F-795

IONOSPHERIC DATA IN JAPAN

FOR MARCH 2015

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CONTENTS

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

NATIONAL INSTITUTE OF INFORMATION
AND COMMUNICATIONS TECHNOLOGY
TOKYO, JAPAN

INTRODUCTION

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

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

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

IONOSPHERE

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

A1. Automatic Scaling

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

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

a. Characteristics of Ionosphere

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

b. Descriptive Letters

The following descriptive letters are used in the tables.

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

C Impossible measurement because of any failure in observation.

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

N Impossible automatic scaling because of complex echoes.

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

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

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

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

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

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

d. Reliability of Automatic Scaling

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

e. Summary Plot

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

A2. Manual Scaling

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

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

a. Characteristics of Ionosphere

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

b. Symbols

(i) Descriptive Letters

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

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

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

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

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

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

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

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

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

K Presence of particle *E* layer.

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

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

N Conditions are such that the measurement cannot be interpreted.

O Measurement refers to the ordinary component.

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

Q Range spread present.

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

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

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

V Forked trace which may influence the measurement.

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

X Measurement refers to the extraordinary component.

Y Lacuna phenomena, severe layer tilt.

Z Third magneto-electronic component present.

(ii) Qualifying Letters

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

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

D Greater than.

E Less than.

I Missing value has been replaced by an interpolated value.

J Ordinary component characteristic deduced from the extraordinary component.

M Mode interpretation uncertain.

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

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

U Uncertain or doubtful numerical value.

Z Measurement deduced from the third magneto-electronic component.

(iii) Description of Types of *Es*

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

The types are:

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

HOURLY VALUES OF foF2 AT Wakkanai

MAR. 2015

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	50	49	43	42	48	46	35	N	68	87	90	69	69	111	94	82	91	70	67	67	67	54	53	55
2	A	58	52	63	63	61	66	61	87	101	96		107	92	94	96	91	91	71	63	62	64	52	54
3	34	58	58	53	59	43	65	90	N	117	109	69	112	96	92	92	95	71	66	60	51	48	38	42
4	46	37	46	39	42	42	54	67	91	98	97		97	N	94	86	91	86	66	65	60	44	48	47
5	37	51	42	48	48	43	55	81	91	86		92	96		91	91	91	70	67	65	64	54	50	47
6	48	50	47	47	50	37	54	73	90	89	87	69	79	117	70	92	90	72	68	67	54	48	43	40
7	38	48	49	37	50	40	53	65	87	96	72	N	91	94	95	94	92	86	67	65	51	54	53	52
8	52	51	52	47	46	47	61	60	79	92	118	N	94	96	96	91	92	74	67	54	52	60	58	50
9	53	54	52	52	52	42	61	67	87		122	118	118	114	92	92	94	91	66	52	54	50	41	50
10	47	47	46	42	44	44	58	64	88	70	88	90	93	74	91	92	92	70	67	52	53	48	47	47
11	37	47	34	47	47	46	61	82	68	82	87	90	96	93	91	91	92	90	69	64	61	53	52	50
12	37	43	34	53	42	42	58	67	86	91	55	90		59	92	90	91	78	68	66	63	54	52	54
13	53	52	42	50	51	54	62	88	84	88	110	N		92	92	92	91	90	67	66	60	50	44	53
14	34	42	52	51	34	34	54	73	79	110		96	90	91	91	91	92	N	70	65	61	37	52	52
15	52	53	51	50	47	47	64	70	N	80	93		69	94	92	94	93	88	67	64	63	62	58	52
16	53	53	53	53	50	53	64	67	N	59	96	56	85	94	91	115	94	86	70	67	67	64	53	54
17	54	54	33	52	52	53	67	72	74	72	91	96		91	88	74	72	74	67	66	67	67	65	54
18				20	A				A		34						37	42	37	37	42	34	36	31
19	34	32	26	32	32	25	51	65	66	67	70	69	71	70	72	72	70	70	63	63	58	54	50	34
20	42	46	34	37	37	37	54	62	68	92	96		74	86	89	77	72	70	67	67	62	63	47	52
21	48	47	45	47	46	44	47	52		61	65	70	72	71	70	71	70	73	67	66	64	54	52	47
22	43	47	47	50	43	43	58	64	70	69	73	46		94	90	74	86	N	70	67	66	66	50	
23	41	53	53	53	34	36	60	67		90	74	73	N	91	N	80	84	80	67	63	63	54	64	52
24	52	53	A	52	22	51	60	66	67	67	70	80	74	74	87	73	70	68	67	54	54	64	64	54
25	58	55	37	54	52	52	66	67	68	75	91		92	96	91	94	84	70	67	63	60	60	60	62
26	52	51	53	48	53	53	66	81	74	88	90	92	92	92	93	N	93	87	68	66	62	61		52
27	52	58	34	52	54	52	67	68	67	91		93	89	112	91	91		92	71	67	66	59	60	53
28	58	52	52	52	53	53	66	74	86	90	91	95	84	72	92	74	86	93	70	68	67	66	54	60
29	58	59	58	58	58	60	66	66	73	93	96		91	91	92	115	93	91	69	67	66	64	63	66
30	63	61	64	62	63	64	66	70	88	86	91	91	93		94	92	91	93	72	67	67	66	66	66
31	66	64	63	62	62	63	68	91	88		92	103	91	89	92	70	91	91	70	70	66	66	63	66
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	29	30	29	31	30	30	30	29	25	28	28	21	25	27	29	29	30	29	31	31	31	31	30	30
MED	50	52	47	50	49	46	61	67	79	88	91	90	91	92	92	91	91	80	67	65	62	54	52	52
U Q	53	54	52	53	53	53	66	73	87	92	96	94	95	96	92	92	92	90	70	67	66	64	60	54
L Q	39	47	39	47	43	42	54	65	68	73	73	69	76	86	90	75	84	70	67	63	54	50	48	47

HOURLY VALUES OF fEs AT Wakkanai

MAR. 2015

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	G	G	G	G	G	G	11	30	G	G	G	G	G	G	G	G	33	G	G	G	G	24	25	33
2	30	G	G	G	G	G	G	G	G	G	42		G	G	G	38	G	30	G	24	24	G	G	43
3	26	26	28	26	28	G	G	G	60	46	G	G	G	G	G	38	34	G	G	G	G	G	28	G
4	33	G	G	25	G	G	G	G	G	42	G		G	G	G	37	G	G	40	G	G	G	G	G
5	G	G	G	G	G	G	G	G	36	39		G	G		G	G	34	G	G	G	G	G	G	G
6	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	34	G	G	G	G	G	G	G
7	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	34	G	G	G	G	G	G	G
8	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	39	G	G	G	G	G	G	G	G
9	G	G	G	G	G	G	24	33	36		G	G	G	G	G	G	35	29	G	G	29	G	G	G
10	G	G	G	G	G	G	G	50	G	G	G	G	G	G	G	G	G	29	G	G	G	G	24	G
11	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
12	G	G	G	G	G	G	G	G	G	G	G	G		G	G	G	G	33	G	28	G	G	G	G
13	G	G	G	26	G	G	G	G	G	G	43	G		G	G	G	G	G	G	G	G	G	G	G
14	G	29	G	G	G	G	29	51	G	G		48	G	G	G	G	G	29	G	34	G	33	G	G
15	G	G	G	G	G	G	36	G	G	G	G		G	G	G	G	G	G	G	G	G	G	G	G
16	G	G	G	G	G	G	G	33	G	G	G	G	G	G	G	G	34	G	G	G	G	G	G	G
17	G	G	G	G	G	G	G	G	G	G	G	G		G	G	G	G	59	G	G	G	G	23	G
18				24	26			G	48	G	G	G	G	G	G	G	G	30	G	G	G	G	G	G
19	G	G	G	G	G	G	30	38	38	G	G	G	G	G	G	G	G	30	G	G	G	G	G	G
20	G	24	33	23	G	G	G	G	G	G	G		G	G	G	G	36	29	G	G	G	G	G	G
21	G	G	G	24	32	G	G	G	G	44	52	46	G	G	G	39	G	30	G	24	G	G	G	23
22	G	G	G	26	28	G	G	G	G	G	45	52		G	G	45	G	G	G	33	32	26	G	
23	G	G	34	27	G	G	G	G		G	G	G	N	G	49	48	G	41	35	40	G	26	G	G
24	G	23	39	25	34	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
25	28	33	G	G	G	26	G	G	G	G	G		G	G	G	39	G	G	G	G	G	G	G	G
26	G	25	G	G	G	G	28	35	G	G	G	G	G	G	G	G	G	G	G	G	G	G		G
27	G	G	G	G	G	26	37	G	G	G		G	G	G	G	39		G	G	G	G	G	25	23
28	G	G	G	33	25	27	30	G	G	G	G	G	G	G	G	G	37	G	G	G	G	G	28	G
29	24	G	G	38	32	33	32	39	G	G	G		52	49	48	42	37	34	G	32	32	G	G	G
30	G	G	23	G	G	G	29	36	G	G	G	G	G		G	G	36	34	25	G	G	G	G	G
31	G	G	G	G	G	G	G	G	G		G	G	G	G	G	G	G	32	G	G	23	G	G	G
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	30	30	31	31	30	30	31	30	29	28	25	26	29	31	31	30	31	31	31	31	31	30	30
MED	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
U Q	G	G	G	25	G	G	28	33	G	G	G	G	G	G	G	38	34	30	G	G	G	G	G	G
L Q	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G

HOURLY VALUES OF fmin AT Wakkanai

MAR. 2015

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	15	14	14	14	14	15	15	14	14	14	14	17	15	14	14	14	14	17	14	14	14	15	14	14
2	14	14	14	14	14	14	14	14	14	14	14		15	15	14	14	14	14	14	14	15	14	15	14
3	16	14	14	14	14	15	15	14	14	14	14	27	15	14	14	14	14	18	14	14	14	14	14	14
4	14	15	14	15	14	14	15	14	14	14	14		14	14	14	14	14	20	14	14	14	14	15	14
5	15	15	14	14	14	14	15	14	14	14		16	18		14	15	14	21	15	14	14	14	14	14
6	14	14	15	14	15	14	16	14	14	15	15	18	18	15	52	20	14	14	14	14	14	14	14	14
7	14	14	14	14	14	14	16	14	14	15	14	14	15	15	14	14	14	20	15	15	14	14	15	14
8	14	14	14	14	14	15	17	18	34	16	18	17	20	18	14	14	14	20	15	14	14	15	15	14
9	14	15	15	14	14	14	15	14	14		14	14	18	16	14	15	14	14	14	14	14	15	14	14
10	14	14	15	15	14	14	17	14	14	48	16	15	16	17	14	14	14	14	14	14	14	14	14	15
11	15	14	17	14	14	14	17	14	14	14	15	15	15	15	16	14	14	15	14	14	15	14	15	14
12	14	14	14	14	14	14	17	14	14	17	14	14		18	26	15	14	14	14	15	14	14	14	14
13	14	14	15	15	14	14	16	14	14	14	14	16		42	14	15	14	14	14	14	14	15	14	14
14	15	14	14	14	14	15	14	14	14	14		17	15	14	22	14	14	14	14	14	14	14	14	15
15	14	15	14	14	14	14	17	14	14	16	14		22	18	16	14	14	14	14	14	14	14	14	14
16	14	15	14	14	14	14	18	14	15	16	14	16	15	14	15	14	14	14	14	14	14	14	14	15
17	14	15	14	14	15	14	18	14	14	14	14	15		14	14	14	14	14	14	14	15	14	15	14
18				16	15			14	14	15	14	17	16	23	17	15	14	14	16	14	15	14	14	14
19	14	14	14	14	14	15	14	14	14	14	15	14	14	14	14	14	14	14	14	14	14	14	14	15
20	14	14	14	14	15	14	14	14	14	14	14		18	18	14	14	14	14	15	14	14	14	15	15
21	15	14	14	14	14	14	18	14	14	14	14	15	15	16	15	14	14	14	15	14	14	14	14	14
22	14	15	14	14	14	14	15	14	14	14	14	15		17	16	14	14	14	14	15	14	15	15	
23	14	15	14	14	17	14	15	14		14	15	21	18	15	16	15	14	14	14	14	14	15	14	14
24	14	14	14	15	14	14	15	14	16	17	21	21	20	44	24	20	14	15	15	14	14	14	14	15
25	14	14	14	14	15	14	14	14	14	14	16		21	17	24	14	15	14	15	14	15	14	15	14
26	15	14	15	14	15	15	14	14	14	14	15	15	16	17	14	14	14	14	16	14	14	16		14
27	15	15	15	14	14	14	14	14	14	14		15	18	18	15	14		14	16	14	14	14	14	15
28	15	14	14	14	14	14	14	14	14	17	15	17	17	20	16	14	14	14	14	14	14	14	14	14
29	14	15	15	14	14	14	14	14	14	14	16		17	17	20	15	14	14	14	14	14	14	14	14
30	15	15	14	14	15	14	14	14	14	14	17	21	15		14	14	14	14	16	14	14	14	14	14
31	14	15	14	14	14	14	14	14	14		16	17	14	17	15	14	14	14	14	14	14	14	15	15
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	30	30	31	31	30	30	31	30	29	28	25	27	29	31	31	30	31	31	31	31	31	30	30
MED	14	14	14	14	14	14	15	14	14	14	14	16	16	17	15	14	14	14	14	14	14	14	14	14
U Q	15	15	15	14	15	14	17	14	14	15	15	17	18	18	16	15	14	15	15	14	14	14	15	15
L Q	14	14	14	14	14	14	14	14	14	14	14	15	15	14	14	14	14	14	14	14	14	14	14	14

HOURLY VALUES OF foF2 AT Kokubunji

MAR. 2015

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	46	46	52	46	39	41	51	75	107	108	108	105	115	125	122	107	91	98	94	73	62	53	54	51
2	51	53	52	52	52	48	51	74	96	108	117	122	114	125	130	120	102	100	77	73	72	50	51	52
3	52	52	48	48	49	49	54	89	103	111	111	108	110	116	113	107	104	101	87	55	51	51	47	43
4	44	44	44	47	36	36	52	85	96	100	101	111	116	118	111	110	101	107	94	N	52	54	46	48
5	48	51	48	48	41	39	46	80	89	110	112	121	116	120	99	101	97	99	86	59	54	54	48	48
6	48	46	47	48	45	39	51	77	96	120	112	115	130	131	128	105	102	100	91	74	58	49	47	48
7	47	42	52	52	39	31	45	72	104	116	115	101	110	118	114	117	107	100	82	72	44	44	49	49
8	48	46	49	46	45	45	54	87	95	108	121	126	118	120	124	116	105	98	74	51	51	54	51	52
9	52	52	53	53	48	48	51	85	110	118	124	126	128	125	128	120	108	94	78	51	52	54	52	48
10	48	43	46	44	44	42	54	75	84	87	96	107	111	112	115	113	121	112	91	66	48	45	44	46
11	47	47	47	46	45	46	59	85	88	85	88	104	108	107	112	109	111	110	102	66	52	53	51	44
12	47	47	44	46	44	44	57	81	96	98	103	118	111	118	111	101	107	111	93	A	62	59	A	54
13	53	52	54	54	49	48	58	86	95	104	104	115	124	120	114	112	106	104	96	N	51	49	54	54
14	48	52	54	47	N	27	47	82	107	104	110	112	116	115	114	115	114	113	96	67	62	52	48	52
15	51	51	52	49	43	42	54	78	88	90	96	104	116	110	116	100	98	91	85	57	54	52	54	54
16	52	54	52	53	44	46	63	90	97	98	99	104	104	102	105	97	91	96	93	85	59	52	51	53
17	53	51	52	51	47	47	59	81	87	91	100	110	121	114	106	95	98	90	87	96	84	80	81	53
18	36						36				A	A			57	59	65	66	64	46	48	46	42	39
19	39	39	39	43	46		38	53	64	77	78	86	102	106	91	86	81	81	67	63	66	51	41	49
20	41	48	52	41		30	54	74	86	86	110	110	107	112	106	100	95	88	95	88	64	46	47	39
21	43	44	42	44	38	39	58	84	80	90	107	112	122	117	94	81	78	82	92	83	75	61	51	54
22	51	52	52	54	45	45	61	72	81	86	101	121	127	121	111	102	102	102	97	77	A	66	53	47
23	43	47	52	49			51	81	97	108	110	112	104	110	101	91	87	101	92	79	72	67	66	64
24	54	53	49	52	51	51	64	88	92	101	106	108	102	100	97	94	87	86	84	77	71	67	64	63
25	59	54	54	55	56	55	73	96	104	113	101	105	111	117	118	110	106	101	90	75	67	59	61	72
26	64	54	52	53	49	54	67	82	91	91	102	100	106	117	122	122	114	102	96	87	67	63	54	63
27	52	52	52	51	55	54	67	87	94	101	107	112	127	130	124	115	116	110	111	86	74	73	64	67
28	54	54	N	58	52	49	66	81	94	104	110	117	118	111	106	106	108	110	102	90	81	64	54	52
29	52	58	52	53	53	51	74	100	110	107	102	107	110	122	111	108	108	104	102	88	73	65	67	67
30	65	54	67	59	57	57	90	100	98	95	106	108	116	117	114	112	112	101	100	85	78	78	76	75
31	67	54	52	55	52	54	77	109	111	107	102	106	103	108	110	102	99	104	114	84	67	67	65	67
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	30	29	30	27	28	31	30	30	30	30	30	30	30	31	31	31	31	31	28	30	31	30	31
MED	51	52	52	50	46	46	54	82	96	102	106	110	114	117	112	107	102	101	92	74	62	54	52	52
U Q	53	53	52	53	52	50	64	87	103	108	110	115	118	120	118	113	108	104	96	85	72	65	61	63
L Q	47	46	47	46	44	40	51	77	88	91	101	105	108	111	106	100	95	94	85	64	52	51	48	48

HOURLY VALUES OF fEs AT Kokubunji

MAR. 2015

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	G	G	G	26	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
2	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	45	45	33	G	35	G	G	G	G
3	G	G	26	G	G	G	G	G	G	G	G	59	52	53	49	G	G	43	39	G	G	G	G	24
4	26	23	24	G	G	G	G	G	G	G	G	G	G	G	G	G	45	45	34	30	29	29	G	23
5	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	30	24	G	G	G	G	G
6	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
7	G	G	G	G	G	G	G	G	G	G	G	50	G	G	G	G	G	G	G	G	G	G	G	G
8	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	31	G	G	32	G	23	25
9	G	G	G	G	G	G	11	G	G	G	G	G	G	G	G	G	39	34	26	G	24	24	G	G
10	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	45	46	51	52	34	24	G	G
11	G	G	29	G	G	G	G	G	G	G	G	G	45	50	G	G	G	G	G	33	G	G	G	G
12	G	G	G	G	G	G	G	G	G	G	47	G	G	G	G	G	53	68	76	69	57	46	31	26
13	G	G	G	26	G	G	G	G	G	G	43	G	G	G	G	44	40	33	30	28	28	24	G	33
14	G	29	G	G	G	G	G	G	G	44	G	G	G	47	G	G	G	G	G	G	28	G	G	G
15	G	29	24	G	G	G	G	G	G	G	G	G	G	G	G	G	40	G	G	G	G	G	G	G
16	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	31	G	G	G	G	G	G
17	G	G	G	G	G	G	G	G	G	G	46	G	48	G	G	G	G	G	27	G	G	G	G	G
18	G						G	G	G	G	44	48			G	G	G	G	29	G	G	G	G	G
19	G	G	G	24	G		28	G	G	G	50	G	G	56	G	G	G	G	G	G	G	G	G	G
20	G	G	22	G		G	G	G	G	G	61	G	G	G	G	G	G	31	G	G	G	G	G	G
21	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	32	32	G	G	G	G	G
22	G	G	G	G	G	G	G	G	G	G	G	G	49	45	44	46	G	33	52	80	91	60	23	G
23	G	G	G	G			G	G	G	44	G	52	58	G	43	47	42	37	26	34	33	G	G	27
24	27	G	G	G	G	25	28	G	G	G	G	G	G	G	G	G	G	98	G	G	G	G	G	G
25	G	G	G	G	G	G	30	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
26	G	G	G	G	G	G	G	G	G	G	G	51	56	45	51	G	47	47	G	G	G	G	G	23
27	G	G	G	G	G	G	G	G	G	G	G	G	46	G	G	G	G	G	31	31	24	24	26	23
28	G	G	23	G	G	G	29	G	G	G	53	G	G	51	G	G	G	G	G	G	29	G	G	G
29	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	48	33	47	34	26	G	G	G
30	G	G	G	G	G	G	G	G	G	G	51	G	47	G	G	G	G	35	26	G	25	G	G	G
31	G	G	G	G	G	G	30	G	G	G	G	G	G	G	G	G	G	40	35	25	G	G	G	G
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	30	30	30	28	28	31	31	31	31	31	31	30	30	31	31	31	31	31	31	31	31	31	31
MED	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	31	24	G	G	G	G	G
U Q	G	G	G	G	G	G	G	G	G	G	43	G	45	G	G	G	40	37	32	31	28	G	G	23
L Q	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G

HOURLY VALUES OF fmin AT Kokubunji

MAR. 2015

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

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

HOURLY VALUES OF foF2 AT Yamagawa

MAR. 2015

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	38	50	52	47	40		36	67	90	111	90	88	110	114	113	114	96	102	86	85	52	50	52	53
2	52	53	54	51	50	34	32	54	82	101	N	111	86	118	129	109	98	104	90	86	77	54	43	50
3	54	45	47	50	52	40	34	54	86	101	107	94	112	114	114	115	111	110	89	86	74	52	52	43
4	36	44	44	44	40	29	32	66	88	89	106	113	110	115	116	111	114	109	96	84	67	53	52	52
5	53	53	52	47	44	34	32	54	84	86	113	118	112	107	109	110	97	97	104	84	63	54	53	51
6	48	48	50	52	52	34	30	63	88	103	118	111	112	114	109	117	117	110	96	87	77	74	77	67
7	52	54	52	54	52	37	36	64	81	112	112	110	96	N	113	116	114	108	94	85	78	54	53	52
8	53	53	48	52	46	44	43	66	81	98	111	123	114	112	112	143	118	108	102	81	73	54	54	52
9	48	51	51	54	47	40	47	67	96	110	109	112	117	133	142	116	116	110	94	86	54	74	67	51
10	52	47	48	50	51	40	36	54	71	86	97	97	111	102	79	112	119	112	111	87	54	48	47	47
11	47	43	44	44	44	43	46	78	78	81	90	95	101	98	110	105	115	98	110	86	54	A	35	46
12	44	47	32	43	42	40	42	73	77	88	90	102	115	116	110	111	116	110	101	86	73	54	54	51
13	52	52	51	52	50	44	46	73	75	88	113	98	117	N	112	114	110	114	98	67	77	54	54	54
14	51	54	54	67	36	30	29	67	88	96	97	100	116	110	112	112	113	111	107	86	78	61	52	55
15	52	52	54	55	51	42	43	66	77	86	102	96	98	111	115	100	107	98	90	84	54	52	54	53
16	52	52	51	50	43	44	44	74	85	88	96	106	112	110	110	107	98	96	96	88	77	52	51	51
17	52	54	52	55	50	47	48	67	80	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
18	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
19	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
20	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
21	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
22	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
23	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
24	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
25	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
26	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
27	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
28	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
29	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
30	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
31	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	17	17	17	17	17	16	17	17	17	16	15	16	16	14	16	16	16	16	16	16	16	15	16	16
MED	52	52	51	51	47	40	36	66	82	92	106	104	112	113	112	112	114	108	96	86	73	54	52	52
U Q	52	53	52	54	51	43	45	70	88	102	112	111	114	115	114	115	116	110	103	86	77	54	54	53
L Q	47	47	47	47	42	34	32	58	77	87	96	96	105	110	110	109	102	100	92	84	54	52	51	50

HOURLY VALUES OF fEs AT Yamagawa

MAR. 2015

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

DAY \ HOUR	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	G	25	28	35	G	G	G	G	G	G	G	G	45	54	G	G	45	G	G	11	G	G	G	G
2	29	G	G	G	G	G	G	G	G	G	G	G	G	G	G	46	44	G	34	30	33	G	G	G
3	G	G	G	G	G	G	G	G	G	N	G	G	G	46	G	G	G	40	G	G	32	28	G	G
4	G	G	G	G	G	G	G	G	38	46	G	G	G	G	G	G	75	55	67	40	40	G	G	36
5	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	40	39	29	27	25	G	G	G
6	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	58	61	33	43	G	G	G	G
7	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	41	G	G	34	29	G	G	G
8	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	44	38	G	G	G	G	G	G
9	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	42	42	37	G	G	G	G	26	G
10	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	44	G	37	G	11	G	G	40	G
11	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	42	35	50	29	40	69	G	G
12	G	G	G	G	G	G	G	G	G	G	G	54	G	G	G	45	G	59	38	40	29	33	30	29
13	29	30	G	G	G	G	G	G	40	G	G	G	G	G	G	G	G	39	34	29	G	G	G	G
14	G	G	G	G	G	G	G	G	G	G	46	G	G	G	G	45	42	G	G	G	24	G	G	G
15	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	29	26	G
16	G	G	G	G	G	32	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
17	G	G	G	G	G	G	G	G	G	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
18	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
19	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
20	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
21	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
22	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
23	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
24	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
25	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
26	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
27	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
28	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
29	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
30	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
31	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	17	17	17	17	17	17	17	17	17	15	16	16	16	16	16	16	16	16	16	16	16	16	16	16
MED	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	42	37	G	19	12	G	G	G
U Q	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	43	44	39	34	32	30	14	13	G
L Q	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G

HOURLY VALUES OF fmin AT Yamagawa

MAR. 2015

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	15	15	14	15	26	15	21	14	20	41	35	35	33	29	29	21	17	18	15	17	15	16	15
2	15	21	16	17	17	14	16	22	16	18	38	50	42	27	38	28	24	18	15	14	14	16	17	16
3	14	15	20	15	16	15	16	21	17	18	27	49	49	39	47	27	35	20	20	15	15	17	15	15
4	18	15	15	16	14	17	15	21	16	18	21	27	29	35	28	22	21	18	15	14	15	15	15	15
5	14	16	15	15	15	15	16	21	15	18	29	36	40	47	48	24	22	16	14	17	16	16	15	15
6	15	17	15	15	14	15	16	22	17	18	21	48	30	50	68	54	26	22	15	15	15	15	15	16
7	15	15	15	15	15	15	15	22	29	21	36	46	52	49	33	29	22	15	22	16	15	15	15	16
8	16	15	16	15	15	15	15	23	35	46	38	48	53	50	47	33	24	18	21	15	15	15	15	16
9	20	14	15	15	15	20	16	16	14	22	21	45	48	48	47	35	27	15	17	16	15	15	14	16
10	15	15	20	15	15	15	15	22	28	55	36	37	40	48	48	35	20	14	21	15	16	15	14	17
11	17	15	16	17	16	16	15	20	16	38	39	39	47	48	53	36	33	34	16	16	15	14	17	17
12	15	15	15	16	17	71	17	23	17	35	34	27	48	48	53	28	26	17	16	15	14	14	14	15
13	16	15	16	15	17	15	15	22	16	20	24	29	28	59	28	50	33	16	15	15	15	17	15	16
14	16	16	15	15	15	17	18	22	14	18	21	34	34	44	49	28	20	17	22	14	16	14	15	15
15	15	15	15	17	15	15	15	21	15	20	23	49	48	50	50	29	23	18	21	15	16	14	14	15
16	15	14	15	15	17	15	16	17	33	34	24	38	50	49	39	27	18	16	23	17	15	15	17	15
17	15	15	15	15	15	15	15	15	14	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
18	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
19	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
20	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
21	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
22	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
23	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
24	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
25	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
26	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
27	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
28	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
29	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
30	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
31	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	17	17	17	17	17	17	17	17	17	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16
MED	15	15	15	15	15	15	15	21	16	20	28	38	44	48	47	29	24	17	18	15	15	15	15	16
U Q	16	15	16	16	16	17	16	22	22	34	37	48	48	49	49	35	26	18	21	16	16	15	15	16
L Q	15	15	15	15	15	15	15	20	14	18	22	34	34	41	35	27	21	16	15	15	15	14	14	15

HOURLY VALUES OF foF2 AT Okinawa

MAR. 2015

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1		52	84	N	52	31	B	60	87	114	102	98	106	109	132	120	116	110	120	107	53	54	67	54
2	51	48	53	N	48		B	51	82	87	113	118	130	130	N	130	118	109	108	107	107	78	53	52
3	53	51		B	52	N	B	54	87	87	107	118	115	148	124	127	130	128	109	108	107	69	86	67
4	52	52	53	52	46	N	B	52	95	104	104	131	128	118	133	143	134	131	109	112	108	89	105	80
5	73	72	67	51	50	31	B	50	77	101	108	109	128	124	129	121	130	131	118	108	86	73	73	60
6	58	62	52	52	52	30		54	82	105	129	130	113	134	109	N	130	108	131	108	107	106	87	89
7	87	87	89	87	54	46	26	52	81	107	131	130	108	132	131	N	129	130	119	114	85	80	73	B
8	66	52	58	55	52	48	31	52	81	106	119	108	110	109	139	144	143	136	108	109		82	86	67
9	73	72	54	80	54	52	52	73	102	108	117	120	130	144	109	110	133	133	131	107	108	109	107	83
10	73	54	52	52	60	43	B	54	77	B	104	112	112	122	109	129	129	132	107	108	99	63	49	52
11	B	B				47	20	66	80	73	102	107	107	107	109	129	134	132	130	108	104	72	52	53
12		53	39	52	50	B		67	71	86		112	110	127	109	130	130	120	118	107	86	72	72	52
13	53	54	67	52	47		B	66	106	105	109	118	107	109	131	130	131	N	123	108	109	108	107	79
14	87	86	87	88	51	26	B	52	86	100	112	107	111	131	130	N	131	129	127	108	107	104	69	72
15	81	73	84	87	55	52	43	54	78	105	108	110	116	107	108	108	110	109	112	105	79	52	52	A
16	B	52	52		B	B	42	67	81	93	105	111	90	124	109	108	109	114	108	107	90	52	73	63
17	52	67	79	81	78	59	52	67	88	102	109	118	109	120	110	119	130	130	112	108	78	87	54	43
18		B	32	36	32	B	B	B		B	B	B	A	B	73	76	81	85	81	59		53	B	B
19	B		31	31	41	B	B	50	67	C	C	C	C	C	C	C	C	C	N	107	87	53	54	B
20	52	B	47	53	B	B	B	63	86	C	C	C	109	110	N	119	N	131	93	108	87	54	B	
21	B		42	43	29		B	64	84	88	100	112	N	128	118	108	107	108	108	87	83	52		
22	B		52	52	48	32	B	N	78	88	101	109	128	109	109	134	N	N	133	109	109	107	67	A
23	A	B	76	67	B	B	N	67	88	102	106	108	118	131	106	129	129	N	132	110	109	109	84	86
24	83	59	59	43	61	52	51	77	88	100	100	107	108	119	108	110	131	132	111	108	109	109	108	86
25	N	67	80	67	67	82	67	88	89	108	102	104	108	118	120	120	130	133	133	110	N	N	69	86
26	80	52	58	47		48	47	N	97	99	87	104	110	128	112	108	98	120	114	104	81	84		76
27	72	67	52	64	54	48	50	76	91	108	108	107	108	110	79		133	139	N	105	54	89	69	89
28	100	80	87	84	53	51	51	76	114	108	107	107	108	108	110	120	126	108	124	107	89	87	73	
29	76	67	73	67	52	51	52	87	89	104	106	107	106	110	132	132	130	119	118	108	105	86	82	77
30	80	67	80	77	52	52	51	83	88	90	101	108	107	118	110	108		130	129	108	109	86	84	87
31	80	58	52	52	51	48	53	85	108	110	104	65	108	98	120	109	129	118	108	105	80	54	N	A
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	21	24	29	26	26	20	15	28	30	27	27	28	28	29	28	26	27	27	29	31	28	30	26	22
MED	73	60	58	52	52	48	51	65	86	102	106	109	110	119	110	120	130	129	118	108	94	81	73	74
U Q	80	69	79	77	54	52	52	74	89	107	109	118	115	129	129	130	131	132	128	108	107	89	86	86
L Q	53	52	52	52	48	37	42	53	81	90	102	107	108	109	109	109	118	110	108	107	84	54	67	54

HOURLY VALUES OF fEs AT Okinawa

MAR. 2015

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	G	G	G	G	G	G	B	G	G	G	G	G	G	53	G	52	46	G	G	G	G	G	G	G
2	G	G	G	G	G	G	B	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
3	G	G	G	B	G	G	B	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
4	G	G	G	G	G	G	B	G	G	G	52	G	G	G	50	57	49	58	48	38	G	G	G	G
5	G	G	G	G	G	G	B	G	G	G	G	G	G	G	G	G	G	47	G	G	G	G	G	G
6	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	29	G	G
7	G	G	G	G	11	G	G	G	G	G	G	G	61	56	G	G	49	G	G	G	33	32	29	B
8	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	52	45	36	G		G	G	G
9	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	48	38	G	G	G	35	G	G
10	G	G	G	G	G	G	B	G	G	B	G	G	G	G	G	G	G	G	G	G	G	G	G	G
11	B	B	G	G	G	G	G	G	G	G	G	G	64	51	G	G	49	G	G	G	G	G	G	G
12	G	G	G	G	G	B	G	G	G	G		G	51	50	G	G	52	43	36	G	33	G	G	G
13	G	G	G	G	G	G	B	G	G	G	G	49	G	G	G	G	G	54	62	71	G	G	32	G
14	G	G	G	G	G	G	B	G	G	G	G	G	G	G	G	48	G	G	G	G	G	G	G	G
15	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	24	32
16	B	G	G	G	B	B	G	G	G	G	G	G	G	G	G	G	G	42	G	G	G	G	G	G
17	G	G	G	G	G	G	G	G	G	46	53	46	51	50	50	49	G	G	34	G	G	G	G	G
18	G	B	G	G	G	B	B	B	G	B	B	B	51	B	G	G	G	G	G	28	G	G	B	B
19	B	G	G	G	G	B	B	G	G	C	C	C	C	C	C	C	C	C	G	G	29	G	G	B
20	G	B	G	G	B	B	B	G	G	C	C	C	G	G	49	G	G	G	G	G	G	G	B	G
21	B	G	G	G	G	G	B	G	G	G	G	G	G	57	G	G	G	G	G	G	G	G	G	G
22	B	G	G	G	G	G	B	G	G	G	G	G	G	G	G	G	G	G	41	49	29	25	26	37
23	39	B	G	G	B	B	G	G	41	G	G	G	55	G	G	G	53	52	37	28	G	G	G	G
24	G	28	G	G	G	G	G	31	G	G	G	G	G	G	52	47	50	38	G	G	G	G	G	G
25	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	26	G	G
26	G	G	G	G	G	G	G	G	G	46	G	G	G	G	G	G	G	G	G	38	G	G	G	G
27	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G		G	G	G	G	G	G	G	G
28	G	G	G	G	11	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	30	G
29	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
30	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G		G	G	G	G	G	G	G
31	G	G	G	G	G	G	G	G	G	G	G	53	G	G	G	G	64	57	46	45	40	G	28	29
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	26	27	31	30	28	25	18	30	31	27	27	28	30	29	30	29	29	30	31	31	30	31	29	28
MED	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
U Q	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	49	42	34	G	G	G	G	G
L Q	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G

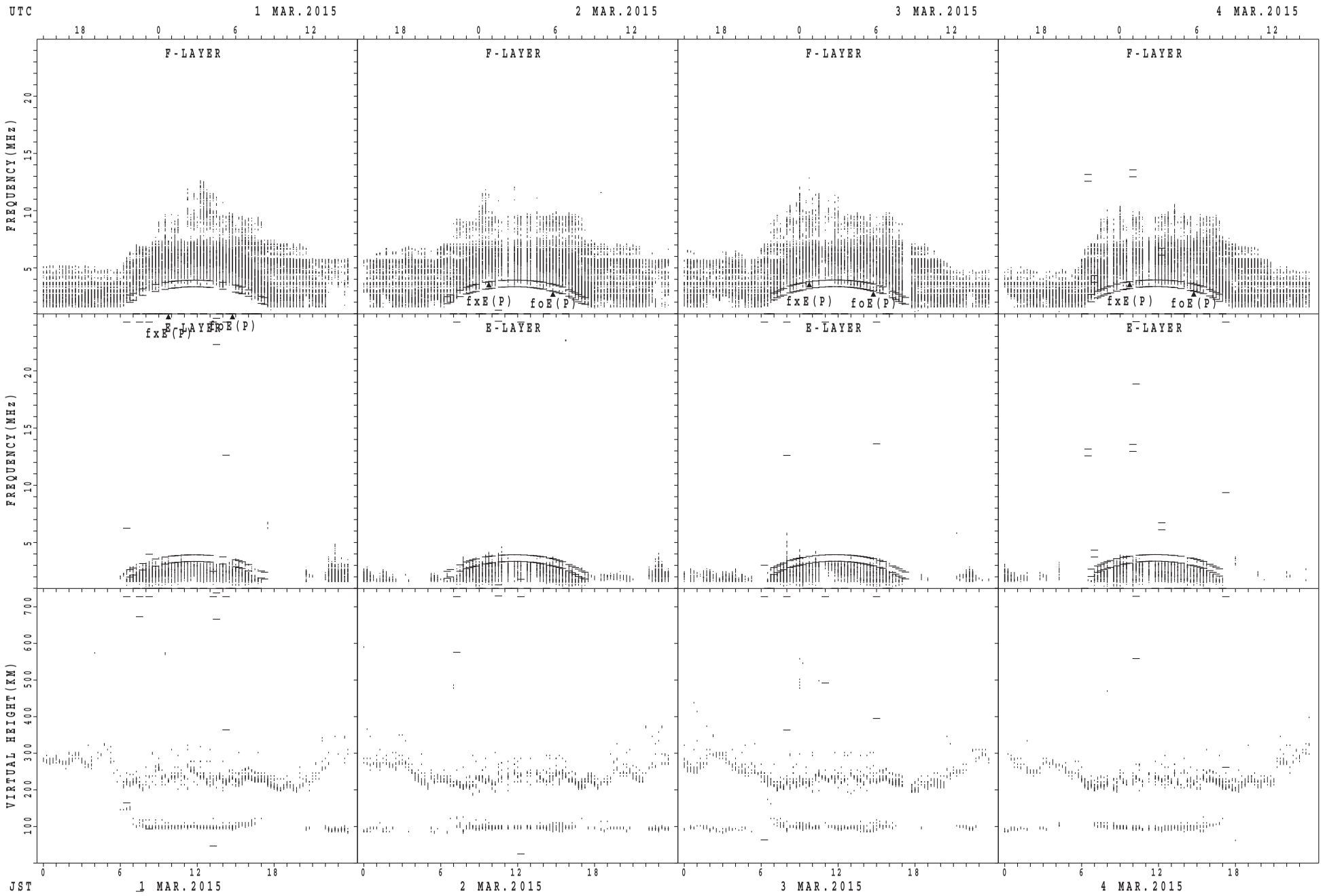
HOURLY VALUES OF fmin AT Okinawa

MAR. 2015

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

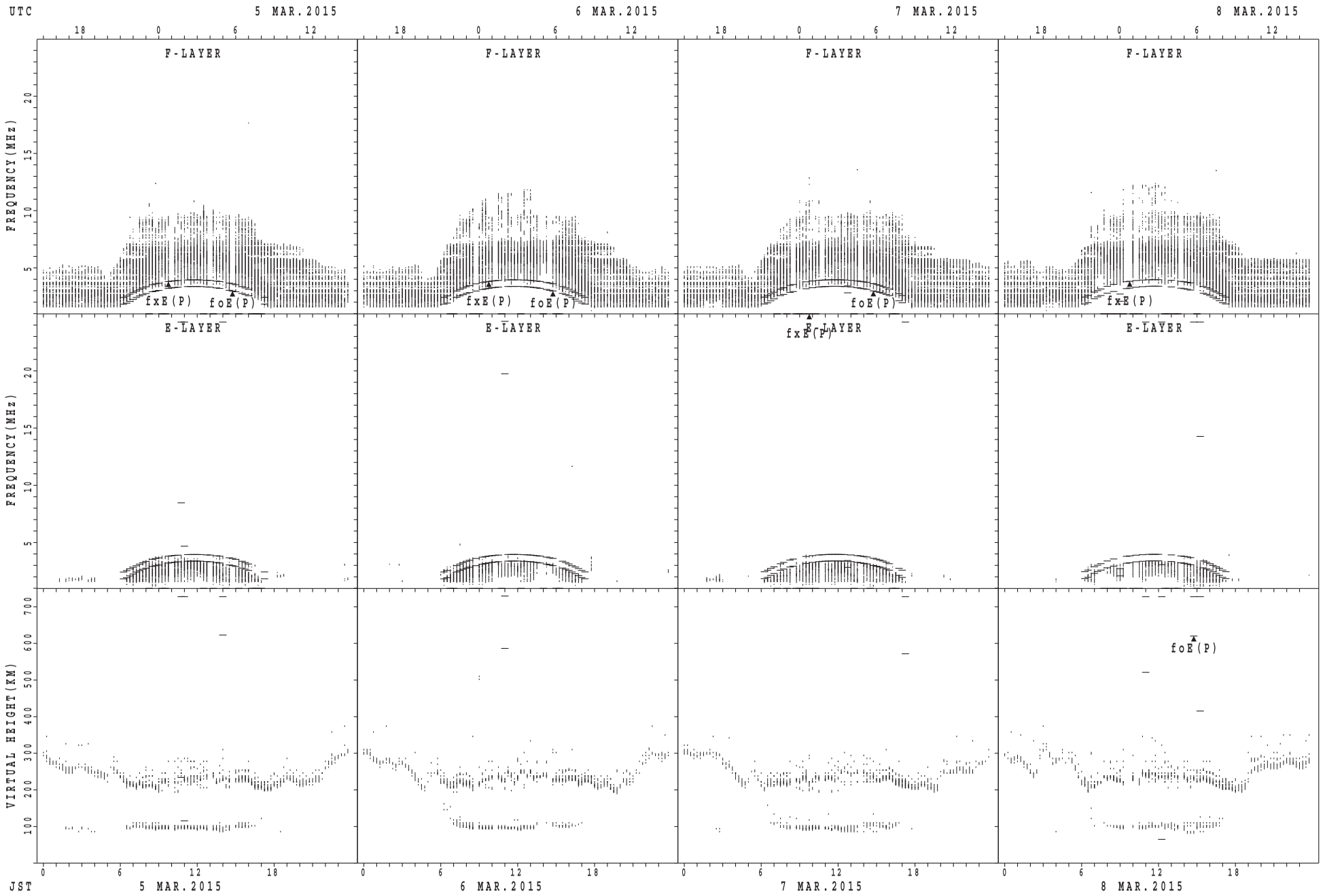
D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	20	18	16	18	18	18	B	22	29	39	43	50	59	39	49	38	29	40	23	17	17	15	21	20
2	17	18	18	15	16	17	B	38	29	36	44	53	52	62	50	43	44	39	27	20	30	18	43	16
3	15	16	18	B	17	20	B	21	30	22	44	58	54	63	60	43	43	18	26	18	18	17	18	21
4	42	43	17	18	17	18	B	21	17	40	39	49	52	50	44	40	21	18	18	15	18	20	17	20
5	15	18	17	20	17	16	B	23	29	20	40	45	50	52	54	46	42	18	23	16	17	18	21	20
6	17	20	42	17	17	18	66	24	18	42	43	52	52	55	98	66	52	40	29	20	36	15	17	21
7	39	18	20	20	16	66	20	22	29	39	52	52	43	42	49	45	35	23	32	18	20	16	15	B
8	20	18	40	21	21	18	20	28	42	43	44	56	56	59	59	48	33	24	17	20		38	18	20
9	45	42	20	20	18	20	18	24	18	40	40	46	60	53	53	52	33	21	15	18	21	14	20	21
10	18	20	81	40	18	20	B	22	28	B	54	48	45	60	49	45	43	32	30	16	18	17	17	43
11	B	B	66	66	71	17	17	27	17	111	44	52	43	43	54	42	40	43	15	17	16	40	42	42
12	66	20	15	66	17	B	66	22	32	40		53	44	42	72	42	32	27	17	16	15	18	42	21
13	42	40	21	40	15	66	B	32	29	40	58	40	91	100	51	53	40	21	16	17	21	20	18	20
14	20	22	18	22	18	21	B	24	20	39	43	53	52	48	58	50	40	20	32	18	17	17	20	20
15	17	15	15	17	17	18	17	27	34	39	43	50	71	N	66	50	42	43	27	17	23	20	15	15
16	B	22	17	66	B	B	18	27	38	40	46	54	49	59	50	53	42	21	24	40	16	17	17	42
17	18	17	17	18	16	16	15	26	20	20	39	38	40	46	40	36	36	21	16	16	18	20	17	20
18	71	B	66	20	66	B	B	B	66	B	B	B	40	B	50	44	43	40	17	16	81	20	B	B
19	B	24	16	17	21	B	B	28	39	C	C	C	C	C	C	C	C	C	23	22	15	18	46	B
20	18	B	18	15	B	B	B	24	18	C	C	C	62	63	55	43	42	33	18	17	17	17	B	71
21	B	66	16	18	28	21	B	24	29	41	42	62	50	35	52	43	43	40	18	20	16	20	66	24
22	B	20	20	15	18	66	B	24	20	41	44	53	54	49	49	49	39	38	16	21	15	16	18	15
23	17	B	16	20	B	B	20	15	28	40	44	53	40	53	48	44	36	22	18	17	18	66	20	20
24	17	16	40	24	16	17	23	15	20	42	40	50	54	55	40	40	38	24	38	20	18	20	17	47
25	18	21	21	16	16	17	18	28	33	43	46	49	52	61	72	55	48	39	29	22	20	22	24	16
26	21	45	71	30	66	42	21	27	17	43	46	60	52	54	72	60	40	38	27	21	18	40	81	18
27	18	18	18	20	18	15	17	23	29	44	42	55	62	49	52		42	38	34	18	17	29	20	21
28	20	21	18	20	18	20	18	27	39	58	48	58	55	69	60	48	42	30	29	20	20	20	15	71
29	22	20	20	20	22	18	17	27	39	43	45	62	55	58	61	42	52	43	38	20	40	17	17	18
30	42	18	18	17	18	18	17	27	21	21	65	70	61	54	59	59		39	32	21	20	16	18	16
31	16	18	20	18	18	17	22	27	38	43	54	44	60	65	53	65	40	29	16	14	17	21	14	16
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	26	27	31	30	28	25	18	30	31	27	27	28	30	28	30	29	29	30	31	31	30	31	29	28
MED	19	20	18	20	18	18	18	24	29	40	44	52	52	54	53	45	40	31	23	18	18	18	18	20
U Q	39	22	21	22	19	20	21	27	34	43	46	55	59	60	60	52	43	39	29	20	20	20	22	22
L Q	17	18	17	17	17	17	17	22	20	39	42	49	49	48	49	42	36	21	17	17	17	17	17	18

SUMMARY PLOTS AT Wakkanai



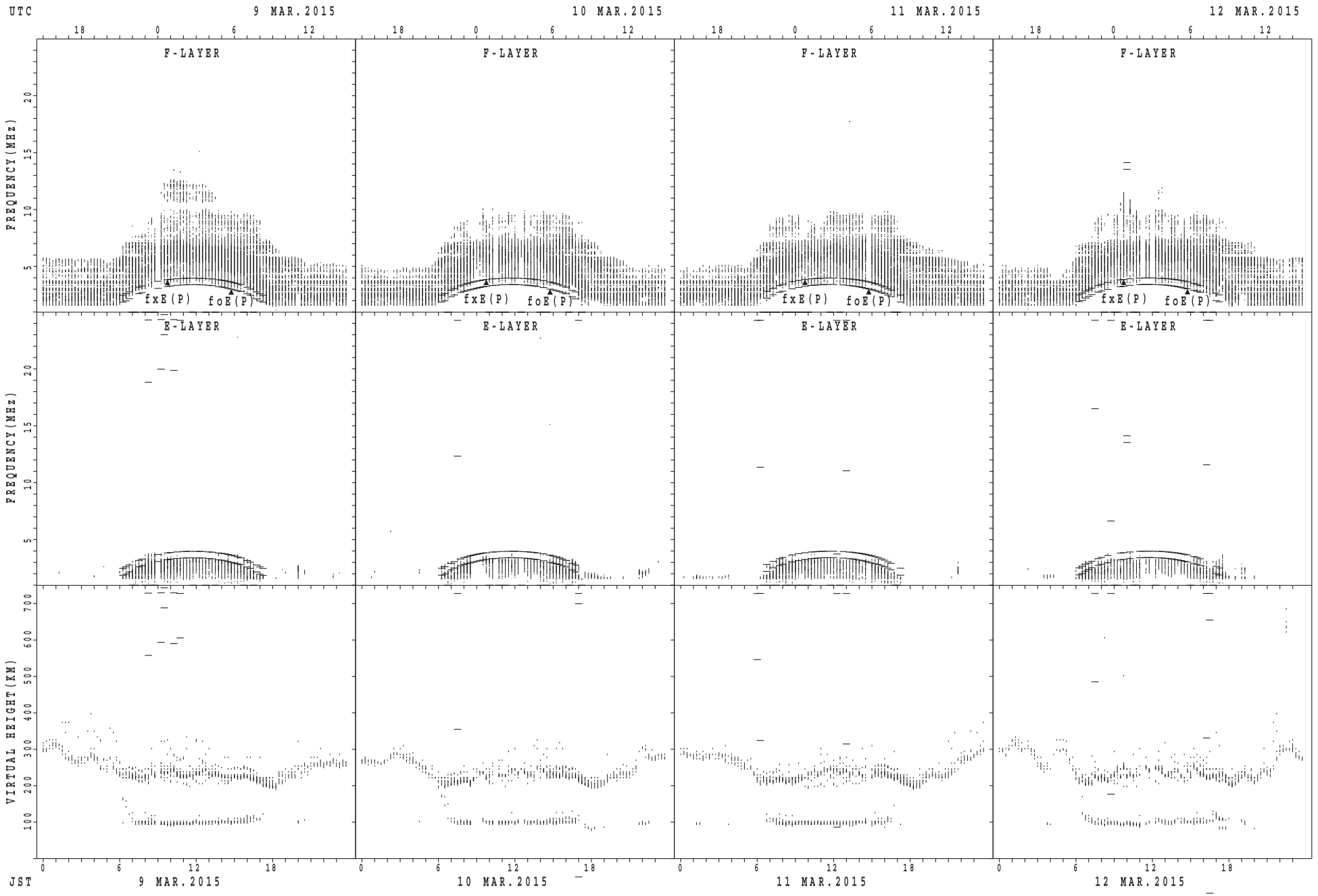
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



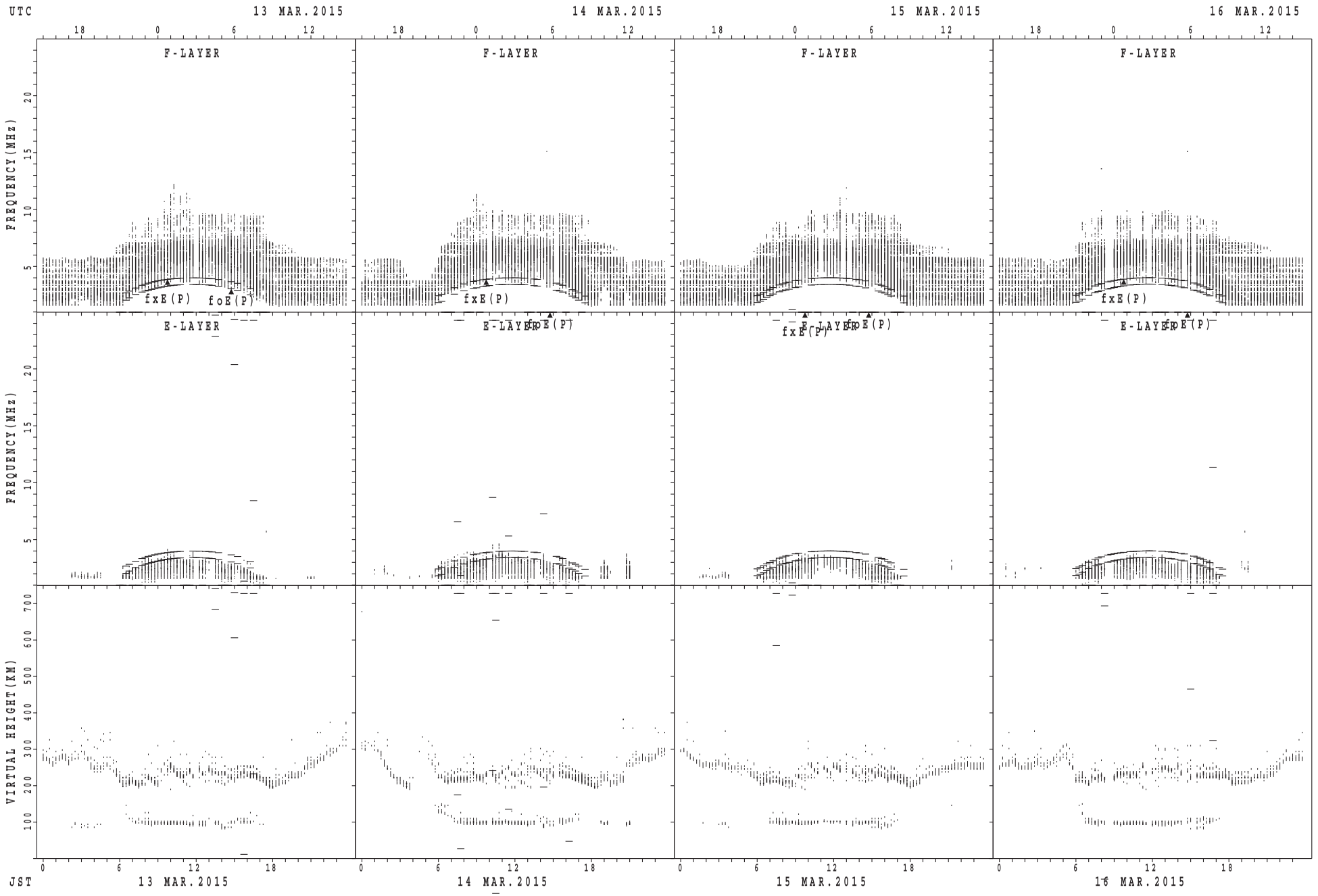
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



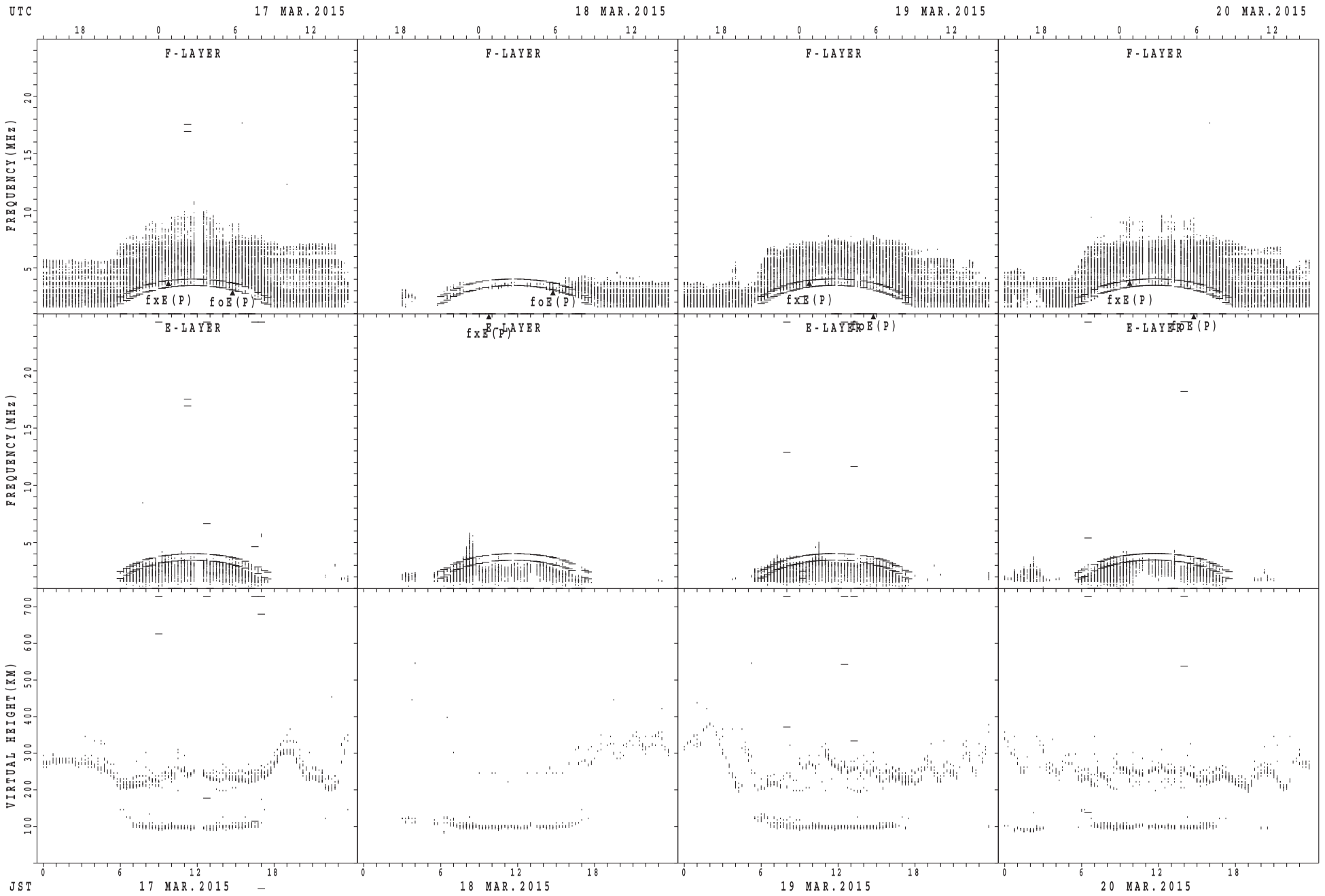
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



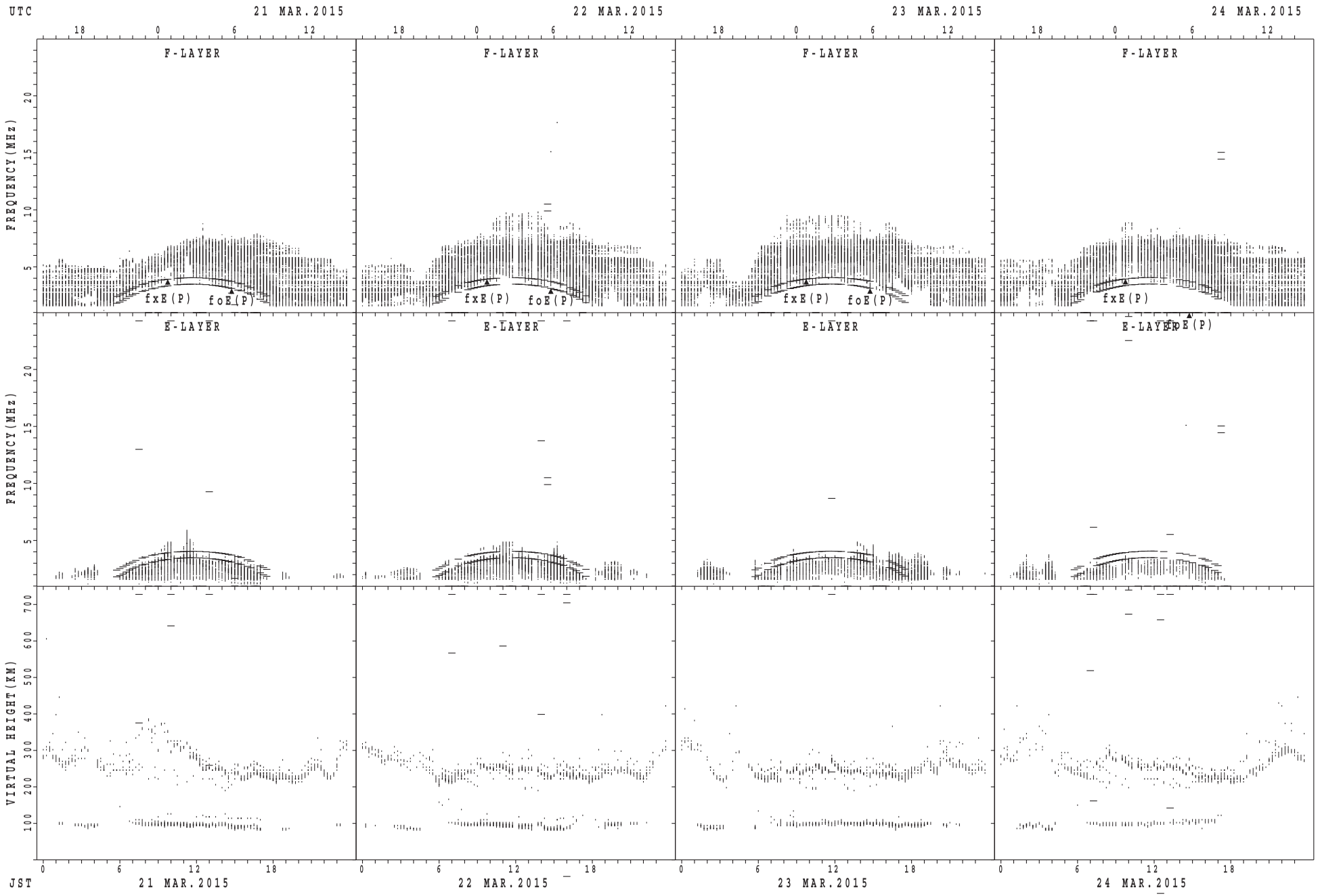
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



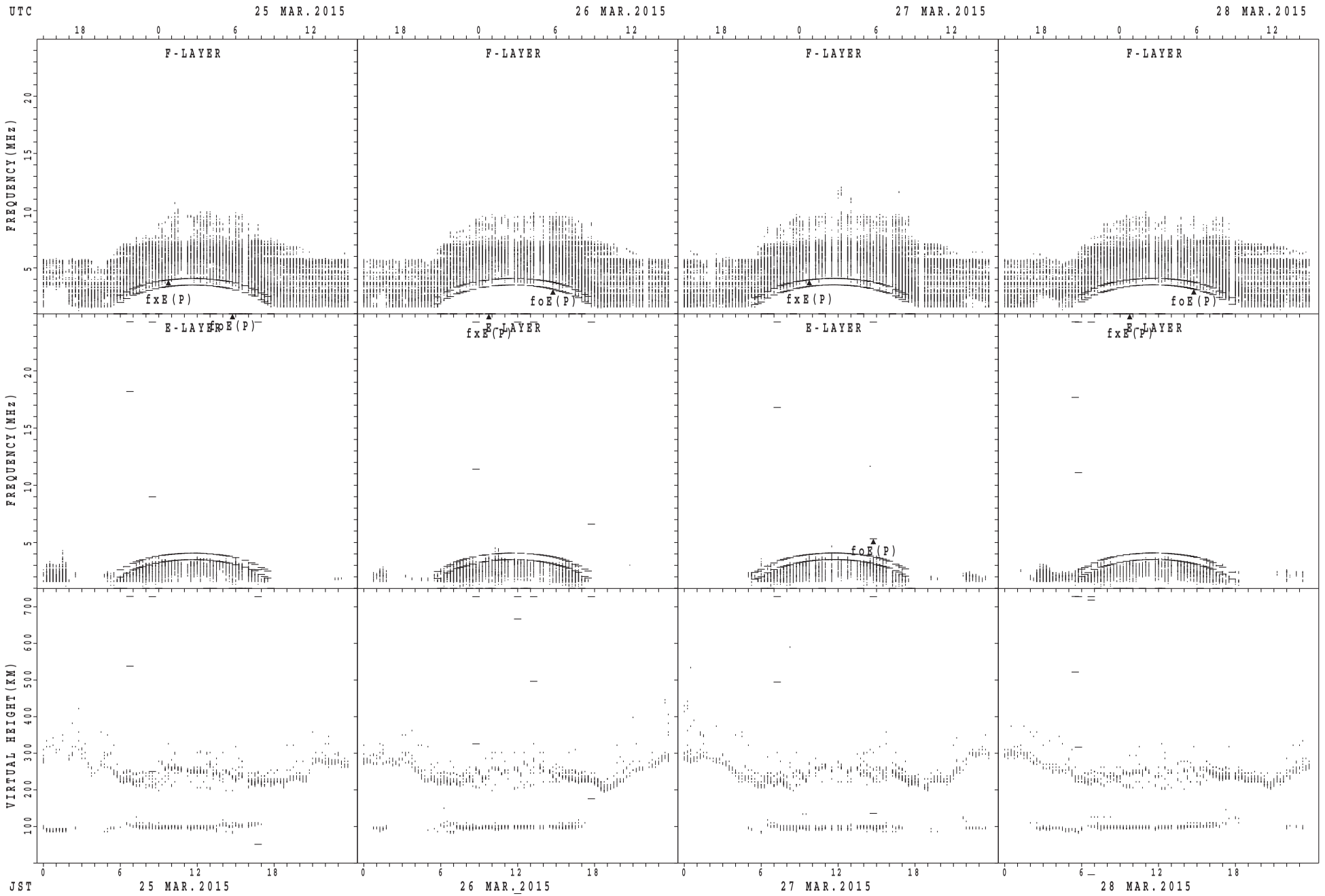
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



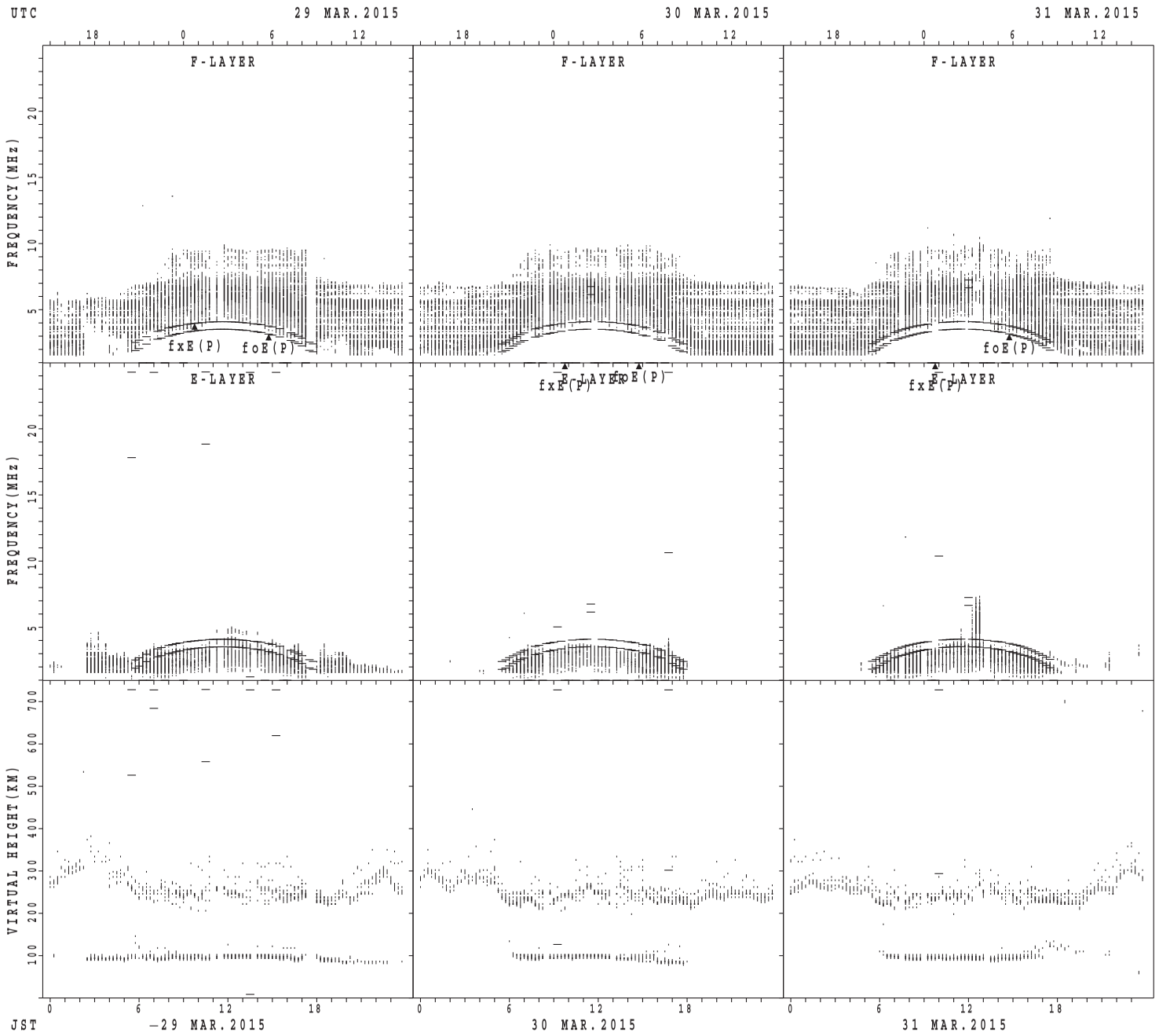
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai

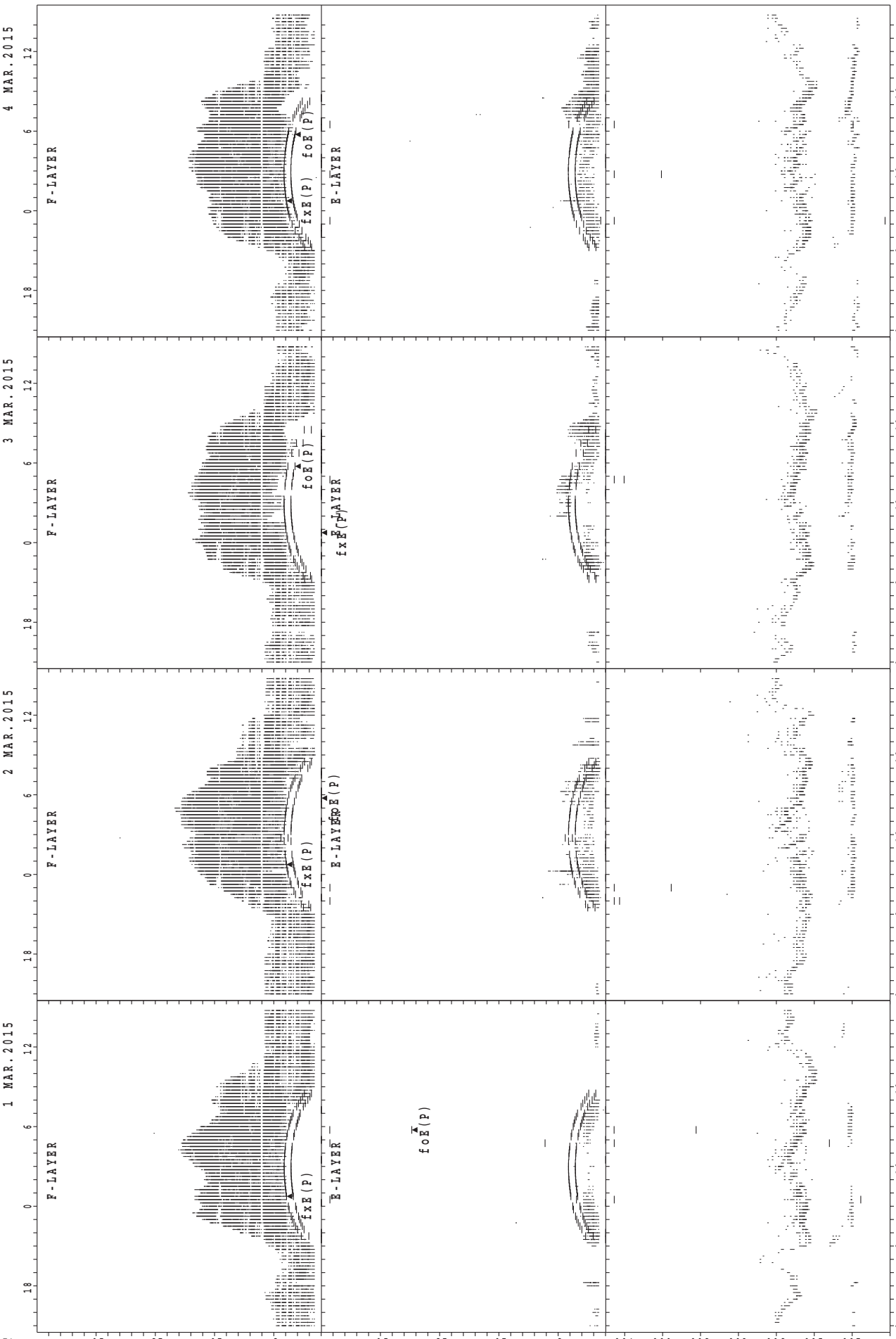


fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

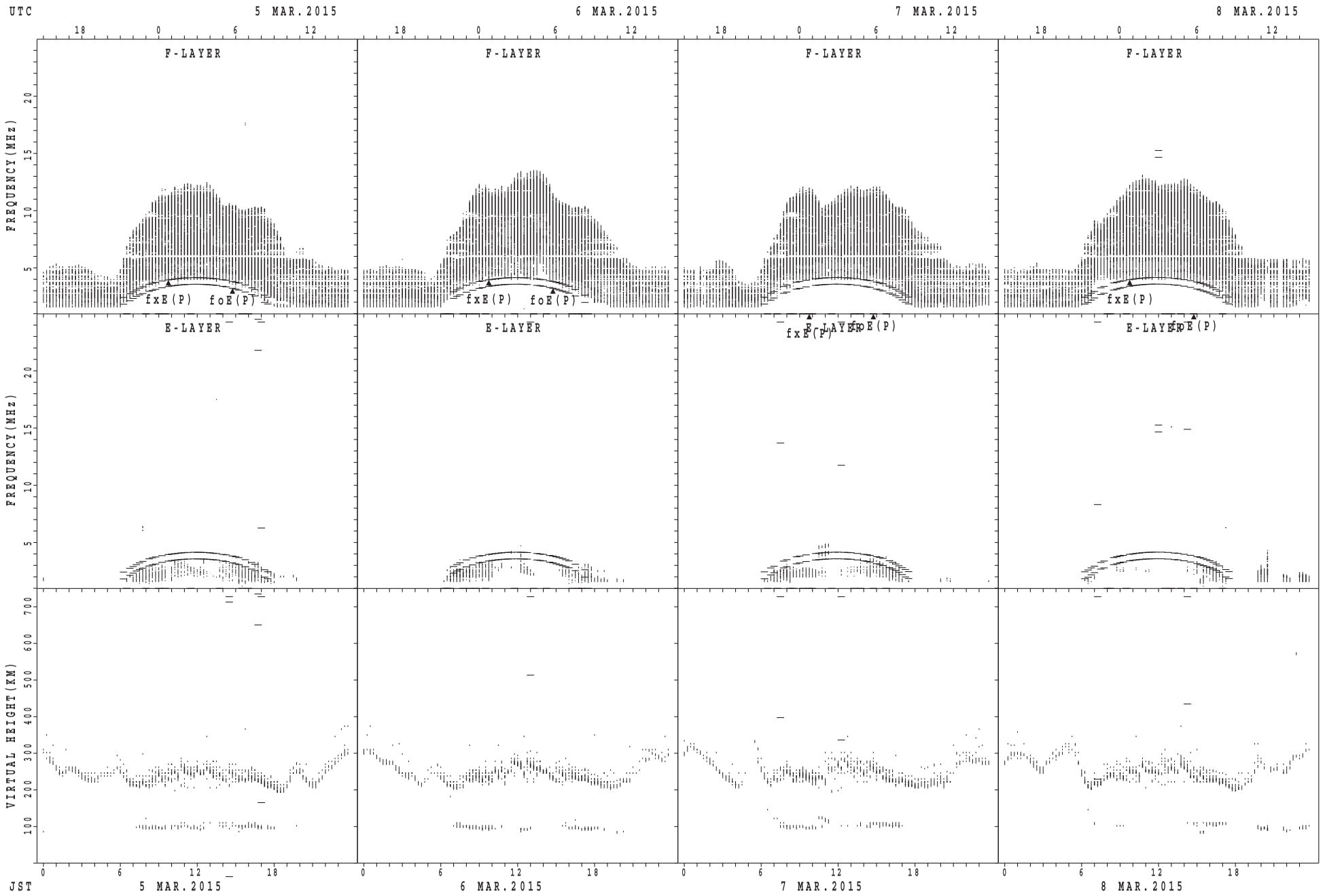
SUMMARY PLOTS AT Wakkanai



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

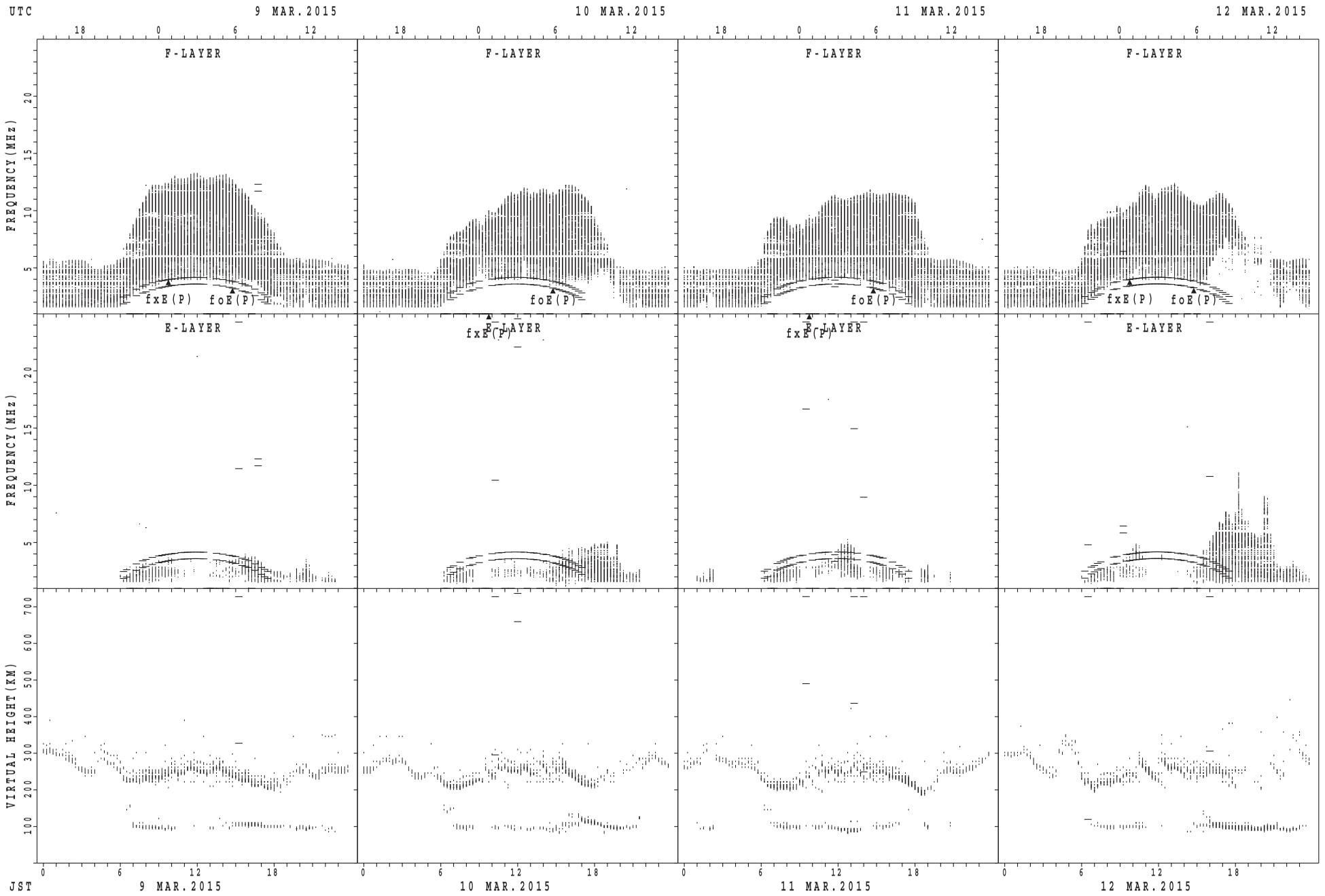

SUMMARY PLOTS AT Kokubunji
UTC
JST
1 MAR.2015
2 MAR.2015
3 MAR.2015
4 MAR.2015
F-LAYER
E-LAYER
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
fxE(P)
foE(P)
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



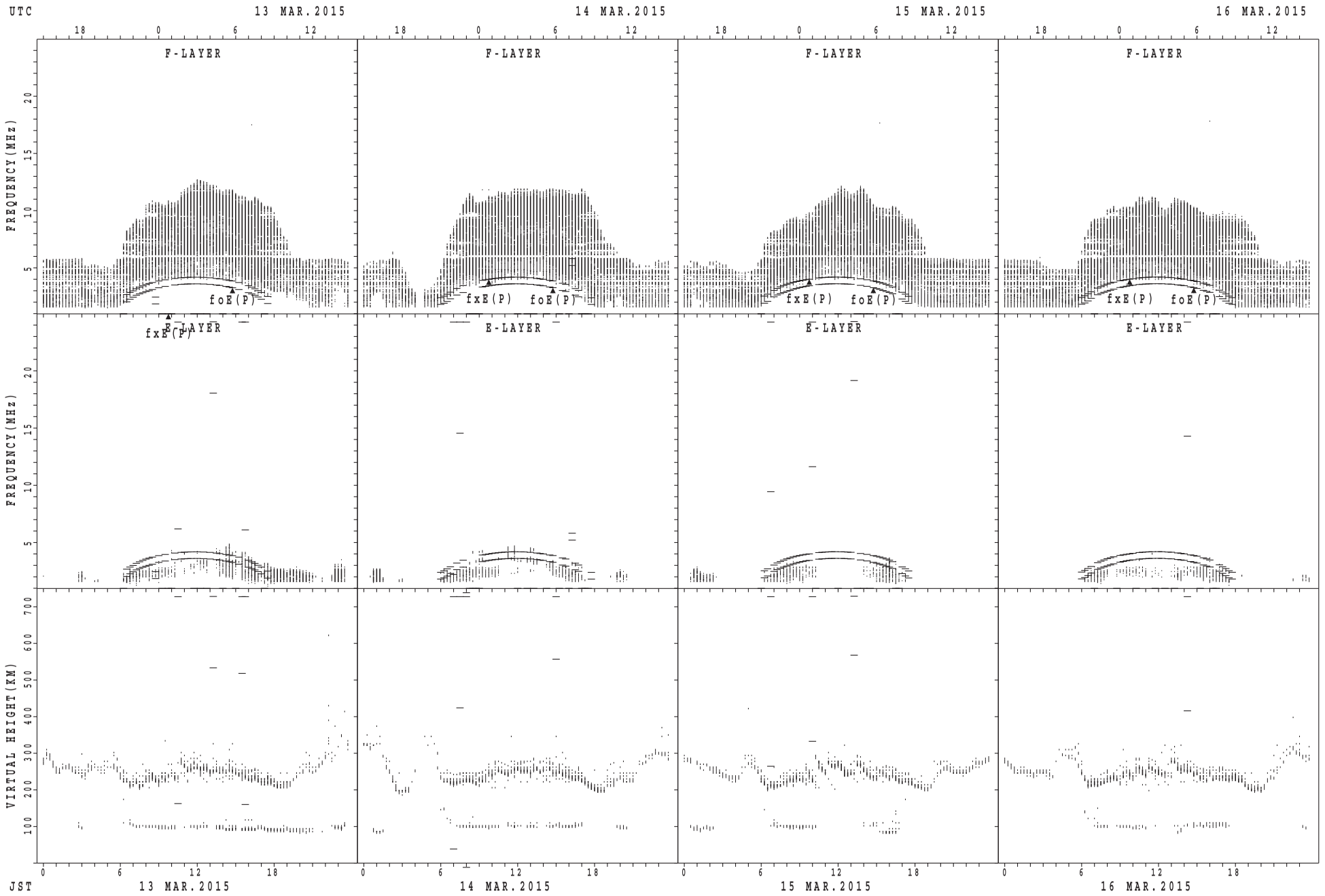
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



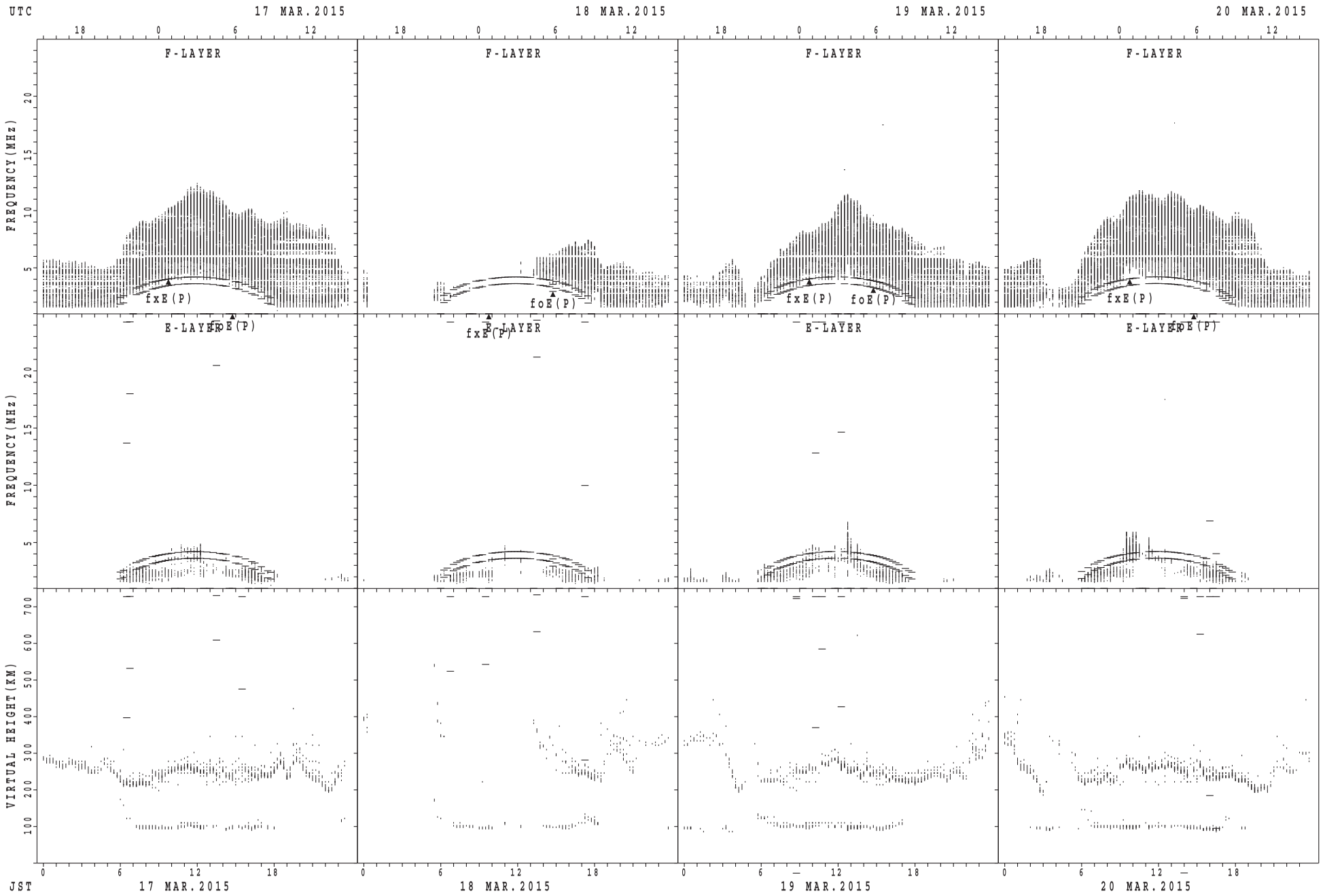
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



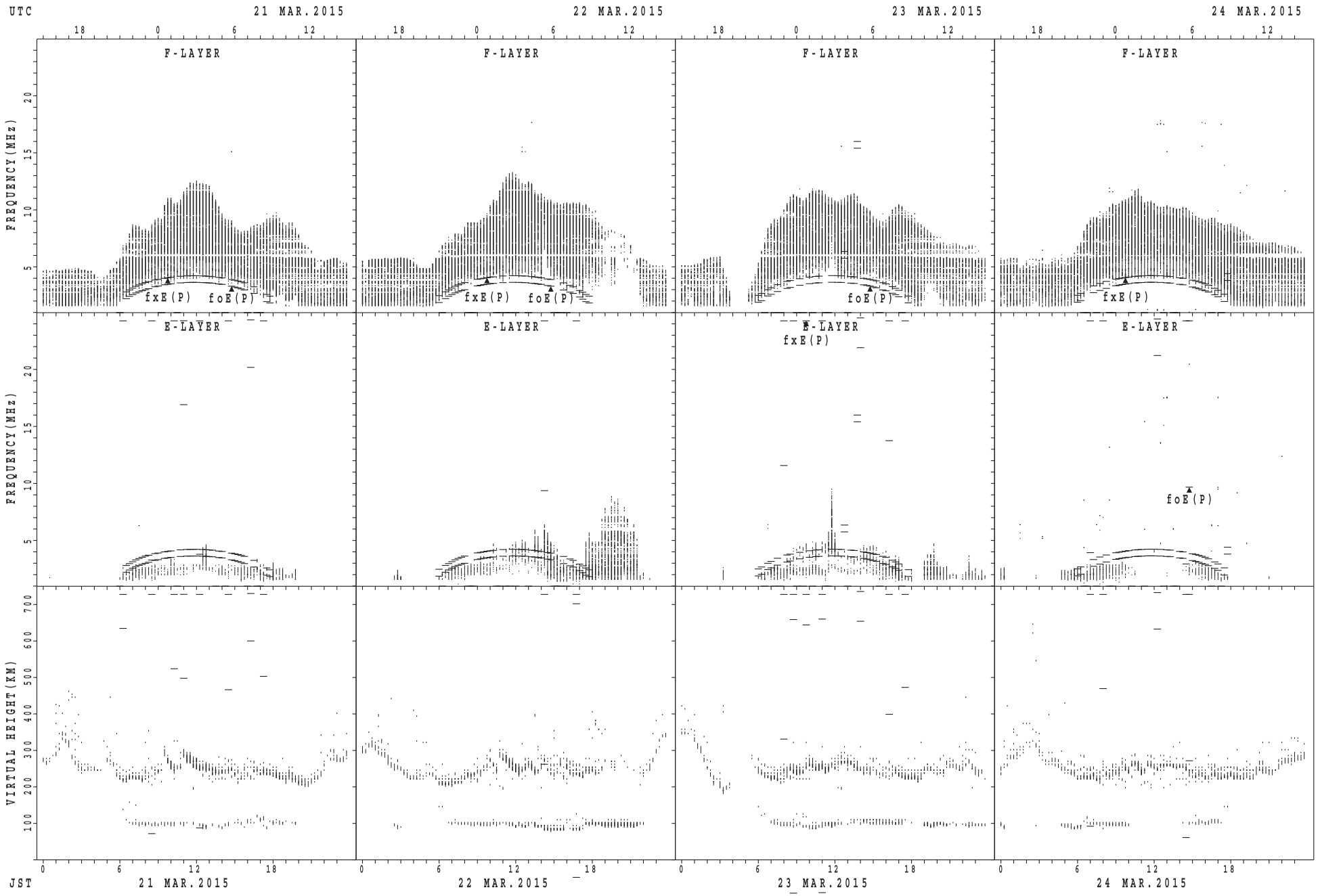
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



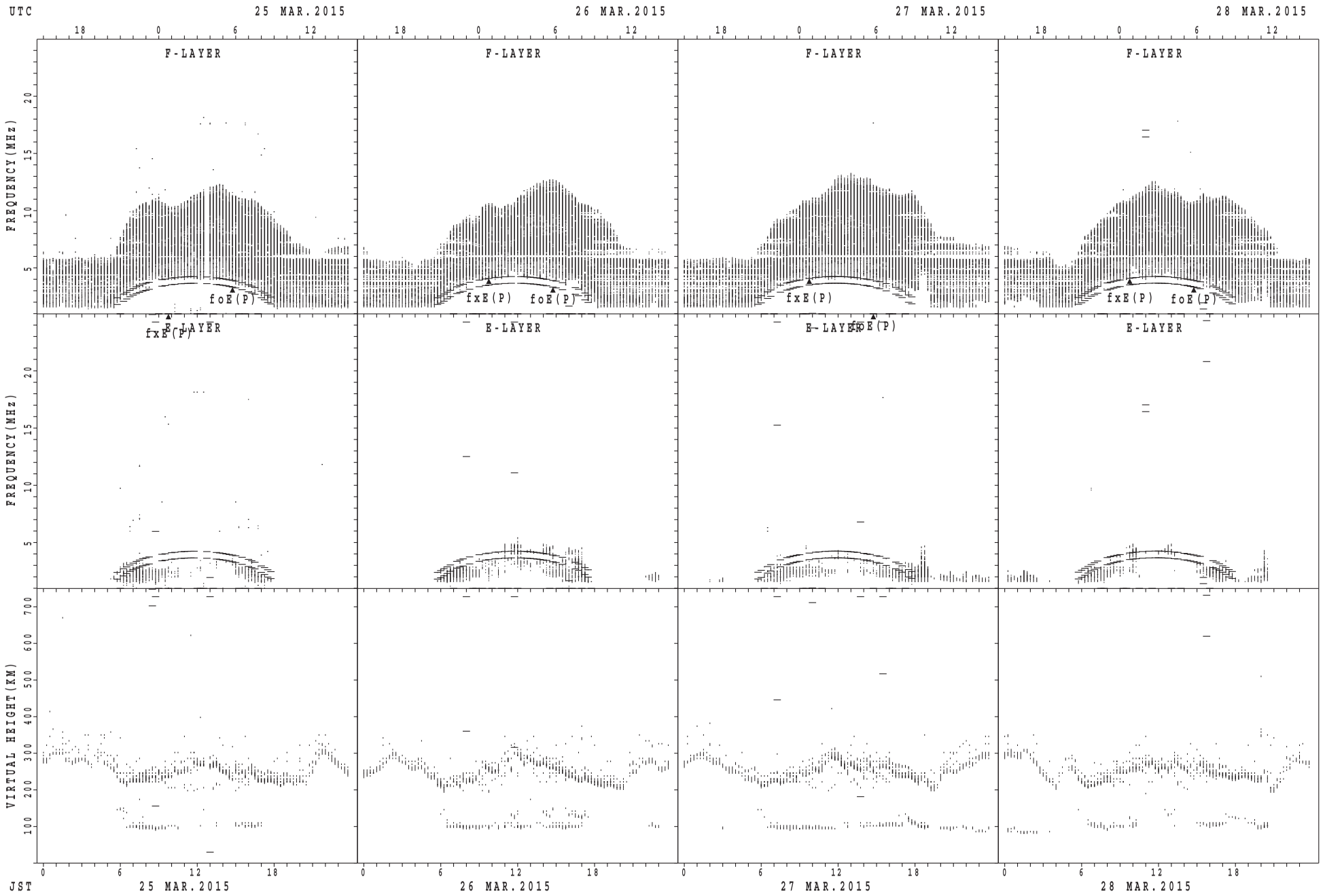
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



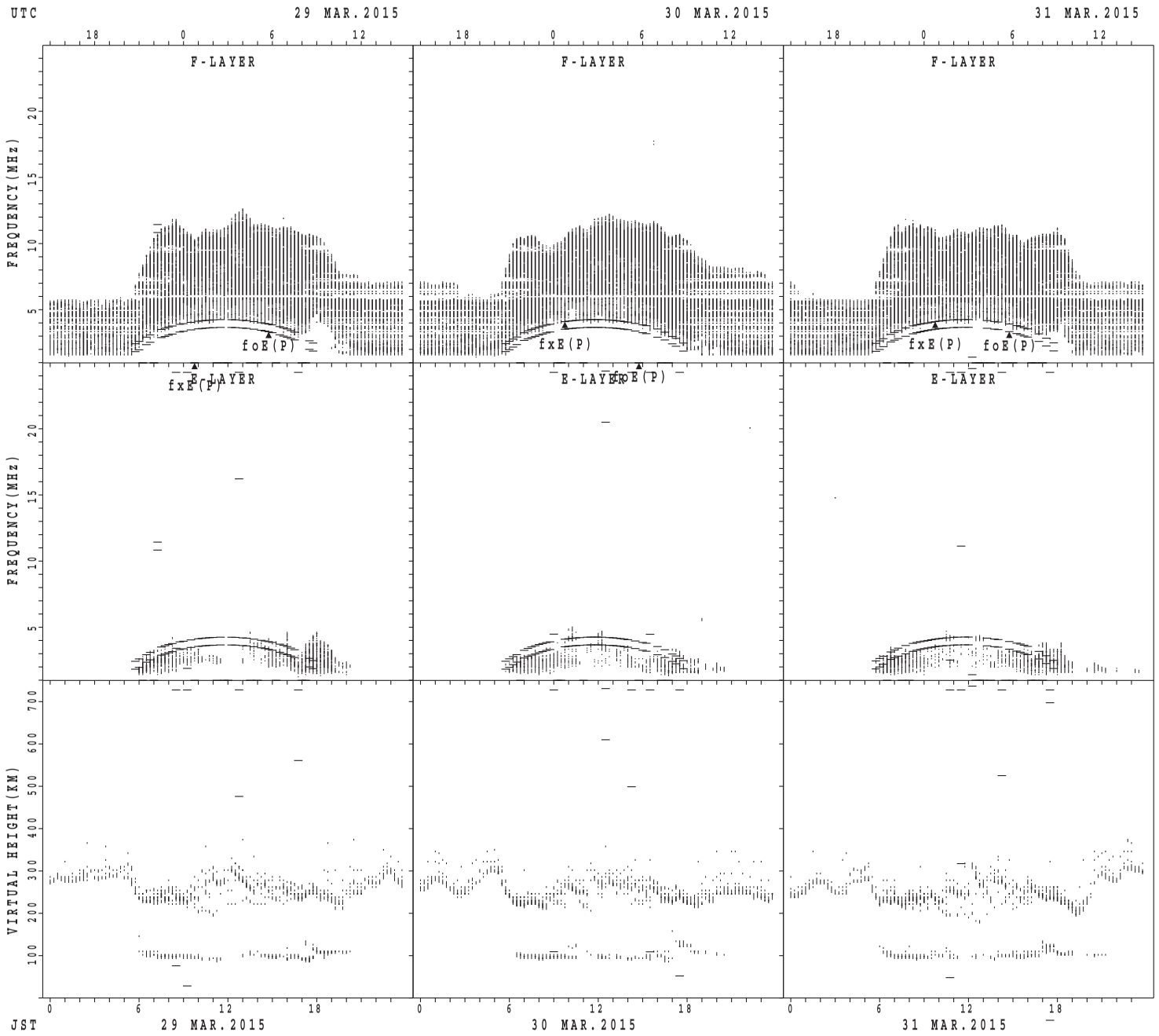
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



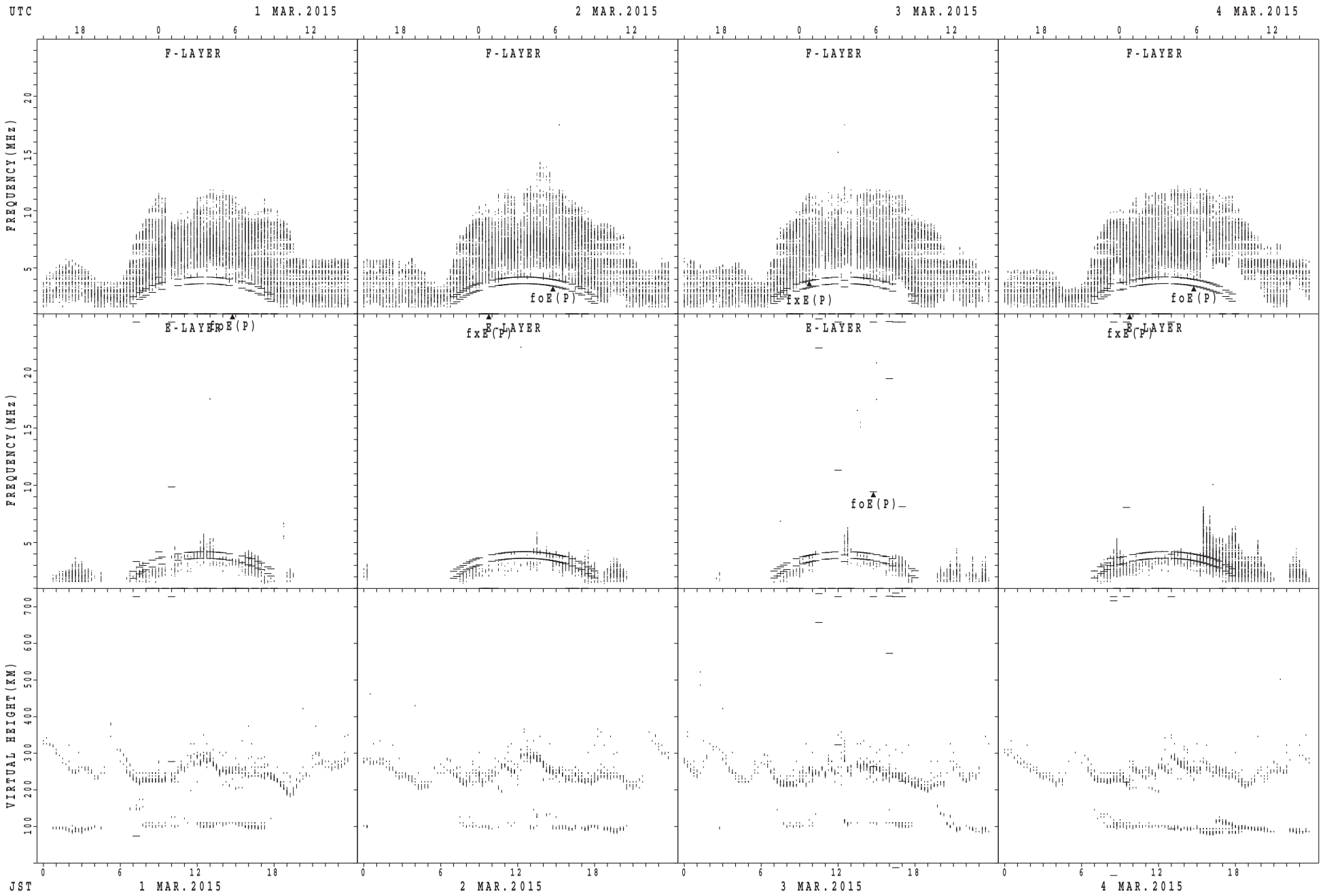
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji

