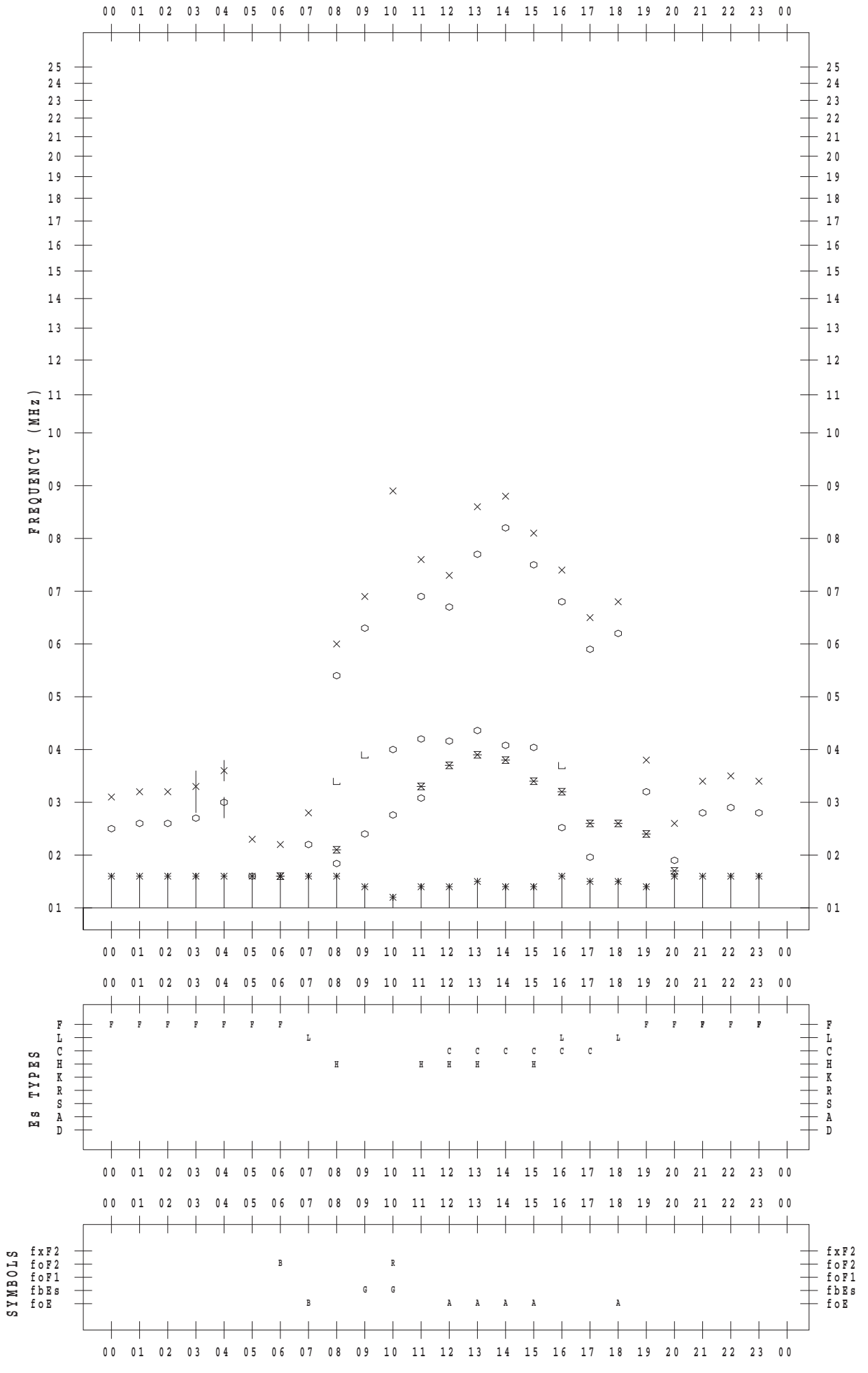
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2018/ 1/14

135 °E MEAN TIME



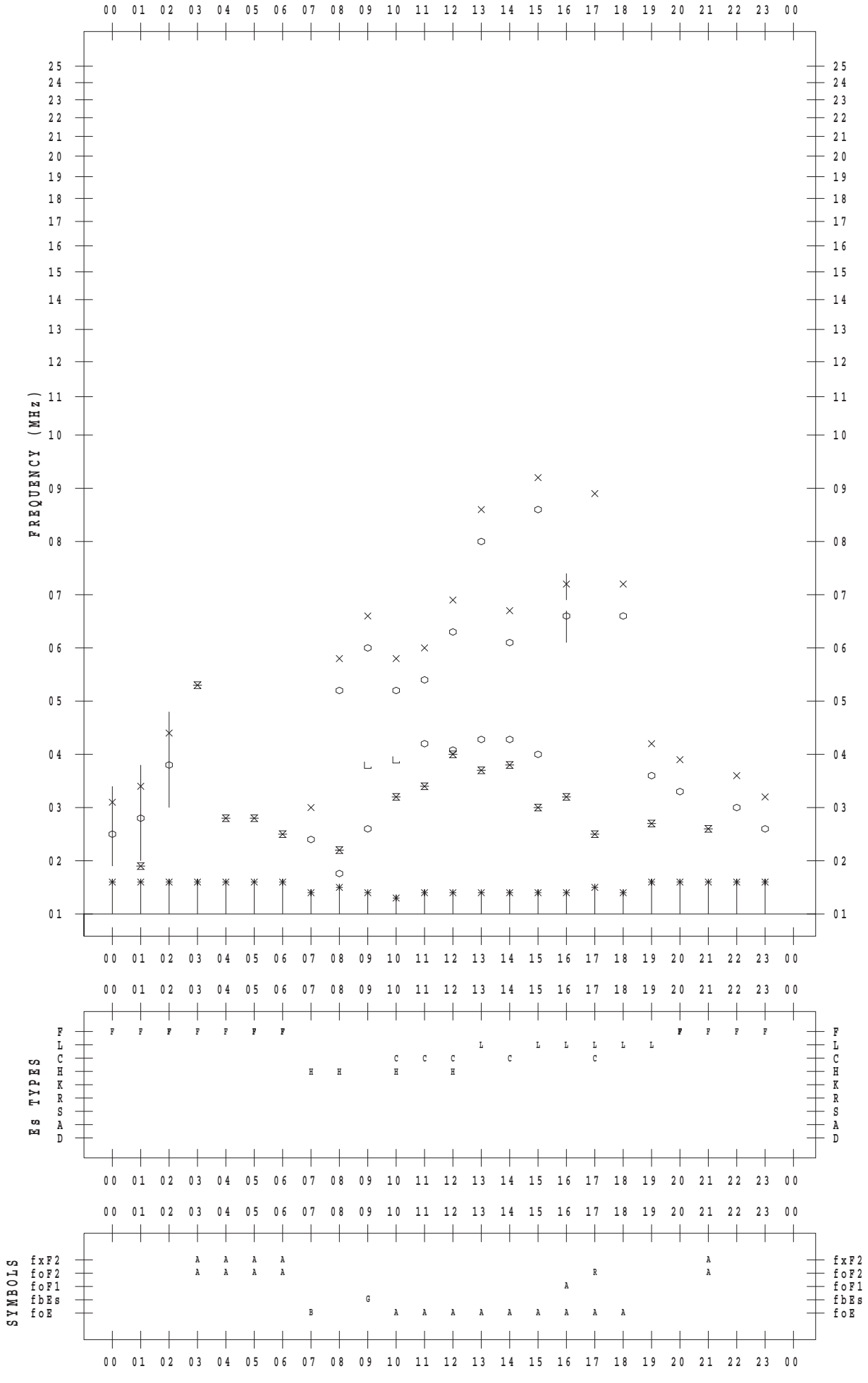
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2018/ 1/15

