

IONOSPHERIC DATA IN JAPAN

FOR JUNE 2014

VOL. 66 NO. 6

CONTENTS

Preface

Introduction 1

A. Ionosphere

A1. Automatic Scaling

Hourly Values at Wakkanai (f_oF2 , fEs and $fmin$) 4

Hourly Values at Kokubunji (f_oF2 , fEs and $fmin$) 7

Hourly Values at Yamagawa (f_oF2 , fEs and $fmin$) 10

Hourly Values at Okinawa (f_oF2 , fEs and $fmin$) 13

Summary Plots at Wakkanai 16

Summary Plots at Kokubunji 24

Summary Plots at Yamagawa 32

Summary Plots at Okinawa 40

Monthly Medians $h'F$ and fEs 48

Monthly Medians Plot of f_oF2 50

A2. Manual Scaling

Hourly Values at Wakkanai 51

Hourly Values at Kokubunji 65

Hourly Values at Yamagawa 79

Hourly Values at Okinawa 93

f -plot at Wakkanai 108

f -plot at Kokubunji 138

f -plot at Yamagawa 168

f -plot at Okinawa 198

« Real Time Ionograms on the Webhttp://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 (f_oF2 , fEs , $fmin$) and monthly medians of two factors ($h'Es$, $h'F$), daily Summary Plots and monthly medians plot of f_oF2 .

a. Characteristics of Ionosphere

f_oF2	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 f_oF2).

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 f_oF2 , 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 f_xE and f_oE 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

fxl	Top frequency of spread F trace
f_oF2 f_oF1 f_oE f_oEs	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 replace 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 atmospheric.
- 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-associated 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 (CNT) 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

JUN. 2014

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

H D	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	54	64	63	63	62	66	70	67	A	61				67		61	66	58	62	62	28	63	66	66	
2	66	61	64	53	64	62	66	67	A		A	A		A	64	59	58	63	62	63	67	63	64	54	
3	34	53	53	A	57	64	68	66	N		A	A	A				A	A		A		A	A		
4	A	A	61	N	61	60	54	58	62	A	A	A	A	A	A		66	65	64	66	64	66	66	63	
5	66	64	68	63	66	64	67	65	72	C	C	C	C	C	C	C	C		66	66	67	65	65	A	
6	60	62	53	63	63	70	63	66	64	C	C	C	C	C	C	C		64	66	66	64	55	65	A	
7	N	64	A	52	A	60	71	66	59	64	A	A		66	65	64	64	65	70	C	67	66	63	64	
8	64	34	63	34	64	72	65	63	63	66	61	64	62			64	62	55	72	67	66	65	55	62	
9	34	54	34	53	34	32		57	A	A	A	A	A		62		A	61		67	64	54	N	A	
10	62	52	A	58	61	61	58	A	A	A	A		A	64	65	73	67	66	70	67	65	C	54	64	
11	64	64	54	59	63	64	64	A	A		B	B	B	A			59	61	63	60	54	64	66	62	
12	64	64	64	54	64	62	66	67	65	A		62	65	63	66	70	68	64	62	70	64	66	66	64	
13	63	63	62	64	64	66	73	67	58	A	59		A	A		62	61	68	67	66	67	66	53	67	
14	65	64	35	63	63	67	67	66	68	67	65	64		62	64	66	A	66		A		64	54	63	
15	63	64	62	64	60	66	67	A	A	A	A	A	A		66	A	64	62	62	64	A	64	66	63	
16	53	64	53	53	64	59	69	68	64	64	64		B	62	64	65	64	A		A	A	A	A	A	
17	A	65	63	A	66	63		A	A	A	A	A		B	A		63	63	62	64	65	71	54	49	
18	34	34	59	57	59	58		A	A	A	A	A		B			60	57	A	A	66	65	61	64	
19	54	53	36	37	53	63	65	66	A	A	61	65	66	64	60	65	62	A		66	64	53	65	67	
20	63	63	53	53	52	60	56	60	A	A	A	62	59		A	65	65	A		64	66	67	53	49	
21	52	52	60	61	59	69	57		A	A	A	A	A			A	58	58	54	64		A	A	64	
22	66	64	28	52	58	63	60	61	66	67	69	59	65		66	64	63	A		63	64	65	63	53	
23	48	N	54	64	60	64	67	64	A	A	67	63	A	A		59	66	A		63	66	65	66	63	
24	A	52	63	52	52	67	68	67	A	60	67	58			A	A	A	A		64	A	64	A	A	
25	64	64	62	63	60	54	63	A	59	69	64	A		A	A	60	62	A		63	67	65	67	66	
26	59	34	52	34	32	57		A	A	A	A			A	57	A		56		60	62	A	64	66	
27	60	34	34	52	46	60	63	61	A	A	62		B	B			A	A		56	63	65	65	64	
28	35	34	53	49	52	61	61	67	67	65	65		60	A	A	A	A	A		63	51	54	63	52	
29	59	63	54	62	53	65	64	66	A		A		A				A	A		65	A	63	65	63	
30	61	53	A	54	53	65	67	64	69	64	62	A	B		65		58	64	62	62	63	64	64	66	
31																									
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	26	28	27	27	29	30	26	22	13	12	12	8	8	10	12	19	20	20	23	24	27	25	22	26	
MED	60	62	54	54	60	63	66	66	64	64	64	62	64	64	64	64	64	62	64	66	65	64	64	64	
U Q	64	64	63	63	63	66	67	67	67	66	66	64	65	65	65	65	65	66	66	67	66	65	65	65	
L Q	53	52	53	52	53	60	63	63	60	61	61	60	61	64	61	61	62	59	62	63	64	54	63	53	

HOURLY VALUES OF fEs AT Wakkanai

JUN. 2014

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	36	52	67	82	G	G	G	G	49	G	G	G	G	36	32	28	35	58	48	
2	27	32	28	34	50	44	61	60	65	G	69	72	G	55	G	G	G	35	33	33	58	33	G	G	
3	G	27	28	27	G	36	68	G	69	71	93	87	75	62	48	53	127	81	79	74	104	73	92	71	
4	66	58	58	40	51	34	G	G	66	109	71	84	85	86	97	61	G	35	G	34	33	29	46	44	
5	34	51	39	39	39	34	41	50	67	C	C	C	C	C	C	C	C	36	35	29	25	40	58	52	
6	G	29	G	34	31	33	G	48	G	C	C	C	C	C	C	C	G	G	44	40	39	39	59	50	
7	G	G	33	49	40	G	G	40	50	G	64	74	60	44	52	58	62	G	C	34	G	29	38	28	
8	25	G	G	G	G	G	40	G	41	49	44	64	G	G	G	G	63	G	G	G	G	24	G	G	
9	G	G	G	G	G	G	G	52	52	69	102	114	64	60	G	G	61	52	96	38	34	G	34	33	
10	39	39	38	33	30	36	44	52	72	62	61	G	62	G	G	G	52	37	45	40	39	C	33	G	
11	26	G	G	G	G	G	G	55	71	G	B	B	B	43	G	G	49	50	60	43	28	40	38	39	
12	44	40	27	G	G	G	49	50	56	60	G	G	58	G	G	G	G	G	G	G	35	27	G	G	
13	G	24	G	G	G	G	G	G	60	67	G	46	74	68	57	49	46	51	39	61	60	33	33	25	
14	24	G	G	G	G	31	47	50	G	48	G	G	G	G	G	G	118	44	68	104	59	41	40	29	
15	40	29	28	29	50	46	62	73	75	68	70	70	74	44	50	G	G	38	48	151	38	29	26	33	
16	24	G	G	27	29	30	40	62	58	64	56	B	G	51	59	61	70	65	109	112	60	66	73	72	
17	69	40	58	59	43	42	73	93	79	77	74	56	G	B	50	56	G	G	49	31	36	34	39	G	
18	G	G	G	G	G	38	57	69	76	92	69	52	G	B	G	G	G	G	44	44	48	29	G	G	
19	G	G	G	G	G	G	52	66	64	63	60	65	72	G	G	53	50	53	68	53	50	33	24	G	
20	G	G	G	G	G	39	43	50	66	54	68	48	64	70	58	G	G	50	74	51	36	G	29	28	
21	G	24	G	G	G	G	40	39	49	58	127	102	50	G	G	56	G	39	35	G	38	39	58	59	
22	44	46	26	G	28	41	G	38	61	62	50	G	53	65	49	G	47	74	47	59	43	27	G	28	
23	34	45	41	39	27	40	58	70	73	68	59	G	59	44	G	G	50	62	42	61	G	30	33	G	
24	50	38	27	35	31	43	52	56	72	58	G	52	G	G	64	74	91	80	60	74	50	60	70	46	
25	54	58	43	40	38	40	49	74	50	69	58	76	64	56	70	56	G	60	32	51	43	40	G	34	
26	G	G	G	28	G	35	58	72	110	81	58	74	G	55	G	41	G	G	36	48	45	40	G	29	
27	40	26	28	G	G	38	43	60	58	47	G	G	B	B	G	G	38	57	43	42	40	27	56	28	
28	34	33	25	G	G	44	51	63	64	60	53	63	G	46	59	60	74	80	72	36	38	34	34	50	
29	58	39	28	27	53	41	51	51	93	G	45	G	58	G	G	G	55	74	50	63	38	36	26	23	
30	G	G	26	G	G	32	36	51	52	G	G	58	B	G	G	G	G	G	42	29	30	32	34	25	
31																									
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	30	30	30	30	30	30	30	30	30	28	27	26	25	25	28	28	29	30	29	30	30	29	30	30	
MED	26	26	26	14	G	36	46	52	64	61	58	57	58	44	G	G	47	42	44	41	38	33	34	28	
U Q	40	39	28	34	38	40	52	66	72	68	69	74	64	58	54	56	61	62	60	61	48	40	56	46	
L Q	G	G	G	G	G	G	36	48	52	47	G	G	G	G	G	G	G	G	35	33	30	29	24	G	

HOURLY VALUES OF fmin AT Wakkanai
 JUN. 2014
 LAT. 45° 10.0' N LON. 141° 45.0' E SWEEP 1.0MHz TO 30.0MHz AUTOMATIC SCALING

$\begin{matrix} H \\ D \end{matrix}$	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	15	15	14	14	16	14	16	15	17	20	51	20	26	29	18	17	15	15	14	14	15	14	15	15	
2	14	15	14	14	14	14	14	15	17	17	18	36	20	34	28	20	15	14	14	14	17	15	14	17	
3	17	17	14	17	20	14	14	14	15	15	29	18	32	20	28	16	15	14	15	14	14	14	14	14	
4	14	15	14	14	14	14	15	15	20	18	38	21	30	23	28	20	18	15	14	14	14	15	15	14	
5	14	14	15	14	14	15	21	14	18	C	C	C	C	C	C	C	C		14	14	14	15	15	14	14
6	15	14	20	14	14	14	14	14	18	C	C	C	C	C	C	C		16	14	14	14	14	15	14	14
7	15	15	16	15	14	14	14	14	15	20	16	41	22	18	20	17	18	15	C		14	15	14	15	15
8	18	17	15	16	20	15	14	14	17	16	53	36	20	53	20	15	14	14	15	14	14	15	15	15	15
9	16	15	20	14	14	14	14	14	15	36	24	34	32	33	22	17	14	14	14	14	15	14	14	15	15
10	15	15	14	14	14	14	14	15	15	18	42	24	27	22	23	18	17	15	14	15	14	C		14	15
11	16	15	16	18	22	14	14	16	15	27	B	B	B		26	30	23	20	15	14	15	16	14	14	14
12	15	14	15	14	17	14	18	16	20	27	55	24	21	54	58	18	17	16	14	14	14	17	18	14	14
13	14	14	14	15	20	15	15	50	39	40	54	54	36	35	18	20	16	21	15	14	14	15	14	15	15
14	14	14	18	15	17	14	15	15	18	27	57	27	66	53	21	18	18	15	15	14	14	14	14	14	14
15	14	14	14	14	14	14	15	16	21	39	39	39	33	36	23	21	16	17	14	14	14	15	15	14	14
16	15	15	14	18	14	14	14	17	16	44	38	B		56	27	27	20	15	14	14	14	14	14	15	14
17	15	14	15	14	14	14	15	15	16	28	20	32	66	B		35	18	17	14	14	14	14	14	14	15
18	17	16	20	15	18	14	14	15	18	18	23	21	66	B		23	15	16	15	18	14	14	14	14	15
19	15	15	15	15	17	14	14	14	15	21	18	18	18	29	24	16	15	14	14	14	14	14	14	14	45
20	17	15	14	15	14	14	14	14	20	18	17	20	18	33	23	20	20	14	15	15	14	15	15	15	15
21	15	15	14	15	18	15	14	15	16	20	20	36	35	21	30	18	15	14	14	14	15	15	14	14	14
22	14	15	16	14	14	14	14	14	15	17	15	16	21	24	18	18	14	14	14	15	14	15	14	16	16
23	14	14	14	14	14	14	14	15	17	22	20	30	21	33	66	15	18	17	14	14	18	14	15	16	16
24	15	15	15	14	14	14	15	14	15	17	18	29	28	20	23	20	16	14	14	15	15	15	15	14	14
25	15	15	15	14	14	15	14	17	16	15	26	21	20	24	20	18	17	14	14	14	14	15	15	14	14
26	20	18	20	15	15	14	14	15	18	17	20	20	26	33	29	15	16	14	14	14	15	14	14	14	14
27	15	15	15	14	14	14	14	14	21	21	26	56	B	B		18	17	16	14	14	14	15	15	14	15
28	14	14	15	15	14	14	14	14	16	23	22	32	22	28	23	21	20	14	14	14	14	16	14	14	14
29	14	14	16	14	14	14	14	15	18	20	18	23	21	20	20	17	15	15	14	14	14	14	16	15	15
30	20	15	18	15	18	14	14	14	15	17	21	21	B		53	21	18	15	14	14	14	14	15	15	15
31																									
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	30	30	30	30	30	30	30	30	30	28	27	26	25	25	28	28	29	30	29	30	30	29	30	30	30
MED	15	15	15	14	14	14	14	15	17	20	23	26	26	29	23	18	16	14	14	14	14	15	14	15	15
U Q	16	15	16	15	17	14	15	15	18	27	39	36	34	34	28	20	17	15	14	14	15	15	15	15	15
L Q	14	14	14	14	14	14	14	14	15	17	18	21	21	22	20	17	15	14	14	14	14	14	14	14	14

HOURLY VALUES OF foF2 AT Kokubunji

JUN. 2014

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

H D	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	67	66	52	52	58	67	74	85	A	73	79	66	A	74	88	98	91	101	A	A	76	74	75	67	
2	53	66	54	58	56	64	88	102	A	64	61	A		67	72	78	84	77	75	73	81	74	75	77	
3	67	64	54	52	57	66	72	80	82	78	82	72	A	A	88	94	101	102	90	91	87	A	76	72	
4	67	66	53	66	61	52	62	74	83	67	A	A	A	A	71	77	86	87	96	91	76	73	72	72	
5	51	A	52	64	57	66	82	88	A	A	A	A		86	90	A	97	102	95	94	81	82	84	81	78
6	75	76	85	74	72	72	81	97	86	81	69		81	78	90	91	91	83	78	82	78	82	84	77	
7	82	80	82	73	77	76	74	76	80	78	A	86	A	77	74	77	84	90	88	87	84	74	76	52	
8	77	76	72	71	67	72	90	89	A	A	A	68	76	88	75		85	81	102	119	A	A	A	67	
9	71	67	A	A	52	57	79	82	A	A	72	A	A	A	A	69	A	A	A	A	A	A	73	68	
10	64		72	54	54	57	72	82	81	A	A	A	A	83	102	98	95	90	81	78	A	75	76	75	
11	71	72	72	71	54	69	81	82	74	69	A		A	A	A	77	84	80	68	A	A	A	71	67	
12	71	66	66	57	66	74	76	78	86	77	A	A	76	93	95	94	94	91	94	90	73	76	78	81	
13	77	52	73	62	66	65	74	80	84	73	76	77	A	A	A	77	87	92	91	91	88	77	86	87	
14	86	81	79	80	76	76	76	88	85	78	73	A	85	83	96	96	A	88	A	A	A	77	79	A	
15	A	67	67	64	57	74	85	72	A	A	74	A	A	86	A	A	A		A		78	77	85	72	
16	78	67	67	54	58	72	82	80	71	A	A	A	A	76	90	92	87	81	81	82	86	82	78	75	
17	75	A	73	54	67	74	84	88	A	A	A	A	A	A	A	N	A	139	108	81	A	83	83	54	
18	51	55	52	51	52	57	55	74	A	A	A	A	A	A	A	N	72	A	A	A	76	78	72	A	
19	66	64	53	53	52	71	80	A	A	A	A	A	74	A	A	A	83	88	80	52	76	74	A	A	
20	A	A	A	A	54	66	74	A	A	A	A	A	A	68	76	77	78	78	76	A	82	77	76	72	
21	52	A	52	53	67	67	67	A	A	63	A	A	A	A	A	A	68	72	60	A	68	A	67	53	
22	65	54	52	51	A	65	62	61	64	66	A	A	A	68	74	A	A	A	N	A	55	73	A	54	
23	A	72	66	64	56	58	64	A	82	A	A	66	75	76	77	74	74	77	75	78	A	64	67	54	
24	A	A	52	53	53	58	71	115	A	73	A	A	A	67		A	A	A	A	A	82	A	80	A	
25	75	74	A	A	59	66	71	86	86	A	A	A	A	A	A	71	A	A	A	A	84	77	A	A	
26	A	A	A	A	A	54	57	61	77	77	A	A	67	A	68	68	A	A		A	72	76	80	52	
27	52	52	52	52		75	67	57		A	A	A	A	A	A	A	68	A	A	72	74	77	A	A	
28	A	53	54	52	52	54	72	88	A	A	A	68	A	68	76	72	69	72	A	89	88	81	66	A	
29	72	A	66	66	A	66	66	65	A	A	A	A	A	A	A	67	66	65	55	77	78	A	A	66	
30	53	54	52	52	52	58	84	88	90	A	A	A	A	81	91	86	74	71	68	76	67	77	76	75	
31																									
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	24	22	26	26	26	30	30	26	15	14	8	7	7	17	17	21	22	23	21	20	23	23	24	23	
MED	69	66	60	56	57	66	74	82	82	73	74	68	76	77	77	77	84	83	81	81	78	77	76	72	
U Q	75	72	72	66	66	72	81	88	86	78	77	77	85	84	90	94	91	91	92	89	84	78	80	75	
L Q	58	55	52	52	54	58	67	74	77	67	70	66	75	71	73	73	74	77	71	76	74	74	72	54	

HOURLY VALUES OF fEs AT Kokubunji

JUN. 2014

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

$\frac{H}{D}$	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	59	40	34	30	G	G	52	61	85	73	82	53	64	77	49	49	74	76	61	79	57	43	38	59	
2	49	59	41	33	25	G	G	49	116	54	47	78		G	G	G	48	G	34	28	40	40	34	G	
3	29	23	G	G	G	31	46	53	62	59	86	73	96	72	64	65	68	83	47	95	84	103	94	50	
4	72	49	30	G	G	G	G	G	53	62	99	90	86	120	70	G	45	35	46	53	G	33	G	35	
5	58	81	56	39	78	58	45	60	113	109	94	92	55	72	87	94	46	69	51	G	33	31	43	46	
6	59	36	29	46	42	49	45	64	63	74	54		45	53	62	53	G	64	50	56	36	33	34	34	
7	58	49	30	33	34	46	38	45	50	58	79	70	104	58	62	60	50	55	45	30	50	51	60	48	
8	34	36	31	40	28	35	G	84	83	88	74	78	71	G	53		45	G	64	157	137	90	116	92	
9	49	49	59	81	50	G	42	52	96	52	G	114	80	108	117	67	98	154	153	87	106	80	31	39	
10	50		26	43	31	G	G	78	70	71	80	70	77	54	84	61	44	40	G	68	65	71	81	59	
11	28	G	G	G	G	G	36	47	G	62	47		54	57	114	G	G	G	51	61	112	80	57	28	48
12	G	26	27	26	G	G	G	51	55	59	49	50	76	57	43	G	G	G	30	33	29	55	49	39	
13	36	34	28	G	G	G	G	50	45	62	65	70	78	101	91	53	46	G	34	34	34	G	41	58	
14	114	30	31	23	G	G	G	57	69	80	62	92	93	72	87	59	84	72	116	87	127	83	79	80	
15	59	49	31	28	28	G	71	71	104	78	69	82	75	61	89	95	101	G	62	48	95	82	53	84	27
16	49	53	44	50	48	34	45	61	60	49	80	106	160	64	57	G	G	G	58	G	83	35	38	65	
17	58	79	40	39	50	37	60	70	124	135	102	115	96	114	182	103	132	151	92	73	72	60	104	40	
18	G	G		23	33	43	G	42	48	84	80	61	138	148	119	86	74	62	93	96	78	50	45	50	58
19	38	24	50	30	31	42	54	87	125	145	151	143	87	50	77	87	46	49	87	133	70	92	85	82	
20	106	89	78	83	52	50	51	131	151	126	91	78	65	69	57	91	67	82	34	48	73	45	59	40	
21	34	78	56	32	38	29	48	81	81	60	122	53	121	89	120	86	64	40	60	61	57	52	33	59	
22	45	33	33	49	103	57	43	50	45	55	87	115	71	G	49	75	114	86	126	71	82	58	81	87	
23	71	72	51	G	48	40	52	61	72	71	94	G	G	G	49	57	69	77	33	30	91	51	58	33	
24	70	90	70	79	64	52	59	87	165	50	107	105	97	47		80	110	151	135	136	73	86	59	87	
25	78	78	71	58	24	29	56	59	80	102	107	167	92	132	82	62	78	107	90	73	59	91	79	94	
26	90	104	81	84	52	29	48	55	63	65	101	77	53	81	46	57	78	92	52	69	51	81	27	45	
27	28	49	29	33	G	59	47	53		64	94	69	72	123	134	81	80	136	105	27	60	60	91	79	
28	59	38	26	40	G	32	49	72	122	122	94	G	56	44	G	G	55	68	96	117	49	60	58	78	
29	59	80	43	G	78	29	50	50	49	117	174	86	115	138	72	51	69	45	67	81	90	114	93	69	
30	58	59	40	31	G	G	G	48	47	100	78	92	47	G	43	47	G	G	53	62	36	43	45	56	
31																									
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	30	29	30	30	29	30	30	30	29	30	30	28	29	30	29	29	30	30	30	30	30	30	30	30	
MED	58	49	34	33	31	29	45	58	72	71	84	80	77	66	70	60	63	66	59	70	62	56	58	57	
U Q	59	78	51	46	50	42	51	71	108	100	99	105	96	101	88	80	78	86	92	87	82	81	81	78	
L Q	36	33	29	26	G	G	G	50	54	59	65	70	60	50	49	48	45	40	46	34	49	43	38	40	

HOURLY VALUES OF fmin AT Kokubunji

JUN. 2014

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

$\begin{matrix} H \\ D \end{matrix}$	00	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	17	14	14	20	36	36	37	39	35	36	37	34	18	17	18	14	13	14	13	14
2	13	13	13	13	14	13	13	17	35	36	38	38		53	33	50	21	21	13	13	13	13	13	14
3	13	15	13	13	14	14	15	18	22	36	36	38	38	37	38	22	20	17	13	14	13	13	13	13
4	13	13	13	13	14	18	14	14	31	38	39	38	39	38	39	50	22	18	14	15	14	14	15	13
5	14	14	14	13	13	15	14	18	22	26	38	40	39	37	39	31	31	20	15	18	13	14	14	14
6	13	14	14	14	13	13	13	18	36	38	39		54	38	38	21	22	17	13	13	13	13	14	14
7	13	13	14	13	13	13	15	18	22	37	39	39	38	39	38	34	15	15	14	13	15	14	13	13
8	13	13	13	13	13	13	13	21	18	37	38	38	40	50	36		22	15	15	14	13	13	14	13
9	13	13	14	13	13	14	13	18	18	39	54	38	37	36	29	18	17	17	17	14	14	14	14	13
10	14		14	13	13	22	39	36	38	38	38	42	39	38	36	34	21	20	14	13	13	13	13	13
11	13	14	15	20	17	13	15	24	21	38	38		42	40	40	54	49	17	14	13	13	15	14	13
12	14	14	14	15	14	22	37	17	39	39	39	39	39	39	55	53	22	21	13	14	15	14	14	13
13	13	13	15	20	14	15	15	39	49	39	39	39	39	40	35	34	22	43	13	13	14	14	13	13
14	13	13	13	13	14	18	39	21	36	37	38	40	38	39	36	38	38	22	15	13	14	14	14	14
15	13	14	14	14	13	14	14	31	37	38	40	39	38	39	38	31	23	20	15	13	13	13	14	13
16	13	14	13	13	13	13	21	18	36	38	38	43	40	38	40	50	44	20	17	20	14	13	15	13
17	13	13	13	13	13	14	13	18	34	38	37	39	40	36	35	33	21	15	15	13	17	14	14	13
18	14	14	13	13	14	13	14	22	25	36	38	38	38	39	33	26	22	17	13	13	14	13	14	14
19	14	14	13	13	15	14	14	15	21	37	36	37	38	34	31	28	22	13	13	13	14	14	14	14
20	14	14	13	13	13	13	14	17	22	34	39	40	39	39	40	30	23	18	13	15	15	14	14	13
21	14	13	13	13	13	14	14	17	34	34	38	39	38	34	34	28	18	14	13	14	15	14	13	13
22	13	14	13	13	17	13	15	15	21	38	38	38	38	53	40	34	22	13	13	14	14	14	13	13
23	14	13	14	14	13	15	20	18	35	37	38	52	53	54	36	35	34	17	13	13	14	14	14	14
24	14	13	14	13	13	13	13	26	37	35	37	37	39	37		39	17	13	13	14	13	13	14	13
25	14	14	14	15	13	13	13	18	36	35	42	37	39	38	33	36	26	14	14	13	13	14	13	14
26	14	13	13	13	13	13	13	17	23	34	37	39	36	34	29	39	37	15	20	14	13	13	14	14
27	13	13	14	13		13	14	17		39	39	38	38	38	38	36	18	13	13	13	13	14	14	13
28	13	14	13	13	14	13	14	18	36	21	35	58	39	53	56	49	38	17	13	13	14	14	14	13
29	17	14	13	13	13	13	13	20	40	38	39	37	37	38	37	38	37	14	20	13	14	15	13	13
30	13	14	14	14	13	20	14	22	42	39	36	38	39	59	57	29	50	18	13	15	14	13	13	18
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	29	30	30	29	30	30	30	29	30	30	28	29	30	29	29	30	30	30	30	30	30	30	30
MED	13	14	13	13	13	14	14	18	35	37	38	39	39	38	37	34	22	17	14	13	14	14	14	13
U Q	14	14	14	14	14	15	15	21	36	38	39	39	39	40	39	39	34	20	15	14	14	14	14	14
L Q	13	13	13	13	13	13	13	17	22	36	37	38	38	37	34	29	21	15	13	13	13	13	13	13

HOURLY VALUES OF foF2 AT Yamagawa

JUN. 2014

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	75	67	67	64	71	64	76	85	87	A	A	A	A	A	88	94	93	A	78	78	80	53	76	76
2	67	67	63	54	60	67	75	81	90	76	75	64	A	78	86	88	91	91	106	88	77	54	54	72
3	75	67	53	67	63	61	67	72	76	82	77	A	69	70	88	65	99	90	84	84	A	82	80	A
4	77	A	73	72	62	62	75	82	76	A	64	72	A	75	A	A	90	87	102	90	87	84	79	75
5	76	77	76	77	71	72	80	78	77	73	69	A	91	A	92	97	98	100	98	A	85	83	78	77
6	N	47	82	74	54	66	77	102	83	A	A	72	78	85	86	96	97	93	88	88	85	84	81	100
7	79	86	87	81	78	76	77	78	80	82	82	90	78	76	A	91	92	88	A	88	84	78	86	85
8	77	84	78	76	74	74	77	81	A	A	78	81	92	A	A	A	A	A	A	88	54	54	73	66
9	74	72	66	52	58	A	A	77	72	78	94	87	72	A	77	92	90	93	104	88	A	71	A	76
10	75	77	72	54	60	58	72	94	A	A	A	A	A	91	101	A	92	94	92	84	80	77	83	74
11	A	80	77	72	56	57	80	81	89	A	72	A	A	77	82	82	88	A	A	A	53	52	A	A
12	78	76	67	58	64	64	71	81	78	78	A	A	80	88	85	88	97	96	106	A	84	76	77	73
13	81	77	73	67	63	64	70	75	74	76	78	A	81	A	86	96	97	96	92	94	88	79	82	79
14	77	76	85	84	72	67	74	87	88	A	A	A	82	88	96	95	82	A	A	90	88	81	A	A
15	A	77	76	77	66	63	78	76	A	A	A	A	A	A	A	A	95	97	88	90	77	A	77	77
16	A	A	54	A	58	57	67	74	66	70	64	A	A	90	87	92	90	85	86	87	85	88	78	82
17	52	A	67	A	A	70	93	90	A	A	A	A	A	A	A	95	94	87	85	86	88	77	A	78
18	75	80	77	72	68	67	72	91	88	A	73	86	78	85	95	88	72	60	A	69	82	A	A	A
19	A	A	A	52	57	63	A	65	68	63	A	A	80	A	76	88	91	94	88	81	54	84	A	A
20	A	A	A	A	A	A	60	68	67	70	A	76	76	80	85	91	A	86	78	86	78	76	77	77
21	77	78	77	66	60	66	71	71	A	A	A	A	A	80	81	86	80	88	88	78	75	75	74	52
22	52	66	80	72	51	A	61	64	A	74	60	A	A	A	A	A	82	79	A	72	76	A	75	72
23	67	72	67	53	53	46	50	72	72	67	66	67	A	82	80	83	81	A	A	A	A	77	68	72
24	67	A	67	68	57	60	58	67	73	65	A	A	72	A	78	82	82	A	85	88	A	A	72	72
25	A	A	A	A	A	57	72	79	85	A	A	A	A	85	83	86	82	82	78	77	A	A	A	74
26	53	52	A	A	A	A	67	81	85	76	70	77	83	82	86	91	93	91	80	78	78	77	77	53
27	A	A	66	51	54	58	66	71	A	A	A	A	109	78	82	82	82	71	A	A	A	72	A	A
28	A	54	64	61	60	58	69	76	72	A	A	A	75	A	A	81	77	84	90	89	86	70	67	52
29	67	74	72	74	60	67	70	71	64	A	A	A	A	75	82	80	78	A	A	A	74	75	66	A
30	66	53	67	A	57	51	54	77	82	72	A	A	71	87	A	90	94	84	83	77	78	54	72	59
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	21	22	26	24	26	26	28	30	23	15	14	10	16	19	21	25	29	22	21	24	24	25	22	23
MED	75	75	72	68	60	64	72	78	77	74	72	76	79	82	86	88	91	89	88	86	81	77	76	74
U Q	77	77	77	74	66	67	76	81	85	78	78	86	82	87	88	93	94	94	95	88	85	81	79	77
L Q	67	67	67	56	57	58	67	72	72	70	66	72	75	76	81	82	82	84	84	78	76	70	72	72

HOURLY VALUES OF fEs AT Yamagawa

JUN. 2014

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

H D	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	67	48	32	31	36	29	45	62	86	98	85	84	80	86	62	84	71	94	52	65	52	46	73	40	
2	34	55	32	G	23	G	G	40	43	56	71	64	87	48	62	46	62	58	64	40	32	29	46	44	
3	54	44	G	G	G	28	G	40	G	G	66	46	71	50	46	67	70	70	71	46	88	74	82	84	
4	59	69	39	46	35	33	G	46	69	80	65	61	94	59	74	100	64	63	70	84	44	39	40	32	
5	34	30	60	34	32	33	G	41	51	54	54	119	130	73	49	83	75	86	86	102	89	56	49	43	
6	34	28	G	38	52	47	35	53	69	85	92	81	52	54	48	G	76	49	51	34	31	28	51	58	
7	34	34	40	38	48	57	36	46	G	52	58	82	62	74	74	76	61	84	118	61	46	79	59	94	
8	54	G	G	G	34	32	34	66	85	95	45	62	86	145	155	165	99	123	136	34	32	G	55	49	
9	43	45	60	45	36	57	77	50	66	62	48	48	57	80	56	50	G	48	50	78	83	93	59	58	
10	59	69	G	34	43	40	G	46	83	118	106	152	86	78	49	96	61	59	54	73	59	34	74	44	
11	91	89	70	35	30	26	44	50	70	89	75	80	105	80	50	G	G	84	97	92	59	50	72	77	
12	G	72	56	58	48	28	40	52	54	53	68	70	54	59	68	55	51	G	40	102	80	34	39	49	
13	28	58	36	33	G	G	G	G	G	56	66	84	73	87	61	62	70	46	53	36	40	35	28	56	
14	50	58	25	26	28	28	G	45	60	76	151	114	74	119	81	81	59	94	144	34	74	58	92	92	
15	91	69	38	57	50	40	38	70	92	111	85	87	150	132	130	104	84	61	G	43	67	73	59	80	
16	88	120	G	50	38	30	34	47	57	62	66	119	82	63	69	62	G	G	50	43	G	39	46	54	
17	69	83	57	69	83	47	65	60	117	178	143	104	88	92	103	46	G	54	54	46	35	39	58	58	
18	82	41	33	40	G	G	34	67	77	80	61	76	59	48	G	55	62	58	50	40	51	67	74	84	
19	84	82	50	40	40	36	49	43	46	62	70	88	74	95	G	G	48	50	57	38	31	73	77	109	
20	86	104	116	81	82	82	69	41	56	62	72	64	63	101	65	49	73	92	G	52	30	59	59	78	
21	70	35	G	32	43	37	32	49	110	161	163	87	102	52	68	68	50	58	71	44	33	35	32	G	
22	72	58	52	69	58	78	33	56	94	89	53	69	121	92	145	100	77	68	118	52	45	70	50	70	
23	30	40	53	40	32	31	38	64	48	47	48	58	76	48	G	50	62	109	85	153	70	44	35	26	
24	47	73	22	34	G	43	38	38	61	53	63	53	G	47	88	53	57	77	66	72	155	115	82	40	
25	85	92	78	83	71	50	60	58	78	151	165	164	152	77	48	69	49	62	65	45	79	115	105	59	
26	39	39	67	108	103	121	50	70	71	73	61	51	59	58	67	G	46	G	34	42	36	46	34	91	
27	65	59	60	56	43	34	37	67	88	162	72	148	93	65	70	G	G	49	103	106	94	81	91	90	
28	88	44	32	24	G	G	32	42	63	79	69	78	64	84	82	65	65	G	52	49	41	27	26	34	
29	29	39	45	31	G	G	29	48	55	60	66	72	88	G	G	54	58	70	60	77	45	49	43	46	
30	61	50	58	63	24	29	G	46	48	72	89	80	54	75	114	50	44	41	45	60	50	33	27	G	
31																									
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	
MED	59	56	40	39	36	33	34	48	64	74	68	80	78	74	66	58	61	60	58	50	48	48	56	57	
U Q	82	72	58	57	48	47	44	60	83	95	85	88	93	87	81	81	70	84	85	77	74	73	74	80	
L Q	34	40	25	32	24	28	G	43	51	56	61	64	62	54	49	49	48	49	50	42	35	35	40	43	

HOURLY VALUES OF fmin AT Yamagawa

JUN. 2014

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

$\begin{matrix} H \\ D \end{matrix}$	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	14	14	14	14	14	14	14	14	15	22	26	34	33	34	30	24	22	20	14	14	15	15	14	14
2	14	15	15	15	14	15	18	17	18	20	30	35	35	35	33	26	22	20	15	14	15	15	15	15
3	14	14	15	14	16	15	14	17	18	46	27	28	38	38	28	36	34	22	21	15	17	14	15	14
4	14	14	14	14	14	14	18	14	20	24	26	38	36	35	38	33	26	21	15	14	14	14	14	14
5	14	15	14	15	17	16	16	20	18	27	26	34	40	36	35	30	33	24	18	16	16	14	14	15
6	14	14	15	14	14	14	21	17	21	35	23	38	38	35	33	27	32	18	14	14	14	14	14	14
7	14	14	14	14	15	14	14	17	20	23	29	39	38	39	32	21	22	16	14	14	14	14	14	14
8	14	14	14	14	15	14	14	14	18	21	26	38	40	42	36	36	23	20	14	14	15	15	17	14
9	14	14	14	15	14	14	14	15	18	30	32	34	34	33	33	39	50	23	15	15	15	14	14	14
10	14	15	15	15	14	14	18	20	22	27	38	38	39	36	40	36	23	20	20	16	14	14	14	14
11	15	15	14	14	14	16	15	17	22	35	36	38	40	34	35	56	39	21	21	15	15	14	14	15
12	14	14	14	15	15	16	26	20	22	24	39	39	42	39	36	33	24	22	17	14	14	14	14	14
13	14	14	15	14	15	16	20	35	43	35	38	38	39	36	34	32	22	26	16	14	15	14	15	14
14	14	14	15	15	14	14	24	18	21	28	34	38	38	35	35	30	26	21	20	15	16	15	14	14
15	15	15	14	14	14	14	14	18	20	26	37	42	38	35	36	33	35	26	18	16	14	14	14	14
16	14	14	15	14	14	14	15	16	20	38	35	55	39	35	34	30	28	21	22	15	15	14	14	14
17	14	14	14	14	14	14	14	17	22	26	34	35	34	36	29	24	22	20	18	14	14	14	15	14
18	14	14	14	14	16	18	14	28	23	24	24	32	35	36	35	26	23	21	16	14	15	14	14	14
19	14	14	14	14	14	15	14	16	22	22	27	29	27	37	56	56	35	30	15	16	14	14	14	14
20	14	15	14	14	15	15	14	16	18	22	35	36	36	43	37	33	23	18	20	14	14	15	14	14
21	14	14	14	14	18	14	14	18	20	22	30	30	36	34	33	34	23	20	15	14	14	14	15	15
22	17	14	14	14	14	14	14	14	21	22	32	32	30	36	38	34	22	28	21	14	15	14	14	14
23	15	15	14	14	14	15	14	17	20	21	30	33	32	33	55	26	22	21	14	16	15	14	14	14
24	14	14	14	14	18	14	17	15	18	20	26	33	34	30	29	23	23	22	14	15	16	14	14	14
25	14	14	14	14	15	14	14	15	20	22	23	24	33	28	29	27	20	15	14	17	14	14	14	16
26	16	14	14	14	14	15	14	14	18	20	32	27	28	29	29	23	23	41	14	16	15	15	14	14
27	14	14	14	14	14	14	16	16	17	30	27	40	35	35	34	22	34	21	17	14	14	14	14	14
28	14	14	14	14	14	17	16	15	20	21	34	34	27	35	34	26	35	20	14	16	14	14	15	15
29	14	15	14	14	15	15	14	14	21	24	28	36	33	56	55	26	27	20	15	14	14	14	14	14
30	14	14	14	14	15	14	14	17	30	24	30	34	36	36	34	30	23	21	14	15	14	15	15	15
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30
MED	14	14	14	14	14	14	14	17	20	24	30	35	36	35	34	30	23	21	15	14	14	14	14	14
U Q	14	15	14	14	15	15	17	18	22	28	34	38	38	36	36	34	33	22	18	16	15	14	15	14
L Q	14	14	14	14	14	14	14	15	18	22	26	33	33	34	33	26	22	20	14	14	14	14	14	14

HOURLY VALUES OF foF2 AT Okinawa

JUN. 2014

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	53	72	64	65	67	66	80	86	A	A	A	A	A	A	90	98	97	100	88	A	78	72	75	72	
2	60	66	66	62	60	61	67	82	80	76	72	N	77	88	A	103	108	121	122	112	88	67	73	54	
3	71	74	78	72	61	52	58	68	83	80	74	B	68	75	92	105	108	92	80	85	87	A	84	79	
4	53	77	52	72	67	57	72	102	62	A	68	A	77	87	84	98	107	107	105	101	88	84	78	82	
5	80	81	77	74	72	68	74	76	70	64	70	82	95	101	105	110	111	109	118	111	88	80	74	82	
6	52	82	83	67	62	62	72	80	77	62	A	A	A	A	A	A	108	104	99	89	88	87	83	88	
7	89	104	86	85	82	75	67	67	76	A	A	A	79	A	A	101	100	102	104	104	83	81	81	78	
8	84	81	76	78	79	67	67	80	72	A	77	83	88	100	100	91	110	107	107	110	72	54	51	67	
9	72	78	67	62	58	54	52	77	72	84	80	72	69	78	94	105	116	125	A	A	A	A	A	A	
10	A	79	72	A	A	60	84	78	63	66	68	A	84	100	114	116	117	118	117	102	80	82	88	86	
11	84	80	79	61	66	66	72	88	85	72	A	69	82	86	95	102	105	105	105	89	A	A	71	75	
12	77	A	52	52	58	60	72	71	77	A	A	72	84	88	98	107	118	125	116	104	86	81	83	80	
13	83	81	75	67	67	62	72	76	70	74	76	79	84	96	104	108	108	102	105	106	85	80	84	84	
14	80	88	80	A	68	A	72	82	78	A	69	A	A	102	101	102	88	100	117	111	88	76	80	79	
15	78	80	78	84	66	60	77	81	76	A	A	A	A	A	107	118	131	128	118	105	87	77	A	78	
16	A	74	54	66	63	63	68	75	80	A	A	A	A	88	98	100	95	101	104	101	89	79	83	78	
17	84	73	A	52	51	50	75	86	71	72	72	A	86	88	99	110	118	108	112	106	107	82	79	72	
18	88	87	86	77	72	72	73	86	77	74	A	A	A	107	106	90	87	80	74	87	85	73	54	63	
19	A	74	52	A	52	57	52	71	74	A	67	82	84	71	87	105	110	110	107	90	88	82	53	61	
20	72	A	73	73	51	A	60	67	67	72	76	A	80	84	86	94	A	107	105	90	92	84	81	81	
21	81	82	80	74	75	74	71	72	66	A	A	A	A	A	93	97	96	102	105	86	85	59	78	78	
22	54	66	66	66	62	56	61	66	67	66	A	A	A	74	86	A	96	100	88	84	77	74	65	77	
23	67	78	82	61	51	47	50	72	A	70	A	A	A	86	A	84	88	90	87	88	85	A	72	73	
24	66	52	A	52	53	49	54	66	72	A	A	A	A	82	87	83	87	91	90	87	86	81	76	74	
25	73	53	80	71	51	61	54	74	84	74	78	86	97	104	97	100	90	93	106	103	86	54	72	75	
26	76	52	72	66	47	50	A	84	88	A	75	74	90	97	104	102	102	112	108	102	88	76	74	52	
27	53	A	A	A	60	A	A	A	A	A	A	A	80	A	A	92	90	90	88	85	83	79	66	71	
28	A	52	52	52	57	58	62	75	67	A	A	A	76	A	86	88	88	90	105	106	100	54	66	54	
29	73	74	67	66	64	63	72	73	68	68	A	72	78	87	93	90	86	78	73	76	80	72	A	54	
30	52	66	58	64	54	52	57	77	77	67	A	A	A	A	97	107	110	106	101	97	84	54	72	A	
31																									
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	26	27	27	26	29	27	28	29	27	16	14	10	19	22	25	28	29	30	29	28	28	26	27	28	
MED	73	77	73	66	62	60	70	76	74	72	73	76	82	88	97	102	105	103	105	101	86	78	75	76	
U Q	81	81	80	73	67	66	72	82	78	74	76	82	86	100	102	106	110	109	110	105	88	81	81	79	
L Q	60	66	64	62	53	54	59	71	68	66	69	72	77	84	88	93	90	93	89	87	83	72	71	69	

HOURLY VALUES OF fEs AT Okinawa

JUN. 2014

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

H D	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	58	54	40	46	42	G	28	49	94	126	92	93	87	88	83	88	76	68	94	92	58	54	40	40	
2	30	27	24	G	G	G	G	G	50	56	68	58	52	64	92	85	77	78	43	40	36	28	G	G	
3	G	50	28	G	G	33	G	G	G	43	G	B	53	G	51	56	46	49	43	39	33	59	73	58	
4	58	51	35	46	40	33	G	34	53	65	56	61	60	77	64	66	52	59	55	52	39	44	37	44	
5	39	35	G	G	G	G	G	G	44	50	60	G	G	57	47	G	54	60	57	42	33	34	26	28	
6	28	G	26	G	G	35	38	40	81	52	85	92	114	176	155	114	78	45	35	G	27	48	34	G	
7	39	50	27	G	G	G	G	G	52	79	100	92	60	125	93	56	68	80	G	G	G	28	50	48	
8	G	34	50	48	32	36	G	59	74	112	58	112	G	69	75	G	G	42	36	G	G	G	G	59	
9	59	29	54	G	G	G	33	43	54	65	72	59	G	54	G	G	47	67	132	112	93	81	73	92	
10	91	78	79	74	50	38	G	42	39	G	56	58	86	83	123	91	73	48	68	69	38	36	48	46	
11	56	58	38	44	47	53	61	58	83	55	83	65	71	G	76	62	62	52	47	54	103	69	41	49	
12	59	72	49	36	G	G	43	49	62	85	70	G	64	62	63	64	51	60	62	60	46	27	25	G	
13	28	G	28	G	53	70	34	36	G	G	G	69	57	76	68	51	50	60	58	47	40	34	31	28	
14	G	57	56	90	81	81	46	44	68	93	62	84	78	92	G	70	75	67	58	106	84	79	57	36	
15	G	G	45	26	G	G	G	44	58	119	146	124	191	109	72	G	G	G	G	27	G	G	79	60	
16	82	58	57	31	24	26	34	52	52	90	106	91	73	65	76	70	67	56	46	47	43	34	34	46	
17	92	39	59	36	41	32	48	56	69	56	72	78	64	50	G	55	48	46	G	36	25	50	35	51	
18	58	51	G	24	G	25	56	52	46	61	89	148	95	79	68	70	49	48	52	35	40	51	44	46	
19	70	59	82	62	27	33	34	46	58	60	50	G	G	G	52	64	51	74	61	72	25	G	36	58	
20	58	70	79	59	66	64	60	48	49	53	53	50	G	G	58	57	92	51	41	28	36	59	46		
21	43	35	36	32	28	24	G	G	59	76	70	116	125	79	70	62	68	82	79	51	55	58	34	59	
22	24	G	G	26	46	48	34	41	50	55	82	67	48	47	54	93	G	G	44	85	56	59	54	50	
23	48	58	53	32	28	44	51	44	72	61	78	109	115	54	82	72	70	52	78	78	82	84	45	48	
24	53	45	84	84	51	50	32	51	71	70	68	114	66	57	60	67	57	61	73	64	73	54	30	43	
25	39	G	G	G	G	29	28	40	45	47	48	49	68	70	52	74	61	57	61	61	49	34	32	57	
26	72	35	31	28	26	G	62	83	87	106	68	56	51	61	51	50	70	45	51	61	26	34	49	51	
27	51	69	59	82	29	74	78	68	117	86	103	97	53	136	95	G	G	G	37	37	78	34	49	58	
28	56	28	28	40	46	G	34	48	69	60	79	88	64	66	58	52	49	44	51	42	26	G	44	G	
29	25	25	26	30	46	26	34	39	G	50	73	65	G	G	G	50	G	46	46	G	35	G	48	37	
30	38	27	G	26	40	G	33	42	56	59	66	115	140	93	66	88	74	54	58	37	43	36	32	37	
31																									
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	30	30	30	30	30	30	30	30	30	30	30	29	30	30	30	30	30	30	30	30	30	30	30	30	
MED	50	42	37	32	28	30	34	44	57	60	70	78	64	66	65	63	56	53	52	47	40	35	40	46	
U Q	58	58	56	46	46	44	46	51	71	85	83	103	86	83	76	72	70	61	61	64	56	54	49	57	
L Q	28	27	26	G	G	G	G	39	49	53	58	58	51	54	52	51	48	46	43	36	27	28	32	37	

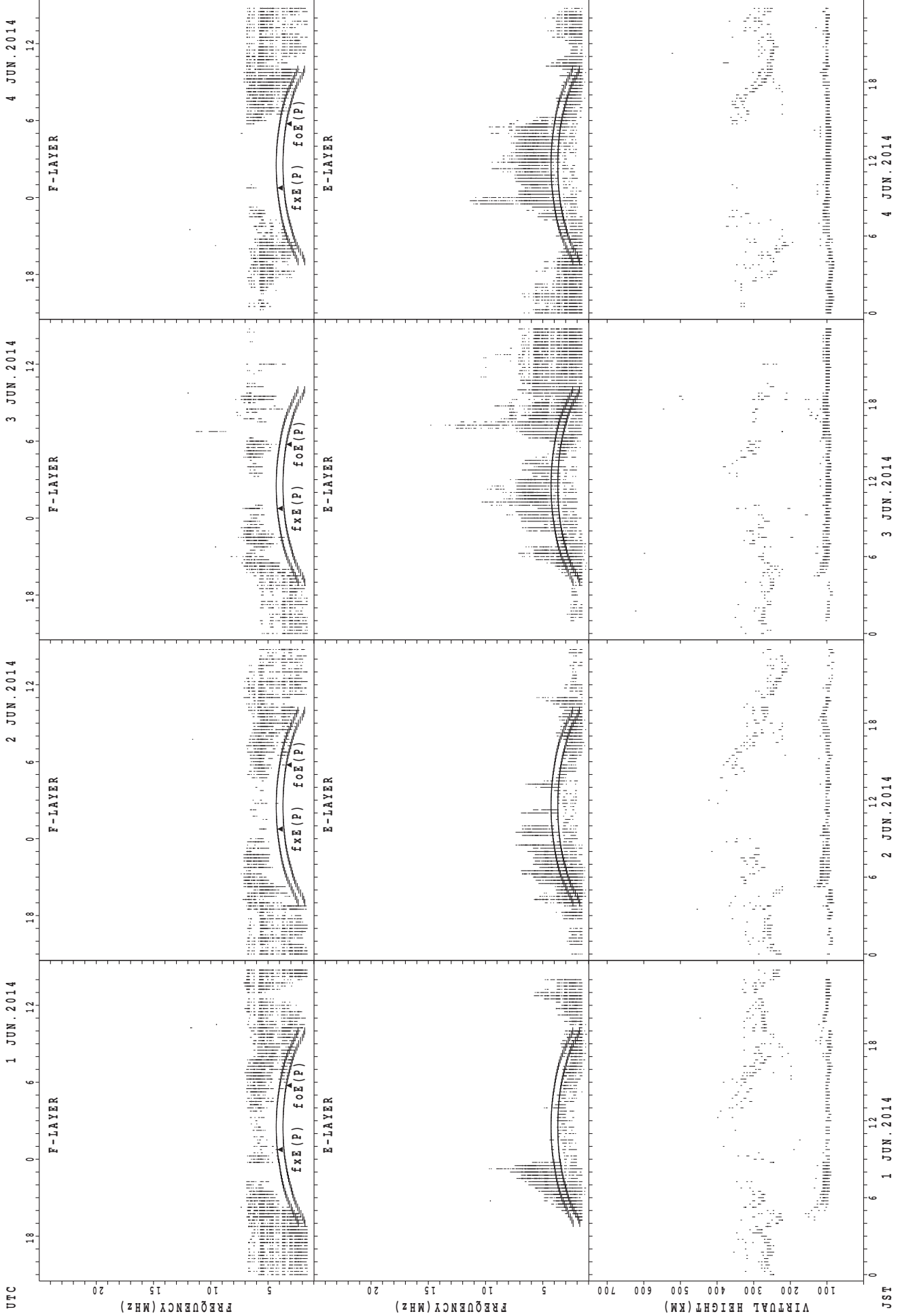
HOURLY VALUES OF fmin AT Okinawa

JUN. 2014

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

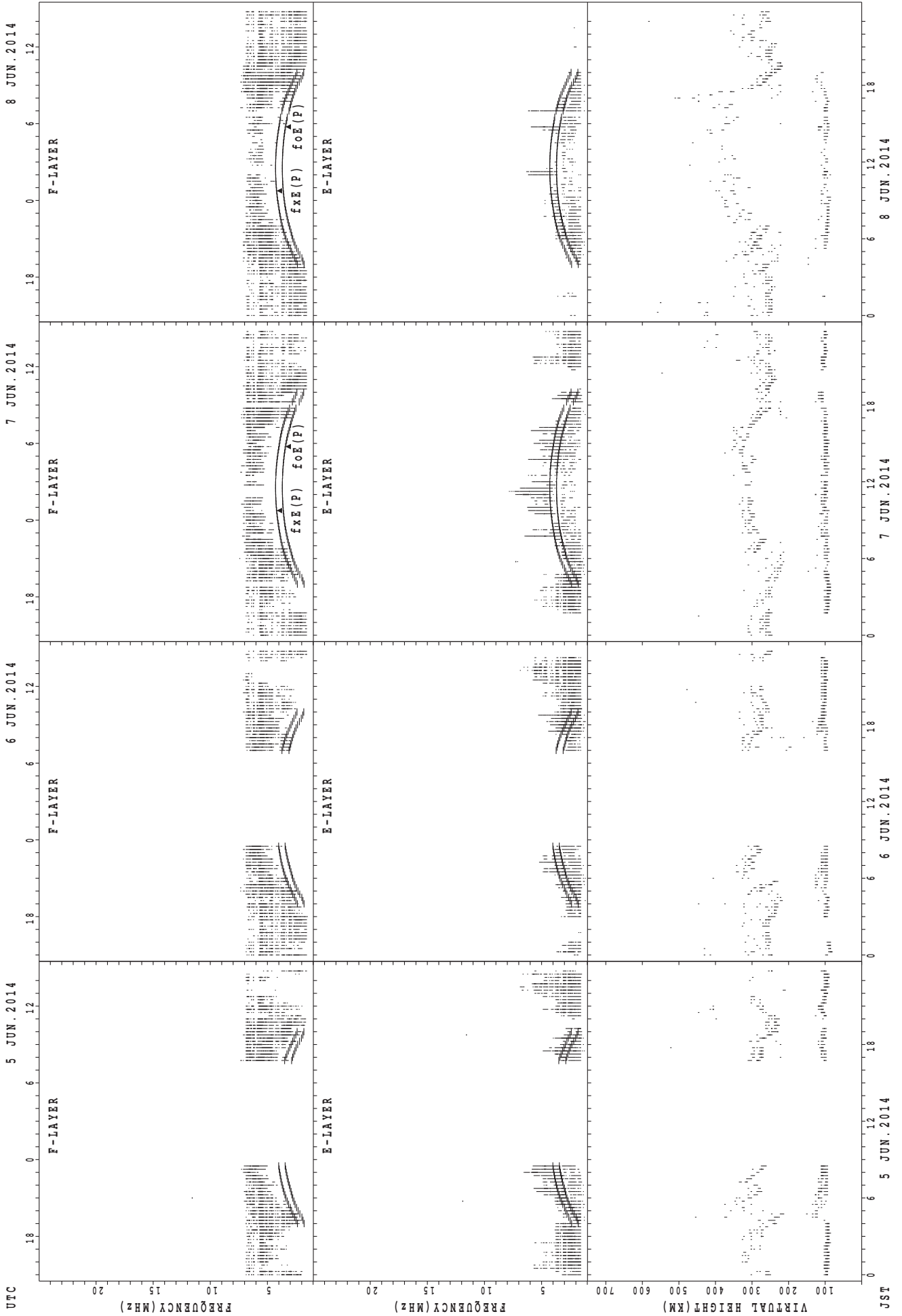
$\begin{matrix} H \\ D \end{matrix}$	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	14	14	15	14	14	14	14	14	18	22	36	38	38	36	35	28	22	15	14	14	14	14	14	15
2	14	14	14	15	15	14	22	14	20	30	30	33	38	34	30	27	20	32	14	14	14	15	15	14
3	18	14	15	17	20	14	21	18	18	34	48	B	39	71	54	38	54	20	14	15	14	15	18	14
4	14	14	15	15	14	14	33	18	21	24	30	38	39	38	42	39	36	20	16	20	15	14	14	15
5	14	15	17	17	26	16	26	35	20	38	38	52	50	38	52	54	27	20	15	15	14	14	14	15
6	15	15	16	17	15	14	17	20	22	34	36	39	39	39	40	33	30	18	14	22	15	14	18	17
7	14	15	14	15	14	14	29	15	17	22	39	39	40	36	36	29	35	14	14	22	14	15	14	14
8	15	14	14	14	14	14	23	15	20	21	38	40	50	40	40	81	18	18	15	14	15	16	20	15
9	14	14	15	15	17	20	16	16	18	33	39	37	91	36	59	54	30	18	17	16	16	14	14	14
10	15	14	15	14	14	17	14	17	20	44	39	44	42	40	43	38	30	20	14	14	15	14	15	15
11	15	15	15	15	15	17	16	18	21	33	40	39	39	61	38	33	36	20	17	15	14	14	14	14
12	14	14	15	14	18	16	18	18	24	36	39	91	40	39	39	33	29	23	17	14	14	14	14	15
13	14	17	14	15	16	17	15	30	42	56	101	40	40	39	35	30	24	29	17	14	16	14	14	14
14	17	14	15	14	14	15	16	18	21	27	40	42	45	43	42	42	39	33	26	14	16	14	14	15
15	17	15	17	14	20	15	17	17	21	34	36	39	40	39	39	60	47	40	17	14	14	44	14	14
16	14	14	15	14	14	14	15	15	20	40	39	56	40	38	38	30	27	18	14	14	14	14	15	14
17	15	14	14	15	15	14	17	17	18	21	33	38	36	57	58	29	28	21	14	14	14	14	14	14
18	14	15	14	15	17	16	17	18	21	35	36	36	39	39	36	34	28	23	17	17	14	14	15	14
19	14	14	14	14	14	14	15	14	18	32	43	54	54	91	42	40	20	18	14	15	15	21	14	14
20	14	14	14	14	14	14	17	17	17	21	39	42	91	55	40	38	35	26	21	16	14	22	14	14
21	15	14	14	14	16	14	21	17	21	34	35	38	39	38	38	32	27	20	14	15	15	16	14	15
22	14	16	15	14	14	14	14	14	18	20	30	33	101	54	41	38	42	41	14	14	14	14	14	14
23	14	15	14	15	17	14	17	14	18	21	29	33	35	38	39	38	35	20	14	14	16	14	15	16
24	14	15	14	14	14	14	15	14	17	18	34	35	34	42	39	39	21	21	14	14	15	16	14	15
25	14	15	15	14	16	14	14	14	20	29	30	35	33	32	32	27	20	16	14	14	14	14	14	14
26	14	14	14	14	14	14	14	14	18	30	33	29	34	30	29	26	18	17	14	14	15	14	17	14
27	14	15	15	14	14	14	16	14	20	35	39	38	39	38	36	45	46	20	16	15	14	14	15	14
28	14	14	14	14	14	14	14	15	15	21	32	38	36	39	39	36	30	20	14	14	14	14	17	14
29	14	14	14	14	14	14	16	15	18	32	40	39	81	60	58	40	22	18	15	14	14	15	14	14
30	14	14	27	15	15	15	17	15	18	30	34	38	40	39	38	34	23	18	14	14	14	15	14	14
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	30	30	30	30	30	30	30	30	30	30	29	30	30	30	30	30	30	30	30	30	30	30	30
MED	14	14	15	14	14	14	16	16	20	31	37	38	40	39	39	37	28	20	14	14	14	14	14	14
U Q	15	15	15	15	16	15	18	18	21	34	39	41	45	43	42	40	35	23	17	15	15	15	15	15
L Q	14	14	14	14	14	14	15	14	18	22	33	36	38	38	36	30	22	18	14	14	14	14	14	14

SUMMARY PLOTS AT Wakkanai



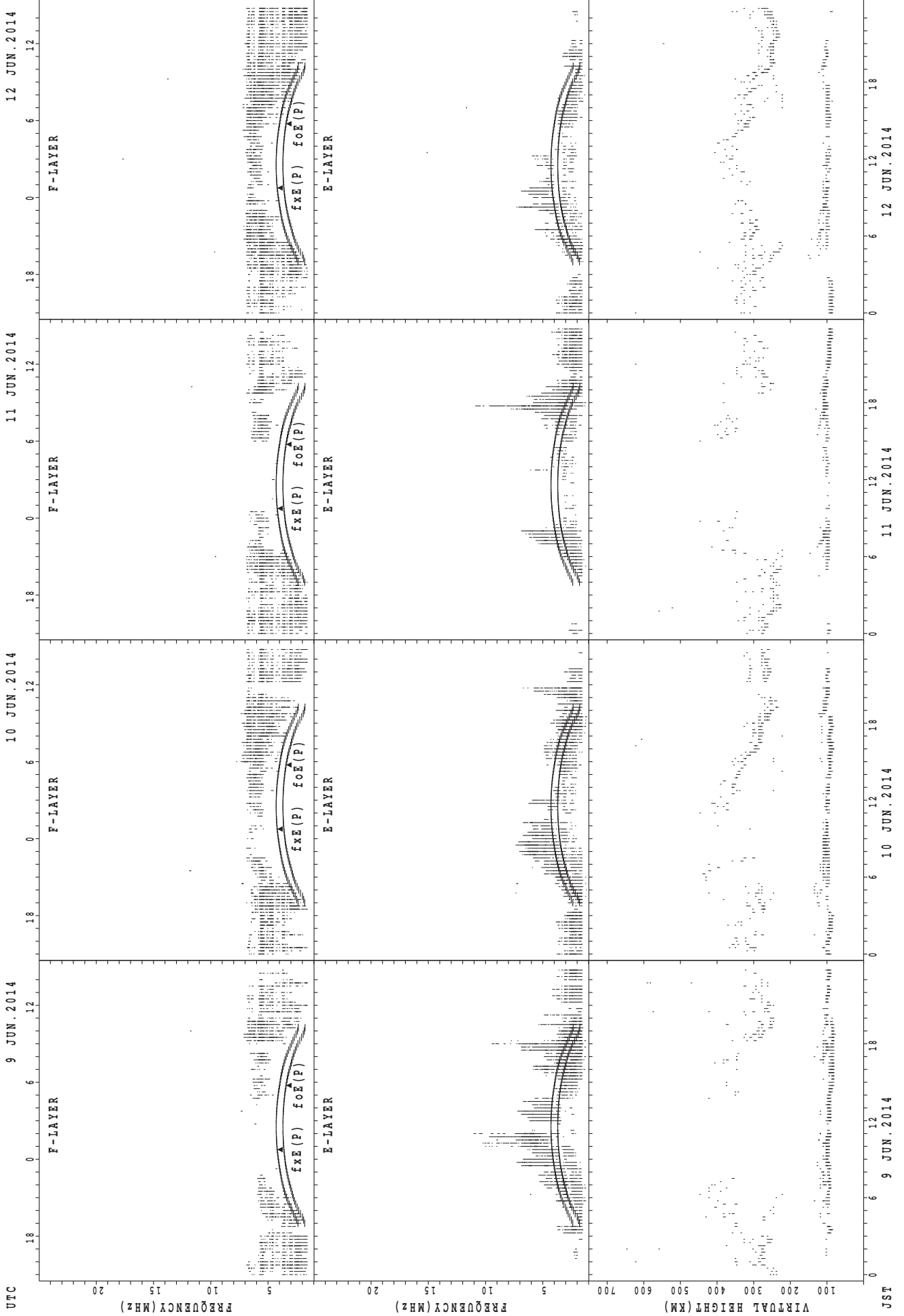
$f_xE(P)$; PREDICTED VALUE FOR f_xE
 $foE(P)$; PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



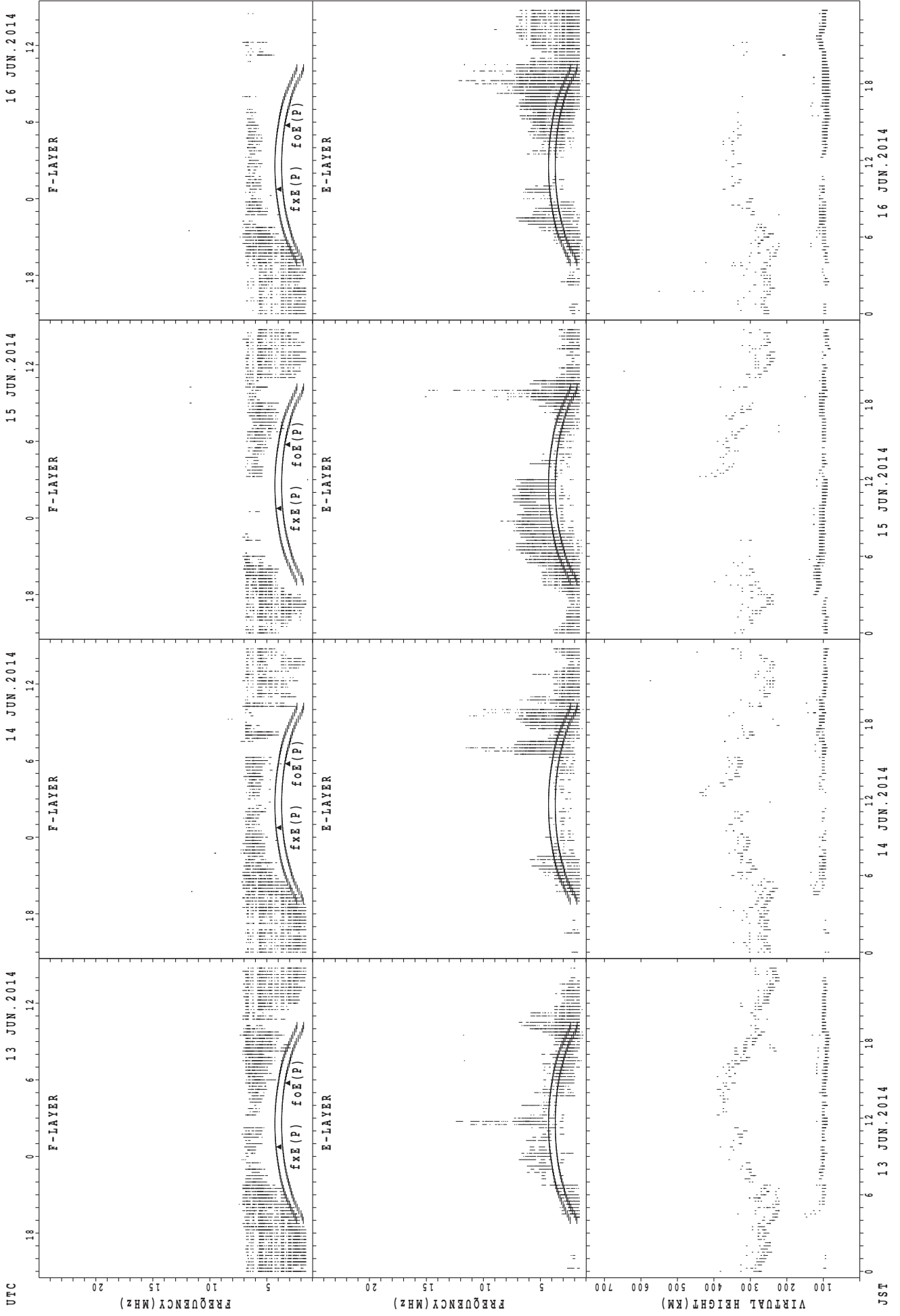
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



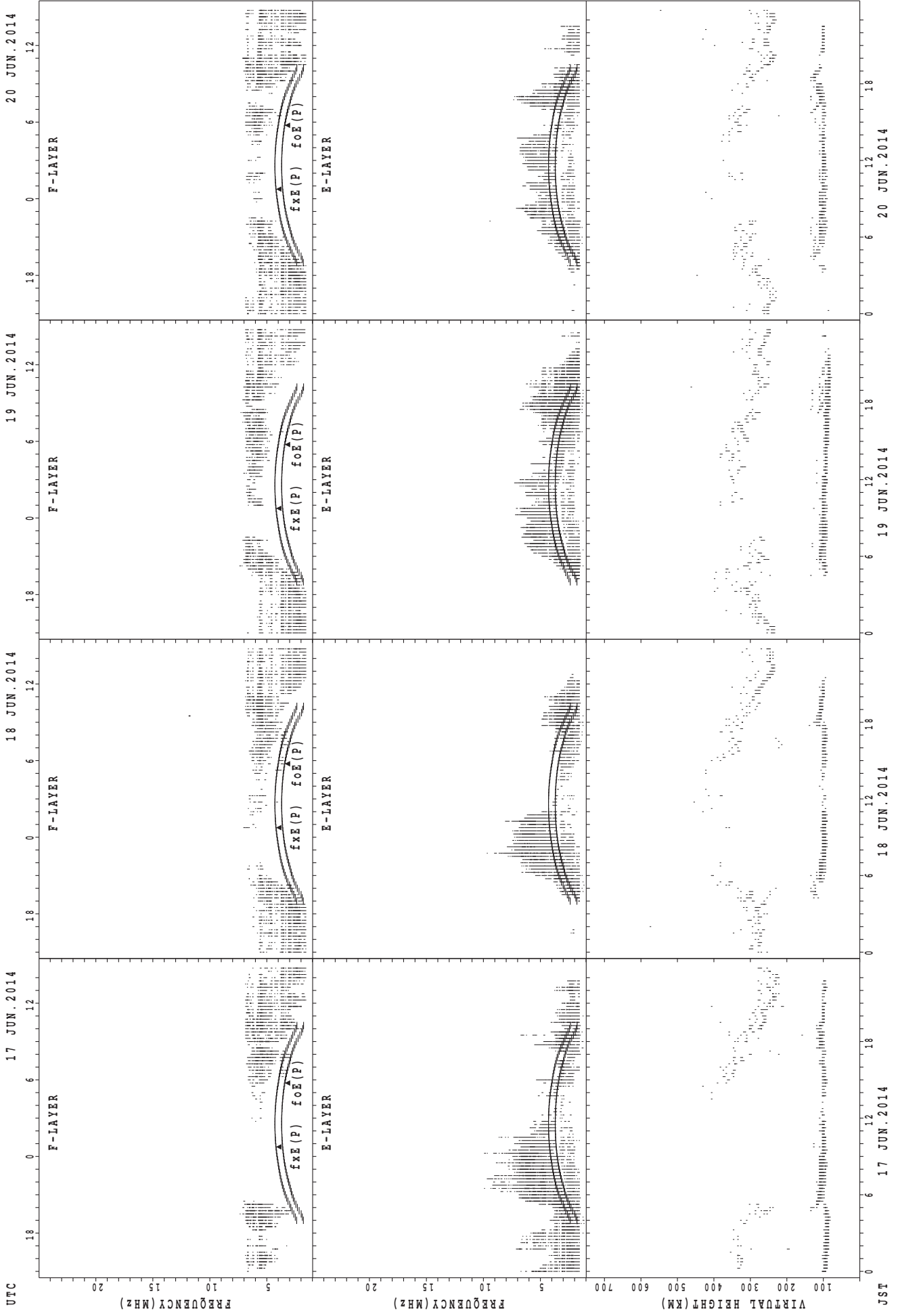
f_xE(P); PREDICTED VALUE FOR f_xE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



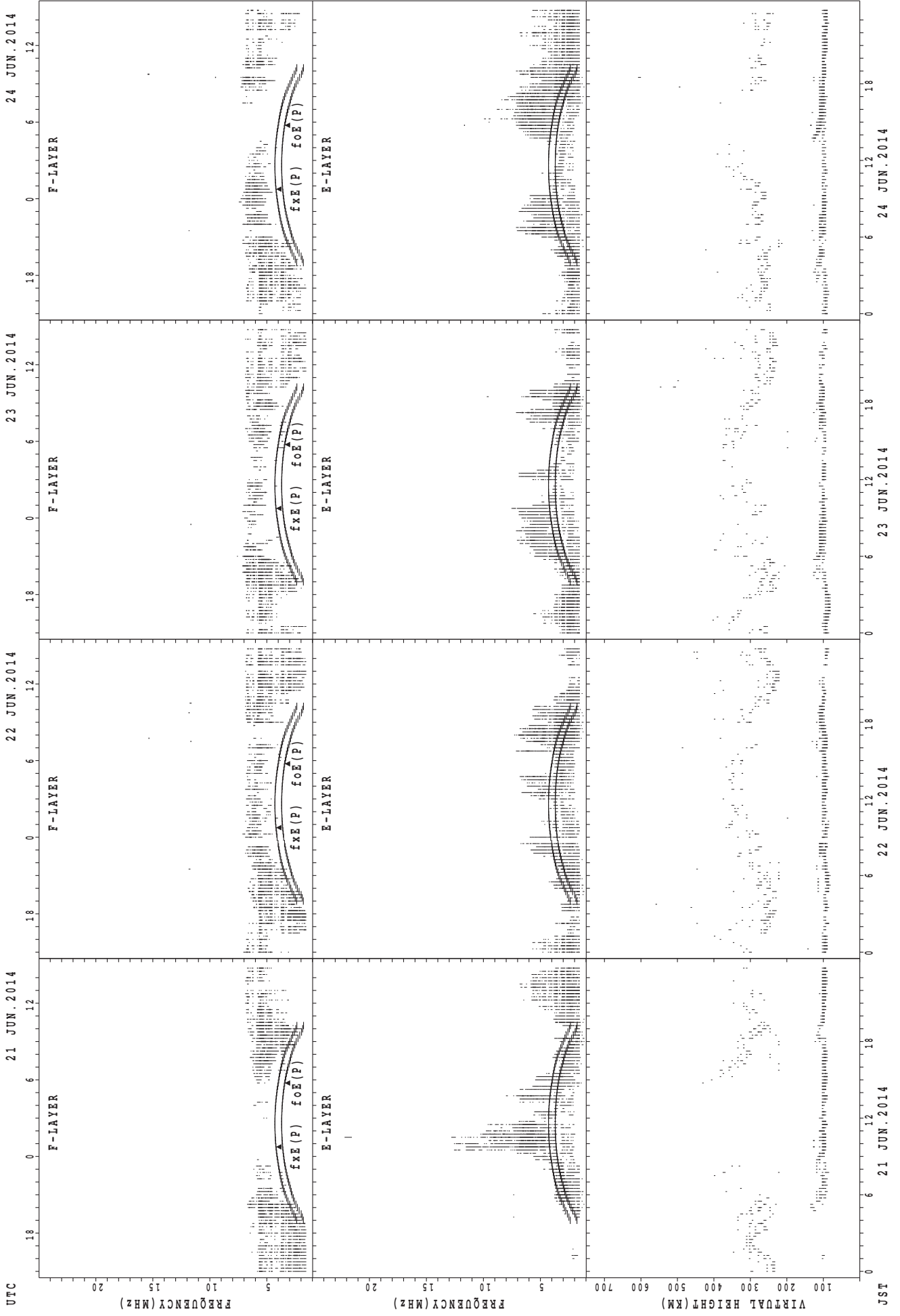
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



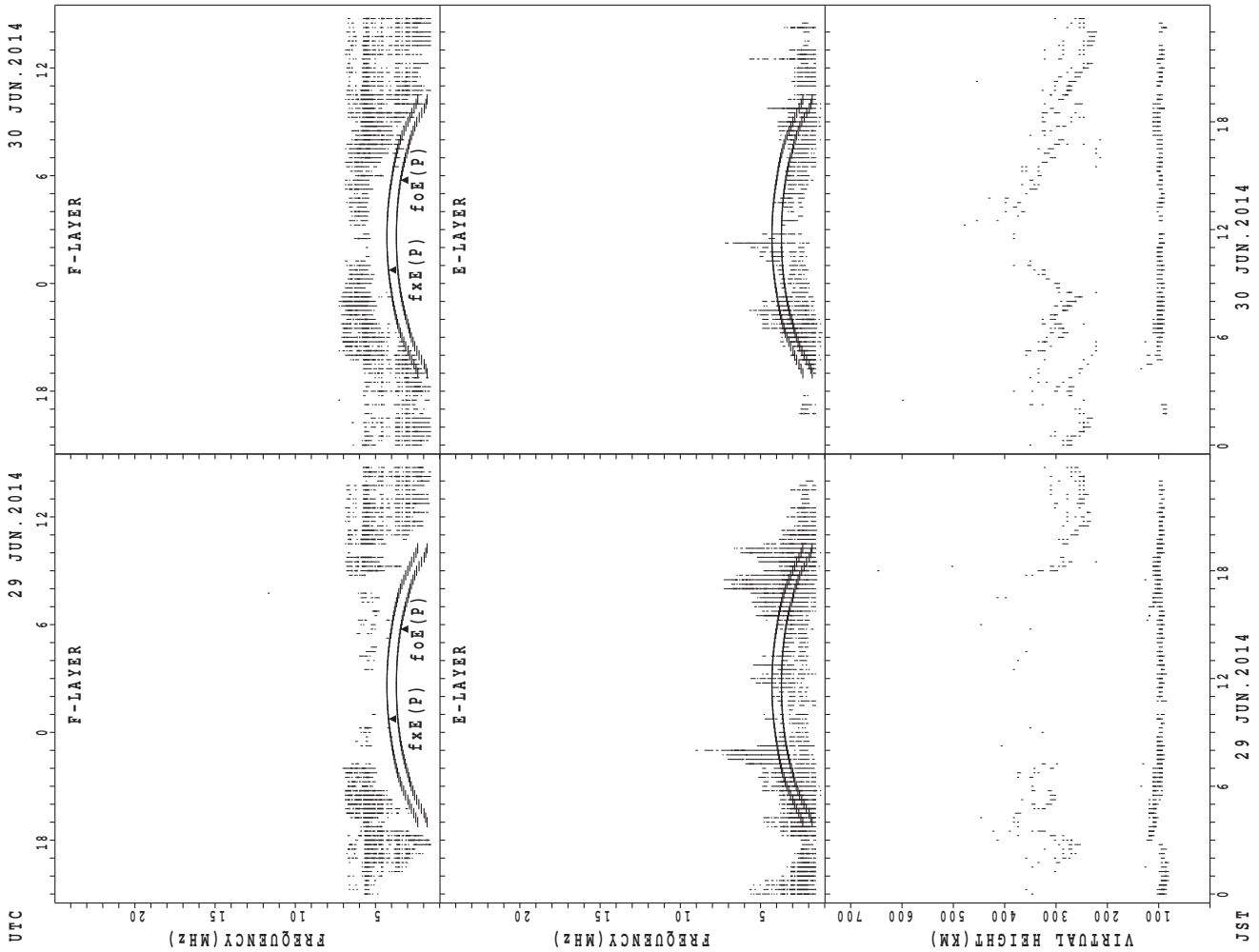
f_xE(P); PREDICTED VALUE FOR f_xE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai



$f_xE(P)$; PREDICTED VALUE FOR f_xE
 $foE(P)$; PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Wakkanai

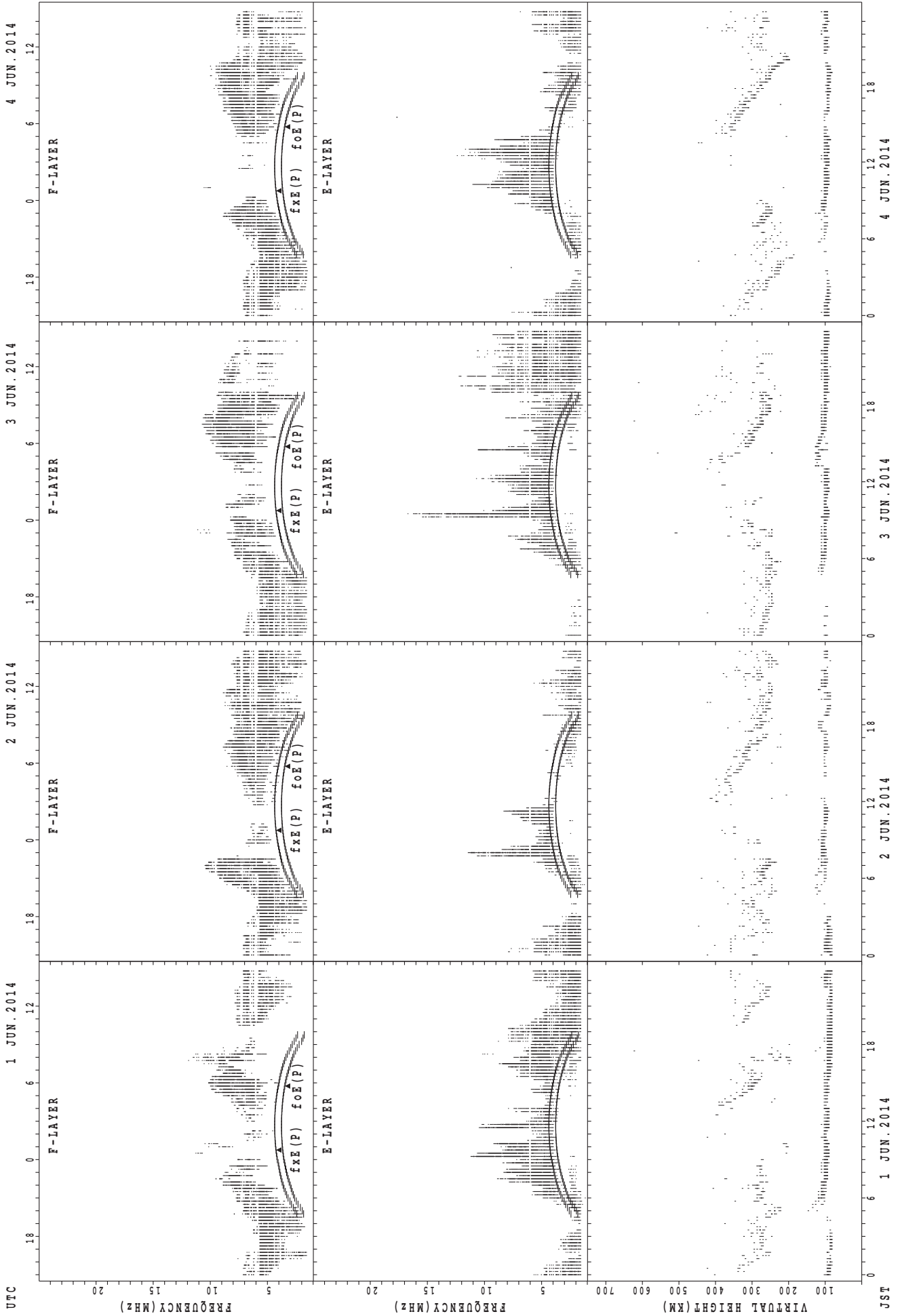


UTC 29 JUN. 2014 30 JUN. 2014

JST 29 JUN. 2014 30 JUN. 2014

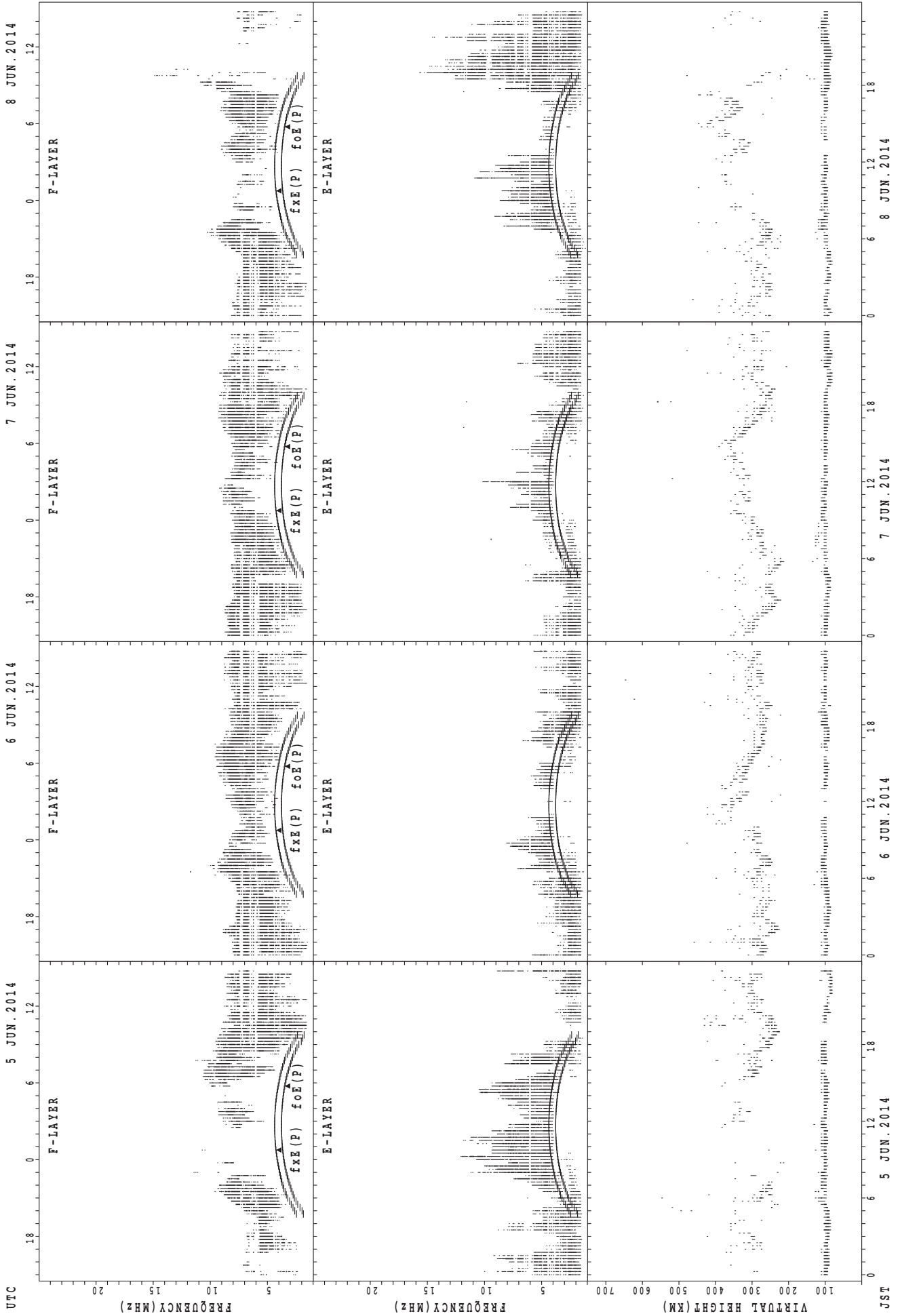
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



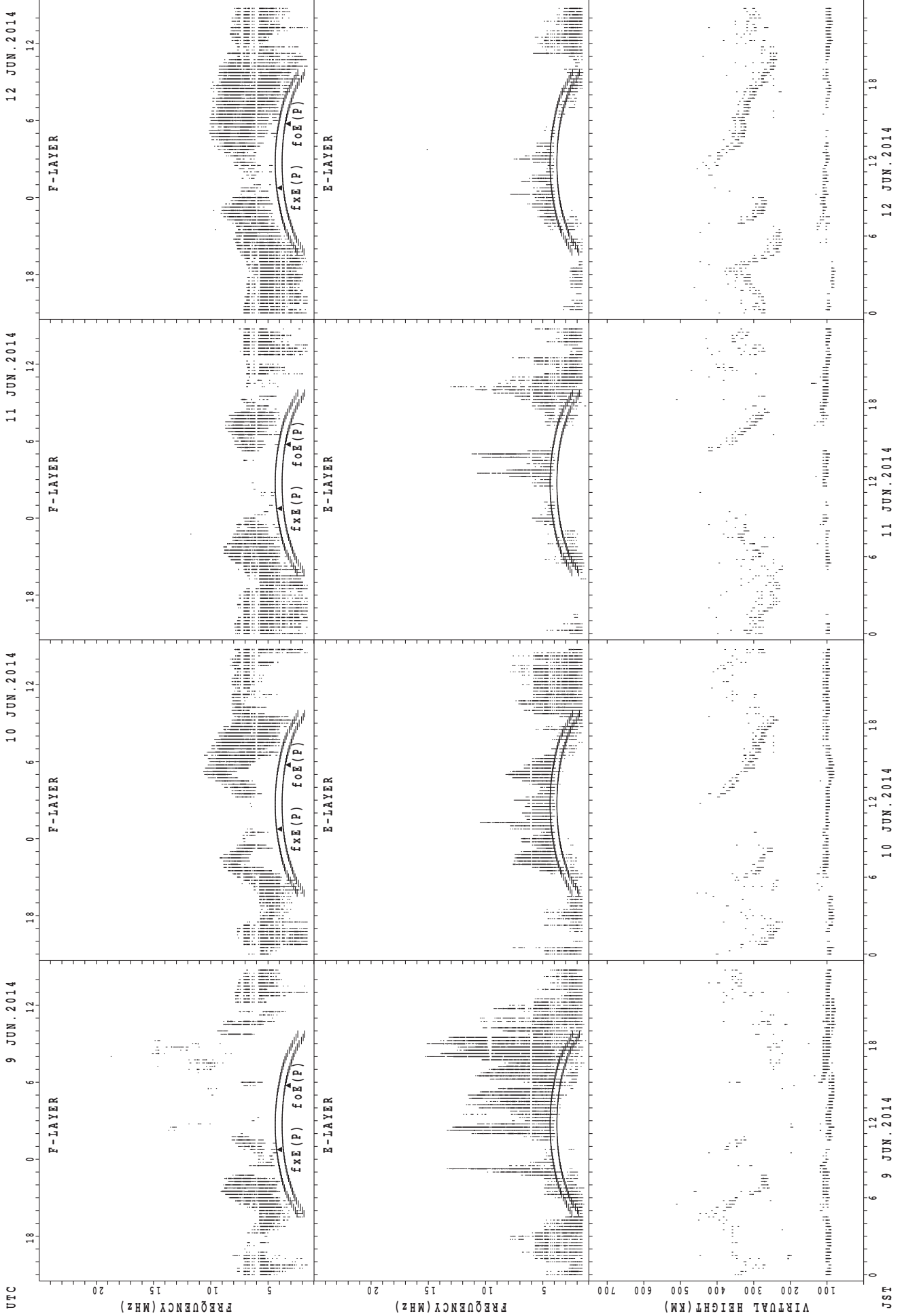
f_xE(P); PREDICTED VALUE FOR f_xE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



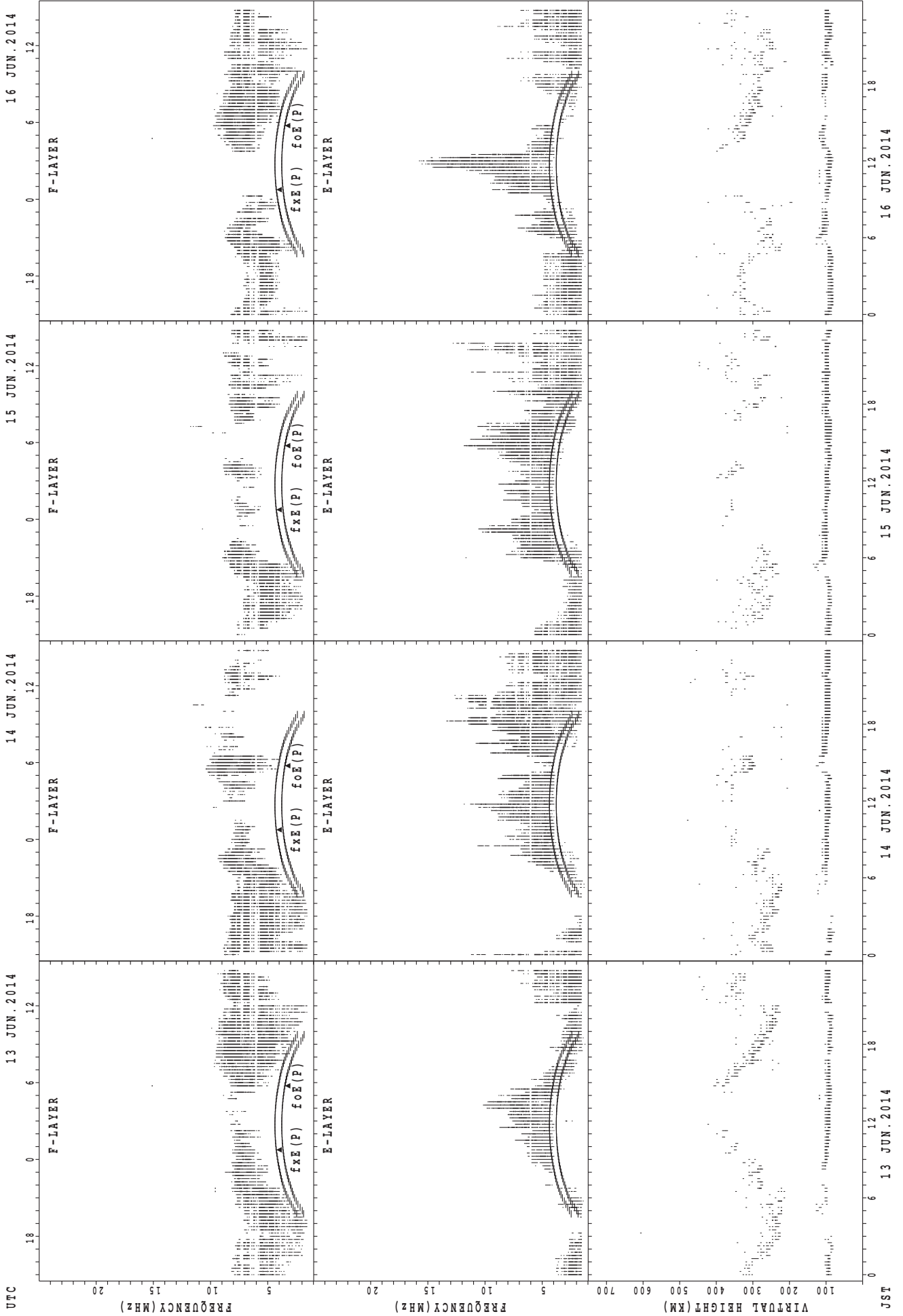
$f_xE(P)$; PREDICTED VALUE FOR f_xE
 $foE(P)$; PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



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

SUMMARY PLOTS AT Kokubunji



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

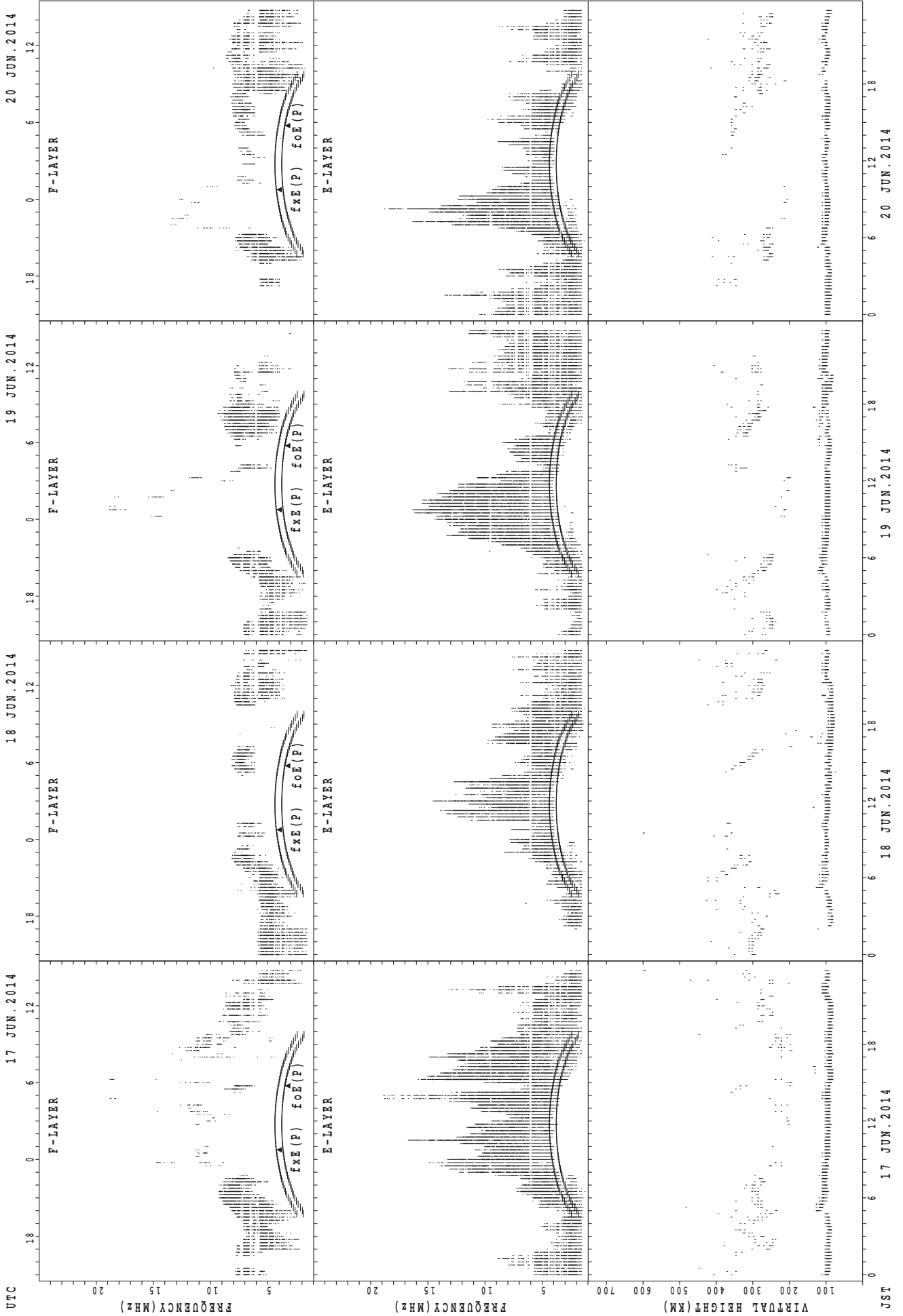
13 JUN. 2014

14 JUN. 2014

15 JUN. 2014

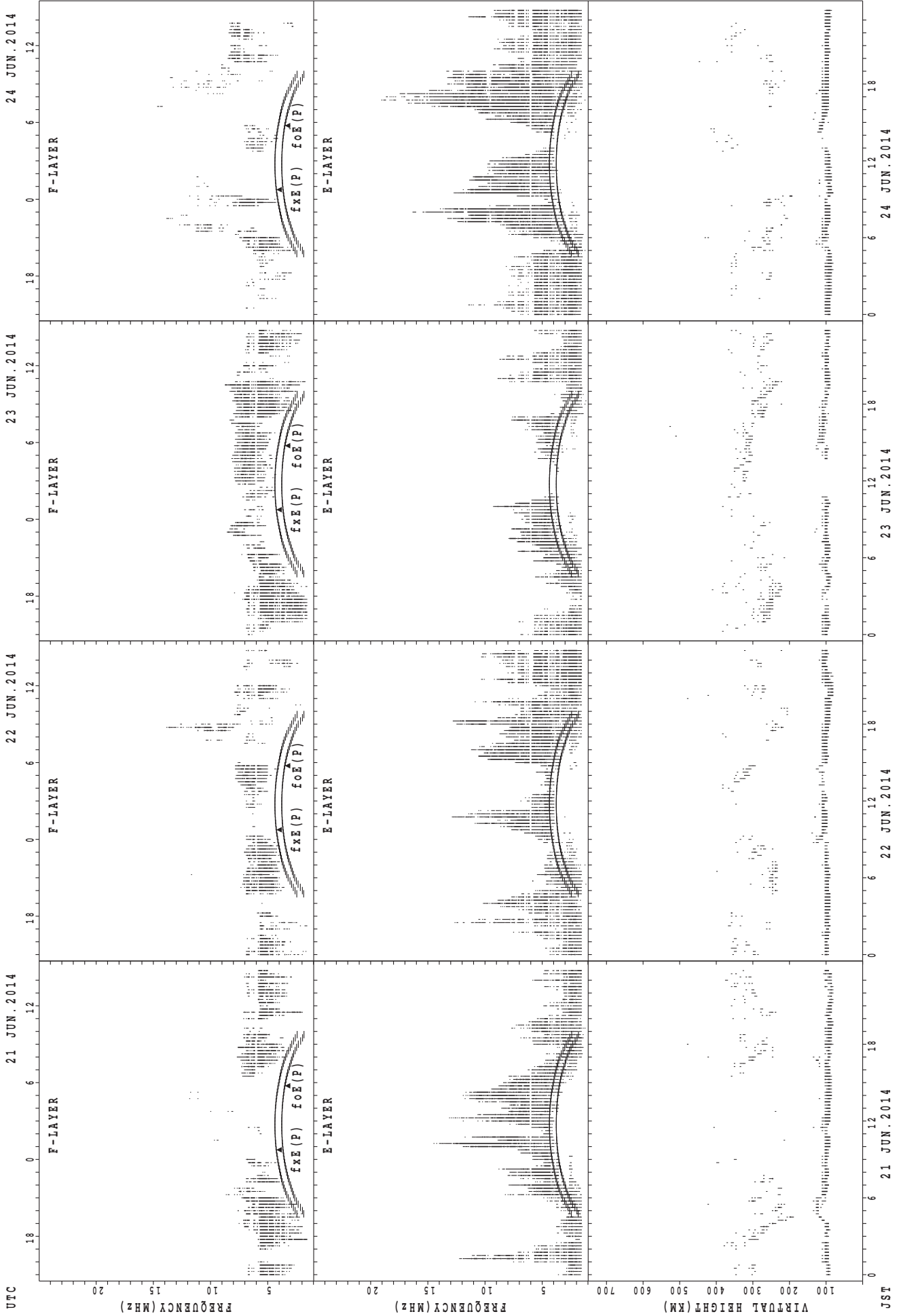
16 JUN. 2014

SUMMARY PLOTS AT Kokubunji



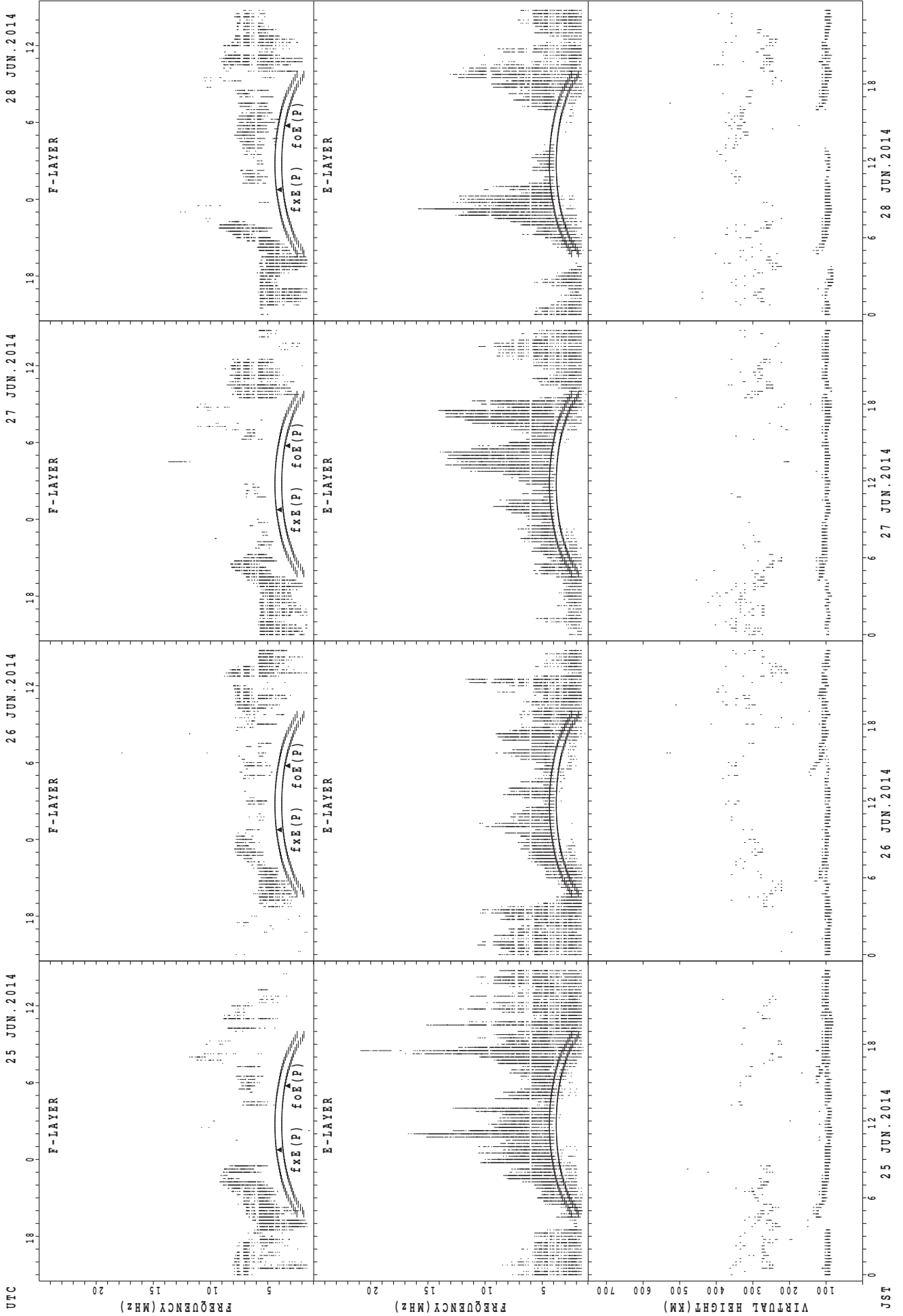
JST 17 JUN. 2014 18 JUN. 2014 19 JUN. 2014 20 JUN. 2014
 $f_xE(P)$; PREDICTED VALUE FOR f_xE
 $foE(P)$; PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



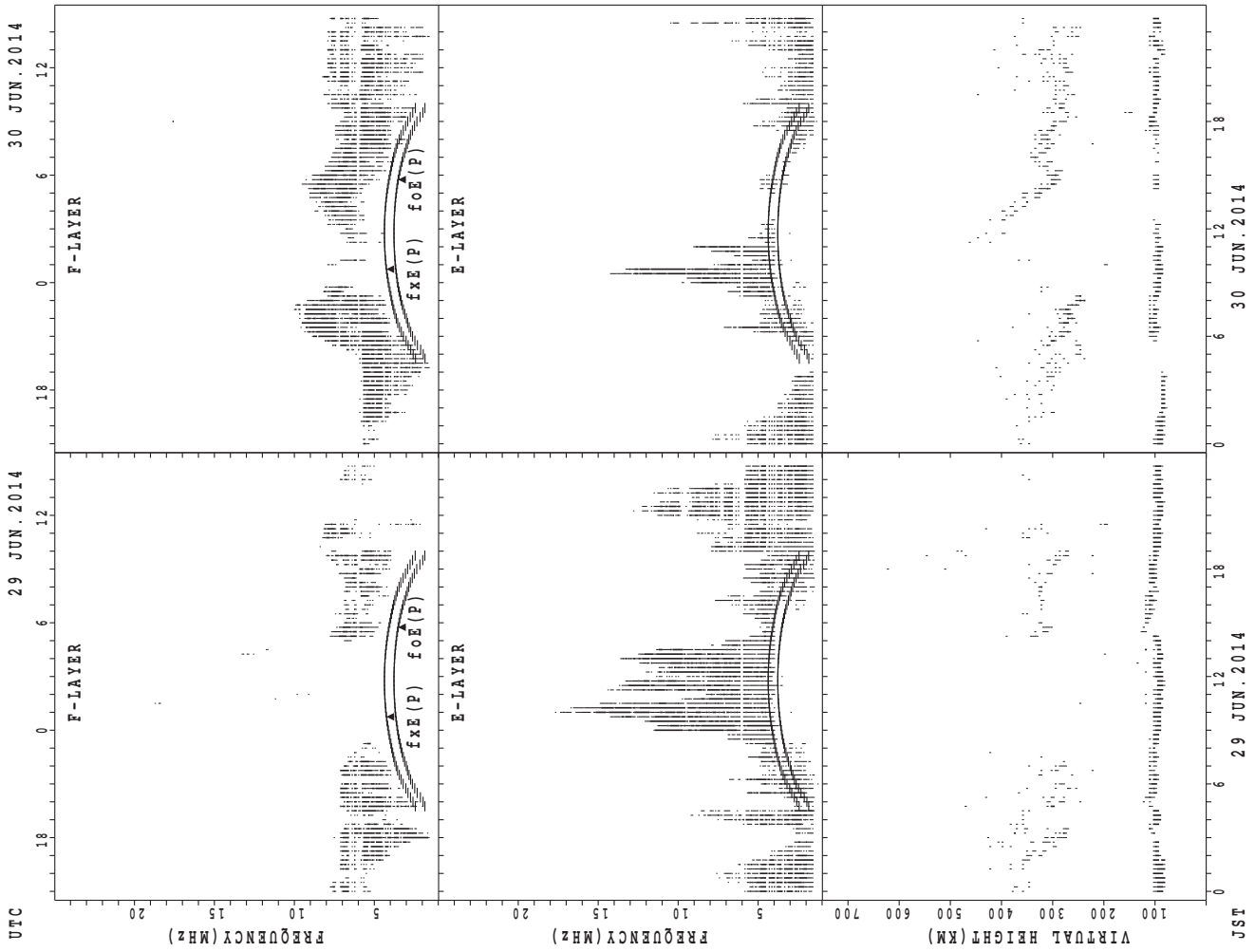
f_xE(P); PREDICTED VALUE FOR f_xE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



