F-830

IONOSPHERIC DATA IN JAPAN

FOR FEBRUARY 2018

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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

FEB. 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	53	52	52	43	40	32	32	40	52	58	64	54	79	60	53	51	53	45	42	46	40	36	34	35
2	A	34	32	32	30	32	28	40	50	54	58	56	54	51	57	55	51	38	34	42	44	43	49	52
3	51	42	42	42	44	50	42	54	47	53	59	66	64	61	44	62	52	34	30	36	42	37	36	A
4	32	34	38	40	40	48	A	36	53	48	56	62	56	59	57	54	54	37		30	34	48	52	52
5	42	30	32	43	46	29	30	44	52	54	59	65	69	68	61	51	51	41	34		30	32	36	40
6	42	42	34	34	39	36	28	40	51	58	53	54	60	58	48	60	58	41	A		30	28	30	29
7	31	32	29	28	29	30	26	38	50	53	49	56	59		53	54	52	22	A	29	30	28	30	30
8	30	30	30	29	28	29	28	41	48	59	58	59	54	51	52	58	55	43	34	49		A	32	34
9	34	36	34	34	31	32	29	42	50	58	49	57	59	50	51	60	54	48	34	34	34	34	34	32
10	31		30	30	30	29	29	44	52	52	54	55	59	51	53	55	54	51	34			34	33	32
11	32	40	47	42	34	49	42	58	52	48	54	60	55	51	66	55	55	50	38	34	34	34	36	34
12	34	34	34	36	34	32	34	59	53	62	74	80	65	55	51	53	51	42	32	34	36	38	42	34
13	34	37	37	34	31	32	40	43	63	62	61	64	58	56	58	58	60	55	54	50	51	51	52	50
14	52	51	50	52	55	54	58	54	64	62	61	60	58	53	56	59	51	51	48	50	41	52	47	42
15	46	50	50	48	51	54	54	50	64	57	54	59	55	55	56	54	51	41	32	43	40	36	35	34
16	26	37	35	43	46	47	43	54	54	65	63	59	62	57	54	52	54	43	34	36	40	40	43	50
17	46	44	42	36	36	34	29	47	55	55	59	61	65	64	61	55	54	46	40	40	34	37	38	34
18	34	34	34	32	31	29	30	44	60	58	65	64	56	70	62	60	55	48	42	40	37	20	32	34
19	40	34	34	34	34	29	30	47	54	65	75	94	84	64	67	69	65	47	32	28	A	31	34	34
20	34	34	34	34	32	26		42	51	58	66	65	50	55	56	65	A	48	32	29	A	A	32	32
21	32	31	30	29	A		N	38	47	50	53	49	38	52	35	54	54	42	28	32	34	34	34	32
22	32	34	30	28	26	26	28	42	46	51	52	55	52	51	55	56	52	47	35	29	32	34	36	34
23	32	34	32	28	28	31	30	40	46	54	54	57	55	58	54	57	62	58	50	37	36	37	43	37
24	38	40	34	34	34	32	36	46	58	54	54	58	60	55	55	N	59	47	36	29	30	28	32	34
25	34	34	34	31	31	32	34	48	51	45	61	57	53	56	49	59	57	55	43	36	34	29	34	34
26	37	36	40	38	37	37	41	52	55	57	55	58	64	57	59	54	58	51	52	43	44	44	40	42
27	42	42	42	39	45	44	36	50	57	57	65	64	58	64	65	60	64	50	43	38	40	42	43	43
28	43	42	39	40	31	32	38	66	71	63	54	69	62	59	55	56	52	46	43	43	40	41	42	42
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	27	27	28	28	27	27	25	28	28	28	28	28	28	27	28	27	27	28	25	25	24	26	28	27
MED	34	36	34	34	34	32	32	44	52	57	58	59	58	56	55	56	54	46	35	36	36	36	36	34
U Q	42	42	41	41	40	44	40	51	56	58	62	64	63	60	58	60	58	50	43	43	40	41	42	42
L Q	32	34	32	31	31	29	29	40	50	53	54	56	55	52	52	54	52	41	33	31	34	32	33	34

HOURLY VALUES OF fEs AT Wakkanai

FEB. 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	28	33	G	G	11	G	G	11	31	39	48	34	32	38	36	37	31	31	31	28	G	G	G	G
2	43	G	27	G	G	G	G	23	40	39	32	60	29	44	48	G	11	39	G	G	40	G	G	G
3	G	G	G	G	G	G	G	36	32	40	36	101	35	34	34	34	28	11	G	28	39	35	34	39
4	G	G	G	26	G	G	44	32	31	37	57	68	113	40	38	33	48	39		25	26	28	G	G
5	G	24	G	G	G	29	G	40	24	39	28	29	35	34	33	49	34	35	23		G	G	G	G
6	G	G	G	G	G	G	G	28	156	127	29	43	50	N	35	27	21	32	24		G	G	G	G
7	26	25	G	29	24	25	28	180	31	38	91	64	32		36	34	32	28	57	G	G	G	G	24
8	G	28	27	G	G	G	G	11	44	39	36	52	34	28	162	25	G	25	29	24		28	G	G
9	G	G	G	G	G	G	26	37	48	42	42	42	35	48	36	29	G	11	G	G	G	G	34	G
10	G		G	34	33	G	G	G	21	29	34	46	34	29	28	24	G	G	25			G	G	G
11	G	G	G	28	50	58	G	45	23	26	48	51	43	40	29	28	G	45	58	G	G	G	29	G
12	26	G	G	G	G	G	G	31	48	34	50	34	33	31	50	28	G	11	43	G	G	G	28	G
13	G	G	G	G	G	G	G	39	52	52	52	40	53	70	33	34	22	30	11	G	G	G	G	G
14	G	G	G	G	G	11	G	35	53	50	29	28	30	48	31	51	24	G	G	11	G	G	G	G
15	G	G	G	G	G	G	G	11	32	40	53	30	70	29	36	24	20	11	G	G	G	G	G	G
16	G	G	G	G	G	G	G	26	32	34	35	29	34	29	34	33	28	11	G	G	G	G	G	G
17	G	G	G	G	G	G	G	69	28	34	70	111	42	30	34	34	33	G	G	G	G	G	G	G
18	G	G	G	G	G	G	G	26	28	134	34	35	34	34	34	37	35	36	29	24	G	G	G	G
19	G	71	G	G	G	G	G	28	24	33	35	59	27	27	32	27	34	48	29	G	40	G	G	G
20	G	29	G	26	26	G		59	43	27	26	53	64	33	49	56	108	36	G	26	34	35	G	G
21	G	G	G	32	34		25	G	26	27	168	29	29	29	27	25	34	19	31	34	G	G	28	30
22	28	G	G	G	G	G	34	45	38	46	48	N	46	43	28	24	G	11	G	G	G	26	G	G
23	G	G	G	G	G	G	G	40	23	35	32	48	43	71	28	24	G	G	11	G	G	G	G	G
24	G	G	G	G	G	G	G	20	34	70	47	44	44	44	28	24	24	26	G	G	G	G	G	G
25	G	139	G	G	G	28	55	39	54	40	31	52	36	28	36	34	36	31	G	G	G	G	G	G
26	G	G	G	G	G	G	G	28	34	35	40	34	33	28	34	32	30	G	G	G	G	11	G	G
27	G	G	G	G	G	11	71	35	32	116	37	34	47	31	44	28	50	25	25	29	26	29	25	G
28	G	G	G	G	G	G	G	30	36	36	34	48	39	39	44	33	35	28	29	G	G	G	G	36
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	27	28	28	28	27	27	28	28	28	28	27	28	26	28	28	28	28	27	25	26	28	28	28
MED	G	G	G	G	G	G	G	32	32	39	36	44	35	34	34	30	28	26	11	G	G	G	G	G
U Q	G	24	G	G	G	G	25	39	43	44	49	53	45	43	37	34	34	33	29	24	G	6	G	G
L Q	G	G	G	G	G	G	G	24	28	34	33	34	33	29	31	25	6	11	G	G	G	G	G	G

HOURLY VALUES OF fmin AT Wakkanai

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

FEB. 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	36	37	34	27	26	27	27	38	47	55	72	65	57	64	55	54	50	50	39	A	32	30	28	31
2	28	31	30	32	30			38	51	54	48	58	76	64	57	52	48	44	27	30	28	28	32	28
3	31	27	28	26	21	25	27	42	51	47	51	67	78	71	54	46	54	52	34	30	32	N	27	30
4	30	30	28	25	27	27	25	44	55	47	50	A	65	56	57	59	N	42	26	30	26	30	36	31
5	30	28	25	32	32	25	N	48	47	50	59	62	61	72	70	64	55	49	28	28	N	27	26	A
6	27	31	31	42	28	26	26	39	47	49	52	64	60	54	51	64	66	42	A	A	A	A	A	26
7	25	26	A	A	28		A	31	51	49	A	56	59	58	61		A	46	A		32	34	30	30
8	25	26	28	30	27	27	N	44	49	52	56	58	59	54	54	49	57	43	32	48	30	30	58	31
9	N	30	31	26	30	28	27	49	52	54	56	51	61	59	51	48	68	47	41	A	30	A	27	27
10	27	26	26	27	28	N	N	41	48	54	52	58	61	58	59	51	54	51	36	A	34	A	A	24
11	30	30	31	30	30	27	28	47	58	54	59	52	62	56	58	58	56	55	A	37	A	A	A	30
12	32	32	34	28	34	28	28	48	59	65	81	87	90	58	52	56	57	44	34	A	A	34	34	32
13	32	32	58	27	30	28	28	48	64	64	58	56	65	47	56	59	62	51		38	37	36	32	26
14	27	26	30	30	31	32	36	48	53	58	59	58	66	64	56	54	51	43	43	38	37	27		27
15	30	32	28	32	32	36	34	47	54	69	81	74	61	58	55	49	51	42	34	32	34	34	34	34
16	28	30	30		28	27	30	53	58	54	66	71	66	61	55	54	52	44	32	30	32	31	26	34
17	34	34	32	32	34	31	31	41	49	54	57	65	72	65	64	54	51	48	42	45	38	37	41	42
18	42	37	36	43	26	N	26	47	54	67	68	73	77	58	62	53	51	47	A	A	A	40	A	39
19	34	37	34	34	32		27	53	66	87	91	96	111	111	97	72	64	45	A	30	27	A	A	A
20	31	A	32	37	34	A	N	51	200	72	75	87	91	65	64	55	68	83	A	A	31	A	30	A
21	30	30	26	26	28		A	46	48	52	56	58	60	49	54	54	50	48	34	A	A	A	A	30
22	31	A	32	27	28	26	27	N	47	50	55	55	61	56	55	56	53	50	32	A	36	A	32	34
23	28	28	26	31	26		30	41	49	57	53	55	61	62	64	54	58	54	53	39	41	A	34	34
24	31	34	34	A	26	N	31	49	55	64	56	52	55	65	55	54	58	64	38	A	A	A	30	30
25	30	30	28	30	28	26	N	41	45	52	55	56	57	60	A	52	57	54	42	A	58	A	A	26
26	27	27	27	27	31	30	40	49	52	55	64	67	72	70	60	56	55	51	52	52	36	32	A	A
27	32	31	31	31	45	36	36	49	55	58	65	64	75	62	75	64	59	63	47	35	30	36	A	35
28	34	35	A	28	24	N	34	53	64	66	67	56	59	61	53	57	37	50	A	38	42	A	A	A
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	27	26	26	25	28	18	20	27	28	28	27	27	28	28	27	27	26	28	20	16	21	15	17	23
MED	30	30	30	30	28	27	28	47	52	54	58	58	62	60	56	54	55	48	35	36	32	32	32	30
U Q	32	32	32	32	31	30	32	49	56	64	67	67	73	64	62	58	58	51	42	38	37	36	34	34
L Q	28	28	28	27	27	26	27	41	48	52	55	56	60	57	54	52	51	44	32	30	30	30	27	27

HOURLY VALUES OF fEs AT Kokubunji

FEB. 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	30	25	11	G	G	G	34	34	40	37	42	42	38	35	29	30	36	27	G	G	G	G
2	G	26	28	G	20			G	29	135	36	43	37	37	34	32	28	11	G	G	G	G	G	G
3	G	G	G	G	11	G	G	31	28	29	40	33	39	50	35	32	32	G	11	G	G	G	G	G
4	G	G	G	G	G	G	46	26	34	34	42	105	42	36	42	42	36	32	25	44	23	G	41	32
5	G	G	G	G	G	G	G	47	33	45	50	52	40	42	35	31	44	45	G	G	G	G	G	46
6	G	24	G	G	18	G	G	41	145	39	47	39	41	43	36	37	40	28	34	38	35	34	29	G
7	26	27	33	34	27		45	35	34	39	91	46	50	42	35		68	43	29		G	G	G	26
8	G	G	G	G	G	G	G	G	31	36	42	43	37	33	42	27	G	11	34	G	G	G	G	G
9	G	G	G	G	G	G	G	G	34	37	40	43	42	29	34	29	34	28	29	55	G	34	G	27
10	G	28	24	G	G	G	G	34	29	44	43	45	31	37	37	47	47	40	23	47	31	35	42	40
11	G	G	G	G	G	G	G	45	29	34	51	41	35	42	39	42	37	G	39	35	41	57	50	29
12	29	28	G	G	24	G	G	G	33	40	32	38	42	35	31	27	29	26	G	28	33	32	G	28
13	G	G	G	G	G	G	G	G	33	36	30	37	31	34	40	40	30	11		G	G	24	G	G
14	G	G	G	G	G	11	G	20	33	33	37	31	35	35	29	41	36	27	G	G	G	G		G
15	G	G	G	G	G	G	G	G	33	37	37	37	40	37	37	34	30	G	G	G	G	G	G	G
16	G	G	G		G	G	G	27	34	36	37	36	31	31	37	34	33	31	G	G	G	G	G	G
17	G	G	G	G	G	G	G	G	33	37	36	43	35	36	35	36	32	25	G	G	31	25	G	G
18	36	G	G	G	G	G	G	123	29	41	42	46	29	62	45	42	44	31	54	41	70	36	73	G
19	G	G	G	G	G		G	G	28	36	40	45	37	29	35	46	109	27	42	G	G	42	45	33
20	G	45	32	26	36	23	24	40	180	35	29	44	40	28	33	67	64	105	60	84	58	53	G	32
21	28	G	G	G	35		34	39	31	34	37	36	31	31	34	28	32	26	54	37	53	39	33	26
22	G	26	G	G	G	G	G	45	43	27	31	37	29	45	33	31	22	28	G	30	G	43	G	29
23	G	G	G	G	G		G	33	34	35	N	34	31	32	26	33	22	41	25	G	G	40	G	G
24	G	G	33	51	28	G	G	47	31	29	36	38	29	34	28	28	27	39	34	42	35	33	25	G
25	G	G	G	G	G	G	G	42	40	34	30	42	32	37	70	42	53	50	57	40	43	49	28	24
26	G	G	23	G	24	G	39	30	40	54	41	38	35	31	28	34	43	40	35	50	G	35	42	36
27	29	26	G	G	G	34	11	28	32	34	31	33	38	43	31	42	44	42	24	27	G	40	50	33
28	35	26	26	G	G	G	G	29	32	43	29	39	31	37	36	42	40	36	40	29	34	33	54	55
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	28	28	27	28	23	27	28	28	28	27	28	28	28	28	27	28	28	27	27	28	28	27	28
MED	G	G	G	G	G	G	G	30	33	36	37	39	36	36	35	35	35	29	29	28	G	33	G	25
U Q	G	26	23	G	19	G	G	40	34	39	42	43	40	42	37	42	44	40	39	41	34	39	42	32
L Q	G	G	G	G	G	G	G	G	31	34	32	37	31	32	33	31	29	25	G	G	G	G	G	G

HOURLY VALUES OF fmin AT Kokubunji

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

HOURLY VALUES OF foF2 AT Yamagawa

FEB. 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	25	26	34	40	30	59	N	A	51	54	51	61	67	74	61	50	58	52	45	A	A	30	28	29
2	N	28	28	37	32	A	B	30	51	50	48	54	69	78	66	52	50	51	37	A	A	28	49	29
3	29	26	26	26	26	B	B	28	44	46	55	64	84	91	65	48	54	42	28	34	34	28	B	N
4	26	26	A	N	N	29	B	30	52	52	58	N	73	67	58	A	42	48	40	34	34	29	26	28
5	28	29	28	59	26	N	N	32	52	48	50	61	72	85	101	85	85	56	54	42	40	36	38	30
6	59	31	32	28	34	B	B	32	42	50	47	66	A	63	69	A	40	54	A	A	A	A	A	N
7	A	A	A	A	31	A	A	31	53	54	54	59	A	63	74	64	51	48	47	A	A	36	36	A
8	A	A	A	30	26	49	23	32	54	54	50	51	61	67	71	50	52	55	48	28	32	37	34	32
9	30	28	49	49	49	25	25	34	52	47	53	47	52	58	59	50	54	54	33	A	34	37	A	A
10	26	A	A	28	A	B	N	30	46	51	54	61	70	45	66	44	59	54	A	34	41	A	A	28
11	30	32		49	34	32	29	37	48	64	50	51	57	60	60	A	56	52	50	41	36	34	31	30
12	34	30	30	28	30	28	26	34	52	65	80	90	94	86	73	69	46	51	49	37	28	32	29	32
13	32	30	31	29	28	26	N	34	54	68	54	38	68	65	51	67	43	55	35	36	38	A	28	B
14	28	26	32	26	26	N	A	34	54	53	55	64	75	71	62	53	54	52	47	41	32	28	26	28
15	32	30	34	30	26	N	B	28	54	51	75	98	106	98	76	56	56	53	46	37	34	34	40	42
16	36	32	34	34	49	26	25	34	59	55	66	78	84	77	64	58	53	50	45	A	A	34	34	32
17	34	34	32	32	59	N	N	36	48	52	56	45	78	68	67	59	50	50	48	40	45	36	36	40
18	40	42	43	49	B	B	28	37	54	62	71	84	82	65	62	60	53	48	B	B	B	B	B	B
19	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
20	B	B	B	B	B	B	B	B	B	B	B	C	B	B	86	78	67	55	43	A	A	A	A	A
21	A	A	26	A	34	26	B	A	50	45	A	61	65	60	53	54	54	55	52	A	A	A	28	A
22	A	A	A	29	30	28	B	36	53	51	52	60	67	71	66	59	60	55	49	34	38	38	36	36
23	31	34	32	34	34	B	N	34	45	51	58	51	47	70	67	59	53	47	A	49	42	A	A	38
24	31	A	A	34	34	29	B	42	47	55	72	62	58	84	77	55	55	55	46	A	28	32	A	89
25	29	28	30	34	37	N	B	34	42	51	55	159	67	66	63	53	51	A	A	41	36	A	A	A
26	A	28	26	28	49	28	31	38	39	52	61	72	80	86	67	68	58	A	86	A	A	36	34	N
27	31	31	30	30	34	29	B	41	54	50	60	78	90	90	86	78	71	64	52	A	A	A	A	A
28	A	35	35	34	34	N	N	47	54	64	69	64	57	65	63	54	58	54	50	A	A	A	31	31
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	19	20	19	23	23	13	7	24	26	26	25	25	24	26	27	24	27	25	22	14	16	17	17	16
MED	31	30	32	32	34	28	26	34	52	52	55	61	70	69	66	57	54	53	47	37	35	34	34	32
U Q	34	32	34	37	34	30	29	36	54	55	63	75	81	84	73	65	58	55	50	41	39	36	36	37
L Q	28	28	28	28	28	26	25	31	47	50	51	52	63	65	62	52	51	50	43	34	33	29	28	29

HOURLY VALUES OF fEs AT Yamagawa

FEB.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	G	G	G	27	40	29	35	71	43	39	38	39	40	52	32	59	39	G	G	G
2	G	G	G	G	20	24	B	G	26	32	38	44	50	42	44	43	32	29	29	28	26	25	G	G
3	11	G	G	G	11	B	B	24	27	32	40	43	39	41	40	36	33	33	33	G	G	25	B	G
4	G	26	27	G	G	G	B	G	40	35	38	47	38	43	40	84	49	36	27	24	G	21	G	25
5	G	G	G	G	G	G	G	25	46	34	41	49	90	53	49	41	43	35	49	69	32	24	30	G
6	G	32	G	32	G	B	B	24	29	35	42	63	106	60	72	59	50	49	56	41	34	30	27	G
7	33	57	71	49	26	43	28	G	30	49	51	60	91	88	48	60	50	47	30	40	41	G	32	32
8	30	29	27	G	G	G	G	G	28	33	40	70	51	49	58	38	31	32	11	G	G	G	G	G
9	G	G	G	G	G	G	G	G	32	37	71	46	45	43	44	39	34	34	60	59	34	39	35	29
10	G	40	46	29	31	B	G	G	28	40	46	51	50	51	45	40	41	40	47	36	32	47	41	28
11	30	28		28	G	33	G	G	59	48	54	46	38	46	50	63	37	32	G	40	G	11	G	G
12	G	G	G	G	G	24	G	G	29	35	41	43	46	60	56	64	60	29	11	G	G	G	G	G
13	G	32	25	G	G	G	G	G	29	35	38	45	37	47	47	50	54	45	40	28	26	25	G	B
14	G	G	G	G	G	G	28	28	31	35	44	44	40	39	36	30	35	29	11	G	G	G	G	G
15	G	G	G	G	G	G	B	G	28	36	45	40	41	41	40	40	36	32	23	G	G	G	G	G
16	G	G	G	G	G	G	G	G	33	36	36	43	43	38	44	42	40	36	28	34	41	G	G	G
17	G	G	G	G	G	G	G	G	31	38	45	39	45	36	36	40	40	32	11	G	24	G	G	G
18	G	G	G	11	B	B	G	11	34	41	45	47	47	46	47	46	61	40	B	B	B	B	B	B
19	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
20	B	B	B	B	B	B	B	B	B	B	B	C	B	B	41	39	39	34	28	28	85	58	94	32
21	41	33	G	29	G	G	B	55	45	46	69	45	45	41	43	48	57	45	34	52	94	72	G	39
22	30	34	38	24	25	25	B	11	32	44	43	45	41	40	40	40	35	28	25	G	G	24	G	G
23	G	G	G	G	G	B	G	38	47	38	38	45	46	49	52	45	27	54	93	40	G	38	50	30
24	34	32	27	G	G	G	B	27	30	36	52	47	40	41	36	34	39	34	35	49	33	32	28	G
25	G	G	G	G	G	G	B	24	35	42	44	43	50	60	61	65	53	85	66	52	41	54	39	47
26	30	G	G	G	G	G	G	33	40	44	37	49	46	54	39	38	46	108	79	153	94	56	G	G
27	G	24	G	G	G	G	B	11	34	47	42	72	54	47	45	38	37	36	26	59	70	55	48	38
28	38	G	30	30	G	G	G	25	32	34	45	38	47	41	54	48	41	49	41	71	52	84	30	G
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	26	26	25	26	25	21	16	26	26	26	26	26	26	26	27	27	27	27	26	26	26	26	25	25
MED	G	G	G	G	G	G	G	11	32	36	42	46	46	44	44	41	40	36	31	38	32	25	G	G
U Q	30	32	27	24	G	12	G	25	40	42	45	49	50	51	50	50	50	47	47	52	41	47	33	29
L Q	G	G	G	G	G	G	G	G	29	35	38	43	41	41	40	39	35	32	25	G	G	G	G	G

HOURLY VALUES OF fmin AT Yamagawa

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

HOURLY VALUES OF foF2 AT Okinawa

FEB. 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	N	N	28	A	A	A	A	A	29	51	64	58	60	80	72	67	59	58	51	41	40	30	30	31
2	30	30	30	30	N	B	A	26	50	55	57	58	63	68	75	71	149	53	47	A	A	A	26	29
3	26	N	30	28	34	B	A	26	42	50	58	78	99	116	96	68	58	54	45	50	A	A	A	28
4	N	N	N	A	N	N	B	N	44	51	63	67	65	80	70	58	64	55	41	34	32	B	B	N
5	26	26	25	26	28	N	B	30	42	44	46	62	80	106	138	122	97	91	72	44	48	A	A	53
6	A	35	A	38	45	25	N	30	44	53	49	58	75	82	97	64	60	60	66	47	A	A	A	A
7	N	26	A	28	A	A	A	A	40	32	64	A	A	A	86	82	86	73	64	42	A	40	52	50
8	A	A	A	A	30	29	N	49	50	54	54	49	66	78	96	78	66	64	56	20	28	34	34	28
9	A	A	N	28	31	25	A	34	49	52	58	55	58	60	60	54	48	58	62	48	50	38	34	N
10	N	B	N	59	28	A	A	28	50	52	56	59	82	95	85	78	79	A	54	A	42	36	32	38
11	34	32	A	31	30	28	N	34	51	60	66	58	59	63	72	60	40	55	55	52	35	34	28	29
12	32	34	49	30		A	A	28	49	64	82	96	108	131	130	100	66	55	58	38	31	30	28	28
13	31		A	34	31	B	N	28	54	65	69	69	68	77	75	67	A	54	52	48	42	26	N	N
14	N	26	28	28	29	B	B	31	51	54	57	84	111	111	85	75	55	62	55	47	45	31	29	B
15	36	37	40	38	32	B	N	N	54	66	78	115	128	126	102	74	63	64	59	44	41	34	40	42
16	34	30	36	37	49	N	N	31	54	68	75	98	111	120	107	82	56	57	A	41	31	A	A	37
17	38	34	34	36	N	B		36	51	54	56	72	84	91	70	67	56	50	51	34	A	A	A	32
18	31	32	40	31	N	B	N	34	54	60	68	90	97	69	67	51	52	51	47	44	A	A	A	32
19	A	A	A	A	A	A	A	30	54	67	85	110	118	121	138	106	64	54	51	40	37	A	32	34
20	34	A	35	35	A	A	A	40	60	61	81	97	124	130	137	112	83	65	54	40	37	37	26	A
21	A	25	26	30	35	B	B	32	A	41	50	64	91	104	89	93	76	64	58	44	A	A	A	34
22	A	31	28	29	31	N	B	34	45	52	56	66	86	116	124	105	97	86	67	28	39	N	A	42
23	44	42	42	42	34	26	26	40	42	A	62	66	82	69	68	66	A	A	29	52	47	A		A
24	32	29	26	30	28	29	B	34	51	55	67	82	91	104	118	100	67	58	67	54	50	34	37	29
25	30	59	30	34	45	N	B	34	49	47	58	67	82	87	86	72	68	46	45	41	41	32	A	N
26	N	N	A	26	28	35	B	34	46	50	61	79	97	100	97	75	71	60	34	40	A	34	A	A
27	A	31	30	30	28		B	36	52	55	66	86	104	124	127	112	91	91	62	60	A	A	A	A
28	42	39	41	37	30	59	26	42	53	59	64	76	72	60	65	59	49	A	49	51	42	20	A	A
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	15	18	18	24	19	8	2	24	27	27	28	27	27	27	28	28	26	25	27	26	19	15	13	17
MED	32	32	30	30	31	28	26	34	50	54	62	69	84	95	88	74	65	58	54	44	41	34	32	32
U Q	36	35	40	36	34	32	26	35	53	60	67	86	104	116	112	96	79	64	62	48	45	36	35	40
L Q	30	29	28	28	28	25	26	30	44	51	56	59	68	77	72	66	56	54	47	40	35	30	28	29

HOURLY VALUES OF fEs AT Okinawa

FEB. 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	G	G	G	36	25	32	34	60	34	38	37	47	61	49	59	50	37	52	55	34	23	G	G	G
2	G	G	G	G	G	B	26	G	28	32	39	44	49	50	53	49	44	39	27	47	34	30	25	G
3	G	G	G	G	G	B	58	G	56	39	41	50	44	44	61	40	36	33	G	11	59	34	39	G
4	G	G	G	57	G	G	B	G	133	38	116	38	46	48	52	56	56	37	35	36	24	B	B	G
5	26	116	G	G	25	G	B	27	45	42	45	50	68	96	70	79	47	54	34	28	59	93	49	59
6	90	85	91	39	31	G	G	G	40	70	46	54	72	44	42	37	31	87	40	28	32	38	31	34
7	G	28	41	56	44	32	41	47	40	45	42	70	95	88	62	132	42	33	50	40	54	38	33	31
8	38	57	46	29	29	24	G	G	28	33	40	50	44	63	50	49	43	32	29	27	G	26	24	33
9	40	45	G	G	G	G	34	G	29	36	46	45	46	44	41	39	46	34	23	26	29	26	24	G
10	G	B	24	23	28	53	34	G	40	38	44	47	48	52	68	73	66	103	58	57	28	32	26	G
11	G	G	37	45	26	G	G	G	31	113	49	47	50	53	45	53	46	140	38	25	G	G	G	G
12	G	G	G	G	G	24	25	23	30	36	40	44	58	76	47	48	46	30	26	33	26	G	G	G
13	G		27	34	G	B	G	G	28	36	44	47	47	56	52	45	92	52	35	38	29	26	G	G
14	G	G	G	G	G	B	B	G	30	39	38	46	44	40	40	38	36	32	11	G	43	G	G	B
15	G	G	G	G	100	B	G	G	30	40	45	68	47	46	50	46	44	31	29	11	26	G	G	G
16	G	G	G	G	G	G	G	97	36	38	51	45	49	40	40	44	80	82	109	40	G	58	85	G
17	G	G	G	28	28	B	G	G	32	38	41	47	38	44	48	61	50	37	29	52	48	39	36	27
18	G	G	G	G	G	B	G	24	34	39	44	48	48	44	64	53	35	34	34	29	79	132	93	88
19	70	60	69	36	63	36	34	28	35	36	41	43	43	44	40	38	36	34	48	34	29	37	25	G
20	26	47	60	48	55	27	25	25	34	39	41	40	45	40	46	38	115	30	48	G	G	G	G	115
21	29	G	26	G	25	B	B	30	57	56	67	45	49	44	54	57	50	40	36	40	34	70	65	36
22	46	26	G	G	G	G	B	11	32	170	51	56	69	52	51	56	41	34	46	35	58	115	86	47
23	26	G	G	G	G	24	G	39	34	73	44	42	55	61	47	62	92	72	43	52	72	136		58
24	G	G	G	G	G	G	B	28	93	38	39	44	46	59	38	38	35	35	28	27	G	G	G	G
25	G	G	G	G	11	G	B	34	164	36	46	48	52	59	48	42	41	32	24	G	24	G	32	G
26	G	G	38	26	G	11	B	94	35	40	142	46	160	57	47	40	41	48	39	35	45	G	59	32
27	25	G	G	G	G	G	B	G	28	35	39	125	43	47	54	50	40	31	25	30	113	47	47	56
28	28	G	32	11	G	G	G	G	30	34	45	46	47	54	58	53	54	64	51	40	54	29	36	59
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	26	28	28	28	20	19	28	28	28	28	28	28	28	28	28	28	28	28	28	28	27	26	27
MED	G	G	G	G	G	G	G	6	34	38	44	47	48	50	50	49	44	36	35	34	30	30	28	G
U Q	27	28	34	35	28	25	34	29	40	41	46	50	56	58	56	56	52	53	47	40	54	47	47	47
L Q	G	G	G	G	G	G	G	G	30	36	40	44	45	44	45	40	38	32	27	26	24	G	G	G

HOURLY VALUES OF fmin AT Okinawa

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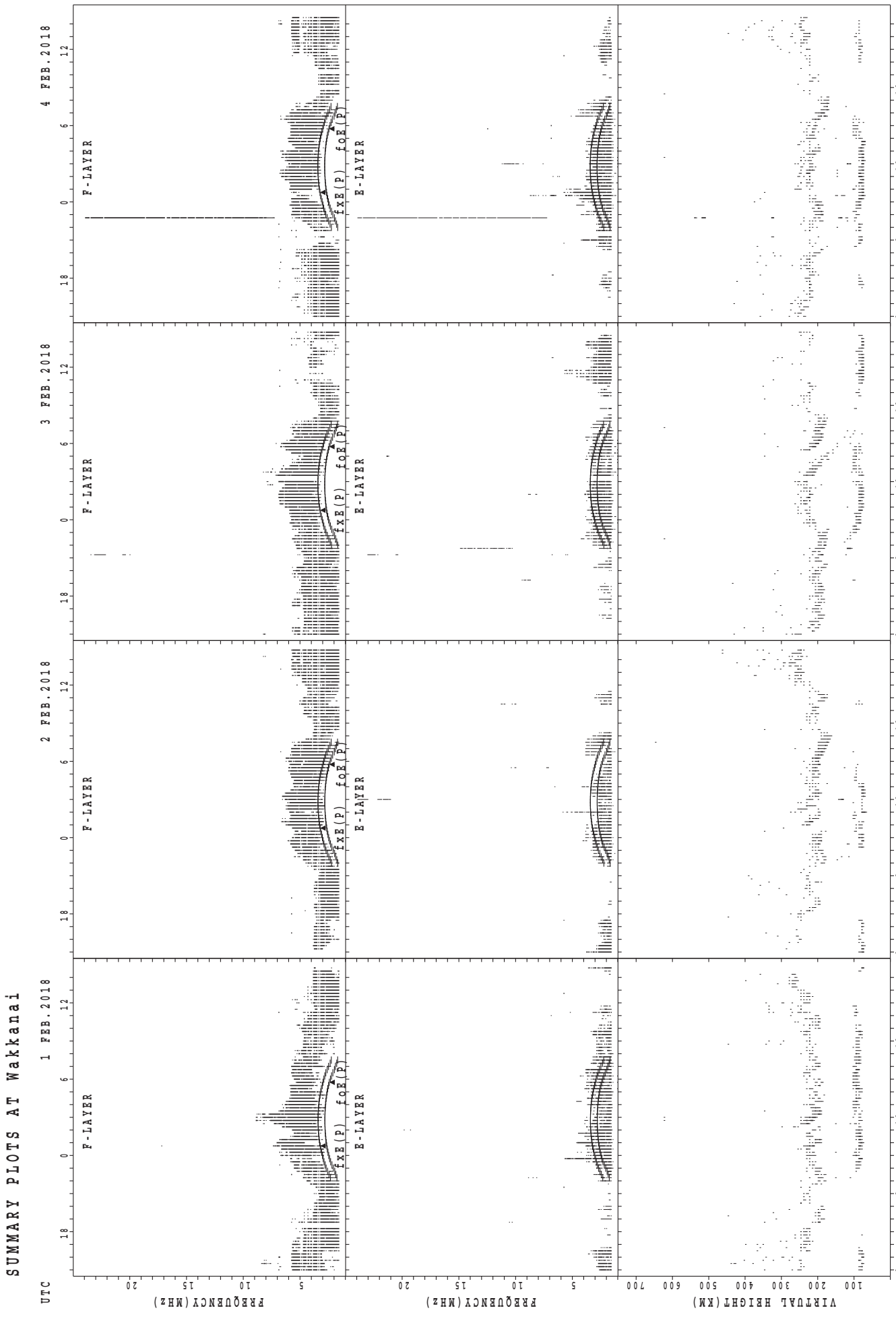
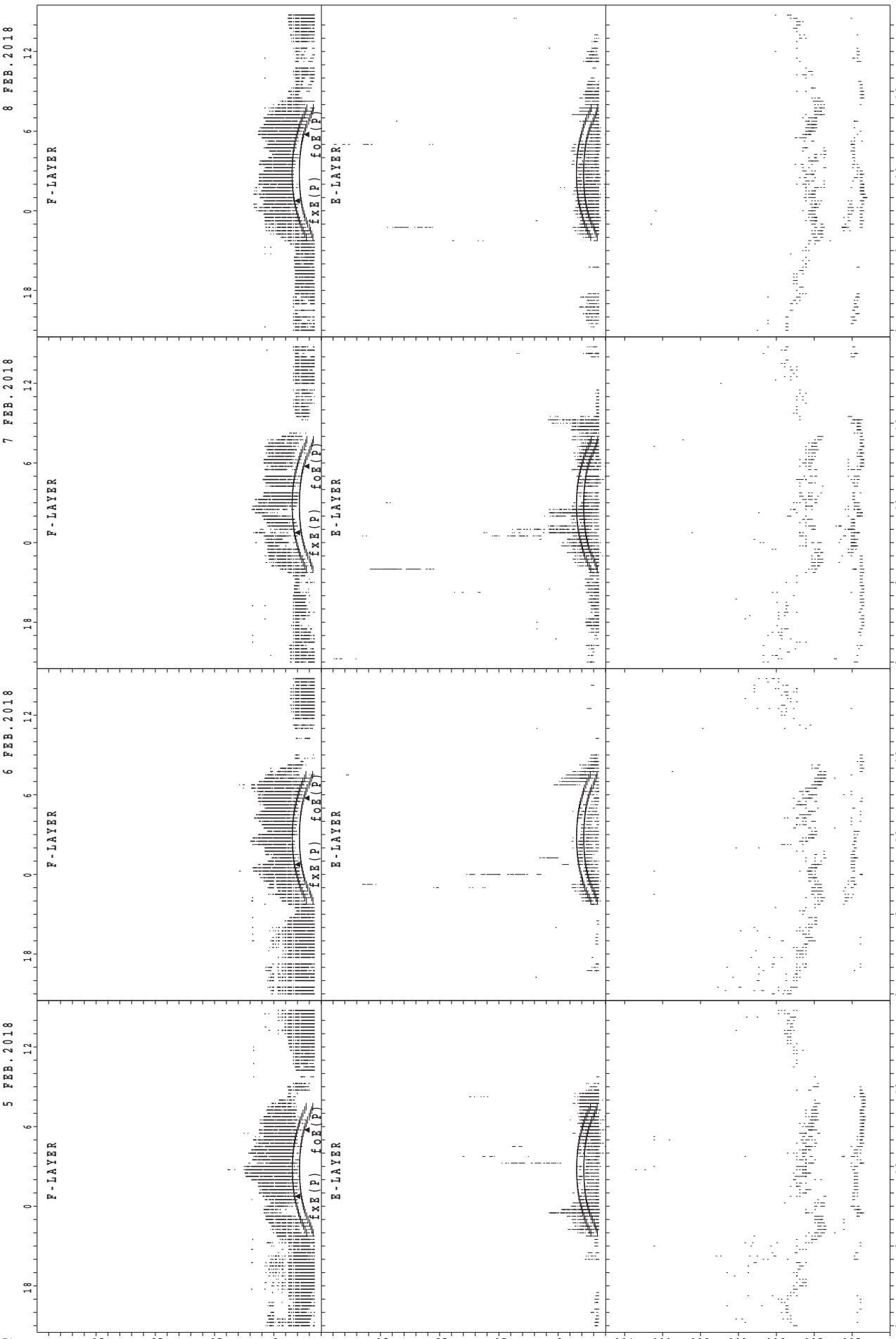
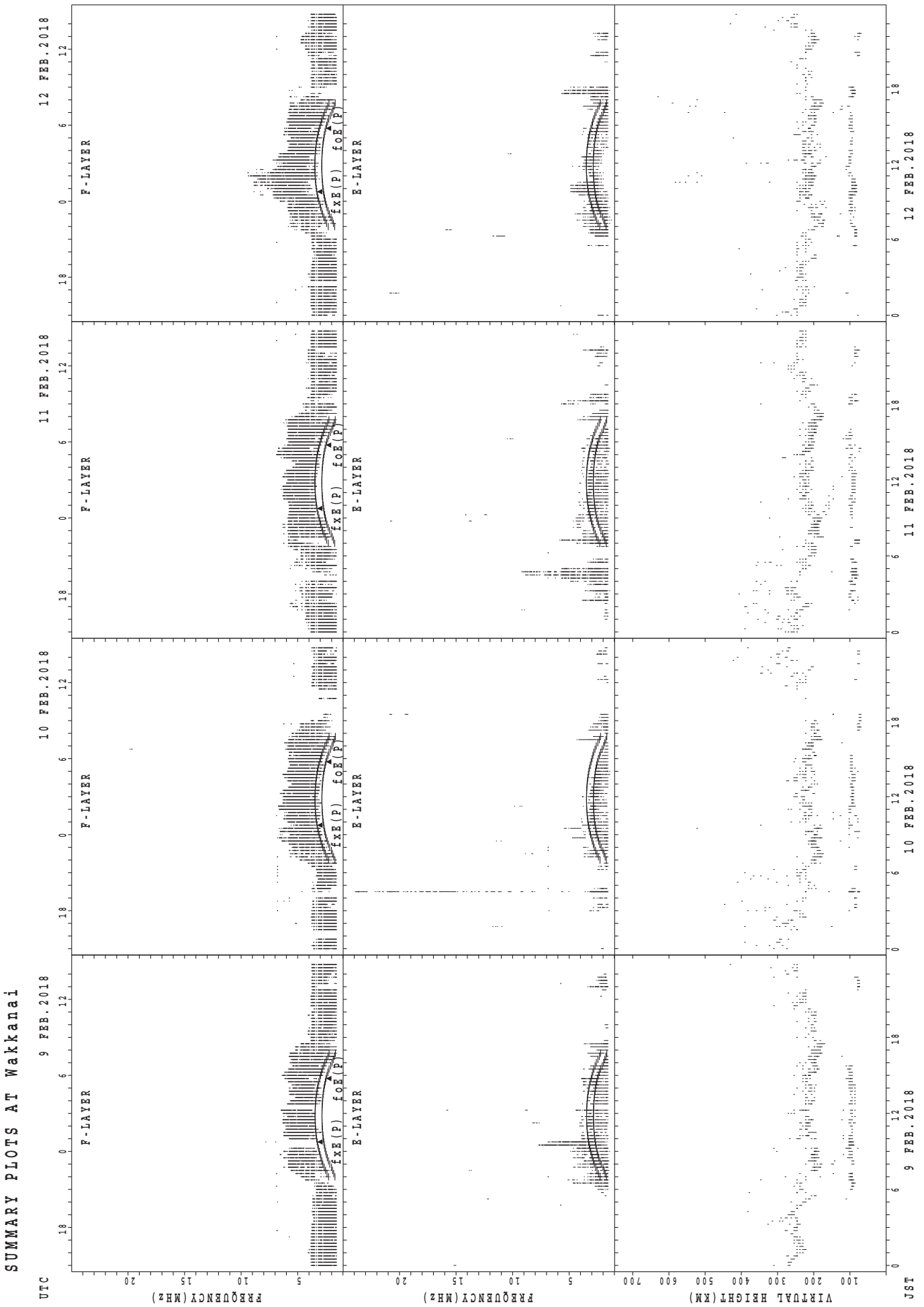
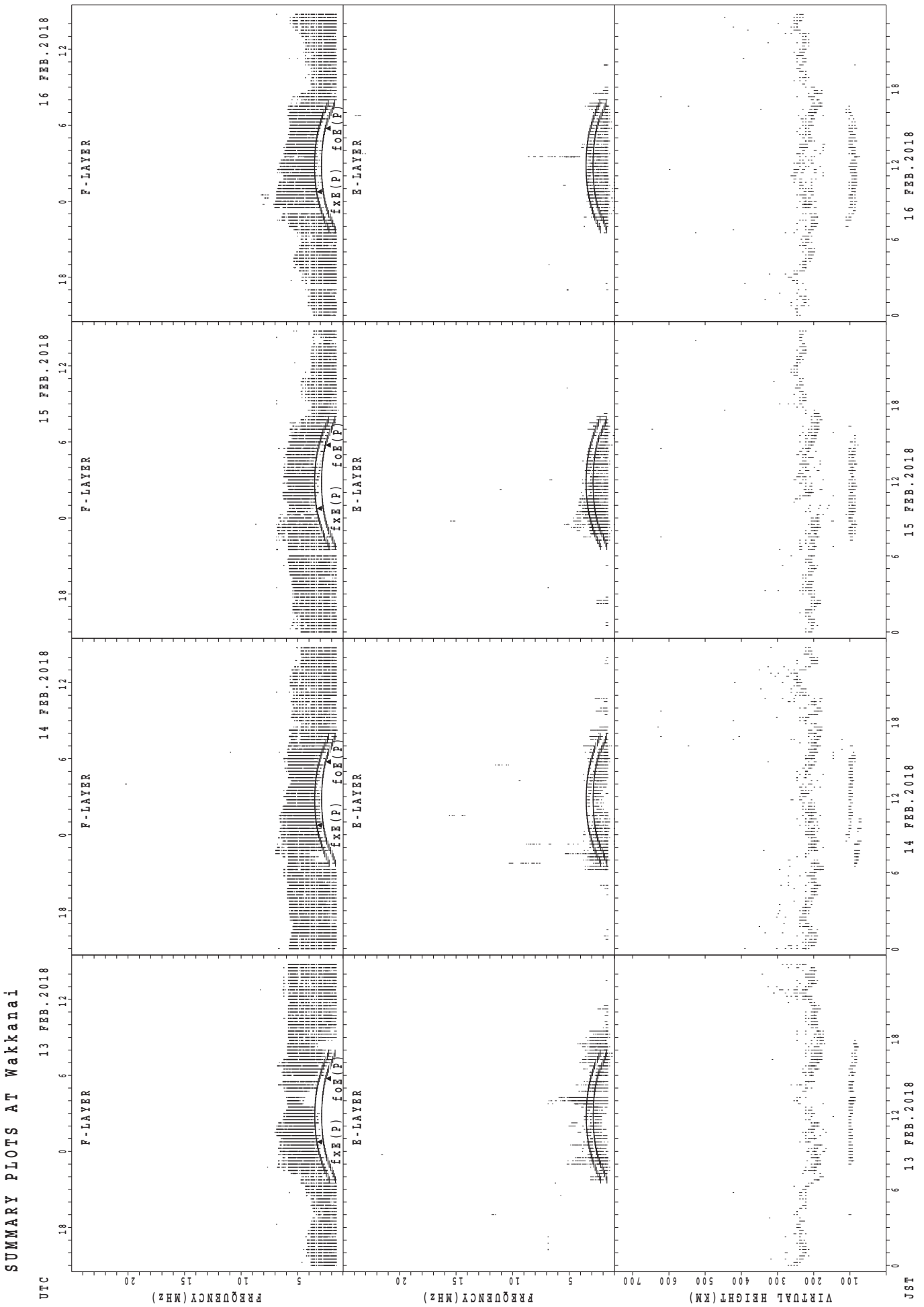
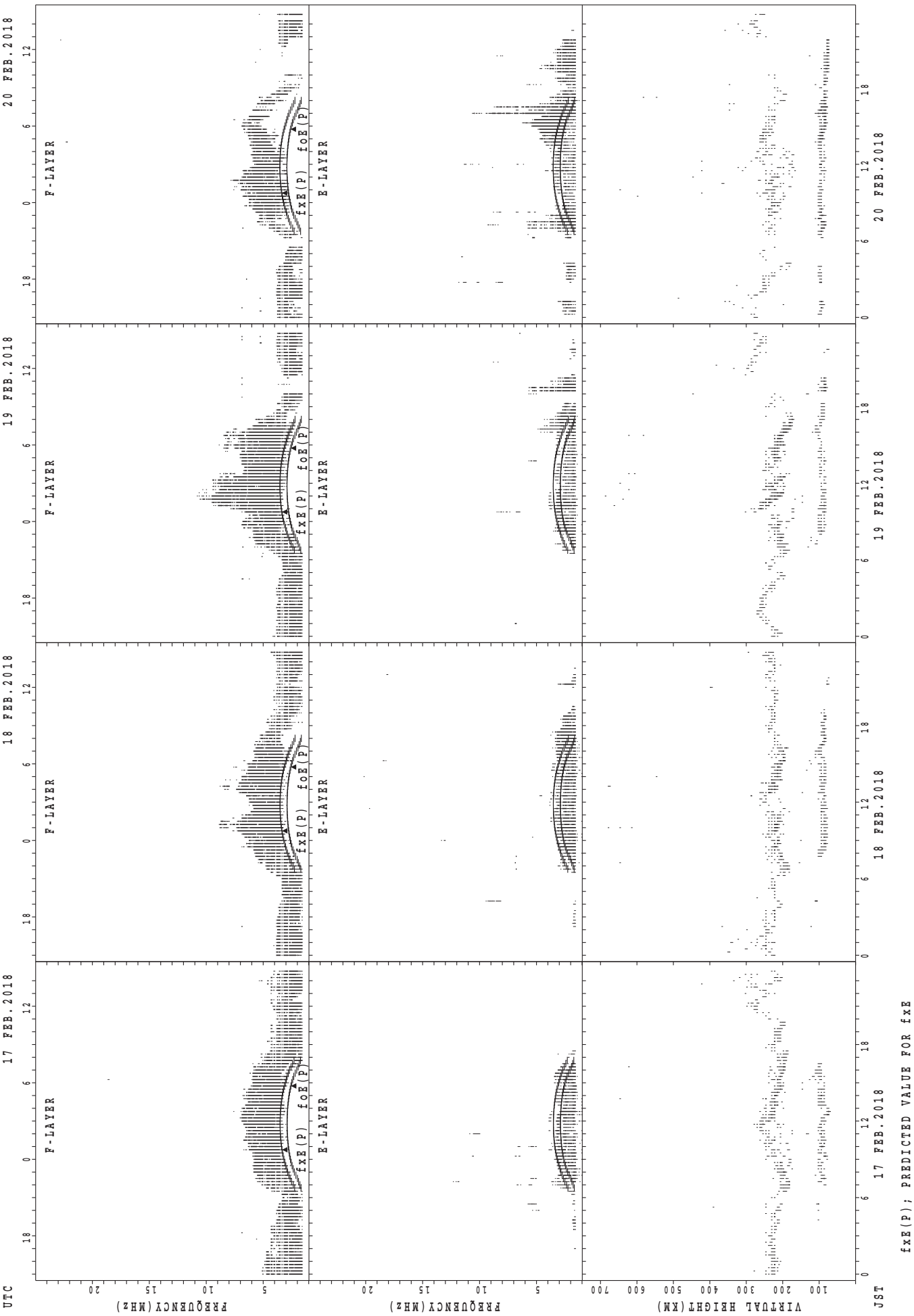
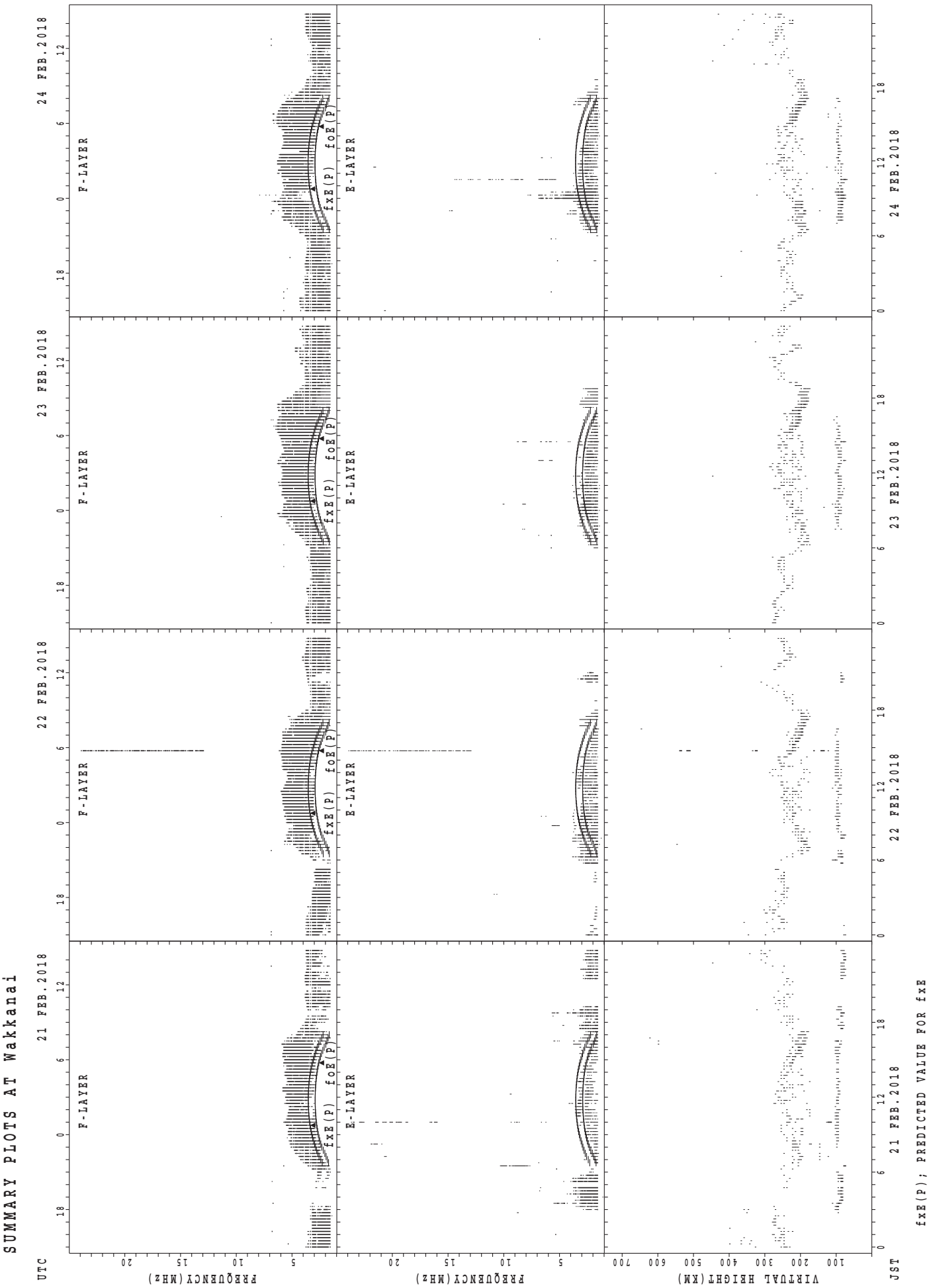

SUMMARY PLOTS AT Wakkanai
UTC
JST
1 FEB.2018
2 FEB.2018
3 FEB.2018
4 FEB.2018
F-LAYER
E-LAYER
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
fxE(P) foE(P)
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

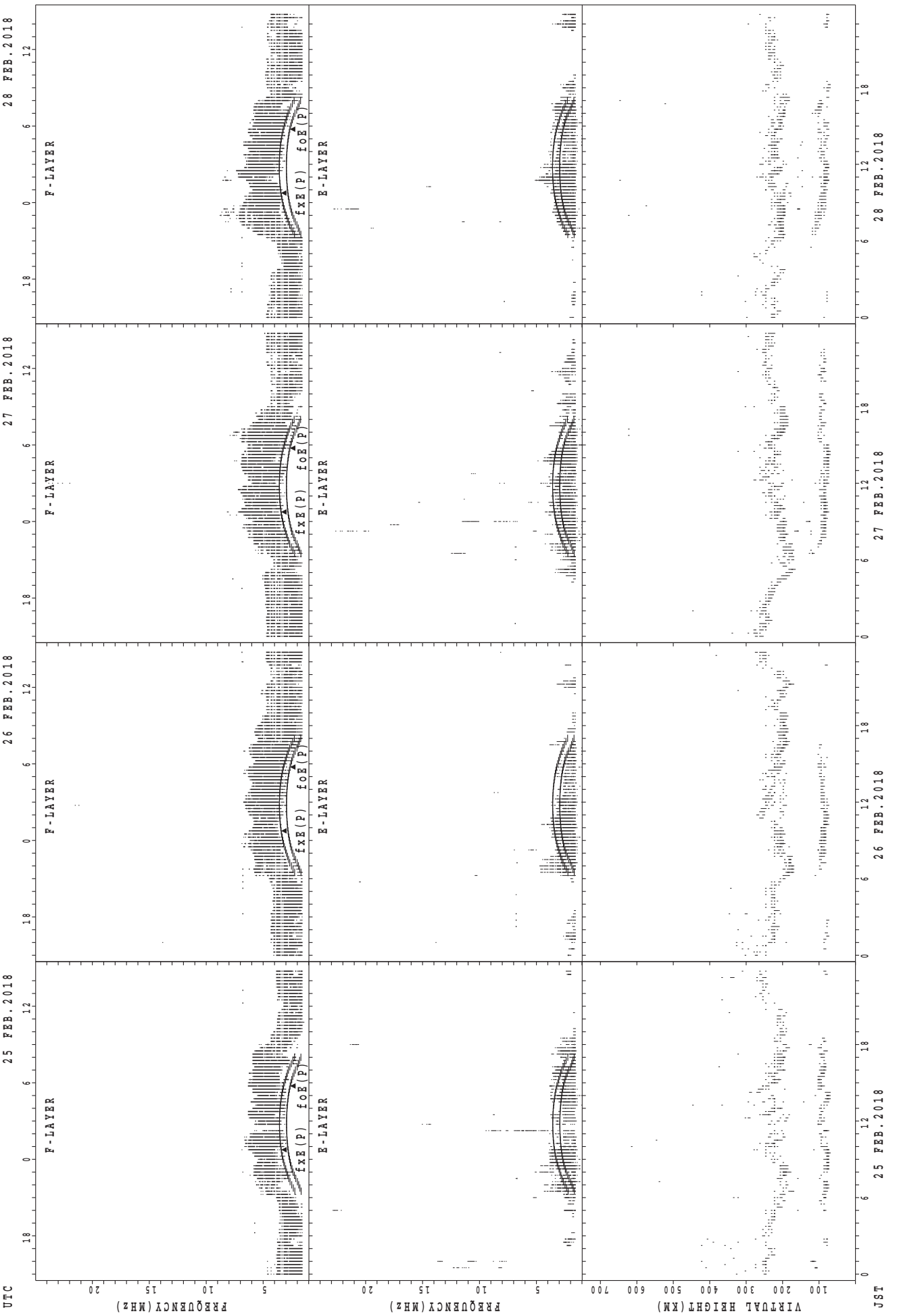

SUMMARY PLOTS AT Wakkanai
UTC
JST
5 FEB.2018
6 FEB.2018
7 FEB.2018
8 FEB.2018
F-LAYER
E-LAYER
fxE(P)
foE(P)
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

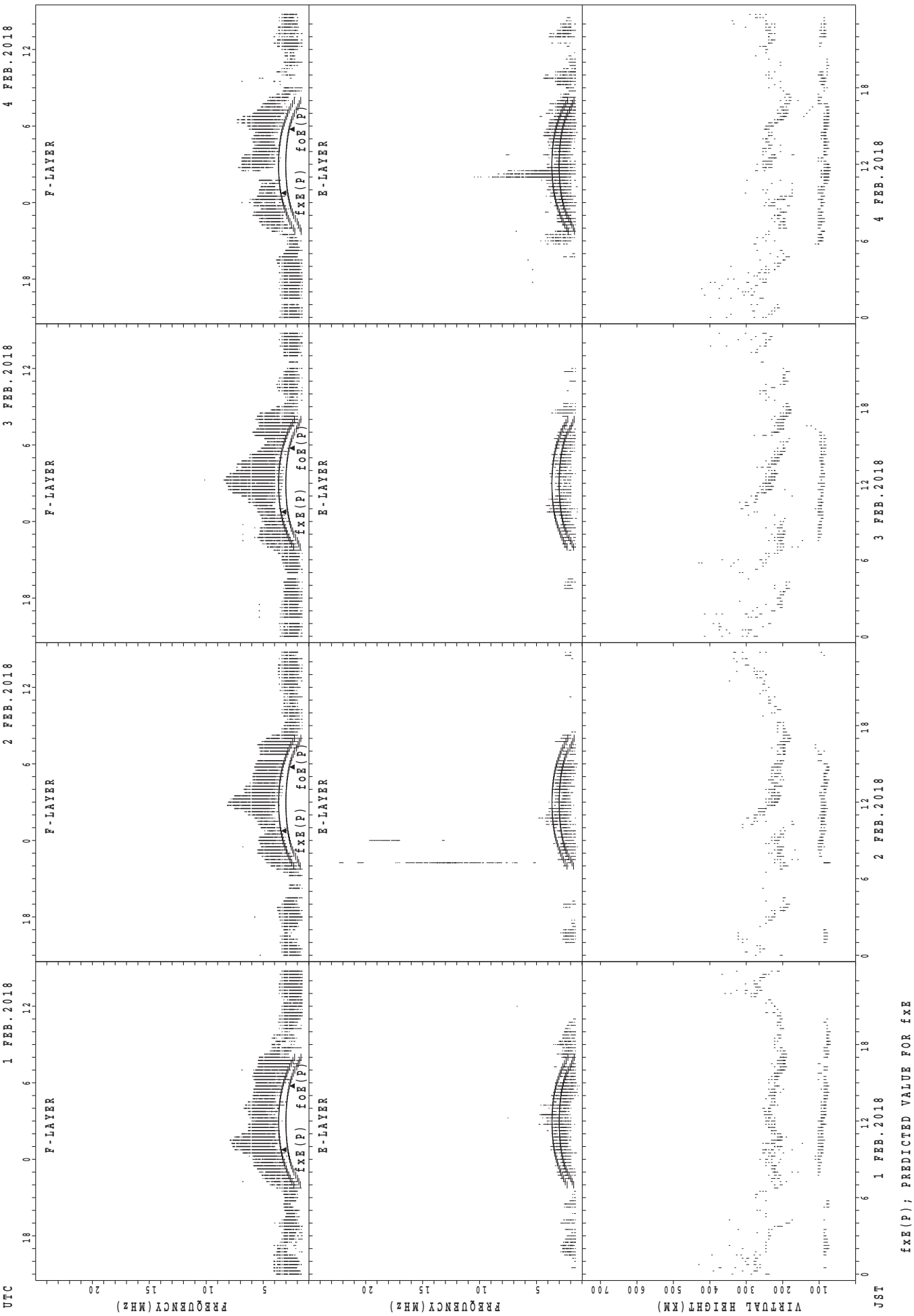

SUMMARY PLOTS AT Wakkanai
UTC
JST
9 FEB.2018
10 FEB.2018
11 FEB.2018
12 FEB.2018
F-LAYER
E-LAYER
fxE(P)
foE(P)
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

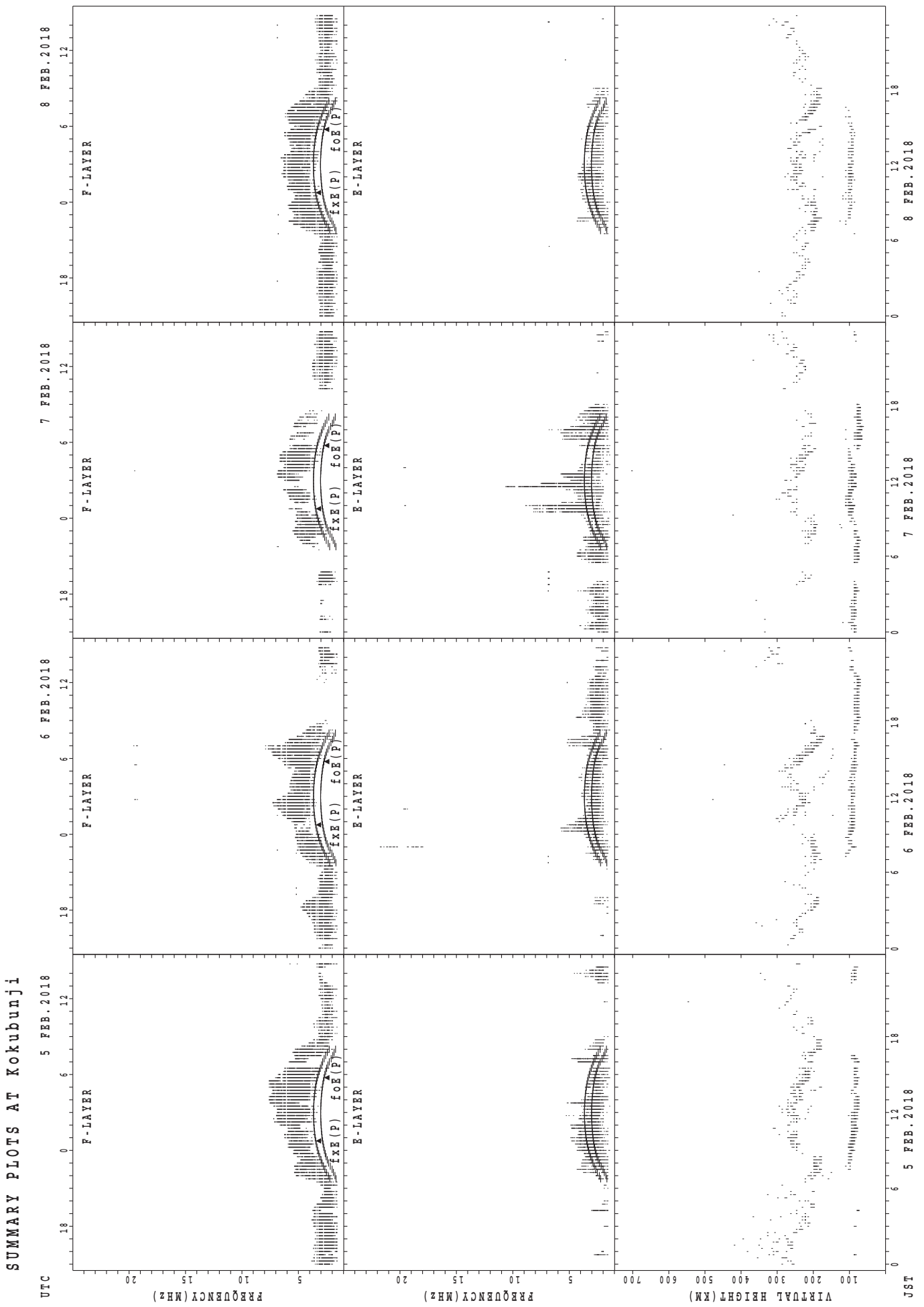

SUMMARY PLOTS AT Wakkanai
UTC
JST
13 FEB.2018
14 FEB.2018
15 FEB.2018
16 FEB.2018
F-LAYER
E-LAYER
fxE(P)
foE(P)
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

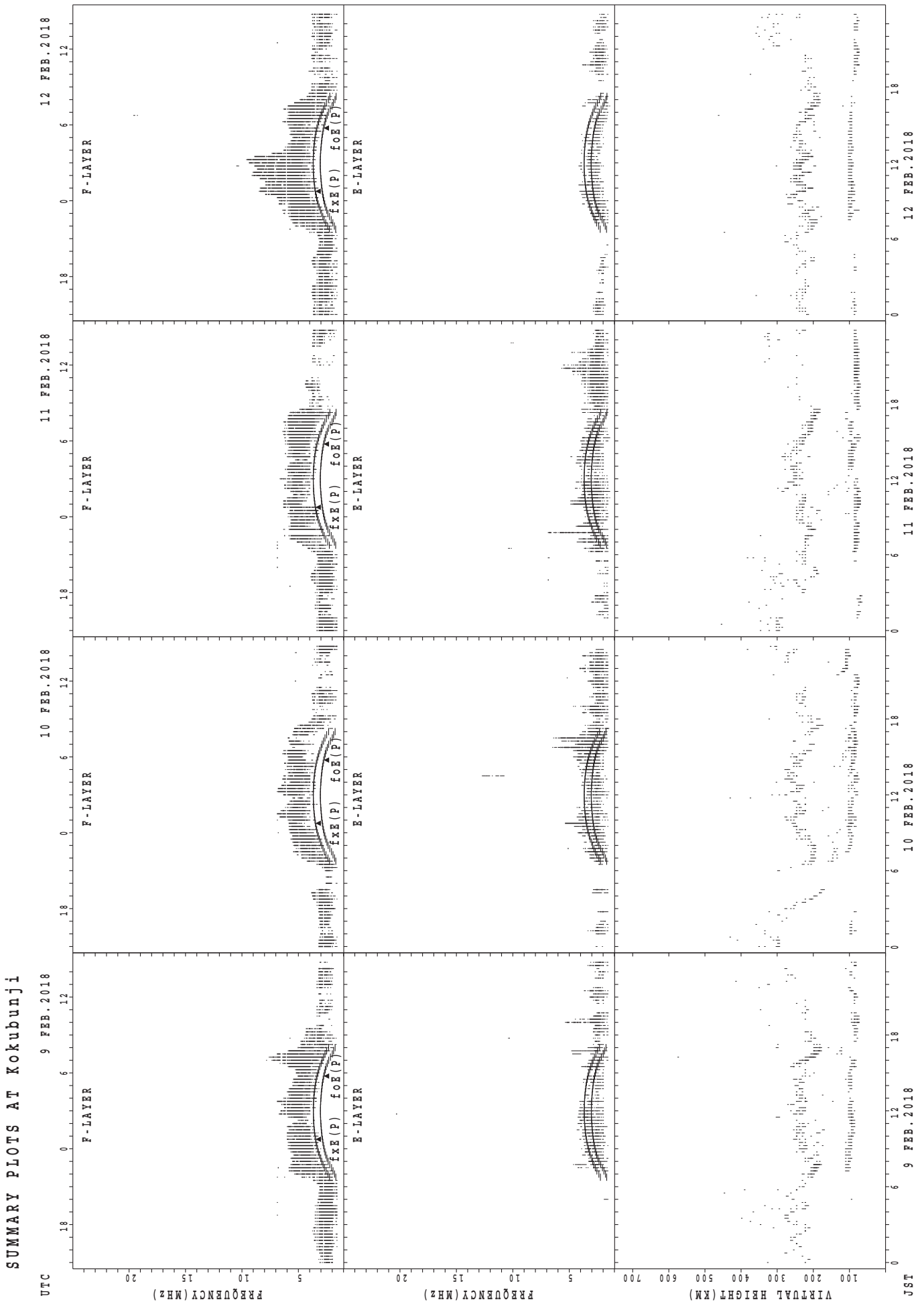

SUMMARY PLOTS AT Wakkanai
UTC
JST
17 FEB.2018
18 FEB.2018
19 FEB.2018
20 FEB.2018
F-LAYER
E-LAYER
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
fxE(P)
foE(P)
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

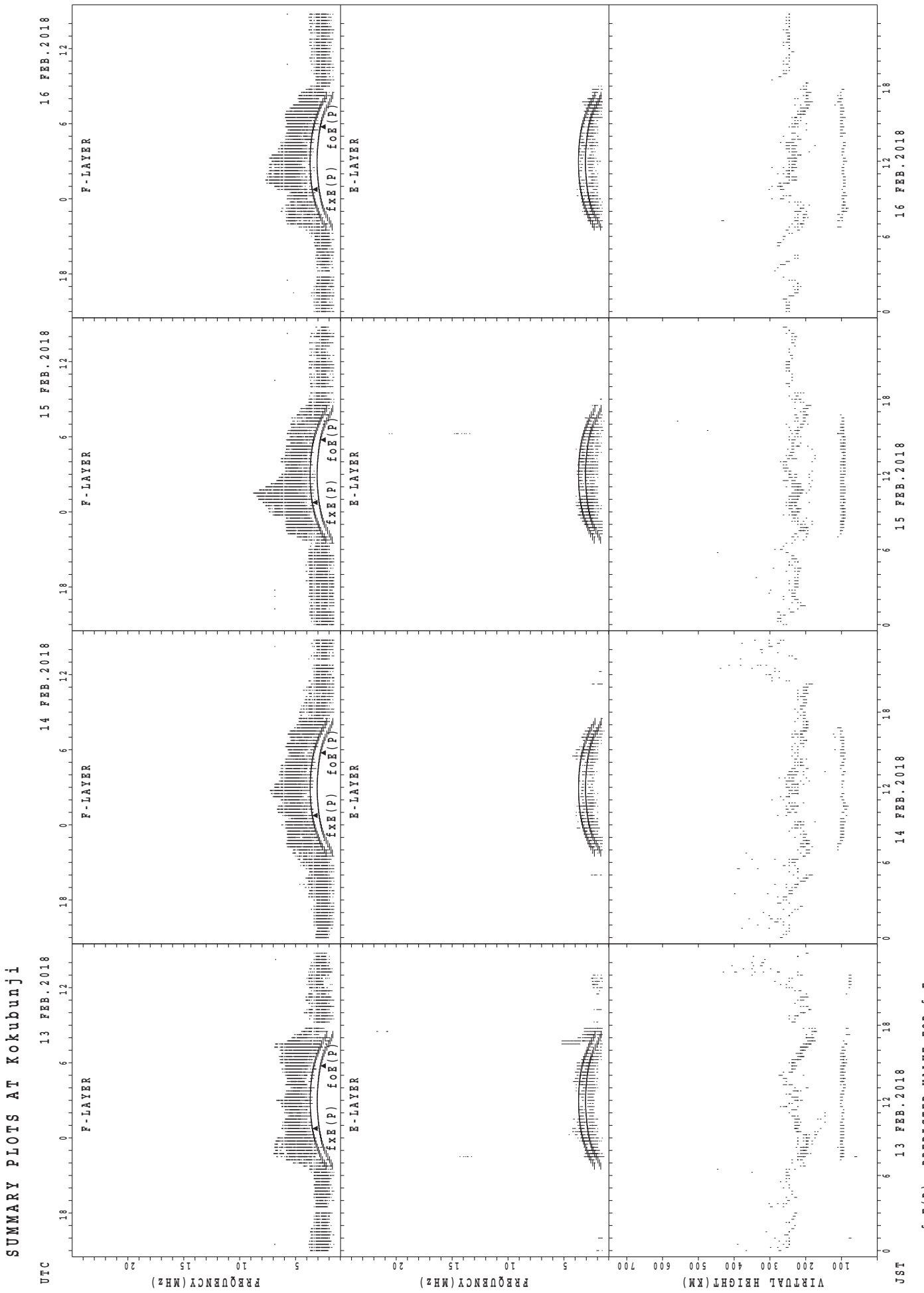

SUMMARY PLOTS AT Wakkanai
UTC
JST
21 FEB.2018
22 FEB.2018
23 FEB.2018
24 FEB.2018
F-LAYER
E-LAYER
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
fxE(P) foE(P)
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

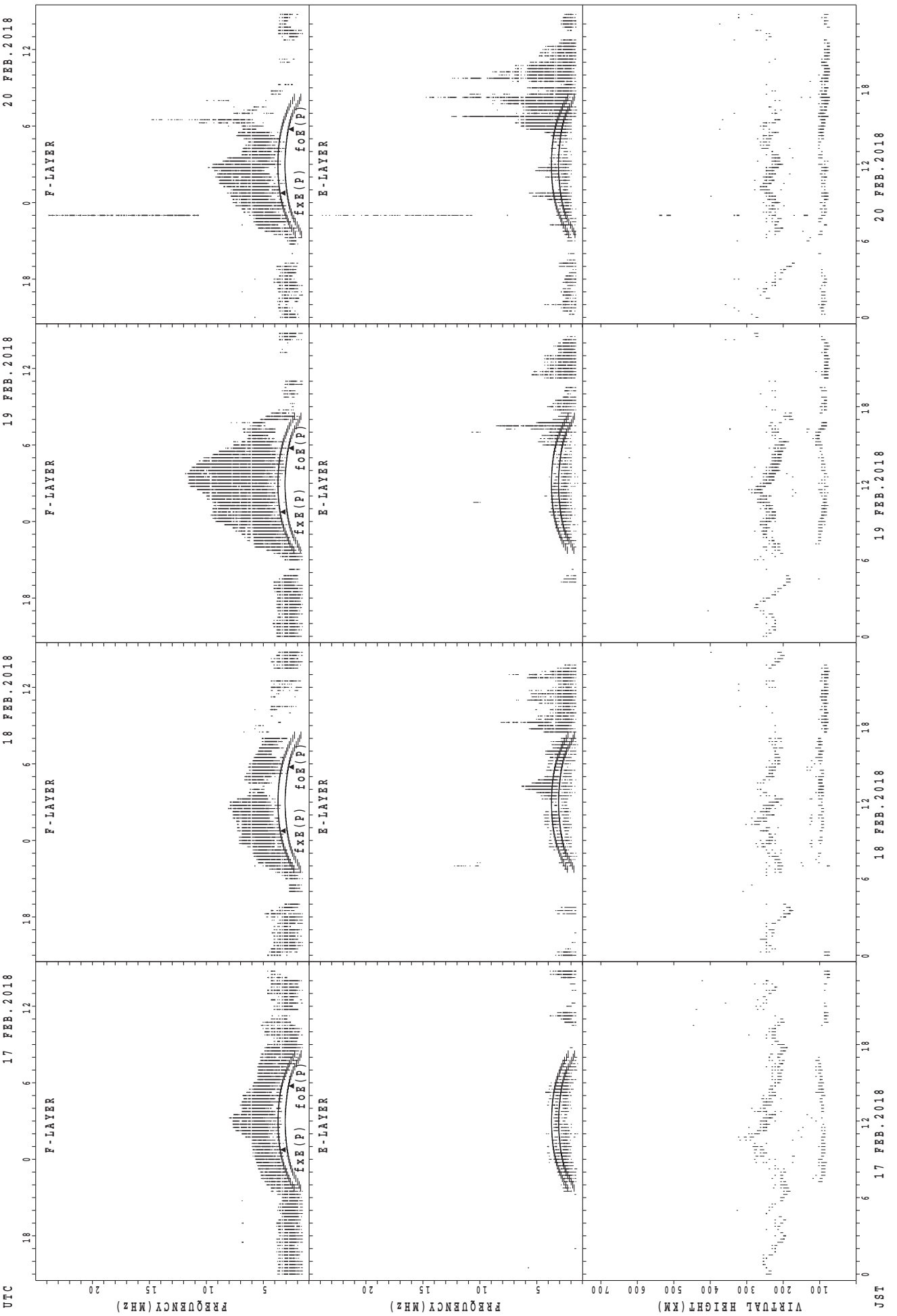

SUMMARY PLOTS AT Wakkanai
UTC
JST
25 FEB.2018
26 FEB.2018
27 FEB.2018
28 FEB.2018
F-LAYER
E-LAYER
fxE(P) foE(P)
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

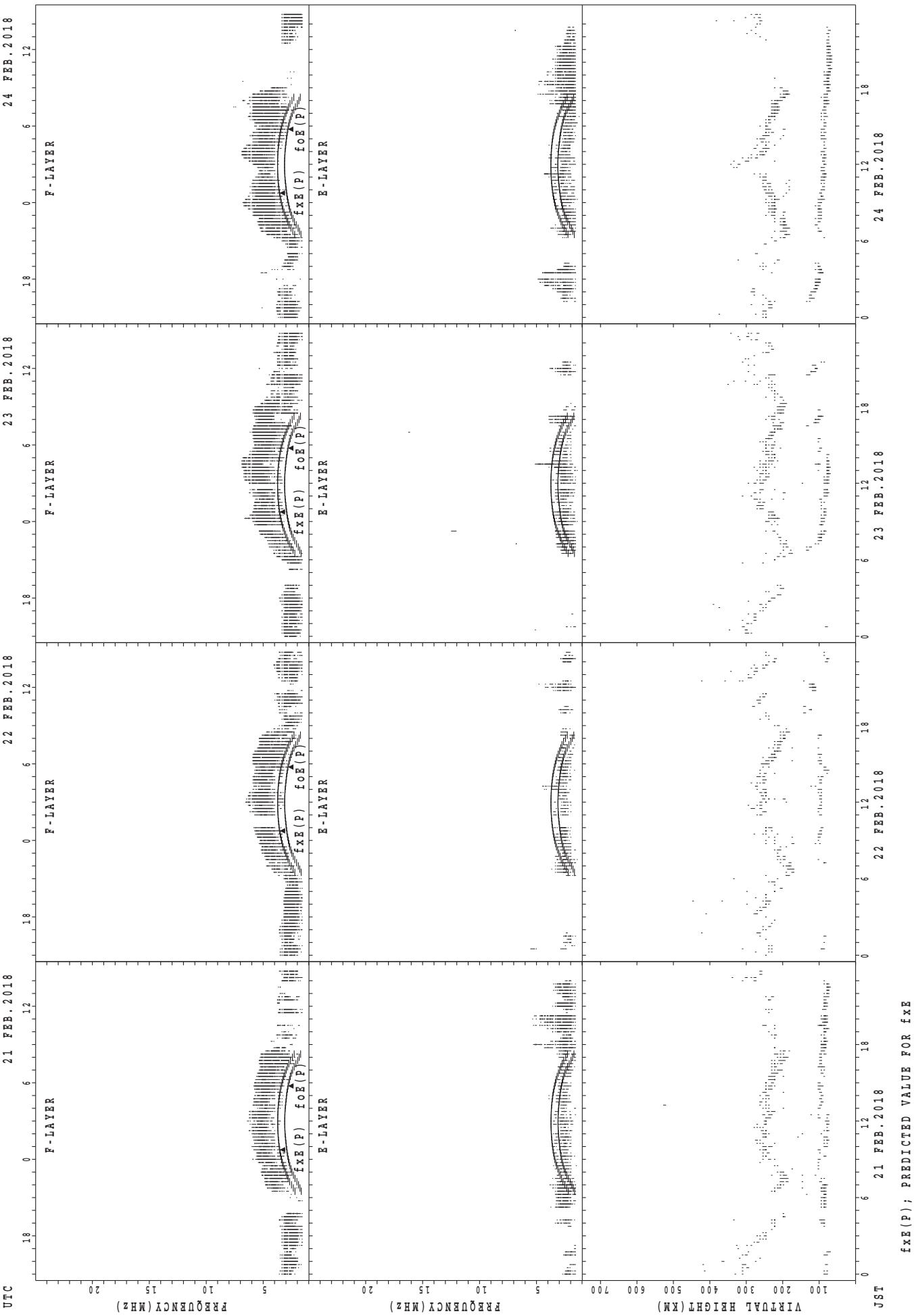

SUMMARY PLOTS AT Kokubunji
UTC
JST
1 FEB.2018
2 FEB.2018
3 FEB.2018
4 FEB.2018
F-LAYER
E-LAYER
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
fxE(P)
foE(P)
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

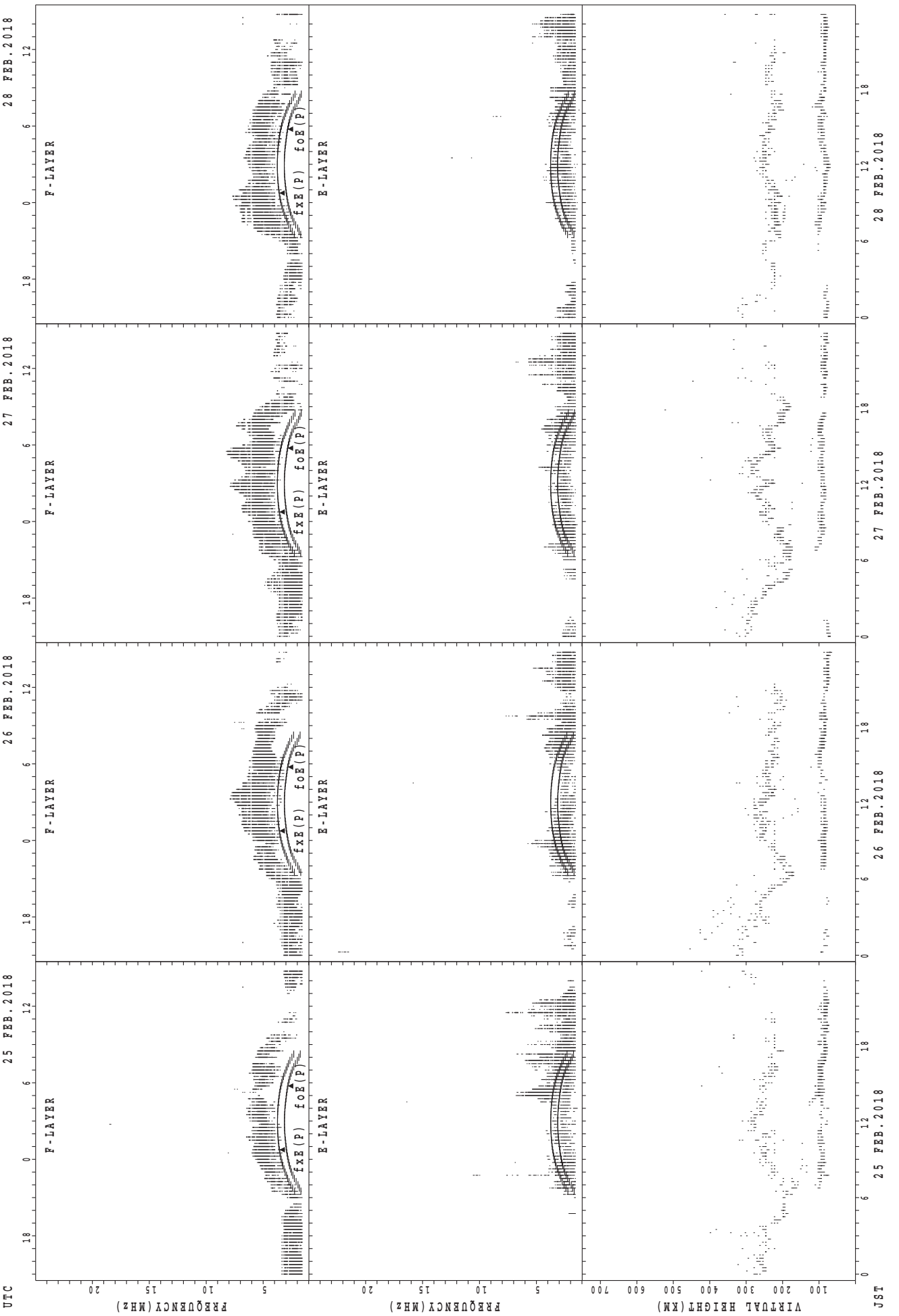

SUMMARY PLOTS AT Kokubunji
UTC
JST
5 FEB.2018
6 FEB.2018
7 FEB.2018
8 FEB.2018
F-LAYER
E-LAYER
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
fxE(P) foE(P)
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE


SUMMARY PLOTS AT Kokubunji
UTC
9 FEB.2018
10 FEB.2018
11 FEB.2018
12 FEB.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

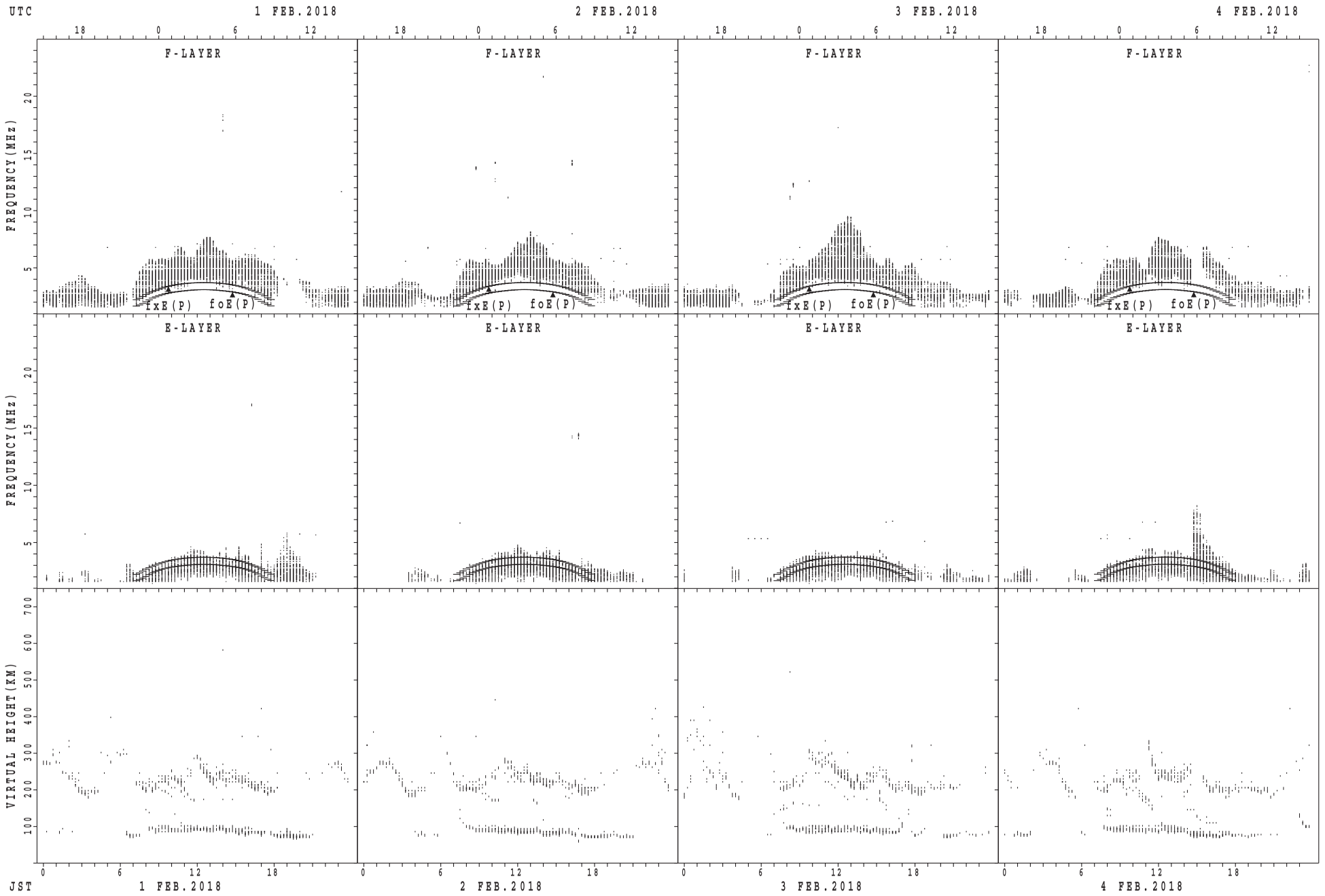

SUMMARY PLOTS AT Kokubunji
UTC
JST
13 FEB.2018
14 FEB.2018
15 FEB.2018
16 FEB.2018
F-LAYER
E-LAYER
fxE(P) foE(P)
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE


SUMMARY PLOTS AT Kokubunji
UTC
17 FEB.2018
18 FEB.2018
19 FEB.2018
20 FEB.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

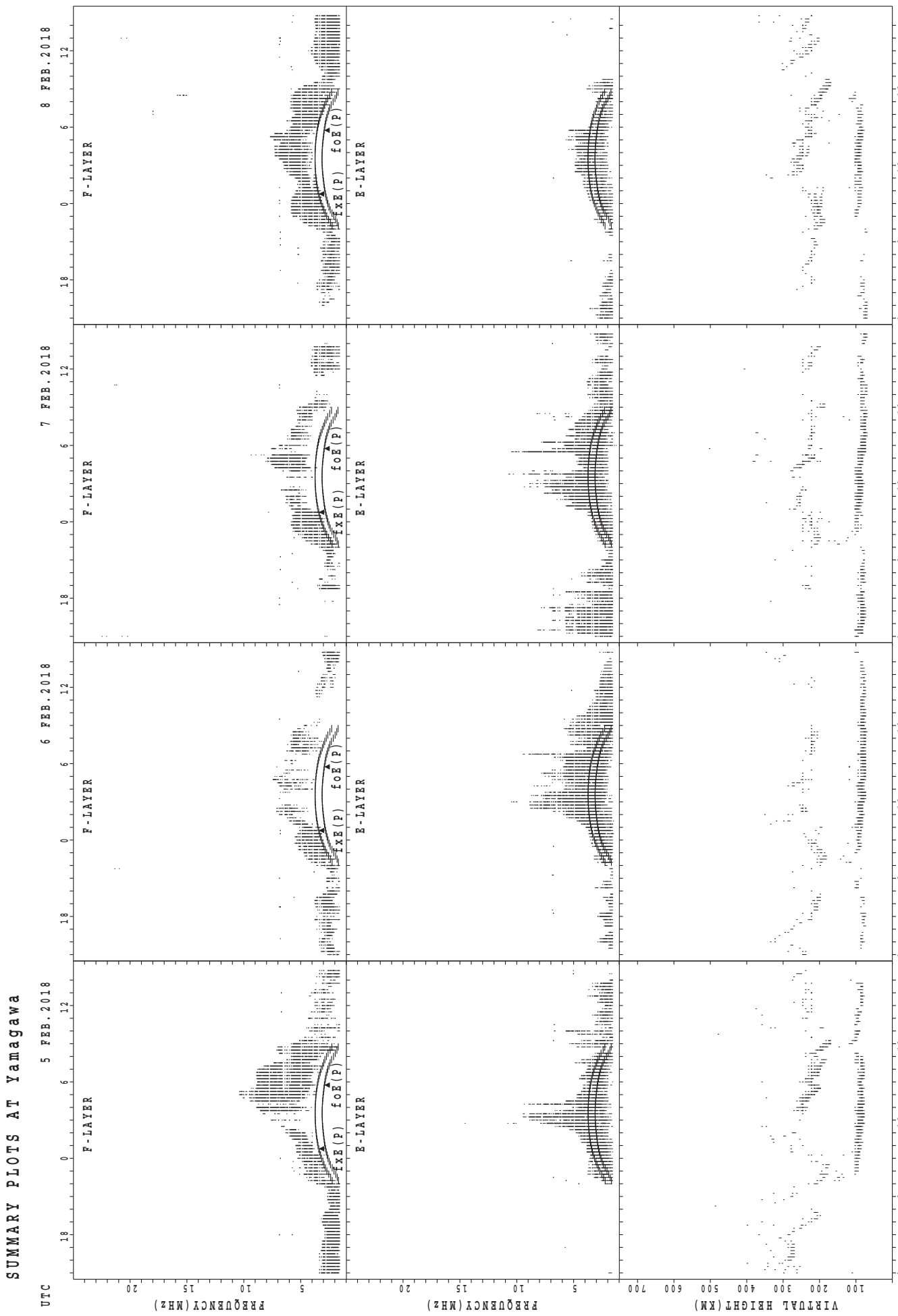

SUMMARY PLOTS AT Kokubunji
UTC
JST
21 FEB.2018
22 FEB.2018
23 FEB.2018
24 FEB.2018
F-LAYER
E-LAYER
fxE(P) foE(P)
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE


SUMMARY PLOTS AT Kokubunji
UTC
JST
25 FEB.2018
26 FEB.2018
27 FEB.2018
28 FEB.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

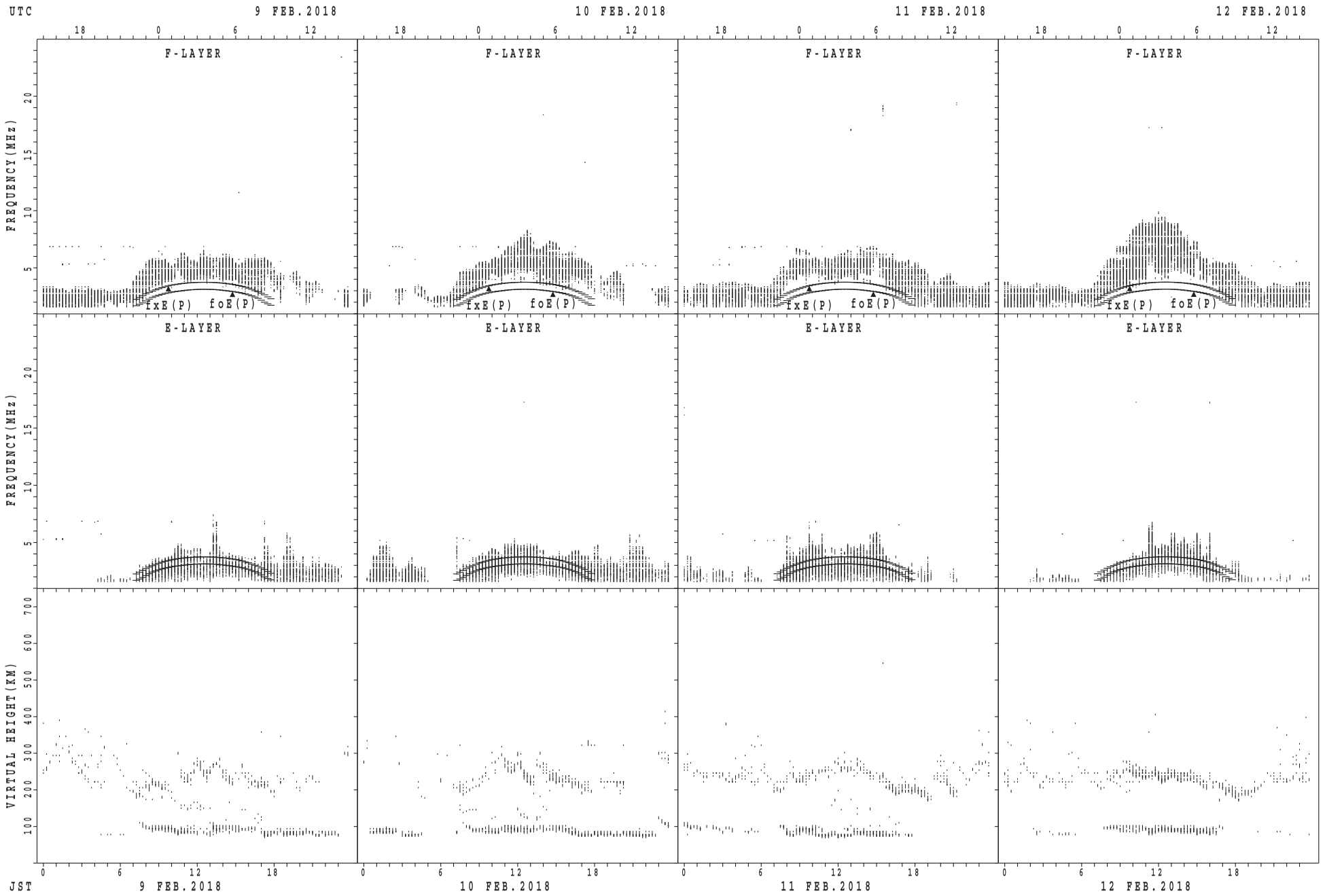
SUMMARY PLOTS AT Yamagawa



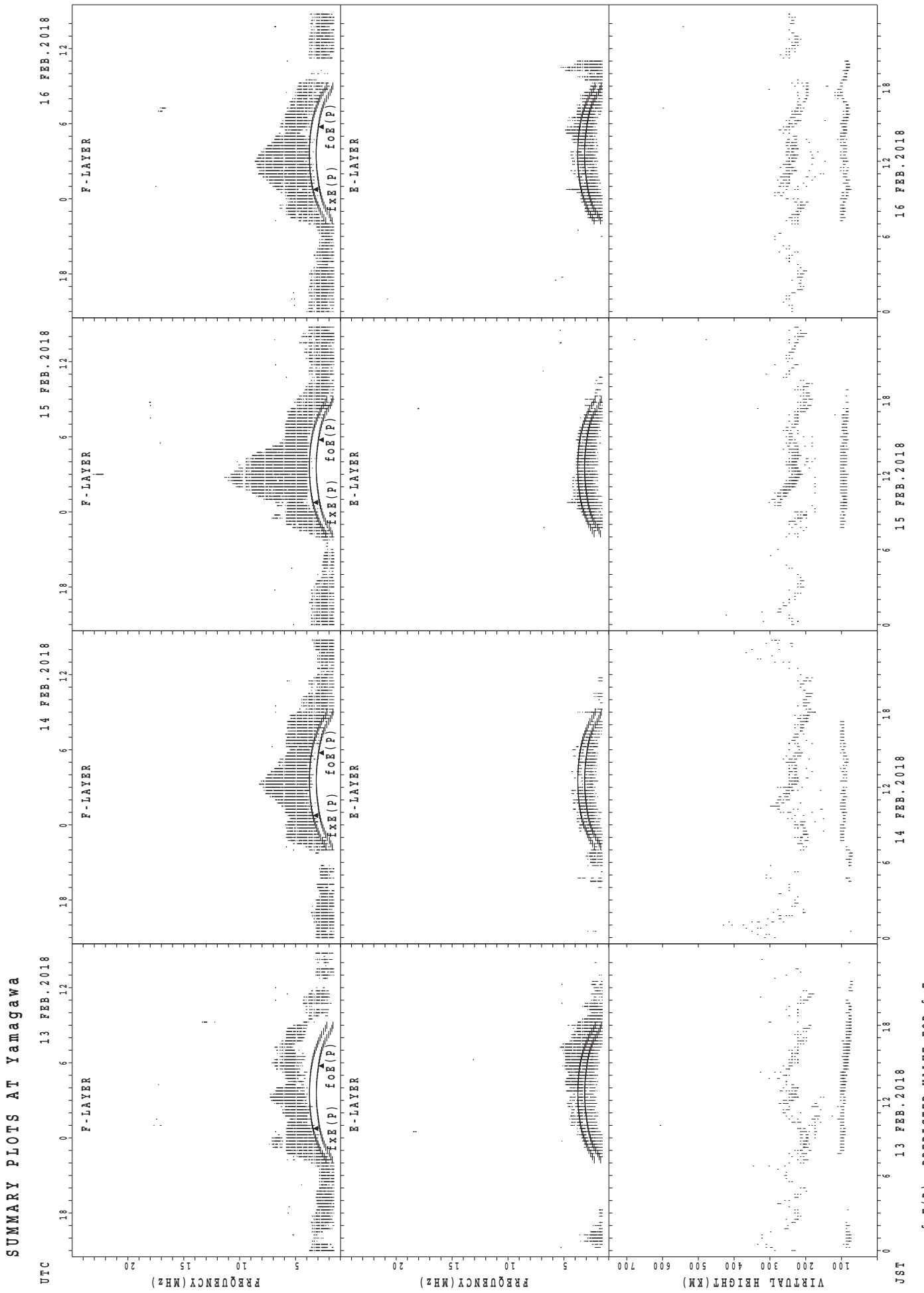
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

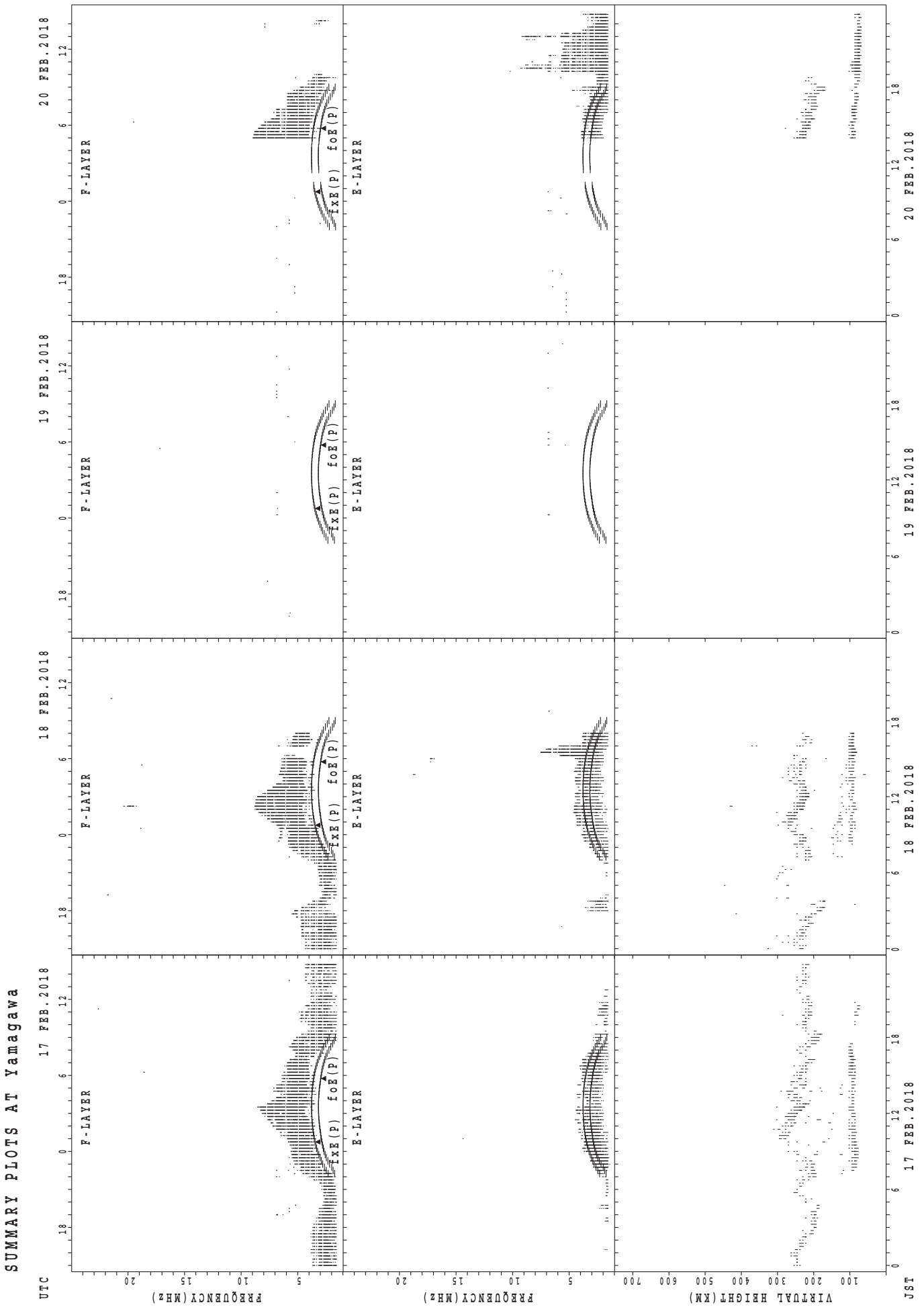

SUMMARY PLOTS AT Yamagawa
UTC
JST
5 FEB.2018
6 FEB.2018
7 FEB.2018
8 FEB.2018
F-LAYER
E-LAYER
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
fxE(P)
foE(P)
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

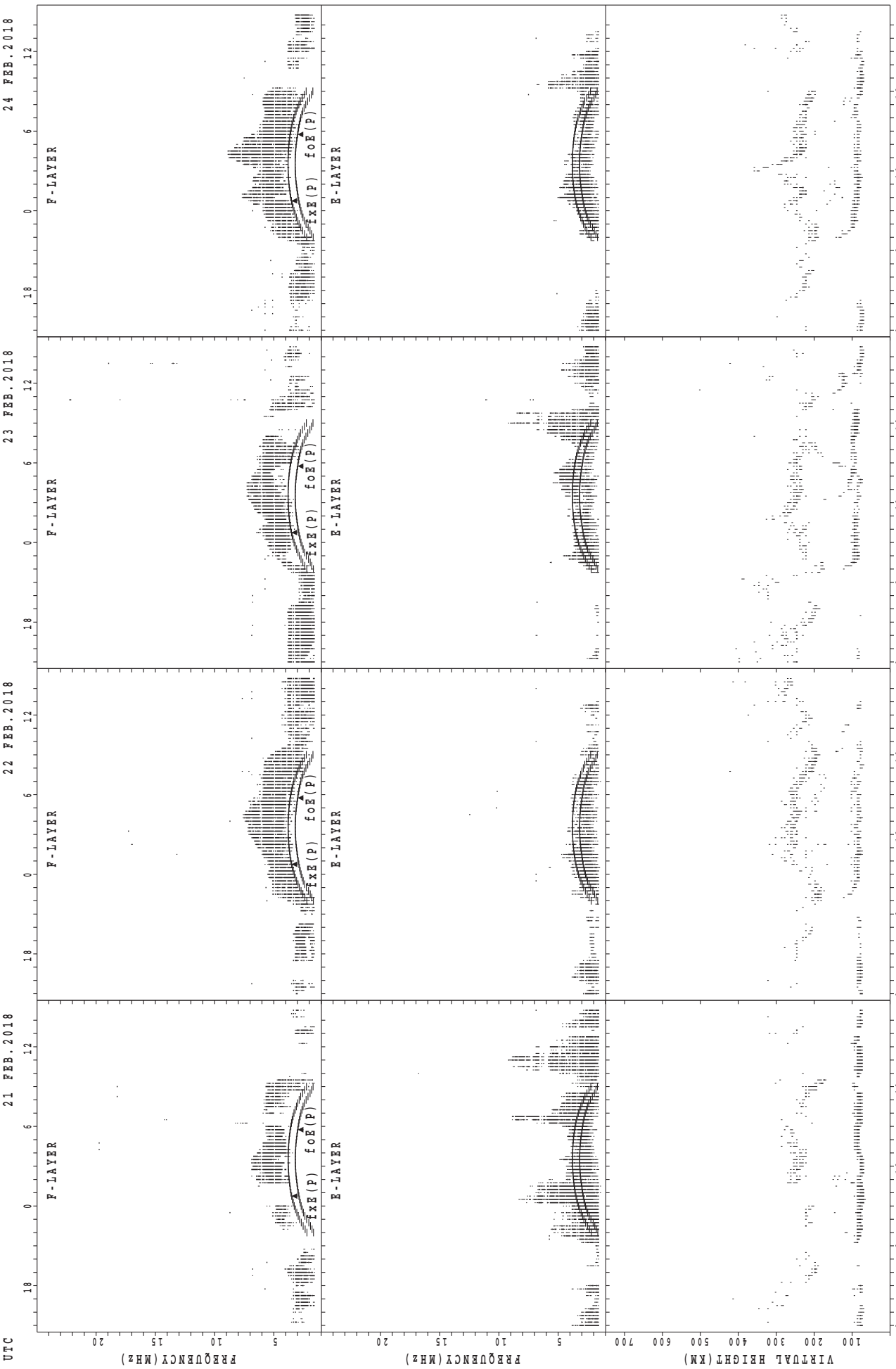
SUMMARY PLOTS AT Yamagawa

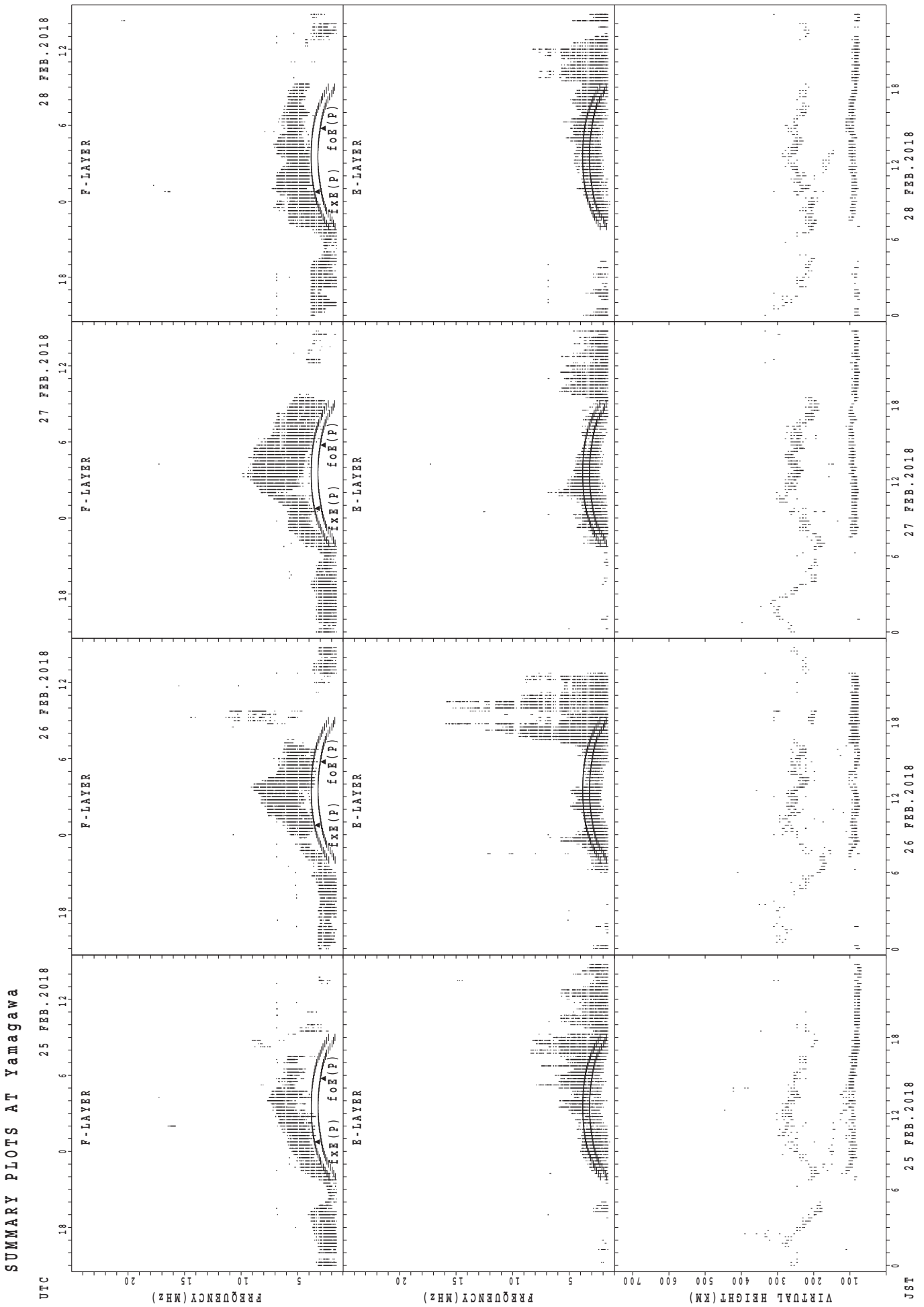


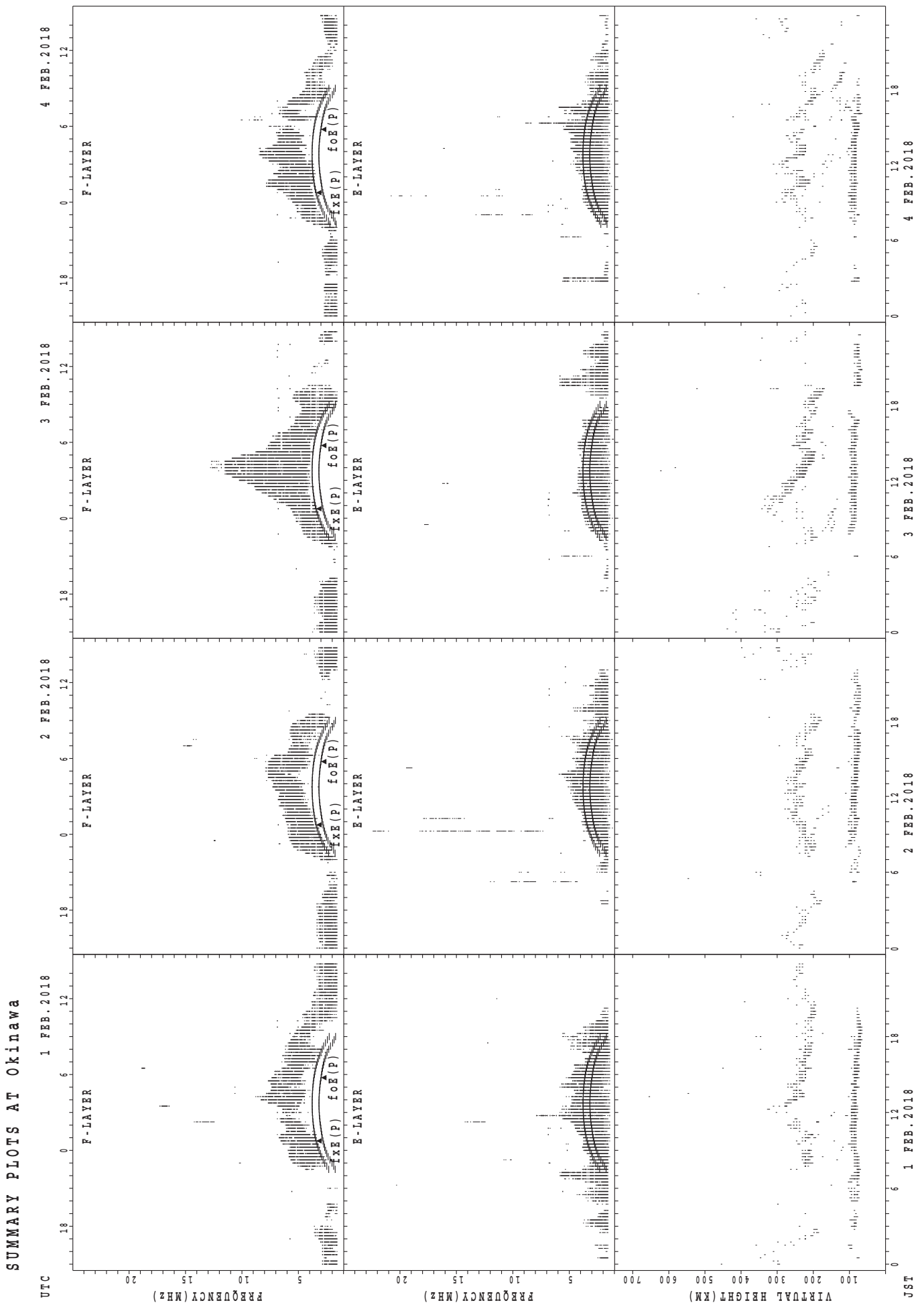
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE


SUMMARY PLOTS AT Yamagawa
UTC
JST
13 FEB.2018
14 FEB.2018
15 FEB.2018
16 FEB.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

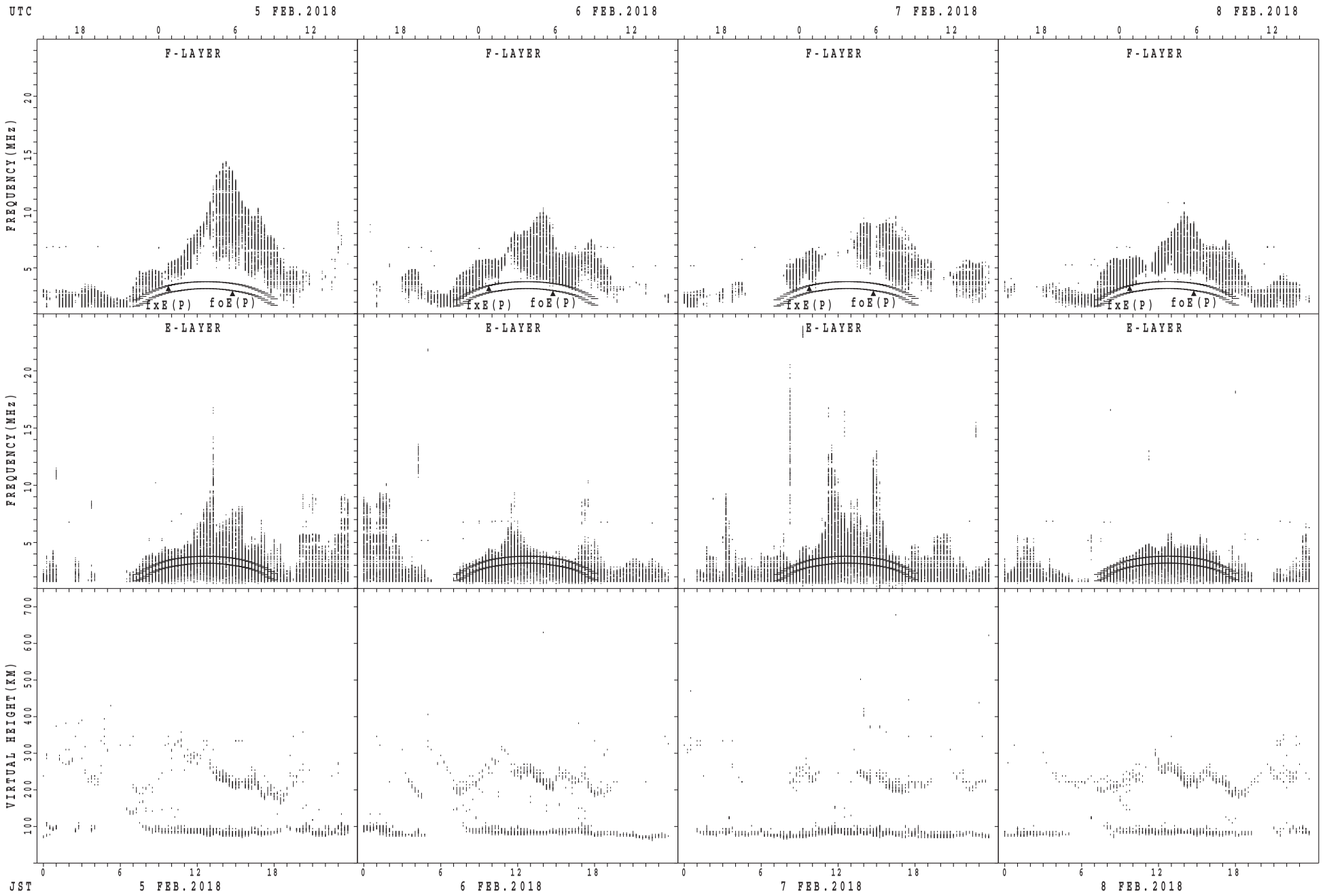

SUMMARY PLOTS AT Yamagawa
UTC
17 FEB.2018
18 FEB.2018
19 FEB.2018
20 FEB.2018
F-LAYER
E-LAYER
fxE(P) foE(P)
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
JST
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE


SUMMARY PLOTS AT Yamagawa
UTC
JST
21 FEB.2018
22 FEB.2018
23 FEB.2018
24 FEB.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 Yamagawa
UTC
JST
25 FEB.2018
26 FEB.2018
27 FEB.2018
28 FEB.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

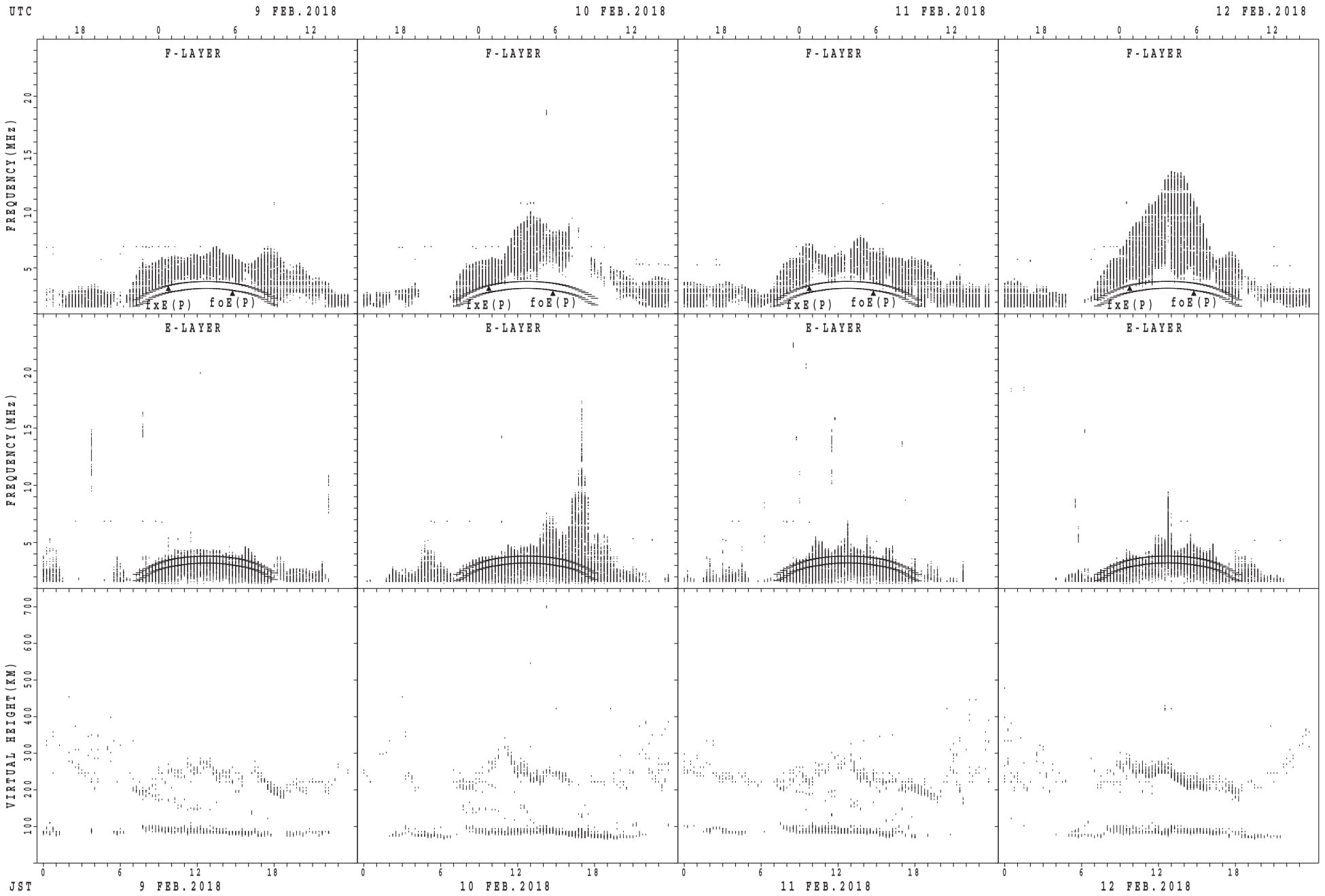

SUMMARY PLOTS AT Okinawa
UTC
JST
1 FEB.2018
2 FEB.2018
3 FEB.2018
4 FEB.2018
F-LAYER
E-LAYER
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
fxE(P) foE(P)
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa

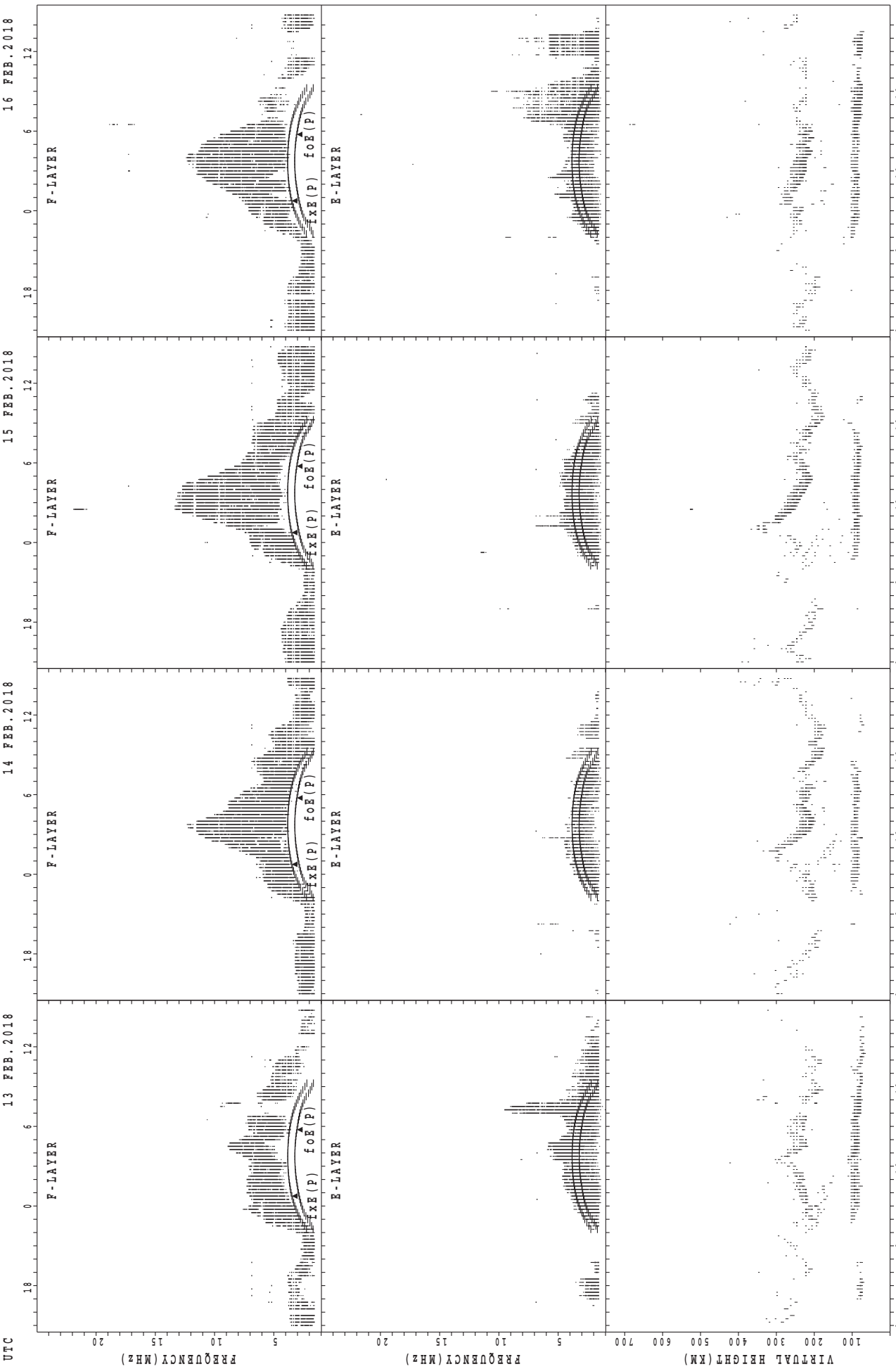


fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

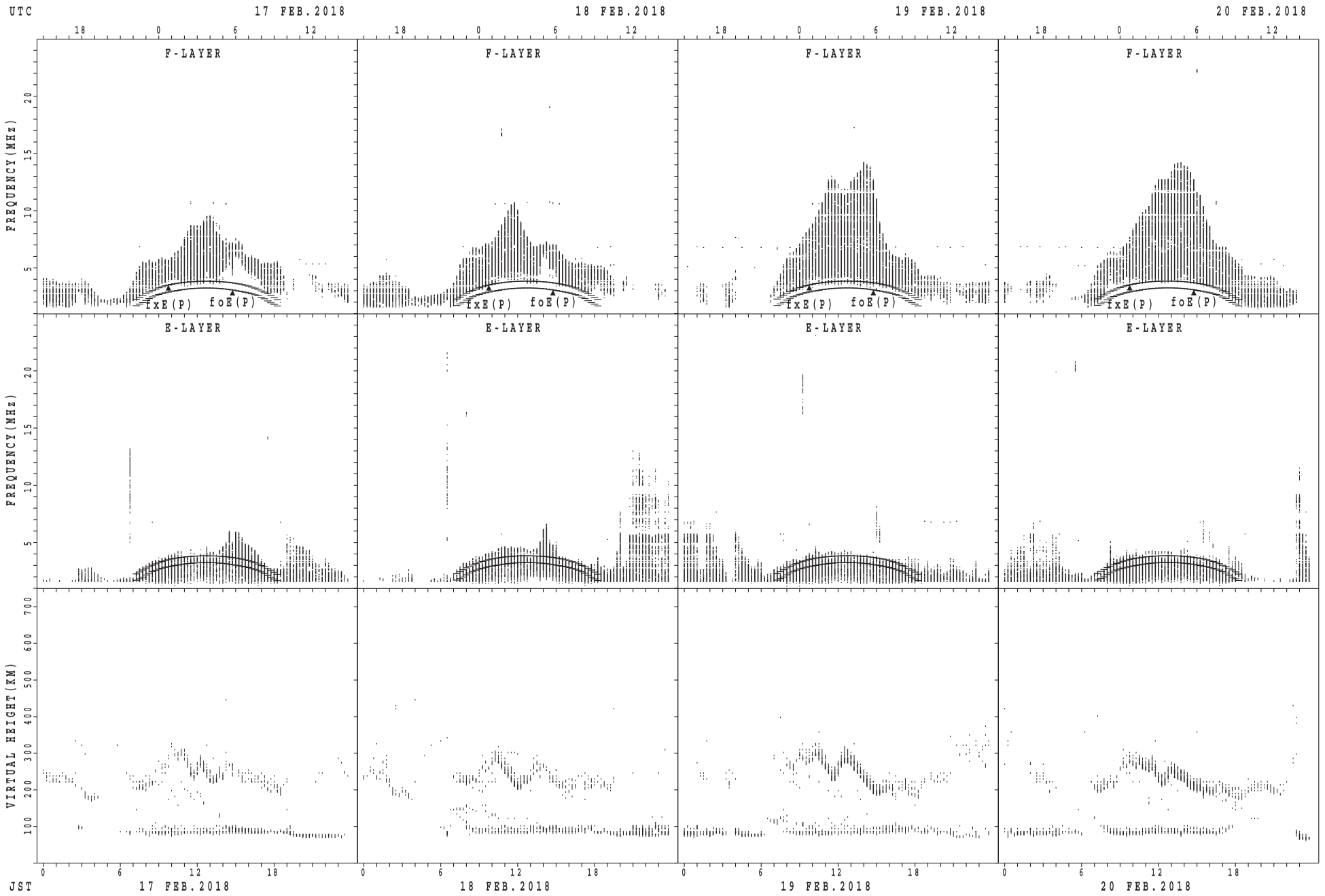
SUMMARY PLOTS AT Okinawa



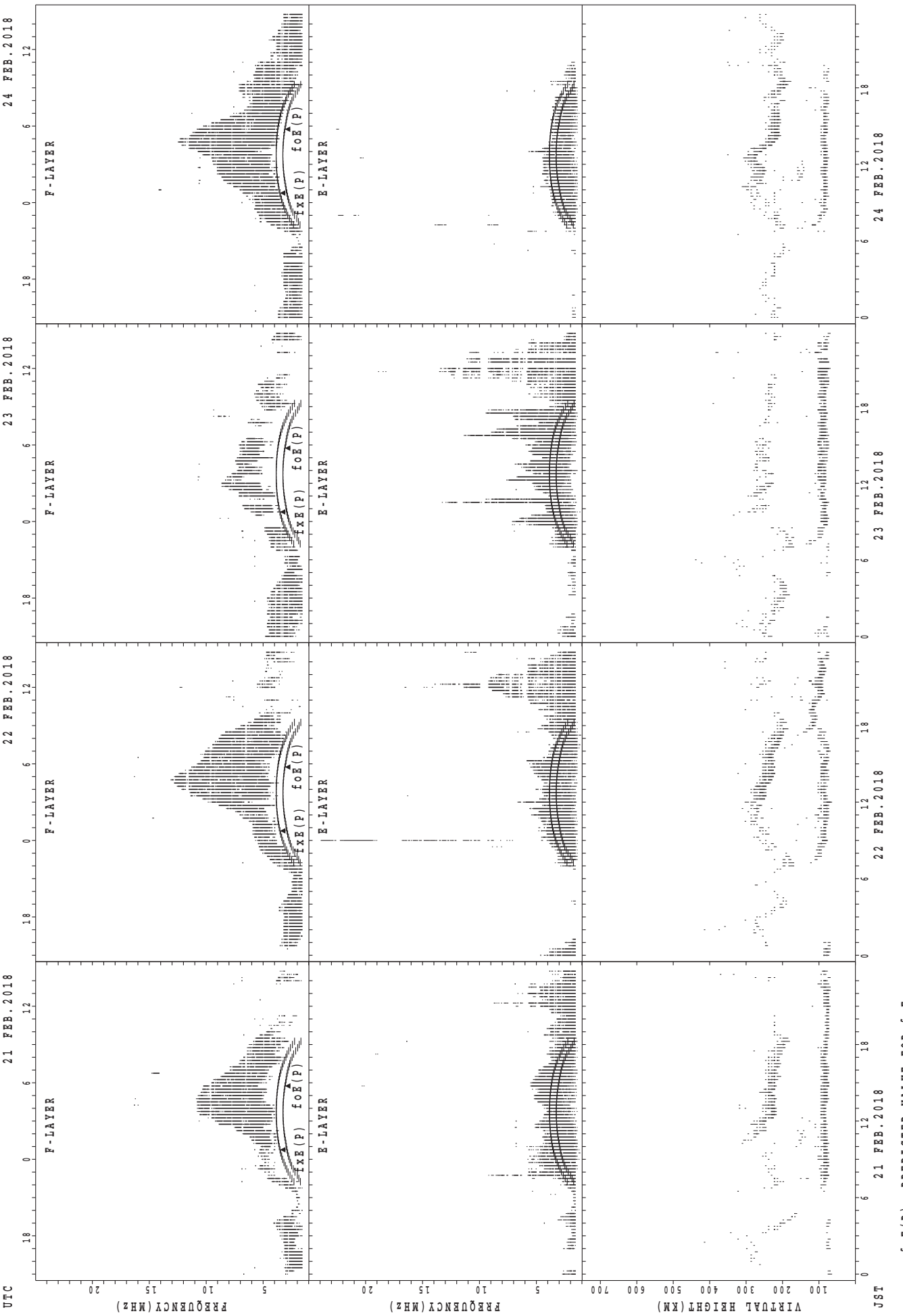
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE


SUMMARY PLOTS AT Okinawa
UTC
JST
13 FEB.2018
14 FEB.2018
15 FEB.2018
16 FEB.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

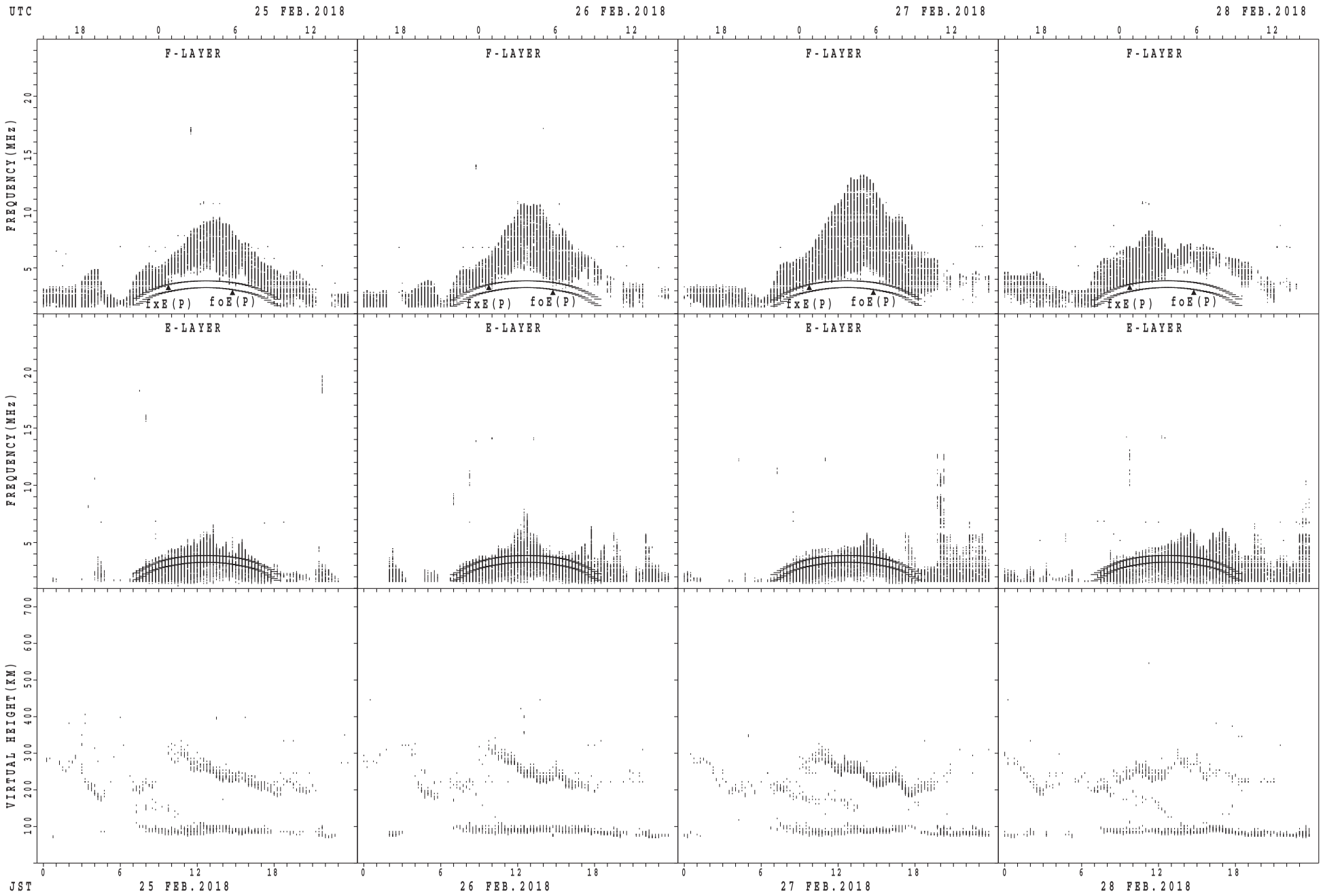
SUMMARY PLOTS AT Okinawa



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


SUMMARY PLOTS AT Okinawa
UTC
JST
21 FEB.2018
22 FEB.2018
23 FEB.2018
24 FEB.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

FEB.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						1	4	6	11	15	13	10	7	9	3							
MED		196						224	207	219	240	236	248	242	240	232	206							
U Q		98						112	214	230	244	242	259	254	250	239	214							
L Q		98						112	201	206	216	224	236	226	228	224	200							

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	5	6	2	6	5	4	6	23	28	28	28	27	28	26	28	27	20	17	13	8	6	6	6	4
MED	81	90	87	93	89	88	91	101	113	100	95	107	104	96	99	101	107	91	89	89	88	88	86	81
U Q	88	95	93	97	98	90	95	129	130	125	129	163	148	119	110	125	115	141	94	93	89	89	91	91
L Q	80	87	81	89	82	82	81	89	95	90	89	97	91	91	91	95	96	86	75	88	83	79	81	79

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

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT									2	7	12	13	22	15	10	5	5	2						
MED									281	238	243	266	248	250	242	252	232	200						
U Q									326	250	264	287	258	266	260	267	241	210						
L Q									236	234	224	231	232	242	234	220	211	190						

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	9	8	4	8	2	5	19	28	28	27	28	28	28	28	27	26	22	17	16	12	18	12	15
MED	83	91	89	88	91	146	97	115	99	99	97	98	97	97	97	99	98	98	87	85	85	84	87	87
U Q	89	94	93	96	96	189	160	167	110	107	101	158	104	113	101	107	107	105	93	91	89	87	89	89
L Q	81	83	83	87	87	103	84	89	95	95	89	95	91	94	91	95	89	89	81	81	81	81	83	85

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

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT										1	9	19	18	23	17	12	7		1					
MED										216	248	266	248	240	250	245	226		208					
U Q										108	285	282	258	256	263	257	242		104					
L Q										108	240	238	236	232	231	223	218		104					

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	11	8	7	4	5	2	11	26	26	26	24	26	26	27	27	27	27	20	19	17	17	11	9
MED	81	81	83	85	86	83	81	135	101	104	97	99	95	95	95	89	91	91	86	85	85	83	85	81
U Q	89	89	86	87	90	87	83	161	119	113	119	157	119	101	99	95	101	103	91	89	88	87	89	106
L Q	80	77	82	81	81	80	79	83	95	91	93	89	89	89	87	85	83	81	79	79	81	81	79	79

MONTHLY MEDIANS OF h'F AND h'Es

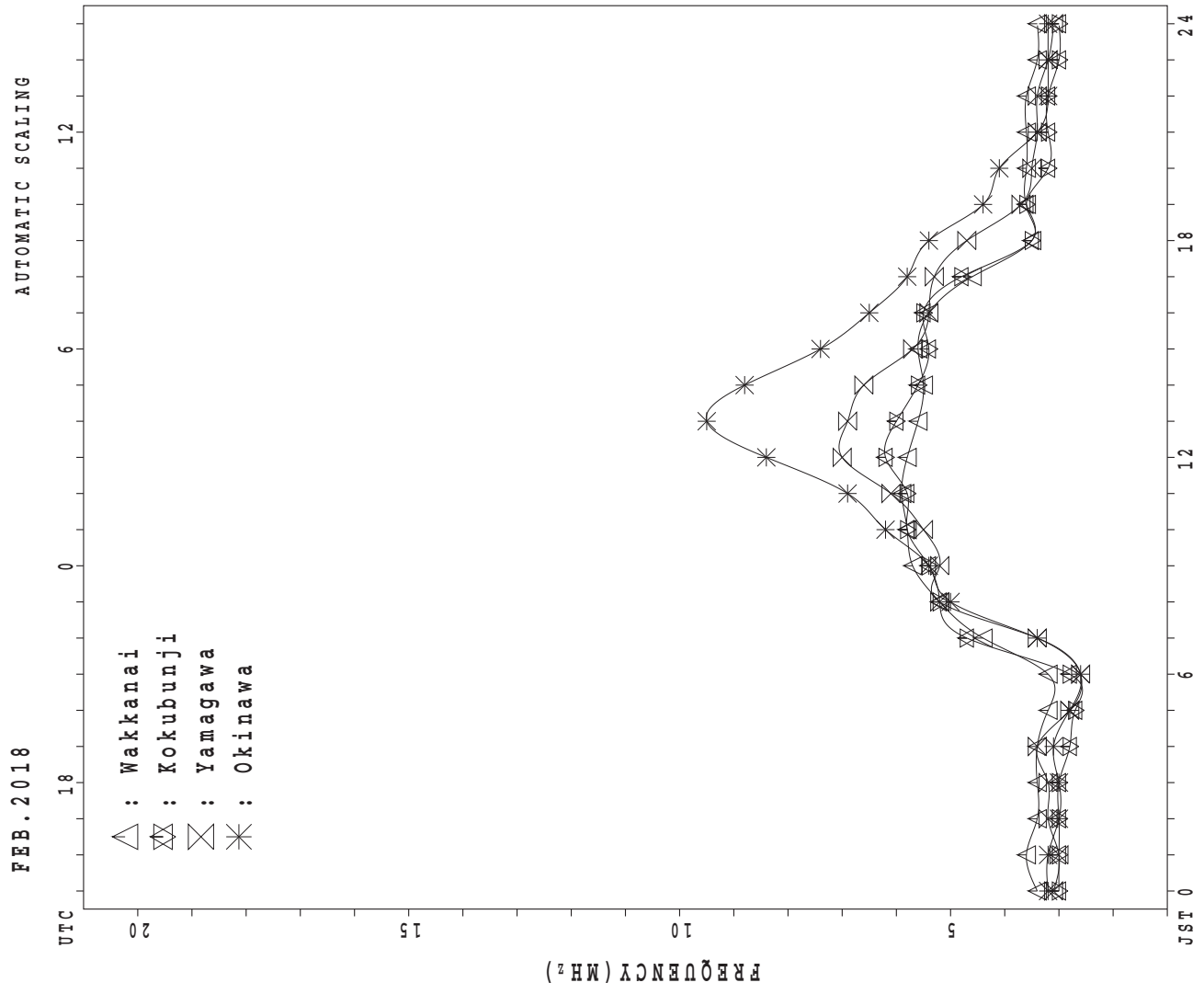
FEB.2018 135E MEAN TIME(UTC+9H) AUTOMATIC SCALING

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										3	12	19	24	24	27	22	11	6	2			1		1
MED										242	263	264	246	242	228	216	224	225	208			222		274
U Q										274	305	278	261	251	238	230	232	242	216			111		137
L Q										216	239	242	238	223	222	212	208	208	200			111		137

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	11	8	11	12	12	8	9	13	28	28	28	28	27	28	28	28	27	28	26	23	23	18	18	13
MED	83	93	83	84	86	82	87	115	101	101	107	103	107	101	94	90	89	90	87	83	81	86	83	89
U Q	89	100	91	92	92	83	91	146	122	144	131	155	131	113	101	98	95	97	107	89	91	97	87	103
L Q	79	84	81	82	81	78	80	92	95	89	95	95	89	93	87	86	83	88	83	81	79	79	81	81


MONTHLY MEDIANS PLOT OF foF2
FEB.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

FEB.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	59	59	57	54	56	37	38												X 45	X 50	X 44	57	50	X 39
2	X 38	X 39	X 38	X 37	38	38	34												X 39	X 48	X 48	X 47	58	58
3	58	54	56	51	51	58	48												X 35	X 39	X 41	X 41	X 41	X 41
4	46	56	48	54	57	58	32												X 35	X 35	X 37	57	57	57
5	58	58	39	55	57	56	38	53											X 39	X 27	X 34	X 37	X 41	54
6	54	55	58	58	58	58													X 32	X 32	X 35	X 35	39	40
7	X 34	39	X 33	36	36	X 34	32												X 34	X 34	X 36	X 33	X 34	X 34
8	X 34	X 34	X 34	X 33	X 33	X 33													X 40	X 34	X 33	X 34	X 38	X 39
9	X 39	X 41	X 41	X 39	X 37	X 37													X 40	X 39	X 38	40	X 38	X 38
10	43	43	47	48	X 35	37	34												X 41	X 32	X 31	X 39	38	39
11	44	47	54		54	57	54												X 45	42	X 40	X 40	X 41	X 40
12	X 39	X 39	X 39	X 39	X 37	X 37														X 40	X 40	X 43	X 45	48
13	X 39	47	X 42	X 39	X 36	X 39	44													X 59	X 63	X 61	90	X 59
14	59	59	X 54	X 57	X 59	X 57														X 53	59	58	58	55
15	58	56	X 55	56	X 55	59	60													48	48	X 42	X 41	X 37
16	X 37	41	45	51	X 50	X 51														X 42	X 44	X 43	X 45	57
17	X 51	X 49	X 45	X 42	X 42	X 38														X 46	X 40	X 41	X 46	X 46
18	X 39	46	X 39	X 37	X 36	X 34														X 45	X 42	X 41	X 40	X 40
19	X 44	X 39	X 39	X 39	X 38	X 34														X 34	X 30	X 35	X 39	X 39
20	X 39	X 38	X 16	X 39	X 38	X 31														X 33	X 33	X 35	X 37	X 37
21	X 36	X 35	X 35	X 35	X 33	X 35														X 36	X 39	X 39	X 39	X 39
22	X 37	38	38	X 32	X 29	X 30														X 35	X 37	X 37	X 41	X 39
23	X 37	X 39	X 37	X 37	X 33	X 36														X 43	X 43	X 43	X 47	X 43
24	X 44	X 44	X 40	X 38	X 39	X 35														X 35	X 34	X 33	X 37	X 38
25	46	X 38	X 37	X 37	X 35	X 35														X 42	X 39	X 33	X 37	X 38
26	X 40	44	X 43	47	X 40	X 41														X 49	X 51	X 51	X 43	X 46
27	47	X 45	X 48	X 49	X 50	X 48														X 44	X 45	X 45	X 50	X 49
28	X 49	X 46	X 45	X 43	X 34	X 36														X 49	X 46	X 46	X 47	X 46
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	28	28	27	28	28	10	1											11	28	28	28	28	28
MED	X 44	44	X 42	X 39	X 38	X 37	38	53											X 39	X 41	X 40	X 41	X 41	X 40
U Q	50	52	48	51	52	54	48												X 41	X 47	X 44	X 46	47	48
L Q	X 38	X 39	X 38	X 37	X 36	X 35	34												X 35	X 34	X 36	X 36	X 38	X 39

FEB.2018 fxI (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

FEB. 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	F 44	F 41	F 32	F 35	F 31	F 25	F 25	38	48	57	64	53	78	58	53	49	50	43	38	43	37	F 31	F 32	32
2	31	32	31	30	F 26	F 26	F 20	37	48	50	57	54	58	50	53	56	47	36	32	41	42	40	F 42	F 44
3	F 37	F 38	F 34	F 37	F 37	F 45	F 34	46	46	51	58	64	64	58	40	61	50	33	28	32	34	34	34	34
4	F 30	F 35	F 32	F 31	F 32	F 38	F 22	34	51	53	54	60	54	57	55	52	54	36	28	28	30	F 43	F 37	F 36
5	F 28	F 28	F 27	F 27	F 26	F 25	F 24	F 40	50	49	56	63	66	66	58	55	48	38	32	20	27	30	34	F 32
6	F 29	F 34	F 30	F 30	F 31	F 31	26	36	49	57	50	52	57	54	52	56	56	39	25	25	28	28	F 27	F 26
7	27	F 27	26	F 24	F 25	27	F 23	38	48	48	55	55	57	51	51	V 55	50	37	27	27	29	26	27	27
8	27	27	27	26	26	26	24	38	48	58	58	58	51	50	50	57	53	41	33	27	26	27	31	32
9	32	34	34	32	30	30	27	38	53	58	52	56	59	51	50	59	51	46	33	32	31	F 27	31	31
10	F 27	F 27	F 26	F 27	28	F 24	F 22	42	51	54	54	60	56	48	54	52	53	50	34	25	24	30	F 27	F 27
11	F 29	F 29	F 36	F 32	F 31	F 36	F 34	53	56	52	52	57	54	48	63	53	54	48	38	F 33	33	33	34	33
12	32	32	32	32	30	30	31	45	50	59	73	76	52	53	V 51	V 52	50	44	33	33	33	36	38	F 31
13	32	F 32	35	32	29	V 32	F 33	43	61	58	59	62	55	53	56	58	57	56	52	52	56	54	F 55	52
14	F 44	F 46	47	50	52	50	56	52	60	60	60	58	56	52	55	57	48	48	44	46	F 40	F 43	F 44	F 38
15	F 37	F 40	48	F 43	48	F 44	F 47	54	62	57	53	57	54	53	55	52	46	39	35	F 32	F 32	36	34	30
16	30	F 30	F 30	F 34	43	44	39	52	58	65	63	58	60	56	52	50	52	40	32	35	37	36	38	F 42
17	44	42	38	35	35	31	26	45	54	54	58	59	63	63	60	55	51	44	40	39	33	34	39	39
18	32	F 32	32	30	29	27	29	42	52	58	69	59	57	68	60	58	54	47	40	38	35	34	33	33
19	37	32	32	32	32	27	27	46	54	J R 63	73	92	82	63	65	70	63	46	30	27	23	28	32	32
20	32	31	34	32	31	24	22	42	48	58	66	63	54	54	57	63	57	46	30	26	26	28	30	30
21	29	28	28	28	26	28	21	37	45	48	51	48	50	50	50	52	52	40	33	29	32	32	32	32
22	30	F 26	F 26	25	22	23	24	40	45	49	52	52	50	52	53	53	51	45	32	28	30	30	34	32
23	30	32	30	30	26	29	28	38	45	52	52	55	54	56	52	56	60	58	49	36	36	36	40	36
24	37	37	33	31	32	28	33	44	56	55	53	56	58	54	53	61	57	46	35	28	27	26	30	31
25	F 27	31	30	30	28	28	32	44	56	49	59	55	48	53	50	58	55	54	42	35	32	26	30	32
26	33	F 30	36	F 36	33	34	39	48	54	56	53	57	61	56	57	53	57	48	50	42	44	44	36	39
27	F 37	38	42	42	43	41	34	47	58	55	63	62	56	62	62	59	62	48	41	37	38	38	43	42
28	42	39	38	36	27	29	36	58	70	61	55	69	60	58	54	55	51	45	40	42	39	39	40	39
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28
MED	32	F 32	32	32	30	29	28	42	52	56	56	58	56	54	54	56	52	45	34	32	32	34	34	32
U Q	F 37	38	36	35	32	35	34	46	56	58	62	62	60	58	57	58	56	48	40	38	37	37	38	38
L Q	F 29	F 30	30	30	26	26	24	38	48	52	53	55	54	52	52	52	50	40	32	28	28	28	31	31

FEB. 2018 foF2 (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

FEB.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										L		L	L	L	L	L								
2									L		L 400		L	L	L		L							
3											L 400		L	L	L									
4										L 384		L	L	L	L	L								
5										L	L 412	392		L	L	L								
6											L	L	L	L	L	L								
7											L	L	L	L	L	L								
8										L	L 396		L	L	L	L								
9											L		L	L	L	L								
10										L	L	L	L	L	L									
11										L	L	L	L	L	L	L	L							
12										L	L	L	L	L	L	L	L							
13									L	L	L	L	L	L	L									
14									L	L	L	L	L	L	L	L								
15									L	L	L	L	L	L	L	L								
16										L 388	420	404	388		L	L								
17									L	L	L 416		L	L	L	L								
18										L	L	L	L	L	L	L								
19									L 376		L	L	L	L	L	L	L							
20									L	L	L	L	L	L										
21										384	L	396	L	396	376	L	L							
22										368	L	400	408	L	L	L								
23								L	L	L 408	408	408	408	396	L	L	L							
24									L		L	L 420		L	L	L	L							
25											L	L	L	L	L	L	L							
26									L	L	L	L	L 404		L	L	L							
27									L		L	L	L 408		L	L	L							
28									L	L	L	L	L	L	L	L								
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT										3	3	9	5	5	1									
MED										376	388	400	408	396	376									
U Q										384	408	414	414	406										
L Q										368	384	398	398	392										

FEB.2018 foF1 (0.01MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

FEB.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							188	196	188	236	A	276	276	A	244	216	180	A						
2							B	176	176	256	264	280	284	280	252	232	184	A						
3							B	212	216	248	284	A	284	280	200	216	192	B						
4							A	184	200	A	A	288	280	268	260	240	184	B						
5							A	244	212	260	288	288	288	272	272	228	196	A						
6							B	180	224	252	280	288	280	304	244	232	208	B						
7							B	B	248	248	268	336	276	284	248	248	212	A						
8							A	224	232	264	A	292	292	280	260	276	192	B						
9							B	232	228	256	272	292	292	272	252	232	208	B						
10							B	240	224	248	284	284	292	284	268	232	200	A						
11							180	A	212	256	264	288	288	288	272	240	188	B						
12							B	A	256	272	A	292	300	288	276	244	224	A	A					
13							B	B	248	260	284	292	292	292	284	264	A	A	B					
14							B	A	232	264	292	304	296	296	296	236	212	188	B					
15							B	184	248	276	296	296	300	300	288	252	212	B	B					
16							B	A	220	268	288	296	292	288	276	224	204	B	B					
17							B	220	240	272	284	284	284	284	276	252	208	B	B					
18							B	180	232	240	256	276	288	272	272	252	208	A	200					
19							B	204	228	248	272	288	288	292	260	236	208	A	A					
20							B	A	A	A	260	288	288	288	260	240	A	A	A					
21							B	216	224	268	292	292	292	292	256	240	A	192	A					
22							A	B	244	268	280	280	296	R 244	284	248	220	B	B					
23							B	B	244	272	284	284	292	288	276	248	208	B	B					
24							B	184	240	A	268	280	276	276	276	228	228	192	B					
25							B	A	244	A	284	284	288	288	272	252	A	A	A					
26							B	204	A	260	288	288	A	288	256	256	228	B	B					
27							B	196	240	264	280	280	304	276	A	252	224	184	B					
28							B	184	244	248	292	U R 292	296	284	276	236	232	A	B					
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT							2	18	26	24	24	27	27	27	27	28	24	4	1					
MED							184	200	232	260	284	288	288	284	272	240	208	190	200					
U Q								220	244	268	288	292	292	288	276	252	216	192						
L Q								184	220	248	270	284	284	276	256	232	194	186						

FEB.2018 foE (0.01MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

FEB. 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	32	34	21	20	E B 16	E B 16	20	23	J A 24	J A 43	47	31	31	J A 31	30	J A 34	J A 25	J A 24	32	J A 25	27	22	19	21
2	J A 37	22	28	24	19	20	E B 16	22	22	38	35	J A 59	G	J A 56	J A 25	G	G	J A 27	E B 16	E B 16	24	E B 16	E B 16	E B 16
3	E B 16	E B 16	E B 16	E B 16	20	E B 16	E B 16	G	26	J A 41	J A 29	40	34	36	J A 26	26	20	E B 16	E B 15	29	40	38	J A 28	39
4	E B 16	E B 15	24	28	E B 16	E B 16	40	J A 27	J A 31	36	J A 51	J A 70	J A 107	31	30	28	21	E B 16	E B 16	25	26	27	27	26
5	23	28	31	23	E B 16	32	22	G 20	23	J A 33	32	J A 63	34	30	J A 27	33	J A 27	34	32	E B 16	E B 16	E B 16	E B 16	E B 16
6	E B 17	E B 16	25	20	20	E B 16	E B 16	28	32	J A 127	G 26	G	32	G	28	26	G	J A 47	J A 27	26	21	E B 16	23	E B 16
7	30	30	24	30	26	32	J A 25	J A 25	31	J A 48	J A 86	J A 57	34	34	29	28	25	J A 30	J A 51	J A 25	21	21	E B 16	26
8	33	J A 26	J A 26	26	23	24	20	G	24	29	36	J A 47	J A 56	33	31	G	G	24	29	25	25	30	29	22
9	E B 15	E B 15	30	E B 15	E B 16	E B 16	25	J A 43	28	34	34	34	34	32	31	29	G	E B 16	E B 16	E B 16	22	21	35	24
10	24	22	19	38	32	24	21	G	25	28	32	34	J A 62	32	27	31	G 19	J A 60	J A 26	J A 26	E B 17	26	20	25
11	27	26	J A 18	J A 23	J A 49	J A 62	J A 18	J A 59	23	G 23	G	35	35	32	30	28	G	E B 15	J A 61	22	E B 16	J A 24	30	22
12	26	E B 16	E B 16	E B 17	E B 16	20	26	30	30	32	J A 51	33	33	33	G	29	G	J A 20	55	E B 16	44	20	33	23
13	20	E B 16	E B 15	E B 15	J A 115	E B 16	E B 16	E B 16	33	G	G	33	33	J A 62	34	33	J A 23	30	E B 15	22	E B 16	E B 16	E B 16	E B 16
14	19	20	E B 15	E B 16	E B 16	E B 17	J A 27	36	26	32	G 19	G	G	G	34	28	24	G	E B 16	E B 16	E B 16	E B 16	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 16	G	26	34	32	33	J A 62	36	34	32	G	E B 16	E B 16	E B 16	E B 16	E B 16	E B 17	19
16	E B 16	E B 16	19	E B 16	E B 16	E B 16	E B 16	26	32	G	G	G	G	G	G	25	23	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16
17	E B 16	E B 16	19	E B 16	20	58	19	J A 84	31	G	J A 75	G	33	G 19	29	28	25	E B 16	E B 15	E B 16	E B 17	E B 17	E B 17	E B 16
18	E B 17	E B 16	E B 16	19	19	19	E B 16	19	27	31	30	32	G	J A 53	30	29	J A 28	34	J A 25	24	E B 16	34	20	E B 16
19	E B 16	E B 16	20	E B 16	E B 16	E B 16	E B 16	28	G	G	G	33	G	G	28	26	26	J A 25	J A 22	22	J A 43	E B 16	21	19
20	19	33	E B 16	26	26	E B 16	22	J A 51	J A 47	28	33	34	J A 109	33	J A 43	56	J A 105	38	31	J A 38	34	34	23	E B 16
21	E B 16	26	E B 15	34	J A 33	J A 39	24	G	J A 50	G	G	G	34	G	29	28	34	J A 21	J A 26	J A 41	E B 16	23	29	31
22	28	22	25	E B 16	E B 16	20	36	E B 16	J A 31	G	31	32	G	28	G	G	G	E B 16	E B 16	J A 20	31	J A 21	21	E B 16
23	E B 16	E B 16	J A 63	E B 16	E B 16	J A 47	E B 16	E B 16	G 24	33	33	33	32	J A 82	G	G	G 22	E B 16	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	J A 23	E B 16	20	J A 20	J A 28	70	J A 49	38	32	32	35	28	G	21	E B 16	E B 15	E B 16	E B 16	E B 16	E B 16
25	E B 15	E B 16	28	22	20	26	J A 63	J A 32	32	J A 33	J A 33	33	G	32	33	30	35	J A 26	26	E B 16	E B 16	E B 16	E B 16	26
26	24	21	20	22	22	E B 16	21	28	J A 27	34	J A 39	33	J A 32	38	34	26	24	E B 16	25	E B 16	21	E B 16	E B 16	32
27	E B 16	31	E B 16	20	20	E B 16	E B 16	G	G 23	J A 110	34	34	J A 96	32	J A 55	31	25	19	26	29	27	28	24	20
28	21	20	20	J A 109	20	19	21	23	27	35	34	J A 47	J A 38	34	31	29	28	J A 22	28	19	E B 16	E B 16	E B 16	33
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28
MED	18	18	20	20	20	18	20	23	27	33	33	33	33	32	30	28	23	21	25	21	19	18	20	20
U Q	25	26	25	25	23	25	24	J A 29	31	J A 37	J A 38	J A 39	J A 36	35	34	30	26	28	28	J A 25	26	25	26	26
L Q	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	G	24	G	G	G 32	G	G 29	27	26	G	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16

FEB. 2018 foEs (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

FEB. 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	E B 17	E B 17	E B 17	E B 17	E B 16	E B 16	E B 17	E B 16	21	29	32	30	30	28	27	25	20	20	17	E B 17	E B 17	E B 17	E B 16	E B 16
2	20	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	19	G 26	28	30	G	G 28	G 25	G	G	16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16
3	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	G	24	30	G 28	30	G 28	G 27	24	25	G 18	E B 16	E B 15	16	16	18	16	17
4	E B 16	E B 15	E B 16	16	E B 16	E B 16	E B 23	20	G 17	28	30	32	30	29	28	24	20	E B 16	E B 16	E B 16	E B 16	E B 17	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	G 16	G 21	G 26	30	30	G 28	G 26	G 26	24	20	23	16	E B 16	E B 16	E B 16	E B 16	E B 16
6	E B 17	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	G 16	24	28	G 23	G	30	G	27	25	G	17	16	E B 16	E B 16	E B 16	E B 16	E B 16
7	E B 16	E B 16	E B 16	16	E B 16	E B 16	E B 16	17	26	G 25	31	G 32	29	29	27	G 25	22	E B 16	21	16	E B 16	E B 16	E B 16	E B 16
8	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	G	G 22	G 26	29	G 29	31	29	G 26	G	G	E B 16	18	E B 16	16	16	E B 16	E B 16
9	E B 15	E B 15	E B 16	E B 15	E B 16	16	16	G 18	28	31	32	32	33	31	26	24	G	E B 16	E B 16	E B 16	16	E B 16	16	E B 17
10	E B 17	E B 17	E B 16	E B 16	16	17	16	G	23	27	31	32	32	29	G 26	26	G 17	20	E B 17	E B 17	E B 17	16	E B 16	E B 16
11	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 17	27	G 21	G 23	G	33	33	31	29	26	G	E B 15	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	17	E B 16	E B 17	E B 16	22	G 24	29	32	30	31	29	G	26	G	E B 16	18	E B 16	E B 16	E B 15	E B 15	E B 15
13	E B 16	E B 16	15	E B 15	E B 16	E B 16	E B 16	E B 16	26	G	G	31	31	32	30	29	22	21	E B 15	E B 15	E B 16	E B 16	E B 16	E B 16
14	E B 15	E B 16	E B 15	E B 16	E B 16	E B 17	E B 16	29	24	29	G 16	G	G	G	G 30	24	22	G	E B 16	E B 16	E B 16	E B 16	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 16	G	G 22	28	G 30	30	G 30	G 28	G 27	G 24	G	E B 16	E B 16	E B 16	E B 16	E B 16	E B 17	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	20	25	G	G	G	G	G	G	25	21	E B 16	E B 16	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	16	G 18	26	G	29	G	G 32	G 18	G 27	27	23	E B 16	E B 15	E B 16	E B 17	E B 17	E B 17	E B 16
18	E B 17	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	G 18	G 19	24	29	31	G	33	29	28	25	22	20	E B 16	E B 16	17	E B 17	E B 16
19	E B 16	E B 16	E B 17	E B 16	E B 16	E B 16	E B 16	G 20	G	G	G	31	G	G	27	24	24	21	16	E B 16	16	E B 16	E B 16	E B 16
20	E B 16	16	E B 16	E B 16	E B 16	E B 16	E B 16	21	22	26	29	32	35	32	38	30	40	26	18	18	17	18	E B 16	E B 16
21	E B 16	E B 16	E B 15	E B 16	E B 16	E B 16	E B 16	G	25	G	G	G	30	G	27	26	21	G 17	16	E B 16	E B 16	E B 16	E B 16	16
22	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	16	E B 16	G 24	G	30	31	G	27	G	G	G	E B 16	E B 16	E B 15	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	G 22	G 26	30	30	31	29	G	G	G 22	E B 16	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	G 16	G 19	30	28	30	30	30	28	26	G	G 18	E B 16	E B 15	E B 16	E B 16	E B 16	E B 16
25	E B 15	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	28	G 24	29	G 28	29	G	30	30	26	25	21	18	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	G 18	24	28	G 26	G 28	30	29	30	G 25	G 22	E B 16	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	G	G 20	G 26	28	G 26	31	28	26	G 25	G 18	G 17	17	E B 17	E B 17	17	E B 17	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	21	27	30	G 27	34	32	32	29	26	25	20	17	E B 17	E B 16	E B 16	E B 16	18
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28
MED	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	G	24	G	G	31	30	29	28	25	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	E B 16	20	24	29	30	G	31	30	G	26	22	20	17	E B 16	16	16	E B 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 21	G 26	G 28	30	G	G	G 26	25	21	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16

IONOSPHERIC DATA STATION Wakkanai

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

IONOSPHERIC DATA STATION Wakkanai

FEB.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	F 294	F 276	F 288	F 301	F 342	F 350	F 318	368	380	363	397	301	378	364	367	386	384	342	360	360	338	F 293	F 279	297
2	316	304	308	312	F 380	F 320	F 328	373	371	383	366	357	368	369	347	344	389	387	338	342	365	329	F 299	F 248
3	F 256	F 353	F 324	F 341	F 323	F 311	F 326	382	385	369	340	360	360	374	388	366	392	353	339	362	342	342	328	338
4	F 295	F 271	F 299	F 336	F 288	F 323	F 295	386	405	377	363	354	360	392	373	362	397	375	372	354	334	F 309	F 299	F 245
5	F 279	F 285	F 273	F 307	F 295	F 280	F 296	F 366	387	397	368	342	370	372	359	363	377	387	384	318	325	301	297	F 296
6	F 292	F 260	F 301	F 283	F 334	F 301	343	386	397	343	375	297	356	343	330	357	400	395	333	367	331	290	F 286	F 297
7	263	F 268	305	F 317	F 308	334	F 362	373	379	407	397	337	368	391	383	V 333	388	401	344	340	348	316	343	310
8	315	315	315	324	313	343	373	381	342	384	351	373	373	391	368	372	386	371	337	345	322	313	332	324
9	298	322	323	304	296	321	338	401	381	401	355	359	343	387	368	373	371	365	344	348	373	F 308	313	288
10	F 289	F 266	F 284	F 296	342	F 334	F 340	386	380	375	359	352	351	341	363	381	372	356	374	333	329	324	F 300	F 278
11	F 282	F 282	F 304	F 299	F 315	F 337	F 324	388	375	400	382	372	360	372	376	357	352	374	383	F 344	312	284	308	311
12	286	328	329	329	315	312	349	402	416	351	363	384	374	379	V 339	V 354	362	379	364	364	323	343	372	F 279
13	299	F 321	299	330	312	V 341	F 307	364	396	366	384	380	370	358	358	346	375	376	358	335	343	318	F 287	329
14	F 281	F 294	313	304	335	331	354	343	390	365	370	376	368	364	363	383	387	360	330	342	F 305	F 288	F 257	F 330
15	F 324	F 332	346	F 330	311	F 337	F 347	361	380	388	366	381	354	354	355	389	387	378	313	F 328	F 320	285	334	334
16	334	F 334	F 317	F 287	307	329	328	346	346	360	344	349	356	361	372	378	362	342	346	349	334	338	344	F 270
17	316	334	330	325	342	357	362	385	385	346	360	339	352	353	357	351	377	354	336	344	321	311	317	379
18	340	F 285	311	328	355	333	326	381	353	350	358	361	355	366	375	382	371	365	334	341	348	344	326	326
19	339	330	310	311	338	348	349	364	363	J R 343	325	359	360	332	362	373	384	390	346	351	323	309	310	311
20	311	279		316	359	337	321	365	367	367	363	369	317	348	340	362	369	384	380	351	354	330	301	277
21	274	288	288	288	345	369	299	384	373	376	387	353	353	356	370	370	378	379	342	330	328	328	308	296
22	303	F 297	F 296	305	350	338	355	405	381	365	358	370	367	319	328	356	360	367	356	328	311	306	335	316
23	318	320	314	333	329	302	354	386	362	392	352	353	347	373	347	342	368	355	354	348	321	300	340	310
24	320	356	329	313	320	316	374	385	370	394	337	332	352	346	351	359	366	384	354	321	335	326	299	292
25	F 317	290	303	302	314	360	366	400	397	366	361	387	374	377	337	366	369	375	361	357	342	344	303	288
26	316	F 282	341	F 277	341	333	366	413	368	368	390	227	367	353	365	364	371	366	354	352	345	385	344	309
27	F 311	320	295	327	333	371	374	390	366	369	376	359	344	339	340	344	371	368	365	355	313	332	313	317
28	326	323	304	321	345	333	355	376	380	377	348	354	356	352	361	361	374	369	339	334	325	324	332	334
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	28	27	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28
MED	307	F 300	308	312	331	334	345	383	380	369	363	358	360	362	362	362	374	372	350	344	330	317	312	310
U Q	318	326	323	328	342	342	358	387	386	386	376	371	368	374	369	373	386	382	362	353	342	331	333	325
L Q	F 288	F 282	F 299	F 302	312	320	F 325	367	368	364	354	346	352	350	347	355	369	362	338	334	322	304	F 299	F 288

FEB.2018 M(3000)F2 (0.01)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

FEB.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										L		L	L	L	L	L								
2									L		L 395		L	L	L		L							
3											L 380		L	L	L									
4										L 392		L	L	L	L	L								
5										L	L 384	387		L	L	L								
6											L	L	L	L	L	L								
7											L	L	L	L	L	L								
8										L	L 397		L	L	L	L								
9											L		L	L	L	L								
10										L	L	L	L	L	L									
11										L	L	L	L	L	L	L	L							
12										L	L	L	L	L	L	L	L							
13									L	L	L	L	L	L	L									
14									L	L	L	L	L	L	L	L								
15									L	L	L	L	L	L	L	L								
16										L 389	381	392	406		L	L								
17									L	L	L 376		L	L	L	L								
18										L	L	L	L	L	L	L								
19									L 393		L	L	L	L	L	L	L							
20									L	L	L	L	L	L										
21										393	L	417	L	402	395	L	L							
22										398	L	391	396	L	L	L								
23								L	L	L	393	368	365	387	L	L	L							
24									L		L	L 364		L	L	L	L							
25											L	L	L	L	L	L	L							
26									L	L	L	L	L 377		L	L	L							
27									L		L	L	L 371		L	L	L							
28									L	L	L	L	L	L	L	L								
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT										3	3	9	5	5	1									
MED										393	392	384	387	387	395									
U Q										398	393	396	394	404										
L Q										393	389	378	364	374										

FEB.2018 M(3000)F1 (0.01)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

FEB.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										228		224	224	244	236	218								
2									218		242	256	234	218	212		212							
3											280	234	254	226	210									
4										214	260	256	256	224	234	224								
5										204	244	270	246	246	244	230								
6											230	258	218	246	266	232								
7											224	262	250	238	238	238								
8										224	230	234	234	220	240	230								
9											268		278	226	236	236								
10										216	258	262	246	244	244									
11										208	224	240	240	228	246	238	224							
12										260	232	218	232	232	226	226	238							
13									202	222	214	206	220	242	242									
14									226	226	234	234	244	230	238	222								
15									220	212	232	226	252	234	252	234								
16										240	240	264	244	234	234	234								
17									216	240	258	268	256	248	242	230								
18										236	240	240	260	242	236	230								
19									228	230	284	234	234	256	232	216	216							
20									242	242	246	226	254	266										
21										248	238	260	260	250	258	244	234							
22										246	252	252	256	280	272	248								
23								210	210	218	264	260	270	254	262	270	238							
24									220		226	270	256	266	268	248	230							
25											238	238	238	232	266	238	226							
26									228	228	228	268	246	248	248	230	234							
27									212		222	244	234	258	268	268	228							
28									218	224	246	254	254	250	242	242								
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								1	12	20	27	27	28	28	27	23	10							
MED								210	219	227	240	252	246	243	242	234	229							
U Q									227	240	258	262	256	250	258	242	234							
L Q									214	217	230	234	234	231	236	230	224							

FEB.2018 h'F2 (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

FEB.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	Q254	Q258	Q228	Q238	Q184	198	224	214	216	200	210	200	222	198	194	208	218	216	224	208	Q212	242	Q254	Q264
2	272	Q252	258	Q252	202	Q224	Q220	202	194	192	198	200	200	180	190	216	194	188	232	214	194	236	Q246	Q250
3	Q254	Q214	204	212	Q188	202	206	196	198	220	196	202	174	210	178	218	218	196	226	230	224	228	232	236
4	Q232	Q242	Q230	Q230	Q222	Q204	218	198	204	190	178	202	184	198	212	188	204	198	212	222	216	Q224	Q224	Q248
5	Q258	Q264	Q258	Q238	Q244	Q246	Q242	202	208	182	190	196	196	202	184	166	204	198	212	E B 254	232	250	Q272	Q272
6	Q254	Q236	Q236	Q236	Q204	Q218	198	190	202	212	194	180	206	206	198	200	196	196	196	206	216	Q254	Q254	Q238
7	278	Q244	248	226	Q240	216	208	210	210	210	210	210	204	198	186	198	220	192	A 240	210	198	252	252	264
8	264	264	Q264	240	228	220	220	202	204	200	186	186	186	186	168	208	212	196	234	244	244	248	240	240
9	Q266	234	244	Q246	Q246	220	232	206	206	206	180	234	212	196	200	212	212	212	226	200	206	Q224	246	Q254
10	Q254	Q244	Q274	256	230	204	Q230	216	216	192	204	206	194	194	200	232	224	210	194	238	238	230	Q210	Q242
11	Q252	Q252	220	Q248	Q246	208	218	202	214	190	164	214	208	200	202	204	194	194	208	224	Q202	Q264	264	Q232
12	Q242	232	220	238	234	202	222	192	200	200	202	202	194	196	196	198	198	198	204	226	260	222	204	Q252
13	Q252	Q218	Q238	226	250	220	230	194	204	176	172	200	190	218	184	226	208	204	200	204	204	214	Q220	Q196
14	Q222	Q204	222	236	210	200	220	196	198	178	198	198	198	172	202	202	202	212	236	200	230	Q242	Q234	204
15	212	200	206	206	214	210	228	222	190	184	176	208	200	192	200	200	206	198	252	244	244	258	234	234
16	220	228	244	Q268	222	214	224	218	236	198	198	190	200	188	198	208	212	200	208	220	226	234	220	Q252
17	224	Q220	234	234	216	216	228	202	196	188	198	196	212	204	204	204	216	210	238	220	214	270	Q232	214
18	232	Q226	236	224	204	216	202	210	230	208	196	196	194	216	210	210	220	224	228	228	224	234	242	228
19	228	248	266	260	230	210	200	222	196	194	184	216	196	188	208	214	214	198	220	206	E B 258	272	272	260
20	270	Q260	Q250	238	196	228	E B 262	222	190	200	192	184	198	198	262	226	214	198	210	230	230	226	Q242	Q278
21	Q224	Q248	Q248	256	248	200	194	218	240	198	194	188	182	204	188	214	208	210	216	236	234	242	244	262
22	262	Q234	Q276	244	230	222	218	196	212	186	192	204	192	184	204	212	218	208	208	252	270	276	242	238
23	276	260	260	228	224	Q260	204	186	196	194	204	200	200	206	198	206	214	226	204	212	240	270	216	264
24	248	208	238	260	246	240	208	210	192	212	178	192	200	206	216	228	210	200	214	214	226	220	Q250	220
25	Q246	Q238	Q238	250	232	214	202	202	202	228	200	198	194	216	204	214	204	216	216	208	208	218	254	Q254
26	Q250	Q232	228	Q228	226	242	214	198	190	190	190	196	196	196	204	204	204	216	212	212	220	202	210	268
27	Q264	250	Q256	238	224	192	194	206	194	214	188	198	194	198	176	206	212	216	210	230	248	248	248	248
28	230	222	258	Q216	228	266	228	222	208	192	188	194	192	214	202	206	226	208	250	224	226	238	238	250
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28
MED	Q252	Q237	241	238	227	216	218	202	203	196	193	199	196	198	200	208	212	202	215	220	226	240	242	249
U Q	263	Q251	258	249	237	223	228	215	211	207	198	203	200	206	204	214	217	212	230	230	239	253	251	261
L Q	231	Q224	229	228	212	204	205	197	196	190	185	195	193	193	189	203	204	198	208	209	213	225	228	235

FEB.2018 h'F (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

FEB.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							124	98	116	120	A	110	104	A	104	104	118	A						
2							B	90	100	100	112	100	102	100	106	118	118	A						
3							B	126	110	110	102	A	102	102	102	102	124	B						
4							A	134	94	A	A	108	108	110	104	116	106	B						
5							AE	B 104	90	108	108	108	108	100	100	100	A	A						
6							B	116	116	116	116	106	106	104	104	92	100	B						
7							B	B	100	110	110	98	102	112	100	100	86	A						
8							96	98	98	106	A	98	98	98	102	102	108	B						
9							B	120	106	106	106	106	106	106	106	106	106	B						
10							B	110	116	118	102	94	110	114	92	104	120	A						
11							B	A	92	110	108	108	108	108	106	98	100	B						
12							B	A	106	114	A	110	110	114	108	108	108	A	A					
13							B	B	120	120	110	110	110	110	110	110	A	A	B					
14							B	A	98	98	98	106	106	106	118	112	100	126	B					
15							B	116	108	120	108	114	114	114	114	114	114	B	B					
16							B	A	102	112	112	102	106	106	106	106	108	B	B					
17							B	98	104	104	104	104	104	104	104	112	104	B	B					
18							B	114	114	114	106	106	106	106	108	108	106	A	106					
19							B	130	118	112	104	104	104	104	112	112	120	A	A					
20							B	A	A	A	120	106	112	112	106	106	A	A	A					
21							B	144	110	112	108	108	108	108	104	104	A	118	A					
22							A	B	106	110	98	106	106	106	106	100	114	B	B					
23							B	B	114	114	114	114	114	114	G	104	94	B	B					
24							B	110	110	A	110	110	110	110	110	110	110	118	B					
25							B	A	118	A	108	108	108	108	102	106	A	A	A					
26							B	90	A	104	104	104	A	104	104	104	114	A	B					
27							B	116	116	114	114	114	114	106	A	104	104	114	B					
28							B	112	106	106	106	112	98	102	102	102	110	A	B					
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT							2	18	26	24	24	27	27	27	26	28	23	4	1					
MED							110	113	107	111	108	106	106	106	105	105	108	118	106					
U Q								120	116	114	111	110	110	110	108	110	114	122						
L Q								98	100	106	104	104	104	104	102	102	104	116						

FEB.2018 h'E (KM)

IONOSPHERIC DATA STATION Wakkanai

FEB.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	100	88	96	96	B	B	102	144	100	100	92	144	150	106	100	98	106	104	104	104	104	98	98	96
2	96	94	94	102	92	88	B	100	130	92	96	82	G	86	102	G	G	88	B	B	96	B	B	B
3	B	B	B	B	96	B	B	G	112	104	96	96	106	112	96	138	128	B	B	90	94	94	94	94
4	B	B	94	94	B	B	94	94	92	98	108	110	116	132	130	106	130	B	B	104	94	94	96	98
5	92	96	88	98	B	98	86	96	116	104	160	100	104	168	88	88	88	88	96	B	B	B	B	B
6	B	B	92	92	92	B	B	118	118	88	102	G	156	G	146	124	G	86	86	80	90	B	114	B
7	102	94	94	88	88	88	96	88	120	106	114	120	120	102	114	92	92	92	106	88	88	88	B	104
8	126	98	100	94	94	102	96	G	106	106	82	82	82	96	164	G	G	86	84	90	90	90	92	92
9	B	B	82	B	B	B	102	104	134	116	116	138	138	136	100	106	G	B	B	B	94	94	94	94
10	94	80	94	104	96	92	92	G	128	106	146	110	96	148	116	116	106	86	82	86	B	92	92	92
11	86	86	86	106	106	106	108	94	112	96	G	160	132	126	120	98	G	B	104	122	B	100	96	96
12	92	B	B	B	B	96	102	102	102	152	102	112	112	132	G	106	G	106	106	B	106	88	88	88
13	88	B	B	B	104	B	B	B	148	G	G	110	128	108	106	106	94	94	B	94	B	B	B	B
14	80	80	B	B	B	B	96	96	150	156	80	G	G	G	104	142	116	G	B	B	B	B	B	B
15	B	B	B	B	B	B	B	G	138	114	114	142	134	110	104	104	G	B	B	B	B	B	B	92
16	B	B	140	B	B	B	B	116	114	G	G	G	G	G	G	132	128	B	B	B	B	B	B	B
17	B	B	128	B	112	112	110	86	128	G	98	G	164	84	146	142	108	B	B	B	B	B	B	B
18	B	B	B	108	108	108	B	108	106	94	94	132	G	112	140	112	116	102	102	102	B	102	94	B
19	B	B	94	B	B	B	B	136	G	G	G	140	G	G	128	128	112	104	102	102	102	B	102	106
20	86	102	B	108	108	B	108	98	106	106	98	168	98	114	108	100	108	98	98	98	98	92	92	B
21	B	92	B	100	100	100	102	G	102	G	G	G	154	G	110	110	100	100	106	106	B	96	96	88
22	88	88	88	B	B	102	106	B	94	G	158	154	G	106	G	G	G	B	B	100	100	100	86	B
23	B	B	90	B	B	90	B	B	100	106	132	156	166	84	G	G	108	B	B	B	B	B	B	B
24	B	B	B	B	86	B	118	118	96	96	96	106	166	204	100	126	G	154	B	B	B	B	B	B
25	B	B	90	90	90	94	88	90	98	88	98	100	G	128	110	104	104	104	104	B	B	B	B	122
26	100	90	90	90	90	B	110	100	100	100	104	90	98	94	100	128	120	B	102	B	84	B	B	104
27	B	98	B	98	94	B	B	G	94	124	98	98	84	116	96	86	210	126	102	102	102	102	102	102
28	96	90	88	84	98	138	120	118	100	108	192	100	120	150	142	124	110	110	88	88	B	B	B	92
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	14	14	18	16	17	14	18	19	27	22	23	23	21	23	24	24	19	17	16	16	14	14	15	16
MED	93	91	93	97	96	99	102	100	106	105	102	110	120	112	109	108	108	100	102	99	95	94	94	95
U Q	100	96	94	103	105	106	108	118	128	108	116	142	152	132	129	127	120	105	104	103	102	100	98	103
L Q	88	88	88	91	91	92	96	94	100	96	96	100	101	102	100	102	104	88	92	89	90	92	92	92