135 °E MEAN TIME



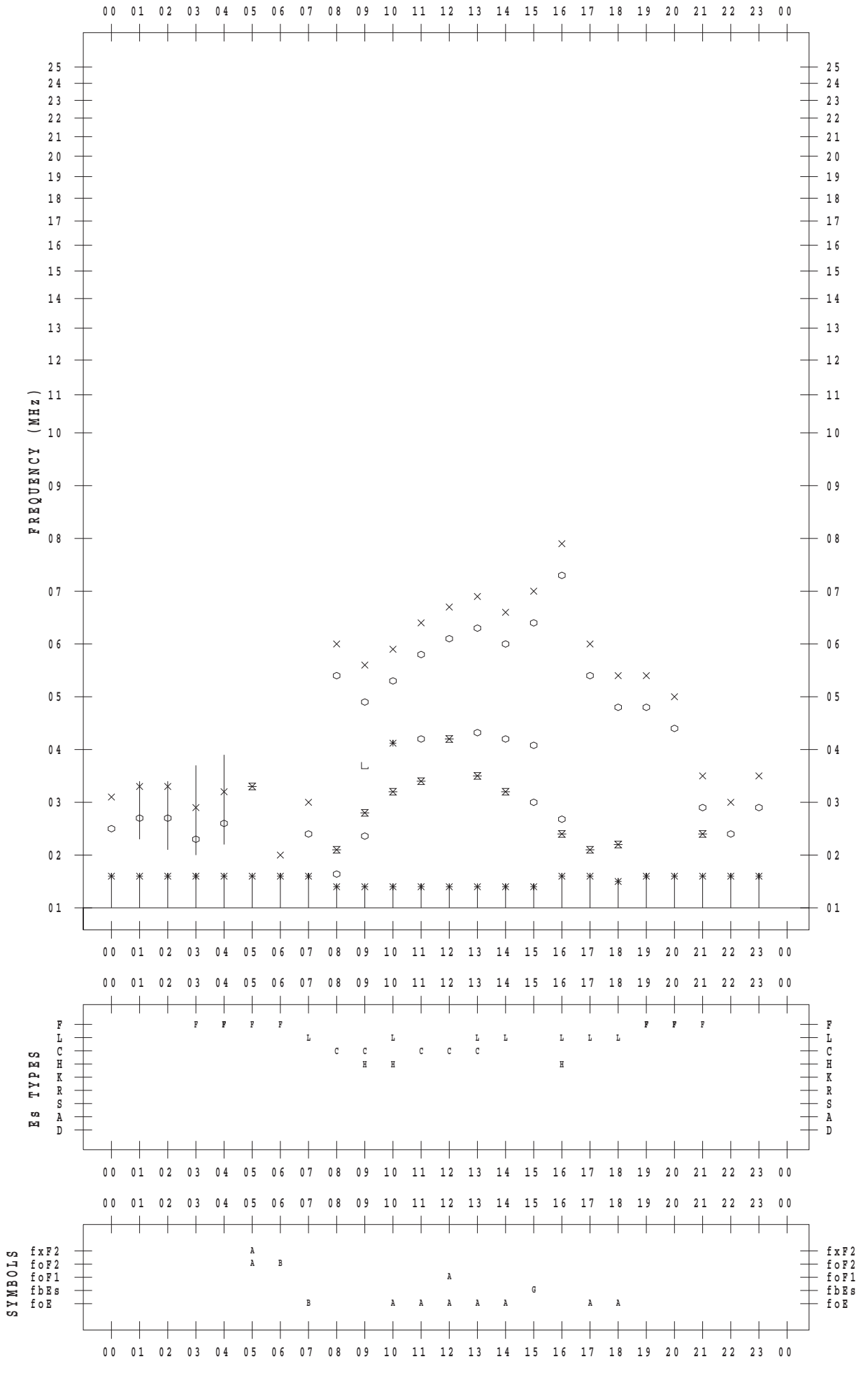
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2018/ 1/16

135 °E MEAN TIME



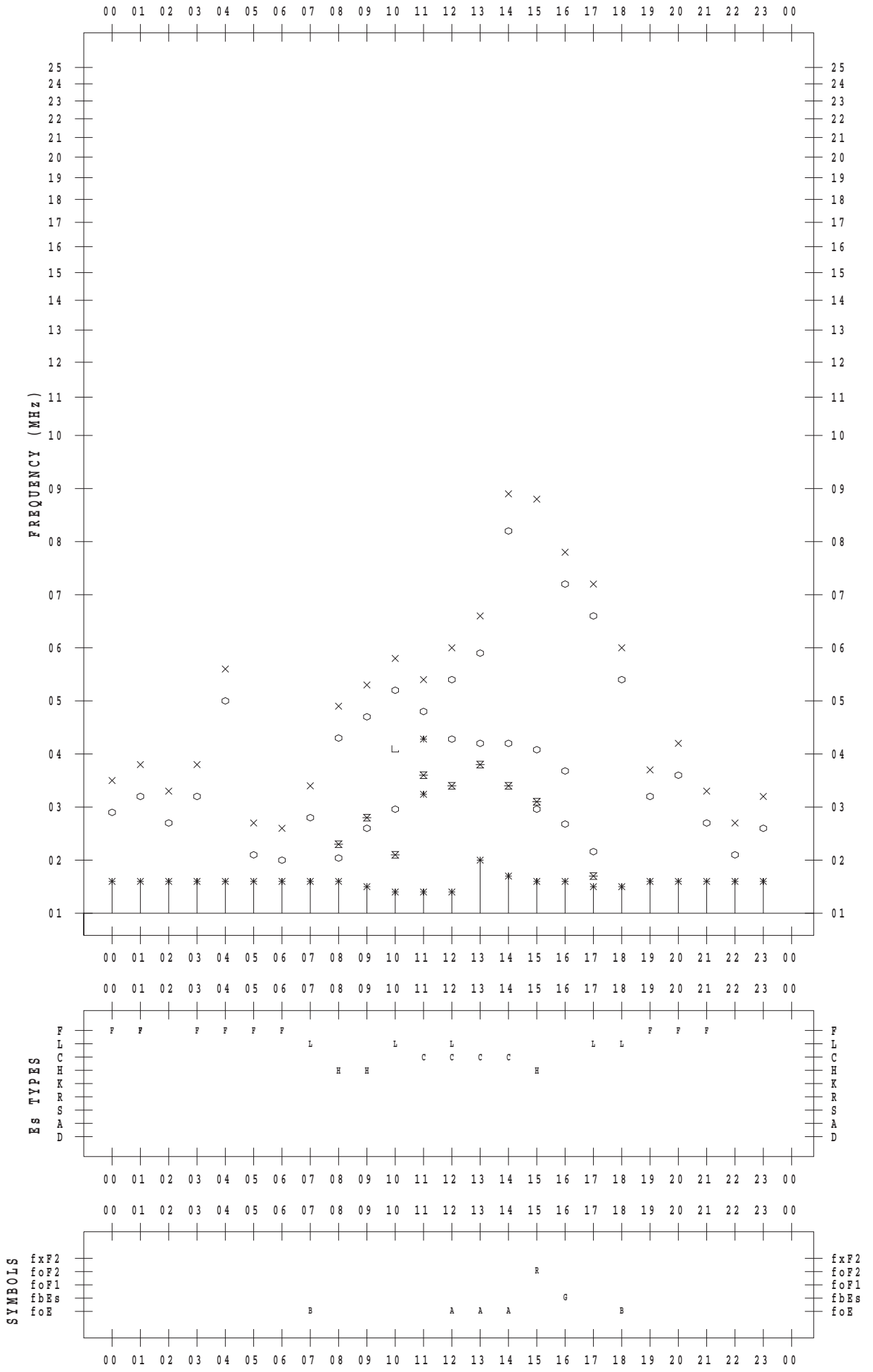
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2018/ 1/17