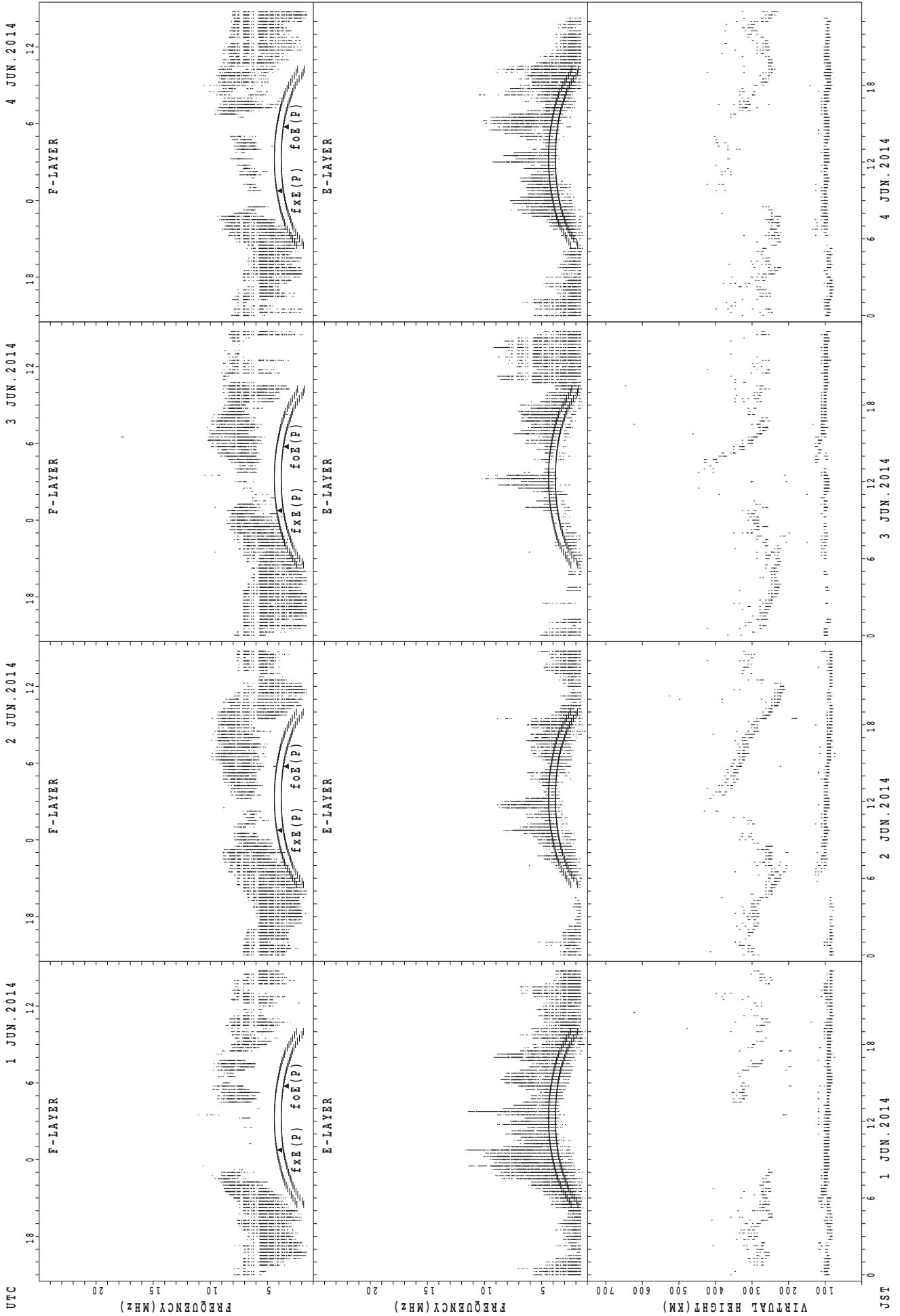
UTC
25 JUN. 2014
26 JUN. 2014
27 JUN. 2014
28 JUN. 2014
JST
fXE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Kokubunji



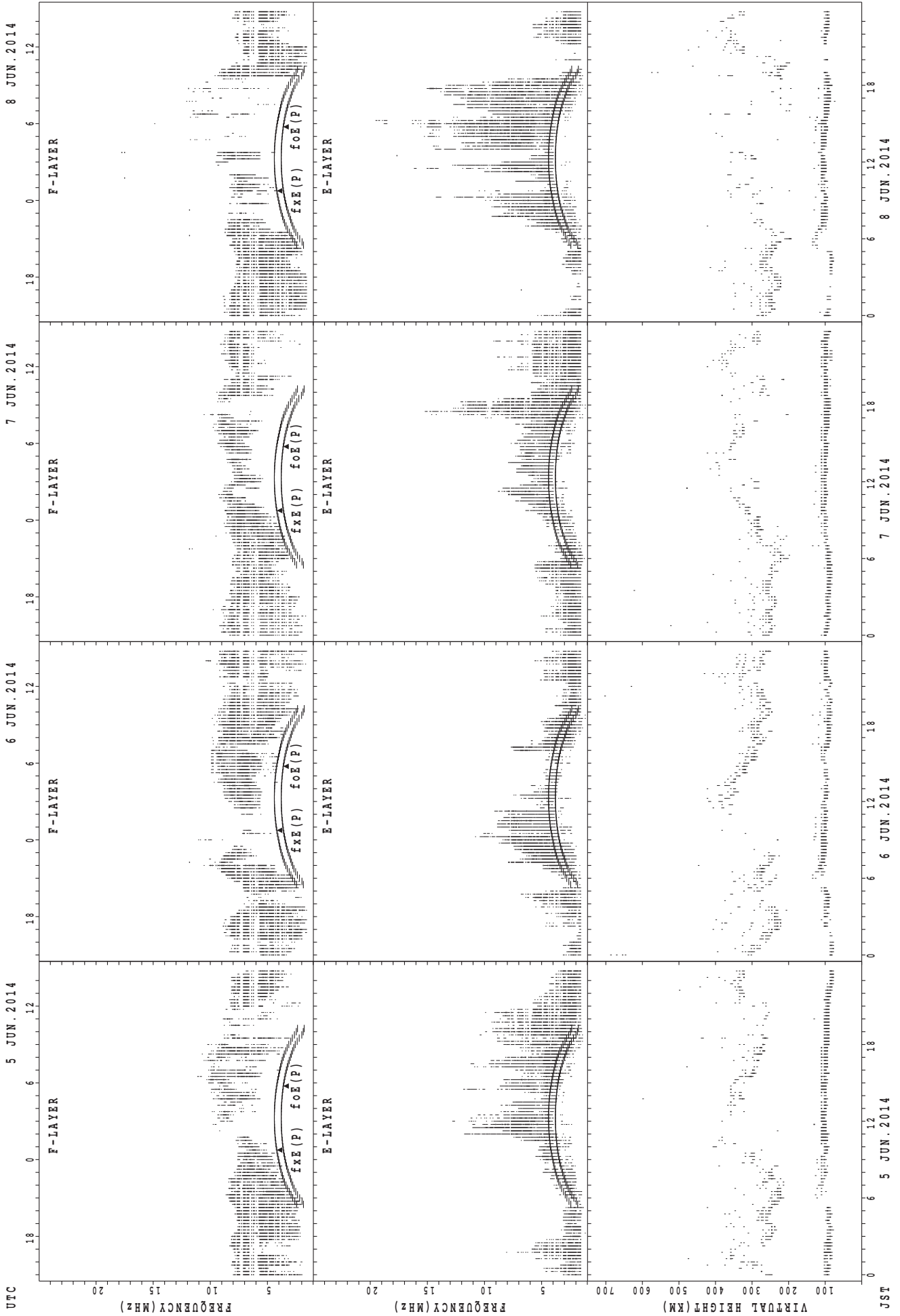
$f_{xE}(P)$; PREDICTED VALUE FOR f_{xE}
 $f_{oE}(P)$; PREDICTED VALUE FOR f_{oE}

SUMMARY PLOTS AT Yamagawa



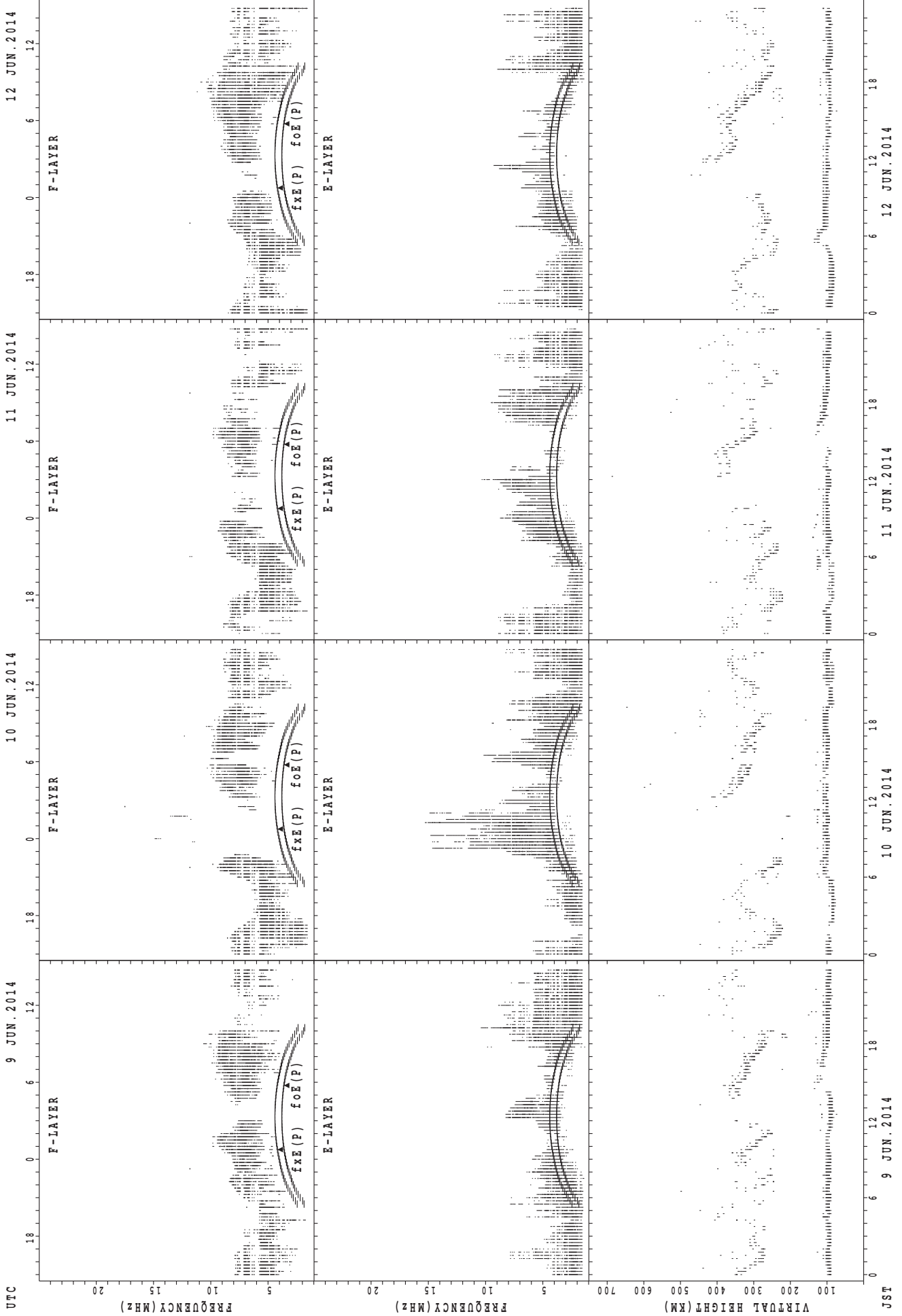
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



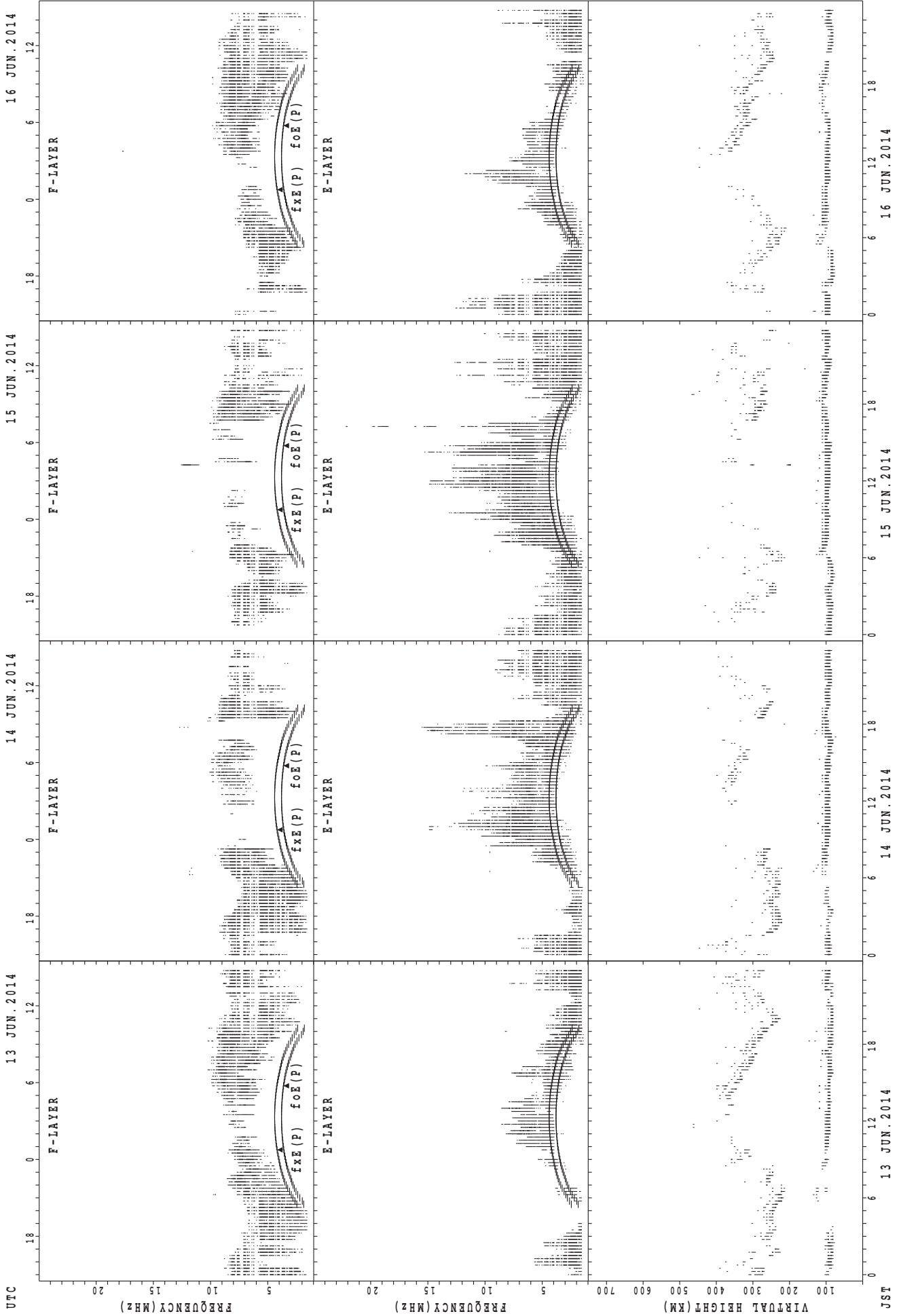
foE(P) ; PREDICTED VALUE FOR foE
fxE(P) ; PREDICTED VALUE FOR fxE

SUMMARY PLOTS AT Yamagawa



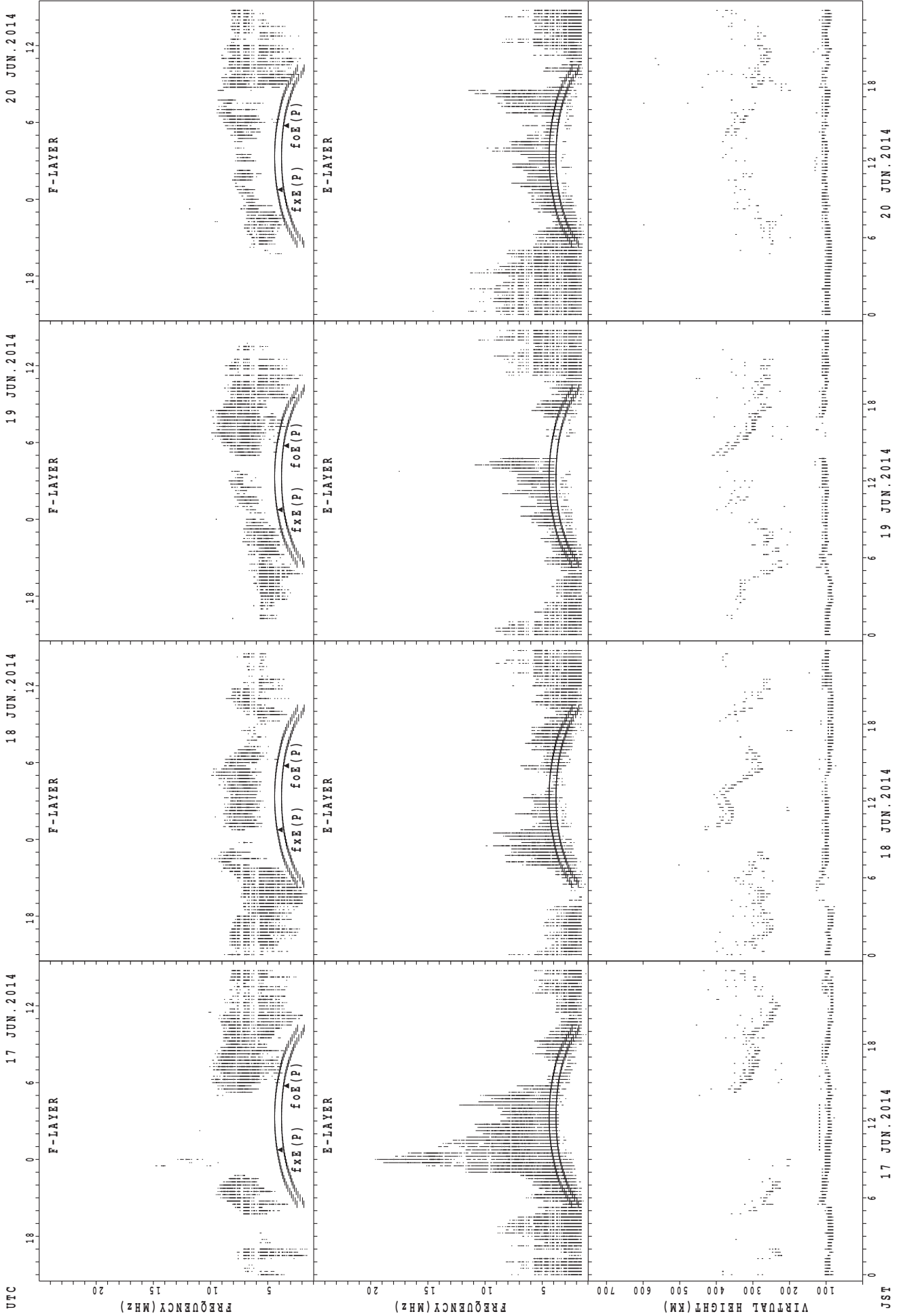
f_xE(P); PREDICTED VALUE FOR f_xE
f_oE(P); PREDICTED VALUE FOR f_oE

SUMMARY PLOTS AT Yamagawa



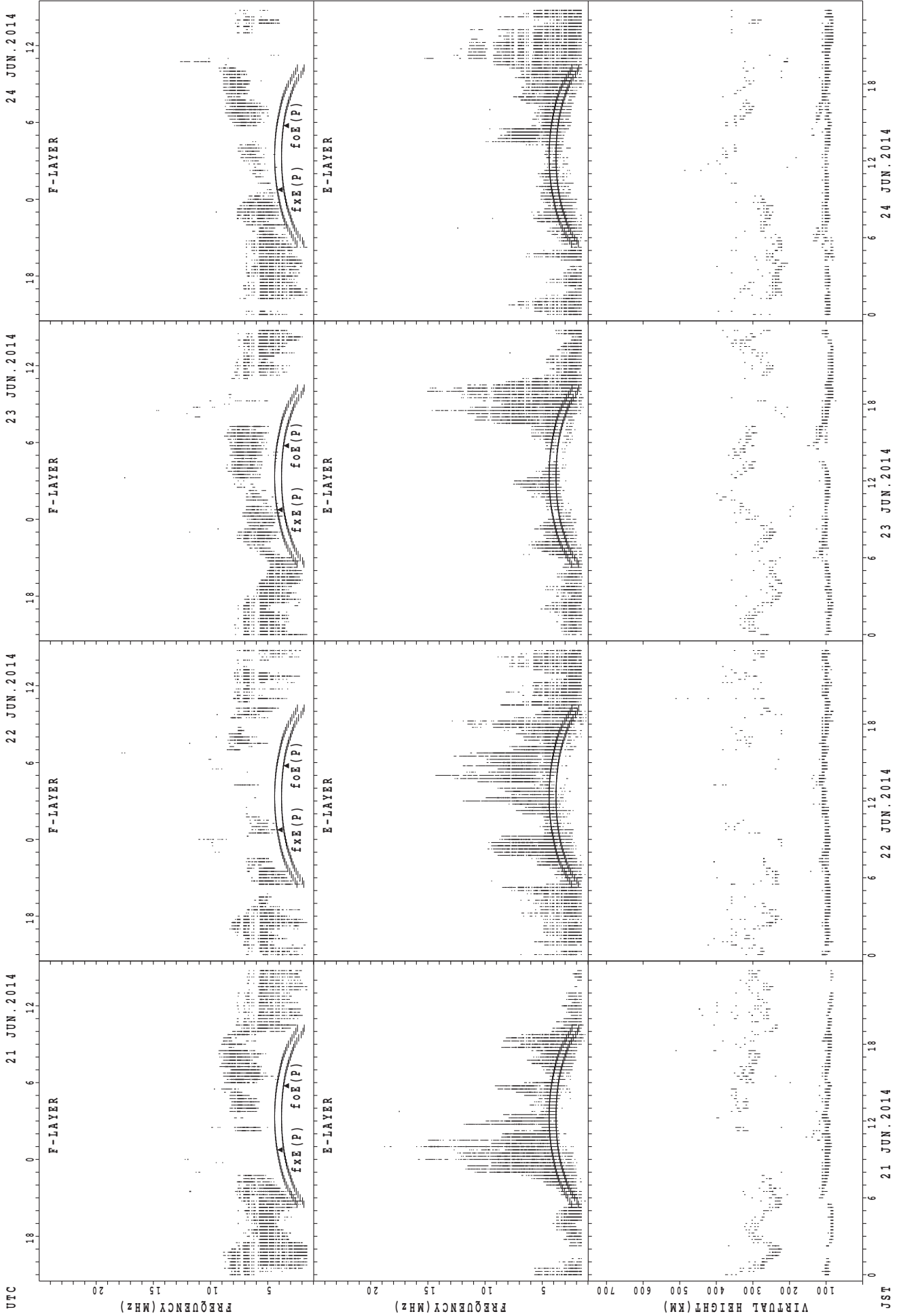
foE(P); PREDICTED VALUE FOR fxE
 fxE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



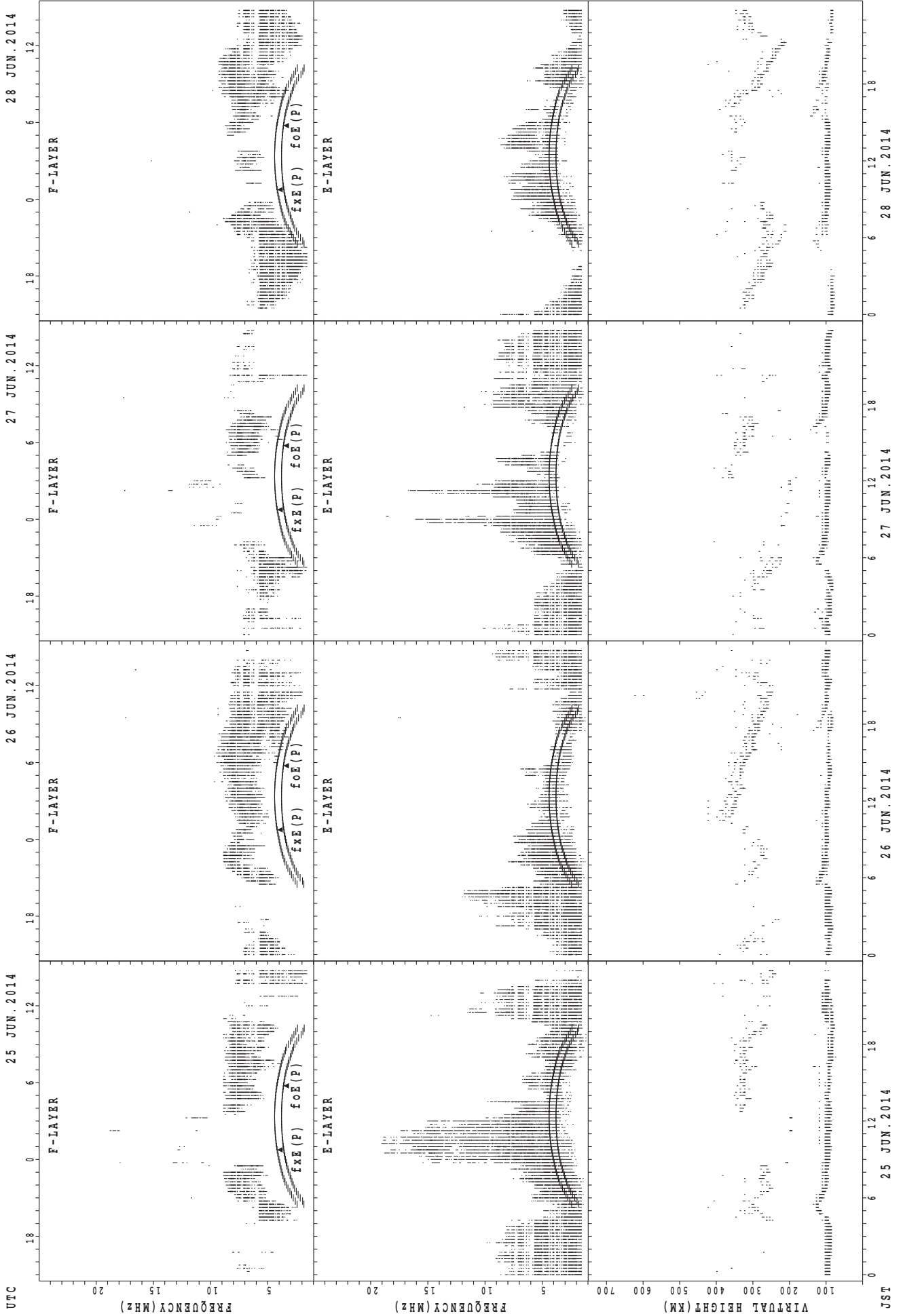
fxE(P) ; PREDICTED VALUE FOR fxE
foE(P) ; PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



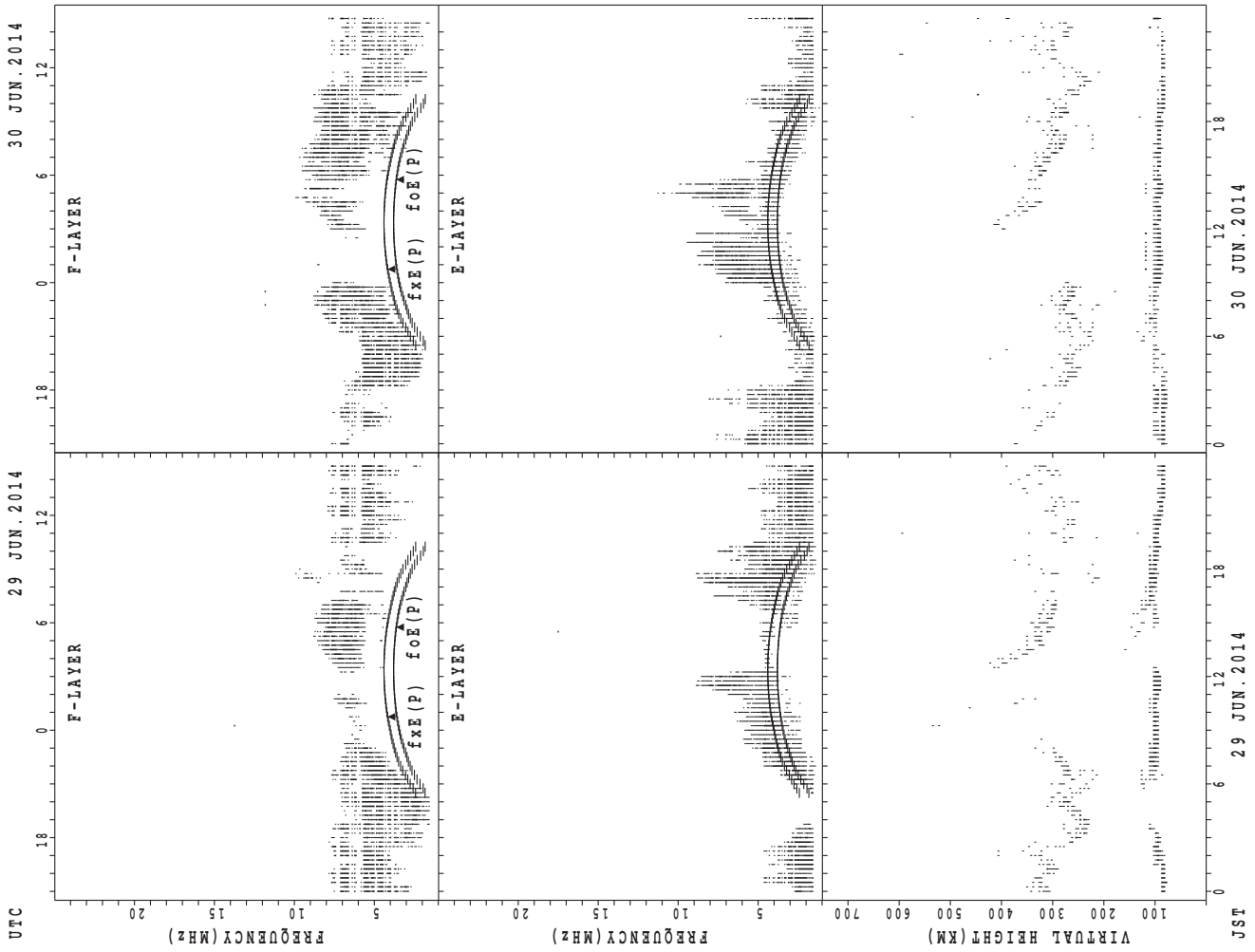
JST 21 JUN. 2014 22 JUN. 2014 23 JUN. 2014 24 JUN. 2014
 $f_{x E}(P)$; PREDICTED VALUE FOR $f_{x E}$
 $f_{o E}(P)$; PREDICTED VALUE FOR $f_{o E}$

SUMMARY PLOTS AT Yamagawa



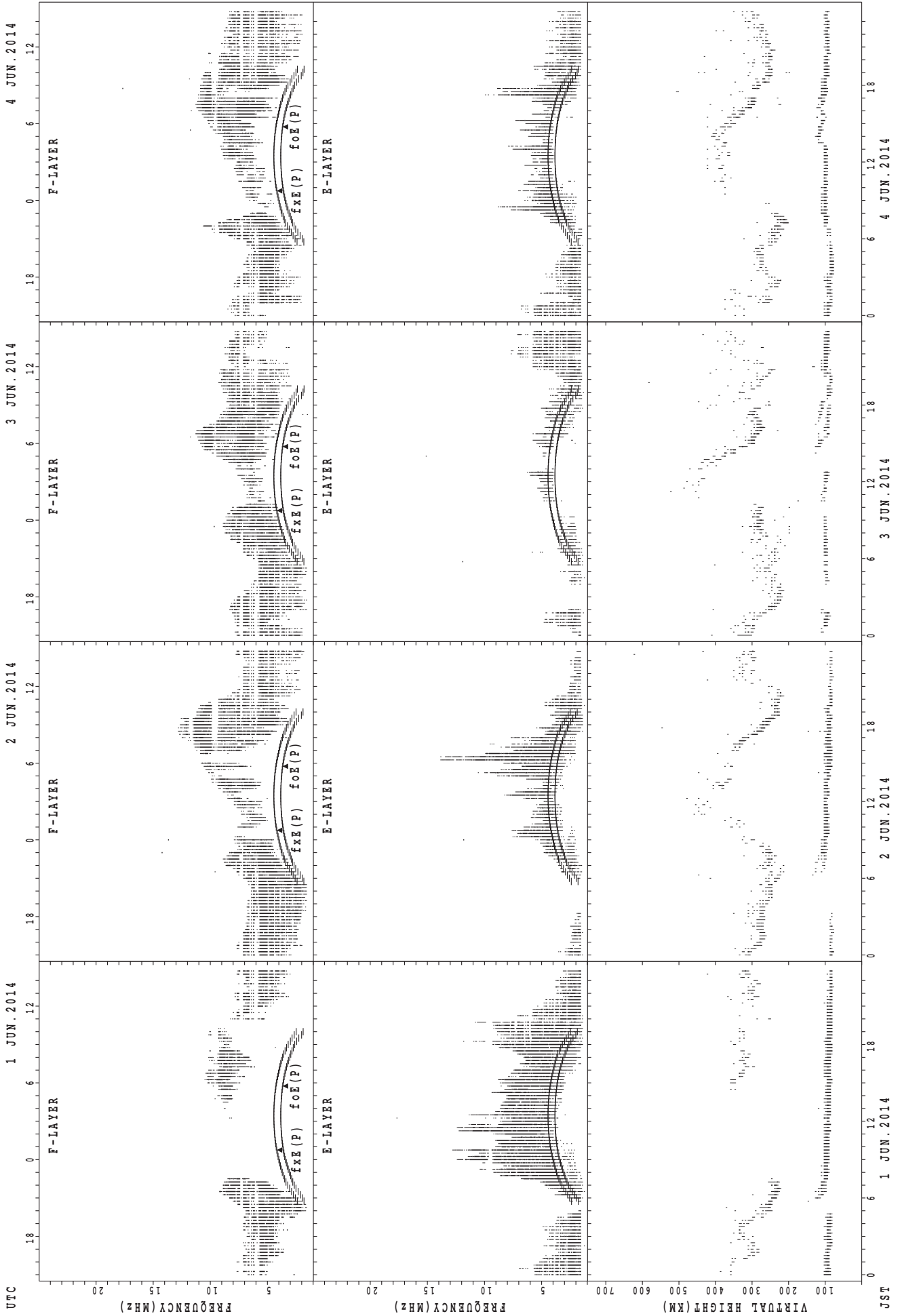
f_xE(P); PREDICTED VALUE FOR f_xE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Yamagawa



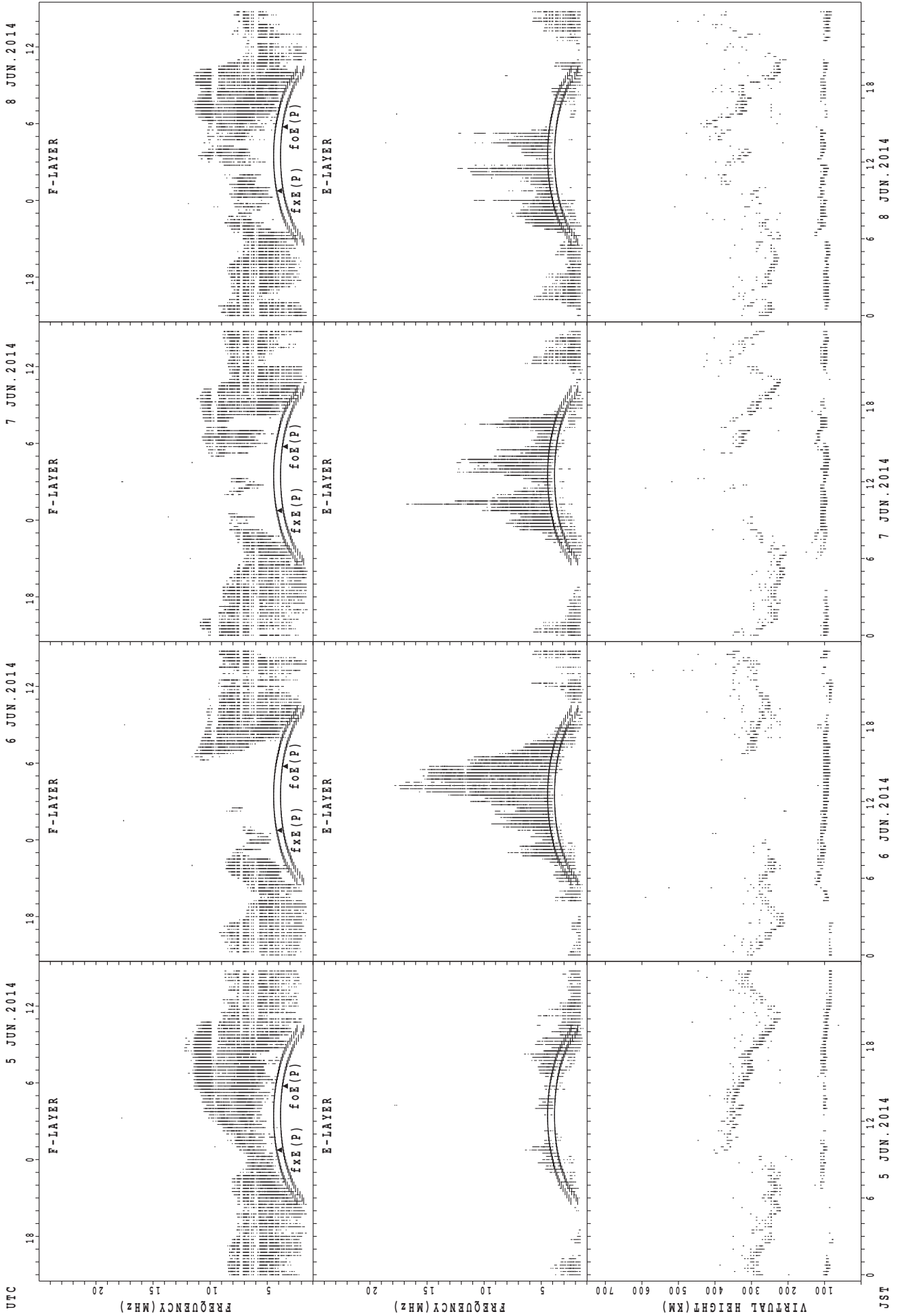
foF2(P); PREDICTED VALUE FOR foF2
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



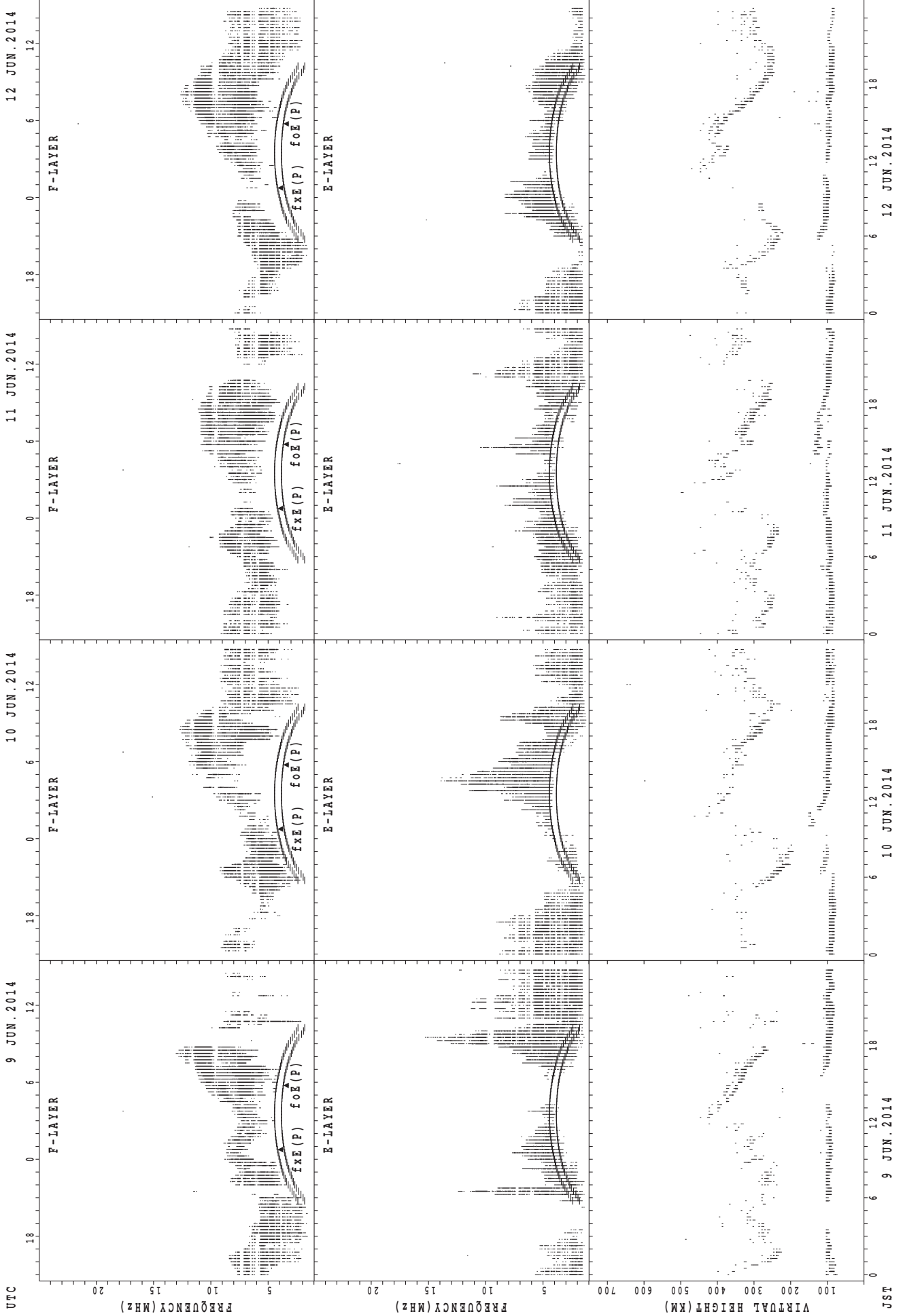
f_xE(P) ; PREDICTED VALUE FOR f_xE
foE(P) ; PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



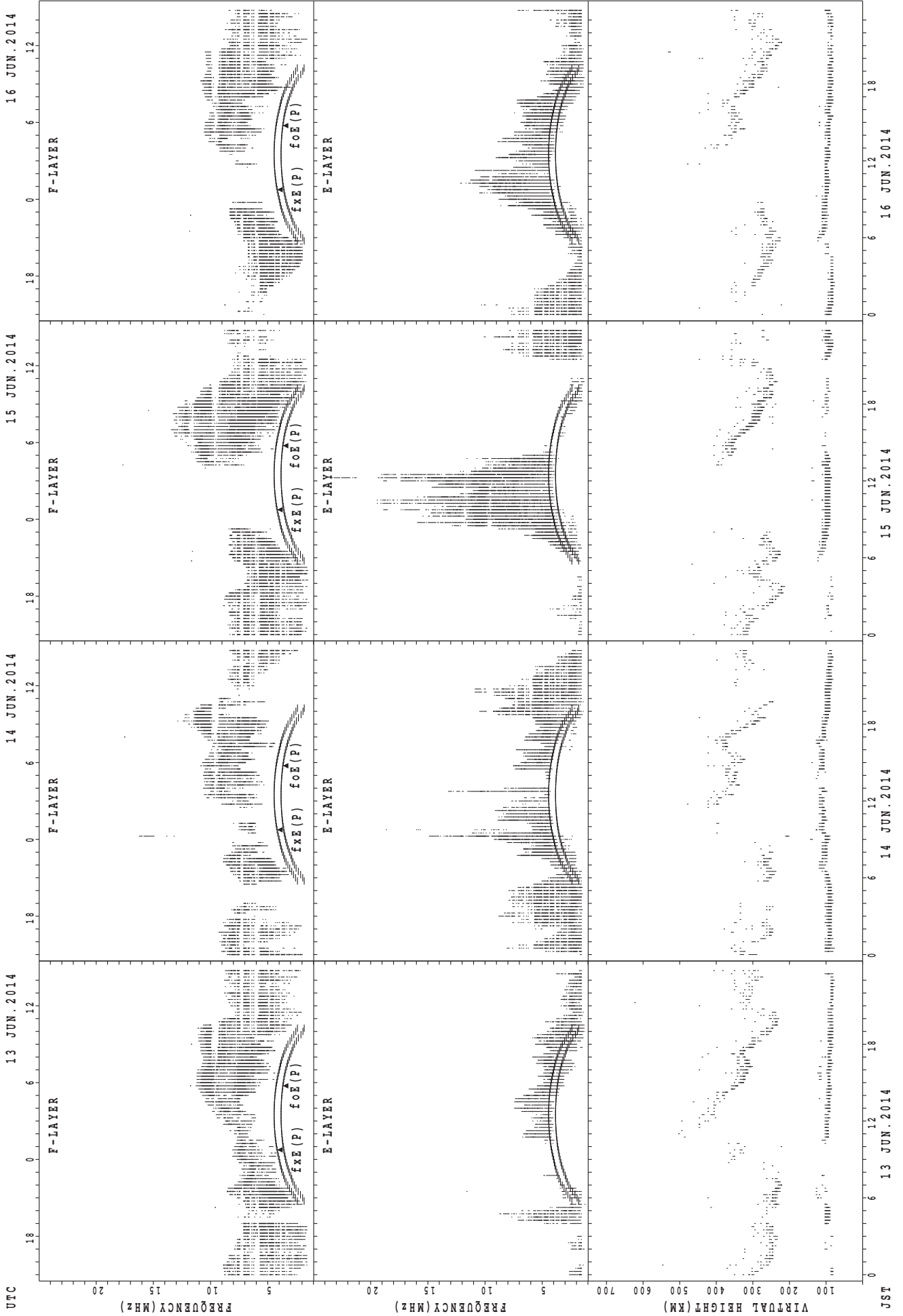
$f_xE(P)$; PREDICTED VALUE FOR f_xE
 $foE(P)$; PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



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

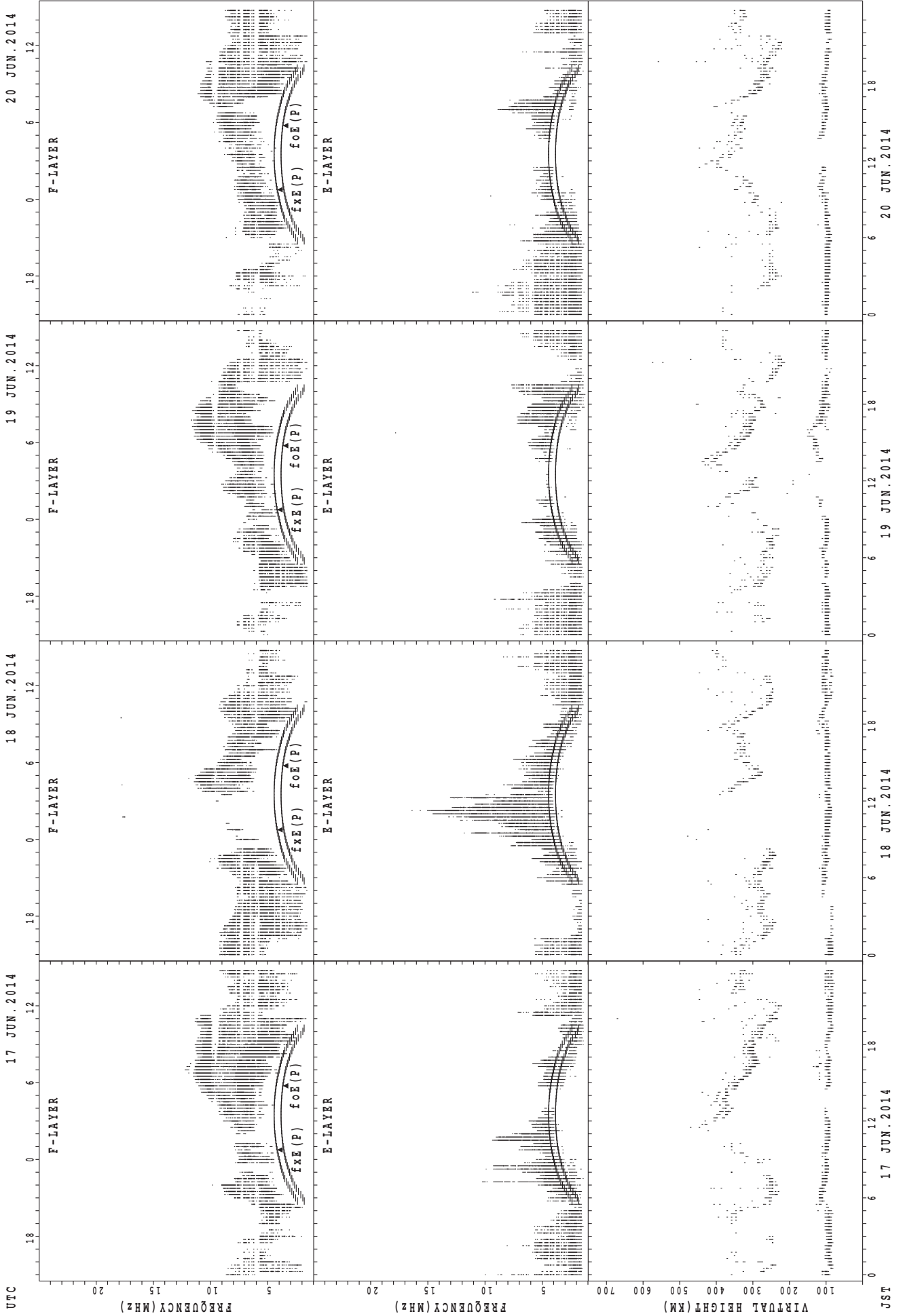
SUMMARY PLOTS AT Okinawa



JST
 13 JUN. 2014
 14 JUN. 2014
 15 JUN. 2014
 16 JUN. 2014

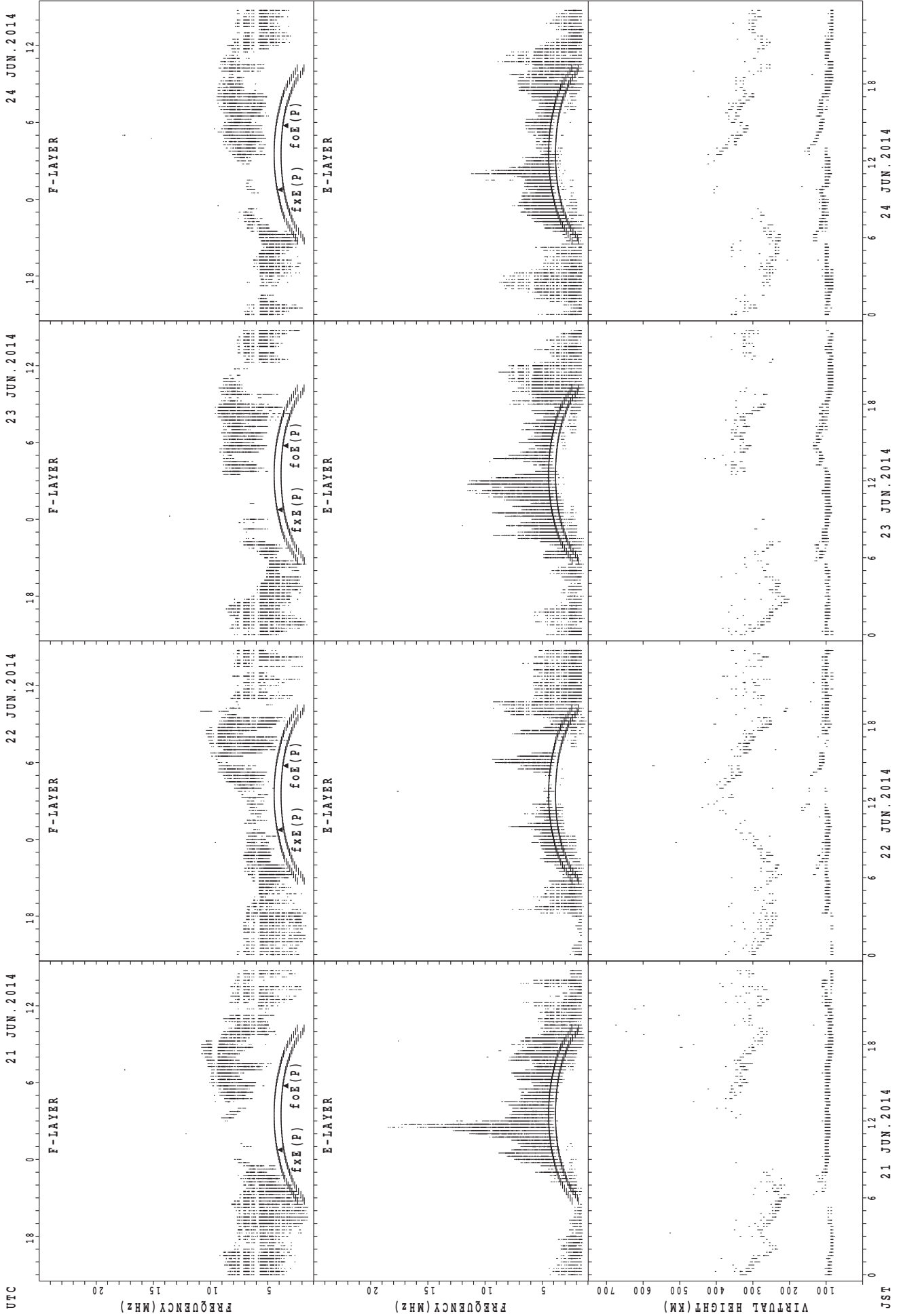
$f_xE(P)$; PREDICTED VALUE FOR f_xE
 $foE(P)$; PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



$f_xE(P)$; PREDICTED VALUE FOR f_xE
 $foE(P)$; PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa

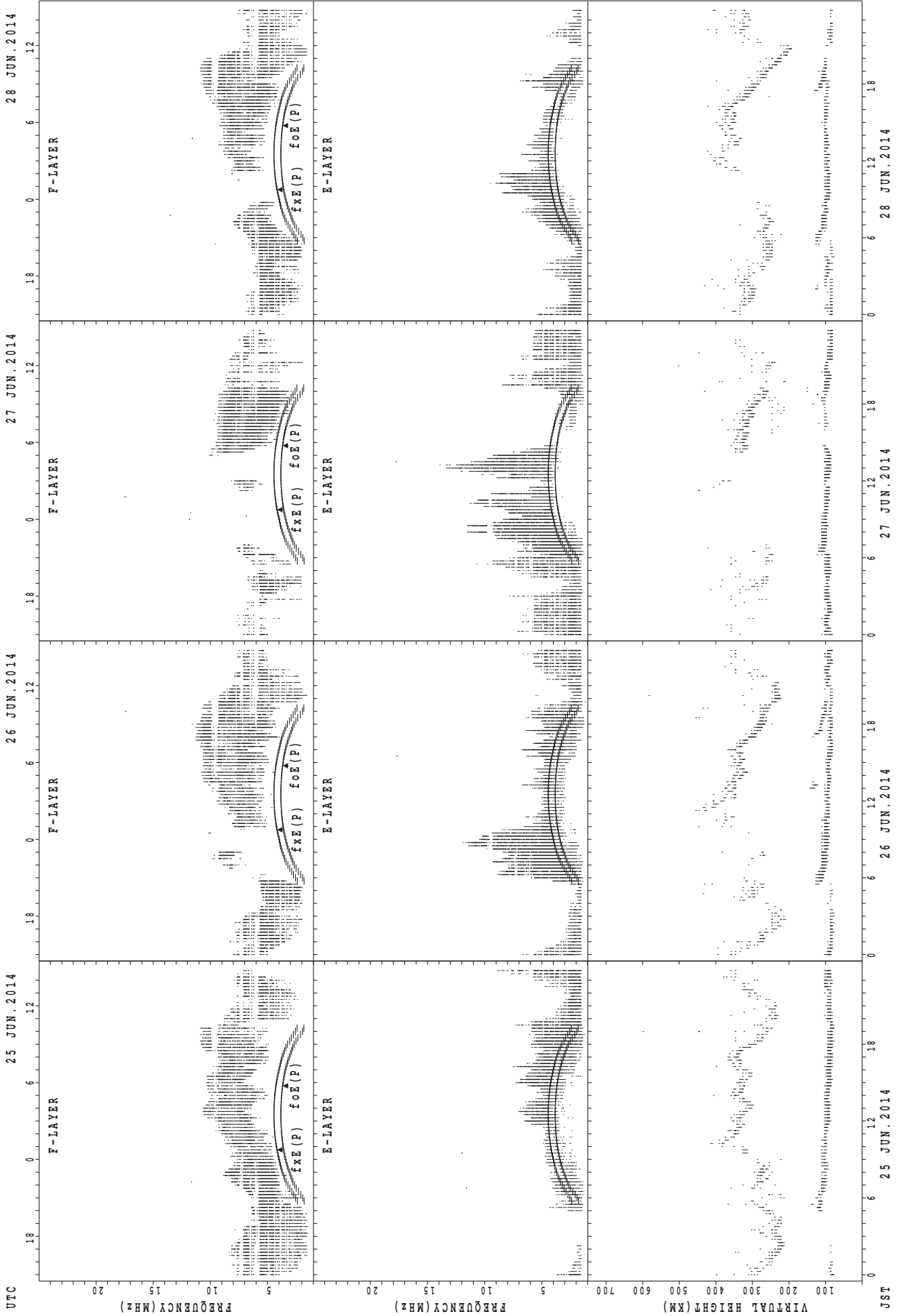


UTC
21 JUN. 2014
22 JUN. 2014
23 JUN. 2014
24 JUN. 2014

JST

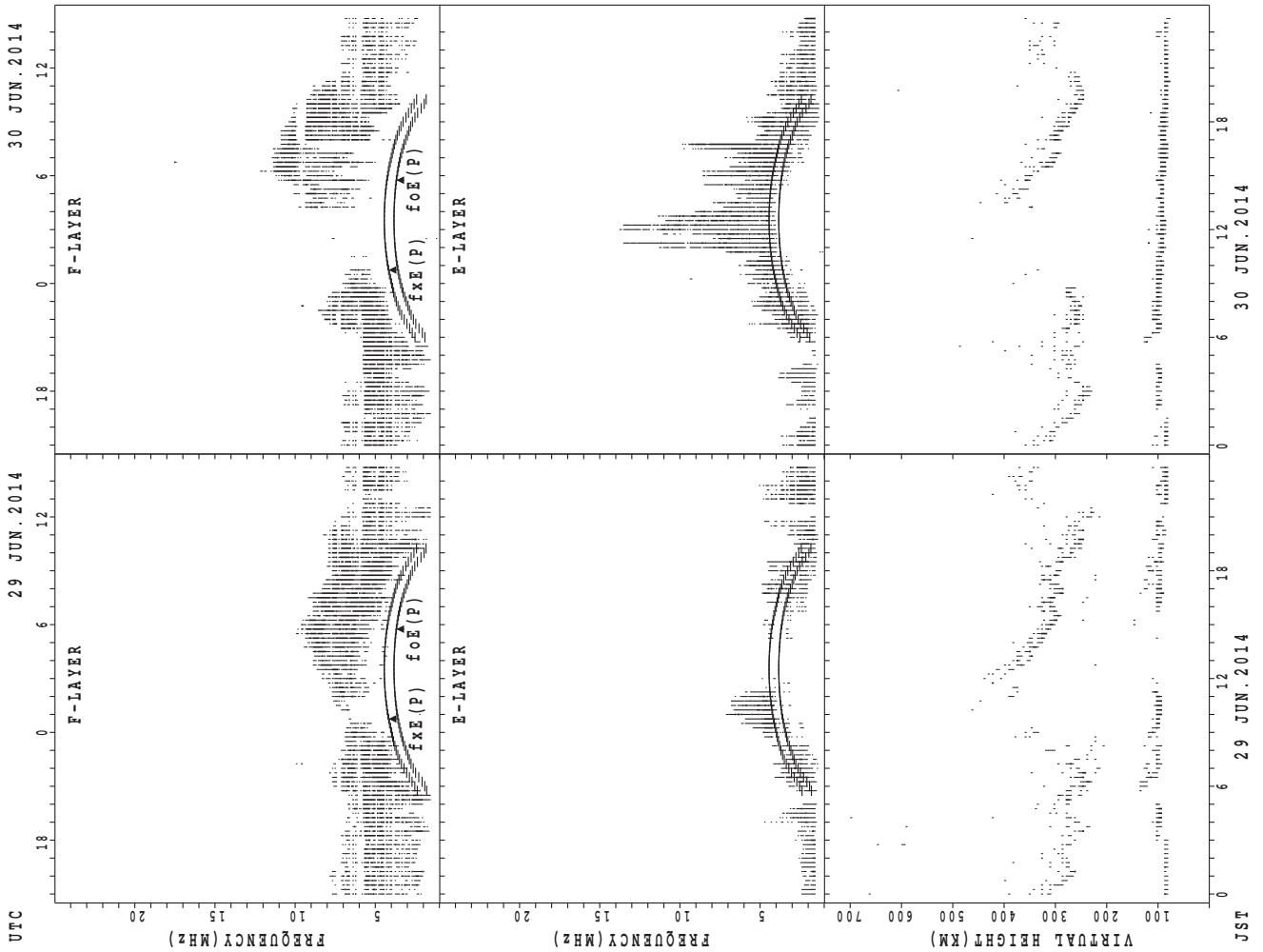
fxE(P); PREDICTED VALUE FOR fxE
foE(P); PREDICTED VALUE FOR foE

SUMMARY PLOTS AT Okinawa



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

SUMMARY PLOTS AT Okinawa



f_xE(P); PREDICTED VALUE FOR f_xE
 f_oE(P); PREDICTED VALUE FOR f_oE

30 JUN. 2014

29 JUN. 2014

JST

MONTHLY MEDIANS OF h'F AND h'Es
 JUN. 2014 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	1	2	2	3	9	14	5										12	12	10	11	12	6	4
MED	305	332	321	306	286	272	318	310										325	306	288	292	291	282	300
U Q	319	166	328	318	368	319	336	328										330	323	302	294	304	288	307
L Q	296	166	314	294	282	260	288	291										302	298	270	286	273	268	287

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	18	18	17	15	14	22	23	26	28	21	20	18	15	16	12	12	17	21	26	27	26	28	22	21
MED	97	95	97	95	95	118	111	108	105	103	103	100	99	99	102	98	101	105	109	105	103	101	99	97
U Q	97	97	97	101	111	125	113	111	107	107	104	103	103	103	105	106	111	110	111	107	105	104	105	100
L Q	95	91	93	91	91	111	107	105	103	103	101	97	95	97	97	97	95	101	103	99	101	98	95	96

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	6	6	6	4	4	6	22	21									19	19	15	13	12	10	12	5
MED	335	323	297	296	314	306	286	268									312	278	288	286	281	293	330	314
U Q	354	352	330	342	338	336	304	286									326	296	302	303	314	322	347	356
L Q	314	312	280	286	277	272	264	238									286	222	278	266	273	282	303	309

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	28	27	28	24	20	18	22	29	28	30	29	26	28	25	27	23	25	24	29	28	29	29	29	29
MED	99	97	96	93	97	101	111	107	103	103	99	97	97	97	101	99	103	103	101	101	101	101	103	99
U Q	103	103	100	97	101	115	113	111	107	103	103	103	103	103	105	111	108	106	105	103	105	103	105	103
L Q	95	97	95	89	95	97	103	103	101	99	95	95	96	95	95	95	95	95	96	95	95	97	97	97

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	11	8	11	6	3	5	10	22	20									20	18	19	18	11	7	14
MED	344	319	292	292	306	284	272	274	258									302	286	288	289	310	364	352
U Q	376	340	364	346	348	325	290	282	284									311	312	300	302	334	376	364
L Q	296	303	278	266	278	268	258	256	230									298	278	276	270	286	336	308

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	29	29	24	27	24	25	22	29	27	29	30	30	29	29	26	25	25	26	28	30	29	29	30	28
MED	97	97	97	93	89	93	113	107	103	103	100	100	97	99	97	97	99	101	98	99	99	97	103	99
U Q	101	99	98	97	97	99	123	111	105	104	103	107	104	105	101	107	105	105	104	103	103	105	103	105
L Q	96	95	90	87	88	89	107	103	103	99	97	97	95	95	95	95	95	95	95	95	95	92	89	89

MONTHLY MEDIANS OF h'F AND h'Es
 JUN. 2014 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	9	21	12	7	5	2	10	23	18									29	27	25	21	13	10	13
MED	344	320	269	278	354	310	271	258	258									302	286	272	272	280	323	338
U Q	362	341	301	312	363	346	274	272	276									317	298	287	292	301	336	362
L Q	326	305	258	254	273	274	248	238	238									290	270	262	255	252	318	317

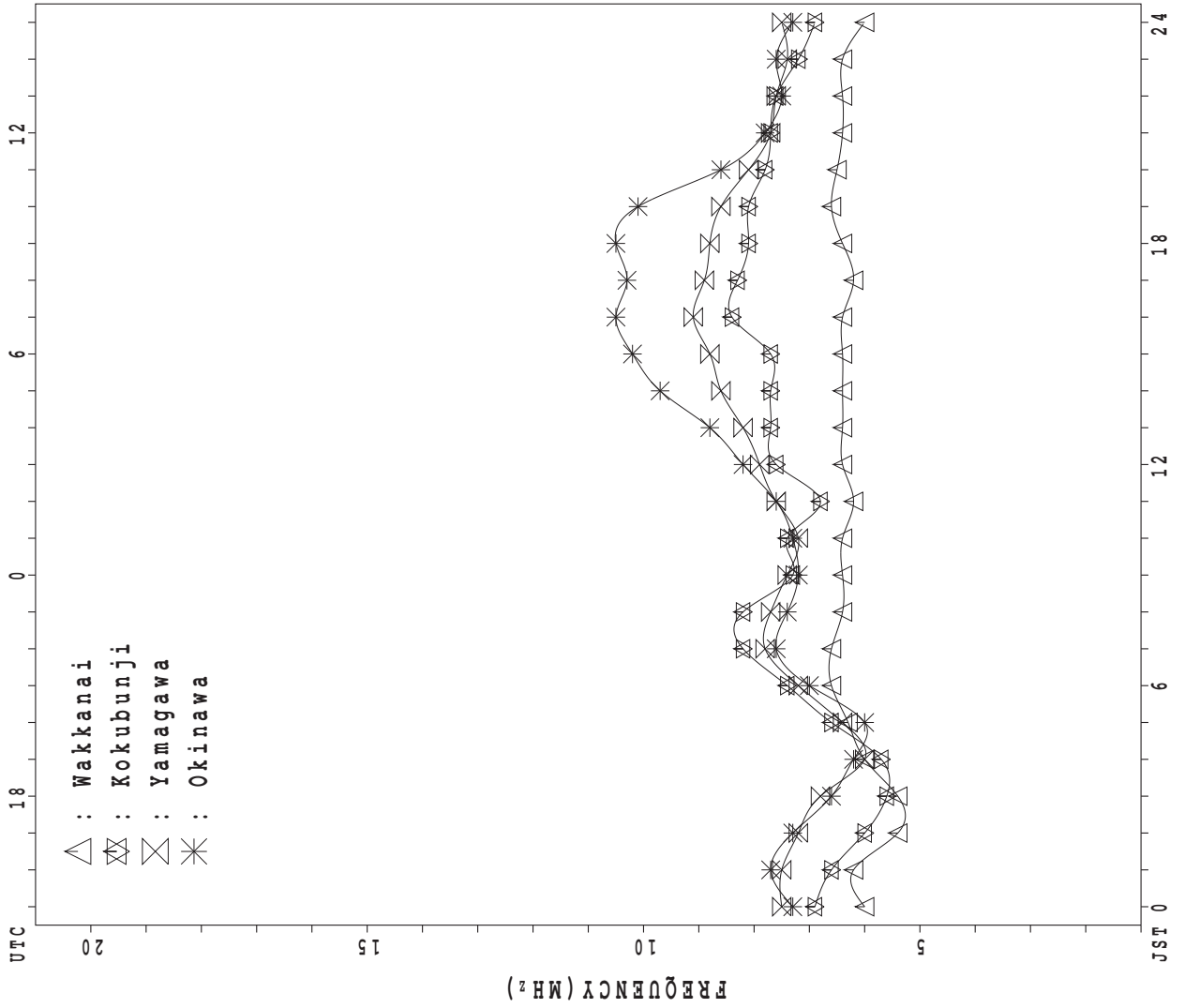
h'Es

	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	26	25	25	22	20	20	21	25	27	28	28	26	24	25	26	25	25	27	27	26	27	24	28	26
MED	97	95	95	93	95	98	117	109	105	102	101	97	99	99	97	97	101	103	103	97	93	96	93	97
U Q	101	97	97	97	99	103	119	112	107	106	103	103	102	106	115	115	113	111	109	101	99	99	97	101
L Q	89	89	89	87	91	94	101	106	103	97	97	95	96	95	95	95	93	95	91	89	89	89	89	89

MONTHLY MEDIANS PLOT OF fOF2

JUN . 2014

AUTOMATIC SCALING



UTC

FREQUENCY (MHz)

JST 0

6

12

18

24

IONOSPHERIC DATA STATION Wakkanai

JUN. 2014 f_{XI} (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

H D	00	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 72	X 72	X 71	X 70		72															X 79	X 81	X 82	X 77		
2	X 78	X 73	X 71	X 69	X 71																	X 80	X 81	X 82	X 66	
3	X 62	X 62	X 62	X 61																		A 80	X 80	A	72	
4	A	72	71	72																		X 84	X 79	X 77	X 75	
5	X 79	X 77	X 75	X 73						C	C	C	C	C	C	C	C					X 78	X 77	X 74	X 77	
6	X 74	X 73	X 71	X 71						C	C	C	C	C	C	C						X 81	X 81	X 86	X 83	
7	X 79	X 79	X 77	X 74	X 73															C		X 83	X 83	X 83	X 81	
8	X 80	X 78	X 78	X 73																		X 77	X 79	X 75	X 78	
9	X 78	X 73	X 72	X 62																		X 77	X 77	X 77	X 73	
10	74	71	70	69																		X 80	C	X 81	X 81	
11	X 80	X 76	X 76	X 70	70									Y								X 72	X 77	X 77	X 76	
12	X 76	X 73	X 73	X 70																			X 80	X 85	X 81	X 78
13	X 77	X 76	X 76	X 73																			X 100	X 99	X 91	X 84
14	X ⁰ 83	X ⁰ 83	X 79	X 77																		0 82	X 79	X 79	X 77	
15	X 72	X 74	X 75	X 76	72																		X 80	X 81	X 81	X 80
16	X 73	X 72	X 72	X 68																			X ⁰ 78	X 79	A	X 78
17	X 76	X 74	X 72	X 68	X 72																		X 81	X 81	X 81	X 69
18	X 66	X 65	X 64	X 63																			X 79	X 83	X 83	X 76
19	X 72	X 69	X 66	X 61																			X 80	X 78	X 78	X 79
20	X 77	X 73	X 67	X 66																			X 86	X 79	X 79	X 78
21	X 71	X 67	X 65	X 66																			A	X 78	X 74	X 73
22	X 73	X 73	X 67	X 67																			X 78	X 82	X 77	X 75
23	X 74	X 68	X 68	X 71																			X 82	X 82	X 80	X 77
24	X 77	X 70	X 72	X 65																			0 85	X 80	X ⁰ 82	X 78
25	X 75	X 73	X 70	X 74																			X 90	X 94	X 85	R
26	X 65	X 68	X 65	X 57																			X 76	X 80	X 78	X 78
27	X 64	X 62	X 59	X 57																			X 82	X 85	X 79	X 72
28	X 61	X 61	X 60	X 62	63																		0 75	X 86	X 84	X 73
29	X 72	X 70	X 73	X 69	63	70																	X 77	X 77	X 77	X 75
30	X 70	X 68	X 62	X 63																			X ⁰ 83	X 83	X 79	X 76
31																										
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23		
CNT	29	30	30	30	7	2																28	29	28	29	
MED	X 74	X 72	X 71	X 69	71	71																X 80	X 81	X 80	X 77	
U Q	X 78	X 74	X 73	X 72	X 72																	X 82	X 83	X 82	X 78	
L Q	X 72	X 68	X 66	X 63	63																	X 78	X 79	X 77	X 74	

JUN. 2014 f_{XI} (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

JUN. 2014 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

H D	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	65	65	64	64	62	F 63	69	66	A	63	61	R 61	U R 60	R 66	67	66	66	59	59	62	72	75	75	F 73	
2	F 70	66	64	62	64	62	R 73	73	68	65	62	A	62	62	64	64	64	64	60	63	74	75	75	59	
3	55	55	55	54	54	70	J R 77	70	J R 76	U R 70	71	A 66	U A 68	Y 75	70		A	72	75	U R 76	A	73	A	F 65	
4	A	F 64	F 60	F 61	57	63	60	58	60	62	68	A	65	A	A	66	64	68	71	R 77	77	72	70	F 71	
5	72	68	68	64	64	64	68	70	U R 76	C	C	C	C	C	C	C	C	74	70	76	72	70	68	70	
6	66	66	64	64	62	69	66	71	U R 76	C	C	C	C	C	C	C	69	69	68	71	75	75	R 78	76	
7	72	72	70	67	66	65	68	U Y 76	U R 75	U Y 76	U Y 75	A	72	R 72	72	70	72	77	C	73	76	77	R 77	U R 74	
8	74	70	70	67	66	72	73	69	69	65	67	62	65	64	63	70	67	74	J R 85	R 90	71	72	68	70	
9	71	66	65	54	45	50	51	54	U R 53	A	A	A	59	60	62	60	62	62	66	R 72	70	70	70	65	
10	F 63	F 61	F 60	F 60	59	57	57	61	64	68	62	63	66	69	72	74	74	74	74	74	73	C	74	74	
11	73	70	69	63	63	66	67	64	63	65	51	R	B J 56	R	Y	Y	58	60	59	60	65	65	70	69	
12	69	66	66	63	66	68	72	72	70	69	70	70	70	69	73	75	71	70	69	75	74	78	R	74	71
13	70	69	69	66	70	73	80	77	U R 76	U Y 76	U Y 73	72	A 68	U Y 68	68	67	72	70	75	U R 78	92	92	85	R 76	
14	76	76	72	70	73	73	74	72	74	72	72	69	J R 66	R 69	68	72	A	73	U R 69	72	75	75	72	70	
15	66	68	68	F 64	F 60	67	71	71	70	62	A	A	62	67	64	64	62	62	62	66	74	74	74	73	
16	65	65	66	62	65	72	R 75	75	71	70	70	68	69	70	72	72	71	71	A	68	71	U R 72	A	70	
17	69	67	F 65	F 63	65	67	A	A	A	A	A	U R 59	R 60	60	62	62	62	61	63	70	74	74	73	62	
18	59	58	57	56	57	56	61	63	A	A	67	62	J R 63	59	59	59	59	57	58	66	73	76	76	69	
19	66	61	58	54	53	61	70	68	R 65	A	64	70	67	68	65	70	68	73	71	72	74	71	72	72	
20	70	66	60	F 59	R 52	56	60	63	A	58	60	64	63	63	62	63	64	A	64	72	R 80	R 73	R 73	70	
21	64	60	58	59	58	61	55	J R 54	U R 60	59	A	A	56	J R 60	J R 56	U R 55	60	59	60	63	A	71	66	66	
22	66	F 64	F 60	F 56	55	59	56	58	64	67	64	65	64	66	64	64	64	68	63	67	74	76	70	68	
23	66	F 60	F 60	F 62	65	70	65	70	66	72	69	65	63	58	58	61	65	63	67	67	75	75	74	70	
24	J R 70	63	65	59	61	64	67	74	U R 74	U R 79	76	63	U R 65	56	A	A	A	71	76	U A 73	R 78	U R 78	U R 75	R 68	
25	68	66	63	63	60	58	61	J R 65	U R 74	U Y 76	67	A	A	63	63	60	60	62	63	73	83	U R 89	U R 82	R	
26	58	60	58	50	47	54	58	A	A	66	61	U R 61	57	57	56	57	56	54	54	59	70	71	71	71	
27	57	56	52	50	47	57	66	62	A	54	62	58	58	59	58	57	56	R 54	A 54	65	74	78	72	65	
28	F 54	54	53	F 53	F 52	62	60	74	R 76	71	64	U R 64	R 61	61	U R 64	58	58	A	A	68	R 68	R 76	R 74	65	
29	F 65	F 63	F 63	F 59	54	61	62	67	A	61	54	A	A	59	U R 54	56	55	A 66	U R 67	71	71	71	71	68	
30	64	60	55	56	55	65	76	U R 74	J R 81	72	64	60	R 62	65	65	65	65	62	62	64	76	76	72	69	
31																									
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	29	30	30	30	30	30	29	28	23	24	24	18	25	26	25	27	26	27	27	30	28	29	28	29	
MED	66	65	64	62	60	64	67	70	70	68	66	64	63	64	64	64	64	68	66	70	74	75	73	70	
U Q	70	67	66	64	65	68	72	72	U R 76	72	70	68	66	68	68	70	68	72	71	73	76	76	75	72	
L Q	64	60	58	56	54	59	60	63	64	62	62	61	60	60	60	59	60	61	60	66	72	72	70	67	

JUN. 2014 foF2 (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

JUN. 2014 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

H D	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1						L	A	A	A		468	488	488	476	472	468	464	444	416					
2							A	A	A	R	A	A	R	A		468	464	456	416	380				
3						L	A	L		A	L	A	A	R	U	A	U	A	A	A	A			
4						L	L	L	A	A	A	A	A	A	A		472	468	452		L	L		
5						U	L	U	A	L	A	C	C	C	C	C	C	C	C	L	L			
6						U	L	L	U	L		C	C	C	C	C	C	U	L	L				
7						L	L	L	L		A	A	A	R	U	L	L	A	U	L	C			
8						L	L	L	Y	R		A		500	500	500	476	A	456		L			
9					L	L	U	A	A	A	A	A	U	A	A		L	A	A	U	L			
10					L	L	U	A	A	A	A		A	R	U	Y			U	L				
11					280			A	A	R	U	R	B		Y	U	R	R	U	A	A			
12					L	L	U	L	L	U	L	U	A	L	U	R	L	L	U	L	L	L		
13						L	L	L	U	A	A	U	Y	A	A		L	L	U	L	L			
14						U	L	L	L	U	A	U	Y	R		R		A	U	L	A	A		
15						A	A	A	A	A	A	A	A	Y		524	516	496	480	476				
16					L	L	U	L	A	U	A	A	B	R	A	U	A	A	A	A	A	A		
17							A	A	A	A	A	A	A	U	Y	R	Y	R	U	L	L	L		
18					L	L	A	A	A	A	A	A	A	R	R		484	480	460	460		A		
19						348	A	A	A	A	U	A	U	A	Y	U	A		A	A				
20					L	376	400	432		A	A	A	A	A	A	U	A	L	L	A	A			
21						L	L	U	R		A	A	A	U	A	U	Y	U	L	U	A	U	L	L
22							L	L	U	A	U	A	R		A	U	A	U	A	A	A	A		
23						L	A	A	A	A		472	484	472	484	452	464	464		368				
24							A		A	U	A			Y		A	A	A	A	A	A			
25							L	A	L	A	U	A	A	A	A	A	A	R	A	L	L			
26						L	U	A	A	A	A	A	A	R	A	A	464	460	464	400	408			
27					L	348	408	436		A	U	A	U	R	U	Y	R	R	A	U	L	U	A	
28						A	U	A	A	A	A	A	A		Y	A	A	A	A	A	A			
29					A	356	376	424		A	U	R	U	A	A	A	484	484	A	A	U	A	A	
30					L	L	U	A	U	A				U	R	U	Y	472	460	428				
31							428	424	444	488	488	496	496	496	476	472	460	428						
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT						10	12	15	11	11	16	11	15	14	22	21	19	17	9	1				
MED						U	414	444	468	448	488	496	484	488	U	478	472	456	U	L	U	A		
U Q						U	L	U	L	U	U	U	U	U	U	492	482	464	458	400				
L Q						348	400	424	448	440	476	484	464	472	464	464	448	416	374					

JUN. 2014 foF1 (0.01MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

JUN. 2014 f_oE (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

H D	00	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	228	268	316	332	R	R	A	A	A	A	332	308	264	224	A	A				
2					A	288	328	336	344	U	R	U	R	A	A	U	R	336	316	284	232	A			
3					A	224	264	320	332	U	A	A	A	A	A	A	344	300	264	A	A				
4					A	228	272	300	324	U	A	A	A	A	A	A	320	280	220	A					
5					A	236	280	312	332	C	C	C	C	C	C	C	C	C	272	232	A				
6					A	216	276	324	336	C	C	C	C	C	C	C	300	280	236	A					
7						232	276	316	332	R	U	A	U	R	A	A	A	300	U	A	C	A			
8					188	216	268	312	328	344	348	U	A	356	356	364	340	352	296	272	240	A			
9					A	224	264	316	336	U	A	A	A	A	A	A	A	A	276	224	A				
10					U	168	232	288	328	352	364	A	R	U	A	A	A	A	A	A	A	A			
11					200	232	304	328	356	376	364	R	U	R	B	U	R	348	340	300	244	164	H		
12					U	144	232	296	320	348	356	A	R	A	R	R	A	A	A	A	236	A			
13					180	236	300	A	A	B	A	A	A	A	A	A	A	A	A	A	A	A			
14					184	240	292	328	356	U	A	U	A	U	A	A	R	360	A	296	260	A			
15					A	240	296	332	348	U	A	U	A	A	A	A	A	340	308	256	A				
16					A	232	288	316	340	A	U	A	B	A	A	A	A	A	A	A	A	A			
17						232	276	316	340	U	A	U	A	A	A	A	A	R	316	288	236	A			
18					184	220	284	316	352	U	A	A	U	A	A	R	U	R	U	A	A	276	236	A	
19					188	224	276	312	324	U	A	U	A	A	A	A	A	A	A	A	A	A			
20					180	232	272	304	328	356	360	364	368	368	352	344	316	280	244	A					
21					U	164	192	252	308	328	352	360	A	A	A	U	A	U	A	A	A	220	A		
22					A	268	320	328	340	U	A	U	A	U	A	A	A	A	U	A	A	A			
23					180	208	264	292	320	U	A	U	A	A	A	R	344	340	304	272	220	A			
24					A	264	300	312	332	U	A	A	A	R	376	364	364	332	308	276	232	A			
25					A	232	256	300	328	U	A	A	A	A	A	U	A	A	A	A	280	228	A		
26					B	220	264	312	332	U	A	A	A	A	A	A	A	328	288	240	A				
27					A	228	256	296	324	U	A	A	R	A	A	R	336	U	A	U	A	A			
28					A	220	276	312	344	U	A	U	A	A	A	A	356	344	320	284	224	A			
29					A	228	284	308	328	U	A	U	A	A	A	A	356	328	288	232	A				
30					172	252	284	312	316	U	A	A	A	R	R	R	348	328	300	248	A				
31																									
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT					12	27	30	29	29	25	18	6	8	3	8	16	19	25	24	1					
MED					180	228	276	316	332	U	A	U	A	U	R	374	364	354	342	316	280	236	164	H	
U Q					186	232	288	320	342	U	A	U	A	U	R	U	A	R	348	328	288	242			
L Q					U	170	220	264	308	328	342	348	356	370	364	342	334	304	274	226					

JUN. 2014 f_oE (0.01MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

JUN. 2014 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

H D	00	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	E	B	J	A	J	A	J	A	G			J	A					J	A	J	A	J	A	
2	J	A	J	A	J	A	J	A	J	A	G									J	A	J	A	J	A	
3	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A
4	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A
5	J	A	J	A	J	A	J	A	J	A	C	C	C	C	C	C	C	C	C		J	A	J	A	J	A
6	J	A	J	A	J	A	J	A	J	A	C	C	C	C	C	C	C	C	J	A	J	A	J	A	J	A
7	E	B	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A
8	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A
9	E	B	E	B	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A
10	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A
11	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A
12	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A
13	E	B	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A
14	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A
15	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A
16	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A
17	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A
18	E	B	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A
19	E	B	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A
20	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A
21	E	B	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A
22	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A
23	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A
24	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A
25	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A
26	E	B	E	B	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A
27	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A
28	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A
29	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A
30	E	B	E	B	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A
31																										
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23		
CNT	30	30	30	30	30	30	30	30	30	28	28	27	28	28	28	28	29	30	29	30	30	29	30	30		
MED	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A
UQ	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A
LQ	E	B	E	B	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A	J	A

JUN. 2014 foEs (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

JUN. 2014 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

H D	00	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 15	BE 14	BE 15	BE 15	BE 15	26	41	52	A 73	A 38	G 54	U 37	Y 37	U 42	Y 35	35	32	28	26	22	17	22	37	20	
2	E 13	BE 13	BE 13	BE 20	26	27	48	51	54	G 54	A 64	A 64	G 57	37	37	34	31	27	21	26	20	E 14	B 17		
3	E 13	BE 14	BE 14	BE 14	14	24	58	33	37	43	43	A 92	62	44	45	45	A 119	A 55	46	61	A 97	A 26	A 112	A 34	
4	A 64	A 34	24	24	26	26	29	31	48	57	58	A 78	58	A 73	A 91	A 37	G 26	G 26	26	22	22	20	20	22	
5	20	26	28	27	21	G 22	38	38	55	C 55	C 55	C 55	C 55	C 55	C 55	C 55	C 55	31	28	20	16	17	28	40	
6	E 13	B 14	BE 13	BE 12	18	G 21	28	36	36	C 36	C 36	C 36	C 36	C 36	C 36	C 36	C 36	31	30	30	30	26	26	35	16
7	E 12	BE 12	BE 12	BE 17	27	G 16	30	37	40	40	60	A 66	48	41	41	50	52	27	C 18	E 14	B 19	19	E 14	B 14	
8	17	E 14	BE 14	BE 14	G 14	26	27	33	38	42	52	39	38	G 35	G 50	30	23	G 20	E 12	BE 12	BE 12	BE 12	BE 12	BE 12	
9	E 14	BE 14	BE 14	BE 14	19	G 20	27	41	44	A 61	A 94	A 106	A 48	50	39	U 33	Y 42	41	22	22	18	E 12	B 25	19	
10	24	24	24	22	19	26	37	44	60	53	53	U 30	50	40	37	33	40	31	30	28	28	C 18	E 12	B 12	
11	15	E 12	BE 12	BE 12	G 12	25	29	48	50	39	39	B 39	G 48	U 39	Y 39	G 39	39	40	48	22	15	29	28	28	
12	28	28	E 14	BE 14	16	25	38	38	45	45	45	42	52	U 31	GU 37	GU 36	32	29	26	20	18	17	E 15	BE 15	
13	E 13	BE 13	BE 13	BE 13	G 13	26	30	41	45	60	44	44	76	52	46	41	44	36	31	41	41	22	16	E 13	B 13
14	E 13	BE 13	BE 13	BE 13	G 13	27	30	36	37	46	42	39	39	U 39	Y 43	42	36	35	35	35	24	18	E 12	B 16	
15	30	20	18	17	33	36	50	53	61	61	A 61	A 70	58	43	42	36	35	35	35	35	24	18	E 12	B 16	
16	E 14	BE 14	BE 14	BE 14	17	24	32	58	47	51	49	53	46	46	48	48	50	50	A 103	58	50	58	A 96	53	
17	51	29	43	43	30	A 30	A 65	A 87	A 71	A 89	A 66	50	41	37	46	44	29	G 29	19	24	21	21	E 12	B 12	
18	E 13	BE 13	BE 16	BE 16	G 16	24	52	52	70	75	59	49	40	U 35	GU 37	G 34	33	30	33	33	35	18	E 13	BE 13	
19	E 13	BE 13	BE 13	BE 13	G 13	28	40	51	58	A 55	51	51	52	U 38	38	44	33	41	50	44	28	20	20	20	
20	E 14	BE 16	BE 16	BE 16	G 17	26	29	40	A 67	A 47	53	47	53	54	46	35	39	A 68	A 41	25	E 13	B 17	16	E 13	B 13
21	E 12	BE 12	BE 12	BE 12	G 12	23	27	27	GU 46	Y 46	A 118	A 95	47	40	40	43	32	32	26	18	A 32	A 43	18	28	
22	21	30	E 12	BE 12	16	27	28	34	41	43	43	38	38	50	45	36	38	58	35	41	24	E 14	BE 14	BE 14	BE 14
23	16	18	23	23	G 14	23	49	47	61	59	44	39	47	42	38	36	41	44	32	46	E 13	14	13	13	
24	38	22	E 14	BE 16	17	24	43	34	51	44	38	38	41	38	A 59	AA 65	AA 84	54	46	56	40	46	51	21	
25	39	39	36	28	23	28	38	62	42	58	49	77	59	51	56	44	36	44	25	20	29	17	E 13	BE 13	
26	E 15	BE 15	BE 15	BE 15	15	26	44	A 64	AA 102	50	50	54	U 38	48	39	36	28	30	25	41	36	34	E 14	14	
27	E 14	BE 14	BE 14	BE 14	17	25	31	44	A 51	44	40	U 37	GU 37	Y 37	U 26	26	36	42	34	34	31	E 12	27	21	
28	22	22	E 13	BE 13	BE 13	32	41	50	50	50	50	54	40	U 44	55	51	51	A 77	AA 71	AA 31	22	18	24	24	
29	40	21	20	16	41	28	38	38	A 83	A 39	46	44	57	38	42	40	47	A 66	AA 40	52	28	26	17	E 14	B 14
30	E 14	BE 14	BE 15	BE 14	G 14	24	29	42	44	38	38	43	U 36	GU 34	GU 35	40	34	32	29	18	18	22	23	17	
31																									
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	30	30	30	30	30	30	30	30	30	28	28	27	28	28	28	28	29	30	29	30	30	29	30	30	
MED	E 15	BE 14	BE 14	BE 14	G 14	26	38	42	50	46	49	50	46	42	40	37	38	34	31	29	24	20	20	16	
U Q	24	22	18	17	21	27	43	51	A 61	A 58	56	A 66	52	49	46	44	48	44	44	41	31	26	27	21	
L Q	E 13	BE 13	BE 13	BE 13	G 17	24	29	36	44	42	42	U 39	G 38	37	35	32	30	26	20	18	17	E 14	BE 13	B 13	

JUN. 2014 fbEs (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

JUN. 2014 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

$\begin{matrix} H \\ D \end{matrix}$	00	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	15	15	15	15	15	15	15	20	16	16	17	28	18	17	17	17	16	13	13	13	13	13
2	13	13	13	15	15	13	13	13	14	14	14	14	14	14	15	16	16	12	12	14	14	14	14	14
3	13	14	14	14	14	14	14	14	14	14	21	20	20	20	20	17	17	17	17	14	13	13	13	13
4	13	13	13	13	13	13	13	13	13	13	17	17	20	16	16	14	14	14	14	12	12	12	12	12
5	13	13	13	13	13	13	13	13	13	C	C	C	C	C	C	C	C		14	14	14	12	12	12
6	13	13	13	12	12	12	12	12	14	C	C	C	C	C	C	C		14	14	14	17	12	12	12
7	12	12	12	12	12	12	12	12	12	12	12	12	20	19	19	14	14	14	C	14	14	14	14	14
8	14	14	14	14	14	14	12	13	13	13	14	14	14	14	14	14	14	14	14	12	12	12	12	12
9	14	14	14	14	14	15	13	13	13	18	18	21	33	23	18	16	16	18	14	14	12	12	12	12
10	14	14	16	11	11	11	11	11	11	14	17	17	16	21	17	17	17	16	16	16	16	C	12	12
11	12	12	12	12	12	12	12	14	14	18	19	B	27	20	19	15	15	13	12	11	14	14	14	14
12	14	14	14	14	12	11	11	11	18	18	31	20	18	18	26	15	15	14	14	13	14	15	15	15
13	13	13	13	13	13	13	13	30	30	39	29	27	27	26	16	16	16	20	14	14	13	13	13	13
14	13	13	13	13	13	16	16	16	16	16	17	17	21	21	21	20	17	17	17	16	15	15	15	15
15	16	16	16	16	15	15	14	14	14	25	22	25	20	19	18	19	18	18	15	15	12	12	12	12
16	14	14	14	14	14	14	14	14	14	28	24	53	32	21	19	16	16	16	14	14	11	11	11	13
17	13	14	14	14	14	14	14	13	13	18	16	16	16	16	23	20	16	16	16	16	16	12	12	12
18	13	13	16	16	13	13	11	13	13	13	15	16	14	26	24	15	16	16	13	13	14	14	13	13
19	13	13	13	13	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	13	12	12	12	12
20	14	16	16	16	14	14	14	14	14	14	14	14	14	14	18	18	18	17	17	14	13	13	13	13
21	12	12	12	12	12	12	12	17	16	16	10	13	19	19	18	18	16	15	15	15	15	15	15	16
22	13	13	12	12	11	11	11	13	13	13	13	13	17	17	17	17	16	14	14	14	14	14	14	14
23	14	14	12	12	12	12	13	13	13	13	14	14	17	17	17	17	17	12	12	12	13	13	13	13
24	14	14	14	14	14	14	14	14	14	14	12	12	12	15	17	17	17	12	13	13	13	13	13	13
25	13	14	14	14	14	13	13	13	13	15	15	15	15	15	15	16	16	13	13	13	13	13	13	13
26	15	15	15	15	15	15	15	15	15	15	15	15	16	16	16	16	16	16	16	13	14	14	14	14
27	14	14	14	14	13	13	13	13	15	15	18	29	23	29	16	16	16	16	16	16	12	12	12	12
28	13	13	13	13	13	13	13	13	11	11	16	16	16	16	16	16	16	16	13	11	11	11	11	11
29	14	14	14	14	14	14	14	14	14	16	16	16	20	16	16	15	15	15	15	15	14	14	14	14
30	14	14	14	14	14	14	14	14	13	13	13	14	26	26	20	17	17	15	15	12	12	12	12	12
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	30	30	30	30	30	30	30	30	28	28	28	28	28	28	28	29	30	29	30	30	29	30	30
MED	13	14	14	14	14	13	13	13	14	14	16	16	18	18	18	16	16	15	14	14	13	13	13	13
U Q	14	14	14	14	14	14	14	14	14	18	18	20	20	21	19	17	17	16	16	15	14	14	14	14
L Q	13	13	13	13	12	12	12	13	13	13	14	14	16	16	16	15	15	14	14	13	12	12	12	12

JUN. 2014 fmin (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

JUN. 2014 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

H D	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	296	291	293	295	306	300	297	311		329	292	290	317	314	301	305	315	335	317	299	293	302	301	303	
2	306	296	297	298	289	334	296	316	311	315	322		292	291	300	300	298	301	318	302	307	314	337	294	
3	292	291	289	295	307	328	357	315		354	328			288	321	325		316	312	365		316		321	
4		302	301	317	317	344	346	338	324		317		304			299	308	290	324	324	307	312	296	293	
5	304	305	303	297	297	282	298	305	333										321	303	316	325	315	322	300
6	304	295	291	314	325	310	292	309	338								309	308	308	296	306	306	294	302	
7	299	289	307	321	318	311	320	331	334	329	324		328	307	311	302	296	309		314	323	320	320	318	
8	311	312	297	292	296	304	325	324	316	304	311	301	288	288	259	291	279	219		302	299	301	279	316	
9	303	279	269	278	284	314	282	299	276				291	284	303	276	301	289	290	301	311	297	301	298	
10	278	288	290	273	279	312	276	289	315	301	286	280	293	293	291	287	332	321	317	314	318		298	289	
11	294	275	304	288	282	302	281	294	286	300						275	291	295	298	312	272	286	286	288	
12	285	279	279	269	287	279	302	305	311	310	310	321	299	293	302	301	297	290	290	309	313	320	300	306	
13	294	294	296	301	305	320	318	306	329	313	323	313		304	299	279	284	304	298	317	275	276	296	325	
14	303	305	306	304	332	315	299	309	308	312	306	315		287	314	297		308	303	291	320	340	316	287	
15	297	289	289	308	313	279	299	307	311	291			285	285	298	296	306	293	294	275	294	312	298	302	
16	327	294	302	296	281	320	346	346	316	323	308	318	282	292	304	304	307	307		314	302	310		321	
17	287	289	301	300	292	299						288	283	276	279	289	289	295	287	281	306	314	319	311	
18	284	290	286	287	281	281	283	288			307	285	285	267	282	280	305	280	280	292	290	304	310	311	
19	308	288	277	268	268	293	314	321	317		285	316	317	317	308	310	297	312	313	326	321	315	310	308	
20	300	310	290	272	301	299	321	329		298	308	318	314	299	303	299	305		296	299	310	311	312	313	
21	307	294	279	285	293	309	312		315	269			287	290	288	302	302	306	300	286		294	291	292	
22	297	306	298	307	315	334	347	323	327	314	309	309	305	300	308	308	308	306	299	300	298	318	310	297	
23	299	297	298	308	296	328	310	311	334	333	353	323	325	316	297	298	302	304	290	332	312	312	309	311	
24	283	302	294	324	313	313	311	317	319	346	334	321	311	312				295	308		303	325	315	312	
25	314	301	312	312	327	309	293		347	367	322				318	318	315	311	303	298	292	294	322	338	
26	297	312	323	311	312	324	304				312	307	290	284	304	306	304	292	313	303	285	288	315	343	344
27	296	302	304	286	294	309	322	322		300	329	328	294	288	295	297	309	300	300	290	309	333	326	319	
28	299	297	293	280	280	332	279	313	346	327	330	302	290	299	301	283	288			304	310	284	342	296	
29	280	287	293	303	283	303	296	315		315	278			298	299	289			302	297	301	303	303	290	
30	275	292	296	290	296	278	311	321		325	305	271	273	293	296	298	314	309	299	286	298	321	308	307	
31																									
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	29	30	30	30	30	30	29	26	21	23	24	18	22	26	25	27	25	27	26	29	28	29	28	29	
MED	297	294	296	296	296	310	304	314	317	314	310	311	292	293	301	298	302	304	300	301	306	312	310	306	
U Q	304	302	302	308	313	320	320	322	334	329	324	318	311	304	307	304	308	309	308	314	312	319	320	314	
L Q	290	289	290	286	284	299	294	306	311	301	306	290	285	288	296	289	294	295	296	292	296	302	298	295	

JUN. 2014 M(3000)F2 (0.01)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

JUN. 2014 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

H D	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1						L	A	A	A		386	407	408	R	Y	A	U	R		U	L	L		
2							A	A	A	R	A	A	R	A		367	370	342	371	335				
3						L	A	L		A	A	A	A	R	A	A	A	A	A	A				
4						L	L	L	A	A	A	A	A	A	A		358	359	339		L	L		
5						U	L	A	A	A	C	C	C	C	C	C	C	C		L	L			
6						U	L	L		C	C	C	C	C	C	C	U	L		L				
7						L	L	L	L		A	A	A	R	A	L	A	U	L	C				
8						L	L	L	A	R	A	A		395	389	362	364	A		332	L			
9					L	L	A	A	A	A	A	A	A	A		367		L	A	U	L			
10					L	L	A	A	A	A	A		A	R	Y		354	A	U	L				
11						426		A	A	R	U	R	B	Y	R	R	A	A	A					
12					L	L	A	L	A	A	A	A	A	L	R	L	L	U	L	L	L			
13						L	L	L	A	A	Y	A	A	A	A	L	A	U	L	L				
14						U	L	L	Y	A	Y		R	R	R		A	U	L	A	A			
15							A	A	A	A	A	A	A	Y		366	353	358	344	L	A			
16					L	L	U	L	A	A	A	A	B	R	A	A	A	A	A	A	A			
17							A	A	A	A	A	A	Y	A	A	A	R	U	L	L	L			
18					L	L	A	A	A	A	A	A	R	R	R	389	380	370	341	U	L	A	A	
19						352	A	A	A	A	A	A	A	Y	360	A	365	A	A					
20					L		A	A	A	A	A	A	A	A	A	L	A	A	A	A				
21						L	L	U	R	A	A	A	A	Y	U	L	A		U	L	L			
22							L	L	A	A	A	A	A	A	A		384	A	A	A	A			
23						L	A	A	A	A	A	R	A	A	A	R	A	A	L	A				
24							A	A	A	A	A	A	Y	L	A	A	A	A	A	A				
25							L	A	A	A	A	A	A	A	A	A	R	A	L	L				
26						L	A	A	A	A	A	A	R	A	A	380	382	364	L	L	A			
27					L		A	A	A	A	U	R	Y	R	R	R		R	A	A				
28							A	A	A	A	A	A	A	Y	A	A	A	A	A	A				
29						A	A	R	A	U	R	A	A	A	A	A	A	A	A	A	A			
30					L	L	A	A	A	Y			Y	Y	Y	Y		U	L	L				
31							358			386	423	369		370			379	382						
	00	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	8	9	3	6	7	7	8	7	12	16	15	16	7					
MED						354	364	376	L	366	386	407	369	386	370	372	372	364	U	L	L			
U Q						L	374	393	L	R	425	419	391	392	384	381	383	377	L	L				
L Q						L	358	352	L	358	384	358	360	A	R	R	364	358	U	L	L			

JUN. 2014 M(3000)F1 (0.01)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

JUN. 2014 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

H D	00	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 304	A 296	A 296	A 272	A 386	A 380	A 336	A 336	A 346	A 334	A 298	A 278	A 278							
2							E A 338	A 300	E A 318	E A 318	A 384	A 352	A 352	A 332	A 310	A 310								
3																								A 276
4																								
5																								
6																								
7																								
8																								
9																								
10																								
11																								
12																								
13																								
14																								
15																								
16																								
17																								
18																								
19																								
20																								
21																								
22																								
23																								
24																								
25																								
26																								
27																								
28																								
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT					9	23	28	28	23	22	24	17	24	25	24	26	25	27	25	9				
MED					318	290	302	303	299	316	324	328	381	367	356	349	332	319	312	295				
U Q					334	326	322	317	334	340	369	393	416	388	379	376	360	330	324	306				
L Q					304	274	274	291	288	288	311	321	340	346	348	330	320	306	306	279				

JUN. 2014 h'F2 (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

JUN. 2014 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

H D	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	244	260	260	260	248	248	A	A	A	208	192	192	Y	A	192	192	192	192	220	268	268	268	282	262
2	252	252	252	252	266	226	A	A	A	Y	A	A	Y	A	248	248	236	236	236	260	260	258	232	230
3	256	264	276	270	260	228	A	222	222	A	A	A	A	E	A	A	A	A	A	A	A	A	A	A
4	A	342	296	280	256	234	234	212	A	A	A	A	A	A	A	A	212	212	212	216	250	250	264	276
5	268	294	294	288	248	246	A	A	A	C	C	C	C	C	C	C	C	C	212	214	230	230	242	250
6	266	266	266	252	240	240	E	A	236	C	C	C	C	C	C	C	218	218	226	258	258	264	290	276
7	258	258	258	256	254	214	H	214	Y	A	A	A	A	A	A	A	A	A	C	252	252	252	252	252
8	264	264	262	262	262	262	242	242	A	230	A	A	H	202	210	218	218	A	232	232	238	244	244	300
9	248	284	280	276	280	260	A	A	A	A	A	A	A	A	202	A	A	A	A	210	258	258	262	262
10	340	328	292	292	278	244	A	A	A	A	A	Y	A	A	A	A	A	A	204	204	280	260	260	260
11	260	282	250	248	248	208	226	A	A	E	Y	B	234	Y	A	232	E	A	A	A	278	278	300	300
12	300	300	300	300	256	238	E	A	A	A	A	A	A	E	Y	206	206	218	230	260	258	258	258	258
13	288	274	272	270	246	246	242	268	A	A	Y	A	A	A	E	A	292	256	A	E	266	262	276	278
14	258	260	260	260	260	250	E	A	A	A	A	A	E	A	212	E	A	222	222	238	A	248	248	248
15	292	292	282	264	264	286	A	A	A	A	A	A	A	A	A	250	228	226	230	A	298	250	250	250
16	250	262	262	262	262	226	228	A	A	A	A	B	A	A	A	A	A	A	A	A	A	A	A	A
17	E	A	362	310	314	A	E	A	292	250	A	A	A	A	A	A	A	236	224	E	A	264	264	264
18	254	258	262	262	262	234	A	A	A	A	A	A	A	A	224	224	202	204	206	A	290	280	258	254
19	240	246	268	270	296	296	A	A	A	A	A	A	A	A	A	238	238	A	A	A	264	264	264	264
20	264	244	244	284	272	264	258	A	A	A	A	A	A	A	A	A	216	A	A	A	270	258	258	248
21	250	250	290	290	268	256	232	232	A	A	A	A	A	A	A	224	A	218	226	226	240	A	290	280
22	288	298	278	248	248	248	222	222	A	A	A	A	A	A	214	A	214	A	A	A	258	250	248	248
23	248	314	314	278	258	234	A	A	A	A	E	A	A	A	A	A	E	A	A	E	A	264	264	264
24	292	292	280	276	264	264	A	226	A	A	206	A	A	A	214	A	A	A	A	A	276	276	A	276
25	276	308	298	274	226	226	A	A	A	A	A	A	A	A	A	A	226	A	222	262	288	242	214	214
26	270	270	244	244	244	244	A	A	A	A	A	A	A	242	242	238	230	230	230	A	292	292	236	234
27	234	248	268	268	268	256	A	E	A	A	A	A	202	A	Y	Y	Y	202	212	A	286	280	256	256
28	286	286	276	276	276	276	A	A	A	A	A	A	A	266	A	A	A	A	A	A	264	264	264	248
29	A	338	310	288	274	A	A	A	E	A	A	A	A	A	A	A	A	A	A	A	A	262	262	262
30	262	262	262	262	262	246	246	A	A	E	B	E	A	Y	Y	Y	A	224	224	238	246	270	262	250
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	29	30	30	30	29	29	16	11	3	6	6	5	7	8	12	17	16	17	16	21	28	28	27	30
MED	263	272	274	270	262	246	237	230	236	215	200	213	229	223	224	217	222	221	228	260	264	258	258	258
U Q	288	298	290	278	268	258	251	250	244	230	238	264	252	260	245	236	236	230	250	269	278	266	264	276
L Q	251	260	262	260	248	234	228	222	222	210	192	202	214	218	212	205	212	212	221	251	258	250	250	248

JUN. 2014 h'F (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

JUN. 2014 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

H D	00	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	108	108	108	108	108	108	108				108	108	108		A	A			
2					A	108	114	110	110	108	106	106	106		A	108	108	116	116					
3					A	100	100	100	100	100		A	A		A	106	106	106				A		
4					A	A	106	106	106	106	106		A	A		A		112	112	112				
5					A	112	112	112	112		C	C	C	C	C	C	C	C				A		
6					A	130	112	112	112		C	C	C	C	C	C	C	112	110	110				
7						118	118	116	102	102	102	102	102		A		A	102	102		C	A		
8					146	126	122	108	108	108	108	108	108	108	108	108	108	108	108	108				
9						108	108	108	108	108	108				A			A	108	108				
10					106	106	106	106	106	104		A	A	104		A	A		A	A				
11					166	112	112	112	112	110	112		B	112		A	112	112	112	112	112			
12					134	130	124	126	106	104		A	104		A	A	A		A		104			
13					136	136	118				B				A		A	A	A	A	A			
14					126	126	110	110	110	110	110	112	112		A	114	116	116	116	116				
15					A	114	112	110	110	110	110			A	A		A		110	110	110			A
16					A	110	106	106	106		A	108		B	A	A	A			A	A			
17						108	108	108	108	108	108			A		A	A	108	108	108				A
18					120	120	120	120	106	102	102	102		A	A	102	102		A	108	108			A
19					148	128	122	116	116	114	110	108	108		A		A	A		A				A
20					140	116	116	116	104	104	104	104	104	104	104	104	104	104	104	104				
21					B	238	114	114	110	110	110	110			A	110	110			110				A
22					A	110	110	108	108	108	108			A				A	108	108				A
23					112	112	112	112	110	110	110				A	110	110	110	110	110				A
24					A	108	108	108	108	108	108	108	110	110	110	108	108	108	108					A
25					A	108	108	108	108	108	106	106			A	A	106		106	106				A
26					B	108	108	108	108	108	108	108			A	A		114	114	114				A
27						114	112	112	110	110			A	110		A	A	110	110	108	108			
28					A	108	108	108	108	108		A			A	108	108	108	108	108				A
29					A	108	108	108	106	106	106			A		A		106	106	106	106			A
30					A	184	120	120	120	120	106			A	A	A	106	106	106	106				A
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT					12	25	30	29	29	26	21	14	10	4	8	16	19	24	23	1				
MED					138	114	111	110	108	108	108	108	108	107	109	108	108	108	108	112				
U Q					157	123	116	113	110	110	110	108	110	109	110	110	112	111	112					
L Q					123	108	108	108	106	106	106	104	104	105	106	106	106	107	108					