FEB.2018 h'Es (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

FEB. 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	F2	F2	F1	F1			L1	H1	L2	LC21	L3	HL12	HL11	L1	C2	C2	CL11	L2	F1	F1	F1	F1	F1	F1
2	L3	L2	L2	L1	L1	L1		L1	C2	LC11	LC21	LC11		L2	C1			L1			F1			
3					F1				C2	LC22	HL12	L3	C2	C2	LC11	CL21	CL21			F2	F3	F2	F2	F3
4			F1	F2			L4	LC11	LC11	L3	LL23	LLC12	LL13	CL21	CL21	C2	C2			F1	F1	F2	F1	F1
5	F1	F1	F1	F1		F1	L2	LC11	C2	LC21	CL11	C1	CL11	H1	LC11	L2	L1	L3	F1					
6			F2	F1	F1			C1	C2	LC11	LC11		HL11		CL11	C1		L1	F1	F1	F1		F1	
7	F1	F1	F1	F3	F2	F2	L2	L1	CL11	C1	C1	C2	C2	C1	C2	CL23	C2	L1	F4	F1	F1	F1		F2
8	F2	F2	F2	F1	F1	F1	L1		CL11	CL21	L3	CL11	LC11	CL12	C1			L1	F2	F1	FF11	F1	F1	F1
9			F1				L2	L1	C2	C1	C1	C1	C1	C1	C1	C2					F1	F1	F2	F1
10	F1	FF11	F1	F1	F2	F1	L1		C2	C1	HL11	LH11	L1	H1	C1	C1	L1	L2	F2	F1		F2	F1	F1
11	F1	F1	F1	FF11	F2	F2	L1	L3	C1	L1		H1	C1	C2	C1	C1			F2	L1		F1	F2	F1
12	F2					F1	L1	L2	C2	HL11	L2	C1	C1	C1		C1		L1	L3		F1	F1	F1	F1
13	F1				F1				CL11			C1	C2	C2	C2	C2	L2	L4		F1				
14	F1	F1					L1	L4	HL11	HL11	LC11				LC11	C2	C2							
15									C2	C2	C2	C1	C2	C2	C2	C2								F1
16			F1					L1	C2							C2	C2							
17			F1		F1	F1	L1	L1	L1		LC11		H1	LC11	CL21	CL21	C2							
18				F1	F1	F1		L1	L2	L2	L2	C1		C1	CL21	C2	C3	L4	C3	F3		FF11	F1	
19			F1					C2				C1			C1	C2	C2	L3	L2	F1	F3		F1	F1
20	F1	F2		F1	F1		L1	L2	L2	L1	L1	H1	LC11	C1	C2	C3	L4	L3	L1	F2	F2	F4	F2	
21		F1		F1	F3	F4	L1		L1				H1		C1	C2	L2	L1	L2	F2		F1	F2	F3
22	F2	F1	F1			F1	L2		L2		H1	H1		C1						F1	F1	F1	F1	
23			F1			F1			C1	C1	LC12	H1	H1	LC11			C2							
24					F1		L1	C1	L2	L4	LC11	LC11	LC11	L1	L1	C1		H1						
25			F1	F1	F1	F2	L1	L2	LC21	L2	LC21	LC11		C1	CL22	C2	L3	L3	L1					F1
26	F1	F2	F1	F2	F1		L1	C2	L2	L2	L2	LC21	L1	L1	C2	C2	C2		L1		F1			F1
27		F1		F1	F1				LC21	CL11	LC21	CC21	LC12	CL21	L2	CL21	C2	CL11	L1	F2	F2	F2	F2	F2
28	F1	F1	F1	F1	F1	F1	C1	C2	C2	C2	L2	LC21	CL11	CL11	HL21	CL21	C2	L3	L2	F1				F3
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT																								
MED																								
U Q																								
L Q																								

FEB. 2018 TYPES OF Es

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

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

FEB.2018 fxI (0.1MHz)

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IONOSPHERIC DATA STATION Kokubunji

FEB.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	F	F	F	26	F	24	26	40	48	56	70	64	57	63	55	53	54	49	38	36	32	27	F	F
2	F	30	28	30	F	20	19	40	50	50	48	58	77	62	56	52	48	43	28	30	29	30	32	F
3	F	F	26	25	F	F	F	41	49	47	51	67	78	69	60	45	56	52	34	29	33	23	24	28
4	F	F	28	F	F	F	F	43	56	56	49	57	64	57	56	61	54	41	28	32	28	30	F	F
5	F	F	F	F	F	F	F	46	45	52	58	61	65	71	71	64	54	50	30	32	25	28	28	28
6	28	30	31	F	F	F	F	39	46	48	52	64	60	54	50	63	66	42	28	28	28	30	25	26
7	F	24	25	26	27	23	A	42	50	49	52	58	61	60	62	50	48	46	28	27	32	33	30	30
8	30	28	28	28	28	25	24	44	50	52	55	58	58	52	54	50	58	44	33	28	30	29	28	30
9	29	30	30	32	F	F	24	49	56	54	56	51	61	59	52	47	68	46	40	A	30	27	F	26
10	F	25	26	26	34	20	19	42	50	54	56	57	61	56	58	55	52	51	35	32	32	27	A	29
11	F	28	F	30	F	25	F	44	59	55	58	53	61	55	57	57	56	55	36	36	38	34	F	F
12	32	F	32	27	33	27	26	48	59	63	82	86	90	59	51	56	57	44	34	34	34	32	F	F
13	F	30	30	27	27	27	F	46	63	61	57	57	62	53	56	61	60	49	32	37	37	F	F	F
14	F	F	F	F	F	F	F	46	53	58	60	59	66	61	56	53	50	45	41	38	35	F	F	F
15	F	F	27	F	F	34	F	46	55	69	78	72	58	57	54	52	49	41	34	32	34	34	35	33
16	32	31	30	26	28	27	27	52	58	54	64	71	67	62	53	53	53	43	33	31	32	33	34	35
17	35	33	35	32	32	30	32	43	48	54	56	66	72	64	62	55	50	49	43	44	42	37	40	39
18	41	37	36	42	26	22	24	46	55	68	67	72	75	58	62	59	50	46	A	39	39	39	37	39
19	33	36	32	32	37	23	26	53	66	87	91	94	114	110	94	72	62	48	30	30	27	27	30	30
20	31	32	31	36	33	19	24	50	59	72	74	88	92	64	63	66	67	A	36	A	33	28	30	30
21	F	F	F	27	28	21	24	45	48	51	56	57	57	54	53	54	49	49	34	33	A	32	29	30
22	31	30	30	27	27	26	26	43	47	48	53	55	60	56	53	56	53	50	35	32	34	A	F	34
23	28	F	F	F	26	22	28	40	47	58	54	55	59	63	63	54	58	52	53	40	40	35	35	34
24	F	35	32	A	30	24	30	48	55	63	56	53	55	64	56	53	57	63	36	30	32	31	31	30
25	30	29	30	28	28	25	25	40	45	53	54	57	57	60	58	52	57	52	46	38	30	27	26	26
26	F	F	26	F	F	26	F	49	52	54	64	64	70	69	60	56	55	51	53	52	38	37	33	34
27	33	35	32	F	F	F	34	50	55	59	64	64	75	61	74	62	61	65	48	34	37	37	38	34
28	34	33	32	30	26	25	32	58	64	70	66	54	60	61	55	57	58	49	38	38	42	36	35	A
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	14	18	22	19	16	21	18	28	28	28	28	28	28	28	28	28	28	27	27	26	27	25	19	20
MED	32	30	30	28	28	25	26	46	52	54	56	58	62	60	56	55	56	49	35	32	33	31	31	30
U Q	33	33	32	32	32	26	28	48	57	62	65	66	74	64	62	60	58	51	40	38	37	34	35	34
L Q	30	29	28	26	27	22	24	42	48	52	54	57	60	56	54	52	51	44	32	30	30	28	28	28

IONOSPHERIC DATA STATION Kokubunji

FEB.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	L	L	L	U L 420	L	L								
2										L	U L 424	404	380		L	L								
3									A		U L 416	416	416	U L 412										
4											L	U L 520	U L 416	L	L	A								
5											U L 408	424	U L 428	412	U L 404	U L 392								
6											U L 432	412	U L 428	U L 428	U L 420									
7											A	U L 420	A	U L 416	A									
8											U L 416	U L 416	U L 420	L	U L 396									
9										L	L		U L 408	L	L									
10										A	L	A	416	U L 436	L	A								
11										L	A	U L 424	A	A	U L 408	A								
12									L	L	L	L	U L 428	L	L	L	L							
13									L	L	L	L	U L 436		U L 428									
14										L	U L 416	U L 468	L	L	L	A								
15									L	L	L	L	L	U L 440	L	L								
16									L	L	U L 424	U L 432	424	L	L	L								
17							312			L	U L 412	U L 428	428	U L 416	A	L								
18										A	L	U L 424	A	A	L	A								
19									L	L	L	U L 420	428	424										
20									L	L	L	424	U L 424	U L 412	U L 416	A		A						
21									L	L	U L 412	A	U L 416	L	L	L								
22										L	U L 392	L	420	L	L	U L 376	L							
23										L	U L 420	U L 424	U L 428	U L 416	L	A	L							
24										L	L	L	U L 444	L	L	L								
25									A		L	L	U L 416	A	A	A	A							
26										L	U L 408	432	428	U L 416	U L 420	L								
27									L	L	U L 428	U L 448	A	U L 436	420	A								
28									L	A	L	U L 424	A	L	L	A								
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT							1				13	18	20	13	8	2								
MED							312				U L 416	U L 424	U L 424	U L 416	U L 418	U L 384								
U Q											U L 424	U L 432	U L 428	U L 432	U L 420									
L Q											U L 410	420	416	U L 414	U L 406									

FEB.2018 foF1 (0.01MHz)

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IONOSPHERIC DATA STATION Kokubunji

FEB. 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								B	UA 220	272		A	R	A	R	A	R	R	B							
2								B	228	272		R	A	UR 312	A	272	UR 260	UR 216	B							
3								B	228	UR 284		A	R	A	A	A	UR 260	212								
4								B	A	276		R	A	A	A	A	A	A	B							
5								B	A	A	A	A	UR 320	A	UR 288	UR 260	A									
6								B	UR 252	A	A	A	A	A	R	260	A	B								
7									A	A	A	A	A	A	A	A		B								
8								R	UR 240	A	A	A	A	R	R	UR 264	UR 232									
9								B	A	A	R	A	A	332	R	A	A	B								
10								196	256	296	A	320	A	340	320	A	A	B								
11								B	UR 240	UR 284	A	R	340	A	A	A	A	A								
12								B	A	288	A	UR 356	A	A	UR 308	UR 268	A	B								
13								UR 184	UR 256	UR 288	UA 316	316	A	A	A	A	UR 236	B								
14								UR 192	UR 260	UR 300	A	R	328	324	300	A	A	B								
15								UR 180	UR 260	UR 304	R 320	R	UR 324	A	A	R	UR 244	B								
16								A	UR 260	R	A	R	R	A	R	R	248	B								
17							B	UR 192	A	UR 284	R	R	A	UA 308	A	A	UR 244	B								
18								176	244	A	A	A	A	A	A	UA 268	A	B								
19								B	UR 256	A	A	A	R	R	A	A	A	B								
20								A	A	R	R	A	A	A	A	A	A	B								
21								A	UR 236	UR 280	R	312	R	R	A	A	UR 256	R								
22								UR 188	UR 244	R	R 312	UR 332	324	A	A	UR 272	UR 244	B								
23								UA 196	UR 272	A	296	R	312	A	UR 304	UA 272	UR 236	B								
24								UR 196	UR 264	UR 284	UR 304	A	UR 328	R	284	264	UA 228	B								
25								UR 184	252	280	A	A	344	A	A	A	A	B								
26								B	A	A	A	UR 316	UR 328	UR 304	292	UA 272	A	B								
27								UR 204	260	UR 288	R	A	UA 328	A	UR 320	A	A	B								
28								B	UR 260	A	R	R	328	UA 340	A	A	A	B								
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								11	20	15	5	6	12	6	9	11	11							
MED								UR 192	UR 254	UR 284	R 312	318	328	328	300	UR 264	UR 236							
U Q								UR 196	UR 260	UR 288	318	UR 332	328	340	UR 314	UA 272	UR 244							
L Q								UR 184	U 240	280	300	316	322	U 308	286	UR 260	U 228							

FEB. 2018 foE (0.01MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

FEB. 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	19	22	J A 32	J A 24	22	18	22	E B 16	28	30	J A 37	G	J A 44	G	J A 34	G	G	J A 28	J A 33	27	20	E B 16	E B 16	E B 16
2	E B 16	J A 22	J A 24	22	22	E B 15	E B 15	E B 16	27	G	G 28	J A 41	G	34	31	G	G	E B 15	E B 16	E B 16	E B 15	E B 16	E B 15	23
3	22	E B 16	E B 16	E B 14	E B 16	E B 16	E B 16	20	25	G	J A 37	G	34	33	J A 36	J A 29	26	E B 15	E B 15	J A 22	E B 15	E B 15	E B 14	E B 14
4	E B 15	20	21	E B 15	20	20	J A 52	J A 26	J A 31	32	G	J A 109	36	37	J A 39	J A 37	29	J A 30	24	J A 45	22	22	J A 36	J A 29
5	E B 15	23	22	22	J A 24	22	E B 15	22	30	J A 41	J A 48	J A 48	J A 35	J A 44	G	G 23	J A 40	E B 17	E B 15	E B 15	E B 14	21	21	J A 45
6	E B 14	23	E B 15	E B 15	21	E B 15	E B 16	E B 16	G	33	J A 46	J A 38	J A 38	37	G	30	J A 37	J A 26	J A 30	J A 40	J A 34	J A 30	J A 26	19
7	J A 23	J A 26	J A 39	J A 31	J A 29	J A 30	J A 40	J A 34	26	33	J A 85	J A 47	J A 46	35	32	J A 54	J A 50	J A 40	J A 30	E B 16	E B 16	E B 16	E B 15	J A 27
8	18	22	21	E B 15	J A 19	E B 15	18	G	G	32	36	J A 40	35	G	G	G	G	E B 16	E B 15	E B 16	E B 15	E B 15	E B 15	21
9	19	E B 13	E B 16	E B 16	E B 16	24	E B 15	J A 22	J A 30	J A 35	G	J A 40	J A 40	36	G	32	J A 30	J A 28	J A 28	J A 50	J A 22	J A 30	J A 26	J A 27
10	J A 26	J A 26	J A 26	J A 23	E B 16	E B 15	E B 15	26	30	38	J A 38	39	33	36	36	J A 44	J A 41	J A 36	24	J A 42	J A 26	J A 29	J A 36	J A 36
11	J A 25	20	J A 26	J A 24	21	21	23	J A 39	G 21	G	J A 48	J A G 29	38	37	34	J A 34	29	J A 25	J A 36	J A 34	J A 48	J A 54	J A 46	J A 26
12	J A 27	E B 16	J A 22	23	22	22	E B 16	E B J A 17	28	33	33	G	36	36	G	G	25	20	J A 23	J A 26	J A 33	J A 28	24	J A 27
13	J A 21	21	E B 15	E B 16	E B 16	E B 16	J A 20	G	G	G	37	38	36	34	36	J A 36	G	E B 15	J A 20	22	24	24	J A 24	22
14	E B 17	E B 16	E B 15	E B 15	E B 16	E B 16	E B 14	G	G	G	J A 35	G	37	36	33	34	29	20	E B 14	E B 14	E B 16	E B 16	E B 16	24
15	E B 16	E B 15	E B 15	E B 15	E B 14	E B 14	E B 15	G	G	G	G	G	G	J A 36	32	G	G	19	19	E B 15	E B 15	E B 16	E B 14	E B 15
16	E B 15	E B 15	E B 15	E B 14	E B 16	E B 16	19	J A 23	G	G	35	G	G	35	G	G	28	J A 27	E B 16	E B 14	E B 15	E B 16	E B 16	E B 15
17	E B 16	E B 16	19	19	19	E B 15	E B 16	G	28	G	G	G	38	36	36	34	G	20	20	20	J A 28	24	22	J A 28
18	J A 34	23	18	E B 15	20	E B 15	E B 15	26	29	34	36	39	38	J A 58	J A 43	36	J A 40	J A 27	J A 49	39	J A 63	J A 36	J A 74	J A 24
19	E B 15	E B 15	E B 16	E B 15	19	21	19	19	G	J A 33	J A 35	J A 39	G	G	J A 34	J A 43	J A 36	J A 27	J A 37	23	J A 24	J A 43	J A 42	J A 32
20	22	J A 42	J A 30	J A 24	20	J A 25	J A 20	23	J A 32	G	G 28	J A 40	J A 40	35	J A 37	J A 62	J A 64	J A 84	J A 66	J A 68	J A 53	J A 54	22	J A 32
21	J A 24	23	23	E B 15	J A 29	J A 29	J A 32	J A 38	G	G	J G 26	37	G 32	G 26	35	31	G 24	G	J A 48	J A 42	J A 51	J A 39	J A 31	J A 24
22	21	26	23	E B 14	E B 15	E B 15	J A 20	G	G	G	G	G	G	38	36	G	G	J A 28	E B 14	J A 26	21	J A 41	E B 16	J A 28
23	22	J A 22	22	21	E B 15	E B 15	E B 16	27	G	J A 34	34	35	35	36	J G 26	33	G	J A 36	J A 24	E B 13	E B 14	J A 37	E B 14	E B 14
24	J A 26	J A 24	J A 30	J A 46	J A 29	E B 16	E B 15	22	G	G	G	J A 39	G 29	G	33	30	28	J A 38	J A 31	J A 40	J A 33	J A 28	J A 25	J A 24
25	E B 16	E B 16	E B 16	E B 16	E B 15	E B 16	E B 16	G	34	36	35	37	38	39	J A 64	38	J A 47	J A 55	J A 62	J A 40	J A 49	J A 52	J A 26	24
26	21	J A 26	22	E B 16	21	20	E B 16	J A 26	43	J A 51	J A 40	G	G	G	34	34	J A 39	J A 36	J A 32	J A 51	J A 28	J A 30	J A 39	J A 33
27	J A 28	J A 23	J A 24	E B 16	E B 16	E B 15	E B 16	G	G	G 27	G	33	39	38	G	35	J A 39	J A 37	J A 19	J A 22	J A 33	J A 46	J A 54	J A 32
28	J A 37	J A 25	J A 21	21	E B 16	20	21	J A 23	G	J A 38	G	G 26	40	36	36	36	J A 36	J A 32	J A 34	J A 22	J A 30	J A 30	J A 52	J A 50
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28
MED	21	22	22	E B 16	19	E B 16	E B 16	21	G	31	35	37	36	36	34	34	29	J A 27	J A 24	J A 24	J A 24	J A 28	24	J A 25
U Q	J A 24	J A 24	J A 24	J A 22	22	21	J A 20	J A 26	30	J A 34	J A 37	J A 40	J A 38	37	J A 36	J A 36	J A 39	J A 36	J A 34	J A 40	J A 33	38	J A 36	J A 30
L Q	E B 16	E B 16	E B 16	E B 15	E B 16	E B 15	E B 15	G	G	G	G	G	G	G 34	G	G	G	E B 20	E B 18	E B 16	E B 16	E B 16	E B 16	E B 22

FEB. 2018 foEs (0.1MHz)

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FEB.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 15	E B 16	18	E B 16	E B 15	E B 16	E B 16	E B 16	28	29	30	G	32	G	30	G	G	20	22	23	E B 16	E B 16	E B 16	E B 16
2	E B 16	E B 16	E B 16	E B 16	E B 15	E B 15	E B 15	E B 16	26	G	G 28	32	G	33	30	G	G	E B 15	E B 16	E B 16	E B 15	E B 16	E B 15	E B 17
3	E B 16	E B 16	E B 16	E B 14	E B 16	E B 16	E B 16	19	24	G	31	G	32	30	29	G 23	25	E B 15	E B 15	E B 15	E B 15	E B 15	E B 14	E B 14
4	E B 15	E B 16	E B 15	E B 15	E B 15	E B 16	E B 15	20	23	31	G	44	33	33	30	32	26	23	E B 15	20	16	E B 16	E B 15	18
5	E B 15	E B 15	E B 16	E B 16	E B 15	E B 16	E B 15	19	24	32	32	35	G 26	33	G	G 22	28	E B 17	E B 15	E B 15	E B 14	E B 15	E B 15	19
6	E B 14	E B 15	E B 15	E B 15	E B 16	E B 15	E B 16	E B 16	G	30	33	32	32	31	G	30	24	18	23	20	22	22	E B 16	E B 17
7	E B 16	E B 16	19	18	17	18	A A 40	26	24	30	40	34	38	33	31	30	41	25	21	E B 16	E B 16	E B 16	E B 15	E B 16
8	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	G	G	29	32	32	32	G	G	G	G	E B 16	E B 15	E B 16	E B 15	E B 15	E B 15	E B 16
9	E B 15	E B 13	E B 16	E B 16	E B 16	E B 16	E B 15	18	22	29	G	35	33	34	G	28	25	19	16	A A 50	E B 16	24	E B 15	E B 16
10	E B 16	E B 16	E B 16	E B 16	E B 16	E B 15	E B 15	24	28	35	35	37	32	35	36	36	32	24	E B 15	21	18	19	A A 36	19
11	E B 15	E B 15	E B 16	E B 16	E B 16	E B 16	E B 16	22	G 19	G	38	G 23	36	35	32	32	28	19	20	20	22	21	19	18
12	E B 15	E B 16	E B 16	E B 17	E B 15	16	E B 16	E B 17	24	32	31	G	33	34	G	G	23	17	E B 16	18	E B 16	20	E B 16	E B 16
13	E B 16	E B 16	E B 15	E B 16	E B 16	E B 16	E B 16	G	G	G	35	37	34	33	33	31	G	E B 15	E B 16	E B 16	E B 15	E B 16	E B 16	E B 17
14	E B 17	E B 16	E B 15	E B 15	E B 16	E B 16	E B 14	G	G	G	31	G	34	34	33	34	28	19	E B 14	E B 14	E B 16	E B 16	E B 16	E B 17
15	E B 16	E B 15	E B 15	E B 15	E B 14	E B 14	E B 15	G	G	G	G	G	G	31	30	G	G	18	E B 16	E B 15	E B 15	E B 16	E B 14	E B 15
16	E B 15	E B 15	E B 15	E B 14	E B 16	E B 16	E B 15	18	G	G	32	G	G	34	G	G	26	21	E B 16	E B 14	E B 15	E B 16	E B 16	E B 15
17	E B 16	E B 16	E B 16	E B 16	E B 16	E B 15	E B 16	G	27	G	G	G	36	34	34	30	G	19	E B 16	E B 16	18	E B 16	E B 16	E B 16
18	20	E B 15	E B 15	E B 15	E B 16	E B 15	E B 15	21	28	33	34	37	37	47	33	33	32	22	A A 49	22	20	16	20	E B 16
19	E B 15	E B 15	E B 16	E B 15	E B 16	E B 15	E B 15	18	G	27	33	32	G	G	30	32	24	21	22	16	E B 16	20	21	20
20	E B 16	E B 16	E B	18	E B 15	E B 16	17	21	25	G	G 26	32	33	33	32	46	30	A A 84	22	A A 68	E B 16	20	E B 16	E B 16
21	18	E B 15	E B 15	E B 15	17	E B 15	20	20	G	G	G 22	36	G 23	G 22	33	30	G 23	G	20	20	A A 51	18	17	E B 16
22	E B 16	16	E B 16	E B 14	E B 15	E B 15	E B 16	G	G	G	G	G	G	36	32	G	G	21	E B 14	E B 15	E B 15	A A 41	E B 16	16
23	E B 15	E B 16	E B 16	E B 16	E B 15	E B 15	E B 16	24	G	30	32	33	34	34	G 21	32	G	32	18	E B 13	E B 14	24	E B 14	E B 14
24	E B 15	E B 15	20	A A 46	18	E B 16	E B 15	21	G	G	G	32	G 27	G	32	29	27	23	20	20	23	23	E B 16	E B 16
25	E B 16	E B 16	E B 16	E B 16	E B 15	E B 16	E B 16	G	32	34	32	34	36	38	45	36	32	34	28	28	18	20	E B 16	E B 16
26	E B 16	E B 16	E B 16	E B 16	E B 16	15	E B 16	21	36	31	32	G	G	G	32	32	33	32	26	E B 15	16	E B 16	21	18
27	19	E B 16	E B 16	E B 16	E B 16	E B 15	E B 16	G	G	G 19	G	32	36	35	G	33	31	31	E B 15	E B 16	E B 16	E B 16	21	16
28	E B 15	E B 16	16	E B 16	E B 16	E B 15	E B 15	20	G	33	G	G 24	38	36	34	32	26	28	29	20	E B 16	21	22	A A 50
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28
MED	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	18	G	28	31	32	32	33	30	30	26	20	16	16	E B 16	16	E B 16	E B 16
U Q	E B 16	E B 16	16	E B 16	E B 16	E B 16	E B 16	21	26	31	32	34	35	34	33	32	29	24	22	20	18	20	18	18
L Q	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	G	G	G	G	G	G	G 30	G	G	G	E B 18	E B 15	E B 15	E B 15	E B 16	E B 15	E B 16

FEB.2018 fbEs (0.1MHz)

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IONOSPHERIC DATA STATION Kokubunji

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

IONOSPHERIC DATA STATION Kokubunji

FEB.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	F	F	F	355	F	328	328	375	364	354	375	381	371	363	384	366	403	397	352	374	342	361	F	F
2	F	319	318	334	F	353	351	382	390	391	345	361	378	377	383	392	381	382	372	355	340	346	300	F
3	F	F	326	392	F	F	F	374	402	341	335	329	355	349	374	398	380	386	371	329	379	378	320	304
4	F	F	283	F	F	F	F	386	396	374	364	319	357	353	355	361	386	394	368	355	361	324	F	F
5	F	F	F	F	F	F	F	389	416	333	367	354	335	361	345	376	395	376	361	371	343	327	317	314
6	349	322	328	F	F	F	F	395	399	382	320	364	376	369	342	362	410	407	338	334	343	360	311	273
7	F	304	324	318	348	354	A	389	389	372	371	332	337	361	395	396	360	385	347	323	334	347	313	311
8	288	309	320	342	342	340	338	382	387	398	381	361	373	381	368	326	375	385	381	313	333	349	334	292
9	355	325	326	320	F	F	339	382	364	380	367	386	380	383	364	347	369	395	357	A	342	353	F	326
10	F	310	343	326	392	325	340	388	385	363	338	378	340	327	340	349	388	371	355	359	338	321	A	348
11	F	292	F	345	F	387	F	378	403	376	383	322	380	361	359	371	381	386	335	330	356	353	F	F
12	329	F	330	314	359	328	333	364	366	353	360	345	361	368	368	362	368	381	350	318	352	306	F	F
13	F	308	340	359	360	332	F	354	372	391	377	351	396	341	343	376	392	393	319	365	362	F	F	F
14	F	F	F	F	F	F	F	372	375	390	374	323	357	369	392	367	379	369	340	343	384	F	F	F
15	F	F	344	F	F	344	F	350	359	373	357	360	374	351	365	358	384	385	354	333	336	331	333	334
16	327	317	356	320	320	326	328	375	365	353	344	340	370	366	361	370		370	366	329	338	315	339	332
17	325	327	340	353	366	332	352	387	368	344	352	333	344	361	378	381	378	361	347	332	365	327	344	321
18	324	325	346	375	386	306	337	373	354	360	330	361	373	349	372	373	378	378	A	331	317	335	309	359
19	328	343	307	357	369	345	345	355	344	343	339	325	349	352	355	383	377	374	347	324	350	320	294	292
20	309	294	310	387	410	326	336	384	365	370	338	357	350	353	361	369	396	A	350	A	355	351	355	287
21	F	F	F	325	349	381	353	397	391	379	365	370	386	368	366	381	370	384	348	345	A	333	338	304
22	322	338	345	326	331	352	348	410	380	365	382	351	368	360	368	364	379	376	334	331	311	A	F	328
23	328	F	F	F	371	300	347	406	387	355	356	338	356	363	385	364	366	372	375	351	284	309	317	331
24	F	309	338	A	343	332	352	402	369	381	361	352	310	365	345	368	373	385	390	306	325	326	327	297
25	301	317	340	319	326	409	380	401	375	341	348	350	336	357	351	371	379	358	367	357	352	324	332	333
26	F	F	279	F	F	336	F	410	375	348	350	346	346	369	366	356	369	386	360	352	341	367	324	335
27	301	288	314	F	F	F	373	390	379	362	368	330	363	336	329	341	358	374	376	332	309	322	314	312
28	296	311	327	346	348	339	353	385	370	370	395	352	360	368	343	358	371	387	350	327	349	359	319	A
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	14	18	22	19	16	21	18	28	28	28	28	28	28	28	28	28	27	27	27	26	27	25	19	20
MED	324	314	328	342	354	336	346	384	375	368	360	351	360	361	364	368	379	384	354	332	342	333	320	318
U Q	328	325	340	357	370	352	352	392	390	380	372	361	374	368	373	376	386	386	368	355	355	353	334	332
L Q	301	308	318	320	342	327	337	374	366	353	344	332	348	352	348	360	370	374	347	329	334	323	313	300

IONOSPHERIC DATA STATION Kokubunji

FEB.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	L	L	L	U L 394	L	L								
2										L	U L 391	419	447		L	L								
3									A		U L 391	390	389	U L 398										
4											L	U L 364	U L 410	L	L	A								
5											U L 386	367	U L 395	409	U L 410	U L 379								
6											U L 371	393	U L 407	U L 408	U L 398									
7											A	U L 399	A	U L 402	A									
8											U L 397	U L 409	U L 401	L	U L 401									
9										L	L		U L 432	L	L									
10										A	L	A	431	U L 406	L	A								
11										L	A	U L 435	A	A	U L 392	A								
12									L	L	L	L	U L 389	L	L	L	L							
13									L	L	L	L	U L 390		U L 389									
14										L	U L 407	U L 376	L	L	L	A								
15									L	L	L	L	L	U L 402	L	L								
16									L	L	U L 406	U L 410	413	L	L	L								
17							362			L	U L 395	U L 395	395	U L 399	A	L								
18										A	L	U L 396	A	A	L	A								
19									L	L	L	U L 427	392	377										
20									L	L	L	398	U L 410	U L 394	U L 398	A		A						
21									L	L	U L 415	A	U L 406	L	L	L								
22										L	U L 424	L	399	L	L	U L 401	L							
23										L	U L 401	U L 391	U L 378	U L 396	L	A	L							
24										L	L	L	U L 366	L	L	L								
25									A		L	L	U L 409	A	A	A	A							
26										L	U L 416	405	379	U L 389	U L 397	L								
27									L	L	U L 389	U L 378	A	U L 369	378	A								
28									L	A	L	U L 440	A	L	L	A								
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT							1				13	18	20	13	8	2								
MED							362				U L 397	U L 397	U L 400	U L 398	U L 398	U L 390								
U Q											U L 411	U L 410	410	U L 404	U L 400									
L Q											U L 390	U L 390	U L 390	U L 392	U L 390									

FEB.2018 M(3000)F1 (0.01)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

FEB.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										262	220	222	240	248	238	248								
2										234	306	258	224		232	230								
3									214		322	272	242	228										
4											262	350	242	252	246	240								
5											258	274	260	244	244	222								
6											302	256	234	254	288									
7											242	274	268	236	226									
8											254	256	240	246	252									
9										238	244		234	238	246									
10										244	270	238	282	268	276	250								
11										238	240	288	242	244	252	242								
12									232	246	230	242	240	238	258	240	234							
13									222	210	232	270	236		268									
14										236	240	278	250	238	228	236								
15									232	238	232	222	234	260	244	242								
16									230	270	276	244	238	234	258	246								
17							204			268	266	278	254	250	232	232								
18										246	252	246	228	E 258	A 242	230								
19									252	258	238	254	244	228										
20									244	232	256	240	220	234	248	240		A						
21									226	248	242	252	260	236	242	242								
22										248	240	260	250	246	252	252	228							
23										260	252	278	258	246	228	236	230							
24										238	238	258	332	260	256	250								
25									220		258	252	284	258	250	242	226							
26										266	256	264	254	234	246	246								
27									226	242	230	268	242	278	270	240								
28									230	222	226	248	248	246	248	240								
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT							1		11	21	28	27	28	26	26	21	4							
MED							204		230	244	248	258	242	246	247	240	229							
U Q									232	259	260	274	256	254	256	246	232							
L Q									222	237	238	246	237	236	242	236	227							

FEB.2018 h'F2 (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

FEB. 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 234	E B 272	E A 222	224	188	E B 246	E B 248	210	210	204	180	184	186	174	190	196	206	202	214	190	204	E B 204	E B 260	E B 256
2	204	E B 256	E B 256	224	192	204	E B 264	196	206	200	194	172	170	222	184	184	200	192	192	E B 214	212	220	E B 238	E B 286
3	E B 254	224	222	206	186	170	E B 230	204	A	200	196	182	190	188	216	188	214	200	E B 186	E B 236	192	190	E B 238	E B 240
4	E B 238	206	E B 252	E B 240	212	E B 192	218	206	202	216	180	230	182	200	196	A	200	196	198	224	196	224	212	216
5	E B 232	E B 256	E B 252	212	214	200	180	198	188	200	196	220	196	196	196	184	196	186	184	200	216	E B 246	E B 250	E A 280
6	E B 230	E B 244	E B 232	204	194	220	200	192	200	200	200	178	194	186	170	222	200	198	E A 276	E A 256	E A 278	E A 234	E B 252	E B 300
7	E B 254	E B 284	E A 298	E A 282	224	224	A	212	208	194	A	222	A	196	A	196	E A 244	202	220	E B 252	E B 228	216	E B 244	E B 250
8	E B 266	E B 252	E B 246	E B 230	216	228	212	204	198	200	190	180	194	188	186	186	206	188	184	E B 218	222	214	224	E B 258
9	216	E B 236	E B 242	210	E B 250	E B 234	224	202	192	190	178	208	180	194	186	190	224	192	198	A	200	E A 282	E B 288	E B 254
10	E B 294	E B 300	E B 274	E B 254	194	182	E B 244	202	200	A	204	A	176	192	222	A	214	196	186	210	218	E A 274	A	230
11	E B 282	E B 268	E B 244	214	218	190	210	206	210	190	A	174	A	A	186	A	212	206	222	E A 240	218	222	E A 286	E A 256
12	214	220	218	210	218	208	234	200	184	204	202	210	196	204	190	194	198	192	200	216	214	E A 256	E B 234	E B 264
13	E B 244	E B 240	220	E B 220	232	E B 230	E B 230	206	194	182	190	202	202	196	194	230	210	188	176	208	208	214	210	E B 298
14	220	224	E B 232	E B 236	220	186	222	192	196	186	174	196	206	204	194	A	208	204	198	198	198	E B 258	E B 254	E B 256
15	E B 248	E B 228	210	220	E B 210	216	E B 250	206	188	186	182	182	192	180	180	194	202	206	198	218	226	236	224	218
16	E B 236	E B 236	212	E B 260	E B 242	E B 248	E B 236	212	190	176	168	186	184	186	182	198	206	204	E B 192	E B 238	E B 234	E B 232	E B 236	E B 242
17	E B 234	E B 240	216	198	202	222	202	194	196	184	174	178	200	202	A	190	204	216	E B 200	216	198	E B 246	234	232
18	E A 242	222	218	202	186	E B 272	242	208	204	A	198	206	A	A	198	A	210	206	A	210	232	224	E A 240	212
19	E B 232	218	E B 228	E B 234	196	202	E B 250	210	208	214	192	180	180	184	214	208	216	186	E A 236	224	214	E A 308	E A 322	E A 294
20	E B 262	E B 270	E B 248	204	186	E B 272	E A 276	210	186	184	196	194	182	182	188	A	198	A	206	A	206	216	220	E B 262
21	E A 270	E B 268	E B 240	E B 240	210	204	232	200	172	176	176	A	186	196	192	188	196	204	214	210	A	E A 248	224	E B 258
22	E B 240	E B 236	234	E B 226	E B 230	222	206	184	H 170	178	184	184	190	196	200	198	186	204	194	E B 238	E B 252	A	E B 274	218
23	E B 258	E B 272	E B 248	220	194	E B 248	214	194	202	196	188	192	204	200	206	A	182	206	198	200	226	E A 268	E B 264	224
24	234	E B 226	244	A	E A 234	224	206	194	198	200	182	180	214	230	202	192	216	210	194	E A 262	E A 262	E A 272	E B 232	E B 248
25	E B 258	E B 252	E B 224	E B 228	210	196	196	178	A	230	210	210	194	A	A	A	A	220	204	210	210	E A 240	E B 248	E B 260
26	E B 298	E B 270	E B 276	E B 236	E B 244	228	188	188	200	196	188	184	182	198	200	208	216	212	212	204	196	198	210	E A 238
27	E A 270	E B 256	E B 274	E B 248	224	184	190	190	190	184	184	200	A	208	208	A	232	204	188	188	E B 254	234	E A 242	E A 242
28	E B 256	E B 270	E A 242	214	E B 210	230	218	212	196	A	190	182	A	212	202	A	218	208	E A 232	232	220	214	E A 234	A
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	28	28	27	28	28	27	28	26	25	26	26	23	25	25	18	27	27	27	26	27	27	27	27
MED	E B 243	E B 248	E B 241	U 213	205	U 210	U 211	202	197	196	189	185	190	196	194	194	206	204	196	209	211	E 234	E B 238	E B 254
U Q	E B 260	E B 269	E B 250	E B 236	E 224	E B 230	E B 242	207	202	200	196	206	196	203	202	198	216	206	214	E B 236	E B 228	E A 256	E B 254	E B 262
L Q	233	227	222	210	194	198	206	194	190	184	180	180	182	187	186	188	200	192	192	208	204	216	224	232

FEB. 2018 h'F (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

FEB.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								B	112	112	A	112	A	112	A	112	110	B						
2								B	110	110	110	A	110		108	110	110	B						
3								B	118	116	A	114	A	A	A	110	110							
4								B	A	110	110	A	A	A	A	A	A	B						
5								B	108	A	A	A	108	A	108	110	A							
6								B	108	A	A	A	A	A	108	114	A	B						
7									A	116	A	A	A	A	118	A		B						
8								116	114	114	A	A	A	114	114	112	112							
9								B	A	A	112	A	A	114	116	A	A	B						
10								130	114	110	110	110	108	112	112	114	112	B						
11								B	112	110	A	110	110	A	A	A	A	A						
12								B	A	114	A	114	A	A	112	112	112	B						
13								108	114	114	114	112	112	114	A	A	110	B						
14								112	114	114	A	114	114	114	108	108	110	B						
15								110	110	112	112	116	110	A	A	110	112	B						
16								A	112	108	110	110	110	114	114	114	114	B						
17							B	108	108	108	110	108	110	114	114	114	112	B						
18								112	112	110	112	112	114	A	114	110		B						
19								B	112	A	A	A	112	112	A	A	A	B						
20								122	A	110	110	A	A	A	A	A	A	B						
21								A	108	110	110	106	108	112	112	112	110	110						
22								108	108	108	108	108	108	108	108	108	110	B						
23								122	118	A	112	112	106	108	110	110	108	B						
24								116	114	114	112	A	112	110	110	110	108	B						
25								114	114	110	110	A	108	108	A	A	A	B						
26								B	A	A	A	108	108	108	108	108	A	B						
27								108	108	112	112	A	114	A	114	114	A	B						
28								B	110	A	110	110	110	110	110	110	A	B						
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								13	22	21	17	16	19	16	19	20	15	1						
MED								112	112	110	110	111	110	112	112	110	110	110						
U Q								119	114	114	112	113	112	114	114	113	112							
L Q								108	108	110	110	109	108	109	108	110	110							

FEB.2018 h'E (KM)

IONOSPHERIC DATA STATION Kokubunji

FEB.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	92	92	92	92	90	90	84	B	156	160	100	G	98	G	92	G	G	92	84	84	84	B	B	B
2	B	90	90	90	90	B	B	B	150	G	98	98	G	142	150	G	G	B	B	B	B	B	B	86
3	94	B	B	B	B	B	B	152	162	G	100	G	98	96	96	96	142	B	B	102	B	B	B	B
4	B	94	94	B	106	106	100	100	100	160	G	90	90	102	94	88	124	110	94	94	84	84	98	96
5	B	88	102	88	96	86	B	156	114	104	98	94	94	92	G	92	90	B	B	B	B	102	100	94
6	B	90	B	B	88	B	B	B	G	100	98	98	98	100	G	140	92	98	88	88	88	88	98	102
7	96	100	94	92	92	106	88	86	122	122	102	100	98	96	114	86	80	80	80	B	B	B	B	92
8	96	100	92	B	92	B	90	G	G	128	104	98	98	G	G	G	G	B	B	B	B	B	B	92
9	92	B	B	B	B	92	B	98	102	104	G	98	100	148	G	104	100	124	102	92	92	92	98	98
10	94	94	94	94	B	B	B	138	140	134	108	146	112	140	144	124	112	108	96	92	92	88	118	106
11	146	78	80	80	80	80	94	92	86	G	84	84	134	102	100	96	104	106	82	84	84	86	86	82
12	88	B	94	96	96	92	B	B	98	146	96	G	98	100	G	G	124	96	96	96	86	86	86	82
13	80	88	B	B	B	B	90	G	G	G	160	150	132	118	100	100	G	B	94	90	90	88	84	92
14	B	B	B	B	B	B	B	G	G	G	100	G	138	140	130	118	114	106	B	B	B	B	B	90
15	B	B	B	B	B	B	B	G	G	G	G	G	G	102	100	G	G	130	94	B	B	B	B	B
16	B	B	B	B	B	B	102	108	G	G	128	G	G	112	G	G	132	118	B	B	B	B	B	B
17	B	B	108	108	108	B	B	G	120	G	G	G	118	122	120	116	G	112	112	100	90	88	88	100
18	88	102	102	B	102	B	B	140	140	114	128	114	124	102	114	124	100	104	92	92	94	94	92	92
19	B	B	B	B	100	100	100	116	G	96	96	96	G	G	96	106	108	98	98	94	94	92	92	92
20	92	94	94	94	94	100	126	134	108	G	96	96	92	106	106	104	98	94	94	90	90	90	90	88
21	88	90	84	B	92	102	96	94	G	G	88	150	84	92	110	110	100	G	98	90	94	98	90	88
22	88	88	88	B	B	B	102	G	G	G	G	G	G	116	120	G	G	102	B	130	102	116	B	90
23	90	88	88	88	B	B	B	122	G	100	134	144	132	122	88	132	G	116	108	B	B	120	B	B
24	90	144	122	110	104	B	B	134	G	G	G	96	92	G	144	130	130	90	86	86	80	80	80	78
25	B	B	B	B	B	B	B	G	140	146	116	102	134	118	104	102	102	96	96	94	92	92	92	92
26	90	90	88	B	88	86	B	98	98	98	98	G	G	G	136	118	102	98	96	98	98	92	88	88
27	80	80	96	B	B	B	B	G	G	96	G	96	130	100	G	124	104	102	102	102	102	94	94	94
28	88	88	88	88	B	114	110	104	G	100	G	96	144	128	124	124	96	100	94	94	94	94	94	92
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	18	19	19	12	16	12	12	16	15	16	20	19	22	23	21	21	20	22	21	20	19	20	18	23
MED	90	90	94	92	93	96	98	112	120	109	100	98	99	106	110	110	103	102	94	93	92	92	92	92
U Q	94	94	96	95	101	104	102	136	140	140	112	114	132	122	127	124	119	110	98	97	94	94	98	94
L Q	88	88	88	88	90	88	90	98	100	100	97	96	98	100	98	98	99	96	90	90	86	88	88	88

IONOSPHERIC DATA STATION Kokubunji

FEB. 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	F2	F6	F3	F1	F2	F2		H2	H1	L2		L2		L2			L2	F3	F4	F2			
2		F2	F2	F1	F1				H2		L2	L3		HL13	HL13									F2
3	F2							H2	H2		L2		L2	L2	L2	L3	H2			F2				
4		F1	F1		F1	F1	F2	L3	L4	H1		L3	L2	L2	L3	L3	CL22	C3	F3	F4	F2	F1	F2	F2
5		F2	F1	F2	F2	F2		H1	C2	L3	L2	L3	L2	L2		L2	L3					F1	F2	F3
6		F3			F1					L3	L2	L2	L2	L2		H1	L3	L1	F4	F3	F3	F3	F2	F2
7	F2	F2	F2	F4	F2	F2	F6	L4	CL22	CL22	L2	L3	L2	L1	C2	L4	L3	L3	F2					F2
8	F1	F1	F1		F1		F1			C1	L2	L1	L1											F1
9	F1					F1		L1	L2	L2		L2	L2	H2		L2	L2	C2	F1	F3	F1	F5	F1	F2
10	F1	F2	F2	F1				H2	H2	H3	C2	HL11	C1	HL11	HL22	CL22	CL44	CL43	F1	F4	F3	F4	F4	F5
11	F1	F2	F2	F2	F1	F1	F1	L4	L2		L3	L2	HL22	L2	L2	L3	L3	L2	F3	F4	F3	F3	F2	F3
12	F2		F1	F2	F3	F3			L2	H1	L2		L2	L1			C1	L1	F1	F2	F2	F2	F1	F2
13	F2	F2					F1				H1	H1	C1	C1	L2	L2			F1	F1	F1	F2	F1	F1
14											L2		H1	H1	H1	C2	C2	L2						F2
15														L1	L2			H2	F1					
16							F1	L2			C1			C1			C2	C4						
17			F1	F1	F1				C2				C1	C2	C2	C2		C2	F1	F1	F4	F3	F2	F2
18	F4	F1	F1		F1			H2	H2	C2	C1	C2	C1	L2	C2	C2	L3	L3	F8	F8	F4	F3	F5	F1
19					F1	F2	F1	C1		L2	L2	L2			L2	L2	L2	L1	F5	F5	F2	F5	F6	F3
20	F2	F3	F2	F5	L2	F2	F3	CL22	L3		L1	L2	L1	L1	L2	L3	L4	L5	F4	F4	F3	F4	F2	F2
21	F2	F1	F2		F3	F2	F2	LC22			L1	H1	L1	L2	C2	C2	L1		F3	F3	F5	F3	F3	F1
22	F1	F2	F1				F1							C2	C2			L1		F1	F1	F3		F2
23	F2	F2	F1	F1				C4		L2	HL12	HL12	CL11	CL12	L1	C2		C4	F2			F4		
24	F1	F1	F3	F6	F4			H2				L2	L2		HL11	H1	C2	L3	F3	F5	F4	F3	F2	F2
25									H4	H2	C1	L2	H1	C1	L4	L2	L3	L3	F3	F5	F2	F5	F2	F2
26	F1	F2	F2		F2	F2		L4	L4	L2	L2				H1	C1	L3	L5	F3	F2	F2	F3	F6	F3
27	F2	F2	F1							L2		L2	H1	L2		C2	L3	L5	F2	F6	F3	F4	F5	F6
28	F4	F3	F5	F3		F1	F1	L2		L3		L2	HL12	CL11	CL11	C1	L2	L2	F7	F4	F3	F5	F6	F7
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT																								
MED																								
U Q																								
L Q																								

FEB. 2018 TYPES OF Es

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

FEB.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	35	X 30	40	X 43	X 35	33	X 29	X 35											X 50	X 44	X 41	X 35	X 33	X 34
2	X 35	35	X 34	X 41	X 40	X 27	X 25													X 32	X 32	X 32	X 35	38
3	38	35	35	38	34	X 23	28													X 40	X 40	X 34	X 28	X 30
4	X 32	X 32	X 30	X 28	X 30	X 32														X 41	X 37	X 34	X 31	X 34
5	X 34	X 33	X 33	34	34	29	29											X 64	X 65	X 47	X 47	X 44	X 44	X 37
6	X 38	X 37	X 37	X 38	X 40	32	X 29									X 63			X 48	A	X 38	X 38	X 32	X 30
7	32	A	A	X 32	X 34	X 32														X 40	X 36	X 41	X 40	X 37
8	X 37	X 36	X 36	X 36	X 35	X 33		X 38												X 34	X 38	X 42	41	39
9	X 37	37	34	36	X 31	X 31	33													X 47	X 45	X 40	X 32	X 32
10	36	X 31	X 32	X 32	X 34	X 25														X 46	X 45	A	X 33	X 33
11	X 36	X 36	X 36	X 38	X 38	X 36			X 53											X 46	42	43	X 36	39
12	39	40	37	X 33	X 35	X 32	35	X 37												X 43	X 34	X 38	36	39
13	39	X 36	X 36	X 34	X 32	X 31	X 30	X 38												X 42	X 45	X 33	X 33	X 33
14	X 33	35	39	X 32	X 32	32														X 48	X 39	X 32	X 31	X 32
15	39	X 36	X 38	X 35	X 30	X 27															X 39	X 42	X 45	X 47
16	X 44	X 42	X 40	X 39	X 35	X 32											X 60			X 39	X 40	X 42	X 40	X 41
17	X 41	X 41	X 39	X 38	X 34	X 30														X 47	X 51	X 45	X 44	X 44
18	X 46	X 47	X 46	X 54	X 30	X 30													C	C	C	C	C	C
19	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
20	C	C	C	C	C	C	C	C	C	C	C	C	C	C						X 38	46	A	A	38
21	38	36	38	38	X 39	X 28	X 24											X 59		X 40		X 34	X 34	X 36
22	X 36	X 35	X 34	X 34	X 34	X 31														X 41	X 45	X 44	43	47
23	43	40	41	39	X 38	31	34													X 53	X 48	X 39	X 39	X 43
24	X 40	X 36	X 38	X 38	X 38	X 33														X 43	X 39	X 40	X 36	X 34
25	X 34	X 34	37	X 38	X 42	X 27														X 51	X 44	X 35	X 34	X 34
26	X 34	X 33	X 33	X 32	X 32	X 31														A	A	X 42	X 38	X 34
27	X 35	X 35	X 34	X 35	40	X 34														A	A	X 43	X 43	X 41
28	X 40	X 40	X 40	X 40	X 39	X 30														A	A	A	X 44	X 39
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	26	25	25	26	26	26	10	4	1							1	1	2	3	21	22	23	25	26
MED	X 37	X 36	X 37	X 37	X 34	X 31	29	X 38	X 53							X 63	X 60	X 62	X 50	X 43	X 40	X 40	X 36	X 37
U Q	X 39	X 38	X 39	X 38	X 38	X 32	33	X 38											X 65	X 47	X 45	X 42	X 42	X 39
L Q	X 35	X 34	X 34	X 34	X 32	X 29	X 28	X 36											X 48	X 40	X 38	X 34	X 33	X 34

FEB.2018 fxI (0.1MHz)

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IONOSPHERIC DATA STATION Yamagawa

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

IONOSPHERIC DATA STATION Yamagawa

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

FEB.2018 foF1 (0.01MHz)

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IONOSPHERIC DATA STATION Yamagawa

FEB. 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									U A 184	244	284	A	A	U R 328	U R 312	A	A	A						
2								B	U R 208	U R 264	A	A	A	A	A	A	U R 248	A	B					
3							B	B	188	256	296	A	320	A	A	284	252	A	B					
4							B	B	200	272	A	R	U R 332	A	R	A	A	A	B					
5								B	U A 224	A	A	A	A	A	A	A	A							
6								B	U A 204	A	A	A	A	A	A		A	A						
7							B	B	U A 204	U A 272	A	A	A	A	A	A	B	B	B					
8							B		A	U R 276	A	A	A	A	A	A	A	A	B					
9								B	U A 216	A	A	A	A	U R 348	A	A	272	U A 228	B					
10							B	B	U A 200	272	296	A	A	A	312	A	A	A	A					
11							B	B		A	A	A	332	A	A	A	A 252	208	B					
12							B		A	U R 280	A	A	A	A	A	A	A	U R 220	B					
13									216	U R 280	R	U R 336	A	A	A	A	A	B	B					
14							B	B	U R 232	U R 300	U A 308	324	340	U R 348	324	U A 300	U R 284	U R 236	B					
15							B	B	U R 216	U R 284	U R 324	U R 328	R	A	U R 320	A	A	A	B	B				
16							B	B	A	A	U R 304	U A 312	A	A	A	A		U A 216	B					
17							B	B	U R 216	R	R	312	A	A	A	A	A	A	B					
18							B	B	U A 204	U A 268	U A 296	A	A	A	A	A	A	A	C					
19																								
20							C	C	C	C	C	C	C	C	A	A	A	A	B					
21								B	A	A	A	U A 316	A	U A 316	A	A	A		B		A			
22							B	B	U R 240	276	304	U R 332	A	344	U R 312	A	A	U R 208	B					
23							B	B	A	A	A	U R 320	R	A	A	U A 300	A	A	B					
24							B	B	A	A	U A 316	340	364	332	U R 308	U R 292	U A 264	U A 212	B					
25							B	B	236	272	300	320	336	U A 316	A	A	A	A	B					
26							B	B	U A 228	U A 320	A	A	A	U R 336	A	U A 304	A	A	B					
27							B	B	A	A	A	A	A	A	A	300	288	U A 236	B					
28							B	B	A	U R 280	A	R	U R 332	U A 344	A	A	A	A	B					
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT									17	16	10	10	7	9	6	6	7	8						
MED									U 216	U 274	302	U 322	332	U 336	U R 312	U 300	264	U 218						
U Q									U 226	U R 280	U A 308	U R 332	340	U R 346	320	U A 300	284	U A 232						
L Q									U A 202	270	296	U A 316	332	U A 322	312	292	252	U 210						

FEB. 2018 foE (0.01MHz)

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IONOSPHERIC DATA STATION Yamagawa

FEB.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 15	E B 16	23	19	E B 16	E B 16	19	J A 27	26	28	32	35	J A 43	G	G	J A 35	J A 36	J A 46	J A 28	J A 52	J A 38	J A 27	E B 16	E B 16
2	E B 15	E B 16	E B 16	E B 16	21	22	19	20	G	G	J A 31	J A 40	J A 47	J A 38	J A 43	J A 40	G	J A 24	J A 25	J A 28	J A 24	J A 27	21	E B 15
3	E B 16	E B 16	E B 16	E B 15	E B 15	E B 15	19	22	26	28	33	J A 39	37	J A 41	J A 38	33	30	J A 29	J A 28	J A 28	22	J A 24	21	22
4	21	J A 27	J A 25	E B 16	E B 15	20	23	E B 16	26	G	32	G	G	J A 40	G	J A 80	J A 50	J A 34	J A 25	23	23	20	20	J A 24
5	J A 24	E B 16	E B 16	E B 16	20	E B 15	E B 16	24	29	34	42	J A 46	J A 85	J A 53	J A 44	J A 38	J A 40	J A 30	J A 25	J A 68	J A 30	26	J A 29	J A 27
6	E B 16	J A 27	23	J A 29	26	19	21	23	26	34	J A 38	J A 70	J A 105	J A 58	J A 72	J A 54	J A 47	J A 45	J A 55	J A 43	J A 29	J A 27	J A 26	23
7	J A 29	J A 63	J A 75	J A 50	J A 27	J A 45	J A 24	J A 22	29	32	J A 49	J A 56	J A 86	J A 84	J A 43	J A 59	J A 49	J A 43	J A 31	J A 34	J A 41	J A 28	J A 28	J A 28
8	J A 28	J A 29	25	23	20	20	E B 16	20	24	G	35	36	J A 46	J A 43	J A 64	33	29	26	E B 15	E B 16	E B 16	E B 16	E B 16	22
9	E B 15	E B 15	E B 16	20	E B 16	22	22	19	29	J A 33	J A 35	J A 40	34	G	J A 43	34	32	29	J A 51	J A 54	J A 31	J A 41	J A 31	J A 27
10	E B 16	J A 34	J A 41	J A 25	J A 33	J A 22	E B 16	18	25	34	39	J A 47	50	J A 47	38	35	J A 35	J A 38	J A 44	J A 33	J A 27	J A 44	J A 44	23
11	J A 26	J A 26	J A 22	J A 24	J A 28	J A 31	20	E B 16	J A 54	J A 42	J A 47	37	39	J A 42	J A 45	J A 58	30	27	E B 16	E B 16	E B 16	21	E B 15	E B 15
12	E B 16	E B 16	22	22	22	22	20	20	26	G	34	36	J A 43	J A 55	J A 52	J A 60	J A 55	G	E B 15	E B 15	22	E B 15	J A 28	E B 15
13	22	J A 28	J A 22	23	E B 16	E B 16	E B 16	E B 15	26	G	G	G	37	39	J A 44	J A 47	J A 49	J A 41	J A 35	J A 23	J A 26	J A 22	22	24
14	J A 25	E B 16	E B 16	E B 16	20	E B 16	J A 23	J A 28	G	G	36	37	37	G	37	33	G	G	E B 16	22	E B 16	E B 16	E B 15	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	G	G	G	G	G	38	G	J A 34	J A 33	J A 27	22	23	E B 16	E B 16	E B 15	E B 15
16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	19	22	J A 27	35	G 28	36	37	34	J A 41	J A 40	J A 36	29	J A 22	J A 30	J A 40	22	E B 16	E B 16
17	E B 16	E B 16	E B 16	20	19	E B 16	19	21	26	G	G	37	40	38	36	34	J A 38	J A 30	E B 15	22	J A 24	23	E B 16	E B 16
18	20	E B 15	E B 15	E B 15	E B 16	E B 16	20	20	29	34	38	40	42	39	J A 44	J A 44	J A 64	39	C	C	C	C	C	C
19	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
20	C	C	C	C	C	C	C	C	C	C	C	C	C	C	34	34	J A 34	J A 28	J A 26	J A 22	J A 89	J A 63	J A 89	J A 33
21	J A 42	J A 32	22	J A 25	E B 17	J A 20	21	J A 37	J A 44	J A 36	J A 63	38	J A 43	36	J A 38	J A 46	J A 56	J A 41	J A 32	J A 46	J A 89	J A 67	24	J A 36
22	J A 31	J A 33	J A 35	J A 21	24	J A 23	J A 23	E B 16	G	32	34	36	37	36	G	32	32	25	21	J A 23	J A 23	24	20	E B 16
23	23	22	20	23	22	E B 15	E B 15	J A 21	J A 43	J A 34	J A 32	G	G	J A 44	J A 48	J A 41	32	J A 52	J A 89	J A 42	E B 16	J A 32	J A 48	J A 28
24	J A 34	J A 34	J A 34	J A 31	J A 27	20	E B 16	J A 24	28	31	J A 48	39	39	38	G 28	G	32	29	J A 31	J A 51	J A 28	J A 30	J A 26	E B 16
25	E B 16	E B 16	22	E B 16	21	E B 16	E B 15	23	30	34	38	38	42	J A 56	J A 57	J A 63	J A 48	J A 84	J A 64	J A 54	J A 50	J A 50	J A 39	J A 42
26	J A 32	J A 22	J A 26	20	E B 16	E B 16	E B 16	E B 16	31	J A 43	J A 36	J A 46	J A 43	G	34	35	J A 42	J A 101	J A 80	J A 151	J A 89	J A 54	E B 15	20
27	E B 16	24	E B 15	E B 16	20	20	20	E B 16	J A 30	J A 44	J A 36	J A 79	J A 52	J A 44	J A 41	34	32	31	22	J A 61	J A 64	J A 49	J A 48	J A 41
28	J A 42	20	J A 30	J A 27	24	E B 17	E B 16	23	J A 28	G	J A 39	G	40	40	J A 49	J A 44	35	J A 45	J A 39	J A 68	J A 51	J A 78	J A 30	E B 16
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	26	26	26	26	26	26	26	26	26	26	26	26	26	26	27	27	27	27	26	26	26	26	26	26
MED	20	21	22	20	20	18	19	20	26	32	36	38	41	40	J A 41	J A 38	J A 35	J A 30	J A 27	J A 32	J A 28	J A 27	23	22
U Q	J A 28	J A 28	J A 25	J A 24	J A 24	J A 22	21	J A 23	J A 29	J A 34	J A 39	J A 40	J A 46	J A 44	J A 45	J A 47	J A 48	J A 43	J A 39	J A 52	J A 41	J A 44	J A 30	J A 27
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 26	G	G 32	G 36	37	G 36	G 34	34	32	27	E B 22	23	E B 22	E B 22	E B 16	E B 16

FEB.2018 foEs (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

FEB. 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 15	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	22	27	30	33	33	G	G	29	27	27	22	20	25	E B 16	E B 16	E B 16
2	E B 15	E B 16	E B 16	E B 16	16	E B 16	E B 16	E B 16	G	G	30	35	35	34	32	28	G	20	20	19	E B 16	E B 15	E B 16	E B 15
3	E B 16	E B 16	E B 16	E B 15	E B 15	E B 15	17	16	23	28	30	33	34	32	32	31	28	24	22	16	16	E B 16	E B 16	E B 16
4	E B 16	E B 16	E B 16	E B 16	E B 15	E B 15	17	E B 16	24	G	30	G	G	32	G	40	28	26	18	16	E B 16	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 15	E B 16	E B 16	26	28	33	40	36	34	33	32	30	24	20	24	E B 16	E B 16	E B 16	E B 16
6	E B 16	18	E B 16	18	18	E B 16	E B 16	E B 16	21	26	31	40	36	35	44	46	28	26	22	A A 43	24	20	19	E B 16
7	E B 16	A A 63	A A 75	18	16	18	E B 16	16	24	28	39	41	44	35	36	36	34	34	23	24	22	E B 16	E B 16	22
8	22	20	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	22	G	33	35	39	36	34	31	28	24	E B 15	E B 16	E B 16	E B 16	E B 16	E B 15
9	E B 15	E B 15	E B 16	E B 16	E B 16	E B 16	E B 16	16	24	26	29	34	31	G	32	30	30	28	21	34	21	19	22	19
10	E B 16	19	17	19	19	E B 16	E B 16	16	24	32	38	36	36	37	36	34	30	32	35	19	17	A A 44	18	17
11	E B 16	E B 16	E B 16	18	E B 16	18	E B 16	E B 16	21	26	33	33	37	35	35	32	30	24	E B 16	E B 16	E B 16	E B 15	E B 15	E B 15
12	E B 16	E B 16	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	24	G	32	34	36	42	44	46	36	G	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15
13	E B 16	19	E B 16	E B 16	E B 16	E B 16	E B 16	E B 15	24	G	G	G	36	38	37	42	41	36	30	18	E B 16	20	E B 16	E B 17
14	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	16	E B 16	G	G	34	35	35	G	35	32	G	G	E B 16	E B 16	E B 16	E B 16	E B 15	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	G	G	G	G	G	35	G	32	26	22	16	E B 16	E B 16	E B 16	E B 15	E B 15
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	21	30	G 26	34	36	34	34	34	28	27	18	20	26	E B 16	E B 16	E B 16
17	E B 16	E B 16	E B 16	E B 15	E B 15	E B 16	E B 16	E B 16	G 22	G	G	35	36	34	34	31	31	23	E B 15	E B 16	E B 16	E B 16	E B 16	E B 16
18	E B 15	E B 15	E B 15	E B 15	E B 16	E B 16	E B 16	E B 16	25	32	37	39	40	36	36	34	34	34	C	C	C	C	C	C
19	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
20	C	C	C	C	C	C	C	C	C	C	C	C	C	C	32	31	28	22	20	18	21	A A 63	A A 89	20
21	21	17	E B 16	E B 16	E B 17	E B 17	E B 16	20	21	28	36	36	36	34	33	37	41	36	20	21	A A 89	23	16	18
22	20	19	21	E B 16	E B 16	E B 16	E B 16	E B 16	G	31	33	34	34	36	G	31	31	23	19	18	E B 16	E B 15	E B 16	E B 16
23	E B 16	E B 16	E B 16	E B 16	E B 16	E B 15	E B 15	E B 16	37	28	32	G	G	40	42	F 34	28	35	28	E B 16	E B 16	20	27	18
24	18	18	18	E B 16	E B 16	E B 15	E B 16	18	24	29	42	38	38	35	G 24	G	30	25	25	22	18	17	17	E B 16
25	E B 16	E B 16	E B 16	E B 16	16	E B 16	E B 15	18	28	32	33	35	36	51	42	47	36	44	A A 64	23	23	21	21	19
26	19	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	29	G 24	30	36	37	G	33	34	34	A A 101	46	A A 151	A A 89	21	E B 15	E B 16
27	E B 16	E B 16	E B 15	E B 16	E B 16	E B 16	E B 16	E B 16	28	34	33	36	38	36	33	32	31	28	20	A A 61	A A 64	19	21	21
28	19	E B 16	E B 16	E B 16	19	E B 17	E B 16	E B 16	23	G	33	G	39	37	38	39	32	33	27	A A 68	A A 51	A A 78	19	E B 16
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	26	26	26	26	26	26	26	26	26	26	26	26	26	26	27	27	27	27	26	26	26	26	26	26
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	24	26	32	35	36	35	34	32	30	26	20	19	16	E B 16	E B 16	E B 16
U Q	16	18	16	16	16	E B 16	E B 16	16	24	29	33	36	37	36	36	37	34	34	25	A A 24	A A 24	20	19	18
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	G 30	G 33	34	G 34	G 32	31	28	23	E B 18	E B 16	E B 16	E B 16	E B 16	E B 16

FEB. 2018 fbEs (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

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

IONOSPHERIC DATA STATION Yamagawa

FEB.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	F	299	F	383	334	F	317	350	390	370	370	386	329	373	368	372	375	375	386	340	345	345	348	313
2	320	F	299	352	391	359	347	347	378	381	369	338	367	369	384	375	366	383	389	339	340	306	298	F
3	F	F	F	F	F	307	F	351	363	355	337	322	340	371	396	382	374	350	402	358	360	387	335	337
4	340	386	330	320	332	400	341	361	392	380	381	291	366	352	362	336	396	401	381	363	382	395	313	328
5	305	321	321	F	F	F	F	351	411	374	332	357	335	337	370	307	361	345	409	351	338	324	330	315
6	329	293	305	359	379	F	309	367	371	371	369	363	354	337	381	339	388	377	404	A	319	357	370	266
7	F	A	A	343	336	369	315	346	372	386	351	368	365	320	385	388	393	383	381	361	322	334	343	335
8	321	317	322	350	333	358	359	372	381	396	379	320	358	372	364	372	364	382	392	344	312	332	F	F
9	316	F	F	F	327	342	F	374	361	372	380	397	332	372	384	372	352	374	382	345	363	374	369	345
10	F	313	314	360	379	427	365	356	376	356	342	358	328	378	343	376	373	394	377	322	367	A	336	308
11	335	335	311	341	342	333	311	362	371	348	362	369	358	353	355	371	369	361	361	399	F	F	338	F
12	F	F	F	321	321	362	F	348	337	360	341	351	361	341	361	374	373	379	388	389	339	335	F	F
13	F	320	342	345	343	353	332	360	390	398	381	360	373	383	357	387	378	387	407	337	376	352	348	317
14	304	F	F	324	352	F	381	373	382	389	353	347	342	354	366	378	358	372	373	367	350	370	331	322
15	F	301	347	381	344	336	350	340	352	368	318	346	355	339	350	349	369	385	382	372	325	312	328	342
16	327	303	348	368	325	330	329	335	382	362	346	345	356	360	366	362	374	386	365	322	315	325	319	334
17	313	321	337	380	389	364	327	383	377	355	332	341	350	362	360	358	397	345	376	321	360	338	319	374
18	328	335	348	411	336	284	312	339	348	358	334	347	378	373	362	381	363	369	C	C	C	C	C	C
19	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
20	C	C	C	C	C	C	C	C	C	C	C	C	C	C	351	388	381	371	368	327	F	A	A	F
21	F	F	F	F	379	366	424	387	397	388	373	378	387	362	372	353	370	371	385	342	A	321	312	318
22	327	328	342	330	343	398	378	381	394	362	363	358	357	356	336	335	353	362	373	312	337	332	F	F
23	F	F	F	F	358	F	F	395	379	349	360	333	366	361	355	360	371	384	271	360	345	317	292	345
24	346	321	349	350	350	338	365	388	371	340	366	324	295	335	345	357	375	365	358	382	330	319	341	312
25	324	326	F	350	388	386	357	373	373	344	346	349	337	353	357	359	377	385	A	341	384	357	359	320
26	301	303	303	323	319	357	398	387	373	334	328	333	332	367	346	364	368	A	396	A	A	337	340	333
27	331	307	301	327	F	377	355	403	371	372	322	332	338	318	329	332	296	361	365	A	A	307	314	319
28	318	302	328	334	348	332	356	361	387	384	377	366	352	353	363	363	371	366	373	A	A	A	351	338
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	17	18	17	21	23	21	21	26	26	26	26	26	26	26	27	27	27	26	25	22	20	22	22	20
MED	324	318	328	350	343	358	350	362	376	369	356	348	354	358	362	364	371	374	381	344	342	334	336	325
U Q	330	326	344	364	379	373	365	381	387	381	370	363	365	371	370	376	377	384	390	363	362	357	348	338
L Q	314	303	308	328	333	334	322	350	371	355	337	333	337	341	351	353	364	365	370	337	328	321	319	316

FEB.2018 M(3000)F2 (0.01)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

FEB.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										L	L	UL 430	UL 407	UL 382	402	L	L	A						
2										L	L	L	406	409	L	L	L							
3											UL 399	401	401	376	UL 407									
4										L	L	420	UL 400	401	421	A	A							
5											L	A	374	UL 390	392	UL 426	A							
6									L			A	429	L	A									
7											A	A	A	UL 397	A	A								
8											L	405	A	394	414	L	L							
9									L	L		470	444	L	UL 399	L								
10											A	UL 412	UL 398	A	UL 399		A	A	A					
11												440	UL 448	436	384	UL 392								
12										L	UL 375	UL 391	407	A	A	A	A							
13									L	L	L	L	439	A	UL 426	A	A							
14									L	L	UL 422	UL 375	404	399	UL 422	L	L							
15									L	L	UL 402	UL 393	396	UL 400	414	UL 404	L							
16									L	L	397	403	425	UL 401	412	402								
17									L	L	UL 380	407	406	L	394	L								
18										L	UL 381	A	A	UL 437	A	A			C					
19																								
20							C	C	C	C	C	C	C	C	393	407	L							
21											A	UL 404	393	433	411	A	A				A			
22											UL 405	UL 433	409	UL 404	391	417	L							
23									A	L	L	420	408	A	A	A	UL 435							
24										L	A	A	392	383	394	405	L							
25									A		L	UL 389	UL 396	A	A	A	A	A	A					
26										L	L	UL 389	UL 390	398	L	L	A	A	A					
27									L	L	L	UL 400	UL 393	UL 366	397	L	L							
28									L		UL 415	UL 412	A	A	A	A		A						
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT											9	19	22	17	18	7	1							
MED											UL 399	UL 405	405	399	400	405	UL 435							
U Q											UL 410	420	409	406	414	417								
L Q											UL 380	UL 393	396	UL 386	394	402								

FEB.2018 M(3000)F1 (0.01)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

FEB.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										246	248	226	282	240	240	240	230	218						
2										232	254	280	250	242	228	244	232							
3											286	286	256	232	232									
4										232	230	422	234	234	234	262	214							
5											280	270	268	252	230	228	206							
6									228			268	240	242	238									
7											E A 262	248	E A 248	280	228	226								
8											242	340	248	242	250	232	232							
9									240	238		236	274	254	246	246								
10											270	270	276	228	260		234	216	230					
11												264	270	270	256	244								
12										250	250	240	240	240	240	228	218							
13									222	222	240	270	250	230	248	230	230							
14									230	230	258	258	248	232	234	252	252							
15									264	230	278	246	220	234	232	242	242							
16									232	254	254	244	242	234	232	246								
17									226	244	282	262	250	250	242	250								
18										250	268	246	234	234	244	232			C					
19																								
20							C	C	C	C	C	C	C	C	232	224	224							
21											254	242	242	242	256	258	228				A			
22											268	256	250	250	250	252	252							
23									222	256	250	278	264	238	254	254	232							
24										256	244	262	352	264	250	242	238							
25									200		274	268	272	258	252	E A 242	228	238	A					
26										290	290	264	262	228	250	250	246	A	E A 236					
27									236	248	282	268	266	260	270	250	264							
28									228		234	234	258	258	248	248		228						
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT									11	15	23	26	26	26	27	24	18	4	2					
MED									228	246	256	263	250	242	244	244	232	223	233					
U Q									236	254	278	270	268	254	250	250	242	233						
L Q									222	232	248	246	242	234	232	232	228	217						

FEB.2018 h'F2 (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

FEB.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 254	E B 260	E B 234	196	194	192	E B 268	230	208	208	190	190	178	178	178	184	192	A	192	200	E A 240	214	E B 232	E B 246
2	222	E B 252	E B 252	218	196	E B 224	E B 312	218	212	184	172	224	210	188	194	194	178	192	192	212	212	E B 244	E B 244	E B 238
3	192	E B 236	E B 236	222	190	190	E A 322	218	212	208	196	200	206	206	198	196	212	212	202	202	196	196	E B 234	E B 234
4	E B 238	212	228	E B 270	E B 262	188	E B 250	218	208	194	192	192	190	190	186	A	A	196	196	192	190	190	226	E B 230
5	E B 240	E B 272	E B 262	E B 262	220	206	E B 260	208	196	198	210	A	218	208	184	182	A	198	180	212	212	212	204	E B 240
6	E B 230	E B 300	E B 266	216	210	210	E A 260	206	194	210	206	A	192	198	A	E A 282	214	208	198	A	E A 298	220	220	E B 286
7	E B 286	A	A	E A 284	224	214	E B 260	218	216	208	A	A	A	208	A	A	208	214	196	210	E A 266	228	214	E A 232
8	E A 280	E A 268	E B 256	212	224	214	210	208	204	204	192	184	A	200	182	186	186	206	194	198	E B 240	220	200	E B 232
9	228	E B 256	E B 256	E B 246	214	E B 220	E B 232	202	180	178	182	178	172	188	186	186	198	210	198	E A 254	190	210	220	226
10	E B 260	E A 316	E A 292	270	224	202	208	208	202	208	A	196	196	A	206	222	A	A	A	214	202	A	E A 270	E A 270
11	E B 240	234	234	234	224	228	E B 238	204	204	220	212	180	188	188	188	184	210	206	202	182	208	186	206	E B 244
12	216	E B 216	E B 230	218	222	212	228	220	216	204	194	194	194	A	A	A	A	204	192	192	192	204	208	218
13	226	E A 278	E B 238	216	E B 230	208	E B 236	208	190	182	176	176	176	A	190	A	A	202	194	210	198	204	218	E B 280
14	E B 280	E B 276	208	208	224	E B 244	210	210	198	202	192	202	194	186	186	182	182	198	190	194	200	200	228	E B 242
15	E B 230	E B 248	E B 234	208	E B 216	E B 234	E B 258	218	202	182	180	178	176	186	186	192	192	204	196	194	220	E B 236	E B 224	212
16	E B 230	E B 250	206	206	232	E B 246	E B 262	222	206	198	198	188	188	188	188	196	210	208	204	226	E A 302	222	E B 222	230
17	234	E B 246	222	196	192	198	212	210	176	182	180	196	208	204	204	204	210	196	190	214	204	204	222	212
18	210	210	206	180	174	232	E B 262	218	202	200	222	A	A	196	A	A	214	214	C	C	C	C	C	C
19	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
20	C	C	C	C	C	C	C	C	C	C	C	C	C	C	188	188	188	198	182	216	216	A	A	E A 276
21	E A 274	E A 296	E B 252	E B 234	194	204	232	202	202	204	A	202	202	188	188	A	A	212	196	218	A	E A 298	232	232
22	230	E A 246	E A 266	E B 244	230	198	E B 250	182	196	212	186	186	186	202	202	194	186	192	190	210	228	216	E B 226	E B 262
23	244	E B 236	230	206	196	E B 276	E B 284	186	A	196	202	182	180	A	A	A	204	212	E A 354	204	194	E A 270	E A 314	220
24	218	E A 266	E A 238	226	226	E B 224	222	202	202	198	A	A	204	214	196	190	200	220	214	196	E A 236	E A 236	E A 230	E B 248
25	E B 248	E B 236	E B 250	228	200	182	E B 244	198	A	234	218	196	196	A	A	A	A	A	A	202	200	E A 242	232	E A 274
26	E A 280	E B 280	E B 272	E B 272	E B 264	216	194	182	204	192	184	200	208	192	200	208	A	A	A	A	A	222	220	218
27	E B 240	E B 268	E B 276	E B 250	200	E B 198	228	194	194	194	184	194	224	214	200	208	208	210	204	A	A	E A 244	E A 256	E A 248
28	E A 246	E B 258	224	216	212	E B 244	E B 244	216	192	202	190	186	A	A	A	A	230	A	220	A	A	A	214	214
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	26	25	25	26	26	26	26	26	24	26	22	21	22	20	20	18	19	22	23	22	22	23	25	26
MED	E 239	E B 256	E B 238	214	214	206	E B 244	208	202	201	192	192	194	194	188	192	204	206	196	205	204	212	219	E 236
U Q	E B 254	E B 274	E B 259	E B 246	224	E B 228	E B 260	218	207	208	202	198	206	205	199	204	210	212	202	214	E A 236	E A 236	E 232	E B 248
L Q	228	E B 236	229	208	196	198	228	202	195	194	184	183	186	188	186	186	188	198	192	196	198	204	216	226

FEB.2018 h'F (KM)

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IONOSPHERIC DATA STATION Yamagawa

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

FEB.2018 h'E (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

FEB.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	102	92	B	B	92	86	128	132	132	116	104	G	G	102	96	94	94	94	92	92	B	B
2	B	B	B	B	92	92	150	82	G	G	100	100	100	100	96	96	G	92	86	86	86	86	86	B
3	B	B	B	B	B	B	156	142	142	158	158	112	156	96	96	164	156	110	88	98	98	90	90	90
4	86	86	86	B	B	100	96	B	134	G	116	G	G	108	G	84	104	90	90	90	88	86	84	122
5	116	B	B	B	112	B	B	142	142	120	114	96	96	96	96	98	98	98	114	102	102	100	100	112
6	B	84	84	84	90	90	90	120	120	118	118	96	96	96	88	88	88	88	88	88	88	88	88	88
7	100	100	94	94	94	92	92	92	124	124	106	104	100	100	100	94	88	88	90	90	90	90	90	90
8	90	88	88	88	88	88	B	86	118	G	110	110	96	96	96	96	132	132	B	B	B	B	B	98
9	B	B	B	94	B	82	82	82	112	104	98	96	96	G	100	98	132	124	98	92	92	92	92	92
10	B	96	96	90	90	90	B	88	144	130	130	116	134	120	132	148	90	90	90	90	90	88	88	90
11	110	110	110	102	102	96	96	B	96	96	98	108	146	96	96	94	110	114	B	B	B	94	B	B
12	B	B	94	94	94	94	94	90	152	G	114	114	106	100	98	98	98	G	B	B	98	B	94	B
13	86	86	86	90	B	B	B	B	158	G	G	G	122	112	100	100	98	98	90	90	90	86	86	84
14	84	B	B	B	84	B	84	84	G	G	146	146	142	G	142	138	G	G	B	90	B	B	B	B
15	B	B	B	B	B	B	B	B	G	G	G	G	G	112	G	102	102	98	98	94	B	B	B	B
16	B	B	B	B	B	B	134	106	104	104	92	144	128	122	102	102	98	116	110	94	94	94	B	B
17	B	B	B	102	102	B	100	110	118	G	G	140	128	126	118	112	100	100	B	96	96	96	B	B
18	96	B	B	B	B	B	136	138	136	136	130	114	114	114	104	104	104	102	C	C	C	C	C	C
19	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
20	C	C	C	C	C	C	C	C	C	C	C	C	C	C	102	100	100	90	90	90	90	90	88	88
21	88	86	80	80	B	84	84	90	86	86	86	138	84	124	100	98	94	94	94	94	90	90	90	90
22	90	90	86	90	90	90	94	B	G	156	142	152	116	154	G	112	110	146	146	82	122	90	90	B
23	104	90	92	92	92	B	B	124	98	98	98	G	G	120	120	146	132	96	96	96	B	124	98	96
24	94	86	86	84	84	84	B	130	130	122	122	136	148	148	96	G	126	122	88	88	88	88	88	B
25	B	B	98	B	98	B	B	88	152	150	134	134	128	116	104	96	96	96	88	86	86	84	84	82
26	82	84	84	78	B	B	B	B	144	100	94	94	94	G	98	134	124	102	98	98	96	96	B	96
27	B	86	B	B	86	86	86	B	92	92	90	90	94	94	100	138	154	130	118	98	94	94	94	90
28	90	90	90	90	90	B	B	86	94	G	94	G	158	138	96	116	116	104	98	92	92	92	92	B
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	14	14	16	16	16	13	16	19	22	17	23	21	23	22	23	26	25	25	21	23	21	22	18	15
MED	90	87	89	90	91	90	94	90	126	120	114	114	114	112	100	101	102	98	94	92	92	90	90	90
U Q	100	90	95	94	96	93	117	124	142	134	130	137	134	122	104	116	125	115	98	96	96	94	92	96
L Q	86	86	86	86	89	85	88	86	104	99	98	98	96	96	96	96	97	93	89	90	89	88	88	88

IONOSPHERIC DATA STATION Yamagawa

FEB.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			F1	F1			F1	F3	C2	C2	C2	C2	L2			L3	L4	L4	L5	F3	F3	F1		
2					F1	F2	H1	L2			L2	L2	L2	L3	L3	L2		L2	L4	F3	F3	F2	F2	
3							H1	HL11	H2	H2	H2	C1	H1	L2	L1	H1	H2	L2	L5	F3	F2	F3	F3	F2
4	F3	F3	F3			F2	L3		C3		C2			C2		L4	CL53	L6	L6	F2	F2	F1	F2	FF12
5	F1				F1			H2	H2	C2	C2	L2	L2	L3	L3	L3	L5	F2	F2	F2	F1	F3	F2	F2
6		F5	F2	F3	F2	F1	F2	C2	C2	C2	C1	L4	L3	L3	L4	L5	L3	L5	F3	F6	F6	F8	F8	F3
7	F2	F5	F4	F4	F3	F5	L3	L2	C2	C2	L4	L3	L4	L2	L2	L3	L5	L4	L2	F6	F3	F2	F2	F3
8	F3	F2	F2	F2	F1	F2		F2	C2		C1	C2	L2	L2	L2	L2	C1	C3						F1
9				F1		F2	F2	L1	C2	L3	L2	L3	L1		L1	L1	HL12	CL32	L2	F5	F4	F4	F4	F4
10		F5	F4	F3	F3	F2		L2	H2	H2	H3	C3	C3	C2	C2	HL22	LH22	L7	L8	F5	F5	F5	F5	F2
11	F3	F3	F3	F3	F2	F2	L2		L3	L3	L2	CL23	HL23	L2	L3	L3	C2	C2				F2		
12			F2	F3	F3	F3	L1	L2	HL22		C2	C2	L2	L2	L3	L5	L4				F2		F2	
13	F2	F3	F2	F2					H2				C2	C2	L2	L3	L7	L4	L7	F2	F2	F3	F2	F2
14	F2				F2		L2	L2			H2	H2	H1		H1	H1				F1				
15														C1		L2	L2	L3	L1	L1				
16							C1	L1	L3	L3	L3	H2	C1	C1	L3	L3	L4	C4	C4	F6	F6	F1		
17				F1	F2		L1	L1	C3			H2	C2	C3	C2	C2	L3	L3		F1	F3	F2		
18	F1						L2	H2	H3	H2	C2	C3	C2	C2	L3	L2	L2	L3						
19																								
20															L1	L2	L3	L3	L2	F4	F6	F6	F4	F4
21	F4	F4	F2	F2		F2	L2	L6	L3	L3	L2	HL22	LH31	CL12	L3	L3	L5	L6	L2	F6	F7	F5	F1	F5
22	F4	F2	F4	F2	F2	F2	L1			H2	H1	H1	C2	H1		C1	C2	H1	HL22	F2	F4	F2	F2	
23	F1	F1	F1	F2	F2			C1	L6	L2	L2			C2	C5	H3	C1	L7	L6	F3		F5	F6	F5
24	F3	F4	F2	F2	F1	F1		C3	C2	C2	C2	HL22	HL12	HL12	L2		H2	C4	L6	F5	F4	F2	F2	
25			F1		F1			L1	H2	H3	H2	H1	C2	C3	L2	L5	L5	L5	L9	F7	F7	F5	F5	F4
26	F2	F2	F1	F2					H2	L2	L2	LC21	L3		L2	HL12	CL22	L6	L6	F5	F4	F4		F1
27		F2			F1	F1	L1		L5	L3	L2	L2	L2	L2	L2	H1	H1	C2	C1	F7	F9	F4	F7	F7
28	F5	F2	F3	F2	F3			L1	L2		L3		H1	H1	L3	C3	C3	L4	L4	F9	F9	F6	F4	
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT																								
MED																								
U Q																								
L Q																								

FEB.2018 TYPES OF Es

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

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

FEB.2018 fxI (0.1MHz)

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IONOSPHERIC DATA STATION Okinawa

FEB.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	F 23	F 24	27	26	F 20	F 18	20	25	50	56	62	57	58	78	70	67	59	57	50	41	38	33	29	30
2	30	28	31	29	24	19	F 18	25	50	55	56	58	61	68	74	68	50	53	46	30	24	24	26	F 28
3	F	F 22	F 26	F 26	F 20	B	J B 14	25	42	49	57	78	97	116	96	70	56	48	45	48	A	F 30	F 24	26
4	24	23	22	A	23	24	18	26	44	51	64	66	69	80	64	56	63	54	39	39	32	20	F 20	F 23
5	26	F 26	F 24	F 24	F 26	F 19	F 18	28	42	42	52	62	78	R 106	137	122	96	95	71	44	47	42	41	A
6	A	35	33	36	44	F 25	22	30	43	52	52	59	75	81	95	62	59	60	65	46	30	32	32	23
7	F 23	F 24	25	F 27	34	A	F 18	27	45	55	62	57	64	62	82	82	81	74	R 64	52	47	38	53	45
8	31	30	30	30	30	28	24	29	50	52	54	48	64	76	94	77	67	64	56	34	27	32	F	F
9	F 26	F 25	F 24	F 26	F 30	F 23	22	31	48	52	57	54	57	60	58	53	48	59	61	46	49	38	34	22
10	24	24	24	26	31	23	A	27	46	51	54	58	82	95	84	75	81	A	52	42	41	V 32	F 28	F
11	F 32	F 28	F 28	30	29	27	23	32	50	59	64	56	58	62	72	61	54	54	55	50	30	F 34	F 25	F 27
12	F	F	F 22	F 23	23	19	18	28	48	62	82	96	109	130	128	99	65	54	58	38	30	30	27	27
13	29	30	32	33	31	23	22	27	57	67	69	70	R 66	76	75	66	67	57	52	47	42	26	24	23
14	24	25	27	28	28	19	19	30	51	56	57	R 83	110	110	84	76	54	61	56	46	45	31	28	28
15	34	F 37	38	37	31	22	20	26	52	65	77	115	130	126	101	74	63	64	59	42	40	41	39	41
16	37	35	36	36	30	24	24	31	54	68	75	97	110	120	107	82	56	58	49	42	38	36	37	37
17	37	34	34	37	25	19	21	36	50	53	55	71	82	92	70	66	56	50	51	33	39	40	30	32
18	30	33	39	31	19	21	F 23	33	58	62	68	90	95	68	65	66	51	50	47	44	A	38	38	28
19	R 31	31	27	31	44	A	A	30	54	67	84	112	120	122	138	106	62	53	50	39	37	31	31	F 31
20	F 33	F 31	34	F 32	30	18	F 22	38	58	60	80	97	124	131	137	112	83	64	52	40	38	36	24	22
21	26	F 25	F 24	F 28	F 34	17	J B 16	32	46	46	49	64	88	J R 105	J R 103	94	76	62	59	43	32	A	A	F 33
22	31	V 30	F 28	28	30	F 20	19	33	44	50	54	65	92	119	124	104	96	86	66	48	46	52	F 42	42
23	42	F 41	41	42	32	F 25	F 24	37	42	A	61	64	81	69	67	67	59	58	47	53	47	A	F 32	F 33
24	31	27	26	28	27	27	J B 16	34	50	56	66	82	90	103	119	98	66	59	66	V 53	V 46	36	V 37	28
25	28	28	28	34	43	F 20	17	34	48	46	58	68	80	87	85	73	66	51	45	41	41	31	23	24
26	25	25	24	F 24	F 26	F 35	F 18	33	45	51	61	78	96	99	96	75	70	60	52	39	36	32	32	30
27	29	30	30	29	28	22	19	35	51	55	65	84	103	124	128	112	90	90	62	59	50	42	41	42
28	40	38	40	36	29	24	24	41	57	60	63	75	71	59	64	62	63	58	54	50	42	34	35	32
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	25	27	28	27	28	25	26	28	28	27	28	28	28	28	28	28	28	27	28	28	26	26	26	25
MED	30	28	28	29	30	22	20	30	50	55	62	69	82	94	90	74	63	58	53	44	40	34	32	28
U Q	32	33	34	34	31	24	22	34	52	60	67	84	100	118	113	96	73	64	60	48	46	38	37	33
L Q	26	25	24	F 26	26	19	18	27	45	51	56	58	68	72	71	66	56	54	50	40	32	31	26	25

IONOSPHERIC DATA STATION Okinawa

FEB. 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			L	L	A	L	L						
											404	416	428	424	420		372							
2									L	L	L			L		L	L							
												416	428	428	424	408								
3															L		L	L						
											404	416	412	420	424	404								
4									L	U L				L	L	A	A		A					
										388	416	428	440	428	428									
5											L		A											
											416	416		420	428	416	384							
6										L	U L	L					L	L						
											424	448	432	432	412	416								
7										L	L	A						L						
											416		428	432	432	416	396							
8									248		L	U L	L				L	L						
											420	424	404	436	428	412								
9										L		U L				L	A	L						
											420	408	428	436	424	408								
10										L	L				A	A	A	A						
											424	424	428	432										
11										U L	L	L					L							
										404	420	428	432	452	424	416	388							
12									L	L							L	L						
										388	424	444	440	440	440	420			184					
13										L	U L	L	U L	A			A	L						
											428	428	448		436	420								
14										L	U L						U L	L						
											432	432	440	432	420	416	388							
15									L	L	U L	L				L	L	L						
											432	436	448	440	432	424	392							
16									L	L	L						A							
											424	436	432	440	428	392								
17										U L	L				L	A	A	L						
										368	424	432	432	436										
18										L	U L				A	L	L							
											424	436	436	444		416								
19									L	L							L							
										396	424	428	440	440	428	416		304						
20									L	L	L							L						
											420	420	428	436	436	428	396		208					
21															A	A	A	L						
												420	432	444										
22										L	L							L						
											416	416	428	428	424	420	372							
23									L	A	L		A	A		A	A							
											420	424			428									
24										L	L													
											412	408	444	424	428	408	392							
25														A			L	L	L					
											416	432	432		428	416	380							
26										U L	U L	432	432	436	428	412	L	A						
								176		404	424													
27										U L	U L													
										412	428	440	428	424	432	416	396							
28									L	L	L	L		L	A	L	A	A						
													436	436										
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								1	1	7	25	26	26	25	23	21	11	1	2					
MED								176	248	U L 396	L 420	428	432	436	428	416	388	304	196					
U Q										U L 404	U L 424	432	440	440	432	418	396							
L Q										L 388	L 416	416	428	428	424	410	L 380							