135 °E MEAN TIME



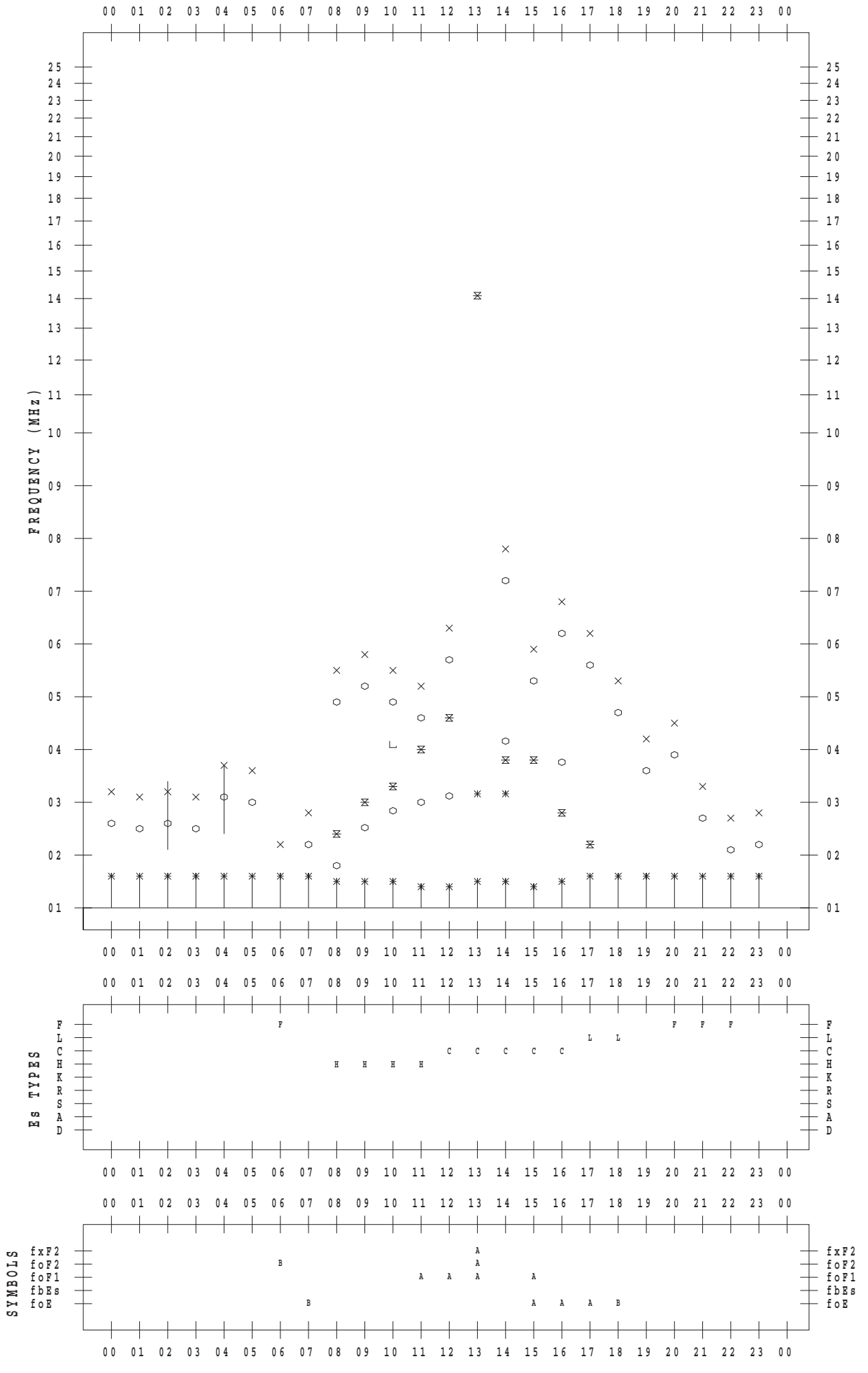
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2018/ 1/18

135 °E MEAN TIME



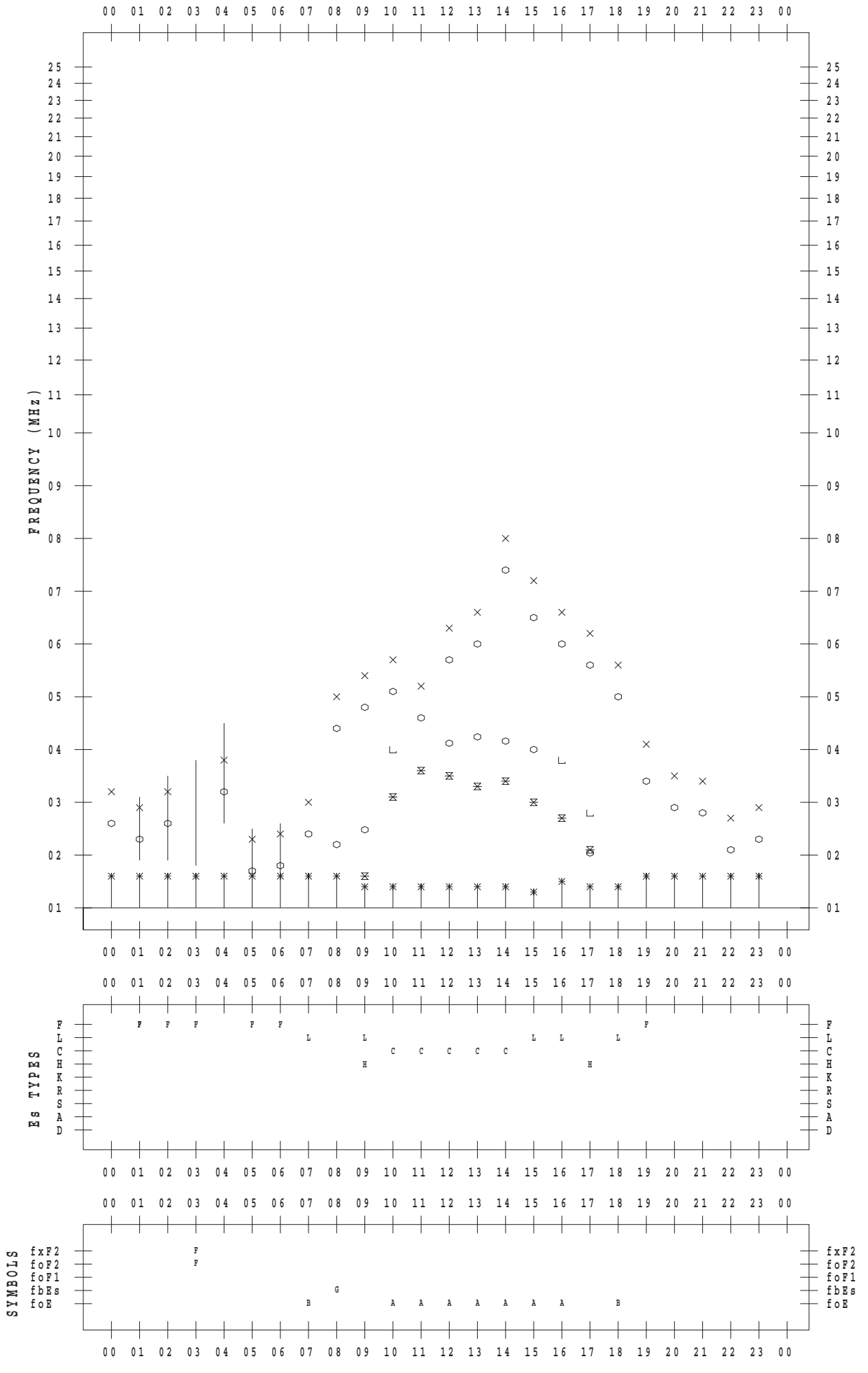
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2018/ 1/19