JUN. 2014 h'E (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

JUN. 2014 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	98	B	96	124	124	122	114	188	G	102	102	102	102	132	116	194	124	96	106	106	106	106
2	104	98	98	98	98	98	110	110	110	G	110	110	G	108	108	192	206	126	132	116	112	104	100	100
3	106	106	106	106	118	120	120	120	112	112	112	108	108	108	108	118	116	110	110	108	106	106	106	106
4	106	106	106	104	104	158	120	120	120	118	110	102	102	102	102	102	102	118	118	118	118	116	116	116
5	104	102	102	102	102	138	132	122	110	C	C	C	C	C	C	C	C	128	126	120	114	114	112	108
6	104	104	100	100	100	146	126	124	124	C	C	C	C	C	C	C	124	152	124	122	116	116	116	116
7	B	108	108	106	104	104	128	128	116	116	112	112	106	106	106	106	104	116	C	118	B	118	118	118
8	108	B	B	B	G	140	132	128	118	116	116	116	116	188	G	152	116	118	118	116	B	116	B	B
9	B	B	116	116	116	126	126	118	118	100	102	102	102	100	100	100	100	110	110	110	110	110	108	108
10	106	106	106	104	112	116	116	116	116	114	112	100	100	100	100	100	100	96	96	110	110	C	110	B
11	100	B	100	100	G	176	160	130	112	124	126	B	126	114	114	G	114	114	114	112	112	106	104	100
12	100	100	100	100	182	156	120	120	120	116	116	116	116	102	104	104	104	104	134	132	104	104	B	104
13	B	96	B	96	G	138	132	120	114	114	114	106	108	108	108	108	108	102	98	98	98	98	98	98
14	98	B	102	102	G	126	120	120	120	112	112	112	112	112	G	116	112	112	112	112	112	112	110	110
15	102	102	102	118	118	118	118	118	118	118	110	106	106	106	106	106	142	128	120	106	106	106	104	104
16	104	B	104	104	94	150	122	120	120	120	118	B	104	102	102	98	116	116	114	114	112	106	102	100
17	100	100	100	100	100	120	120	120	116	116	112	112	112	112	110	108	108	G	108	108	108	108	108	B
18	B	108	108	B	G	116	116	116	106	106	106	106	106	106	194	108	108	164	138	122	120	120	104	B
19	B	92	94	B	G	132	116	116	116	116	106	106	102	102	102	102	102	114	114	116	116	110	106	106
20	100	B	100	114	114	116	116	116	116	114	114	114	114	114	114	124	124	124	124	124	124	112	112	B
21	B	98	106	B	G	132	118	118	118	118	102	110	110	190	106	106	106	104	120	120	116	114	114	114
22	106	106	106	B	104	102	142	132	120	108	108	108	108	108	106	106	106	106	112	112	112	112	B	112
23	108	104	100	100	100	100	110	110	110	110	110	110	110	110	174	136	116	116	116	116	116	116	116	B
24	100	100	100	122	122	120	120	120	118	114	114	108	136	124	124	122	122	120	118	110	110	110	112	106
25	104	104	104	102	102	120	120	116	116	110	110	104	104	104	104	104	118	116	116	112	112	102	104	104
26	B	B	B	B	B	124	124	122	114	114	114	114	114	110	110	108	108	166	132	122	94	86	106	106
27	104	104	104	B	114	114	114	114	114	112	112	112	112	112	100	98	100	106	106	106	106	106	106	106
28	90	90	94	102	122	122	120	114	114	112	112	112	112	112	112	112	112	112	110	110	110	110	110	110
29	102	100	100	124	122	122	120	118	108	108	108	108	102	102	122	122	122	120	116	110	108	106	106	106
30	B	B	106	106	126	140	124	112	108	108	108	108	110	110	100	204	146	128	122	120	114	110	106	104
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	21	21	27	23	22	30	30	30	30	27	27	26	27	28	26	27	29	29	29	30	28	29	27	24
MED	104	102	102	104	108	123	120	120	116	114	112	108	108	108	106	108	112	116	116	113	112	110	106	106
U Q	106	106	106	106	118	138	126	122	118	116	114	112	112	112	112	122	120	127	124	120	115	114	112	110
L Q	100	99	100	100	100	116	118	116	112	110	108	106	104	102	102	104	105	110	111	110	107	106	104	104

JUN. 2014 h'Es (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Wakkanai

JUN. 2014 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

H D	00	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		L1	C2	C2	C2	C2	H1		C1	C1	L1	L1	H1	CL11	HL11	CL12	LC21	F2	F4	F4	F4	
2	F1	F2	F2	F3	F3	L2	CL21	CL21	C2		C1	C2		C1	C1	HL11	HL11	CL21	CL21	C3	F3	F1	F1	F1	
3	F1	F1	F1	F2	CL11	CL11	C2	C1	C1	C1	C1	C2	L2	L1	L1	CL11	C2	C2	CO31	C3	F4	FO41	FO31	FO31	
4	FO41	FO41	FO31	F5	L2	HL12	C2	C2	C1	C2	C2	C2	CO21	CO21	C2	CO11	L1	CL11	CL11	C3	F2	F2	F3	F5	
5	F2	F4	F5	F4	L3	C1	C2	C2	C2								C2	C3	C6	F1	F2	F3	F4		
6	F1	F2	F1	F2	L2	HL11	C2	C2	C1							C1	H1	C5	C5	F3	F3	F3	FO21		
7		F1	F3	F3	F2	L2	CL12	CL12	C1	C1	C1	C3	C2	C1	C1	C2	C2	C1	C2			F2	F3	F2	
8	F1					H2	C2	C1	C1	C1	C1	C1	C1	H1		H1	C1	C1	C2			F1			
9			F1	F1	C2	CL11	C1	C2	C1	C2	C2	L2	L2	L2	L2	L2	L2	CL22	CL22	CL22	FF12	F1	F6	F2	
10	F5	F5	F3	F3	C2	CL21	C2	C2	C2	C2	C1	L2	C2	C1	L1	L1	L2	L2	L2	L2	F3		F3		
11	F1		F1	F1		H1	H1	C1	C1	C1	CL11		C1	L1	C1		C1	C2	C2	C3	F3	F6	F4	F4	
12	F4	F4	F2	F1	H1	H2	C1	C1	C1	C1	C1	C1	C1	L1	L1	CL11	CL11	L2	H2	C2	F4	F2		F1	
13		F1		F1		H1	C1	C1	C1	C1	L1	L1	L1	L1	L1	C1	C2	L2	L2	L3	F3	F3	F3	F2	
14	F2		F1	F1		C1	C2	C1	C1	C1	C1	C1	C1	C1		C1	C2	C3	C4	FF13	F2	F4	F2	F2	
15	F5	F3	F2	FF11	C3	C3	C2	C2	C2	C2	C2	L2	L2	L1	L1	L1	HL11	C2	C2	CO31	F3	F2	F1	F3	
16	F2		F1	F1	L2	HL11	C2	C1	C1	C1	C1		L1	L1	L1	LO11	CLO11	CLO22	CL43	CL23	FF32	F7	F4	F5	
17	F5	F5	F5	F5	F3	CL22	C2	C2	C3	C3	C3	C2	C1	C1	L1	L1	L1	C4	C4	C4	F3	F3	F2		
18		F1	F1			C2	C2	C2	C2	C3	C2	C1	C1	C1	C1	C1	C1	HL11	CL41	C4	F3	F3	F1		
19		F1	F1			CL21	C2	C2	C1	C2	C2	C2	C2	L1	L1	L2	L2	CL13	CL22	CL22	FF23	FO31	L1	F1	
20	F1		F1	F1	L1	C2	C2	C2	C2	C1	C2	C2	C1	C1	C2	H1	C1	C2	C2	C2	F1	F2	F2		
21		F2	F1			H1	CL11	CL11	C1	C1	C2	C2	C1	HC11	C1	C1	C1	L2	CL22	C2	F5	F4	F3	F3	
22	F4	F4	F2		L3	L3	HL12	CL12	C1	C1	C1	C1	C1	C1	C1	C1	LC31	CL31	CL31	C5	F5	FF21		FF21	
23	F3	F4	F3	F2	L1	CL21	C3	C1	C1	C1	C1	C1	C1	C1	H1	HL11	C1	C3	C3	C3	F1	F3	F1		
24	F3	F2	F2	FF21	C2	C3	C2	C1	C2	C2	C1	C1	HL11	H1	C2	C3	C2	C3	C7	F8	F3	F7	F3	F3	
25	F5	F5	F5	F4	L2	C2	C2	C2	C2	C1	C2	C2	C1	C1	C2	C2	CL11	C2	C3	C5	F5	F3	F1	F3	
26			F2			C2	C2	C2	C2	CO11	C1	C2	C1	C1	C1	C1	L1	HL11	C3	C4	F5	F5	F1	F3	
27	F3	F2	F2		C2	C3	C2	C2	C1	C1	C1	C1	C1	C1	C1	C1	C1	C2	CL32	CL32	F3	F2	F3	F2	
28	F2	F3	F1	F1	CL21	C2	C2	C2	C2	C1	C1	C1	C1	C1	C1	C2	C2	C3	C4	C4	F2	F2	F4	F2	
29	F3	F3	F2	F2	C3	C2	C2	C2	C2	C1	C1	C1	C1	C1	CL11	CL11	CL11	C4	C4	C4	F4	F3	F2	F1	
30			F3	F1	L1	C1	C2	C2	C2	C1	C1	C1	L1	L1	L1	HL11	HL11	CL21	C3	C3	F2	F3	F3	F2	
31																									
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT																									
MED																									
U Q																									
L Q																									

IONOSPHERIC DATA STATION Kokubunji

JUN. 2014 f_{XI} (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

H D	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	77	X 73	X 69	X 64	X 62															X 77	X 82	X 80		X 74	
2	X 73	X 76	X 67	X 65	X 66															X 85	X 90	X 82	X 81	X 83	
3	X 73	X 70	X 68	X 67	X 62															X 97	X 96	X 90	X 81	X 78	
4	79	75	76	X 72	X 67															X 101	X 89	X 80	X 77	X 80	
5	75	X 73	73	X 70	70															X 94	X 89	X 90	X 88	X 91	
6	86	88	92	81	X 76	X 76														X 88	X 88	X 90	X 90	X 92	
7	X 89	90	90	83	X 81															X 94	X 94	X 93	X 87	X 85	
8	X 84	X 83	X 79	X 77	X 73															X 98	A	X 81	A	X 80	
9	80	X 77	X 72	X 71	X 67															X 95	X 88	X 75	X 81	X 76	
10	75	77	X 78	X 63	X 66															X 86	X 85	X 84	X 88	X 92	
11	86	X 78	80	X 76	X 69															A	X 72	X 77	X 79	X 77	
12	X 75	X 76	X 70	X 72	X 75															X 96	X 96	X 87	X 86	X 87	
13	X 84	X 86	X 82	X 74	X 72															X 102	X 99	X 88	X 97	X 100	
14	100	X 88	90	X 87	X 81															X 97	A	X 89	100	X 83	
15	84	83	79	75	75	81														X 88	X 87	X 85	100	X 89	
16	X 85	X 74	X 72	X 72	X 73															X 90	X 91	X 90	X 86	X 82	
17	X 82	X 80	X 81	X 73	X 72															X 88	X 100	X 90	X 91	X 75	
18	X 62	X 62	X 63	X 60	X 58															A	X 84	X 85	X 78	X 75	
19	X 73	X 69	X 64	X 61	X 58															X 84	X 84	X 80	A	X A	
20	A	A	X 61	X 68	X 68															X 84	X 89	X 90	X 84	X 76	
21	X 70	X 76	X 78	X 75	X 80															X 72	X 76	X 68	X 72	X 71	
22	X 71	X 74	X 67	X 66	X 65															X 82	X 80	X 78	X 76	X 76	
23	76	76	77	77	70															X 87	X 85	X 75	X 78	X 72	
24	78	81	76	68	68	65														X 96	X 91	X 85	X 84	X A	
25	87	86	X 77	X 75	X 72															X 85	X 96	X 87	X 71	X A	
26	A	A	A	A	68	X 58														X 76	X 79	X 87	X 90	X 65	
27	67	68	67	66	71															X 86	X 86	X 93	X 78	X A	
28	75	67	68	69	65															A	X 95	X 100	X 78	X 83	
29	83	X 74	X 78	X 82	X 70															X 82	X 85	A	A	X 74	
30	70	70	66	X 62	X 59															X 81	X 82	X 82	X 82	X 81	
31																									
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	28	28	29	29	30	4														27	28	29	26	26	
MED	78	76	76	X 72	70	70														88	88	85	83	80	
U Q	84	82	79	76	73	78														96	92	90	88	85	
L Q	X 73	X 73	X 68	X 66	X 66	62														X 84	X 84	X 80	X 78	X 75	

JUN. 2014 f_{XI} (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

JUN. 2014 foF2 (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

D	H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	F	67	63	58	56	66	74	84	86	72	A	66	66	74	89	97	90	84	65	71	76	74	74	68	
2	F	61	59	F	65	88	99	A	64	61	A	63	68	72	79	82	79	75	78	84	76	75	77	F	
3	F	64	62	61	56	63	71	78	82	80	83	72	73	76	88	95	100	102	90	91	90	84	75	F	
4	F	F	F	66	61	54	61	74	84	66	A	A	70	A	71	77	85	88	94	95	82	74	71	F	
5	F	67	F	64	F	62	81	89	A	A	A	A	86	91	A	97	102	94	93	88	83	84	82	85	
6	F	F	F	F	70	70	80	94	84	80	70	73	81	80	88	90	92	84	80	82	82	84	84	85	
7	83	F	F	F	75	74	72	75	80	78	84	88	85	78	80	78	84	90	88	87	88	87	81	79	
8	78	77	73	70	67	72	92	92	R	A	72	74	76	86	79	78	88	83	101	92	A	75	A	74	
9	F	70	66	65	F	60	79	82	A	65	73	79	68	A	A	70	A	A	A	90	82	69	75	70	
10	F	F	72	57	F	57	72	87	80	70	A	65	71	86	101	99	96	90	81	80	79	78	F	F	
11	F	72	F	70	63	65	80	80	74	70	64	60	62	64	A	76	82	81	68	A	66	F	F	F	
12	69	F	64	F	F	71	75	78	87	76	69	71	80	92	98	97	95	94	91	90	90	81	80	81	
13	78	80	76	68	66	68	74	81	84	76	81	80	81	82	80	80	88	92	93	96	93	82	F	F	
14	F	82	F	81	75	74	74	88	86	79	77	81	88	87	97	97	90	89	A	91	A	82	F	F	
15	F	F	F	F	F	83	78	A	74	77	72	76	85	A	A	A	A	76	81	82	81	79	F	F	
16	79	68	66	66	67	70	81	80	72	71	72	A	A	80	90	93	93	87	81	84	85	84	80	75	
17	75	F	F	67	66	74	88	87	A	A	A	A	A	A	A	A	A	A	A	82	94	84	84	69	
18	56	56	57	54	52	56	62	73	74	A	73	66	A	A	70	78	73	A	A	A	F	79	71	F	
19	67	63	58	55	52	68	78	A	A	A	A	A	86	74	A	A	83	88	82	78	78	74	A	A	
20	A	A	55	F	F	64	69	A	A	A	A	A	67	71	70	76	76	78	79	78	83	83	78	70	
21	64	F	F	F	F	65	66	A	60	63	A	62	A	A	A	69	68	72	66	66	70	62	66	65	
22	65	F	62	F	F	64	68	62	66	65	A	66	67	69	74	74	A	66	A	76	74	70	70	F	
23	F	F	F	F	F	58	62	65	80	67	67	68	74	76	78	75	75	77	74	81	79	69		66	
24	F	F	F	F	F	F	66	74	A	72	A	A	A	67	64	A	A	A	A	90	84	79	78	A	
25	F	F	70	F	F	62	69	88	86	A	A	A	73	A	69	70	74	A	A	79	90	81	65	A	
26	A	A	A	A	F	52	55	61	76	77	67	64	67	A	68	67	A	A	62	70	73	F	F	59	
27	F	F	F	F	F	74	68	59	61	61	A	64	A	A	A	A	65	A	A	80	80	F	F	A	
28	F	F	F	F	F	54	69	87	A	64	68	70	64	70	75	72	69	72	80	A	89	F	72	F	
29	F	68	F	F	F	65	65	64	59	A	A	A	73	A	72	66	65	65	67	76	79	A	A	68	
30	F	F	F	56	53	57	81	92	88	A	A	A	72	82	90	86	73	70	69	75	76	76	76	75	
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		12	12	14	16	14	28	30	27	20	21	16	20	23	21	22	25	24	23	22	27	27	25	19	16
MED		68	68	64	64	64	65	73	80	80	71	72	70	73	78	78	78	84	84	80	82	82	79	75	72
U Q		78	74	70	68	67	70	80	88	85	76	77	74	81	86	89	94	91	90	90	90	88	84	80	78
L Q		66	66	61	58	56	59	68	74	73	65	68	66	67	70	71	73	74	76	69	78	78	74	71	68

JUN. 2014 foF2 (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

JUN. 2014 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

H D	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							A	A	A	A	A	508	A	U	L	U	L	A	A	A				
2							L	A	A	A	A	A	U	L	U	L	U	L	U	L				
3							A	A	L	U	L	A	A	A	A	A	A	A	A	A				
4						L	L	U	L	A	A	A	A	A	A	A	472	A	A	A				
5						L	A	A	A	A	A	A	A	A	A	A	A	A	A	A				
6						L	A	A	A	A	U	L	U	L	A	A	U	L	A	A				
7							L	A	A	A	A	A	A	A	A	U	L	U	L	L	L			
8						L	L	A	A	A	A	A	A	U	L	U	L	U	L	A				
9						U	L	A	A	U	L	A	A	A	A	A	A	A	A	A				
10						U	L	A	A	A	A	A	A	U	L	A	A	U	L	L	L			
11						L	L	A	A	U	L	U	L	A	A	A	U	L	A	A				
12							U	L	A	A	U	L	U	L	A	A	U	L	U	L	L	L		
13							A	A	A	A	A	A	A	A	A	516	520	492	A	L	L			
14							A	A	U	L	A	A	A	A	A	A	A	A	A	A				
15						L	A	A	A	A	A	A	A	A	A	A	A	A	A	A				
16							A	A	A	U	L	A	A	A	A	A	476	L	L	A				
17							A	A	A	A	A	A	A	A	A	A	A	A	A	A				
18							A	A	A	A	A	A	A	A	A	A	A	A	A	A				
19							A	A	A	A	A	A	A	A	A	A	A	468	A					
20							A	A	A	A	A	A	A	A	A	A	468	A	A	L				
21						A	A	A	U	L	A	A	A	A	A	A	A	A	U	L	A			
22							A	A	A	A	A	A	A	U	L	A	A	A	A	A				
23							A	A	A	A	U	L	U	L	U	L	A	A	A	L				
24						L	A	A	A	A	A	A	A	A	U	L	A	A	A	A				
25							A	A	A	A	A	A	A	A	A	A	A	A	A	A				
26							A	A	A	A	A	A	488	A	A	A	A	A	A	A				
27							A	A	A	A	A	A	A	A	A	A	A	A	A	A				
28						L	A	A	A	U	L	A	U	L	A	U	L	A	A	A				
29						L	A	U	L	U	L	A	A	A	A	A	A	A	A	A				
30							L	U	L	A	A	A	A	U	L	U	L	U	L	A				
31							420	454	474	504	524	508	494	500	488	472	464	430						
	00	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	4	4	6	4	6	5	10	8	11	10	5						
MED						U	L	U	L	U	L	U	L	U	L	U	L	U	L					
U Q						360	432	460	482	550	544	512	512	506	492	488	474	444						
L Q							436	484	506	564	566	572	518	532	510	512	484	452						

JUN. 2014 foF1 (0.01MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

JUN. 2014 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

H D	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1						192	A	A	A	A	A	A	A	A	A	A	A	A	A					A	
2						A	A	A	A	A	A	A	A	A	A	A	A	A	R	A					
3						B	A	A	A	A	A	A	A	A	A	A	A	A	A	B					
4						A	R	A	A	A	A	A	A	A	A	A	A	A	A	A					
5						A	A	A	A	A	A	A	A	A	A	A	A	A	A	A					
6							A	A	A	A	A	A	A	A	A	A	A	A	A	A					
7						B	A	A	A	A	A	A	A	A	A	A	A	A	A	A					
8						A	A	A	A	A	A	A	A	A	A	A	A	A	A	A					
9						A	A	A	A	A	A	A	A	A	A	A	A	A	A	A					
10						200	R	A	A	A	A	A	A	A	A	A	A	A	A						
11						180	A	A	A	A	A	R	A	A	A	R	A	A	A						
12						208	A	A	A	A	A	A	A	A	A	A	A	A	A	A					
13						A	A	A	A	A	A	A	A	A	A	A	A	A	A	A					
14						A	A	A	A	A	A	A	A	A	A	A	A	A	A	A					
15						A	A	A	A	A	A	A	A	A	A	A	A	A	A	A					
16						A	A	A	A	A	A	A	A	A	A	A	A	R	A	A					
17						A	A	A	A	A	A	A	A	A	A	A	A	A	A	A					
18						A	A	A	A	A	A	A	A	A	A	A	A	A	A	A					
19						A	A	A	A	A	A	A	A	A	A	A	A	A	A	A					
20						B	A	A	A	A	A	A	A	A	A	A	A	A	A	A					
21						A	A	A	A	A	A	A	A	A	A	A	A	A	A	A					
22						B	A	A	A	A	A	A	A	A	A	A	A	A	A	A					
23						B	A	A	A	A	A	A	A	A	A	A	A	A	A	A					
24						A	A	A	A	A	A	A	A	A	A	A	A	A	A	A					
25						184	A	A	A	A	A	A	A	A	A	A	A	A	A	A					
26							A	A	A	A	A	A	A	A	A	A	A	A	A	A					
27						B	A	A	A	A	A	A	A	A	A	A	A	A	A	A					
28						A	A	A	A	A	A	A	A	A	A	R	A	A	A	A					
29						A	A	A	A	A	A	A	A	A	A	A	A	A	A	A					
30						B	A	A	A	A	A	A	A	A	A	A	A	A	A	A					
31																									
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT						5	1									1									
MED						192	U 268	A								U 376	A								
U Q						204																			
L Q						182																			

JUN. 2014 foE (0.01MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

JUN.2014 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

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

IONOSPHERIC DATA STATION Kokubunji

JUN. 2014 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

H D	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	35	31	16	22	E B 15	22	40	50	66	57	A A 82	44	52	44	40	40	59	64	46	47	40	32	30	17	
2	18	E B 15	19	18	E B 15	22	30	40	A A 115	46	43	A A 75	40	40	38	38	33	G	26	20	22	28	16	E B 15	
3	17	E B 16	E B 16	E B 14	E B 15	21	35	45	40	45	59	56	61	56	53	53	54	55	37	47	39	44	24	20	
4	32	33	16	E B 14	E B 15	20	G	35	38	49	A A 94	A A 92	50	A A 126	54	39	38	32	36	31	16	23	17	20	
5	19	41	21	25	28	37	33	48	A A 110	A A 103	A A 93	A A 86	45	60	A A 86	70	39	55	31	E B 15	17	23	24	31	
6	E B 15	E B 15	E B 17	31	29	26	34	46	54	52	47	44	42	42	50	44	34	48	40	28	29	22	E B 15	20	
7	32	24	E B 15	18	20	22	31	37	43	47	70	51	75	52	53	42	35	35	23	19	38	20	34	30	
8	21	27	17	28	18	30	30	72	A A 52	A A 84	61	58	52	40	42	39	38	32	57	48	A A 145	43	A A 123	18	
9	21	18	50	45	E B 16	22	29	41	A A 99	44	40	66	62	A A 104	A A 111	50	A A 92	A A 148	A A 148	75	40	39	E B 15	E B 15	
10	39	E B 15	E B 16	E B 22	E B 22	23	G	70	61	63	A A 74	56	57	43	75	46	36	32	26	50	48	38	28	36	
11	E B 15	E B 15	E B 15	E B 15	E B 15	22	31	36	38	52	44	G	50	53	A A 108	G	39	37	54	A A 107	44	34	E B 15	22	
12	E B 15	E B 15	E B 21	E B 18	E B 15	23	31	40	46	47	47	45	55	48	41	38	38	32	26	22	E B 15	21	22	20	
13	28	19	18	E B 15	E B 15	22	29	46	44	55	56	58	68	68	68	42	37	38	28	24	20	E B 15	35	31	
14	40	17	20	E B 15	E B 14	24	30	49	A A 57	A A 45	48	60	59	61	57	50	78	A A 62	A A 112	A A 59	A A 130	45	38	38	
15	41	30	18	20	19	22	61	58	A A 99	65	56	69	61	52	A A 84	A A 94	A A 96	50	38	63	19	45	60	16	
16	28	22	30	31	26	24	33	51	52	45	A A 64	A A 102	A A 153	55	49	38	G	34	45	19	24	21	31	36	
17	38	39	20	28	24	30	51	60	A A 118	A A 130	A A 97	A A 108	90	A A 109	A A 186	101	131	147	86	66	54	42	41	22	
18	E B 15	E B 15	E B 15	21	32	23	34	44	A A 69	A A 73	59	56	143	114	55	49	50	A A 91	A A 91	A A 75	25	33	25	35	
19	18	E B 15	E B 19	E B 16	E B 15	34	39	A A 81	A A 119	A A 141	A A 148	A A 139	77	44	A A 72	A A 84	37	37	42	34	31	31	A A 95	A A 86	
20	A A 106	A A 89	A A 40	A A 27	A A 19	21	42	A A 125	A A 146	A A 121	A A 90	A A 72	59	59	49	41	46	43	27	30	22	28	36	29	
21	22	32	29	19	22	29	33	A A 77	40	48	A A 118	52	120	85	A A 118	64	43	35	32	41	47	41	22	28	
22	E B 15	E B 21	E B 14	E B 31	E B 36	38	36	37	39	48	A A 86	50	50	42	46	64	A A 109	A A 53	A A 123	58	34	31	60	20	
23	40	E B 15	E B 15	E B 15	E B 19	29	42	54	63	57	50	42	41	40	40	48	60	46	21	24	21	41	20	21	
24	43	27	32	22	32	22	37	63	A A 159	A A 38	A A 104	A A 103	92	41	41	A A 76	A A 104	A A 183	A A 133	76	48	36	45	A A 88	
25	51	E B 15	39	36	E B 14	22	45	45	A A 54	A A 104	A A 102	A A 163	66	128	61	53	62	A A 102	A A 88	65	34	35	44	A A 88	
26	A A 88	A A 110	A A 76	A A 84	18	21	39	43	52	56	56	55	40	A A 75	46	46	A A 74	A A 88	A A 44	A A 41	30	44	E B 15	E B 15	
27	E B 15	E B 20	E B 16	E B 17	E B 18	46	37	45	51	56	A A 89	54	67	A A 118	A A 140	78	57	A A 131	A A 99	19	40	48	53	A A 88	
28	35	E B 15	E B 15	E B 32	E B 15	21	41	61	A A 117	43	56	44	48	42	G	43	40	43	69	A A 116	20	28	47	44	
29	39	35	32	E B 15	E B 19	20	40	36	41	A A 110	A A 176	67	128	A A 135	63	45	44	33	54	39	34	A A 126	A A 113	35	
30	40	38	28	24	E B 14	21	30	37	41	A A 94	A A 85	A A 88	45	39	41	39	37	33	33	45	29	19	23	21	
31																									
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	
MED	30	20	18	22	18	22	34	46	54	56	67	58	59	54	54	46	44	44	43	43	32	34	30	25	
U Q	40	32	29	28	22	29	40	60	A A 99	A A 84	A A 93	A A 86	75	85	75	64	62	A A 64	A A 86	63	40	42	45	36	
L Q	E B 18	E B 15	E B 16	E B 16	E B 15	22	30	40	43	47	56	51	50	42	42	40	37	34	31	24	22	23	22	20	

JUN. 2014 fbEs (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

JUN. 2014 fmin (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

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

JUN. 2014 fmin (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

JUN. 2014 M(3000)F2 (0.01) 135°E MEAN TIME (G.M.T. + 9 H)

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

D	H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	F	295	291	295	279	310	315	319	334	337	A	304	272	288	292	307	307	322	313	296	289	287	301	292	
2	286	F	315	296	F	282	303	338	A	332	309	A	279	290	287	294	295	314	304	296	305	293	273	301	
3	284	F	F	F	F	307	318	296	318	321	345	326	A	A	284	A	296	286	285	287	304	310	314	286	280
4	F	F	F	F	F	305	292	297	328	310	312	312	271	299	273	292	298	311	314	305	296	280	281	287	279
5	F	295	F	283	F	292	321	334	A	A	A	A	A	288	294	A	285	305	300	302	294	291	277	287	293
6	F	F	F	F	F	305	292	297	328	310	312	312	271	299	273	292	298	311	314	305	296	280	281	287	279
7	276	F	F	F	F	304	298	317	320	310	303	284	302	299	297	289	281	293	295	296	300	287	290	297	288
8	301	299	291	299	285	279	314	336	R	A	270	292	291	298	272	257	283	257	289	306	A	276	A	277	
9	F	283	277	278	F	263	277	302	A	277	304	310	310	A	A	302	A	A	A	313	298	271	280	270	
10	F	F	311	293	F	274	296	318	347	294	A	273	263	279	293	299	308	304	313	284	280	264	F	F	
11	F	278	F	314	290	281	305	302	307	317	281	274	249	273	A	295	304	323	289	A	281	F	F	F	
12	285	F	274	F	F	317	321	297	323	314	270	265	268	291	281	281	286	290	296	300	306	286	278	290	
13	277	283	302	310	300	317	301	301	324	309	283	280	279	282	286	277	278	282	284	296	303	286	F	F	
14	F	287	F	302	293	324	295	298	325	286	269	270	281	273	282	288	288	284	A	291	A	284	F	F	
15	F	F	F	F	F	322	306	A	304	298	282	273	294	A	A	A	A	297	297	289	286	276	F	F	
16	287	294	275	276	289	302	336	334	306	286	303	A	A	269	283	293	302	299	283	290	285	293	300	278	
17	279	F	F	289	291	292	303	314	A	A	A	A	A	A	A	A	A	A	A	A	285	308	310	304	277
18	277	276	298	308	279	307	265	298	305	A	271	268	A	A	282	315	328	A	A	A	F	301	304	A	
19	274	309	280	270	264	319	337	A	A	A	A	A	310	300	A	A	291	295	298	299	290	286	A	A	
20	A	A	280	F	F	316	344	A	A	A	A	A	303	317	289	311	302	299	280	280	292	296	287	305	
21	286	F	F	F	F	357	341	A	292	324	A	282	A	A	A	303	307	289	321	291	296	285	283	277	
22	274	F	305	F	F	340	346	327	330	326	A	301	298	290	308	307	A	316	A	315	294	300	288	F	
23	F	F	F	F	F	317	326	314	331	337	283	319	310	289	305	312	307	319	302	305	314	307	F	296	
24	F	F	F	F	F	312	319	A	358	A	A	A	A	302	291	A	A	A	A	304	301	299	295	A	
25	F	F	305	F	F	327	297	314	333	A	A	A	304	A	301	308	309	A	A	A	287	318	329	276	
26	A	A	A	A	F	339	315	306	335	328	319	305	302	A	297	304	A	A	310	282	271	F	F	292	
27	F	F	F	F	F	320	360	320	325	318	A	296	A	A	A	A	308	A	A	299	296	F	F	A	
28	F	F	F	F	F	286	301	342	A	271	305	300	290	299	315	300	290	287	285	A	298	F	289	F	
29	F	280	F	F	F	301	310	329	283	A	A	321	A	A	302	304	310	301	352	289	297	A	A	290	
30	F	F	F	283	282	312	301	313	347	A	A	A	267	282	290	312	298	306	311	304	276	275	277	290	
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		12	12	14	16	14	28	30	27	20	21	16	20	23	21	22	25	24	23	22	27	27	25	19	16
MED		282	290	294	296	290	308	314	318	324	314	289	290	288	290	290	299	302	299	300	296	294	286	287	290
U Q		286	295	305	308	304	320	322	328	334	327	304	303	302	298	297	307	308	314	310	304	303	298	300	292
L Q		276	282	280	283	282	292	301	306	306	290	276	274	273	276	283	287	290	289	289	289	286	279	280	278

JUN. 2014 M(3000)F2 (0.01)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

JUN. 2014 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

H D	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							A	A	A	A	A	392	A	U	L	U	L	A	A	A				
2							L	A	A	A	A	A	U	L	U	L	U	L	U	L				
3							A	A	L	U	L	A	A	A	A	A	A	A	A	A				
4						L	L	U	L	A	A	A	A	A	A	A	354	A	A	A				
5						L	A	A	A	A	A	A	A	A	A	A	A	A	A	A				
6						L	A	A	A	A	U	L	U	L	U	L	A	A	U	L	A	A		
7							L	A	A	A	A	A	A	A	A	U	L	U	L	L	L			
8						L	L	A	A	A	A	A	A	390	U	L	363	341	322	A				
9						U	L	A	A	U	L	A	A	A	A	A	A	A	A	A				
10						308	346	A	A	367	391	A	A	A	A	A	A	A	A	A				
11						U	L	A	A	A	A	A	A	U	L	A	U	L	L	L				
12						L	L	364	A	U	L	U	L	A	A	A	339	385	A	A				
13						U	L	A	A	U	L	U	L	A	A	364	354	348	L	L				
14						A	A	A	A	A	A	A	A	A	A	A	A	A	A	A				
15						L	A	A	A	A	A	A	A	A	A	A	A	A	A	A				
16						A	A	A	U	L	A	A	A	A	A	A	372	L	L	A				
17						A	A	A	A	A	A	A	A	A	A	A	A	A	A	A				
18						337	A	A	A	A	A	A	A	A	A	A	A	A	A	A				
19						A	A	A	A	A	A	A	A	A	A	A	A	352	A					
20						A	A	A	A	A	A	A	A	A	A	A	372	A	A	L				
21						A	A	A	U	L	A	A	A	A	A	A	A	A	U	L	A			
22						A	A	A	A	A	A	A	A	U	L	A	A	A	A	A				
23						A	A	A	A	U	L	U	L	U	L	A	A	A	A	L				
24						L	A	A	A	A	A	A	A	A	A	U	L	A	A	A				
25						A	A	A	A	A	A	A	A	A	A	A	A	A	A	A				
26						A	A	A	A	A	A	A	414	A	A	A	A	A	A	A				
27							A	A	A	A	A	A	A	A	A	A	A	A	A	A				
28						L	A	A	A	U	L	A	U	L	A	U	L	A	A	A				
29						L	A	U	L	U	L	A	A	A	A	A	A	A	A	A				
30						L	U	L	A	A	A	A	U	L	U	L	U	L	L	U	L	A		
31						397							397	391	358	365		348						
	00	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	4	4	6	4	6	5	10	8	11	10	5						
MED						U	L	U	L	U	L	U	L	U	L	U	L	U	L					
U Q						308	346	372	370	358	363	374	397	376	368	364	350	349						
L Q						U	L	U	L	U	L	U	L	U	L	U	L	U	L					
						349	385	388	383	386	413	412	390	376	370	357	363							
						U	L	U	L	U	L	U	L	U	L	U	L	U	L					
						337	355	348	340	346	348	380	365	348	354	347	335							

JUN. 2014 M(3000)F1 (0.01)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

JUN. 2014 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

H D	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1							278	282	E A 272	A 264	A	346	414	354	330	288	278	270	E A 280						
2							276	256	A	280	346	A	390	360	360	320	316	266	286						
3							248	284	302	318	E A 310	E A 372	E A 380	370	356	310	290	276	254						
4						256	264	288	246	268	A	A	320	A	352	352	332	292	276						
5							282	248	A	A	A	A	318	306	A	E A 330	290	276	254						
6							312	252	276	292	288	398	330	372	324	310	290	274	264						
7								284	286	300	E A 366	E A 304	E A 348	318	342	364	320	298	266						
8						330	262	E A 262	E A 292	A	E A 416	E A 370	E A 350	328	360	414	338	354	E A 290						
9						382	346	264	A	402	348	318	340	A	A	344	A	A	A						
10							E A 318	E A 292	E A 252	E A 376	A	E A 382	E A 412	E A 358	E A 326	306	290	274	264						
11							292	306	324	316	328	452	462	438	A	346	318	284	332						
12								334	276	274	376	412	392	340	336	328	320	306	286						
13								272	288	288	316	370	380	352	372	368	340	298	280						
14								292	256	336	A	E A 386	E A 348	E A 356	336	304	E A 370	E A 316	A						
15						282	E A 280	260	A	E A 346	E A 344	E A 382	E A 394	326	A	A	A	E A 318	288						
16							260	246	E A 296	E A 328	E A 348	A	A	382	322	310	308	298	E A 282						
17							282	E A 280	A	A	A	A	A	A	A	A	A	A	A						
18							398	314	E A 346	A	E A 400	E A 422	A	A	382	300	276	A	A						
19						264	252	A	A	A	A	A	E A 340	E A 316	A	A	316	290							
20							266	A	A	A	A	A	E A 344	E A 322	350	306	318	280	E A 304						
21						E A 236	282	A	356	328	A	E A 394	A	A	A	E A 388	306	300	274						
22							242	238	294	300	A	348	352	360	312	332	E A 320	E A 320	A						
23							268	E A 314	E A 282	E A 266	E A 372	E A 314	E A 320	E A 342	E A 306	E A 308	E A 316	E A 272	290						
24							E A 276	E A 266	A	A	A	A	A	A	362	356	A	A	A						
25							E A 272	E A 268	252	A	A	A	E A 366	E A 358	E A 322	E A 350	A	A	A						
26							E A 262	E A 332	E A 278	E A 294	E A 328	E A 348	A	A	340	336	A	E A 302	A						
27							E A 306	E A 296	E A 340	A	E A 340	A	A	A	A	A	E A 336	A	A						
28						330	312	254	A	424	E A 362	E A 354	E A 370	350	316	320	328	312	E A 372						
29						290	278	282	382	A	E A 342	A	A	E A 352	320	320	322	264							
30							290	274	246	A	A	A	418	380	330	292	336	308	284						
31																									
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT						9	25	27	21	21	15	20	23	21	22	25	24	23	21						
MED						282	277	275	281	296	338	E A 370	346	352	337	315	317	291	278						
U Q						330	291	306	299	338	372	390	392	366	356	345	334	312	E A 290						
L Q						260	263	260	264	277	328	344	340	327	326	307	298	276	265						

JUN. 2014 h'F2 (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

JUN. 2014 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

H D	00	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 300	A 292	A 258	E 246	E 274	E 222	A	A	A	A	A	214	A 240	A 200	216	A	A	A 300	E 296	E 286	E 256	E 254	A	A	
2	E 276	A 260	B 228	E 256	E 288	236	224	A	A	A	A	A	206	206	200	226	204	216	224	264	254	236	276	236	
3	E 276	A 262	B 256	E 244	E 250	230	A	A	E 204	E 236	A	A	A	A	A	A	A	A	A 262	E 250	E 280	E 240	E 260	A	
4	E 318	A 304	A 264	E 236	218	186	202	214	216	A	A	A	A	A	A	A 250	A	A	A 248	204	E 274	E 260	E 262	A	
5	E 252	A 310	A 282	E 288	E 292	278	232	A	A	A	A	A	A	A	A	A	A	A	A 224	E 246	E 274	E 278	E 280	A	
6	E 268	E 262	226	E 266	E 250	230	E 250	A	A	A	A	202	198	212	A	A	208	A	A 254	E 268	E 284	E 272	E 282	A	
7	E 304	A 284	A 238	E 228	E 250	224	216	224	A	A	A	A	A	A	A	A	212	218	228	216	E 244	E 280	E 272	E 274	
8	E 250	A 274	A 252	E 266	E 262	246	218	A	A	A	A	A	A	204	232	224	230	228	A 246	A	E 334	A	E 266	A	
9	E 286	A 296	A 348	E 330	E 302	226	234	A	A	A	A	A	A	A	A	A	A	A	A 310	E 246	E 322	E 274	E 292	A	
10	E 368	A 264	B 230	E 256	E 286	242	230	A	A	A	A	A	E 272	A	A	A	218	208	220	E 304	E 296	E 334	E 326	310	
11	E 278	A 278	B 252	E 234	E 224	226	222	E 244	228	A	232	204	A	A	A	208	218	A	A	E 314	E 356	E 264	E 316	A	
12	E 266	B 264	B 290	E 310	E 292	236	230	234	A	A	A	A	A	222	220	216	214	224	E 248	E 238	E 240	E 282	E 280	A	
13	E 294	A 278	A 250	E 224	E 228	218	210	A	A	A	A	A	A	A	A	188	208	240	254	236	230	326	308	A	
14	E 276	A 260	A 264	E 250	E 248	226	218	A	A	224	258	A	A	A	A	A	A	A	A 296	A	E 306	E 300	E 304	A	
15	E 324	A 286	A 262	E 252	E 262	232	A	A	A	A	A	A	A	A	A	A	A	A	A 326	E 262	E 330	E 330	E 248	A	
16	E 274	A 262	A 298	E 314	E 288	226	A	A	A	E 240	A	A	A	A	A	218	222	222	A 256	E 254	E 248	E 262	E 318	A	
17	E 320	A 316	A 250	E 250	E 272	234	A	A	A	A	A	A	A	A	A	A	A	A	A 362	E 274	E 256	E 234	E 240	A	
18	E 286	A 296	B 274	E 254	E 306	230	E 248	A	A	A	A	A	A	A	A	A	A	A	A	292	E 268	E 242	E 322	A	
19	E 262	A 242	B 300	E 292	E 308	A	A	A	A	A	A	A	A	A	A	A	232	A	264	E 264	E 256	E 280	A	A	
20	A	A	A 328	E 314	E 266	232	A	A	A	A	A	A	A	A	A	224	A	A	230	E 260	E 266	E 254	E 280	246	
21	E 270	A 298	A 312	E 286	E 232	A	A	A	232	A	A	A	A	A	A	A	A	A	234	A 286	E 300	E 320	E 270	328	
22	E 274	B 302	A 234	E 306	E 322	226	A	A	A	A	A	A	A	226	A	A	A	A	A 292	E 264	E 268	E 332	E 274	A	
23	E 328	A 260	B 248	E 228	E 212	248	A	A	A	E 286	190	188	198	E 246	A	A	A	216	E 250	E 228	E 260	E 250	E 250	A	
24	E 354	A 278	A 298	E 240	E 298	230	A	A	A	206	A	A	A	202	220	A	A	A	324	E 248	E 276	E 302	A	A	
25	E 320	A 246	B 268	E 264	E 230	238	A	A	A	A	A	A	A	A	A	A	A	A	348	E 254	E 230	E 314	A	A	
26	A	A	A	E 242	E 210	A	A	A	A	A	A	A	196	A	A	A	A	A	E 300	E 312	E 322	E 206	E 208	A	
27	E 272	B 316	A 272	E 294	E 272	270	222	A	A	A	A	A	A	A	A	A	A	A	E 270	E 274	E 284	E 310	A	A	
28	E 284	A 258	B 272	E 286	E 232	240	A	A	A	242	A	E 256	A	230	230	A	242	A	A	E 250	E 242	E 290	E 334	A	
29	E 318	A 314	A 318	E 280	E 332	240	A	220	218	A	A	A	A	A	A	A	A	216	E 270	E 266	A	E 304	A	A	
30	E 314	A 346	A 298	E 290	E 276	238	232	216	A	A	A	A	202	194	200	218	198	222	A 274	E 270	E 260	E 278	E 246	A	
31																									
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	28	28	29	29	30	28	15	6	5	6	5	6	5	10	8	11	12	9	8	27	28	29	27	26	
MED	E 285	A 278	A 264	E 264	E 269	228	223	220	218	220	236	206	198	206	216	218	218	222	223	E 270	E 263	E 274	E 276	E 277	
UQ	E 318	A 300	A 298	E 291	E 292	239	232	234	230	240	272	224	204	230	231	224	226	228	235	300	277	313	302	308	
LQ	E 273	A 262	B 250	E 245	E 242	226	218	216	210	212	213	202	192	202	200	212	208	215	218	E 254	E 249	E 255	E 260	E 250	

JUN. 2014 h'F (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

JUN. 2014 h'E (KM)

135°E MEAN TIME (G.M.T. + 9 H)

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

H D	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1						112	112		A	A	A	A	A	A	A	A	A	A	A					A
2						124	116	114		A	A	A	A	A	A	A	A		114	114				
3						B	A	A	A	A	A	A	A		114	114	112		A	B				
4						118	116	110	110		A	A	A	A	A	A	A	A	A	A				
5						A	A	A	A	A	A	A	A	A	A	A	A	A	A	A				
6							A	A	A	A		116		A	A	A	A	A	A	A				
7						B				A	A		A	A	A	A	A	A	A					
8						A		118	114	112		A	A	A	A	A	A	A	A					
9							112		A	A	A	A	A	A	A	A	A	A	A	A				
10						116	116		A	A	A	A	A	A	A	A	A	A	A					
11						118	118		A	A	A	A	A	A	A	A	A	A	A					
12						114		108	114		A	A		112			116	116	116		A			
13						116	116	116	112		A	A	A	A	A	A	A	A	A					
14						112	112		A	A	A	A	A	A	A	A	A	A	A					
15						116		A	A	A	A	A	A	A	A		114		A	A	A			
16						114		A	A	A	A	A	A	A	A	A	A	A	A					
17						A		116	114		A	A	A	A		114		114	114					
18						124	118		A	A	A	A	A	A	A	A	A	A	A					
19						A		112																
20						110	116		A	A	A	A	A	A	A	A	A	A		116				
21						B	A		A	A	A	A	A	A	A	A	A	A	A					
22						116	112		A	A	A	A	A	A	A	A	A	A	A					
23						B	A		A	A		110		110										
24							A	A	A	A	A	A	A	A	A		112		A	A				
25						A		116	116															
26							A	A	A	A	A	A	A	A	A		118		A	A	A			
27						B		110																
28							A	A	A	A	A	A	A	A		114	114	114		A	A			
29						114																		
30						112	112	112		A	A	A	A	A	A		114	114	112					
31						B		112																
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT						16	19	7	4	1		2		1	4	7	6	6	2					
MED						116	116	114	112	110		114		110	114	114	114	114	113					
U Q						117	116	114	113						115	116	114	116						
L Q						113	112	110	111						114	114	112	112						

JUN. 2014 h'E (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

JUN. 2014 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

H D	00	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	94	94	92	92	148	118	104	102	100	100	100	98	100	100	100	100	94	90	90	90	88	88	96	
2	86	98	98	98	106	132	122	118	106	104	104	104	102	108	108	106	104	G	122	96	94	110	102	94	
3	100	100	100	96	B	108	106	102	102	100	100	102	98	98	124	118	114	104	104	104	102	100	104	104	
4	96	98	98	96	100	118	G	112	120	106	104	98	100	96	98	102	98	96	92	90	B	106	98	102	102
5	102	102	102	98	96	96	104	104	104	104	102	102	106	102	102	100	104	102	104	B	106	98	92	110	
6	104	100	100	96	94	94	98	104	102	102	102	110	104	104	98	98	102	102	108	104	104	104	104	102	
7	102	102	102	100	94	102	126	120	120	106	104	104	104	104	104	104	104	104	102	102	102	94	94	92	96
8	96	102	100	94	94	94	128	104	104	104	104	104	104	102	102	102	100	108	102	98	98	94	100	106	
9	100	100	100	98	102	114	120	106	106	108	104	100	94	94	92	92	104	104	102	100	100	102	102	102	
10	98	96	100	90	94	134	G	104	100	106	106	104	102	98	96	92	98	104	104	104	104	104	104	102	100
11	100	100	100	B	94	152	102	120	120	102	108	G	106	102	102	G	122	120	104	104	104	98	98	98	
12	98	98	88	90	90	148	128	124	118	106	106	106	104	102	104	104	104	102	120	106	100	96	96	96	
13	96	94	92	90	92	128	124	108	108	104	100	100	100	100	98	98	98	98	98	96	96	94	102	102	
14	96	96	96	88	B	122	108	102	102	104	104	100	98	98	96	116	104	104	104	100	96	94	102	96	
15	96	94	94	94	94	130	104	104	104	104	104	102	98	98	92	94	94	100	100	100	104	100	104	104	
16	94	92	92	92	92	92	124	114	102	100	98	98	96	104	112	108	G	122	106	106	96	104	88	98	
17	98	98	98	94	92	118	118	104	104	100	100	94	96	98	98	98	94	94	94	94	94	90	102	102	
18	102	B	120	92	92	100	114	108	106	102	102	104	96	100	92	98	96	94	88	88	92	90	108	104	
19	94	98	100	100	104	118	118	106	102	102	100	94	102	102	96	114	102	116	102	102	114	112	108	106	
20	102	96	94	92	94	98	106	104	96	96	98	106	106	106	104	100	102	102	102	112	102	100	108	102	
21	92	98	102	102	102	120	128	102	102	104	102	100	104	98	96	92	94	122	98	94	94	92	92	98	
22	102	102	102	102	100	100	100	100	104	120	104	104	110	110	108	104	100	104	102	98	98	90	104	104	
23	104	104	104	104	98	98	100	100	104	104	104	102	102	106	106	120	116	106	102	104	100	100	100	98	
24	98	98	98	96	94	98	108	100	100	100	92	94	98	100	126	114	110	104	104	104	104	104	104	102	102
25	94	94	96	98	148	122	118	106	102	96	96	94	94	94	98	128	118	108	100	100	94	100	104	104	
26	104	100	100	100	100	100	120	106	106	106	102	100	100	98	134	122	108	104	106	106	108	110	110	100	
27	100	100	100	96	96	114	116	104	106	106	100	100	100	100	100	102	102	98	98	92	106	106	106	106	
28	106	102	102	92	100	120	104	104	98	98	100	104	102	102	G	154	120	106	104	102	108	108	100	100	
29	94	94	94	96	98	126	112	116	100	98	98	98	96	94	94	120	114	118	102	104	100	100	98	98	
30	98	92	86	88	90	122	118	104	104	102	98	98	98	100	96	98	96	110	106	106	98	98	94	98	
31																									
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	30	29	30	29	28	30	28	30	30	30	30	29	30	30	29	29	29	29	30	29	30	30	30	30	
MED	98	98	100	96	94	118	117	104	104	104	102	100	100	100	100	102	102	104	102	102	100	100	102	102	
U Q	102	100	100	98	100	126	121	108	106	106	104	104	104	102	105	115	109	108	104	104	104	104	104	104	
L Q	96	95	94	92	93	100	105	104	102	100	100	98	98	98	96	98	98	101	100	96	94	94	98	98	

JUN. 2014 h'Es (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Kokubunji

JUN. 2014 TYPES OF Es 135°E MEAN TIME (G.M.T. + 9 H)

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

H D	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	F5	F4	F2	F2	F2	H2	C2	L2	L2	L2	L3	L2	L2	L2	L2	L2	L3	L3	L4	F4	F4	F4	F5	F3
2	F4	F3	F2	F2	F2	C2	C1	C2	L3	L2	L2	L2	L2	L2	L2	L2	L1		C2	F3	F4	F2	F2	F1
3	F3	F2	F1	F2		L1	L2	L2	L2	L2	L2	L2	L2	L2	C2	C2	C2	L2	L3	F3	F4	F4	F3	F4
4	F4	F5	F3	F1	F1	CL11		C1	C1	L2	L3	L2	L2	L2	L3	L2	L2	L2	L2	F3	F3	F3	F2	F3
5	F3	F4	F4	F4	F4	L3	L2	L2	L3	L3	L2	L2	L2	L2	L2	L2	L2	L3	L2		F3	F3	F3	F23
6	F2	F2	F2	F3	F3	L2	L2	L3	L3	L2	L2	C1	L2	L2	L2	L2	L1	L2	L2	F2	F4	F4	F2	F3
7	F4	F3	F3	F5	F4	L2	C1	C1	C1	L2	L2	L2	L2	L2	L2	L2	L2	L2	L2	F3	F4	F3	F3	F3
8	F2	F2	F2	F3	F3	L2	CL12	L2	L2	L3	L2	L2	L2	L1	L2	L2	L2	L1	L3	F4	F4	F4	F4	F2
9	F3	F2	F5	F4	F3	C1	C1	L2	L2	L2	L2	L2	L2	L2	L3	L2	L3	L3	L3	F4	F23	F22	F3	F2
10	F5	F2	F1	F3	F2	H1		L3	L2	L2	L3	L2	L2	L2	L2	L2	L2	L2	L2	F4	F4	F3	F2	F3
11	F2	F2	F1		F1	H1	L2	C2	C2	L2	L1		L2	L2	L2		C1	C2	L2	F4	F4	F4	F2	F4
12	F1	F2	F2	F3	F2	H1	C1	C1	C2	L2	L1	L2	L2	L1	L2	L2	L2	L2	CL11	F2	F3	F3	F3	F2
13	F4	F3	F2	F1	F1	C1	C1	L2	L2	L1	L2	L2	L2	L2	L3	L2	L2	L2	L2	F3	F4	F1	F4	F5
14	F4	F3	F3	F2		C2	L2	L3	L2	L2	L1	L2	L2	L2	L2	C2	L3	L4	L4	F4	F4	F3	F5	F4
15	F3	F3	F2	F2	F2	C2	L3	L3	L3	L2	L2	L2	L2	L2	L2	L2	L3	L3	L2	F3	F3	F3	F6	F3
16	F4	F4	F3	F3	F3	L2	C1	C3	L3	L2	L2	L2	L2	L2	C1	L2		C1	L2	F2	F3	F3	F4	F3
17	F3	F4	F3	F4	F3	C2	C3	L3	L3	L3	L2	L2	L2	L2	L2	L3	L3	L3	L5	F5	F4	F4	F3	F3
18	F2		F1	F3	F4	L3	C2	L2	L3	L2	L2	L2	L3	L2	L2	L2	L2	LC32	L2	F3	F3	F3	F3	F4
19	F3	F3	F3	F2	F2	C3	C3	L3	L3	L3	L3	L3	L2	L2	L3	CL23	L2	CL22	L2	FF22	FF23	F4	F6	F5
20	F6	F5	F5	F4	F3	L2	L3	L3	L3	L2	L3	L2	L2	L2	L2	L2	L2	L3	L2	F2	F2	F4	F5	F4
21	F3	F4	F4	F4	F3	C2	C2	L3	L3	L3	L2	L2	L2	L2	L2	L2	L2	CL22	L2	F2	F4	F4	F3	FF24
22	F2	F3	F5	F6	F5	L3	L3	L2	L2	L1	L2	L2	L2	L1	L2	L2	L3	L3	L3	F5	F4	F3	F5	F3
23	F6	F3	F3	F1	F5	L2	L4	L2	L2	L3	L2	L2	L2	L2	L2	C2	C2	L2	L1	F3	F3	F5	F7	F6
24	F6	F3	F4	F4	F3	L3	L2	L3	L3	L2	L2	L2	L2	L2	L1	C2	C3	L3	L4	F4	F5	F3	F5	F5
25	F5	F3	F5	F5	F1	C2	C3	L2	L2	L3	L3	L3	L2	L2	L2	CL22	CL22	CL42	L4	F3	F3	F3	F3	F4
26	F8	F7	F6	F6	F3	L3	CL22	L2	L3	L3	L3	L2	L2	L2	CL12	CL22	L2	L4	L4	F3	F4	F4	F1	F3
27	F2	F4	F2	F2	F2	C3	C3	L3	L2	L2	L2	L2	L2	L2	L3	L2	L3	L3	L3	F2	F7	F6	F3	F6
28	F4	F2	F2	F4	F1	C2	L2	L3	L3	L2	L3	L2	L2	L2		H1	C1	L3	L4	F4	FF22	F3	F6	F4
29	F3	F3	F5	F2	F3	C2	C2	L1	L2	L3	L3	L3	L3	L3	L2	C2	C2	C2	L3	F3	F3	F5	F3	F4
30	F3	F4	F3	F3	F1	C1	C1	L2	L2	L3	L3	L3	L2	L2	L2	L2	L2	C1	L2	F3	F4	F2	F3	F2
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT																								
MED																								
U Q																								
L Q																								

IONOSPHERIC DATA STATION Yamagawa

JUN. 2014 f_{XI} (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

H D	00	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 85	X 74	X 74	X 74	X 78	X 69															X 87	X 84	X 84	X 80		
2	X 76	X 72	X 69	X 67	X 64																	103	X 77	X 79	X 80	
3	X 80	X 76	X 74	X 73	X 68																	X 97	X 95	X 88	X 91	
4	X 85	X 82	X 80	X 81	X 70																	X 95	X 92	X 88	X 87	
5	X 83	X 88	X 83	X 83	X 79																	X 98	X 89	X 84	X 86	
6	X 84	X 89	X 101	X 87	X 74																	X 95	X 97	X 100	X 108	
7	X 90	X 103	X 95	X 88	X 84																	X 91	X 89	X 96	X 95	
8	X 97	X 89	X 84	X 84	X 80																	X 74	X 80	X 79	X 80	
9	X 80	X 82	X 76	X 72	X 64																	X 85	X 78	X 86	X 86	
10	X 83	X 88	X 78	X 68	X 67	X 67																X 88	X 87	X 95	X 91	
11	X 86	X 94	X 90	X 80	X 65																	X 80	X 72	X 76	X 82	
12	X 94	X 83	X 82	X 80	X 75																	X 96	X 86	X 88	X 86	
13	X 95	X 90	X 80	X 76	X 69																	X 98	X 89	X 91	X 90	
14	X 90	X 93	X 104	X 91	X 77																	X 99	X 90	X 87	X A	
15	X 84	X 90	X 83	X 89	X 76																	X 91	X 87	X 88	X 85	
16	X 98	X A	X 67	X 65	X 64	X 67																X 99	X 102	X 91	X 88	
17	X 76	X A	X 77	X 66	X A	X 76																0	X 102	X 94	X 84	X 86
18	X 84	X 89	X 85	X 79	X 75																	X 89	X 80	X 70	X 70	
19	X 76	X 75	X 70	X 64	X 63																	X 91	X 85	X 76	X A	
20	X A	X A	X A	X A	X 65																	X 95	X 90	X 84	X 86	
21	X 87	X 95	X 89	X 70	X 71																	X 82	X 83	X 80	X 76	
22	X 76	X 75	X 85	X 80	X 66																	X 82	X 79	X 83	X 83	
23	X 77	X 72	X 72	X 70	X 58																	X 85	X 82	X 75	X 78	
24	X 72	X 73	X 77	X 72	X 66																	X A	X A	X 80	X 80	
25	X 79	X 80	X 80	X A	X 66																	X 94	X 81	X 78	X 81	
26	X 79	X 75	X 72	X 74	X A																	X 88	X 85	X 84	X 81	
27	X 83	X 83	X 72	X 66	X 66																	X 86	X 82	X 80	X A	
28	X 70	X 73	X 75	X 70	X 68																	X 98	X 84	X 76	X 78	
29	X 79	X 79	X 77	X 81	X 71																	X 84	X 82	X 77	X 80	
30	X 81	X 76	X 77	X 72	X 63																	X 86	X 78	X 79	X 81	
31																										
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23		
CNT	29	27	29	28	28	4															29	29	30	27		
MED	X 83	X 82	X 78	X 74	X 68	X 68															X 91	X 85	X 84	X 83		
U Q	X 86	X 89	X 84	X 81	X 75	X 72															X 98	X 90	X 88	X 87		
L Q	X 78	X 75	X 74	X 70	X 65	X 67															X 86	X 80	X 79	X 80		

JUN. 2014 f_{XI} (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

JUN. 2014 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

H D	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	F	F	F	F	F	F				A		A													
2	76	66	66	64	71	62	75	86	88		68		72	83	92	95	94	84	78	78	81	78	78	74	
3	70	66	63	61	58	66	73	82	86	75	76	67		82	89	94	97	98	104	102	97	71	73	74	
4	74	70	68	67	62	60	66	71	77	82	78	66	69	77	90	105	108	94	84	86	91	89	82	85	
5	79	F	F	F	F			V		A															
6	79	79	77	77	71	72	79	81	77	73	72	76	92	92	94	103	103	107	100	100	92	83	78	80	
7	U	R	U	R	V	V				A		A													
8	78	83	95	81	68	65	76	101	84			74	82	87	94	104	102	94	91	92	89	91	94	102	
9	R		97	89	82	78	76	74	77	84	83	83	90	82	81	82	91	94	94	A	90	85	83	90	89
10	91	83	78	78	74	70	77	82	81	79	81	83	95		90	88		A	A	A	97	68	74	73	72
11	F	F																					J	F	F
12	73	75	70	66	58	58	65	76	73	77	94	87	75	74	84	91	94	102	105	93	79	72	77	77	
13	F	F	F	F	F	F			A	A															
14	76	82	72	62	60	60	71	94				68	79	91	102		100	99	96	89	82	81	89	85	
15	80	88	84	74	59	60	77	80	92		80										74	65	68	74	
16	F		F	F		F				A		A													
17		76	75	74	66	65	69	82	77	77	66	72	81	90	91	94	101	109	106	93	90	80	82	79	
18	89	84	74	70	63	63	71	80	75	78	80	81	86	92	94	99	101	100	98	101	92	83	85	84	
19	F	F	F	F																					
20	83	97	85	71	70	72	86	90	77	76	84	90	95	100	100	U	R		R	101	93	84	81	A	
21	F	F	F	F		V			A																
22	77	83	77	82	70	63	76	74	80		86	86		A	A		99	103	104	95	92	84	81	82	79
23	92		58	57	57	60	64	71	70	72	70		81	92	96	99	92	90	92	94	93	96	85	82	
24	70		71	59	F	F			A	A															
25	F	F	F	F		F																			
26	77	83	78	72	69	69	72	90	89	78	86	88	86	89	100	88	72	62	60	70	83	74	64	62	
27	70	F	F	F																					
28	A	A	A	A	58	60	61	66	66	70	76	76	76	77	80	86	93	89	88	84	89	84	78	80	
29	81	86	82	62	62	65	69	69		A	A		74												
30	R				F																				
31	70	68	79	74	59	55	60	64		A															
00	70	66	67	63	52	46	49	66	72	66	67	67	76	82	80	82	82								
01	66	67	71	64	60	58	56	65	72	64	60	60	68	73	75	78	84	84	86	89					
02	73	74	74		60	61	71	85	85																
03					A	A																			
04	73	69	67	68			66	82	84	80	73	79	84	86	88	92	93	90	83	81	82	79	78	74	
05	F	F			F				A	A															
06	75	75	68	58	59	60	60	70			66		72	79	83	82	82	71		A	A				
07	F	F	F	F		F																			
08	63	65	69	64	60	58	64	75	74		66	71	77	76	82	82	79	85	89	92	92	78	70	72	
09	F	F	V																						
10	72	73	71	76	65	66	70	70	65	58	64	70	67	75	83	83	79	70	66						
11	F	F	F																						
12	73	69	71	66	57	51	60	77	83	72		69													
13																									
14																									
15																									
16																									
17																									
18																									
19																									
20																									
21																									
22																									
23																									
CNT	27	26	29	28	28	29	30	30	25	18	24	24	23	27	28	29	29	28	23	26	29	29	30	27	
MED	75	75	72	68	61	62	70	78	77	76	72	74	80	82	88	91	94	90	90	91	85	79	78	77	
U Q	79	83	78	75	68	66	74	82	84	78	80	82	84	89	94	99	100	98	98	94	92	84	82	81	
L Q	70	68	68	62	58	60	64	70	72	70	66	68	75	77	82	86	84	84	84	83	80	74	73	74	

JUN. 2014 foF2 (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

JUN. 2014 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

H D	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1							L	A	A	A	A	A	A	A	A	A	A	A	A						
2							L	L	U	L	L	A	L	A		A		A	A	A					
3							L	U	L	L	L	A	L	A	A	R	A	A	A	A					
4							260	436	468	496	548				488		A	A	A	A					
5							L	L	A	A	A	A	A	A	A	A	A	L	476	440					
6							L	A	A	A	A	A	A	A	A	A	R	A	U	L	A				
7							L	U	L	U	L	L	A	A	A	A	A		A	A	A				
8							A	A	A	A	552		A	A	A		A	A	A	A	A	L			
9					A	A	L	L	U	L	L	536	508	476	560		A	516	492	460					
10							L	L	A	A	A	A	A	A	A		A	A	A	A	L				
11							L	A	A	A	A	A	U	R	548	524	504	492		A	A	A			
12							L	A	L	L	516		A	A	A	A	R	528	504	472	U	L	A		
13							L	L	L	L	A	A	A	A	A		516	A	L	A	A	L			
14							L	A	A	A	A	A	A	A	A	A	A	A	A	A	L				
15							A	A	A	A	A	A	A	A	A	A	A	A	L	L					
16							L	A	A	R	A	A	A	A	A	A	A	U	L	L					
17							A	A	A	A	A	A	A	A	A	A	496	480	488	A	A	A			
18							L	A	A	A	R	A	A	R	R	496	492	488		A	A	A			
19							U	L	U	L	A	A	A	A	A	R	508	496	472	U	L	A			
20							L	L	A	A	A	A	A	A	A	A	484	472	L	A	L				
21								A	A	A	A	A	A	A	A	A	A	A	A	A	A				
22								A	A	A	500		A	A	A	A	A	A	A	A	A				
23								A	L	484	480		A	A	480	496	484		A	A	A	A			
24							U	L	L	L	L	U	R		A	U	A	A	A	A	A				
25							A	A	A	A	A	A	A	A	U	R	A	A	A	A	A				
26					A		A	A	A	A	A	508	508	496	496	472	460	460	424	U	L				
27							A	A	A	A	A	A	A	A	A	A	472	444		A	A	A			
28							L	L	A	A	504	524	512		A	A	A	A	452		A	A			
29							L	U	L	A	A	A	A			A	A	A	A	A					
30							L	L	U	L	A	A	A	A	A	A	520	492	464	448	U	L			
31																									
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT							1	5	6	8	9	5	6	9	11	16	15	10	4						
MED							260	432	468	502	508	508	516	504	500	494	480	462	430						
U Q							U	L	U	L	L	U	L	L	U	L	U	L	L	U	L	L			
L Q							U	L	L	L	U	L	L	L	U	L	L	L	L	U	L	L			
							422	440	490	502	492	508	492	492	484	472	452	404							

JUN. 2014 foF1 (0.01MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

JUN. 2014 foE (0.01MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

H D	00	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	U	A	A	U	A	A	A	A	A	A	A	A	A	B	B			
2						B	204	276	316	340	A	A	A	A	A	A	A	A	A	A	A			
3						A	A	280	324	328	368	404	A	A	388	376	340	292	248	A	A			
4						A	212	292	320	348	376	380	A	364	A	A	A	A	A	A	A			
5						A	220	292	A	A	A	A	U	R	R	R	U	A	U	A	A	A		
6						A	228	292	336	364	376	384	A	A	316	360	U	A	U	A	A	A		
7						A	A	284	336	360	380	396	392	396	384	356	320	A	A	A	A	A		
8						A	204	284	328	356	368	392	392	404	372	364	A	A	A	A	A	A		
9						A	A	U	A	U	A	A	A	A	A	A				A	B			
10						A	U	A	A	A	U	U	U	U	A	A	U	U	U	A	A	A	B	
11						A	A	A	A	U	R	R	A	U	A	A	B			A				
12						A	252	308	348	372	400	404	R	B	U	A	B	A	A	A	A	A		
13						B	A	U	A	R	A	R	R	A	A	A	A	A	A	A	A	A		
14						A	240	300	U	A	U	A	A	A	A	A	A	A	A	A	A	A		
15						A	A	A	U	A	R	U	U	R	A	A	A	U	U	U	A	A	A	
16						A	224	284	324	372	368	A	A	A	A	A	A	A	328	256	B			
17						A	U	A	A	A	A	A	A	A	A	A	A	A	U	U	U	A	A	
18						B	U	A	A	U	U	A	A	A	B	A	A	A	A	A	A	A		
19						A	208	264	308	340	356	372	376	376	372	B	344	312	252	176	U	U	A	
20						A	A	A	A	R	R	R	U	R	A	U	A	A	A	U	U	U	A	
21						A	208	284	308	344	A	A	A	A	A	A	A	A	A	A	A	A		
22						A	A	280	348	A	A	A	R	U	A	A	360	328	296	240	A			
23						A	212	268	300	320	296	A	A	U	A	A	R			A	A			
24						B	U	A	A	U	A	A	A	A	408	A	A	328	296	244	A			
25						B	224	272	312	344	A	A	A	A	A	A	360	A	A	A	A			
26						A	A	A	U	A	U	U	U	A	A	A	A	A	300	260	188	U	U	A
27						A	U	A	A	A	U	A	A	A	A	A	R	352	344	300	264	U	U	A
28						B	216	284	A	A	A	A	A	A	A	A	A	352	308	260	164	A		
29						B	224	284	332	344	376	380	A	U	A	B	380	364	320	260	A			
30						B	208	272	320	A	A	A	A	A	A	A	A	A	A	A	A	A		
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT							24	28	27	23	19	15	8	11	9	12	17	18	14	4				
MED							A	A	A	A	A	R	U	A						U	U	A		
U Q							224	292	336	364	380	396	392	408	382	378	358	316	264	182				
L Q							A	A	A	U	A	A	A	R						A				
							208	276	316	340	360	372	376	376	352	354	328	296	244	160				

JUN. 2014 foE (0.01MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

JUN. 2014 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

H D	00	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 66	A 44	J 31	J 26	J 37	J 26	J 38	J 60	J 80	J 100	J 78	J 80	J 73	J 80	J 55	J 78	J 72	J 86	J 52	J 76	J 46	J 50	J 75	J 38	
2	J 32	A 51	J 27	J 16	J 20	E 16	B 25	J 32	J 38	J 52	J 70	J 59	J 81	J 43	J 55	J 40	J 67	J 52	J 58	J 35	J 26	J 30	J 45	J 41	
3	J 50	A 48	E 16	B 16	J 23	J 22	J 22	J 33	J 34	J 35	J 59	J 45	J 72	J 55	J 45	J 62	J 63	J 63	J 65	J 40	J 82	J 71	J 78	J 84	
4	J 62	A 71	J 36	J 42	J 38	J 29	J 25	J 39	J 63	J 73	J 59	J 56	J 88	J 58	J 68	J 98	J 67	J 64	J 71	J 97	J 44	J 39	J 34	J 26	
5	J 49	A 44	J 66	J 31	J 26	J 28	J 26	J 34	J 45	J 48	J 48	J 112	J 142	J 68	J 59	J 78	J 73	J 99	J 97	J 102	J 104	J 53	J 44	J 40	
6	J 31	A 24	J 25	J 49	J 46	J 42	J 28	J 49	J 62	J 80	J 86	J 79	J 46	J 52	J 50	J 40	J 71	J 43	J 44	J 28	J 30	J 26	J 46	J 73	
7	J 36	A 32	J 38	J 33	J 44	J 52	J 32	J 38	J 37	J 46	J 54	J 75	J 55	J 68	J 68	J 72	J 56	J 124	J 122	J 60	J 40	J 77	J 64	J 88	
8	J 51	E 16	B 20	J 17	J 26	J 26	J 28	J 60	J 82	J 95	J 44	J 55	J 80	J 138	J 152	J 192	J 93	J 116	J 129	J 27	J 25	J 34	J 49	J 52	
9	J 39	A 62	J 57	J 40	J 31	J 51	J 73	J 48	J 60	J 55	J 42	J 41	J 51	J 76	J 53	J 50	J 41	J 46	J 76	J 108	J 94	J 62	J 57	J 57	
10	J 56	A 70	J 18	J 30	J 40	J 48	J 28	J 35	J 76	J 114	J 101	J 145	J 85	J 72	J 48	J 90	J 56	J 53	J 48	J 67	J 53	J 30	J 75	J 40	
11	J 108	A 85	J 86	J 30	J 26	J 27	J 39	J 44	J 66	J 82	J 70	J 74	J 100	J 90	J 55	J 40	J 41	J 77	J 91	J 86	J 58	J 64	J 78	J 95	
12	J 20	J 79	J 52	J 55	J 42	J 23	J 34	J 48	J 49	J 48	J 61	J 63	J 53	J 53	J 62	J 49	J 51	J 33	J 34	J 99	J 78	J 32	J 52	J 48	
13	J 29	A 60	J 42	J 33	J 19	J 16	J 26	J 35	J 40	J 48	J 59	J 77	J 68	J 88	J 55	J 58	J 66	J 44	J 48	J 30	J 40	J 34	J 25	J 59	
14	J 50	A 52	J 18	J 21	J 24	J 23	J 26	J 38	J 53	J 74	J 144	J 114	J 74	J 129	J 81	J 76	J 54	J 88	J 140	J 27	J 72	J 53	J 102	J 87	
15	J 109	A 65	J 34	J 50	J 57	J 40	J 32	J 63	J 96	J 104	J 94	J 86	J 143	J 138	J 128	J 100	J 78	J 55	J 31	J 41	J 74	J 115	J 63	J 88	
16	J 108	A 122	J 44	J 64	J 38	J 26	J 28	J 40	J 51	J 56	J 66	J 115	J 76	J 57	J 62	J 56	J 41	J 34	J 44	J 36	J 21	J 40	J 43	J 74	
17	J 107	A 86	J 71	J 65	J 84	J 60	J 61	J 55	J 110	J 192	J 136	J 98	J 82	J 86	J 102	J 40	J 32	J 51	J 51	J 40	J 29	J 37	J 59	J 57	
18	J 84	A 40	J 34	J 43	J 20	J 24	J 27	J 66	J 71	J 75	J 53	J 69	J 53	J 49	J 42	J 49	J 56	J 52	J 66	J 40	J 51	J 78	J 73	J 78	
19	J 86	A 76	J 50	J 35	J 41	J 34	J 47	J 37	J 38	J 56	J 64	J 84	J 69	J 89	J 41	E 38	J 43	J 45	J 52	J 38	J 24	J 76	J 76	J 107	
20	J 86	A 110	J 115	J 84	J 90	J 79	J 63	J 35	J 48	J 56	J 66	J 58	J 57	J 96	J 59	J 52	J 71	J 87	J 27	J 46	J 25	J 89	J 54	J 104	
21	J 71	A 30	J 18	J 37	J 40	J 34	J 27	J 42	J 105	J 184	J 184	J 86	J 104	J 51	J 61	J 70	J 53	J 60	J 71	J 51	J 33	J 43	J 32	J 18	
22	J 97	A 79	J 48	J 76	J 61	J 83	J 33	J 50	J 88	J 84	J 47	J 63	J 118	J 86	J 138	J 95	J 71	J 66	J 117	J 46	J 42	J 79	J 47	J 73	
23	J 28	A 37	J 50	J 44	J 36	J 41	J 30	J 57	J 43	J 40	J 41	J 55	J 72	J 47	J 50	J 56	J 110	J 83	J 154	J 67	J 39	J 30	J 21	J 21	
24	J 45	A 73	J 19	J 30	J 26	J 44	J 32	J 34	J 54	J 47	J 58	J 51	J 43	J 46	J 82	J 53	J 50	J 76	J 60	J 66	J 156	J 120	J 107	J 98	
25	J 96	A 107	J 78	J 86	J 78	J 45	J 59	J 52	J 75	J 155	J 163	J 160	J 145	J 75	J 42	J 63	J 46	J 57	J 60	J 46	J 72	J 113	J 120	J 60	
26	J 48	A 34	J 72	J 107	J 108	J 124	J 45	J 65	J 65	J 67	J 54	J 45	J 58	J 56	J 61	J 41	J 40	J 33	J 33	J 37	J 30	J 50	J 37	J 116	
27	J 72	A 58	J 58	J 52	J 40	J 32	J 30	J 71	J 82	J 156	J 67	J 145	J 88	J 65	J 63	J 39	J 44	J 54	J 98	J 110	J 88	J 89	J 86	J 108	
28	J 84	A 44	J 30	J 25	J 20	J 18	J 26	J 34	J 57	J 73	J 64	J 75	J 60	J 80	J 76	J 59	J 59	J 37	J 46	J 42	J 38	J 20	J 19	J 31	
29	J 27	A 43	J 41	J 29	J 20	J 19	J 26	J 42	J 49	J 54	J 61	J 65	J 82	J 46	J 48	J 52	J 53	J 66	J 53	J 70	J 39	J 50	J 38	J 42	
30	J 61	A 47	J 77	J 78	J 28	J 24	J 27	J 38	J 41	J 69	J 83	J 74	J 61	J 70	J 108	J 50	J 44	J 35	J 39	J 54	J 47	J 26	J 20	J 18	
31																									
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	
MED	J 58	A 55	J 42	J 38	J 38	J 30	J 29	J 42	J 58	J 71	J 64	J 74	J 74	J 69	J 60	J 54	J 56	J 56	J 56	J 46	J 45	J 50	J 53	J 60	
UQ	J 86	A 76	J 58	J 55	J 44	J 45	J 38	J 55	J 76	J 95	J 83	J 86	J 88	J 86	J 76	J 76	J 67	J 77	J 83	J 76	J 72	J 78	J 75	J 88	
LQ	J 39	A 43	J 27	J 30	J 26	J 24	J 26	J 35	J 45	J 52	J 54	J 58	J 58	J 53	J 50	J 49	J 44	J 44	J 46	J 38	J 30	J 34	J 38	J 40	

JUN. 2014 foEs (0.1MHz)

IONOSPHERIC DATA STATION Yamagawa

JUN. 2014 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

H D	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	43	21	E B 16	19	24	19	29	47	49	A A 100	59	A A 80	68	58	54	77	62	82	43	31	27	35	43	24	
2	26	20	20	16	E B E B 16 16	24	31	35	46	53	52	A A 81	41	54	38	53	50	55	31	19	19	30	28		
3	31	18	E B E B 16 16	E B E B 16 16	E B E B 16 16	21	32	U Y U Y 34 35	49	44	65	54	44	50	61	61	62	39	74	55	64	53			
4	28	52	26	19	22	21	24	34	52	A A 73	53	54	A A 88	52	58	64	44	29	40	36	24	20	E B 16		
5	18	18	34	21	23	23	24	33	39	41	44	68	65	64	46	46	38	51	43	67	40	22	33	33	
6	25	20	E B E B 16 16	E B E B 16 16	30	26	26	42	58	A A A A 80 86	54	44	51	50	39	51	35	31	22	25	21	30	17		
7	17	19	18	19	32	33	26	34	37	44	49	71	53	66	66	57	44	A A 56	A A 122	55	37	49	49	19	
8	E B 16	E B 16	E B 16	E B 16	20	E B 16	26	58	62	64	43	55	74	A A 138	45	57	A A A A 93	A A A A 116	A A A A 129	18	E B 23	16	40	32	
9	21	24	24	25	23	40	53	43	48	48	41	U Y 41	49	66	52	49	G	39	43	37	52	43	44	44	
10	20	E B 16	E B 16	22	33	32	26	33	A A A A 76	A A A A 114	101	62	63	58	46	A A 90	51	51	44	63	51	26	44	28	
11	20	27	25	26	24	24	36	36	58	A A 82	66	74	100	46	48	E B 40	38	60	61	86	50	17	44	54	
12	E B 16	32	34	28	21	18	31	44	44	42	52	61	53	53	60	48	45	33	34	63	33	20	18	23	
13	E B 16	32	16	21	E B E B 16 16	26	34	40	47	55	73	65	82	54	46	48	42	45	26	24	20	17	28		
14	21	37	E B E B 16 16	E B E B 16 16	17	25	31	51	62	62	73	55	57	55	55	53	73	58	26	56	37	34	A A 87		
15	57	46	24	18	E B 16	28	24	60	64	A A 104	53	76	143	138	128	66	73	42	G 28	30	34	29	42	30	
16	A A 35	A A 122	E B 16	37	27	20	27	39	48	54	49	A A 115	72	56	61	56	37	G 34	39	34	E B 16	19	33	35	
17	A A 24	A A 86	20	44	A A 84	26	48	47	A A A A 110	A A A A 192	136	98	81	78	75	40	U Y 32	37	42	35	22	30	35	28	
18	43	36	18	26	E B 16	19	26	61	65	61	47	62	51	43	40	40	52	50	47	35	33	21	34	42	
19	58	55	43	22	26	21	34	30	36	54	60	57	64	A A 89	41	E B 38	39	41	48	36	23	23	57	A A 107	
20	A A 86	A A 110	A A 115	A A 84	36	45	38	31	43	53	55	56	54	56	56	42	46	86	26	35	19	35	26	26	
21	E B 19	E B 16	E B 16	E B 16	26	20	25	36	A A A A 105	A A A A 184	184	70	A A 104	46	61	55	49	56	56	32	22	27	28	E B 16	
22	18	17	18	19	32	47	23	42	A A A A 88	A A A A 84	39	62	118	50	138	73	64	57	A A 117	44	33	37	35	30	
23	E B 16	23	24	22	19	20	30	53	38	37	41	53	64	40	G	42	54	A A 110	74	A A 154	54	28	27	E B 16	
24	17	34	E B 16	E B 17	E B 16	22	31	32	35	39	43	47	41	45	65	48	48	72	58	65	A A A A 156	A A A A 120	50	30	
25	64	63	56	86	28	29	52	48	53	A A A A 155	A A A A 163	A A A A 160	A A A A 145	66	42	61	45	50	59	44	72	25	60	E B 16	
26	21	16	43	37	A A A A 108	A A A A 124	39	60	61	63	51	44	42	43	50	40	37	32	32	34	26	22	21	23	
27	45	36	30	35	25	17	29	47	A A A A 82	A A A A 156	61	A A 145	65	62	62	38	41	46	A A A A 98	A A A A 110	31	52	30	A A 108	
28	54	24	20	E B E B 16 16	E B E B 16 16	17	24	30	45	A A 73	47	48	51	64	71	56	54	35	44	41	32	20	16	26	
29	19	28	23	16	E B E B 16 16	E B E B 16 16	25	36	45	52	60	62	53	46	45	51	44	62	52	42	37	28	34	38	
30	53	23	32	34	19	20	24	31	40	60	A A 83	62	56	64	82	44	39	30	37	45	28	20	19	E B 16	
31																									
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	
MED	22	26	20	21	23	20	26	36	48	62	53	62	64	56	54	48	47	50	46	36	32	26	34	28	
U Q	43	37	30	28	28	28	31	47	A A A A 62	A A A A 84	A A A A 62	A A A A 73	81	66	62	57	53	61	59	55	50	35	44	38	
L Q	18	19	E B E B 16 16	E B E B 16 16	E B E B 16 16	E B E B 17	24	32	40	47	47	54	53	46	46	40	39	37	40	32	24	20	27	E B 23	

JUN. 2014 fbEs (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

JUN. 2014 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

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

JUN. 2014 fmin (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

JUN. 2014 M(3000)F2 (0.01) 135°E MEAN TIME (G.M.T. + 9 H)

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

D	H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23								
1	F	294	F	F	F	F	F	F	F		A	328		A	266	285	294	313	302		A	302	301	308	304	F	293	302					
2		288	292	294	F	V	317	319	318	319	306	319	263		A	279	276	288	289	302	R	295	321	R	320	296	281	288					
3		292	298	296	F	F	320	323	320	328	312	311	350	286	259	256	274	300	320	316	298	277	310	318	297	300							
4		307	F	F	F	F	305	326	345	V	364		A	293	292		A	277	274	274	287	299	308	317	305	291	286	301					
5	F	297	280	294	306	291	308	314	323	337	306	281	287	R	283	R	U	R	R		R	311	300	303	302	309	289	281	283				
6	R	U	R	V	V	294	288	299	329	336		A	A	289	266	272	290	294	305	307	297	285	294	283	293	287							
7	R		304	316	307	311	333	315	316	314	321	303	305	302	277	279	291	R	290	300		A	308	296	280	274	296						
8		305	297	321	306	294	320	315	311	314	315	289	279	301		A	282	256			A	A	A	331	282	264	271	267					
9	F	281	F	F	F	295	283	266	288	321	334	311	315	352	295	275	294	290	294	298	310	R	320	301	273		F	279					
10	F	285	316	307	290	281	F	F	309	351		A	A	A	A			270	292	293		A	295	294	317	300	284	285	272	274			
11		286	309	314	311	286	289	322	308	328		A	340		A	A		275	263	296	291	297	268		A	315	295	262	288				
12	F		294	277	F	F	F	F	301	331	323	316	298	258	259	279	270	268	276	294	R	309	307	299	286	278	268		F				
13		282	293	309	306	297	311	333	337	343	301	295	248	269	272	270	280	286	293	295	298	322	272	282	288			F					
14	F	299	F	F	F	322	321	306	300	305	314	316	280	261	257	277	268	277	289	U	R		R	304	303	293	284		V	A			
15	F	297	289	293	F	F	318	297	289	292	344	308		A	286	283		A	A	A		287	290	294	R	301	302	281	287	280	297		
16		330		294	272	295	F	F	341	332	314	316	297		A	256	274	286	296	286	280	282	287	292	293	290	296		F				
17	F	291		337	293	A	F	F	296	322	343		A	A	A	A		269	277	296	R	306	311	291	293	317	337	290	285				
18	F	289	272	318	F	F	300	290	295	279	305	321	245	262	275	265	276	310	318	317	311	284	278	312	321	285	277		F				
19		282	297	282	F	F	285	292	329	350	325	322	333	300	317	317		A	277	287	304	297	308	289	293	308	287		V	A			
20	A	A	A	A	A	284	314	327	331	318	315	304	303	304	304	283	298	308	281	295	286	306	295	303	279								
21	F	276	F	F	F	F	300	319	335	330		A	A	A	297		A	305	295	307	309	304	298	307	290	288	293	283		F			
22	R	287	279	291	F	F	303	316	307	342	349		A	A	301	314		A	284		319	292	301		319	297	294	281	290		F		
23	F	294	296	312	F	F	341	316	317	313	333	362	328	313	280	301	312	292	296	301					307	319	287	291		F			
24		301	299	331	F	F	331	351	344	350	342	342	341	300	303	279	284	296	286	297	284	298	299		A	A							
25		303	324	340		A	A	309	300	311	317	336		A	A	A		307	293	305	308	296	288	293	R	319	316	300	303		F		
26	F	297	297	318	R	A	A		295	323	329	327	303	275	279	290	286	290	304	296	312	294	307	309	281	282		F	F				
27	F	308	F	F	F	F	F	310	338	342		A	A	311		289	275	297	296	R	316	305		A	A	312	289	296		F	A		
28	F	300	289	287	F	F	294	309	315	328	321	336		A	284	283	293	278	290	294	R	273	280	301	309	322	324	274	288		F		
29	F	285	287	283	F	F	319	331	295	305	321	314	307	277	295	274	286	301	304	320	297	313		R	297	278	292	296		F			
30	F	290	286	308	F	F	296	307	301	320	327	R	333	347	A	283	R	269	280	R	287	292	300	307	291	305	317	287	282	292		F	
31																																	
		00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23								
CNT		26	26	29	28	28	29	30	30	25	18	24	23	22	27	28	29	29	27	24	26	29	29	29	27								
MED		293	297	309	F	304	297	305	318	328	328	315	300	286	278	279	286	294	300	297	298	302	306	293	285	288							
U Q		300	305	318	F	316	310	317	328	337	336	327	312	303	295	290	294	299	308	304	308	308	314	308	293	296							
L Q		286	289	294	F	294	292	294	305	321	315	306	288	275	266	275	277	288	290	294	293	293	295	286	280	282							

JUN. 2014 M(3000)F2 (0.01)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

JUN. 2014 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

H D	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							L	A	A	A	A	A	A	A	A	A	A	A	A					
2							L	L	U	L	L	A	L	A		A		A	A	A				
3							447	384	393	376	L	A	L	A	A	R	A	A	A	A				
4							L	L	A	A	A	A	A	A	A	A	A	L	331	349	A			
5							L	L	U	L	L	A	A	A	A	A	353	339	369	A	A	A		
6							L	A	A	A	A	A	387	A	A	A	R	A	U	L	L			
7							L	U	L	U	L	L	A	A	A	A	A	354	A	A	A	A		
8							A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	L		
9						A	A	L	L	U	L	L	A	A	A	A	A	L	373	349	A			
10							L	L	A	A	A	A	A	A	A	A	A	A	A	A	L			
11							L	A	A	A	A	A	U	R	377	353	370	358	A	A	A			
12							L	A	L	L		A	A	A	A	A	A	333	338	356	U	L	A	
13							L	L	L	L	A	A	A	A	A	A	A	328	A	L	A	L		
14							L	A	A	A	A	A	A	A	A	A	A	A	A	A	A	L		
15							A	A	A	A	A	A	A	A	A	A	A	A	A	L	L			
16							L	A	A	A	R	A	A	A	A	A	A	349	U	L	L			
17							A	A	A	A	A	A	A	A	A	A	368	352	U	L	A			
18							L	A	A	A	A	A	A	R	R	R	A	A	A	A				
19							U	L	U	L	A	A	A	A	A	R	H	370	365	A	A			
20							L	L	A	A	A	A	A	A	A	A	A	A	A	L				
21								A	A	A	A	A	A	A	A	A	A	A	A	A				
22								A	A	A	A	A	A	A	A	A	A	A	A	A				
23								A	L	385	426	A	A	A	415	388	361	A	A	A	A			
24							U	L	L	L	L	U	R	A	A	A	A	A	A	A	A			
25							A	A	A	A	A	A	A	A	U	R	A	A	A	A				
26						A		A	A	A	A	A	387	383	385	A	391	383	364	U	L			
27							A	A	A	A	A	A	A	A	A	A	394	396	A	A	A			
28							L	L	A	A	A	U	R	A	A	A	A	A	354	A	A			
29							L	U	L	A	A	A	A	A	A	A	A	349	A	A				
30							L	L	U	L	A	A	A	A	A	A	346	365	376	U	L	L		
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT							1	5	6	8	9	5	4	8	10	14	13	9	4					
MED							447	384	389	366	348	367	385	386	372	369	358	356	356					
U Q							U	L	L	L	U	L	L	A	R	A	A	A	L	L				
L Q							U	L	U	L	L	A	U	R	A	A	A	L	L					
							370	370	354	332	345	366	378	353	346	349	349	352						

JUN. 2014 M(3000)F1 (0.01)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

JUN. 2014 h'F2 (KM)

135°E MEAN TIME (G.M.T. + 9 H)

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

H D	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23		
1							268	262	236		A	320		A	E A	472	358	320	310	300	E A	438	282			
2							238	250	250	308	306	454		A	358	350	328	316	300	276						
3							230	262	302	284	260	376	E A	482	404	372	302	266	262	304						
4							248	228	230		A	348	362		A	336	370	362	308	308	274					
5								272	254	300	398	E A	384	336	322	330	318	298	298	266	290					
6							276	256	246		A	A	340	384	346	336	312	288	288	280						
7							206	264	288	288	310	314	286	386	346	336	326	296		A	272					
8							194	284	296	294	A	336	360	332		A	352	400		A	A	A	260			
9						374	A	330	270	274	312	292	254	344	412	340	338	316	300	270						
10							274	234		A	A	A	A	400	342	316		A	296	298	284					
11								276	262		A	272		A	A	366	376	328	302	310	294					A
12							262	262	276	288		444	396	350	362	352	340	298	274	282						
13								262	248	332	306	E A	486	384	418		342	318	300	296	266					
14								276	266	332	A	422	440	344	376	336	316	314	392	298	266					
15								260	318		A	310	382		A	A		338	332	288	268					
16								254	268	302	348		A	E A	452	360	330	308	314	290	304					
17							258	228		A	A	A	A	E A	E A	E A	522	448	366	322	302	296	302			
18							336	292	278	410	A	390	352	368	356	304	282	294	324	362						
19								300	250	284	356	298	306		A	380	342	298	280	268						
20								254	294	298	326	304	316	326	326	326	302	E A	420	278						
21									A	A	A	E A	E A	A		316	340	294	302	286	290					
22								250			A	E A	E A	A		318	336	298		A						
23								286	244	292	328	400	336	302	338	312	292		A	318						A
24								264	258	274	320	358	392	348	360	346	306	366	294	308						
25								288	252	258				A	310	326	310	308	310	330						
26						A		274	266	280	300	354	348	324	334	324	294	296	286							
27							222	256		A	E A	E A	A	A	388	376	322	326	298	304		A				A
28							268	258	256		A	388	378	336	382	364	318	366	338	278						
29							284	272	300	E A	E A	E A	E A	444	362	412	372	324	314	294	362	288				
30							282	254	270	270		A	410	392	352	354	322	310	278	304						
31																										
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23		
CNT						1	17	29	25	18	23	23	23	27	27	29	29	28	26	7						
MED						374	268	262	266	294	324	360	U	364	357	340	322	302	298	287	272					
U Q							283	273	283	312	356	400	E A	400	382	362	338	316	317	302	290					
L Q							234	254	250	284	306	344	336	336	326	312	297	293	276	266						

JUN. 2014 h'F2 (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

JUN. 2014 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

H D	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	328	264	258	274	274	254	234	A	A	A	A	A	A	A	A	A	A	A	A	270	252	268	320	242	
2	268	290	278	272	274	248	224	206	202	E A	E A	A	A	200	A	H	A	A	A	248	226	210	282	298	
3	296	274	254	234	224	234	142	204	192	184	A	H	A	A	A	A	A	A	A	280	320	256	334	298	
4	262	310	256	256	242	268	228	222	A	A	A	A	A	A	A	A	A	206	A	236	242	252	270	262	
5	250	280	290	246	246	254	216	212	242	226	226	H	A	A	E A	E A	A	A	A	A	254	252	308	324	
6	300	260	230	218	234	282	238	A	A	A	A	A	208	A	A	A	A	242	244	242	264	272	304	272	
7	254	250	242	238	248	230	A	210	204	258	A	A	A	A	A	A	A	A	A	264	330	340	270		
8	256	240	228	226	256	246	A	A	A	A	190	H	A	A	A	A	A	A	A	220	236	312	328	364	
9	322	274	274	266	280	A	A	E A	E A	A	A	E A	A	A	A	A	A	E A	A	244	280	342	396	348	
10	300	252	224	264	312	318	240	218	A	A	A	A	A	A	A	A	A	A	A	290	298	292	334	314	
11	240	252	252	222	276	276	256	226	A	A	A	A	A	206	A	A	H	A	A	A	268	280	400	354	
12	240	284	316	324	276	234	244	A	E A	A	E A	A	A	A	A	E A	A	A	A	A	258	234	264	316	
13	280	282	222	256	242	244	220	224	220	258	A	A	A	A	A	A	A	E A	E A	264	228	250	264	300	
14	250	332	236	228	234	228	236	232	A	A	A	A	A	A	A	A	A	A	A	262	268	262	312	A	
15	354	342	278	260	232	282	202	A	A	A	A	A	A	A	A	A	A	288	228	264	272	284	324	240	
16	244	A	256	344	274	256	232	244	A	A	E A	A	A	A	A	A	A	212	232	A	278	242	254	278	
17	268	A	226	314	A	278	A	A	A	A	A	A	A	A	A	A	218	224	236	A	286	242	224	270	292
18	328	306	242	252	276	274	234	A	A	E A	A	A	A	214	200	214	A	A	A	322	266	234	280	358	
19	368	348	316	312	312	248	202	194	202	A	A	A	A	A	190	194	H	A	A	272	256	246	352	A	
20	A	A	A	A	322	266	244	210	260	A	A	A	A	A	A	A	220	A	A	212	282	256	272	270	286
21	294	266	222	256	276	250	224	240	A	A	A	A	A	A	226	A	A	A	A	248	258	266	276	272	
22	272	312	272	214	248	332	234	A	A	A	202	A	A	A	A	A	A	A	A	248	268	274	302	286	
23	260	286	272	222	212	248	228	A	A	232	202	186	A	A	190	H	E A	A	A	A	288	244	262	296	
24	254	272	222	218	206	224	224	210	204	184	212	E A	324	192	288	A	A	A	A	A	A	A	310	270	
25	340	318	260	A	280	280	A	A	A	A	A	A	A	A	182	A	A	A	A	286	308	226	348	262	
26	260	272	264	222	A	A	272	A	A	A	A	A	212	202	224	A	224	214	192	244	270	262	242	290	250
27	322	286	292	304	272	250	A	A	A	A	A	A	A	A	A	A	210	E A	A	A	254	314	286	A	
28	320	276	292	264	248	262	222	214	A	A	E A	E A	A	A	A	A	A	A	218	A	262	236	214	264	300
29	300	296	302	246	232	270	234	226	A	A	A	A	A	E A	A	A	A	A	A	282	272	270	278	300	
30	338	306	284	284	254	258	226	222	212	A	A	A	A	A	A	A	252	226	204	H	240	252	282	264	
31																									
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	29	27	29	28	28	28	24	17	12	9	10	6	4	8	10	14	12	11	6	23	29	29	30	27	
MED	280	282	258	256	255	255	230	218	210	207	204	240	201	211	228	216	220	225	244	264	258	256	296	292	
U Q	322	306	281	273	276	275	237	226	246	270	306	324	239	238	268	252	246	250	254	282	270	277	328	314	
L Q	255	266	233	227	238	247	223	210	203	193	202	212	197	203	190	210	213	206	228	248	242	243	270	270	

JUN. 2014 h'F (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

JUN. 2014 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

H D	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1						B	112	108	98	94	A	A	A	A	A	A	A	A	A	B	B			
2						B	104	110	98	98	96	100	A	A	A	A	A	A	A	A				
3						A	A	98	98	98	98	A	A	A							A			
4						A	120	98	98	96	98	98	A	100							A			
5						A	120	106	96	100	A	A									A			
6						A	110	104	102	100	98	102	A	A							A			
7						A	A	112	102	108	96	98	100	100	96	96				A	A	A		
8						A	106	106	98	96	98	96	96	102	96	106				A	A	A		
9						A	A	98	96	A	A	A	A	A	A									B
10						A	96	104	98	100	98	96	96	96	A									B
11						A	A	A	A	98	100	100	A	100	A	B					A			
12						A	110	102	100	100	104	102	B	106	B	B	A	A	A	A	A			
13						B	A	A	110	102	100	100	A	A	A	A	A	A	A	A	A			
14						A	A	100	100	98	A	A	A	A	A	A	A	A	A	A				
15						A	108	106	96	96	102	102	A	A	A	A					A			
16						A	104	98	96	106	104	A	A	A	A	A	A	A	104	106				
17						A	108	100	100	A	A	A	A	A	A	A	A	100	100					
18						B	112	102	102	98	98	A	100	B	G	A	A	A	A	A				
19						A	108	102	98	98	100	100	96	96	106	B					B			
20						A	A	A	94	94	94	94	98	96	98	108	96	A	106					
21						A	112	100	98	98	A	A	A	A	A	A	A	A	A	A				
22						A	A	118	A	A	A	A	A	102	108	100	100	98	106					
23						A	104	102	100	96	94	A	A	100	100	100	100	102	A					
24						B	A	102	102	A	A	A	98	A	A	A	A	A	112	110				
25						B	110	102	100	96	A	A	A	A	A	A	A	A	A	A				
26						A	108	102	98	98	96	96	A	A	A	A	A	110	A					
27						A	112	102	100	104	100	A	A	A	A						A			
28						B	104	98	100	A	A	A	A	A	A	A	102	102	102					
29						B	118	96	98	94	100	100	A	100	B	98	A	100	102					
30						B	106	100	96	A	A	A	A	A	A	A	A	A	A	A				
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT							21	27	28	24	19	14	8	12	9	11	14	16	15					
MED							108	102	98	98	98	100	98	100	98	100	100	102	104					
U Q							112	106	100	100	100	100	99	101	104	106	102	103	106					
L Q							105	100	98	96	96	96	96	97	96	96	96	101	102					

JUN. 2014 h'E (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

JUN. 2014 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

H D	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	96	96	116	86	98	118	108	104	100	98	96	96	94	94	94	90	90	90	108	104	86	106	106	112	
2	84	98	88	86	86	B	122	114	116	102	98	98	94	98	94	94	90	90	88	100	112	88	88	88	
3	96	94	B	B	96	100	100	154	200	114	98	148	98	100	120	116	106	106	104	102	102	100	100	98	
4	96	94	86	90	90	90	140	116	102	100	102	100	96	96	96	96	98	96	90	100	94	94	94	94	
5	94	130	96	88	90	90	132	116	100	114	94	106	106	102	102	104	104	132	122	94	94	94	92	84	
6	86	84	116	102	94	98	126	114	108	104	102	102	104	100	100	116	102	108	108	90	108	88	100	100	
7	100	96	96	92	90	88	92	122	130	118	108	100	104	102	100	100	100	114	94	100	100	102	98	102	
8	100	B	92	90	86	88	126	110	106	102	106	106	104	110	106	102	96	94	94	96	98	128	98	94	
9	94	118	110	96	96	98	98	100	100	94	98	96	92	92	92	126	G	108	104	102	100	100	98	98	
10	96	94	94	88	84	86	114	112	102	102	102	102	102	102	102	102	100	100	106	100	90	102	102	104	
11	98	98	98	86	86	122	122	96	104	102	100	100	96	104	96	B	136	108	106	104	98	100	100	98	
12	96	94	90	90	90	100	120	110	106	106	102	102	100	100	94	94	92	122	94	94	94	92	120	96	
13	96	94	96	96	88	B	124	118	114	100	100	96	96	94	94	94	94	108	108	102	86	88	84	98	
14	94	96	94	90	94	96	136	112	104	100	98	110	96	96	96	96	96	104	102	102	98	94	94	94	
15	94	92	92	92	92	88	108	108	102	102	100	100	98	96	96	102	102	104	128	108	126	126	102	100	
16	96	96	116	82	84	88	110	110	106	104	102	96	96	96	96	96	102	142	106	100	96	88	88	118	
17	104	96	94	90	90	90	108	108	100	96	94	94	94	94	92	94	96	104	96	96	98	86	106	104	
18	98	96	96	96	92	120	112	104	102	100	100	98	98	102	98	90	90	90	90	90	90	104	102	102	
19	98	98	96	92	90	96	108	104	104	104	104	100	102	104	122	B	124	112	104	106	100	100	102	100	
20	98	98	98	96	94	94	94	98	106	106	104	104	106	102	106	104	100	98	106	104	96	98	104	120	
21	98	96	96	90	88	88	112	106	102	100	96	110	108	98	94	94	98	94	92	108	90	138	86	90	
22	108	100	100	100	96	96	100	112	106	104	96	106	110	108	108	106	106	106	100	100	98	100	100	102	
23	96	96	92	92	114	98	122	106	106	102	102	96	94	102	G	128	114	102	96	88	90	88	88	92	
24	94	96	96	96	100	102	124	110	102	98	98	98	102	158	92	124	110	106	104	102	98	94	120	106	
25	96	94	94	92	94	118	116	104	102	98	96	94	94	92	96	94	118	88	88	88	98	114	100	98	
26	106	92	92	94	96	94	118	108	104	100	100	100	98	96	92	92	92	142	118	106	100	98	100	120	
27	96	96	92	94	90	94	120	108	104	100	100	96	96	98	96	130	136	110	102	98	100	106	98	94	
28	86	86	86	110	92	110	118	116	102	96	94	94	96	96	96	96	124	132	114	106	98	98	88	88	
29	88	88	96	96	130	162	126	104	102	100	100	100	96	180	154	124	116	108	104	100	100	92	90	88	
30	84	104	102	98	102	102	116	106	102	96	94	94	96	96	94	98	96	96	90	88	88	86	88	88	
31																									
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	30	29	29	29	30	28	30	30	30	30	30	30	30	30	29	28	29	30	30	30	30	30	30	30	
MED	96	96	96	92	92	96	117	109	104	101	100	100	97	99	96	99	100	106	104	100	98	98	99	98	
U Q	98	98	98	96	96	102	124	114	106	104	102	102	102	102	102	111	112	110	106	104	100	102	102	102	
L Q	94	94	92	90	90	90	108	104	102	100	96	96	96	96	94	94	96	96	94	96	94	92	90	94	

JUN. 2014 h'Es (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Yamagawa

JUN. 2014 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	FQ	F	FF	F	FF	CL	CL	CL	C	L	L	L	L	L	L	L	L	L	CL	CL	F	FF	FF	FF	
2	F	FF	F	F		C	CL	C	C	L	L	L	L	L	L	L	L	L	LC	CL	FF	FF	FF	FF	
3	F	F			F	L	L	H	H	C	L	HC	L	L	C	C	C	C	C	C	F	FF	F	F	
4	F	F	F	F	F	L	HC	CC	CL	C	C	C	L	L	L	L	L	L	L	L	LL	F	F	F	
5	F	FF	FF	F	F	L	HC	C	C	CC	L	CL	C	C	C	CL	C	HC	CL	LQ	FF	FQ	F	F	
6	F	F	FF	FF	F	L	C	C	C	C	C	C	C	C	C	C	C	C	CL	CL	LC	FF	FF	FF	
7	F	F	F	F	F	L	L	CL	C	CL	C	C	C	C	C	C	C	C	CL	L	L	FF	FF	FF	
8	FF		F	F	F	L	C	CL	C	C	C	C	C	C	C	C	C	C	L	L	L	F	F	F	
9	F	FF	FF	F	F	L	L	C	C	L	L	L	L	L	L	L	C		CL	C	C	FQ	FQ	FQ	
10	FQ	F	F	F	F	L	CL	C	C	C	C	C	C	C	C	C	C	C	C	C	CL	F	FF	FF	
11	F	F	F	F	F	CL	CL	L	CL	C	C	C	L	C	L		H	C	C	C	F	F	F	F	
12	F	FQ	FQ	FF	F	L	C	C	C	C	C	C	C	C	L	L	L	L	CL	L	L	FQ	FQ	FF	
13	F	FQ	FF	FF	F		CL	C	C	C	C	L	L	L	L	L	L	L	CL	CL	CL	F	FQ	FQ	
14	FQ	FQ	F	F	FQ	L	HC	C	C	C	L	CL	L	L	L	L	L	L	CL	CL	CL	F	FF	F	
15	F	FF	FF	FQ	F	L	CL	C	C	C	CH	C	L	L	L	L	CL	C	C	C	FF	FF	FF	FQ	
16	FQ	FQ	FF	F	FQ	LQ	C	C	C	C	C	L	L	L	L	L	L	H	CL	C	F	F	F	FF	
17	FF	FQ	F	F	FQ	LQ	C	C	L	L	L	L	L	L	L	L	L	L	C	L	L	FF	FF	FF	
18	FF	FF	FQ	FF	F	CL	CL	C	C	C	C	L	L	C	L	L	L	L	L	L	F	FF	FF	F	
19	F	FQ	FQ	F	F	L	C	C	C	C	C	C	C	C	C	C	C	C	C	C	F	FF	FF	F	
20	F	F	F	FF	F	L	LQ	L	C	C	C	C	C	C	C	C	C	L	C	C	FF	F	FQ	FF	
21	FQ	F	F	F	F	LQ	C	C	C	C	L	CL	CL	L	L	L	L	L	L	CL	F	FF	F	F	
22	FF	FF	FQ	F	F	LH	CL	CL	CL	L	CL	CL	C	C	C	C	C	C	CL	CL	F	FF	FF	FF	
23	FQ	F	F	F	FF	L	C	C	CL	C	L	L	L	C		C	C	C	L	L	F	FQ	F	F	
24	F	F	F	FQ	FQ	CL	CC	C	C	L	L	L	L	L	L	L	L	L	CL	CL	CL	F	FQ	FF	
25	FF	F	F	FQ	FQ	CH	C	C	C	L	L	L	L	L	L	L	L	L	L	LC	FF	FF	FF	FF	
26	FF	F	F	FF	FF	L	C	C	C	C	C	C	L	L	L	L	LH	L	HL	CL	CL	F	F	FF	
27	F	FF	FF	F	FQ	L	C	C	C	C	C	L	L	L	L	H	H	C	C	L	F	FF	FQ	FQ	
28	FF	FQ	FQ	FF	FQ	C	C	C	L	L	L	L	L	L	L	L	L	C	H	CL	C	F	F	F	
29	F	F	FFF	FF	F	H	CC	C	C	C	C	C	L	H	H	C	CC	C	C	C	FF	F	F	F	
30	F	FF	FF	FF	FF	CL	C	C	C	L	L	L	L	L	L	L	L	L	L	L	F	F	F	F	
31																									
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT																									
MED																									
U Q																									
L Q																									