FEB. 2018 foF1 (0.01MHz)

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FEB.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	264	284	308	A	A	A	A	A	224	A					
2								B	200	260	A	A	356	A	A	A	A	A	B					
3								B	200	252	292	A	A	A	324	A	276	228	B					
4								B	A	A	A	316	324	328	A	A	A	212	A					
5								B	244	A	316	A	A	A	A	A	A	A	A					
6								B	208	276	A	A	A	A	A	296	272	A	A					
7								A	A	276	304	A	A	A	A	A	A	232	A					
8								B	212	264	304	U A 308	A	A	A	A	A	232	A					
9								B	224	288	304	328	328	332	A	A	A	A	B					
10								B	204	260	292	324	324	332	332	A	A	A	A					
11								B	220	276	A	U A 328	A	A	A	A	A	228	A					
12								B	A	A	A	U A 320	A	A	A	A	A	228	A					
13								B	220	276	A	U A 340	A	336	332	312	A	A	A					
14								B	224	284	308	332	332	332	332	316	284	248	B					
15								B	224	276	A	A	A	A	A	A	A	240	A					
16								B	A	276	308	U A 312	A	344	324	A	A	A	A					
17								B	204	A	A	324	324	324	320	300	276	A	A					
18								B	212	264	296	316	336	328	324	312	280	244	A					
19								B	220	248	296	304	328	328	332	300	288	A	A					
20								B	A	A	A	320	324	328	A	312	280	236	B					
21								172	A	320	A	A	332	A	A	A	A	A	A					
22								B	240	288	A	A	A	332	332	A	A	252	A					
23								A	216	A	A	A	320	332	316	A	A	U A 244	A					
24								B	236	A	A	304	A	A	312	304	276	224	A	B				
25								B	U A 244	280	308	336	336	328	328	U A 308	A	A	A	B				
26								B	A	292	A	A	A	A	A	308	A	A	A	A				
27								B	248	A	304	320	340	A	A	A	A	240	A	B				
28								B	A	A	300	320	336	A	U A 332	A	284	244	A	A				
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								1	19	19	14	18	14	13	13	10	9	16						
MED								172	220	276	304	320	330	332	328	308	280	234						
U Q									236	284	308	328	336	332	332	312	284	244						
L Q									208	264	296	312	324	328	322	300	276	228						

FEB.2018 foE (0.01MHz)

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IONOSPHERIC DATA STATION Okinawa

FEB.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	E B 16	19	E B 16	J A 33	J A 21	J A 31	J A 38	J A 53	J A 28	33	33	39	J A 50	J A 45	J A 56	J A 43	J A 30	J A 50	J A 32	J A 27	J A 17	E B 16	18	E B 16
2	E B 16	E B 16	E B 16	E B 16	E B 14	E B 16	J A 22	J A 16	G	G	32	J A 38	50	J A 46	J A 49	J A 43	J A 37	J A 32	J A 21	J A 34	J A 27	J A 26	J A 19	E B 16
3	E B 16	E B 16	E B 16	18	E B 16	19	18	J A 14	26	32	35	J A 47	J A 39	J A 38	36	J A 37	30	J A 29	G	E B 16	J A 52	J A 32	J A 36	J A 22
4	E B 16	E B 16	J A 20	J A 52	22	E B 16	E B 16	18	J A 25	J A 31	J A 34	35	37	42	J A 46	J A 52	J A 49	33	J A 21	J A 30	23	18	20	20
5	J A 18	J A 29	E B 16	19	J A 22	E B 16	E B 16	J A 20	33	36	38	J A 44	J A 61	J A 90	J A 65	J A 72	J A 43	J A 50	J A 28	J A 22	J A 51	J A 101	J A 42	J A 53
6	J A 88	J A 80	J A 52	J A 38	J A 28	J A 20	E B 16	J A 14	27	G	J A 39	J A 48	J A 71	J A 38	J A 39	J A 40	32	J A 52	J A 34	J A 25	J A 28	J A 33	J A 27	J A 32
7	J A 21	J A 25	J A 39	J A 25	J A 42	J A 26	J A 39	J A 32	J A 33	J A 40	J A 27	J A 58	J A 90	J A 85	J A 61	J A 126	J A 36	J A 26	J A 46	J A 34	J A 53	J A 31	J A 27	J A 26
8	J A 32	J A 53	J A 42	J A 26	J A 29	J A 19	J A 17	J A 20	G	30	35	J A 43	38	J A 56	J A 43	J A 42	J A 37	25	J A 24	E B J A 21	16	J A 26	J A 22	J A 50
9	J A 41	J A 40	18	20	20	18	J A 30	E B 16	G	G	G 29	39	40	38	36	J A 32	J A 40	28	J A 17	J A 20	J A 22	J A 20	J A 19	18
10	18	E B 16	J A 22	28	J A 27	J A 49	J A 31	J A 17	26	32	34	39	38	45	J A 63	J A 71	J A 69	J A 176	J A 60	J A 50	J A 26	J A 25	J A 20	J A 17
11	J A 26	E B 16	J A 34	J A 42	J A 22	J A 18	18	E B 16	25	30	J A 43	40	J A 45	J A 50	J A 39	38	J A 52	26	J A 33	J A 18	J A 16	J A 22	E B 16	E B 16
12	E B 16	20	E B 16	E B 16	J A 15	J A 18	J A 24	J A 18	J A 24	J A 30	35	37	J A 52	J A 78	J A 41	J A 42	J A 40	24	J A 19	J A 31	J A 20	J A 16	22	J A 16
13	E B 16	E B 16	J A 21	J A 31	J A 19	18	E B 16	E B 16	G	G	J A 34	39	40	J A 54	J A 44	38	J A 85	J A 53	J A 34	J A 36	J A 28	J A 22	J A 21	19
14	J A 22	19	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	24	32	33	39	38	37	G	G 28	G	G	E B 16	J A 16	19	J A 17	18	E B 16
15	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	31	J A 39	J A 66	J A 41	39	J A 42	J A 39	J A 38	G	J A 29	E B 16	J A 20	18	E B 16	E B 16
16	E B 16	E B 16	E B 16	J A 16	E B 16	E B 16	18	J A 17	J A 31	32	J A 48	35	J A 43	G	38	J A 44	J A 74	J A 82	J A 109	J A 34	J A 17	J A 53	J A 81	18
17	18	18	E B 16	J A 22	18	18	20	J A 16	J A 27	J A 33	35	36	35	37	40	J A 54	J A 44	J A 31	J A 23	J A 46	J A 42	J A 33	J A 32	J A 21
18	19	18	18	E B 16	E B 16	E B 16	J A 17	J A 17	28	33	37	42	42	38	J A 56	J A 47	G	29	J A 28	J A 22	J A 76	J A 130	J A 109	J A 87
19	J A 52	J A 62	J A 72	J A 32	J A 61	J A 30	J A 28	J A 21	29	30	37	37	37	38	G	33	G	28	22	J A 32	J A 24	J A 32	J A 20	J A 22
20	J A 26	J A 52	J A 52	J A 50	J A 50	J A 24	J A 19	J A 19	28	J A 34	J A 44	G	G	G	J A 44	G	J A 28	J A 25	E B 16	E B 16	E B 16	E B 16	E B 16	B J A 66
21	J A 26	E B 16	J A 22	19	J A 19	J A 20	18	J A 24	J A 52	J A 48	58	38	43	J A 38	J A 48	J A 51	J A 49	34	J A 30	J A 33	J A 28	J A 50	J A 62	J A 33
22	J A 50	J A 24	E B 16	E B 16	J A 22	E B 16	E B 16	E B 16	27	33	J A 44	J A 51	J A 72	J A 46	J A 46	J A 53	J A 34	30	J A 41	J A 28	J A 53	J A 113	J A 80	J A 42
23	J A 25	21	J A 16	E B 16	20	J A 18	J A 22	20	28	J A 66	J A 40	35	J A 49	J A 54	40	J A 56	J A 89	J A 66	J A 40	J A 54	J A 66	J A 139	J A 143	J A 59
24	J A 18	E B 14	20	E B 16	E B 16	E B 16	19	18	26	32	32	37	40	J A 53	36	34	31	28	22	J A 21	18	E B 16	E B 16	E B 16
25	E B 16	20	E B 16	20	21	18	19	18	30	33	39	41	J A 46	59	42	36	J A 34	26	J A 17	J A 20	J A 18	J A 19	J A 26	22
26	E B 16	E B 16	J A 40	J A 28	E B 16	18	E B 16	J A 14	28	30	32	J A 42	J A 61	J A 49	J A 46	41	36	J A 41	J A 35	J A 31	J A 46	E B 16	J A 52	J A 27
27	J A 18	J A 20	E B 16	J A 20	E B 16	18	20	E B 16	G 21	J A 33	39	39	41	41	J A 48	J A 43	33	28	24	J A 31	J A 117	J A 51	J A 41	J A 53
28	J A 26	J A 17	J A 30	20	J A 21	J A 24	19	E B 16	J A 24	J A 28	33	G	40	J A 48	J A 51	J A 47	J A 48	J A 57	J A 46	J A 35	J A 49	J A 28	J A 42	J A 63
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28
MED	J A 18	18	18	20	20	18	18	J A 17	26	32	35	39	42	J A 45	J A 44	J A 42	J A 37	J A 30	J A 28	J A 29	J A 26	J A 26	J A 24	J A 22
U Q	J A 26	J A 24	J A 32	J A 30	J A 22	J A 20	J A 22	J A 20	28	J A 33	J A 39	J A 42	J A 50	J A 54	J A 48	J A 52	J A 48	J A 50	J A 34	J A 34	J A 50	J A 42	J A 42	J A 46
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 24	30	33	37	38	38	39	38	32	26	J A 21	J A 20	18	18	19	E B 16

FEB.2018 foEs (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

FEB.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	23	30	32	37	35	36	36	40	29	G 18	27	22	E B 16	E B 16	E B 16	E B 16
2	E B 16	E B 16	E B 16	E B 16	E B 14	E B 16	E B 16	E B 16	G	G	30	32	G 26	34	36	32	25	23	14	20	18	18	E B 16	E B 16
3	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	25	31	34	34	33	34	35	32	30	G 16	G	E B 16	A A 52	22	22	E B 16
4	E B 16	E B 16	E B 16	A A 52	E B 16	E B 16	E B 16	E B 16	23	29	31	35	37	41	40	49	40	31	21	29	E B 16	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	28	32	36	38	44	40	40	34	36	34	21	19	19	23	27	A A 53
6	A A 88	E B 16	21	21	E B 16	E B 16	E B 16	E B 16	25	G	34	41	36	34	34	G 22	29	23	27	19	21	28	20	19
7	E B 16	E B 16	E B 16	E B 16	E B 16	A A 26	E B 16	24	26	G 22	G 21	47	42	40	37	36	30	G 16	24	26	32	18	17	20
8	20	19	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	G	30	34	40	36	36	35	36	30	24	22	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 14	E B 16	G	G	G 22	38	38	37	35	31	38	28	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	17	A A 31	E B 16	26	30	32	37	36	41	44	48	46	A A 176	27	24	19	E B 16	E B 16	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	24	28	34	34	38	34	33	30	30	25	29	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	23	28	34	36	42	36	37	33	34	24	16	19	E B 16	E B 16	E B 16	E B 16
13	E B 16	E B 16	E B 16	21	E B 16	E B 16	E B 16	E B 16	G	G	31	38	37	46	42	36	53	32	24	E B 16	E B 16	16	E B 16	E B 16
14	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	31	33	38	37	36	G	G 26	G	G	E B 16	E B 16	E B 16	E B 16	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 16	E B 16	G	28	34	35	34	37	35	33	30	G	18	E B 16	E B 16	E B 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	23	31	38	34	36	G	36	34	41	30	39	30	E B 16	28	E B 16	E B 16
17	E B 16	E B 16	E B 16	20	E B 16	E B 16	E B 16	E B 16	24	30	32	35	34	36	38	51	38	26	20	19	36	28	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 17	28	31	36	40	38	36	53	34	G	26	21	21	A A 76	E B 16	30	E B 16
19	21	23	E B 16	22	E B 16	A A 30	A A 28	21	29	29	32	35	35	35	G	32	G	26	21	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	18	E B 16	E B 16	E B 16	E B 17	26	28	31	G	G	G	33	G	G 23	G 20	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	26	G 24	34	37	39	36	44	44	38	28	27	32	22	A A 50	A A 62	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	26	32	34	35	38	37	37	40	31	29	40	26	38	38	E B 16	22
23	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	19	26	A A 66	35	34	46	48	40	42	47	52	22	20	23	A A 139	E B 16	E B 16
24	E B 16	E B 14	E B 16	E B 16	E B 16	E B 16	E B 16	18	26	32	32	36	38	37	36	34	30	27	20	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	17	28	32	37	38	42	44	40	34	29	25	16	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 14	E B 16	E B 16	28	G 29	32	36	38	36	34	G 26	31	36	21	28	21	E B 16	23	22
27	E B 16	E B 16	E B 16	E B 14	E B 16	E B 16	E B 16	E B 16	G 19	28	38	38	40	39	41	34	31	27	24	E B 16	35	28	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	23	28	32	G	40	42	44	39	38	52	41	33	24	E B 16	20	19
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28
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	24	29	34	36	38	36	36	34	30	26	21	19	17	E B 16	E B 16	E B 16
U Q	E B 16	E B 16	E B 16	16	E B 16	E B 16	E B 16	16	26	31	34	38	40	40	40	40	38	30	27	25	24	26	18	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 23	28	32	34	36	36	35	32	29	G 23	17	E B 16	E B 16	E B 16	E B 16	E B 16

FEB.2018 fbEs (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

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

IONOSPHERIC DATA STATION Okinawa

FEB.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	F 302	F 307	368	388	F 378	F 351	324	333	385	388	380	362	337	352	335	366	370	377	381	345	364	328	323	340
2	329	323	344	343	376	358	F 349	337	373	369	359	353	368	352	358	357	370	381	405	363	362	328	330	F 359
3	F	F 337	F 339	F 337	F 384	B	B	353	371	341	314	321	338	356	369	364	361	376	355	378	A	F 346	F 316	327
4	346	364	328	A	345	384	383	355	377	340	351	327	295	354	362	367	374	390	380	371	397	406	F 311	F 324
5	329	F 314	F 331	F 292	F 379	F 324	F 301	380	402	390	338	322	323	R 320	351	364	357	370	373	341	339	331	354	A
6	A	296	332	332	382	F 306	324	376	386	373	339	322	356	341	369	347	359	352	389	338	317	328	367	328
7	F 272	F 310	320	F 315	390	A	F 324	359	354	362	375	347	369	329	344	354	370	317	R 346	324	364	340	354	322
8	329	318	317	319	349	362	366	357	378	375	370	373	346	344	362	373	312	355	373	364	309	325	F	F
9	F 341	F 318	F 326	F 335	F 359	F 332	348	372	401	363	357	349	360	337	359	359	348	352	387	350	362	335	379	322
10	337	298	299	339	397	348	A	348	376	368	354	318	330	361	346	343	364	A	378	346	318	V 335	F 288	F
11	F 304	F 312	F 328	341	364	354	365	340	360	348	378	369	353	340	367	365	372	395	381	366	373	F 306	F 335	F 300
12	F	F	F 340	F 397	333	379	332	346	351	346	335	345	327	346	358	364	369	353	393	353	351	375	341	311
13	301	314	321	337	364	343	328	338	379	399	358	344	R 317	349	337	345	367	376	375	353	373	354	346	326
14	312	319	306	348	393	367	307	365	376	377	319	R 293	347	364	339	356	346	360	377	368	377	346	347	308
15	336	F 301	333	348	386	336	335	328	346	348	291	317	330	343	351	344	353	367	386	371	370	334	319	348
16	331	322	329	364	393	344	319	335	357	361	325	332	341	345	349	371	359	359	378	372	318	298	292	305
17	325	333	355	385	392	320	311	354	381	350	315	313	316	355	353	358	366	370	366	344	328	363	328	326
18	329	337	350	361	432	307	F 304	322	364	340	321	341	378	365	354	382	372	363	364	364	A	342	367	345
19	R 359	343	330	322	408	A	A	332	341	312	307	323	302	316	351	383	373	356	389	324	337	316	311	F 296
20	F 333	F 293	330	F 352	423	308	F 304	369	382	342	322	325	355	329	352	361	377	367	378	317	339	364	368	346
21	318	F 305	F 315	F 314	F 389	423	B	386	390	383	337	348	336	J R 318	J R 305	334	334	361	373	375	329	A	A	F 348
22	321	V 321	F 322	322	390	F 383	343	405	375	358	371	339	317	318	338	337	338	354	364	336	329	344	F 322	332
23	340	F 317	331	359	381	F 330	F 316	405	391	A	356	329	348	359	355	365	369	380	339	357	366	A	F 291	F 323
24	347	350	302	336	347	392	B	365	365	331	320	322	313	319	349	340	370	345	368	V 355	V 313	335	V 349	314
25	324	309	320	321	390	F 351	286	382	367	342	327	311	327	336	353	363	387	382	382	343	369	363	369	310
26	309	309	297	F 310	F 353	F 407	F 326	376	386	331	302	316	332	343	349	335	380	390	393	352	344	335	341	324
27	326	302	310	333	389	370	354	377	388	340	300	321	324	336	338	357	343	365	356	344	359	327	302	317
28	304	312	354	378	337	326	347	384	389	376	353	356	353	364	347	338	366	367	369	361	365	328	340	304
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	25	27	28	27	28	25	23	28	28	27	28	28	28	28	28	28	28	27	28	28	26	26	26	25
MED	329	314	328	337	383	351	326	358	376	358	338	328	336	344	351	358	366	367	378	353	355	335	338	324
U Q	336	323	336	359	391	374	348	376	386	375	358	348	353	354	358	365	371	377	384	365	366	346	354	336
L Q	310	F 307	318	F 322	362	328	311	339	364	341	320	321	324	332	345	344	355	355	367	344	329	328	F 316	310

FEB.2018 M(3000)F2 (0.01)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

FEB.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 400	412	403	L 412	L 404	A	L 396	L						
2									L	L	L	407	412	L 391	385	L 384	L							
3											375	383	422	393	L 398	419		L	L					
4									L	U L 375	387	407	422	A	A	A	A		A					
5											L 372	387	A	391	A	382	A							
6										L	U L 392	A	438	413	418	414	L	L						
7										L	L 378	A	A	404	396	383	394	L						
8									443	L	L 391	U L 422	L 443	400	389	398	L	L						
9										L	402	U L 410	430	405	402	L 418	A	L						
10										L	L 392	416	421	A	A	A	A	A						
11										U L 392	L 396	L 408	435	420	411	413	L 397							
12									L	L 390	376	372	A	401	380	397	L	L	470					
13										L	U L 416	L 386	U L 402	A	A	387	A	L						
14										L	U L 394	398	391	422	428	403	U L 424	L						
15									L	L	U L 408	L 409	406	399	401	L 396	L 388	L						
16									L	L	L 369	387	432	407	432	437	A							
17										U L 410	L 405	403	405	414	L	A	A	L						
18										L	U L 374	A	389	397	A	L 392	L							
19									L	L 384	382	394	406	388	383	389	L	455						
20									L	L	L 383	411	406	407	386	392	415	L	451					
21												415	395	381	A	A	A	L						
22										L	L 383	379	406	412	378	A	407	L						
23									L	A	L 378	403	A	A	A 406	A	A							
24										L	L 397	422	367	400	378	397	380							
25											386	383	A	A	A	392	L 405	L	L					
26								479		U L 383	U L 383	389	419	401	390	386	L	A						
27										U L 394	U L 368	386	A	A 404	A	375	379							
28									L	L	L	L	383	A	A	L	A	A						
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								1	1	7	25	24	22	22	18	20	10	1	2					
MED								479	443	U L 390	L 386	403	406	402	397	394	396	455	460					
U Q										U L 394	L 396	410	422	412	406	408	407							
L Q										U L 383	L 377	386	402	397	385	386	388							

FEB.2018 M(3000)F1 (0.01)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

FEB. 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										224	224	250	266	258	254	234	230	218						
2									222	240	256	266	240	240	248	230	226							
3											324	280	260	232	214	234	220	222						
4									216	294	268	240	296	234	252	254	236		202					
5											302	300	284	268	242	220	220							
6										238	284	316	244	260	228	234	246	234						
7										254	236	282	246	294	246	242	214	204						
8									210	226	250	256	268	266	228	222	252	238						
9										258	248	258	258	274	250	242	244	244						
10										242	274	324	248	236	228	248	226	A						
11										266	224	252	274	288	246	232	236							
12									246	270	260	248	256	248	224	222	216	220	192					
13										202	232	240	272	258	230	234	244	226						
14										230	288	292	232	212	230	222	238	232						
15									258	250	340	288	260	236	222	238	234	224						
16									248	244	270	252	234	232	234	220	248							
17										248	320	298	252	232	244	252	242	224						
18										254	278	256	218	240	258	222	226							
19									278	300	292	270	250	280	234	200	216	208						
20									220	260	276	266	234	252	230	206	198	216	190					
21												278	258	230	236	230	228	224						
22										L 256	250	280	280	258	240	240	232	218						
23									200	A	264	280	238	246	250	242	246							
24										288	278	270	272	270	228	222	220							
25											294	302	268	260	234	238	224	224	198					
26								200		298	314	288	264	250	232	248	218	218						
27										L 278	300	284	260	256	248	220	232							
28									206	236	252	254	244	252	262	272	242	252						
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								1	10	23	27	28	28	28	28	28	28	18	4					
MED								200	221	254	274	274	258	252	235	234	231	224	195					
U Q									248	270	294	288	268	263	248	242	242	232	200					
L Q									210	238	250	255	244	236	229	222	220	218	191					

FEB. 2018 h'F2 (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

FEB.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	Q 298	Q 292	222	210	228	Q 268	Q 292	256	220	206	200	202	182	188	212	A	180	210	204	198	196	220	232	232
2	236	264	224	224	198	256	Q 330	240	206	192	222	166	210	188	204	218	196	216	192	A 210	A 220	A 250	240	Q 228
3	Q 278	Q 242	Q 234	Q 220	Q 214	B	B	228	208	238	242	230	H 172	198	206	166	210	210	212	188	A	Q 236	E A 364	248
4	238	216	Q 286	A	246	200	254	206	196	180	H 172	208	190	A	A	A	A	214	A	226	188	186	Q 308	Q 252
5	258	302	Q 266	Q 282	204	Q 312	Q 298	214	198	224	242	238	A	264	A	208	A	202	190	194	222	218	A 210	A
6	A	270	A 272	A 246	192	270	280	212	212	218	206	A	164	180	174	184	206	190	190	188	E A 256	E A 300	A 206	A 280
7	Q 318	Q 290	268	Q 272	214	A	Q 322	E A 296	218	210	208	A	A	A 226	216	214	202	192	206	200	216	206	206	218
8	230	262	258	260	216	220	212	212	170	202	206	A 212	178	194	216	210	194	H 200	198	176	246	Q 236	Q 204	Q 200
9	246	Q 252	Q 270	Q 242	204	Q 256	236	208	196	H 180	H 164	A 212	202	206	206	H 176	A	226	202	196	194	204	194	252
10	246	272	302	244	196	244	A	230	208	210	206	206	196	A	A	A	A	A	204	224	198	216	Q 256	Q 214
11	Q 244	Q 246	Q 268	Q 228	210	208	218	228	204	200	202	186	178	H 164	168	192	184	212	202	186	186	Q 250	Q 194	Q 248
12	Q 226	Q 226	Q 220	210	210	216	332	228	218	204	224	214	A	186	208	210	194	194	172	206	208	214	240	246
13	280	262	244	256	212	234	260	226	206	170	H 170	224	184	A	A	226	A	A 210	202	186	186	190	238	262
14	286	274	Q 258	220	196	234	320	212	208	198	192	212	208	178	184	178	180	192	192	200	182	210	218	256
15	232	Q 266	232	206	186	250	272	228	214	194	180	174	168	192	196	190	208	204	198	192	192	220	252	218
16	218	226	234	204	194	220	268	230	218	214	E A 258	226	190	192	182	190	A	230	226	216	218	318	284	Q 252
17	240	226	222	208	182	290	292	208	208	200	204	190	184	192	236	A	A	210	216	214	E A 330	A 232	234	246
18	224	234	220	188	172	284	288	242	224	212	222	A	A	210	A	198	188	208	212	204	A	224	A 250	234
19	A 244	E A 262	250	E A 270	184	A	A	A 250	238	216	204	194	190	182	210	200	192	188	194	210	204	238	262	Q 288
20	246	308	240	A 204	176	324	284	212	206	186	168	174	174	204	208	184	184	174	148	198	206	198	206	248
21	252	Q 262	Q 268	Q 252	198	218	B	202	208	208	176	200	230	224	A	A	A	220	204	A 210	E A 230	A	A	234
22	252	Q 228	Q 254	252	198	216	264	184	202	220	206	228	208	198	218	A	190	210	206	214	E A 278	A 228	236	244
23	230	232	218	206	186	Q 232	Q 250	184	180	A	238	202	A	A	A 230	A	A	A 234	214	212	206	A	328	226
24	216	212	266	240	220	198	B	210	222	228	H 182	206	244	210	212	218	202	200	206	210	190	230	210	246
25	268	276	264	250	200	Q 230	422	210	226	204	232	226	A	A	A	204	190	200	178	214	196	212	216	254
26	Q 280	266	Q 298	290	Q 238	Q 194	E B 324	164	204	H 178	180	210	194	194	188	200	208	A	192	A 230	230	224	E A 246	E A 260
27	252	266	264	234	198	202	228	186	198	200	248	230	E A 254	A 238	A	214	214	216	196	200	220	242	248	248
28	266	254	220	194	234	252	232	210	196	H 176	182	H 166	E A 242	A	A	A 228	A	A	226	222	206	212	230	A 260
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	27	28	28	27	28	25	23	28	28	27	28	25	22	22	19	21	18	25	27	28	26	26	27	27
MED	246	262	256	231	199	234	276	212	208	204	204	208	188	194	208	200	194	210	202	205	202	221	234	247
U Q	Q 268	271	Q 268	252	214	262	320	229	218	214	223	225	208	210	216	214	206	215	206	214	E A 222	236	252	254
L Q	232	233	228	208	193	216	250	208	200	192	181	192	178	188	188	187	188	197	192	195	194	212	210	232

FEB.2018 h'F (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

FEB.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	104	A	A	A	A	A	104	A					
2								B	104	102	A	A	106	A	A	A	A	A	B					
3								B	102	102	102	A	A	A	106	A	106	106	B					
4								B	A	A	A	102	102	102	A	A	A	102	A					
5								B	102	A	104	A	A	A	A	A	A	A	A					
6								B	104	104	A	A	A	A	A	104	108	A	A					
7								A	A	104	104	A	A	A	A	A	A	108	A					
8								B	108	106	104	102	A	A	A	A	A	104	A					
9								B	102	102	108	106	102	106	A	A	A	A	B					
10								B	102	102	100	100	100	100	100	A	A	A	A					
11								B	102	102	A	102	A	A	A	A	A	102	A					
12								B	A	A	A	102	A	A	A	A	A	114	A					
13								B	106	106	A	106	A	106	106	102	A	A	A					
14								B	104	104	104	104	104	104	102	104	104	104	B					
15								B	104	104	A	A	A	A	A	A	A	102	A					
16								B	A	100	100	100	A	100	100	A	A	A	A					
17								B	102	A	A	104	106	106	104	104	104	A	A					
18								B	104	104	104	106	106	106	104	104	104	104	A					
19								B	108	100	100	100	100	100	100	100	100	A	A					
20								B	A	A	A	102	102	102	A	102	108	114	B					
21								128	A 122		A	A	112	A	A	A	A	A	A					
22								B	104	112	A	A	A	102	102	A	A	102	A					
23								A	102	A	A	A	106	106	104	A	A	104	A					
24								B	102	A	A	108	A	A	104	100	104	108	A	B				
25								B	102	102	102	104	104	102	104	102	A	A	A	B				
26								B	A 108		A	A	A	A	A	116	A	A	A	A				
27								B	116	A	108	106	106	A	A	A	A	104	A	B				
28								B	A	A	104	104	106	A	108	A	108	104	A	A				
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								1	19	19	14	18	14	13	13	10	9	16						
MED								128	104	104	104	104	105	102	104	103	104	104						
U Q									104	106	104	106	106	106	105	104	108	107						
L Q									102	102	102	102	102	101	101	102	104	103						

FEB.2018 h'E (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

FEB.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	B	98	B	94	94	94	96	96	90	122	124	106	106	102	88	94	98	96	86	86	86	B	84	B
2	B	B	B	B	B	B	98	92	G	G	102	108	98	102	98	96	92	88	94	90	90	90	84	B
3	B	B	B	102	B	170	94	B	156	150	140	106	106	106	170	108	164	98	G	B	84	86	92	92
4	B	B	100	88	94	B	B	90	100	98	102	168	166	118	98	92	88	124	150	132	124	82	140	132
5	84	108	B	124	104	B	B	148	148	142	138	104	100	104	92	92	94	94	94	110	98	122	108	108
6	104	106	106	92	92	92	B	B	152	G	108	102	102	98	96	94	142	120	92	90	90	88	82	84
7	100	94	92	96	90	90	98	90	88	88	92	106	100	104	100	100	100	92	92	92	90	88	92	88
8	88	88	96	92	92	90	90	92	G	168	128	106	108	94	100	96	96	148	90	90	B	100	112	122
9	92	92	88	94	102	88	94	B	G	G	100	164	152	142	132	92	94	122	90	88	94	94	90	116
10	110	B	86	112	94	88	88	86	150	142	148	154	154	128	106	100	94	94	88	86	82	110	86	120
11	110	B	98	96	94	96	88	B	162	108	112	108	106	104	100	98	90	158	84	90	96	82	B	B
12	B	92	B	B	90	88	88	88	102	100	172	176	102	104	102	102	98	142	90	86	86	84	84	78
13	B	B	88	88	90	92	B	B	G	G	108	152	128	106	102	102	102	96	94	94	106	90	90	78
14	84	90	B	B	B	B	B	B	170	152	142	160	150	166	G	96	G	G	B	90	82	86	116	B
15	B	B	B	B	B	B	B	B	G	140	102	86	102	100	100	100	96	G	112	B	88	90	B	B
16	B	B	B	110	B	B	144	B	100	108	108	108	102	G	118	104	98	98	98	96	96	92	92	86
17	86	94	B	104	102	102	98	98	98	98	104	158	144	118	116	104	104	100	96	94	88	86	86	86
18	86	90	86	B	B	B	102	142	152	134	132	114	114	124	104	108	G	166	102	96	94	102	98	104
19	94	106	90	94	94	94	92	122	126	136	112	114	114	114	G	140	G	100	158	100	94	94	84	82
20	98	92	94	94	94	94	90	128	102	96	96	G	G	G	106	G	96	96	B	B	B	B	B	80
21	78	B	84	84	84	104	100	98	98	98	118	148	128	98	94	94	94	96	96	94	86	86	92	92
22	92	88	B	B	84	B	B	B	170	154	110	114	88	108	102	102	102	172	126	128	118	106	104	104
23	88	86	86	B	84	84	88	142	124	96	94	158	118	110	116	110	102	100	98	98	102	102	96	108
24	84	B	104	B	B	B	84	150	158	150	152	156	142	96	180	156	154	122	122	90	102	B	B	B
25	B	80	B	108	108	94	94	152	148	160	136	126	124	112	114	102	102	98	94	94	90	118	88	84
26	B	B	86	90	B	94	B	B	152	130	130	110	108	104	114	102	124	102	100	94	90	B	90	82
27	84	86	B	84	B	102	102	B	100	100	176	174	190	158	102	102	98	164	176	96	96	92	92	92
28	90	88	92	86	86	86	88	B	102	98	152	G	152	118	116	116	114	104	98	92	90	94	92	92
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	18	17	16	20	19	19	20	16	23	24	28	26	27	26	26	27	25	26	25	25	26	24	24	22
MED	89	92	91	94	94	94	94	98	126	126	115	114	114	106	102	102	98	100	96	94	90	91	92	92
U Q	98	96	97	103	94	96	98	142	152	146	139	158	144	118	116	104	103	124	107	96	96	101	97	108
L Q	84	88	86	89	90	88	88	91	100	98	103	106	102	102	100	96	94	96	91	90	88	86	86	84

IONOSPHERIC DATA STATION Okinawa

FEB. 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		FQ 31	FQ 21	FQ 21	F 1	L 4	L 6	CL 12	C 1	C 2	CQ 21	CH 11	LQ 21	L 3	L 4	L 4	LQ 71	F 4	F 1		F 1	
2							FQ 11	LQ 11			C 1	C 1	CQ 11	LQ 21	LQ 31	LQ 21	LQ 41	LQ 21	LQ 31	FQ 51	FQ 31	FQ 21	F 1	
3				F 1		FF 11	FF 11	H 1	H 2	H 2	H 1	CQ 11	CQ 11	C 1	H 1	CQ 11	HQ 11	LQ 11			FQ 51	FQ 31	FQ 31	F 1
4			F 1	F 4	F 2			L 1	L 3	L 2	C 1	H 1	H 1	C 2	LQ 31	L 5	L 5	C 4	HL 61	FF 42	FF 21	F 1	FQ 11	F 1
5	FQ 31	FF 31		F 1	F 2			H 1	H 3	H 2	HC 21	C 2	C 3	CLQ 13	LQ 31	LQ 31	LQ 41	LQ 31	L 3	F 2	F 6	FFQ 15	FFQ 35	FFQ 82
6	F 7	FQ 21	FF 38	F 4	FQ 31	F 2		H 2	H 2		C 2	CQ 41	CQ 21	LQ 11	LQ 11	L 1	H 1	CQ 11	LQ 51	FQ 31	F 8	F 5	F 4	FQ 21
7	FF 11	F 1	F 3	FQ 21	FQ 31	FQ 31	F 3	L 6	L 4	L 5	LQ 21	CQ 41	CQ 31	CL 23	CQ 31	CQ 31	CQ 31	LQ 21	LQ 21	FQ 31	FQ 31	FQ 31	FQ 11	F 5
8	F 2	F 8	FQ 31	F 3	F 2	F 2	F 1	L 1		H 1	C 1	C 3	C 2	LQ 21	LQ 11	LQ 31	LQ 21	HL 11	L 2	F 2		F 1	FQ 11	FF 12
9	F 2	F 2	F 1	F 1	F 1	F 1	F 2				L 1	H 1	H 1	H 1	HC 11	L 1	L 3	CL 12	L 1	F 1	F 1	F 2	F 1	F 1
10	F 1		FQ 21	FF 22	FQ 31	FQ 41	FQ 51	L 2	H 2	H 2	H 1	H 1	HC 11	C 2	C 3	C 6	L 5	LQ 51	LQ 51	FQ 51	FQ 51	FF 12	F 1	F 1
11	F 1		F 2	F 2	FF 42	F 1	F 1		H 1	C 1	CQ 11	C 2	C 2	C 2	L 1	L 1	L 4	H 1	L 4	F 1	FQ 11	FQ 11		
12		F 1			F 2	F 2	F 3	L 2	L 2	C 1	HC 11	HC 11	C 2	CQ 21	C 2	C 1	L 3	HL 13	LL 13	F 4	F 2	F 2	F 1	F 1
13			F 2	FQ 51	FQ 11	F 1					CQ 11	HCQ 11	CQ 11	C 4	C 3	C 1	C 5	L 5	L 5	F 3	FF 13	F 2	FQ 11	F 1
14	F 1	F 1							H 1	H 1	H 1	H 1	H 1	H 1		L 1				F 1	F 1	F 1	F 1	
15										H 1	CQ 11	LCQ 11	C 1	C 1	CQ 11	CQ 21	LQ 21		CQ 21		F 3	F 1		
16				F 1			F 1	C 1	C 3	C 2	C 2	C 1	CH 11		C 1	C 1	LQ 41	LQ 31	LQ 41	FQ 51	F 1	FQ 41	FQ 51	F 1
17	F 1	F 1		F 5	F 1	F 1	F 1	L 1	LHQ 22	LHQ 11	CL 11	H 1	H 1	C 1	C 1	C 5	C 5	C 5	L 3	F 6	F 6	F 9	FQ 31	F 2
18	F 1	F 1	F 1				F 1	H 2	H 2	H 2	H 1	C 2	C 1	C 1	C 3	C 1		H 1	C 3	F 5	F 9	FQ 41	FQ 41	FFQ 13
19	FFQ 43	FF 24	F 3	F 4	F 4	F 9	F 7	CL 63	CL 21	HL 11	C 2	CL 11	C 1	C 1		H 1		C 2	HL 11	FQ 11	FQ 21	FQ 21	FQ 21	FQ 11
20	FQ 21	FQ 51	FQ 31	FQ 51	FQ 51	FQ 21	F 2	C 2	C 3	LQ 31	LQ 11				CQ 11		L 2	L 1						F 5
21	F 2		F 2	FQ 11	F 3	F 1	FF 21	L 1	LQ 21	LQ 31	CLQ 11	HLQ 11	CL 21	L 1	L 2	LQ 31	L 3	L 3	L 7	F 9	F 7	FQ 61	FQ 31	FQ 21
22	FQ 21	FQ 11			F 1				H 1	H 1	CQ 11	CL 21	LCQ 21	C 2	C 2	C 3	CL 12	F 3	C 4	F 5	FF 72	FQ 81	FQ 31	FF 21
23	FFQ 21	F 1	F 1		F 1	F 2	F 1	HC 13	C 2	L 9	C 2	HC 11	CL 21	C 4	CL 11	CL 21	C 5	C 5	L 4	F 5	FF 23	FFQ 24	FQ 31	FFQ 12
24	F 1		F 1				FQ 11	H 1	H 1	HL 21	HL 11	HL 11	HL 12	LH 21	H 1	H 1	H 1	CL 21	C 2	L 1	F 1			
25		F 1		F 1	F 1	F 1	F 1	H 2	H 2	H 2	H 2	C 1	C 1	C 2	CH 31	C 1	C 1	L 3	L 1	L 2	F 2	F 1	F 4	F 1
26			FQ 21	FQ 11		F 1		H 1	HCQ 31	HC 11	HQ 11	CQ 11	CQ 21	CQ 11	CQ 11	LQ 11	CQ 11	C 3	L 4	L 9	F 4		F 5	F 2
27	F 2	F 1		F 1		F 1	F 1		L 1	LQ 11	HL 11	HL 11	H 1	H 2	C 2	CQ 11	L 1	H 2	HC 41	L 3	FQ 41	FQ 51	FQ 31	FQ 31
28	F 3	F 2	F 2	F 1	F 1	F 1	F 1		CQ 21	L 2	HL 11		HL 11	CL 21	CL 31	CL 21	C 3	C 7	L 9	L 9	FQ 51	F 2	F 8	FQ 51
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT																								
MED																								
U Q																								
L Q																								

FEB. 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

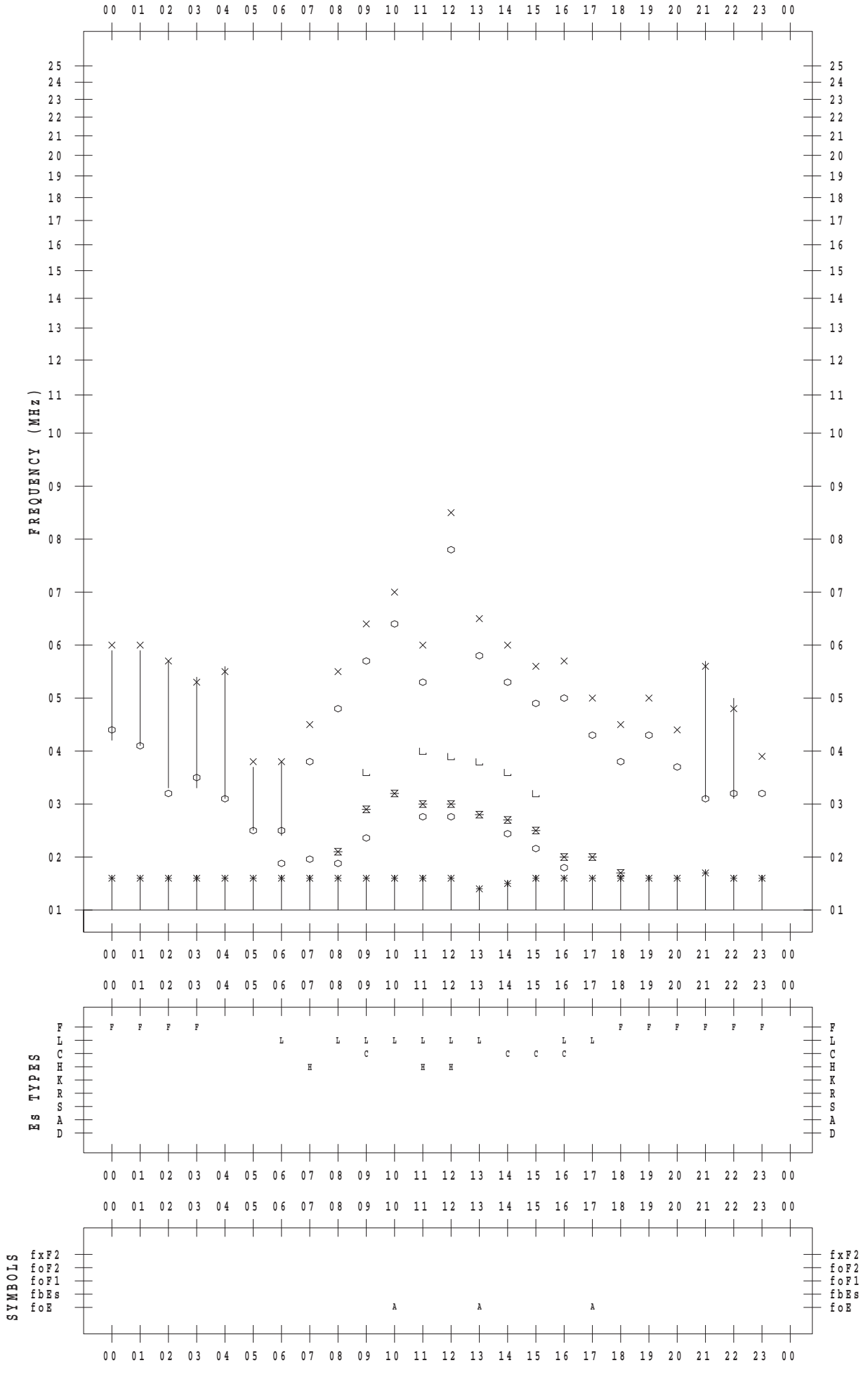
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2018/ 2/ 1

135 °E MEAN TIME



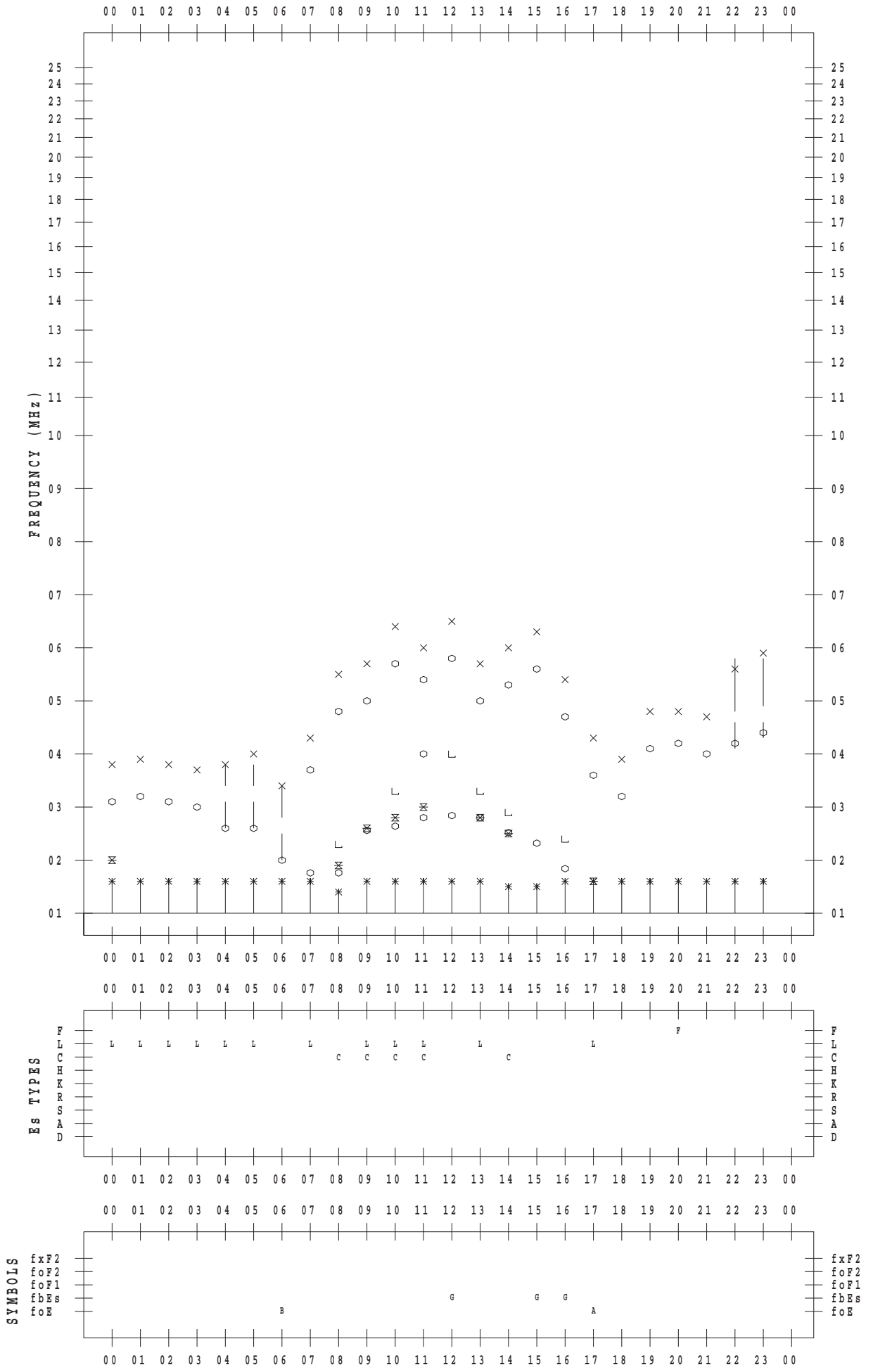
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2018/ 2/ 2

135 °E MEAN TIME



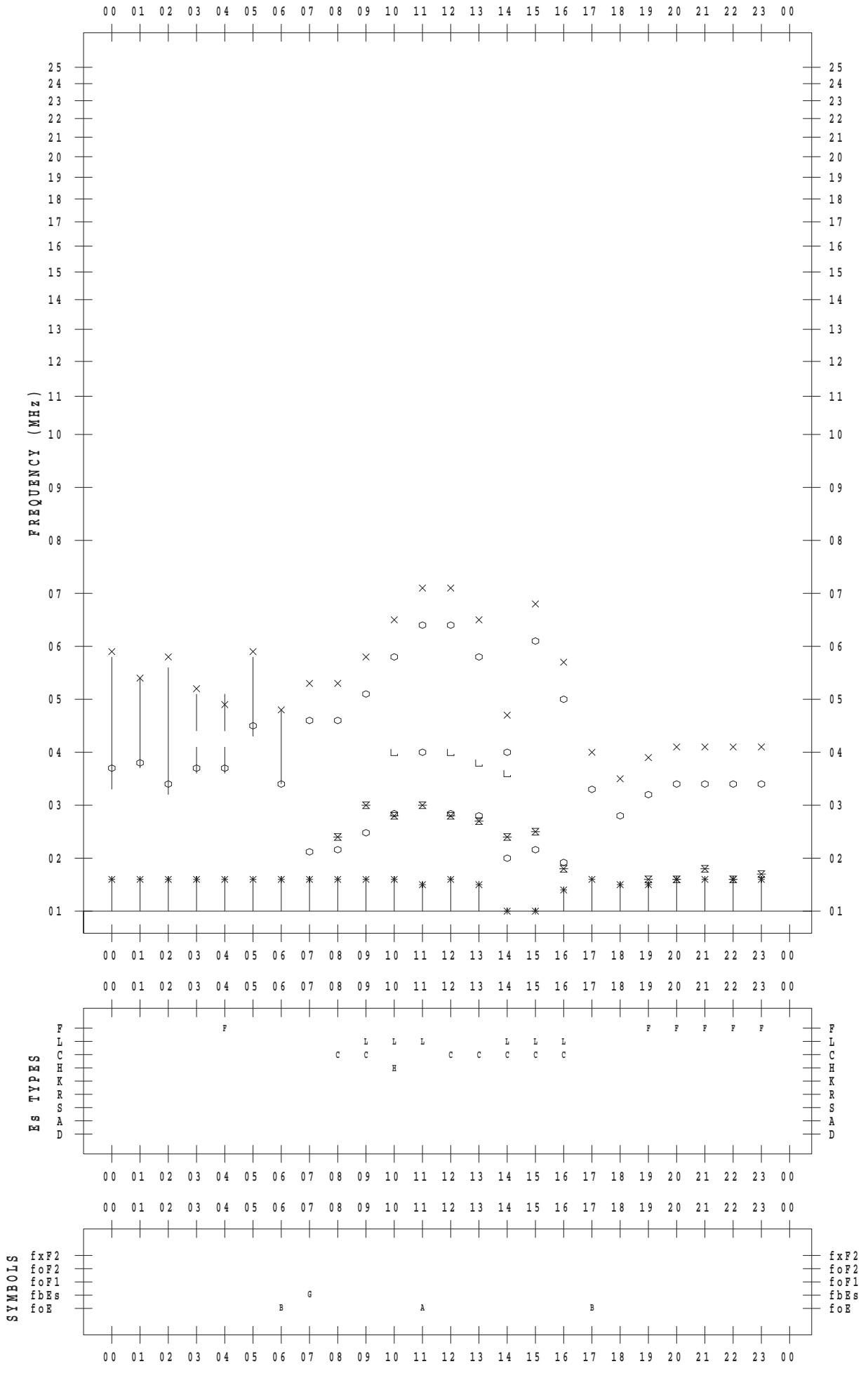
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2018/ 2/ 3

135 °E MEAN TIME



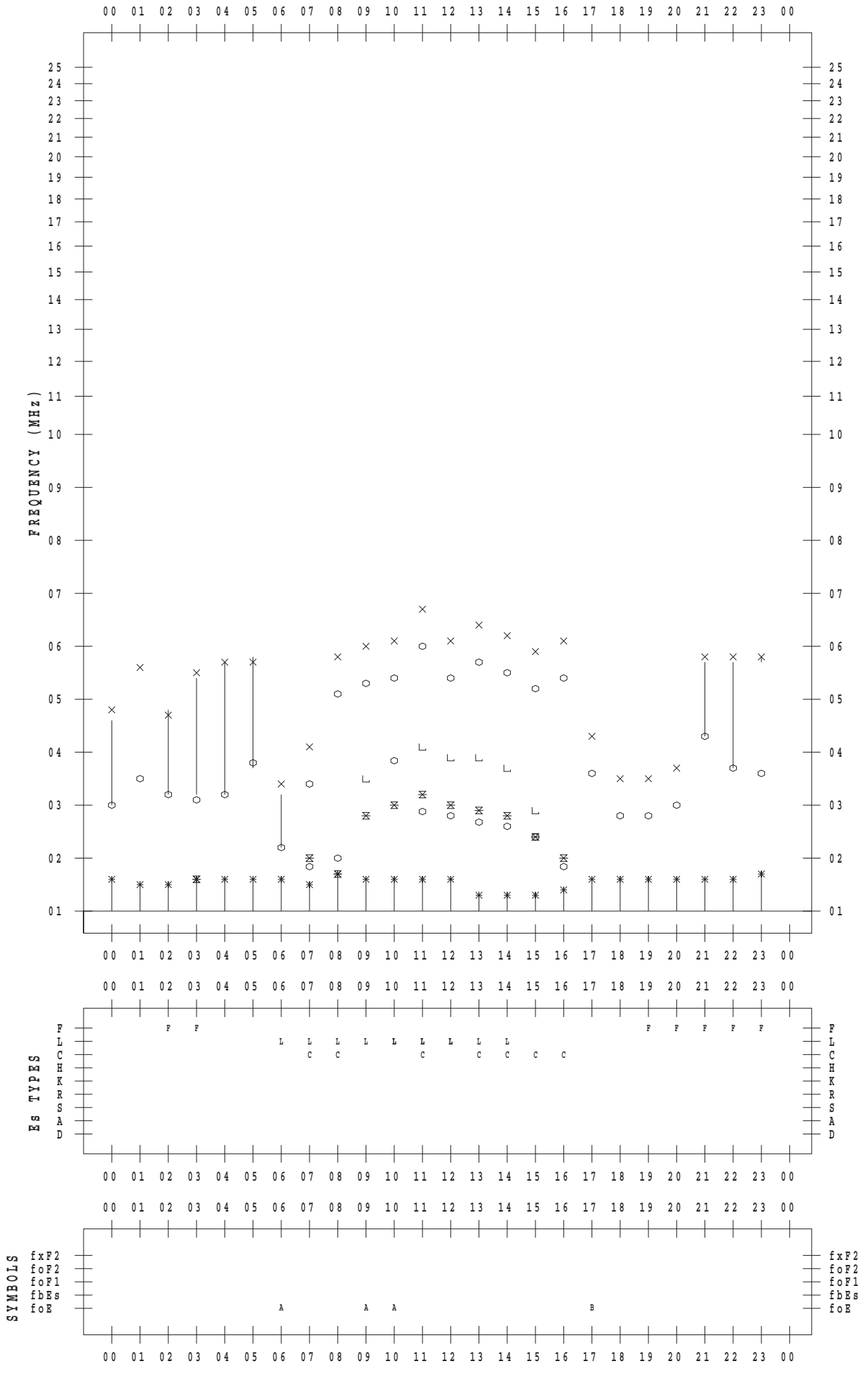
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2018/ 2/ 4

135 °E MEAN TIME



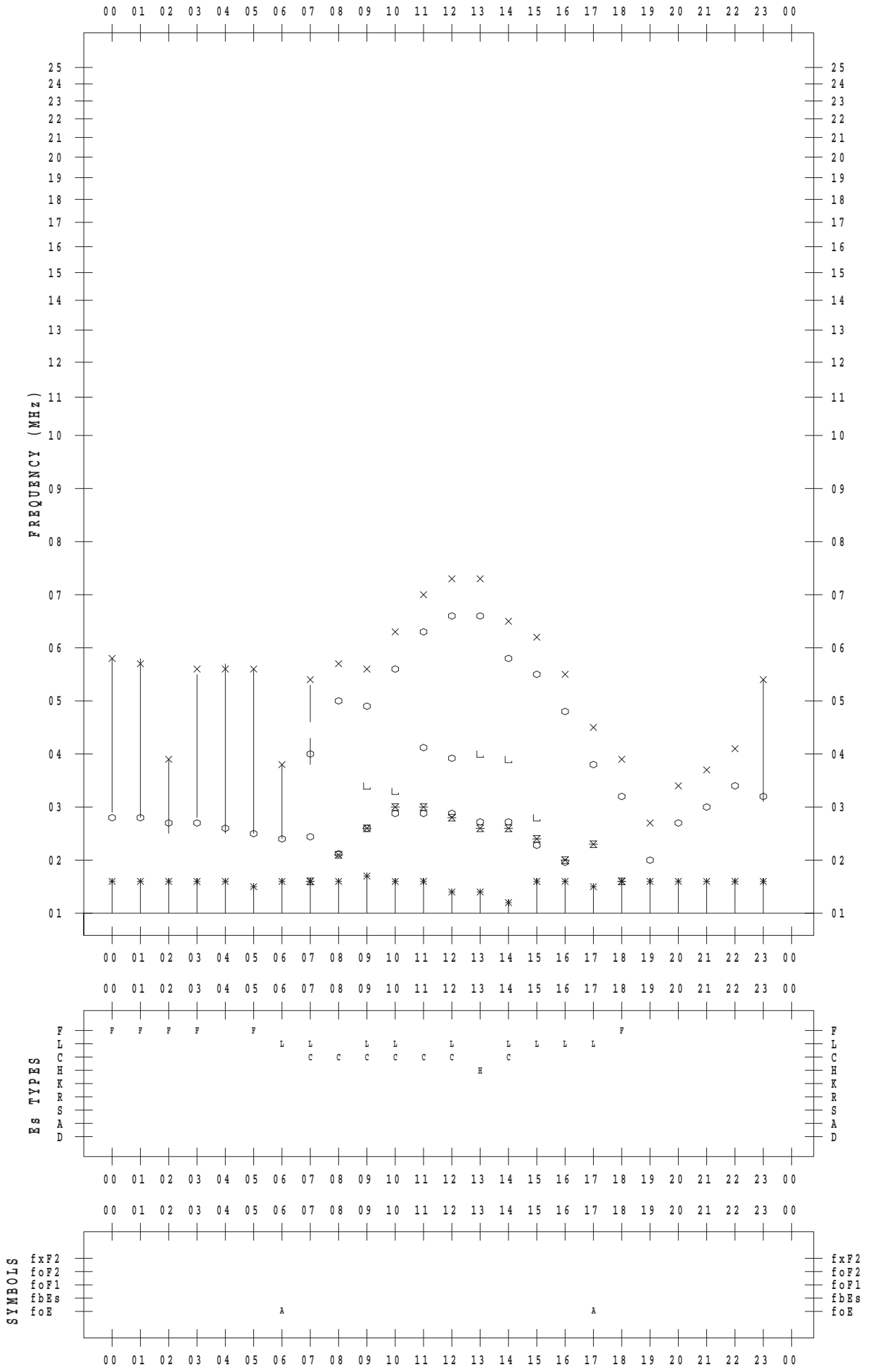
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2018/ 2/ 5

135 °E MEAN TIME



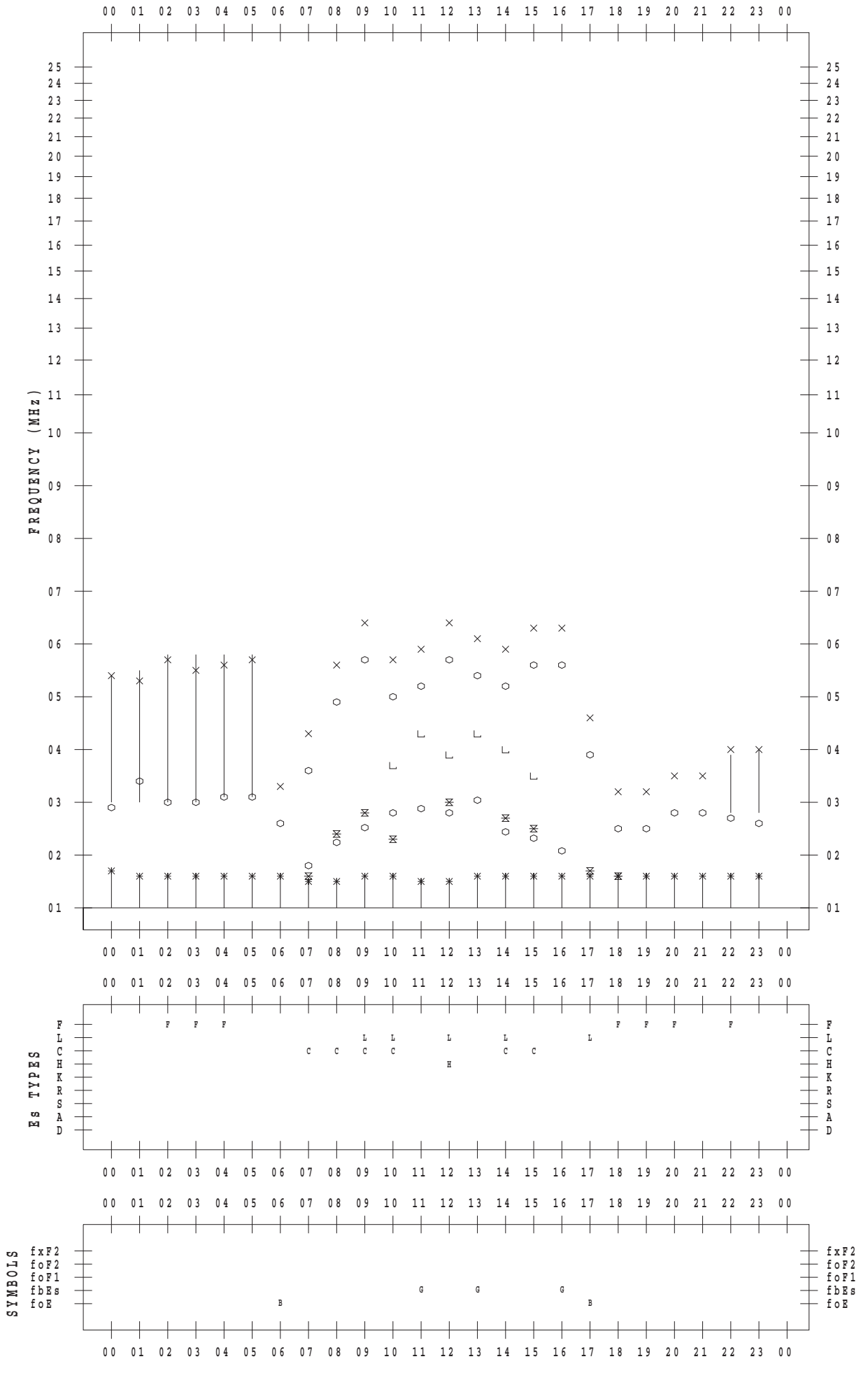
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2018/ 2/ 6

135 °E MEAN TIME



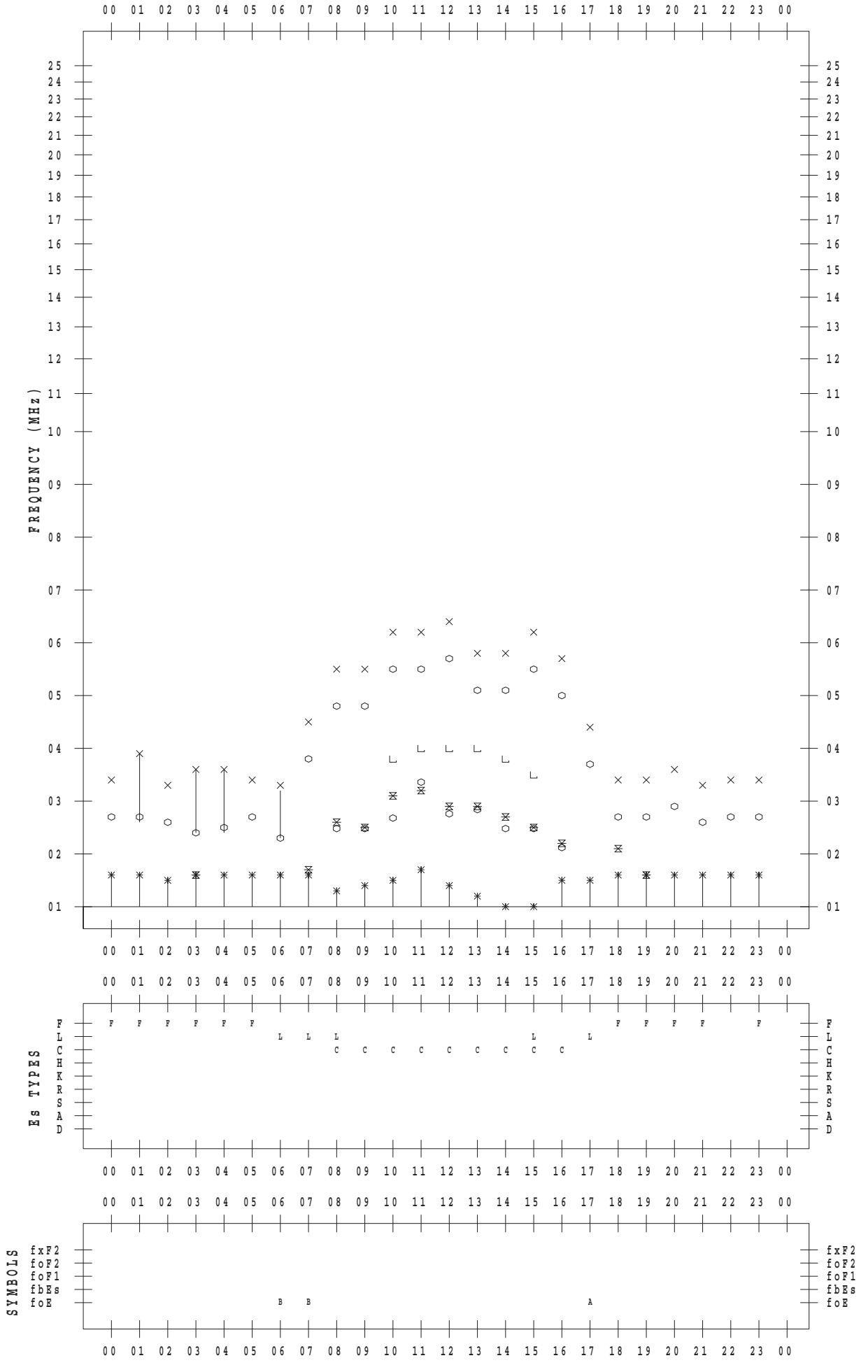
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2018/ 2/ 7

135 °E MEAN TIME



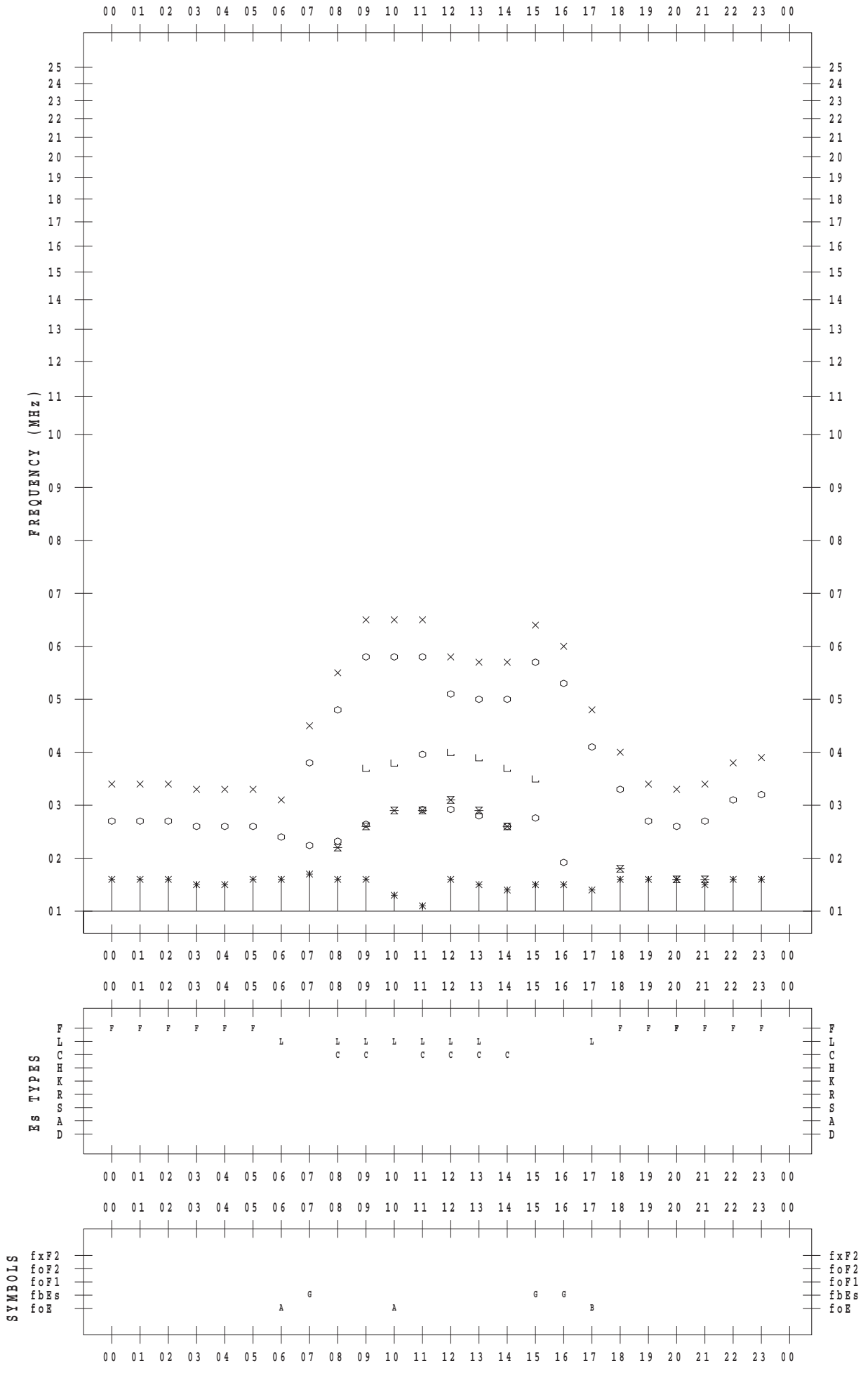
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2018/ 2/ 8

135 °E MEAN TIME



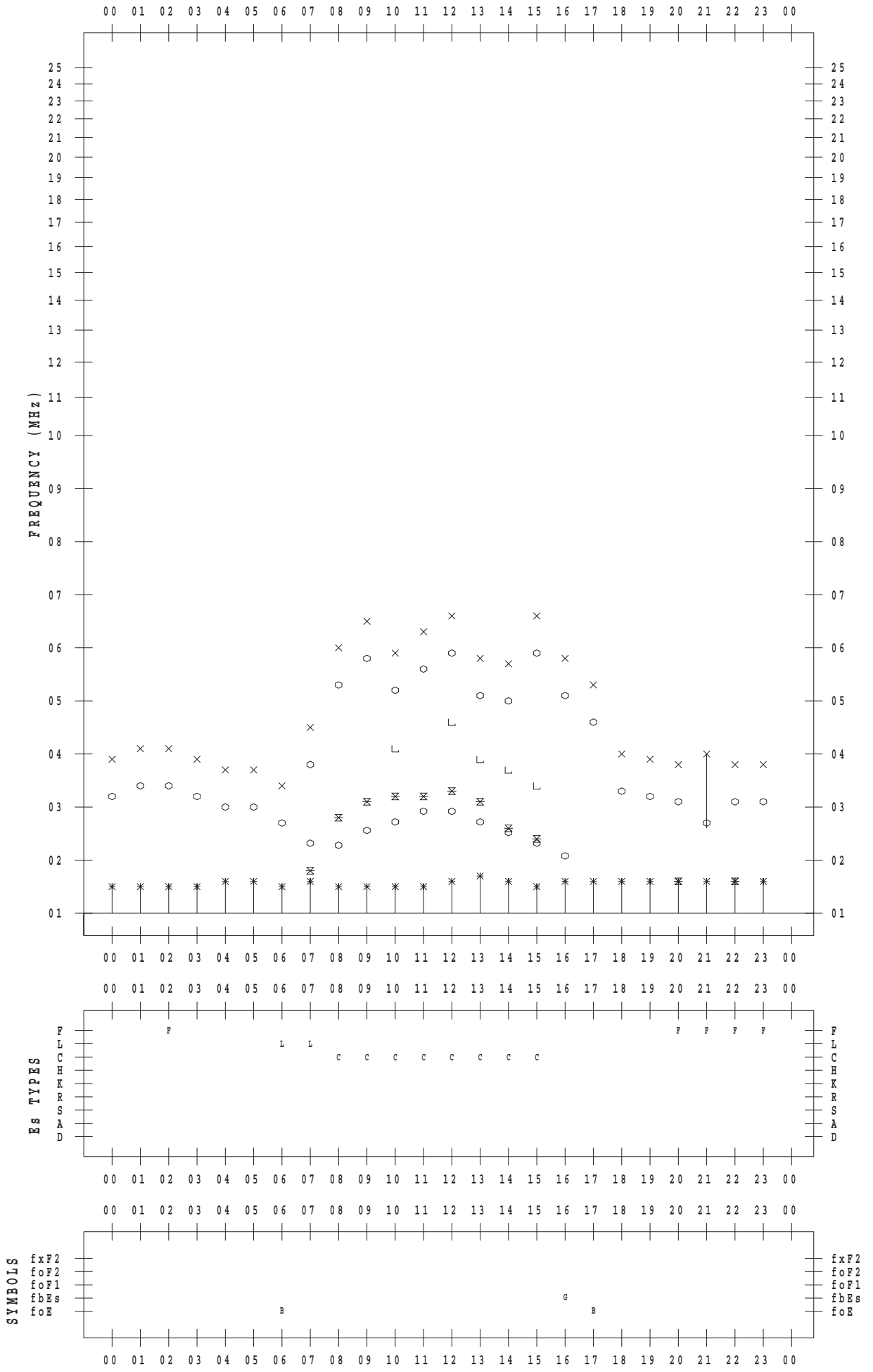
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2018/ 2/ 9

135 °E MEAN TIME



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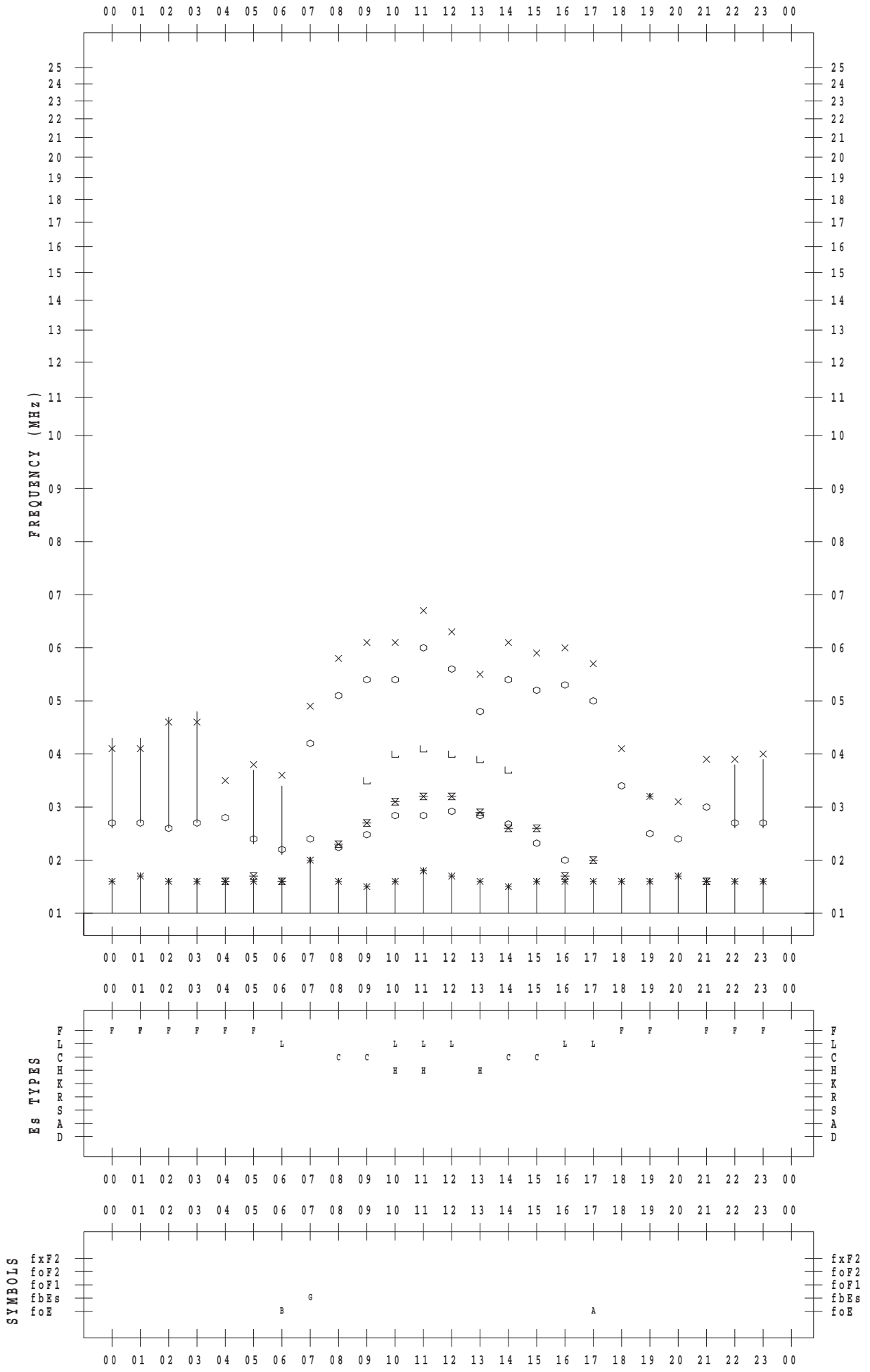
SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2018/ 2/10

135 °E MEAN TIME



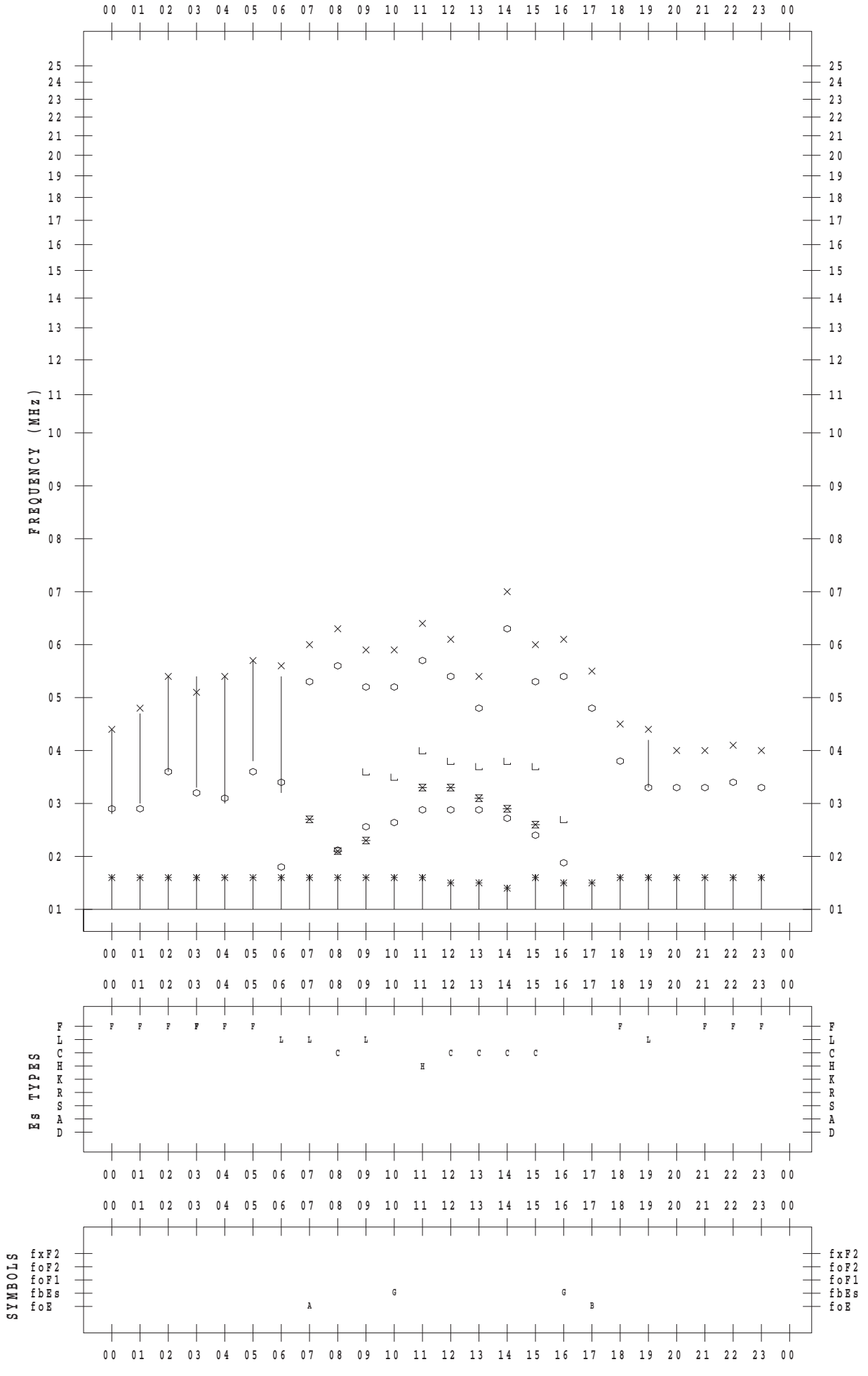
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2018/ 2/11

135 °E MEAN TIME



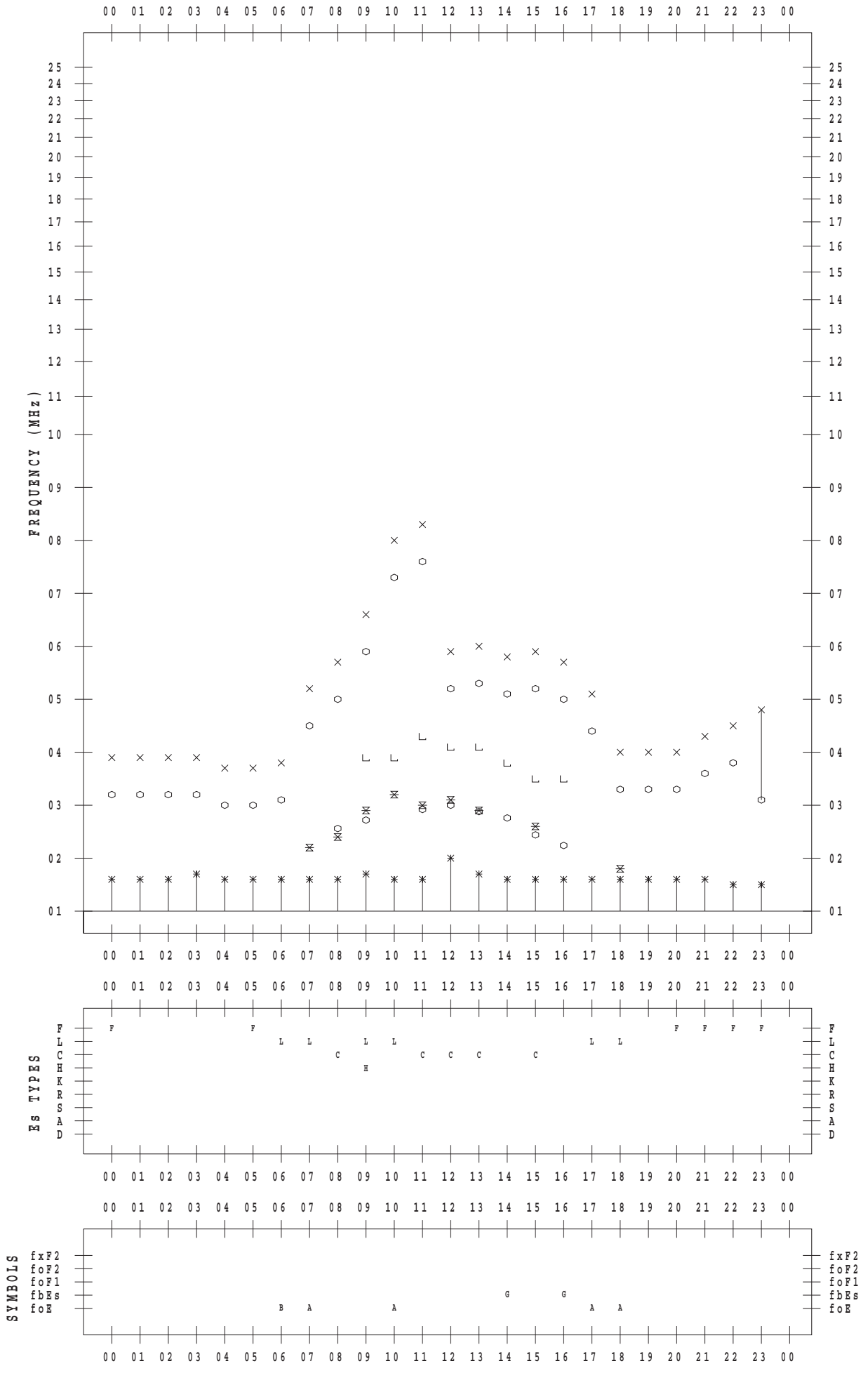
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2018/ 2/12

135 °E MEAN TIME



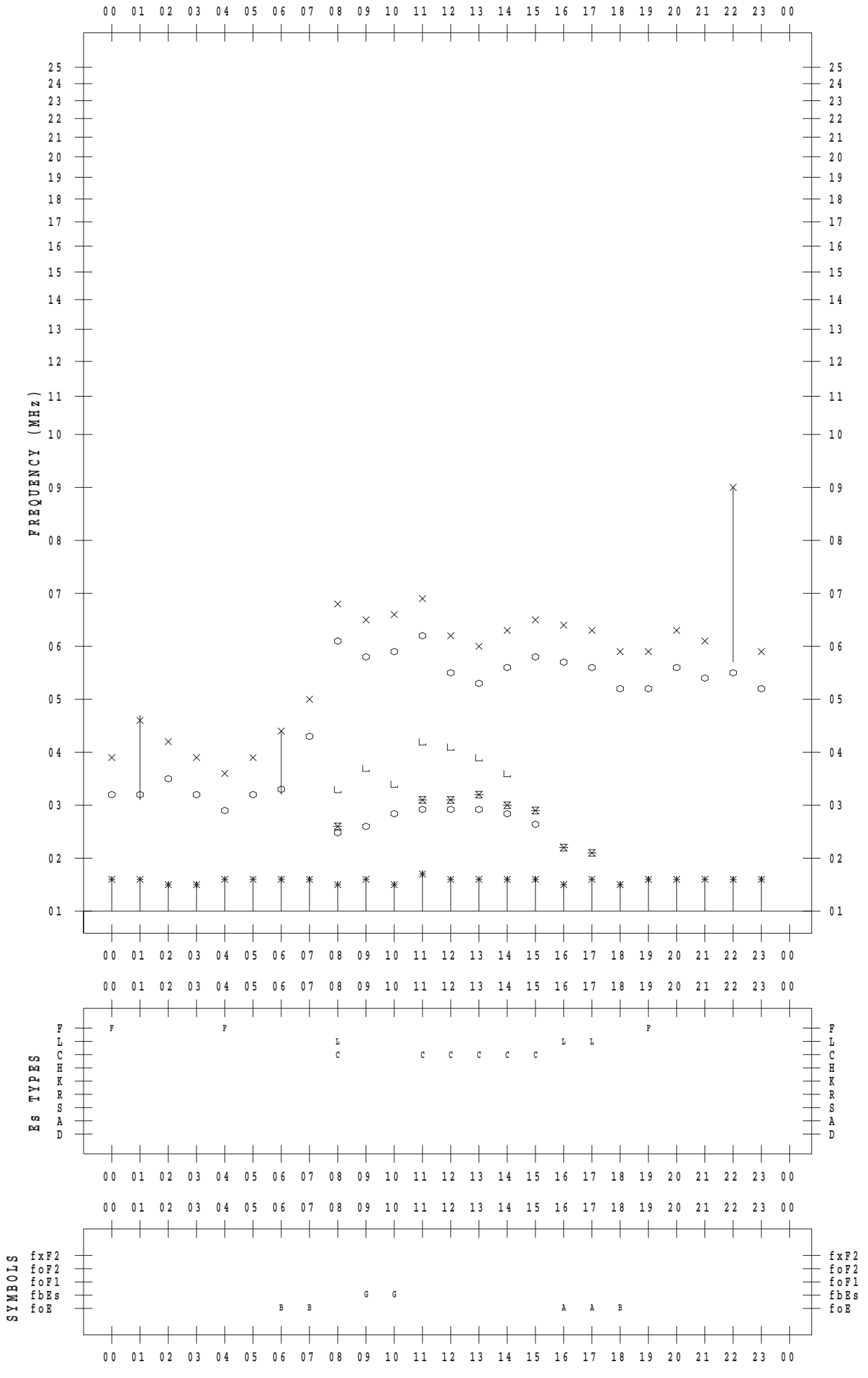
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2018/ 2/13

135 °E MEAN TIME



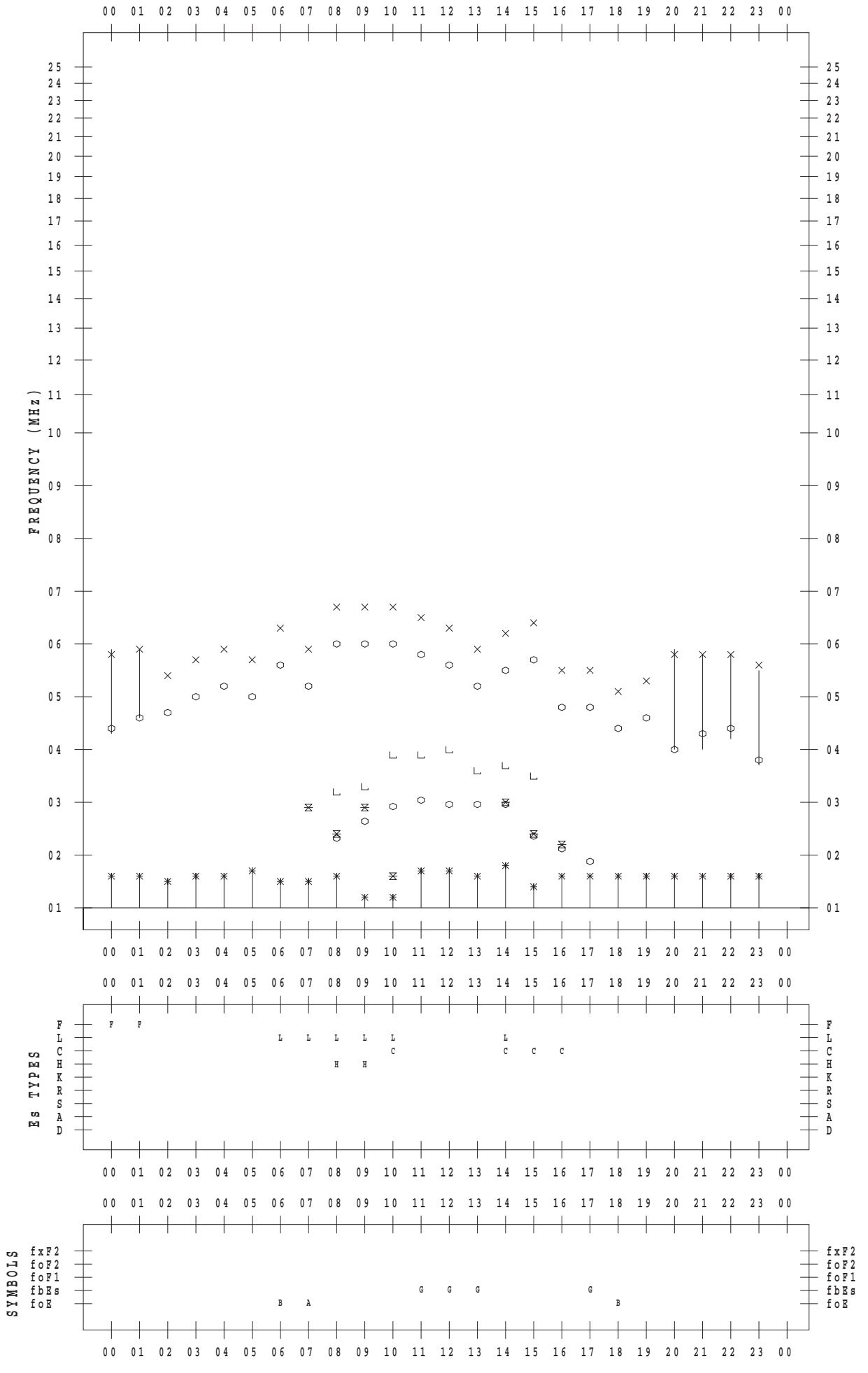
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2018/ 2/14