135 °E MEAN TIME



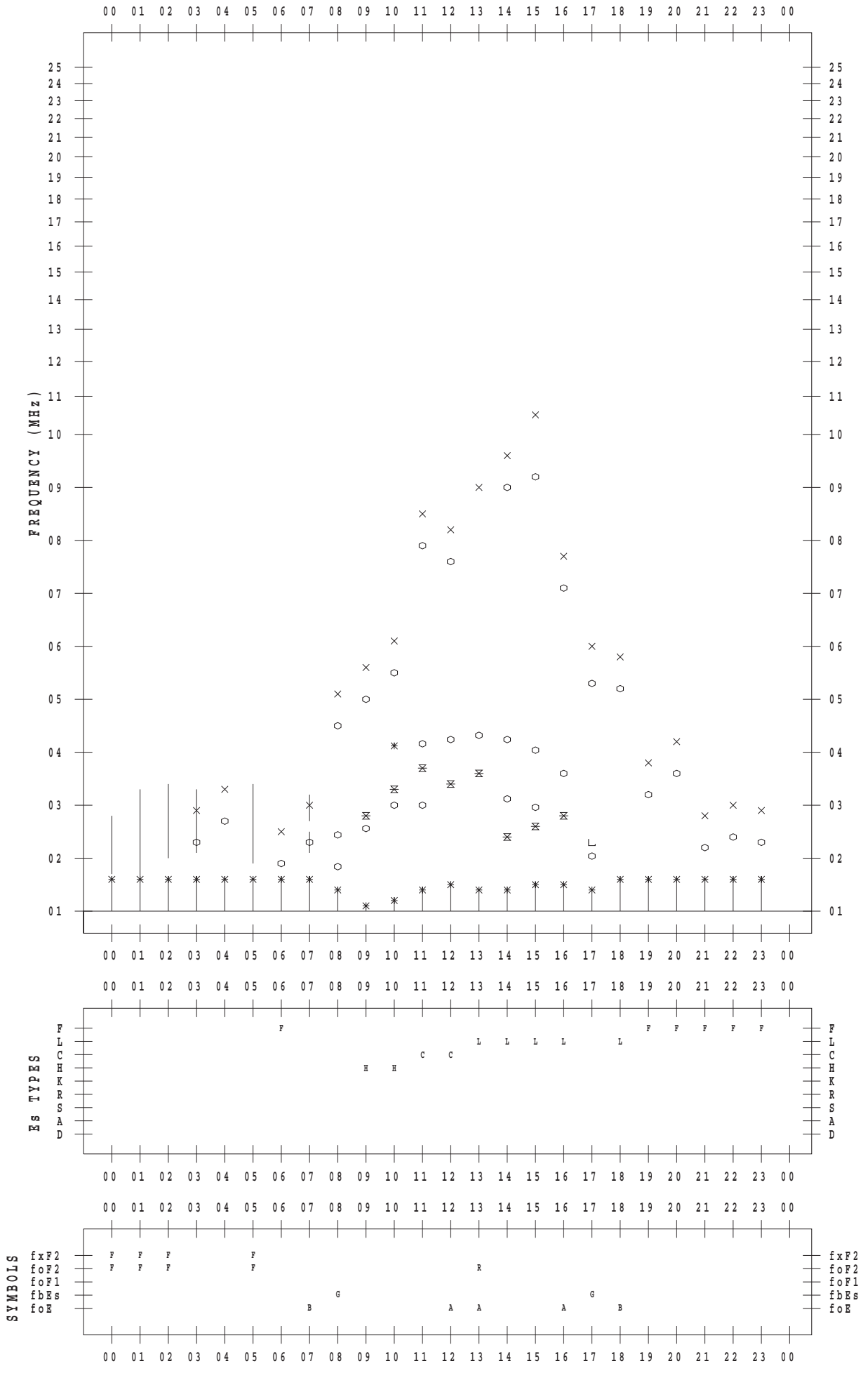
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2018/ 1/20

135 °E MEAN TIME



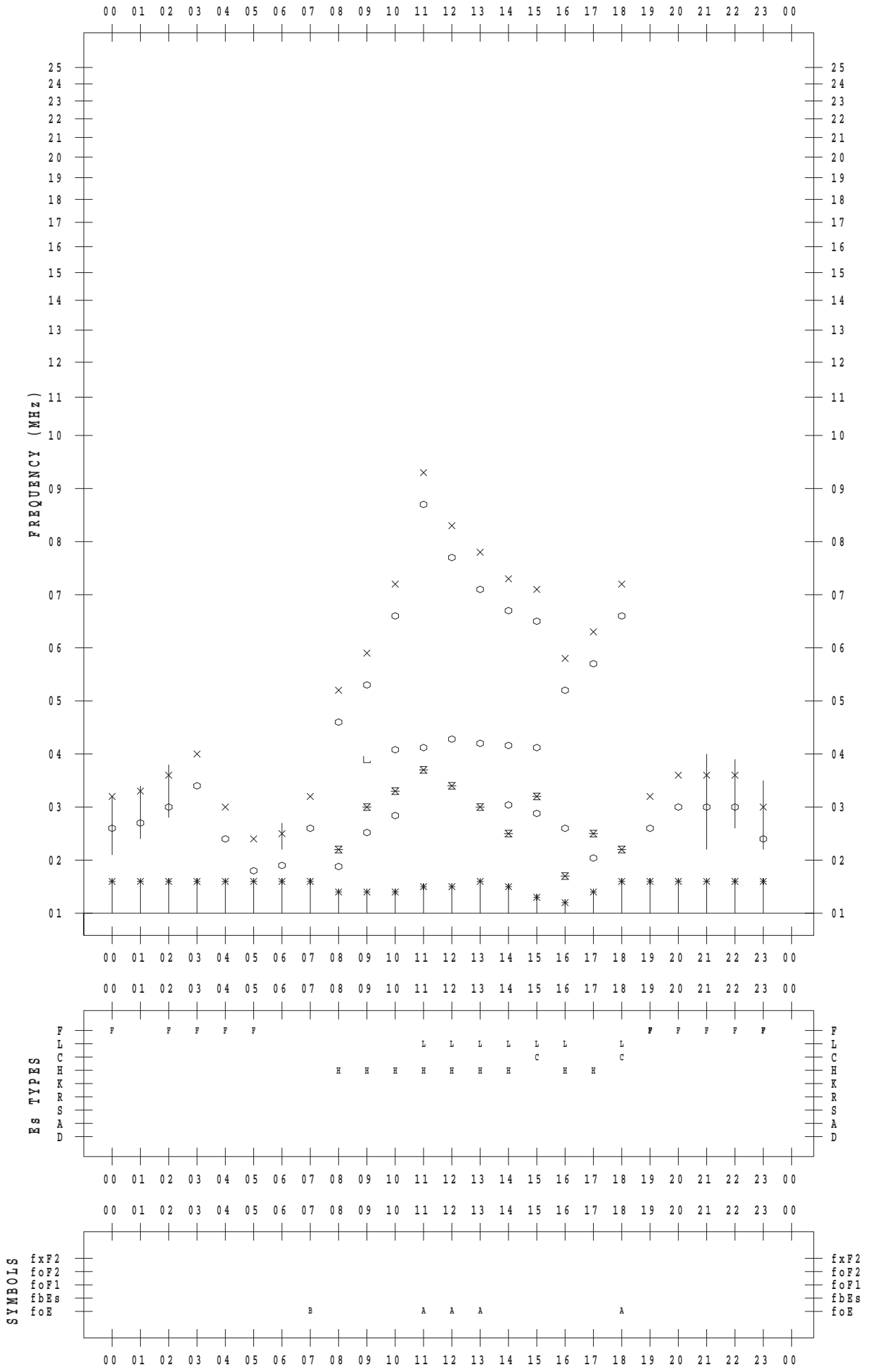
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2018/ 1/21