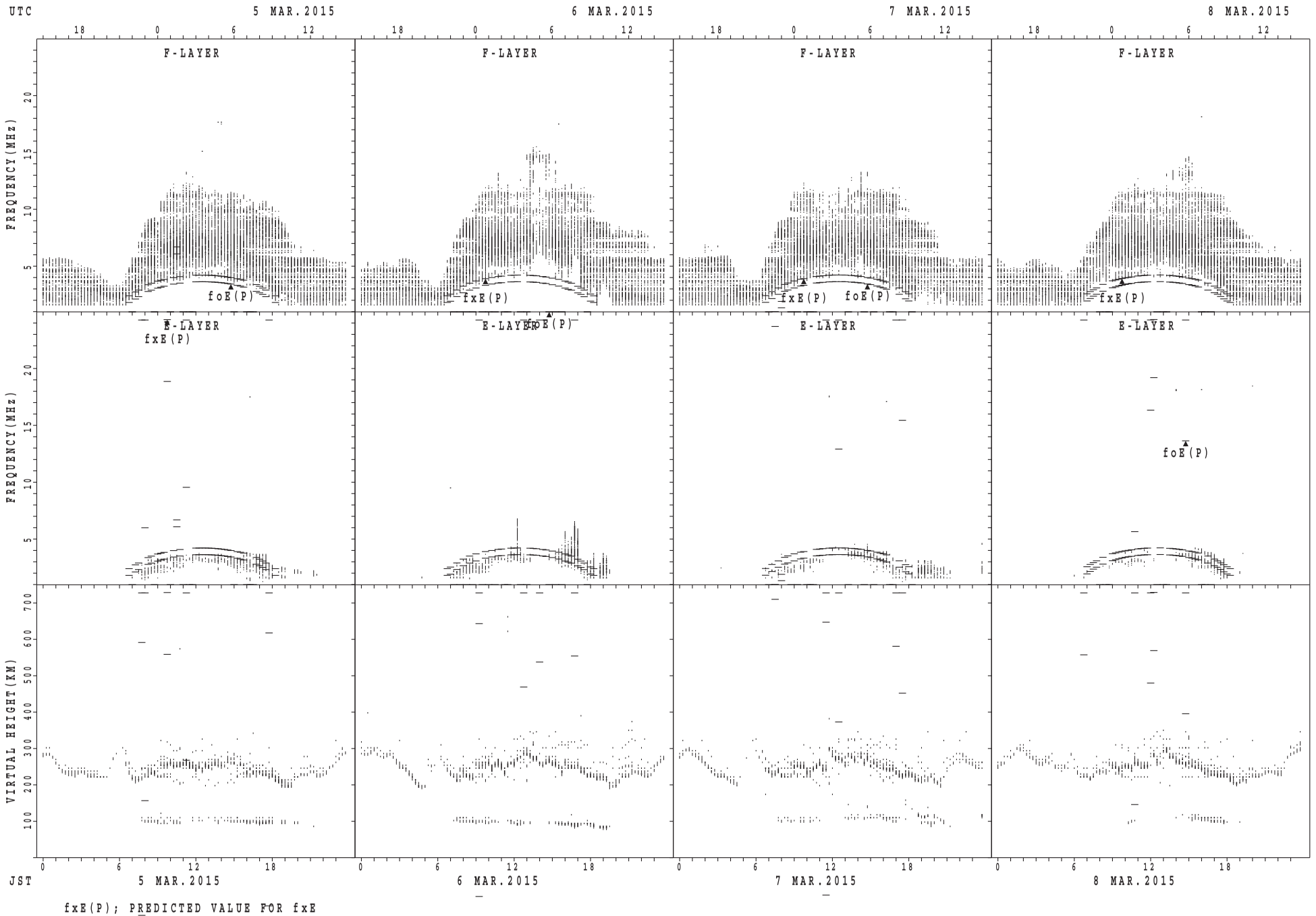


fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE_FOR foE

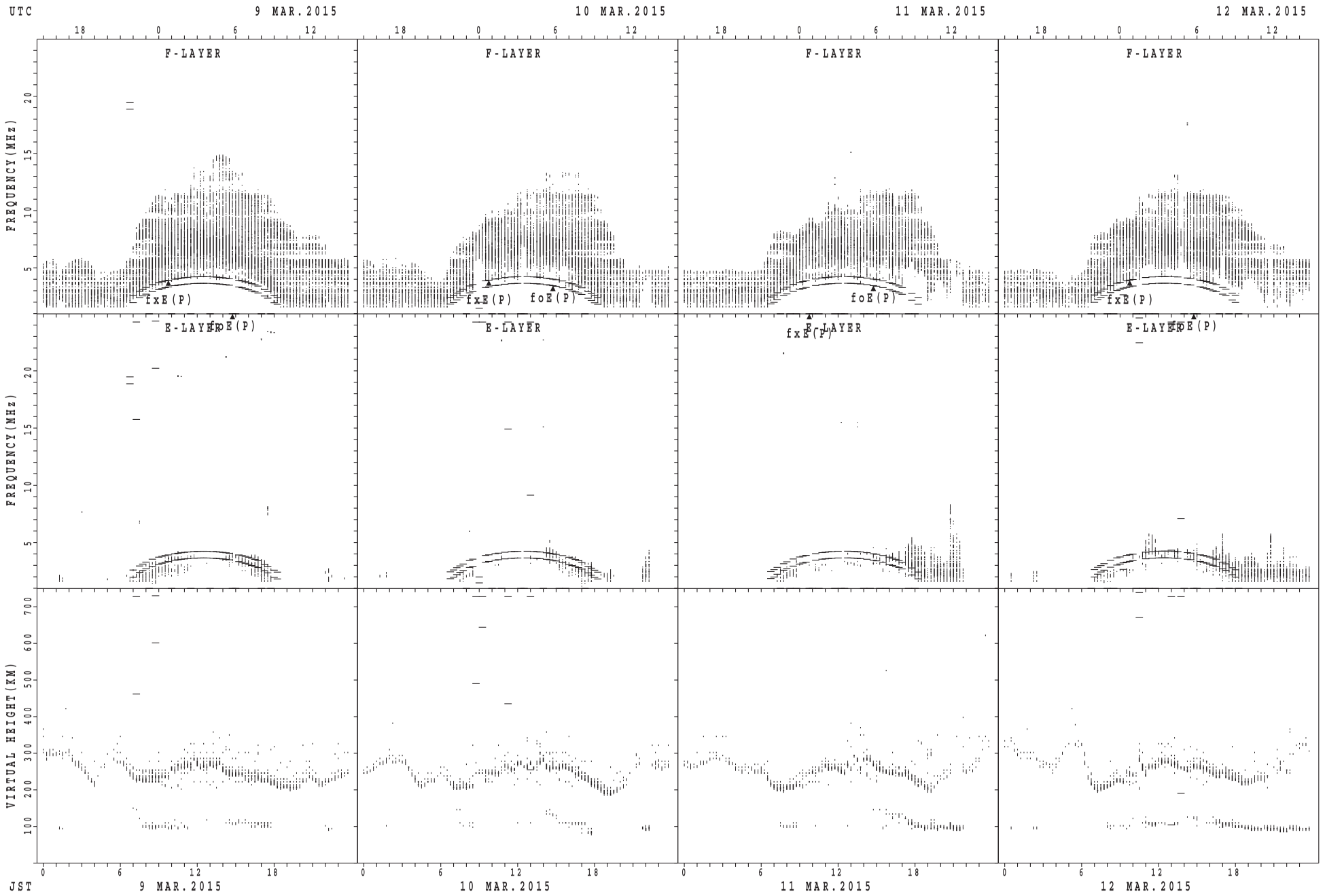
SUMMARY PLOTS AT Yamagawa



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

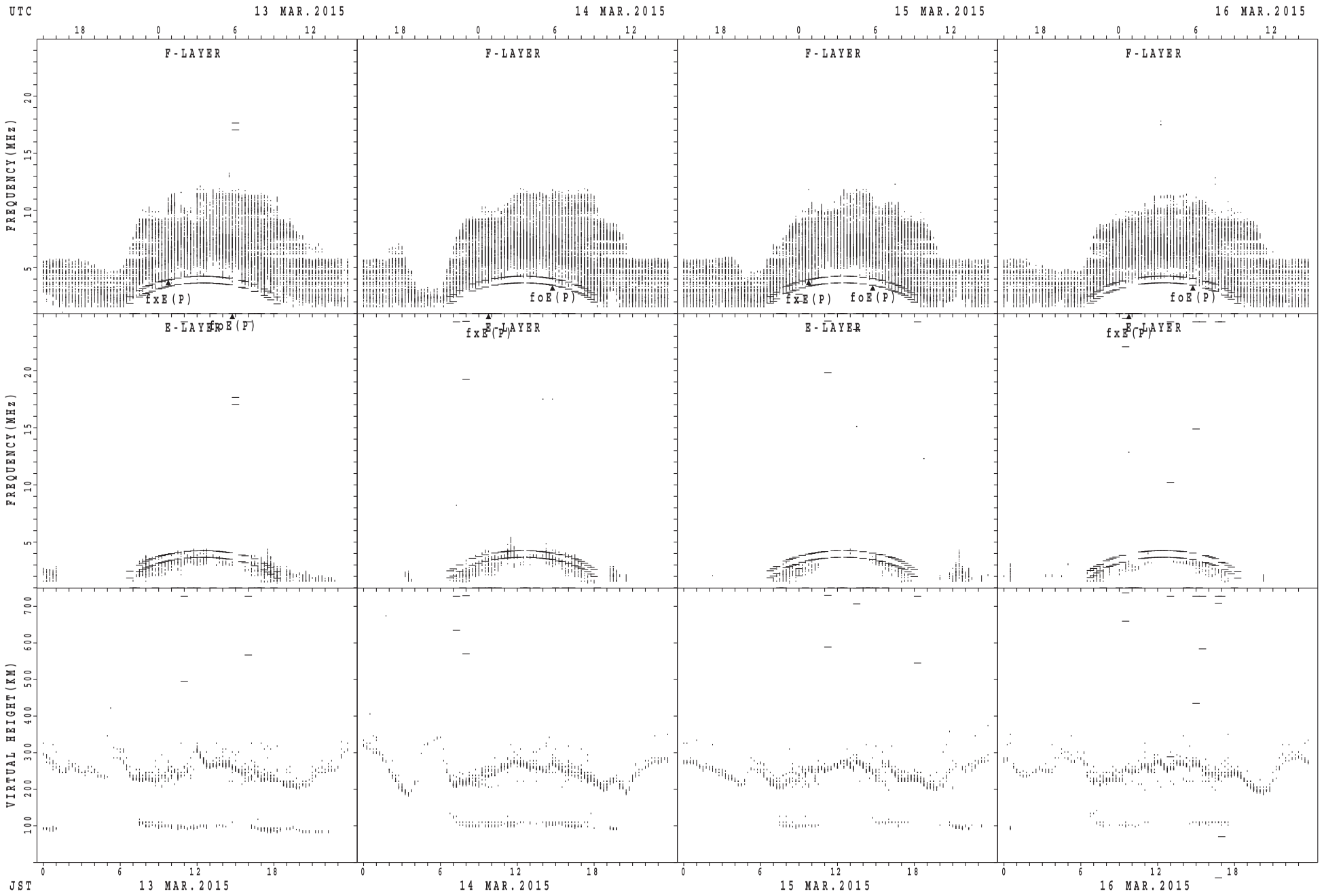

SUMMARY PLOTS AT Yamagawa
UTC
5 MAR.2015
6 MAR.2015
7 MAR.2015
8 MAR.2015
F-LAYER
E-LAYER
FREQUENCY(MHz)
VIRTUAL HEIGHT(KM)
foE(P)
fxE(P)
JST
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



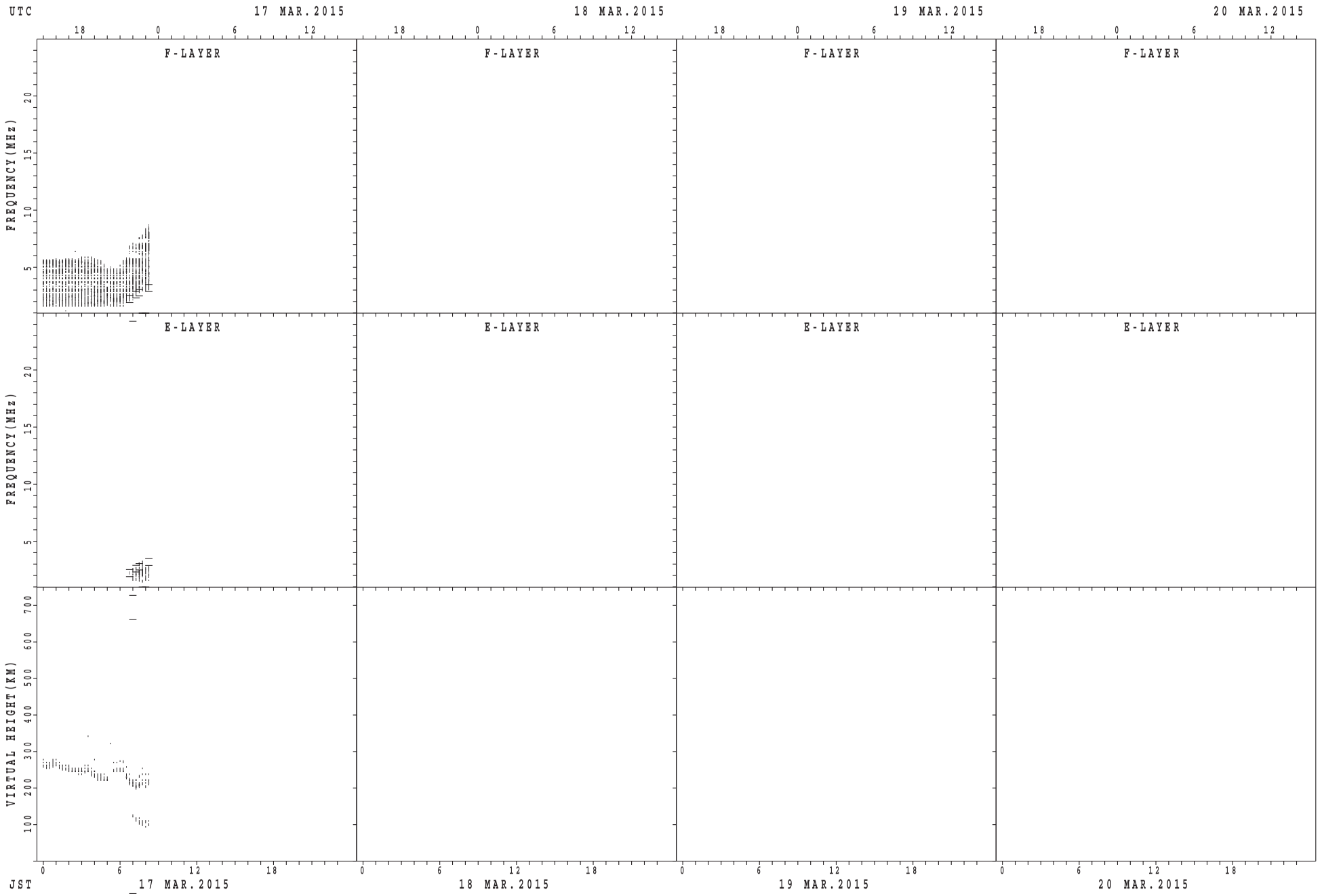
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



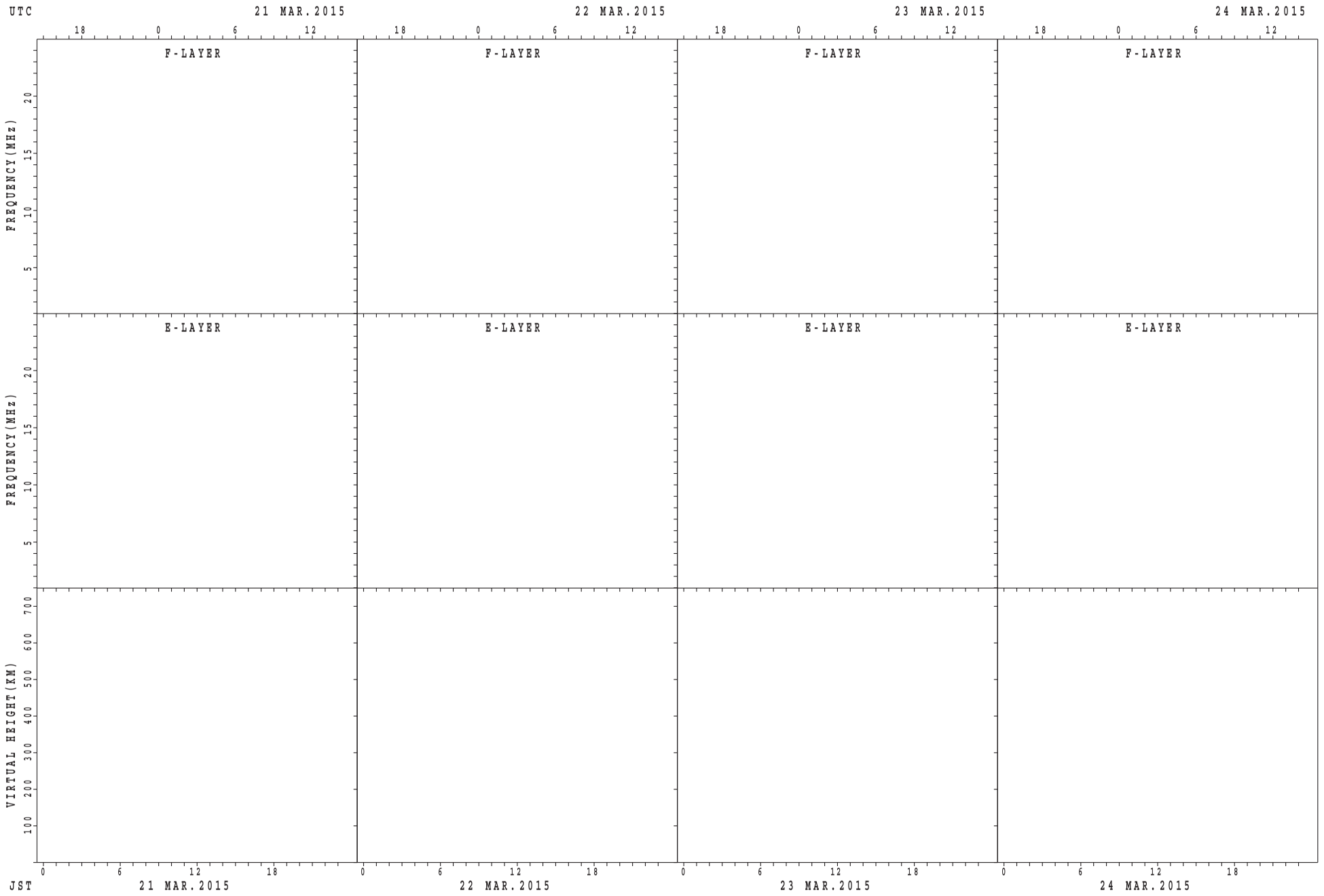
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



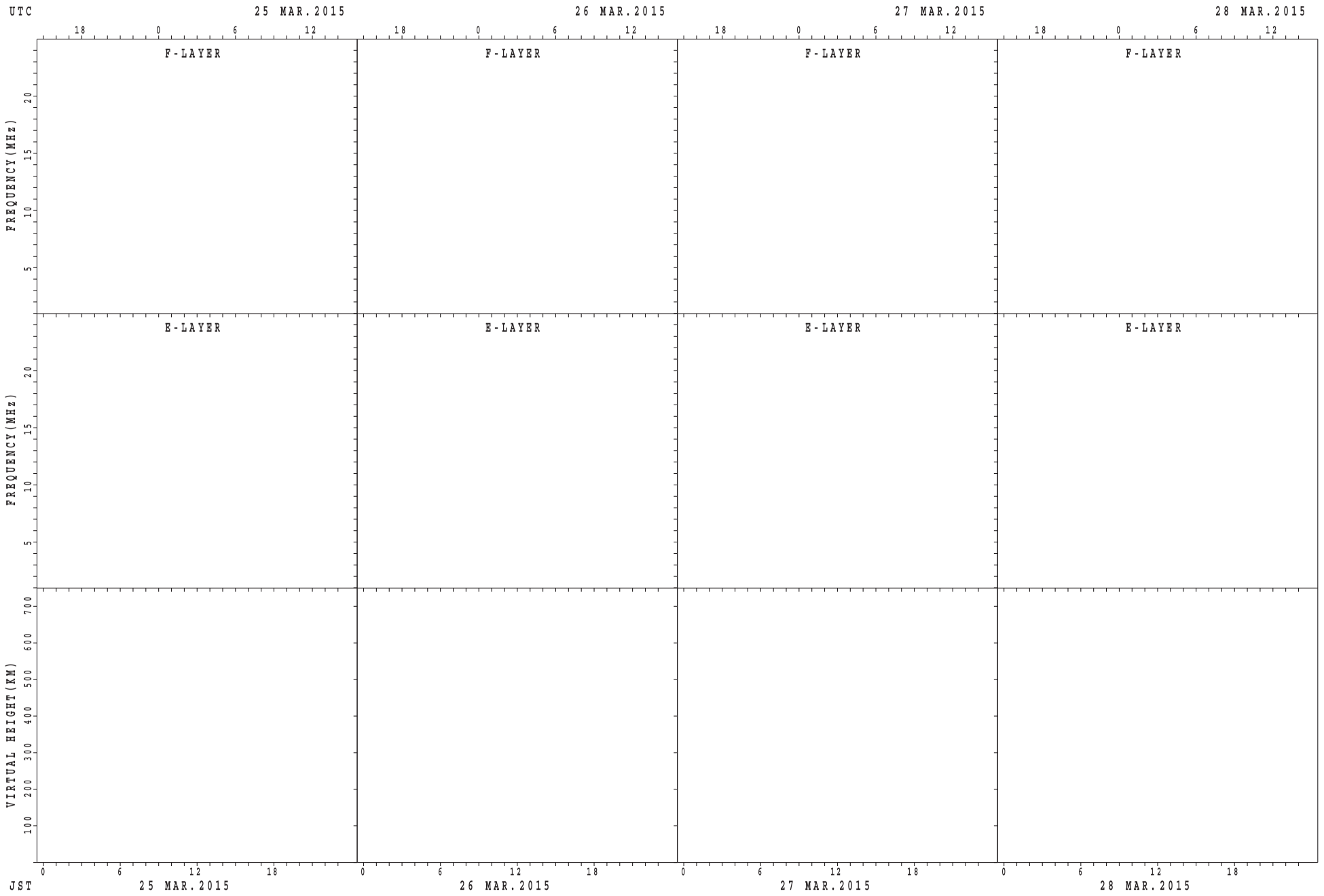
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



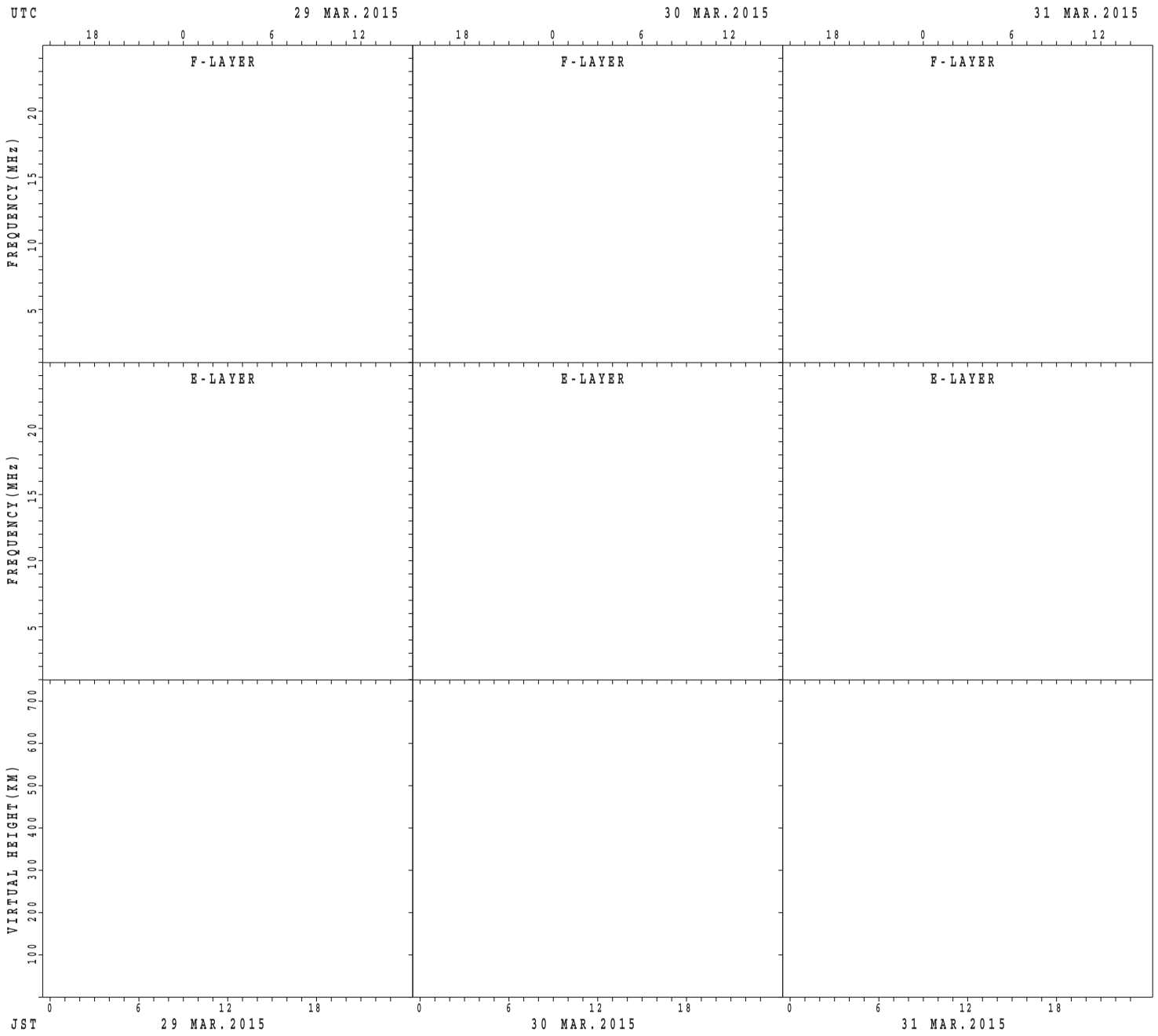
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



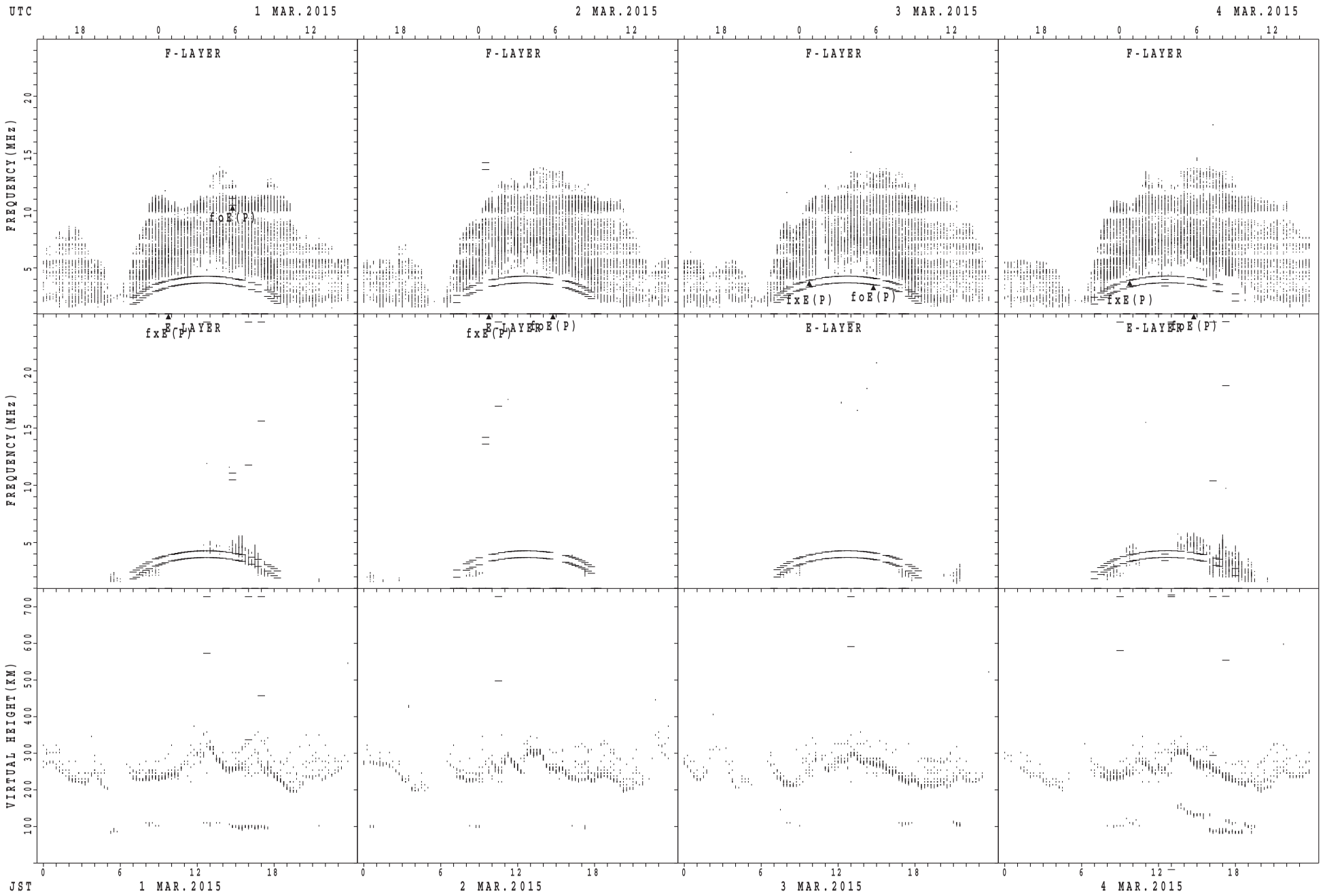
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



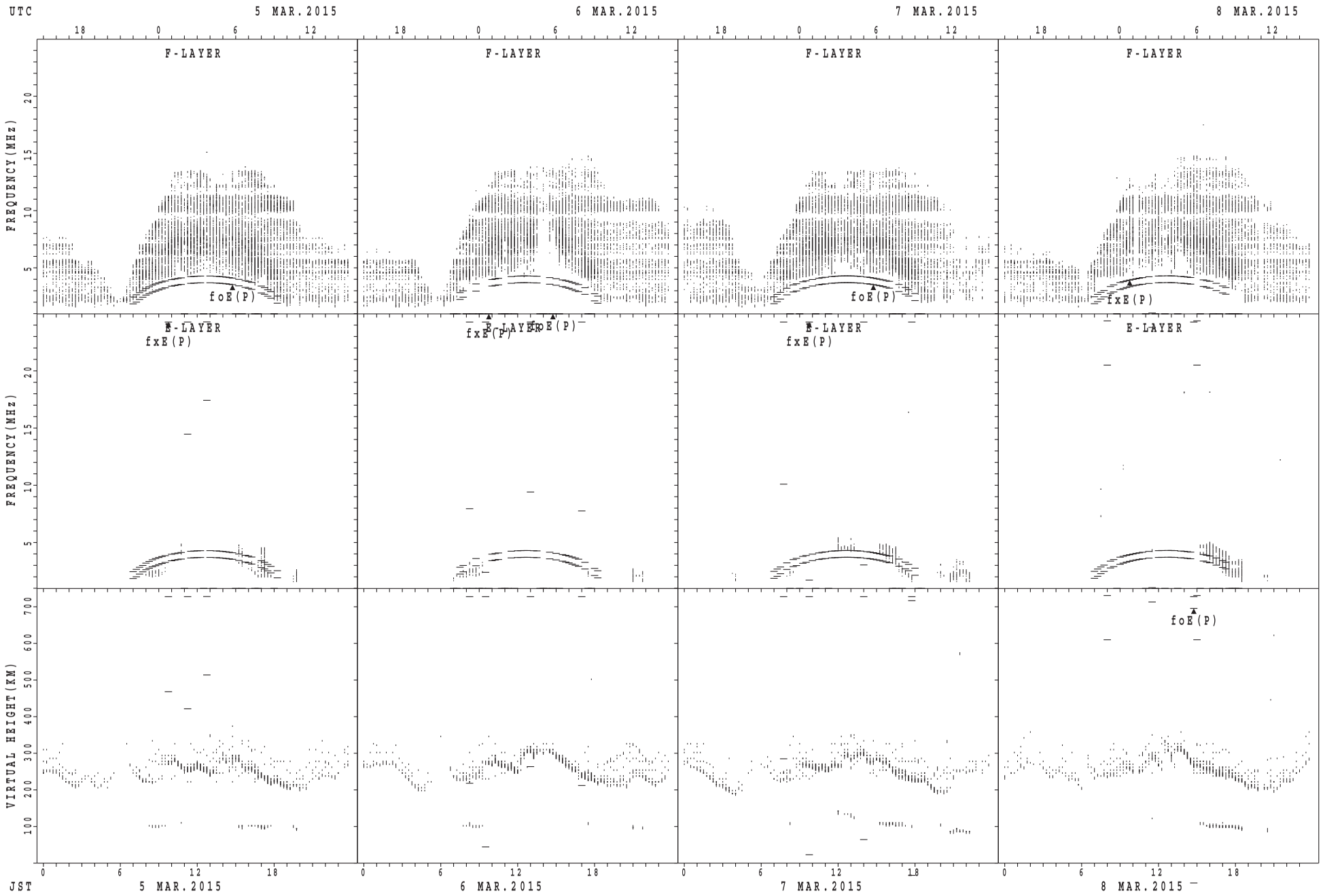
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



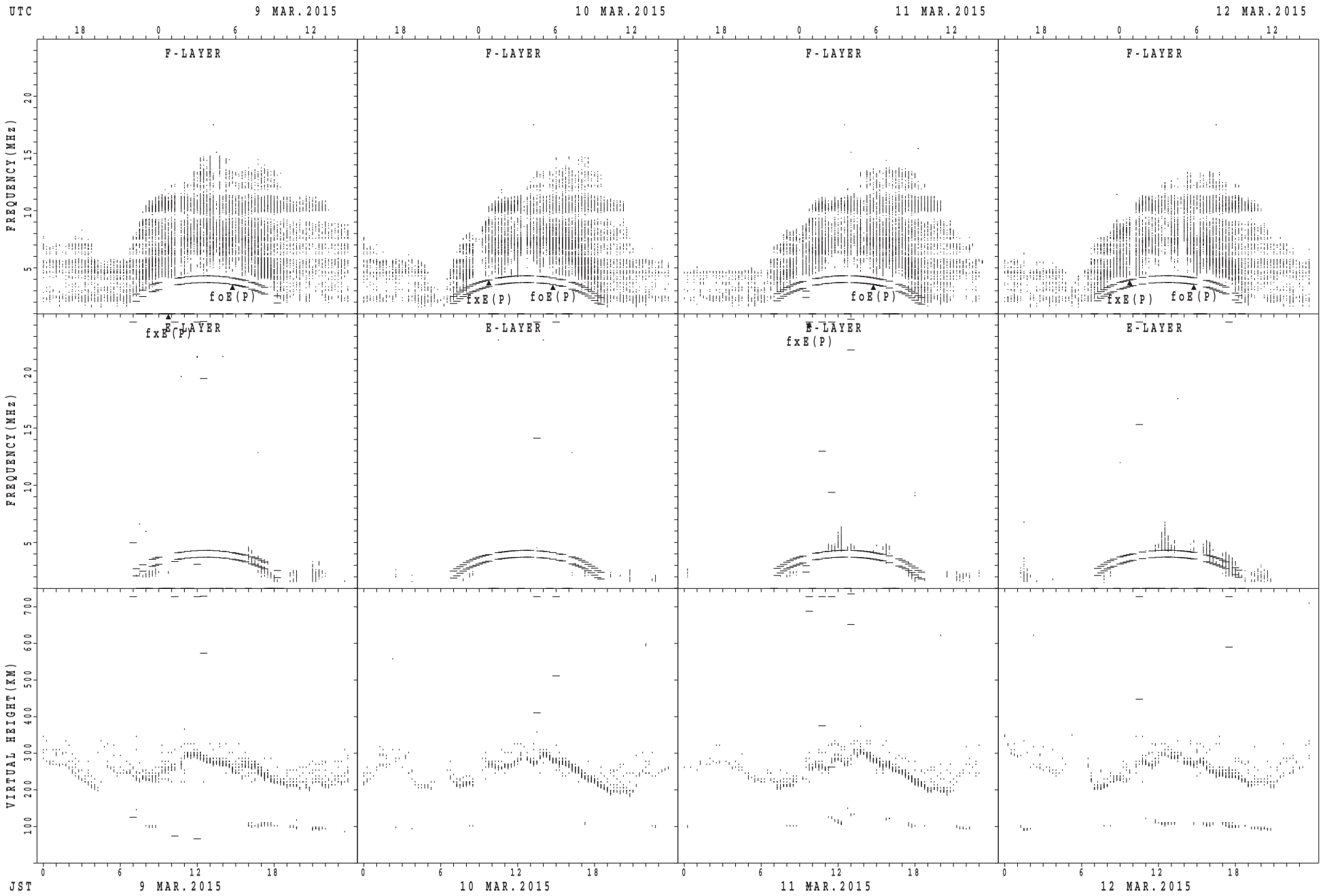
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED—VALUE FOR foE

SUMMARY PLOTS AT Okinawa



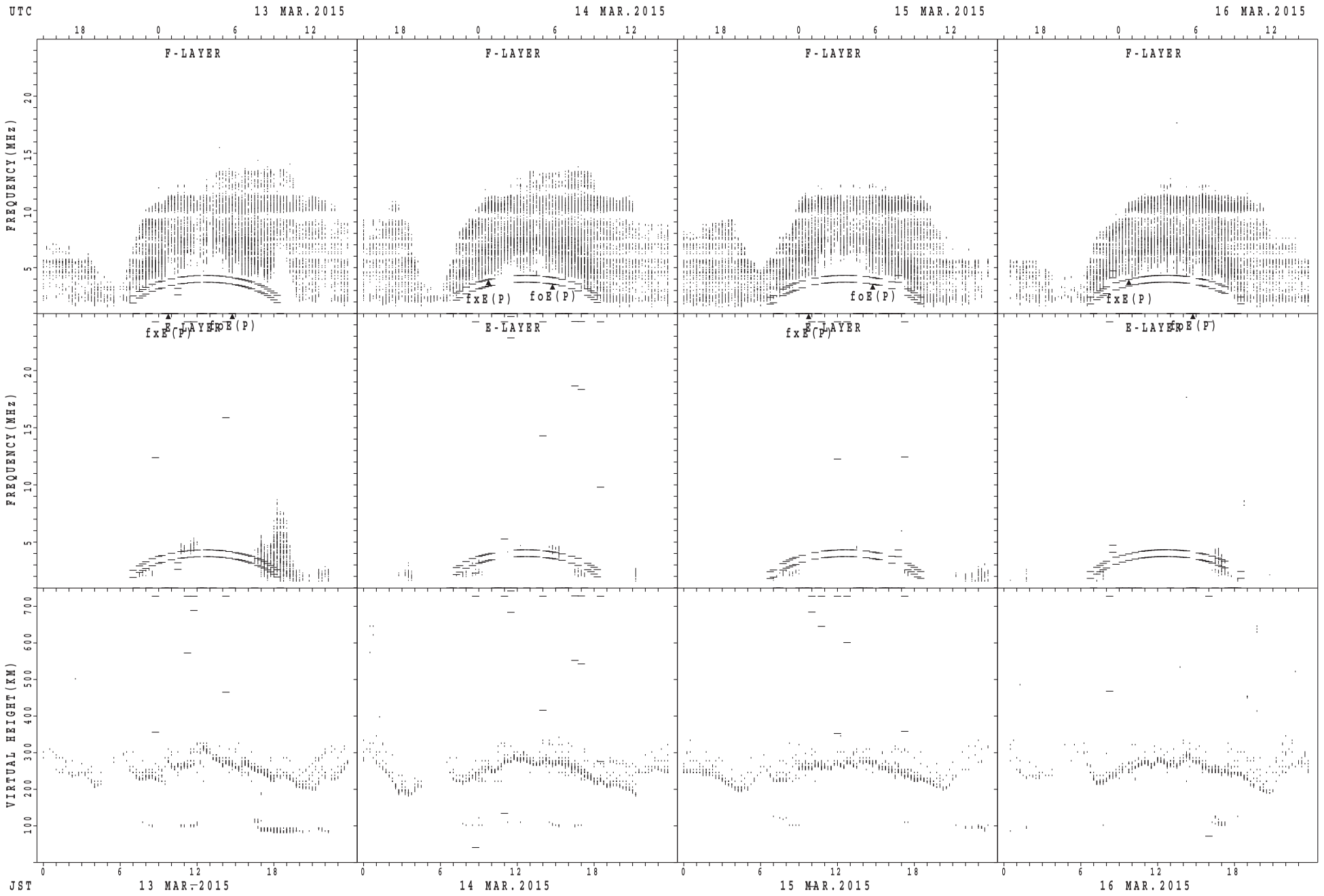
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



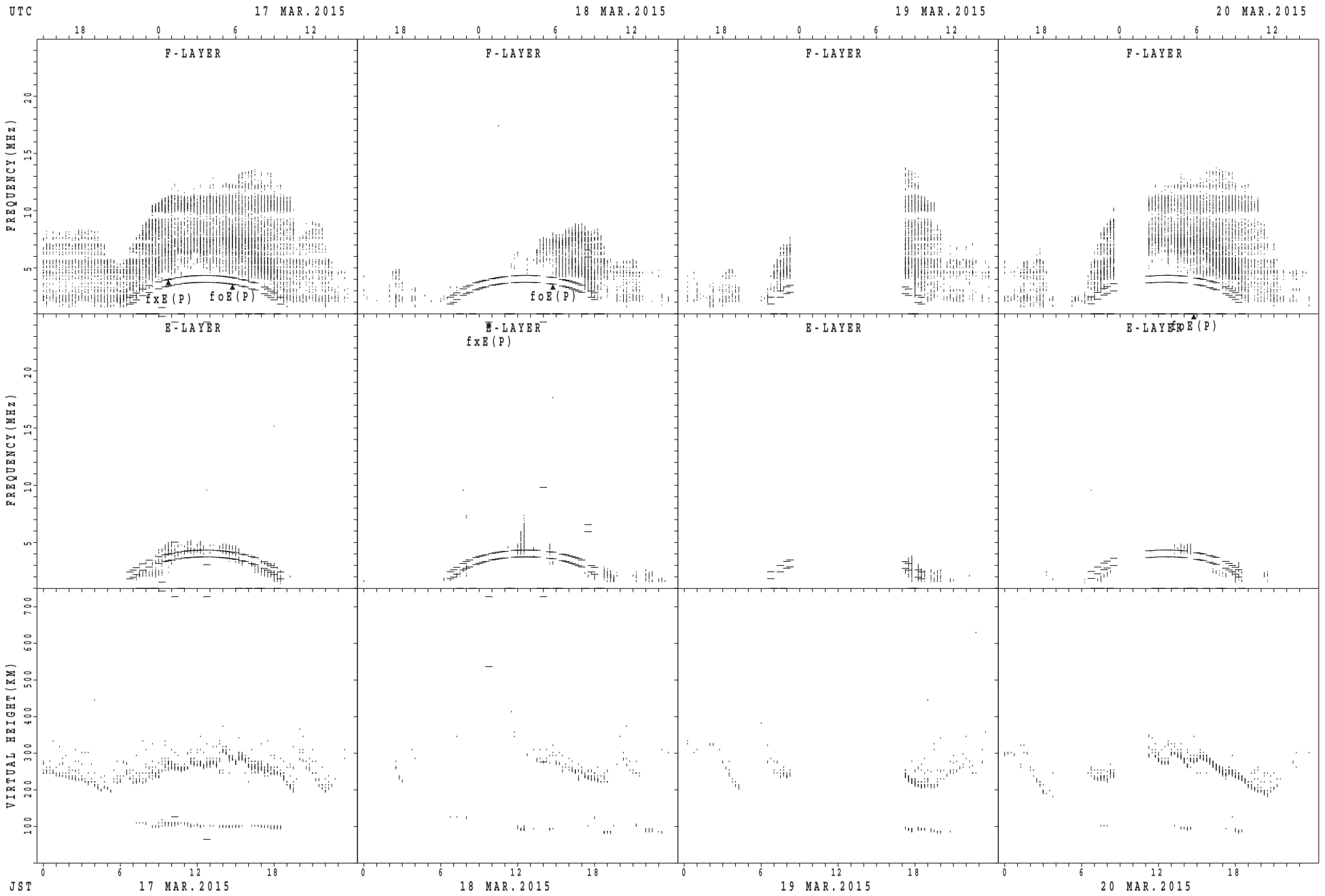
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



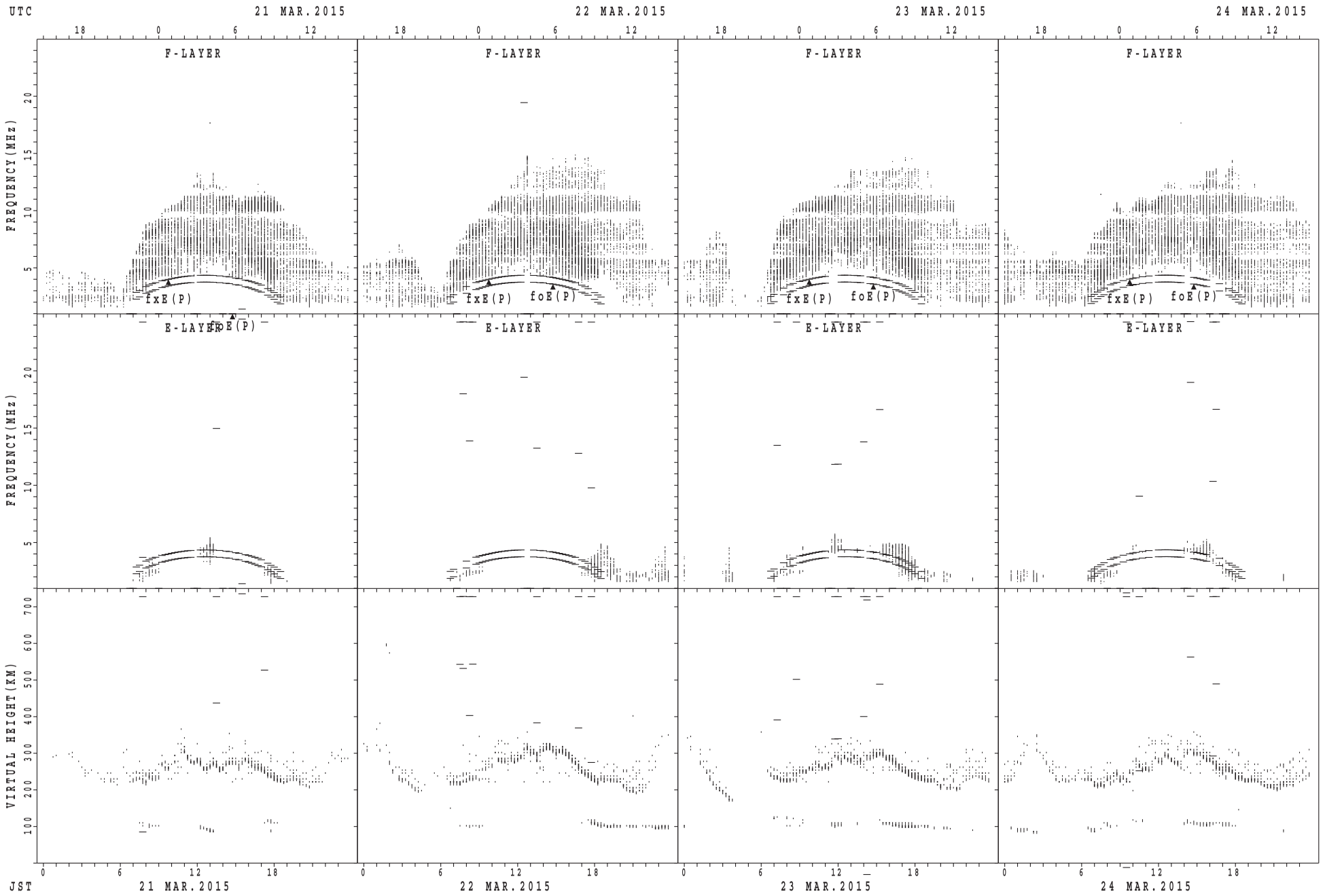
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



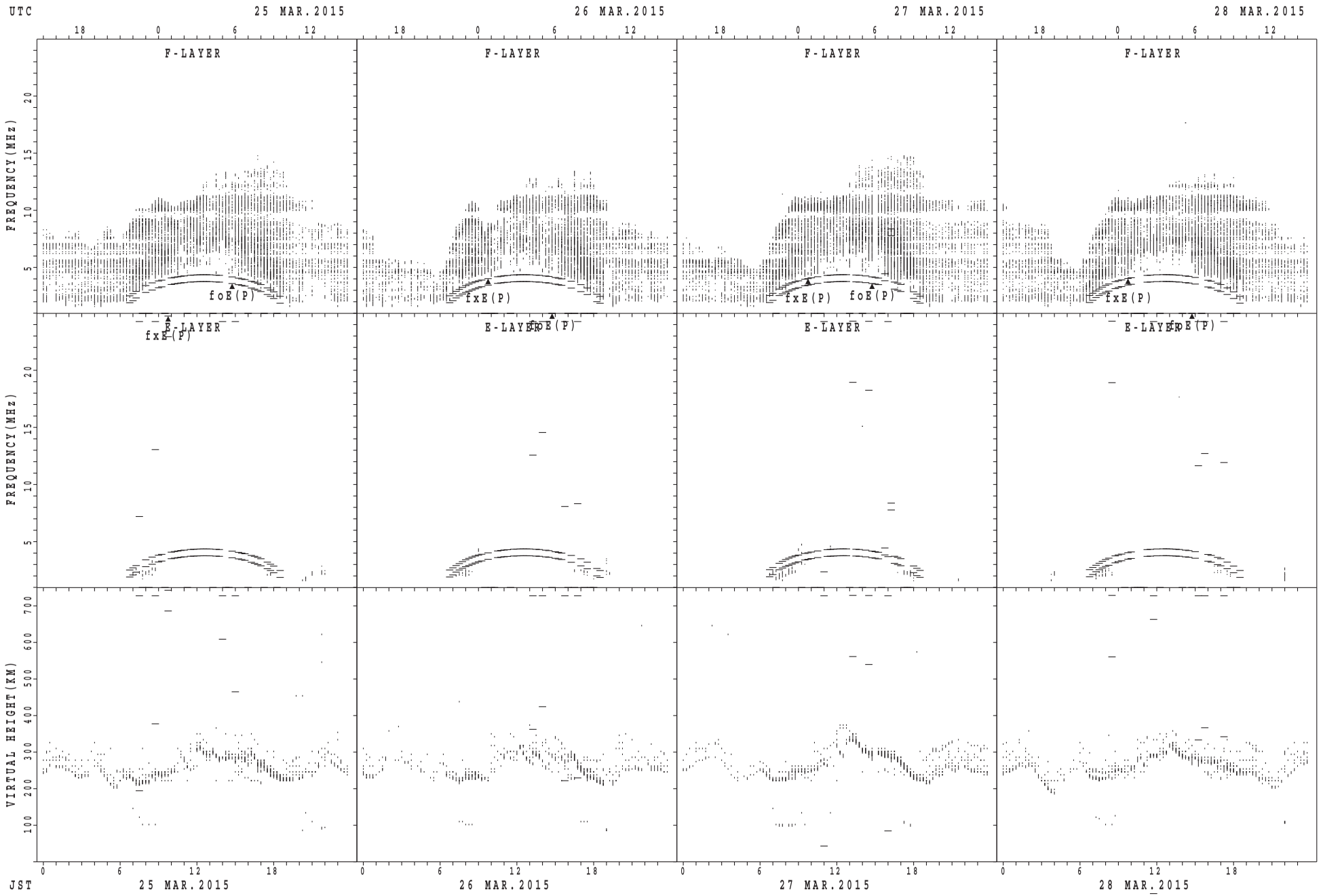
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



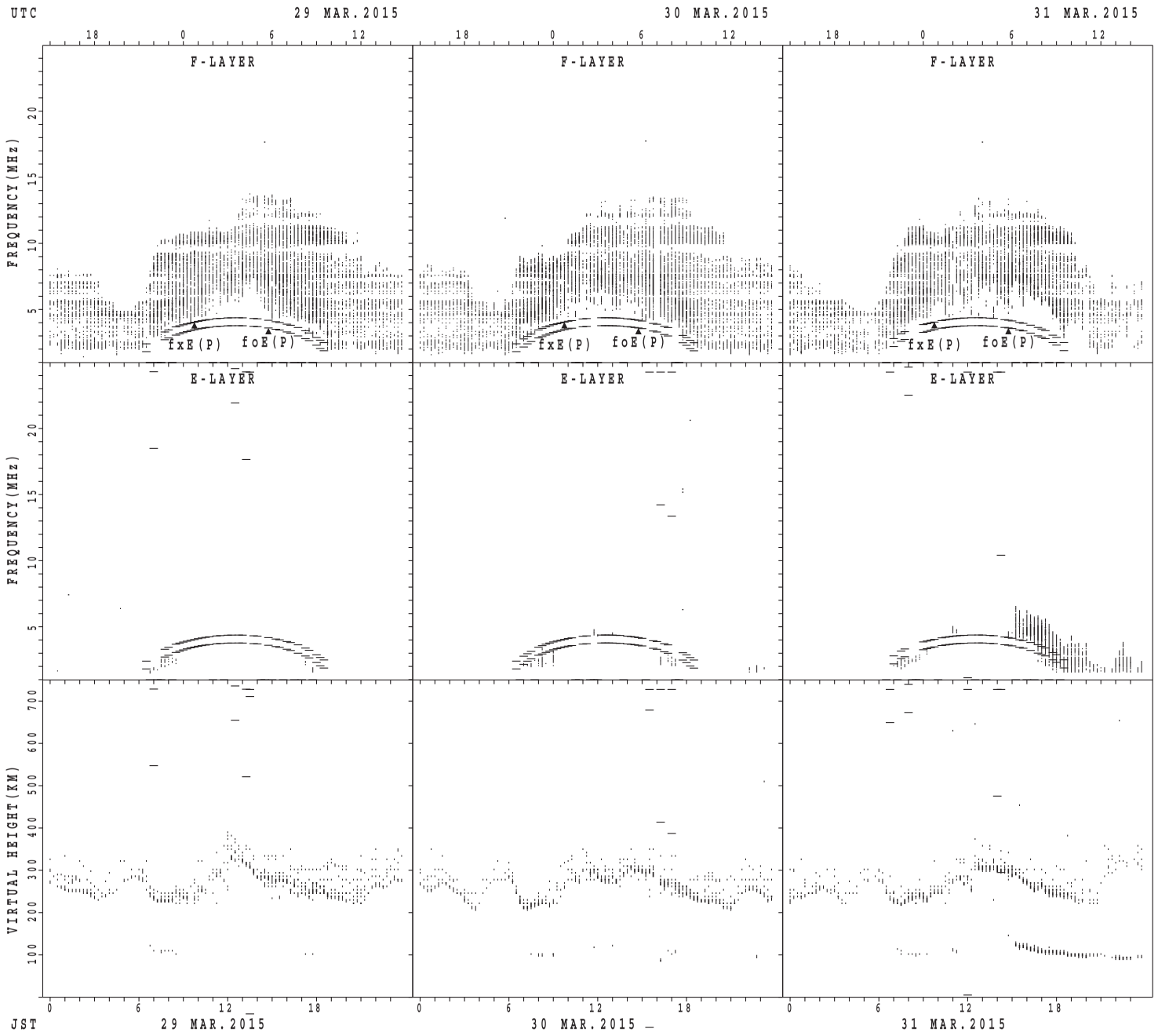
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



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

SUMMARY PLOTS AT Okinawa



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

MONTHLY MEDIANS OF h'F AND h'Es

MAR.2015 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							4	25	27	16					8	30	29	30	26	11	4	2	2	1
MED							246	230	230	232					240	246	238	238	245	254	282	286	276	284
U Q							257	248	246	238					244	254	246	248	254	266	298	294	296	142
L Q							240	222	222	224					232	238	235	230	238	248	266	278	256	142

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	5	4	11	7	4	9	9	5	4	4	3	1	1	2	10	11	14	3	7	5	4	6	4
MED	95	97	92	97	95	93	131	137	107	102	101	99	105	103	98	101	103	118	97	99	97	102	100	95
U Q	102	98	94	99	117	95	158	155	125	106	103	103	52	51	99	103	107	131	97	107	109	104	101	98
L Q	90	94	90	91	87	92	100	100	100	98	99	95	52	51	97	95	101	95	91	91	88	99	97	94

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							4	27	30	17						30	29	30	26	13	2	1	1	1
MED							255	230	238	232						254	248	239	240	254	244	284	264	284
U Q							261	240	242	240						256	254	246	246	268	280	142	132	142
L Q							250	222	230	228						246	238	230	226	238	208	142	132	142

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	2	3	6	3		1	5			2	8	5	8	7	4	4	10	19	16	11	13	7	4	8
MED	96	95	94	97		93	151			113	111	111	103	103	110	101	110	111	105	101	99	99	95	96
U Q	97	97	97	101		46	158			113	114	121	108	139	127	126	119	119	112	107	101	99	101	99
L Q	95	89	89	91		46	111			113	104	104	99	97	102	92	95	101	100	97	97	91	92	92

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				4	17	16	5					5	16	16	15	16	2	1		
MED				232				225	242	244	244					256	248	238	236	236	248	270		
U Q				116				240	248	250	262					259	258	246	238	242	256	135		
L Q				116				218	230	238	234					242	245	235	230	230	240	135		

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	2	2	1	1					2	1	1	1	1	2		5	10	10	7	8	8	4	4	2
MED	101	96	93	89					111	107	105	111	113	107		117	101	103	99	97	97	102	99	91
U Q	107	97	46	44					119	53	52	55	56	111		127	111	105	103	99	102	107	105	95
L Q	95	95	46	44					103	53	52	55	56	103		110	95	95	91	94	96	98	93	87

MONTHLY MEDIANS OF h'F AND h'Es

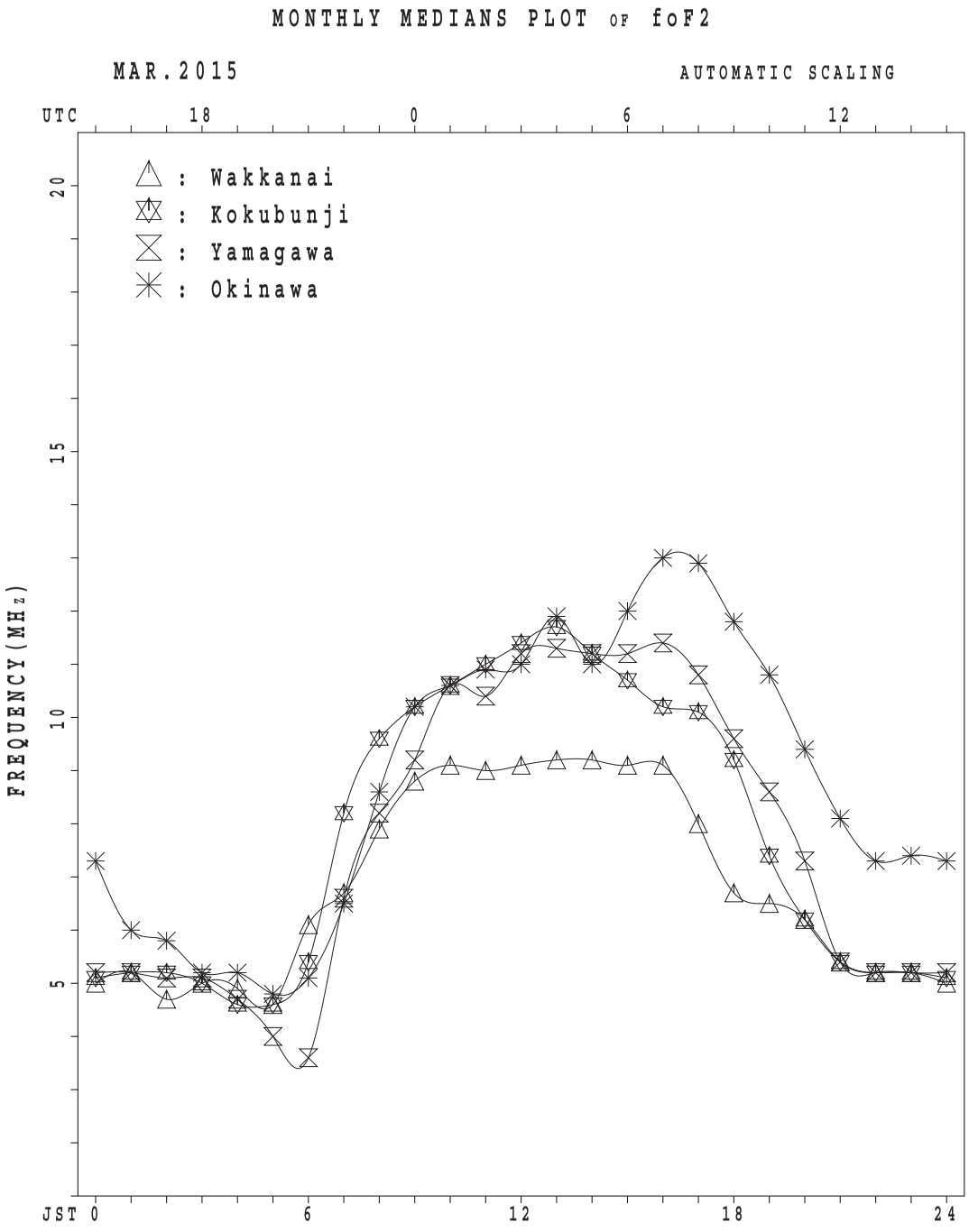
MAR.2015 135E MEAN TIME(UTC+9H) AUTOMATIC SCALING

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	11	7	8	8	1	1		8	30	26	9						29	30	31	30	27	19	14	13
MED	290	302	275	257	250	272		250	245	246	262						266	248	236	239	246	266	273	284
U Q	310	318	290	262	125	136		255	256	256	272						274	262	246	248	260	282	300	295
L Q	274	290	264	245	125	136		232	238	238	250						261	244	224	232	240	250	254	258

h'Es

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	1	1						1	1	2	2	3	6	6	4	5	10	10	8	7	5	5	6	3
MED	105	93						91	113	137	110	111	110	109	109	109	109	104	102	103	99	99	96	99
U Q	52	46						45	56	155	111	115	113	131	133	124	119	107	104	103	107	109	103	101
L Q	52	46						45	56	119	109	105	105	105	103	103	105	101	96	89	93	92	89	95


MONTHLY MEDIANS PLOT OF foF2
MAR.2015
AUTOMATIC SCALING
UTC
18
0
6
12
△ : Wakkanai
✡ : Kokubunji
⧖ : Yamagawa
✳ : Okinawa
FREQUENCY(MHz)
20
15
10
5
JST 0
6
12
18
24

IONOSPHERIC DATA STATION Wakkanai

MAR. 2015 fxI (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	X 55	X 55	X 55	X 54	X 52	X 50													X 96	X 82	X 76	X 64	X 62	X 58
2	X 64	X 63	X 67	X 68	X 70	X 65													X 86	X 81	X 75	X 77	X 65	X 66
3	X 67	X 66	X 65	X 66	X 68	X 61														X 71	X 64	X 56	X 51	X 51
4	X 52	X 52	X 53	X 49	X 49	X 49														X 72	X 66	X 50	X 55	X 53
5	X 53	X 56	X 56	X 54	X 54	X 48														X 77	X 71	X 62	X 55	X 55
6	X 55	X 55	X 56	X 54	X 56	X 47														X 87	X 65	X 55	X 50	X 53
7		X 55	X 54	X 53	X 55	X 46														X 77	X 64	X 62	X 60	X 57
8	X 57	X 57	X 57	X 53	X 51	X 53														X 63	X 65	X 65	X 65	X 64
9	X 62	X 60	X 62	X 61	X 61	X 57													X 76	X 65	X 61	X 56	X 55	X 55
10	X 53	X 53	X 52	X 50	X 51	X 49													X 82	X 66		X 55	X 53	X 53
11	X 53	X 53	X 57	X 54	X 55	X 54													X 87	X 71	X 68	X 61	X 57	X 56
12	X 55	X 51	X 53	X 54	X 47	X 50														X 78	X 68	X 64	X 60	X 60
13	X 61	X 61	X 60	X 55	X 61	X 60														X 71	X 66	X 64	X 63	X 61
14	X 57	X 59	X 62	X 58	X 43	X 43													X 94	X 78	X 68	X 57	X 58	X 57
15	X 57	X 58	X 58	X 55	X 53	X 53														X 73	X 71	X 68	X 65	X 65
16	X 62	X 60	X 61	X 61	X 60	X 60														X 82	X 74	X 71	X 60	X 62
17	X 62	X 60	X 60	X 61	X 61	X 61														O X 79	X 90	X 87	X 79	X 61
18	X 47	X 40	X 40	X 34	X 30															X 43	X 47	X 43	X 40	41
19	X 40	49	X 35	X 36	61	40														X 71	X 65	X 61	X 55	X 49
20	X 50	X 52	X 46	X 45	X 44															X 73	X 69	X 68	X 52	X 60
21	X 53	X 52	56	X 54	X 50															X 78	X 69	X 63	X 63	X 52
22	X 54	X 54	X 55	X 55	X 49														X 83	X 77	X 73	X 73	X 63	X 57
23	X 55	X 57	X 58	X 58	X 39	X 42														X 75	X 70	X 69	X 69	X 65
24	X 58	X 57	X 57	X 58	X 60															X 73	X 70	X 70	X 68	X 67
25	X 65	X 63	X 59	X 59	X 57															X 76	X 74	X 66	X 66	X 65
26	X 64	X 63	X 61	X 59	X 61															X 78	X 69	X 67	X 65	X 65
27	X 66	X 65	X 65	X 64	X 64															X 84	X 80	X 70	X 67	X 66
28	X 66	X 64	X 66	X 66	X 61																X 91	X 79	X 71	X 65
29	X 65	X 65	X 65	X 65	X 65																X 81	X 77	X 73	X 77
30	X 72	X 73	X 73	X 69	X 70															X 85	X 85	X 83	X 80	X 77
31	X 72	X 69	X 67	X 67	X 66																X 81	X 80	X 75	X 75
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	31	31	31	31	19													7	28	30	31	31	31
MED	X 57	X 57	X 58	X 55	X 56	X 50													X 86	X 76	X 70	X 65	X 63	X 60
U Q	X 64	X 63	X 62	X 61	X 61	X 60													X 94	X 78	X 75	X 71	X 67	X 65
L Q	X 53	X 53	X 55	X 54	X 50	X 47													X 82	X 71	X 66	X 61	X 55	X 55

MAR. 2015 fxI (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

MAR. 2015 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	48	48	48	47	45	44	46	61	66	J R 86	R 92	J R 95	113	112	R 104	R 95	90	91	88	75	68	58	53	51
2	57	57	61	62	64	59	65	J R 89	R 91	J R 109	R 107	111	112	J R 113	99	R 102	104	92	79	73	68	70	58	59
3	60	59	58	59	60	54	63	87	98	116	110	111	R 110	103	94	94	98	90	72	64	57	49	44	44
4	45	R 45	46	42	42	42	54	74	R 98	102	102	Y 96	J R 109	R 96	98	87	92	86	72	65	59	43	48	46
5	46	49	49	47	47	41	54	81	R 92	93	96	J R 103	J R 104	94	94	93	94	82	71	70	64	55	48	48
6	48	48	49	47	49	40	52	76	95	R 100	R 100	102	J R 108	114	U R 98	J R 91	89	86	86	80	58	48	43	46
7	46	48	47	46	48	39	53	71	88	J R 104	J R 105	J R 105	J R 105	102	104	101	99	92	79	70	57	55	53	50
8	50	50	50	46	44	46	62	R 79	J R 99	R 96	J R 117	R 120	J R 117	J R 109	J R 106	101	97	84	67	56	58	58	58	57
9	55	53	55	54	54	50	59	77	R 85	J R 101	R 127	124	119	113	J R 103	93	R 95	90	69	58	54	49	48	48
10	46	46	45	43	44	43	R 58	74	J R 86	J R 77	U R 93	92	R 98	R 97	R 97	93	92	R 92	75	59		48	46	46
11	46	46	50	47	48	47	61	J R 84	98	R 100	J R 87	U R 92	J R 104	R 100	98	R 94	100	91	80	64	61	54	50	49
12	48	44	46	47	40	43	57	70	96	J R 96	J R 101	U R 101	108	J R 105	J R 91	92	95	87	J R 86	72	61	57	53	53
13	54	54	R 53	48	54	53	68	J R 86	87	R 91	J R 115	U R 114	R 114	110	R 98	92	95	R 94	U R 76	64	59	57	56	54
14	50	52	55	51	36	36	55	J R 80	R 92	J R 109	R 95	J R 102	R 95	R 100	R 100	R 98	100	94	87	71	61	50	52	50
15	50	52	51	48	46	46	60	J R 80	J R 84	R 81	94	100	Y 97	109	R 98	R 99	92	R 88	75	66	64	61	58	58
16	55	53	54	54	53	53	R 68	73	R 96	94	101	98	93	J R 103	94	95	91	R 89	86	75	67	64	53	55
17	55	53	53	54	54	54	68	75	81	84	92	J R 104	109	98	87	87	76	75	J R 83	Y 72	83	80	72	54
18	40	33	33	27	23	R 27	28	31		A	E G 36	E G 37	E G 39	E G 39	E G 39	E G 38	E G 39	E G 40	E G 36	36	40	36	34	F 29
19	33	F 36	28	30	F 34	F 23	49	62	68	71	72	75	R 78	74	73	73	72	71	62	64	58	54	48	42
20	43	45	39	38	37	36	52	68		Y 90	J R 92	U R 93	J R 90	93	R 90	J R 83	76	75	78	66	62	61	45	Z 53
21	46	45	43	Z 47	43	42	45	48	52	66	64	70	R 78	78	75	74	71	75	75	71	62	56	56	45
22	47	47	48	48	42	43	56	64	71	77	J R 87	U R 95	96	J R 95	J R 90	79	J R 84	80	76	70	66	66	56	50
23	48	50	51	51	32	35	58	R 71	J R 83	J R 90	J R 89	Y 76	J R 90	92	86	80	J R 82	80	73	68	63	62	62	58
24	52	50	50	51	53	46	58	64	70	74	R 86	79		Y	Y	J R 86	U R 82	77	74	74	66	63	63	61	60
25	58	56	52	52	50	50	68	72	J R 78	J R 85	Y	J R 105	Y 100	Y 99	U R 96	94	J R 88	R 78	75	69	67	59	59	58
26	57	56	54	52	54	50	67	81	81	Y 93	J R 93	R 89	R 94	96	J R 104	J R 99	J R 92	88	88	70	62	60	58	58
27	59	58	58	57	57	57	68	R 78	U R 82	98	98	J R 110	J R 115	J R 110	R 109	J R 91	87	96	91	77	73	63	60	59
28	59	58	59	59	54	51	65	73	87	87	J R 90	R 99	Y 92	J R 89	90	J R 87	J R 87	90	91	88	J R 84	72	64	58
29	58	58	58	58	58	59	67	73	83	90	97	Y 97	108	Y	R 97	94	96	96	92	86	74	70	66	70
30	65	66	66	62	63	66	72	84	89	J R 90	R 96	98	Y 98	R 98	R 96	96	89	J R 87	87	78	78	76	73	70
31	65	62	60	60	59	62	76	90	R 90	R 98	Y	102	R	J R 101	98	Y	J R 91	J R 88	J R 89	84	74	73	68	68
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	31	31	31	29	31	29	31	29	29	31	30	31	31	31	31	30	31	31	31
MED	50	50	51	48	48	46	59	74	87	R 91	R 95	99	R 104	100	R 97	93	91	88	78	70	62	58	56	53
U Q	57	56	55	54	54	53	67	81	94	R 100	R 102	R 105	R 110	109	R 99	R 95	95	91	87	75	68	64	60	58
L Q	46	46	47	47	42	41	54	70	81	84	R 90	92	R 94	94	90	87	84	80	73	64	59	54	48	48

MAR. 2015 foF2 (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

MAR. 2015 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										U L 452	L	L	L		L	L								
2									L	U L 392	L	L	L	L	L	L								
3									L		L		L	L		L								
4										L	L	L	L	L	L									
5											L	L	L	L	L	L								
6									L	L	L	L	L	L			L							
7										L	L	L	L	L	L									
8								280		L	L	L	L	L	L	L								
9										L	L	L	L	L	L	328	276							
10								248	292		L	L	L	L	L	504		208						
11							176		396	436	444	L	L	L	452	L								
12									L	L	L	L	452	L	U L 448	L	320							
13										U L 396	U L 496	U L 484	L	L	L	L								
14									L	L	L	L	L	L	L	U L 332	L							
15									L	L 384	L	L	L	L		L								
16									L	L	L	L	L	L	L	L								
17										L	L	L	L	L	U L 436	L								
18									A	360	372	392	392	392	392	380	388	404	364					
19									U L 420	L 476	L 480	492	476	L 460	U L 468	L 400								
20									L	L 448	U L 500	L	U L 472	L	U L 464	424								
21									L 444	460	472	488	488	U L 472	436	L								
22									L	L	L	L	480	U L 468	L	L								
23									L	U L 476	U L 492	L	512	460	L									
24								L	L	L	492	U L 492	L	L	480	444	L							
25									452	L	L	L	L	L		L	L 384							
26									L	460	L	L	508	U L 496	U L 512	L	L							
27										L	L	L	L	L	L	L	L							
28								L 296	L	L 472	L	L	L	L	L	U L 444	L							
29									L	L 476	496	520	L	L		L								
30										L	U L 488	L	L	L	U L 440									
31								L	L	L	L	504	L	L	L	L	L							
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT							1	3	5	13	10	7	8	6	10	8	4	2	1					
MED							176	280	420	L 452	490	492	478	L 464	U L 450	412	352	306	364					
U Q								L 296	448	L 474	U L 496	504	498	U L 472	U L 468	444	386							
L Q								248	344	L 394	472	484	462	460	436	356	298							

MAR. 2015 foF1 (0.01MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

MAR. 2015 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			J K 124				J B 160	224	288	312	R 328	340	348	340	316	288	240	200						
2							B	208	268	292	A	344	348	344	332	316	248	180						
3							144	224	272	U A 292	R 324	R 348	340	340	328	304	260	188	B					
4							B	208	196	300	324	332	336	332	328	292	256	180	B					
5							B	208	280	312	332	344	352	344	320	296	248	196	B					
6							164	228	288	304	A	332	332	332	B	308	268	204	B					
7	872						B	224	276	304	320	340	340	332	324	308	252	200	B					
8							176	224	308	320	312	352	352	352	328	312	252	184	A					
9							B	244	272	304	320	344	344	344	328	316	272	216			216			
10							172	212	280	B	336	348	348	340	324	292	256	184	224					
11				140			168	224	276	316	308	364	344	328	324	304	248	208						
12							176	228	296	316	304	336	352	340	340	304	240	192	120					
13							168	244	292	304	312	344	344	344	324	316	256	208	A					
14							204	240	288	308	320	320	340	336	336	300	260	220						
15							188	244	284	308	320	340	A	R 344	332	296	260	208	B					
16							180	236	U R 280	300	300	332	R 344	332	316	300	264	192	B					
17							184	232	280	320	324	312	340	336	332	292	244	204	B					
18	J K 92					A	192	204	256	272	300	296	324	332	316	280	256	224	220					
19					B	144	212	252	288	296	320	316	296	324	300	292	252	184	B					
20						B	172	232	272	308	308	332	316	316	324	296	256	216	B					
21						B	204	212	272	308	316	312	A	A	312	296	268	A	B					
22						B	200	236	284	308	316	300	A	348	324	A	268	216						
23							208	240	280	308	328	R 328	304	304	304	A	276	A	A					
24						B	180	224	280	296	328	328	356	356	344	324	288	224	B					
25						A	208	252	300	328	360	360	360	328	328	320	280	224	B					
26						B	196	272	284	324	332	A	360	R 348	356	320	276	224	B					
27						B	216	268	316	336	352	352	356	316	A	328	284	224	B					
28						B	192	260	304	316	356	336	R 376	360	340	A	300	212	A	B				
29						B	204	260	292	348	368	368	368	348	A	276	296	212	A	A				
30						A	212	272	304	344	360	356	A	352	324	308	284	A	A					
31						B	208	280	316	336	U R 364	348	A	356	R 328	312	268	236	B	B				
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	2		1	1		1	26	31	31	30	29	30	26	30	28	28	31	28	3		1			
MED	482		J K 124	140		144	190	232	284	308	324	340	344	340	326	304	260	208	220		216			
U Q							204	252	292	320	334	348	352	348	332	314	276	218	224					
L Q							172	224	276	304	314	328	340	332	322	294	252	192	120					

MAR. 2015 foE (0.01MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

MAR. 2015 foEs (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E B 15	E B 15	J K 12	E B 15	E B 15	E B 14	J A 16	G 19	G 24	G	G	G	G	G	G 24	G 23	G	G	J A 14	J A 21	E B 14	J A 15	J A 18	J A 26
2	J A 25	18	23	18	E B 12	J A 17	J A 16	G	30	32	35	36	G 26	G 29	G	G	28	22	J A 15	J A 18	J A 18	J A 13	J A 13	J A 36
3	J A 18	J A 18	J A 21	J A 19	26	J A 17	G	23	J A 54	J A 40	36	G	G 23	38	G	33	29	G	E B 13	J A 13	E B 14	J A 21	J A 21	J A 15
4	J A 28	J A 16	J A 19	J A 19	19	E B 14	E B 14	24	25	J A 36	G 32	G 28	G 25	G	G	G	G	21	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14
5	J A 20	19	21	22	21	E B 14	E B 14	24	G 25	G 29	G 33	G 33	G 31	G 30	G 25	32	G	G	J A 16	J A 16	E B 14	E B 14	E B 14	E B 14
6	20	E B 14	E B 14	E B 14	J A 21	E B 14	G	G	G 27	G 27	J A 34	G 31	38	G	E B 50	G	G	G	E B 14	J A 20	E B 13	E B 14	E B 14	E B 14
7	E B 14	E B 14	22	23	20	E B 14	E B 15	G	G	32	G 32	G 30	G 31	G 25	G 20	G 19	26	G	E B 14	E B 14	J A 14	E B 14	18	E B 14
8	J A 13	J A 20	E B 14	19	J A 14	E B 14	G	26	G 27	G 27	32	G 30	G 30	G	G	G 28	G	G	J A 18	E B 14	E B 14	E B 14	E B 14	E B 14
9	19	18	19	E B 14	E B 14	E B 14	22	G	32	39	39	G	G 34	G 22	G 21	G 21	G	G	E B 13	E B 14	J A 22	E B 14	E B 14	23
10	E B 14	20	E B 14	19	E B 14	E B 14	G	26	G 26	E B 47	G 26	G 25	40	G 34	G 25	39	G 33	20	G J A 22	18		E B 14	25	E B 14
11	E B 14	21	J A 15	20	21	E B 14	19	24	36	40	37	G 23	G 23	G 23	G 20	37	G	G	J A E B 17	14	23	E B 14	E B 14	E B 14
12	E B 14	E B 14	E B 14	E B 14	22	E B 14	G	26	G 23	G 34	34	G 31	G 18	G 23	G	16	G	26	J A 19	J A 23	J A 21	E B 14	E B 14	J A 19
13	E B 14	E B 14	20	20	24	21	G	26	G 20	36	36	G 32	39	G 25	G 27	G 20	G	J A 20	J A 17	J A 17	E B 14	21	20	E B 14
14	E B 14	22	23	E B 14	E B 14	20	28	27	32	36	38	40	38	G 29	G	G 19	G 18	G	E B 14	34	E B 14	E B 29	E B 14	E B 14
15	E B 14	E B 14	22	22	E B 14	E B 14	25	G 19	G 24	33	J A 58	40	36	G 24	G 23	G	29	G	18	E B 14	E B 14	E B 14	E B 14	E B 14
16	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	G	26	31	33	36	G	39	G 22	G	G 19	G 18	G 17	E B 14	17	E B 14	E B 14	E B 14	J A 17
17	E B 14	E B 14	20	20	22	E B 14	G	26	30	34	35	36	38	G 26	37	34	31	G	E B 14	E B 14	20	E B 14	23	23
18	J K 15	E B 14	E B 14	24	26	22	25	24	41	31	32	G	G 28	G	J A 35	J A 28	G	G	G	E B 14	E B 14	E B 14	E B 14	19
19	E B 15	E B 15	E B 15	19	20	E B 14	30	37	G	35	38	37	34	G 31	G 26	36	30	22	J A 16	20	E B 14	E B 14	E B 14	E B 14
20	23	J A 18	J A 29	J A 19	21	E B 14	21	26	34	G 30	37	38	37	36	G 29	35	32	G 21	E B 14	J A 15	20	20	E B 14	E B 14
21	E B 14	20	E B 14	J A 17	J A 25	E B 14	23	26	31	36	43	38	34	34	G J A 22	31	G J A 18	23	20	J A 17	E B 14	E B 14	E B 14	J A 15
22	20	20	19	26	27	E B 14	G	27	33	35	38	J A 44	J A 37	J A 33	G J A 22	37	30	23	J A 17	J A 27	J A 27	J A 19	J A 15	J A 19
23	E B 14	J A 18	J A 29	26	23	E B 14	G	G 18	31	37	38	38	37	38	39	J A 40	G J A 26	33	J A 35	J A 35	22	29	22	E B 14
24	E B 14	24	J A 32	J A 24	J A 27	E B 14	23	26	32	32	36	G	G	G 27	G	G	G 18	G 18	E B 14	E B 14	20	23	E B 14	E B 14
25	J A 25	34	27	23	E B 14	25	26	28	33	35	G 25	G 25	40	37	G	37	J A 27	G	E B J A 14	27	22	E B 14	E B 14	22
26	E B 14	24	E B 14	E B 14	22	J A 15	J A 22	28	J A 30	34	37	J A 31	G 34	G 25	G 27	G 44	28	J A 21	J A 30	E B 14	E B 14	E B 14	E B 14	E B 14
27	22	E B 14	E B 14	20	E B 14	J A 19	J A 35	G 23	G 21	G	40	G 28	38	36	34	J A 32	G 18	25	E B 14	J A 15	20	19	J A 20	J A 20
28	22	E B 14	24	J A 26	26	J A 30	J A 28	J A 26	G 20	34	G 23	39	G 32	G 32	G	33	G 22	26	J A 19	J A 15	E B 14	E B 14	J A 20	20
29	J A 17	21	E B 14	J A 33	29	J A 26	26	J A 31	38	G 26	G 26	42	43	41	41	34	G J A 25	28	J A 21	J A 25	J A 29	24	23	19
30	E B 14	E B 14	E B 14	E B 14	20	21	G	G 22	G 19	G 26	38	38	38	G 34	G 30	G 22	G 27	31	J A 17	E B 14	E B 14	E B 14	E B 14	18
31	E B 14	J A 15	E B 14	E B 14	E B 14	E B 14	28	G	J A 28	G	40	40	J A 37	41	G	G 26	30	G 20	20	J A 17	J A 15	E B 14	E B 14	E B 14
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	30	31	31	31
MED	E B 14	18	19	19	21	E B 14	16	26	30	G	36	G	34	G 33	G	G 33	G 30	G	16	J A 16	E B 14	E B 14	E B 14	E B 14
U Q	20	20	22	23	24	19	25	26	32	36	38	38	38	34	G	G 39	G	23	19	J A 20	20	19	20	19
L Q	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14	G	G	G 25	G 32	G 32	G 31	G 31	G 25	G 25	G 23	G 26	G	E B 14	E B 14	E B 14	E B 14	E B 14	E B 14

MAR. 2015 foEs (0.1MHz)

IONOSPHERIC DATA STATION Wakkanai

MAR. 2015 fbEs (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

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

MAR. 2015 fbEs (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

MAR. 2015 fmin (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	15	15	15	15	15	14	12	12	12	12	12	11	7	7	8	8	8	8	12	11	14	14	14	13
2	14	14	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
3	14	14	13	13	13	14	11	11	11	12	13	23	14	14	14	12	14	14	13	14	14	14	14	14
4	14	14	14	14	14	14	14	12	12	12	13	12	14	14	12	13	14	14	14	14	14	14	14	14
5	14	14	14	14	14	14	14	14	14	14	14	13	16	14	14	13	14	14	14	14	14	14	14	14
6	14	14	14	14	14	14	14	14	14	14	14	16	15	14	50	16	14	14	14	14	13	14	14	14
7	14	14	14	14	14	14	15	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14
8	14	14	14	14	14	14	14	14	22	16	19	15	15	17	14	14	12	12	12	14	14	14	14	14
9	14	14	14	14	14	14	14	14	14	13	12	14	17	14	13	12	13	13	13	14	13	14	14	14
10	14	14	14	14	14	14	12	15	13	47	18	15	15	15	13	12	12	14	14	14		14	14	14
11	14	14	14	14	14	14	14	12	14	12	13	15	14	15	14	12	12	12	14	14	14	14	14	14
12	14	14	14	14	14	14	14	14	12	17	14	14	15	13	23	12	13	13	14	14	14	14	14	14
13	14	14	14	14	14	14	13	14	14	14	13	16	14	16	12	14	12	12	11	13	14	14	14	14
14	14	14	14	14	14	14	14	14	14	14	14	15	14	12	16	13	13	14	14	14	14	14	14	14
15	14	14	14	14	14	14	14	14	14	17	15	21	22	16	14	14	12	13	14	14	14	14	14	14
16	14	14	14	14	14	14	13	14	14	14	14	14	16	14	15	12	12	13	14	14	14	14	14	14
17	14	14	14	14	14	14	15	15	12	14	14	15	14	14	14	12	13	11	14	14	14	14	14	14
18	14	14	14	14	14	14	12	14	14	13	14	14	14	23	15	14	12	14	14	14	14	14	14	14
19	15	15	15	15	14	14	14	14	12	12	16	13	14	13	14	14	14	13	14	14	14	14	14	14
20	14	14	14	14	14	14	14	13	12	12	13	21	15	20	13	13	12	14	14	14	14	14	14	14
21	14	14	14	14	14	14	14	14	14	12	14	16	16	17	14	13	14	12	14	14	14	14	14	14
22	14	14	14	14	14	14	14	14	13	13	15	12	14	16	16	14	13	14	14	14	14	14	14	14
23	14	14	14	14	14	14	14	14	15	14	12	15	16	16	15	15	14	14	14	14	14	14	14	14
24	14	14	14	14	14	14	14	14	16	16	19	19	19	23	14	20	14	14	14	14	14	14	14	14
25	14	14	14	14	14	14	14	14	14	14	15	18	20	18	23	13	14	16	14	14	14	14	14	14
26	14	14	14	14	14	14	14	14	14	13	15	13	16	16	14	14	14	14	14	14	14	14	14	14
27	14	14	14	14	14	14	14	12	14	14	15	15	16	14	15	11	12	13	14	14	14	14	14	14
28	14	14	14	14	14	14	14	14	13	16	15	15	16	15	15	14	14	14	14	14	14	14	14	14
29	14	14	14	14	12	14	14	14	14	14	15	15	16	17	20	14	14	12	12	14	14	14	14	14
30	14	14	14	14	14	14	14	14	14	15	17	21	15	14	14	14	12	12	13	14	14	14	14	14
31	14	14	14	14	14	14	14	14	14	14	16	14	14	17	16	13	15	12	14	14	14	14	14	14
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	30	31	31	31
MED	14	14	14	14	14	14	14	14	14	14	14	15	15	15	14	13	13	13	14	14	14	14	14	14
U Q	14	14	14	14	14	14	14	14	14	14	15	16	16	17	15	14	14	14	14	14	14	14	14	14
L Q	14	14	14	14	14	14	14	14	12	12	13	14	14	14	14	12	12	12	13	14	14	14	14	14

IONOSPHERIC DATA STATION Wakkanai

MAR. 2015 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	282	278	284	289	290	278	316	347	330	R	R 323	R	323	322	R 333	R 342	336	325	325	315	313	295	301	299
2	282	279	281	276	314	300	314	R	R 341	R	R 338	317	313	R	323	R 327	332	331	323	312	290	299	268	267
3	305	290	265	272	295	290	331	374	351	334	316	333	R 335	325	326	328	336	322	344	324	316	286	292	285
4	295	R 312	298	297	295	301	337	376	R 370	355	337	Y	R	R 330	339	310	336	333	336	311	309	304	294	283
5	284	291	290	294	308	298	326	351	R 374	344	340	J R 347	J R 347	R 352	332	323	338	340	326	308	317	315	289	279
6	272	286	279	292	308	307	329	350	356	R 334	R 351	326	R	334	R	R	332	329	313	333	294	284	287	284
7	278	272	275	285	321	297	333	331	333	R	J R 398	R	R	317	326	318	325	339	314	322	290	291	289	286
8	284	282	305	275	288	278	310	R 372	R	R 362	R	R 316	J R 316	R	R	324	336	337	328	287	279	299	272	286
9	263	269	279	282	272	279	319	342	R 338	R	R 320	328	310	325	R	337	R 342	346	338	304	304	286	294	301
10	294	292	287	287	305	311	R 338	362	R	R	U R 331	349	R 332	R	R 324	321	326	R 333	336	309		302	279	285
11	283	284	269	288	280	312	332	R	340	R 347	J R 292	U R 329	J R 367	R 337	323	R 314	338	336	344	310	311	301	298	274
12	268	273	274	291	303	271	329	341	343	R	J R 369	318	306	R	R	309	350	333	R	326	311	289	266	266
13	287	285	R 287	292	288	286	343	R	332	R 323	J R 410	R	306	311	R 337	322	322	R 339	U R 328	307	304	292	279	268
14	267	275	302	326	274	281	313	R	R 343	R	R 369	J R 348	R 333	R 316	R 319	R 320	331	333	346	323	310	283	290	280
15	286	285	296	288	301	296	346	R	R	R 345	320	319	Y	318	R 319	R 325	320	R 332	328	306	296	296	291	290
16	295	299	295	281	279	271	R 327	365	R 359	R	341	301	326	R	323	318	330	341	336	329	310	299	292	288
17	286	284	282	276	278	279	330	347	346	335	331	J R 377	322	340	321	328	327	324	J R 324	Y	288	316	333	286
18	259	228	224	230	231	R 206	259	320	A	G	G	G	G	G	G	G	G	G	G	271	281	250	264	F 248
19	276	F 237	233	288	F 351	F 297	327	357	322	327	324	316	R 336	326	332	332	310	329	312	280	306	308	276	289
20	255	288	292	276	310	276	325	319	Y	326	R	339	R	320	R 326	R	319	322	338	309	286	312	328	Z 244
21	281	286	293	Z 285	296	309	300	304	281	313	323	295	R 333	338	337	330	326	330	331	322	307	289	312	274
22	274	280	278	287	294	298	333	337	341	325	R	U R 327	312	R	J R 322	317	R	341	311	305	297	309	318	285
23	273	272	291	338	287	284	334	R 333	J R 401	R	R	Y	R	340	319	327	J R 335	336	325	293	288	298	298	287
24	277	289	281	275	287	299	323	319	294	318	R 311	337	Y	Y	J R 363	R	345	331	327	295	297	286	279	271
25	270	276	285	267	276	272	324	345	R	R	Y	J R 472	Y	Y	U R 315	324	R	R 336	318	299	299	278	283	297
26	279	279	273	281	293	293	332	339	339	Y	R	R 309	R 322	303	R	R	J R 277	321	328	329	303	293	290	282
27	267	269	267	283	289	289	324	R 338	U R 313	353	327	R	R	R	R 296	R	335	330	320	312	315	279	272	278
28	271	266	276	281	282	299	322	341	331	331	R	R 335	Y	R	320	R	R	311	318	314	R	311	300	295
29	278	265	263	258	275	283	308	313	321	342	310	Y	312	Y	R 309	313	307	321	330	318	292	275	270	283
30	271	268	266	264	268	276	326	332	327	R	R 333	319	Y	R 316	R 318	326	312	J R 312	321	306	308	294	301	313
31	276	282	285	278	292	289	336	335	R 346	R	Y	330	R	J R 308	313	Y	J R 298	J R 284	J R 295	318	310	297	264	277
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	31	31	26	25	18	23	24	19	20	26	24	28	31	30	30	29	31	31	31
MED	278	280	281	283	290	289	327	341	340	334	R 331	328	322	324	323	324	330	331	326	310	304	295	290	284
U Q	284	286	291	289	303	299	333	351	R 348	R 345	R 341	J R 338	R 333	336	332	328	336	336	336	322	310	302	298	288
L Q	271	272	273	276	279	278	319	332	328	325	320	316	312	316	R 319	318	320	322	318	305	291	286	276	274

MAR. 2015 M(3000)F2 (0.01)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

MAR. 2015 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										U L 394	L	L	L		L	L								
2									L	U L 423	L	L	L	L	L	L								
3									L		L		L	L		L								
4										L	L	L	L	L	L									
5											L	L	L	L	L	L								
6									L	L	L	L	L	L			L							
7										L	L	L	L	L	L									
8								482		L	L	L	L	L	L	L								
9										L	L	L	L	L	L	360	373							
10								334	349		L	L	L	L	L	333		377						
11							385		379	395	403	L	L	L	371	L								
12									L	L	L	L	402	L	U L 397	L	391							
13										U L 419	U L 352	U L 392	L	L	L	L								
14									L	L	L	L	L	L	L	U L 408	L							
15									L	L 424	L	L	L	L		L								
16									L	L	L	L	L	L	L	L								
17										L	L	L	L	L	U L 392	L								
18									A	383	384	371	376	374	347	355	327	314	283					
19									U L 363	L 349	L 355	347	359	L 377	U L 356	L 380								
20									L	L 368	U L 348	L	U L 374	L	U L 352	390								
21									L 328	348	348	345	352	U L 374	389	L								
22									L	L	L	L	373	U L 384	L	L								
23									L	U L 353	U L 374	L	367	393	L									
24								L	L	L	368	U L 368	L	L	377	376	L							
25									374	L	L	L	L	L		L	L 402							
26									L	361	L	L	368	U L 363	U L 336	L	L							
27										L	L	L	L	L	L	L	L							
28								L 410	L	L 386	L	L	L	L	L	U L 368	L							
29									L	L 366	393	360	L	L		L								
30										L	U L 384	L	L	L	U L 388									
31								L	L	L	L	382	L	L	L	L	L							
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT							1	3	5	13	10	7	8	6	10	8	4	2	1					
MED							385	410	363	L 383	371	368	370	L 376	U L 374	372	382	346	283					
U Q								482	376	L 407	384	382	375	384	U L 389	L 385	396							
L Q								334	338	357	U L 352	347	363	374	U L 352	358	350							

MAR. 2015 M(3000)F1 (0.01)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

MAR. 2015 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										248	248	248	248		242	240								
2									234	234	234	238	238	238	238	238								
3									238		238		238	240		242								
4										248	246	256	248	244	250									
5											228	230	238	236	236	244								
6									230	226	236	228	236	244			244							
7										230	230	230	238	240	250									
8								216		230	230	244	236	244	238	240								
9										250	256	234	246	248	246	246	244							
10								218	238		238	238	246	242	252	250		238						
11							228		230	228	238	244	248	248	248	252								
12									236	248	236	244	242	242	258	266	246							
13										238	268	234	246	254	248	242								
14									236	236	232	244	238	250	250	244	248							
15									230	238	272	270	276	256		244								
16									242	236	244	244	244	252	260	244								
17										236	252	256	250	250	244	244								
18									A	G	G	G	G	G	G	G	G	G	G					
19									248	284	280	302	268	264	268	244								
20									234	274	268	250	254	262	258	236								
21									360	312H	302	324	290	266	262	248								
22									252	276	260	262	248	262	240	248								
23									254	258	258	254	270	258	258									
24								290	268	292	270	270	270	268	258	250	250							
25									258	280	270	270	258	278		246	240							
26									258	262	262	262	262	272	272	266	248							
27										256	278	278	308	272	260	258	258							
28								236	242	244	256	268	242	260	260	260	260							
29									268	246	252	286	252	254		268								
30										244	256	286	260	260	260									
31								258	246	252	260	272	248	260	260	254	266							
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT							1	5	20	28	31	30	31	30	26	26	11	2	1					
MED							228	236	242	248	256	255	248	254	255	246	248	G	G					
U Q								274	256	268	268	270	262	262	260	254	260							
L Q								217	235	236	238	244	242	244	246	244	244							

MAR. 2015 h'F2 (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

MAR. 2015 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	282	282	282	282	280	268	224	224	222	222	222	222	222	222	222	222	222	220	218	218	218	218	252	262
2	290	282	278	278	248	222	222	222	222	208	208	208	208	208	208	212	222	222	222	222	232	232	240	260
3	260	260	264	264	264	258	252	234	222	222	196	232	210	198	220	H 206	222	212	212	206	212	232	246	274
4	274	266	256	272	270	242	242	212	222	H 200	H 196	204	204	218	214	208	232	214	220	224	224	228	258	274
5	292	270	256	256	256	228	242	220	220	212	206	192	216	H 200	210	H 202	230	216	218	232	220	220	254	280
6	288	272	272	268	238	238	230	212	212	212	212	204	210	216	240	230	228	226	226	226	200	218	272	286
7	290	282	282	276	246	222	222	222	222	208	208	208	202	202	212	228	234	222	216	216	228	248	248	256
8	284	284	254	296	272	276	230	162	240	218	222	214	214	214	214	214	226	216	214	214	256	256	278	262
9	282	300	284	268	276	252	238	230	230	202	206	206	222	222	210	214	222	222	202	218	234	250	250	258
10	258	262	262	274	264	238	230	222	222	230	214	196	196	204	214	218	226	248	202	202		226	286	276
11	278	282	270	276	262	252	204	216	206	206	206	206	206	212	212	216	234	232	212	212	230	236	272	286
12	302	306	304	262	260	302	244	224	216	216	194	200	H 210	218	218	222	222	228	216	224	214	240	286	296
13	274	274	274	284	254	276	226	228	234	204	204	210	216	216	206	206	238	226	206	220	222	252	274	296
14	306	300	246	212	226	282	232	226	214	214	214	204	200	200	214	214	220	232	214	214	218	240	278	282
15	290	274	260	266	246	250	236	222	198	200	H 200	214	214	212	230	216	230	228	206	220	232	252	252	252
16	252	258	256	256	256	276	232	216	216	216	204	204	204	218	210	210	234	234	230	220	220	222	244	276
17	264	268	274	274	266	254	228	222	226	212	212	202	216	216	210	210	228	262	276	302	268	244	224	238
18	336	B	E S 436	E B 402	E S 436	S	352	296	A	240	240	230	224	240	230	230	262	278	278	298	E B 268	E B 314	E B 284	330
19	282	Q 310	Q 342	268	Q 206	F 278	210	226	206	204	210	202	202	202	202	202	246	228	230	270	226	242	296	266
20	318	274	252	Q 280	Q 248	Q 264	248	228	214	208	208	226	214	214	202	212	232	248	232	208	246	246	216	270
21	282	Q 272	248	Q 276	Q 266	240	252	240	226	220	E A 274	212	206	220	204	204	240	240	230	230	230	258	242	Q 242
22	304	294	272	266	240	254	224	222	222	204	200	216	200	194	194	208	246	240	234	240	240	242	226	286
23	298	292	250	206	236	262	242	230	218	218	196	190	H 192	200	212	244	244	228	224	238	238	268	258	250
24	250	262	302	276	270	258	250	220	214	H 226	204	204	204	204	204	208	214	236	236	220	244	280	Q 282	292
25	292	300	284	302	254	282	240	234	204	200	206	220	202	210	236	200	202	228	236	234	234	260	270	284
26	274	278	278	278	260	236	236	236	218	202	194	194	206	208	214	220	216	232	234	208	226	250	250	278
27	Q 278	286	286	286	242	236	220	224	224	208	216	198	212	210	202	202	226	238	234	214	230	234	264	290
28	296	296	298	254	254	266	238	206	212	218	210	210	204	200	200	210	230	242	244	244	226	218	232	262
29	266	294	302	302	278	292	248	248	234	200	204	212	222	222	244	216	244	254	250	238	244	252	278	278
30	264	290	262	288	294	294	240	250	244	218	218	A	196	206	202	252	240	240	240	246	252	258	258	248
31	250	Q 266	274	268	268	282	236	218	218	204	204	204	194	236	206	H 214	218	238	244	244	244	272	258	302
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	30	31	31	31	30	31	31	30	31	31	30	31	31	31	31	31	31	31	31	30	31	31	31
MED	282	282	273	274	258	258	236	224	221	212	206	206	206	212	212	214	230	232	226	222	230	243	258	276
U Q	292	294	284	282	270	276	242	230	224	218	214	214	214	218	218	220	238	240	236	238	244	256	278	286
L Q	266	270	256	266	246	240	226	220	214	204	204	202	202	202	204	208	222	222	214	214	222	232	246	260

MAR. 2015 h'F (KM)

IONOSPHERIC DATA STATION Wakkanai

MAR. 2015 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			K 130				B	130	130	116	114	114	114	114	114	112	110	114						
2							B	112	112	112		112	112	112	112	112	A 122	122						
3							164	140	122	120	112	112	112	116	108	116	114	124	B					
4							B	120	120	120	120	114	114	114	114	114	114	114	B					
5							B	114	120	120	120	120	120	112	112	112	112	120	B					
6							E B 192	116	116	116	A	116	116	116	B	108	112	116	B					
7							B	116	116	116	116	116	116	116	116	116	110	118	B					
8							186	120	120	118	110	110	110	110	110	110	110	122	A					
9							B	112	116	114	114	108	108	108	116	116	116	134			116			
10							164	116	116	B	120	120	114	114	116	118	114	114	104					
11							A	112	112	112	112	112	112	112	112	118	118	106						
12							154	126	110	110	110	106	112	110	110	110	110	120						
13							158	126	118	116	116	116	114	114	108	108	110	106	A					
14							146	114	114	114	114	110	110	110	110	114	114	124						
15							146	124	124	116	116	116	A	116	116	116	116	116	B					
16							128	114	114	114	114	114	114	114	114	114	114	128	B					
17							136	124	124	116	116	116	116	116	118	118	118	118	B					
18	S					A	118	102	120	108	110	110	110	114	114	114	114	136	136					
19					B		128	116	110	106	106	106	106	110	110	110	120	122	B					
20						B	136	116	120	120	112	114	114	114	114	116	116	134	B					
21						B	142	118	118	112	110	110	108	112	108	108	112	A	B					
22						B	152	132	118	118	112	112	A	108	108	A	108	132						
23							144	124	112	112	112	114	114	114	114	A	116	A	A					
24						B	134	124	124	116	116	116	116	122	116	116	116	128	B					
25						A	128	126	126	124	116	112	112	114	114	114	122	122	B					
26						B	138	120	120	116	116	A	118	112	112	114	116	126	B					
27						B	126	118	114	114	110	110	106	108	A	114	112	120	B					
28						B	116	124	114	114	114	114	114	114	114	A	118	118	A	B				
29						B	120	120	120	114	114	114	114	114	A	114	114	114	A	A				
30						102	128	116	114	114	114	112	A	108	114	108	108	98	A 98					
31						B	116	108	108	112	112	112	A	112	112	108	120	120	B	B				
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT			1			1	24	31	31	30	29	30	27	31	28	28	31	29	3		1			
MED			K 130			102	136	118	118	115	114	113	114	114	114	114	114	120	104		116			
U Q							153	124	120	116	116	116	114	114	114	116	116	125	136					
L Q							128	114	114	112	112	110	110	110	110	110	112	115	A 98					