135 °E MEAN TIME



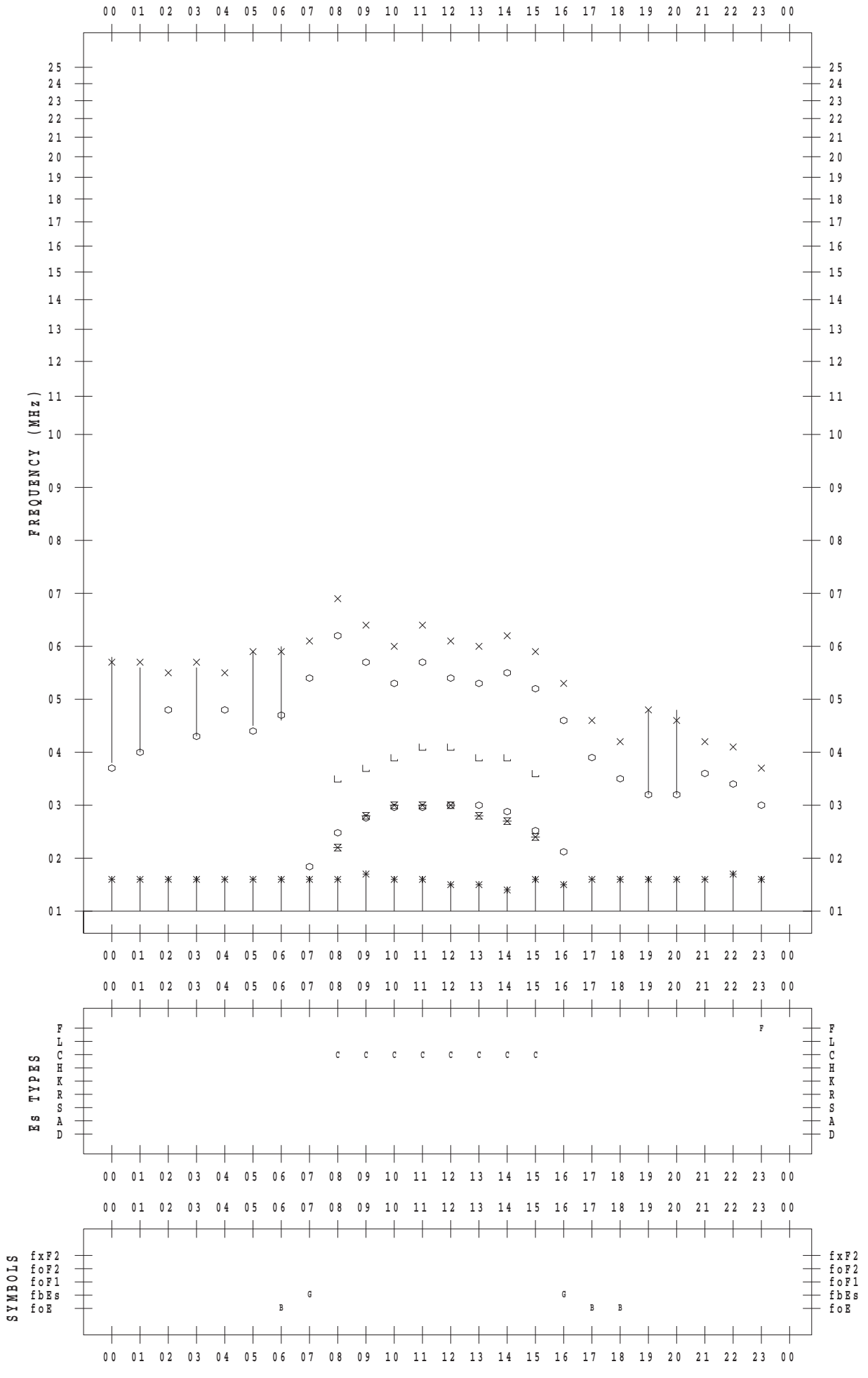
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2018/ 2/15

135 °E MEAN TIME



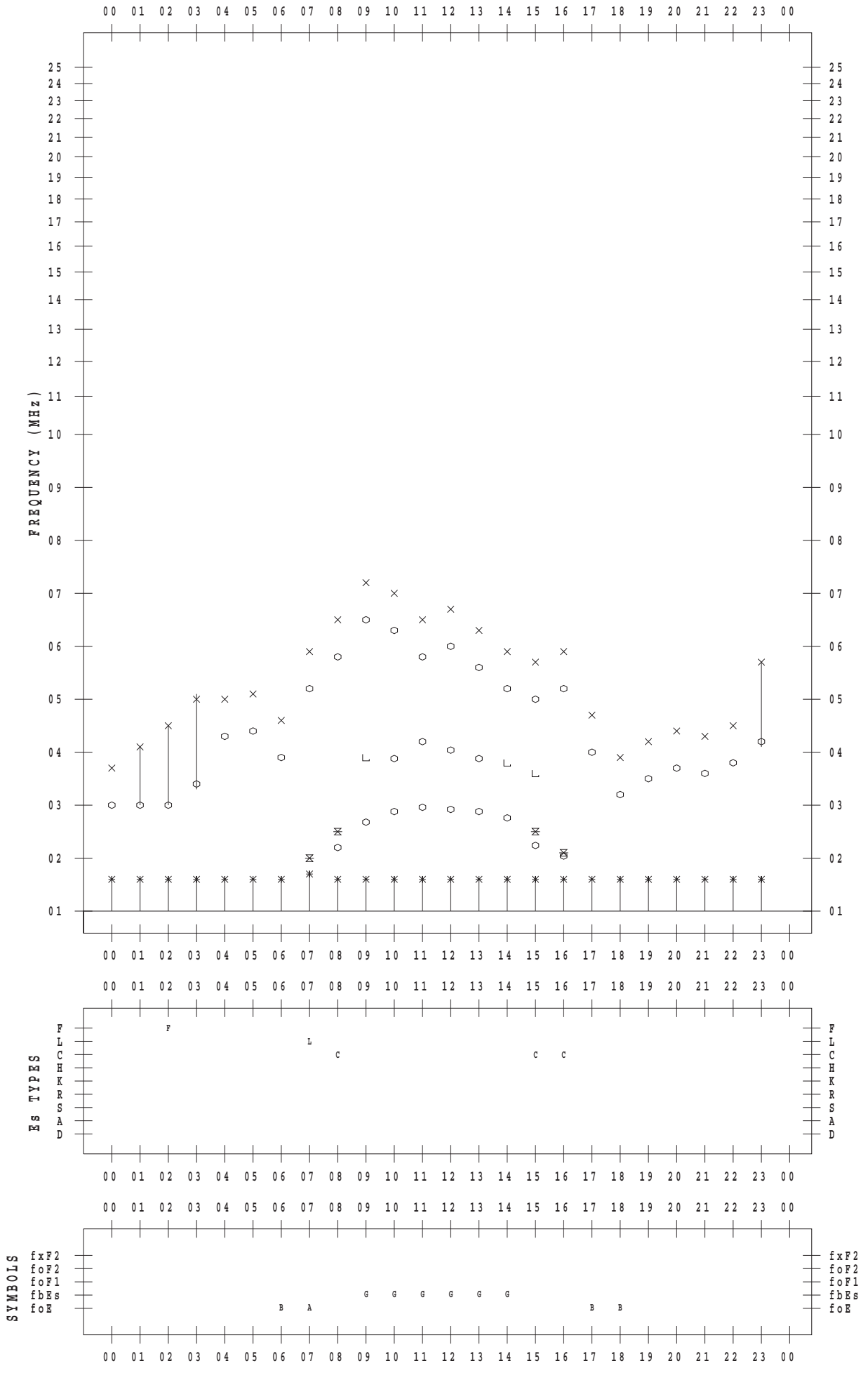
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2018/ 2/16

135 °E MEAN TIME



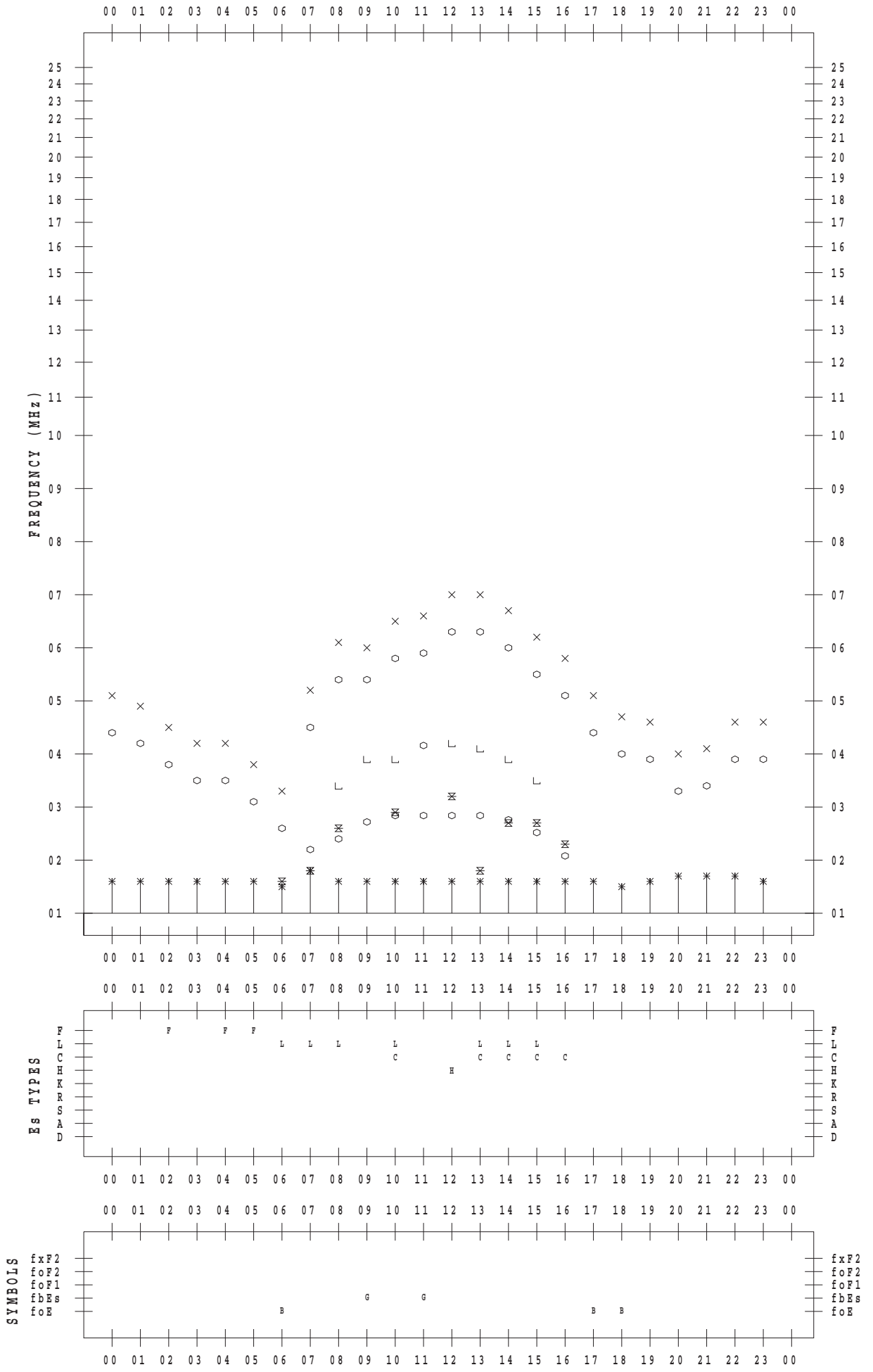
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2018/ 2/17

135 °E MEAN TIME



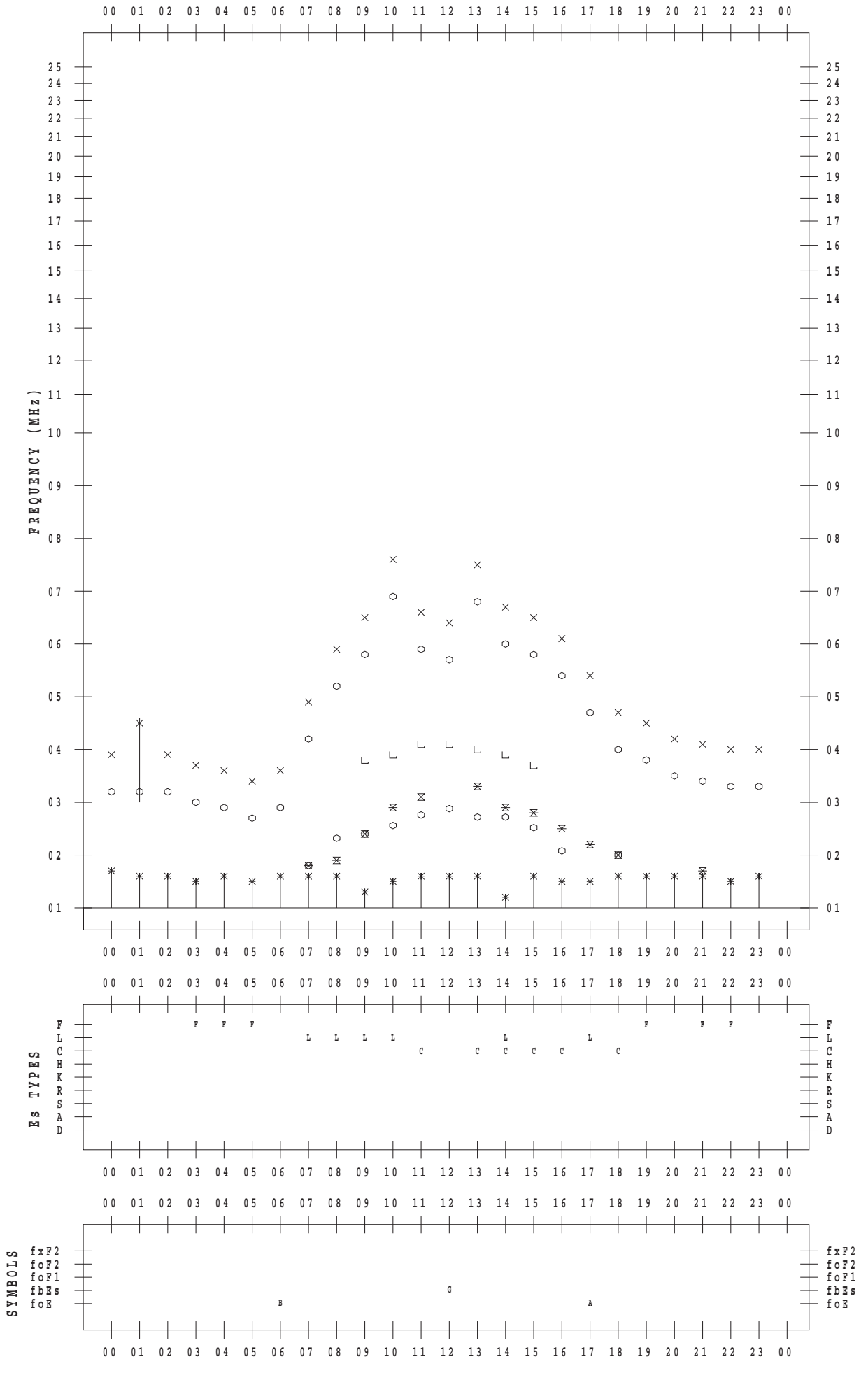
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2018/ 2/18

135 °E MEAN TIME



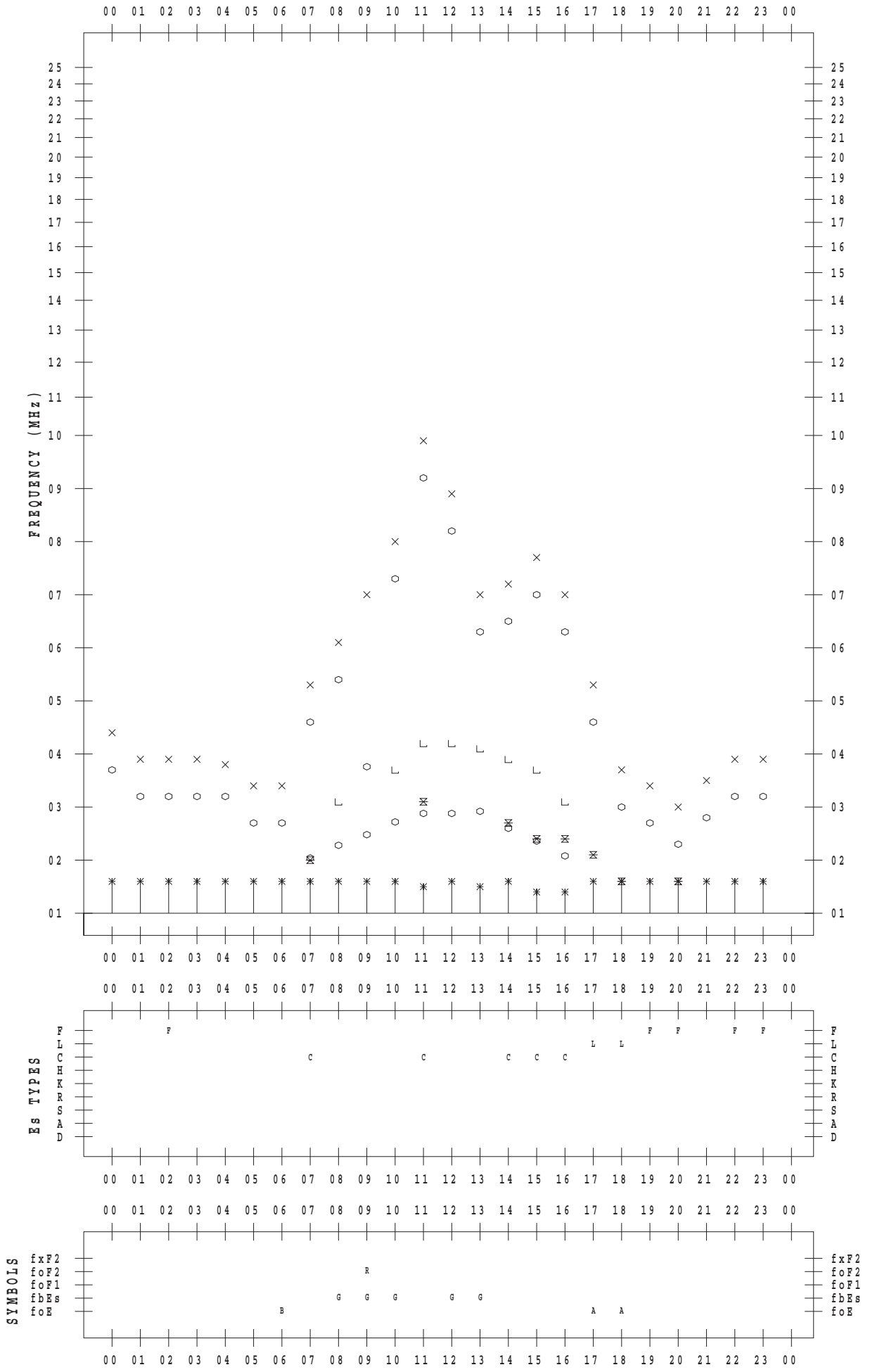
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2018/ 2/19

135 °E MEAN TIME



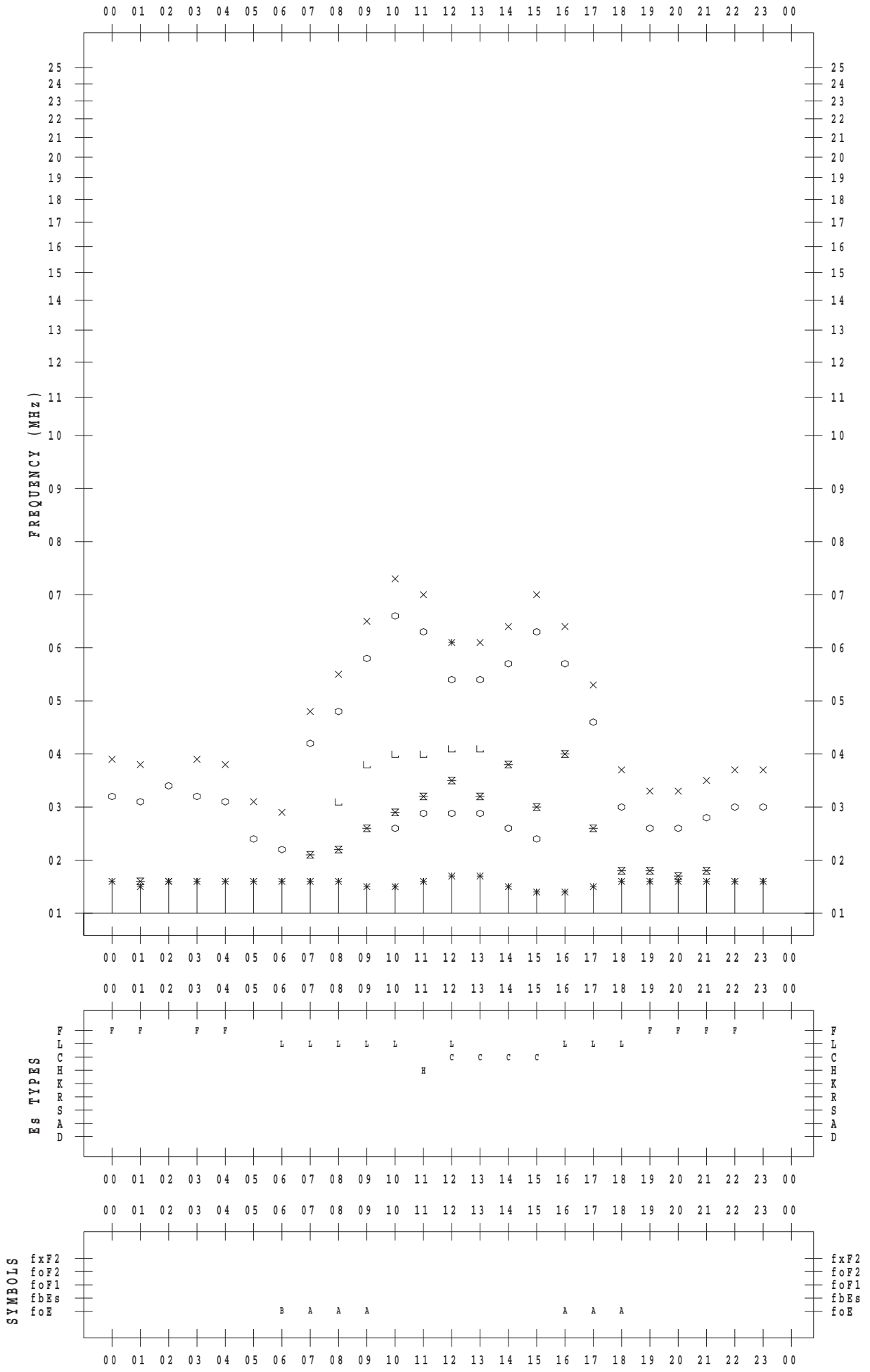
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2018/ 2/20

135 °E MEAN TIME



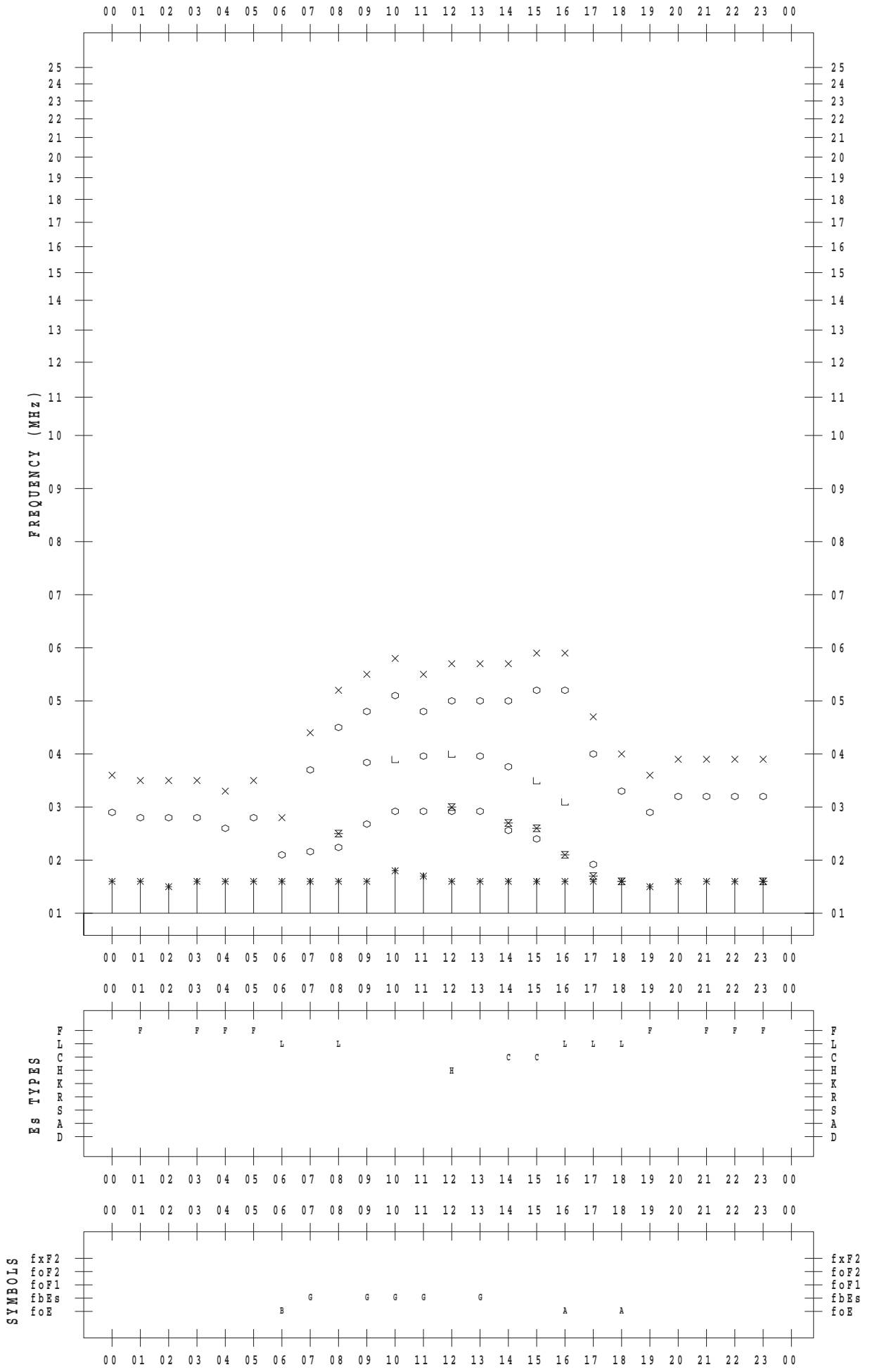
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2018/ 2/21

135 °E MEAN TIME



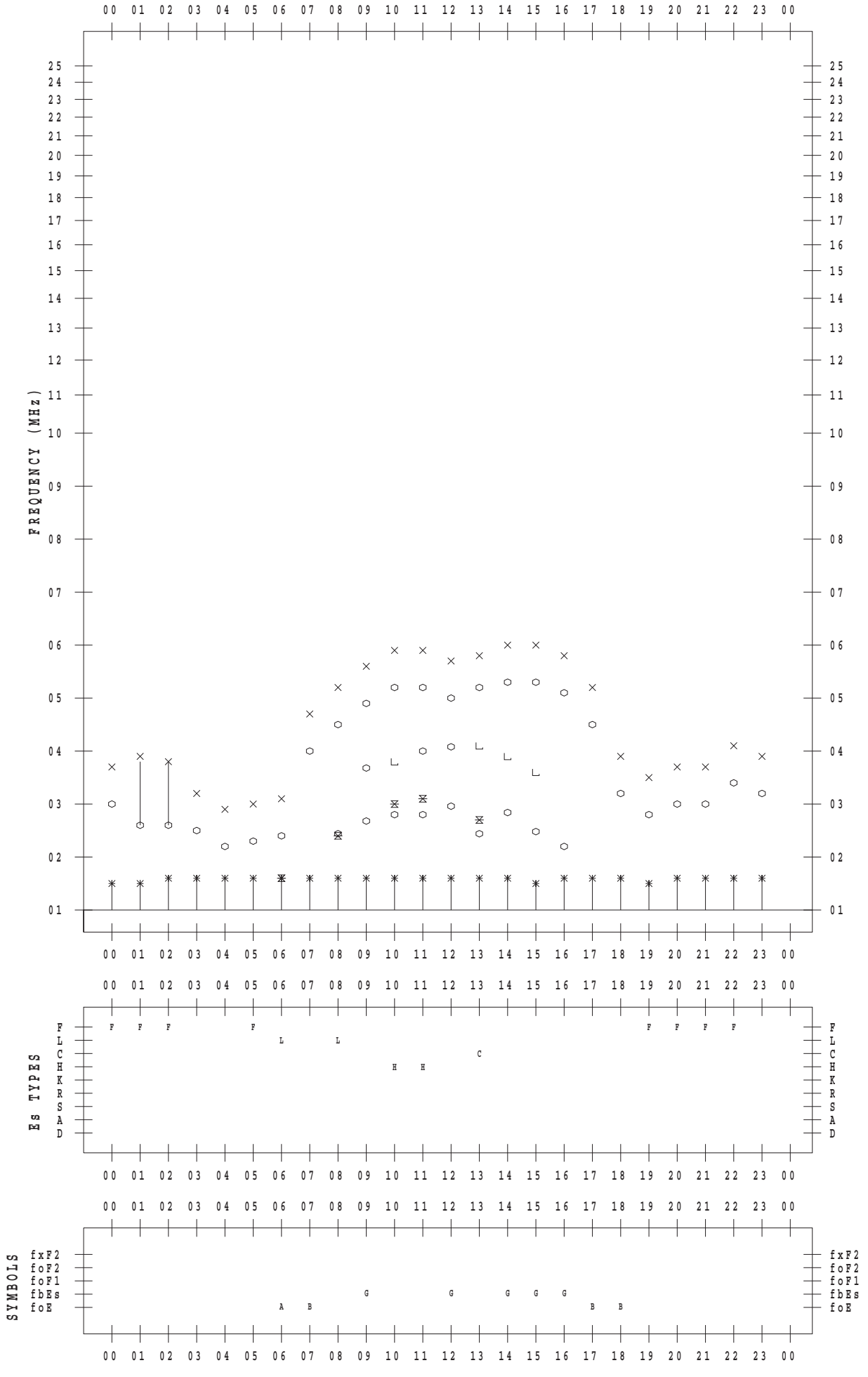
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2018/ 2/22

135 °E MEAN TIME



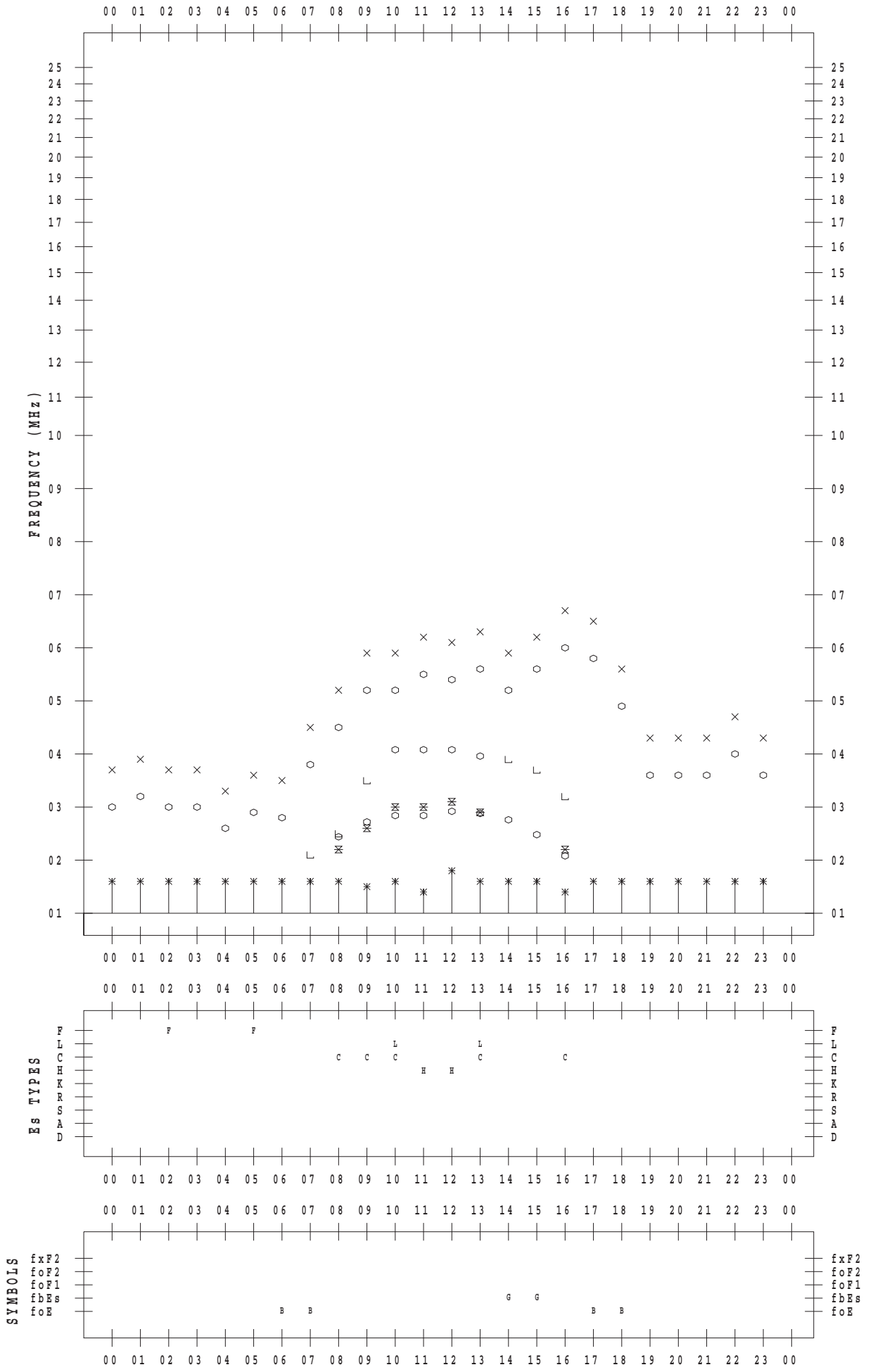
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2018/ 2/23

135 °E MEAN TIME



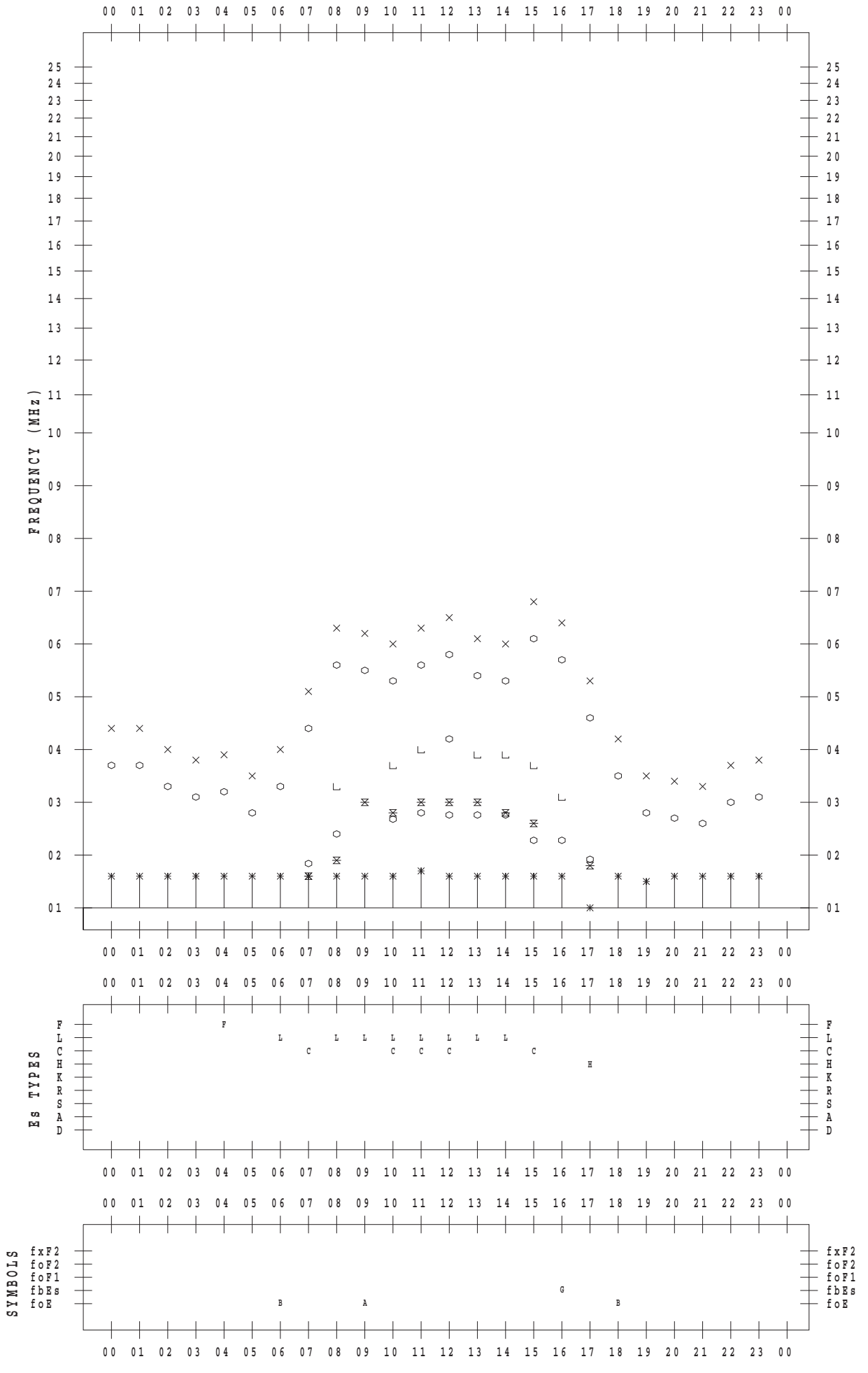
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2018/ 2/24

135 °E MEAN TIME



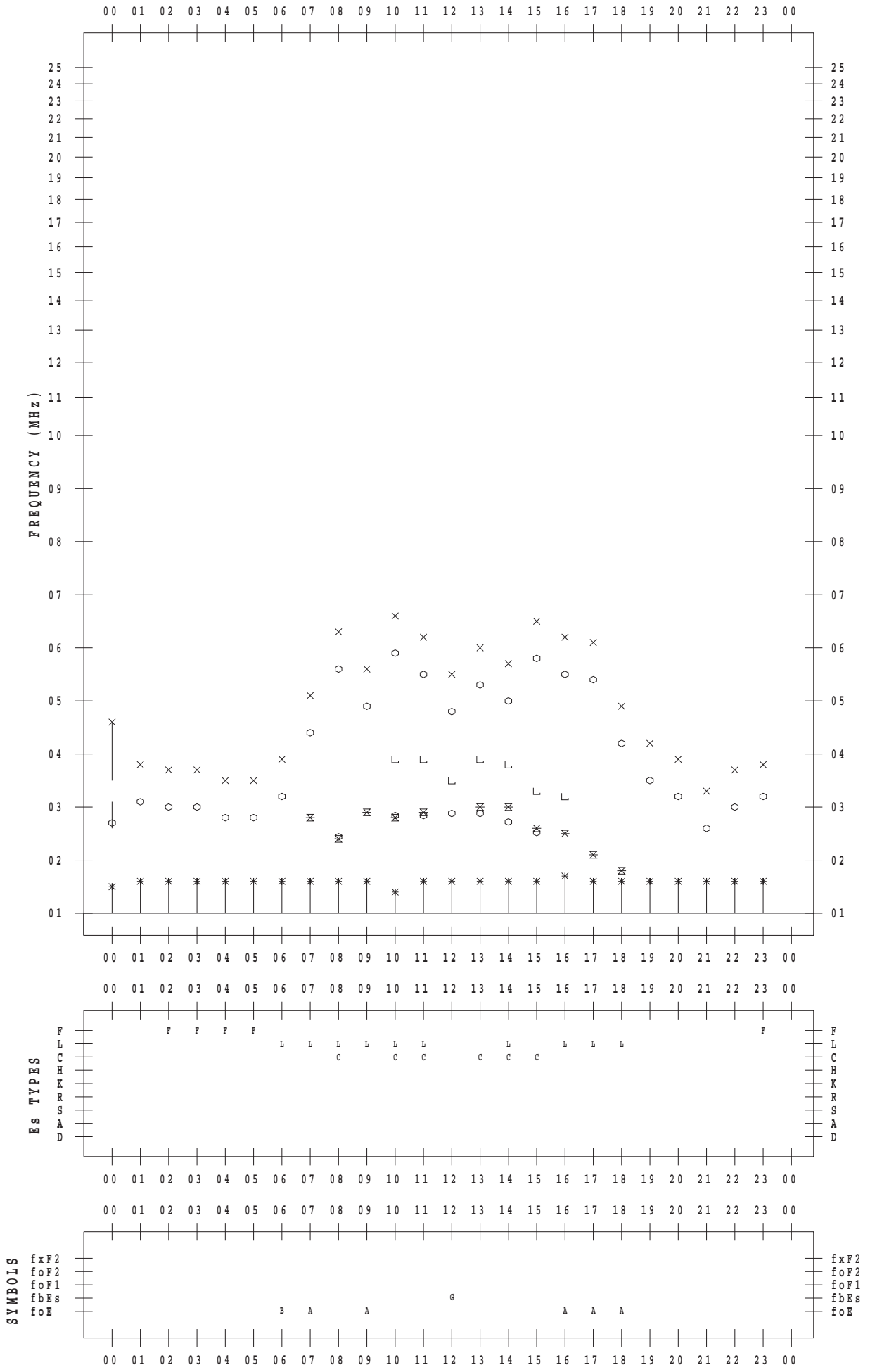
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2018/ 2/25

135 °E MEAN TIME



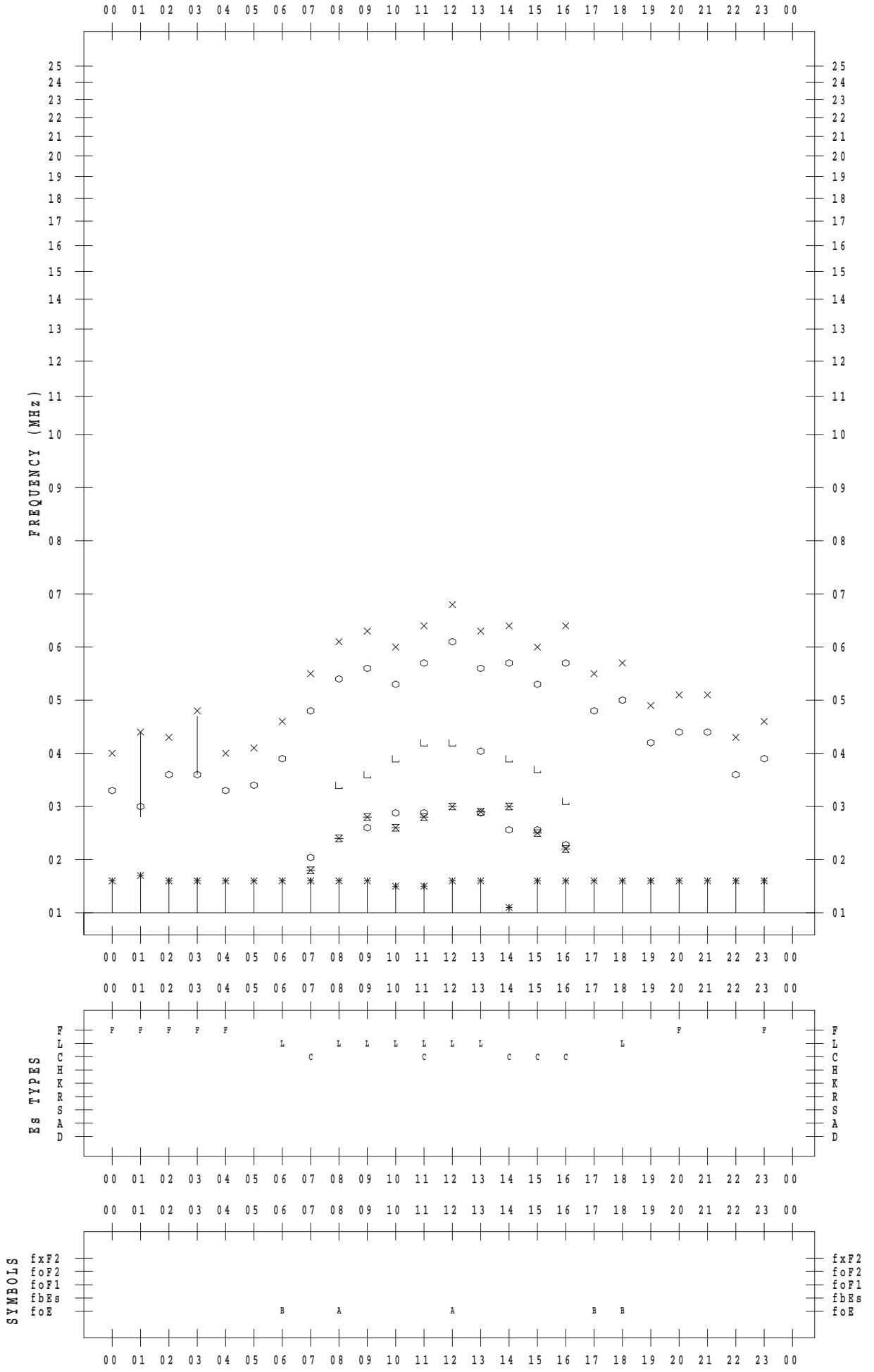
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2018/ 2/26

135 °E MEAN TIME



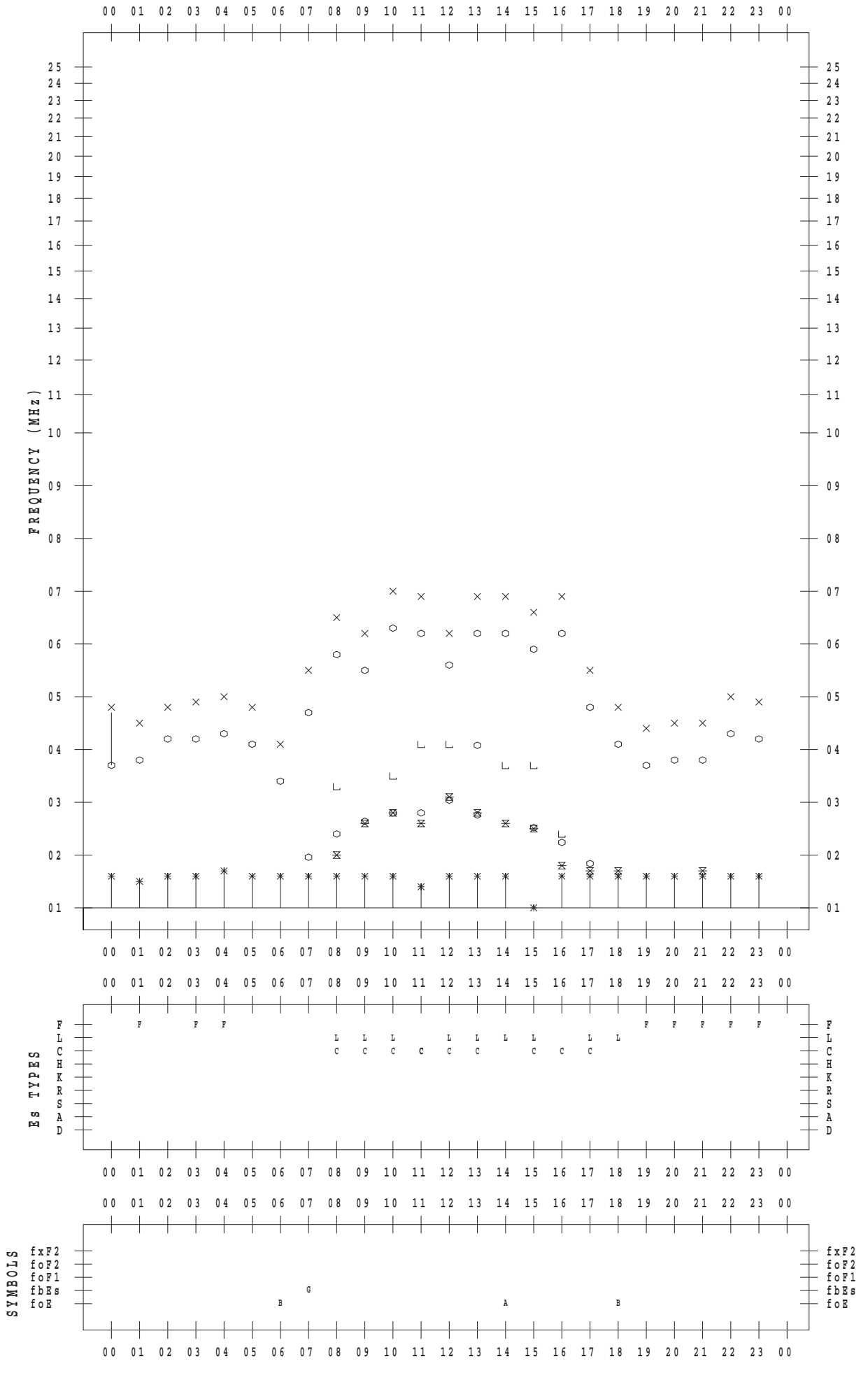
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2018/ 2/27

135 °E MEAN TIME



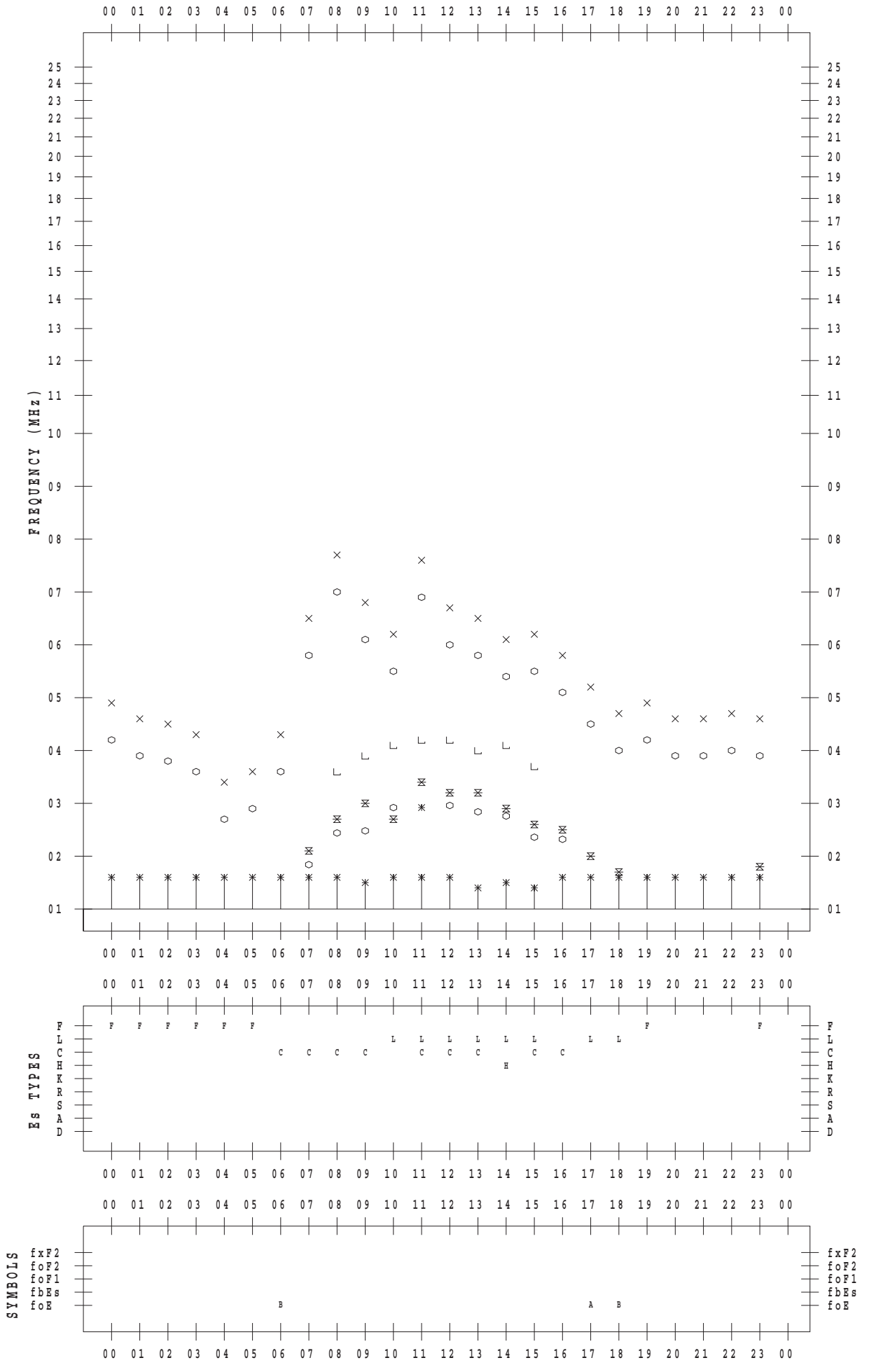
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2018/ 2/28

135 °E MEAN TIME



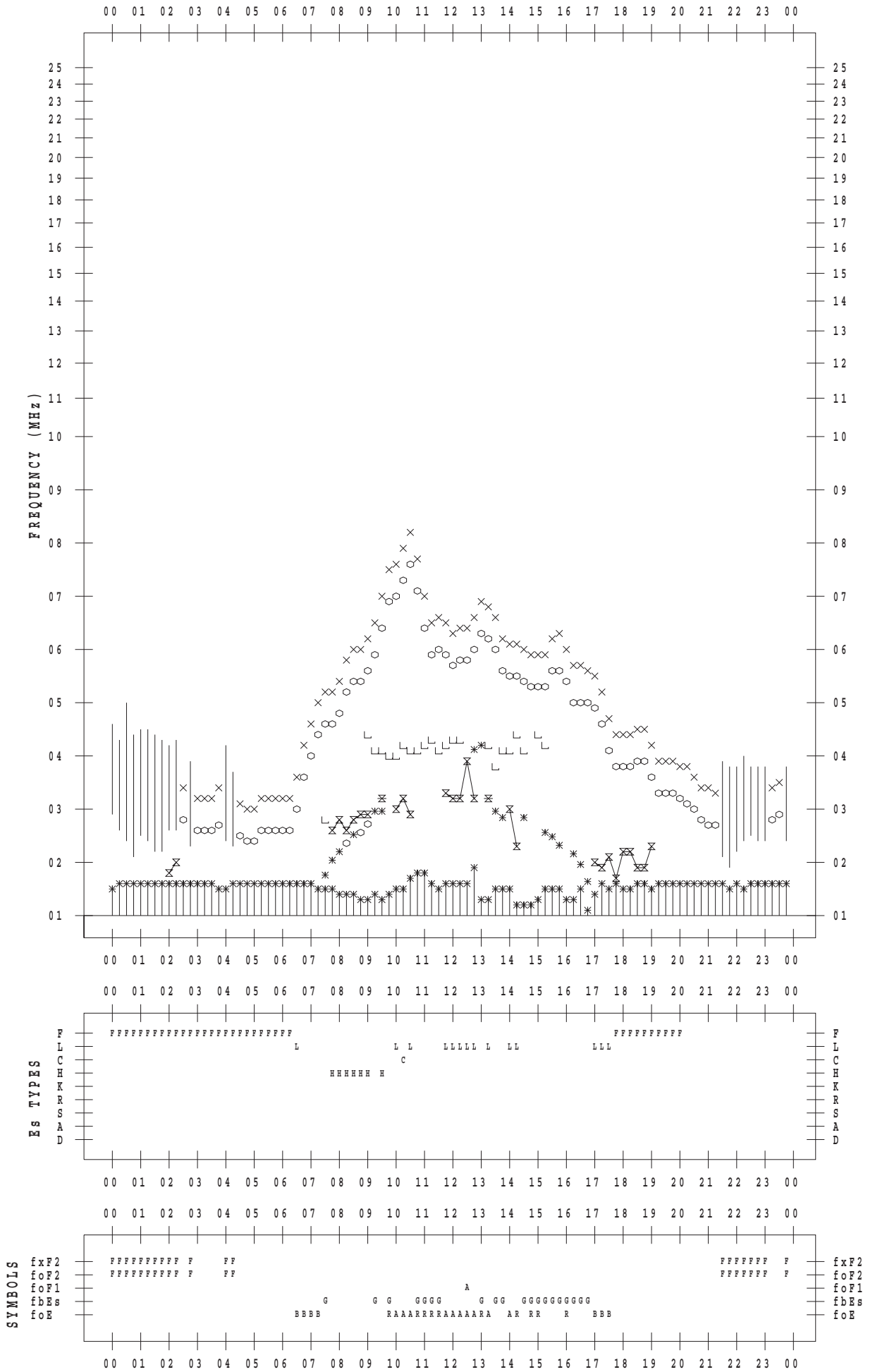
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2018/ 2/ 1

135 °E MEAN TIME



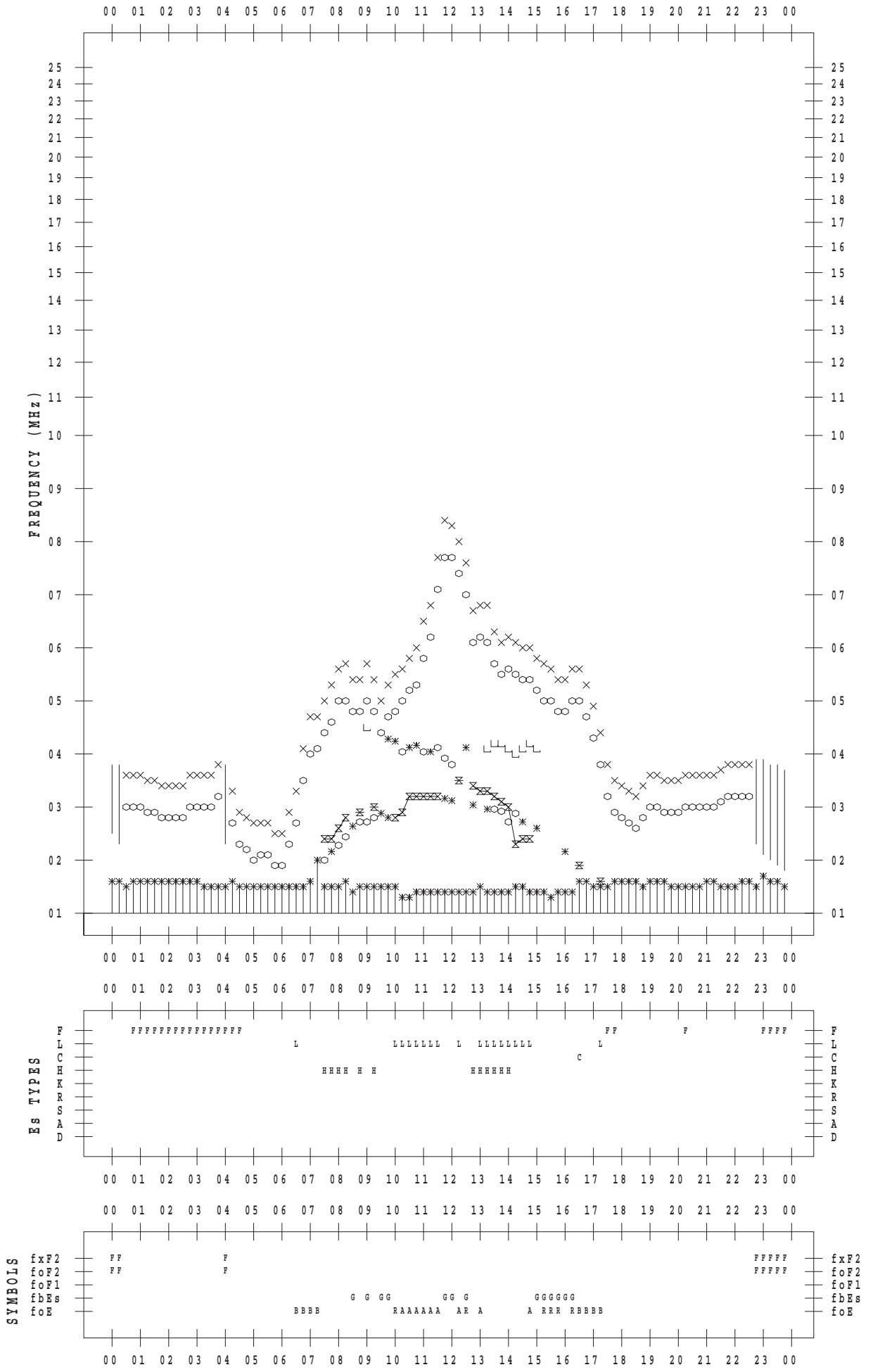
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2018/ 2/ 2

135 °E MEAN TIME



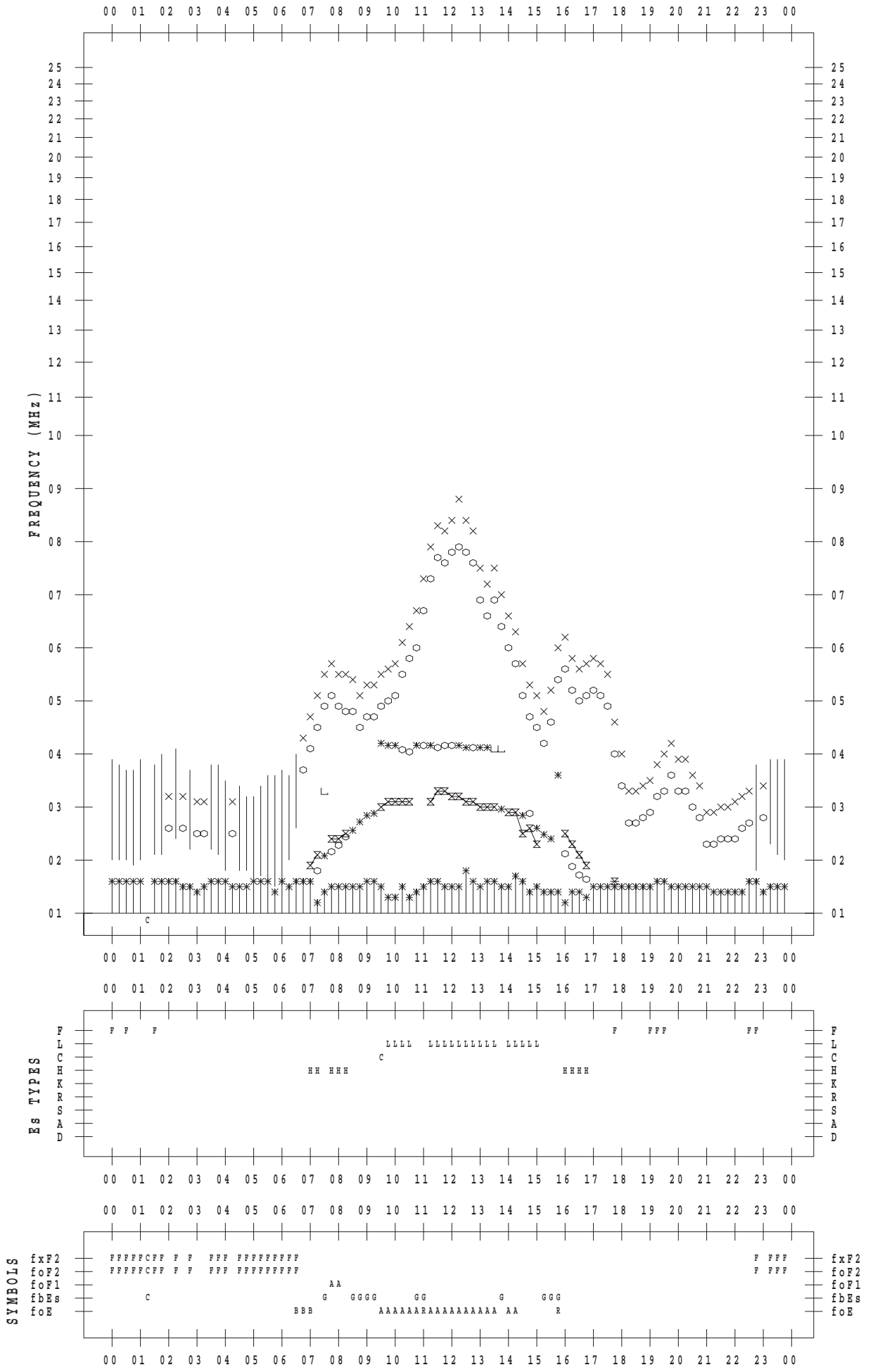
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2018/ 2/ 3

135 °E MEAN TIME



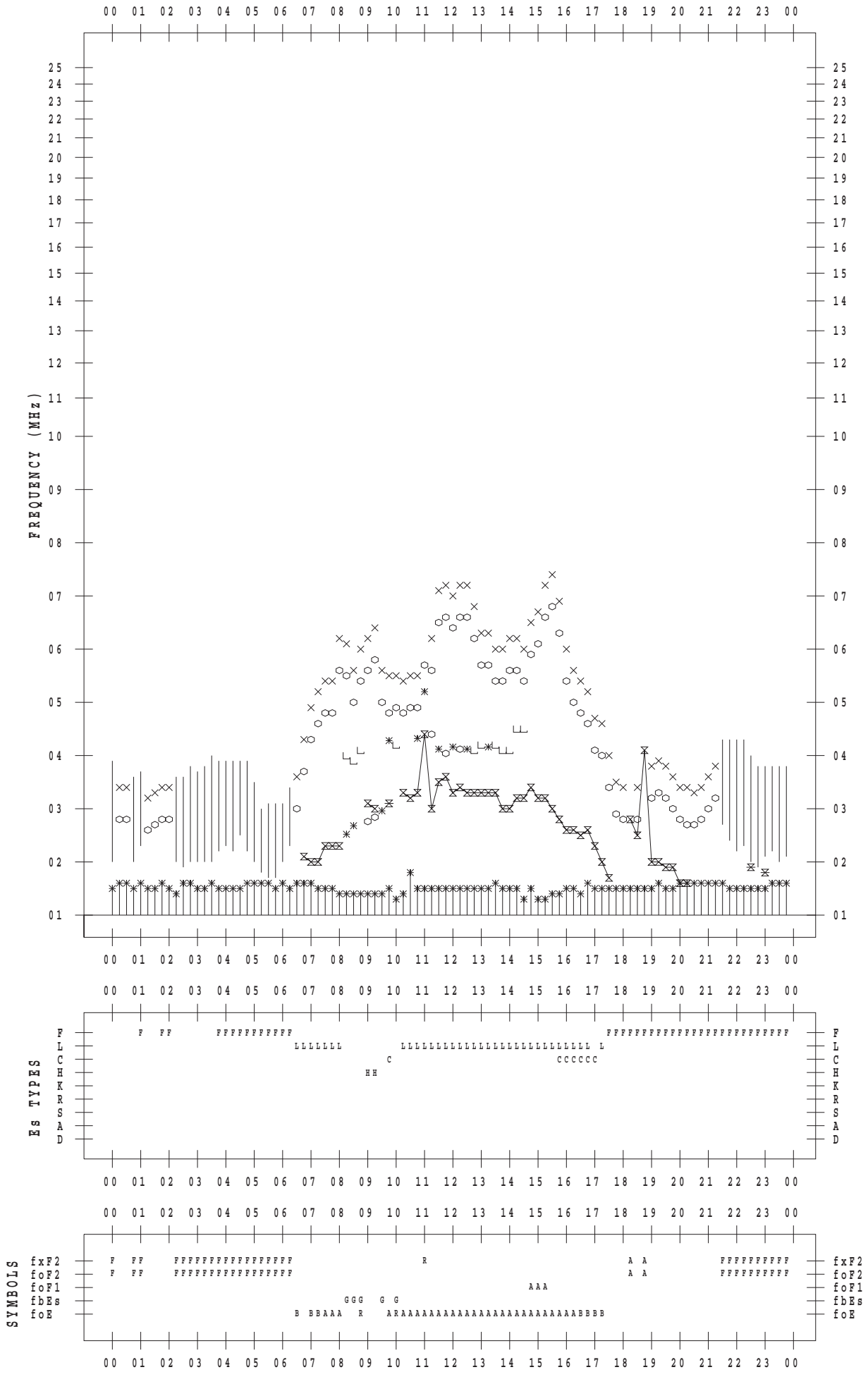
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2018/ 2/ 4

135 °E MEAN TIME



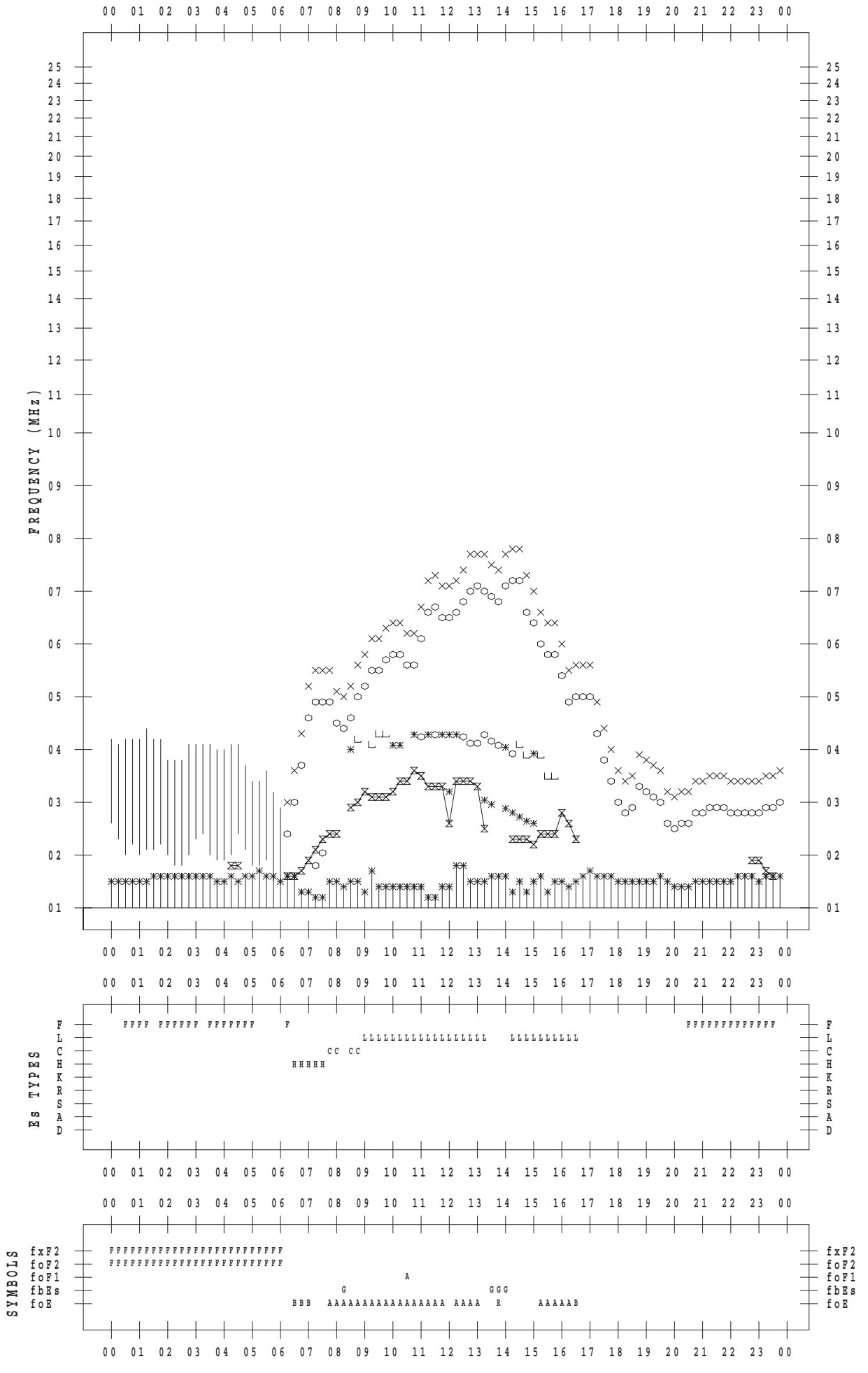
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2018/ 2/ 5

135 °E MEAN TIME



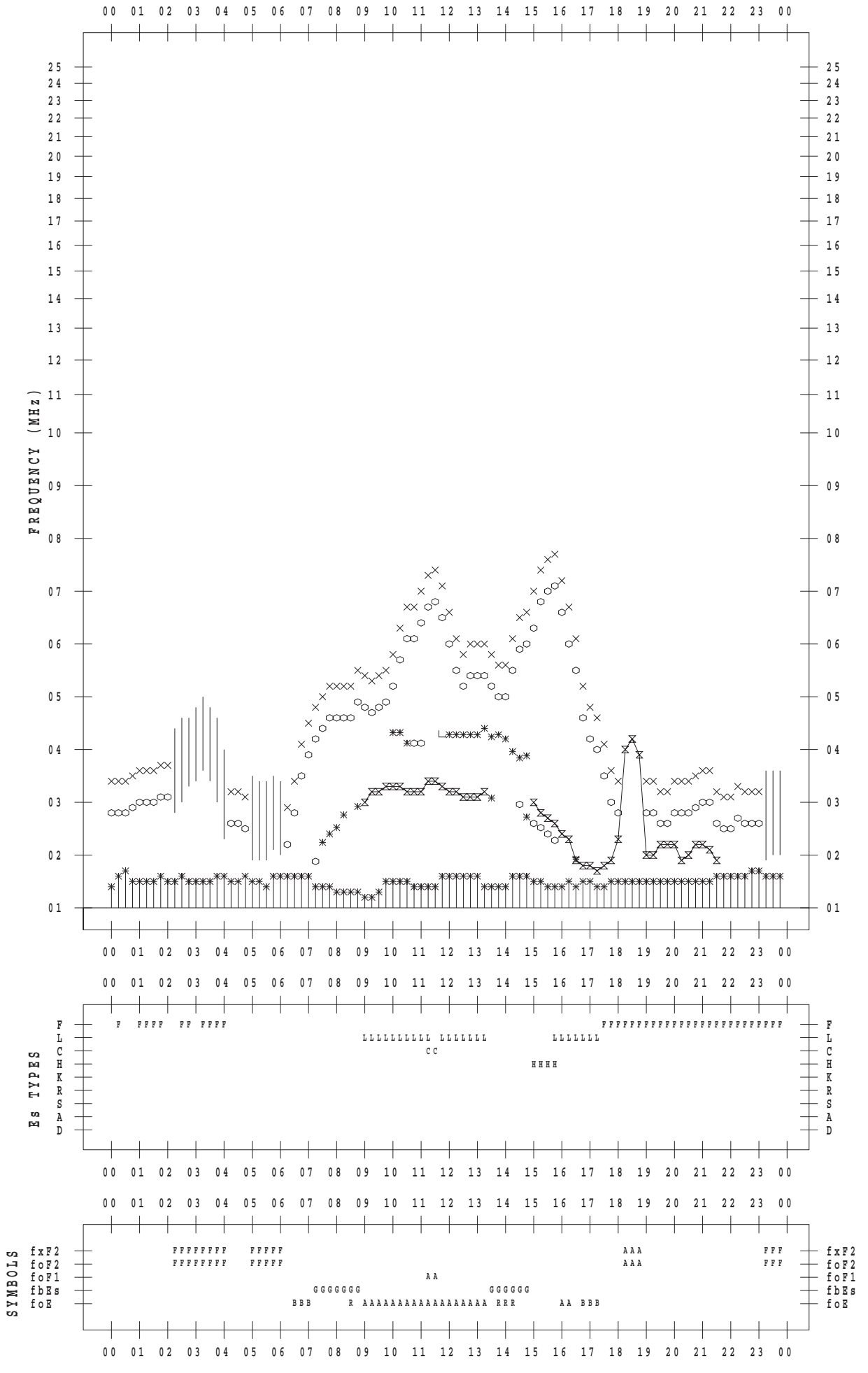
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2018/ 2/ 6

135 °E MEAN TIME



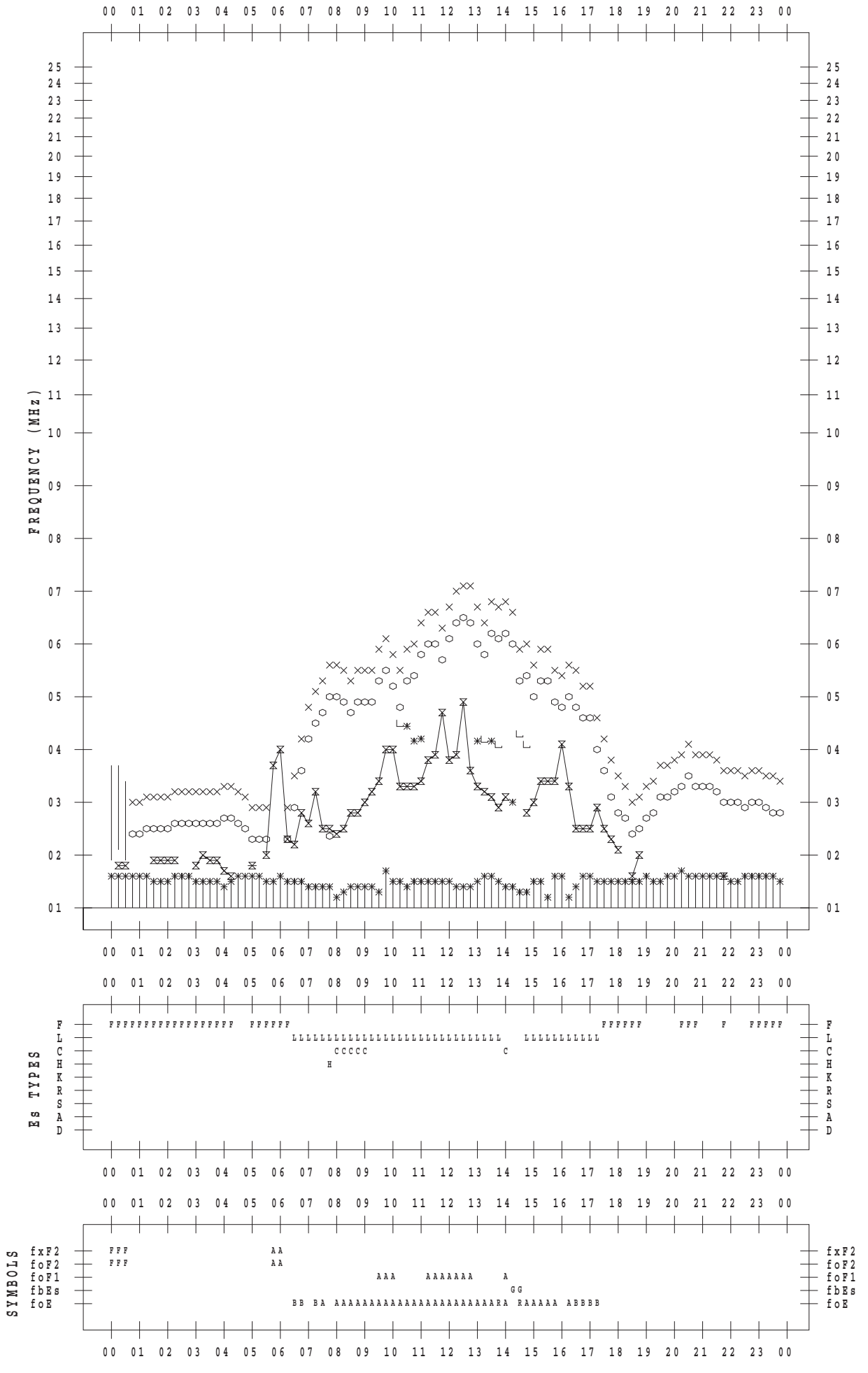
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2018/ 2/ 7

135 °E MEAN TIME



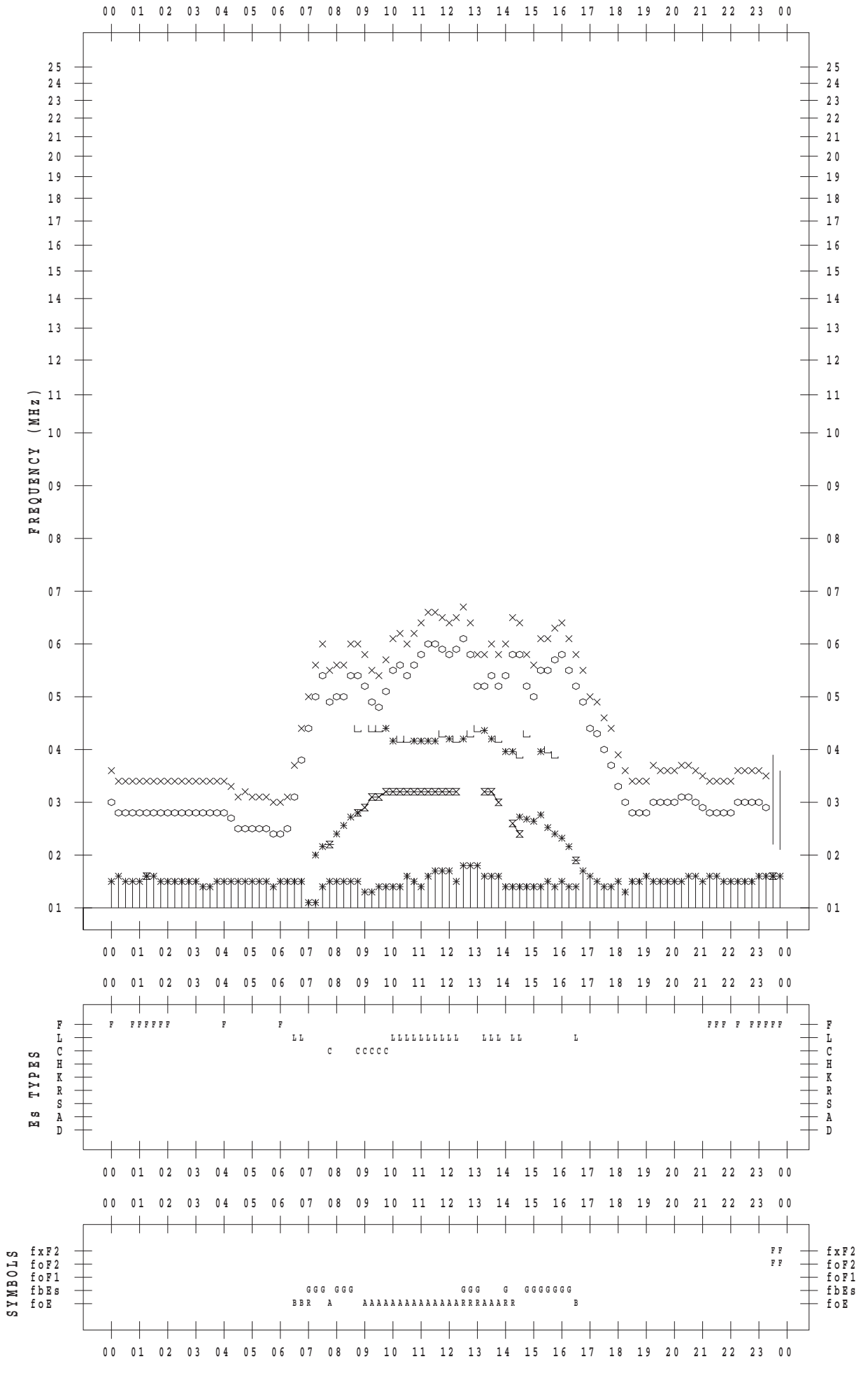
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2018/ 2/ 8

135 °E MEAN TIME



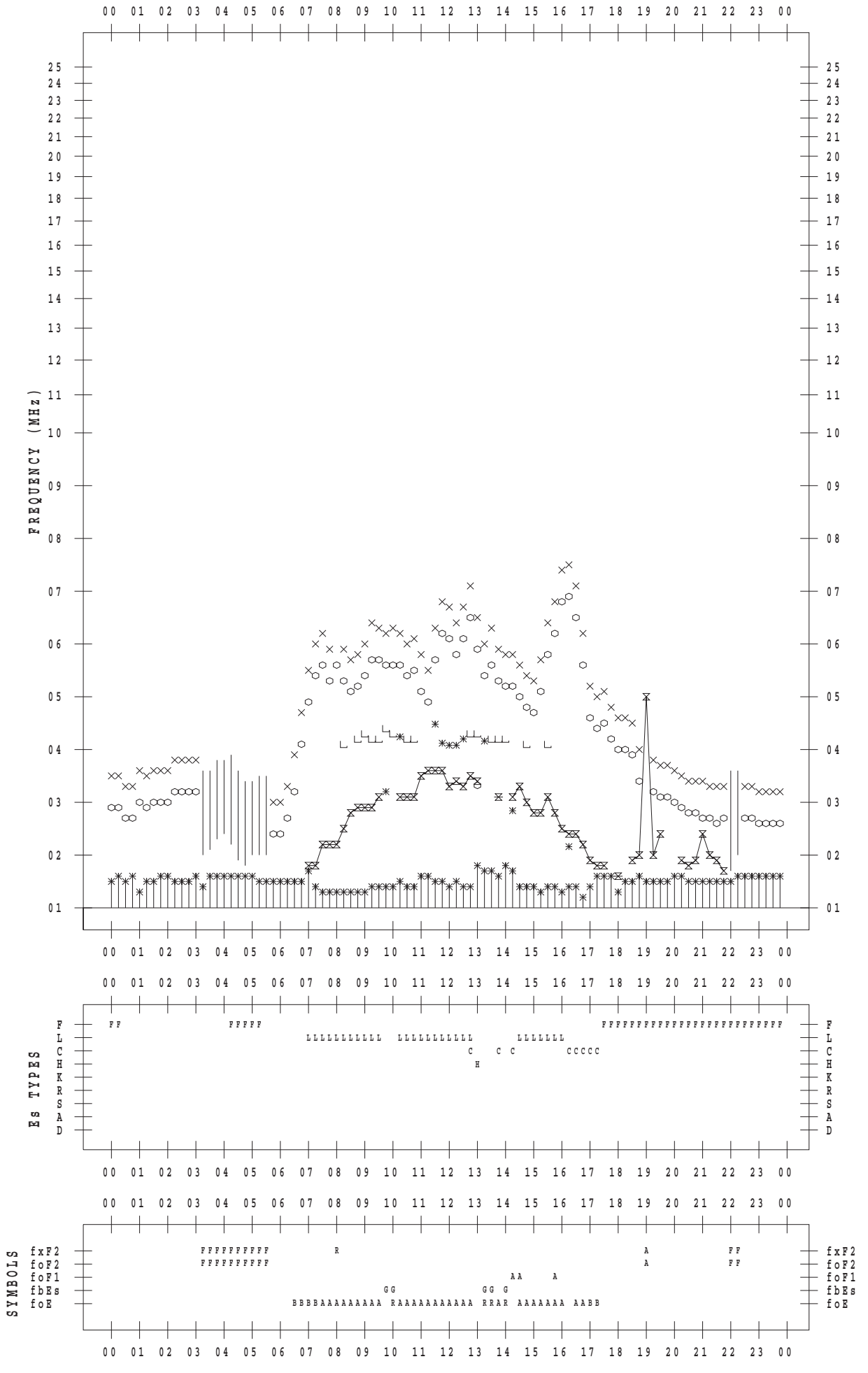
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2018/ 2/ 9

135 °E MEAN TIME



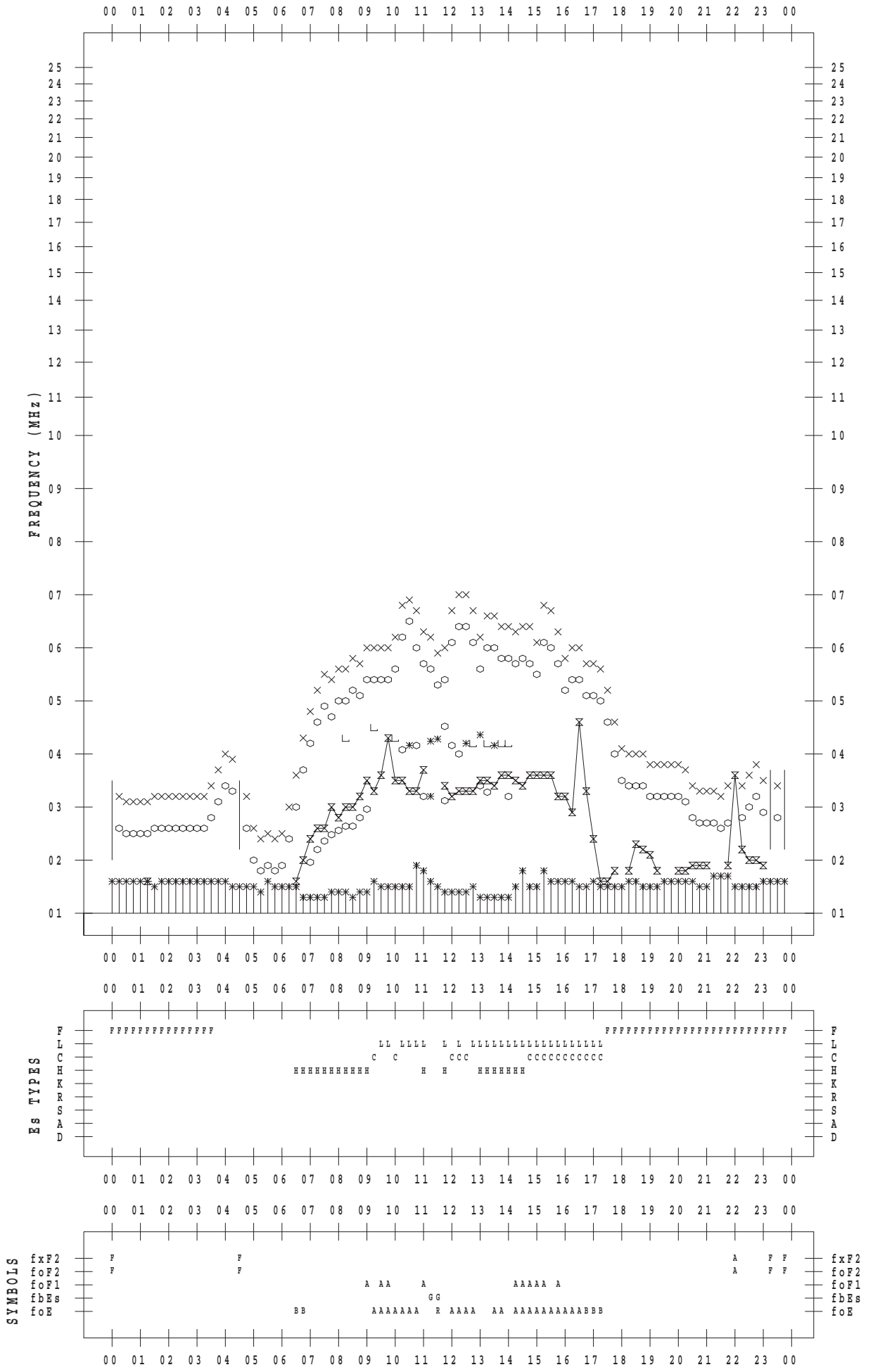
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2018/ 2/10