135 °E MEAN TIME



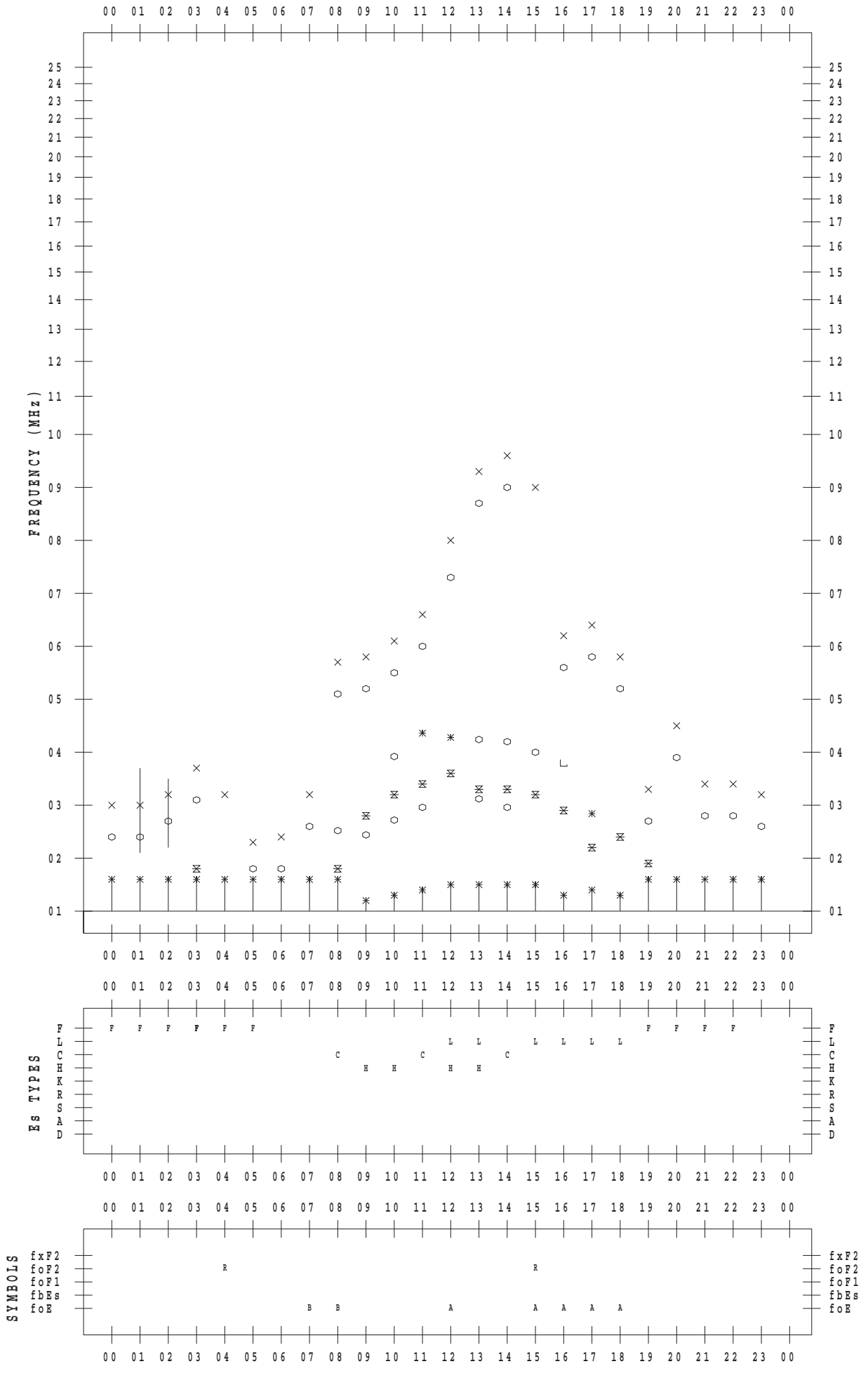
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2018/ 1/22

135 °E MEAN TIME



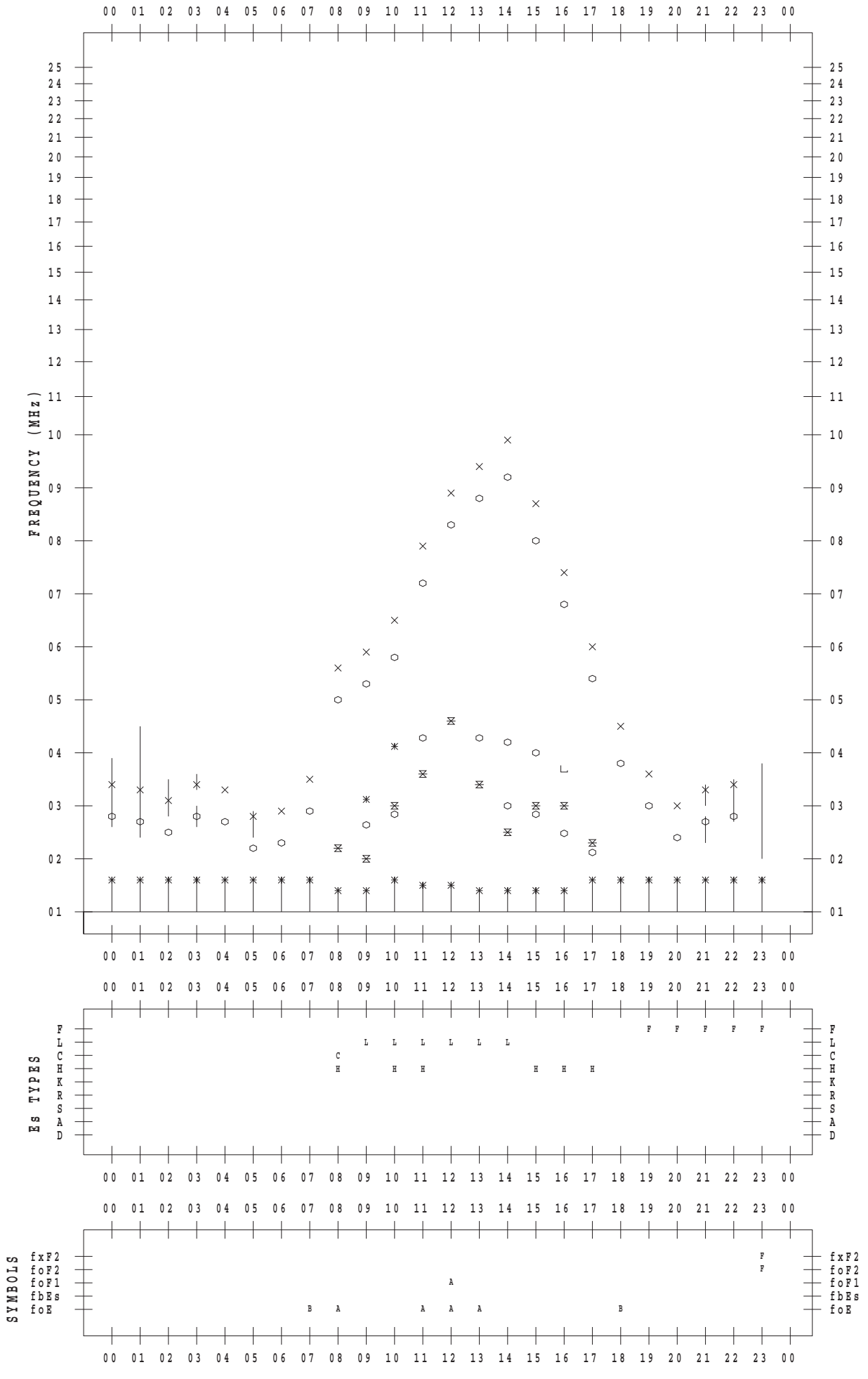
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2018/ 1/23

135 °E MEAN TIME



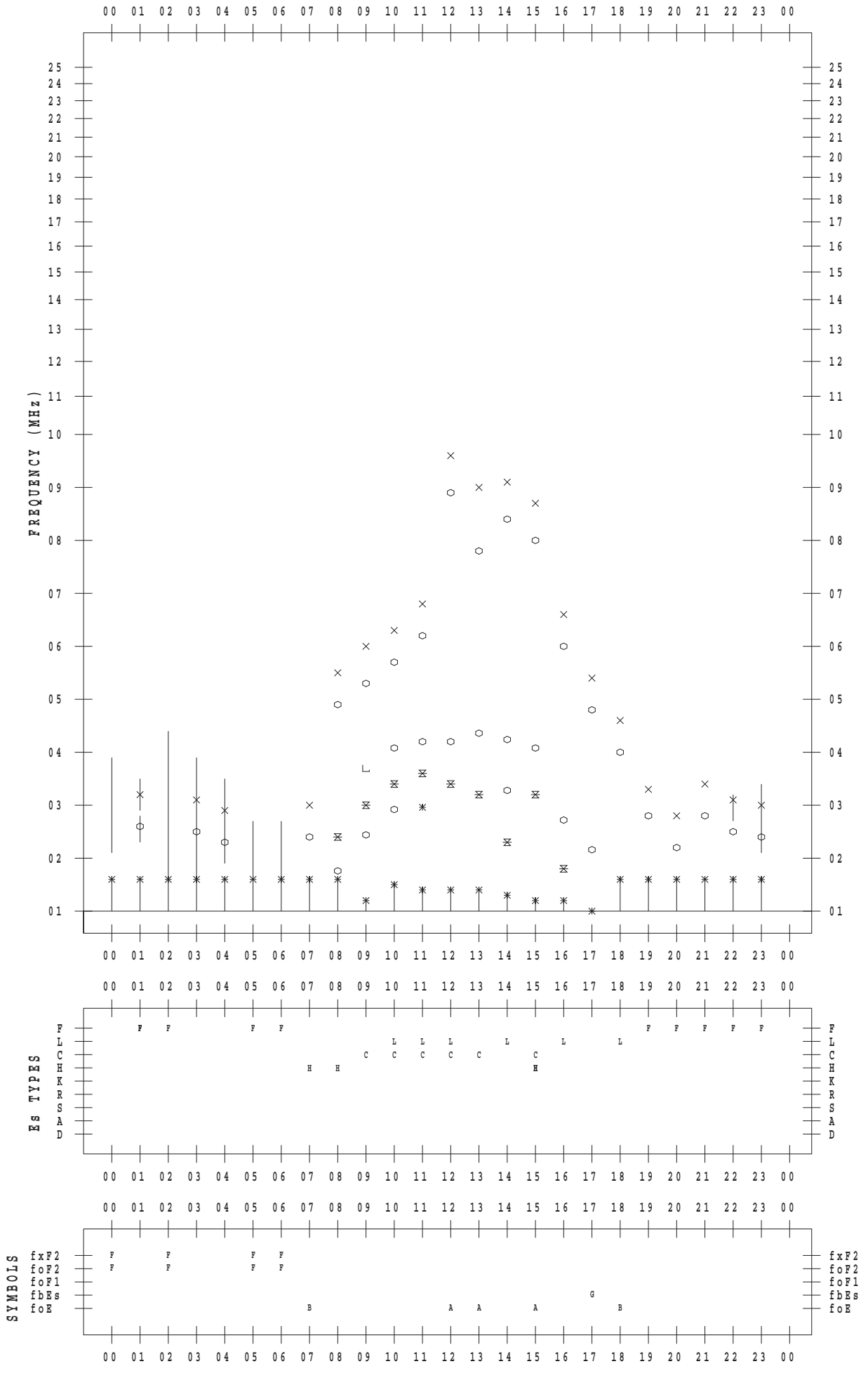
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2018/ 1/24