MAR. 2015 h'E (KM)

IONOSPHERIC DATA STATION Wakkanai

MAR. 2015 h'Es (KM) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	B	B	K 132	B	B	B	D	126	118	G	G	G	G	G	112	110	G	G	108	102	B	100	96	98
2	106	104	104	102	B	118	106	G	136	136	116	110	108	108	G	G	170	136	98	98	116	100	108	106
3	106	106	106	106	106	100	G	100	100	104	186	G	100	196	G	194	176	G	B	100	B	108	108	108
4	102	102	102	102	102	B	B	160	112	112	108	100	100	G	G	G	G	174	B	B	B	B	B	B
5	138	110	100	100	100	B	B	168	104	102	102	102	102	102	100	194	G	G	100	100	B	B	B	B
6	98	B	B	B	92	B	G	G	100	100	106	98	202	G	B	G	G	G	B	94	B	B	B	B
7	B	B	102	102	100	B	B	G	G	114	106	106	100	100	100	100	112	G	B	B	116	B	104	B
8	128	116	B	94	96	B	G	144	110	110	110	106	106	G	G	108	G	G	96	B	B	B	B	B
9	104	104	98	B	B	B	170	G	124	106	96	G	106	98	98	106	G	G	B	B	106	B	B	106
10	B	104	B	100	B	B	G	146	102	B	106	194	196	108	108	110	102	120	94	94	B	112	B	B
11	B	112	102	102	102	B	102	182	108	108	108	104	102	94	100	108	G	G	102	B	102	B	B	B
12	B	B	B	B	100	B	G	150	108	108	120	102	98	98	G	94	G	114	114	114	92	B	B	96
13	B	B	108	102	104	102	G	142	110	118	108	108	196	104	98	98	G	98	114	114	B	98	98	B
14	B	102	102	B	B	102	150	148	128	122	114	114	192	106	G	100	106	G	B	106	B	108	B	B
15	B	B	108	100	B	B	168	112	112	126	102	108	108	102	102	G	102	G	88	B	B	B	B	B
16	B	B	B	B	B	B	G	142	126	114	106	G	102	96	G	96	96	122	B	92	B	B	B	100
17	B	B	102	104	104	B	G	144	144	120	114	108	190	100	192	112	112	G	B	B	124	B	130	102
18	S	B	B	126	126	116	116	116	112	108	102	G	104	G	104	104	G	G	G	B	B	B	B	104
19	B	B	B	B	142	B	138	132	G	132	116	112	114	104	104	112	112	136	130	100	B	B	B	B
20	108	102	102	102	102	B	140	160	144	104	110	104	106	108	102	102	116	126	B	98	98	98	B	B
21	B	108	B	104	104	B	100	166	136	114	108	106	100	100	100	100	100	100	100	96	B	B	B	106
22	106	104	104	104	98	B	G	166	138	120	106	102	102	96	96	96	188	130	102	106	106	106	108	108
23	B	102	102	102	102	B	G	102	164	120	114	174	174	202	110	110		104	104	106	106	118	104	B
24	B	104	104	104	100	B	156	132	150	114	122	G	G	110	G	G	94	108	B	B	92	100	B	B
25	108	106	106	106	B	104	104	154	128	106	106	106	120	120	G	112	114	G	B	92	92	B	B	100
26	B	102	B	B	102	102	112	96	116	146	114	108	108	104	104	104	156	116	120	B	B	B	B	B
27	106	B	B	98	B	110	92	116	102	G	116	104	104	102	102	106	96	152	B	98	98	102	104	104
28	112	B	114	112	112	98	100	112	102	130	100	124	106	106	G	116	106	160	128	122	B	B	112	112
29	112	112	B	108	108	102	102	102	108	108	104	110	110	110	110	106	106	106	106	104	104	102	94	94
30	B	B	B	B	102	98	G	112	104	102	104	110	108	98	98	98	98	98	98	B	B	B	B	98
31	B	104	B	B	B	B	104	G	104	G	114	120	106	182	G	106	158	100	120	120	96	B	B	B
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	13	18	18	21	21	11	16	26	29	27	30	25	29	26	19	26	20	18	18	20	14	11	12	15
MED	106	104	103	102	102	102	109	142	112	114	108	108	106	104	102	106	109	118	103	100	103	102	106	104
U Q	112	108	106	105	105	110	145	154	132	120	114	111	117	108	108	110	136	136	114	106	106	108	110	106
L Q	105	102	102	101	100	100	102	112	104	106	106	104	102	100	100	100	101	104	98	97	96	100	101	98

MAR. 2015 h'Es (KM)

IONOSPHERIC DATA STATION Wakkanai

MAR. 2015 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			K 1				H 1	L 1	L 1						L 1	L 2			F 1	F 1		F 1	F 2	FQ 31
2	F 3	F 1	FF 11	F 2		FF 11	L 1		H 1	HL 11	C 2	L 1	L 1	L 1			HL 11	C 1	F 1	FF 11	FF 11	F 1	F 1	F 3
3	F 2	F 1	F 2	F 2	F 2	F 1		L 1	L 1	C 2	HL 11		L 1	H 1		H 1	H 1			F 1		F 1	FF 21	F 1
4	F 2	F 2	F 1	F 1	F 1			H 1	L 2	L 2	L 2	L 1	L 2					H 1						
5	F 1	F 1	F 2	F 2	F 2			HL 11	L 1	L 1	L 1	L 1	L 1	L 1	L 2	H 1			L 1	F 1				
6	F 1				F 1				L 1	L 2	L 1	L 1	HL 12							FL 12				
7			FF 11	FF 11	F 1					C 1	L 2	L 1	L 2	L 2	L 2	L 1	CL 12				F 1		F 1	
8	F 1	F 1		F 1	F 1			HL 11	L 1	L 1	C 1	L 1	L 1			L 1			L 1					
9	F 1	F 1	F 1				H 1		CL 11	C 2	L 1		L 1	L 2	L 1	L 1					L 2			F 1
10		F 1		F 1				H 1	L 2		L 1	L 1	L 1	L 1	L 2	L 2	L 2	CL 21	F 1	F 1			F 2	
11		F 1	F 1	F 1	F 1		L 1	L 2	C 2	L 1	L 1	L 1	L 1	L 1	L 1	L 2			F 1		F 1			
12					F 1			H 2	L 2	L 1	L 1	L 2	L 1	L 1		L 1		C 3	LL 31	L 1	F 1			F 1
13			F 1	F 2	F 1	F 1		HL 11	L 2	C 1	CL 21	L 1	HL 11	L 1	L 2	L 1		L 1	L 1	F 1		F 2	F 2	
14		F 1	F 1			F 1	H 3	H 1	C 2	C 2	CL 11	CL 11	HL 11	L 1		L 1	L 2			F 3		F 2		
15			F 1	F 1			H 1	L 1	L 2	L 2	L 1	L 1	L 1	L 1	L 1		L 2		L 1					
16								H 2	C 1	C 1	C 1		L 2	L 2		L 1	L 1	L 1		F 1				F 1
17			F 1	F 1	F 1			HL 21	HL 21	CL 21	CL 21	C 2	HL 11	L 2	HL 21	LC 12	C 2				F 1		F 1	F 1
18	K 1			L 2	F 2	L 1	H 1	C 2	C 4	C 1	C 2		L 1		C 1	C 1								F 1
19				F 1	H 1		C 3	C 2		C 2	C 2	C 1	C 1	CL 11	CL 11	C 1	C 2	C 2	C 1	F 2				
20	F 2	F 2	F 3	F 2	F 2		C 3	H 2	HL 21	CL 21	C 2	C 2	C 1	C 1	L 1	L 1	C 2	CL 21		F 1	F 1	F 1		
21		F 2		F 1	F 2		L 1	HL 11	C 2	C 2	C 2	C 2	L 1	L 2	L 2	L 2	L 2	L 2	L 1	F 2				F 1
22	F 1	F 2	F 1	F 1	F 2			H 1	H 2	C 2	C 1	C 2	L 2	L 2	L 1	L 3	HL 12	C 2	L 1	F 3	FF 31	F 1	F 1	F 1
23		F 1	F 3	F 2	F 1			LC 11	H 1	C 2	C 2	H 1	HL 11	HL 11	C 2	L 2	L 2	L 3	L 3	F 2	F 1	F 1	F 1	
24		F 1	F 4	F 2	F 3		H 2	C 2	H 2	C 2	C 2			L 1			L 1	L 1			F 1	F 1		
25	F 2	F 5	F 1	F 1		L 2	L 1	HL 11	C 2	C 2	CL 11	CL 11	C 2	C 1		C 2	CL 11			F 1	F 1			F 1
26		F 2			F 1	L 1	L 1	LC 22	C 2	HL 21	C 2	L 1	L 1	L 1	L 1	L 2	HL 11	CL 11	LL 11					
27	F 1			F 1		L 2	L 1	HL 21	L 2		C 1	C 1	CL 11	CL 11	L 2	L 2	L 2	HL 22		F 1	F 1	F 1	FF 11	FF 11
28	F 1		F 1	FF 21	FF 11	L 1	LH 11	CL 22	CL 11	C 1	L 1	C 1	L 1	L 1		L 1	CL 21	HL 11	L 1	L 1			L 3	L 1
29	L 1	L 1		F 3	F 3	L 5	L 1	L 2	L 1	L 2	L 1	C 1	C 1	C 2	C 2	C 2	L 2	L 1	L 1	L 2	F 4	F 2	F 2	F 2
30					F 1	L 1		CL 21	CL 21	CL 11	C 2	C 1	L 1	L 1	L 1	CL 12	CL 12	L 3	L 1					F 1
31		F 1					L 1		L 2		C 1	C 2	L 1	HL 11		CL 12	HL 12	LC 21	L 1	L 1	FF 11			
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT																								
MED																								
U Q																								
L Q																								

MAR. 2015 TYPES OF Es

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

MAR. 2015 fxI (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	X 52	X 54	X 60	X 51	X 47	X 47	X 57												X 100	X 82	X 70	X 62	X 62	X 64
2	X 62	X 62	X 63	X 59	X 58	X 55	X 58												X 84	X 80	X 78	X 62	X 59	X 60
3	X 60	X 63	X 57	X 56	X 56	X 58	X 63												X 95	X 70	X 65	X 57	X 52	X 49
4	X 50	X 51	X 55	X 54	X 42	X 45	X 58												X 101	X 68	X 62	X 61	X 53	X 55
5	X 54	X 56	X 54	X 56	X 48	X 46	X 53												X 93	X 67	X 70	X 62	X 55	X 53
6	X 52	X 53	X 54	X 53	X 52	X 46	X 57												X 98	X 81	X 68	X 56	X 54	X 55
7	X 53	X 53	X 57	X 59	X 47	X 41	X 52												X 89	X 79	X 71	X 56	X 56	X 57
8	X 54	X 53	X 56	X 54	X 52	X 52													X 83	X 64	X 64	X 64	X 63	X 60
9	X 59	X 59	X 60	X 60	X 54	X 55	X 64												X 83	X 64	X 66	X 62	X 59	X 57
10	X 56	X 51	X 51	X 51	X 51	X 48	X 60												X 98	X 72	X 55	X 52	X 50	X 54
11	X 55	X 53	X 54	X 53	X 52	X 53	X 68												X 109	X 70	X 60	X 60	X 59	X 56
12	X 55	X 54	X 55	X 54	X 52	X 51	X 65												X 101	X 73	X 67	X 66	X 60	X 62
13	X 62	X 64	X 62	X 62	X 57	X 55	X 68												X 102	X 75	X 64	X 62	X 61	X 61
14	X 58	X 59	X 65	X 54	X 34	X 35													X 102	X 75	X 68	X 58	X 56	X 58
15	X 58	X 58	X 58	X 56	X 50	X 49	X 66												X 92	X 66	X 63	X 65	X 63	X 62
16	X 62	X 61	X 60	X 57	X 52	X 53	X 69												X 100	X 90	X 68	X 60	X 58	X 60
17	X 60	X 60	X 58	X 57	X 54	X 53													X 93	X 101	X 92	X 88	X 89	X 67
18	X 50	X 41	45	38	36	31				C	C		C						X 70	X 53	X 56	X 51	X 47	X 47
19	X 47	X 44	X 45	X 48	X 58	X 26													X 78	X 69	X 71	X 63	X 55	X 56
20	X 51	X 54	X 58	X 45	X 35	X 36													X 100	X 94	X 70	X 53	X 53	X 46
21	X 50	X 48	52	X 49	X 47	X 45													X 99	X 89	X 82	X 66	X 58	X 60
22	X 58	X 58	X 59	X 59	X 55	X 50													X 104	X 86	X 85	X 73	X 61	X 54
23	X 53	X 53	X 60	X 62	X 34	X 32												X 106	X 99	X 87	X 80	X 73	X 71	X 71
24	X 62	X 60	X 57	X 57	X 58	X 58	X 69												X 89	X 83	X 77	X 75	X 72	X 69
25	X 66	X 65	X 66	X 63	X 62	X 64													X 96	X 86	X 76	X 66	X 67	X 70
26	X 71	X 61	X 59	X 59	X 58	X 60													X 103	X 94	X 75	X 70	X 69	X 70
27	X 66	X 64	X 64	X 64	X 63	X 61													X 117	X 98	X 81	X 80	X 76	X 74
28	X 72	X 70	X 69	X 68	X 59	X 56														X 102	X 88	X 75	X 66	X 66
29	X 66	X 65	X 62	X 61	X 61	X 62														X 95	X 81	X 77	X 76	X 76
30	X 77	X 72	X 74	X 67	X 65	X 67														X 92	X 85	X 84	X 83	X 81
31	X 74	X 67	X 64	X 63	X 60	X 61														X 90	X 74	X 76	X 77	X 76
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	31	15											1	27	31	31	31	31	31
MED	X 58	X 58	X 58	X 57	X 52	X 52	X 63											X 106	X 98	X 81	X 70	X 63	X 60	X 60
U Q	X 62	X 63	X 62	X 61	X 58	X 58	X 68												X 101	X 90	X 80	X 73	X 69	X 69
L Q	X 53	X 53	X 55	X 53	X 47	X 45	X 57												X 89	X 70	X 65	X 60	X 55	X 55

IONOSPHERIC DATA STATION Kokubunji

MAR. 2015 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	46	48	54	45	41	41	50	75	106	108	109	104	114	125	124	106	92	99	94	76	64	56	56	58
2	56	56	57	53	52	49	52	73	94	108	118	122	114	125	130	120	101	99	78	74	72	56	53	54
3	54	57	51	50	50	52	57	89	102	111	110	109	110	116	113	106	103	100	89	64	58	51	46	43
4	44	45	49	48	36	39	52	85	98	100	98	112	116	119	110	110	100	106	95	62	56	55	47	49
5	47	50	48	50	42	40	47	79	94	109	112	119	119	119	100	100	97	98	87	61	64	56	49	46
6	46	47	48	47	46	40	51	76	95	119	113	114	130	131	128	107	101	98	91	75	62	50	48	49
7	47	47	51	53	41	35	46	72	104	114	115	101	108	119	114	117	106	99	82	73	65	50	50	51
8	48	47	50	48	46	45	58	87	95	109	120	127	119	120	124	116	104	97	77	58	58	58	57	54
9	53	53	54	54	48	49	58	84	110	118	125	126	129	124	127	120	107	94	77	58	58	56	52	50
10	50	45	45	45	45	42	54	75	83	87	95	106	111	112	114	112	119	111	92	65	49	46	44	48
11	49	47	48	46	46	46	62	90	89	84	88	103	107	107	111	111	111	110	103	64	53	54	53	50
12	49	48	49	48	46	45	59	81	95	99	103	119	112	119	110	102	106	112	95	67	61	60	54	56
13	56	58	56	54	51	49	62	86	95	104	103	115	123	119	113	110	106	102	96	69	58	56	55	55
14	52	53	59	48	28	29	48	83	107	104	108	112	115	113	113	115	113	114	96	69	62	52	50	52
15	52	52	52	50	44	43	60	78	88	90	94	104	116	110	117	99	97	93	85	60	57	59	57	56
16	56	55	54	51	46	47	63	89	96	98	98	104	104	103	106	98	93	95	94	84	62	54	52	54
17	54	54	52	51	48	47	60	81	87	93	98	109	121	113	106	93	96	89	87	95	86	82	83	61
18	44	35	F	F	F	F	35	39	36	C	C	A	C	51	58	60	66	65	64	47	50	45	41	41
19	41	38	39	42	52	20	37	53	63	76	78	85	102	106	91	86	81	81	72	63	65	57	49	50
20	45	48	52	39	29	30	53	74	91	93	110	110	107	114	105	98	96	88	94	88	64	47	47	40
21	44	42	F	43	40	39	58	83	79	90	107	112	121	117	93	81	78	82	93	83	76	59	52	54
22	52	52	53	53	49	44	60	72	82	84	100	121	128	120	110	103	101	102	98	80	78	67	55	48
23	47	47	54	56	28	26	52	85	97	108	110	113	104	110	102	92	86	99	93	81	74	67	65	65
24	56	54	51	51	52	52	62	87	92	101	106	107	100	98	96	93	87	85	83	77	70	69	66	63
25	60	59	59	57	56	58	72	95	103	107	101	104	111	115	118	108	106	100	90	80	69	60	60	64
26	65	54	53	53	52	54	66	83	92	93	102	100	108	116	122	122	114	102	97	88	68	64	63	64
27	60	58	58	58	57	55	66	87	93	101	107	112	127	129	125	118	115	110	111	92	75	74	70	68
28	66	64	63	62	53	50	68	82	94	103	110	118	118	111	106	105	107	108	103	96	82	69	60	60
29	60	59	56	55	55	56	74	99	110	107	101	108	111	122	110	108	107	104	102	89	75	71	70	69
30	71	66	68	61	59	61	90	100	98	95	106	107	116	117	112	111	113	101	99	86	79	78	76	75
31	68	61	58	57	54	55	78	108	111	107	102	105	104	107	109	102	98	102	109	84	68	70	71	70
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	29	30	30	30	31	31	31	30	30	30	30	31	31	31	31	31	31	31	31	31	31	31
MED	52	52	53	51	47	46	58	83	95	102	106	110	114	116	111	106	101	99	93	75	64	57	54	54
U Q	56	57	56	54	52	52	63	87	102	108	110	115	119	120	118	112	107	104	97	84	74	67	63	63
L Q	47	47	50	48	42	40	52	75	89	93	100	104	108	110	106	98	96	94	85	64	58	54	49	49

IONOSPHERIC DATA STATION Kokubunji

MAR. 2015 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	A	A								
2									L		L	L		L	L	A								
3										L		A	L	A	L									
4											L	L	L	L		L	A							
5										L	L	L	L	L	L									
6										L			L	L	A									
7									L	L	L		L	L										
8									A		L	L	L	L	L									
9										L	L	L	L	L	L	A								
10											L	L	L	L	L	L	A							
11													L	L	L									
12												L		L		A	A	A						
13											L	L	L	L	L	L	A							
14										L	L	L	L	L	L	L								
15										L		U L 460	U L 524	L	L									
16												L	L	L	L	L								
17										L	L	L	U L 460	L	L		L							
18							U L 200 324		A	C	C	A	C	U L 452	U L 448	L	A							
19										L	L	L	U L 528	L	L	L								
20									L	L	A	A	L	L	L	L								
21										L	L	L	U L 496	L	L	L								
22									A	L	L	L	U L 524	L	L	L	L							
23									L	L	L	U L 544	L	U L 536	L	L								
24									L	L	L	L	L	L	L	A								
25										L	L	L	L	U L 568		L								
26									L	L	L	L	L	A	L	L	A							
27										L	L	L	L	L	L		L							
28										L	L	L	U L 528	L	L	L	L	A						
29										L		L	L	L	L	L	A							
30										L	L	L	L	L	L	L								
31										L		L	L	L	L	L								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT							1	1				2	6	3	1									
MED							U L 200	U L 324				U L 502	U L 524	U L 536	U L 448									
U Q													U L 528	U L 568										
L Q													U L 496	U L 452										

MAR. 2015 foF1 (0.01MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

MAR. 2015 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								216	U R 304	R	A	A	A	A	A	A	A	U R 208						
2								U A 188	U R 304	A	R	A	A	R	R	A	A	A						
3								224	R	R	R	A	A	A	A	A	U R 308	A						
4								216	U R 304	A	A	R	R	R	R	R	U A 288	A						
5								U R 224	R	A	A	R	R	R	A	R	R	A						
6								236	U R 308	A	A	R	R	U R 376	A	A	A	R						
7								240	R	R	A	A	A	A	A	A	A	A						
8							B	U R 252	A	A	A	A	R	A	A	A	A	A						
9								228	U R 304	A	A	R	R	R	R	A	A	A						
10								208	U R 304	A	R	A	R	R	U R 356	R	U A 284	A						
11								220	R	A	A	A	A	A	R	R	R	240						
12								U R 248	U R 312	A	A	A	A	A	A	A	A	A						
13								U R 260	R	A	A	A	A	R	A	A	A	A						
14							B	U R 252	A	A	A	A	A	A	A	A	R	A						
15								U R 252	A	R	R	R	R	R	R	R	A	R						
16								240	R	R	A	R	R	R	R	R	R	A						
17							B	248	312	A	A	A	A	R	R	U R 328	A	U R 220						
18							196	U R 244	U A 272	C	C	A	C	R	A	R	A	U R 236						
19							B	A	A	A	A	A	A	A	A	U R 320	U R 284	R						
20							B	248	U R 304	A	A	A	A	A	U R 352	R	A	A						
21							B	232	R	A	A	R	R	R	R	R	R	A						
22							B	260	A	A	A	A	A	A	A	A	U R 292	A						
23							B	260	A	A	A	A	A	A	A	A	A							
24								U R 268	R	R	R	R	R	R	A	A	R	U R 236						
25							B	264	R	R	R	R	R	R	R	U R 348	R	U R 228						
26							B	264	U R 328	A	U R 364	A	A	400	A	A	A	A						
27							B	272	324	A	A	A	A	A	A	A	A	244						
28							172	U R 272	R	A	A	A	A	U A 380	A	A	R	252	B					
29							176	U R 292	U A 332	A	A	A	A	R	A	R	A	240	B					
30							200	276	R	A	A	A	A	R	A	R	R	244	B					
31							188	U R 280	R	R	R	A	A	R	A	R	A	A	B					
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT							5	30	13		1			3	2	3	5	10						
MED							188	248	U R 304		U R 364			U 380	U R 354	U R 328	U R 288	238						
U Q							198	264	U 318					400		U R 348	U R 300	244						
L Q							174	228	U R 304					U R 376		U R 320	U 284	U R 228						

MAR. 2015 foE (0.01MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

MAR. 2015 foEs (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	J A 25	21	E B 15	J A 28	E B 14	E B 16	E B 15	27	G 23	G 29	40	41	41	40	41	40	J A 33	G	E B 15	E B 14	E B 15	20	20	18
2	19	19	19	E B 14	E B 14	E B 14	E B 14	25	G 25	J A 40	G 30	40	44	G	G	39	38	26	J A 19	J A 30	20	20	20	20
3	20	J A 22	J A 22	E B 15	22	E B 15	E B 15	26	J A 34	G 24	G 27	J A 60	46	J A 48	J A 42	38	G	J A 38	J A 35	E B 14	21	22	18	21
4	J A 25	J A 22	J A 24	21	22	21	E B 15	26	G	39	J A 39	G 36	G 34	G 30	G 31	G	J A 39	J A 40	J A 31	J A 24	J A 24	J A 24	21	23
5	21	E B 16	E B 14	E B 14	E B 15	E B 15	E B 15	G	G 23	36	40	G 34	G 31	G	40	G	G	24	J A 18	20	E B 15	E B 15	E B 15	E B 15
6	E B 16	E B 16	E B 16	E B 15	E B 15	E B 15	E B 14	28	G 26	40	42	G	G	G 28	44	38	37	G 21	J A 24	J A 22	20	20	E B 16	E B 14
7	20	E B 15	E B 15	E B 14	E B 14	E B 15	E B 15	28	G 25	G 28	40	44	41	40	40	37	30	24	E B 16	E B 15	21	20	E B 15	20
8	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	G	38	40	40	39	40	41	40	38	35	24	E B 15	E B 14	J A 27	20	J A 18	J A 23
9	20	E B 15	E B 14	E B 14	E B 14	E B 15	E B 15	26	G 26	36	38	G	G	G	G	38	J A 37	J A 30	J A 22	J A 18	J A 22	J A 22	21	19
10	19	E B 15	E B 15	E B 15	E B 14	E B 14	E B 16	28	G 25	41	G	41	G 32	G 32	G 27	G 24	39	J A 43	J A 47	J A 47	J A 32	J A 19	E B 15	E B 15
11	E B 15	22	J A 28	E B 15	19	E B 15	E B 16	27	G	39	40	41	J A 42	J A 42	G	G	G	28	E B 15	J A 27	E B 15	E B 15	E B 15	E B 15
12	E B 14	E B 15	E B 15	E B 15	E B 14	E B 15	E B 15	G	G 24	39	42	41	42	40	39	39	J A 48	J A 62	J A 72	J A 68	J A 52	J A 42	J A 28	J A 27
13	J A 21	E B 15	E B 14	J A 24	21	E B 15	15	G	G 26	39	J A 39	41	J A 43	G	36	37	J A 35	J A 29	J A 26	J A 23	J A 24	J A 22	21	J A 28
14	E B 15	J A 26	20	E B 15	E B 14	E B 15	19	G	33	37	40	41	39	J A 41	40	J A 39	J A 32	23	E B 15	J A 17	J A 24	E B 15	E B 14	E B 14
15	E B 15	J A 26	J A 20	E B 15	E B 15	E B 15	E B 16	G 21	34	G 30	G 30	G	G	G	G	G	J A 37	G	E B 16	E B 16	E B 15	E B 15	E B 15	E B 15
16	E B 16	E B 15	E B 15	E B 14	E B 14	E B 14	E B 16	28	G 27	G 28	41	G	G 27	G	G	G	G	24	J A 18	E B 15	E B 15	E B 15	E B 15	E B 15
17	20	E B 15	E B 14	E B 15	E B 14	E B 16	19	30	34	37	41	40	J A 44	G 32	G	G	34	G	J A 21	17	E B 16	E B 15	E B 15	20
18	20	E B 15	E B 15	E B 16	E B 13	E B 12	G 19	G	32	C	C	J A 45	C	G	40	G	34	G	24	E B 16	19	E B 15	E B 14	18
19	21	20	J A 20	J A 23	20	E B 15	22	28	34	37	J A 44	39	41	J A 52	J A 41	G 28	G	G	E B 16	E B 15	E B 15	20	E B 15	18
20	E B 15	E B 15	J A 19	19	J A 20	18	19	28	G	38	J A 56	42	40	42	G 31	G 26	35	26	18	J A 18	E B 15	E B 16	E B 15	E B 15
21	21	E B 15	E B 15	E B 15	E B 14	E B 14	20	29	G 26	38	37	G 31	G 33	G 28	G 30	G	G	26	J A 27	21	E B 15	E B 15	E B 15	E B 15
22	E B 15	E B 15	E B 15	21	E B 15	E B 15	22	30	37	38	41	39	J A 47	J A 45	J A 41	J A 43	G	J A 30	J A 50	J A 81	J A 97	J A 60	23	E B 15
23	E B 16	E B 14	E B 14	E B 14	E B 14	E B 14	21	30	36	37	40	J A 46	J A 53	40	39	J A 42	J A 37	J A 36	J A 33	J A 31	J A 29	J A 18	J A 16	J A 22
24	J A 22	E B 15	E B 15	E B 15	E B 15	J A 20	J A 24	G	G	G 30	G 29	G	G	G	40	40	G	G	E B 15	E B 15	E B 15	19	E B 14	E B 14
25	E B 14	E B 15	E B 14	E B 15	E B 14	E B 16	23	32	G 28	G 26	G 26	G	G	G	G	G	G 28	G	E B 14	E B 15	E B 14	E B 14	E B 14	18
26	E B 14	E B 14	E B 14	E B 15	E B 16	E B 14	22	30	G 27	40	G 34	J A 46	J A 50	45	46	41	40	J A 42	E B 15	E B 15	E B 14	E B 15	21	23
27	E B 15	E B 15	20	22	E B 14	E B 15	22	33	40	40	40	44	41	41	38	36	J A 34	28	24	J A 24	J A 18	J A 21	J A 21	22
28	J A 24	20	J A 19	E B 14	E B 15	E B 16	22	G 25	G 25	41	45	41	42	46	42	G 32	G	30	22	J A 24	J A 23	E B 15	E B 15	E B 15
29	E B 15	E B 15	E B 14	E B 14	E B 15	E B 14	22	G	38	40	40	42	43	G	41	G 32	J A 43	30	J A 42	J A 29	J A 20	E B 14	E B 15	E B 15
30	E B 15	E B 14	E B 15	E B 15	E B 14	E B 14	G	32	G	39	45	43	J A 43	G 32	39	G 23	G	29	20	J A 21	J A 20	E B 15	E B 14	E B 14
31	E B 14	E B 15	E B 15	E B 15	E B 14	E B 15	24	32	G	G 26	G 31	46	42	G	41	G	32	34	J A 31	J A 20	20	22	J A 19	E B 15
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	31	31	31	31	30	30	31	30	31	31	31	31	31	31	31	31	31	31	31
MED	E B 16	E B 15	E B 15	E B 15	E B 14	E B 15	19	27	G	38	40	41	41	G	39	G	34	26	J A 21	J A 20	20	19	E B 15	18
U Q	J A 21	20	J A 19	16	15	E B 15	22	30	34	40	41	43	J A 43	J A 41	41	39	J A 37	J A 30	J A 31	J A 24	J A 24	J A 21	20	21
L Q	E B 15	E B 15	E B 14	E B 14	E B 14	E B 14	E B 15	G	G 26	G 30	G	G	G	G	G	G	G	G	E B 16	E B 15	E B 15	E B 15	E B 15	E B 15

MAR. 2015 foEs (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

MAR. 2015 fbEs (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E B 15	E B 15	E B 15	E B 16	E B 14	E B 16	E B 15	26	G 22	G 27	37	39	38	38	38	36	30	G	E B 15	E B 14	E B 15	E B 15	E B 15	E B 15
2	E B 16	E B 15	E B 15	E B 14	E B 14	E B 14	E B 14	24	G 24	27	G 29	39	39	G	G	38	35	25	E B 15	30	E B 15	E B 14	E B 15	E B 15
3	E B 15	E B 14	E B 15	E B 15	E B 15	E B 15	E B 15	25	20	G 23	G 25	51	43	44	40	35	G	32	32	E B 14	E B 15	E B 16	E B 16	E B 15
4	E B 15	E B 15	E B 15	19	E B 14	E B 15	E B 15	25	G	37	36	G 32	G 32	G 29	G 28	G	36	35	24	21	20	20	E B 15	E B 15
5	E B 15	E B 16	E B 14	E B 14	E B 15	E B 15	E B 15	G	G 22	34	38	G 32	G 29	G	38	G	G	22	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15
6	E B 16	E B 16	E B 16	E B 15	E B 15	E B 15	E B 14	26	G 24	36	38	G	G	G 27	38	37	31	G 20	19	18	E B 14	E B 15	E B 16	E B 14
7	E B 15	E B 15	E B 15	E B 14	E B 14	E B 15	E B 15	28	G 24	G 26	38	43	40	38	38	36	30	22	E B 16	E B 15	E B 16	E B 15	E B 15	E B 15
8	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	G	36	38	38	38	39	38	38	36	31	22	E B 15	E B 14	23	E B 15	E B 15	E B 15
9	E B 15	E B 15	E B 14	E B 14	E B 14	E B 15	E B 15	24	G 24	35	37	G	G	G	G	37	32	23	16	E B 15	E B 15	E B 14	E B 15	E B 15
10	E B 15	E B 15	E B 15	E B 15	E B 14	E B 14	E B 16	25	G 25	35	G	38	G 30	G 30	G 24	G 20	34	36	43	42	24	E B 15	E B 15	E B 15
11	E B 15	E B 14	E B 15	E B 15	E B 15	E B 15	E B 16	25	G	36	38	41	41	38	G	G	G	26	E B 15	25	E B 15	E B 15	E B 15	E B 15
12	E B 14	E B 15	E B 15	E B 15	E B 14	E B 15	E B 15	G	G 22	38	38	39	39	38	37	38	38	58	68	53	43	E B 15	22	E B 15
13	E B 15	E B 15	E B 14	E B 15	E B 14	E B 15	E B 15	G	G 25	35	38	38	38	G	34	36	31	26	20	E B 15	17	E B 15	E B 16	E B 15
14	E B 15	17	E B 15	E B 15	E B 14	E B 15	18	G	32	36	37	38	38	37	37	35	25	22	E B 15	E B 15	E B 16	E B 15	E B 14	E B 14
15	E B 15	E B 14	E B 15	E B 15	E B 15	E B 15	E B 16	G 20	32	G 27	G 30	G	G	G	G	G	33	G	E B 16	E B 16	E B 15	E B 15	E B 15	E B 15
16	E B 16	E B 15	E B 15	E B 14	E B 14	E B 14	E B 16	26	G 27	G 27	40	G	G 26	G	G	G	G	23	E B 16	E B 15	E B 15	E B 15	E B 15	E B 15
17	E B 15	E B 15	E B 14	E B 15	E B 14	E B 16	18	27	34	35	38	38	38	G 31	G	G	31	G	17	E B 15	E B 16	E B 15	E B 15	E B 15
18	E B 15	E B 15	E B 15	E B 16	E B 13	E B 12	G 17	G	30	C	C	A A 45	C	G	36	G	31	G	20	E B 16	E B 15	E B 15	E B 14	E B 15
19	E B 14	E B 15	E B 15	E B 15	E B 15	E B 15	20	27	32	35	41	37	39	38	35	G 25	G	G	E B 16	E B 15	E B 15	E B 15	E B 15	E B 15
20	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	18	26	G	35	50	41	38	40	G 30	G 25	30	23	16	E B 14	E B 15	E B 16	E B 15	E B 15
21	E B 14	E B 15	E B 15	E B 15	E B 14	E B 14	18	27	G 26	35	35	G 30	G 31	G 27	G 29	G	G	25	22	E B 16	E B 15	E B 15	E B 15	E B 15
22	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	19	28	34	35	38	38	38	38	36	37	G	26	19	36	31	50	E B 16	E B 15
23	E B 16	E B 14	E B 14	E B 14	E B 14	E B 14	19	28	34	37	38	42	39	38	38	39	31	25	19	25	E B 16	E B 15	E B 16	E B 15
24	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	20	G	G	G 28	G 28	G	G	G	38	38	G	G	E B 15	E B 15	E B 15	E B 15	E B 14	E B 14
25	E B 14	E B 15	E B 14	E B 15	E B 14	E B 16	21	30	G 27	G 26	G 24	G	G	G	G	G	G 26	G	E B 14	E B 15	E B 14	E B 14	E B 14	E B 15
26	E B 14	E B 14	E B 14	E B 15	E B 16	E B 14	20	28	G 26	36	G 31	42	41	44	44	38	37	29	E B 15	E B 15	E B 14	E B 15	E B 16	E B 16
27	E B 15	E B 15	E B 15	E B 14	E B 14	E B 15	20	30	36	38	38	40	40	40	37	35	30	27	22	22	E B 14	E B 15	18	E B 15
28	E B 16	E B 15	E B 15	E B 14	E B 15	E B 16	21	G 24	G 24	40	44	39	40	44	41	G 31	G	29	20	18	20	E B 15	E B 15	E B 15
29	E B 15	E B 15	E B 14	E B 14	E B 15	E B 14	20	G	35	37	39	38	41	G	39	G 31	36	28	36	26	E B 15	E B 14	E B 15	E B 15
30	E B 15	E B 14	E B 15	E B 15	E B 14	E B 14	G	29	G	38	40	40	40	G 32	38	G 22	G	27	18	E B 16	E B 15	E B 15	E B 14	E B 14
31	E B 14	E B 15	E B 15	E B 15	E B 14	E B 15	22	30	G	G 24	G 29	41	40	G	36	G	31	32	24	18	E B 15	E B 15	E B 16	E B 15
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	31	31	31	31	30	30	31	30	31	31	31	31	31	31	31	31	31	31	31
MED	E B 15	E B 15	E B 15	E B 15	E B 14	E B 15	17	25	G	35	38	38	38	G	36	G	30	25	17	E B 16	E B 15	E B 15	E B 15	E B 15
U Q	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15	20	28	32	37	38	41	40	38	38	37	32	28	22	22	16	E B 15	E B 16	E B 15
L Q	E B 15	E B 15	E B 14	E B 14	E B 14	E B 14	E B 15	G	G 24	G 27	G	G	G	G	G	G	G	G	E B 15	E B 15	E B 15	E B 15	E B 15	E B 15

MAR. 2015 fbEs (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

MAR.2015 fmin (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

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

MAR.2015 fmin (0.1MHz)

IONOSPHERIC DATA STATION Kokubunji

MAR.2015 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	286	295	326	302	299	276	333	330	341	334	326	314	311	307	319	332	323	327	326	323	312	276	287	294
2	293	278	317	312	306	322	320	346	325	326	313	313	297	304	317	314	320	332	299	280	293	319	268	275
3	274	293	281	275	288	314	307	360	351	335	325	324	306	313	314	326	330	339	331	318	302	317	309	289
4	298	308	315	328	326	300	321	349	358	325	331	316	320	321	320	320	318	331	340	330	306	312	285	283
5	286	311	307	318	329	313	310	356	340	340	324	333	322	328	316	323	327	339	344	305	306	334	300	287
6	274	289	294	315	313	317	333	350	328	341	315	318	312	313	319	310	317	326	324	322	311	286	282	278
7	274	281	288	321	333	283	313	339	324	337	335	313	311	309	298	316	321	333	324	307	321	284	286	281
8	287	284	289	306	287	266	321	360	328	319	317	321	306	306	312	310	316	334	324	302	291	295	303	284
9	282	278	282	300	279	290	310	329	326	325	315	314	317	311	319	321	339	338	331	309	304	308	298	303
10	304	296	296	296	314	307	339	368	351	354	332	319	309	315	315	309	325	337	337	341	299	294	291	293
11	291	285	281	289	297	300	332	376	361	351	333	325	325	314	311	312	324	332	357	337	294	302	300	291
12	279	280	286	293	275	267	315	351	345	337	322	323	301	312	314	312	318	338	336	328	304	309	280	282
13	291	312	298	317	290	287	322	352	338	333	329	318	318	319	314	324	323	332	347	340	298	300	281	284
14	275	270	320	341	319	277	328	341	343	336	329	323	316	315	314	313	321	331	338	325	322	303	287	282
15	292	300	300	318	304	292	342	359	342	341	313	316	321	317	327	323	321	338	335	326	290	306	297	291
16	292	298	311	310	278	290	321	357	346	322	315	321	335	310	318	337	326	330	325	343	321	294	271	285
17	287	292	289	295	296	299	331	362	345	329	327	315	327	317	322	315	322	319	295	316	282	294	319	322
18	262	233	F	F	F	F	298	293	336	C	C	A	C	298	315	318	316	328	329	240	255	282	267	267
19	271	271	269	296	359	319	352	350	321	337	329	319	316	324	329	324	327	339	322	298	306	296	294	274
20	263	293	303	350	289	301	347	343	341	325	322	321	312	310	327	315	326	326	336	338	337	291	304	283
21	305	279	F	306	305	299	335	361	338	333	339	311	326	330	340	344	324	325	324	318	339	327	274	283
22	279	262	293	312	318	305	353	360	347	330	316	311	328	316	309	298	316	315	324	304	312	310	304	275
23	266	271	314	370	327	282	320	356	326	339	323	333	320	313	313	314	304	328	320	321	304	290	288	305
24	297	277	267	283	283	305	336	342	334	327	310	332	333	327	319	324	319	322	324	311	301	304	287	278
25	286	272	280	276	276	278	329	345	343	342	315	316	309	308	320	313	311	320	327	322	307	287	287	302
26	314	292	276	290	290	319	357	345	340	327	326	305	302	300	307	308	311	312	314	321	317	290	286	299
27	285	277	280	291	295	309	342	341	333	320	313	302	307	306	291	294	311	305	324	315	282	286	287	281
28	284	282	281	306	291	291	340	337	329	322	307	308	317	309	320	299	311	312	314	315	308	312	283	284
29	280	290	276	278	279	285	322	329	328	338	306	301	284	309	302	303	305	309	305	309	281	280	275	271
30	292	276	293	281	269	276	334	334	350	327	313	310	304	309	305	306	314	311	320	304	290	291	305	310
31	303	288	292	295	283	290	316	347	337	341	320	317	301	306	307	309	312	323	326	347	275	269	277	265
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	29	30	30	30	31	31	31	30	30	30	30	31	31	31	31	31	31	31	31	31	31	31
MED	286	284	292	304	296	296	329	349	340	334	322	316	314	312	315	314	320	328	325	318	304	295	287	284
U Q	292	293	305	317	314	307	339	359	345	339	329	321	321	317	320	323	324	334	336	328	312	309	300	293
L Q	275	277	281	291	283	283	320	341	328	326	315	313	306	308	311	309	314	320	322	307	291	287	281	278

MAR.2015 M(3000)F2 (0.01)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

MAR.2015 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	A	A								
2									L		L	L		L	L	A								
3										L		A	L	A	L									
4											L	L	L	L		L	A							
5										L	L	L	L	L	L									
6										L			L	L	A									
7									L	L	L		L	L										
8									A		L	L	L	L	L									
9										L	L	L	L	L	L	A								
10											L	L	L	L	L	L	A							
11													L	L	L									
12												L		L		A	A	A						
13											L	L	L	L	L	L	A							
14										L	L	L	L	L	L	L								
15										L		U L 415	U L 382	L	L									
16												L	L	L	L	L								
17										L	L	L	U L 415	L	L		L							
18							430	U L 325	A	C	C	A	C	U L 344	U L 361	L	A							
19										L	L	L	U L 354	L	L	L								
20									L	L	A	A	L	L	L	L								
21										L	L	L	U L 381	L	L	L								
22									A	L	L	L	U L 361	L	L	L	L							
23									L	L	L	U L 361	L	U L 360	L	L								
24									L	L	L	L	L	L	L	A								
25										L	L	L	L	U L 342		L								
26									L	L	L	L	L	A	L	L	A							
27										L	L	L	L	L	L		L							
28										L	L	L	U L 392	L	L	L	L	A						
29										L		L	L	L	L	L	A							
30										L	L	L	L	L	L	L								
31										L		L	L	L	L	L								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT							1	1				2	6	3	1									
MED							430	U L 325				U L 388	U L 382	U L 344	U L 361									
U Q													U L 392	U L 360										
L Q													U L 361	U L 342										

MAR.2015 M(3000)F1 (0.01)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

MAR.2015 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											240	268	290	268	248	238								
2									258		250	278		274	274	238								
3										248		248	264	262	256									
4											246	272	264	264		272	236							
5										250	252	262	250	258	246									
6										258			280	270	254									
7									258	246	238		272	272										
8									248		264	258	258	276	278									
9										242	270	252	262	264	266	238								
10											250	266	264	250	278	266	252							
11													254	266	274									
12												270		264		250	248	244						
13											246	278	266	256	260	264	242							
14										246	248	254	264	258	258	256								
15										240		246	272	244	258									
16												250	252	282	264	256								
17										252	256	260	256	260	256		262							
18							344	346	E A 284	C	C	A	C	402	320	302	260							
19										260	266	278	282	250	248	254								
20									256	266	260	252	266	272	260	266								
21										254	260	294	256	252	242	242								
22									234	250	278	284	254	266	272	274	264							
23									256	240	264	254	254	276	248	266								
24									260	252	256	244	262	264	260	240								
25										248	258	258	280	276		258								
26									240	252	260	302	302	290	276	262	248							
27										260	272	278	288	274	274		266							
28										258	270	274	256	272	258	278	270	254						
29										240		282	288	292	272	280	260							
30										252	276	258	292	280	274	278								
31										244		260	254	278	288	260								
	00	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	9	21	22	27	28	31	27	22	11	2						
MED							344	346	256	250	259	262	264	268	260	261	260	249						
U Q									259	256	266	278	280	276	274	272	264							
L Q									244	245	250	254	256	260	256	250	248							

MAR.2015 h'F2 (KM)

IONOSPHERIC DATA STATION Kokubunji

MAR. 2015 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 292	E B 272	E B 244	E B 244	E B 248	E B 298	222	216	230	226	216	202	200	200	A	A	230	234	216	198	208	E B 258	E B 256	E B 258
2	E B 254	E B 262	E B 250	E B 226	E B 226	218	212	220	218	222	198	202	222	214	226	A	220	218	222	E A 260	E B 242	206	E B 286	E B 298
3	E B 286	E B 258	E B 276	E B 278	E B 268	E B E B 242	252	216	222	212	226	A	212	A	220	220	222	218	210	194	220	222	E B 238	E B 264
4	E B 274	E B 264	E B 244	E A 236	212	E B 244	E B 238	220	220	208	204	198	192	202	224	216	A	232	204	204	E A 240	E A 238	E B 274	E B 266
5	E B 288	E B 258	E B 246	E B 236	224	E B 232	E B 250	218	214	206	202	212	198	202	206	204	224	226	204	204	E B 244	E B 212	E B 236	E B 266
6	E B 286	E B 288	E B 268	E B 238	E B 232	224	230	210	H 188	222	208	214	196	206	A	220	218	226	216	206	206	220	E B 268	E B 276
7	E B 286	E B 298	E B 266	E B 236	210	E B 252	E B 246	230	226	218	212	210	198	204	220	228	222	222	206	208	210	218	E B 272	E B 270
8	E B 266	E B 276	E B 280	E B 246	E B 278	E B 302	236	216	A	228	218	206	216	210	214	220	222	218	200	212	E A 264	E B 248	E B 248	E B 276
9	E B 290	E B 286	E B 276	E B 254	E B 236	E B 268	E B 238	226	220	214	200	204	202	208	208	A	222	216	206	212	E B 250	E B 234	E B 238	E B 250
10	E B 248	E B 248	E B 268	E B 268	E B 236	E B 230	222	202	210	224	196	196	196	192	206	216	A	218	214	230	E A 252	E B 254	E B 254	E B 276
11	E B 258	E B 270	E B 292	E B 280	E B 262	E B E B 260	230	212	210	210	210	230	204	196	200	224	224	222	206	200	E B 226	E B 244	E B 244	E B 260
12	E B 282	E B 286	E B 290	E B 248	E B 232	E B 308	228	202	218	220	218	194	218	200	E A 240	A	A	A	E A 246	E A 264	E A 308	E B 244	E A 262	E B 288
13	E B 270	E B 254	E B 252	E B 236	E B 248	E B 256	228	212	214	208	198	178	194	204	208	222	A	224	214	204	E A 236	E B 246	E B 276	E B 286
14	E B 314	E A 302	E B 244	188	218	E B 300	224	216	216	210	200	200	196	208	204	214	224	226	202	204	210	222	E B 264	E B 282
15	E B 274	E B 256	E B 252	E B 236	220	E B 256	224	210	218	204	202	208	200	204	214	228	E A 232	224	214	202	E B 242	E B 244	E B 238	E B 264
16	E B 270	E B 242	E B 240	E B 236	E B 254	E B 282	E B 242	216	214	218	224	212	214	194	216	214	214	226	228	196	204	222	E B 278	E B 286
17	E B 272	E B 260	E B 260	E B 254	E B 236	E B 250	224	214	208	202	208	202	188	196	200	214	216	232	E A 244	228	E B 270	224	198	E B 234
18	E B 350	E B 466	E B 386	E B 374	E B 420	E B 468	184	E A 248	A	C	C	A	C	224	232	210	A	238	230	E B 270	E B 290	E B 242	E B 312	E B 304
19	E B 308	E B 310	E B 314	E B 294	212	E B 262	224	220	210	204	214	198	196	194	192	210	220	228	216	226	228	E B 238	E B 230	E B 284
20	E B 320	E B 268	E B 242	192	E B 278	E B 260	220	224	202	192	A	A	208	206	206	208	226	234	230	210	202	220	E B 244	E B 262
21	E B 262	E B 270	E B 314	E B 240	E B 240	E B 264	218	218	218	204	194	192	192	208	194	202	214	232	230	210	E B 214	208	228	E B 256
22	E B 290	E B 298	E B 266	E B 240	222	216	208	208	A	206	202	192	188	198	208	204	206	230	230	E A 248	E A 240	E A 276	222	E B 274
23	E B 332	E B 324	E B 250	206	194	E B 332	232	228	208	208	202	200	200	186	198	212	224	230	224	E A 236	222	E B 250	E B 248	E B 240
24	232	E B 270	E B 296	E B 288	E B 264	E B 240	218	220	206	202	208	204	194	196	198	A	218	218	230	218	228	E B 236	E B 258	E B 266
25	E B 270	E B 292	E B 270	E B 276	E B 266	E B 264	220	220	222	210	200	202	200	198	220	196	214	222	218	212	220	E B 242	E B 290	E B 262
26	230	E B 244	E B 272	E B 268	E B 246	E B 236	212	212	188	214	184	214	208	A	230	210	A	224	214	212	206	E B 232	E B 264	E B 256
27	E B 264	E B 278	E B 276	E B 258	E B 246	222	210	224	222	206	206	202	H 184	224	202	216	212	E A 234	226	212	226	E B 246	E A 258	E B 272
28	E B 286	E B 278	E B 274	E B 234	198	E B 244	216	212	218	220	224	190	182	214	200	202	202	A	230	234	222	194	E B 248	E B 272
29	E B 270	E B 270	E B 272	E B 278	E B 276	E B 280	236	220	222	206	204	196	214	222	214	224	A	232	236	222	218	E B 236	E B 260	E B 286
30	E B 256	E B 264	E B 258	E B 232	E B 256	E B 290	242	222	222	208	216	214	206	196	200	212	224	230	222	216	E B 226	E B 242	E B 240	E B 236
31	E B 236	E B 240	E B 260	E B 246	E B 248	E B 270	222	228	218	202	212	190	192	190	210	210	226	E A 238	232	206	202	E B 284	E B 274	E B 296
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	31	31	31	28	30	29	28	30	29	29	26	24	29	31	31	31	31	31	31
MED	E B 274	E B 270	E B 268	E B 244	E B 240	E B 260	222	217	218	209	206	202	199	202	208	214	222	226	217	209	216	E B 238	E B 256	E B 270
U Q	E B 290	E B 288	E B 276	E B 268	E B 262	E B 282	E B 236	222	221	218	215	209	208	208	220	220	224	232	230	E 228	E B 242	E B 246	E B 272	E B 284
L Q	E B 262	E B 258	E B 250	E 236	222	240	218	212	210	206	200	196	194	196	200	210	215	222	210	204	210	222	E B 238	E B 260

MAR. 2015 h'F (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

MAR. 2015 h'E (KM) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1								108	114	122	A	A	112	112	108	112	A	120						
2								112	114	116	114	110	A	112	112	112	112	112						
3								116	116	110	114	120	122	A	A	114	110	112						
4								112	112	114	A	116	116	116	116	110	110	110						
5								110	118	114	A	116	116	110	A	110	110	A						
6								112	116	112	A	114	110	112	114	122	114	116						
7								122	118	112	116	112	112	110	116	A	A	120						
8							B	122	A	A	A	A	118	126	120	118	112	A						
9								110	114	116	112	112	112	112	112	112	A	A						
10								112	120	A	118	A	118	118	114	114	110	112						
11								112	112	A	A	A	A	A	112	112	112	114						
12								110	112	110	110	A	A	A	A	110	112	A						
13								118	118	A	A	A	A	118	A	A	A	A						
14							B	114	114	112	110	A	A	A	A	A	116	A						
15								128	118	116	112	120	118	122	114	116	A	118						
16								112	120	112	110	110	112	114	114	112	112	A						
17							B	116	110	116	114	114	A	114	120	118	110	114						
18							200	118	112	C	C	A	C	112	A	108	112	112						
19							B	114	116	116	A	A	A	A	A	112	112	112						
20							B	114	114	112	A	A	A	A	112	116	116	116						
21							B	116	116	112	A	112	112	112	112	112	112	118						
22							B	114	110	110	A	A	A	A	A	A	110	A						
23							B	114	108	110	112	112	A	A	A	A	A							
24								110	110	120	120	120	116	118	120	112	112	112						
25							B	120	114	116	120	118	118	114	110	108	122	114						
26							B	118	112	A	110	A	116	122	120	112	110	126						
27							B	114	114	112	A	114	112	A	A	A	A	122						
28							122	120	116	112	A	A	A	120	120	120	118	118	B					
29							112	116	116	110	112	114	114	114	A	120	A	116	B					
30							126	118	110	114	114	114	A	112	A	112	114	108	B					
31							114	118	112	112	112	114	114	110	A	110	A	114	B					
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT							5	31	30	25	17	18	18	22	18	25	22	22						
MED							122	114	114	112	112	114	115	114	114	112	112	114						
U Q							163	118	116	116	115	116	118	118	120	116	114	118						
L Q							113	112	112	112	111	112	112	112	112	111	110	112						

MAR. 2015 h'E (KM)

IONOSPHERIC DATA STATION Kokubunji

MAR. 2015 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	102	96	B	98	B	B	B	150	102	106	106	106	114	116	118	120	106	G	B	B	B	142	122	120
2	118	116	116	B	B	B	B	126	104	122	102	114	106	G	G	126	126	124	104	112	98	98	98	98
3	94	98	98	B	98	B	B	156	106	104	104	124	110	104	106	114	G	118	98	B	142	118	108	98
4	94	94	90	90	90	88	B	150	G	128	104	102	102	98	98	G	122	116	106	104	100	94	94	94
5	94	B	B	B	B	B	B	G	104	112	104	104	102	G	108	G	G	104	102	102	B	B	B	B
6	B	B	B	B	B	B	B	150	106	112	98	G	G	100	124	132	122	98	98	94	94	90	B	B
7	112	B	B	B	B	B	B	172	98	92	128	124	126	114	114	106	106	128	B	B	104	94	B	94
8	B	B	B	B	B	B	B	G	104	104	100	104	114	120	116	118	116	106	B	B	102	102	100	100
9	96	B	B	B	B	B	B	158	102	122	118	G	G	G	G	120	106	104	102	100	98	100	92	92
10	92	B	B	B	B	B	B	148	98	92	G	104	104	100	100	96	128	122	116	104	100	102	B	B
11	B	114	100	B	96	B	B	154	G	104	104	104	100	94	G	G	G	148	B	102	B	B	B	B
12	B	B	B	B	B	B	B	G	98	116	116	104	106	106	106	134	124	106	100	100	98	98	98	98
13	102	B	B	102	102	B	B	G	104	104	106	106	104	G	104	100	100	98	96	94	94	94	94	104
14	B	90	96	B	B	B	146	G	124	124	120	106	104	104	104	104	104	106	B	102	102	B	B	B
15	B	96	92	B	B	B	B	106	112	98	102	G	G	G	G	G	90	G	B	B	B	B	B	B
16	B	B	B	B	B	B	B	146	106	106	110	G	102	G	G	G	G	104	108	B	B	B	B	B
17	100	B	B	B	B	B	164	156	130	120	114	108	102	106	G	G	118	G	94	108	B	B	B	138
18	104	B	B	B	B	B	120	G	124	C	C	110	C	G	104	G	122	G	112	B	114	B	B	106
19	102	98	96	96	90	B	122	120	122	118	106	106	106	102	102	102	G	G	B	B	B	88	B	92
20	B	B	98	98	98	98	144	144	G	124	102	102	102	102	102	102	118	118	118	96	B	B	B	B
21	114	B	B	B	B	B	126	148	104	120	106	100	100	94	98	G	G	116	108	102	B	B	B	B
22	B	B	B	98	B	B	144	118	120	120	102	102	98	98	98	90	G	92	106	104	100	100	100	B
23	B	B	B	B	B	B	142	142	124	116	116	114	104	106	106	102	106	104	114	104	98	98	92	98
24	98	B	B	B	B	96	96	G	G	98	102	G	G	G	120	118	G	G	B	B	B	98	B	B
25	B	B	B	B	B	B	144	154	100	98	96	G	G	G	G	G	106	G	B	B	B	B	B	126
26	B	B	B	B	B	B	138	176	104	104	102	104	104	166	132	132	132	124	B	B	B	B	114	106
27	B	B	104	100	B	B	144	154	140	118	104	116	112	110	106	108	104	134	112	104	96	100	98	94
28	94	92	90	B	B	B	148	108	102	132	108	102	108	134	122	108	G	150	124	114	100	B	B	B
29	B	B	B	B	B	B	140	G	132	126	118	116	118	G	106	100	100	150	118	116	114	B	B	B
30	B	B	B	B	B	B	G	160	G	126	122	118	102	98	100	98	G	146	124	114	106	B	B	B
31	B	B	B	B	B	B	150	148	G	100	100	112	112	G	102	G	108	132	116	108	108	104	106	B
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	15	9	10	7	6	3	15	23	25	30	29	25	25	20	24	21	21	24	21	20	19	17	13	16
MED	100	96	97	98	97	96	144	150	104	114	104	106	104	104	106	108	108	117	108	104	100	98	98	98
U Q	104	106	100	100	98	98	146	156	123	122	115	114	111	112	115	120	122	130	116	108	106	102	107	106
L Q	94	93	92	96	90	88	126	142	102	104	102	104	102	99	102	101	105	104	101	101	98	94	94	94

IONOSPHERIC DATA STATION Kokubunji

MAR. 2015 TYPES OF Es 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	F1	F1		F2				H2	L2	L2	L2	L2	C1	C1	C2	C1	L2					F2	F2	F1
2	F1	F1	F1					C2	L2	CL11	L2	CL11	L1			CL11	CL22	CL21	F1	F3	F1	F1	F1	F1
3	F2	F2	F1		F1			HL11	L2	L2	L2	C2	C2	L2	L1	C2		C2	F4		F2	F1	F2	F2
4	F2	F2	F2	F1	F1	F1		H2		C1	L2	L2	L2	L1	L2		CL11	C2	F6	F3	F3	F3	F2	F2
5	F2								L2	CL11	L1	L2	L2		L1			L3	F1	F1				
6								H2	L2	C1	L1			L1	C1	C1	C1	L2	F2	F3	F1	F1		
7	F1							H1	L2	L2	CL12	CL11	CL11	C1	C1	L1	L2	CL22			F1	F1		F2
8									L2	L1	L1	L2	C2	C2	C2	C1	C1	L2			F6	F2	F3	F2
9	F1							H2	L2	CL22	CL22					CL21	L2	L2	F3	F1	F2	F2	F2	F2
10	F1							H1	L2	L1		L1	L1	L2	L2	L1	C2	C3	F4	F6	F6	F2		
11		F1	F2		F1			H2		L2	L1	L2	L2	L2				H1		F3				
12									L2	C1	C1	L2	L2	L1	L2	C1	C2	L5	F7	F5	F6	F3	F4	F2
13	F2			F3	F1				L2	L2	L2	L2	L2		L2	L2	L2	L3	F3	F3	F2	F1	F1	F4
14		F3	F2				H3		CL11	C2	C2	L2	L2	L2	L2	L3	L1	L2		F1	F2			
15		F2	F2					L2	CL12	L2	L2						L2							
16								HL22	L2	L2	CL22		L2					L2	F1					
17	F1						H2	H2	H1	CL12	CL22	CL22	L2	L2			CL11		F3	F1				F1
18	F1						C2		C2			L2			L1		CL11		F3		F1			F2
19	F2	F2	F2	F2	F1		C2	C1	C2	C2	L1	L2	L2	L2	L2	L2						F1		F1
20			F3	F1	F1	F1	H2	H1		C1	L2	L2	L2	L2	L2	L1	CL12	C2	F2	F1				
21	F1						C2	H1	L2	C1	L2	L1	L1	L2	L1			C2	F4	F1				
22				F4			H2	C1	C1	C1	L2	L2	L2	L2	L2	L2		L2	F2	F3	F4	F4	F2	
23							H2	H1	C1	CL11	CL22	CL22	L2	L2	L2	L2	L2	L2	F2	F3	F2	F2	F2	F3
24	F2					F2	F3			L2	L1				C1	C1						F2		
25							H2	H2	L2	L2	L2						L2							F1
26							H2	HL22	L2	L2	L2	L2	CL12	HL12	C2	C2	C2	CL22					F2	F4
27			F1	F2			H2	HL22	HL12	CL12	L2	CL12	CL12	L2	L1	L2	L2	HL22	F3	F4	F2	F2	F2	F2
28	F2	F2	F3				H2	L2	L1	C1	L2	L2	L2	C2	C2	L1		H1	C1	F3	F2			
29							H2		C2	C2	CL11	CL22	C2		L2	L2	L3	HL13	L3	F5	F3			
30								HL12		CL22	CL12	CL12	L2	L2	L1	L2		H1	C3	F2	F3			
31							H2	H2		L1	L1	CL11	CL11		L2		L2	HL22	C3	F2	F1	F2	F2	
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT																								
MED																								
U Q																								
L Q																								

MAR. 2015 TYPES OF Es

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

MAR. 2015 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	O X 50	X 55	X 58	X 54	X 46	X 40	X 44													X 95	X 69	X 62	X 64	X 64
2	X 64	X 60	X 61	X 62	X 58	X 42	X 38													X 96	X 89	X 66	X 52	X 56
3	X 58	X 58	X 52	X 55	X 59	X 47	X 44													X 94	X 82	X 71	X 66	X 52
4	X 49	X 51	X 51	X 50	X 45	X 36	X 39													X 92	X 80	X 72	X 69	X 64
5	X 59	X 61	X 58	X 54	X 49	X 40	X 39													X 91	X 71	X 69	X 60	X 56
6	X 57	X 55	X 56	X 58	X 56	X 40	X 37													X 108	X 92	X 91	X 90	X 72
7	X 67	X 67	X 72	X 70	X 58	X 43	X 42													X 98	X 86	X 63	X 58	X 60
8	X 59	X 56	X 54	X 59	X 54	X 50	X 49													X 90	X 78	X 70	X 66	X 58
9	X 58	X 58	X 57	X 61	X 52	X 49	X 51													X 96	X 80	X 84	X 73	X 63
10	X 60	X 55	X 55	X 54	X 57	X 46	X 42													X 98	X 65	X 54	X 54	X 54
11	X 54	X 50	X 50	X 50	X 50	X 49	X 53													X 100	X 70	X 58	X 54	X 51
12	X 51	X 53	X 50	X 49	X 48	X 46	X 48													X 100	X 80	X 74	X 68	X 64
13	X 64	X 64	X 62	X 61	X 56	X 50	X 52													X 101	X 84	X 78	X 71	X 64
14	X 61	X 64	X 69	X 72	X 42	X 36	X 38													X 98	X 86	X 70	X 65	X 65
15	X 64	X 64	X 61	X 64	X 60	X 48														X 91	X 68	X 62	X 62	X 60
16	X 60	X 62	X 57	X 54	X 50	X 51														X 108	X 83	X 64	X 63	X 63
17	X 66	X 64	X 66	X 64	X 62	X 52				C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
18	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
19	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
20	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
21	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
22	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
23	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
24	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
25	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
26	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
27	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
28	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
29	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
30	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
31	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	17	17	17	17	17	17	14													16	16	16	16	16
MED	X 59	X 58	X 57	X 58	X 54	X 46	X 43													X 97	X 80	X 70	X 64	X 62
U Q	X 64	X 64	X 62	X 63	X 58	X 50	X 49													X 100	X 85	X 73	X 68	X 64
L Q	X 56	X 55	X 53	X 54	X 48	X 40	X 39													X 93	X 70	X 62	X 59	X 56

IONOSPHERIC DATA STATION Yamagawa

MAR. 2015 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	44	49	52	48	40	34	38	69	90	112	96	94	109	128	R 120	114	98	103	109	89	U R 63	56	58	58
2	58	54	55	56	52	36	32	56	82	102	R 108	118	116	128	R 140	J R 128	109	R 104	89	90	83	60	46	50
3	52	52	46	49	53	41	38	62	86	102	111	U R 108	112	118	R 123	123	116	110	100	88	76	65	60	46
4	43	45	45	44	39	30	33	66	90	97	R 106	112	116	121	U R 124	118	113	110	109	86	74	66	63	58
5	53	55	52	48	43	34	33	56	84	96	117	R 124	118	115	113	114	109	106	105	85	65	63	54	50
6	51	49	50	52	50	34	31	62	88	103	122	J R 129	U R 124	144	149	142	J R 130	118	111	102	86	85	84	66
7	61	61	66	64	52	37	36	64	86	R 112	119	113	112	117	U R 124	R 126	119	114	107	92	80	57	52	54
8	53	50	48	53	48	44	43	66	82	R 106	118	124	115	U R 125	U R 140	142	U R 126	114	108	84	71	64	60	52
9	52	52	51	55	46	43	45	67	95	110	110	U R 122	134	J R 143	148	R 134	124	114	108	90	74	78	67	57
10	54	49	49	48	51	40	36	62	71	89	97	105	112	116	132	R 132	U R 135	130	116	92	59	48	48	48
11	48	44	44	44	44	43	47	78	77	81	94	R 103	108	107	118	130	118	116	118	R 94	64	52	48	45
12	45	47	44	43	42	40	42	76	77	88	94	108	118	129	J R 126	119	U R 120	111	107	94	74	68	62	58
13	58	58	56	55	50	44	46	73	101	99	112	109	118	R	J R 128	128	114	114	109	95	78	72	65	58
14	55	58	63	66	36	30	32	66	90	96	99	106	120	R 123	120	120	115	119	111	92	80	64	59	59
15	58	58	55	58	54	42	44	66	76	94	R 107	R 104	R 108	115	120	102	107	99	97	85	62	56	56	54
16	54	56	51	48	44	45	46	74	84	93	100	107	110	113	114	108	104	97	102	102	77	58	57	57
17	60	58	60	58	56	46	48	68	80	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
18	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
19	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
20	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
21	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
22	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
23	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
24	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
25	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
26	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
27	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
28	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
29	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
30	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
31	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	17	17	17	17	17	17	17	17	17	16	16	16	16	15	16	16	16	16	16	16	16	16	16	16
MED	53	52	51	52	48	40	38	66	84	98	108	108	116	121	124	124	116	112	108	91	74	64	58	56
U Q	58	58	56	57	52	44	46	71	90	104	114	R 120	118	128	136	131	U R 122	115	110	94	79	67	62	58
L Q	50	49	47	48	42	34	33	62	78	94	98	106	111	115	120	116	109	105	104	87	64	56	53	50

MAR. 2015 foF2 (0.1MHz)

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IONOSPHERIC DATA STATION Yamagawa

MAR.2015 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								216	280	L	L	L	U L 592	L	L	L	L							
2									L	L	L	L	L	L	U L 512	L	L	L						
3								200		L	L	L	L	L	L	L	L	U L 344						
4										L	L	L	L	L	L	L	A	A						
5									L	L	L	L	L	L	L	L	L	L						
6								220	L	L	L	L	L	L		L	L	A						
7								212	300	L	L	U L 540	L 536	U L 500	L	L	U L 436							
8								236		L	L	L	L	L	L	L	L	L						
9								220	288	L	L	L	L	L	L	L	L	L						
10								216			L	L	L	L	L	L	L	L						
11								204		L	L	L	L	L	U L 520	L	A							
12										L	L	L	L	L 480	L	L	L	A						
13									L	L	L	L	U L 588	L	L	L	L	L						
14									296	L	L	L	L	L	L	L	L	L						
15									U L 320	L	L 492	L	U L 508	L	U L 516	L	L	L						
16									L	L	L	U L 508	L	L	L	L	L	L						
17									L	C	C	C	C	C	C	C	C	C	C					
18							C	C	C	C	C	C	C	C	C	C	C	C	C					
19							C	C	C	C	C	C	C	C	C	C	C	C	C					
20							C	C	C	C	C	C	C	C	C	C	C	C	C					
21							C	C	C	C	C	C	C	C	C	C	C	C	C					
22							C	C	C	C	C	C	C	C	C	C	C	C	C					
23							C	C	C	C	C	C	C	C	C	C	C	C	C					
24							C	C	C	C	C	C	C	C	C	C	C	C	C					
25							C	C	C	C	C	C	C	C	C	C	C	C	C					
26							C	C	C	C	C	C	C	C	C	C	C	C	C					
27							C	C	C	C	C	C	C	C	C	C	C	C	C					
28							C	C	C	C	C	C	C	C	C	C	C	C	C					
29							C	C	C	C	C	C	C	C	C	C	C	C	C					
30							C	C	C	C	C	C	C	C	C	C	C	C	C					
31							C	C	C	C	C	C	C	C	C	C	C	C	C					
	00	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	5		1	2	4	2	3		1	1						
MED								216	296		L 492	U L 524	U L 562	L 490	U L 516		U L 436	U L 344						
U Q								220	310				U L 590		U L 520									
L Q								208	284				L 522		U L 512									

MAR.2015 foF1 (0.01MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

MAR. 2015 foE (0.01MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	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	256	304	U R 348	360	368	352	U A 348	U A 340	A	A	B					
2								176	A 232	R 324	328	R 360	R 364	A	372	360	A	A 268	A					
3								B	248	316	U R 352	B	388	380	R 368	R 352	328	U A 252	B					
4								U A 204	U A 280	316	U A 340	R 352	U A 352	A	A	356	A	R 272	A					
5								B	264	320	A 332	U A 348	368	380	372	356	324	A	A					
6								B	272	308	340	A	A	368	B	B	A	A	A					
7								180	268	312	336	R 360	376	384	U A 368	368	U A 320	272	196					
8								B	308	328	R 356	A 392	384	R 380	356	U A 344	U A 308	U A 232	A					
9								B	256	316	A 348	R 352	U R 348	336	U A 348	344	320	A 264	A					
10								U A 176	256	B	U R 328	R 344	352	U A 344	U R 388	364	U A 308	U A 248	A					
11								B	264	R	R	U A 344	364	R 384	R	356	324	300	172					
12								208	248	328	352	360	R 360	B	B	368	328	276	B					
13								200	A 260	308	A	A	A	B	368	B	A 312	A	A					
14								204	268	316	336	352	348	344	364	328	U A 288	A	A					
15							B	196	240	316	344	B	B	B	348	360	324	272	172					
16							B	A 192	268	316	A 336	344	R	324	B	U A 336	320	R 276	172					
17							B	204	284	C	C	C	C	C	C	C	C	C	C					
18							C	C	C	C	C	C	C	C	C	C	C	C	C					
19							C	C	C	C	C	C	C	C	C	C	C	C	C					
20							C	C	C	C	C	C	C	C	C	C	C	C	C					
21							C	C	C	C	C	C	C	C	C	C	C	C	C					
22							C	C	C	C	C	C	C	C	C	C	C	C	C					
23							C	C	C	C	C	C	C	C	C	C	C	C	C					
24							C	C	C	C	C	C	C	C	C	C	C	C	C					
25							C	C	C	C	C	C	C	C	C	C	C	C	C					
26							C	C	C	C	C	C	C	C	C	C	C	C	C					
27							C	C	C	C	C	C	C	C	C	C	C	C	C					
28							C	C	C	C	C	C	C	C	C	C	C	C	C					
29							C	C	C	C	C	C	C	C	C	C	C	C	C					
30							C	C	C	C	C	C	C	C	C	C	C	C	C					
31							C	C	C	C	C	C	C	C	C	C	C	C	C					
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								10	17	14	14	12	12	11	11	14	12	11	4					
MED								198	264	316	340	352	364	368	368	356	320	272	172					
U Q								204	270	320	R 348	360	372	R 380	372	360	324	276	184					
L Q								180	252	312	336	346	352	344	U A 348	344	U A 310	U A 252	172					

MAR. 2015 foE (0.01MHz)

IONOSPHERIC DATA STATION Yamagawa

MAR. 2015 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	20	J A 20	J A 31	J A 30	J A 20	E B 16	E B 16	E B 16	27	33	40	41	44	J A 52	40	37	J A 39	J A 28	18	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16
2	J A 29	E B 16	E B 16	E B 18	E B 19	E B 16	E B 16	G	26	G 24	G 28	40	G 27	42	39	J A 45	J A 38	30	J A 28	J A 26	J A 29	E B 16	E B 16	E B 16
3	E B 16	18	E B 16	20	E B 16	E B 16	E B 16	E B 16	26	35	40	E B 47	41	50	40	38	37	32	E B 21	E B 16	J A 25	J A 21	J A 18	J A 19
4	E B 16	J A 20	J A 16	J A 16	21	E B 16	E B 16	22	31	39	36	G	39	44	41	40	J A 72	J A 49	J A 62	J A 33	J A 37	22	E B 16	J A 33
5	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	19	28	34	36	37	39	G 33	G	G 32	33	J A 32	J A 22	J A 20	J A 18	20	18	E B 16
6	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	G	G	G	35	38	G 32	E B 59	E B 40	J A 53	60	J A 28	J A 39	19	E B 16	E B 16	E B 16
7	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	G	J A 33	G	G	38	43	42	41	40	34	32	23	J A 30	J A 23	J A 21	E B 16	E B 16
8	20	E B 16	E B 16	E B 16	E B 16	E B 16	J A 18	E B 18	G	G	40	42	41	40	40	39	36	31	26	J A 17	E B 16	E B 16	E B 16	E B 16
9	E B 16	19	E B 16	E B 16	E B 16	20	E B 16	E B 16	27	34	40	39	38	38	38	41	35	30	J A 20	E B 16	E B 16	18	J A 25	20
10	E B 16	J A 21	J A 18	E B 16	E B 16	E B 16	E B 16	19	G	E B 57	G	39	39	40	41	44	33	29	24	E B 16	E B 16	E B 16	J A 34	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	32	G	G	38	G	42	G	38	42	35	J A 44	J A 24	J A 33	J A 76	18	E B 16
12	E B 16	E B 16	J A 17	20	E B 16	E B 16	E B 16	G	28	34	40	J A 47	44	41	42	45	34	J A 53	J A 32	J A 34	J A 23	J A 32	J A 29	J A 29
13	J A 24	J A 24	E B 16	E B 16	E B 16	E B 16	E B 16	21	32	32	J A 36	43	40	E B 52	42	E B 37	33	J A 32	J A 33	J A 24	J A 20	J A 17	20	18
14	E B 16	E B 16	17	E B 16	E B 16	E B 16	E B 16	22	28	35	38	41	40	40	41	38	34	27	18	J A 18	J A 17	E B 16	E B 16	E B 16
15	E B 16	E B 16	21	E B 16	E B 16	E B 16	E B 16	21	26	G	36	E B 43	E B 42	38	38	40	36	G	G	E B 16	J A 18	J A 24	J A 20	E B 16
16	J A 16	E B 16	E B 16	J A 18	J A 18	18	E B 16	23	G	33	35	G	G	35	34	35	G	G	G	E B 16	20	E B 16	E B 16	E B 16
17	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	22	G	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
18	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
19	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
20	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
21	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
22	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
23	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
24	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
25	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
26	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
27	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
28	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
29	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
30	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
31	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	17	17	17	17	17	17	17	17	17	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16
MED	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	G	27	32	36	39	40	40	40	40	36	32	24	J A 19	J A 20	18	17	E B 16
U Q	J A 18	J A 20	J A 17	18	17	E B 16	E B 16	22	30	34	40	42	42	43	41	40	J A 38	J A 34	J A 30	J A 28	J A 24	J A 22	J A 20	J A 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	38	G 38	38	38	38	34	28	19	E B 16	E B 16	E B 16	E B 16	E B 16

MAR. 2015 foEs (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

MAR. 2015 fbEs (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E B 16	E B 16	E B 16	21	E B 16	E B 16	E B 16	E B 16	26	32	39	40	42	51	38	36	36	27	U Y 18	E B 16	E B 16	E B 16	E B 16	E B 16
2	E B 16	E B 16	E B 16	E B 18	E B 19	E B 16	E B 16	G	26	G 24	G 28	U Y 40	G 27	42	38	42	35	28	22	20	18	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	E B 16	26	35	40	E B 47	U Y 41	45	40	38	36	32	E B 21	E B 16	24	20	16	E B 16
4	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	21	30	36	36	G	39	40	38	39	53	48	61	30	32	E B 16	E B 16	21
5	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	U Y 19	U Y 28	34	36	37	39	G 33	G	G 32	G 32	30	20	18	E B 16	E B 16	E B 16	E B 16
6	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	G	G	G	U Y 35	U Y 38	G 32	E B 59	E B 40	45	56	26	33	E B 16	E B 16	E B 16	E B 16
7	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	G	29	G	G	38	43	42	39	40	33	32	22	28	E B 16	E B 16	E B 16	E B 16
8	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 18	G	G	39	40	41	40	U Y 40	37	36	30	21	E B 16	E B 16	E B 16	E B 16	E B 16
9	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	27	33	37	38	38	U Y 38	U Y 38	40	35	29	20	E B 16	E B 16	E B 16	E B 16	E B 16
10	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	19	G	E B 57	G	38	38	38	U Y 41	43	32	28	19	E B 16	E B 16	E B 16	31	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	29	G	G	38	G	41	G	38	41	35	39	19	25	33	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	G	28	34	39	44	42	41	U Y 42	38	U Y 34	52	30	30	20	20	21	19
13	16	20	E B 16	E B 16	E B 16	E B 16	E B 16	U Y 21	28	32	36	41	39	E B 52	40	E B 37	33	28	24	E B 16	E B 16	E B 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	22	28	34	38	40	39	40	41	37	30	27	U Y 18	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	21	26	G	36	E B 43	E B 42	38	U Y 38	38	36	G	G	E B 16	E B 16	21	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	22	G	U Y 33	U Y 35	G	G	U Y 35	U Y 34	35	G	G	G	E B 16	E B 16	E B 16	E B 16	E B 16
17	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	22	G	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
18	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
19	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
20	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
21	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
22	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
23	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
24	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
25	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
26	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
27	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
28	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
29	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
30	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
31	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	17	17	17	17	17	17	17	17	17	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16
MED	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	G	26	32	36	38	39	40	38	38	35	30	21	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	21	28	34	38	40	42	42	U Y 40	40	36	34	25	24	19	18	16	E B 16
L Q	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	E B 16	G	G	G	38	G 38	38	38	37	32	28	G	E B 16	E B 16	E B 16	E B 16	E B 16

MAR. 2015 fbEs (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

MAR. 2015 fmin (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	16	16	16	16	16	16	16	16	16	16	19	21	22	25	19	21	18	16	14	16	16	16	16	16
2	16	16	16	18	19	16	16	16	16	19	19	20	22	26	23	27	20	17	15	16	16	16	16	16
3	16	16	16	16	16	16	16	16	16	16	20	47	28	27	28	20	20	18	21	16	16	16	16	16
4	16	16	16	16	16	16	16	16	16	20	21	19	24	23	27	21	16	16	16	16	16	16	16	16
5	16	16	16	16	16	16	16	16	16	16	18	20	21	30	28	24	16	16	16	16	16	16	16	16
6	16	16	16	16	16	16	16	16	16	16	20	23	28	25	59	40	24	17	16	16	16	16	16	16
7	16	16	16	16	16	16	16	16	16	20	23	24	35	24	30	20	20	16	16	16	16	16	16	16
8	16	16	16	16	16	16	16	18	25	20	24	23	23	31	28	22	20	16	14	16	16	16	16	16
9	16	16	16	16	16	16	16	16	16	19	20	20	23	27	20	24	20	16	16	16	16	16	16	16
10	16	16	16	16	16	16	16	16	16	57	21	21	25	22	21	21	18	14	15	16	16	16	16	16
11	16	16	16	16	16	16	16	16	16	21	21	22	23	30	30	26	20	30	15	15	16	16	16	16
12	16	16	16	16	16	16	16	16	16	20	21	24	24	38	40	16	21	16	16	16	16	16	16	16
13	16	16	16	16	16	16	16	16	16	20	20	19	25	52	29	37	20	15	12	13	16	16	16	16
14	16	16	16	16	16	16	16	16	14	19	20	26	24	23	28	28	19	16	14	16	16	16	16	16
15	16	16	16	16	16	16	16	16	16	20	20	43	42	36	27	24	20	16	14	16	16	16	16	16
16	16	16	16	16	16	16	16	16	20	20	20	28	27	20	32	23	19	16	16	16	16	16	16	16
17	16	16	16	16	16	16	16	15	16	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
18	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
19	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
20	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
21	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
22	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
23	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
24	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
25	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
26	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
27	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
28	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
29	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
30	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
31	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	17	17	17	17	17	17	17	17	17	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16
MED	16	16	16	16	16	16	16	16	16	20	20	22	24	26	28	24	20	16	16	16	16	16	16	16
U Q	16	16	16	16	16	16	16	16	16	20	21	25	28	30	30	26	20	16	16	16	16	16	16	16
L Q	16	16	16	16	16	16	16	16	16	18	20	20	23	24	25	21	18	16	14	16	16	16	16	16

MAR. 2015 fmin (0.1MHz)

IONOSPHERIC DATA STATION Yamagawa

MAR.2015 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	288	284	323	321	321	268	298	342	341	355	342	317	303	313	R 329	315	311	304	325	330	U R 294	276	292	297
2	292	295	318	334	351	362	315	320	342	335	R 327	323	293	298	R 316	J R 293	313	R 323	307	311	318	331	268	274
3	299	312	281	286	327	328	299	337	348	327	333	U R 318	299	310	R 312	321	326	333	334	320	320	299	315	301
4	288	298	313	329	351	288	298	351	346	346	R 326	313	316	308	U R 320	319	332	320	337	335	295	294	285	303
5	286	311	327	331	338	335	295	343	336	329	331	R 326	345	323	315	312	313	329	341	339	302	306	313	294
6	287	284	294	321	349	311	293	342	343	327	343	R	U R 311	305	312	306	R	323	323	313	299	282	308	297
7	289	281	304	326	344	298	293	342	340	R 326	351	338	312	313	U R 311	R 309	318	321	324	326	335	287	296	308
8	310	289	291	307	303	309	305	344	330	R 321	331	330	305	U R 300	U R 297	308	U R 318	316	324	323	308	312	329	290
9	284	286	283	310	312	284	297	334	333	338	319	U R 315	322	R	320	R 311	319	320	323	336	303	312	331	310
10	307	294	291	304	342	336	314	372	359	339	340	322	314	325	313	R 309	U R 314	328	339	344	326	290	307	308
11	306	303	288	297	313	315	319	374	371	336	340	R 329	331	300	310	321	321	328	347	R 351	324	297	312	295
12	273	291	289	301	301	281	287	382	355	349	330	322	308	311	R	319	U R 320	325	333	339	315	296	302	277
13	295	308	302	317	315	292	295	337	351	331	328	312	311	R	R	321	319	328	338	341	310	281	290	299
14	271	272	310	372	356	287	288	352	341	335	335	321	319	R 322	316	318	317	326	335	327	339	292	290	292
15	294	299	309	324	347	298	318	366	335	333	R 340	R 329	R 314	327	332	324	320	330	331	335	322	298	302	292
16	291	317	312	309	294	295	290	341	353	334	329	328	322	317	319	314	322	321	319	336	336	289	285	285
17	303	306	306	311	321	311	310	357	336	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
18	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
19	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
20	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
21	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
22	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
23	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
24	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
25	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
26	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
27	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
28	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
29	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
30	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
31	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	17	17	17	17	17	17	17	17	17	16	16	15	16	14	14	16	15	16	16	16	16	16	16	16
MED	291	295	304	317	327	298	298	343	342	334	332	322	313	312	316	314	319	324	332	335	316	295	302	296
U Q	301	307	312	328	348	322	312	362	352	338	340	329	320	322	320	320	321	328	338	339	325	302	312	302
L Q	286	285	290	306	312	288	293	339	336	328	328	317	306	305	312	R 309	314	320	324	324	302	288	290	291

MAR.2015 M(3000)F2 (0.01)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

MAR.2015 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								523	473	L	L	L	U L 353	L	L	L	L							
2									L	L	L	L	L	L	U L 364	L	L	L						
3								503		L	L	L	L	L	L	L	L	U L 408						
4										L	L	L	L	L	L	L	A	A						
5									L	L	L	L	L	L	L	L	L	L						
6								479	L	L	L	L	L	L		L	L	A						
7								496	491	L	L	U L 363	L 384	U L 390	L	L	U L 397							
8								495		L	L	L	L	L	L	L	L	L						
9								496	473	L	L	L	L	L	L	L	L	L						
10								476			L	L	L	L	L	L	L	L						
11								478		L	L	L	L	L	U L 374	L	A							
12										L	L	L	L	L 411	L	L	L	A						
13									L	L	L	L	U L 363	L	L	L	L	L						
14									463	L	L	L	L	L	L	L	L	L						
15									H 475	L	L 374	L	U L 391	L	U L 364	L	L	L						
16									L	L	L	U L 382	L	L	L	L	L	L						
17									L	C	C	C	C	C	C	C	C	C	C					
18							C	C	C	C	C	C	C	C	C	C	C	C	C					
19							C	C	C	C	C	C	C	C	C	C	C	C	C					
20							C	C	C	C	C	C	C	C	C	C	C	C	C					
21							C	C	C	C	C	C	C	C	C	C	C	C	C					
22							C	C	C	C	C	C	C	C	C	C	C	C	C					
23							C	C	C	C	C	C	C	C	C	C	C	C	C					
24							C	C	C	C	C	C	C	C	C	C	C	C	C					
25							C	C	C	C	C	C	C	C	C	C	C	C	C					
26							C	C	C	C	C	C	C	C	C	C	C	C	C					
27							C	C	C	C	C	C	C	C	C	C	C	C	C					
28							C	C	C	C	C	C	C	C	C	C	C	C	C					
29							C	C	C	C	C	C	C	C	C	C	C	C	C					
30							C	C	C	C	C	C	C	C	C	C	C	C	C					
31							C	C	C	C	C	C	C	C	C	C	C	C	C					
	00	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	5		1	2	4	2	3		1	1						
MED								496	473		L U 374	L U 372	L U 374	L 400	L U 364		L U 397	L U 408						
U Q								500	483				L 388		U L 374									
L Q								478	468				U L 358		U L 364									

MAR.2015 M(3000)F1 (0.01)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

MAR.2015 h'F2 (KM) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1								230	224	234	230	254	292	288	254	258	242							
2									222	242	238	270	256	290	266	240	230	222						
3								232		226	246	240	248	244	270	256	248	228						
4										228	262	252	264	290	264	246	252	238						
5									250	236	258	258	242	250	254	260	236	236						
6								228	242	260	258	244	260	286		256	260	246						
7								236	226	250	232	256	280	256	264	254	246							
8								220		252	252	256	262	292	266	264	244	230						
9								230	222	236	256	264	270	270	254	240	228	226						
10								206			244	268	274	274	280	260	260	234						
11								206		216	248	266	256	258	280	258	242							
12										228	242	242	280	270	258	262	250	238						
13									230	230	240	258	304	264	266	256	244	232						
14									216	234	240	202	272	254	252	264	246	242						
15									214	240	246	248	264	262	260	238	264	226						
16									226	246	246	262	276	258	270	268	242	242						
17									226	C	C	C	C	C	C	C	C	C	C					
18							C	C	C	C	C	C	C	C	C	C	C	C	C					
19							C	C	C	C	C	C	C	C	C	C	C	C	C					
20							C	C	C	C	C	C	C	C	C	C	C	C	C					
21							C	C	C	C	C	C	C	C	C	C	C	C	C					
22							C	C	C	C	C	C	C	C	C	C	C	C	C					
23							C	C	C	C	C	C	C	C	C	C	C	C	C					
24							C	C	C	C	C	C	C	C	C	C	C	C	C					
25							C	C	C	C	C	C	C	C	C	C	C	C	C					
26							C	C	C	C	C	C	C	C	C	C	C	C	C					
27							C	C	C	C	C	C	C	C	C	C	C	C	C					
28							C	C	C	C	C	C	C	C	C	C	C	C	C					
29							C	C	C	C	C	C	C	C	C	C	C	C	C					
30							C	C	C	C	C	C	C	C	C	C	C	C	C					
31							C	C	C	C	C	C	C	C	C	C	C	C	C					
	00	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	15	16	16	16	16	15	16	16	13						
MED								229	226	236	246	256	267	267	264	257	245	234						
U Q								231	230	246	254	263	278	287	270	261	251	240						
L Q								213	222	228	240	246	258	257	254	250	242	227						

MAR.2015 h'F2 (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

MAR. 2015 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	312	282	248	260	224	262	270	142	168	H 212	224	216	218	264	210	204	218	230	230	190	212	250	256	256
2	268	264	254	236	216	200	236	240	H 136	H 210	214	236	H 210	216	226	224	200	220	220	230	222	202	264	302
3	268	230	300	282	228	216	250	144	214	216	220	238	228	238	H 204	230	226	224	210	198	218	254	216	238
4	290	268	250	228	208	254	262	228	220	218	206	210	194	H 180	180	224	A	A	230	204	234	248	244	270
5	268	256	226	230	220	208	256	218	H 208	220	216	206	H 202	206	206	206	214	224	222	194	216	232	222	256
6	276	282	272	246	214	190	264	150	224	E B 200	H 200	224	210	212	258	224	230	A	220	212	196	220	224	234
7	270	280	254	222	208	232	280	166	168	H 208	222	196	224	212	204	228	214	232	226	210	208	236	260	254
8	244	268	286	256	254	236	236	134	232	228	222	220	210	206	246	216	234	216	218	206	224	228	230	282
9	290	286	282	252	210	266	270	146	166	220	202	196	198	210	220	222	220	222	218	208	204	230	214	236
10	236	254	278	266	222	216	230	162	204	244	218	200	200	200	226	246	222	232	210	188	196	240	290	262
11	262	252	272	276	252	244	242	138	204	212	218	190	194	220	242	224	A	238	218	196	212	278	234	268
12	312	288	278	252	256	308	296	206	208	220	218	242	226	190	200	222	238	A	228	214	216	256	246	300
13	280	258	254	238	240	226	278	228	H 214	212	208	196	192	262	206	204	222	220	224	206	200	222	238	254
14	314	290	248	196	208	288	308	210	184	206	206	202	180	208	220	208	212	214	214	202	206	224	252	266
15	266	262	252	238	216	234	242	214	H 124	H 210	192	224	196	182	214	218	234	218	226	204	204	246	246	262
16	270	242	232	250	256	276	278	216	216	222	H 200	200	H 206	204	H 222	206	220	210	242	212	190	216	268	282
17	254	256	246	238	226	214	244	208	208	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
18	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
19	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
20	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
21	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
22	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
23	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
24	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
25	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
26	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
27	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
28	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
29	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
30	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
31	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	17	17	17	17	17	17	17	17	17	16	16	16	16	16	16	16	14	13	16	16	16	16	16	16
MED	270	264	254	246	222	234	262	206	208	214	215	208	204	209	217	222	221	222	221	205	210	234	245	262
U Q	290	282	278	258	246	264	278	217	215	220	219	224	214	218	226	224	230	231	227	211	217	249	258	276
L Q	264	255	248	233	212	215	242	145	168	H 210	204	198	195	202	205	207	214	217	218	197	202	223	227	254

MAR. 2015 h'F (KM)

IONOSPHERIC DATA STATION Yamagawa

MAR. 2015 h'E (KM) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1								B 126	102	102	100	98	100	100	100	102	A 108	A 108	B 108					
2								126	102	104	108	100	106	A 106	106	108	A 108	108	A 108					
3								B 130	100	98	98	B 100	96	102	104	102	100	102	B 108					
4								130	100	96	96	100	98	A 102	A 102	A 102	A 102	102	A 108					
5								B 134	102	100	96	98	98	116	102	108	108	A 106	A 106					
6								B 134	102	98	98	A 98	A 100	102	B 98	B 100	A 102	A 102	A 106					
7								126	110	102	100	100	B 100	100	110	100	100	102	148					
8								B 134	104	102	100	98	98	104	104	104	104	104	A 106					
9								B 134	100	100	96	98	98	104	104	108	102	102	A 106					
10								134	100	B 100	98	98	100	102	98	100	102	106	A 106					
11								B 136	A 100	100	100	98	102	104	106	102	102	B 104	B 104					
12								136	100	98	98	102	96	B 102	B 102	100	102	104	B 104					
13								110	100	100	A 100	A 100	A 100	B 100	A 100	B 100	98	A 100	A 100					
14								122	98	98	96	104	100	100	104	106	100	A 100	A 100					
15							B 112	112	98	98	98	B 98	B 100	B 100	106	106	104	104	114					
16							B 112	110	104	100	100	108	104	104	B 104	104	104	104	118					
17							B 112	112	98	C 98	C 98	C 98	C 98	C 98	C 98	C 98	C 98	C 98	C 98					
18							C 112	C 112	C 98	C 98	C 98	C 98	C 98	C 98	C 98	C 98	C 98	C 98	C 98					
19							C 112	C 112	C 98	C 98	C 98	C 98	C 98	C 98	C 98	C 98	C 98	C 98	C 98					
20							C 112	C 112	C 98	C 98	C 98	C 98	C 98	C 98	C 98	C 98	C 98	C 98	C 98					
21							C 112	C 112	C 98	C 98	C 98	C 98	C 98	C 98	C 98	C 98	C 98	C 98	C 98					
22							C 112	C 112	C 98	C 98	C 98	C 98	C 98	C 98	C 98	C 98	C 98	C 98	C 98					
23							C 112	C 112	C 98	C 98	C 98	C 98	C 98	C 98	C 98	C 98	C 98	C 98	C 98					
24							C 112	C 112	C 98	C 98	C 98	C 98	C 98	C 98	C 98	C 98	C 98	C 98	C 98					
25							C 112	C 112	C 98	C 98	C 98	C 98	C 98	C 98	C 98	C 98	C 98	C 98	C 98					
26							C 112	C 112	C 98	C 98	C 98	C 98	C 98	C 98	C 98	C 98	C 98	C 98	C 98					
27							C 112	C 112	C 98	C 98	C 98	C 98	C 98	C 98	C 98	C 98	C 98	C 98	C 98					
28							C 112	C 112	C 98	C 98	C 98	C 98	C 98	C 98	C 98	C 98	C 98	C 98	C 98					
29							C 112	C 112	C 98	C 98	C 98	C 98	C 98	C 98	C 98	C 98	C 98	C 98	C 98					
30							C 112	C 112	C 98	C 98	C 98	C 98	C 98	C 98	C 98	C 98	C 98	C 98	C 98					
31							C 112	C 112	C 98	C 98	C 98	C 98	C 98	C 98	C 98	C 98	C 98	C 98	C 98					
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								10	16	15	15	12	12	11	11	13	12	10	3					
MED								124	100	100	98	99	99	102	104	104	102	104	118					
U Q								130	102	102	100	101	101	104	106	107	104	104	148					
L Q								112	100	98	96	98	98	100	102	101	100	102	114					

MAR. 2015 h'E (KM)

IONOSPHERIC DATA STATION Yamagawa

MAR. 2015 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	98	92	114	90	98	B	B	B	164	172	126	120	108	100	106	108	98	98	114	B	B	B	B	B
2	106	B	B	B	B	B	B	G	122	98	94	182	102	162	166	122	96	130	102	94	94	B	B	B
3	B	102	B	96	B	B	B	B	146	170	142	B	152	108	118	202	150	104	B	B	136	110	100	104
4	B	126	100	106	96	B	B	142	118	108	124	G	100	98	98	142	84	112	102	98	94	86	B	88
5	B	B	B	B	B	B	B	150	172	174	108	106	108	102	G	100	98	94	96	96	92	92	90	B
6	B	B	B	B	B	B	B	B	G	G	G	100	96	96	B	B	90	90	90	84	90	B	B	B
7	B	B	B	B	B	B	B	G	96	G	G	160	166	154	108	146	110	202	150	116	114	92	B	B
8	88	B	B	B	B	B	100	B	G	G	132	126	122	122	112	106	104	102	100	98	B	B	B	B
9	B	100	B	B	B	92	B	B	156	140	114	116	116	112	114	108	108	102	102	B	B	96	102	100
10	B	102	94	B	B	B	B	152	G	B	G	112	112	108	158	130	108	106	88	B	B	B	94	B
11	B	B	B	B	B	B	B	B	100	G	G	108	G	170	G	152	136	136	102	98	100	100	94	B
12	B	B	94	92	B	B	B	G	136	166	120	110	110	110	134	122	152	104	102	98	96	96	90	104
13	94	94	B	B	B	B	B	178	100	114	96	96	98	B	98	B	120	92	90	92	90	88	90	84
14	B	B	84	B	B	B	B	152	132	114	110	106	106	108	108	102	102	98	94	100	94	B	B	B
15	B	B	104	B	B	B	B	186	114	G	118	B	B	118	114	154	192	G	G	B	104	100	100	B
16	100	B	B	90	90	92	B	136	G	116	120	G	G	108	102	112	G	G	G	B	88	B	B	B
17	B	B	B	B	B	B	B	174	G	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
18	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
19	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
20	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
21	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
22	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
23	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
24	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
25	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
26	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
27	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
28	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
29	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
30	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
31	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	5	6	6	5	3	2	1	8	12	10	12	12	13	15	13	14	15	14	13	10	12	9	8	5
MED	98	101	97	92	96	92	100	152	127	128	119	111	108	108	112	122	108	103	102	98	94	96	94	100
U Q	103	102	104	101	98			176	151	170	125	123	119	122	126	146	136	112	102	98	102	100	100	104
L Q	91	94	94	90	90			146	107	114	109	106	101	102	104	108	98	98	92	94	91	90	90	86

MAR. 2015 h'Es (KM)

IONOSPHERIC DATA STATION Yamagawa

MAR. 2015 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	F2	FF22	F3	F1				H1	HL11	C1	C1	C2	C1	C1	C1	L1	L1	C1					
2	F2								CL11	L1	L1	H1	L1	HL11	HL11	CL21	L2	HL22	LL21	F4	F2			
3		F1		F1					H1	H1	H1		H1	C1	C1	H1	H1	C1			F3	FF21	F1	FF12
4		FF11	FF11	FF11	F1			H2	C1	C2	C1		C1	L1	L1	HC11	L4	CL32	CL52	FF41	F5	F1		F3
5								H1	H1	H1	C1	C1	C1	L1		L1	LL11	L1	L3	F3	F1	F1	F1	
6												L1	L1	L1			L2	L2	L2	F5	F1			
7									LH11			H1	HC11	HC11	C1	HC11	C1	H1	H1	FF61	FF23	F1		
8	F1						F1				H1	C1	C1	C1	C1	C1	C1	C2	L1	F1				
9		F1				F1			H1	H1	C1	C1	C1	C1	CL11	C1	C1	C2	L1			F1	F1	F1
10		F1	F1					H1				C1	C1	C1	HC11	CC11	C1	CL11	L1				F7	
11									L1			C1		H1		H1	H2	H1	C4	F2	F7	FF24	F1	
12			F1	F1					H1	H1	C1	C2	C1	C1	H1	CC11	H1	C3	C3	F5	F8	F3	F3	FF24
13	F2	F3						H1	C1	C1	L1	L1	L1		L1		C1	L2	L2	F1	F2	F1	F1	F1
14			F1					H1	H1	C1	C1	C1	C1	C1	C1	C1	C1	L1	L1	F1	F1			
15			F1					H1	C1		C1			C1	C1	H1	HC11				F1	F5	F2	
16	F1			F1	F1	F1		H2		C1	C1			CL11	C1	C1					F1			
17								H2																
18																								
19																								
20																								
21																								
22																								
23																								
24																								
25																								
26																								
27																								
28																								
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT																								
MED																								
U Q																								
L Q																								

MAR. 2015 TYPES OF Es

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

MAR. 2015 fxI (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	X 82	X 88	X 92	X 86	X 66	X 52	X 42													X 122	X 96	X 86	X 85	X 76
2	X 68	X 64	X 66	X 77	X 57	X 38	X 34													X 126	X 127	X 98	X 69	X 58
3	X 65	X 65	X 55	X 56	X 59	X 42	X 36													X 139	X 144	X 131	X 111	X 79
4	X 64	X 63	X 60	X 59	X 52	X 34	X 34													X 142	X 147	X 130	X 127	X 102
5	X 93	X 84	X 81	X 58	X 57	X 39	X 34													X 129	X 108	X 92	X 86	X 77
6	X 76	X 68	X 64	X 66	X 58	X 41	X 34													X 150	X 140	X 134	X 142	X 121
7	X 112	X 110	X 112	X 106	X 69	X 52	X 44													X 150	X 122	X 110	X 94	X 84
8	X 81	X 72	X 66	X 74	X 60	X 57	X 41													X 156	X 136	X 114	X 108	X 89
9	X 86	X 88	X 94	X 94	X 72	X 68	X 65													X 160	X 149	X 138	X 128	X 114
10	X 98	X 78	X 69	X 68	X 64	X 51	X 36													X 166	X 136	X 97	X 76	X 64
11	X 59	X 56	X 52	X 52	X 53	X 55	X 52													X 142	X 127	X 113	X 84	X 77
12	81	69	X 67	X 59	X 59	X 48	X 50													X 126	X 112	X 94	X 88	X 76
13	X 73	X 74	X 73	X 67	X 54	X 47	X 48													X 154	X 154	X 146	X 132	X 124
14	X 114	X 102	X 113	X 108	66	X 40	X 39													X 134	X 137	X 134	X 112	X 109
15	X 98	X 98	103	X 104	X 94	65	X 58													X 114	X 89	X 72	X 73	X 66
16	X 64	X 68	X 62	X 56	X 49	X 48	X 46													X 123	X 118	X 102	X 99	107
17	X 106	X 90	X 92	X 93	X 96	X 69	65			112										X 139	X 89	X 104	X 83	X 50
18	X 49	X 40	X 47	X 42		X 40	X 40														X 61	X 62	X 49	X 52
19	X 50	X 48	X 46	X 48	X 47	X 29	X 31													X 125	X 98	X 82	X 83	X 73
20	X 63	X 56	X 64	X 69	26	28	33													X 152	X 122	X 93	X 57	X 57
21	X 52	X 53	X 49	X 51	X 45	X 45	X 37														X 91	X 75	X 60	X 60
22	X 60	X 58	X 67	X 71	X 61	X 40	X 37														X 148	X 128	X 87	X 76
23	X 70	X 78	X 84	X 86	X 33	X 32	X 35														X 153	X 136	X 110	X 111
24	X 98	X 79	X 68	X 67	X 68	X 62	X 57														X 150	X 150	X 138	X 123
25	X 105	X 104	X 102	X 97	X 84	X 99	X 83														X 150	X 135	X 101	X 100
26	X 94	X 76	X 64	X 59	X 58	X 58	X 52														X 98	X 96	X 94	X 90
27	X 82	X 74	X 69	X 70	X 64	X 57	X 55														X 147	O X 138	X 130	X 126
28	X 119	X 108	X 102	X 96	X 68	X 60	X 59														X 124	X 117	X 98	X 97
29	X 92	X 90	X 91	X 79	X 65	X 59	X 61														X 124	X 112	X 101	X 92
30	X 94	X 91	X 88	X 85	X 63	X 60	X 66														X 141	X 117	X 106	X 106
31	X 90	X 85	X 74	X 69	X 59	X 56	X 59														X 91	X 80	X 82	X 78
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	30	31	31			1										19	31	31	31	31
MED	X 82	X 76	X 69	X 69	X 60	X 51	X 44			112										X 139	X 127	X 112	X 94	X 84
U Q	X 98	X 90	X 92	X 86	X 66	X 59	X 58													X 152	X 147	X 134	X 111	X 107
L Q	X 64	X 64	X 64	X 59	X 54	X 40	X 36													X 126	X 98	X 93	X 83	X 73