IONOSPHERIC DATA STATION Okinawa

JUN. 2014 f_{XI} (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

H D	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	81	80	80	80	76	74															X 89	X 79	X 80	X 78	
2	81	78	76	74	72	67	72															X 98	X 78	X 80	X 78
3	82	80	88	78	X 66	64																X 102	X 91	X 90	X 89
4	89	89	81	79	76	71	80															X 104	X 97	X 92	X 88
5	X 87	X 87	88	X 81	X 79																	X 108	X 94	X 90	X 90
6	X 91	X 92	X 99	X 76	X 69	72	77															X 103	X 100	X 100	X 102
7	X 105	X 112	X 96	X 94	X 89																	X 89	X 89	X 90	X 92
8	101	X 99	X 87	X 86	88																	X 79	X 79	X 85	X 78
9	82	88	X 73	X 70	71																	0 87	X 79	X 90	X 92
10	101	97	89	86	69	72	92															X 93	X 96	X 98	X 94
11	97	102	98	82	76	75	78															A 79	X 83	X 78	
12	88	X 84	X 77	X 66	68																	X 96	X 89	X 93	X 93
13	X 94	X 93	X 84	X 78	X 75																	X 96	X 88	X 92	X 92
14	94	X 100	X 106	X 92	76																	X 102	X 89	X 90	X 88
15	88	89	90	93	78	72	84															X 98	X 86	X 89	X 99
16	88	82	94	81	80	73	77	80														X 107	X 100	X 90	X 88
17	X 90	X 83	X 82	X 69	X 68	62	82															X 122	X 91	X 87	X 90
18	X 96	X 97	X 95	X 83	X 79																	X 94	X 79	X 71	X 71
19	81	81	77	69	73	69	66															X 102	X 91	X 68	X 82
20	83	83	88	90	62	54	67															X 107	X 94	X 87	X 88
21	94	94	X 92	X 81	X 81																	X 92	X 91	X 86	X 85
22	X 81	X 79	X 76	X 73	X 69	68																X 85	X 81	X 82	X 89
23	85	88	92	X 67	60																	X 95	X 82	X 78	X 80
24	78	79	82	80	67	59	62															X 94	X 90	X 83	X 83
25	X 80	X 83	X 87	X 76	X 72	68	69	80														X 99	X 84	X 82	X 81
26	86	90	82	75	61	62	69															X 100	X 86	X 82	X 82
27	82	82	82	76	76	71																X 90	X 87	X 83	X 80
28	79	82	73	73	71	68	69															X 106	X 78	X 78	X 78
29	X 81	X 82	X 74	X 72	X 74																	X 86	X 80	X 72	X 72
30	79	X 76	X 72	X 70	X 66	64	64															X 94	X 75	X 78	X 82
31																									
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	30	30	30	30	30	19	15	2													29	30	30	30	
MED	86	86	86	78	72	68	72	80														X 96	X 88	X 86	X 86
U Q	94	93	92	82	76	72	80															X 102	X 91	X 90	X 90
L Q	81	82	X 77	X 73	68	64	67															X 91	X 79	X 80	X 80

JUN. 2014 f_{XI} (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

JUN. 2014 foF2 (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

D	H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	F	72	72	70	68	68	67	80	85	A	A	A	A	80	85	92	99	98	99	96	97	83	73	74	72	
2	F	74	71	70	68	66	60	66	81	81	75	74	71	79	91	98	105	109	122	126	111	92	72	74	72	
3	F	74	74	79	72	60	55	57	68	82	85	83	68	70	77	93	108	109	90	83	86	96	85	84	80	
4	F	79	78	73	72	68	64	71	101	62	62	69	75	82	88	90	98	108	108	105	102	98	J R	91	86	82
5		81	81	79	75	73	73	75	77	69	66	75	86	96	102	105	115	116	114	118	113	102	88	84	84	
6		85	86	93	70	63	60	70	84	77	62	72	A	A	A	A	110	110	104	100	100	97	94	94	96	
7	F	99	104	90	88	83	75	69	68	77	80	87	84	80	86	96	102	100	103	105	104	83	83	84	86	
8	F	92	93	77	80	80	67	68	83	74	79	81	88	99	100	102	101	113	110	113	110	73	73	79	70	
9	F	74	80	67	60	62	56	59	76	72	84	83	78	72	82	97	106	115	125	116	R	96	81	73	78	85
10	F	93	88	82	78	62	65	82	77	64	69	69	76	90	104	110	116	116	124	124	104	87	90	92	88	
11	F	89	93	92	75	68	66	70	94	84	74	76	73	86	92	101	104	106	106	105	99	A	73	77	76	
12	F	80	74	69	60	60	66	72	71	77	A	67	74	87	96	101	108	119	124	116	106	90	83	87	87	
13		88	85	78	70	69	64	72	77	70	77	80	81	91	98	104	112	109	103	107	110	90	82	86	86	
14	F	88	94	100	84	68	A	72	82	80	A	76	85	101	104	104	104	97	102	116	117	96	83	84	82	
15	F	79	79	80	84	67	64	76	80	77	A	A	A	A	104	113	121	133	134	127	108	92	80	81	93	
16	F		76	78	72	67	65	68	73	79	A	A	A	83	94	102	102	96	102	104	100	101	94	84	82	
17		84	77	76	63	61	53	72	85	70	73	78	78	87	93	101	112	119	110	110	107	116	85	81	84	
18	R	90	91	86	77	73	73	72	91	78	79	88	A	97	108	112	91	86	82	77	90	88	73	65	64	
19	F	68	73	66	63	64	58	56	69	73	66	68	82	86	76	89	104	112	112	108	96	96	85	62	74	
20	F	77	77	78	84	56	44	57	67	68	72	78	74	80	86	92	95	A	107	105	100	101	88	81	82	
21	F	85	81	86	75	75	75	70	68	66	77	72	A	90	80	90	97	96	102	105	88	86	85	80	79	
22	F	75	73	70	64	63	58	60	66	70	66	68	64	69	77	89	92	96	100	92	A	79	75	76	81	
23	F	75	80	84	61	53	47	50	70	66	68	A	69	A	86	88	86	88	93	92	89	89	76	72	74	
24	F	69	70	75	71	60	50	54	65	72	A	68	A	74	86	91	86	88	94	92	96	88	84	77	77	
25	F	74	77	80	70	65	60	61	72	84	75	81	92	97	103	98	100	93	93	106	104	93	78	76	75	
26	F	79	84	74	66	47	53	60	85	89	A	76	81	92	98	104	104	103	111	108	102	94	80	76	76	
27	F	75	74	75	64	68	63	66	69	A	A	A	A	82	A	98	94	92	92	90	85	84	81	77	70	
28	F	71	68	65	63	62	60	63	74	68	58	67	79	82	91	88	88	92	98	104	106	100	72	72	72	
29	F	75	76	68	66	64	62	75	74	70	67	67	77	80	89	93	95	87	81	75	76	80	74	66	66	
30	F	69	71	66	64	55	53	57	77	77	68	65	A	87	96	98	112	114	106	101	97	88	69	72	76	
31																										
		00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT		29	30	30	30	30	29	30	30	28	22	25	21	27	28	29	30	29	30	30	29	29	30	30	30	
MED		79	78	78	70	64	62	68	76	74	72	75	78	86	92	98	103	106	104	105	100	90	82	78	80	
U Q		86	85	82	75	68	66	72	83	78	77	80	83	91	99	103	108	114	111	113	106	96	85	84	84	
L Q		74	74	70	64	61	56	60	69	70	66	68	74	80	86	92	95	94	98	96	96	85	73	74	74	

JUN. 2014 foF2 (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

JUN. 2014 f_oF1 (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

H D	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							L	A	A	A	A	A	A	A	A	A	A	A	A					
2								L	U	L	L	A	540	516	516	U	A	A	A	A				408
3								U	L	L	L	U	L	U	R		A	U	L	L		L		
4								L	L	L	L	A	A	A	A	A	A							L
5							U	L	L	L	L	A	L	L	U	A	492	488	476	420				
6							L	L	A	A	A	A	A	A	A	A	A	A	A					
7									A	A	A	A	U	L	A	A		L	A	L				
8							U	L	A	A	L	U	A	U	L	A	U	L						
9								L	L	U	A	A	L			544	520	512	512					
10							L	L	L	L	L	A	A			A	A	A	A	L	A			
11								A	L	U	L	A				A	A	U	A	L	L			
12									A	A	L	548	536	576	A	A	R		A	A				
13									U	L	L	A	A			512	524							
14						A		L	A	A	A	A	A	U	A	A	A	A	A	A				
15								L	A	A	A	A	A	A	U	A	U	R		U	L	L		
16									L	A	A	A	A	A	A	A	A	L	A	L				
17								L	U	L	U	L	A	U	A	L	L	U	L	L				
18								L	L	A	A	A	A	A	A	A		504	484	428		L		
19								L	A	A	516	508	U	L	532	500	A	476	A	A	A			
20								L	U	L	U	L	L			A	U	A	A	L				
21									L	A	A	A	A	A	A	A	A	A	A	U	A			
22									A	L	A	512	480	496	480	A	A	L	L	A		A		
23							A	L	A	U	L	A	A	A	A	A	L	L	A					
24								A	A	A	A	A	A	U	A	U	A	A	A	A				
25								L	U	L	U	L	A	A	L	A	A	U	A					
26								A	A	A	U	L	L				A	A	A					
27									A	A	A	A	A	A	A	L	L	L	L					
28									A	A	A	A	A	A		508	472	472	448					
29							L	L	U	L	A	U	A	520	496	484	500	480	464	L	L			
30								L	L	L	A	A	A	A	A	A	A	A	A					
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT							2		7	13	7	12	15	14	15	13	18	18	8					
MED							U	L	U	L	U	L	500	532	520	506	516	500	488	466	416			
U Q									U	L	L	488	500	516	544	536	520	528	530	504	484	454		
L Q									L	L	L	456	472	476	510	500	496	492	488	476	456	408		

JUN. 2014 f_oF1 (0.01MHz)

IONOSPHERIC DATA STATION Okinawa

JUN. 2014 f_oE (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

H D	00	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	204	256	308	A	A	A	A	A	A	A	A	A	A	A				
2						B	A	260		A	A	A	A	A	A	A	A	A	A	A				
3						B	204	256	312		A	A	B		B			A	A		A			
4						A	208	208	A	A	A	A	A	A	A	B		U	A	A	A			
5						B	212	264	308	344	356		U	R	A	A	A	A	U	A	A	A		
6						A	U	A	U	A	A	A	A	A	A	A	A	A	U	A	A			
7						B	212	272	316	352		A	A	A	A	A	U	A						
8						A	204	264	312	344	368	372	U	R	U	R	U	R	R		A			
9						B	A	U	A	A	A	A	A	A	A	U	R		A	A	A			
10						A	176	276	U	A	R	B		A	A	A	A	A	A	A	A			
11						A	A	A	A	A	A	A	A	436		A	A		U	A				
12						B	224	U	A		A	A	A	A	A	A	A	A	A	A	A			
13						A	200	288		A	B	B	A	A	A	A	A	A	A	A	A			
14						A	A	284	U	A	U	R	U	A	A	U	R	U	R					
15						B	220	U	A	U	A	A	A	A	A	U	R	U	A	A	A			
16						A	A	U	A	A	A	A	A	A	A	A	A	A	A	A	A			
17						A	A	284	U	A	A	A	A	A	A	B	A	A	A	A	A			
18						A	A	A		A	A	A	A	A	A	A	A	A	A	A				
19						B	A	U	A	U	A	A	U	R	U	R	U	R						
20						B	A	A	A	R	R	U	R	U	R	B	U	R	U	R	A			
21						B	180	264	U	A	A	A	B	A	A	A	A	A	A	A	A			
22						A	A	260		A	A	A	A	A	A	A	A	A	A	A	A			
23						A	A	264	U	A	A	A	A	A	U	A	U	A						
24						A	A	264	300	332		A	A	A	420	388	364	340	304		A			
25						B	A	U	A	A	A	A	A	A	A	A	A	A	A	A	A			
26						B	U	A	A	A	A	A	A	A	A	A	A	A	A	A	A			
27						A	A	280	312	344		A	A	A	A	A	A							
28						B	A	284		A	A	A	A	A	A	A	A							
29						A	U	A	A	U	A	A	A	A	U	R								
30						B	172	268	328	364		A	A	A	400	416	392	356	320	264				
31							164	284		A	A	A	A	A	A	A	A	A	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							15	27	19	10	7	5	6	7	7	11	11	16	11	1				
MED							204	264	312	348	368	388	U	R	U	R	R	348	306	260	176			
U Q							212	284	328	360	392	404	416	420	392	392	356	316	264					
L Q							176	260	308	344	356	372	376	384	376	364	340	300	248					

IONOSPHERIC DATA STATION Okinawa

JUN.2014 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

H D	00	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 66	A 53	J 49	A 44	J 40	A 20		G 45	J 99	A 126	J 86	A 96	J 82	A 81	J 76	A 83	J 70	A 61	J 95	A 95	J 75	A 54	J 45	A 37	
2	J 31	A 23	J 18	A 17	J 20	A E B 13		21	32	J 43	A 51	J 68	A 56	J 46	A 60	J 103	A 78	J 70	A 73	J 38	A 35	J 38	A 24	J 20	A 24
3	J 20	A 49	J 39	A 20	J 20	A 38	J 22	A 28	J 34	A 39	J 40	A 42	J 47	A 44	J 45	A 50	J 43	A 42	J 44	A 36	J 30	A 62	J 75	A 58	
4	J 57	A 52	J 32	A 52	J 40	A 28	J 20	A 28	J 47	A 60	J 52	A 55	J 53	A 71	J 57	A 60	J 48	A 60	J 60	A 77	J 39	A 40	J 53	A 44	
5	J 38	A 35	J 19	A 20	J 18	A 17		G 30	J 39	A 50	J 55	A 46		G 51	J 44	A 44	J 48	A 57	J 50	A 37	J 27	A 35	J 21	A 23	
6	J 23	A 22	J 22	A 19	J 20	A 32	J 32	A 34	J 76	A 51	J 79	A 86	J 108	A 174	J 150	A 107	J 90	A 40	J 29	A 20	J 22	A 43	J 37	A 19	
7	J 45	A 51	J 25	A 20	J 20	A 13		G 32	J 45	A 74	J 102	A 90	J 54	A 122	J 87	A 54	J 71	A 74	J 29	A 25	J 18	A 22	J 53	A 49	
8	J 20	A 39	J 54	A 44	J 32	A 34	J 22	A 53	J 72	A 107	J 60	A 108	J 52	A 64	J 75	A 29	J 40	A 37	J 30	A 23	J 17	A 16	J 22	A 60	
9	J 65	A 38	J 52	A 24	J 17	A 13	J 41	A 50	J 47	A 59	J 66	A 56	J 44	A 54	J 37		G 41	J 63	A 126	J 107	A 99	J 96	A 74	J 98	
10	J 97	A 82	J 74	A 74	J 48	A 40	J 23	A 34	J 45	A 50	J 52	A 81	J 80	A 118	J 85	A 72	J 44	A 63	J 73	A 34	J 34	A 51	J 48		
11	J 52	A 86	J 43	A 44	J 43	A 51	J 56	A 52	J 80	A 54	J 78	A 60	J 70	A 47	J 70	A 59	J 56	A 48	J 41	A 48	J 107	A 95	J 49	A 52	
12	J 74	A 72	J 49	A 44	J 38	A 14	J 37	A 43	J 57	A 79	J 68	A 46	J 59	A 57	J 62	A 58	J 44	A 54	J 63	A 55	J 44	A 24	J 19	A 20	
13	J 23	A 19	J 29	A 22	J 63	A 64	J 27	A 37	J 42	A 44	J 44	A 62	J 55	A 70	J 62	A 44	J 44	A 54	J 52	A 44	J 36	A 30	J 28	A 23	
14	J 29	A 54	J 98	A 105	J 84	A 82	J 40	A 38	J 63	A 90	J 57	A 81	J 73	A 100	J 48	A 64	J 69	A 60	J 52	A 100	J 82	A 89	J 53	A 37	
15	J 19	A 21	J 47	A 27	J 21	A 13		G 37	J 52	A 116	J 144	A 120	J 188	A 106	J 74		G 38	J 36	A 31	J 21	A 22	J 16	A 106	J 86	
16	J 87	A 60	J 82	A 31	J 21	A 24	J 28	A 46	J 54	A 83	J 101	A 103	J 70	A 64	J 71	A 64	J 70	A 52	J 40	A 41	J 44	A 32	J 31	A 50	
17	J 133	A 64	J 60	A 44	J 40	A 31	J 43	A 59	J 63	A 57	J 67	A 74	J 58	A 45	J 45	A 49	J 42	A 41	J 28	A 30	J 21	A 50	J 49	A 57	
18	J 74	A 52	J 23	A 22	J 20	A 20	J 50	A 49	J 39	A 58	J 84	A 148	J 93	A 74	J 71	A 65	J 45	A 42	J 47	A 29	J 37	A 51	J 51	A 60	
19	J 78	A 57	J 109	A 80	J 48	A 39	J 29	A 43	J 52	A 54	J 43		G 45	A 47	J 58	A 46	J 71	A 56	J 70	A 24	J 16	A 32	J 78		
20	J 68	A 84	J 104	A 61	J 75	A 65	J 58	A 45	J 46	A 47	J 48	A 46		G E 42	A 54	J 52	A 86	J 45	A 35	J 25	A 32	J 25	A 57	J 56	
21	J 46	A 31	J 33	A 29	J 26	A 21	J 22	A 32	J 53	A 70	J 65	A 118	J 130	A 75	J 64	A 56	J 66	A 85	J 73	A 48	J 49	A 53	J 32	A 58	
22	J 22	A 20	J 22	A 22	J 52	A 50	J 27	A 36	J 43	A 52	J 77	A 63	J 48	A 45	J 48	A 87	J 39	A 37	J 39	A 82	J 98	A 60	J 53	A 52	
23	J 51	A 58	J 53	A 48	J 30	A 42	J 48	A 39	J 68	A 64	J 74	A 117	J 120	A 48	J 79	A 67	J 65	A 47	J 76	A 84	J 87	A 84	J 46	A 46	
24	J 66	A 47	J 82	A 83	J 50	A 57	J 26	A 44	J 65	A 64	J 64	A 109	J 63	A 51	J 54	A 60	J 50	A 58	J 73	A 61	J 74	A 52	J 29	A 43	
25	J 37	A 18	J 19	A 13	J 13	A 34	J 27	A 34	J 39	A 42	J 44	A 43	J 62	A 65	J 47	A 70	J 56	A 54	J 63	A 60	J 47	A 32	J 28	A 64	
26	J 86	A 44	J 28	A 29	J 21	A 16	J 60	A 78	J 82	A 101	J 76	A 54	J 46	A 57	J 51	A 49	J 63	A 42	J 45	A 58	J 21	A 30	J 49	A 52	
27	J 55	A 67	J 98	A 95	J 35	A 82	J 78	A 65	J 116	A 80	J 99	A 93	J 46	A 142	J 88	A 41	J 39	A 34	J 33	A 30	J 90	A 33	J 52	A 98	
28	J 54	A 31	J 25	A 35	J 45	A 20	J 28	A 43	J 62	A 53	J 73	A 84	J 57	A 59	J 52	A 47	J 42	A 38	J 54	A 37	J 20	A 21	J 41	A 22	
29	J 21	A 20	J 21	A 24	J 44	A 20	J 28	A 32	J 34	A 44	J 70	A 61	J 44		G 45	A 46	J 39	A 41	J 41	A 29	J 31	A 22	J 47	A 34	
30	J 39	A 23	J 50	A 21	J 39	A 19	J 27	A 35	J 50	A 56	J 62	A 130	J 174	A 96	J 60	A 89	J 81	A 50	J 60	A 34	J 41	A 44	J 31	A 34	
31																									
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	
MED	J 52	A 48	J 45	A 30	J 36	A 30	J 28	A 38	J 52	A 58	J 68	A 68	J 58	A 62	J 61	A 58	J 49	A 49	J 48	A 42	J 38	A 34	J 46	A 50	
U Q	J 68	A 58	J 60	A 48	J 45	A 42	J 41	A 46	J 65	A 79	J 78	A 103	J 81	A 80	J 75	A 67	J 70	A 60	J 63	A 70	J 74	A 53	J 53	A 58	
L Q	J 29	A 23	J 25	A 22	J 20	A 19	J 22	A 34	J 43	A 51	J 55	A 54	J 46	A 48	J 48	A 47	J 42	A 41	J 38	A 30	J 24	A 24	J 31	A 34	

IONOSPHERIC DATA STATION Okinawa

JUN. 2014 fbEs (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

H D	00	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	31	22	28	E B	E B	G		A A	A A	A A	A A	71	78	72	63	66	59	60	63	43	23	26	27				
2	20	E B	E B	E B	E B	E B		20	29	37	41	53	46	43	52	69	74	64	56	30	32	34	20	20	16			
3	E B	13	22	13	13	18	E B	18	27	34	39	40	41	45	43	44	48	40	34	34	32	24	23	54	31			
4	39	20	31	18	30	21	18	G	28	41	42	42	53	52	67	55	59	43	34	32	42	20	24	17	22			
5	E B	13	24	13	13	13	14	G	29	38	38	51	42		50	41	42	45	40	32	28	21	19	17	20			
6	20	E B	E B	E B	E B	E B		30	32	64	42	58	86	108	174	150	96	56	31	27	20	21	30	16	E B	13		
7	16	20	13	13	13	13	G	30	43	67	76	62	52	76	72	44	47	68	29	21	E B	13	20	33	19			
8	E B	13	13	15	E B	E B		22	50	63	42	41	55	44	64	44	28	G	36	37	30	20	E B	E B	E B	13	28	
9	31	20	15	E B	E B	E B	G	20	19	38	50	57	47	44	42	U Y	G	40	55	107	68	50	44	22	38			
10	39	40	37	30	42	32	22	34	36		G	49	52	47	73	69	72	69	40	62	43	23	20	32	25			
11	31	34	32	39	35	31	48	44	42	43	64	50	46	46	66	52	53	39	39	46	A A	107	28	20	22			
12	22	38	30	22	E B	19	14	29	38	53	A A	79	46	44	56	55	49	49	43	52	44	32	31	18	E B	E B	13	
13	E B	13	13	13	22	29	24	37	40	E B	E B	44	62	49	66	62	44	43	52	42	31	22	28	18	22			
14	E B	13	29	20	41	A A	82	38	34	53	A A	90	56	72	61	52	47	62	67	59	51	88	59	49	A	32	22	
15	E B	13	13	13	E B	E B	G	36	44	116	144	120	188	69	56		G	38	36	30	21	16	E B	13	42	17		
16	43	36	34	22	E B	E B		22	41	40	A A	83	101	103	69	57	58	61	45	51	33	38	28	20	23	24		
17	37	21	21	E B	13	25	20	27	38	44	40	41	66	56	45	44	47	40	39	26	29	E B	13	18	21	20		
18	21	21	13	13	13	13	38	36	38	52	79	148	88	62	56	58	40	40	43	25	27	19	20	20				
19	36	27	21	20	E B	E B		22	29	51	54	42		G	44	44	56	42	66	53	60	E B	E B	13	22	31		
20	30	39	23	E B	E B	16	13	44	30	36	42	47	44		G	E B	42	52	48	A A	86	43	30	20	16	E B	E B	13
21	E B	13	20	22	E B	E B		20	28	41	60	59	118	57	62	64	54	51	66	41	38	40	37	27	27			
22	E B	13	13	13	13	13	20	23	36	42	43	54	47	48	44	46	83	38	36	37	A A	82	13	31	37	26		
23	18	E B	13	22	E B	13	19	22	41	32	60	42	A A	74	56	120	43	66	62	48	39	46	40	65	64	17	30	
24	E B	13	29	18	19	22	16	24	37	59	64	56	109	56	49	52	55	49	50	57	53	52	30	20	28			
25	27	E B	14	13	13	13	13	20	31	34	39	40	40	56	54	44	60	51	42	39	30	20	21	21	24			
26	27	26	20	18	E B	16	13	46	68	72	101	44	44	42	50	43	42	59	35	43	40	18	21	E B	13	33		
27	28	23	39	E B	E B	13	13	37	36	56	A A	116	80	99	93	45	142	83	41	39	32	29	28	43	20	32	41	
28	20	E B	13	13	19	21	E B	13	24	38	51	51	60	68	54	58	50	42	42	36	43	36	E B	E B	13	30	E B	13
29	E B	13	17	E B	13	18	13	16	26	30	34	41	62	54	44		G	44	44	39	37	39	22	23	E B	13	30	20
30	20	16	E B	13	16	30	E B	13	25	32	41	42	50	A A	130	70	64	57	58	53	39	41	24	31	20	20	23	
31																												
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23				
CNT	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30		
MED	20	20	16	E B	E B	E B		24	34	42	44	55	56	52	54	54	53	45	40	39	32	23	20	22	22			
U Q	30	29	22	20	22	21	30	38	53	67	64	93	61	66	66	61	53	52	44	43	40	28	30	28				
L Q	E B	E B	E B	E B	E B	E B	G	20	30	38	42	44	46	44	45	44	44	40	36	30	25	E B	E B	18	20			

JUN. 2014 fbEs (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

JUN. 2014 fmin (0.1MHz) 135°E MEAN TIME (G.M.T. + 9 H)

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

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

JUN. 2014 fmin (0.1MHz)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

JUN. 2014 M(3000)F2 (0.01) 135°E MEAN TIME (G.M.T. + 9 H)

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

D	H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23			
1	F	289	F	F	F	F	F	F	F	A	A	A	A	282	274	277	285	296	290	293	314	319	296	290	298			
2	F	291	F	F	F	F	F	F	F	F	F	F	F	254	262	272	277	284	303	321	318	328	286	277	289			
3	F	286	F	F	F	F	F	F	F	F	F	H	F	255	257	253	263	302	315	290	264	272	299	303	284	281		
4	F	280	F	F	F	F	F	F	F	F	F	F	F	262	267	261	277	290	300	296	297	J	R	291	282			
5	F	298	F	F	F	F	F	F	F	F	F	F	F	271	282	281	289	296	292	305	309	303	293	287	271			
6	F	278	F	F	F	F	F	F	F	F	F	F	F	A	A	A	A	290	301	297	287	289	295	285	271	278		
7	F	284	F	F	F	F	F	F	F	F	F	F	F	244	256	270	280	289	283	298	313	291	268	276	281			
8	F	294	F	F	F	F	F	F	F	F	F	F	F	270	283	263	252	279	284	283	317	293	258	275	251			
9	F	275	F	F	F	F	F	F	F	F	F	F	F	271	267	273	278	290	307	327	R	303	310	266	260	275		
10	F	273	F	F	F	F	F	F	F	F	F	F	F	264	276	277	289	281	298	313	307	283	281	278	282			
11	F	278	F	F	F	F	F	F	F	F	F	F	F	264	267	267	285	284	291	309	294	A	261	259	270			
12	F	296	F	F	F	F	F	F	F	F	F	F	F	252	254	253	253	258	261	285	300	314	297	310	264	281	279	
13	F	278	F	F	F	F	F	F	F	F	F	F	F	244	255	262	282	288	275	288	308	301	269	273	281			
14	F	269	F	F	F	F	F	F	F	F	F	F	F	250	280	272	276	265	265	297	320	314	278	287	275			
15	F	273	F	F	F	F	F	F	F	F	F	F	F	A	A	A	A	260	274	278	294	303	301	289	296	273	280	312
16	F	279	F	F	F	F	F	F	F	F	F	F	F	255	263	268	277	271	277	285	296	301	307	287	285			
17	F	291	F	F	F	F	F	F	F	F	F	F	F	257	270	268	282	294	293	288	286	322	318	267	284			
18	R	286	F	F	F	F	F	F	F	F	F	F	F	265	279	312	296	293	282	272	281	315	302	269	254			
19	F	284	F	F	F	F	F	F	F	F	F	F	F	311	274	264	280	296	291	294	284	307	321	269	264			
20	F	277	F	F	F	F	F	F	F	F	F	F	F	270	283	279	286	A	294	304	291	310	308	286	282			
21	F	285	F	F	F	F	F	F	F	F	F	F	F	291	274	286	292	288	297	309	296	285	295	288	283			
22	F	284	F	F	F	F	F	F	F	F	F	F	F	281	267	286	278	288	293	316	A	290	313	284	302			
23	F	276	F	F	F	F	F	F	F	F	F	F	F	287	287	285	286	288	307	299	322	311	284	285				
24	F	283	F	F	F	F	F	F	F	F	F	F	F	271	272	285	284	279	295	288	311	312	303	286	293			
25	F	299	F	F	F	F	F	F	F	F	F	F	F	287	305	284	292	290	282	304	314	315	305	282	293			
26	F	278	F	F	F	F	F	F	F	F	F	F	F	273	284	289	285	283	306	318	308	323	317	293	280			
27	F	281	F	F	F	F	F	F	F	F	F	F	F	272	A	292	288	290	298	296	308	303	313	308	280			
28	F	273	F	F	F	F	F	F	F	F	F	F	F	269	270	275	277	267	287	299	311	336	280	277	278			
29	F	279	F	F	F	F	F	F	F	F	F	F	F	258	281	290	301	300	310	285	288	303	313	274	268			
30	F	278	F	F	F	F	F	F	F	F	F	F	F	268	271	267	279	299	290	300	309	303	275	272	262			
31																												
		00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23			
CNT		28	30	28	29	30	29	30	30	28	22	25	21	27	28	29	30	29	30	30	29	29	30	30	30			
MED		282	299	301	297	300	301	318	326	330	308	286	271	268	272	274	283	289	292	298	303	303	296	280	281			
U Q		288	308	314	320	314	314	334	350	340	319	296	284	272	280	286	289	295	298	309	311	315	308	287	285			
L Q		278	286	295	290	292	290	309	317	322	288	268	254	257	265	267	278	284	287	288	290	298	275	273	275			

JUN. 2014 M(3000)F2 (0.01)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

JUN. 2014 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

H D	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							L	A	A	A	A	A	A	A	A	A	A	A	A					
2								L	U	L	L	A	A		A	A	A	A	A					
3									U	L	L	U	L	U	R		A	U	L	L		L		
4								L	L	L	L	A	A	A	A	A								
5							U	L	L	L	A	L	L	A		379	379		A	U	L	L		
6							L	L	A	A	A	A	A	A	A	A	A	A	A	L				
7									A	A	A	A	U	L	A	A			L	A	L			
8							U	L	A	A	L	A	U	L	A	U	L							
9								L	L	A	A	L	L											
10							L	L	L	L	L	A												
11								A	L	U	L	A												
12									A	A	L													
13									U	L	L	A												
14						A		L	A	A	A	A	A	A										
15								L	A	A	A	A	A	A	A	U	R							L
16									L	A	A	A	A	A	A	A	A	L	A	L				
17								L	U	L	U	L	L	A	A									
18								L	L	A	A	A	A	A	A	A								
19								L	A	A														
20								L	U	L	A	L												
21									L	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
22										A	L	A												
23							A	L	A	U	L	A	A	A										
24								A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
25								L	U	L	U	L	A	A	L	A	A	A	A	A	A	A	A	A
26								A	A	A	U	L	L											
27									A	A	A	A												
28									A	A	A	A	A	A	A									
29							L	L	U	L	A	A												
30								L	L	L	A	A	A	A	A	A	A	A	A	A	A	A	A	A
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT							2		7	12	7	10	13	9	11	10	15	16	6					
MED							U	L	U	L	L	L	372	388	376	366	368	353	347	355				
U Q									U	L	L	380	400	419	397	397	398	384	377	366	350	373		
L Q									U	L	L	349	364	365	356	367	362	357	361	345	342	346		

IONOSPHERIC DATA STATION Okinawa

JUN. 2014 h'F2 (KM)

135°E MEAN TIME (G.M.T. + 9 H)

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

H D	00	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	240	A	A	A	A	E A	E A	E A	E A	A	A	A					
2								262	252	294	330	432	420	382	364	358	344	310	264					
3									282	276	272	414	446	446	380	298	282	292		330				
4								232	224	400	L	316	374	378	E A	392	348	326	296	286				
5							246	238		278	354	360	358	336	346	326	304	314	278					
6							272	246	274	240	348	A	A	A	A	A	372	296	290	286				
7									L	A	E A	E A	E A	E A	A	A	312	324	288					
8							228	260	E A	280	300	250	374	332	314	394	416	322	310	326				
9								L	280	270	284	298	282	L	318	396	362	340	328	294	E A	324		
10							258	212	224	240	L	322	388	382	350	338	332	342	300	280				
11								262	242	272	L	370	494	386	384	374	312	320	302	276				
12									276		A	L	454	448	414	374	398	378	332	302	268			
13										354	324	L	486	424	390	380	332	318	322	298				
14						A		276	248		E A	E A	E A	E A	A	A	A	A	362	302				
15								286	244		A	A	A	A	A	398	362	356	318	288	288	270		
16									278		A	A	A	E A	434	390	362	340	338	340	306			
17								244	334	286	E A	360	408	404	362	372	346	310	296	298				
18								270	250	424	E A	502		A	448	352	284	306	324	330	356	302		
19								248	278	268	390	340	304	396	388	340	304	300	272	A	306			
20								246	282	296	310	316	396	332	350	332	A	322	288					
21									256	314	E A	318	A	E A	338	344	340	324	320	A	310	276		
22									262	290	316	370	392	382	342	E A	410	312	300	254	A			
23							E A	318	250	E A	308	270	A	A	A	A	A	326	338	326	340	328	272	
24								250	252		A	A	A	390	376	338	334	340	302	324				
25								296	270	294	332	344	334	306	340	316	320	342	294					
26								302	266	A	358	372	384	350	330	334	348	302	274					
27									A	A	A	A	364	A	352	326	330	302	290					
28									E A	E A	E A	A	372	364	354	352	368	318	290					
29							260	256	308	334	E A	496	384	406	356	332	308	308	290	296	274			
30								262	266	366	296	A	392	358	380	350	302	294	282	264				
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT							7	21	26	22	25	21	27	28	29	30	29	30	29	6				
MED							252	256	264	293	U	331	372	388	363	358	334	320	302	288	288			
U Q							272	273	278	334	E A	377	423	414	390	380	350	339	322	298	306			
L Q							240	245	252	276	316	352	364	347	340	326	309	296	276	270				

JUN. 2014 h'F2 (KM)

IONOSPHERIC DATA STATION Okinawa

JUN. 2014 h'F (KM)

135°E MEAN TIME (G.M.T. + 9 H)

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

D	H	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1		294	310	A	A	278	244	240		A	A	A	A	A	A	A	A	A	A	A	276	250	258	278	A	
2		300	272	264	260	260	244	232	216	220	206	A	A	196		A	A	A	A	234	230	224	234	292	292	
3		292	290	246	222	218	248	232	212	198	222	186	168	230	210	252		A	A	254	212	254	300	262	230	
4		A	254	254	238	260	264	234	220		214	210						A	A	262	228	248	252	246	256	
5		274	278	272	240	244	226	222	208	222	186		A	186		210	202		A	E	A	262	240	256	226	
6		294	262	234	214	248	248	252	218			A	A					A		218	220	244	256	284	280	
7		282	244	228	238	228	216	222	210			A	A					A				234	244	220	290	
8		256	244	276	246	238	230	208			218	180		194		196	234	222	E	A	248	234	230	214	310	
9		A	256	224	274	276	304	246	226	228			A	194		196	234	222	A	A	248	234	230	214	310	
10		A	274	266	288	328	300	246	210	198	188	290		262					A	A			290	286	312	
11		A	286	250	246	288	278	296		240	214		282	210	238				A	A	240	270	258		324	
12		264	272	284	294	296	250	240	242			224	200		A	A	A	A	A	A	240	270	258		324	
13		290	250	242	236	258	236	240	224	228	220	220		238					A	A	226	238		260	230	
14		288	274	248	250	E	A	A				A	A		A	A	A	A	A				A	A	A	
15		308	294	268	230	226	278	242	238			A	A					H					246	246	258	
16		A	302	288	272	250	244	230	256	242								A	E	A		250	268	262	230	
17		308	256	272	224	336	318	228		A	E	A	210	192		226	230		A	242	236	230	274	240	214	
18		302	296	250	256	270	266	296	250	222									A				268	250	246	
19		336	260	290	328	274	246	242	234			208	208	192	224	254			A				246	216	232	
20		A	316	264	218	214	232	274	222	206	244		194	190	196							232	244	258	218	
21		298	274	230	260	254	228	218	218	E	A	A							A	A			256	298	276	
22		286	270	252	236	218	244	228	234	A	E	A							A				254	284	330	
23		316	258	234	204	222	268		244		234				216				A	E	A		268	280	320	
24		302	282	246	256	250	212	232															272	266	262	
25		A	244	220	224	222	246	216	220	212	224	204	194										258	230	226	
26		274	260	234	210	256	276	306				A	E	A					A				266	232	234	
27		316	306	272	274	254	296	254	230					228					H				264	270	244	
28		316	286	282	292	260	242	228	248										A				264	222	196	
29		306	270	266	256	244	270	238	220	214	214			220	202	208	276	218	232				242	252	236	
30		314	278	252	238	272	256	228	224	E	A								A				252	248	246	
31																										
		00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT		30	30	30	30	30	29	29	24	15	15	10	11	14	9	12	11	15	17	13	28	29	30	30	30	
MED		298	273	253	246	254	247	236	224	218	214	208	201	205	216	226	223	238	233	234	258	250	257	284	296	
U Q		314	286	272	272	274	273	249	240	236	224	224	272	230	232	266	246	254	247	249	268	263	284	310	306	
L Q		286	258	242	230	238	239	228	218	212	210	192	194	192	206	209	210	226	228	230	249	231	234	272	284	

JUN. 2014 h'F (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

JUN. 2014 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

H D	00	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	118	110	110	A	A	A	A	A	A	A	A	A	A	A				
2						B	A	110	A	A	A	A	A	A	A	A	A	A	A	A				
3						B	146	112	A	A	A	106	106	106	B	108	A	A	116	A				
4						A	106	100	A	B	A	A	A	A	A	B	112	116	A	A				
5						B	122	112	108	108	108	A	110	A	A	A	A	110	A	A				
6						A	112	110	110	A	A	A	A	A	A	A	A	A	112	A				
7						B	120	112	110	110	A	A	A	A	A	A	106	106	108	122				
8						A	130	112	108	108	108	110	108	108	108	116	108	108	A	A				
9						B	A	108	A	A	A	A	A	A	A	110	A	A	A	A				
10						A	A	110	110	108	112	B	108	A	A	A	A	A	A	A				
11						A	A	A	A	A	A	A	A	A	A	A	108	A	110	A				
12						B	124	110	110	110	A	A	A	A	A	A	A	A	A	A				
13						A	124	112	A	B	B	A	A	A	A	A	A	A	A	A				
14						A	A	112	108	A	108	108	A	A	A	110	110	110	110	A				
15						B	118	110	108	A	A	A	A	A	A	108	A	A	A	A				
16						A	A	108	108	A	A	A	A	A	A	A	A	A	A	A				
17						A	A	106	106	A	A	A	A	A	B	A	A	A	A	A				
18						A	A	A	106	A	A	A	A	A	A	A	A	A	A	114	A			
19						B	A	110	108	A	112	108	108	110	110	110	108	108	110	A				
20						B	A	A	A	108	112	112	108	B	108	108	108	108	A	A				
21						B	120	112	A	106	106	A	B	A	A	A	A	A	A	A				
22						A	A	108	A	A	A	A	A	A	108	108	110	110	110	A				
23						A	A	110	108	A	A	A	A	A	110	110	110	104	A	A				
24						A	A	108	106	106	A	A	A	A	A	110	112	112	A	A				
25						A	A	112	106	A	A	A	A	A	A	A	A	A	A	A				
26						B	124	118	A	A	A	A	A	A	A	A	A	A	A	A				
27						A	A	112	110	110	A	A	A	A	A	A	106	106	106	A				
28						B	A	110	A	A	A	A	A	A	A	A	A	112	112	A				
29						A	118	110	106	108	A	A	A	108	110	110	110	A	110	A				
30						B	128	110	A	A	A	A	A	A	A	A	A	A	A	A				
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT							14	27	18	10	7	5	5	4	6	11	12	12	11	1				
MED							121	110	108	108	108	108	108	108	109	110	109	109	110	122				
U Q							124	112	110	110	112	111	109	109	110	110	110	111	112					
L Q							118	110	106	108	108	107	108	107	108	108	108	107	110					

JUN. 2014 h'E (KM)

IONOSPHERIC DATA STATION Okinawa

JUN. 2014 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	100	102	98	98	96	96		G	114	106	106	106	102	102	100	100	100	100	100	96	96	96	92	92		
2	92	90	90	90	116		B	128	116	110	110	100	100	108	104	98	100	98	98	98	104	90	94	90	90	
3	90	108	108	94	98	104	104	164	130	104	108	110	102	106	130	118	104	120	112	98	92	104	104	102		
4	102	106	98	102	88	92	92	104	108	110	108	104	104	104	116	116	114	118	108	102	98	98	102	102		
5	102	102	102	88	92	90		G	116	110	110	108	106		G	104	104	104	110	108	108	102	102	96	92	92
6	92	88	92	86	112	104	124	118	114	114	108	106	104	100	100	100	114	104	112	98	92	104	110	96		
7	104	104	100	100	100		B	G	142	118	114	108	108	108	112	102	130	116	112	214	132	94	106	104	102	
8	104	98	102	102	100	98	196	114	112	110	116	104	118	110	114	100	120	110	104	106	106	108	100	100		
9	108	102	102	106	90		B	106	104	102	102	100	100	158	104	104		G	110	110	102	102	108	110	100	100
10	100	96	96	92	92	96	116	112	114		G	138	142	112	108	106	104	104	110	104	100	106	106	104	104	
11	106	108	96	96	96	122	102	102	100	102	106	108	104	158	132	132	122	120	116	106	106	106	98	104		
12	104	104	96	100	116		B	124	114	112	106	106	114	106	102	102	98	112	106	100	96	94	98	98	92	
13	90	94	106	86	104	102	114	114	122		B		B	104	104	102	100	100	100	110	96	96	96	94	92	90
14	108	96	112	100	100	100	100	114	112	106	116	116	116	116	126	118	114	114	112	104	104	100	100	94		
15	94	94	98	94	96		B	G	114	108	104	102	102	102	102	104		G	114	110	106	96	96	96	100	110
16	100	94	106	94	90	100	120	110	116	108	104	104	104	104	102	100	102	98	98	96	94	106	94	96		
17	108	120	104	98	106	120	120	114	108	106	104	102	102	188	182	98	134	100	114	94	94	96	104	104		
18	106	100	90	88	88	114	108	108	108	108	104	102	102	102	102	102	102	102	114	114	108	110	110	114		
19	106	106	108	102	112	104	118	108	104	106	116		G	G	140	120	132	140	120	112	110	108	100	106	106	
20	106	108	106	106	106	100	100	100	100	116	114	114		G	B	114	112	106	110	110	106	102	102	100	100	
21	98	94	94	92	92	94	144	120	108	108	104	102	104	104	104	102	120	96	96	96	96	106	106	110		
22	92	92	92	102	102	102	102	118	116	116	100	100	156	144	142	116	132	122	110	106	110	108	108	108		
23	108	102	100	128	98	104	122	122	112	102	102	104	104	108	122	126	120	112	112	96	96	96	96	96		
24	104	102	94	106	106	106	130	120	116	116	114	102	102	146	124	118	118	112	108	108	104	104	94	94		
25	92	90	88		B	B	114	120	110	110	108	106	104	100	100	102	100	100	96	96	92	92	96	102	106	
26	102	96	92	102	94	90	120	114	110	108	106	102	104	134	98	98	94	134	120	108	92	104	104	104		
27	106	104	100	100	100	100	100	112	110	110	104	104	100	100	100	104	122	114	118	110	98	104	96	96		
28	94	94	94	102	98	92	118	112	108	102	102	102	102	102	102	108	104	142	118	112	102	94	94	90		
29	92	104	90	106	106	104	126	118	128	112	104	108	164		G	178	140	140	126	118	112	110	112	108	98	
30	110	94	108	102	102	86	118	108	104	104	104	100	100	100	100	100	100	98	98	94	96	92	92	106		
31																										
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23		
CNT	30	30	30	29	29	25	26	30	30	28	29	29	27	28	30	28	30	30	30	30	30	30	30	30	30	
MED	102	101	98	100	100	100	118	114	110	108	106	104	104	104	104	104	113	110	109	102	97	103	100	100		
U Q	106	104	104	102	106	104	124	118	114	110	108	108	108	114	122	118	120	118	114	108	106	106	104	104		
L Q	94	94	94	93	93	95	104	110	108	105	104	102	102	102	102	100	102	102	100	96	94	96	94	94		

JUN. 2014 h'Es (KM)

NATIONAL INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY, JAPAN

IONOSPHERIC DATA STATION Okinawa

JUN. 2014 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

H D	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	F4	FQ51	FQ51	F3	F3	LQ11		C3	C6	C5	C3	L2	L4	L2	L2	LH31	L4	L3	L6	L7	F9	F4	F5	F6	
2	F6	F4	F3	F2	FF11		C2	C1	C1	C1	L2	L2	L1	L2	L3	L3	L4	L4	L2	LL21	FF5	F2	F1	F2	
3	F1	F3	FF21	F1	F1	F2	L1	HL12	HL11	L1	C1	C1	L1	C1	H1	CL21	L1	CL11	C2	L2	F4	FF31	FF61	F4	
4	F9	FF23	FQ21	FF12	F5	LQ31	L1	L1	C1	CO11	CO11	L1	L1	L2	C1	C3	C1	C2	C2	L4	F3	F5	F4	F3	
5	F3	F2	F1	F2	F1	L1	L1	C1	C1	C1	C2	C2		L1	L1	L1	CL21	C2	C2	L3	F4	F4	F4	F2	
6	F2	F2	F2	F1	FF11	L4	C3	C1	C3	C1	C3	C2	C2	L5	L5	L5	CL14	L1	CL12	LC11	FF2	FF24	FF21	F1	
7	F3	F3	F2	F1	F1			H1	CL11	C3	C4	C2	C1	CC13	L2	CL11	C2	C4	H1	HL11	F5	F5	FQ51	F5	
8	F1	F9	F2	F3	F3	L5	CHL11	C4	C5	C1	C1	L1	C1	C1	C2	L1	C1	C1	C2	F1	F1	F2	F3	F3	
9	FF23	FF12	F2	F1	F1		L1	L1	L2	L2	L2	L2	HL11	L1	L1		C1	C5	L7	L5	FF35	FF43	FQ41	FQ41	
10	FQ31	FQ61	F5	F3	F3	L2	CL12	C1	C1		H1	H2	C1	C2	C2	L2	L2	CL21	LL32	LL42	FF22	FF22	FF32	FF22	
11	FF21	FF12	F2	FF22	F2	CL31	L4	L3	L3	L1	C2	C2	L1	HL11	HL21	HL11	C2	CL11	CL31	C3	FF82	FQ41	F7	FF17	
12	FF33	F5	F4	F3	FF12		C2	C2	C3	C4	C2	C1	L1	L1	L1	L2	CL11	CHL21	LQ31	LQ31	F5	F2	F2	F2	
13	F4	F1	FF22	F2	F5	L3	C1	C1	C1			L2	C1	L3	L3	L1	L1	CL22	LL32	L3	F4	F7	F5	F5	
14	FF11	F4	FF14	F5	F6	L9	L4	C1	C3	CH41	C1	C2	C1	C1	CL11	C1	CL11	CL21	C4	L9	F5	F6	FQ41	FQ61	
15	F2	F1	F2	F2	F1			C2	C3	L5	L4	L6	LQ31	LQ21	L1		C1	CL11	CL11	LC21	F3	F1	F5	FF32	
16	FQ51	F5	FF15	F4	F2	L2	C1	C2	C2	C2	C3	L2	L1	L1	L2	L2	L3	L3	L3	L6	F4	FF15	F5	F5	
17	F5	FF13	F4	FQ41	FF34	CL22	C3	C3	C2	C1	L2	L2	L2	HL11	H1	L2	HL11	L2	CL11	L2	F2	F5	FF13	FF22	
18	FF13	FF33	F2	F2	F2	C1	C3	C2	C1	C2	C2	L4	L4	L2	L3	L3	L1	L2	CL21	C4	FF82	FF22	FF22	FF34	
19	F4	F4	F3	F4	F2	L3	CL32	C2	C4	C1	C1			H1	C1	H1	H1	C3	CL16	C31	F1	F3	F3	F3	
20	FQ31	FQ41	FQ41	FQ31	F5	L6	L6	LC31	L1	CL21	C1	C1			C1	C2	C4	C2	C3	C3	F3	F2	F5	F2	
21	F4	F6	F9	F6	F2	L1	HL11	C1	C2	C4	C3	L4	L2	L3	L3	L3	CL23	L4	L4	L5	F4	FF47	FF23	FF34	
22	FF15	F1	F2	FF11	F3	L3	L3	C1	CL12	CL12	L2	L2	HL11	HL11	H1	C2	CL11	CL11	CL31	CL81	FQ31	FQ51	FF62	F5	
23	FF34	FF22	F3	FF13	F5	L4	C3	CL11	C4	L3	L4	LQ21	LQ31	C1	C3	C2	C2	C2	CL51	CL31	F9	F7	FQ41	F7	
24	F5	F6	FQ41	FF44	F4	L2	HL21	C2	C4	C3	CL22	L3	L2	HL11	HL21	C2	CL21	CL61	CL63	CL74	F9	F5	F4	F3	
25	F5	F2	F2			C2	C2	C1	C1	C1	C1	L1	L1	L2	L3	LH11	L4	L5	L3	LQ31	LQ51	FQ31	FQ21	FF43	FF23
26	F4	F5	F5	FF14	FQ11	L1	C5	C7	C6	C6	L2	L2	L1	HL11	L2	L1	L3	HL14	CL44	CL42	F1	F2	F2	FF34	
27	FF34	F5	F5	F4	F4	L5	L4	C5	C5	C2	L2	L2	L1	LQ51	L3	C1	C1	C1	C1	CH31	F6	F3	F6	F7	
28	F5	FQ31	FF41	FF42	FF32	LF32	CL31	C2	C3	L2	L3	L3	L2	L2	L2	C1	L1	HL11	CL21	C3	F1	F1	F6	F2	
29	F2	FF22	F4	FF23	F3	L2	C1	C1	C1	C1	C2	C2	HL11		H1	H1	HL11	CL11	CL21	CL21	FF42	FF32	FF25	F4	
30	FF23	F2	F2	F2	F7	L2	C2	C1	L2	L1	L2	L3	L3	LQ21	L2	L2	L4	L3	L4	L5	F5	F4	F3	FF34	
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																									

f-PLOTS OF IONOSPHERIC DATA

KEY OF f-PLOT	
	SPREAD
◊	f _o F ₂ , f _o F ₁ , f _o E
×	f _x F ₂
*	DOUBTFUL f _o F ₂ , f _o F ₁ , f _o E
⊗	f _b E _s
└	ESTIMATED f _o F ₁
†, ‡	f _{min}
^	GREATER THAN
∨	LESS THAN

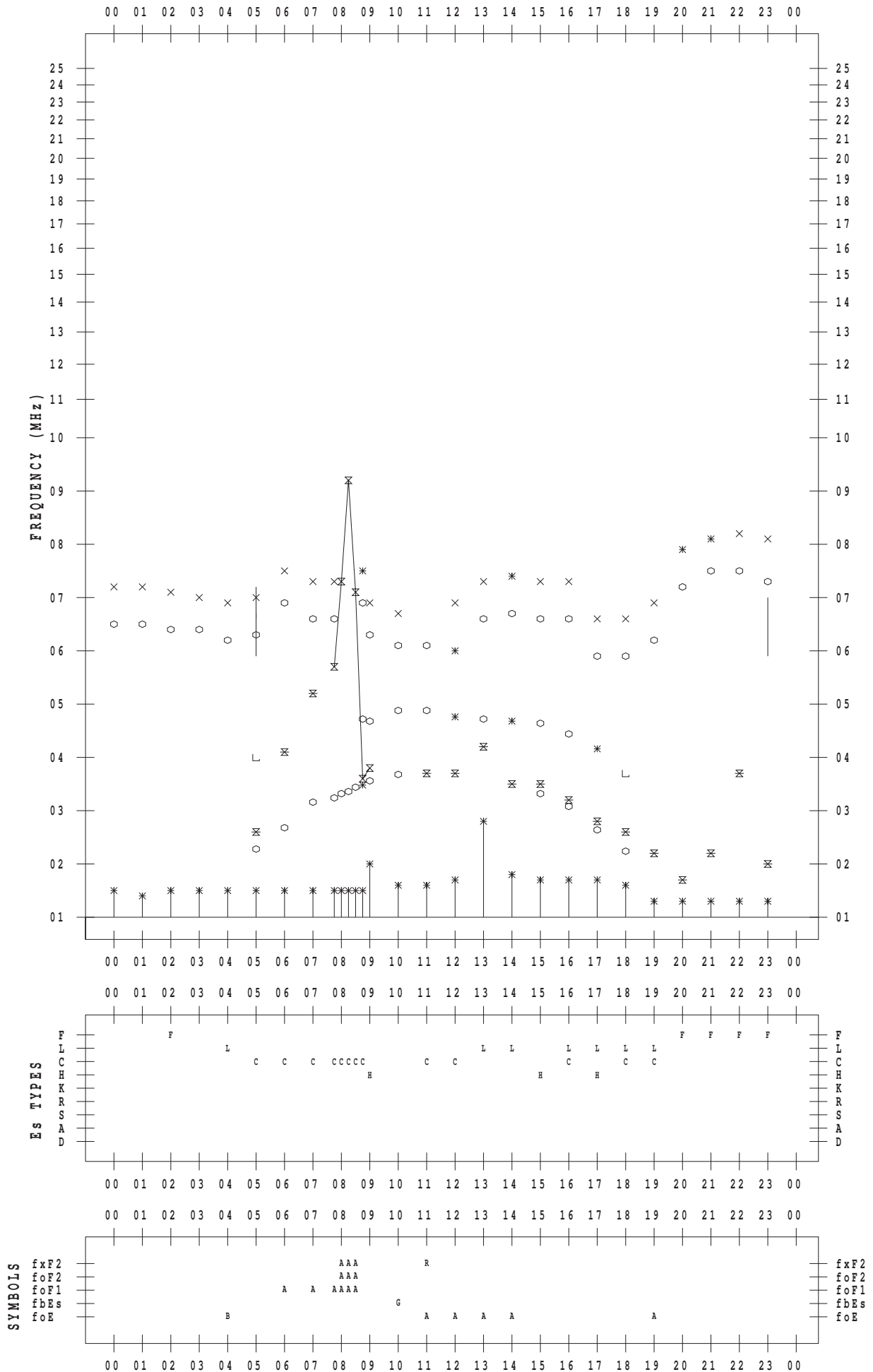
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2014 / 6 / 1

135 ° E MEAN TIME



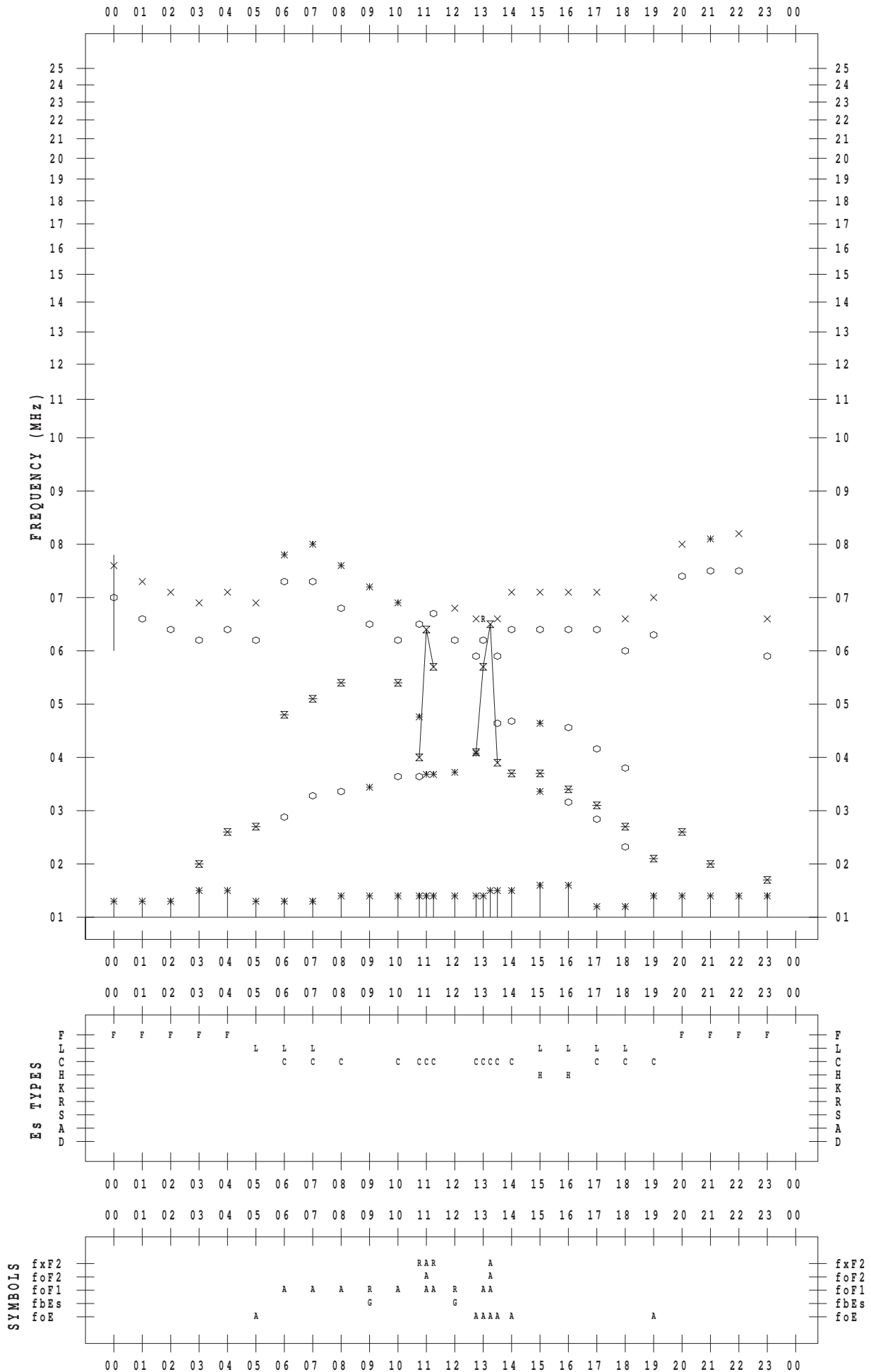
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2014 / 6 / 2

135 ° E MEAN TIME



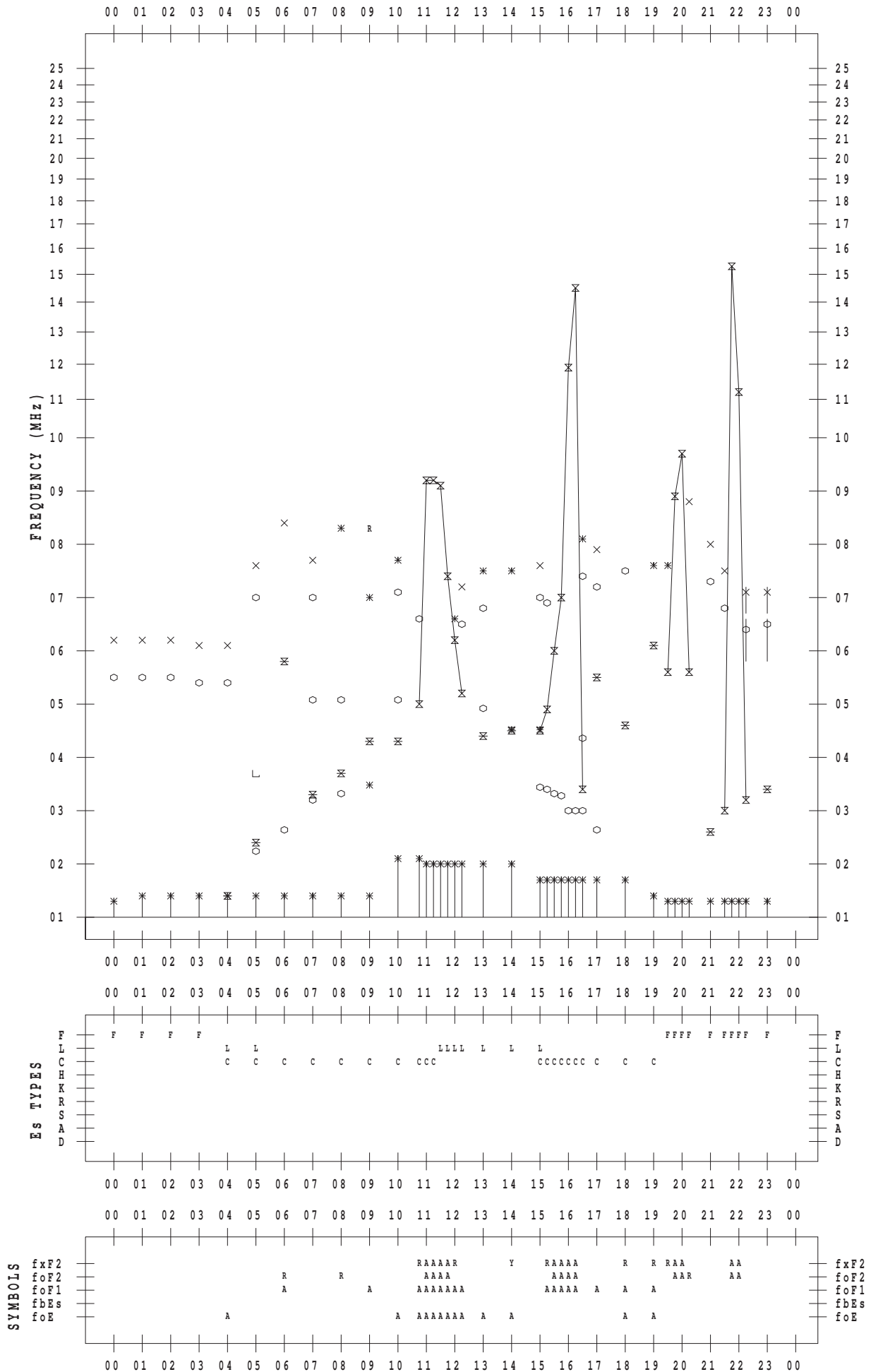
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2014 / 6 / 3

135 ° E MEAN TIME



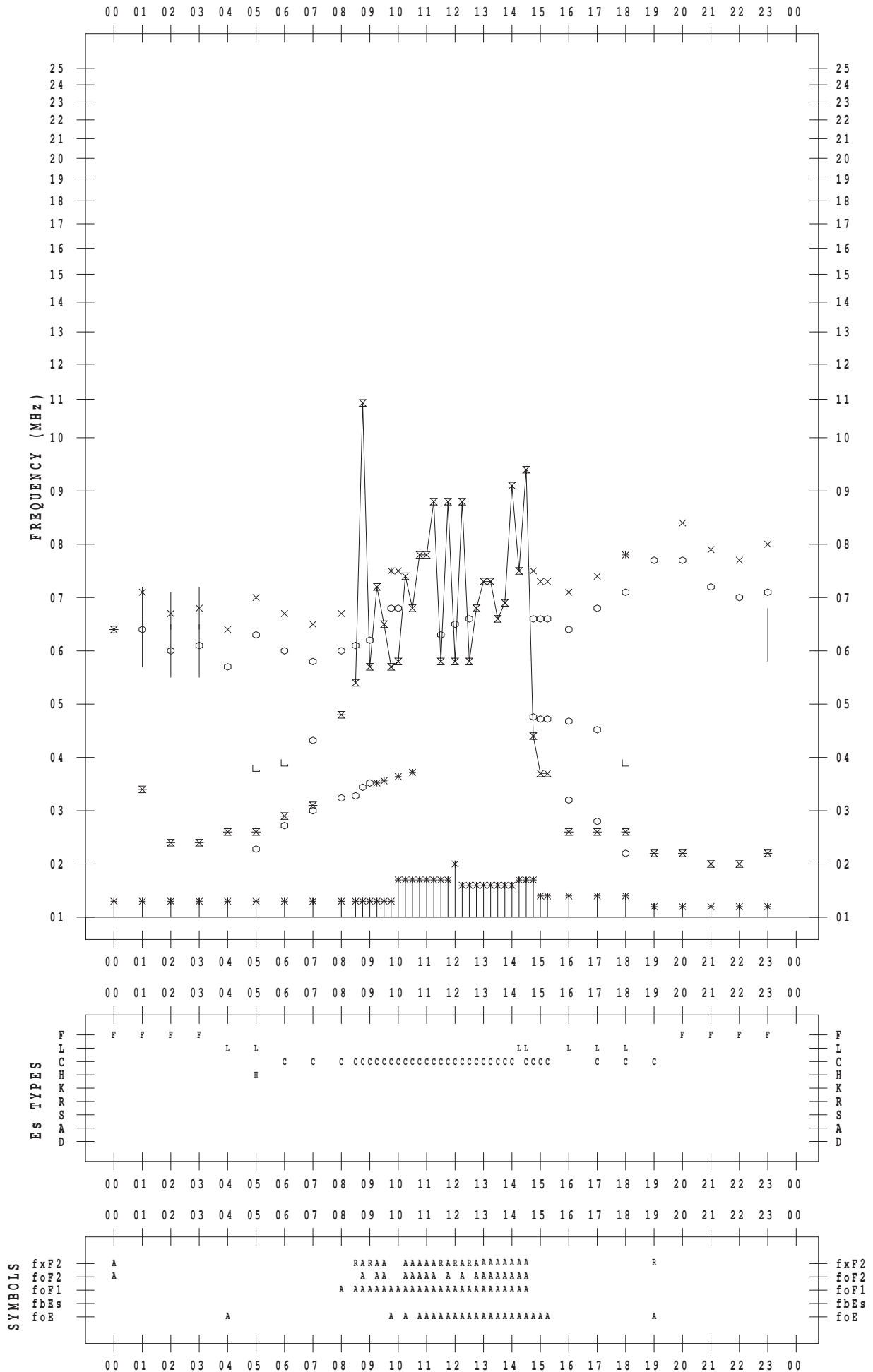
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2014 / 6 / 4

135 ° E MEAN TIME



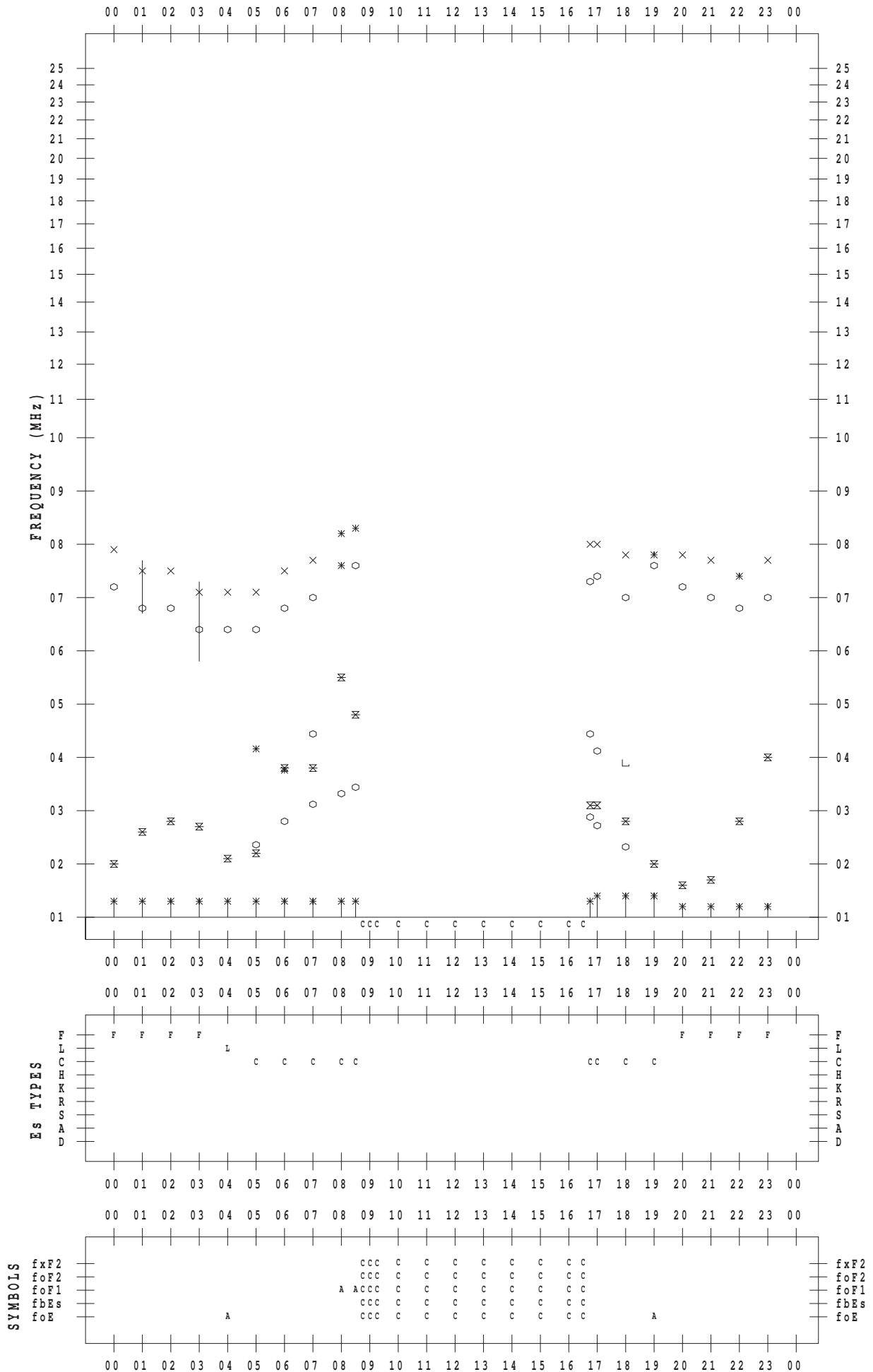
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2014 / 6 / 5

135 ° E MEAN TIME



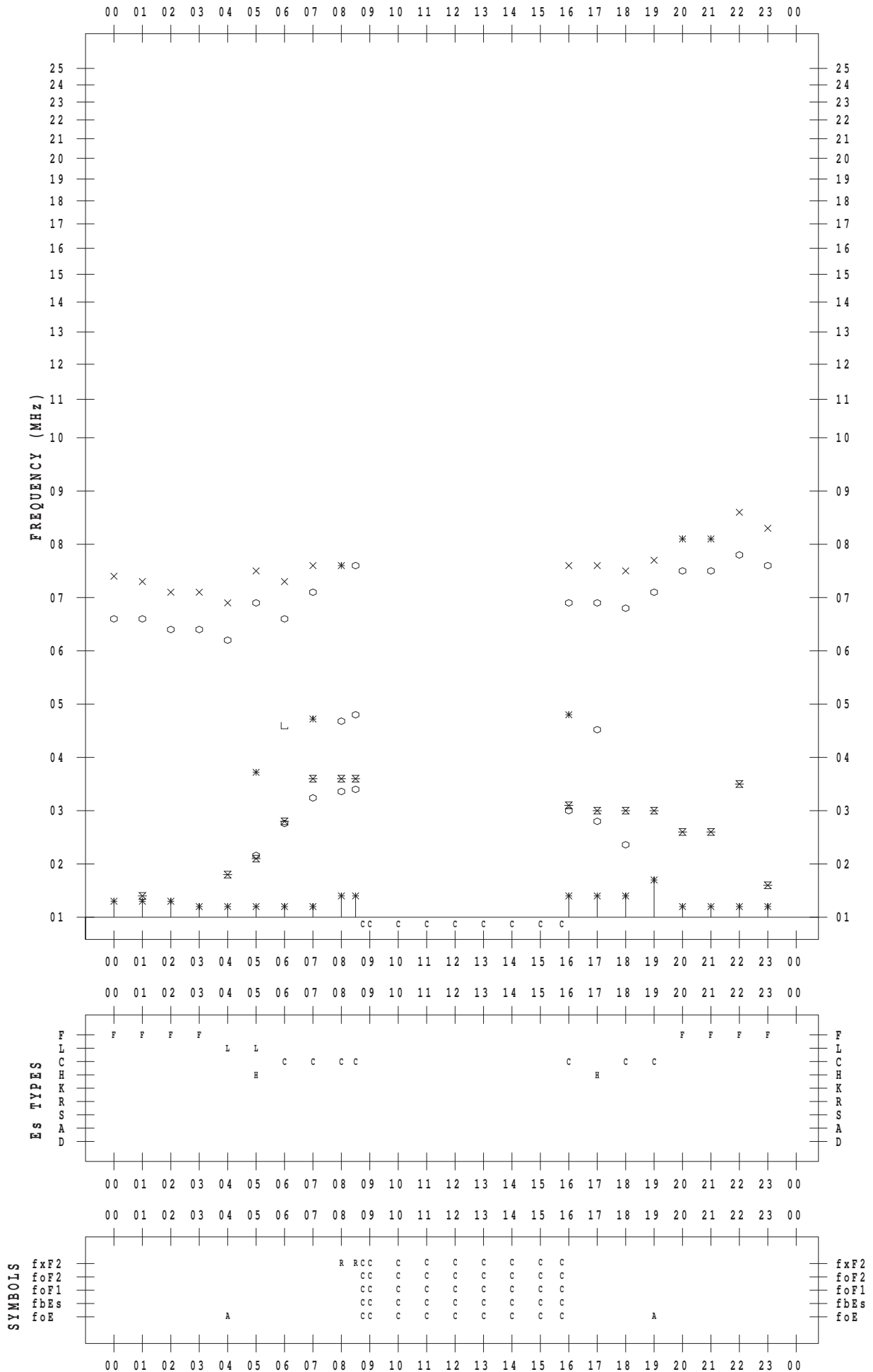
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2014 / 6 / 6

135 ° E MEAN TIME



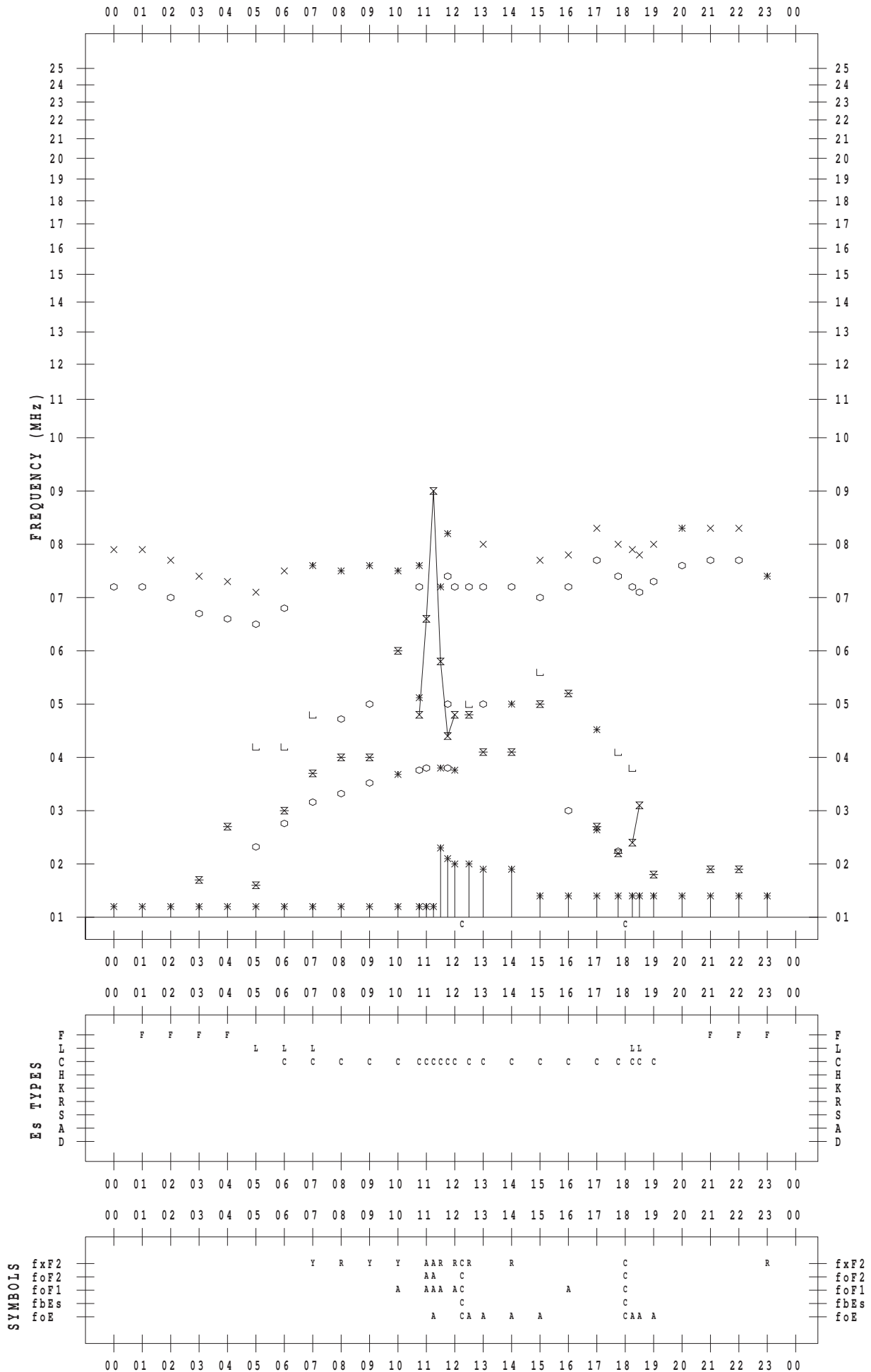
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2014 / 6 / 7

135 ° E MEAN TIME



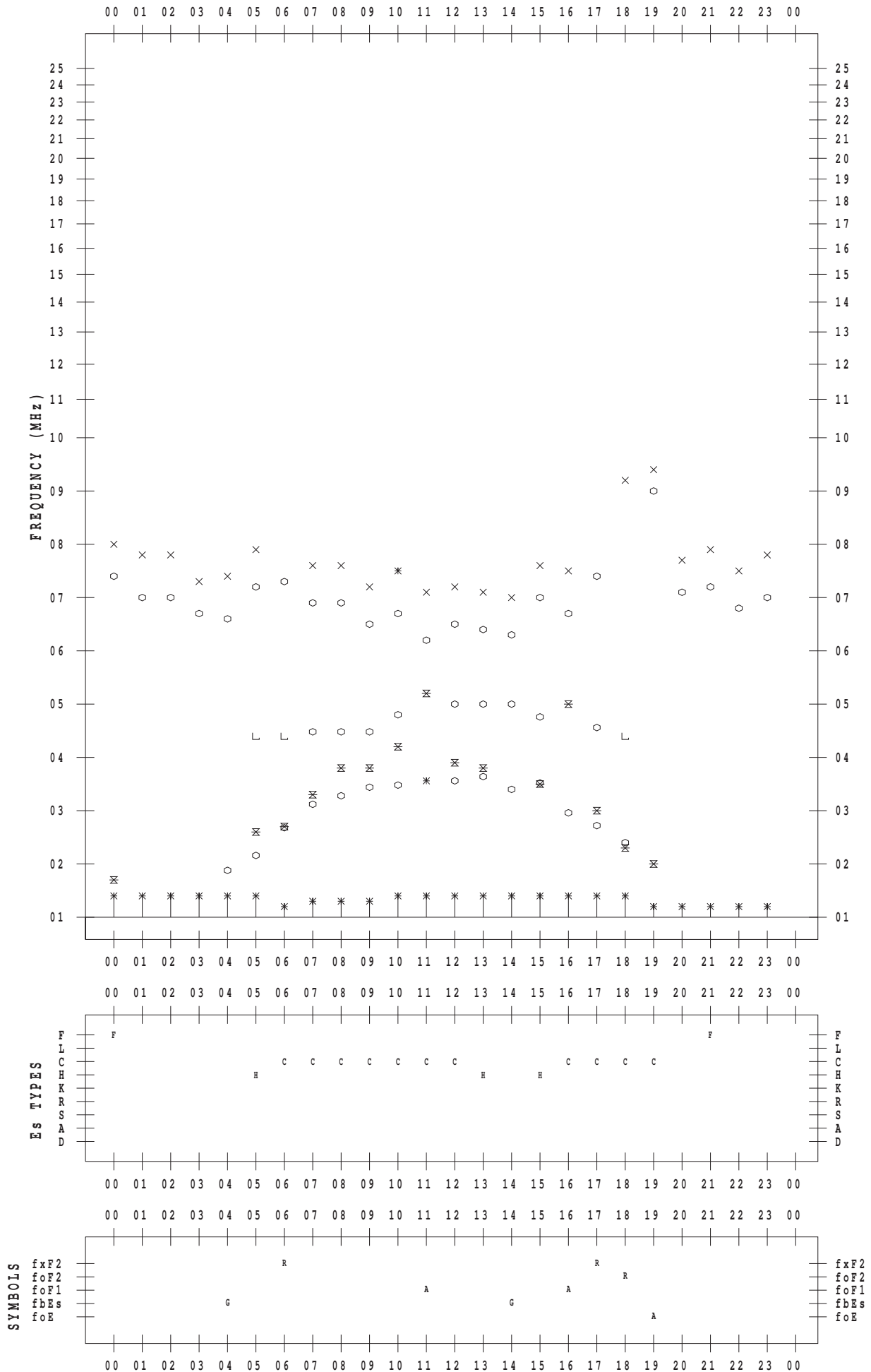
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2014 / 6 / 8

135 ° E MEAN TIME



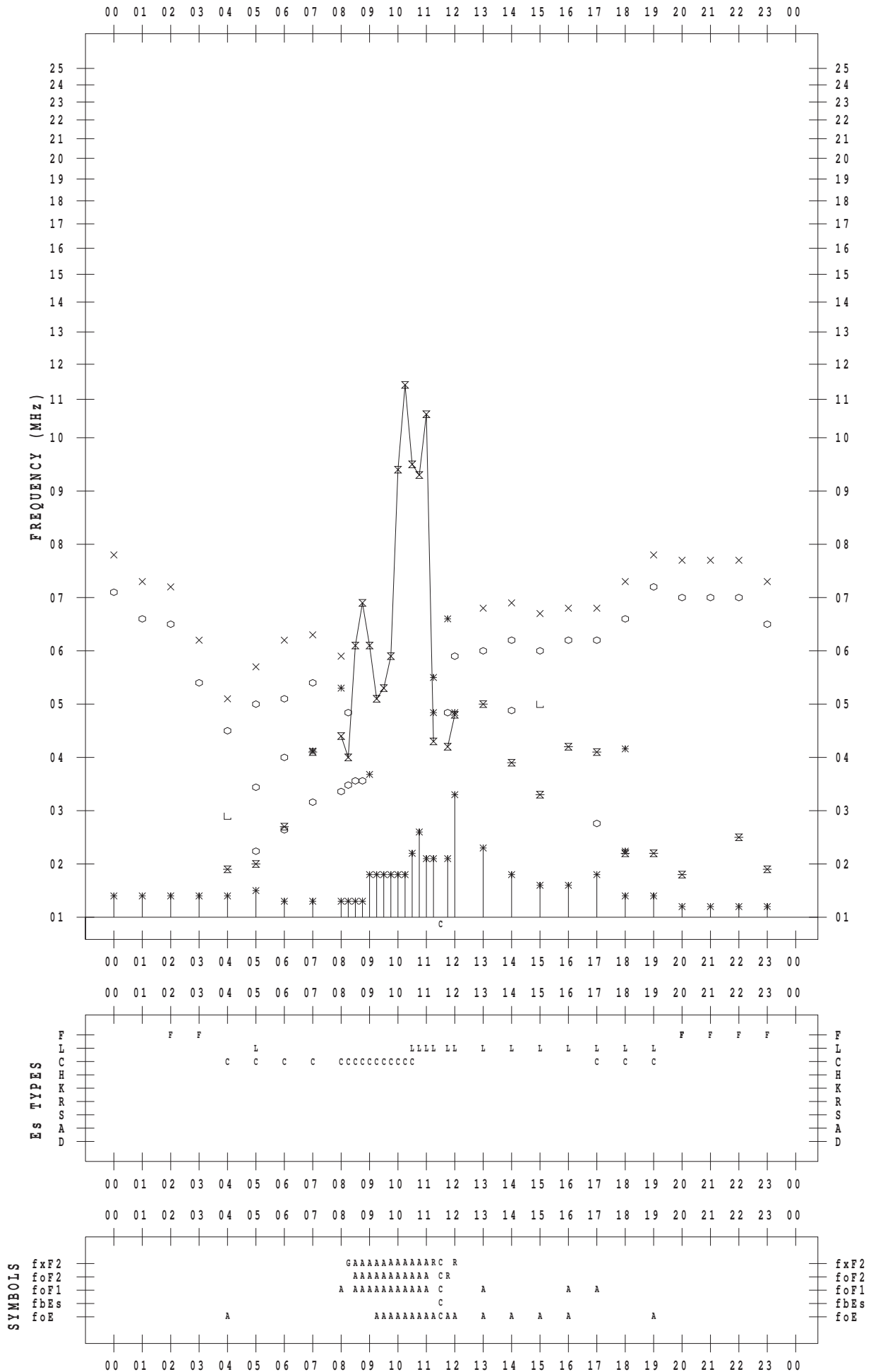
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2014 / 6 / 9

135 ° E MEAN TIME



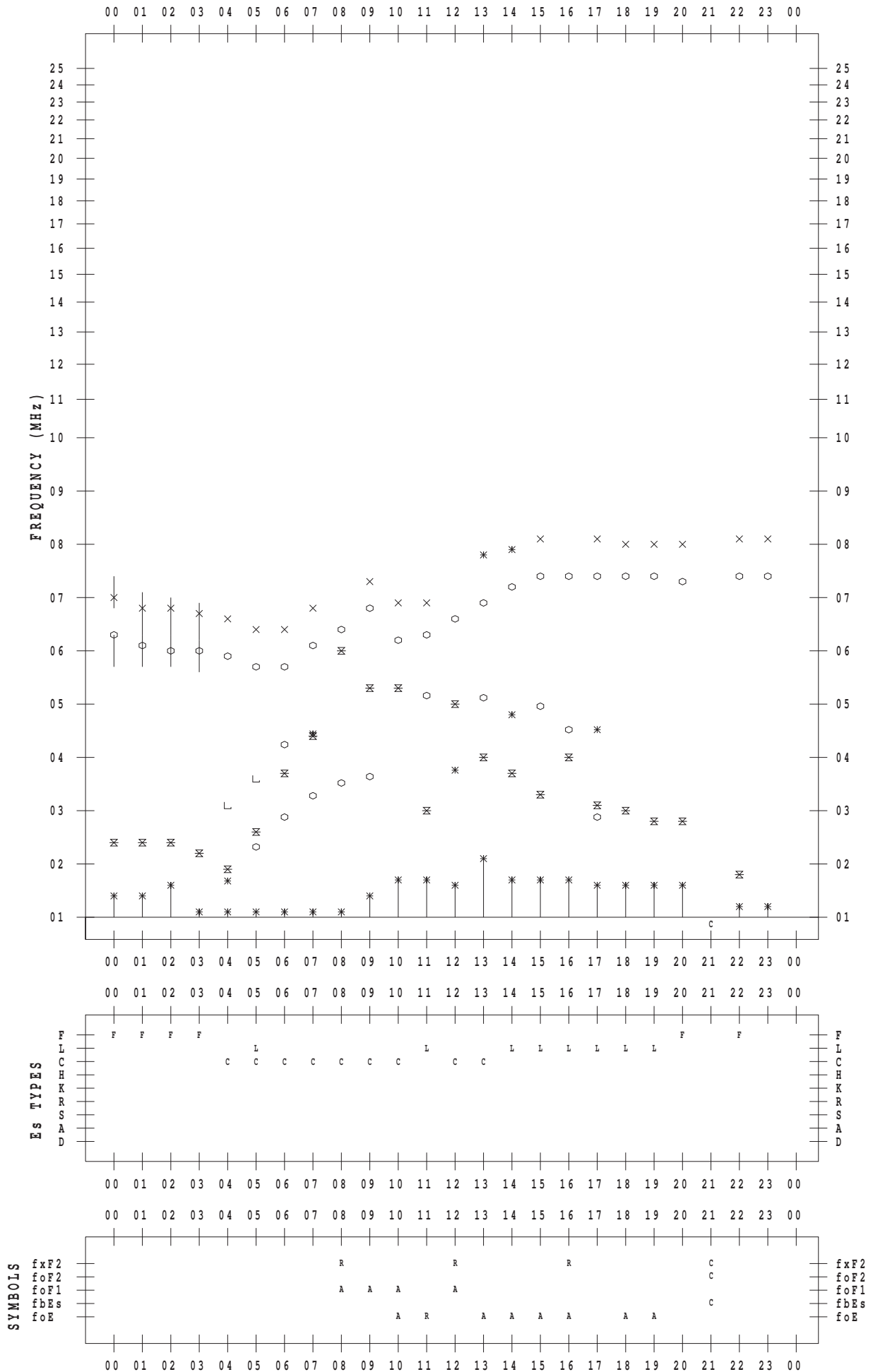
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2014 / 6 / 10

135 ° E MEAN TIME



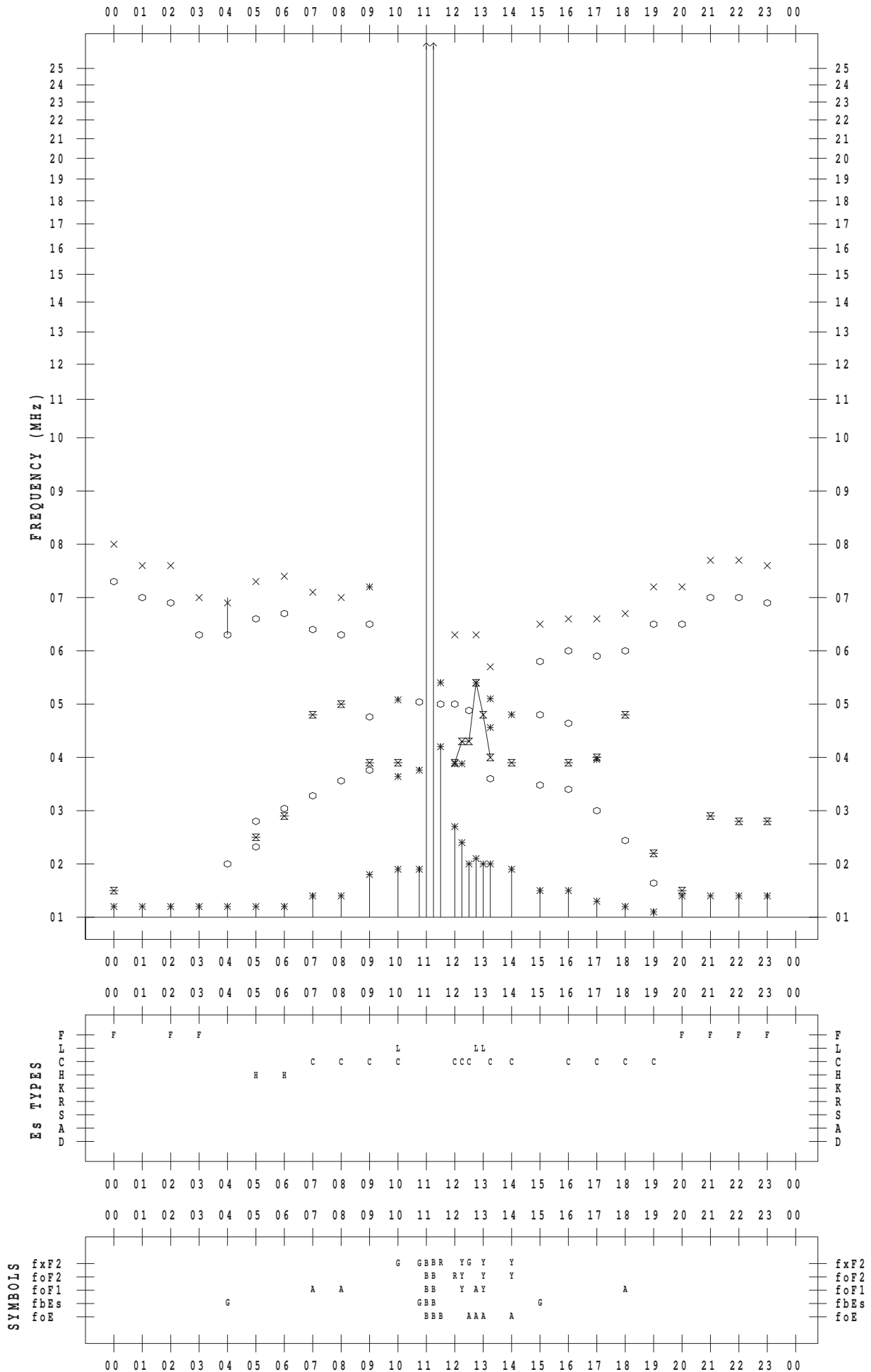
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2014 / 6 / 11

135 ° E MEAN TIME



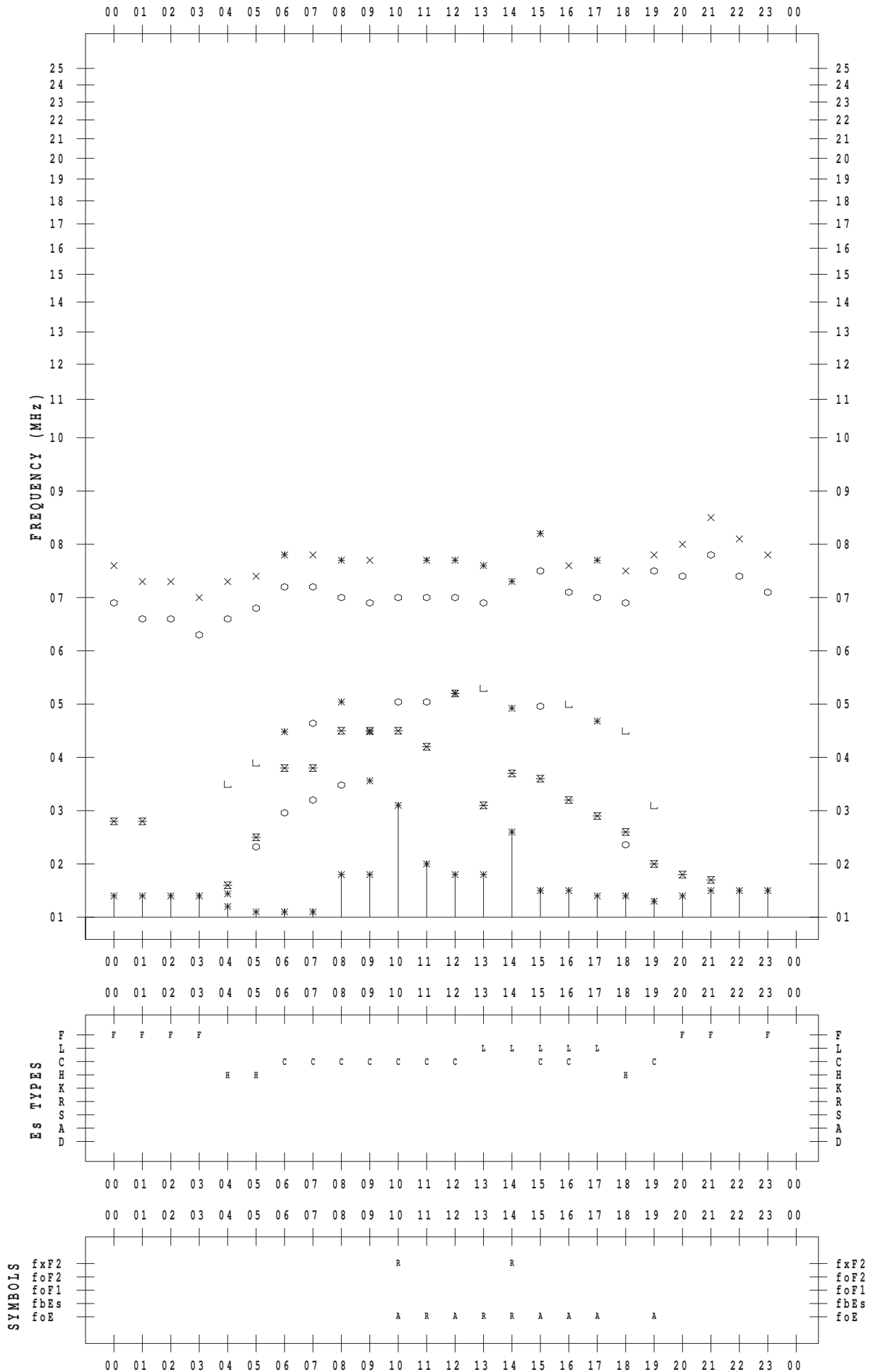
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2014 / 6 / 12

135 ° E MEAN TIME



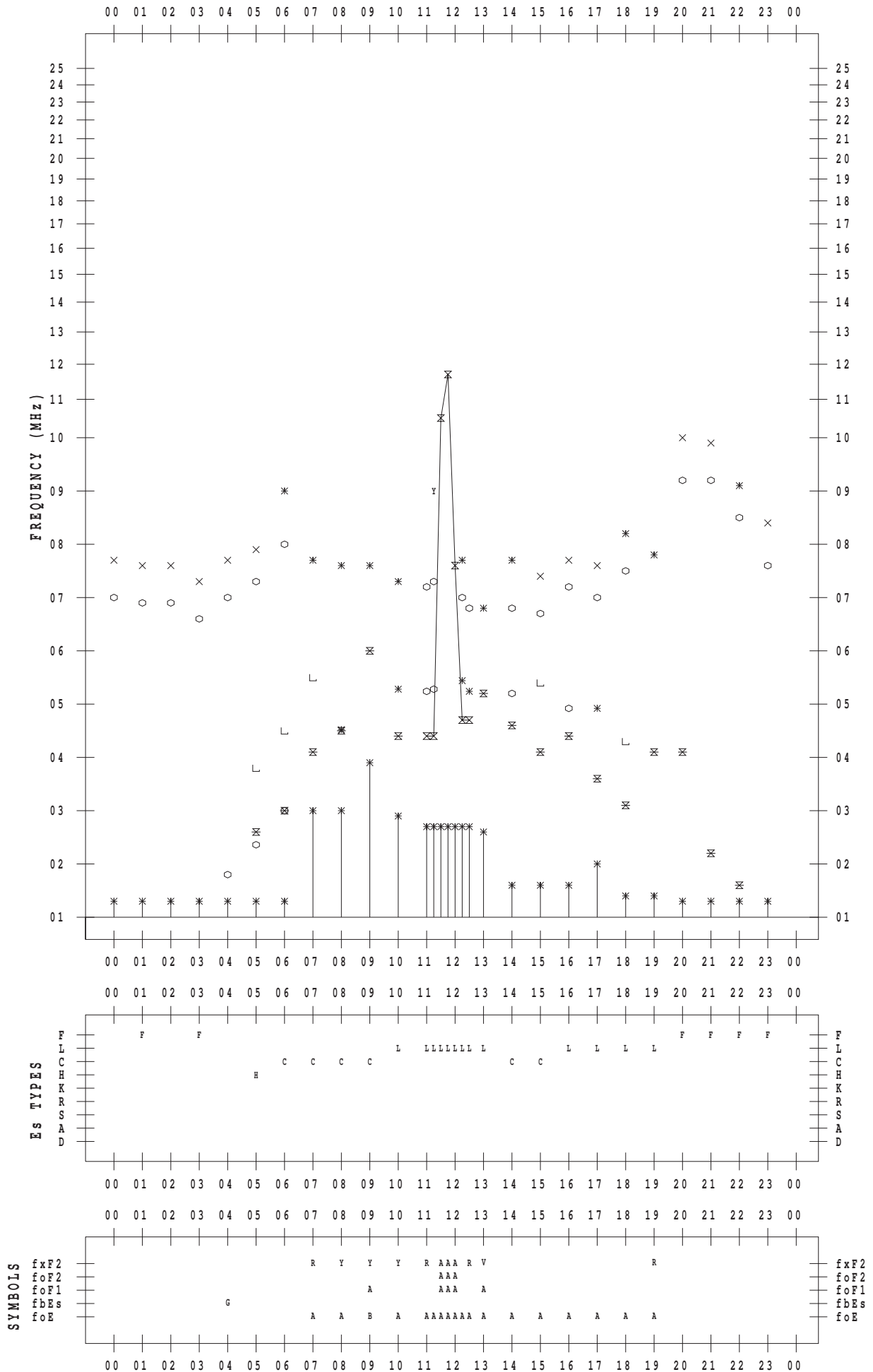
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2014 / 6 / 13

135 ° E MEAN TIME



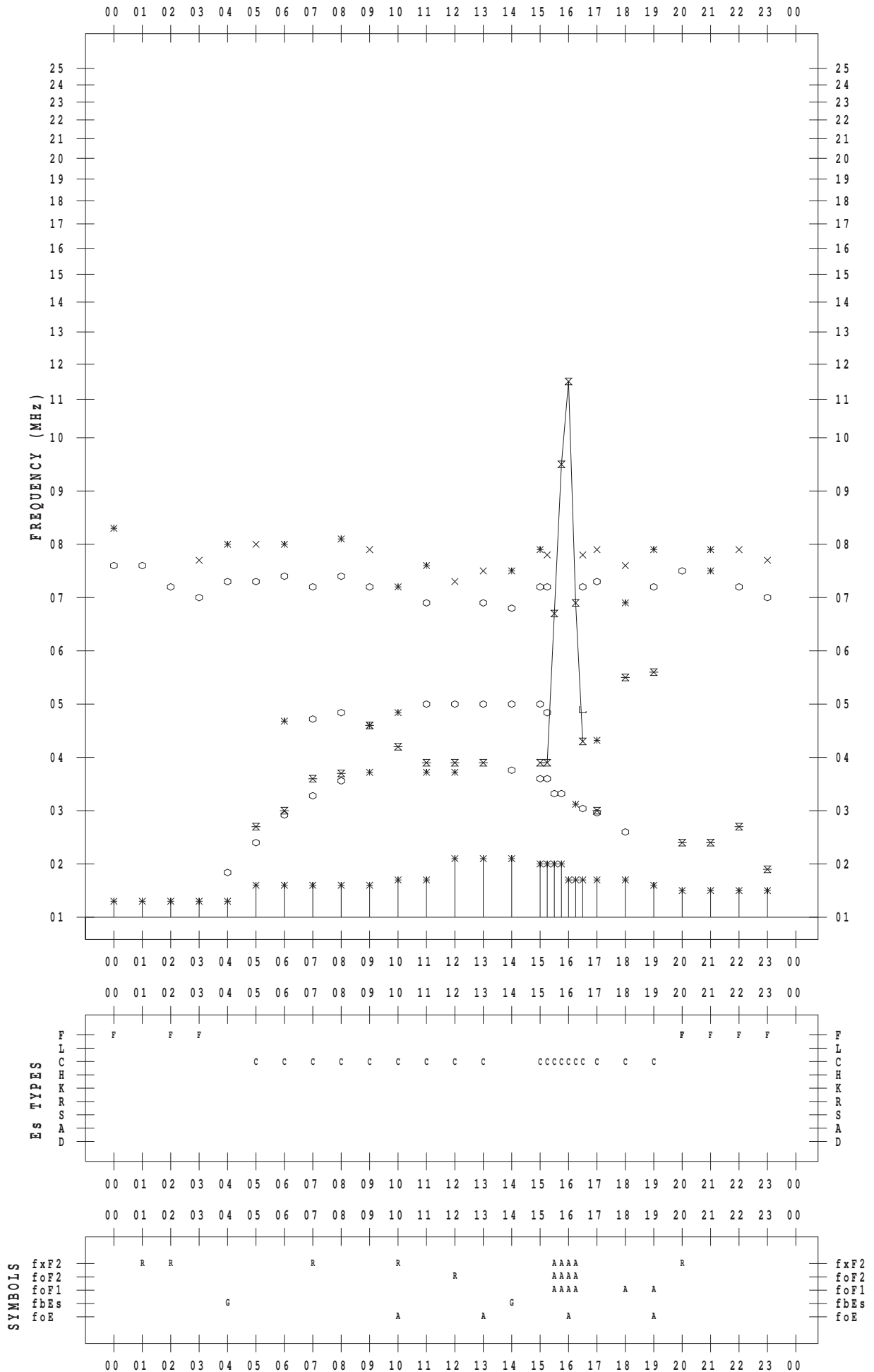
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2014 / 6 / 14

135 ° E MEAN TIME



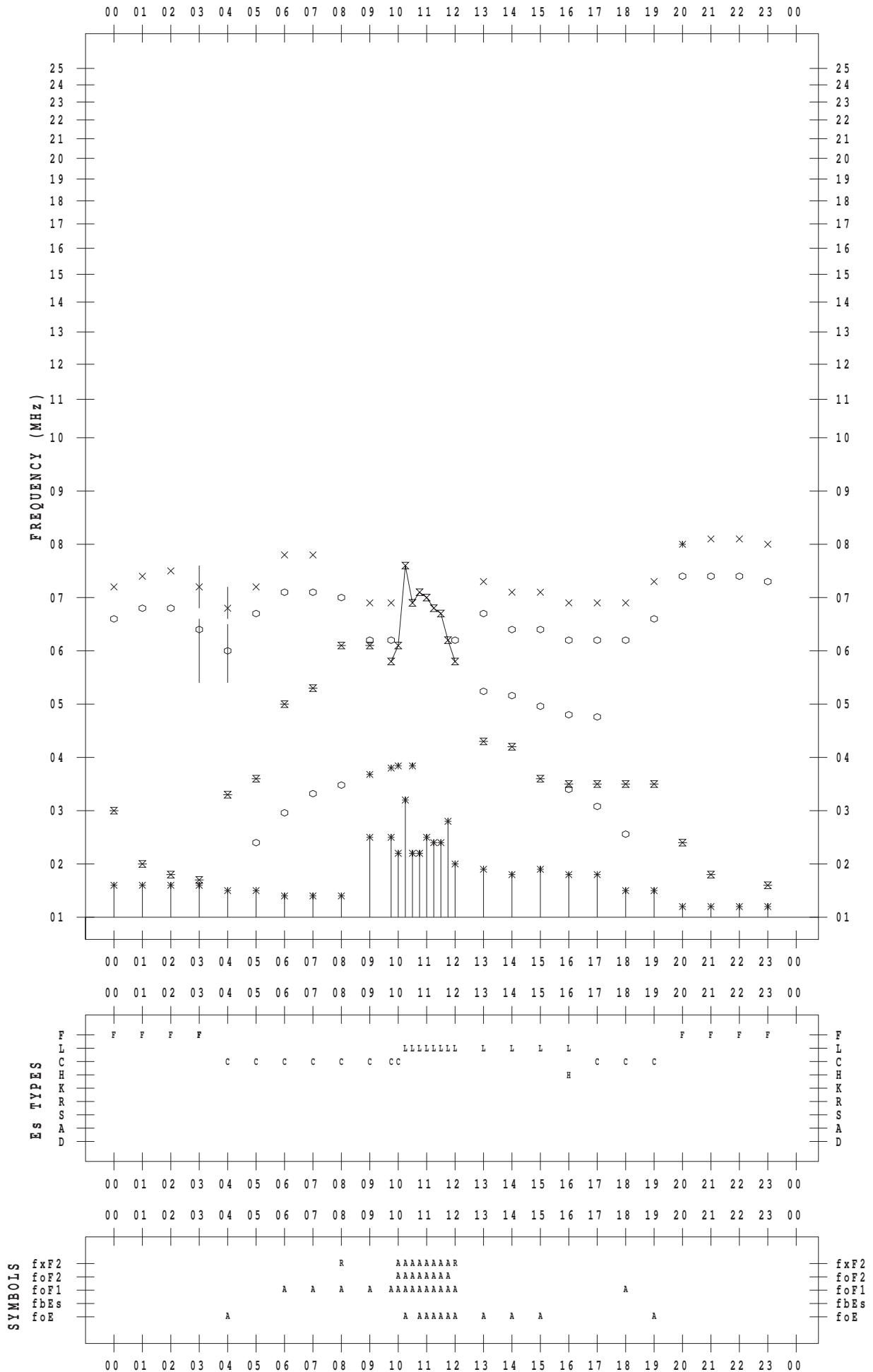
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2014 / 6 / 15