135 °E MEAN TIME



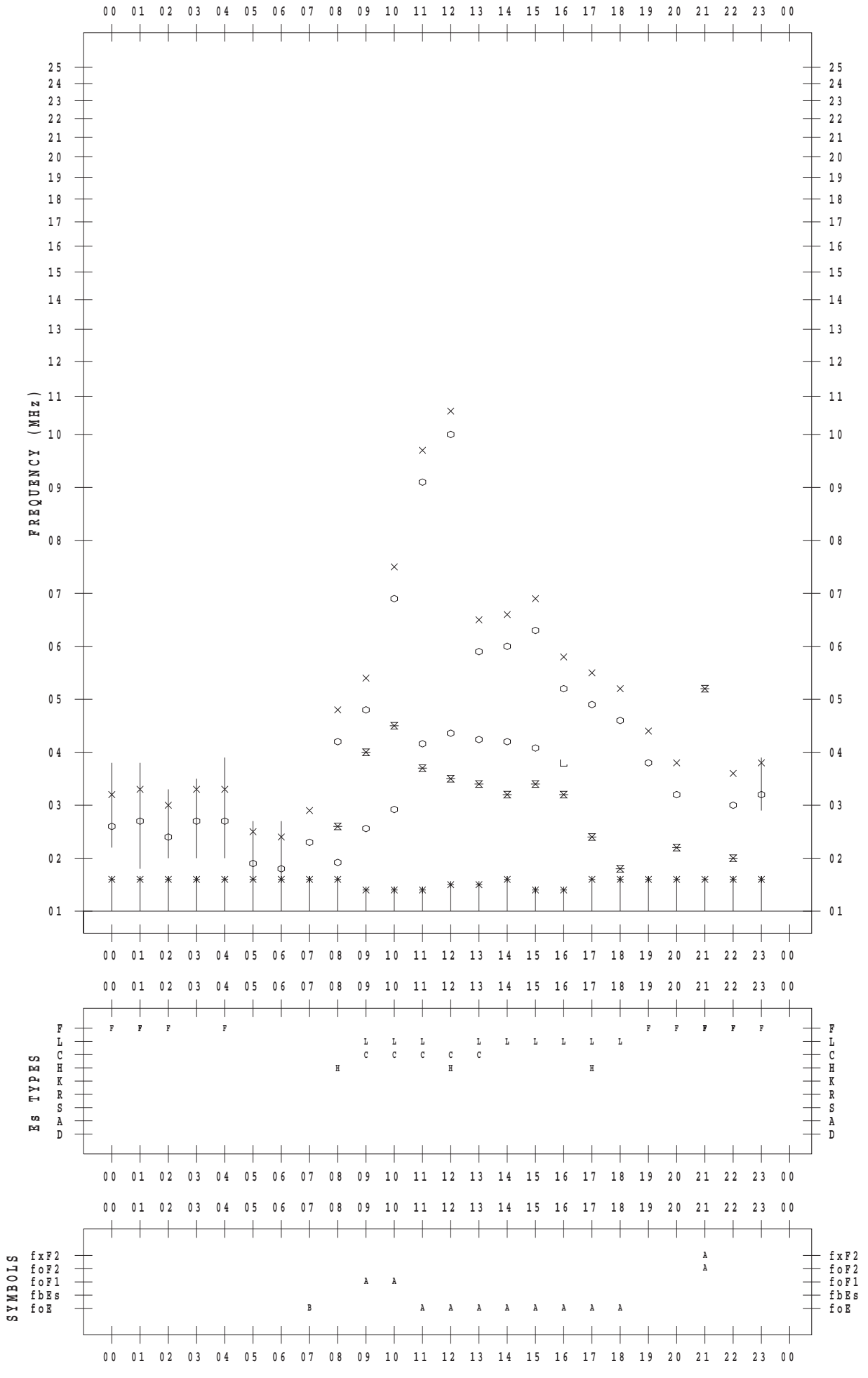
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2018/ 1/25

135 °E MEAN TIME



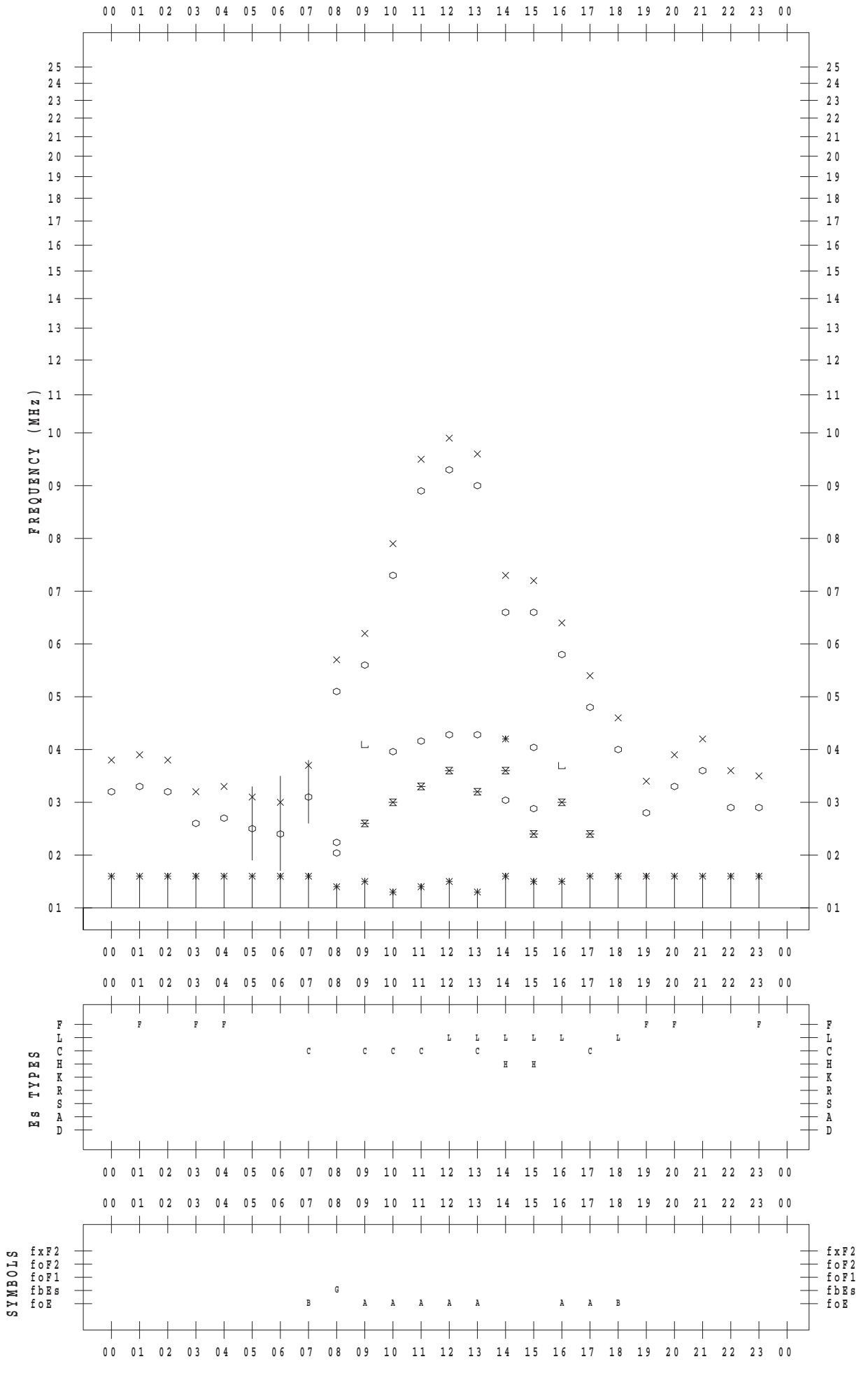
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2018/ 1/26