135 °E MEAN TIME



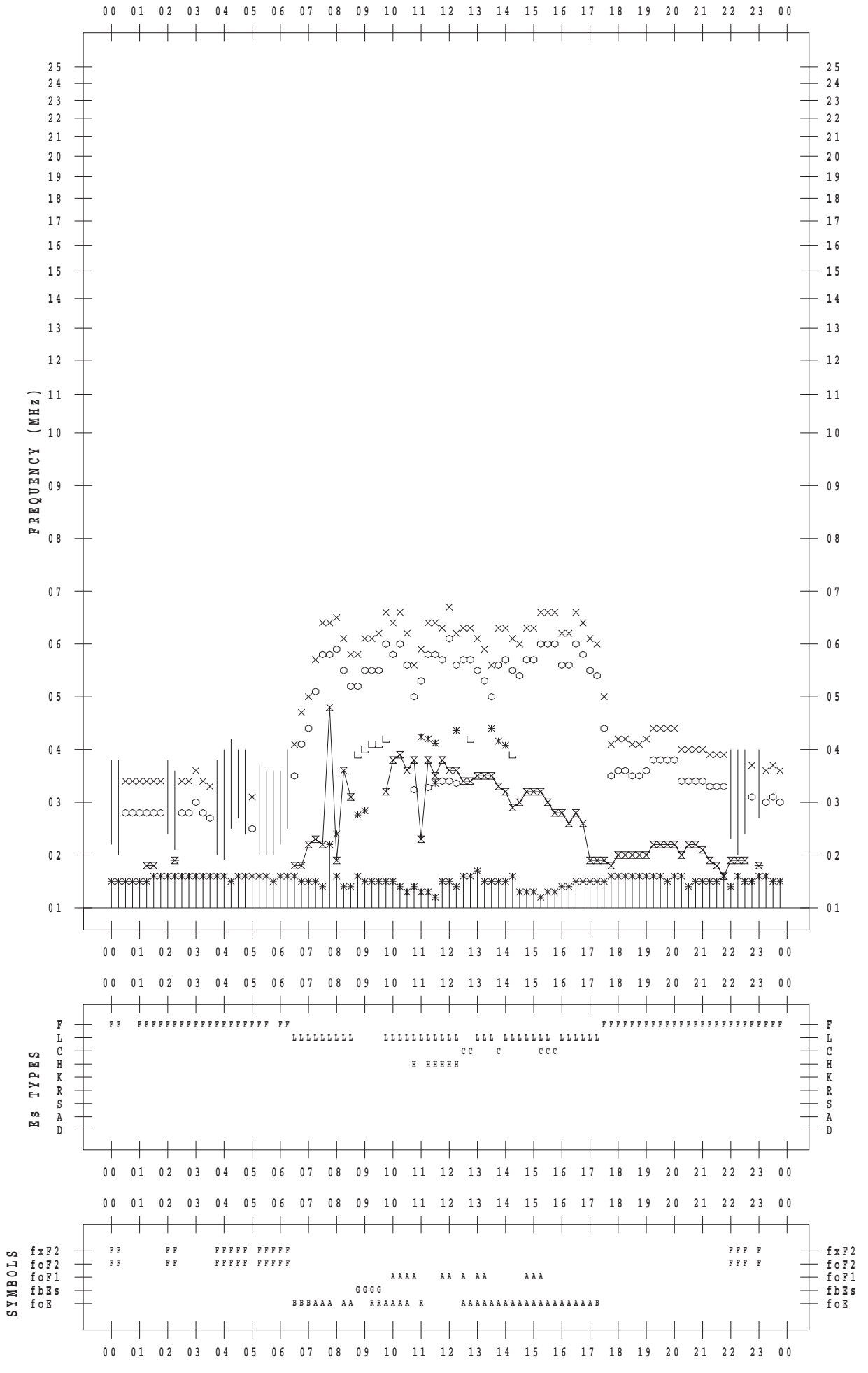
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2018/ 2/11

135 °E MEAN TIME



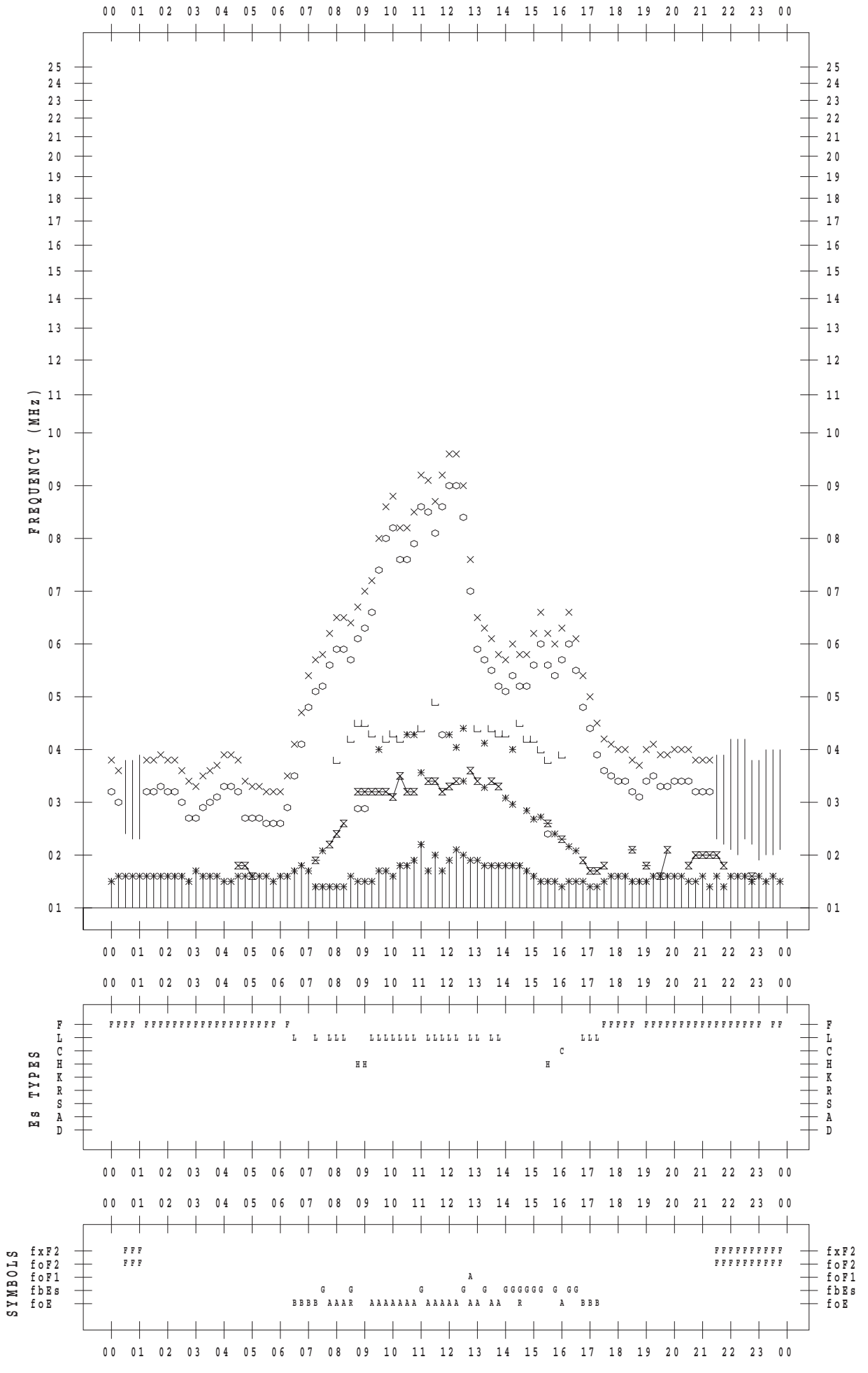
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2018/ 2/12

135 °E MEAN TIME



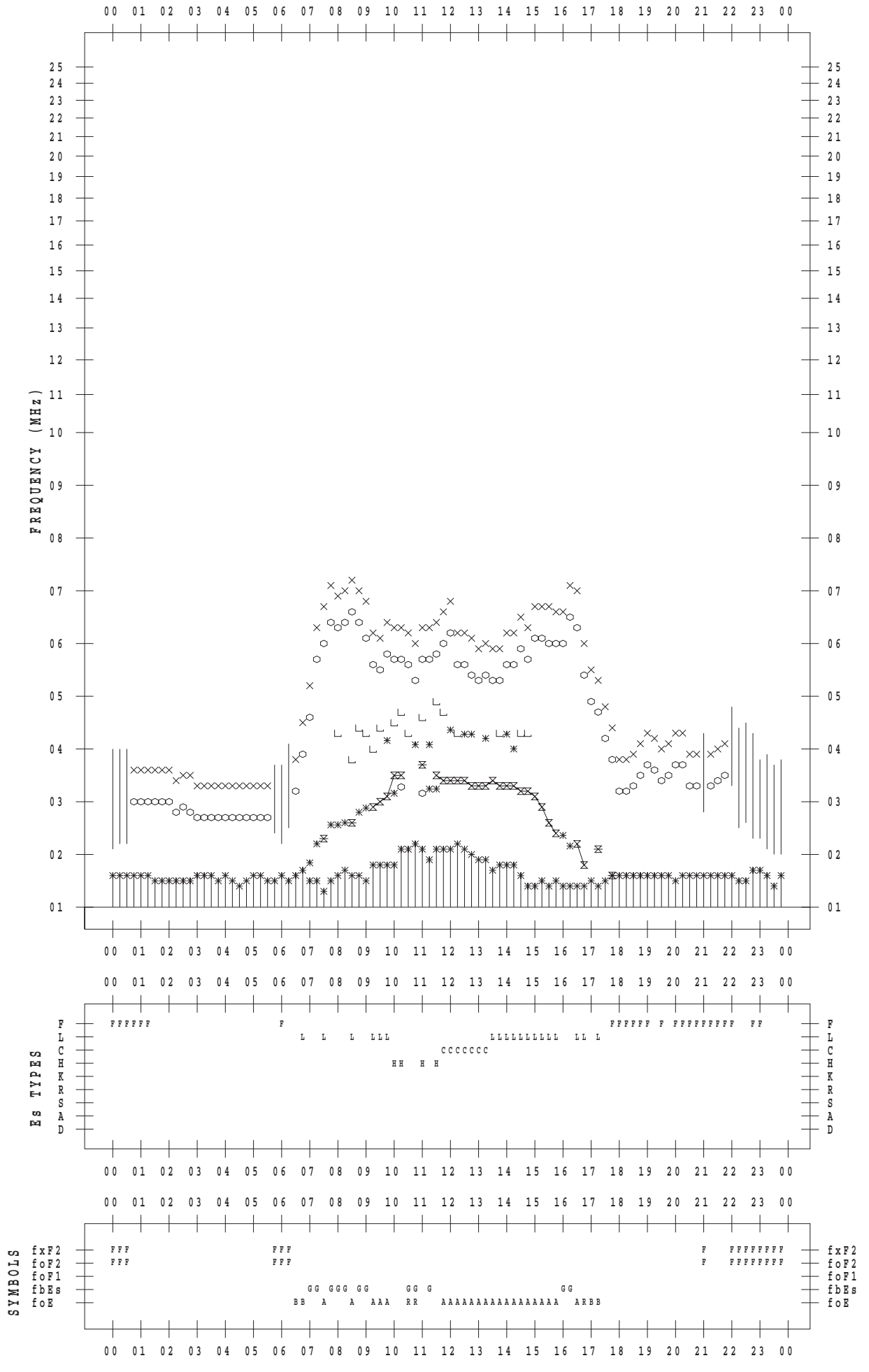
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2018/ 2/13

135 °E MEAN TIME



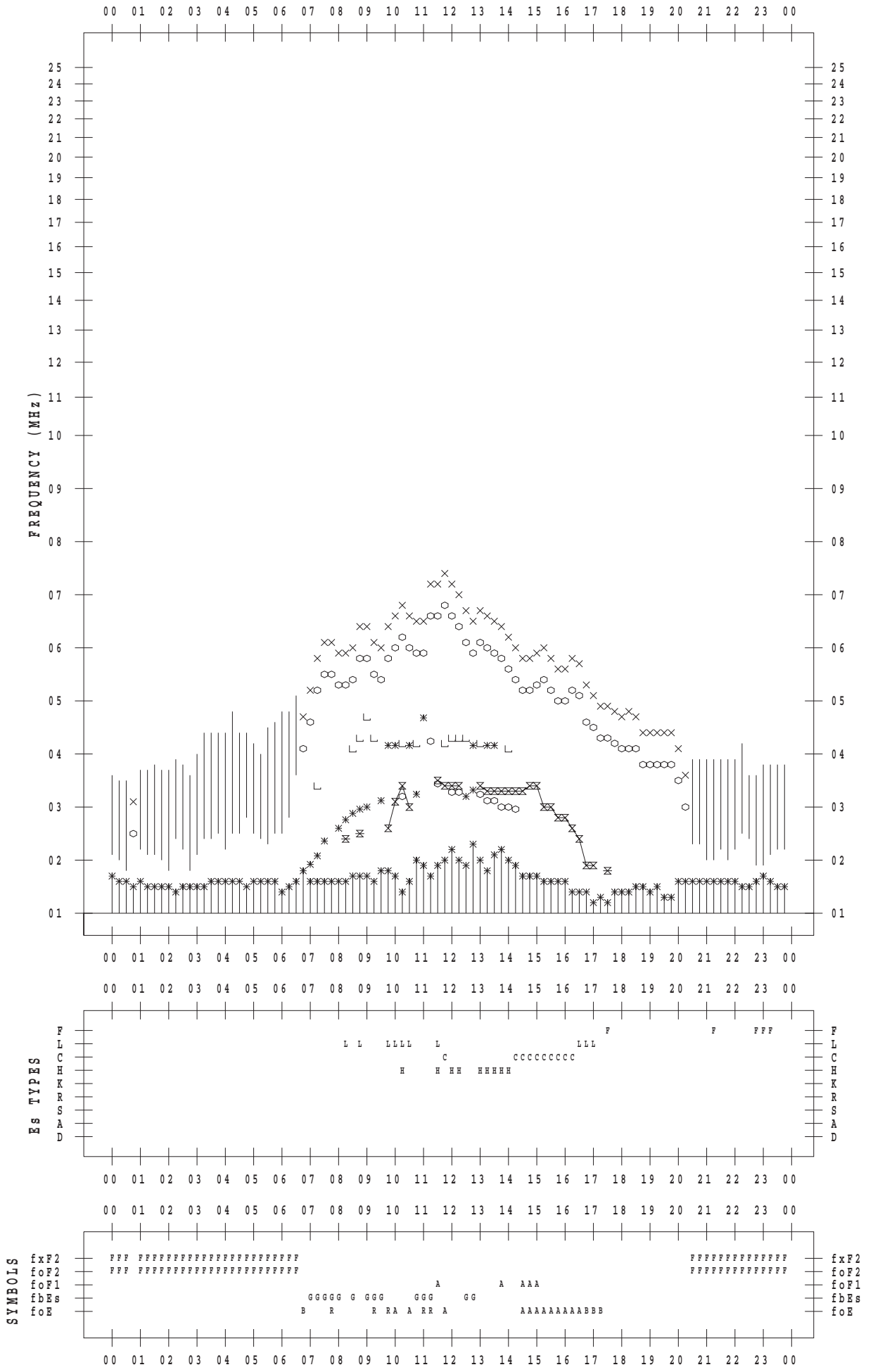
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2018/ 2/14

135 °E MEAN TIME



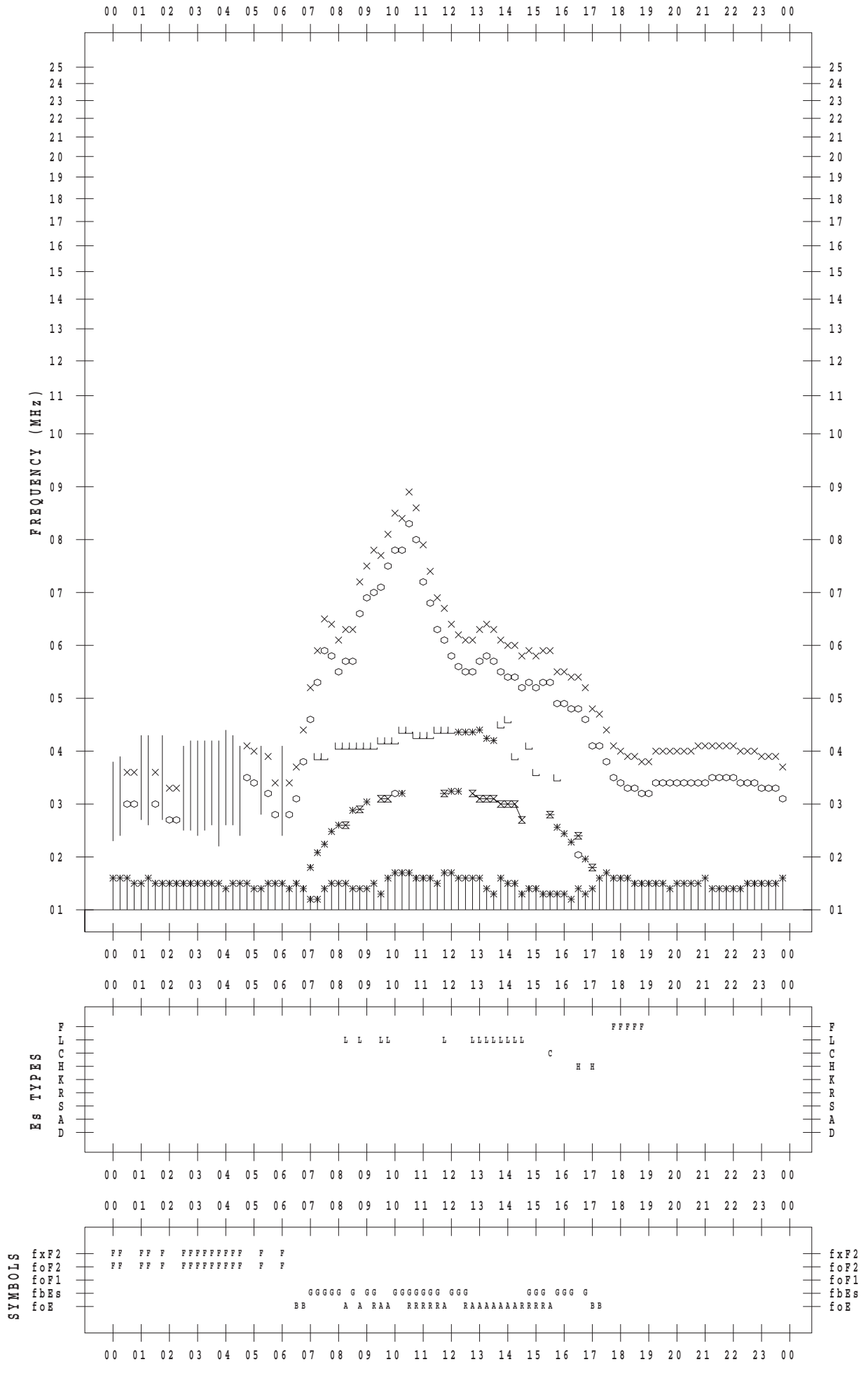
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2018/ 2/15

135 °E MEAN TIME



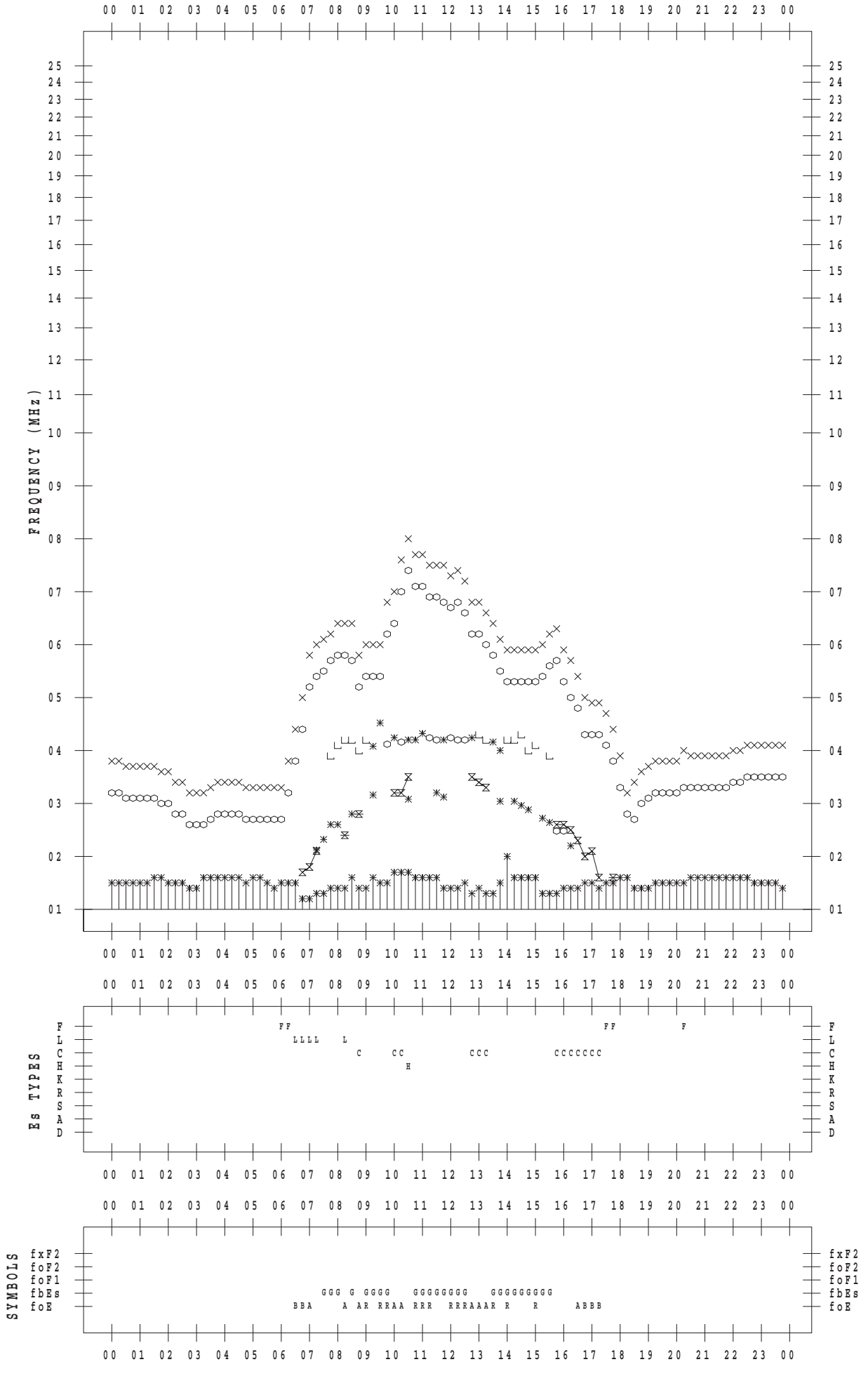
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2018/ 2/16

135 °E MEAN TIME



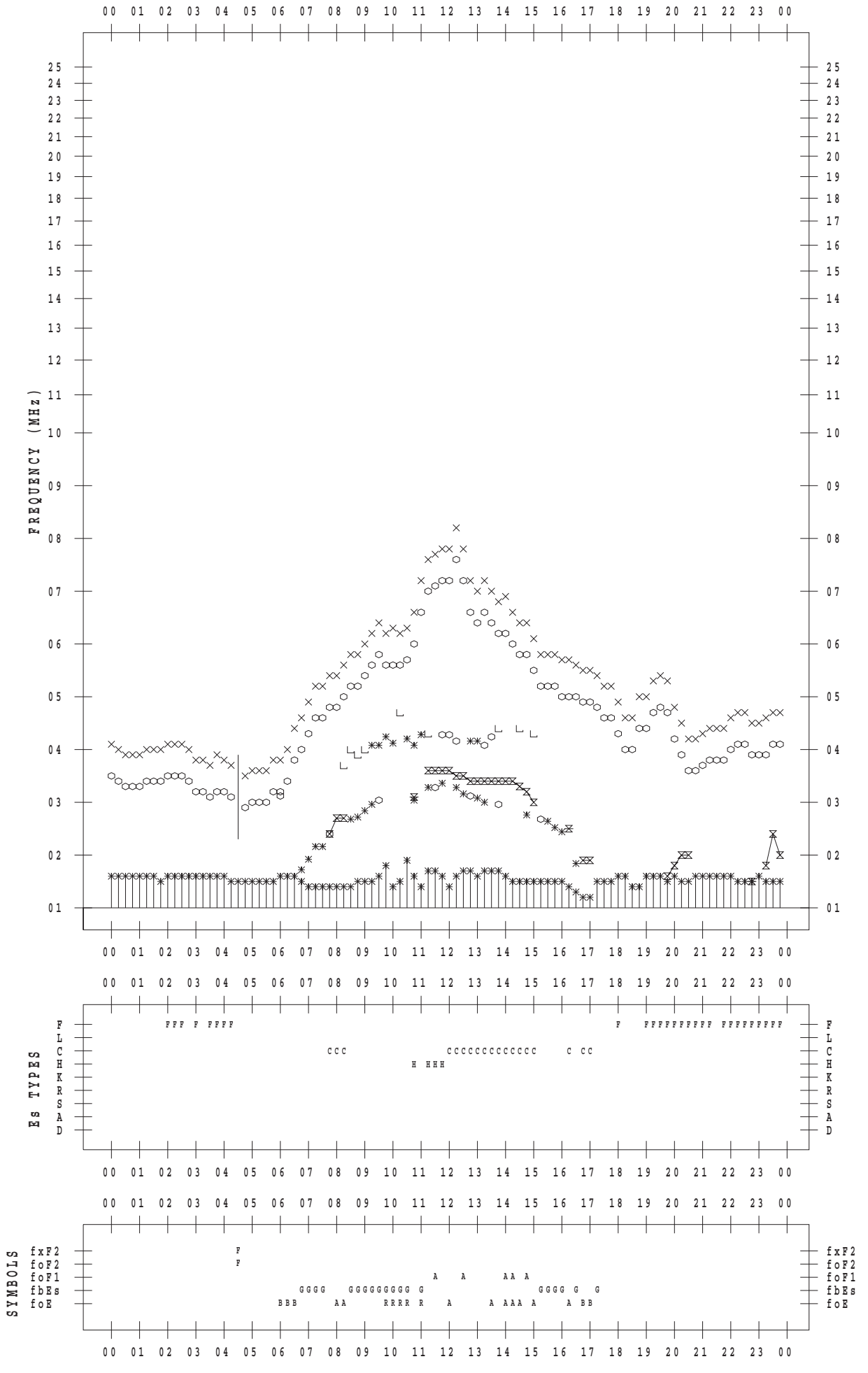
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2018/ 2/17

135 °E MEAN TIME



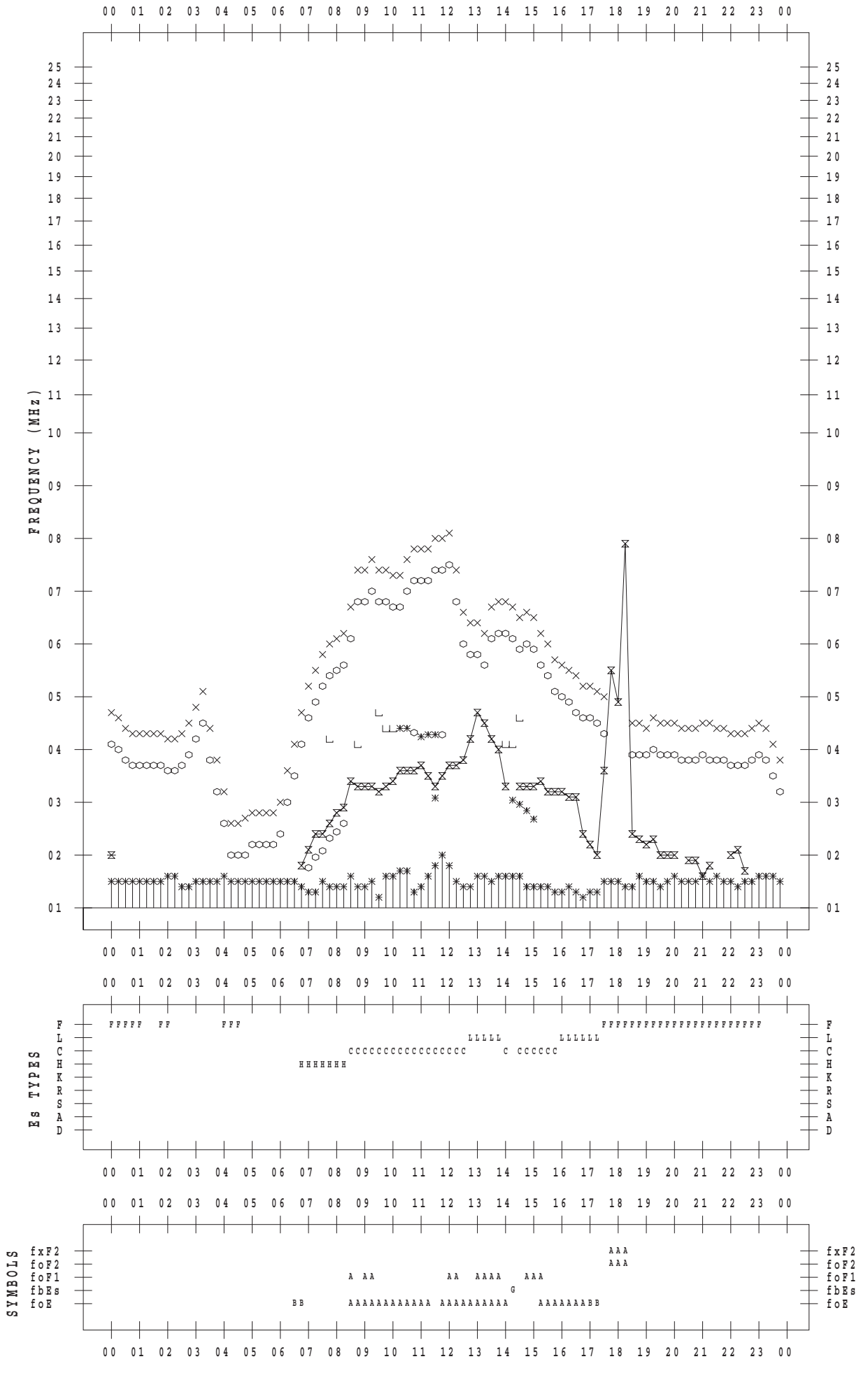
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2018/ 2/18

135 °E MEAN TIME



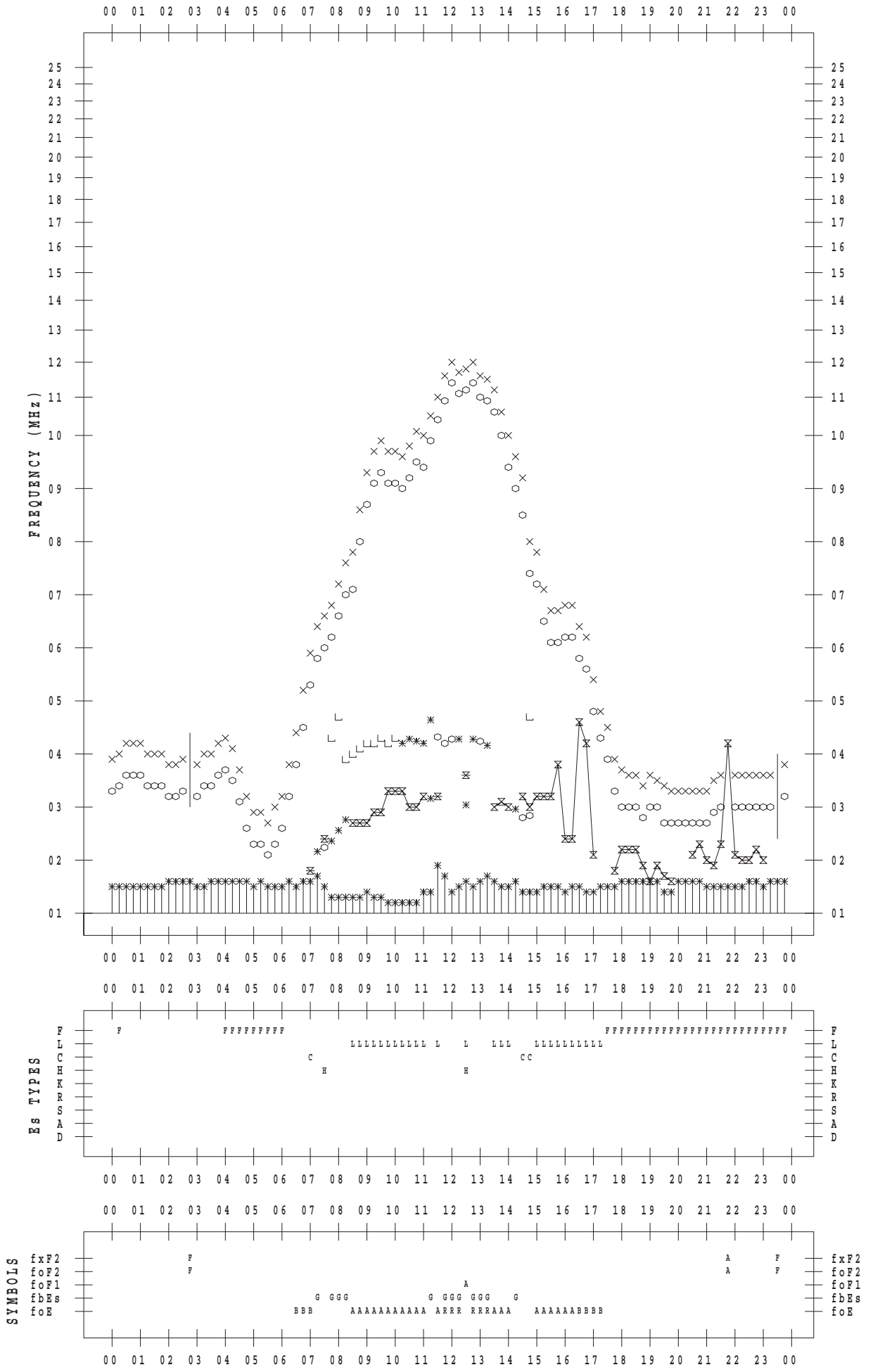
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2018/ 2/19

135 °E MEAN TIME



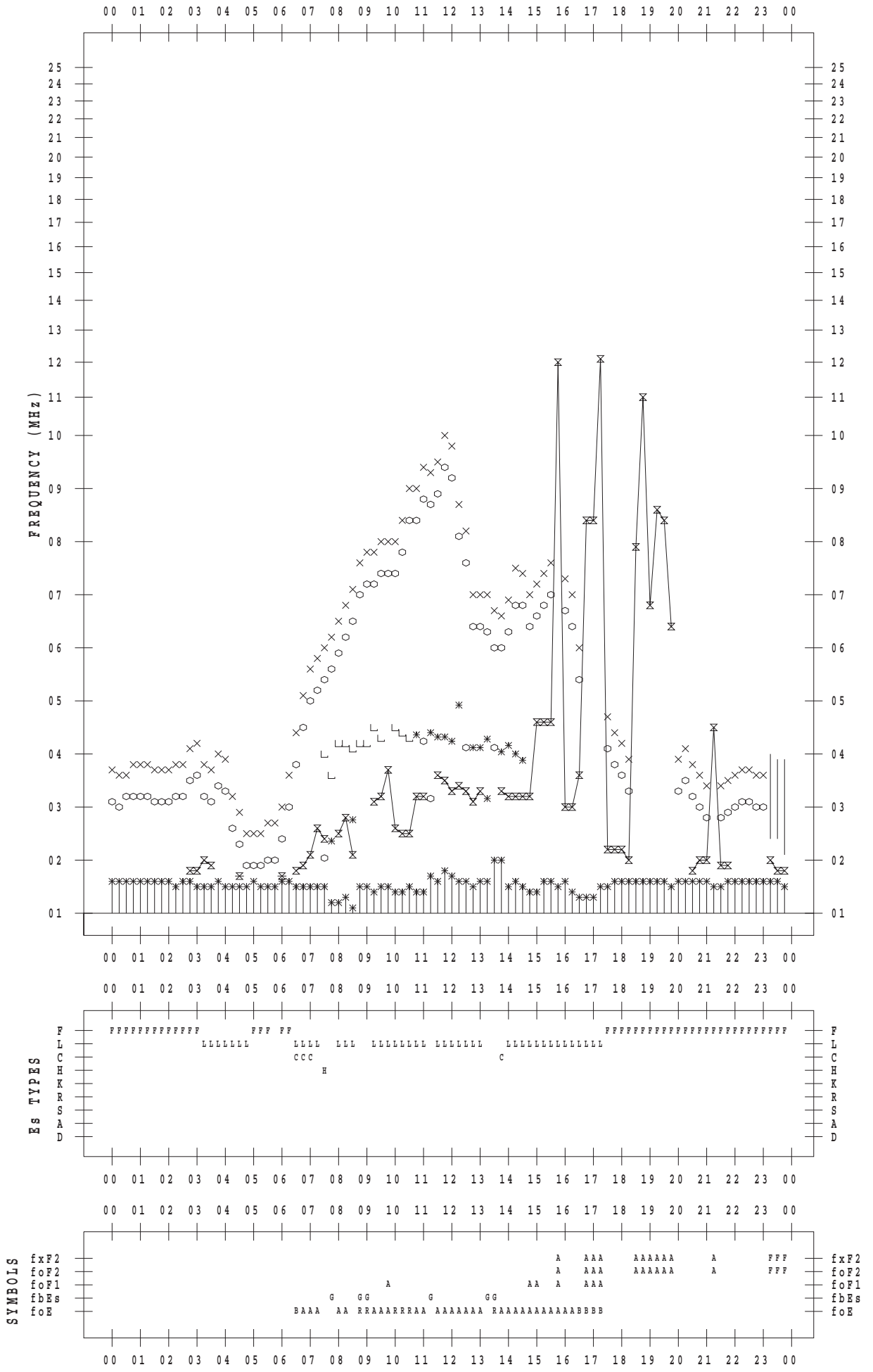
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2018/ 2/20

135 °E MEAN TIME



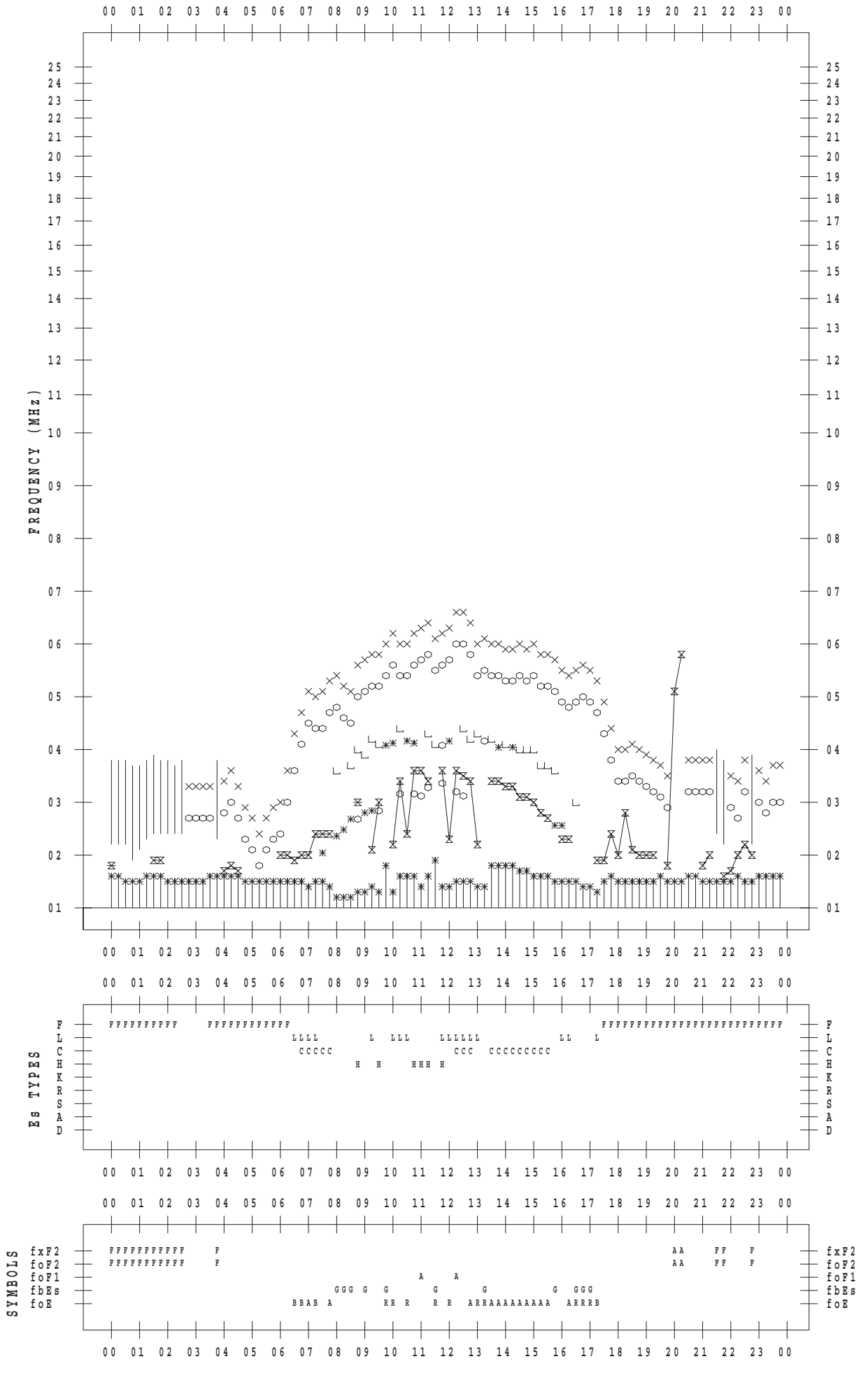
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2018/ 2/21

135 °E MEAN TIME



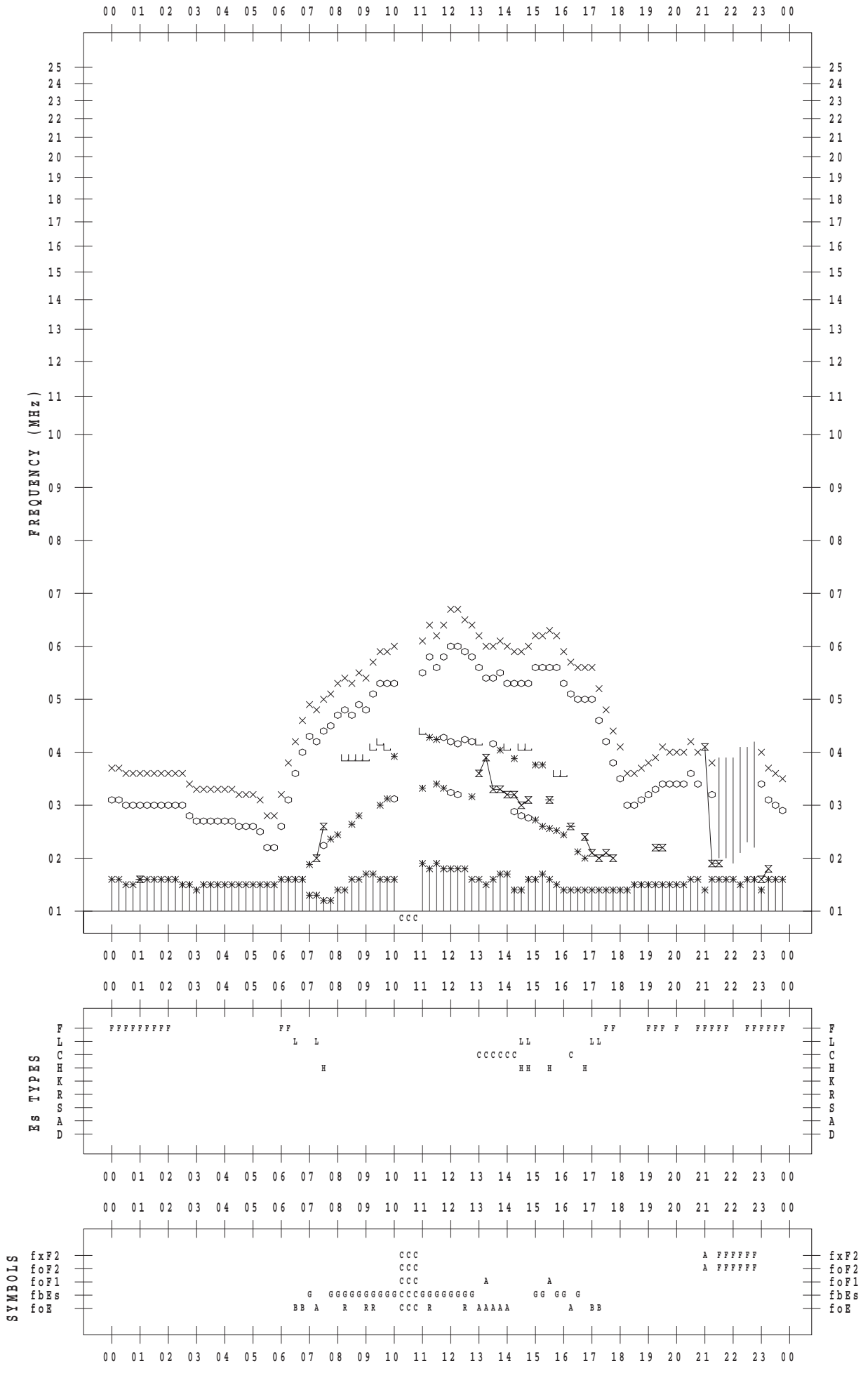
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2018/ 2/22

135 °E MEAN TIME



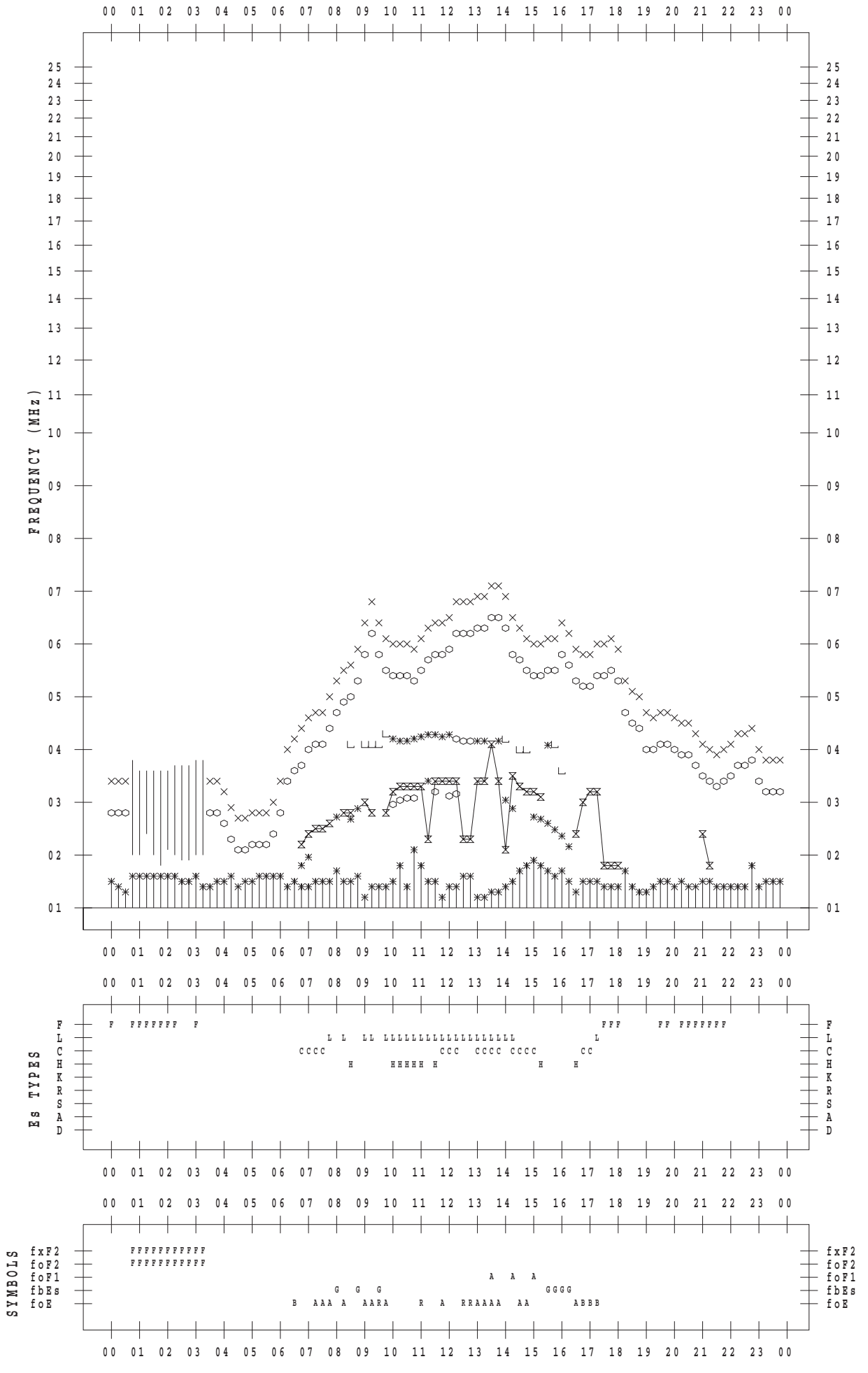
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2018/ 2/23

135 °E MEAN TIME



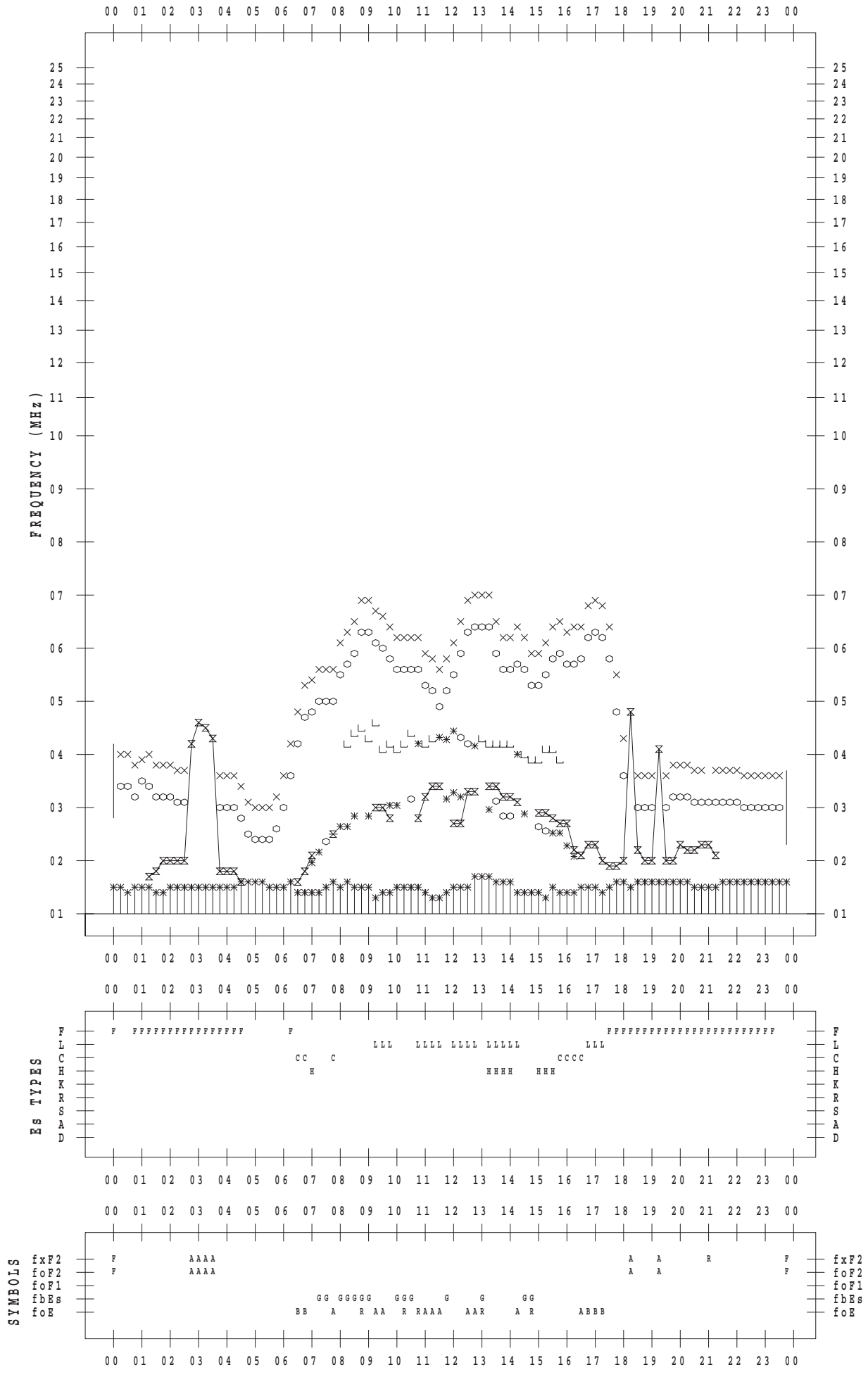
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2018/ 2/24

135 °E MEAN TIME



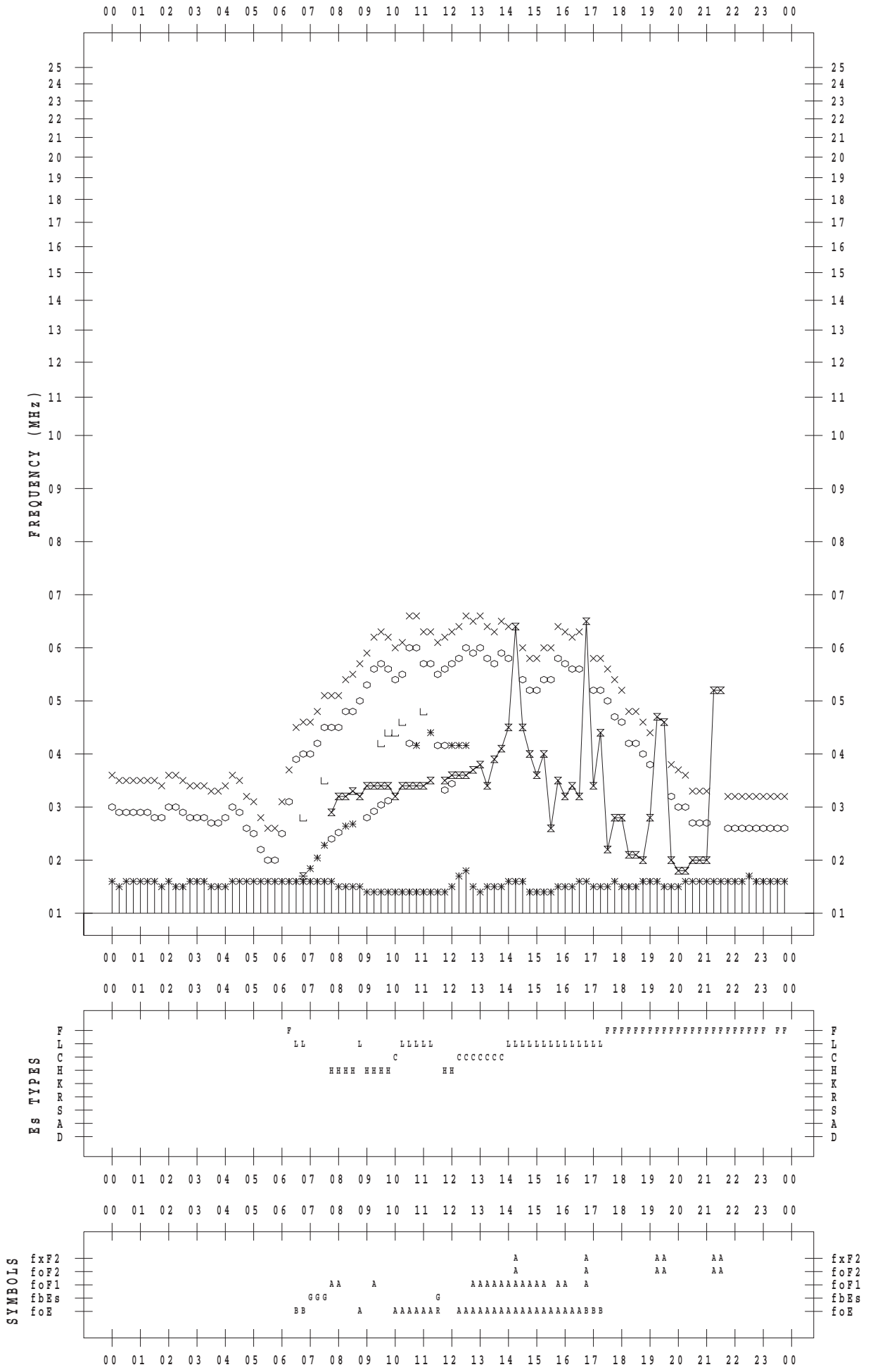
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2018/ 2/25

135 °E MEAN TIME



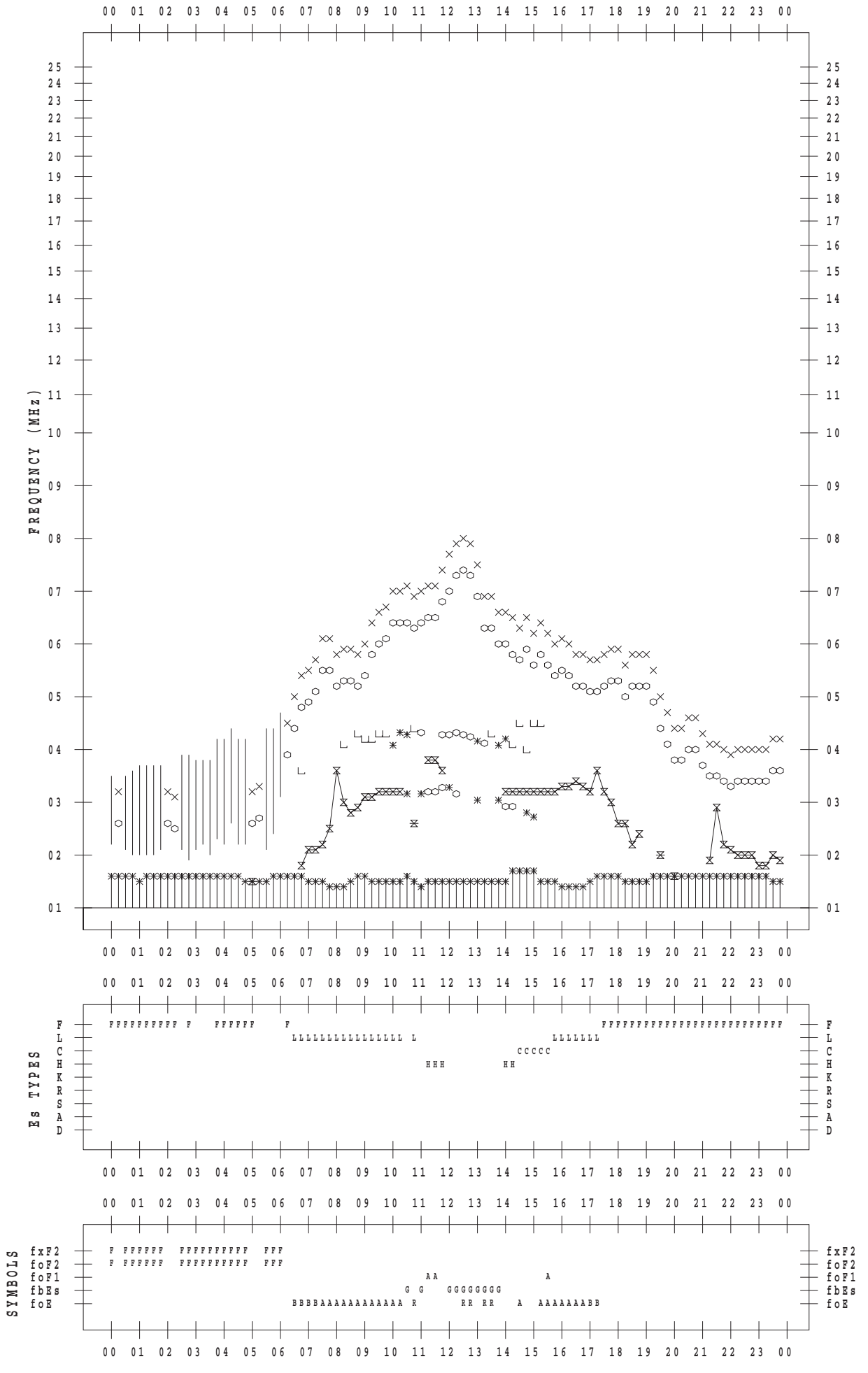
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2018/ 2/26

135 °E MEAN TIME



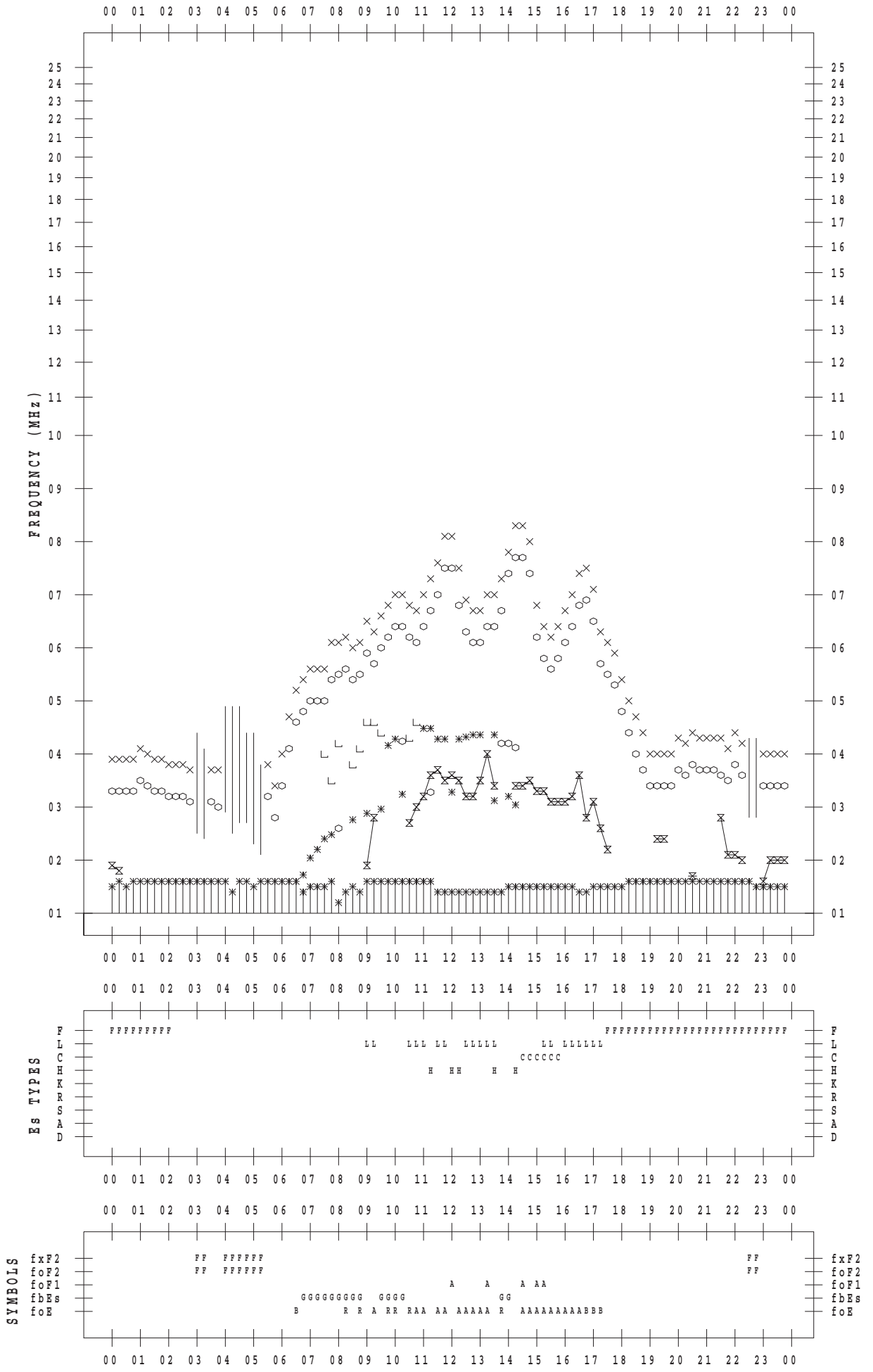
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2018/ 2/27

135 °E MEAN TIME



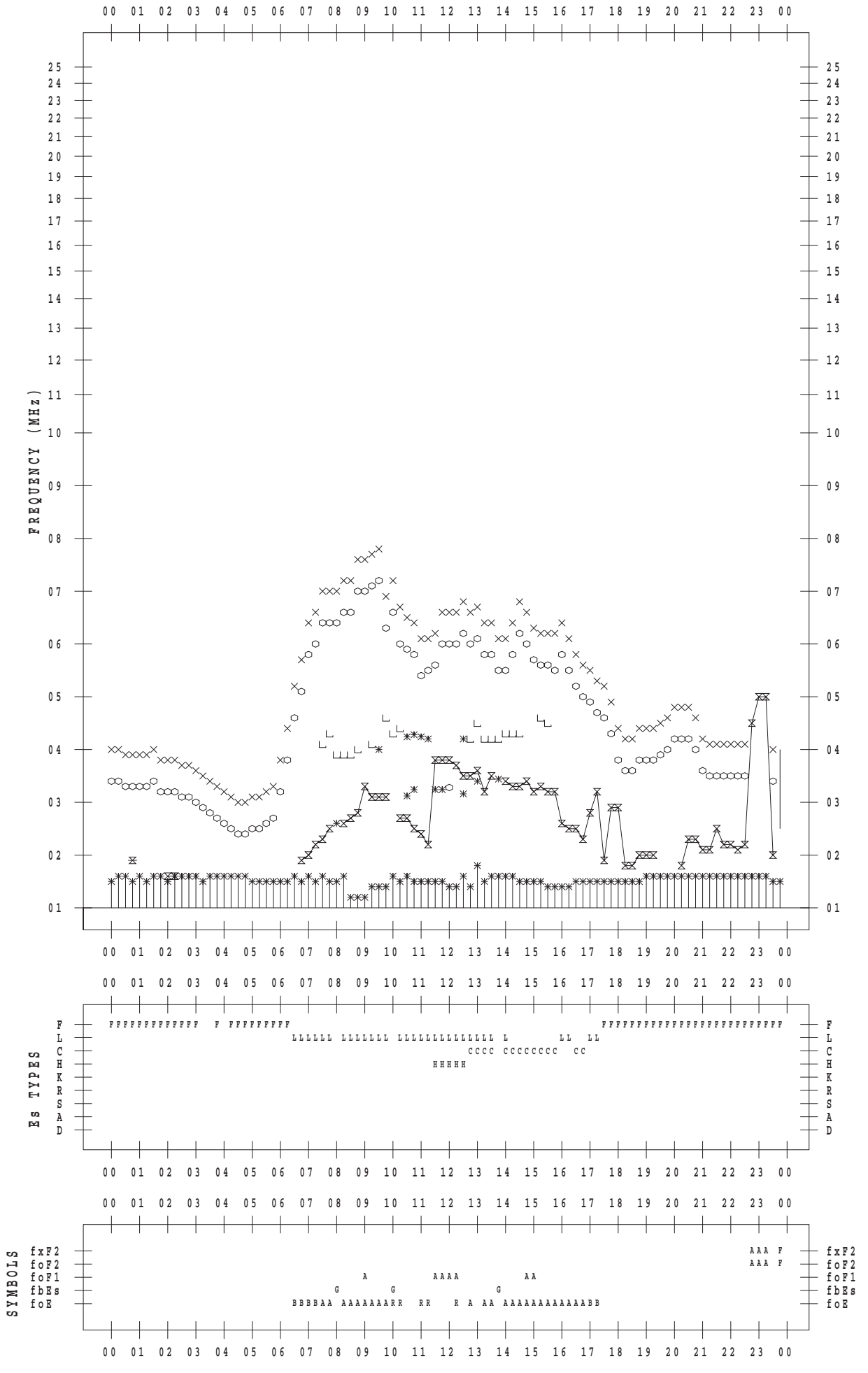
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2018/ 2/28

135 °E MEAN TIME



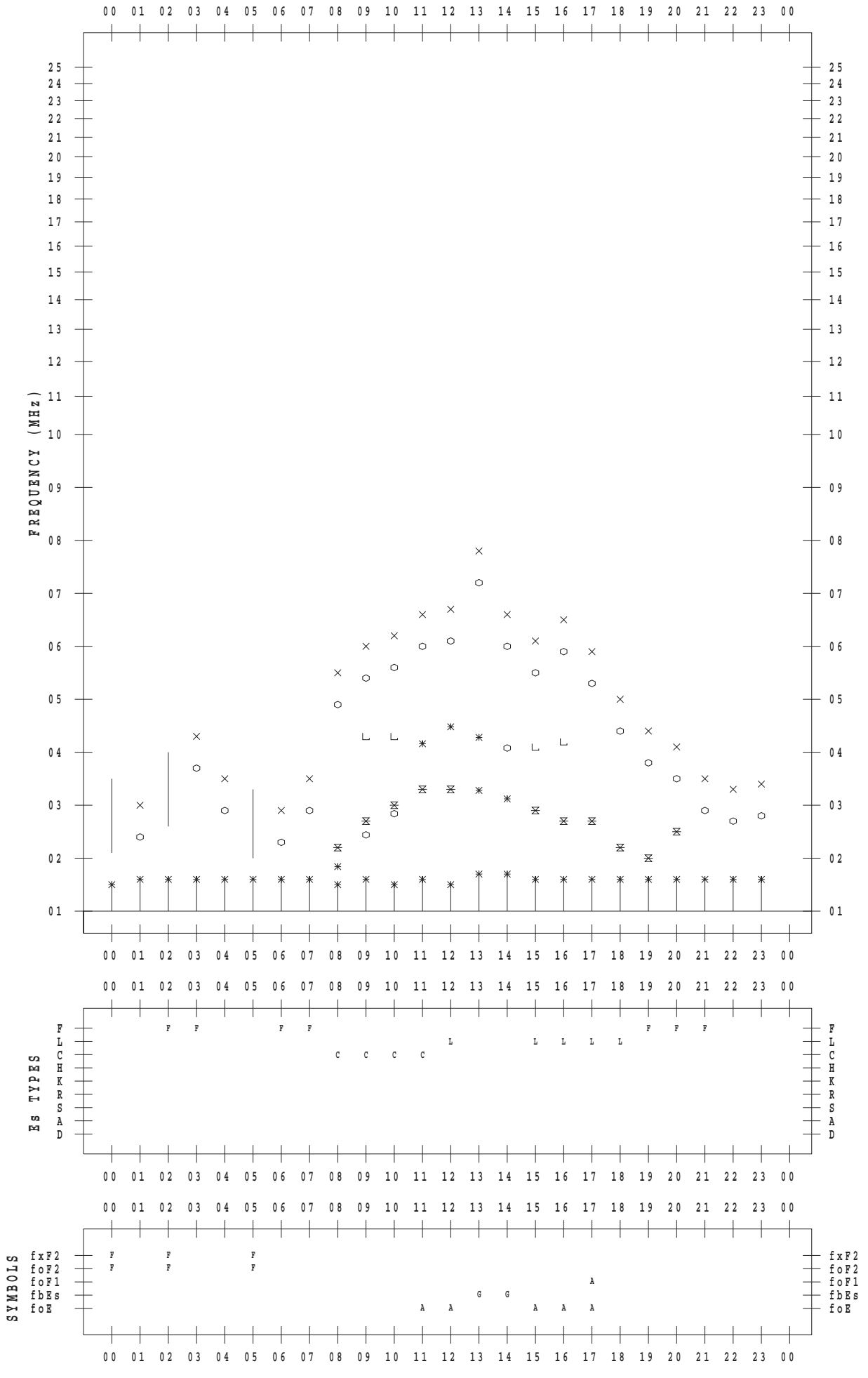
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2018/ 2/ 1

135 °E MEAN TIME



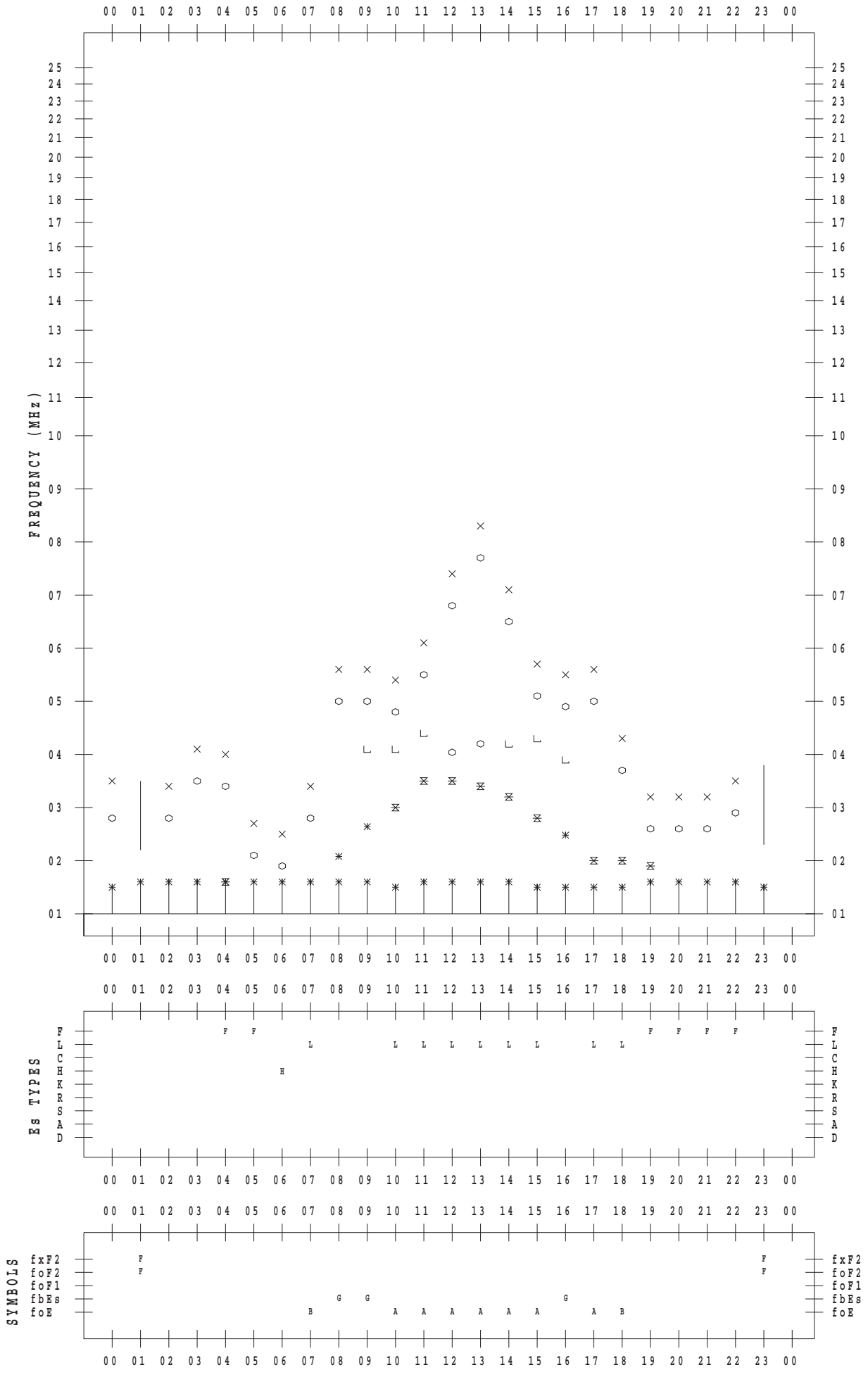
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2018/ 2/ 2

135 °E MEAN TIME



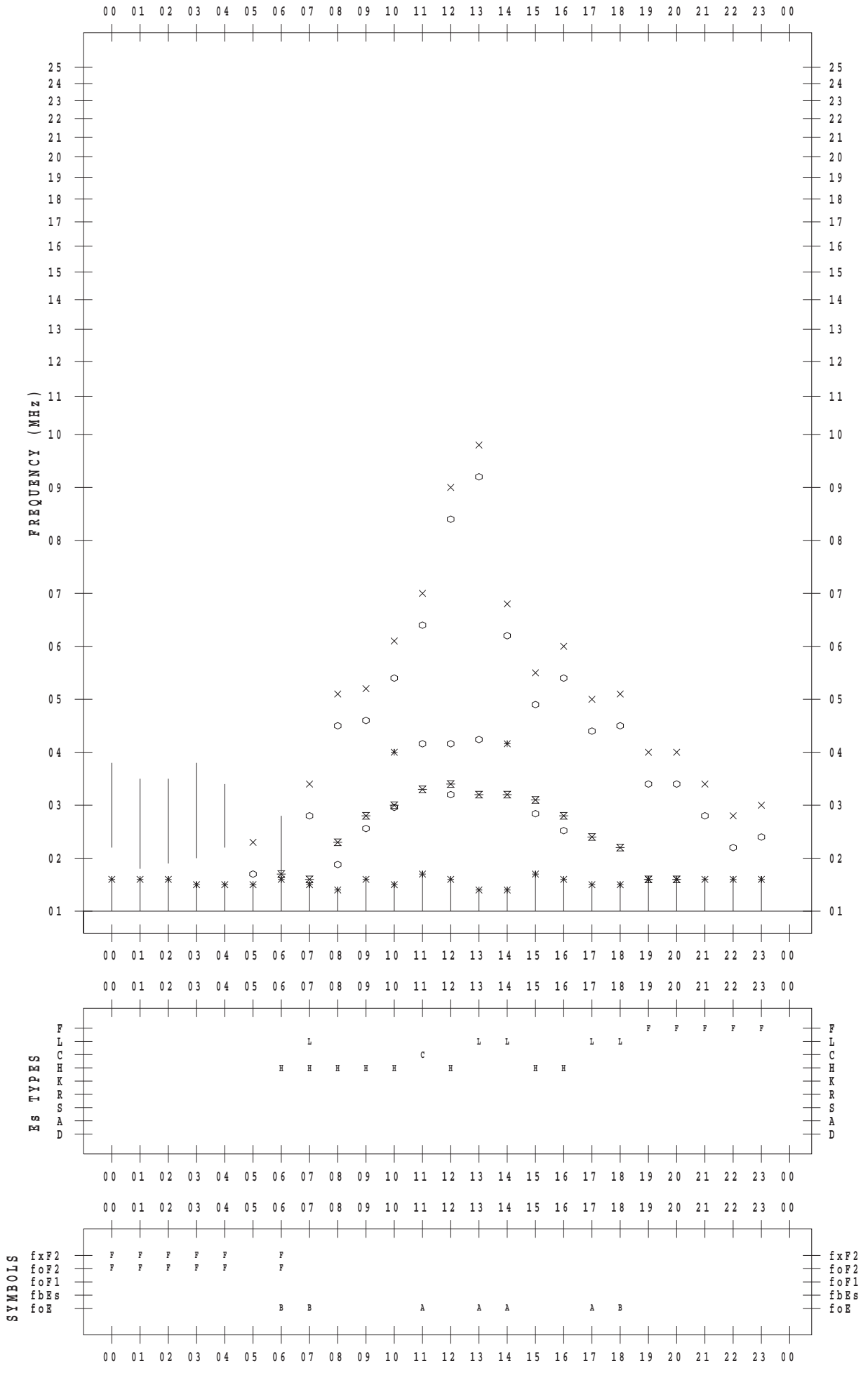
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2018/ 2/ 3

135 °E MEAN TIME



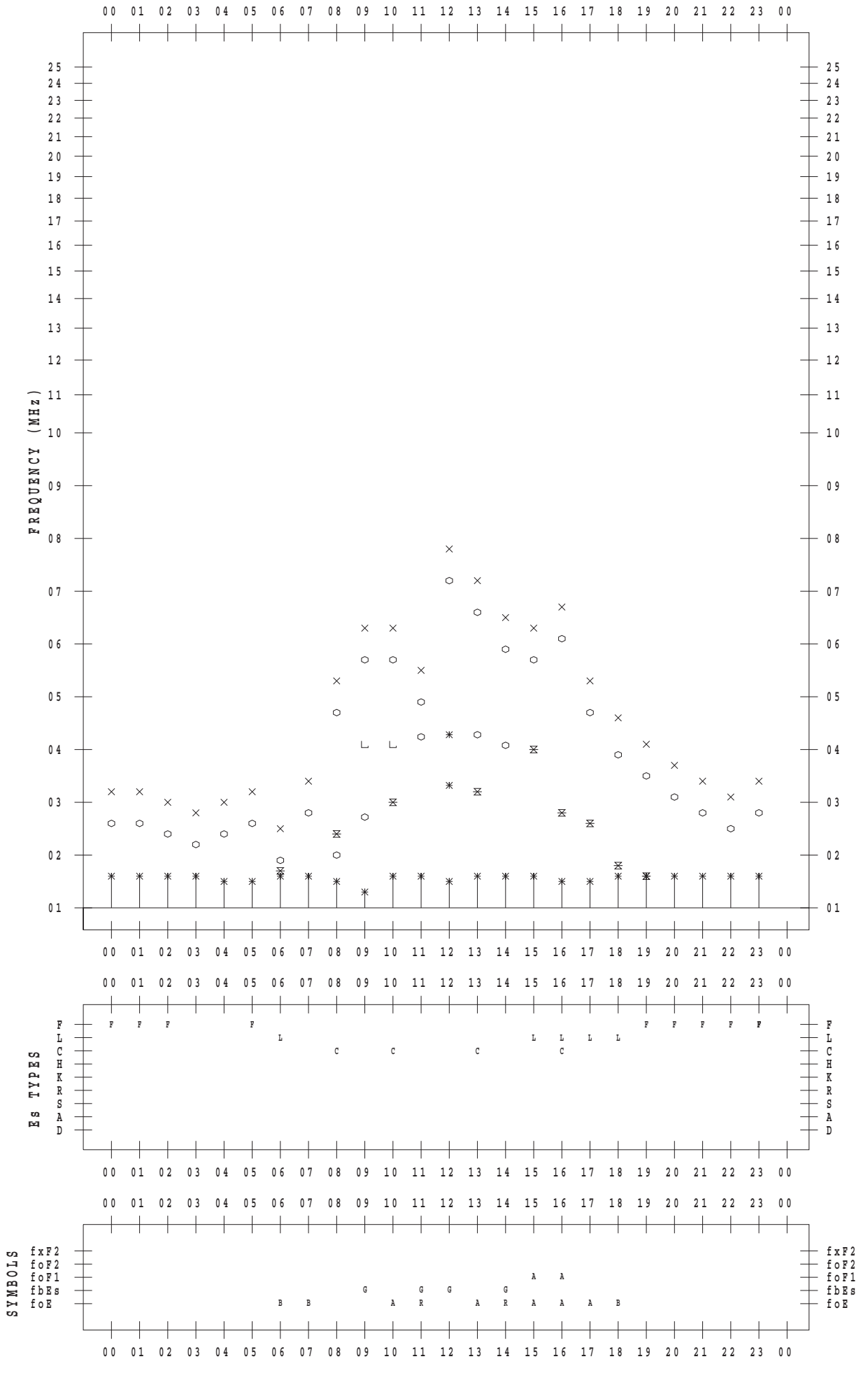
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2018/ 2/ 4

135 °E MEAN TIME



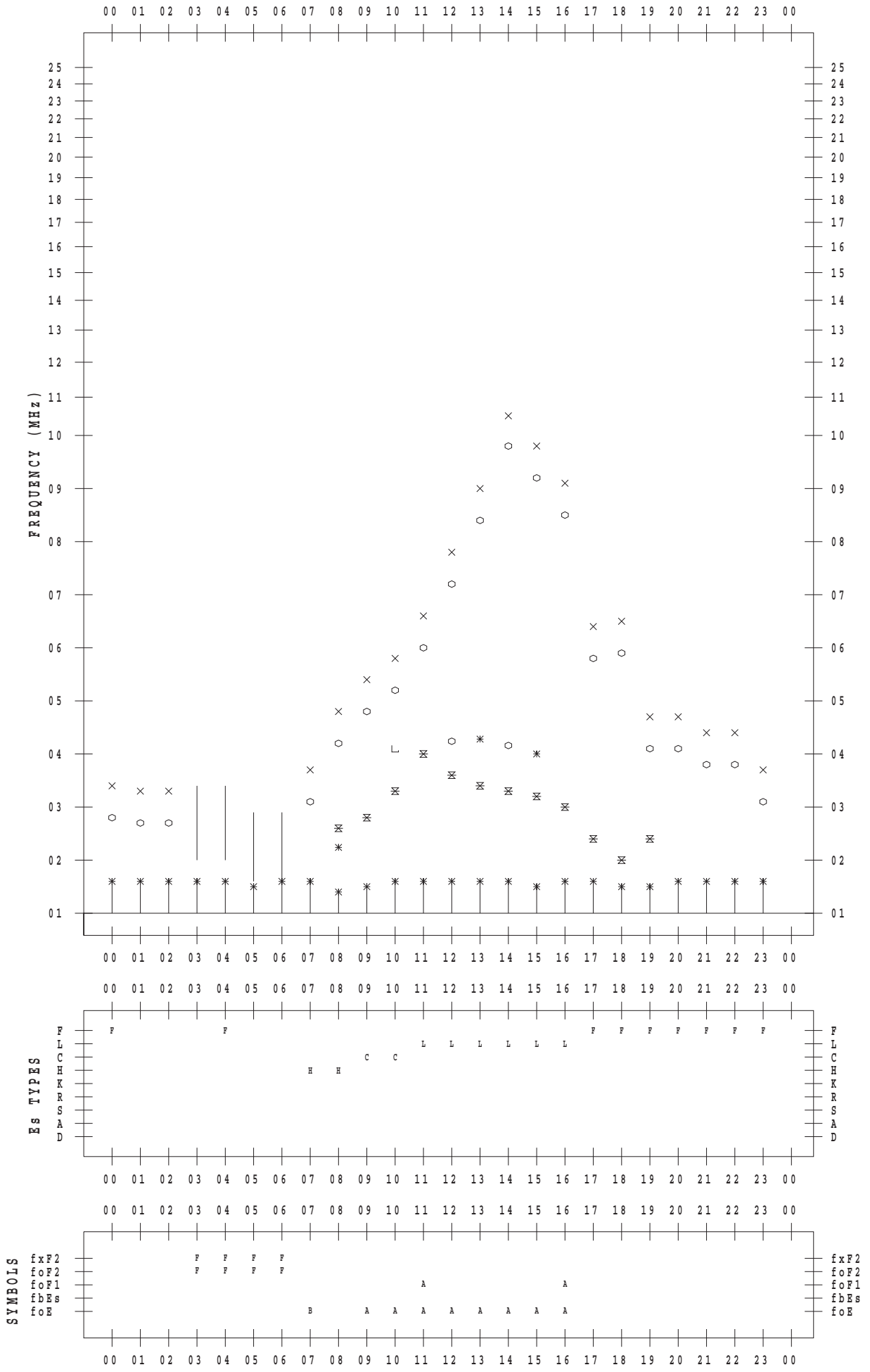
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2018/ 2/ 5

135 °E MEAN TIME



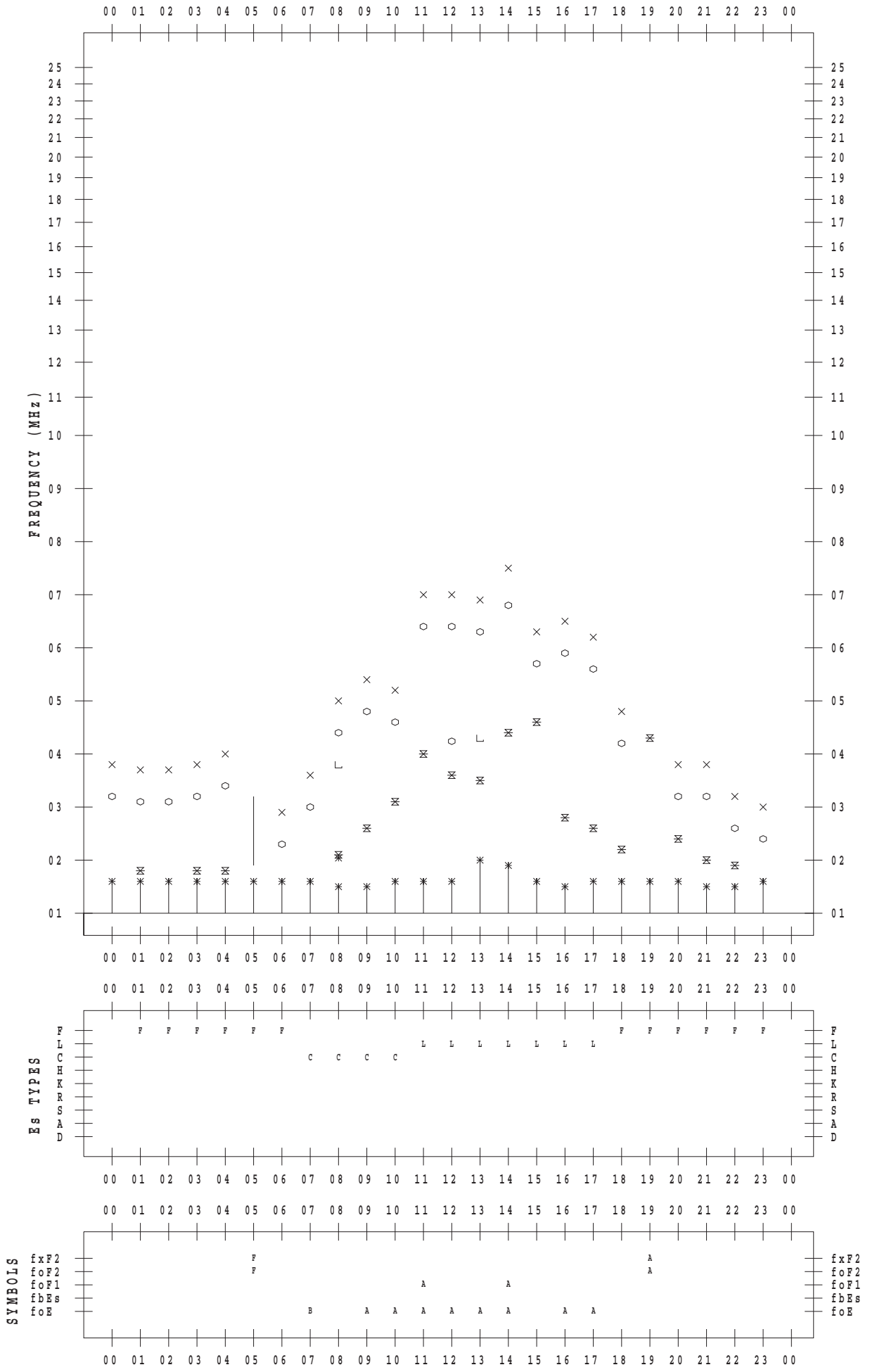
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2018/ 2/ 6