135 ° E MEAN TIME



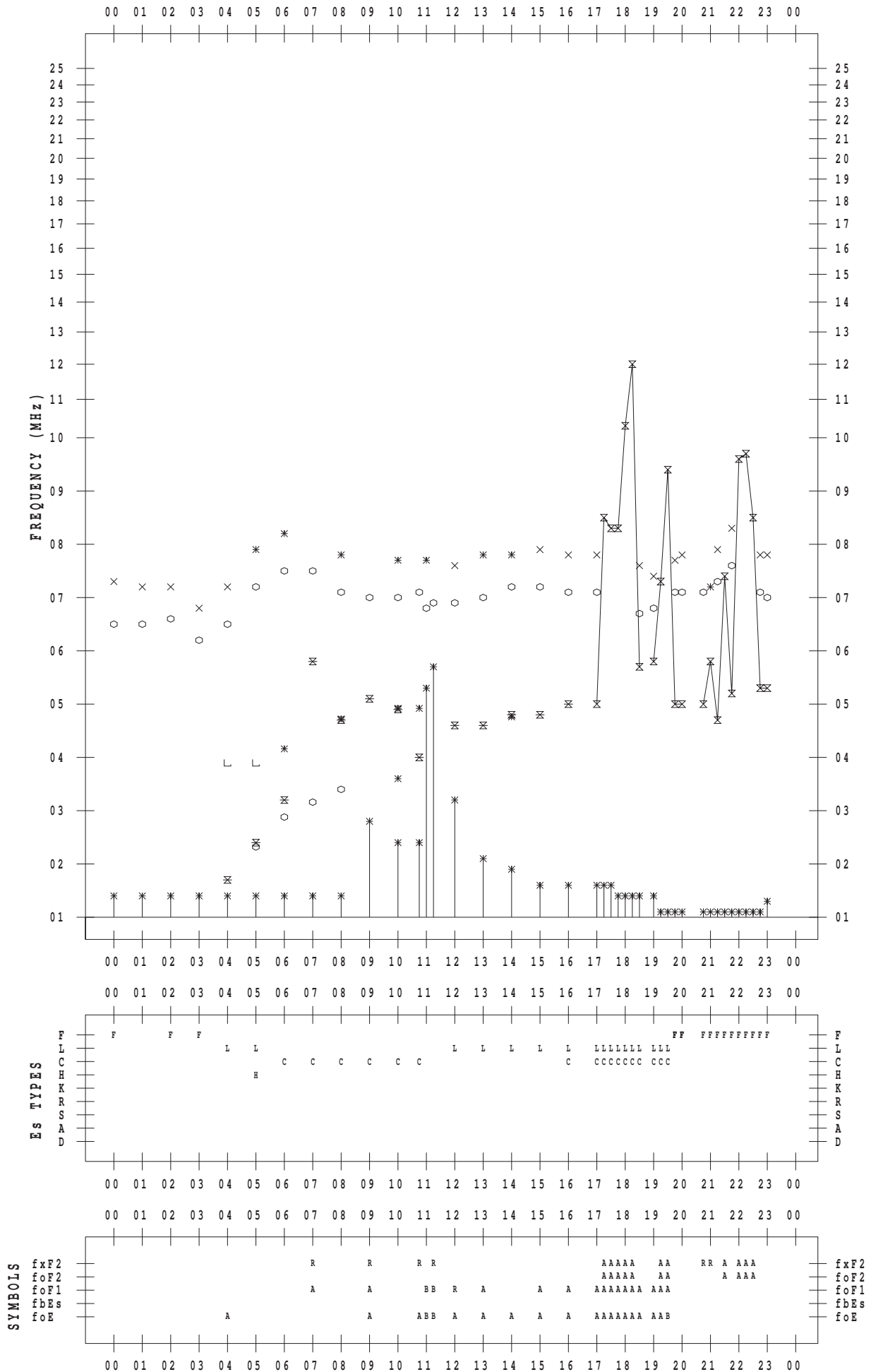
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2014 / 6 / 16

135 ° E MEAN TIME



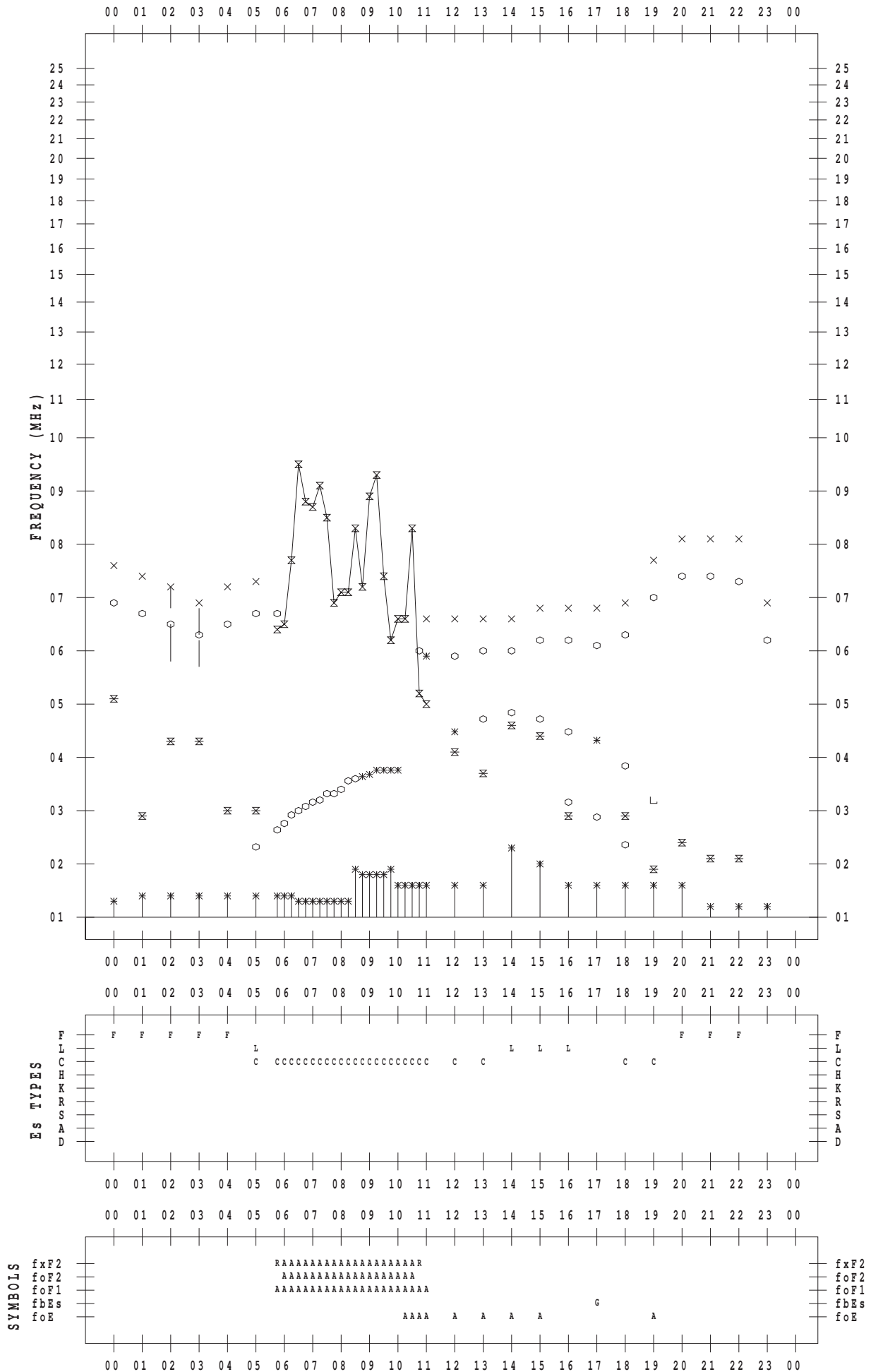
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2014 / 6 / 17

135 ° E MEAN TIME



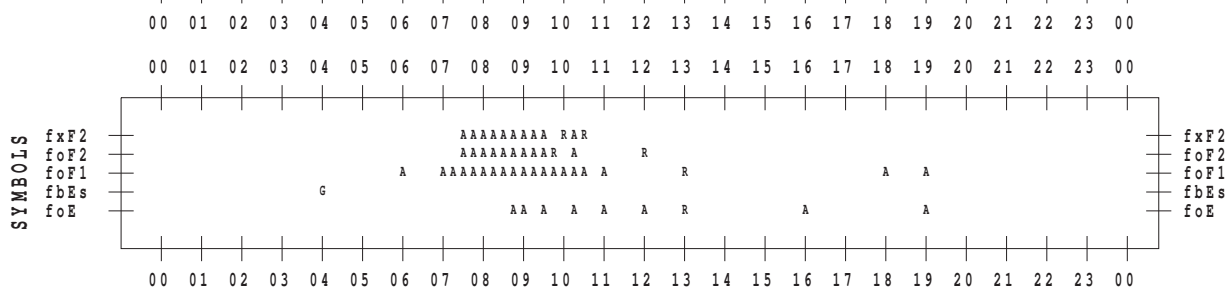
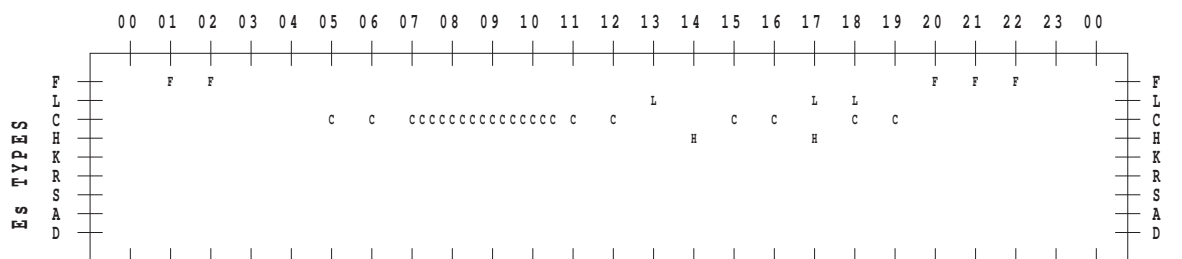
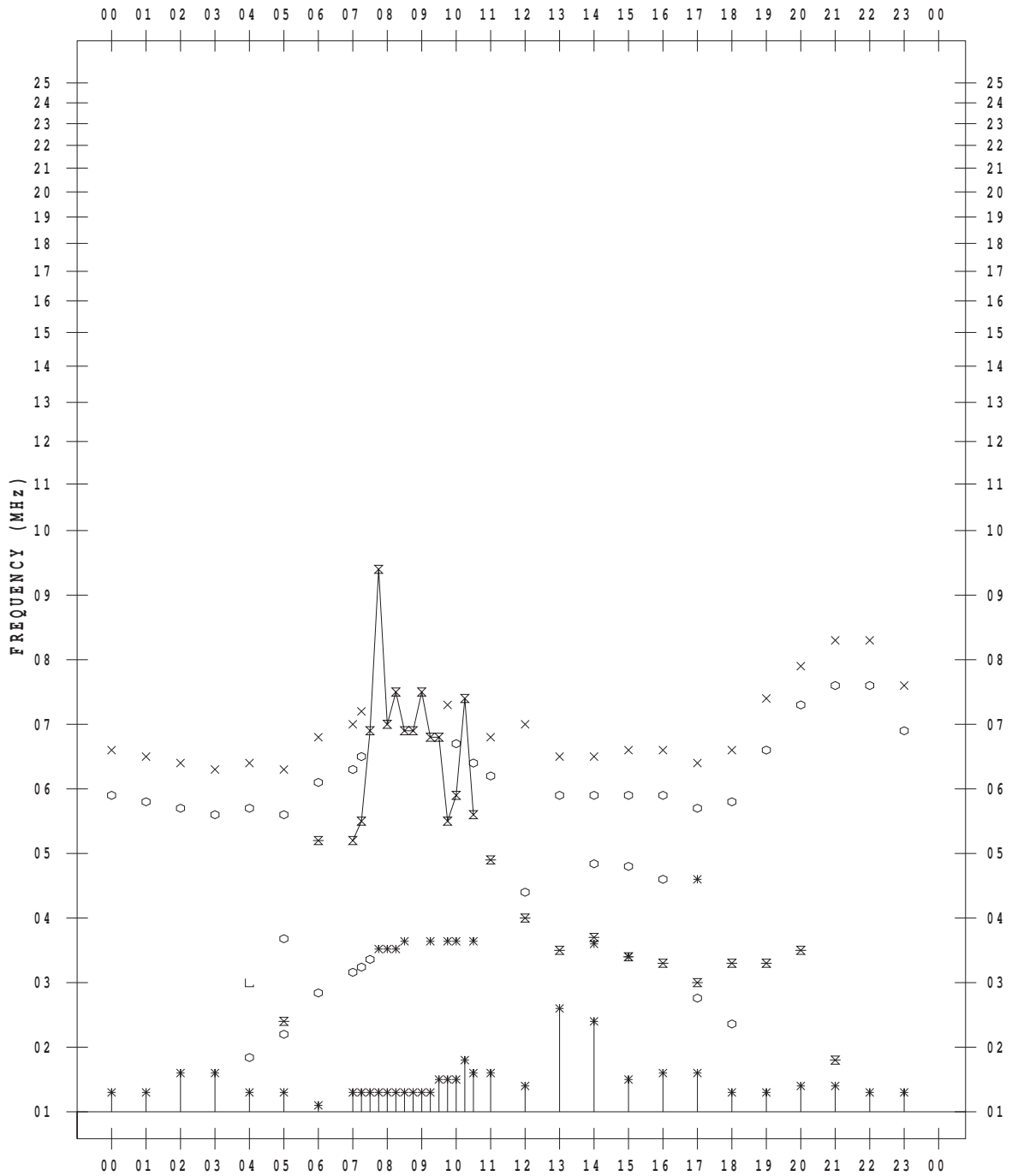
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2014 / 6 / 18

135 ° E MEAN TIME



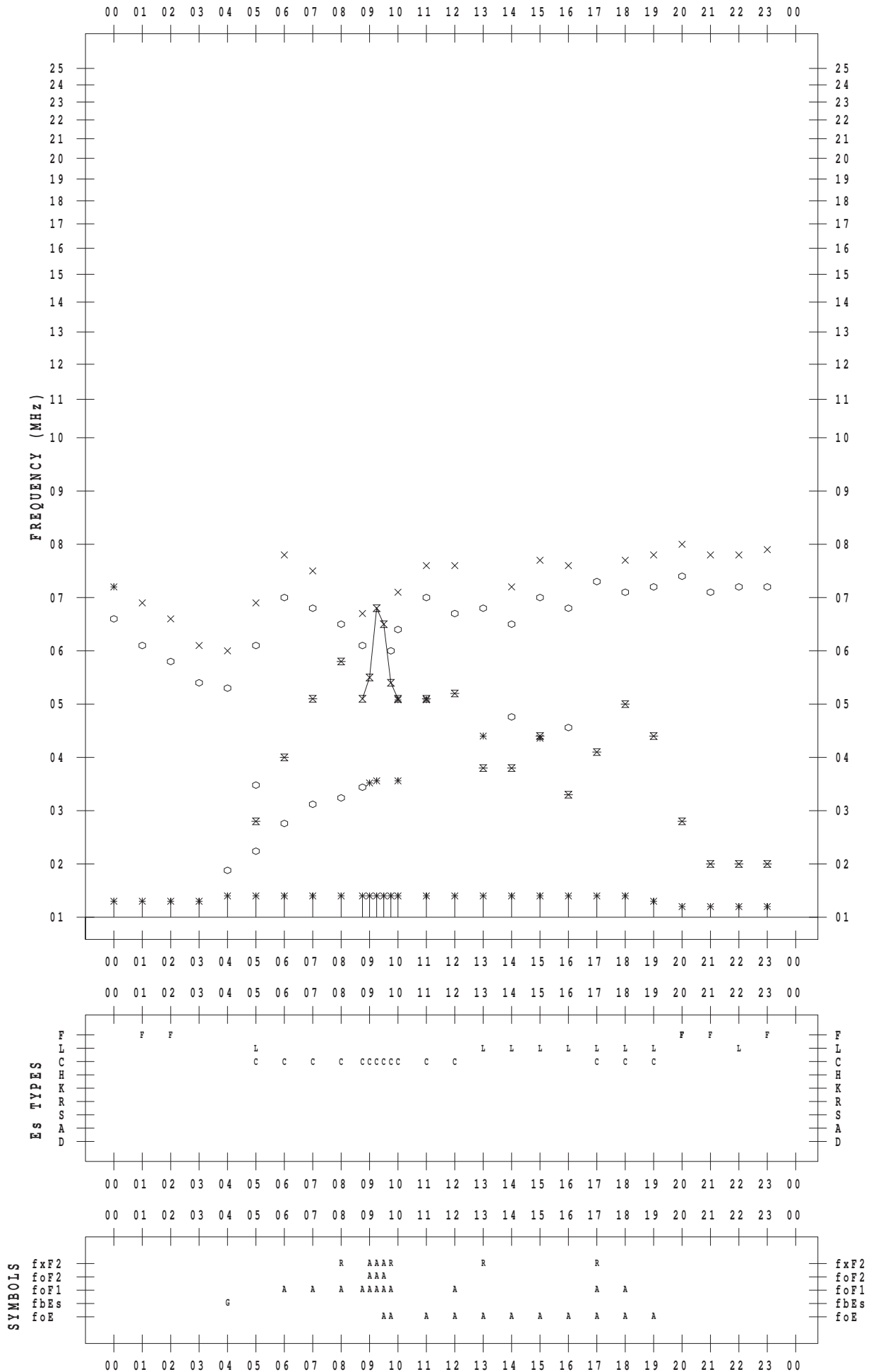
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2014 / 6 / 19

135 ° E MEAN TIME



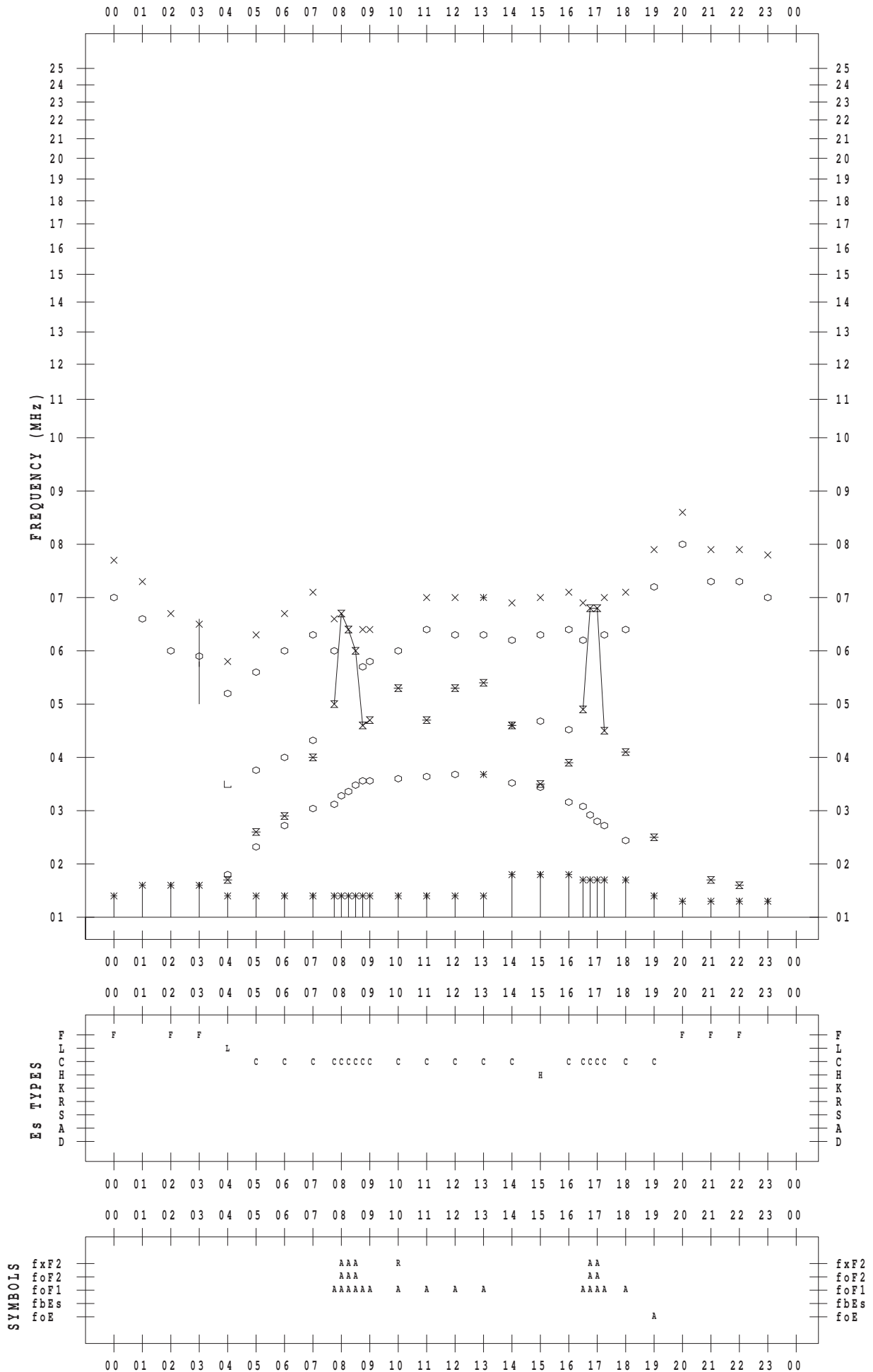
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2014 / 6 / 20

135 ° E MEAN TIME



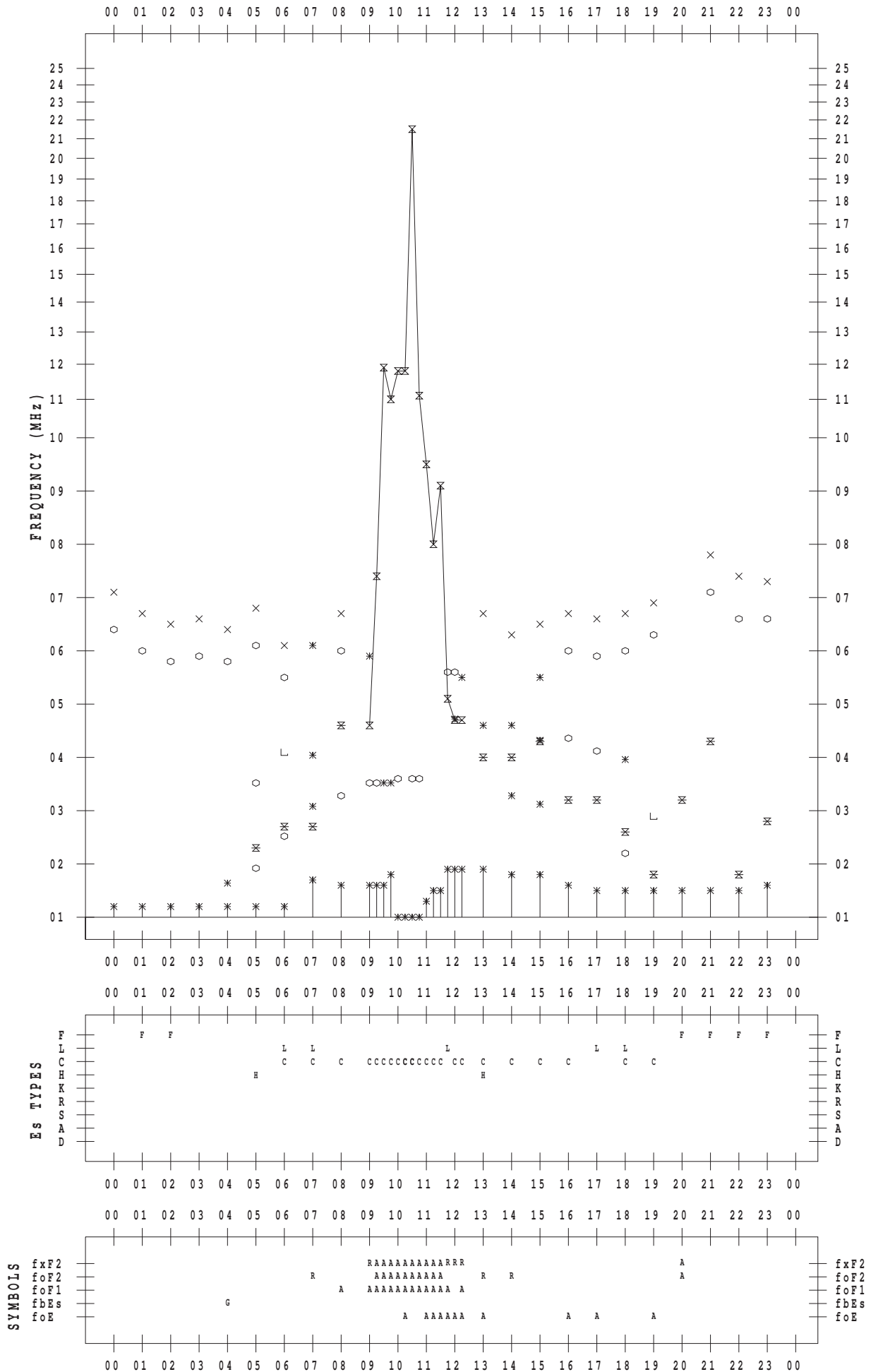
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2014 / 6 / 21

135 ° E MEAN TIME



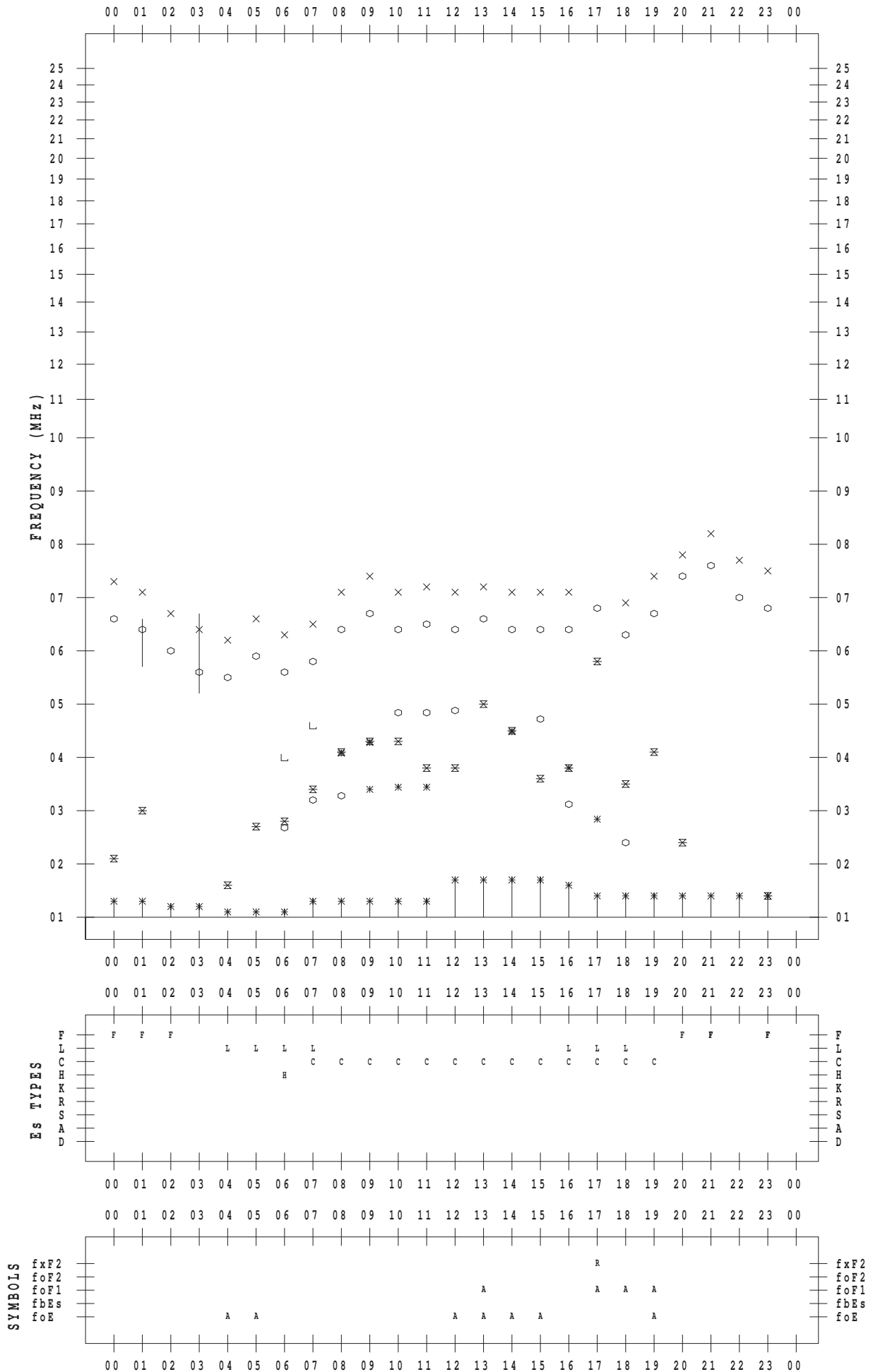
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2014 / 6 / 22

135 ° E MEAN TIME



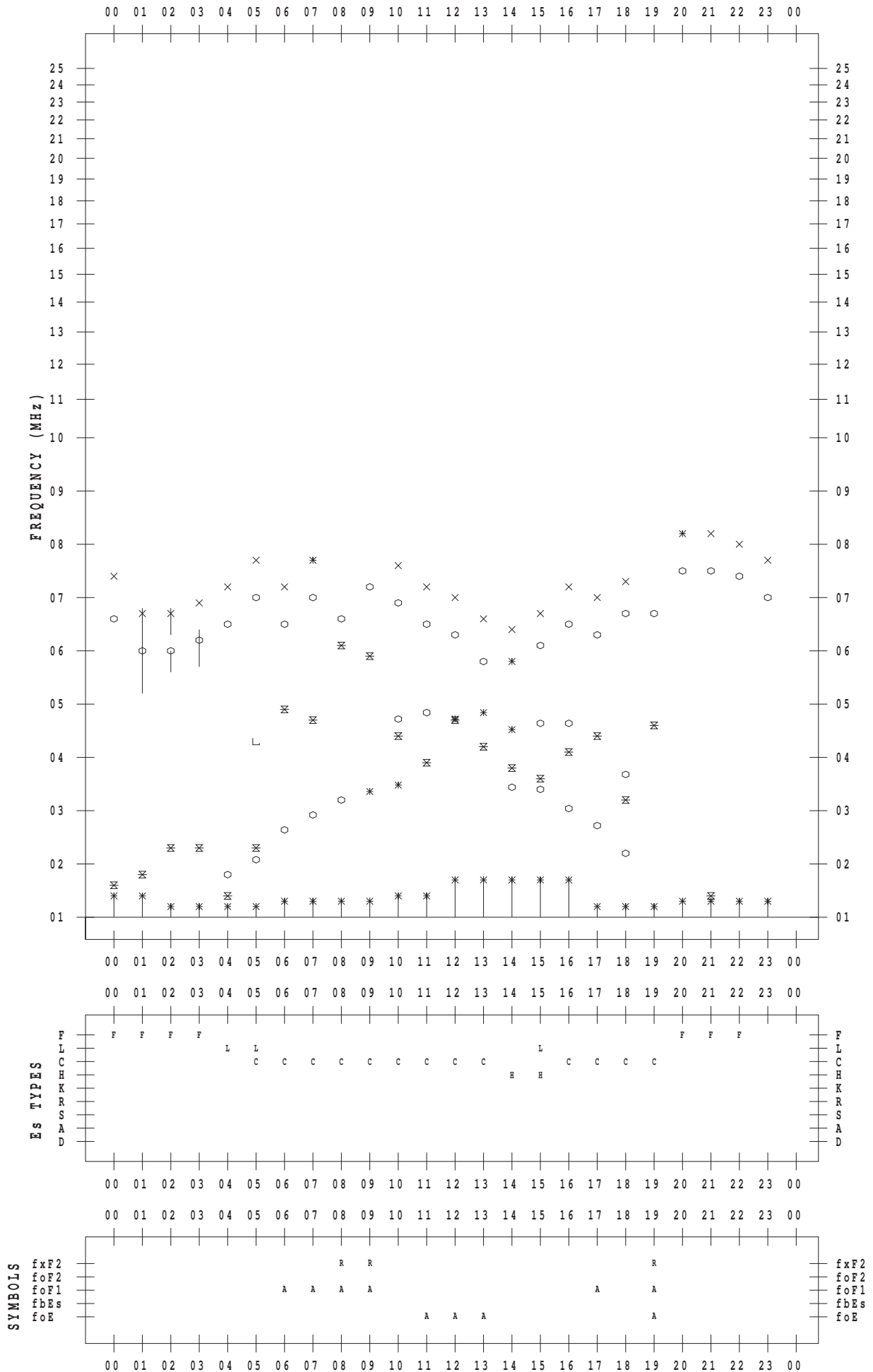
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2014 / 6 / 23

135 ° E MEAN TIME



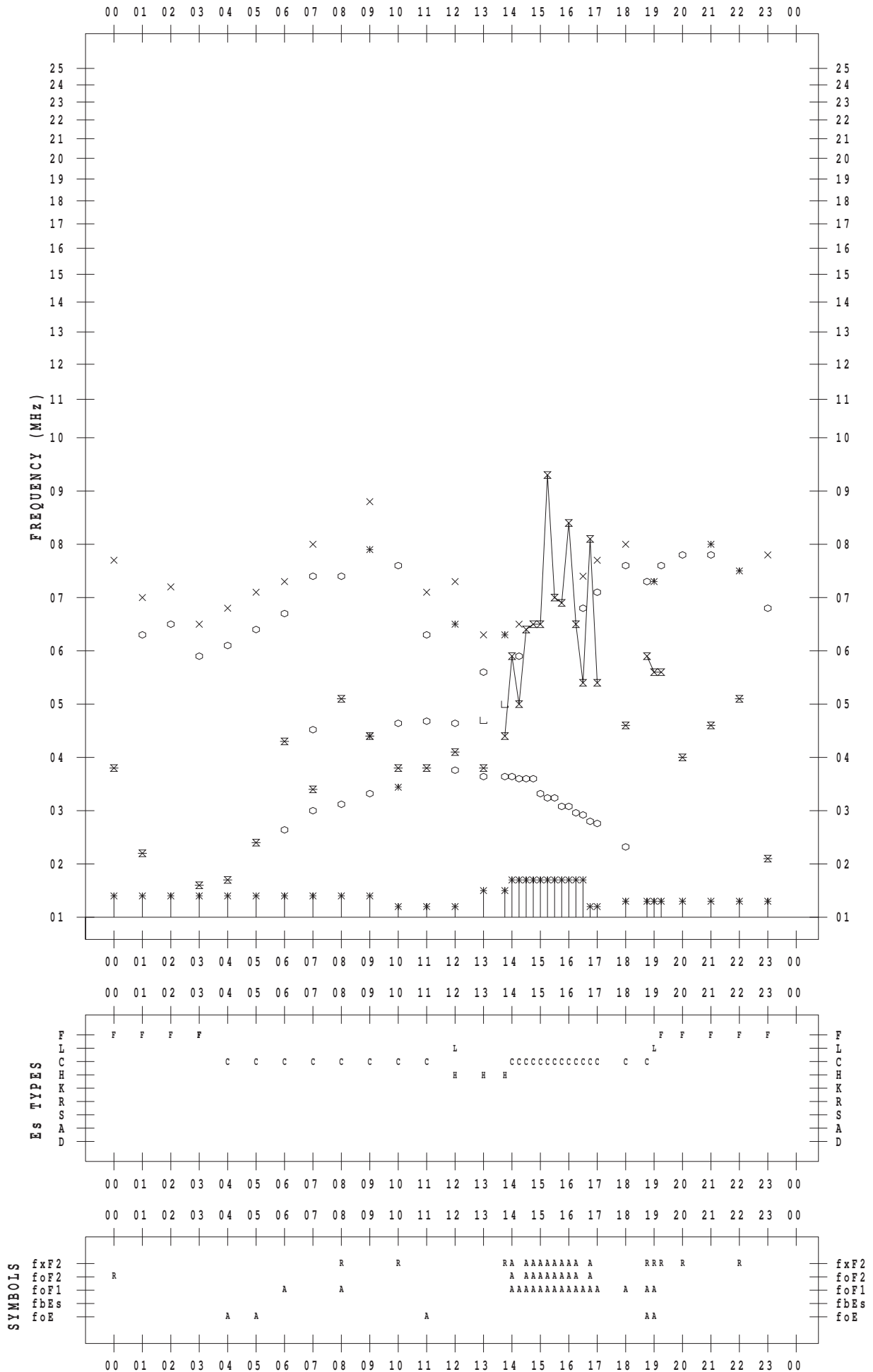
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2014 / 6 / 24

135 ° E MEAN TIME



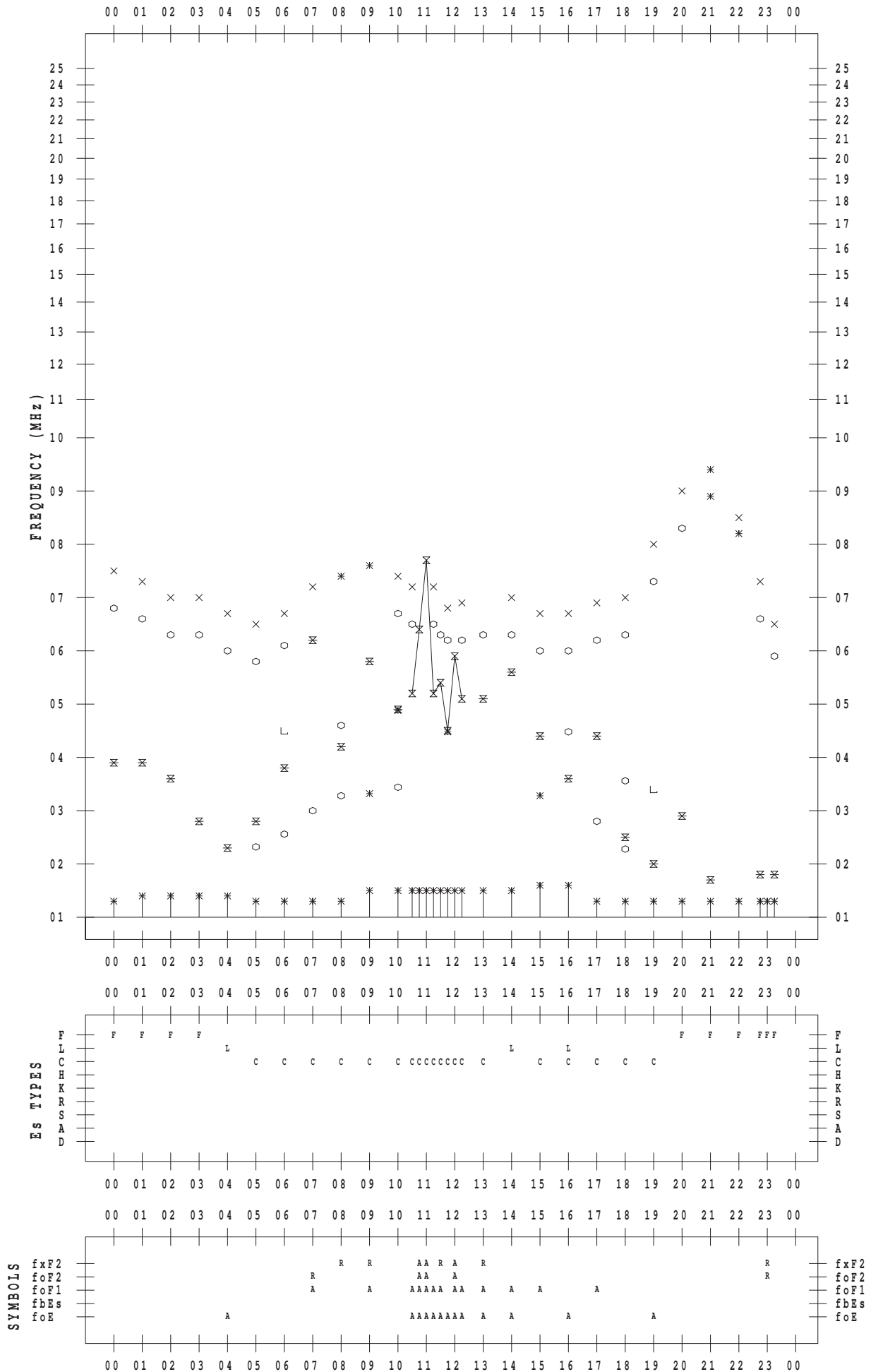
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2014 / 6 / 25

135 ° E MEAN TIME



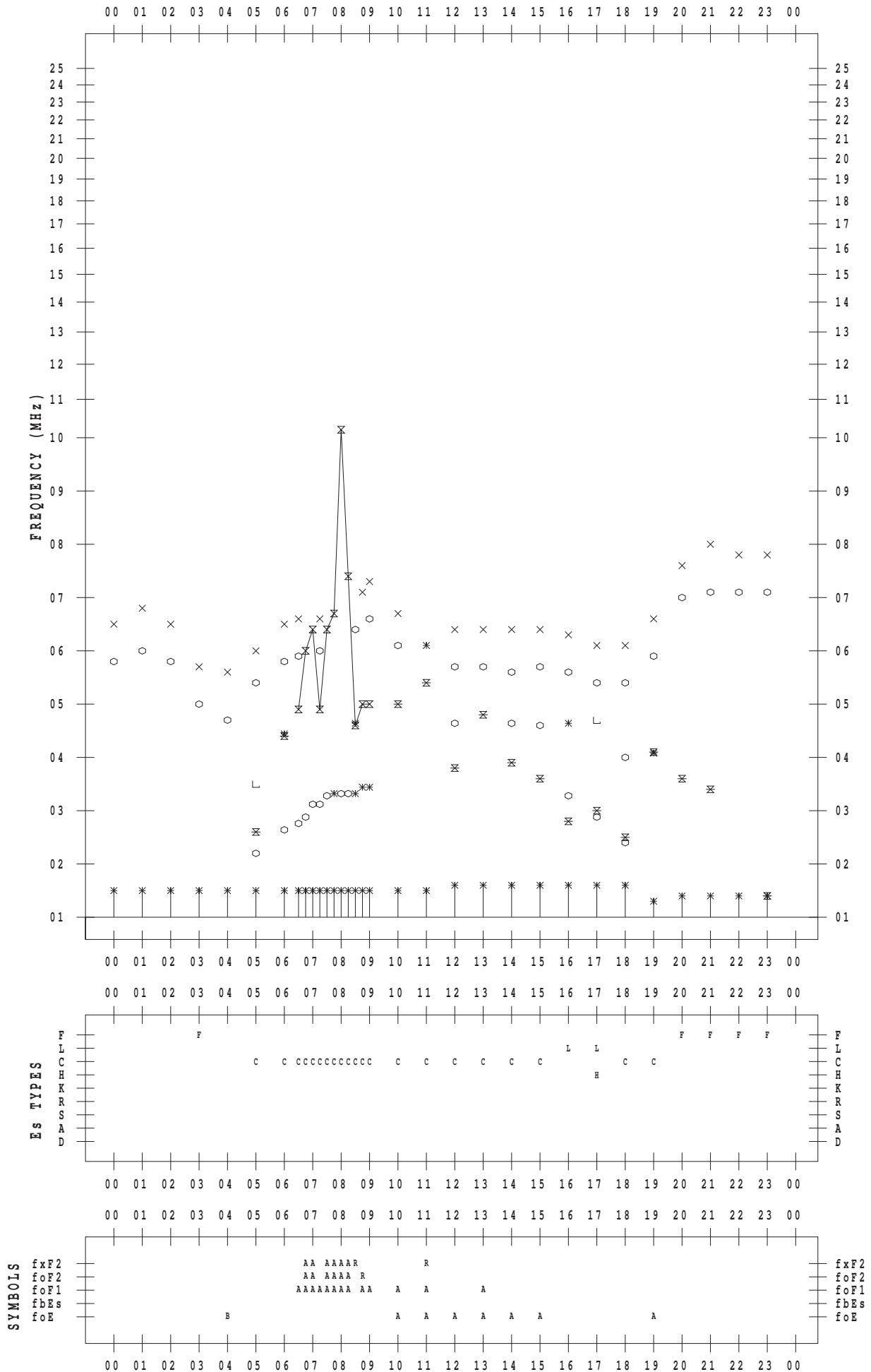
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2014 / 6 / 26

135 ° E MEAN TIME



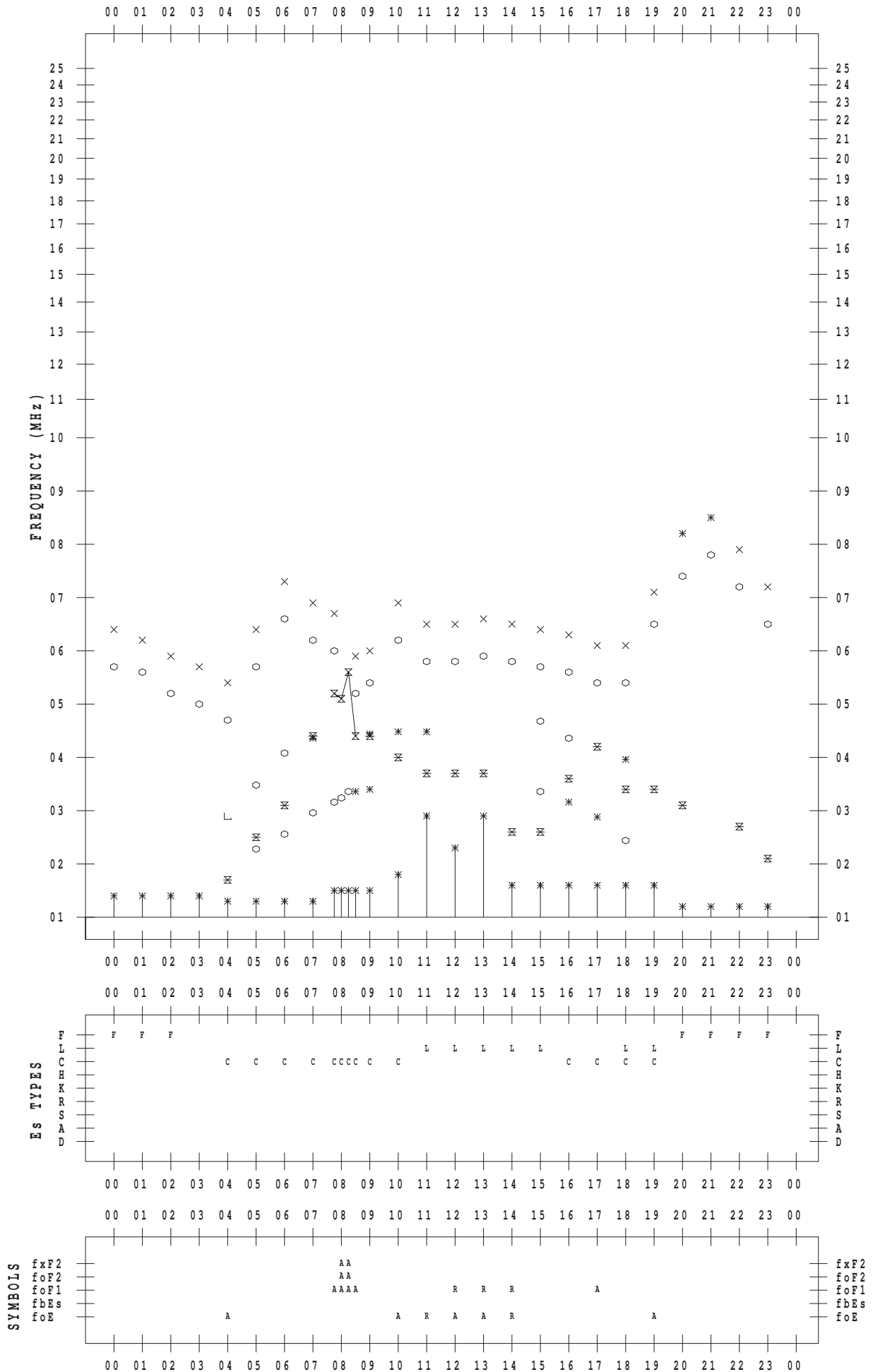
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2014 / 6 / 27

135 ° E MEAN TIME



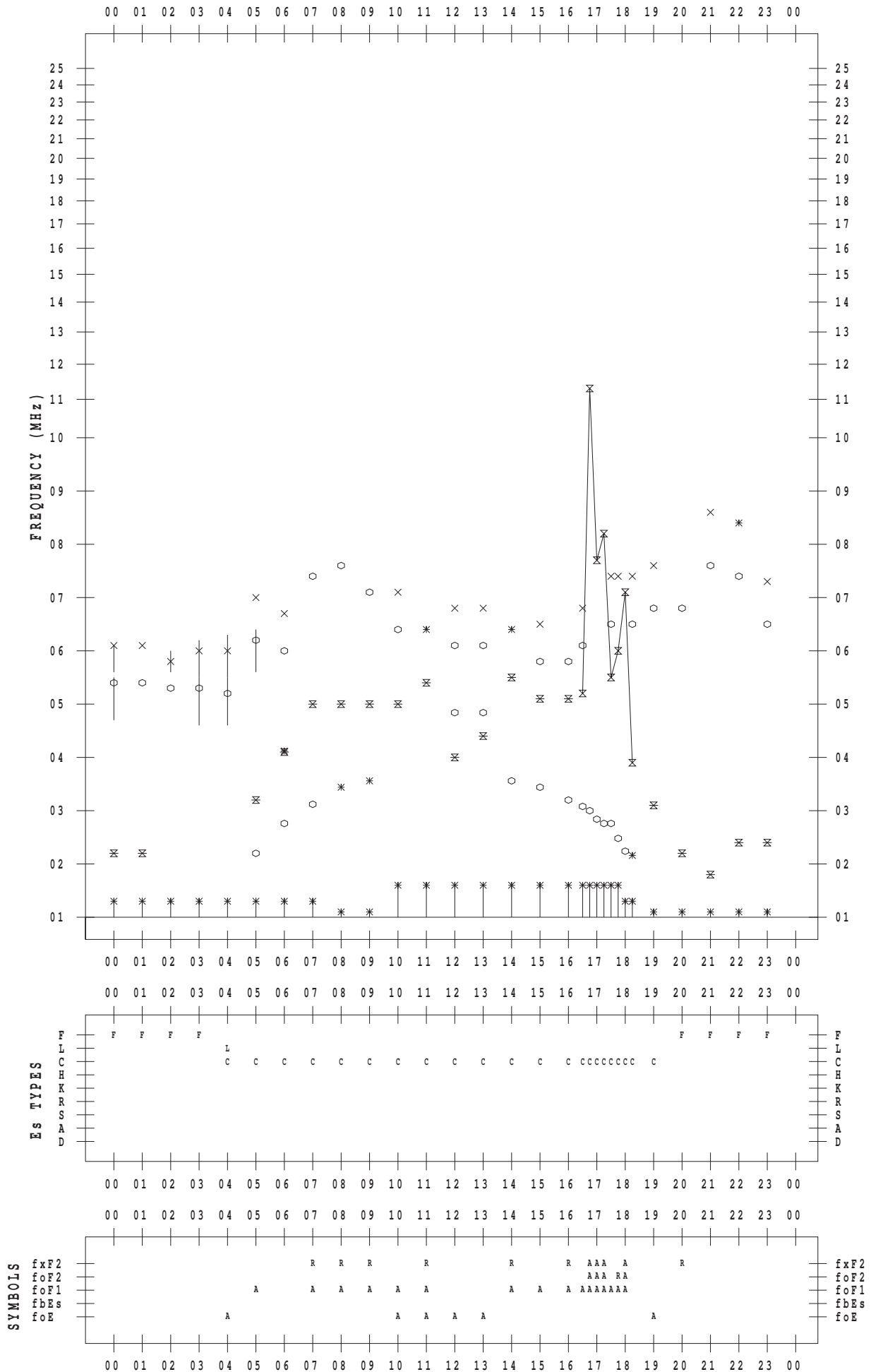
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2014 / 6 / 28

135 ° E MEAN TIME



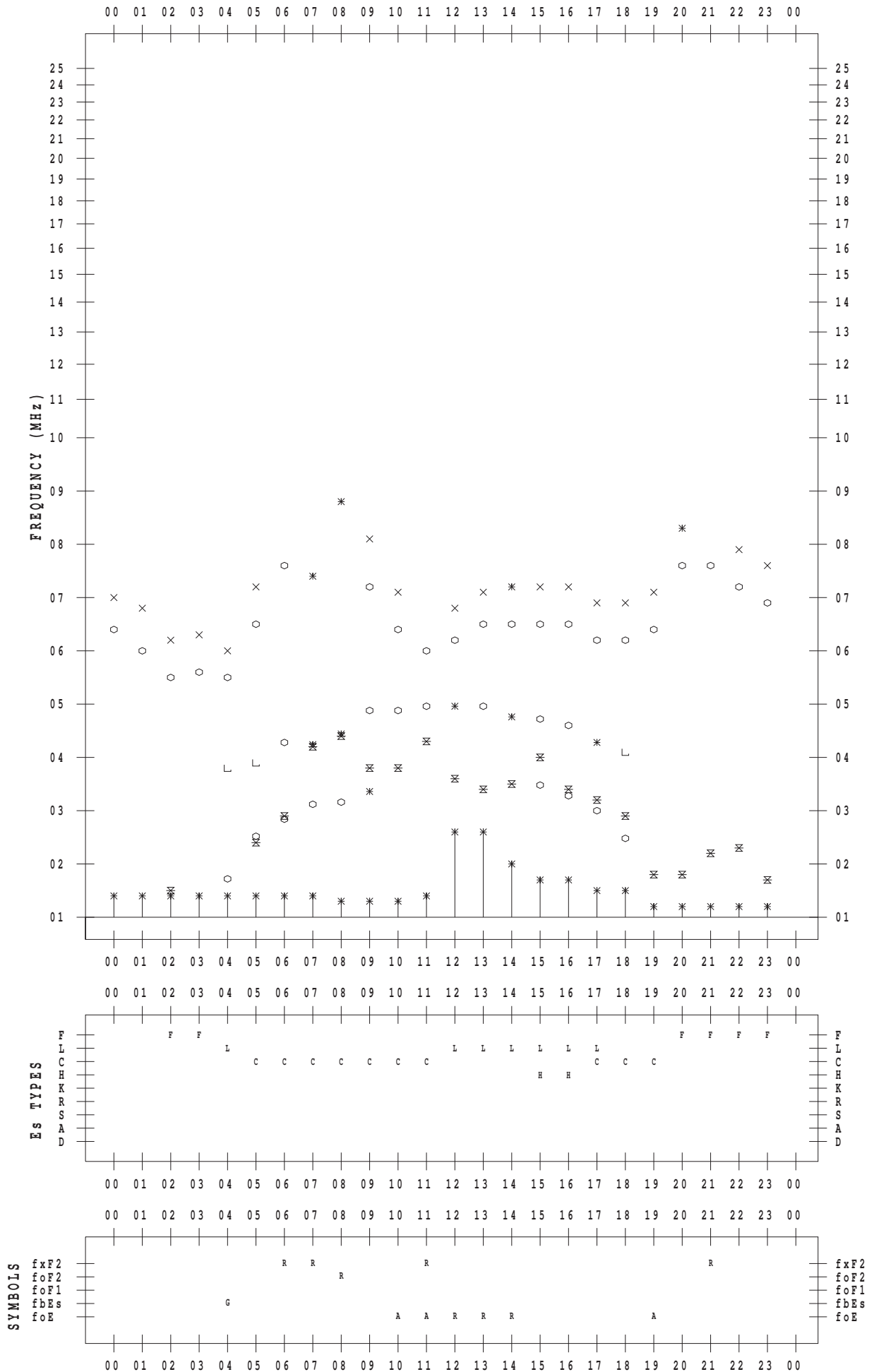
f-PLOT DATA

SCALER : K.FUKUSHIMA

STATION : Wakkanai

DATE : 2014 / 6 / 30

135 ° E MEAN TIME



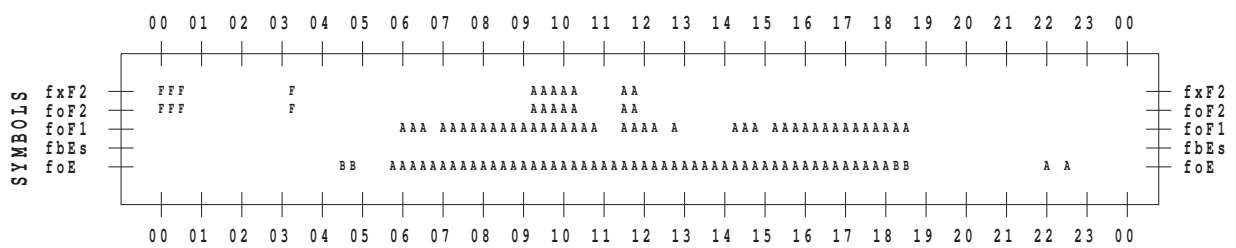
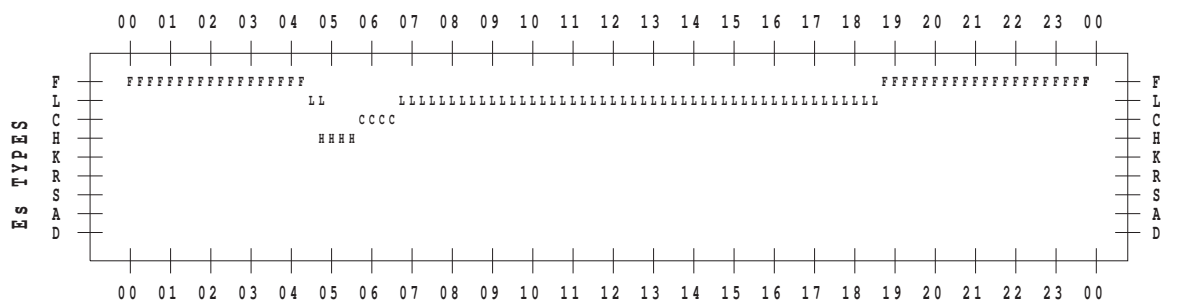
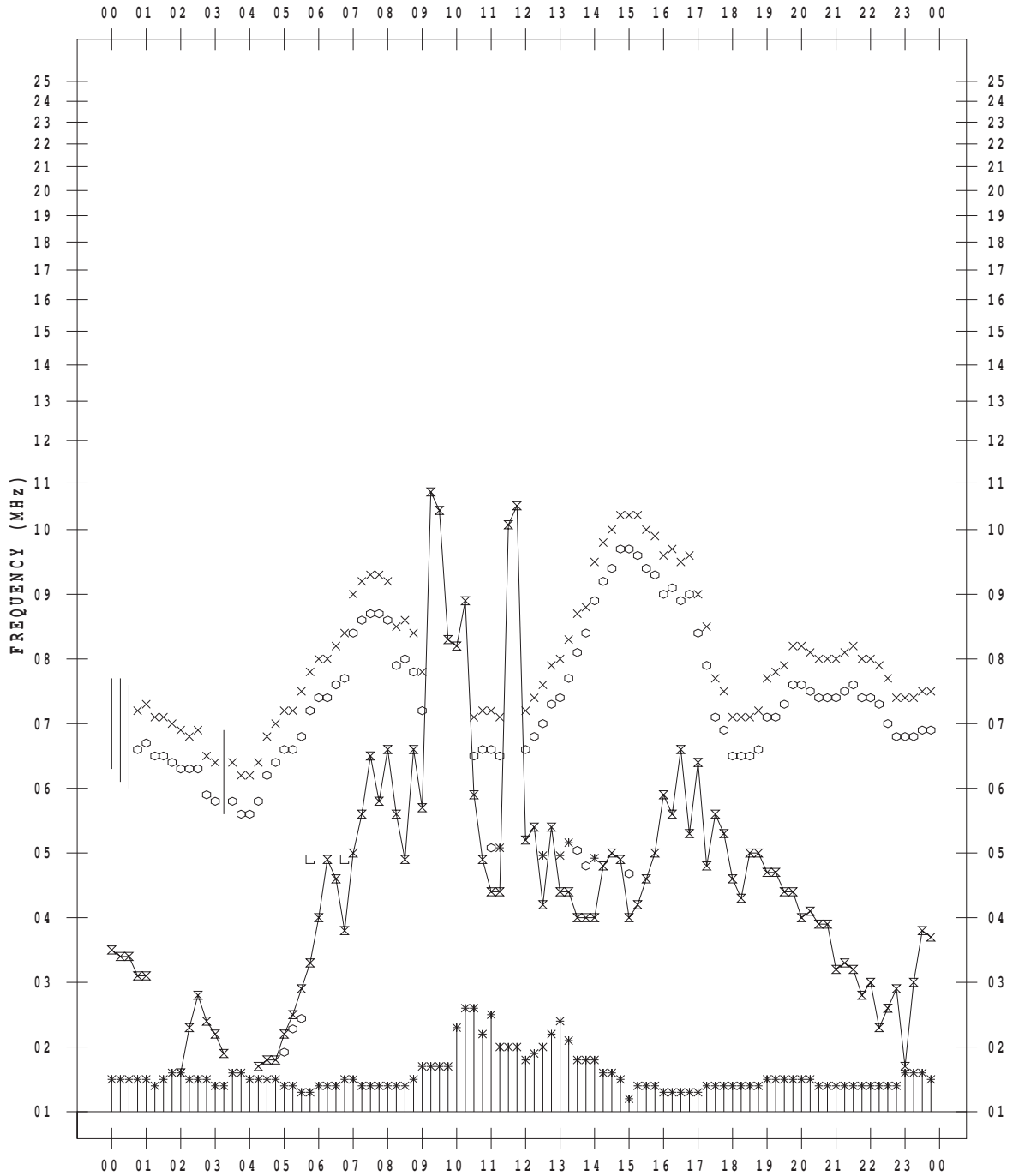
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2014 / 6 / 1

135 ° E MEAN TIME



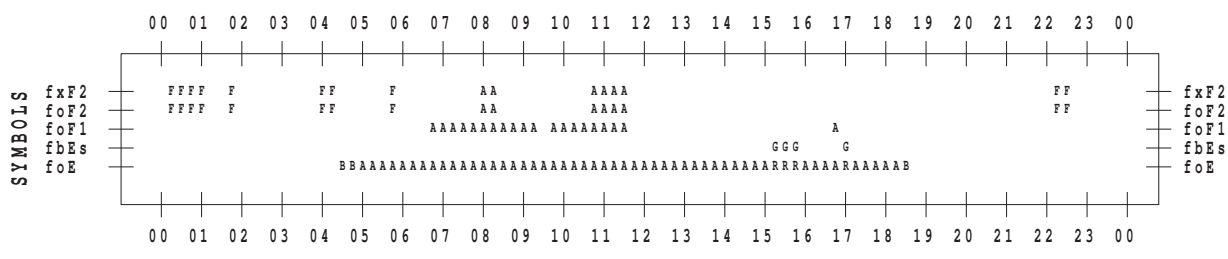
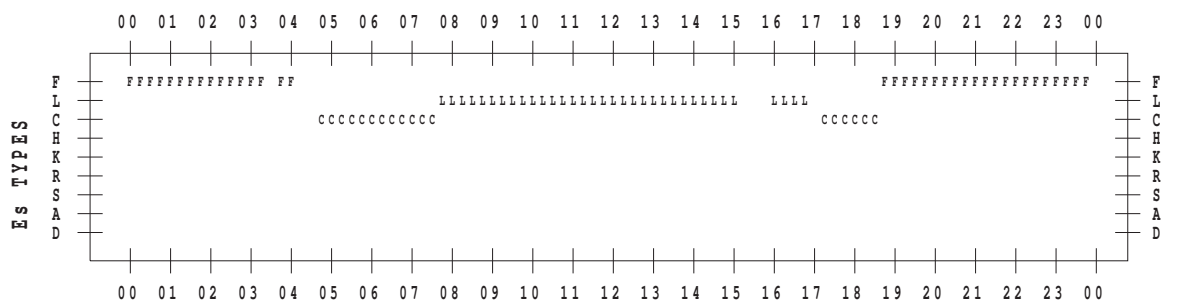
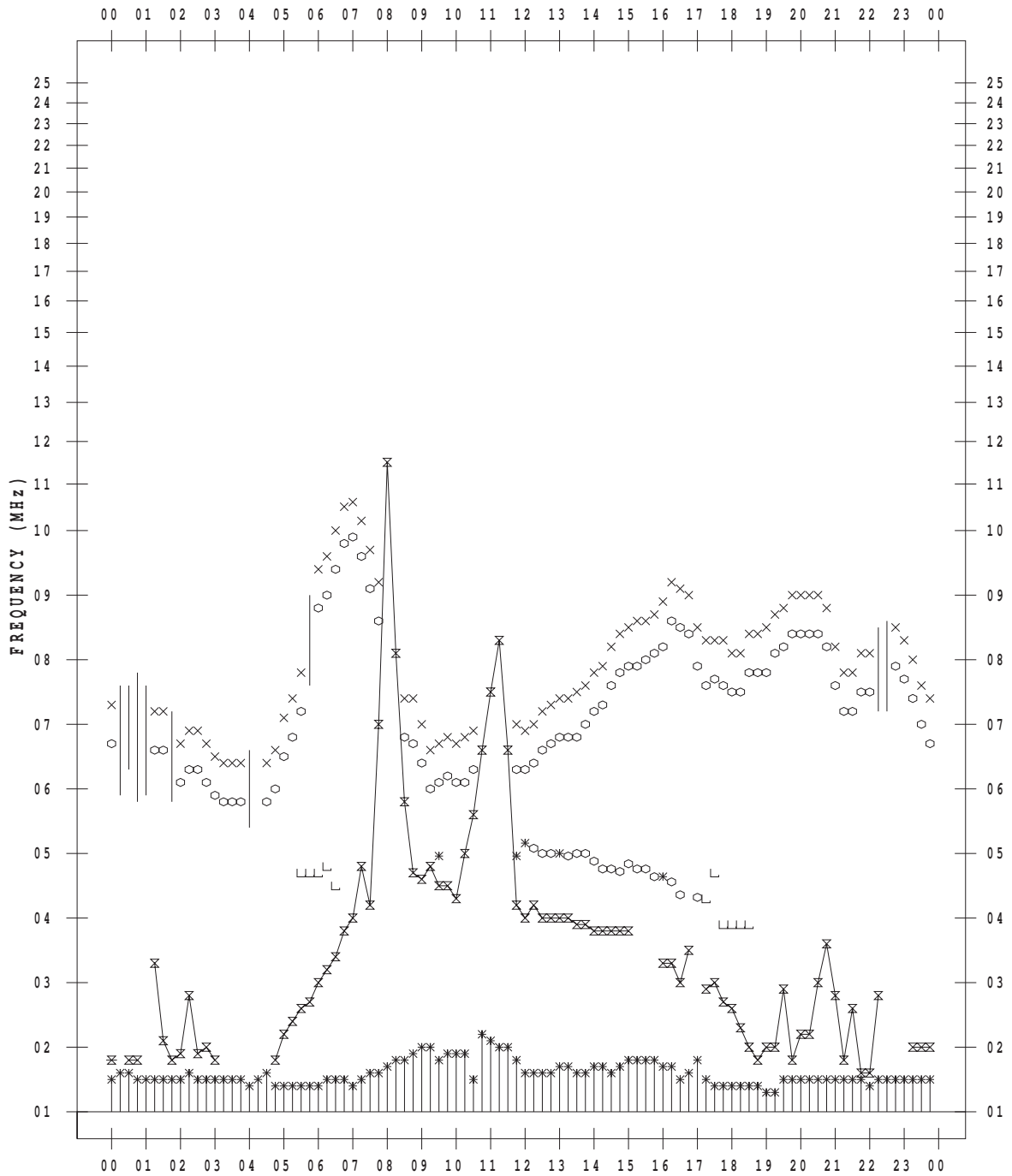
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2014 / 6 / 2

135 ° E MEAN TIME



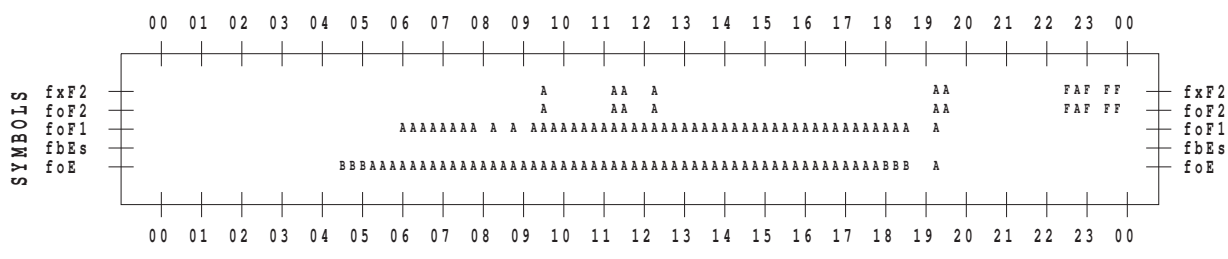
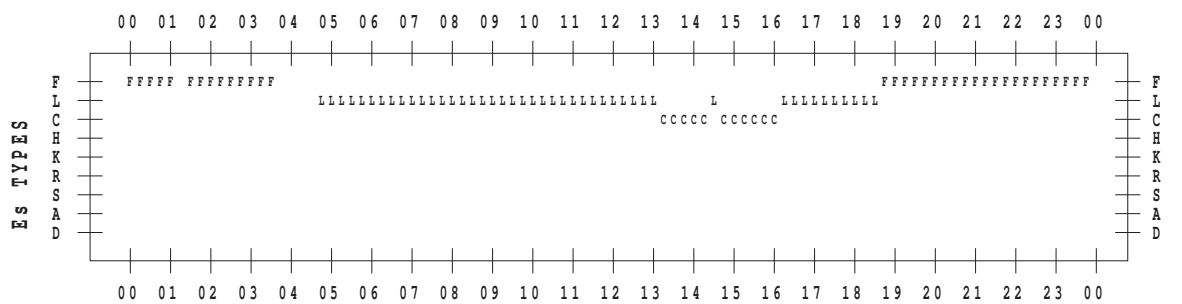
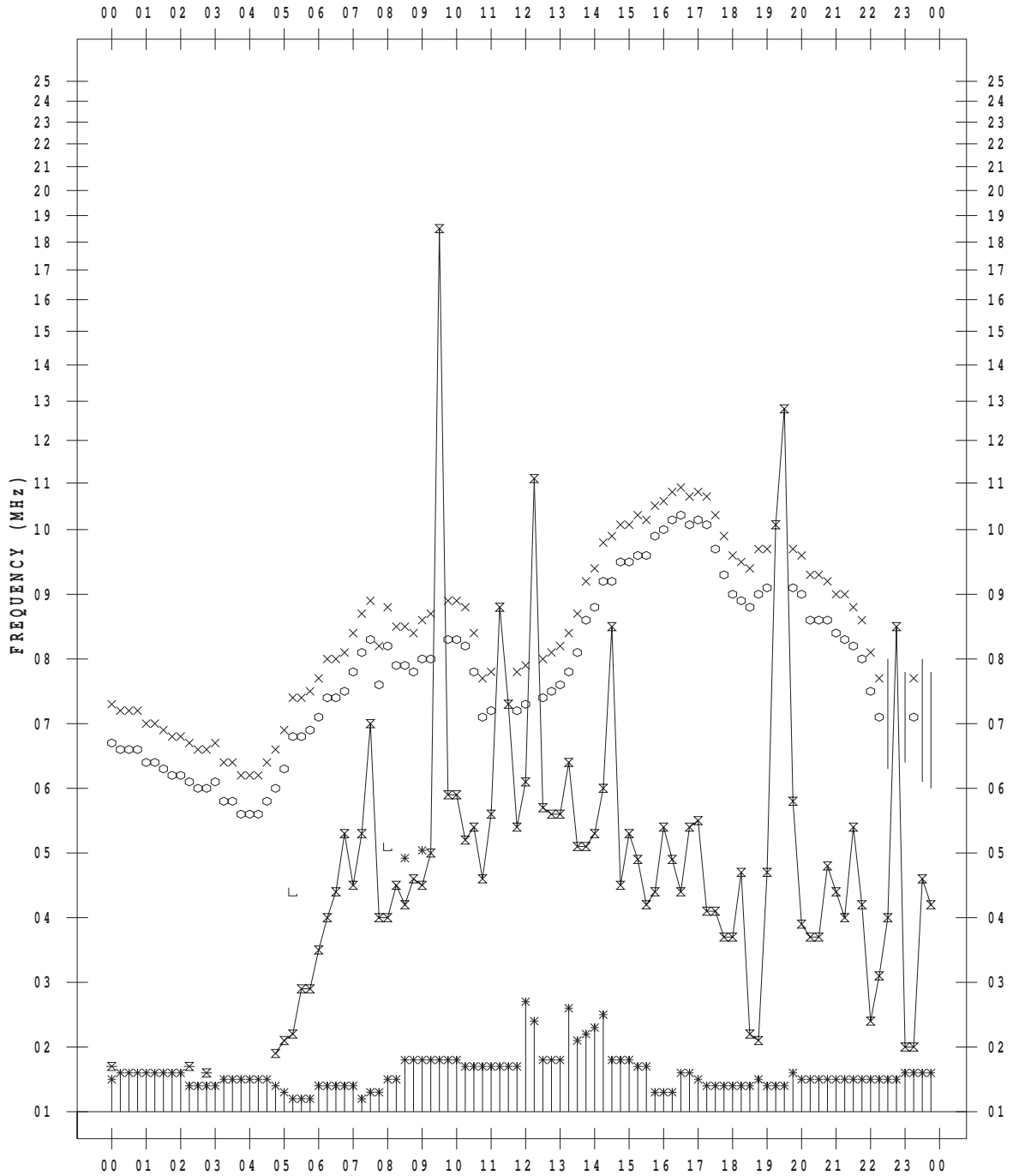
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2014 / 6 / 3

135 ° E MEAN TIME



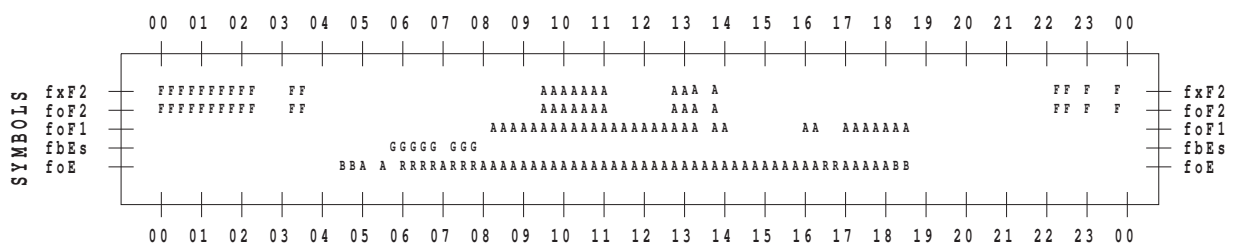
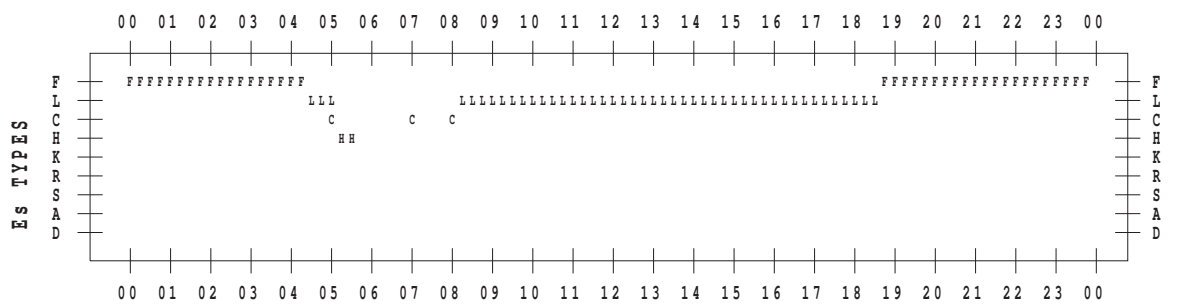
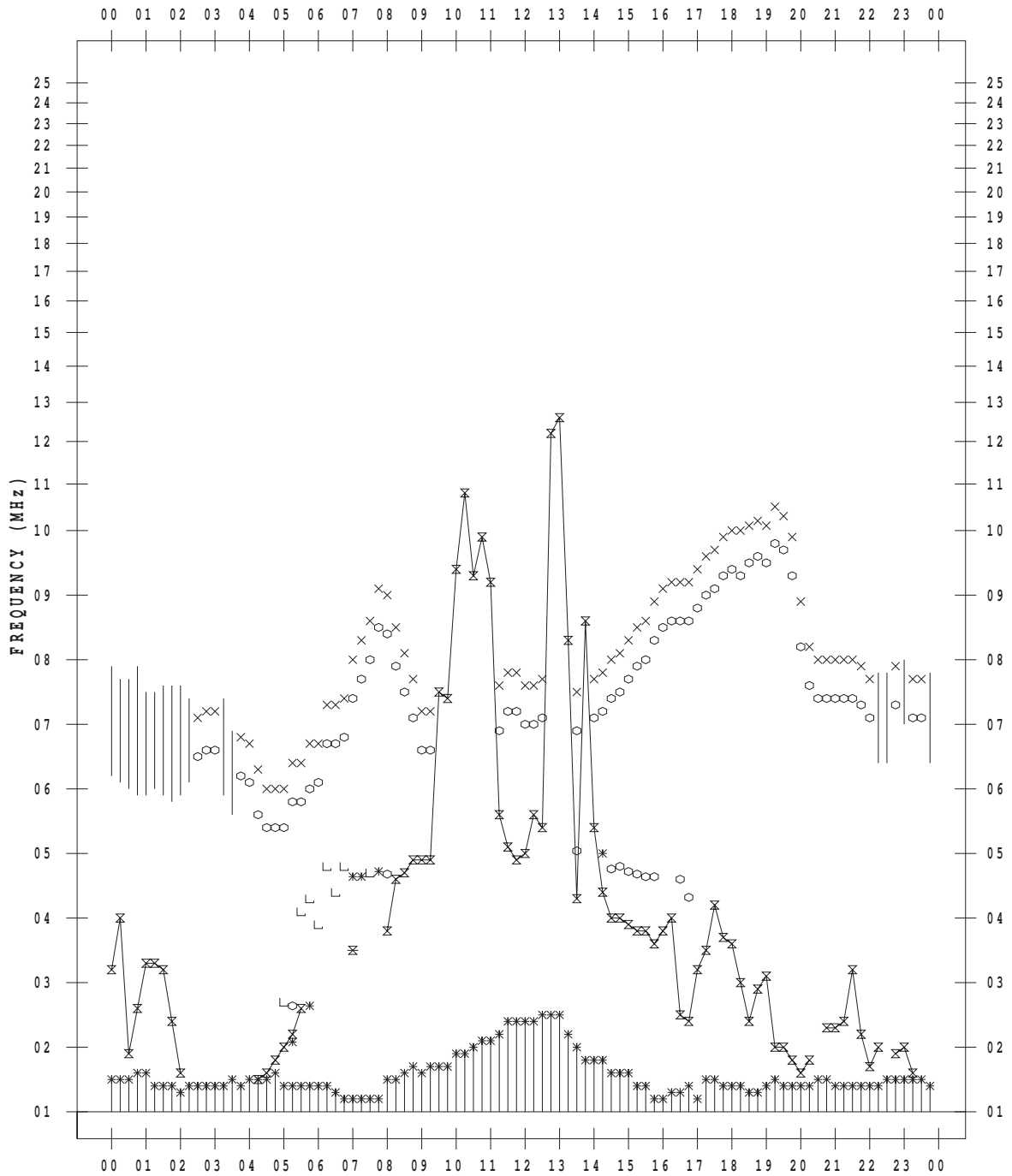
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2014 / 6 / 4

135 ° E MEAN TIME



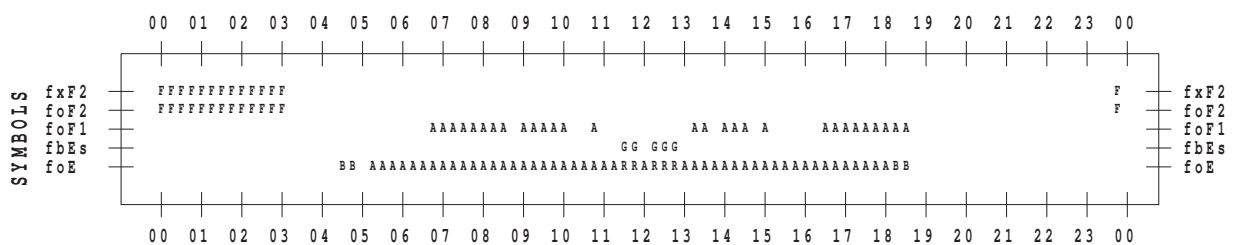
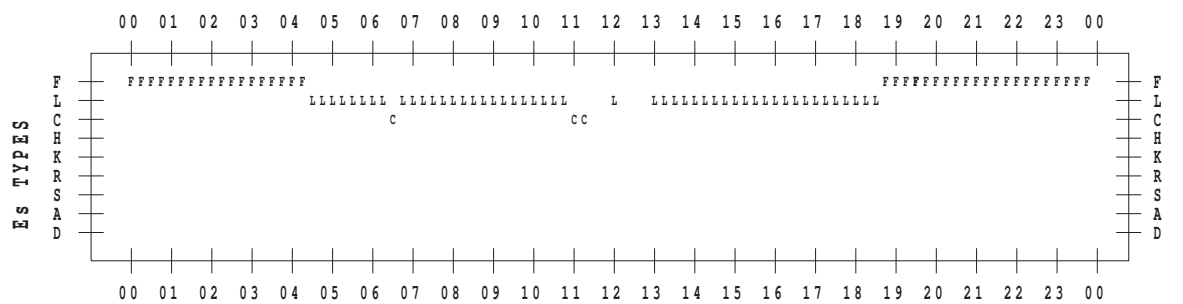
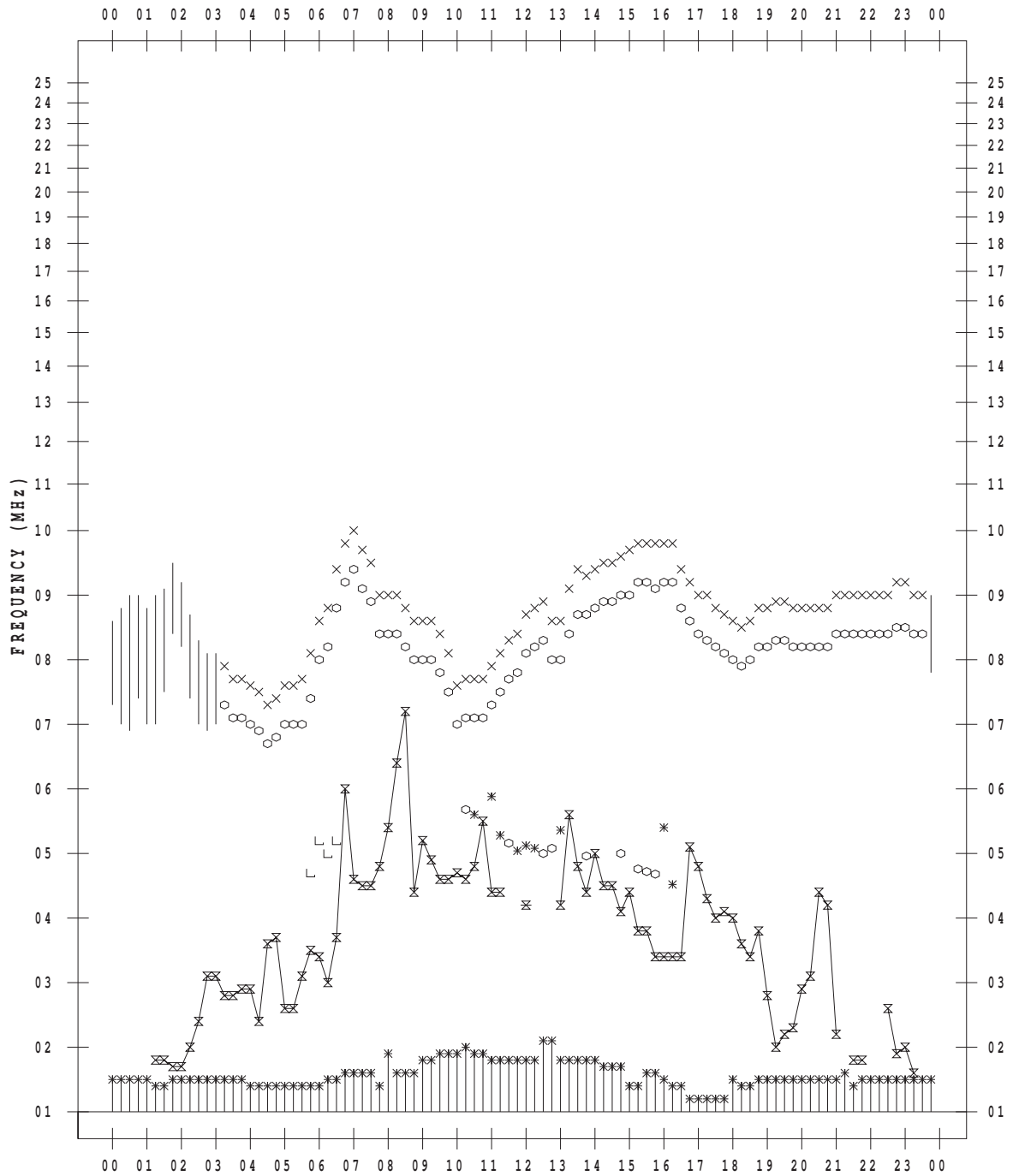
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2014 / 6 / 6

135 ° E MEAN TIME



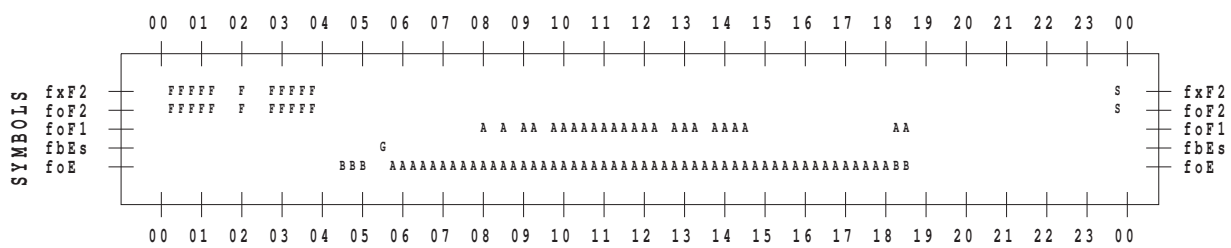
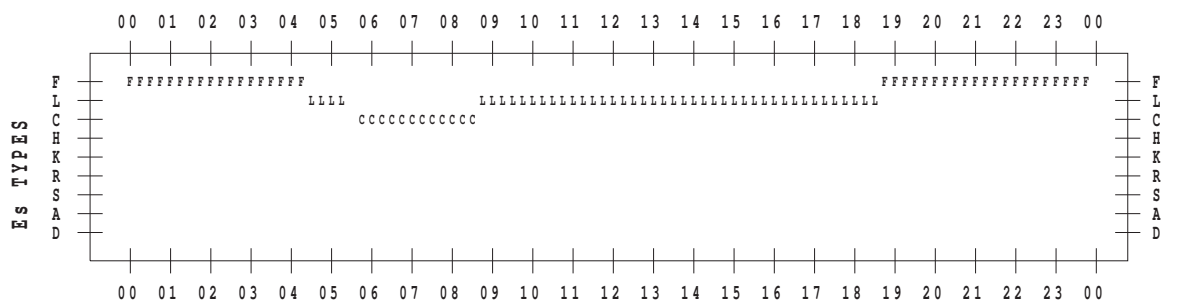
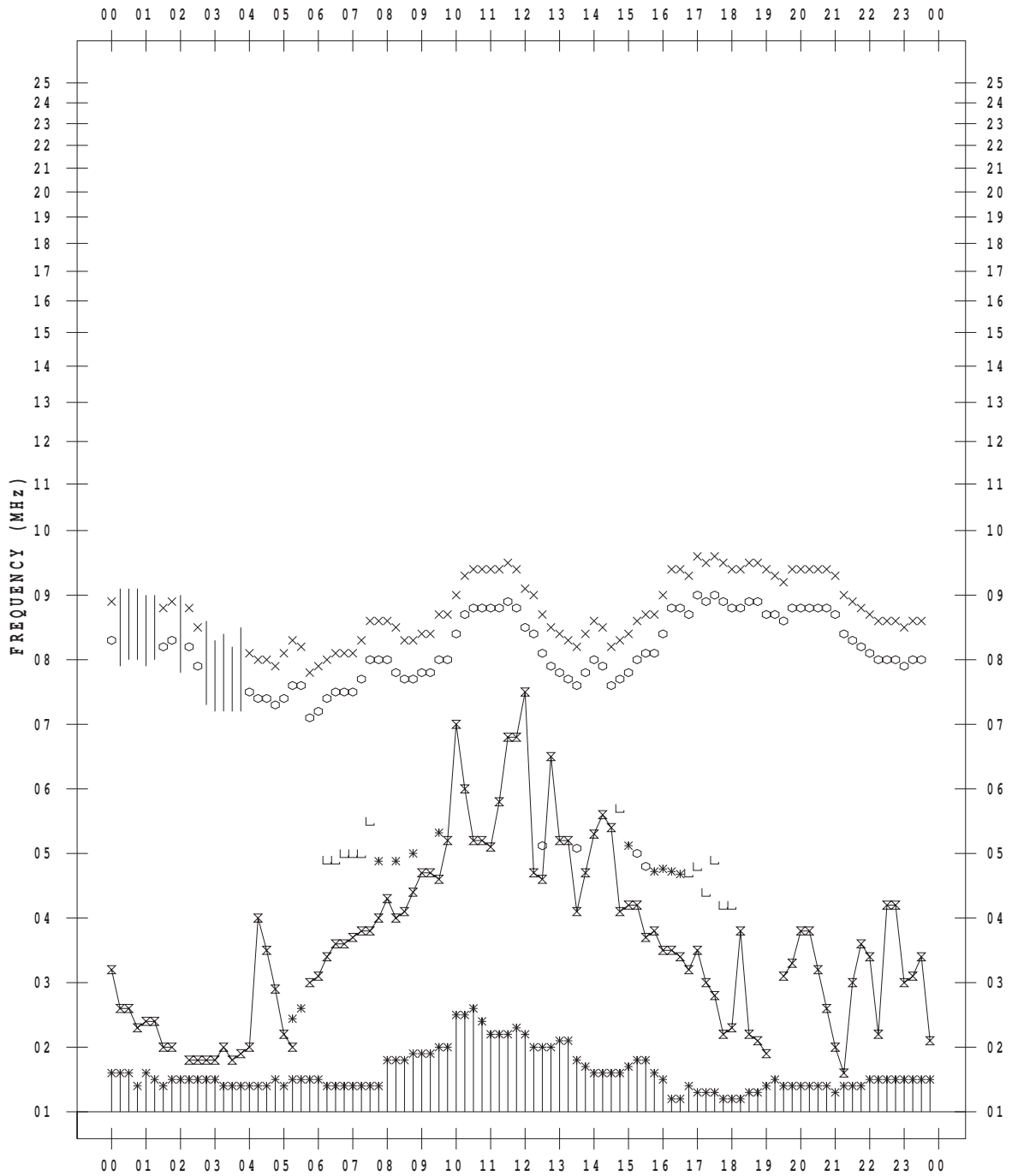
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2014 / 6 / 7

135 ° E MEAN TIME



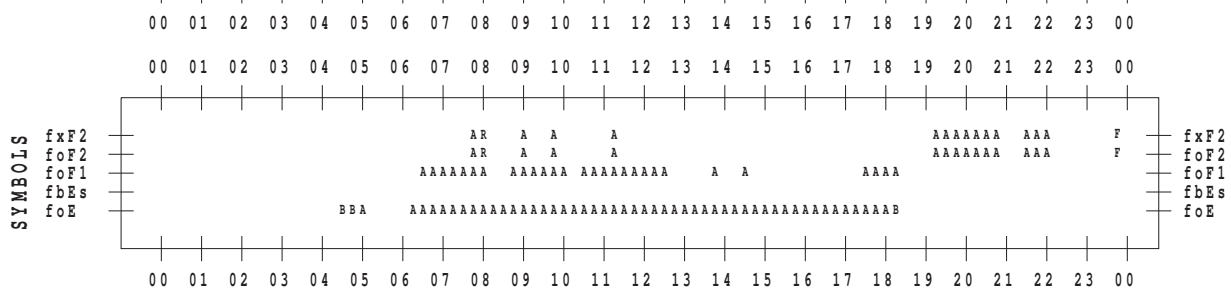
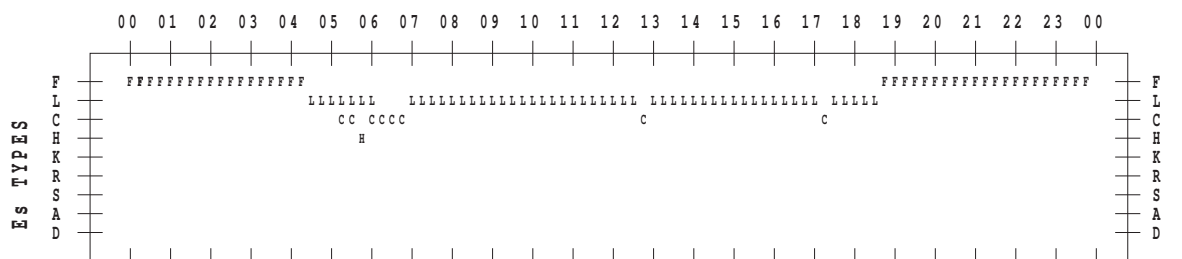
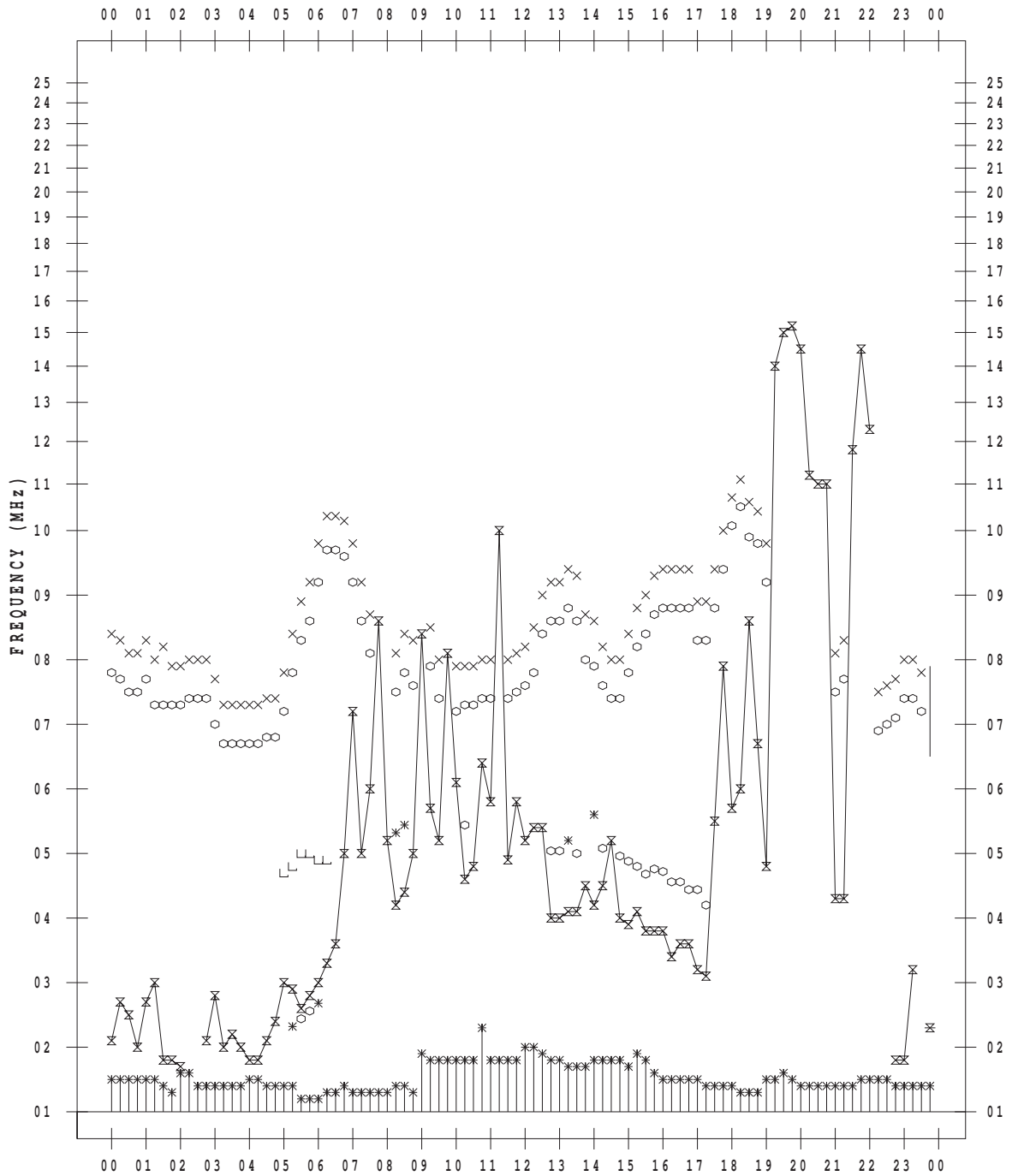
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2014 / 6 / 8

135 ° E MEAN TIME



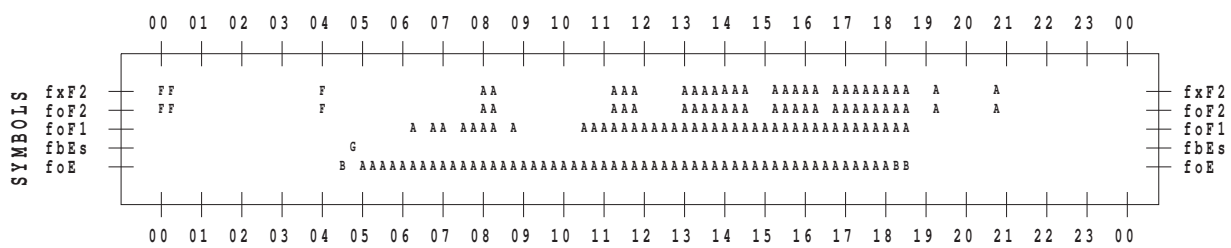
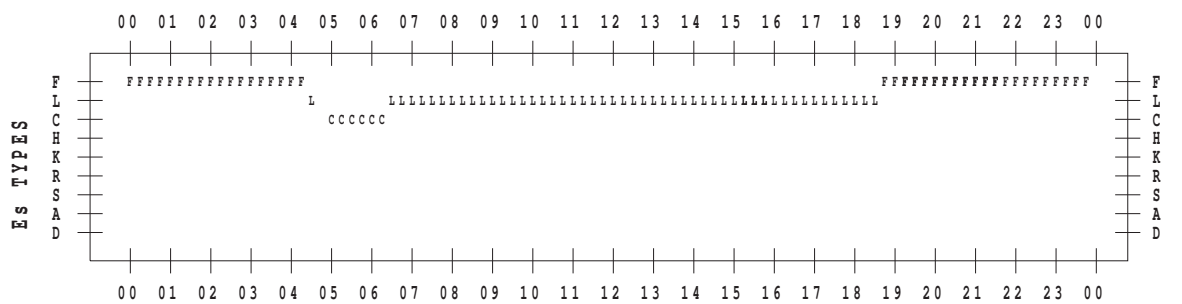
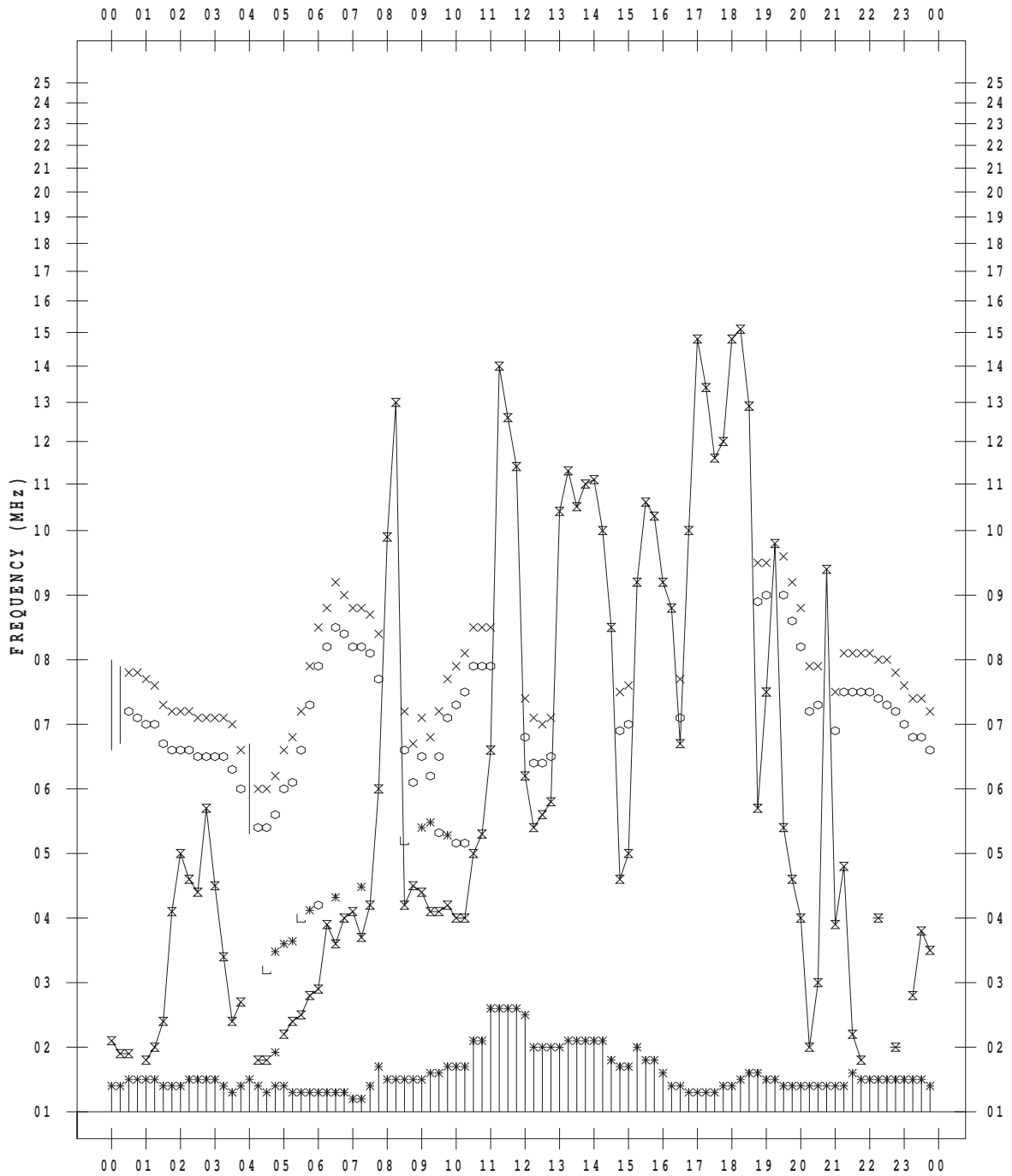
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2014 / 6 / 9

135 ° E MEAN TIME



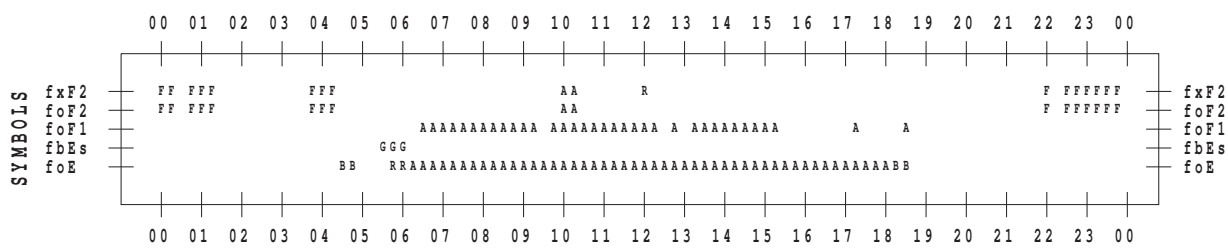
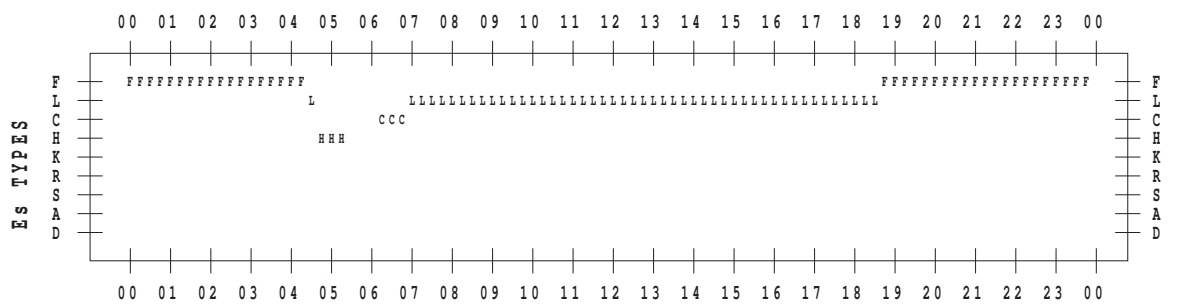
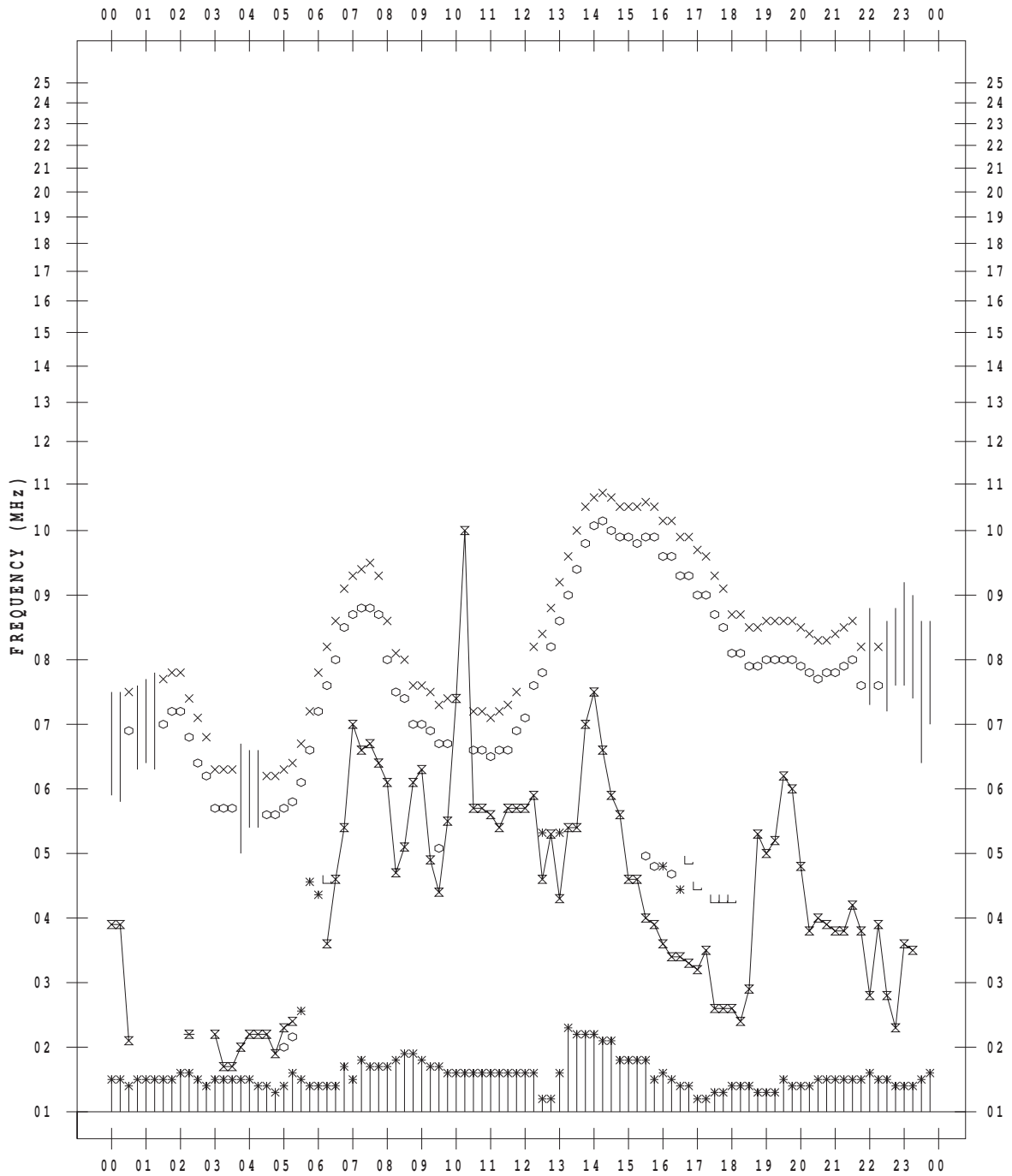
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2014 / 6 / 10