135 °E MEAN TIME



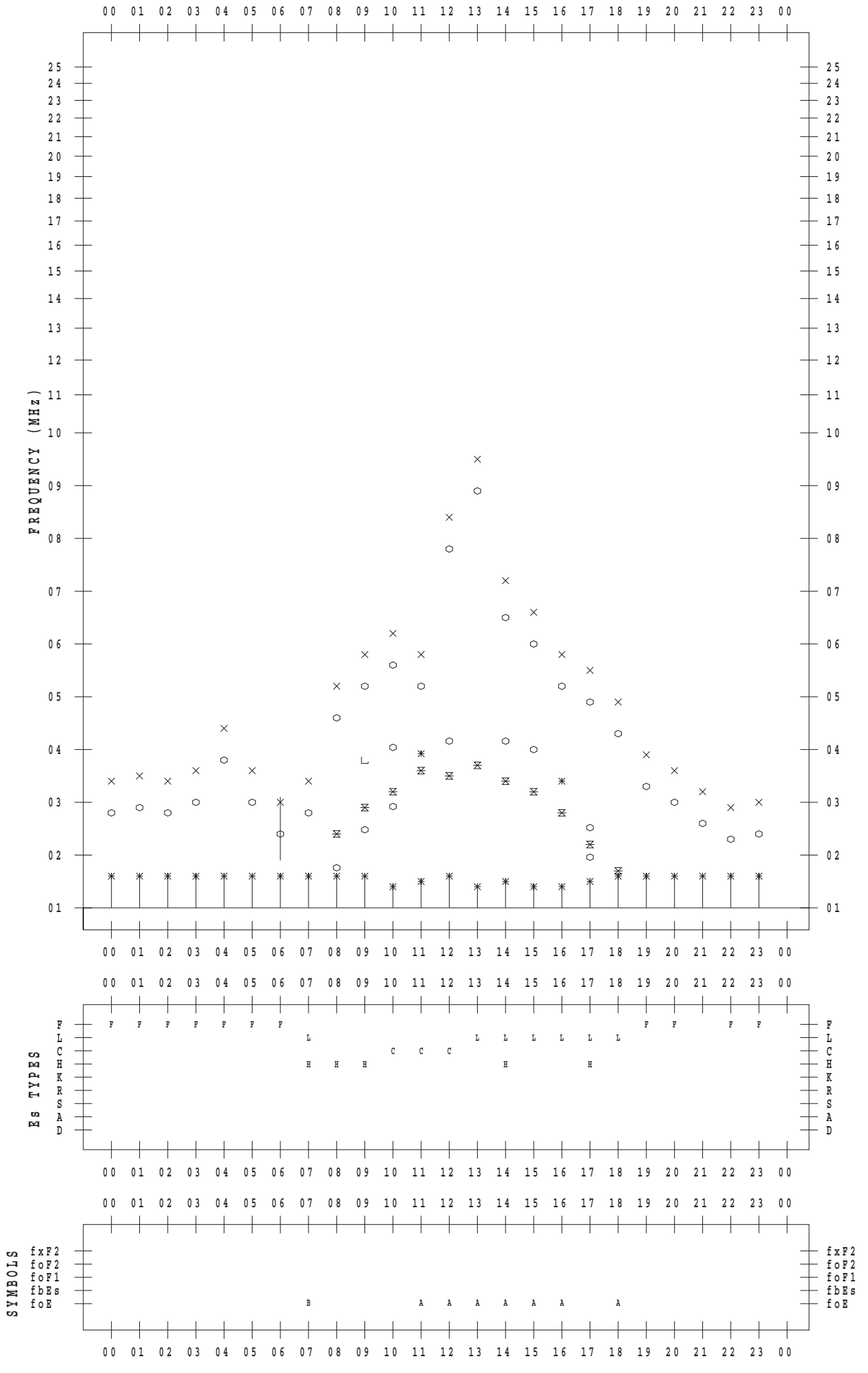
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2018/ 1/27

135 °E MEAN TIME



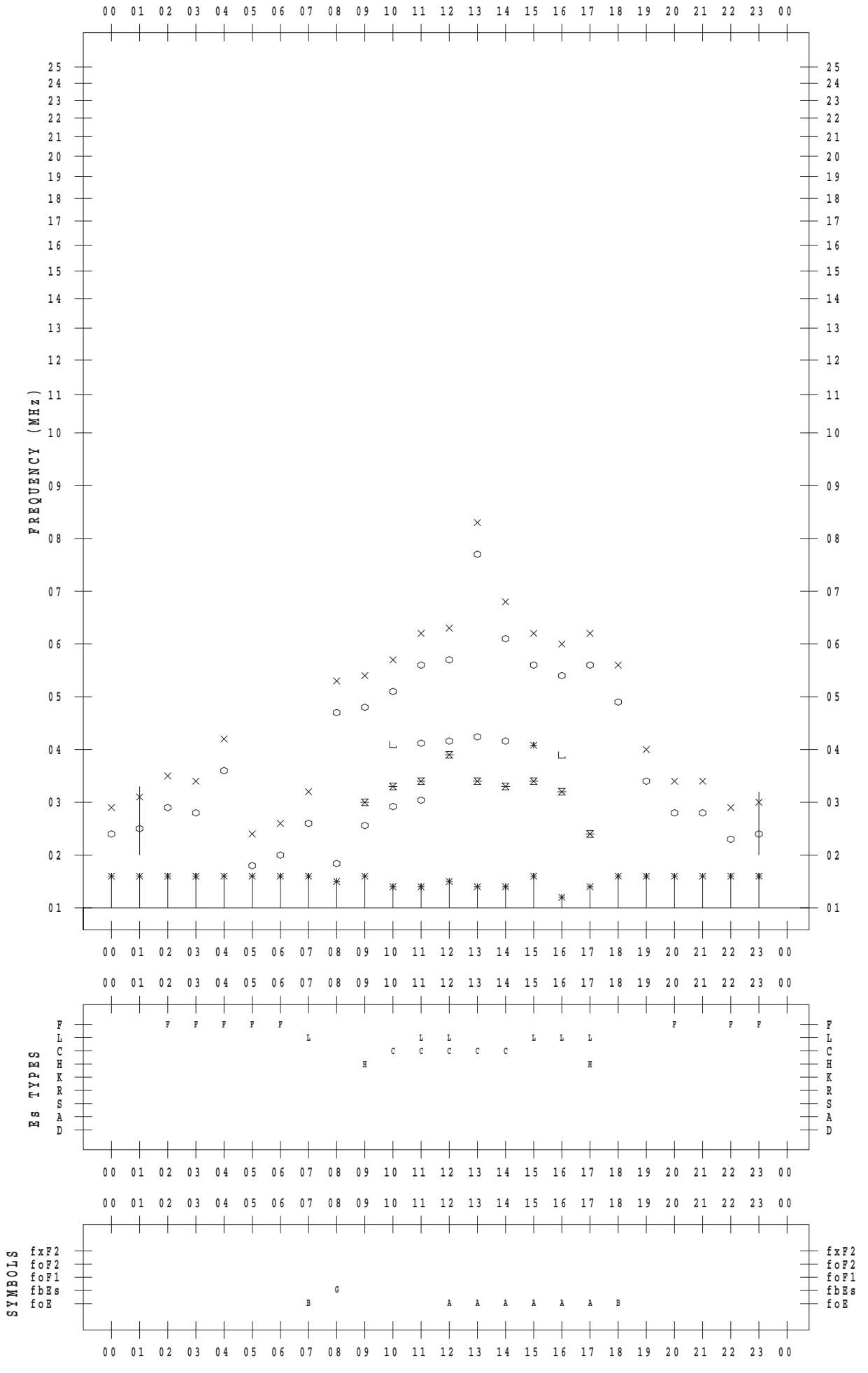
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2018/ 1/28