IONOSPHERIC DATA STATION Okinawa

MAR. 2015 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	76	82	86	80	60	46	36	62	92	112	102	99	111	132	R 146	R 130	118	122	136	116	90	80	79	70
2	62	58	60	R 71	51	32	28	52	84	91	115	127	137	143	R 160	149	R 132	123	122	120	121	92	63	52
3	59	59	49	50	53	36	30	58	87	90	113	124	126	132	136	137	137	132	128	133	R 138	R 125	J R 105	73
4	58	57	54	53	46	28	28	58	95	104	105	131	131	130	149	147	R 148	140	132	136	141	R 124	R 121	96
5	87	78	75	52	51	33	28	51	76	101	127	141	R 141	130	134	136	J R 144	139	128	123	102	86	80	71
6	70	62	58	60	52	35	28	55	83	107	131	R 148	R 146	U R 164	D R 150	U R 160	U R 167	U R 162	U R 160	144	134	128	136	115
7	106	104	106	100	63	46	38	62	82	110	135	133	123	R 134	151	J R 144	R 151	R 146	138	R 144	116	104	88	78
8	75	66	60	68	54	51	35	59	82	108	129	126	129	140	R 159	R 163	R 158	R 152	R 152	J R 150	130	108	102	83
9	80	82	88	J R 88	66	62	59	74	102	112	119	127	144	R 152	R 155	R 150	R 152	R 159	R 154	J R 154	R 143	U R 132	R 122	108
10	92	72	63	62	58	45	30	57	76	84	105	112	116	133	144	R 154	U R 162	J R 156	J R 150	J R 160	130	R 91	70	58
11	53	50	46	46	47	49	46	67	80	83	102	111	116	119	139	151	R 153	U R 149	147	136	121	107	78	71
12	F 74	F 62	61	53	53	42	R 44	70	74	88	100	118	R 119	136	140	140	140	131	126	120	106	88	82	70
13	R 67	68	67	61	48	41	42	66	98	105	121	126	J R 125	Y	150	R 150	U R 147	R 144	R 142	R 148	U R 148	R 140	R 126	118
14	108	96	107	102	58	34	33	62	87	99	112	116	129	U R 138	139	137	142	144	134	128	R 131	R 128	R 106	R 103
15	92	92	92	98	88	F 56	F 49	63	76	105	116	121	119	122	122	126	120	121	113	108	83	R 66	R 67	60
16	R 58	62	56	50	43	42	40	70	83	93	106	116	120	125	118	R 122	119	114	114	117	112	96	93	F 98
17	F 100	84	86	87	90	63	F 55	F 68	F 90	F 106	116	118	121	125	126	135	R 145	140	132	133	83	98	77	R 44
18	43	34	41	36	36	34	34	31	35	E G 35	E G 46	A	62	R 64	74	77	82	86	81	61	57	56	43	46
19	44	42	40	42	41	23	25	50	70										R 144	119	92	76	77	67
20	57	50	58	63	20	22	F 27	63	87				128	129	134	J R 133	U R 146	U R 147	U R 139	J R 146	R 116	U R 87	53	51
21	46	47	43	45	39	39	31	60	85	92	102	117	133	134	124	118	114	118	113	96	85	69	54	54
22	54	52	61	65	55	34	31	60	79	91	104	122	138	Y	Y	D R 159	U R 168	D R 151	U R 158	151	142	122	81	70
23	64	72	78	80	27	26	29	70	92	103	108	114	R 126	136	R 142	R 145	R 156	U R 150	U R 154	R 158	R 147	130	104	105
24	92	73	62	61	62	56	51	78	88	100	100	111	117	128	128	R 133	R 144	142	R 143	141	U R 144	R 144	R 132	117
25	99	98	96	91	78	93	77	95	98	109	102	106	115	128	R 134	136	140	J R 152	R 156	R 153	R 144	J R 129	95	94
26	88	70	58	53	52	52	46	74	97	98	92	109	118	131	130	R 126	133	136	129	108	92	90	88	84
27	76	68	63	64	58	51	49	75	94	111	111	111	117	R 133	R 155	R 156	R	R	U R 164	R 150	141	U R 132	R 124	120
28	113	102	96	90	62	54	53	76	94	110	108	112	119	131	137	134	130	129	129	118	118	111	92	91
29	86	84	85	73	59	53	55	88	98	104	108	111	114	139	R 150	U R 150	141	136	128	126	118	106	95	86
30	88	85	82	79	57	54	60	86	89	91	101	120	137	136	136	142	J R 145	142	141	136	J R 135	R 111	100	100
31	84	79	68	63	53	50	53	84	108	114	106	116	R 128	R 134	140	139	134	126	114	109	85	74	76	72
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	31	31	31	31	29	29	28	30	28	29	30	29	29	31	31	31	31	31	31
MED	76	70	63	63	53	45	38	63	87	103	108	118	124	132	139	140	R 144	140	136	133	121	106	88	78
U Q	92	84	86	80	60	53	51	74	94	108	116	126	131	136	R 150	R 150	R 152	R 150	R 150	R 148	R 141	R 128	R 105	100
L Q	58	58	58	53	47	34	30	58	80	91	102	112	117	128	132	R 133	132	128	128	118	92	87	77	67

MAR. 2015 foF2 (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

MAR. 2015 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	U L 576	U L 520	L		L						
2										L	L	L	U L 496	L	U L 520	L		L	224					
3												L	L	L	L	L	L	L						
4										L		L	L	L	L		L							
5										L	L	L	L	L	L	L	L							
6										L	L	L	L	U L 588	B	L	L							
7									L	L	L	L	A		L	L	L							
8										L	L	L	L	L	L 564	L	L							
9										L	L	L	L	L	L	L	L	364						
10											L	L	L	L	L	L	L	L						
11									L		L	L	A	A	U L 568	L	L							
12											L	U L 528	L	L	L	L	L	L						
13										L	L	U L 532	L	B	L	L	L							
14										L	L	L	L	L	L	L	L	L						
15										L	L	L	B	L	L	L	L							
16										L	L	L	L	L	L	L	L	L						
17											L	L	L	U L 492	L	L	L	L						
18										U G 348	460	A	L	B 540		L		L						
19									L															
20													L	L	U L 536	L	L	L						
21											L	U L 584	U L 528	L	U L 500	L	L	L						
22										L	L	U L 488	L	L	L	L	L	L						
23										L	L	L	U L 532	U L 540	L	L	L							
24									L	L	U L 492	L	U L 556	U L 556	L	L	L							
25											L	L	L	L	L	U L 524	L	L						
26									L		L	L	U L 528	U L 536	L	L	L	L						
27										L	L	L	L	L	U L 564	L	L	L						
28										L	U L 516	L	L	L	L	L	L	L						
29									L	L	L	L	L	L	L	L	L	L	L					
30												B	U L 556	L	L	L	L	L						
31									L	L	L	U L 592	L	L	U L 548	L	A	A	A					
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT										1	3	5	6	7	8	1		1	1					
MED										U G 348	U L 492	U L 532	U L 530	U L 540	U L 542	U L 524		364	224					
U Q											U L 516	U L 588	U L 556	U L 576	U L 564									
L Q											460	U L 508	U L 528	U L 536	U L 520									

MAR. 2015 foF1 (0.01MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

MAR. 2015 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								196	272	324	B	B	A	A	A	A	A	A	B					
2								B	248	300	U R 308	R	B	B	A	B	R	B	172					
3								192	272	R 316	B	B	B	B	B	B	R	276	188					
4								184	264	316	U A 352	R 384	B	R 380	A	R 384	344	A	A					
5								200	260	300	336	R 368	R 368	U R 400	B	A	336	A	188					
6								204	264	320	B	B	B	B	B	B	B	B	216					
7								A	260	332	B	B	A	B	352	B	U R 316	A	176					
8								A	B	B	356	B	B	B	B	A	A	A	A					
9								200	268	328	R 364	R	B	B	B	B	A	A	A					
10								196	264	B	B	B	B	B	B	A	A	A	A					
11								180	248	B	B	R	A	A	B	R 380	R 348	B	A					
12								204	264	B	B	A	A	A	B	A	324	A	A					
13								204	236	316	R	A	A	B	B	B	U R 324	A	A					
14								200	284	312	A	B	B	A	A	A	R	268	192					
15								200	276	R	R	B	B	B	B	B	U A 304	R	U A 184					
16								220	292	B	U R 344	B	B	B	B	B	U R 344	A	204					
17								B	288	U A 324	A	A	A	A	A	A	A	A	A					
18					K 116			208	248	300	B	A	A	B	R	R	B	R 284	172	A				
19								204	268										A					
20					J K 72			216	260				B	B	A	R	A	268	A					
21								204	264	A	R 340	A	A	A	B	R 284	B	292	208	A				
22								208	268	R 344	R	R	B	B	A	B	R	288	216	A				
23								A	284	328	U R 344	U R 392	A	R	B	R	A	A	A	A				
24								A	272	R	340	A	B	B	A	A	A	A	184	A				
25								212	296	U R 316	B	B	B	B	B	B	B	288	220	B				
26								212	288	U R 408	B	B	B	A	B	B	344	288	216	A				
27								208	U R 296	U R 368	B	B	B	B	B	B	R	R	232	B				
28								220	284	328	B	B	A	B	B	B	B	300	U R 224	B				
29								212	300	B	B	B	B	B	B	B	B	R 276	228	B				
30								208	304	R 360	R	B	A	A	B	B	R	R 308	232	B				
31								224	300	364	B	B	U R 412	A	B	B	R 364	296	U A 220	A				
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT					2			25	30	20	9	3	2	2	1	3	10	12	19					
MED					K 94			204	270	324	R 344	R 384	R 390	R 390	352	R 380	340	288	208					
U Q								212	288	R 338	354	U R 392				R 384	R 344	294	220					
L Q								200	264	316	338	R 368				R 284	U 324	276	184					

MAR. 2015 foE (0.01MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

MAR. 2015 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 13	E B 13	E B 13	E B 13	E B 13	J A 20	J A 18	G	G	35	E B 41	E B 42	J A 46	47	45	J A 46	J A 40	J A 30	E B 23	E B 13	E B 13	E B 13	E B 13	J A 19
2	J A 19	J A 19	19	J A 20	E B 13	18	E B 13	E B 18	G	G	G	G 30	E B 44	E B 44	42	E B 42	G	E B 33	20	19	E B 14	E B 13	19	E B 13
3	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	G	G	G	E B 40	E B 44	E B 44	E B 44	E B 44	E B 42	G	30	G	E B 14	E B 13	J A 20	E B 13	J A 19
4	18	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	G	G	36	46	43	E B 42	G	50	51	43	J A 52	J A 43	J A 31	E B 13	22	J A 17	E B 13
5	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	G	G	G	G	43	G	G	E B 42	40	38	J A 41	G 18	E B 13	J A 18	19	E B 13	E B 13
6	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	G	G	G	E B 40	E B 44	E B 45	E B 44	E B 79	E B 46	E B 42	E B 38	G	20	J A 16	J A 23	J A 16	E B 13
7	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	20	G	36	E B 42	E B 42	56	50	G	45	J A 43	31	21	E B 13	J A 28	J A 33	J A 26	20
8	J A 16	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	22	E B 41	E B 40	G	E B 44	E B 44	E B 46	E B 44	44	J A 46	J A 39	J A 29	E B 14	J A 18	19	18	E B 13
9	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	G	G	G	G	28	E B 44	E B 43	E B 42	E B 44	J A 42	J A 32	24	J A 16	J A 20	J A 32	J A 20	E B 13
10	19	E B 13	J A 17	J A 16	J A 20	J A 18	18	G	G	E B 54	E B 42	E B 41	E B 42	E B 43	E B 42	42	41	32	26	18	18	E B 13	18	20
11	J A 22	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	G	G	E B 45	E B 40	43	J A 58	52	E B 45	44	43	E B 42	24	E B 13	J A 20	E B 13	J A 20	J A 22
12	18	J A 21	J A 18	18	E B 13	E B 13	E B 13	G	G	E B 39	E B 44	45	51	50	E B 47	J A 40	J A 46	J A 37	J A 30	J A 19	J A 28	18	E B 13	18
13	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	22	29	G	G	J A 48	J A 47	E B 55	E B 44	E B 46	G	J A 52	J A 75	J A 77	J A 24	J A 17	J A 27	19
14	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	J A 15	22	G	36	42	43	E B 43	44	46	44	G 32	G	22	E B 13	E B 13	E B 13	E B 13	E B 13
15	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	G	G	G 33	42	E B 45	E B 55	G	46	E B 44	36	G	22	E B 14	E B 13	J A 16	J A 19	J A 38
16	J A 41	19	J A 20	E B 13	E B 13	E B 13	E B 13	G	G	E B 40	G 28	E B 42	E B 44	E B 44	E B 42	E B 43	G	J A 37	G	E B 20	E B 13	E B 13	E B 13	E B 13
17	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	E B 22	G	40	J A 47	46	45	44	J A 44	J A 42	36	31	26	22	E B 13	E B 13	E B 13	E B 13
18	19	E B 13	19	E B 13	K 12	E B 13	E B 14	G	32	35	E B 44	J A 40	J A 44	E B 54	G 41	G 28	E B 42	G	24	J A 26	J A 15	J A 20	J A 25	21
19	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	G	G										26	J A 22	J A 25	J A 20	J A 20	J A 19
20	18	E B 13	E B 13	E B 13	J K 13	18	18	G	G				E B 48	E B 44	J A 43	G 34	34	G 23	J A 28	E B 13	E B 13	E B 13	E B 13	E B 13
21	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	G	30	38	G	41	43	J A 51	E B 42	G	E B 38	32	26	19	E B 13	E B 13	E B 13	E B 13
22	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	E B 14	22	G	G	G	42	E B 43	E B 42	44	E B 40	G	G	J A 35	J A 43	J A 23	J A 21	J A 20	J A 40
23	J A 37	20	19	E B 13	E B 13	E B 13	E B 13	25	35	40	43	44	J A 52	47	E B 43	42	J A 47	J A 46	J A 31	J A 21	J A 22	J A 22	20	E B 13
24	E B 13	J A 33	J A 21	J A 20	E B 13	E B 13	18	J A 28	G	G	42	45	E B 43	E B 44	47	46	J A 44	J A 32	24	J A 23	E B 13	19	20	20
25	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	25	G	G	E B 43	E B 44	E B 44	E B 46	E B 46	E B 42	E B 42	G	27	E B 18	E B 15	J A 51	J A 31	E B 13
26	18	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	24	31	45	E B 42	E B 44	E B 43	46	46	E B 42	G	G	G	41	E B 13	E B 16	E B 13	E B 13
27	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	26	32	41	E B 40	E B 43	E B 44	E B 43	E B 43	E B 52	G	G	G 20	E B 14	E B 13	E B 13	21	20
28	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	G	31	35	E B 40	E B 42	46	E B 50	E B 46	E B 42	E B 42	G	G	E B 14	19	E B 13	J A 24	J A 17
29	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	27	34	E B 41	E B 44	E B 44	E B 46	E B 44	E B 48	E B 42	E B 41	G	24	E B 14	E B 13	J A 14	E B 13	19
30	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	23	G	G	J A 41	E B 53	46	48	E B 43	E B 41	24	G	G	E B 14	E B 13	E B 13	E B 13	J A 21
31	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	25	G	G	E B 42	J A 53	G	G 37	E B 45	51	J A 59	J A 50	J A 40	J A 40	J A 40	J A 16	J A 22	J A 29
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	31	31	31	31	29	29	29	30	30	30	30	30	30	31	31	31	31	31	31
MED	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	G	G	E G 35	E G 41	42	E B 44	E B 44	E B 44	42	U 38	31	24	18	15	16	18	18
U Q	18	13	13	13	E B 13	13	13	23	30	40	42	44	46	48	46	45	J A 43	J A 38	J A 28	J A 22	J A 20	J A 20	J A 20	J A 20
L Q	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	G	G	G	G	42	G	43	E B 42	42	G	G	G	E B 14	E B 13	E B 13	E B 13	E B 13

MAR. 2015 foEs (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

MAR. 2015 fbEs (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	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 13	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	G	G	35	E B 41	E B 42	44	46	43	44	40	30	E B 23	E B 13	E B 13	E B 13	E B 13	E B 13
2	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	E B 18	G	G	G U 30	E B 44	E B 44	E B 44	42	E B 42	G	E B 33	20	E B 14	E B 14	E B 13	E B 13	E B 13
3	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	G	G	G	E B 40	E B 44	E B 44	E B 44	E B 44	E B 42	G	30	G	E B 14	E B 13	17	E B 13	E B 13
4	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	G	G	36	45	41	E B 42	G	49	50	42	49	42	29	E B 13	E B 13	E B 13	E B 13
5	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	G	G	G	G	42	G	G	E B 42	39	37	36	G 17	E B 13	E B 13	E B 13	E B 13	E B 13
6	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	G	G	G	E B 40	E B 44	E B 45	E B 44	E B 79	E B 46	E B 42	E B 38	G	E B 14	E B 13	22	E B 13	E B 13
7	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	20	G	36	E B 42	E B 42	55	49	G	41	42	30	21	E B 13	21	26	21	E B 13
8	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	22	E B 41	E B 40	G	E B 44	E B 44	E B 46	E B 44	44	45	38	28	E B 14	E B 13	E B 13	E B 13	E B 13
9	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	G	G	G	G	25	E B 44	E B 43	E B 42	E B 44	40	31	23	E B 13	20	28	20	E B 13
10	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	G	G	E B 54	E B 42	E B 41	E B 42	E B 43	E B 42	42	41	30	22	E B 13	E B 13	E B 13	E B 13	E B 13
11	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	G	G	E B 45	E B 40	43	56	50	E B 45	42	42	E B 42	24	E B 13	E B 13	E B 13	18	20
12	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	G	G	E B 39	E B 44	44	50	49	E B 47	39	45	35	28	E B 14	22	E B 13	E B 13	E B 13
13	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	22	28	G	G	46	45	E B 55	E B 44	E B 46	G	50	40	47	20	E B 13	24	E B 13
14	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	22	G	35	42	43	E B 43	44	45	43	U G 32	G	22	E B 13	E B 13	E B 13	E B 13	E B 13
15	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	G	G	U G 33	42	E B 45	E B 55	G	46	E B 44	36	G	22	E B 14	E B 13	E B 13	17	22
16	22	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	G	G	E B 40	G 24	E B 42	E B 44	E B 44	E B 42	E B 43	G	33	G	E B 20	E B 13	E B 13	E B 13	E B 13
17	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	E B 22	G	38	44	44	44	43	43	42	35	30	26	E B 13	E B 13	E B 13	E B 13	E B 13
18	E B 13	E B 13	E B 13	E B 13	K 12	E B 13	E B 14	G	31	G	E B 44	A A 40	42	E B 54	U G 41	U G 28	E B 42	G	23	20	E B 13	19	16	E B 13
19	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	G	G										23	E B 13	23	E B 13	E B 13	18
20	E B 13	E B 13	E B 13	E B 13	K 13	E B 13	E B 13	G	G				E B 48	E B 44	43	U G 34	34	G 20	24	E B 13	E B 13	E B 13	E B 13	E B 13
21	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	G	29	38	G	40	42	49	E B 42	G	E B 38	32	25	18	E B 13	E B 13	E B 13	E B 13
22	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	E B 14	22	G	G	G	42	E B 43	E B 42	42	E B 40	G	G	32	41	19	17	19	23
23	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	23	33	39	43	42	48	45	E B 43	42	42	42	30	19	E B 13	E B 13	E B 13	E B 13
24	E B 13	22	E B 13	E B 13	E B 13	E B 13	E B 13	24	G	G	41	44	E B 43	E B 44	46	45	40	32	24	20	E B 13	E B 13	E B 13	20
25	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	24	G	G	E B 43	E B 44	E B 44	E B 46	E B 46	E B 42	E B 42	G	27	E B 18	E B 13	21	22	E B 13
26	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	24	30	44	E B 42	E B 44	E B 43	46	46	E B 42	G	G	G	41	E B 13	E B 16	E B 13	E B 13
27	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	25	31	41	E B 40	E B 43	E B 44	E B 43	E B 43	E B 52	G	G	G 19	E B 14	E B 13	E B 13	E B 13	E B 13
28	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	G	31	U G 35	E B 40	E B 42	46	E B 50	E B 46	E B 42	E B 42	G	G	E B 14	E B 13	E B 13	20	E B 13
29	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	27	33	E B 41	E B 44	E B 44	E B 46	E B 44	E B 48	E B 42	E B 41	G	24	E B 14	E B 13	E B 13	E B 13	E B 13
30	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	23	G	G	41	E B 53	46	47	E B 43	E B 41	24	G	G	E B 14	E B 13	E B 13	E B 13	16
31	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	25	G	G	E B 42	45	G	U G 37	E B 45	50	58	50	39	39	34	E B 13	20	26
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	31	31	31	31	29	29	29	30	30	30	30	30	30	31	31	31	31	31	31
MED	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	G	G	E G 35	E G 41	42	E B 44	E B 44	E B 44	42	U 37	30	23	E B 14	E B 13	E B 13	E B 13	E B 13
U Q	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	23	29	E B 40	42	44	46	47	46	44	42	36	27	20	14	16	18	13
L Q	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	E B 13	G	G	G	G	42	43	43	E B 42	41	G	G	G	E B 13	E B 13	E B 13	E B 13	E B 13

MAR. 2015 fbEs (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

MAR. 2015 fmin (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	13	13	13	13	13	13	13	14	18	21	41	42	32	33	32	34	21	21	23	13	13	13	13	13
2	13	13	13	13	13	13	13	18	15	16	22	24	44	44	32	42	30	33	15	14	14	13	13	13
3	13	13	13	13	13	13	13	14	18	21	40	44	44	44	44	42	24	15	14	14	13	13	13	13
4	13	13	13	13	13	13	13	16	16	20	24	31	42	34	42	31	20	16	16	14	13	13	13	13
5	13	13	13	13	13	13	13	14	17	18	22	30	29	32	42	24	24	19	14	13	13	13	13	13
6	13	13	13	13	13	13	13	15	16	18	40	44	45	44	79	46	42	38	17	14	13	13	13	13
7	13	13	13	13	13	13	13	14	20	20	42	42	42	42	25	40	23	19	14	13	13	13	13	13
8	13	13	13	13	13	13	13	15	41	40	25	44	44	46	44	40	28	22	14	14	13	13	13	13
9	13	13	13	13	13	13	13	14	16	18	22	18	44	43	42	44	24	19	14	13	13	13	13	13
10	13	13	13	13	13	13	13	15	16	54	42	41	42	43	42	37	22	21	16	13	13	13	13	13
11	13	13	13	13	13	13	13	14	15	45	40	32	40	42	45	32	24	42	14	13	13	13	13	13
12	13	13	13	13	13	13	13	16	18	39	44	40	43	41	47	36	30	20	15	14	13	13	13	13
13	13	13	13	13	13	13	13	14	19	21	28	29	39	55	44	46	25	16	14	13	13	13	13	13
14	13	13	13	13	13	13	13	15	17	20	35	41	43	39	42	33	24	18	15	13	13	13	13	13
15	13	13	13	13	13	13	13	15	17	19	26	45	55	49	43	44	24	21	14	14	13	13	13	13
16	13	13	13	13	13	13	13	13	21	40	20	42	44	44	42	43	23	21	15	20	13	13	13	13
17	13	13	13	13	13	13	13	22	16	17	22	30	39	36	33	32	29	18	14	13	13	13	13	13
18	13	13	13	13	13	13	14	14	15	21	44	30	34	54	30	25	42	22	14	14	13	13	13	13
19	13	13	13	13	13	13	13	16	20										14	13	13	13	13	13
20	13	13	13	13	13	13	13	18	17				48	44	32	29	24	17	14	13	13	13	13	13
21	13	13	13	13	13	13	13	14	16	20	22	28	33	25	42	24	38	25	15	14	13	13	13	13
22	13	13	13	13	13	13	14	17	16	21	24	30	43	42	39	40	21	21	14	14	13	13	13	13
23	13	13	13	13	13	13	13	14	20	22	25	30	40	32	43	23	24	19	18	14	13	13	13	13
24	13	13	13	13	13	13	13	14	15	21	24	41	43	44	40	38	32	21	14	14	13	13	13	13
25	13	13	13	13	13	13	13	14	17	23	43	44	44	46	46	42	42	22	15	18	13	13	13	13
26	13	13	13	13	13	13	13	14	18	23	42	44	43	42	42	42	22	20	17	16	13	16	13	13
27	13	13	13	13	13	13	13	14	16	22	40	43	44	43	43	52	24	23	15	14	13	13	13	13
28	13	13	13	13	13	13	13	16	17	24	40	42	43	50	46	42	42	20	16	14	13	13	13	13
29	13	13	13	13	13	13	13	14	20	41	44	44	46	44	48	42	41	22	17	14	13	13	13	13
30	13	13	13	13	13	13	13	14	16	20	32	53	42	42	43	41	21	21	22	14	13	13	13	13
31	13	13	13	13	13	13	13	16	17	21	42	44	32	32	45	44	24	20	14	14	13	13	13	13
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	31	31	31	31	29	29	29	30	30	30	30	30	30	31	31	31	31	31	31
MED	13	13	13	13	13	13	13	14	17	21	35	41	43	43	42	40	24	21	15	14	13	13	13	13
U Q	13	13	13	13	13	13	13	16	18	24	42	44	44	44	44	42	30	22	16	14	13	13	13	13
L Q	13	13	13	13	13	13	13	14	16	20	24	30	40	39	40	32	23	19	14	13	13	13	13	13

MAR. 2015 fmin (0.1MHz)

IONOSPHERIC DATA STATION Okinawa

MAR. 2015 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	286	293	320	333	314	304	286	326	340	346	334	308	288	300	R 324	R 308	297	295	323	323	292	288	294	298
2	293	292	296	R 327	355	370	286	316	339	323	309	308	320	296	R 315	316	R 306	306	301	300	325	299	285	273
3	294	329	295	299	352	361	285	320	365	305	301	323	302	302	306	316	322	329	327	318	R 320	R 307	J R 309	316
4	280	295	316	344	353	347	284	302	347	345	303	321	315	296	301	318	R 323	333	324	317	313	R 303	R 314	299
5	298	307	325	329	359	374	284	318	329	309	315	333	R 323	315	303	306	J R 312	323	326	326	313	297	300	289
6	286	299	303	321	361	341	288	329	333	319	316	R 323	R 304	U R 314		U R 323	U R 323	U R 323	U R 316	311	303	292	315	316
7	292	296	324	343	344	299	303	325	323	312	330	334	318	R 309	305	J R 319	R 312	R 306	315	R 333	330	296	293	303
8	320	294	286	309	314	320	370	328	324	310	332	309	305	305	R 315	R 319	R 324	R 316	R 330	J R 334	326	309	308	296
9	291	286	287	J R 318	330	281	284	314	331	321	319	304	307	R 317	R 321	R 315	R 320	R 330	R 319	R	R 332	U R 332	R 329	320
10	309	292	292	311	345	370	307	342	363	327	321	319	313	313	311	R 328	U R 340	J R 353	R	J R 331	335	R 296	301	302
11	310	304	305	309	314	328	352	363	354	340	323	328	312	303	309	314	R 321	U R 331	328	333	335	304	311	292
12	F	F 293	292	304	298	287	R 278	360	351	344	317	322	R 308	302	315	309	321	322	319	324	310	297	291	289
13	R 286	310	316	320	355	292	281	333	346	327	323	321	J R 306	Y	315	R 318	U R 320	R 336	R 335	R 337	U R 345	R 325	R 310	305
14	290	293	315	355	357	309	283	338	334	328	332	311	310	U R 325	312	313	308	320	325	325	R 328	R 330	R 301	R 301
15	302	296	307	336	357	F 334	F 307	338	338	324	326	325	326	317	315	317	304	314	327	326	334	R 296	R 289	309
16	R 316	312	322	315	312	297	291	355	344	325	325	318	319	312	308	R 310	312	308	313	332	325	285	266	F 301
17	F 304	312	313	326	346	342	F 303	F 331	F 326	F 314	323	322	316	308	297	303	R 316	319	315	330	279	304	349	R 303
18	261	228	265	373	305	242	230	294	330	G	G	A	311	R 302	324	327	325	339	337	320	278	296	269	268
19	277	287	280	310	371	304	271	320	350										R 337	321	306	302	300	271
20	270	293	304	384	311	282	F 306	344	331				315	297	313	J R 305	U R 324	U R 336	U R 336	J R 341	R 339	U R 288	260	308
21	284	290	291	313	319	333	290	334	334	323	309	303	315	313	315	302	313	320	338	319	339	319	284	291
22	275	277	308	336	366	328	291	354	340	324	295	307	307	Y	Y	Y	R	Y	U R 344	319	335	339	316	271
23	246	278	322	359	315	273	283	336	356	333	319	320	R 307	307	R 306	R 307	R 307	U R 339	R	R 325	R 336	329	295	299
24	310	293	275	287	326	322	337	360	344	344	310	321	306	310	299	R 304	R 309	317	R 330	323	U R 339	R 342	R 335	305
25	300	278	295	305	281	310	309	342	341	338	325	308	293	304	R 305	297	300	J R 316	R 335	R 320	R 318	J R 316	292	295
26	320	323	295	285	294	315	297	344	347	357	298	295	294	297	290	R 293	294	323	324	303	290	287	299	302
27	307	291	291	296	300	305	307	344	332	329	315	312	288	R 284	R 311	R 319	R	R	R	R 305	302	R	R 291	304
28	305	295	290	314	297	295	286	331	323	334	320	310	301	295	309	307	306	307	316	301	310	308	291	290
29	296	299	295	323	309	294	298	336	346	330	318	297	277	294	R 306	U R 302	311	298	303	295	309	293	283	283
30	289	291	304	322	289	287	294	362	349	304	293	296	311	308	294	296	J R 308	307	323	315	J R 317	R 300	290	305
31	316	305	305	309	298	289	300	343	343	349	322	300	R 308	R 299	297	301	312	315	317	323	301	273	278	257
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	31	31	31	31	31	31	31	31	29	29	28	30	28	28	29	28	28	28	30	31	30	31	31
MED	294	293	303	320	319	309	291	336	340	327	319	315	308	304	309	310	R 312	320	324	323	320	301	295	299
U Q	307	304	315	336	355	334	306	344	347	339	324	322	315	312	315	R 318	R 322	R 330	R 332	R 330	335	R 316	310	305
L Q	286	291	291	309	305	292	284	325	331	316	309	308	304	298	304	304	308	311	316	317	306	296	289	289

MAR. 2015 M(3000)F2 (0.01)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

MAR.2015 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	L	L	U L 343	U L 365	L		L						
2										L	L	L	U L 391	L	U L 351	L		L	434					
3												L	L	L	L	L	L	L						
4										L		L	L	L	L		L							
5										L	L	L	L	L	L	L	L							
6										L	L	L	L	U L 345	B	L	L							
7									L	L	L	L	A		L	L	L							
8										L	L	L	L	L	L 345	L	L							
9										L	L	L	L	L	L	L	L	418						
10											L	L	L	L	L	L	L	L						
11									L		L	L	A	A	U L 347	L	L							
12											L	U L 373	L	L	L	L	L	L						
13										L	L	U L 377	L	B	L	L	L							
14										L	L	L	L	L	L	L	L	L						
15										L	L	L	B	L	L	L	L							
16										L	L	L	L	L	L	L	L	L						
17											L	L	L	U L 400	L	L	L	L						
18										G 397		A	L			L		L						
19									L															
20													L	L	U L 354	L	L	L						
21											L	U L 339	U L 380	L	U L 382	L	L	L						
22										L	L	U L 402	L	L	L	L	L	L						
23										L	L	L	U L 385	U L 365	L	L	L							
24									L	L	U L 407	L	U L 362	U L 353	L	L	L							
25											L	L	L	L	L	H 379	L	L						
26									L			L	U L 378	U L 372	L	L	L	L						
27										L	L	L	L	L	U L 352	L	L	L						
28										L	U L 369	L	L	L	L	L	L	L						
29									L	L	L	L	L	L	L	L	L	L	L					
30												B	U L 363	L	L	L	L	L						
31									L	L	L	U L 369	L	L	U L 365	L	A	A	A					
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT											3	5	6	6	8	1		1	1					
MED											U L 397	U L 373	U L 379	U L 359	U L 353	H 379		418	434					
U Q											U L 407	U L 390	U L 385	U L 372	U L 365									
L Q											U L 369	U L 354	U L 363	U L 345	U L 349									

MAR.2015 M(3000)F1 (0.01)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

MAR.2015 h'F2 (KM) 135°E MEAN TIME (G.M.T. + 9 H)

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

D \ H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1										238	246	272	294	316	270	264		276						
2										248	270	280	262	310	288	260		264	224					
3												262	284	302	278	274	254	236						
4										244		274	268	288	308		264							
5										L 276	284	258	268	244	292	292	266							
6										258	276	268	256	312	302	294	270							
7									238	268	266	254	272		302	288	272							
8										L 276	256	L 266	272	290	310	274	266							
9										252	264	298	292	282	274	252	278	248						
10											274	272	284	282	300	280	272	246						
11									214		266	260	286	272	304	280	270							
12											268	278	286	298	274	282	258	248						
13										248	266	268	252	296	266	262	274							
14										250	254	282	288	274	272	276	274	250						
15										266	262	266	274	274	274	278	262							
16										262	270	276	284	272	278	280	262	248						
17											268	262	272	274	310	280	274	266						
18										G	G	A	332	316		278		248						
19									240															
20													284	302	282	288	278	248						
21											282	306	284	268	262	284	284	260						
22										256	266	282	292	312	316	306	298	256						
23										262	262	264	292	282	276	302	290							
24									238	228	244	262	282	286	L 282	308	288							
25											252	278	312	294	288	278	274	264						
26									244		L 248	284	282	276	268	282	286	264						
27										252	256	270	322	340	308	300	294	280						
28										258	258	270	294	322	288	290	280	274						
29									236	242	260	296	L 332	328	290	284	280	246	254					
30												268	288	288	306	300	288	270						
31									246	242	246	284	280	312	304	296	274	266	246					
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT									7	20	26	28	30	29	29	29	27	20	3					
MED									238	254	265	271	284	290	288	282	274	258	246					
U Q									244	264	270	281	292	312	304	293	284	266	254					
L Q									236	246	256	265	272	275	274	277	266	248	224					

MAR.2015 h'F2 (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

MAR. 2015 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	258	258	228	220	240	194	290	236	236	222	226	222	210	E A 244	226	A 234	236	226	240	206	202	234	222	244
2	266	264	264	232	200	200	278	254	224	214	226	H 202	E B 230	220	A 236	B 242	234	222	206	242	210	200	216	312
3	272	230	276	276	204	212	280	248	220	204	228	E B 238	B 224	222	B 242	234	Y 246	220	226	214	216	224	224	222
4	268	262	232	224	212	226	272	240	232	228	228	212	208	H 194	E A 266	266	244	244	226	220	194	214	244	236
5	244	242	218	218	208	200	268	250	226	216	226	228	204	214	206	220	218	242	226	212	204	232	238	236
6	262	262	262	242	206	200	296	238	232	232	218	B 228	B 226	216	B	B 250	B 246	240	230	214	208	234	228	216
7	256	256	228	208	190	216	252	234	220	230	228	224	A	264	210	220	A 242	232	230	220	192	232	248	238
8	232	248	260	256	234	218	196	236	236	B 232	224	B 224	B 234	226	B 216	244	250	238	234	208	194	194	222	248
9	278	268	254	224	200	256	236	240	230	218	218	212	216	222	216	E B 230	230	214	222	210	204	212	212	222
10	216	248	260	258	216	202	230	224	218	E B 248	B 228	210	202	B 232	230	234	240	236	226	200	194	194	244	236
11	256	252	256	258	254	226	218	220	204	226	216	224	A	A	B 242	246	240	250	224	202	196	190	228	242
12	Q 300	282	266	246	238	266	316	202	216	228	230	220	A 264	A 262	B 250	224	A 252	234	240	214	214	206	242	250
13	274	250	236	234	208	230	274	244	230	222	236	A 226	A 226	B	B 238	B 248	230	250	226	232	208	202	226	230
14	278	270	236	192	196	234	288	228	222	214	238	216	H 188	236	244	228	220	228	222	212	212	194	244	250
15	246	Q 242	Q 240	228	202	200	222	228	226	222	228	B 242	B	B	A 250	B 240	228	246	230	220	202	212	254	262
16	288	250	228	234	244	264	284	232	228	224	224	212	B 244	244	208	B 242	230	222	246	228	200	196	240	262
17	Q 242	240	232	226	214	202	Q 220	222	222	230	A 248	E A 242	240	206	230	A 232	218	228	250	218	274	242	198	250
18	314	482	366	222	286	418	506	300	E A 310	A	E B 246	A	E A 280	B	258	232	254	236	236	218	268	244	254	316
19	306	290	318	266	206	260	334	246	226										222	210	214	242	250	254
20	288	270	250	196	280	326	280	234	228				E B 266	B 226	A 228	228	216	238	242	212	192	202	276	250
21	288	278	292	248	234	224	240	228	220	226	Y 232	208	186	E A 246	210	200	222	228	236	224	218	214	224	280
22	290	304	264	224	198	226	224	220	220	224	216	202	214	190	218	222	216	234	230	222	218	202	196	276
23	324	284	228	194	214	326	326	234	228	224	220	218	A 224	222	236	218	242	256	240	226	210	202	222	234
24	224	254	282	276	228	220	218	216	206	210	200	210	214	212	232	240	240	236	238	228	220	204	212	218
25	242	256	246	232	262	220	216	228	218	Y 232	212	B 224	210	218	254	H 198	232	220	242	224	228	236	266	256
26	236	234	260	266	252	228	264	228	218	232	202	202	208	230	A 256	218	218	220	230	226	234	250	244	248
27	244	264	276	268	222	224	240	226	222	234	218	214	212	206	228	E B 274	238	234	234	220	236	254	258	248
28	242	256	262	218	186	210	262	232	228	230	216	226	222	B 264	B 270	228	238	228	248	244	220	202	228	258
29	266	250	246	234	236	264	280	234	224	232	218	216	238	236	E B 258	B 234	240	208	246	238	224	224	264	264
30	266	254	254	228	210	266	286	216	226	220	220	B	230	242	218	224	230	242	246	230	222	212	252	248
31	226	238	252	244	228	260	276	228	224	222	212	204	236	H 188	218	E A 280	A	A	A	236	240	252	294	340
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	31	31	31	31	28	29	27	27	26	29	30	29	29	30	31	31	31	31	31
MED	266	256	254	232	214	226	272	232	224	224	224	217	219	223	231	232	236	234	232	220	212	212	240	248
U Q	288	270	264	256	238	260	286	240	228	231	228	226	236	242	250	242	242	241	240	228	222	234	252	262
L Q	242	248	236	222	204	210	230	226	220	221	217	210	210	214	218	224	225	224	226	212	202	202	222	236

MAR. 2015 h'F (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

MAR. 2015 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								136	114	110	B	B	A	A	A	A	A	A	B					
2								B	110	106	108	A	B	B	A	B	108	B	112					
3								142	112	110	B	B	B	B	B	B	110	110	110					
4								136	110	108	108	108	B	110	A	114	118	A	A					
5								162	110	108	108	108	108	110	B	A	116	A	126					
6								154	108	108	B	B	B	B	B	B	B	B	118					
7								A	114	110	B	B	A	B	108	B	108	A	114					
8								A	B	B	112	B	B	B	B	A	A	A	A					
9								144	108	108	108	108	B	B	B	B	A	A	A					
10								148	110	B	B	B	B	B	B	A	A	A	A					
11								136	106	B	B	110	A	A	B	110	110	B	A					
12								152	108	B	B	A	A	A	B	A	116	A	A					
13								116	106	106	110	A	A	B	B	B	110	A	A					
14								132	112	110	A	B	B	A	A	A	A	110	112					
15								126	110	A	A	B	B	B	B	B	108	116	A					
16								122	112	B	112	B	B	B	B	B	116	A	112					
17								B	110	110	A	A	A	A	A	A	A	A	A					
18					B			120	110	108	B	110	A	B	A	A	B	112	116	A				
19								122	112										A					
20					B			140	110				B	B	A	A	A	110	A					
21								116	108	A	106	A	A	A	B	106	B	114	114	A				
22								132	108	106	106	106	B	B	A	B	110	110	112	A				
23								124	118	106	106	106	A	108	B	108	A	110	A	A				
24								A	110	108	108	A	B	B	A	A	A	A	110	A				
25								120	106	106	B	B	B	B	B	B	B	110	114	B				
26								114	108	108	B	B	B	A	B	B	110	110	114	A				
27								112	108	108	B	B	B	B	B	B	108	114	122	B				
28								122	108	108	B	B	A	B	B	B	B	110	112	B				
29								112	112	B	B	B	B	B	B	B	B	108	144	B				
30								116	106	106	108	B	A	A	B	B	114	108	144	B				
31								118	108	108	B	B	108	A	B	B	108	110	110	A				
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								26	30	21	12	7	2	3	1	4	15	15	18					
MED								125	110	108	108	108	108	110	108	109	110	110	114					
U Q								140	112	109	109	110		110		112	116	112	118					
L Q								118	108	106	107	106		108		107	108	110	112					

MAR. 2015 h'E (KM)

IONOSPHERIC DATA STATION Okinawa

MAR. 2015 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	B	B	B	B	96	96	G	G	154	B	B	116	108	106	102	104	104	B	B	B	B	B	108
2	114	104	102	102	B	104	B	B	G	G	G	102	B	B	100	B	G	B	116	98	B	B	128	B
3	B	B	B	B	B	B	B	G	G	G	B	B	B	B	B	B	G	110	G	B	B	118	B	98
4	96	B	B	B	B	B	B	G	G	142	110	112	B	G	148	132	130	94	108	106	B	96	96	B
5	B	B	B	B	B	B	B	G	G	G	G	116	G	G	B	108	106	104	104	B	96	96	B	B
6	B	B	B	B	B	B	B	G	G	G	B	B	B	B	B	B	B	B	G	96	94	102	102	B
7	B	B	B	B	B	B	B	138	G	158	B	B	140	132	G	120	110	106	138	B	112	100	92	92
8	92	B	B	B	B	B	B	140	B	B	G	B	B	B	B	112	106	106	102	B	96	96	94	B
9	B	B	B	B	B	B	B	G	G	G	G	102	B	B	B	B	106	108	108	104	104	100	98	B
10	92	B	98	100	98	96	96	G	G	B	B	B	B	B	B	118	116	114	114	92	90	B	110	104
11	118	B	B	B	B	B	B	G	G	B	B	144	116	134	B	134	118	B	144	B	108	B	98	96
12	96	104	100	96	B	B	B	G	G	B	B	118	112	110	B	114	110	110	106	104	100	100	B	100
13	B	B	B	B	B	B	B	172	108	G	G	108	108	B	B	B	G	96	96	94	94	94	96	96
14	B	B	B	B	B	B	98	140	G	118	118	112	B	112	112	106	106	G	126	B	B	B	B	B
15	B	B	B	B	B	B	B	G	G	104	118	B	B	G	154	B	112	G	140	B	B	110	98	104
16	104	88	102	B	B	B	B	G	G	B	102	B	B	B	B	B	G	108	G	B	B	B	B	B
17	B	B	B	B	B	B	B	B	G	114	110	110	106	102	102	104	106	104	100	100	B	B	B	B
18	92	B	104	B	B	B	B	G	120	120	B	112	102	B	102	102	B	G	118	94	114	110	94	94
19	B	B	B	B	B	B	B	G	G										100	100	94	94	112	98
20	94	B	B	B	B	144	154	G	G				B	B	100	102	102	100	98	B	B	B	B	B
21	B	B	B	B	B	B	B	G	114	112	G	100	100	96	B	G	B	128	112	110	B	B	B	B
22	B	B	B	B	B	B	B	160	G	G	G	120	B	B	122	B	G	G	114	106	106	106	102	102
23	104	104	100	B	B	B	B	124	120	114	118	118	110	118	B	116	114	106	106	106	104	98	98	B
24	B	98	96	100	B	B	102	98	G	G	112	112	B	B	112	112	108	106	106	108	B	102	96	96
25	B	B	B	B	B	B	B	142	G	G	B	B	B	B	B	B	B	G	206	B	96	114	96	B
26	92	B	B	B	B	B	B	178	170	146	B	B	B	158	156	B	G	G	G	92	B	B	B	B
27	B	B	B	B	B	B	B	142	168	140	B	B	B	B	B	B	G	G	102	B	B	B	96	94
28	B	B	B	B	B	B	B	G	122	118	B	B	170	B	B	B	B	G	G	B	90	B	112	98
29	B	B	B	B	B	B	B	134	116	B	B	B	B	B	B	B	B	G	148	B	B	114	B	104
30	B	B	B	B	B	B	B	150	G	G	136	B	128	124	B	B	96	G	G	B	B	B	B	102
31	B	B	B	B	B	B	B	140	G	G	B	116	G	104	B	138	122	116	112	106	104	104	100	98
	00	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	5	7	4	1	4	5	13	8	12	8	15	11	11	11	15	17	17	24	16	16	18	19	17
MED	96	104	100	100	98	100	98	140	120	119	115	112	112	112	112	112	108	106	110	102	98	101	98	98
U Q	104	104	102	101		124	128	155	145	144	118	118	128	132	148	120	115	110	122	106	105	110	102	103
L Q	92	93	98	98		96	96	136	115	114	110	108	106	104	102	104	106	104	103	95	94	96	96	96

MAR. 2015 h'Es (KM)

IONOSPHERIC DATA STATION Okinawa

MAR.2015 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						F1	F2			H1			C1	C1	C1	C1	L1	L1						F1
2	F1	F1	F1	F1		F1						L1			L1				C1	F1			F1	
3																		C1				F1		F1
4	F1									H1	C1	C1			H1	H1	HL11	L3	CL12	F6		F1	F1	
5												C1				C1	C1	L2	L1		F1	F1		
6																				F1	F1	F2	F1	
7								H1		H1			H1	H1		C1	C1	C1	H1		FF21	FF21	F2	F1
8	F1							H1								C1	C1	C1	L1		F1	F1	F1	
9												L1					C1	C1	C2	F1	F1	F4	F3	
10	F1		F1	F1	F1	F1	F1									C1	C1	C1	C1	F1	F1		F1	F1
11	FF11											H1	C1	H1		H1	C1		HL11		F1		F1	F1
12	F1	F1	F1	F1								C1	C1	C1		C1	C1	C1	C1	F1	F2	F1		F1
13								H1	C1			C1	C1					L3	L4	F4	F2	F1	F3	F1
14							F1	H1		C1	C1	C1		C1	C1	C1	L1		C1					
15										L1	CL11				H1		C1		HL11			F1	F2	F7
16	F1	F1	F1								L1							C1						
17										C1	C1	C1	C1	L1	L1	L1	L1	L1	L1	F1				
18	F1		F1		K1				C1	C1		C1	L1		L1	L1			C1	LQ21	FF11	F1	F3	F3
19																			L1	F3	F3	F1	F2	F1
20	F1				K1	FF11	F1								L1	L1	L1	L1	LC21					
21									C1	C1		L1	L1	L1				C1	CL21	CL11				
22								H1				C1			C1				C2	C2	F1	F3	F1	F3
23	F2	F1	F1					C1	CL11	C1	C1	C1	C1	C1		C1	C1	C2	C1	C2	F3	F1	F1	
24		F3	F2	F1			F1	LH21			C1	C1			C1	C1	C1	C1	C1	C1		F1	F1	F1
25								H1											H1		F1	FF21	F2	
26	F1							H1	H1	H1				H1	H1					L2				
27								H1	H1	H1									L1				F1	F1
28									C1	C1			H1								F1		F4	F1
29								H1	C1										HL11			F1		F1
30								H1			H1		C1	C1			L1							F3
31								H1				C1		L1		H1	C1	C3	C3	C2	F4	F2	F2	F4
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT																								
MED																								
U Q																								
L Q																								

MAR.2015 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

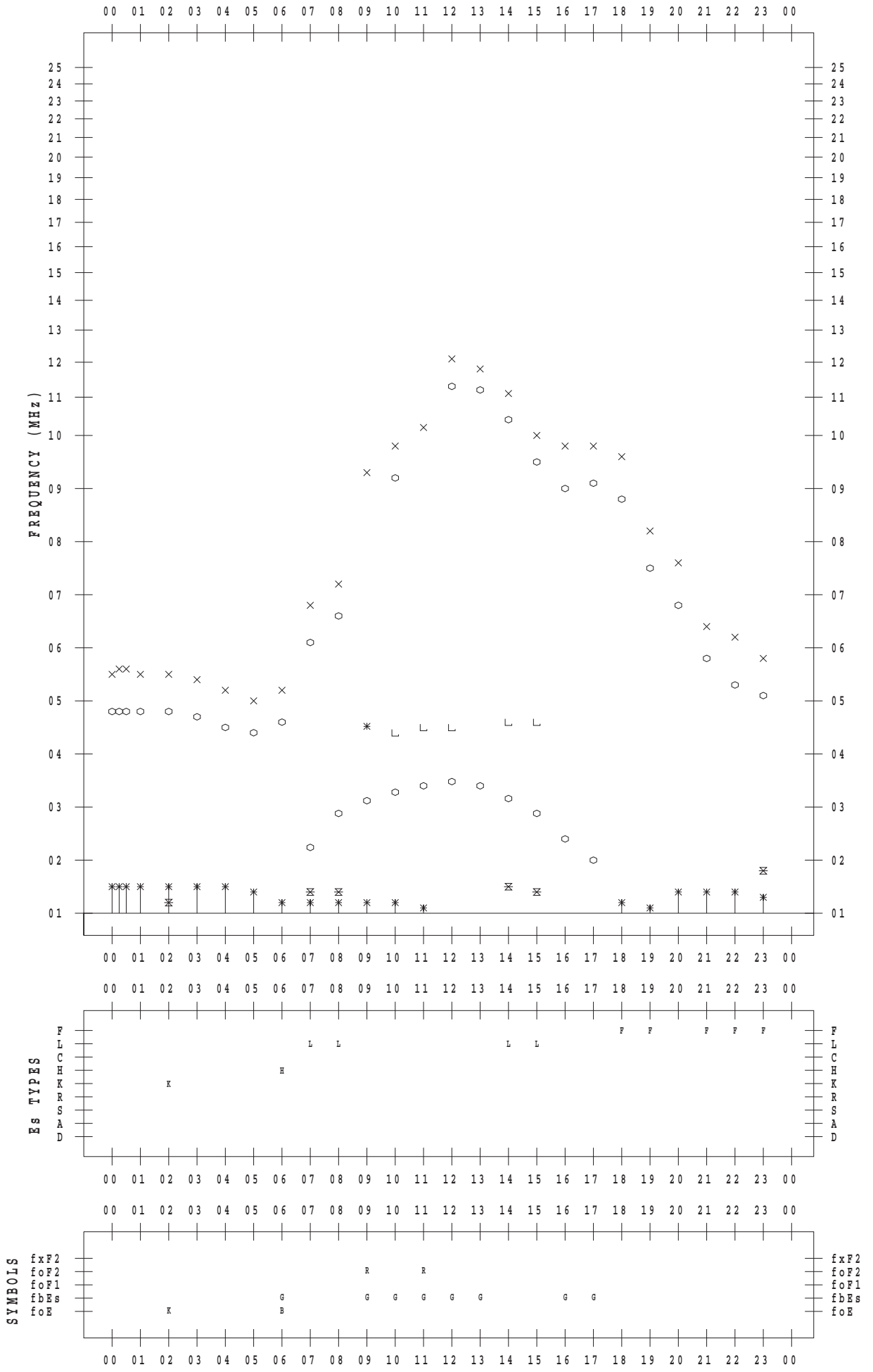
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2015/ 3/ 1

135 °E MEAN TIME



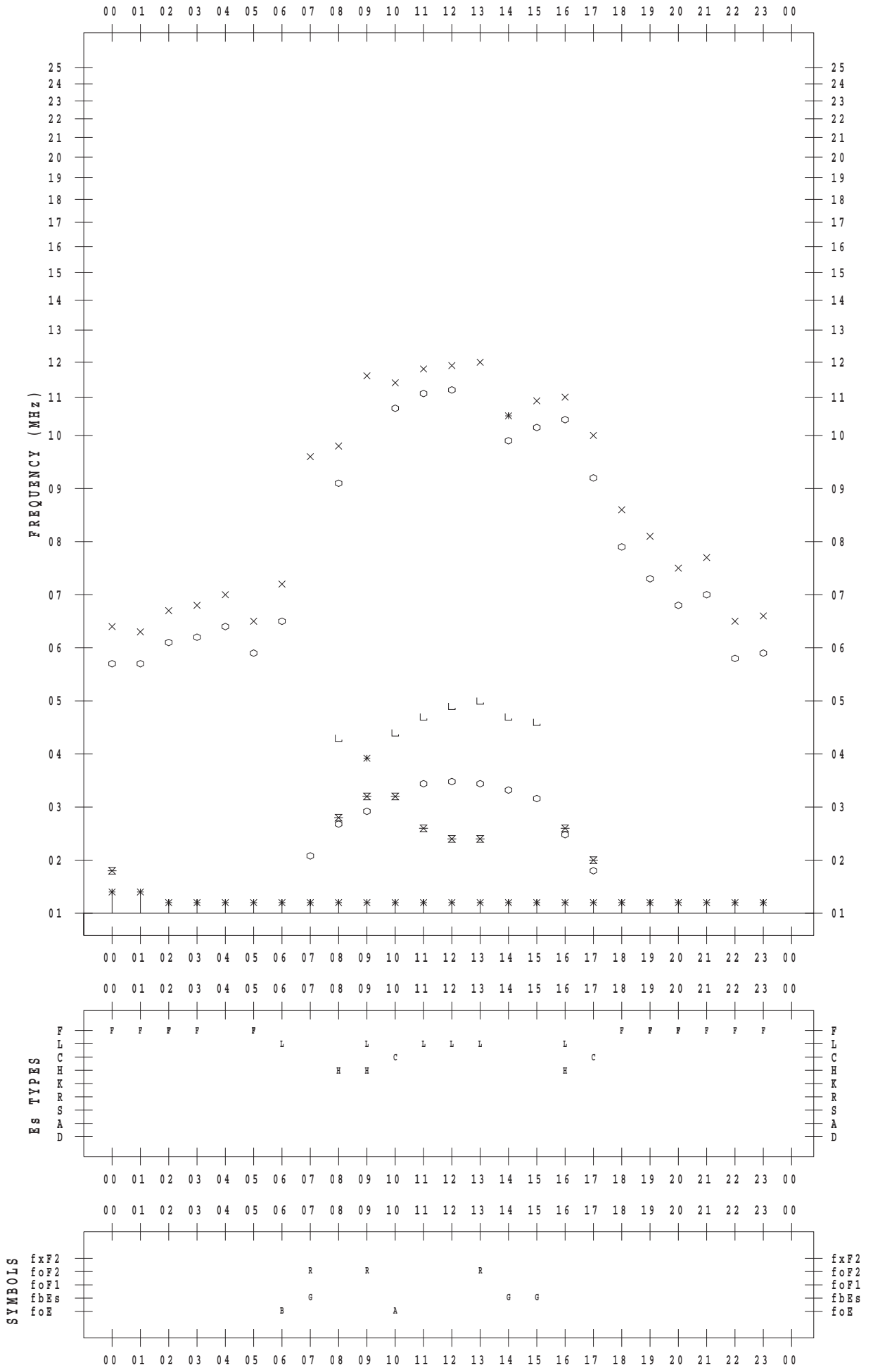
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2015/ 3/ 2

135 °E MEAN TIME



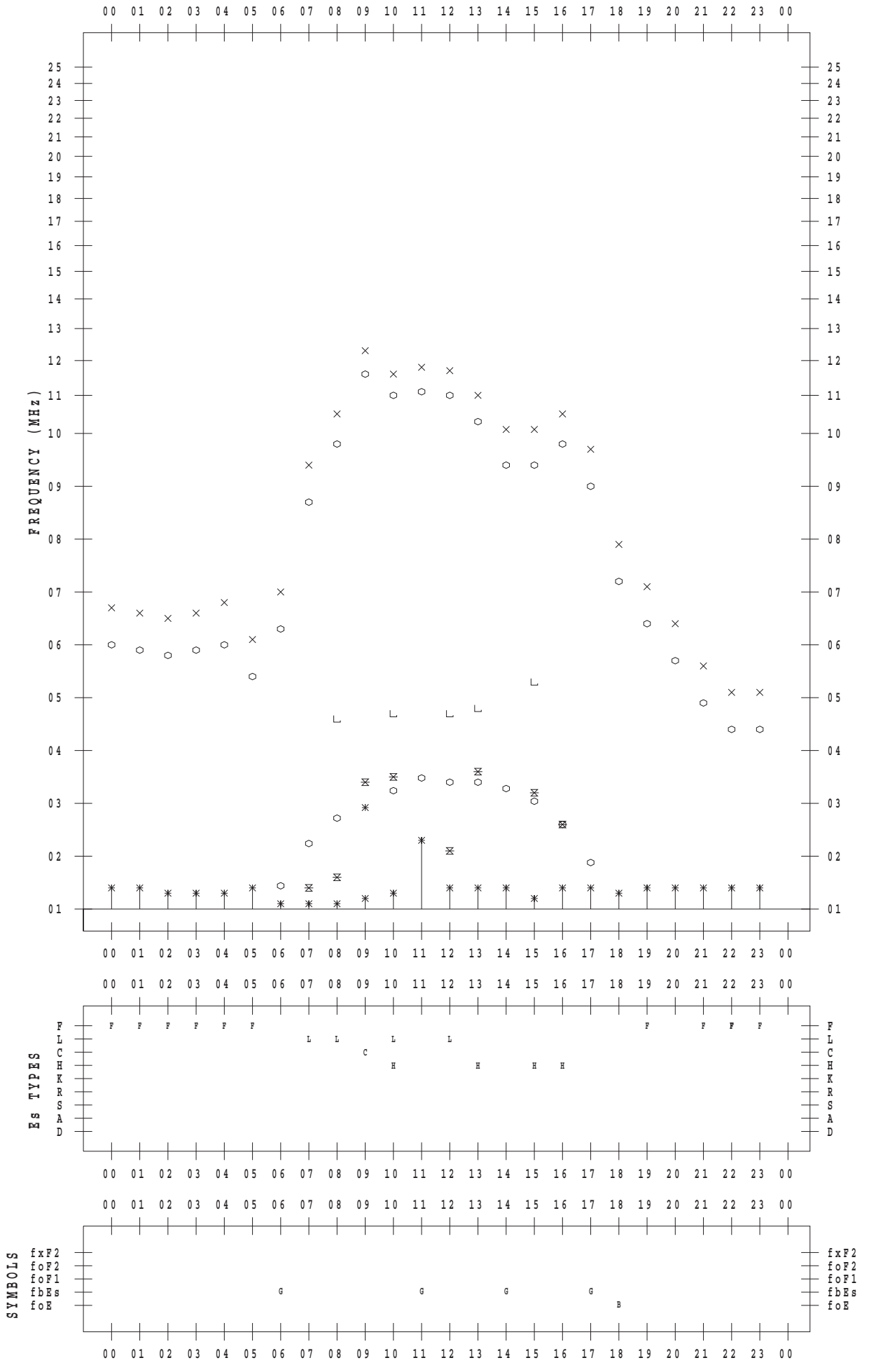
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2015/ 3/ 3

135 °E MEAN TIME



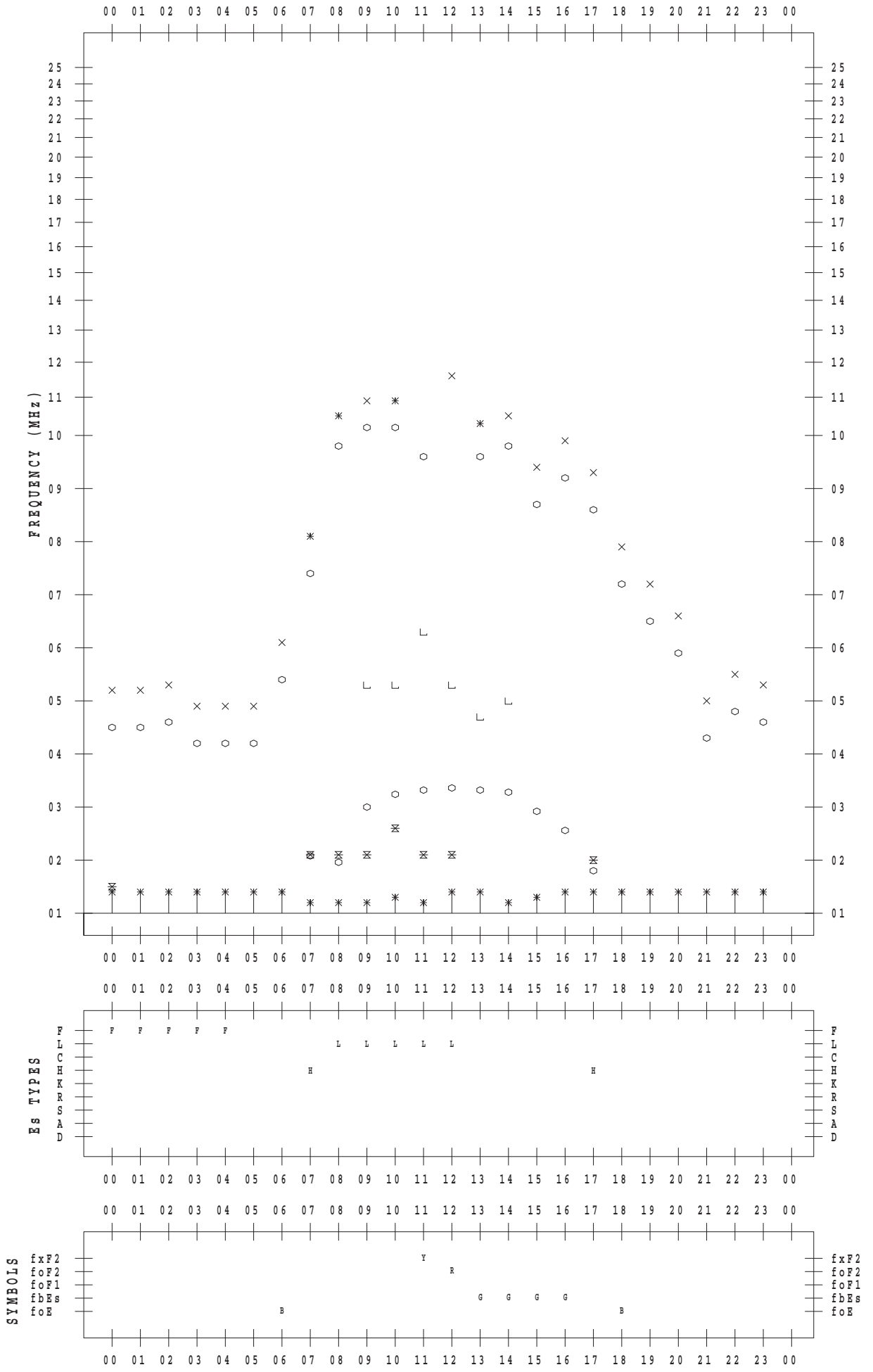
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2015/ 3/ 4

135 °E MEAN TIME



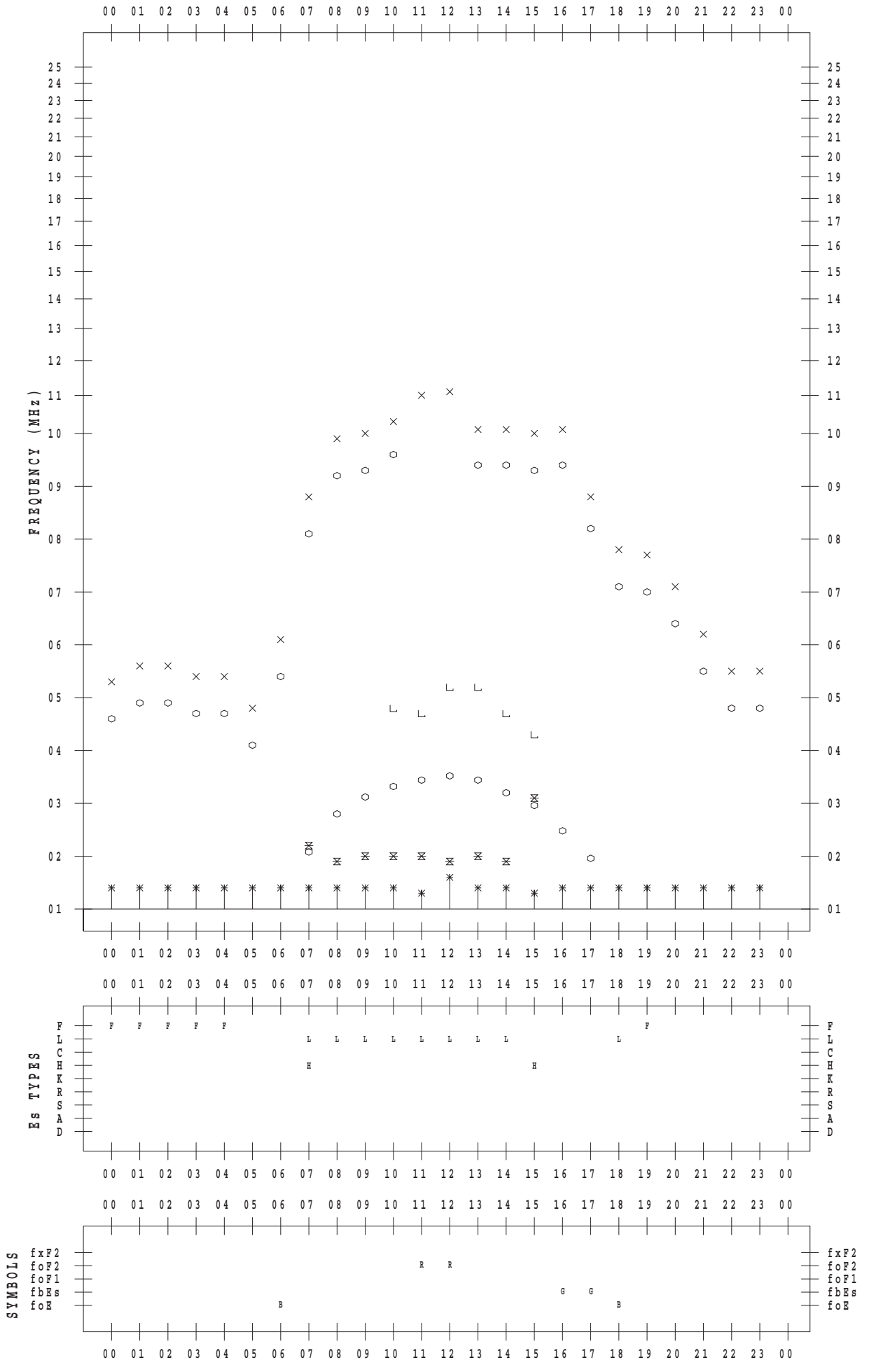
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2015/ 3/ 5

135 °E MEAN TIME



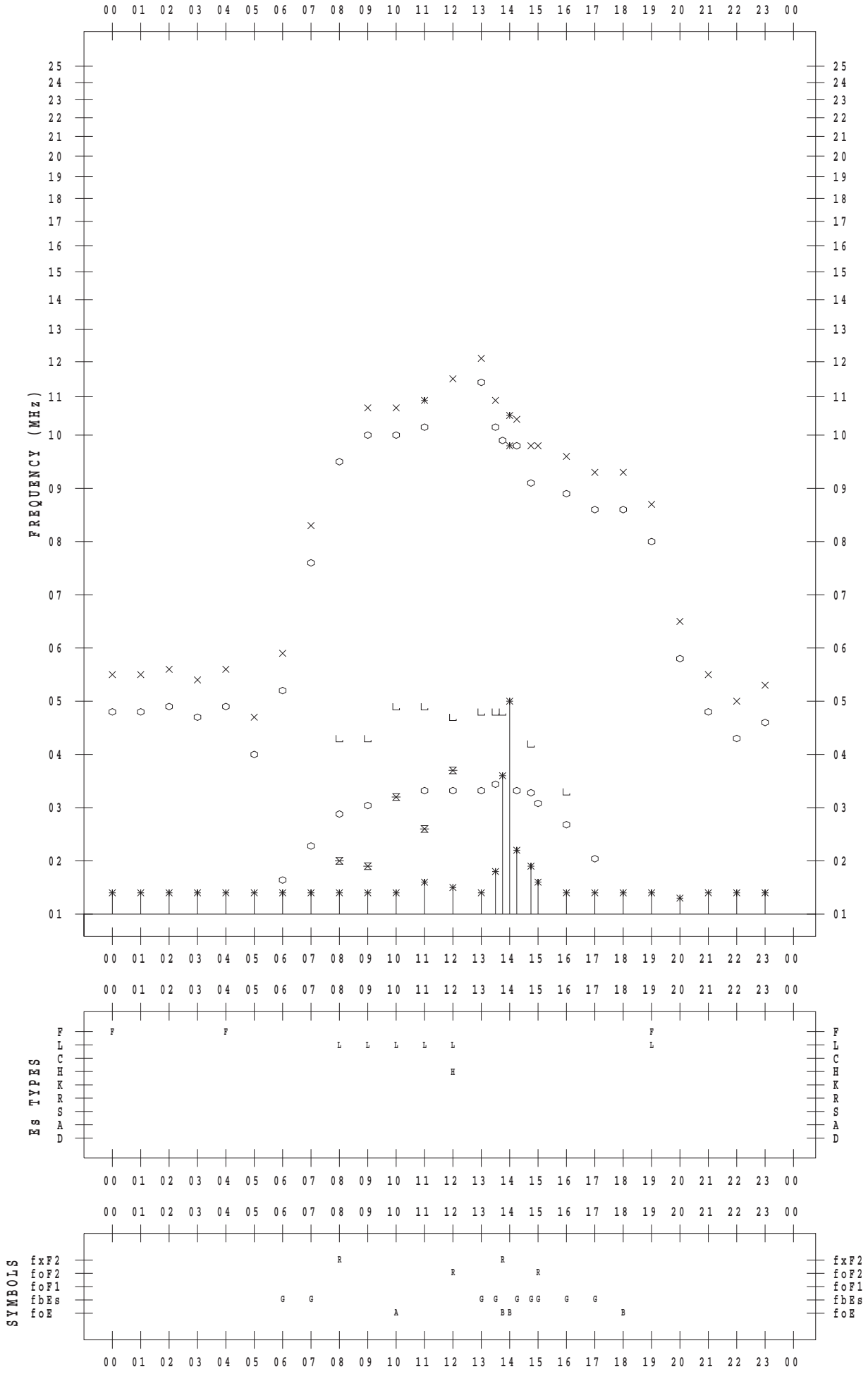
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2015/ 3/ 6

135 °E MEAN TIME



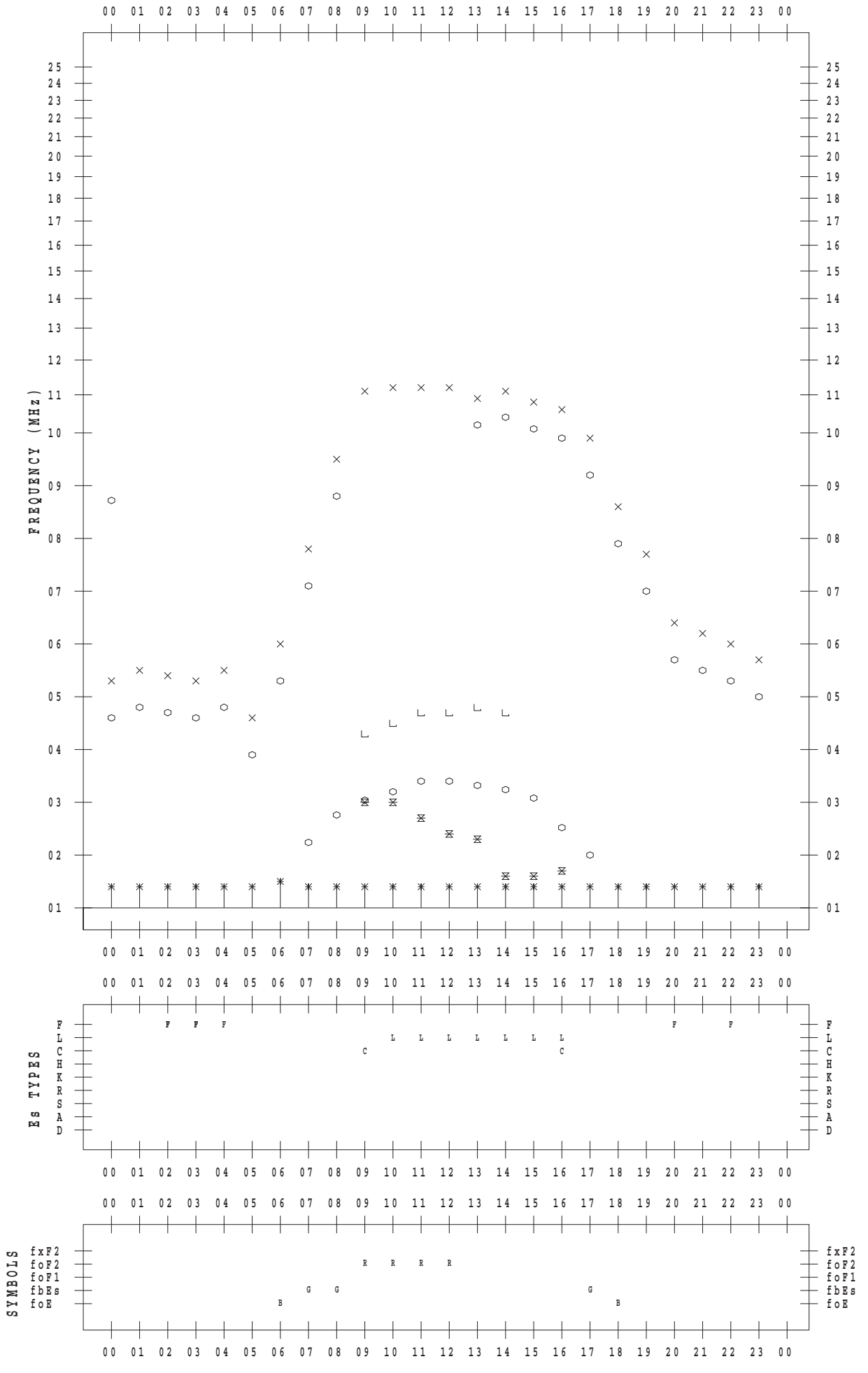
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2015/ 3/ 7

135 °E MEAN TIME



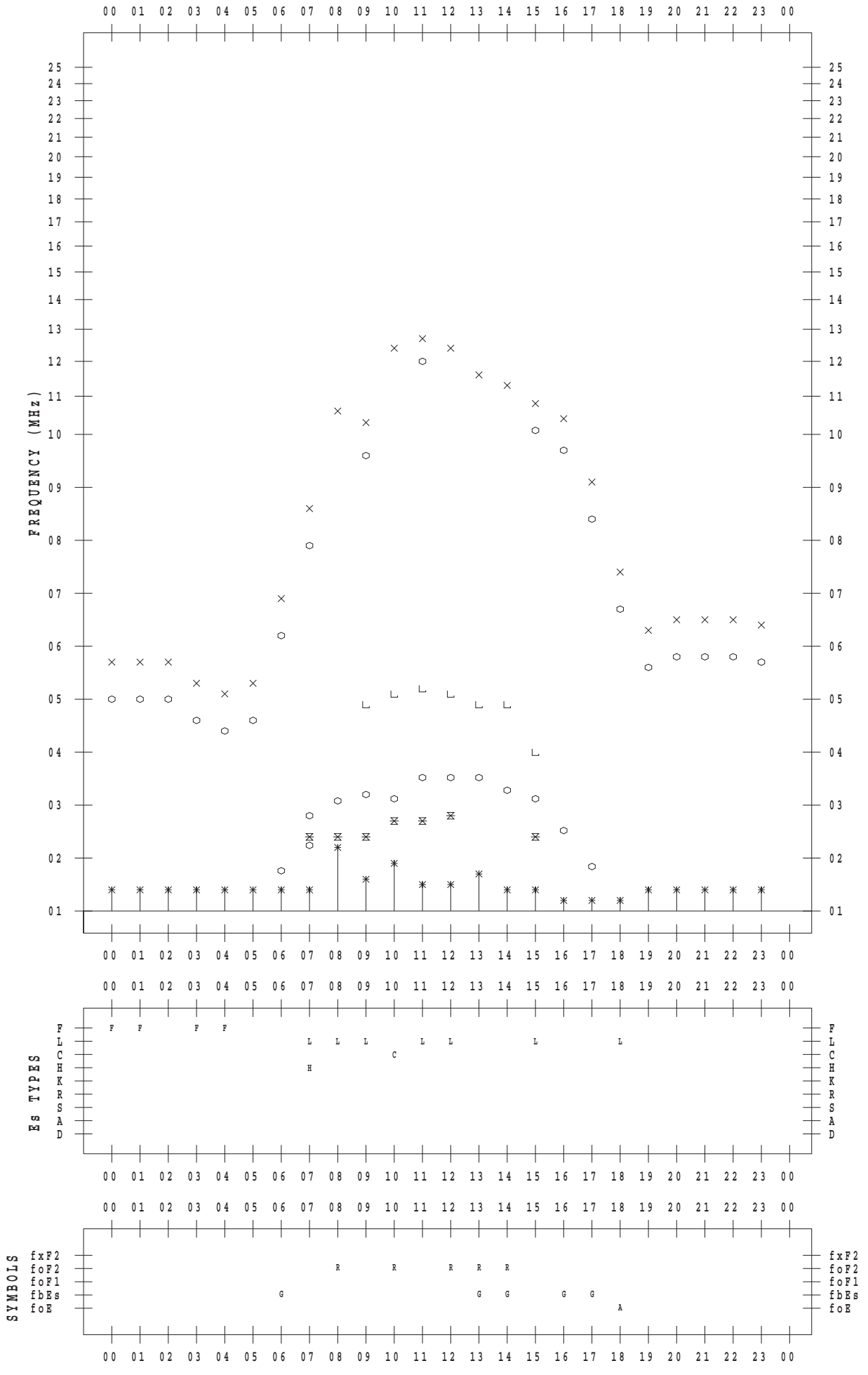
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2015/ 3/ 8

135 °E MEAN TIME



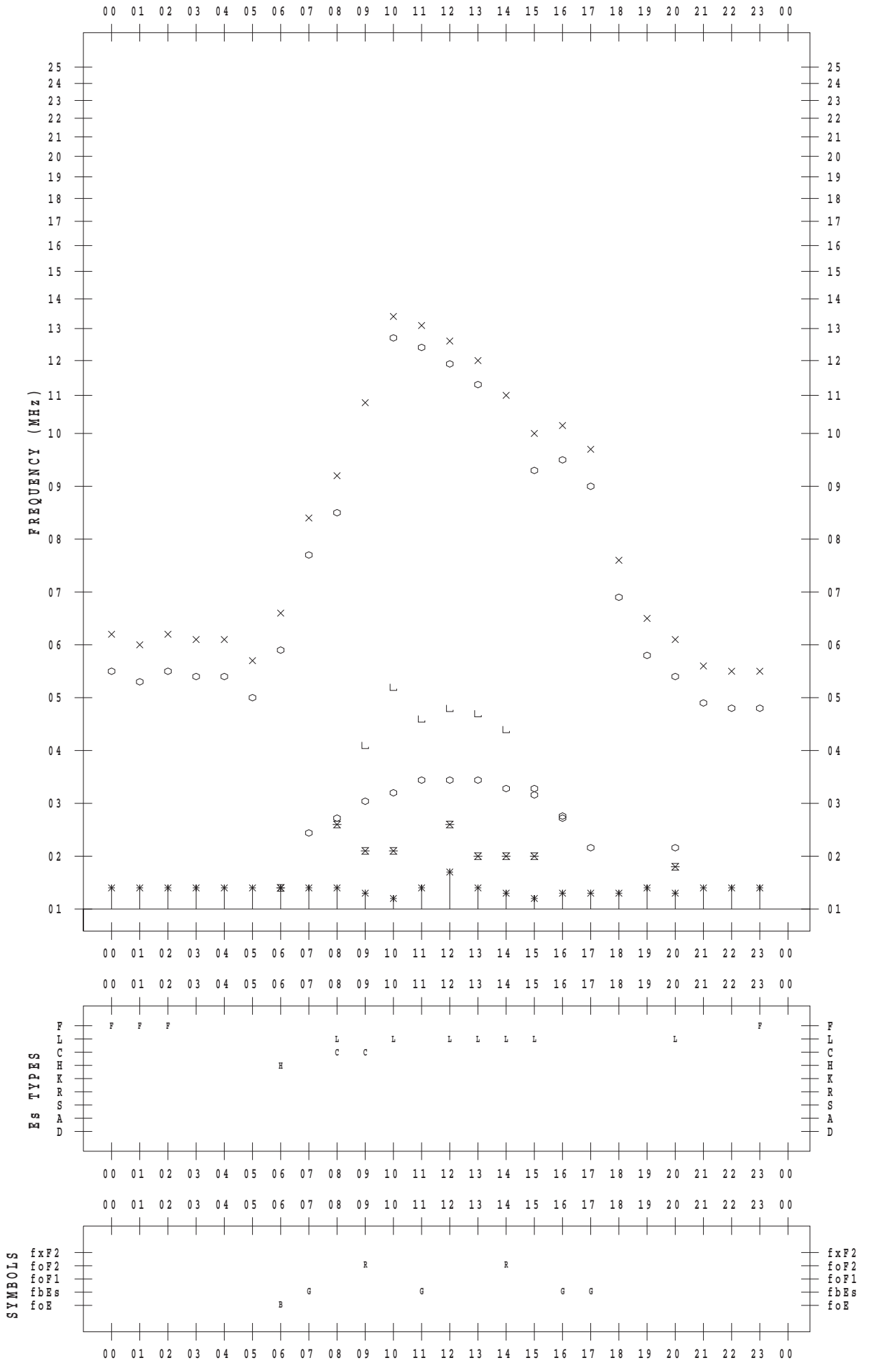
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2015/ 3/ 9

135 °E MEAN TIME



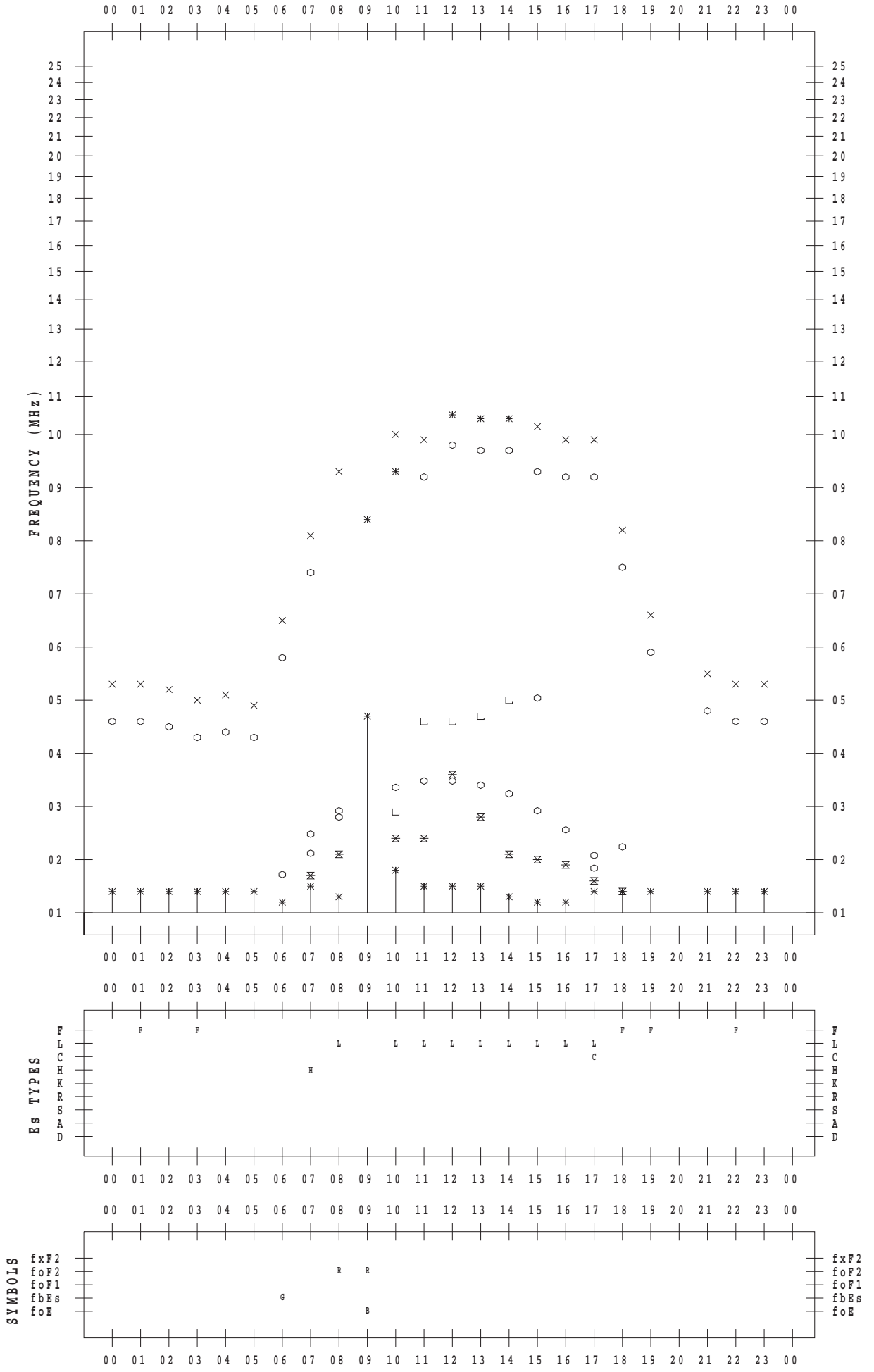
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2015/ 3/10

135 °E MEAN TIME



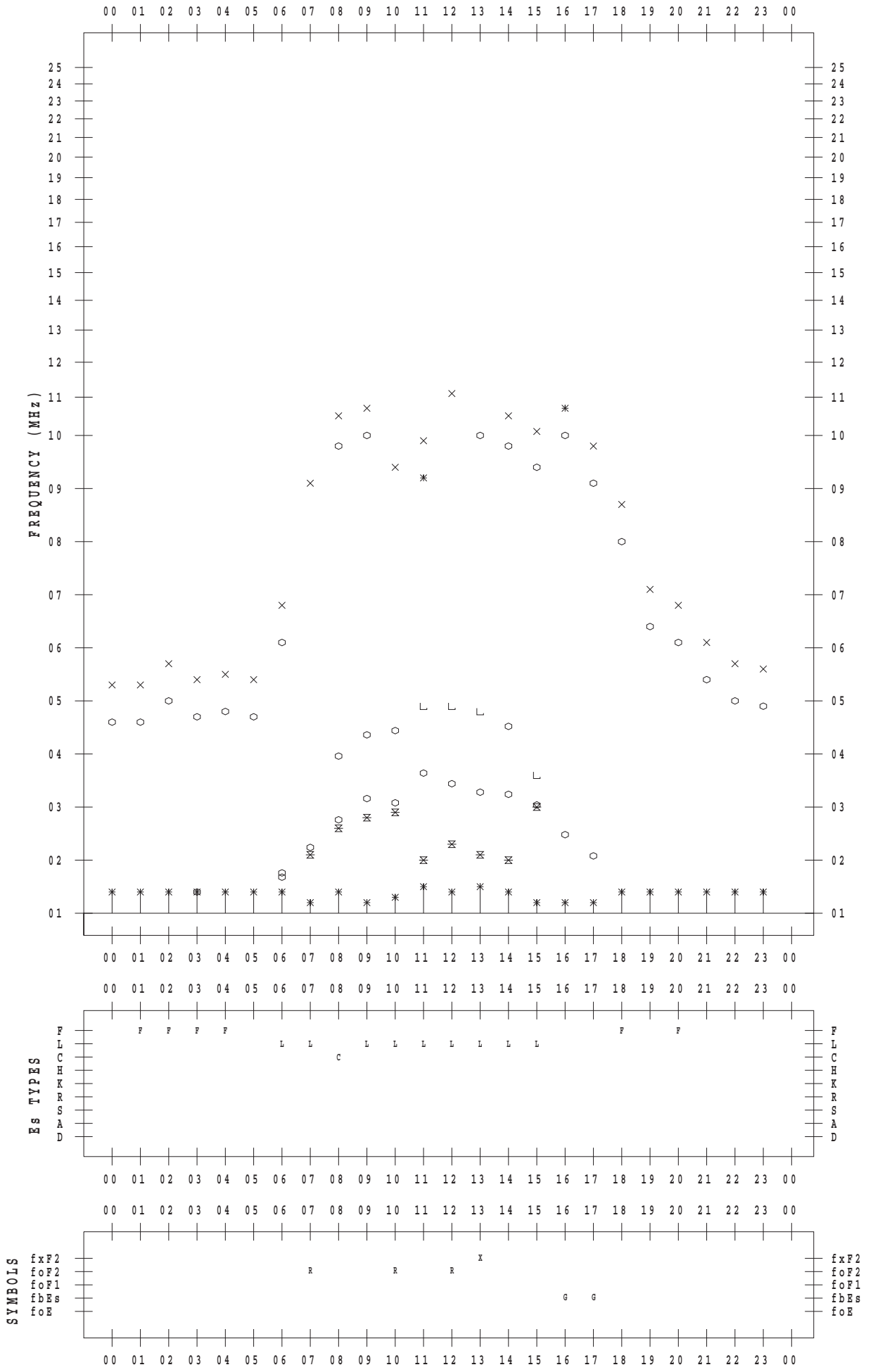
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2015/ 3/11

135 °E MEAN TIME



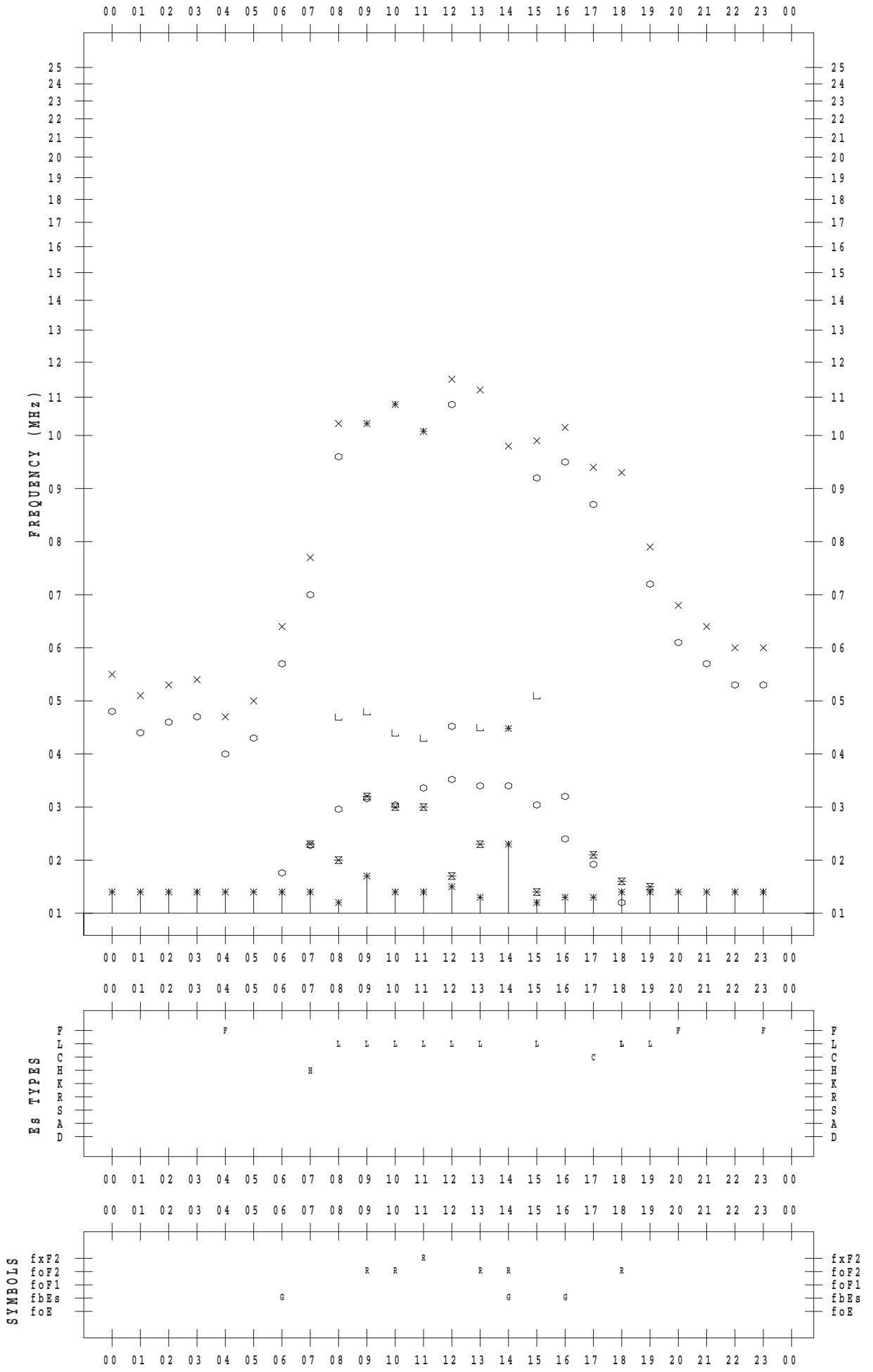
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2015/ 3/12

135 °E MEAN TIME



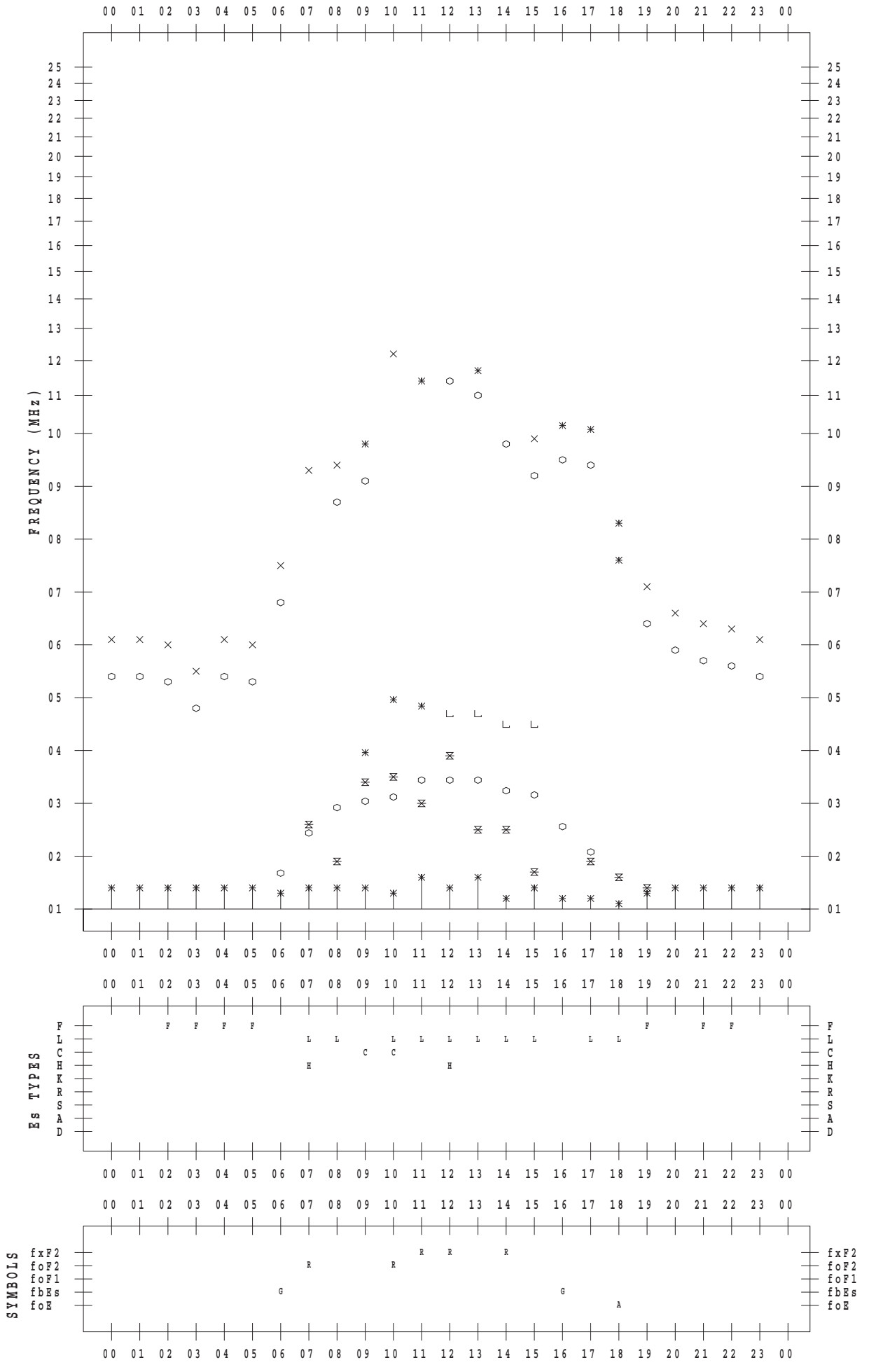
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2015/ 3/13

135 °E MEAN TIME



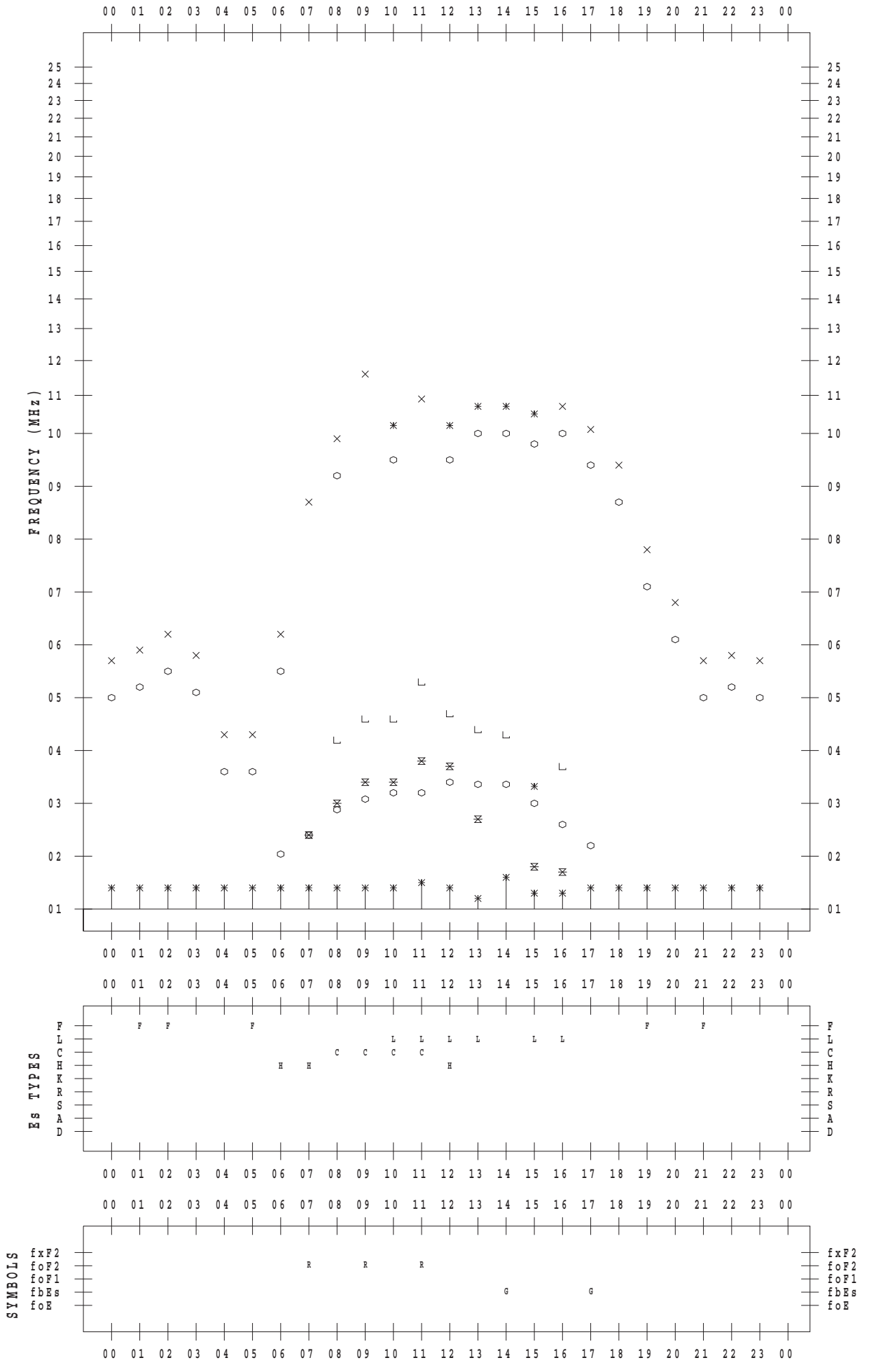
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2015/ 3/14