135 ° E MEAN TIME



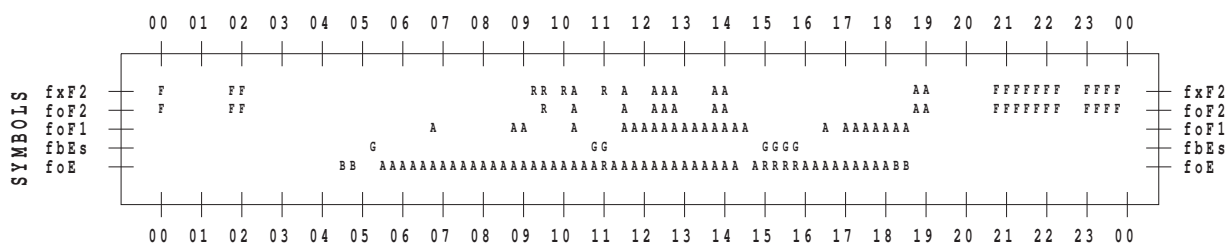
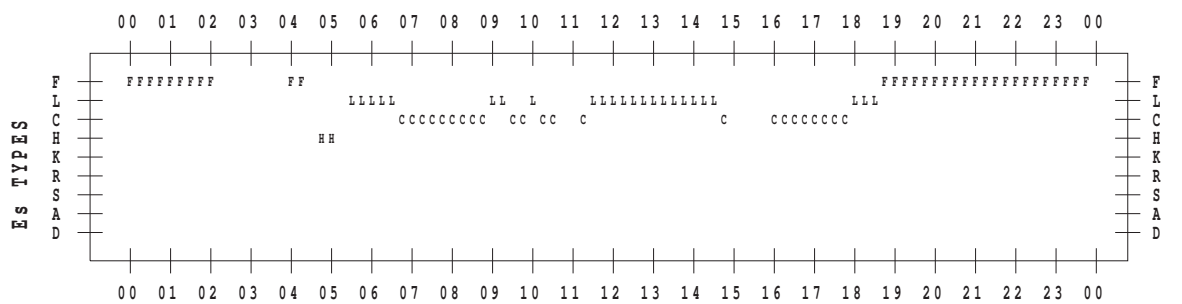
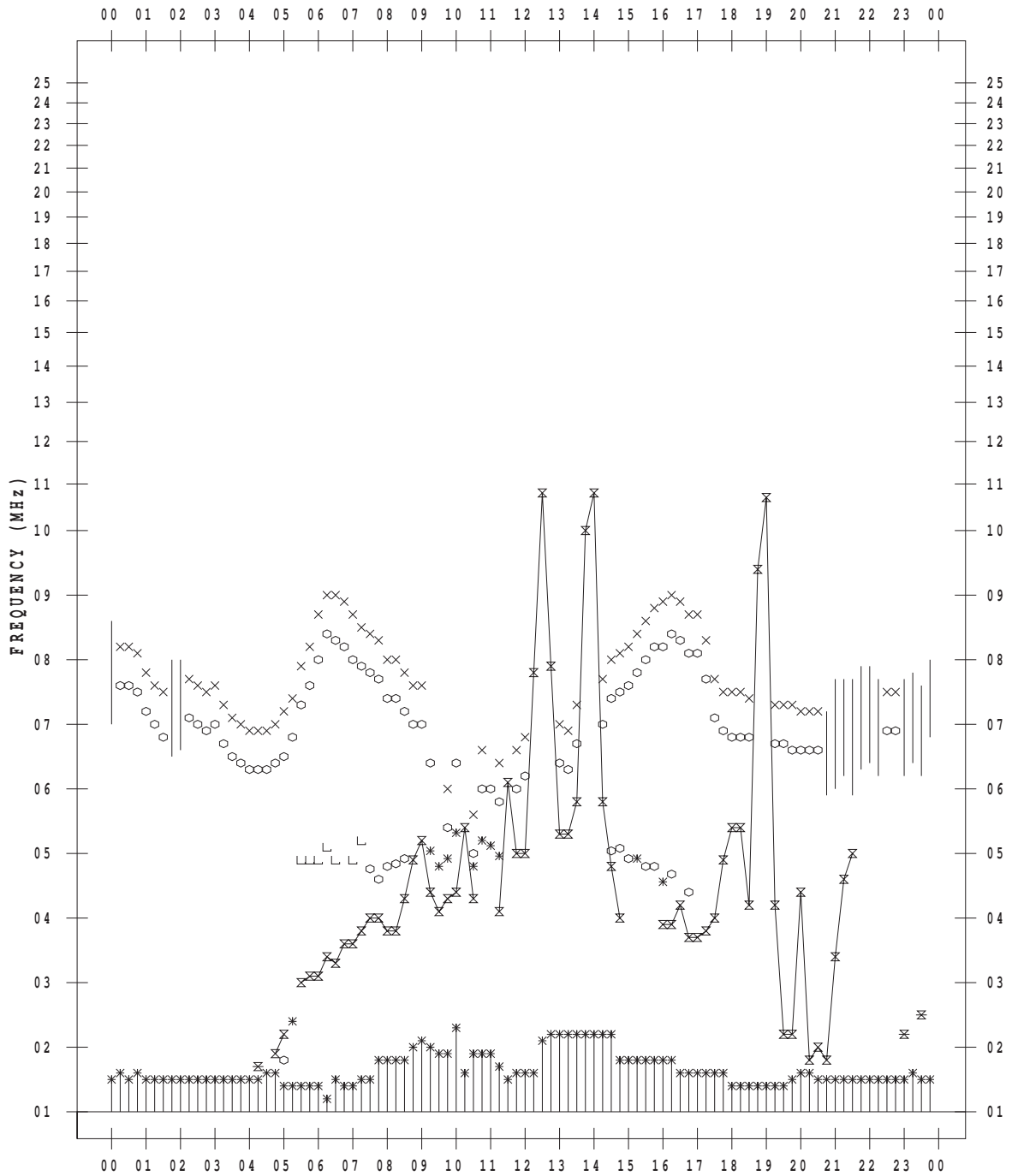
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2014 / 6 / 11

135 ° E MEAN TIME



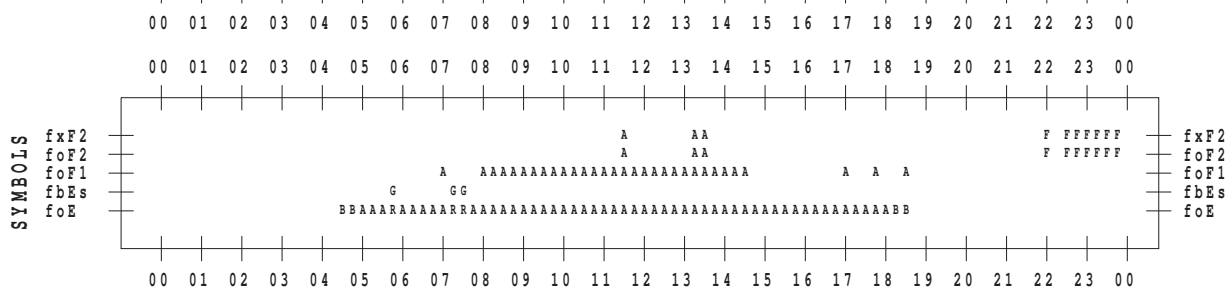
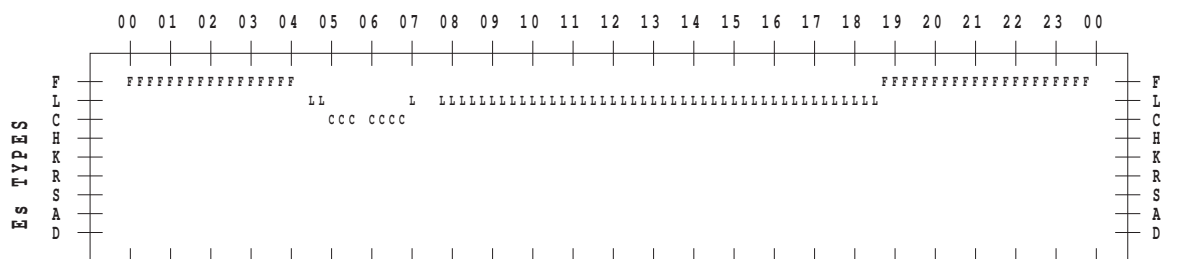
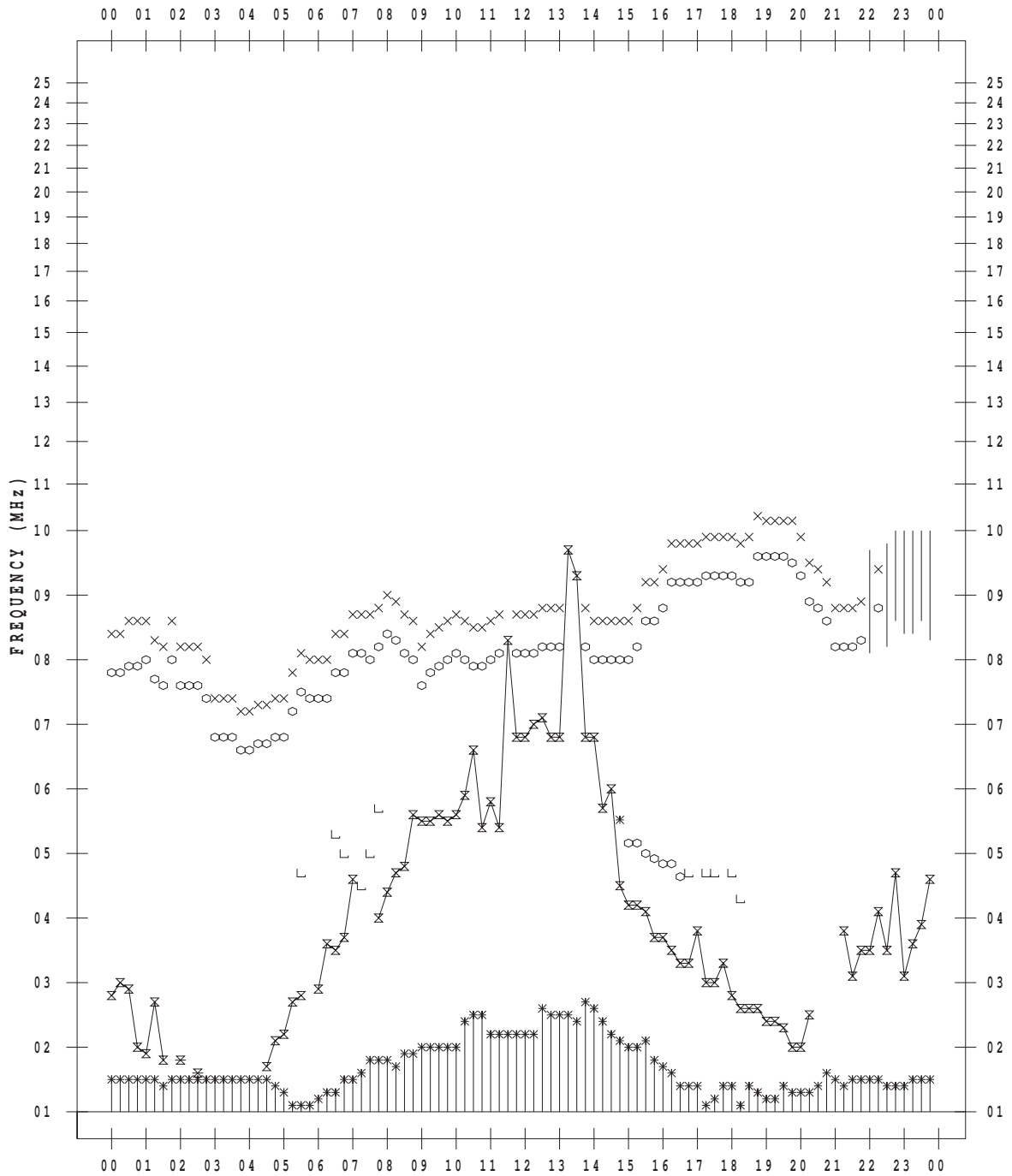
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2014/ 6/13

135 ° E MEAN TIME



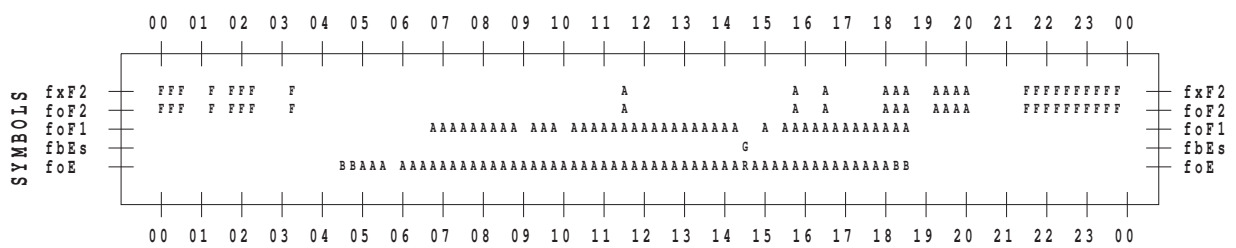
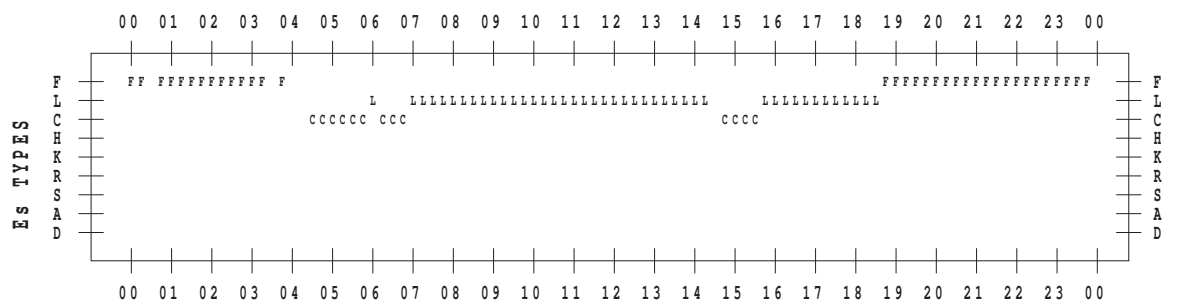
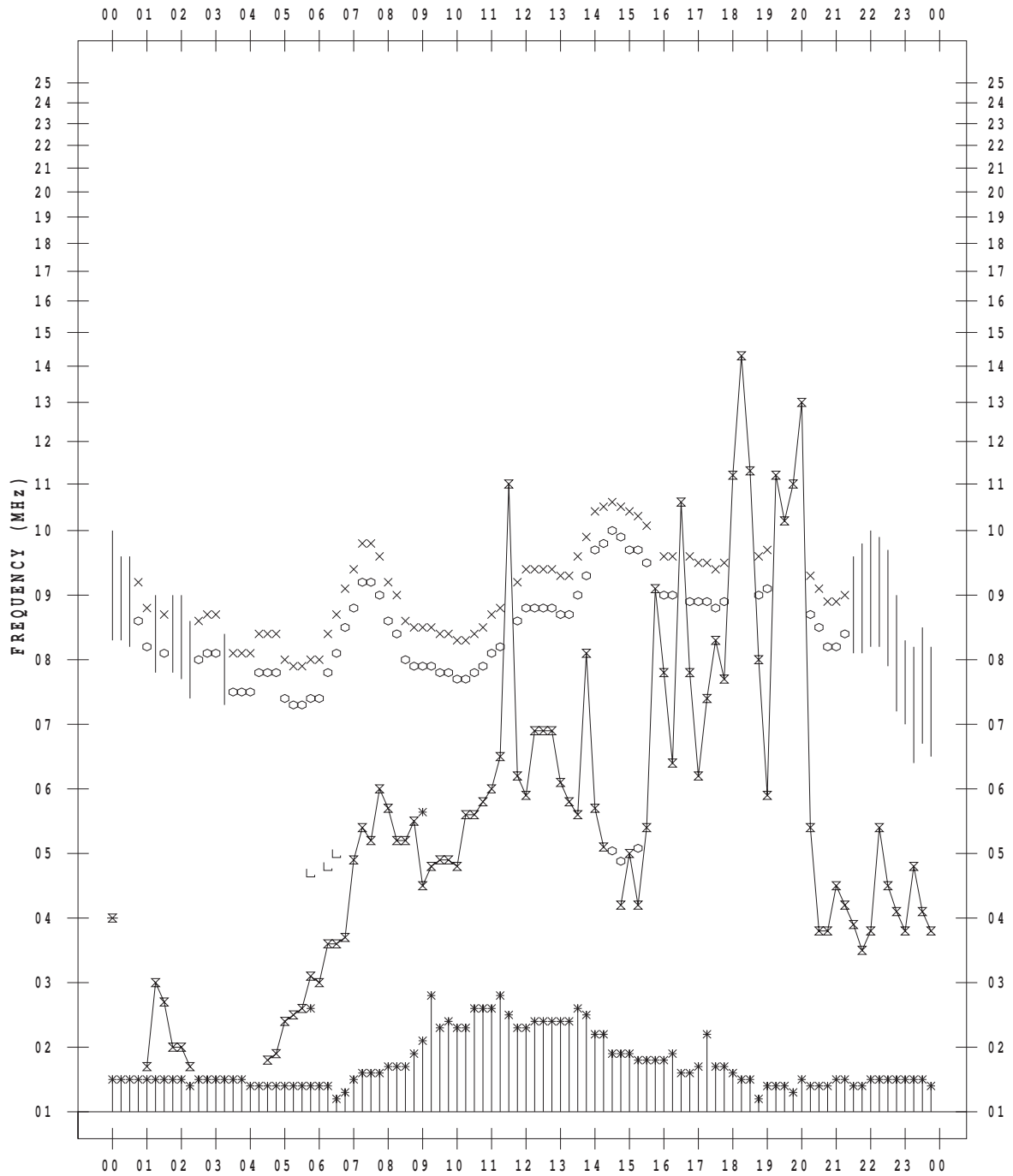
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2014/ 6/14

135 ° E MEAN TIME



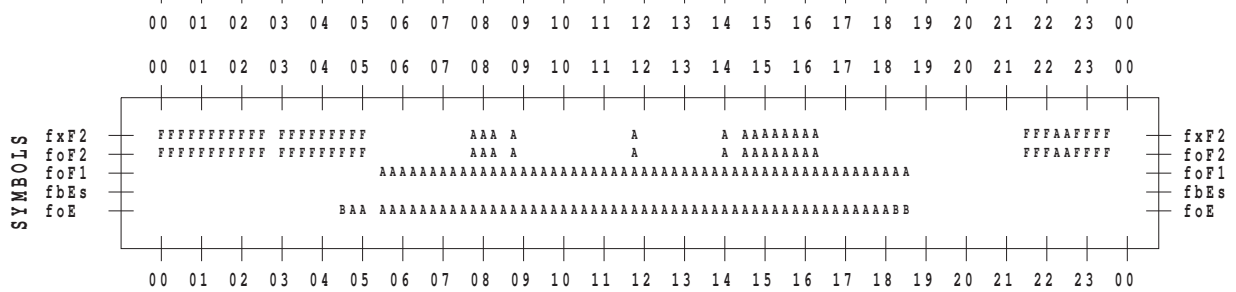
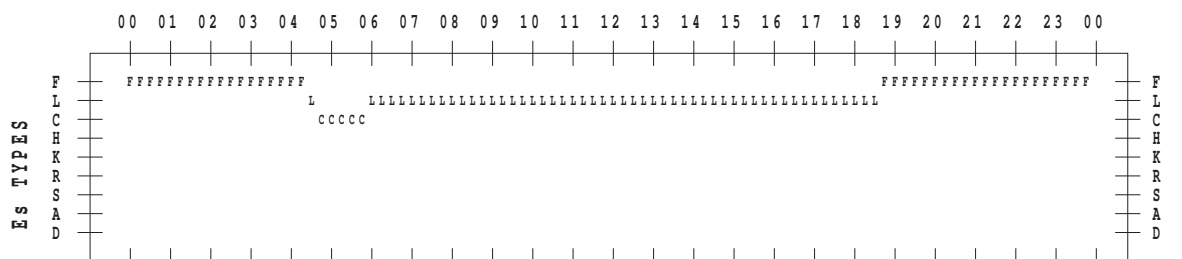
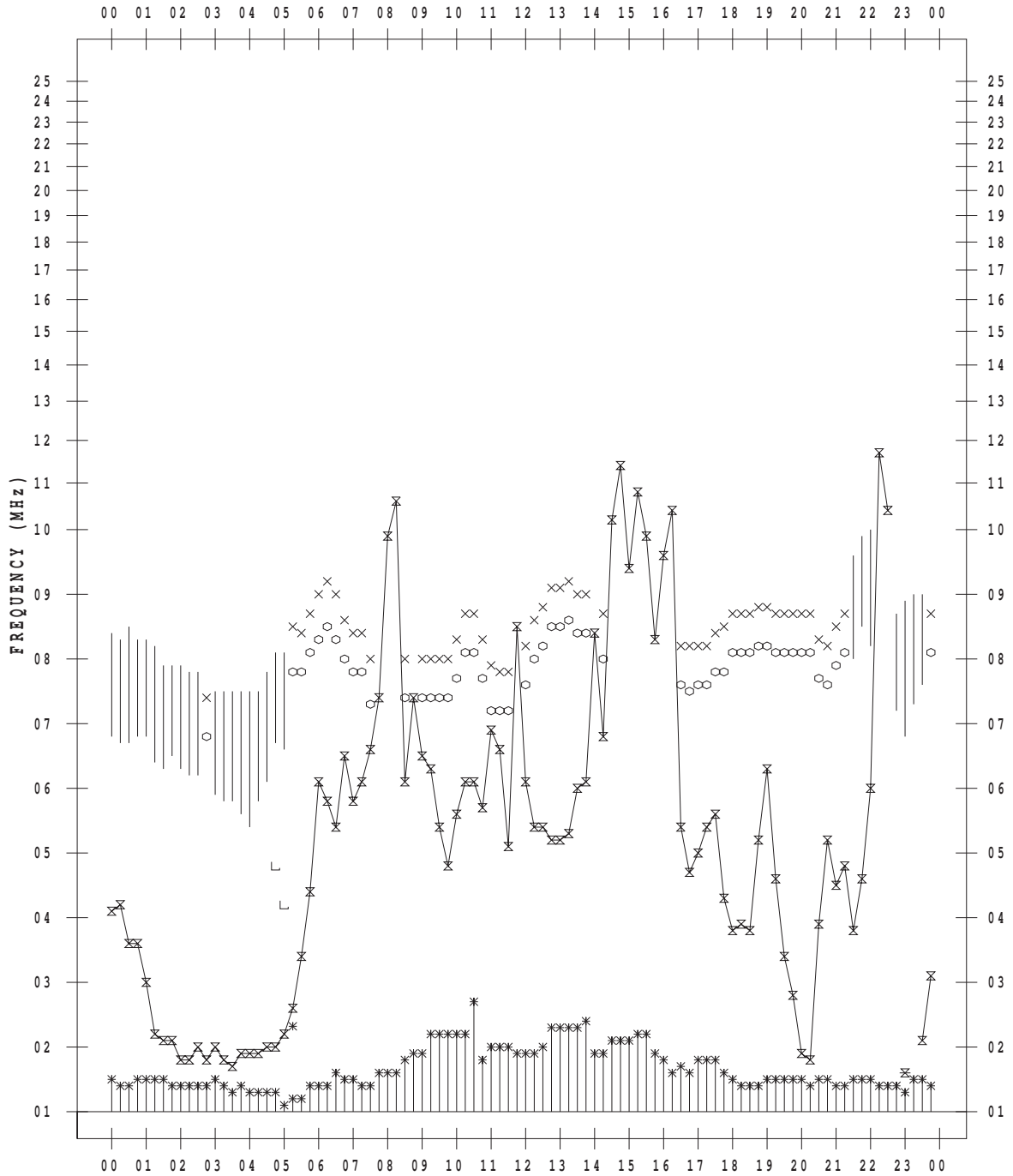
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2014 / 6 / 15

135 ° E MEAN TIME



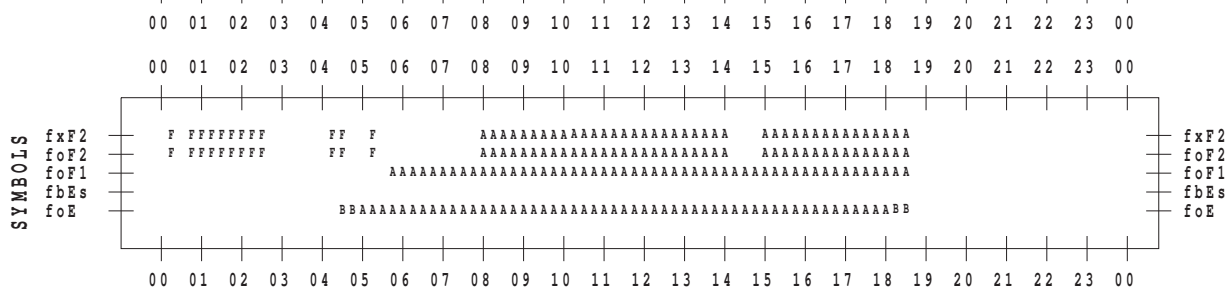
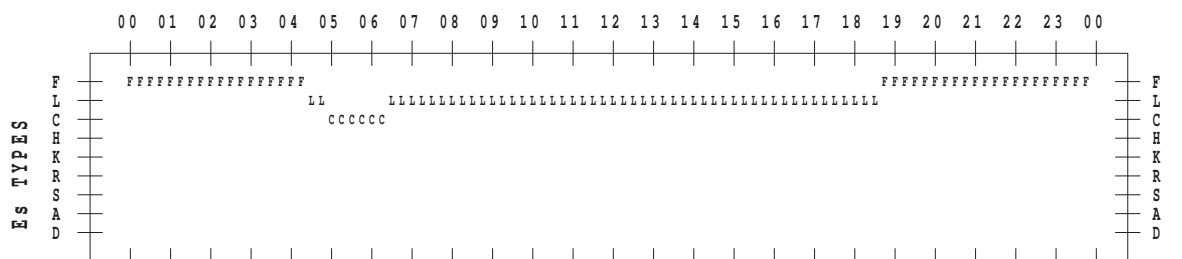
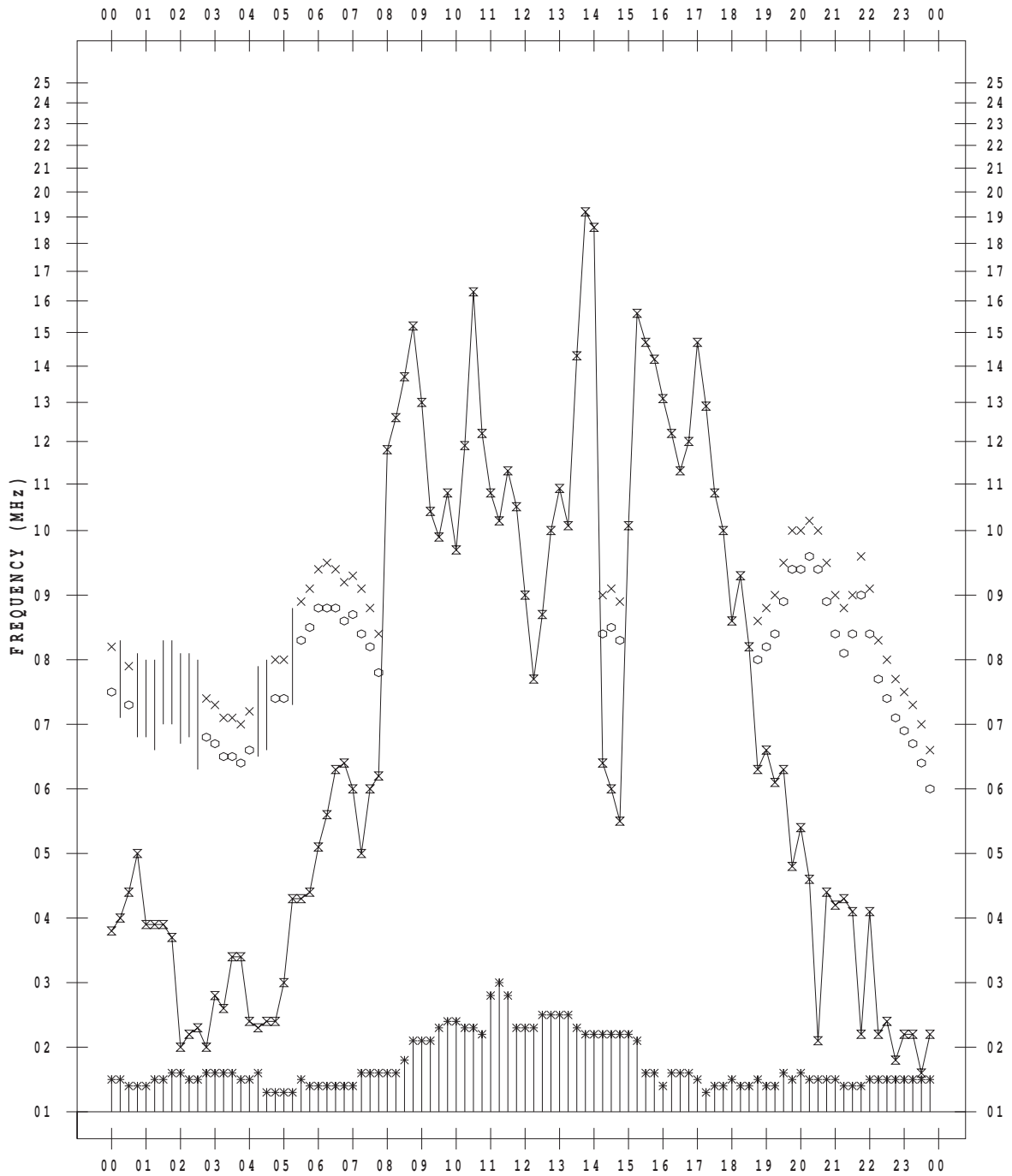
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2014/ 6/17

135 ° E MEAN TIME



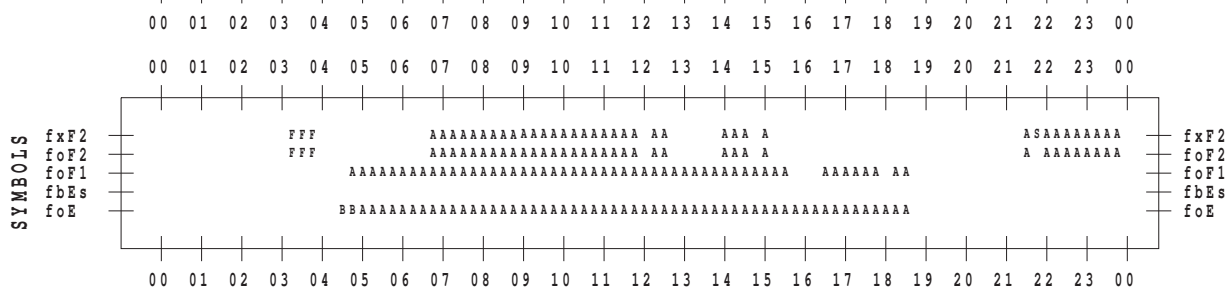
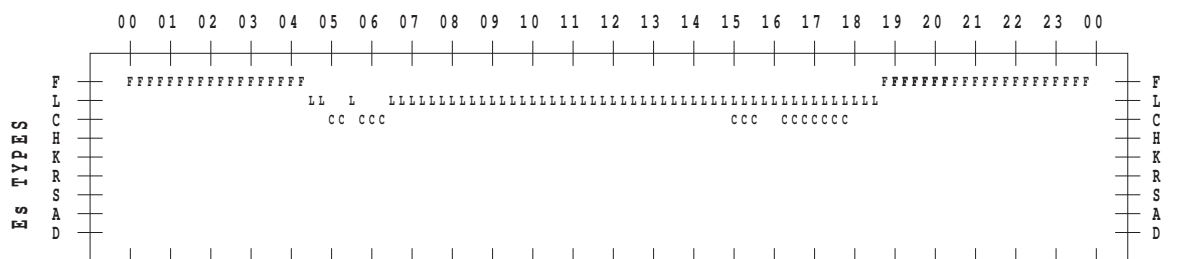
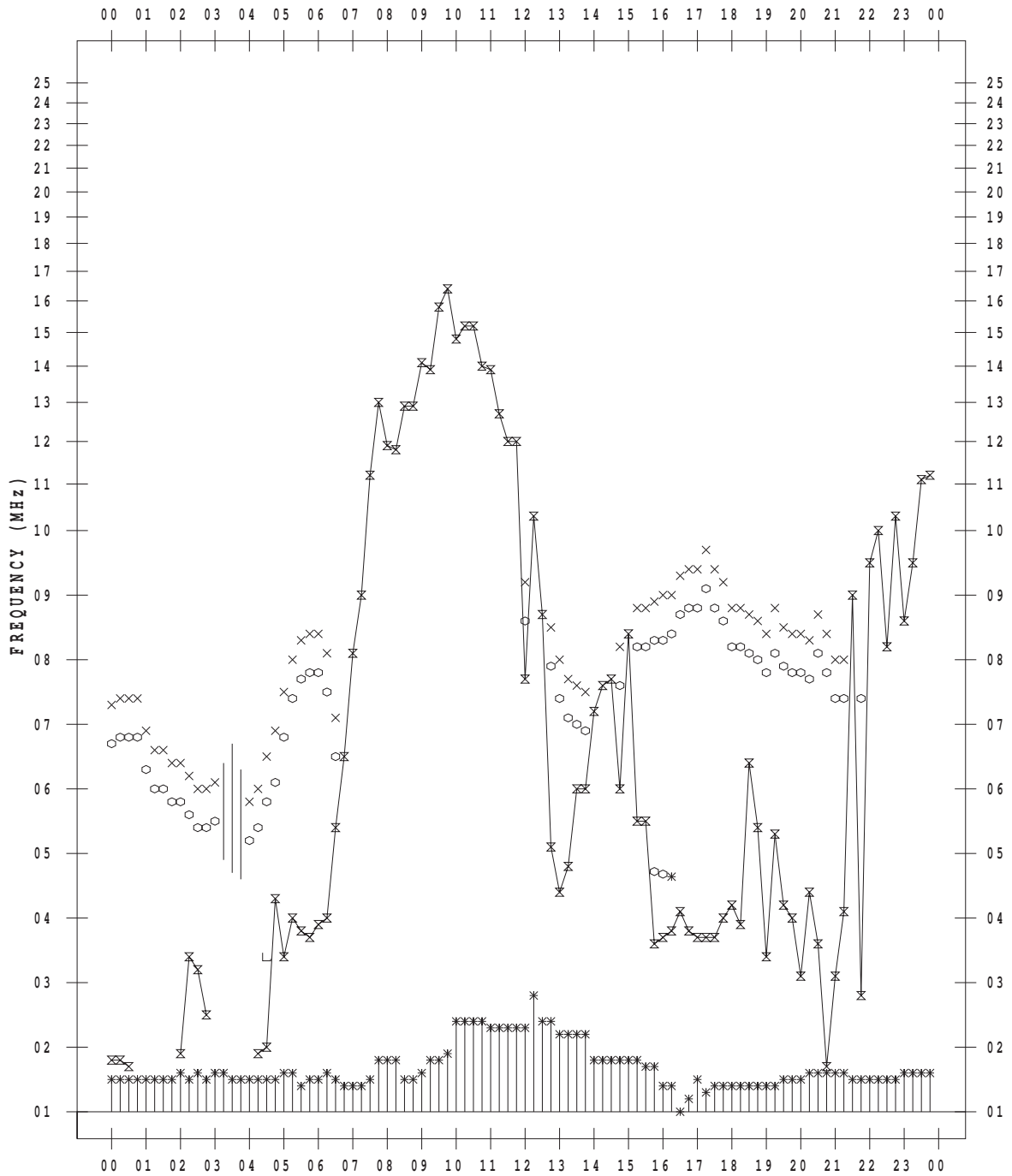
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2014/ 6/19

135 ° E MEAN TIME



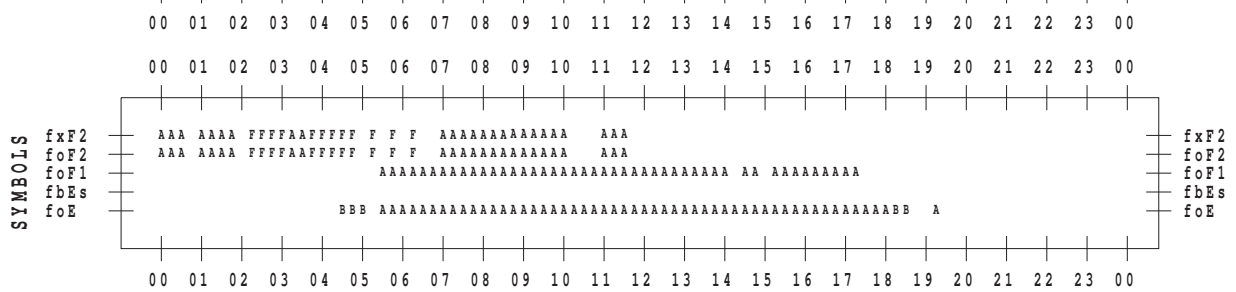
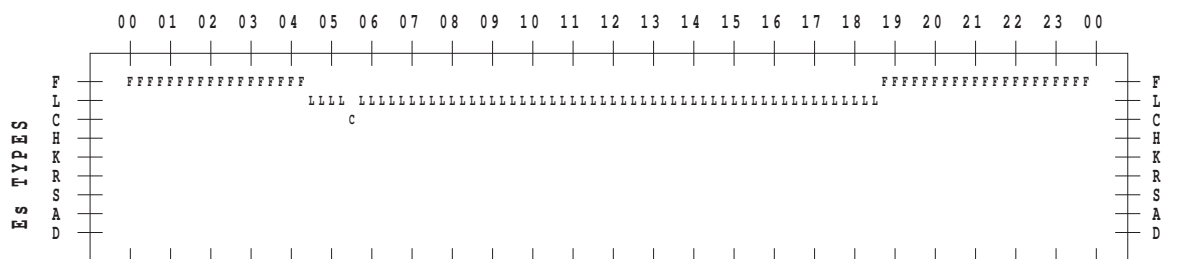
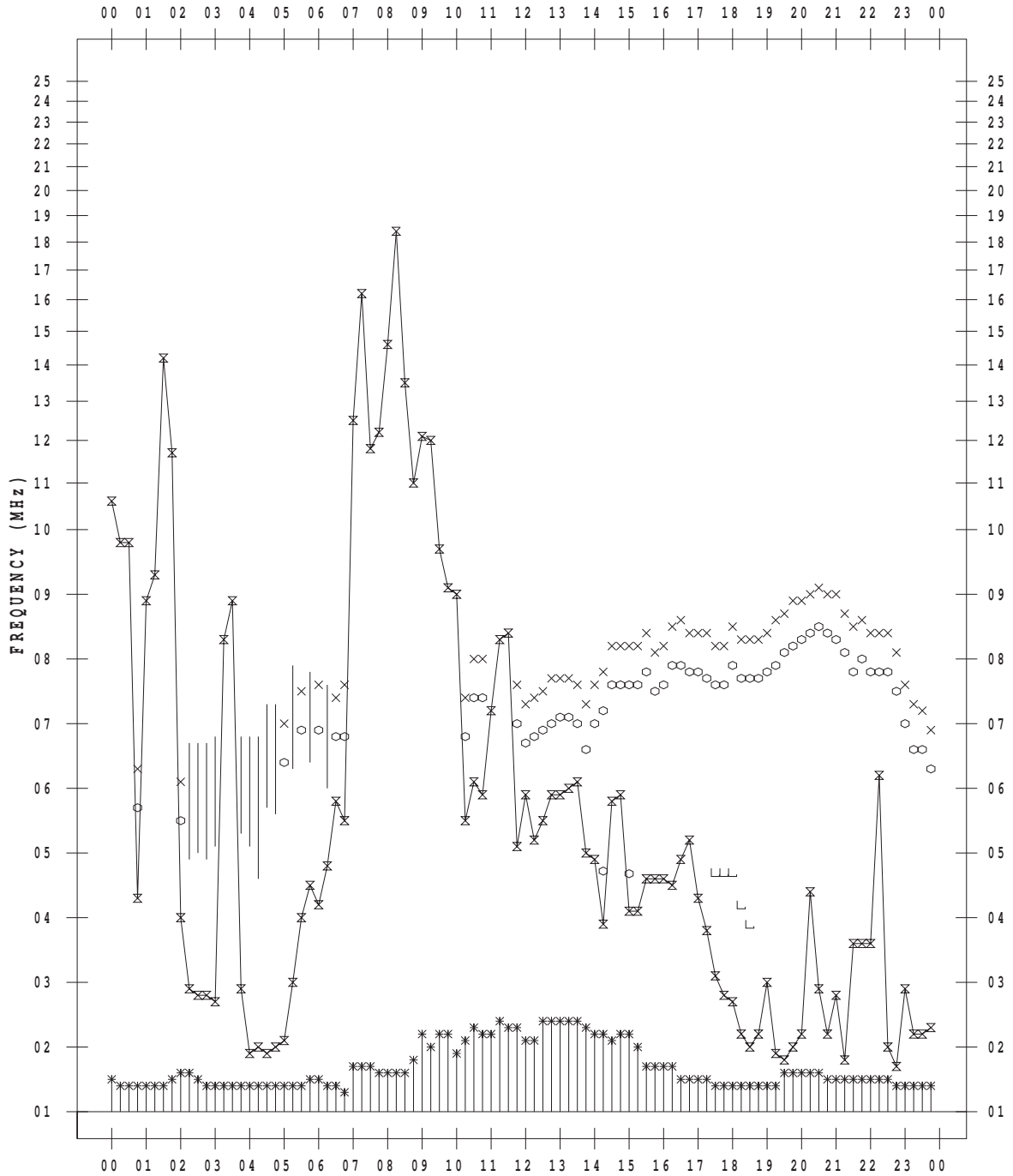
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2014 / 6 / 20

135 ° E MEAN TIME



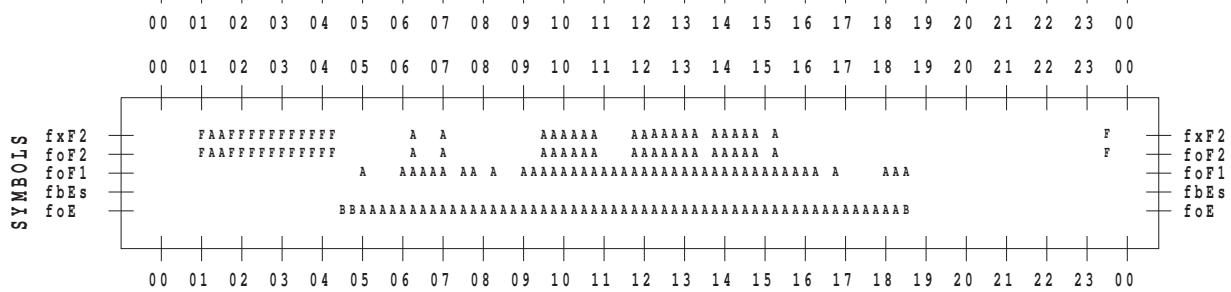
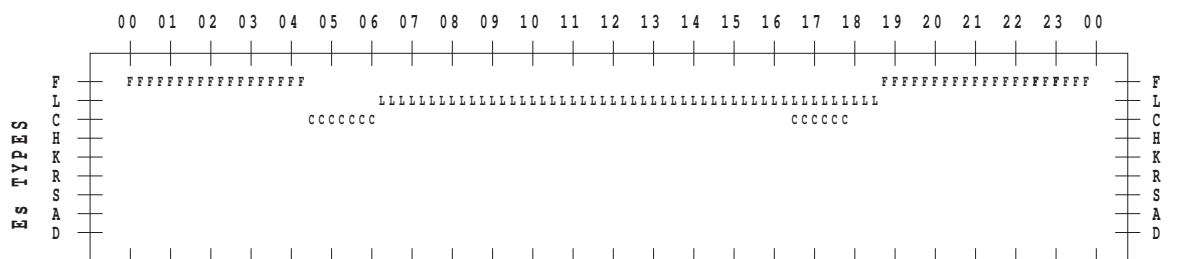
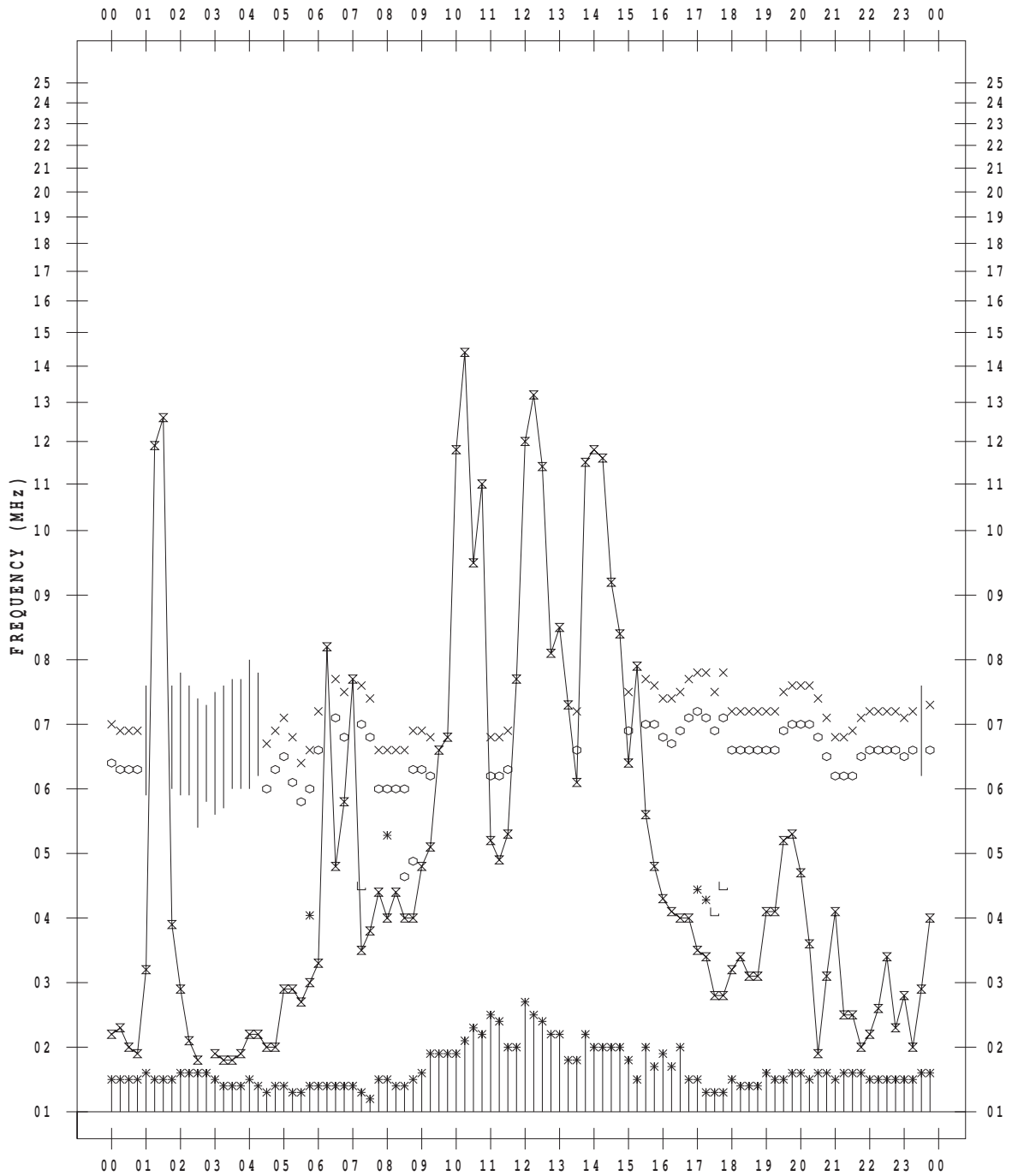
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2014 / 6 / 21

135 ° E MEAN TIME



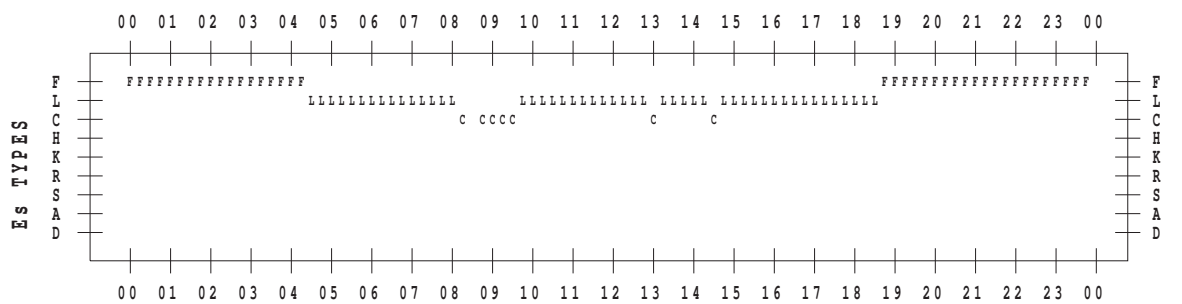
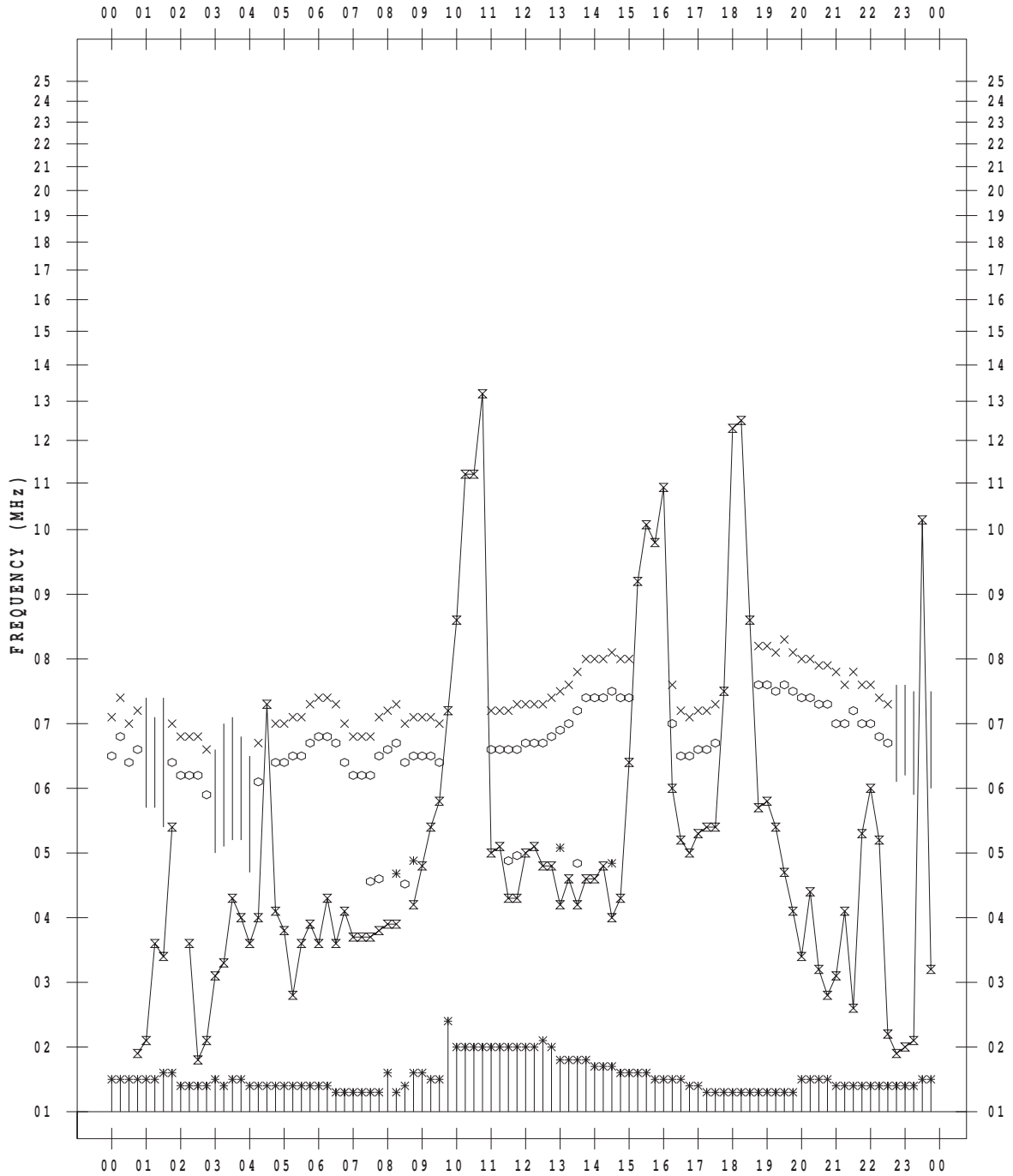
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2014 / 6 / 22

135 ° E MEAN TIME



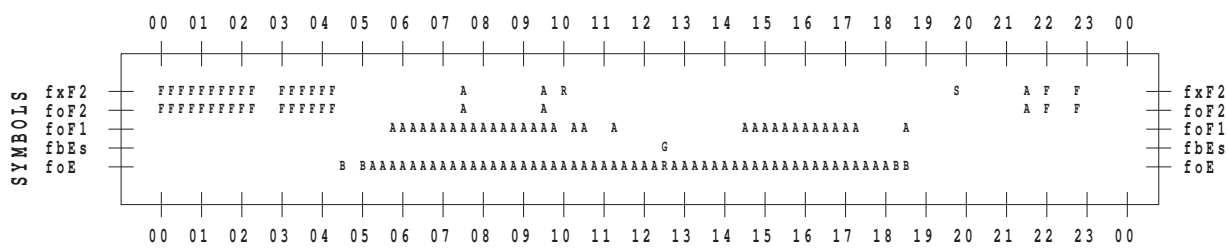
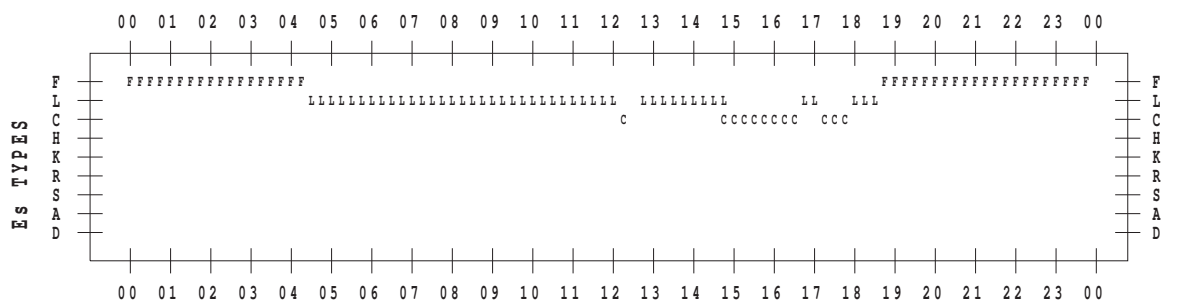
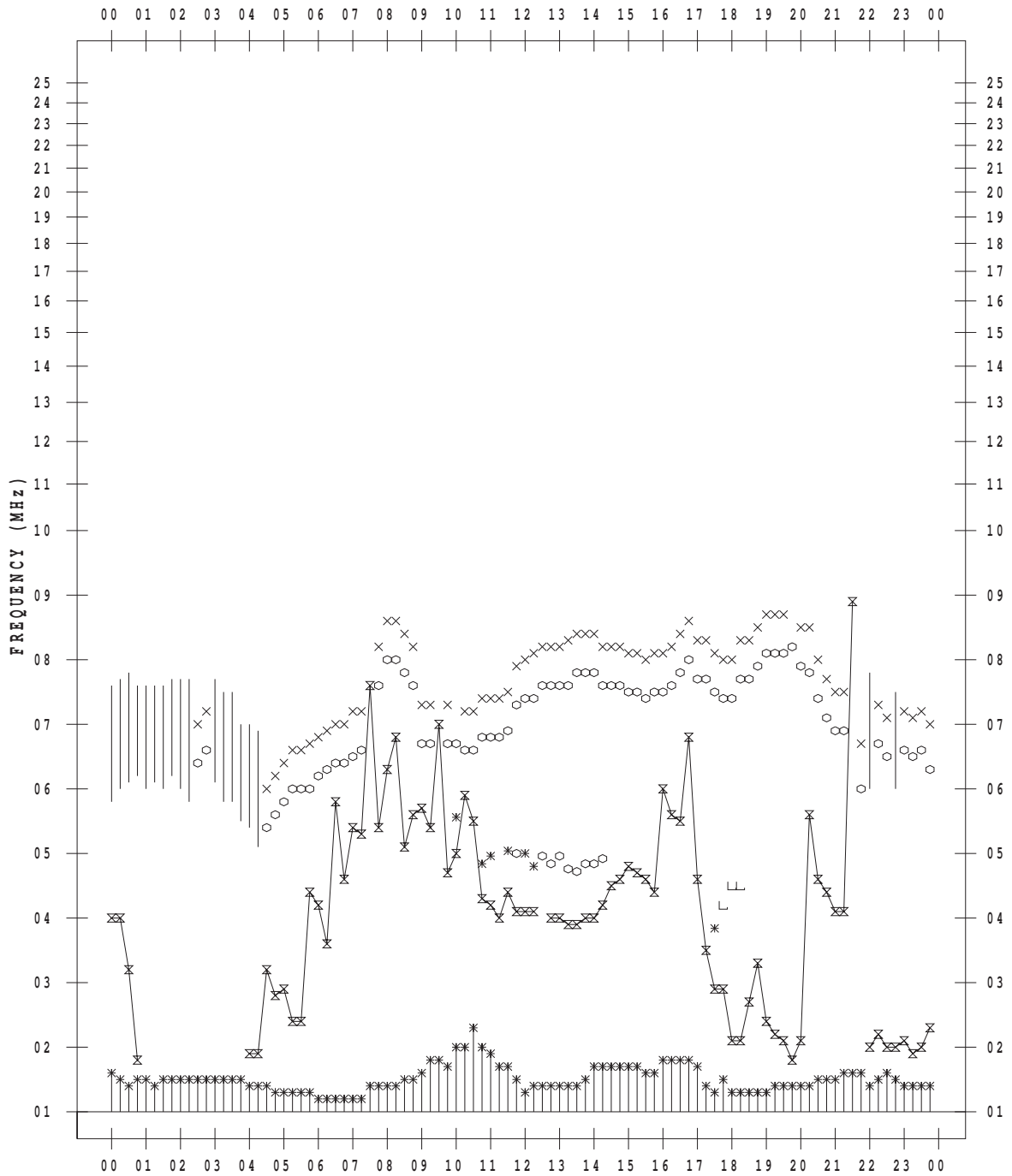
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2014 / 6 / 23

135 ° E MEAN TIME



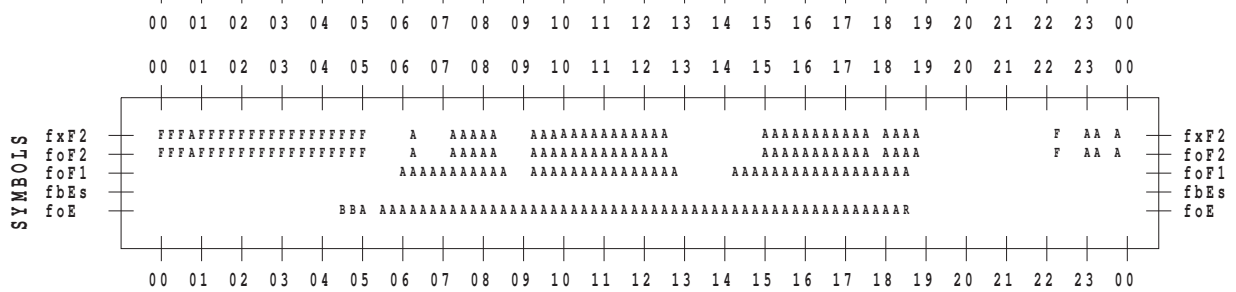
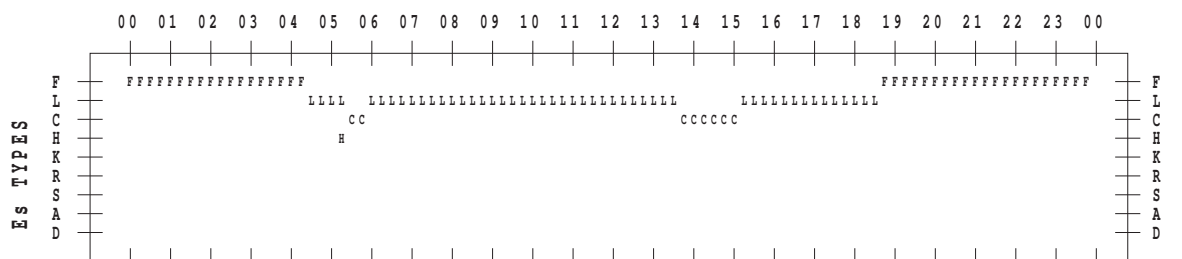
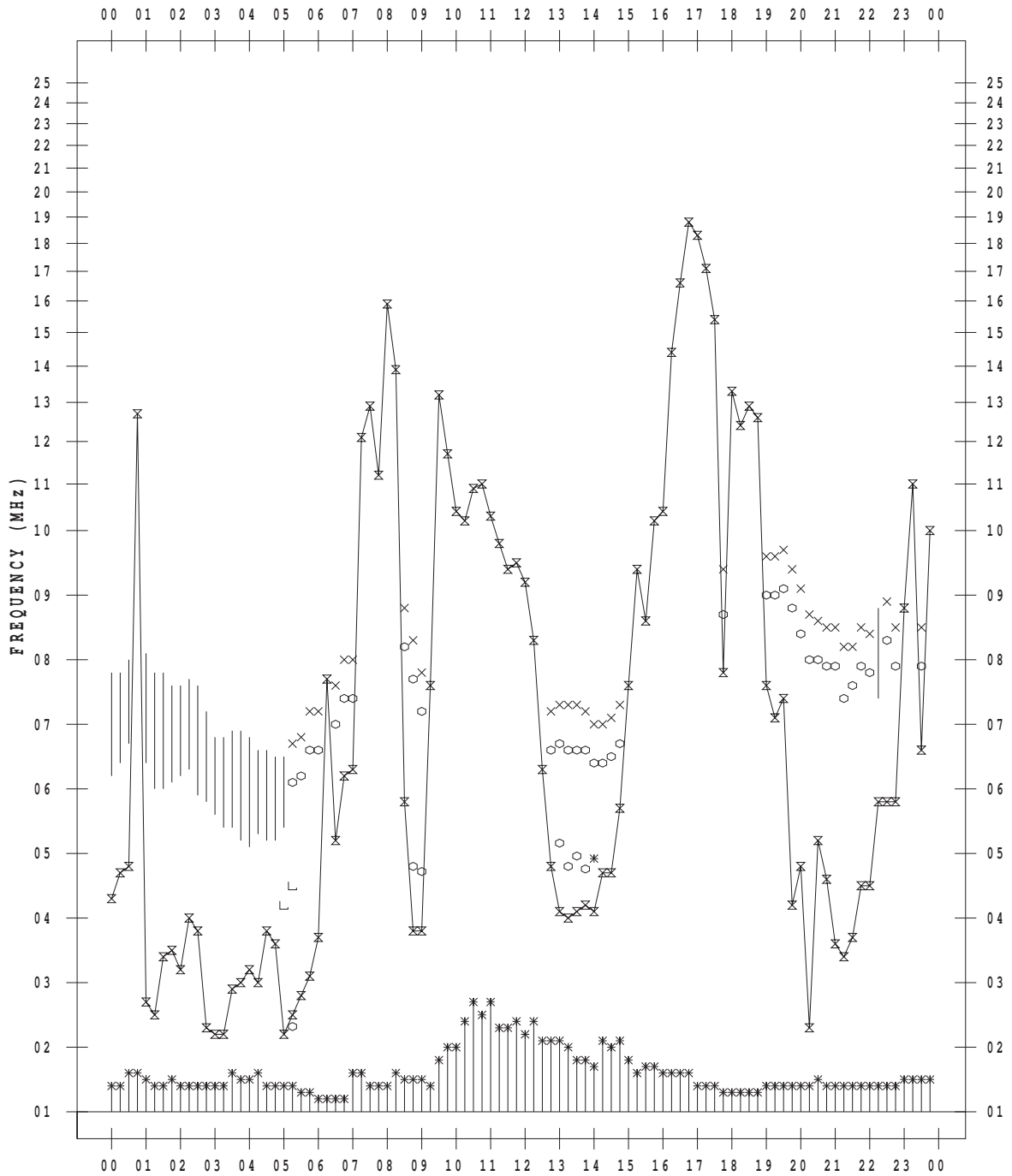
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2014 / 6 / 24

135 ° E MEAN TIME



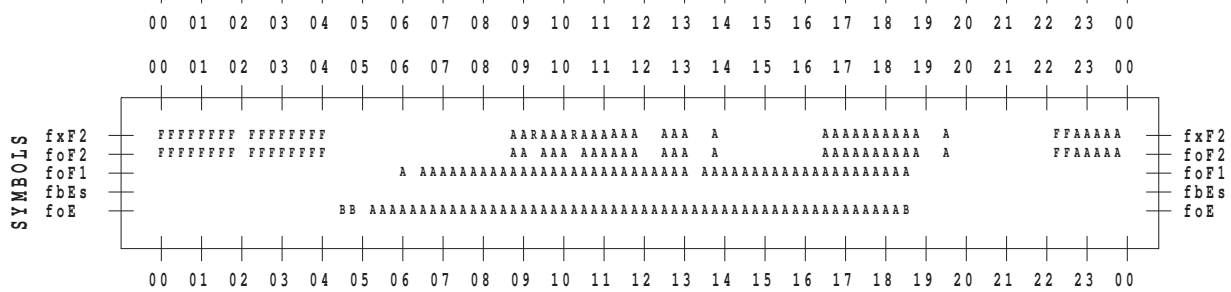
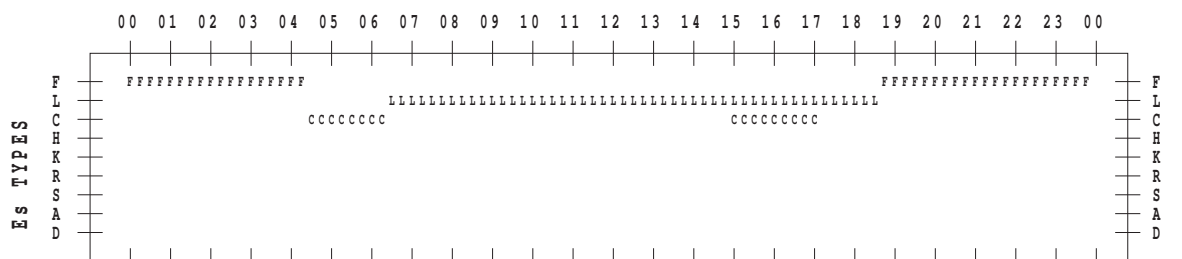
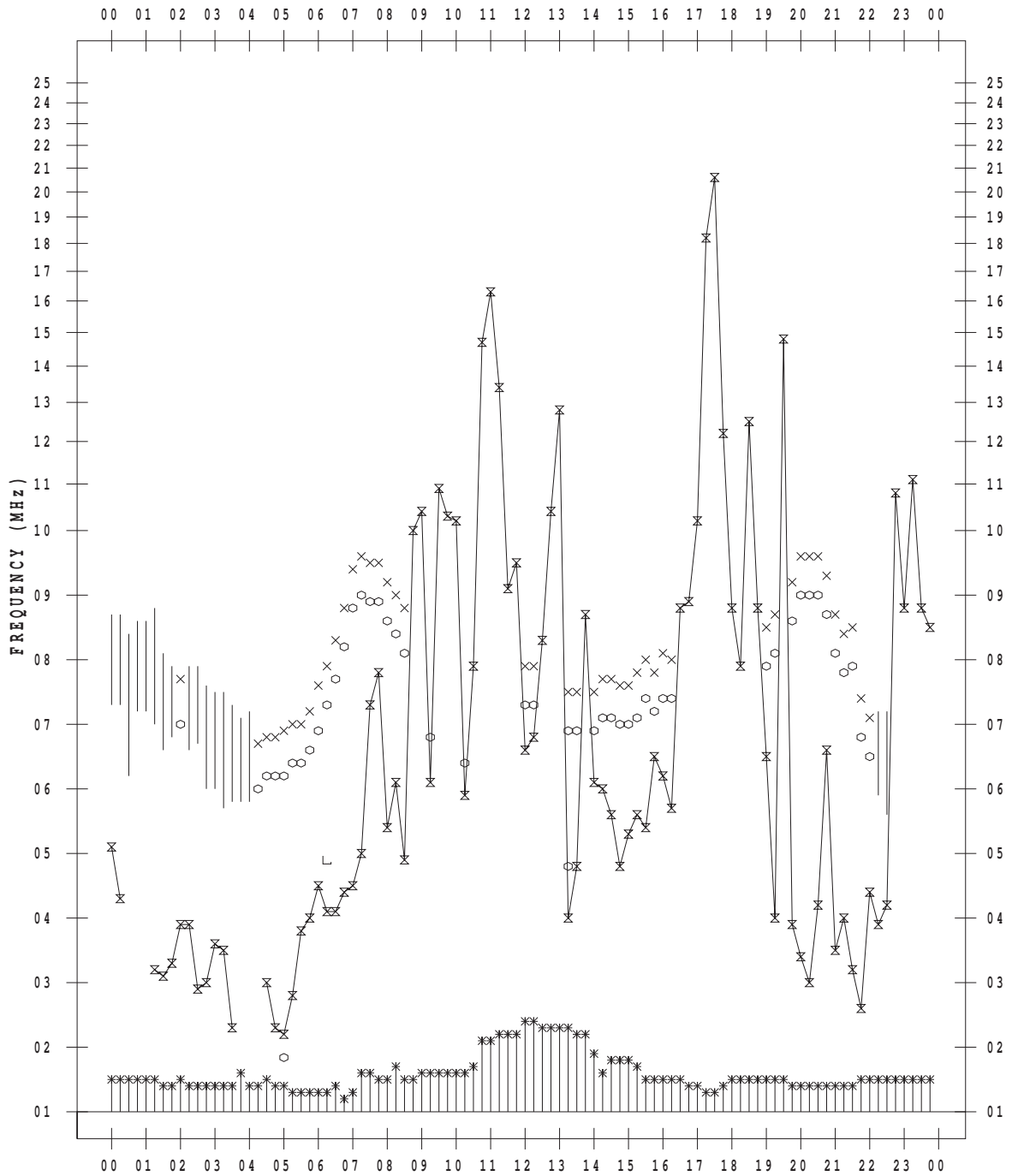
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2014 / 6 / 25

135 ° E MEAN TIME



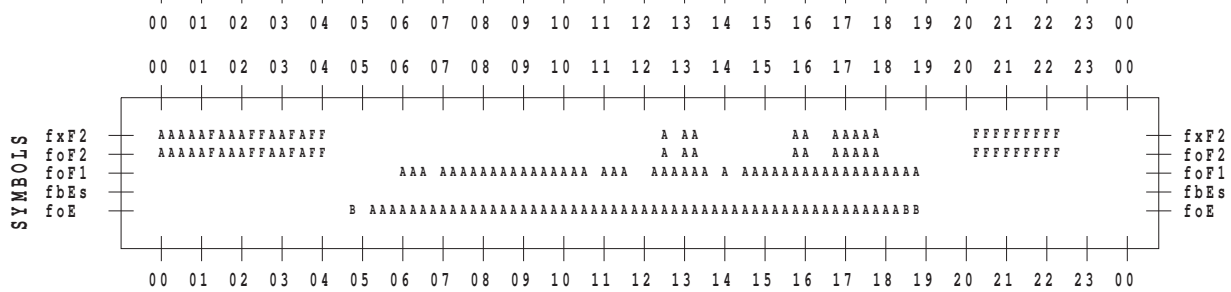
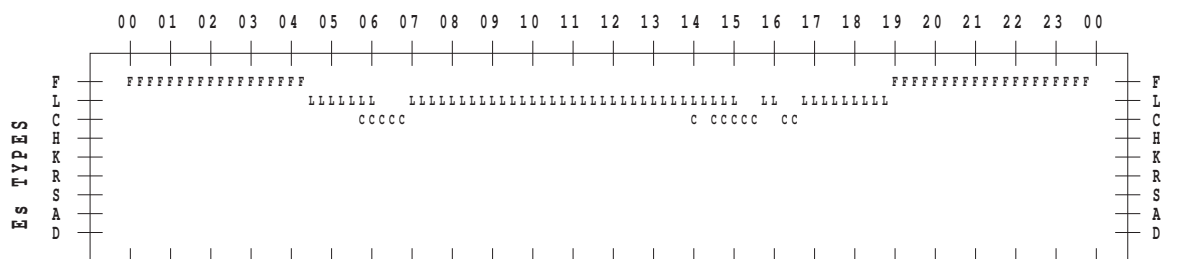
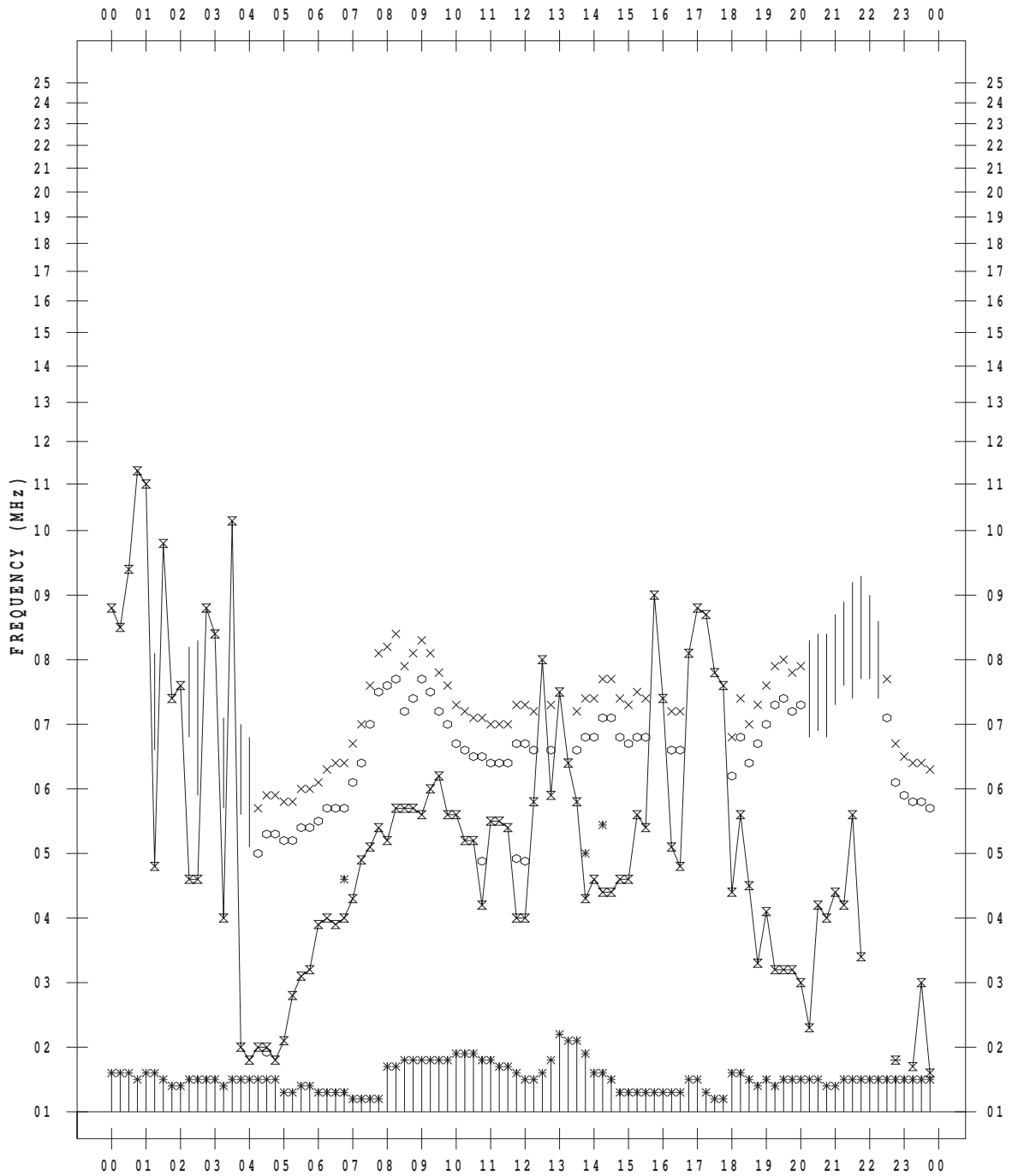
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2014 / 6 / 26

135 ° E MEAN TIME



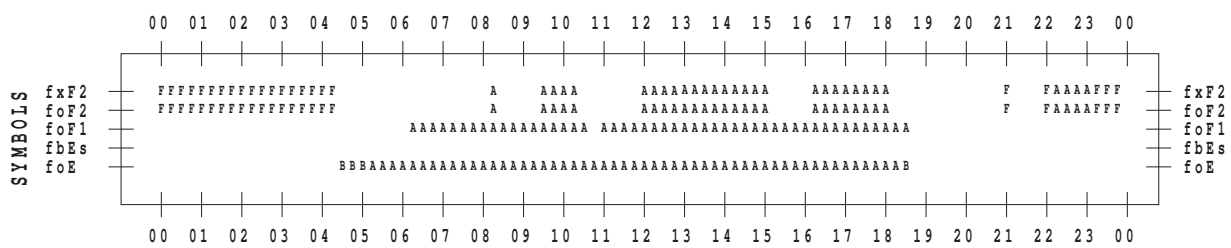
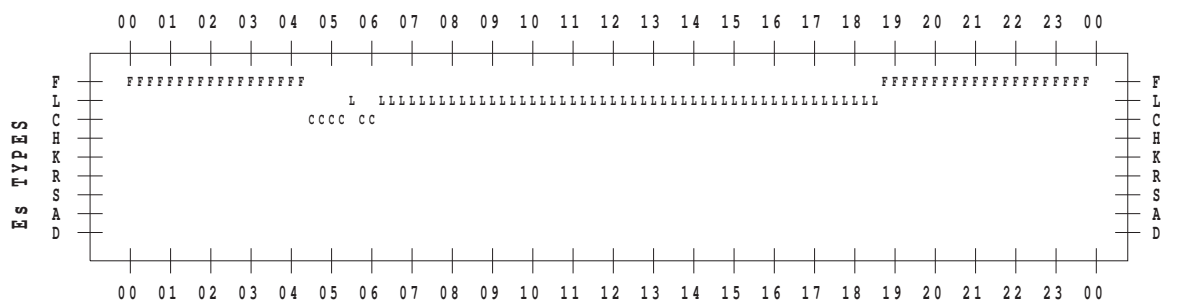
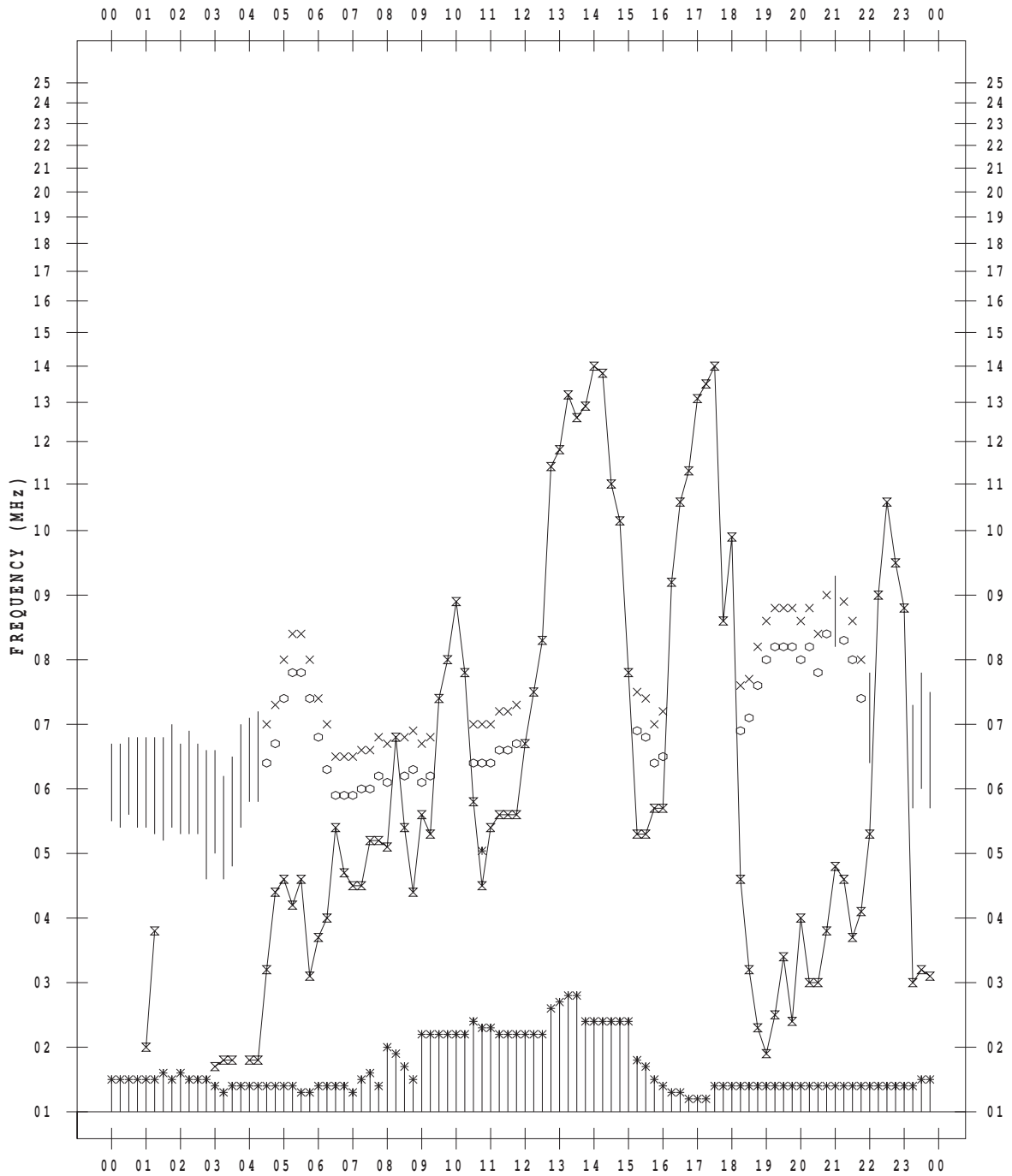
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2014 / 6 / 27

135 ° E MEAN TIME



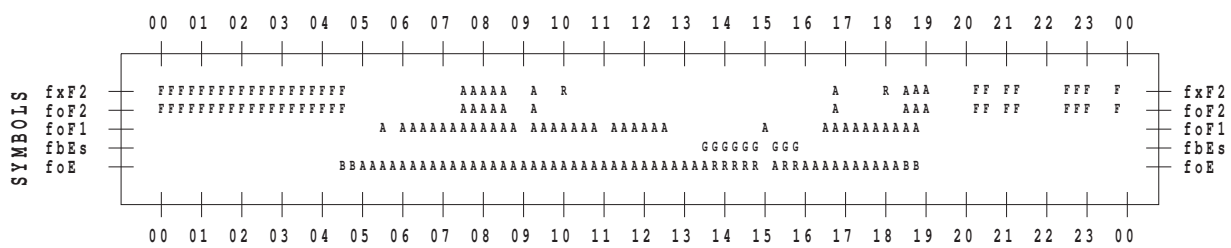
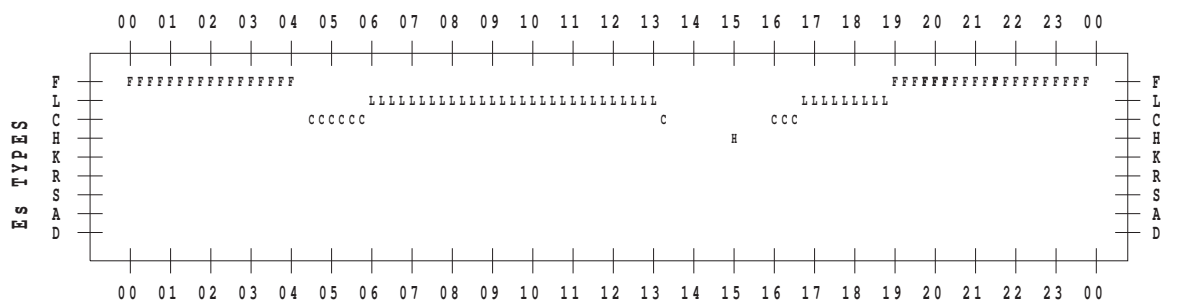
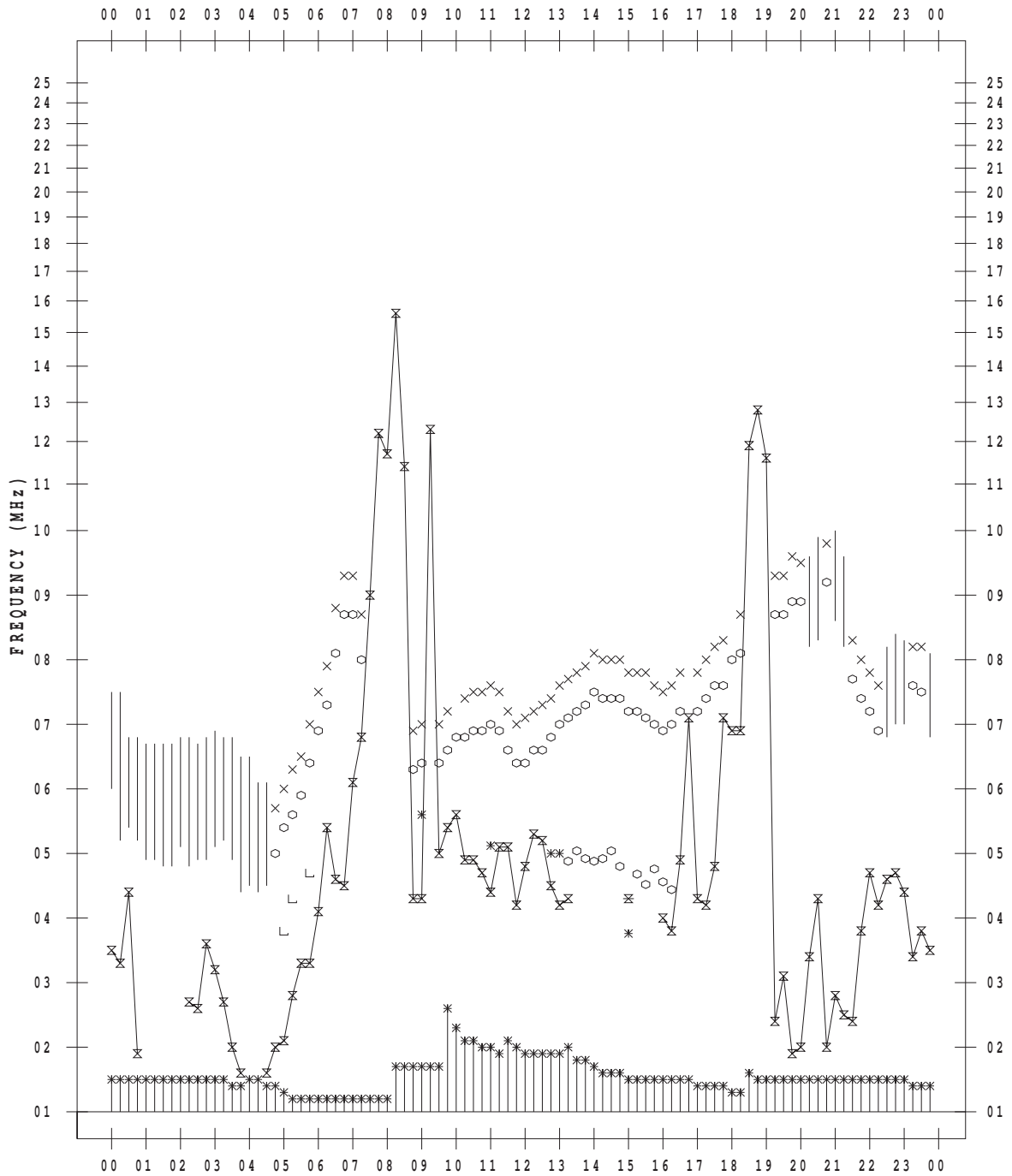
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2014 / 6 / 28

135 ° E MEAN TIME



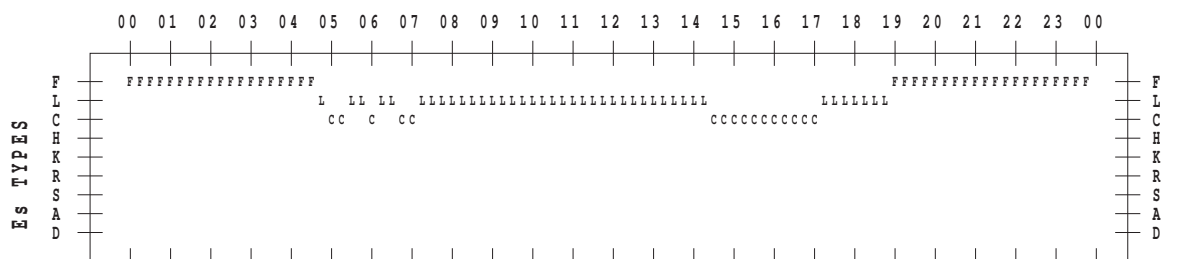
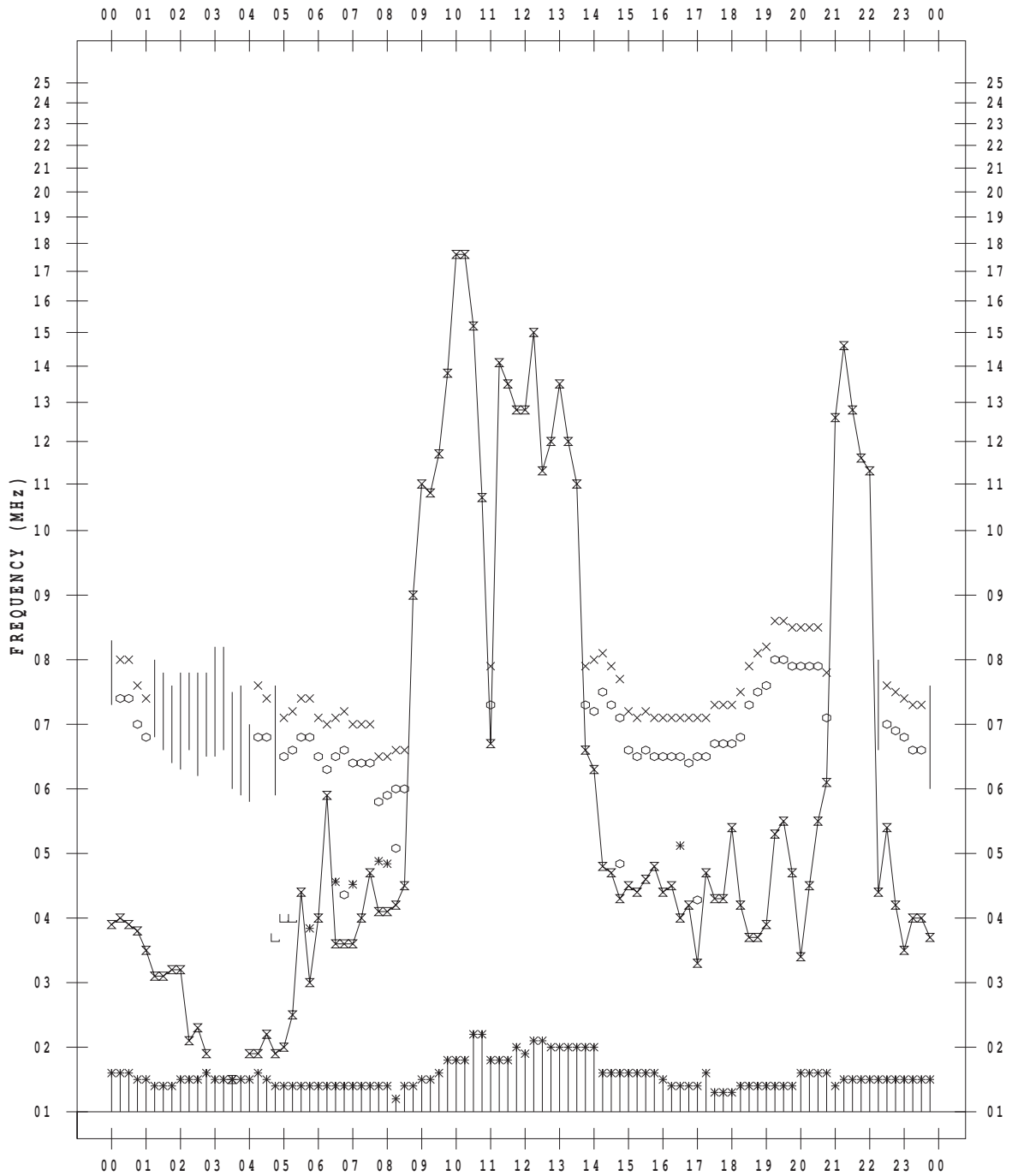
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2014 / 6 / 29

135 ° E MEAN TIME



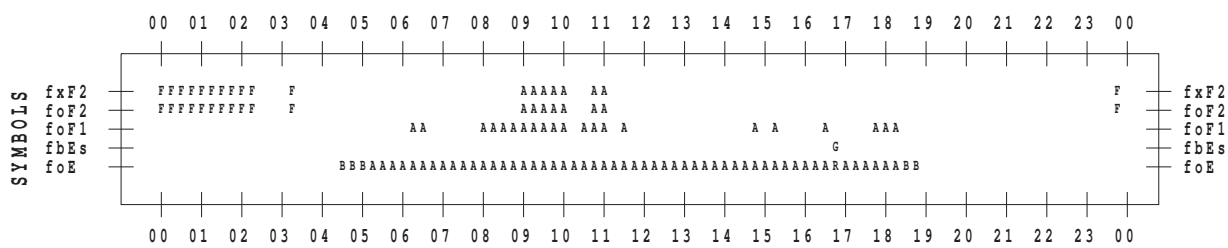
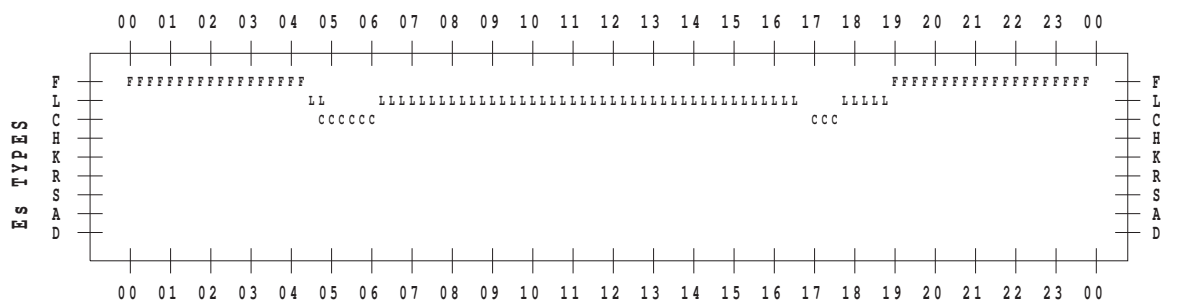
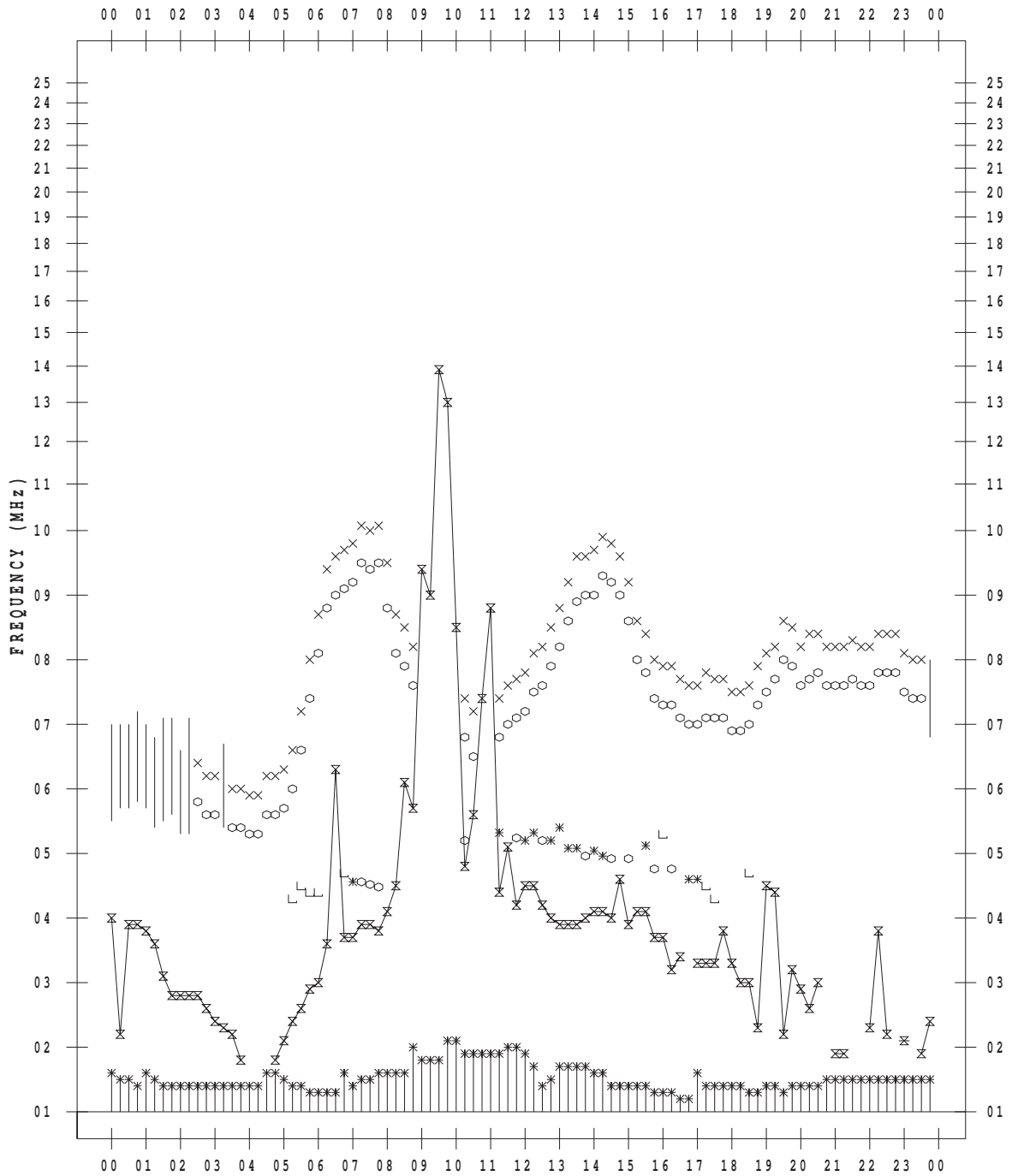
f-PLOT DATA

SCALER : I.NISHIMUTA

STATION : Kokubunji

DATE : 2014 / 6 / 30

135 ° E MEAN TIME



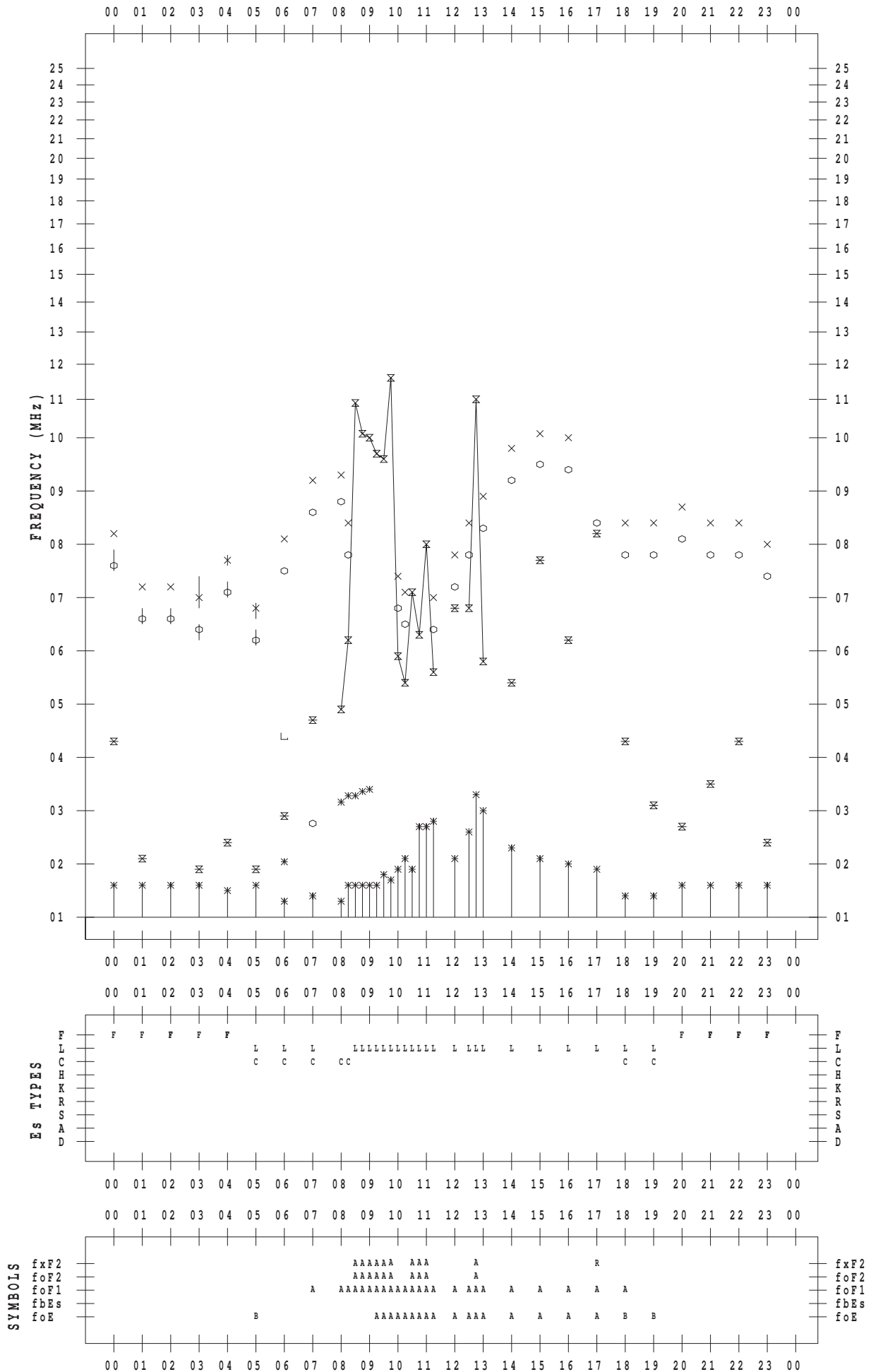
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2014 / 6 / 1

135 ° E MEAN TIME



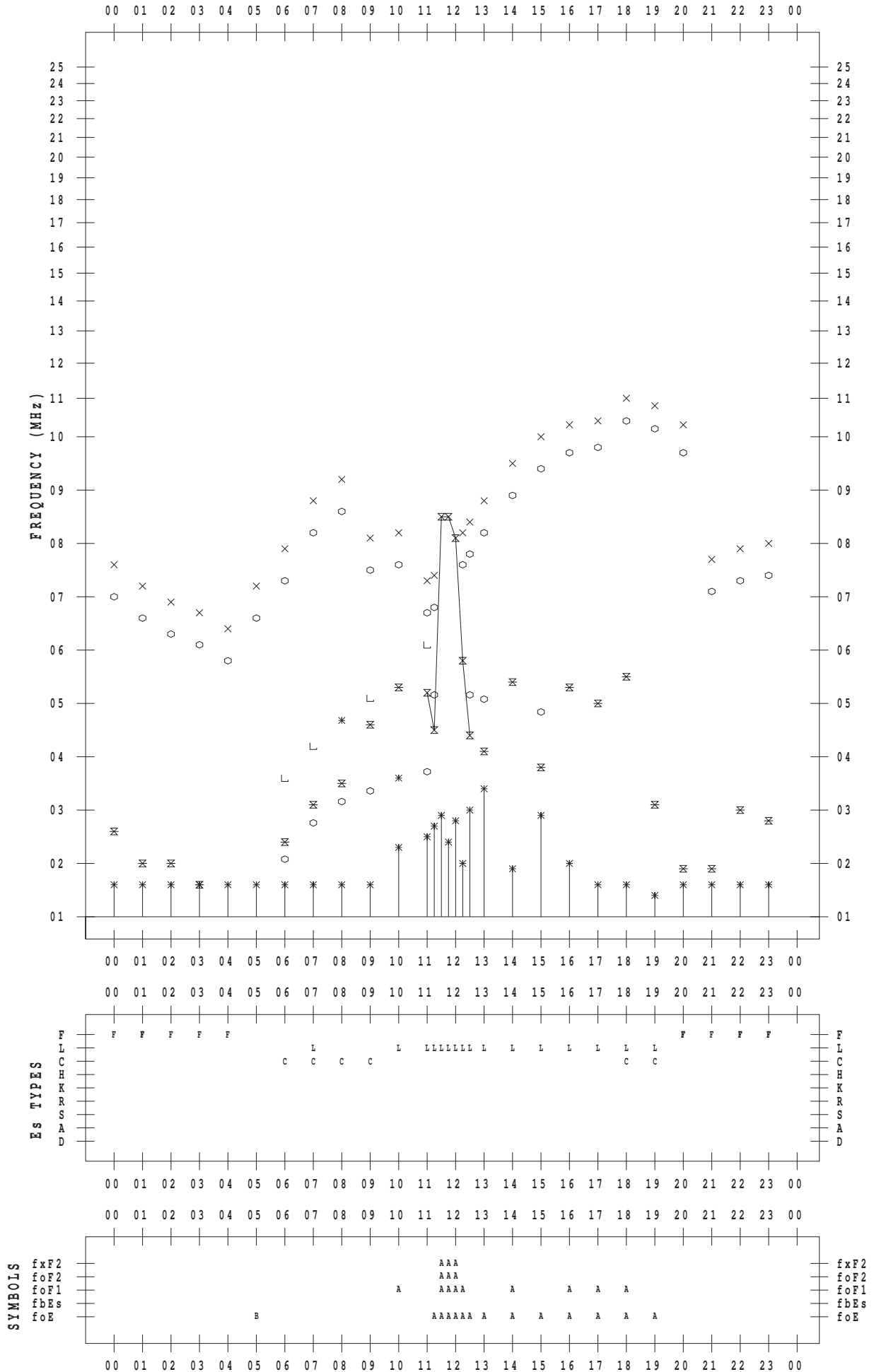
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2014 / 6 / 2