135 °E MEAN TIME



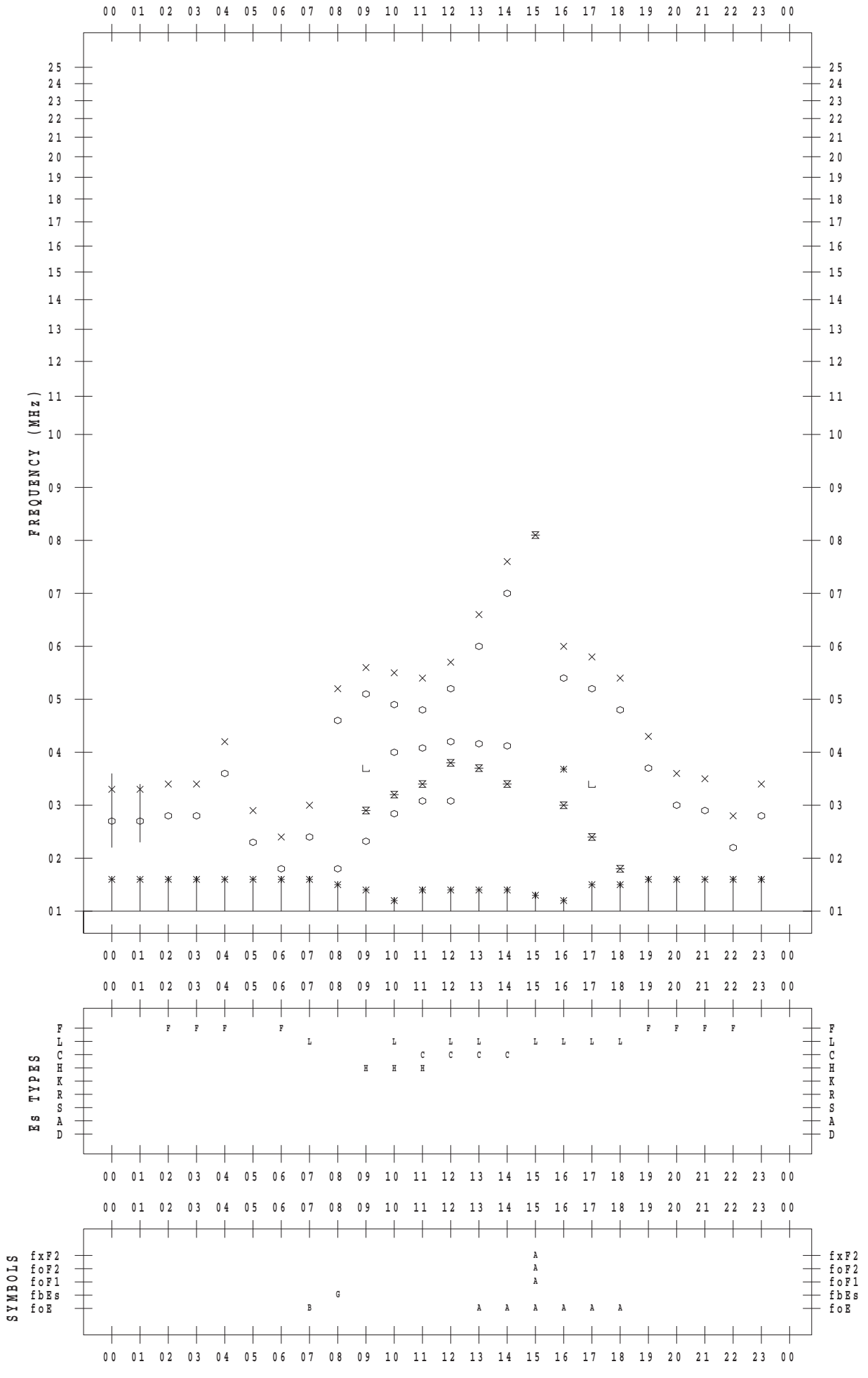
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2018/ 1/29

135 °E MEAN TIME



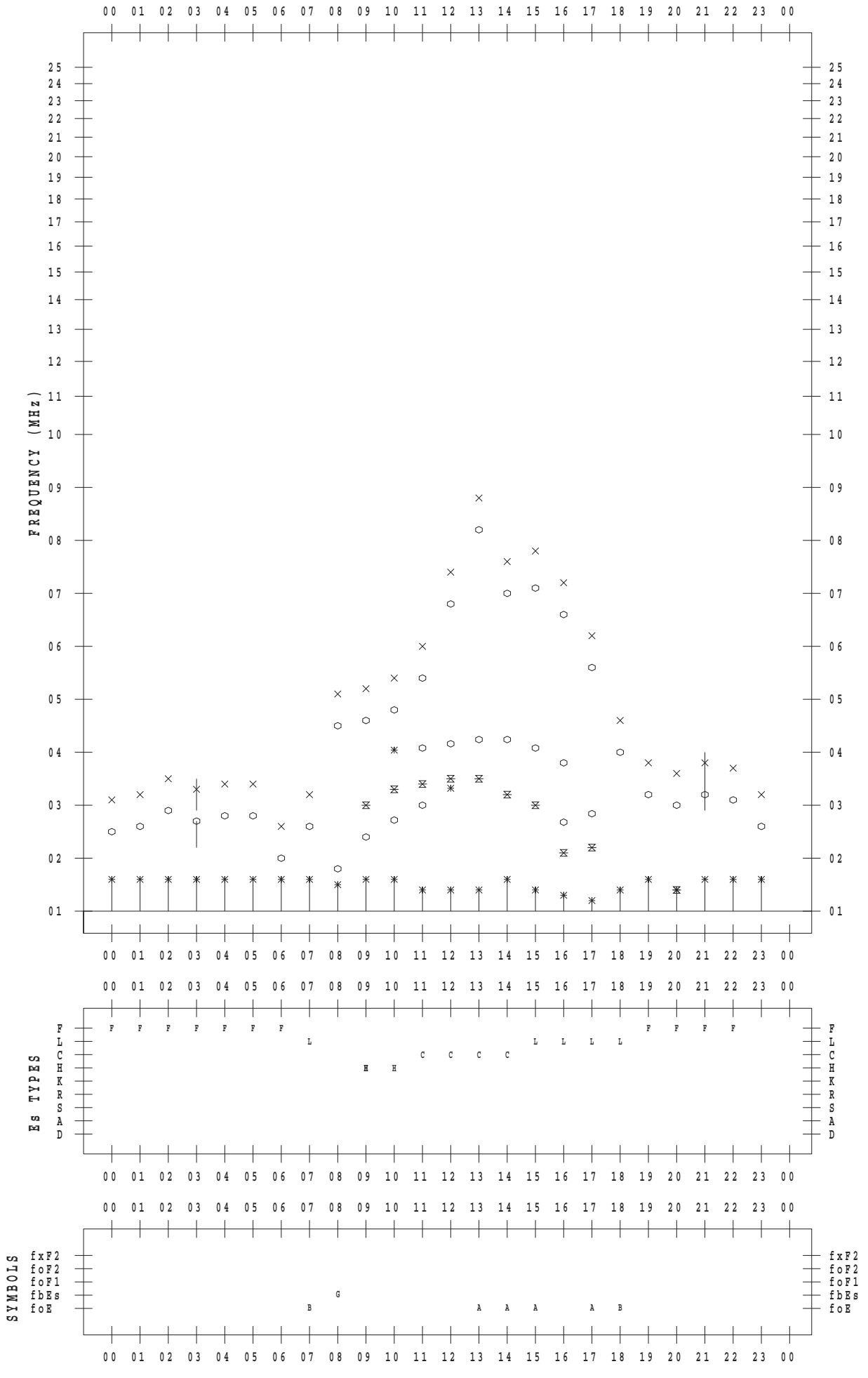
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2018/ 1/30

135 °E MEAN TIME



f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2018/ 1/31

135 °E MEAN TIME