135 °E MEAN TIME



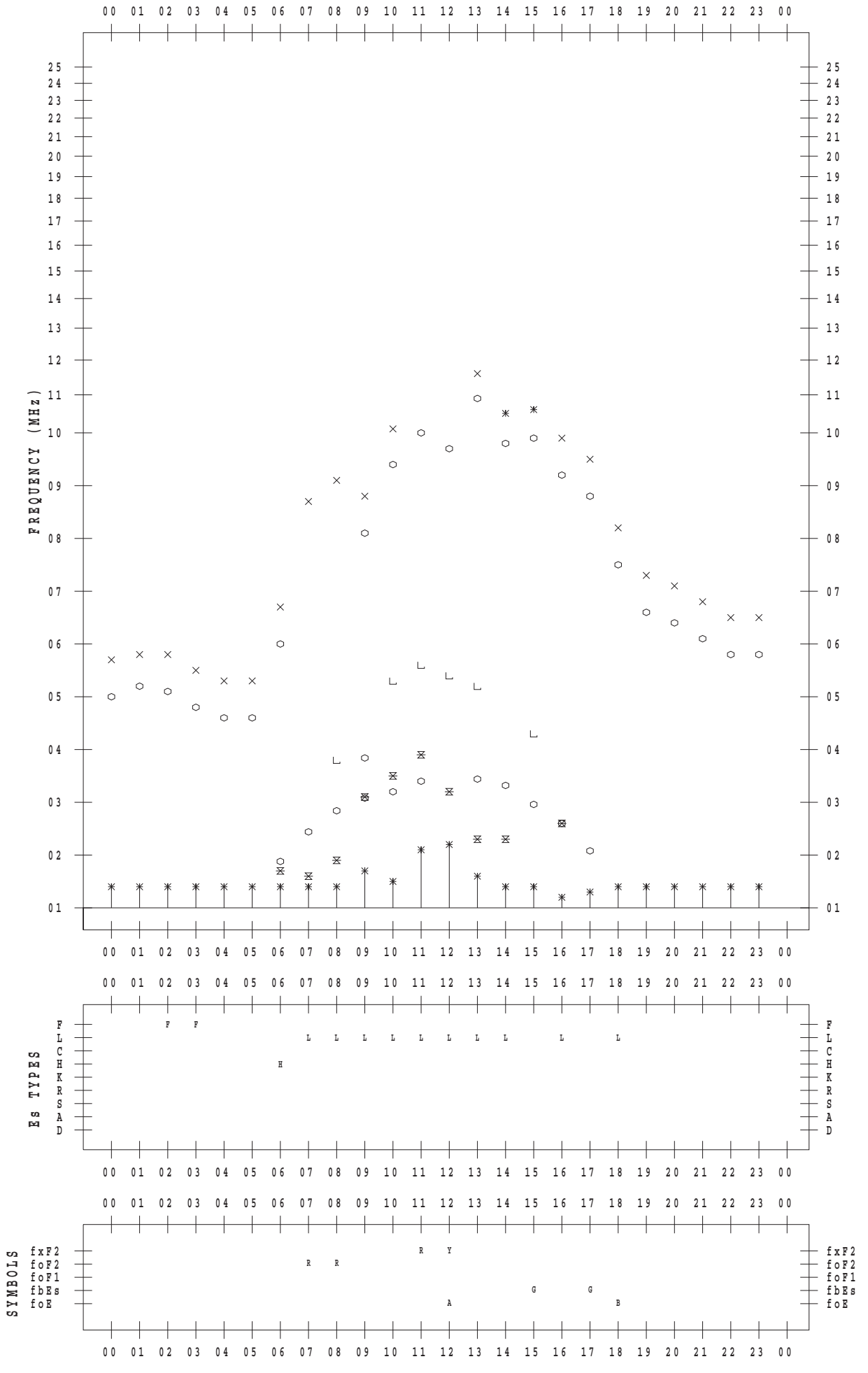
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2015/ 3/15

135 °E MEAN TIME



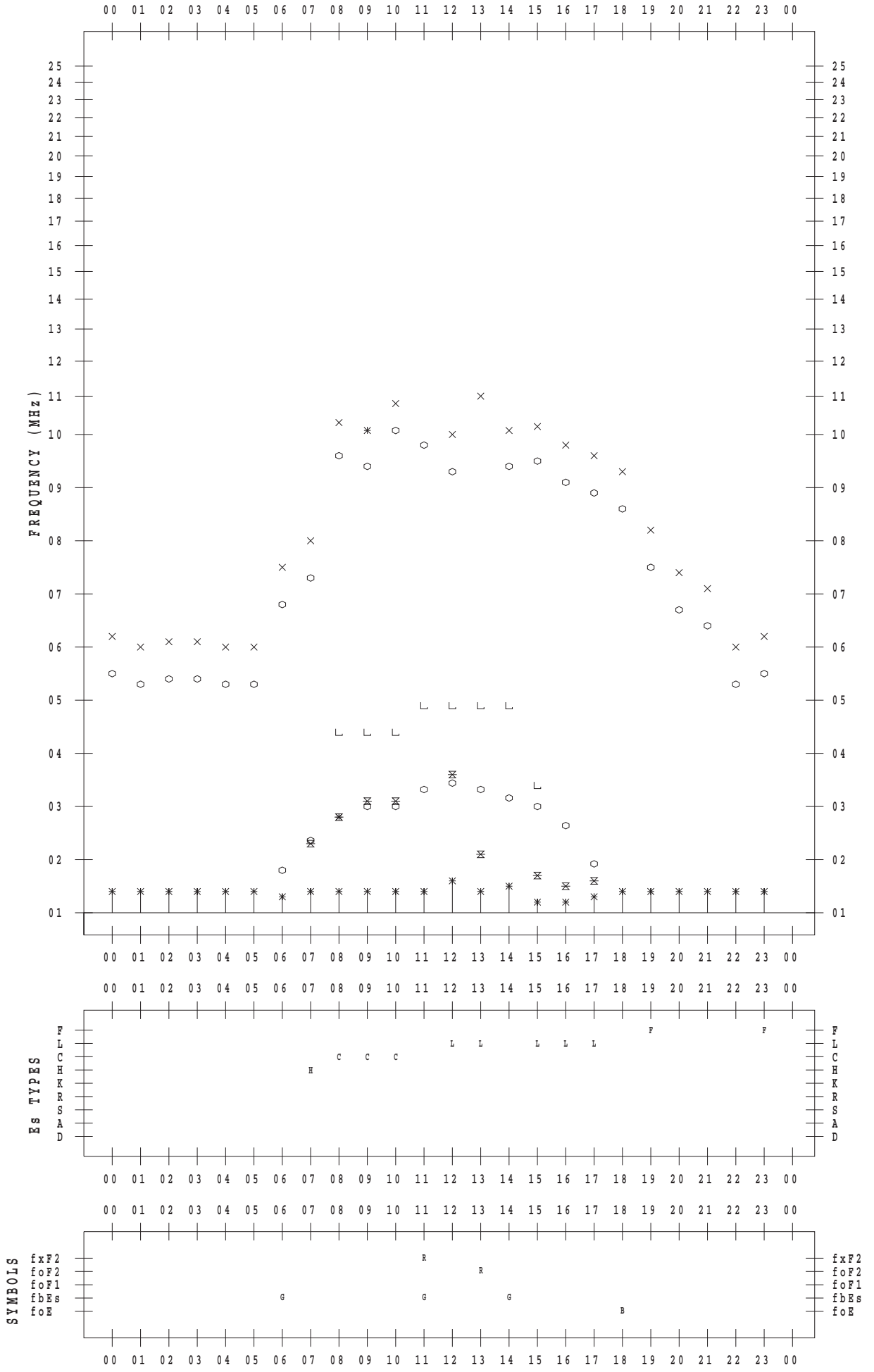
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2015/ 3/16

135 °E MEAN TIME



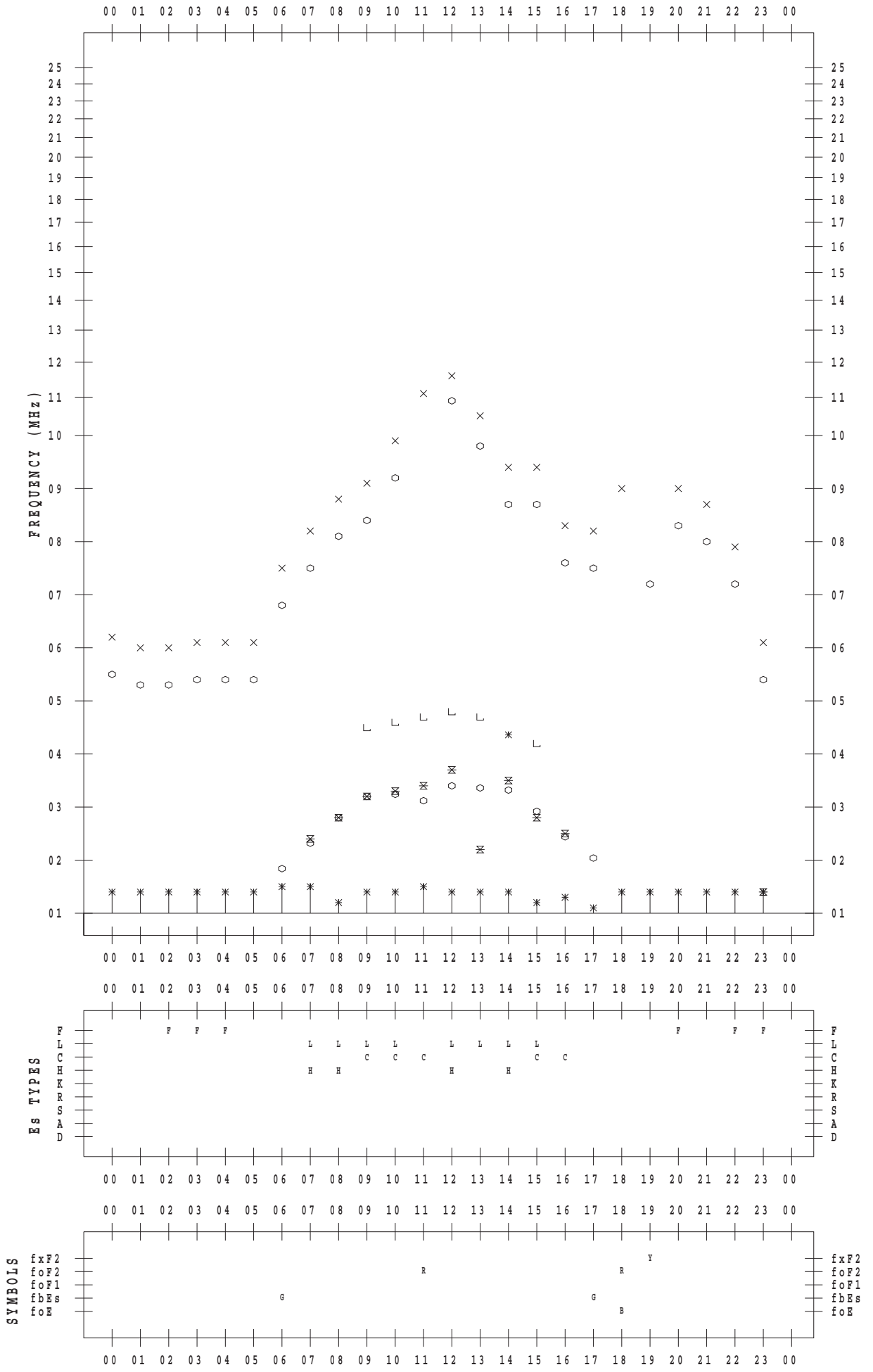
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2015/ 3/17

135 °E MEAN TIME



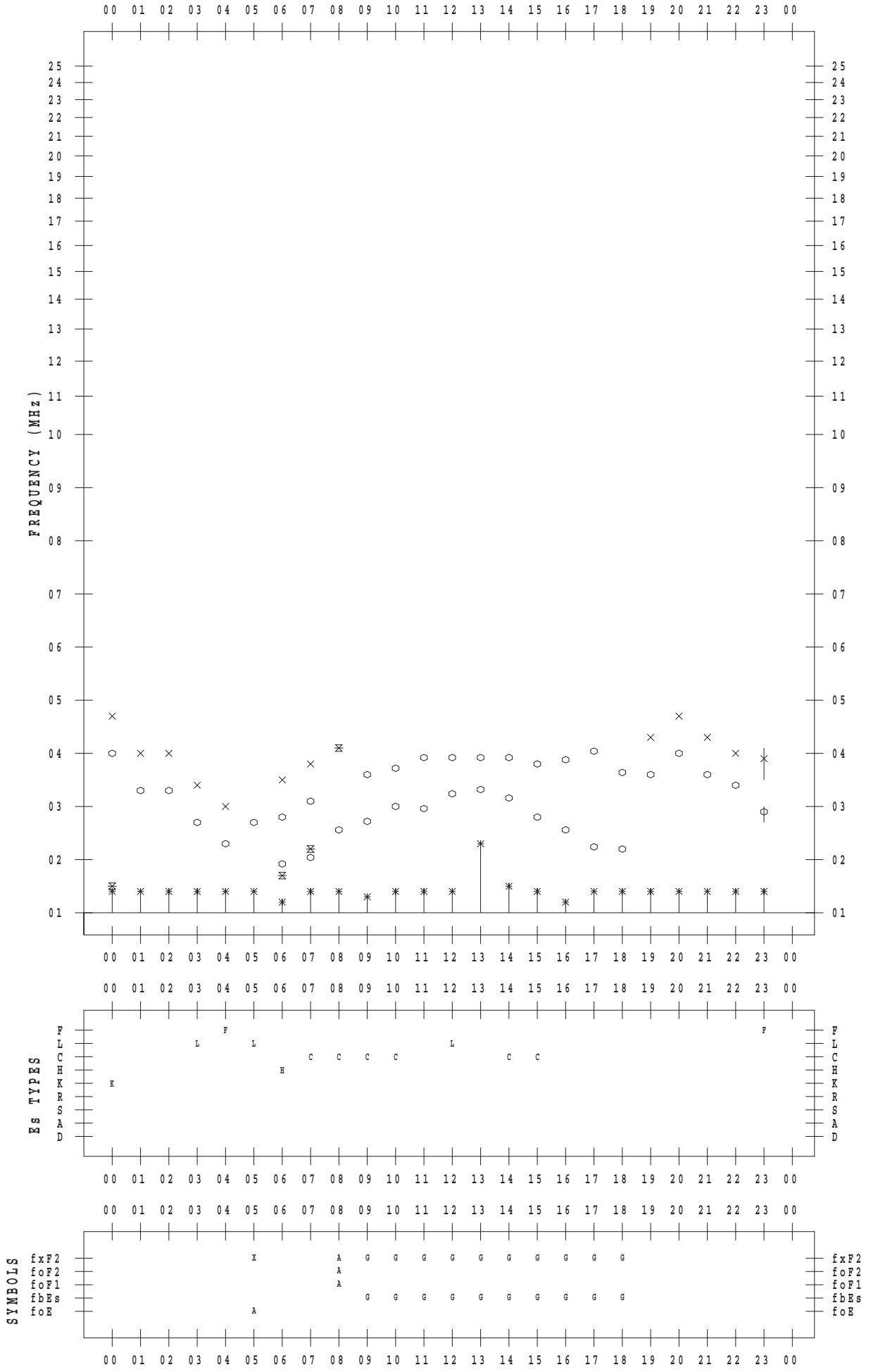
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2015/ 3/18

135 °E MEAN TIME



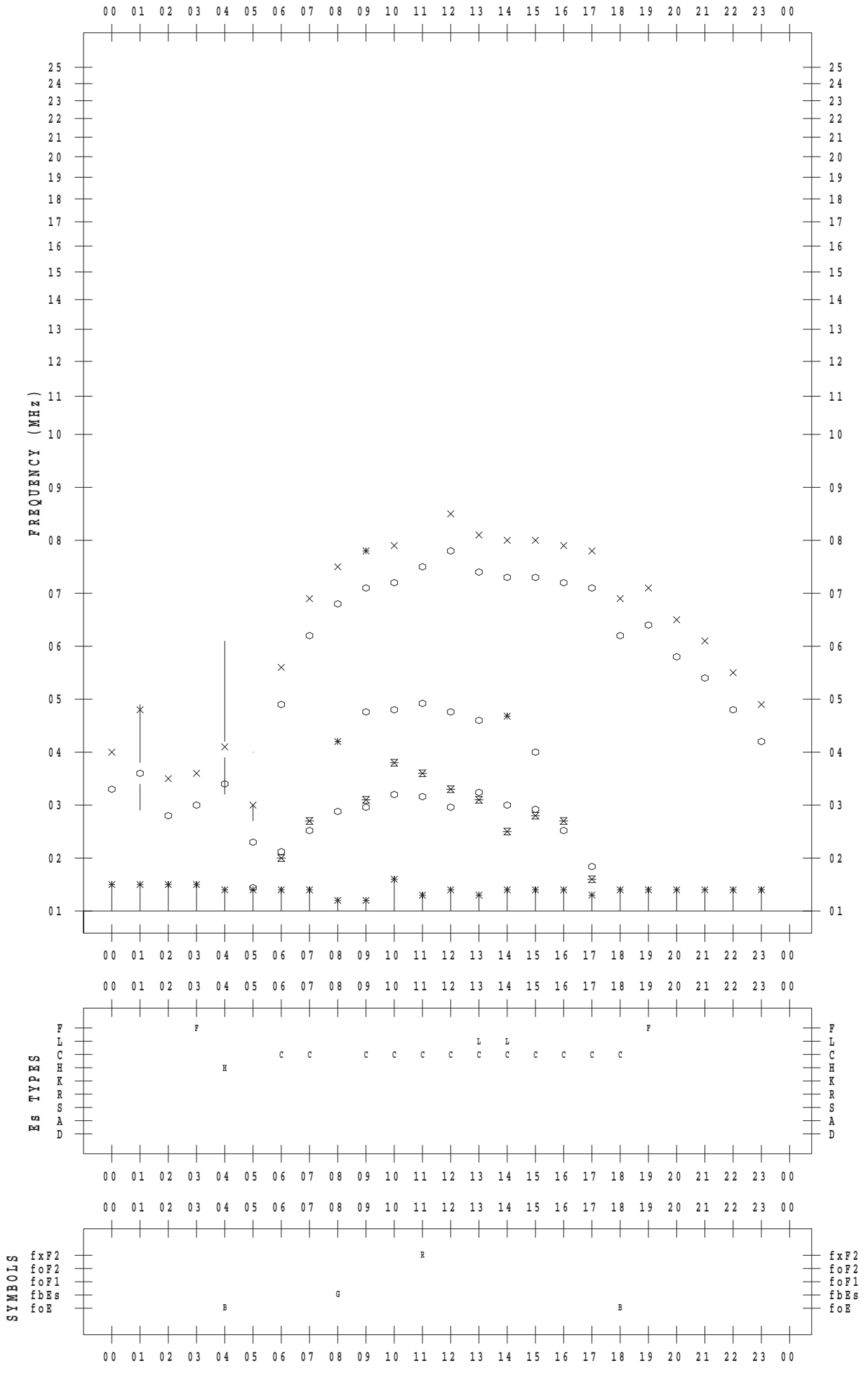
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2015/ 3/19

135 °E MEAN TIME



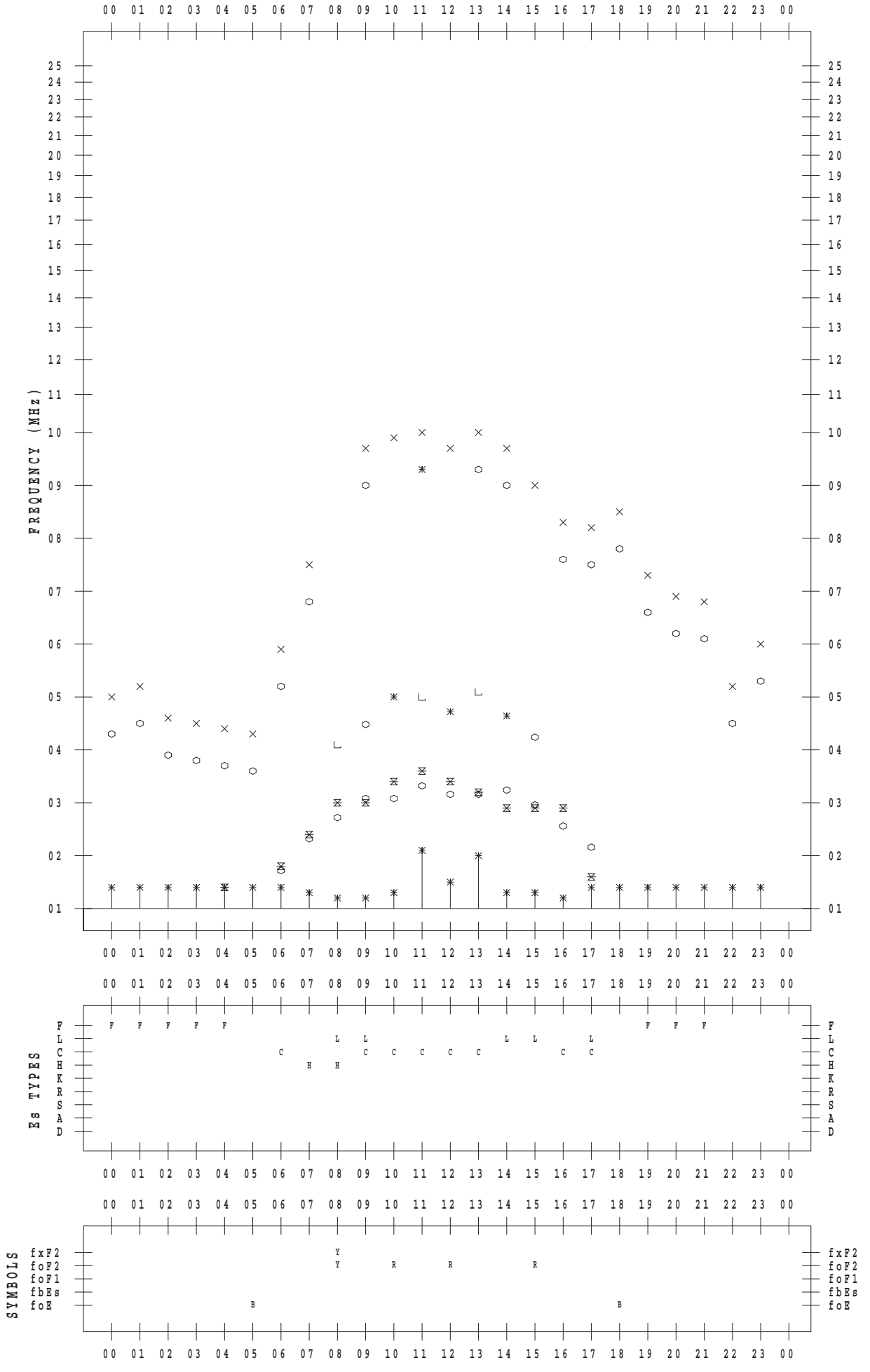
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2015/ 3/20

135 °E MEAN TIME



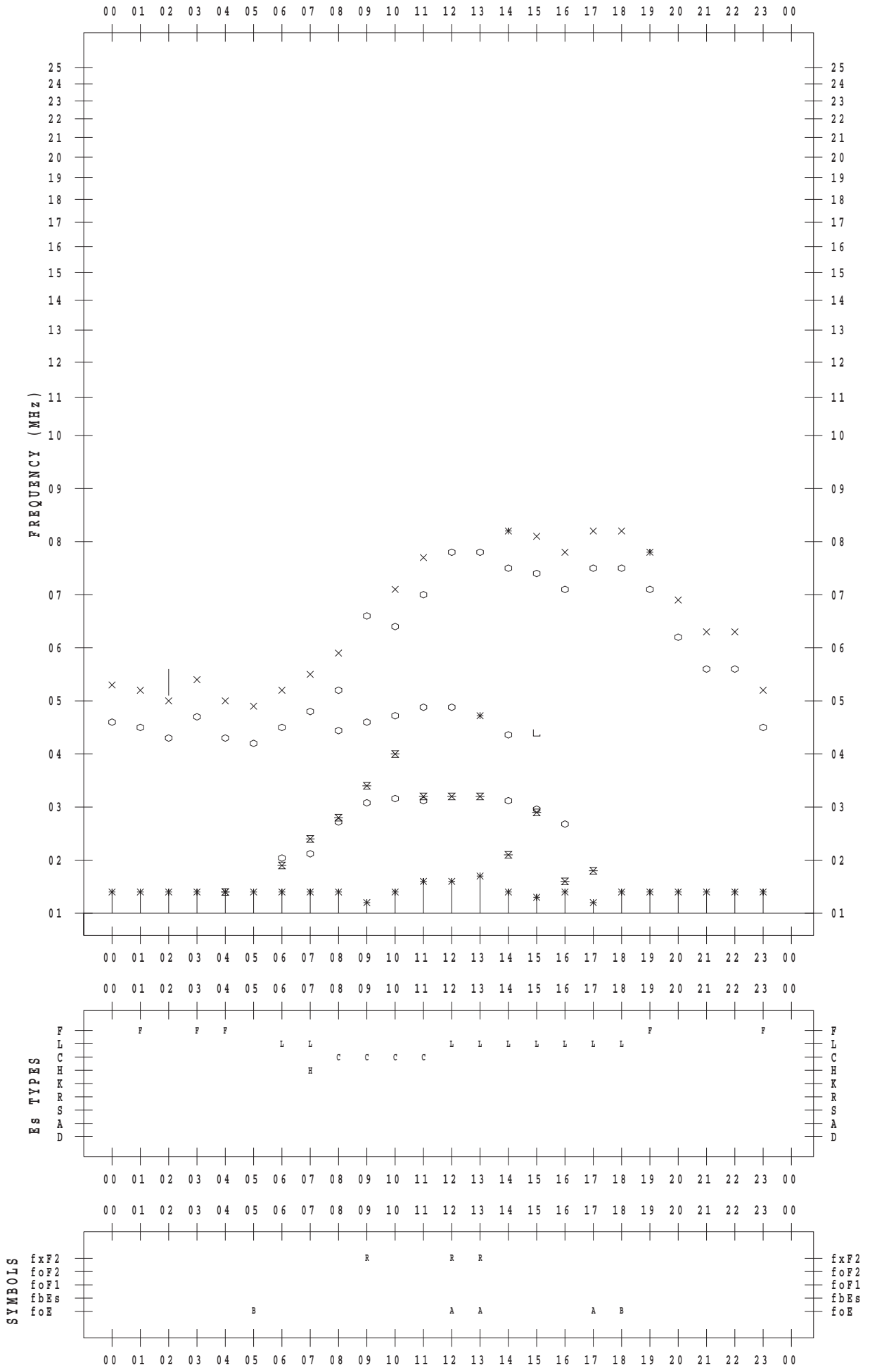
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2015/ 3/21

135 °E MEAN TIME



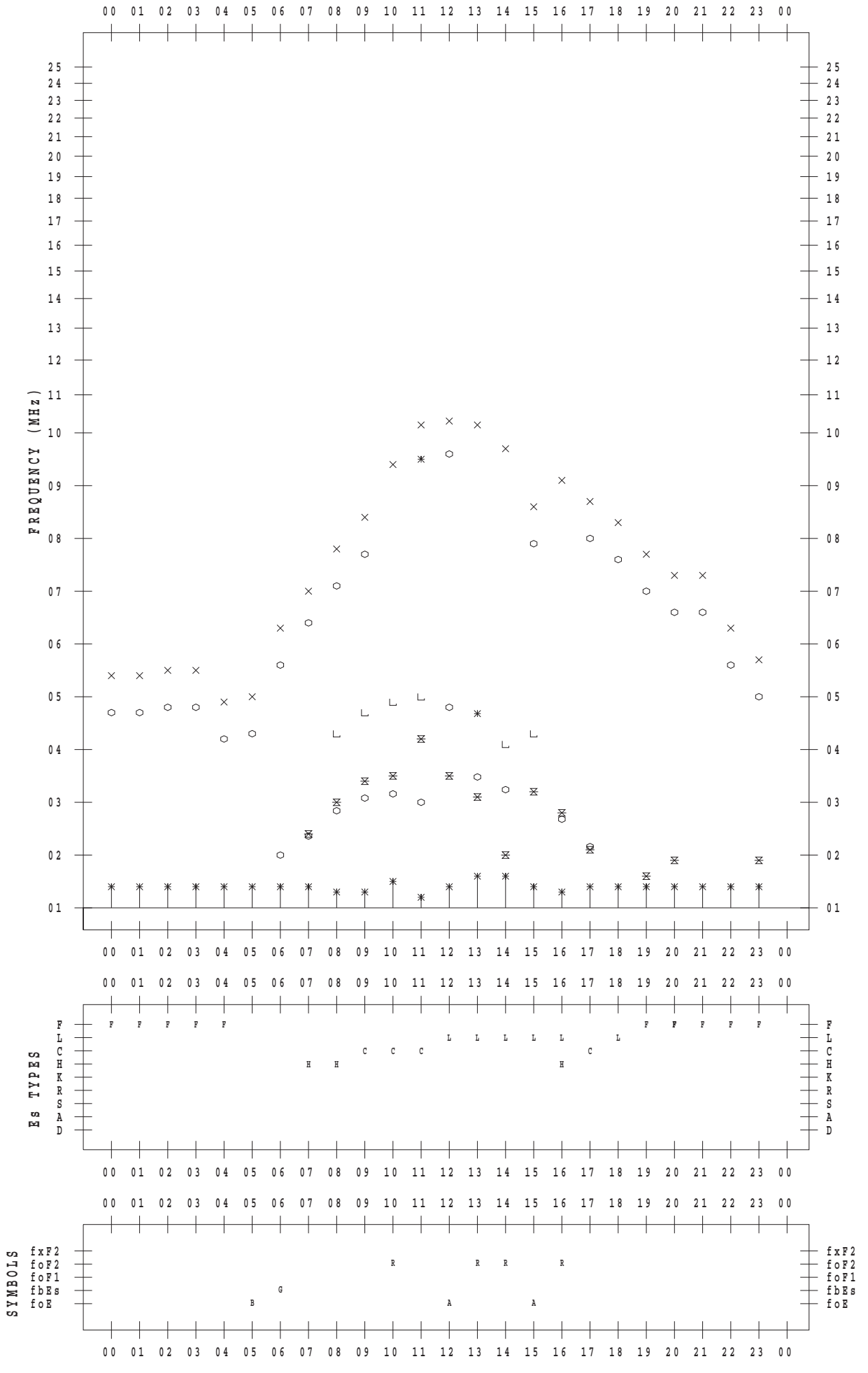
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2015/ 3/22

135 °E MEAN TIME



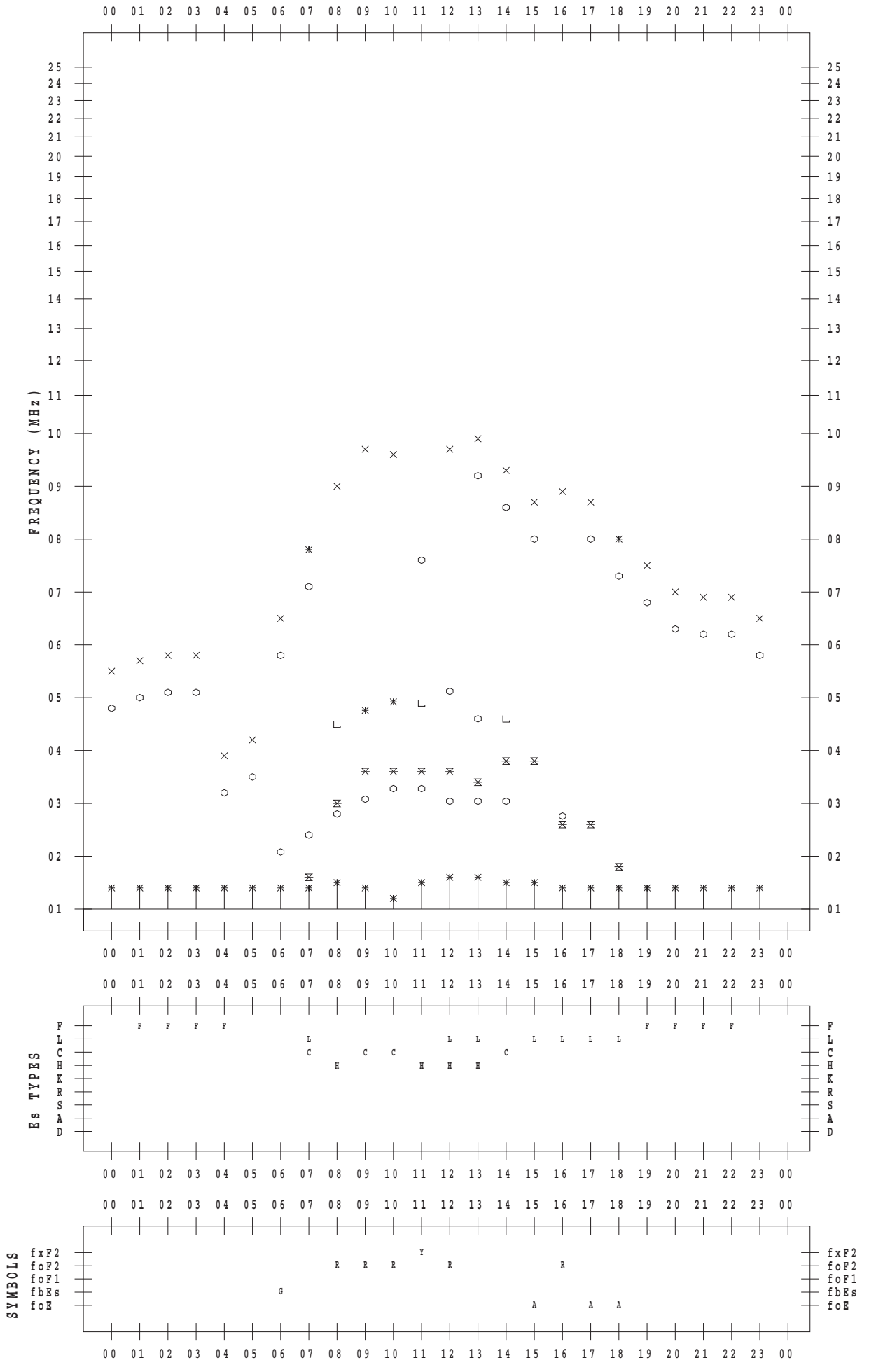
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2015/ 3/23

135 °E MEAN TIME



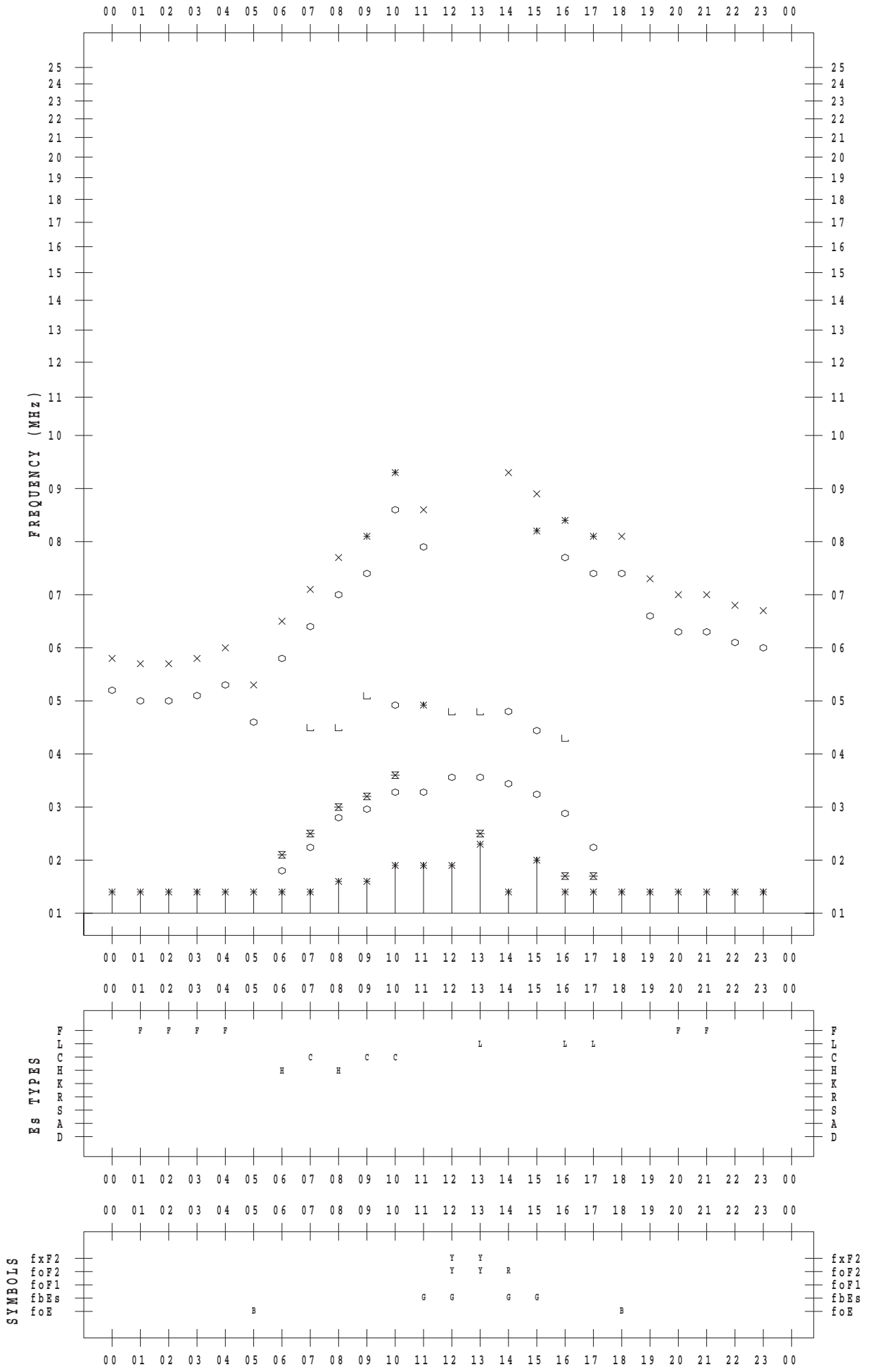
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2015/ 3/24

135 °E MEAN TIME



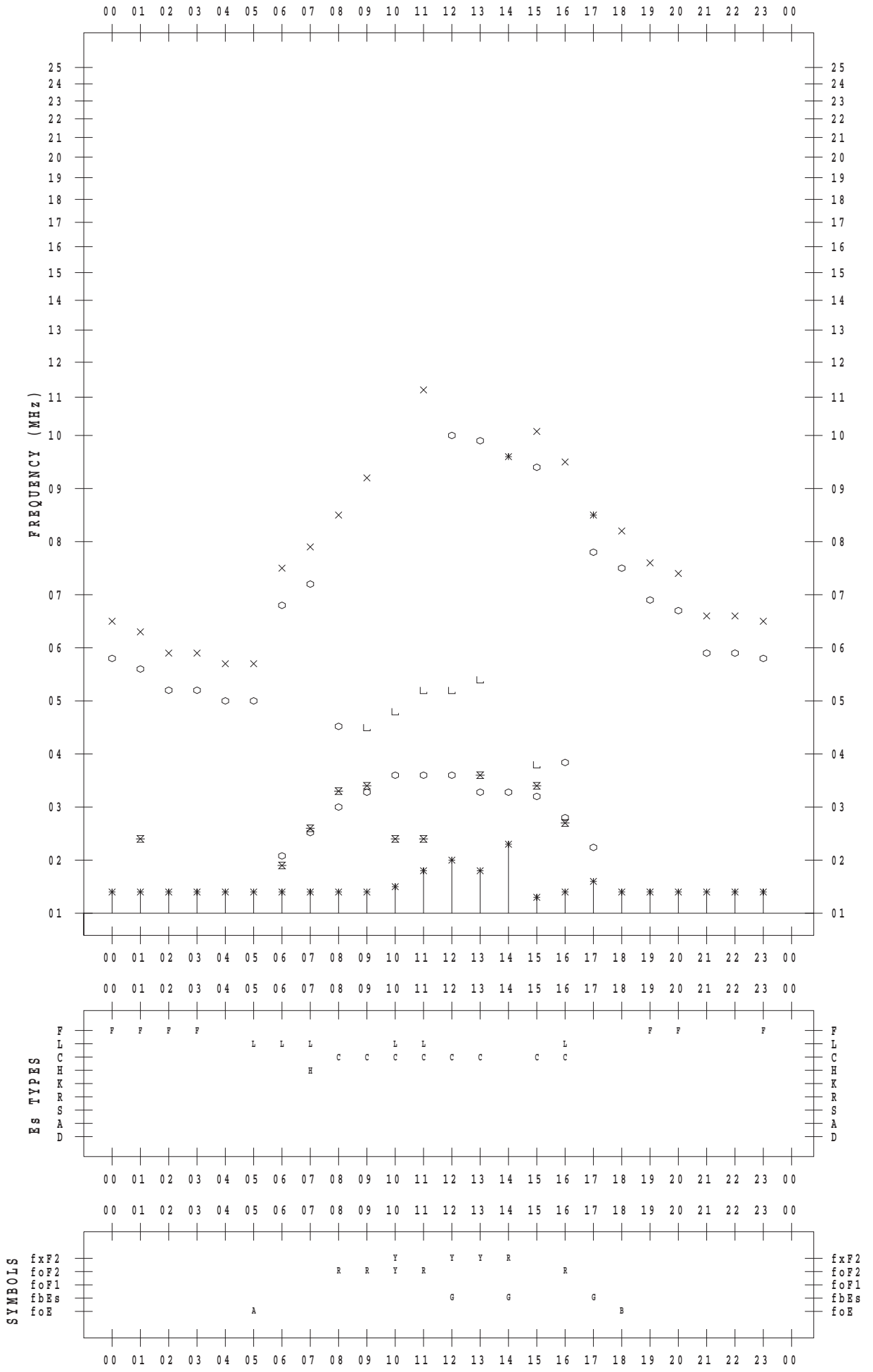
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2015/ 3/25

135 °E MEAN TIME



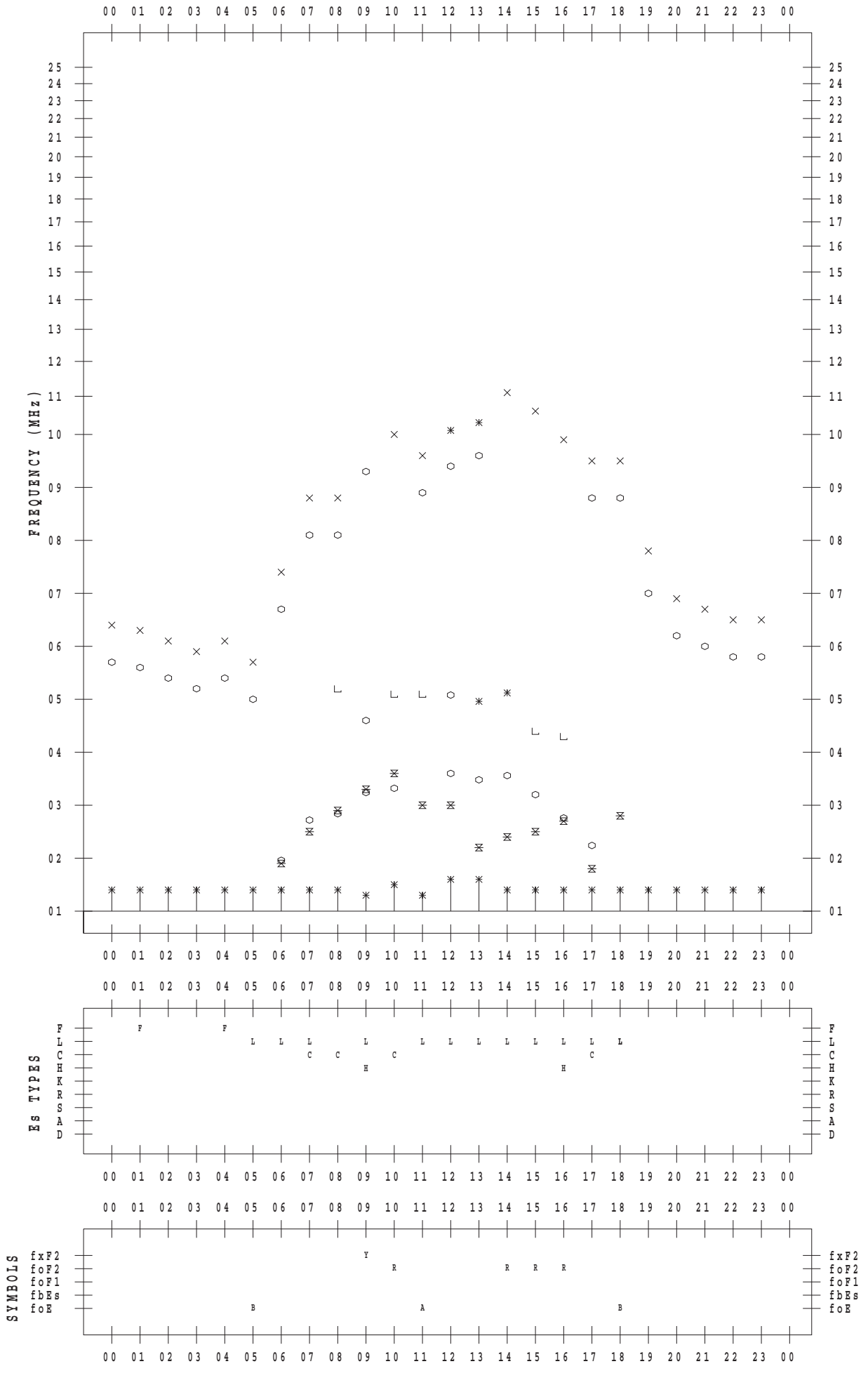
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2015/ 3/26

135 °E MEAN TIME



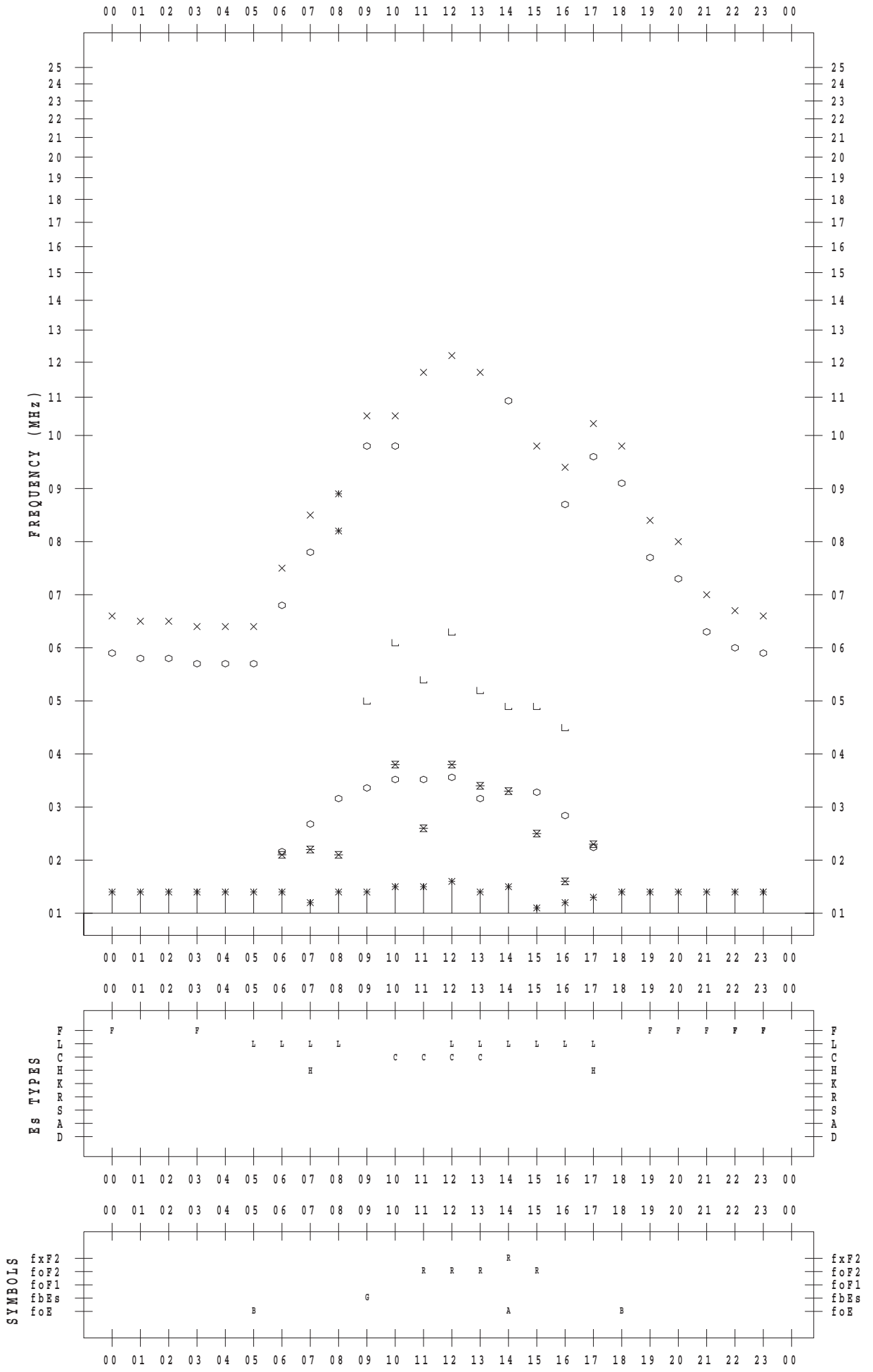
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2015/ 3/27

135 °E MEAN TIME



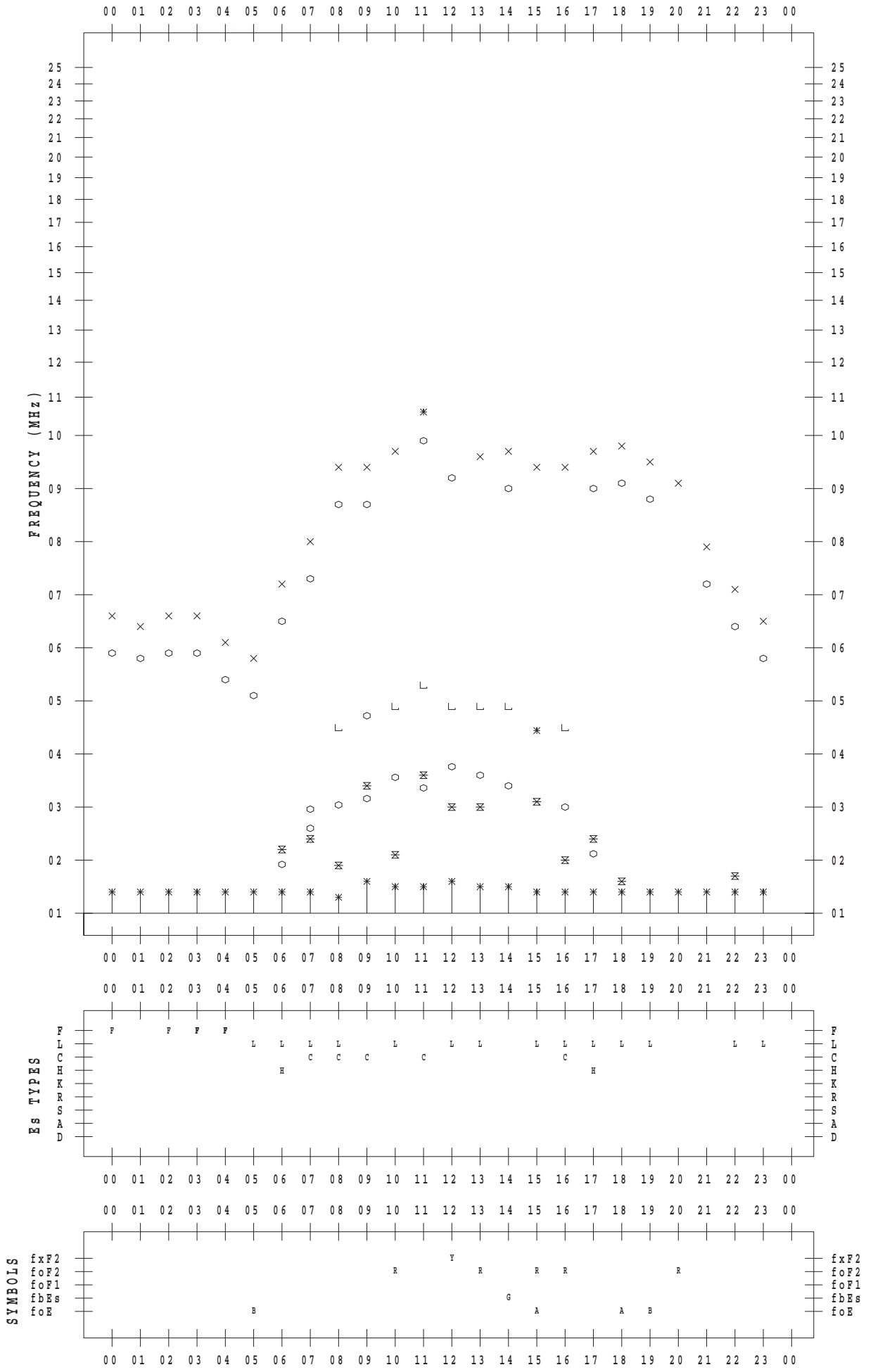
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2015/ 3/28

135 °E MEAN TIME



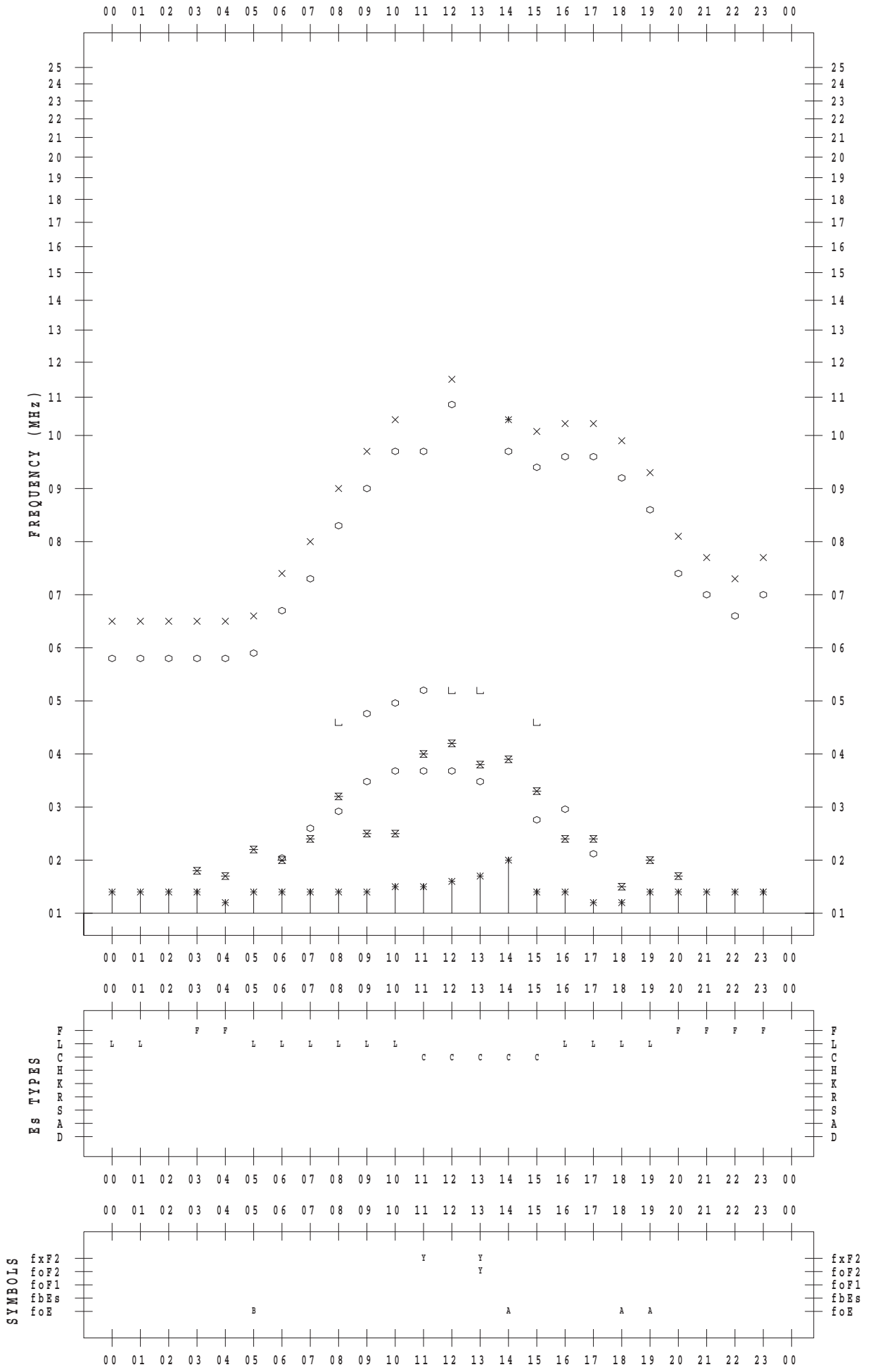
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2015/ 3/29

135 °E MEAN TIME



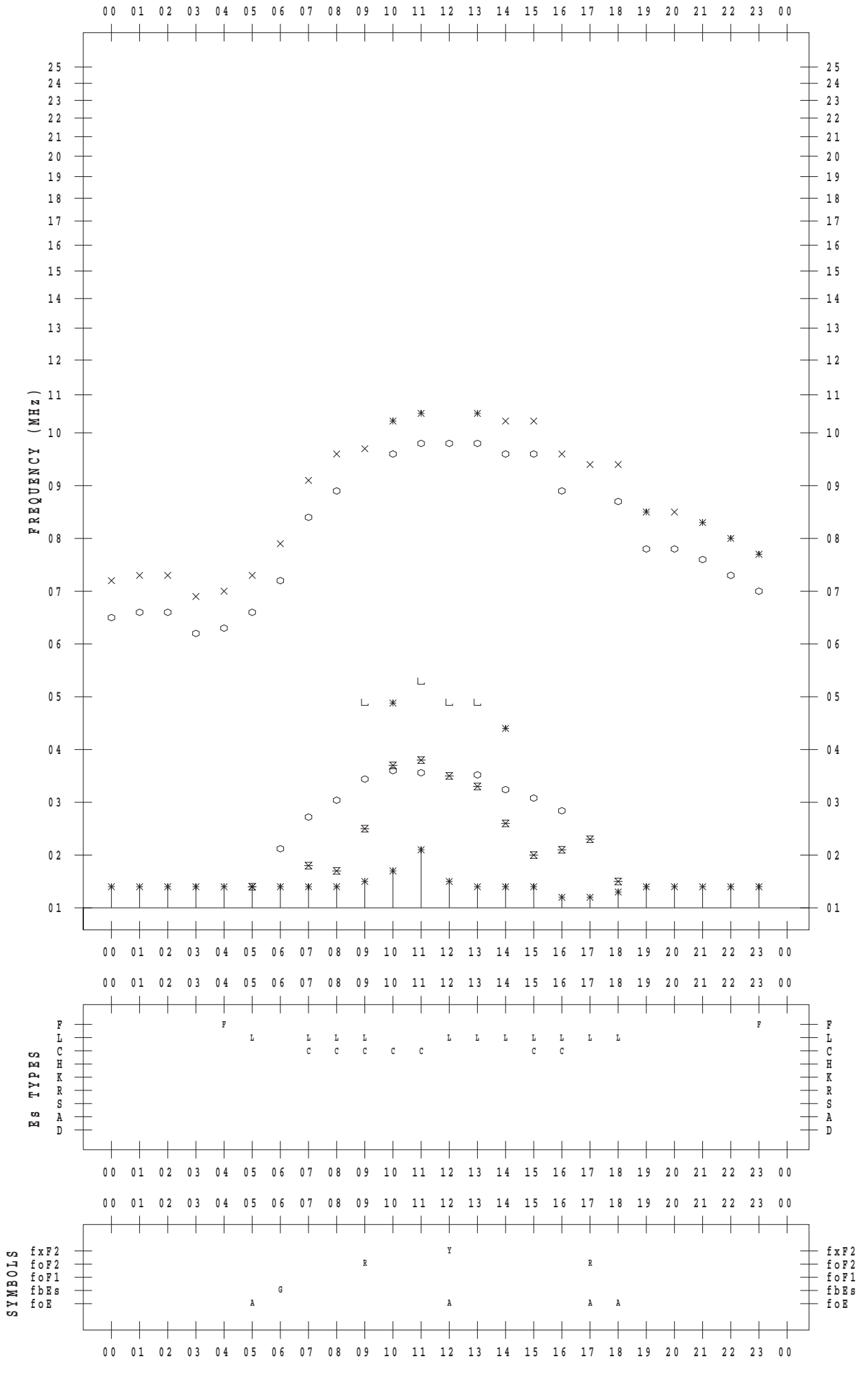
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2015/ 3/30

135 °E MEAN TIME



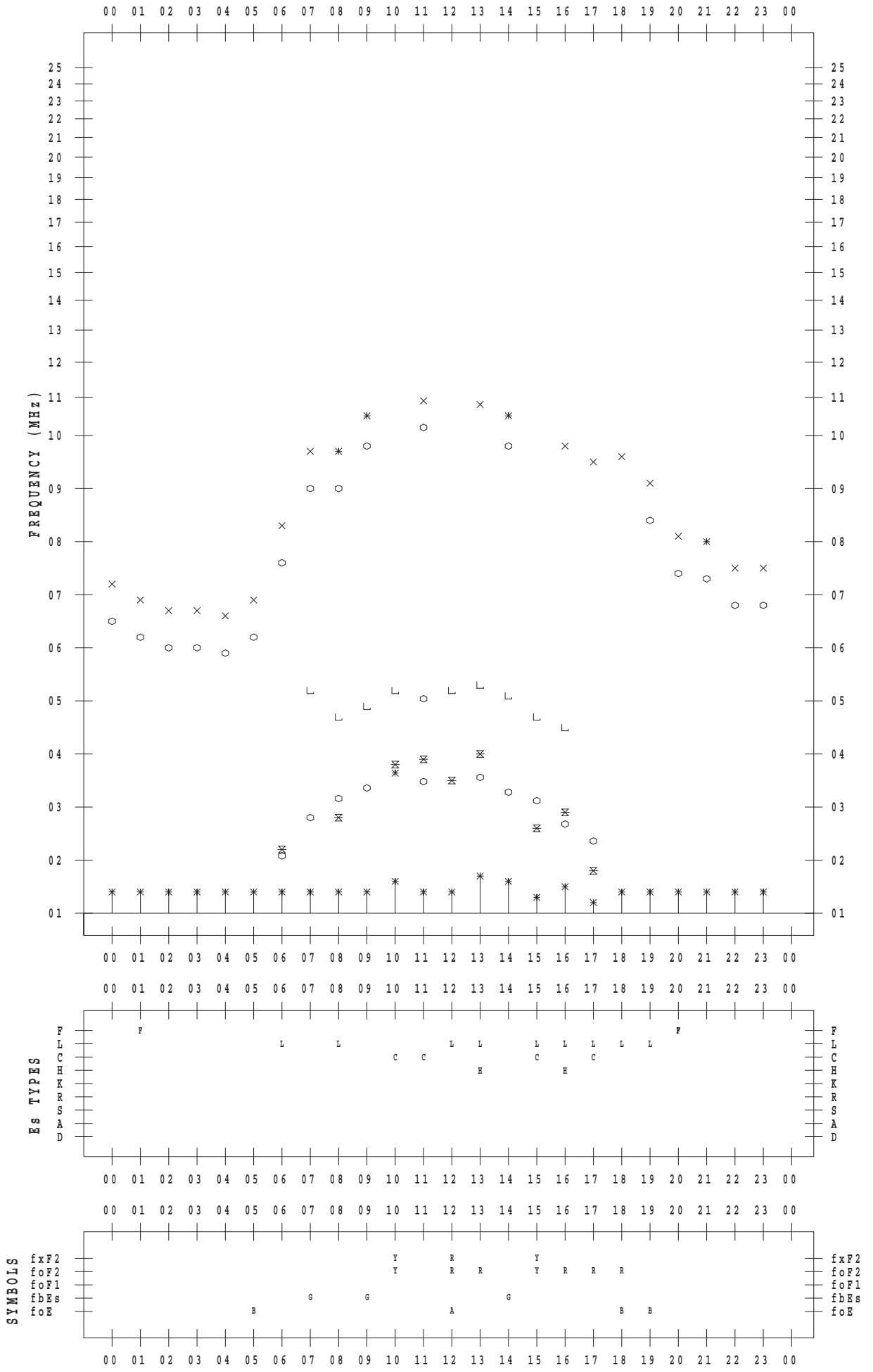
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2015/ 3/31

135 °E MEAN TIME



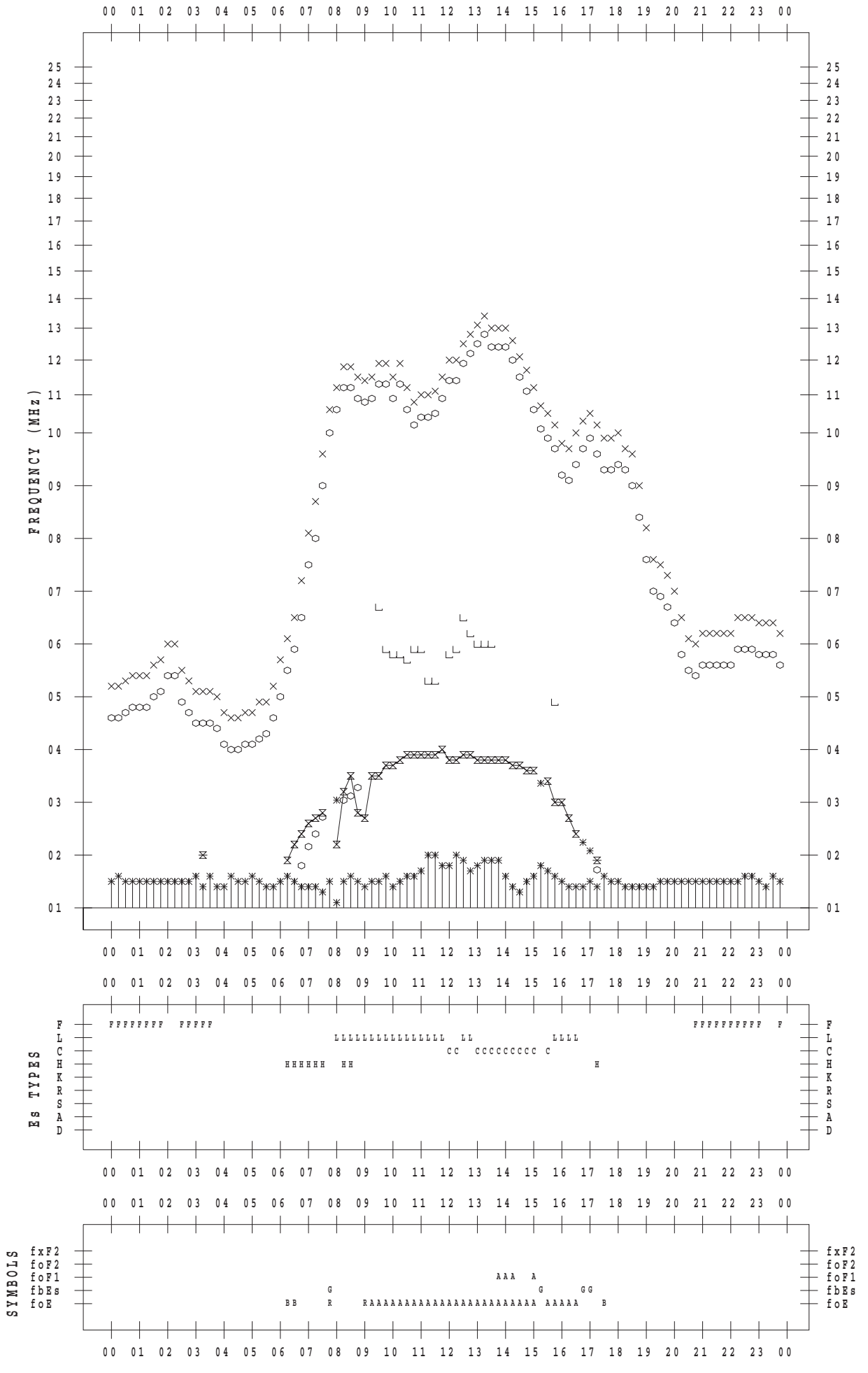
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2015/ 3/ 1

135 °E MEAN TIME



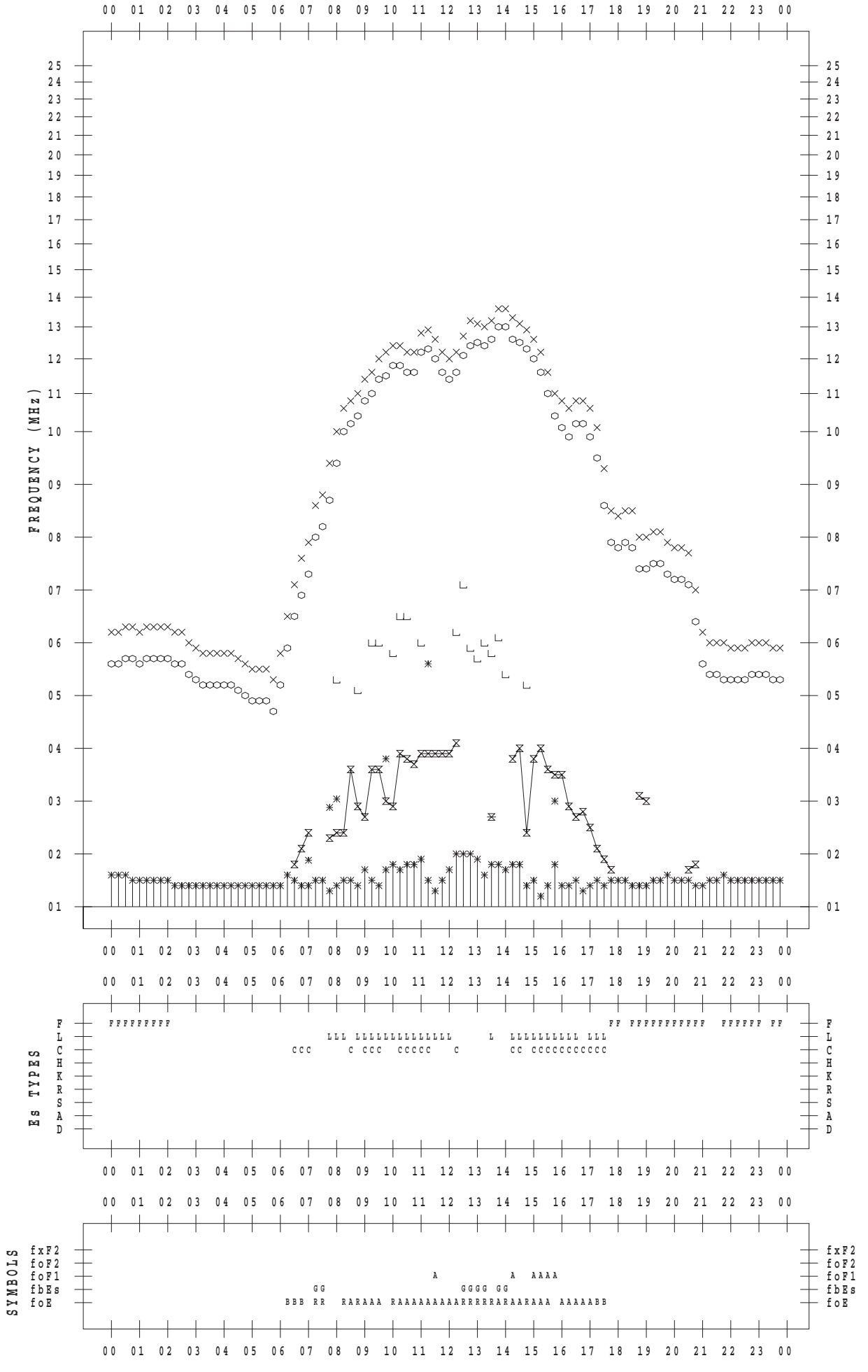
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2015/ 3/ 2

135 °E MEAN TIME



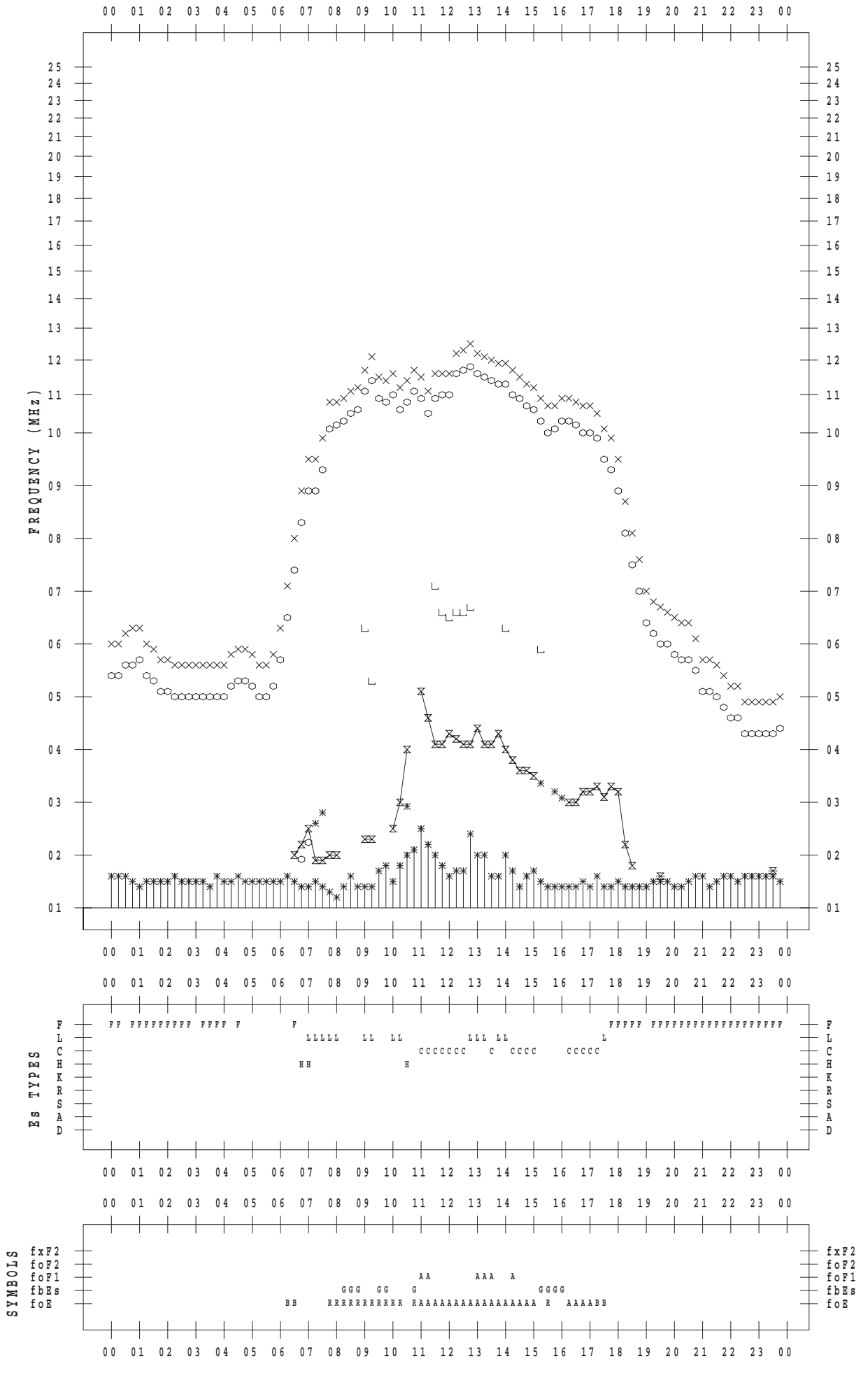
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2015/ 3/ 3

135 °E MEAN TIME



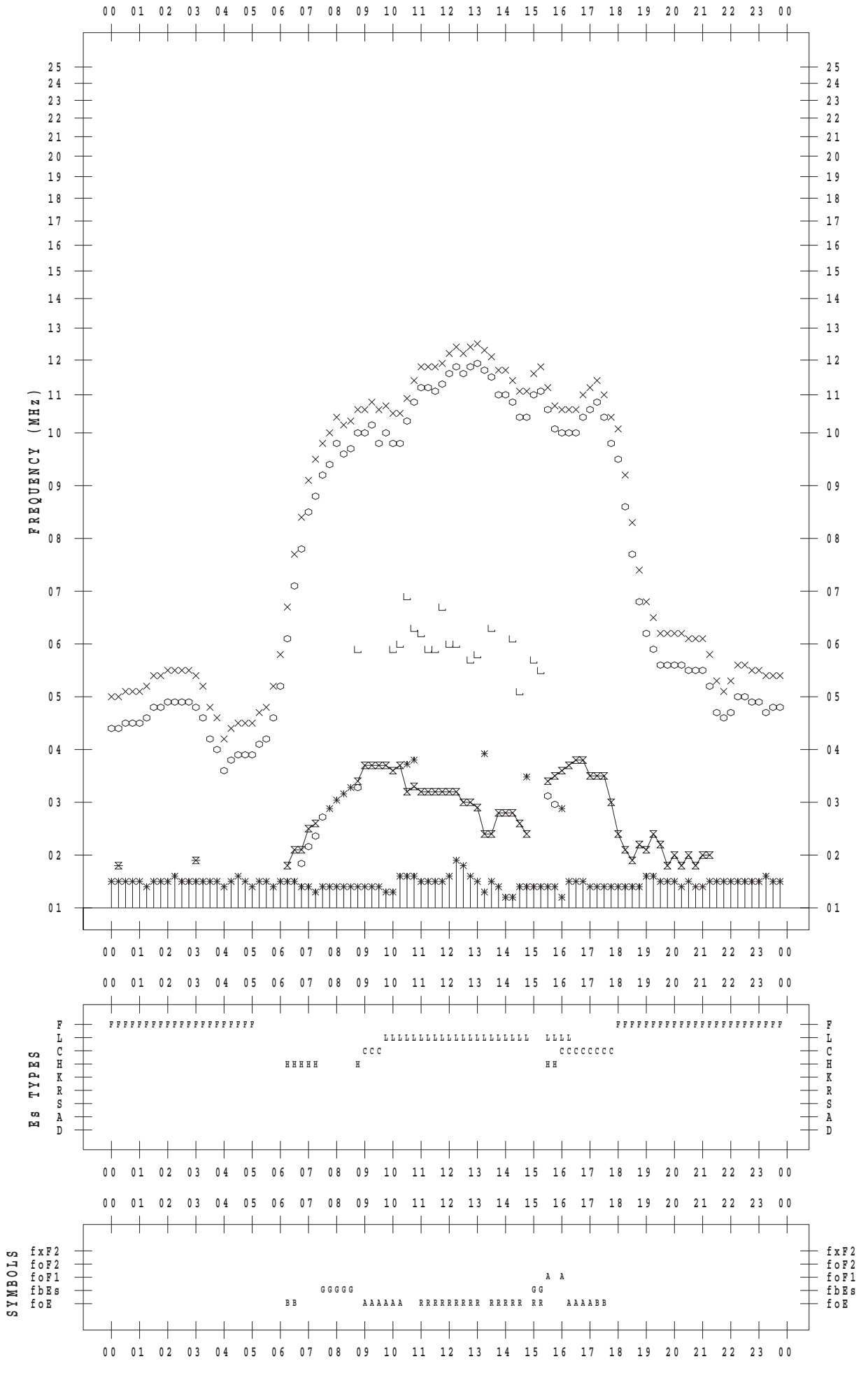
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2015/ 3/ 4

135 °E MEAN TIME



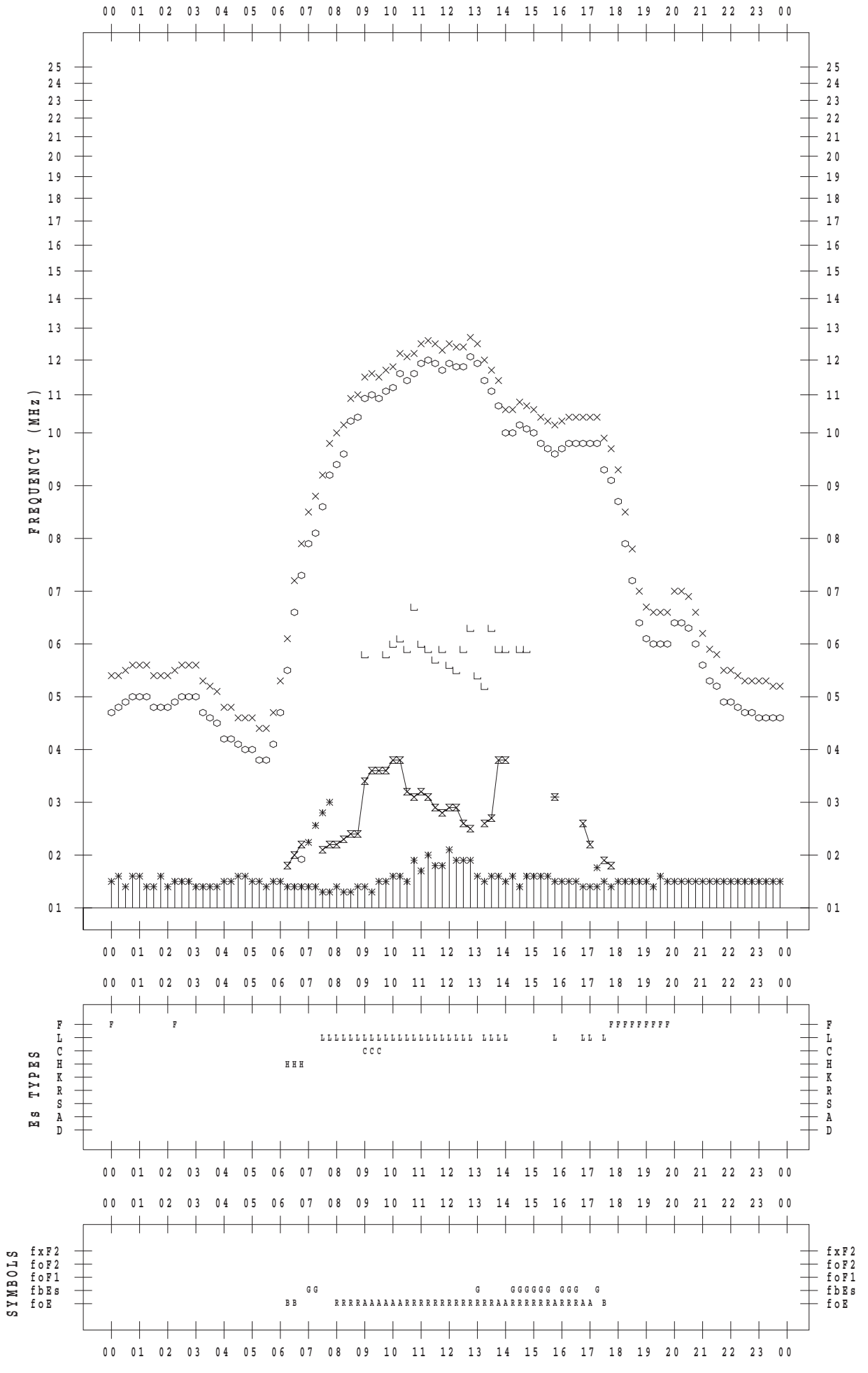
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2015/ 3/ 5

135 °E MEAN TIME



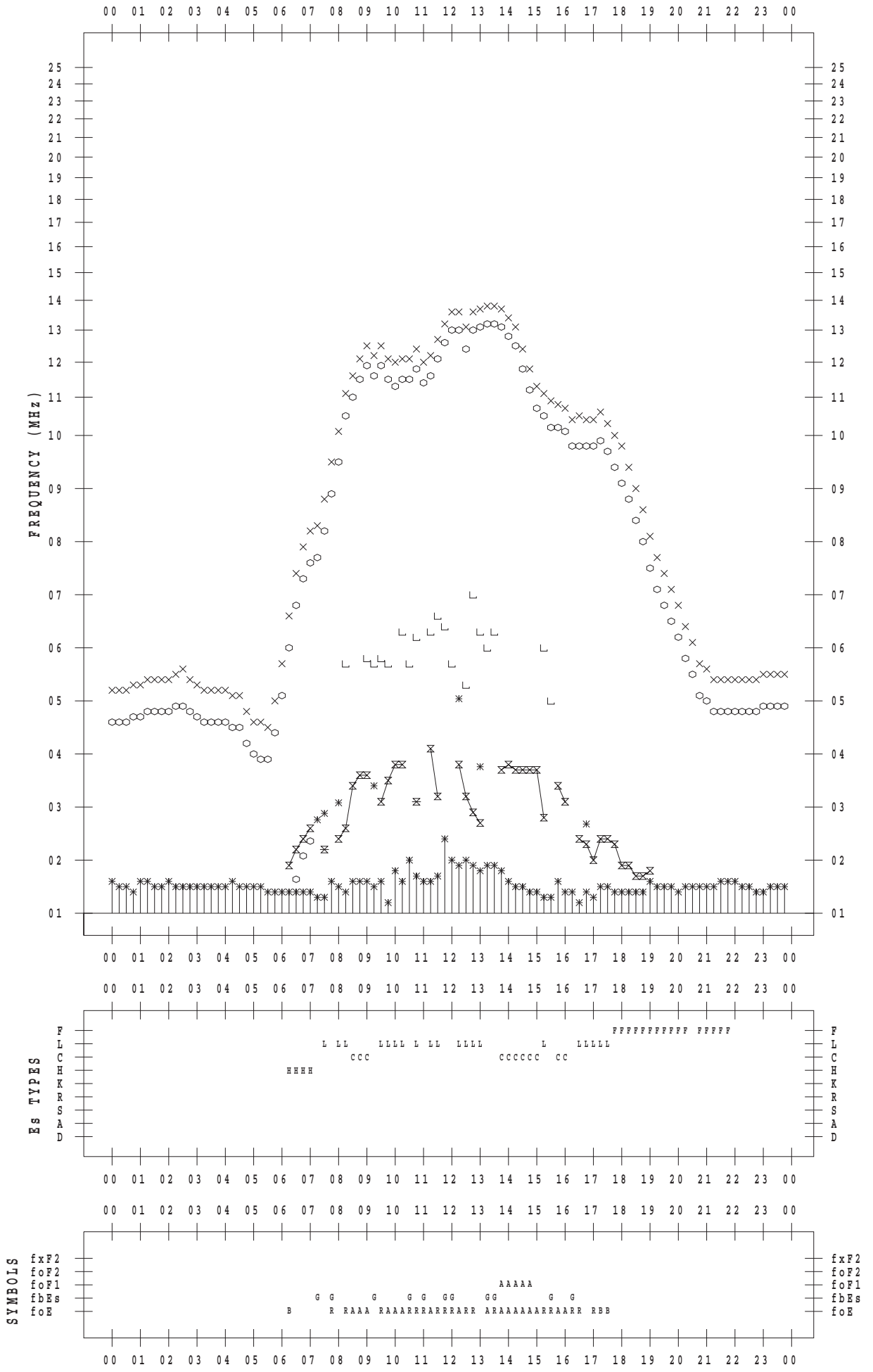
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2015/ 3/ 6

135 °E MEAN TIME



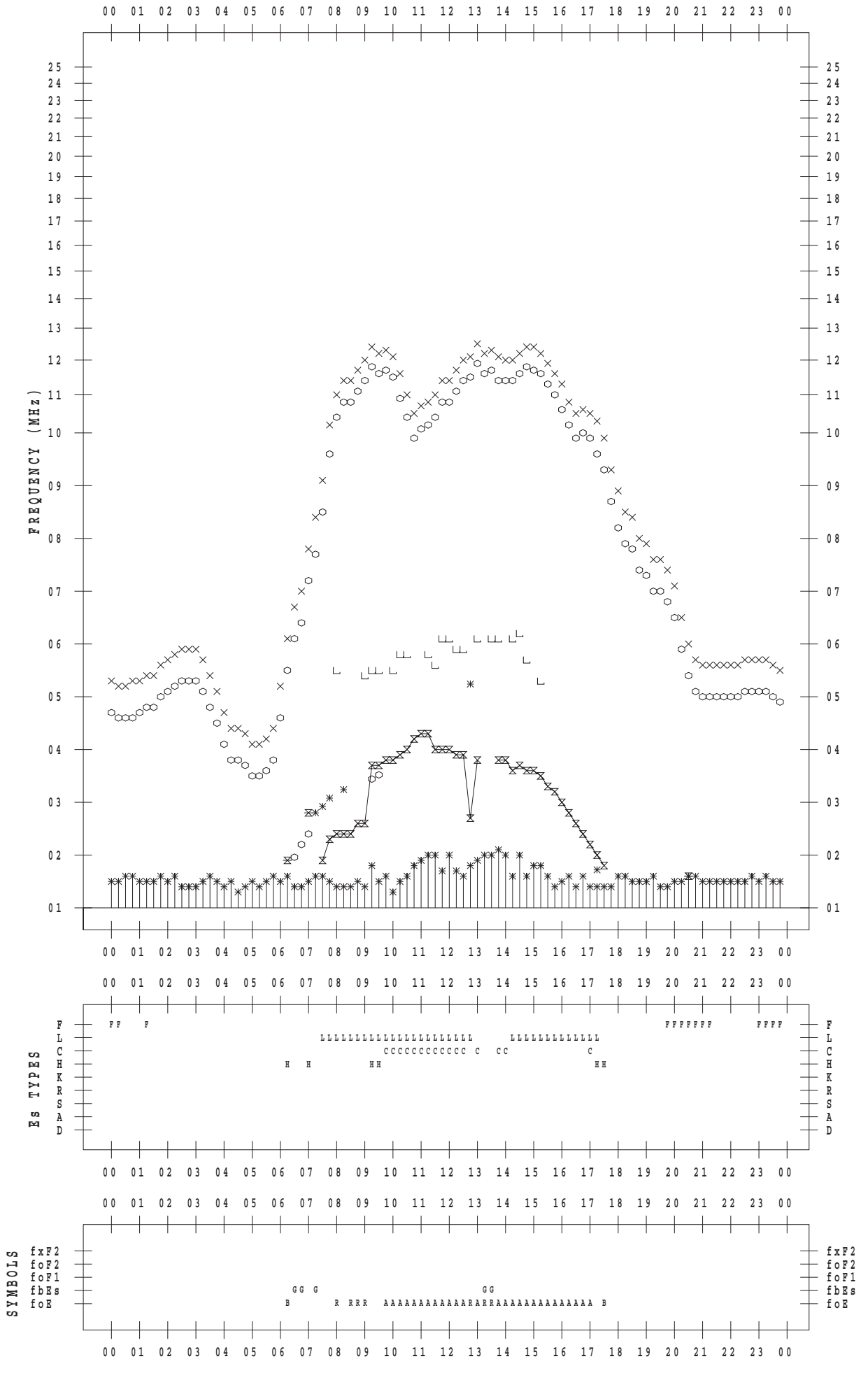
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2015/ 3/ 7

135 °E MEAN TIME



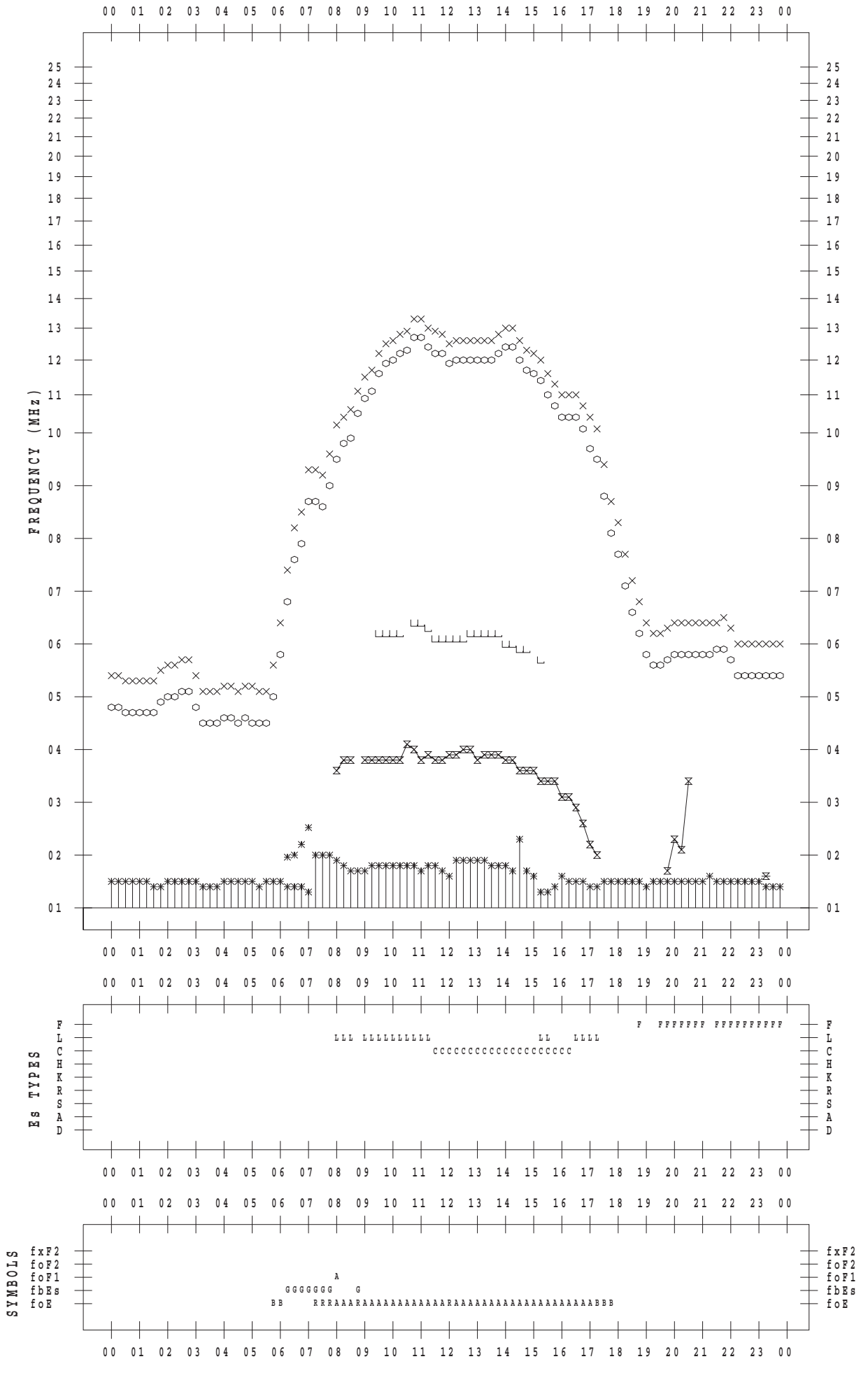
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2015/ 3/ 8

135 °E MEAN TIME



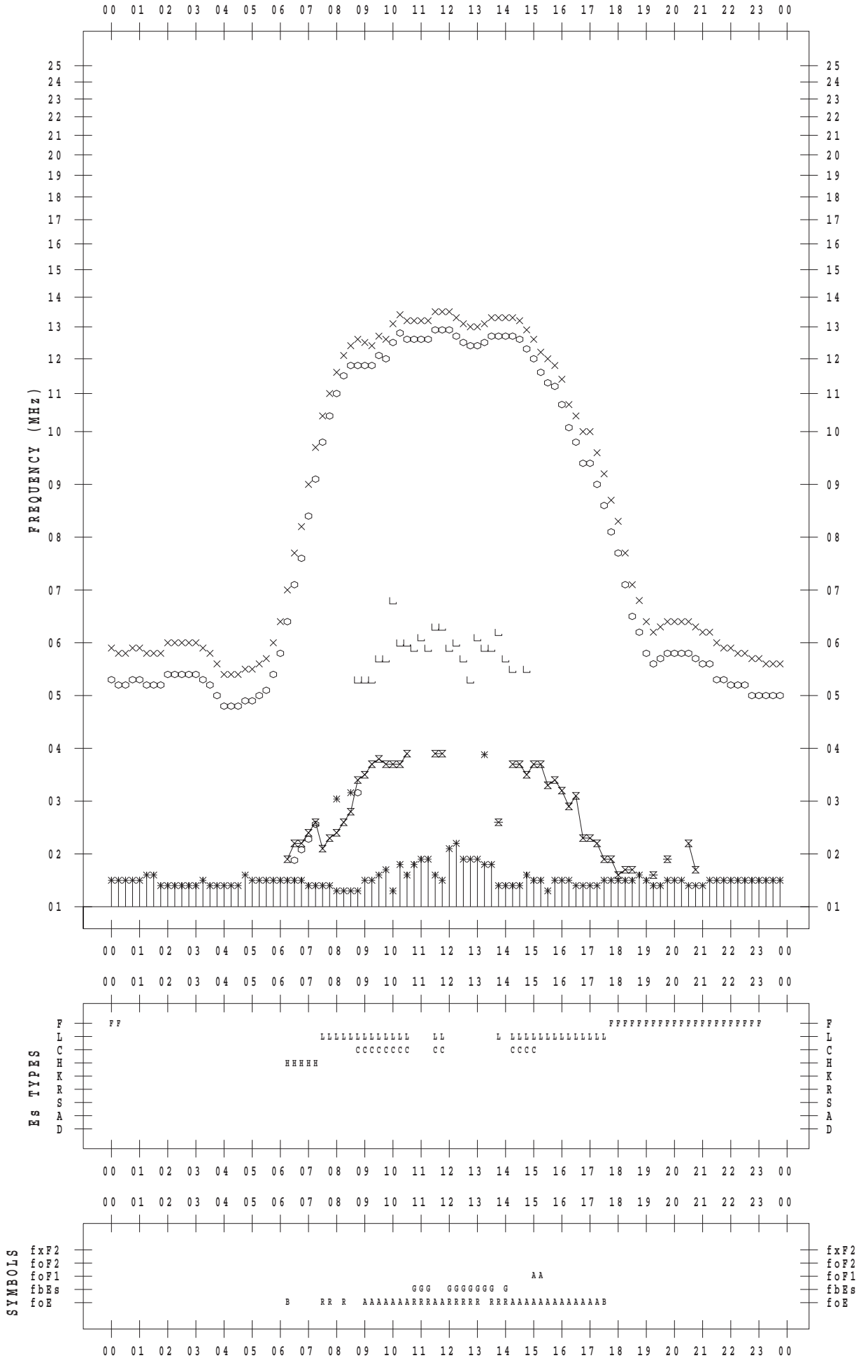
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2015/ 3/ 9

135 °E MEAN TIME



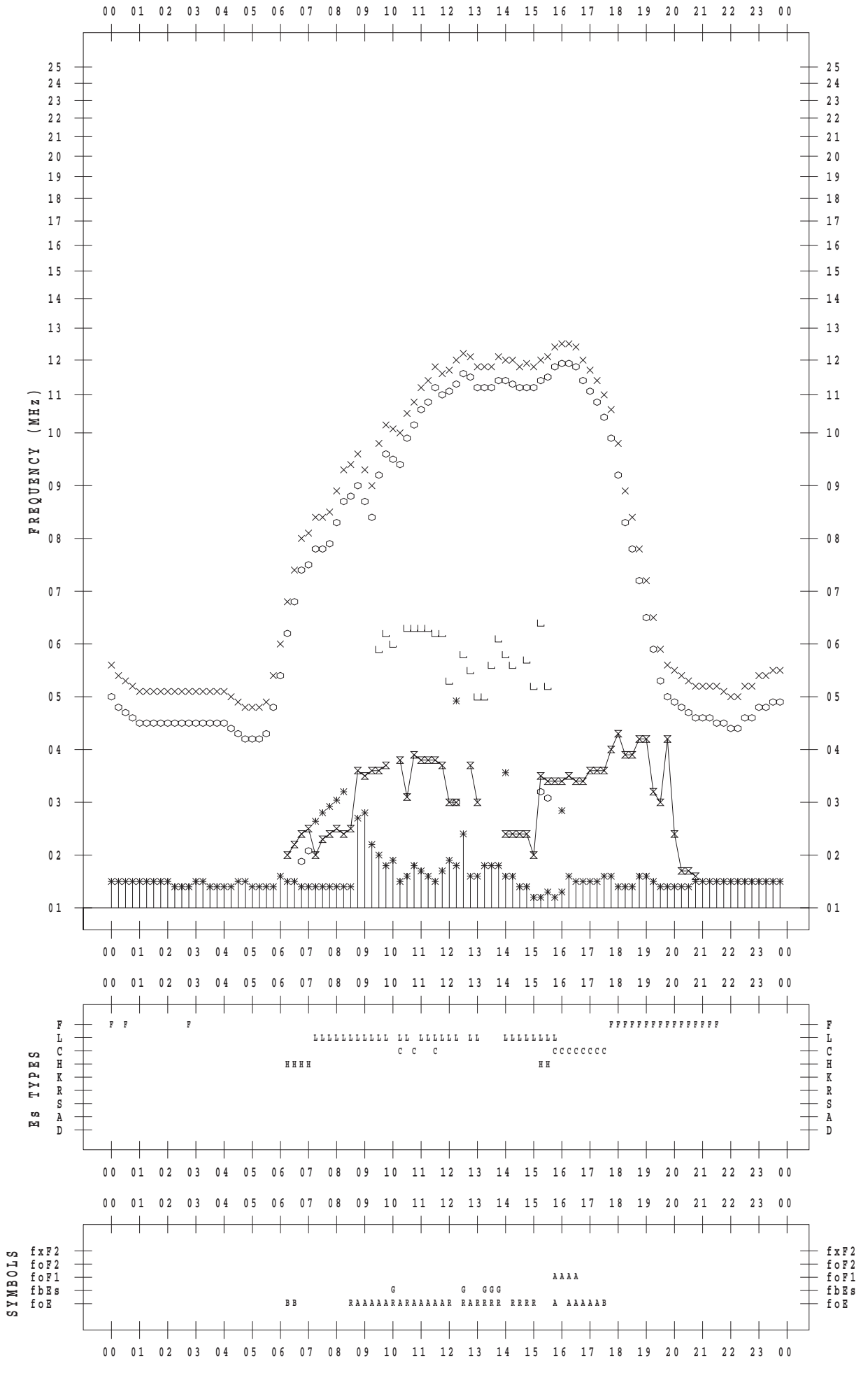
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2015/ 3/10

135 °E MEAN TIME



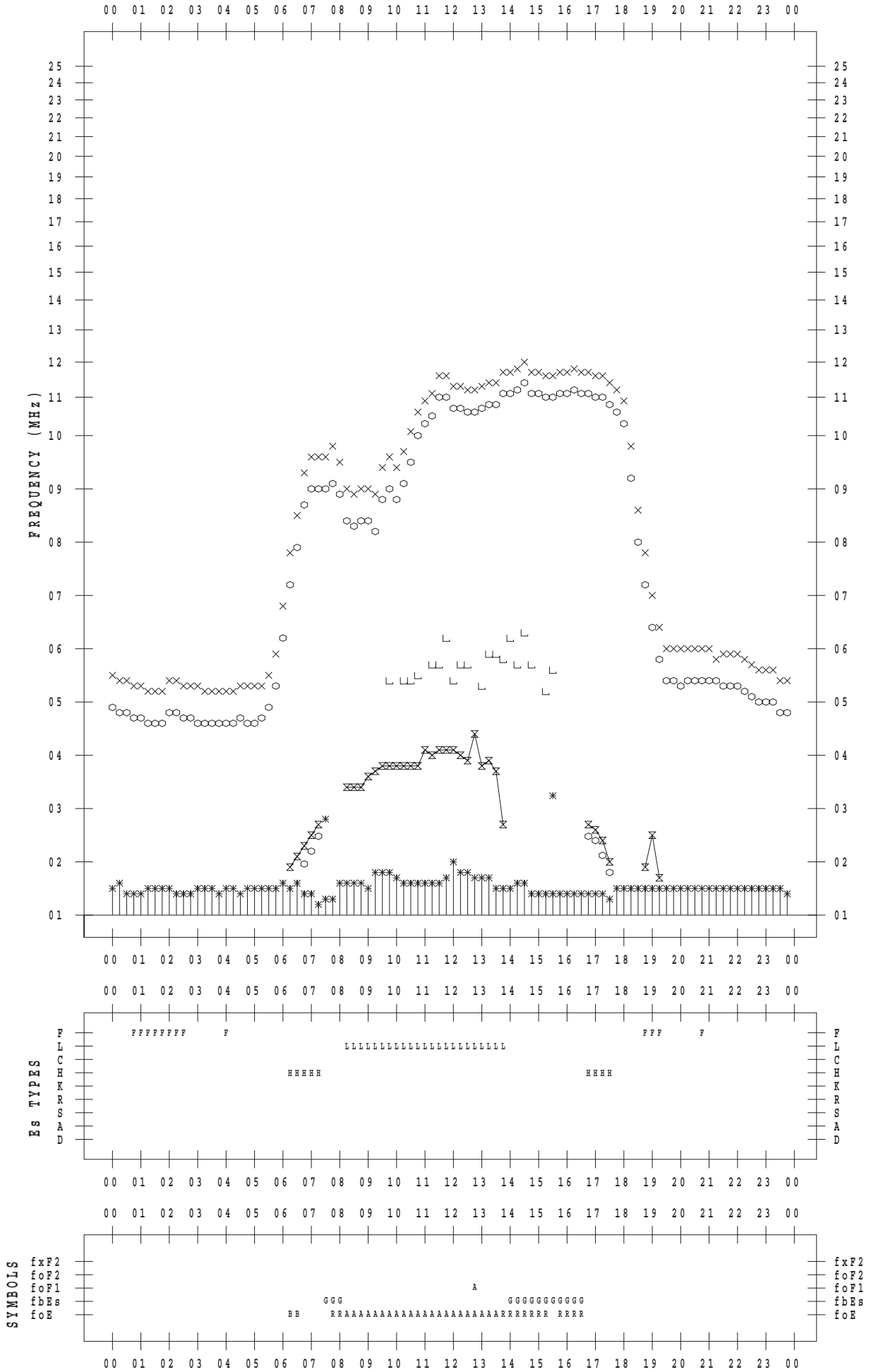
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2015/ 3/11