135 ° E MEAN TIME



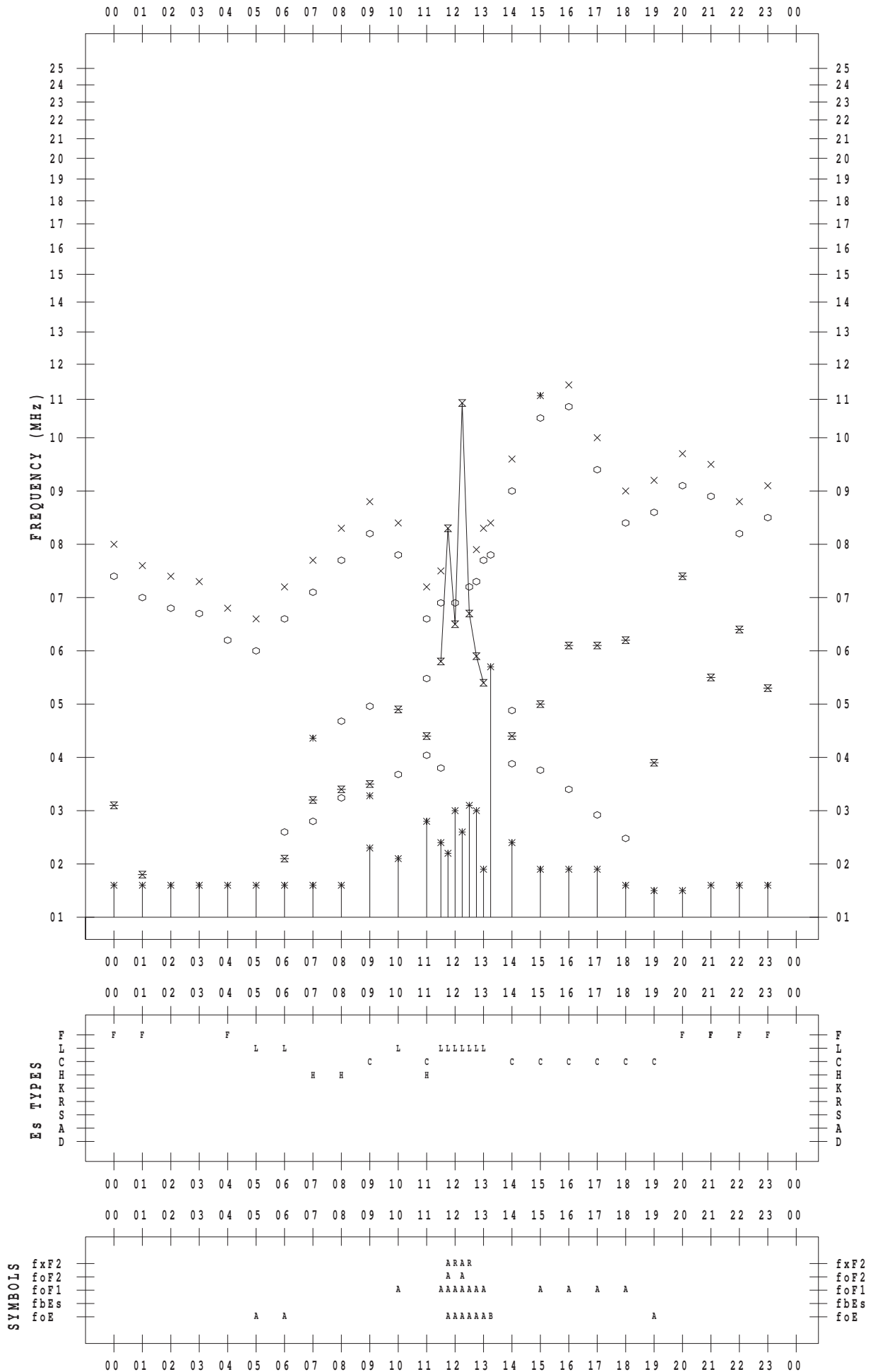
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2014 / 6 / 3

135 ° E MEAN TIME



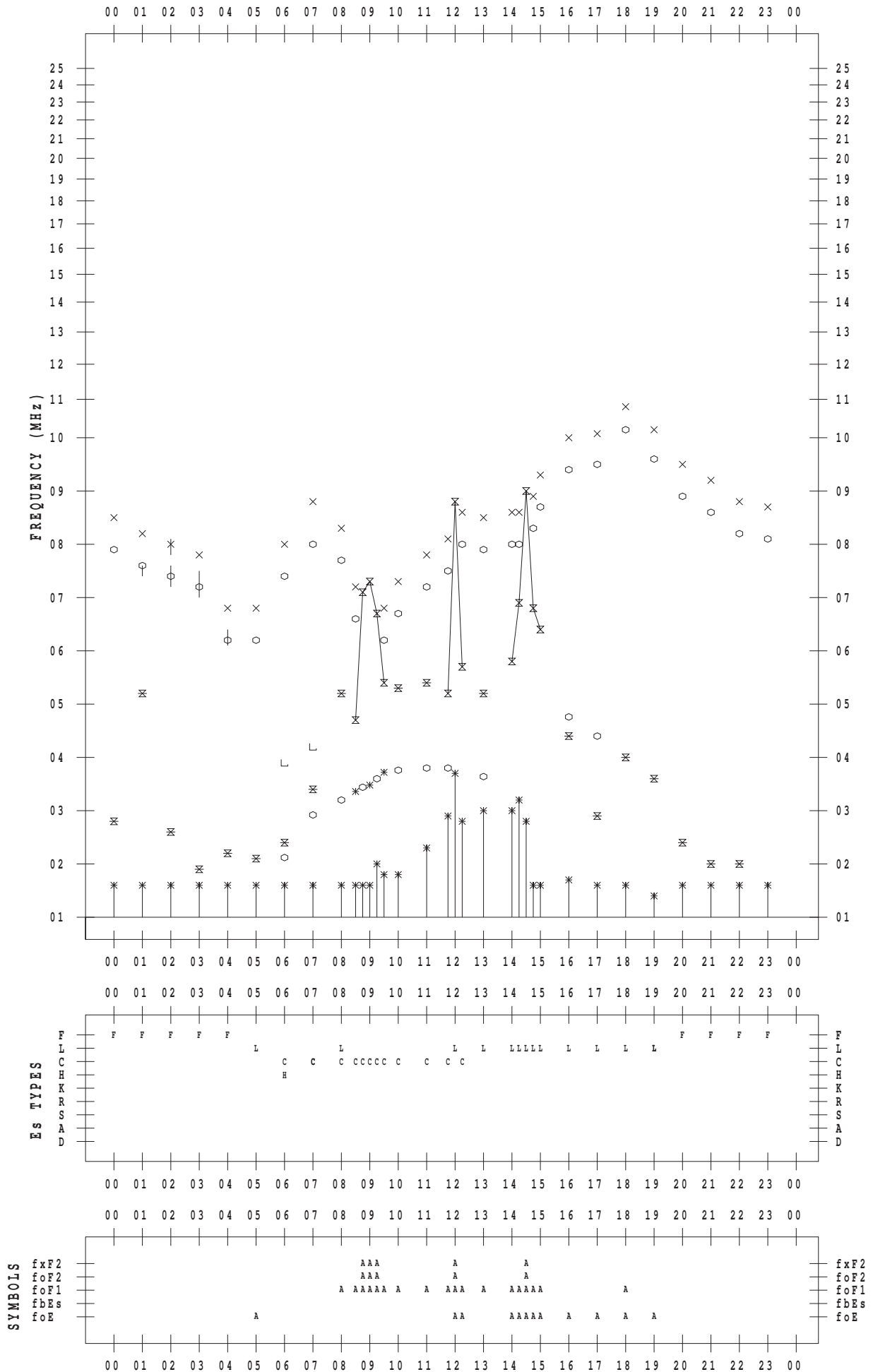
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2014 / 6 / 4

135 ° E MEAN TIME



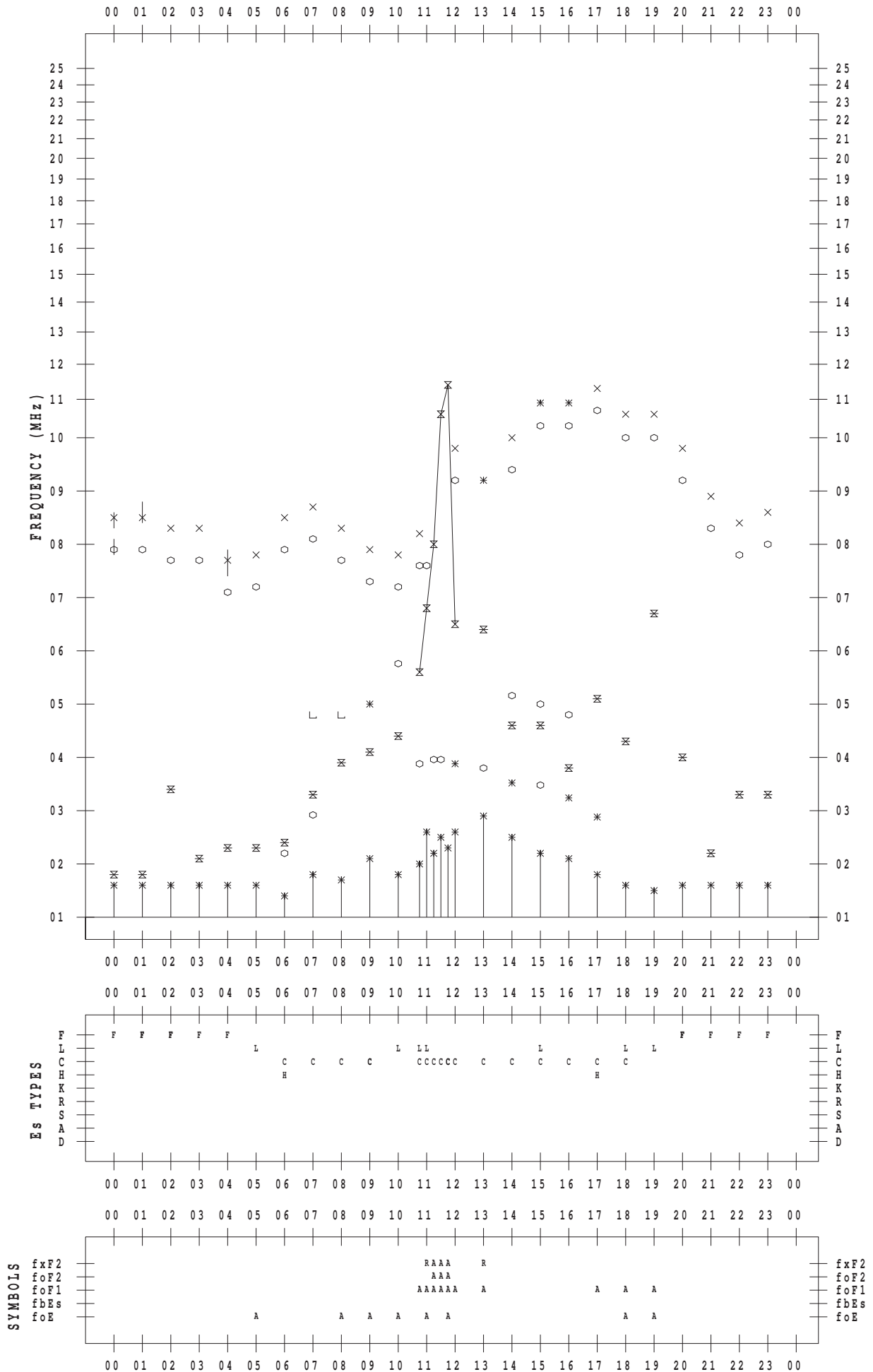
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2014 / 6 / 5

135 ° E MEAN TIME



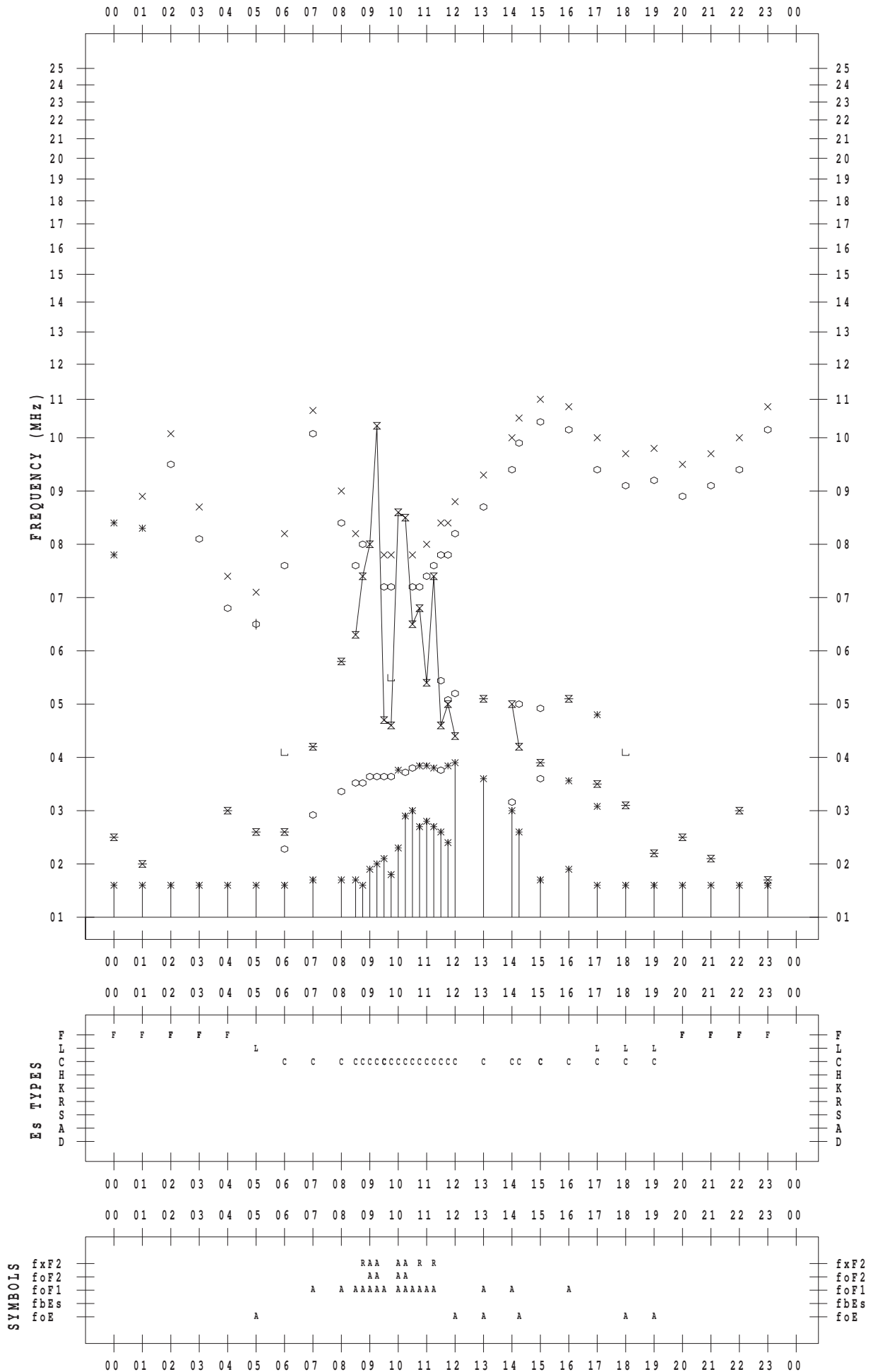
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2014 / 6 / 6

135 ° E MEAN TIME



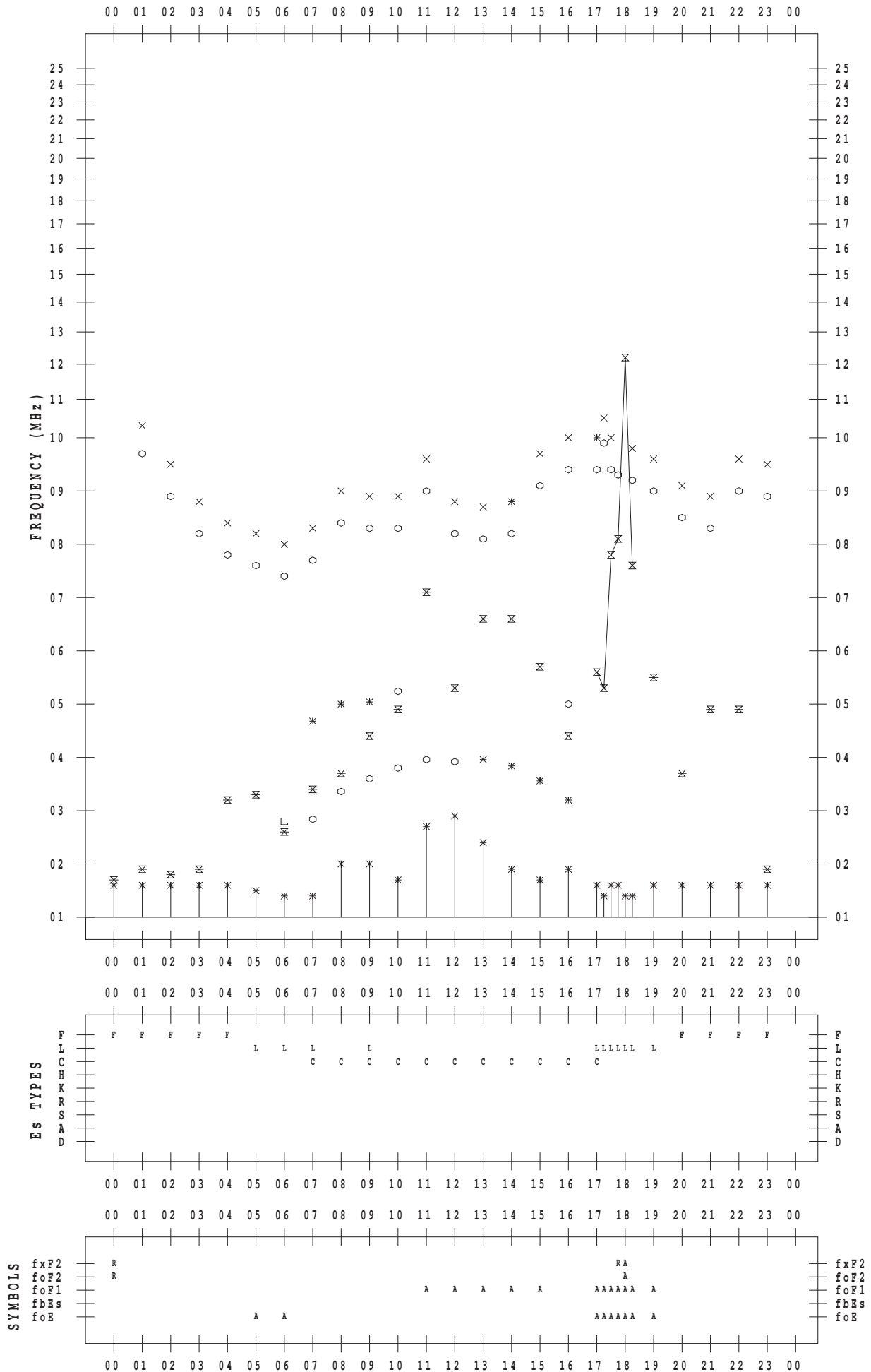
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2014 / 6 / 7

135 ° E MEAN TIME



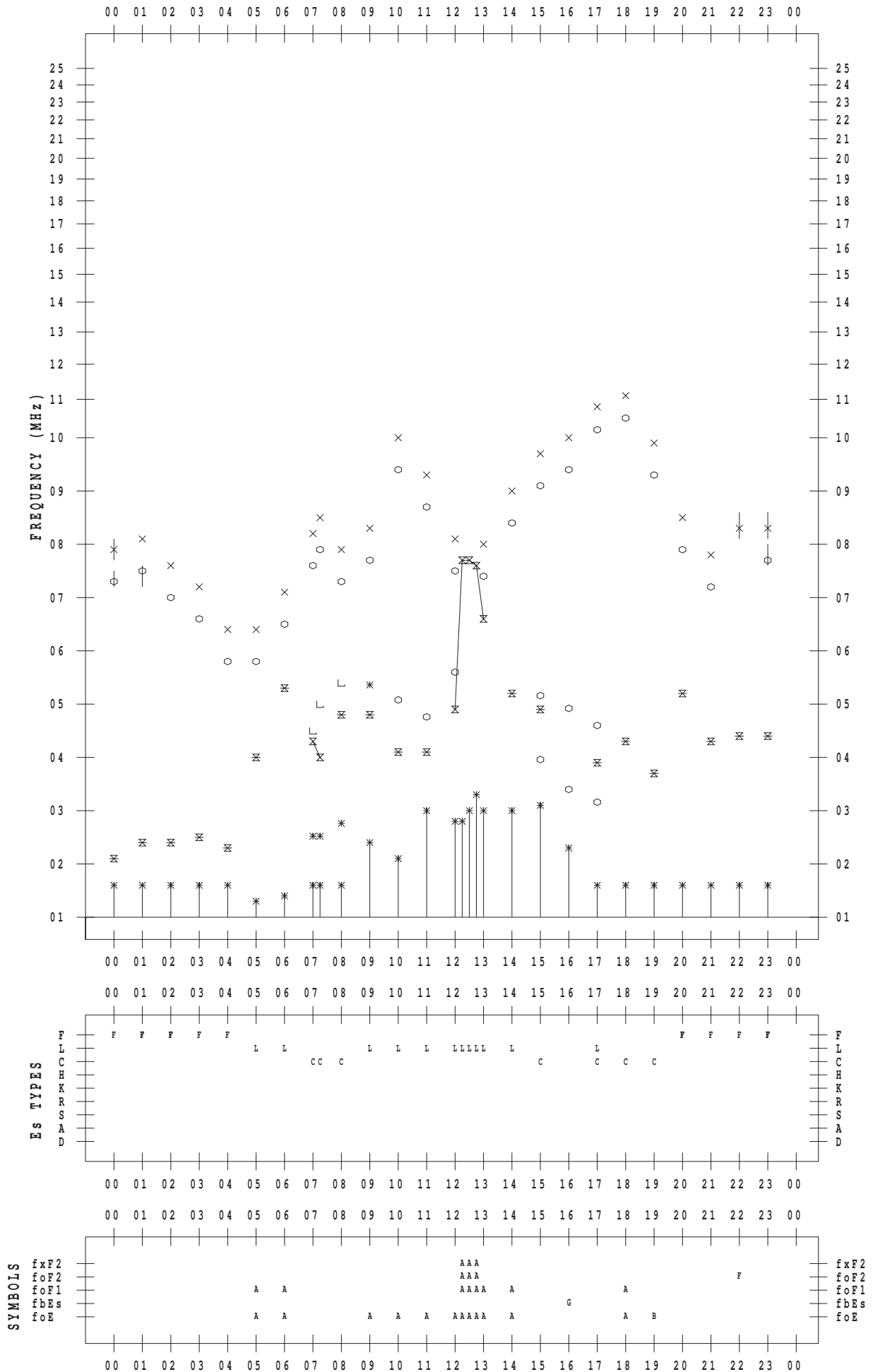
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2014 / 6 / 9

135 ° E MEAN TIME



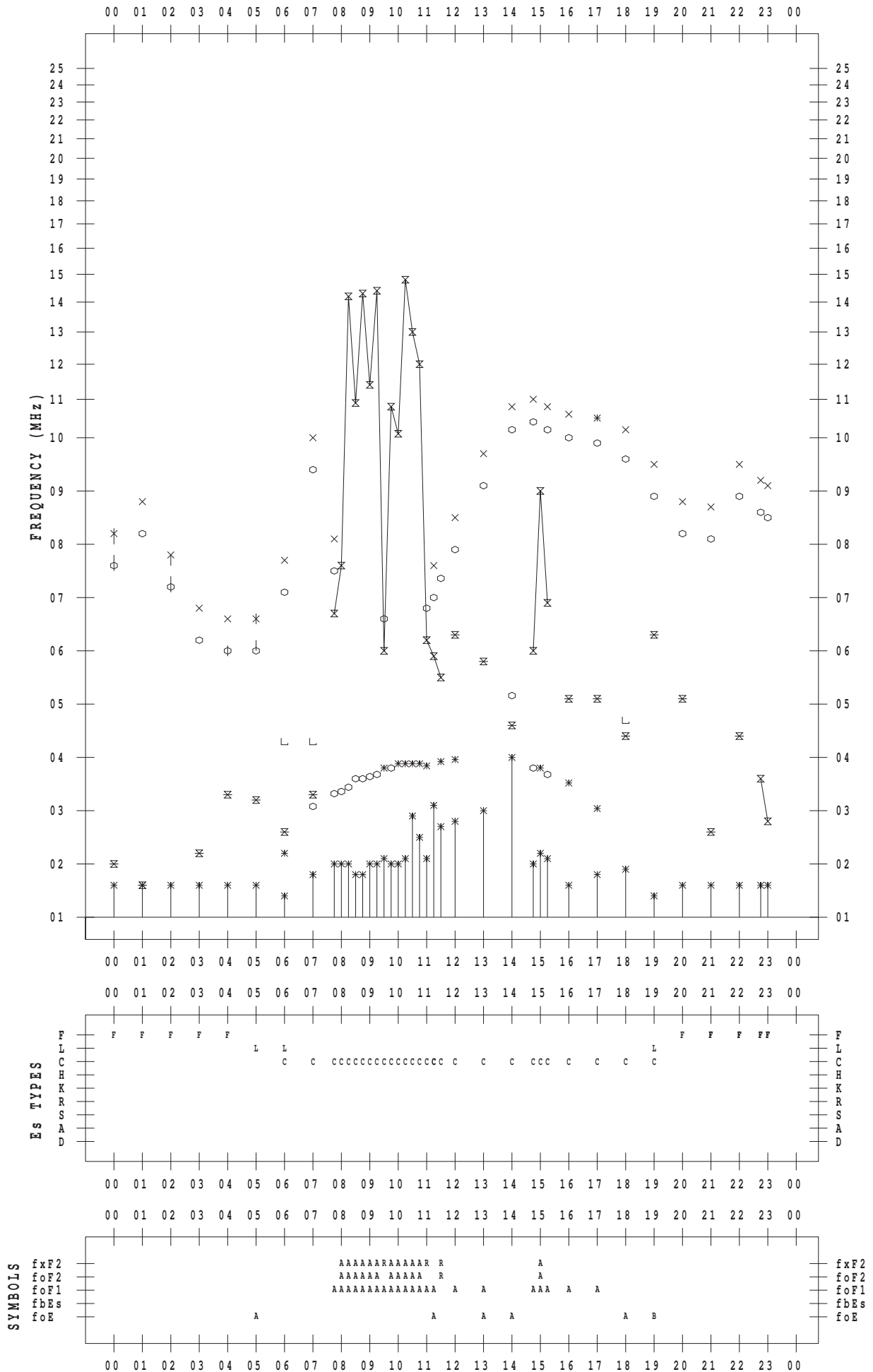
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2014 / 6 / 10

135 ° E MEAN TIME



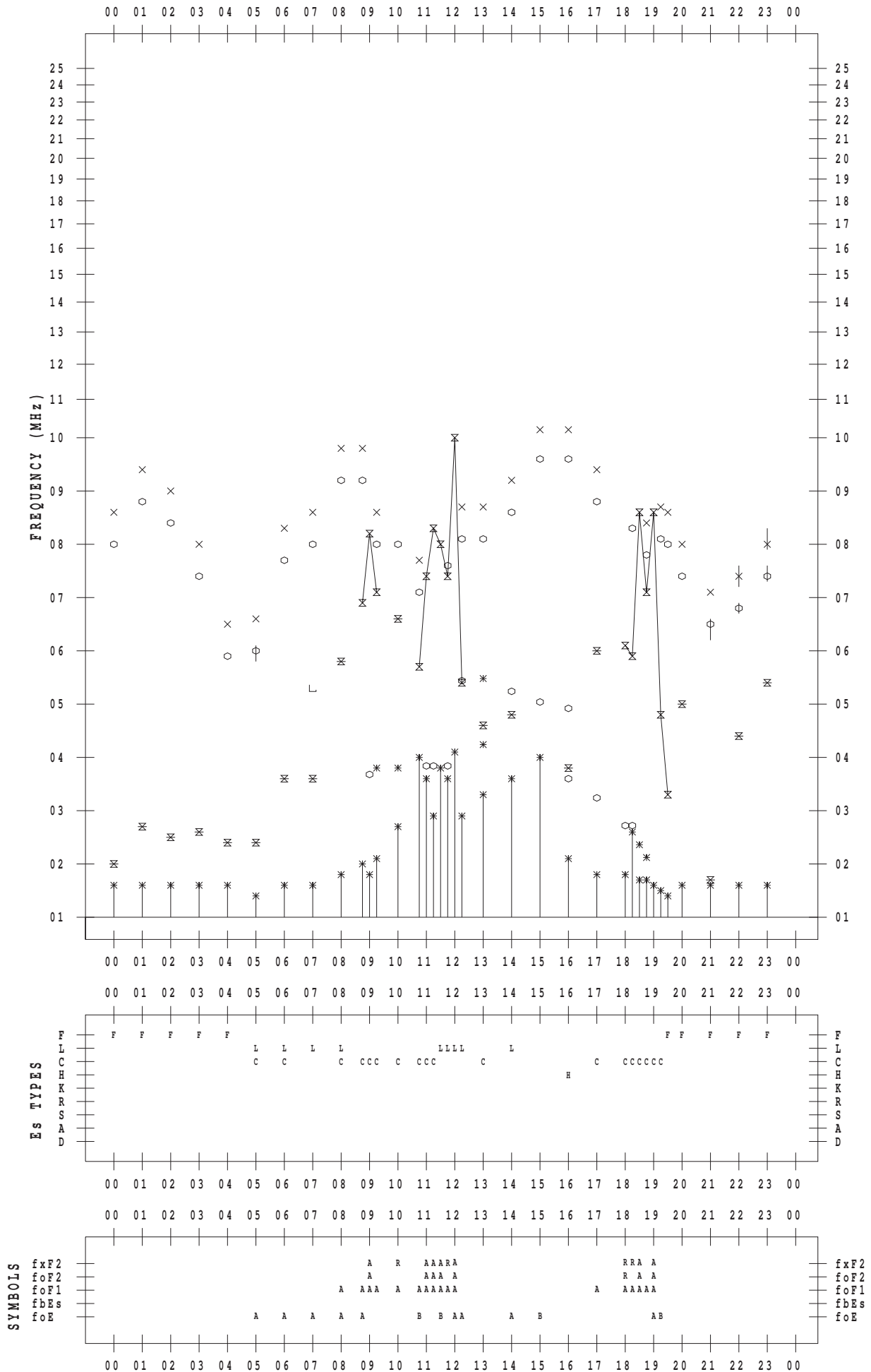
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2014 / 6 / 11

135 ° E MEAN TIME



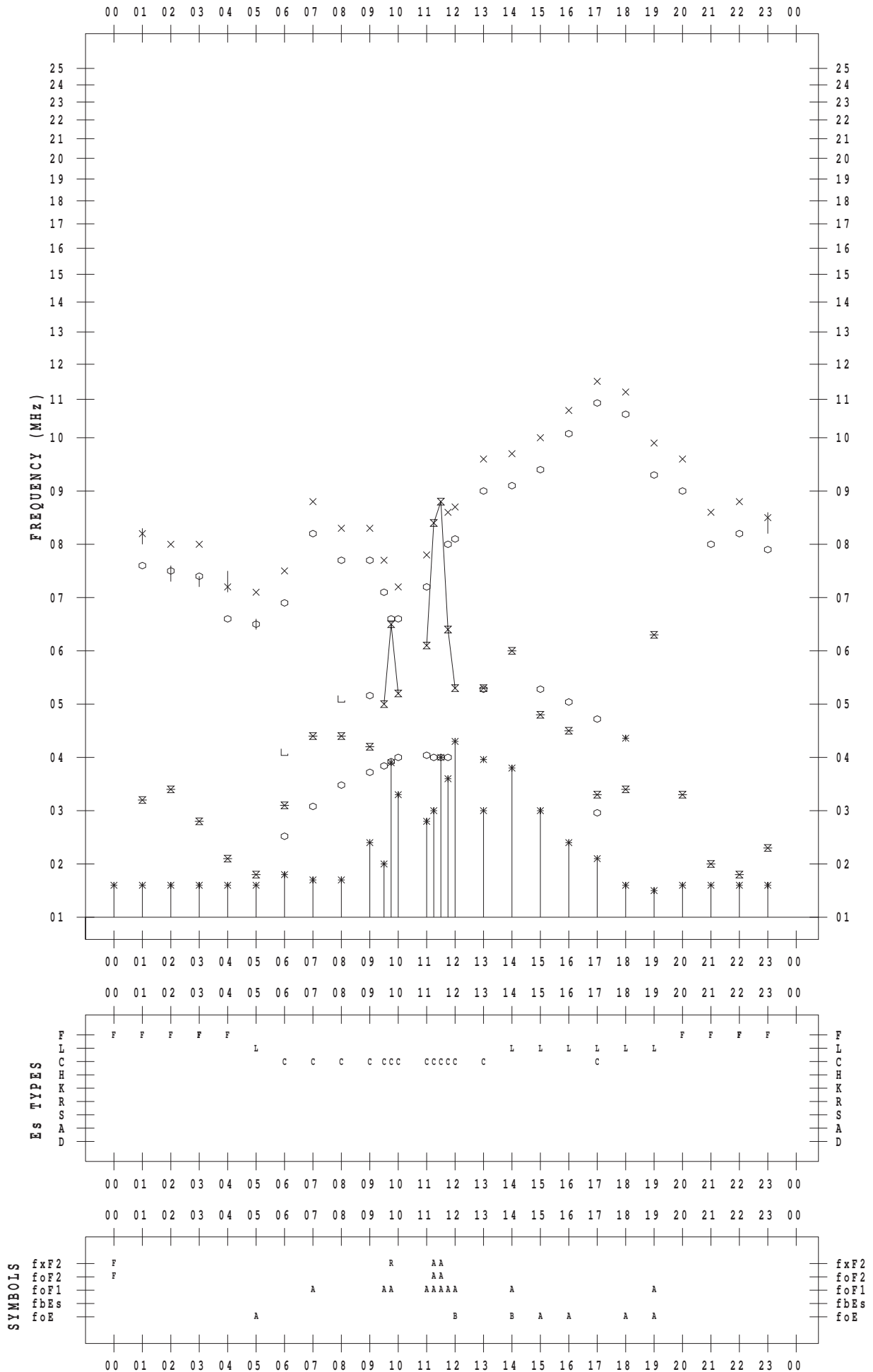
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2014 / 6 / 12

135 ° E MEAN TIME



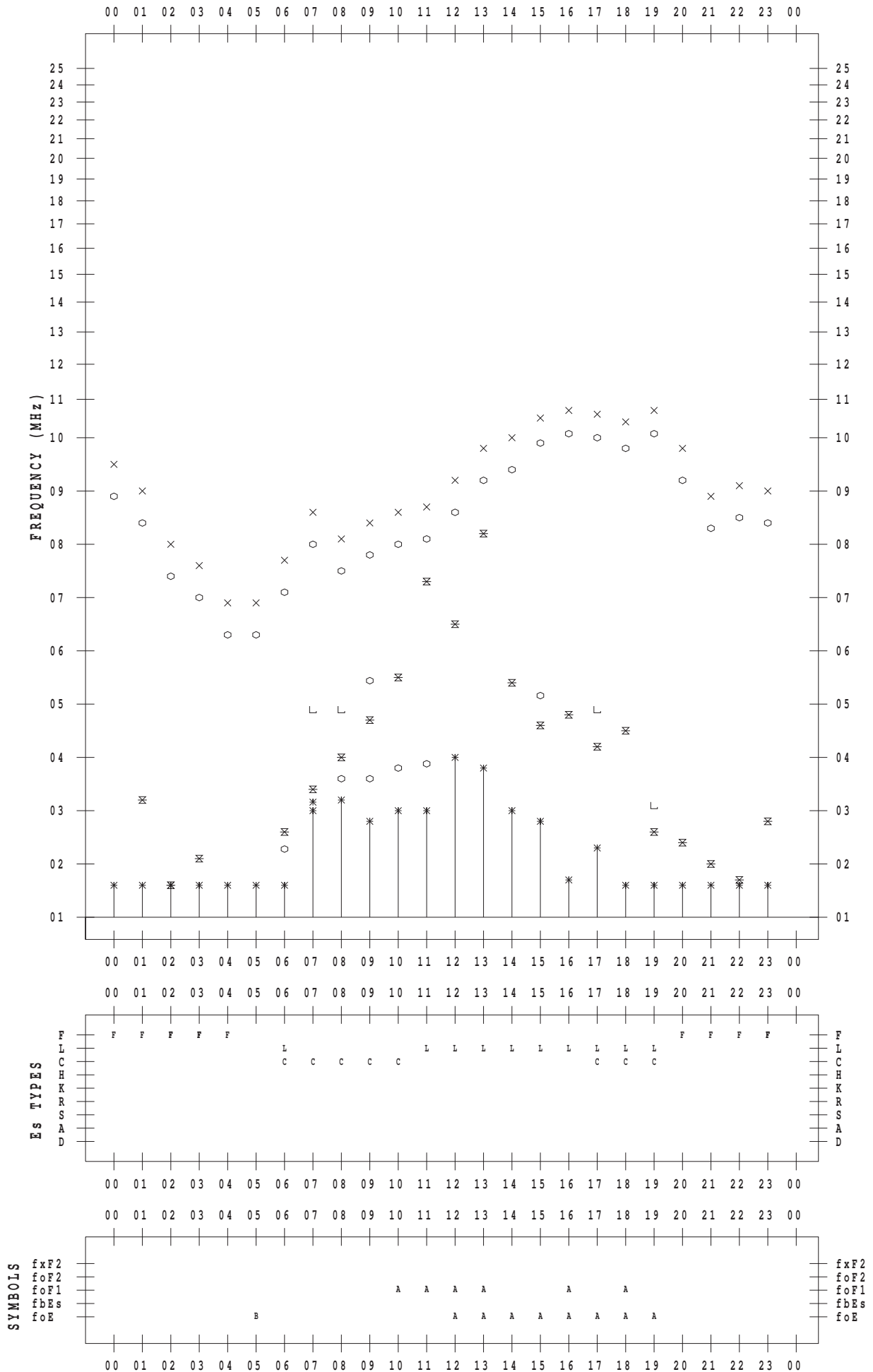
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2014 / 6 / 13

135 ° E MEAN TIME



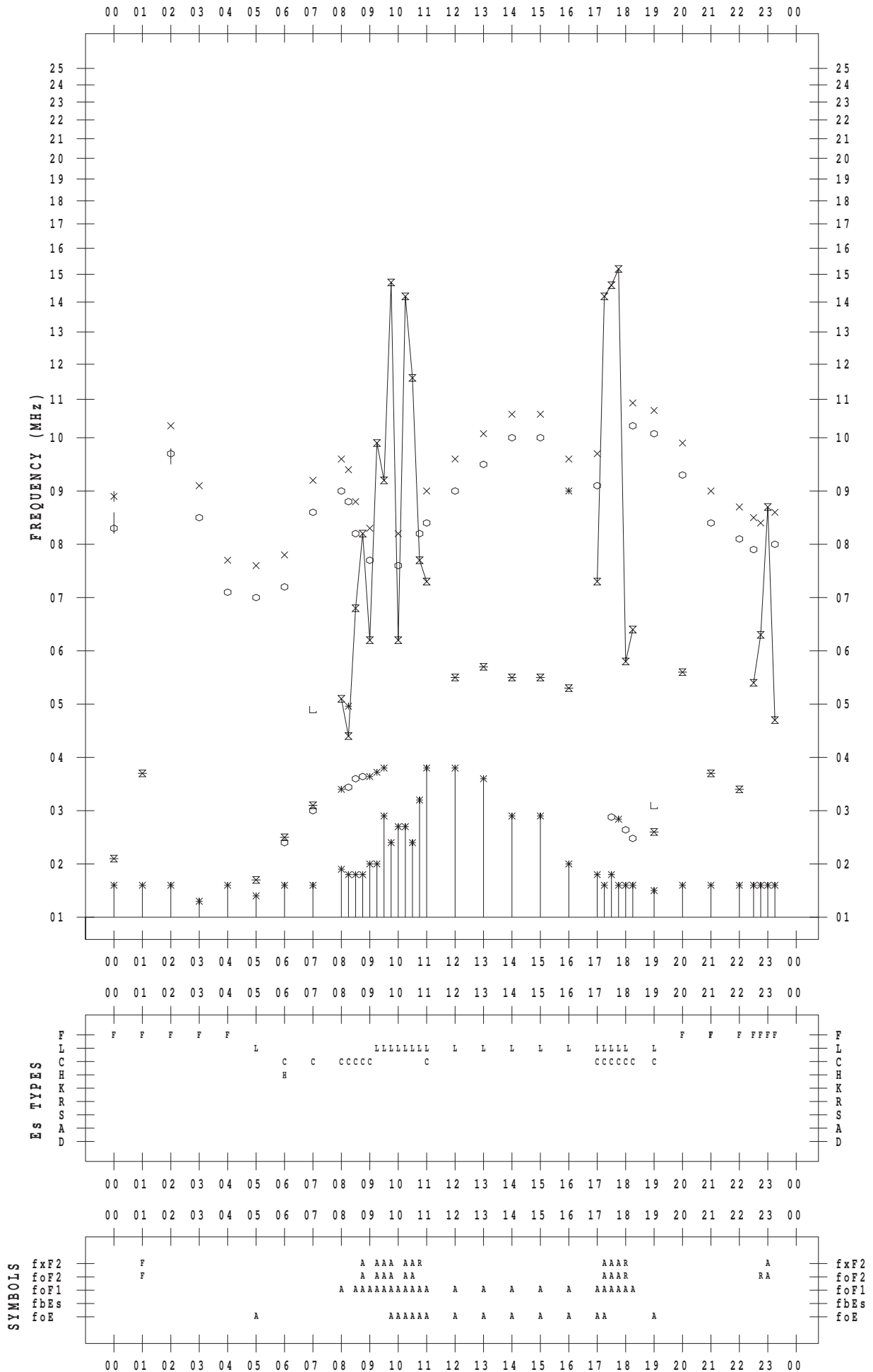
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2014 / 6 / 14

135 ° E MEAN TIME



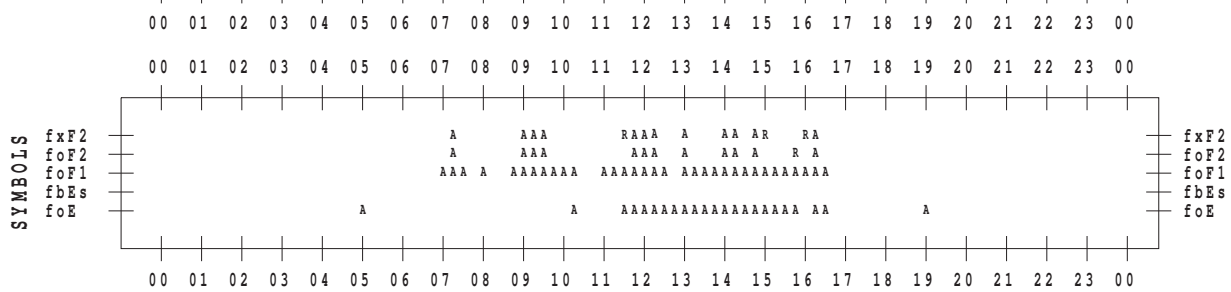
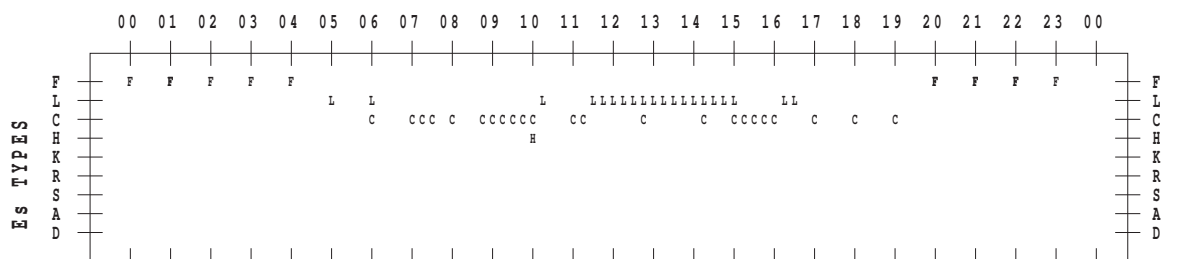
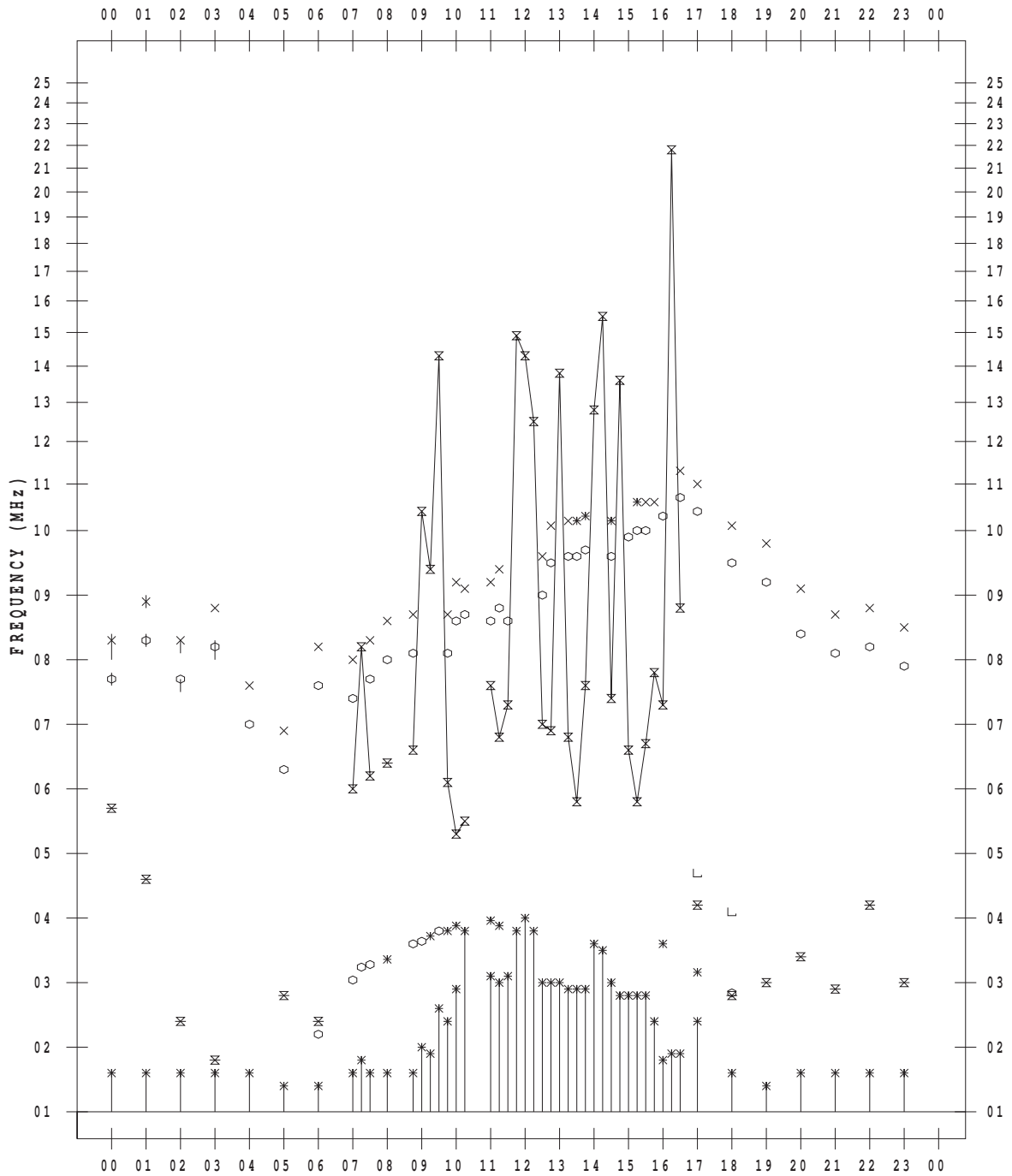
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2014 / 6 / 15

135 ° E MEAN TIME



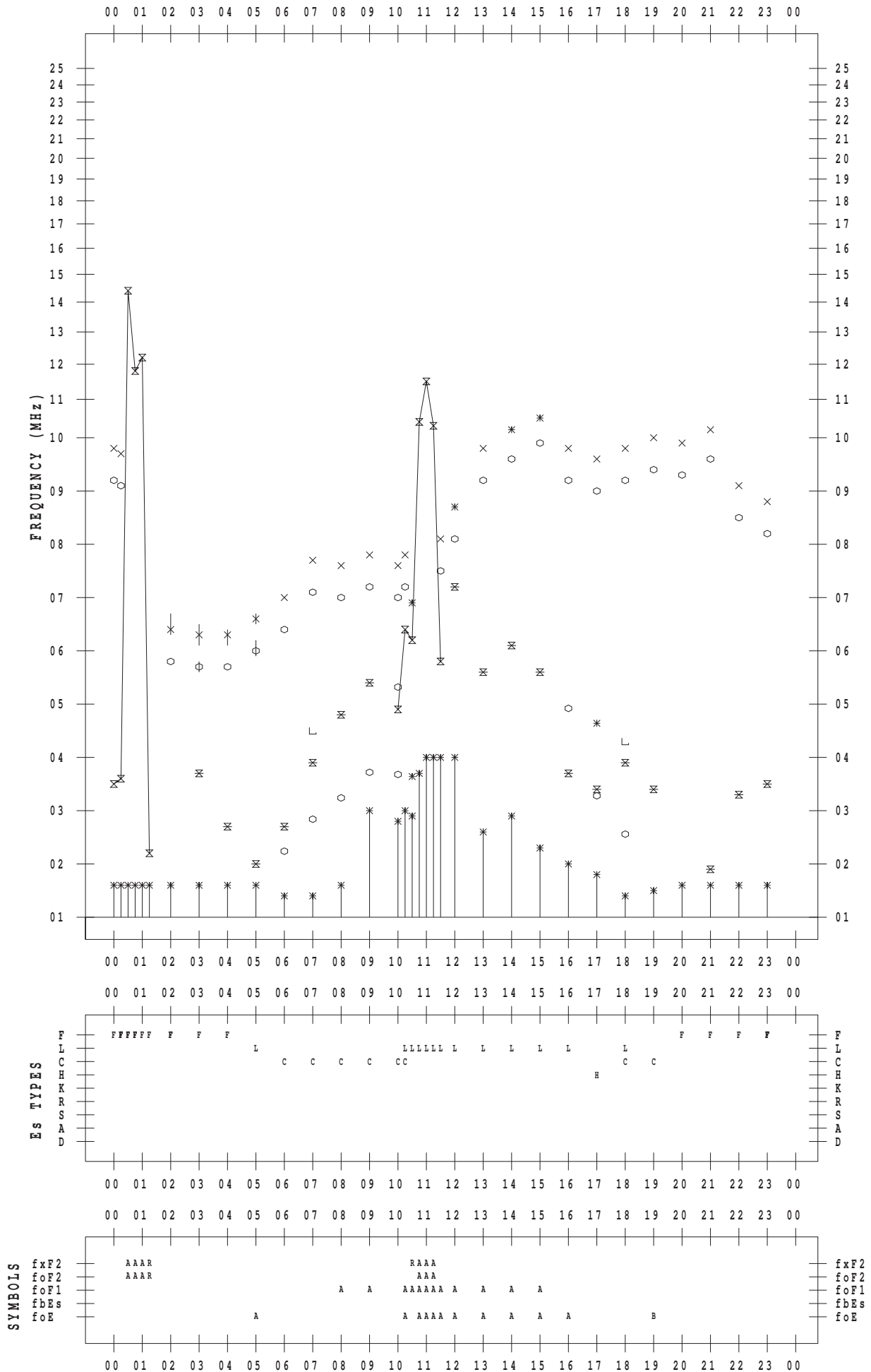
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2014 / 6 / 16

135 ° E MEAN TIME



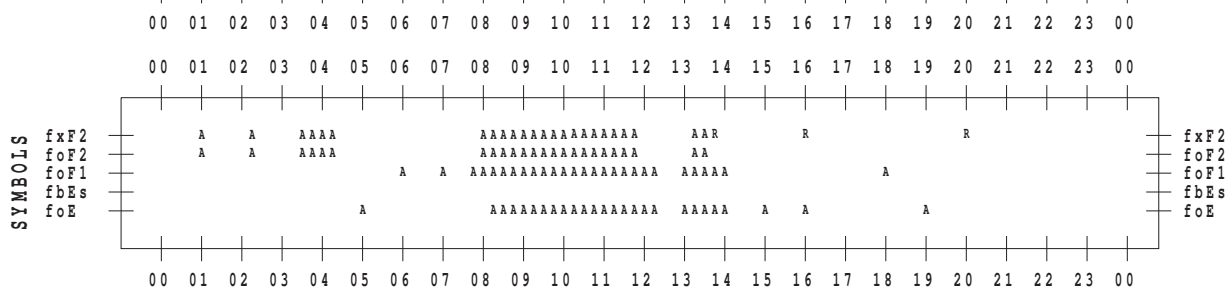
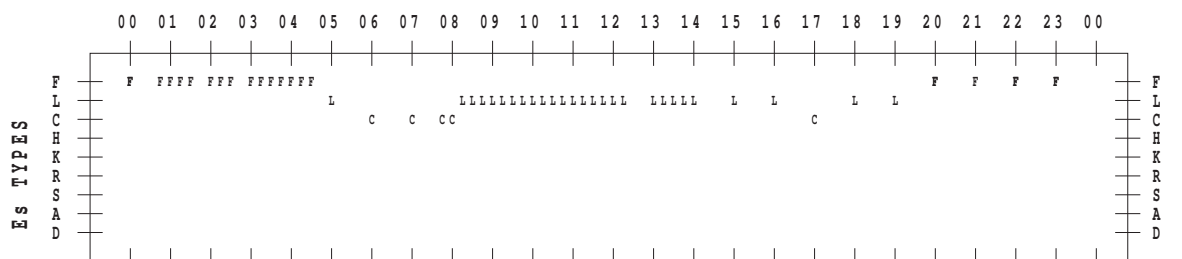
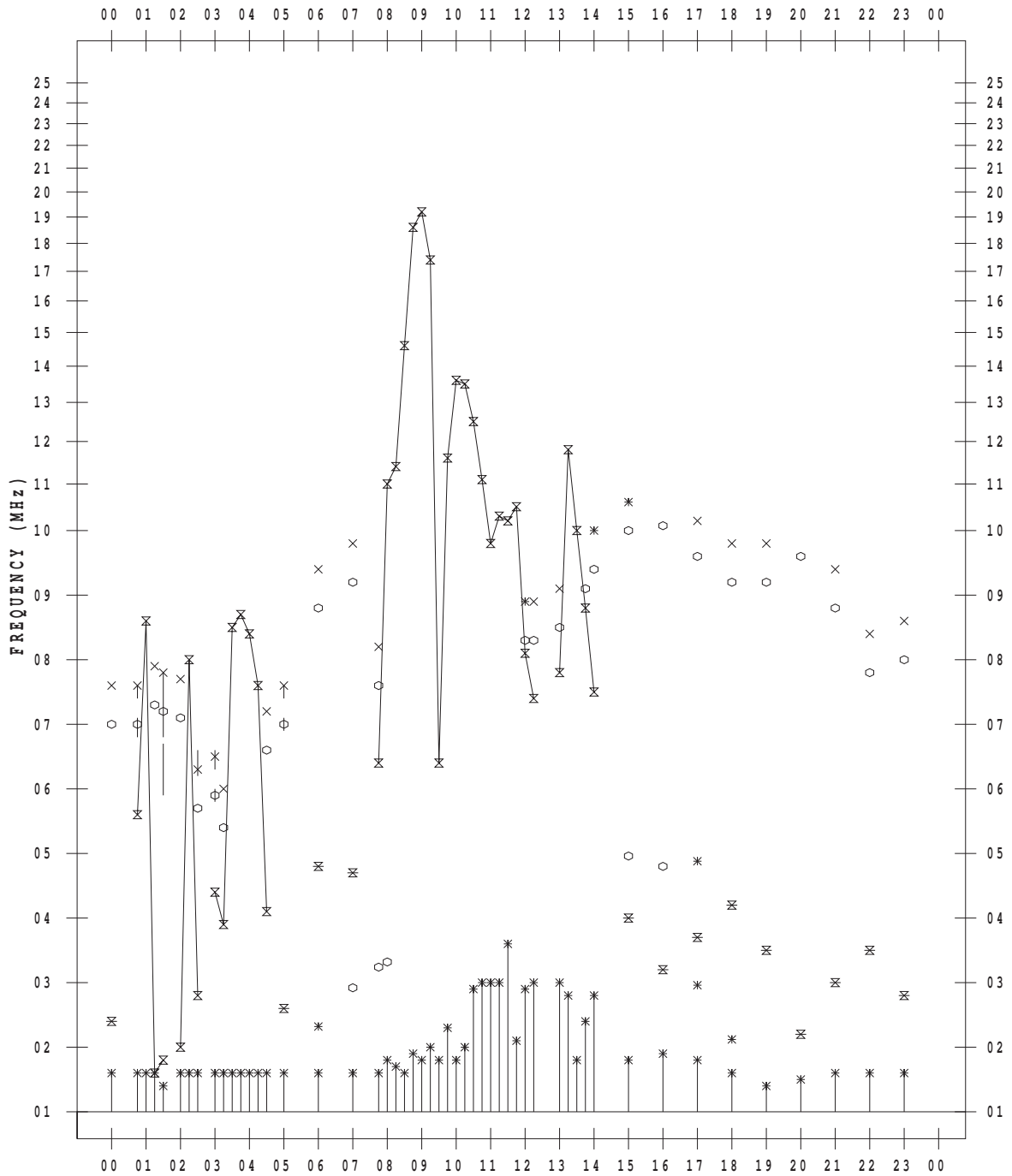
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2014 / 6 / 17

135 ° E MEAN TIME



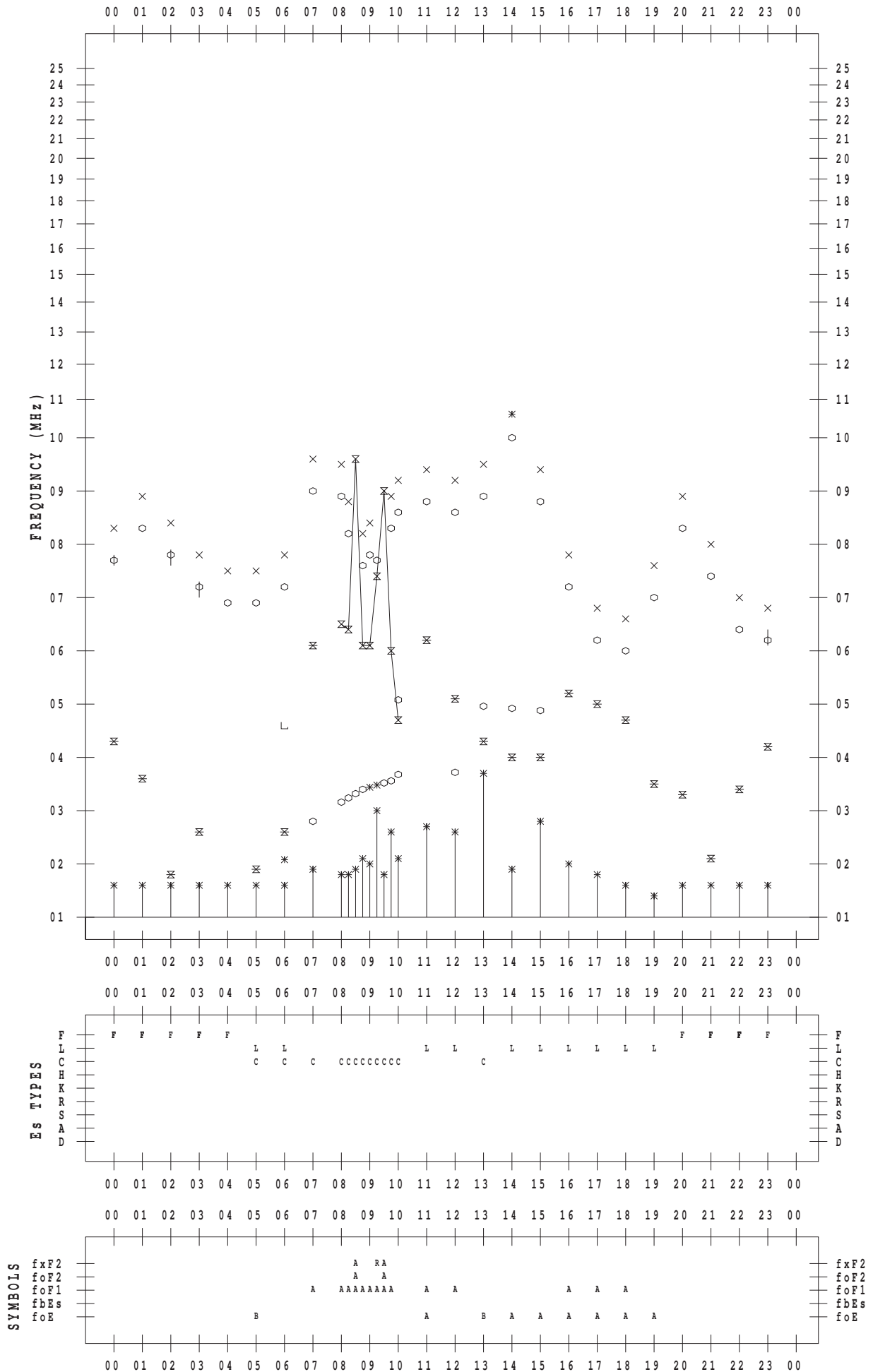
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2014 / 6 / 18

135 ° E MEAN TIME



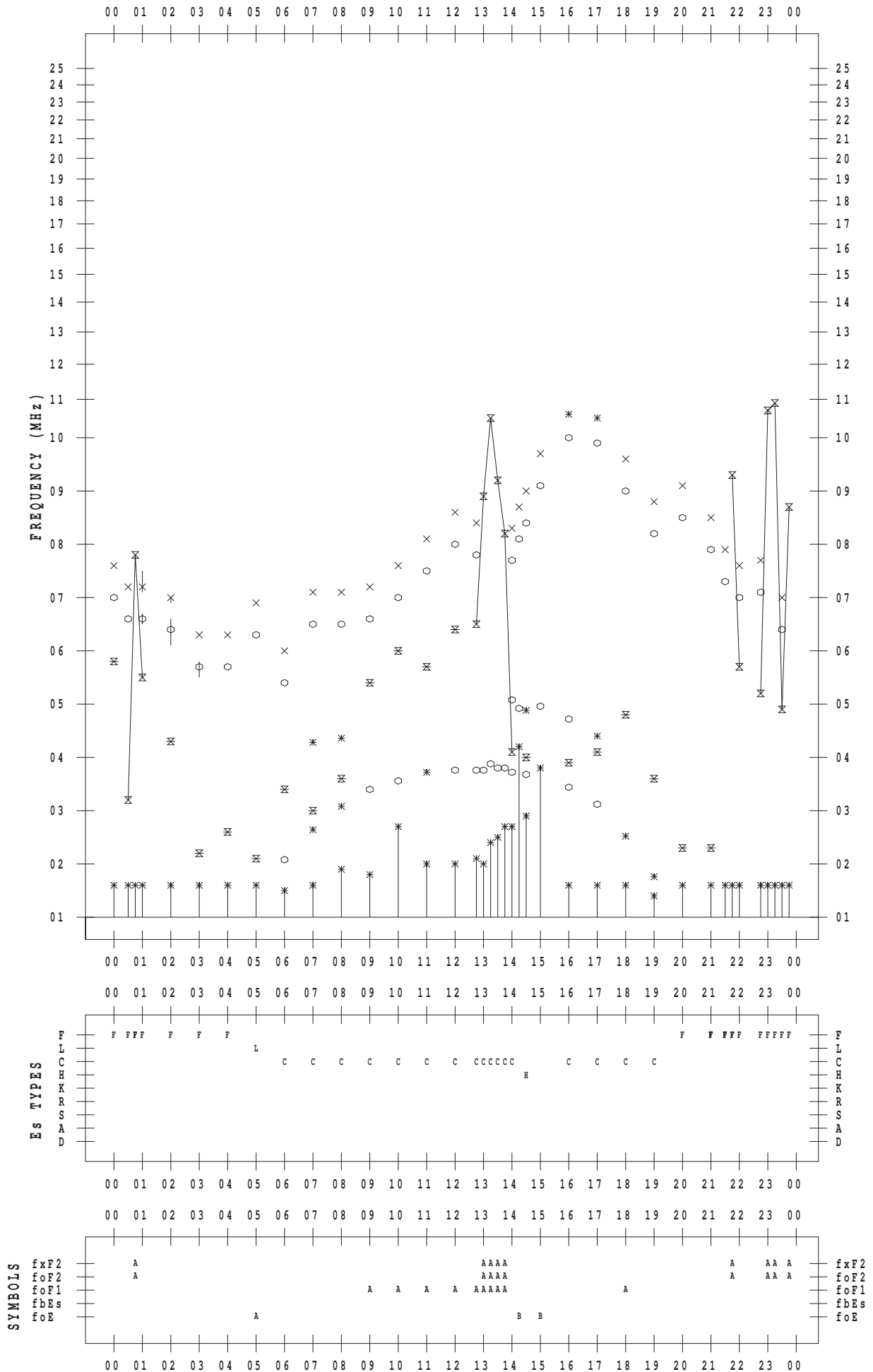
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2014 / 6 / 19

135 ° E MEAN TIME



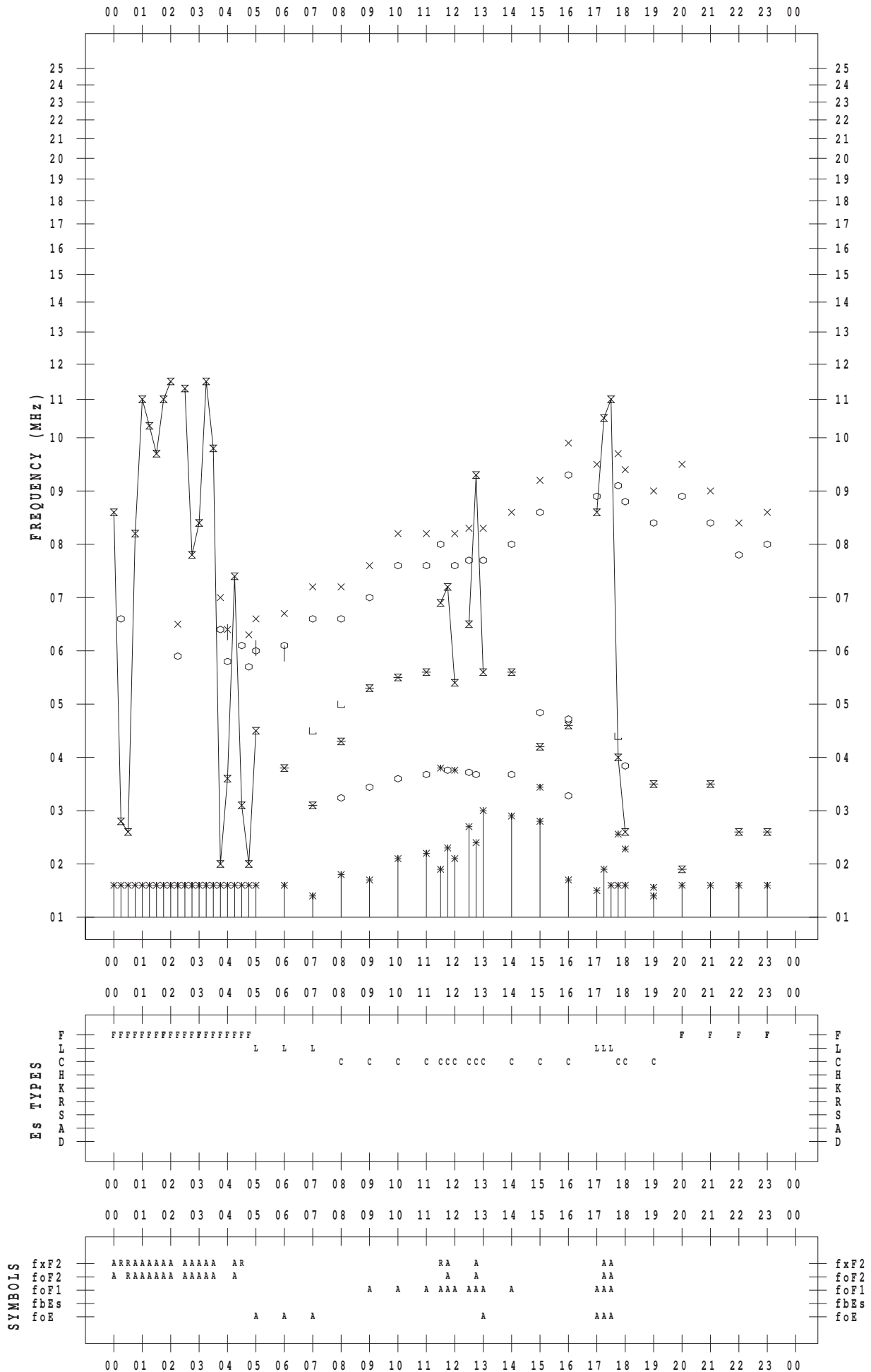
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2014 / 6 / 20

135 ° E MEAN TIME



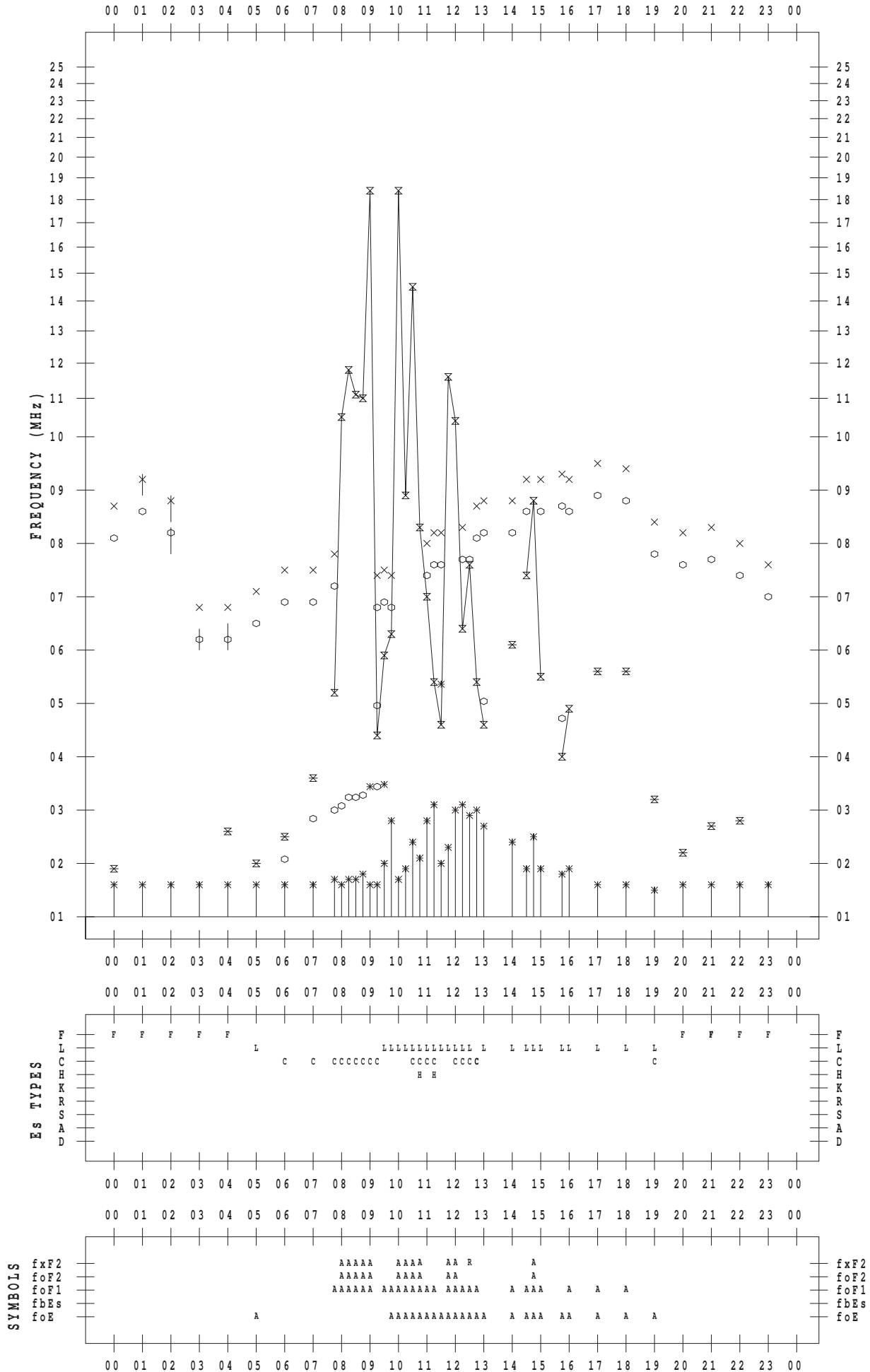
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2014 / 6 / 21

135 ° E MEAN TIME



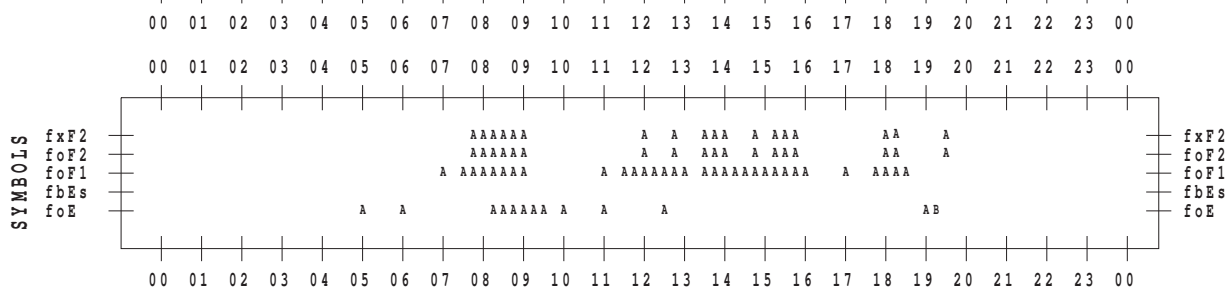
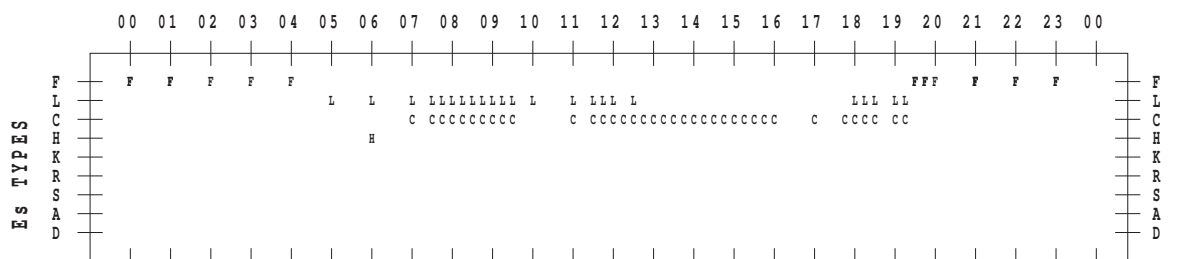
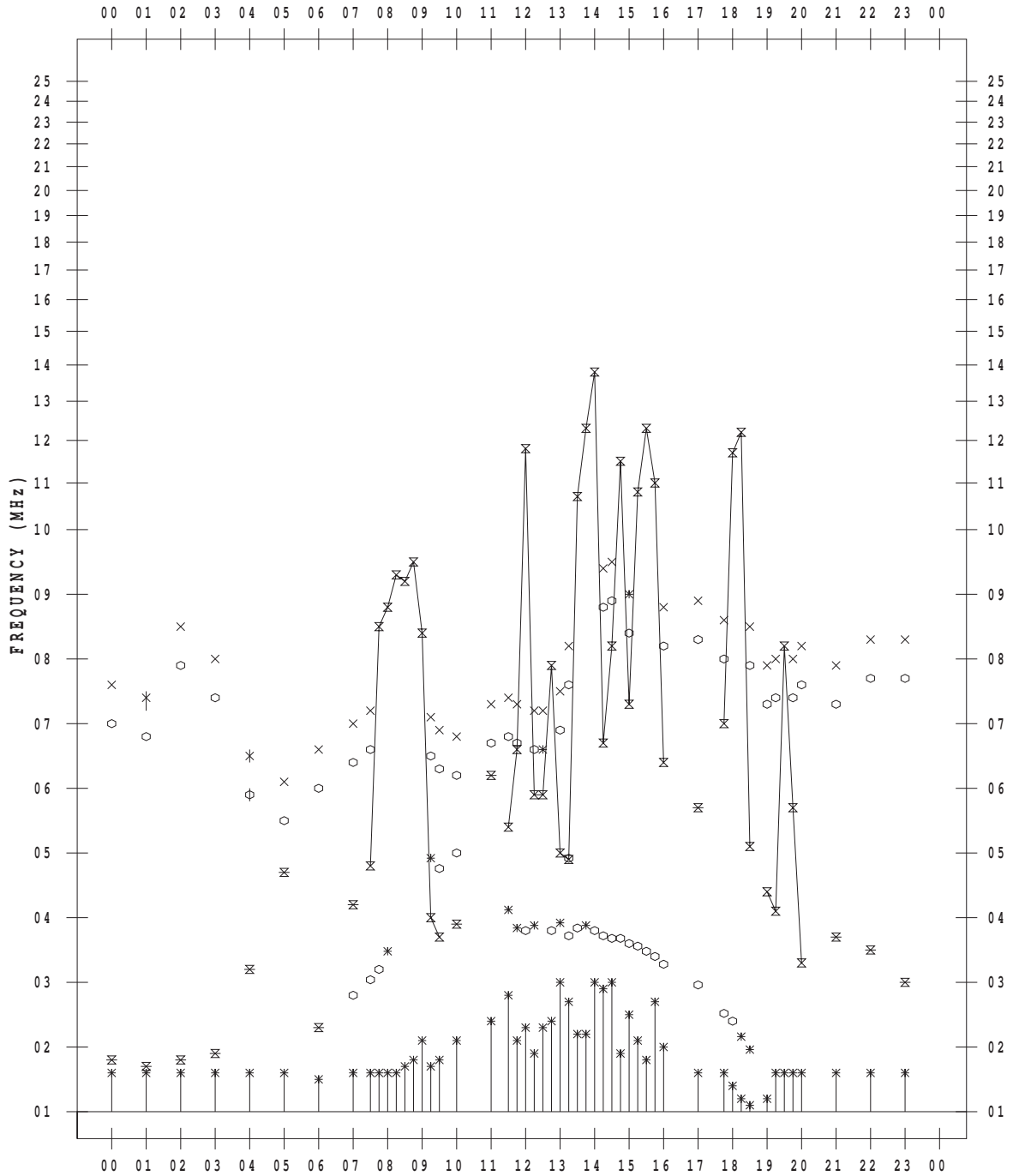
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2014 / 6 / 22

135 ° E MEAN TIME



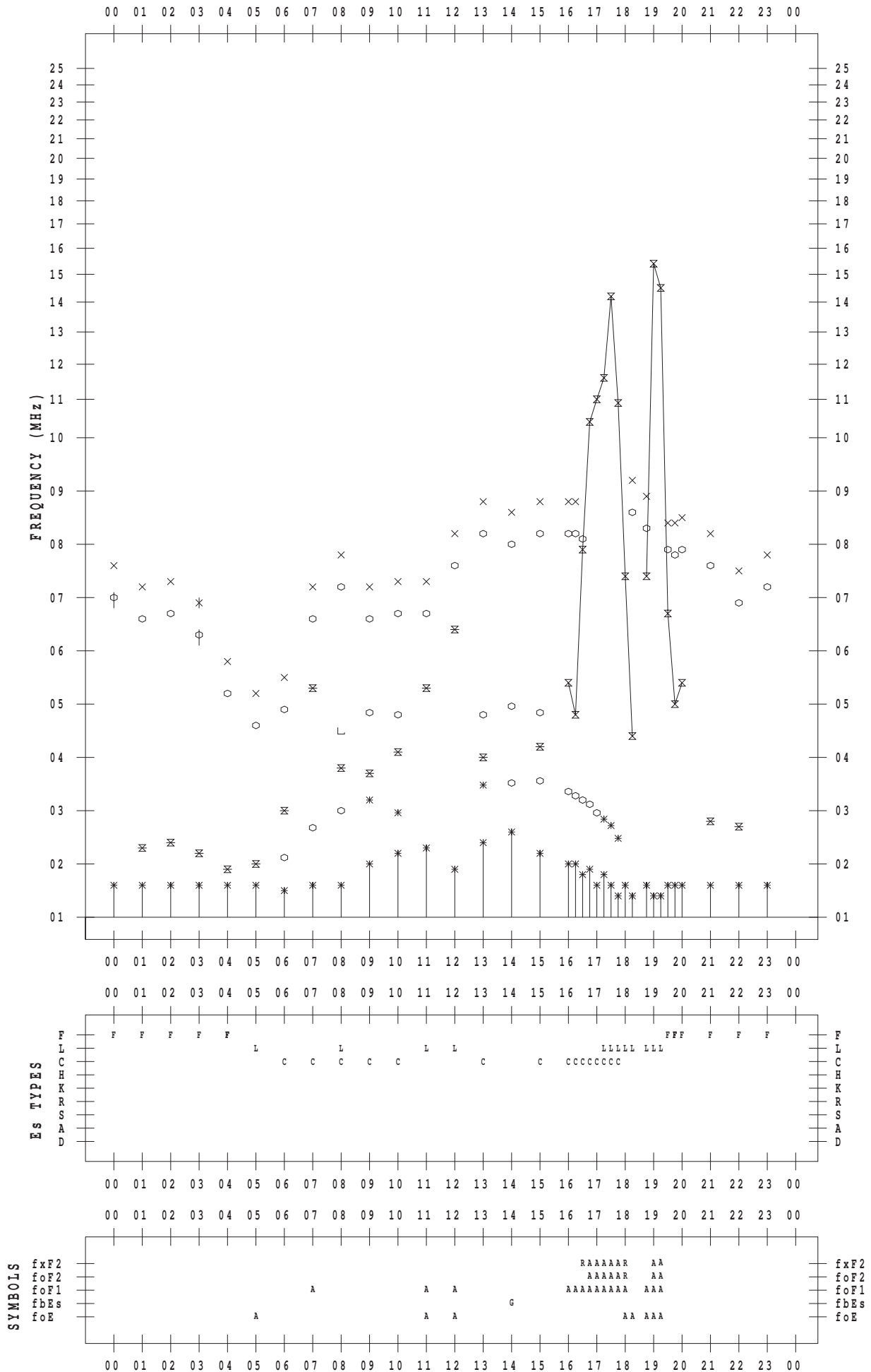
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2014 / 6 / 23

135 ° E MEAN TIME



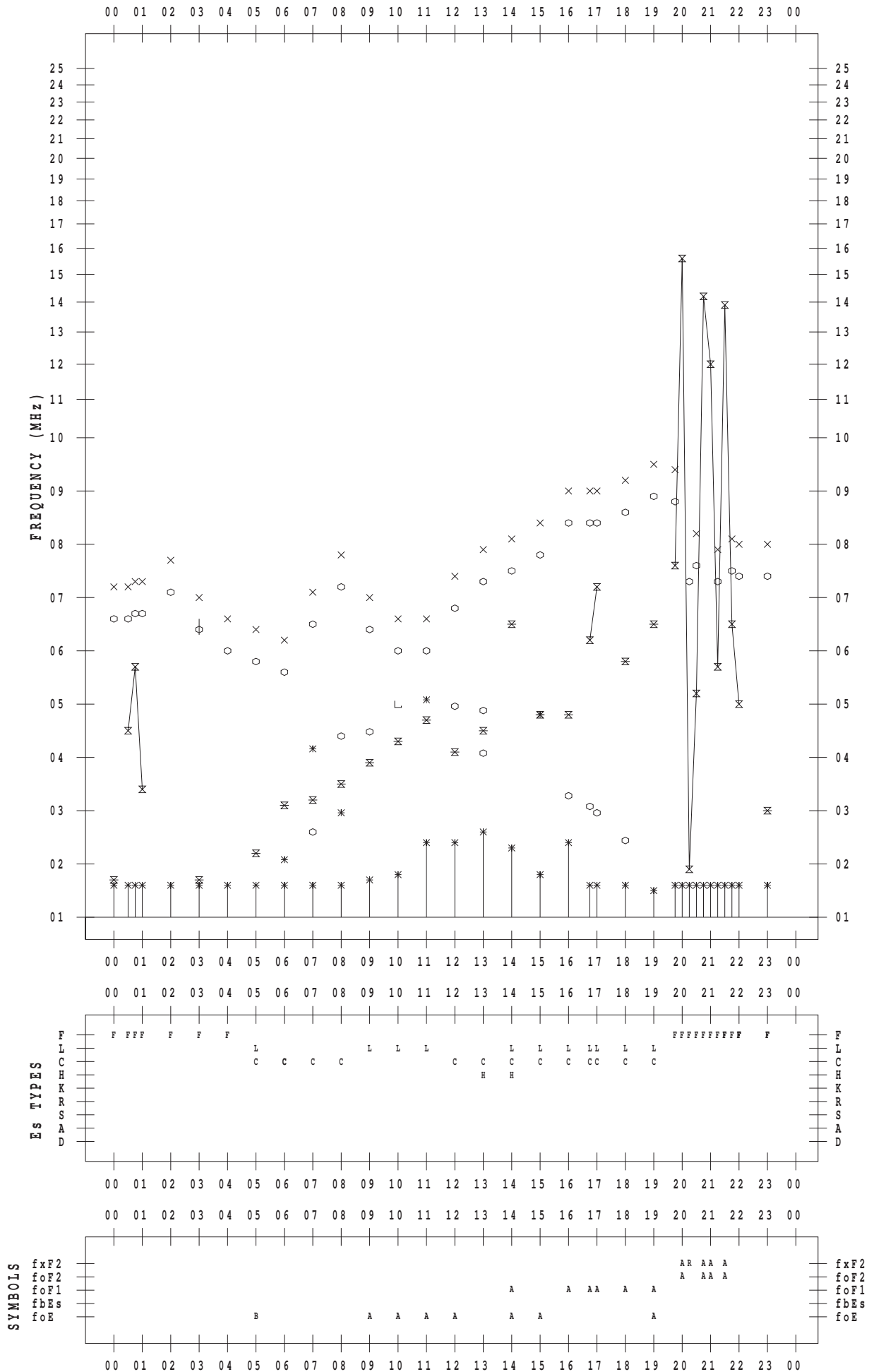
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2014 / 6 / 24

135 ° E MEAN TIME



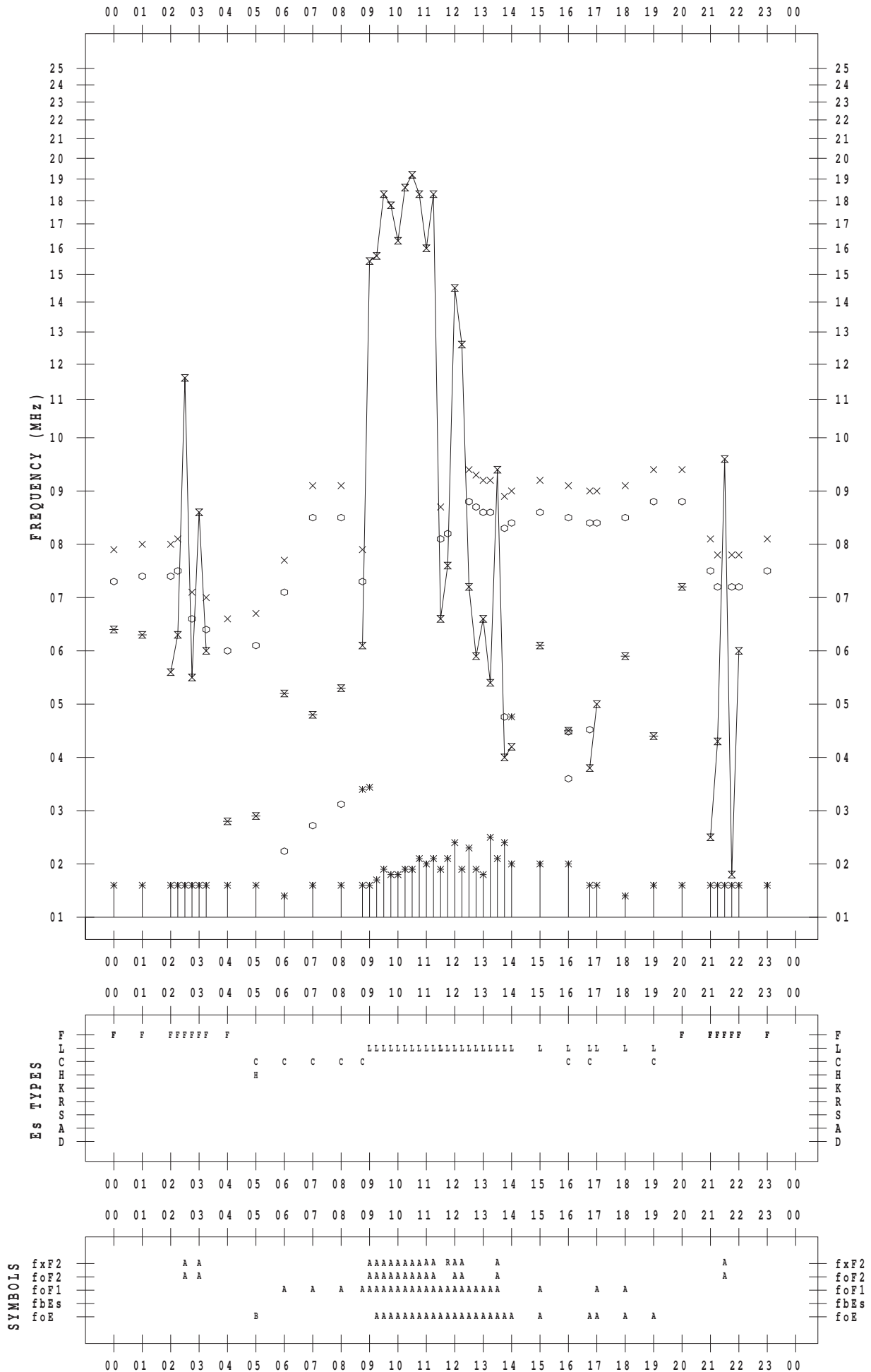
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2014 / 6 / 25

135 ° E MEAN TIME



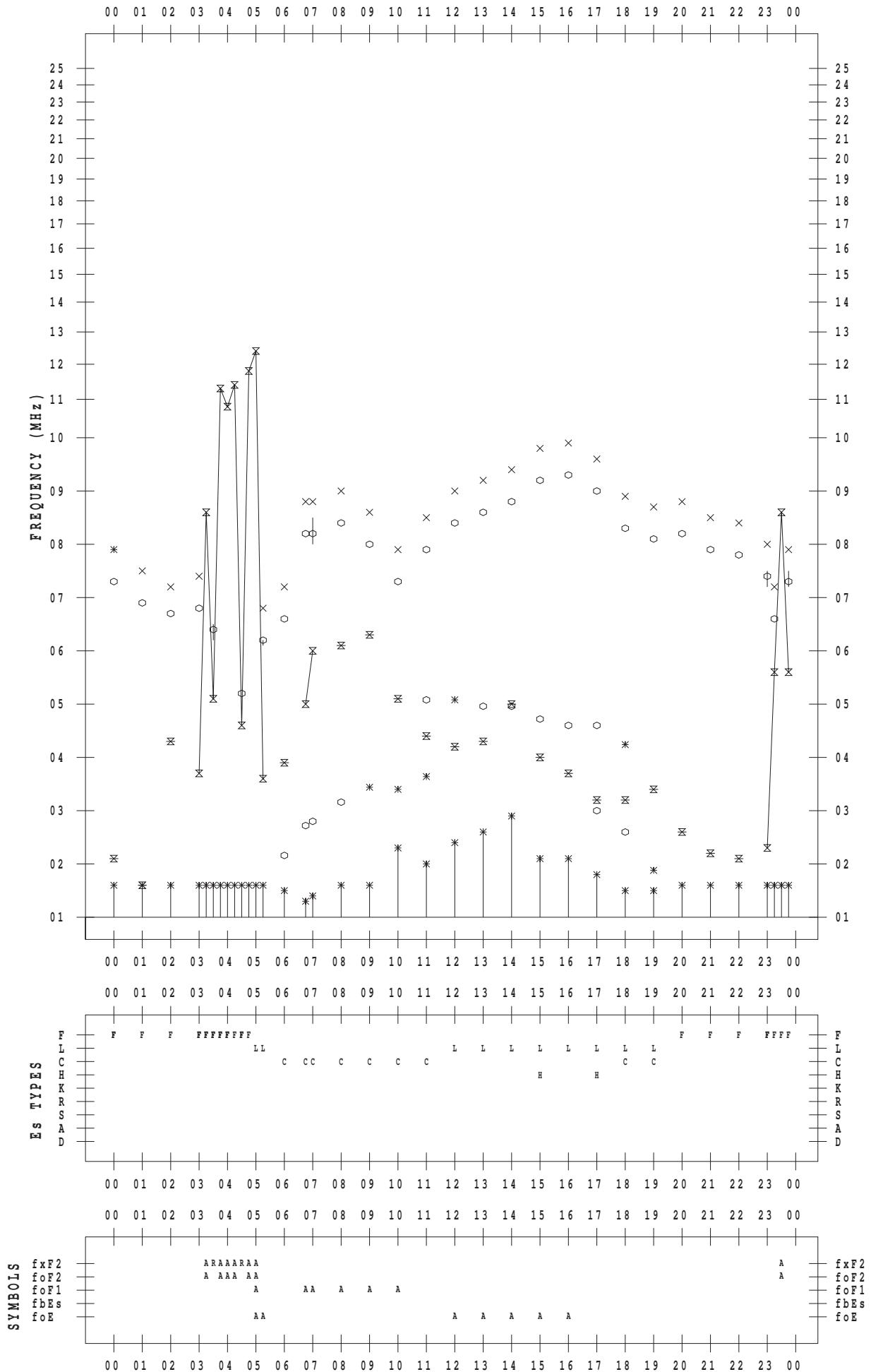
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2014 / 6 / 26

135 ° E MEAN TIME



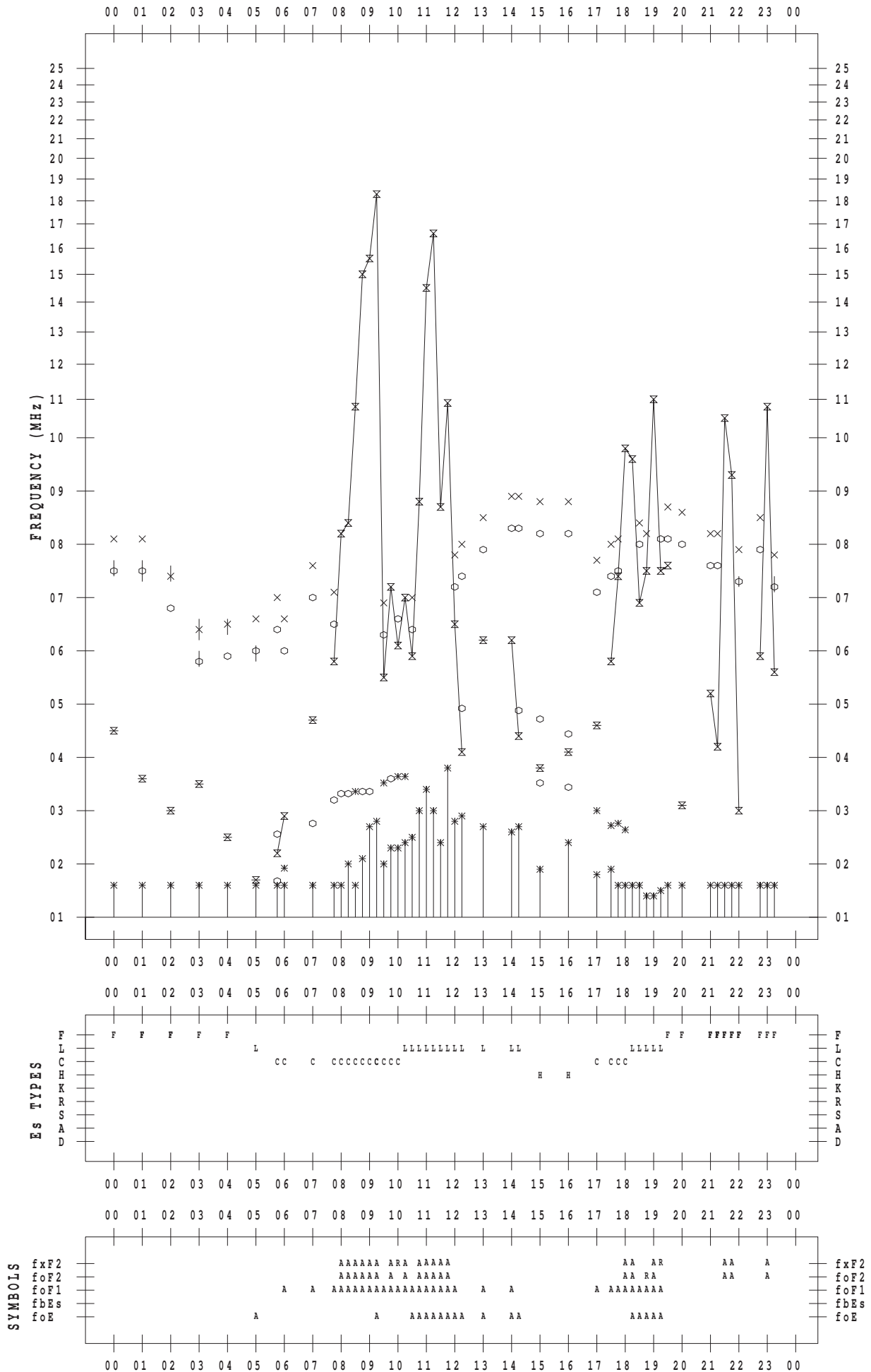
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2014 / 6 / 27

135 ° E MEAN TIME



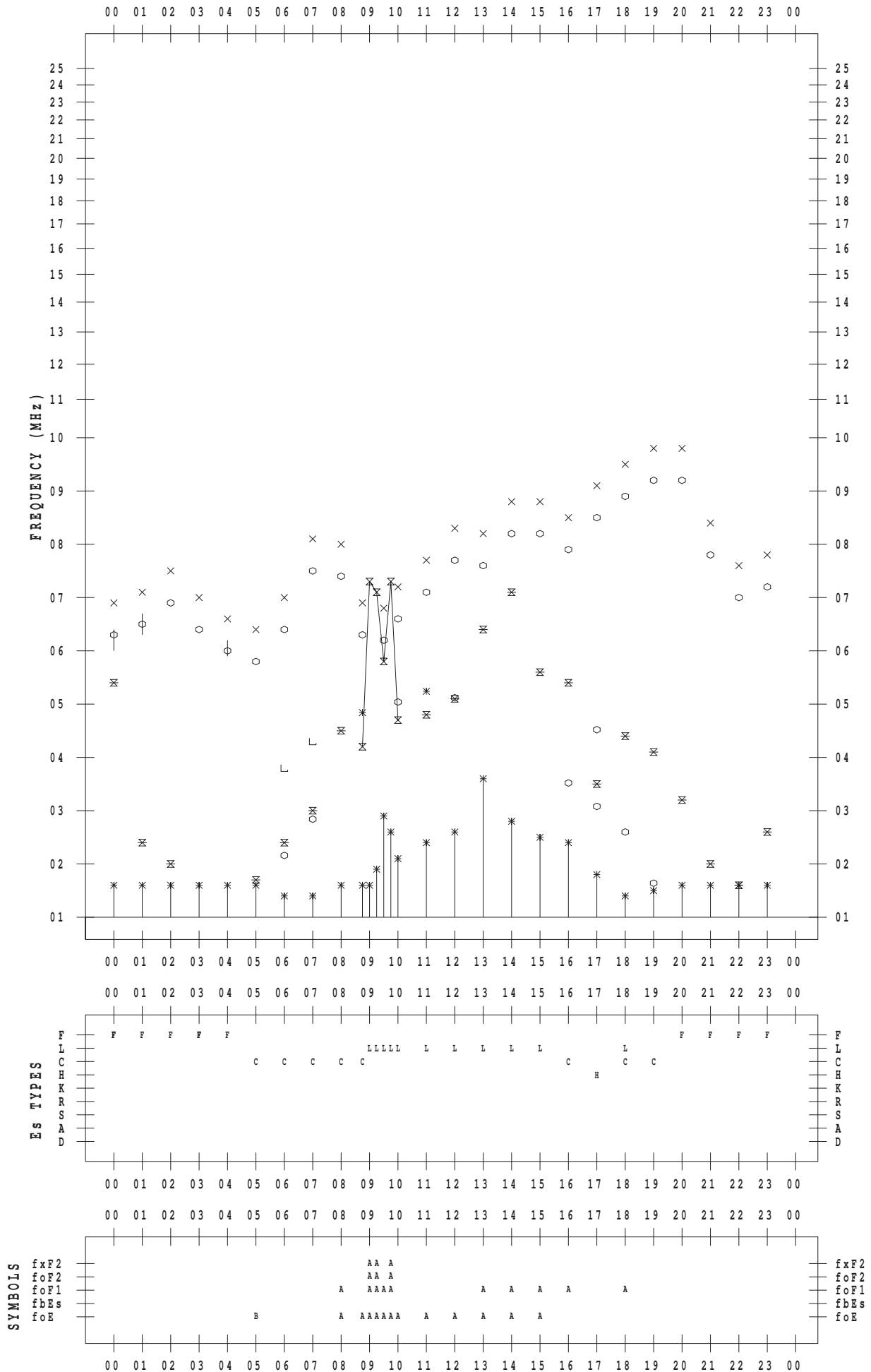
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2014 / 6 / 28

135 ° E MEAN TIME



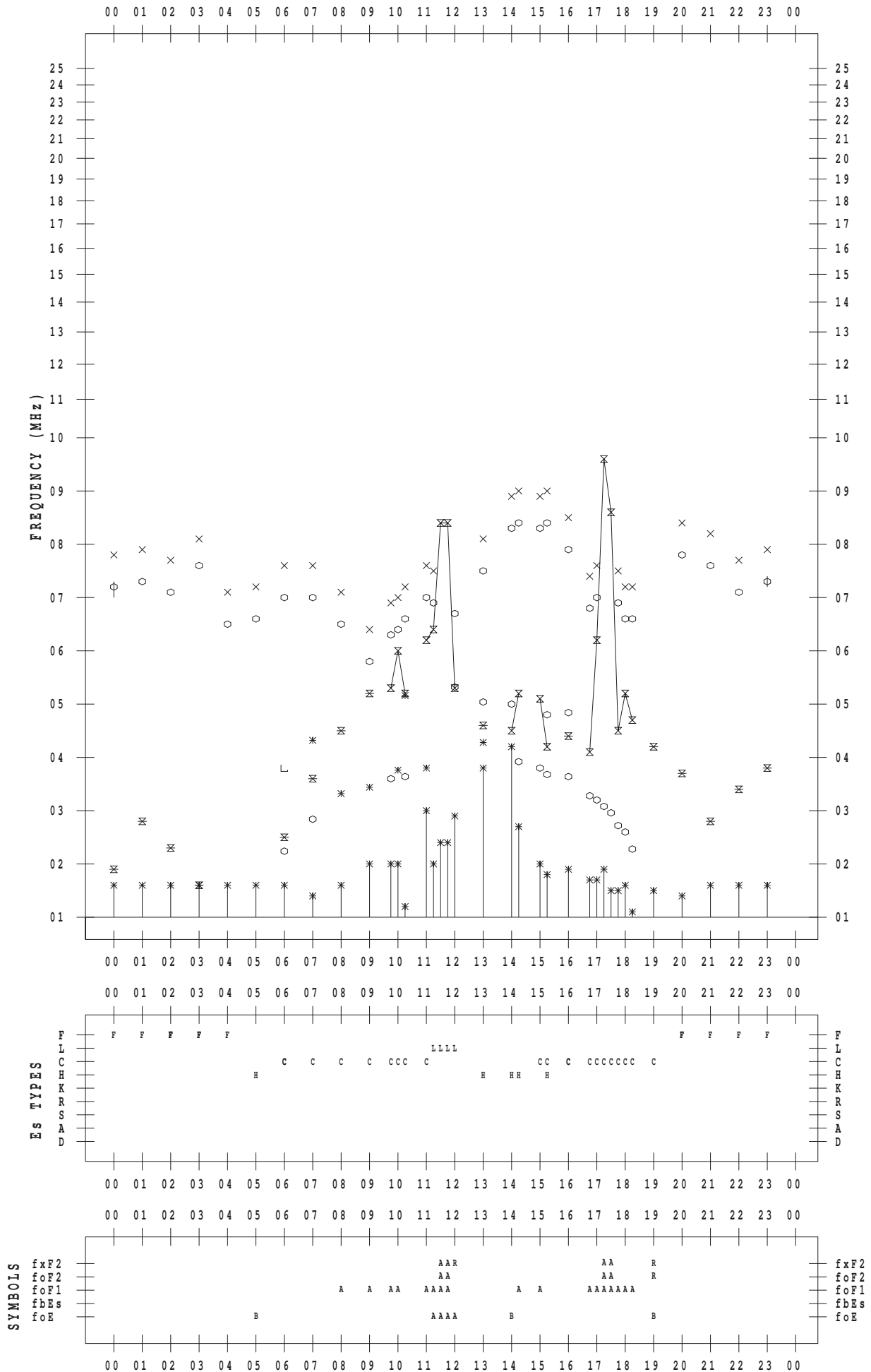
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2014 / 6 / 29