135 °E MEAN TIME



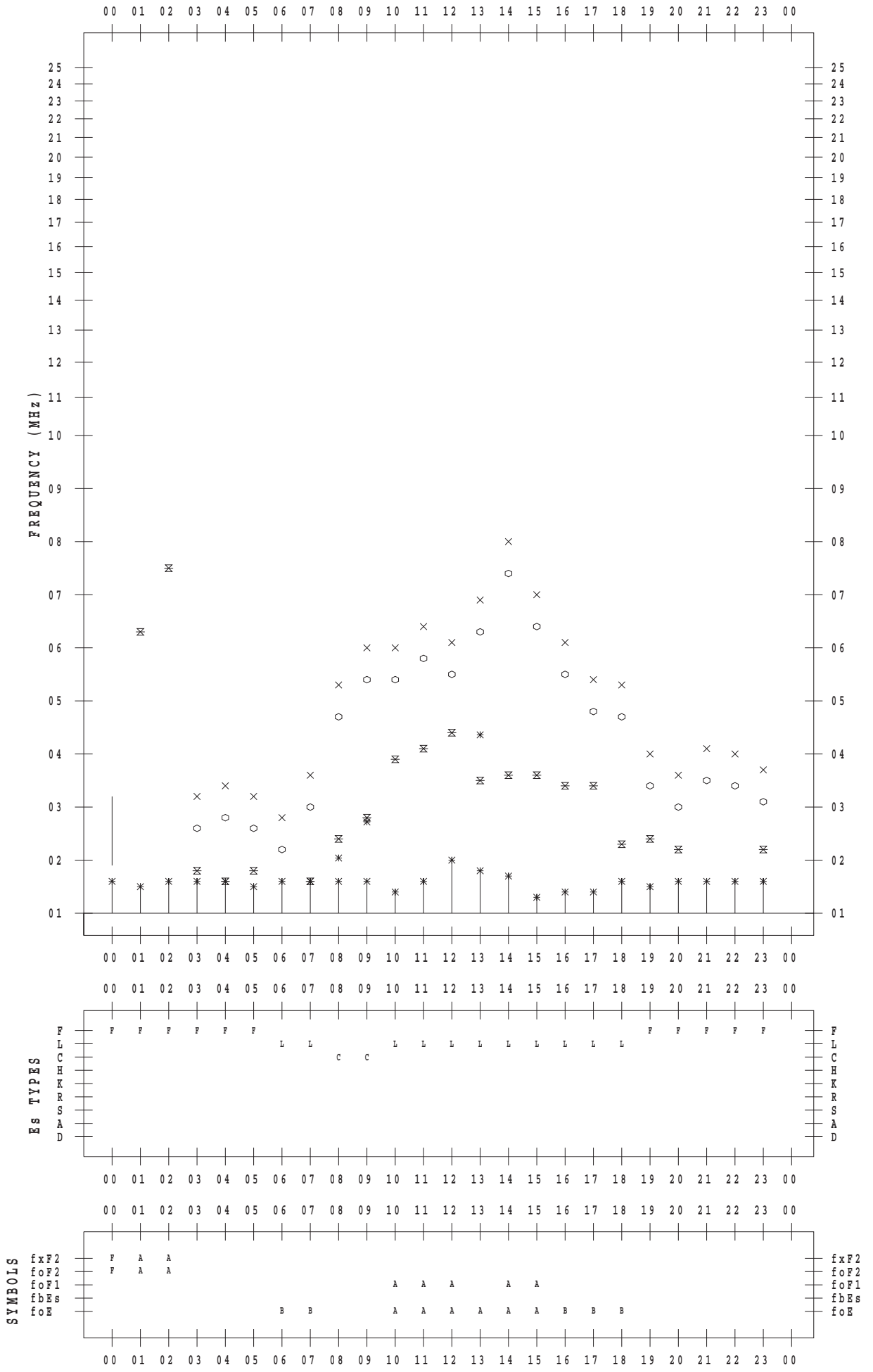
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2018/ 2/ 7

135 °E MEAN TIME



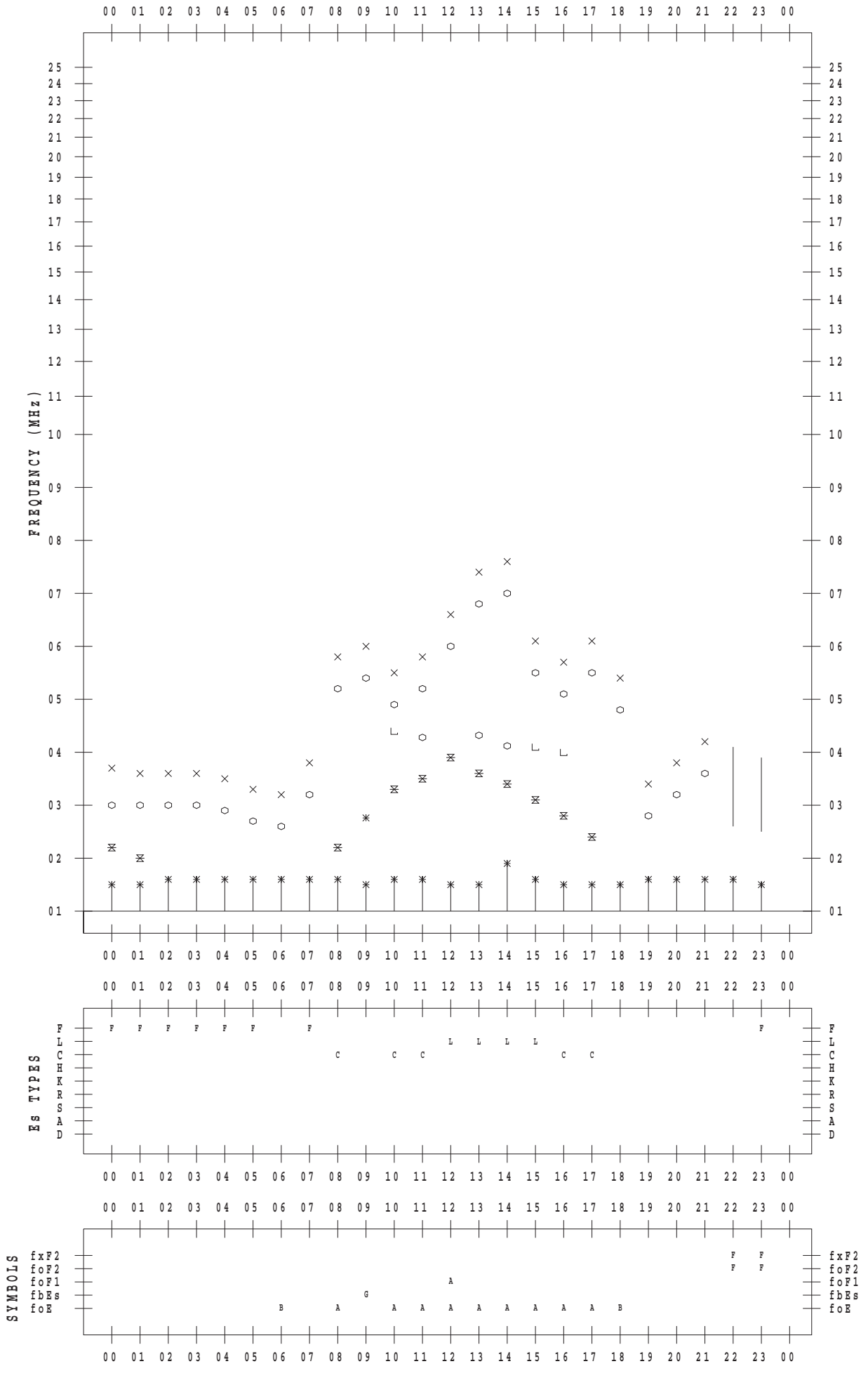
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2018/ 2/ 8

135 °E MEAN TIME



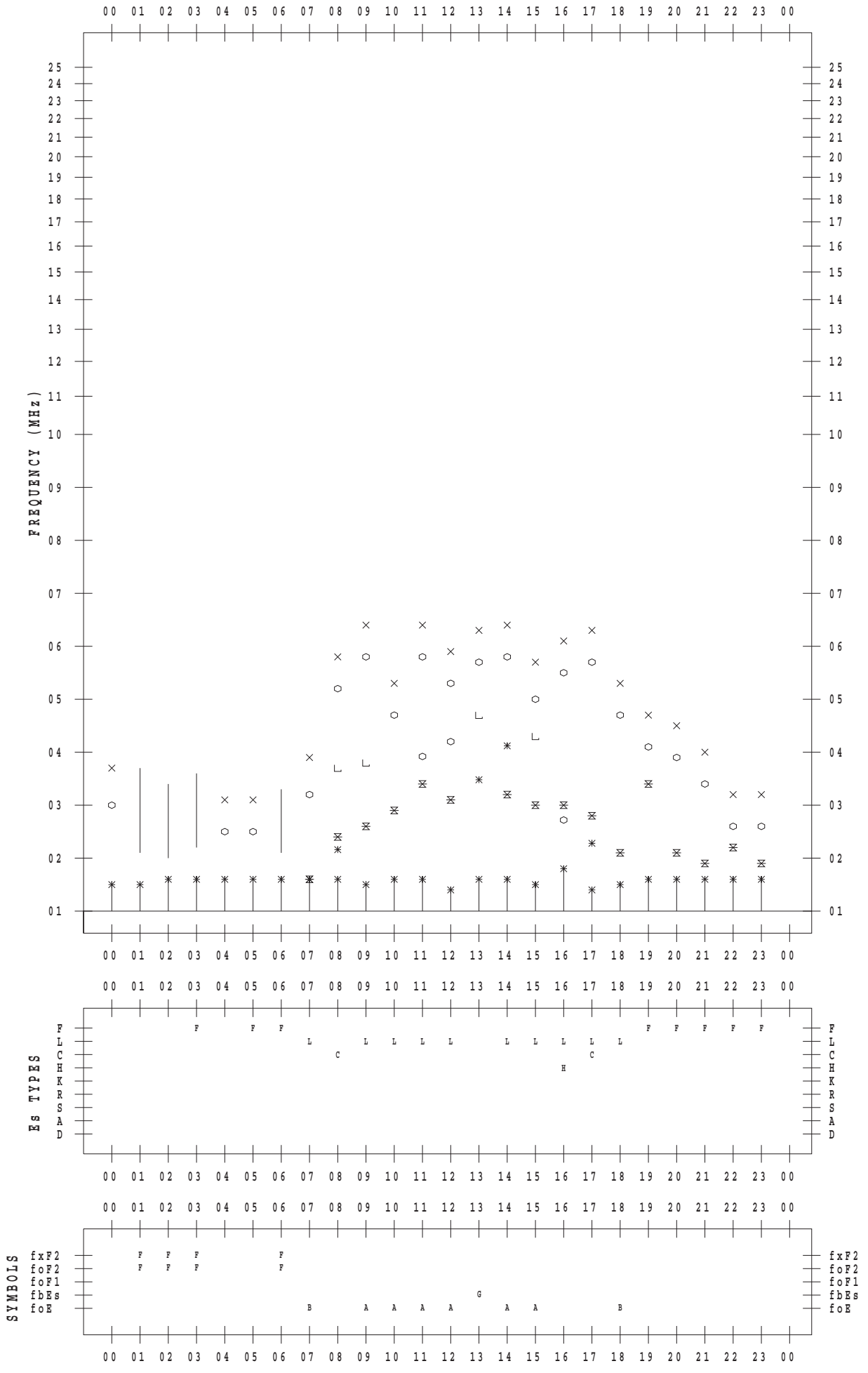
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2018/ 2/ 9

135 °E MEAN TIME



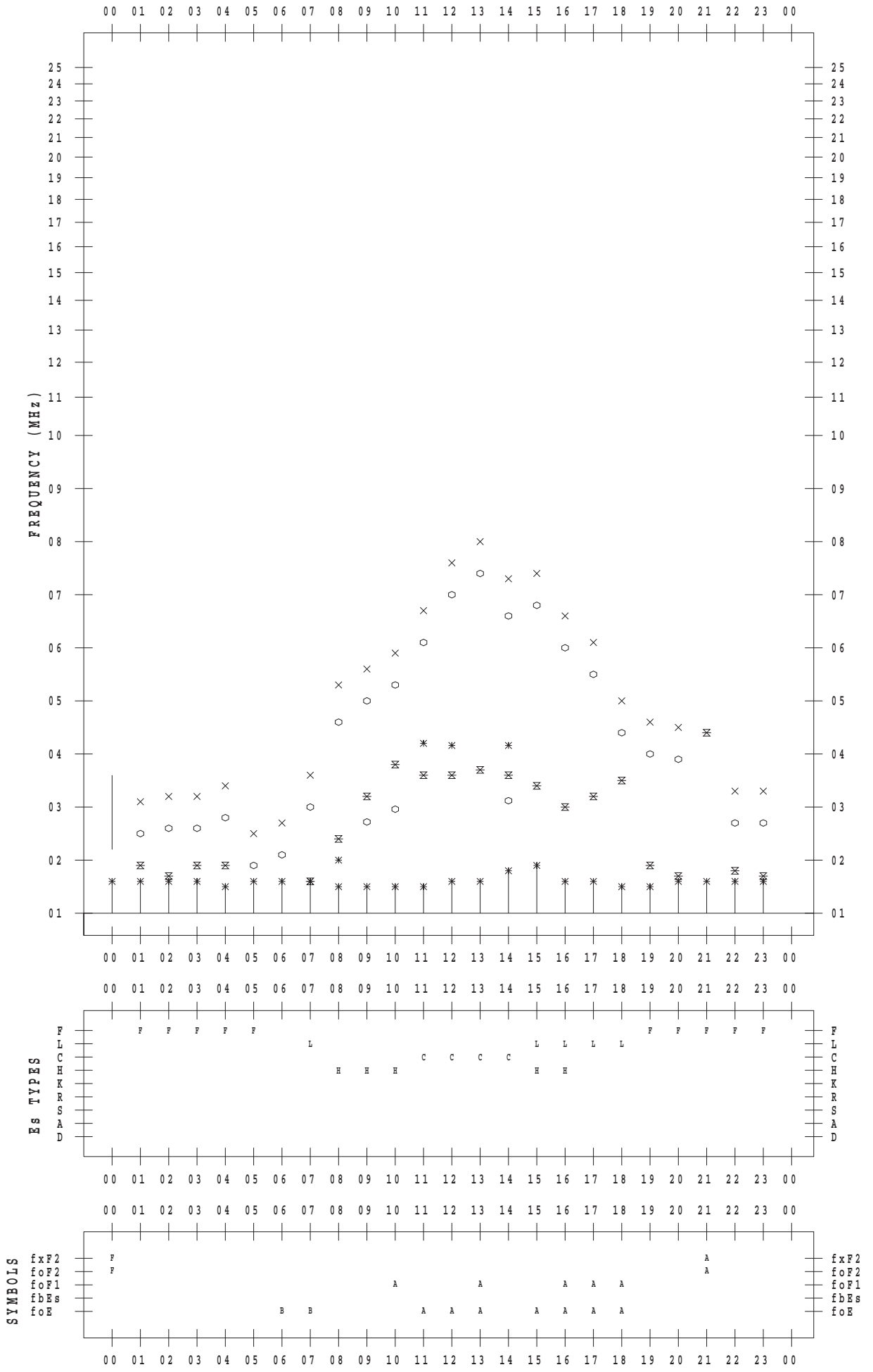
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2018/ 2/10

135 °E MEAN TIME



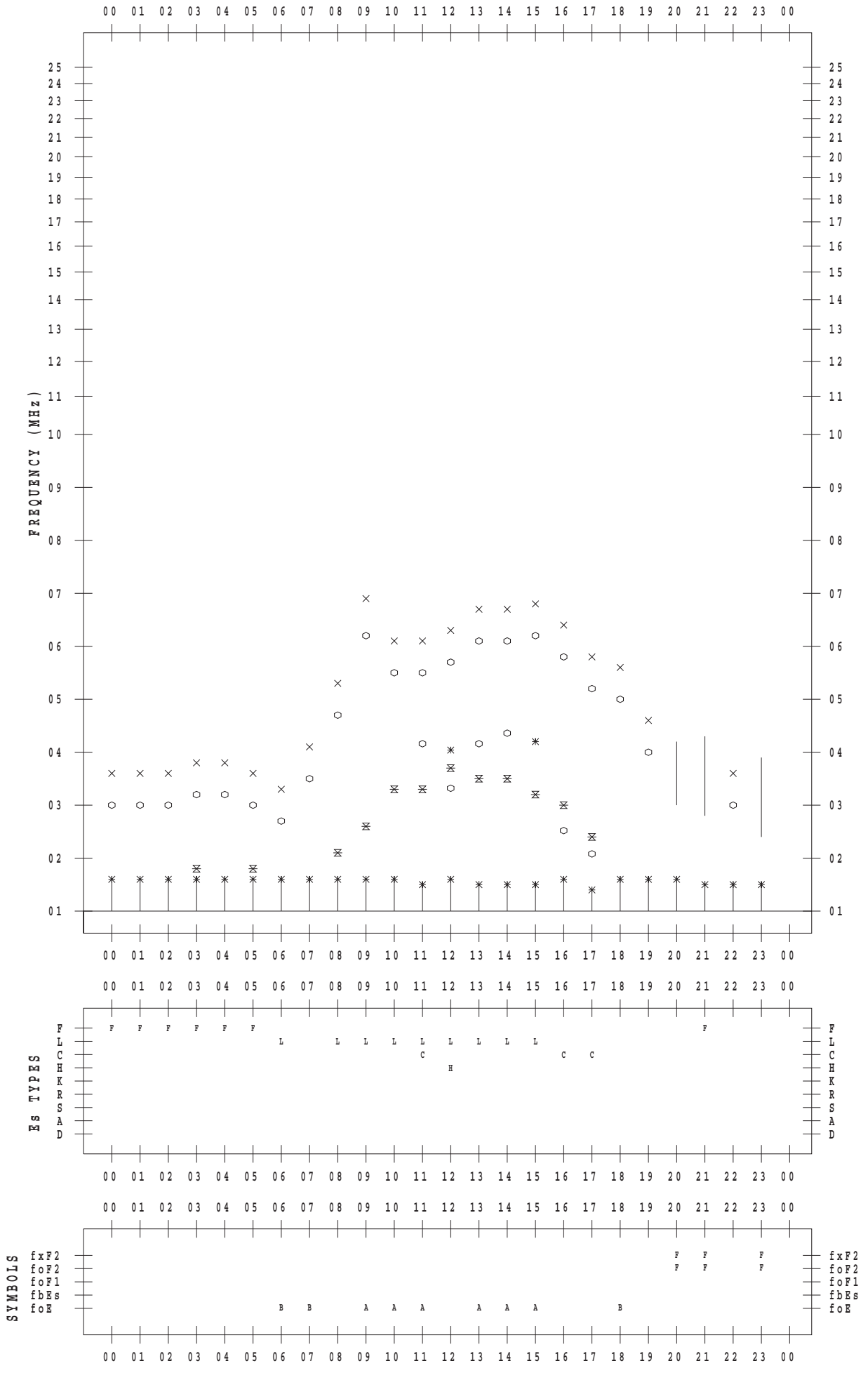
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2018/ 2/11

135 °E MEAN TIME



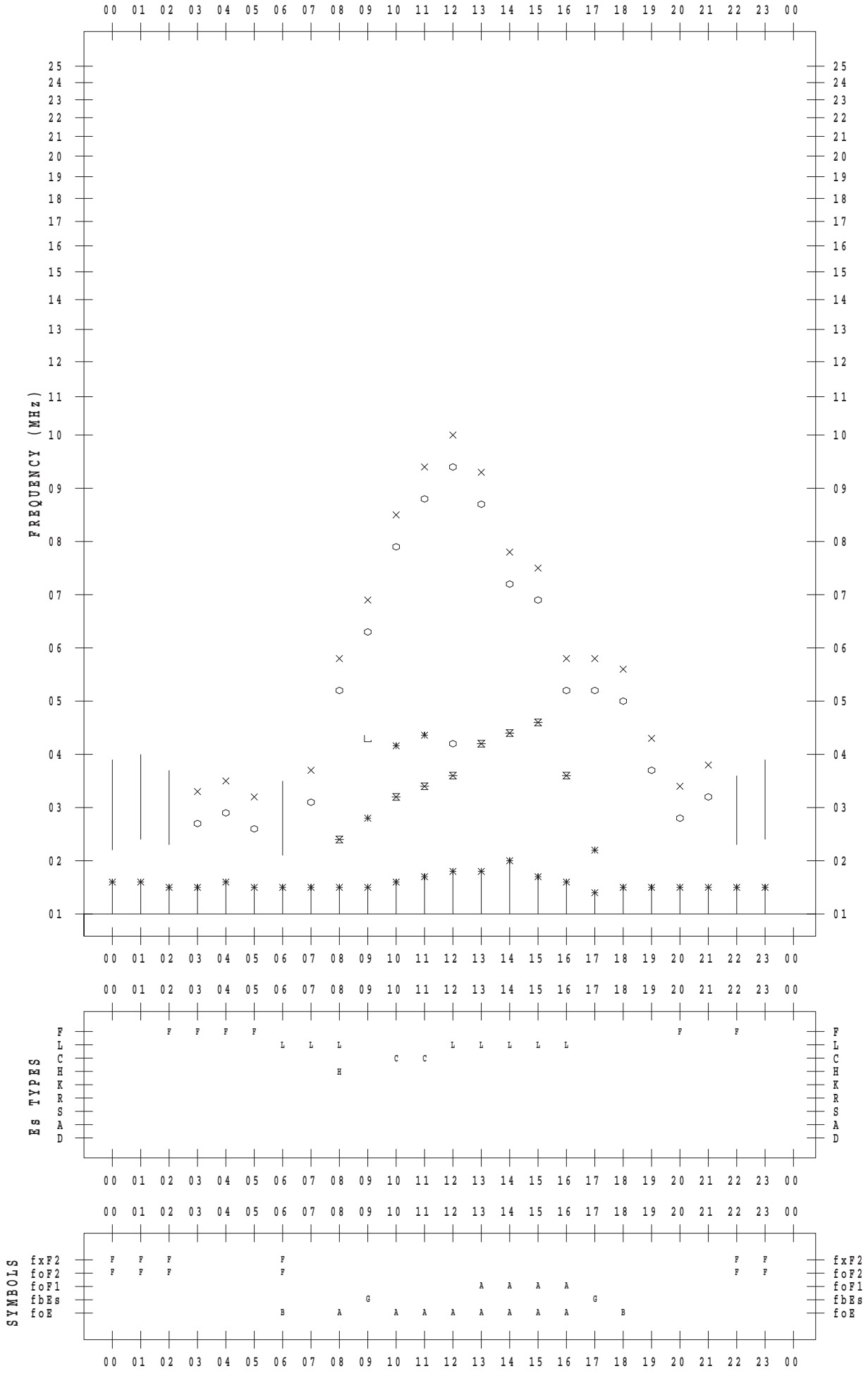
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2018/ 2/12

135 °E MEAN TIME



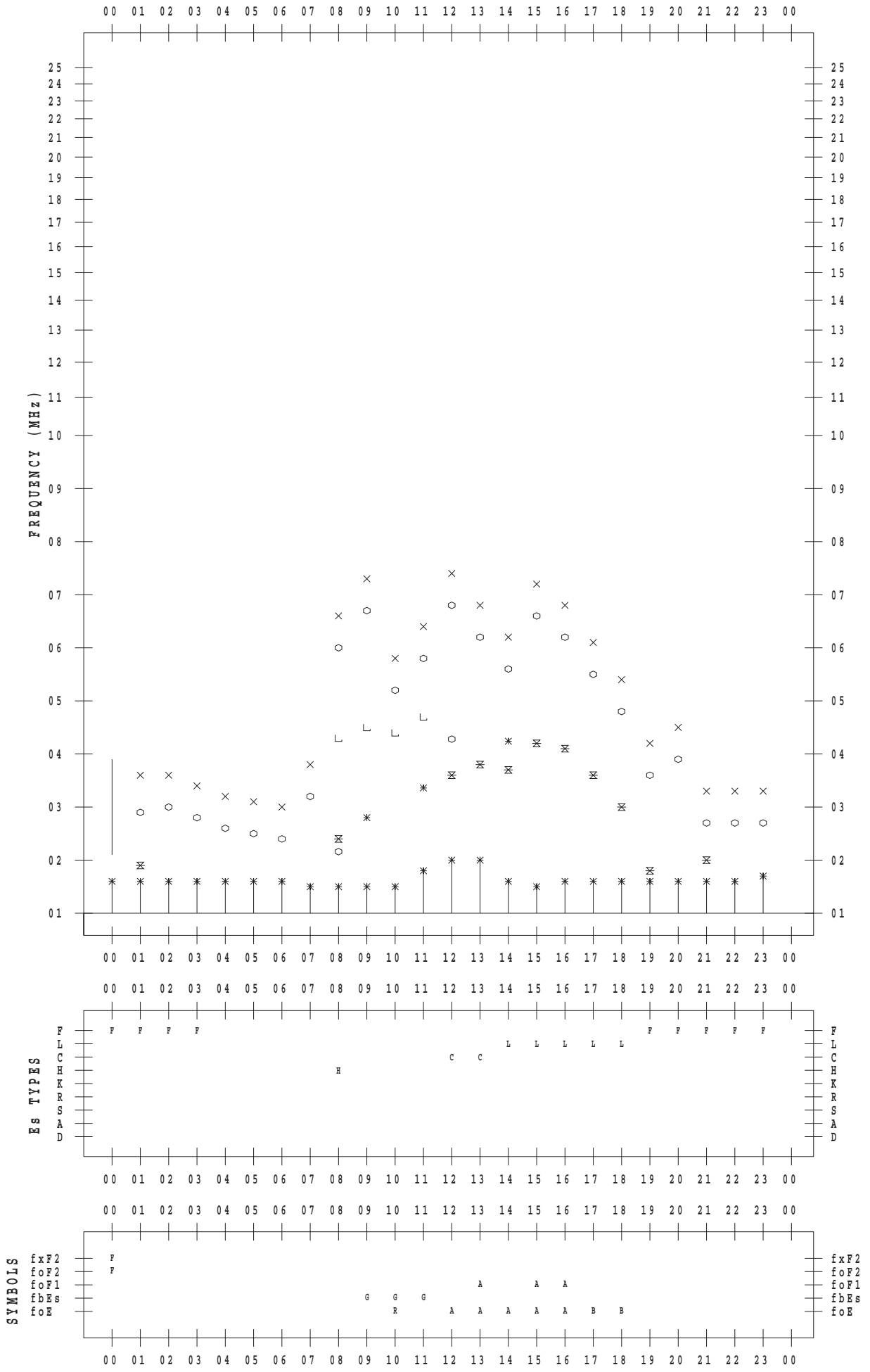
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2018/ 2/13

135 °E MEAN TIME



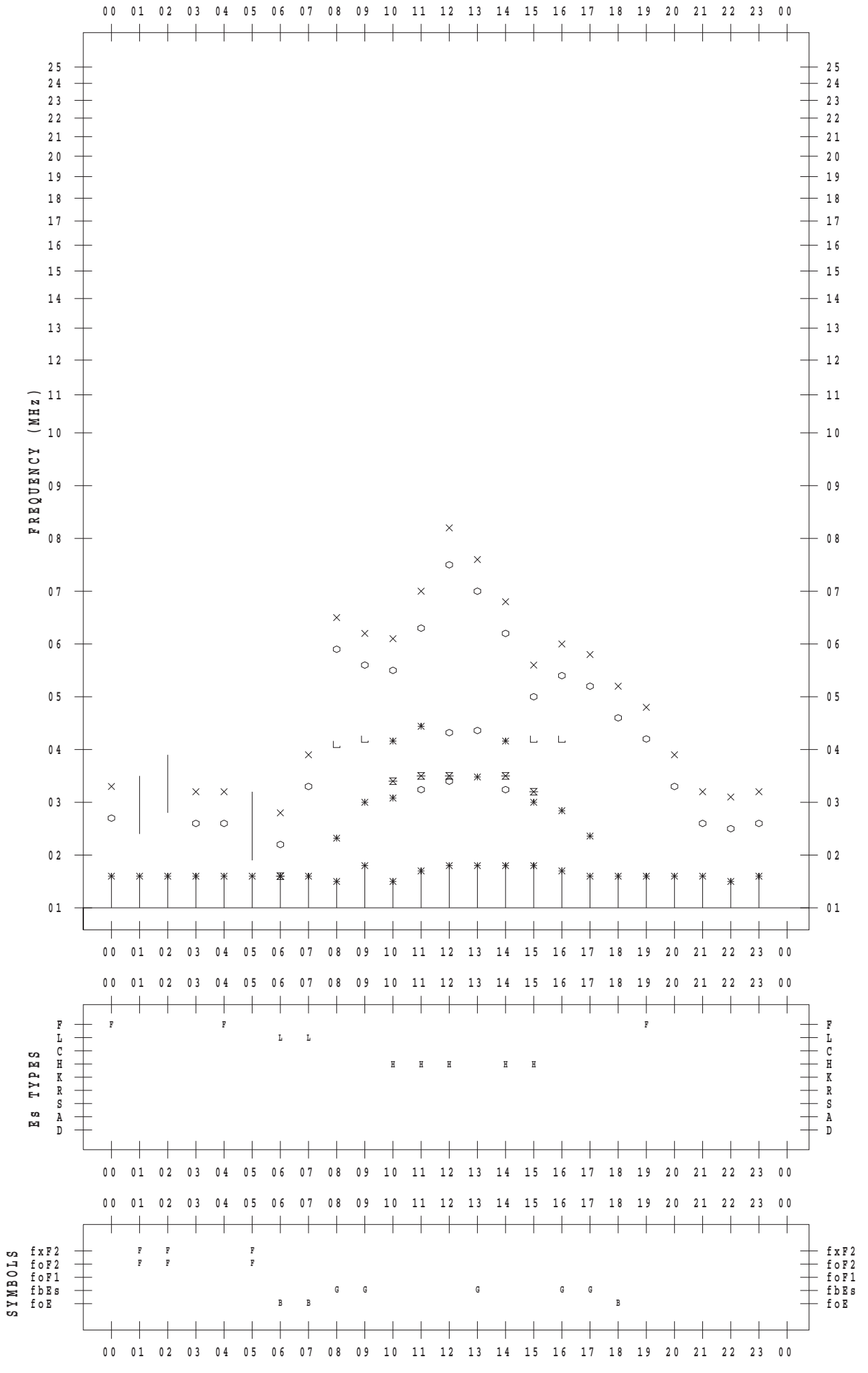
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2018/ 2/14

135 °E MEAN TIME



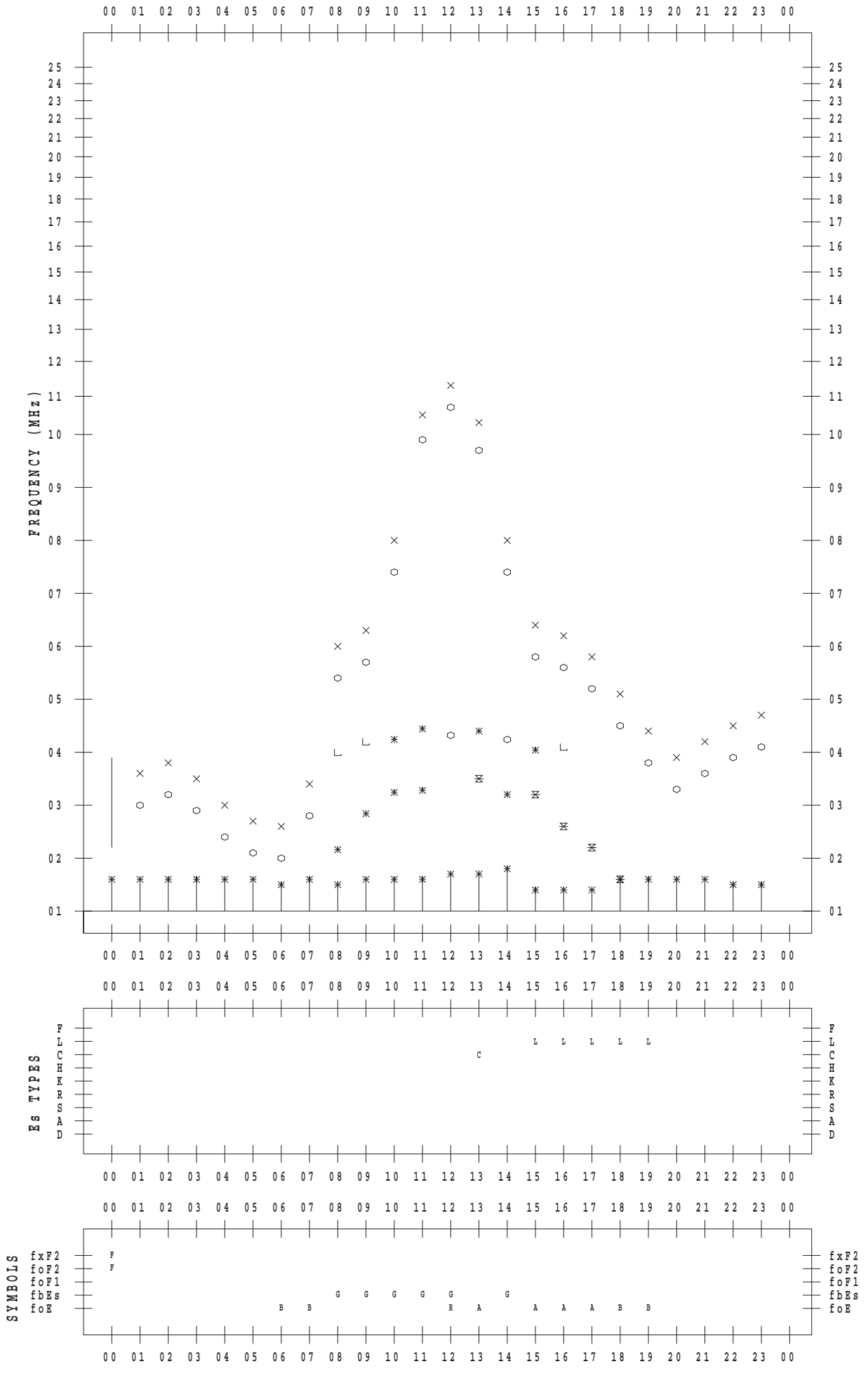
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2018/ 2/15

135 °E MEAN TIME



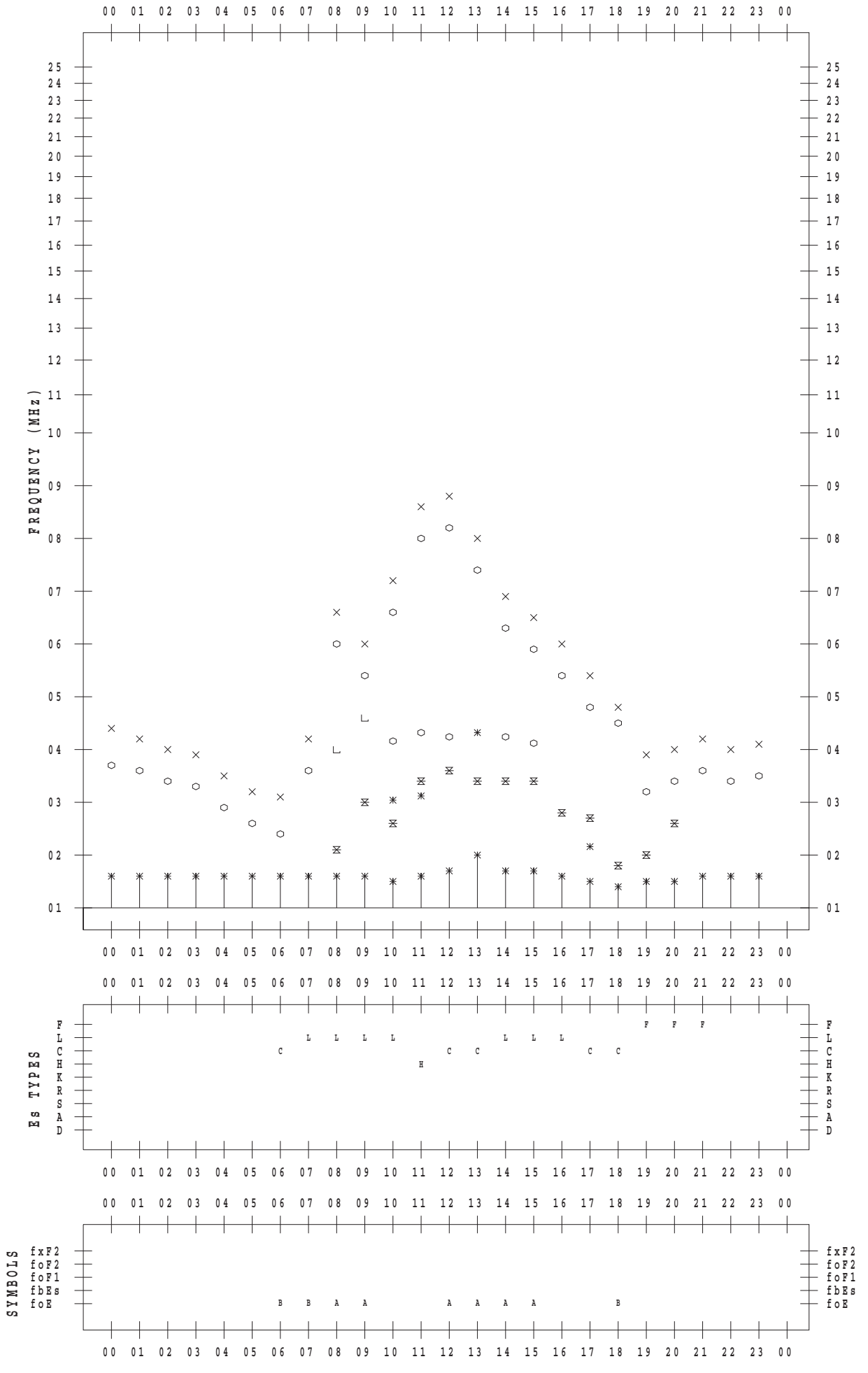
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2018/ 2/16

135 °E MEAN TIME



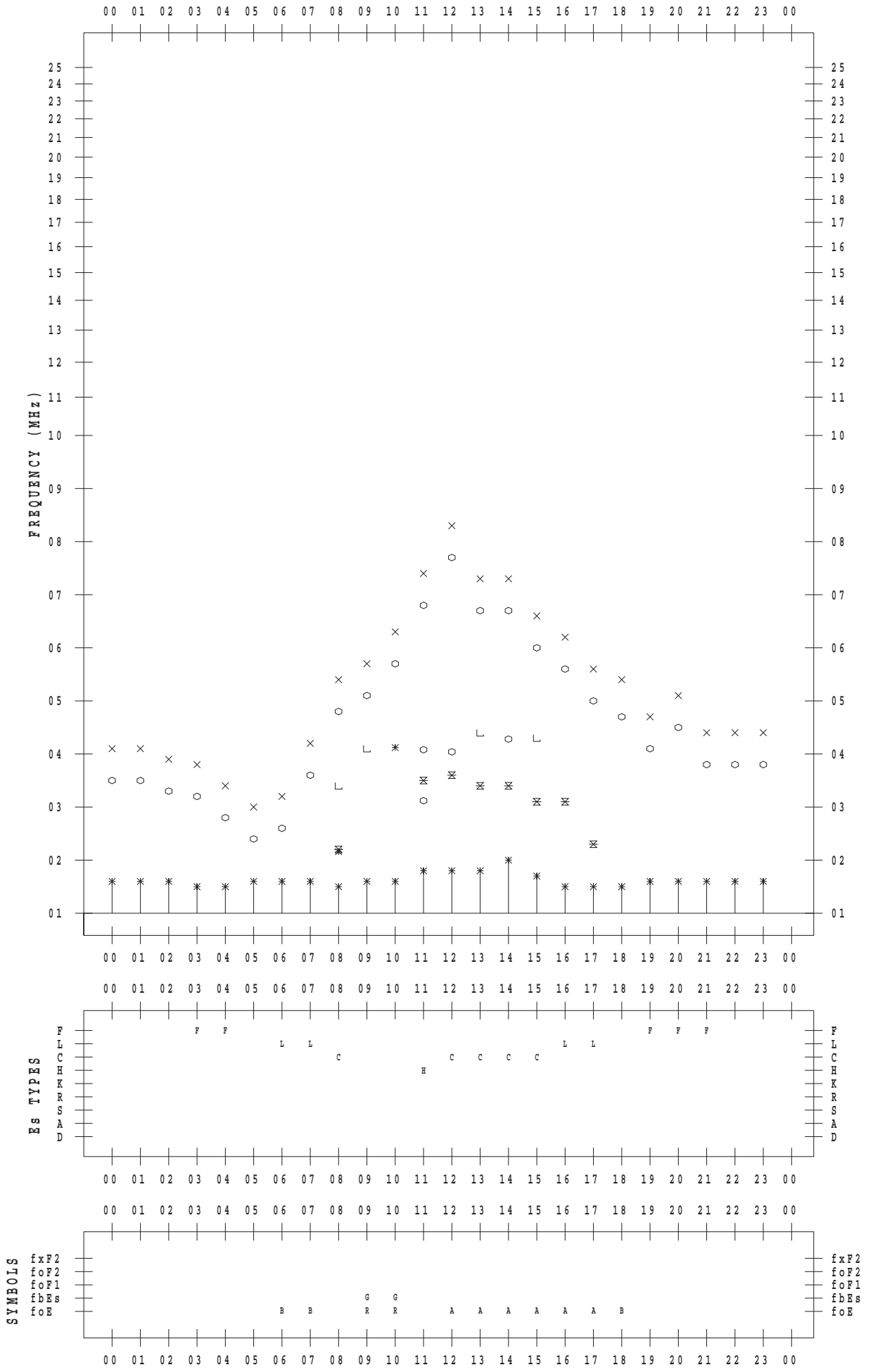
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2018/ 2/17

135 °E MEAN TIME



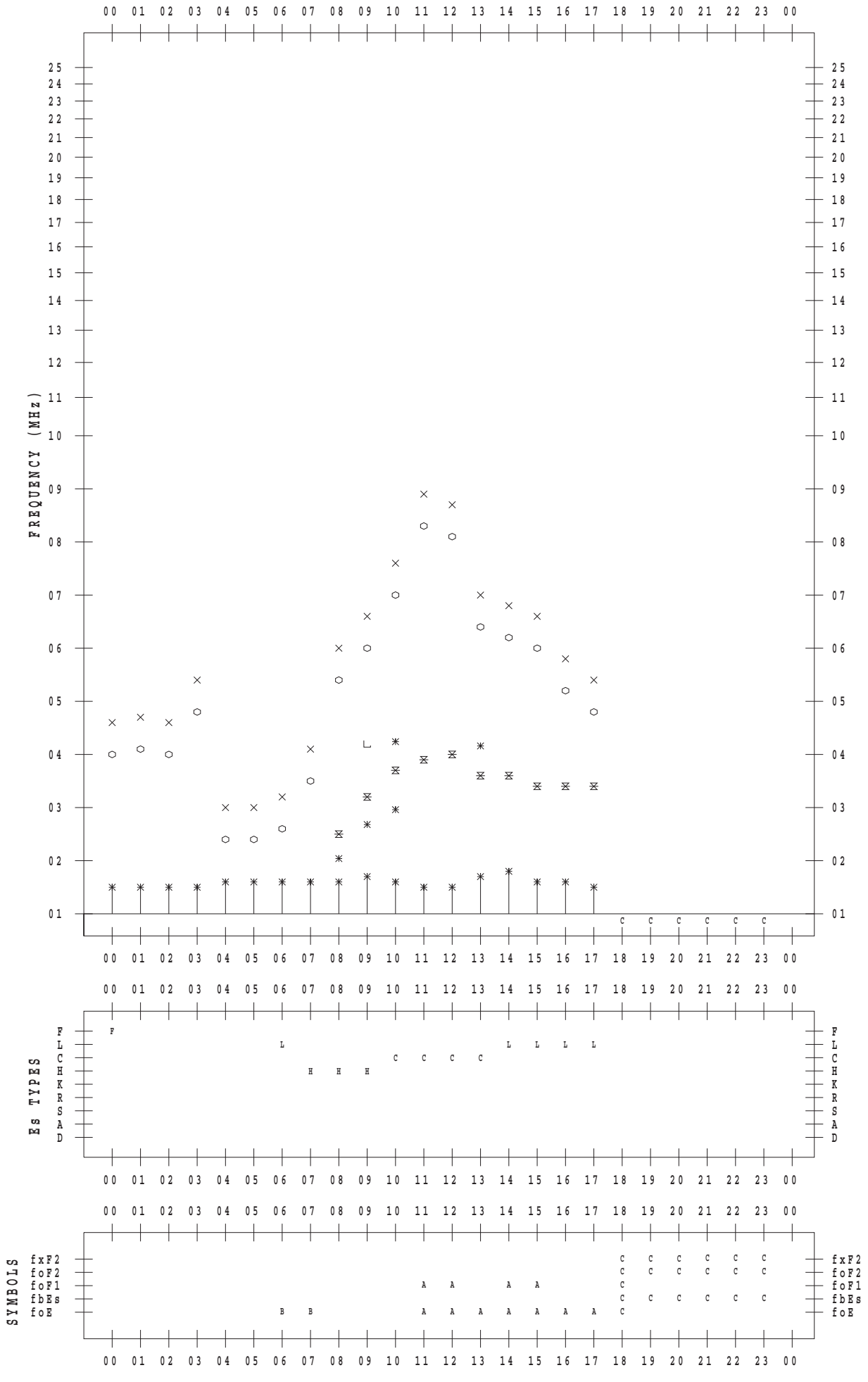
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2018/ 2/18

135 °E MEAN TIME



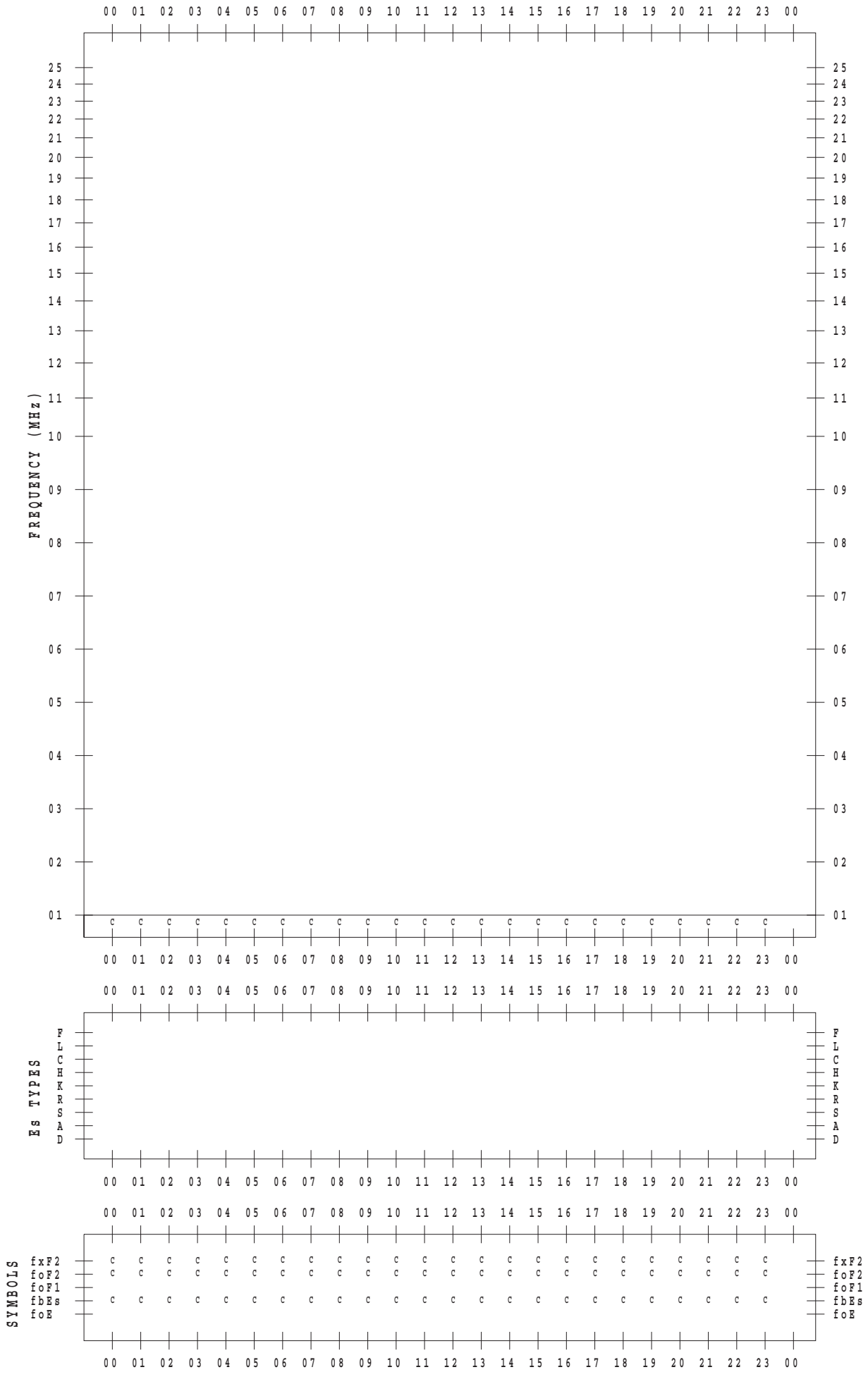
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2018/ 2/19

135 °E MEAN TIME



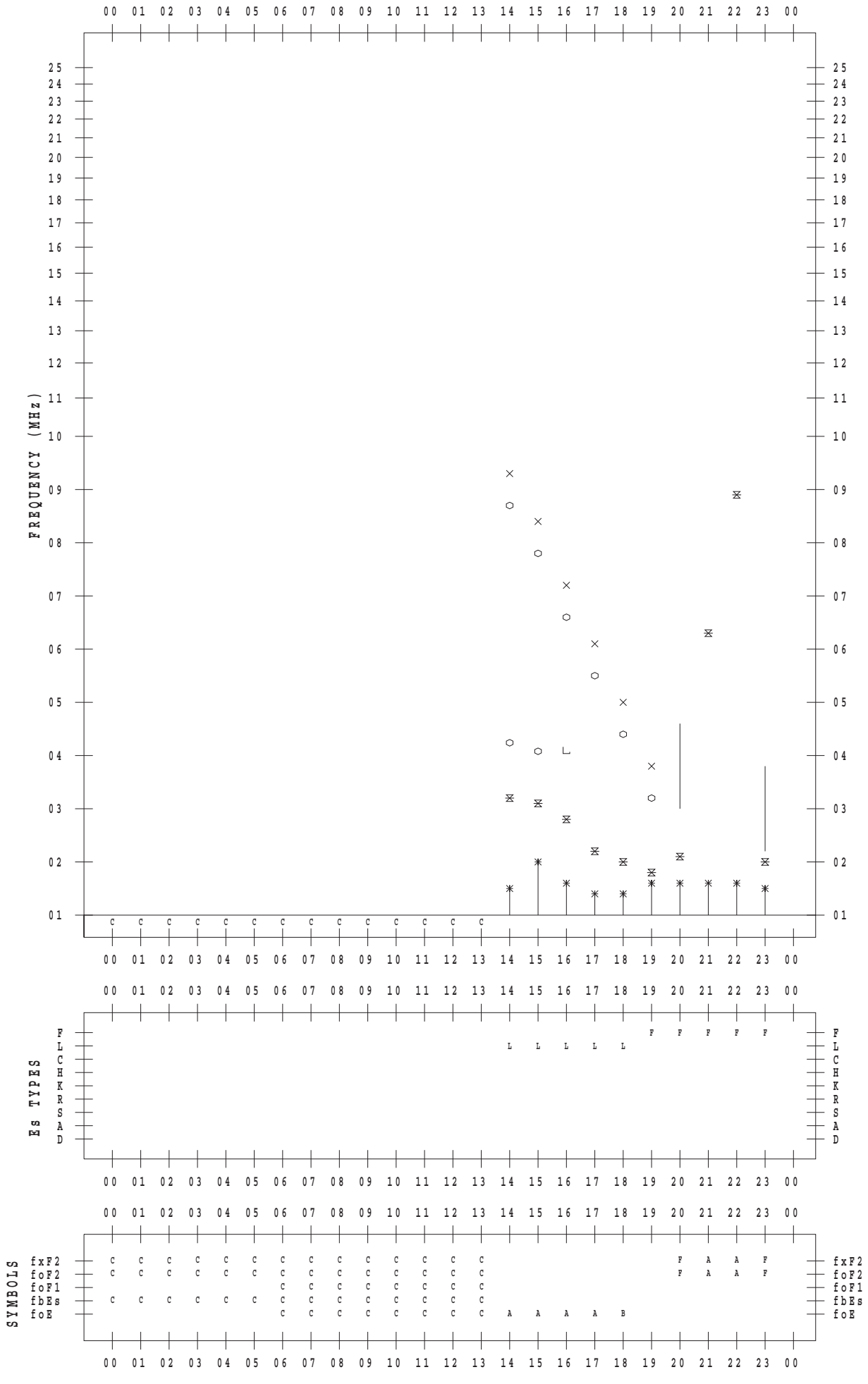
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2018/ 2/20

135 °E MEAN TIME



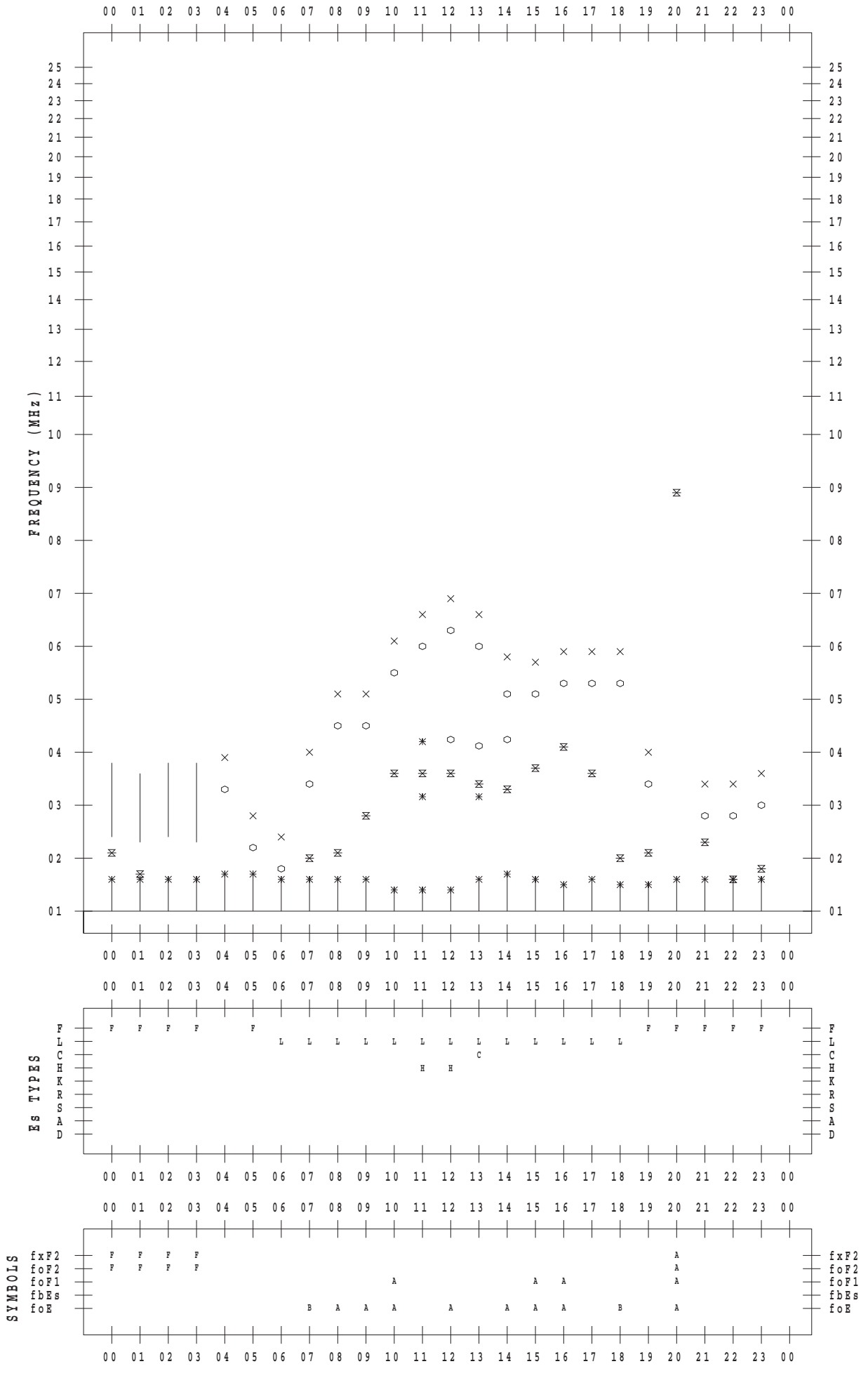
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2018/ 2/21

135 °E MEAN TIME



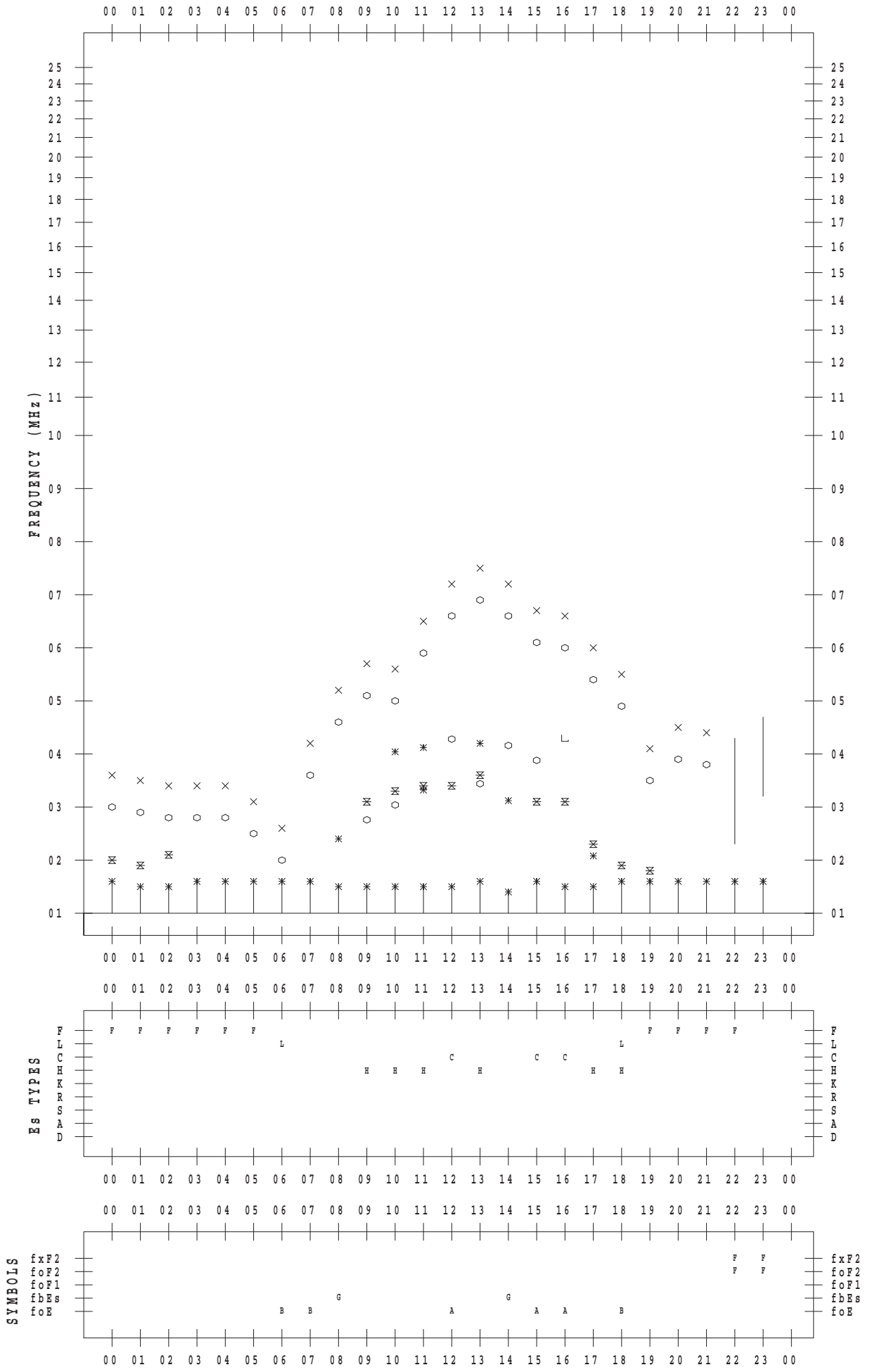
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2018/ 2/22

135 °E MEAN TIME



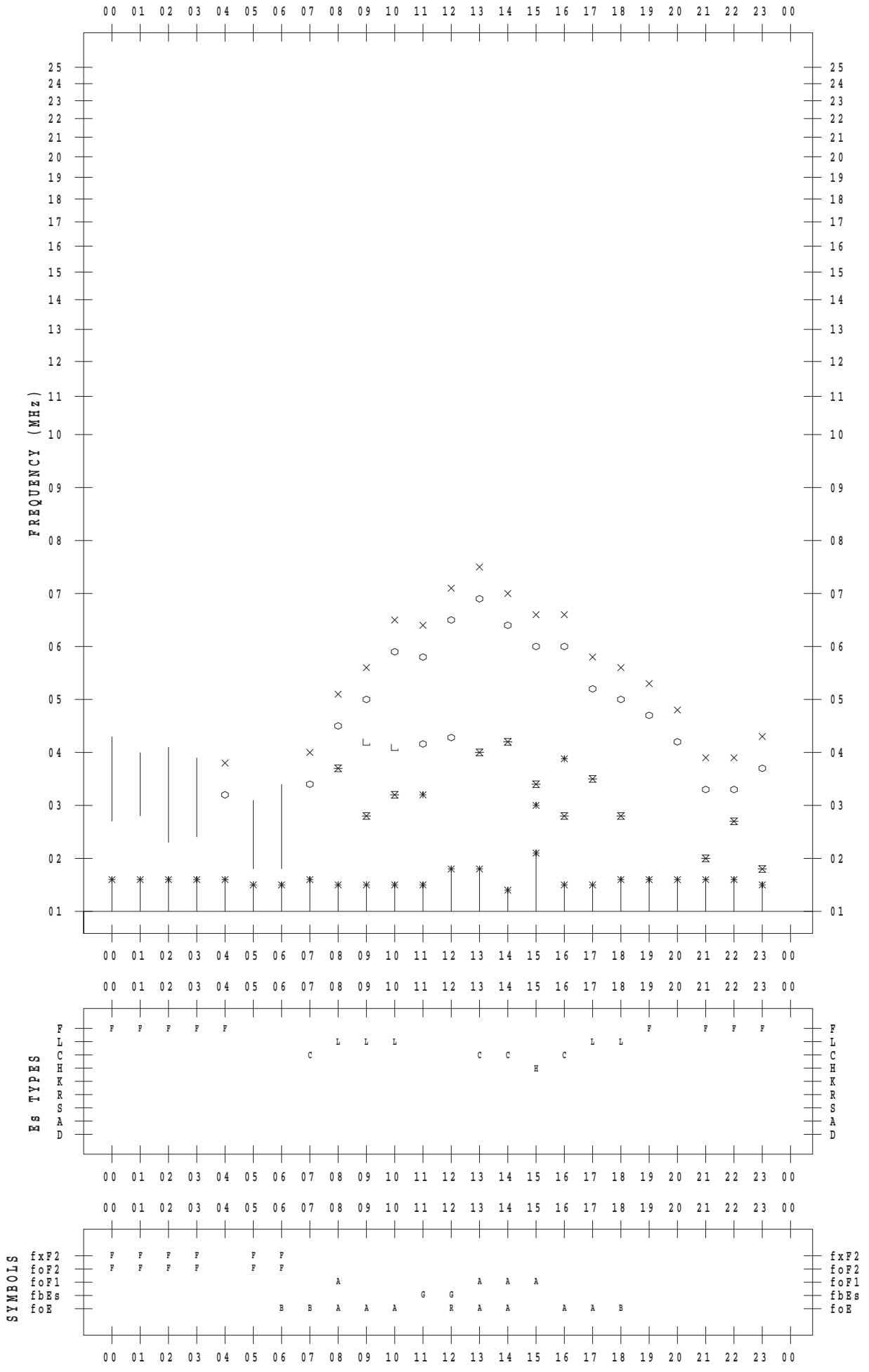
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2018/ 2/23

135 °E MEAN TIME



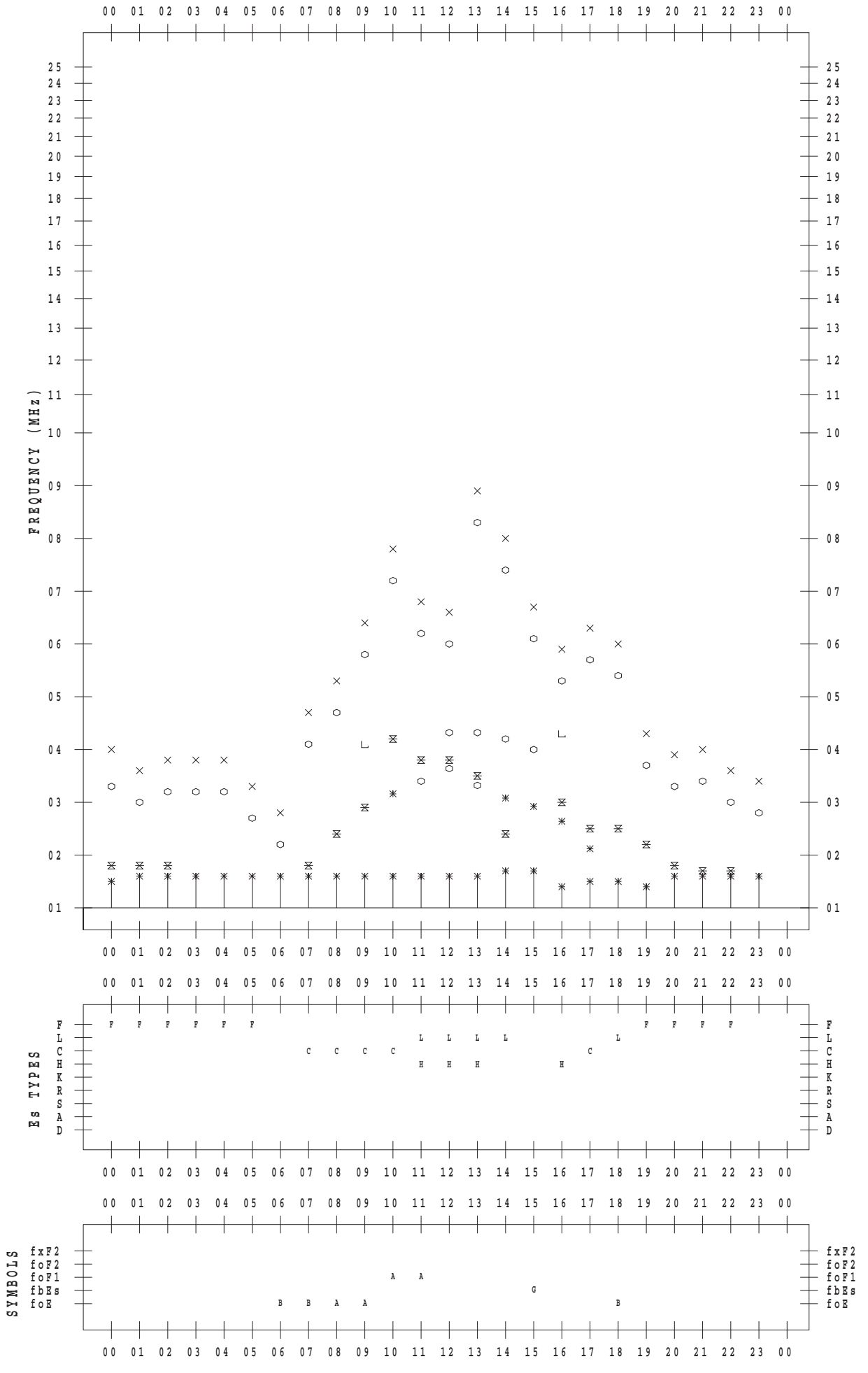
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2018/ 2/24

135 °E MEAN TIME



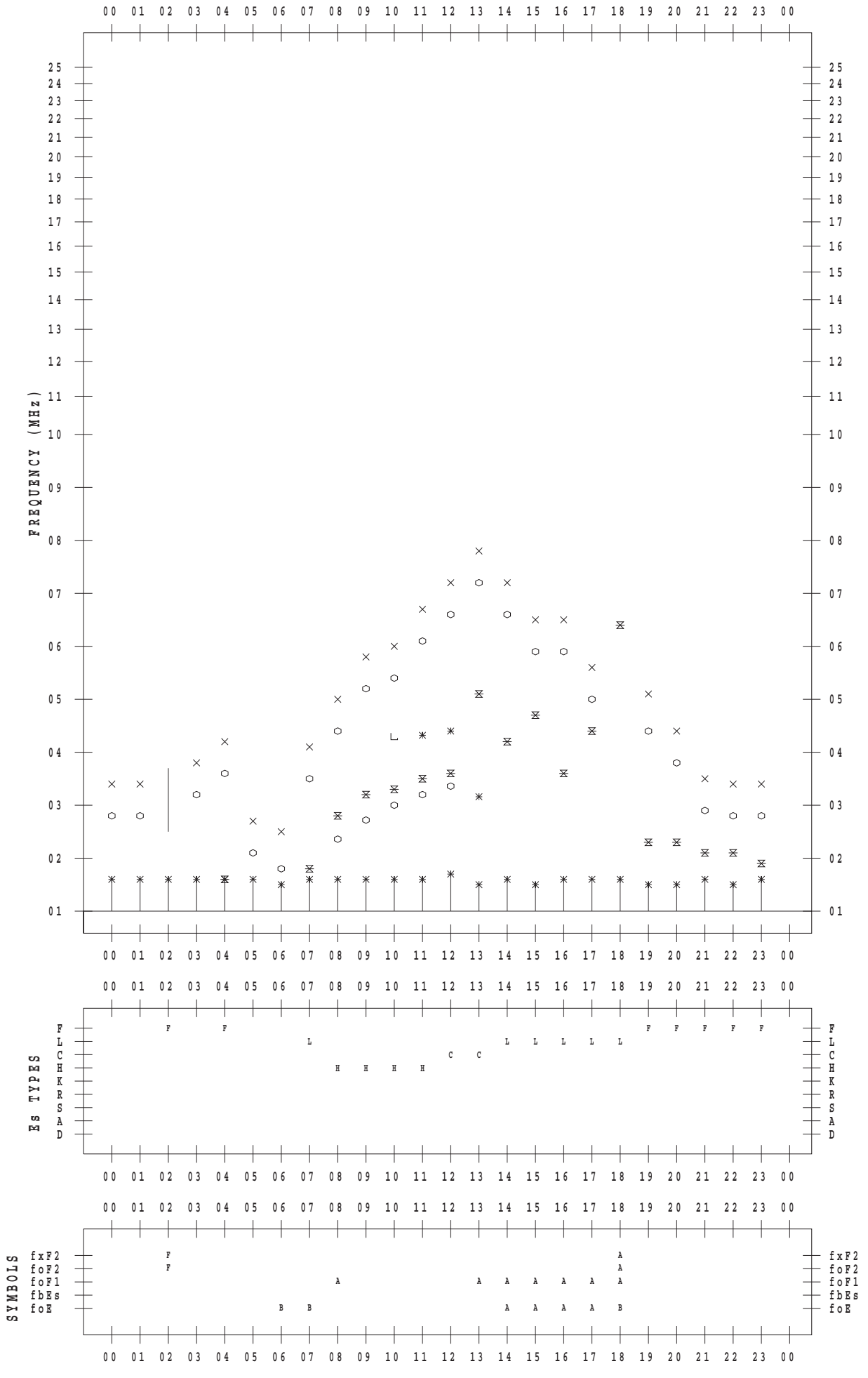
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2018/ 2/25

135 °E MEAN TIME



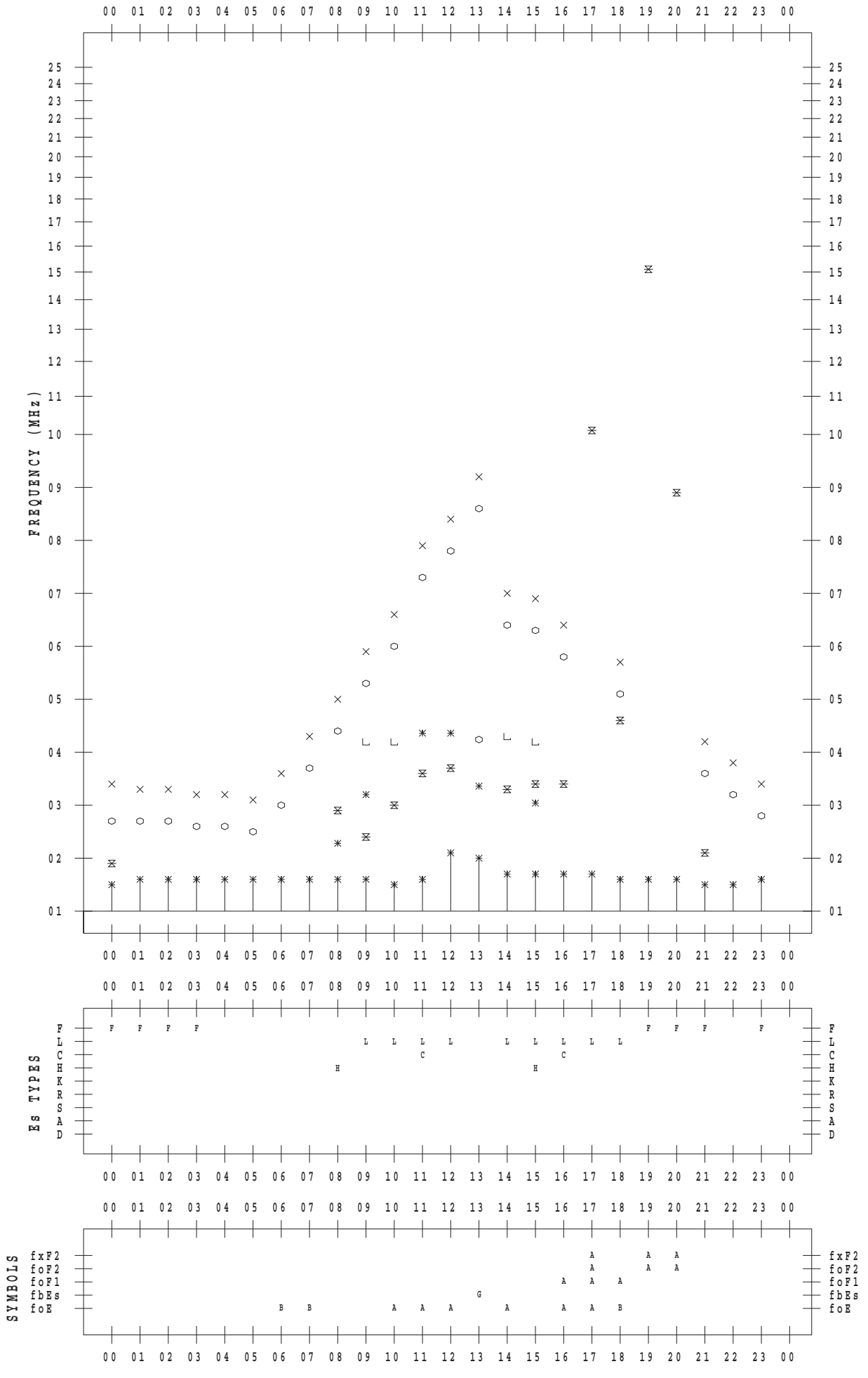
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2018/ 2/26

135 °E MEAN TIME



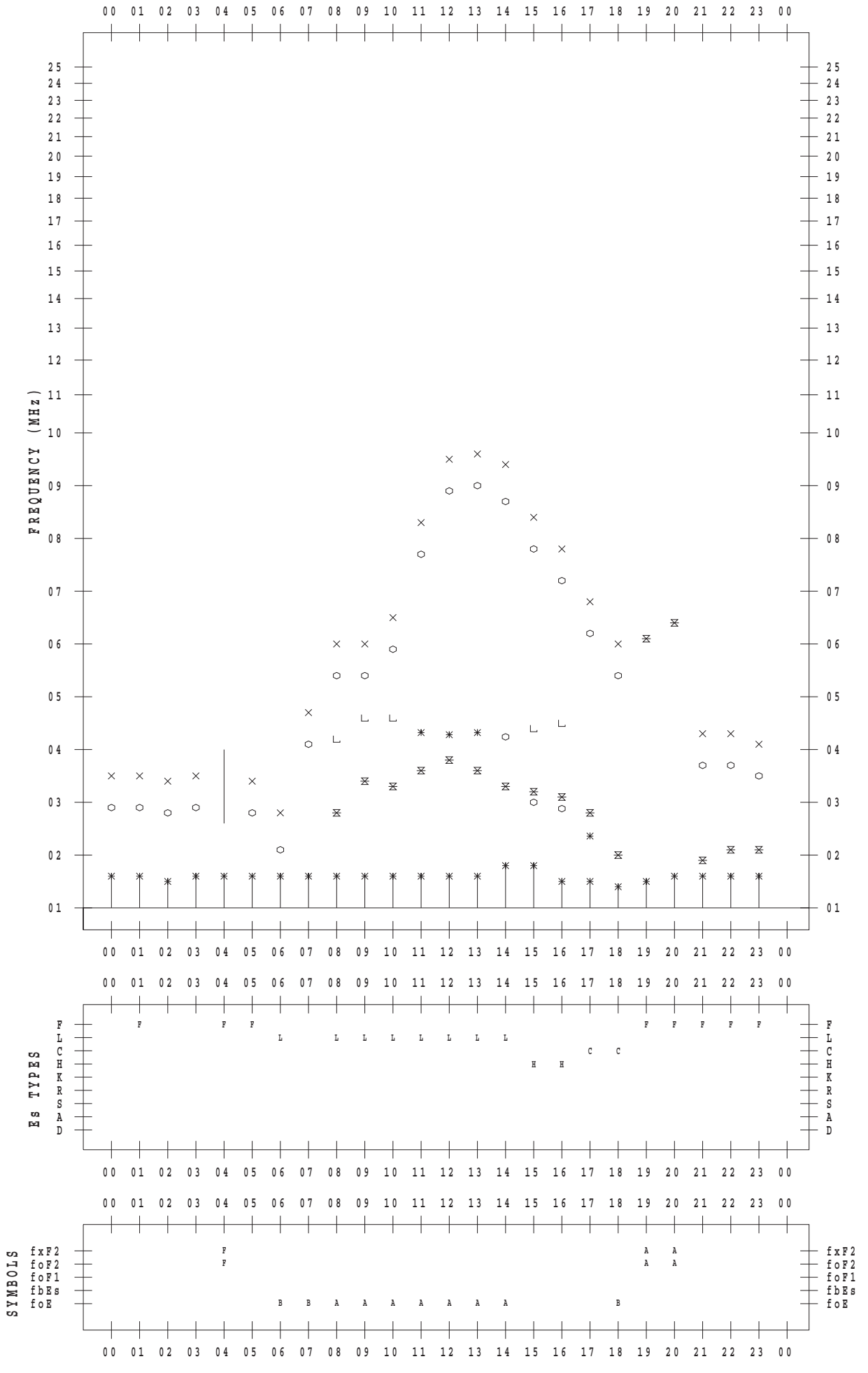
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2018/ 2/27

135 °E MEAN TIME



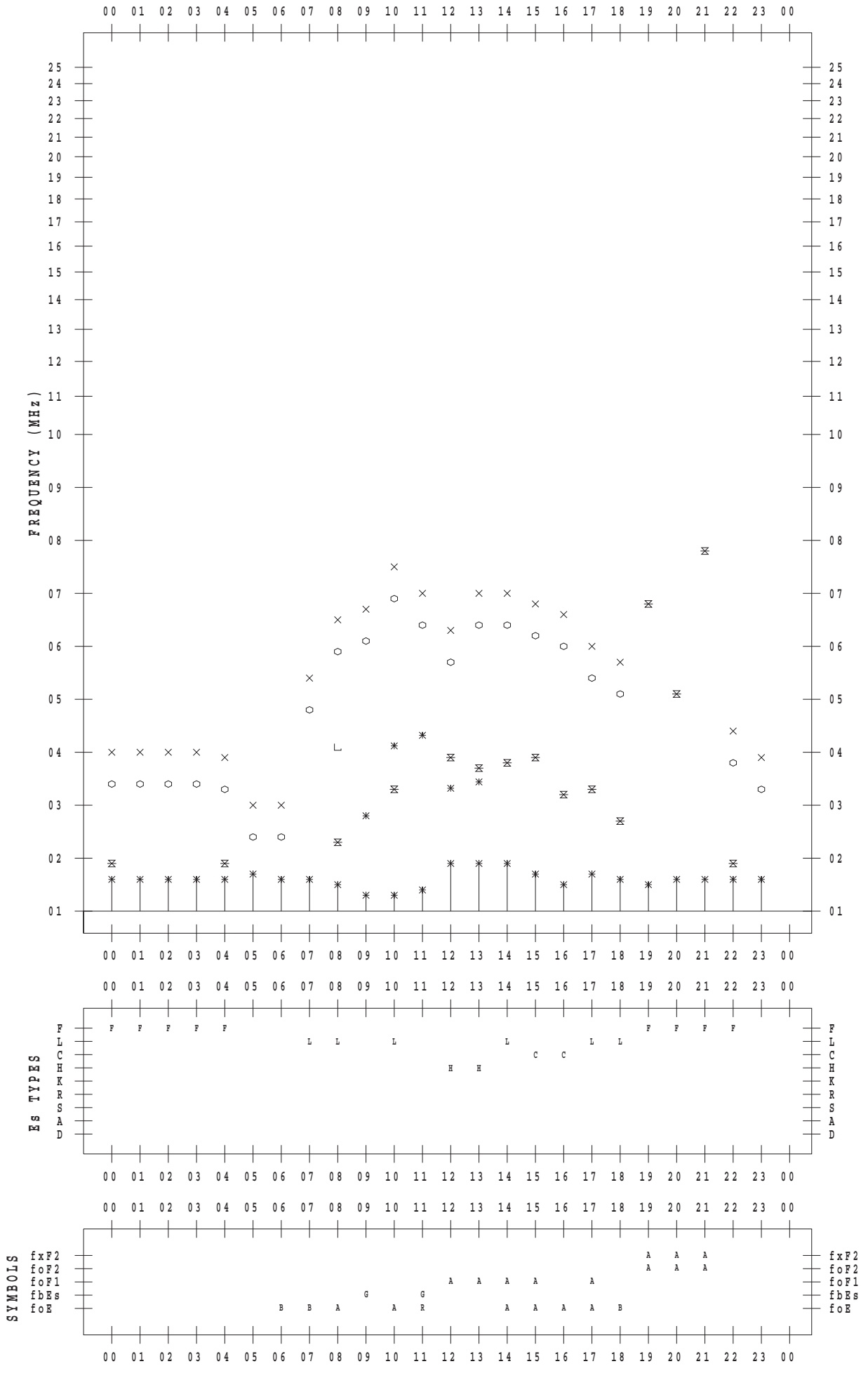
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Yamagawa

DATE : 2018/ 2/28

135 °E MEAN TIME



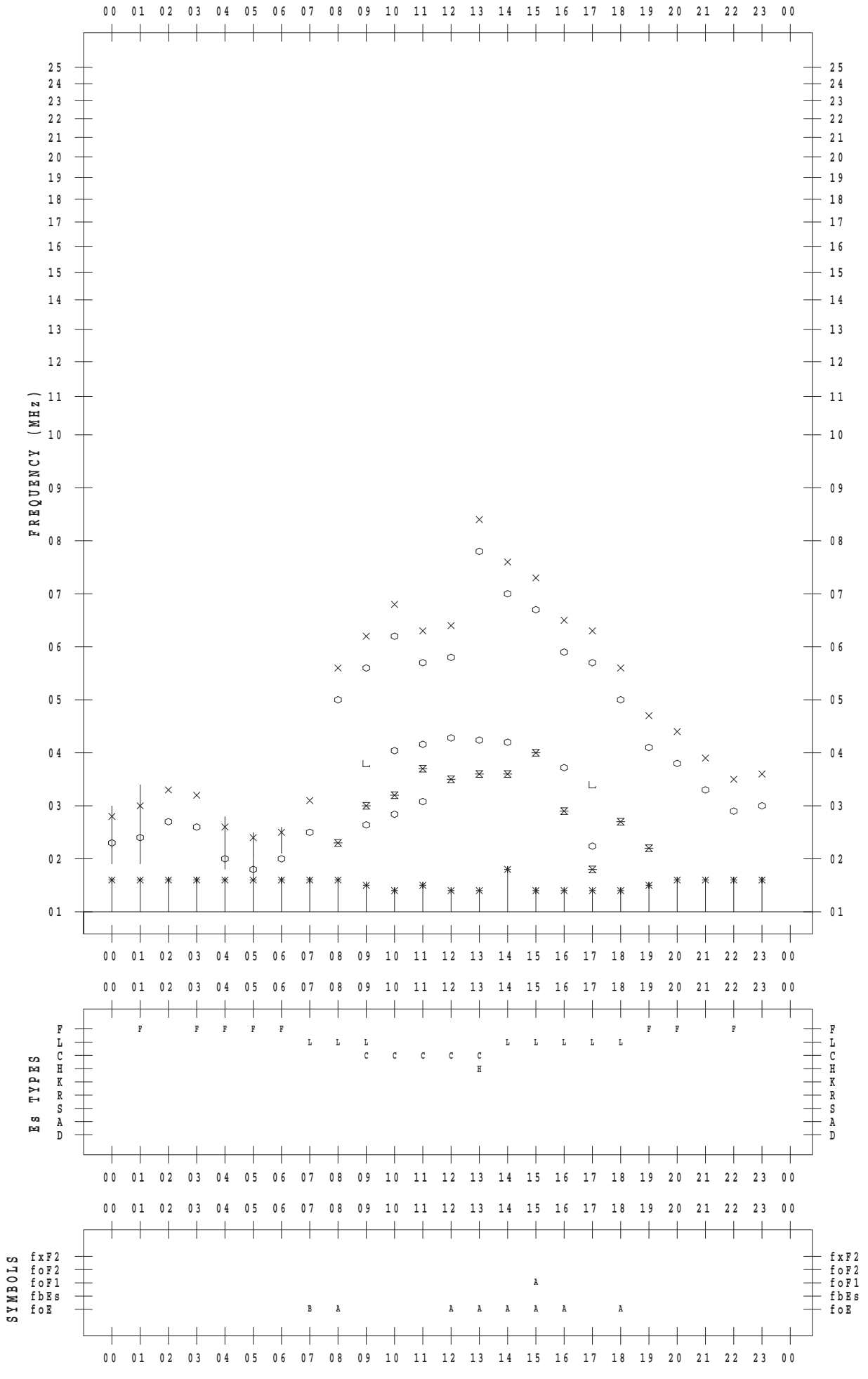
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2018/ 2/ 1

135 °E MEAN TIME



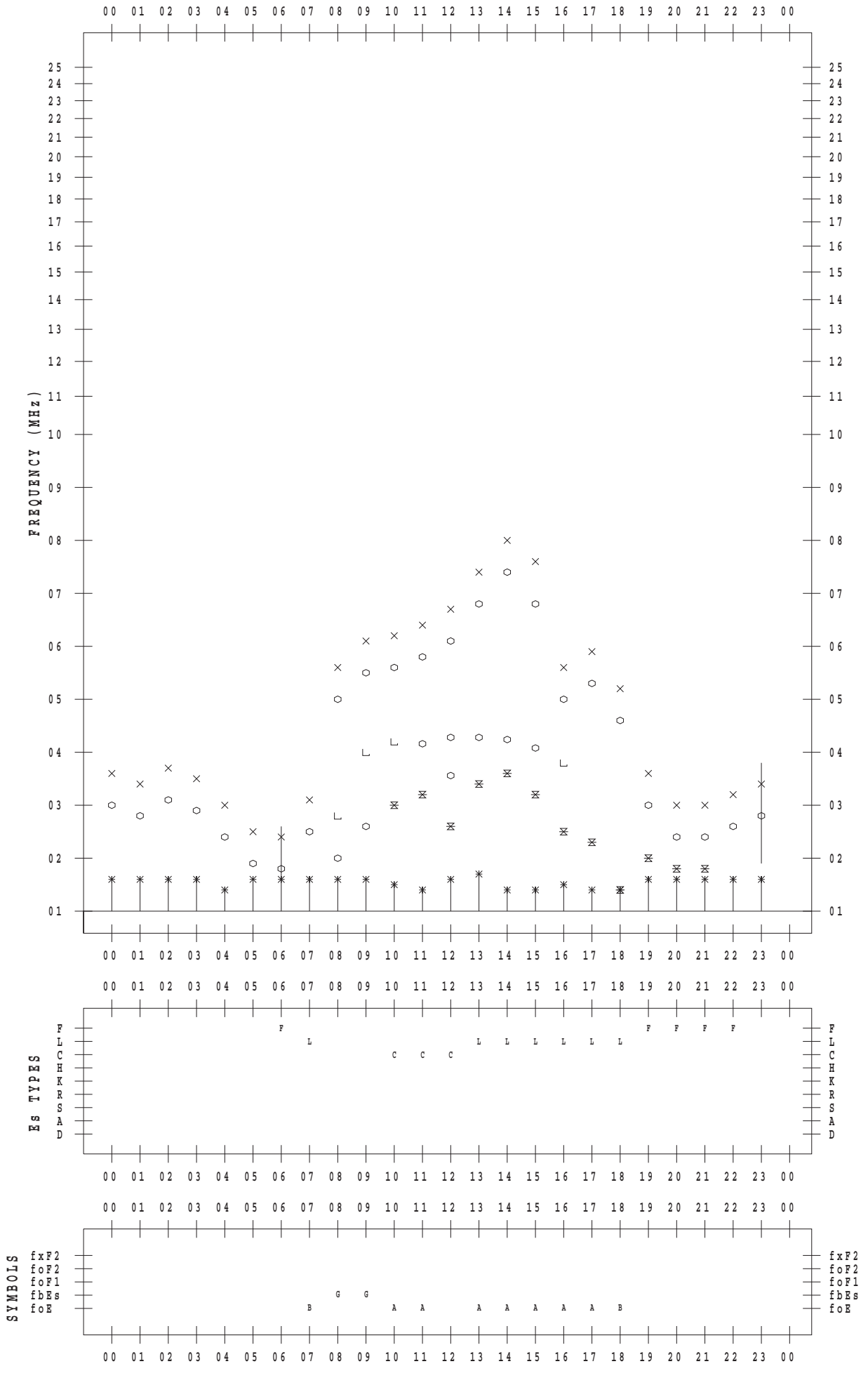
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2018/ 2/ 2

135 °E MEAN TIME



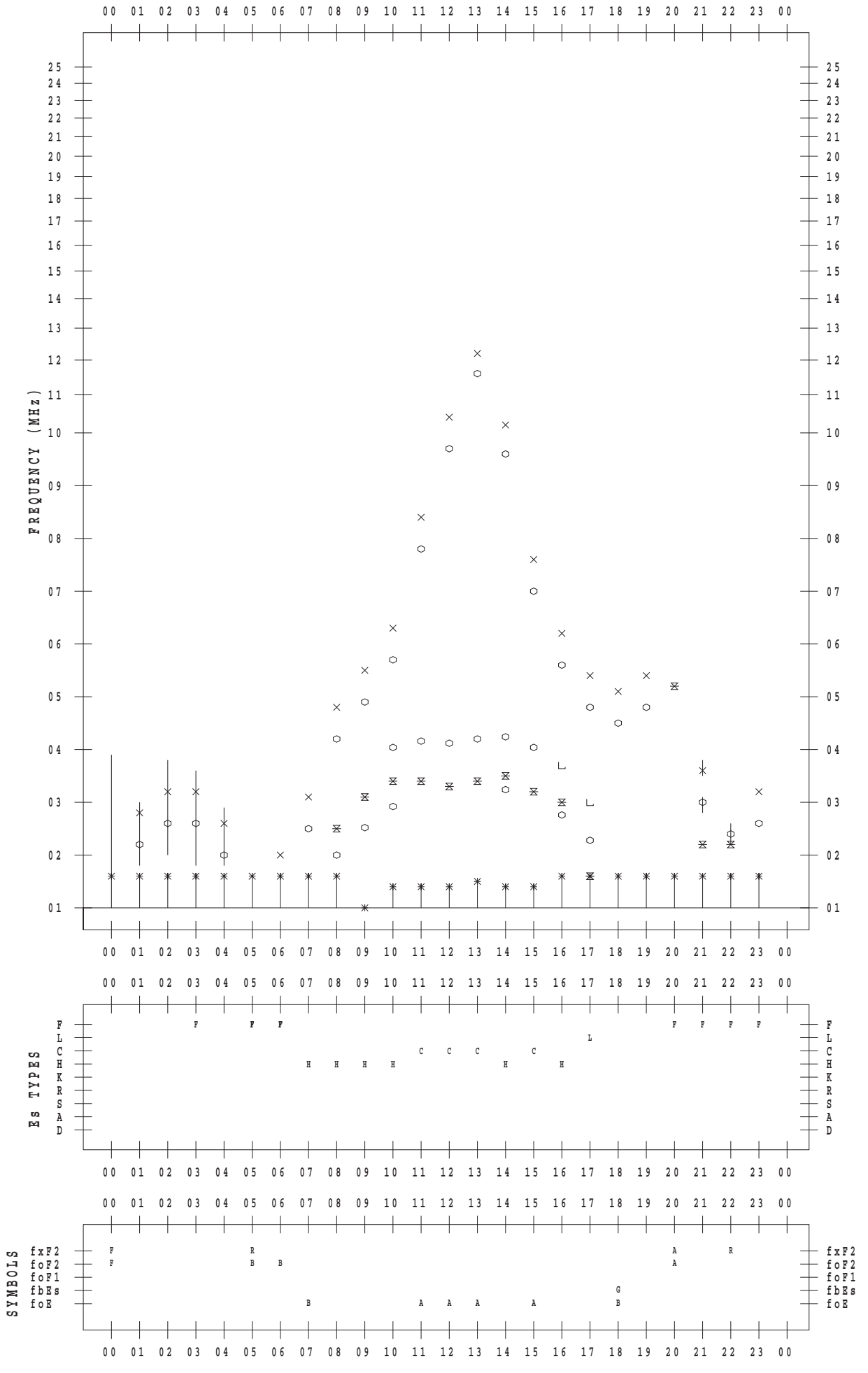
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2018/ 2/ 3