135 °E MEAN TIME



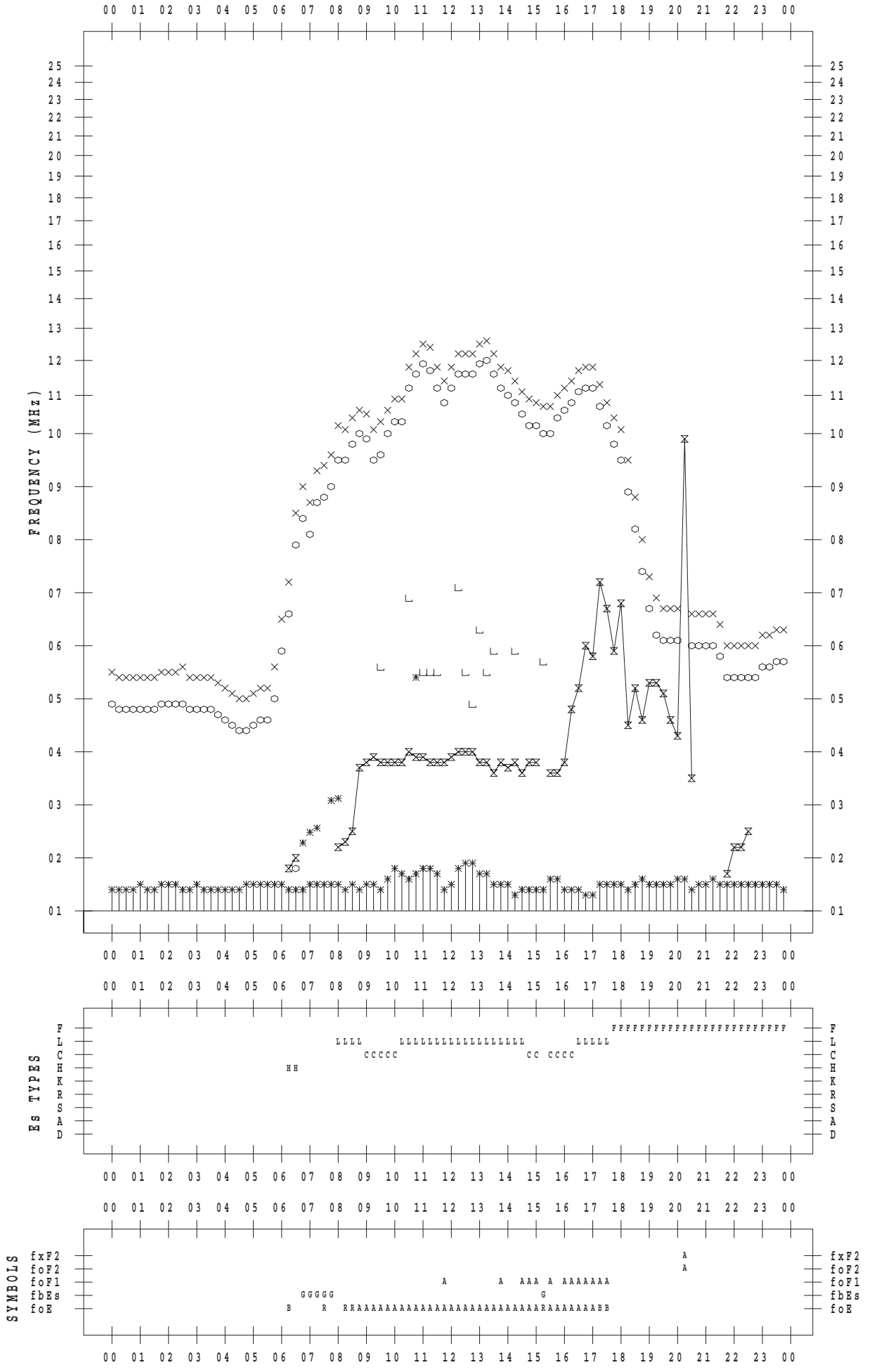
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2015/ 3/12

135 °E MEAN TIME



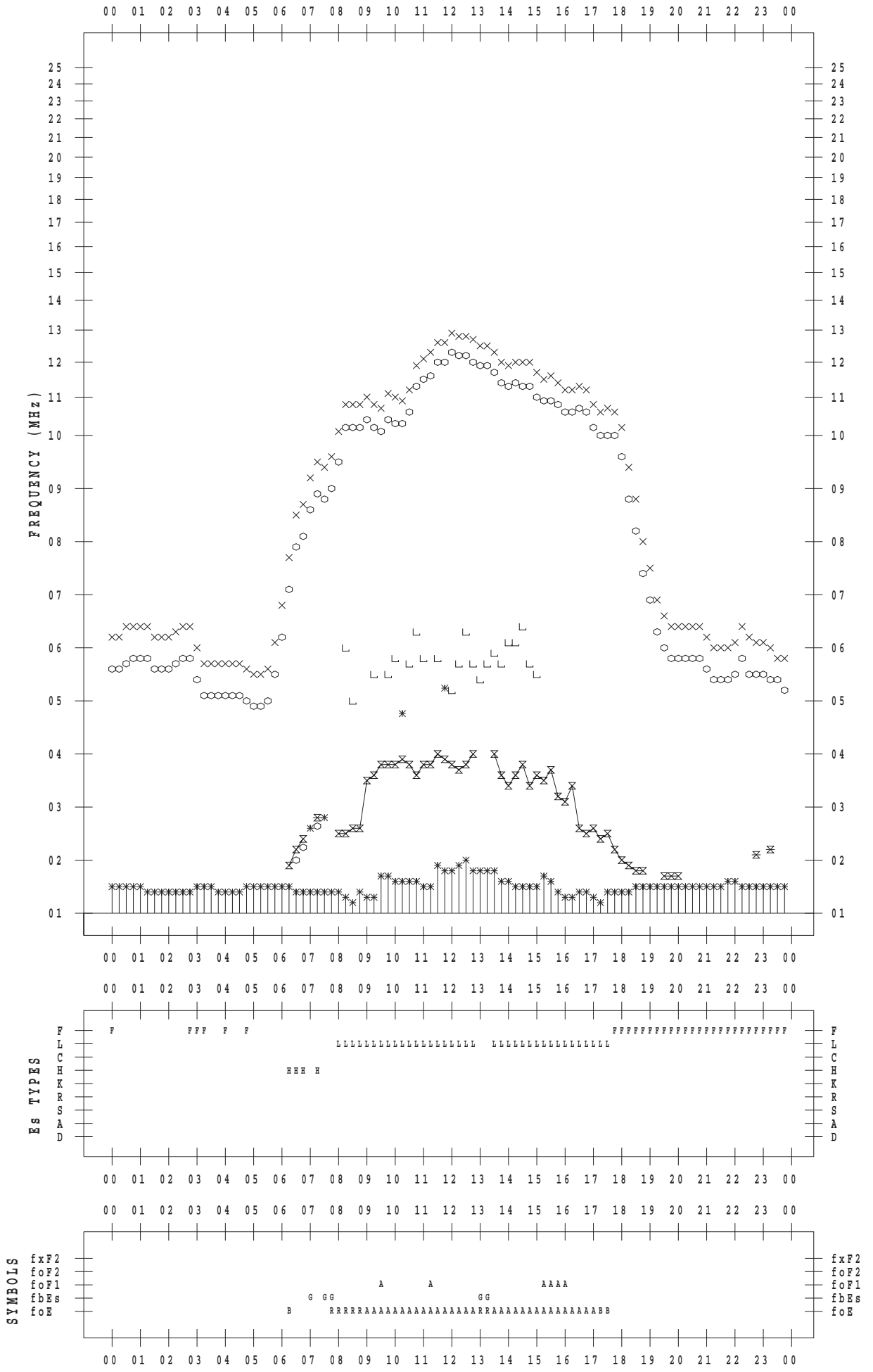
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2015/ 3/13

135 °E MEAN TIME



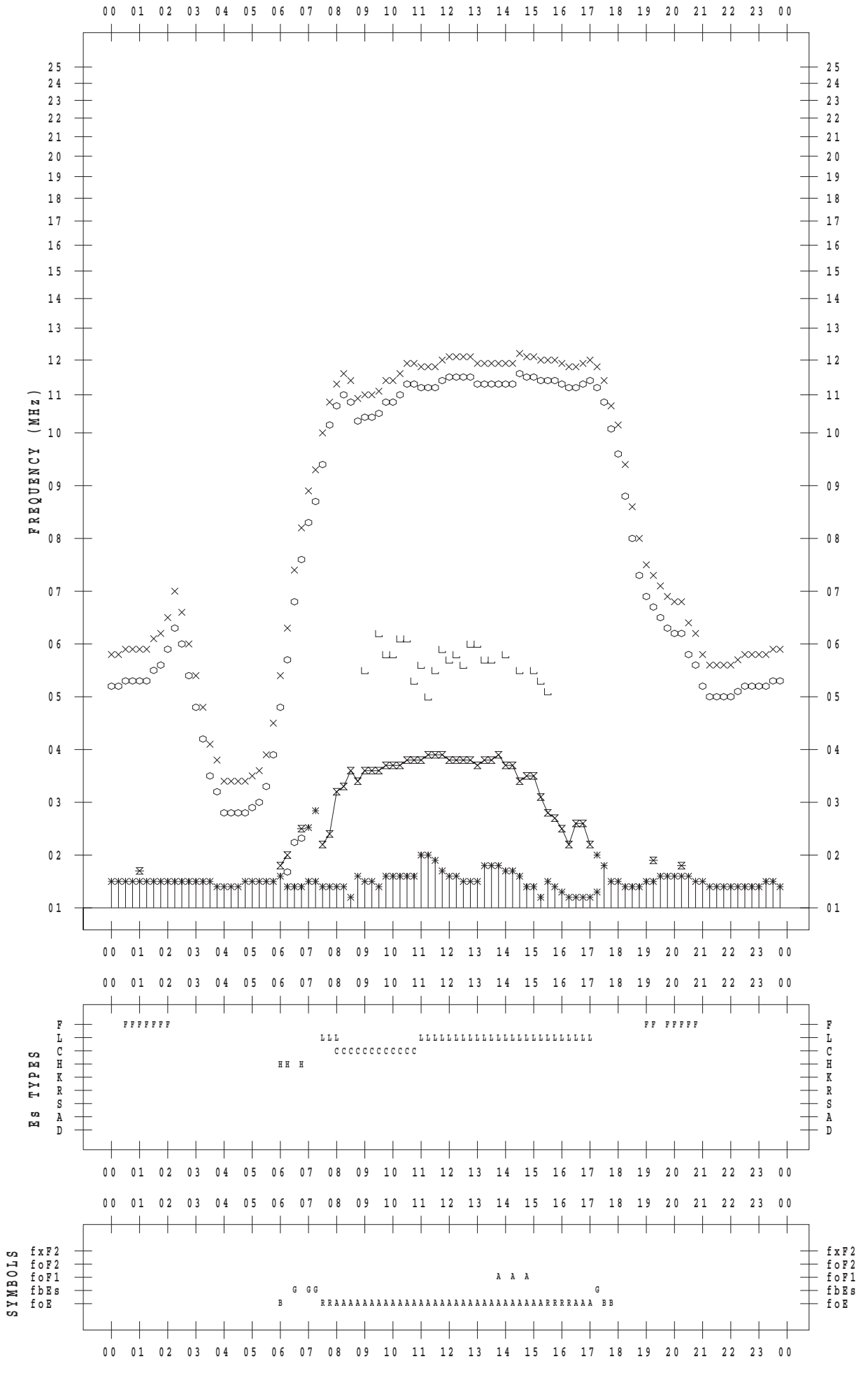
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2015/ 3/14

135 °E MEAN TIME



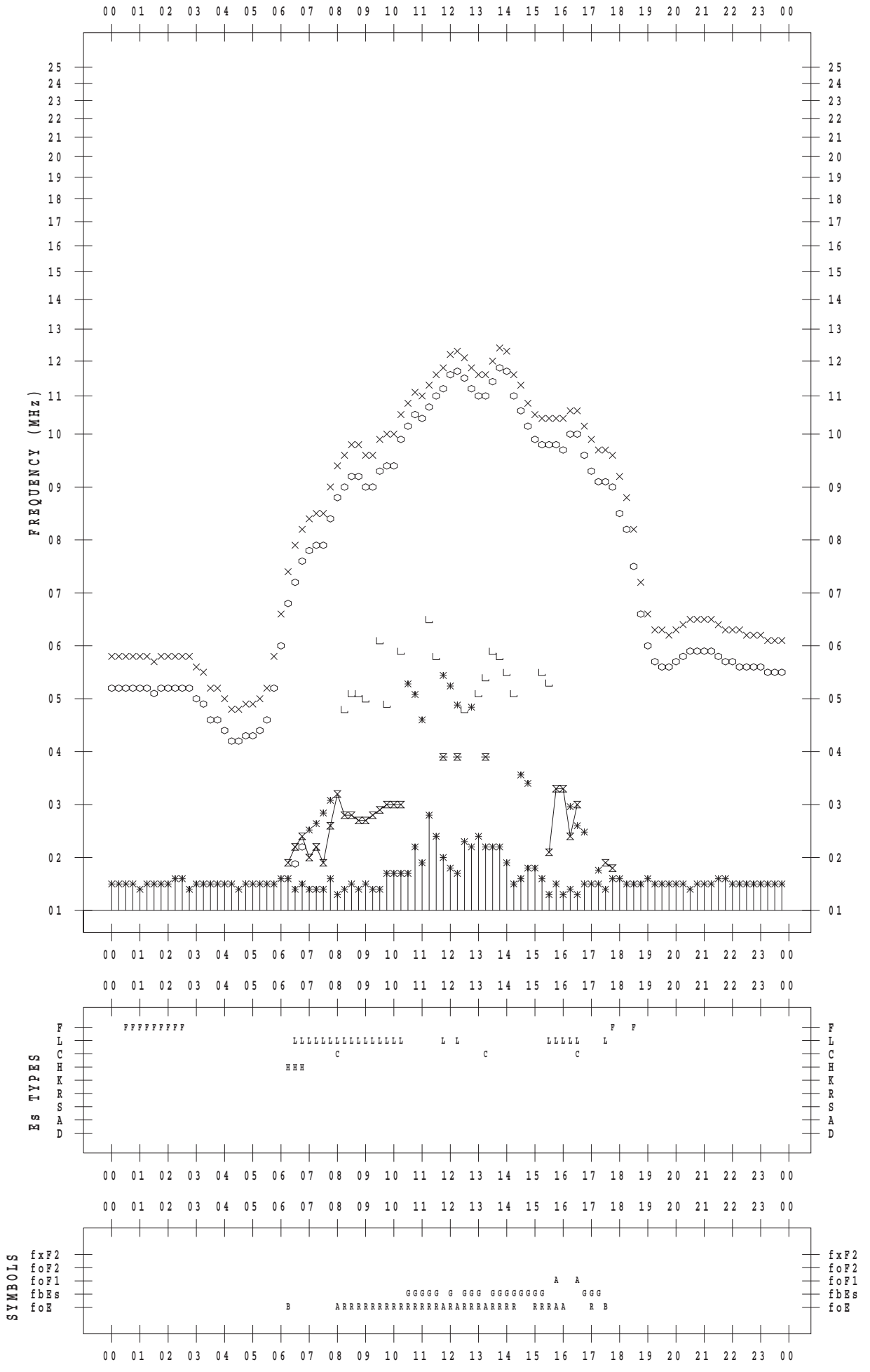
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2015/ 3/15

135 °E MEAN TIME



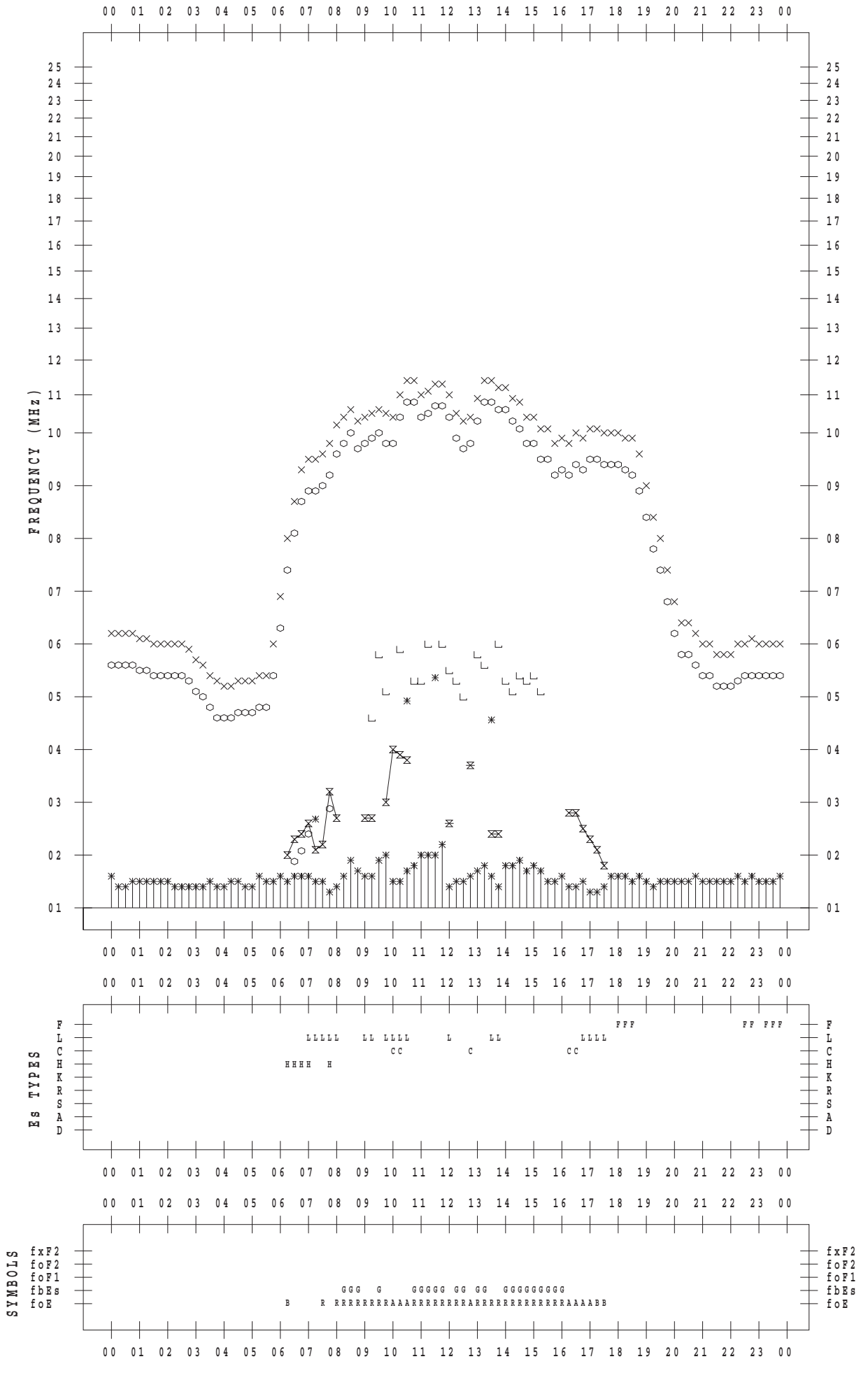
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2015/ 3/16

135 °E MEAN TIME



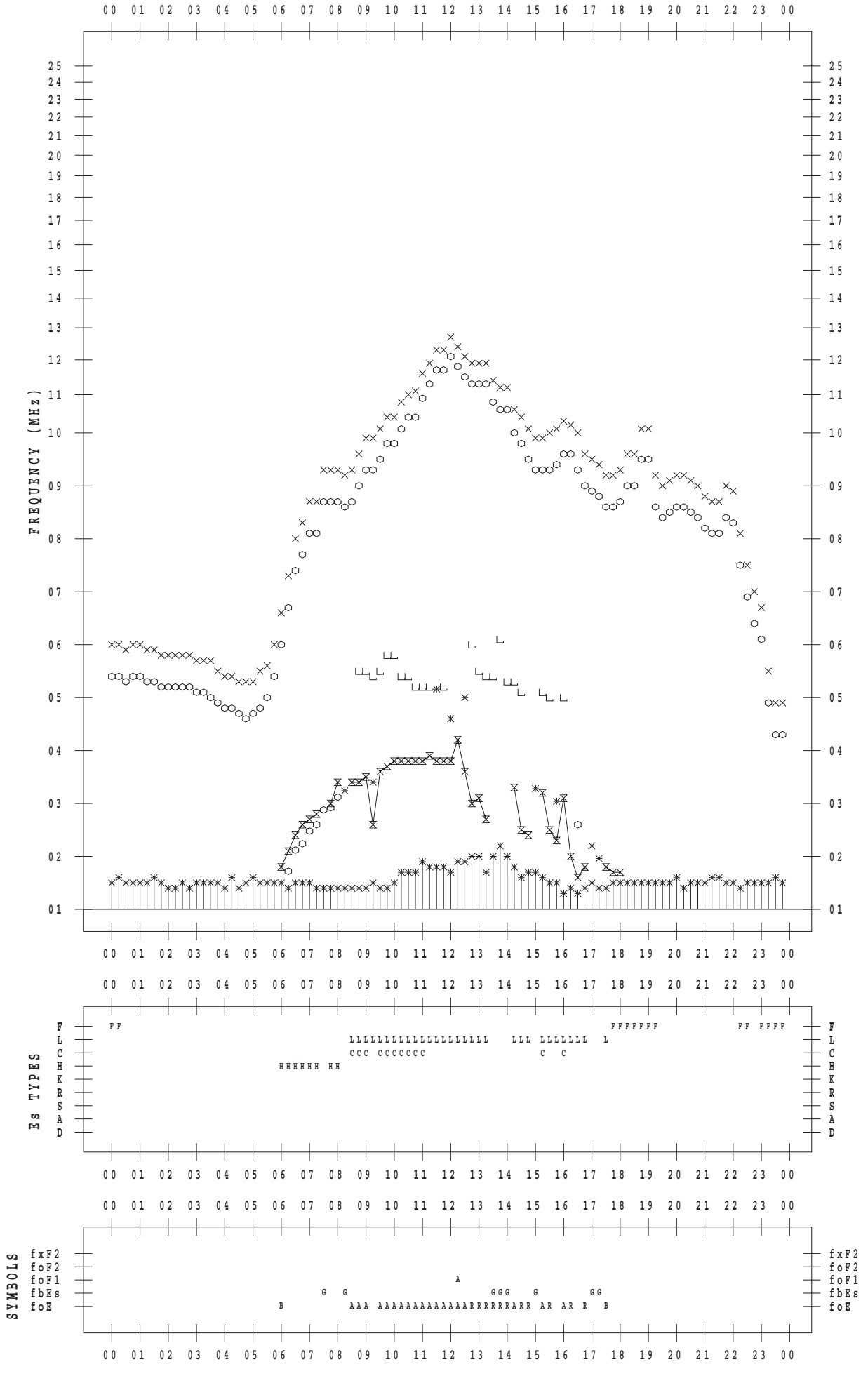
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2015/ 3/17

135 °E MEAN TIME



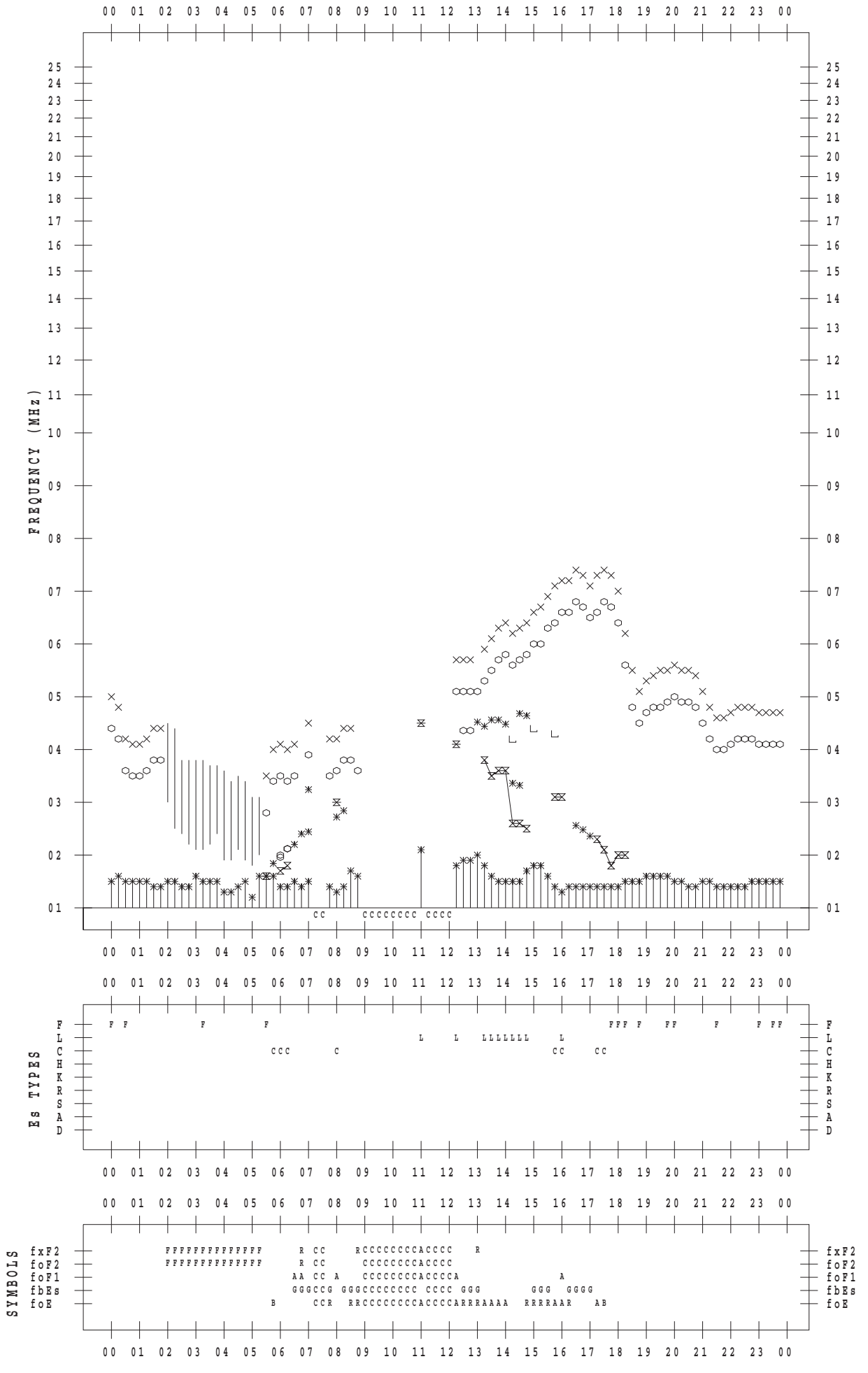
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2015/ 3/18

135 °E MEAN TIME



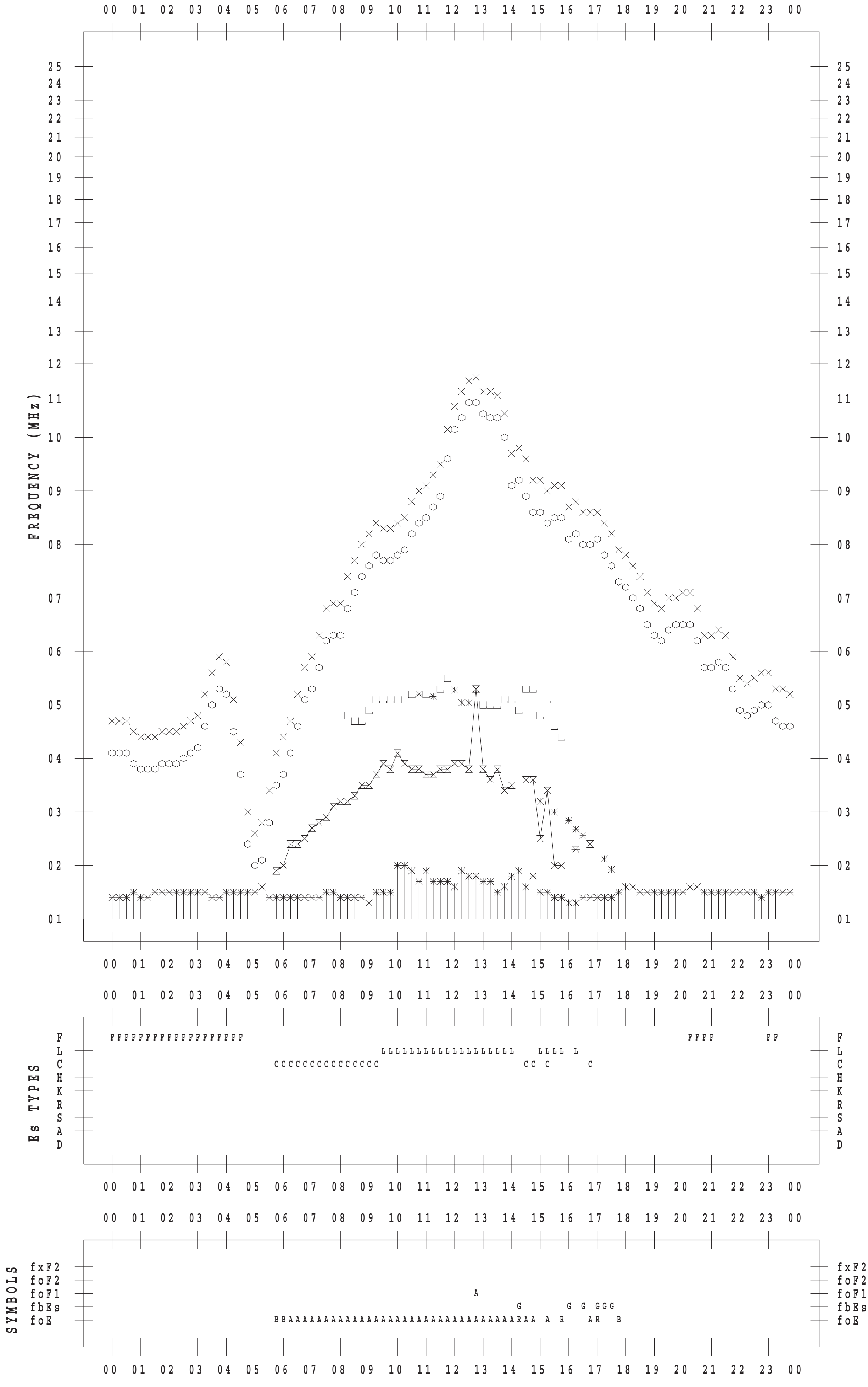
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2015/ 3/19

135 °E MEAN TIME



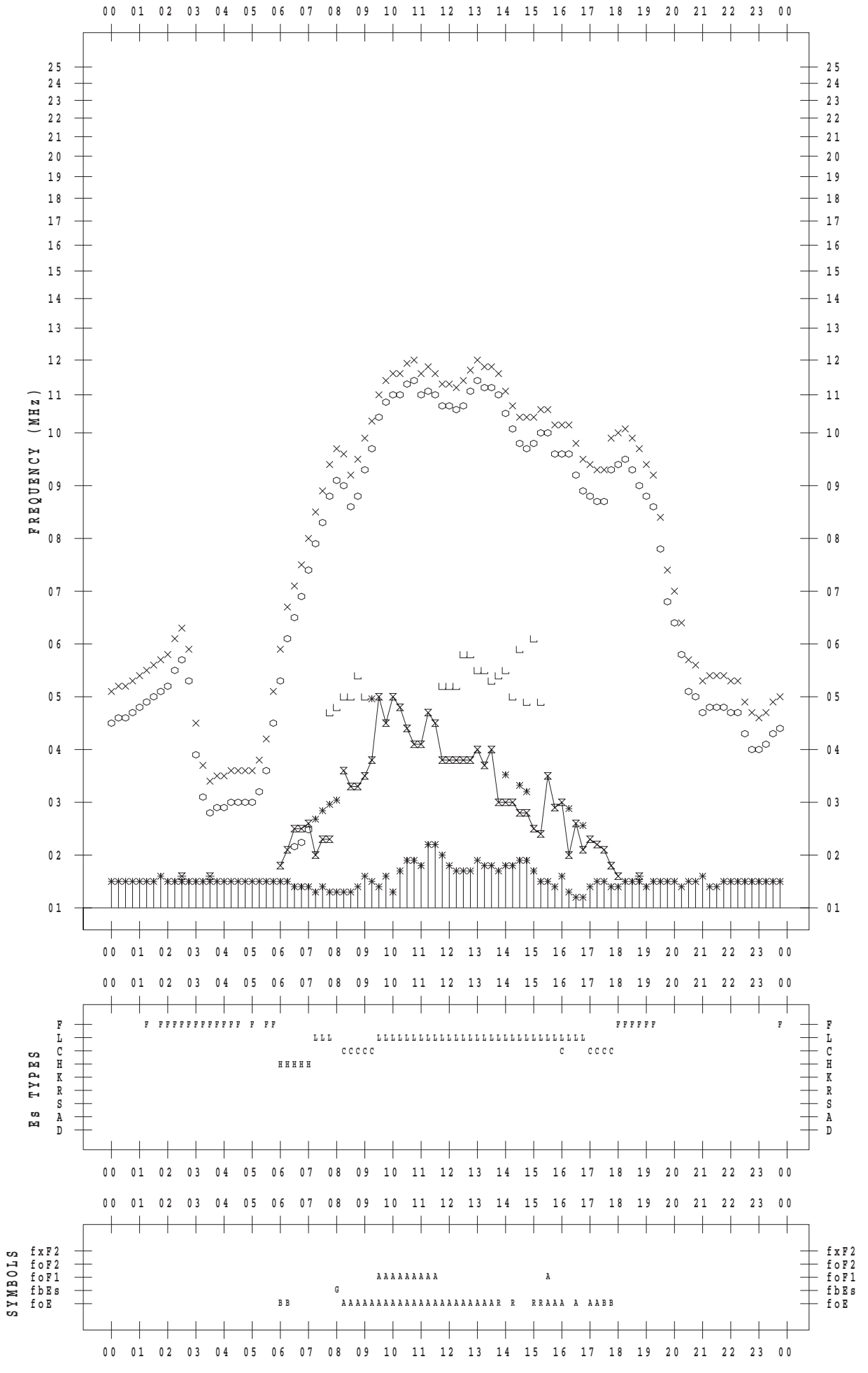
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2015/ 3/20

135 °E MEAN TIME



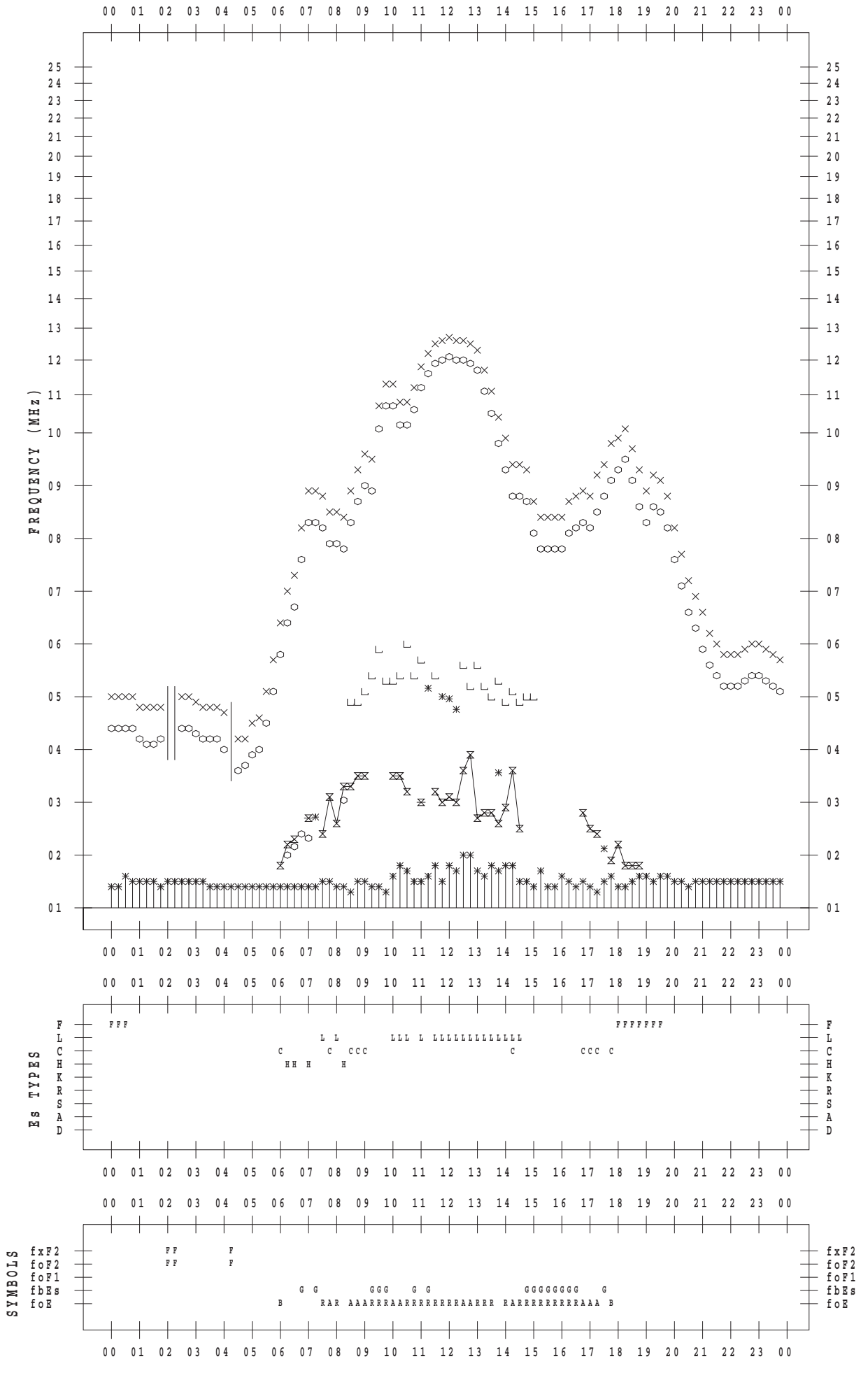
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2015/ 3/21

135 °E MEAN TIME



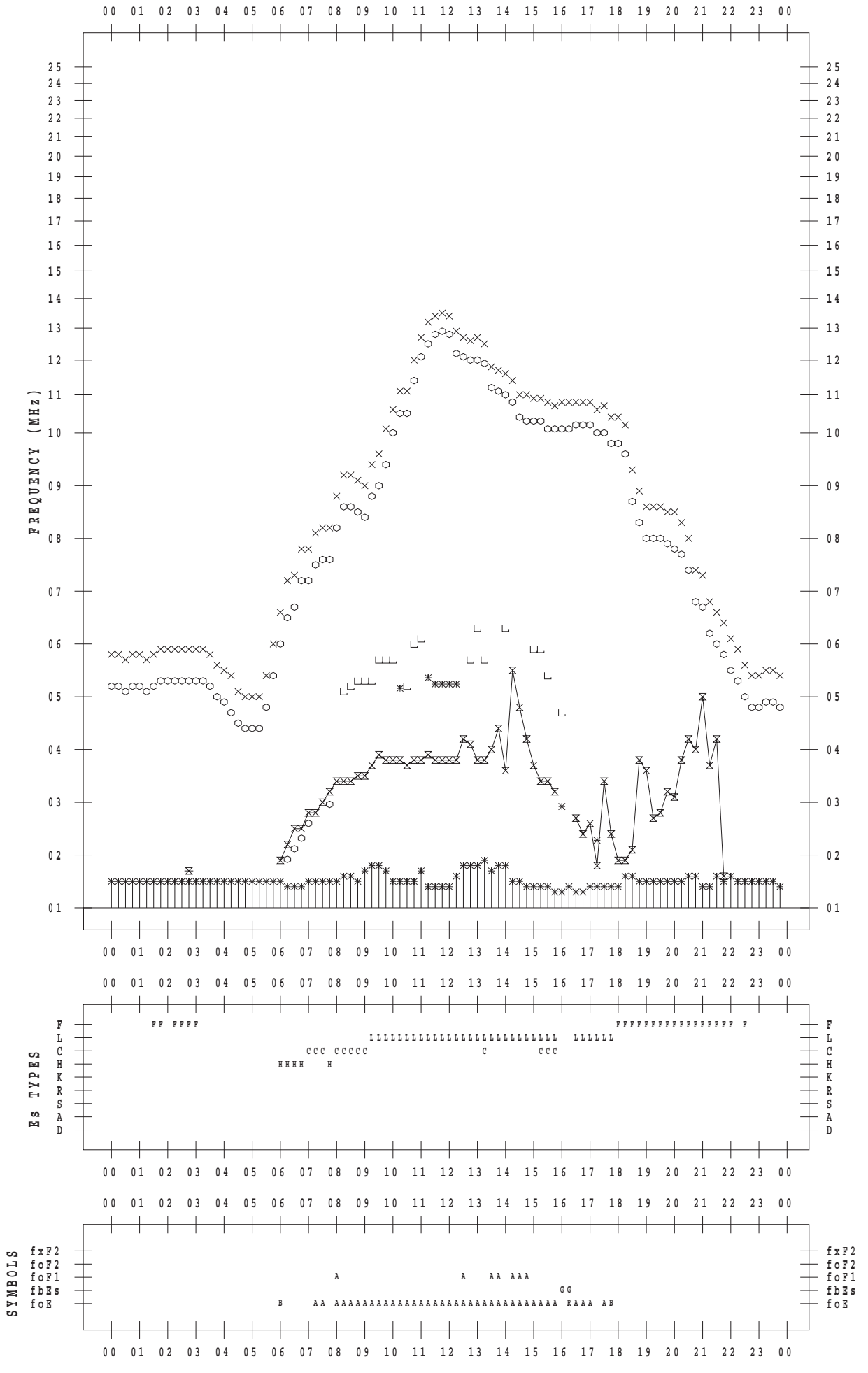
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2015/ 3/22

135 °E MEAN TIME



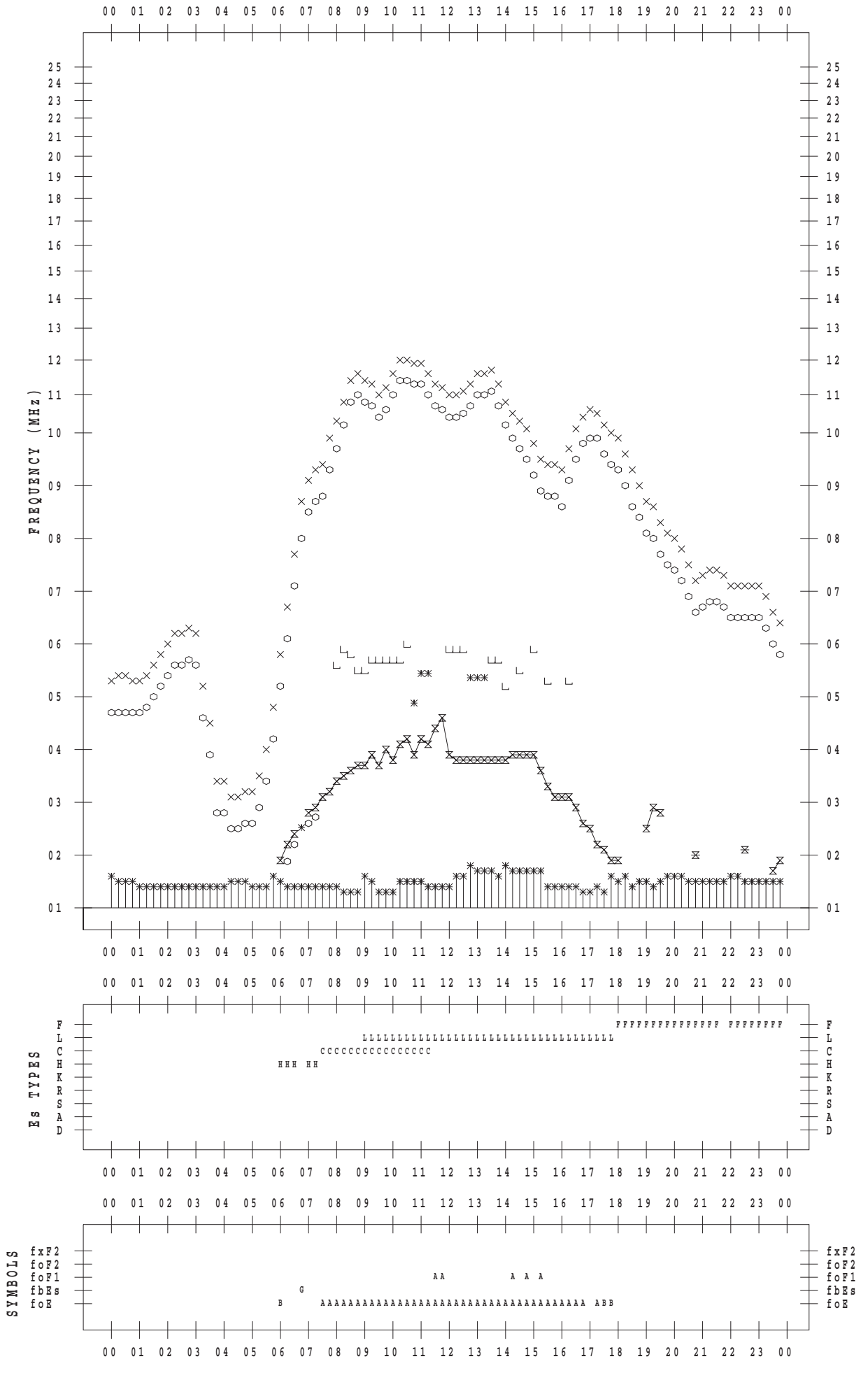
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2015/ 3/23

135 °E MEAN TIME



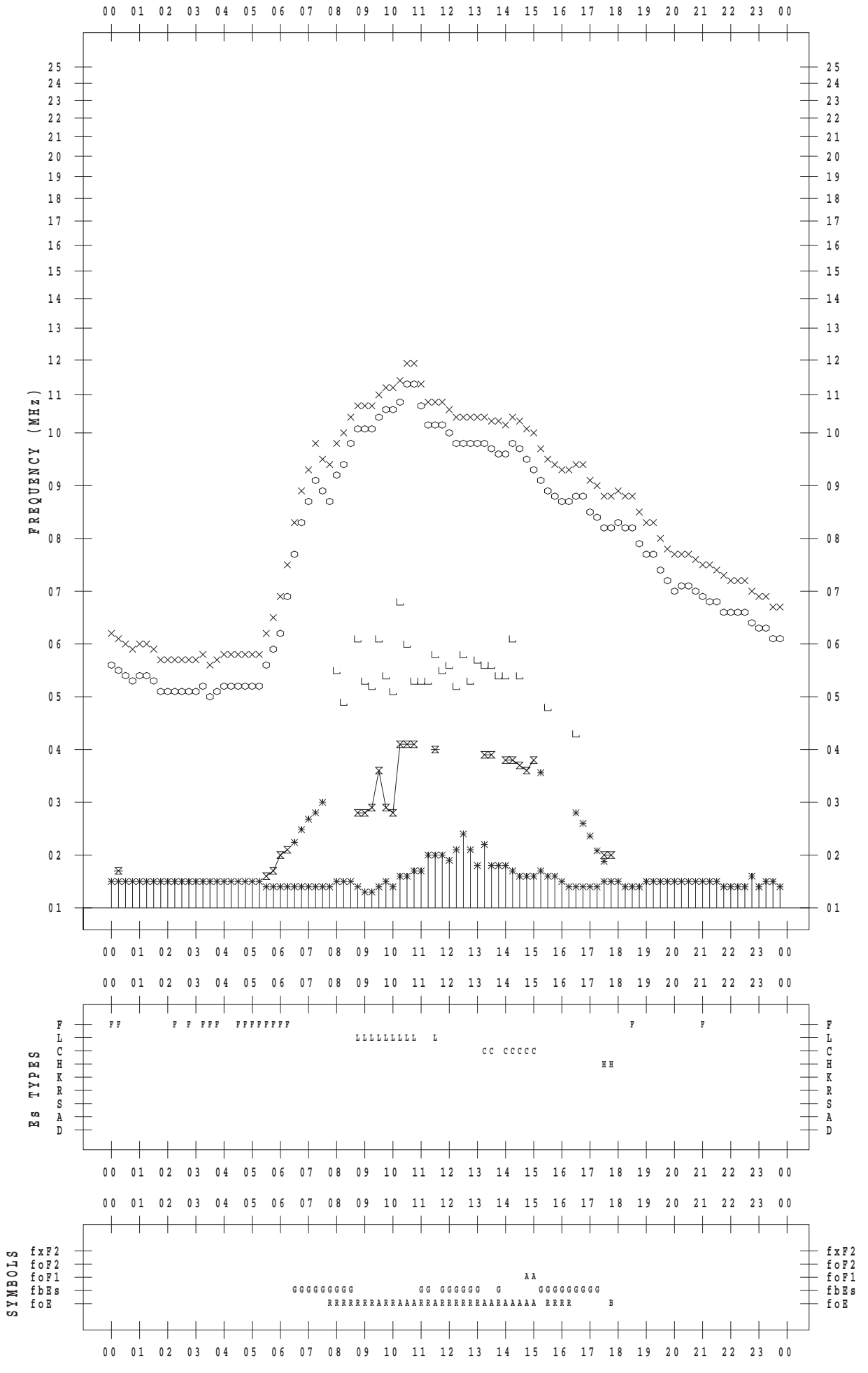
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2015/ 3/24

135 °E MEAN TIME



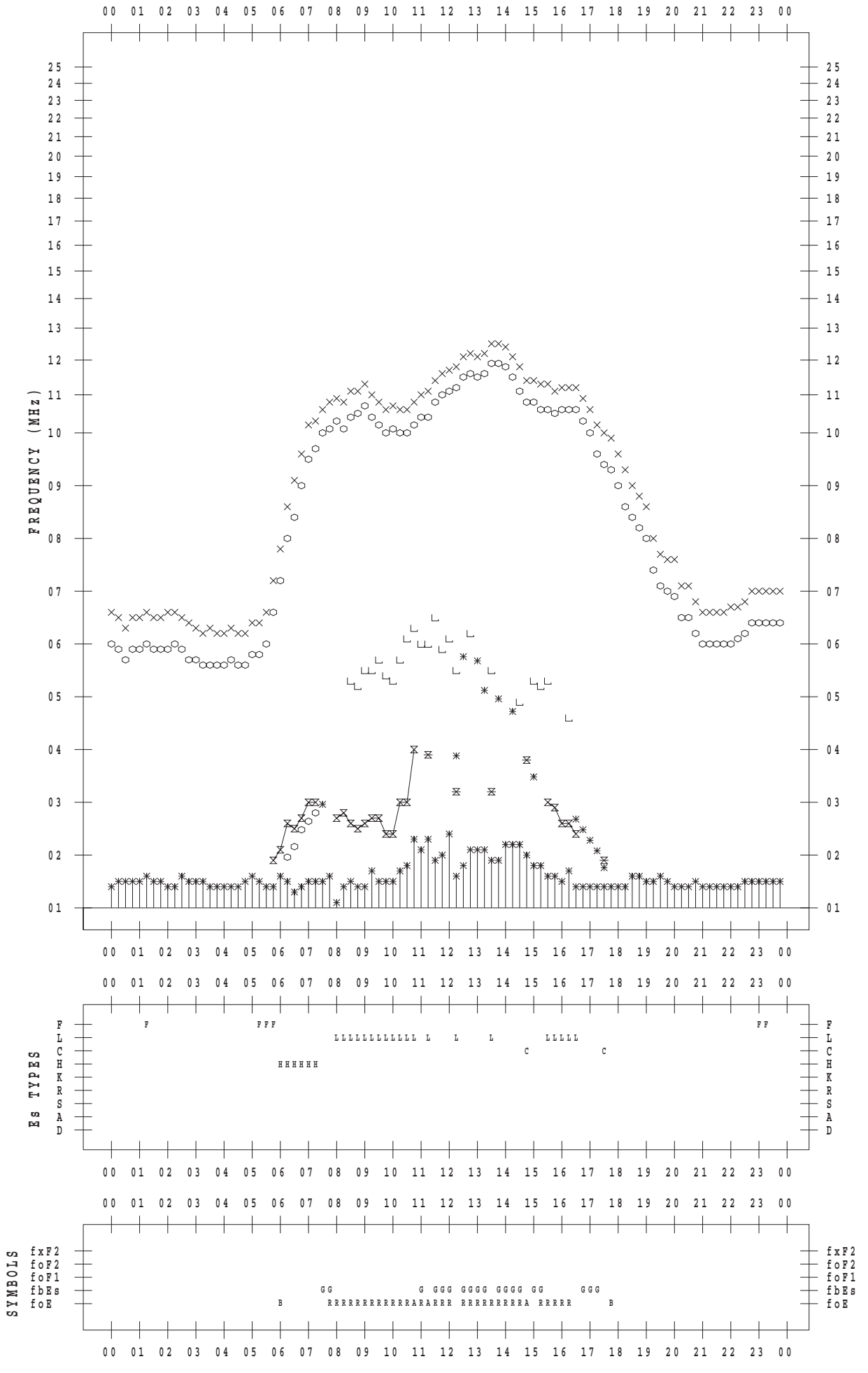
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2015/ 3/25

135 °E MEAN TIME



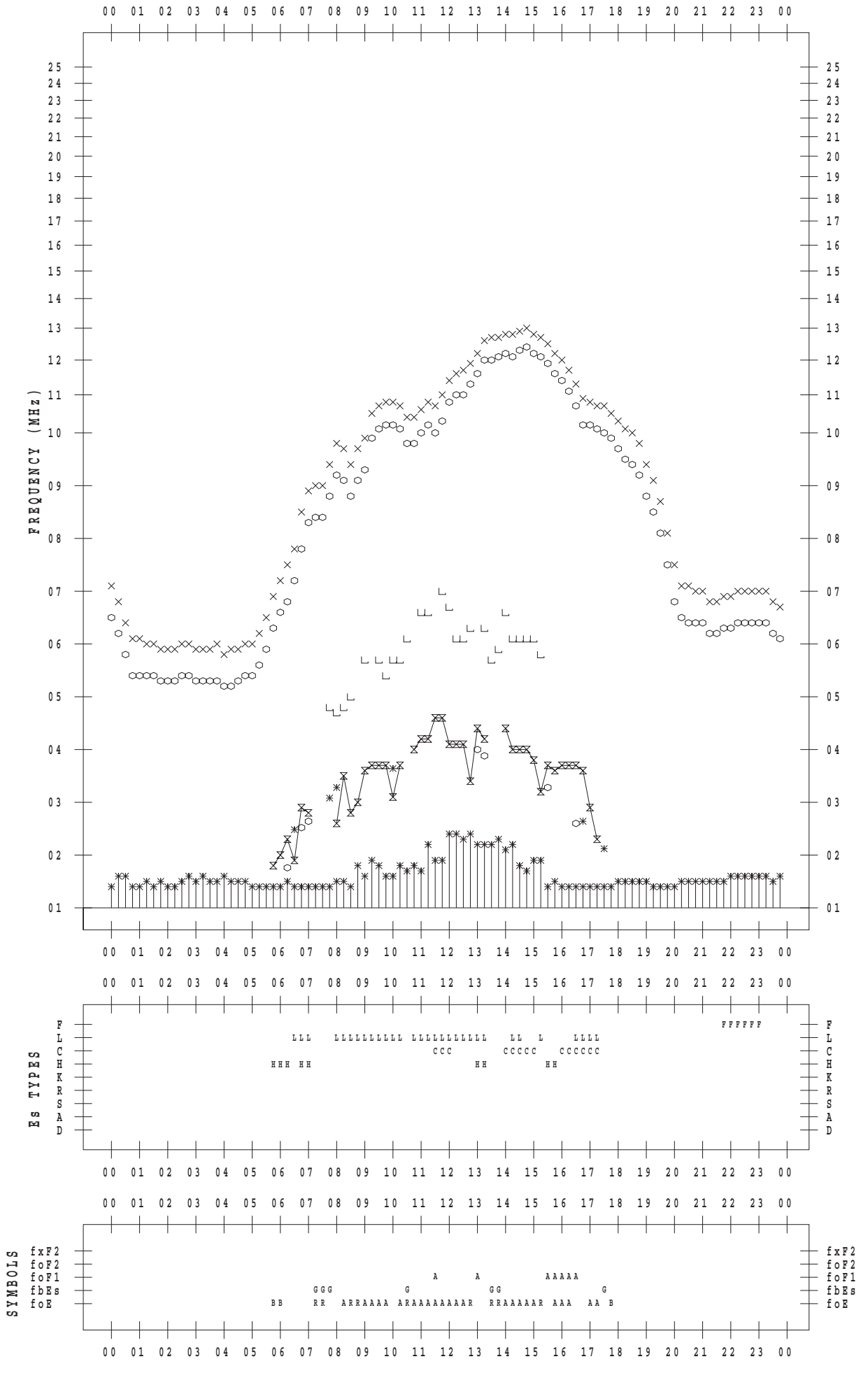
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2015/ 3/26

135 °E MEAN TIME



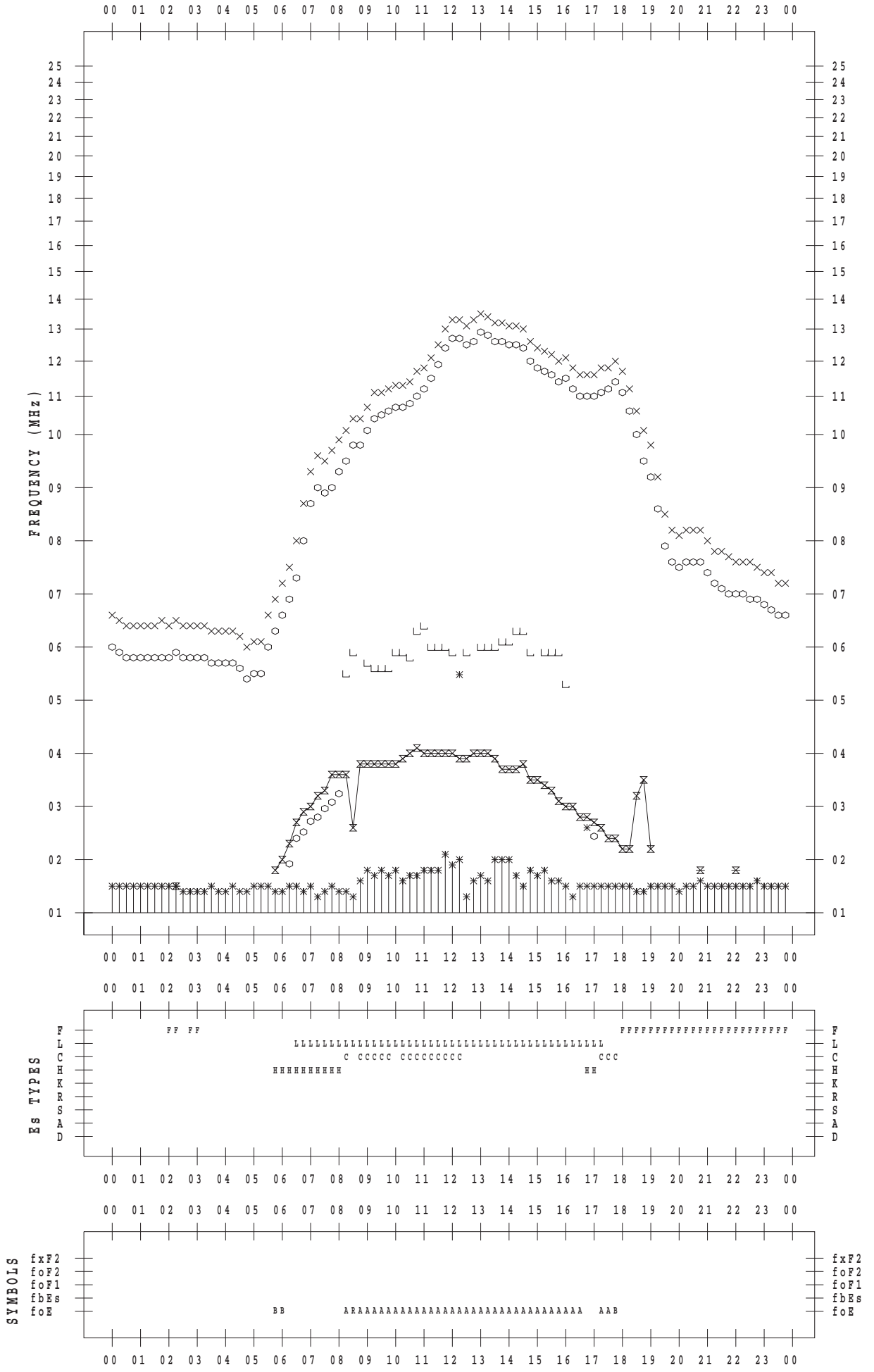
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2015/ 3/27

135 °E MEAN TIME



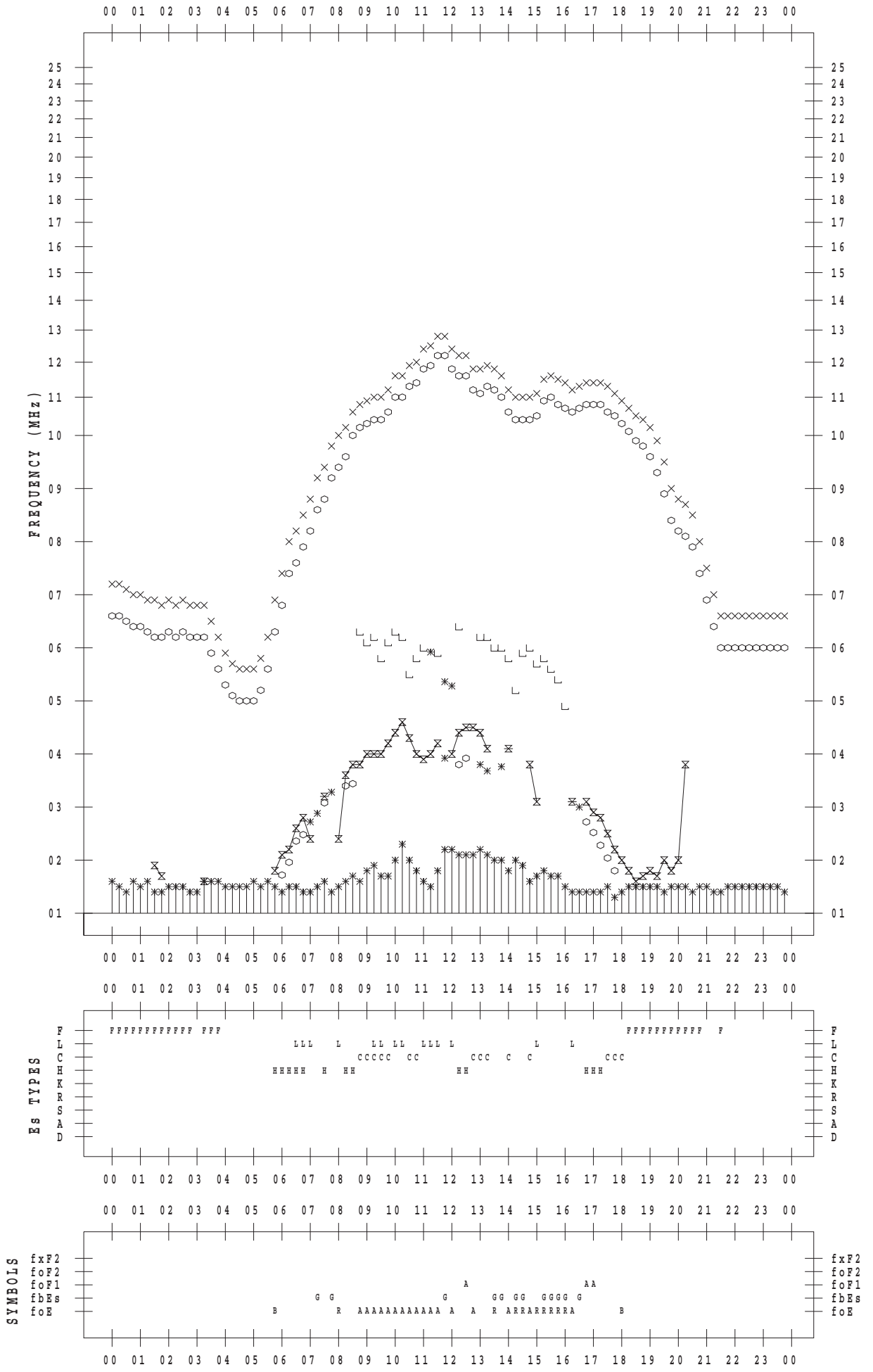
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2015/ 3/28

135 °E MEAN TIME



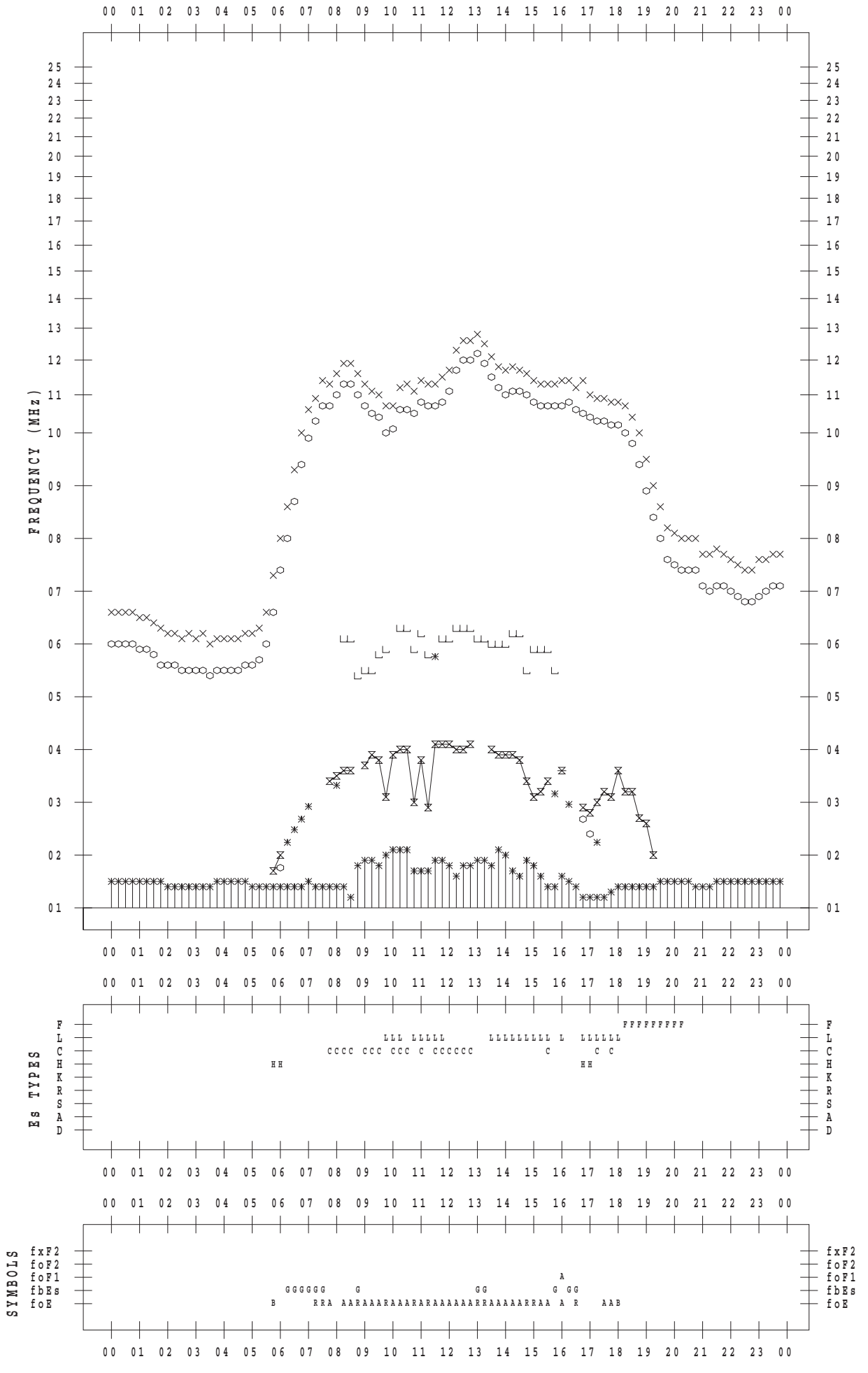
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2015/ 3/29

135 °E MEAN TIME



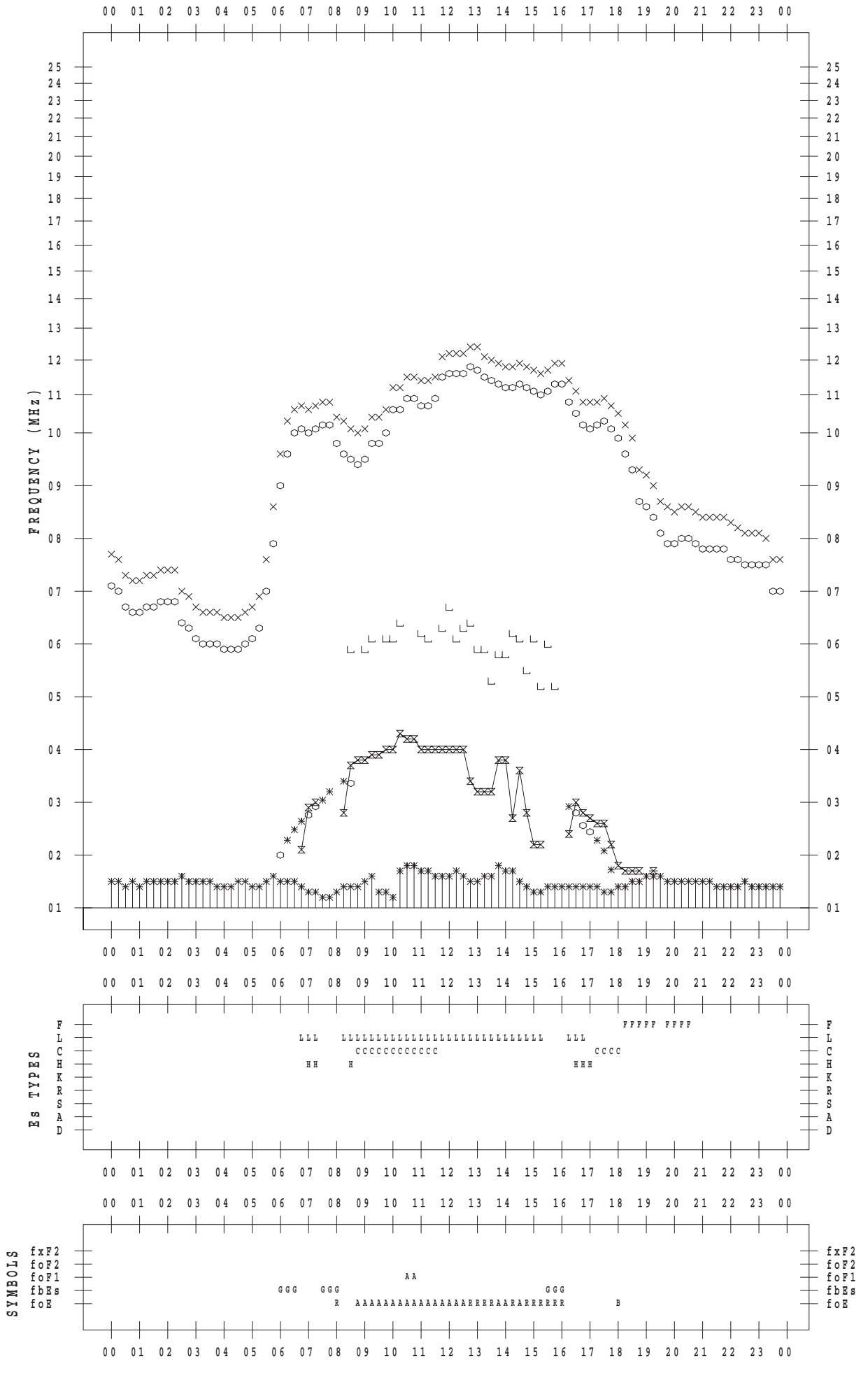
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2015/ 3/30

135 °E MEAN TIME



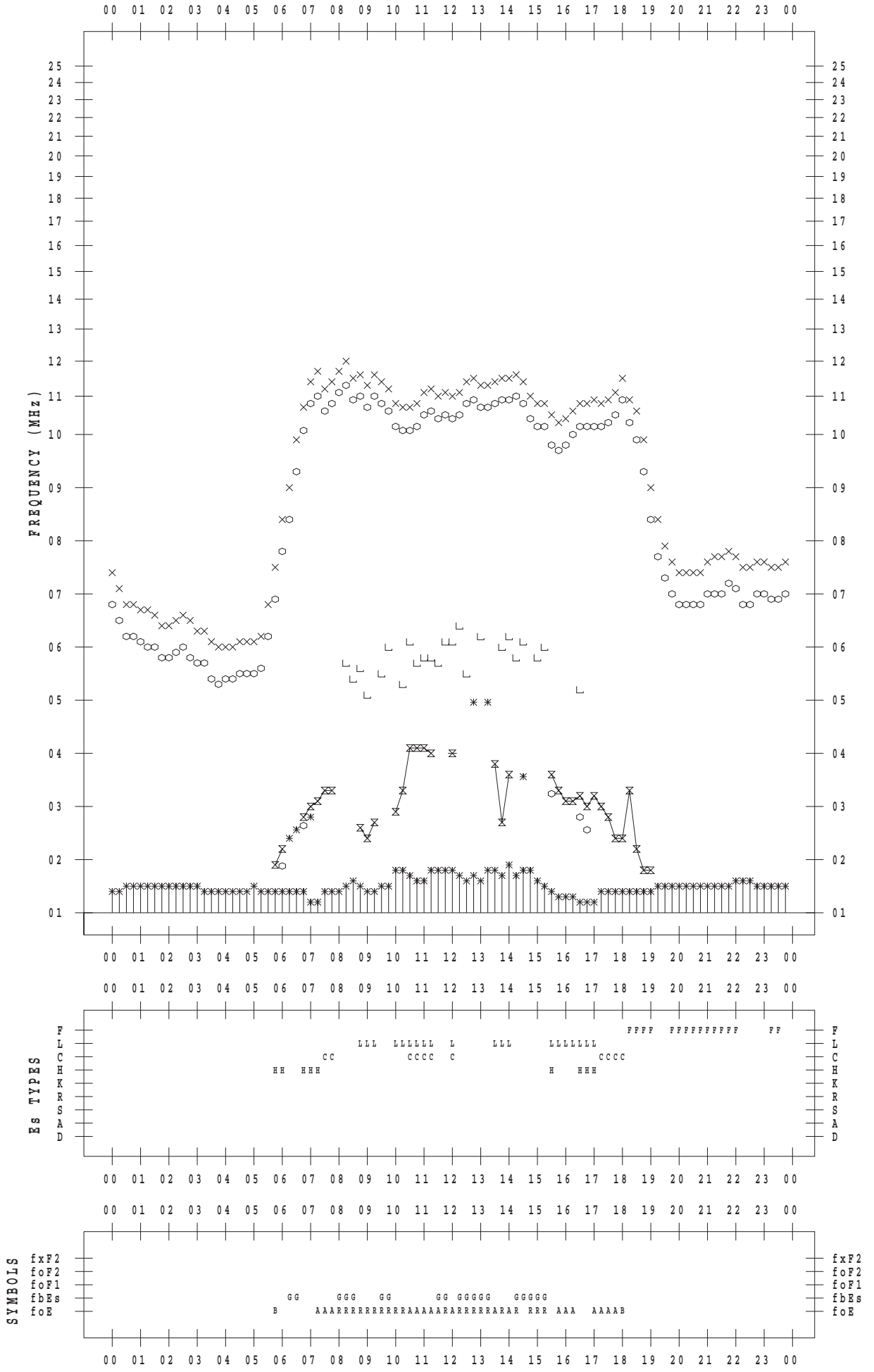
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2015/ 3/31

135 °E MEAN TIME



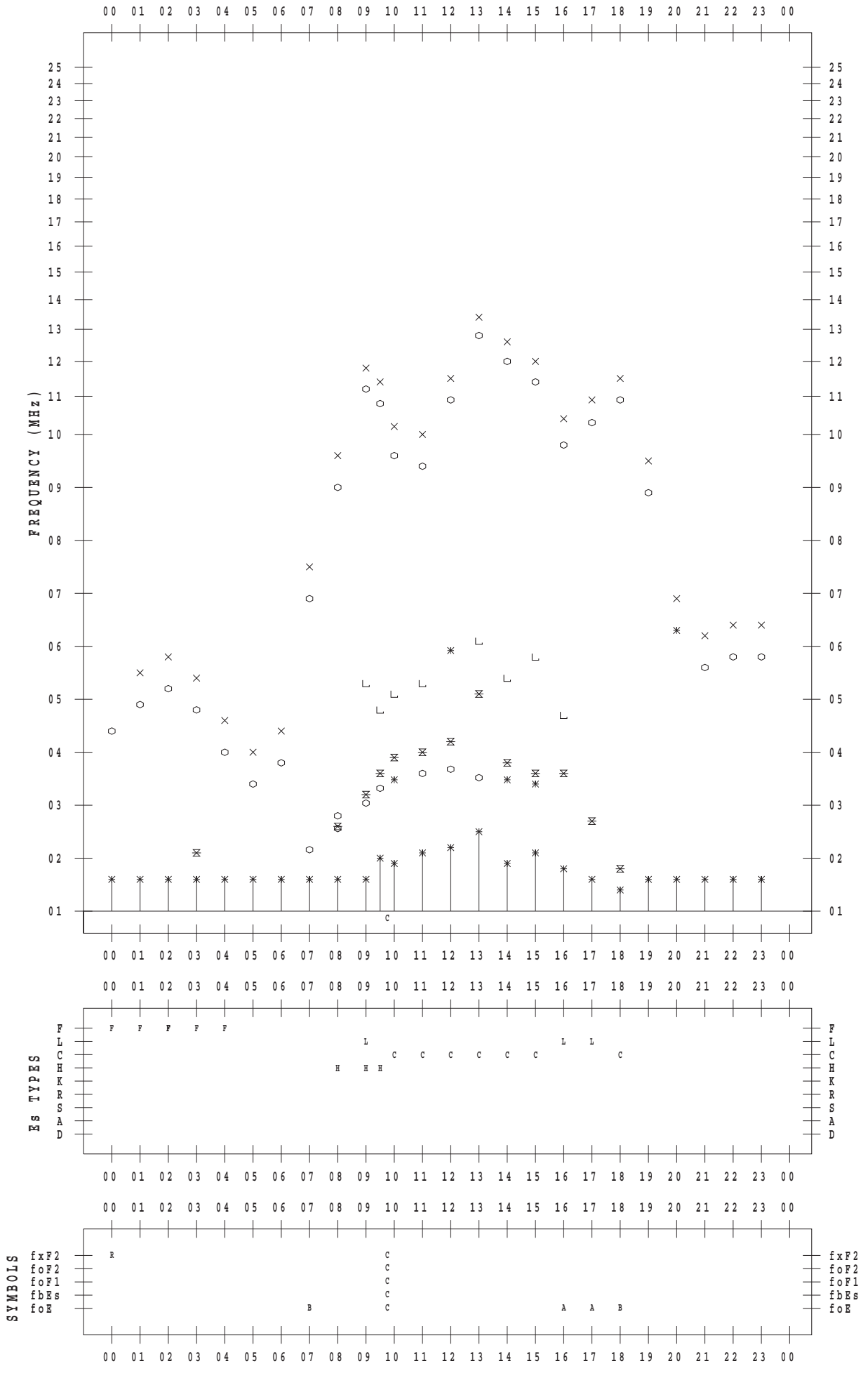
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2015/ 3/ 1

135 °E MEAN TIME



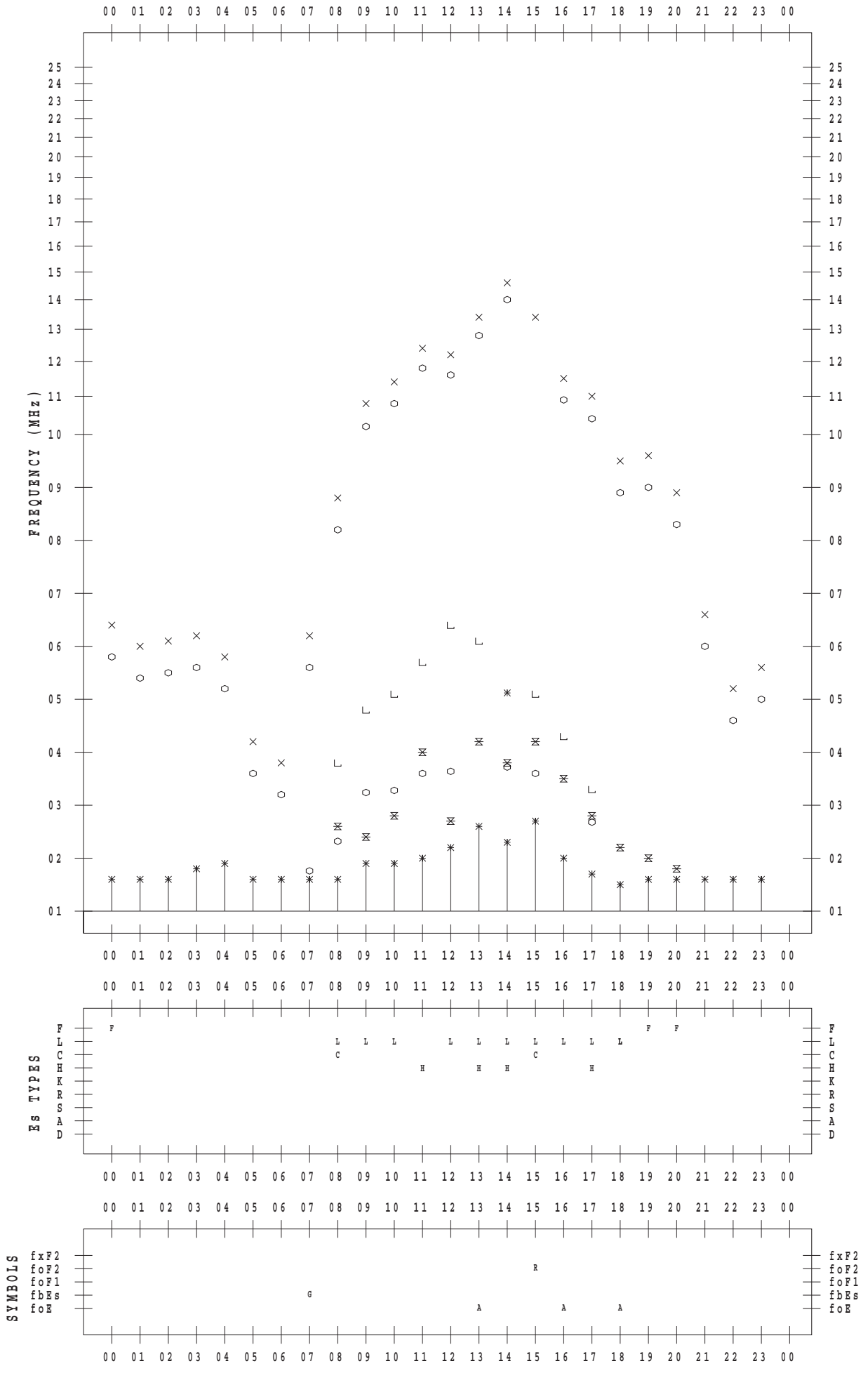
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2015/ 3/ 2

135 °E MEAN TIME



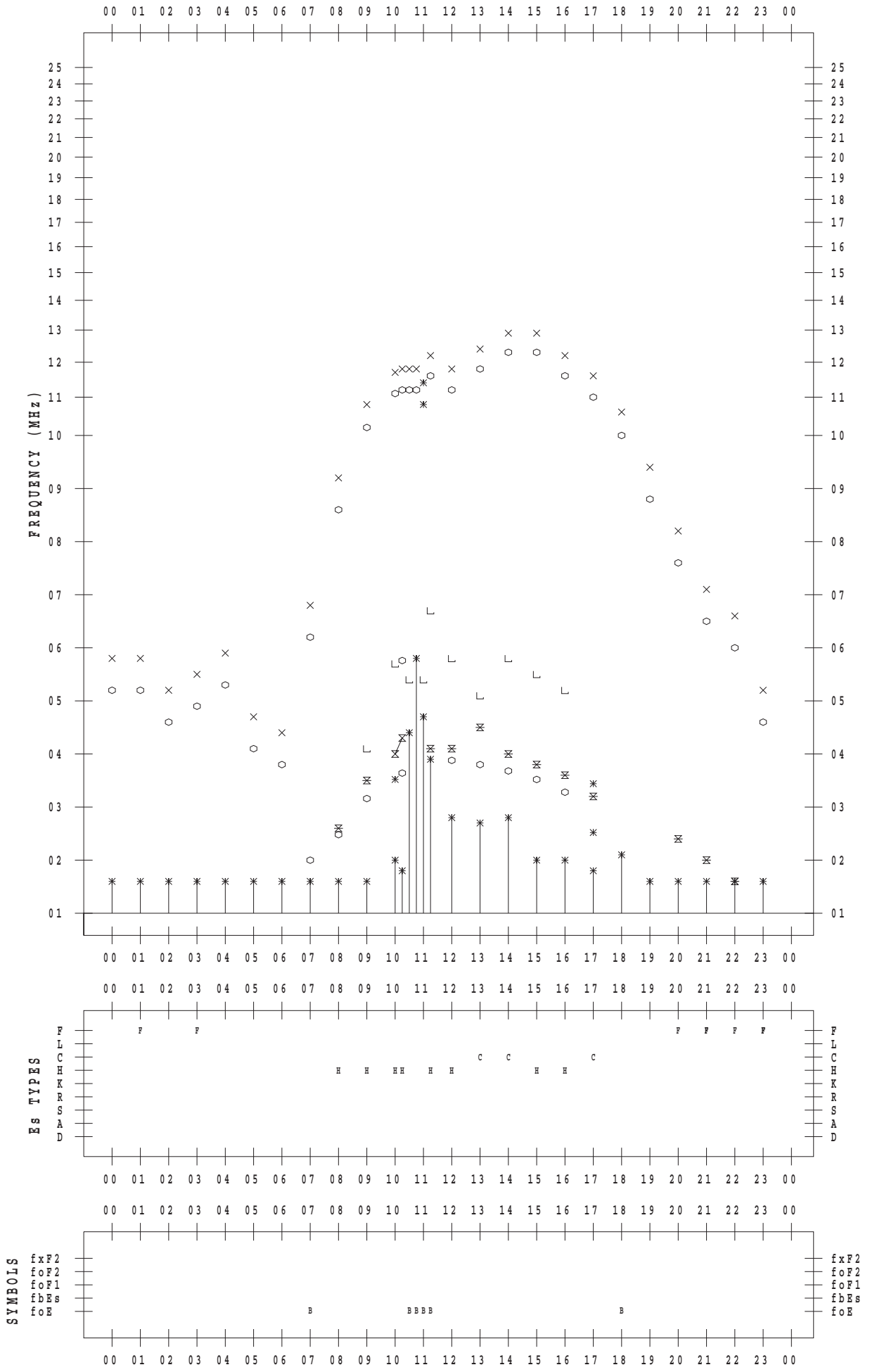
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2015/ 3/ 3

135 °E MEAN TIME



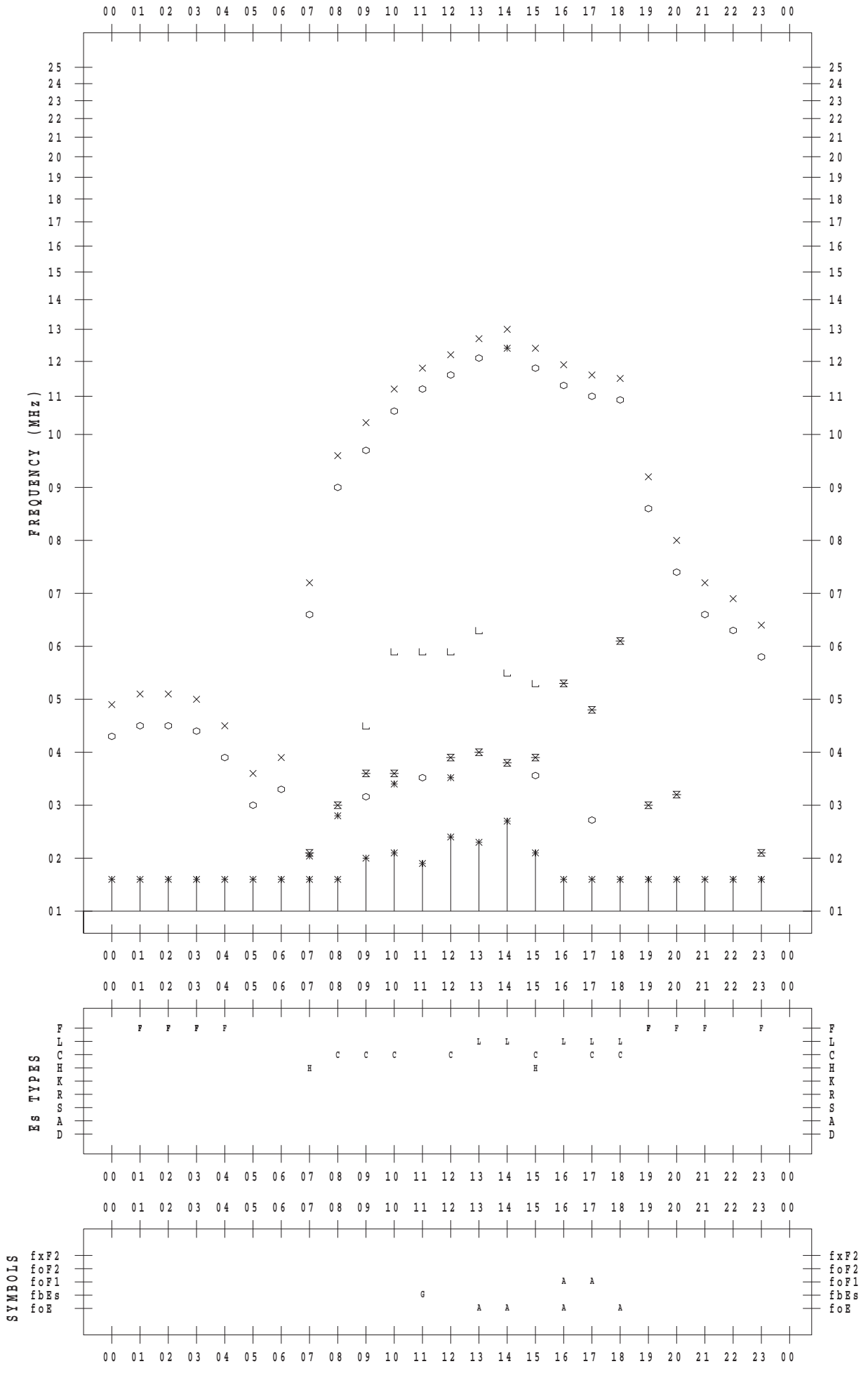
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2015/ 3/ 4

135 °E MEAN TIME



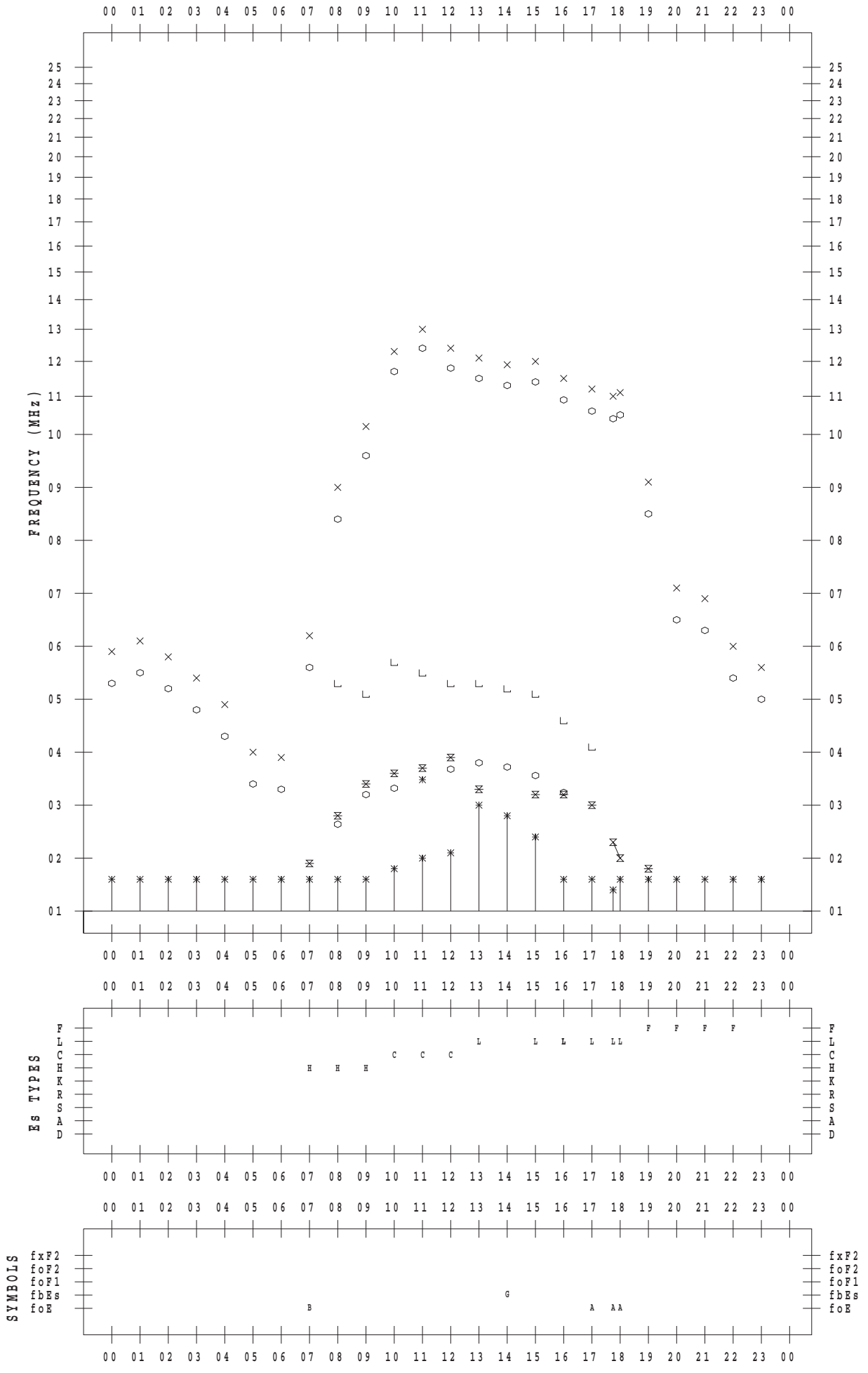
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2015/ 3/ 5

135 °E MEAN TIME



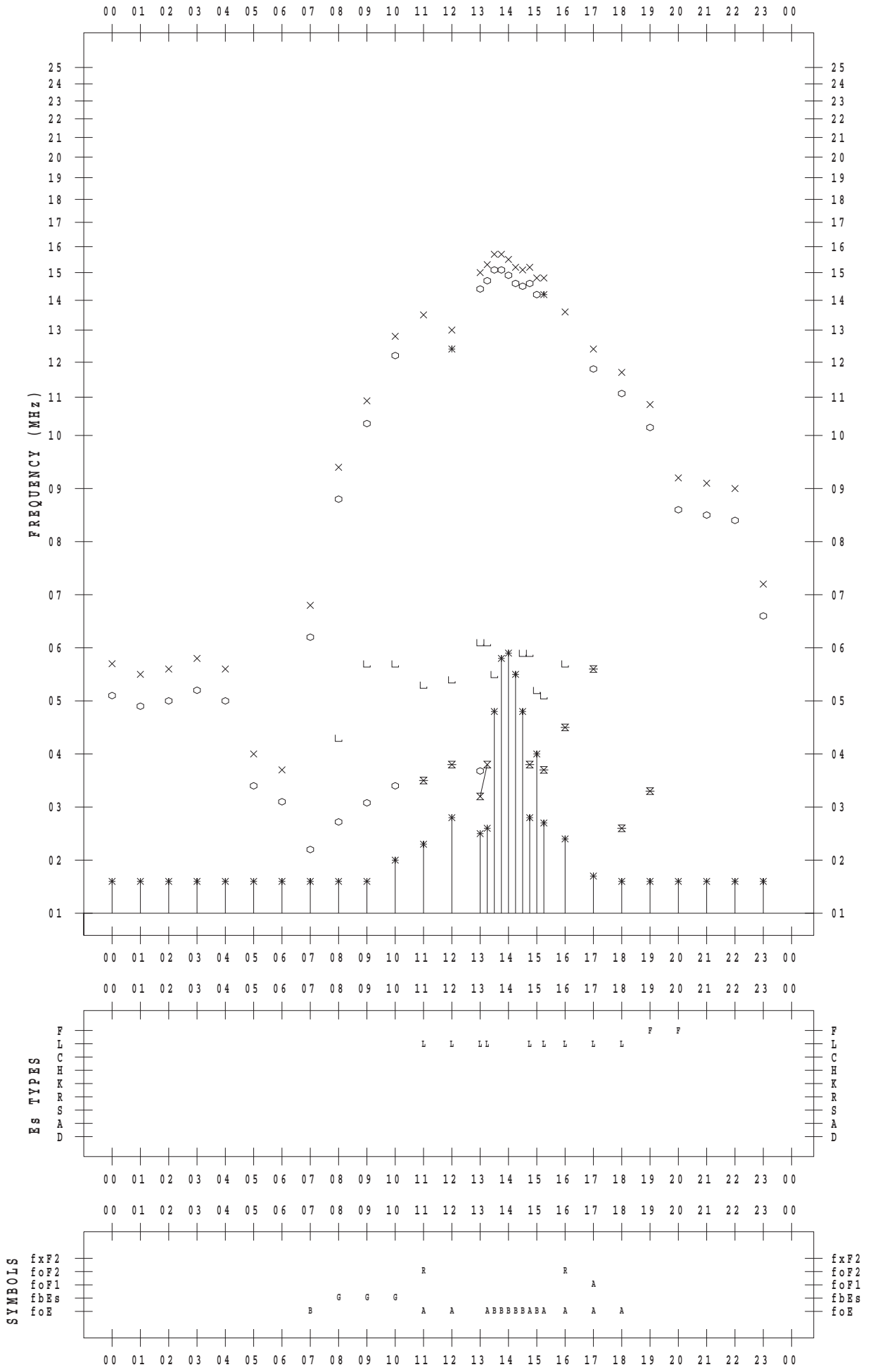
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2015/ 3/ 6

135 °E MEAN TIME



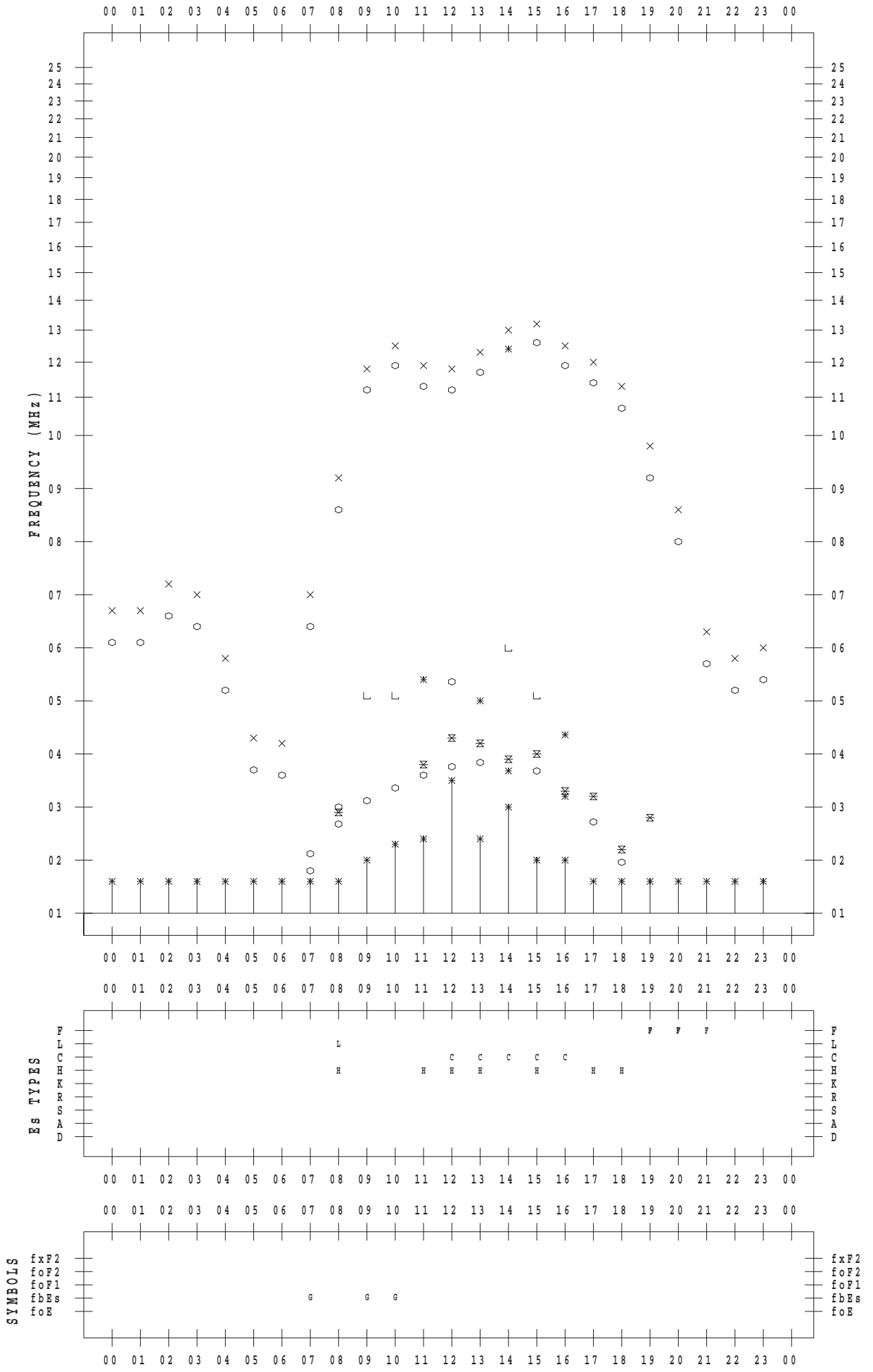
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2015/ 3/ 7