135 ° E MEAN TIME



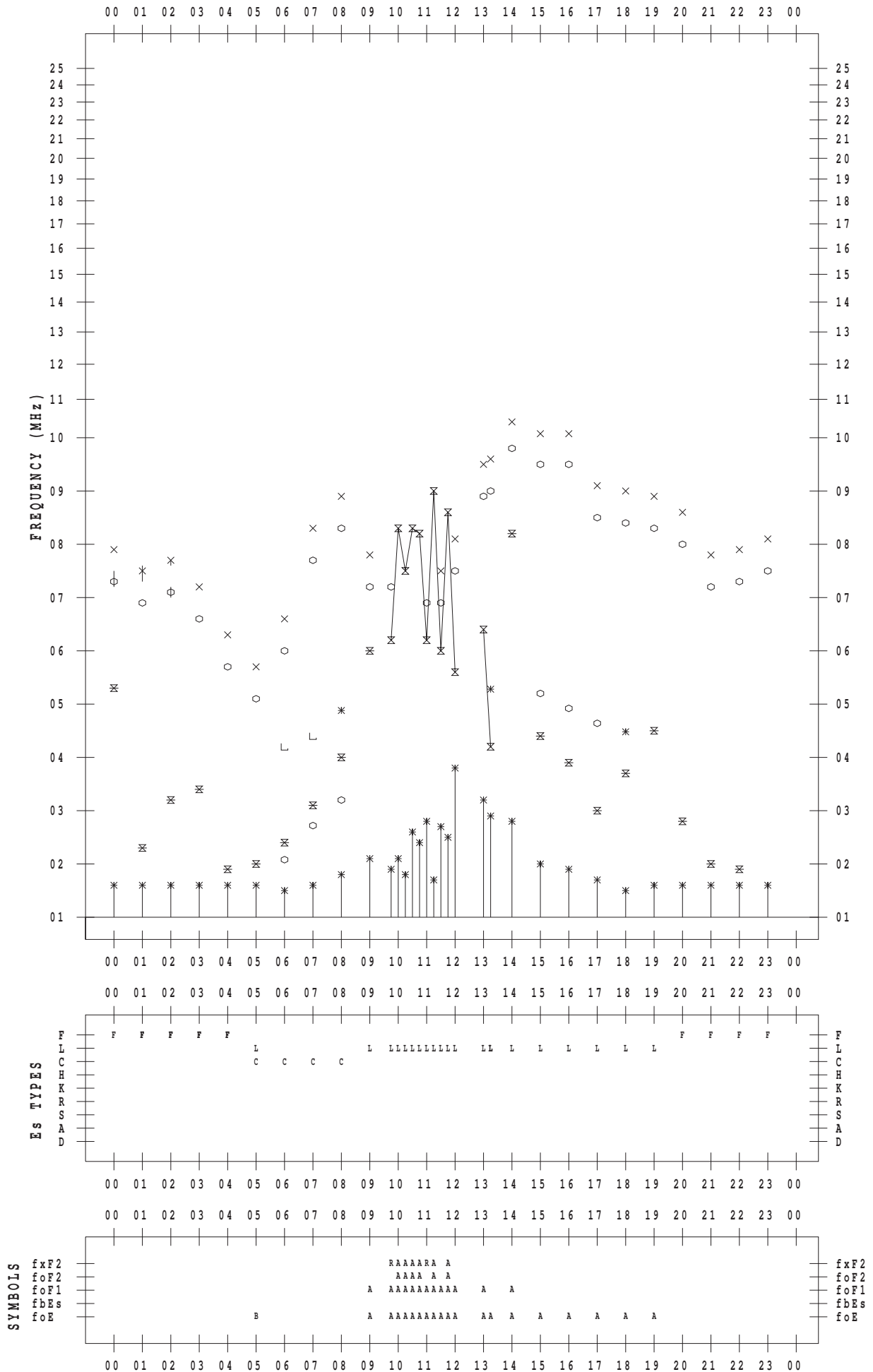
f-PLOT DATA

SCALER : M.NISHIDA

STATION : Yamagawa

DATE : 2014 / 6 / 30

135 ° E MEAN TIME



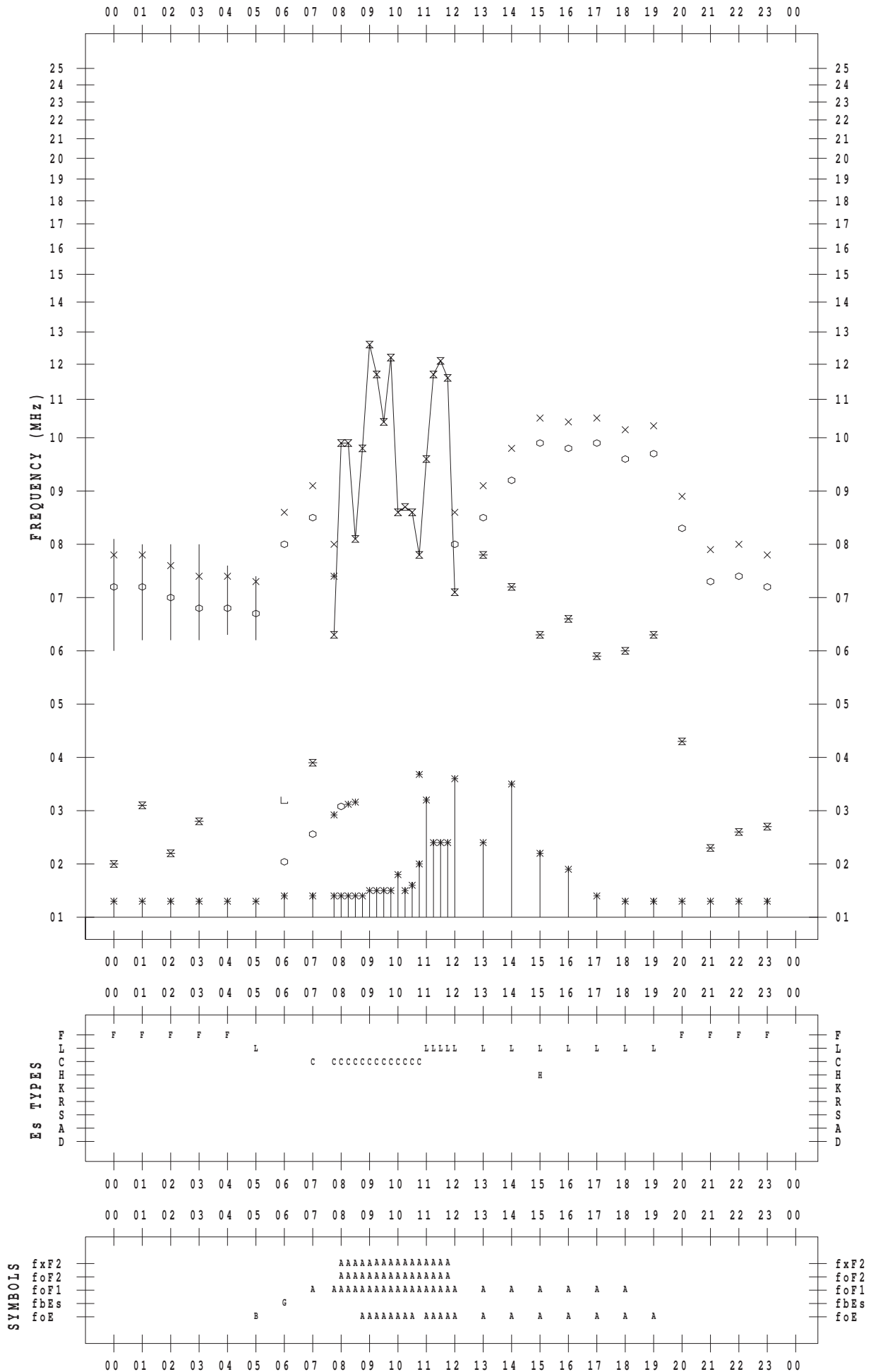
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2014 / 6 / 1

135 ° E MEAN TIME



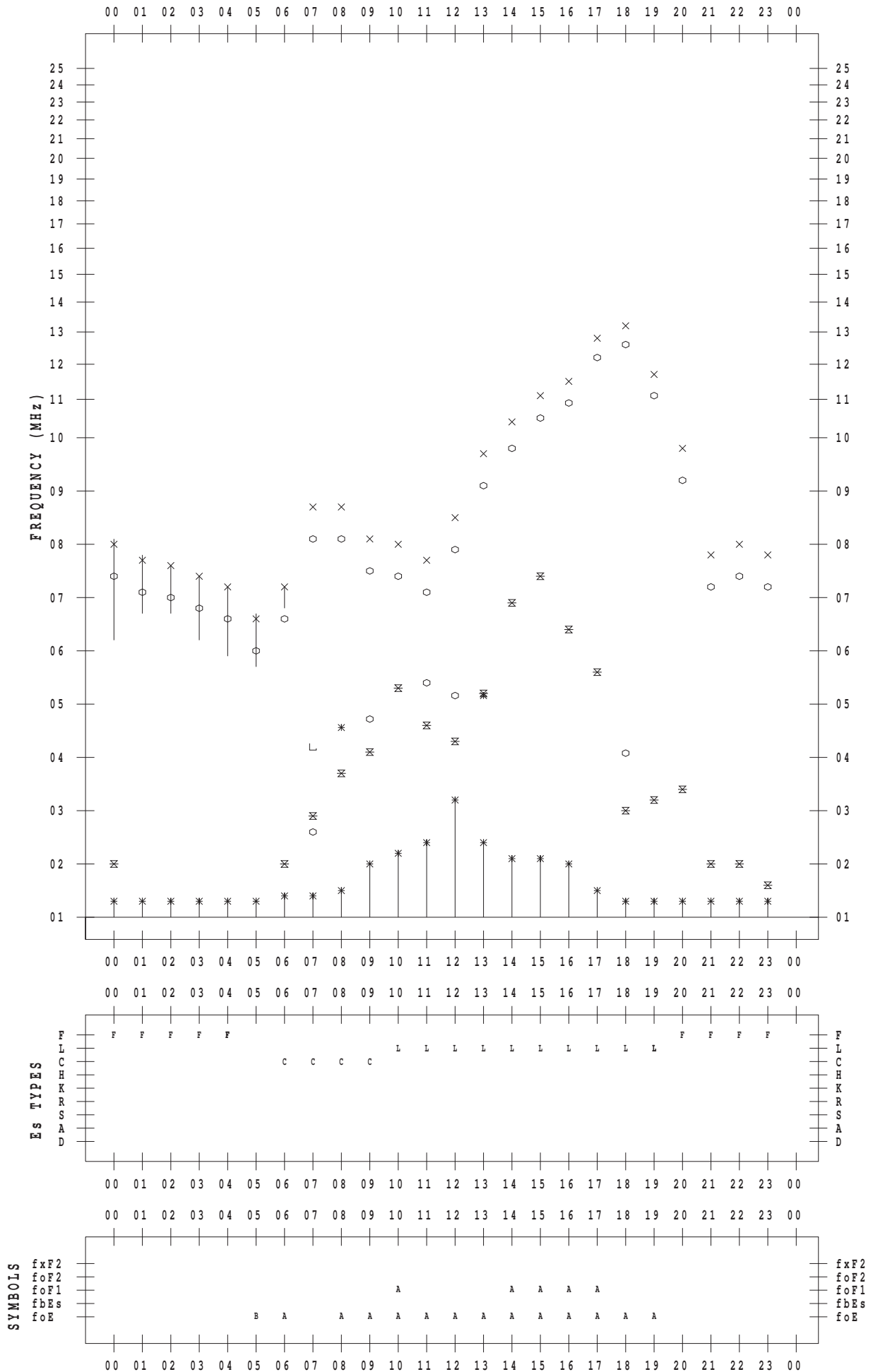
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2014 / 6 / 2

135 ° E MEAN TIME



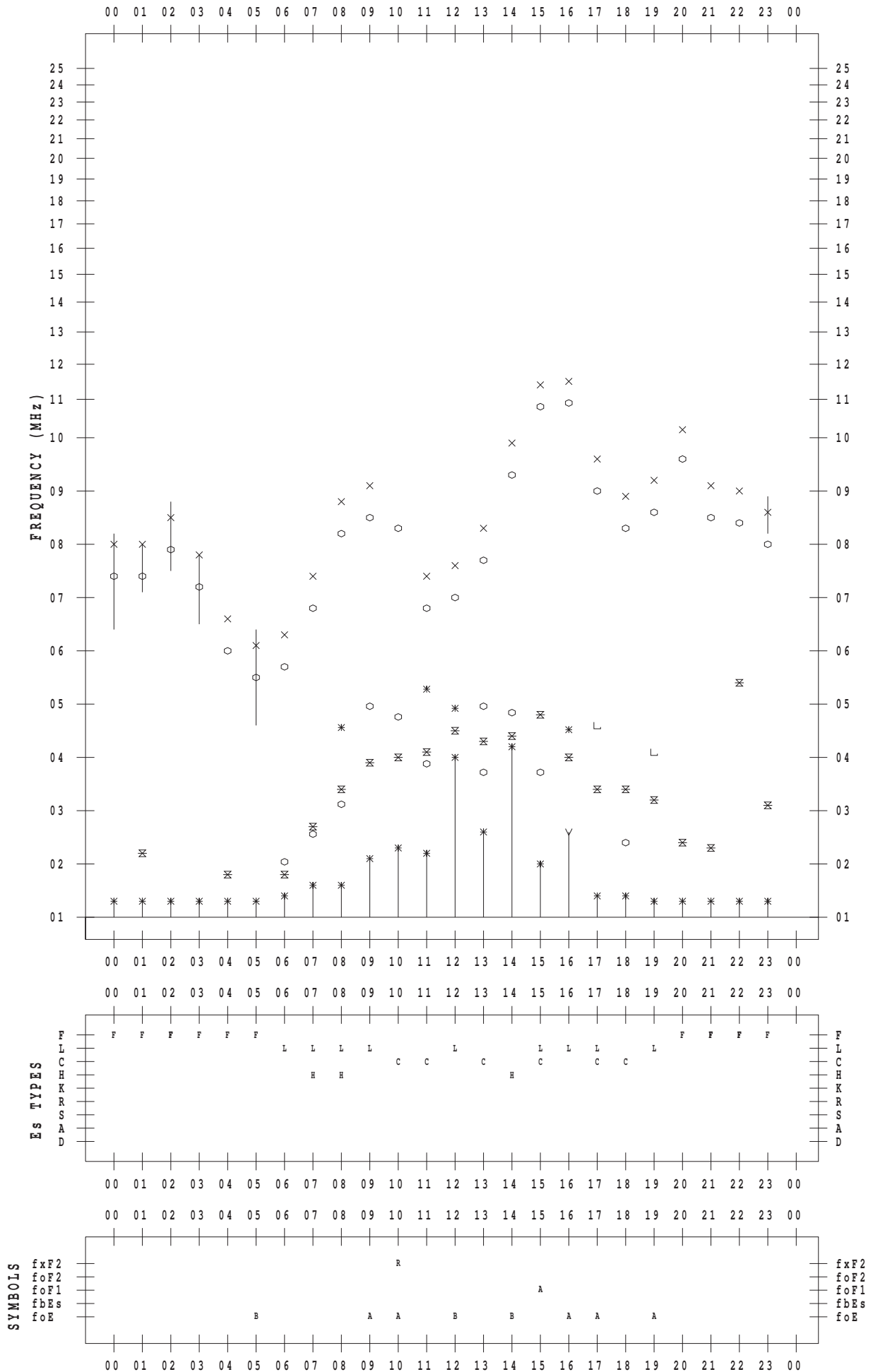
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2014 / 6 / 3

135 ° E MEAN TIME



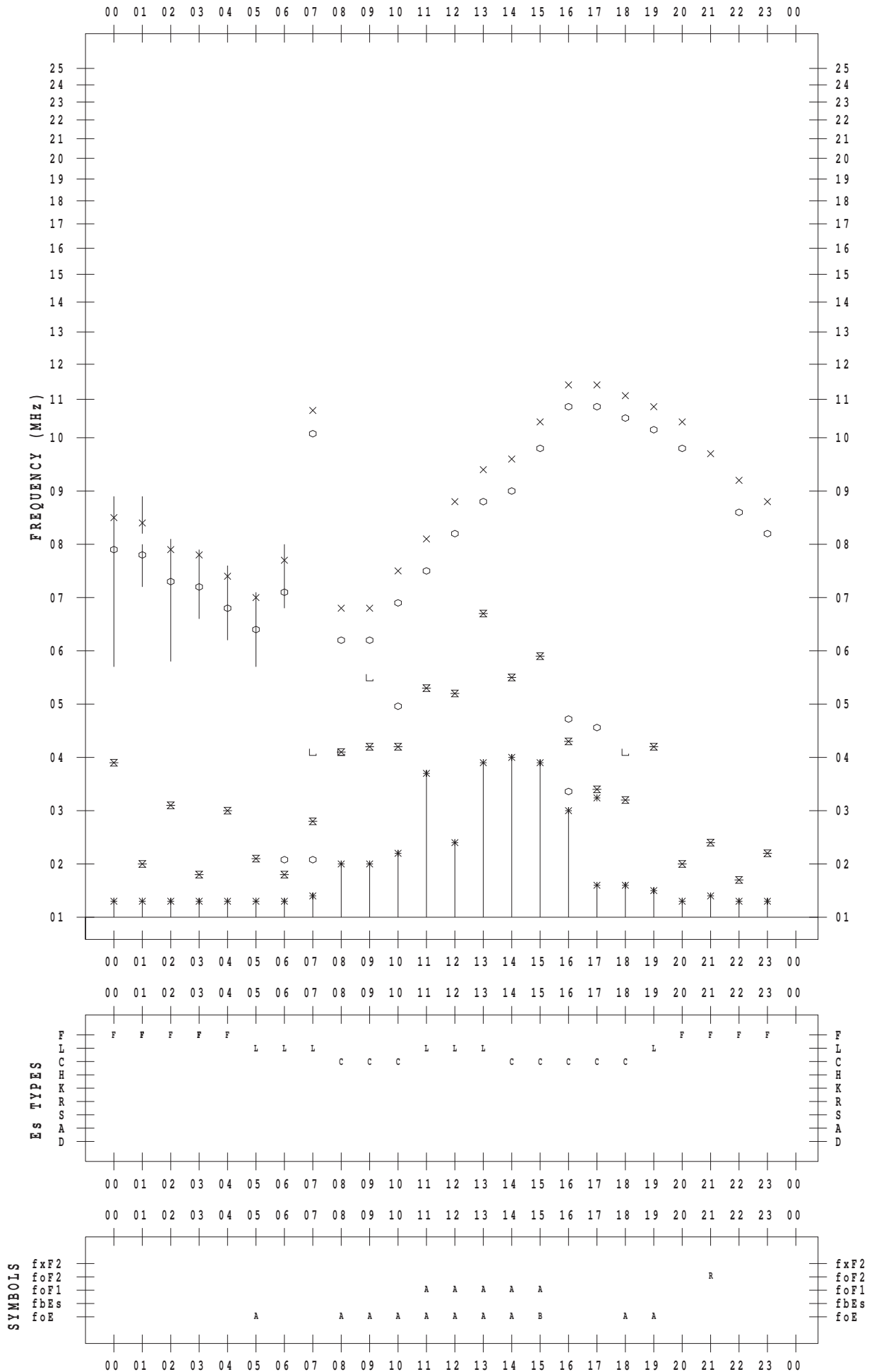
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2014 / 6 / 4

135 ° E MEAN TIME



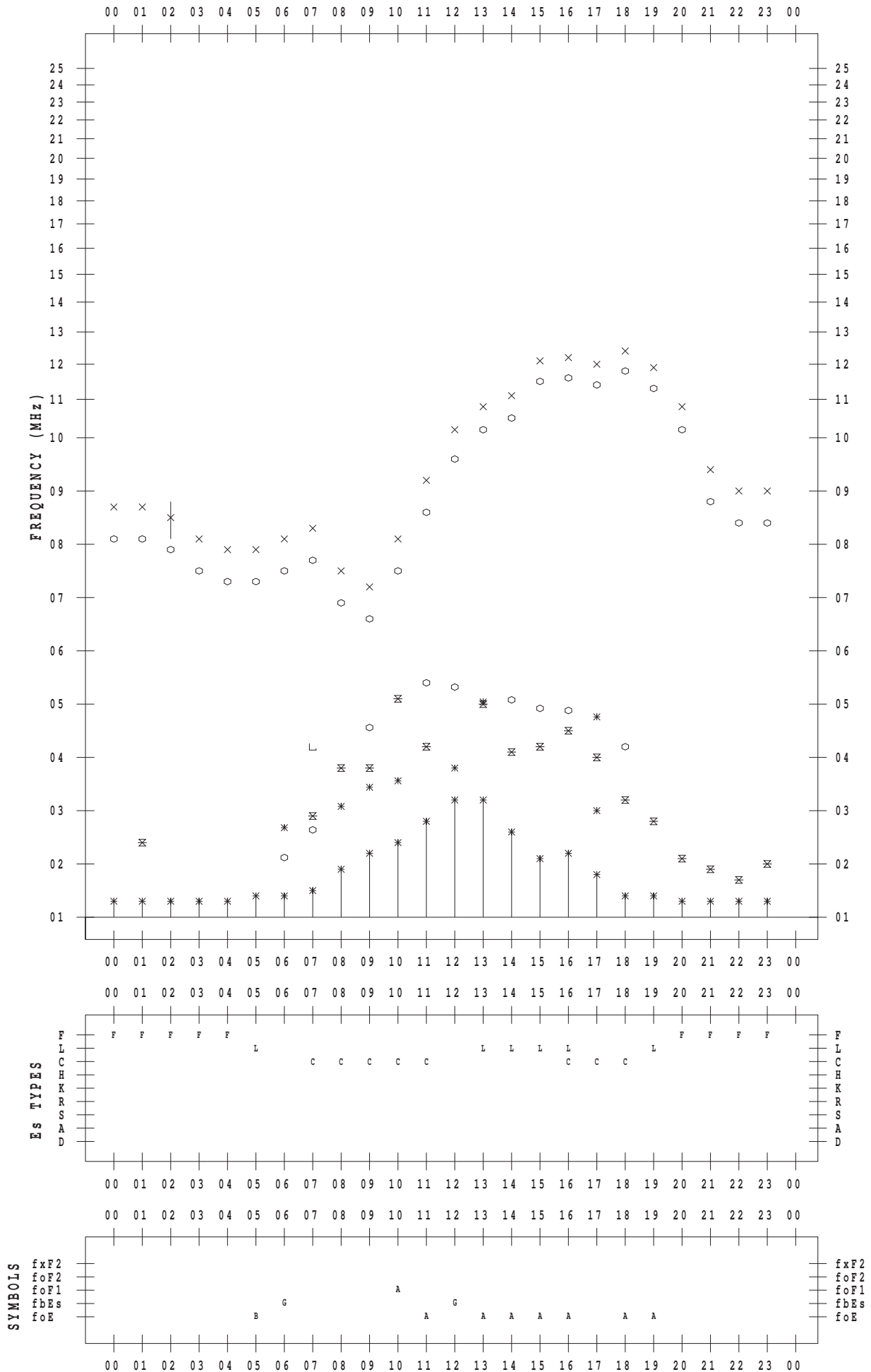
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2014 / 6 / 5

135 ° E MEAN TIME



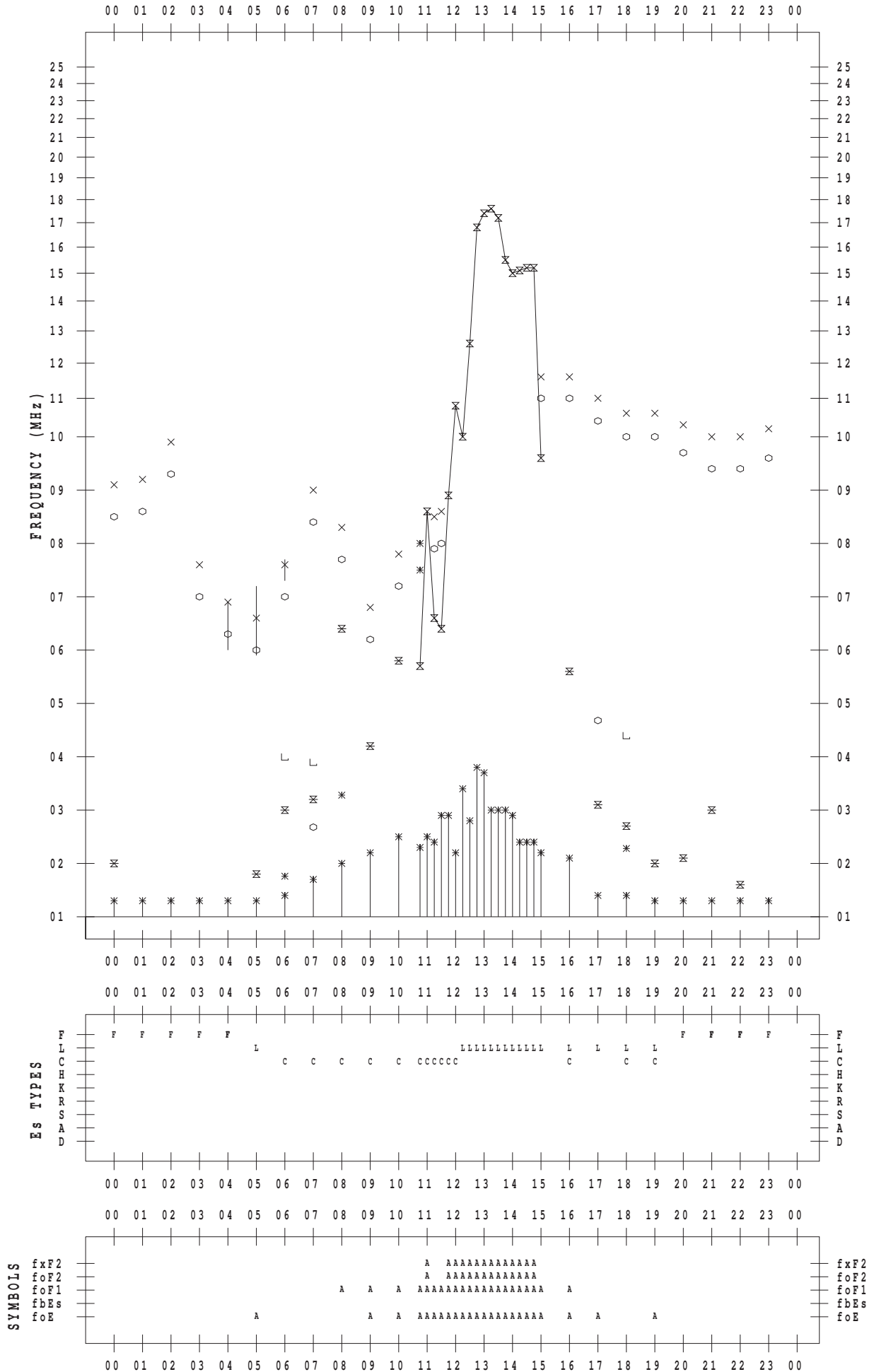
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2014 / 6 / 6

135 ° E MEAN TIME



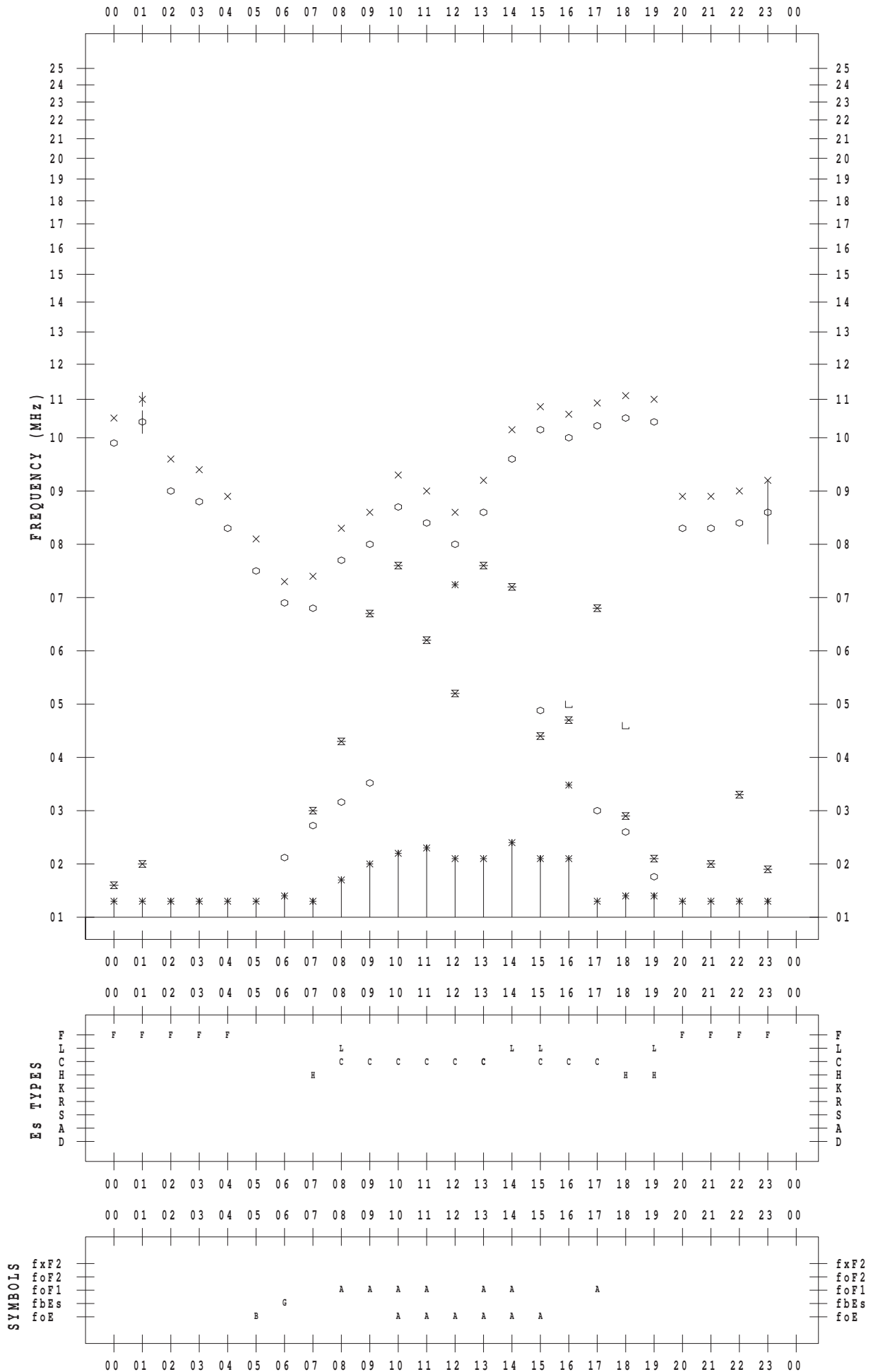
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2014 / 6 / 7

135 ° E MEAN TIME



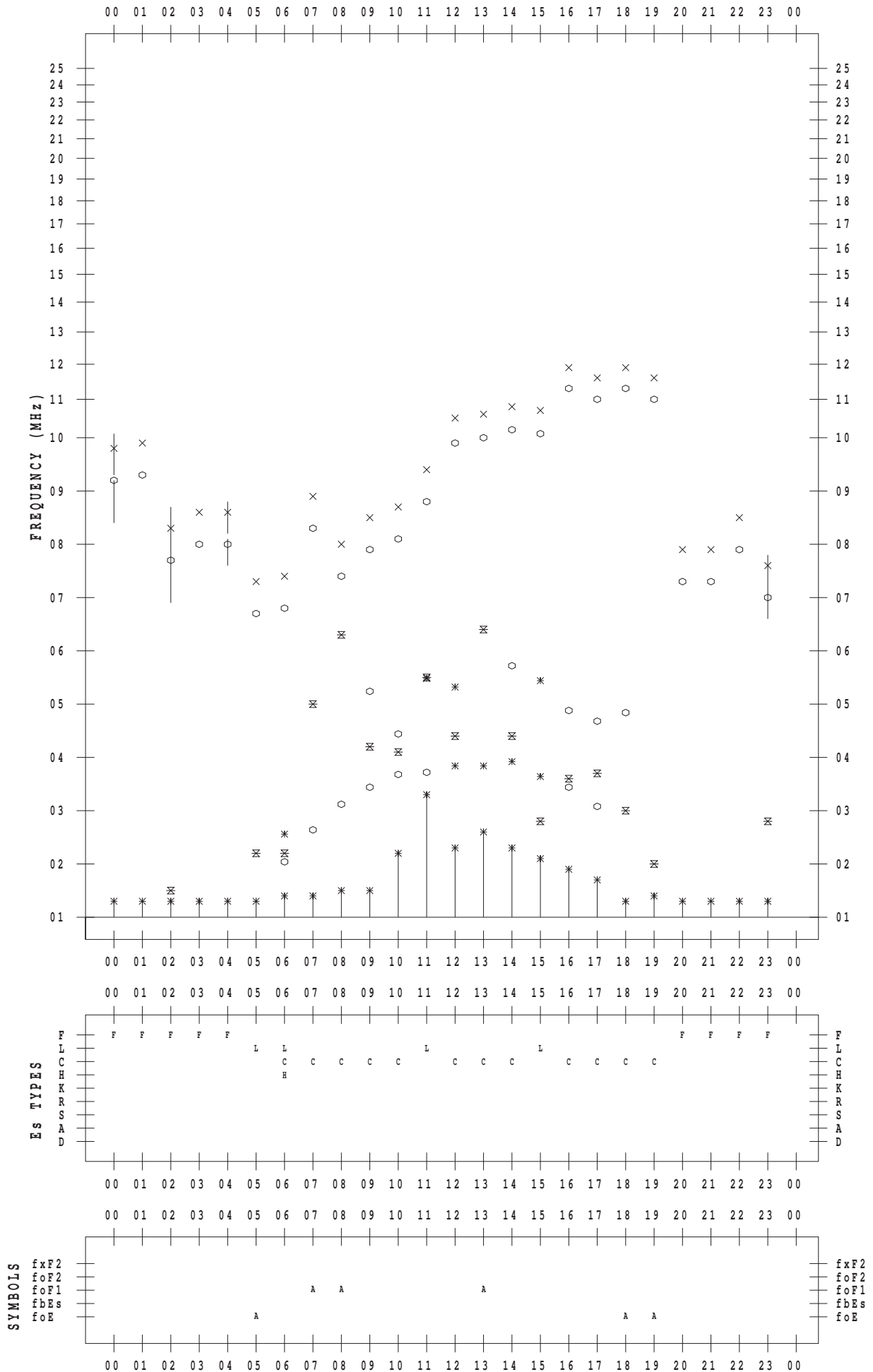
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2014 / 6 / 8

135 ° E MEAN TIME



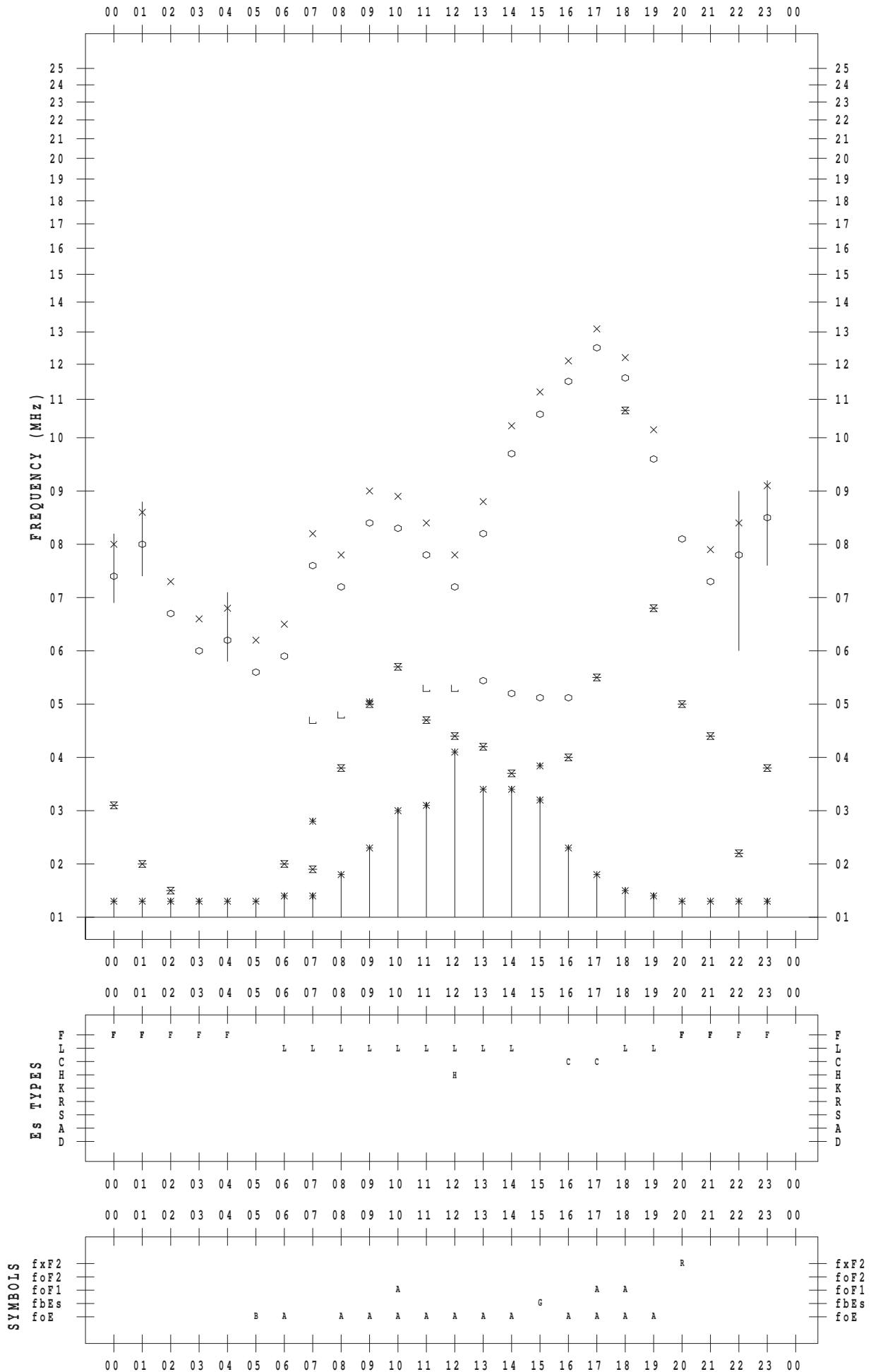
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2014 / 6 / 9

135 ° E MEAN TIME



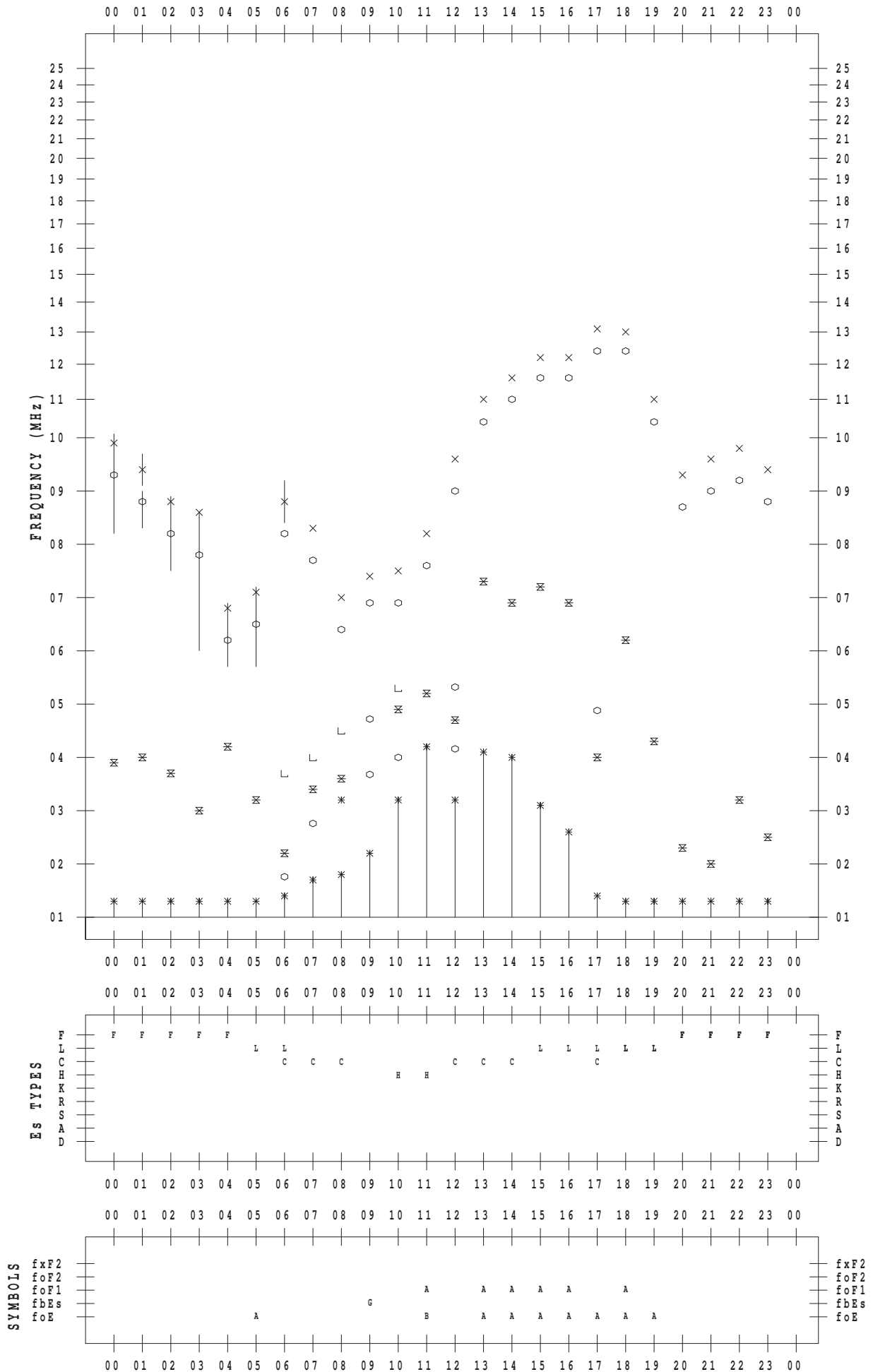
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2014 / 6 / 10

135 ° E MEAN TIME



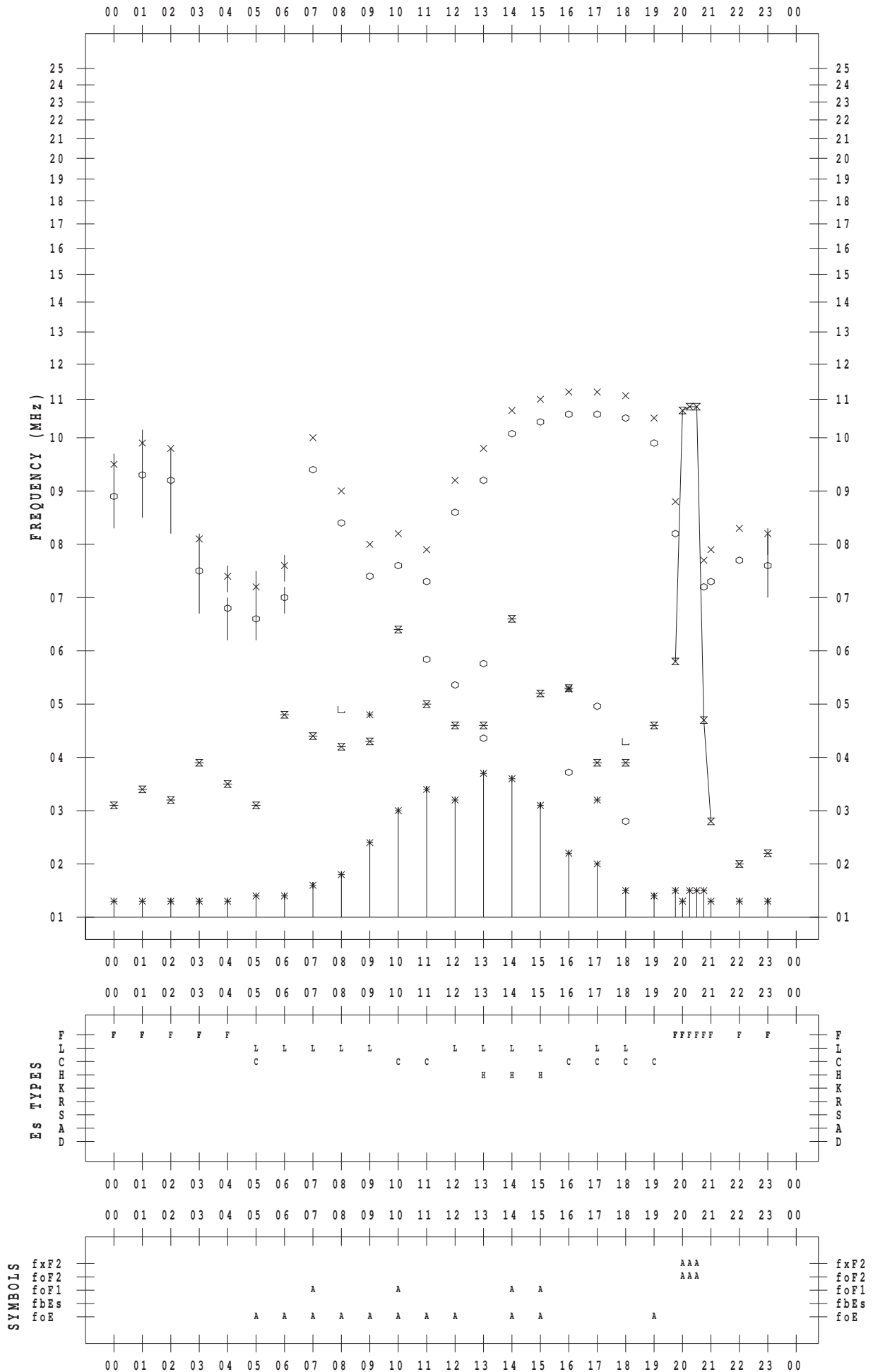
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2014 / 6 / 11

135 ° E MEAN TIME



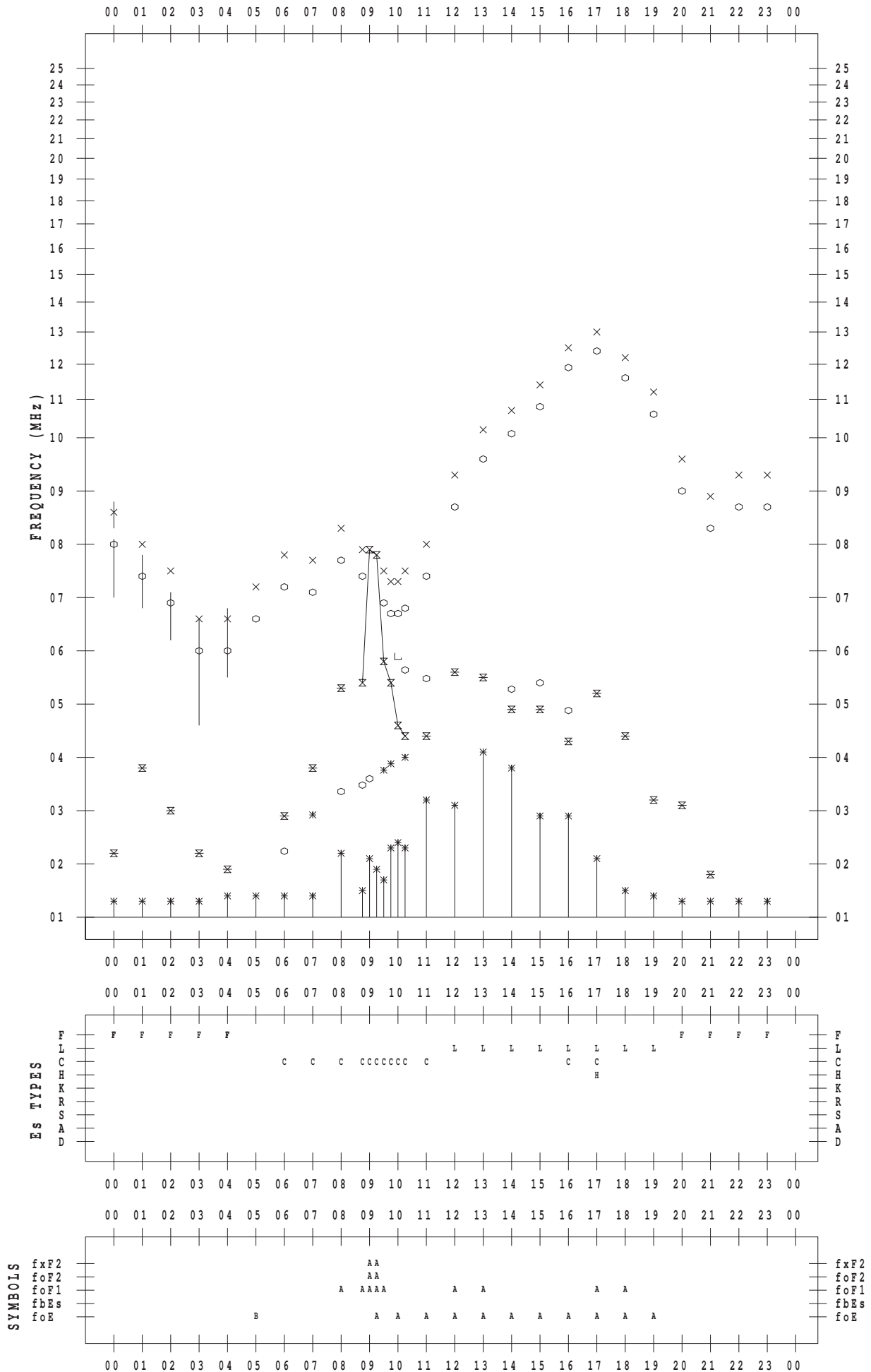
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2014 / 6 / 12

135 ° E MEAN TIME



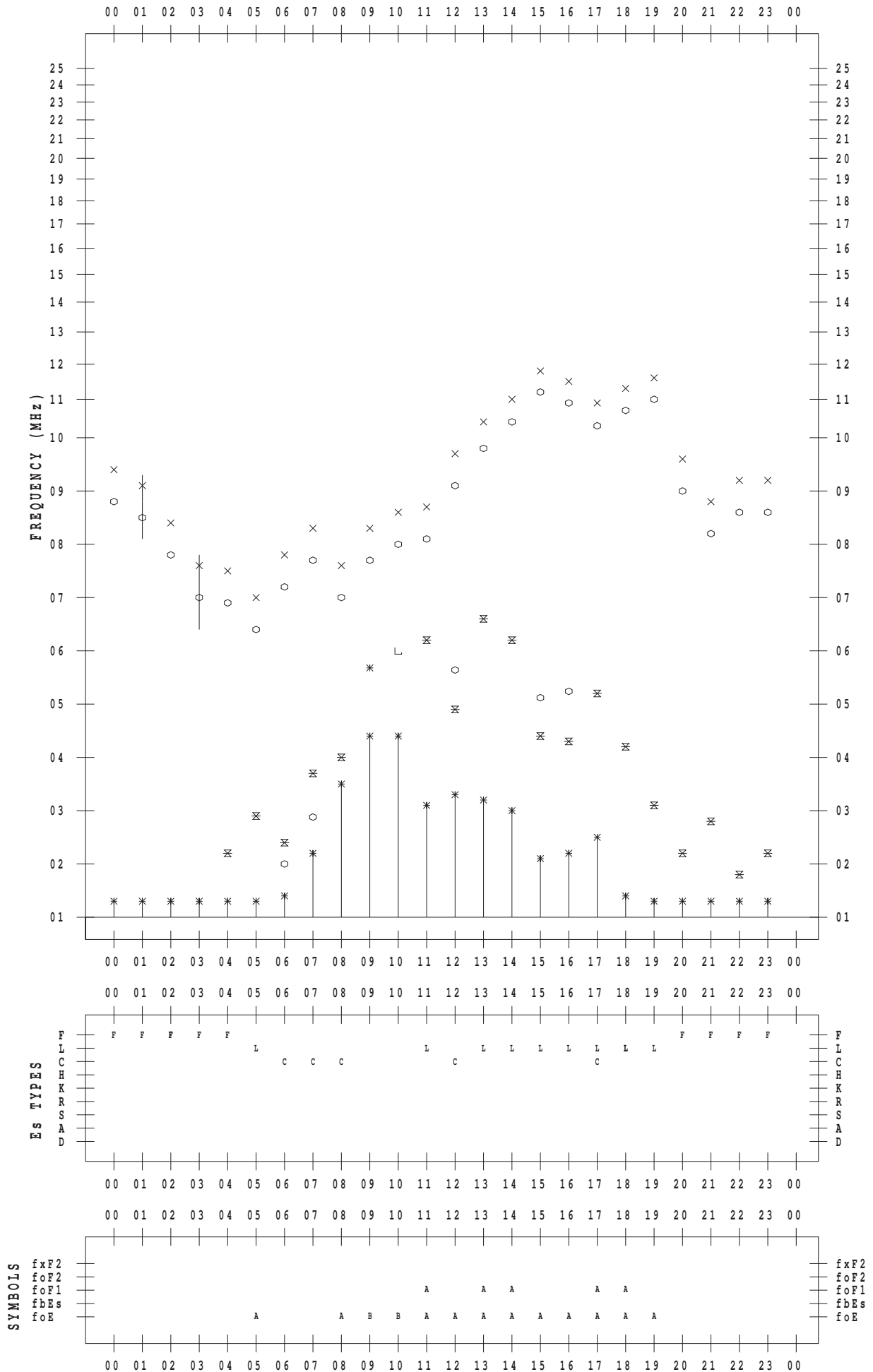
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2014 / 6 / 13

135 ° E MEAN TIME



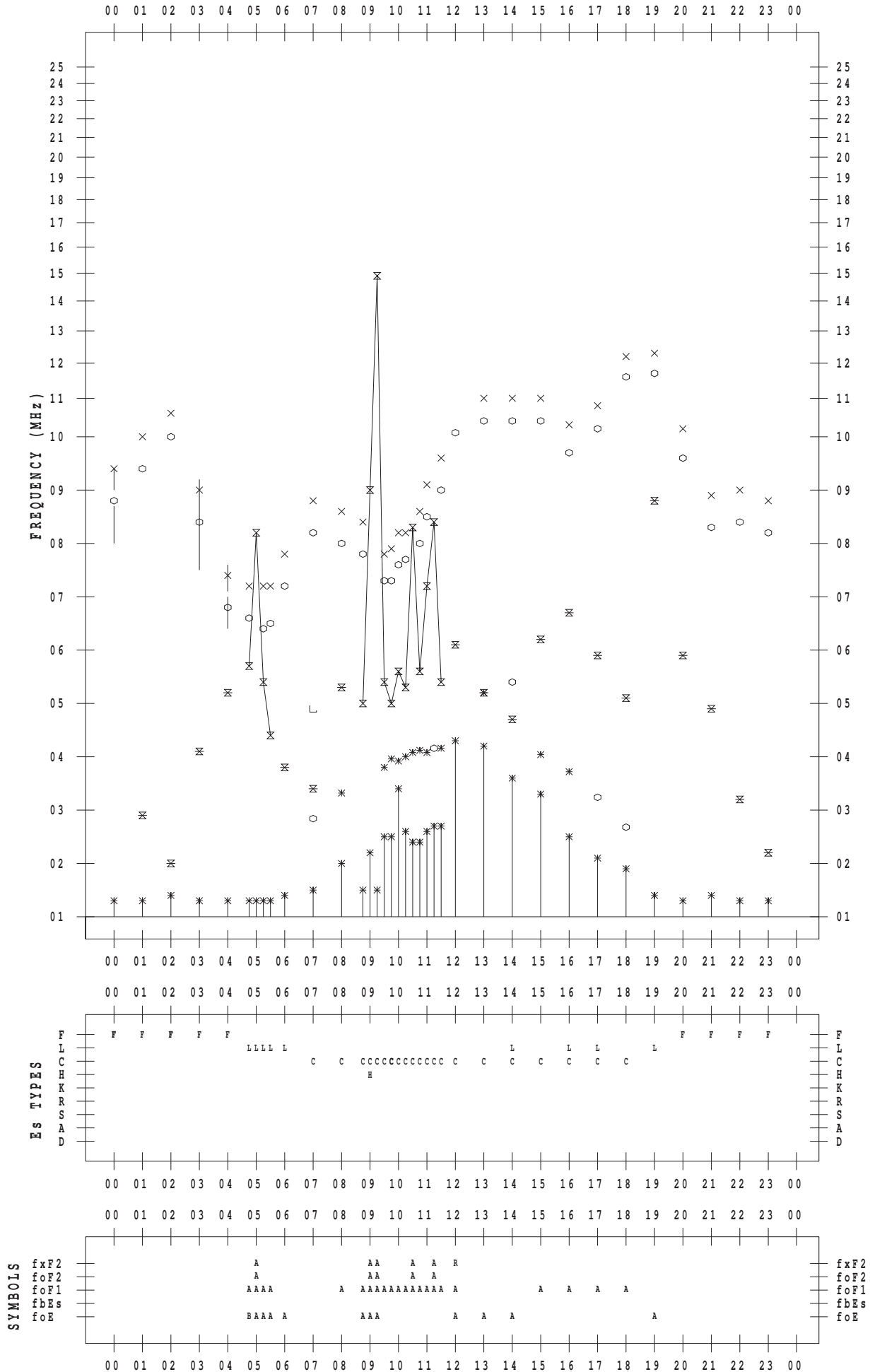
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2014 / 6 / 14

135 ° E MEAN TIME



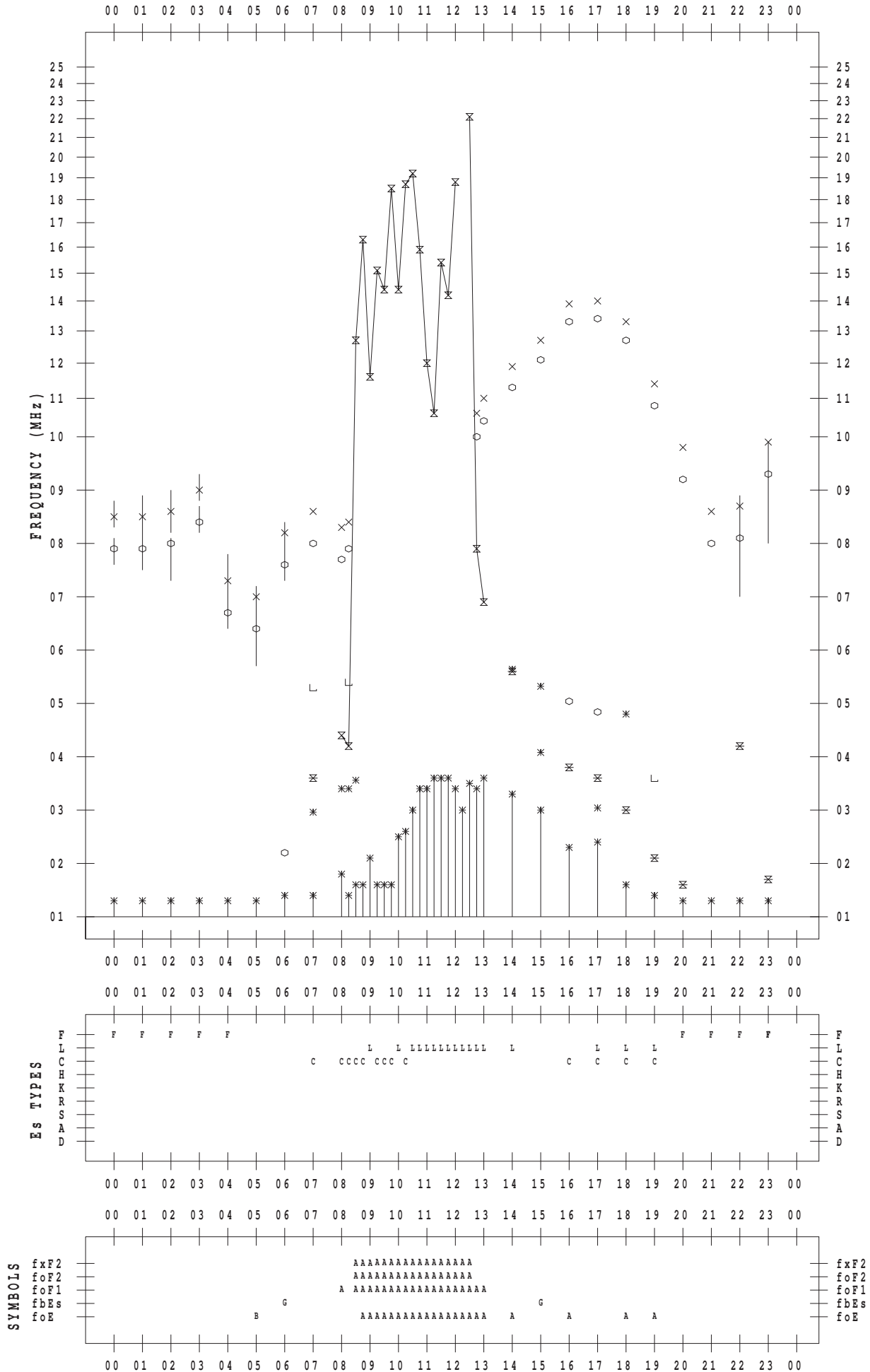
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2014/ 6/15

135 ° E MEAN TIME



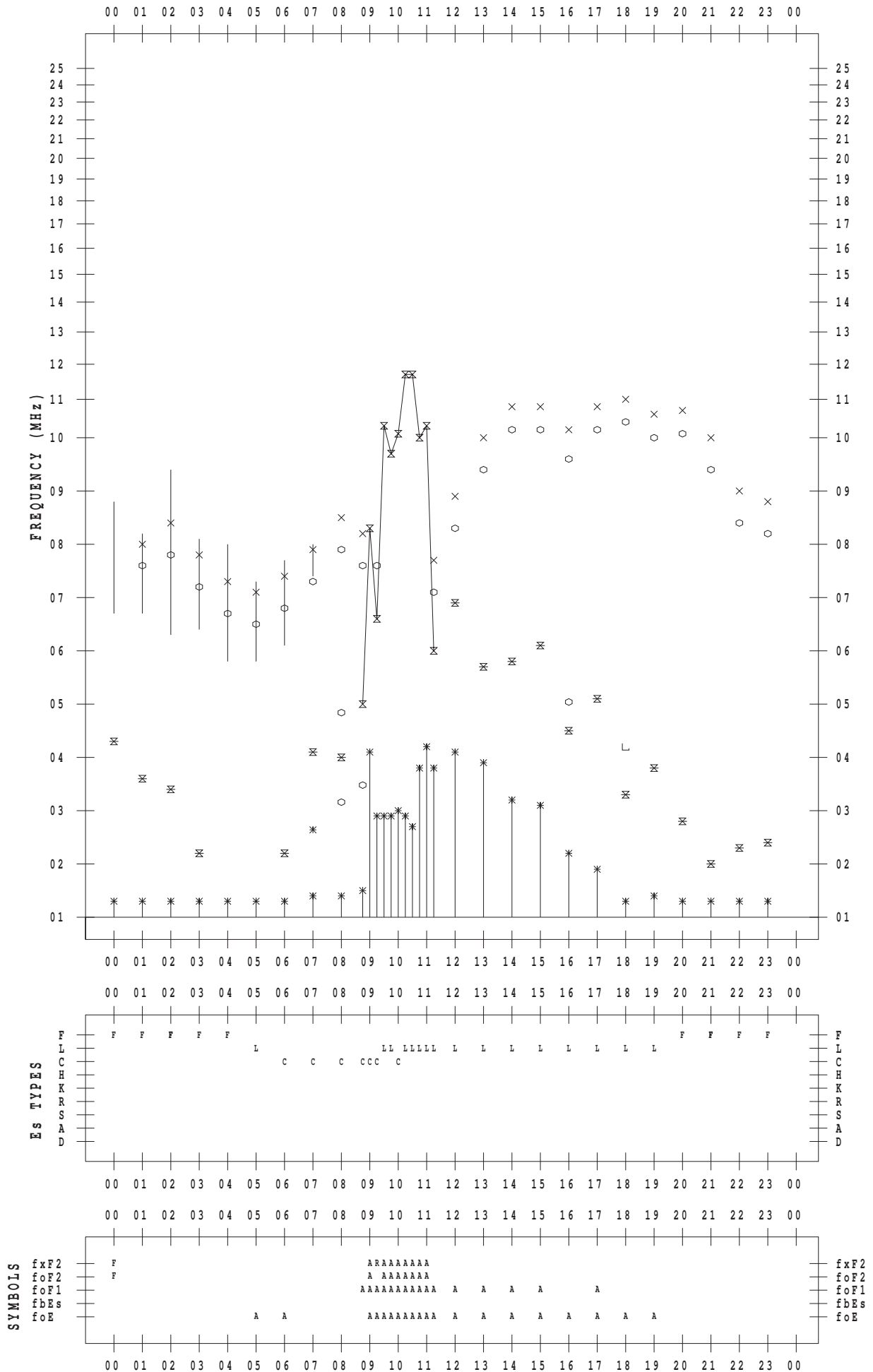
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2014 / 6 / 16

135 ° E MEAN TIME



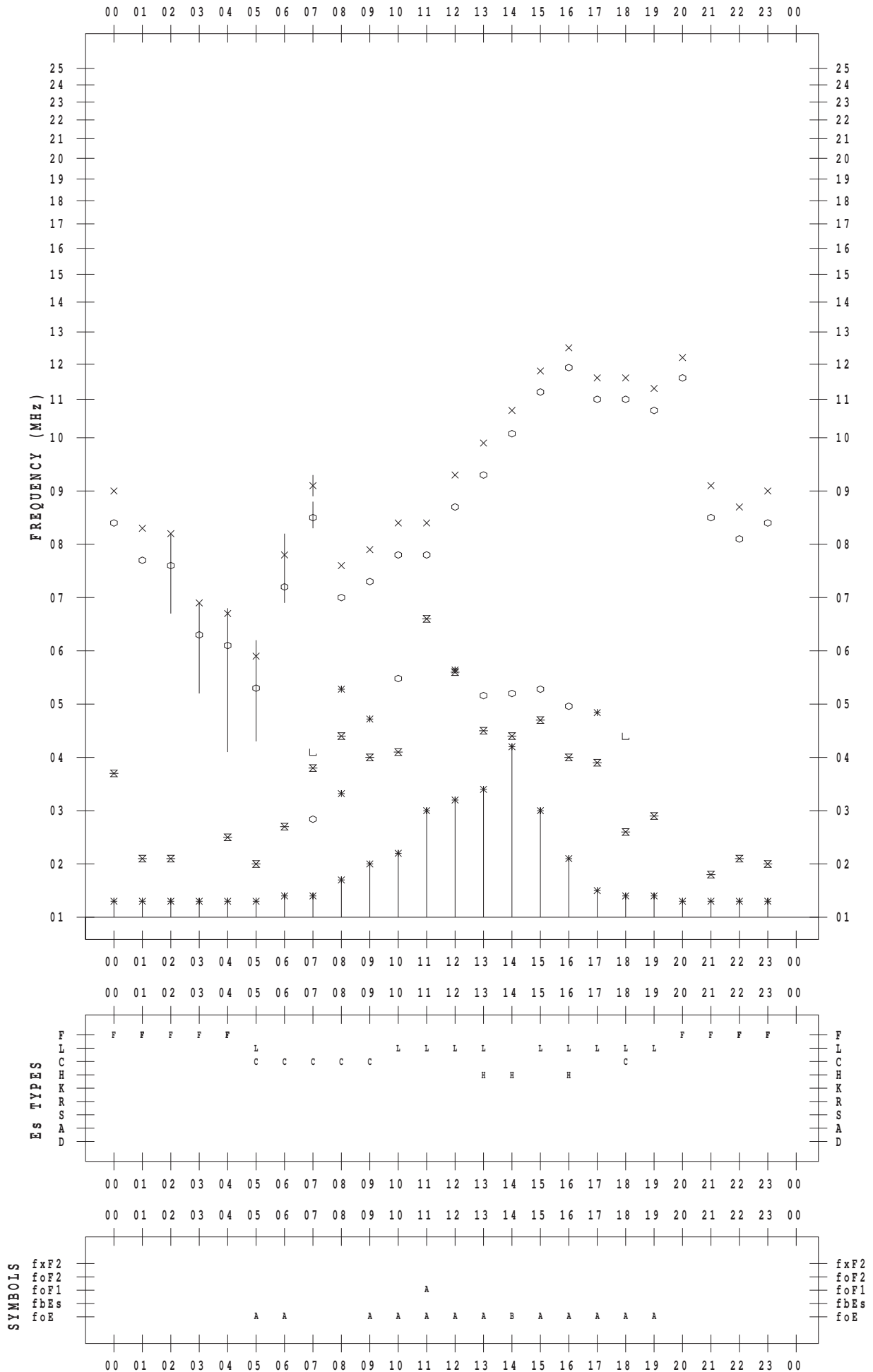
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2014 / 6 / 17

135 ° E MEAN TIME



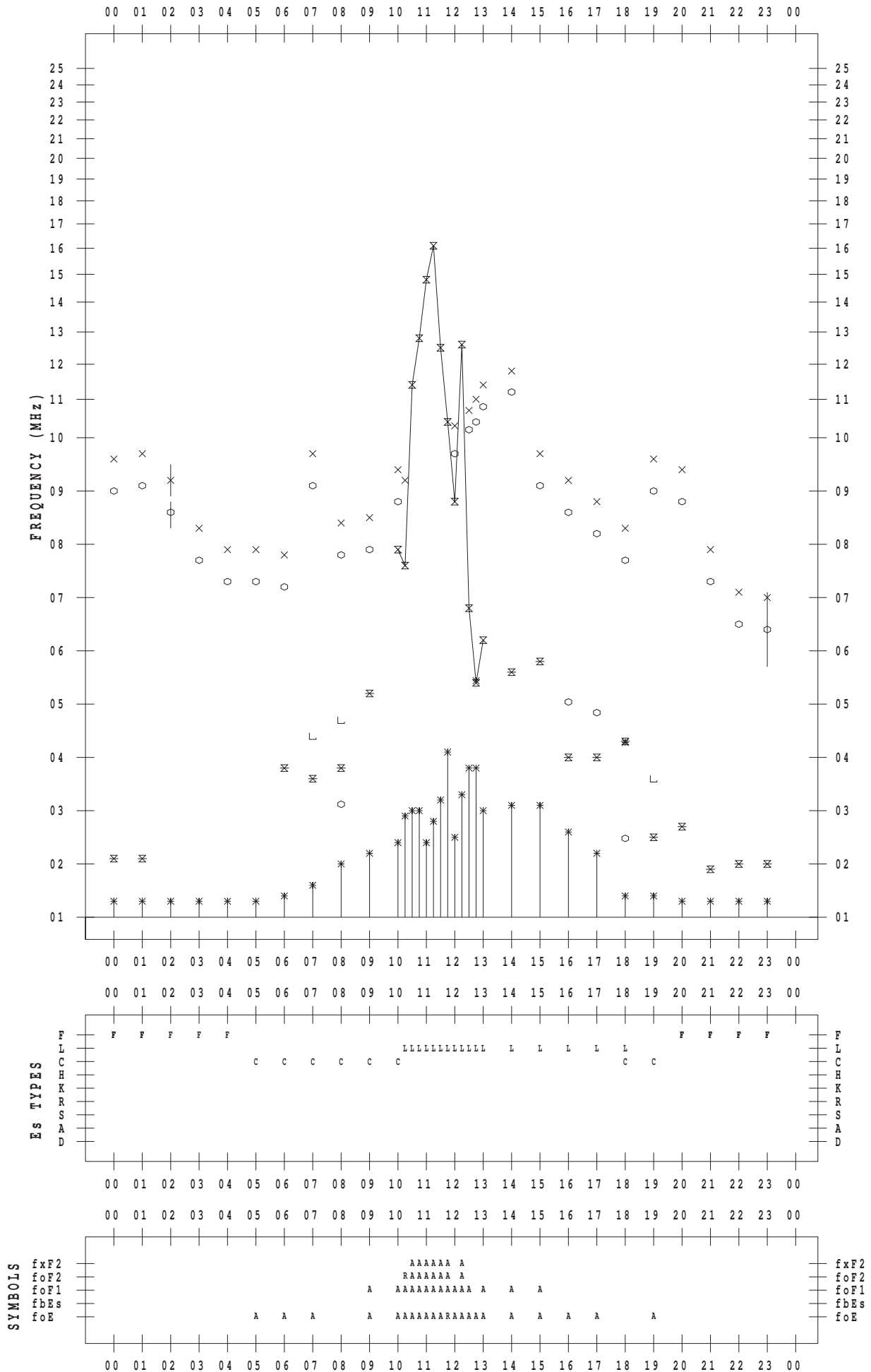
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2014 / 6 / 18

135 ° E MEAN TIME



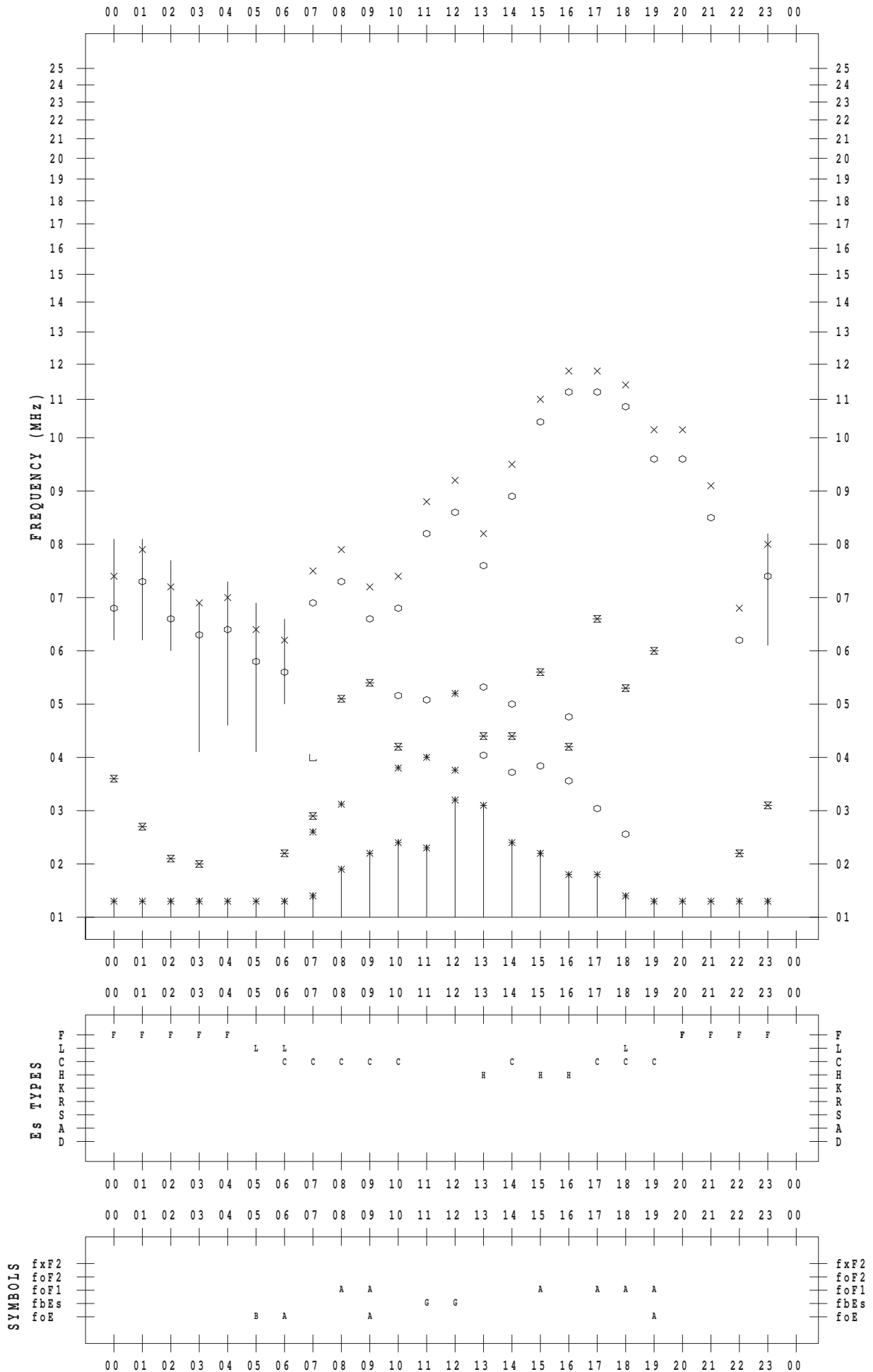
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2014 / 6 / 19

135 ° E MEAN TIME



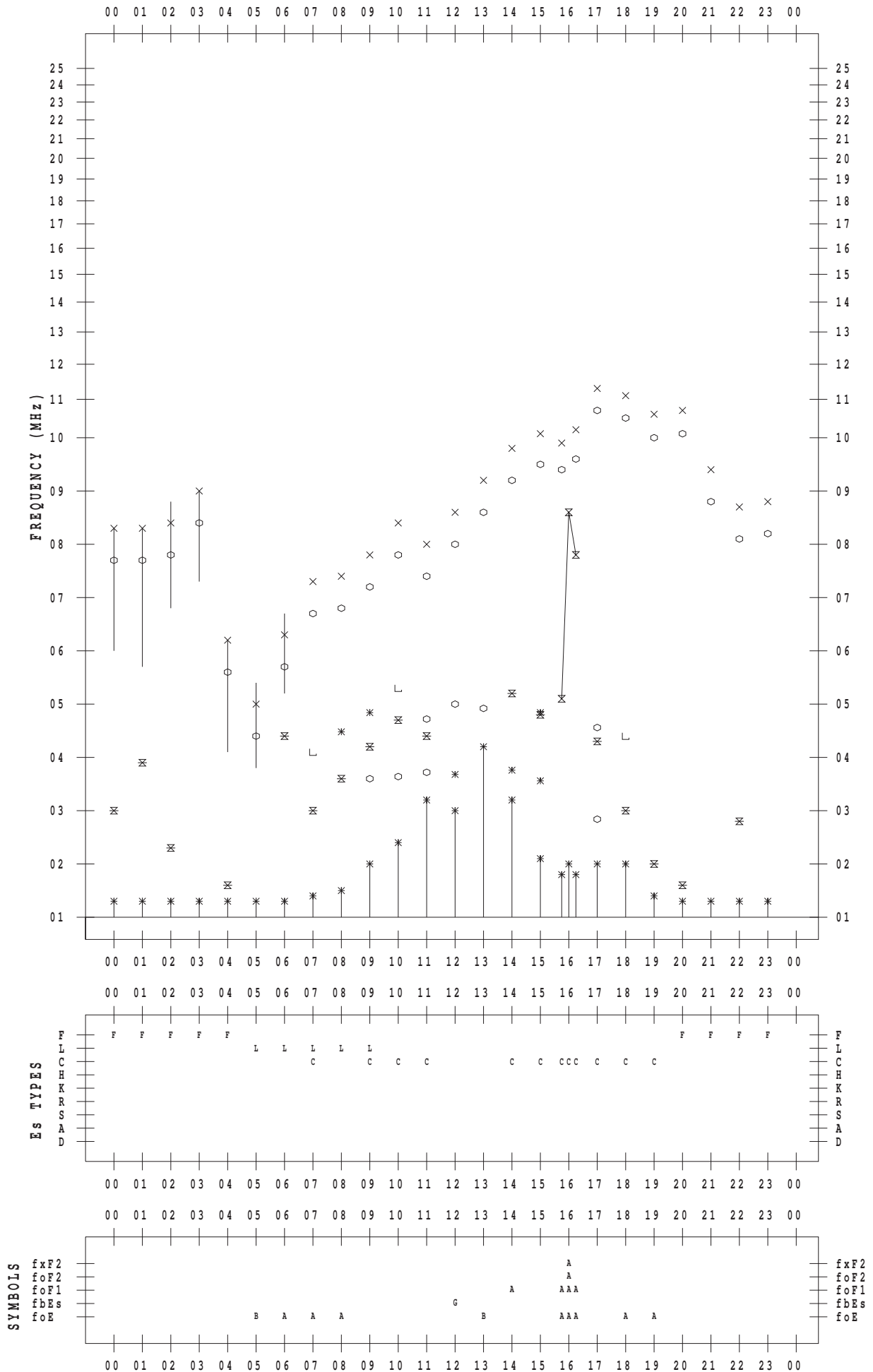
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2014 / 6 / 20

135 ° E MEAN TIME



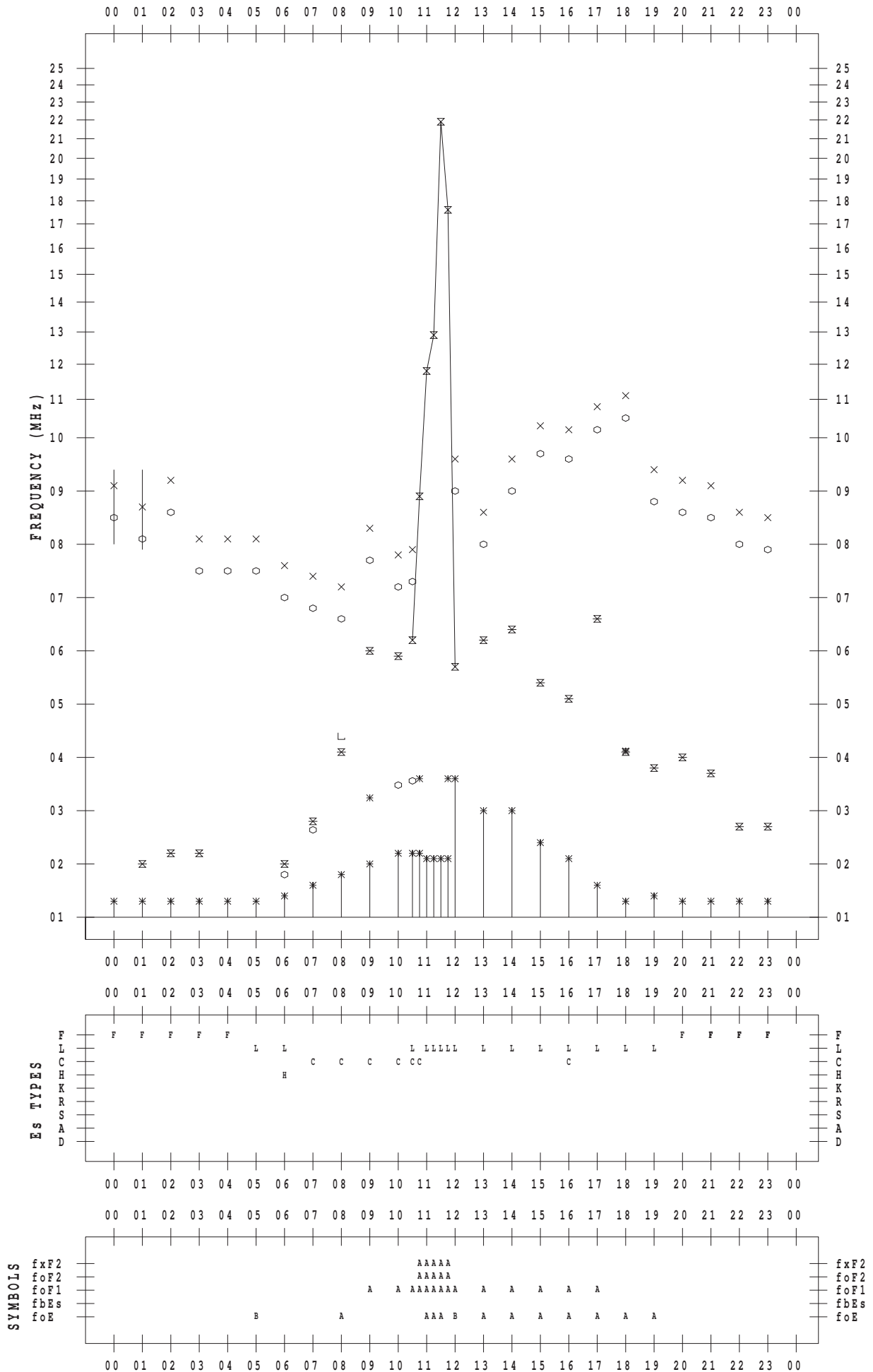
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2014 / 6 / 21

135 ° E MEAN TIME



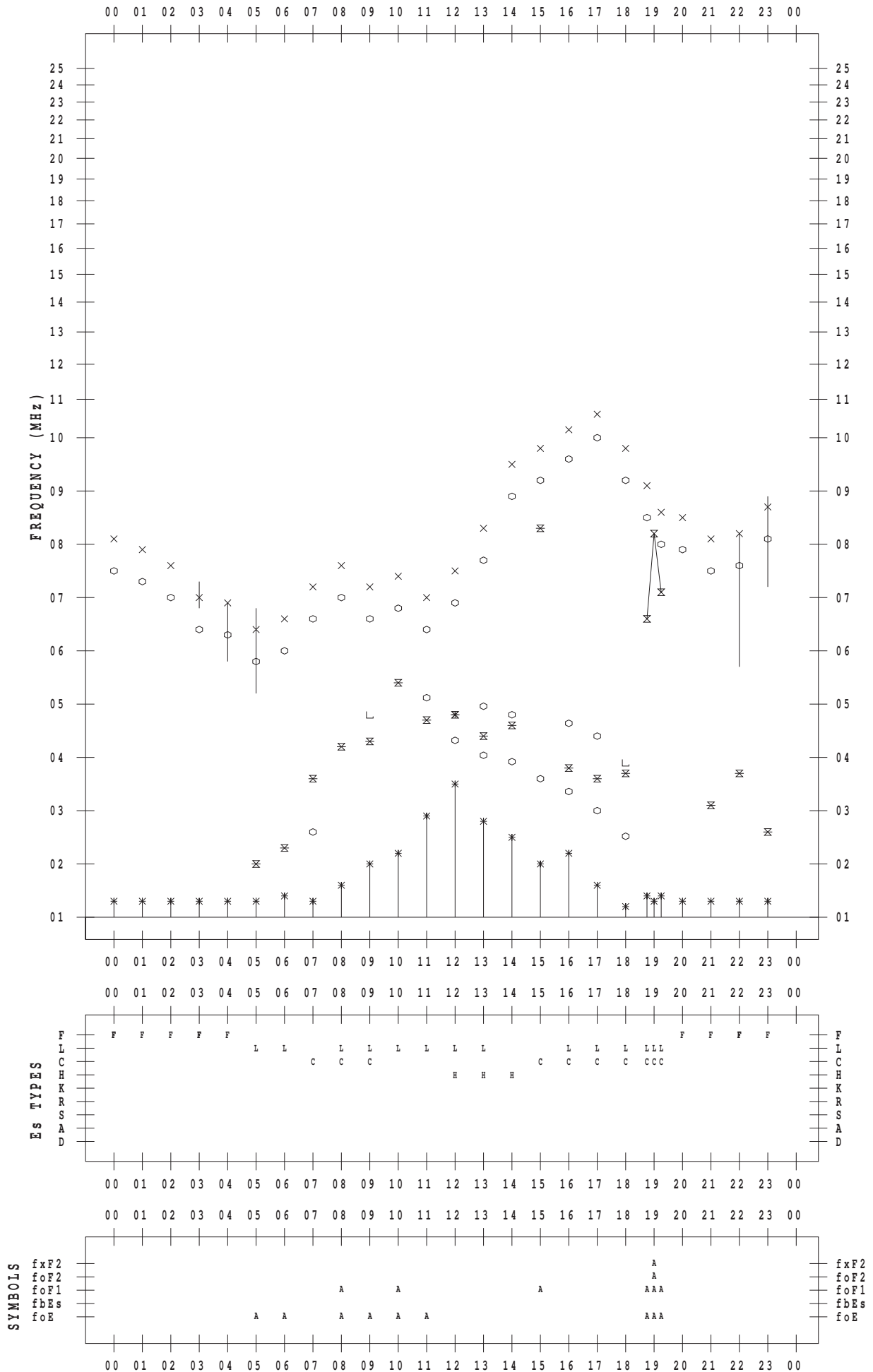
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2014 / 6 / 22

135 ° E MEAN TIME



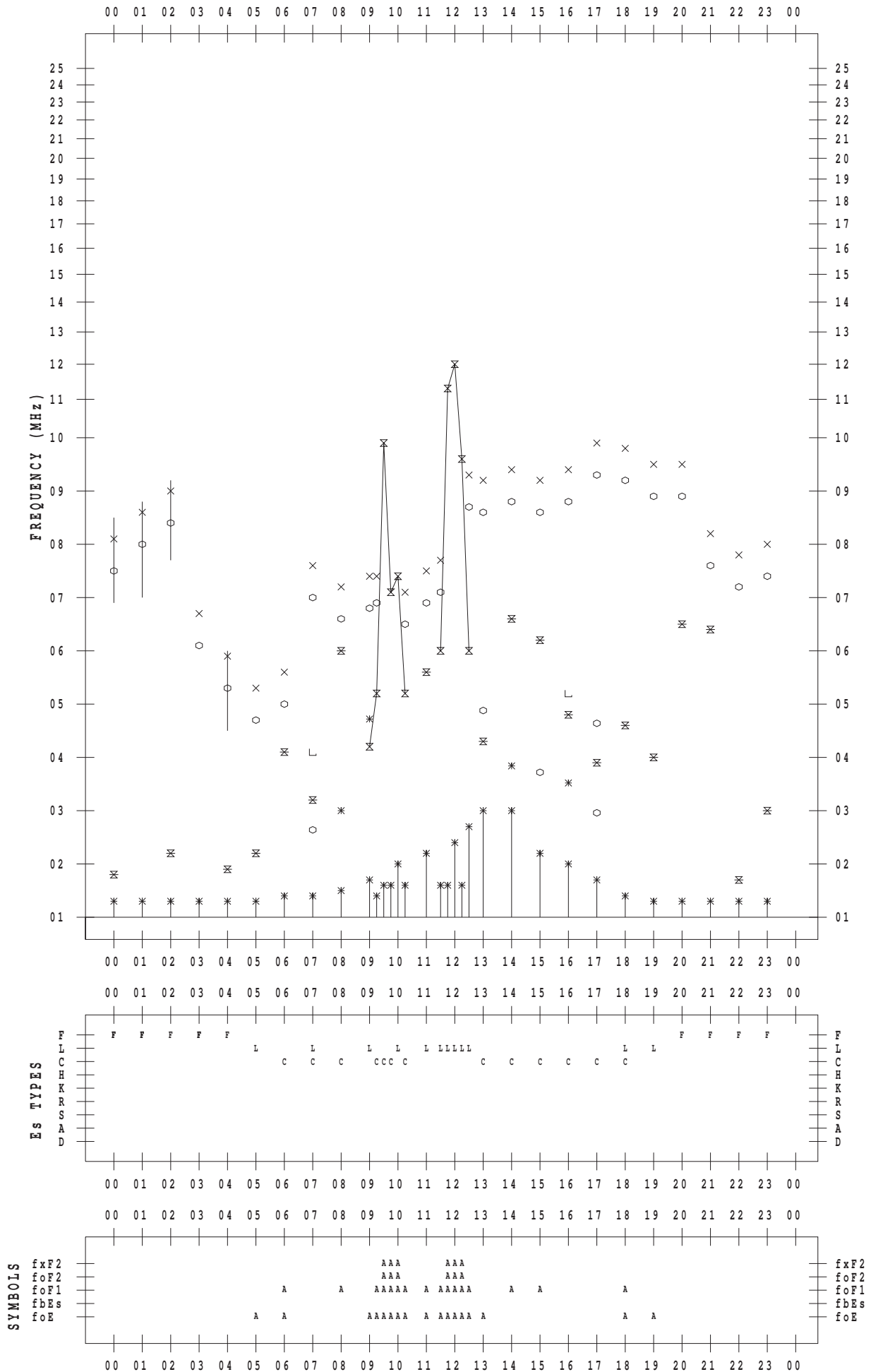
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2014 / 6 / 23

135 ° E MEAN TIME



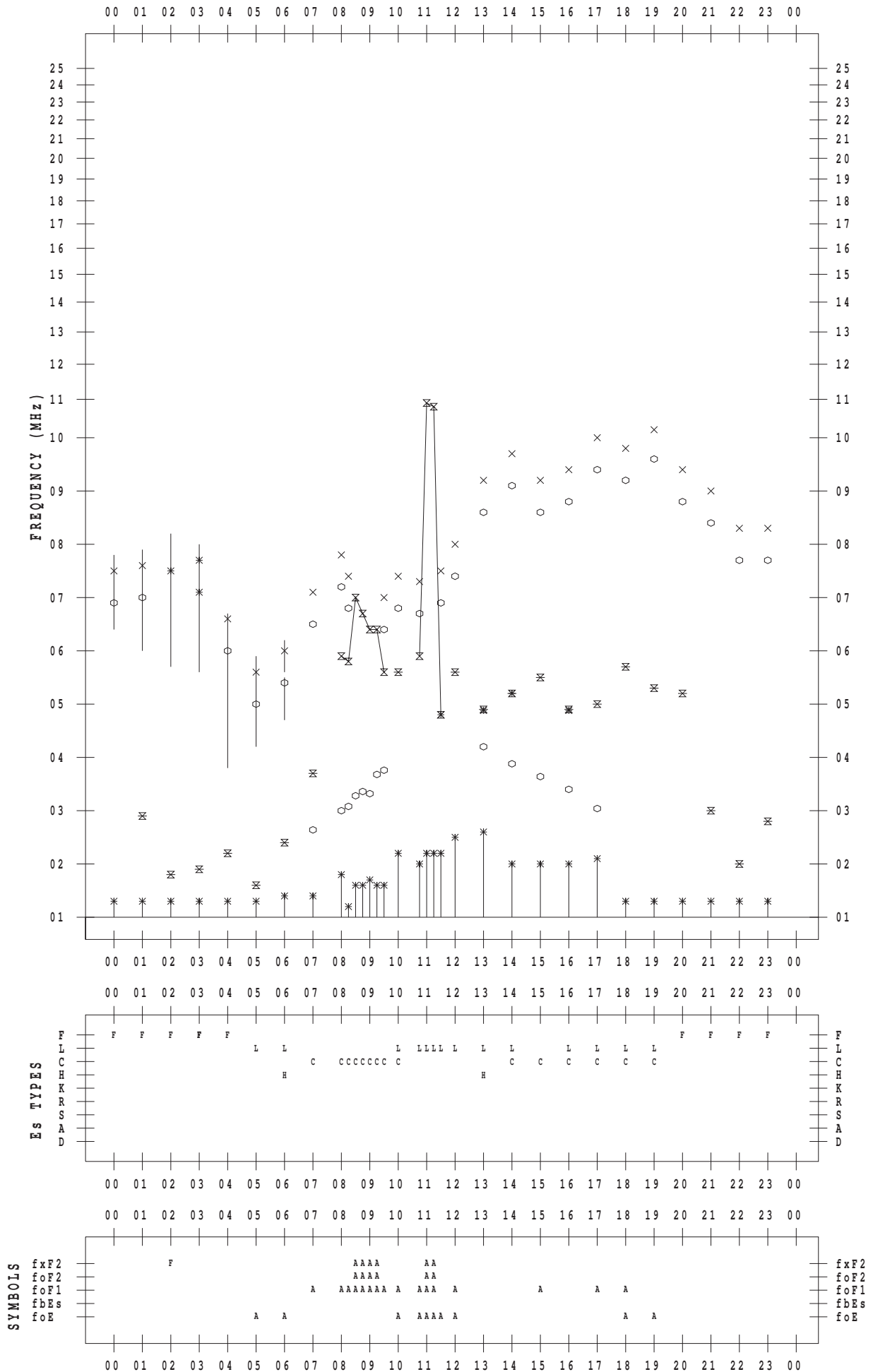
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2014 / 6 / 24

135 ° E MEAN TIME



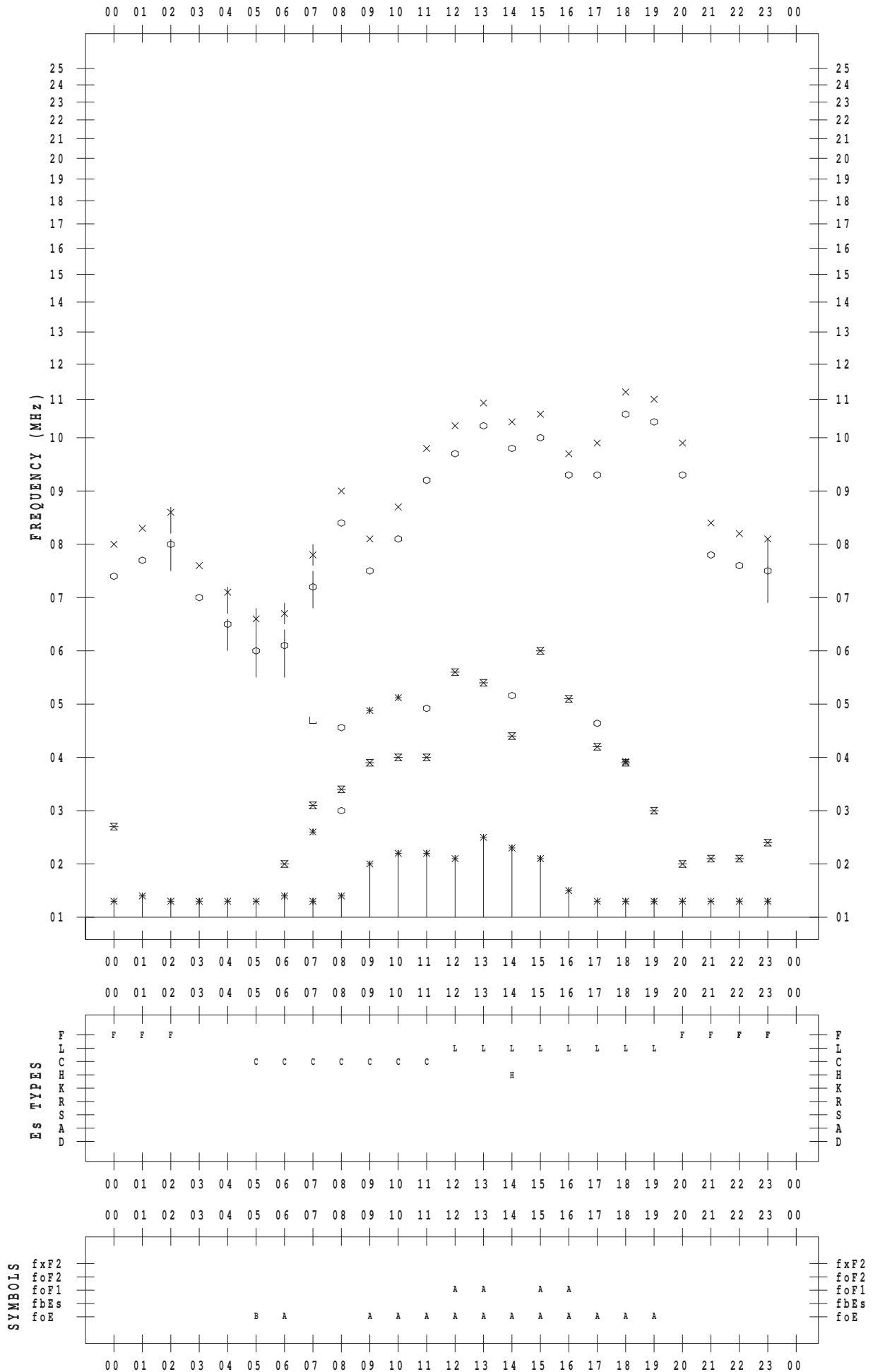
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2014 / 6 / 25

135 ° E MEAN TIME



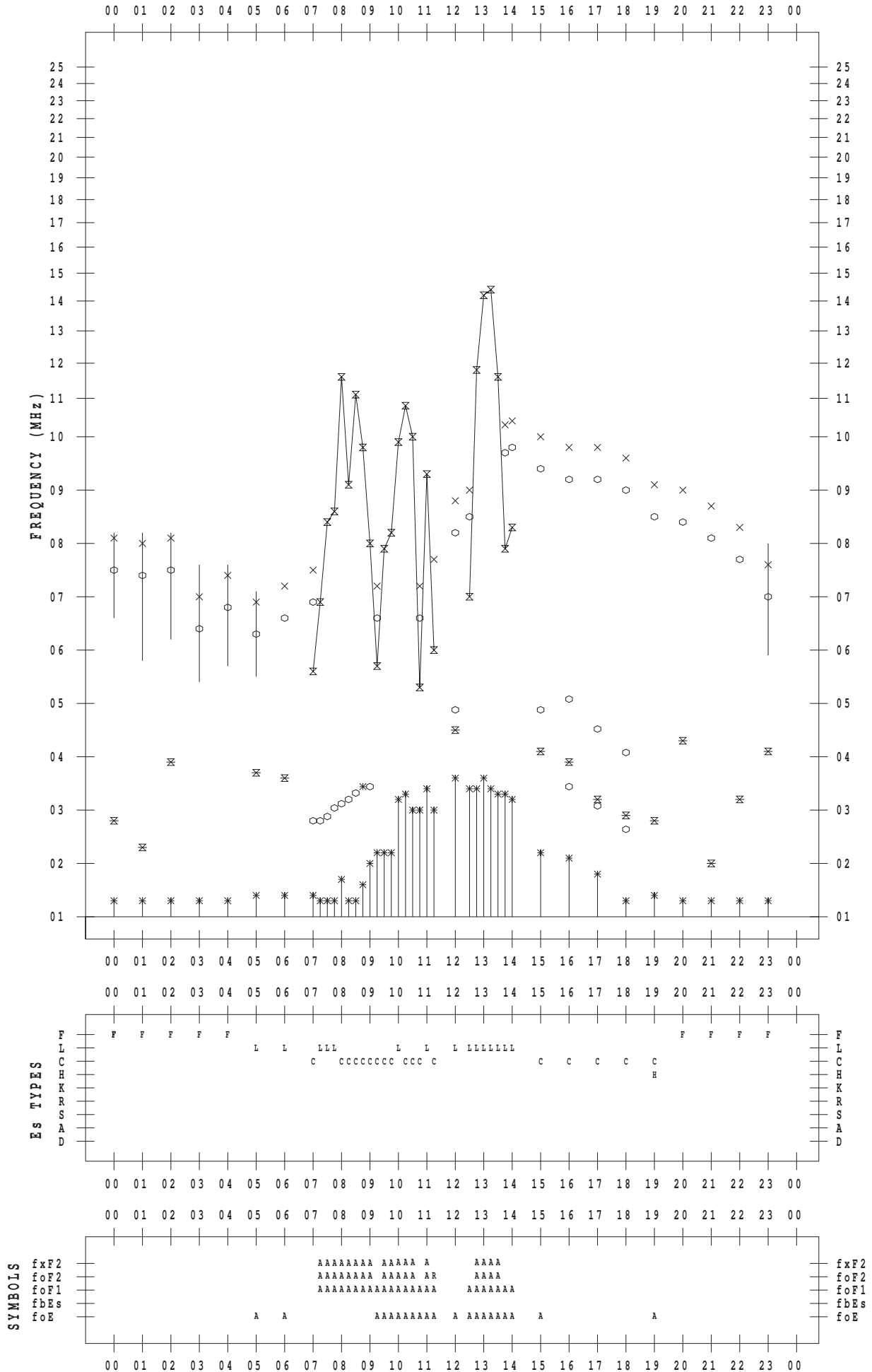
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2014 / 6 / 27

135 ° E MEAN TIME



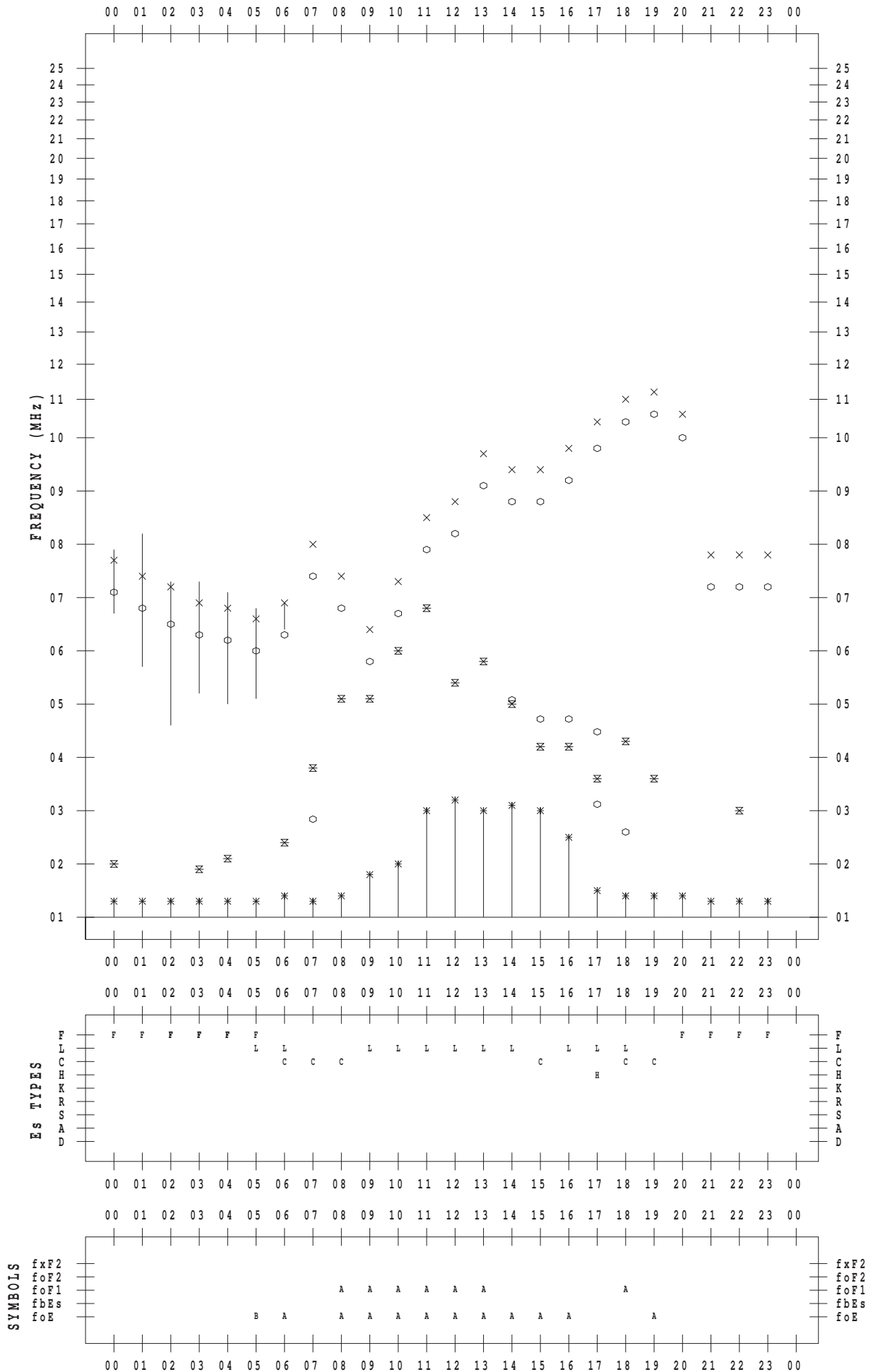
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2014 / 6 / 28

135 ° E MEAN TIME



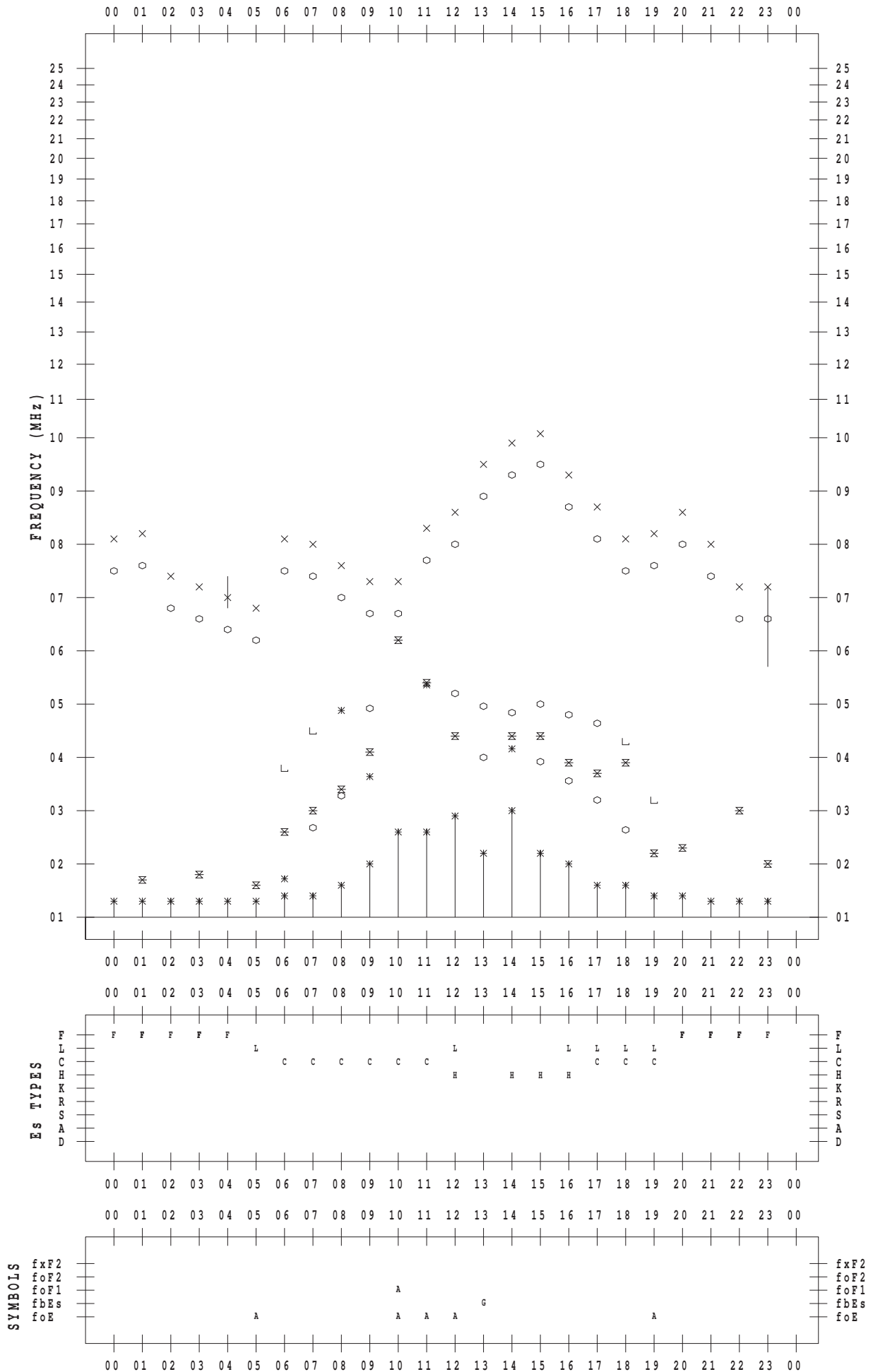
f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2014 / 6 / 29

135 ° E MEAN TIME



f-PLOT DATA

SCALER : I.YAMAZAKI

STATION : Okinawa

DATE : 2014 / 6/30

135 ° E MEAN TIME