135 °E MEAN TIME



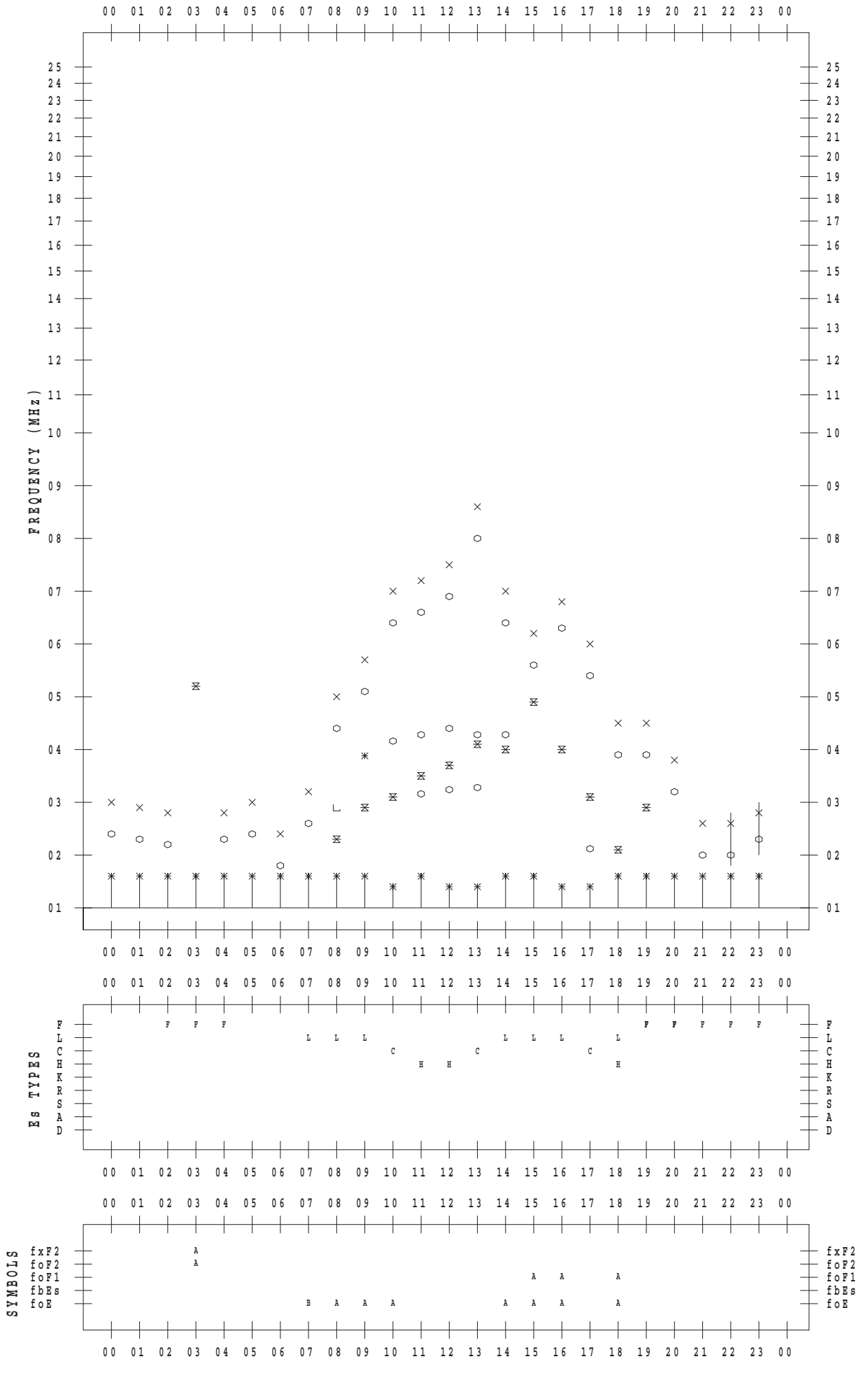
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2018/ 2/ 4

135 °E MEAN TIME



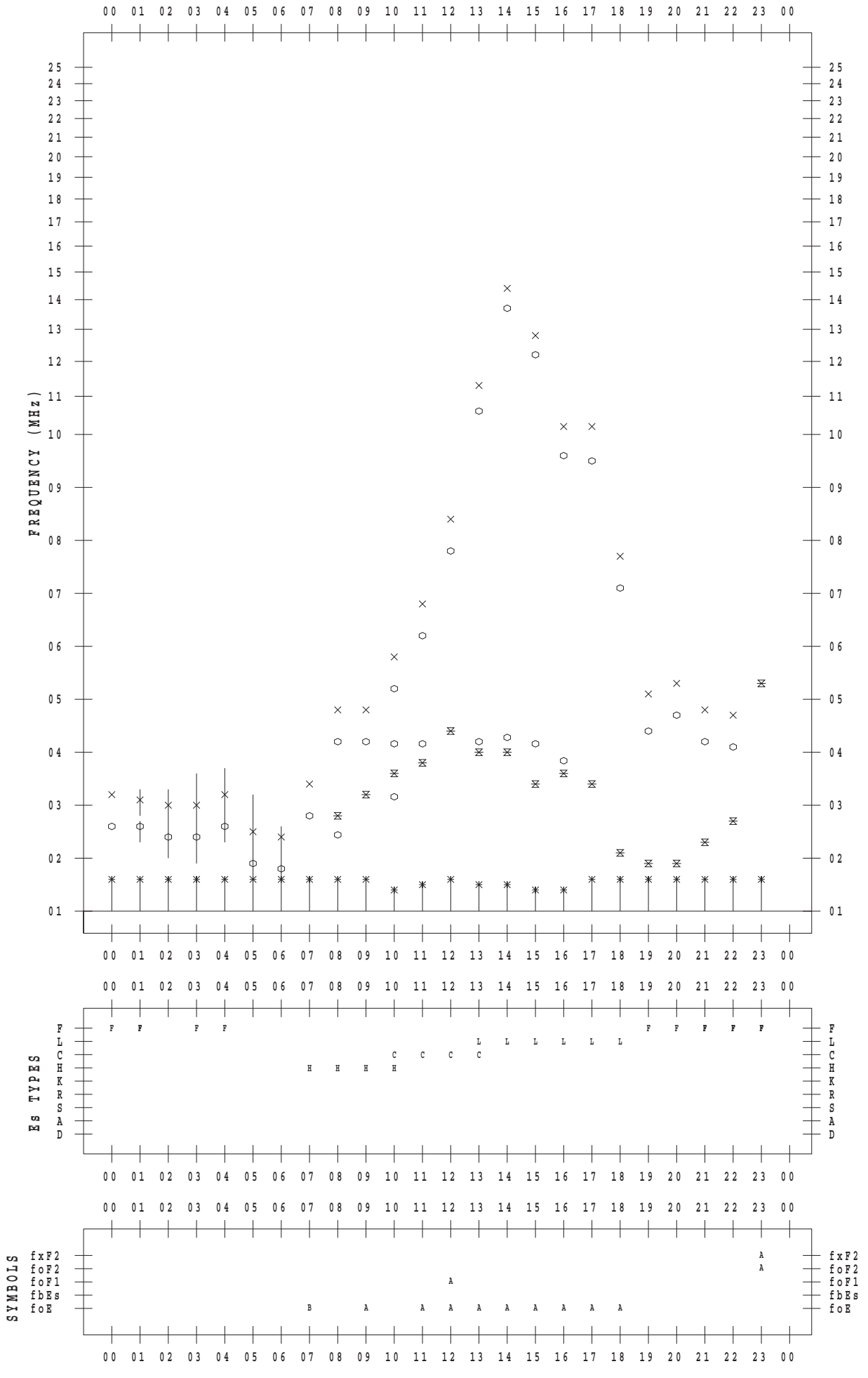
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2018/ 2/ 5

135 °E MEAN TIME



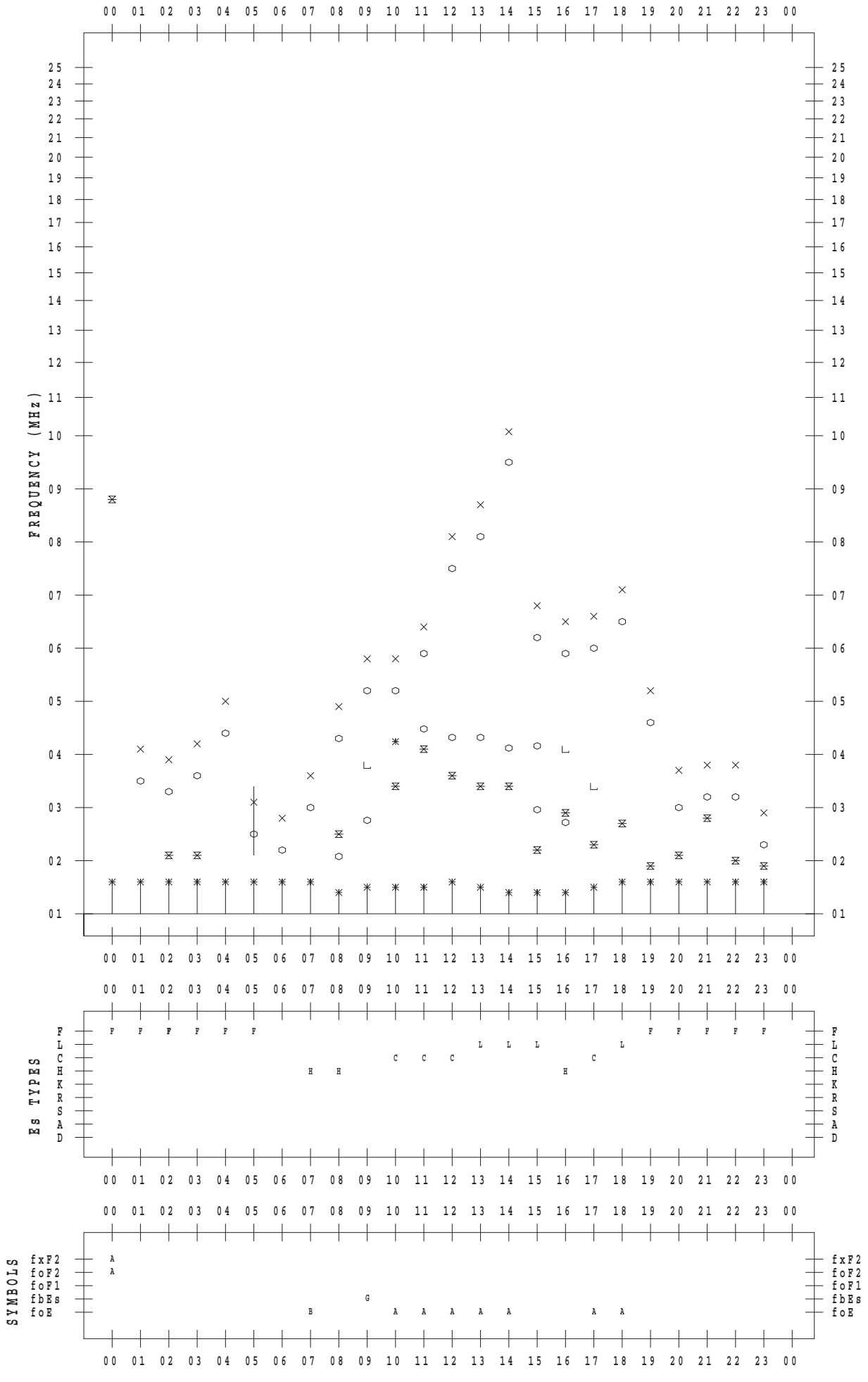
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2018/ 2/ 6

135 °E MEAN TIME



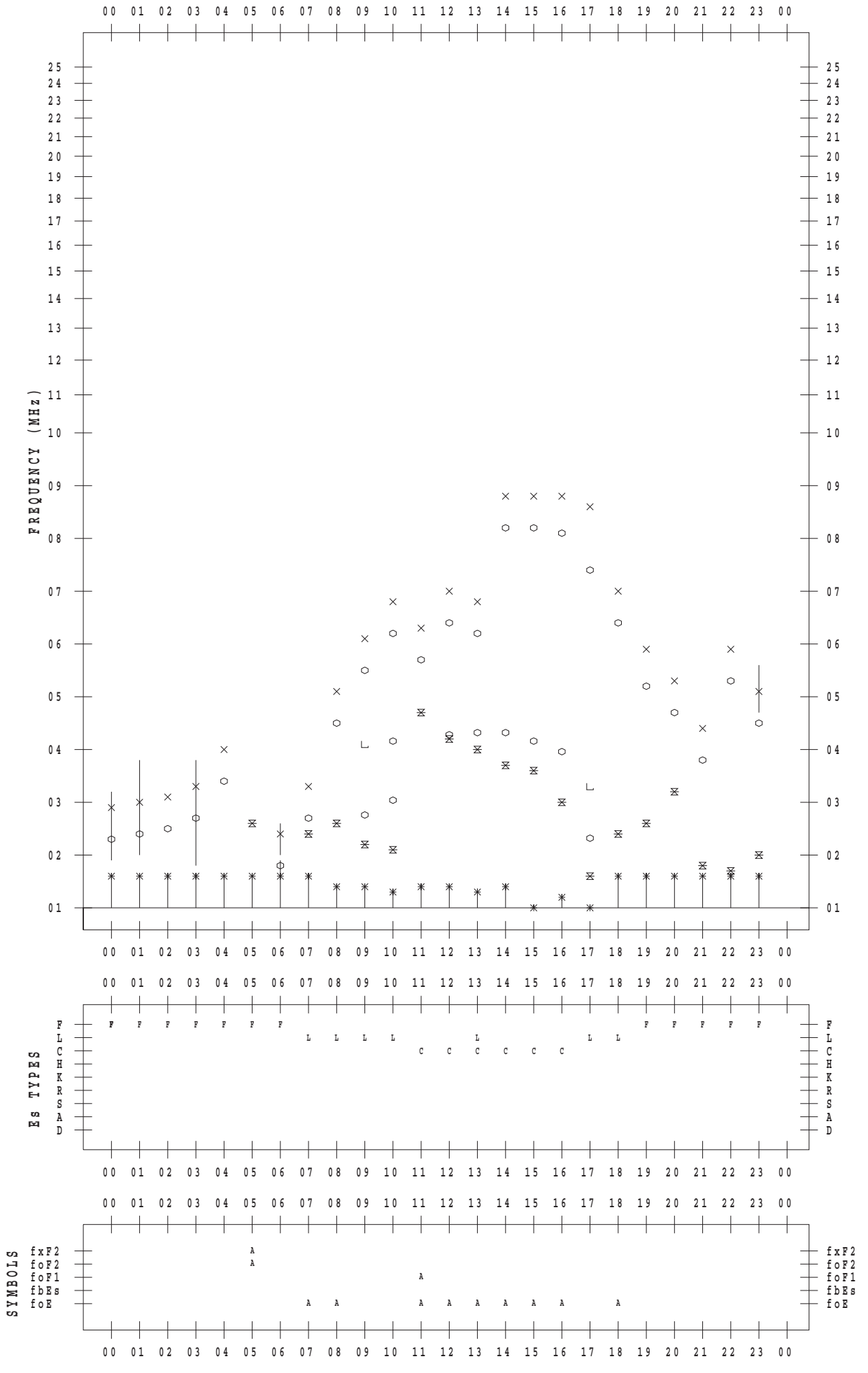
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2018/ 2/ 7

135 °E MEAN TIME



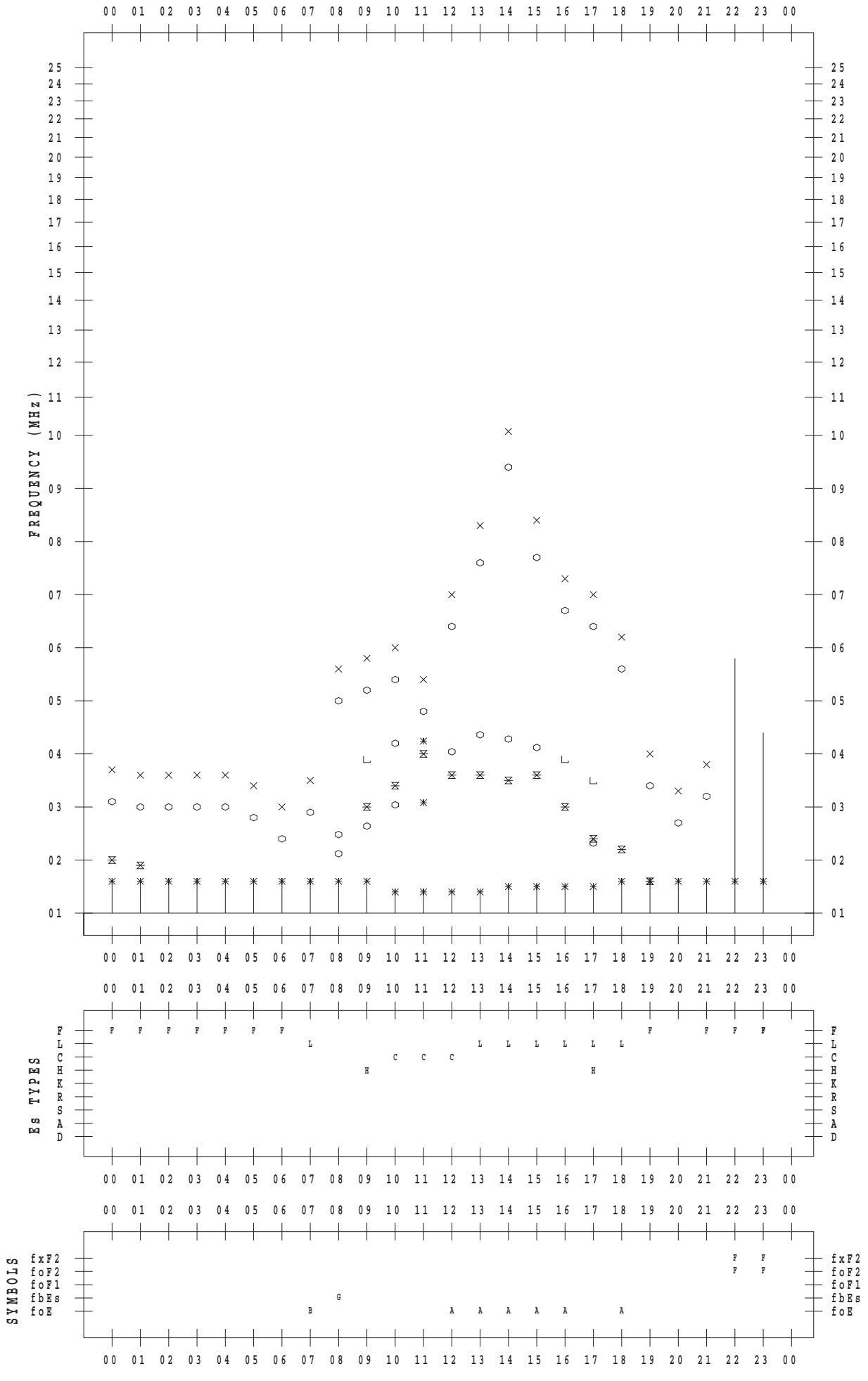
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2018/ 2/ 8

135 °E MEAN TIME



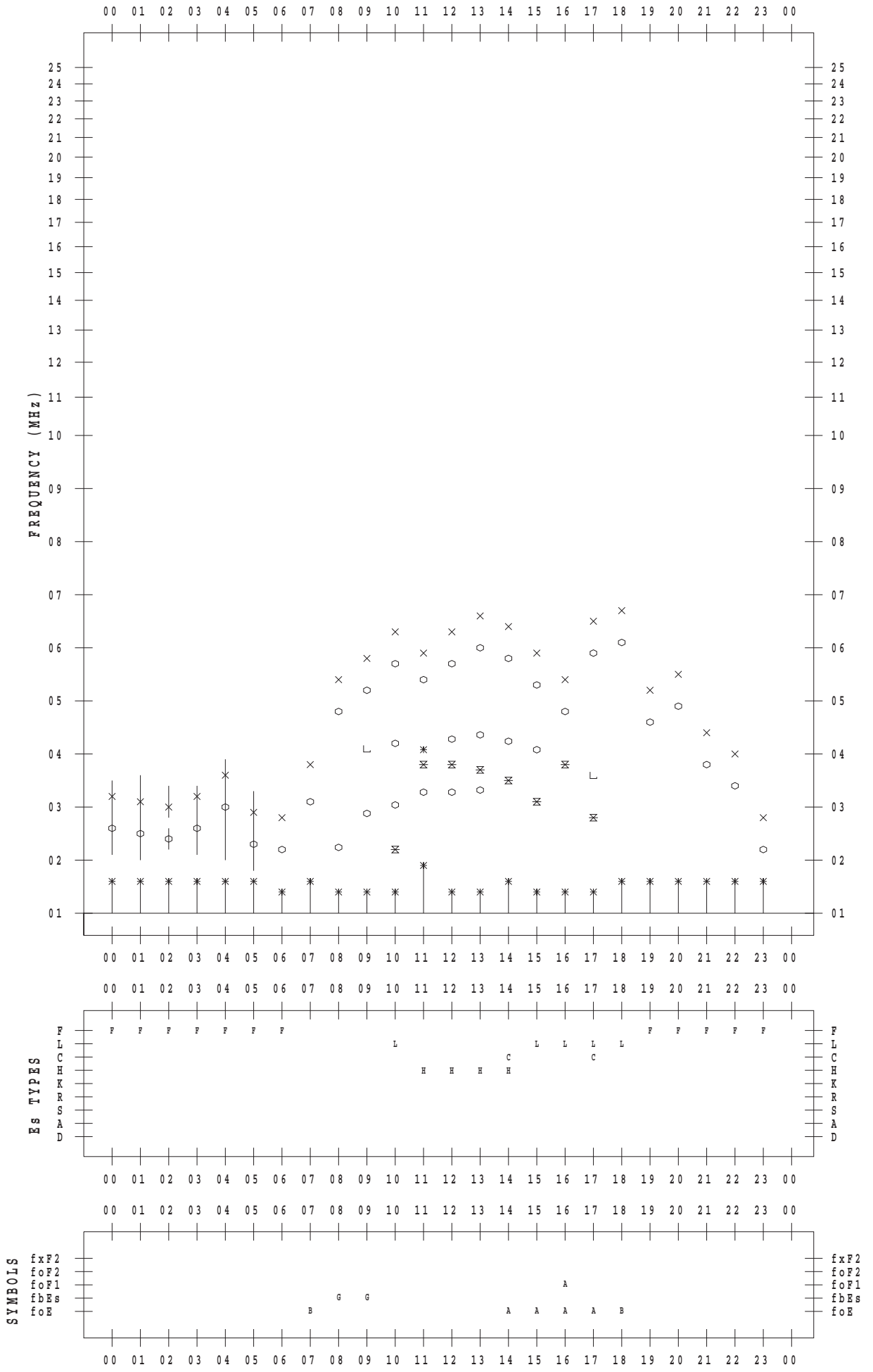
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2018/ 2/ 9

135 °E MEAN TIME



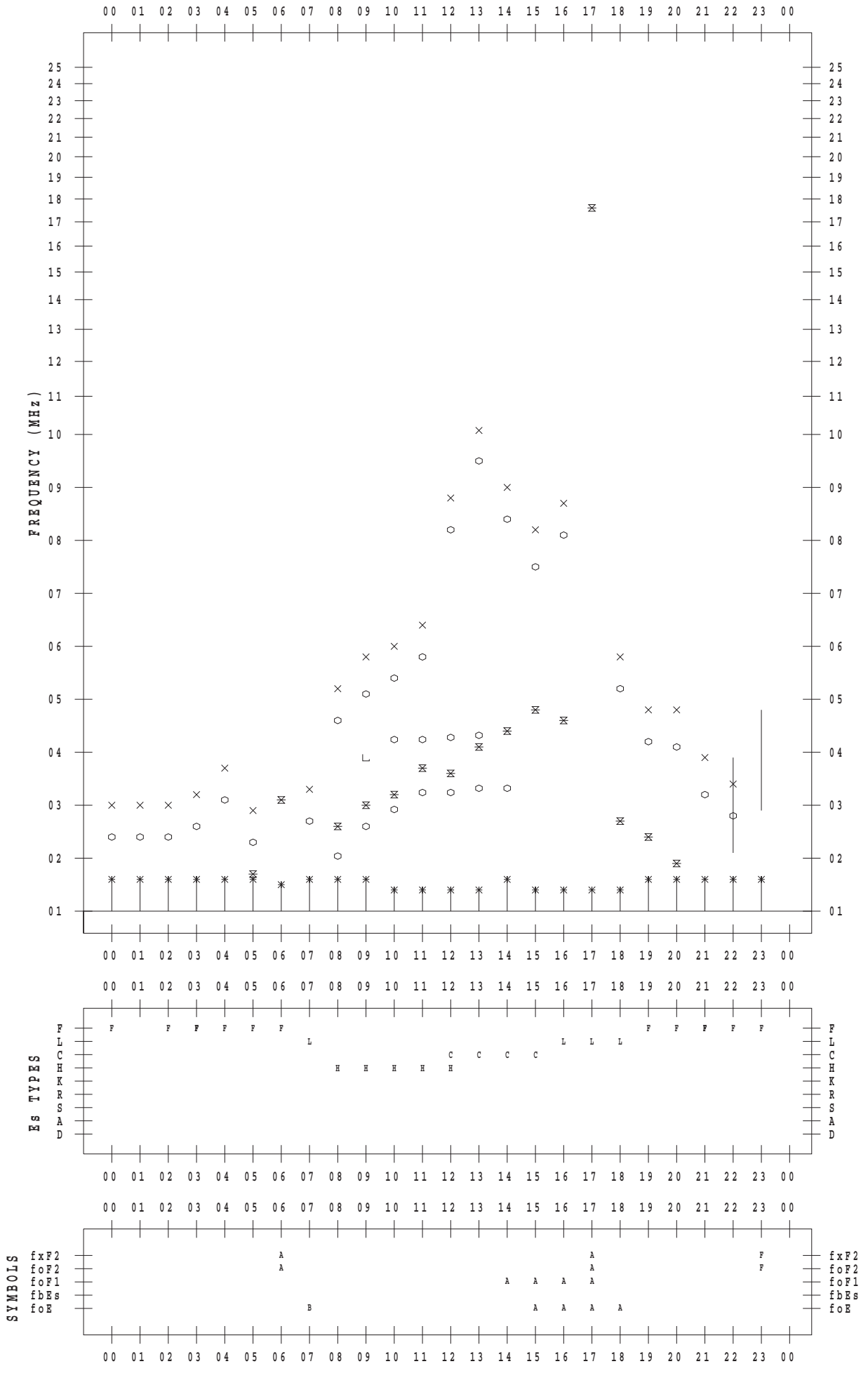
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2018/ 2/10

135 °E MEAN TIME



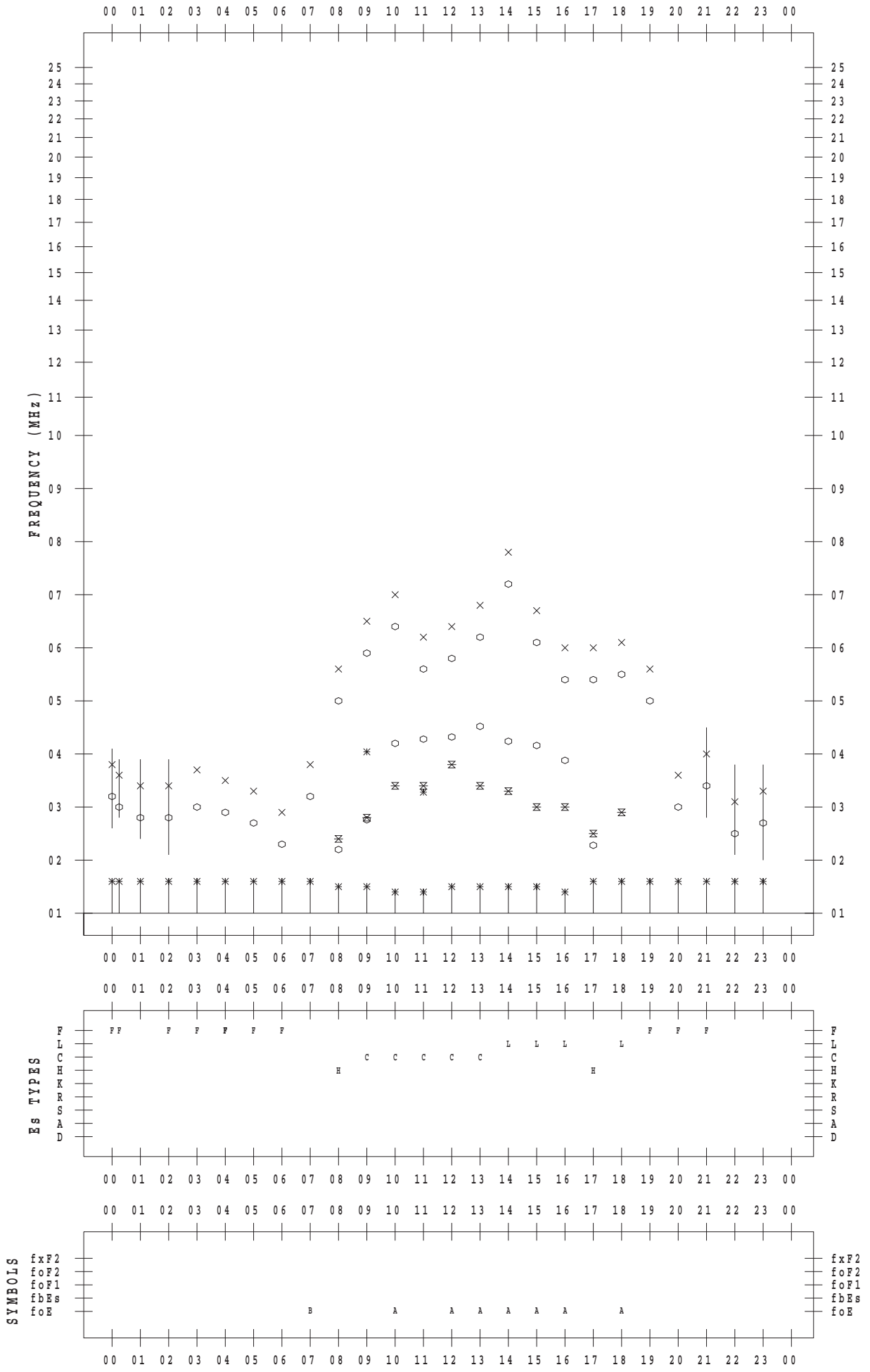
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2018/ 2/11

135 °E MEAN TIME



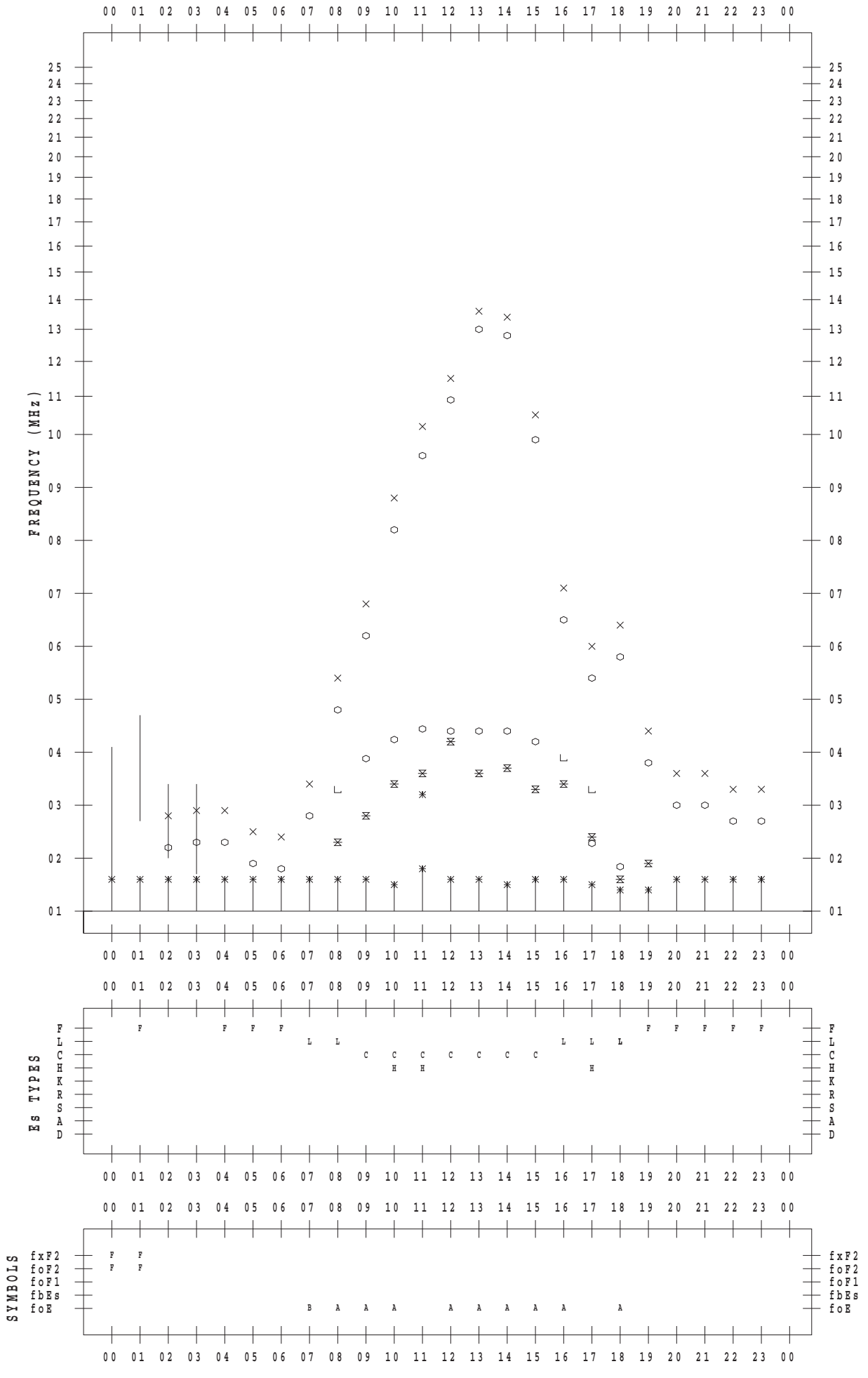
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2018/ 2/12

135 °E MEAN TIME



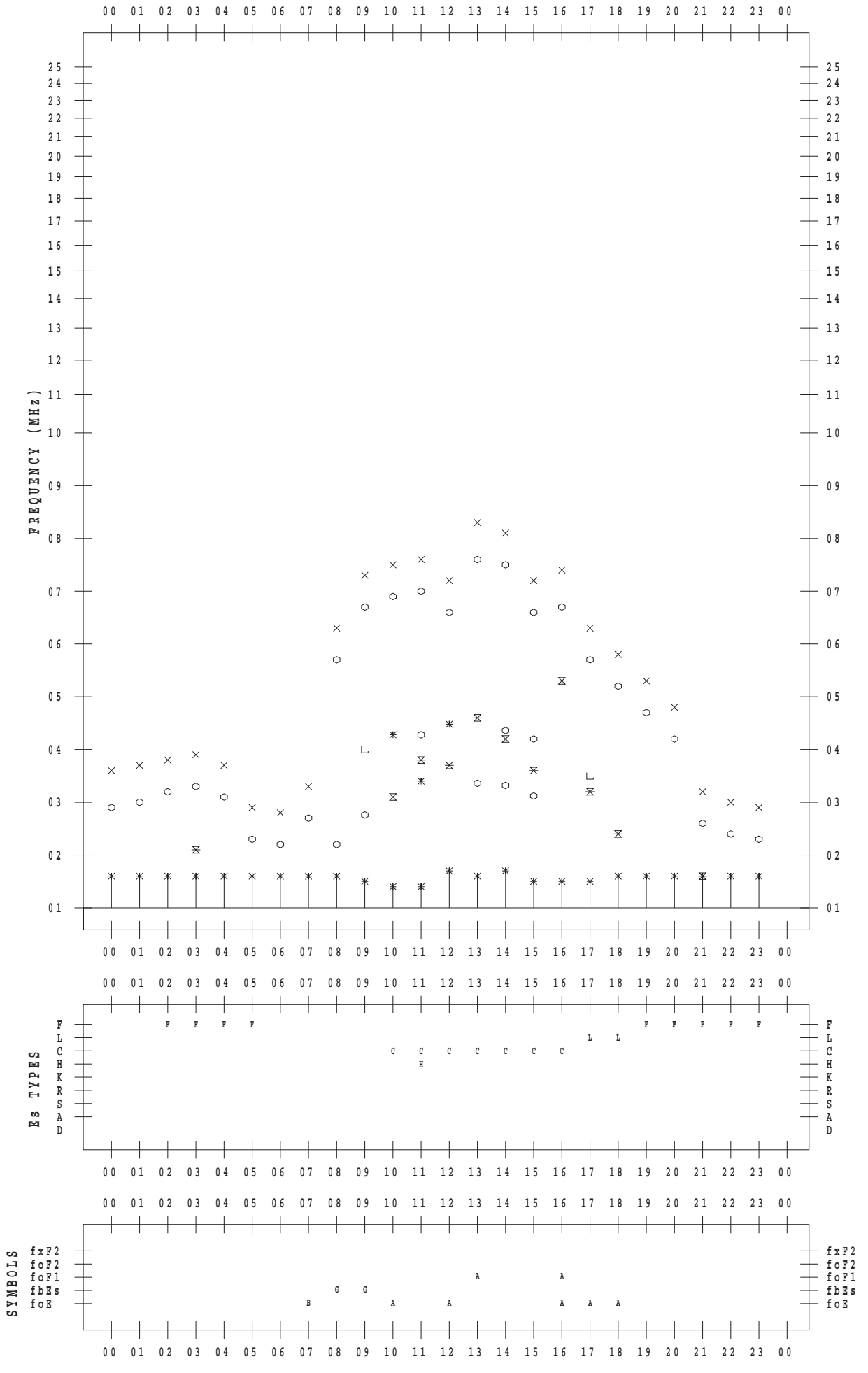
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2018/ 2/13

135 °E MEAN TIME



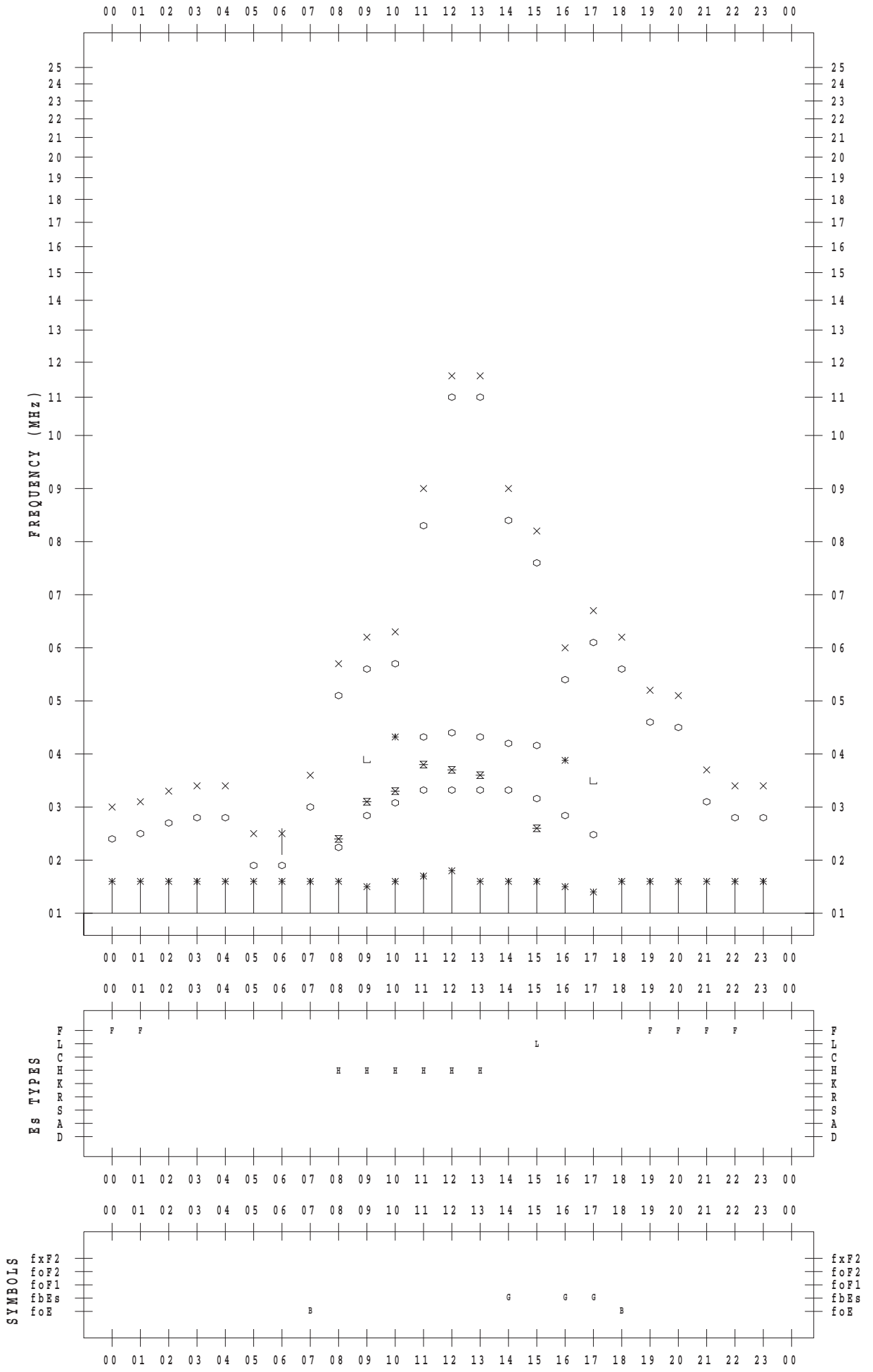
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2018/ 2/14

135 °E MEAN TIME



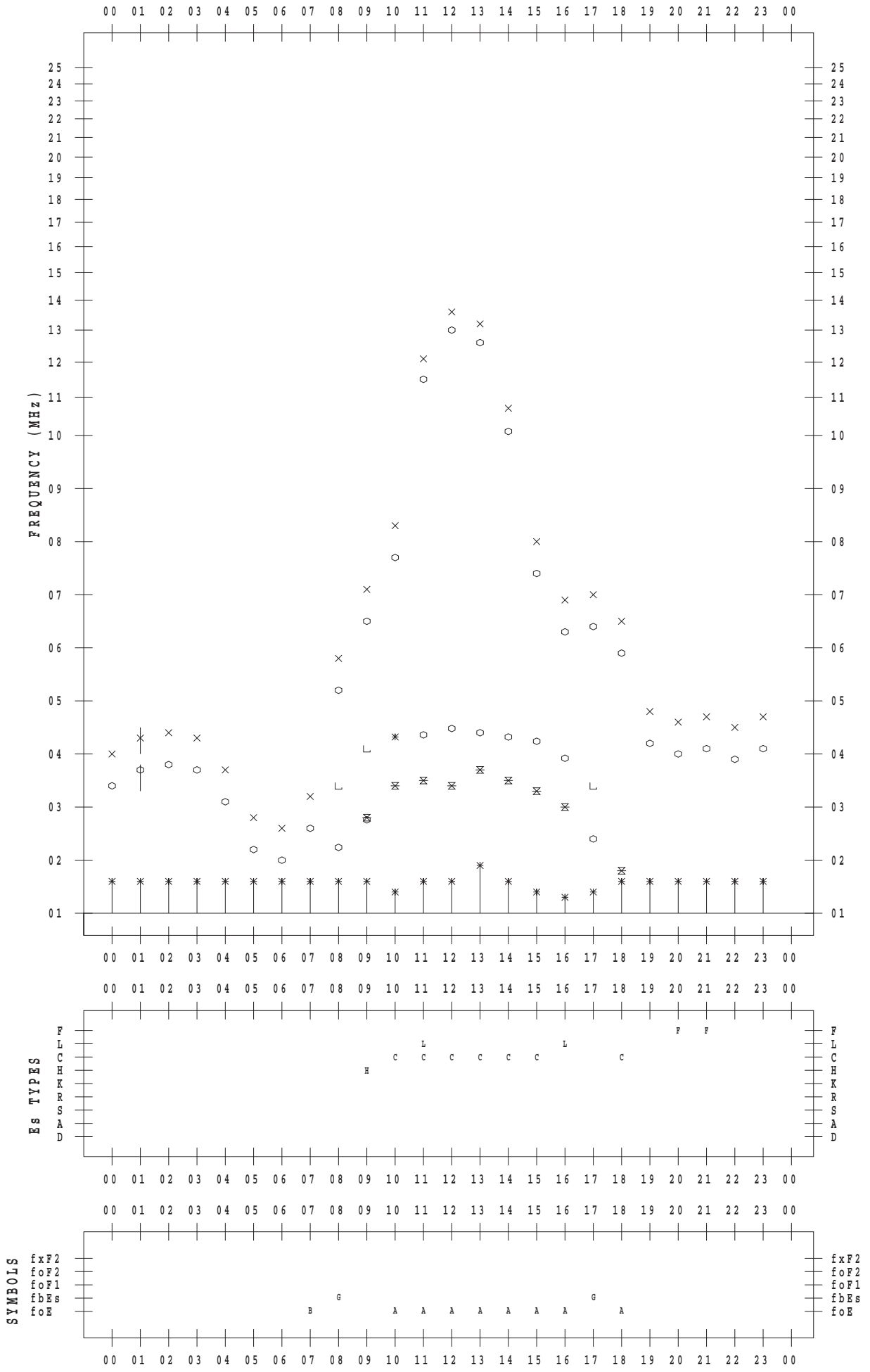
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2018/ 2/15

135 °E MEAN TIME



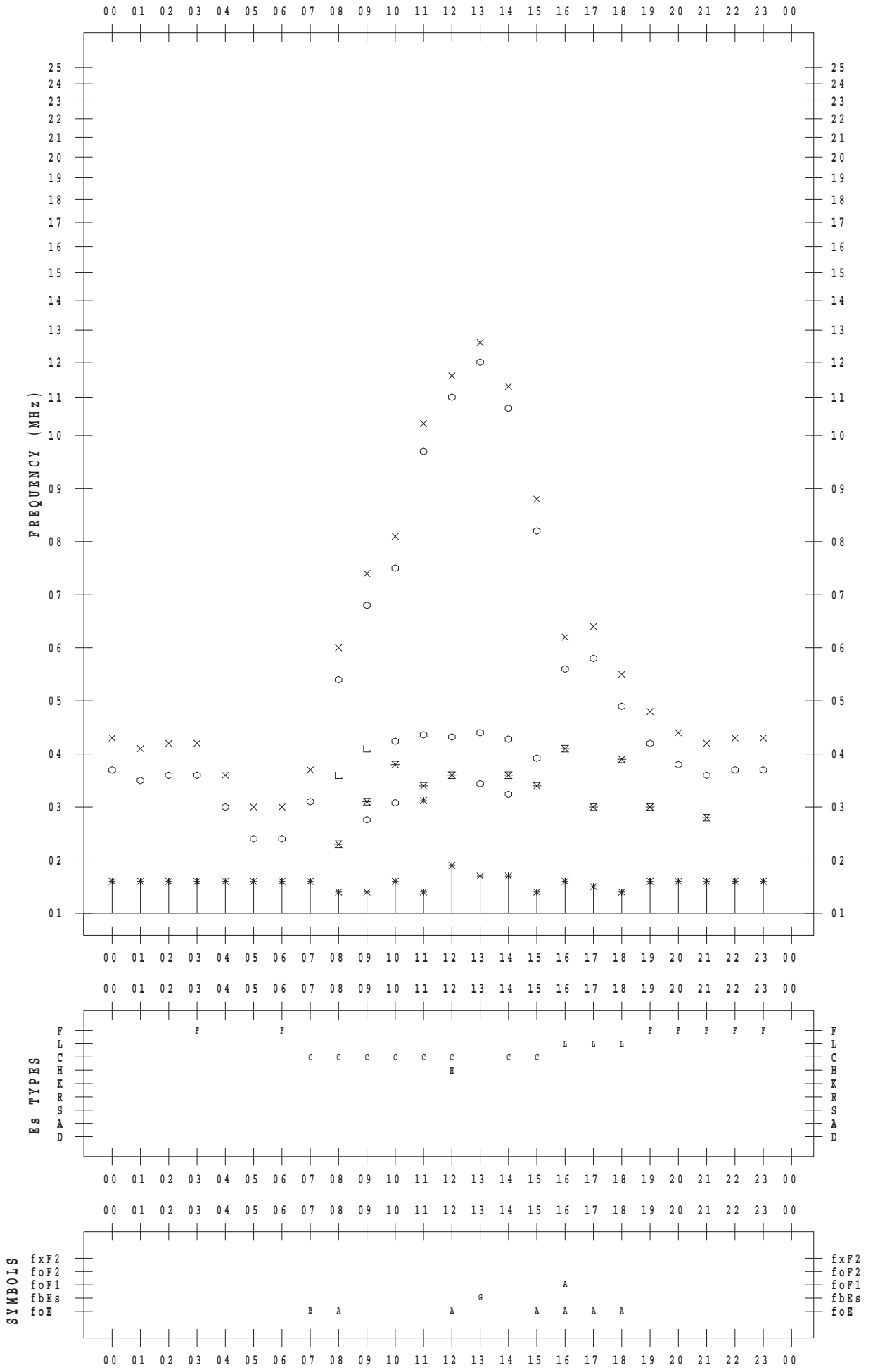
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2018/ 2/16

135 °E MEAN TIME



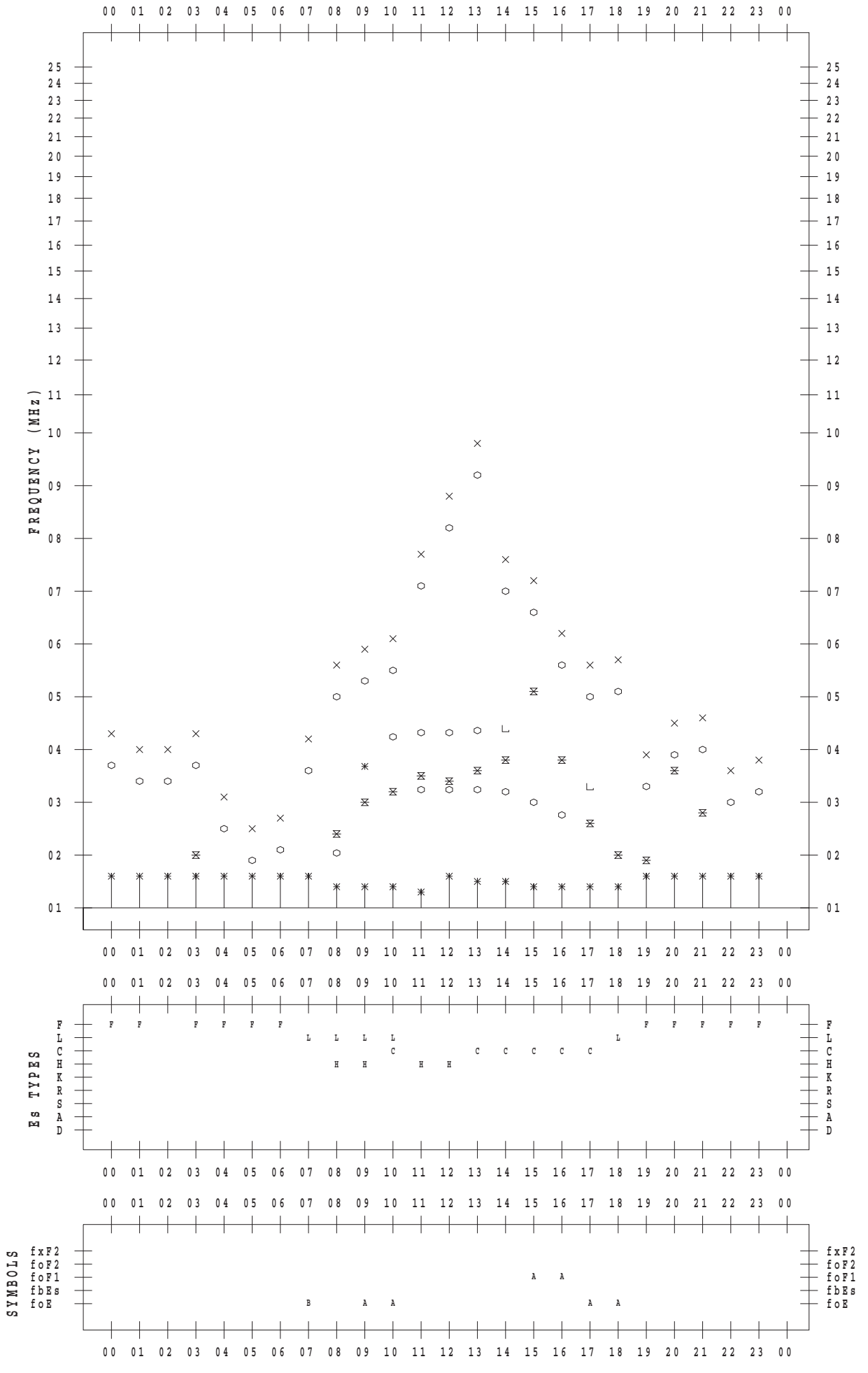
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2018/ 2/17

135 °E MEAN TIME



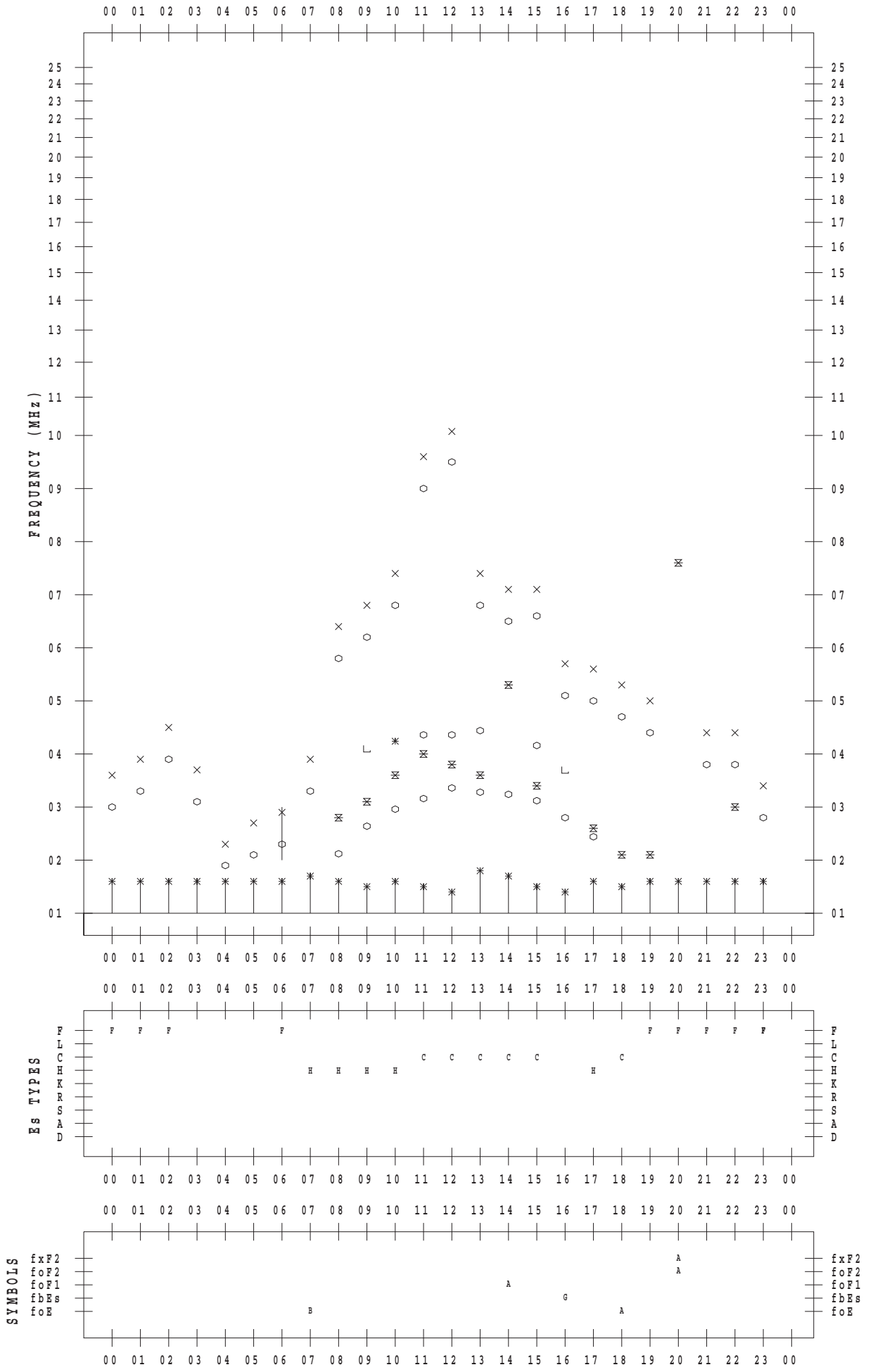
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2018/ 2/18

135 °E MEAN TIME



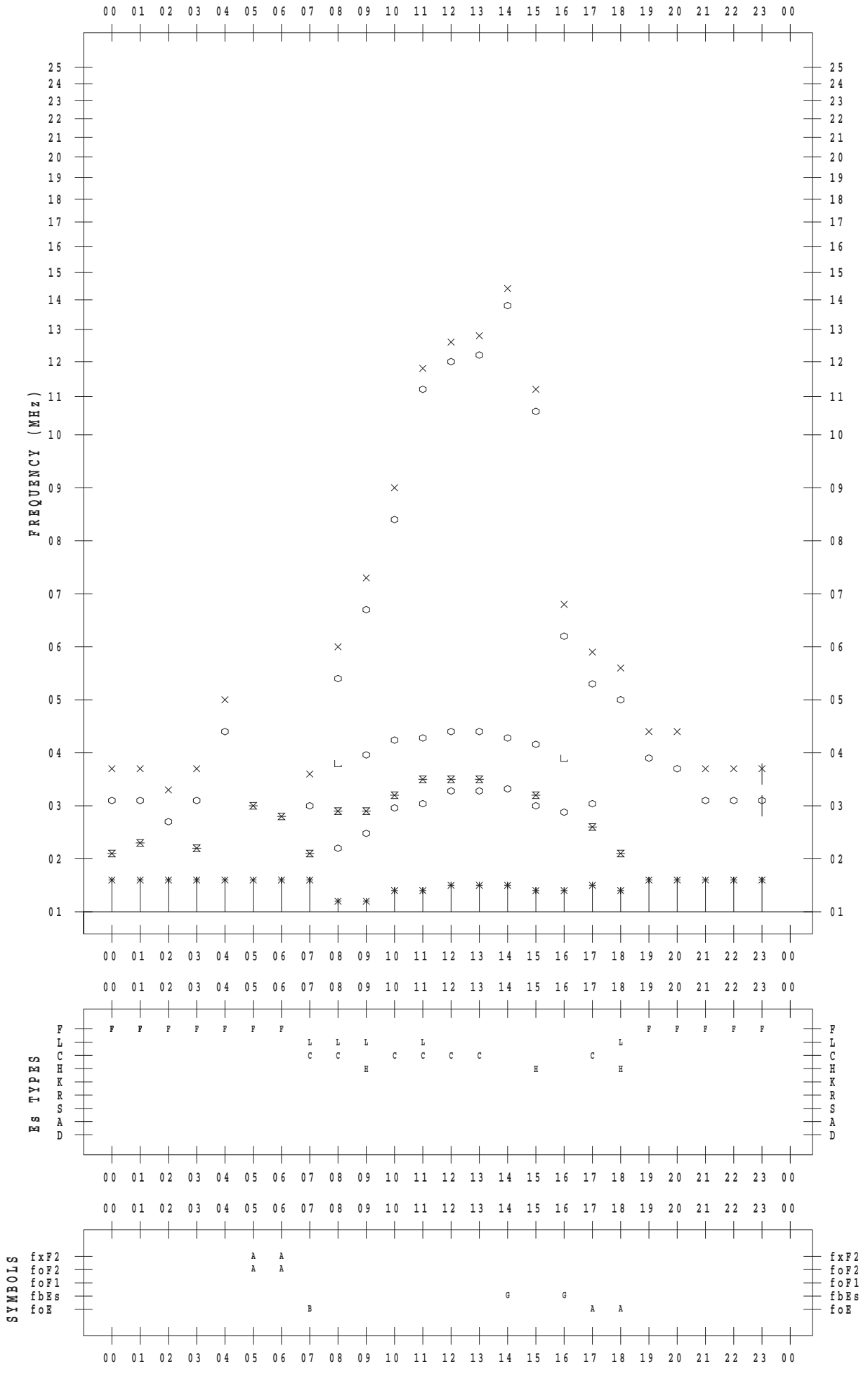
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2018/ 2/19

135 °E MEAN TIME



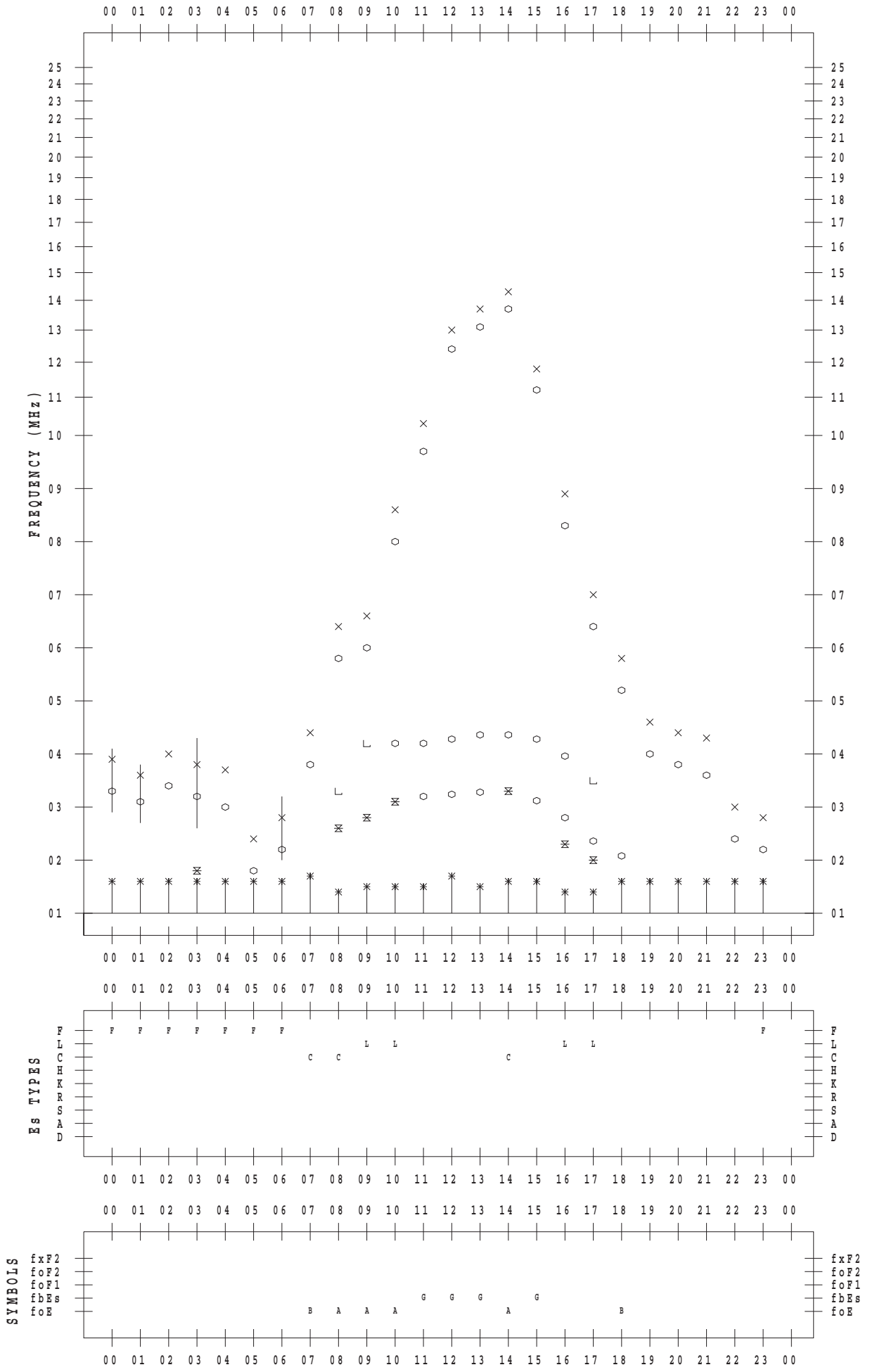
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2018/ 2/20

135 °E MEAN TIME



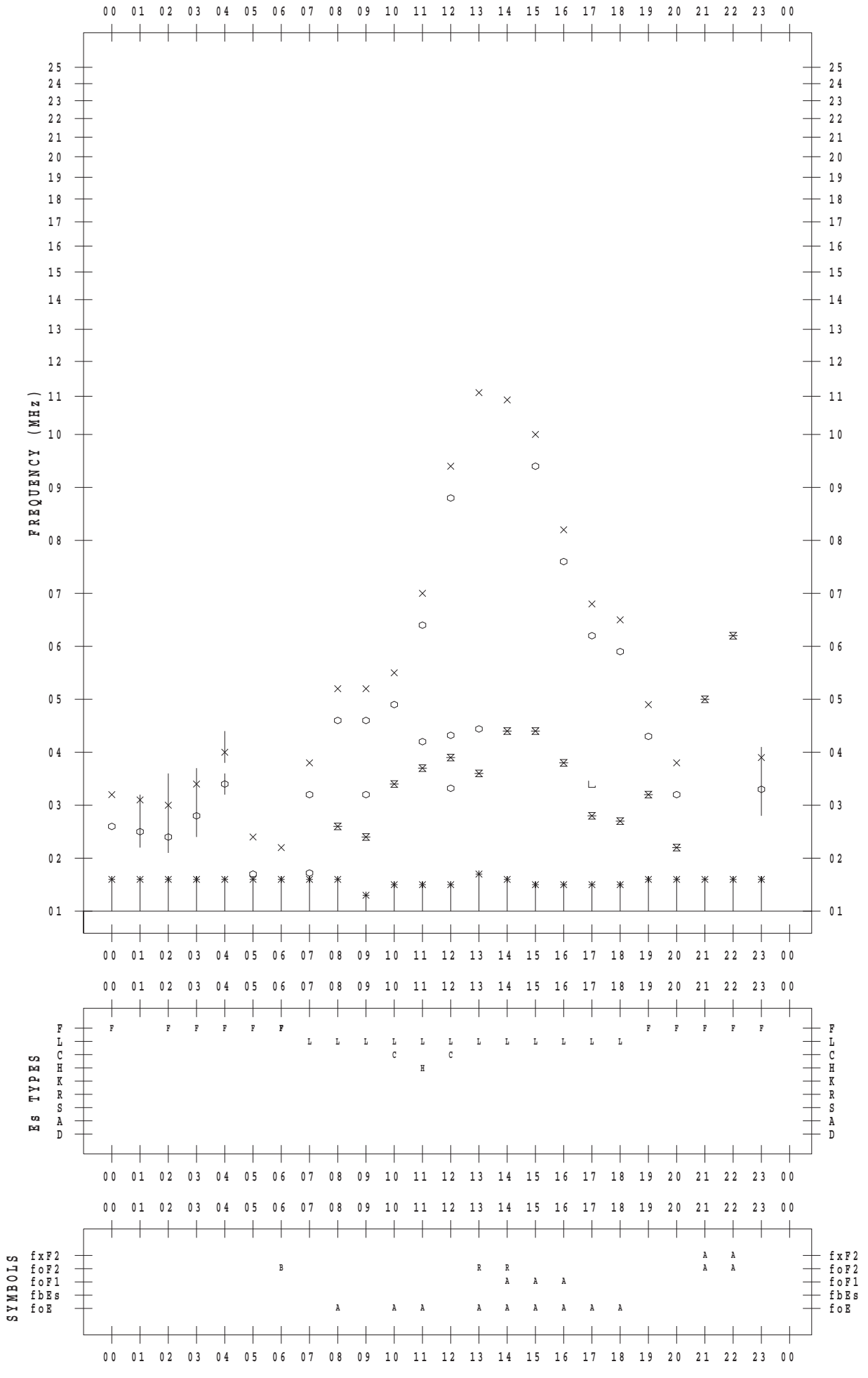
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2018/ 2/21

135 °E MEAN TIME



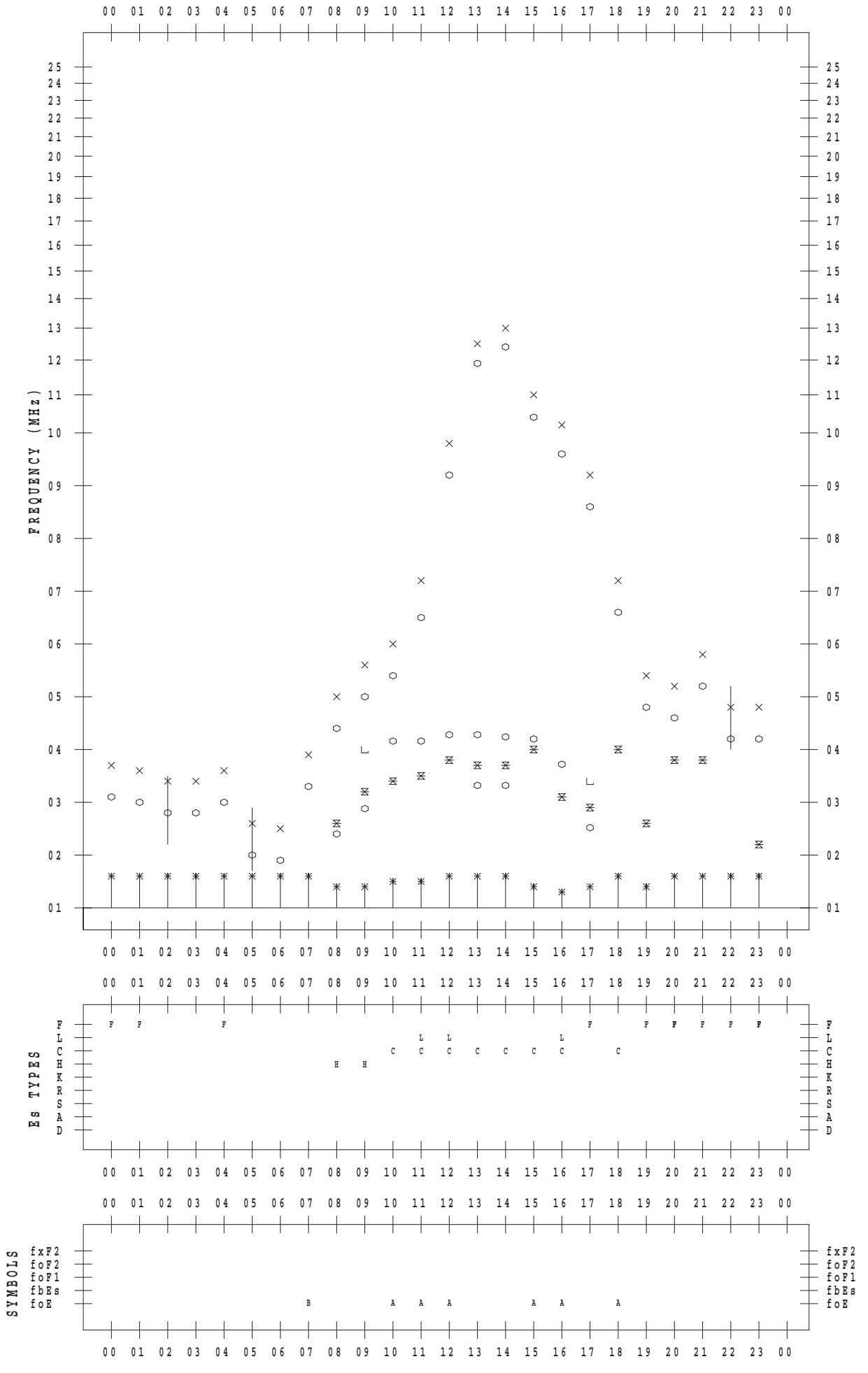
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2018/ 2/22

135 °E MEAN TIME



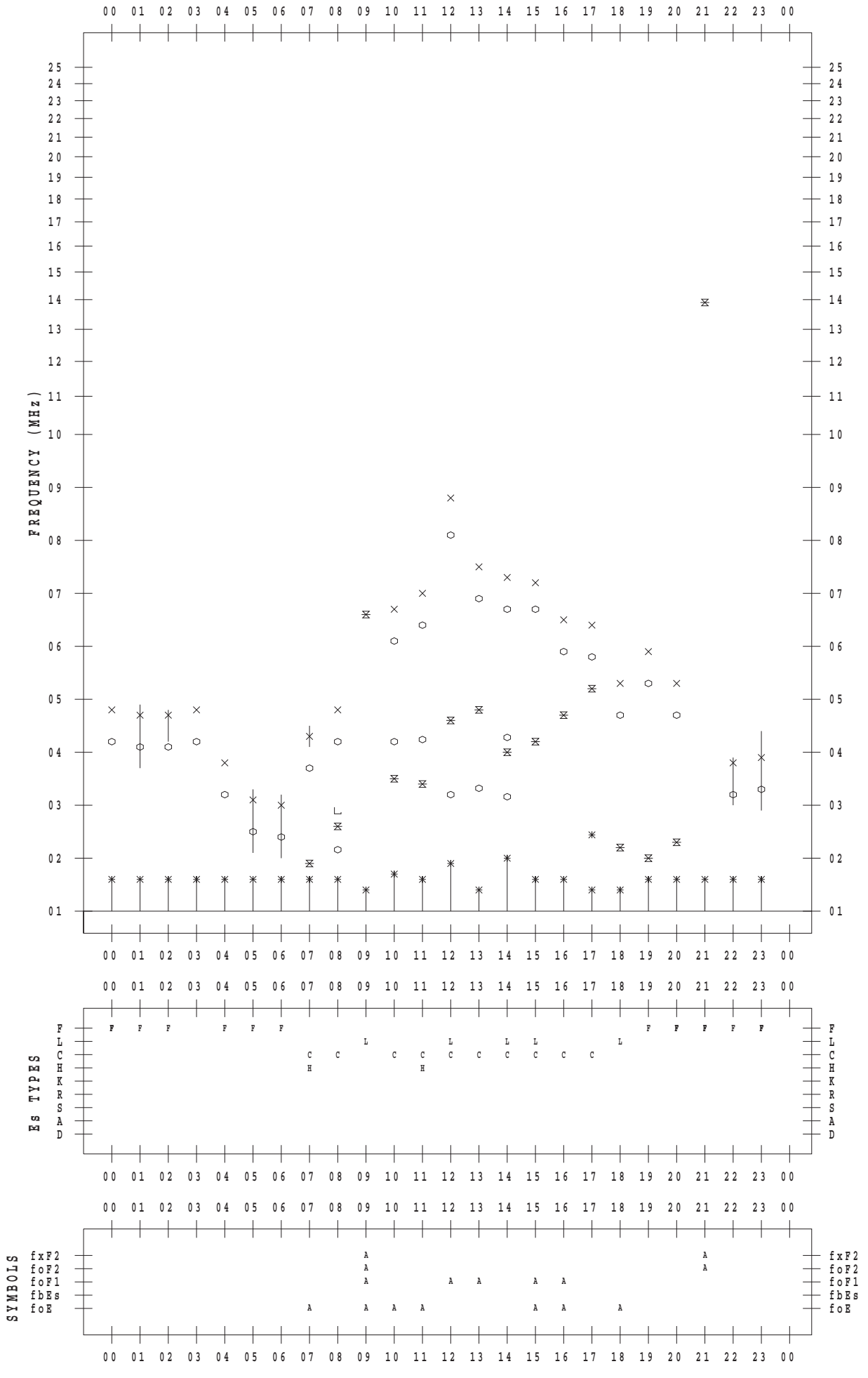
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2018/ 2/23

135 °E MEAN TIME



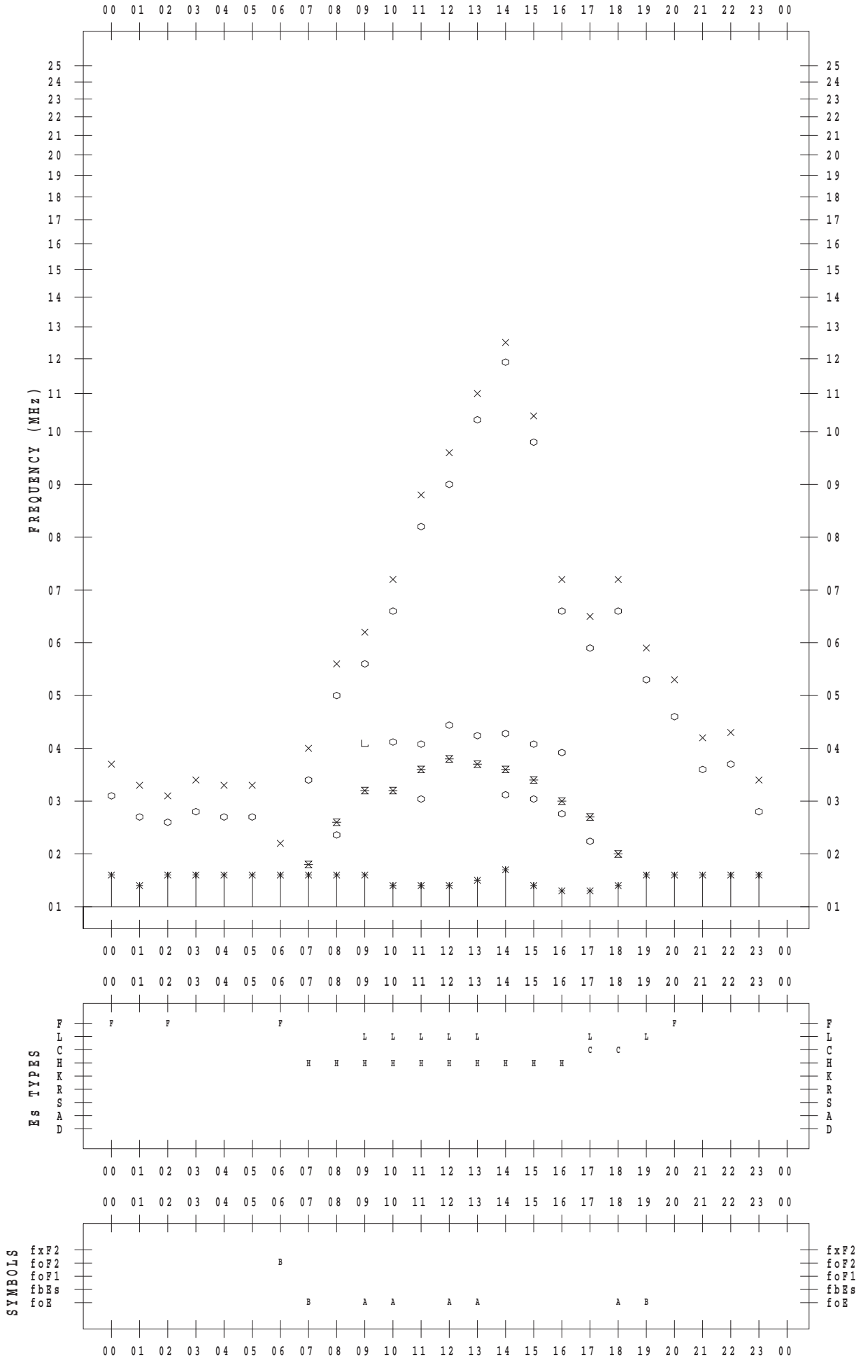
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2018/ 2/24

135 °E MEAN TIME



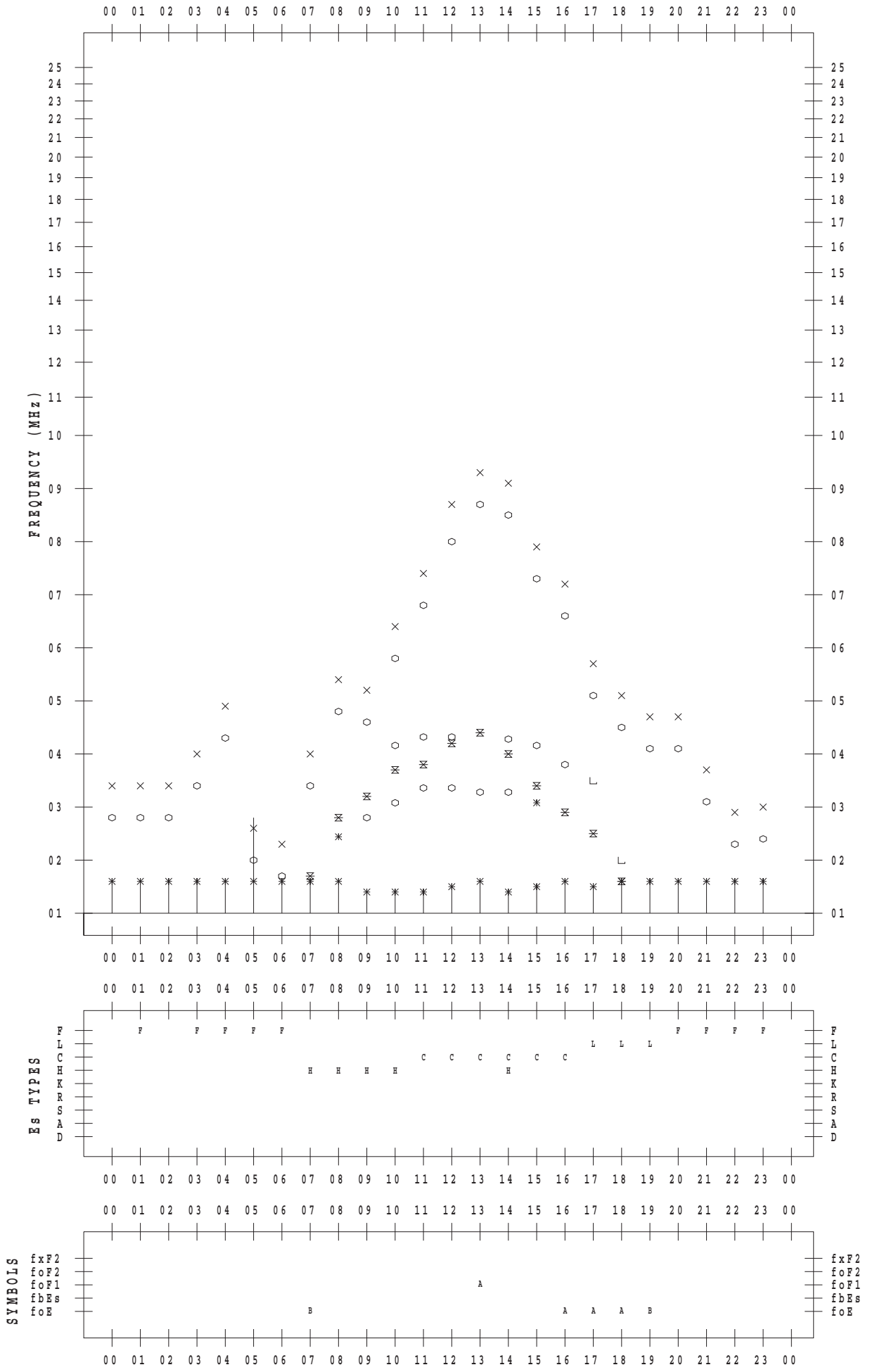
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2018/ 2/25

135 °E MEAN TIME



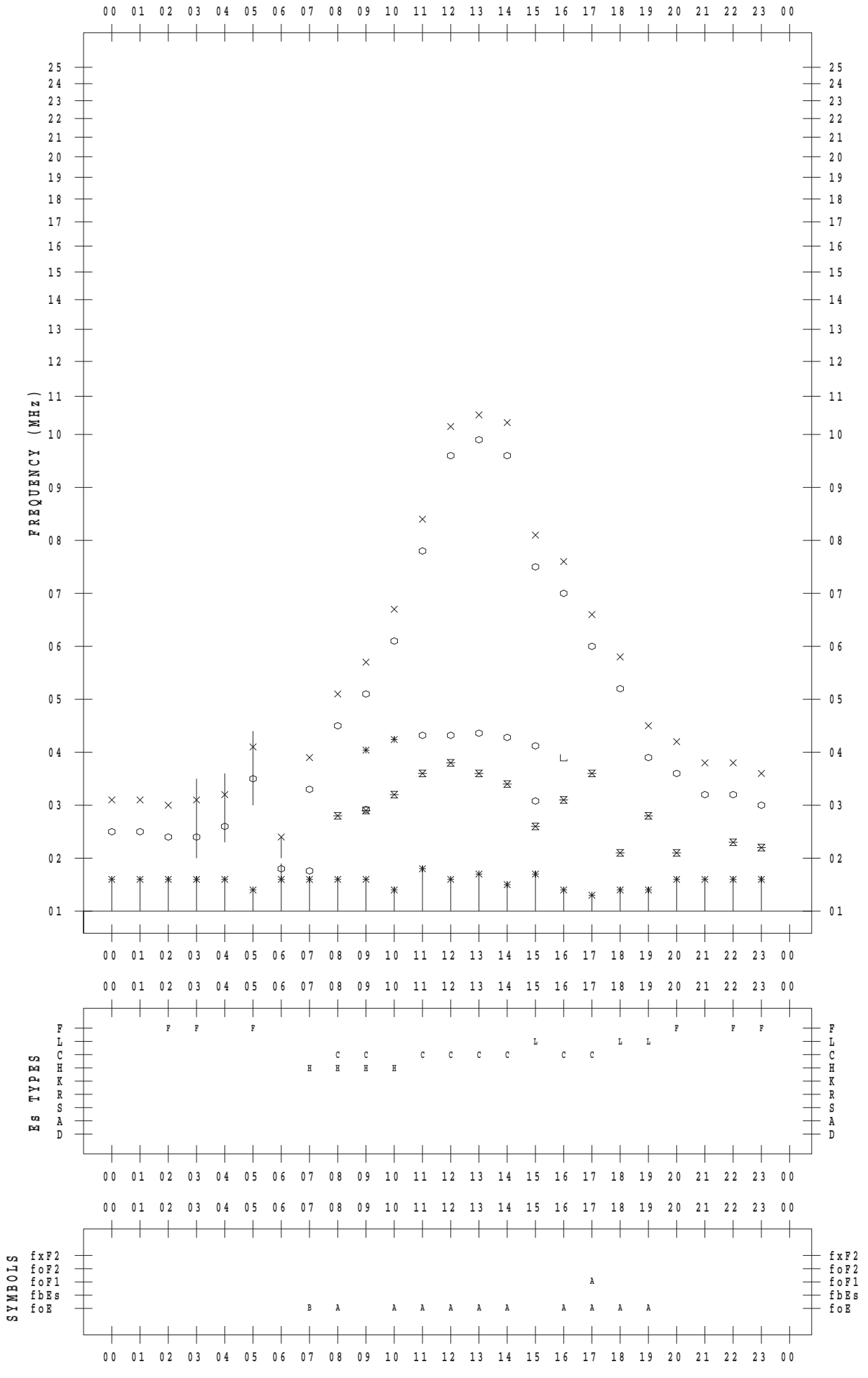
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2018/ 2/26

135 °E MEAN TIME



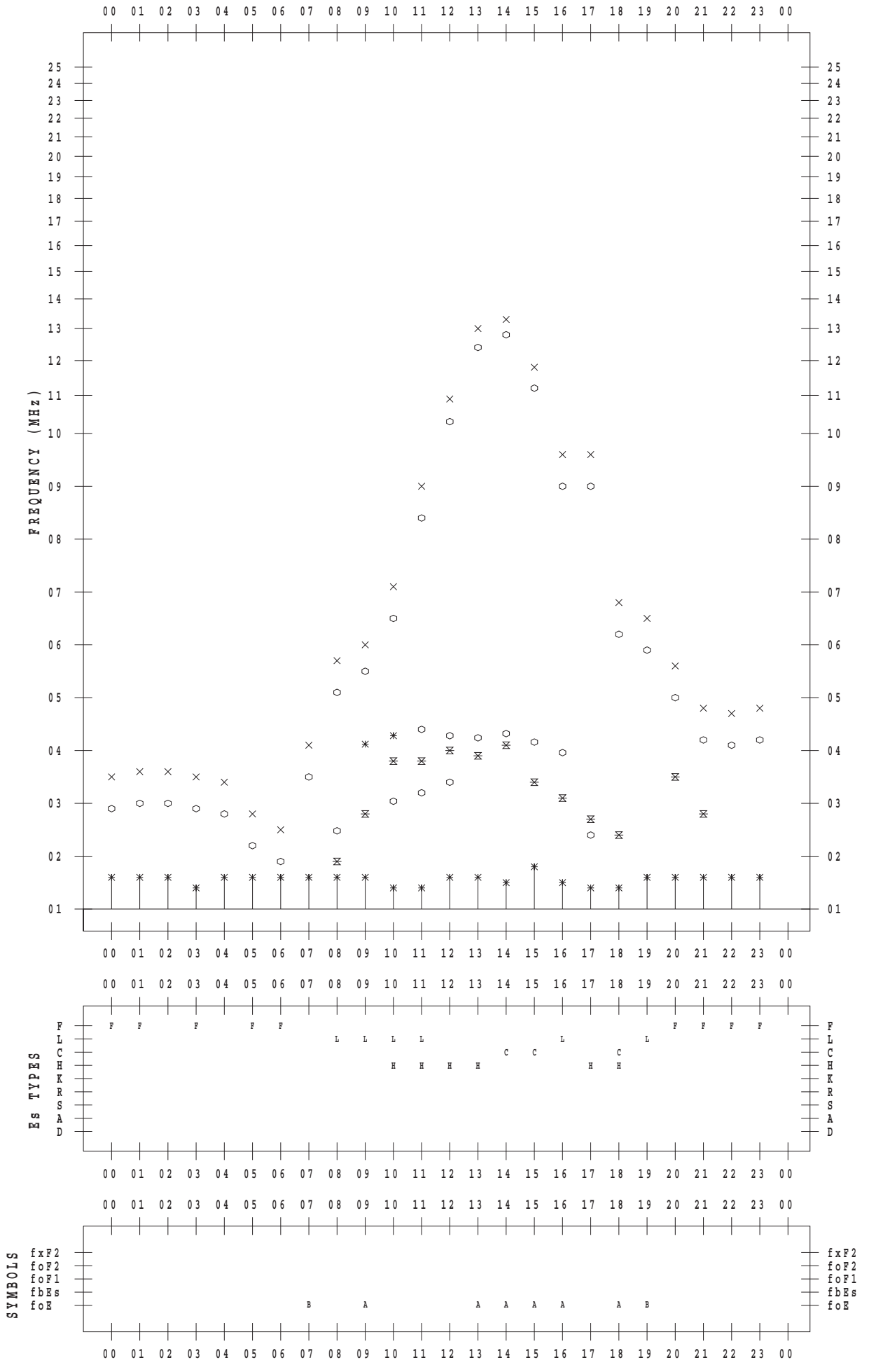
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2018/ 2/27

135 °E MEAN TIME



f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2018/ 2/28

135 °E MEAN TIME