135 °E MEAN TIME



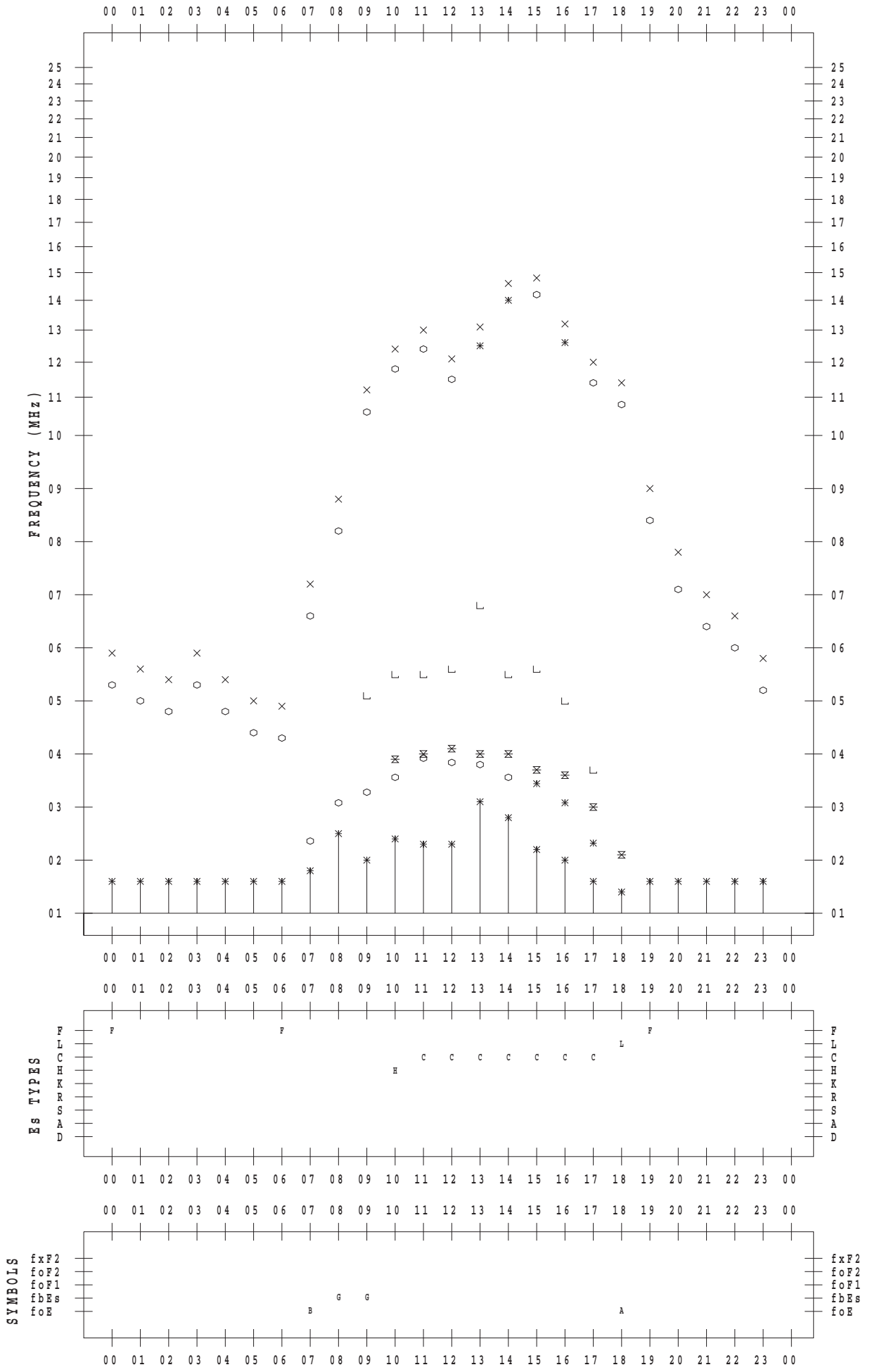
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2015/ 3/ 8

135 °E MEAN TIME



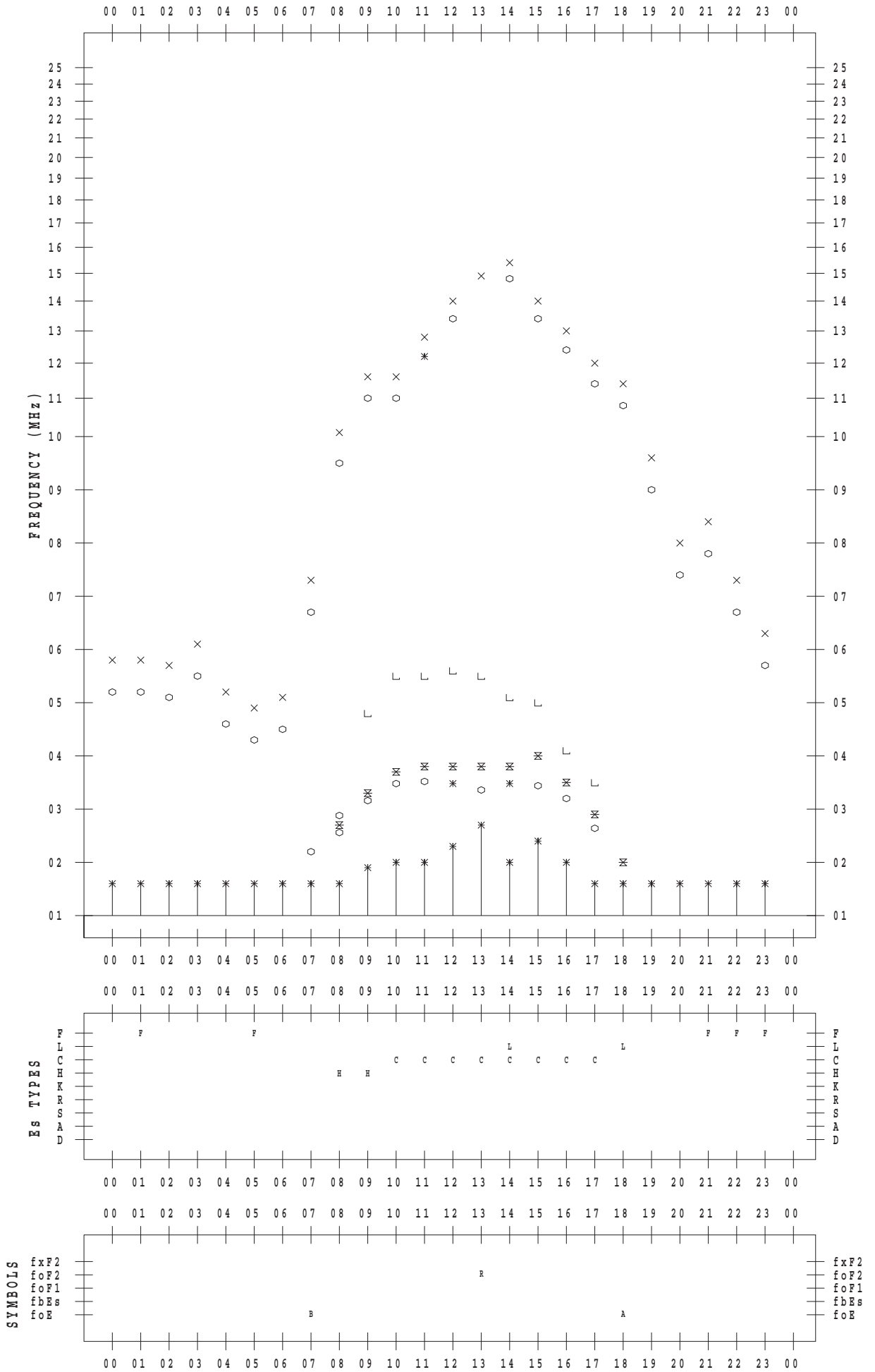
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2015/ 3/ 9

135 °E MEAN TIME



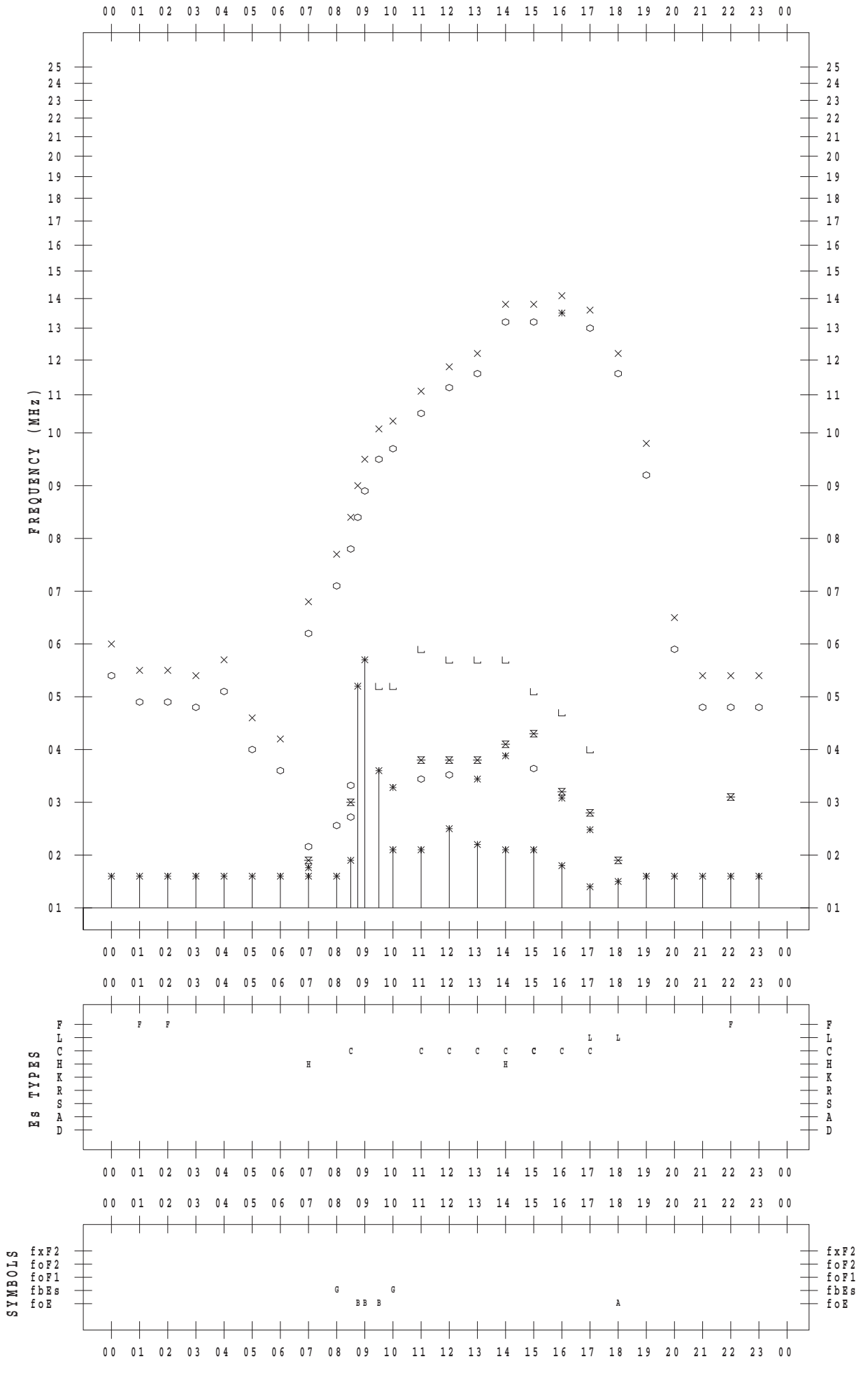
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2015/ 3/10

135 °E MEAN TIME



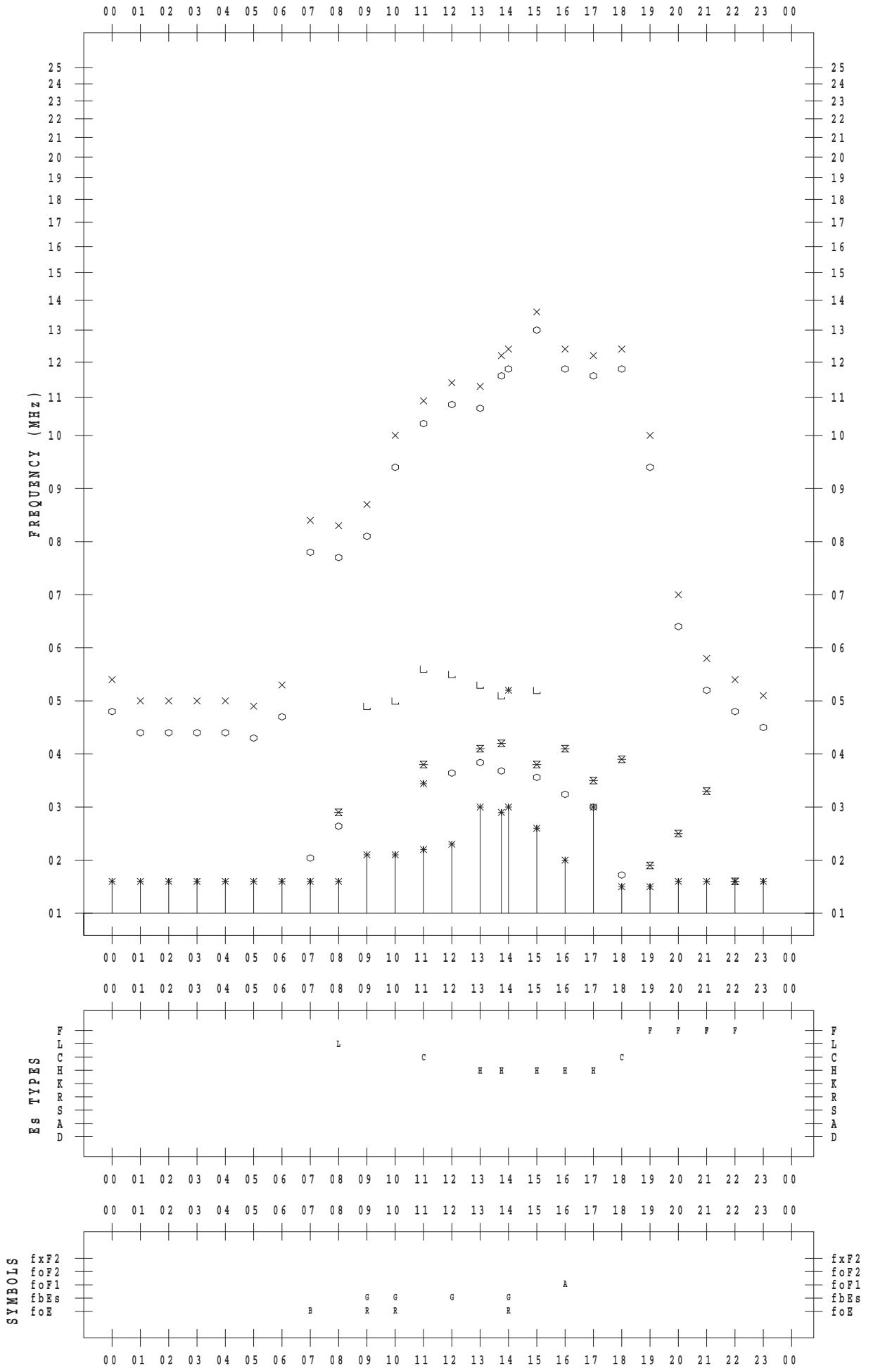
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2015/ 3/11

135 °E MEAN TIME



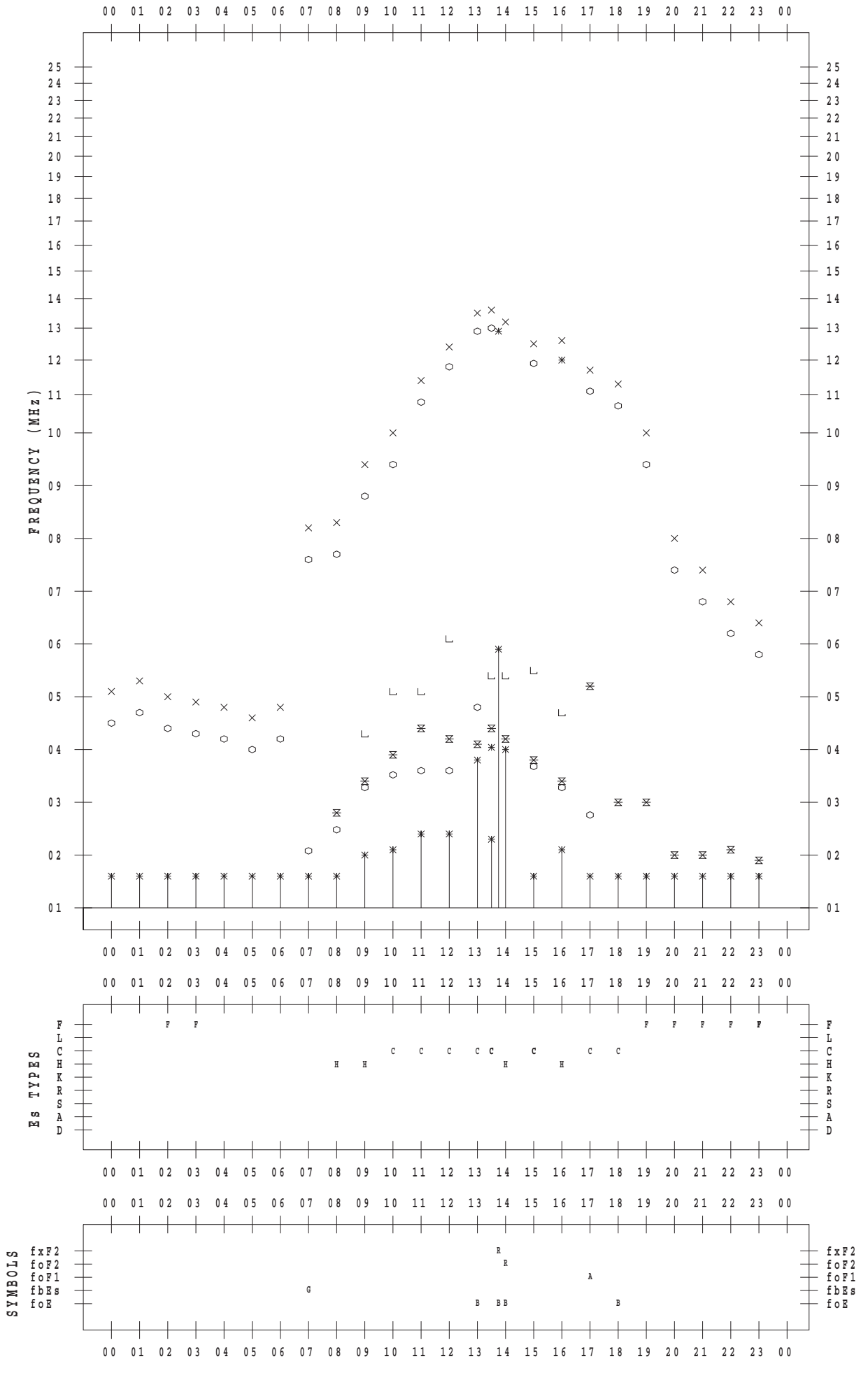
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2015/ 3/12

135 °E MEAN TIME



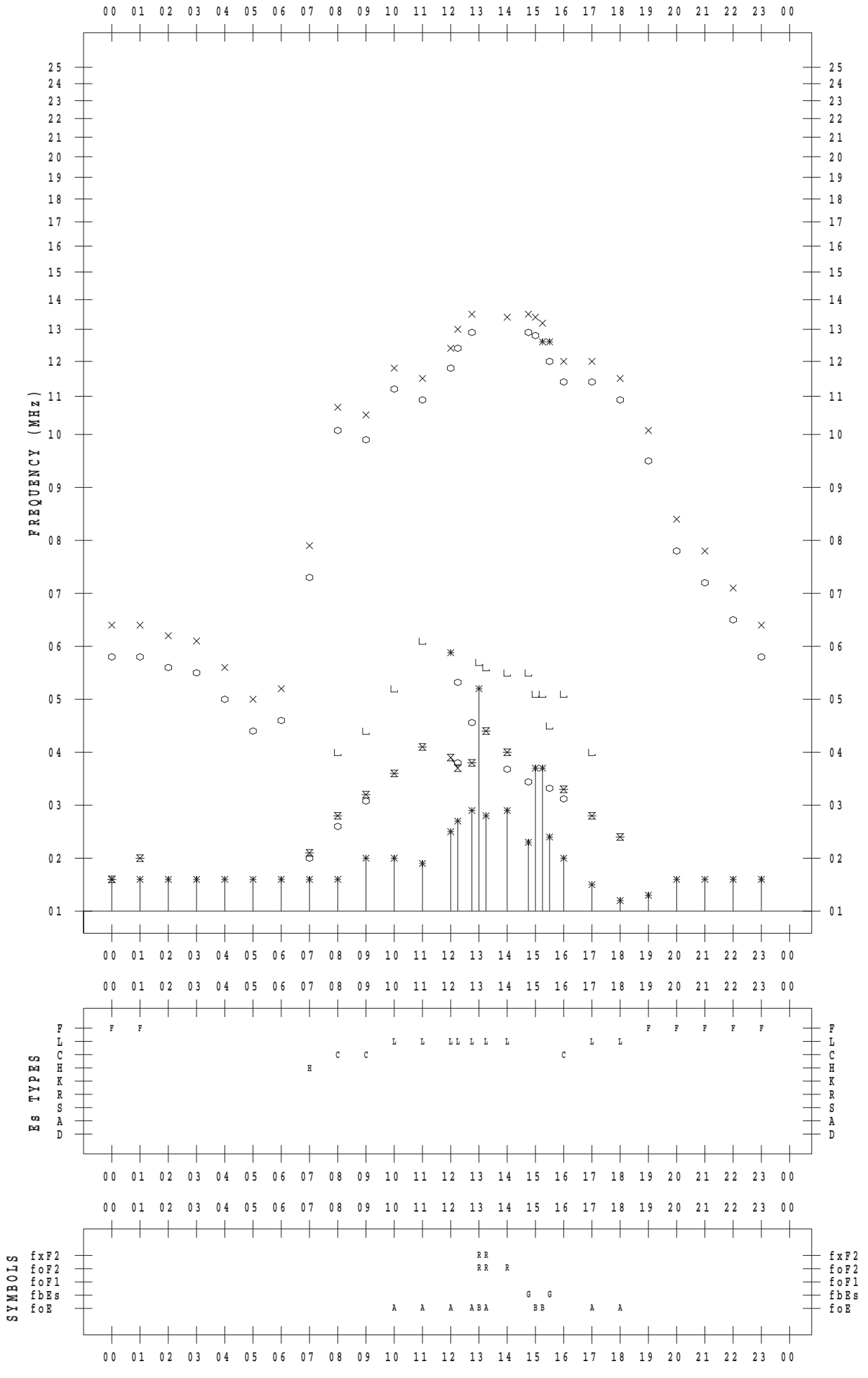
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2015/ 3/13

135 °E MEAN TIME



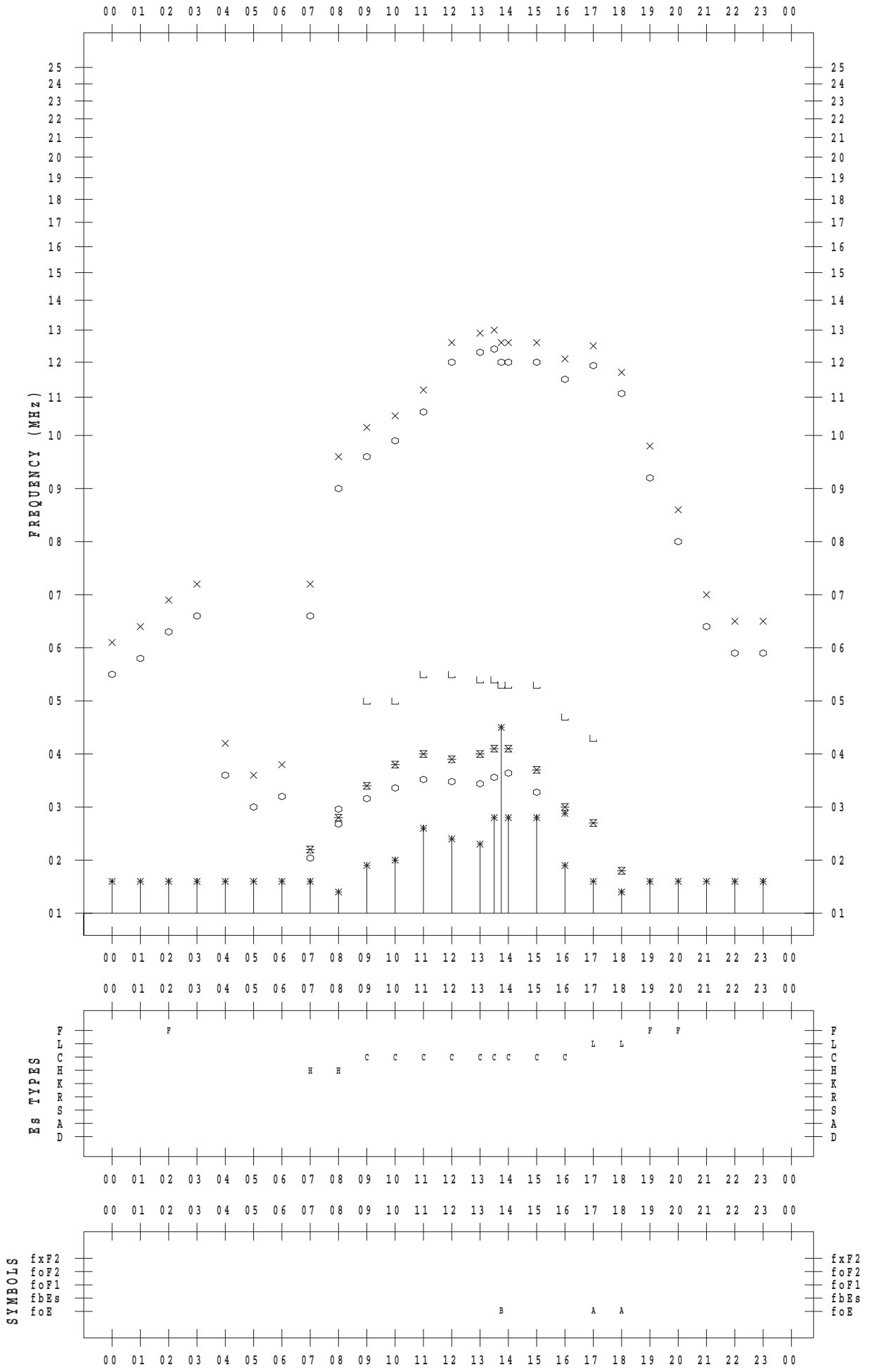
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2015/ 3/14

135 °E MEAN TIME



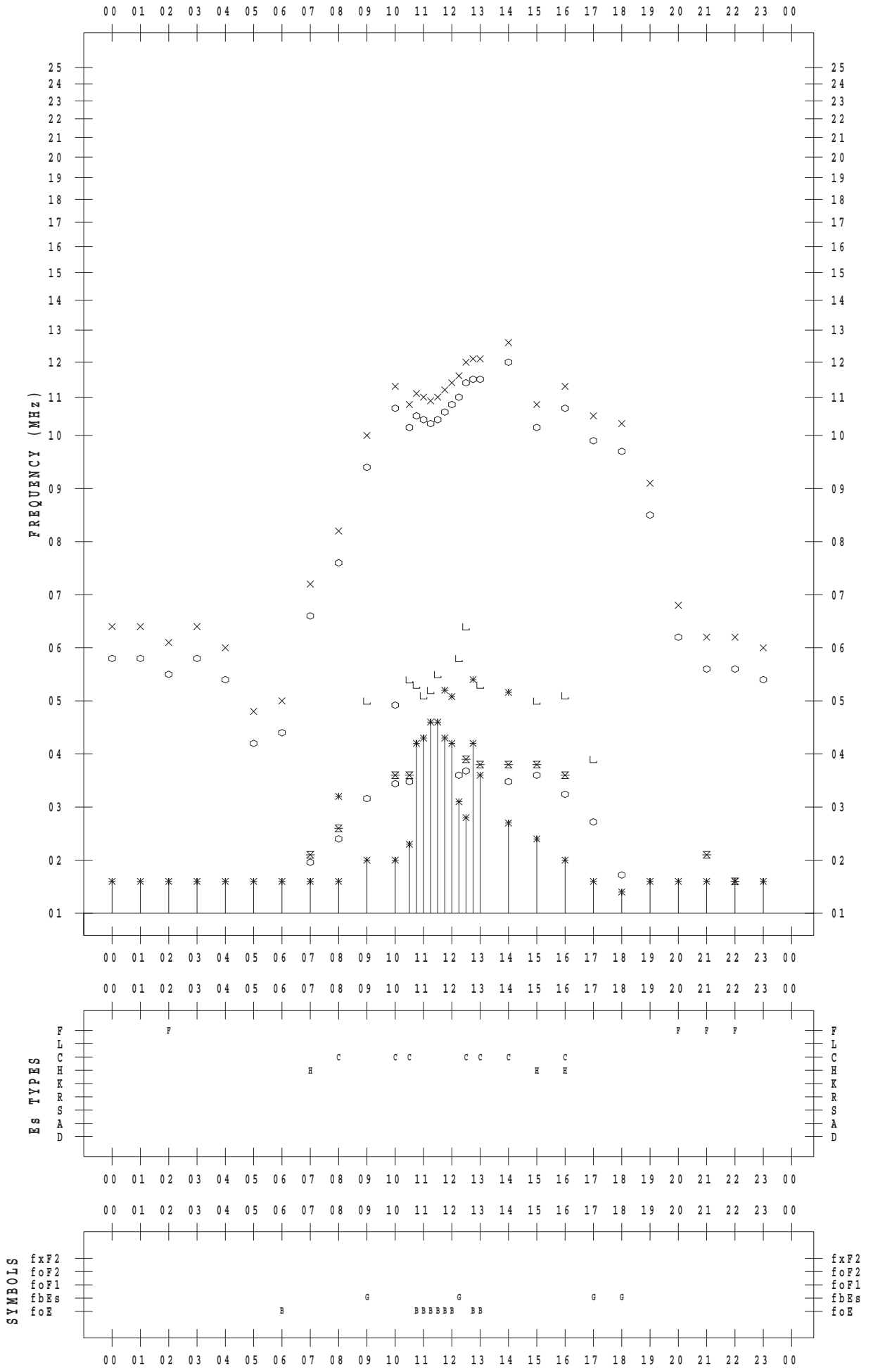
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2015/ 3/15

135 °E MEAN TIME



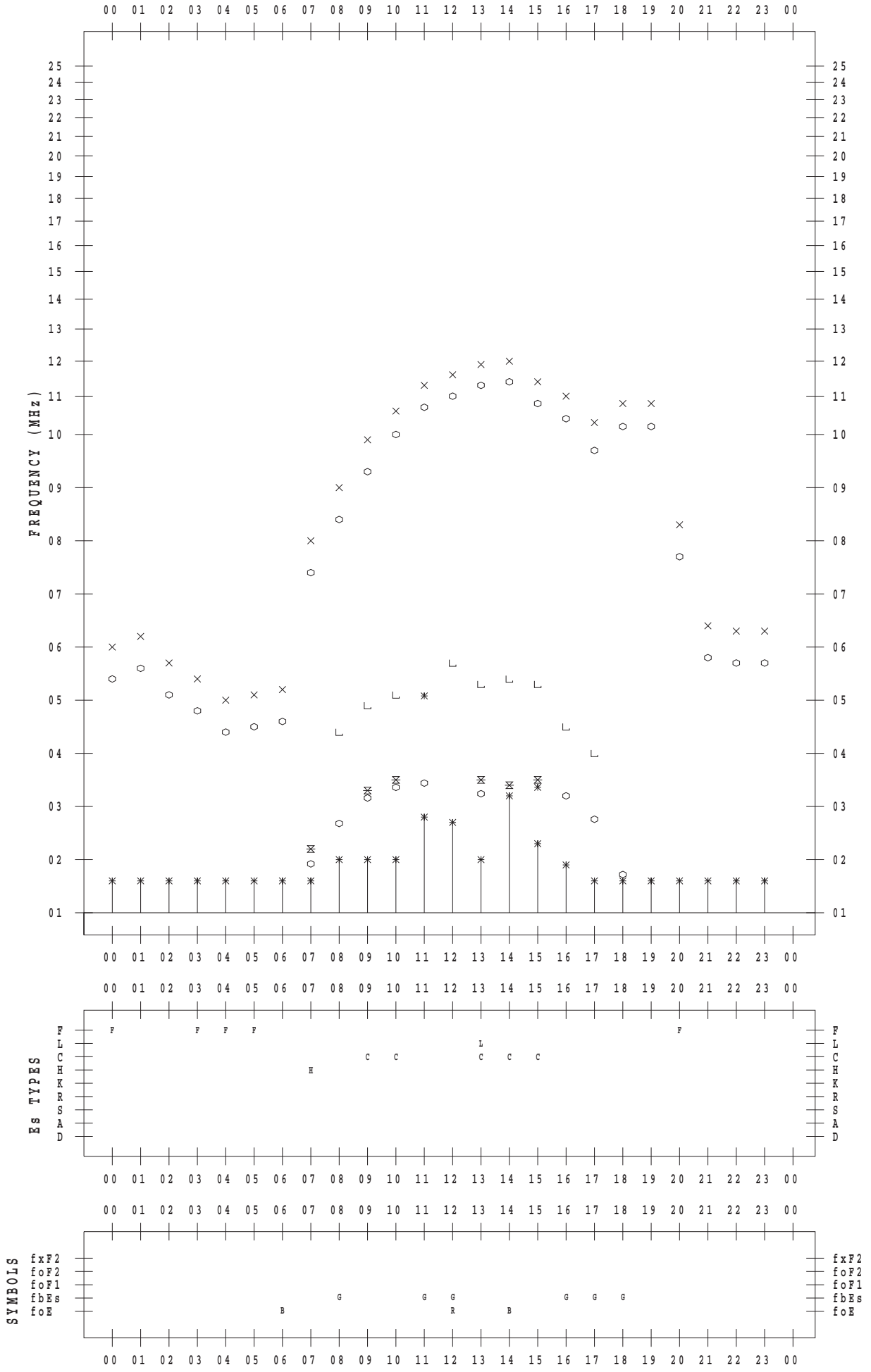
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2015/ 3/16

135 °E MEAN TIME



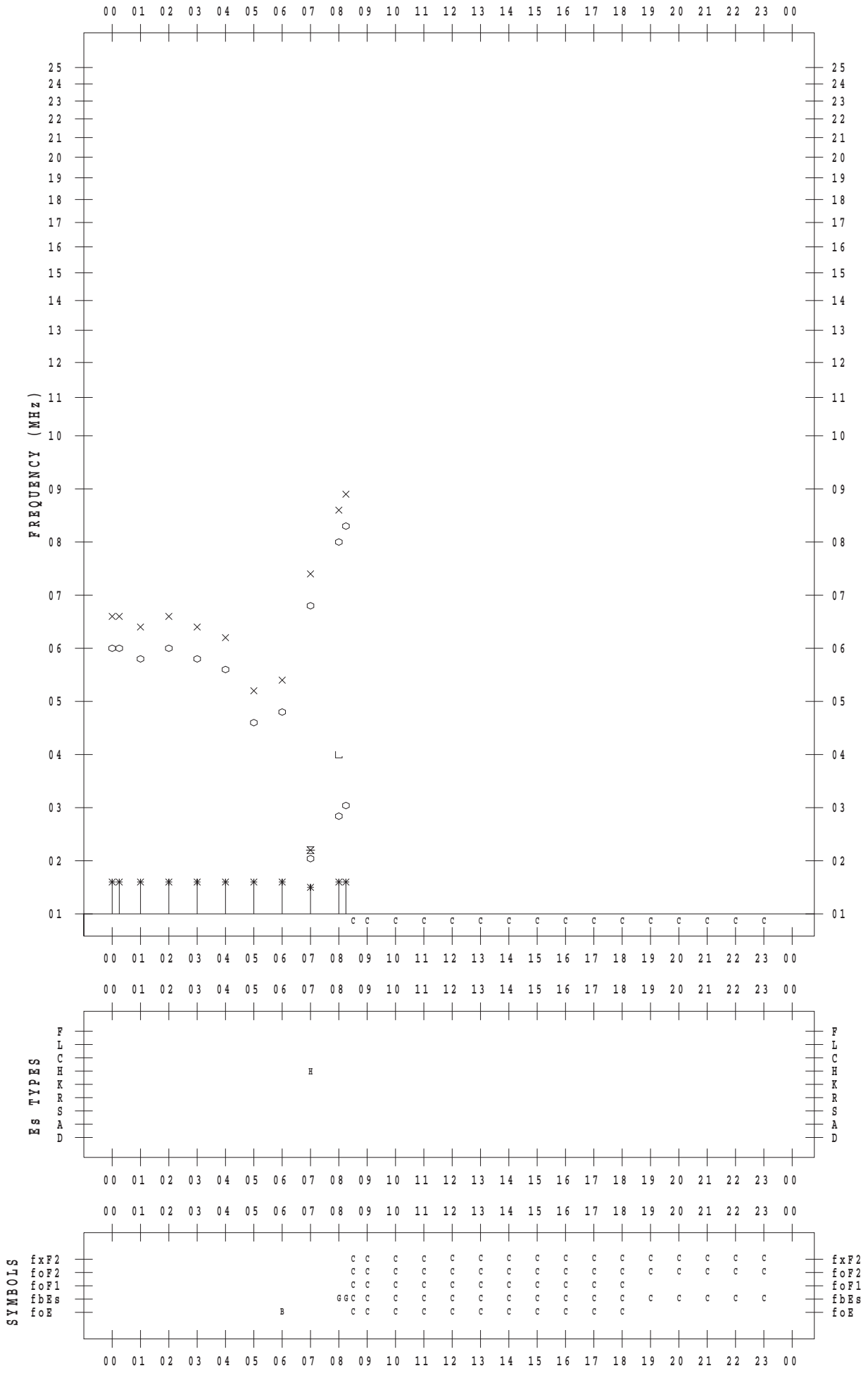
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2015/ 3/17

135 °E MEAN TIME



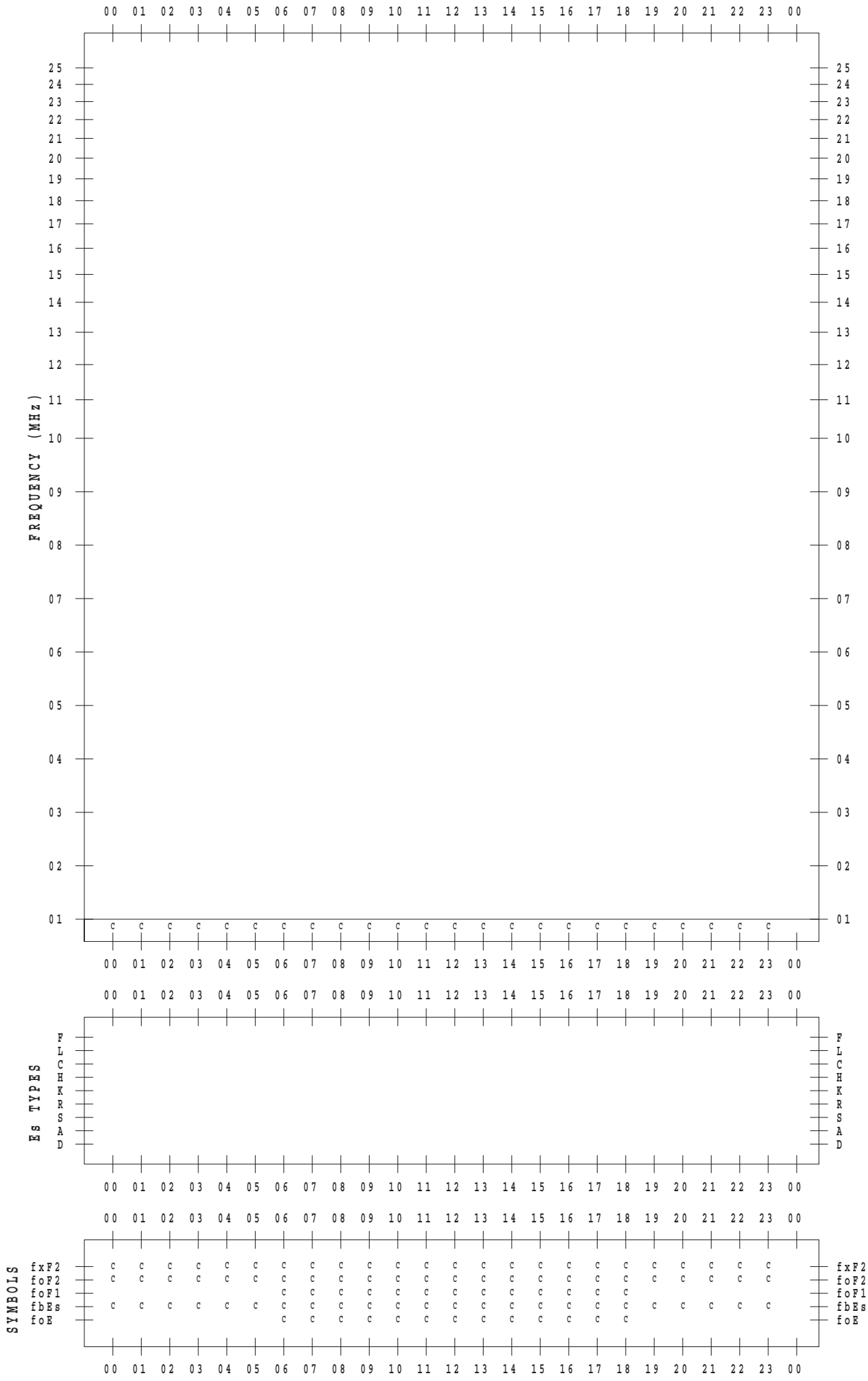
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2015/ 3/18

135 °E MEAN TIME



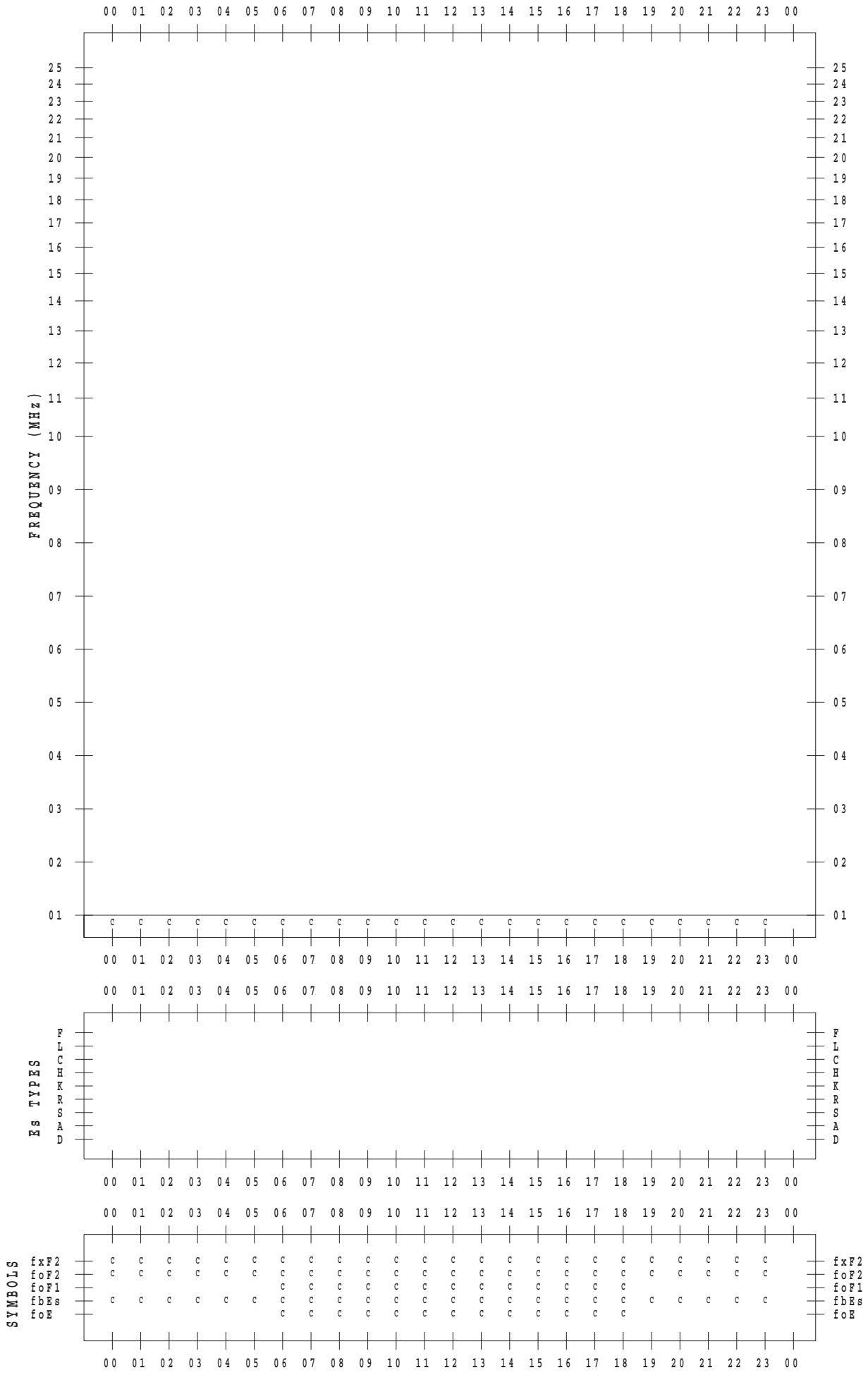
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2015/ 3/19

135 °E MEAN TIME



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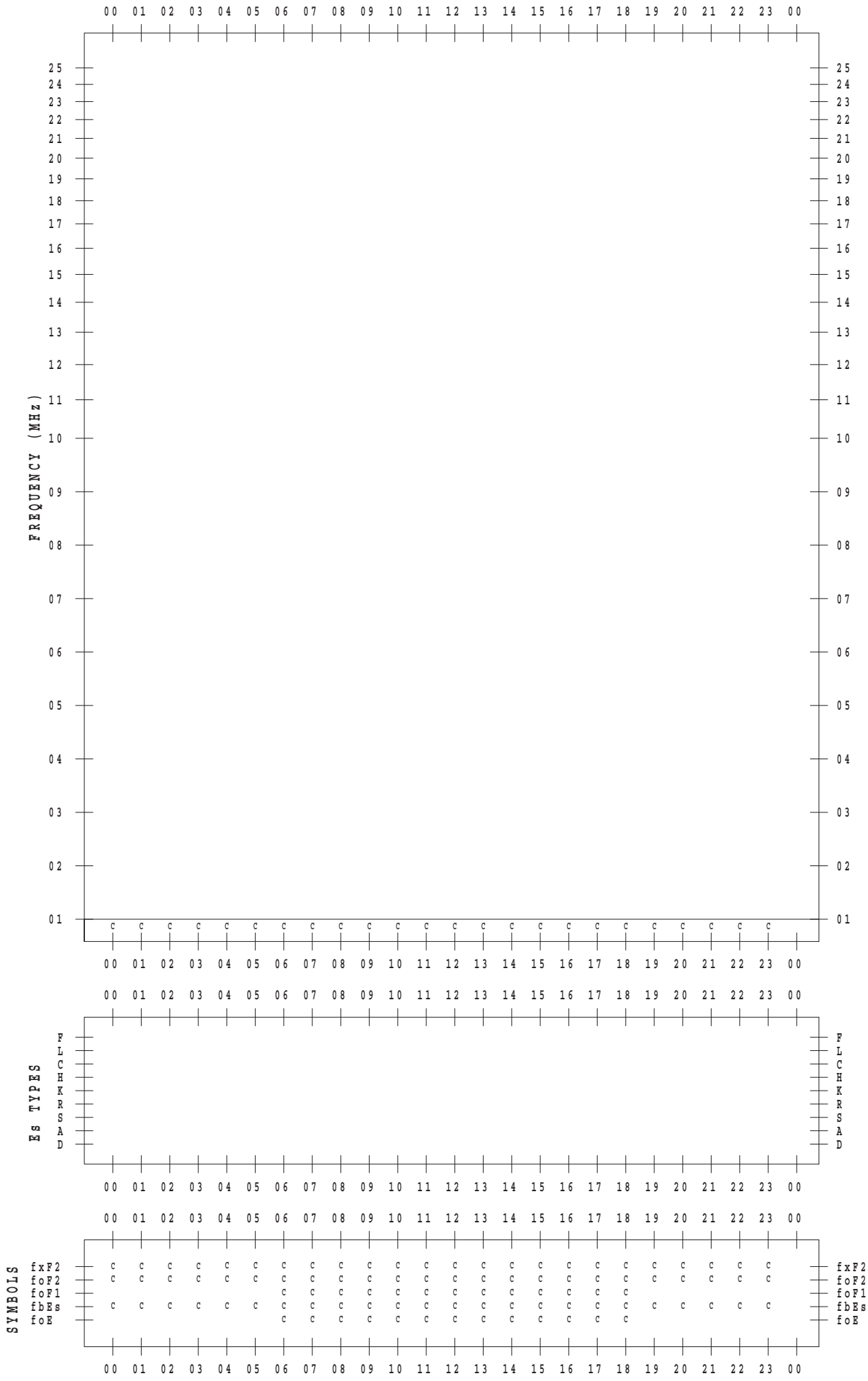
SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2015/ 3/20

135 °E MEAN TIME



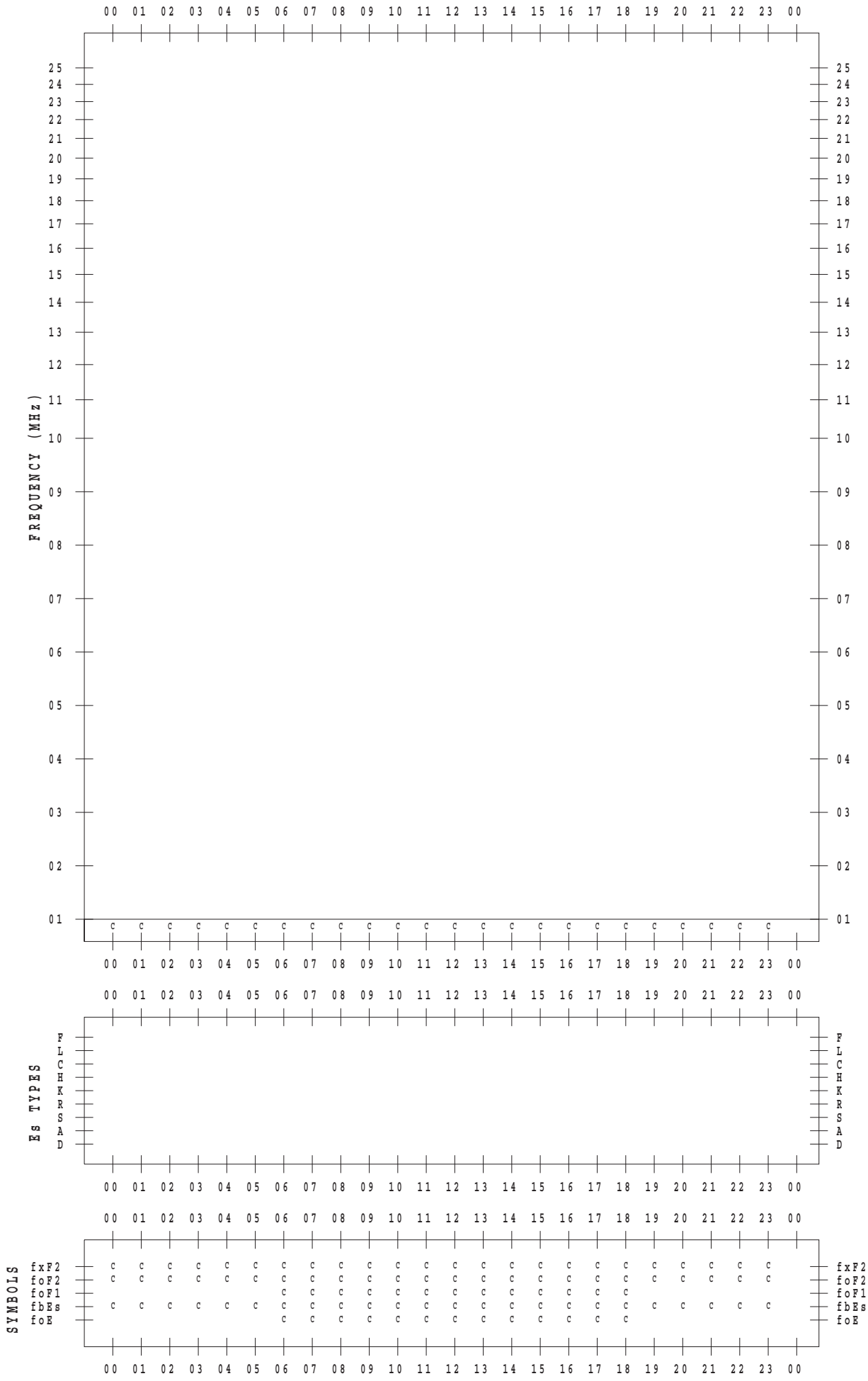
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2015/ 3/21

135 °E MEAN TIME



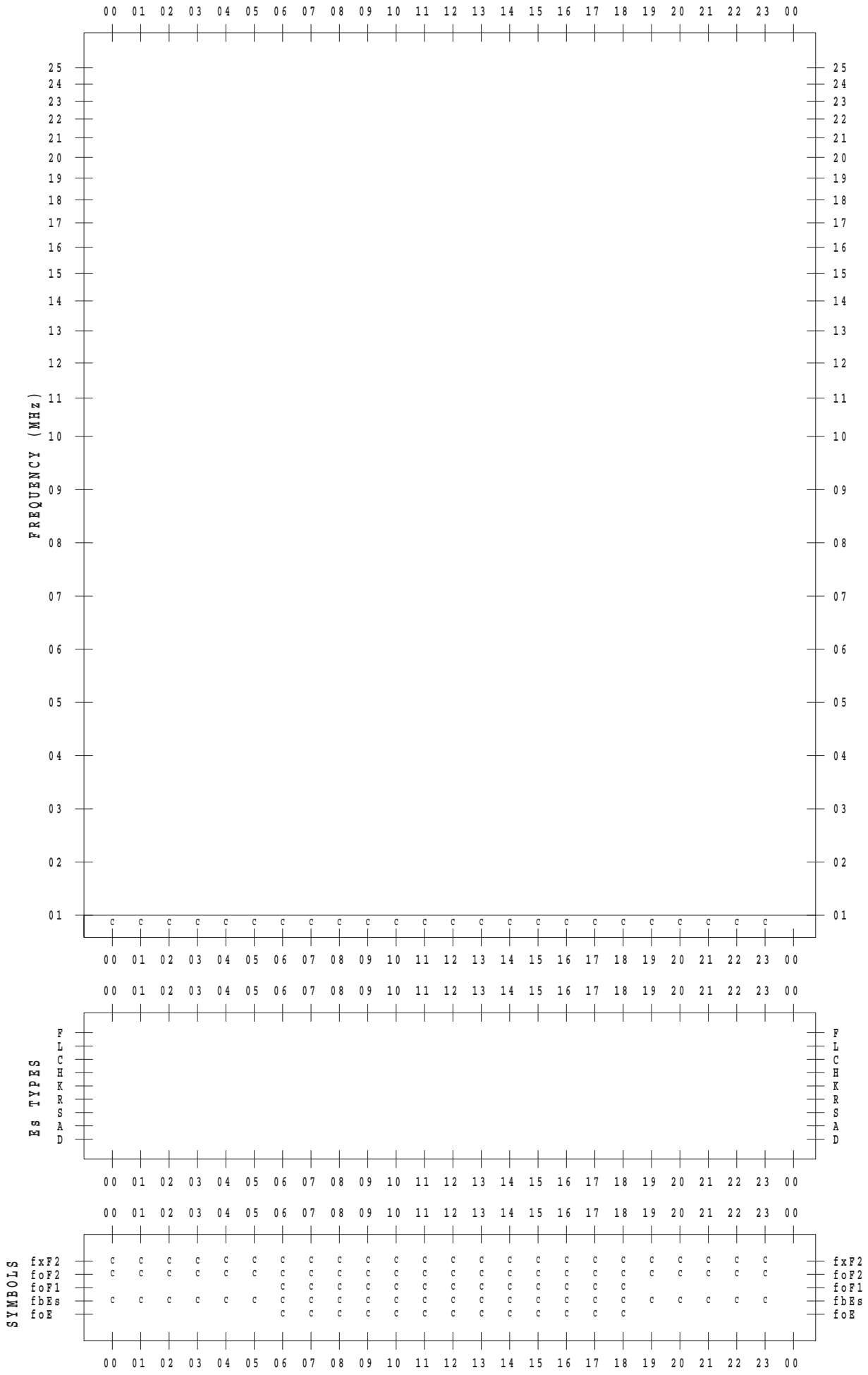
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2015/ 3/22

135 °E MEAN TIME



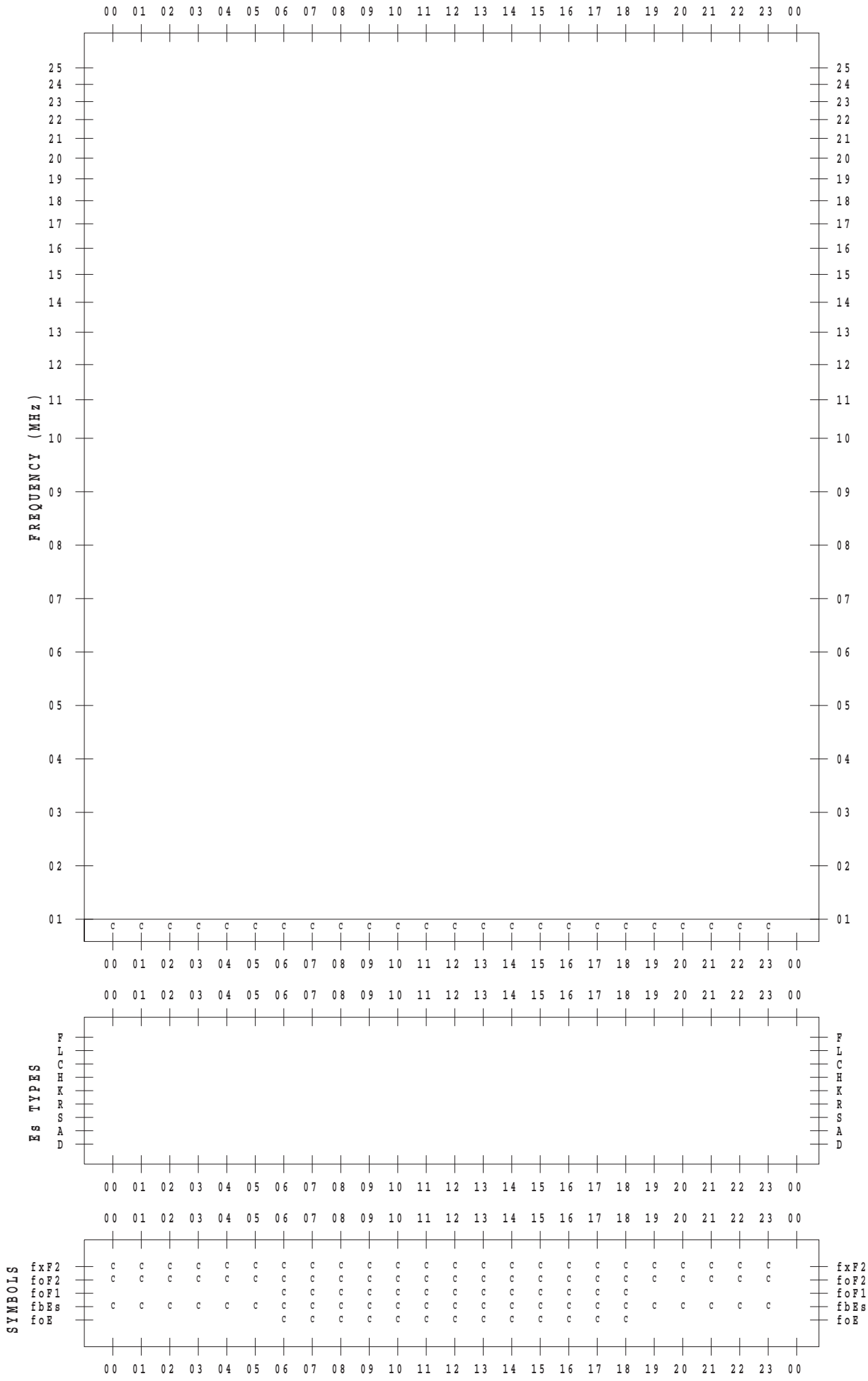
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2015/ 3/23

135 °E MEAN TIME



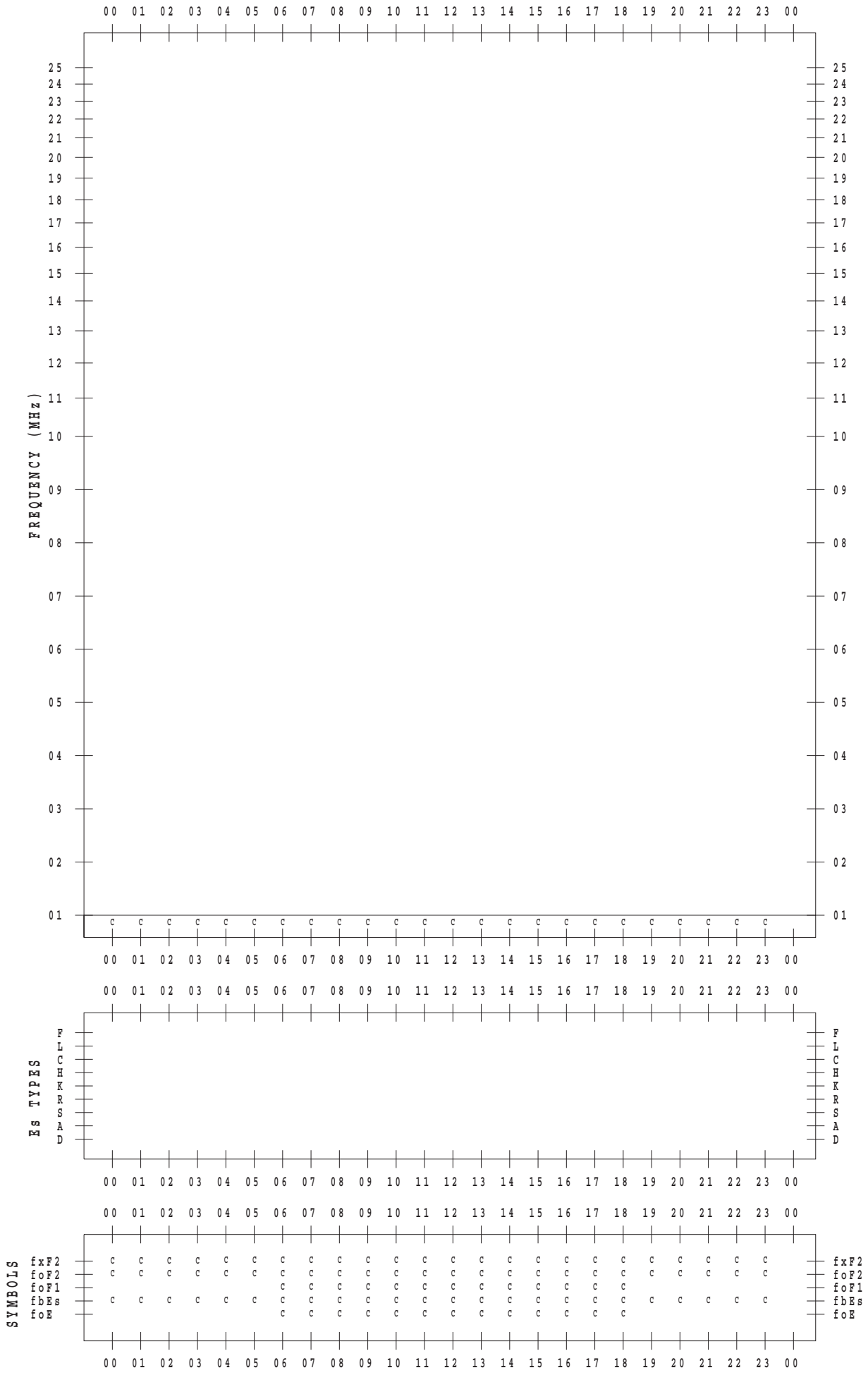
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2015/ 3/24

135 °E MEAN TIME



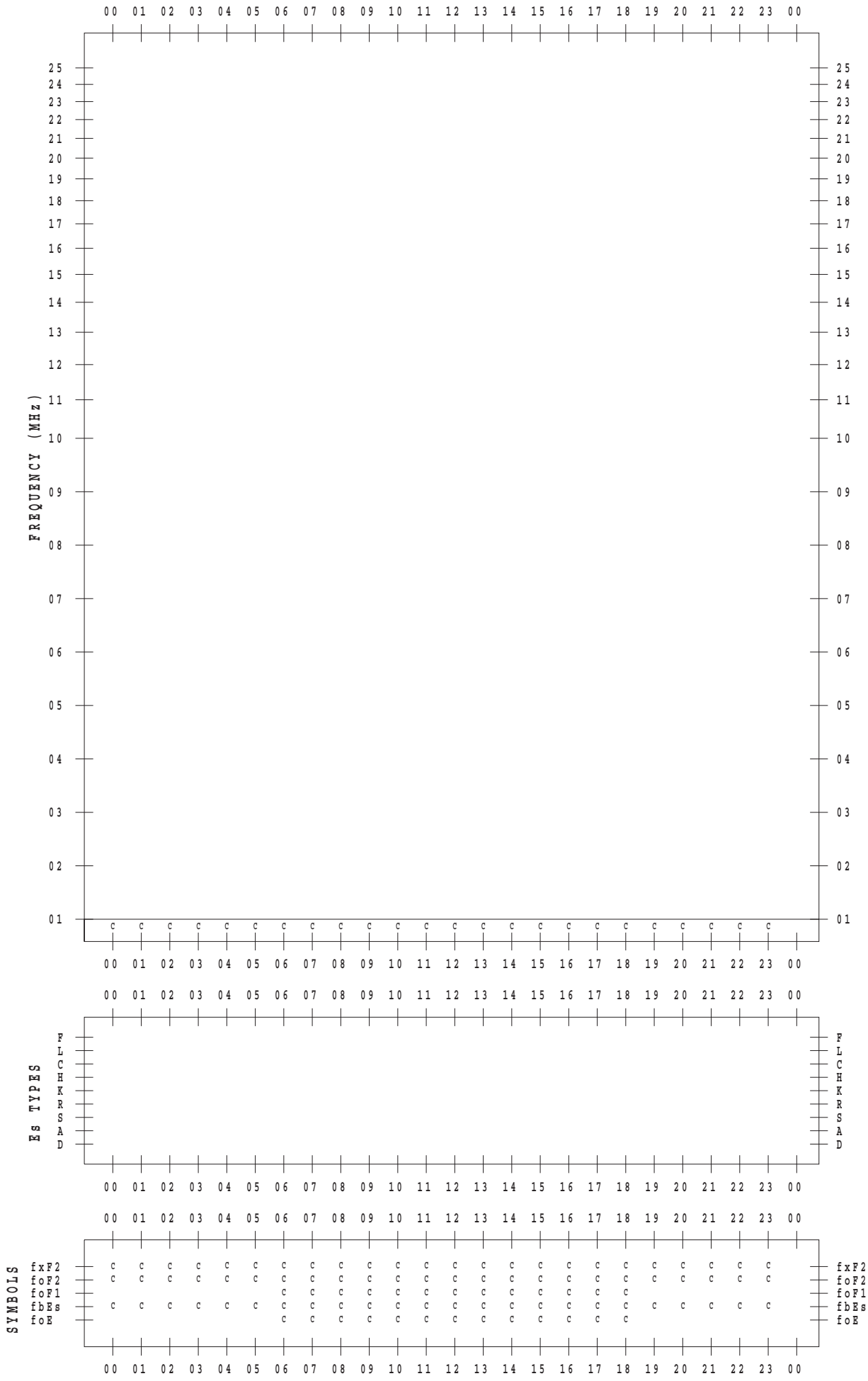
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2015/ 3/25

135 °E MEAN TIME



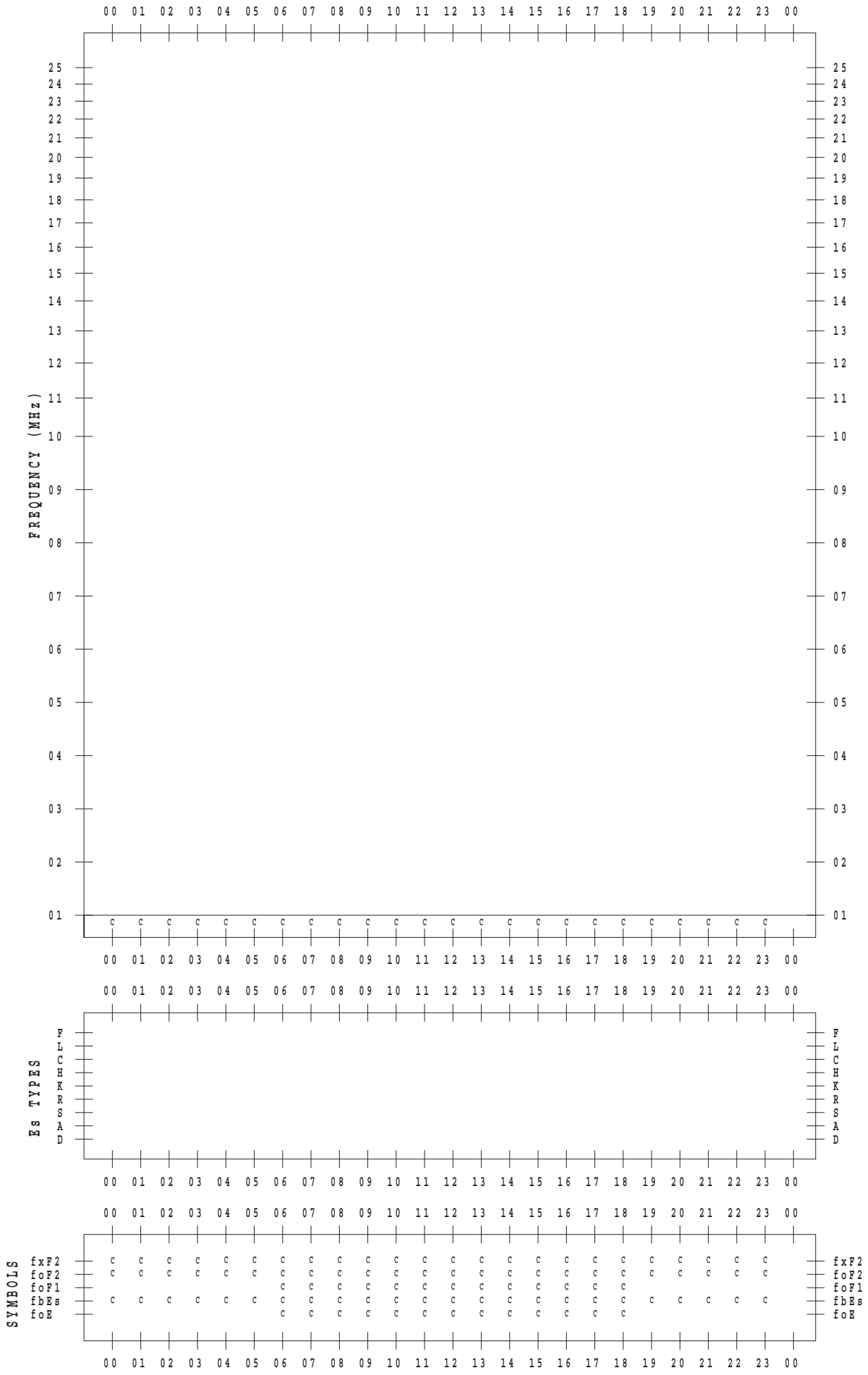
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2015/ 3/26

135 °E MEAN TIME



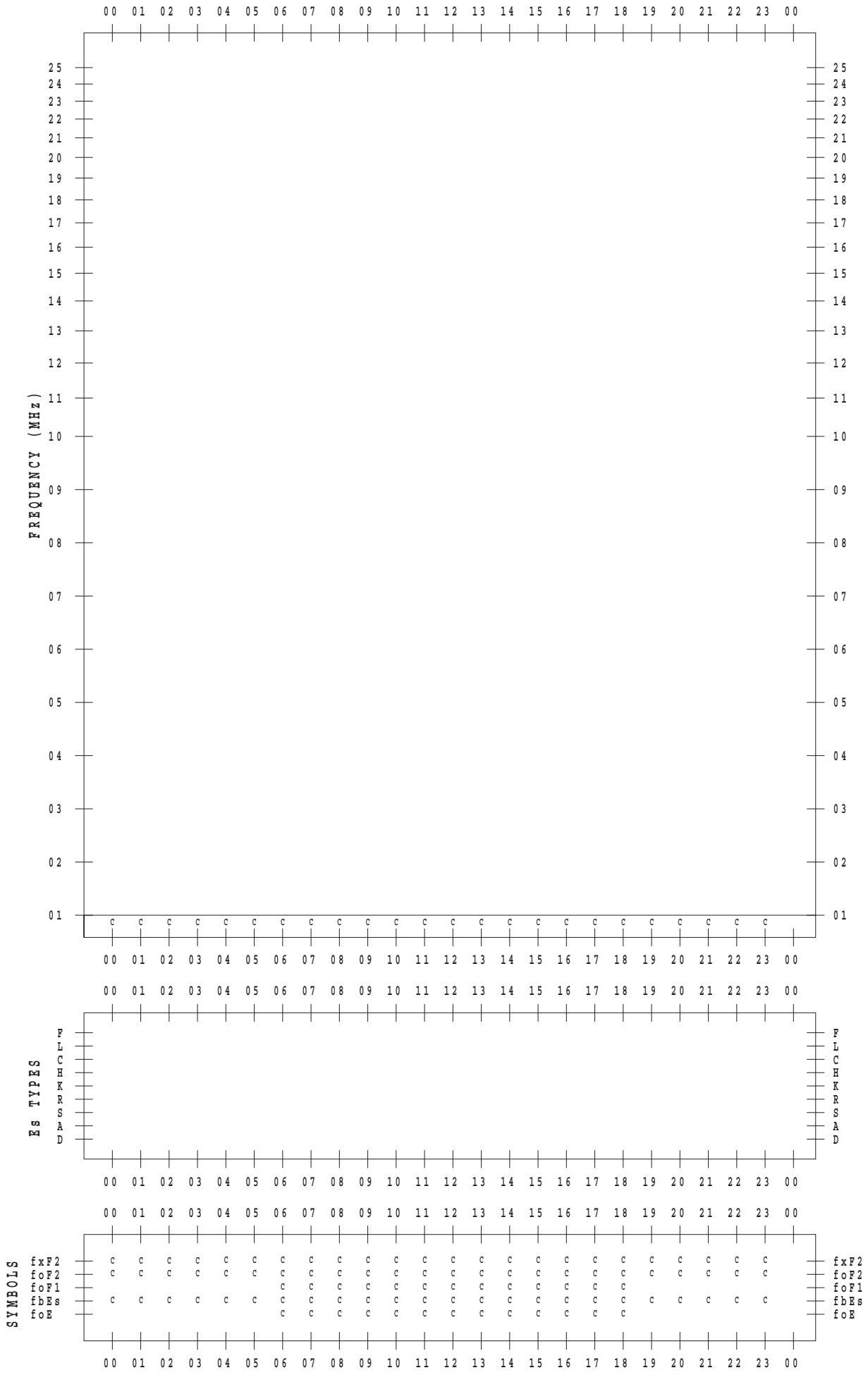
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2015/ 3/27

135 °E MEAN TIME



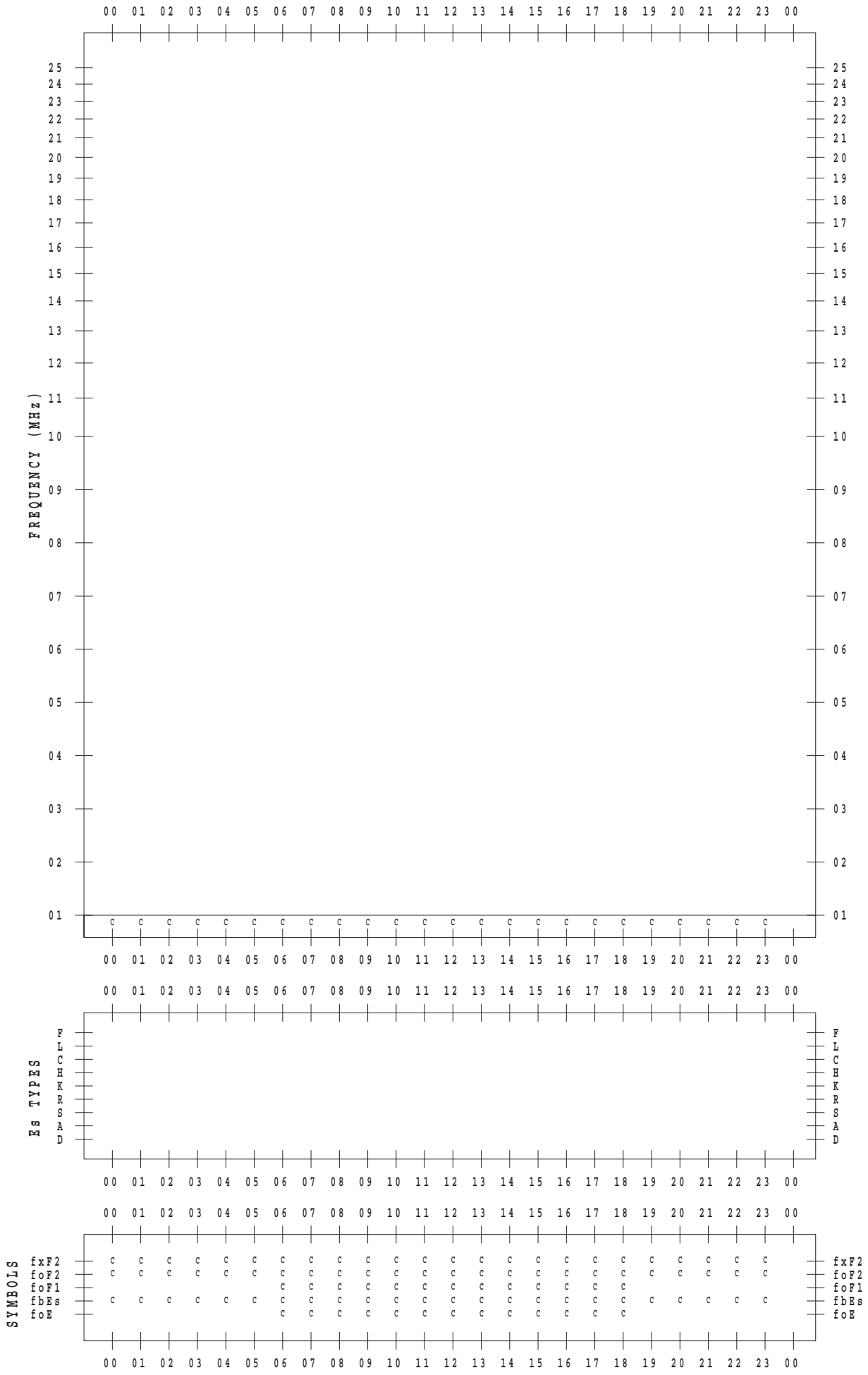
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2015/ 3/28

135 °E MEAN TIME



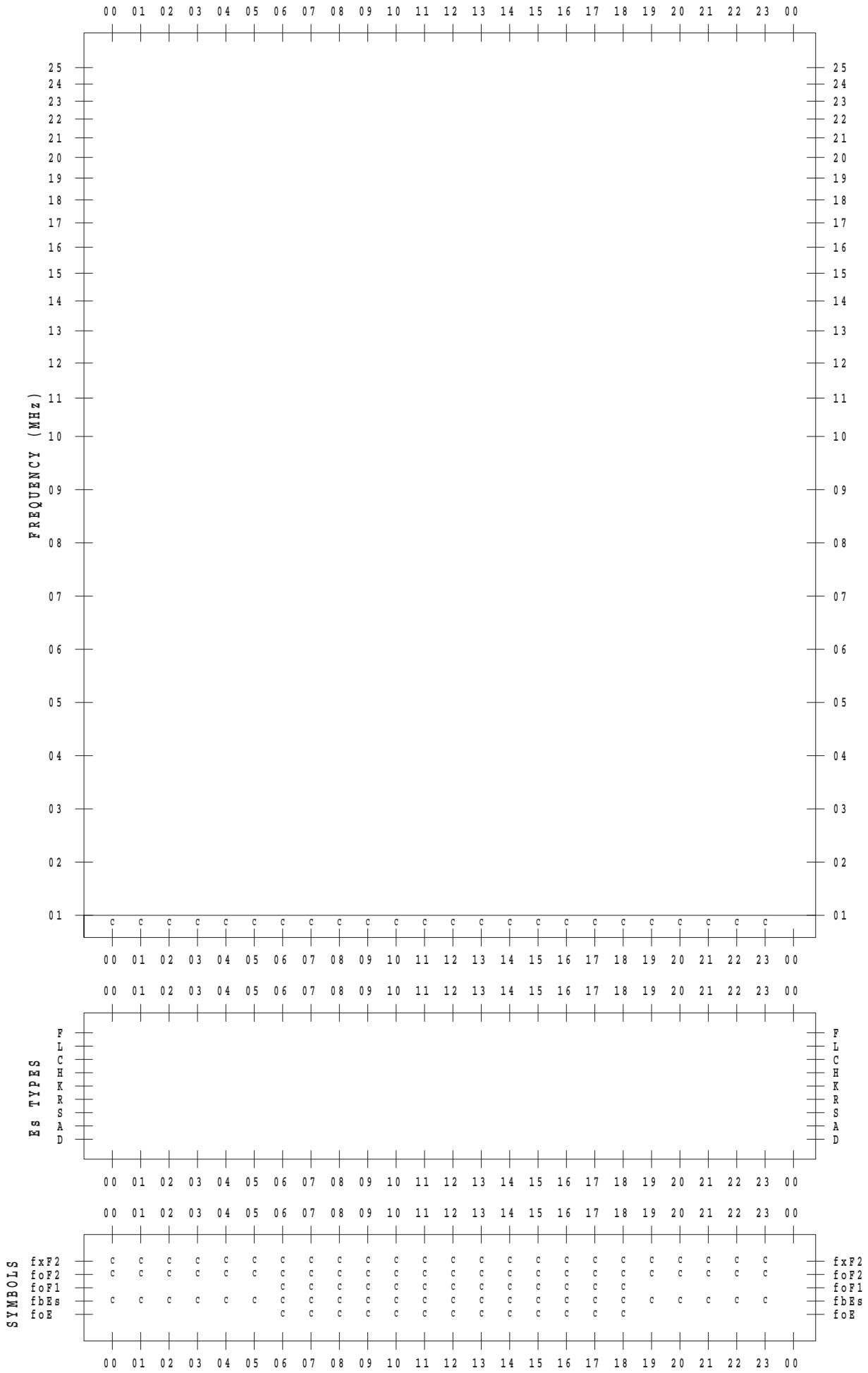
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2015/ 3/29

135 °E MEAN TIME



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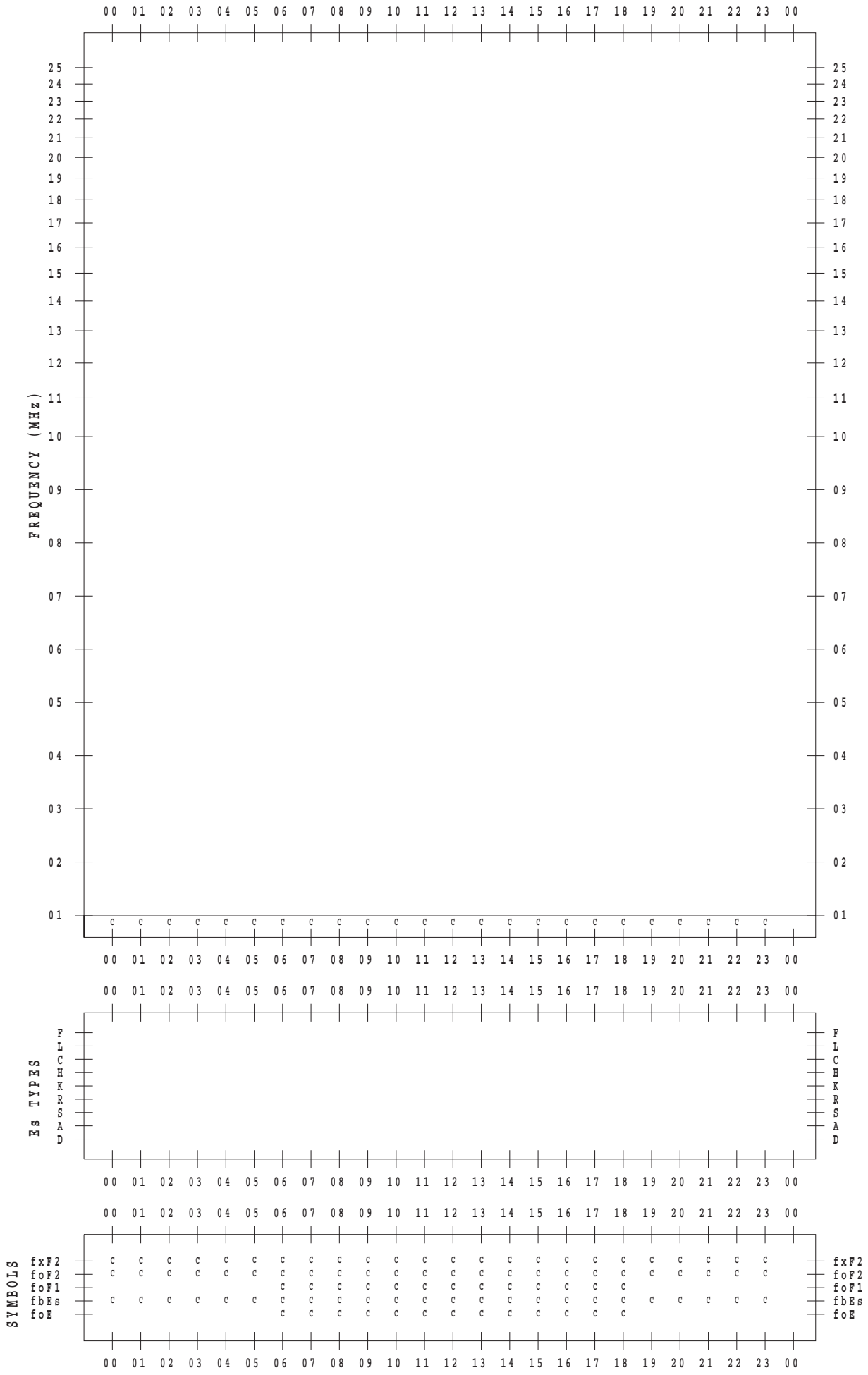
SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2015/ 3/30

135 °E MEAN TIME



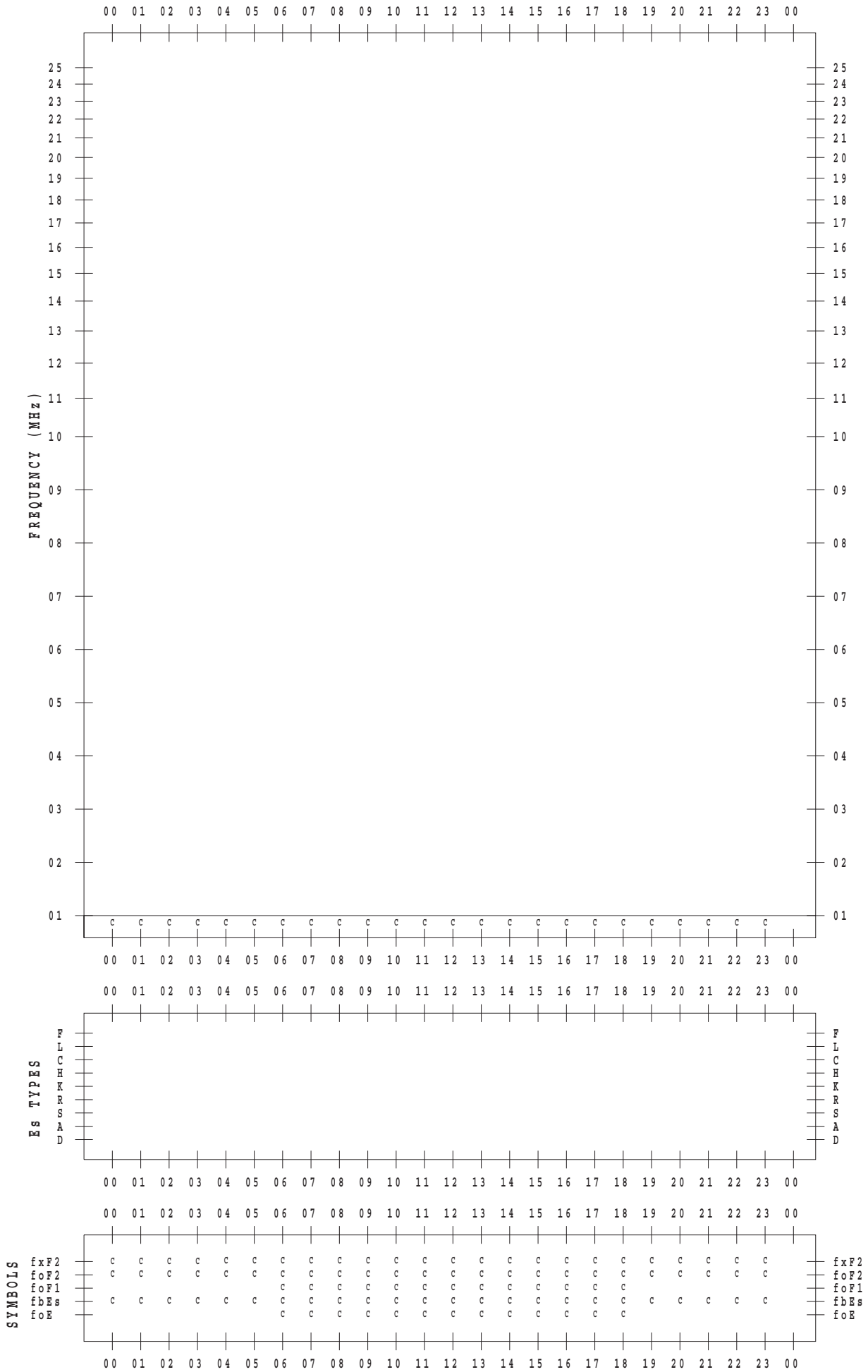
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2015/ 3/31

135 °E MEAN TIME



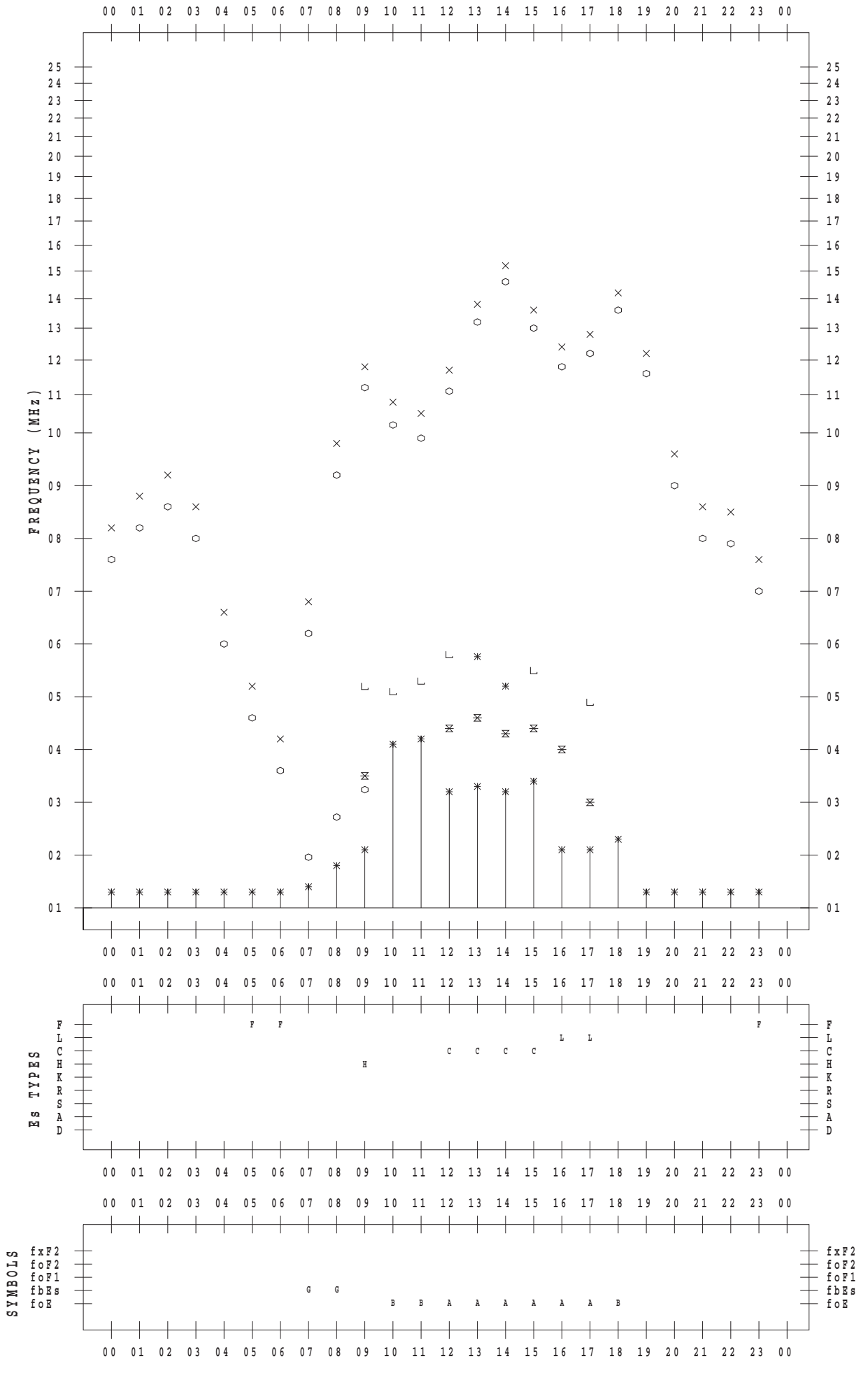
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2015/ 3/ 1

135 °E MEAN TIME



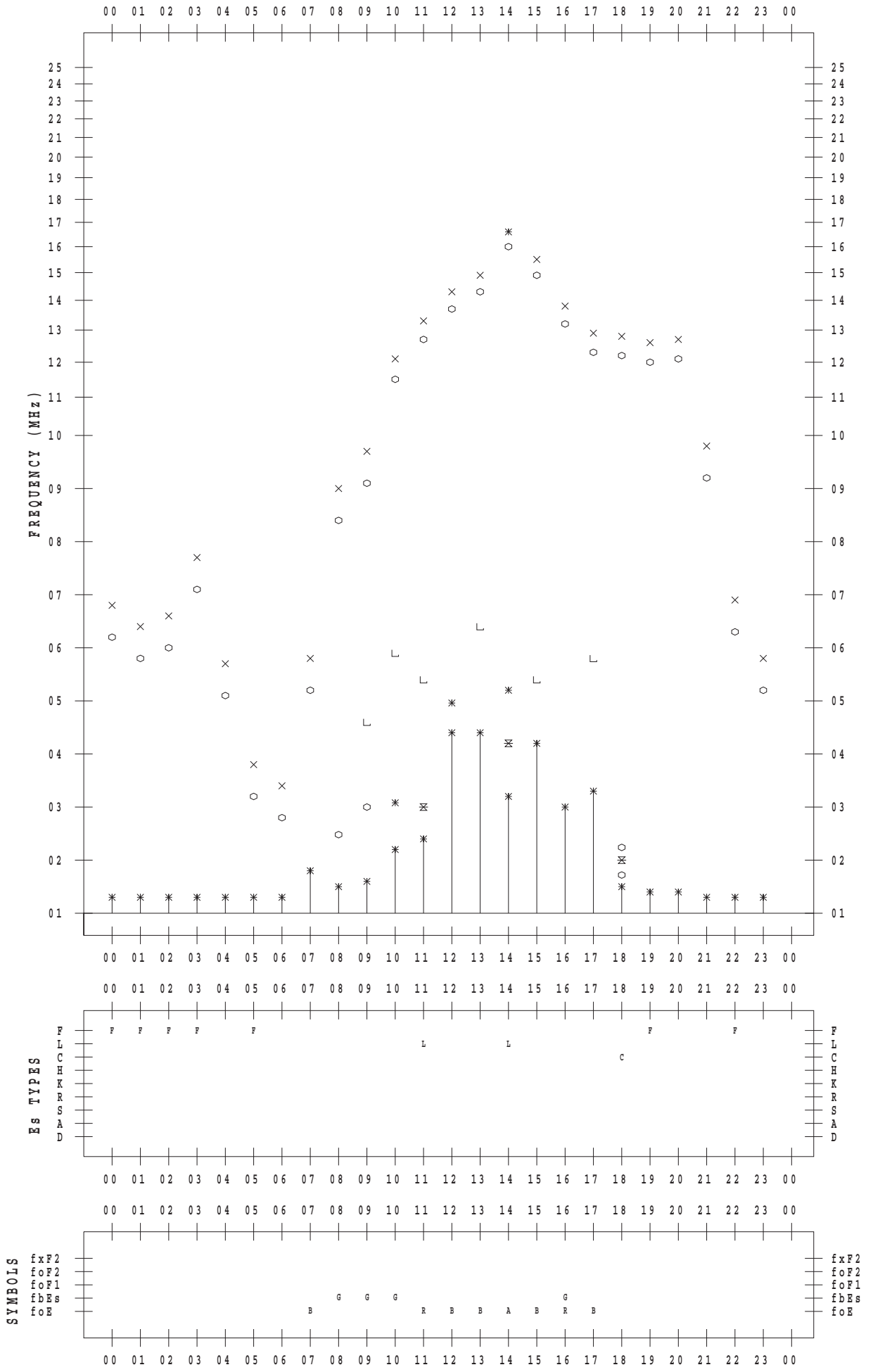
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2015/ 3/ 2

135 °E MEAN TIME



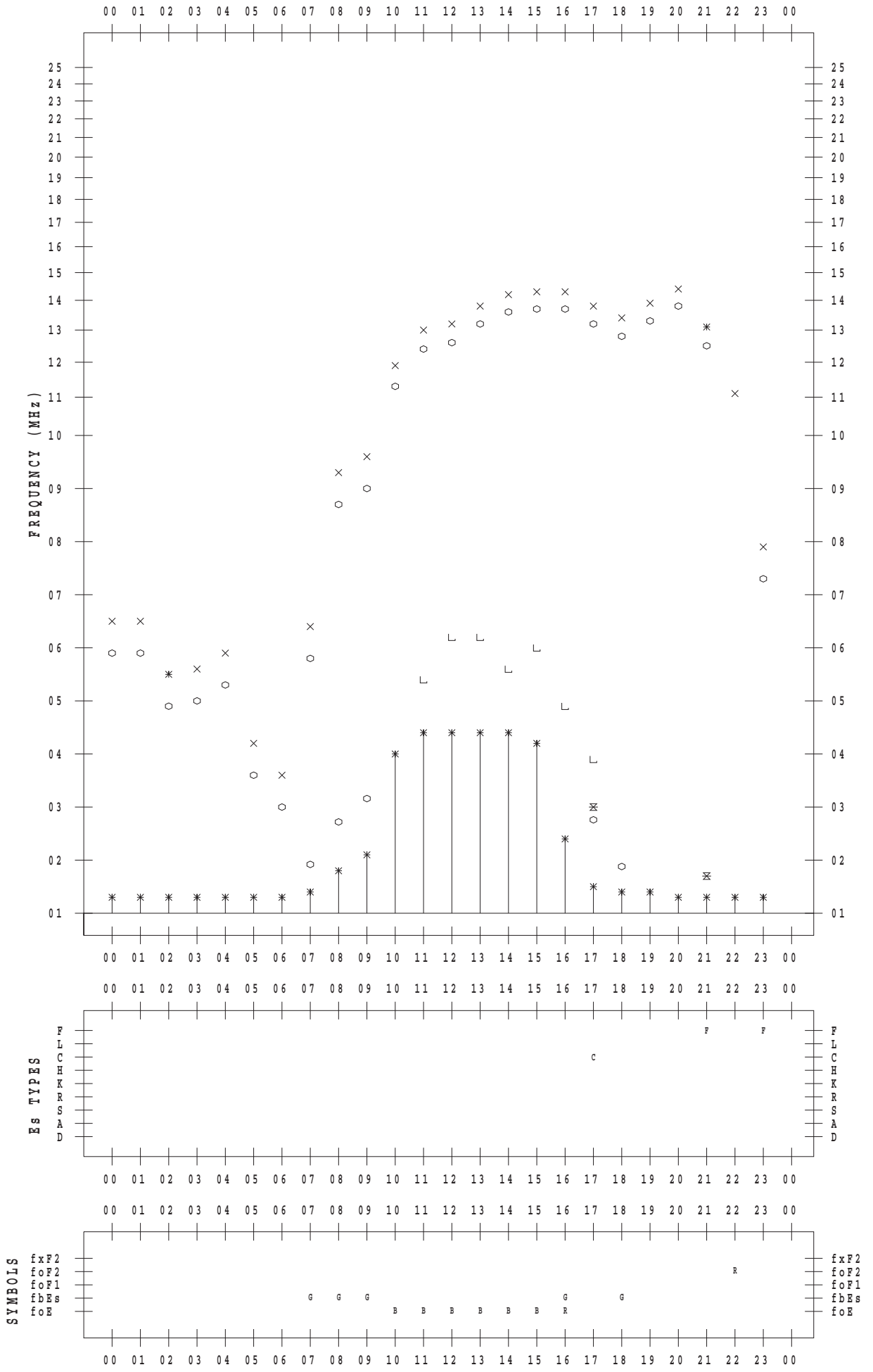
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2015/ 3/ 3

135 °E MEAN TIME



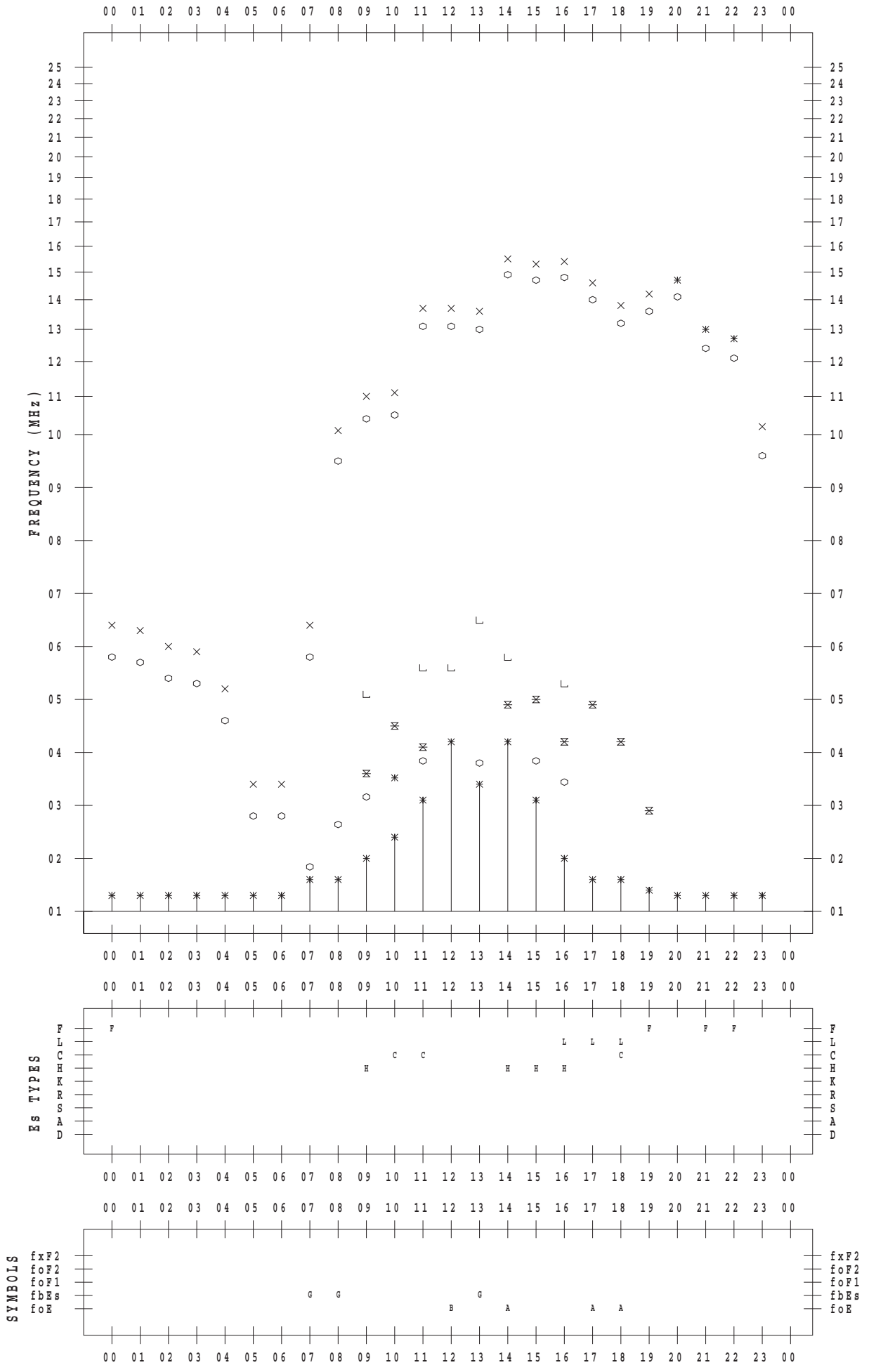
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2015/ 3/ 4

135 °E MEAN TIME



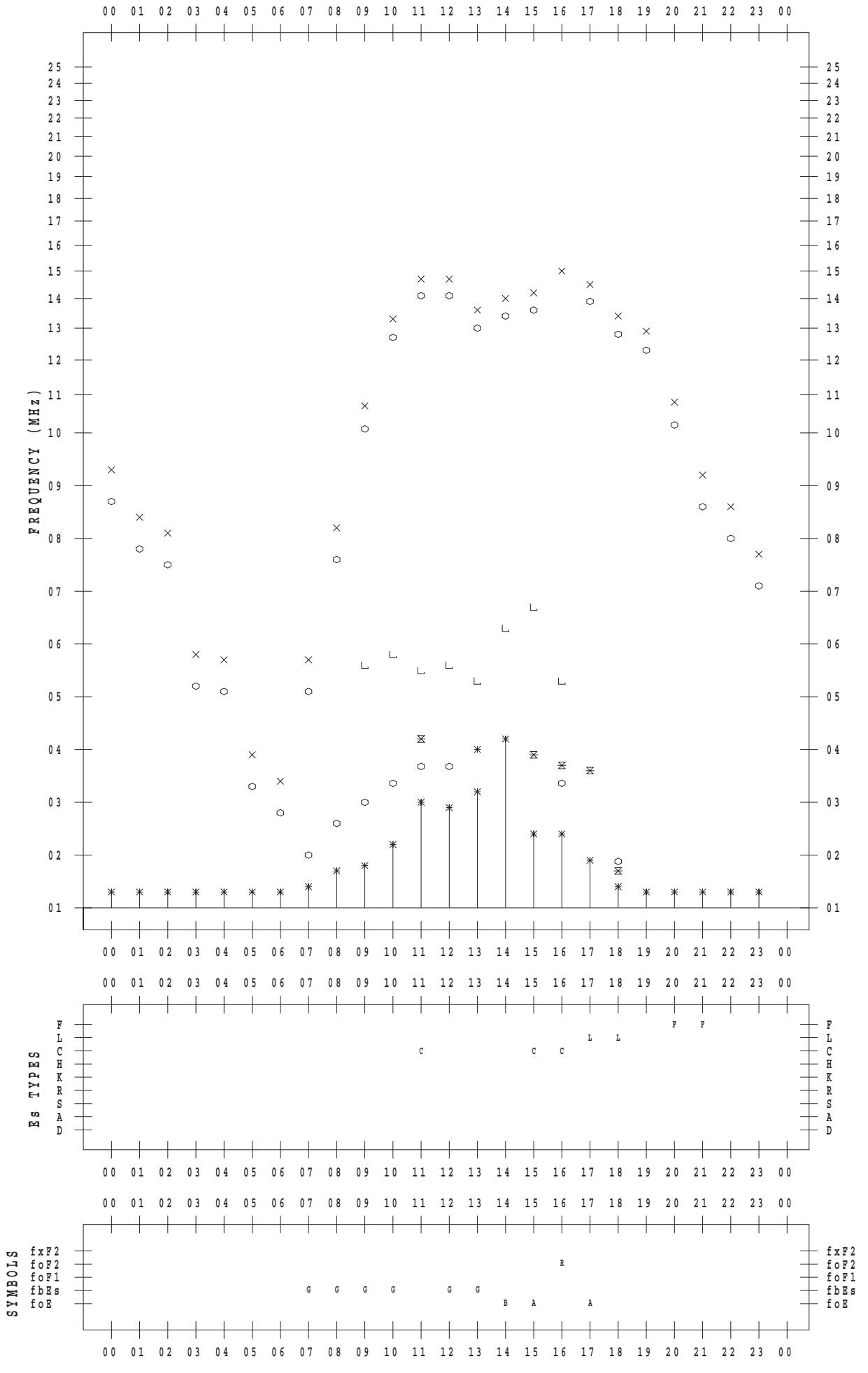
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2015/ 3/ 5

135 °E MEAN TIME



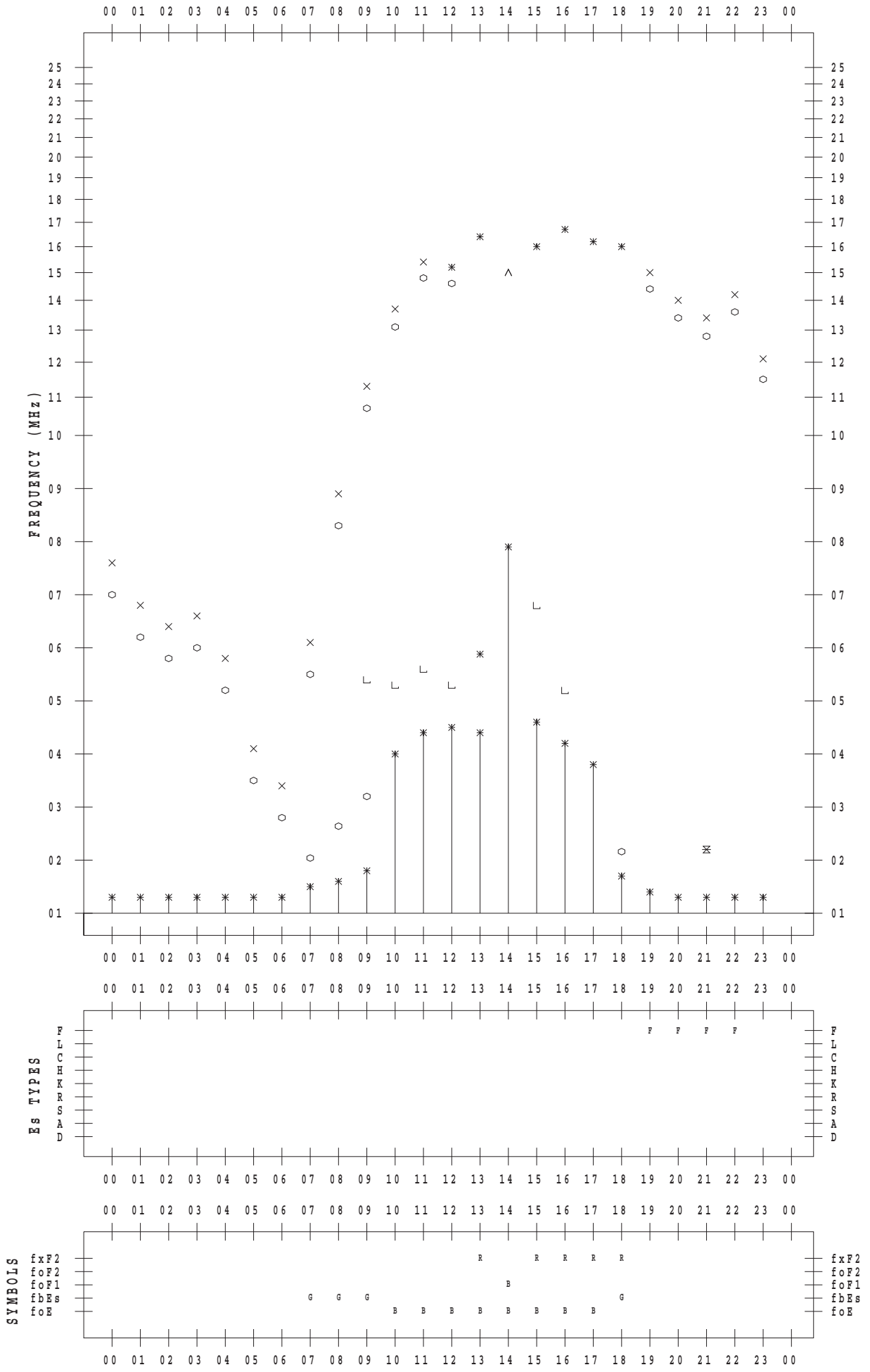
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2015/ 3/ 6

135 °E MEAN TIME



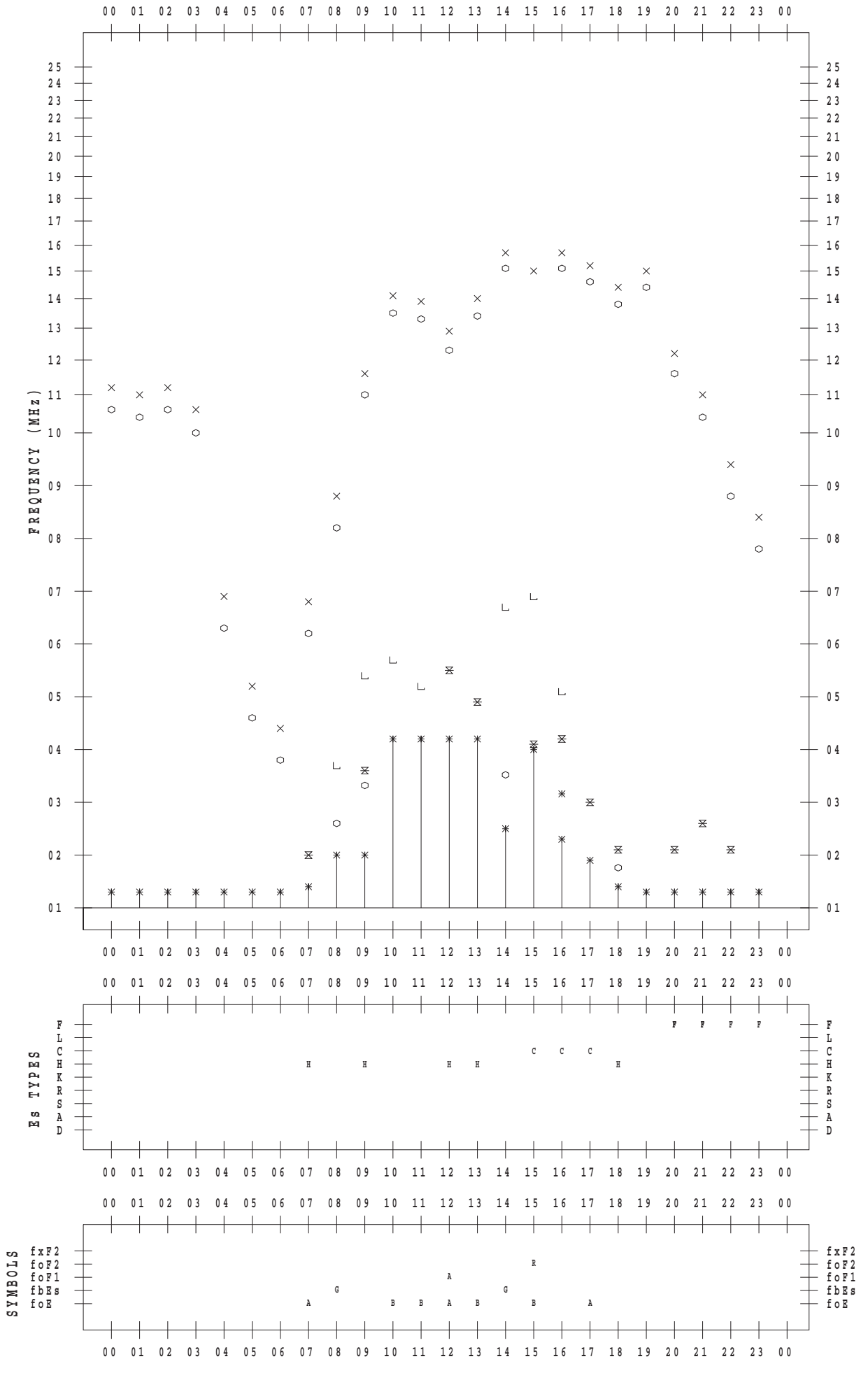
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2015/ 3/ 7

135 °E MEAN TIME



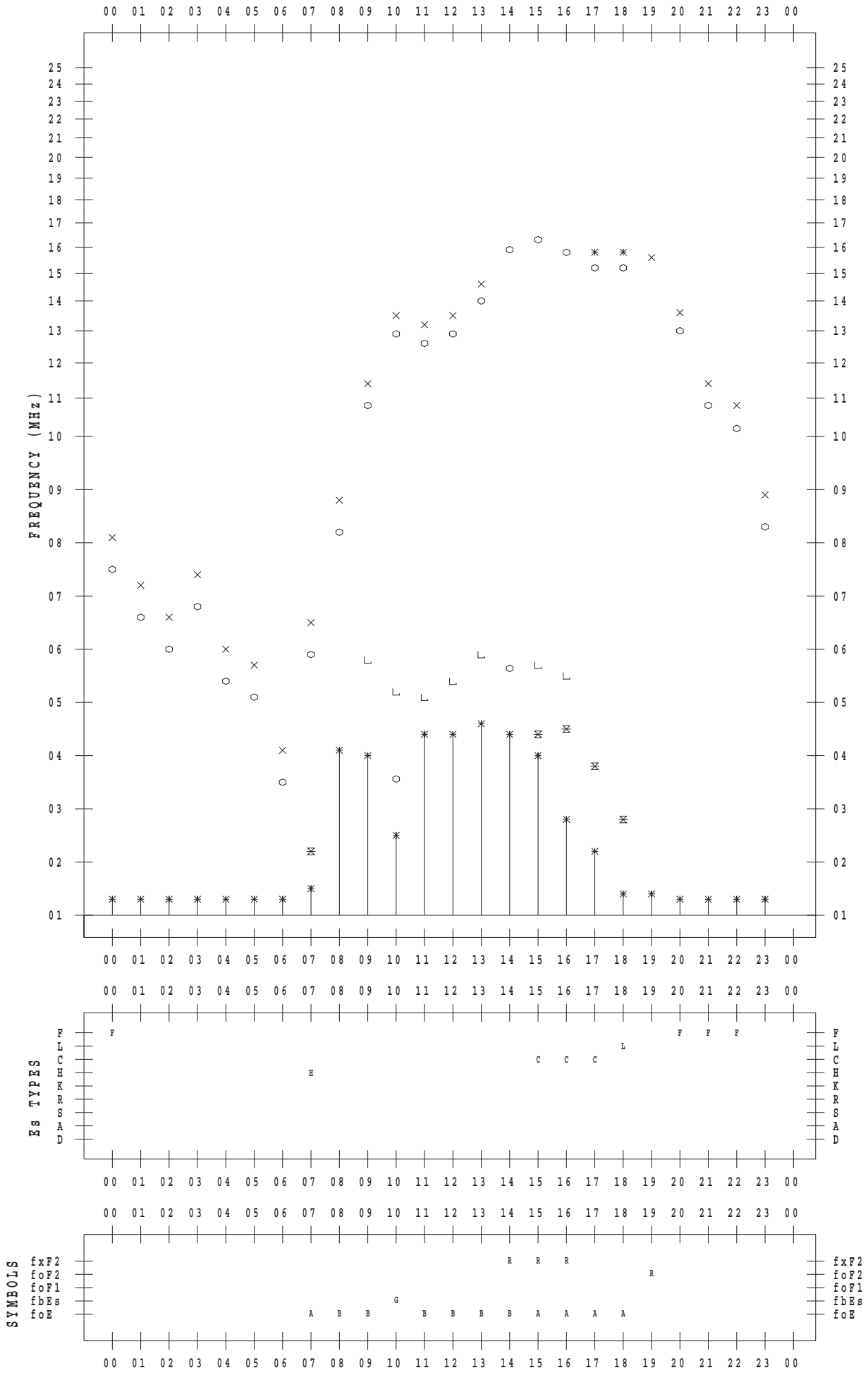
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2015/ 3/ 8

135 °E MEAN TIME



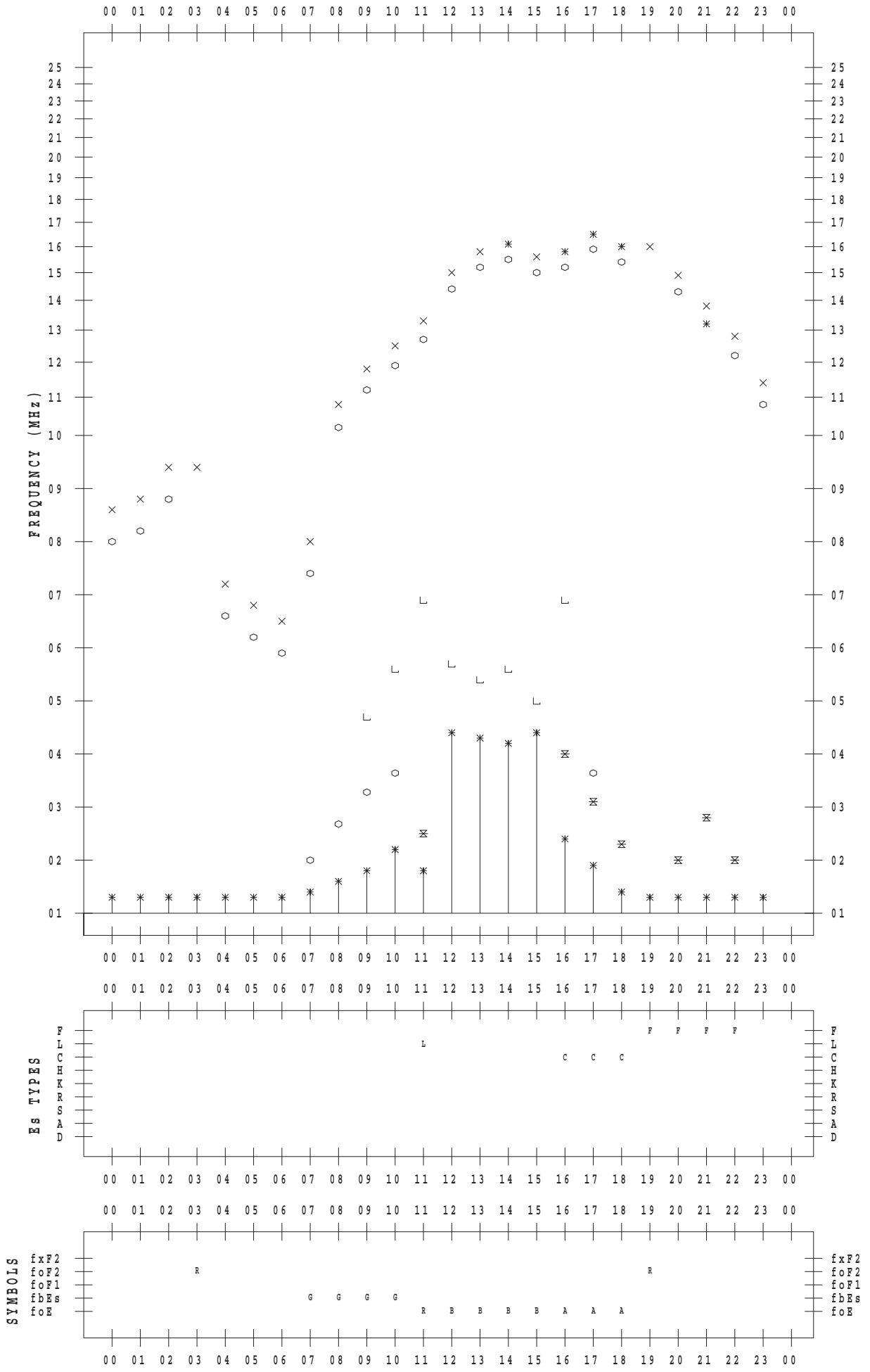
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2015/ 3/ 9

135 °E MEAN TIME



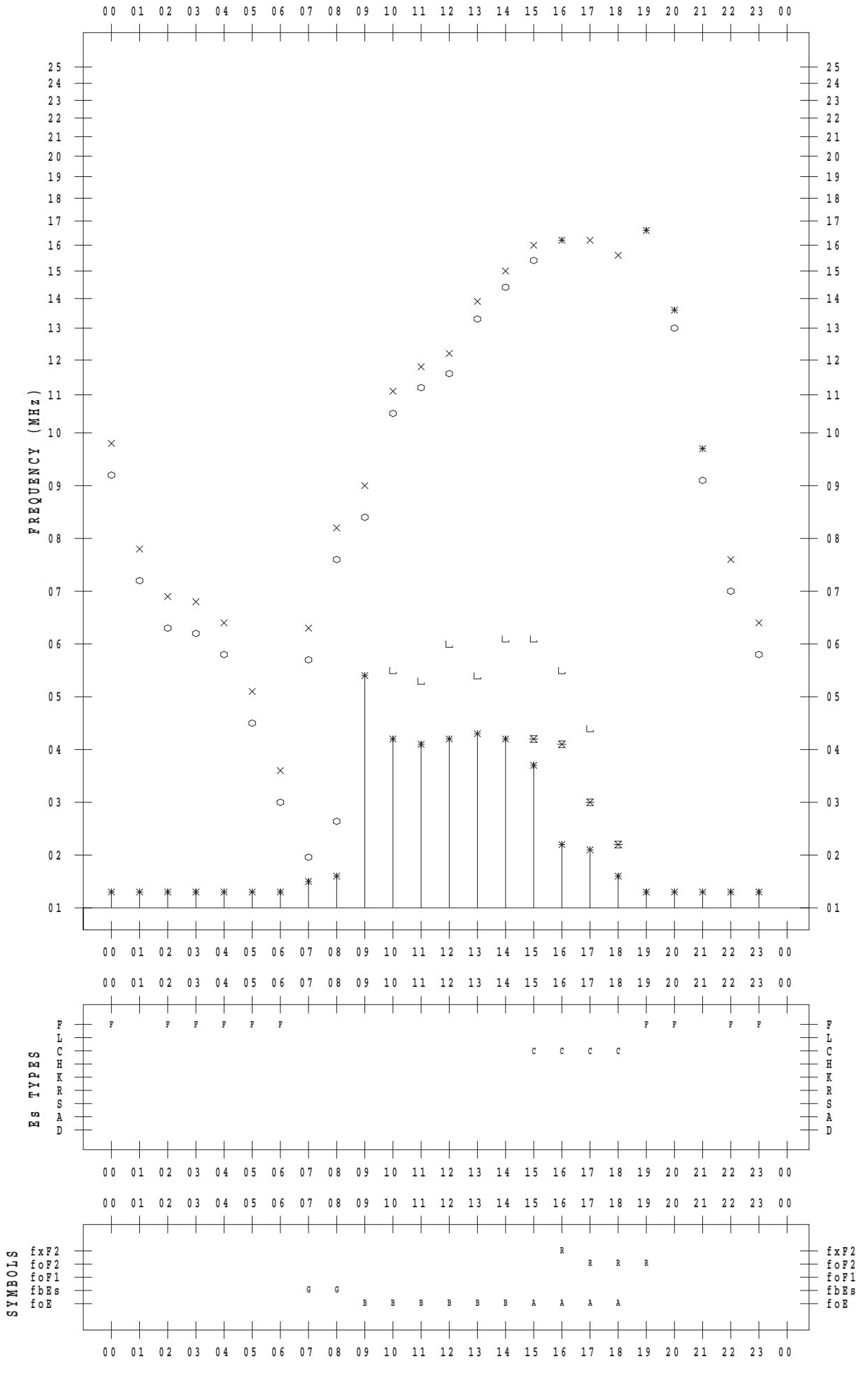
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2015/ 3/10

135 °E MEAN TIME



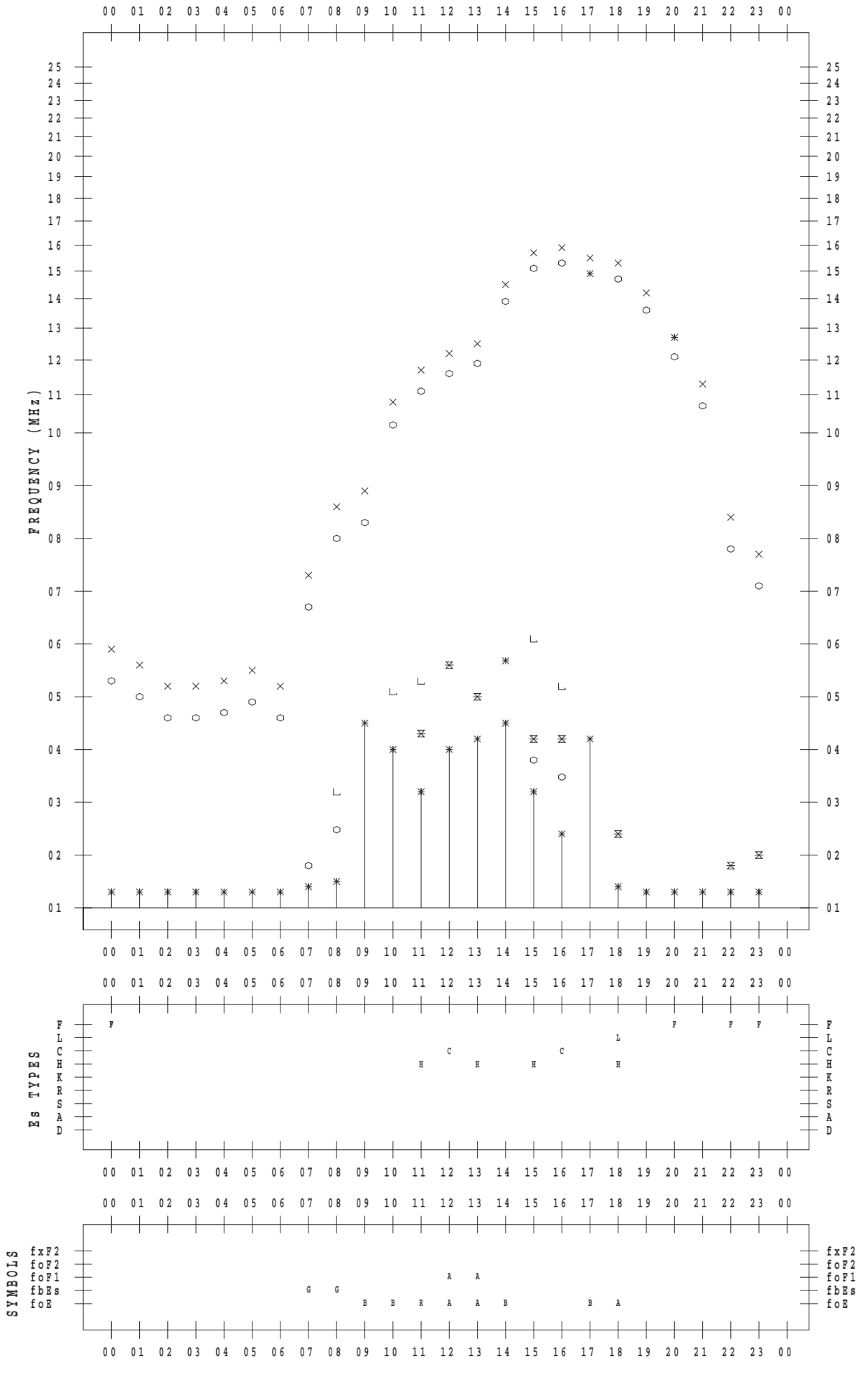
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2015/ 3/11

135 °E MEAN TIME



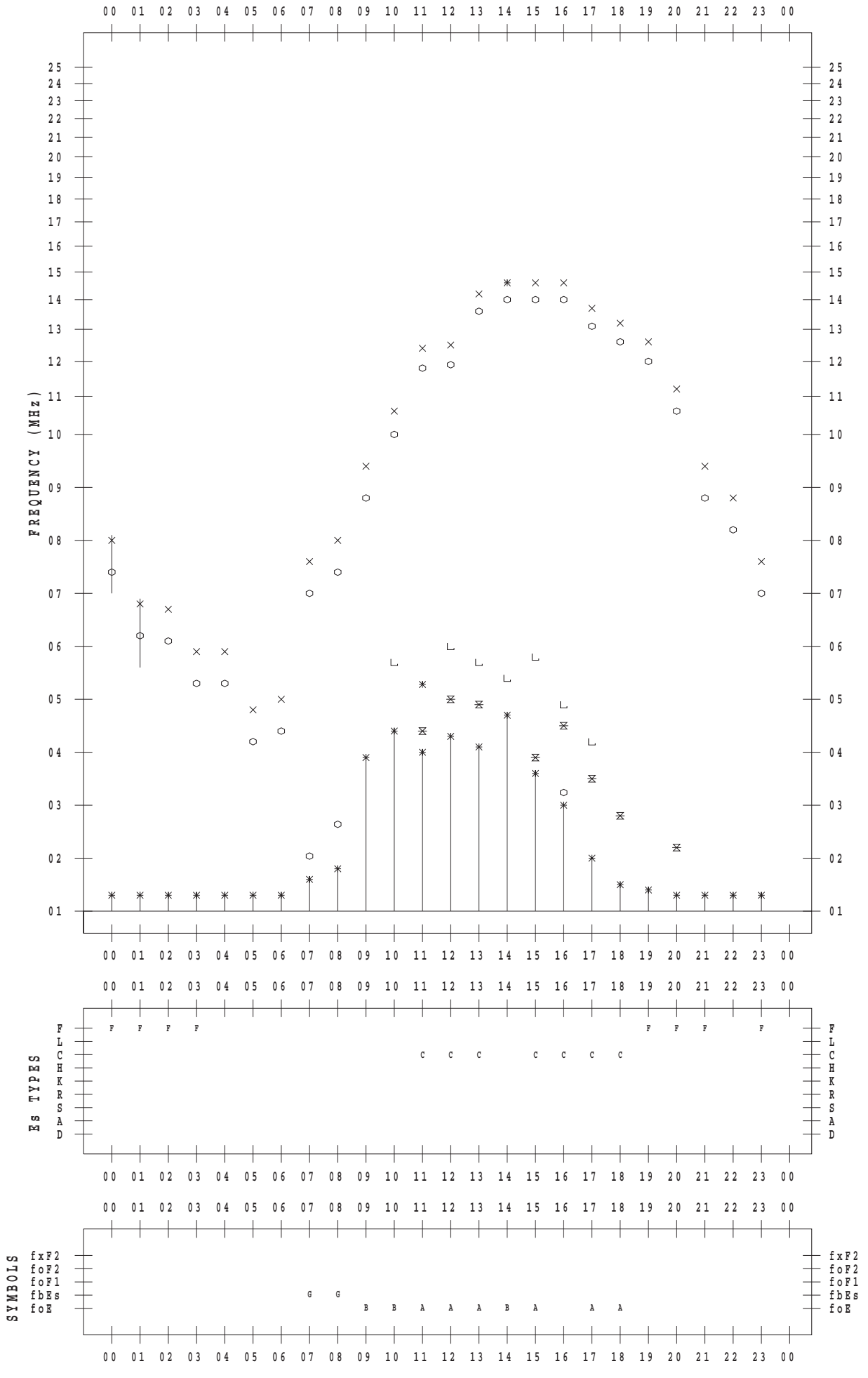
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2015/ 3/12

135 °E MEAN TIME



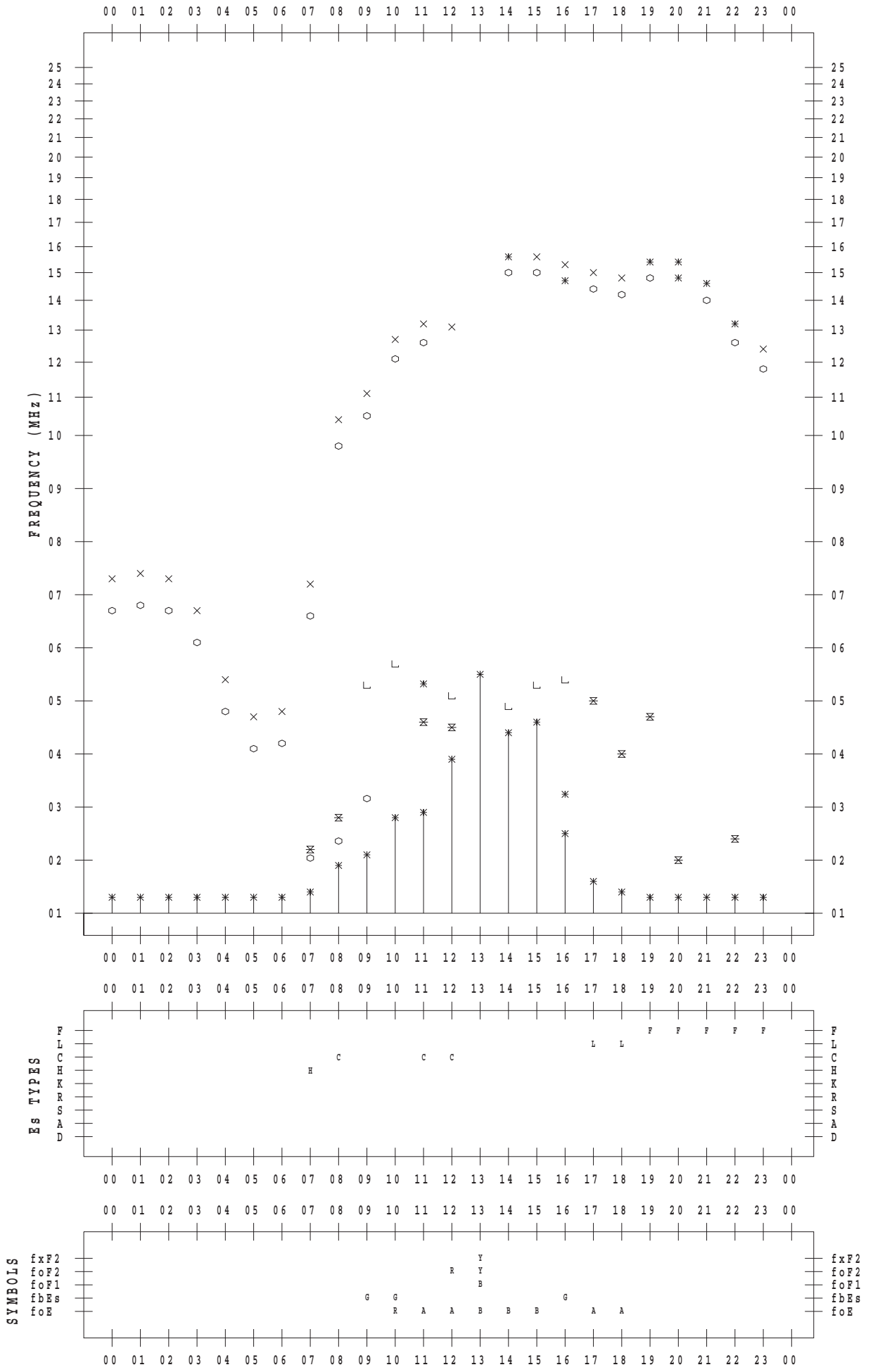
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2015/ 3/13

135 °E MEAN TIME



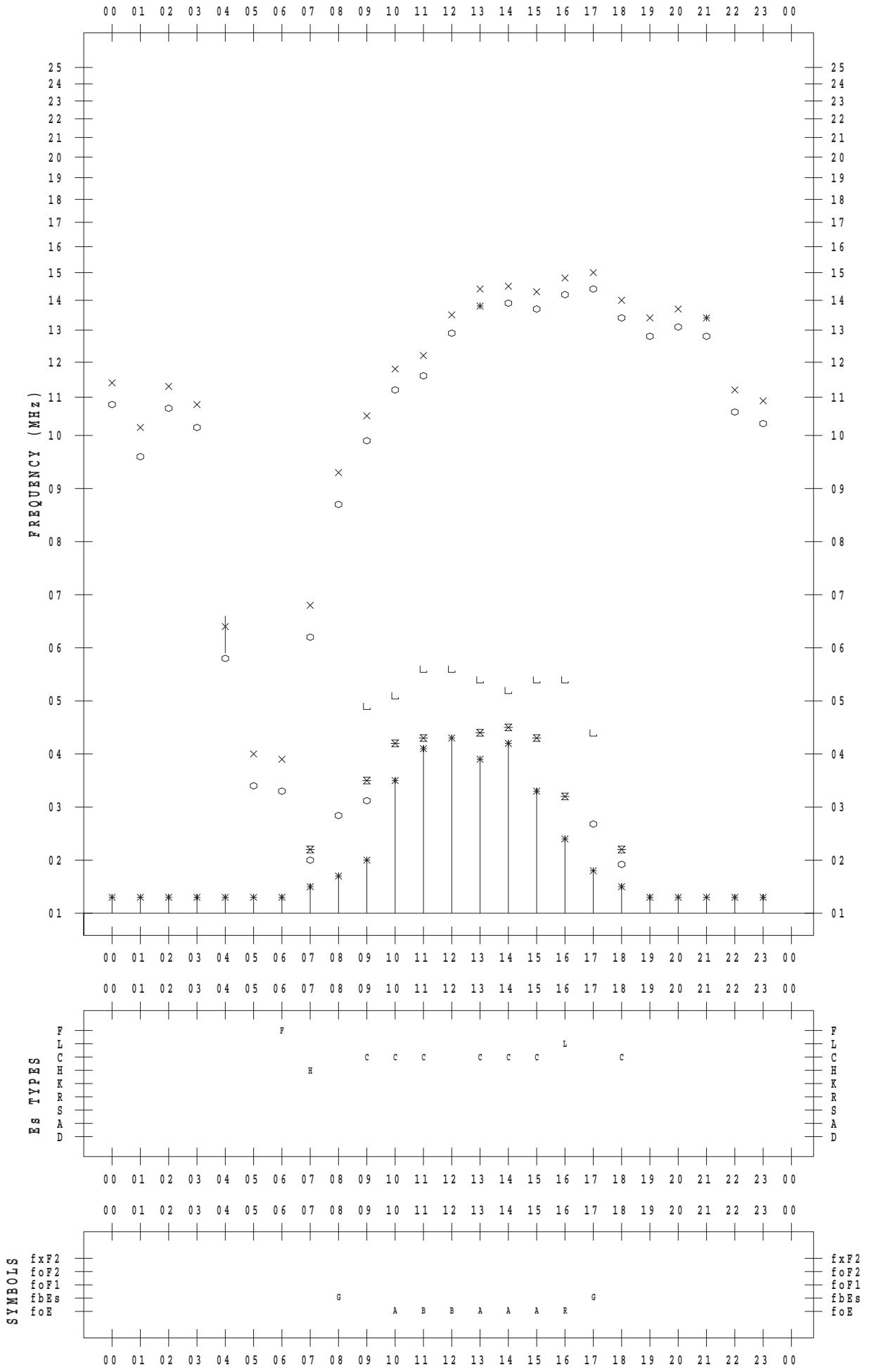
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2015/ 3/14

135 °E MEAN TIME



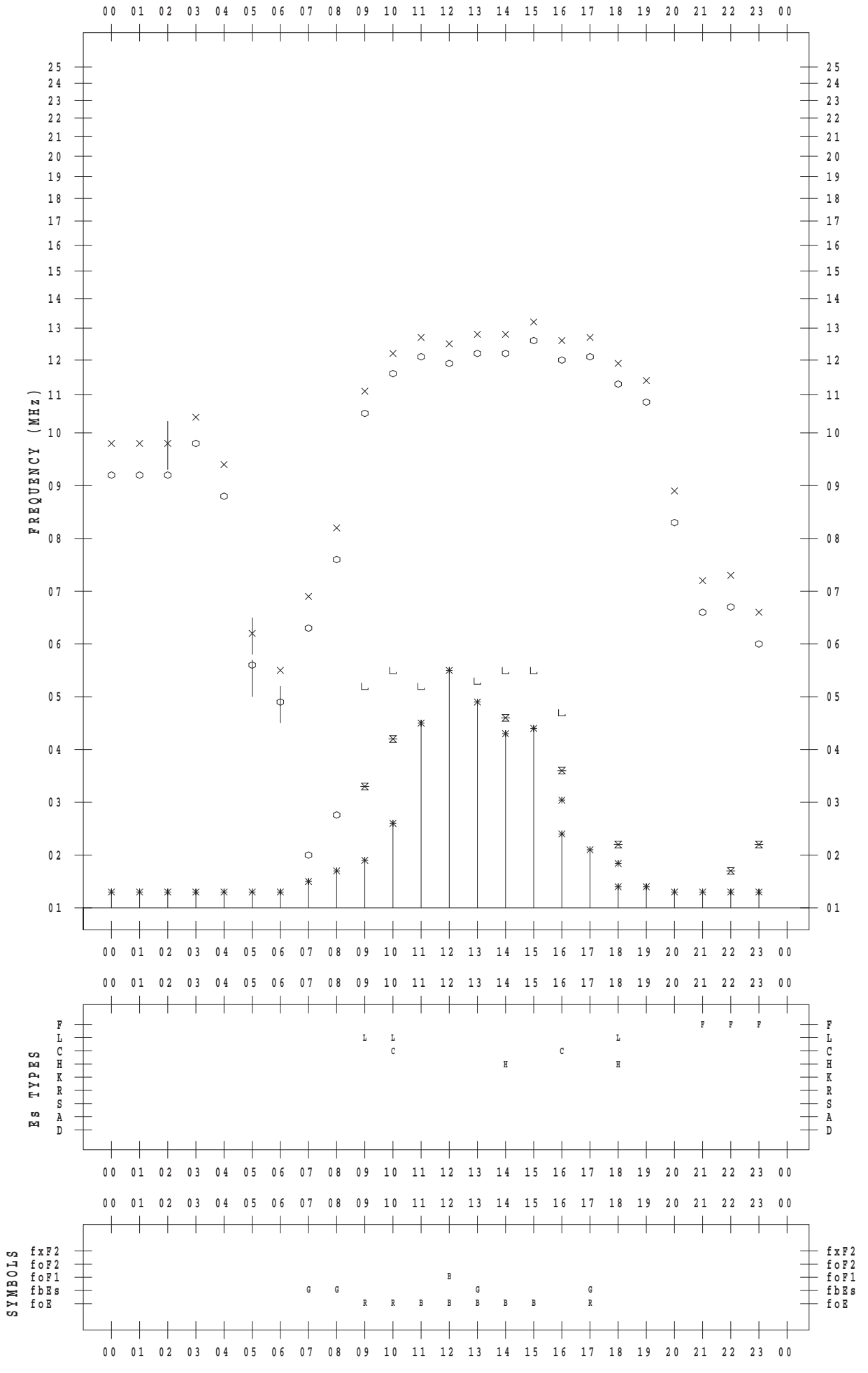
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2015/ 3/15

135 °E MEAN TIME



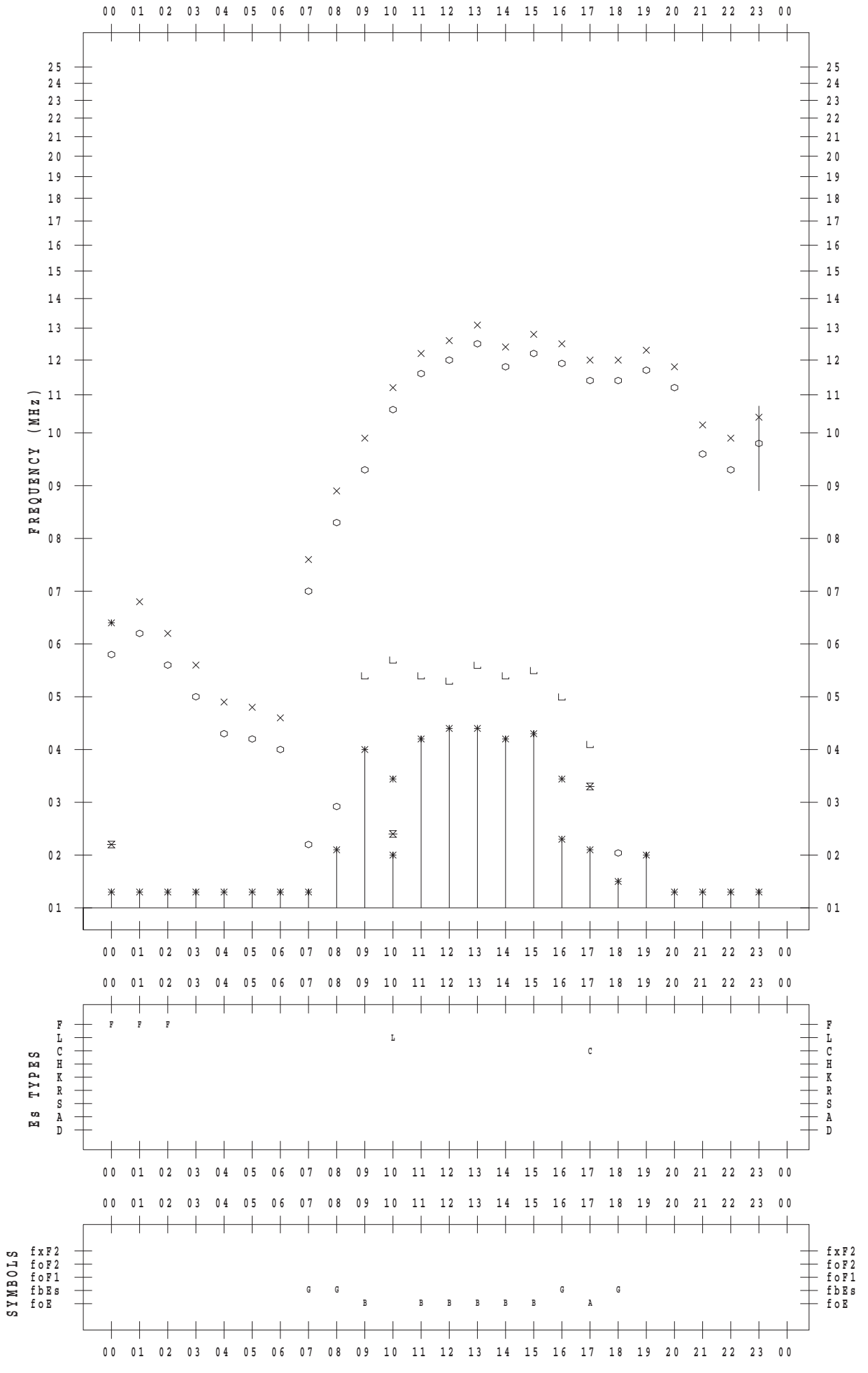
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2015/ 3/16

135 °E MEAN TIME



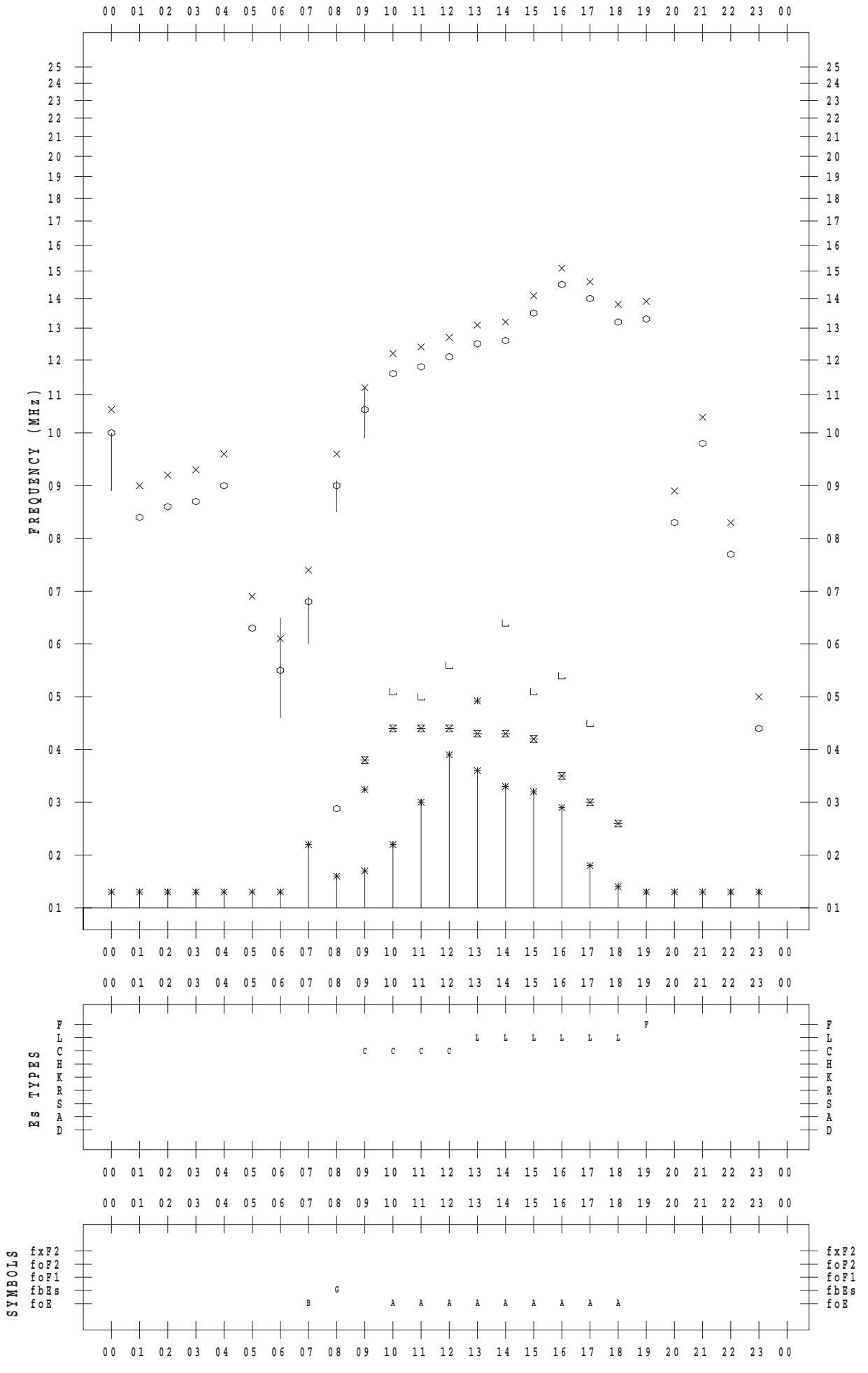
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2015/ 3/17

135 °E MEAN TIME



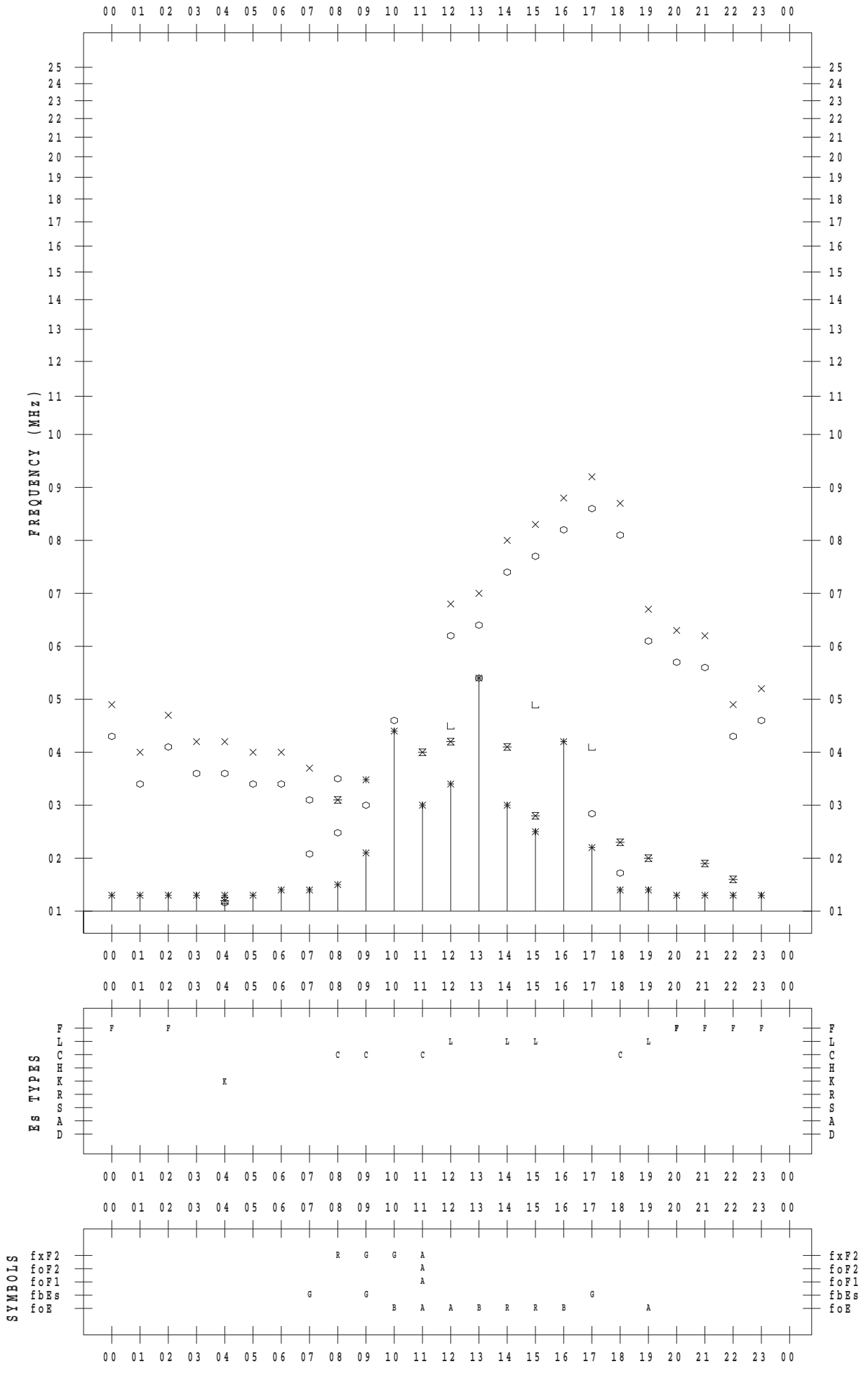
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2015/ 3/18

135 °E MEAN TIME



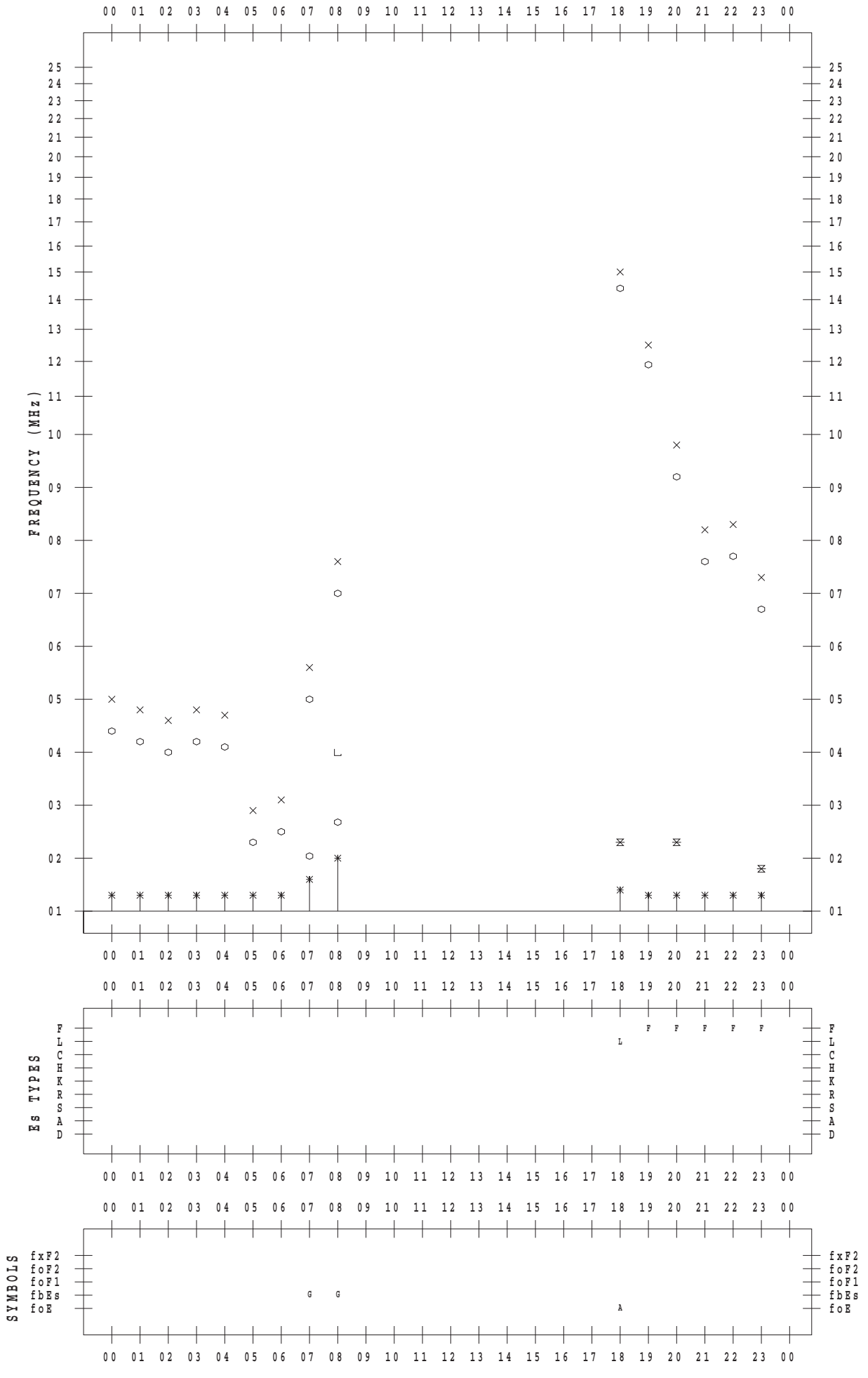
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2015/ 3/19

135 °E MEAN TIME



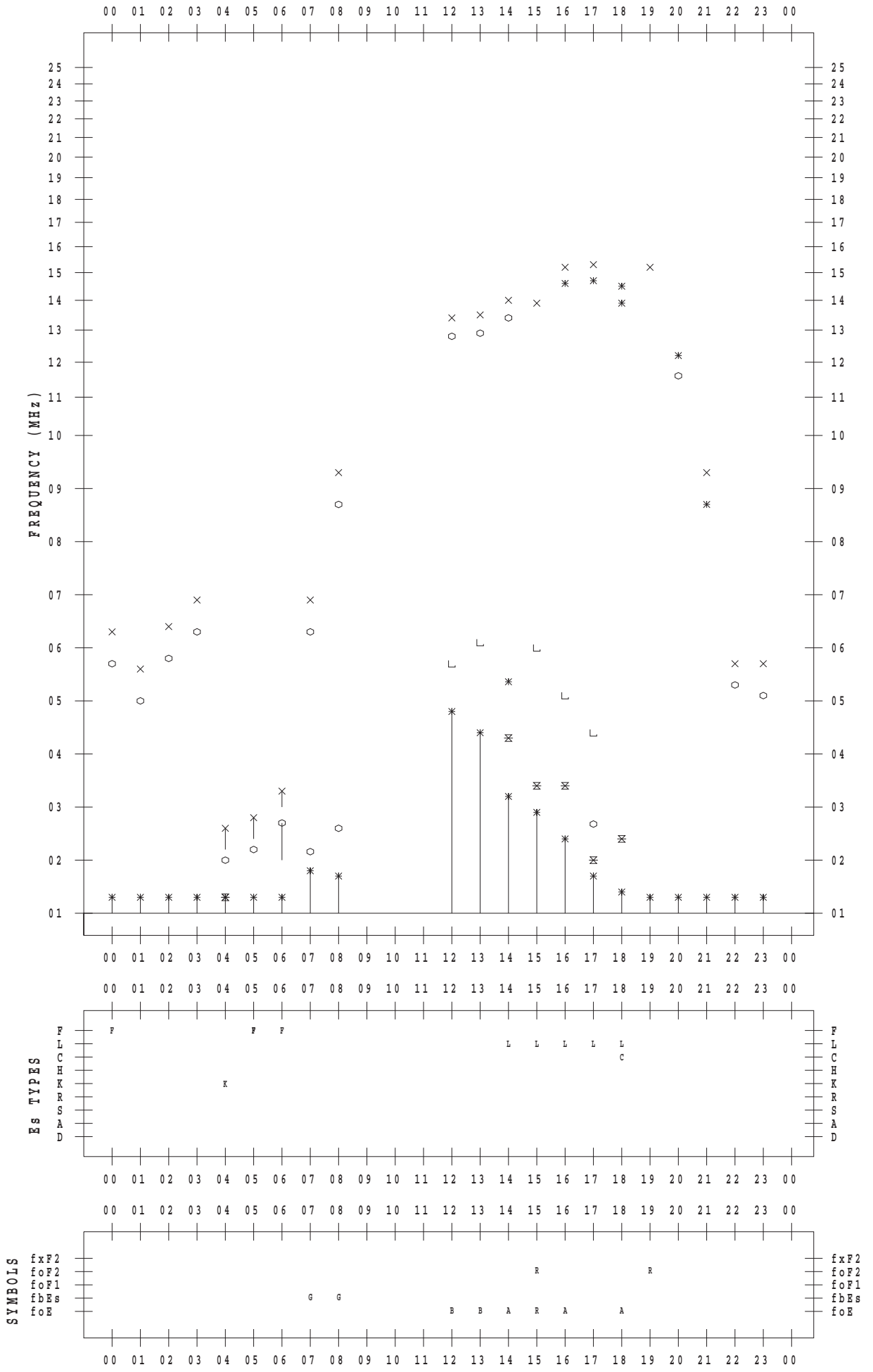
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2015/ 3/20

135 °E MEAN TIME



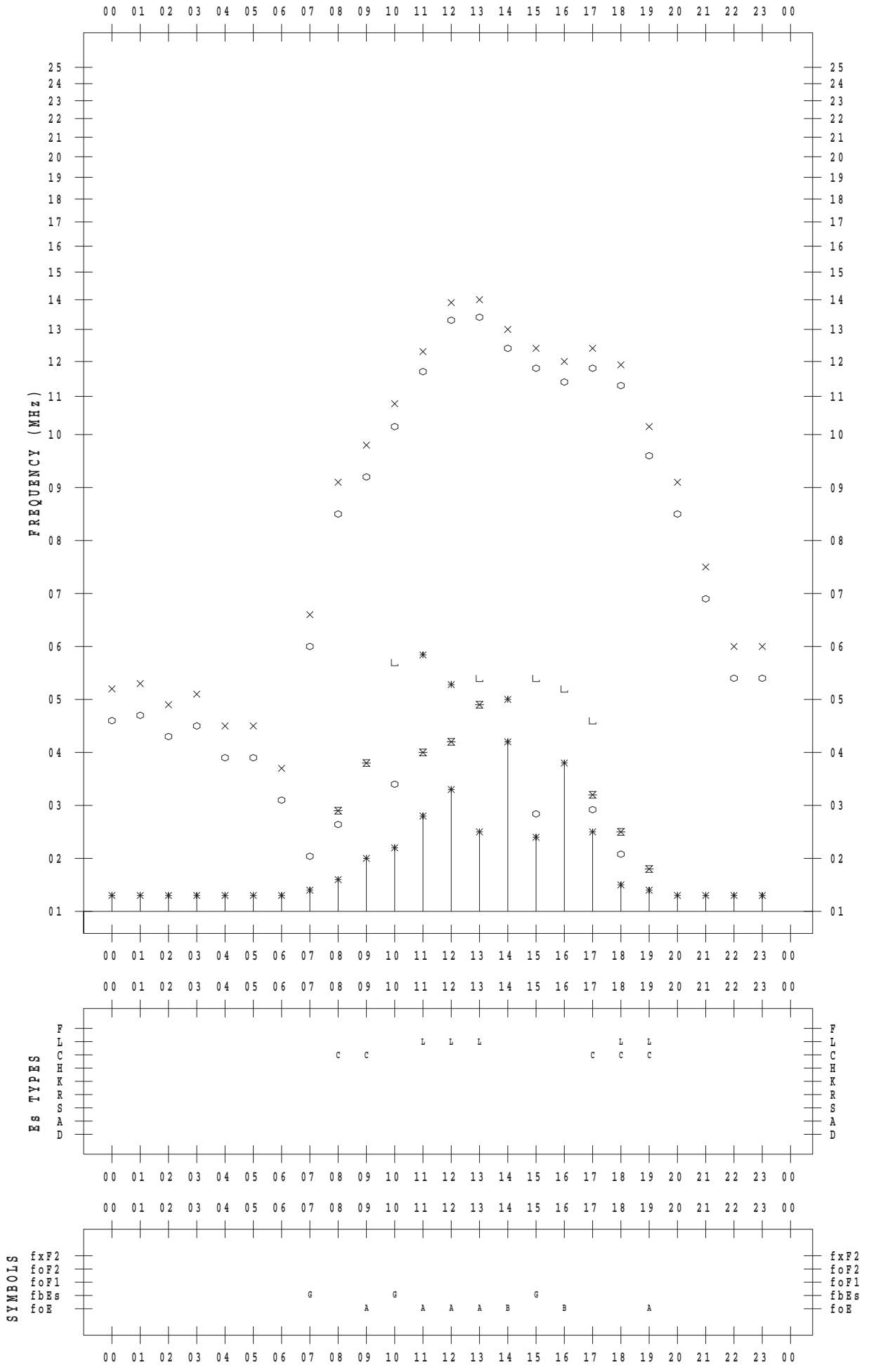
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2015/ 3/21

135 °E MEAN TIME



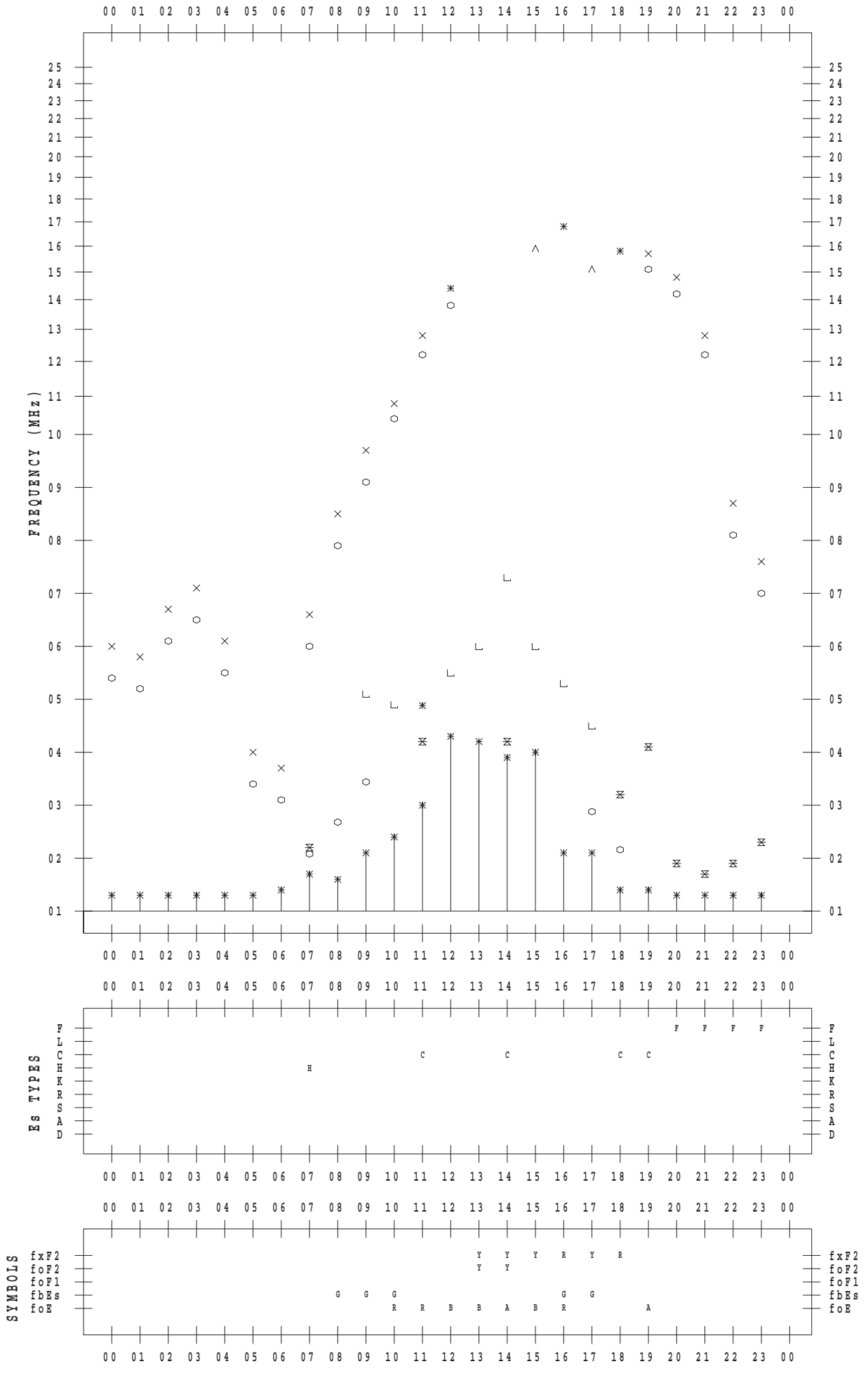
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2015/ 3/22

135 °E MEAN TIME



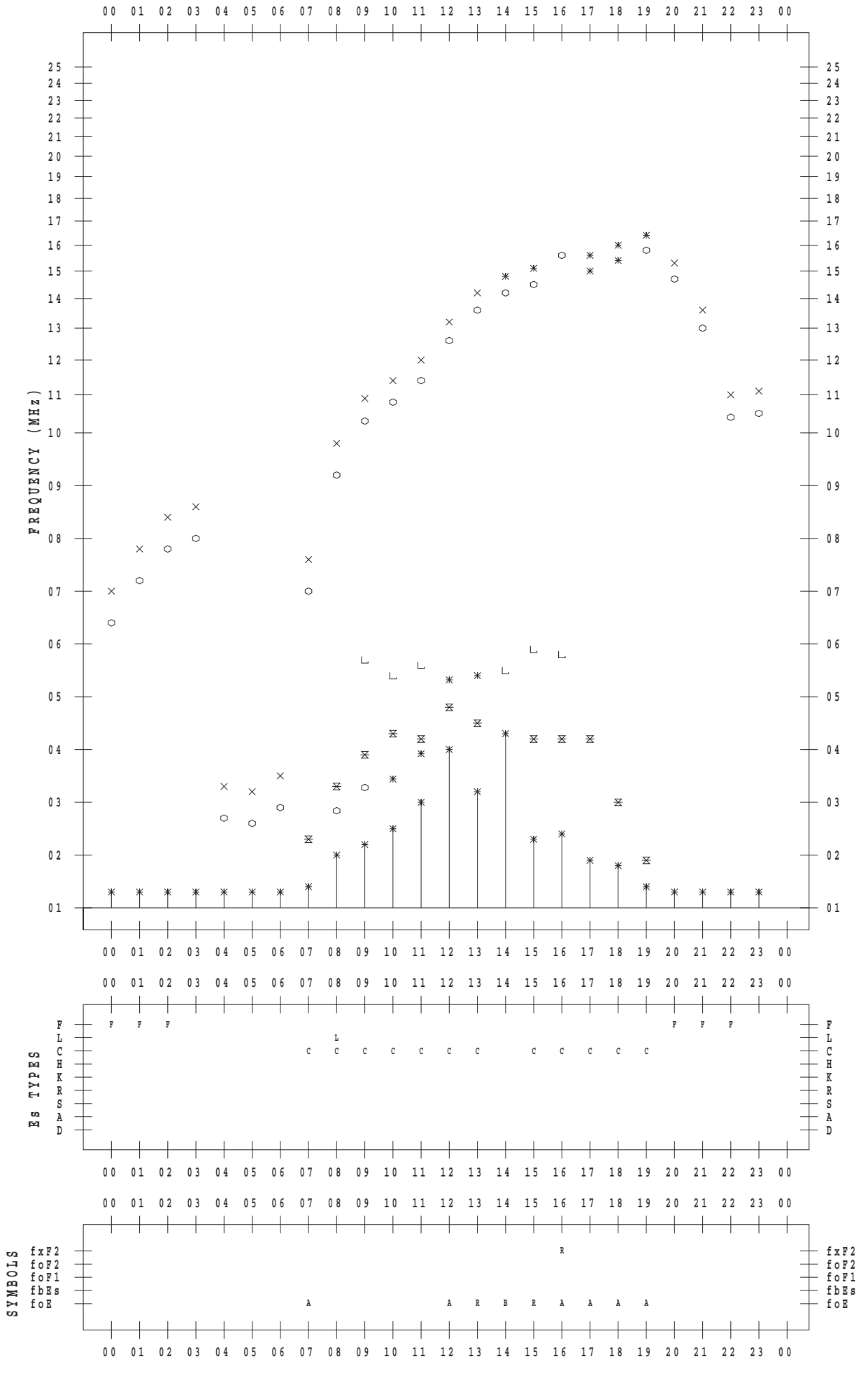
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2015/ 3/23

135 °E MEAN TIME



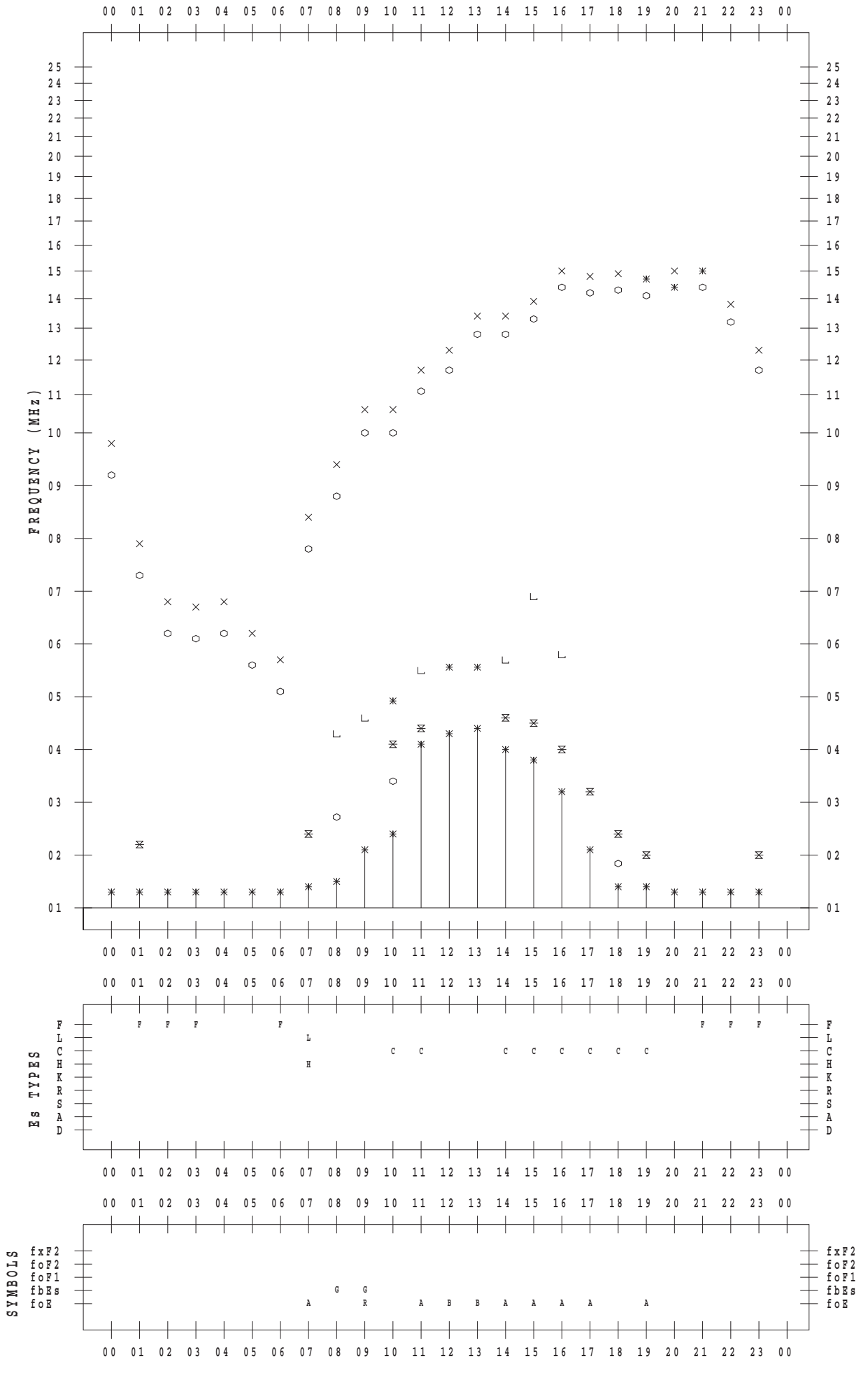
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2015/ 3/24

135 °E MEAN TIME



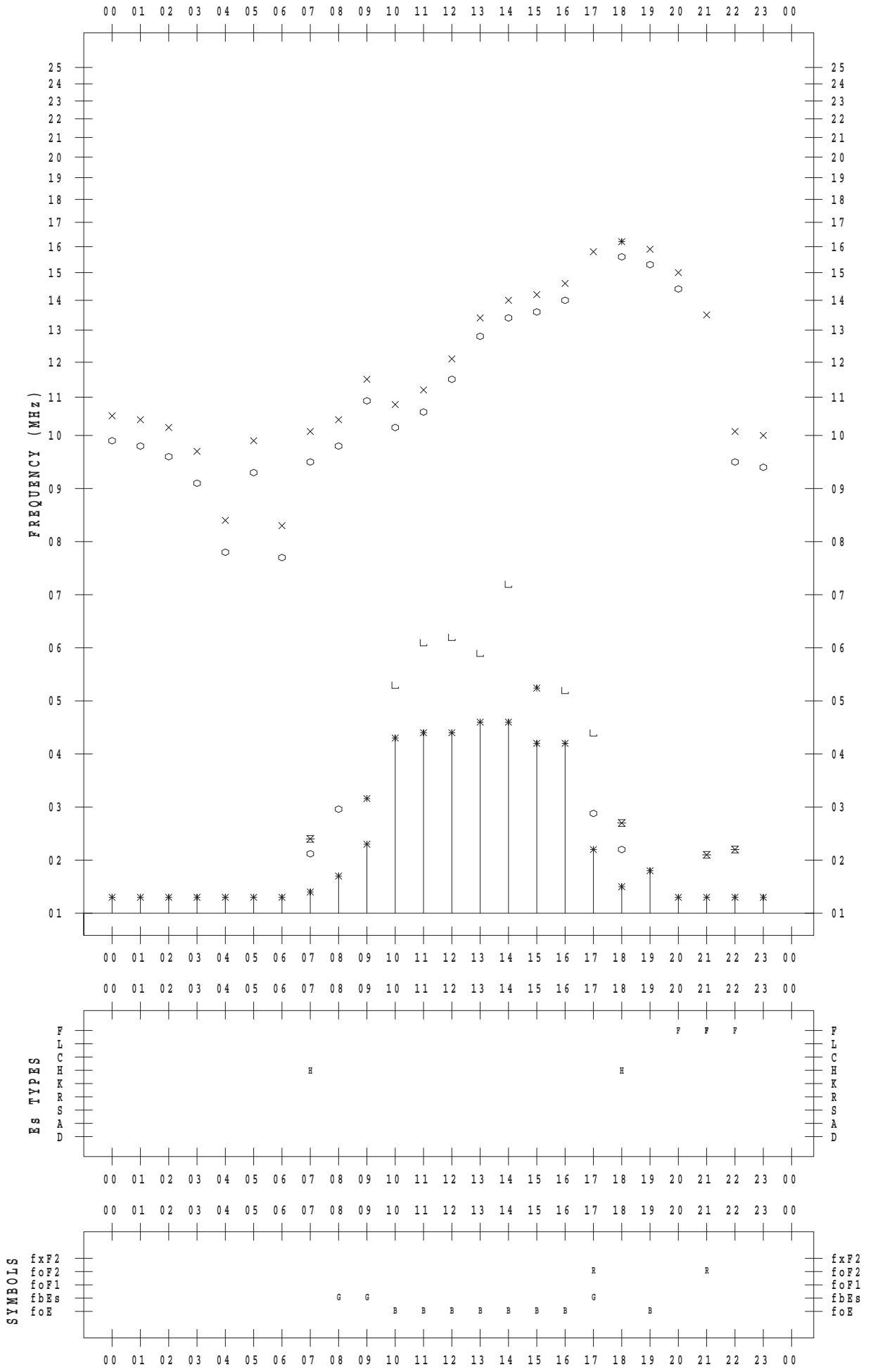
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2015/ 3/25

135 °E MEAN TIME



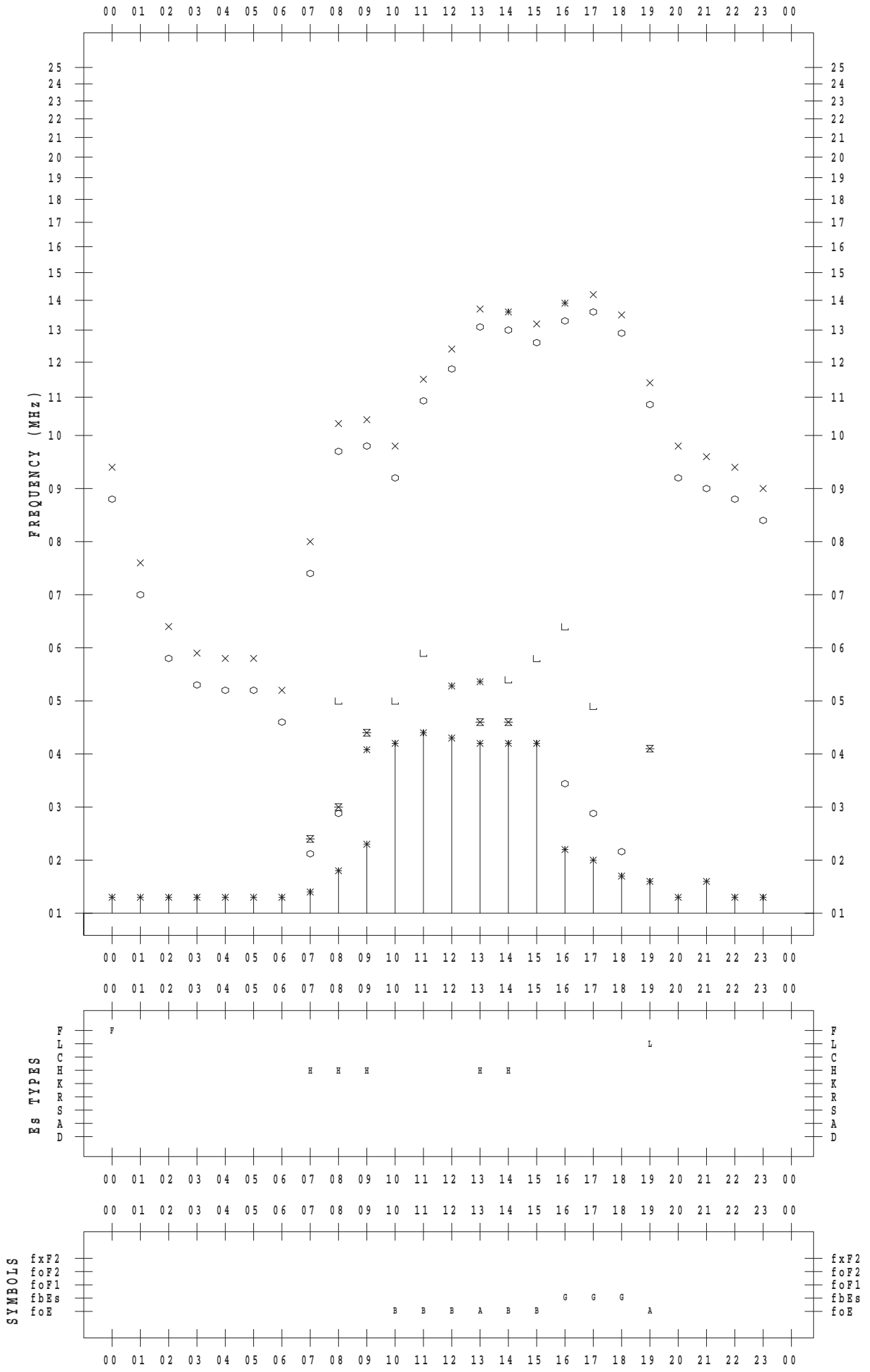
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2015/ 3/26

135 °E MEAN TIME



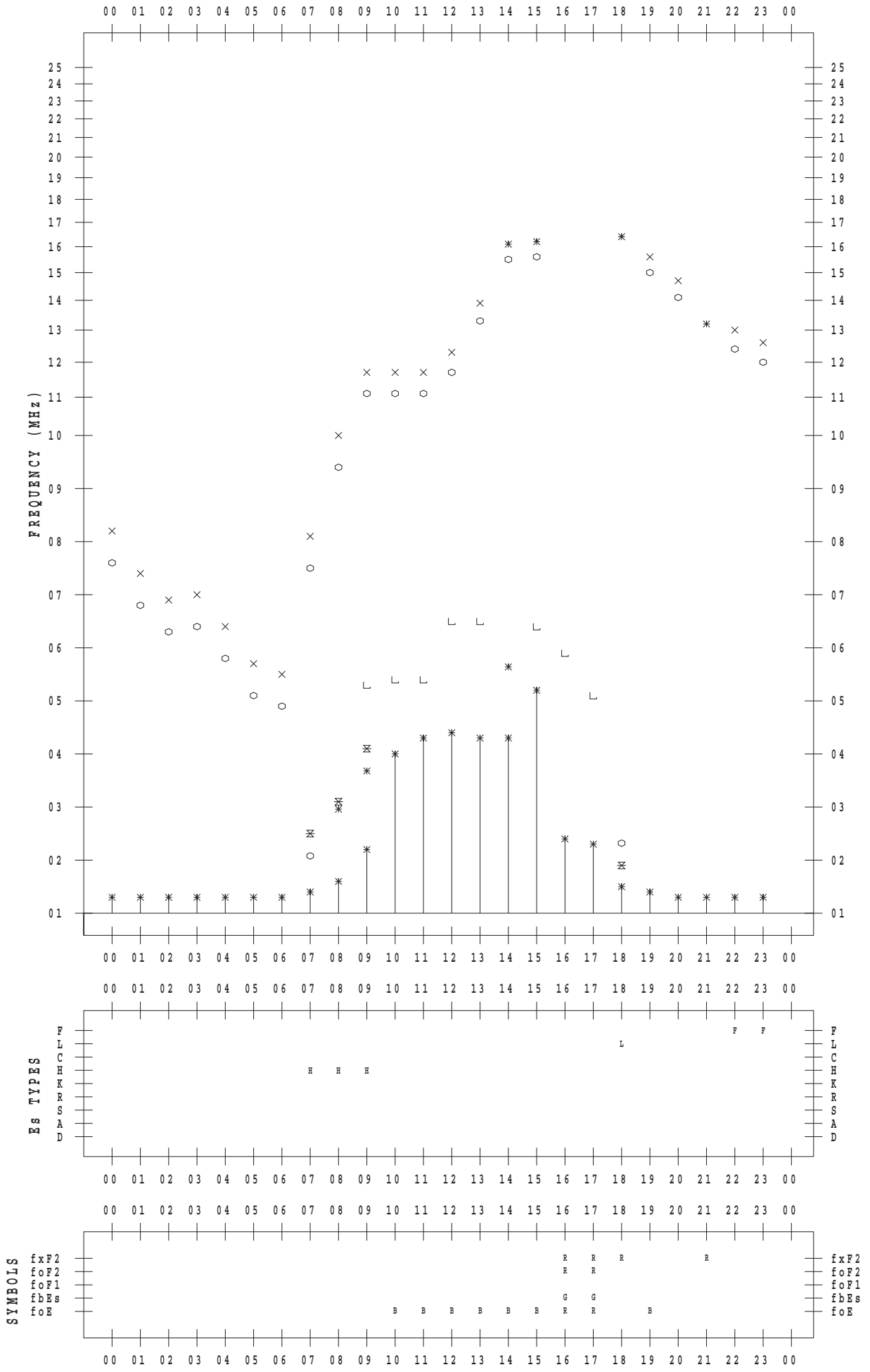
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2015/ 3/27

135 °E MEAN TIME



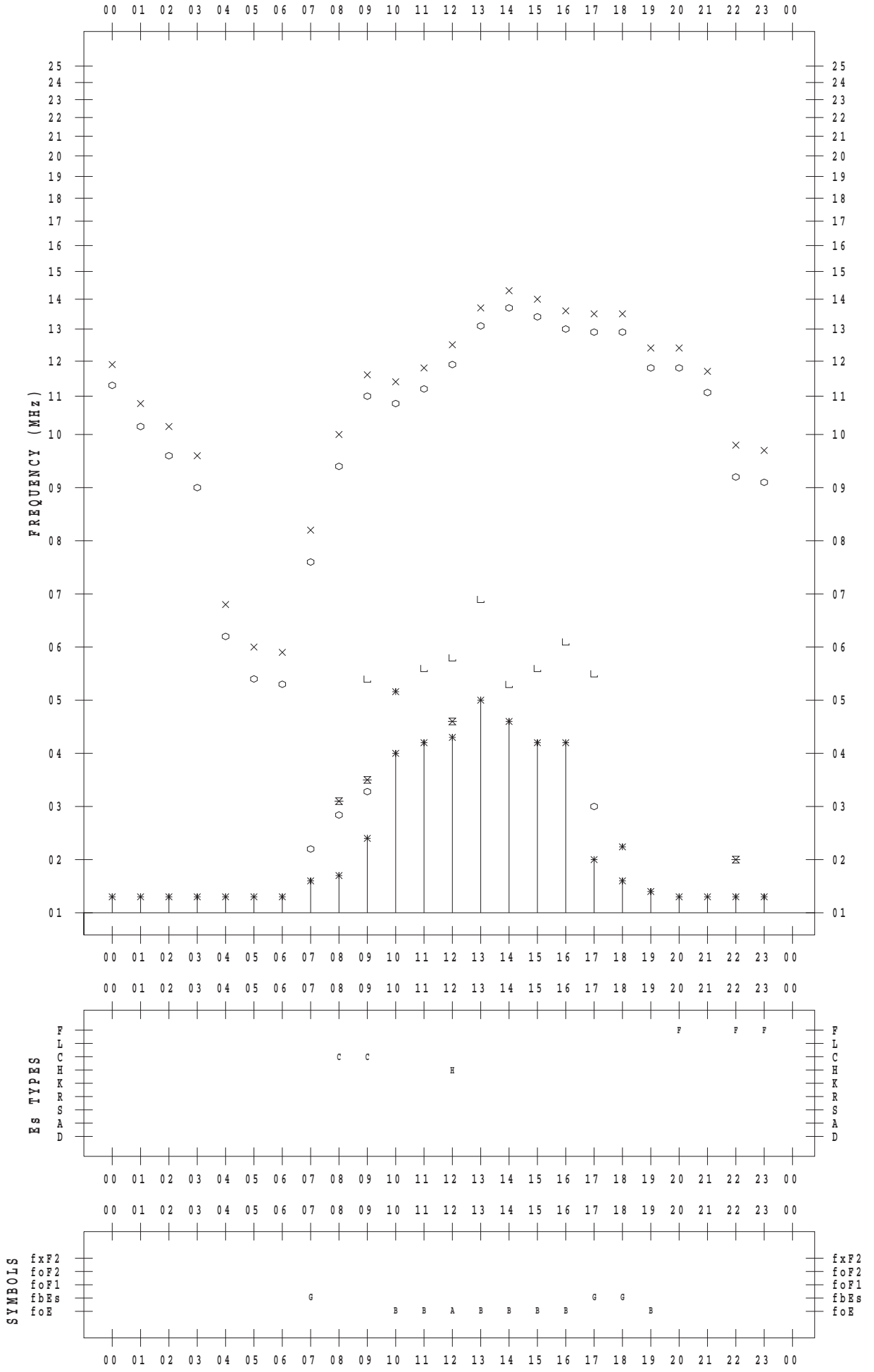
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2015/ 3/28

135 °E MEAN TIME



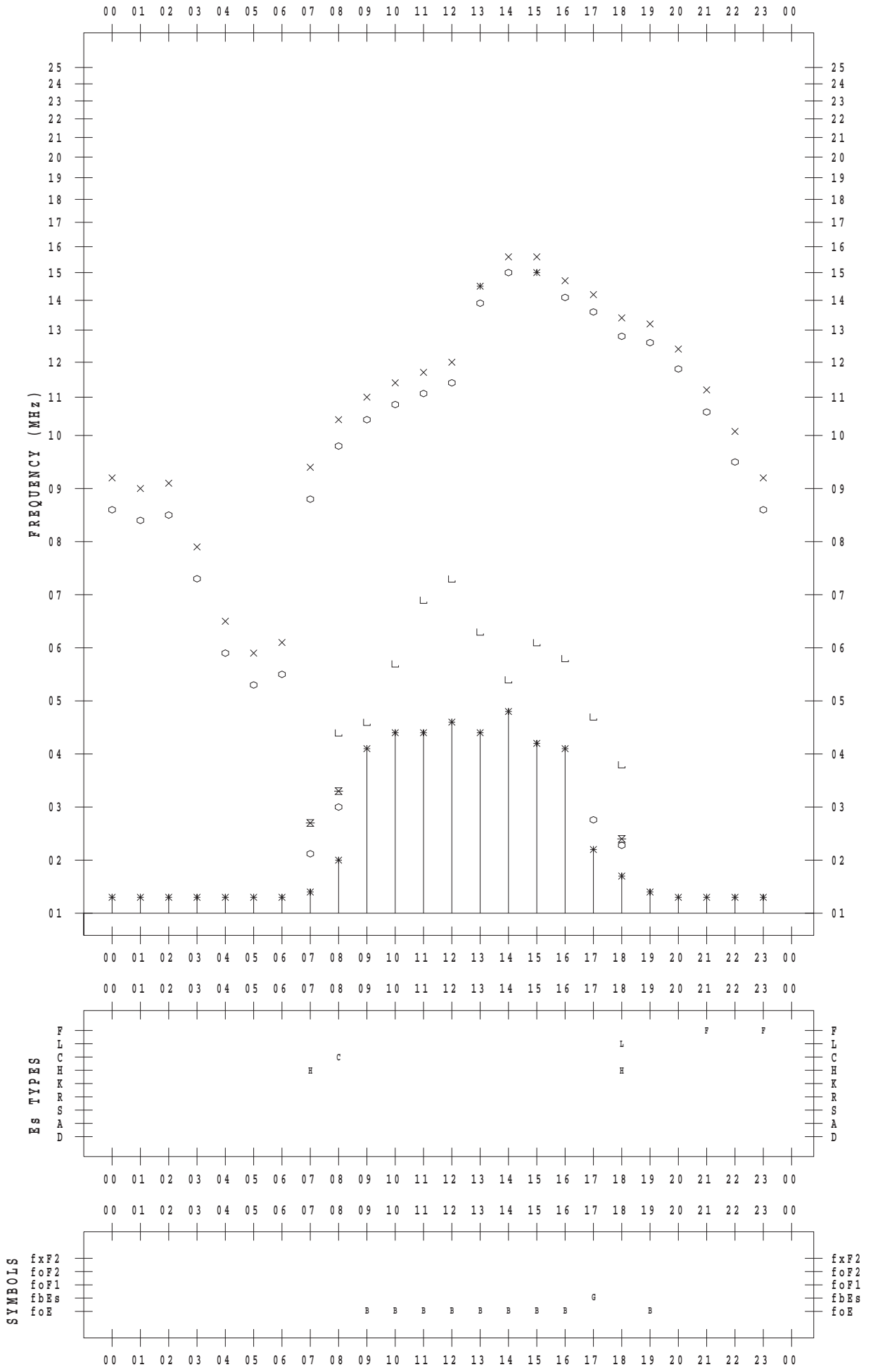
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2015/ 3/29

135 °E MEAN TIME



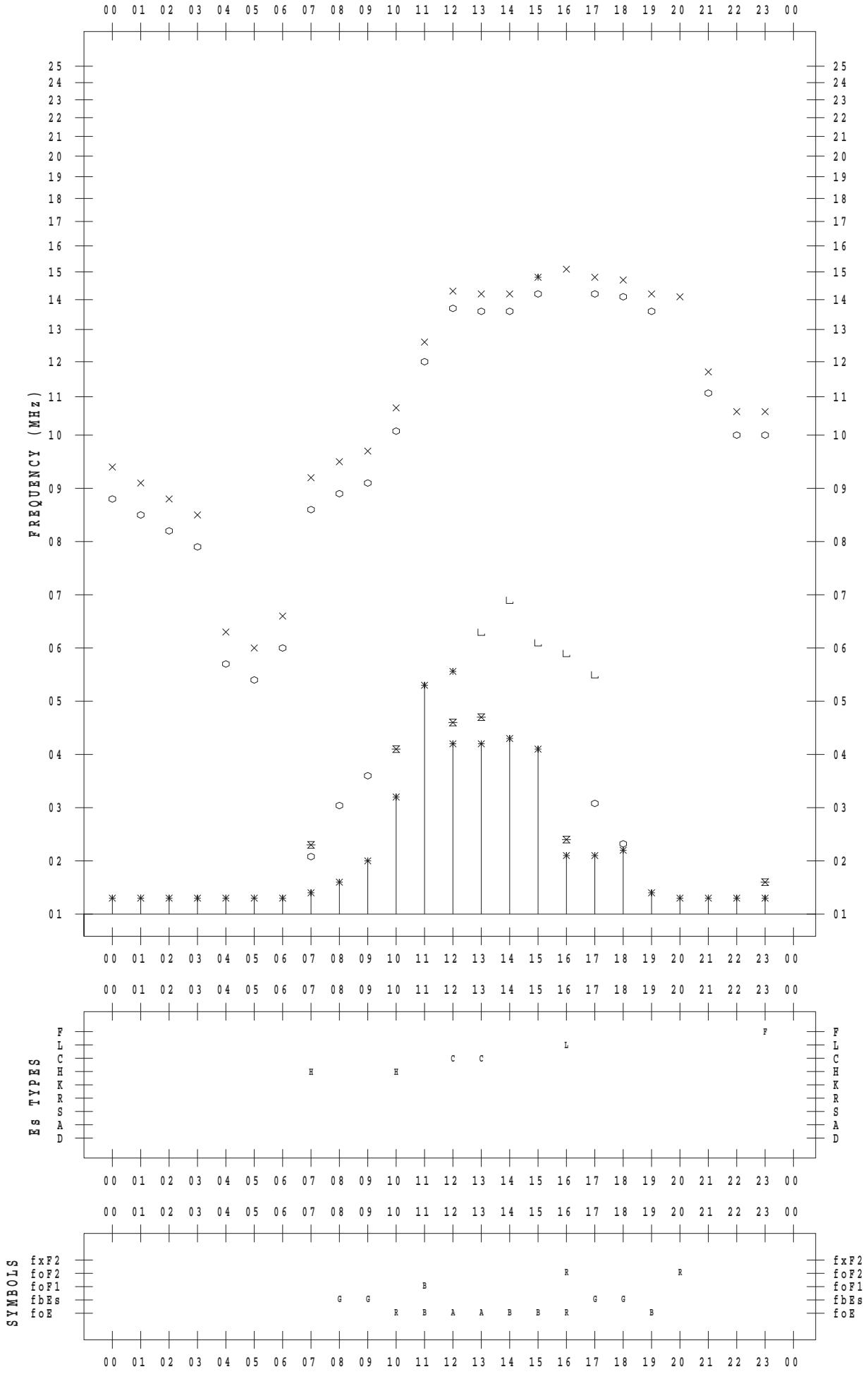
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2015/ 3/30

135 °E MEAN TIME



f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2015/ 3/31

135 °E MEAN TIME